



General Aviation

AIRCRAFT AIR FILTERS

Cleaning Instructions for FAA-PMA Dry-Type Filters
& Replacement Filter Application Information

Document Number P469075* Rev 8

Thank you for choosing Donaldson replacement air filters. Donaldson air filters are specially designed for your aircraft engine. To properly maintain your air intake system, please follow the recommended service guidelines and cleaning instructions detailed in this document.

GENERAL SERVICE GUIDELINES

Storage

When storing new and cleaned air filters, be sure they are protected from dust and potential damage.

Recommended Service Schedule

Replace your air filter after three years, five cleanings or 500 flight hours; whichever occurs first.

DO NOT over-service the filter. Over-servicing increases the risk of damage to the air filter from excessive handling and unnecessarily exposes the engine to dirty air.

Service Guidelines

Maintain the filter housing and air transfer duct so there are no dust leaks to the engine.

- DO NOT install a wet air filter on the engine; i.e., after cleaning.
- DO NOT clean or reuse damaged filters.
- DO NOT use solvents or gasoline to clean filters. Put a mark on the filter each time it is cleaned to keep track of the number of cleanings.
- DO NOT apply oil to the filter before or after servicing.

PRE-FLIGHT INSPECTION

Visually inspect the air filter without removing it from the housing during each pre-flight inspection. Remove and clean the filter only if excessive dust or other contaminants are visible.



CLEANING INSTRUCTIONS

The air filter can be cleaned either by compressed air or washing in a solution of water and detergent (any general purpose detergent may be used). The compressed air cleaning method is recommended when the air filter has only dust on it. Washing is recommended when the air filter contains a combination of dust and oil or carbon. The instrument air filters (noted on back page) are NOT cleanable.

COMPRESSED AIR CLEANING

1. To prevent damage to the air filter, use compressed air less than 10 psi, and keep the nozzle at least one inch away from the filter.
2. Blow the compressed air through the filter in the direction opposite the normal airflow (opposite the airflow arrow).
3. Blow air through the filter until no more dust is being removed. The filter is ready for inspection.

Detergent & Water Cleaning

1. Remove loose dust by running water through the filter in the opposite direction of the normal airflow. Use a gentle water stream of less than 40 psi.
2. Mix 1 ounce of detergent per 2 gallons of water, warm or cold, soft or hard (one cup per 16 gallons). Soak the filter in the solution for 15 minutes. Do not soak more than 24 hours. Swish the filter element around in the solution to help remove dirt.
3. Rinse the filter opposite the airflow with a gentle stream of water (less than 40 psi) to remove all suds and dirt. If the clean side has been contaminated with dirty water during the soak cycle, rinsing from both sides will be necessary.
4. Dry the filter thoroughly before reuse. Warm air of less than 160°F must be circulated. Do not use a light bulb to dry the filter. The filter is now ready for inspection.

Inspection

1. Look through the filter toward a bright light. Inspect the filter thoroughly from all sides for holes and tears in the filter media.
2. Check the filter for damaged metal parts. DO NOT reuse damaged filters.
3. If your filter contains a gasket, inspect the gasket for damage. If it is not smooth and flat, replace the gasket, because the seal may not be air tight. If your filter does not contain gaskets, be sure the sealing surface is smooth and flat.

INSTALLATION

1. Inspect the housing surface on which the filter seals. It must have a clean, smooth and flat surface.
2. Reinstall the filter. Be sure it is mounted securely and there are no dust leaks past the edge of the filter and gasket.
3. This a dry-type filter – DO NOT apply oil to the filter.

FAA/PMA Eligibility List

Donaldson Part Number	OEM Part & Serial Numbers
CESSNA	
P10-7150	C-294510-0201
120, 140, A.....	ALL
150, 150A-H, J-M.....	ALL
F150G-H, J-M.....	ALL
A150K-M.....	ALL
FA150K-L.....	ALL
152, A152.....	ALL
F152, FA152.....	ALL
P10-7172	C-294510-0301
170, 170A-B.....	ALL
172, 172A-I.....	ALL
172K-N, P, Q.....	ALL
F172D-H, K-N, P.....	ALL
P198281	P198281, CA3559
172S.....	.08001 & ON
172R.....	80001 thru 88816, 80018 thru 80585 (if SB98-71-02 is complied with)
172R.....	80586 & ON
P10-7336	C-294510-0401
FR172E-H, J-K.....	ALL
R172K.....	ALL
T41A-D.....	ALL
AM102635EA*	C-294510-0401
R172E-H, J, K.....	ALL
P10-8337	C-294510-0501
AM102035FP*	C-294510-0501
172RG.....	ALL
P11-0172	C-294510-0601
AM107635FP*	C-294510-0601
177, A-B.....	ALL
177RG.....	ALL
P10-6150**	0750038-4
180A-H, J-K.....	ALL
182, 182A-R.....	ALL
182S.....	18280945 & UP
182T, T182T.....	ALL
185, 185A-E.....	ALL
A185E, A185F.....	ALL
F182P-Q.....	ALL
P198290	P198290, CA3717
182S.....	80001 thru 80244 (if SB98-71-02 is complied with)
182S.....	80245 thru 80944
P13-1367	C-294510-0901
R182.....	ALL
T182.....	ALL
TR182.....	ALL
P10-7188	C-294510-0101
188, A.....	ALL
188B.....	thru 18801825
A188, A.....	ALL
A188B.....	thru 18801825
P11-2206	1250704-3
U206F.....	U20602200 & UP
U206G.....	ALL
207, A.....	ALL
210G-H, J-N, R.....	ALL
AM102135FP	1250704-3
206.....	ALL
207.....	ALL
210.....	ALL
AM102235FP	1250704-4
210.....	ALL
P11-3206	1250704-4
T210K-M.....	ALL
T210N.....	thru 21064135

Donaldson Part Number	OEM Part & Serial Numbers
P10-7210	1250846-1
TU206A-G.....	ALL
TP206A-E.....	ALL
T207, A.....	ALL
T210G-H, J-N.....	ALL
T210R.....	ALL
AM101935FP*	1250846-1
TP206A-G.....	ALL
T207, A.....	ALL
T210G-H, K-N.....	ALL
210-5, A.....	ALL
P13-1364	C-294510-0801
T210N.....	21064136 & UP
T210R.....	ALL
TP210N.....	ALL
TP210R.....	ALL
P197268	P197268
T206H.....	ALL
P10-7336	C-294510-0401
337E-H.....	ALL
P10-9337	C-294510-0701
337E-H.....	ALL
P337G, H.....	ALL
T337E-H.....	ALL
AM102335FP	C-294510-0701
337, 337A-H.....	ALL
T337 B-H.....	ALL
P337H.....	ALL
T337-SP.....	ALL
P10-8337	C-294510-0501
T337E-H.....	ALL
AM102035FP*	C-294510-0501
337, 337A-H.....	ALL
T337 B-H.....	ALL
P337H.....	ALL
T337-SP.....	ALL
P13-8988	C-294510-1001
P14-8670	C-294510-0902
T303.....	ALL
AM102735EA	9910018-2
310L, N, P, Q.....	ALL
T310L, N, P, Q.....	ALL
320D-F.....	ALL
401, A-B.....	ALL
402, A-B.....	ALL
P12-6138	9910200-1
AM102935EA*	9910200-1
310R.....	ALL
P10-8421	9910018-1***
T310R.....	ALL
310P, Q (w/SK402-27).....	ALL
320, A-F (w/SK402-27).....	ALL
335.....	ALL
401, A-B (w/SK402-27).....	ALL
402, A-B (w/SK402-27).....	ALL
402B.....	0801 & UP
421, A-C.....	ALL
AM106735EA*	9910018-1***
T310R.....	ALL
310P, Q (w/SK402-27).....	ALL
320, A-F (w/SK402-27).....	ALL
401, A-B (w/SK402-27).....	ALL
402, A-B (w/SK402-27).....	ALL
402B.....	0801 & UP
421, A-C.....	ALL
P12-8156	9913001-1
340, 340A.....	ALL
414, 414A.....	ALL
402C.....	ALL

Donaldson Part Number	OEM Part & Serial Numbers
P12-8157	9910141-1
AM103035EA*	9910141-1
404.....	ALL
BEECHCRAFT	
P12-2322	169-380064-3
B19.....	MB866 & UP
C23.....	M1971, M1980 & UP
C24R.....	MC533, MC537 & UP
P617058	169-380011
19A.....	ALL
23.....	ALL
A23.....	ALL
A23A.....	ALL
A23-19.....	ALL
B23.....	ALL
A23-24.....	ALL
P13-0374	45-921210, 13917
35-33.....	ALL
35-B33.....	ALL
35-C33.....	ALL
E33.....	ALL
F33.....	ALL
B35.....	D-2606 thru D-2631
C35.....	ALL
D35.....	ALL
E35.....	ALL
F35.....	ALL
G35.....	ALL
H35.....	ALL
J35.....	ALL
K35.....	ALL
M35.....	ALL
N35.....	ALL
P35.....	ALL
P10-2646	35-380035-3
S35.....	D7310-D7626, D7643 thru D7650, D7671
P10-5304	35-380035-1, 35-380035-5
36.....	E-1 thru E-184
A36.....	E-185 thru E-1304
C33A.....	ALL
E33A.....	ALL
F33A.....	CE-290 thru CE-792
F33C.....	CJ-26 thru CJ-148
G33.....	CD-1255 thru CD-1304
S35.....	D-7627, D7634 thru D-7650, D-7672 thru D-7976
V35.....	D-7977 thru D-8598
V35A.....	D-8599 thru D-9068
V35B.....	D-9069 thru D-10151
V35TC.....	D-9069 thru D-10151
P13-7627	35-380035-7
A36.....	E-1305 thru E-3635
A36TC.....	ALL
B36TC.....	ALL
F33A.....	CE-793 & UP
F33C.....	CJ-149 & UP
V35B.....	D-10152 & UP
V35TC.....	D-10152 & UP
P13-6680	105-389000-3
76.....	ALL
P13-3881	P133881
77.....	ALL
P12-8219	P12-8219, 122601, AM101020FP
95-55.....	TC-1 & UP
95-A55.....	ALL
95-B55, B55A.....	thru TC-2456

FAA/PMA Eligibility List

Donaldson Part Number	OEM Part & Serial Numbers
P12-7996	P12-7996, 121128-2, AM101120FP
95-C55, C55A	TE-1 & UP
D55, D55A	ALL
E55, E55A	thru TE-1079
58	TH-1 thru TH-740
P12-8167	96-389005-1
E55, E55A	TE-1079 & UP
58	TH-741 & UP
P10-8700	50-389070-15
56TC	TG1 thru TG51
60, A60	P4 thru P246
B60	P247 & UP
AM101820FP	50-389070-15
56TC	ALL
60, A60	ALL
P12-4439	50-389070-23
58P	TJ3 & UP
58TC	ALL
P10-5798	50-389070-11
A65	LC240 & UP
70	All
B80	LD270 thru LD327
AM101720FP	50-389070-11
A65	LC-240, LC-335
70	LB-1 thru LB-35
65-B80	LD-270 thru LD-511
65-88	LP-1 thru LP-26, LP-28, LP-30 thru LP-47

PIPER

P10-7150	
J-3	ALL
J3C-65	ALL
J3C-65S	ALL
J4A, A-S, E	ALL
J5A	ALL
J5A-80	ALL
PA-11, S	ALL
PA-12, S	ALL
PA-16, 17	ALL
PA-18, -105	ALL
PA-18A	ALL
PA-18S	ALL
PA-18-"125"(Army L-21A)	ALL
PA-18AS-"125"	ALL
PA-18S-"125"	ALL
PA-18AS-"135"	ALL
PA-18S-"135"	ALL
PA-18-"135"	ALL
PA-18-"150"	ALL
PA-18A-"150"	18-1 thru 18-6963
PA-18S-"150"	ALL
PA-18A (Restricted)	ALL
PA-18A-"135" (Restricted)	ALL
PA-18A-"150" (Restricted)	18-1 thru 18-6963
PA-19	ALL
PA-20, -115, -135	ALL
PA-22	ALL
P11-4419	26874-00, 460-889
PA-23-250	Lycoming Turbo only
PA-24-260	24-4783, 24-4804 through 24-5034

Donaldson Part Number	OEM Part & Serial Numbers
P617058	PS60007-2, 460-632, 89308, CA161PL, AFP-2, 638873
PA-23-250	27-01 through 27-2504
PA-23-235	27-505 through 27-622
PA-24	24-1477 and up
PA-24-250	24-1477 and up or 24-103 through 24-3687 if carburetor air filter kit 754 285 has been installed
PA-24-260	24-3642, 24-4000 through 24-4782, 24-4784 to 24-4803
PA-25-150	ALL
PA-28-140	ALL
PA-28-150	ALL
PA-28-160	ALL
PA-28-180	ALL
PA-28-181	ALL
PA-28-235	ALL
PA-28-201T	ALL
PA-28R-201T	ALL
PA-28RT-201T	ALL
PA-32-260	ALL
PA-32-300	32-7640001 and up
PA-32R-300	ALL
PA-32-301	ALL
PA-32RT-300	ALL
PA-32R-301 (SP)	ALL
PA-32R-301 (HP)	ALL
PA-32-301FT	ALL
PA-34-200T	ALL
PA-34-220T	ALL
PA-36-285	ALL
PA-36-300	ALL
PA-36-375	ALL
P617053	PS60007-1, 460-630, 89309, CA144PL, AFP-1, 638876
PA-28R-180	ALL
PA-28R-200	ALL
PA-28R-201	ALL
PA-28RT-201	ALL
PA-28RT-201T	ALL
PA-30	ALL
PA-34-200	ALL
PA-39	ALL
PA-44-180	ALL
P617774	460-629, 32198-00, CA162, BA-115, 6487894
PA-23-250	27-2505 and up
PA-E23-250	ALL
PA32-300	32-40000 to 32-7540198
P13-6602	560-854
PA-28-236	28-7911001 thru 28-7911282
P13-8683	560-904
PA-28-236	28-7911283 & UP
P10-6590	460-817, 560-747
PA-31	ALL
PA-31-300	ALL
PA-31-325	ALL
PA-31-350	ALL
PA-31-1020	ALL
PA-32R-300T	ALL
AM105770FP	47075, 460-609
PA-31P	ALL
PA-31P-350	ALL

Donaldson Part Number	OEM Part & Serial Numbers
P13-6739	560-947
PA-32-301T, PA-32R-301T	32R-8029001 thru 32R-8629006, 3229003
P10-7150	P12-0494, 560-772
PA-38-112	ALL
P13-8580	86881-2, 560-953
PA-44-180T	ALL
P15-1936	PS60007-3, 561-020
PA-32R-301	ALL
PA-32R-301T	3257001 and ON
PA-32-301XTC	ALL
PA-46-310P	ALL
PA-46-350P	ALL

MOONEY

P10-7150	
M10	ALL
P10-7172	13219
M18C	ALL
M20	ALL
M20A-D, G	ALL
P13-0234	125997-010, BA6210
M20J	ALL
AM108365FP	P13-6287
M20K (231)	ALL
ED04011	600417-501
M20K (252)	25-1000 & ON
ED04028	600417-503
M20M	ALL
M20R	ALL
M20S	ALL

AERONCA

P10-7150	
65-CA	ALL
S65	ALL
S65CA	ALL
7AC, DC, EC, FC	ALL
7JC, KC	ALL
7ACA	ALL
7BCM (Army L-16A)	ALL
7CCM (Army L-16B)	ALL
7ECA	ALL
7GCAA	ALL
7GCBC	ALL
7KCAB	ALL
STAC	ALL
S7CCM	ALL
S7DC	ALL
S7EC	ALL

AVIAT

P10-7150	81630, 81631
A-1	ALL

AMERICAN CHAMPION

P10-7150	
7ACA	ALL
7ECA	ALL
7FC	ALL
P10-6150	P10-4145
7KCAB	ALL
8KCAB	ALL
7GCBC	ALL
8GCBC	ALL
7GCAA	ALL

BELLANCA

P10-6150

17-30.....ALL
14-19-3A.....ALL

P617058

**AF-2, BA-104,
6485710**

17-30A.....ALL

B-N GROUP LTD.

P617058

**AF-2, BA-104,
6485710**

BN-2.....ALL
BN-2A.....ALL
BN-2A-2.....ALL
BN-2A-3.....ALL
BN-2A-6.....ALL
BN-2A-8.....ALL
BN-2A-9.....ALL
BN-2A-20.....ALL
BN-2A-21.....ALL
BN-2A-27.....ALL
BN-2B-20.....ALL
BN-2B-21.....ALL
BN-2B-26.....ALL
BN-2B-27.....ALL

DIAMOND AIRCRAFT

P10-7172

BA5110

DA-40F.....ALL

GRUMMAN/TIGER

P10-7150 13203

AA-1.....ALL
AA-1A.....ALL
AA-1B.....ALL
AA-1C.....ALL
AA-5.....0001 thru 0640

LUSCOMBE

P10-7150 ALL

8, A-F.....ALL
T-8F.....ALL

MAULE

P10-7172 P12-6491

M-4, C, S, T.....ALL
M-4-180C, S.....ALL
M-4-220, C, S, T.....ALL
M-180T.....ALL
M-5-180C.....ALL
MX-7-160, 180.....ALL
M-5-210C, TC.....ALL
M-5-235C.....ALL
M-5-220C.....ALL
M-6-180.....ALL
M-6-235.....ALL
M-7-235.....ALL

SWIFT (GLOBE)

P10-7150

GC-1A.....ALL
GC-1B.....ALL

TAYLORCRAFT

P10-7150

BC65.....ALL
BCS-65.....ALL
BC12-65.....ALL
BCS12-65.....ALL
BC12-D1.....ALL
BCS12-D1.....ALL
BC12D85.....ALL
BCS12D85.....ALL
BC12D-4-85.....ALL
BCS12D-4-85.....ALL
BF65.....ALL
BF12-65.....ALL
BFS65.....ALL
19, F19, F21.....ALL
DC-65.....ALL
DCO-65.....ALL
F22, A-C.....ALL

UNIVAR/AIRCOUPE

P10-7150

A-2, A2-A.....ALL
F-1, F-1A.....ALL

VARGA

P10-7150

2150A.....ALL

Notes:

- * - "AM" model will be phased out and replaced by the "P" model listed immediately above
- ** - AM105635FP is replaced by P10-6150
- *** - All aircraft modified by SK402-27



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Hydraulic Filtration Product Guide

Spin-ons • Cartridges • In-tank • Low Pressure • Medium Pressure • High Pressure • Duplex • Accessories



Donaldson Delivers Performance Under Any Pressure!

Clean, dry oil is essential for your equipment.

Donaldson Company, a leader in filtration for over 100 years, has proven performance in thousands of applications – offering the industry's largest selection of replacement hydraulic, lube and gear oil filtration products for contamination control.

Distributed by:

How Donaldson Displays Filter Flow versus Pressure Loss Data

Pressure Drop (ΔP) Correction Formulae

To properly calculate pressure loss for viscosity and/or specific gravity, use the filter and housing formulae below to determine the clean filter assembly pressure drop.

Filter Correction Calculation

$$\Delta P \text{ Filter} = \Delta P \text{ from graph} \times \frac{\text{New Saybolt Seconds Universal Viscosity (SSU)}}{150} \times \frac{\text{New Specific Gravity (S.G.)}^*}{.90}$$

- or -

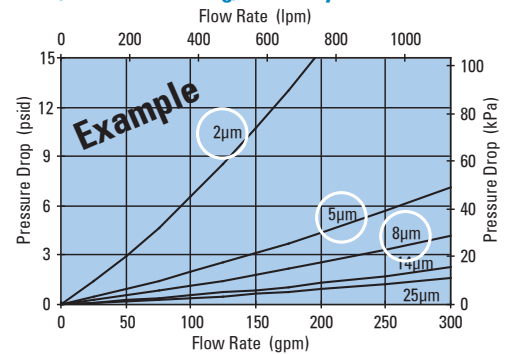
$$\Delta P \text{ Filter} = \Delta P \text{ from graph} \times \frac{\text{New Centistokes Viscosity (cSt)}}{32} \times \frac{\text{New Specific Gravity (S.G.)}^*}{.90}$$

Clean Filter Assembly Pressure Drop (ΔP) Calculation

$$\Delta P \text{ Clean Filter Assembly} = \Delta P \text{ head} + \Delta P \text{ filter}$$

*Specific gravity is 0.90 for most hydrocarbon based fluids

Filter, Head or Housing/Assembly Reference



Performance Curve Notes

- All flow measurements were made with 32cSt [150 SSU] hydraulic oil at 100°F (37.7°C), fluid specific gravity of 0.9.
- The performance curves displayed are for the filter, head or housing assembly.
- Filter performance curves will either list media numbers or beta ratings (see circled areas on chart above). These labels correspond with the filter choice tables.

The Importance of Temperature in Determining Pressure Drop

Fluid viscosity plays an important role in restricting the flow through filters. It's crucial to select the proper filter to maintain adequate flow and avoid excessive pressure drops. Measured in centiStokes (cSt) or Saybolt Seconds Universal (SSU or SUS), fluid viscosity is the resistance of a fluid to flow (thickness of fluid). Low viscosity fluids pass through filters with less resistance than high viscosity fluids. Higher fluid viscosities have higher pressure drops due to higher resistance passing through the media. The colder the fluid, the higher the viscosity, so the lowest potential temperature of the fluid is the best measure for calculating pressure drop.

Use the chart below to determine the viscosity of the fluid to be filtered at its lowest potential temperature.

Oil Kinematic Viscosity Combined With Temperature in Centistokes cSt

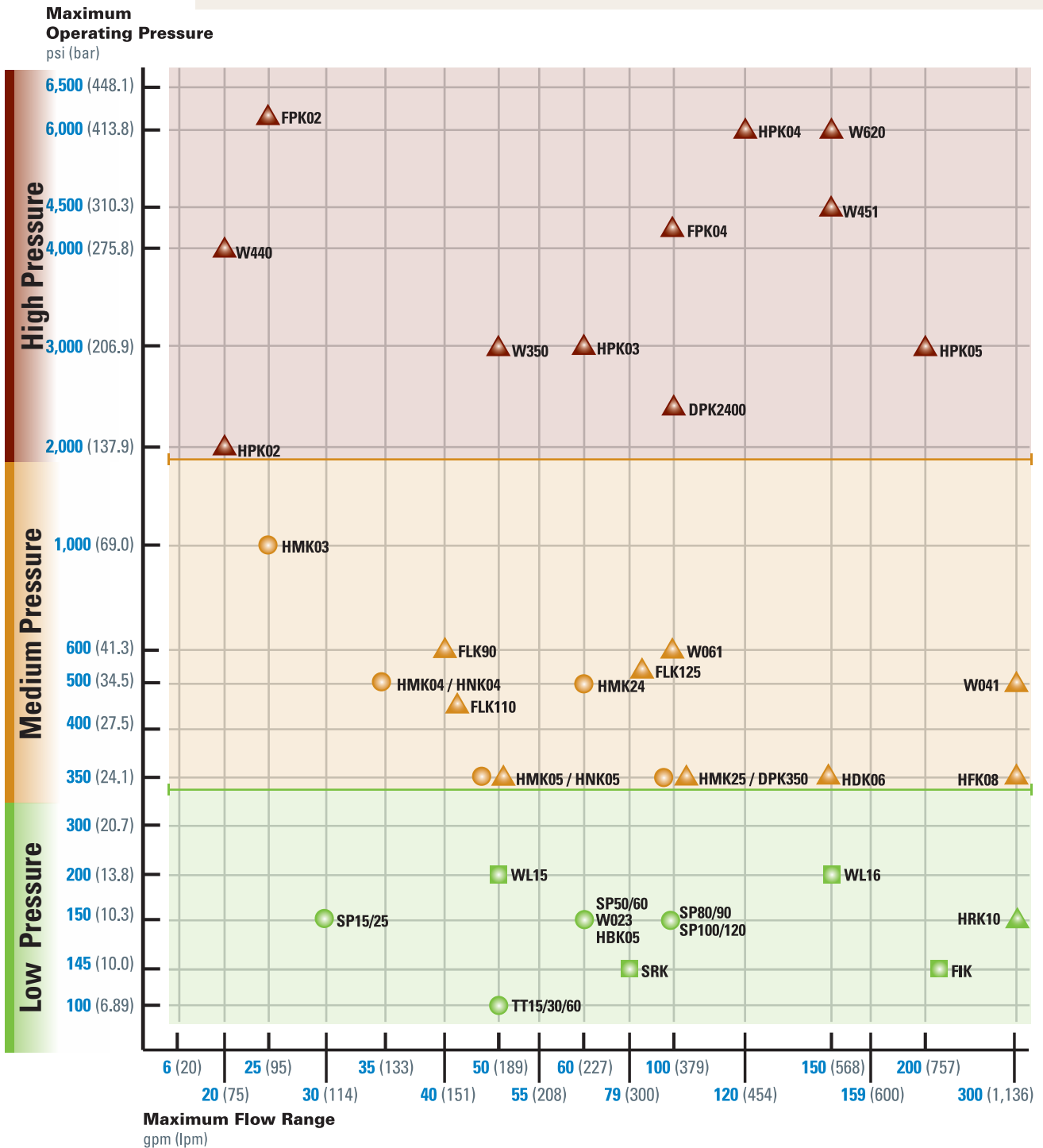
SAE Gear Oil			75W			80W		85W		90			140		
SAE Engine Oil			5W	10W	20		30	40	50						
ISO Grade			15	22	32	46	68	100	150	220	320	460	680		
°F	°C	Diesel													
248	120				4	4	6	7	9	12	13	18	23		
230	110				4	6	7	9	12	15	19	24	30		
212	100		1	5	5	7	9	11	15	19	25	32	41		
194	90		3	5	7	9	11	15	20	26	34	44	58		
176	80		5	7	9	11	15	20	27	36	48	63	85		
158	70		6	9	11	15	20	28	39	52	71	95	130		
140	60		8	12	15	21	29	40	57	80	110	151	211		
122	50		11	15	22	30	43	62	99	128	181	254	365		
104	40	1	15	22	32	46	68	100	150	220	320	460	680		
86	30	2	21	32	51	76	116	175	271	409	613	907	1,380		
68	20	3	33	51	87	135	214	334	536	838	1,290	1,980	3,130		
50	10	4	52	87	162	264	438	711	1,190	1,920	3,070	4,870	8,020		
32	0	5	85	180	340	585	1,020	1,720	2,990	5,060	8,400	13,900	23,900		
14	-10	9	185	375	820	1,500	2,770	4,880	8,890	15,700	27,200	47,000	85,000		
-4	-20	15	400	800	2,350	4,650	91,20	16,800	32,300	60,000					

Hydraulic Filter Housing Selection Guide

Locate the Donaldson model closest to the intersection of the maximum operating pressure and maximum flow rate. If there is not a model at the exact intersection, select the nearest series to the right or above the intersection to ensure a filter that is adequate to handle the maximum operating pressure and flow rate has been selected.

Pressure families are color coded in the selection chart for low, medium and high model series. Filter housing styles are identified by their shape.

Filter Housing Style Code



Selecting the Proper Hydraulic Filter

Sensitive hydraulic circuits are vulnerable to a variety of contaminants that result in inefficiency, downtime and excessive repair costs. It is important to remember that protecting and maintaining the most sensitive components within a circuit will result in effective contamination control.

With the broad range of housing styles and filters available from Donaldson, how do you choose the right filter to reliably protect your systems and equipment? Follow these recommended steps to identify the correct Donaldson filter and parts required for efficient contamination control.

1 Determine the system operating pressure and flow rate

Start by identifying two key factors in the hydraulic system operating environment for the most critical component being protected, such as pumps and motors.

- nominal and maximum operating pressure
- nominal and maximum flow rate

2 Select the filter housing model

Refer to the Hydraulic Filter Model Series Selection Guide to select the filter housing that meets your requirements.

- Pressure families are color coded for low, medium and high models.
- Housing styles are identified by their shape code: spin-on, in-tank and in-line
- Porting type options – see page 3 for model series details.

3 Consider application factors when selecting the filter

After the appropriate housing is identified, other application factors must be considered when selecting the appropriate filter. Use the filter choice tables to determine a specific part number.

- components being protected
- ISO Code desired
- fluid type and material compatibility
- oil viscosity (SUS/cSt) and temperature
- vibration/cyclic flow surges
- media type
- flow rate (GPM/LPM)
- maximum allowable pressure drop
- efficiency / beta rating
- seal options
- standard vs. high-performance filters
- servicing and installation convenience

4 Choose the appropriate line and reservoir accessories

Items such as breathers, suction strainers, and gauges are important parts of an overall hydraulic system.

Refer to the Accessories Section for more information.

5 On-going contamination control practices

To optimize system performance and lengthen component life, new oil should be filtered before being transferred into a reservoir or gearbox. Monitor the condition of fluids and identify wear and contamination with regular fluid analysis.

Refer to the Off-Line Filtration and Fluid Analysis Sections for more information.

This publication contains a wide selection of standard and custom hydraulic filtration assemblies for equipment manufacturers – and replacement filters for both Donaldson housings and those produced by other manufacturers. Donaldson assemblies and filters can be used in both mobile and stationary equipment applications. For custom hydraulic filtration systems, please contact your Donaldson supplier.

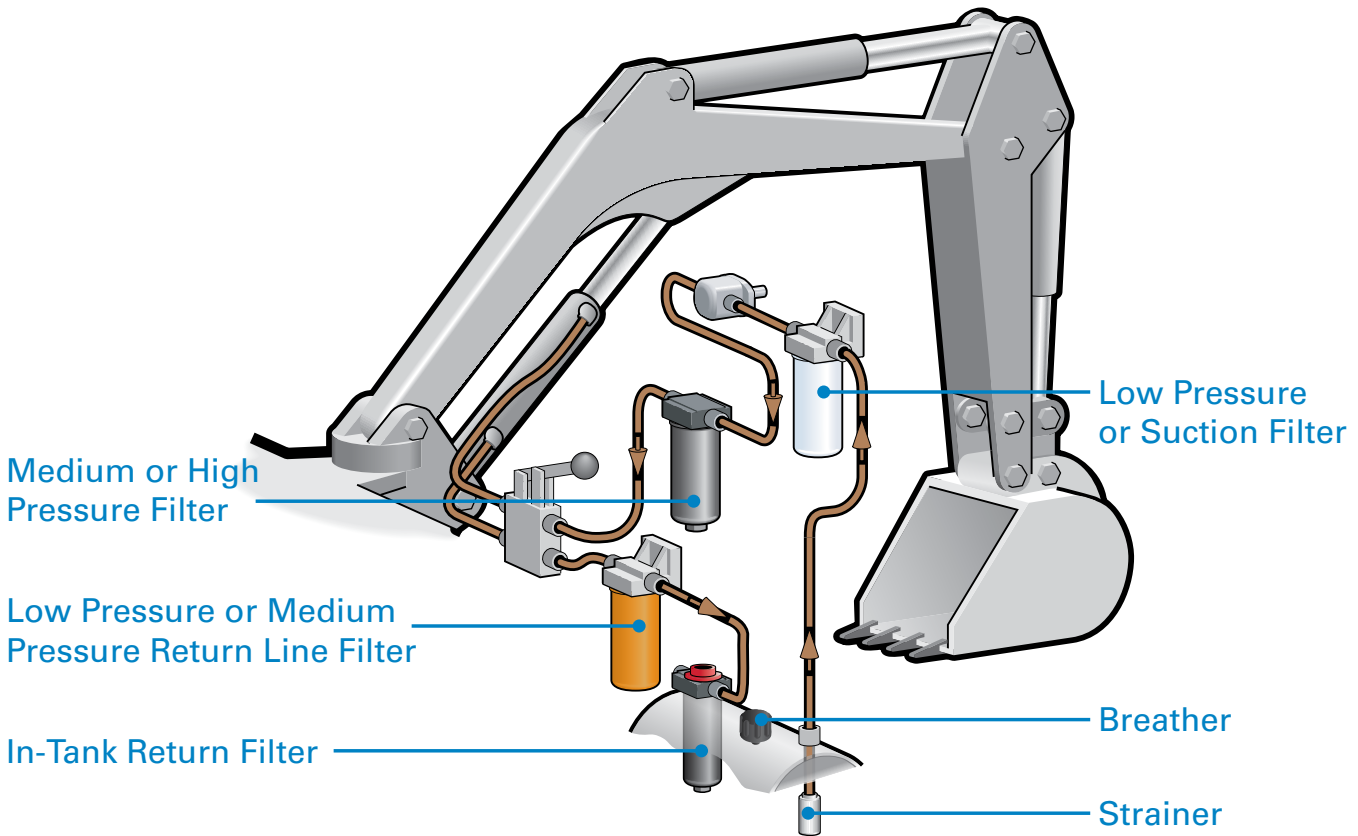
Overview	2
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The best solutions for clean, dry oil.

Count on Donaldson to have the right filters, contamination control products and services to protect critical components in hundreds of applications – in the factory and on heavy-duty mobile equipment.

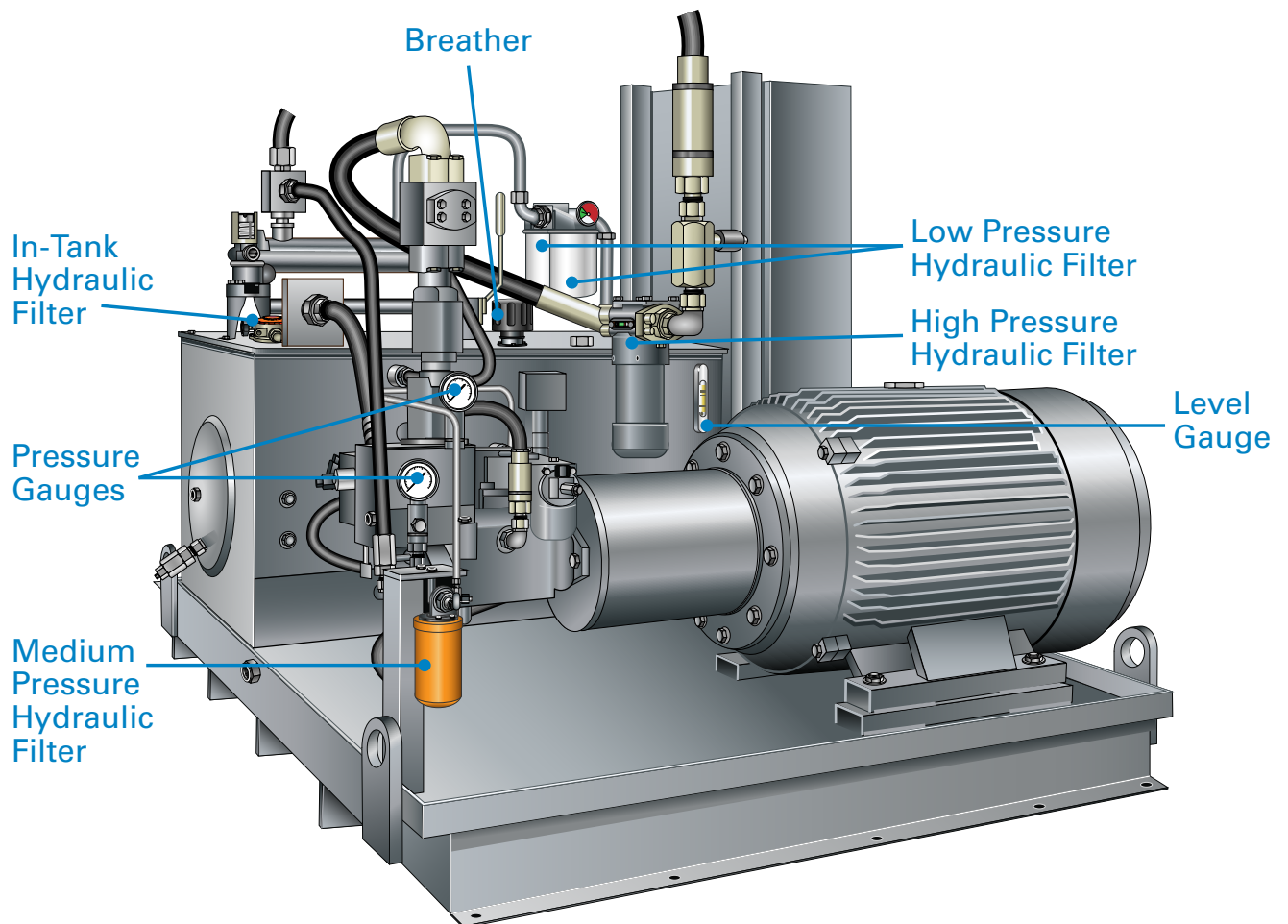
When you need hydraulic filtration, Donaldson delivers.





Performance under any pressure

- Low, medium and high pressure filtration
- Spin-on, cartridge and in-tank style filters
- Hydraulic line and reservoir accessories
- T.R.A.P.™ reservoir breather technology





Today's hydraulic systems are intolerant of corrosion, require higher cleanliness standards, and demand higher filtration performance. Hydraulic-powered vehicles and equipment owners desire solutions providing lower cost of operation and ownership. Donaldson works to develop new technologies that meet your engineering specifications and add customer value.

Low Pressure Filtration

Max operating pressure < 350 psi (24 bar)



Low pressure filters are the most commonly used type of filter in hydraulic circuits, used most often in return line applications.

Donaldson low pressure filters are rated for working pressures up to 350 psi (2400 kPa). In-tank and in-line configurations are available to accommodate virtually any application.

- Sensors, valves, and switches in various styles and port sizes
- Unique filtration performance options
- Integrated mounting brackets
- Broad range of package sizes
- Custom design options

Medium Pressure Filtration

Max operating pressure < 2,000 psi (138 bar)



Medium pressure filters can be used in applications up to 2000 psi (13790 kPa). Donaldson offers both spin-on and in-line cartridge-style filters.

Donaldson Duramax® filters are the highest rated medium pressure spin-on filters available. Duramax filters are proven, reliable, long-lived and easy to install.

- Die-cast and sand-cast custom head assemblies integrated into systems
- Enhanced system component protection
- Customized to existing filter interface – no system modification required

High Pressure Filtration

Max operating pressure < 6,500 psi (450 bar)



High pressure filters are positioned between pumps and critical components such as cylinders, motors and valves. They help protect these critical components from catastrophic failure.

Donaldson heavy-duty high pressure filters are rated for working pressures up to 6500 psi (44818 kPa). Various porting sizes and types, including manifold style, are available for a wide range of applications.

- High-performance filtration media options such as Synteq™
- Metal or plastic material options
- Multiple head interfaces



	Model Series	Max Flow gpm (lpm)	Max Pressure psi (kPa) / bar	Porting Size Options	Page No.
Low Pressure Filtration Pages 11-56	Spin-on Filters				
	SP15/25	30 (114)	150 (1035) / 10.3	½", ¾" NPT, SAE-8, -12 O-ring	12
	W023	60 (227)	150 (1035) / 10.3	1¼" NPT, SAE-20 O-ring	16
	HBK05	60 (227)	150 (1035) / 10.3	1¼" NPT, SAE-20 O-ring	18
	SP50/60	60 (227)	150 (1035) / 10.3	1¼" NPT, SAE-20 O-ring	22
	SP80/90	100 (379)	150 (1035) / 10.3	1½" NPT, SAE-24 O-ring, 2" SAE 4-Bolt Flange Code 61	26
	SP100/120	100 (379)	150 (1035) / 10.3	1½" NPT	30
	TT15/30/60	50 (189)	100 (689) / 6.89	¾", 1½" NPT	34
	In-tank Filters				
	WL15	50 (189)	200 (1379) / 13.8	SAE-24 O-ring, 1½" SAE 4-Bolt Flange Code 61	36
	WL16	150 (568)	200 (1379) / 13.8	SAE-24 O-ring, 1½" SAE 4-Bolt Flange Code 61	38
	FIK	170 (644)	145 (1000) / 10.0	½" NPT, ¾" NPT, 1" NPT, SAE-8,-12,-16,-20,-24 O-ring, 2" SAE 4-Bolt Flange Code 61	40
	SRK Combo	79 (300)	145 (1000) / 10.0	Inlet: SAE-16, -20 O-ring, Outlet: SAE-16 O-ring	50
	In-line Cartridge Filters				
	HRK10	300 (1136)	150 (1035) / 10.3	4" ANSI Flange, 8-bolt 150#	52
Medium Pressure Filtration Pages 57-104	Spin-on Filters				
	HMK03	25 (95)	1000 (6895) / 69.0	SAE-12 O-ring	58
	HMK04	35 (133)	500 (3450) / 34.5	¾", 1" NPT, SAE-12, -16 O-ring	62
	HNK04	35 (133)	500 (3450) / 34.5	SAE-12, -16 O-ring	70
	HMK05	50 (189)	350 (2415) / 24.2	1¼" NPT, SAE-20 O-ring	66
	HNK05	50 (189)	350 (2415) / 24.2	SAE-20 O-ring	70
	HMK24	60 (227)	500 (3450) / 34.5	SAE-20 O-ring, 1¼" SAE 4-Bolt Flange Code 61	62
	HMK25	100 (379)	350 (2415) / 24.2	1½" NPT, SAE-24 O-ring, 1½" SAE 4-Bolt Flange Code 61	66
	In-line Cartridge Filters				
	FLK90	40 (151)	580 (4002) / 40.0	SAE-12, -16 O-ring	75
	FLK110	42 (159)	435 (3001) / 30.0	SAE-20 O-ring	78
	FLK125	85 (322)	508 (3505) / 35.1	2" SAE 4-Bolt Flange Code 61	81
	DPK350	100 (379)	350 (2415) / 24.2	1½" SAE 4-Bolt Flange Code 61	84
	W061	100 (379)	600 (4140) / 41.4	SAE-12, -16 O-ring	88
	HDK06	150 (568)	350 (2415) / 24.1	2½" NPT	92
W041	300 (1136)	500 (3450) / 34.5	2" or 2½" SAE 4-Bolt Flange Code 61	96	
HFK08	300 (1136)	350 (2415) / 24.1	3" NPT, SAE-20 O-ring	100	
In-line Cartridge Filters					
High Pressure Filtration Pages 105-156	HPK02	20 (76)	2000 (13790) / 137.9	SAE-12 O-ring	106
	DPK2400	100 (379)	2400 (16547) / 165.4	1½" SAE 4-Bolt Flange Code 61	111
	W440	20 (76)	4000 (27580) / 275.8	SAE-12 O-ring or Manifold Mounting	114
	FPK02	25 (95)	6090 (42021) / 420.0	SAE-12 O-ring	118
	W350	50 (189)	3000 (20685) / 206.9	SAE-16 O-ring	123
	HPK03	60 (227)	3000 (20685) / 206.9	SAE-12, -16 O-ring	127
	FPK04	100 (379)	4350 (30015) / 300.1	SAE-20 O-ring	132
	HPK04	120 (454)	6000 (41380) / 413.8	SAE-20 O-ring, 1¼" or 1½" SAE 4-Bolt Flange Code 61 or 62	137
	W451	150 (568)	4500 (31027) / 310.3	SAE-24 O-ring, 1½" SAE 4-Bolt Flange Code 61 or 62, Manifold Mounting	143
	W620	150 (568)	6000 (41380) / 413.8	SAE-16,-20, -24 O-ring, 1¼" SAE 4-Bolt Flange Code 62, 1½" SAE 4-Bolt Flange Code 61	147
	HPK05	200 (757)	3000 (20685) / 206.9	2" SAE 4-Bolt Flange Code 61	152



Off-Line Filtration

The Donaldson Filter Cart, Filter Panel and Filter Buddy™ offer convenient off-line filtration, flushing and fluid transfer. Use them with your stationary and mobile equipment to achieve and maintain proper ISO cleanliness levels.

Filter Cart

Designed with performance, convenience and safety in mind. Includes value-added features to protect your machinery and equipment from breakdowns caused by contamination.

Filter Panel

Provides fixed/mounted offline filtration and a turn-key approach to supplemental filtration.

Filter Buddy™

This handheld portable system provides the capability to kidney loop reservoirs that you normally cannot reach with larger filter carts. Its small size and light weight allow for carrying up and down stairs and access into tight spaces.



Replacement Filters

The Industry's Largest Selection of In-Stock Replacement Filters!

Donaldson offers a complete line of hydraulic filter heads and housings for low, medium, and high pressure applications. Spin-ons and cartridges are available in a wide range of filter medias.

When replacing another filter brand, our comprehensive and up-to-date cross-reference guide, available at shop.donaldson.com, can guide you through performance improvement possibilities.

Our worldwide network of authorized distributors is ready to serve you with their extensive experience with hydraulic circuits and with Donaldson filters. Most distributors stock our filters and we have quick-ship programs so you can get the filter you need, when you need it.



Accessories

Accessories for hydraulic circuits, lines and reservoirs that will help you maintain proper ISO cleanliness levels.

Filter Service Indicators

- Service indicators to maximize filter life

Hydraulic Line Accessories

- Pressure gauges for monitoring system pressure
- Hoses and test points for sampling oil and determining ISO cleanliness levels
- Flanges to connect components
- Valves for system control



Reservoir Accessories

- Suction strainers help protect pumps from damage
- Diffusers for reducing aeration, foaming, turbulence and noise caused by return lines
- Sight and level gauges available, including plastic or steel screw-in styles for use in a variety of applications
- Plugs, caps and vents for small power units and gearboxes
- Filler breathers and caps come in chrome, zinc, epoxy-coated weatherproof finishes, and corrosion-resistance techno polymer – lockable, dipsticks and side-mount versions available



T.R.A.P.™ Breather Technology (*Thermally Reactive Advanced Protection*)

T.R.A.P. breathers provide fast-acting protection against airborne moisture and particulate contamination. They stop solid particulate down to 3 μm at 97% efficiency and prevent moisture from entering the reservoir. Water-holding capacity is regenerated with every oil return phase. This self-regenerating capability enables extended breather life.



Warranty

Donaldson warrants its aftermarket products against failure due to defects in materials and workmanship for the period specified under the Terms and Conditions for the particular product. You have a choice. You can always choose top-quality Donaldson filters designed specifically for your engines and equipment and – as long as you change them according to the engine manufacturer’s maintenance schedule – using Donaldson filters will not void your engine manufacturer’s warranty.

Go to [donaldson.com](https://www.donaldson.com) to learn out more on our aftermarket warranty.

Filter Media Design and Development

From traditional cellulose to synthetic, the development of proprietary filtration substrates is at the heart of every Donaldson filtration system. If our existing media formulation doesn't meet our customer's specifications, our scientists use our in-house media development laboratory to design new formulations to meet your needs.

Media Characterization Testing

- Permeability
- Tensile strength
- Mullen burst
- Basis weight
- Pore size
- Thickness
- Gurley stiffness
- LEFS bench
- 3-Point bend

In-House Media Mill

- For application development
- Trial media production runs
- Development of proprietary formulations

Filtration Performance Testing

- Particle counting
- Multi-pass testing
- Water removal efficiency

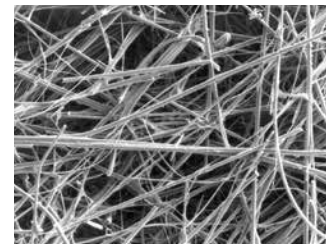
Donaldson Media Formulations Set the Standard for Filtration Performance!

Donaldson offers over 35 different media formulations for hydraulic filters, allowing our engineers to deliver filtration solutions that meet our customer's unique requirements.

We use a variety of techniques to enhance filter media so it can withstand the high differential pressures found in hydraulic systems. Oven-curing, wire backing and multiple layers all contribute to our media integrity. Our medias include:

DT Synthetic High-Performance Media

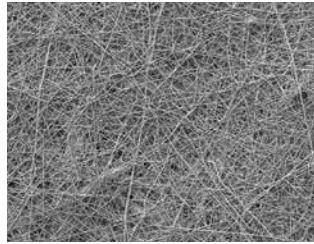
DT High-Performance media utilizes a blend of synthetic fibers optimizing efficiency and initial pressure drop. Donaldson filter media scientists found this to provide the best available chemical resistance for the broadest array of hydraulic applications. This media is also ideal for use with phosphate ester and water glycol fluids.



Alpha-Web™ Synthetic Media

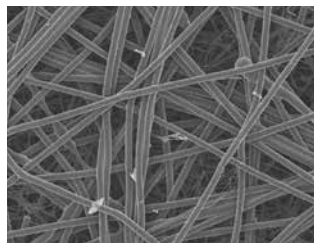
Alpha-web is a multi-layered synthetic media that utilizes a fine fiber layer that traps and locks particles. This media outperforms conventional medias in cyclic flow efficiency testing and real world hydraulic conditions.

ALPHA-WEB™



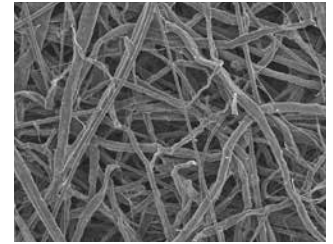
Synteq™ Synthetic Media

This media's uniform synthetic fiber structure delivers higher filtration efficiency and longer filter life. Synteq filter media technology is ideal for synthetic fluids, water glycols, water/oil emulsions, HWCF (high water content fluids) and petroleum-based fluids. The smooth rounded fibers provide low resistance to fluid flow.



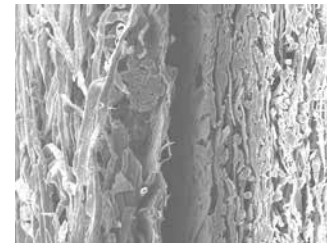
Cellulose Media

This media often has lower beta ratings, providing effective filtration for a wide variety of petroleum-based fluids. The smaller pores result in greater flow resistance, in turn causing higher pressure drop.



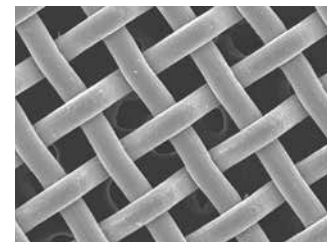
Water Absorbing Media

This media is formulated with absorbents and resins to remove moisture and condensation from petroleum-based fluids.



Wire Mesh Media

Wire mesh media consists of stainless steel, epoxy-coated wire mesh. This media is used to catch very large, harsh particulate that would rip up a normal filter. It is also useful as a coarse filter in viscous fluid applications.



Donaldson has pioneered the use of a wide range of engineering, design and testing tools used during the product development and validation process.

Engineering Capabilities

- Global design centers
- Prediction and simulation

Development and Validation

- Filtration performance testing per SAE and ISO standards

Test & Evaluation Tools

- Structural analysis per SAE, ISO, and NFPA standards
- Filtration performance testing
- Analytical chemistry laboratory

Design Validation

- Global test cell locations
- Tests for: pressure drop, high temp, flow fatigue, used oil analysis, component durability, and fluid compatibility
- Vibration/Shaker
- Field testing
- Field data acquisition

Quality Certified

- All facilities are ISO/AS certified
- Quality controls

Manufacturing

- Global manufacturing locations
- Engineered and manufactured to ensure long-life, durability, corrosion resistance and liquid compatibility
- Packaging options to meet international shipping and compliance specifications

Logistics / Distribution

- Global distribution network
- Regional distribution centers
- Transportation, third party logistics, consolidators and cross-docking networks





Low Pressure Filters

Low pressure filters are the most common type of filter found in hydraulic circuits – used most often in return line applications.

Donaldson low pressure filters are rated for working pressures up to 350 psi (2400 kPa). In-tank and in-line configurations are available to accommodate virtually any application.



Section Index

Max Operating Pressure < 350 psi (24 bar)

Models arranged from low to maximum flow rates

Spin-on Filters

SP15/25	12
W023	16
HBK05	18
SP50/60	22
SP80/90	26
SP100/120	30
TT15/30/60	34

In-tank Filters

WL15	36
WL16	38
FIK	40
SRK Combo	50

In-line Cartridge Filters

HRK10	52
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SP15/25

Max Flow: 30 gpm (114 lpm)



SP15/25 Spin-On Filters

Maximum Working Pressures to:

150 psi / 1035 kPa / 10.3 bar

Rated Static Burst to:

375 psi / 2590 kPa / 25.9 bar

Flow Range To:

30 gpm / 114 lpm

Features

The SP15/25 series are economical, low pressure filters with spin-on convenience and a wide range of cleanliness ratings. Filters are available with the bypass ratings of your choice – 25 psi, 15 psi, 5 psi or no bypass. Take advantage of our mix and match system of in-stock heads and filters, so you can get exactly what you need. Choose the media type and configuration that's best for your application. Options include Donaldson's exclusive Synteq™, natural fiber cellulose, stainless steel wire-mesh or water absorbing media.

Beta Rating

- Performance to $\beta_{0.1} = 1000$

Porting Size Options

- 1/2", 3/4" NPT
- SAE-8, SAE-12 O-Ring

Replacement Filter Lengths

- 5.35" / 136mm
- 7.87" / 200mm

Standard Bypass Ratings

- 25 psi / 172.5 kPa / 1.7 bar
- 15 psi / 97 kPa / .97 bar
- 5 psi / 34.5 kPa / .34 bar
- No Bypass

Applications

- Fluid Conditioning Systems
- In-Plant Systems
- Mobile Equipment
- Power Transmissions
- Process Systems



Assembly Weight

- 5.35": 1.6 lbs / .7 kg (approximately)
- 7.87": 2.2 lbs / 1 kg (approximately)

Operating Temperatures

- -22°F to 225°F / -30°C to 107°C

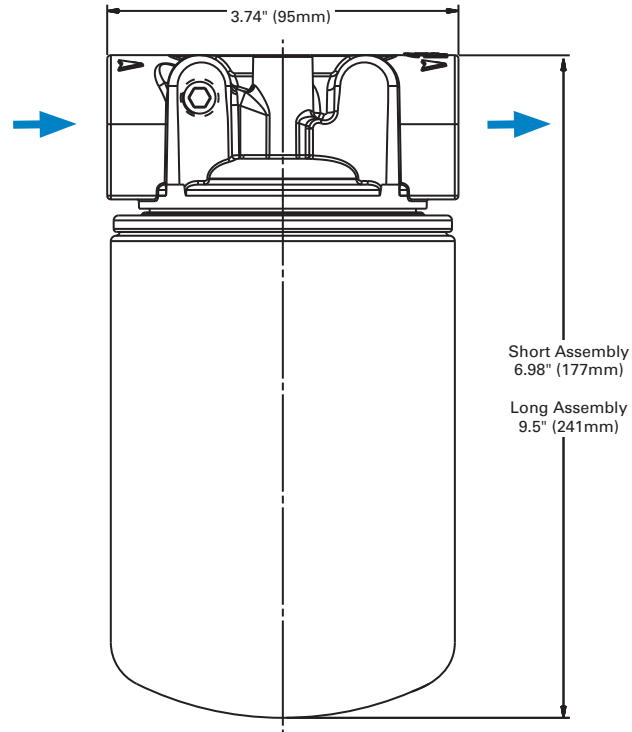
Filter Collapse Ratings

- 100 psid / 690 kPa / 6.9 bar (standard)

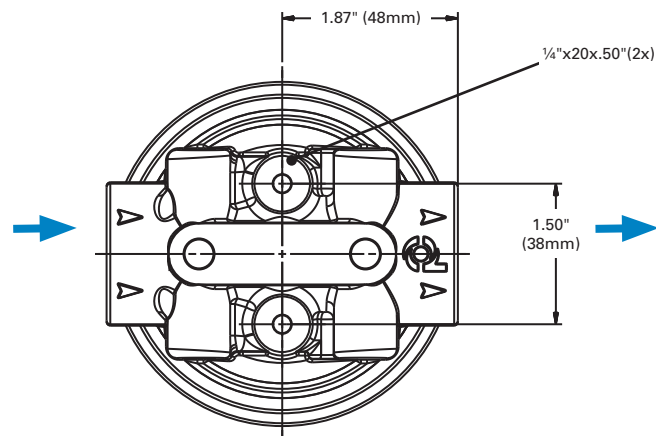
SP15/25 Specification Illustrations

ASSEMBLY - SIDE VIEW

All dimensions are shown in inches [millimeters].



HEAD - TOP VIEW





SP15/25

Max Flow: 30 gpm (114 lpm)



SP15/25 Components

Filter Choices

Media Type	$\beta_{x(e)} = 2$	$\beta_{x(e)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 16889		in	mm		
Synteq Synthetic		6 μm	5.35	136	P564967	
		6 μm	7.87	200	P564357	
		11 μm	7.87	200	P179089	
		11 μm	5.35	136	P560693	
		23 μm	5.35	136	P560694	
Cellulose	5 μm		5.35	136	P565061	
	7 μm		5.35	136	P551551	
	7 μm		7.87	200	P565059	
	17 μm		5.35	136	P551553	
	17 μm		7.87	200	P565060	
Water Absorbing	10 μm		5.35	136	P565062	Absorbs approximately 6 oz/170 ml of water @ 20 psid/1.4 bar
Wire Mesh	150 μm		5.35	136	P550274	100 mesh

Filter Notes: * Thread size 1"-12 UNF

Head Choices

Port Size	Bypass Range	Gauge ports (drill, tap, plug)	Gauge Port Location	Part No.
1/2" NPT	15 psi / 103.4 kPa / 1.34 bar	(2) 1/8" NPT	upstream side	P563288
3/4" NPT	25 psi / 172.5 kPa / 1.72 bar	(2) 1/8" NPT	upstream side	P561131
3/4" NPT	5 psi / 34.5 kPa / .34 bar	(2) 1/8" NPT	downstream side	P561132
3/4" NPT	25 psi / 172.5 kPa / 1.72 bar	none	na	P561134
3/4" NPT	5 psi / 34.5 kPa / .34 bar	none	na	P561135
3/4" NPT	none	none	na	P561136
3/4" NPT	15 psi / 103.4 kPa / 1.34 bar	none	na	P563278
SAE-12	none	none	na	P561133
SAE-12	none	(1) SAE-4	upstream side, LH	P561137
SAE-12	5 psi / 34.5 kPa / .34 bar	none	na	P561140
SAE-12	25 psi / 172.5 kPa / 1.72 bar	none	na	P561141
SAE-12	15 psi / 103.4 kPa / 1.34 bar	none	na	P563279
SAE-12	25 psi / 172.5 kPa / 1.72 bar	(2) 1/8" NPT	upstream side	P563280
SAE-8	25 psi / 172.5 kPa / 1.72 bar	none	na	P561138

Note: On a return line system the gauge port should be on the upstream side. We suggest a 25 psi bypass. If head is used on a suction line, the gauge port should be on the downstream side very low bypass.



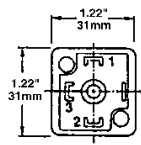
Mix and Match

Donaldson's mix and match system provides the great performance and functional advantages of custom engineered filters with the convenience and speedy delivery of in-stock parts. Choose your options and build a filter model to suit your specifications.

Filter Service Gauges - Visual Indicators

Part No.	Pressure Range	Use With Bypass Valve Rating	Type
P563978	5 to 30 psi field adj.*	15 psi / 103.4 kPa / 1.34 bar or 25 psi / 172.5 kPa / 1.72 bar or No Bypass	Return indicator, electrical
P579714	0 to 100 psi	15 psi / 103.4 kPa / 1.34 bar or 25 psi / 172.5 kPa / 1.72 bar or No Bypass	Return indicator, numeric scale
P579715	0 to 100 psi	15 psi / 103.4 kPa / 1.34 bar Bypass	Return indicator, color coded
P579716	0 to 100 psi	25 psi / 172.5 kPa / 1.72 bar or No Bypass	Return indicator, color-coded
P579717	0 to -30 Hg	5 psi / 34.5 kPa / .34 bar or No Bypass	Suction indicator, numeric scale

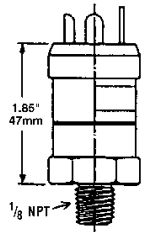
P563978



#1 Common; #2 Normally Closed;
#3 Normally Open

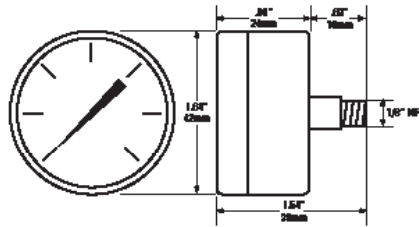
Instructions

1. Remove DIN adaptor
2. Remove small brass screw
3. Using 1/8" allen wrench adjust clockwise to increase set point/counter-clockwise to decrease set point
4. NO / NC



Adjustment screw located in center of electric prongs

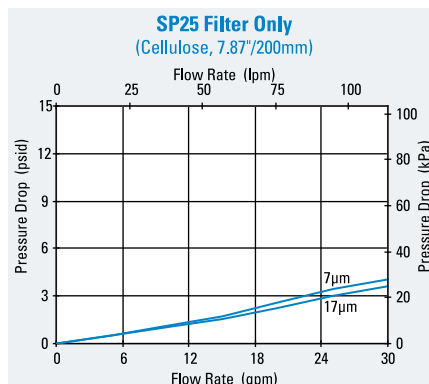
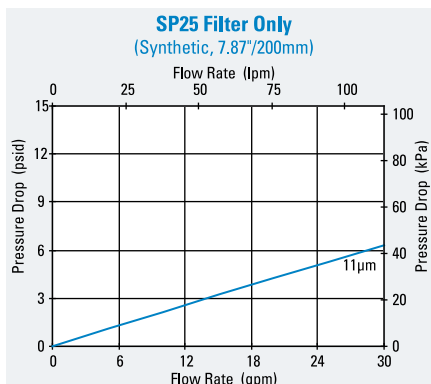
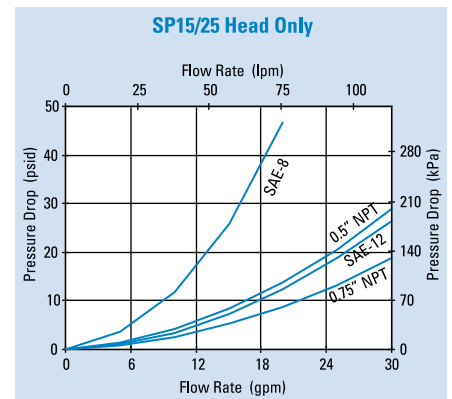
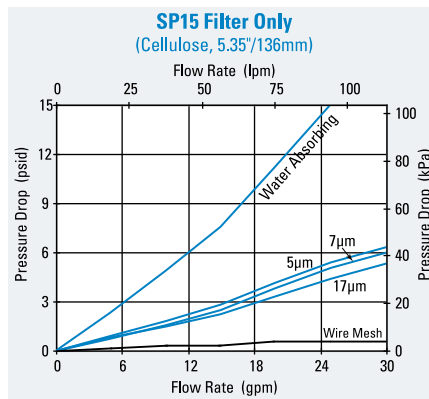
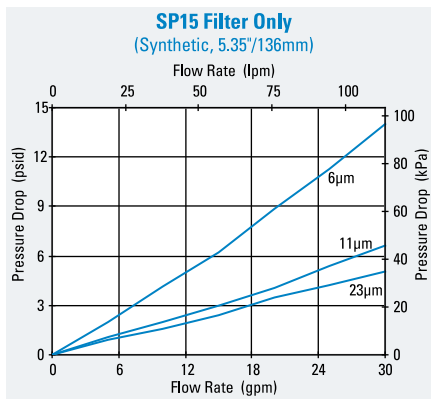
P579714 - P579717



Notes

* NOT PRESET: Setting adjustable for desired application

Performance Data





W023

Max Flow: 60 gpm (227 lpm)



W023 Spin-On Filters

Working Pressures to:

150 psi / 1035 kPa / 10.3 bar

Rated Static Burst to:

250 psi / 1725 kPa / 17.2 bar

Flow Range To:

60 gpm / 227 lpm

Applications

- Fluid Conditioning Systems
- In-Plant Systems
- Mobile Equipment
- Power Transmissions
- Process Systems



Features

This versatile spin-on series is an excellent choice for use in high corrosion environments. The gray iron head construction can be ordered with a differential pressure indicator port. Take advantage of our mix and match system of heads and filters, so you get exactly what you need. You can choose the media type and configurations that's best for your application.

Beta Rating

- Performance to $\beta_{<4(c)}=1000$

Porting Size Options

- 1 1/4" NPT
- SAE-20 O-Ring

Performance Data

Replacement Filter Lengths

- 6.7" / 170mm
- 10.7" / 271mm

Assembly Weight

- 7.0 lbs / 3.2 kg (short)
- 8.0 lbs / 3.6 kg (long)

Standard Bypass Ratings

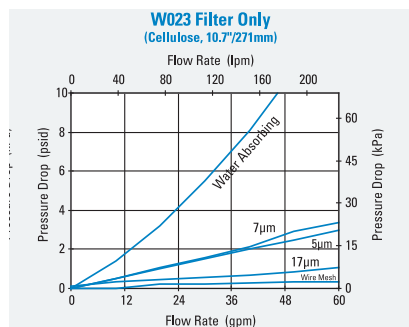
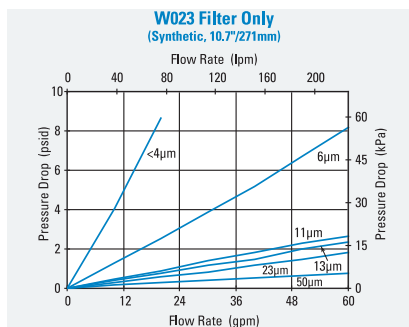
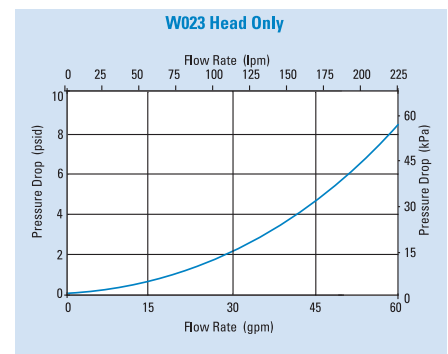
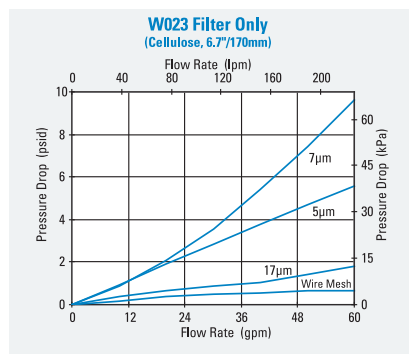
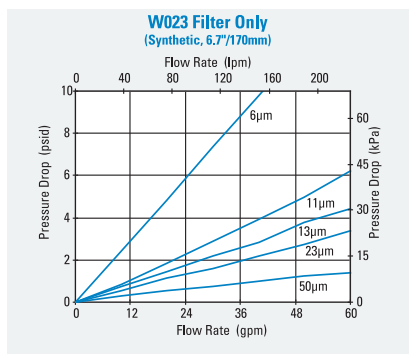
- 50 psi / 345 kPa / 3.5 bar
- No bypass

Operating Temperatures

- -22°F to 225°F / -30°C to 107°C

Filter Collapse Ratings

- 100 psid / 690 kPa / 6.9 bar



W023 Components

Filter Choices

Media Type	$\alpha_{x(c)} = 1000$	$\beta_{x(c)} = 2$	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 23369	Rating based on ISO 16889		in	mm		
Synteq Synthetic			<4 μm	10.7	271	P167796	Fluorocarbon O-Ring & square seal kit. Compatible w/ water glycol.
			6 μm	6.7	170	P167162	3-seal kit
			6 μm	10.7	271	P165762	3-seal kit
Alpha-Web	10 μm			6.7	170	DBH5875	3-seal kit
Synteq Synthetic			11 μm	6.7	170	P165875	3-seal kit
			11 μm	10.7	271	P165876	3-seal kit
			13 μm	6.7	170	P167944	Fluorocarbon O-Ring & square seal kit. Compatible w/ water glycol.
			13 μm	10.7	271	P167945	Fluorocarbon O-Ring & square seal kit. Compatible w/ water glycol.
			23 μm	6.7	170	P165877	3-seal kit
			23 μm	10.7	271	P165878	3-seal kit
			50 μm	6.7	170	P165879	3-seal kit
Cellulose		5 μm		6.7	170	P550386	3-seal kit
		5 μm		10.7	271	P550250	3-seal kit
		7 μm		7.2	183	P550388	3-seal kit
		7 μm		10.7	271	P550251	3-seal kit
		17 μm		6.7	170	P550387	3-seal kit
Water Absorbing		10 μm		10.7	271	P561183	Cellulose media, 3-seal kit. Absorbs 350 ml water.
		150 μm		6.7	170	P550275	Stainless steel wire mesh, 3-seal kit
Wire Mesh		150 μm		10.7	271	P550276	Stainless steel wire mesh, 3-seal kit

Filter Notes: * All models have 1 1/2-16 UNF threads except where otherwise noted. All models measure 5.0"/127mm outer diameter.

Head Assembly Choices

Port Size	Bypass Rating	Seal Material	Indicator Style & Location	Part No.
SAE-20 O-Ring	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	P574241
1-1/4" NPT	None	Nitrile	Port Machined & Plugged	P575930

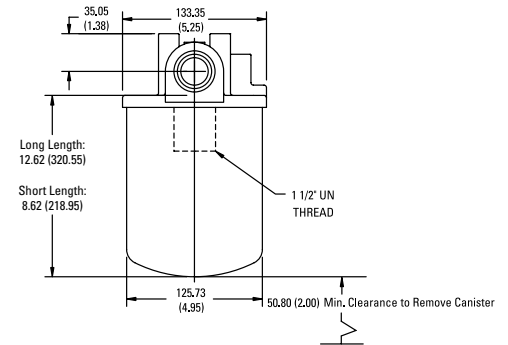
Indicator Choices

Indicator Pressure Setting	Connector Style	Seal Material	Part No.	Thermal Lockout	Surge Control	Reset
Visual Pop-up Models						
15 psi / 103 kPa	N/A	Nitrile	P572345	No	No	Auto
35 psi / 241 kPa	N/A	Nitrile	P572347	No	No	Auto
35 psi / 241 kPa	N/A	Nitrile	P572348	Yes	Yes	Manual
35 psi / 241 kPa	N/A	Fluorocarbon	P567456	Yes	Yes	Manual
Electrical / Visual Models						
15 psi / 103 kPa	Hirschmann	Nitrile	P572323	No	No	Auto
15 psi / 103 kPa	3-wire flying leads	Nitrile	P572342	No	No	Auto
35 psi / 241 kPa	Hirschmann	Nitrile	P572327	No	No	Auto
35 psi / 241 kPa	Brad Harrison	Nitrile	P572329	No	No	Auto
35 psi / 241 kPa	Hirschmann	Nitrile	P572384	Yes	Yes	Manual
35 psi / 241 kPa	Hirschmann	Fluorocarbon	P567458	Yes	Yes	Manual
35 psi / 241 kPa	3-wire flying leads	Nitrile	P572349	No	No	Auto
Electrical Models						
15 psi / 103 kPa	Hirschmann	Nitrile	P572355	No	No	Auto
35 psi / 241 kPa	Hirschmann	Nitrile	P572359	No	No	Auto
35 psi / 241 kPa	Brad Harrison	Nitrile	P572361	No	No	Auto

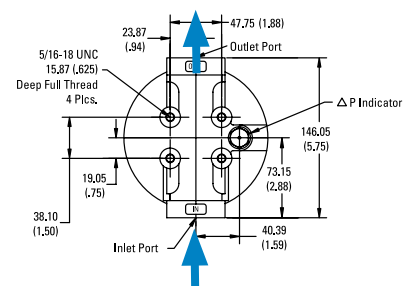
W023 Specification Illustrations

ASSEMBLY - SIDE VIEW

All dimensions are shown in millimeters [inches].



HEAD - TOP VIEW





HBK05

Max Flow: 60 gpm (227 lpm)



HBK05 Spin-On Filters

Working Pressures to:

150 psi / 1035 kPa / 10.3 bar

Rated Static Burst to:

250 psi / 1725 kPa / 17.2 bar

Flow Range To:

60 gpm / 227 lpm

Applications

- Cooling Circuits
- Fluid Conditioning Systems
- Hydrostatic Charge Pumps
- Lube Oil Systems
- Power Transmissions
- Return Lines
- Side Loop Systems

Features

HBK05 is a strong and durable low pressure filter with a spin-on design that simplifies servicing and reduces maintenance costs. Its heavy-duty steel canister has a rigid steel attachment plate for added strength. The head-to-canister O-Ring seal is designed to ensure seal integrity beyond 250 psi/17 bar. The head is made of die-cast aluminum.

Take advantage of our mix and match system of in-stock heads and filters — so you can get exactly what you need, HBK05 is available with your choice of visual or electrical service indicators, and bypass ratings of 50 psi, 25 psi, or 5 psi. The filter media is Synteq™, our proprietary synthetic media specifically designed for liquid filtration.

HBK05 filters ship with "L", square, and O-Ring gaskets (unless noted with fluorocarbon seals, then with square and O-Ring gaskets). All HBK05 filters are interchangeable with SP50/60, SP80/90 and SP100/120 spin-ons, and have 1½" - 16 UN threads.



Beta Rating

- Performance to $\beta_{<4(\mu)}=1000$

Porting Size Options

- 1¼" NPT
- SAE-20 O-Ring

Replacement Filter Lengths

- 6.7" / 170mm (short)
- 10.7" / 271mm (long)

Standard Bypass Ratings

- 50 psi / 345 kPa / 3.4 bar
- 25 psi / 172.5 kPa / 1.7 bar
- 5 psi / 34.5 kPa / .34 bar

Assembly Weight

- 6.9 lbs / 3.1 kg (long)
- 5.7 lbs / 2.6 kg (short)

Operating Temperatures

- -22°F to 225°F / -30°C to 107°C

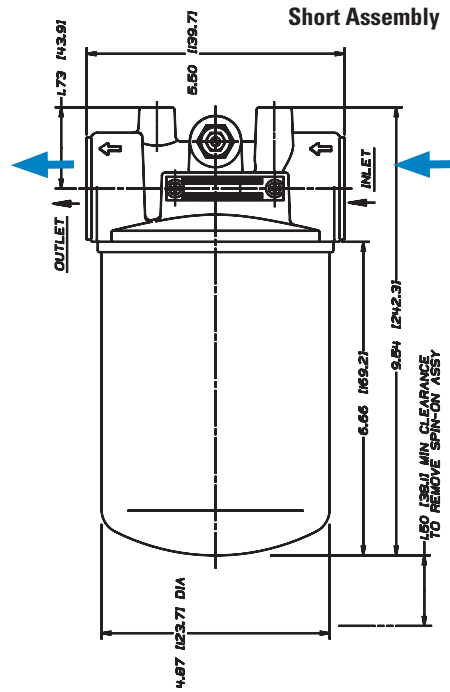
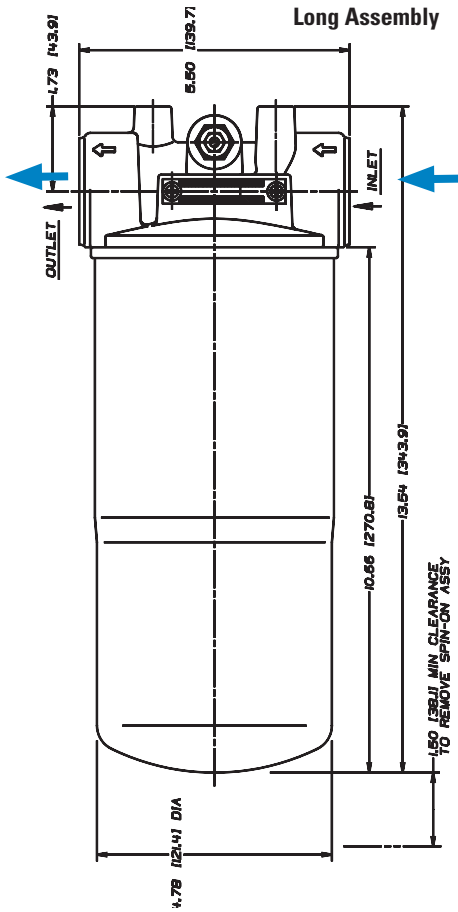
Filter Collapse Ratings

- 125 psid / 863 kPa / 8.6 bar

HBK05 Specification Illustrations

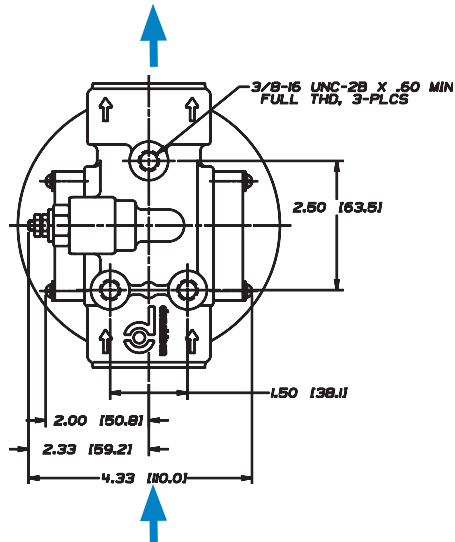
ASSEMBLY - SIDE VIEW

All dimensions are shown in inches [millimeters].

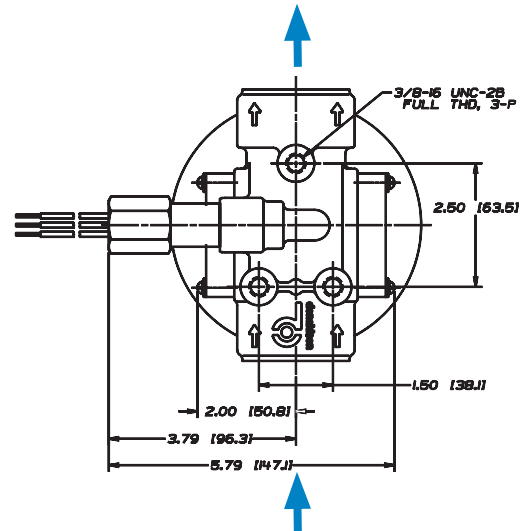


HEAD - TOP VIEW

with DC Electrical Service Indicator



with AC/DC Electrical Service Indicator





HBK05 Components

Filter Choices

Media Type	$\alpha_{x(e)} = 1000$	$\beta_{x(e)} = 2$	$\beta_{x(e)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 23369	Rating based on ISO 16889		in	mm		
Synteq Synthetic			<4 μm	10.7	271	P167796	Fluorocarbon seal. Compatible with water glycol.
			6 μm	6.7	170	P167162	
			6 μm	10.7	271	P165762	
Alpha-Web	10 μm			6.7	170	DBH5875	3-seal kit
Synteq Synthetic			11 μm	6.7	170	P165875	
			11 μm	10.7	271	P165876	
			13 μm	6.7	170	P167944	Fluorocarbon seal. Compatible with water glycol.
			13 μm	10.7	271	P167945	Fluorocarbon seal. Compatible with water glycol.
			23 μm	6.7	170	P165877	
			23 μm	10.7	271	P165878	
			50 μm	6.7	170	P165879	
		50 μm	10.7	271	P165880		
Water Absorbing		10 μm		10.7	271	P561183	Cellulose media, 3-seal kit. Absorbs 350 ml water.

Filter Notes: * Thread size 11/2"-16 UN.

Head Choices

Port Size	Bypass Rating	Indicator Style & Location	Part No.
1¼" NPT	50 psi / 345 kPa	Visual, Both Sides	P172953
1¼" NPT	25 psi / 172 kPa	Visual, Both Sides	P166418
1¼" NPT	5 psi / 34 kPa	Visual, Both Sides	P166665
SAE-20 O-Ring	25 psi / 172 kPa	Visual, Both Sides	P166439

Note: *Donaldson uses the inlet port as the reference point. "Left side," for instance, means that the indicator mounts on the side of the filter head that is on your left when you face the inlet port.

Service Indicator Options

Use with Bypass Valve Pressure of:	Indicator Part No.	Style ⁽³⁾	Description
Electric Models⁽¹⁾			
5 psi / 34.5 kPa	P163642	A	Single post DC. Normally open.
15 psi / 103 kPa	P163601	A	Single post DC. Normally open.
25 psi / 172.5 kPa	P163839	A	Single post DC. Normally closed.
25 psi / 172.5 kPa	P162400	A	Single post DC. Normally open.
25 psi / 172.5 kPa	P171143	B	2-wire with Cannon connector. Normally open.
25 psi / 172.5 kPa	P173944	C	3-wire: White = normally open. Red = normally closed. Black = common
50 psi / 276 kPa	P574967	E	DC 2-wire. Normally closed. Gold contacts. Microprocessor compatible.

Service Indicator Options

Use with Bypass Valve Pressure of:	Indicator Part No.	Style ⁽³⁾
Visual Models⁽²⁾		
5 psi / 34.5 kPa	P162694	D
15 psi / 103 kPa	P162642	D
25 psi / 172.5 kPa	P162696	D
N/A	P165984	(blank plate)
25 psi / 172.5 kPa	P575334	H (Visual pop up)
50 psi / 345 kPa	P575335	H (Visual pop up)



Mix and Match

Donaldson's mix and match system provides the great performance and functional advantages of custom-engineered filters with the convenience and speedy delivery of in-stock parts. Choose your options and build an HBK05 filter to suit your specifications.

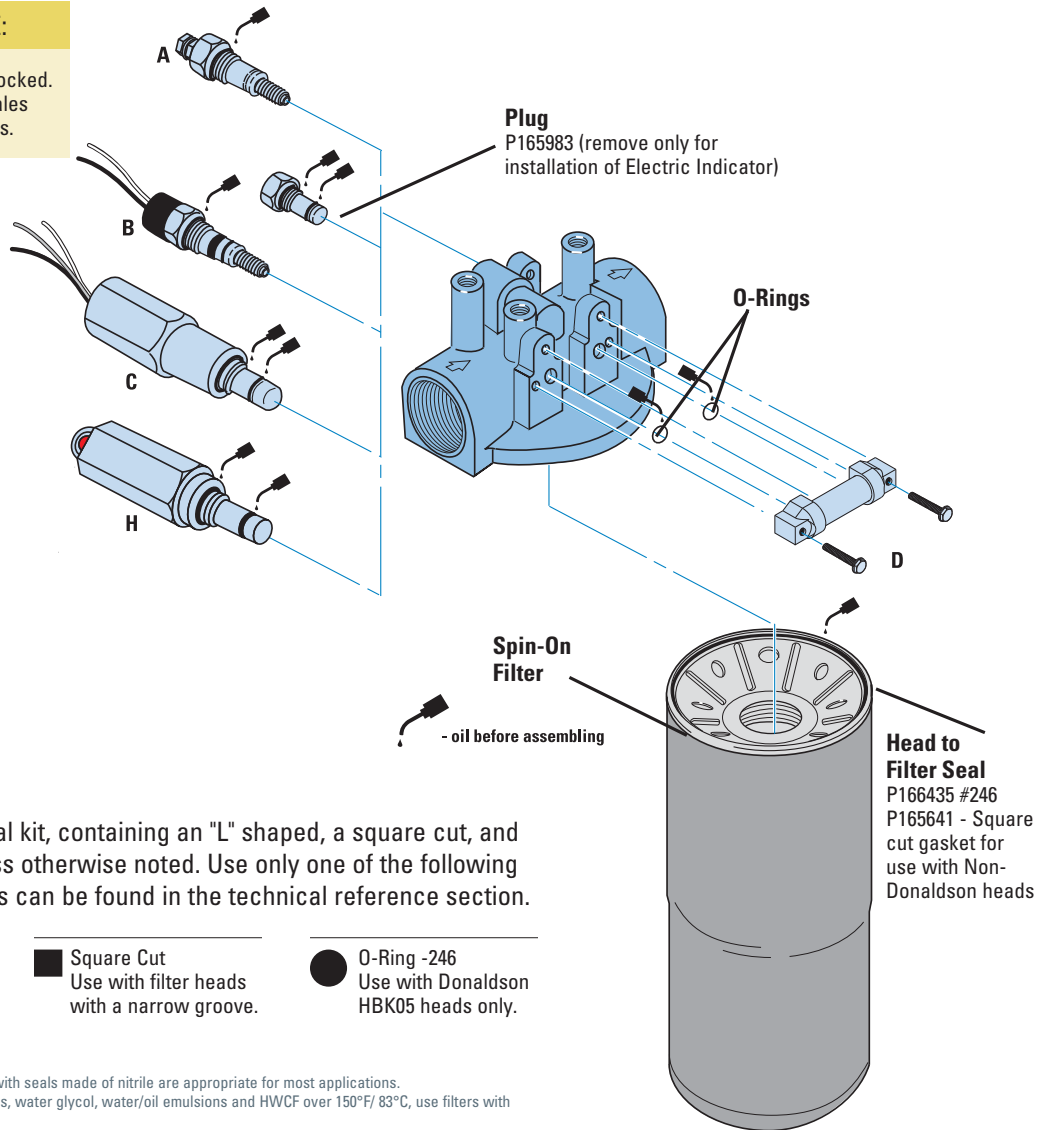
Indicator Notes: ⁽¹⁾All electric models have a maximum operating temperature of 250°F/ 121°C.

⁽²⁾All visual models have a maximum operating temperature of 180°F/ 82°C. ⁽³⁾See indicator illustrations on facing page.

HBK05 Service Parts

SERVICE PARTS NOTE:
Some service parts may not be stocked. Please contact your Donaldson sales representative for lead time details.

Service Indicator Styles
(See table on opposite page)



Gaskets

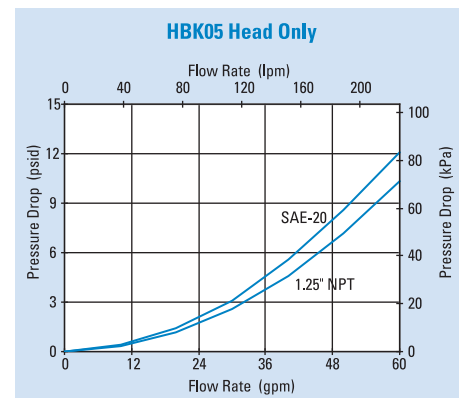
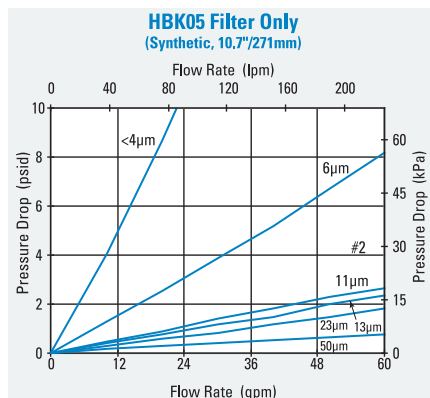
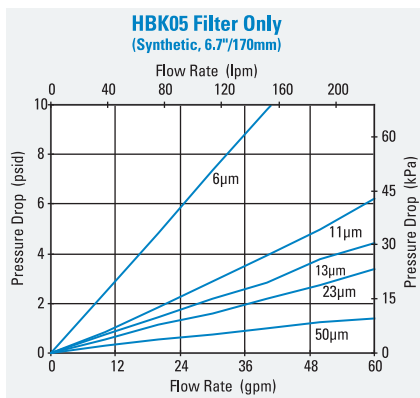
Each filter ships with a 3-seal kit, containing an "L" shaped, a square cut, and an O-Ring gasket seal, unless otherwise noted. Use only one of the following seals. Installation instructions can be found in the technical reference section.

- L Shaped**
Use with filter heads with no groove or a wide groove.
- Square Cut**
Use with filter heads with a narrow groove.
- O-Ring -246**
Use with Donaldson HBK05 heads only.

Filter Notes

- If you're filtering petroleum-based oil, filters with seals made of nitrile are appropriate for most applications.
- If you're filtering diester, phosphate ester fluids, water glycol, water/oil emulsions and HWCF over 150°F/ 83°C, use filters with seals made of fluorocarbon.
- Refer to the table in the Technical Reference Guide for fluid compatibility with our filter media.

Performance Data





SP50/60

Max Flow: 60 gpm (227 lpm)



SP50/60 Spin-On Filters

Working Pressures to:

150 psi / 1035 kPa / 10.3 bar

Rated Static Burst to:

250 psi / 1725 kPa / 17.2 bar

Flow Range To:

60 gpm / 227 lpm

Features

The SP50/60 spin-on filter is an economical, low-pressure model with a broad selection of media ratings. The die cast aluminum head and steel body ensure strength and durability—perfect for a wide variety of mobile and in-plant applications.

Take advantage of Donaldson's mix and match system of in-stock heads and filter choices—so you can get exactly what you need. Filter options include: synthetic media, natural-fiber cellulose, water-absorbing cellulose media and wire mesh media. SP50/60 spin-on filters are interchangeable with HBK05 filters.

Beta Rating

- Performance to $\beta_{<4(\mu)}$ = 1000

Porting Size Options

- 1¼" NPT
- SAE-20 O-Ring

Replacement Filter Lengths

- 6.7" / 170mm
- 7.0" / 178mm
- 10.7" / 271mm

Standard Bypass Ratings

- 25 psi / 172.5 kPa / 1.7 bar
- 15 psi / 103.4 kPa / 1.03 bar
- 5 psi / 34.5 kPa / .34 bar
- No Bypass

Applications

- Fluid Conditioning Systems
- In-Plant Systems
- Mobile Equipment
- Power Transmissions
- Process Systems



Assembly Weight

- 4.7 lbs / 2.1 kg (short)
- 5.6 lbs / 2.5 kg (long)

Operating Temperatures

- -22°F to 225°F / -30°C to 107°C

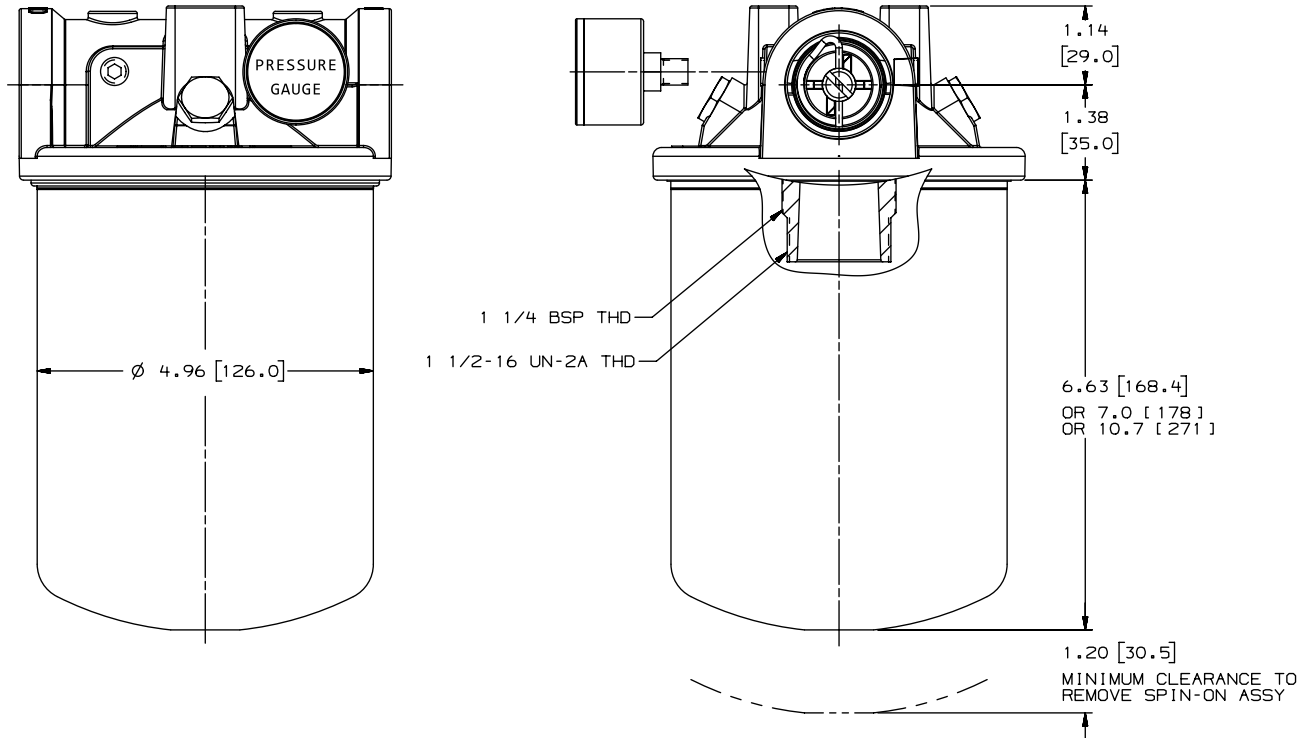
Filter Collapse Ratings

- 100 psid / 690 kPa / 6.9 bar

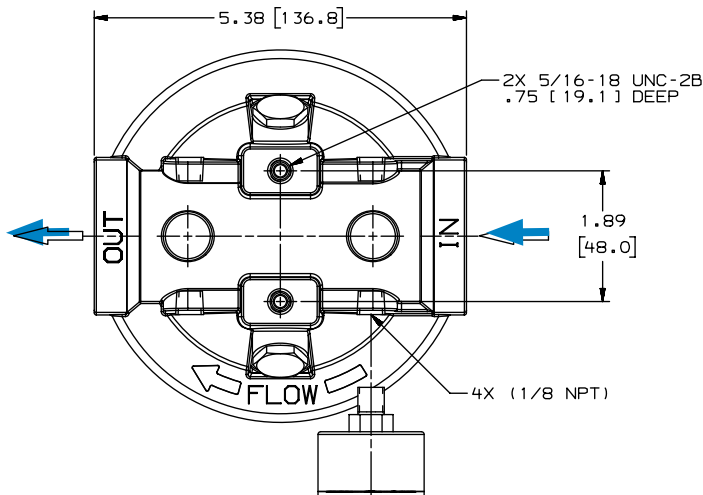
SP50/60 Specification Illustrations

ASSEMBLY - SIDE VIEW

All dimensions are shown in inches [millimeters].



HEAD - TOP VIEW



SP50/60 Components

Filter Choices

Media Type	$\alpha_{x(e)} = 1000$	$\beta_{x(e)} = 2$	$\beta_{x(e)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 23369	Rating based on ISO 16889		in	mm		
Synteq Synthetic			<4 μm	10.7	271	P167796	Fluorocarbon O-Ring & square seal kit. Compatible with water glycol.
			6 μm	6.7	170	P167162	3-seal kit
			6 μm	10.7	271	P165762	3-seal kit
Alpha-Web	10 μm			6.7	170	DBH5875	3-seal kit
Synteq Synthetic			11 μm	6.7	170	P165875	3-seal kit
			11 μm	10.7	271	P165876	3-seal kit
			13 μm	6.7	170	P167944	Fluorocarbon O-Ring & square seal kit. Compatible with water glycol.
			13 μm	10.7	271	P167945	Fluorocarbon O-Ring & square seal kit. Compatible with water glycol.
			23 μm	6.7	170	P165877	3-seal kit
			23 μm	10.7	271	P165878	3-seal kit
			50 μm	6.7	170	P165879	3-seal kit
			50 μm	10.7	271	P165880	3-seal kit
Cellulose		5 μm		6.7	170	P550386	3-seal kit
		5 μm		10.7	271	P550250	3-seal kit
		7 μm		7.2	183	P550388	3-seal kit
		7 μm		10.7	271	P550251	3-seal kit
		7 μm		7.00	178	P565245	Square seal kit, 1/4" BSP thread
		17 μm		6.7	170	P550387	3-seal kit
		17 μm		10.7	271	P550252	3-seal kit
		27 μm		7.00	178	P171616	Square seal kit, 1/4" BSP thread
Water Absorbing		10 μm		10.7	271	P561183	Cellulose media, 3-seal kit. Absorbs 350 ml water.
Wire Mesh		150 μm		6.7	170	P550275	Stainless steel wire mesh, 3-seal kit
		150 μm		10.7	271	P550276	Stainless steel wire mesh, 3-seal kit

All models have 1 1/2-16 UNF threads except where otherwise noted. All models measure 5.0/127mm outer diameter.

Head Choices

Port Size	Bypass Rating	Gauge Ports (drill, tap, plug)	Gauge Port Location	Part No.
1/4" NPT	No Bypass	(4) 1/8" NPT	upstream and downstream side	P576558
1/4" NPT	5 psi / 34.5 kPa / .34 bar	(4) 1/8" NPT	upstream and downstream side	P576555
1/4" NPT	15 psi / 103.4 kPa / 1.34 bar	(4) 1/8" NPT	upstream and downstream side	P576556
1/4" NPT	25 psi / 172.5 kPa / 1.72 bar	(4) 1/8" NPT	upstream and downstream side	P576557
SAE-20	No Bypass	(4) 1/8" NPT	upstream and downstream side	P576565
SAE-20	5 psi / 34.5 kPa / .34bar	(4) 1/8" NPT	upstream and downstream side	P576562
SAE-20	15 psi / 103.4 kPa / 1.34 bar	(4) 1/8" NPT	upstream and downstream side	P576563
SAE-20	25 psi / 172.5 kPa / 1.72 bar	(4) 1/8" NPT	upstream and downstream side	P576564

Gaskets

Each filter ships with a 3-seal kit, containing an "L" shaped, a square cut, and an O-Ring gasket seal, unless otherwise noted. Use only one of the following seals. Installation instructions can be found in the technical reference section.

-  **L Shaped**
Use with filter heads with no groove or a wide groove.
-  **Square Cut**
Use with filter heads with a narrow groove.
-  **O-Ring -246**
Use with Donaldson HBK05 heads only.

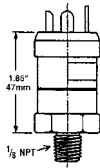
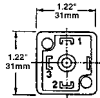
Note: On a return line system the gauge port should be on the upstream side. We suggest a 25 psi bypass. If head is used on a suction line, the gauge port should be on the downstream side very low bypass.

Pressure Guages

Part No.	Pressure Range	Use With Bypass Valve Rating	Type
P563978	5 to 30 psi field adj.*	15 psi / 103.4 kPa / 1.34 bar or 25 psi / 172.5 kPa / 1.72 bar or No Bypass	Return indicator, electrical
P579714	0 to 100 psi	15 psi / 103.4 kPa / 1.34 bar or 25 psi / 172.5 kPa / 1.72 bar or No Bypass	Return indicator, numeric scale
P579715	0 to 100 psi	15 psi / 103.4 kPa / 1.34 bar Bypass	Return indicator, color coded
P579716	0 to 100 psi	25 psi / 172.5 kPa / 1.72 bar or No Bypass	Return indicator, color-coded
P579717	0 to -30 Hg	5 psi / 34.5 kPa / .34 bar or No Bypass	Suction indicator, numeric scale

* NOT PRESET: Setting adjustable for desired application

P563978



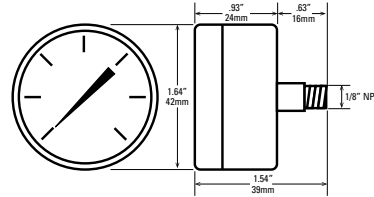
#1 Common; #2 Normally Closed;
#3 Normally Open

Instructions

1. Remove DIN adaptor
2. Remove small brass screw
3. Using 1/8" allen wrench adjust clockwise to increase set point/counter-clockwise to decrease set point
4. NO / NC

Adjustment screw located in center of electric prongs

P579714 - P579717



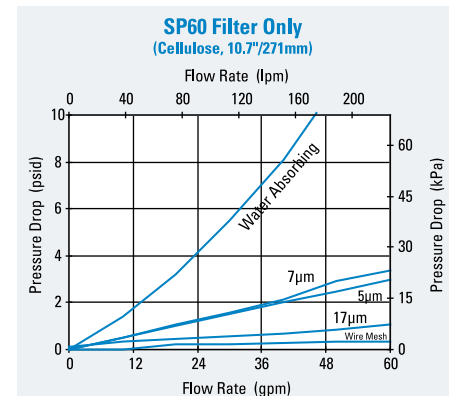
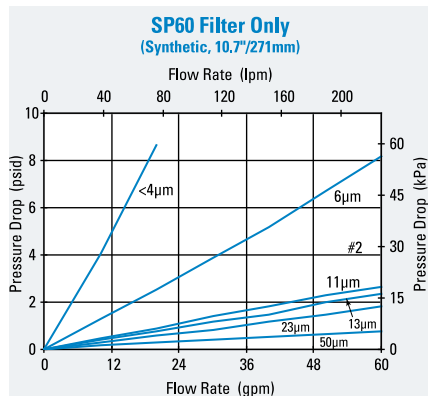
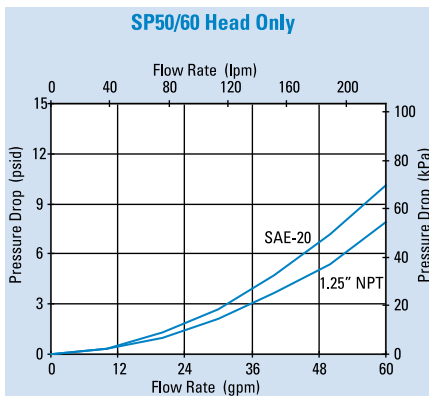
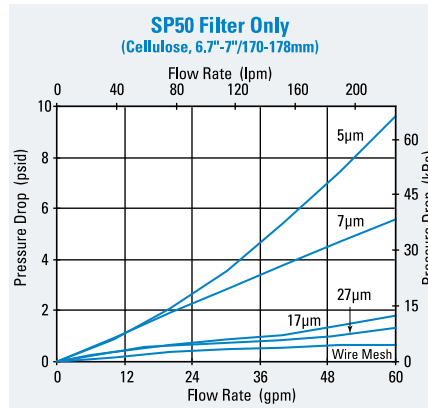
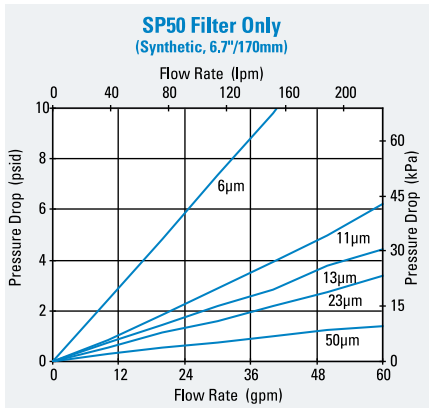
Pop-up Visual Indicators

Use With Bypass Valve Rating	Part Number	Style	Description
25 PSI / 172.5 kPa	P575334	H	Visual Pop-up, Auto Reset
15 PSI / 103 kPa	P579215	H	Visual Pop-up, Auto Reset

Electrical Indicators

Use With Bypass Valve Rating	Part Number	Style	Description
5 PSI / 34.5 kPa	P163642	A	Single Post DC, Normally Open
15 PSI / 103 kPa	P163601	A	Single Post DC, Normally Open
25 PSI / 172.5 kPa	P163839	A	Single Post DC, Normally Closed
25 PSI / 172.5 kPa	P162400	A	Single Post DC, Normally Open

Performance Data





SP80/90

Max Flow: 100 gpm (379 lpm)



SP80/90 Spin-On Filters

Working Pressures to:

150 psi / 1035 kPa / 10.3 bar

Rated Static Burst to:

250 psi / 1725 kPa / 17.2 bar

Flow Range To:

100 gpm / 379 lpm

Features

SP80/90 double filter head allows for double the flow capacity, with two filters to hold more contaminant. Aluminum casting and nitrile seals standard. SP80/90 filters are interchangeable with SP50/60 filters.

Beta Rating

- Performance to $\beta_{<40}_(c)=1000$

Porting Size Options

- 1½" NPT
- SAE-24 O-Ring
- 2" SAE 4-Bolt Flange Code 61

Replacement Filter Lengths

- 6.7" / 170mm
- 7.0" / 178mm
- 10.7" / 271mm

Standard Bypass Ratings

- 25 psi / 172.5 kPa / 1.72 bar
- 15 psi / 103.4 kPa / 1.34 bar
- 5 psi / 34.5 kPa / .34 bar
- no bypass

Applications

- Fluid Conditioning Systems
- In-Plant Systems
- Mobile Equipment
- Power Transmissions
- Process Systems



Assembly Weight

- 10.0 lbs / 4.5 kg (short) - approximate
- 11.8 lbs / 5.4 kg (long)

Operating Temperatures

- -22°F to 225°F / -30°C to 107°C

Filter Collapse Ratings

- 100 psid / 690 kPa / 6.9 bar

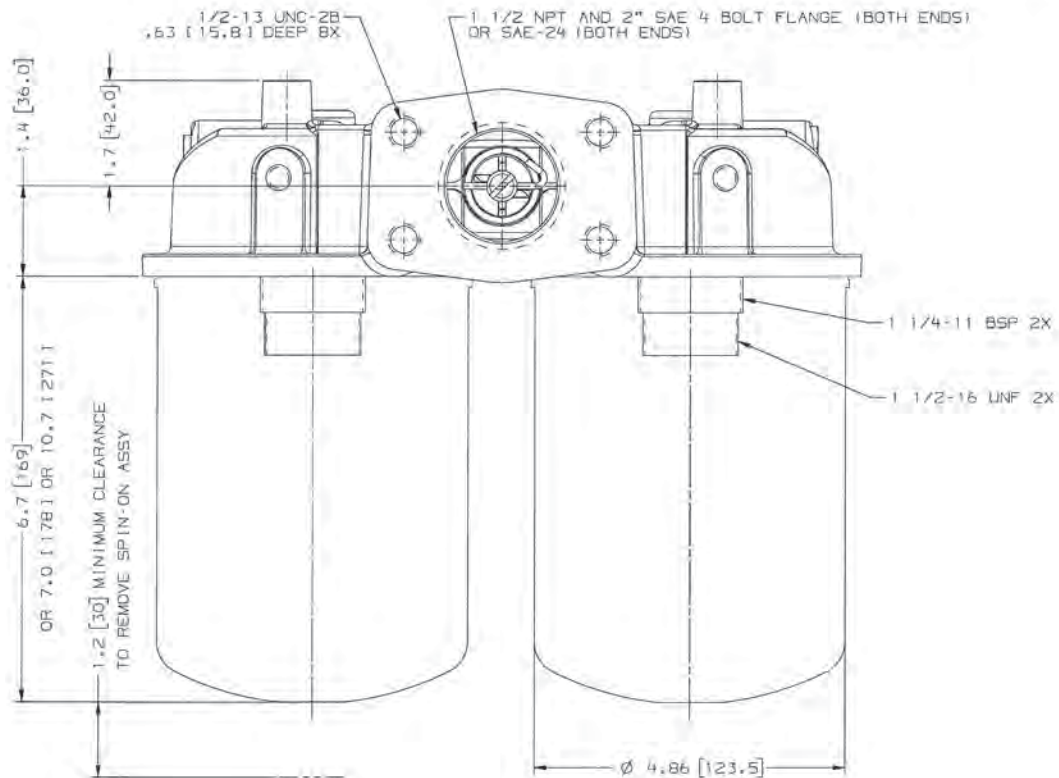
SP80/90 Specification Illustrations

ASSEMBLY - SIDE VIEW

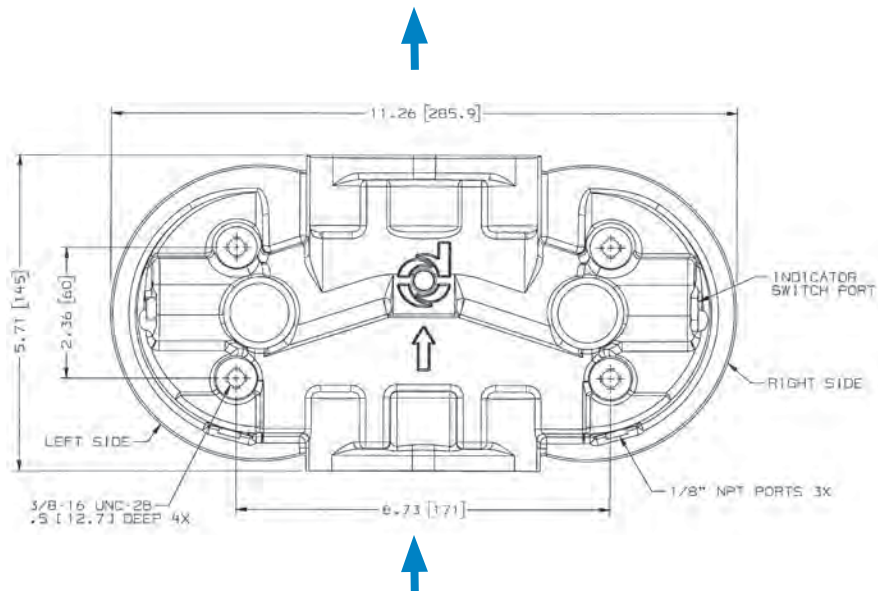
All dimensions are shown in inches [millimeters].

Combination

**1½" NPT and 2" SAE 4-Bolt Flange (Both Ends)
or SAE-24 (Both Ends)**



HEAD - TOP VIEW





SP80/90

Max Flow: 100 gpm (379 lpm)



SP80/90 Components

Filter Choices

Media Type	$\alpha_{x(e)} = 1000$	$\beta_{x(e)} = 2$	$\beta_{x(e)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 23369	Rating based on ISO 16889		in	mm		
Synteq Synthetic			<4 μm	10.7	271	P167796	Fluorocarbon O-Ring & square seal kit. Compatible w/ water glycol.
			6 μm	6.7	170	P167162	3-seal kit
			6 μm	10.7	271	P165762	3-seal kit
Alpha-Web	10 μm			6.7	170	DBH5875	3-seal kit
Synteq Synthetic			11 μm	6.7	170	P165875	3-seal kit
			11 μm	10.7	271	P165876	3-seal kit
			13 μm	6.7	170	P167944	Fluorocarbon O-Ring & square seal kit. Compatible w/ water glycol.
			13 μm	10.7	271	P167945	Fluorocarbon O-Ring & square seal kit. Compatible w/ water glycol.
			23 μm	6.7	170	P165877	3-seal kit
			23 μm	10.7	271	P165878	3-seal kit
			50 μm	6.7	170	P165879	3-seal kit
			50 μm	10.7	271	P165880	3-seal kit
Cellulose		5 μm		6.7	170	P550386	3-seal kit
		5 μm		10.7	271	P550250	3-seal kit
		7 μm		7.2	183	P550388	3-seal kit
		7 μm		10.7	271	P550251	3-seal kit
		7 μm		7.00	178	P565245	Square seal kit, 1/4" BSP thread
		17 μm		6.7	170	P550387	3-seal kit
		17 μm		10.7	271	P550252	3-seal kit
		27 μm		7.00	178	P171616	Square seal kit, 1/4" BSP thread
Water Absorbing		10 μm		10.7	271	P561183	Cellulose media, 3-seal kit. Absorbs 350 ml water.
Wire Mesh		150 μm		6.7	170	P550275	Stainless steel wire mesh, 3-seal kit
		150 μm		10.7	271	P550276	Stainless steel wire mesh, 3-seal kit

All models have 1 1/2-16 UNF threads except where otherwise noted. All models measure 5.07/127mm outer diameter.

Head Choices

Port Size	Bypass Rating	Gauge Ports (drill, tap, plug)	Gauge Port Location	Part No.
1 1/2" NPT & 2" SAE 4 Bolt	15 psi / 103.4 kPa / 1.34 bar	(4) 1/8" NPT	upstream & downstream sides	P563273
1 1/2" NPT & 2" SAE 4 Bolt	25 psi / 172.5 kPa / 1.72 bar	(4) 1/8" NPT	upstream & downstream sides	P563274
1 1/2" NPT & 2" SAE 4 Bolt	No Bypass	(4) 1/8" NPT	upstream & downstream sides	P563275
1 1/2" NPT & 2" SAE 4 Bolt	5 psi / 34.5 kPa / .34 bar	(4) 1/8" NPT	upstream & downstream sides	P563276
SAE-24 O-Ring	25 psi / 172.5 kPa / 1.72 bar	(4) 1/8" NPT	upstream & downstream sides	P564892
SAE-24 O-Ring	No Bypass	(4) 1/8" NPT	upstream & downstream sides	P573217

Note: On a return line system the gauge port should be on the upstream side. We suggest a 25 psi bypass. If head is used on a suction line, the gauge port should be on the downstream side very low bypass.

Gaskets

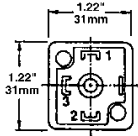
Each filter ships with a 3-seal kit, containing an "L" shaped, a square cut, and an O-Ring gasket seal, unless otherwise noted. Use only one of the following seals. Installation instructions can be found in the technical reference section.

- L Shaped
Use with filter heads with no groove or a wide groove.
- Square Cut
Use with filter heads with a narrow groove.
- O-Ring -246
Use with Donaldson HBK05 heads only.

Optional Filter Service Indicators for Left Side

Part No.	Pressure Range	Use With Bypass Valve Rating	Type
P563978	5 to 30 psi field adj.*	15 psi / 103.4 kPa / 1.34 bar or 25 psi / 172.5 kPa / 1.72 bar or No Bypass	Return indicator, electrical
P579714	0 to 100 psi	15 psi / 103.4 kPa / 1.34 bar or 25 psi / 172.5 kPa / 1.72 bar or No Bypass	Return indicator, numeric scale
P579715	0 to 100 psi	15 psi / 103.4 kPa / 1.34 bar Bypass	Return indicator, color coded
P579716	0 to 100 psi	25 psi / 172.5 kPa / 1.72 bar or No Bypass	Return indicator, color-coded
P579717	0 to -30 Hg	5 psi / 34.5 kPa / .34 bar or No Bypass	Suction indicator, numeric scale

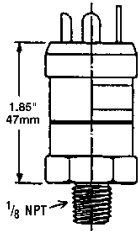
P563978



#1 Common; #2 Normally Closed;
#3 Normally Open

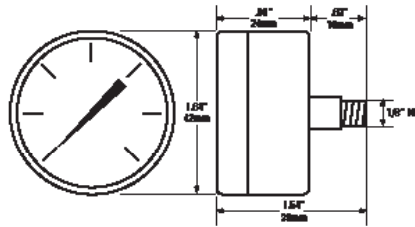
Instructions

1. Remove DIN adaptor
2. Remove small brass screw
3. Using 1/8" allen wrench adjust clockwise to increase set point/counter-clockwise to decrease set point
4. NO / NC



Adjustment screw located in center of electric prongs

P579714 - P579717



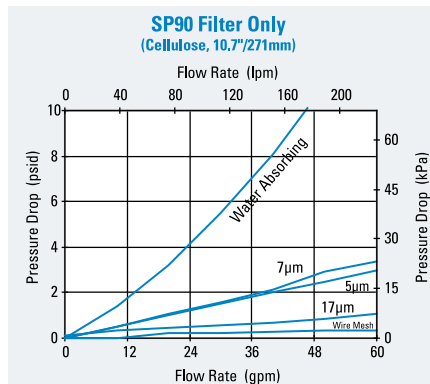
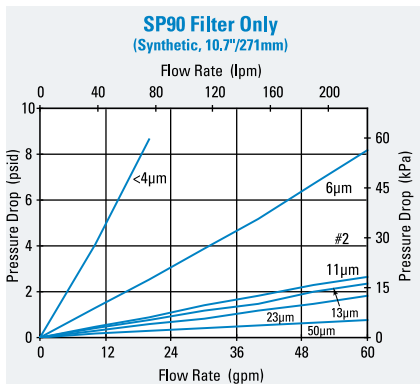
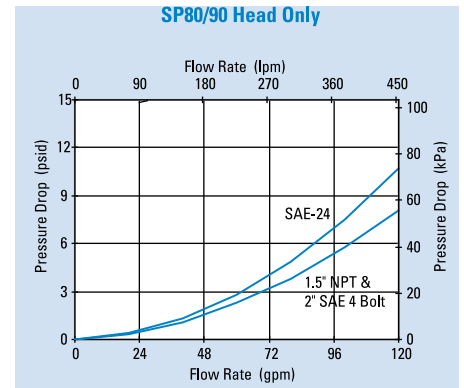
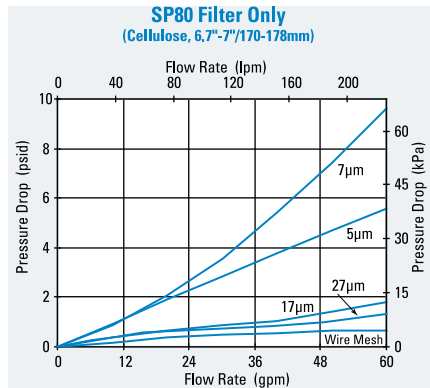
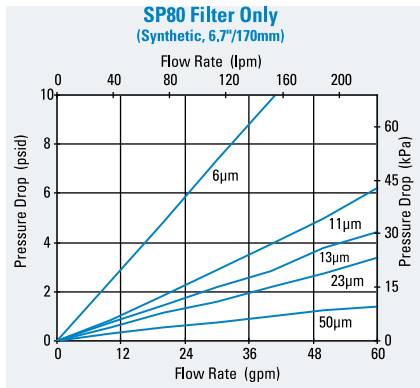
Notes

* NOT PRESET: Setting adjustable for desired application

Optional Filter Service Indicators for Right Side

Refer to Filter Service Indicators pages of the accessories section for right side electrical filter service indicator options.

Performance Data





SP100/120

Max Flow: 100 gpm (379 lpm)



SP100/120 Spin-On Filters

Working Pressures to:

150 psi / 1035 kPa / 10.3 bar

Rated Static Burst to:

250 psi / 1725 kPa / 17.2 bar

Flow Range To:

100 gpm / 379 lpm

Features

SP100/120 double filter head allows for double the flow capacity and a unique, space-saving configuration. Aluminum casting and nitrile seals standard. SP100/120 filters are interchangeable with SP50/60 filters.

Applications

- Fluid Conditioning Systems
- In-Plant Systems



Beta Rating

- Performance to $\beta_{<4(\mu)}=1000$

Porting Size Options

- 1½" NPT

Replacement Filter Lengths

- 6.7" / 170mm
- 7.0" / 178mm
- 10.7" / 271mm

Standard Bypass Ratings

- 25 psi / 172.5 kPa / 1.72 bar

Assembly Weight

- 7.0 lbs / 3.2 kg (short)
- 8.8 lbs / 4.0 kg (long)

Operating Temperatures

- -22°F to 225°F / -30°C to 107°C

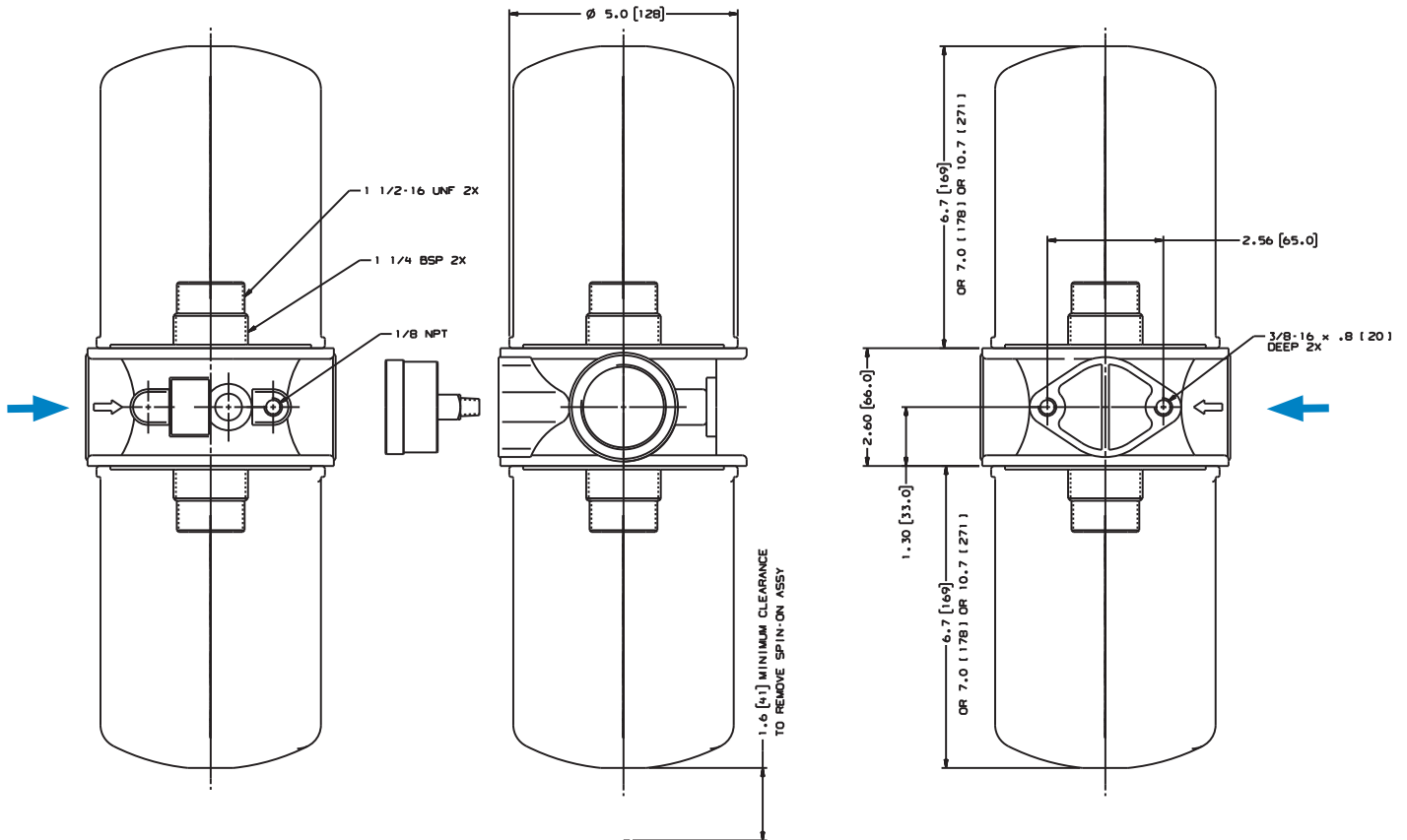
Filter Collapse Ratings

- 100 psid / 690 kPa / 6.9 bar

SP100/120 Specification Illustrations

ASSEMBLY - SIDE VIEW

All dimensions are shown in inches [millimeters].





SP100/120

Max Flow: 100 gpm (379 lpm)



SP100/120 Components

Filter Choices

Media Type	$\alpha_{x(e)} = 1000$	$\beta_{x(e)} = 2$	$\beta_{x(e)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 23369	Rating based on ISO 16889		in	mm		
Synteq Synthetic			<4 μm	10.7	271	P167796	Fluorocarbon O-Ring & square seal kit. Compatible with water glycol.
			6 μm	6.7	170	P167162	3-seal kit
			6 μm	10.7	271	P165762	3-seal kit
Alpha-Web	10 μm			6.7	170	DBH5875	3-seal kit
Synteq Synthetic			11 μm	6.7	170	P165875	3-seal kit
			11 μm	10.7	271	P165876	3-seal kit
			13 μm	6.7	170	P167944	Fluorocarbon O-Ring & square seal kit. Compatible with water glycol.
			13 μm	10.7	271	P167945	Fluorocarbon O-Ring & square seal kit. Compatible with water glycol.
			23 μm	6.7	170	P165877	3-seal kit
			23 μm	10.7	271	P165878	3-seal kit
			50 μm	6.7	170	P165879	3-seal kit
			50 μm	10.7	271	P165880	3-seal kit
	Cellulose		5 μm		6.7	170	P550386	3-seal kit
		5 μm		10.7	271	P550250	3-seal kit
		7 μm		7.2	183	P550388	3-seal kit
		7 μm		10.7	271	P550251	3-seal kit
		7 μm		6.2	158	P565245	Square seal kit, 1/4" BSP thread
		17 μm		6.7	170	P550387	3-seal kit
		17 μm		10.7	271	P550252	3-seal kit
		27 μm		7.00	178	P171616	Square seal kit, 1/4" BSP thread
Water Absorbing		10 μm		10.7	271	P561183	Cellulose media, 3-seal kit. Absorbs 350 ml water.
Wire Mesh		150 μm		6.7	170	P550275	Stainless steel wire mesh, 3-seal kit
		150 μm		10.7	271	P550276	Stainless steel wire mesh, 3-seal kit

All models have 1/4-16 UNF threads except where otherwise noted. All models measure 5.07/127mm outer diameter.

Head Choice

Port Size	Bypass Rating	Gauge Ports (drill, tap, plug)	Gauge Port Location	Part No.
1/2" NPT	25 psi / 172.5 kPa / 1.72 bar	(2) 1/8" NPT	upstream & downstream sides	P563277

Note: On a return line system the gauge port should be on the upstream side. We suggest a 25 psi bypass. If head is used on a suction line, the gauge port should be on the downstream side very low bypass.

Gaskets

Each filter ships with a 3-seal kit, containing an "L" shaped, a square cut, and an O-Ring gasket seal, unless otherwise noted. Use only one of the following seals. Installation instructions can be found in the technical reference section.

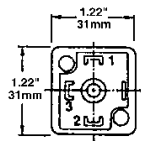
- L Shaped
Use with filter heads with no groove or a wide groove.
- Square Cut
Use with filter heads with a narrow groove.
- O-Ring -246
Use with Donaldson HBK05 heads only.

Optional Filter Service Indicators

This handy pressure gauge, mounted on the side of an SP100/120 filter head, will tell you when it's time to service the filter.

Part No.	Pressure Range	Use With Bypass Valve Rating	Type
P563978	5 to 30 psi field adj.*	15 psi / 103.4 kPa / 1.34 bar or 25 psi / 172.5 kPa / 1.72 bar or No Bypass	Return indicator, electrical
P579714	0 to 100 psi	15 psi / 103.4 kPa / 1.34 bar or 25 psi / 172.5 kPa / 1.72 bar or No Bypass	Return indicator, numeric scale
P579715	0 to 100 psi	15 psi / 103.4 kPa / 1.34 bar Bypass	Return indicator, color coded
P579716	0 to 100 psi	25 psi / 172.5 kPa / 1.72 bar or No Bypass	Return indicator, color-coded
P579717	0 to -30 Hg	5 psi / 34.5 kPa / .34 bar or No Bypass	Suction indicator, numeric scale

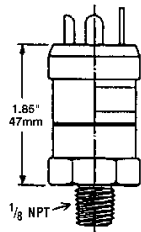
P563978



#1 Common; #2 Normally Closed;
#3 Normally Open

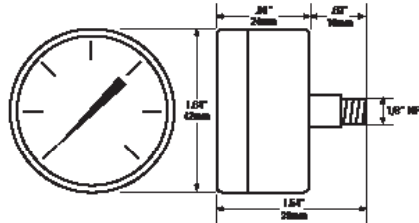
Instructions

1. Remove DIN adaptor
2. Remove small brass screw
3. Using 1/8" allen wrench adjust clockwise to increase set point/counter-clockwise to decrease set point
4. NO / NC



Adjustment screw located in center of electric prongs

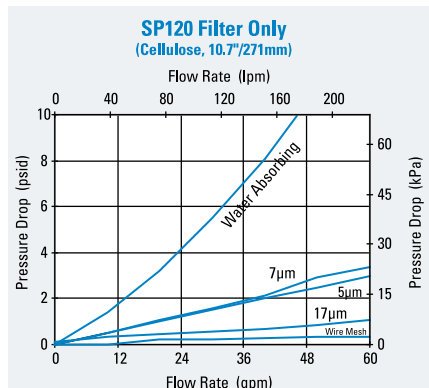
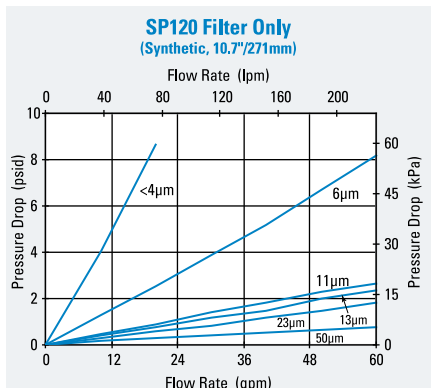
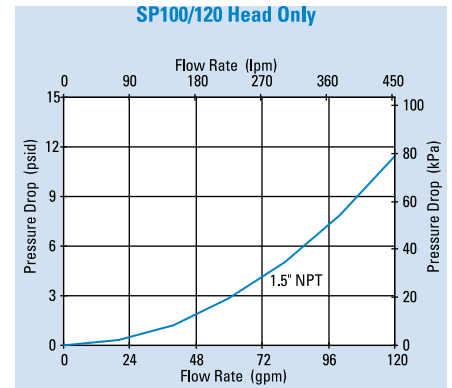
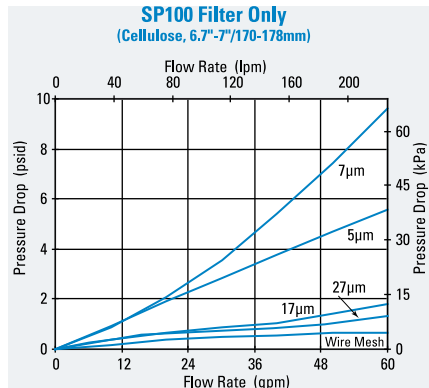
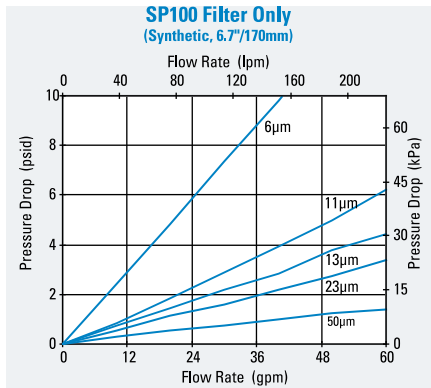
P579714 - P579717



Notes

* NOT PRESET: Setting adjustable for desired application

Performance Data





TT15/30/60

Max Flow: 50 gpm (189 lpm)



TT15/30/60 Tank Top Return Spin-On Filters

Working Pressures to:

100 psi / 690 kPa / 6.9 bar

Rated Static Burst to:

250 psi / 1725 kPa / 17.2 bar

Flow Range To:

50 gpm / 189 lpm



Applications

- In-Plant Systems
- Mobile Equipment
- Return Lines



Features

TT15/30/60 Tank Top filters are designed for industrial service. Aluminum casting and nitrile seals standard. Used with mineral and synthetic based fluids, these return filters conveniently mount to tank tops with four screws. Common holes are used to mount the filter head to the reservoir without welding. A down pipe is attached to a threaded port and the gasket surface provides a watertight seal. Each filter provides a new bypass valve and anti-drainback valve for easy filter change.

Beta Rating

- Performance to $\beta_{7(c)}=2$

Porting Size Options

- 3/4", 1 1/2" NPT

Replacement Filter Lengths

- 5.83" / 148mm TT15
- 7.05" / 179mm TT30
- 9.29" / 236mm TT60

Standard Bypass Ratings

- 22 psi / 150 kPa / 1.5 bar

Assembly Weight

- 2.0 lbs / 0.9 kg TT15
- 4.3 lbs / 2.0 kg TT30
- 5.2 lbs / 2.4 kg TT60

Operating Temperatures

- -22°F to 225°F / -30°C to 107°C

Filter Collapse Ratings

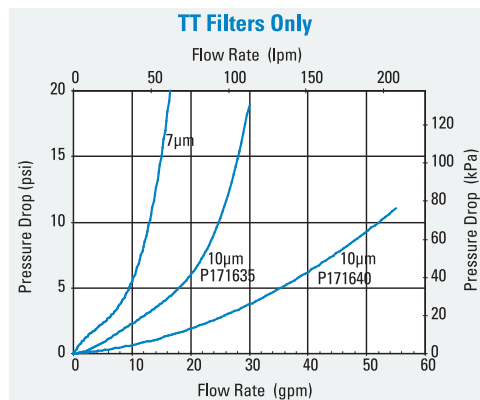
- 250 psid / 1725 kPa / 17.2 bar

TT15/30/60 Components

Filter Choices

Media Type	$\beta_{x(c)} = 2$	Length		Part No.	Comments
	Rating based on ISO 16889	in	mm		
Cellulose	7µm	5.36	136	P565242	TT15 Series
	10 µm	7.05	179	P171635	TT30 Series
	10 µm	9.29	236	P171640	TT60 Series

Performance Data



Head Choices

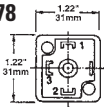
Port Size	Bypass Rating*	Gauge Ports (drill, tap, plug)	Gauge Port Location	Part No.	Description	Head to Tank** Seal Part No.
3/4" NPT	22 psi / 150 kPa / 1.5 bar	(2) 1/8" NPT	upstream side	P564038	TT15 Series	P563975
1 1/2" NPT	22 psi / 150 kPa / 1.5 bar	(2) 1/8" NPT	upstream side	P563973	TT30/60 Series	P563976

Note: * Bypass valve is integral part of replacement filter. ** Included with head. On a return line system the gauge port should be on the upstream side. We suggest a 25 psi bypass. If head is used on a suction line, the gauge port should be on the downstream side very low bypass.

Optional Filter Service Indicators

Part No.	Pressure Range	Use With Series	Type
P563300	0 to 30 psi	TT15/30/60	Return indicator, color-coded
P563978	5 to 30 psi field adj.*	TT15/30/60	Return indicator, electrical
P579716	0 to 100 psi	TT15/30/60	Return indicator, color-coded

P563978

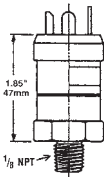


#1 Common; #2 Normally Closed; #3 Normally Open

Instructions

1. Remove DIN adaptor
2. Remove small brass screw
3. Using 1/8" allen wrench adjust clockwise to increase set point/counter-clockwise to decrease set point
4. NO / NC

Adjustment screw located in center of electric prongs

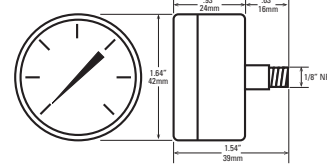


1/8" - 27 NPTF threads

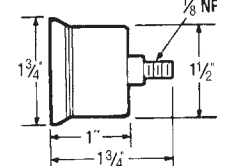
- Built in snubber to minimize damage caused by pressure surges
- Compatible with petroleum and mineral-based fluids
- Anti-splash

Notes: *NOT PRESET: Setting adjustable for desired application

P579716



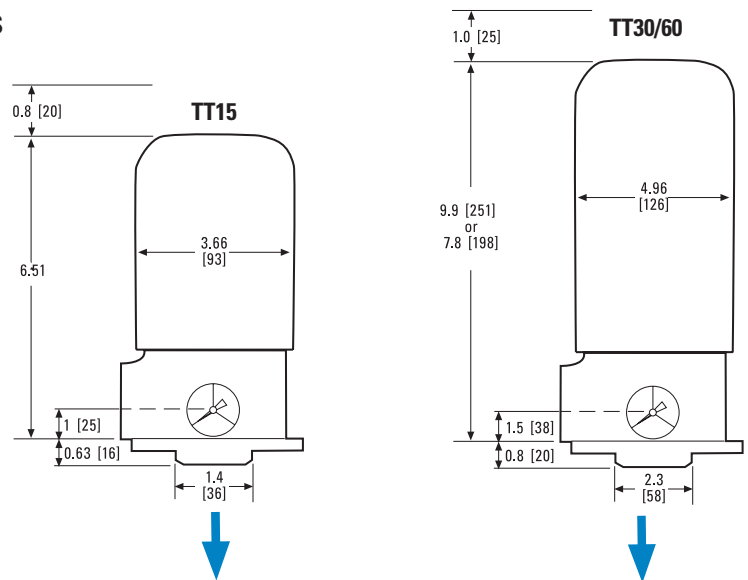
P563300



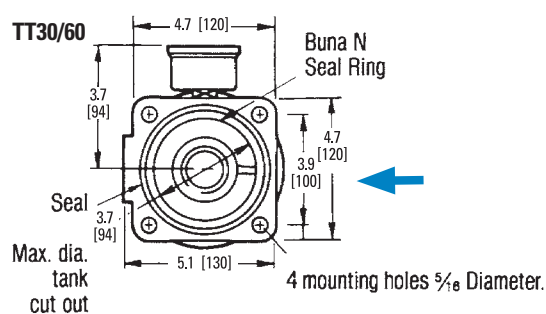
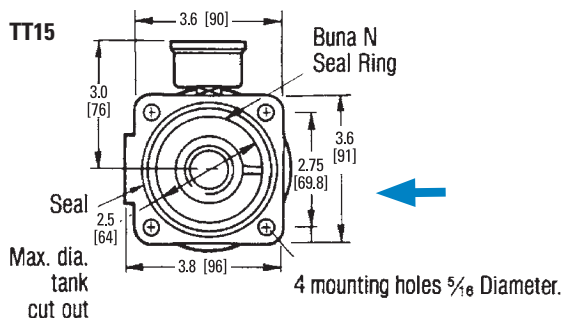
TT 15 & 30/60 Specification Illustrations

ASSEMBLY - SIDE VIEW

All dimensions are shown in inches [millimeters].



HEAD - TOP VIEW





WL15

Max Flow: 50 gpm (189 lpm)



WL15 In-Tank Filters

Working Pressures to:

200 psi / 1380 kPa / 13.8 bar

Rated Static Burst to:

300 psi / 2070 kPa / 207 bar

Flow Range To:

50 gpm / 189 lpm

Applications

- Cooling Circuits
- Fluid Conditioning Systems
- Lube Oil Systems
- Meets HF4 Specification
- Process Systems
- Return Lines
- Side Loop Systems



Features

WL15 in-tank filter meets HF4 automotive standard. The quick disconnect cover allows for easy and efficient filter change outs. DT High Performance replacement filters are available in five different media grades to fit any application.

Beta Rating (per ISO 16889)

- Performance to $\beta_{slc1} = 1000$

Porting Size Options

- SAE-24 O-Ring
- 1½" SAE 4-Bolt Flange Code 61

Replacement Filter Lengths

- 9.04" / 230mm

Standard Bypass Ratings

- 50 psi / 345 kPa / 3.5 bar
- 25 psi / 172.5 kPa / 1.72 bar

Assembly Weight

- Code 3: 5.25 lbs / 2.38 kg
- Code 9 (with 11" extension tube): 6.25 lbs / 2.84 kg

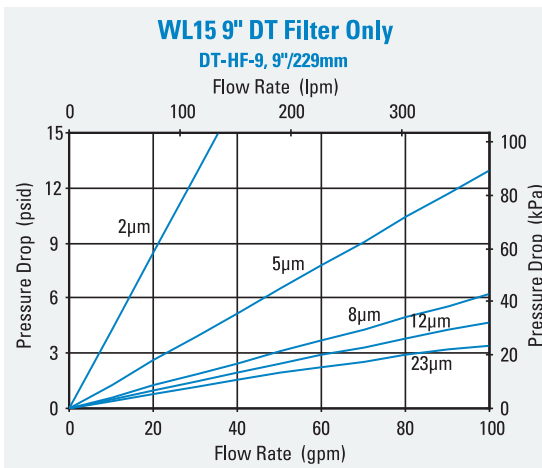
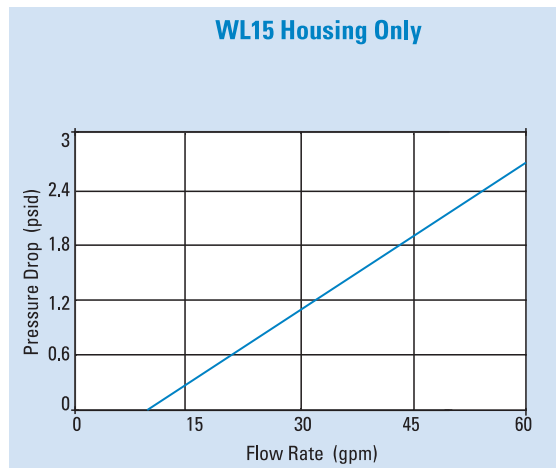
Operating Temperatures

- -45° to 250°F (-43° to 121°C)

Filter Collapse Ratings

- 150 psi / 1035 kPa / 10.3 bar

Performance Data



WL15 Components

Filter Choices

Media Type	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 16889	in	mm		
DT Synthetic	2 μm	9.04	230	P568816	DT-HF4-9-2UM
	5 μm	9.04	230	P566270	DT-HF4-9-5UM
	8 μm	9.04	230	P566271	DT-HF4-9-8UM
	12 μm	9.04	230	P566272	DT-HF4-9-14UM
	23 μm	9.04	230	P566273	DT-HF4-9-25UM

All Donaldson DT filters utilize glass fiber media with an epoxy-based resin system for the ultimate in chemical compatibility. All Donaldson DT filters are potted with epoxy-based adhesives. Standard collapse designs are double wire-backed using epoxy-coated steel mesh for maximum pleat support and dirt capacity. Fluorocarbon seals are standard on all Donaldson DT filters.



Filter Assembly Choices

Port Size	Bypass Rating	Seal Material	Indicator Style & Location	Housing Length	Assembly Length	Part No.
SAE-24 O-Ring	25 psi / 1.72 bar	Nitrile	Port Machined & Plugged	9" (228.6mm)	12.76" (324.1mm)	P574231
SAE-24 O-Ring	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	9" (228.6mm)	12.76" (324.1mm)	P575923
SAE-24 O-Ring	25 psi / 1.72 bar	Nitrile	Port Machined & Plugged	9" (228.6mm) w/ 11" (279.4mm) extension	24.88" (631.9mm)	P575924
1-1/2" SAE 4 Bolt Flange Code 61	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	9" (228.6mm) w/ 11" (279.4mm) extension	24.88" (631.9mm)	P575925

Indicator Choices

Indicator Pressure Setting	Connector Style	Part No.
Visual Pressure Gauges, 0-60 psi		
25 psi / 172 kPa	NA	X011059
50 psi / 345 kPa	NA	X011075
Visual Pressure Gauges, 0-200 psi		
50 psi / 345 kPa	NA	X011060
Electrical Service Indicator		
18 psi / 124 kPa	Hirschman	X011061
35 psi / 241 kPa	Hirschman	X011064
18 psi / 124 kPa	Brad Harrison	X011065
35 psi / 241 kPa	Brad Harrison	X011066

Service Part Choices

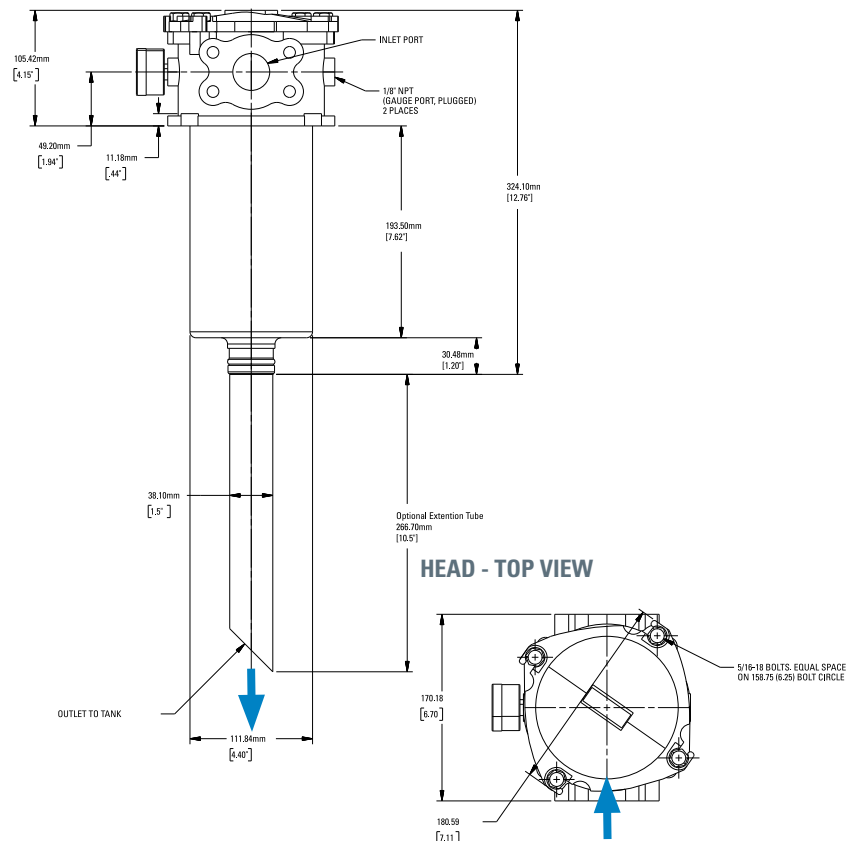
Description	Part No.
Head/Bowl/Housing Seal Kit - nitrile	X011140
Head/Bowl/Housing Seal Kit - fluorocarbon	X011141
Assembly Cover Kit	X011052

Note: Some service parts may not be stocked. Please contact your Donaldson sales representative for lead time details.

WL15 Specification Illustrations

ASSEMBLY - SIDE VIEW

All dimensions are shown in millimeters [inches].





WL16

Max Flow: 150 gpm (568 lpm)



WL16 In-Tank Filters

Working Pressures to:

200 psi / 1380 kPa / 13.8 bar

Rated Static Burst to:

300 psi / 2070 kPa / 20.7 bar

Flow Range To:

150 gpm / 568 lpm

Applications

- Cooling Circuits
- Fluid Conditioning Systems
- Lube Oil Systems
- Meets HF4 Specification
- Process Systems
- Return Lines
- Side Loop Systems



Features

WL16 in-tank filters meet the HF4 automotive standard. The quick disconnect cover allows for easy and efficient filter change-outs. An optional secondary inlet port offers the use of a second return line. These units can be top or side reservoir mounted. Use the optional anti-backflow valve (X011053) when installing this filter assembly to the side of a reservoir.

- Head Material: aluminum
- Housing Material: Steel

Beta Rating

- Performance to $\beta_{500} = 1000$

Porting Size Options

- SAE-24 O-Ring
- 1½" SAE 4-Bolt Flange Code 61

Replacement Filter Lengths

- 9.04" / 230mm
- 18.08" / 459mm
- 27.51" / 699mm

Assembly Weight

- Single Length, 5.25 lbs / 2.3 kg
- Double Length, 16 lbs / 7.3 kg
- Triple Length, 23 lbs / 10 kg

Standard Bypass Ratings

- 50 psi / 345 kPa / 3.5 bar
- 25 psi / 172.5 kPa / 1.72 bar

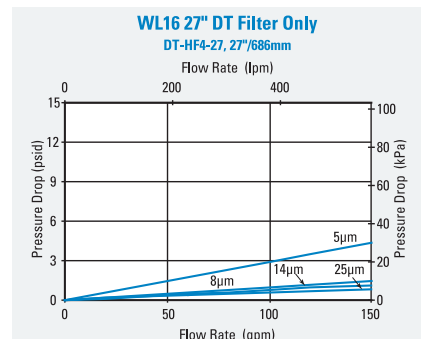
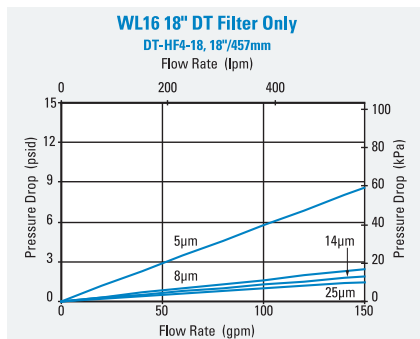
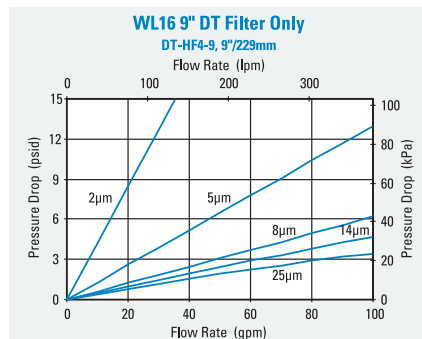
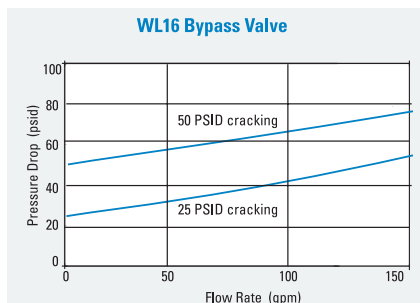
Operating Temperatures

- -45° to 250°F (-43° to 121°C)

Filter Collapse Ratings

- 150 psid / 1035 kPa / 10.3 bar

Performance Data



WL16 Components

Filter Choices

Media Type	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 16889	in	mm		
DT Synthetic	2 μ m	9.04	230	P568816	DT-HF4-9-2UM
	5 μ m	9.04	230	P566270	DT-HF4-9-5UM
	8 μ m	9.04	230	P566271	DT-HF4-9-8UM
	12 μ m	9.04	230	P566272	DT-HF4-9-14UM
	23 μ m	9.04	230	P566273	DT-HF4-9-25UM
	2 μ m	18.44	468	P568817	DT-HF4-18-2UM
	5 μ m	18.32	465	P566274	DT-HF4-18-5UM
	8 μ m	18.32	465	P566275	DT-HF4-18-8UM
	12 μ m	18.32	465	P566276	DT-HF4-18-14UM
	23 μ m	18.32	465	P566277	DT-HF4-18-25UM
	2 μ m	27.90	709	P568818	DT-HF4-27-2UM
	5 μ m	27.75	705	P566278	DT-HF4-27-5UM
	8 μ m	27.75	705	P566279	DT-HF4-27-8UM
	14 μ m	27.75	705	P566280	DT-HF4-27-14UM
	25 μ m	27.75	705	P566281	DT-HF4-27-25UM

Service Part Choices

Description	Part No.
Head/Bowl/Housing Seal Kit - Nitrile	X011140
Head/Bowl/Housing Seal Kit - fluorocarbon	X011141
Assembly Cover Kit	X011052
Diffuser	X011919
Reservoir Weld Ring/Flange	X011058
Outlet Check Valve	X011053

Note:
Some service parts may not be stocked.
Please contact your Donaldson sales representative for lead time details.

All Donaldson DT filters utilize glass fiber media with an epoxy-based resin system for the ultimate in chemical compatibility and are potted with epoxy-based adhesives. Standard collapse designs are double wire-backed using epoxy-coated steel mesh for maximum pleat support and dirt capacity. Fluorocarbon seals are standard on all Donaldson DT filters.



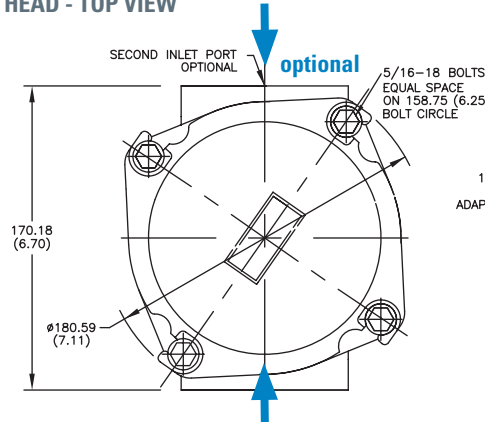
Filter Assembly Choices

Port Size	Bypass Rating	Seal Material	Indicator Style & Location	Housing Length	Assembly Length	Part No.
(2) SAE-24 O-Ring	25 psi / 1.72 bar	Nitrile	Port Machined & Plugged	9" (228.6mm)	12.76" (324.1mm)	P574232
(2) SAE-24 O-Ring	25 psi / 1.72 bar	Nitrile	Port Machined & Plugged	18" (457.2mm)	21.09" (535.6mm)	P574233
(2) SAE-24 O-Ring	25 psi / 1.72 bar	Nitrile	Port Machined & Plugged	27" (685.8mm)	30.46" (773.6mm)	P574234
(2) 1-1/2" SAE 4 Bolt Flange Code 61	25 psi / 1.72 bar	Nitrile	Port Machined & Plugged	18" (457.2mm)	21.09" (535.6mm)	P574235
(1) 1-1/2" SAE 4 Bolt Flange Code 61	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	18" (457.2mm)	21.09" (535.6mm)	P574236
(1) 1-1/2" SAE 4 Bolt Flange Code 61	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	27" (685.8mm)	30.46" (773.6mm)	P574237
(2) SAE-24 O-Ring	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	18" (457.2mm)	21.09" (535.6mm)	P575922
(2) SAE-24 O-Ring	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	27" (685.8mm)	30.46" (773.6mm)	P581657

Indicator Choices

Indicator Pressure Setting	Connector Style	Part No.
Visual Pressure Gauges, 0-60 psi		
25 psi / 172 kPa	NA	X011059
50 psi / 345 kPa	NA	X011075
Visual Pressure Gauges, 0-200 psi		
50 psi / 345 kPa	NA	X011060
Electrical Service Indicator		
18 psi / 124 kPa	Hirschman	X011061
35 psi / 241 kPa	Hirschman	X011064
18 psi / 124 kPa	Brad Harrison	X011065
35 psi / 241 kPa	Brad Harrison	X011066

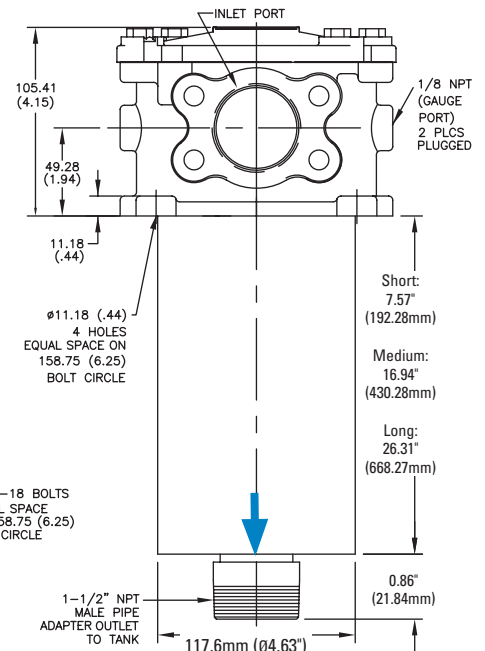
HEAD - TOP VIEW



WL16 Specification Illustrations

ASSEMBLY - SIDE VIEW

All dimensions are shown in millimeters [inches].





FIK

Max Flow: 170 gpm (644 lpm)



FIK In-Tank Filters

Working Pressures to:

145 psi / 1000 kPa / 10 bar

Rated Static Burst to:

217 psi / 1500 kPa / 15 bar

Flow Range To:

170 gpm / 644 lpm

Applications

- Cooling Circuits
- Fluid Conditioning Systems
- Lube Oil Systems
- Process Systems
- Return Lines
- Side Loop Systems



Features

FIK in-tank filters are economical, space-saving units offering a variety of options including aluminum or plastic access covers, mounting options, and breathers. FIK filters, featuring a die-cast aluminum head and a steel or plastic canister are designed to handle heavy-duty applications. The head (and the inlet) sit above the tank, while the housing remains inside the tank, offering design-in flexibility. Optional air breather featuring T.R.A.P.™ technology are available with style A and B, designed to allow the breather to be mounted directly in the FIK filter head, thus eliminating the cost associated with an additional penetration to the hydraulic tank for breather installation. FIK filters offer three service indicators to choose from: pressure gauge, visual indicator and electrical indicator. FIK filter assemblies are shipped from the factory with cellulose or Synteq™ synthetic filter media, and replacement cartridges are offered in a range of media types and performance ratings.

Beta Rating

- Performance to $\beta_{9(c)}=1000$

Porting Size Options

- ½", ¾", 1" NPT
- SAE-8, SAE-12, SAE-16, SAE-20, SAE-24 O-Ring
- 2" SAE 4-Bolt Flange Code 61

Standard Bypass Ratings

- 22 psi / 150 kPa / 1.5 bar

Operating Temperatures

- -4°F to 194°F / -20°C to 90°C

Filter Collapse Ratings

- 145 psid / 1000 kPa / 10 bar

Redesigned with Features for Application Flexibility, Improved Servicing and Enhanced Filtration Performance

STYLE B SHOWN BELOW

Multifunctional Ports (custom)

Contact your Donaldson sales representative for details

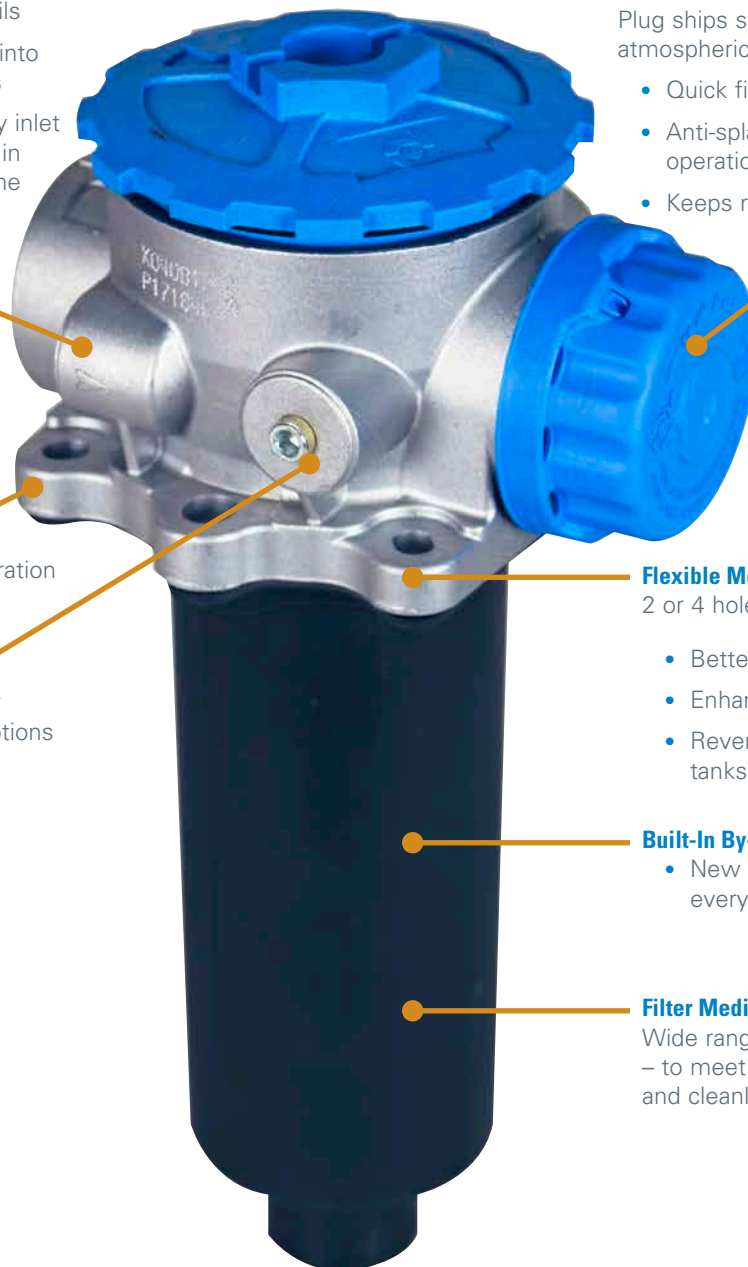
- Can be converted into auxiliary inlet ports
- The two secondary inlet ports can be used in conjunction with the main inlet port for higher flow rates

Flat Gasket Design

- For leak-tight operation

Service Indicator Ports

- Electrical, visual or pressure gauge options



T.R.A.P.™ Breather Technology Breather ordered separately

Plug ships standard. Pressurized & atmospheric breathers available.

- Quick fit connection
- Anti-splash design allows smooth operation under tilt conditions
- Keeps reservoir free from condensation

Flexible Mounting Configurations

2 or 4 hole mounting option

- Better sealing and stability
- Enhanced stability on plastic tanks
- Reverse compatible – retrofit existing tanks with the new hole configuration

Built-In By-Pass Valve

- New by-pass valve installed with every filter replacement

Filter Media Technology

Wide range of Donaldson media offerings – to meet various performance targets and cleanliness standards



FIK

Max Flow: 170 gpm (644 lpm)



FIK Specification Illustrations

LOW FLOW ASSEMBLIES
 < 32 gpm (120 lpm)

HIGH FLOW ASSEMBLIES
 5 - 170 gpm (18 - 643 lpm)

STYLE A
 K030319



STYLE B
 K040811
 K040812
 K040813
 K041782



STYLE C, D, E
 Assembly part numbers on following page

Improved Design Feature

- 2 or 4 hole mounting options
- Built-in by-pass valve in the cartridge
- Improved seal design
- Anti-splash air flow path
- Optional mini T.R.A.P. breather

Improved Design Feature

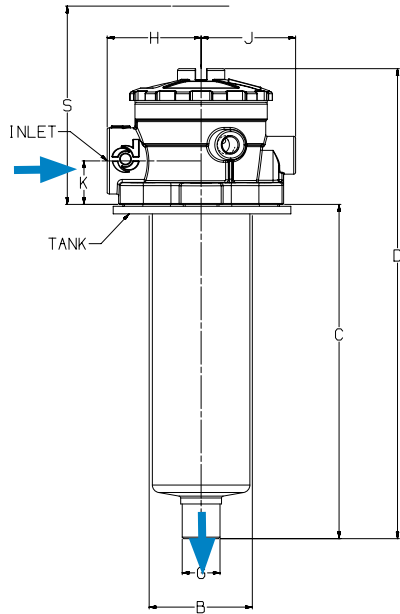
- 2 or 4 hole mounting options
- Built-in by-pass valve in the cartridge
- Improved seal design
- Anti-splash air flow path
- Optional mini T.R.A.P. breather
- Multifunctional ports for accessories

Improved Design Feature

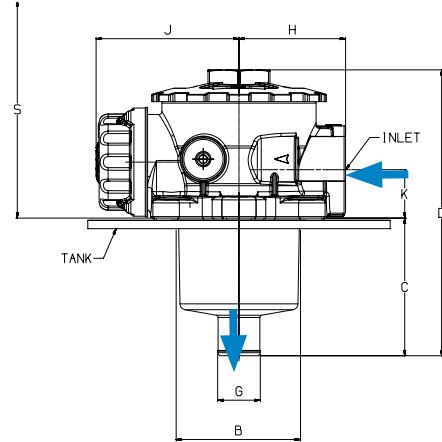
- Improved seal design
- Built-in by-pass valve in the cartridge

ASSEMBLY - SIDE VIEW

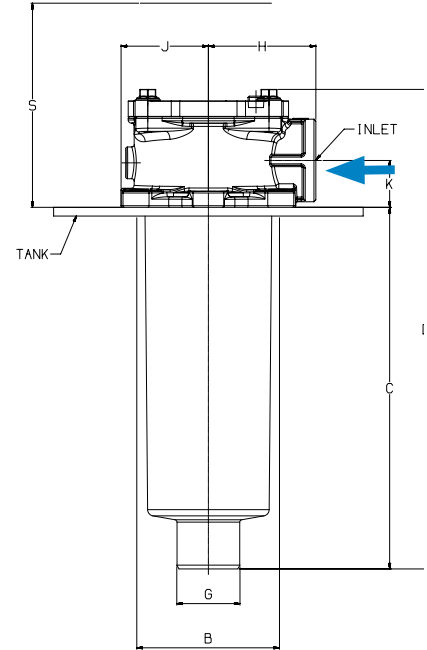
STYLE A



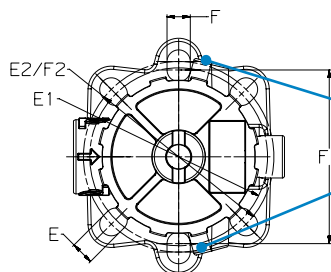
STYLE B



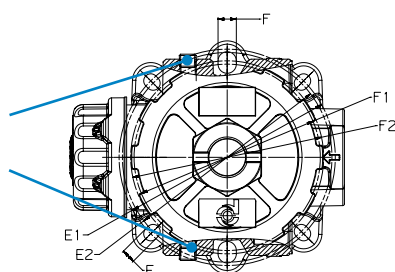
STYLE C, D, E



HEAD - TOP VIEW



Ports for service indicator



HIGH FLOW ASSEMBLIES

5 - 170 gpm (18 - 643 lpm)

STYLE C

K041770 K041774
K041771 K040799
K041772 K040798
K041773
K031027 (2 point mount only)



Improved Design Feature

- 2 or 4 hole mounting options

STYLE D

K070248 K070250
K071001 K071003
K070249
K071002



Design Feature

- 4 hole mounting

STYLE E

K051204
K052053

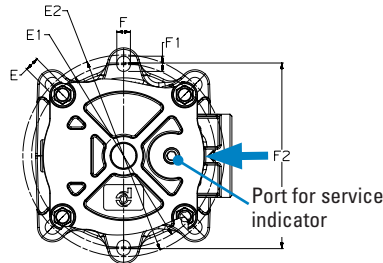


Design Feature

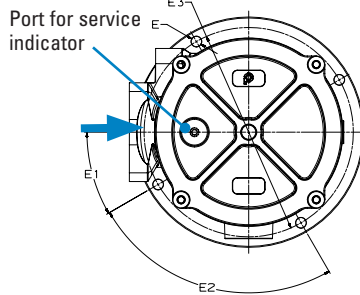
- 3 hole mounting

HEAD - TOP VIEW

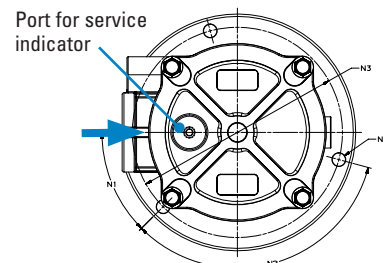
STYLE C



STYLE D



STYLE E



Dimensions

ASSEMBLY DIMENSIONS	ASSEMBLY PART NUMBER																									
	STYLE A		STYLE B				STYLE C						STYLE D				STYLE E									
	K030319	K040811	K040812	K040813 K041782	K031027 2 pt mount only	K041770	K041771 K041772 K041773 K040799	K040798	K070248 K071001	K070249 K071002	K070250 K071003	K051204 K052053														
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in					
C	176.8	6.96	91.0	3.58	141.0	5.55	218.0	8.58	78.0	3.07	99.0	3.90	149.0	5.87	227.7	8.96	242.0	9.53	290.0	11.42	434.0	17.09	224.0	8.82		
D	248.6	9.79	189.0	7.44	239.0	9.41	316.0	12.44	132.0	5.20	173.3	6.82	223.2	8.79	301.9	11.89	348.0	13.70	395.5	15.57	539.5	21.24	313.8	12.35		
S SERVICE CLEARANCE	220.0	8.66	180.0	7.09	220.0	8.66	305.0	12.01	149.0	5.87	170.0	6.69	220.0	8.66	299.0	11.77	320.0	12.60	365.0	14.37	515.0	20.28	305.0	12.01		
G	20.0	0.79	27.6	1.09	27.6	1.09	39.6	1.56	25.2	0.99	27.6	1.09	27.6	1.09	39.5	1.56	50.0	1.97	63.5	2.50	63.5	2.50	40.0	1.57		
B TANK OPENING	57.0	2.24	90.0	3.54	90.0	3.54	90.0	3.54	68.6	2.70	90.0	3.54	90.0	3.54	90.0	3.54	175.0	6.89	175.0	6.89	175.0	6.89	131.0	5.16		
H	49.7	1.96	70.5	2.78	70.5	2.78	70.5	2.78	49.0	1.93	68.0	2.68	68.0	2.68	68.0	2.68	120.0	4.72	126.0	4.96	126.0	4.96	95.0	3.74		
J	54.2	2.13	94.5	3.72	94.5	3.72	94.5	3.72	44.0	1.73	55.0	2.17	55.0	2.17	55.0	2.17	100.0	3.94	100.0	3.94	100.0	3.94	78.0	3.07		
K	23.0	0.91	32.0	1.26	32.0	1.26	32.0	1.26	22.0	0.87	29.5	1.16	29.5	1.16	29.5	1.16	41.0	1.61	48.5	1.91	48.5	1.91	35.0	1.38		
F 2 POINT MOUNT	11.0	0.43	11.0	0.43	11.0	0.43	11.0	0.43	Ø6.4	Ø0.25	8.5	0.33	8.5	0.33	8.5	0.33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
F1	Ø82	Ø3.23	Ø112	Ø4.41	Ø112	Ø4.41	Ø112	Ø4.41	90.0	3.54	9.5	0.37	9.5	0.37	9.5	0.37	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
F2	Ø90	Ø3.54	Ø116	Ø4.57	Ø116	Ø4.57	Ø116	Ø4.57	N/A	N/A	115.0	4.53	115.0	4.53	115.0	4.53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
N 3 POINT MOUNT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Ø11	Ø0.43	
N1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	45°	45°	
N2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	120°	120°	
N3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Ø175	Ø6.89	
E 4 POINT MOUNT	11.0	0.43	8.5	0.33	8.5	0.33	8.5	0.33	N/A	N/A	9.0	0.35	9.0	0.35	9.0	0.35	Ø10.5	Ø0.41	Ø11	Ø0.43	Ø11	Ø0.43	N/A	N/A		
E1	Ø84	Ø3.31	Ø126	Ø4.96	Ø126	Ø4.96	Ø126	Ø4.96	N/A	N/A	Ø115	Ø4.53	Ø115	Ø4.53	Ø115	Ø4.53	30°	30°	30°	30°	30°	30°	30°	N/A	N/A	
E2	Ø90	Ø3.54	Ø130	Ø5.12	Ø130	Ø5.12	Ø130	Ø5.12	N/A	N/A	Ø126	Ø4.96	Ø126	Ø4.96	Ø126	Ø4.96	90°	30°	90°	90°	90°	90°	90°	N/A	N/A	
E3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Ø220	Ø8.66	Ø220	Ø8.66	Ø220	Ø8.66	Ø220	Ø8.66	N/A	N/A
WEIGHT	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg
K	1.8	0.8	2.1	0.95	3.2	1.45	4.1	1.86	1.1	0.5	1.8	0.8	2.1	0.95	2.43	1.1	10.0	4.5	13.1	5.9	18.6	8.4	7.0	3.2		



FIK

Max Flow: 170 gpm (644 lpm)



FIK Components

Assembly Choices

Port Size	Bypass Rating*	Assembly Part No.	$\beta_{x(c)} = 1000$	Filter Media [†]	Provided with Filter	Filter Diameter (in/mm)	Filter Length (in/mm)	Flow Range (@~5 psid / 34.5 kPa)
additional filter choices on following pages to meet various performance requirements								
Low Flow Assemblies								
STYLE A								
SAE-8 O-Ring	22 psi/1.5 bar	K030319	36 μ m	Cellulose	P171839	1.69 / 43	6.38 / 162	10 gpm / 38 lpm
STYLE B								
SAE-12 O-Ring	22 psi/1.5 bar	K040811	36 μ m	Cellulose	P171527	2.76 / 70	3.23 / 82	14 gpm / 53 lpm
SAE-16 O-Ring	22 psi/1.5 bar	K040812	36 μ m	Cellulose	P171533	2.76 / 70	5.04 / 128	23 gpm / 86 lpm
SAE-20 O-Ring	22 psi/1.5 bar	K040813	36 μ m	Cellulose	P171840	2.76 / 70	8.27 / 210	32 gpm / 120 lpm
SAE-20 O-Ring	22 psi/1.5 bar	K041782	11 μ m	Synthetic	P171846	2.76 / 70	8.27 / 210	28 gpm / 106 lpm
High Flow Assemblies								
STYLE C								
1/2" NPT	22 psi/1.5 bar	K031027	36 μ m	Cellulose	P171503	2.05 / 52	2.64 / 67	5 gpm / 18 lpm
1" NPT	22 psi/1.5 bar	K041770	36 μ m	Cellulose	P171527	2.76 / 70	3.23 / 82	15 gpm / 56 lpm
3/4" NPT	22 psi/1.5 bar	K041771	36 μ m	Cellulose	P171533	2.76 / 70	5.04 / 128	18 gpm / 68 lpm
1" NPT	22 psi/1.5 bar	K041772	36 μ m	Cellulose	P171533	2.76 / 70	5.04 / 128	21 gpm / 79 lpm
SAE-12 O-Ring	22 psi/1.5 bar	K041773	36 μ m	Cellulose	P171533	2.76 / 70	5.04 / 128	18 gpm / 68 lpm
SAE-12 O-Ring	22 psi/1.5 bar	K041774	11 μ m	Synteq	P171531	2.76 / 70	5.04 / 128	13 gpm / 49 lpm
SAE-16 O-Ring	22 psi/1.5 bar	K040799	36 μ m	Cellulose	P171533	2.76 / 70	5.04 / 128	21 gpm / 79 lpm
SAE-16 O-Ring	22 psi/1.5 bar	K040798	36 μ m	Cellulose	P171840	2.76 / 70	8.22 / 209	32 gpm / 120 lpm
STYLE D								
SAE-24 O-Ring	22 psi/1.5 bar	K070248	36 μ m	Cellulose	P171557	5.51 / 140	7.49 / 203	66 gpm / 248 lpm
SAE-24 O-Ring	22 psi/1.5 bar	K071001	11 μ m	Synteq	P171555	5.51 / 140	7.49 / 203	44 gpm / 165 lpm
2" SAE 4-Bolt	22 psi/1.5 bar	K070249	36 μ m	Cellulose	P171575	5.51 / 140	9.84 / 250	106 gpm / 399 lpm
2" SAE 4-Bolt	22 psi/1.5 bar	K071002	11 μ m	Synteq	P171573	5.51 / 140	9.84 / 250	74 gpm / 278 lpm
2" SAE 4-Bolt	22 psi/1.5 bar	K070250	36 μ m	Cellulose	P171581	5.51 / 140	15.75 / 400	170 gpm / 644 lpm
2" SAE 4-Bolt	22 psi/1.5 bar	K071003	11 μ m	Synteq	P171579	5.51 / 140	15.75 / 400	120 gpm / 451 lpm
STYLE E								
SAE-20 O-Ring	22 psi/1.5 bar	K051204	36 μ m	Cellulose	P171539	3.74 / 95	7.49 / 203	47 gpm / 177 lpm
SAE-20 O-Ring	22 psi/1.5 bar	K052053	11 μ m	Synteq	P171537	3.74 / 95	7.49 / 203	32 gpm / 120 lpm





Note
 *Bypass valve is an integral part of the replacement filter.
 Service indicator port available for all assemblies.
 Filter Notes
 FIK filters utilize either glass fiber, cellulose, or wire mesh media.
 All FIK filters are potted with polyurethane adhesives.
 Synteq media designs are double wire-backed using epoxy-coated steel mesh for maximum pleat support and dirt capacity.
 Nitrile seals are standard on all FIK filters.



T.R.A.P.™ Breather Choices

For Redesigned Style A and B Assemblies with 4 Hole Mounting Configurations Only

Note: T.R.A.P. breathers are not compatible on older style assemblies with 2 hole mounting configuration

Part No.	Description	Efficiency	Fits Assembly Models:
STYLE A			
 P567392	Mini T.R.A.P.	3 µm @ 97%	K030319
STYLE B			
 P766528	Black Standard plug (no air exchange)	N/A	K040811, K040812, K040813, K041782
 P766530	Blue Atmospheric pressure	10 µm @ 98%	K040811, K040812, K040813, K041782
 P766538	Red 7.3 psi (½ bar) pressurized	10 µm @ 98%	K040811, K040812, K040813, K041782



Standard Breather Choices

Replacement Breathers for Older Style A and B Assemblies with 2 Hole Mounting Configuration Only

Part No.	Efficiency	Fits Assembly Models:
STYLE A		
P173330	10 µm	K030319
STYLE B		
P172434	10 µm	K040811, K040812, K040813



Service Indicators

Pressure Gauges
P171956
G 1/8"
(center back)



P171953
G 1/8"
(bottom mount)

-14.5 to 72 psi
-1 to +5 bar

DC Electrical Indicator
P171966
17 psi / 1.2 bar
(48V AC/DC)



Visual Indicator
P171958
17 psi / 1.2 bar





FIK

Max Flow: 170 gpm (644 lpm)



FIK Components

Filter Choices - Low Flow Assemblies

Media Type	$\beta_{x(c)} = 2$	$\beta_{x(c)} = 1000$	Length		Part No.
	Rating based on ISO 16889		in	mm	
STYLE A					
K030319					
Synteq Synthetic		6 μ m	6.38	162	P569273
		11 μ m	6.38	162	P171845
		23 μ m	6.38	162	P171842
Cellulose	7 μ m		6.38	162	P171839
	27 μ m		6.38	162	P171836
Wire Mesh	60 μ m		6.38	162	P171833
	90 μ m		6.38	162	P171830

Filter Choices - Low Flow Assemblies

Media Type	$\beta_{x(c)} = 2$	$\beta_{x(c)} = 1000$	Length		Part No.
	Rating based on ISO 16889		in	mm	
STYLE B					
K040811					
Synteq Synthetic		11 μ m	3.23	82	P171525
		23 μ m	3.23	82	P171526
Cellulose	7 μ m		3.23	82	P171527
	27 μ m		3.23	82	P171528
Wire Mesh	60 μ m		3.23	82	P171529
	90 μ m		3.23	82	P171524
K040812					
Synteq Synthetic		6 μ m	5.04	128	P569275
		11 μ m	5.04	128	P171531
		23 μ m	5.04	128	P171532
Cellulose	7 μ m		5.04	128	P171533
	27 μ m		5.04	128	P171534
Wire Mesh	60 μ m		5.04	128	P171535
	90 μ m		5.04	128	P171530
K040813					
Synteq Synthetic		6 μ m	8.27	210	P569276
		11 μ m	8.27	210	P171846
		23 μ m	8.27	210	P171843
Cellulose	7 μ m		8.27	210	P171840
	27 μ m		8.27	210	P171837
Wire Mesh	60 μ m		8.27	210	P171834
K041782					
Synteq Synthetic		6 μ m	8.27	210	P569276
		11 μ m	8.27	210	P171846
		23 μ m	8.27	210	P171843
Cellulose	7 μ m		8.27	210	P171840
	27 μ m		8.27	210	P171837
Wire Mesh	60 μ m		8.27	210	P171834

Filter Choices - High Flow Assemblies

Media Type	$\beta_{x(c)} = 2$	$\beta_{x(c)} = 1000$	Length		Part No.
	Rating based on ISO 16889		in	mm	
STYLE C					
K031027					
Synteq Synthetic		6 μ m	2.64	67	P569277
		11 μ m	2.64	67	P171501
		23 μ m	2.64	67	P171502
Cellulose	7 μ m		2.64	67	P171503
	27 μ m		2.64	67	P171504
Wire Mesh	60 μ m		2.64	67	P171505
	90 μ m		2.64	67	P171500
K041770					
Synteq Synthetic		11 μ m	3.23	82	P171525
		23 μ m	3.23	82	P171526
Cellulose	7 μ m		3.23	82	P171527
	27 μ m		3.23	82	P171528
Wire Mesh	60 μ m		3.23	82	P171529
	90 μ m		3.23	82	P171524
K041771, K041772, K041773, K041774, K040799					
Synteq Synthetic		6 μ m	5.04	128	P569275
		11 μ m	5.04	128	P171531
		23 μ m	5.04	128	P171532
Cellulose	7 μ m		5.04	128	P171533
	27 μ m		5.04	128	P171534
Wire Mesh	60 μ m		5.04	128	P171535
	90 μ m		5.04	128	P171530
K040798					
Synteq Synthetic		6 μ m	8.22	209	P569276
		11 μ m	8.22	209	P171846
		23 μ m	8.22	209	P171843
Cellulose	7 μ m		8.22	209	P171840
	27 μ m		8.22	209	P171837
Wire Mesh	60 μ m		8.22	209	P171834

Filter Choices - High Flow Assemblies

Media Type	$\beta_{x(c)} = 2$	$\beta_{x(c)} = 1000$	Length		Part No.
	Rating based on ISO 16889		in	mm	
STYLE D					
K070248, K071001					
Synteq Synthetic		6 μ m	7.49	203	P569279
		11 μ m	7.49	203	P171555
		23 μ m	7.49	203	P171556
Cellulose	7 μ m		7.49	203	P171557
	27 μ m		7.49	203	P171558
Wire Mesh	60 μ m		7.49	203	P171559
K070249, K071002					
Synteq Synthetic		6 μ m	9.84	250	P569280
		11 μ m	9.84	250	P171573
		23 μ m	9.84	250	P171574
Cellulose	7 μ m		9.84	250	P171575
	27 μ m		9.84	250	P171576
Wire Mesh	90 μ m		9.84	250	P171572
K070250, K071003					
Synteq Synthetic		6 μ m	15.75	400	P176749
		11 μ m	15.75	400	P171579
		23 μ m	15.75	400	P171580
Cellulose	7 μ m		15.75	400	P171581
	27 μ m		15.75	400	P171582
Wire Mesh	60 μ m		15.75	400	P171583
	90 μ m		15.75	400	P171578
STYLE E					
K051204, K052053					
Synteq Synthetic		6 μ m	7.49	203	P569278
		11 μ m	7.49	203	P171537
		23 μ m	7.49	203	P171538
Cellulose	7 μ m		7.49	203	P171539
	27 μ m		7.49	203	P171540
Wire Mesh	60 μ m		7.49	203	P171541
	90 μ m		7.49	203	P171536



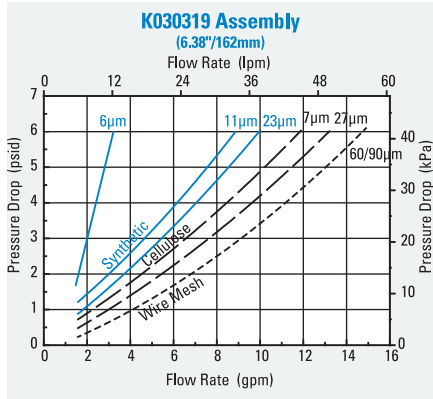
FIK

Max Flow: 170 gpm (644 lpm)



Performance Data

STYLE A

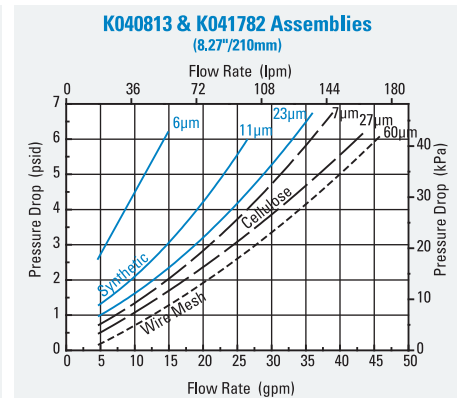
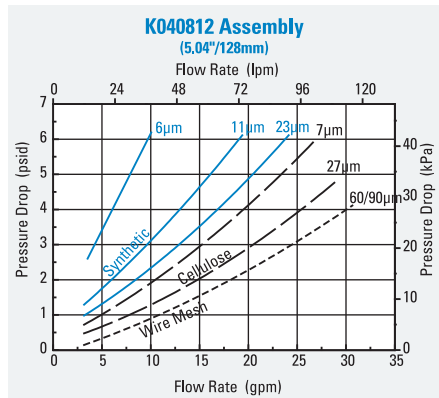
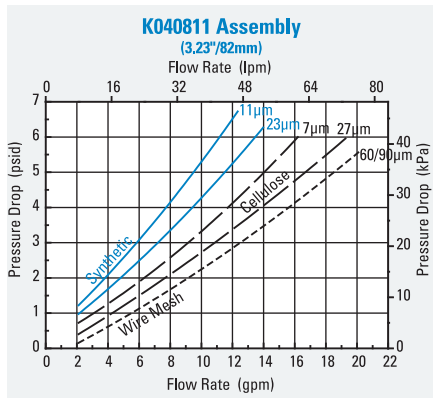


NOTE:

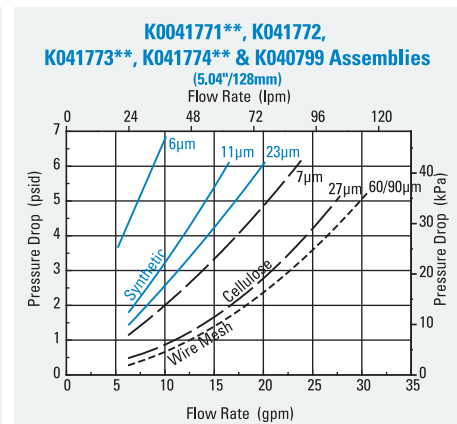
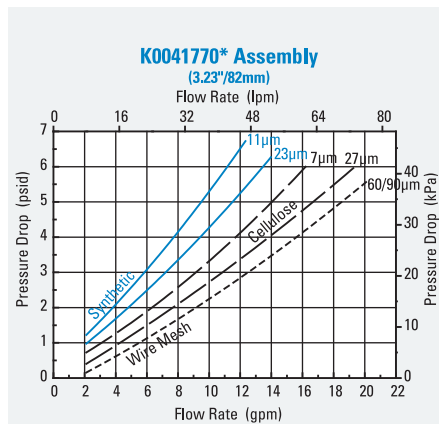
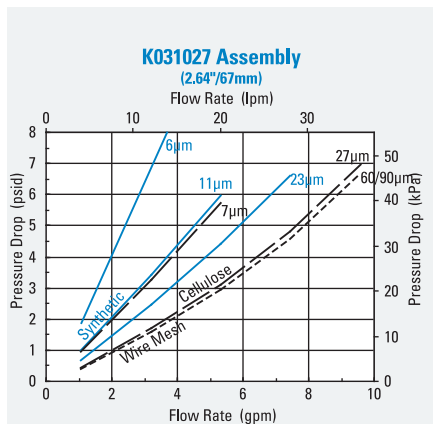
Please note that the line styles used represent different media types

- Synteq Synthetic
- - - Cellulose
- · · Wire Mesh

STYLE B



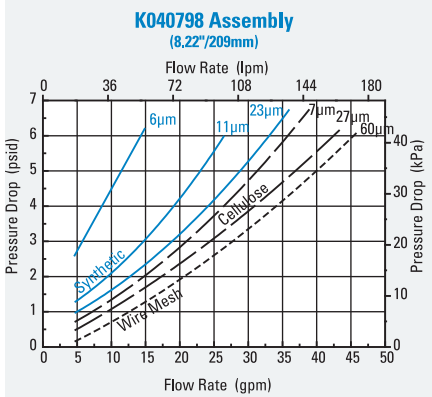
STYLE C



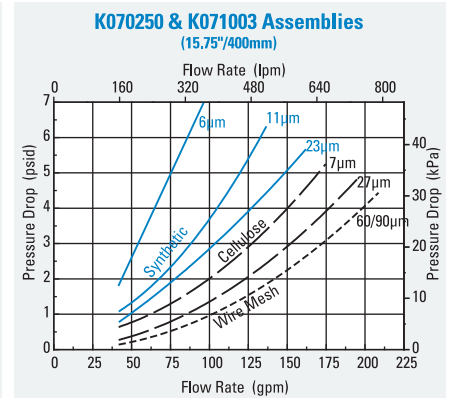
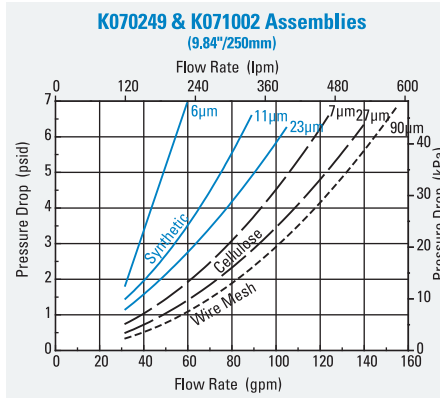
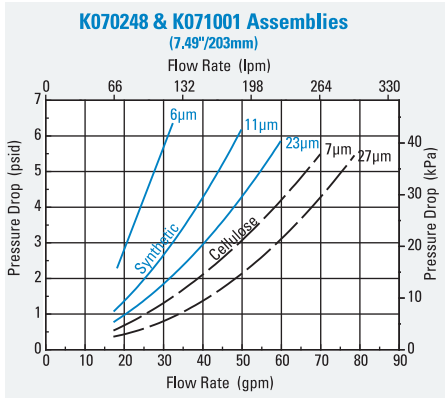
*Subtract ½ psi
**Add ½ psi

Performance Data

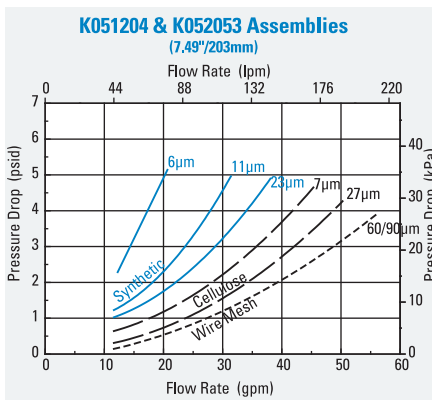
STYLE C, continued



STYLE D



STYLE E





SRK Combo

Max Flow: 79 gpm (300 lpm)



SRK Suction/Return Combination In-Tank Filters

Working Pressures to:

145 psi / 1000 kPa / 10.0 bar

Rated Static Burst to:

217 psi / 1497 kPa / 15.0 bar

Flow Range To:

79 gpm / 300 lpm

Applications

- Hydrostatic Transmissions
- Mobile Equipment

Features

The SRK tank-mounted suction and return filter is a popular choice for hydrostatic transmissions. The filtered flow is maintained at a slight backpressure to provide clean, pressurized oil, mainly for charge pumps in hydrostatic transmission systems. The pressurized flow is designed to reduce cavitation risks. This patented design uses an integrated main flow and bypass flow filter, which is capable of delivering filtered and pressurized oil, even in bypass situations. Emergency suction flow is also filtered. The SRK operates in a standard flow (outside to inside) configuration. SAE O-Ring ports are standard to meet popular application requirements.

- 4-point mounting
- Head material: aluminum
- Housing material: steel
- Cover material: glass-filled nylon
- Nitrile seals standard
- Main filters include integrated bypass filters



Beta Rating (per ISO 16889)

- Performance to $\beta_{13(c)}=1000$

Porting Size Options

- Inlet: SAE-16, SAE-20 O-Ring
- Outlet: SAE-16 O-Ring

Replacement Filter Lengths

- 18.6" / 472mm

Standard Bypass Ratings

- 36 psi / 250 kPa / 2.5 bar

Standard Backpressure Ratings

- 7.3 psi / 50 kPa / 0.5 bar

Assembly Weight

- 10.8 lbs / 4.9 kg

Operating Temperatures

- -22°F to 212°F / -30°C to 100°C

Filter Collapse Ratings

- 145 psid / 1000 kPa / 10 bar

Return Flow Rate

- 79 gpm (300 lpm)

Emergency Suction Flow Rate

- 27 gpm (100 lpm)

SRK Filter Assemblies

Part No.	Inlet Port Connections	Outlet Port Connections	Bypass Valve	Emergency Suction	Comments
K041634	SAE-20 & SAE-16	(2) - SAE-16	36 psi (2.5 bar)	125 µm Wire Mesh	Indicator not included

Filter Choices

Media Type	$\beta_{x(c)} = 1000$	Length		Part No.	Bypass	Comments
	Rating based on ISO 16889	in	mm			
Synteq Synthetic	13 µm	18.6	472	P765457	125 µm Wire	For Combo 300 Assemblies

Standard collapse designs are double wire-backed using epoxy-coated steel mesh for maximum pleat support and dirt capacity. All SRK filters are standard flow (outside to inside). Nitrile seals are standard on all SRK filters.

Suction Filter Choices

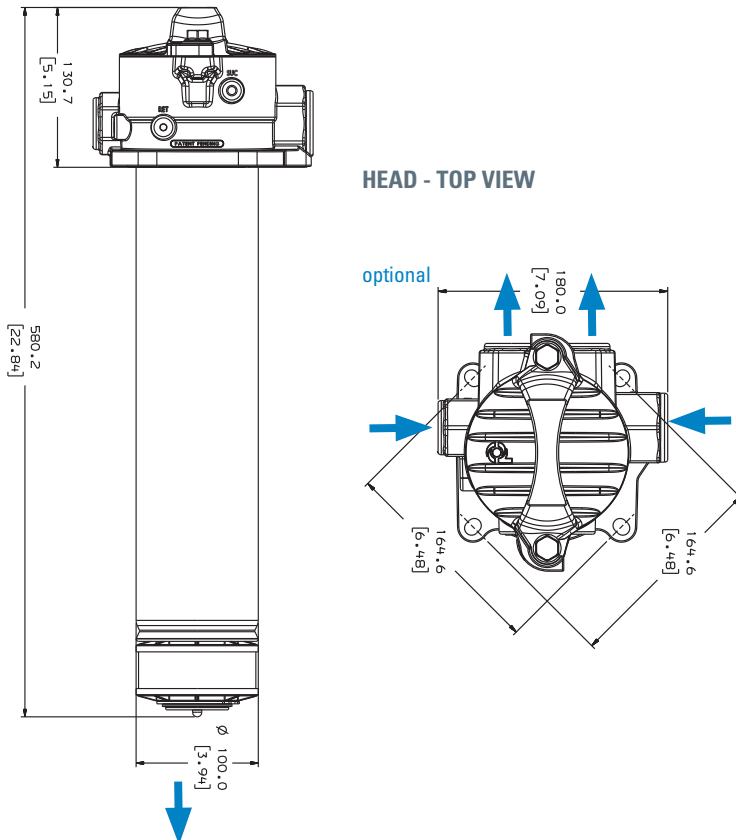
Media Type	$\beta_{x(c)} = 2$	Length		Part No.
	Rating based on ISO 16889	in	mm	
Wire Mesh	125 µm	1.98	50.2	P764183

Indicator Options

Part No.	Set Point	Style	Connection
P764612	36 psi (2.5 bar)	Visual	G1/8"

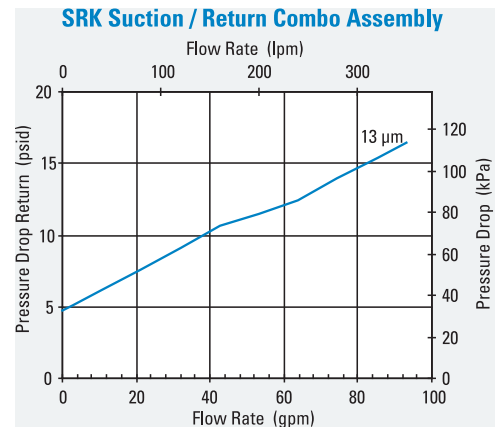
ASSEMBLY - SIDE VIEW

All dimensions are shown in millimeters [inches].

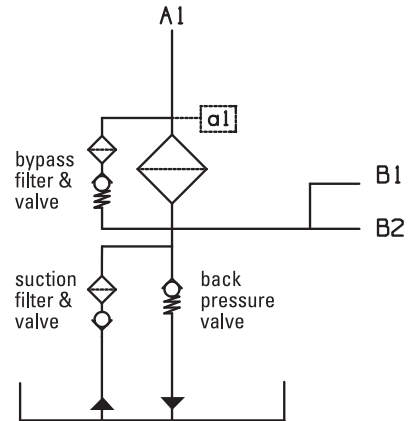


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Performance Data



Flow Schematic





HRK10

Max Flow: 300 gpm (1135 lpm)



HRK10 In-Line Cartridge Filters

Working Pressures to:

150 psi / 1035 kPa / 10.3 bar

Rated Static Burst to:

500 psi / 3450 kPa / 34.5 bar

Flow Range To:

300 gpm / 1135 lpm

Applications

- Fluid Conditioning Systems
- In-Plant Systems
- Lube Oil Systems
- Side Loop Systems

Features

The HRK10 high flow filter combines the best features of its predecessor, the HEK11: ANSI inlet port options, top cover filter servicing for ease of maintenance, and a selection of service indicators. The HRK10 all-steel housing design provides a strong, durable, and dependable unit. It offers standard features like deep pleat filters for higher dirt holding capacity and standard Donaldson DT 4-layer media filter construction. This technology, combined with many other standard features, is ideal for today's applications in pulp and paper, power generation and steel mill applications. A port for an electrical indicator is incorporated into the differential indicator block.

- Robust "Twist & Lift" cover for simplified servicing
- Multiple bypass valve design assures proper operation
- Wide variety of bypass valve ratings
- Reverse flow (inside to outside) filters for positive contamination containment
- Fluorocarbon seals standard
- Housing & cover material: steel
- Drain plug in bottom
- Bleed valve in cover
- Fill plug in cover



Beta Rating (per ISO 16889)

- Performance to $\beta_{<40} = 1000$

Porting Size Options

- 4" ANSI Flange, 8-bolt 150#

Replacement Filter Lengths

- 21.99" / 559mm

Standard Bypass Ratings

- 5 psi / 34.5 kPa / 0.34 bar
- 25 psi / 172 kPa / 1.7 bar
- 50 psi / 345 kPa / 3.4 bar
- No Bypass

Assembly Weight

- 140 lbs / 64 kg

Operating Temperatures

- -20°F to 250°F (-29° to 121°C)

Filter Collapse Ratings

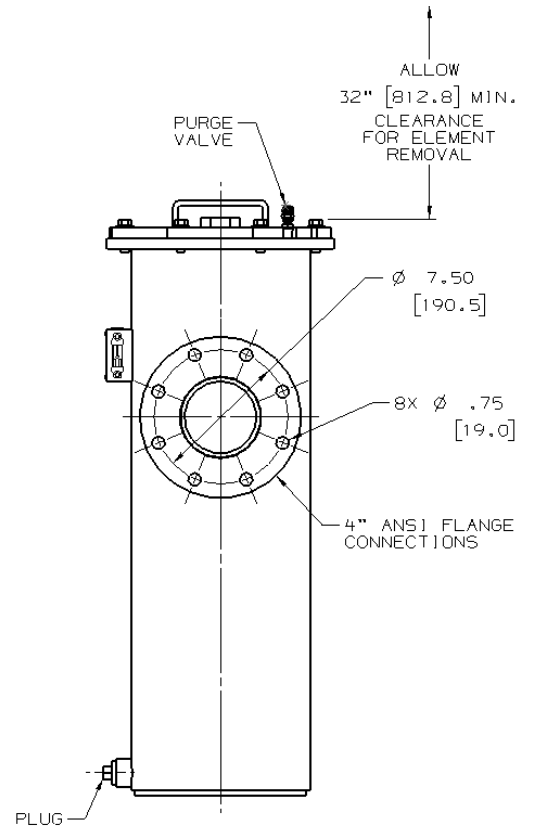
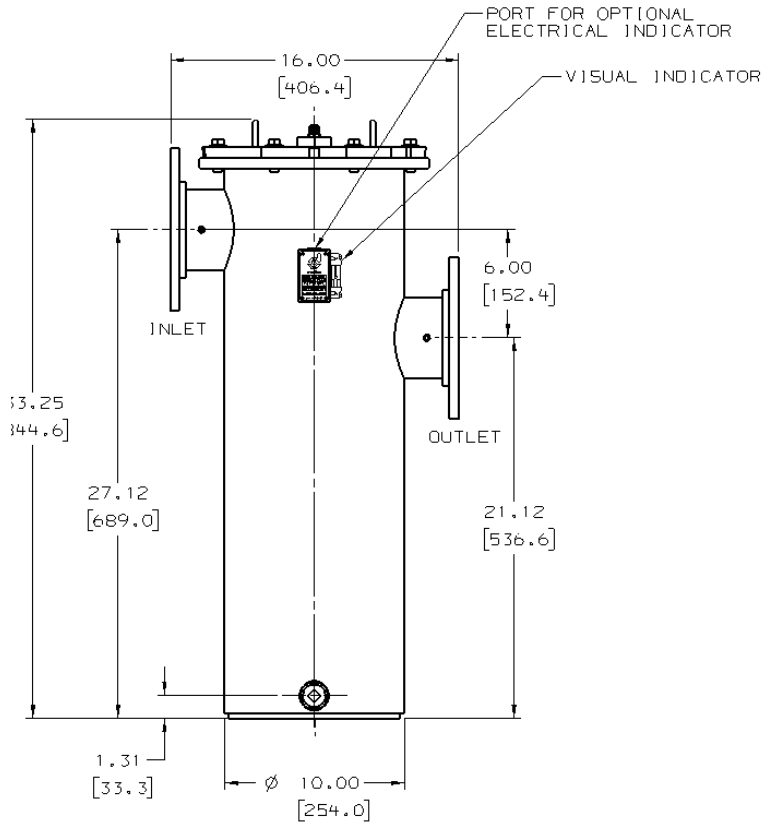
- 100 psid / 689 kPa / 6.9 bar



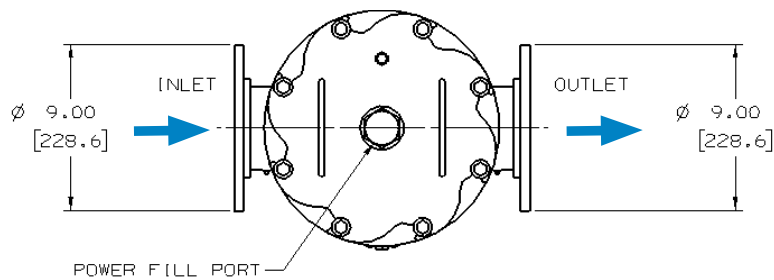
HRK10 Specification Illustrations

ASSEMBLY - SIDE VIEW

All dimensions are shown in inches [millimeters].



HEAD - TOP VIEW





HRK10 Components

Filter Choices

Media Type	$\beta_{x(c)} = 2$	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 16889		in	mm		
Synteq Synthetic		<4 μm	21.99	559	P566187	Replaces old HEK11 filter P163472
		5 μm	21.99	559	P566188*	
		8 μm	21.99	559	P566189	Replaces old HEK11 filter P176417** or P176223***
		12 μm	21.99	559	P566190	Replaces old HEK11 filter P165449
		23 μm	21.99	559	P566191	Replaces old HEK11 filter P164707
Water Absorbing	10 μm		21.99	559	P569531	Absorbs approximately 60 oz/1800 ml water @ 25 psid/1.72 bar
Wire Mesh	150 μm		21.99	559	P566192	Replaces old HEK11 filter P160078

Use HRK10 in place of previous HEK11 housings. For better performance use HRK10 filters in existing HEK11 housings.

* Utilizes DT Synthetic media

** 9 μm rating

*** 10 μm rating

Filter Notes: All $\beta=1000$ filters utilize glass fiber media with an epoxy-based resin system for the ultimate in chemical compatibility. All Donaldson HRK10 filters are potted with epoxy-based adhesives. All HRK10 filters are reserve flow (inside to outside), keeping contaminants contained during servicing. Fluorocarbon seals are standard on all HRK10 filters.

Housing Choices

Note: Filters Ordered Separately.

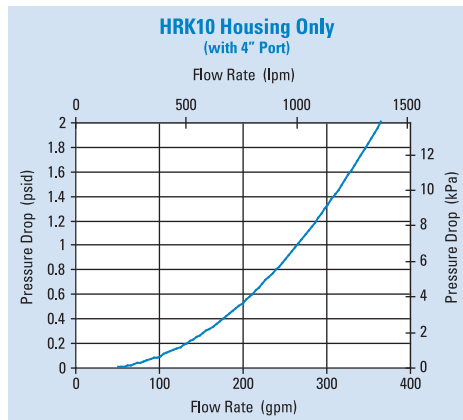
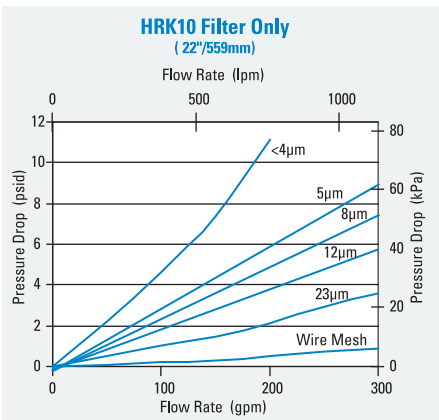
Part No.	Port Connections	Bypass Valve	Indicator Options
K100001	4" ANSI Flange	No bypass	Visual standard, electrical optional
K100002	4" ANSI Flange	5 psi (0.34 bar) bypass	Visual standard, electrical optional
K100003	4" ANSI Flange	25 psi (1.7 bar) bypass	Visual standard, electrical optional
K100004	4" ANSI Flange	50 psi (3.4 bar) bypass	Visual standard, electrical optional

Electrical Indicator Options

Part No.	Set Point	Bypass Valve
P173944	20 psi (1.4 bar)	AC/DC, 3-wire
P174396	40 psi (2.8 bar)	AC/DC, 3-wire



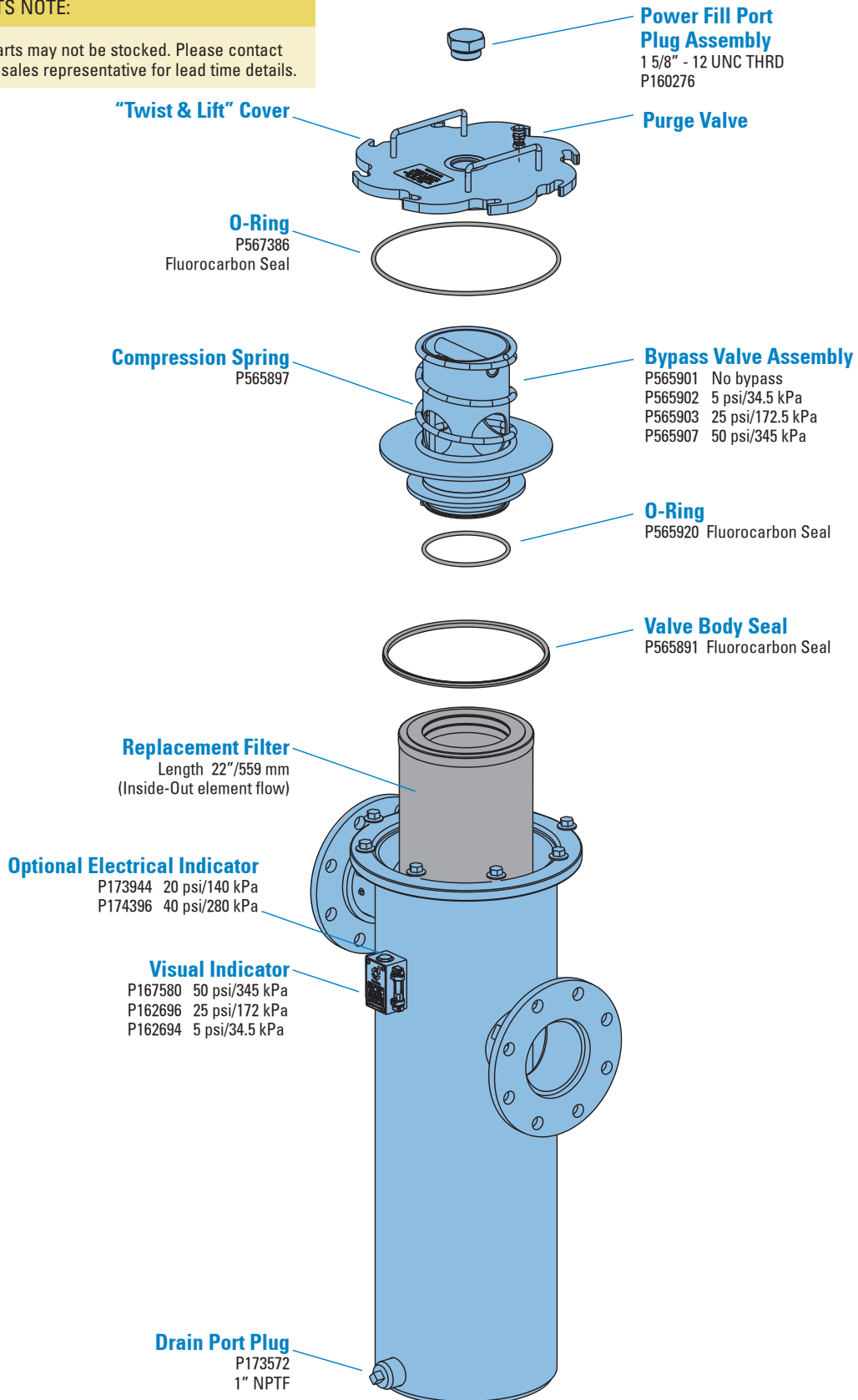
Performance Data



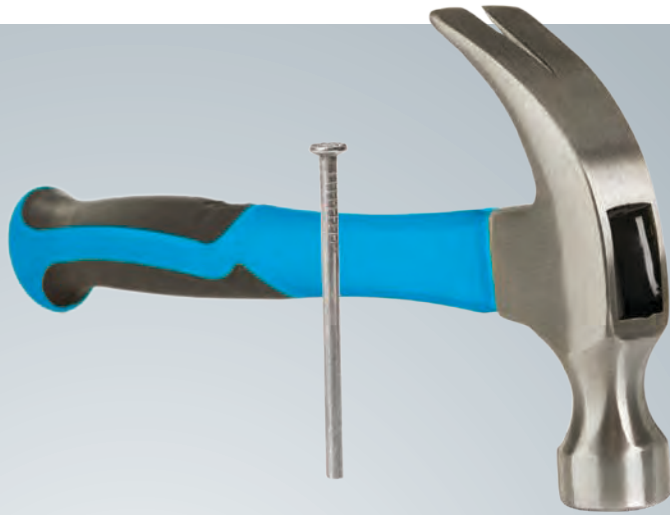
HRK10 Service Parts

SERVICE PARTS NOTE:

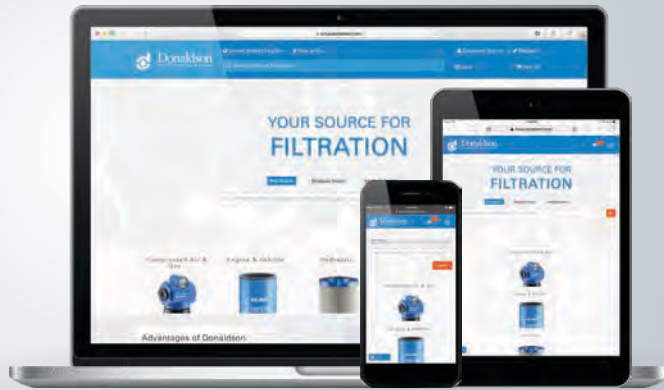
Some service parts may not be stocked. Please contact your Donaldson sales representative for lead time details.



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Medium Pressure Filters

Medium pressure filters can be used in applications up to 2000 psi (13790 kPa). Donaldson offers both spin-on and in-line cartridge-style filters.

Donaldson Duramax® filters are the highest rated medium pressure spin-on filters available. Duramax filters are proven, reliable, long-lived and easy to install.



Section Index

Max Operating Pressure < 2000 psi (138 bar)

Models arranged from low to maximum flow rates

Spin-on Filters

HMK03.....	58
HMK04.....	62
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HMK24.....	62
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In-line Cartridge Filters

FLK90	75
FLK110	78
FLK125	81
DPK350.....	84
W061.....	88
HDK06.....	92
W041.....	96
HFK08	100



HMK03

Max Flow: 25 gpm (95 lpm)



HMK03 DURAMAX® Spin-On Filters

Working Pressures to:

1000 psi / 6895 kPa / 69 bar

Rated Static Burst to:

2000 psi / 13,790 kPa / 138 bar

Flow Range To:

25 gpm / 95 lpm

Features

HMK03 Series Duramax® spin-on filters offer twice the capacity of competitive filters, yet they are physically smaller than traditional housing/cartridge filter assemblies. It features a die cast aluminum head and a unique radial seal O-Ring gasket design that eliminates leakage.

Take advantage of Donaldson's mix and match system of in-stock heads, housings and media choices – so you can get exactly what you need. A full range of media options are available, using Donaldson's exclusive Synteq™ synthetic media designed especially for liquid filtration. You can also select the exact indicator types and bypass options to suit your application.

Beta Rating

- Performance to $\beta_{0.1} = 1000$

Porting Size Options

- SAE-12 O-Ring

Replacement Filter Lengths

- 5.5" / 140mm
- 9.5" / 242mm

Standard Bypass Ratings

- 50 psi / 345 kPa / 3.5 bar
- No Bypass

Applications

- Hydrostatic Charge Pumps
- Hydrostatic Transmission
- Pilot Control Circuits
- Refrigeration Compressor Circuits



Assembly Weight

- Short: 3.3 lbs / 1.5 kg
- Long: 4.2 lbs / 1.9 kg

Operating Temperatures

- -20°F to 250°F / -29°C to 121°C

Filter Collapse Ratings

- 290 psid / 20 bar

Housing Fatigue Strength Ratings*

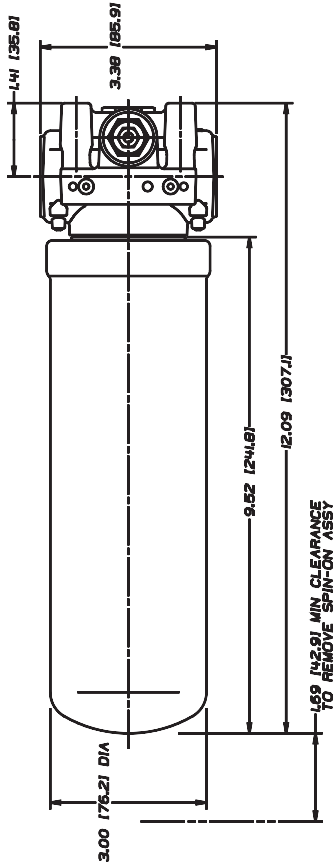
- 100,000 Cycles: 0-1000 psi / 0-6895 kPa / 68 bar
- 300,000 Cycles: 0-800 psi / 0-5516 kPa / 55 bar
- 1,000,000 Cycles: 0-700 psi / 0-4826 kPa / 48 bar

HMK03 Specification Illustrations

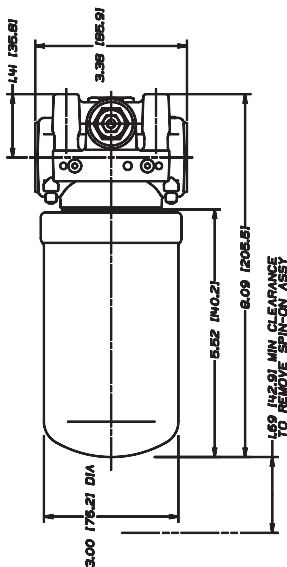
ASSEMBLY - SIDE VIEW

All dimensions are shown in inches [millimeters].

Long Assembly

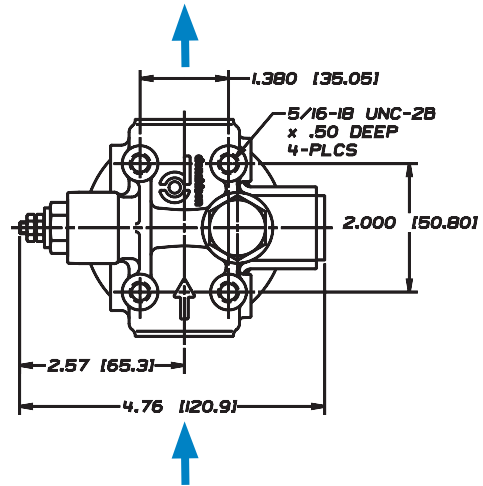


Short Assembly

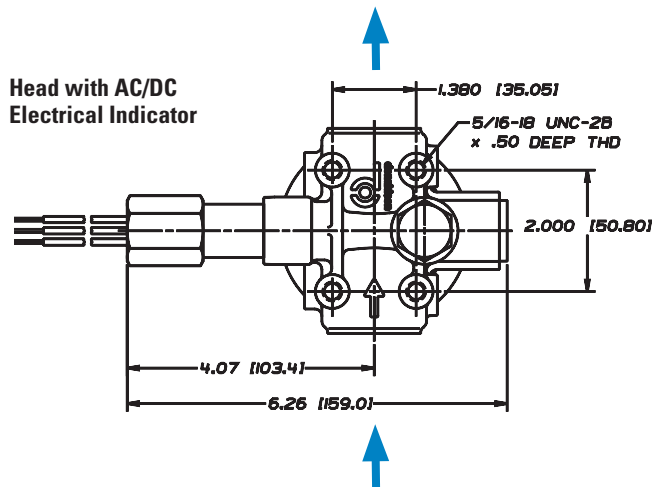


HEAD - TOP VIEW WITH INDICATORS

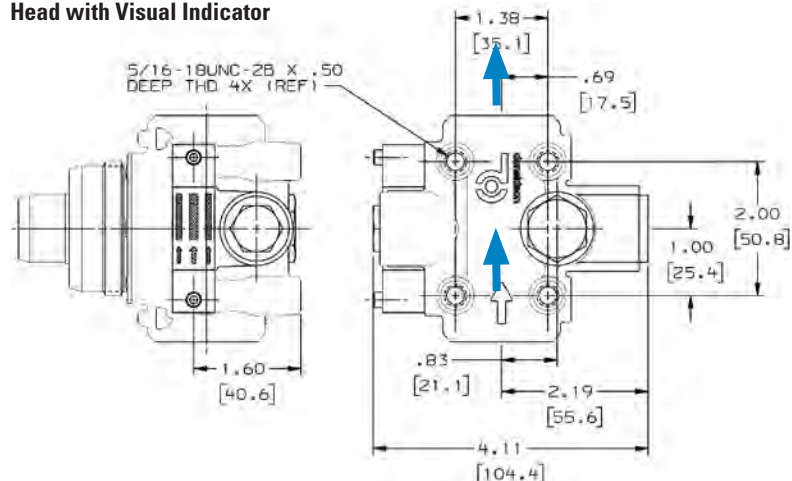
Head with DC Electrical Indicator



Head with AC/DC Electrical Indicator



Head with Visual Indicator





HMK03

Max Flow: 25 gpm (95 lpm)



HMK03 Components

Filter Choices

Media Type	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 16889	in	mm		
Synteq Synthetic	6 μm	5.5	140	P170308	Nitrile
	6 μm	9.5	242	P170309	Nitrile
	11 μm	5.5	140	P170310	Nitrile
	11 μm	9.5	242	P170311	Nitrile
	23 μm	5.5	140	P170312	Nitrile
	23 μm	9.5	242	P170313	Nitrile

Filter Notes

- Synteq™ filter media is compatible with petroleum based fluids, most phosphate esters, water oil emulsions, and HWCF (high water content fluids)
- All models have 2"-12 threads



HMK03 Head

Port Size	Bypass Rating	Indicator	Head Part No.
3/4" SAE-12 O-Ring	No Bypass	None*	P170327
	50 psi / 345 kPa	None*	P170773
	50 psi / 345 kPa	Visual*	P179460

*Head is machined to accept optional electrical indicators. See Indicator list at right for the available choices.

Oil Service Indicator Choices

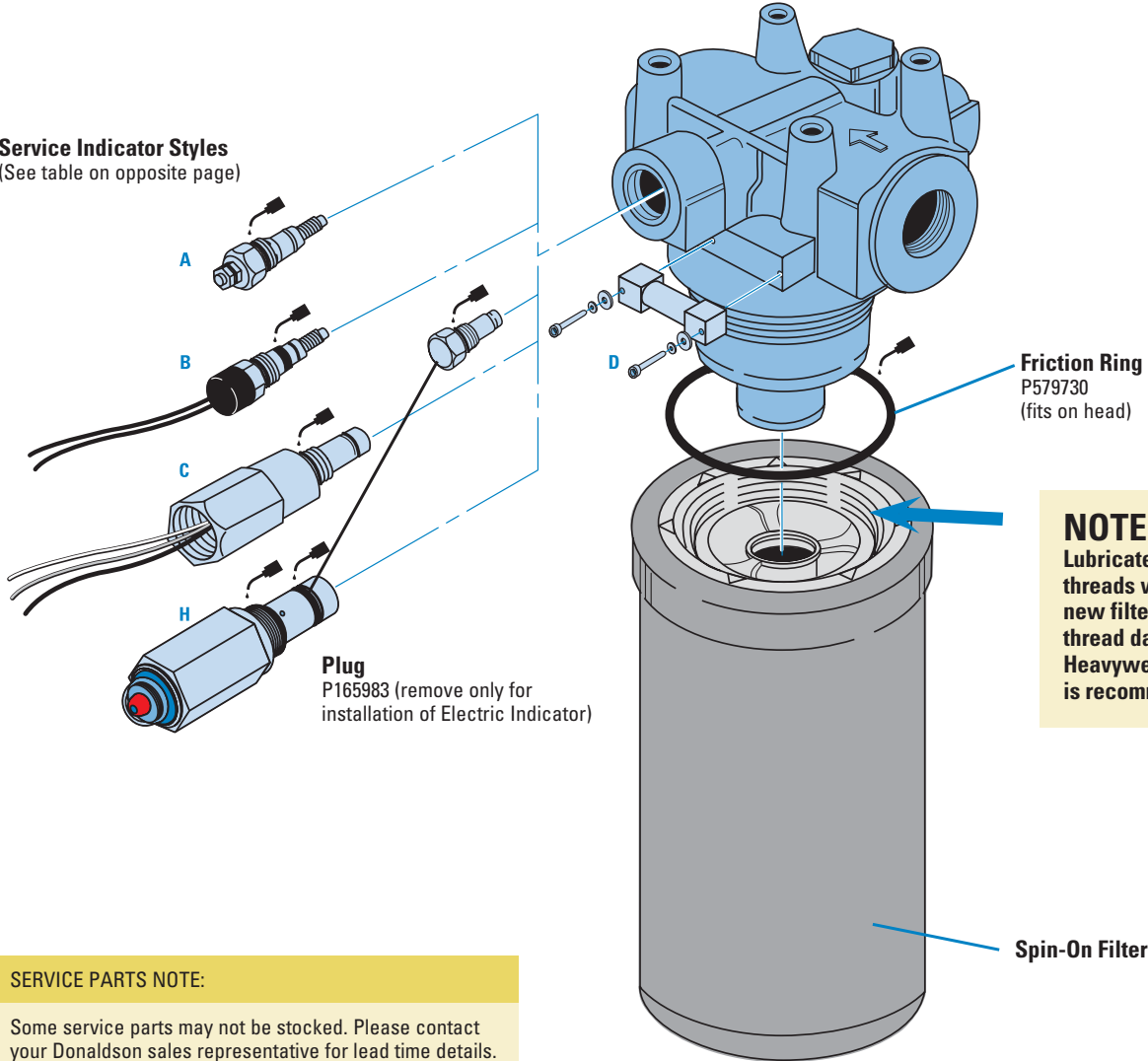
Use with Bypass Valve Pressure of:	Part No.	Style ²	Description ¹
25 psi / 172.5 kPa	P171143	B	Electric 2-wire DC
	P173944	C	Electric 3-wire AC/DC
	P165965	D	Visual
	P575334	H	Visual, pop up
50 psi / 345 kPa	P165194	A	Electric Single post DC
	P574968	B	Electric 2-wire DC
	P174396	C	Electric 3-wire AC/DC
	P575335	H	Visual, pop up
	P574967	E	DC 2-wire.

¹ All electric models have a maximum operating temperature of 250°F/121°C.

² See illustration of indicator styles on next page and complete details for all parts in the service indicators portion of the accessories section.

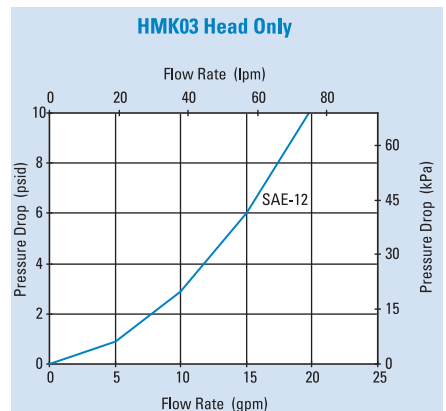
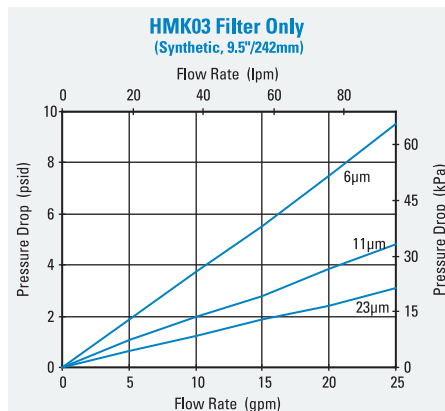
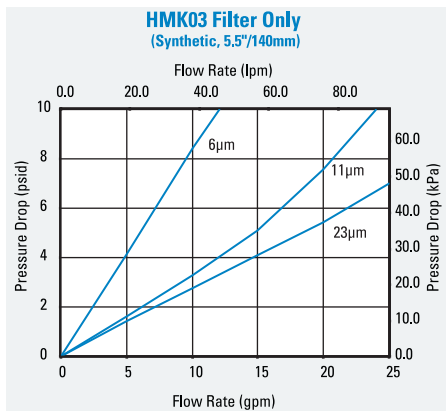
HMK03 Service Parts

Service Indicator Styles
(See table on opposite page)



SERVICE PARTS NOTE:
Some service parts may not be stocked. Please contact your Donaldson sales representative for lead time details.

Performance Data





HMK04/24

Max Flow: 35 gpm (133 lpm) / 60 gpm (227 lpm)



HMK04/24 DURAMAX® Spin-On Filters

Working Pressures to:

500 psi / 3450 kPa / 35 bar

Rated Static Burst to:

1000 psi / 6895 kPa / 69 bar

Flow Range To:

HMK04: 35 gpm / 133 lpm

HMK24: 60 gpm / 227 lpm

Applications

- Case Drains
- Cooling Circuits
- Fluid Conditioning Systems
- Fuel Transfer
- Hydrostatic Charge Pumps
- Lube Oil Systems
- Power Transmissions
- Return Lines
- Side Loop Systems

Features

HMK04 (single) and HMK24 (double) Duramax® spin-on filters feature a die-cast aluminum head, heavy-duty steel body, and die-cast aluminum top plate for added strength. A special head-to-canister O-Ring seal prevents leakage. Nitrile seals are standard; fluorocarbon seals are available on some models.

Both models use the same replacement filters and feature identical pressure ratings, but the HMK24 handles greater flow capacity. There's no need to inventory two different replacement filters. A full range of media options are available, using Donaldson's exclusive Synteq™ synthetic media. Choose the indicator types and bypass options to suit your application.



Beta Rating

- Performance to $\beta_{<40} = 1000$

Porting Size Options

- HMK04 3/4", 1" NPT
- HMK04 SAE-12, SAE-16 O-Ring
- HMK24 SAE-20, O-Ring
- HMK24 1 1/4" SAE 4-Bolt Flange Code 61

Replacement Filter Lengths

- 5.97" / 152mm
- 9.4" / 240mm

Standard Bypass Ratings

- 25 psi / 173 kPa / 1.73 bar
- 50 psi / 345 kPa / 3.5 bar
- No Bypass

Assembly Weight

- HMK04 with short filter: 3.9 lbs / 1.8 kg
- HMK04 with long filter: 4.8 lbs / 2.2 kg
- HMK24: with short filter: 7.8 lbs / 3.5 kg
- HMK24: with long filter: 9.6 lbs / 4.4 kg

Operating Temperatures

- -20°F to 250°F / -29°C to 121°C (synthetic)
- -20°F to 225°F / -29°C to 107°C (cellulose)

Filter Collapse Ratings

- 150 psid / 10 bar
- 300 psid / 20 bar also available

Housing Fatigue Strength Ratings*

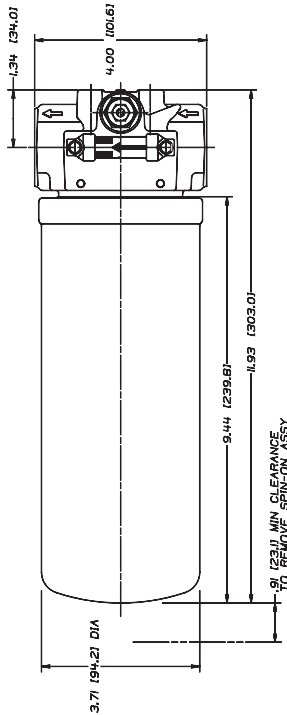
- 100,000 Cycles:
0-500 psi / 0-3450 kPa / 34.5 bar
- 300,000 Cycles:
0-400 psi / 0-2758 kPa / 27.6 bar
- 1,000,000 Cycles:
0-350 psi / 0-2415 kPa / 24 bar

HMK04/24 Specification Illustrations

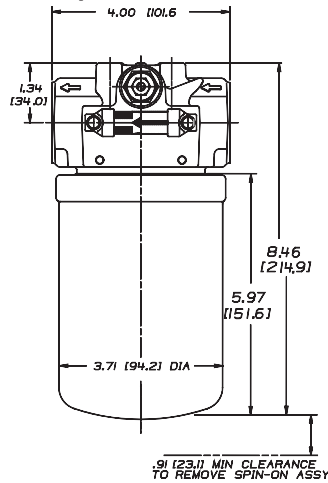
ASSEMBLY - SIDE VIEW

All dimensions are shown in inches [millimeters].

Long Assembly

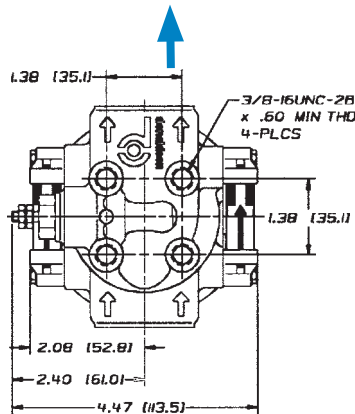


Short Assembly

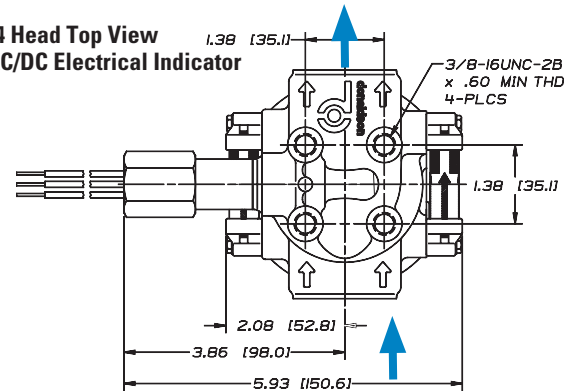


HEAD - TOP & SIDE VIEWS

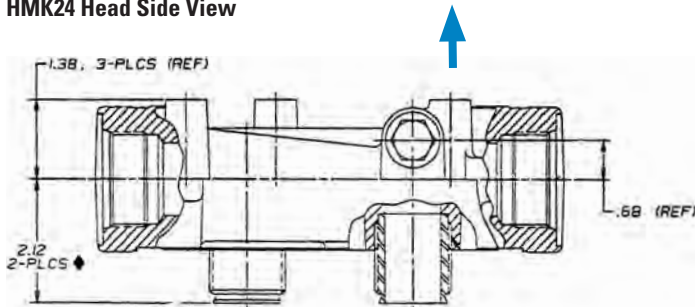
HMK04 Head Top View with DC Electrical Indicator



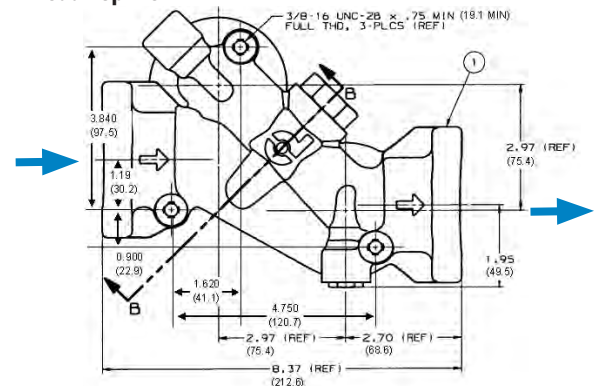
HMK04 Head Top View with AC/DC Electrical Indicator



HMK24 Head Side View



HMK24 Head Top View





HMK04/24

Max Flow: 35 gpm (133 lpm) / 60 gpm (227 lpm)



HMK04/24 Components

Filter Choices

Media Type	$\alpha_{x(e)} = 1000$	$\beta_{x(e)} = 2$	$\beta_{x(e)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 23369	Rating based on ISO 16889		in	mm		
Synteq Synthetic			<4 μm	9.4	240	P165185	'Fluorocarbon O-Ring. Compatible with water glycol
			6 μm	5.97	152	P165354	
			6 μm	9.4	240	P165332	
Alpha-Web	10 μm			5.97	152	DBH3542	
Synteq Synthetic			11 μm	5.97	152	P163542	500 psi collapse
			11 μm	5.97	152	P164375	
			11 μm	9.4	240	P164378	
			13 μm	9.4	240	P164056	'Fluorocarbon O-Ring. Compatible with water glycol
			14 μm	9.4	240	P177047	
			22 μm	9.4	240	P164059	'Fluorocarbon O-Ring. Compatible with water glycol
			23 μm	9.4	240	P163567	500 psi collapse
			23 μm	5.97	152	P164381	
			23 μm	9.4	240	P164384	
			50 μm	5.97	152	P165335	
		50 μm	9.4	240	P165338		
Water Absorbing		10 μm		9.4	240	P560584	
Wire Mesh		150 μm		9.4	240	P573301	



NOTE:
Lubricate filter-to-head threads when installing new filter to prevent thread damage. Heavyweight gear lube is recommended.

Filter Notes

- Refer to table in the Technical Reference Guide for fluid compatibility with our filter media.
- Standard filter collapse rating is 150 psi, except as noted.
- Thread size is 1 3/8"-12 UNF-2B
- Filters with seals made of nitrile are appropriate for most applications involving petroleum oil. Filters with seals made of fluorocarbon are required when using diester, phosphate ester fluids, water glycol, water/oil emulsions and HWCF (high water content fluids) over 150°F. Donaldson offers both types.

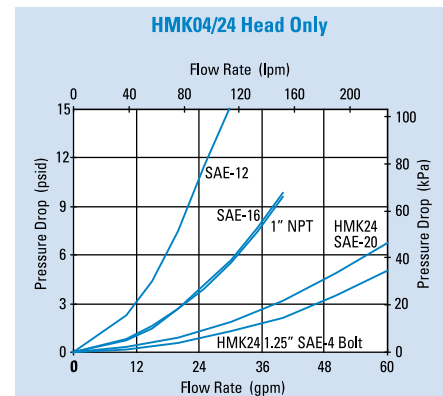
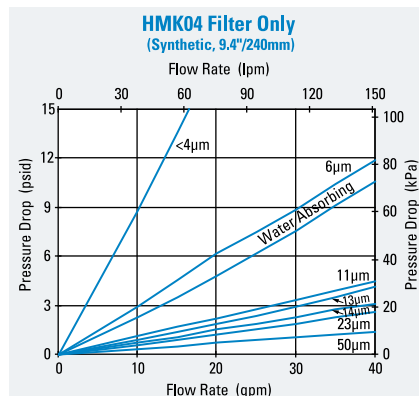
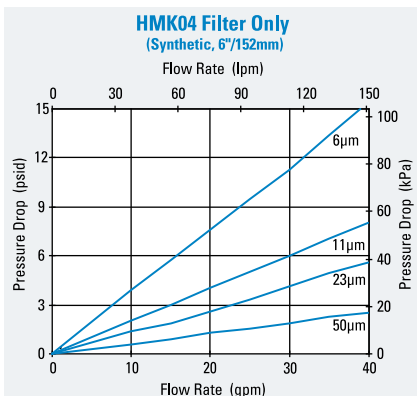
Head Choices for HMK24 (double)

Port Size	Bypass Rating	Indicator Options ¹	Part No.
SAE-20 O-Ring	None	A, B, C, E, F, H	P179609
1 1/4" SAE 4-Bolt Code 61	50 psi	A, B, C, E, F, H	P179582

¹Reference illustration on next page for service indicator styles.



Performance Data



Head Choices for HMK04 (single)

Port Size	Bypass Rating	Standard Indicator Style & Location ^{1,2}	Indicator Options	Head Part No.
¾" NPT	25 psi / 172 kPa	None	None	P169317
		D (Visual), Left Side	None	P169310
SAE-12 O-Ring	25 psi / 172 kPa	None	None	P167473
		D (Visual), Left Side	None	P166387
	No Bypass	D (Visual), Left Side (25 psi)	None	P169320
		None	None	P165434
	No Bypass	D (Visual), Left Side (50 psi)	None	P173750
SAE-12 O-Ring (3 ports)	50 psi / 345 kPa	A (Electrical, P165194)	B, C, E, F, H	P167529
1" NPT	25 psi / 172 kPa	D (Visual), Both Sides	A, B, C, E, F, H	P166086
		None	None	P169309
		D (Visual), Left Side	None	P166416
SAE-16 O-Ring	15 psi / 100 kPa	None	A, B, C, E, F, H	P176569
SAE-16 O-Ring	25 psi / 172 kPa	None	None	P163681
		D (Visual), Left Side	None	P166417
		D (Visual), Both Sides	A, B, C, H	P166088
		E (Electrical, P177361)	None	P176568
		A (Electrical, P162400)	B, C, H	P165537
	No Bypass	D (Visual), Both Sides (25 psi)	A, B, C, F, H	P166664
		A (Electrical, P162400)	B, C, F, H	P166902
	50 psi / 345 kPa	D (Visual, Right Side)	All	P179381
	No Bypass	None	None	P164667
	50 psi / 345 kPa	None	None	P167201
		A (Electrical, P165194)	B, C, E, H	P166862
SAE-16 O-Ring	5 psi	D (Visual), Both Sides	All	P564850
1" NPT	No Bypass	D (Visual), Left Side (25 psiD)	None	P564484
1" NPT	25 psi / 172 kPa	D (Visual), Left Side (25 psiD)	None	P564485

NOTE:

Lubricate filter-to-head threads when installing new filter to prevent thread damage. Heavyweight gear lube is recommended.

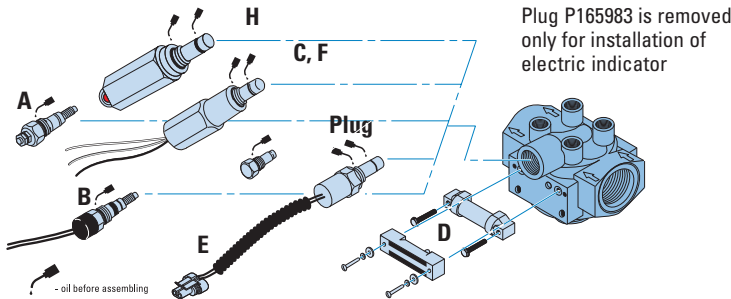


Head Notes: Reference illustration below for indicator styles. Donaldson uses the inlet port as the reference point. "Left side," for instance, means that the indicator mounts on the side of the filter head that is on your left when you face the inlet port.

3-Port Head for Charge Pumps



The P167529 head is designed with a 50 psi / 3.45 bar third port bypass valve that diverts all bypass flow back to the reservoir, instead of going straight through the head and into the system as it does in 2-ported heads. Unfiltered fluid is NOT allowed into the system in the case of plugged filters. Designed primarily for charge pump applications.



Service Indicator Choices

Use with Bypass Valve Pressure of:	Indicator Part No.	Style ³
Visual Models (non-electric)²		
15 psi / 103 kPa	P162642	D
25 psi / 172.5 kPa	P162696	D
50 psi / 345 kPa	P167580	D
N/A	P165984	(blank plate)
25 psi / 172.5 kPa	P165965	D Heavy-Duty
50 psi / 345 kPa	P574177	D Heavy-Duty
25 psi / 172.5 kPa	P575334	H Pop up
50 psi / 345 kPa	P575335	H Pop up

Indicator Notes
¹All electric models have a maximum operating temperature of 250°F / 121°C.
²All non-electric models have a maximum operating temperature of 180°F / 82°C.
³Complete details on all service indicators can be found in the accessories section.

Service Indicator Choices

Use with Bypass Valve Pressure of:	Indicator Part No.	Style ¹	Description
Electric Models¹			
5 psi / 34.5 kPa	P163642	A	Single post DC.
15 psi / 103 kPa	P163601	A	Single post DC.
25 psi / 172.5 kPa	P163839	A	Single post DC. N.C.
25 psi / 172.5 kPa	P162400	A	Single post DC. N.O.
25 psi / 172.5 kPa	P171143	B	DC 2-wire.
25 psi / 172.5 kPa	P173944	C	AC/DC 3-wire.
50 psi / 345 kPa	P165194	A	Single post DC. N.O.
50 psi / 345 kPa	P574968	B	DC 2-wire.
50 psi / 345 kPa	P574967	E	DC 2-wire.
50 psi / 345 kPa	P575549	F	DC 3-wire.
50 psi / 345 kPa	P174396	C	AC/DC 3-wire.



HMK05/25

Max Flow: 50 gpm (189 lpm) / 100 gpm (379 lpm)



HMK05/25 DURAMAX® Spin-On Filters

Working Pressures to:

350 psi / 2415 kPa / 24.2 bar

Rated Static Burst to:

800 psi / 5520 kPa / 55.2 bar

Flow Range To:

HMK05: 50 gpm / 189 lpm

HMK25: 100 gpm / 379 lpm

Applications

- Case Drains
- Cooling Circuits
- Fluid Conditioning Systems
- Fuel Transfer
- Hydrostatic Charge Pumps
- Lube Oil Systems
- Power Transmissions
- Return Lines
- Side Loop Systems



Parallel Flow

Features

HMK05 (single) and HMK25 (double) Duramax spin-on filters are perfect for high-flow applications, featuring a heavy-duty steel body and die-cast top plate for added strength. A special head-to-canister O-Ring seal prevents leakage. Nitrile seals are standard. Fluorocarbon seals are available. Both models use the same replacement filters and have identical pressure ratings, so there's no need to inventory two different replacement filters. The HMK25 double filter head means twice the flow capability, with two filters to hold more contaminant. Take advantage of Donaldson's mix and match system of in-stock heads, housings and media choices for exactly what you need. Media options include wire mesh and Donaldson's exclusive Synteq™ synthetic media.

Beta Rating

- Performance to $\beta_{<4(\mu)}=1000$

Porting Size Options

- HMK05 1 1/4" NPT
- HMK05 SAE-20 O-Ring
- HMK25 1 1/2" NPT
- HMK25 SAE-24 O-Ring
- HMK25 1 1/2" SAE 4-Bolt Flange Code 61

Replacement Filter Lengths

- 7.6" / 193mm
- 11.63" / 295.4mm
- 14.2" / 361mm

Standard Bypass Ratings

- 25 psi / 173 kPa / 1.73 bar
- 50 psi / 345 kPa / 3.5 bar
- No Bypass

Assembly Weight

- 7.5 lbs / 3.4 kg (single)
- 16 lbs / 7.3 kg (double)

Operating Temperatures

- -20°F to 250°F / -29°C to 121°C (synthetic)
- -20°F to 225°F / -29°C to 107°C (cellulose)
- -20°F to 250°F / -29°C to 121°C (wire mesh)

Filter Collapse Ratings

- 200 psi / 13.8 bar

Housing Fatigue Strength Ratings*

- 100,000 Cycles:
0-350 psi / 0-2413 kPa / 24.1 bar
- 300,000 Cycles:
0-300 psi / 0-2068 kPa / 20.7 bar
- 1,000,000 Cycles:
0-250 psi / 0-1734 kPa / 17.3 bar

Filter Head Construction

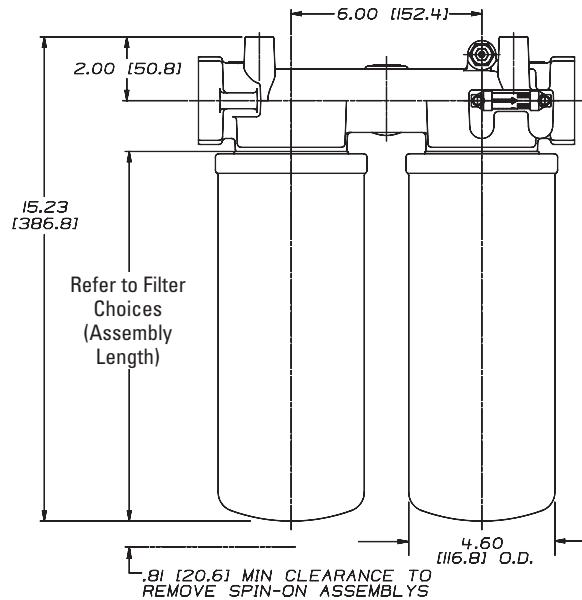
- Standard Head Cast Aluminum
- Ductile Iron Available in HMK25

HMK05/25 Specification Illustrations

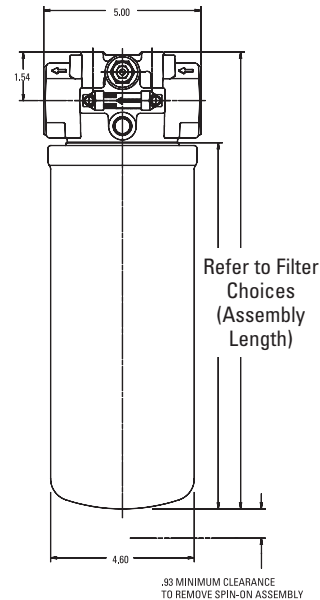
ASSEMBLY - SIDE VIEW

All dimensions are shown in inches [millimeters].

HMK25

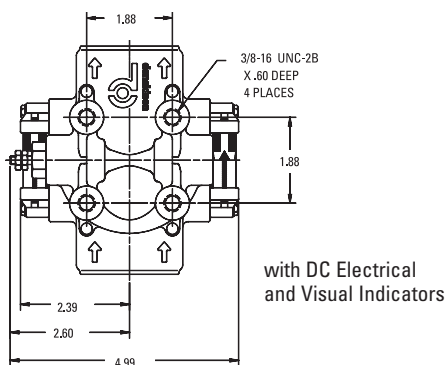
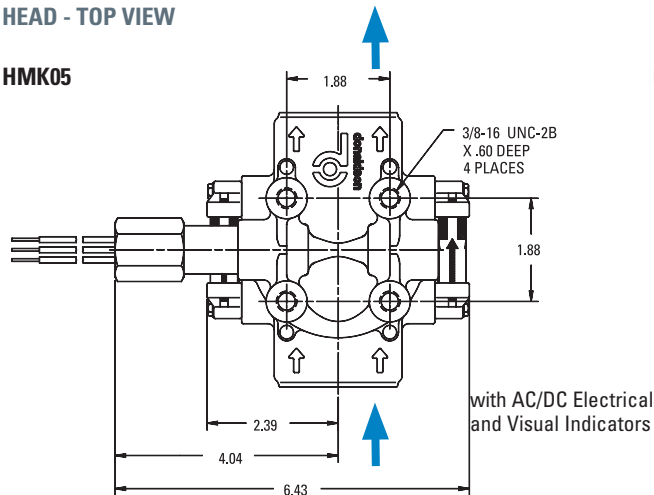


HMK05

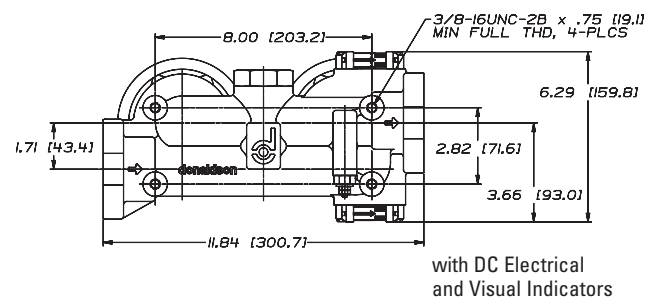
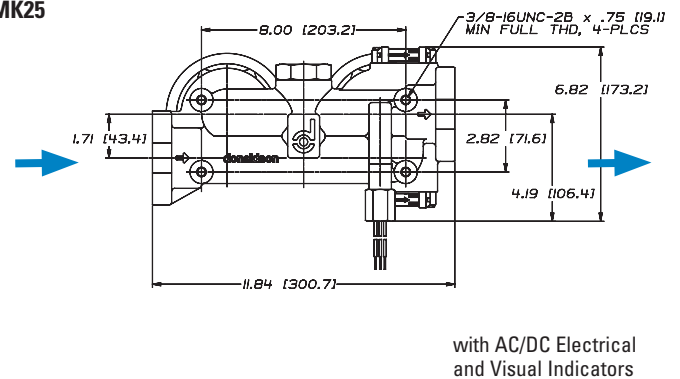


HEAD - TOP VIEW

HMK05



HMK25





HMK05/25

Max Flow: 50 gpm (189 lpm) / 100 gpm (379 lpm)



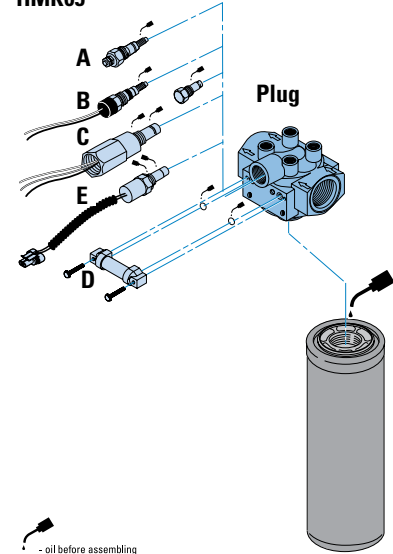
HMK05/25 Components

Filter Choices

Media Type	$\alpha_{x(e)} = 1000$	$\beta_{x(e)} = 2$	$\beta_{x(e)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 23369	Rating based on ISO 16889		in	mm		
Synteq Synthetic			<4 μm	14.2	361	P564468	'Fluorocarbon, epoxy. Compatible with water glycol.
			6 μm	11.6	294	P165675	
			5 μm	11.6	294	P171274	'Fluorocarbon, epoxy. Compatible with water glycol.
			6 μm	14.2	361	P179763	
Alpha-Web	10 μm			14.2	361	DBH0949	
Synteq Synthetic			11 μm	7.6	193	P176207	
			11 μm	11.6	294	P165659	
			13 μm	11.6	294	P573996	'Fluorocarbon, epoxy. Compatible with water glycol.
			11 μm	14.2	361	P170949	
			23 μm	7.6	193	P176208	
			23 μm	11.6	294	P165569	
			22 μm	11.6	294	P171276	'Fluorocarbon, epoxy. Compatible with water glycol.
			23 μm	14.2	361	P173789	
Water Absorbing		10 μm		11.6	294	P179075	Absorbs 300 ml water
Wire Mesh		150 μm		11.6	294	P173943	

Service Parts

HMK05

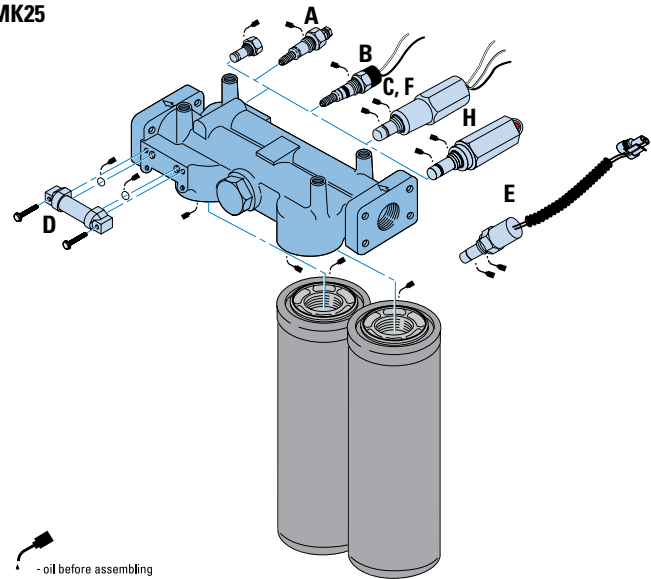


Filter Notes: Refer to table in the Technical Reference Guide for fluid compatibility with our filter media. Thread size is 1 3/4"-12 UNF-2B.
 *Filters with seals made of nitrile are appropriate for most applications involving petroleum oil. Filters with seals made of fluorocarbon are required when using diester, phosphate ester fluids, water glycol, water/oil emulsions and HWC/F (high water content fluids) over 150°F. Donaldson offers both types.

Oil Service Indicator Options

Use with Bypass Valve Pressure of:	Indicator Part No.	Style ³	Description
Electric Models¹			
5 psi / 34.5 kPa	P163642	A	Single post DC
15 psi / 103 kPa	P163601	A	Single post DC.
25 psi / 172.5 kPa	P163839	A	Single post DC. N.C.
25 psi / 172.5 kPa	P162400	A	Single post DC. N.O.
25 psi / 172.5 kPa	P171143	B	DC 2-wire
25 psi / 172.5 kPa	P173944	C	AC/DC 3-wire
50 psi / 345 kPa	P165194	A	Single post DC. N.O.
50 psi / 345 kPa	P574968	B	DC 2-wire
50 psi / 345 kPa	P574967	E	DC 2-wire
50 psi / 345 kPa	P575549	F	DC 3-wire
50 psi / 345 kPa	P174396	C	AC/DC 3-wire
Visual Models (Non-Electric)²			
15 psi / 103 kPa	P162642	D	
25 psi / 172.5 kPa	P162696	D	
50 psi / 345 kPa	P167580	D	
N/A	P165984	(blank plate)	
25 psi / 172.5 kPa	P165965	D Heavy-duty	
50 psi / 345 kPa	P574177	D Heavy-duty	
25 psi / 172.5 kPa	P575334	H (Pop up)	
50 psi / 345 kPa	P575335	H (Pop up)	

HMK25



NOTE:
 Lubricate filter-to-head threads when installing new filter to prevent thread damage. Heavyweight gear lube is recommended.

Indicator Notes ¹All electric models have a maximum operating temperature of 250°F/ 114°C. ²All non-electric models have a maximum operating temperature of 180°F/ 82°C. ³Complete details on all service indicators can be found in the accessories section.

Head Choices for HMK05 (single)

Port Size	Bypass Rating	Standard Indicator Style & Location ¹	Indicator Options ²	Part No.
1¼" NPT	25 psi / 172 KPa	D (Visual), Both Sides (25 psi)	A, B, C, E, F	P167294
1¼" NPT	25 psi / 172 kPa	A (Electrical) (25 psi)	A, B, C, E, F	P167621
	25 psi / 172 KPa	D (Visual), Left Side (25 psi)	D	P167622
SAE-20 O-Ring	25 psi / 172 KPa	D (Visual), Both Sides (25 psi)	A, B, C, E, F	P165973
	25 psi / 172 KPa	None	None	P167619
	50 psi / 345 KPa	D (Visual), Left Side, Blank Plate Right Side	A, B, C, E, F	P561885
	No Bypass	D (Visual), Both Sides (25 psi)	A, B, C, E, F	P166663
	No Bypass	D (Visual), Right Side (25 psi)	D	P564486
	No Bypass	D (Visual), Both Sides (50 psi)	A, B, C, E, F	P564858



Single Head

Head Choices for HMK25 (dual)

Port Size	Bypass Rating	Indicator Style & Location ¹	Indicator Options ²	Part No.
1½" NPT	25 psi / 172 KPa	D (Visual), Left side only	A,B,C,E,F	P169985
1½" SAE 4-Bolt Flange	25 psi / 172 kPa	D (Visual), Both sides	A,B,C,E,F	P167296
	No Bypass	D (Visual), Both Sides	A,B,C,E,F	P169984
SAE-24 O-Ring	25 psi / 172 kPa	D (Visual), Both sides	A,B,C,E,F	P167297
1½" SAE 4-Bolt Flange	50 psi / 345 kPa	Visual RH	A,B,C,E,F	P560855*



Dual Head

* Ductile Iron Construction

Head Choice for HMK05 (3rd port return)

Port Size	Bypass Rating	Indicator Style & Location ¹	Indicator Options ²	Part No.
1¼" SAE 4-Bolt Flange (3rd port: 1" SAE 4-Bolt)	50 psi / 345 kPa	None	A,B,C,E,F	P561924



3-Port Head

The **P561924** head is designed with a 50 psi / 3.45 bar third port bypass valve that diverts all bypass flow back to the reservoir, instead of going straight through the head and into the system as it does in 2-ported heads. Unfiltered fluid is NOT allowed into the system in the case of plugged filters. Designed primarily for charge pump applications.

Head Notes

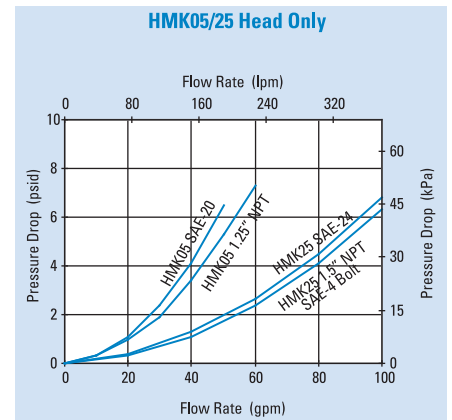
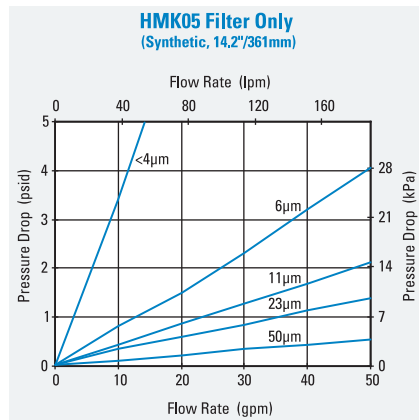
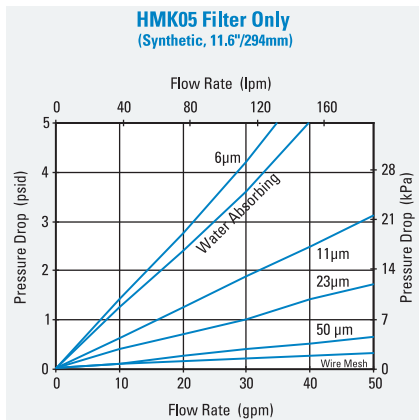
¹Donaldson uses the inlet port as the reference point. "Left side," for instance, means the indicator mounts on the Left side when you face the inlet port.

²May be purchased separately.

³Complete details on all service indicators can be found in the accessories section.

NOTE:
Lubricate filter-to-head threads when installing new filter to prevent thread damage. Heavyweight gear lube is recommended.

Performance Data





HNK04/05

Max Flow: 35 gpm (133 lpm) / 50 gpm (189 lpm)



HNK04/05 DURAMAX® Spin-On Filters

Working Pressures to:

HNK04: 500 psi / 3450 kPa / 34.5 bar

HNK05: 350 psi / 2415 kPa / 24.1 bar

Rated Static Burst to:

HNK04: 1000 psi / 6895 kPa / 69 bar

HNK05: 800 psi / 5515 kPa / 55 bar

Flow Range To:

HNK04: 35 gpm / 133 lpm

HNK05: 50 gpm / 189 lpm

Applications

- Case Drains
- Cooling Circuits
- Fluid Conditioning Systems
- Fuel Transfer
- Hydrostatic Charge Pumps
- Lube Oil Systems
- Power Transmissions
- Return Lines
- Side Loop Systems



Features

HNK Duramax® filters utilize a RadialSeal™ design – making servicing easier and providing a more reliable seal without having to torque to specification.

- Applications include hydrostatic charge side filtration, pilot circuits, power shift transmissions and kidney loop circuits.
- Utilizes Synteq™ filter media for high filtration efficiency and higher dust-holding capacity.
- Improved performance including higher burst, greater fatigue strength and longer filter life.

Beta Rating

- Performance to $\beta_{100} = 1000$

Porting Size Options

- HNK04: SAE-12, SAE-16 O-Ring
- HNK05: SAE-20 O-Ring

Replacement Filter Lengths

- 04 short: 5.97" / 151.7mm
- 04 long: 9.44" / 239.8mm
- 05 short: 11.63" / 295.4mm
- 05 long: 14.24" / 361.7mm

Standard Bypass Ratings

- 50 psi / 345 kPa / 3.5 bar
- No Bypass

Assembly Weight

- 04 short: 5.97" length - 3.95 lbs / 1.8 kg
- 04 long: 9.44" length - 4.7 lbs / 2.1 kg
- 05 short: 11.63" length - 7.35 lbs / 3.3 kg
- 05 long: 14.24" length - 8.0 lbs / 3.6 kg

Operating Temperatures

- -20° to 250°F (-29° to 121°C)

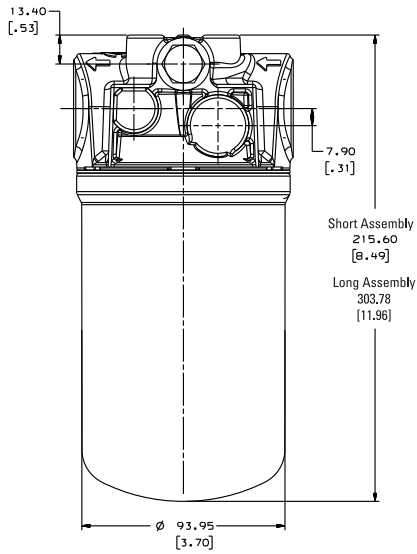
Filter Collapse Ratings

- 235 psi / 1621 kPa / 16.2 bar

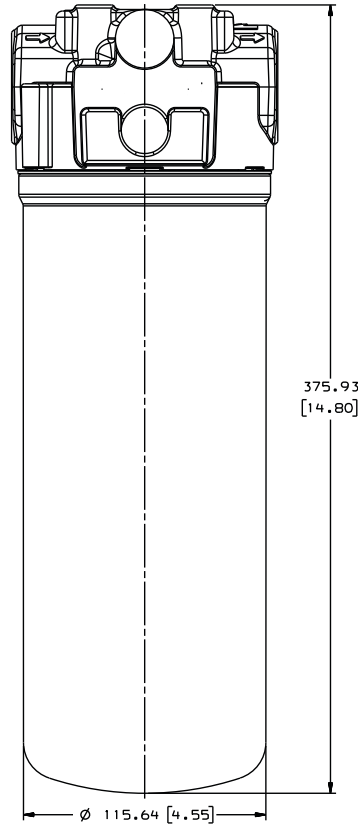
HNK04/05 Specification Illustrations

HNK04 SPIN-ON ASSEMBLY - SIDE VIEW

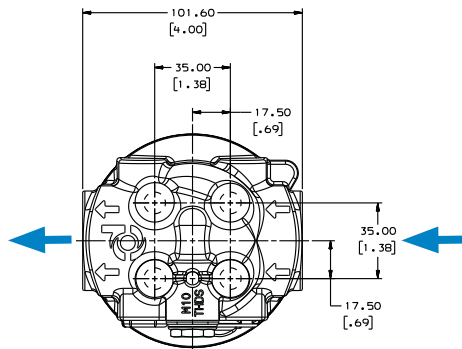
All dimensions are shown in inches [millimeters].



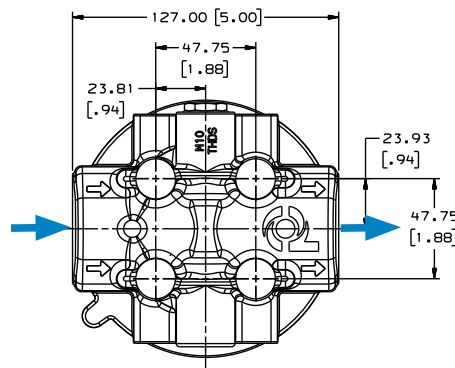
HNK05 SPIN-ON ASSEMBLY - SIDE VIEW



HNK04 HEAD - TOP VIEW



HNK05 HEAD - TOP VIEW





HNK04/05 Components

Filter Choices for HNK04

Media Type	$\beta_{x(c)} = 1000$	Length		Part No.
	Rating based on ISO 16889	in	mm	
Synteq Synthetic	6 μ m	5.97	151.7	P569203
	6 μ m	9.44	239.8	P569204
	11 μ m	5.97	151.7	P569205
	11 μ m	9.44	239.8	P569206
	23 μ m	9.44	239.8	P576047

Filter Choices for HNK05

Media Type	$\beta_{x(c)} = 1000$	Length		Part No.
	Rating based on ISO 16889	in	mm	
Synteq Synthetic	6 μ m	11.63	295.4	P569209
	6 μ m	14.24	361.7	P569210
	11 μ m	11.63	295.4	P569211
	11 μ m	14.24	361.7	P569212

Filter Notes: • Refer to table in the Technical Reference Guide for fluid compatibility with our filter media.

Head Choices for HNK04

Port Size	Bypass Rating	Part No.	Indicators	Style	Mounting Threads
SAE-12	50 psi / 3.5 bar	P568856	none	optional elect.	M10x1.5-6H
SAE-12	No bypass	P568857	none	optional elect.	M10x1.5-6H
SAE-16	50 psi / 3.5 bar	P568858	none	optional elect.	M10x1.5-6H
SAE-16	No bypass	P568859	none	optional elect.	M10x1.5-6H

Head Choices for HNK05

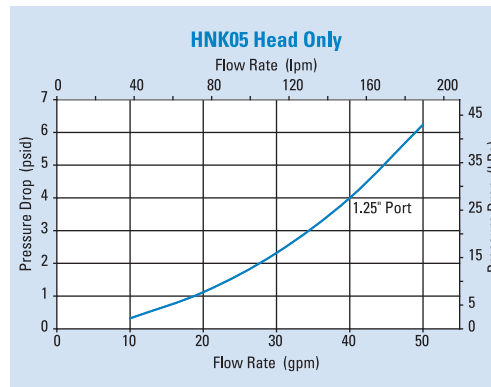
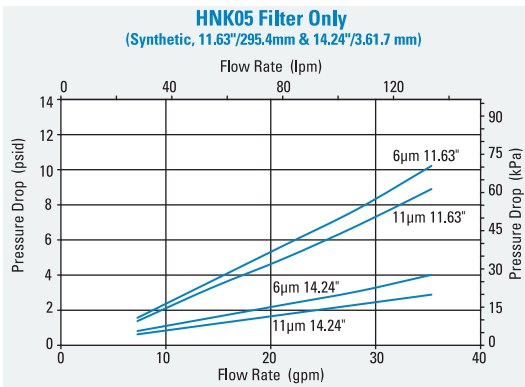
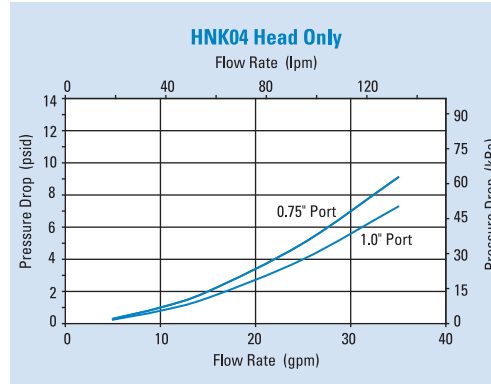
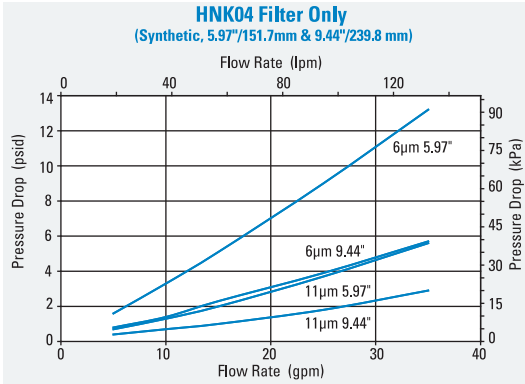
Port Size	Bypass Rating	Part No.	Indicators	Style	Mounting Threads
SAE-20	50 psi / 3.5 bar	P568860	none	optional elect.	M10x1.5-6H
SAE-20	No bypass	P568861	none	optional elect.	M10x1.5-6H

Indicator Choices

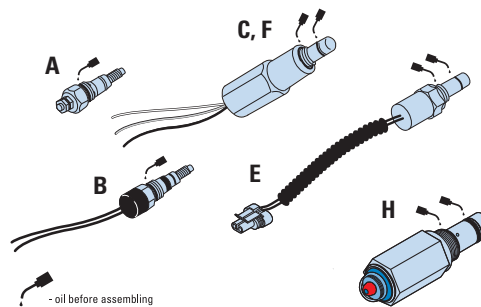
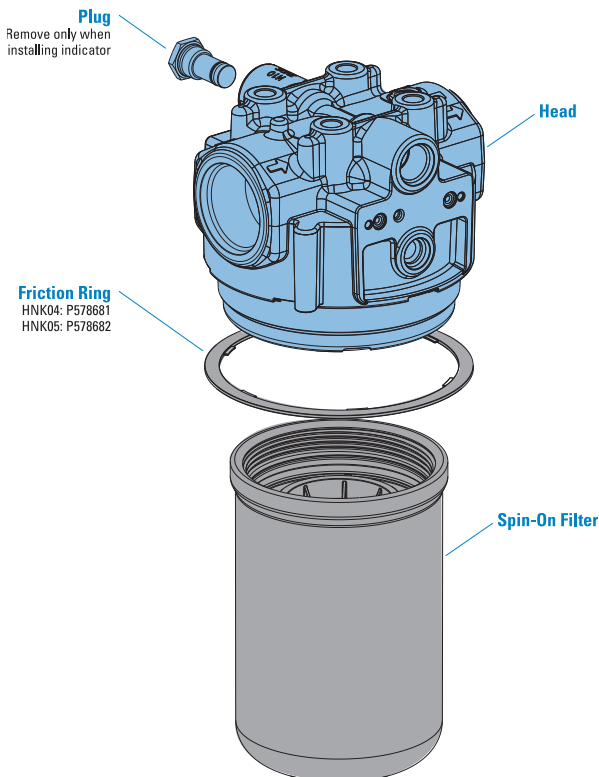
Set Point/Type	Part No.	Description
50 psi / 345 kPa	P165194	Electric Single post DC
25 psi / 172 kPa	P575334	Visual Indicator, Pop up
50 psi / 345 kPa	P575335	Visual Indicator, Pop up



Performance Data



Service Parts



SERVICE PARTS NOTE:

Some service parts may not be stocked. Please contact your Donaldson sales representative for lead time details.



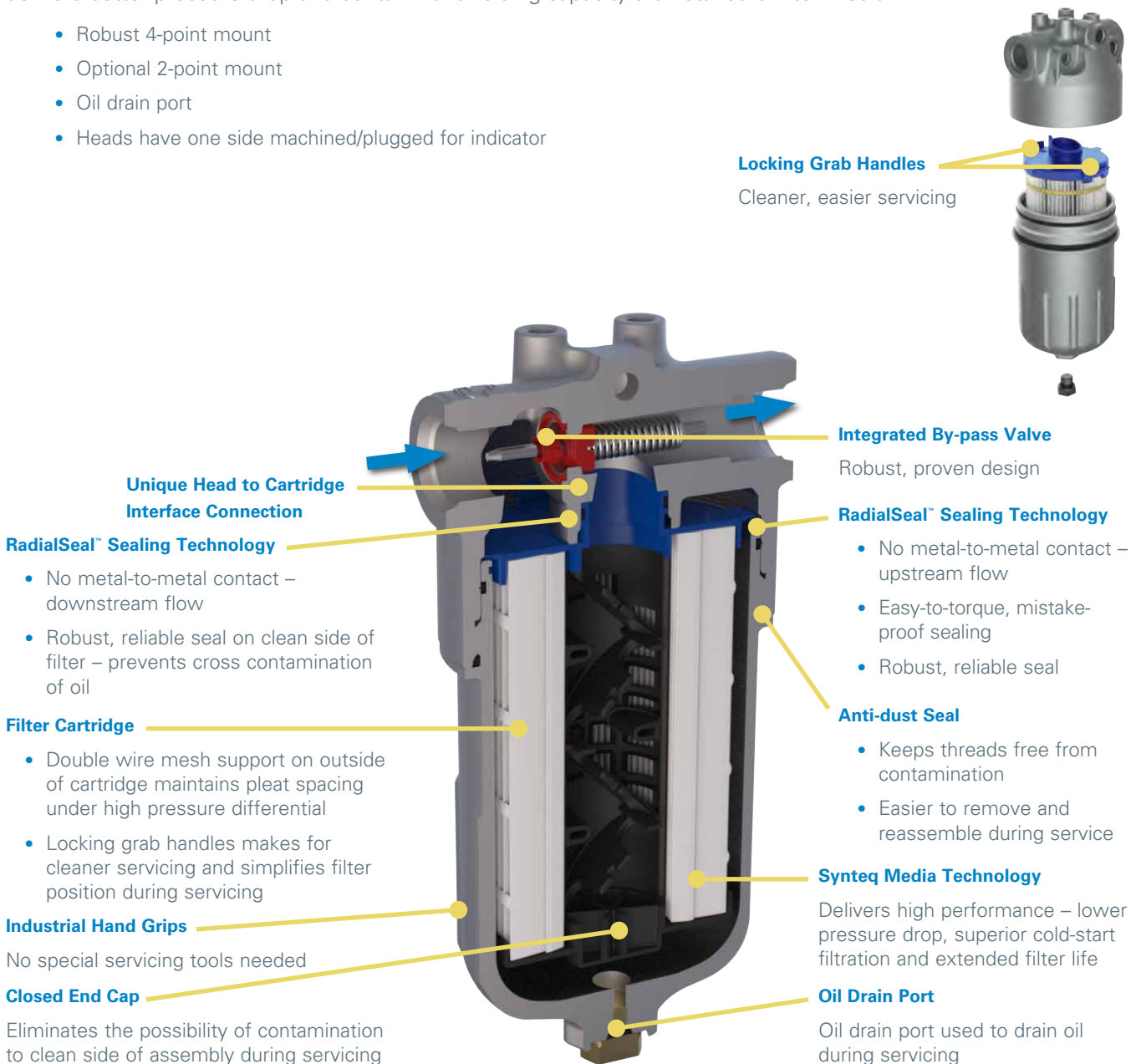
Our FLK hydraulic filtration systems are packed with innovative features that will deliver cleaner, mistake-proof filter servicing.

Features

The FLK assembly is a robust, reusable housing with a disposable cartridge design. The versatile filter head accommodates multiple housing lengths. Raised hand grips make it easy to remove the housing from the head without special servicing tools. The oil drain port on the bottom of the housing allows cleaner, easier servicing. The filter tabs lock into place – simplifying positioning during reassembly.

A unique sealing technology protects systems from harmful ingressed contaminants and cross contamination. The RadialSeal™ interface increases surface area to provide a robust connection with superior vibration resistance. Extended surface area gives advanced filtration performance. Donaldson's proprietary Synteq™ media technology delivers better pressure drop and contaminant holding capacity than standard filter media.

- Robust 4-point mount
- Optional 2-point mount
- Oil drain port
- Heads have one side machined/plugged for indicator



FLK90 In-Line Cartridge Filters

Working Pressures to:

580 psi / 4002 kPa / 40 bar

Rated Static Burst to:

2000 psi / 13,790 kPa / 138 bar

Flow Range To:

40 gpm / 151 lpm

Applications

- Hydrostatic Charge Pumps
- Hydrostatic Transmission
- Pilot Control Circuits



IMPORTANT SERVICE INSTRUCTIONS:

To prevent thread damage when installing new filter, fully lubricate the entire thread and O-Ring surface with a Molybdenum-containing gear oil or anti-seize paste such as Schaeffer #214S Supreme One 80W-140 gear oil or Dow Corning Molykote P-37 anti-seize paste.

Beta Rating

- Performance to $\beta_{_{0.5}}=1000$

Porting Size Options

- SAE-12 O-Ring
- SAE-16 O-Ring

Replacement Filter Lengths

- 4.21" / 107mm
- 8.23" / 209mm

Standard Bypass Ratings

- 50 psi / 345 kPa / 3.5 bar
- No bypass

Assembly Weight

- Long Housing: 2.33 kg / 5.14 lbs
- Short Housing: 1.82 kg / 4.01 lbs

Operating Temperatures

- -40° to 250°F (-40° to 121°C)

Filter Collapse Ratings

- 145 psid / 1000 kPa / 10 bar (standard)



FLK90

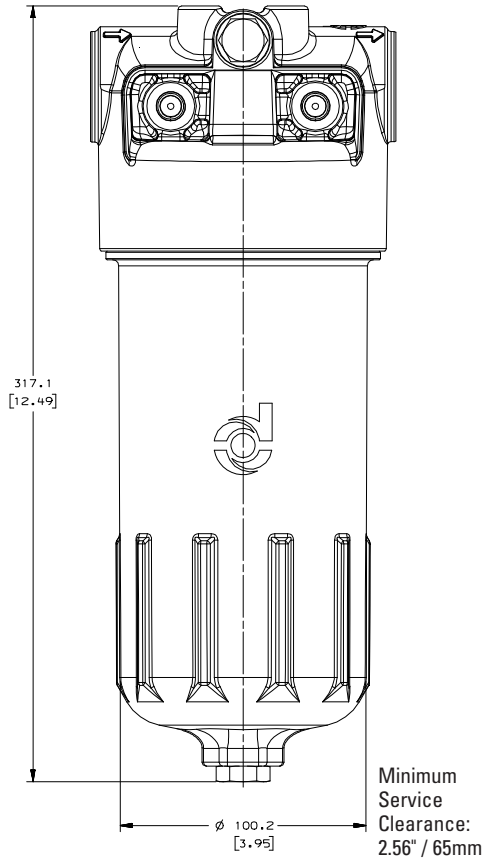
Max Flow: 40 gpm (151 lpm)



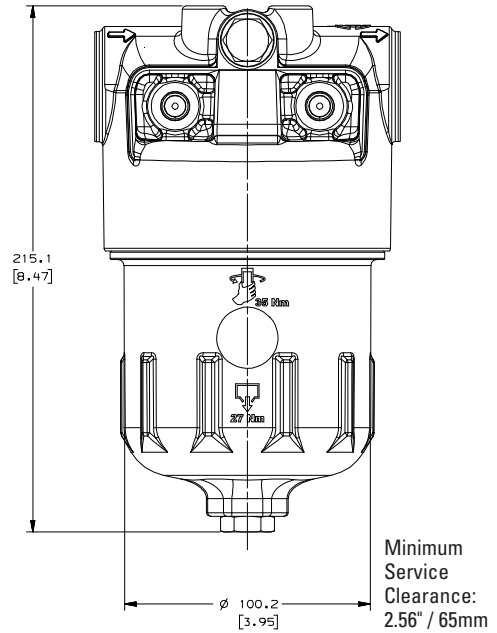
FLK Specification Illustrations

LONG ASSEMBLY - SIDE VIEW

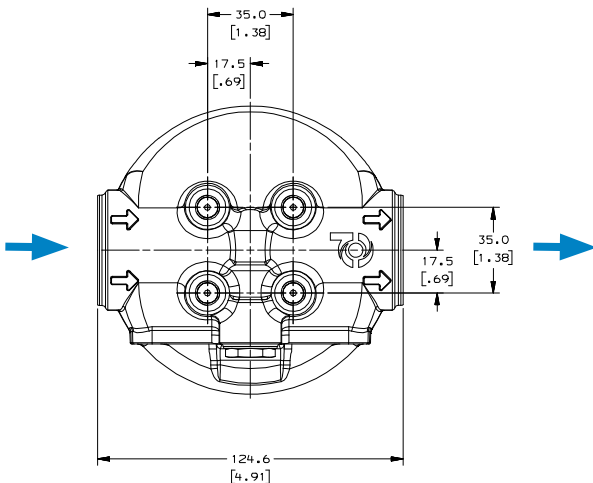
All dimensions are shown in millimeters [inches].



SHORT ASSEMBLY - SIDE VIEW



HEAD - TOP VIEW



FLK90 Components

Filter Choices

Media Type	$\beta_{x(e)} = 1000$	Length		Part No.
	Rating based on ISO 16889	in	mm	
Short Length Assembly				
Synteq Synthetic	6 μm	4.21	107	P767128
	11 μm	4.21	107	P766987
	15 μm	4.21	107	P767129
Long Length Assembly				
Synteq Synthetic	6 μm	8.23	209	P767130
	11 μm	8.23	209	P766959
	15 μm	8.23	209	P767131

Head Choices

Part No.	Port Connections	Bypass Valve
P574994	SAE-12	50 psi (3.4 bar) bypass
P574995	SAE-12	No bypass
P574996	SAE-16	50 psi (3.4 bar) bypass
P574997	SAE-16	No bypass

Housing Choices

Part No.	Comments
P766990	Short length assembly
P766961	Long length assembly

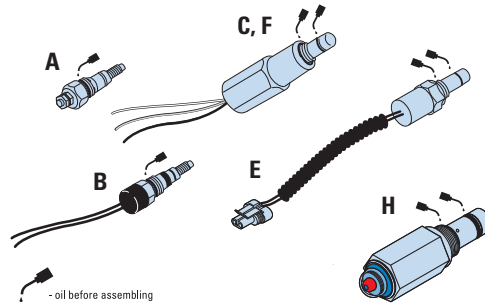
Service Indicator Choices

Use with Bypass Valve Pressure of:	Indicator Part No.	Style ²	Description
Electric Models¹			
50 psi / 345 kPa	P165194	A	Single post DC. N.O.
50 psi / 345 kPa	P574968	B	DC 2-wire.
50 psi / 345 kPa	P574967	E	DC 2-wire.
50 psi / 345 kPa	P575549	F	DC 3-wire.
50 psi / 345 kPa	P174396	C	AC/DC 3-wire.
25 psi / 172.5 kPa	P575334	H	Visual pop up
50 psi / 345 kPa	P575335	H	Visual pop up

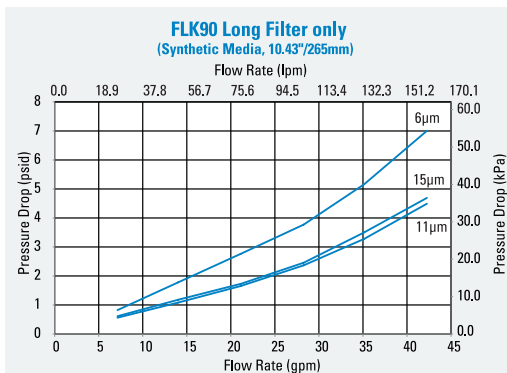
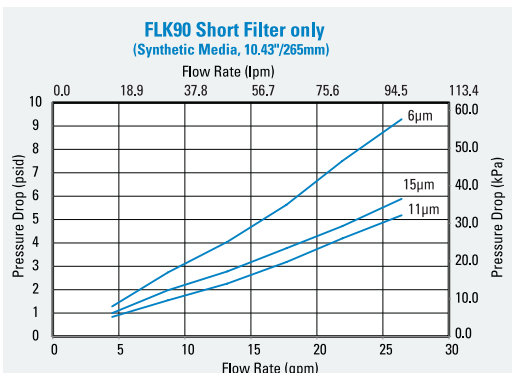
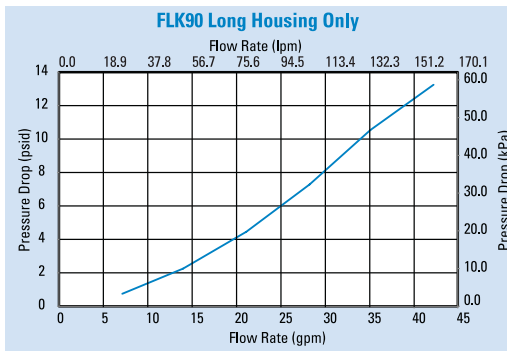
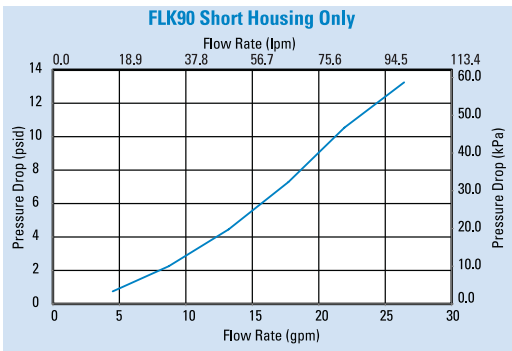
Indicator Notes

¹All electric models have a maximum operating temperature of 250°F / 121°C.

²Complete details on all service indicators can be found in the accessories section.



Performance Data





FLK110

Max Flow: 42 gpm (159 lpm)



FLK110 In-Line Cartridge Filters

Working Pressures to:

435 psi / 3001 kPa / 30 bar

Rated Static Burst to:

1300 psi / 8970 kPa / 90 bar

Flow Range To:

42 gpm / 159 lpm

Applications

- Hydrostatic Charge Pumps
- Hydrostatic Transmission
- Pilot Control Circuits



IMPORTANT SERVICE INSTRUCTIONS:

To prevent thread damage when installing new filter, fully lubricate the entire thread and O-Ring surface with a Molybdenum-containing gear oil or anti-seize paste such as Schaeffer #214S Supreme One 80W-140 gear oil or Dow Corning Molykote P-37 anti-seize paste.

Beta Rating

- Performance to $\beta_{<60>}$ =1000

Porting Size Options

- SAE-20 O-Ring

Replacement Filter Lengths

- 7.4" / 187.9mm
- 10.43" / 264.9mm

Standard Bypass Ratings

- 50 psi / 345 kPa / 3.5 bar
- No bypass

Assembly Weight

- Long Housing: 1.34 kg / 2.95 lb
- Short Housing: 1.01 kg / 2.22 lb

Operating Temperatures

- -40° to 250°F (-40° to 121°C)

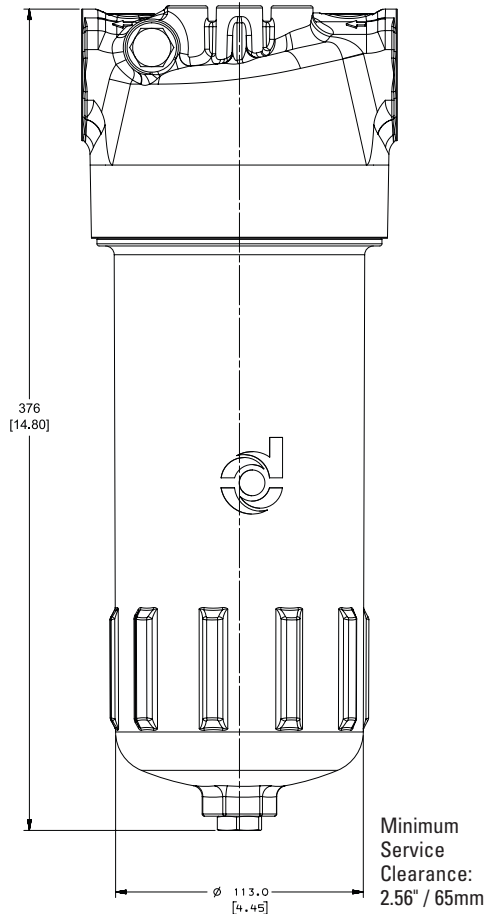
Filter Collapse Ratings

- 145 psid / 1000 kPa / 10 bar (standard)

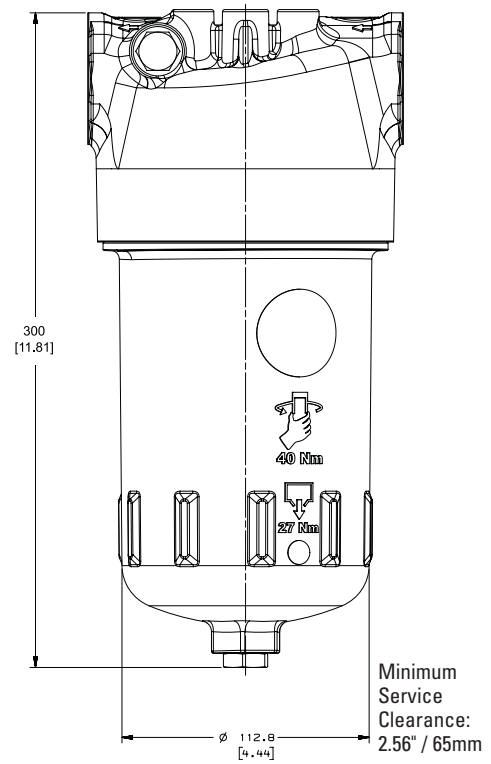
FLK Specification Illustrations

LONG ASSEMBLY - SIDE VIEW

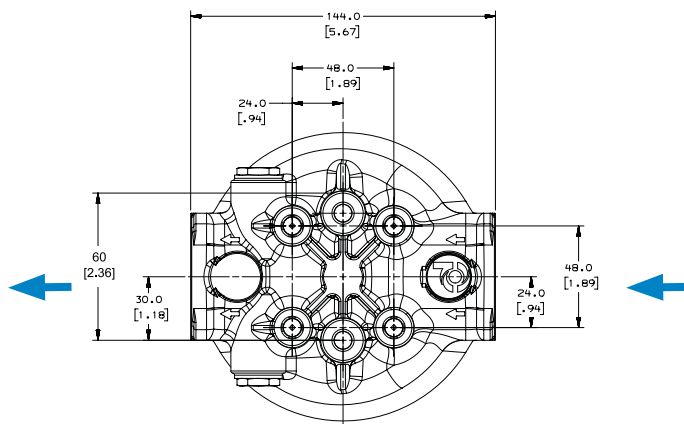
All dimensions are shown in millimeters [inches].



SHORT ASSEMBLY - SIDE VIEW



HEAD - TOP VIEW





FLK110

Max Flow: 42 gpm (159 lpm)



FLK110 Components

Filter Choices

Media Type	$\beta_{x10} = 1000$	Length		Part No.
	Rating based on ISO 16889	in	mm	
Short Length Assembly				
Synteq Synthetic	6 μm	7.4	187	P766847
	11 μm	7.4	187	P766813
	15 μm	7.4	187	P767012
Long Length Assembly				
Synteq Synthetic	6 μm	10.43	265	P767010
	11 μm	10.43	265	P766811
	15 μm	10.43	265	P767011

Head Choices

Part No.	Port Connections	Bypass Valve
P766831	SAE-20	50 psi (3.4 bar) bypass
P767009	SAE-20	No bypass

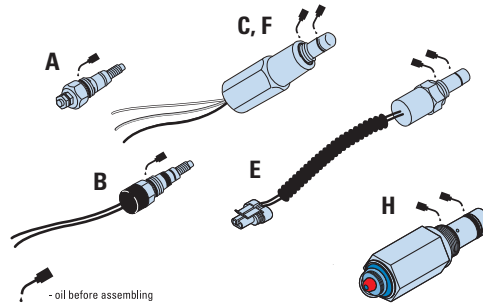
Housing Choices

Part No.	Comments
P766812	Short length assembly
P766810	Long length assembly

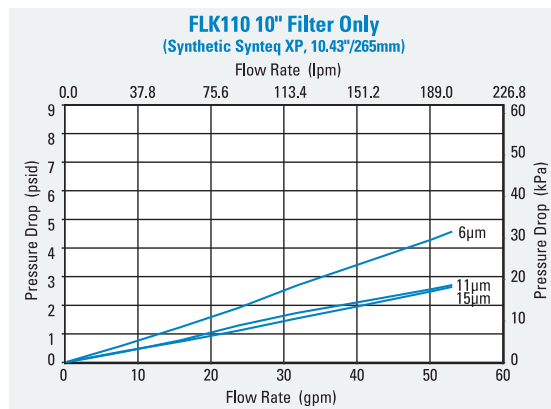
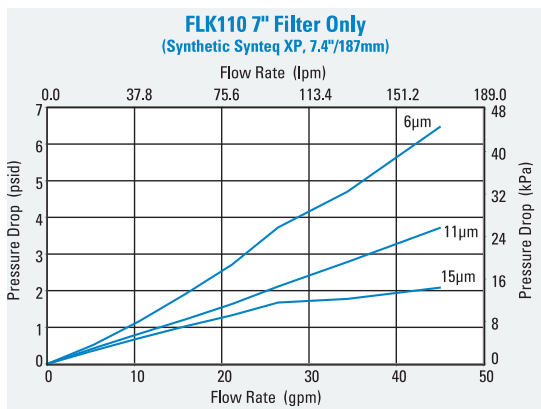
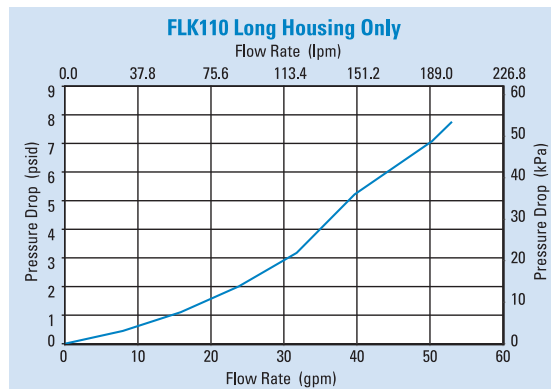
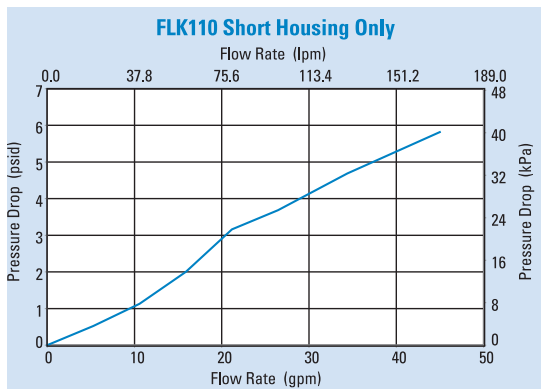
Service Indicator Choices

Use with Bypass Valve Pressure of:	Indicator Part No.	Style ²	Description
Electric Models¹			
50 psi / 345 kPa	P165194	A	Single post DC. N.O.
50 psi / 345 kPa	P574968	B	DC 2-wire
50 psi / 345 kPa	P574967	E	DC 2-wire
50 psi / 345 kPa	P575549	F	DC 3-wire
50 psi / 345 kPa	P174396	C	AC/DC 3-wire
25 psi / 172.5 kPa	P575334	H	Visual pop up
50 psi / 345 kPa	P575335	H	Visual pop up

¹Indicator Notes
 All electric models have a maximum operating temperature of 250°F / 121°C.
²Complete details on all service indicators can be found in the accessories section.



Performance Data



FLK125 In-Line Cartridge Filters

Working Pressures to:

508 psi / 3505 kPa / 35.1 bar

Rated Static Burst to:

2000 psi / 13,790 kPa / 138 bar

Flow Range To:

85 gpm / 322 lpm

Applications

- Hydrostatic Charge Pumps
- Hydrostatic Transmission
- Pilot Control Circuits



IMPORTANT SERVICE INSTRUCTIONS:

To prevent thread damage when installing new filter, fully lubricate the entire thread and O-Ring surface with a Molybdenum-containing gear oil or anti-seize paste such as Schaeffer #214S Supreme One 80W-140 gear oil or Dow Corning Molykote P-37 anti-seize paste.

Beta Rating

- Performance to $\beta_{<61c>}=1000$

Porting Size Options

- 2" SAE 4 Bolt Flange Code 61

Replacement Filter Lengths

- 10.85" / 275.7mm

Standard Bypass Ratings

- 50 psi / 345 kPa / 3.5 bar

Assembly Weight

- Long Housing: 4.76 kg / 10.50 lbs

Operating Temperatures

- -40° to 250°F (-40° to 121°C)

Filter Collapse Ratings

- 145 psid / 1000 kPa / 10 bar (standard)



FLK125

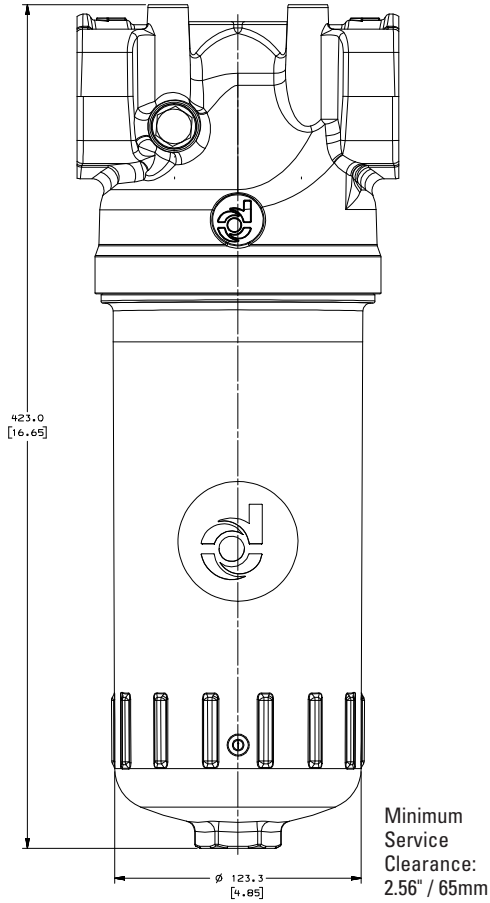
Max Flow: 85 gpm (322 lpm)



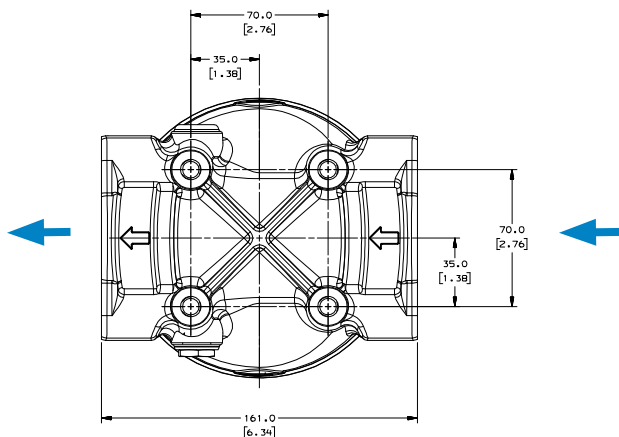
FLK Specification Illustrations

LONG ASSEMBLY - SIDE VIEW

All dimensions are shown in millimeters [inches].



HEAD - TOP VIEW



FLK125 Components

Filter Choices

Media Type	$\beta_{x(c)} = 1000$	Length		Part No.
	Rating based on ISO 16889	in	mm	
Synteq Synthetic	6 μm	10.74	272.7	P767084
	11 μm	10.74	272.7	P767104
	15 μm	10.74	272.7	P767106

Head Choices

Part No.	Port Connections	Bypass Valve
P767095	2" SAE 4 bolt	50 psi (3.4 bar) bypass

Housing Choices

Part No.	Comments
P767089	Long length assembly

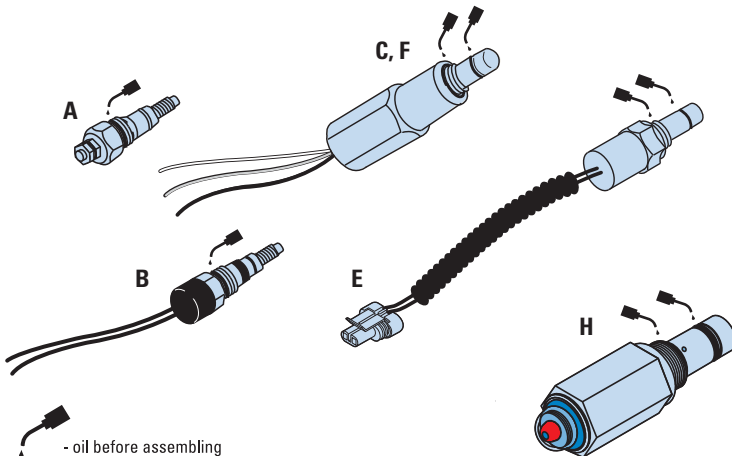
Service Indicator Choices

Use with Bypass Valve Pressure of:	Indicator Part No.	Style ²	Description
Electric Models¹			
50 psi / 345 kPa	P165194	A	Single post DC. N.O.
50 psi / 345 kPa	P574968	B	DC 2-wire
50 psi / 345 kPa	P574967	E	DC 2-wire
50 psi / 345 kPa	P575549	F	DC 3-wire
50 psi / 345 kPa	P174396	C	AC/DC 3-wire
25 psi / 172.5 kPa	P575334	H	Visual pop up
50 psi / 345 kPa	P575335	H	Visual pop up

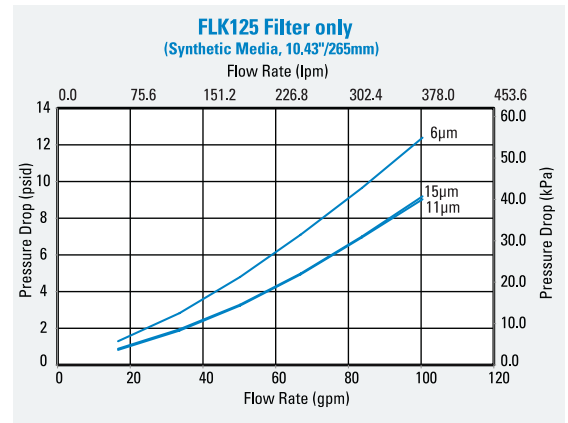
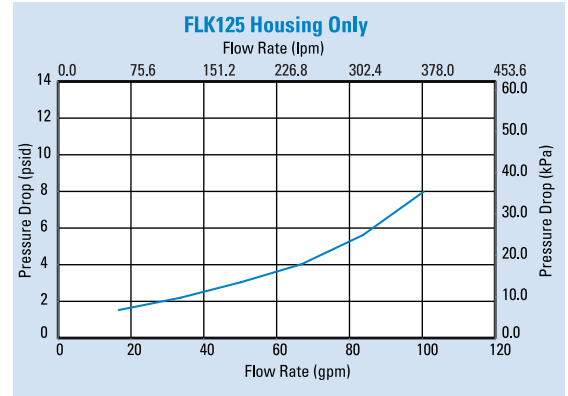
Indicator Notes

¹All electric models have a maximum operating temperature of 250°F / 121°C.

²Complete details on all service indicators can be found in the accessories section.



Performance Data





DPK350

Max Flow: 100 gpm (379 lpm)



DPK350 In-Line Cartridge Filters

Working Pressures to:

350 psi / 2400 kPa / 24 bar

Rated Static Burst to:

700 psi / 4800 kPa / 48 bar

Flow Range To:

100 gpm / 379 lpm

Applications

- In-plant Systems
- Process Fluids
- Lube Oil Systems

Features

DPK350 duplex filter assemblies allow continuous filtration during filter servicing to avoid machine shutdown. The DPK350 duplex design combines lighter weight aluminum heads with durable steel housings for a high-performance assembly. Choose between optional features such as no by-pass, by-pass valve, visual indicators or combination electrical/visual indicators for a customized assembly that best fits the needs of your specific application. Filter performance ranges from 5 μ to 25 μ at beta 1000 and high collapse elements are available at 5 μ and 27 μ , offering additional flexibility to achieve the filtration level your system requires.

- Head Material: Anodized Aluminum Alloy
- Housing Material: Steel
- Optional visual and visual / electric indicators
- Self locking transfer valve
- Automatic bleed-over valve



Beta Rating

- Performance to $\beta_{slc} = 1000$

Porting Size Options

- 1-1/2" SAE 4-Bolt Flange Code 61

Replacement Filter Lengths

- 14.62" / 371mm

Standard Bypass Ratings

- 50 psi / 345 kPa / 3.5 bar
- No bypass

Assembly Weight

- 44 lbs / 20 kg

Operating Temperatures

- -40° to 250°F (-40° to 121°C)

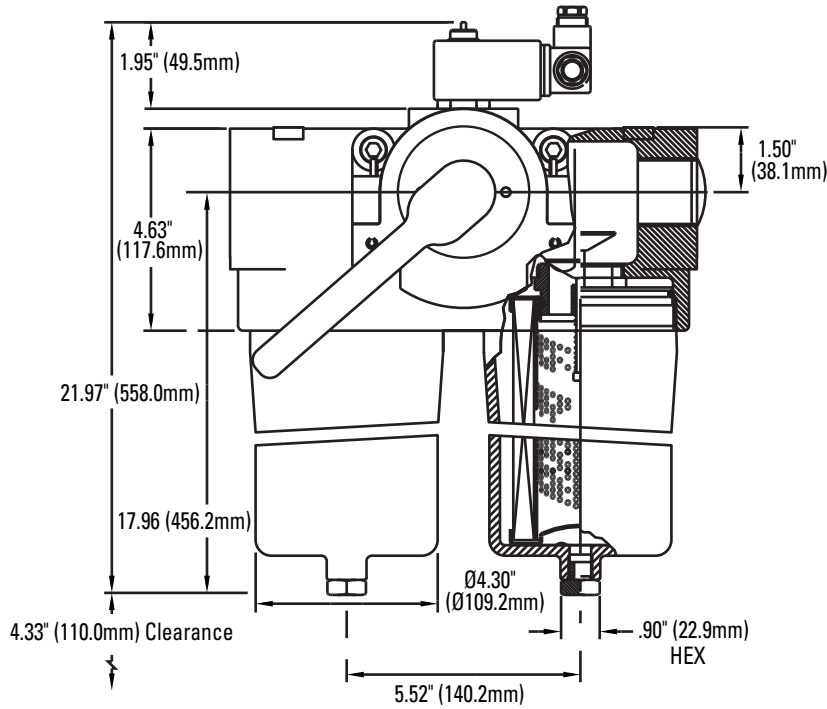
Filter Collapse Ratings

- 300 psid / 207 kPa / 21 bar (standard)
- 3045 psid / 2100 kPa / 210 bar (high collapse)

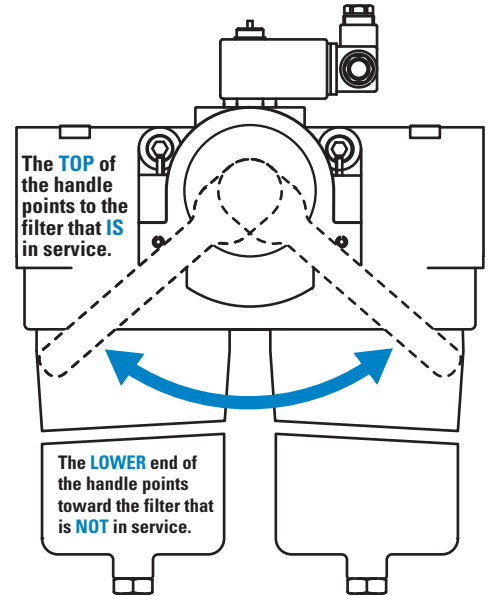
DPK350 Specification Illustrations

ASSEMBLY - SIDE VIEW

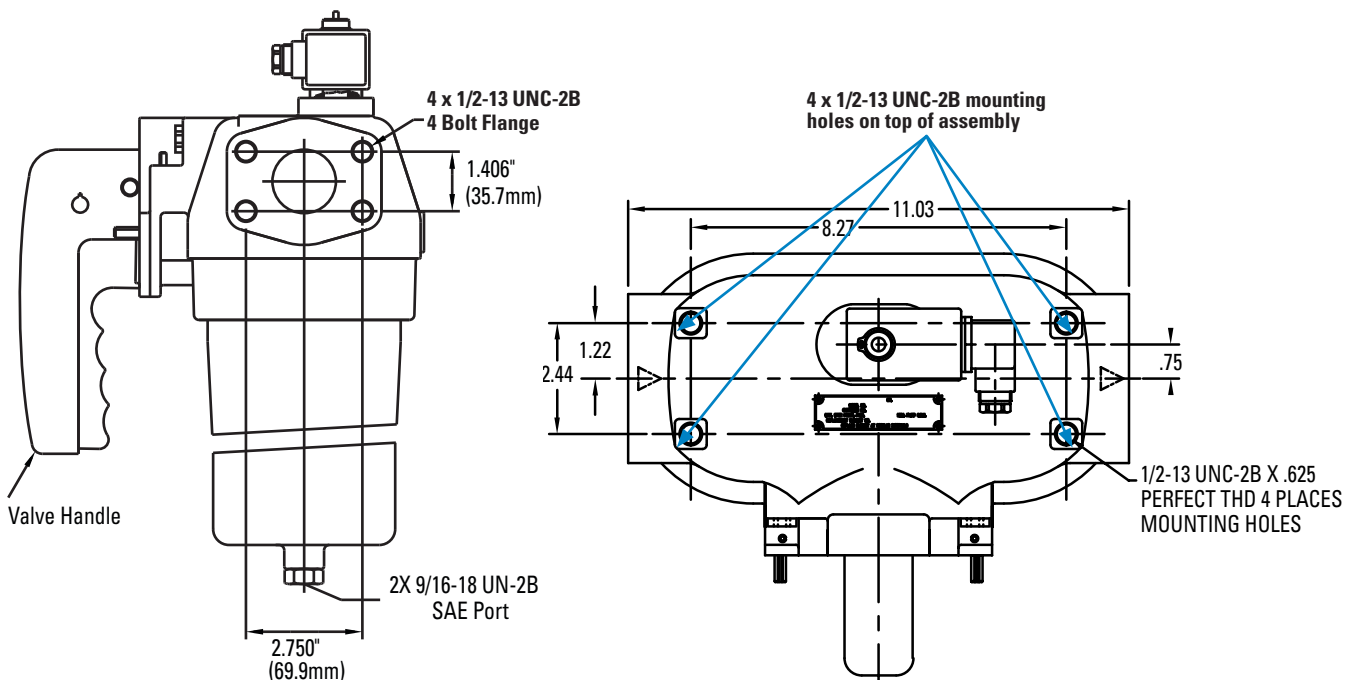
All dimensions are shown in millimeters [inches].



The handle shifts fluid flow from one filter to the other.



HEAD - TOP VIEW





DPK350

Max Flow: 100 gpm (379 lpm)



DPK350 Components

Filter Choices

Media Type	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 16889	in	mm		
DT Synthetic	5 μm	14.62	371	P567101	
	5 μm	14.69	373	P560716	High collapse
	8 μm	14.62	371	P567102	
	12 μm	14.62	371	P567103	
	23 μm	14.62	371	P567104	
	27 μm	14.69	373	P560718	High collapse

Assembly Choices

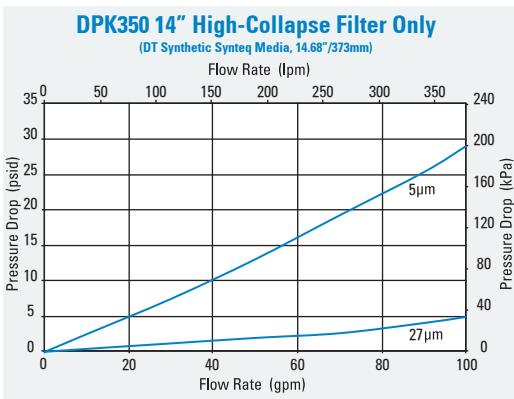
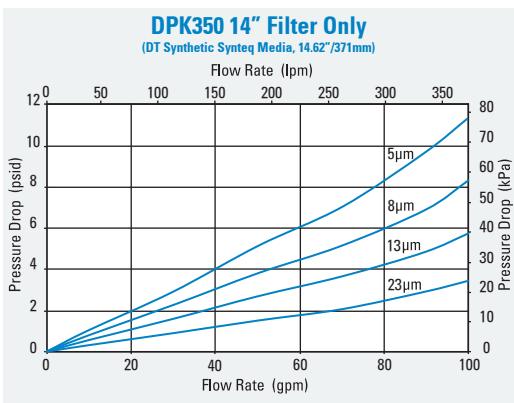
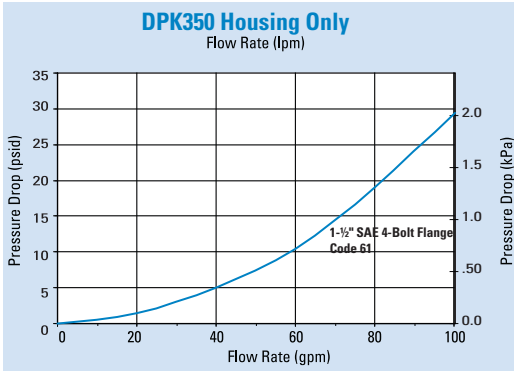
Part No.	Port Connections	Bypass Valve	Comments
P577024	1-1/2" SAE 4-bolt flange code 61	No bypass	Filter elements not included with assembly.
P577025	1-1/2" SAE 4-bolt flange code 61	50 psi (3.4 bar) bypass	Filter elements not included with assembly.

Service Indicator Choices

Use with Bypass Valve Pressure of:	Indicator Part No.	Seal Material	Connector Style
Visual / Electric Models			
50 psi / 345 kPa	P577029	Fluorocarbon seal	Hirschman
Visual Models			
50 psi / 345 kPa	P577028	Fluorocarbon seal	Manual reset



Performance Data





W061

Max Flow: 100 gpm (379 lpm)



W061 In-Line Cartridge Filters

Working Pressures to:

600 psi / 4140 kPa / 41.4 bar

Rated Static Burst to:

1500 psi / 10,342 kPa / 103 bar

Fatigue Pressure Rating:

300 psi / 2070 kPa / 21 bar

Flow Range To:

100 gpm / 379 lpm

Applications

- In-Plant Systems
- Meets HF3 Specification
- Mobile Equipment

Features

The W061 filter assembly contains the popular HF3 filter. Quick filter change outs are accomplished with the use of our easily serviceable ring assembly. Donaldson DT high-performance 4-layer media is offered in a variety of designs. Donaldson filters core collapse options range from 150 to 3,000 psi. The differential pressure indicator line is designed to work with a wide assortment of bypass valves. Thermal lockout and surge control are two key features incorporated in many of the differential pressure indicators.

- Assembly length code 2 conforms to HF3 specifications
- Wide range of indicator options
- Three housing length options for design flexibility
- Head material: cast iron
- Housing material: steel
- Bleed plug in head



Beta Rating

- Performance to $\beta_{<40} = 1000$

Porting Size Options

- SAE-12, SAE-16 O-Ring

Replacement Filter Lengths

- 4.59" / 116.7mm
- 8.22" / 208.8mm
- 12.91" / 327.8mm

Standard Bypass Ratings

- 25 psi / 173 kPa / 1.73 bar
- 50 psi / 345 kPa / 3.5 bar
- No Bypass

Assembly Weight

- 4.59": 7.9 lbs / 3.6 kg
- 8.22": 8.9 lbs / 4.0 kg
- 12.91": 10.2 lbs / 4.6 kg

Operating Temperatures

- -20° to 250°F (-29° to 121°C)

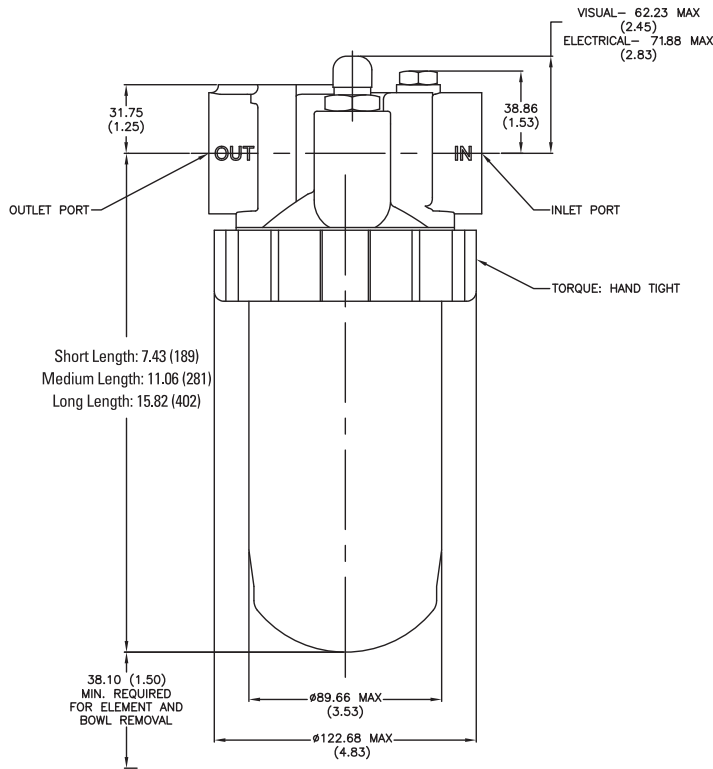
Filter Collapse Ratings

- 150 psi / 1034 kPa / 10.3 bar (standard)

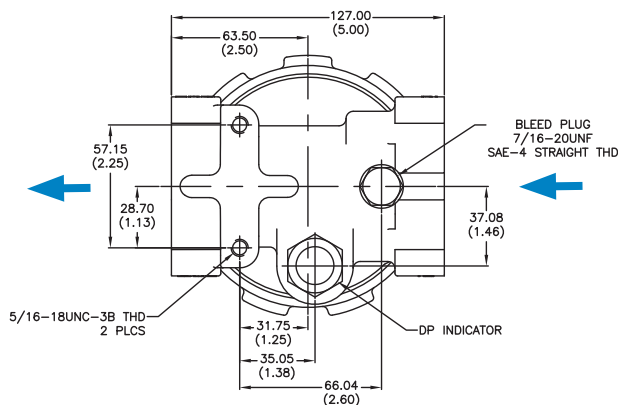
W061 Specification Illustrations

ASSEMBLY - SIDE VIEW

All dimensions are shown in millimeters [inches].



HEAD - TOP VIEW





W061

Max Flow: 100 gpm (379 lpm)



W061 Components

Filter Choices

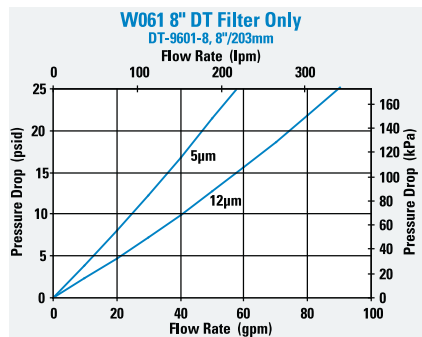
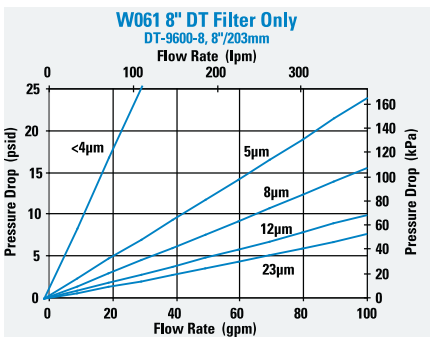
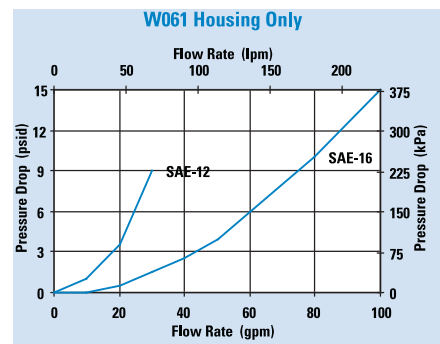
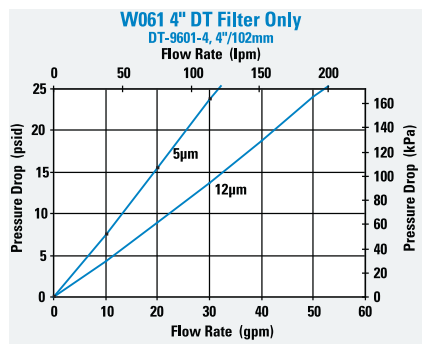
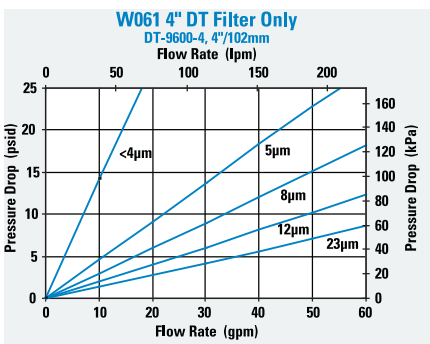
Media Type	$\beta_{x(c)} = 2$	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 16889		in	mm		
DT Synthetic		<4 μm	4.59	117	P566204	DT-9600-4-2UM
		5 μm	4.59	117	P566205	DT-9600-4-5UM
		5 μm	4.59	117	P167184	DT-9601-4-5UM, High collapse
		8 μm	4.59	117	P566206	DT-9600-4-8UM
		12 μm	4.59	117	P566207	DT-9600-4-14UM
		12 μm	4.59	117	P167843	DT-9601-4-14UM, High collapse
		23 μm	4.59	117	P566208	DT-9600-4-25UM
		<4 μm	8.22	209	P566209	DT-9600-8-2UM
		5 μm	8.22	209	P566210	DT-9600-8-5UM
		5 μm	8.22	209	P167185	DT-9601-8-5UM, High collapse
		8 μm	8.22	209	P566211	DT-9600-8-8UM
		12 μm	8.22	209	P566212	DT-9600-8-14UM
		12 μm	8.22	209	P167186	DT-9601-8-14UM, High collapse
		23 μm	8.22	209	P566213	DT-9600-8-25UM
		<4 μm	12.91	328	P566214	DT-9600-13-2UM
		5 μm	12.91	328	P566215	DT-9600-13-5UM
		5 μm	12.87	327	P167411	DT-9601-13-5UM, High collapse
	Water Absorbing		8 μm	12.91	328	P566216	DT-9600-13-8UM
		12 μm	12.91	328	P566217	DT-9600-13-14UM
		12 μm	12.87	327	P167412	DT-9601-13-14UM, High collapse
		23 μm	12.91	328	P566218	DT-9600-13-25UM
		10 μm	8.23	209	P569528	Absorbs 130 ml water @ 25 psid
		10 μm	12.87	327	P569529	Absorbs 220 ml water @ 25 psid



Filter Notes:

- All Donaldson DT filters utilize glass fiber media with an epoxy-based resin system for the ultimate in chemical compatibility.
- All Donaldson DT filters are potted with epoxy-based adhesives.
- Standard collapse DT designs are double wire-backed using epoxy-coated steel mesh for maximum pleat support and dirt capacity.
- DT high collapse designs are potted into machined aluminum end caps for greater filter integrity in critical applications.
- Fluorocarbon seals are standard on all Donaldson DT filters.

Performance Data





Head Assembly Choices

Port Size	Bypass Rating	Seal Material	Indicator Style & Location	Part No.
SAE-12 O-Ring	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	P574242
SAE-16 O-Ring	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	P574243
SAE-16 O-Ring	25 psi / 1.72 bar	Fluorocarbon	Port Machined & Plugged	P575929

Housing Choices

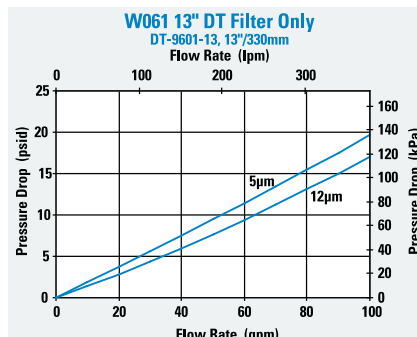
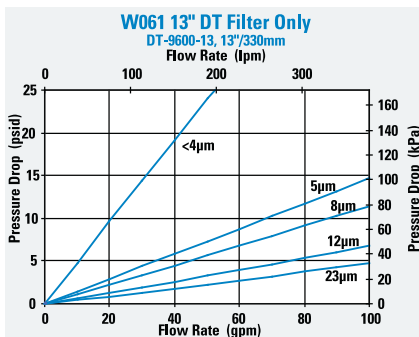
Housing Length	Seal Material	Part No.
4" (101.6mm)	Nitrile	X011115
8" (203.2mm)	Nitrile	X011111
13" (330.2mm)	Nitrile	X011117

Service Part Choices

Part No.	Description
X011160	Head/Bowl/Housing Seal Kit - nitrile
X011161	Head/Bowl/Housing Seal Kit - fluorocarbon

Indicator Choices

Indicator Pressure Setting	Connector Style	Seal Material	Part No.	Thermal Lockout	Surge Control	Reset
Visual Pop-up Models						
15 psi / 103 kPa	NA	Nitrile	P572345	No	No	Auto
35 psi / 241 kPa	NA	Nitrile	P572347	No	No	Auto
35 psi / 241 kPa	NA	Nitrile	P572348	Yes	Yes	Manual
35 psi / 241 kPa	NA	Fluorocarbon	P567456	Yes	Yes	Manual
Electrical / Visual Models						
15 psi / 103 kPa	Hirschman	Nitrile	P572323	No	No	Auto
35 psi / 241 kPa	Hirschman	Nitrile	P572327	No	No	Auto
35 psi / 241 kPa	Brad Harrison	Nitrile	P572329	No	No	Auto
35 psi / 241 kPa	Hirschman	Nitrile	P572384	Yes	Yes	Manual
35 psi / 241 kPa	Hirschman	Fluorocarbon	P567458	Yes	Yes	Manual
15 psi / 103 kPa	3 wire flying leads	Nitrile	P572342	No	No	Auto
35 psi / 241 kPa	3 wire flying leads	Nitrile	P572349	No	No	Auto
Electrical Models						
15 psi / 103 kPa	Hirschman	Nitrile	P572355	No	No	Auto
35 psi / 241 kPa	Hirschman	Nitrile	P572359	No	No	Auto
35 psi / 241 kPa	Brad Harrison	Nitrile	P572361	No	No	Auto





HDK06

Max Flow: 150 gpm (568 lpm)



HDK06 In-Line/Tank Mount Filters

Working Pressures to:

350 psi / 2415 kPa / 24.1 bar

Rated Static Burst to:

500 psi / 3450 kPa / 34.5 bar

Flow Range To:

150 gpm / 568 lpm

Applications

- Cooling Circuits
- Fluid Conditioning Systems
- Lube Oil Systems
- Return Lines
- Suction Lines

Features

HDK06 filters come in two styles: In-line and tank mount. Both styles feature a die cast aluminum head and steel body for strength and durability; service is made easier with a single, center retention bolt on top of the head. Filter flow is inside to outside. Nitrile seals are standard.

HDK06 assemblies come complete with our $\beta_{9(c)}=1000$ rated Synteq™ filter cartridge. Other ratings are available, depending on your cleanliness requirements. HDK06 comes with an easy-to-read visual service indicator.



In-line model shown

Beta Rating

- Performance to $\beta_{<4(c)}=1000$

Porting Size Options

- 2½" NPT

Replacement Filter Lengths

- 16.00" / 406mm

Standard Bypass Ratings

- 25 psi / 172.5 kPa / 1.7 bar

Assembly Weight

- 39.25 lbs / 18 kg

Operating Temperatures

- -20°F to 250°F
- -29°C to 121°C

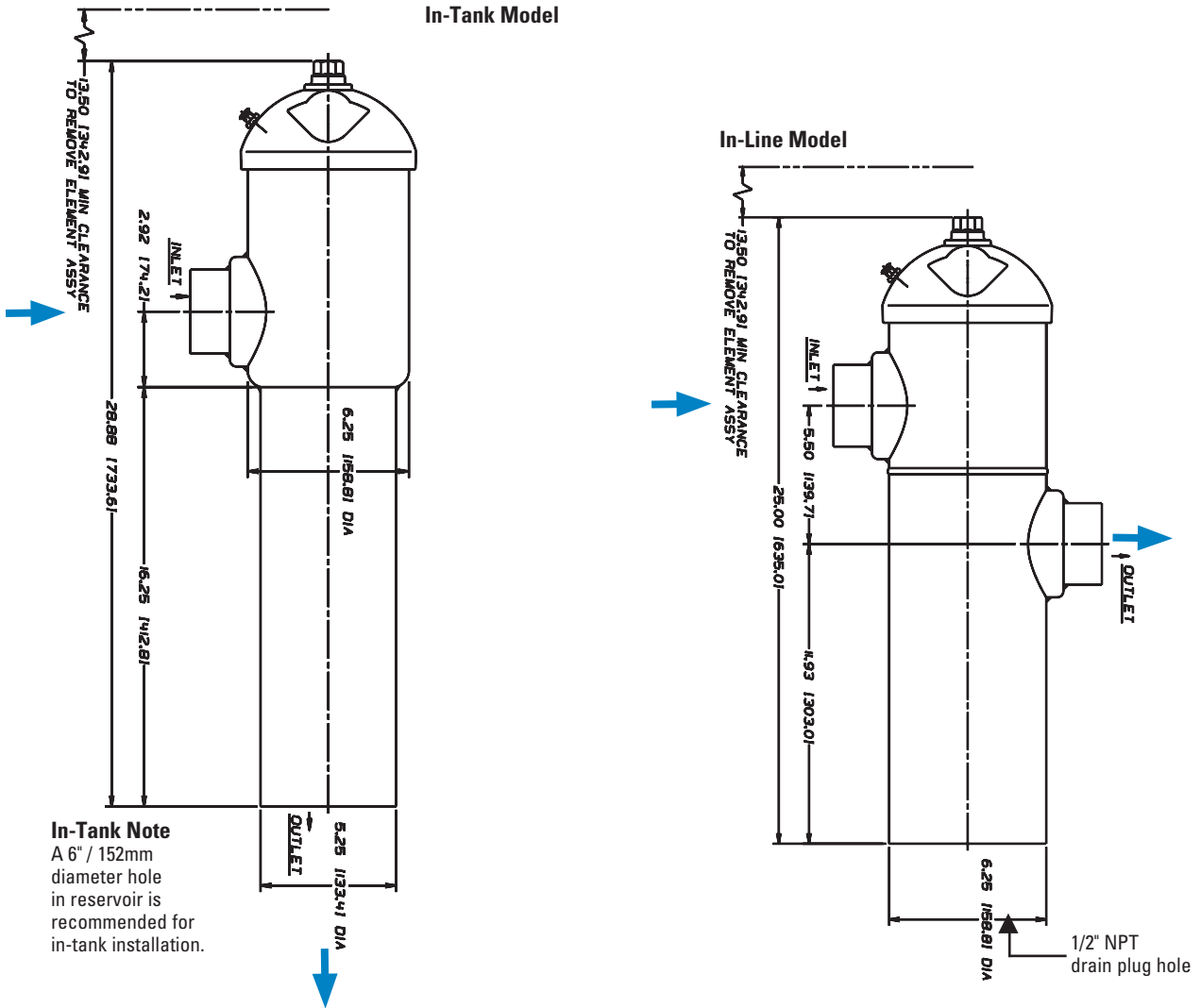
Filter Collapse Ratings

- 100 psid / 690 kPa / 6.9 bar

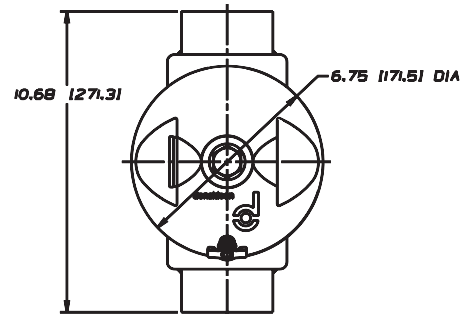
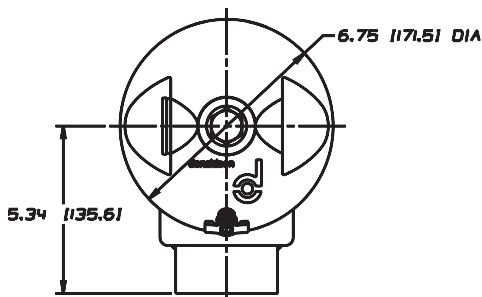
HDK06 Specification Illustrations

ASSEMBLY - SIDE VIEW

All dimensions are shown in inches [millimeters].



HEAD - TOP VIEW





HDK06

Max Flow: 150 gpm (568 lpm)



HDK06 Components

Filter Choices

Media Type	$\beta_{x(c)} = 2$	$\beta_{x(c)} = 1000$	Length		Part No.
	Rating based on ISO 16889		in	mm	
Synteq Synthetic		<4 μm	16.00	406	P161016
		6 μm	16.00	406	P165628
		11 μm	16.00	406	P176221
		22 μm	16.00	406	P161571
		23 μm	16.00	406	P164699
		50 μm	16.00	406	P166597
Wire Mesh	150 μm		11.6	294	P160700

Filter Notes

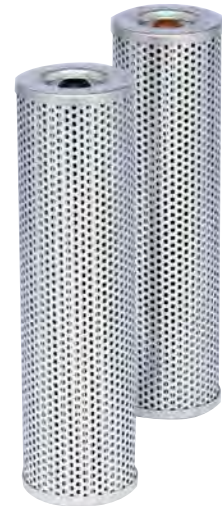
Standard HDK06 replacement filters have nitrile seals, which are appropriate for most applications involving petroleum oil. Filters with seals made of fluorocarbon are required when using diester, phosphate ester fluids, water glycol, water/oil emulsions, and HWCF (high water content fluids) over 150°F.

HDK06 filters are inside to outside reverse flow 4.39" (112mm) OD.

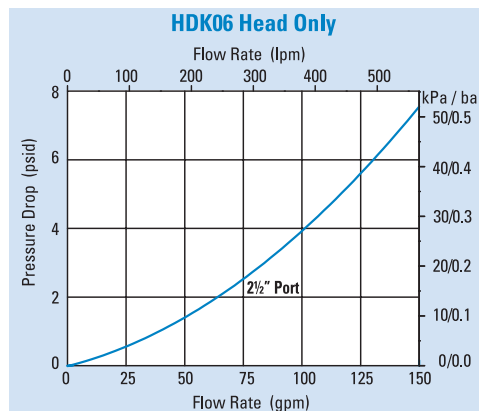
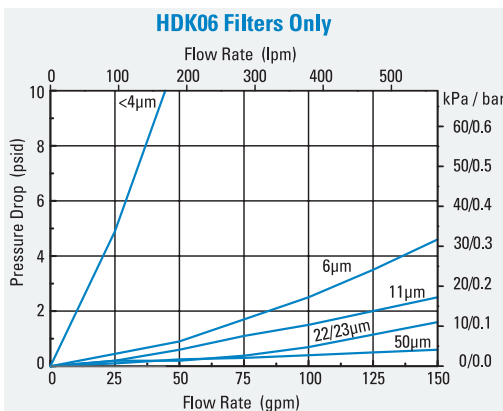
Refer to the table in the Technical Reference Guide for fluid compatibility with our filter media.

Assembly Choices

Style	Part No.	Port Size	Bypass Rating	Indicator	Includes Filter Cartridge
In-Tank	K060173	2½" NPT	25 psi / 172.5 kPa	Visual	P176221
In-Line	K060160	2½" NPT	25 psi / 172.5 kPa	Visual	P176221



Performance Data



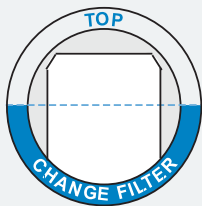
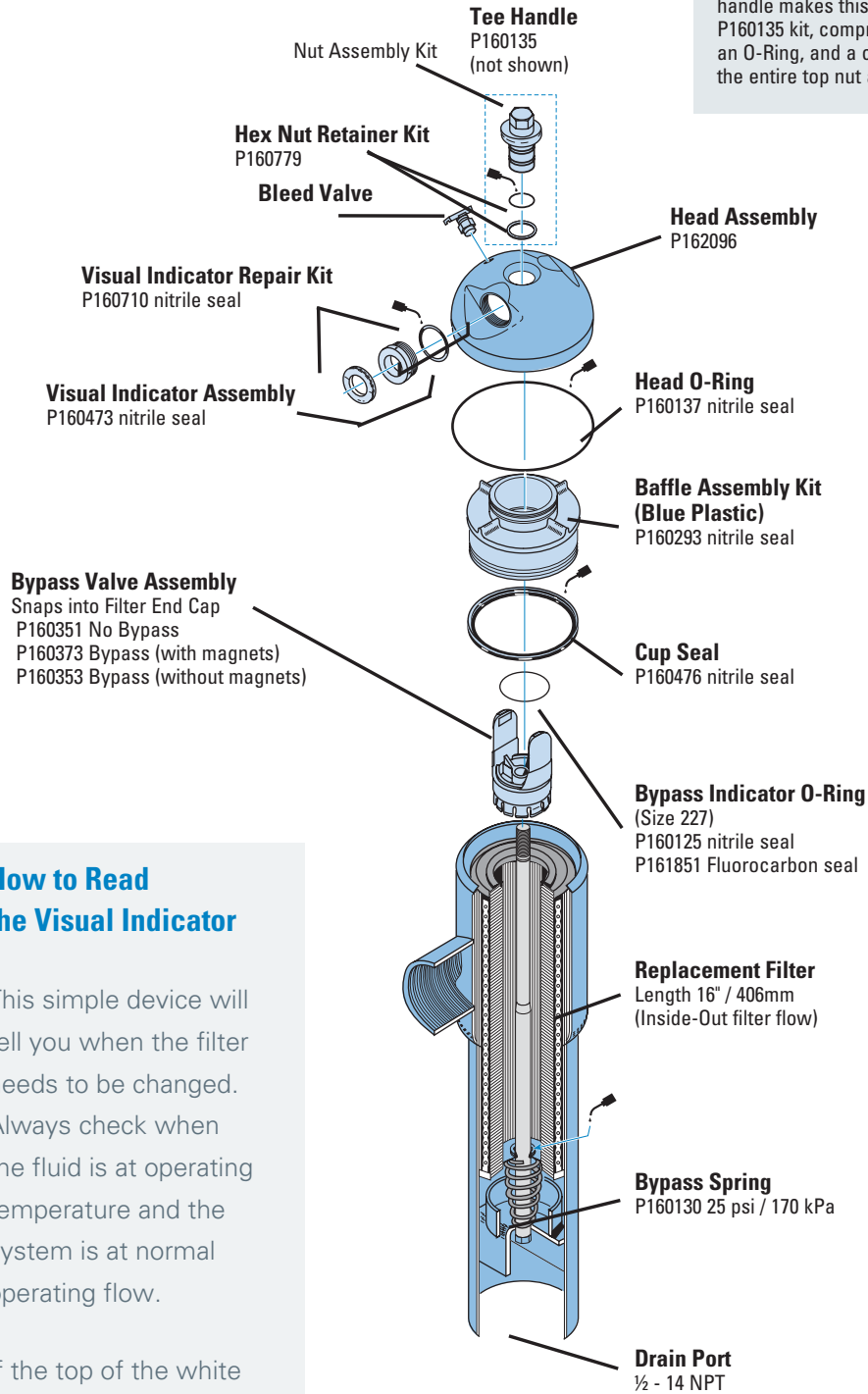
HDK06 Service Parts

SERVICE PARTS NOTE:

Some service parts may not be stocked. Please contact your Donaldson sales representative for lead time details.

**Optional Tee Handle
for Easier Servicing**

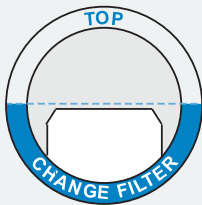
The first step in changing the HDK06 cartridge is loosening the top nut with a wrench. Our optional tee handle makes this job easier. The P160135 kit, comprised of the handle, an O-Ring, and a clip ring, replaces the entire top nut assembly.



Filter OK

How to Read the Visual Indicator

This simple device will tell you when the filter needs to be changed. Always check when the fluid is at operating temperature and the system is at normal operating flow.



Filter Needs Service

If the top of the white panel is below the lower half of the window, the filter needs servicing.



W041

Max Flow: 300 gpm (1135 lpm)



W041 In-Line Cartridge Filters

Working Pressures to:

500 psi / 3450 kPa / 34.5 bar

Rated Static Burst to:

1500 psi / 10,342 kPa / 103.5 bar

Flow Range To:

300 gpm / 1135 lpm

Applications

- Fluid Conditioning Systems
- In-Plant Systems
- Lube Oil Systems

Features

The W041 high flow filter combines the best features of a base-mounted assembly; several inlet port options, top cover filter servicing for ease of maintenance and a wide selection of service indicators. The W041 all-aluminum head design and plated steel cylinder provides a strong, durable, and dependable unit. We offer standard features like deep pleat filters for higher dirt holding capacity and our standard Donaldson DT 4-layer media filter construction. This technology, combined with many other standard features, is ideal for today's applications in pulp and paper, power generation and steel mill applications. Thermal lockout and surge control are two key features incorporated in many of the differential pressure indicators.

- Large T-handle for fast servicing without tools
- Wide range of indicator options
- Two filter length options for design flexibility
- Base material: aluminum
- Cylinder material: steel
- Cover material: cast iron
- Two drain plugs in base
- Bleed/fill plug in cover



Beta Rating

- Performance to $\beta_{<40} = 1000$

Porting Size Options

- 2" or 2½" SAE 4-Bolt Flange Code 61

Replacement Filter Lengths

- 16.74" / 425.3mm
- 38.62" / 980.9mm

Standard Bypass Ratings

- 50 psi / 345 kPa / 3.5 bar

Housing Weight

- 16.74": 48.5 lbs / 22.0 kg
- 38.62": 86.2 lbs / 39.2 kg

Operating Temperatures

- -20°F to 250°F / -29° to 121°C

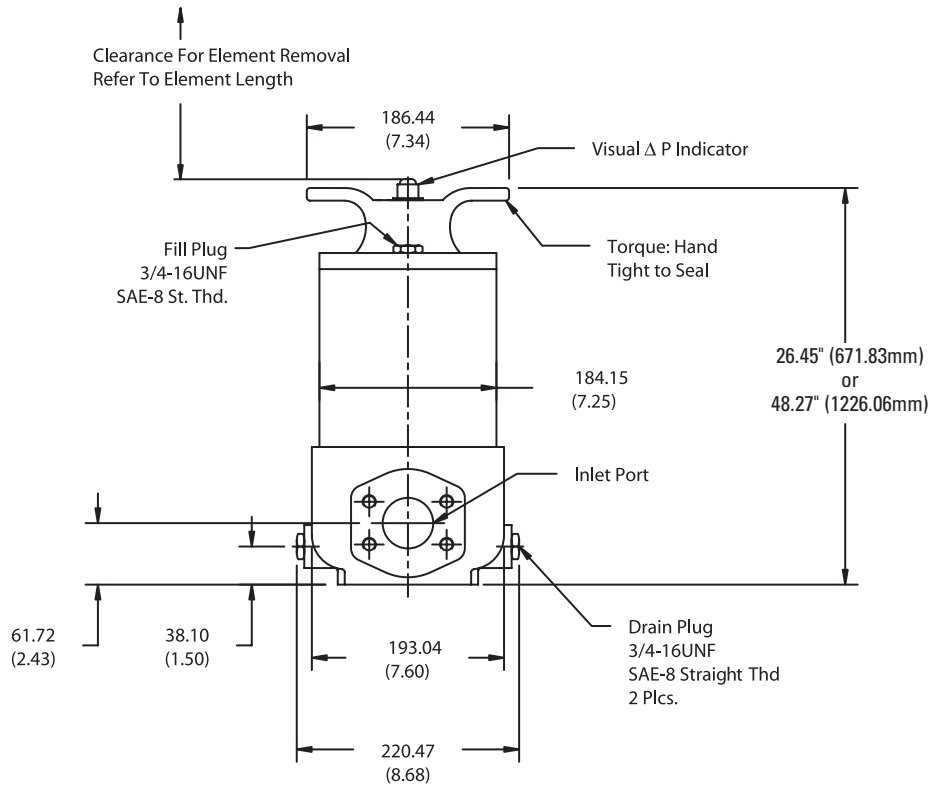
Filter Collapse Ratings

- 150 psid / 1034 kPa / 10.3 bar (standard)

W041 Specification Illustrations

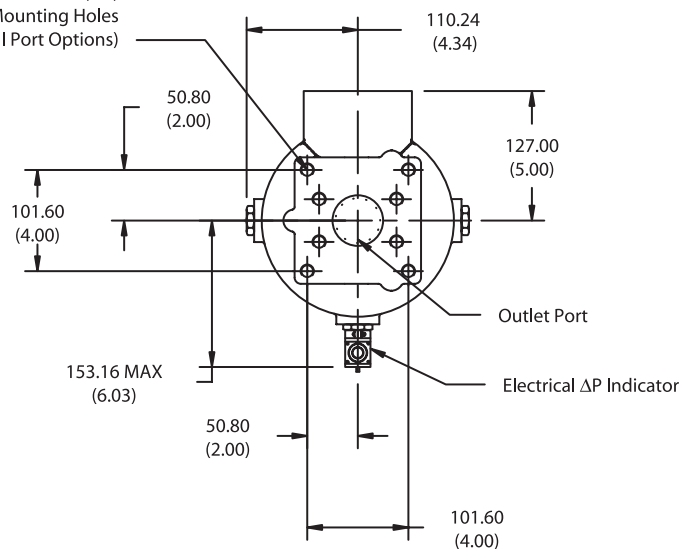
ASSEMBLY - SIDE VIEW

All dimensions are shown in millimeters [inches].



HEAD - BOTTOM VIEW

1/2-13UNC-2B Thd x 19.05 (.75)
Full Thd 4 Mounting Holes
(For All Port Options)





W041

Max Flow: 300 gpm (1135 lpm)



W041 Components

Filter Choices

Media Type	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 16889	in	mm		
DT Synthetic	<4 μm	16.74	425	P566239	DT-8300-16-2UM
	5 μm	16.74	425	P566240	DT-8300-16-5UM
	8 μm	16.74	425	P566241	DT-8300-16-8UM
	12 μm	16.74	425	P566242	DT-8300-16-14UM
	23 μm	16.74	425	P566243	DT-8300-16-25UM
	<4 μm	38.62	981	P566244	DT-8300-39-2UM
	5 μm	38.62	981	P566245	DT-8300-39-5UM
	8 μm	38.62	981	P566246	DT-8300-39-8UM
	12 μm	38.62	981	P566247	DT-8300-39-14UM
	23 μm	38.62	981	P566248	DT-8300-39-25UM
	<4 μm	16.10	409	P566249	DT-8310-16-2UM
	5 μm	16.10	409	P566250	DT-8310-16-5UM
	8 μm	16.10	409	P566251	DT-8310-16-8UM
	12 μm	16.10	409	P566252	DT-8310-16-14UM
	23 μm	16.10	409	P566253	DT-8310-16-25UM
	<4 μm	37.94	964	P566254	DT-8310-39-2UM
	5 μm	37.94	964	P566255	DT-8310-39-5UM
	8 μm	37.94	964	P566256	DT-8310-39-8UM
	12 μm	37.94	964	P566257	DT-8310-39-14UM
	23 μm	37.94	964	P566258	DT-8310-39-25UM
Water Absorbing	10 μm	37.94	964	P578277	Absorbs 2,000 ml water @ 25 psid

Filter Notes: All Donaldson DT filters utilize glass fiber media with an acrylic-based resin system for the ultimate in chemical compatibility. All Donaldson DT filters are potted and seam-sealed with acrylic-based adhesives. Standard collapse designs are double wire-backed using acrylic-coated steel mesh for maximum pleat support and dirt capacity. Extended life designs are double wire-backed using acrylic-coated steel mesh. Fluorocarbon seals are standard on all Donaldson DT filters.

Filter Assembly Choices

Size	Rating	Material	Indicator Port	Housing Length	Assembly Length	Part No.
2" SAE 4 Bolt Flange Code 61	50 psi / 3.45 bar	Fluorocarbon	Port Machined & Plugged	16" (406.4mm)	26.45" (671.8mm)	P574218
2-1/2" SAE 4 Bolt Flange Code 61	50 psi / 3.45 bar	Fluorocarbon	Port Machined & Plugged	39" (990.6mm)	48.27" (1226.1mm)	P574219
2" SAE 4 Bolt Flange Code 61	50 psi / 3.45 bar	Fluorocarbon	Port Machined & Plugged	39" (990.6mm)	48.27" (1226.1mm)	P575920
2-1/2" SAE 4 Bolt Flange Code 61	50 psi / 3.45 bar	Fluorocarbon	Port Machined & Plugged	16" (406.4mm)	26.45" (671.8mm)	P575921



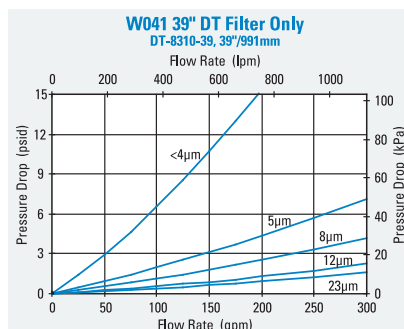
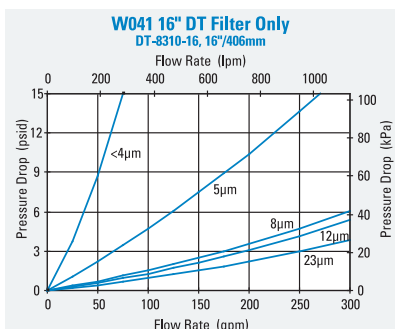
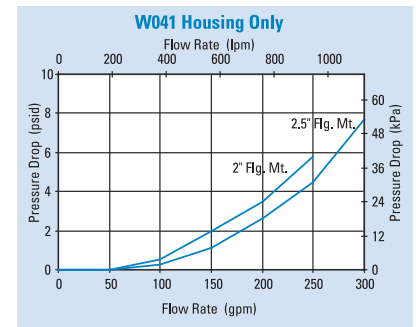
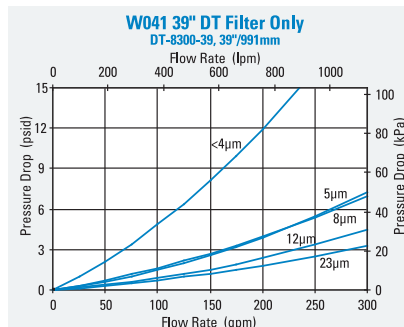
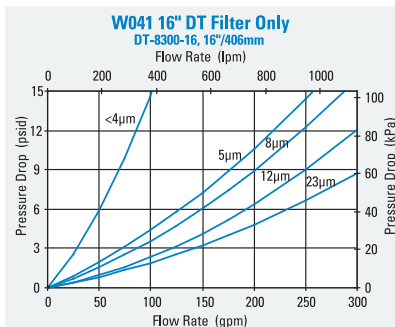
Indicator Choices

Indicator Pressure Setting	Connector Style	Seal Material	Part No.	Thermal Lockout	Surge Control	Reset
Visual Pop-up Models						
35 psi / 241 kPa	NA	Nitrile	P572347	No	No	Auto
35 psi / 241 kPa	NA	Nitrile	P572348	Yes	Yes	Manual
35 psi / 241 kPa	NA	Fluorocarbon	P567456	Yes	Yes	Manual
Electrical / Visual Models						
35 psi / 241 kPa	Hirschman	Nitrile	P572327	No	No	Auto
35 psi / 241 kPa	Brad Harrison	Nitrile	P572329	No	No	Auto
35 psi / 241 kPa	Hirschman	Nitrile	P572384	Yes	Yes	Manual
35 psi / 241 kPa	Hirschman	Fluorocarbon	P567458	Yes	Yes	Manual
35 psi / 241 kPa	Brad Harrison	Nitrile	P572385	Yes	Yes	Manual
35 psi / 241 kPa	3 wire flying leads	Nitrile	P572349	No	No	Auto
Electrical Models						
35 psi / 241 kPa	Hirschman	Nitrile	P572359	No	No	Auto
35 psi / 241 kPa	Brad Harrison	Nitrile	P572361	No	No	Auto

Service Part Choices

Part No.	Description
X011156	Head/Bowl/Housing Seal Kit - nitrile
X011157	Head/Bowl/Housing Seal Kit - fluorocarbon

Performance Data





HFK08

Max Flow: 300 gpm (1135 lpm)



HFK08 In-Line/Tank Mount Filters

Working Pressures to:

350 psi / 2415 kPa / 24.1 bar

Rated Static Burst to:

500 psi / 3450 kPa / 34.5 bar

Flow Range To:

300 gpm / 1135 lpm

Applications

- Fluid Conditioning Systems
- Lube Oil Systems
- Return Lines
- Side Loop Systems
- Suction Lines

Features

HFK08 is available in two styles: in-line and in-tank. Both styles feature a cast aluminum head and steel body for maximum strength and durability. Its single, center retention bolt simplifies servicing. Flow is from inside to outside of the filter cartridge. Three in-stock HFK08 models offer our proprietary Synteq™ synthetic media designed especially for liquid filtration. A wider range of filter media is available to purchase separately, as are fluoroelastomer seals. A visual service indicator is built into the HFK08 head.



**In-line
model shown**

Beta Rating

- Performance to $\beta_{<4(e)}=1000$

Porting Size Options

- 3" NPT
- SAE-20 O-Ring

Replacement Filter Lengths

- 18.00" / 457mm

Standard Bypass Ratings

- 25 psi / 172.5 kPa / 1.7 bar

Assembly Weight

- 55.4 lbs / 25.12 kg

Operating Temperatures

- -20°F to 250°F
- -29°C to 121°C

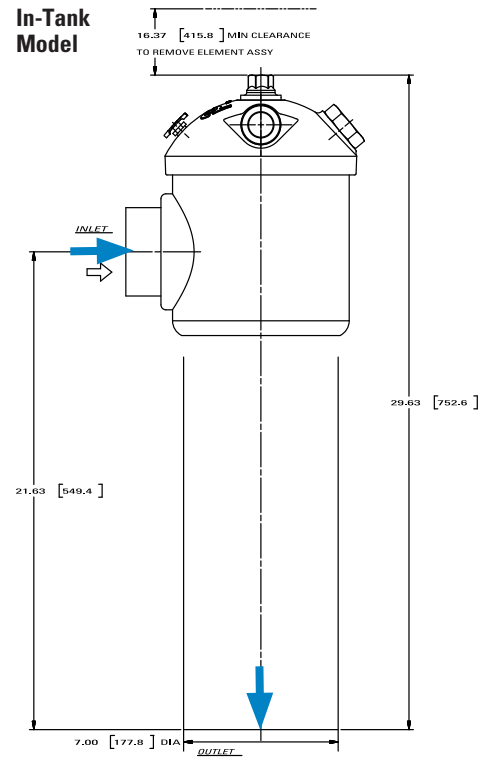
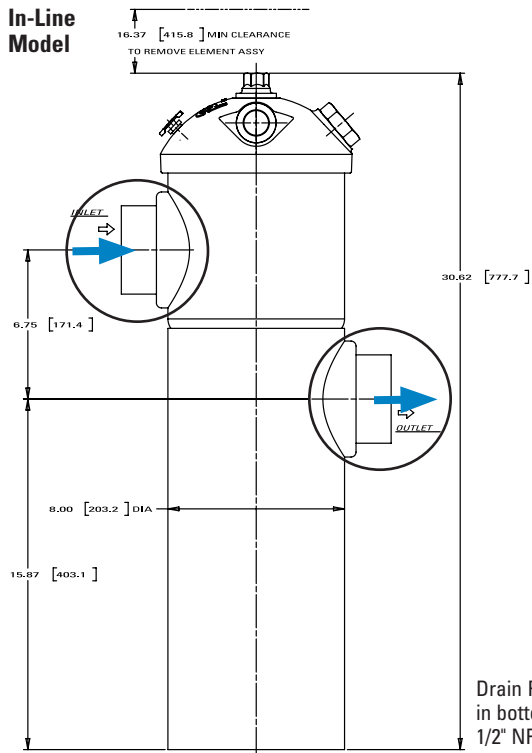
Filter Collapse Ratings

- 75 psi / 517 kPa / 5.2 bar (synthetic)
- 100 psi / 689 kPa / 6.9 bar (wire mesh)

HFK08 Specification Illustrations

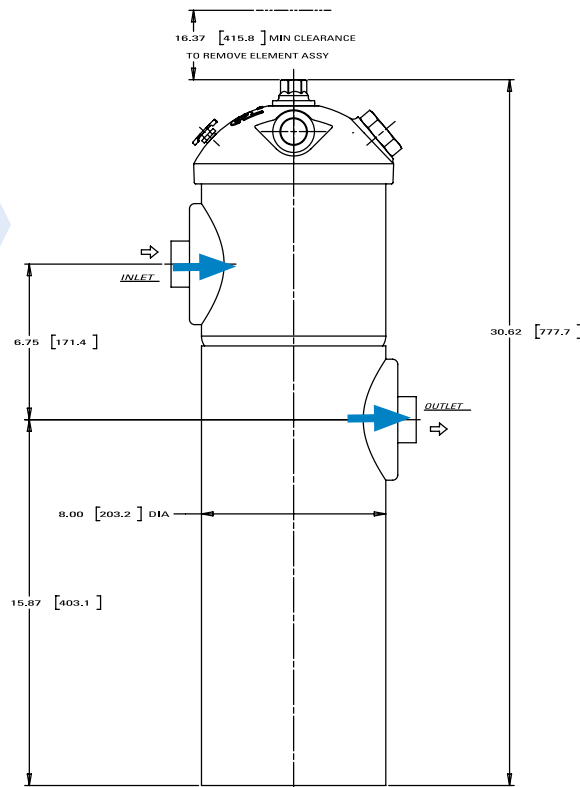
ASSEMBLY - SIDE VIEW

All dimensions are shown in inches [millimeters].

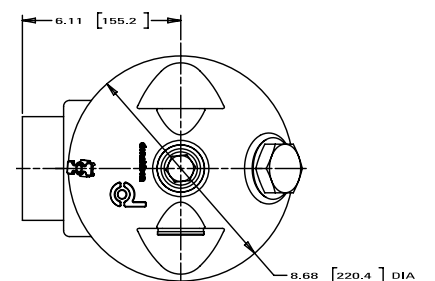
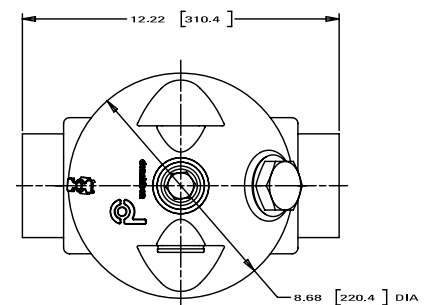


K080087 In-Line Model

Smaller port size (SAE-20) works well for kidney loop filtration.



HEAD - TOP VIEWS





HFK08

Max Flow: 300 gpm (1135 lpm)



HFK08 Components

Filter Choices

Media Type	$\beta_{x(c)} = 2$	$\beta_{x(c)} = 1000$	Length		Part No.
	Rating based on ISO 16889		in	mm	
Synteq Synthetic		<4 μm	18.00	457	P164407 fluorocarbon seal
		<4 μm	18.00	457	P164405
		6 μm	18.00	457	P166462
		11 μm	18.00	457	P176222
		23 μm	18.00	457	P164703
Wire Mesh	45 μm		18.00	457	P173573
	150 μm		18.00	457	P163945

Filter Notes

Standard HFK08 replacement filters have nitrile seals, which are appropriate for most applications involving petroleum oil. Filters with seals made of fluorocarbon are required when using diester, phosphate ester fluids, water glycol, water/oil emulsions, and HWCF (high water content fluids) over 150°F. HFK08 filters are inside to outside reverse flow 4.39" (112mm) OD. Refer to the table in the Technical Reference Guide for fluid compatibility with our filter media.

Filter Assemblies

Port Size	Bypass Rating	Indicator Style' & Location	Assembly Part No.	Length (in/mm)	Filter Part No.
3" NPT	25 psi / 172.5 kPa	Visual, Left side	K080051, In-Tank	18"/457mm	P164703
		Visual, Right side	K080033, In-Line	18"/457mm	P164703
			K080085, In-Line	18"/457mm	P164407 fluorocarbon seal
SAE-20	25 psi / 172.5 kPa	Visual, Right side	K080087, In-Line	18"/457mm	P164405

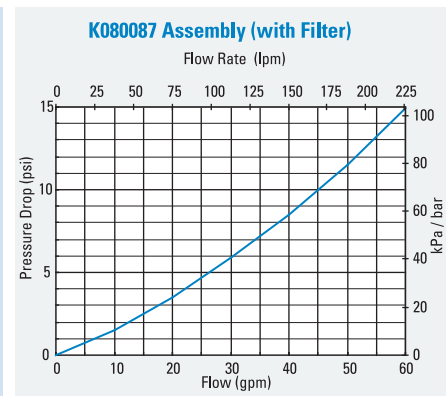
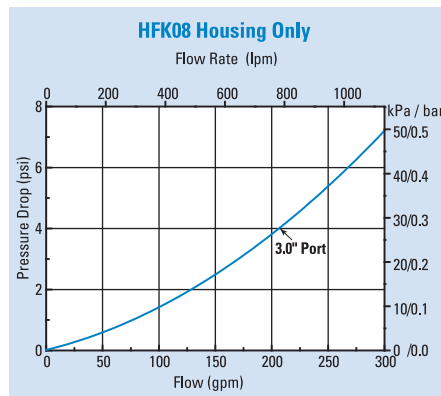
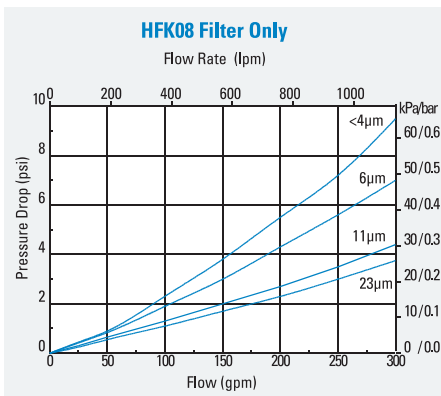
Assembly Notes

'Donaldson uses the inlet port as the reference point. "Left side," for instance, means that the indicator mounts on the side of the filter head that is on your left when you face the inlet port.



The K080087 model has features that are perfect for kidney loop filtration.

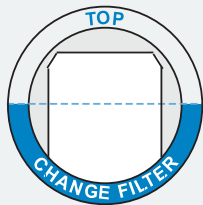
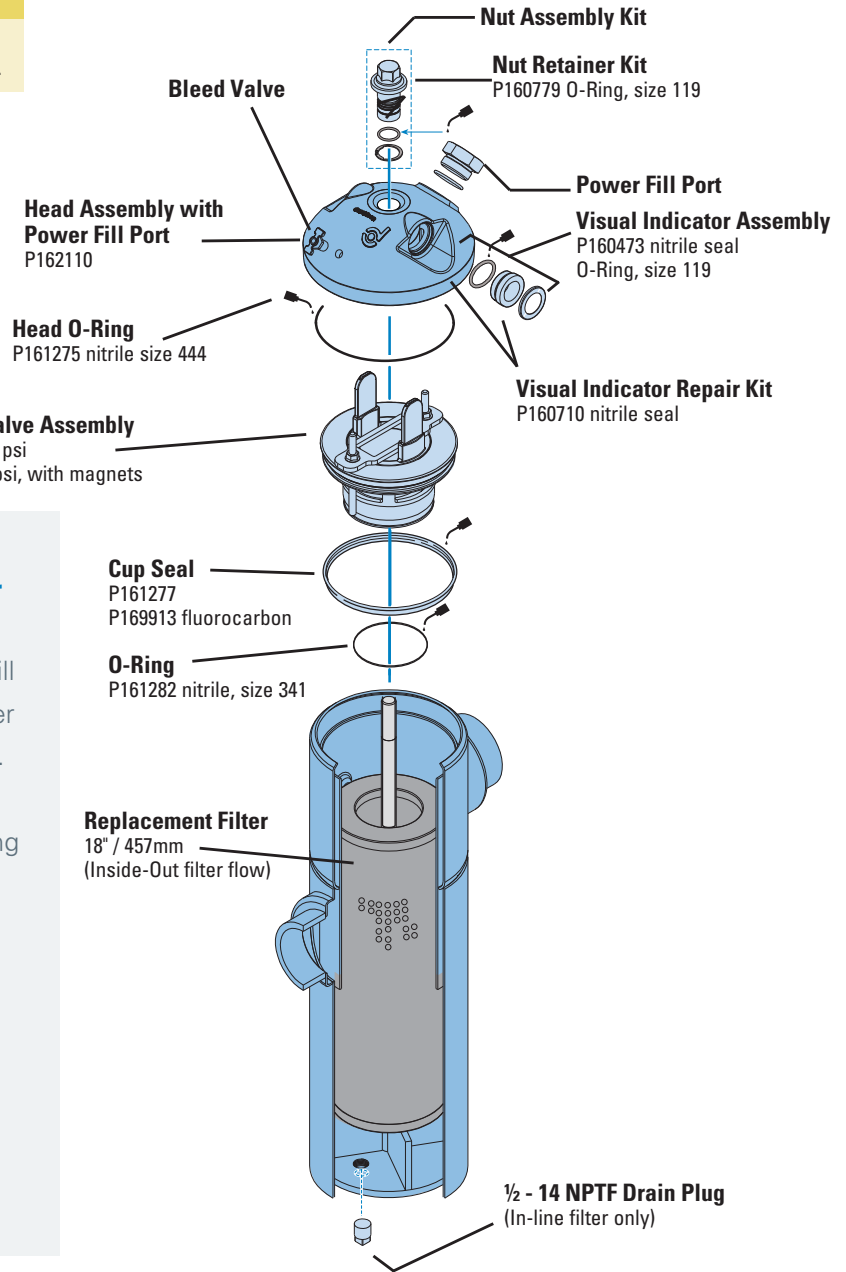
Performance Data



HFK08 Service Parts

SERVICE PARTS NOTE:

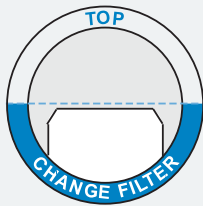
Some service parts may not be stocked. Please contact your Donaldson sales representative for lead time details.



Filter OK

How to Read the Visual Indicator

This simple device will tell you when the filter needs to be changed. Always check when the fluid is at operating temperature and the system is at normal operating flow.

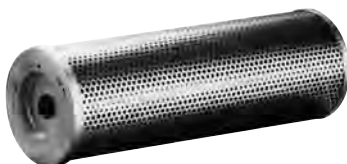


Filter Needs Service

If the top of the white panel is below the lower half of the window, the filter needs servicing.



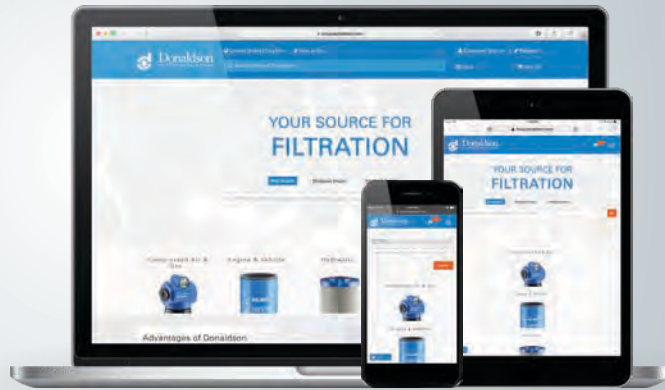
HFK08 replacement filters are available with synthetic or wire mesh media.



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Shop for filters the easier way at
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High Pressure Filters

High pressure filters are positioned between pumps and critical components such as cylinders, motors and valves. They help protect these critical components from catastrophic failure.

Donaldson heavy-duty high pressure filters are rated for working pressures up to 6500 psi (44818 kPa). Various porting sizes and types, including manifold style, are available for a wide range of applications.



Section Index

Max Operating Pressure < 6500 psi (450 bar)

Models arranged from low to maximum flow rates

In-line Cartridge Filters

HPK02.....	106
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HPK02

Max Flow: 20 gpm (76 lpm)



HPK02 In-Line Cartridge Filters

Working Pressures to:

2000 psi / 13,790 kPa / 137.9 bar

Rated Static Burst to:

4500 psi / 31,030 kPa / 310.3 bar

Flow Range To:

20 gpm / 76 lpm

Applications

- High Pressure Circuits
- In-Plant Systems
- Meets HF2 Specification
- Mobile Equipment
- Power Steering Circuits
- Servo Valve Circuits

Features

The HPK02 is a heavy-duty filter built for high pressure applications, with cast aluminum head and impact-extruded aluminum housing for strength and durability at relatively lightweight.

Take advantage of our mix and match system of in-stock heads, housings and cartridges – so you can get exactly what you need. HPK02 is available with your choice of visual or AC/DC electrical indicators. Likewise, choose the bypass option that's right for your application – 50 psi (3.5 bar) bypass, or no bypass. Seals made of fluorocarbon or nitrile are available with HPK02.

All HF2-sized HPK02 filters contain Synteq™, our synthetic filter media designed especially for hydraulic filtration.



Beta Rating

- Performance to $\beta_{<40} = 1000$

Porting Size Options

- SAE-12 O-Ring

Replacement Filter Lengths

- 4.37" / 111mm
- 8.12" / 206mm

Standard Bypass Ratings

- 50 psi / 345 kPa / 3.5 bar
- No Bypass

Assembly Weight

- 4.3 lbs / 1.95 kg (short)
- 5.5 lbs / 2.49 kg (long)

Operating Temperatures

- -45° to 250°F (-43° to 121°C)

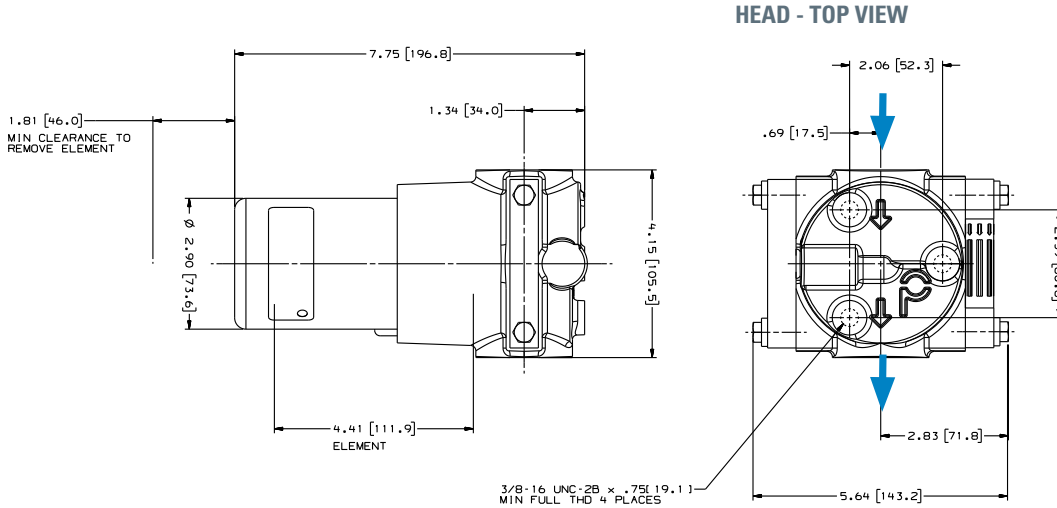
Filter Collapse Ratings

- 290 psi / 1999 kPa / 20.0 bar (standard)
- 3000 psi / 20,700 kPa / 206.9 bar (high collapse)

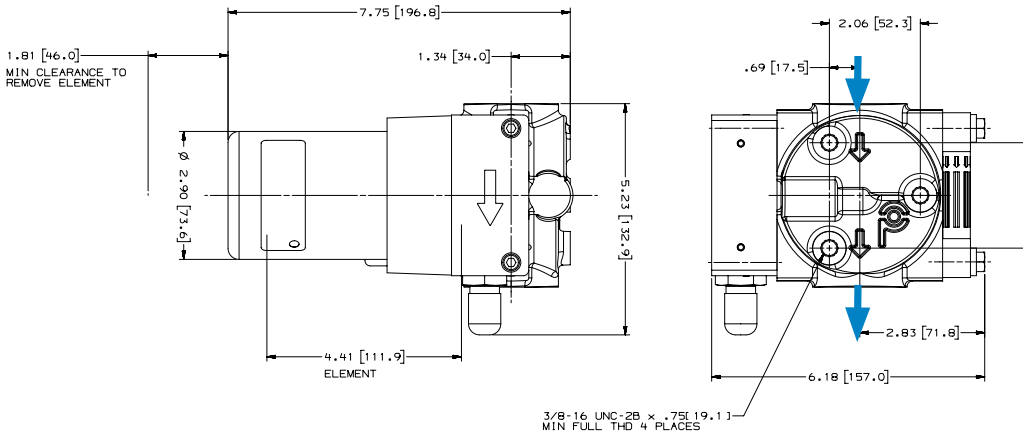
HPK02 Specification Illustrations

ASSEMBLY - SIDE VIEW

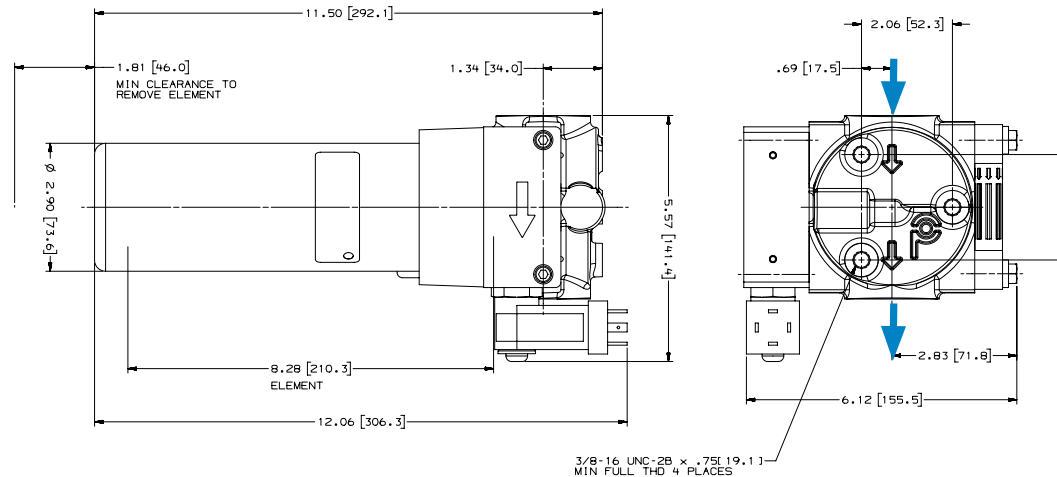
All dimensions are shown in inches [millimeters].



HPK02 with Visual Service Indicator



HPK02 with AC/DC Electrical Service Indicator





HPK02

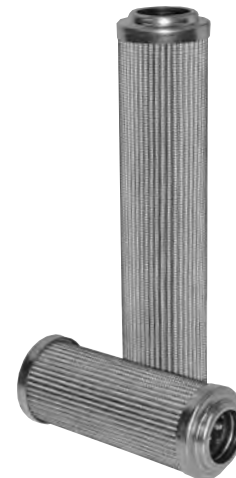
Max Flow: 20 gpm (76 lpm)



HPK02 Components

Filter Choices

Media Type	$\beta_{x(e)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 16889	in	mm		
DT Synthetic	<4 μm	4.39	112	P566194	DT-9020-4-2UM
	5 μm	4.39	112	P566195	DT-9020-4-5UM
	5 μm	4.46	113	P167180	DT-9021-4-5UM, High Collapse
	8 μm	4.39	112	P566196	DT-9020-4-8UM
	12 μm	4.39	112	P566197	DT-9020-4-14UM
	12 μm	4.46	113	P167181	DT-9021-4-14UM, High Collapse
	23 μm	4.39	112	P566198	DT-9020-4-25UM
	<4 μm	8.18	208	P566199	DT-9020-8-2UM
	5 μm	8.18	208	P566200	DT-9020-8-5UM
	5 μm	8.18	208	P167182	DT-9021-8-5UM, High Collapse
	8 μm	8.18	208	P566201	DT-9020-8-8UM
	12 μm	8.18	208	P566202	DT-9020-8-14UM
	12 μm	8.18	208	P167183	DT-9021-8-14UM, High Collapse
	23 μm	8.18	208	P566203	DT-9020-8-25UM



Filter Notes: All Donaldson DT filters utilize glass fiber media with an epoxy-based resin system for the ultimate in chemical compatibility. All Donaldson DT filters are potted with epoxy-based adhesives. Standard collapse DT designs are double wire-backed using epoxy-coated steel mesh for maximum pleat support and dirt capacity. Refer to the table in the Technical Reference Guide for fluid compatibility with our filter media. If filtering diester, phosphate ester fluids, water glycol, water/oil emulsions, or HWCF over 150°F/83°C, use filters with seals made of fluorocarbon. Donaldson "high collapse" filters, with their steel end caps and wire-backed media, are rated to withstand up to 3000 psi/ 20,700 kPa before collapsing. High collapse designs are also potted into machined aluminum endcaps for greater filter integrity in critical applications. The fluorocarbon seal/high collapse filters also use epoxy potting and media seam seals for added chemical compatibility. High collapse designs are double wire-backed using stainless steel mesh.

Housing Choices

Length	Part No.
Short	P167443
Long	P167452

Head Choices

Port Size	Bypass Rating	Indicators'	Part No.
SAE-12 O-Ring	50 psi/3.5 bar	Visual indicator, left side	P167728
SAE-12 O-Ring	No bypass	Visual indicator, left side	P167730

Notes on Indicators:
'Donaldson uses the inlet port as the reference point. "Left side," for instance, means that the indicator mounts on the side of the filter head that is on your left when you face the inlet port.

Service Indicator Kits (All kits include indicator with mounting block)

Part No.	Bypass Valve Pressure of:	Description
Visual Service Indicators		
P569632	60 psi / 4.1 bar	35 psi/2.4 bar indicator kit auto reset pop-out button
P569633	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit auto reset pop-out button
P567988	60 psi / 4.1 bar	35 psi/2.4 bar indicator kit auto reset pop-out button with thermal lockout and surge control
P567989	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit* auto reset pop-out button with thermal lockout and surge control
AC/DC Visual/Electrical Service Indicators		
P569634	60 psi / 4.1 bar	35 psi/2.4 bar indicator kit Hirschmann receptacle 115 VAC/28 VDC, 2 amps
P569635	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit Hirschmann receptacle 115 VAC/28 VDC, 2 amps
P567986	60 psi / 4.1 bar	35 psi/2.4 bar indicator kit with thermal lockout and surge control, Hirschmann receptacle, 115 VAC/28 VDC, 2 amps, 4 pin DIN 43650
P567987	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit with thermal lockout and surge control, Hirschmann receptacle, 115 VAC/28 VDC, 2 amps, 4 pin DIN 43650

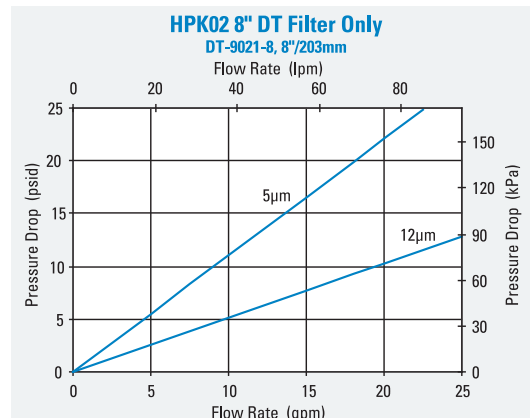
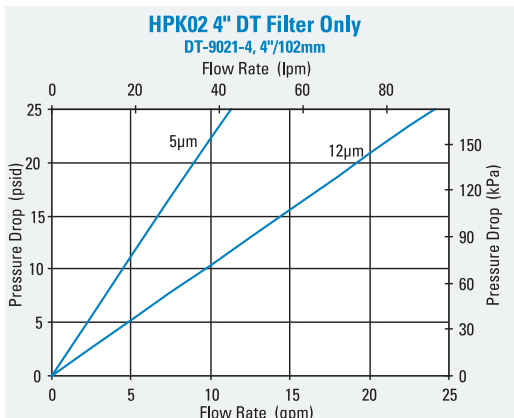
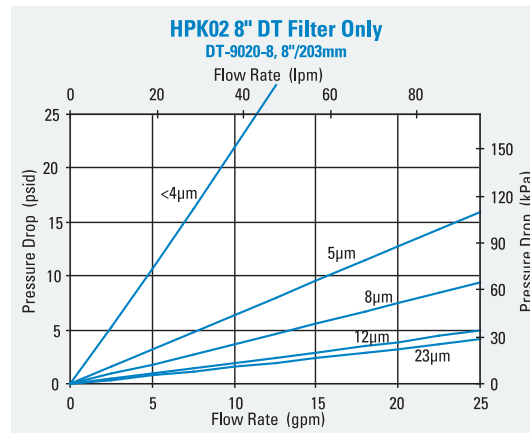
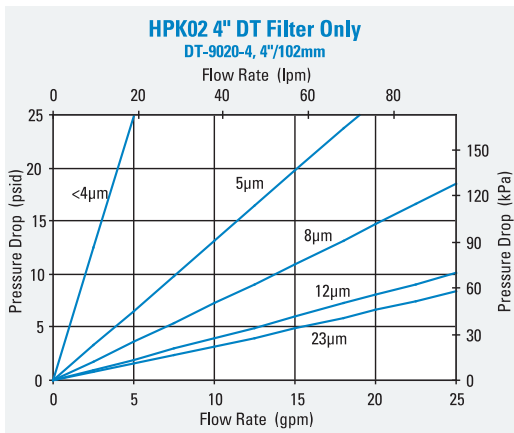
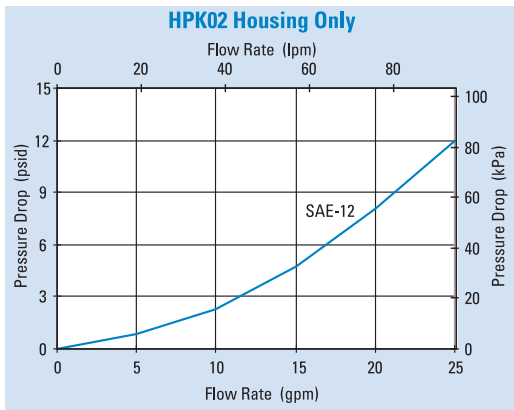


Indicator Choices (Replacement Indicator Only)

Part No.	Description	Part No.	Description
P567458	Visual/Electrical indicator with thermal lockout and surge, 35 psid/2.4 bar	P569638	Visual/Electrical Indicator, 35 psid/2.4 bar
P567459	Visual/Electrical indicator, with thermal lockout and surge, 70 psid/4.8 bar	P569639	Visual/Electrical Indicator, 70 psid/4.8 bar
P567456	Pop-Up Visual Indicator, with thermal lockout and surge, 35 psid/2.4 bar	P164315	Visual Indicator, bar style, 35 psid/2.4 bar
P567457	Pop-Up Visual Indicator, with thermal lockout and surge, 70 psid/4.8 bar	P166603	Visual Indicator, bar style, 70 psid/4.8 bar
P569636	Pop-Up Visual Indicator, 35 psid/2.4 bar	P166134	Blanking plate
P569637	Pop-Up Visual Indicator, 70 psid/4.8 bar		

Indicator Mounting Block	
P573495	Mounting Block Assembly

Performance Data





HPK02

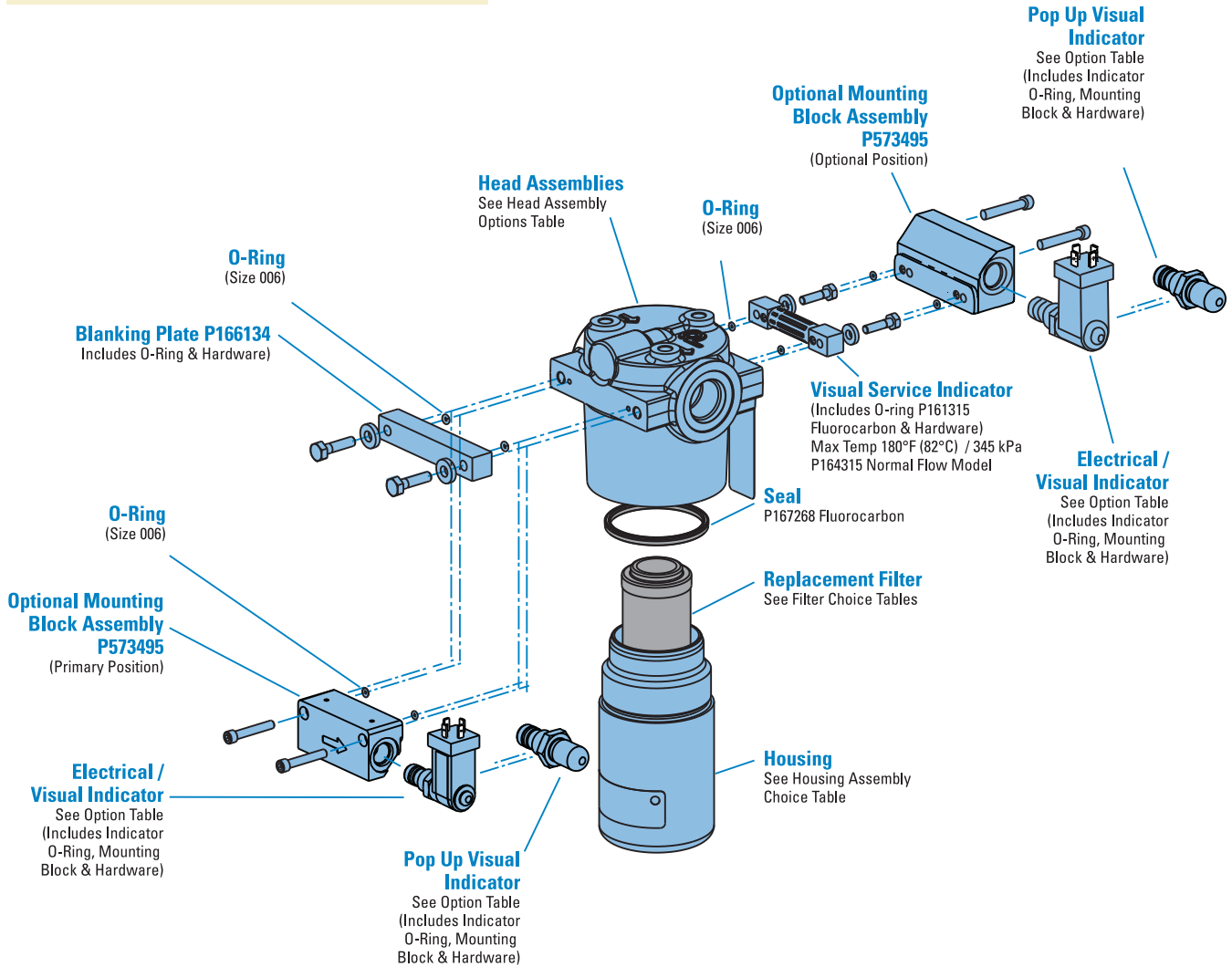
Max Flow: 20 gpm (76 lpm)



HPK02 Service Parts

SERVICE PARTS NOTE:

Some service parts may not be stocked. Please contact your Donaldson sales representative for lead time details.



DPK2400 In-Line Cartridge Filters

Working Pressures to:

2400 psi / 16547 kPa / 165.4 bar

Rated Static Burst to:

8000 psi / 55157 kPa / 552 bar

Flow Range To:

100 gpm / 379 lpm

Applications

- In-plant Systems
- Process Fluids
- Lube Oil Systems

Features

DPK2400 duplex filter assemblies allow continuous filtration during filter servicing to avoid machine shutdown. The DPK2400 duplex design combines durable iron heads and carbon steel housings for superior, high-strength performance. Choose between optional features such as no bypass, bypass valve, visual indicators or combination electrical/visual indicators for a customized assembly that best fits the needs of your specific application. Filter performance ranges from 5 μ to 25 μ at beta 1000 and high collapse elements are available at 5 μ and 27 μ , offering additional flexibility to achieve the filtration level your system requires.

- Head Material: Durable Iron
- Housing Material: Carbon Steel
- Optional visual and visual / electric indicators
- Self locking transfer valve
- Automatic bleed-over valve



Beta Rating

- Performance to $\beta_{5(\mu)}$ = 1000

Porting Size Options

- 1-1/2" SAE 4-Bolt Flange Code 61

Replacement Filter Lengths

- 14.62" / 371mm

Standard Bypass Ratings

- 100 psi / 690 kPa / 6.9 bar
- No bypass

Assembly Weight

- 98 lbs / 20 kg

Operating Temperatures

- -40° to 250°F (-40° to 121°C)

Filter Collapse Ratings

- 300 psid / 207 kPa / 20.7 bar (standard)
- 3045 psid / 2100 kPa / 210 bar (high collapse)



DPK2400

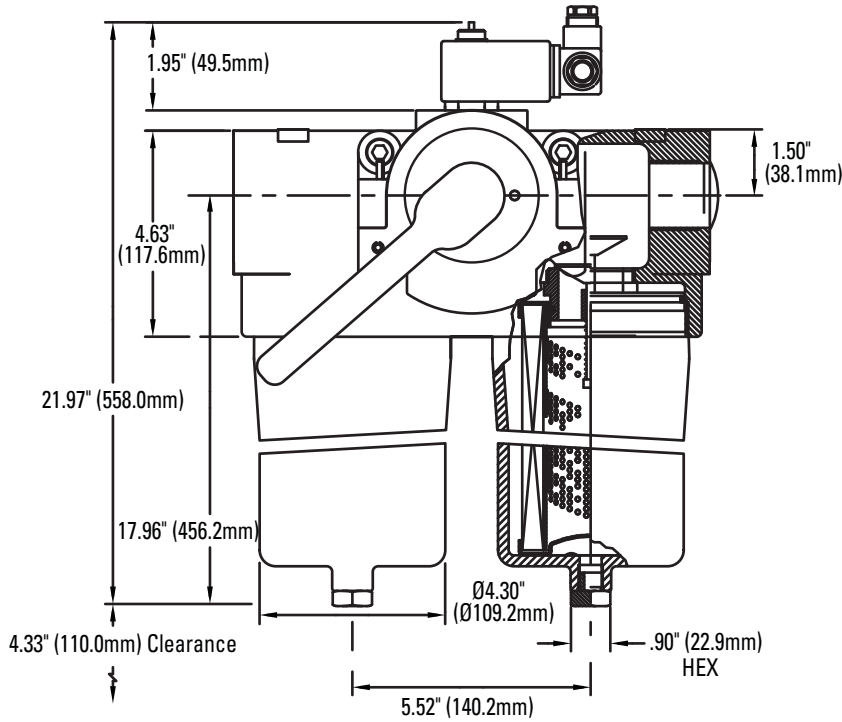
Max Flow: 100 gpm (379 lpm)



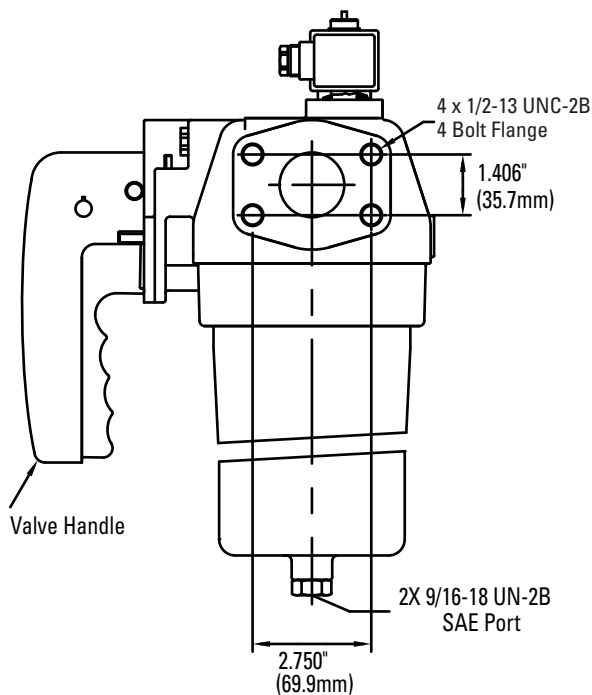
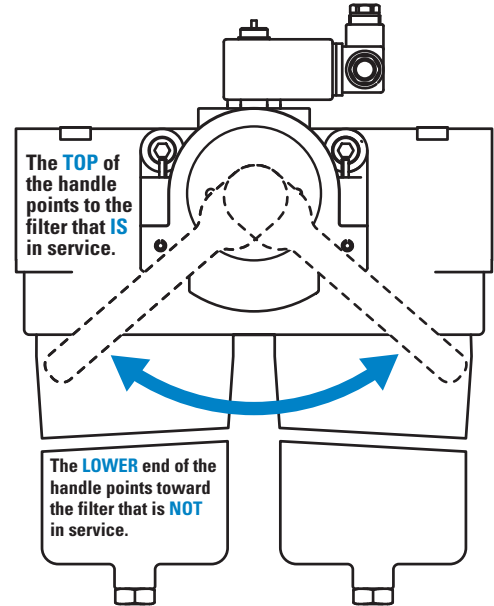
DPK2400 Specification Illustrations

ASSEMBLY - SIDE VIEW

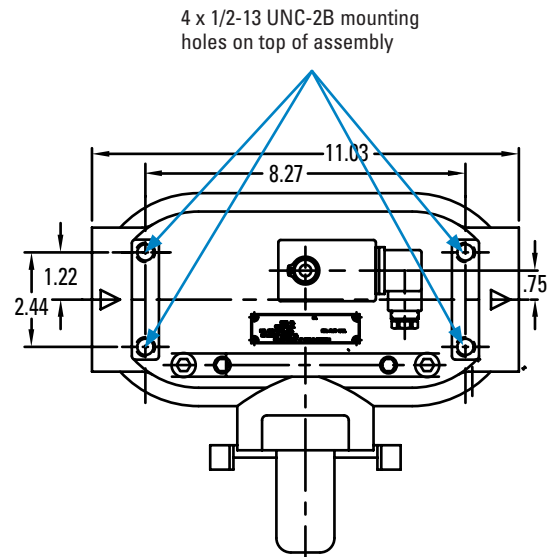
All dimensions are shown in inches [millimeters].



The handle shifts fluid flow from one filter to the other.



HEAD - TOP VIEW





DPK2400 Components

Filter Choices

Media Type	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 16889	in	mm		
DT Synthetic	5 μm	14.62	371	P567101	
	5 μm	14.69	373	P560716	High collapse
	8 μm	14.62	371	P567102	
	12 μm	14.62	371	P567103	
	23 μm	14.62	371	P567104	
	27 μm	14.69	373	P560718	High collapse

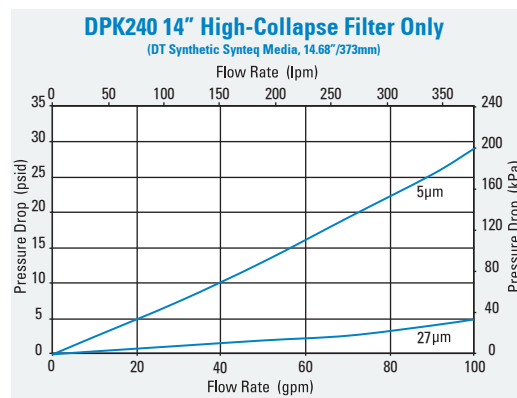
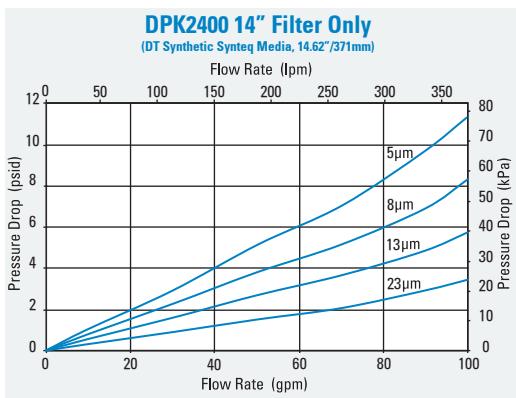
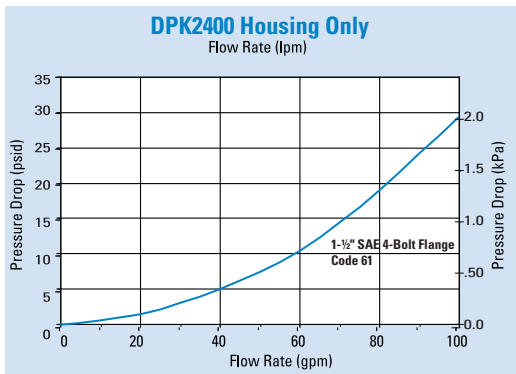
Assembly Choices

Part No.	Port Connections	Bypass Valve	Comments
P577026	1-1/2" SAE 4-bolt flange code 61	No bypass	Filter elements not included with assembly.
P577027	1-1/2" SAE 4-bolt flange code 61	100 psi (6.9 bar) bypass	Filter elements not included with assembly.

Service Indicator Choices

Use with Bypass Valve Pressure of:	Indicator Part No.	Seal Material	Connector Style
Visual Models			
100 psi / 690 kPa	P577030	Fluorocarbon seal	Manual reset
Visual / Electric Models			
100 psi / 690 kPa	P577031	Fluorocarbon seal	Hirschman

Performance Data





W440

Max Flow: 20 gpm (76 lpm)



W440 In-Line Cartridge Filters

Working Pressures to:

4000 psi / 27,600 kPa / 276 bar

Rated Static Burst to:

10,000 psi / 69,000 kPa / 690 bar

Flow Range To:

20 gpm / 76 lpm

Applications

- High Pressure Circuits
- In-Plant Systems
- Meets HF2 Specification
- Mobile Equipment



Features

The W440 filter assembly can be manifold mounted to the hydraulic system. The size and material configuration are well-suited for today's demanding proportional and servo valve applications. Our standard housing drain plug helps relieve system pressure during filter change-outs. DT 4-layer media is offered in a variety of designs. Five different media grades are offered. Donaldson filters core collapse options range from 150 to 3,000 psi. The differential pressure indicator line is designed to work with a wide assortment of bypass valves. Thermal lockout and surge control are two key features incorporated in many of the differential pressure indicators.

- Conforms to HF2 specifications
- High collapse filter available for use with non-bypass applications
- Positive sealing poppet bypass for reliability and zero leakage
- Wide range of indicator options
- Compact design for use with servo or proportional valve
- Two housing length options for design flexibility
- Head material: cast iron
- Housing material: steel
- Drain plug in housing

Beta Rating

- Performance to $\beta_{<4(\mu)}=1000$

Porting Size Options

- SAE-12 O-Ring
- Manifold mounting

Replacement Filter Lengths

- 4.41" / 111.9mm
- 4.46" / 113.2mm
- 8.16" / 207.2mm
- 8.28" / 210.3mm

Standard Bypass Ratings

- 50 psi / 345 kPa / 3.5 bar
- No Bypass

Assembly Weight

- 4.41": 8.4 lbs / 3.8 kg
- 8.28": 10.6 lbs / 4.8 kg

Operating Temperatures

- -20° to 250°F (-29° to 121°C)

Filter Collapse Ratings

- 290 psi / 1999 kPa / 20.0 bar (standard)
- 3000 psi / 20,700 kPa / 206.8 bar (high collapse)

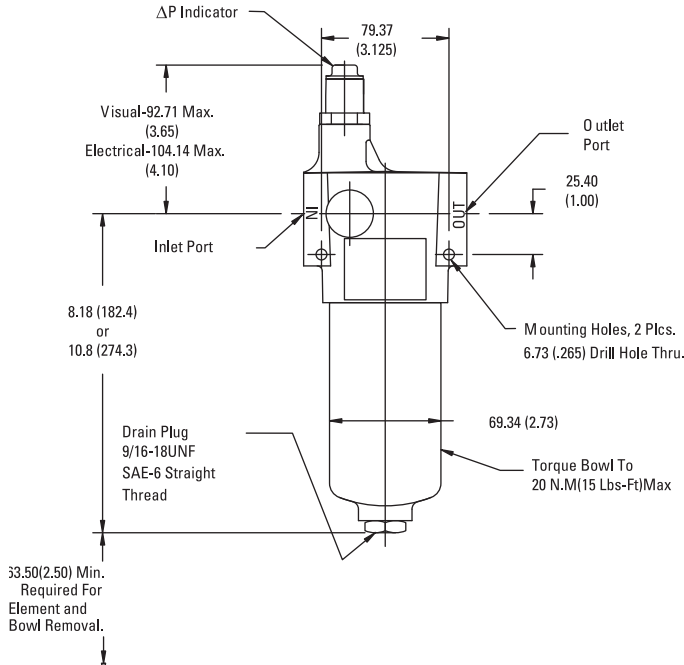
Top-ported for subplate mounting

- 0.69" (17.5mm) holes
- 1.25" (31.8mm) centers

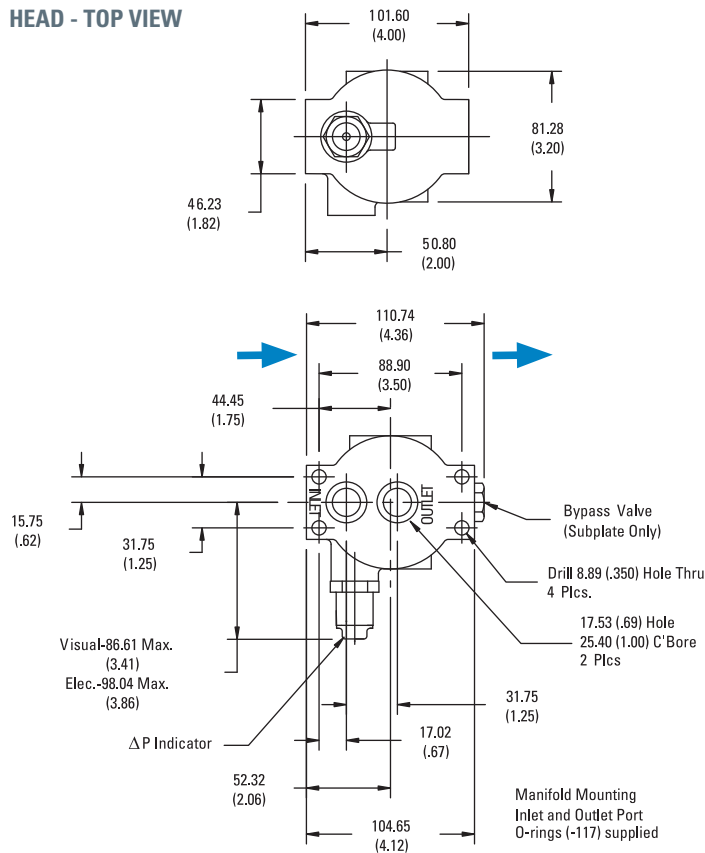
W440 Specification Illustrations

ASSEMBLY - SIDE VIEW

All dimensions are shown in millimeters [inches].



HEAD - TOP VIEW





W440

Max Flow: 20 gpm (76 lpm)



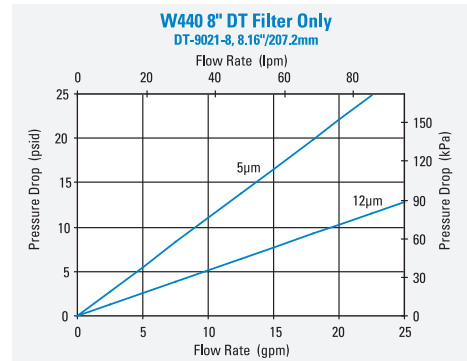
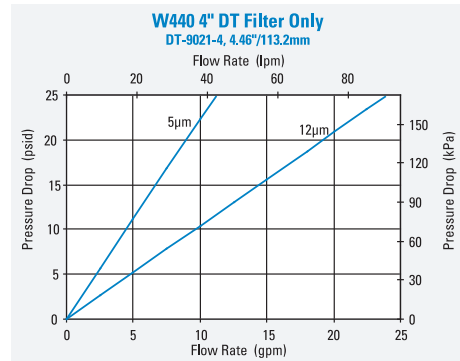
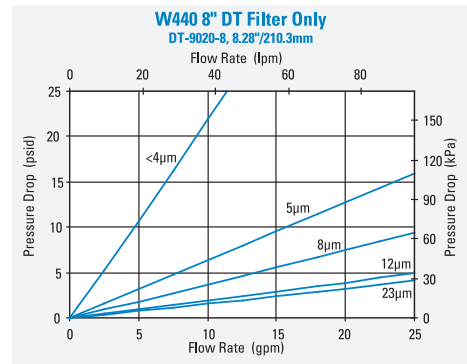
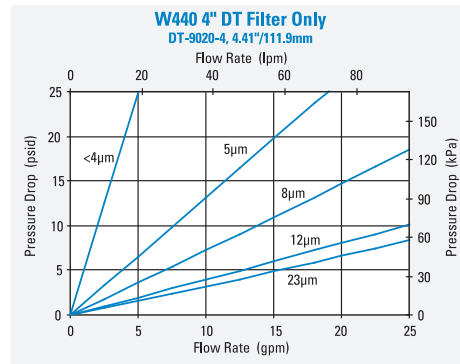
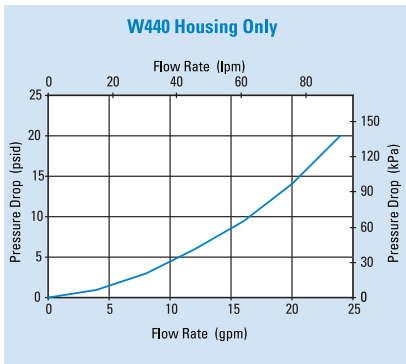
W440 Components

Filter Choices

Media Type	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 16889	in	mm		
DT Synthetic	<4 μm	4.39	112	P566194	DT-9020-4-2UM
	5 μm	4.39	112	P566195	DT-9020-4-5UM
	5 μm	4.46	113	P167180	DT-9021-4-5UM, High Collapse
	8 μm	4.39	112	P566196	DT-9020-4-8UM
	12 μm	4.39	112	P566197	DT-9020-4-14UM
	12 μm	4.46	113	P167181	DT-9021-4-14UM, High Collapse
	23 μm	4.39	112	P566198	DT-9020-4-25UM
	<4 μm	8.18	208	P566199	DT-9020-8-2UM
	5 μm	8.18	208	P566200	DT-9020-8-5UM
	5 μm	8.18	208	P167182	DT-9021-8-5UM, High Collapse
	8 μm	8.18	208	P566201	DT-9020-8-8UM
	12 μm	8.18	208	P566202	DT-9020-8-14UM
	12 μm	8.18	208	P167183	DT-9021-8-14UM, High Collapse
	23 μm	8.18	208	P566203	DT-9020-8-25UM

Filter Notes: All Donaldson DT filters utilize glass fiber media with an epoxy-based resin system for the ultimate in chemical compatibility. All Donaldson DT filters are potted with epoxy-based adhesives and are double wire-backed using epoxy-coated steel mesh for maximum pleat support and dirt capacity. Fluorocarbon seals are standard on all Donaldson DT filters. Donaldson "high collapse" filters, with their steel end caps and wire-backed media, are rated to withstand up to 3000 psi/ 20,700 kPa before collapsing. High collapse designs are also potted into machined aluminum endcaps for greater filter integrity in critical applications. The fluorocarbon seal/high collapse filters also use epoxy potting and media seam seals for added chemical compatibility. High collapse designs are double wire-backed using stainless steel mesh.

Performance Data





Head Assembly Choices

Port Size	Bypass Rating	Seal Material	Indicator Style & Location	Part No.
SAE-12 O-Ring	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	P574248
Manifold Mount	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	P574249
Manifold Mount	None	Fluorocarbon	Port Machined & Plugged	P574250

Housing Choices

Housing Length	Seal Material	Part No.
4" (101.6mm)	Nitrile	X011125
8" (203.2mm)	Nitrile	X011126

Service Part Choices

Part No.	Description
X011172	Head/Bowl/Housing Seal Kit - nitrile
X011173	Head/Bowl/Housing Seal Kit - fluorocarbon

Indicator Choices

Indicator Pressure Setting	Connector Style	Seal Material	Part No.	Thermal Lockout	Surge Control	Reset
Visual Pop-up Models						
35 psi / 241 kPa	NA	Nitrile	P572347	No	No	Auto
35 psi / 241 kPa	NA	Nitrile	P572348	Yes	Yes	Manual
35 psi / 241 kPa	NA	Fluorocarbon	P567456	Yes	Yes	Manual
70 psi / 482 kPa	NA	Nitrile	P572319	Yes	Yes	Manual
70 psi / 482 kPa	NA	Fluorocarbon	P567457	Yes	Yes	Manual
100 psi / 690 kPa	NA	Nitrile	P572353	Yes	Yes	Manual
100 psi / 690 kPa	NA	Fluorocarbon	P572354	Yes	Yes	Manual
Electrical / Visual Models						
35 psi / 241 kPa	Hirschman	Nitrile	P572327	No	No	Auto
35 psi / 241 kPa	Brad Harrison	Nitrile	P572329	No	No	Auto
35 psi / 241 kPa	Hirschman	Nitrile	P572384	Yes	Yes	Manual
35 psi / 241 kPa	Hirschman	Fluorocarbon	P567458	Yes	Yes	Manual
35 psi / 241 kPa	Brad Harrison	Nitrile	P572385	Yes	Yes	Manual
35 psi / 241 kPa	3 wire flying leads	Nitrile	P572349	No	No	Auto
70 psi / 482 kPa	Hirschman	Nitrile	P572320	Yes	Yes	Manual
70 psi / 482 kPa	Hirschman	Fluorocarbon	P567459	Yes	Yes	Manual
70 psi / 482 kPa	Hirschman	Nitrile	P572373	Yes	No	Manual
70 psi / 482 kPa	Hirschman	Fluorocarbon	P569639	Yes	No	Manual
100 psi / 690 kPa	Hirschman	Nitrile	P572387	Yes	Yes	Manual
Electrical Models						
35 psi / 241 kPa	Hirschman	Nitrile	P572359	No	No	Auto
35 psi / 241 kPa	Brad Harrison	Nitrile	P572361	No	No	Auto
70 psi / 482 kPa	Hirschman	Nitrile	P572369	No	No	Auto



FPK02

Max Flow: 25 gpm (95 lpm)



FPK02 In-Line Cartridge Filters

Working Pressures to:

6090 psi / 42,021 kPa / 420 bar

Rated Static Burst to:

9135 psi / 63,000 kPa / 630 bar

Flow Range To:

25 gpm / 95 lpm

Applications

- High Pressure Circuits
- In-Plant Systems
- Meets HF2 Specification
- Mobile Equipment
- Power Steering Circuits
- Servo Valve Circuits



Features

The FPK02 is built to withstand pressures of over 6000 psi (420 bar). It features a cast iron head and cold-extruded steel housing for ultimate strength and durability. This filter meets the HF2 in-plant automotive specification. Bypass options include 87 psi/6 bar bypass, bypass with reverse-flow check valve, or no bypass.

Take advantage of our mix and match system of in-stock heads, housings and cartridges, so you can get exactly what you need. You can also choose the media type and configuration that's best for your application. All FPK02 filters contain Synteq™, Donaldson's exclusive synthetic fiber media formulated especially for hydraulic filtration.

Beta Rating

- Performance to $\beta_{<40}_{0.1}=1000$

Porting Size Options

- SAE-12 O-Ring

Replacement Filter Lengths

- 4.41" / 111.9mm
- 4.46" / 113.2mm
- 8.16" / 207.2mm
- 8.28" / 210.3mm

Standard Bypass Ratings

- 87 psi / 600 kPa / 6 bar
- 87 psi Bypass with reverse-flow check valve
- No Bypass

Assembly Weight

- 4.41" Assembly: 9.2 lbs / 4.2 kg
- 8.28" Assembly: 13.2 lbs / 6.0 kg

Operating Temperatures

- -20°F to 250°F / -29°C to 120°C

Filter Collapse Ratings

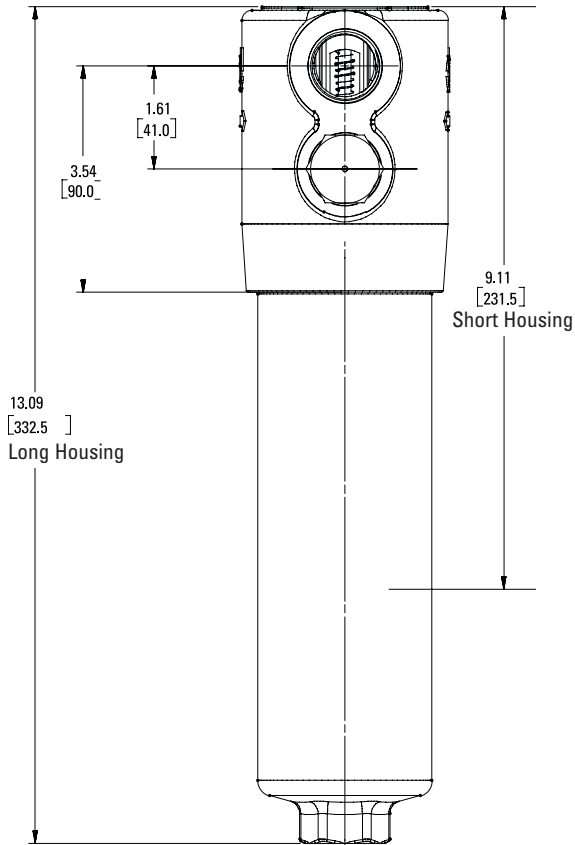
- 290 psi / 2000 kPa / 20 bar (standard)
- 3000 psi / 20,700 kPa / 207 bar (high collapse)



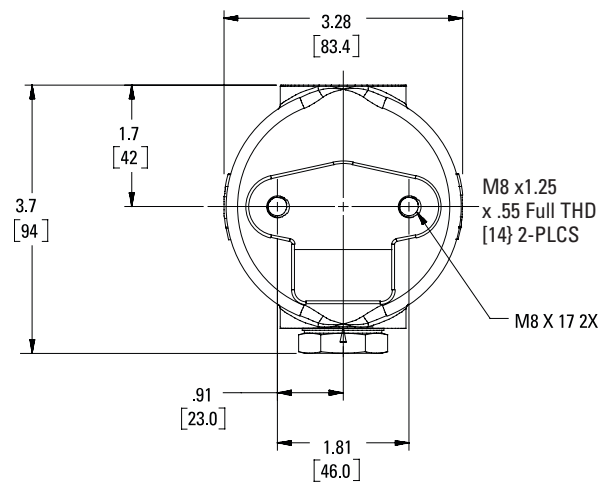
FPK02 Specification Illustrations

ASSEMBLY - SIDE VIEW

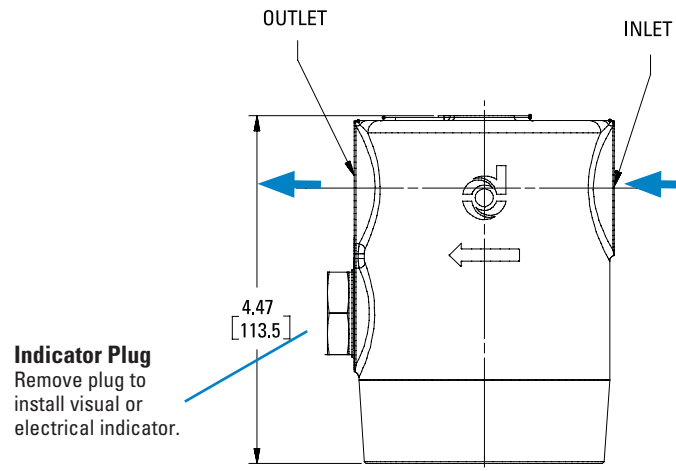
All dimensions are shown in inches [millimeters].



HEAD - TOP VIEW



HEAD - SIDE VIEW





FPK02

Max Flow: 25 gpm (95 lpm)

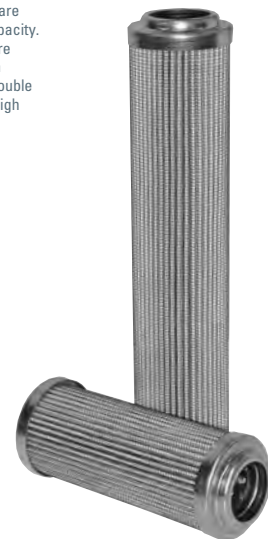


FPK02 Components

Filter Choices

Media Type	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 16889	in	mm		
DT Synthetic	<4 μm	4.39	112	P566194	DT-9020-4-2UM
	5 μm	4.39	112	P566195	DT-9020-4-5UM
	5 μm	4.46	113	P167180	DT-9021-4-5UM, High Collapse
	8 μm	4.39	112	P566196	DT-9020-4-8UM
	12 μm	4.39	112	P566197	DT-9020-4-14UM
	12 μm	4.46	113	P167181	DT-9021-4-14UM, High Collapse
	23 μm	4.39	112	P566198	DT-9020-4-25UM
	<4 μm	8.18	208	P566199	DT-9020-8-2UM
	5 μm	8.18	208	P566200	DT-9020-8-5UM
	5 μm	8.18	208	P167182	DT-9021-8-5UM, High Collapse
	8 μm	8.18	208	P566201	DT-9020-8-8UM
	12 μm	8.18	208	P566202	DT-9020-8-14UM
	12 μm	8.18	208	P167183	DT-9021-8-14UM, High Collapse
	23 μm	8.18	208	P566203	DT-9020-8-25UM

Filter Notes: All Donaldson DT filters utilize glass fiber media with an epoxy-based resin system for the ultimate in chemical compatibility. All Donaldson DT filters are potted with epoxy-based adhesives. Standard collapse DT designs are double wire-backed using epoxy-coated steel mesh for maximum pleat support and dirt capacity. Fluorocarbon seals are standard on all Donaldson DT filters. Refer to the table in the Technical Reference Guide for fluid compatibility with our filter media. If you're filtering diester, phosphate ester fluids, water glycol, water/oil emulsions, and HWCF over 150°F/83°C, use filters with seals made of fluorocarbon. Donaldson "high collapse" filters, with their steel end caps and wire-backed media, are rated to withstand up to 3000 psi/20,700 kPa before collapsing. High collapse designs are double wire-backed using stainless steel mesh and are potted into machined aluminum endcaps for greater filter integrity in critical applications. The fluorocarbon seal/high collapse filters also use epoxy potting and media seam seals for added chemical compatibility.



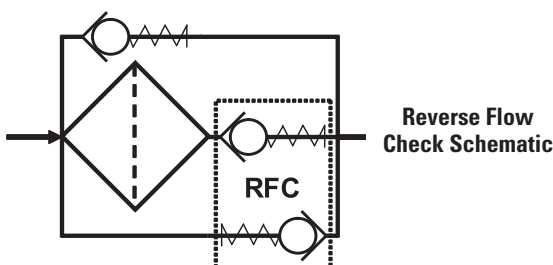
Housing Choices

Length (in)	Part No.
4.4" filter	P762769
8.2" filter	P762770

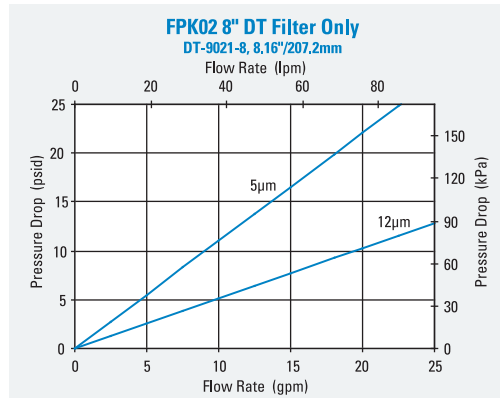
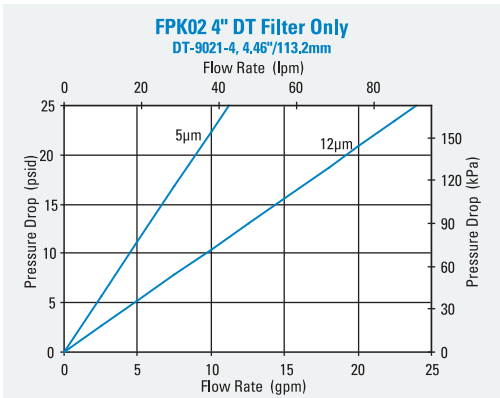
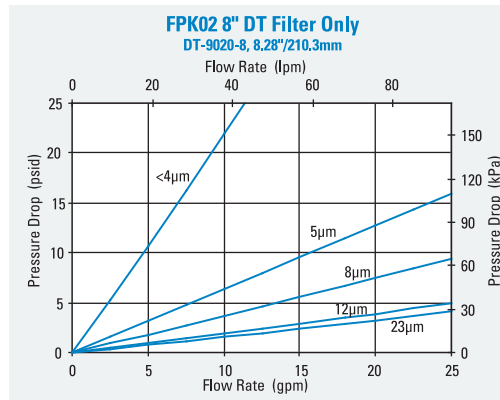
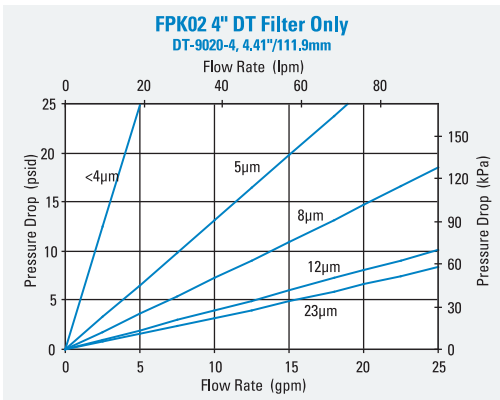
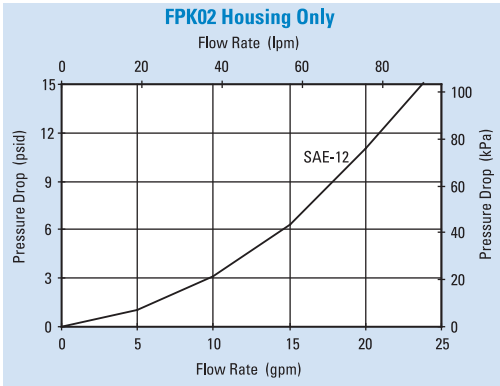
Head Choices

Port Size	Bypass Rating	Part No.
SAE-12 O-Ring	87 psi / 6 bar	P762766
SAE-12 O-Ring with reverse-flow check valve	87 psi / 6 bar	P762767
SAE-12 O-Ring	No Bypass	P762768

NOTE: Indicator port is machined and plugged. Replace plug with indicator of choice: P171945 (visual) or P761056 (electrical).



Performance Data





FPK02

Max Flow: 25 gpm (95 lpm)

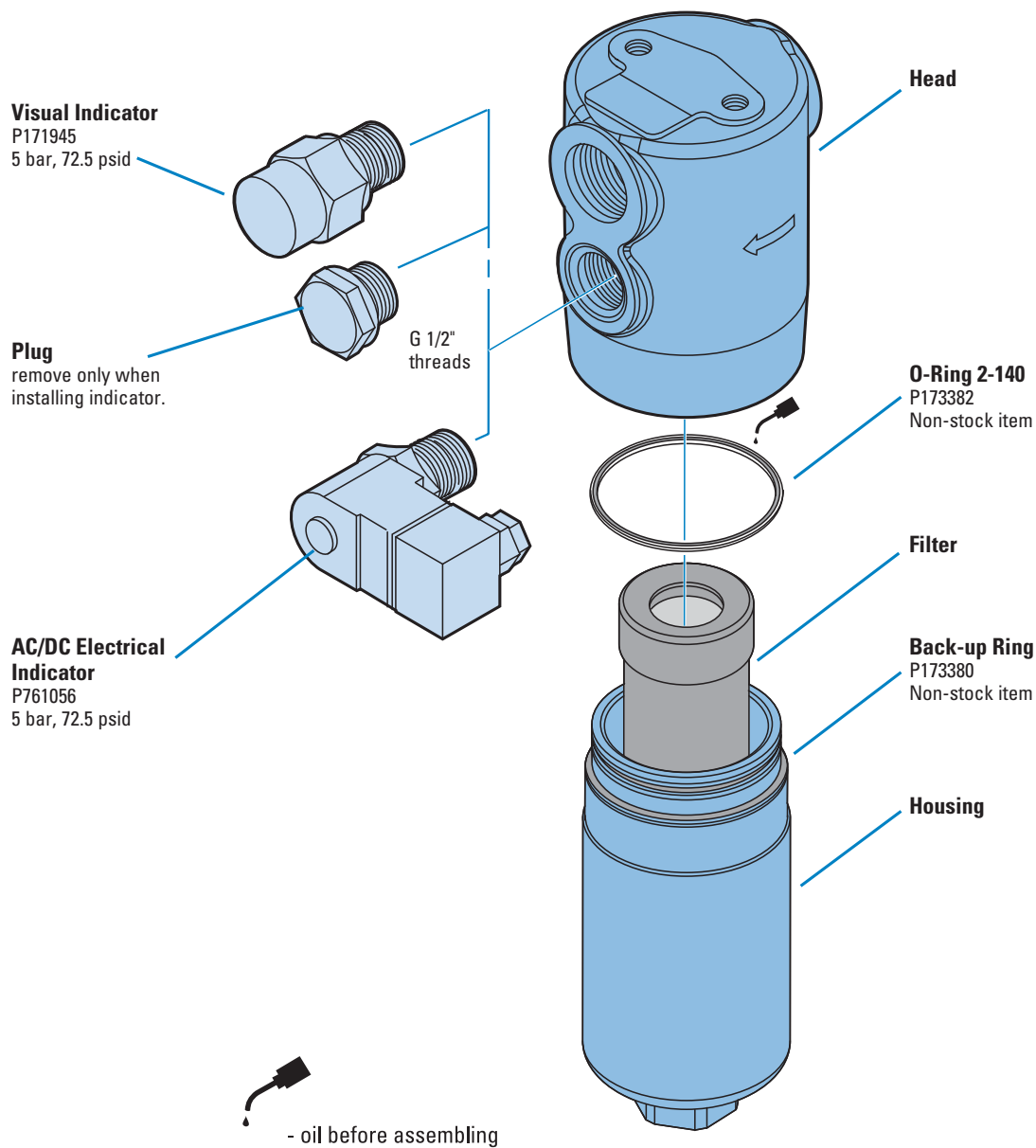


FPK02 Service Parts

SERVICE PARTS NOTE:

Some service parts may not be stocked. Please contact your Donaldson sales representative for lead time details.

When installing the FPK02 housing onto an installed head, torque it to 15 ft-lbs./2.1 kg-m.



W350 In-Line Cartridge Filters

Working Pressures to:

3000 psi / 21,000 kPa / 210 bar

Rated Static Burst to:

7500 psi / 51,700 kPa / 517 bar

Fatigue Pressure Rating:

1500 psi / 10,000 kPa / 100 bar

Flow Range To:

50 gpm / 189 lpm

Applications

- High Pressure Circuits
- In-Plant Systems
- Meets HF3 Specification
- Mobile Equipment

Features

The W350 T-type ported series offers flows up to 50 gpm (190 lpm) with three bypass options and conforms to the HF3 automotive standard. Our standard housing drain plug helps relieve system pressure during filter changeouts. DT 4-layer media is offered in a variety of designs. Donaldson filters core collapse options range from 150 to 3,000 psi (10 to 210 bar). The differential pressure indicator line is designed to work with the wide assortment of bypass valves. Thermal lockout and surge control are two key features incorporated in many of the differential pressure indicators.

- Conforms to HF3 specifications
- High collapse filter available for use with non-bypass applications
- Wide range of indicator options
- Two housing length options for design flexibility
- Head material: cast iron
- Housing material: steel
- Drain plug in housing
- Bleed plug in head

Beta Rating

- Performance to $\beta_{<4(\mu)}=1000$

Porting Size Options

- SAE-16 O-Ring

Replacement Filter Lengths

- 4.59" / 116.7mm
- 8.22" / 208.8mm

Standard Bypass Ratings

- 25 psi / 173 kPa / 1.7 bar
- 50 psi / 345 kPa / 3.5 bar
- 90 psi / 621 kPa / 6.2 bar
- No Bypass

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Assembly Weight

- 4.59" Assembly: 20 lbs / 9.07 kg
- 8.22" Assembly: 26 lbs / 11.79 kg

Operating Temperatures

- -20° to 250°F (-29° to 121°C)

Filter Collapse Ratings

- 290 psi / 1999 kPa / 20.0 bar (standard)
- 3000 psi / 20,700 kPa / 206.8 bar (high collapse)





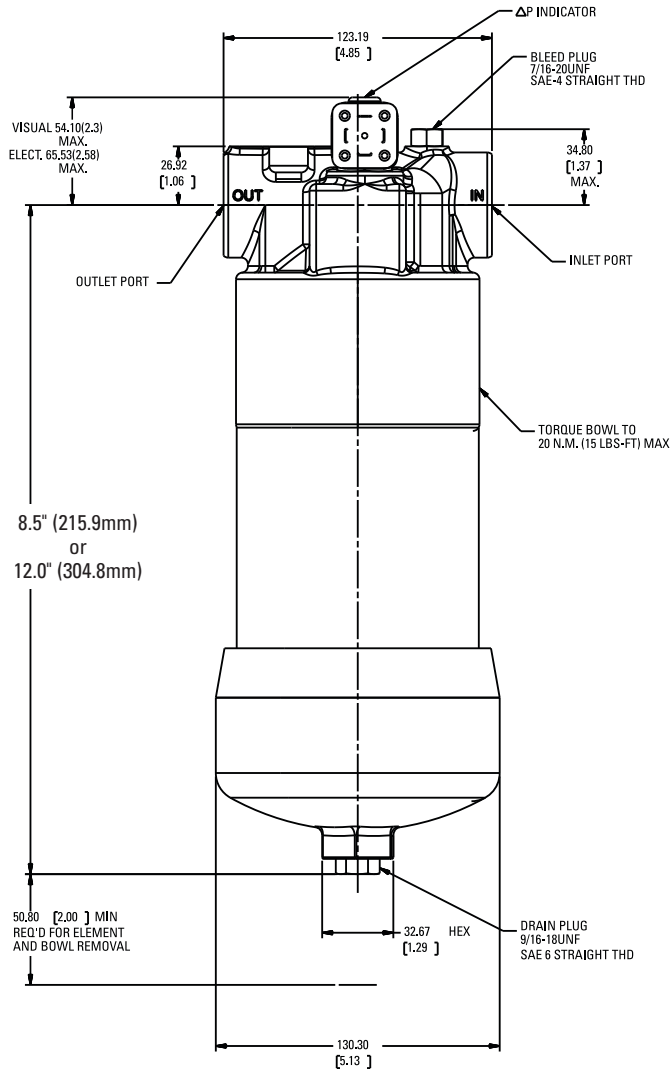
W350

Max Flow: 50 gpm (189 lpm)

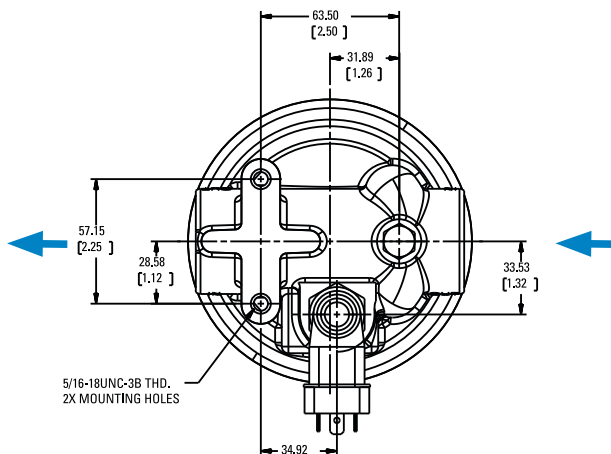
W350 Specification Illustrations

ASSEMBLY - SIDE VIEW

All dimensions are shown in millimeters [inches].



HEAD - TOP VIEW



W350 Components

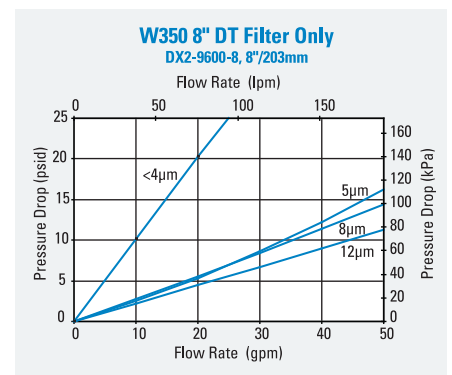
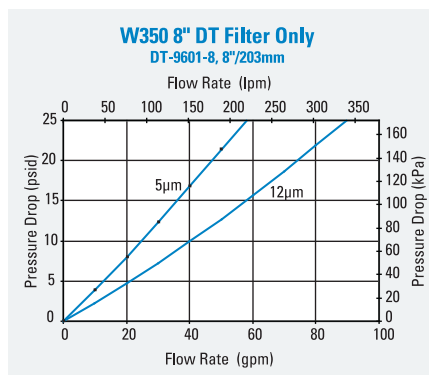
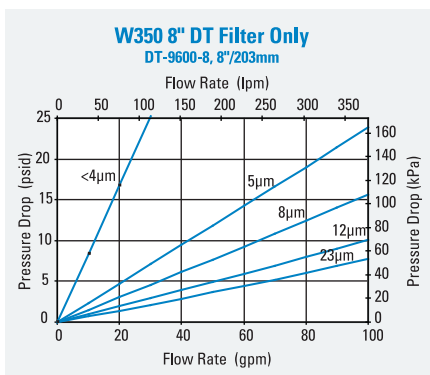
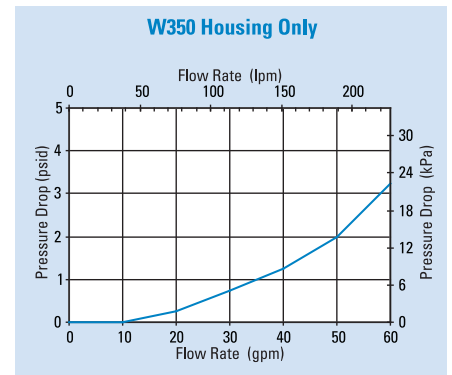
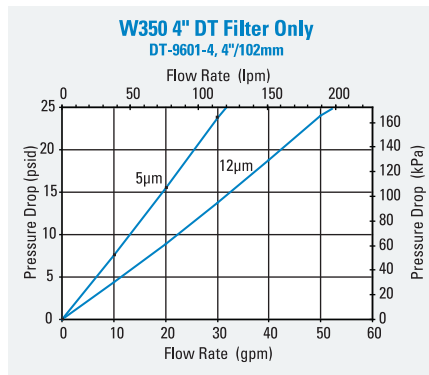
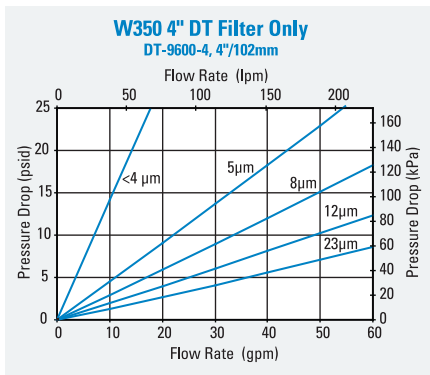
Filter Choices

Media Type	$\beta_{x(c)} = 2$	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 16889		in	mm		
DT Synthetic		<4 μm	4.59	117	P566204	DT-9600-4-2UM
		5 μm	4.59	117	P566205	DT-9600-4-5UM
		5 μm	4.56	116	P167184	DT-9601-4-5UM, High collapse
		8 μm	4.59	117	P566206	DT-9600-4-8UM
		12 μm	4.59	117	P566207	DT-9600-4-14UM
		12 μm	4.56	116	P167843	DT-9601-4-14UM, High collapse
		23 μm	4.59	117	P566208	DT-9600-4-25UM
		<4 μm	8.22	209	P566209	DT-9600-8-2UM
		5 μm	8.22	209	P566210	DT-9600-8-5UM
		5 μm	8.19	208	P167185	DT-9601-8-5UM, High collapse
		8 μm	8.22	209	P566211	DT-9600-8-8UM
		12 μm	8.22	209	P566212	DT-9600-8-14UM
		12 μm	8.19	208	P167186	DT-9601-8-14UM, High collapse
	23 μm	8.22	209	P566213	DT-9600-8-25UM	
Water Absorbing	10 μm		8	209	P569528	Absorbs 130 ml water @ 25 psid



Filter Notes: All Donaldson DT filters utilize glass fiber media with an epoxy-based resin system for the ultimate in chemical compatibility. All Donaldson DT filters are potted with epoxy-based adhesives. Standard collapse DT designs are double wire-backed using epoxy-coated steel mesh for maximum pleat support and dirt capacity. High collapse designs are double wire-backed using stainless steel mesh. High collapse designs are also potted into machined aluminum endcaps for greater filter integrity in critical applications. Fluorocarbon seals are standard on all Donaldson DT filters.

Performance Data





W350

Max Flow: 50 gpm (189 lpm)



Head Assembly Choices

Port Size	Bypass Rating	Seal Material	Indicator Style & Location	Part No.
SAE-16 O-Ring	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	P574245
SAE-16 O-Ring	90 psi / 6.21 bar	Nitrile	Port Machined & Plugged	P574246
SAE-16 O-Ring	None	Nitrile	Port Machined & Plugged	P574247

Housing Choices

Housing Length	Seal Material	Part No.
4" (101.6mm)	Nitrile	X011556
8" (203.2mm)	Nitrile	X011558

Service Part Choices

Part No.	Description
X011170	Head/Bowl/Housing Seal Kit - nitrile
X011171	Head/Bowl/Housing Seal Kit - fluorocarbon

Indicator Choices

Indicator Pressure Setting	Connector Style	Seal Material	Part No.	Thermal Lockout	Surge Control	Reset
Visual Pop-up Models						
35 psi / 241 kPa	NA	Nitrile	P572347	No	No	Auto
35 psi / 241 kPa	NA	Nitrile	P572348	Yes	Yes	Manual
35 psi / 241 kPa	NA	Fluorocarbon	P567456	Yes	Yes	Manual
70 psi / 482 kPa	NA	Nitrile	P572319	Yes	Yes	Manual
70 psi / 482 kPa	NA	Fluorocarbon	P567457	Yes	Yes	Manual
100 psi / 690 kPa	NA	Nitrile	P572353	Yes	Yes	Manual
100 psi / 690 kPa	NA	Fluorocarbon	P572354	Yes	Yes	Manual
Electrical / Visual Models						
35 psi / 241 kPa	Hirschman	Nitrile	P572327	No	No	Auto
35 psi / 241 kPa	Brad Harrison	Nitrile	P572329	No	No	Auto
35 psi / 241 kPa	Hirschman	Nitrile	P572384	Yes	Yes	Manual
35 psi / 241 kPa	Hirschman	Fluorocarbon	P567458	Yes	Yes	Manual
35 psi / 241 kPa	Brad Harrison	Nitrile	P572385	Yes	Yes	Manual
35 psi / 241 kPa	3 wire flying leads	Nitrile	P572349	No	No	Auto
70 psi / 482 kPa	Hirschman	Nitrile	P572320	Yes	Yes	Manual
70 psi / 482 kPa	Hirschman	Fluorocarbon	P567459	Yes	Yes	Manual
70 psi / 482 kPa	Hirschman	Nitrile	P572373	Yes	No	Manual
70 psi / 482 kPa	Hirschman	Fluorocarbon	P569639	Yes	No	Manual
100 psi / 690 kPa	Hirschman	Nitrile	P572387	Yes	Yes	Manual
Electrical Models						
35 psi / 241 kPa	Hirschman	Nitrile	P572359	No	No	Auto
35 psi / 241 kPa	Brad Harrison	Nitrile	P572361	No	No	Auto
70 psi / 482 kPa	Hirschman	Nitrile	P572369	No	No	Auto

HPK03 In-Line Cartridge Filters

Working Pressures to:

3000 psi / 20,700 kPa / 206.9 bar

Rated Static Burst to:

6000 psi / 41,400 kPa / 413.8 bar

Flow Range To:

60 gpm / 227 lpm

Applications

- High Pressure Circuits
- In-Plant Systems
- Meets HF3 Specification
- Mobile Equipment
- Servo Valve Circuits

Features

The sturdy HPK03 filter is constructed of ductile iron for durability in high pressure applications. Standard housing drain plug means simplified servicing. Housing includes a fluoroelastomer head-to-housing seal. Meets HF3 specification.

Take advantage of our mix and match system of in-stock heads and cartridges—so you can get exactly what you need. HPK03 is available with your choice of visual or AC/DC electrical indicators. Likewise, choose the bypass option that's right for your application—50 psi (3.5 bar) or no bypass. Seals made of fluorocarbon or nitrile are available with HPK03.

All HPK03 filters contain Synteq[®], our synthetic filter media designed especially for hydraulic filtration. Upgraded Donaldson DT filters are also offered for superior performance.



Beta Rating

- Performance to $\beta_{<4(\mu)}=1000$

Porting Size Options

- SAE-12, SAE-16 O-Ring

Replacement Filter Lengths

- 8.22" / 208.8mm

Standard Bypass Ratings

- 50 psi / 345 kPa / 3.5 bar
- No Bypass

Assembly Weight

- 26 lbs / 11.8 kg

Operating Temperatures

- -20°F to 250°F / -29°C to 121°C

Filter Collapse Ratings

- 200 psi / 1380 kPa / 13.8 bar (standard)
- 3000 psi / 20,700 kPa / 206.9 bar (high collapse)



HPK03

Max Flow: 60 gpm (227 lpm)

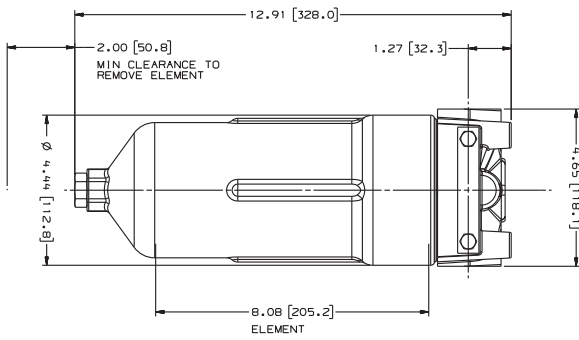


HPK03 Specification Illustrations

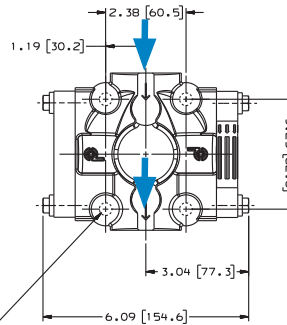
ASSEMBLY - SIDE VIEW

HEAD - TOP VIEW

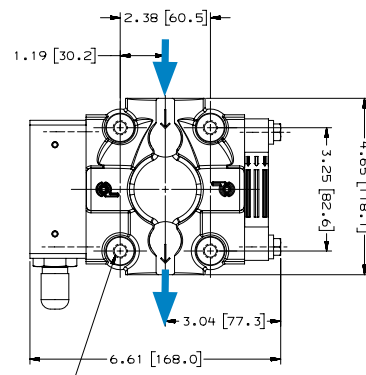
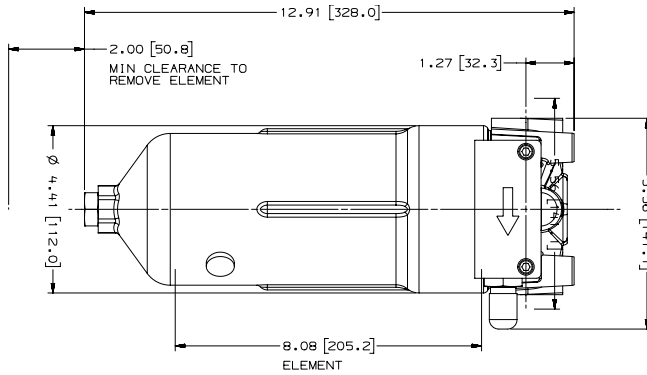
All dimensions are shown in inches [millimeters].



3/8-16 UNC-2B x .69 [17.5]
MIN FULL THD 4 PLACES

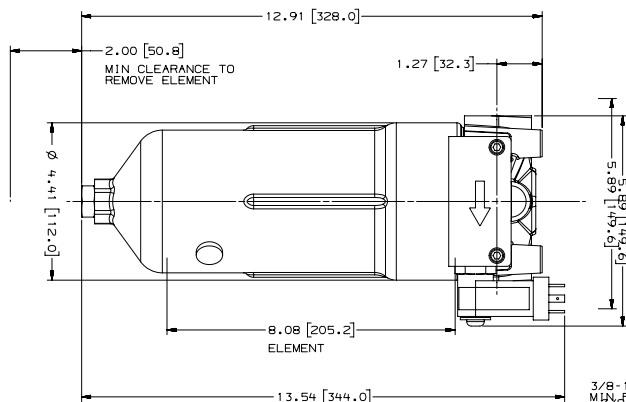


HPK03 with Visual Service Indicator

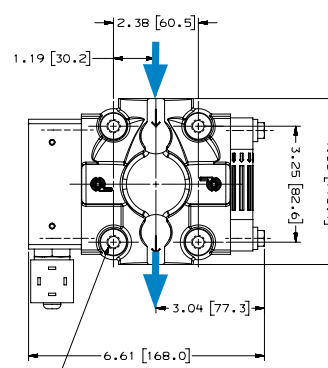


3/8-16 UNC-2B x .69 [17.5]
MIN FULL THD 4 PLACES

HPK03 with AC/DC Electrical Service Indicator



3/8-16 UNC-2B x .69 [17.5]
MIN FULL THD 4 PLACES



HPK03 Components

Filter Choices

Media Type	$\beta_{x(c)} = 1000$	$\beta_{x(c)} = 2$	Length		Part No.	Comments
	Rating based on ISO 16889		in	mm		
DT Synthetic	<4 μm		8.22	209	P566209	DT-9600-8-2UM
	5 μm		8.22	209	P566210	DT-9600-8-5UM
	5 μm		8.22	209	P167185	DT-9601-8-5UM, High Collapse
	8 μm		8.22	209	P566211	DT-9600-8-8UM
	12 μm		8.22	209	P566212	DT-9600-8-14UM
	12 μm		8.22	209	P167186	DT-9601-8-14UM, High Collapse
	23 μm		8.22	209	P566213	DT-9600-8-25UM
Water Absorbing		10 μm	8.22	209	P569528	
Wire Mesh		75 μm	8.22	209	P162233	

Filter Notes: All Donaldson DT filters utilize glass fiber media with an epoxy-based resin system for the ultimate in chemical compatibility. All Donaldson DT filters are potted with epoxy-based adhesives. Standard collapse DT designs are double wire-backed using epoxy-coated steel mesh for maximum pleat support and dirt capacity. Fluorocarbon seals are standard on all Donaldson DT filters. Refer to the table in the Technical Reference Guide for fluid compatibility with our filter media. If filtering diester, phosphate ester fluids, water glycol, water/oil emulsions, or HWCF over 150°F/83°C, use filters with seals made of fluorocarbon. Donaldson "high collapse" filters, with their steel end caps and wire-backed media, are rated to withstand up to 3000 psi/ 20,700 kPa before collapsing. High collapse designs are also potted into machined aluminum endcaps for greater filter integrity in critical applications. The fluorocarbon seal/high collapse filters also use epoxy potting and media seam seals for added chemical compatibility.



Housing Choices

Length	Part No.
8.22" (208.8mm) filter	P179579

The **P179579** housing is 10.73 inches (273mm) long and accepts the filter that is 8.22 inches (208.8mm) long. It includes a head-to-housing seal.

Head Choices

Port Size	Bypass Rating	Indicators ¹	Part No.
SAE-16 O-Ring	50 psi / 3.5 bar	Visual indicator, left side	P166353
SAE-12 O-Ring	50 psi / 3.5 bar	Visual indicator, left side	P170489
SAE-12 O-Ring	No bypass	Visual indicator, left side	P170491

Notes
¹Donaldson uses the inlet port as the reference point. "Left side," for instance, means that the indicator mounts on the side of the filter head that is on your left when you face the inlet port.



HPK03

Max Flow: 60 gpm (227 lpm)



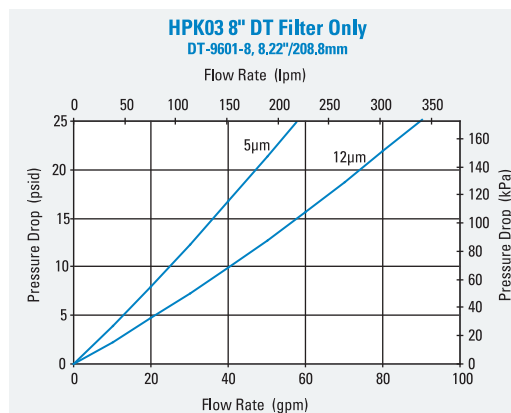
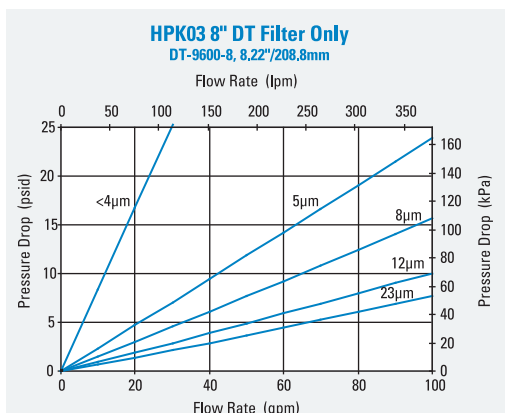
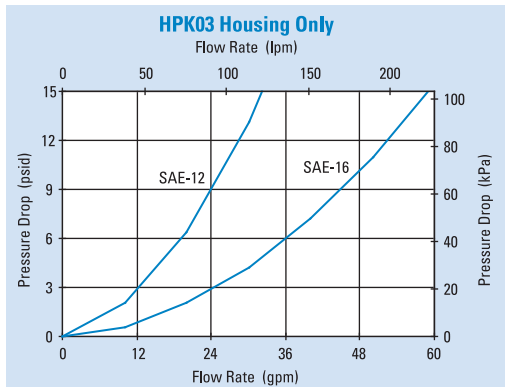
Service Indicator Kits (All kits include indicator with mounting block)

Part No.	Bypass Valve Pressure of:	Description
Visual Service Indicators		
P569632	50 psi / 3.5 bar	35 psi/2.4 bar indicator kit auto reset pop-out button
P569633	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit auto reset pop-out button
P567988	50 psi / 3.5 bar	35 psi/2.4 bar indicator kit auto reset pop-out button with thermal lockout and surge control
P567989	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit* auto reset pop-out button with thermal lockout and surge control
AC/DC Visual/Electrical Service Indicators		
P569634	50 psi / 3.5 bar	35 psi/2.4 bar indicator kit Hirschmann receptacle 115 VAC/28 VDC, 2 amps
P569635	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit Hirschmann receptacle 115 VAC/28 VDC, 2 amps
P567986	50 psi / 3.5 bar	35 psi/2.4 bar indicator kit with thermal lockout and surge control, Hirschmann receptacle, 115 VAC/28 VDC, 2 amps, 4 pin DIN 43650
P567987	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit with thermal lockout and surge control, Hirschmann receptacle, 115 VAC/28 VDC, 2 amps, 4 pin DIN 43650

Indicator Choices

Part No.	Description	Part No.	Description
Replacement Indicator Only			
P567458	Visual/Electrical indicator with thermal lockout and surge, 35 psid/2.4 bar	P569638	Visual/Electrical Indicator, 35 psid/2.4 bar
P567459	Visual/Electrical indicator, with thermal lockout and surge 70 psid/4.8 bar	P569639	Visual/Electrical Indicator, 70 psid/4.8 bar
P567456	Pop-Up Visual Indicator, with thermal lockout and surge 35 psid/2.4 bar	P164315	Visual Indicator, bar style, 35 psid/2.4 bar
P567457	Pop-Up Visual Indicator, with thermal lockout and surge 70 psid/4.8 bar	P166603	Visual Indicator, bar style, 70 psid/4.8 bar
P569636	Pop-Up Visual Indicator, 35 psid/2.4 bar	P166134	Blanking plate
P569637	Pop-Up Visual Indicator, 70 psid/4.8 bar		
Indicator Mounting Block			
P573495	Mounting Block Assembly		

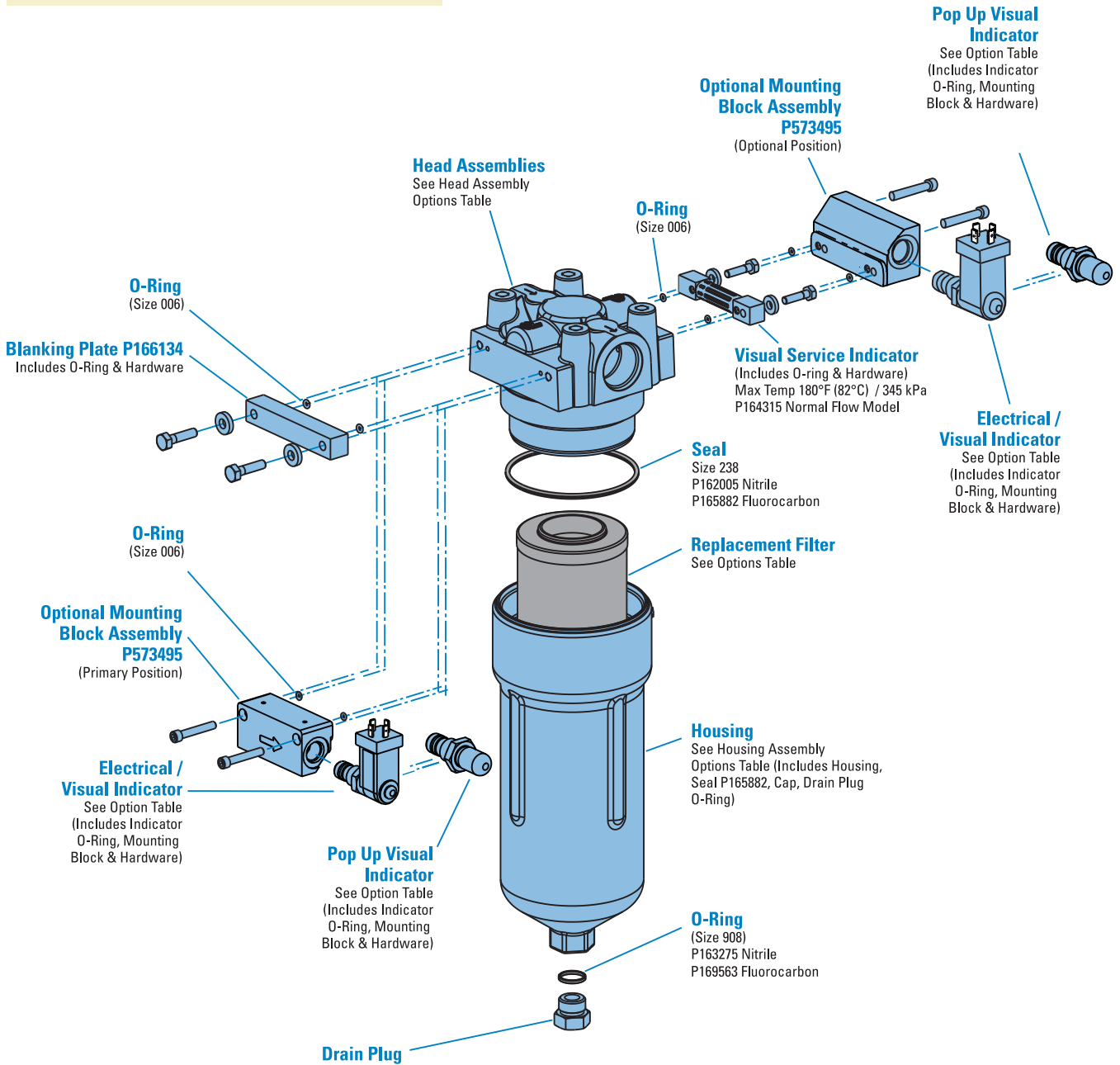
Performance Data



HPK03 Service Parts

SERVICE PARTS NOTE:

Some service parts may not be stocked. Please contact your Donaldson sales representative for lead time details.





FPK04

Max Flow: 100 gpm (379 lpm)



FPK04 In-Line Cartridge Filters

Working Pressures to:

4350 psi / 30,015 kPa / 300 bar

Rated Static Burst to:

9135 psi / 63,000 kPa / 630 bar

Flow Range To:

100 gpm / 379 lpm

Applications

- High Pressure Circuits
- In-Plant Systems
- Meets HF3 Specification
- Mobile Equipment
- Servo Valve Circuits



Features

The FPK04 T-type ported series offers flows up to 100 gpm (379 lpm) with a bypass option and conforms to the HF3 automotive standard. Donaldson Synteq™ media is offered in a variety of designs. Upgraded Donaldson high-performance DT filters are also offered for superior performance. The differential pressure indicator line is designed to work with the wide assortment of bypass valve options.

- Conforms to HF3 specifications
- High collapse filters available for use with non-bypass applications
- Wide range of indicator options
- Three housing length options for design flexibility
- Nitrile seals standard, fluorocarbon available
- Head material: cast iron
- Housing material: steel

Beta Rating

- Performance to $\beta_{<40>}=1000$

Porting Size Options

- SAE-20 O-Ring

Replacement Filter Lengths

- 4.56" / 116mm
- 4.59" / 117mm
- 8.19" / 208mm
- 8.22" / 209mm
- 8.23" / 209mm
- 12.85" / 326mm
- 12.87" / 327mm
- 12.91" / 328mm

Standard Bypass Ratings

- 87 psi / 600 kPa / 6.0 bar
- No Bypass

Assembly Weight

- 4.59": 26.4 lbs / 12.0 kg
- 8.22": 33 lbs / 15.0 kg
- 12.91": 33 lbs / 15.0 kg

Operating Temperatures

- -4° to 248°F (-20° to 120°C)

Filter Collapse Ratings

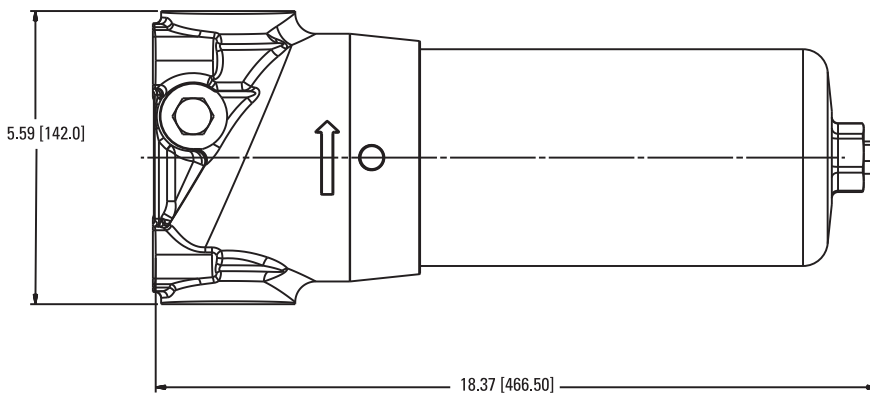
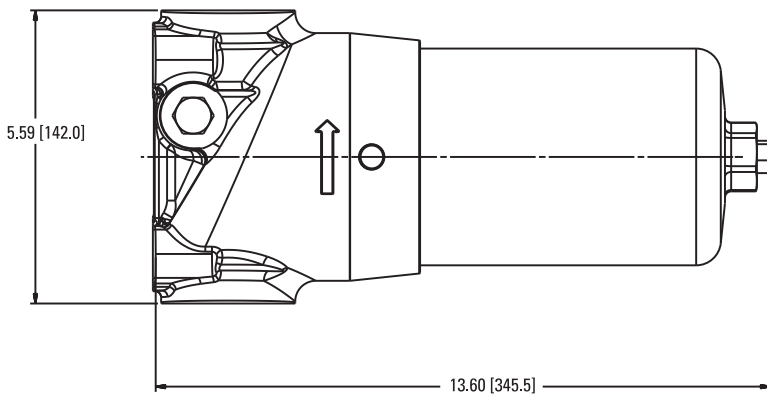
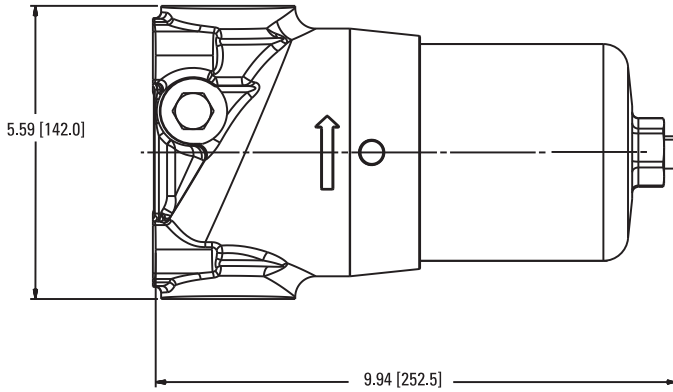
- 290 psi / 1999 kPa / 20.0 bar (standard)
- 3000 psi / 20,700 kPa / 206.8 bar (wire mesh)



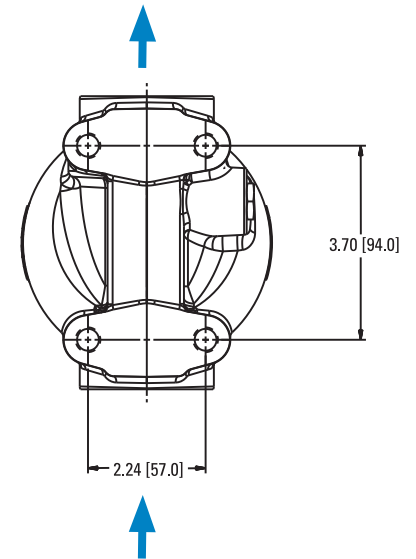
FPK04 Specification Illustrations

ASSEMBLY - SIDE VIEW

All dimensions are shown in inches [millimeters].



HEAD - TOP VIEW





FPK04 Components

Filter Choices

Media Type	$\beta_{x(c)} = 1000$	$\beta_{x(c)} = 2$	Length		Part No.	Comments
	Rating based on ISO 16889		in	mm		
DT Synthetic	<4 μm		4.59	117	P566204	DT-9600-4-2UM
	5 μm		4.59	117	P566205	DT-9600-4-5UM
	5 μm		4.58	116.3	P167184	DT-9601-4-5UM, High Collapse
	8 μm		4.59	117	P566206	DT-9600-4-8UM
	12 μm		4.59	117	P566207	DT-9600-4-14UM
	12 μm		4.58	116.3	P167843	DT-9601-8-14UM, High Collapse
	23 μm		4.59	117	P566208	DT-9600-4-25UM
	<4 μm		8.22	209	P566209	DT-9600-8-2UM
	5 μm		8.22	209	P566210	DT-9600-8-5UM
	5 μm		8.20	208.3	P167185	DT-9601-4-14UM, High Collapse
	8 μm		8.22	209	P566211	DT-9600-8-8UM
	12 μm		8.22	209	P566212	DT-9600-8-14UM
	12 μm		8.20	208.3	P167186	DT-9601-13-5UM, High Collapse
	23 μm		8.22	209	P566213	DT-9600-8-25UM
	<4 μm		12.91	328	P566214	DT-9600-13-2UM
	5 μm		12.91	328	P566215	DT-9600-13-5UM
	5 μm		12.88	327.2	P167411	DT-9601-8-5UM, High Collapse
	8 μm		12.91	328	P566216	DT-9600-13-8UM
	12 μm		12.91	328	P566217	DT-9600-13-14UM
	12 μm		12.88	327.2	P167412	DT-9601-13-14UM, High Collapse
23 μm		12.91	328	P566218	DT-9600-13-25UM	
Water Absorbing		10 μm	8.20	208.3	P569528	9600 Absorbs 180 ml of water @ 25 psid
		10 μm	12.93	328.4	P569529	9600 Absorbs 220 ml of water @ 25 psid
Wire Mesh		75 μm	8.20	208.3	P162233	9600 Nitrile, Wire mesh



Filter Notes: All Donaldson DT filters utilize glass fiber media with an epoxy-based resin system for the ultimate in chemical compatibility. All Donaldson DT filters are potted with epoxy-based adhesives. Standard collapse DT designs are double wire-backed using epoxy-coated steel mesh for maximum pleat support and dirt capacity. Fluorocarbon seals are standard on all Donaldson DT filters. Refer to the table in the Technical Reference Guide for fluid compatibility with our filter media. If you're filtering diester, phosphate ester fluids, water glycol, water/oil emulsions, and HWCF over 150°F/83°C, use filters with seals made of fluorocarbon. High collapse designs are double wire-backed using stainless steel mesh. High collapse designs are also potted into machined aluminum endcaps for greater filter integrity in critical applications. Donaldson "high collapse" filters, with their steel end caps and wire-backed media, are rated to withstand up to 3000 psi/20,700 kPa before collapsing. The fluorocarbon seal/high collapse filters also use epoxy potting and media seam seals for added chemical compatibility.

Head Choices

Port Size	Bypass Rating	Indicators	Part No.
SAE-20	87 psi / 6 bar	plugged only	P568720
SAE-20	No bypass	plugged only	P568721

Housing Choices

Filter Length	Part No.
4.6" (116.8mm)	P568722
8.2" (208.3mm)	P568723
12.9" (327.7mm)	P568724

Notes: Housings include the head to housing seal.

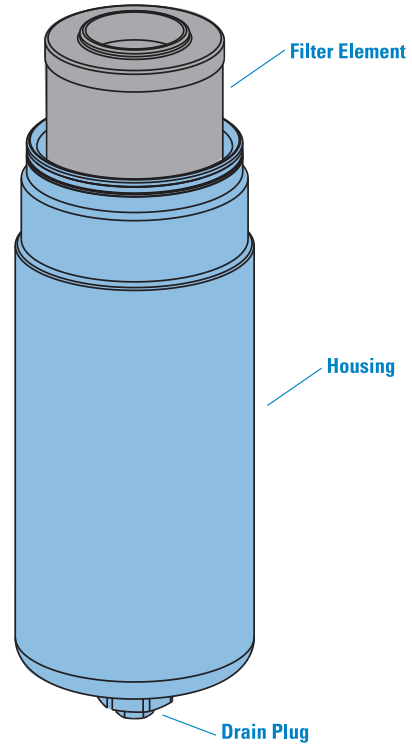
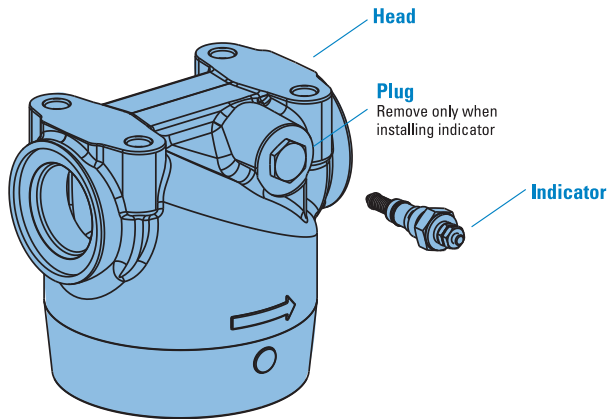
Indicator Choices

Set Point / Type	Part No.
39 psi / 2.7 bar, electrical, normally open.	P165194
39 psi / 2.7 bar, electrical, normally closed, D.C. two-wire	P574967
39 psi / 2.7 bar, electrical, normally open, D.C. two-wire	P574968

FPK04 Service Parts

SERVICE PARTS NOTE:

Some service parts may not be stocked. Please contact your Donaldson sales representative for lead time details.

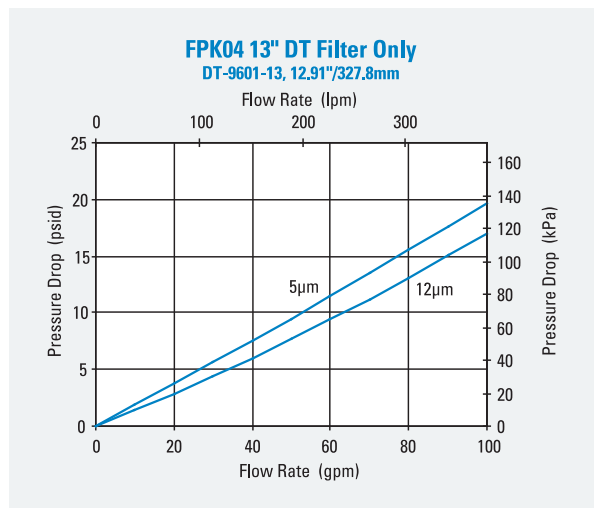
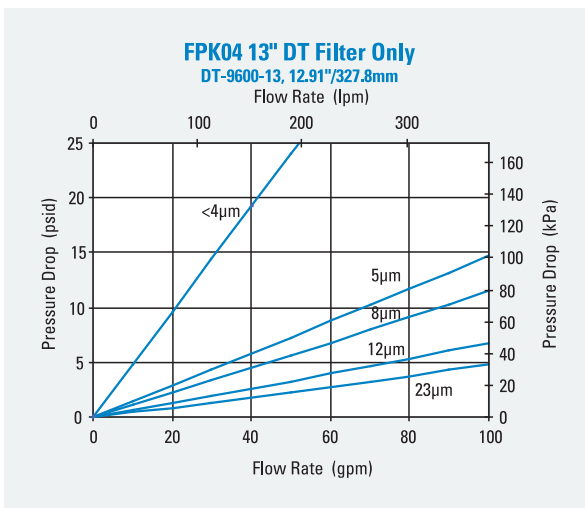
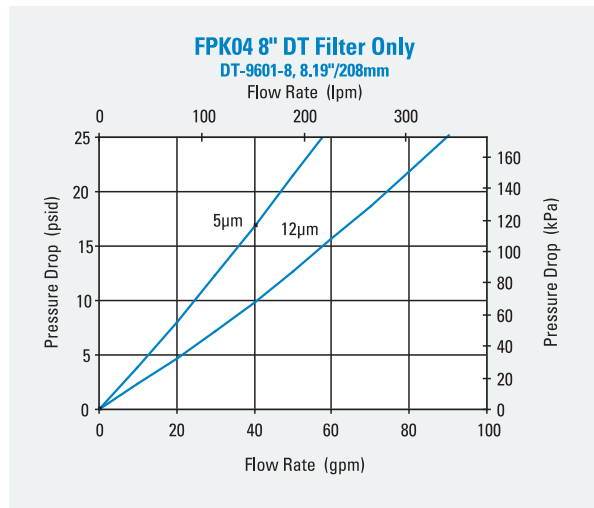
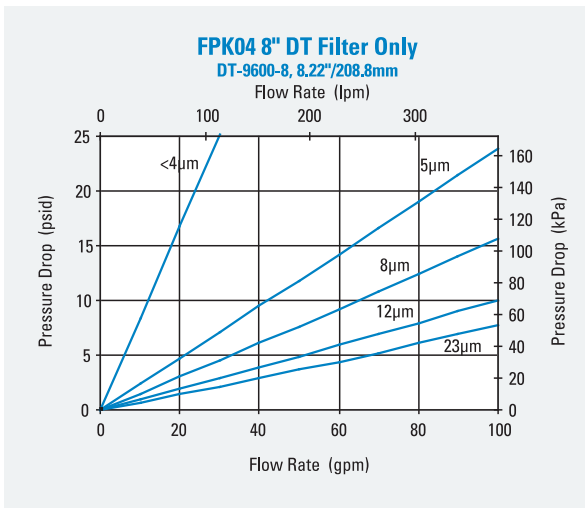
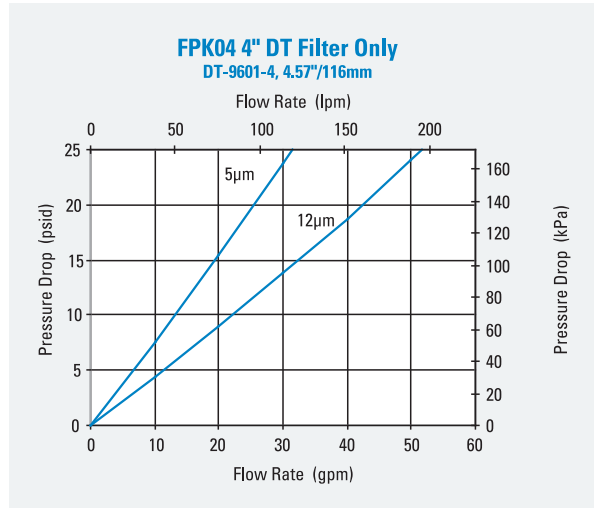
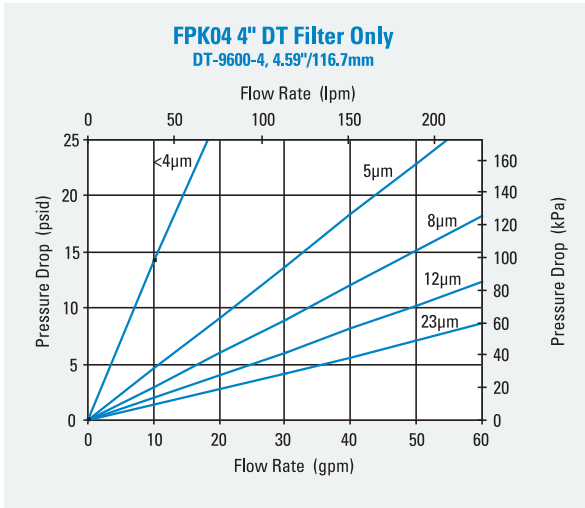


Performance Data





Performance Data



HPK04 In-Line Cartridge Filters

Working Pressures to:

6000 psi / 41,380 kPa / 413.8 bar

Rated Static Burst to:

17000 psi / 117,300 kPa / 1173 bar

Flow Range To:

120 gpm / 454 lpm

Applications

- High Pressure Circuits
- Hydrostatic Transmission
- Meets HF3 Specification
- Servo Valve Circuits



Features

The HPK04 high pressure filter series is made of ductile iron and steel for strength and durability. Machined bypass valves are case-hardened at critical points to provide maximum strength and reliability. Reverse flow bypass valve allows bi-directional flow through the filter head, and filter change out is simplified with standard housing drain plug. Meets HF3 specification. Take advantage of our mix and match system of in-stock heads, housings and cartridges – so you can get exactly what you need. Likewise, choose the media type and configuration that’s best for your application. Filter cartridges for HPK04 contain Synteq™, Donaldson’s exclusive synthetic fiber media formulated specially for liquid filtration. Upgraded Donaldson high-performance DT filters are also offered for superior performance.

Beta Rating

- Performance to $\beta_{<4(\mu)}=1000$

Porting Size Options

- SAE-20 O-Ring
- 1¼" or 1½" SAE 4-Bolt Flange Code 61 or 62

Replacement Filter Lengths

- 8.22" / 203mm
- 12.91" / 328mm
- 16.84" / 406mm

Standard Bypass Ratings

- 60 psi / 414 kPa / 4.1 bar
- 90 psi / 621 kPa / 6.2 bar with reverse-flow check valve
- No Bypass

Assembly Weight

- 8.22" Assembly: 41 lbs / 19 kg
- 12.91" Assembly: 48 lbs / 22 kg
- 16.84" Assembly: 52 lbs / 24 kg

Operating Temperatures

- -20°F to 250°F / -27°C to 121°C

Filter Collapse Ratings

- 290 psi / 1999 kPa / 20.0 bar (standard)
- 3000 psi / 20,700 kPa / 206.9 bar (high collapse)



HPK04

Max Flow: 120 gpm (454 lpm)

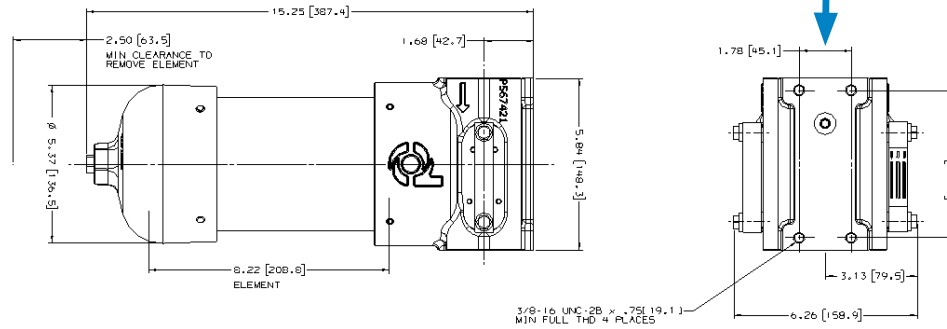


HPK04 Specification Illustrations

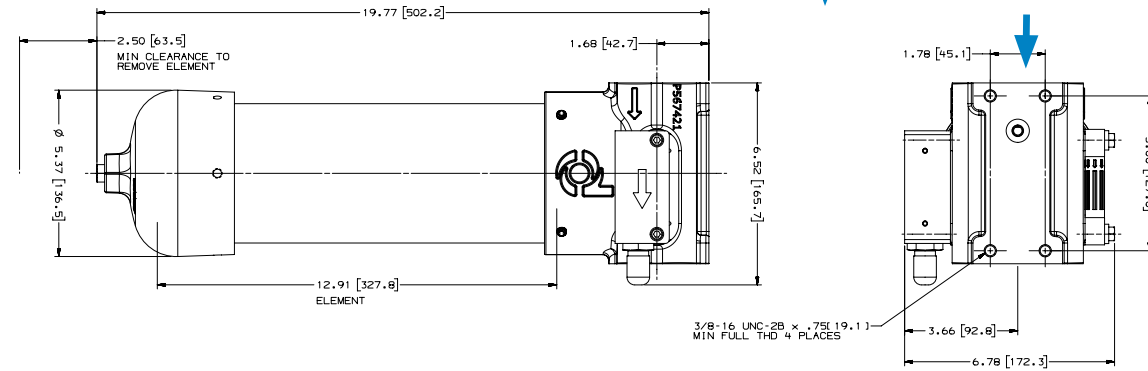
ASSEMBLY - SIDE VIEW

All dimensions are shown in inches [millimeters].

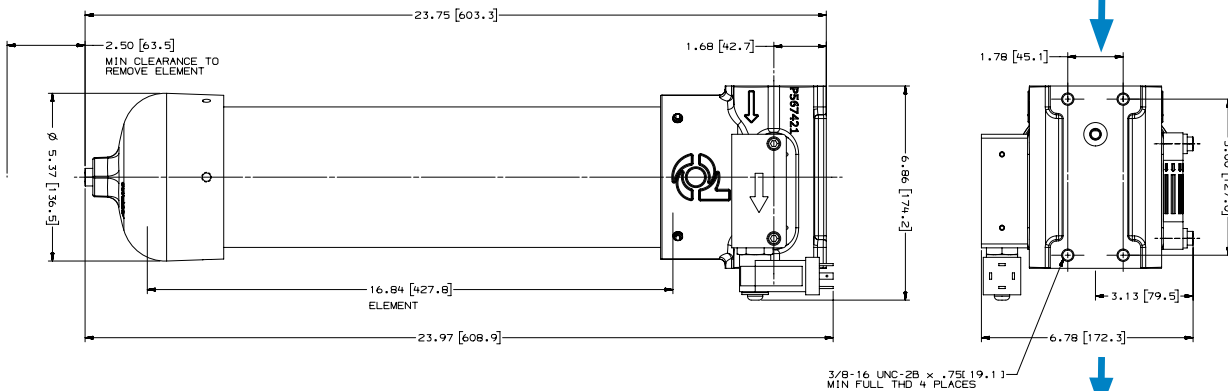
HEAD - TOP VIEW



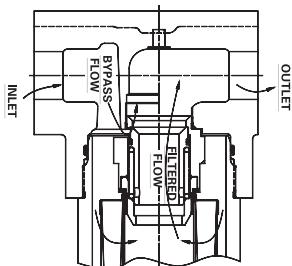
HPK04 with Visual Service Indicator



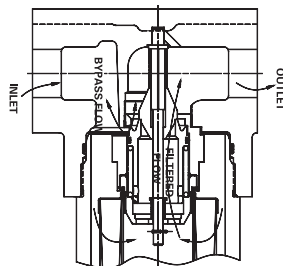
HPK04 with AC/DC Electrical Service Indicator



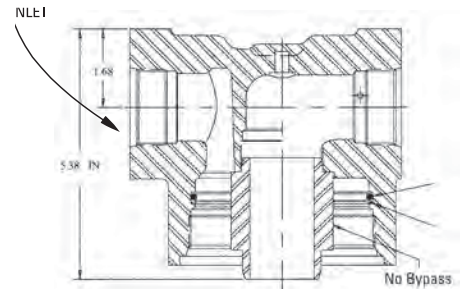
BYPASS VALVE ALTERNATIVES



60 psi / 414 kPa Bypass Valve



90 psi / 621 kPa Bypass Valve with Reverse Flow Check Valve



No Bypass

HPK04 Components

High-Performance DT Filter Choices

Media Type	$\beta_{x(c)} = 1000$	$\beta_{x(c)} = 2$	Length		Part No.	Comments
	Rating based on ISO 16889		in	mm		
DT Synthetic	<4 μm		8.22	209	P566209	DT-9600-8-2UM
	5 μm		8.22	209	P566210	DT-9600-8-5UM
	8 μm		8.22	209	P566211	DT-9600-8-8UM
	5 μm		8.20	208	P167185	DT-9601-8-5UM, High Collapse
	12 μm		8.22	209	P566212	DT-9600-8-14UM
	12 μm		8.20	208	P167186	DT-9601-13-14UM, High Collapse
	23 μm		8.22	209	P566213	DT-9600-8-25UM
	<4 μm		12.91	328	P566214	DT-9600-13-2UM
	5 μm		12.91	328	P566215	DT-9600-13-5UM
	5 μm		12.88	327	P167411	DT-9601-8-14UM, High Collapse
	8 μm		12.91	328	P566216	DT-9600-13-8UM
	12 μm		12.91	328	P566217	DT-9600-13-14UM
	12 μm		12.88	327	P167412	DT-9601-16-5UM, High Collapse
	23 μm		12.91	328	P566218	DT-9600-13-25UM
	<4 μm		16.84	428	P566219	DT-9600-16-2UM
	5 μm		16.84	428	P566220	DT-9600-16-5UM
	5 μm		16.83	427	P167187	DT-9601-13-5UM, High Collapse
	8 μm		16.84	428	P566221	DT-9600-16-8UM
	12 μm		16.84	428	P566222	DT-9600-16-14UM
	12 μm		16.83	427	P167188	DT-9601-16-14UM, High Collapse
23 μm		16.84	428	P566223	DT-9600-16-25UM	
Water Absorbing		10 μm	8.20	208	P569528	9600 Series, Absorbs 180 ml water @ 25 psid
		10 μm	12.93	328	P569529	9600 Series, Absorbs 220 ml water @ 25 psid
		10 μm	16.83	427	P569530	9600 Series, Absorbs 300 ml water @ 25 psid
Wire Mesh		75 μm	8.20	208	P162233	9600 Series, Nitrile



Filter Notes: All Donaldson DT filters utilize glass fiber media with an epoxy-based resin system for the ultimate in chemical compatibility. All Donaldson DT filters are potted with epoxy-based adhesives. Standard collapse DT designs are double wire-backed using epoxy-coated steel mesh for maximum pleat support and dirt capacity. Fluorocarbon seals are standard on all Donaldson DT filters. High collapse designs are double wire-backed using stainless steel mesh. High collapse designs are also potted into machined aluminum endcaps for greater filter integrity in critical applications. Filters with seals made of fluorocarbon are required when using diester, phosphate ester fluids, water glycol, water/oil emulsions, and HWCF (high water content fluids) over 150°F/83°C. The fluorocarbon seal, high collapse filters also use epoxy potting and media seam seals for added chemical compatibility. Donaldson high collapse filters are physically designed to withstand up to 3000 psi/ 20,700 kPa before collapsing.



HPK04

Max Flow: 120 gpm (454 lpm)

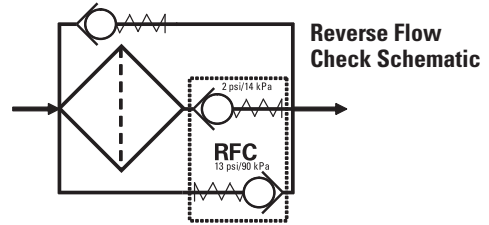


Housing Choices

Length		Part No.
in	mm	
8	203	P567650
13	330	P567649
16	406	P567648



Head assemblies include head to housing seal.



Head Choices

Port Size	Working Pressure	Bypass Rating	Indicators ¹	Part No.
1½" SAE 4-Bolt (Code 61) with SAE-20 O-Ring	3000 psi/207 bar	60 psi/4.1 bar	Visual left side, blank plate right side	P567639
1½" SAE 4-Bolt (Code 61) with SAE-20 O-Ring	3000 psi/207 bar	90 psi/6.2 bar with reverse flow check valve	Visual left side, blank plate right side	P567640
1½" SAE 4-Bolt (Code 61) with SAE-20 O-Ring	3000 psi/207 bar	no bypass	Visual left side, blank plate right side	P567641
1½" SAE 4-Bolt (Code 62)	6000 psi/414 bar	60 psi/4.1 bar	Visual left side, blank plate right side	P567642
1½" SAE 4-Bolt (Code 62)	6000 psi/414 bar	90 psi/6.2 bar with reverse flow check valve	Visual left side, blank plate right side	P567643
1¼" SAE 4-Bolt (Code 62)	6000 psi/414 bar	90 psi/6.2 bar with reverse flow check valve	Visual left side, blank plate right side	P567644
1¼" SAE 4-Bolt (Code 62)	6000 psi/414 bar	90 psi/6.2 bar with reverse flow check valve	Blank left side, blank plate right side	P574189

Notes on Indicators

¹Donaldson uses the inlet port as the reference point. "Left side," for instance, means that the indicator mounts on the side of the filter head that is on your left when you face the inlet port.

Service Indicator Kits (All kits include indicator with mounting block)

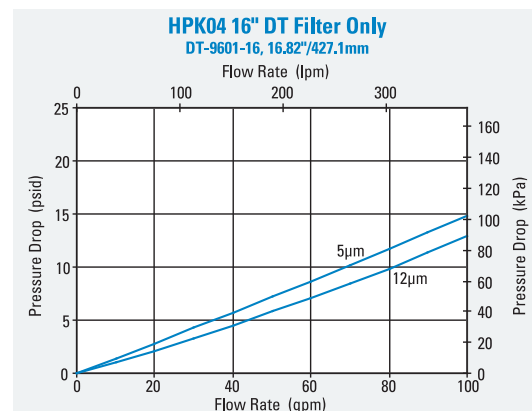
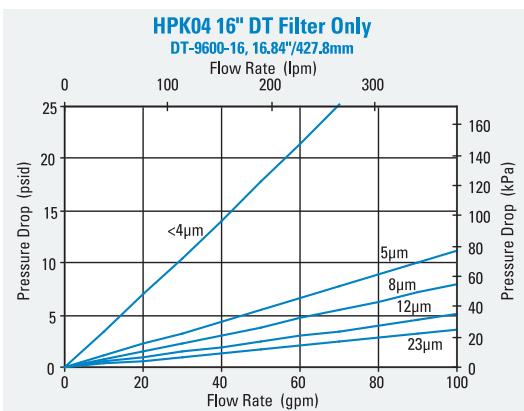
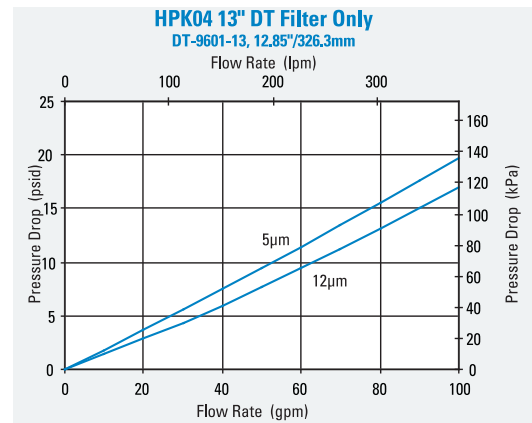
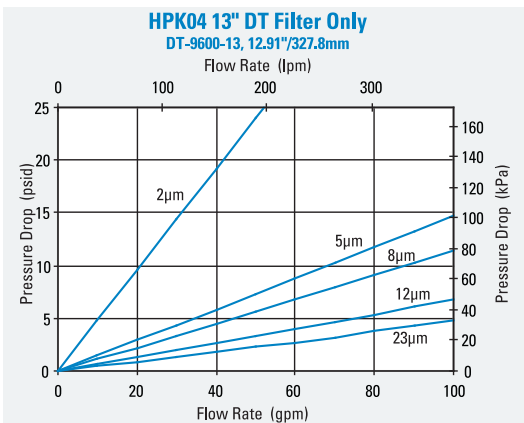
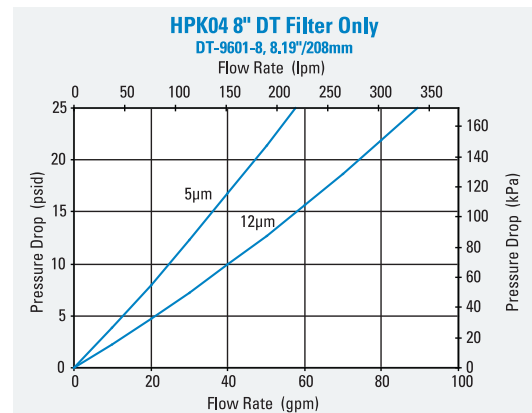
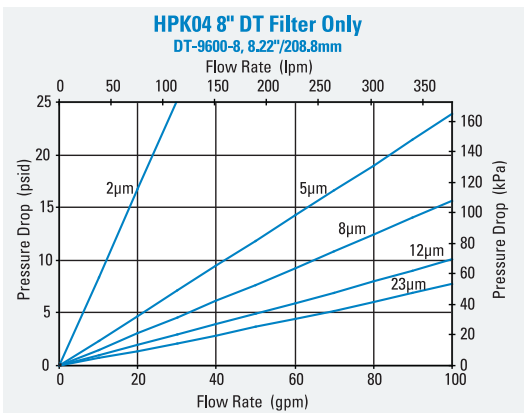
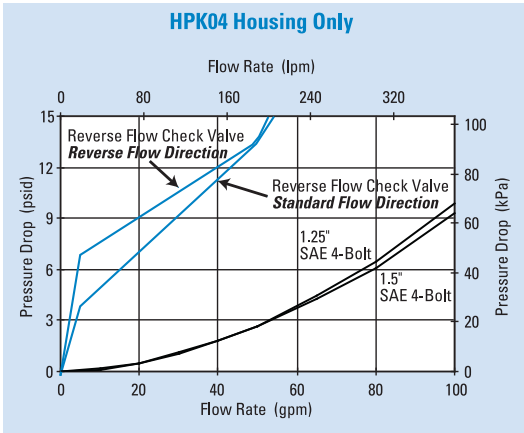
Part No.	Bypass Valve Pressure of:	Description
Visual Service Indicators		
P569632	60 psi / 4.1 bar	35 psi/2.4 bar indicator kit auto reset pop-out button
P569633	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit auto reset pop-out button
P567988	60 psi / 4.1 bar	35 psi/2.4 bar indicator kit auto reset pop-out button with thermal lockout and surge control
P567989	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit* auto reset pop-out button with thermal lockout and surge control
AC/DC Visual/Electrical Service Indicators		
P569634	60 psi / 4.1 bar	35 psi/2.4 bar indicator kit Hirschmann receptacle 115 VAC/28 VDC, 2 amps
P569635	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit Hirschmann receptacle 115 VAC/28 VDC, 2 amps
P567986	60 psi / 4.1 bar	35 psi/2.4 bar indicator kit with thermal lockout and surge control, Hirschmann receptacle, 115 VAC/28 VDC, 2 amps, 4 pin DIN 43650
P567987	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit with thermal lockout and surge control, Hirschmann receptacle, 115 VAC/28 VDC, 2 amps, 4 pin DIN 43650

Indicator Choices (Replacement Indicator Only)

Part No.	Description	Part No.	Description
P567458	Visual/Electrical indicator with thermal lockout and surge, 35 psid/2.4 bar	P569638	Visual/Electrical Indicator, 35 psid/2.4 bar
P567459	Visual/Electrical indicator, with thermal lockout and surge, 70 psid/4.8 bar	P569639	Visual/Electrical Indicator, 70 psid/4.8 bar
P567456	Pop-Up Visual Indicator, with thermal lockout and surge, 35 psid/2.4 bar	P164315	Visual Indicator, bar style, 35 psid/2.4 bar
P567457	Pop-Up Visual Indicator, with thermal lockout and surge, 70 psid/4.8 bar	P166603	Visual Indicator, bar style, 70 psid/4.8 bar
P569636	Pop-Up Visual Indicator, 35 psid/2.4 bar	P166134	Blanking plate
P569637	Pop-Up Visual Indicator, 70 psid/4.8 bar		
Indicator Mounting Block			
P573495	Mounting Block Assembly		



Performance Data





HPK04

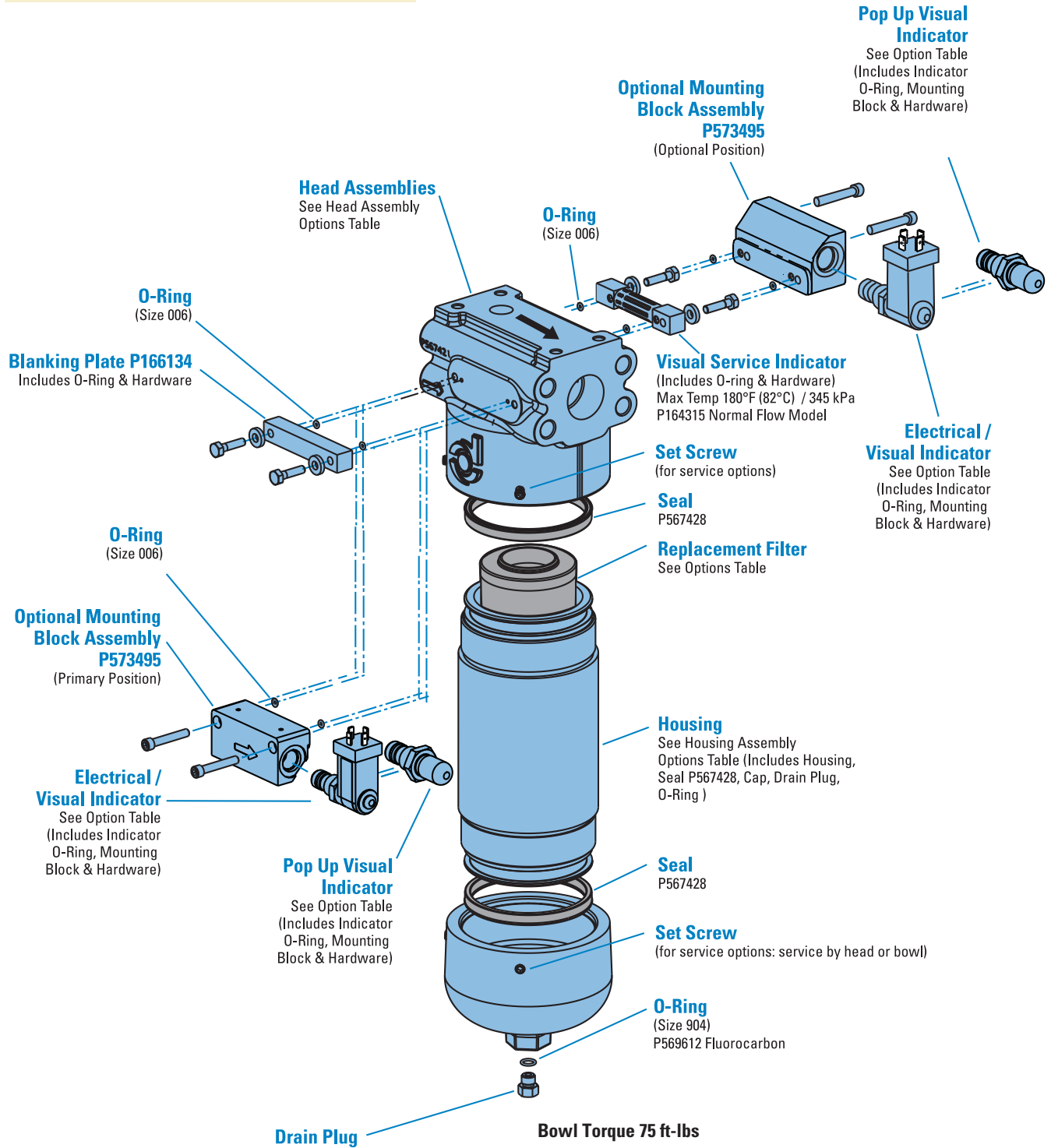
Max Flow: 120 gpm (454 lpm)



HPK04 Service Parts

SERVICE PARTS NOTE:

Some service parts may not be stocked. Please contact your Donaldson sales representative for lead time details.



W451 In-Line Cartridge Filters

Working Pressures to:

4,500 psi / 31,027 kPa / 310 bar

Rated Static Burst to:

13,500 psi / 93,100 kPa / 931 bar

Fatigue Pressure Rating:

3000 psi / 20,700 kPa / 207 bar

Flow Range To:

150 gpm / 568 lpm

Applications

- High Pressure Circuits
- In-Plant Systems
- Meets HF4 Specification
- Mobile Equipment



Features

The W451 base-mounted filter series provides for easy servicing featuring top cover access for filter changeout. The ductile iron filter head design provides for SAE ports along with optional space saving manifold mounting. This product features the popular HF4 automotive filter. DT 4-layer media is offered in a variety of designs. Four different media grades are offered. Filter core collapse options range from 150 to 3,000 psi. The differential pressure indicator line is designed to work with the wide assortment of bypass valves. Thermal lockout and surge control are two key features available in many of the differential pressure indicators.

- Conforms to HF4 specifications
- High collapse filter available for use with non-bypass applications
- Wide range of indicator options
- Three housing length options for design flexibility
- Base & cover material: cast iron
- Cylinder material: steel
- Drain plug in base
- Bleed/fill plug in cover

Beta Rating

- Performance to $\beta_{5(\mu)}=1000$

Porting Size Options

- SAE-24 O-Ring
- 1½" SAE 4-Bolt Flange Code 61 or 62
- Manifold Mounting

Replacement Filter Lengths

- 9.12" / 231.8mm
- 18.20" / 462.3mm
- 27.66" / 702.5mm

Standard Bypass Ratings

- 50 psi / 345 kPa / 3.5 bar
- 90 psi / 621 kPa / 6.2 bar
- No Bypass

Assembly Weight

- 9.28": 56 lbs / 25.4 kg
- 18.32": 82 lbs / 37.5 kg
- 27.75": 109 lbs / 49.5 kg

Operating Temperatures

- -45° to 250°F (-43° to 121°C)

Filter Collapse Ratings

- 150 psi / 1034 kPa / 10.3 bar (standard)
- 3000 psi / 20,700 kPa / 206.8 bar (high collapse)



W451

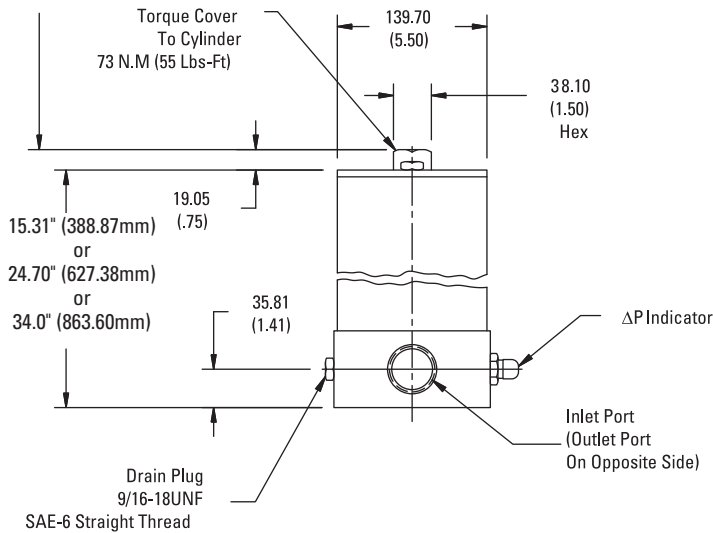
Max Flow: 150 gpm (568 lpm)



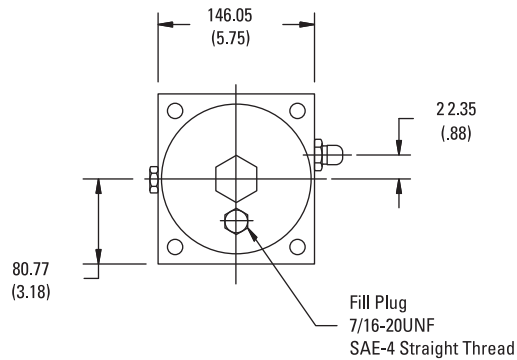
W451 Specification Illustrations

ASSEMBLY - SIDE VIEW

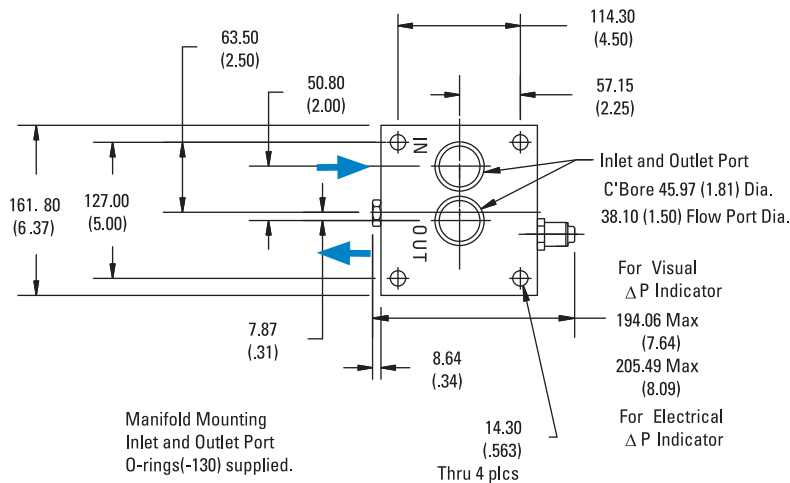
All dimensions are shown in millimeters [inches].



HEAD - SIDE VIEW



HEAD - BOTTOM VIEW





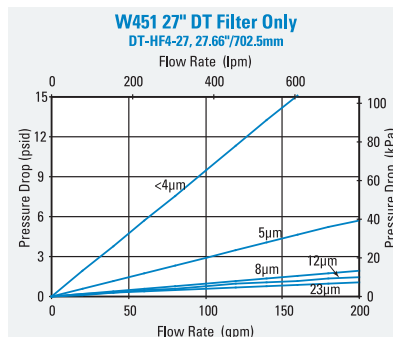
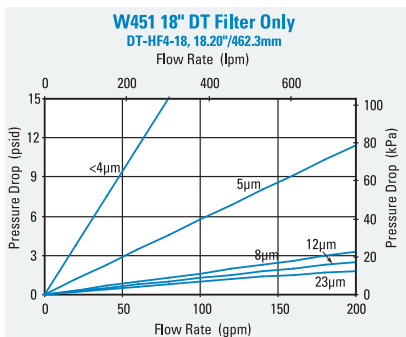
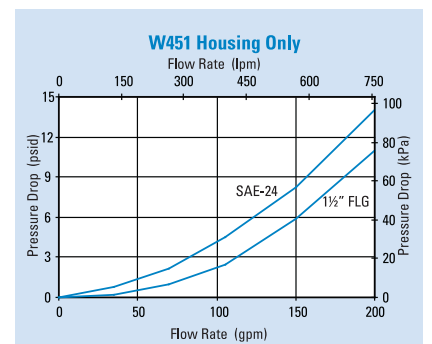
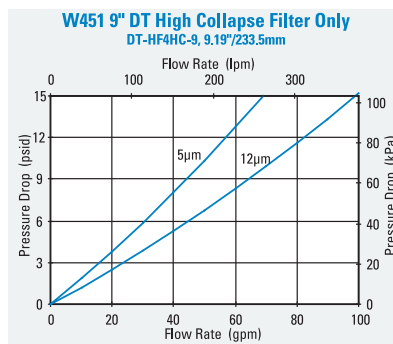
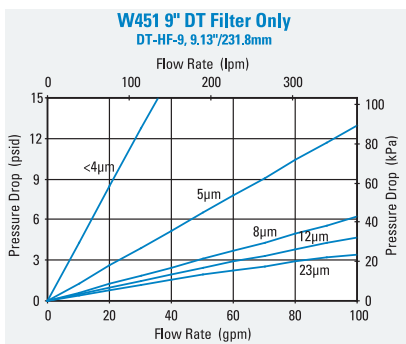
W451 Components

Filter Choices

Media Type	$\beta_{x(c)} = 2$	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 16889		in	mm		
DT Synthetic		<4 μm	9.04	230	P568816	DT-HF4-9-2UM
		5 μm	9.28	236	P566270	DT-HF4-9-5UM
		8 μm	9.28	236	P566271	DT-HF4-9-8UM
		12 μm	9.28	236	P566272	DT-HF4-9-14UM
		23 μm	9.28	236	P566273	DT-HF4-9-25UM
		5 μm	9.27	229	P566412	DT-HF4HC-9-5UM, High collapse
		12 μm	9.27	229	P566413	DT-HF4HC-9-14UM, High collapse
		<4 μm	18.19	232	P568817	DT-HF4-18-2UM
		5 μm	18.32	465	P566274	DT-HF4-18-5UM
		8 μm	18.32	465	P566275	DT-HF4-18-8UM
		12 μm	18.32	465	P566276	DT-HF4-18-14UM
		23 μm	18.32	465	P566277	DT-HF4-18-25UM
		5 μm	18.60	472	P572309	DT-HF4HC-18-5UM, High collapse
		12 μm	18.60	472	P572310	DT-HF4HC-18-14UM, High collapse
		<4 μm	27.47	698	P568818	DT-HF4-27-2UM
		5 μm	27.75	705	P566278	DT-HF4-27-5UM
		8 μm	27.75	705	P566279	DT-HF4-27-8UM
		12 μm	27.75	705	P566280	DT-HF4-27-14UM
		23 μm	27.75	705	P566281	DT-HF4-27-25UM
		5 μm	27.93	709	P572311	DT-HF4HC-27-5UM, High collapse
	12 μm	27.93	709	P572312	DT-HF4HC-27-14UM, High collapse	
Water Absorbing	10 μm		9.27	236	P569527	Absorbs 250 ml water @ 25 psid

Filter Notes: All Donaldson DT filters utilize glass fiber media with an epoxy-based resin system for the ultimate in chemical compatibility. All Donaldson DT filters are potted with epoxy-based adhesives. Standard collapse DT designs are double wire-backed using epoxy-coated steel mesh for maximum pleat support and dirt capacity. High collapse designs are double wire-backed using stainless steel mesh. High collapse designs are also potted into machined aluminum end caps for greater filter integrity in critical applications. May be stacked with two or three 9" long filters (P167324). Fluorocarbon seals are standard on all Donaldson DT filters.

Performance Data





W451

Max Flow: 150 gpm (568 lpm)



Filter Assembly Choices

Port Size	Bypass Rating	Seal Material	Indicator Style & Location	Housing Length	Assembly Length	Part No.
SAE-24 O-Ring	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	9" (228.6mm)	15.31" (338.9mm)	P574220
SAE-24 O-Ring	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	18" (457.2mm)	24.7" (627.3mm)	P574221
SAE-24 O-Ring	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	27" (685.8mm)	34.0" (863.6mm)	P574222
1-1/2" SAE 4 Bolt Flange, Code 61	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	18" (457.2mm)	24.7" (627.3mm)	P574223
1-1/2" SAE 4 Bolt Flange, Code 61	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	27" (685.8mm)	34.0" (863.6mm)	P574224
1-1/2" SAE 4 Bolt Flange, Code 61	90 psi / 6.21 bar	Nitrile	Port Machined & Plugged	18" (457.2mm)	24.7" (627.3mm)	P574225
1-1/2" SAE 4 Bolt Flange, Code 62	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	18" (457.2mm)	24.7" (627.3mm)	P574226
Manifold Mount	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	18" (457.2mm)	24.7" (627.3mm)	P574227
Manifold Mount	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	27" (685.8mm)	34.0" (863.6mm)	P574228
Manifold Mount	None	Nitrile	Port Machined & Plugged	9" (228.6mm)	15.31" (338.9mm)	P574229
Manifold Mount	None	Nitrile	Port Machined & Plugged	18" (457.2mm)	24.7" (627.3mm)	P574230
SAE-24 O-Ring	None	Fluorocarbon	Port Machined & Plugged	18" (457.2mm)	24.7" (627.3mm)	P575915
SAE-24 O-Ring	None	Fluorocarbon	Port Machined & Plugged	27" (685.8mm)	34.0" (863.6mm)	P575916
SAE-24 O-Ring	None	Fluorocarbon	Port Machined & Plugged	9" (228.6mm)	15.31" (338.9mm)	P575917
1-1/2" SAE 4 Bolt Flange, Code 61	None	Fluorocarbon	Port Machined & Plugged	18" (457.2mm)	24.7" (627.3mm)	P575918
1-1/2" SAE 4 Bolt Flange, Code 61	90 psi / 6.21 bar	Fluorocarbon	Port Machined & Plugged	9" (228.6mm)	15.31" (338.9mm)	P575919

Indicator Choices

Indicator Pressure Setting	Connector Style	Seal Material	Part No.	Thermal Lockout	Surge Control	Reset
Visual Pop-up Models						
35 psi / 241 kPa	NA	Nitrile	P572347	No	No	Auto
35 psi / 241 kPa	NA	Nitrile	P572348	Yes	Yes	Manual
35 psi / 241 kPa	NA	Fluorocarbon	P567456	Yes	Yes	Manual
70 psid / 482 kPa	NA	Nitrile	P572319	Yes	Yes	Manual
70 psid / 482 kPa	NA	Fluorocarbon	P567457	Yes	Yes	Manual
100 psid / 690 kPa	NA	Nitrile	P572353	Yes	Yes	Manual
100 psid / 690 kPa	NA	Fluorocarbon	P572354	Yes	Yes	Manual
Electrical / Visual Models						
35 psi / 241 kPa	Hirschman	Nitrile	P572327	No	No	Auto
35 psi / 241 kPa	Brad Harrison	Nitrile	P572329	No	No	Auto
35 psi / 241 kPa	Hirschman	Nitrile	P572384	Yes	Yes	Manual
35 psi / 241 kPa	Hirschman	Fluorocarbon	P567458	Yes	Yes	Manual
35 psi / 241 kPa	Brad Harrison	Nitrile	P572385	Yes	Yes	Manual
35 psi / 241 kPa	3 wire flying leads	Nitrile	P572349	No	No	Auto
70 psi / 482 kPa	Hirschman	Nitrile	P572320	Yes	Yes	Manual
70 psi / 482 kPa	Hirschman	Fluorocarbon	P567459	Yes	Yes	Manual
70 psi / 482 kPa	Hirschman	Nitrile	P572373	Yes	No	Manual
70 psi / 482 kPa	Hirschman	Fluorocarbon	P569639	Yes	No	Manual
100 psi / 690 kPa	Hirschman	Nitrile	P572387	Yes	Yes	Manual
Electrical Models						
35 psi / 241 kPa	Hirschman	Nitrile	P572359	No	No	Auto
35 psi / 241 kPa	Brad Harrison	Nitrile	P572361	No	No	Auto
70 psi / 482 kPa	Hirschman	Nitrile	P572369	No	No	Auto

Service Part Choices

Part No.	Description
X011174	Head/Bowl/Housing seal kit - nitrile
X011175	Head/Bowl/Housing seal kit - fluorocarbon

W620 In-Line Cartridge Filters

Working Pressures to:

6000 psi / 41,380 kPa / 413.8 bar

Rated Static Burst to:

15,000 psi / 103,400 kPa / 1034 bar

Fatigue Pressure Rating:

3000 psi / 20,700 kPa / 207 bar

Flow Range To:

150 gpm / 568 lpm

Applications

- High Pressure Circuits
- In-Plant Systems
- Meets HF3 Specification
- Mobile Equipment

Features

The W620 filter assembly contains the popular HF3 filter. It offers a reverse flow bypass valve option available for hydrostatic transmissions. Donaldson DT high-performance 4-layer media is offered in a variety of designs. The differential pressure indicator line is designed to work with the wide assortment of bypass valves. Thermal lockout and surge control are two key features incorporated in many of the differential pressure indicators.

- Conforms to HF3 specifications
- Head material: cast iron
- Housing material: steel
- Reverse flow bypass valve option available



Beta Rating

- Performance to $\beta_{<41(c)}=1000$

Porting Size Options

- SAE-16, SAE-20, SAE-24 O-Ring
- 1¼" SAE 4-Bolt Flange Code 62
- 1½" SAE 4-Bolt Flange Code 61

Replacement Filter Lengths

- 4.59" / 116.6mm
- 8.22" / 203.2mm
- 12.91" / 330.2mm
- 16.84" / 406.4mm

Standard Bypass Ratings

- 50 psi / 345 kPa / 3.5 bar
- 90 psi / 621 kPa / 6.2 bar

Assembly Weight

- 9.00": 23 lbs / 10.43 kg
- 13.00": 33 lbs / 14.97 kg
- 18.00": 42 lbs / 19.05 kg
- 22.00": 48 lbs / 21.77 kg

Operating Temperatures

- -20° to 250°F (-29° to 121°C)

Filter Collapse Ratings

- 290 psi / 1999 kPa / 20.0 bar (standard)
- 3000 psi / 20,700 kPa / 206.8 bar (high collapse)



W620

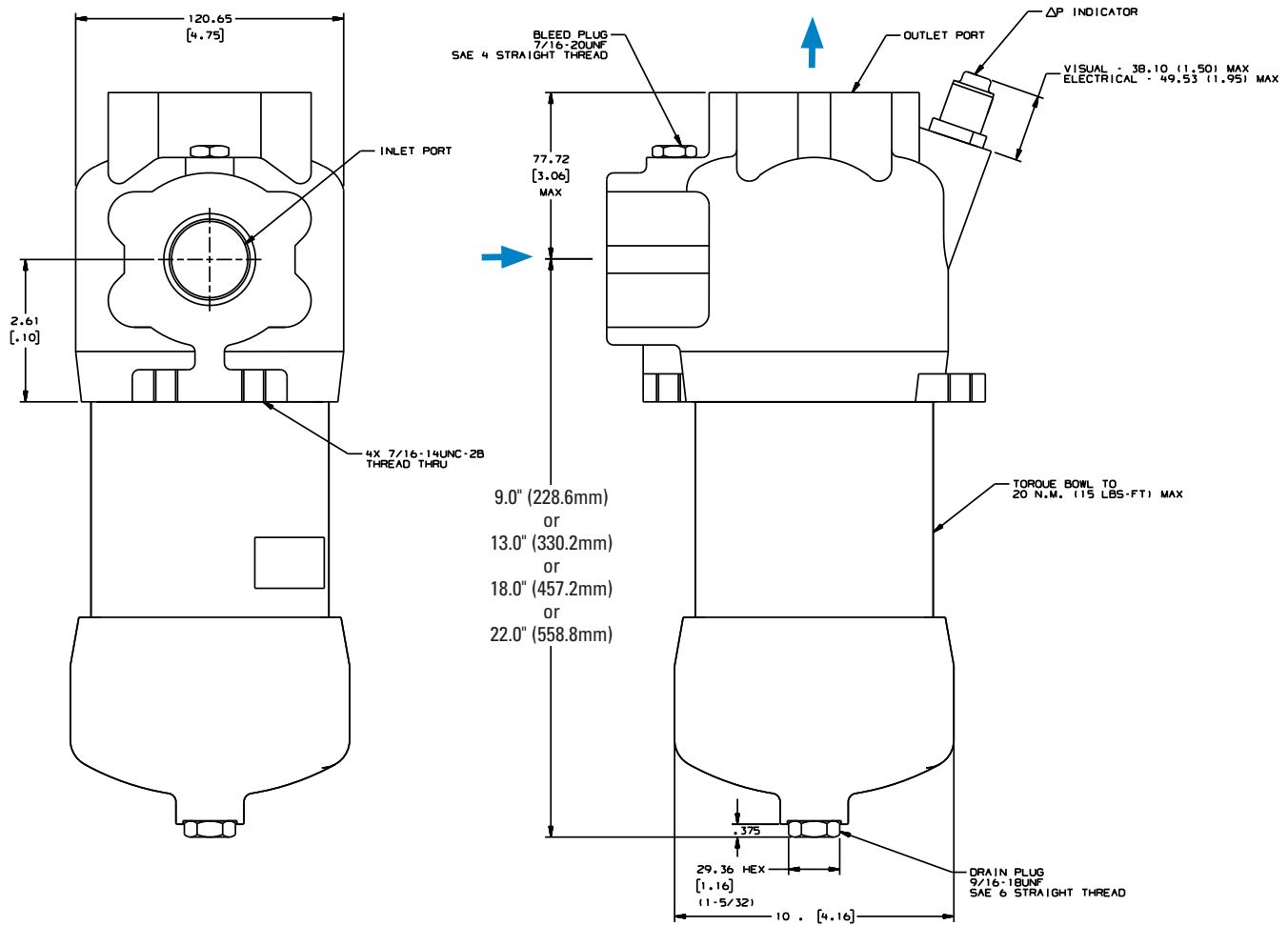
Max Flow: 150 gpm (568 lpm)



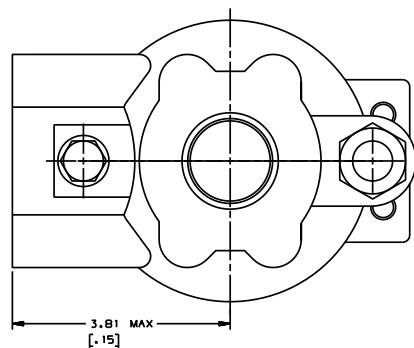
W620 Specification Illustrations

ASSEMBLY - SIDE VIEW

All dimensions are shown in millimeters [inches].



HEAD - TOP VIEW





W620 Components

Filter Choices

Media Type	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 16889	in	mm		
DT Synthetic	<4 μm	4.59	117	P566204	DT-9600-4-2UM
	5 μm	4.59	117	P566205	DT-9600-4-5UM
	5 μm	4.56	116	P167184	DT-9601-4-5UM, High Collapse
	8 μm	4.59	117	P566206	DT-9600-4-8UM
	12 μm	4.59	117	P566207	DT-9600-4-14UM
	12 μm	4.56	116	P167843	DT-9601-4-14UM, High Collapse
	23 μm	4.59	117	P566208	DT-9600-4-25UM
	<4 μm	8.22	209	P566209	DT-9600-8-2UM
	5 μm	8.22	209	P566210	DT-9600-8-5UM
	5 μm	8.19	208	P167185	DT-9601-8-5UM, High Collapse
	8 μm	8.22	209	P566211	DT-9600-8-8UM
	12 μm	8.22	209	P566212	DT-9600-8-14UM
	12 μm	8.19	208	P167186	DT-9601-8-14UM, High Collapse
	23 μm	8.22	209	P566213	DT-9600-8-25UM
	<4 μm	12.91	328	P566214	DT-9600-13-2UM
	5 μm	12.91	328	P566215	DT-9600-13-5UM
	5 μm	12.85	326	P167411	DT-9601-13-5UM, High Collapse
	8 μm	12.91	328	P566216	DT-9600-13-8UM
	12 μm	12.91	328	P566217	DT-9600-13-14UM
	12 μm	12.85	326	P167412	DT-9601-13-14UM, High Collapse
	23 μm	12.91	328	P566218	DT-9600-13-25UM
	<4 μm	16.84	428	P566219	DT-9600-16-2UM
	5 μm	16.84	428	P566220	DT-9600-16-5UM
	5 μm	16.84	428	P167187	DT-9601-16-5UM, High Collapse
	8 μm	16.84	428	P566221	DT-9600-16-8UM
	12 μm	16.84	428	P566222	DT-9600-16-14UM
	12 μm	16.84	428	P167188	DT-9601-16-14UM, High Collapse
	23 μm	16.84	428	P566223	DT-9600-16-25UM



Filter Notes: All Donaldson DT filters utilize glass fiber media with an epoxy-based resin system for the ultimate in chemical compatibility. All Donaldson DT filters are potted with epoxy-based adhesives. Standard collapse DT designs are double wire-backed using epoxy-coated steel mesh for maximum pleat support and dirt capacity. Fluorocarbon seals are standard on all Donaldson DT filters. Donaldson "high collapse" filters, with their steel end caps and wire-backed media, are rated to withstand up to 3000 psi/ 20,700 kPa before collapsing. High collapse designs are also potted into machined aluminum endcaps for greater filter integrity in critical applications. The fluorocarbon seal/high collapse filters also use epoxy potting and media seam seals for added chemical compatibility. High collapse designs are double wire-backed using stainless steel mesh. High collapse designs are double wire-backed using stainless steel mesh. High collapse designs are also potted into machined aluminum endcaps for greater filter integrity in critical applications.



W620

Max Flow: 150 gpm (568 lpm)



Head Assembly Choices

Port Size	Bypass Rating	Seal Material	Indicator Style & Location	Part No.	Comments
SAE-16 O-Ring	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	P574252	
SAE-24 O-Ring	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	P574253	
1-1/2" SAE 4 Bolt Flange, Code 61	50 psi / 3.45 bar	Nitrile	Port Machined & Plugged	P574254	3000 PSI Maximum Pressure
1-1/4" SAE 4 Bolt Flange, Code 62	50 psi / 3.45 bar	Fluorocarbon	Port Machined & Plugged	P575931	Reverse flow check valve
1-1/4" SAE 4 Bolt Flange, Code 62	50 psi / 3.45 bar	Fluorocarbon	Port Machined & Plugged	P575932	
SAE-16 O-Ring	90 psi / 6.21 bar	Fluorocarbon	Port Machined & Plugged	P575933	
SAE-20 O-Ring	50 psi / 3.45 bar	Fluorocarbon	Port Machined & Plugged	P575934	
SAE-20 O-Ring	50 psi / 3.45 bar	Fluorocarbon	Port Machined & Plugged	P575935	Reverse flow check valve

Housing Choices

Housing Length	Seal Material	Part No.
4" (101.1mm)	Nitrile	X011557
8" (203.2mm)	Nitrile	X011559
13" (330.2mm)	Nitrile	X011554
16" (406.4mm)	Nitrile	X011555

Service Part Choices

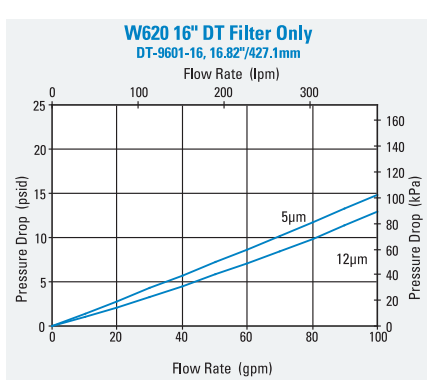
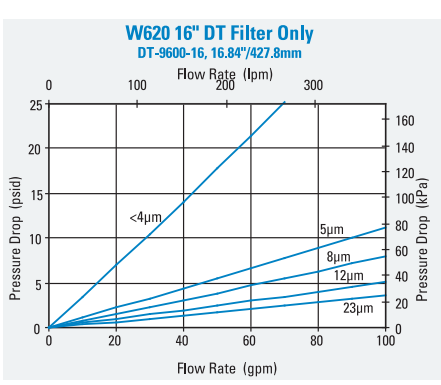
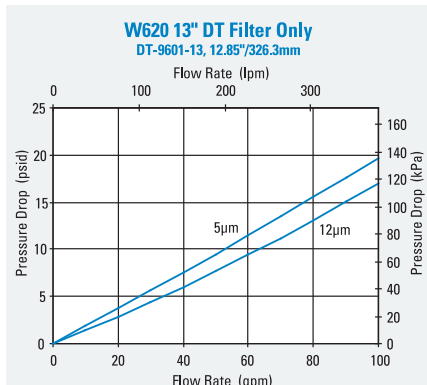
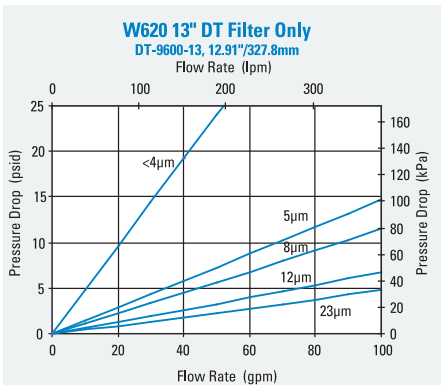
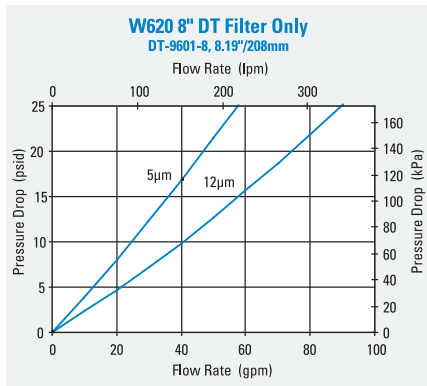
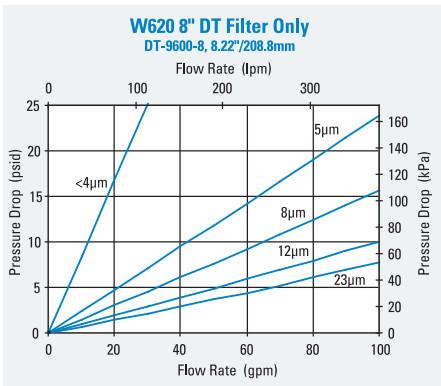
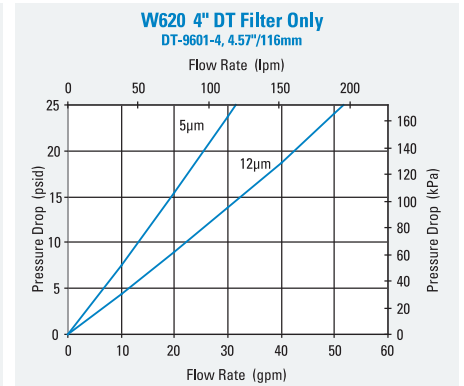
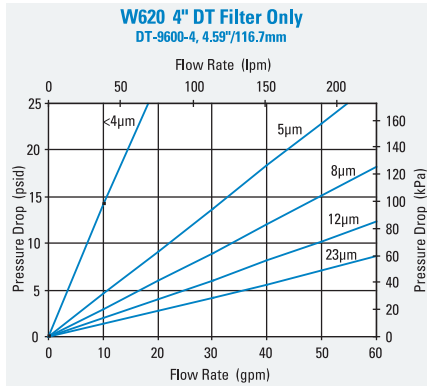
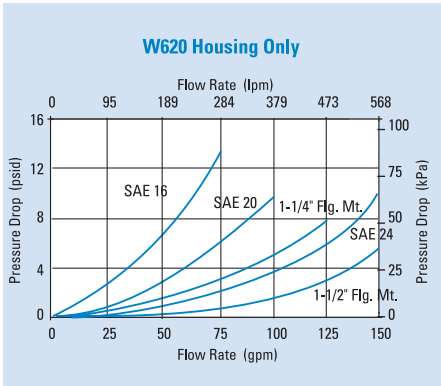
Part No.	Description
X011182	Head/Bowl/Housing Seal Kit - nitrile
X011183	Head/Bowl/Housing Seal Kit - fluorocarbon

Indicator Choices

Indicator Pressure Setting	Connector Style	Seal Material	Part No.	Thermal Lockout	Surge Control	Reset
Visual Pop-up Models						
35 psi / 241 kPa	NA	Nitrile	P572347	No	No	Auto
35 psi / 241 kPa	NA	Nitrile	P572348	Yes	Yes	Manual
35 psi / 241 kPa	NA	Fluorocarbon	P567456	Yes	Yes	Manual
70 psid / 482 kPa	NA	Nitrile	P572319	Yes	Yes	Manual
70 psid / 482 kPa	NA	Fluorocarbon	P567457	Yes	Yes	Manual
Electrical / Visual Models						
35 psi / 241 kPa	Hirschman	Nitrile	P572327	No	No	Auto
35 psi / 241 kPa	Brad Harrison	Nitrile	P572329	No	No	Auto
35 psi / 241 kPa	Hirschman	Nitrile	P572384	Yes	Yes	Manual
35 psi / 241 kPa	Hirschman	Fluorocarbon	P567458	Yes	Yes	Manual
35 psi / 241 kPa	Brad Harrison	Nitrile	P572385	Yes	Yes	Manual
35 psi / 241 kPa	3 wire flying leads	Nitrile	P572349	No	No	Auto
70 psi / 482 kPa	Hirschman	Nitrile	P572320	Yes	Yes	Manual
70 psi / 482 kPa	Hirschman	Fluorocarbon	P567459	Yes	Yes	Manual
70 psi / 482 kPa	Hirschman	Nitrile	P572373	Yes	No	Manual
70 psi / 482 kPa	Hirschman	Fluorocarbon	P569639	Yes	No	Manual
Electrical Models						
35 psi / 241 kPa	Hirschman	Nitrile	P572359	No	No	Auto
35 psi / 241 kPa	Brad Harrison	Nitrile	P572361	No	No	Auto
70 psi / 482 kPa	Hirschman	Nitrile	P572369	No	No	Auto



Performance Data





HPK05

Max Flow: 200 gpm (757 lpm)



HPK05 In-Line Cartridge Filters

Working Pressures to:

3000 psi / 20,700 kPa / 206.9 bar

Rated Static Burst to:

6000 psi / 41,400 kPa / 413.8 bar

Flow Range To:

200 gpm / 757 lpm

Applications

- High Pressure Circuits
- Hydrostatic Transmission
- In-Plant Systems
- Lube Oil Systems
- Mobile Equipment



Features

The HPK05 high pressure filter series is made of ductile iron and steel for strength and durability. Machined bypass valves are case-hardened at critical points to provide maximum strength and reliability.

Reverse flow bypass valve allows bi-directional flow through the filter head, with head-up or head-down mounting capabilities. Available with your choice of visual or AC/DC electrical service indicator; choose fluorocarbon or nitrile seals. The HPK05 filters contain Synteq™, Donaldson's exclusive synthetic fiber media formulated especially for hydraulic filtration. Upgraded Donaldson high-performance DT filters are also offered for superior performance.

Beta Rating

- Performance to $\beta_{<4(\mu)}=1000$

Porting Size Options

- 2" SAE 4-Bolt Flange Code 61

Replacement Filter Lengths

- 25.53"/648mm
- 25.9"/657.9mm

Standard Bypass Ratings

- 60 psi / 414 kPa / 4.1 bar
with reverse-flow check valve
- No Bypass

Assembly Weight

- 63 lbs / 28.5

Operating Temperatures

- -20°F to 250°F / -29°C to 121°C

Filter Collapse Ratings

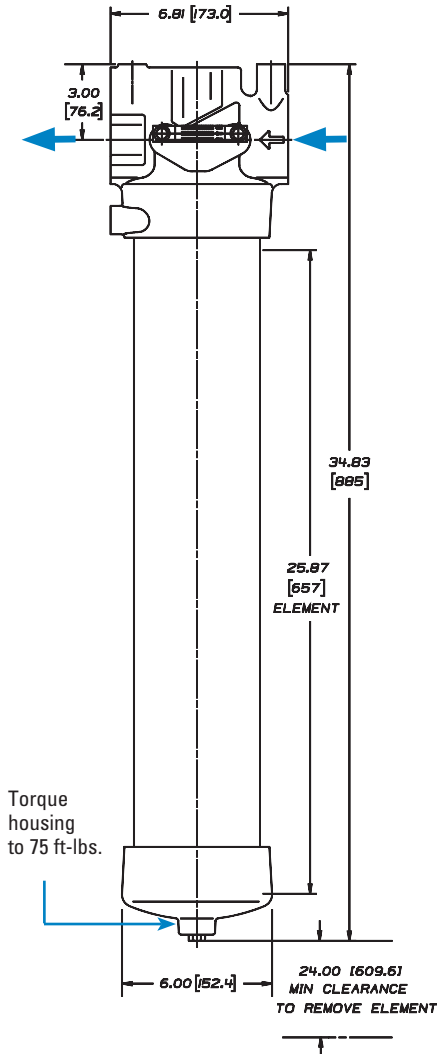
- 200 psi / 1380 kPa / 13.8 bar (standard)
- 3000 psi / 20,700 kPa / 206.9 bar (high collapse)



HPK05 Specification Illustrations

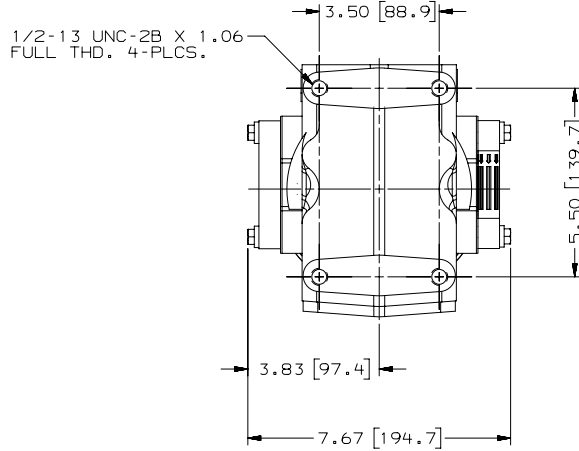
ASSEMBLY - SIDE VIEW

All dimensions are shown in inches [millimeters].

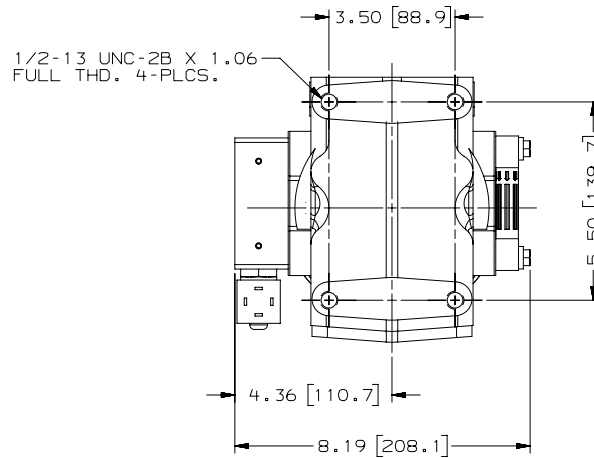


HEAD - TOP VIEW

HPK05
with Visual Service Indicator

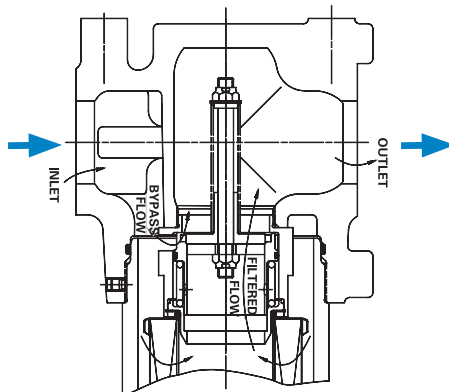


HPK05
with AC/DC Electrical Service Indicator

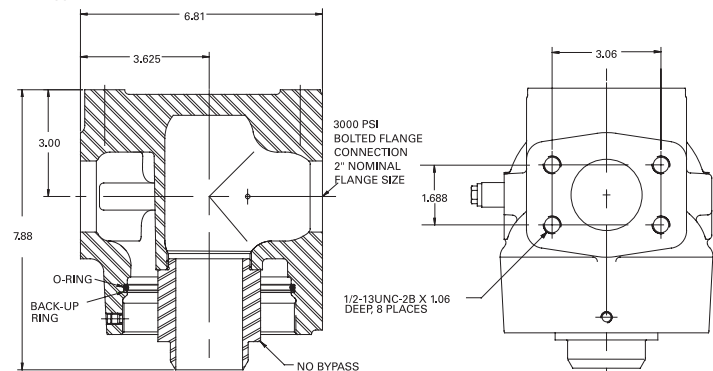


BYPASS VALVE ALTERNATIVES

60 psi /414 kPa Bypass Valve with Reverse Flow Check Valve



No Bypass





HPK05

Max Flow: 200 gpm (757 lpm)



HPK05 Components

Filter Choices

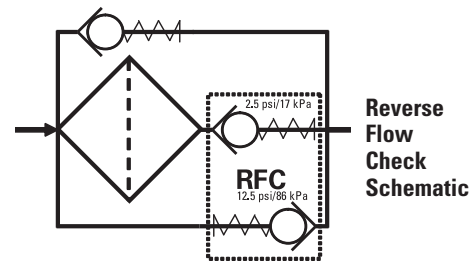
Media Type	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 16889	in	mm		
DT Synthetic	5 μm	25.9	658	P566450	DT-9400-26-5UM
	8 μm	25.9	658	P566451	DT-9400-26-8UM
	12 μm	25.9	658	P566452	DT-9400-26-14UM
	23 μm	25.9	658	P566453	DT-9400-26-25UM
	5 μm	25.9	658	P566642	DT-9901-26-5UM, High collapse
	12 μm	25.9	658	P566643	DT-9901-26-14UM, High collapse

Filter Notes: All Donaldson DT filters utilize glass fiber media with an epoxy-based resin system for the ultimate in chemical compatibility. All Donaldson DT filters are potted with epoxy-based adhesives. Standard collapse DT designs are double wire-backed using epoxy-coated steel mesh for maximum pleat support and dirt capacity. High collapse designs are double wire-backed using stainless steel mesh. High collapse designs are also potted into machined aluminum endcaps for greater filter integrity in critical applications. Fluorocarbon seals are standard on all Donaldson DT filters.

Assembly Choices

Includes Standard Filter

Port Size	Bypass Rating	Indicator Style/ Location ¹	Assembly Number	Filter Part No.
2" SAE 4-Bolt Flange (Code 61)	60 psi / 414 kPa / 4.1 bar Reverse flow check valve	Visual, Left side	K052024	P566450
	No Bypass	Visual & Electrical ²	K052039	P566643 ³



Assembly Notes

¹Donaldson uses the inlet port as the reference point. "Left side," for instance, means that the indicator mounts on the side of the filter head that is on your left when you face the inlet port.

²Visual indicator is mounted on left side of the head; electrical indicator (P170365) is mounted on the right side.

³Rated as high collapse (3000 psi / 20700 kPa); has fluorocarbon seals.

Service Indicator Kits (All kits include indicator with mounting block)

Part No.	Bypass Valve Pressure of:	Description
Visual Service Indicators		
P569632	60 psi / 4.1 bar	35 psi/2.4 bar indicator kit auto reset pop-out button
P569633	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit auto reset pop-out button
P567988	60 psi / 4.1 bar	35 psi/2.4 bar indicator kit auto reset pop-out button with thermal lockout and surge control
P567989	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit* auto reset pop-out button with thermal lockout and surge control
AC/DC Visual/Electrical Service Indicators		
P569634	60 psi / 4.1 bar	35 psi/2.4 bar indicator kit Hirschmann receptacle 115 VAC/28 VDC, 2 amps
P569635	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit Hirschmann receptacle 115 VAC/28 VDC, 2 amps
P567986	60 psi / 4.1 bar	35 psi/2.4 bar indicator kit with thermal lockout & surge control, Hirschmann receptacle, 115 VAC/28 VDC, 2 amps, 4 pin DIN 43650
P567987	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit with thermal lockout & surge control, Hirschmann receptacle, 115 VAC/28 VDC, 2 amps, 4 pin DIN 43650

Indicator Choices (Replacement Indicator Only)

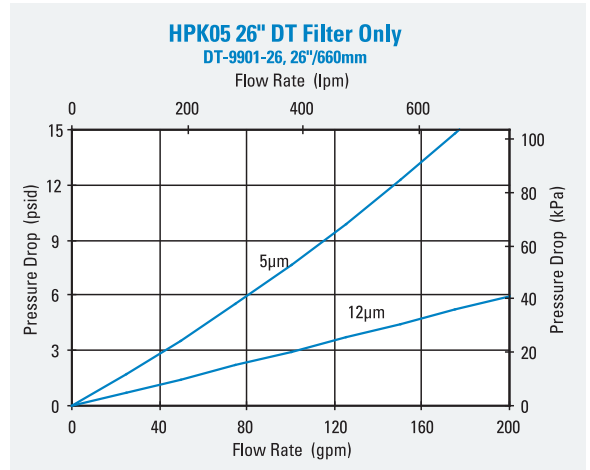
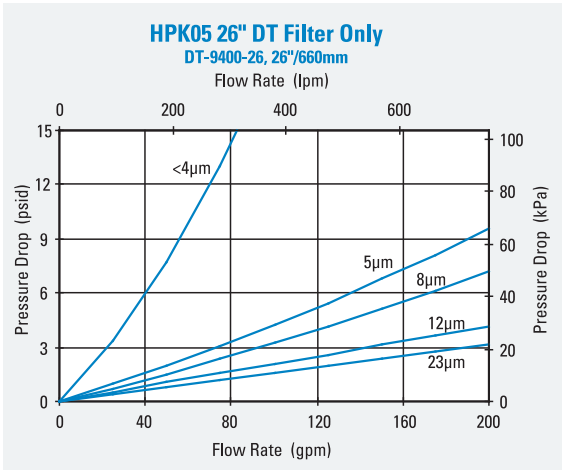
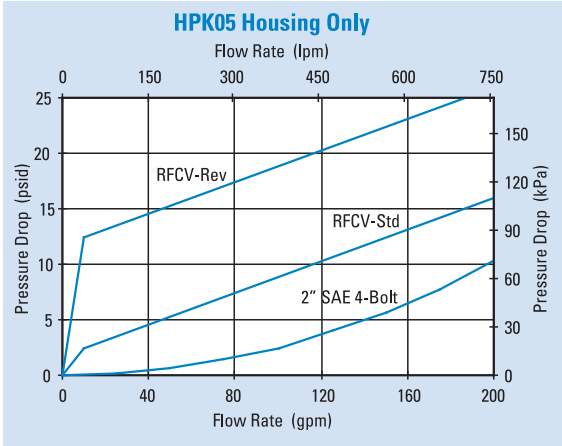
Part No.	Description	Part No.	Description
P567458	Visual/Electrical indicator with thermal lockout and surge, 35 psid/2.4 bar	P569638	Visual/Electrical Indicator, 35 psid/2.4 bar
P567459	Visual/Electrical indicator, with thermal lockout and surge, 70 psid/4.8 bar	P569639	Visual/Electrical Indicator, 70 psid/4.8 bar
P567456	Pop-Up Visual Indicator, with thermal lockout and surge, 35 psid/2.4 bar	P164315	Visual Indicator, bar style, 35 psid/2.4 bar
P567457	Pop-Up Visual Indicator, with thermal lockout and surge, 70 psid/4.8 bar	P166603	Visual Indicator, bar style, 70 psid/4.8 bar
P569636	Pop-Up Visual Indicator, 35 psid/2.4 bar	P166134	Blanking plate
P569637	Pop-Up Visual Indicator, 70 psid/4.8 bar		

Indicator Mounting Block

P573495	Mounting Block Assembly
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Performance Data





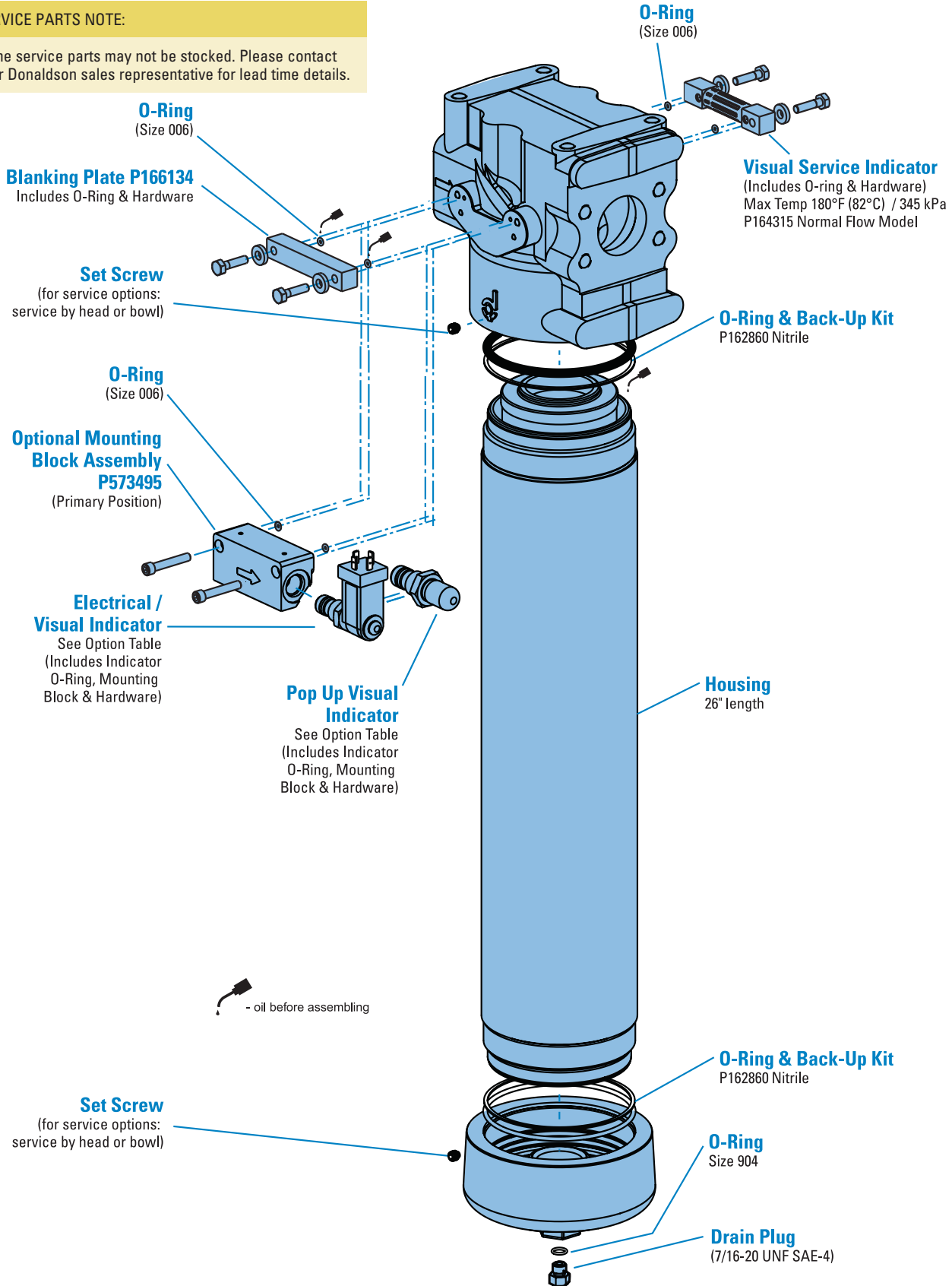
HPK05

Max Flow: 200 gpm (757 lpm)



HPK05 Service Parts

SERVICE PARTS NOTE:
Some service parts may not be stocked. Please contact your Donaldson sales representative for lead time details.





DT Hydraulic Cartridges

Using Donaldson synthetic media technology, DT filters extend filter life, allow higher initial cleanliness and provide superior system protection.



Coupler **P167324** available to connect filters.

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Donaldson Blue™ Hydraulic Cartridges

The Donaldson Company has been releasing and supporting Donaldson Blue premium product in our Air, Clean Solutions and Liquid filtration product categories. Now, we're extending the same high quality coverage to our hydraulic offering with the first ever, Donaldson Blue Hydraulic filters.

Donaldson Blue Hydraulic filters deliver:

- Superior efficiency
- Longer filter life
- Reduced flow restriction

Donaldson Blue hydraulic filters deliver better system protection and performance.

Cross Reference

Donaldson Blue	Schroeder®	Hydac®	Pall®	Parker®
DBH6018	KZ5	2060529	HC9700FKN9H or CN9H	HF4L10VQ
DBH6019	KZ10	2060530	HC9700FKS9H or CS9H	HF4L15VQ
DBH6020	KKZ5	2060431	HC9700FKN18H or CN18H	932678Q
DBH6138	KKZ10	2060432	HC9700FKS18H or CS18H	932679Q
DBH6139	27KZ5	2065004	HC9700FKN27H or CN27H	933487Q
DBH6140	27KZ10	2065005	HC9700FKS27H or CS27H	933488Q

Schroeder® is a registered trademark of Schroeder Industries, LLC. Hydac® is a registered trademark of Hydac Technology GmbH. Pall® is a registered trademark of Pall Corporation. Parker® /Parker-Hannifin is a registered trademark of Parker Intangibles, LLC.



DT synthetic filters provide superior hydraulic system protection.

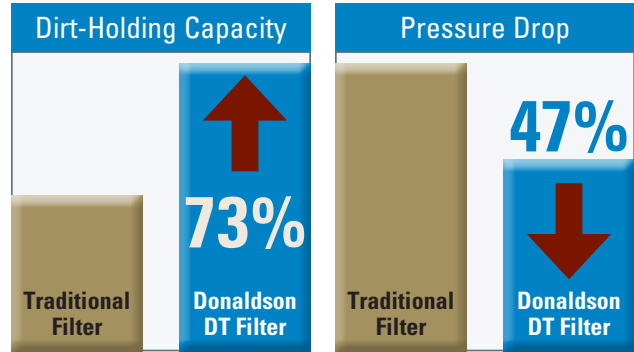
Premium Uptime Protection

Every hydraulic system has suspended particles in its fluid. Contaminants grind and wear at the surface of moving parts, introducing even more particles into the system. These contaminants cause more than 70% of all hydraulic system downtime.

Donaldson DT synthetic cartridge filters provide better protection from the particles and contaminants that reduce the effectiveness of lubricant and hydraulic fluid. Using Donaldson Synteq™ media technology, these filters extend filter life, allow higher initial cleanliness and provide superior system protection.

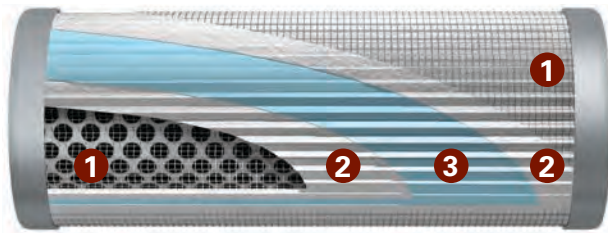
Donaldson DT filters are ideally suited for a variety of demanding applications, including:

- heavy-duty mobile equipment
- in-plant hydraulics
- transmissions
- bearing lube oil systems



See How Donaldson DT Filters Work

DT cartridge filters feature an advanced pleat pack design that provides higher initial cleanliness and dirt holding capacity.



- 1** Epoxy-Coated Steel Support Mesh (Upstream and Downstream Sides)
- Provides excellent pleat support and spacing, which allows for maximum effective media area
 - Protects against media damage during handling and installation

- 2** Media Support Layers (Upstream and Downstream Sides)
- Optimizes media support
 - Protects media during pressure surges

- 3** Synteq™ Media Technology
- Donaldson-developed Synteq synthetic filter media has smooth, rounded fibers for low resistance to fluid flow. Synteq media is ideal for filtering synthetic fluids, water glycols, water/oil emulsions, HWCF (high water content fluids) and petroleum-based fluids.
- High-efficiency media grades with performance to $\beta_{<4(c)}=1000$ (per ISO 16889)
 - Exceptionally low flow resistance
 - Consistent performance throughout filter life
 - Excellent fluid compatibility



Engineered to fit competitive applications:

DIN* Standard	400, 630, 1000 Series
Fairey Arlon	170, 270, 370
Hydac	0030D, 0500R, 0060D/R, 0075D, 0110D/R, 0140D, 0160D/R, 0240D/R, 0280D, 0330D/R, 0660D/R, 0850R, 0950R, 1300R, 2600R
Pall	2544, 8200, 8300, 8310, 8314, 8800, 8900, 8904, 9020, 9021, 9024, 9100, 9101, 9104, 9400, 9404, 9600, 9601, 9604, 9650, 9651, 9800, 9801, 9804, 9901
Parker	15/40/80 CN, 25P, 31P, 61P, RF2/IL2
Porous Media	LG Series
PTI/Mahle	015/Pi X105, 025/Pi X108, 030/Pi X111, 050/Pi X115, 080/Pi X130, 120/Pi X145, PTI RP83
Schroeder	A, K, KK, KKK, N, NN, V

For a complete list of replacement part numbers, visit shop.donaldson.com. *DIN - Deutsches Institut für Normung E.V., the German Institute for Standardization



Donaldson	Description	Pall	Hydac	Parker	Schroeder
P566658	DT-0110-D-5UM	HC2206FKP6H or Z	0110D003BN4HC	PR3085	SBF-0110D-Z3B or V
P566659	DT-0110-D-8UM	HC2206FKN6H or Z	0110D005BN4HC	PR3086	SBF-0110D-Z5B or V
P566660	DT-0110-D-14UM	HC2206FKS6H or Z	0110D010BN4HC	PR3087	SBF-0110D-Z10B or V
P566965	DT-0110-R-5UM	HC2196FKP6H or Z	0110R003BN4HC	PR3256	SBF0110RZ3B or V
P566966	DT-0110-R-8UM	HC2196FKN6H or Z	0110R005BN4HC	PR3257	SBF0110RZ5B or V
P566967	DT-0110-R-14UM	HC2196FKS6H or Z	0110R010BN4HC	PR3258	SBF0110RZ10B or V
P566968	DT-0110-R-25UM	HC2196FKT6H or Z	0110R020BN4HC	PR3259	SBF0110RZ25B or V
P566666	DT-0160-D-5UM	HC2216FKP4H or Z	0160D003BN4HC	PR3114	SBF-0160D-Z3B or V
P566667	DT-0160-D-8UM	HC2216FKN4H or Z	0160D005BN4HC	PR3115	SBF-0160D-Z5B or V
P566668	DT-0160-D-14UM	HC2216FKS4H or Z	0160D010BN4HC	PR3116	SBF-0160D-Z10B or V
P566969	DT-0160-R-5UM	HC2226FKP4H or Z	0160R003BN4HC	PR3273	SBF0160RZ3B or V
P566970	DT-0160-R-8UM	HC2226FKN4H or Z	0160R005BN4HC	PR3274	SBF0160RZ5B or V
P566971	DT-0160-R-14UM	HC2226FKS4H or Z	0160R010BN4HC	PR3275	SBF0160RZ10B or V
P566972	DT-0160-R-25UM	HC2226FKT4H or Z	0160R020BN4HC	PR3276	SBF0160RZ25B or V
P566670	DT-0240-D-5UM	HC2216FKP6H or Z	0240D003BN4HC	PR3143	SBF-0240D-Z3B or V
P566671	DT-0240-D-8UM	HC2216FKN6H or Z	0240D005BN4HC	PR3144	SBF-0240D-Z5B or V
P566672	DT-0240-D-14UM	HC2216FKS6H or Z	0240D010BN4HC	PR3145	SBF-0240D-Z10B or V
P566977	DT-0240-R-5UM	HC2226FKP6H or Z	0240R003BN4HC	PR3290	SBF0240RZ3B or V
P566978	DT-0240-R-8UM	HC2226FKN6H or Z	0240R005BN4HC	PR3291	SBF0240RZ5B or V
P566979	DT-0240-R-14UM	HC2226FKS6H or Z	0240R010BN4HC	PR3292	SBF0240RZ10B or V
P566980	DT-0240-R-25UM	HC2226FKT6H or Z	0240R020BN4HC	PR3293	SBF0240RZ25B or V
P566674	DT-0280-D-5UM	NA	0280D003BN4HC	NA	SBF-0280D-Z3B OR V
P566675	DT-0280-D-8UM	NA	0280D005BN4HC	NA	SBF-0280D-Z5B OR V
P566676	DT-0280-D-14UM	NA	0280D010BN4HC	NA	SBF-0280D-Z10B OR V
P566677	DT-0280-D-25UM	NA	0280D020BN4HC	NA	SBF-0280D-Z25B OR V
P566678	DT-0330-D-5UM	HC2233FKP6H or Z	0330D003BN4HC	PR3172	SBF-0330D-Z3B or V
P566679	DT-0330-D-8UM	HC2233FKN6H or Z	0330D005BN4HC	PR3173	SBF-0330D-Z5B or V
P566680	DT-0330-D-14UM	HC2233FKS6H or Z	0330D010BN4HC	PR3174	SBF-0330D-Z10B or V
P566681	DT-0330-D-25UM	HC2233FKT6H or Z	0330D020BN4HC	PR3175	SBF-0330D-Z25B or V
P566981	DT-0330-R-5UM	HC2246FKP6H or Z	0330R003BN4HC	PR3307	SBF0330RZ3B or V
P566982	DT-0330-R-8UM	HC2246FKN6H or Z	0330R005BN4HC	PR3308	SBF0330RZ5B or V
P566983	DT-0330-R-14UM	HC2246FKS6H or Z	0330R010BN4HC	PR3309	SBF0330RZ10B or V
P566984	DT-0330-R-25UM	HC2246FKT6H or Z	0330R020BN4HC	PR3310	SBF0330RZ25B or V
P566195	DT-9020-4-5UM	HC9020FKP4H or Z	H9020-4-003BN4HC	932610Q	SBF-9020-4Z3B or V
P566196	DT-9020-4-8UM	HC9020FKN4H or Z	H9020-4-005BN4HC	933239Q	SBF-9020-4Z5B or V
P566197	DT-9020-4-14UM	HC9020FKS4H or Z	H9020-4-010BN4HC	925580Q	SBF-9020-4Z10B or V
P566200	DT-9020-8-5UM	HC9020FKP8H or Z	H9020-8-003BN4HC	925602Q	SBF-9020-8Z3B or V
P566201	DT-9020-8-8UM	HC9020FKN8H or Z	H9020-8-005BN4HC	933246Q	SBF-9020-8Z5B or V
P566202	DT-9020-8-14UM	HC9020FKS8H or Z	H9020-8-010BN4HC	925600Q	SBF-9020-8Z10B or V
P566210	DT-9600-8-5UM	HC9600FKP8H or Z	H9600-8-003BN4HC	926697Q	SBF-9600-8Z3B or V
P566212	DT-9600-8-14UM	HC9600FKS8H or Z	H9600-8-010BN4HC	926837Q	SBF-9600-8Z10B or V
P566215	DT-9600-13-5UM	HC9600FKP13H or Z	H9600-13-003BN4HC	926698Q	SBF-9600-13Z3B or V
P566216	DT-9600-13-8UM	HC9600FKN13H or Z	H9600-13-006BN4HC	926845Q	SBF-9600-13Z5B or V
P566217	DT-9600-13-14UM	HC9600FKS13H or Z	H9600-13-010BN4HC	926839Q	SBF-9600-13Z10B or V
P566220	DT-9600-16-5UM	HC9600FKP16H or Z	H9600-16-003BN4HC	926699Q	SBF-9600-16Z3B or V
P566221	DT-9600-16-8UM	HC9600FKN16H or Z	H9600-16-005BN4HC	926890Q	SBF-9600-16Z5B or V
P566222	DT-9600-16-14UM	HC9600FKS16H or Z	H9600-16-010BN4HC	926888Q	SBF-9600-16Z10B or V
P566373	DT-9604-8-5UM	HC9604FKP8H or Z	NA	NA	SBF-9604-8Z3B OR V
P566374	DT-9604-8-8UM	HC9604FKN8H or Z	NA	NA	SBF-9604-8Z5B OR V
P566375	DT-9604-8-14UM	HC9604FKS8H or Z	NA	NA	SBF-9604-16Z10B OR V
P566378	DT-9604-13-5UM	HC9604FKP13H or Z	NA	NA	SBF-960413Z3B OR V
P566379	DT-9604-13-8UM	HC9604FKN13H or Z	NA	NA	SBF-9604-13Z5B OR V
P566380	DT-9604-13-14UM	HC9604FKS13H or Z	NA	NA	SBF-9604-13Z10B OR V
P566383	DT-9604-16-5UM	HC9604FKP16H or Z	NA	NA	SBF-9604-16Z3B OR V
P566384	DT-9604-16-8UM	HC9604FKN16H or Z	NA	NA	SBF-9604-16Z5B OR V
P566385	DT-9604-16-14UM	HC9604FKS16H or Z	NA	NA	SBF-9604-16Z10B OR V
P566270	DT-HF4-9-5UM	HC9700FKP9H or Z	HK003BN4HC	HF4L3VQ	KZ3
P566271	DT-HF4-9-8UM	HC9700FKN9H or Z	HK005BN4HC	HF4L10VQ	KZ5
P566272	DT-HF4-9-14UM	HC9700FKS9H or Z	HK010BN4HC	HF4L15VQ	KZ10
P566274	DT-HF4-18-5UM	HC9700FKP18H or Z	H2K003BN4HC	932677Q	KKZ3
P566275	DT-HF4-18-8UM	HC9700FKN18H or Z	H2K005BN4HC	932678Q	KKZ5
P566276	DT-HF4-18-14UM	HC9700FKS18H or Z	H2K010BN4HC	932679Q	KKZ10



Pall® Athalon™ Replacement Filters

Cartridge Replacements for Pall 210, 310 and 610 Housings



Pall Athalon Replacement Filters

Replacement Filters for Pall® Athalon™

The Donaldson hydraulic product line has expanded to include replacement cartridges for Pall Athalon style housings in the 210, 310 and 610 series. Donaldson cartridge filters provide protection from particles and contaminants that reduce the effectiveness of lubricant and hydraulic fluid. Using Donaldson DT High Performance synthetic media technology, these filters have long life and provide excellent system protection.

Better by Design

These high-performance cartridge filters feature an advanced pleat pack design that provides high initial cleanliness and dirt holding capacity.

- Double wire backed with an epoxy-coated steel mesh for excellent pleat support and spacing, which allows for maximum media area and excellent protection during operating pressure surges
- Utilizes glass fiber high performance synthetic media with an epoxy-based resin system and is potted with epoxy-based adhesives
- Fluorocarbon O-ring seals for excellent compatibility with a wide range of fluid types

Length	Beta _(c) = 1000 Rating	Donaldson Part No.	Competitive Cross Reference		
			Pall	Hydac	Schroeder
210 Series					
4" (102mm)	< 4 µm	P580592	UE210AZ04Z	—	—
	5 µm	P580593	UE210AP04Z	—	SBFUE2104Z3V
	8 µm	P580594	UE210AN04Z	—	SBFUE2104Z5V
	12 µm	P580595	UE210AS04Z	—	SBFUE2104Z10V
	25 µm	P580596	UE210AT04Z	—	SBFUE2104Z25V
8" (203mm)	< 4 µm	P580597	UE210AZ08Z	—	—
	5 µm	P580598	UE210AP08Z	—	SBFUE2108Z3V
	8 µm	P580599	UE210AN08Z	—	SBFUE2108Z5V
	12 µm	P580600	UE210AS08Z	—	SBFUE2108Z10V
	25 µm	P580601	UE210AT08Z	—	SBFUE2108Z25V
13" (330mm)	< 4 µm	P580602	UE210AZ13Z	—	—
	5 µm	P580603	UE210AP13Z	—	SBFUE21013Z3V
	8 µm	P580604	UE210AN13Z	—	SBFUE21013Z5V
	12 µm	P580605	UE210AS13Z	—	SBFUE21013Z10V
	25 µm	P580606	UE210AT13Z	—	SBFUE21013Z25V
20" (508mm)	< 4 µm	P580607	UE210AZ20Z	—	—
	5 µm	P580608	UE210AP20Z	—	SBFUE21020Z3V
	8 µm	P580609	UE210AN20Z	—	SBFUE21020Z5V
	12 µm	P580610	UE210AS20Z	—	SBFUE21020Z10V
	25 µm	P580611	UE210AT20Z	—	SBFUE21020Z25V
310 Series					
8" (203mm)	< 4 µm	P580612	UE310AZ08Z	—	—
	5 µm	P580613	UE310AP08Z	—	SBFUE3108Z3V
	8 µm	P580614	UE310AN08Z	—	SBFUE3108Z5V
	12 µm	P580615	UE310AS08Z	—	SBFUE3108Z10V
	25 µm	P580616	UE310AT08Z	—	SBFUE3108Z25V
13" (330mm)	< 4 µm	P580617	UE310AZ13Z	—	—
	5 µm	P580618	UE310AP13Z	—	SBFUE31013Z3V
	8 µm	P580619	UE310AN13Z	—	SBFUE31013Z5V
	12 µm	P580620	UE310AS13Z	—	SBFUE31013Z10V
	25 µm	P580621	UE310AT13Z	—	SBFUE31013Z25V
20" (508mm)	< 4 µm	P580622	UE310AZ20Z	—	—
	5 µm	P580623	UE310AP20Z	—	SBFUE31020Z3V
	8 µm	P580624	UE310AN20Z	—	SBFUE31020Z5V
	12 µm	P580625	UE310AS20Z	—	SBFUE31020Z10V
	25 µm	P580626	UE310AT20Z	—	SBFUE31020Z25V
40" (1016mm)	< 4 µm	P580627	UE310AZ40Z	—	—
	5 µm	P580628	UE310AP40Z	—	SBFUE31040Z3V
	8 µm	P580629	UE310AN40Z	—	SBFUE31040Z5V
	12 µm	P580630	UE310AS40Z	—	SBFUE31040Z10V
	25 µm	P580631	UE310AT40Z	—	SBFUE31040Z25V
610 Series					
20" (508mm)	< 4 µm	P573125	UE610AZ20Z	1.22.20D03RT	—
	5 µm	P573126	UE610AP20Z	1.22.20D05RT	SBFUE61020Z3V
	8 µm	P573127	UE610AN20Z	1.22.20D07RT	SBFUE61020Z5V
	12 µm	P573128	UE610AS20Z	1.22.20D12RT	SBFUE61020Z10V
	25 µm	P573129	UE610AT20Z	1.22.20D20RT	SBFUE61020Z25V
40" (1016mm)	< 4 µm	P573130	UE610AZ40Z	1.22.40D03RT	—
	5 µm	P573131	UE610AP40Z	1.22.40D05RT	SBFUE61040Z3V
	8 µm	P573132	UE610AN40Z	1.22.40D07RT	SBFUE61040Z5V
	12 µm	P573133	UE610AS40Z	1.22.40D12RT	SBFUE61040Z10V
	25 µm	P573134	UE610AT40Z	1.22.40D20RT	SBFUE61040Z25V

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Donaldson replacement filters for Pall Ultipleat SRT 219, 319 and 619 style housings provide protection from particles and contaminants that reduce the effectiveness of lubricant and hydraulic fluid. Using Donaldson DT synthetic media technology, these filters have long life and provide excellent system protection.

These filters feature an advanced pleat pack design that provides high initial cleanliness and efficient dirt holding capacity.

Double wire backed with an epoxy-coated steel mesh for excellent pleat support and spacing, which allows for maximum media area and excellent protection during operating pressure surges

Utilizes glass fiber DT synthetic media with an epoxy-based resin system and is potted with epoxy-based adhesives fluorocarbon O-Ring seals for excellent compatibility with a wide range of fluid types.

Electrostatic Discharge (ESD) Reduction

Donaldson SRT replacement filters are designed to resist charge generation and reduce the occurrence of electrostatic discharges induced by the flow of fluids through the filter media – a known industry problem which can result in damage to the filter and degraded performance.

Utilizing DT Synthetic Media Technology

Donaldson invented DT synthetic filter media has smooth, rounded fibers for low resistance to fluid flow. Synteq media is ideal for filtering synthetic fluids, water glycols, water/oil emulsions, petroleum-based and high water content fluids (HWCF).

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Length	Beta _{x(c)} = 1000 Rating	Donaldson Part No.	Competitive Cross Reference		
			Pall	Hydac	Schroeder
209 Series					
4" (102mm)	4 µm	P577699	UE209AZ03Z	1.27.03 D 03 RT	SBFUE209-3Z3V
	5 µm	P577700	UE209AP03Z	1.27.03 D 05 RT	SBFUE209-3Z5V
	8 µm	P577701	UE209AN03Z	1.27.03 D 07 RT	SBFUE209-3Z5V
	12 µm	P577702	UE209AS03Z	1.27.03 D 12 RT	SBFUE209-3Z10V
	25 µm	P577703	UE209AT03Z	1.27.03 D 20 RT	SBFUE209-3Z25V
8" (203mm)	4 µm	P577704	UE209AZ07Z	1.27.07 D 03 RT	SBFUE209-7Z3V
	5 µm	P577705	UE209AP07Z	1.27.07 D 05 RT	SBFUE209-7Z5V
	8 µm	P577706	UE209AN07Z	1.27.07 D 07 RT	SBFUE209-7Z5V
	12 µm	P577707	UE209AS07Z	1.27.07 D 12 RT	SBFUE209-7Z10V
	25 µm	P577708	UE209AT07Z	1.27.07 D 20 RT	SBFUE209-7Z25V
219 Series					
4" (102mm)	< 4 µm	P573085	UE219AZ04H or Z	1.28.04 D 03 RT	SBFUE219-4Z3V
	5 µm	P573086	UE219AP04H or Z	1.28.04 D 05 RT	SBFUE219-4Z5V
	8 µm	P573087	UE219AN04H or Z	1.28.04 D 07 RT	—
	12 µm	P573088	UE219AS04H or Z	1.28.04 D 12 RT	SBFUE219-4Z10V
	25 µm	P573089	UE219AT04H or Z	1.28.04 D 20 RT	SBFUE219-4Z25V
8" (203mm)	< 4 µm	P573090	UE219AZ08H or Z	1.28.08 D 03 RT	SBFUE219-8Z3V
	5 µm	P573091	UE219AP08H or Z	1.28.08 D 05 RT	SBFUE219-8Z5V
	8 µm	P573092	UE219AN08H or Z	1.28.08 D 07 RT	—
	12 µm	P573093	UE219AS08H or Z	1.28.08 D 12 RT	SBFUE219-8Z10V
	25 µm	P573094	UE219AT08H or Z	1.28.08 D 20 RT	SBFUE219-8Z25V
13" (330mm)	< 4 µm	P573095	UE219AZ13H or Z	1.28.13 D 03 RT	SBFUE219-13Z3V
	5 µm	P573096	UE219AP13H or Z	1.28.13 D 05 RT	SBFUE219-13Z5V
	8 µm	P573097	UE219AN13H or Z	1.28.13 D 07 RT	—
	12 µm	P573098	UE219AS13H or Z	1.28.13 D 12 RT	SBFUE219-13Z10V
	25 µm	P573099	UE219AT13H or Z	1.28.13 D 20 RT	SBFUE219-13Z25V
20" (508mm)	< 4 µm	P573100	UE219AZ20H or Z	1.28.20 D 03 RT	SBFUE219-20Z3V
	5 µm	P573101	UE219AP20H or Z	1.28.20 D 05 RT	SBFUE219-20Z5V
	8 µm	P573102	UE219AN20H or Z	1.28.20 D 07 RT	—
	12 µm	P573103	UE219AS20H or Z	1.28.20 D 12 RT	SBFUE219-20Z10V
	25 µm	P573104	UE219AT20H or Z	1.28.20 D 20 RT	SBFUE219-20Z25V
299 Series					
4" (102mm)	2 µm	P577715	UE299AZ04Z	1.24.04 D 03 RT	—
	5 µm	P577716	UE299AP04Z	1.24.04 D 05 RT	—
	8 µm	P577717	UE299AN04Z	1.24.04 D 07 RT	—
	12 µm	P577718	UE299AS04Z	1.24.04 D 12 RT	—
	25 µm	P577719	UE299AT04Z	1.24.04 D 20 RT	—
8" (203mm)	2 µm	P577720	UE299AZ08Z	1.24.08 D 03 RT	—
	5 µm	P577721	UE299AP08Z	1.24.08 D 05 RT	—
	8 µm	P577722	UE299AN08Z	1.24.08 D 07 RT	—
	12 µm	P577723	UE299AS08Z	1.24.08 D 12 RT	—
	25 µm	P577724	UE299AT08Z	1.24.08 D 20 RT	—
13" (330mm)	2 µm	P577725	UE299AZ13Z	1.24.13 D 03 RT	—
	5 µm	P577726	UE299AP13Z	1.24.13 D 05 RT	—
	8 µm	P577727	UE299AN13Z	1.24.13 D 07 RT	—
	12 µm	P577728	UE299AS13Z	1.24.13 D 12 RT	—
	25 µm	P577729	UE299AT13Z	1.24.13 D 22 RT	—
20" (508mm)	2 µm	P577730	UE299AZ20Z	1.24.20 D 03 RT	—
	5 µm	P577731	UE299AP20Z	1.24.20 D 05 RT	—
	8 µm	P577732	UE299AN20Z	1.24.20 D 07 RT	—
	12 µm	P577733	UE299AS20Z	1.24.20 D 12 RT	—
	25 µm	P577734	UE299AT20Z	1.24.20 D 22 RT	—



Pall® Ultipleat® SRT Replacement Filters

Cartridge Replacements for SRT 319 & 619 Housings



CARTRIDGE FILTERS

Length	Beta _{x(c)} = 1000 Rating	Donaldson Part No.	Competitive Cross Reference		
			Pall	Hydac	Schroeder
319 Series					
8" (203mm)	< 4 μm	P573105	UE319AZ08H or Z	1297074 or 1.21.08D03RT	SBFUE319-8Z3V
	5 μm	P573106	UE319AP08H or Z	1296464 or 1.21.08D05RT	SBFUE319-8Z5V
	8 μm	P573107	UE319AN08H or Z	1296465 or 1.21.08D07RT	—
	12 μm	P573108	UE319AS08H or Z	1297075 or 1.21.08D12RT	SBFUE319-8Z10V
	25 μm	P573109	UE319AT08H or Z	1.21.08 D 20 RT	SBFUE319-8Z25V
13" (330mm)	< 4 μm	P573110	UE319AZ13H or Z	1297076 or 1.21.13D03RT	SBFUE319-13Z3V
	5 μm	P573111	UE319AP13H or Z	1296466 or 1.21.13D05RT	SBFUE319-13Z5V
	8 μm	P573112	UE319AN13H or Z	1296467 or 1.21.13D07RT	—
	12 μm	P573113	UE319AS13H or Z	1297077 or 1.21.13D12RT	SBFUE319-13Z10V
	25 μm	P573114	UE319AT13H or Z	1.21.13 D 20 RT	SBFUE319-13Z25V
20" (508mm)	< 4 μm	P573115	UE319AZ20H or Z	1297078 or 1.21.20D03RT	SBFUE319-20Z3V
	5 μm	P573116	UE319AP20H or Z	1296468 or 1.21.20D05RT	SBFUE319-20Z5V
	8 μm	P573117	UE319AN20H or Z	1296469 or 1.21.20D07RT	—
	12 μm	P573118	UE319AS20H or Z	1297079 or 1.21.20D12RT	SBFUE319-20Z10V
	25 μm	P573119	UE319AT20H or Z	1.21.20 D 20 RT	SBFUE319-20Z25V
40" (1016mm)	< 4 μm	P573120	UE319AZ40H or Z	1297080 or 1.21.40D03RT	SBFUE319-40Z3V
	5 μm	P573121	UE319AP40H or Z	1296665 or 1.21.40D05RT	SBFUE319-40Z5V
	8 μm	P573122	UE319AN40H or Z	1296666 or 1.21.40D07RT	—
	12 μm	P573123	UE319AS40H or Z	1297083 or 1.21.40D12RT	SBFUE319-40Z10V
	25 μm	P573124	UE319AT40H or Z	1.21.40 D 20 RT	SBFUE319-40Z25V
619 Series					
20" (508mm)	< 4 μm	P573125	UE619AZ20H or Z	1297084 or 1.22.20D03RT	SBFUE619-20Z3V
	5 μm	P573126	UE619AP20H or Z	1296470 or 1.22.20D05RT	SBFUE619-20Z5V
	8 μm	P573127	UE619AN20H or Z	1296471 or 1.22.20D07RT	—
	12 μm	P573128	UE619AS20H or Z	1297085 or 1.22.20D12RT	SBFUE619-20Z10V
	25 μm	P573129	UE619AT20H or Z	1.22.20 D 20 RT	SBFUE619-20Z25V
40" (1016mm)	< 4 μm	P573130	UE619AZ40H or Z	1297086 or 1.22.40D03RT	SBFUE619-40Z3V
	5 μm	P573131	UE619AP40H or Z	1296472 or 1.22.40D05RT	SBFUE619-40Z5V
	8 μm	P573132	UE619AN40H or Z	1296473 or 1.22.40D07RT	—
	12 μm	P573133	UE619AS40H or Z	1297087 or 1.22.40D12RT	SBFUE619-40Z10V
	25 μm	P573134	UE619AT40H or Z	1.22.40 D 20 RT	SBFUE619-40Z25V



Accessories

Donaldson offers an extensive line of accessories for hydraulic circuits, lines and reservoirs that will help you maintain proper ISO cleanliness levels.



T.R.A.P.™ THERMALLY REACTIVE
ADVANCED PROTECTION

T.R.A.P.™ Breather Technology

(Thermally Reactive Advanced Protection)

T.R.A.P. breathers provide fast-acting protection against airborne moisture and particulate contamination. It stops solid particulate down to 3 μm at 97% efficiency as well as prevents moisture from entering the reservoir. Water-holding capacity is regenerated with every oil return phase for long service life. Its self-regenerating capability enables extended life.

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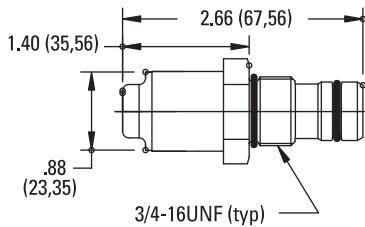
Visual Service Indicator Kits

Visual Service Indicator Kit Choices

Part No.	Use with Bypass Valve Pressure of:	Description	Where Used
P569632	50 psi / 3.5 bar	35 psi/2.4 bar indicator kit* auto reset pop-out button	HPK02, HPK03, HPK04, HPK05
P569633	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit* auto reset pop-out button	HPK02, HPK03, HPK04, HPK05
P567988	50 psi / 3.5 bar	35 psi/2.4 bar indicator kit* auto reset pop-out button with thermal lockout and surge control	HPK02, HPK03, HPK04, HPK05
P567989	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit* auto reset pop-out button with thermal lockout and surge control	HPK02, HPK03, HPK04, HPK05

* Note: Above kits include indicator and P573495 mounting block.

Visual (Mechanical) Indicators (with auto reset pop-out button)

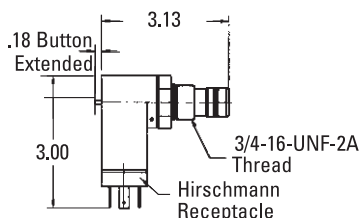


Visual/Electrical Service Indicator Kit Choices

Part No.	Use with Bypass Valve Pressure of:	Description	Where Used
P569634	50 psi / 3.5 bar	35 psi/2.4 bar indicator kit* Hirschmann receptacle 115 VAC/28 VDC, 2 amps	HPK02, HPK03, HPK04, HPK05
P569635	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit* Hirschmann receptacle 115 VAC/28 VDC, 2 amps	HPK02, HPK03, HPK04, HPK05
P567986	50 psi / 3.5 bar	35 psi/2.4 bar indicator kit* with thermal lockout and surge control, Hirschmann receptacle, 115 VAC/28 VDC, 2 amps, 4 pin DIN 43650	HPK02, HPK03, HPK04, HPK05
P567987	90 psi / 6.2 bar	70 psi/4.8 bar indicator kit* with thermal lockout and surge control, Hirschmann receptacle, 115 VAC/28 VDC, 2 amps, 4 pin DIN 43650	HPK02, HPK03, HPK04, HPK05

* Note: Above kits include indicator and P573495 mounting block.

AC/DC Electrical Indicators (with aluminum electrical housing)



Electrical Service Indicators

Electrical Service Indicator Choices

All electric models have a maximum operating temperature of 250°F/ 114°C.

Part No.	Use with Bypass Valve Pressure of:	Description	Where Used	Illustration
P162400	25 psi/ 172 kPa	DC/single post. Normally open.	HBK04, HBK05, HMK04/24, HMK05/25	Style A
P163601	15 psi/ 103 kPa	DC/single post. Normally open.	HBK04, HBK05, HMK04/24, HMK05/25	Style A
P163642	5 psi/ 34 kPa	DC/single post. Normally open.	HBK04, HBK05, HMK04/24, HMK05/25	Style A
P163839	25 psi/ 172 kPa	DC/single post. Normally closed.	HBK04, HBK05, HMK04/24, HMK05/25	Style A
P165194	50 psi/ 345 kPa	DC/single post. Normally open.	HMK03, HMK04/24, HMK05/25, FPK04	Style A
P574967	50 psi/ 276 kPa	DC 2-wire. Normally closed. Gold contacts. Microprocessor compatible.	HBK05, HMK03, HMK04/24, HMK05/25, FLK90/110/125, FPK04	Style E
P574968	50 psi/ 345 kPa	DC 2-wire. Packard Weatherpack connector. Normally open.	HMK03, HMK04/24, HMK05/25, FLK90/110/125, FPK04	Style B
P171143	25 psi/ 172 kPa	DC 2-wire. Cannon connector. Normally open.	HBK04, HBK05, HMK03, HMK04/24, HMK05/25	Style B
P171966	22 psi/ 150 kPa	AC/DC. 0.5A resistive, 0.2A inductive. Normally open.	FIK	at right
P575549	50 psi/ 345 kPa	DC 3-wire. Gold alloy contacts. Micro-processor compatible. White: normally open; Red: normally closed; Black: common.	HMK04/24, HMK05/25	Style F
P173944	25 psi/ 172 kPa	AC/DC 3-wire. Silver alloy contacts. White: normally open; Red: normally closed; Black: common.	HBK04, HBK05, HMK03, HMK04/24, HMK05/25	Style C
P174396	50 psi/ 345 kPa	AC/DC 3-wire. Silver alloy contacts. White: normally open; Red: normally closed; Black: common.	HMK03, HMK04/24, HMK05/25	Style C
P761056	87 psi/ 592 kPa	AC/DC Normally open or closed. 30 VAC or 30 VDC max. 0.5A resistive, 0.2A inductive.	FPK02	see FPK02 section
P563978	15 psi/103.4 kPa or 25 psi / 172.5 kPa	Return indicator, field adj.* or No Bypass	SP15/25, SP50/60, SP80/90, SP100/120, TT15/30/60	at right

* NOT PRESET: Setting adjustable for desired application

Style A

P162400
P163601
P163642
P163839
P165194



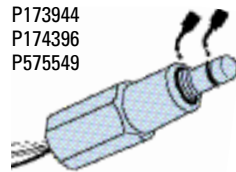
Style B

P574968
P171143



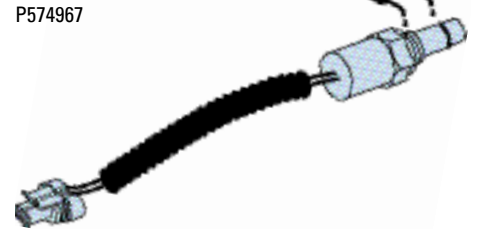
Styles C & F

P173944
P174396
P575549

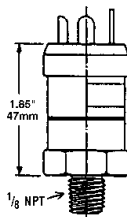
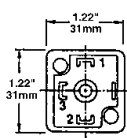


Style E

P574967



P563978



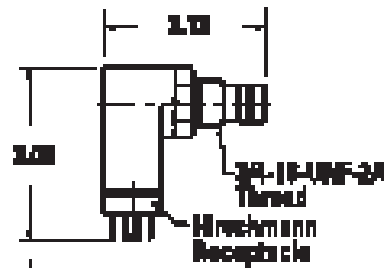
#1 Common; #2 Normally Closed; #3 Normally Open

Instructions

1. Remove DIN adaptor
2. Remove small brass screw
3. Using 1/8" allen wrench adjust clockwise to increase set point/counter-clockwise to decrease set point
4. NO / NC

Adjustment screw located in center of electric prongs

Electric ΔP indicator



Electric ΔP indicator with pop-up visual button and manual reset

P171966

P563978



Visual Service Indicators

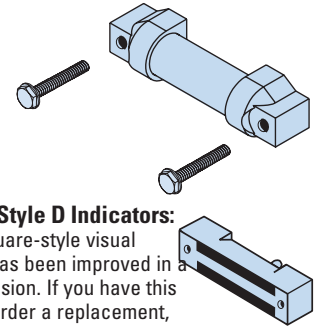
Visual Service Indicator Choices

All non-electric models have a maximum operating temperature of 180°F/ 82°C.

Part No.	Use with Bypass Valve Pressure of:	Where Used	Illustration
P162642	15 psi/103 kPa	HBK04, HBK05, HMK04/24, HMK05/25	Style D
P162694	5 psi/34 kPa	HBK04, HBK05	Style D (old style)
P162696	25 psi/172 kPa	HBK04, HBK05, HMK04/24, HMK05/25	Style D
P164315	50 psi/345 kPa	HPK02, HPK03, HPK04, HPK05	see HPK02 section
P165965	25 psi/345 kPa	HMK03, HMK04/24, HMK05/25	Style D
P574177	50 psi / 345 kPa	HMK03, HMK04/24	Style D
P166603	50 psi/345 kPa (reverse flow)	HPK04	see HPK04 section
P167580	50 psi/345 kPa	HMK04/24, HMK05/25	Style D
P171958	17 psi/116 kPa	FIK	at left
P171945	72 psi/493 kPa	FPK02	see FPK02 section
P575334	25 psi/172 kPa	HBK05, HMK03, HMK05/25, HNK04/05, HMK04/24, FLK90, FLK110, FLK125	Style H
P575335	50 psi/345 kPa	HBK05, HMK03, HMK05/25, HNK04/05, HMK04/24, FLK90, FLK110, FLK125	Style H

Style D

P162642
P162694
P162696
P165965
P574177
P167580



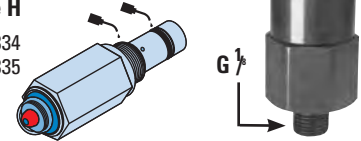
NOTE on Style D Indicators:

Our old square-style visual indicator has been improved in a design revision. If you have this style and order a replacement, you will receive the new rounded Style D shown above.

Exception: P162694 is still made per the old style. Bar style visual indicators not for use with phosphate ester applications.

Style H

P575334
P575335



Indicators

Indicator Choices

Indicator Pressure Setting	Connector Style	Part No.	Where Used
Pressure Gauge, 0 - 60 psi Models			
25 psi / 172 kPa	NA	X011059	WL15, WL16
50 psi / 345 kPa	NA	X011075	WL15, WL16
Pressure Gauge, 0 - 200 psi Models			
50 psi / 345 kPa	NA	X011060	WL15, WL16

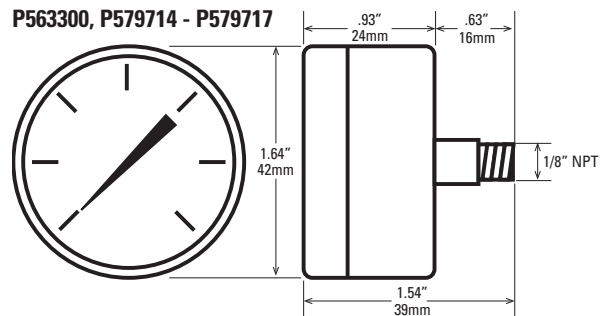
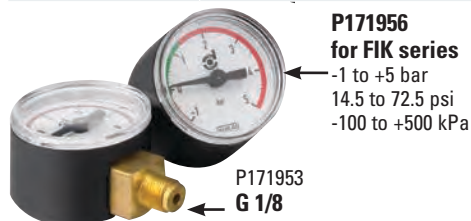
Indicator Choices

Indicator Pressure Setting	Connector Style	Part No.	Where Used
Electrical Models			
18 psi / 124 kPa	Hirschman	X011061	WL15, WL16
35 psi / 241 kPa	Hirschman	X011064	WL15, WL16
18 psi / 124 kPa	Brad Harrison	X011065	WL15, WL16
35 psi / 241 kPa	Brad Harrison	X011066	WL15, WL16

Visual Pressure Gauges

Visual Pressure Gauge Choices

Part No.	Pressure Range	Function
P579714	0 to 100 PSI Numeric Scale	Return
P579715	0 to 100 PSI Color Coded (15 PSI)	Return
P579716	0 to 100 PSI Color Coded (25 PSI)	Return
P579717	0 to -20 Hg	Suction
P563300	0 to 30 PSI Color Coded (15 PSI)	Return



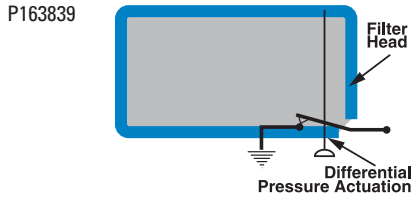
Replacement Indicators (Visual, Electrical and Visual / Electrical)

Replacement Indicator Choices

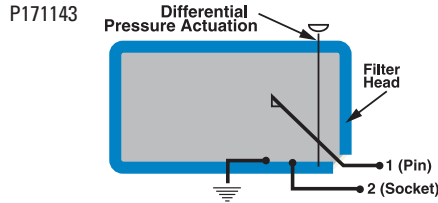
Part No.	Use with Bypass Valve Pressure of	Connector Style	Seal Material	Thermal Lockout	Surge Control	Where Used
Electrical Indicators						
P572355	15 psid/1.04 bar	Hirschman	Nitrile	No	No	W023, W061
P572359	35 psid/2.41 bar	Hirschman	Nitrile	No	No	W023, W061, W041, W440, W350, W451, W620
P572361	35 psid/2.4 bar	Brad Harrison	Nitrile	No	No	W023, W061, W041, W440, W350, W451, W620
P572369	70 psid/4.8 bar	Hirschman	Nitrile	No	No	W041, W440, W350, W451, W620
Visual / Electrical Indicators						
P572323	15 psid/1.04 bar	Hirschman	Nitrile	No	No	W023, W061
P572342	15 psid/1.04 bar	3-wire flying leads	Nitrile	No	No	W023, W061
P572327	35 psid/2.41 bar	Hirschman	Nitrile	No	No	W023, W061, W041, W440, W350, W451, W620
P569638	35 psid/2.4 bar	Hirschman	Fluorocarbon	Yes	No	HPK02, HPK03, HPK04, HPK05
P572329	35 psid/2.4 bar	Brad Harrison	Nitrile	No	No	W023, W061, W041, W440, W350, W451, W620
P572349	35 psid/2.4 bar	3-wire flying leads	Nitrile	No	No	W023, W061, W041, W440, W350, W451, W620
P572384	35 psid/2.4 bar	Hirschman	Nitrile	Yes	Yes	W023, W061, W041, W440, W350, W451, W620
P572385	35 psid/2.4 bar	Brad Harrison	Nitrile	Yes	Yes	W041, W440, W350, W451, W620
P567458	35 psid/2.4 bar	Hirschman	Fluorocarbon	Yes	Yes	W023, W061, W041, W440, W350, W451, W620, HPK02, HPK03, HPK04, HPK05
P569639	70 psid/4.8 bar	Hirschman	Fluorocarbon	Yes	No	W440, W350, W451, W620, HPK02, HPK03, HPK04, HPK05
P567459	70 psid/4.8 bar	Hirschman	Fluorocarbon	Yes	Yes	W440, W350, W451, W620, HPK02, HPK03, HPK04, HPK05
P572320	70 psid/4.8 bar	Hirschman	Nitrile	Yes	Yes	W440, W350, W451, W620
P572373	70 psid/4.8 bar	Hirschman	Nitrile	Yes	No	W440, W350, W451, W620
P572387	100 psid/6.89 bar	Hirschman	Nitrile	Yes	Yes	W440, W350, W451
Visual Indicators						
P572345	15 psid/1.04 bar	N/A	Nitrile	No	No	W023, W061
P572347	35 psid/2.41 bar	N/A	Nitrile	No	No	W023, W061, W041, W440, W350, W451, W620
P572348	35 psid/2.41 bar	N/A	Nitrile	Yes	Yes	W023, W061, W041, W440, W350, W451, W620
P567456	35 psid/2.4 bar	N/A	Nitrile	Yes	Yes	W023, W061, W041, W440, W350, W451, W620, HPK02, HPK03, HPK04, HPK05
P572319	70 psid/4.8 bar	N/A	Nitrile	Yes	Yes	W440, W350, W451, W620
P567457	70 psid/4.8 bar	N/A	Fluorocarbon	Yes	Yes	W440, W350, W451, W620, HPK02, HPK03, HPK04, HPK05
P572353	100 psid/6.9 bar	N/A	Nitrile	Yes	No	W440, W350, W451
P572354	100 psid/6.89 bar	N/A	Fluorocarbon	Yes	Yes	W440, W350, W451
P569636	35 psid/2.4 bar	N/A	Fluorocarbon	No	No	HPK02, HPK03, HPK04, HPK05
P569637	70 psid/4.8 bar	N/A	Fluorocarbon	No	No	HPK02, HPK03, HPK04, HPK05

Electrical Schematics

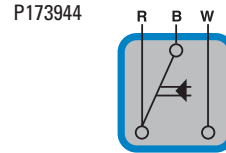
Style A: Single Post DC Indicator
(Maximum: 200 mA DC @ 30 VDC)



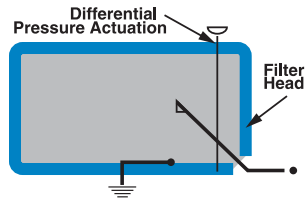
Style B: DC 2-Wire Indicator
(Maximum: 200 mA DC @ 30 VDC)



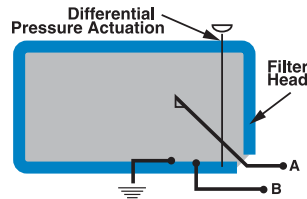
Style C, F: AC/DC 3-Wire Indicator
(Maximums: 2 amps @ 24 VDC or
2 amps @ 110 VAC)



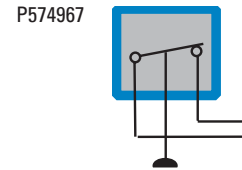
P162400
P163601
P163642
P165194



P574968



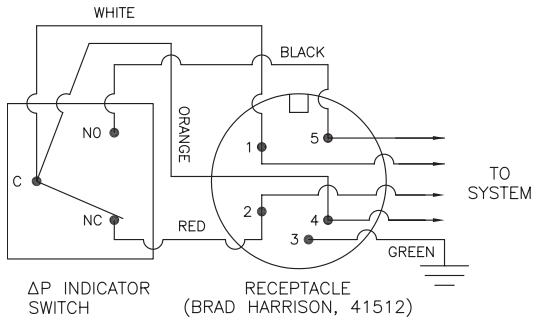
Style E: DC 2-Wire Indicator
(Maximum: 100 mA DC @ 30 VDC)



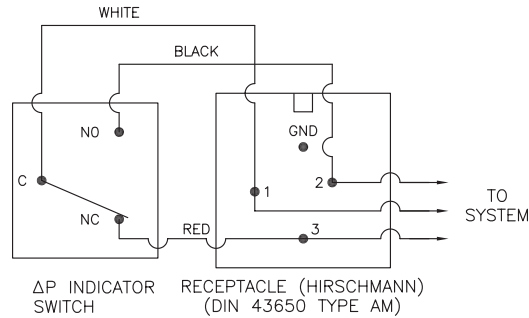
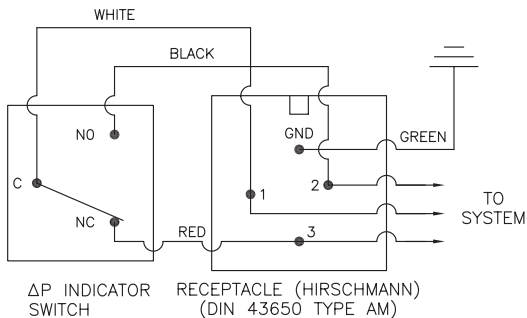
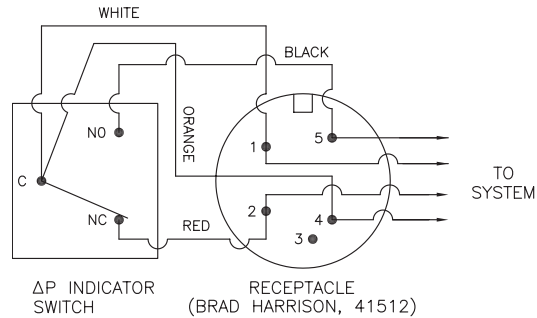
Indicator Switch Schematic Wiring Diagram

All dimensions are shown in millimeters [inches].

Aluminum Electrical Housings



Plastic Electrical Housings



Note: The female plug (connector) is to be furnished by customer.

Note: The female plug (connector) is to be furnished by customer.

Differential Indicators:

Indicators are designed to actuate at approximately 80% of bypass valve cracking pressure. It is recommended that an indicator with a bypass setting of 100 psid is used with a non-bypass housing.

Surge Control:

This optional feature is used to dampen pressure surges or spikes to avoid premature actuation of the indicator. Surge control delays the indicator response.

Thermal Lockout:

The Thermal Lockout prevents premature signaling of a bypass condition created by viscous fluid during cold start-ups. Normal indicator actuation capability is resumed once the operating temperature of the fluid reaches approximately 80° F.



In-Line Accessories

- Pressure gauges for monitoring system pressure
- Hoses and test points for sampling oil and determining ISO cleanliness levels
- Flanges to connect components
- Valves for system control



In-Line Pressure Gauges

Specifications

- Stainless steel (304SS)
- Phosphor bronze bourdon tube
- Acrylic lenses
- Built-in snubber
- Glycerin Filled



Features

Donaldson Pressure Gauge Liquid-filled (PGL) series gauges are mechanical bourdon tube pressure gauges. Each gauge has a glycerin filled stainless steel bezel and case that is robust and will not discolor or rust. The bourdon tube and movement is constructed from brass and bronze alloys. PGL series gauges are easy to install for continuous readings with face diameters of 2½" (63mm) and 4" (100mm).

Operating Temperatures		Dial Sizes			
• 30°F to 160°F (-1°C to 71°C)		• 2½" (63mm) and 4" (100mm)			
Accuracy		Mounting			
• +/- 3% of full scale		• Stem, Panel, Front Flange			
Scale		Thread Type			
• psi	• bar	• 2½" size	• 4"	• ¼" NPT, ¼" SAE, ¼" BSP	• ½" NPT

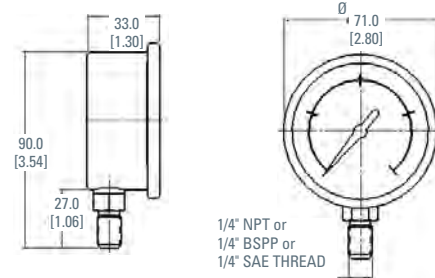
In-Line Pressure Gauges

Pressure Range Options

PGL-A	30 Hg-20 psi	0-30 in. Hg	0-30 psi	0-60 psi	0-100 psi	0-160 psi	0-300 psi	0-500 psi	0-600 psi	0-1000 psi	0-1500 psi	0-2000 psi	0-3000 psi	0-4000 psi	0-5000/345 psi	0-6000 psi	0-10000 psi
2½" Stem	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
2½" SAE Stem							•	•	•	•	•	•	•	•	•		
2½" Panel	•			•	•	•	•	•	•	•	•	•	•	•	•	•	•
4" Stem							•	•	•	•	•	•	•	•	•	•	•
4" Panel							•	•	•	•	•	•	•	•	•	•	•

2½" Diameter Gauges

Stem Mount

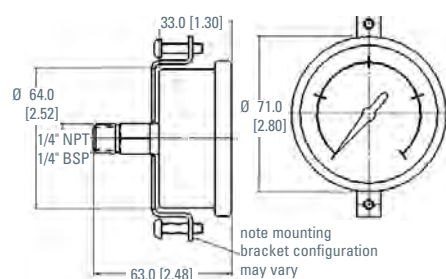


1/4" NPT or
1/4" BSPP or
1/4" SAE THREAD

Front Flange Options

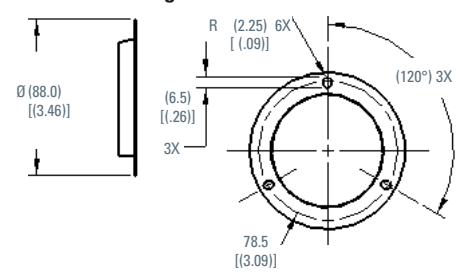
Part No.	Description	Dial Size
P562699	PGL-A-63-FF	2-1/2" (63mm)
P562671	PGL-A-100-FF	4" (100mm)

Panel Mount



note mounting
bracket configuration
may vary

With Front Flange



2½" Stem Mount

Part No.	Description	Pressure Range (psi/bar)	Thread Type
P562718	PGL-A-63-N-B-30-CS	-30" Hg + 20/1	1/4" NPT
P562719	PGL-A-63-N-B-30-S	0 - 30/2	1/4" NPT
P562721	PGL-A-63-N-B-30-VS	0 - 30" Hg Vac	1/4" NPT
P562733	PGL-A-63-N-B-60-S	0 - 60/4	1/4" NPT
P562705	PGL-A-63-N-B-100-S	0 - 100/7	1/4" NPT
P562709	PGL-A-63-N-B-160-S	0 - 160/11	1/4" NPT
P562717	PGL-A-63-N-B-300-S	0 - 300/20	1/4" NPT
P562727	PGL-A-63-N-B-500-S	0 - 500/35	1/4" NPT
P562731	PGL-A-63-N-B-600-S	0 - 600/40	1/4" NPT
P562703	PGL-A-63-N-B-1000-S	0 - 1,000/70	1/4" NPT
P562707	PGL-A-63-N-B-1500-S	0 - 1,500/100	1/4" NPT
P562711	PGL-A-63-N-B-2000-S	0 - 2,000/125	1/4" NPT
P562713	PGL-A-63-N-B-3000-S	0 - 3,000/200	1/4" NPT
P562723	PGL-A-63-N-B-4000-S	0 - 4,000/275	1/4" NPT
P562725	PGL-A-63-N-B-5000/345-S	0 - 5,000/350	1/4" NPT
P562729	PGL-A-63-N-B-6000-S	0 - 6,000/400	1/4" NPT
P562701	PGL-A-63-N-B-10,000-S	0 - 10,000/700	1/4" NPT
P562696	PGL-A-63-B-B-1500-S	0 - 1,500/100	1/4" BSP
P562739	PGL-A-63-S-B-500-S	0 - 500/35	1/4" SAE
P562734	PGL-A-63-S-B-1000-S	0 - 1,000/70	1/4" SAE
P562735	PGL-A-63-S-B-1500-S	0 - 1,500/100	1/4" SAE
P562736	PGL-A-63-S-B-2000-S	0 - 2,000/125	1/4" SAE
P562737	PGL-A-63-S-B-3000-S	0 - 3,000/200	1/4" SAE
P562738	PGL-A-63-S-B-5000/345-S	0 - 5,000/350	1/4" SAE
P562740	PGL-A-63-S-B-6000-S	0 - 6,000/400	1/4" SAE

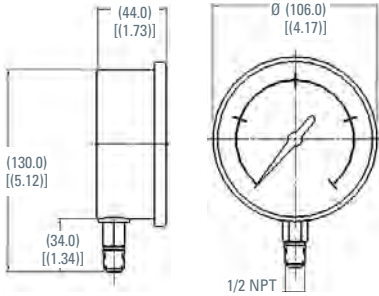
2½" Panel Mount

Part No.	Description	Pressure Range (psi/bar)	Thread Type
P562720	PGL-A-63-N-B-30-VP	0 - 30" Hg Vac	1/4" NPT
P562732	PGL-A-63-N-B-60-P	0 - 60/4	1/4" NPT
P562704	PGL-A-63-N-B-100-P	0 - 100/7	1/4" NPT
P562708	PGL-A-63-N-B-160-P	0 - 160/11	1/4" NPT
P562716	PGL-A-63-N-B-300-P	0 - 300/20	1/4" NPT
P562726	PGL-A-63-N-B-500-P	0 - 500/35	1/4" NPT
P562730	PGL-A-63-N-B-600-P	0 - 600/40	1/4" NPT
P562702	PGL-A-63-N-B-1000-P	0 - 1,000/70	1/4" NPT
P562706	PGL-A-63-N-B-1500-P	0 - 1,500/100	1/4" NPT
P562710	PGL-A-63-N-B-2000-P	0 - 2,000/125	1/4" NPT
P562712	PGL-A-63-N-B-3000-P	0 - 3,000/200	1/4" NPT
P562722	PGL-A-63-N-B-4000-P	0 - 4,000/275	1/4" NPT
P562724	PGL-A-63-N-B-5000/345-P	0 - 5,000/350	1/4" NPT
P562728	PGL-A-63-N-B-6000-P	0 - 6,000/400	1/4" NPT
P562700	PGL-A-63-N-B-10,000-P	0 - 10,000/700	1/4" NPT
P562697	PGL-A-63-B-B-3000-P	0 - 3,000/200	1/4" BSP
P562698	PGL-A-63-B-B-4000-P	0 - 4,000/275	1/4" BSP

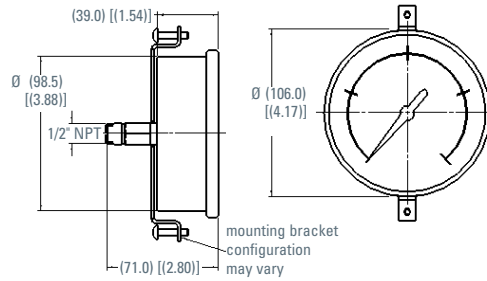


4" Diameter Gauges

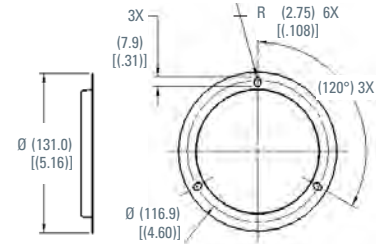
Stem Mount



Panel Mount



With Front Flange



4" Stem Mount

Part No.	Description	Pressure Range (psi/bar)	Thread Type
P562683	PGL-A-100-N-B-300-S	0 - 300/20	1/2" NPT
P562688	PGL-A-100-N-B-600-S	0 - 600/40	1/2" NPT
P562675	PGL-A-100-N-B-1000-S	0 - 1,000/70	1/2" NPT
P562677	PGL-A-100-N-B-1500-S	0 - 1,500/100	1/2" NPT
P562679	PGL-A-100-N-B-2000-S	0 - 2,000/125	1/2" NPT
P562681	PGL-A-100-N-B-3000-S	0 - 3,000/200	1/2" NPT
P562685	PGL-A-100-N-B-5000	0 - 5,000/350	1/2" NPT
P562686	PGL-A-100-N-B-6000-S	0 - 6,000/400	1/2" NPT
P562673	PGL-A-100-N-B-10,000-S	0 - 10,000/700	1/2" NPT

4" Panel Mount

Part No.	Description	Pressure Range (psi/bar)	Thread Type
P562682	PGL-A-100-N-B-300-P	0 - 300/20	1/2" NPT
P562687	PGL-A-100-N-B-600-P	0 - 600/40	1/2" NPT
P562674	PGL-A-100-N-B-1000-P	0 - 1,000/70	1/2" NPT
P562676	PGL-A-100-N-B-1500-P	0 - 1,500/100	1/2" NPT
P562678	PGL-A-100-N-B-2000-P	0 - 2,000/125	1/2" NPT
P562680	PGL-A-100-N-B-3000-P	0 - 3,000/200	1/2" NPT
P562684	PGL-A-100-N-B-5000	0 - 5,000/350	1/2" NPT
P562672	PGL-A-100-N-B-10,000-P	0 - 10,000/700	1/2" NPT



Test Points

Specifications

- Working Pressure: 9000 psi / 630 bar
- Seals: Nitrile
- Caps: Plastic or metal
- Leak-free connection at full pressure



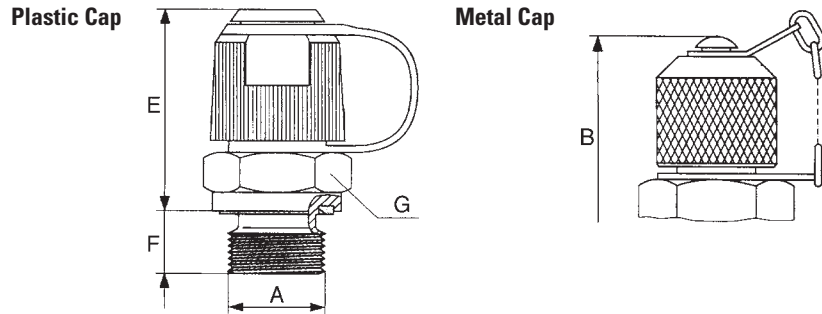
Features

Test points can be used as a connection into the hydraulic system on the suction side, pressure side or return. They allow connection for pressure transducers and provide ports for fluid sampling (so you can monitor cleanliness and keep your system operating optimally). If you have filters installed in hard-to-access locations, test points and hose assemblies can be used to plumb up a bulkhead to read pressure differentials.

Styles	Temperature Range
<ul style="list-style-type: none"> • Pressure 	<ul style="list-style-type: none"> • Metal cap: -22°F to 248°F / -30°C to 120°C
Applications	<ul style="list-style-type: none"> • Plastic cap: -22°F to 212°F / -30°C to 100°C
<ul style="list-style-type: none"> • Fluid or gas 	



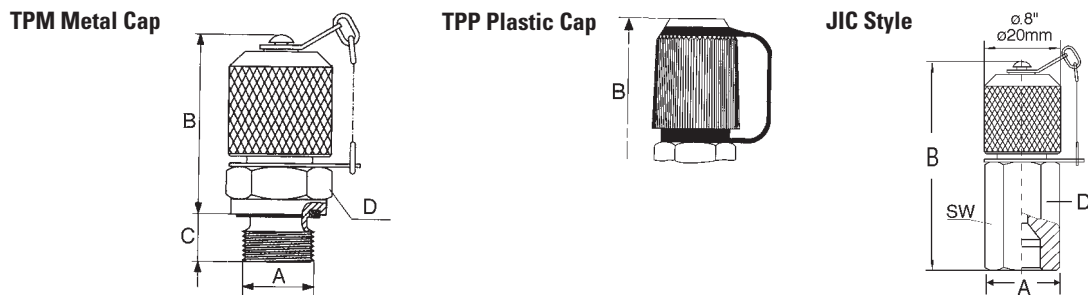
TPM/TPP-1215 Assembly Views M12x1.5 Thread



Test Point Choices

Part No.	Description	Working Pressure psi/bar	A Thread Type	E (in/mm)	F (in/mm)	G (in/mm)	Cap
P563192	TPM-1215-04G	9000/630	1/4" BSPP, Form G	1.30/33	.33/8.5	0.55/14	Metal
P563197	TPP-1215-02N	5800/400	1/8" NPTF	1.14/29	.47/12	0.55/14	Plastic
P563193	TPM-1215-04N	9000/630	1/4" NPTF	1.14/29	.59/15	0.55/14	Metal
P563199	TPP-1215-03S	9000/630	3/8"-24 UNF (#3 SAE)	1.42/36	.39/10	0.87/22	Plastic
P563206	TPP-1215-04S	9000/630	7/16"-20 UNF (#4 SAE)	1.26/32	.35/9	0.67/17	Plastic
P563207	TPP-1215-06S	9000/630	9/16"-18 UNF (#6 SAE)	1.22/31	.39/10	0.75/19	Plastic

TPM/TPP-1620 Assembly Views M16x2 Thread



Test Point Choices

Part No.	Description	Working Pressure psi/bar	A Thread Type	B (in/mm)	C (in/mm)	D (mm)	Cap
P563210	TPM-1620-02B	5800/400	ISO 228-G 1/8" BSPP	1.5/38	0.31/8	17	Metal
P563215	TPM-1620-04B	9000/630	ISO 228-G 1/4" BSPP	1.42/36	0.39/10	19	Metal
P563987	TPM-1620-06B	9000/630	ISO 228-G 3/8" BSPP	1.42/36	0.39/10	22	Metal
P563219	TPM-1620-04J	8100/600	#4 37° JIC Female	2.17/55	—	17	Metal
P563231	TPM-1620-06J	4500/315	#6 37° JIC Female	2.26/57.5	—	19	Metal
P563212	TPM-1620-02N	5800/400	1/8" NPTF	1.3/33	0.51/13	17	Metal
P563220	TPM-1620-04N	9000/630	1/4" NPTF	1.3/33	0.65/16.5	17	Metal
P563224	TPM-1620-04S	9000/630	7/16"-20 UNF (#4 SAE)	1.46/37	0.35/9	17	Metal
P563232	TPM-1620-06S	9000/630	9/16"-18 UNF (#6 SAE)	1.42/36	0.39/10	19	Metal



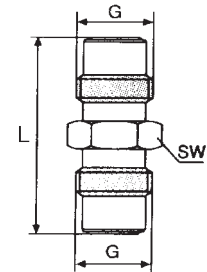
Test Point Adapters



A variety of adapters to suit your application.

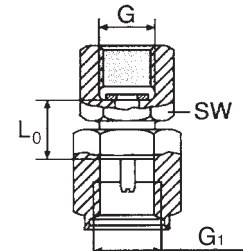
Hose Union Gauge

Part No.	Description	G Thread	psi/bar	L (in/mm)	SW (in/mm)
P563263	AHU-1215	M12 x 1.5	9000/630	1.14/29	.55/14
P563264	AHU-1620	M16 x 2	9000/630	1.65/42	.67/17



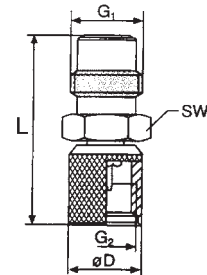
Direct Gauge Adapter

Part No.	Description	G Int. Thread	G1 Thread	psi/bar	L0 (in/mm)	SW (in/mm)
P563808	ADG-1215-04N	1/4" NPT	M12 x 1.5	9000/630	1.14/29	.55/14
P563809	ADG-1620-04N	1/4" NPT	M16 x 2	9000/630	.55/14	.75/19



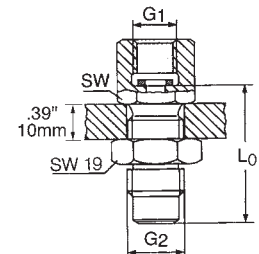
Series Converter

Part No.	Description	G1 Thread	G2 Thread	ØD (in/mm)	L (in/mm)	SW (in/mm)
P563265	ASC-1215	M16 x 2	M12 x 1.5	.67/17	1.30/33	.67/17
P563266	ASC-1620	M12 x 1.5	M16 x 2	.79/20	1.04/26.5	.67/17



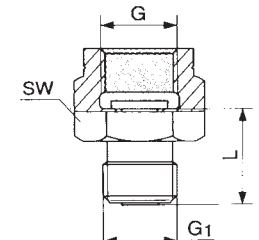
Bulkhead Gauge Adaptor

Part No.	Description	G1 Thread	G2 Thread	L (in/mm)	SW (in/mm)
P563800	ABH-1215-04N	1/4" NPT	1215M 12 x 1.5	1.52/39.5	.75/27
P563807	ASC-1620-04N	1/4" NPT	1620/M16 x 2	1.52/38.5	.75/19



Pressure Gauge Connection

Part No.	Description	G Thread	G1 Thread	psi/bar	L (in/mm)	SW (in/mm)
P563262	AHG-1215-04N	1/4" NPT	M12 x 1.5	9000/630	.71/18	.74/19



Test Point Hose Assemblies

Specifications

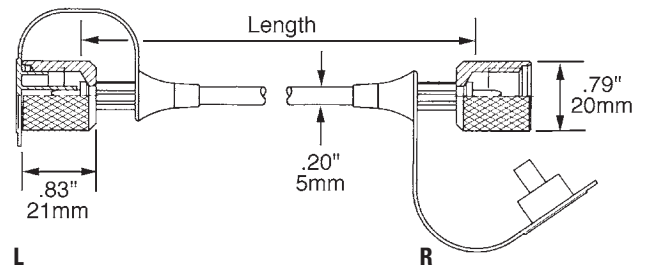
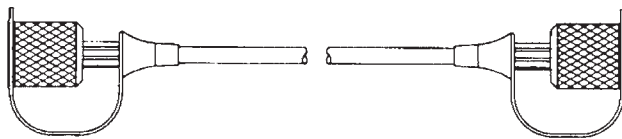
- Working Pressure to:
9000 psi / 630 bar
- Temperature Range:
-4°F to 212°F / -20°C to 100°C
- Length:
12" to 180" / 305mm to 4570mm



Features

Donaldson test point hoses are made of Polyamide 11 core with polyester braid reinforcement and Polyamide 11 cover. They are suitable for use with petroleum-based fluids. Hoses are standard straight on both ends and include plastic dust caps.

For hydraulic filters installed in hard-to-access locations, hose assemblies and test points can be used to plumb up a bulkhead to read pressure differentials.



1215 Series M12x1.5 Thread

Part No.	Description	Length (in/mm)
P563240	H-1215-B-0101-012	12/305
P563243	H-1215-B-0101-024	24/610
P563244	H-1215-B-0101-036	36/915
P563245	H-1215-B-0101-048	48/1220
P563246	H-1215-B-0101-072	72/1830
P563247	H-1215-B-0101-096	96/2440
P563248	H-1215-B-0101-120	120/3050
P563249	H-1215-B-0101-180	80/4570

1620 Series M16x2 Thread

Part No.	Description	Length (in/mm)
P563250	H-1620-B-0101-012	12/305
P563251	H-1620-B-0101-018	18/460
P563252	H-1620-B-0101-024	24/610
P563254	H-1620-B-0101-036	36/915
P563255	H-1620-B-0101-048	48/1220
P563256	H-1620-B-0101-072	72/1830
P563257	H-1620-B-0101-096	96/2440
P563259	H-1620-B-0101-120	120/3050
P563260	H-1620-B-0101-144	144/3660
P563261	H-1620-B-0101-180	180/4570



In-Line Check Valves

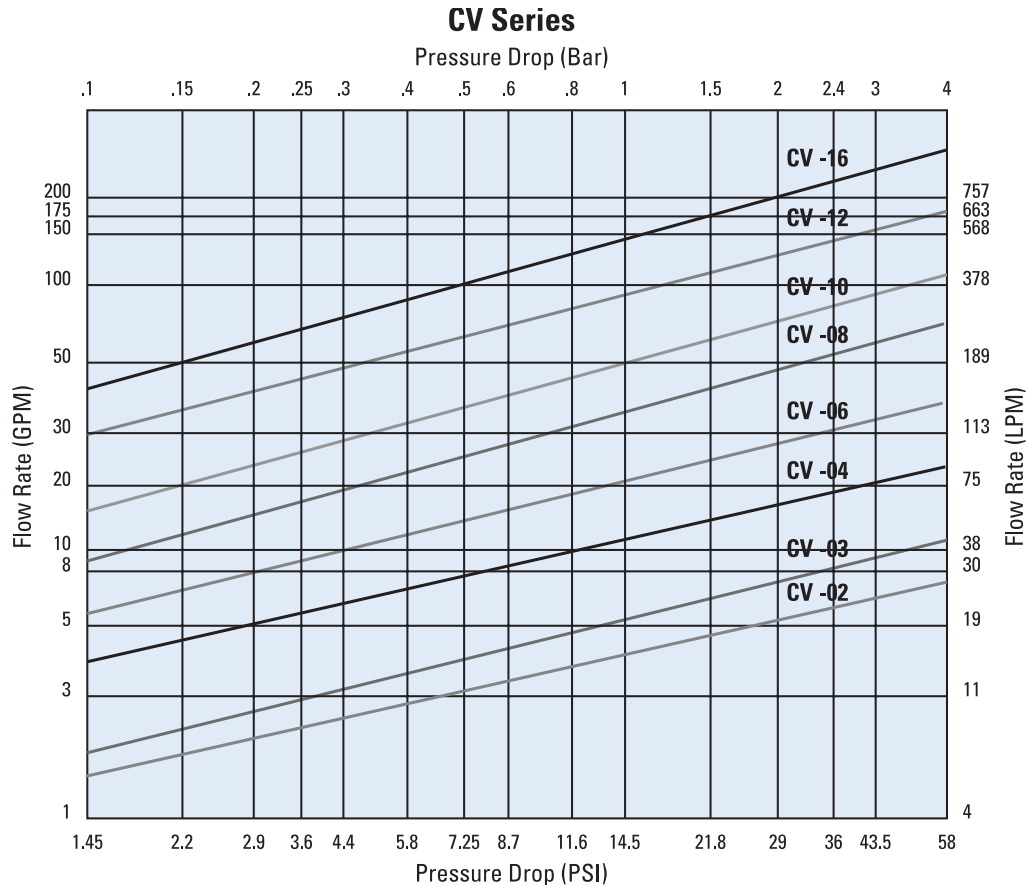
Specifications

- Working Pressure to: 4350 psi / 300 bar
- Flow Range: 200 gpm 757 lpm



Features

Steel constructed check valves are compatible with all non-corrosive liquids. Valves contain no elastomeric seals. Restricted orifice (.062) option available on some models.



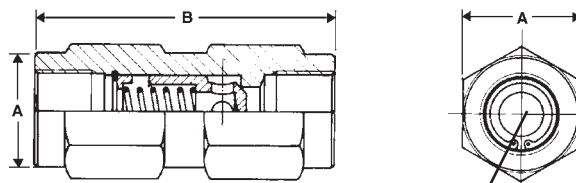
The above chart is based on Hydraulic Oil 100 SUS, S.G. = 0.86

Sizes	Opening Pressure (Cracking)
<ul style="list-style-type: none"> • ¼", 3/8", ½", ¾", 1", 1 ¼", 1 ½" and 2" NPT • #4, #6, #8, #12, #16, #20, #24 and #32 SAE 	<ul style="list-style-type: none"> • 5 psi / 0.34 bar or 65 psi / 4.5 bar



In-Line Check Valve Options

Part No.	Reference	Max Working Pressure (psi/bar)	Max. Rated Flow Flow (gpm/lpm)	Opening Pressure (psi/bar)	Port	A (in/mm)	B (in/mm)
P562297	CV-02P-5	4350/300	6/23	5/0.34	1/4" NPT	0.75/19	2.17/55
P562298	CV-02P-65	4350/300	6/23	65/4.5	1/4" NPT	0.75/19	2.17/55
P562299	CV-02S-5	4350/300	6/23	5/0.34	#4 SAE	0.75/19	2.17/55
P562301	CV-03P-5	4350/300	10/38	5/0.34	3/8" NPT	0.98/25	2.68/68
P562302	CV-03P-65	4350/300	10/38	65/4.5	3/8" NPT	0.98/25	2.68/68
P562303	CV-03S-5	4350/300	10/38	5/0.34	#6 SAE	0.75/19	2.29/58
P562305	CV-04P-5	4350/300	16/60	5/0.34	1/2" NPT	1.06/27	2.95/75
P562306	CV-04P-65	4350/300	16/60	65/4.5	1/2" NPT	1.06/27	2.95/75
P562307	CV-04S-5	4350/300	16/60	5/0.34	#8 SAE	0.98/25	2.72/69
P562308	CV-04S-65	4350/300	16/60	65/4.5	#8 SAE	0.98/25	2.72/69
P562309	CV-06P-5	4350/300	25/94	5/0.34	3/4" NPT	1.38/35	3.48/88
P562311	CV-06P-65	4350/300	25/94	65/4.5	3/4" NPT	1.38/35	3.48/88
P562312	CV-06S-5	4350/300	25/94	5/0.34	#12 SAE	1.38/35	3.48/88
P562313	CV-06S-65	4350/300	25/94	65/4.5	#12 SAE	1.38/35	3.48/88
P562314	CV-08P-5	4350/300	45/169	5/0.34	1" NPT	1.61/41	4.33/110
P562316	CV-08P-65	4350/300	45/169	65/4.5	1" NPT	1.61/41	4.33/110
P562317	CV-08S-5	4350/300	45/169	5/0.34	#16 SAE	1.61/41	4.33/110
P563307	CV-08S-65	4350/300	45/169	65/4.5	#16 SAE	1.61/41	4.33/110
P562319	CV-10P-5	4350/300	95/357	5/0.34	1-1/4" NPT	2.16/55	4.72/120
P562320	CV-10P-65	4350/300	95/357	65/4.5	1-1/4" NPT	2.16/55	4.72/120
P562321	CV-10S-5	4350/300	95/357	5/0.34	#20 SAE	2.16/55	4.72/120
P562322	CV-10S-65	4350/300	95/357	65/4.5	#20 SAE	2.16/55	4.72/120
P562323	CV-12P-5	4350/300	130/489	5/0.34	1-1/2" NPT	2.56/65	5.43/138
P562324	CV-12P-65	4350/300	130/489	65/4.5	1-1/2" NPT	2.56/65	5.43/138
P562325	CV-12S-5	4350/300	130/489	5/0.34	#24 SAE	2.56/65	5.43/138
P562326	CV-12S-65	4350/300	130/489	65/4.5	#24 SAE	2.56/65	5.43/138
P562327	CV-16P-5	2900/200	200/752	5/0.34	2" NPT	2.56/65	5.43/138
P562328	CV-16P-65	2900/200	200/752	65/4.5	2" NPT	2.56/65	5.43/138



Optional Orifice

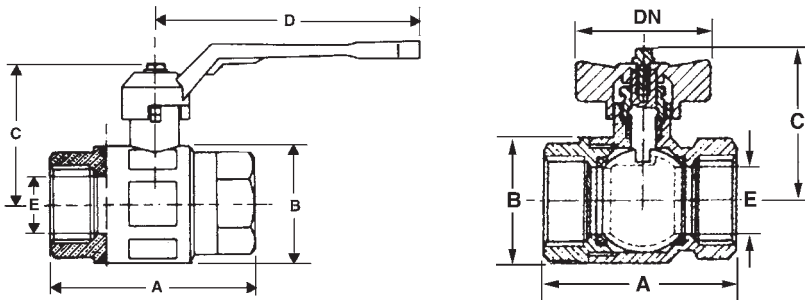


Ball Valves - Low Pressure

Specifications

- Hot pressed brass body and ball OT 58
- Materials (ball and body): BV Series chromium plated
- Steel handle
- Teflon® seals (ball and stem)

Teflon® is a registered trademark of E. I. DuPont de Nemours and Company.



Features

Low pressure ball valves are rated for water, oil or gas (WOG) applications. Two-way/two-position, quarter turn operation. Full-ported sizes from 1/4" to 2" NPT. T-handle available on some models. Suitable for temperatures from -22°F to 350°F (-30°C to 162°C).

Ball Valve Options

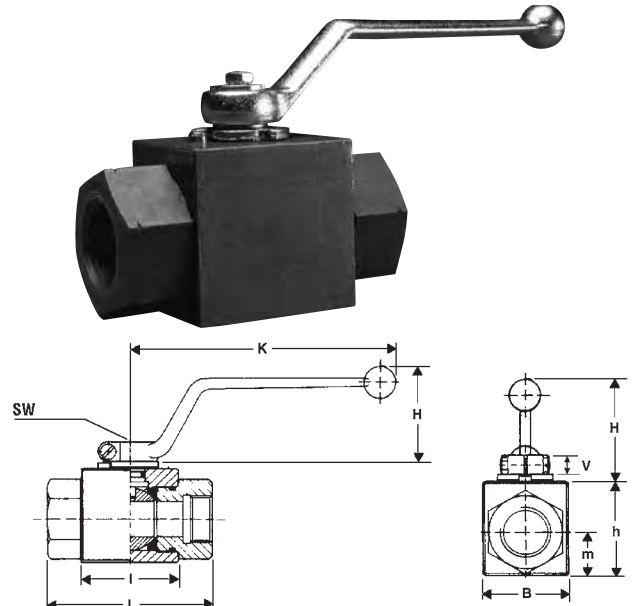
Part No.	Description	Max. Working Pressure (psi/bar)	Port Thread	Dimensions (in/mm)				
				A	B	C	D	E
P562331	BV-04-N	710/49	1/4" NPT	1.89/48	0.98/25	1.69/43	3.15/80	0.40/10
P562333	BV-06-N	710/49	3/8" NPT	1.89/48	0.98/25	1.69/43	3.15/80	0.40/10
P562336	BV-08-N	710/49	1/2" NPT	2.00/51	1.22/31	1.77/45	3.15/80	0.60/15
P563311	BV-12-N	570/39	3/4" NPT	2.24/57	1.46/37	2.36/60	4.44/113	0.80/20
P562338	BV-16-N	570/39	1" NPT	2.75/70	1.81/46	2.48/63	4.44/113	1.00/25
P562339	BV-20-N	430/30	1-1/4" NPT	3.15/80	2.24/57	3.11/79	5.43/138	1.25/32
P562341	BV-24-N	430/30	1-1/2" NPT	3.66/93	2.75/70	3.27/83	5.43/138	1.57/40
P562343	BV-32-N	360/25	2" NPT	4.41/112	3.31/84	3.94/100	6.22/158	1.97/50
P562345	BV-40-N	260/18	2-1/2" NPT	5.31/135	3.82/97	3.98/101	7.75/197	2.12/54
P562346	BV-48-N	230/16	3" NPT	6.25/159	4.80/122	5.08/129	9.84/250	2.56/65



Ball Valves - Medium/High Pressure

Specifications

- Steel body
- Brass ball with chrome plating (MBV-04 thru MBV-16)
- Steel ball with chrome plating (HBV, MBV-20 thru MBV-32)
- Steel zinc stem (MBV)
- Delrin ball seal
- Stem seal: Nitrile (MBV); fluorocarbon (HBV)
- Aluminum handles on HBV larger sizes



Features

Medium duty (MBV) and high pressure (HBV) ball valves are compatible with petroleum-based fluids. Two-way, two-position valves are suited for on/off control. Optional locking tabs provide added safety. Valves come standard with bent handles; straight handles are available for some models. Operating temperatures from -22°F to 212°F / -30°C to 100°C.

Medium Duty Ball Valves - MBV

Part No.	Description	Port Thread	Pressure (psi/bar)	Dimensions (in/mm)								
				L	I	B	H	h	m	V	SW	K
P562387	MBV-04-N	1/4" NPT	7250/500	2.7/69	1.4/36	1.0/26	1.7/43	1.3/32	0.5/12.5	0.4/11	0.4/9	4.6/118
P562388	MBV-04-S	7/16"-20 SAE	7250/500	2.7/69	1.4/36	1.0/26	1.7/43	1.3/32	0.5/12.5	0.4/11	0.4/9	4.6/118
P563308	MBV-06-N	3/8" NPT	7250/500	3.1/79	1.7/43	1.3/32	1.7/43	1.5/38	0.7/17.5	0.4/11	0.4/9	4.6/118
P562389	MBV-06-S	9/16"-18 SAE	7250/500	3.1/79	1.7/43	1.3/32	1.7/43	1.5/38	0.7/17.5	0.4/11	0.4/9	4.6/118
P562390	MBV-08-N	1/2" NPT	7250/500	4.1/104	1.9/48	1.4/35	1.7/43	1.6/40	0.75/19	0.4/11	0.4/9	4.6/118
P563309	MBV-08-S	3/4"-16 SAE	7250/500	4.1/104	1.9/48	1.4/35	1.7/43	1.6/40	0.75/19	0.4/11	0.4/9	4.6/118
P562391	MBV-12-N	3/4" NPT	5800/400	4.3/109	2.4/62	1.9/49	2.3/58	2.2/57	1.0/24.5	0.6/14	0.6/14	7.2/182
P562392	MBV-12-S	1-1/16"-12 SAE	5800/400	4.3/109	2.4/62	1.9/49	2.3/58	2.2/57	1.0/24.5	0.6/14	0.6/14	7.2/182
P562394	MBV-16-N	1" NPT	4500/310	4.6/117	2.6/66	2.3/58	2.3/58	2.6/65	1.2/29.5	0.6/14	0.6/14	7.2/182
P562395	MBV-16-S	1-5/16"-12 SAE	4500/310	4.6/117	2.6/66	2.3/58	2.3/58	2.6/65	1.2/29.5	0.6/14	0.6/14	7.2/182
P562396	MBV-20-N	1-1/4" NPT	4500/310	4.3/110	3.2/80	3.0/76	2.3/58	3.3/84	1.5/38	0.6/15	0.7/17	8.5/218
P562397	MBV-20-S	1-5/8"-12 SAE	4500/310	4.3/110	3.2/80	3.0/76	2.3/58	3.3/84	1.5/38	0.6/15	0.7/17	8.5/218
P562398	MBV-24-N	1-1/2" NPT	3625/250	5.1/130	3.3/85	3.6/92	2.3/58	3.9/99	1.8/46	0.6/15	0.7/17	8.5/218
P563310	MBV-24-S	1-7/8"-12 SAE	3625/250	5.1/130	3.3/85	3.6/92	2.3/58	3.9/99	1.8/46	0.6/15	0.7/17	8.5/218
P562399	MBV-32-N	2" NPT	3625/250	5.5/140	3.9/100	4.2/106	2.3/58	4.4/111	2.1/53	0.6/15	0.7/17	8.5/218

High Pressure Ball Valves

High Pressure Ball Valve Options

Part No.	Description	Port Thread	Pressure (psi/bar)	Dimensions (in/mm)								
				L	I	B	H	h	m	V	SW	K
P562356	HBV-04-N	1/4" NPT	7250/500	2.7/69	1.4/36	1.0/26	1.7/43	1.3/32	0.5/12.5	0.4/11	0.4/9	4.6/118
P562357	HBV-04-S	7/16"-20 SAE	7250/500	2.7/69	1.4/36	1.0/26	1.7/43	1.3/32	0.5/12.5	0.4/11	0.4/9	4.6/118
P562358	HBV-06-N	3/8" NPT	7250/500	3.1/79	1.7/43	1.3/32	1.7/43	1.5/38	0.7/17.5	0.4/11	0.4/9	4.6/118
P562359	HBV-06-S	9/16"-18 SAE	7250/500	3.1/79	1.7/43	1.3/32	1.7/43	1.5/38	0.7/17.5	0.4/11	0.4/9	4.6/118
P562360	HBV-08-N	1/2" NPT	7250/500	4.1/104	1.9/48	1.4/35	1.7/43	1.6/40	0.75/19	0.4/11	0.4/9	4.6/118
P562361	HBV-08-S	3/4"-16 SAE	7250/500	4.1/104	1.9/48	1.4/35	1.7/43	1.6/40	0.75/19	0.4/11	0.4/9	4.6/118
P562362	HBV-12-N	3/4" NPT	5800/400	4.3/109	2.4/62	1.9/49	2.3/58	2.2/57	1.0/24.5	0.6/14	0.6/14	7.2/182
P562363	HBV-12-S	1-1/16"-12 SAE	5800/400	4.3/109	2.4/62	1.9/49	2.3/58	2.2/57	1.0/24.5	0.6/14	0.6/14	7.2/182
P562364	HBV-16-N	1" NPT	4500/310	4.6/117	2.6/66	2.3/58	2.3/58	2.6/65	1.2/29.5	0.6/14	0.6/14	7.2/182
P562365	HBV-16-S	1-5/16"-12 SAE	4500/310	4.6/117	2.6/66	2.3/58	2.3/58	2.6/65	1.2/29.5	0.6/14	0.6/14	7.2/182
P562368	HBV-20-N	1-1/4" NPT	4500/310	4.3/110	3.2/80	3.0/76	2.3/58	3.3/84	1.5/38	0.6/15	0.7/17	8.5/218
P562369	HBV-20-S	1-5/8"-12 SAE	4500/310	4.3/110	3.2/80	3.0/76	2.3/58	3.3/84	1.5/38	0.6/15	0.7/17	8.5/218

Replacement Parts for High Pressure Ball Valves

Part No.	Description	Style	Valve Size
Handles			
P562376	HBVH-040608	Bent Handle	04, 06, 08
P562377	HBVH-1216	Bent Handle	12, 16
P562378	HBVH-202432	Bent Handle	20, 24, 32

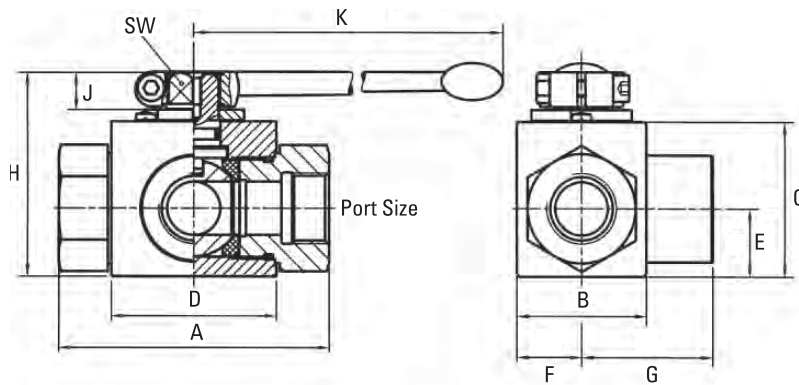
Part No.	Description	Valve Size
Seal Kit		
P562379	HBV-SK-04	04
P562380	HBV-SK-06	06
P562629	HBV-SK-08	08
P562630	HBV-SK-12	12
P562381	HBV-SK-16	16
P562382	HBV-SK-20	20



Three-Way Selector Ball Valve

Specifications

- Maximum pressure
7250 psi / 500 bar
- Steel construction
- Operating temperature
-22°F to 212°F / -30°C to 100°C

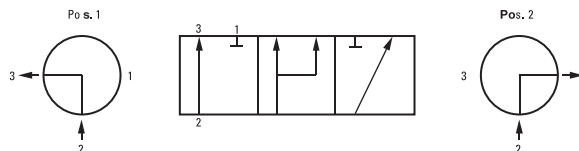


Part No.	Reference	Port Size	Max Pressure	Dimensions (in/mm)										
				A	B	C	D	E	F	G	H	J	K	SW
P562342	3W-HBV-08-N	1/2" NPT	7250 psi	4.09	1.50	1.57	1.89	0.75	0.69	1.63	2.13	0.43	4.53	0.3
			50000 kPa	104	38	40	48	19	17.5	41.5	54	11	115	9
P562344	3W-HBV-12-N	3/4" NPT	4500 psi	4.02	2.05	2.24	2.44	0.96	0.96	1.87	2.95	0.55	7.87	0.55
			31028 kPa	102	52	57	62	24.5	24.5	47.5	75	14	200	14
P562404	3W-HBV-16-N	1" NPT	4500 psi	4.69	2.40	2.56	2.60	1.16	1.14	2.22	3.27	0.55	7.87	0.55
			31028 kPa	119	61	65	66	29.5	29	56.5	83	14	200	14
P562405	3W-HBV-16-S	SAE-16	4500 psi	4.72	2.80	3.33	3.19	1.54	1.54	2.36	4.17	0.65	12.60	0.67
			31028 kPa	120	71	84.5	81	39	39	60	106	16.5	320	17
P562406	3W-HBV-20-N	1-1/4" NPT	5000psi	4.72	2.80	3.33	3.19	1.54	1.54	2.36	4.17	0.65	12.60	0.67
			34500 kPa	120	71	84.5	81	39	39	60	106	16.5	320	17

Operation:

Open cross-over (no zero position)

Pressure inlet only from port 2



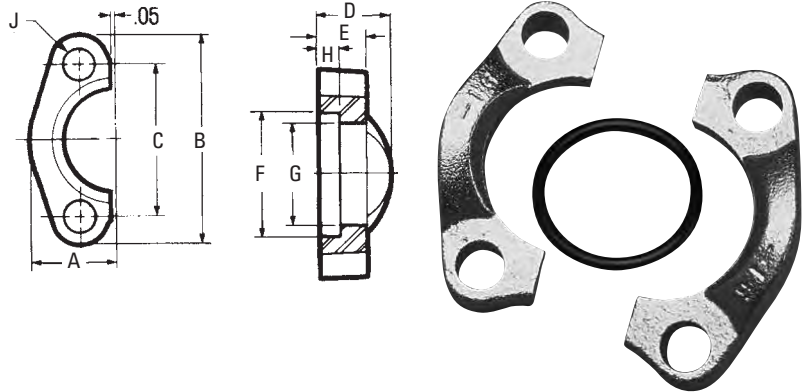
Split Flanges

Specifications

- Code 61 and Code 62
- Nitrile O-Ring

Each kit includes:

- 2 split flange halves
- 4 hex head mounting bolts and lock washers
- 1 Nitrile O-Ring



Code 61

Part No.	Reference	Flange Size	Dimensions (in/mm)									Mounting Hardware		Max. Working Pressure
			A	B	C	D	E	F	G	H	J (Dia.)	O-Ring	Hex Head Cap Screw	
P563042	L-12SF-3	0.75	0.98	2.56	1.875	0.88	0.56	1.531	1.265	0.245	0.406	-214	3/8"-16x11/4	5000
		19	25	65	48	22	14	39	32	6	10			34500kPa
P563044	L-16SF-3	1.00	1.11	2.75	2.062	0.94	0.62	1.781	1.515	0.295	0.406	-219	3/8"-16x11/4	5000
		25	28	70	52	24	16	45	38	7	10			34500kPa
P563047	L-20SF-3	1.25	1.39	3.12	2.312	0.88	0.56	2.031	1.720	0.295	0.469	-222	7/16"-14x11/2	4000 psi
		32	35	79	59	22	14	52	44	7	12			27580 kPa
P563050	L-24SF-3	1.50	1.58	3.69	2.750	1.00	0.62	2.406	2.000	0.295	0.531	-225	1/2"-13x11/2	3000 psi
		38	40	94	70	25	16	61	51	8	13			20685 kPa
P563053	L-32SF-3	2.00	1.86	4.00	3.062	1.03	0.62	2.844	2.470	0.355	0.531	-228	1/2"-13x11/2	3000 psi
		51	47	102	78	26	16	72	63	9	13			20685 kPa
P563056	L-40SF-3	2.50	2.09	4.50	3.500	1.50	0.75	3.344	2.950	0.355	0.531	-232	1/2"-13x13/4	2500 psi
		64	53	114	89	38	19	85	75	9	13			17240 kPa

Code 62 Mounting Hardware

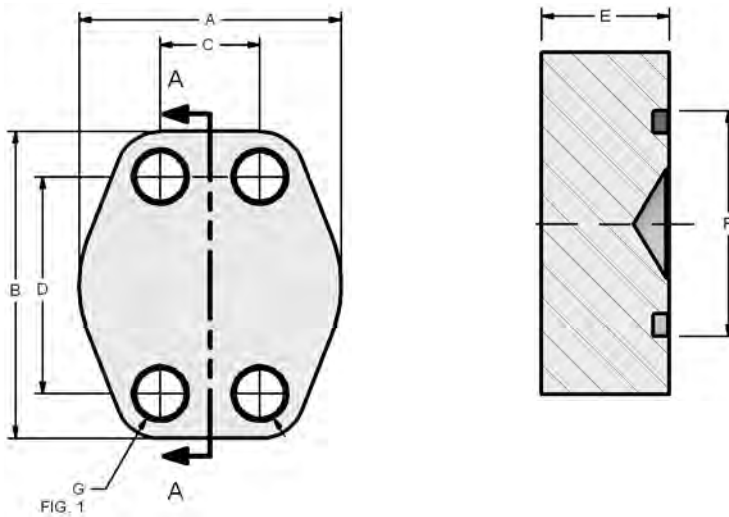
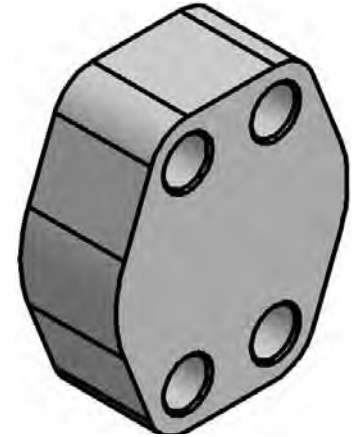
Part No.	Reference	Flange Size	Dimensions (in/mm)									Mounting Hardware		Max. Working Pressure
			A	B	C	D	E	F	G	H	J (Dia.)	O-Ring	Hex Head Cap Screw	
P563046	L-16SFX-6	1.00	1.33	3.19	2.250	1.31	0.94	1.906	1.530	0.355	0.469	-219	7/16"-14x13/4	6000 psi
		25	34	81	57	33	24	48	39	9	12			41370kPa
P563049	L-20SFX-6	1.25	1.48	3.75	2.625	1.50	1.06	2.156	1.750	0.385	0.531	-222	1/2"-13x13/4	6000 psi
		32	38	95	67	38	27	55	44	10	13			41370kPa
P563051	L-24SFX-6	1.50	1.83	4.44	3.125	1.69	1.19	2.531	2.030	0.475	0.656	-225	5/8"-11x21/4	6000 psi
		38	46	113	79	43	30	64	52	12	17			41370kPa
P563054	L-32SFX-6	2.00	2.20	5.25	3.812	2.06	1.44	3.156	2.660	0.475	0.781	-228	3/4"-10x23/4	6000 psi
		51	56	133	97	52	37	80	68	12	20			41370kPa



Blanking Flanges

Specifications

- Code 61 and 62
- O-Ring



Blanking Flanges, Code 61

Part No.	Reference	Pad Size	Dimensions (in/mm)							Mounting Hardware	
			A	B	C	D	E	F	G	O-Ring	SHCS
P563061	LIB-16-16-30	1"/25mm	2.313/59	2.750/70	1.031/26	2.063/52	0.88/22	1.560/40	0.406/10	-219	3/8"-16x1.75
P563063	LIB-20-20-30	1-1/4"/32mm	2.875/73	3.125/79	1.188/30	2.313/59	0.94/24	1.750/44	0.469/12	-222	7/16"-14x1.75
P563065	LIB-24-24-30	1-1/2"/38mm	3.250/83	3.688/94	1.406/36	2.750/70	1.19/30	2.115/54	0.531/13	-225	1/2"-13x2.25
P563067	LIB-32-32-30	2"/51mm	3.813/97	4.000/102	1.688/43	3.063/78	1.44/37	2.490/63	0.531/13	-228	1/2"-13x2.50

Blanking Flanges, Code 62

Part No.	Reference	Pad Size	Dimensions (in/mm)							Mounting Hardware	
			A	B	C	D	E	F	G	O-Ring	SHCS
P563064	LIB-20-20-60	1-1/4"/32mm	3.060/78	3.750/95	1.250/32	2.625/67	1.43/36	1.750/44	0.531/13	-222	1/2"-13x2.50

4-Bolt NPTF Threaded Flange

Specifications

- Code 61 and 62
- NPT Thread
- Nitrile O-Ring
- Mounting hardware and O-Ring included on O-Ring models
- Maximum temperature with O-Ring 250°F / 121°C

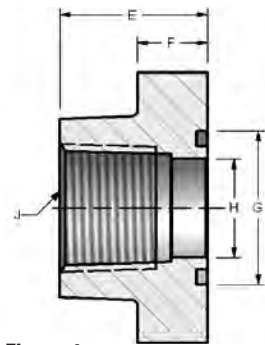
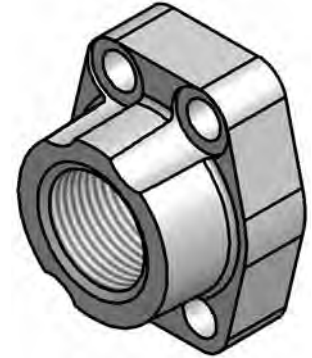
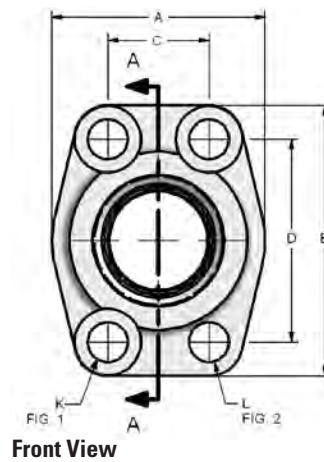


Figure 1



Front View

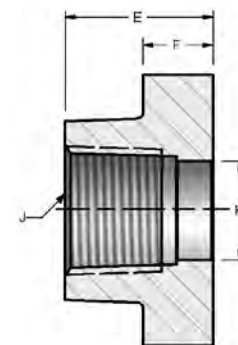


Figure 2

Code 61 NPTF Thread, O-Ring (Figure 1)

Part No.	Description	Port Size	Pad Size	Dimensions (in/mm)								J NPTF	K (dia.) Drill	Mounting Hardware	
				A	B	C	D	E	F	G	H			O-Ring	SHCS
P563088	LI-12-12P-30	0.75	0.75	1.97	2.56	0.875	1.875	1.42	0.71	1.250	0.752	3/4"-14	0.406	-214	3/8"-16 x 1.25
		19	19	50	65	22	48	36	18	32	19		10		
P563093	LI-16-16P-30	1.00	1.00	2.17	2.75	1.031	2.062	1.50	0.71	1.560	1.002	1"-11.5	0.406	-219	3/8"-16 x 1.50
		25	25	55	70	26	52	38	18	40	25		10		
P563100	LI-20-20P-30	1.25	1.25	2.68	3.12	1.188	2.312	1.61	0.83	1.750	1.252	1-1/4"-11.5	0.469	-222	7/16"-14 x 1.50
		32	32	68	79	30	59	41	21	44	32		12		
P563107	LI-24-24P-30	1.50	1.50	3.07	3.66	1.406	2.750	1.77	0.98	2.115	1.502	1-1/2"-11.5	0.531	-225	1/2"-13 x 1.75
		38	38	78	93	36	70	45	25	54	38		13		
P563113	LI-32-32P-30	2.00	2.00	3.54	4.00	1.688	3.062	1.77	0.98	2.490	2.002	2"-11.5	0.531	-228	1/2"-13 x 1.75
		51	51	90	102	43	78	45	25	63	51		13		
P563117	LI-40-40P-30	2.50	2.50	4.09	4.49	2.000	3.500	1.97	0.98	2.995	2.502	2-1/2"-8	0.531	-232	1/2"-13 x 2.25
		64	64	104	114	51	89	50	25	76	64		13		
P563118	LI-48-48P-30	3.00	3.00	4.88	5.28	2.438	4.188	1.97	1.06	3.615	3.002	3"-8	0.656	-237	5/8"-11 x 2.50
		76	76	124	134	62	106	50	27	92	76		17		



4-Bolt NPTF Threaded Flange

Code 61 NPTF Thread, Flat Face (Figure 2)

Part No.	Description	Port Size	Pad Size	Dimensions (in/mm)								L Tap	
				A	B	C	D	E	F	G	H	J NPTF	UNC-2B
P563163	LIC-16-16P-30	1.00	1.00	2.17	2.75	1.031	2.062	1.50	0.71	1.560	1.002	1"-11.5	3/8"-16
		25	25	55	70	26	52	38	18	40	25		
P563166	LIC-20-20P-30	1.25	1.25	2.68	3.12	1.188	2.312	1.61	0.83	1.750	1.252	1-1/4"-11.5	7/16"-14
		32	32	68	79	30	59	41	21	44	32		
P563171	LIC-32-32P-30	2.00	2.00	3.54	4.00	1.688	3.062	1.77	0.98	2.490	2.002	2"-11.5	1/2"-13
		51	51	90	102	43	78	45	25	63	51		

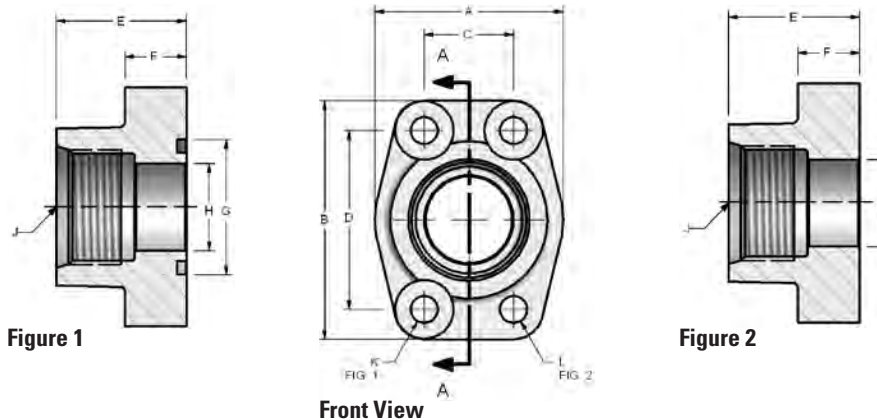
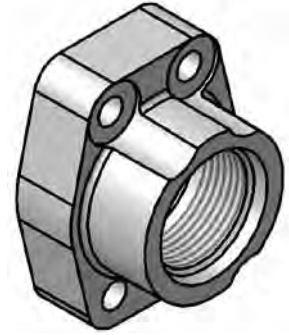
Code 62 NPTF Thread, O-Ring (Figure 1)

Part No.	Description	Port Size	Pad Size	Dimensions (in/mm)								K (dia.)	Mounting Hardware		
				A	B	C	D	E	F	G	H	J NPTF	Drill	O-Ring	SHCS
P563094	LI-16-16P-60	1.00	1.00	2.56	3.19	1.093	2.250	1.65	0.98	1.560	1.002	1-11.5	0.492	-219	7/16"-14 x 1.50
		25	25	65	81	28	57	42	25	40	25		12		
P563101	LI-20-20P-60	1.25	1.25	3.07	3.75	1.250	2.625	1.77	1.06	1.750	1.252	1-1/4-11.5	0.531	-222	1/2"-13 x 1.50
		32	32	78	95	32	67	45	27	44	32		13		
P563108	LI-24-24P-60	1.50	1.50	3.70	4.41	1.437	3.125	1.97	1.18	2.115	1.502	1-1/2-11.5	0.656	-225	5/8"-11 x 1.75
		38	38	94	112	36	79	50	30	54	38		17		

4-Bolt SAE Threaded Flange

Specifications

- Code 61 and 62
- SAE Straight Thread
- Nitrile O-Ring
- Mounting hardware and O-Ring included on O-Ring models
- Maximum temperature with O-Ring 250°F / 121°C



Code 61 Straight Thread, O-Ring (Figure 1)

Part No.	Reference	Port Size	Pad Size	Dimensions (in/mm)								J UN/ UNF-2B	K (Dia.) Drill	Mounting Hardware	
				A	B	C	D	E	F	G	H			O-Ring	SHCS
P563090	LI-12-12S-30	0.75/19	0.75/19	1.97/50	2.56/65	0.875/22	1.875/48	1.42/36	0.71/18	1.250/32	0.752/19	1 1/16"-12	0.406/10	-214	3/8"-16 x 1.25
P563095	LI-16-16S-30	1.00/25	1.0/25	2.17/55	2.75/70	1.031/26	2.062/52	1.50/38	0.71/18	1.560/40	1.002/25	1 5/16"-12	0.406/10	-219	3/8"-16 x 1.50
P563102	LI-20-20S-30	1.25/32	1.25/32	2.68/68	3.12/79	1.188/30	2.312/59	1.61/41	0.83/21	1.750/44	1.252/32	1 5/8"-12	0.469/12	-222	7/16"-14 x 1.50
P563109	LI-24-24S-30	1.50/38	1.50/38	3.07/78	3.66/93	1.406/36	2.750/70	1.77/45	0.98/25	2.115/54	1.502/38	1 7/8"-12	0.531/13	-225	1/2"-13 x 1.75
P563115	LI-32-32S-30	2.00/51	2.00/51	3.54/90	4.00/102	1.688/43	3.062/78	1.77/45	0.98/25	2.490/63	2.002/51	2 1/2"-12	0.531/13	-228	1/2"-13 x 1.75

Code 61 Straight Thread, Flat Face (Figure 2)

Part No.	Reference	Port Size	Pad Size	Dimensions (in/mm)								J UN/ UNF-2B	L Tap UNC-2B
				A	B	C	D	E	F	G	H		
P563162	LIC-12-12S-30	0.75/19	0.75/19	1.97/50	2.56/65	0.875/22	1.875/48	1.42/36	0.71/18	1.250/32	0.752/19	1 1/16"-12	3/8"-16
P563165	LIC-16-16S-30	1.00/25	1.00/25	2.17/55	2.75/70	1.031/26	2.062/52	1.50/38	0.71/18	1.560/40	1.002/25	1 5/16"-12	3/8"-16
P563168	LIC-20-20S-30	1.25/32	1.25/32	2.68/68	3.12/79	1.188/30	2.312/59	1.61/41	0.83/21	1.750/44	1.252/32	1 5/8"-12	7/16"-14

Code 62 Straight Thread, O-Ring (Figure 1)

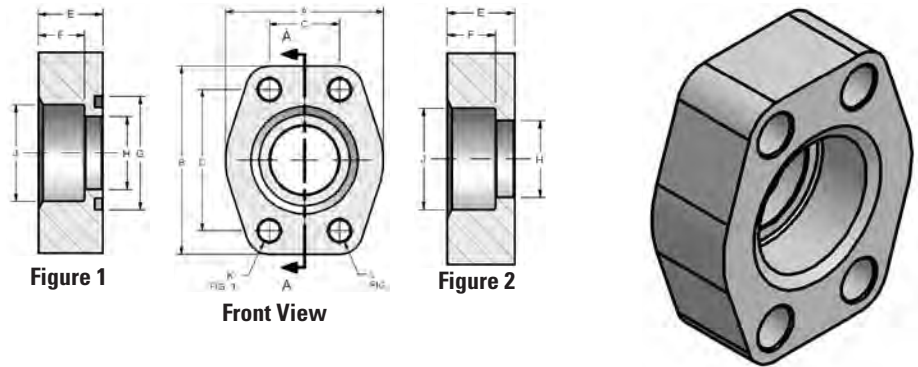
Part No.	Reference	Port Size	Pad Size	Dimensions (in/mm)								J UN/ UNF-2B	K (Dia.) Drill	Mounting Hardware	
				A	B	C	D	E	F	G	H			O-Ring	SHCS
P563096	LI-16-16S-60	1.00/25	1.00/25	2.56/65	3.19/81	1.093/28	2.250/57	1.65/42	0.98/25	1.560/40	1.002/25	1 5/16"-12	0.492/12	-219	7/16"-14 x 1.50
P563103	LI-20-20S-60	1.25/32	1.25/32	3.07/78	3.75/95	1.250/32	2.625/67	1.77/45	1.06/27	1.750/44	1.252/32	1 5/8"-12	0.531/13	-222	1/2"-13 x 1.75
P563110	LI-24-24S-60	1.50/38	1.50/38	3.70/94	4.41/112	1.437/36	3.125/79	1.97/50	1.18/30	2.115/54	1.502/38	1 7/8"-12	0.656/17	-225	5/8"-11 x 2.25



Flat Socket Weld Flange

Specifications

- Code 61 and 62



Code 61, O-Ring (Figure 1)

Part No.	Desc.	Pipe Size	Pad Size	Dimensions (in/mm)										Mounting Hardware	
				A	B	C	D	E	F	G	H	J	K	O-Ring	SHCS
P563119	LI-08-08W-30	0.50/13	0.50/13	1.813/46	2.125/54	0.688/17	1.500/38	0.75/19	0.560/14	1.000/25	0.502/13	0.855/22	0.344/9	-210	5/16"-18x1.5
P563120	LI-12-12W-30	0.75/19	0.75/19	2.063/52	2.563/65	0.875/22	1.875/48	0.75/19	0.560/14	1.250/32	0.752/19	1.062/27	0.406/10	-214	3/8"-16x1.5
P563121	LI-16-16W-30	1.00/25	1.00/25	2.313/59	2.750/70	1.031/26	2.063/52	0.88/22	0.630/16	1.560/40	1.002/25	1.328/34	0.406/10	-219	3/8"-16x1.75
P563122	LI-20-20W-30	1.25/32	1.25/32	2.875/73	3.125/79	1.188/30	2.313/59	0.94/24	0.690/18	1.750/44	1.252/32	1.672/42	0.469/12	-222	7/16"-14x1.75
P563123	LI-24-24W-30	1.50/38	1.50/38	3.250/83	3.688/94	1.406/36	2.750/70	1.19/30	0.750/19	2.115/54	1.502/38	1.922/49	0.531/13	-225	1/2"-13x2.25
P563124	LI-32-32W-30	2.00/51	2.00/51	3.813/97	4.000/102	1.688/43	3.063/78	1.38/35	0.875/22	2.495/63	2.002/51	2.406/61	0.531/13	-228	1/2"-13x2.5
P563127	LI-48-48W-30	3.00/76	3.00/76	5.156/131	5.313/135	2.438/62	4.188/106	2.12/54	1.250/32	3.615/92	3.002/76	3.547/90	0.656/17	-237	5/8"-11x3.5

Code 61, Flat Face (Figure 2)

Part No.	Desc.	Pipe Size	Pad Size	Dimensions (in/mm)										L
				A	B	C	D	E	F	G	H	J	UNC-2B	
P563176	LIC-12-12W-30	0.75/19	0.75/19	2.063/52	2.563/65	0.875/22	1.875/48	0.75/19	0.560/14	1.250/32	0.752/19	1.062/27	3/8"-16	
P563177	LIC-16-16W-30	1.00/25	1.00/25	2.313/59	2.750/70	1.031/26	2.063/52	0.88/22	0.630/16	1.560/40	1.002/25	1.328/34	3/8"-16	
P563178	LIC-20-20W-30	1.25/32	1.25/32	2.875/73	3.125/79	1.188/30	2.313/59	0.94/24	0.690/18	1.750/44	1.252/32	1.672/42	7/16"-14	
P563179	LIC-24-24W-30	1.50/38	1.50/38	3.250/83	3.688/94	1.406/36	2.750/70	1.19/30	0.750/19	2.115/54	1.502/38	1.922/49	1/2"-13	
P563180	LIC-32-32W-30	2.00/51	2.00/51	3.813/97	4.000/102	1.688/43	3.063/78	1.38/35	0.875/22	2.490/63	2.002/51	2.406/61	1/2"-13	
P563181	LIC-40-40W-30	2.50/64	2.50/64	4.281/109	4.500/114	2.000/51	3.500/89	1.75/44	1.000/25	2.995/76	2.502/64	2.906/74	1/2"-13	



Reservoir Accessories

- Suction strainers protect pumps from damage
- Diffusers for effectively reducing aeration, foaming, turbulence and noise caused by return lines
- Sight and level gauges available, including standard length, screw-in styles in plastic and steel for use in a variety of applications
- Plugs, caps and vents for small power units and gearboxes
- Filler breathers and caps in chrome, zinc epoxy-coated weatherproof finishes and corrosion-resistance technopolymer – lockable, dipsticks and side-mount versions available



T.R.A.P.™ Breather Technology (Thermally Reactive Advanced Protection)

T.R.A.P. breathers provide fast-acting protection against airborne moisture and particulate contamination. It stops solid particulate down to 3 µm at 97% efficiency as well as prevents moisture from entering the reservoir. Water-holding capacity is regenerated with every oil return phase for long service life. Its self-regenerating capability enables extended life.



Suction Strainers

Specifications

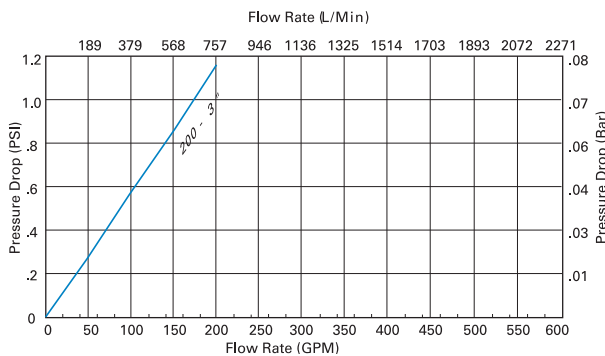
- Flow Range: 0-300 gpm / 0-1,140 lpm
- Outlet Port Size: 3/8" NPT to 4" NPT
- Stainless Steel Mesh
- Steel or nylon fittings
- Operating temperatures:
Steel fitting to 250°F / 121°C
Nylon fitting to 210°F / 100°C
- Relief valve available



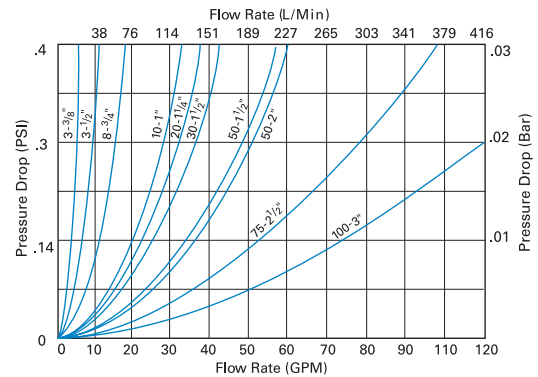
Features

Donaldson suction strainers are zinc-plated, with stainless steel mesh screens and rugged steel core centers epoxy bonded to heavy gauge connector and end caps. Suction strainers filter petroleum-based hydraulic fluids, phosphate esters, water glycols, lubricating oils, coolants, and fuels in fluid reservoirs, sumps and similar applications. They are cleanable and reusable. Clean by swishing in non-caustic solvent, then blow dry from inner diameter to outer diameter with compressed air.

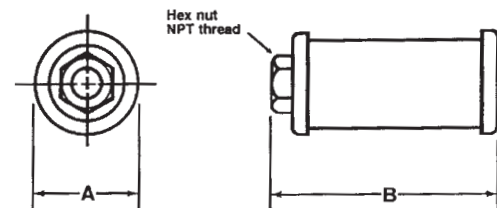
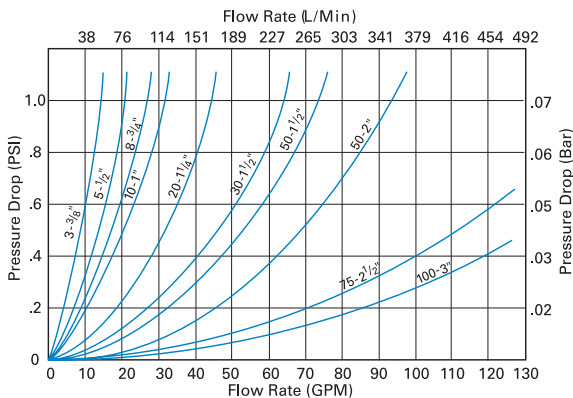
SEC (Steel Fitting) 200-300



PEC (Nylon Fitting) 3-100



SEH/SEC (Steel Fitting) 3-100



Note:
PEC and SEH model strainers have hex nut style outlet fittings. SEC model strainers have pipe coupling style (round) outlet fittings. All styles have NPT threads inside. Mount a minimum of 4" from the reservoir bottom.



Suction Strainer Choices

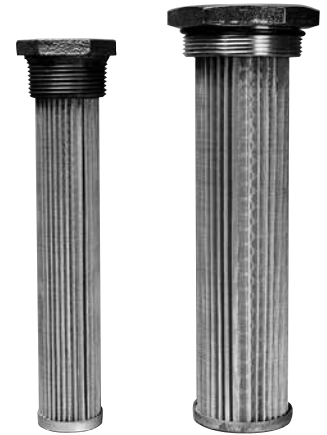
	Part No.	Description	Relief Valve Setting	Outlet Pipe Size	Wire Mesh Size	Dim. A (in/mm)	Dim. B (in/mm)	Screen Area (in ² /cm ²)	Max. Flow (gpm/lpm)
NYLON FITTING	P562235	PEC-3-3/8-100	n/a	3/8" NPT	100	1.9/48	2.7/69	20/129	3/11
	P562240	PEC-5-1/2-100	n/a	1/2" NPT	100	1.9/48	4.3/109	25/161	5/19
	P562245	PEC-8-3/4-100	n/a	3/4" NPT	100	2.7/69	4.3/109	40/258	8/30
	P562246	PEC-8-3/4-100-RV3	3 psid / 0.2 bar	3/4" NPT	100	2.7/69	4.3/109	40/258	8/30
	P562244	PEC-8-1-100	n/a	1" NPT	100	2.7/69	4.3/109	40/258	8/30
	P562226	PEC-10-1-100	n/a	1" NPT	100	2.7/69	5.6/142	70/452	10/38
	P562227	PEC-10-1-100-RV3	3 psid / 0.2 bar	1" NPT	100	2.7/69	5.6/142	70/452	10/38
	P562228	PEC-20-1.1/4-100	n/a	1-1/4" NPT	100	3.4/86	5.6/142	128/826	20/75
	P562229	PEC-20-1.1/4-100-RV3	3 psid / 0.2 bar	1-1/4" NPT	100	3.4/86	5.6/142	128/826	20/75
	P562231	PEC-20-1.1/4-200	n/a	1-1/4" NPT	200	3.4/86	5.6/142	128/826	20/75
	P562232	PEC-30-1.1/2-100	n/a	1-1/2" NPT	100	3.4/86	5.6/142	128/826	30/113
	P562233	PEC-30-1.1/2-100-RV3	3 psid / 0.2 bar	1-1/2" NPT	100	3.4/86	5.6/142	128/826	30/113
	P562236	PEC-50-1.1/2-100	n/a	1-1/2" NPT	100	4/102	8/203	200/1290	50/188
	P562237	PEC-50-1.1/2-100-RV3	3 psid / 0.2 bar	1-1/2" NPT	100	4/102	8/203	200/1290	50/188
	P562238	PEC-50-2-100	n/a	2" NPT	100	4/102	10.4/264	200/1290	50/188
	P562239	PEC-50-2-100-RV3	3 psid / 0.2 bar	2" NPT	100	4/102	10.4/264	200/1290	50/188
	P562242	PEC-75-2.1/2-100	n/a	2-1/2" NPT	100	5.2/132	8.5/216	316/2039	75/282
	P562243	PEC-75-2.1/2-100-RV3	3 psid / 0.2 bar	2-1/2" NPT	100	5.2/132	8.5/216	316/2039	75/282
	P562223	PEC-100-3-100	n/a	3" NPT	100	5.2/132	11.5/292	379/2445	100/376
	P562224	PEC-100-3-100-RV3	3 psid / 0.2 bar	3" NPT	100	5.2/132	11.5/292	379/2445	100/376
P562225	PEC-100-3-100-SST	n/a	3" NPT	100	5.2/132	11.5/292	379/2445	100/376	
STEEL FITTING	P562221	SEH-3-3/8-100	n/a	3/8" NPT	100	1.9/48	2.5/64	34/219	3/11
	P169012	SEH-5-1/2-100	n/a	1/2" NPT	100	2.63/67	3.1/79	62/400	5/19
	P563305	SEH-5-1/2-100-RV3	3 psid / 0.2 bar	1/2" NPT	100	2.7/69	3.1/79	62/400	5/19
	P169013	SEH-8-3/4-100	n/a	3/4" NPT	100	2.63/67	3.55/90	68/439	8/30
	P173910	SEH-8-3/4-100-RV3	3 psid / 0.2 bar	3/4" NPT	100	2.63/67	3.55/90	68/439	8/30
	P169014	SEH-10-1-100	n/a	1" NPT	100	2.63/67	5.35/136	110/710	10/38
	P173911	SEH-10-1-100-RV3	3 psid / 0.2 bar	1" NPT	100	2.63/67	5.35/136	110/710	10/38
	P169015	SEH-20-1.1/4-100	n/a	1-1/4" NPT	100	3.38/86	6.85/174	162/1045	20/75
	P173912	SEH-20-1.1/4-100-RV3	3 psid / 0.2 bar	1-1/4" NPT	100	3.38/86	6.85/174	162/1045	20/75
	P169016	SEH-30-1.1/2-100	n/a	1-1/2" NPT	100	3.38/86	8.01/203	225/1452	30/113
	P173913	SEH-30-1.1/2-100-RV3	3 psid/0.2 bar	1-1/2" NPT	100	3.38/86	8.01/203	225/1452	30/113
	P169017	SEH-50-1.1/2-100	n/a	1-1/2" NPT	100	3.94/100	9.8/249	340/2194	50/188
	P173914	SEH-50-1.1/2-100-RV3	3 psid / 0.2 bar	1-1/2" NPT	100	3.94/100	9.8/249	340/2194	50/188
	P562222	SEH-50-1.1/2-60	n/a	1-1/2" NPT	60	3.94/100	9.8/249	340/2194	50/188
	P169018	SEH-50-2-100	n/a	2" NPT	100	3.94/100	9.8/249	340/2194	50/188
	P173915	SEH-50-2-100-RV3	3 psid / 0.2 bar	2" NPT	100	3.94/100	9.8/249	340/2194	50/188
	P169019	SEC-75-2.1/2-100	n/a	2-1/2" NPT	100	5.12/130	10.1/257	400/2581	75/282
	P173916	SEC-75-2.1/2-100-RV3	3 psid / 0.2 bar	2-1/2" NPT	100	5.12/130	10.1/257	400/2581	75/282
	P169020	SEC-100-3-100	n/a	3" NPT	100	5.12/130	11.78/299	500/3226	100/376
	P173917	SEC-100-3-100-RV3	3 psid / 0.2 bar	3" NPT	100	5.12/130	11.78/299	500/3226	100/376
	P562211	SEC-100-3-60	n/a	3" NPT	60	5.12/130	11.78/299	500/3226	100/376
	P562212	SEC-100-3-60-RV3	3 psid / 0.2 bar	3" NPT	60	5.12/130	11.78/299	500/3226	100/376
	P562213	SEC-200-3-100	n/a	3" NPT	100	8.1/206	11.3/287	965/6226	200/752
	P562214	SEC-300-4-100	n/a	4" NPT	100	8.1/206	15/381	1370/8839	300/1128
	P171861	FIOA 20	n/a	G3/8"	90 micron	2.05/52	3.03/77	29/184	2.7/10
	P171869	FIOA 50	n/a	G3/4"	90 micron	2.95/75	3.74/95	54/348	6.6/25
	P171877	FIOA 90	n/a	G1"	90 micron	2.95/75	5.55/141	86/554	12.0/45
	P171885	FIOA 130	n/a	G1 1/4"	90 micron	3.74/95	7.24/184		17.3/65



Tank Mounted Strainers

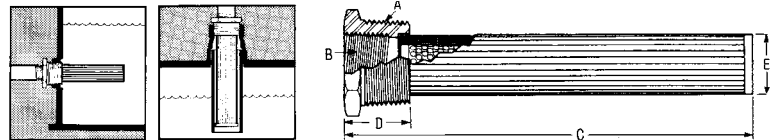
Specifications

- Flow Range: 0-100 gpm / 0-380 lpm
- Outlet Port Size: 3/8" NPT to 1 1/4" NPT or SAE-8 to SAE-20
- 140 Micron Stainless Steel Mesh
- Steel SAE bushing
- Cast iron NPT bushing
- Operating temperatures to 250°F / 121°C
- Relief valve available



Features

Tank mounted strainers offer easy installation. Access to reservoir interior is not needed. You can mount these units through a sidewall or through the tank top and into a standpipe.



Part No.	Description	Relief Valve Setting	Wire Mesh Size	Dimensions (in/mm)					Screen Area (in ² /cm ²)	Max. Flow (gpm/lpm)
				A	B	C	D	E		
P562270	TM-3-100	n/a	100	3/4" NPT	1/2" NPT	4/102	0.97/25	0.87/22	29/187	3/11
P562274	TM-5-100	n/a	100	1" NPT	1/2" NPT	5.34/136	1.06/27	1.17/30	35/226	5/19
P562275	TM-5-100-RV5	5 psid/0.35 bar	100	1" NPT	1/2" NPT	5.34/136	1.06/27	1.17/30	35/226	5/19
P562256	TM-10-100	n/a	100	1-1/4" NPT	3/4" NPT	8.17/208	1.2/30	1.36/35	64/413	10/38
P562257	TM-10-100-RV5	5 psid/0.35 bar	100	1-1/4" NPT	3/4" NPT	8.17/208	1.2/30	1.36/35	64/413	10/38
P562259	TM-10-60-RV5	5 psid/0.35 bar	60	1-1/4" NPT	3/4" NPT	8.17/208	1.2/30	1.36/35	64/413	10/38
P562260	TM-15-100	n/a	100	1-1/2" NPT	1" NPT	8.2/208	1.22/31	1.66/42	86/555	15/56
P562264	TM-15-100-RV5	5 psid/0.35 bar	100	1-1/2" NPT	1" NPT	8.2/208	1.22/31	1.66/42	86/555	15/56
P562266	TM-25-100	n/a	100	2" NPT	1-1/4" NPT	9.04/230	1.35/34	2.12/54	125/806	25/94
P562267	TM-25-100-RV5	5 psid/0.35 bar	100	2" NPT	1-1/4" NPT	9.04/230	1.35/34	2.12/54	125/806	25/94
P562271	TM-50-100	n/a	100	3" NPT	2" NPT	9.7/246	1.7/43	3/76	260/1677	50/188
P562272	TM-50-100-RV3	3 psid/0.2 bar	100	3" NPT	2" NPT	9.7/246	1.7/43	3/76	260/1677	50/188
P562273	TM-50-100-RV5	5 psid/0.35 bar	100	3" NPT	2" NPT	9.7/246	1.7/43	3/76	260/1677	50/188
P563306	TM-100-100	n/a	100	4" NPT	3" NPT	11.3/287	1.8/46	4/102	315/2032	100/376
P562255	TM-100-100-RV5	5 psid/0.35 bar	100	4" NPT	3" NPT	11.3/287	1.8/46	4/102	315/2032	100/376
P562253	STM-5-100	n/a	100	1-5/16" -- 12 UN	3/4" -- 16 UN	5.34/136	1.06/27	1.17/30	35/226	5/19
P562254	STM-5-100-RV5	5 psid/0.35 bar	100	1-5/16" -- 12 UN	3/4" -- 16 UN	5.34/136	1.06/27	1.17/30	35/226	5/19
P562247	STM-10-100	n/a	100	1-5/8" -- 12 UN	1-1/16" -- 12 UN	8.17/208	1.2/30	1.36/35	64/413	10/38
P562248	STM-10-100-RV5	5 psid/0.35 bar	100	1-5/8" -- 12 UN	1-1/16" -- 12 UN	8.17/208	1.2/30	1.36/35	64/413	10/38
P562249	STM-15-100	n/a	100	1-7/8" -- 12 UN	1-5/16" -- 12 UN	8.2/208	1.22/31	1.66/42	86/555	15/56
P562250	STM-15-100-RV5	5 psid/0.35 bar	100	1-7/8" -- 12 UN	1-5/16" -- 12 UN	8.2/208	1.22/31	1.66/42	86/555	15/56
P562251	STM-25-100	n/a	100	2-1/2" -- 12 UN	1-5/8" -- 12 UN	9.04/230	1.35/34	2.12/54	125/806	25/94
P562252	STM-25-100-RV5	5 psid/0.35 bar	100	2-1/2" -- 12 UN	1-5/8" -- 12 UN	9.04/230	1.35/34	2.12/54	125/806	25/94



Diffusers

Specifications

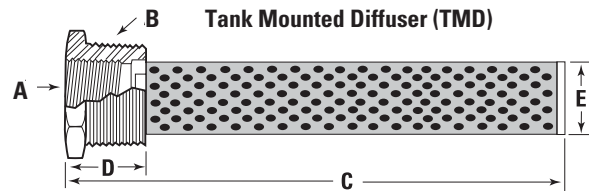
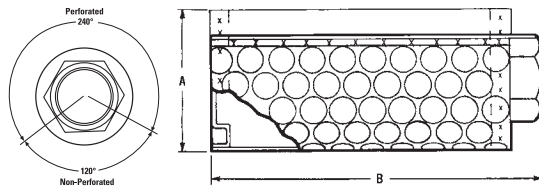
- Perforated Steel
- Cast iron bushings (TMD-tank mount)
- Zinc-plated steel (DFD-return line)
- Operating temperatures to 250°F / 121°C
- Flow Range: 0-450 gpm / 0-1,710 lpm



Features

Diffusers are highly effective in reducing aeration, foaming, turbulence and noise caused by return lines. Reservoir baffles can usually be eliminated, provided that the holes in the tube are positioned facing away from the pump suction inlet and below the reservoir oil level. Can be vertically or horizontally mounted with discharge side directed away from suction and preferably toward a tank wall or bottom.

Line Mounted Diffuser (DFD)



TMD - Tank Mount Diffusers

Part No.	Description	Rated Flow gpm/lpm	Dimension A Pipe Size	Dimension B Pipe Size	Dimensions (in/mm)		
					C	D	E
P562281	TMD-5	5/19	1/2" NPT	1" NPT	5.34/135	1.06/28	1.17/29
P562282	TMD-10	10/38	3/4" NPT	1-1/4" NPT	8.17/207	1.2/30	1.36/34
P562283	TMD-15	15/59	1" NPT	1-1/2" NPT	8.2/208	1.22/31	1.66/42
P562284	TMD-25	25/95	1-1/4" NPT	2" NPT	9.04/229	1.35/34	2.12/53
P562285	TMD-50	50/189	2" NPT	3" NPT	9.7/246	1.7/43	3.0/76

DFD - Line Mount Diffusers

Part No.	Description	Rated Flow gpm/lpm	Pipe Size	Dimension A (in/mm)	Dimension B (in/mm)
P562287	DFD-30	33/125	3/4" NPT	3.4/86.3	3.0/76
P562288	DFD-60	53/201	1" NPT	3.4/86.3	4.2/107
P562289	DFD-90	93/342	1-1/4" NPT	3.4/86.3	6.5/165
P562290	DFD-120	126/479	1-1/2" NPT	4.5/114.3	6.6/168
P562291	DFD-200	209/794	2" NPT	4.5/114.3	10.3/262
P562292	DFD-250	300/1140	2-1/2" NPT	5.25/133.4	13.0/330
P562293	DFD-300	450/1748	3" NPT	5.25/133.4	15.5/394



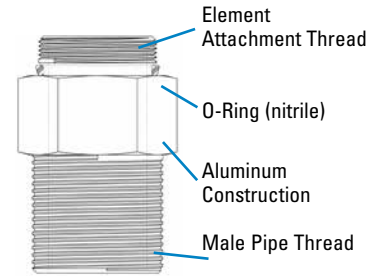
Breathers

Breathers are available in a variety of styles, materials and sizes. Breathers provide clean airflow into reservoirs and other storage containers where there is an exchange of air during changing fluid levels. In high moisture sites or applications with large changes in machine environments, breather caps with pressure relief and vacuum breakers limit air exchange and provide a positive suction head at the pump inlet.



Threaded Adapters for Creating Tank Breathers

Part No.	LHA Part No.	Male Pipe Thread	Element Attachment Thread	Length (in/mm)	Material
P173544	GBF-15	3/4" NPT	1"-12 UN	2.50/64	Aluminum
P173545	GBF-50/60	1-1/4" NPT	1-1/2"-16 UN	3.00/76	Aluminum
P562627	GBF-10	3/4" NPT	1-1/8"-16 UN	1.65/42	Steel
P562628	ABGBA	Bayonet Fitting	1-1/8"-16 UN	1.36/35	Technopolymer
P570353	NA	Bayonet Fitting	1-1/2"-16 UN	2.74/70	Technopolymer



Direct Replacements for Schroeder Breathers

A replacement for Schroeder part ABF-3/10 is available as a breather+adapter set. For other Schroeder replacements and as an alternative on the ABF-3/10, you may purchase adapters and spin-on filters as separate items.

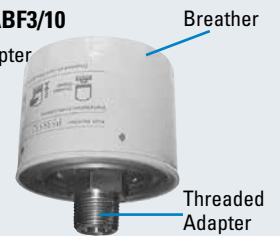
Schroeder Part No.	Donaldson Spin-On Breather + Adapter Set	Adapter	Spin-On Breather
ABF-3/10	P564425	P562627	P564424
ABF-3/10-F	NA	P562628	P564424
MBF-3-M-P20	NA	P173545	P550386
MBF-10-M-P20	NA	P173545	P550388

Replacement for Schroeder ABF3/10

P564425 Spin-On Breather & Adapter
P564424 Spin-On Breather only

Specifications:

Diameter: 3.69" / 93.7mm
Height: 3.6" / 91mm
Threads on adaptor: 3/4"-14 NPT



Spin-On Breather Filters

Part No.	Use with Adapter	Micron Rating	Length (in/mm)	Diameter (in/mm)	Flow (scfm/gpm/lpm)
P564424	P562627 or P562628	10 micron nom.	3.6/91	3.7/94	15/112/421
P556005	P562627 or P562628	10 micron nom.	5.4/137	3.7/94	23/172/647
P551551	P173544	10 micron nom.	5.4/137	3.7/94	23/172/647
P560693	P173544	10 micron abs.	5.4/137	3.7/94	23/172/647
P564357	P173544	5 micron abs.	7.9/200	3.7/94	28/216/812
P179089	P173544	10 micron abs.	7.9/200	3.7/94	28/216/812
P550386	P173545	3 micron nom.	6.7/170	5.0/127	35/262/985
P550250	P173545	3 micron nom.	10.7/272	5.0/127	42/314/1181
P167162	P173545	5 micron abs.	6.7/170	5.0/127	59/440/1654
P165762	P173545	5 micron abs.	10.7/272	5.0/127	64/479/1801
P550388	P173545	10 micron nom.	6.7/170	5.0/127	59/440/1654
P550251	P173545	10 micron nom.	10.7/272	5.0/127	64/479/1801
DBH5875	P173545	10 micron $\alpha_{c(1)} = 1000$	6.7/170	5.0/127	59/440/1654
P165875	P173545	10 micron abs.	6.7/170	5.0/127	59/440/1654
P165876	P173545	10 micron abs.	10.7/272	5.0/127	64/479/1801



T.R.A.P.™ Breather

Flow Rates to:

45 cfm / 1270 lpm

Particulate Removal to:

3 µm

Moisture Removal:

Reversible Adsorption

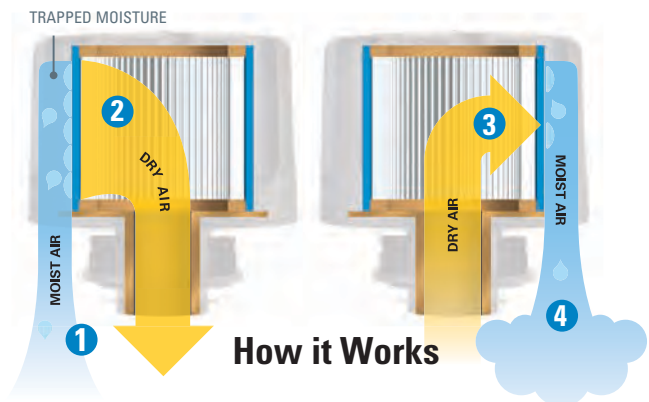


Features

Donaldson breathers with Thermally Reactive Advanced Protection (T.R.A.P.™) provide fast-acting protection for hydraulic reservoirs against airborne moisture and particulate contamination. Donaldson T.R.A.P. technology strip moisture vapor from intake air and expel the moisture back to the atmosphere. Moisture is prevented from entering and is actually “pumped” out with each flow cycle. T.R.A.P. media regenerates its water-holding capacity, which leads to longer service life – 3 to 4 times the life of conventional desiccant breathers.

- **Electronic Indicator**
Actuated by pressure differential, flashes red to indicate changeout is needed. Indicator setting, 1 psid/6.9 kPa. Indicator power source: 3V lithium battery CR2032.
- **Mechanical Indicator Kits**
Install kit between reservoir and T.R.A.P. breather. Lock-up style indicator with manual reset. Highly visible, bright red band shows when restriction limit is reached. Indicator setting, 20" H2O/5.0 kPa.
- **Oil Splash and Mist Containment**
Keeps oil inside reservoir.
- **Easy To Install**
Lightweight—simply hand tighten.
- **Rugged Design**
Effective to -40°F (-40°C). Robust housing protects media. Because it withstands high vibration, T.R.A.P. is suitable for both stationary and mobile applications.

Operating Temperatures
<ul style="list-style-type: none"> • -40°F to 200°F / -40°C to 93°C • Intermittent operation to 250°F / 121°C
Particulate Removal Efficiency
<ul style="list-style-type: none"> • 3 µm at 97%
Connection Sizes
<ul style="list-style-type: none"> • 1" and 3/4" NPT, 3/4" BSP Bayonet • 1/4" and 3/8" NPT, 9/16"-18UN
Flow Rates
<ul style="list-style-type: none"> • 45 cfm / 1274 lpm • 25 cfm / 708 lpm • 3 cfm / 85 lpm
Indicator Setpoint
<ul style="list-style-type: none"> • 1 psid / 6.9 kPa



INTAKE CYCLE (INHALATION)

- 1 The circuit “breathes in” air containing moisture vapor.
- 2 The T.R.A.P. breather strips moisture and particulate from the incoming air, allowing only clean, dry air to enter the circuit.

OUTFLOW CYCLE (EXHALATION)

- 3 During the “exhalation” cycle, the T.R.A.P. breather allows unrestricted airflow outward.
- 4 The outflow of dry air picks up the moisture collected by the T.R.A.P. breather during intake, and “blows it back out” – fully regenerating the breather’s water-holding capacity.



Self-Regenerating T.R.A.P. Breather Choices

- Refer to the FIK section for additional T.R.A.P. breather options specific to those assembly models only.

T.R.A.P. Breather Sizing

Trap Model	Hydraulic System (gal/l)	In-plant Lube (gal/l)	Outside (gal/l)
Standard	100/375	500/1875	250/938
Metal	40/150	200/750	100/375
Mini	4/15	20/75	10/38


Standard

Part No.	Connection	Maximum Flow (cfm/lpm)	Indicator	Moisture Removal
Standard ABS Plastic Breathers with Oil/Splash Containment				
P566151*	1" NPT	45/1274	opt mechanical	Yes indicator kit
P564669	1" NPT	45/1274	electronic**	Yes
P566156	Bayonet	45/1274	none	Yes
P565616	Bayonet	45/1274	electronic**	Yes
Medium Epoxy Coated Steel Breathers with Oil/Splash Containment				
P565857*	3/4" NPT	25/708	opt mechanical	Yes indicator kit
P565858	Bayonet	25/708	none	Yes
P566037	3/4" BSP	25/708	none	Yes
P575077	Bayonet with Lock Tab	25/708	none	Yes


Medium Metal

Mini

**LED indicators not rated for fuel.

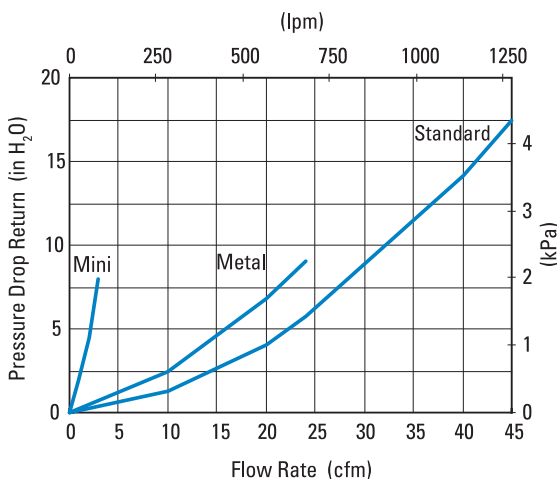
Part No.	Connection	Maximum Flow (cfm/lpm)	Indicator	Moisture Removal
Mini Nylon Breathers with Oil/Splash Containment				
P566174	9/16"-18 UNF	3/85	none	Yes
P567390	3/8" NPT	3/85	none	Yes
P567392	1/4" NPT	3/85	none	Yes

Part No.	Connection	Maximum Flow (cfm/lpm)	Indicator	Moisture Removal
Mini Particulate Only Breathers with Oil Splash Containment				
P567932	3/8" NPT	3/85	none	No
P567933	1/4" NPT	3/85	none	No

Part No.	Connection	Indicator
*Mechanical Indicator Kit - For use with P566151 & P565857 (*requires customer-supplied 3/4"x1" NPT reducer bushing)		
P566168	1" NPT coupling	20" H2O/5 kPa trip point

Part No.	Description	Connection
Bayonet Style Filler Basket - For use with bayonet style T.R.A.P. Breathers		
P566321	3" Stainless steel basket	6-bolt 2.81/71.4 circle
P575080	6" Stainless steel basket with Lock Tab	6-bolt 2.81/71.4 circle
P563874	4" Nylon Basket	6-bolt 2.81/71.4 circle
P563453	6" Stainless steel basket	6-bolt 2.81/71.4 circle

T.R.A.P. Performance Data



Activation Instructions for

T.R.A.P. Breathers with Electronic Indicator

The T.R.A.P. breather has a service indicator that will indicate when it is time to replace the T.R.A.P. This indicator should be activated before the T.R.A.P. is put into service. Before the T.R.A.P. is activated, it is in a sleep mode to conserve the battery. The T.R.A.P. can remain in a sleep mode for over 6 months without detriment to the battery. While in sleep mode, the LED light will not flash until it is activated.

Activation

- Remove the T.R.A.P. from the box and turn it upside down - with the neck and thread up.
- Using a forefinger, insert into the neck of the T.R.A.P. and press on the plastic screen until the LED light begins to flash. The light will flash three times with a shortflash followed by a long flash and then another short flash.
- Release pressure from the switch immediately after the light begins flashing.

The T.R.A.P. is now activated.

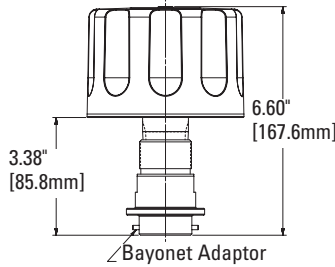
Replacement

Replace T.R.A.P. with a new one when the light begins to blink.

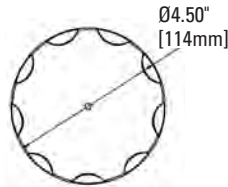


T.R.A.P.™ Breather Specifications

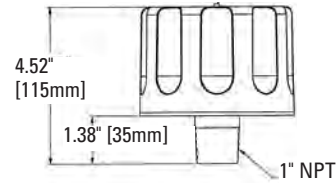
Standard **P565616** (electronic indicator) Bayonet connection
P566156 (no indicator version) Bayonet connection
Bayonet connection



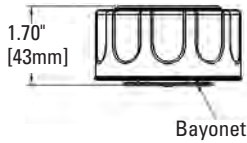
Top View



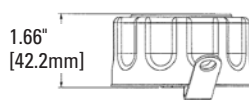
P564669 (optional mechanical) 1" NPT connection
P566151 (no indicator version) 1" NPT connection



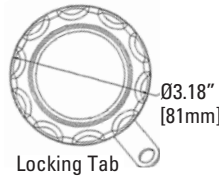
Metal **P565858** Bayonet connection
P575077 Bayonet connection with Lock Tab



Bayonet

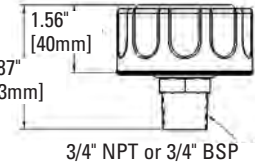
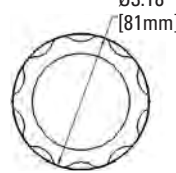


Top View

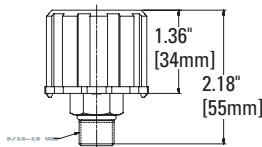


P565857 (3/4" NPT connection, optional mechanical indicator)

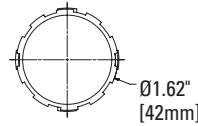
P566037 (3/4" BSP connection)



Mini **P566174** 9/16-18 UNF
P567390 3/8" NPT
P567392 1/4" NPT



Top View



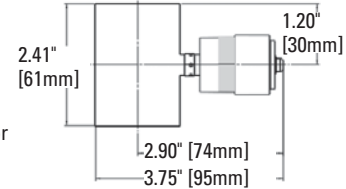
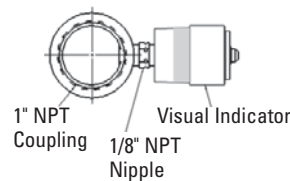
Mechanical Indicator Kit

P566168

Suitable for use with **P566151** and **P565857***

*Requires additional 3/4" x 1" reducer bushing (supplied by customer)

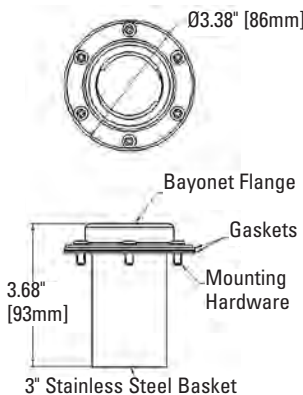
Top View



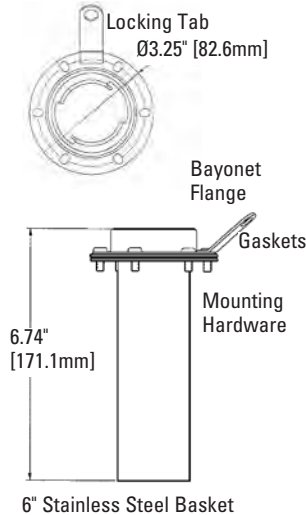
Bayonet Style Filler Basket/Flange Kits

Use with any bayonet style T.R.A.P. Breather

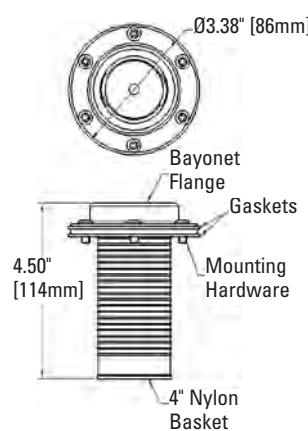
P566321



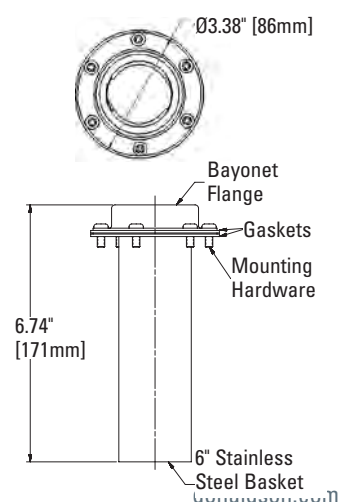
P575080



P563874



P563453





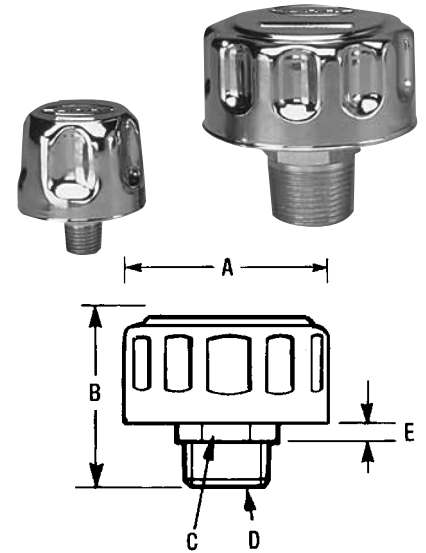
ABS, MBS Series

Specifications

- Chrome plated, epoxy coated or zinc plated steel cap
- Airflow to 30 cfm / 850 lpm
- Compatible with petroleum based fluids
- Temperature to 212°F / 100°C
- 1/2", 3/4" and 1" NPT on ABS
- 1/4" and 3/8" NPT on MBS

Options

- 3, 10 and 40 micron (ABS), 10 and 40 micron (MBS)
- Zinc and epoxy coated weather-proof cap versions



Part No.	Reference	Micron Rating	Airflow Capacity (cfm/lpm)	Dimensions (in/mm)					Finish
				A	B	C	D	E	
P562510	MBS-10-N04	10 µm	10/283	1.85/47	2.0/51	.75/19	1/4" NPT	.2/5	Chrome Plated
P562511	MBS-10-N06	10 µm	10/283	1.85/47	2.0/51	.75/19	3/8" NPT	.2/5	Chrome Plated
P562512	MBS-40-N04	40 µm	10/283	1.85/47	2.0/51	.75/19	1/4" NPT	.2/5	Chrome Plated
P562514	MBS-40-N06	40 µm	10/283	1.85/47	2.0/51	.75/19	3/8" NPT	.2/5	Chrome Plated
P562516	MBS-Z-10-N06	10 µm	10/283	1.85/47	2.0/51	.75/19	3/8" NPT	.2/5	Zinc Plated
P562517	ABS-03-N12	3 µm	30/850	3.15/80	2.8/71	1.18/30	3/4" NPT	.5/13	Chrome Plated
P562518	ABS-10-B12	10 µm	30/850	3.15/80	2.8/71	1.18/30	3/4" BSP	.5/13	Chrome Plated
P562519	ABS-10-N08	10 µm	30/850	3.15/80	2.8/71	1.18/30	1/2" NPT	.5/13	Chrome Plated
P562520	ABS-10-N12	10 µm	30/850	3.15/80	2.8/71	1.18/30	3/4" NPT	.5/13	Chrome Plated
P562521	ABS-10-N16	10 µm	30/850	3.15/80	2.8/71	1.18/30	1" NPT	.5/13	Chrome Plated
P562522	ABS-40-N08	40 µm	30/850	3.15/80	2.8/71	1.18/30	1/2" NPT	.5/13	Chrome Plated
P562523	ABS-40-N12	40 µm	30/850	3.15/80	2.8/71	1.18/30	3/4" NPT	.5/13	Chrome Plated
P562524	ABS-40-N16	40 µm	30/850	3.15/80	2.8/71	1.18/30	1" NPT	.5/13	Chrome Plated
P562525	ABS-W-03-N12	3 µm	30/850	3.15/80	2.8/71	1.18/30	3/4" NPT	.5/13	Epoxy Coated Black
P562526	ABS-W-10-N08	10 µm	30/850	3.15/80	2.8/71	1.18/30	1/2" NPT	.5/13	Epoxy Coated Black
P562527	ABS-W-10-N12	10 µm	30/850	3.15/80	2.8/71	1.18/30	3/4" NPT	.5/13	Epoxy Coated Black
P562528	ABS-W-10-N16	10 µm	30/850	3.15/80	2.8/71	1.18/30	1" NPT	.5/13	Epoxy Coated Black
P563901	ABS-W-40-B12	40 µm	30/850	3.15/80	2.8/71	1.18/30	3/4" BSP	.5/13	Epoxy Coated Black
P562529	ABS-W-40-N12	40 µm	30/850	3.15/80	2.8/71	1.18/30	3/4" NPT	.5/13	Epoxy Coated Black
P562530	ABS-W-40-N16	40 µm	30/850	3.15/80	2.8/71	1.18/30	1" NPT	.5/13	Epoxy Coated Black
P562532	ABS-Z-40-N08	40 µm	30/850	3.15/80	2.8/71	1.18/30	1/2" NPT	.5/13	Zinc Plated
P562533	ABS-Z-40-N12	40 µm	30/850	3.15/80	2.8/71	1.18/30	3/4" NPT	.5/13	Zinc Plated



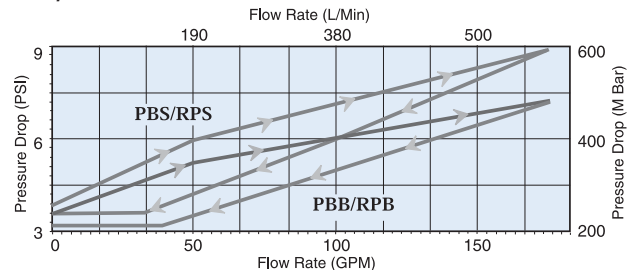
PBS Series Pressure Filler Breather Cap - Screw In Style

Specifications

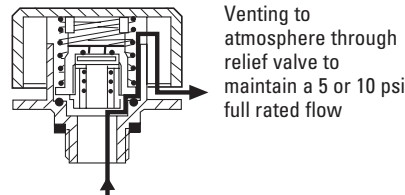
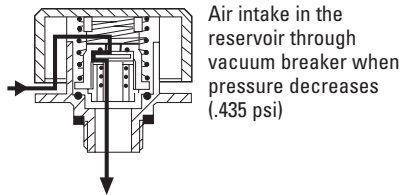
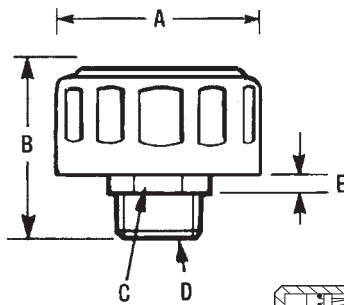
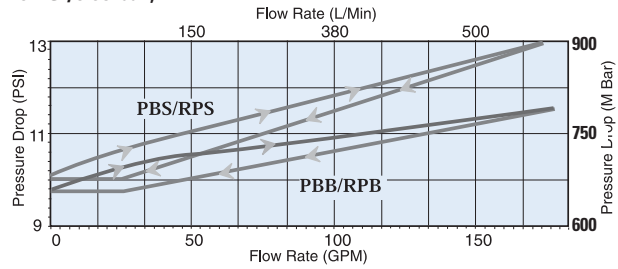
- Chrome plated or epoxy coated steel cap
- Air intake valve opens at 0.435 psi/3 kPa
- Compatible with petroleum based fluids
- Temperature range:
-22°F to +240°F / -30°C to 115°C
- Nitrile gaskets standard
- 10 and 40 micron available
- Relief valve settings at 5 psi / 0.34 bar or 10 psi / 0.69 bar full rate flow



5 PSI/0.34 bar



10 PSI/0.69 bar



Part No.	Description	Micron Rating	Airflow Capacity (cfm/lpm)	Relief Valve Setting (psi/bar)	Dimensions (in/mm)					Finish
					A	B	C	D	E	
P563362	PBS-10-10-N12	10 µm	30/850	10/0.69	3.15 / 80	2.8 / 71	1.18 / 30	3/4" NPT	.5 / 13	Chrome Plated
P563363	PBS-10-10-N16	10 µm	30/850	10/0.69	3.15 / 80	2.8 / 71	1.18 / 30	1" NPT	.5 / 13	Chrome Plated
P563365	PBS-10-5-N12	10 µm	30/850	5/0.34	3.15 / 80	2.8 / 71	1.18 / 30	3/4" NPT	.5 / 13	Chrome Plated
P563366	PBS-10-5-N16	10 µm	30/850	5/0.34	3.15 / 80	2.8 / 71	1.18 / 30	1" NPT	.5 / 13	Chrome Plated
P563367	PBS-40-10-N12	40 µm	30/850	10/0.69	3.15 / 80	2.8 / 71	1.18 / 30	3/4" NPT	.5 / 13	Chrome Plated
P563368	PBS-40-5-N12	40 µm	30/850	5/0.34	3.15 / 80	2.8 / 71	1.18 / 30	3/4" NPT	.5 / 13	Chrome Plated
P563369	PBS-40-5-N16	40 µm	30/850	5/0.34	3.15 / 80	2.8 / 71	1.18 / 30	1" NPT	.5 / 13	Chrome Plated
P563370	PBS-W-10-5-N12	10 µm	30/850	5/0.34	3.15 / 80	2.8 / 71	1.18 / 30	3/4" NPT	.5 / 13	Epoxy Coated Black
P563371	PBS-W-40-10-N12	40 µm	30/850	10/0.69	3.15 / 80	2.8 / 71	1.18 / 30	3/4" NPT	.5 / 13	Epoxy Coated Black
P563372	PBS-W-40-5-N12	40 µm	30/850	5/0.34	3.15 / 80	2.8 / 71	1.18 / 30	3/4" NPT	.5 / 13	Epoxy Coated Black



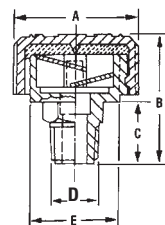
Filler Breather Caps

Specifications

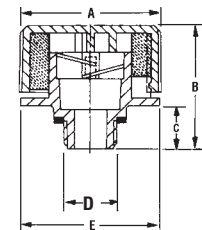
- High impact-resistant technopolymer construction
- Cap diameters 1.22" / 31mm, 1.65" / 42mm, 2.24" / 57mm and 2.75" / 70mm
- Compatible with petroleum and water based fluids
- Temperature range -22°F to +240°F / -30°C to +115°C
- Displacements to 250 gpm / 9461 lpm without baffle
- Displacements to 144 gpm / 547 lpm with anti-splash baffle



CPS / DPS / LPS



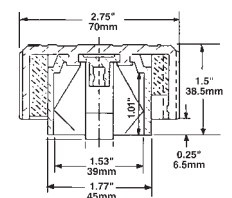
BPS / RPS



Part No.	Description	Micron Rating	Airflow Capacity (cfm/lpm)	Relief Valve Setting (psi/bar)	Dimensions (in/mm)				
					A	B	C	D	E
P562494	DPS-40-N04	40 µm	4.9/139	n/a	1.65/42	1.54/52	.67/18	1/4" NPT	1.2/30
P562495	DPS-40-N04-A	40 µm	2.1/59	n/a	1.65/42	2.05/52	.71/18	1/4" NPT	1.2/30
P563614	DPS-40-N06	40 µm	11.7/331	n/a	1.65/42	2.05/52	.71/18	3/8" NPT	1.2/30
P562497	DPS-40-N06-A	40 µm	5/142	n/a	1.65/42	2.05/52	.71/18	3/8" NPT	1.2/30
P562501	DPS-40-N08	40 µm	11.7/331	n/a	1.65/42	2.05/52	.71/18	1/2" NPT	1.2/30
P562502	DPS-40-N12	40 µm	12.5/354	n/a	1.65/42	2.05/52	.71/18	3/4" NPT	1.2/30
P562503	DPS-40-N12-A	40 µm	5.4/153	n/a	1.65/42	2.05/52	.71/18	3/4" NPT	1.2/30
P562483	CPS-40-N12	40 µm	27/765	n/a	2.24/57	1.85/47	.87/22	3/4" NPT	1.53/39
P562484	CPS-40-N12-A	40 µm	13.5/382	n/a	2.24/57	1.85/47	.87/22	3/4" NPT	1.53/39
P562480	BPS-10-N12-A	10 µm	19.3/547	n/a	2.75/70	2.48/63	.83/21	3/4" NPT	2.68/68
P562481	BPS-40-N12	40 µm	33.4/946	n/a	2.75/70	2.48/63	.83/21	3/4" NPT	2.68/68
P562482	BPS-40-N12-A	40 µm	19.3/547	n/a	2.75/70	2.48/63	.83/21	3/4" NPT	2.68/68
P562492	RPS-40-5-N12	40 µm	30/850	5/0.34	2.75/70	2.48/63	.83/21	3/4" NPT	2.68/68

* -A = anti-splash

Part No.	Description	Micron Rating	Airflow Capacity (cfm/lpm)	Dimensions (in/mm)				Comment
				A	B	C	D	
P562476	ABO-10	10 µm	30/850	2.75/70	1.5/39	.25/7	1.77/45	Fits over 1.50" OD tube
P562477	ABO-40	40 µm	30/850	2.75/70	1.5/39	.25/7	1.77/45	Fits over 1.50" OD tube

ABO




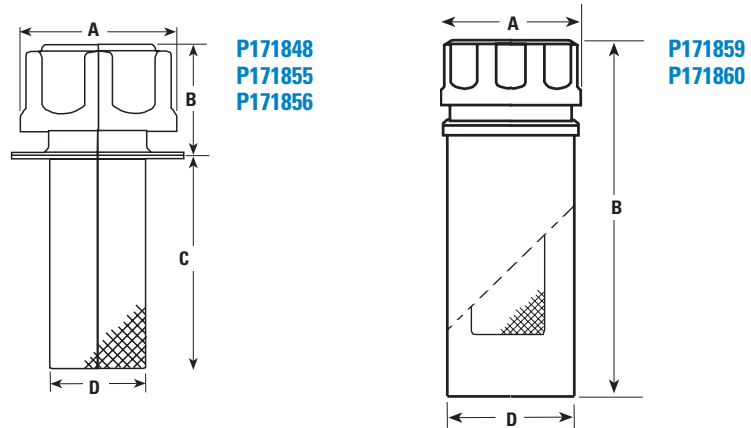
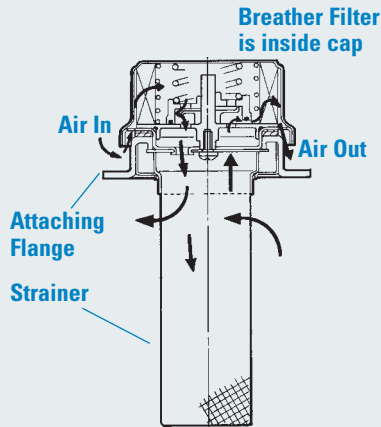
Filler Breather Assemblies

Features

- Removable 500 µm mesh strainer. (Except model P171848, which has a non-removable strainer.)
- 10 µm air breather/filter.
- Models P171855 & P171848 include drilled flanges with attaching screws.

How it Works

As fluid levels rise and fall inside the reservoir, air flows in and out through the strainer and breather as shown below. The breather filter inside the cap removes contaminants as small as 10 µm from the air to keep airborne contaminant from entering the fluid. The strainer removes large particles from fluid as it is added to the reservoir.



Filler Breather Specifications

Part No.	FLANGE SPECIFICATIONS				Flow (gpm/lpm)	FILLER BREATHER SPECIFICATIONS			
	Outer Dia. (in/mm)	No. of Holes	Hole Dia. (in/mm)	Bolt Circle		A	B	C	D
P171848	2.01/51	3	.22/5.5	1.61/41	70/270	1.81/45	1.38/35	2.48/63	1.1/28
P171855	3.31/84	6	.22/5.5	2.88/73	124/470	2.76/70	1.81/46	3.94/100	1.5/38
P171856	3.31/84	n/a	n/a		124/470	2.76/70	1.81/46	3.94/100	1.15/38
P171859		n/a - weldable			124/470	2.76/70	7.09/180	2.50/64	
P171860 *		n/a - weldable			124/470	2.76/70	7.09/180	2.50/64	

* For pressurized reservoirs at 5.8 psi/0.4 bar relief pressure.

Filler Cap Only (Replacement)

- P173292 --- fits P171855, P171856, P171859
- P173364 for pressurized reservoir --- fits P171860

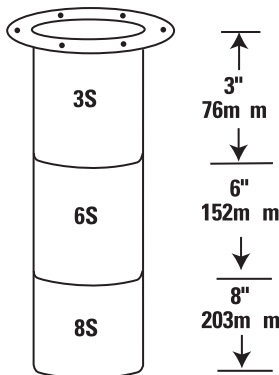
ABB Series Filler Breathers - Bayonet Style

Specifications

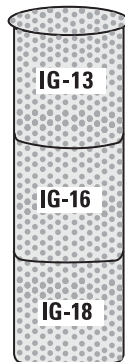
- Chrome plated, epoxy coated or zinc plated steel caps
- Airflow to 30 cfm / 850 lpm
- Compatible with petroleum based fluids
- 30 mesh technopolymer basket
- Self tapping screws for flange mount
- Cork gaskets
- 3, 10, or 40 micron



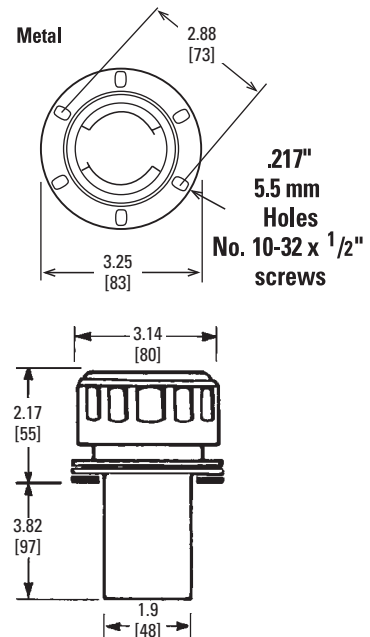
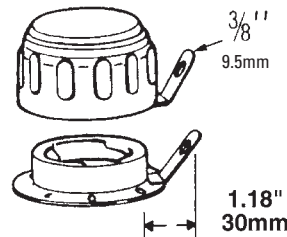
30 MESH STAINLESS STEEL BASKETS



INNER GUARDS



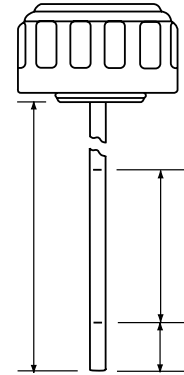
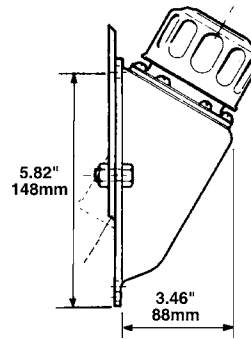
LOCKING TABS (AB ONLY)



Part No.	Reference	Features	Micron Rating	Finish
P562610	ABB-W-03-8S-IG	8" Stainless basket, inner guard	3 µm	Epoxy coated, black
P562611	ABB-W-10-3S	3" Stainless basket	10 µm	Epoxy coated, black
P562612	ABB-W-10-3S-LT	3" Stainless basket, lock tab	10 µm	Epoxy coated, black
P562614	ABB-W-10-N	Nylon basket	10 µm	Epoxy coated, black
P562616	ABB-W-10-N-R	Nylon basket, nitrile gasket	10 µm	Epoxy coated, black
P562618	ABB-W-40-3S	3" Stainless basket	40 µm	Epoxy coated, black
P562619	ABB-W-40-6S	6" Stainless basket	40 µm	Epoxy coated, black
P562620	ABB-W-40-N	Nylon basket	40 µm	Epoxy coated, black
P562623	ABB-Z-40-3S	3" Stainless basket	40 µm	Zinc plated
P562624	ABB-Z-40-3S-LT	3" Stainless basket, lock tab	40 µm	Zinc plated
P562625	ABB-Z-40-N	Nylon basket	40 µm	Zinc plated
P562626	ABB-Z-40-N-R	Nylon basket, nitrile gasket	40 µm	Zinc plated



Side Mount
 P563609 Side Mount Kit
 Can be used with all Bayonet and Threaded Flange Breathers (except MBB & Pressurized Breathers). Maximum torque for fastening 112 in. lbs. with washers.

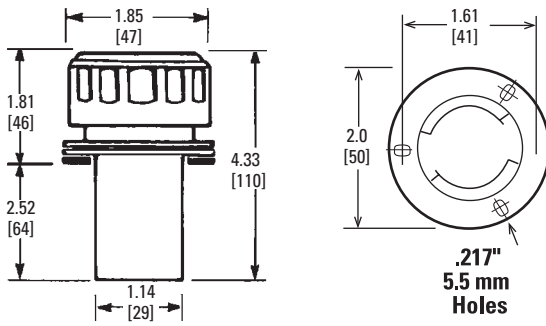


Dipsticks available for some models. See Features section on assembly tables.

Chrome ABB Series Filler Breathers - Bayonet Style

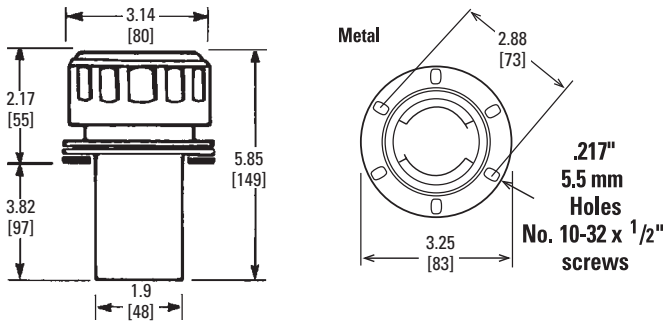
Airflow to 30 cfm/850 lpm

Part No.	Description	Features	Micron Rating
P562573	ABB-03-N	Nylon basket	3 µm
P562574	ABB-10	Flange, screws & gasket, no basket	10 µm
P562575	ABB-10-3S	3" Stainless basket	10 µm
P562576	ABB-10-3S-LT	3" Stainless basket, Lock tab	10 µm
P562577	ABB-10-3S-R	3" Stainless basket, nitrile gasket	10 µm
P562578	ABB-10-3S-SMB	3" Stainless basket, side mount kit	10 µm
P562579	ABB-10-6S	6" Stainless basket	10 µm
P562580	ABB-10-6S-LT	6" Stainless basket, Lock tab	10 µm
P562581	ABB-10-6S-R	6" Stainless basket, nitrile gasket	10 µm
P562582	ABB-10-8S	8" Stainless basket	10 µm
P562584	ABB-10-N	Nylon basket	10 µm
P562585	ABB-10-N-LT	Nylon basket, Lock tab	10 µm
P562587	ABB-10-N-R	Nylon basket, nitrile gasket	10 µm
P562589	ABB-40	Flange, screws & gasket, no basket	40 µm
P562590	ABB-40-3S	3" Stainless basket	40 µm
P562592	ABB-40-3S-R	3" Stainless basket, nitrile gasket	40 µm
P562593	ABB-40-3S-SMB	3" Stainless basket, side mount kit	40 µm
P562594	ABB-40-6S	6" Stainless basket	40 µm
P562595	ABB-40-6S-D	6" Stainless basket, dipstick	40 µm
P562596	ABB-40-6S-LT	6" Stainless basket, Lock tab	40 µm
P562598	ABB-40-8S	8" Stainless basket	40 µm
P562599	ABB-40-8S-D	8" Stainless basket, dipstick	40 µm
P562601	ABB-40-CWOF	Cap only	40 µm
P562602	ABB-40-LT	Lock tab, no basket	40 µm
P562603	ABB-40-N	Nylon basket	40 µm
P562605	ABB-40-N-LT	Nylon basket, Lock tab	40 µm
P562608	ABB-40-N-R	Nylon basket, nitrile gasket	40 µm
P562609	ABB-40-N-SMB	Nylon basket, side mount kit	40 µm



Mini Filler Breather

Part No.	Description	Micron Rating	Airflow Capacity (cfm/lpm)	Finish
P562561	MBB-10-N	10 µm	10/283	Chrome
P562562	MBB-40-N	40 µm	10/283	Chrome



Non-Vent Filler Cap, Bayonet

Part No.	Description	Feature	Finish
P562563	NVB-00-3S	Filler Cap Assembly with 3" Stainless Basket	Chrome
P562564	NVB-00-N	Filler Cap Assembly with Nylon Basket	Chrome
P562565	NVB-W-00-8S	Filler Cap Assembly with 8" Stainless Basket	Epoxy coated, Black



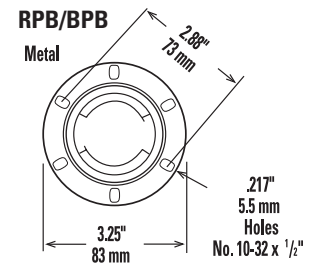
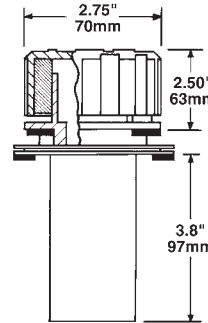
Filler Breathers

Specifications

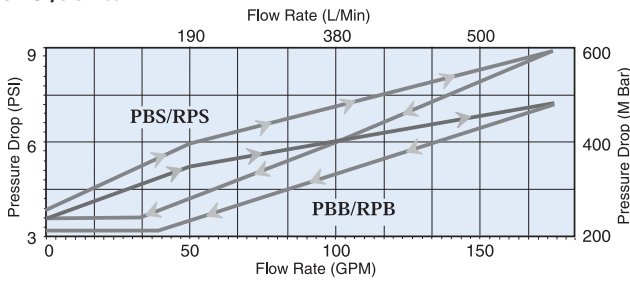
- High impact black technopolymer
- Temperature range
-22°F to +240°F / -30°C to +115 °C
- 2.75" diameter cap
- Available with bayonet or threaded flange
- Airflow to 30 cfm / 850 lpm
- Compatible with petroleum and water based fluids
- 30 mesh technopolymer basket

Options

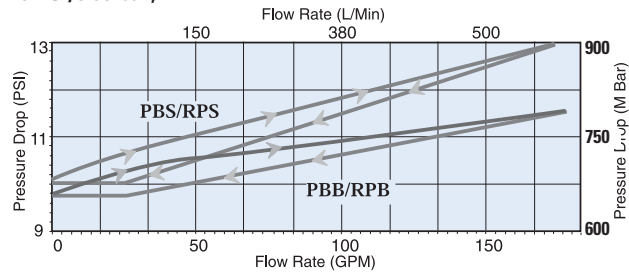
- Dipstick 3" / 76mm, 6" / 152mm and 8" / 203mm stainless steel baskets



5 PSI/0.34 bar



10 PSI/0.69 bar



Bayonet Style (RPB) (BPB)

Part No.	Description	Feature	Micron Rating	Airflow Capacity (cfm/lpm)	Relief Valve Setting (psi/bar)
P562554	RPB-40-5-3S	3" Stainless Basket	40 µm	30/850	5/0.34
P562555	RPB-40-5-6S	6" Stainless Basket	40 µm	30/850	5/0.34
P562556	RPB-40-5-N	Nylon Basket	40 µm	30/850	5/0.34
P562534	BPB-10-A CAP ONLY	Breather Cap	10 µm	30/850	N/A
P562536	BPB-10-N-A	Breather	10 µm	30/850	N/A
P563813	BPB-40 CAP ONLY	Breather Cap	40 µm	30/850	N/A
P562537	BPB-40-3S	Breather with 3" Steel Basket	40 µm	30/850	N/A
P562538	BPB-40-3S-A	Breather	40 µm	30/850	N/A
P562539	BPB-40-6S-D	Filler Breather with Dip Stick	40 µm	30/850	N/A
P562541	BPB-40-N	Breather	40 µm	30/850	N/A
P562542	BPB-40-N-A	Breather	40 µm	30/850	N/A
P562544	BPB-40-N-SMB	Breather with Side Mount Kit	40 µm	30/850	N/A



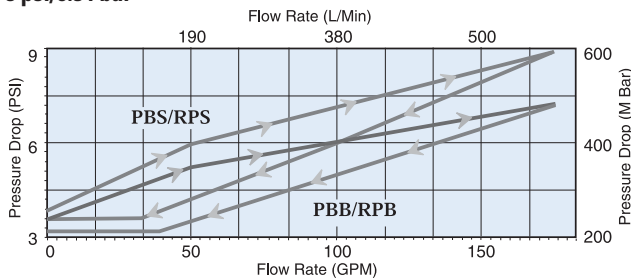
PBB Series Pressure Filler Breather Cap - Bayonet Style

Specifications

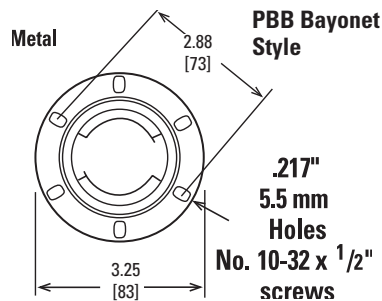
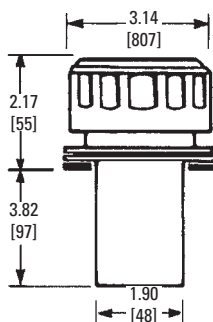
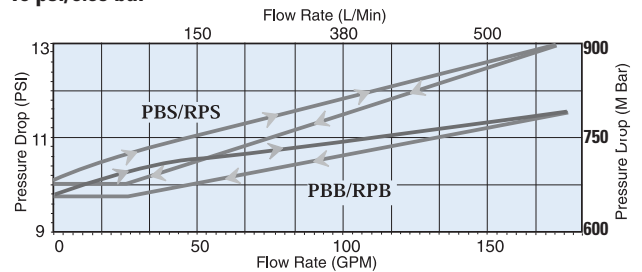
- Chrome plated, epoxy coated or zinc plated steel cap
- Air intake valve opens at 0.435 psi / 3 kPa
- Compatible with petroleum based fluids
- Temperature range
-22°F to +240°F / -30°C to 115°C
- Nitrile gaskets standard
- 10 and 40 micron available
- Relief valve settings at 5 or 10 psi / 0.34 or 0.69 bar full rate flow



5 psi/0.34 bar



10 psi/0.69 bar

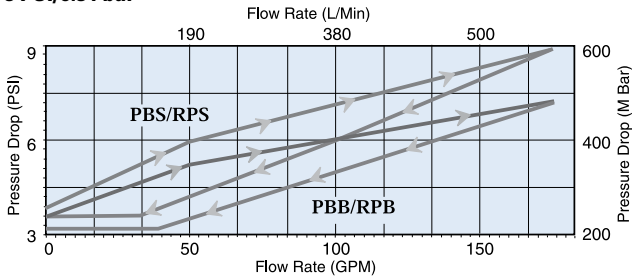




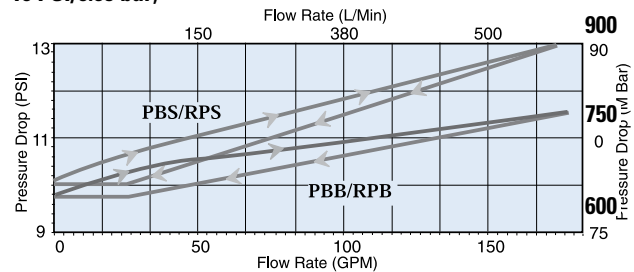
PBB Series Pressure Filler Breather Cap - Bayonet Style

Part No.	Description	Feature	Micron Rating	Airflow Capacity (cfm/lpm)	Relief Valve Setting (psi/mm)	Finish
P563346	PBB-10-5-3S	3" Stainless Basket	10 µm	30/850	5/0.34	Chrome
P563347	PBB-10-5-6S	6" Stainless Basket	10 µm	30/850	5/0.34	Chrome
P563348	PBB-10-5-N	Nylon Basket	10 µm	30/850	5/0.34	Chrome
P563349	PBB-10-5-N-LT	Nylon Basket, Lock Tab	10 µm	30/850	5/0.34	Chrome
P563350	PBB-40-10-N	Nylon Basket	40 µm	30/850	10/0.69	Chrome
P563351	PBB-40-5	Flange, Screws & Gasket, No Basket	40 µm	30/850	5/0.34	Chrome
P563352	PBB-40-5-3S	3" Stainless Basket	40 µm	30/850	5/0.34	Chrome
P563353	PBB-40-5-6S	6" Stainless Basket	40 µm	30/850	5/0.34	Chrome
P563354	PBB-40-5-8S	8" Stainless Basket	40 µm	30/850	5/0.34	Chrome
P563355	PBB-40-5-N	Nylon Basket	40 µm	30/850	5/0.34	Chrome
P563356	PBB-W-10-5-N	Nylon Basket	10 µm	30/850	5/0.34	Epoxy Coated, Black
P563358	PBB-W-40-5-3S	3" Stainless Basket	40 µm	30/850	5/0.34	Epoxy Coated, Black
P563361	PBB-Z-10-5-N	Nylon Basket	10 µm	30/850	5/0.34	Zinc Plated
P563326		3" Stainless Basket Only				
P563465		6" Stainless Basket Only				
P563466		8" Stainless Basket Only				
P563322		4" Nylon Basket Only				

5 PSI/0.34 bar



10 PSI/0.69 bar



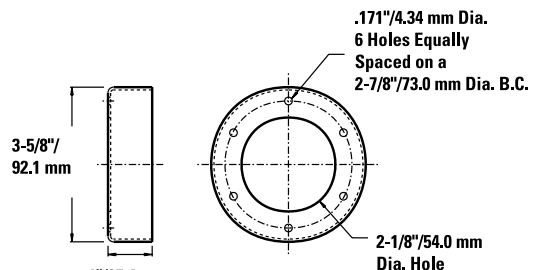
Weld Risers for Filler Breathers

Part No.	Description	Height (in/mm)
P562668	WR-5565	1/25.4



Features

- Steel stamped construction
- Predrilled holes align with standard breather tank flanges
- Provides for easy installation of filler breathers





Reservoir Air Dryer

Water/moisture in fluid tanks and reservoirs is a big problem. It creates corrosion, pump cavitation, viscosity changes, additive dropout, oxidation and a host of other major system issues. Our new Reservoir Air Dryer removes damaging water, while eliminating the need to continually replace conventional desiccant breathers, or to dry fluids with vacuum dehydration units.

How it works. The Reservoir Air Dryer combats ambient ingress of moisture by introducing a steady flow of clean, dry air to the reservoir/tank. This flow of air keeps the relative humidity low in the headspace, driving moisture from the fluids and preventing condensation.

Easy Installation. With no electrical hookups, installation is easy. Just connect compressed air to the inlet and the outlet to the top of the reservoir. A coalescing pre-filter (the only part that needs servicing – takes seconds to replace) and outlet regulator are pre-installed.

Don't Forget The T.R.A.P.™ When you combine the Reservoir Air Dryer with a T.R.A.P. Breather – the complete system keeps moisture and contamination out, even if fluid flow rate out of the tank surpasses the Reservoir Air Dryer flow rate into the tank. The Reservoir Air Dryer also regenerates the T.R.A.P. Breather, increasing life and reducing the total cost of ownership.

If you've got a water problem in your reservoirs or storage tanks, or would like to prevent moisture from entering your system, contact your Donaldson distributor or representative for a complete site audit or for more information.





Reservoir Air Dryer

Features

- Designed to operate with Standard Plant Air — instrument quality air is not required!
- Submicron Coalescing Air Filter — collects oil and water droplets and fine particles present in the inlet air.
- Automatic Drain — purges captured liquid. No intervention required
- Visual Indicator — monitors filter condition
- Membrane Air Dryer — reduces the plant air dew point by as much as 150°F (66°C)
- Pressure Regulator — depressurizes the air and ensures that the proper volume of air is introduced into the reservoir
- The Clean Dry Air Sweep dehydrates the reservoir headspace and removes dissolved moisture from exposed oils and fuels*



*The Reservoir Air Dryer is not recommended for use on gasoline holding tanks, or for the head space of any flammable liquid (Flash Point below 100°F / 38°C)



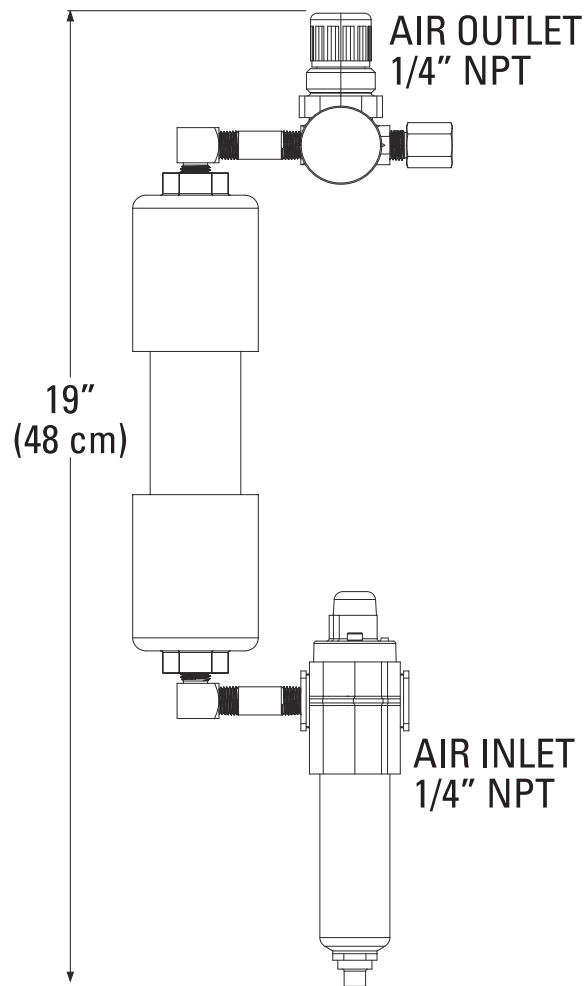
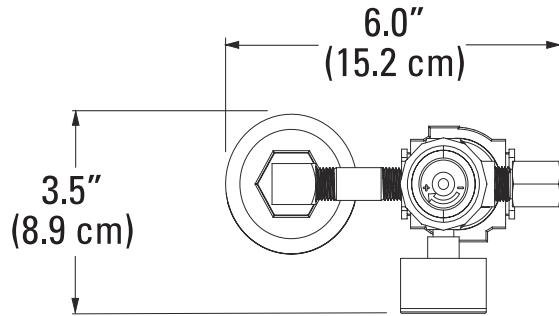
P575852 Reservoir Air Dryer Specifications	
Efficiency	Reduces dew point as much as 150°F (66°C)*
Fluid Compatibility	Petroleum and Phosphate Ester Fluids, Diesel Fuels
Outlet Flow Volume @100 psi and dew point suppression	0.5 scfm (14.2 slpm) maximum
Inlet Air required @ 100 psi	0.8 scfm (22.7 slpm) maximum
Inlet/Outlet	¼" NPT
Pre-Filter Condition	Visual Indicator (Green/Red)
Pressure Regulator	Dial Gauge
Drain Plug	¼" NPT
Coalescer Drain	Automatic Float Type
Electrical	N/A
Max Working Pressure	116 psi (800 kPa / 8.00 bar)
Max Operating Temperature	125°F (52°C)
Mounting Bracket	3/8" - 16 UN Threaded Nut
Weight	<5 lbs (<3 kg)

*The Reservoir Air Dryer is not recommended for use on gasoline holding tanks, or for the head space of any flammable liquid (Flash Point below 100°F / 38°C)
shop.donaldson.com



Reservoir Air Dryer

ACCESSORIES

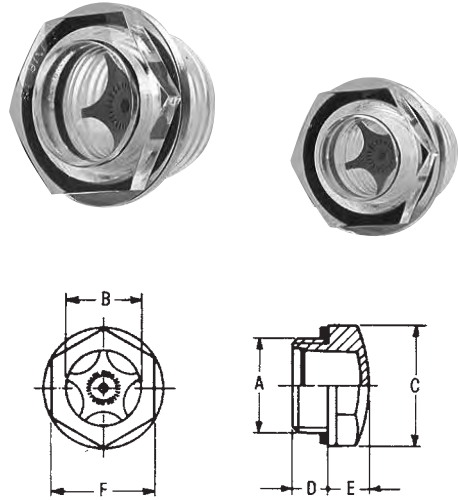




Sight Glasses

Specifications

- Working pressure: 29 psi / 200 kPa / 2 bar
- Transparent polyamid construction
- Shock resistant
- Anodized aluminum reflector
- Operating temperature range:
-20°F to 210°F / -29°C to 100°C
- Nitrile seal
- For use with mineral, petroleum and water-based fluids
- Any contact with alcohol or solvents must be avoided
- Design HFTX



Features

Leak-free sight glasses come in plastic or metal with a variety of threads, seals and lenses. In low visibility areas, prism lens sight glasses are a good solution for quick and accurate readings. In applications involving high pressure or temperatures, steel sight glasses are preferred. Locking nuts provide mounting into sheet metal with minimum thickness and without welding.

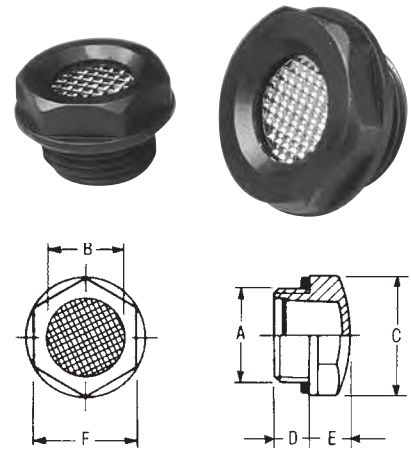
Part No.	Description	A - Thread Size	Dimensions (in/mm)				
			B	C	D	E	F
P562419	SG-04	1/4" BSP	.35/9	.71/18	.28/7	.24/6	.59/15
P562420	SG-06	3/8" BSP	.43/11	.87/22	.32/8	.28/7	.75/19
P562421	SG-08	1/2" BSP	.55/14	1.02/26	.32/8	.32/8	.87/22
P562423	SG-08-S	3/4" - 16 UN	.51/13	1.02/26	.59/15	.32/8	.87/22
P562426	SG-12	3/4" BSP	.79/20	1.22/31	.35/9	.39/10	1.06/27
P562427	SG-12-S	1-1/16" - 12 UN	.75/19	1.38/35	.59/15	.39/10	1.18/30
P562430	SG-20	1-1/4" BSP	1.18/30	1.85/47	.47/12	.51/13	1.61/41



Prism Sight Glasses

Specifications

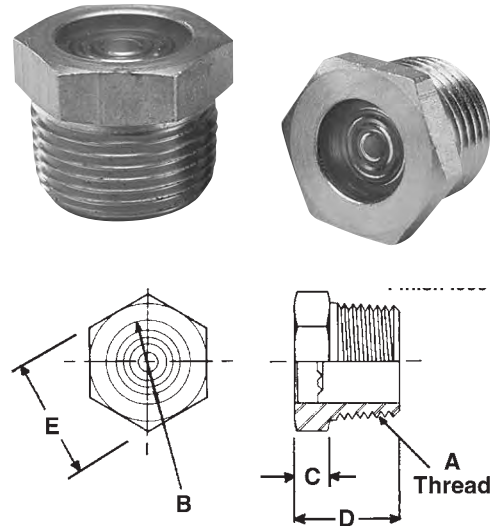
- Prism lenses: special translucent polyamide technopolymer
- For low light applications
- Body: special black polyamide technopolymer
- Available in 3/4" and 1" NPT sizes
- Resistant to solvents, oils, greases, alkaline acids
- Avoid alcohol and detergents containing alcohol
- Flat nitrile seal



Part No.	Description	A -Thread Size	Dimensions (in/mm)				
			B	C	D	E	F
P562417	PSG-12	3/4" NPT	0.70/18	1.38/35	0.40/10	0.33/8.5	1.26/32
P562418	PSG-16	1" NPT	0.90/23	1.70/43	0.43/11	0.36/9	1.50/38

Specifications

- Working pressure: 500 psi / 3,450 kPa / 34.5 bar
- All nickel-plated steel construction
- Glass prism lenses hermetically sealed
- Leak-proof service
- Greater mechanical strength
- Easy installation
- Reflects light in the presence of any liquid
- Maximum operating temp. 500°F / 260°C
- Suitable for petroleum and water based fluids



Part No.	Description	A -Thread Size	Dimensions (in/mm)			
			B	C	D	E
P562408	SVM-04	1/4" NPT	0.34/8	0.19/5	0.44/11	0.63/16
P562409	SVM-06	3/8" NPT	0.44/11	0.22/6	0.5/13	0.75/19
P562410	SVM-08	1/2" NPT	0.56/14	0.22/6	0.56/14	0.94/24
P562411	SVM-12	3/4" NPT	0.75/19	0.31/8	0.63/16	1.06/27
P562412	SVM-16	1" NPT	0.94/24	0.31/8	0.94/24	1.38/35
P562413	SVM-20	1-1/4" NPT	1.19/30	0.41/10	0.81/21	1.75/44
P562414	SVM-24	1-1/2" NPT	1.44/37	0.41/10	0.81/21	2.00/51
P562415	SVM-32	2" NPT	1.88/48	0.41/10	0.88/22	2.50/64



Fluid Level Gauges

Specifications

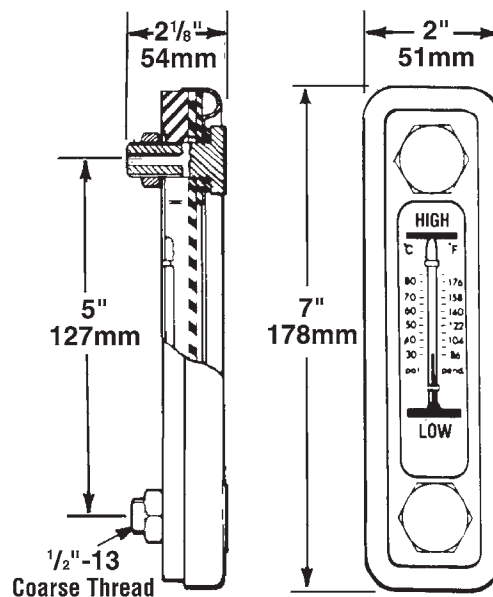
- Steel frame
- Acrylic lens
- Steel zinc plated bolts
- 5" (127mm) mounting bolt centers
- Maximum wall thickness: 1/2" / 12.7mm
- Maximum temperature:
SLT 225°F / 107°C; SLG 180°F / 80°C



SLT-1214
P562433

Features

Donaldson offers a wide variety of fluid level gauges that let you accurately measure fluid levels in your tanks and reservoirs. Gauges are made with transparent lens material and are suitable for lubricants, mineral, petroleum and water based fluids. They offer 180° visibility of fluid level.



Part No.	Desc.	Feature	Seals
P562433	SLT-1214	5"/127mm Level Gauge w/ Red Thermometer, Chrome Steel Frame	Neoprene

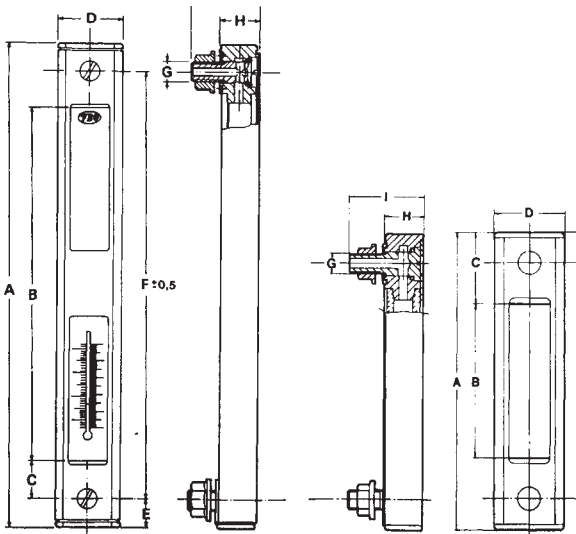
Bolt torque: 15 ft.-lbs./20 Nt-m. Do not exceed 20 ft.-lbs./27 Nt-m.



Fluid Level Gauges

Specifications

- Transparent lens material
- Nitrile seals
- Maximum working pressure for pressurized tanks:
14.5 psi / 1 bar / 100 kPa.
- Oil level and temperature or oil level only
- Temperature scale:
35° to 210°F / 0° to 100°C.



Bolt torque: 10 ft.-lbs/Nt-m.
 Inside nut for tightening directly on the tank.
 Suggested mounting hole diameter: 11mm or 13mm.

Oil Level/Temperature Gauge Specifications (35° - 210°F / 0° - 100°C)

Part No.	Dimensions (in/mm)								
	A	B	C	D	E	F	G-Thread	H	I
P171920	6.22/158	3.22/82	.89/22.5	1.57/40	.61/15.5	5/127	M12 x 1.75	.78/20	1.57/40
P171922	11.22/285	8.23/209	.89/22.5	1.57/40	.61/15.5	10/254	M12 x 1.75	.78/20	1.57/40

Oil Level Gauge Specifications

Part No.	Dimensions (in/mm)								
	A	B	C	D	E	F	G-Thread	H	I
P171918	6.22/158	3.23/82	.89/22.5	1.57/40	.61/15.5	5/127	M12 x 1.75	.78/20	1.57/40
P171913	4.21/107	1.22/31	.89/22.5	1.57/40	.61/15.5	3/76	M10 x 1.5	.78/20	1.57/40

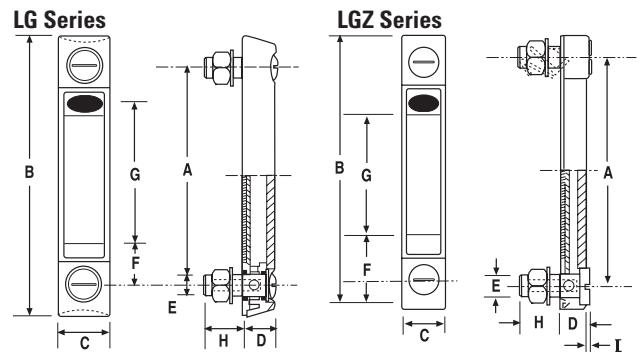


Fluid Level Gauges

Specifications

- Ultrasonically welded polyamide
- Suitable for pressurized reservoirs
- Operating temperature range:
-20°F to 212°F / -29°C to 100°C
- Scale: 32°F to 212°F / 0°C to 100°C
- Maximum wall thickness:
- LG-3 - 1/2" / 12.7mm
- LG-5/LG-10 - 3/8" / 8.3mm
- Nitrile O-Ring seals
- Zinc plated bolts
- Metric bolts

Note: Any contact with alcohol, alcohol-based washing fluids, or petroleum distillates must be avoided. Do not chamfer tank mounting holes. Not for water-glycol applications

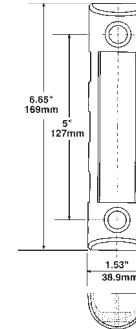


LG-3 FM option E dia. = 0.625 (5/8)
LG-5, 10 FM option E dia. = 0.688 (11/16)

Options:

- 1/2"-13 bolts (LG-5)
- Protective guard (LG-5)
- Fluorocarbon seals
- Red and blue thermometers
- Alcohol resistant version
- Fast mount kit (requires no internal access or threads to mount)

LG-5G Guard



Bolt torque: 9 ft.-lbs./12 Nt-m
(7 ft.-lbs./9.5 Nt-m fast mount)

Fluid Level Gauge Guard (LG-5 Series only)

Part No.	Description	Feature	Dimensions (in/mm)			
			Bolt Center A	B	C	D
P562453	LG-G	5"/127mm Level Gauge Guard	5.00/127	6.65/169	1.53/39	.98/25



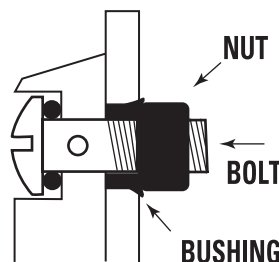
Transparent Polyamide Fluid Level Gauges

Level Gauge Choices

Part No.	Description	Feature	Dimensions (in/mm)									
			Bolt Center			Hole Dia.						
			A	B	C	D	E	Bolt Size	F	G	H	I
P562438	LG-3	3" Level Gauge	3.00/76	4.17/106	1.06/27	.63/16	.42/10	M10 x 1.5	.71/18	1.31/33	.83/21	
P562440	LG-3-FM	3" Level Gauge with Fast Mount kit	3.00/76	4.17/106	1.06/27	.63/16	.625/16	M10 x 1.5	.71/18	1.31/33	.83/21	
P562441	LG-3-T	3" Level Gauge with Red Thermometer	3.00/76	4.17/106	1.06/27	.63/16	.42/10	M10 x 1.5	.71/18	1.31/33	.83/21	
P562442	LG-3-TB	3" Level Gauge with Blue Thermometer	3.00/76	4.17/106	1.06/27	.63/16	.42/10	M10 x 1.5	.71/18	1.31/33	.83/21	
P562454	LG-Z-3	3" Level Gauge	3.00/76	3.90/99	.90/22	.57/14.5	.42/10	M10 x 1.5	.70/18	1.30/33.6	.90/23	0.06/1.5
P562444	LG-5	5" Level Gauge	5.00/127	6.34/161	1.22/31	.71/18	.47/12	M12 x 1.75	.90/23	2.91/74	.90/23	
P562445	LG-5-13	5" Level Gauge with 1/2" -13 bolt kit	5.00/127	6.34/161	1.22/31	.71/18	.50/13	1/2" - 13 UNC	.90/23	2.91/74	.90/23	
P562447	LG-5-FM	5" Level Gauge with Fast Mount kit	5.00/127	6.34/161	1.22/31	.71/18	.688/17.5	M12 x 1.75	.90/23	2.91/74	.90/23	
P562448	LG-5-T	5" Level Gauge with Red Thermometer	5.00/127	6.34/161	1.22/31	.71/18	.47/12	M12 x 1.75	.90/23	2.91/74	.90/23	
P562449	LG-5-T-13	5" Level Gauge with Red Thermometer & 1/2"-13 bolt kit	5.00/127	6.34/161	1.22/31	.71/18	.50/13	1/2" - 13 UNC	.90/23	2.91/74	.90/23	
P562450	LG-5-TB	5" Level Gauge with Blue Thermometer	5.00/127	6.34/161	1.22/31	.71/18	.47/12	M12 x 1.75	.90/23	2.91/74	.90/23	
P562451	LG-5-T-FM	5" Level Gauge with Red Thermometer & Fast Mount kit	5.00/127	6.34/161	1.22/31	.71/18	.688/17.5	M12 x 1.75	.90/23	2.91/74	.90/23	
P563913	LG-5-T-G	5" Level Gauge with Red Thermometer & Guard	5.00/127	6.34/161	1.22/31	.71/18	.47/12	M12 x 1.75	.90/23	2.91/74	.90/23	
P562452	LG-5-T-SS	5" Level Gauge with Red Thermometer, Stainless Bolt kit	5.00/127	6.34/161	1.22/31	.71/18	.47/12	M12 x 1.75	.90/23	2.91/74	.90/23	
P562456	LG-Z-5	5" Level Gauge	5.00/127	5.9/150	.90/22	.57/14.5	.47/12	M12 x 1.75	.93/23.5	2.90/73.7	.90/23	0.06/1.5
P562458	LG-Z-5-V	5" Level Gauge with Fluorocarbon seals	5.00/127	5.9/150	.90/22	.57/14.5	.47/12	M12 x 1.75	.93/23.5	2.90/73.7	.90/23	0.06/1.5
P562434	LG-10	10" Level Gauge	10.00/254	11.42/290	1.38/35	.71/18	.47/12	M12 x 1.75	1.02/26	7.60/193	.90/23	
P562435	LG-10-LF	10" Level Gauge w/ Level Float	10.00/254	11.42/290	1.38/35	.71/18	.47/12	M12 x 1.75	1.02/26	7.60/193	.90/23	
P562436	LG-10-T	10" Level Gauge w/ Red Thermometer	10.00/254	11.42/290	1.38/35	.71/18	.47/12	M12 x 1.75	1.02/26	7.60/193	.90/23	
P562437	LG-10-TB	10" Level Gauge w/ Blue Thermometer	10.00/254	11.42/290	1.38/35	.71/18	.47/12	M12 x 1.75	1.02/26	7.60/193	.90/23	
P563909	LG-10-TB-SS	10" Level Gauge w/ Blue Thermometer & Stainless Bolt kit	10.00/254	11.42/290	1.38/35	.71/18	.47/12	M12 x 1.75	1.02/26	7.60/193	.90/23	

Fast-Mount Kits

Part No.	Description
P563513	LG-3/3T
P563514	LG-5/5T, 10/10T



Fast Mount Assembly Instructions

Installation: Tighten nuts on bolts to the point where nuts are snug against bushings. Apply one drop of thread lock to last exposed thread at end of bolts. Mount on tank and tighten to 7 ft.-lbs./1kg-m. **(DO NOT OVER-TIGHTEN).**

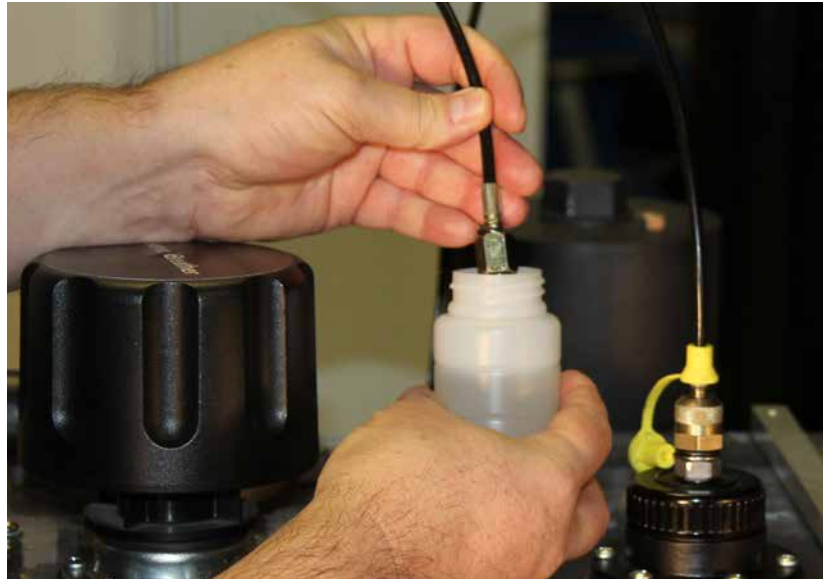
Removal: Loosen bolts and remove. (IMPORTANT: THREAD LOCK PREVENTS OVER-LOOSENING OF BOLTS TO POINT WHERE NUTS DROP OFF INTO TANK.)



What Can Fluid Analysis Do For You?

Fluid analysis is a snapshot of what is happening inside your equipment. It summarizes the condition of your oil and identifies component wear and contamination in virtually any application.

- Identify opportunities for optimizing filtration performance
- Safely extend drain intervals
- Minimize downtime by identifying minor problems before they become major failures
- Maximize asset reliability
- Extend equipment life



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Suggested Sampling Intervals and Methods

Fluid analysis is most effective when samples are representative of typical operating conditions. Always take samples at regularly scheduled intervals and from the same sampling point each time. How critical a piece of equipment is to production should be a major consideration for determining sampling frequency.

Hydraulic	250-500 hours	By vacuum pump through oil fill port of system reservoir at mid-level
Gearboxes	750 hours	By vacuum pump through oil level plug or dipstick retaining tube
Compressors	Monthly or at least every 500 hours	By vacuum pump through oil fill port of system reservoir at mid-level
Turbines	Monthly or at least every 500 hours	By vacuum pump through oil level plug or dipstick retaining tube

Test Kits and Sampling Products Outside of North America: The fluid sampling program featured in this section is used by North American customers. If you're located outside of North America, we recommend you contact your local Donaldson distributor to discuss availability.



Fluid Analysis Program

The Donaldson Advanced Fluid Analysis Kit is designed to monitor component wear, contamination and fluid condition.


Benefits

- Partnership with a total filtration solutions provider
- High quality testing by an ISO 17025 A2LA accredited laboratory
- Results available immediately upon sample processing completion
- Innovative data management tools that will help you affect change in daily maintenance practices.

How Send Samples to the Laboratory

STEP A | Sample Information

First-time users need to establish a Horizon® account, and new components (sample point) need to be added to your account. Go to this address: www.eoilreports.com/login

Next, fill out the QR code label  with the corresponding Component ID and Sample Date. Attach the label to the sample jar and retain the other label for your records.

To improve accuracy and ensure faster processing, use the Sample Submission feature in Horizon to send the sample information to the laboratory. Once the information is submitted online, the QR code will contain all required sample information needed for processing.

NOTE: Provide the laboratory with as much detailed equipment and fluid information as possible. More in-depth analysis is possible when the analyst knows the time on both the unit and fluid and whether the fluid and/or filter have been changed since last sampled.

STEP B | Laboratory Locations

A list of available laboratory locations is included on the form. Label your package with the laboratory address of your choice and ship it using a trackable shipping service, such as UPS or FedEx.

STEP C | Online Access

If the sample information cannot be submitted online, complete the simple form on the right, detach the form and submit it to the laboratory with the sample.

IMPORTANT: Samples will be placed on hold if the component ID does not match an ID in your account and no component information is included on the paper form. Components can be added to your account online via Horizon or by contacting Customer Service. Samples placed on hold for more than 30 days will be disposed.



Fluid Sampling Products	Part No.
Fluid Analysis Kit	X009330
Sample Extraction Pump	P176431

Test Points, Adapters and Hose Assemblies

If you have filters installed in hard-to-access locations, test points, adapters and hose assemblies can be used to plumb up a bulkhead to read pressure differentials.

See Accessories Section for complete offering!





Test Results / Reports from Your Sample

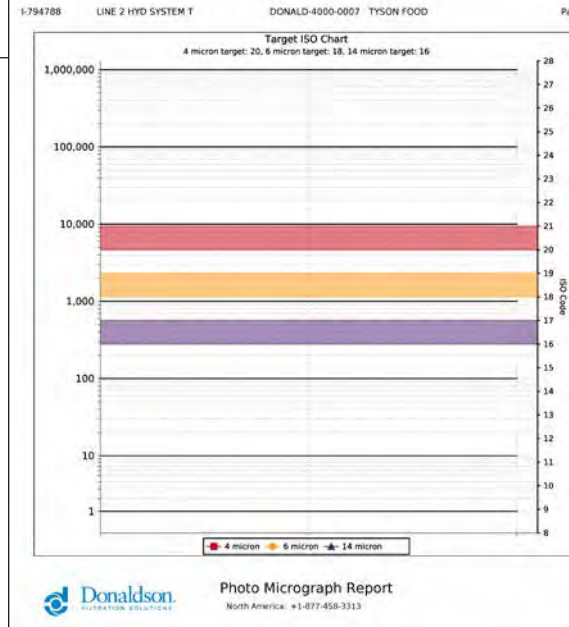
Your Donaldson test report color codes individual results by severity for a better understanding of the overall severity of the report. It also provides a graphical representation of the cleanliness level of the fluid with a photo micropatch accompanied by the Target ISO Chart done on each sample.

With Donaldson, you're also on track for total program management with problem summary reports, sample processing turnaround tracking and data mining capabilities that allow you to affect positive change in your daily maintenance practices.

- Get test results almost immediately – online
- Identify significant trends in fluid cleanliness
- Use management reports to pinpoint problems with critical units
- Identify bottlenecks in sample turnaround time
- Influence equipment purchasing decisions
- Access your information from anywhere there is an internet connection



Information		Component Information		Sample Information	
Donaldson DONALD-4000-0007 TYSON FOOD KREMER S CUSTER AVE W HOLLAND, PA US 355-5459		Component ID: LINE 2 HYD SYSTEM T Secondary ID: Component Type: HYDROSTATIC TRANSMISSION Manufacturer: Information Requested Model: Information Requested Application: PLANT INDUSTRIAL Sump Capacity: 0 gal		Tracking Number: 34325859733 Lab Number: I-794788 Lab Location: Indianapolis Data Analyst: BMM Sampled: 22-Nov-2016 Received: 26-Nov-2016 Completed: 08-Dec-2016	
Filter Type: Information Requested		Filter Part: NOT IDENTIFIED		Product Information	
Micron Rating: 0				Product Manufacturer: Information Requested Product Name: Information Requested Viscosity Grade: Information Requested	
Comments: Check for source of water contamination (SEALS, BREATHERS, FILL PORTS). Water is at a SEVERE LEVEL. Suggest Flushing System. Later particle count results may be invalid or unable to be tested due to water contamination. If (OXIDATION/NITRATION) RESULTS may be skewed due to excess water. Suspect spectrometals analysis may be skewed due to extreme water contamination. In order to properly compare data to the correct standards, please provide COMPONENT MANUFACTURER and MODEL and the FLUID MANUFACTURER, PRODUCT NAME, and VISCOSITY GRADE. Please provide filter-type and micron rating to allow for proper particle count evaluation.					
Water Metals (ppm)		Contaminant Metals (ppm)		Multi-Source Metals (ppm)	
Iron	Chromium	Nickel	Aluminum	Copper	Tin
Cadmium	Vanadium	Silicon	Sulfur	Phosphorus	Zinc
Lead	Strontium	Barium	Antimony	Manganese	Lithium
Barium	Magnesium	Chlorine	Barium	Phosphorus	Zinc
Sample Information: Date Received: 22-Nov-2016, Unit Time: 20:40:00, Lubricant: WAT, Filter Change: Link, Fuel Dilution: Link, Spoil: Link, Washer: Link, Velocity: 48.4, Viscosity: 100 cSt, Ref: 100, Base Number: 0.02, Distillation: 162, 138					
Particle Count (particles/ml)					
ISO Code	>= 4 um	>= 6 um	>= 10 um	>= 14 um	>= 21 um
1	WAT	WAT	WAT	WAT	WAT
Additional Testing: Water by Karl-Fischer, Acid Value, Sulfur, Phosphorus, Micropatch					
#	Date	4 micron	6 micron	14 micron	ISO Code
1	22-Nov-2016	WAT	WAT	WAT	WAT/WAT/WAT





How to Read the Donaldson Fluid Analysis Report

Reading a fluid analysis report can be an overwhelming and sometimes seemingly impossible task without an understanding of the basic fundamentals for interpreting laboratory results and recommendations. Referring to the report descriptions and explanations below will help you better understand your results and, ultimately, better manage a productive, cost-saving reliability program.

Customer, Equipment and Sample Information

The information submitted with a sample is as important to who is reading the report as it is to the analyst interpreting the test results and making recommendations. Know your equipment and share this information with your laboratory. Accurate, thorough and complete lube and equipment information not only allows for in-depth analysis, but can eliminate confusion and the difficulties that can occur when interpreting results.

Unit, Lube, Turnaround Time and Account information are listed on the left side of the report emphasizing the data most critical to laboratory processing and data interpretation. Details such as what kind of compressor, gearbox, engine, etc. influences flagging parameters and depth of analysis.

Second ID is each customer's opportunity to uniquely identify units being tested and their location.

Severity is represented on a sliding scale and is color-coded so that critical units are more apparent at first glance. Overall severity is based on report Comments—not individually flagged results.

- 0—Normal
- 1—At least one or more items have violated initial flagging points yet are still considered minor.
- 2—A trend is developing.
- 3—Simple maintenance and/or diagnostics are recommended.
- 4—Failure is eminent if maintenance not performed. Occasionally, a test result can violate the S4 excursion level. But, if there is no supporting data or a clear indicator of what is actually happening within the unit, maintenance action may not be recommended.

Manufacturer and Model can also identify metallurgies involved as well as the OEM's standard maintenance guidelines and possible wear patterns to expect.

Filter Types and their Micron Ratings are important in analyzing particle count—the higher the micron rating, the higher the particle count results.

Application identifies in what type of environment the equipment operates and is useful in determining exposure to possible contaminants.

Sump Capacity identifies the total volume of oil (in gallons) in which wear metals are suspended and is critical to trending wear metal concentrations.

Lube Manufacturer, Type and Grade identifies a lube's properties and its viscosity and is critical in determining if the right lube is being used.

The laboratory at which testing was completed is denoted by an **I** for Indianapolis and an **H** for Houston. The following Lab # is assigned to the sample upon entry for processing and should be the reference number used when notifying the lab with questions or concerns.

Data Analyst Initials

Make note of the difference between the Date Sampled and the Date Received by the lab. Turnaround issues may point to storing samples too long before shipping or shipping service problems.

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FILTRATION SOLUTIONS
North America +1-877-458-3313

Overall report severity based on comments: 0 1 2 3 4

Account Information		Component Information		Sample Information				
Account Number: DONALD-4000-0007	Company Name: TYSON FOOD	Component ID: LINE 2 HYD SYSTEM T	Secondary ID:	Tracking Number: 16125E00733	Lab Number: 1794788			
Contact: JEFF KRIEDER	Address: 403 S CUSTER AVE NEW HOLLAND, PA US	Component Type: HYDROSTATIC TRANSMISSION	Manufacturer: Information Requested	Lab Location: Indianapolis	Data Analyst: RNM			
Phone Number: 717-355-5459		Model: Information Requested	Application: PLANT/INDUSTRIAL	Sampled: 22-Nov-2016	Received: 30-Nov-2016			
		Sump Capacity: 0 gal		Completed: 06-Dec-2016				
Filter Information		Miscellaneous Information		Product Information				
Filter Type: Information Requested	Micron Rating: 0	Filter Part#: NOT IDENTIFIED		Product Manufacturer: Information Requested	Product Name: Information Requested			
Comments: Check for source of water contamination (SEALS, BREATHERS, FILL PORTS). Water is at a SEVERE LEVEL. Suggest flushing system. Laser particle count results may be invalid or unable to be tested due to water contamination. (OXIDATION/NITRATION) RESULTS may be skewed due to excess water. Suspect spectrometals analysis may be skewed due to extreme water contamination. In order to properly compare data to the correct standards, please provide COMPONENT MANUFACTURER and MODEL, and the FLUID MANUFACTURER, PRODUCT NAME, and VISCOSITY GRADE. Please provide filter type and micron rating to allow for proper particle count evaluation.				Viscosity Grade: Information Requested				
Wear Metals (ppm)			Contaminants (ppm)		Multi-Source Metals (ppm)		Additive Metals (ppm)	
Sample #	Iron	Copper	Lead	Vanadium	Sulfur	Phosphorus	Aluminum	Calcium
1	10	10	10	10	10	10	10	10
Sample Information			Container/Seals			Fluid Properties		
Sample #	Date Sampled	Date Received	Lube Time	Lube Change	Filter Change	Fuel Dilution	Spill	Water
1	22-Nov-2016	30-Nov-2016	0	0	0	0	0	0
Particle Count (particles/ml)						Additional Testing		
Sample #	ISO Code	Water by Karl Fischer	Phos	Micrograph				
1	4	0.02	0.02	0.02	0.02	0.02	0.02	0.02



Test Data

Test results are listed according to age of the sample—oldest to most recent, top to bottom—so that trends are apparent. Significant changes are flagged and printed in the gray areas of the report.

Samples* appear in an oldest to newest **numbered sequence** so that results are easily associated with them throughout the report and depth of analysis.

Water in oil decreases lubricity, prevents additives from working and furthers oxidation. Its presence can be determined by crackle or FTIR and is reported in % of volume. Water by Karl Fischer determines the **amount** of water present. These results appear in the Special Testing section of your report.

Viscosity measures a lubricant's resistance to flow at temperature and is considered its most important physical property. Depending on lube grade, it is tested at 40 and/or 100 degrees Centigrade and reported in centistokes.

Sample Information								Contaminants			Fluid Properties					
Sample #	Date Sampled	Date Received	Lube Time	Unit Time	Lube Change	Lube Added	Filter Change	Fuel Dilution	Soot	Water	Viscosity 40°C	Viscosity 100 °C	Acid Number	Base Number	Oxidation	Nitration
			h	h		gal		% Vol	% Vol	% Vol	cSt	cSt	mg KOH/g	mg KOH/g	abs/cm	abs/0.1 mm
1	22-Nov-2016	30-Nov-2016	0	0	Unk	0	Unk				44.4		0.02		102	134

Particle Count (particles/mL)										Additional Testing		
Sample #	ISO Code	> 4 μm	> 6 μm	> 10 μm	> 14 μm	> 21 μm	> 38 μm	> 70 μm	> 100 μm	Test Method	Water by Karl Fischer - 6304C	Photo Micrograph
	Based On 4/6/14										ppm	
1	WA/WA/WA	WAT	WAT	WAT	WAT	WAT	WAT	WAT	WAT	Laser	257338	CMPLT

Comments are advisory only and are based on the assumption that the sample and data submitted are valid. Missing fluid or component information limits the evaluation. No warranty is expressed or implied.

#	Date	4 micron	6 micron	14 micron	ISO Code	Lab Number
1	22-Nov-2016	WAT	WAT	WAT	WA/WA/WA	I-794788

The **ISO Code** is an index number that represents a range of particles within a specific micron range, i.e. 4, 6, 14. Each class designates a range of measured particles per one ml of sample. The particle count is a cumulative range between 4 and 6 microns. This test is valuable in determining large particle wear in filtered systems.

Fuel and Soot results are all reported in % of volume. High fuel dilution decreases unit load capacity. Excessive soot is a sign of reduced combustion efficiency.

Oxidation measures the breakdown of a lubricant due to age and operating conditions. Oxidation prevents additives from working and therefore promotes increased acid content, as well as increased viscosity. **Nitration** is an indication of excessive "blow-by" from cylinder walls and/or compression rings and indicates the presence of nitric acid, which speeds up oxidation. Too much disparity between oxidation and nitration can indicate air to fuel ratio problems. As Oxidation/Nitration increases, TAN will also increase and TBN will begin to decrease.

Special Testing

Special testing is often done when additional, or more specific, information is needed. For example, an Analytical Ferrograph might be requested when a ferrous metal larger than 5 microns has been detected by Direct Read Ferrography. The AF can determine actual size of the particle, its composition—iron, copper, etc.—and the type of wear it's creating—rubbing, sliding, cutting, etc. Additional special testing could include, Water by Karl Fischer and RPVOT (Rotating Pressure Vessel Oxidation Test).

Photo Micropatch

A photo Micropatch is included with each test report and provides digital imagery of the wear debris, contamination and/or filter media particles found in each fluid sample. It is taken at a 100x magnification and includes the sample's ISO code and a 10 micrometer scale for particle size comparison.

I-794788

LINE 2 HYD SYSTEM T

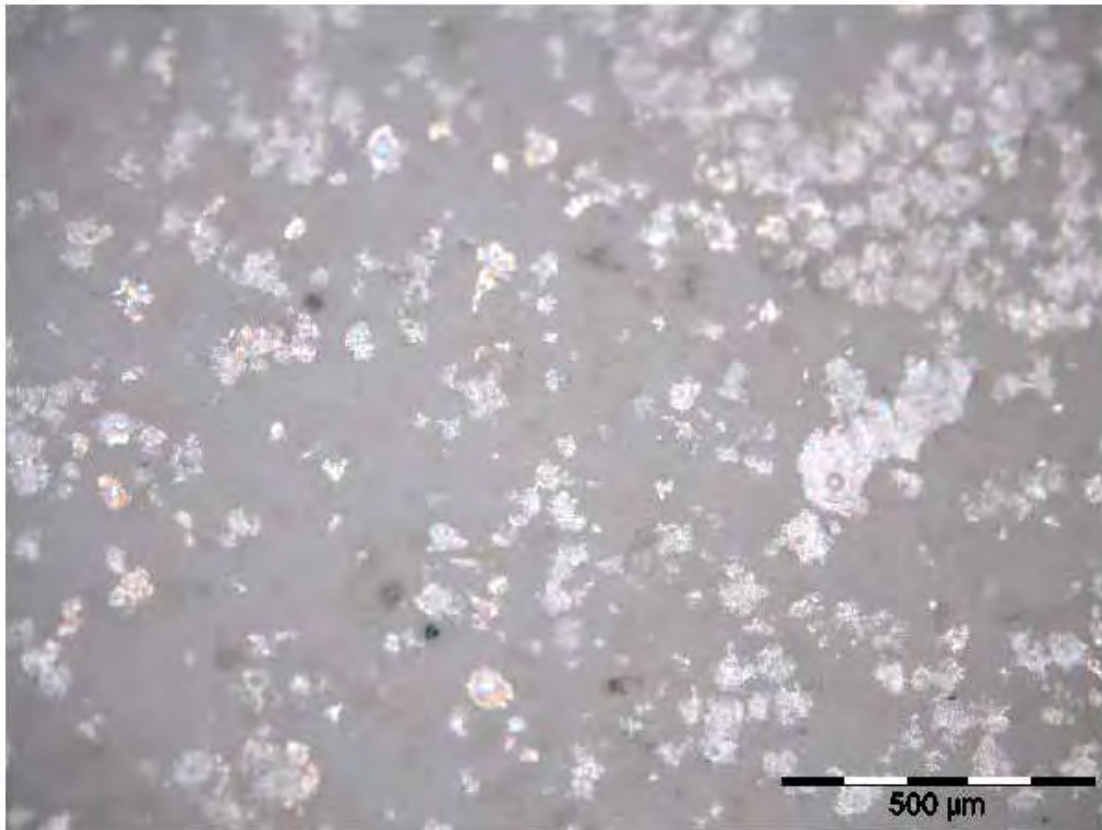
DONALD-4000-0007 TYSON FOOD

Page 3

ISO Code: WA / WA / WA

Volume: 10mL

Magnification: 100x



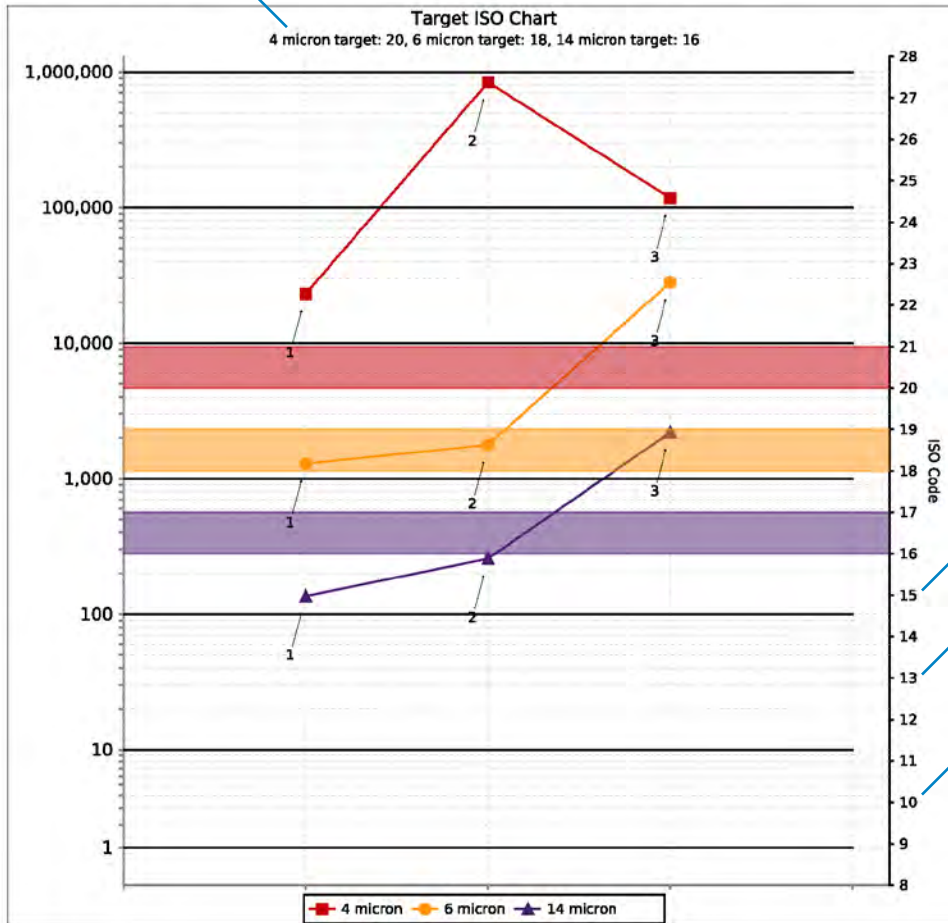
500 micrometer scale



Target ISO Chart

If target ISO codes are provided on the Component Registration Form, it will appear above the unit ID.

I-782287 64044 NL DONALD-4136-0000 WL GORE (CHERRY HILL) Page 2



Particle count results are reported in particles per milliliter or particles per 100 milliliters at a given size (microns) and ISO Cleanliness Code. When sampling units for the first time, you must include on the Component Registration Form the target ISO Cleanliness Codes specific to each of your applications. These unit-specific codes will then pre-fill on each test report. If target ISO codes are not provided, the target ISO field will be determined by the type of hydraulics and pressure rating listed on the Component Registration Form. The 4, 6 and 14 micron particle ranges are then graphed for each sample tested.

The ISO 4406 standard utilizes a three number system to classify system cleanliness — The first number represents the number of particles present measuring greater than 4 μm. The second represents particles greater than 6 μm and the third represents those greater than 14 μm.

expressed or implied.

#	Date	4 micron	6 micron	14 micron	ISO Code	Lab Number
1	22-Nov-2016	WAT	WAT	WAT	WA/WA/WA	I-794788

Each of the ISO Code's three numbers represents an ISO range. For example, the ISO Cleanliness Code for the most recent sample in this report is 19/18/15. Because the number of 4μm particles is between 2,500 and 5,000, the corresponding ISO code is 19. Because the number of 6μm particles is between 1,300 and 2,500, the corresponding ISO code is 18. Because the number of 14 μm particles is between 160 and 320, the corresponding ISO code is 15.

Portable Fluid Analysis Kit

Fluid analysis is a snapshot of what is happening inside your equipment. It tells you the condition of the lubricant and identifies component wear and contamination in virtually any application. The Donaldson Portable Fluid Analysis Kit (**Part No. X009329**) allows you to conduct immediate on-site particulate analysis in as little as ten minutes.

Using the patch test method, you can quickly and reliably assign a three-digit cleanliness code per ISO 4406-1999 to a given fluid sample. Simply pull a 25 ml fluid sample through a patch membrane filter and compare oil sample particle distribution with the Fluid Cleanliness Comparison Guide (included) to assign an ISO Cleanliness Code.

- Use this kit to determine which systems need improved filtration.
- When improvements are made, use it to monitor the cleanliness status of the system.
- A great alternative to expensive, portable electronic devices.

Kit Contents

Kit Part Number X009329



Benefits

- Easy to use
- Results in as little as 10 minutes
- Measures particulate levels
- Provides reliable results

The **Donaldson Portable Fluid Analysis Kit** includes enough supplies for 200 fluid samples. All apparatus is securely packaged and well-protected with laser-etched foam in a sturdy carrying case.



Basic Steps for Use

Kit includes detailed operating instructions and visual comparison guide.



1. Assemble waste bottle, funnel-patch assembly, and vacuum pump to form the sample processing assembly. Tighten the vacuum pump o-ring on the funnel-patch assembly tube by turning the aluminum locking device.



7. Draw the sample fluid through the patch by pulling on the vacuum pump handle.



2. Install solvent* dispensing tube and install solvent filter on end of the dispensing tube.

*Mineral spirits are the most commonly used solvent



8. Once the entire sample has passed through the patch rinse the funnel with filtered solvent and draw through the patch. Continue to pull air through until the patch starts to dry. Then separate the funnel from the patch supporter and remove the patch with forceps.



3. Rinse the funnel-patch assembly with the filtered solvent to remove background contamination. The patch should not be in place for this process.



9. Place the sample (ink/dirty side up) on a clean index card and cover it immediately with a plastic laminate patch cover.



4. Separate the funnel from the patch supporter and install a filter patch with ink grid up. (If the patch has an ink grid).



10. Analyze the sample with the 100x magnification field microscope.



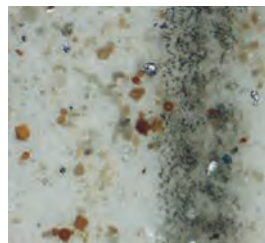
5. Reattach the funnel to the filter patch base with filter patch. Twist lock the funnel to the base.



11. For best results, stand the microscope (without the lens cap or base) directly over the sample.



6. Agitate the sample fluid bottle and pour 25ml into the funnel. 25ml is denoted by the first line on the funnel (closest to the patch).



12. Use the reference photos at the back of the manual to make approximate ISO code correlation and identify contaminant types.

* Odorless mineral spirits



Off-Line Filtration: Where and Why Used

The Donaldson Filter Cart, Filter Panel and Filter Buddy™ offer convenient off-line filtration, flushing and fluid transfer.* Use them with your in-plant machinery and mobile hydraulic equipment to achieve and maintain proper ISO cleanliness levels.

*Not for use with diesel fuel or gasoline.



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New oil isn't clean oil.

To optimize system performance and lengthen component life, new oil should be filtered before being transferred into a reservoir or gearbox.

Typical Fluid Applications	Viscosity	Target ISO Cleanliness & Photo Micropatch	
Hydraulic Oil Transmission Oil Glycols (<150°F) Hydraulic Based Water Emulsions	0-500 cSt	16/14/11 	ISO 22/21/18 Typical Cleanliness of New, Delivered Fluids 
Gear Oils Glycols Phosphate Esters	0-6000 cSt	18/16/13 	



Recommended Storage Practices

Donaldson Filter Carts, Filter Buddy™, and Panels include electric motors and indoor storage is required. Exposure to rain, snow and other elements may cause electric motors to fail. Failures that result from misapplication, improper use or storage are not covered by the Donaldson warranty.

Reference document no. F110064 at www.donaldson.com/en/engine/support/datalibrary/000194.pdf

Calculating the Time Required to Filter All Your Fluid Once

When using offline filtration the fluid will need to pass through the filter cart approximately seven times to filter all your fluid once. Use the following formula to calculate the amount of time needed to filter all your fluid once:

$$(Reservoir\ Size\ x\ 7) / Flow\ Rate = Time^*$$

For example: if you have a 50 gallon reservoir, it will take approximately 35* minutes to filter all your fluid once.

$$(50\ gallons\ x\ 7) / 10\ gpm = 35\ minutes$$

*Times will vary depending on initial cleanliness of oil, system ingress, choice of media grades and other variables.

Custom Product Configurations

The following pages highlight Donaldson's stocked off-line filtration offering for quick access and convenient ordering. If an appropriate solution is not available, Donaldson is able to configure a custom solution to meet most specifications requirements. Please be prepared to provide the following information prior to contacting our qualified solutions partner. Note: product lead times will vary.

Operating Conditions

Flow Rate: _____ gpm
Temperature: °C or °F
Ambient _____ Normal Operating _____

Fluid Type:

- | | |
|--|---|
| <input type="checkbox"/> Mineral Hydraulic Oil | <input type="checkbox"/> Water-glycol |
| <input type="checkbox"/> Synthetic Hydraulic Oil | <input type="checkbox"/> HWBF |
| <input type="checkbox"/> Synthetic Gear Oil | <input type="checkbox"/> Turbine Oil |
| <input type="checkbox"/> Industrial Gear Oil | <input type="checkbox"/> Food Grade Oil |
| <input type="checkbox"/> Phosphate-ester | <input type="checkbox"/> Other |

Viscosity: (2 required)

_____ cSt or Ssu @ 40° C Temp
_____ cSt or Ssu @ 100° C Temp

Brand of Fluid: _____

Target ISO Cleanliness

In the chart to the right, circle the target cleanliness for the most stringent component in the circuit.

Betax(c) = 1000: _____ μm
Current ISO Level: _____ (18/16/13)
Capacity of Reservoir: _____ gallons/liters
Application: _____ (power unit)
Filter Media: Synthetic Cellulose Wire Mesh

Electrical

115 Volt 230 Volt

Use and Storage

Indoor Outdoor

Pumps	ISO Ratings
Fixed Gear Pump	19/17/15
Fixed Vane Pump	19/17/14
Fixed Piston Pump	18/16/14
Variable Vane Pump	18/16/14
Variable Piston Pump	17/15/13
Valves	
Directional (solenoid)	20/18/15
Pressure (modulating)	19/17/14
Flow Controls (standard)	19/17/14
Check Valves	20/18/15
Cartridge Valves	20/18/15
Load-sensing Directional Valves	18/16/14
Proportional Pressure Controls	18/16/13
Proportional Cartridge Valves	18/16/13
Servo Valves	16/14/11*
Actuators	
Cylinders	20/18/15
Vane Motors	19/17/14
Axial Piston Motors	18/16/13
Gear Motors	20/18/15
Radial Piston Motors	19/17/15

Filter Cart

The Donaldson Filter Cart provides a convenient portable mode of off-line/kidney loop filtration, flushing and fluid transfer. Use it with your in-plant machinery and hydraulic equipment to achieve and maintain proper ISO cleanliness levels.

Dual in-series HMK05 pressure filters can provide coarse/fine particle removal or, install a water absorbing filter to obtain particulate and water removal. A SP50/60 suction filter is required to protect the pump. The powerful one horsepower motor won't bog down and when coupled with a gear pump, it provides efficient fluid transfer and filtration. Convenient features include a rear mounted motor for better balance, a removable angled drip tray and clear braided hoses.

Notice

Donaldson Filter Carts include electric motors and indoor use is recommended. Exposure to rain, snow and other elements may cause electric motors to fail. Failures that result from misapplication, improper use or storage are not covered by the Donaldson warranty.

Reference the aftermarket warranty: document no. F110064.

Fluid Compatibility

Not for use with diesel fuel or gasoline. For fuel solutions, please contact the Donaldson Clean Solutions team at clean.solutions@donaldson.com or 800-374-1374.

shop.donaldson.com

Applications

- Transferring New Oil
- Cleaning Stored Oil
- System Draining
- Line Flushing
- Hose Cleaning
- Kidney Loop Filtration
- Repairs & Equipment Rebuild Flushing
- Flushing During Equipment Commissioning



Features	Benefits
Rugged and durable frame	Enables long service life
High efficiency media	Cost effective filtration
Two pressure filters	Two-stage filtration – coarse/fine or particulate/water
Safety relief valve	Prevents over pressurizing and damage to pump, hoses and filters
Overload protected switch	Prevents motor from overheating

Applications	
Filter new fluid	New fluids are usually above the recommended ISO cleanliness levels
Offline filtration	Filter cart can be used to supplement existing filtration
Water removal	Using Donaldson water removal filters to remove free water from the system.
Transferring fluid	Fluid is transferred from a storage container (tote, drum, tank, etc.) to a machine's reservoir
Flushing	After repairs & builds machines need to be flushed thoroughly before returning to service. During equipment commissioning, new machines have original fabrication debris and dirt that has ingressed during transport and storage.



Filter Cart Features

Stainless steel wands

- Will not break, corrosion resistant

Differential pressure indicators

- Lets you know when to change filters

Two pressure filters mounted in series

- Allows for particulate/water removal or coarse/fine particle removal

Removable angled drip tray

- Easy clean up, fluid will not leak out when tipped back

Oil sampling valve

- Monitors filter performance and cleanliness of oil

Motor/Pump

- Industrial brand
10 gpm / 38 lpm flow

Motor mounted on back

- Better balance
- Fluid will not drip on motor when changing filters

Clear braided hoses

- Visually shows fluid flowing
- 85 psi working pressure

Suction filter

- Protects pump

Overload protected switch

- Protects motor from overheating

Integrated safety relief valve

- Protects against over pressurizing
- Set at 150 psi

Foam filled tires

- Tires will not go flat



Filter Cart Assembly Choices

NOTE: Filters ordered separately

The Importance of Temperature When Selecting a Filter Cart

Consider operating temperature ranges when determining the proper viscosity filtration solution. It's crucial to select the proper viscosity option to maintain adequate flow and avoid restriction. Refer to the oil viscosity with temperature chart located on the front cover of the catalog.

Example: ISO Grade 32 Hydraulic Oil @ 68°F = 86.7 (cSt)

Assembly Part No.	Low Viscosity	High Viscosity
	Max Viscosity 500 SUS (108 cSt)* Filters ordered separately X011297[‡]	Max Viscosity 8000 SUS (1700 cSt)* Filters ordered separately X011298[‡]
Operating Temperature Range:	-10° F to 160° F (-23° C to 71° C)	-10° F to 160° F (-23° C to 71° C)
Filter Bypass Valve Settings:	Suction – 5 psid/0.34 bar Pressure – 25 psid/1.7 bar	Suction – Y strainer Pressure – 25 psid/1.7 bar
Electrical Service:	115 volts: 14 amp, single phase, 60 Hz	115 volts: 14 amp, single phase, 60 Hz
Cord Length:	7 ft. /2.1m cord with storage for 50 ft./15m	7 ft. /2.1m cord with storage for 50 ft./15m
Gear Pump Flow Rate*:	10.4 gpm/38 lpm	2 gpm/8 lpm
TEFC** Motor:	1 hp, 1800 RPM	1 hp, 1200 RPM
Fluid Compatibility:	Mineral-based fluids, water glycols, polyol esters	
Dry Weight:	Approximately 140 lbs. (63.5 kg)	Approximately 175 lbs. (79.38 kg)
Dimensions:	Height: 47" (1194mm) Width: 24" (610mm) Length: 23" (585mm)	
	Hose/Wand assembly length: 10' (3.05m)	
Filter Notes:	Requires 3 filters: 2 pressure, 1 suction	Requires 4 pressure filters

[‡]These part numbers now have relief valves in the pump. The relief valve setting is: 10.3 bar (150 PSI)

Pressure Filter Choices

Media Type	$\alpha_{x(c)} = 1000$	$\beta_{x(c)} = 2$	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 23369	Rating based on ISO 16889		in	mm		
Synteq Synthetic			<4 μ m	14.2	361	P564468	
			6 μ m	11.6	294	P165675	
			6 μ m	11.6	294	P171274 ¹	
			6 μ m	14.2	361	P179763	
Alpha-Web	10 μ m			14.2	361	DBH0949	
Synteq Synthetic			11 μ m	7.6	193	P176207	
			11 μ m	11.6	294	P165659	
			11 μ m	11.6	294	P573996 ¹	
			11 μ m	14.2	361	P170949	
			23 μ m	7.6	193	P176208	
			23 μ m	11.6	294	P165569	
			23 μ m	11.6	294	P171276 ¹	
			23 μ m	14.2	361	P173789	
			50 μ m	11.6	294	P165672	
		50 μ m	14.2	361	P573353		
Water Absorbing		10 μ m		11.6	294	P179075	Absorbs 300 ml water

¹Fluorocarbon o-ring, epoxy

Suction Filter Choices

Media Type	$\beta_{x(c)} = 2$	Length		Part No.
	Rating based on ISO 16889	in	mm	
Wire Mesh	150 μ m	6.7	170	P550275
	150 μ m	10.7	271	P550276

*Contact Donaldson for special order options. **Totally Enclosed Fan-Cooled. Filter Notes: Refer to table in the Technical Reference Guide for fluid compatibility with our filter media. Thread sizes are 1 3/4"-12 UNF-2B (HMK05) and 1 1/2"-16 UN-2B (suction filter). Filters with seals made of fluorocarbon are required when using diester, phosphate ester fluids, water glycol, water/oil emulsions, and HWCF (high water content fluids) over 150°F. Filters with seals made of nitrile are appropriate for most applications involving petroleum oil.

Filter Buddy™

Handheld Portable Filtration System

The Donaldson Filter Buddy™ is a handheld portable system allowing you to kidney loop reservoirs that you normally cannot with larger filter carts. Its small size and light weight allows carrying up and down stairs and into tight or confined spaces. It also fits on top of a drum for convenient transferring and filtering from a drum to a reservoir.

The Filter Buddy features dual HMK04 filtration utilizing Donaldson's exclusive high efficiency Synteq™ media. The filters are plumbed in series giving you the option of coarse/fine particle removal or install a water absorbing filter for water/ particle removal.

Notice

Donaldson Filter Buddys include electric motors and indoor use is recommended. Exposure to rain, snow and other elements may cause electric motors to fail. Failures that result from misapplication, improper use or storage are not covered by the Donaldson warranty.

Reference the aftermarket warranty: document no. F110064.

Fluid Compatibility

Not for use with diesel fuel or gasoline. For fuel solutions, please contact the Donaldson Clean Solutions team at clean.solutions@donaldson.com or 800-374-1374.

Applications

- Transferring New Oil
- Cleaning Stored Oil
- System Draining
- Line Flushing
- Hose Cleaning
- Kidney Loop Filtration
- Repairs and Equipment Rebuild Flushing
- Flushing During Equipment Commissioning



Features	Benefits
Rugged and durable frame	Enables long service life
Compact size	Allows filtration in hard to reach locations
High efficiency media grades	Cost effective filtration
Dual stage filtration	Coarse/fine or water/particulate removal
Overload protected switch	Prevents motor from overheating
Sample ports	Enables system cleanliness measurements
Integrated safety relieve valve	Protects against over pressurization

Applications	
Fluid transfer	Ensure that the fluid you are transferring from a drum or tote is clean.
Offline filtration	Supplement existing filtration to achieve target ISO cleanliness levels.
Water removal	Using Donaldson water removal filters to remove free water from the system.
Filter new fluid	Clean up new fluids because they are usually highly contaminated. Don't contaminate your equipment with new fluids. Protect your equipment with proper filtration.



Filter Buddy™ Assembly Choices

NOTE: Filters ordered separately

The Importance of Temperature When Selecting a Filter Cart

Consider operating temperature ranges when determining the proper viscosity filtration solution. It's crucial to select the proper viscosity option to maintain adequate flow and avoid restriction. Refer to the oil viscosity with temperature chart located on the front cover of the catalog.

Example: ISO Grade 32 Hydraulic Oil @ 68°F = 86.7 (cSt)

Assembly Part No.	Low Viscosity Max Viscosity 900 SUS (200 cSt)* Filters ordered separately	High Viscosity Max Viscosity 8000 SUS (1700 cSt)* Filters ordered separately	
	X011303 [‡]	X011304 [‡]	X011305 [‡]
Operating Temperature Range:	-10° F to 160° F (-23° C to 71° C)		
Electrical Service:	115 volts: 8.4 amp, single phase, 60 Hz		
Gear Pump Flow Rate*:	2 gpm (7.6 lpm)	1.8 gpm (6.8 lpm)	5 gpm (18.9 lpm)
TEFC** Motor: Totally Enclosed Fan-Cooled	1/2 hp, 1725 rpm	3/4 hp, 1725 rpm	1 1/2 hp, 1725 rpm
Compatibility:	Mineral-based fluids, water glycols, polyol esters		
Hose: terminated with male NPT connections	Suction: 4' (1.2m) Length, 3/4" (1.9cm) OD	Suction: 4' (1.2m) Length, 1" (2.5cm) OD	
	Discharge: 7' (2.1m) Length, 1/2" (1.3cm) OD	Discharge: 7' (2.1m) Length, 3/4" (1.9cm) OD	
P573154 Stainless Steel Wand Kit (optional):	Suction: 40" (1.0m) Length Discharge 20" (.5m) Length		
Dry Weight:	Approximately 55 lbs. (25 kg)	Approx. 65 lbs. (29 kg)	Approx 90 lbs. (40 kg)
Dimensions:	Height: 21" (533mm) Width: 13" (330mm) Length: 26" (660mm)	Height: 25" (635mm) Width: 13" (330mm) Length: 26" (660mm)	
Filter Notes:	Requires 2 Filters		

*These part numbers now have relief valves in the pump. The relief valve setting is: 10.3 bar (150 PSI)

Filter Choices for X011303 & X011304

Media Type	$\alpha_{x(c)} = 1000$	$\beta_{x(c)} = 2$	$\beta_{x(c)} = 1000$	Length		Part No.
	Rating based on ISO 23369	Rating based on ISO 16889		in	mm	
Synteq Synthetic			<4 μ m	9.4	240	P165185 ¹
			6 μ m	5.97	152	P165354
			6 μ m	9.4	240	P165332
Alpha-Web	10 μ m			5.97	152	DBH3542
Synteq Synthetic			11 μ m	5.97	152	P163542 ²
			11 μ m	5.97	152	P164375
			11 μ m	9.4	240	P164378
			13 μ m	9.4	240	P164056 ¹
			14 μ m	9.4	240	P177047
			22 μ m	9.4	240	P164059 ¹
			23 μ m	9.4	240	P163567 ²
			23 μ m	5.97	152	P164381
			23 μ m	9.4	240	P164384
			50 μ m	5.97	152	P165335
			50 μ m	9.4	240	P165338
Water Absorbing		10 μ m		9.4	240	P560584

Filter Choices for X011305

Media Type	$\alpha_{x(c)} = 1000$	$\beta_{x(c)} = 2$	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 23369	Rating based on ISO 16889		in	mm		
Synteq Synthetic			<4 μ m	14.2	361	P564468	
			6 μ m	11.6	294	P165675	
			6 μ m	11.6	294	P171274 ¹	
			6 μ m	14.2	361	P179763	
			6 μ m	14.2	361	DBH0949	
Alpha-Web	10 μ m			14.2	361	DBH0949	
			11 μ m	7.6	193	P176207	
			11 μ m	11.6	294	P165659	
			11 μ m	11.6	294	P573996 ¹	
			11 μ m	14.2	361	P170949	
			23 μ m	7.6	193	P176208	
			23 μ m	11.6	294	P165569	
			23 μ m	11.6	294	P171276 ¹	
			23 μ m	14.2	361	P173789	
			50 μ m	11.6	294	P165672	
		50 μ m	14.2	361	P573353		
Water Absorbing		10 μ m		11.6	294	P179075	Absorbs 300 ml water

1. Fluorocarbon o-rings are required when using diester, phosphate ester fluids, water glycol, water/oil emulsions and HWCF (high water content fluids) over 150°F.

2. 500 psi collapse

Filter Notes:

Standard filter collapse rating is 150 psi, except as noted.

X011303 and X011304 thread sizes: 1 3/8"-12 UNF-2B (HMK04)

X011305 thread size: 1 3/4"-12 UNF-2B (HMK05).

Refer to table in the Technical Reference Guide for fluid compatibility with our filter media.

Filter Panels

Fixed-Mounted Off-Line Filtration

Donaldson Filter Panels provide fixed-mount offline/kidney loop filtration and a turnkey approach to supplemental filtration for your in-plant machinery and hydraulic equipment – helping to reduce costs and achieve and maintain proper ISO cleanliness levels.

Donaldson filter panels are offered with 4 different pump flow rates. Reservoir size, fluid viscosity and fluid temperature will help determine the correct flow rate. Filter panels feature dual HMK05 filtration utilizing Donaldson's exclusive high efficiency Synteq™ media. The filters are plumbed in series giving you the option of coarse/fine particle removal or install a water absorbing filter for water/particle removal.

Notice

Donaldson Filter Panels include electric motors and indoor installation is recommended. Exposure to rain, snow and other elements may cause electric motors to fail. Failures that result from misapplication, improper use or storage are not covered by the Donaldson warranty.

Reference the aftermarket warranty: document no. F110064.

Fluid Compatibility

Not for use with diesel fuel or gasoline. For fuel solutions, please contact the Donaldson Clean Solutions team at clean.solutions@donaldson.com or 800-374-1374.



Applications

- Transferring New Oil
- Cleaning Stored Oil

Features	Benefits
High efficiency media grades	Cost effective filtration
Dual-stage filtration	Coarse/Fine or Water/Particulate removal
Differential pressure indicators	Alerts you when to change filters
Optional overload protected switch	Prevents motor from overheating
Sample port	Enables system cleanliness measurements
Integrated safety relieve valve	Protects against over pressurization

Applications	
Offline filtration	Supplement existing filtration to achieve target ISO cleanliness levels.
Water removal	Using Donaldson water removal filters to remove free water from the system.
Filter new fluid	Clean up new fluids because they are usually highly contaminated. Don't contaminate your equipment with new fluids. Protect your equipment with proper filtration.



Filter Panel Assembly Choices

NOTE: Filters ordered separately

The Importance of Temperature When Selecting a Filter Cart

Consider operating temperature ranges when determining the proper viscosity filtration solution. It's crucial to select the proper viscosity option to maintain adequate flow and avoid restriction. Refer to the oil viscosity with temperature chart located on the front cover of the catalog.

Example: ISO Grade 32 Hydraulic Oil @ 68°F = 86.7 (cSt)

Assembly Part No.	Low Viscosity Max Viscosity 500 SUS (108 cSt)* Filters ordered separately			High Viscosity Max Viscosity 8000 SUS (1700 cSt)* Filters ordered separately
	X011299 [†]	X011300 [†]	X011301 [†]	X011302 [†]
Operating Temperature:	-10° F to 160° F (-23° C to 71° C)			
Gear Pump Flow Rate*:	3 gpm (11.4 lpm)	5 gpm (18.9 lpm)	10 gpm (37.9 lpm)	2 gpm (7.57 lpm)
TEFC** Motor:	1/2 hp, 1800 rpm	3/4 hp, 1800 rpm	1 hp, 1800 rpm	1 hp, 1200 rpm
Fluid Compatibility:	Mineral-based fluids, water glycols, polyol esters			
Connections	Inlet (pump) : SAE 12 O-Ring Outlet: SAE 20 O-Ring			Inlet (pump) : SAE 12 O-Ring Outlet: SAE 20 O-Ring
Electrical Service: 115 volts, 60 Hz single phase	8.4 amp	14 amp	14 amp	14 amp
Dry Weight:	Approx. 95 lbs. (43 kg)			Approx. 120 lbs. (54 kg)
Dimensions:	Height: 20" (508mm)		Width: 36" (915mm)	Depth: 8" (203mm)
Filter Notes:	Requires 2 Filters			Requires 4 Filters

**Totally Enclosed Fan-Cooled

[†]These part numbers now have relief valves in the pump. The relief valve setting is: 10.3 bar (150 PSI)

Filter Choices

Media Type	$\alpha_{x(c)} = 1000$	$\beta_{x(c)} = 2$	$\beta_{x(c)} = 1000$	Length		Part No.	Comments
	Rating based on ISO 23369	Rating based on ISO 16889		in	mm		
Synteq Synthetic			<4 μ m	14.2	361	P564468	
			6 μ m	11.6	294	P165675	
			6 μ m	11.6	294	P171274'	
			6 μ m	14.2	361	P179763	
Alpha-Web	10 μ m			14.2	361	DBH0949	
Synteq Synthetic			11 μ m	7.6	193	P176207	
			11 μ m	11.6	294	P165659	
			11 μ m	11.6	294	P573996'	
			11 μ m	14.2	361	P170949	
			23 μ m	7.6	193	P176208	
			23 μ m	11.6	294	P165569	
			23 μ m	11.6	294	P171276'	
			23 μ m	14.2	361	P173789	
			50 μ m	11.6	294	P165672	
			50 μ m	14.2	361	P573353	
Water Absorbing		10 μ m		11.6	294	P179075	Absorbs 300 ml water

[†]Fluorocarbon o-ring, epoxy are required when using diester, phosphate ester fluids, water glycol, water/oil emulsions and HWCF (high water content fluids) over 150°F.

Easy.



Easier.



NOW YOU CAN SHOP FOR DONALDSON REPLACEMENT FILTERS ONLINE.

Visit shop.donaldson.com on your computer, phone or tablet to find all your top-quality aftermarket filters including fuel, lube, coolant and air intake filters for diesel engines, hydraulic and bulk tank filtration—plus exhaust system components. Distributors can now order directly with a secure login that provides access to all your account information—including past orders—so you can simply re-order with a click.

Shop.donaldson.com makes ordering replacement filters easier than easy so you can keep your business moving.

Shop for filters the easier way at
shop.donaldson.com



Bulk Fluids

The sophistication of today's equipment requires higher fuel and fluid cleanliness levels than ever before. Donaldson bulk tank filtration systems help save on costly component replacement, prevent unplanned downtime and even prevent a decrease in fuel efficiency due to injector wear. Our bulk filtration systems reduce your total cost of equipment ownership.



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Achieve More.





Donaldson Delivers Superior Bulk Fluid Filtration

- Lower Total Cost of Ownership
- Avoid Unplanned Downtime
- Maximize Fuel Efficiency
- Low Installation Costs
- Custom Designs
- Modular Solutions
- Compact Installation
- Low Inventory Costs
- Easily Shipped
- Easily Serviced



Clean.

Donaldson single-pass filtration on the inlet removes contamination before it can enter your storage tank and contaminate it.

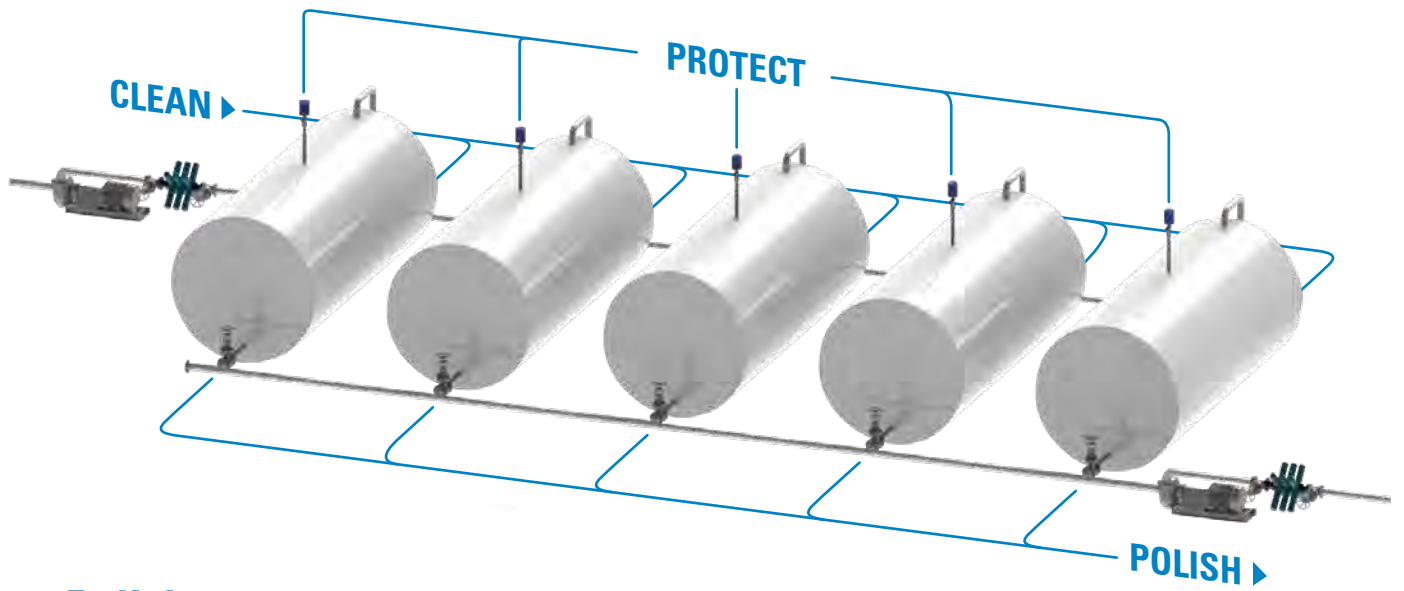
Compact and easy to replace, Donaldson filters are an important line of defense in maintaining fluid quality and can be configured for high flow rates while minimizing pressure drop.



Protect.

Water absorbing filters, T.R.A.P.™ Breathers and Reservoir Air Dryers reduce the risk of moisture and contaminants entering a bulk storage tank so fluids are kept clean and dry. Used together, they'll help guard fluids from free water, airborne contamination and microbial growth for as long as they stay in storage.





Polish.

Unstable fluids and the tank itself can be a source of contamination. Final filtration on the outlet with Donaldson filters ensures that targeted ISO cleanliness levels are achieved before fluids are pumped into your system.

Achieve More.



Filters

Max. Working Pressure: 350 psi/2413 kPa/24.1 bar
 Rated Static Burst: 800 psi/5516 kPa/55.2 bar

Part No.	Fluid Type	Max. Flow Range	Target ISO Cleanliness	Filter Efficiency
DBB5333	All diesel fuels	32 gpm/121 lpm	14/13/11	4 micron @ Beta 2000
DBB7733	All diesel fuels	32 gpm/121 lpm	16/14/11	7 micron @ Beta 2000
DBB8666	All diesel fuels	65 gpm/246 lpm	14/13/11	4 micron @ Beta 2000
DBB8777	All diesel fuels	65 gpm/246 lpm	16/14/11	7 micron @ Beta 2000
DBB8665	Transmission and hydraulic oils	65 gpm/246 lpm	16/14/11	7 micron @ Beta 2000
DBB2533	Engine and gear oils	65 gpm/246 lpm	18/16/13	25 micron @ Beta 2000
DBB8664	Engine and gear oils	65 gpm/246 lpm	18/16/13	25 micron @ Beta 2000
DBB0248	Ethanol-free fluids*	65 gpm/246 lpm	N/A	N/A

*Designed with expanding, water-absorbing media that prevents water from entering storage or equipment tanks.

Filter Heads

Max. Working Pressure: 350 psi/2413 kPa/24.1 bar
 Rated Static Burst: 800 psi/5516 kPa/55.2 bar

Part No.	Filter Qty	Mounting Connection	Max. Flow Range	Bypass
P570329	1	SAE-20 O-ring	65 gpm/246 lpm	No
P570330	1	1 1/4" NPTF	65 gpm/246 lpm	No
P568583	2	1 1/2" SAE 4-Bolt	125 gpm/473 lpm	No



Pictured with Direct Gauge Adapter: P563809
 Gauge: P562709
 Use test points and direct gauge adapters.

Filter Manifolds

Part No.	Filter Qty	Mounting Connection	Max. Flow Range
P561880	4	2" ANSI 150 Flange	250 gpm/946 lpm
P568932	8	4" ANSI 150 Flange	500 gpm/1893 lpm
P568933	10	4" ANSI 150 Flange	600 gpm/2271 lpm
DFF1012	up to 12	4" ANSI 150 Flange	700 gpm/2650 lpm



T.R.A.P.™ Breathers

T.R.A.P. breathers protect the fluids in your storage tank from airborne particulate moisture contamination and ambient moisture.

Assembly Part No.	Mounting Connection	Max. Flow Range	Filter Efficiency	Replacement Part No.
X920006	1-1/2 in NPT Female	400 gpm/1500 lpm	97% @ 3 micron	P923075



Reservoir Air Dryer

The Reservoir Air Dryer combats ambient ingress of moisture by introducing a steady flow of clean, dry air to the reservoir. No electrical requirements.

Part No.	Outlet Flow Volume @100 psi & dew point suppression	Inlet Air required @ 100 psi	Inlet/Outlet
P575852	0.5 scfm (14.2 slpm)	0.8 scfm (22.7 slpm)	1/4" NPT



DEF Filter and Housing

Max. Working Pressure: 300 psi/2068 kPa/20.7 bar

Part No.	Filter Element*	Mounting Connection	Max. Flow Range	Efficiency
P575057	P575059	1" NPT	10 gpm/38 lpm	1 micron @ Beta 5000 (99.98%)
P575058	P575059	1" BSPT		

*Filter element sold separately.



Plastic filter cartridges and metal housings are easily separated for recycling.

Bulk hP Filters

Designed for higher pressure delivery systems out of bulk storage tanks, typically on air pump fed hose reels in lube shops, mobile service trucks and other refer pressure single pass applications.

Element Collapse Rating: 300 psi/2068 kPa/20.7 bar
 Max. Working Pressure: 1000 psi/6895 kPa/68.9 bar
 Rated Static Burst: 2200 psi/15168 kPa/151.7 bar

Part No.	Fluid Type	Max. Flow Range	Target ISO Cleanliness	Filter Efficiency
P565184	Petroleum based oil	50 gpm/189 lpm	14/13/11	4 micron @ Beta 2000
P565185	Petroleum based oil	50 gpm/189 lpm	16/14/11	8 micron @ Beta 2000
P565183	Petroleum based oil	50 gpm/189 lpm	18/16/13	14 micron @ Beta 2000

Bulk hP Filter Heads

Max. Working Pressure: 1000 psi/6895 kPa/68.9 bar

Part No.	Filter Qty	Mounting Connection	Max. Flow Range	Bypass Valve
P566023	1	SAE-16 O-ring	50 gpm/189 lpm	No
P566024				50 PSI

For more information about bulk filtration systems, contact Donaldson:

Email: clean.solutions@donaldson.com

Web: mycleandiesel.com

Phone: 855-518-7784

More detailed product information can be found in the F111500 Bulk Filtration Product Guide.



Donaldson provides this technical reference as a short course in “Hydraulic Filtration 101”— for those who want to gain a better understanding of hydraulic filtration.

In stationary and mobile applications at factories all over the world, we too often see hydraulic circuits that don’t include proper fluid filtration, or include it as an afterthought. Good filtration needs to be an integral part of the hydraulic circuit to ensure the long life and proper operation of the pumps, valves and motors. A \$100 filter protects your \$100,000 equipment.

This section is offered to aid in choosing the filter that will help you achieve the ideal cleanliness levels and longest life for your critical components.

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Symbols Used

α	Alpha Ratio
β	Beta Ratio
cSt	Centistokes
ΔP	Pressure Drop or Differential Pressure
ISO	International Standards Organization
μm	Micron or micrometer
ppm	Parts per million
SSU SUS	Saybolt Seconds Universal

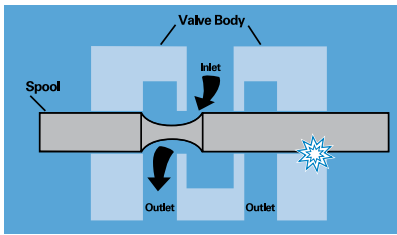
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Why Hydraulic Components Need Protection

Fluid power circuits are designed in all shapes and sizes, both simple and complex in design, and they all need protection from damaging contamination. Abrasive particles enter the system and, if unfiltered, damage sensitive components like pumps, valves and motors. It is the job of the hydraulic filter to remove these particles from the oil flow to help prevent premature component wear and system failure. As the sophistication of hydraulic systems increases, the need for reliable filtration protection becomes ever more critical.

How Contamination Damages Precision Parts



This illustration of a simple hydraulic valve illustrates how particles damage components. In normal operation, the spool slides

back and forth in the valve body, diverting oil to one side of the valve or the other. If a particle lodges between the spool and valve body, it will erode small wear particles from the metal surfaces. As these wear particles are moved back and forth by the action of the spool, they can roll into a burr that jams the spool and disables the valve.



Component Damage

Looking down the barrel of an hydraulic cylinder, we can see the scratches along the inside surface. Don't cut costs by eliminating hydraulic filters. It could cost you more in the long run in major component repairs.

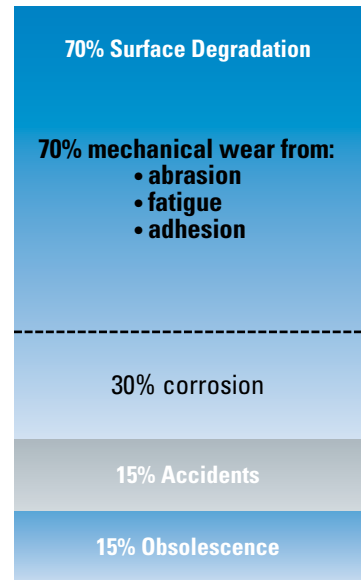
Types of Contaminant

Many different types of contamination may be present in hydraulic fluid, causing various problems. Some are:

- Particulate (dust, dirt, sand, rust, fibers, elastomers, paint chips)
- Wear metals, silicon, and excessive additives (aluminum, chromium, copper, iron, lead, tin, silicon, sodium, zinc, barium, phosphorous)
- Water
- Sealants (Teflon[®]* tape, pastes)
- Sludge, oxidation, and other corrosive products
- Acids and other chemicals
- Biological, microbes (in high water based fluids)

Typical Factors in Component Life

Studies show that most (typically 70%) of hydraulic component replacement is necessary because of surface degradation, and most of that is due to mechanical wear. Proper filtration of hydraulic fluids can lengthen component life.



Disaster Strikes

When filters are not a main component of the hydraulic circuit, disaster awaits. Here, piston rings were eaten away by contaminants.

* Teflon is a registered trademark of E.I. Dupont de Nemours & Co., Inc.



Where Contamination Comes From

There are many sources of contamination in a hydraulic system or circuit.




New Hydraulic Fluid Adding new fluid can create contamination. New hydraulic fluid isn't clean. (What looks clean may not be - the human eye can only see a particle of about 40µm.) Oil from shipping containers is usually contaminated above acceptable levels for most hydraulic systems. Typical cleanliness levels are:

- New fluid: about the same as ISO Code 23/21/19
- Water content: 200 to 300 ppm.

Never assume your oil is clean until it is filtered. Having a dedicated off-line circulation loop, or "kidney" loop is an effective way of ensuring thorough fluid conditioning.

How Clean is Your New Oil?

Amount of contaminant in 100 gallons hydraulic oil

Donaldson Hydraulic Filter Synteq™ Media	Standard Hydraulic Filter Cellulose Filter Media	New, Unfiltered Hydraulic Oil
		
ISO 14/9/3 0.004 gram dust	ISO 19/17/14 0.363 gram dust	ISO 22/21/18 4.73 grams dust

New, unfiltered hydraulic oil can contain 1,000 times more contaminant than filtered oil. Contamination levels of different ISO 4406 codes vary dramatically.*

Amount of contaminant that passes through a 25 gallon hydraulic reservoir with a 25 gpm pump running for a period of 500 hours.

Synteq™ Media ISO 14/9/3	Cellulose Media ISO 19/17/14	New Hydraulic Oil ISO 22/21/18
0.03 lbs (12.5 g)	2.5 lbs (1,125 g)	32.5 lbs (4,750 g)

Hydraulic Pump Exposure to Dirt

* Derived from the ISO 16889 test standard with NIST certified on-line automatic particle counters and ISO medium test dust (assumes spherical particle shape and lower bound diameter for test dust). Achieved with $\beta_{400} > 1000$ Synteq™ media. Actual results may vary.

Built-In Built-in contamination (primary contamination), is caused during the manufacture, assembly and testing of hydraulic components. Metal filings, small burrs, pieces of Teflon tape, sand and other contaminants are routinely found in initial clean up filtration of newly manufactured systems.

Ingressed Ingressed (external) contamination comes from the environment outside the system. Dirt can enter the hydraulic fluid supply through leaking seals, reservoir breather caps, and worn cylinder rod seals. Ingressed moisture can particularly cause long-term problems. As a hot system cools at night, cool, moisture-laden air can be drawn into the reservoir. As air condenses, water is released into the reservoir. Water exceeding 0.5% by volume in a hydrocarbon-based fluid accelerates the formation of acids, sludge

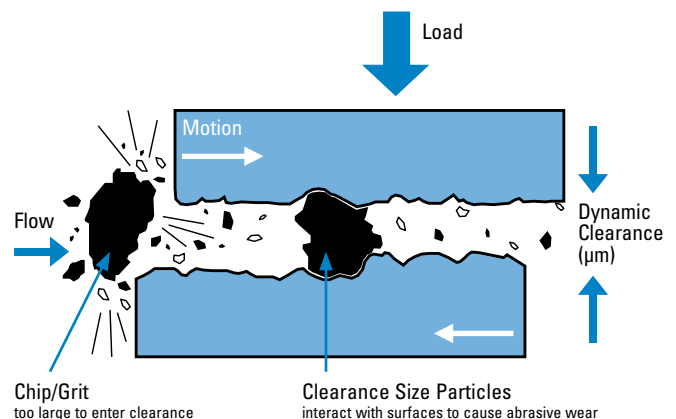
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and oxidation that can attack internal components, cause rust, and adversely affect lubrication properties. The severity and type of contaminant depend on the applications and environment.

Induced Maintenance procedures can introduce contamination into the system. Opening the system can introduce airborne particles. Leaving the system open during operation allows continuous ambient particle ingress. Keep your system closed as much as possible.

In-Operation The major sources of contamination are the pump and actuators, the hydraulic cylinder, or the hydraulic motor. Wear-generated contaminants are a hazard during normal hydraulic system operation. The circuit actually generates additional particles as the fluid comes into contact with the precision machined surfaces of valves, motors and pumps. Contaminant levels can keep doubling with every new particle generated. The result can be catastrophic if these contaminants are not properly filtered out of the system.

Rubber & Elastomers Hoses, accumulator bladders, seals, or other elastomer products can all be sources of contamination. Rubber compounds and elastomers degrade due to temperature, time, and high-velocity fluid streams, releasing particulates.



High Water Based Fluids The water in HWBF tends to support biological growth and generate organic contamination and microbes.

Replacement of Failed Components

Failure to thoroughly clean fluid conductor lines after replacing a failed hydraulic pump will cause premature catastrophic failure. Donaldson recommends frequent oil sampling to ensure proper contamination control. Sample test points should be close to hydraulic pumps and at other key locations that provide safe, reliable access to the fluid while under full system pressure.



Fluid Conditioning

Fluid Conditioning is the term for the overall conditioning of the fluid in the hydraulic system, and encompasses particulate removal via filters along with other various methods for removing silt, air, water, heat, acid, sludge or chemicals.

Particulate Removal

Particulate removal is usually done with mechanical filters. A well designed reservoir that allows settling will also help in keeping particulates out of the mainstream fluid. For ferrous particulates and rust, reservoir magnets or strainer band magnets can also be used. Other methods such as centrifuging or electrostatic filtration units can also be used, particularly in continuous batch processing and fluid reclamation.

Removal of Silt

Silt, defined as very fine particulate under 5 µm in size, requires very fine filtration or "oil polishing."

Air Removal

Getting air out of the system is best done by adding 100 mesh screen in the reservoir, approximately 30° from horizontal to coalesce entrained air and allow larger bubbles to rise to the surface when reservoir velocities are low.

Water Removal

A number of techniques exist to prevent water or moisture ingress or to remove water once it is present in a hydraulic or lube oil system. The best choice of technique for removal is dependent on whether or not the water exists as a separate phase (dissolved or free), and also on the quantity of water present. For example, the presence of water or moisture can be reduced or prevented from entering a fluid reservoir through the use of adsorptive breathers or active venting systems. However once free water is present in small quantities, water absorbing filters

or active venting systems usually provide adequate removal means. For large quantities of water, vacuum dehydration, coalescence, and centrifuges are appropriate techniques for its removal. However, as each of these techniques operates on different principles, they have various levels of water removal effectiveness. The chart below provides comparative information on these techniques and their relative effectiveness. Care should be taken to apply the best technique to a given situation and its demands for water removal.

Chemical Removal

Removal of acids, sludge, gums, varnishes, soaps, oxidation products and other chemicals generally requires an adsorbent (active) filter with Fuller's Earth, active type clays, charcoal, or activated alumina.

Heat Removal

Removing heat is important to maintain viscosity and prevent fluid breakdown. Usually performed with heat exchangers, including air-to-oil and water-to-oil types, finned coolers, or refrigerated units.

Heat Addition

Added heat is used for cold temp start-up to get fluid viscosities within operational limits. Use heaters, immersion or in-line.

Kidney Loop Filtration

One very effective way of ensuring thorough fluid conditioning is with a dedicated off-line circulation loop, or "kidney" loop. This system uses a separate circulation pump that runs continuously, circulating and conditioning the fluid. Multiple stages and types of filters can be included in the circuit, as well as heat exchangers and in-line immersion heaters.

Water Prevention and Removal Techniques

	Usage	Prevents Humidity Ingression	Removes Dissolved Water	Removes Free Water	Removes Large Quantities of Free Water	Limit of Water Removal
Adsorptive Passive Breather	prevention	Y				n/a
Active Venting System	prevention & removal	Y	Y	Y		down to <10% saturation
Water Absorbing Cartridge Filter	removal			Y		only to 100% saturation
Centrifuge	removal			Y	Y	only to 100% saturation
Coalescer	removal			Y	Y	only to 100% saturation
Vacuum Dehydrator	removal		Y	Y	Y	down to ~20% saturation



Proper Filter Application

When selecting a new filter assembly or replacement filter, it's important to first answer some basic questions about your application. Where will the filter be used? What is the required cleanliness level (ISO code) of your system? What type of oil are you filtering? Are there specific problems to be addressed?

It's also important to think about the viscosity of the fluid in your system. In some machinery lubrication applications, for example, the oil is very thick and has a tougher time passing through the layer of media fibers. Heating techniques and the addition of polymers can make the liquid less viscous and therefore easier to filter. Another option is to install a filter with larger media surface area, such as the Donaldson W041 or HRK10 low pressure filters, that can accommodate more viscous fluids.

Next, think about duty cycle and flow issues. Working components such as cylinders often create wide variations in flow—also called pulsating flow—that can be problematic for filters with higher efficiency ratings. On the other hand, dedicated off-line filtration (also called “kidney loop”) produces a very consistent flow, so it makes sense to use a more efficient filter.

Filters used in applications with steady, continuous operation at lower pressures will last longer than filters that must endure cycles of high pressure pulsating flow. Generally, the lower the micron rating of a filter, the more often it needs to be changed since it is trapping more particles.

Finally, it's wise to ask yourself, “How much is my equipment worth?” Calculate how much it would cost to replace the equipment in your system, in case of component failure, and make sure those areas are well protected with proper filtration. (For example, high performance servo valves are very sensitive, costly components that need to be protected with finer filtration media.)

Minimizing maintenance costs through good contamination control practices requires proper filter application based on the specific contamination problems. Good contamination control means cost-effective filtration. When looking for a filter, first assess the needs of your system and any problem areas.

Characteristics to Consider When Specifying a Filtration System

- 1) Oil Viscosity
- 2) Flow
- 3) Pressure
- 4) What Components will be protected by the filter
- 5) Cleanliness level required (expressed in ISO code)
- 6) Type of oil/fluid
- 7) Environment (the system, the surrounding conditions, etc.)
- 8) Duty cycle
- 9) Operating Temperature

Fluid Properties

Lubricity The property of the fluid that keeps friction low and maintains an adequate film between moving parts.

Viscosity The thickness of the fluid as measured by resistance to flow. The fluid must be thin enough to flow freely, heavy enough to prevent wear and leakage. Hydraulic fluids thicken when they cool and thin out as they heat up. Because some hydraulic systems work under wide temperature extremes, viscosity can be an important factor.

Viscosity Index (VI) The rate of viscosity change with temperature: the higher the index, the more stable the viscosity as temperature varies. VI can sometimes be improved by additives, usually polymers.

Rust Resistance Rust inhibiting chemicals in hydraulic fluids help overcome the effects of moisture from condensation.

Oxidation Resistance Oxidation inhibitors delay the sludgy/acidic effects of air, heat, and contamination in the system.

Foaming Resistance Although control of foaming depends largely on reservoir design, anti-foaming additives in the fluid also help.



Types of Hydraulic Fluid

There are many kinds of fluids used for power, but they can basically be called petroleum-based fluids, biodegradable fluids, and fire-resistant fluids. A brief description of some of the types in each category are listed below; for details on these or others, consult your filter supplier or refer to a reputable manual on hydraulics, such as the Lightning Reference Handbook, published by Berendsen Fluid Power, Whittier, CA 90601.

Petroleum Based (Hydrocarbon)

These are the most commonly used fluids in hydraulic systems. Their major advantages are low cost, good lubricity, relatively low/non-toxicity, and common availability. This type of fluid is not just plain oil; rather, it is a special formulation with additives that make it suitable for hydraulic systems. Mostly, the additives inhibit or prevent rust, oxidation, foam and wear.

Variations:

- Straight oils: same as petroleum-based oil but without the additives.
- Automatic transmission fluids (ATF): excellent low temp viscosity and very high VI.
- Military hydraulic fluids (ie: MIL-H-5606 and MIL-H-83282): also called 'red oil' because of the color. Low viscosity, good for cold temp operations, but may have to be modified for pumps.

Fire Resistant Fluids

There are two types of fire-resistant fluids commonly used in hydraulic applications: Phosphate Esters and High Water Content Fluids (HWCF). Although generally not as viscous at cold temperatures as petroleum-based fluids, they are fire resistant due to their high content of noncombustible material. Very useful in overcoming the likelihood of fire caused by a broken hydraulic line spraying petroleum fluid into a pit of molten metal, onto a hot manifold, into a heat-treating furnace, or other ignition source.

Some types of HWCF:

- Oil-in-water emulsions (HFA): typically 95% water and 5% oil, with the oil droplets dispersed throughout the water. Provide some fire resistance, but due to oil content, other fluids are superior.
- Water-in-oil emulsions (invert emulsion HFB): typically 40% water and 60% oil, with the water dispersed in the oil. Provide some fire resistance, but due to oil content, other fluids are superior.

- Water-glycol (HFC): typically 40% water and 60% glycol. Excellent fire resistance. Since glycol is an antifreeze, water-glycol can be used at lower temps.

NOTE: HWCF may require reduced pressure rating of pumps and other components.

HFD Fluids

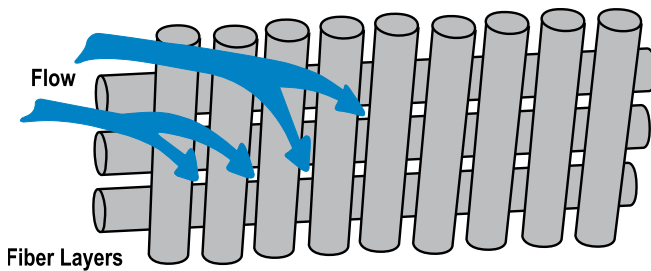
The HFD group is a classification given to several different types of synthetic products that do not contain petroleum oil or water. Phosphate ester fluids were the first HFD fluids and are the most fire resistant within the HFD family. Not as popular today, their use declined due to poor environmental performance, limited compatibility, and high cost. Certain phosphate esters have very high auto-ignition temperatures and are still used in specific applications, such as aircraft and power generation. A common brand is known as Skydrol® (registered trademark of Solutia Inc., a subsidiary of Eastman Chemical Company). Skydrol requires EPR seal for chemical compatibility. Today most phosphate esters have been replaced by polyol esters. Based on organic esters, polyol esters are the most common HFD fluids used today. They offer good inherent fire resistance, good compatibility with system materials, excellent hydraulic fluid performance, and easy conversion from petroleum oil. In addition, the organic nature of these fluids gives them good environmental performance in biodegradability and aquatic toxicity. Another type of synthetic, fire resistant fluids have been formulated for certain niche markets. Water free polyalkylene glycols (PAGs) feature extended fluid life and good environmental performance. Technically an HFD fluid, PAGs (also known as polyalphaolefins (PAOs) are more often used for their biodegradability and overall environmental friendliness. This group also contains the synthetic silicone (siloxane) oils, known for their anti-foaming properties.

Biodegradable

With increasing concern about the environmental impact of hydraulic system leaks and spills, biodegradable fluids are receiving expanded usage, particularly in Europe. There are two types of common biodegradable hydraulic fluids: 1) vegetable-based oils, such as sunflower or rapeseed (canola) oils, and 2) synthetic oils like diesters, etc. Generally, systems using biodegradable fluids are derated for maximum and minimum temperatures. Users who replace standard hydraulic oils with biodegradable oils must check with filtration component manufacturers to confirm that the fluid and components are compatible.

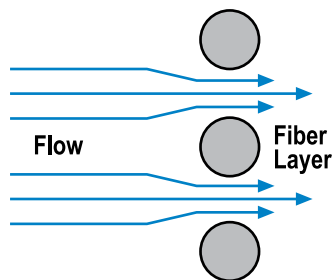
How Filter Media Functions In a Filtration System

The job of the media is to capture particles and allow the fluid to flow through. For fluid to pass through, the media must have holes or channels to direct the fluid flow and allow it to pass. That's why filter media is a porous mat of fibers that alters the fluid flow stream by causing fluid to twist, turn and accelerate during passage.



The fluid changes direction as it comes into contact with the media fibers, as illustrated above. As the fluid flows through the media, it changes direction continuously as it works its way through the maze of media fibers. As it works its way through the depths of the layers of fibers, the fluid becomes cleaner and cleaner. Generally, the thicker the media, the greater the dirt-holding capacity it has.

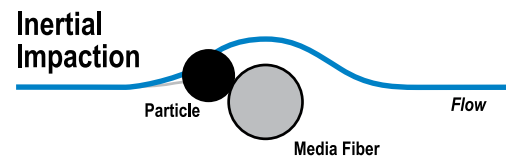
Looking at a cross-section view of the fibers, we can see how the flowstream is accelerated as it flows into the spaces between the fibers.



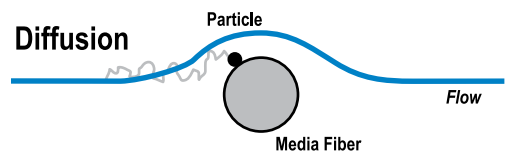
How Filter Media Collects Particles

There are four basic ways media captures particles.

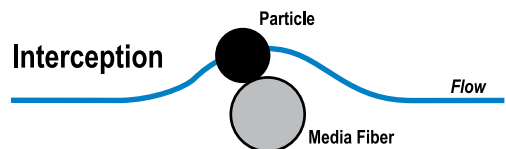
The first, called **inertia**, works on large, heavy particles suspended in the flow stream. These particles are heavier than the fluid surrounding them. As the fluid changes direction to enter the fiber space, the particle continues in a straight line and collides with the media fibers where it is trapped and held.



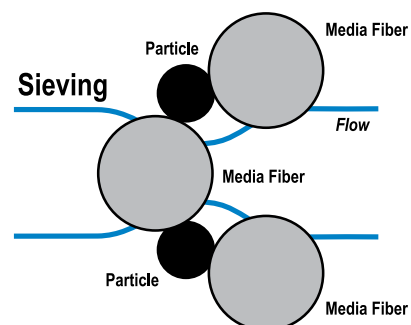
The second way media can capture particles is by **diffusion**. Diffusion works on the smallest particles. Small particles are not held in place by the viscous fluid and diffuse within the flow stream. As the particles traverse the flow stream, they collide with the fiber and are collected.



The third method of particle entrapment is called **interception**. Direct interception works on particles in the mid-range size that are not quite large enough to have inertia and not small enough to diffuse within the flow stream. These mid-sized particles follow the flow stream as it bends through the fiber spaces. Particles are intercepted or captured when they touch a fiber.



The fourth method of capture is called **sieving** and is the most common mechanism in hydraulic filtration. As shown at right, this is when the particle is too large to fit between the fiber spaces.





Basic Types of Hydraulic Filter Media Filter Media

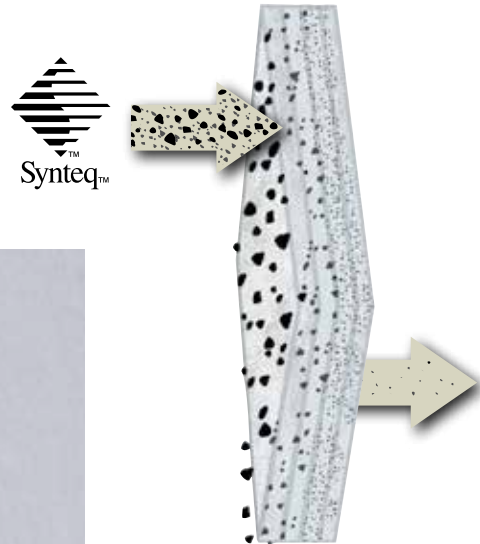
Media is a term used to describe any material used to filter particles out of a fluid flow stream. There are seven basic types used to remove contamination in hydraulic applications:

DT High-Performance Media (Synthetic)

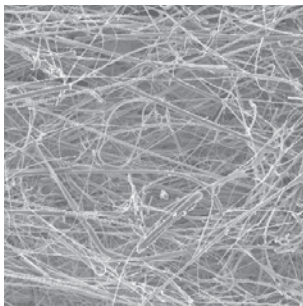
Donaldson high-performance DT grades of Synteq media utilize a blend of synthetic fibers optimizing efficiency and initial pressure drop. Donaldson filter media scientists found this provides the best available chemical resistance for the broadest array of hydraulic applications.

DT High-Performance media is ideal for use with phosphate ester and water glycol fluids.

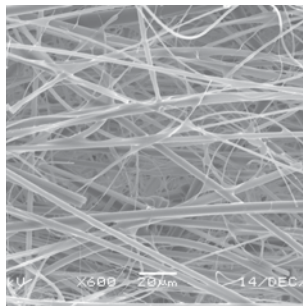
HOW IT WORKS



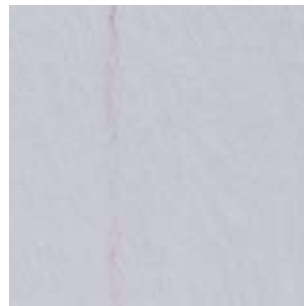
SEM 100X



SEM 600X

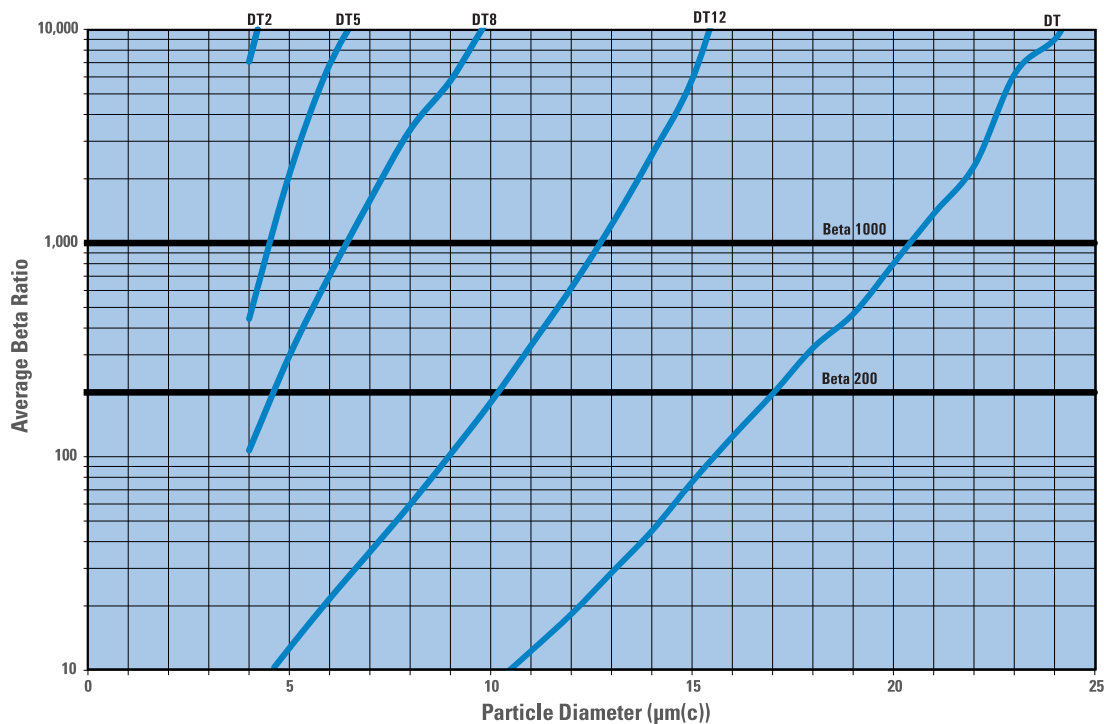


MEDIA IMAGE



The chemical and thermal compatibility of fluid filters is an increasingly difficult design challenge due to the complex variety of fluid systems. Today's fluid systems are often tailored towards the special needs fire resistance, biodegradability, and electrical insulating ability. Fortunately, there are media solutions available to meet these challenges.

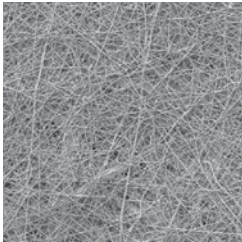
Donaldson DT Synteq Media Efficiency



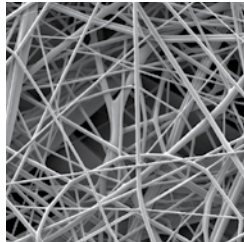
Alpha-Web™ Media (Synthetic)

Donaldson Alpha-Web media was developed by Donaldson scientists for real world hydraulic applications. In real world hydraulic applications, contaminant particles can become dislodged from filter media with varying flowrates. Donaldson's Alpha-Web media utilizes a fine fiber layer that traps and locks particles that outperforms conventional media in cyclic flow efficiency testing.

SEM 100X



SEM 600X

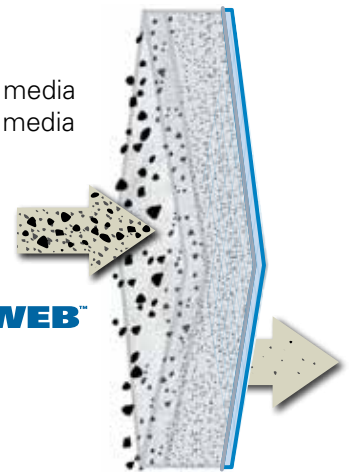


MEDIA IMAGE



ALPHA-WEB™

HOW IT WORKS

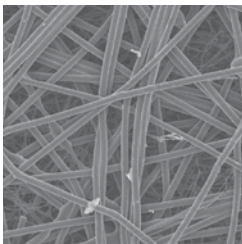


Synteq™ Media (Synthetic)

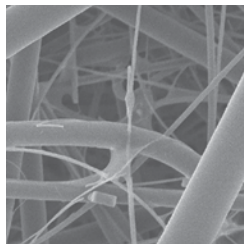
Synthetic fibers are man-made, smooth, rounded and consistent in shape, allowing control of the fiber size and distribution pattern throughout the media mat. This gives the smoothest, least inhibited fluid flow. Consistency of fiber shape allows maximum contaminant-catching surface area and specific pore size control. The result is media with predictable filtration efficiencies removing specified contaminants and maximum dirt holding capacity.

The low resistance of synthetic media to fluid flow makes it ideal for use with synthetic fluids, water glycols, water/oil emulsions, HWCF and petroleum-based fluids.

SEM 100X



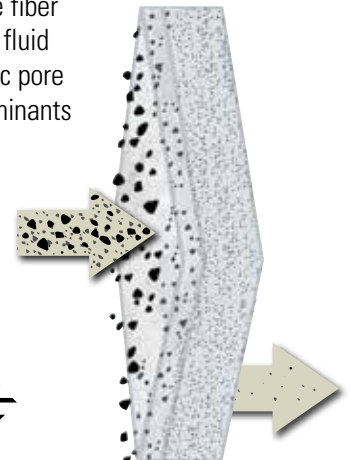
SEM 600X



MEDIA IMAGE



HOW IT WORKS

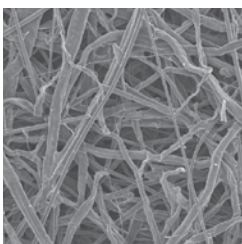


Cellulose Media (Traditional)

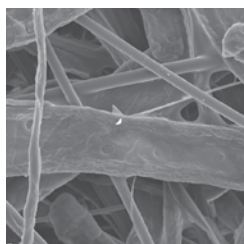
Cellulose fibers are actually wood fibers, microscopic in size and held together by resin. Fibers are irregular in both shape and size. Cellulose often has lower beta ratings, which means there are smaller pores in the media. Smaller media pores cause more flow resistance, resulting higher pressure drop.

While cellulose provides effective filtration for a wide variety of petroleum-base fluids, in certain applications it results in poor filtration performance as compared to synthetic media.

SEM 100X



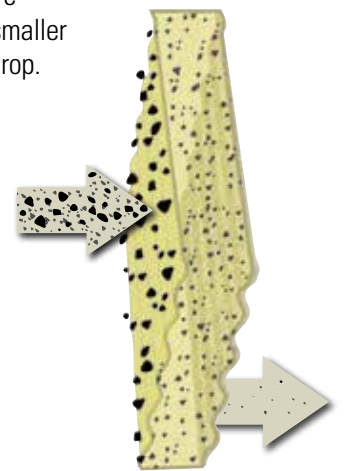
SEM 600X



MEDIA IMAGE



HOW IT WORKS

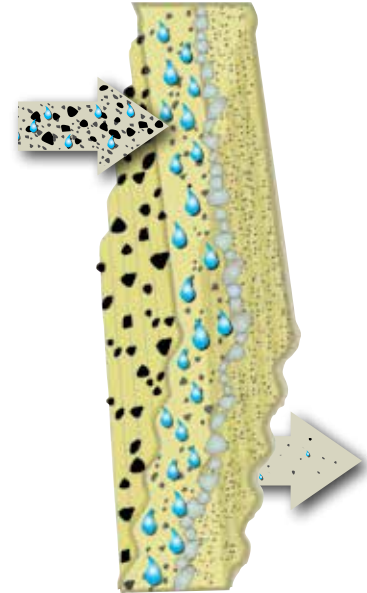




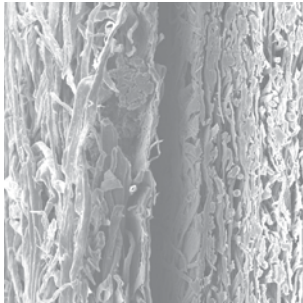
Water Absorbing Media

Water absorption media quickly and effectively removes free water from hydraulic systems. Using super-absorbent polymer technology with a high affinity for water absorption, this media alleviates many of the problems associated with water contamination found in petroleum-based fluids.

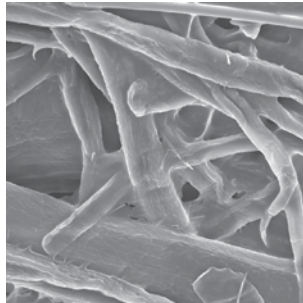
HOW IT WORKS



SEM 100X



SEM 600X



MEDIA IMAGE



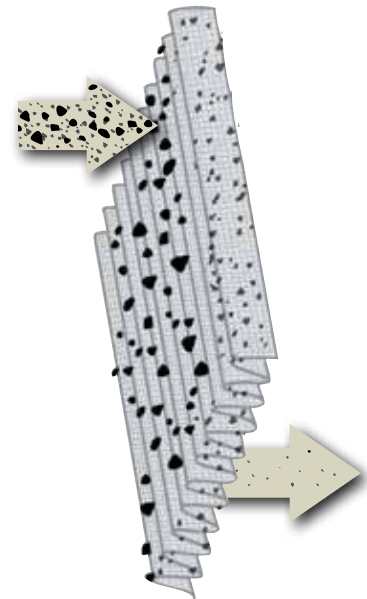
Wire Mesh Media

Wire mesh media consists of stainless steel, epoxy-coated wire mesh available in 3 mesh sizes:

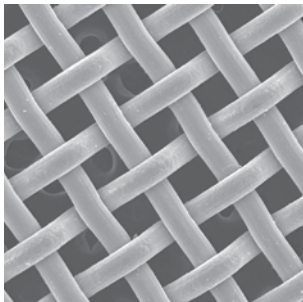
- 100 mesh yields 150 µm filtration
- 200 mesh yields 74 µm filtration
- 325 mesh yields 44 µm filtration

Typically wire-mesh filters will be applied to catch very large, harsh particulate that would rip up a normal filter. You may also find this media useful as a coarse filter in viscous fluid applications.

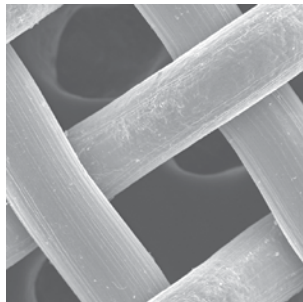
HOW IT WORKS



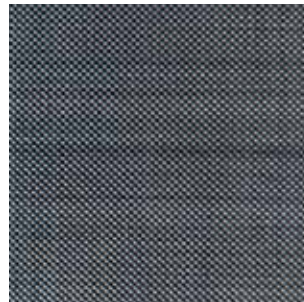
SEM 60X



SEM 100X



MEDIA IMAGE





Donaldson Filter Media Efficiency Ratings per ISO 23369 Test Standards

ISO 23369 is the international standard for Multi-Pass Testing to determine the efficiency (beta rating or beta ratio) and the dirt-holding capacity of the filter in real world hydraulic cyclic flow conditions.

Donaldson Alpha-Web media has been tested per the new standard and the current alpha ratings are shown. New alpha ratios are shown at 2, 200 and 1000, with a (c) to indicate test adherence to the ISO 23369 standard.

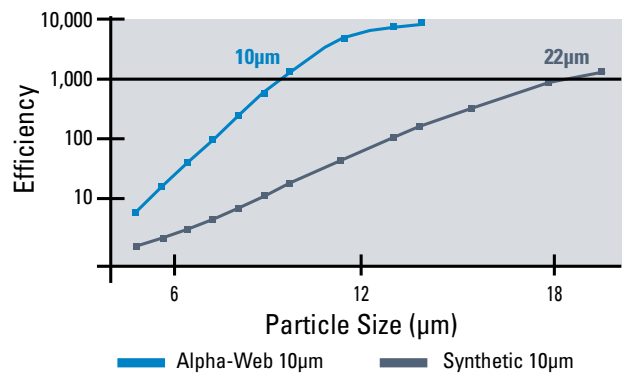
More than 75 percent of all hydraulic system failures can be traced back to contaminated fluid. Today's modern hydraulic systems operate at such high pressures that even microscopic particles can cause wear and tear on components, unplanned downtime, and higher maintenance costs.

Alpha-Web improves hydraulic fluid cleanliness by 2 ISO codes over synthetic media, which is hydraulic fluid 4x cleaner, and According to the Equipment Life Extension Table by Noria Corporation, the industry-accepted authority on fluid cleanliness, an improvement in fluid cleanliness by two ISO codes can extend component life by 60%.

Donaldson Filter Alpha-Web Media Efficiency Ratings Per ISO 23369 Test Standards

$\alpha_{x(c)} = 2$	$\alpha_{x(c)} = 200$	$\alpha_{x(c)} = 1000$
Donaldson Alpha-Web Synthetic Media		
<4 μm	8 μm	10 μm

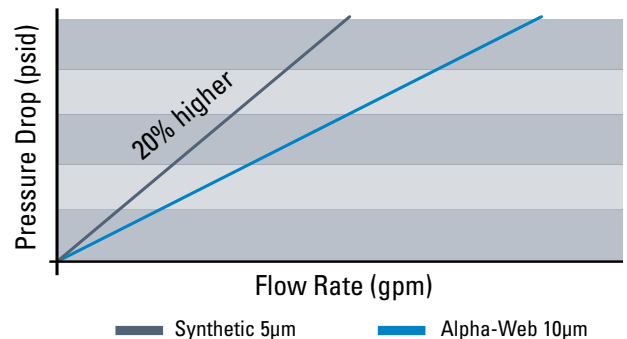
Fine-Fiber vs. Synthetic Media in Cyclic Conditions



Donaldson's 10 μm Alpha-Web media delivers better efficiencies in cyclic conditions compared to legacy 10 μm synthetic medias. Alpha-Web offers higher efficiency with a lower restrictive pressure drop.

Donaldson's 10 μm Alpha-Web and 5 μm legacy synthetic medias are comparable in efficiency performance. The 10 μm Alpha-Web allows for pressure drop 20% lower than the legacy 5 μm synthetic media. In mobile hydraulic applications where high efficiency is required but restriction is a concern, 10 μm Alpha-Web provides a significant benefit to legacy 5 μm media.

Initial Restriction dP



ALPHA-WEB IMPROVES HYDRAULIC FLUID CLEANLINESS BY

2 ISO codes over synthetic media

That's hydraulic fluid up to **4x cleaner***

Which can **extend component life by 60%**

*Results achieved from lab testing. Field testing is ongoing.



Donaldson Filter Media Efficiency Ratings per ISO 16889 Test Standards

ISO 16889 is the international standard for Multi-Pass Testing to determine the efficiency (beta rating or beta ratio) and the dirt-holding capacity of the filter. It replaced the ISO 4572 test standard.

Donaldson filter media has been re-tested per the new standard and the current beta ratios are shown at right. New beta ratios are shown at 2, 200 and 1000, with a (c) to indicate test adherence to the ISO 16889 standard and traceability to NIST test dust.

Fluid to be Filtered	Recommended Media
Petroleum-based	Synteq or Cellulose
Phosphate Ester	DT High-Performance
Diester	Synteq
Water Glycol	DT High-Performance
Water-Oil Emulsion	Synteq
Biodegradable Fluid	Synteq
HWCF (high water content fluids)	Synteq
Coarse Filtration	Wire Mesh

Donaldson Filter Media Efficiency Ratings Per ISO 16889 Test Standards

$\beta_{x(c)} = 2$	$\beta_{x(c)} = 200$	$\beta_{x(c)} = 1000$
Donaldson DT High-Performance Synthetic Media		
<4 μm	<4 μm	<4 μm
<4 μm	<4 μm	5 μm
<4 μm	6 μm	8 μm
<4 μm	10 μm	12 μm
7 μm	18 μm	23 μm
Donaldson Synteq™ Synthetic Media		
<4 μm	<4 μm	<4 μm
5 μm	10 μm	13 μm
6 μm	16 μm	22 μm
7 μm	18 μm	23 μm
14 μm	>42 μm	50 μm
Donaldson Cellulose Media		
5 μm	18 μm	24 μm
7 μm	19 μm	23 μm
17 μm	>40 μm	>40 μm
27 μm	>40 μm	>40 μm
Donaldson Water Absorbing Media		
10 μm		
Donaldson Wire Mesh Media		
45 μm		
60 μm		
75 μm		
90 μm		
125 μm		
150 μm		



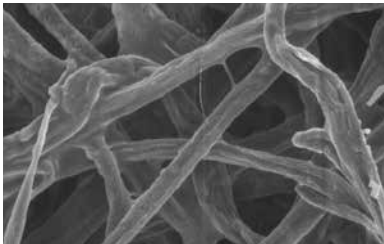
Hydraulic Filtration Pressure Drop

The difference between the inlet pressure and the outlet pressure is called pressure drop or differential pressure. It's symbolized by ΔP . ΔP is an irrecoverable loss of total pressure caused by the filter, and is mostly due to frictional drag on the fibers in the media.

Differential drop may increase as the particulate rating or efficiency of the filter (as expressed by its beta ratio) gets better. ΔP also increases as the filter is being loaded with contaminant.

4 Major Factors Contribute to Pressure Drop

1. Filter Media

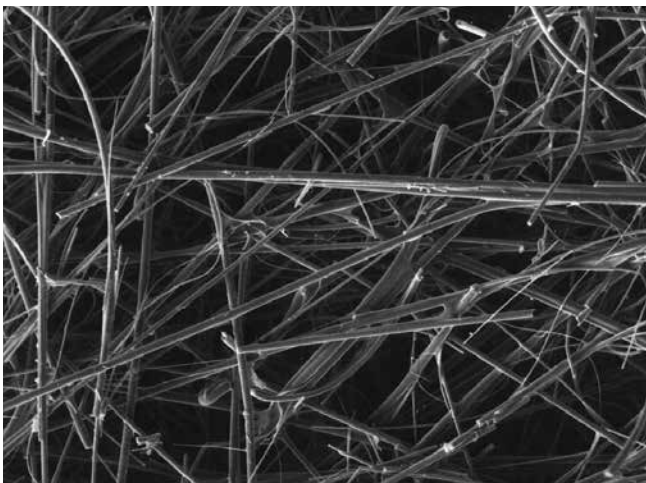


Natural Fiber Cellulose media, as seen under the scanning electron microscope.

Media is, of course, the main factor influencing pressure drop; indeed, it causes pressure drop. That's why having a low-friction, high-flowing media is so important. The natural cellulose or

paper fibers (shown at left) typically used in filtration are large, rough, and as irregular as nature made them.

Donaldson developed a synthetic media with smooth, rounded fibers, consistently shaped so that we can control the fiber size and distribution pattern throughout the media mat, and still allow the smoothest, least inhibited fluid flow. Our synthetic media is named Synteq™.



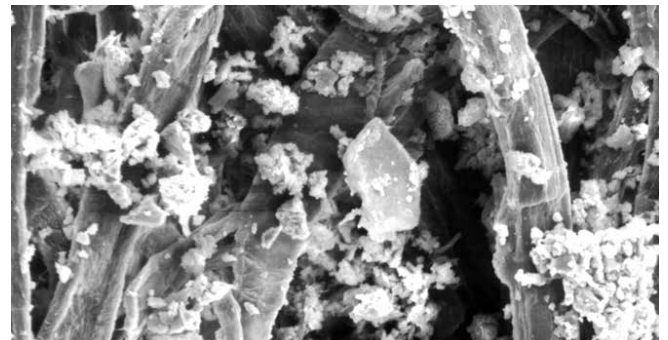
Donaldson's synthetic Synteq filter media — photo from scanning electron microscope — magnified hundreds of times.

Synteq fibers offer the least amount of resistance to fluid passing through the media. Consistency of fiber shape allows the maximum amount of contaminant-catching surface area and specific pore size control. The result is media with predictable filtration efficiencies at removing specified contaminants (e.g., 4 μm) and maximum dirt holding capacity.

Natural cellulose fibers are larger than synthetic fibers and jagged in shape, so controlling size of the pores in the media mat is difficult and there is less open volume. In most applications this results in higher ΔP as compared to synthetic filters. Higher beta ratings mean there are smaller pores in the media; smaller media pores cause more flow resistance, in turn causing higher pressure drop.

2. Dirt, Contaminant

As dirt gets caught in the media, it eventually begins to build up and fill the pore openings. As the pore openings shrink, the differential pressure (pressure drop) increases. This is called restriction. This photo from our scanning electron microscope shows actual dirt particles building up in the media pores.



Excessive dirt in the media can cause dirt migration or even filter failure. Dirt migration occurs when the restriction is so great that the differential pressure pushes dirt deeper into the media and, eventually, through the media and back into the system. Filter failure occurs when the restriction becomes so high that the filter cartridge collapses (outside-in flow) or bursts (inside-out flow) to relieve the upstream pressure.

To avoid such catastrophe, use of a filter service indicator is recommended. It measures the pressure drop across the filter, then signals when the filter is 'full' and needs to be changed.

3. Flow

Higher flows create higher pressure drop. With fast moving fluid, there will be more friction causing higher pressure drop across the media.

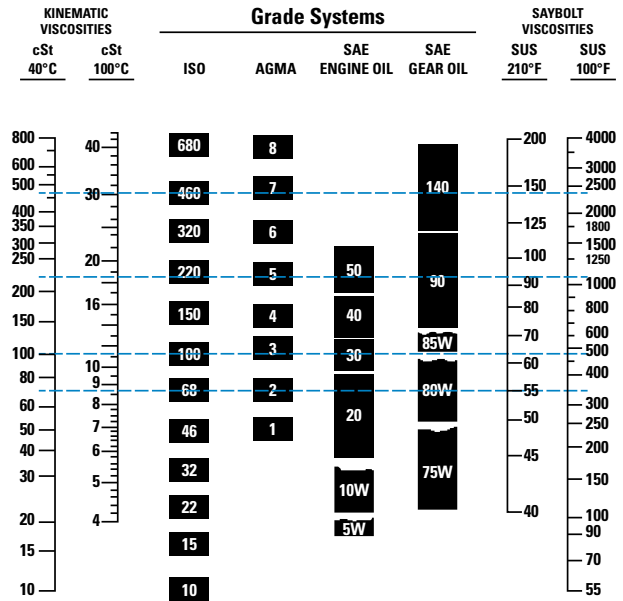


4. Fluid Viscosity

Measured in centistokes (cSt) or Saybolt Seconds Universal (SSU or SUS), fluid viscosity is the resistance of a fluid to flow. As fluid viscosity increases, the cSt rating increases. Higher fluid viscosities also mean higher pressure drop because the thicker oil has a tougher time passing through the layer of media fibers. Cold start fluid is a good example of highly viscous fluid. See chart below.

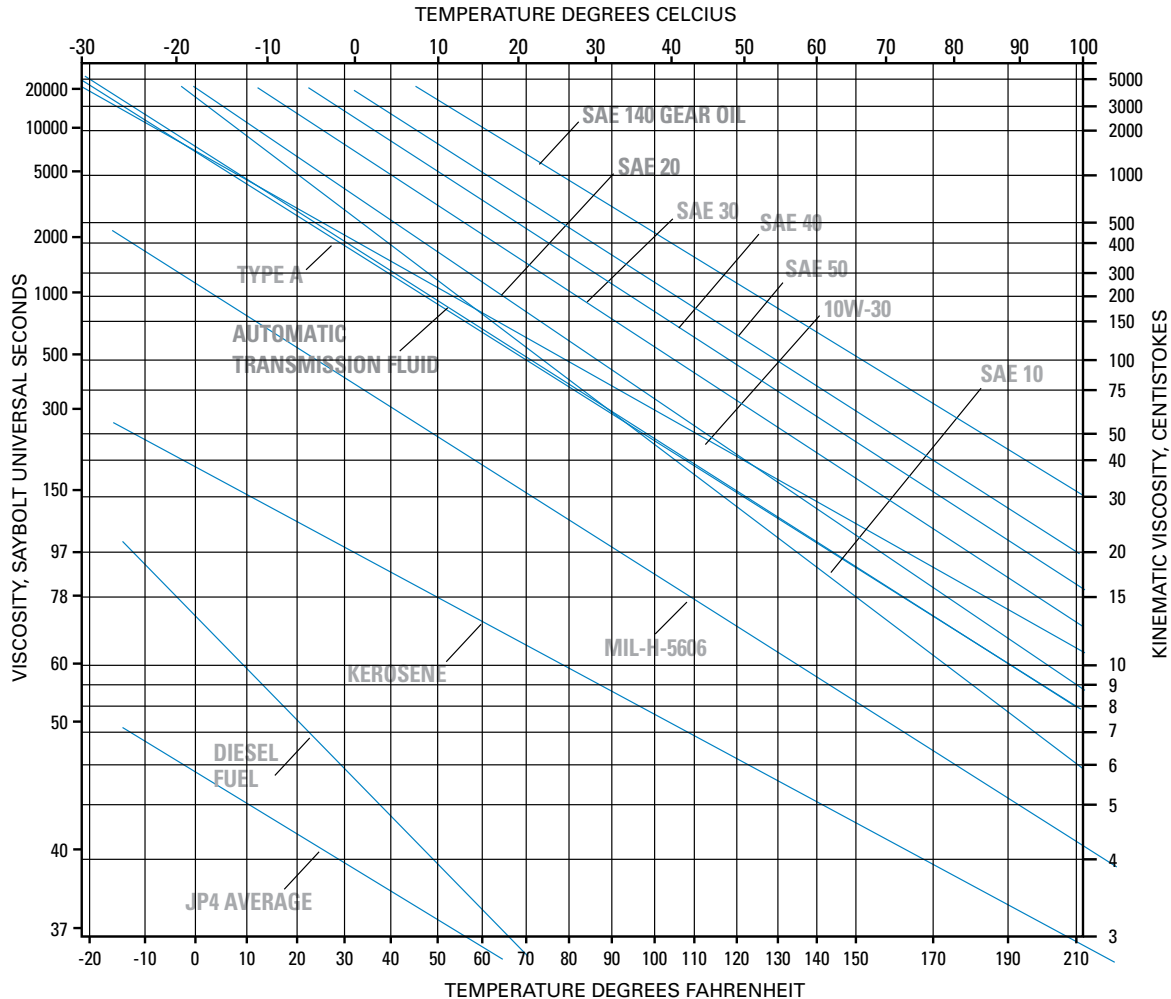
Filter media, amount of contamination, the flow rate, and fluid viscosity are all factors in the importance of sizing the filter for the system requirements. Filters that are too small won't be able to handle the system flow rate and will create excessive pressure drop from the start. The results could be filter operation in the bypass mode, filter failure, component malfunction, or catastrophic system failures. Filters that are too large for the system can be too costly. Oversized filters require more system oil and higher cost replacement filters. Optimal sizing is best.

Viscosity Charts



Viscosity/Temperature Chart

A.S.T.M. Standard Viscosity-Temperature Chart for Liquid Petroleum Products (D 341-43) Saybolt Universal Viscosity



Filter Design and Construction

There are two main differences in a filter. The first is the design of the filter itself, and the second is the type of media that is used in the filter.

Filter

Filters have some attributes that are immediately obvious to the casual observer, such as height, inside diameter, outside diameter, media concentration, type of liner, seal design, and the way the media and components are glued or potted together.

Liners

Liners must be structurally sturdy to withstand pressure variance, yet open enough to allow good flow.

Seals

The top seal design must be leak-free, with a gasket or sealing device that ensures a good seal throughout the life of the filter. Standard seals are made of nitrile material, which is fine for most applications. However, if the filtered fluid is diester or phosphate ester fluid, you'll need a seal made of a fluorocarbon.

Media Potting

Media potting is key since it holds the media in place in between the end caps (not visible). Not only should the potting be fully around the ends of the media to prevent leaks, it should also be of a material that can withstand the application. For instance, epoxy potting should be used in filters that must perform in higher temperature environments, phosphate ester fluids and some high water based fluids.



Inside the filter, the media can vary in thickness, pleat depth and pleat concentration.

For example, Donaldson hydraulic filters are generally equipped with either white ("Synteq"™ our synthetic material) or natural brown (paper or cellulose material) media. It is important to note that media colors vary according to each manufacturer—it should not be assumed that any white-colored media is made of synthetic material.

Some of the most important characteristics of filter media (structure, fiber diameter, volume solidity, basis weight, thickness, layering) can only be detected under a microscope.



Damaged Equipment

Damage happens when key filtration points are ignored! The pistons in this pump are severely damaged from contamination in the oil.



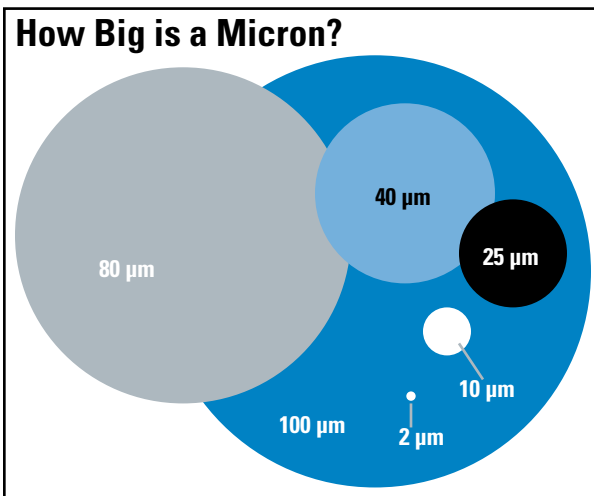
Combining the ISO Rating and Filter Performance Ratings

While filter manufacturers publish beta ratings for filter media to describe efficiency performance levels, a direct connection between the beta rating scale and the ISO rating scale cannot be made.

The solution is monitoring filter media performance at removing particles in the 4 µm, 6 µm, and 14 µm ranges. Fluid analysis and field monitoring are the only ways to get these measurements. Combine data from several tests to form a range of performance. Remember, actual filter performance will vary between applications.

Here's how to determine which filter media will best protect your hydraulic components: plot any media performance range on the Application Guide (next page) to Donaldson Filter Media, then connect the dots to make a line. On the same graph, plot your component requirement. (Reference chart below for some popular components, or ask your supplier for the recommended ISO rating.) If the line of the media falls below the ISO line, or if the bottom line of the filtration range does not intersect the ISO line, the component will be protected.

Micron Sizes of Familiar Particles	
Grain of table salt	100 µm
Human hair	80 µm
Lower limit of visibility	40 µm
White blood cell	25 µm
Talcum powder	10 µm
Red blood cell	8 µm
Bacteria	2 µm
Silt	<5 µm



Pressure	<3000 PSI ≤210 Bar	>3000 PSI >210 Bar
Pumps	ISO RATINGS	
Fixed Gear Pump	19/17/15	18/16/13
Fixed Vane Pump	19/17/14	18/16/13
Fixed Piston Pump	18/16/14	17/15/13
Variable Vane Pump	18/16/14	17/15/13
Variable Piston Pump	17/15/13	16/14/12
Valves		
Directional (solenoid)	20/18/15	19/17/14
Pressure (modulating)	19/17/14	19/17/14
Flow Controls (standard)	19/17/14	19/17/14
Check Valves	20/18/15	20/18/15
Cartridge Valves	20/18/15	19/17/14
Load-sensing Directional Valves	18/16/14	17/15/13
Proportional Pressure Controls	18/16/13	17/15/12*
Proportional Cartridge Valves	18/16/13	17/15/12*
Servo Valves	16/14/11*	15/13/10*
Actuators		
Cylinders	20/18/15	20/18/15
Vane Motors	19/17/14	18/16/13
Axial Piston Motors	18/16/13	17/15/12
Gear Motors	20/18/15	19/17/14
Radial Piston Motors	19/17/15	18/16/13

Typical ISO Cleanliness

Here are some typical ISO cleanliness recommendations from component manufacturers. (These are guidelines; always check the ratings specified by the manufacturer of your specific components.)

* Requires precise sampling practices to verify cleanliness levels. Source: Vickers

Media Application Guide and ISO Rating System

The Application Guide for Donaldson Filter Media on the next page provides a data format for rating fluid contamination level and plotting filter media performance.

The vertical numbers on the left side of the chart represent particle counts in a logarithmic progression of ten: 0.01, 0.1, 1, 10, 102, 103, 104, 105 and 106. (This represents the number of particle in the oil sample at the given size.) The numbers across the bottom of the chart represent particle size in microns.

Donaldson media efficiency performance levels are derived from the ISO 16889 test standard with NIST-certified on-line automatic particle counters and ISO medium test dust. The Donaldson media efficiency performance levels shown are based on test averages under steady flow conditions. Actual performance levels may vary by application, viscosity, flow variance and contamination differences. Contact Donaldson or your Donaldson distributor for specific application calculations.

The international rating system for fluid contamination levels is called the ISO contamination code and it is detailed in the ISO 4406 document. Most component manufacturers publish filtration level recommendations using the ISO code. The ISO code, located on the right side of the media application guide on the next page, is easy to use if you remember the 4 μm , 6 μm and 14 μm numbers along the bottom of the chart.

Manufacturer's ISO contamination levels are based on controlling the particle counts of 4 μm , 6 μm and 14 μm particles in hydraulic system oil. This level is identified by measuring the number of particles 4 μm and greater, 6 μm and greater, and 14 μm and greater in one milliliter of the system hydraulic oil sample.

How to Use the ISO Rating

Example: A cartridge valve manufacturer recommends an ISO cleanliness level of 18/16/13.

- 1) On the Application Guide for Donaldson Filter Media on the next page, place a dot on the vertical 4 μm line, horizontally even with the 18 box of the ISO code.
- 2) Place a dot on the vertical 6 μm line horizontally even with the 16 box of the ISO code.
- 3) Place a dot on the vertical 14 μm line horizontally even with the 13 box of the ISO code.
- 4) Connect the dots to get the ISO cleanliness level 18/16/13.

As illustrated below, particle counts falling on and above the 18/16/13 line are damaging to the component and exceed the 18/16/13 specification set by the manufacturer.

Select a Donaldson media that falls below 18/16/13 to achieve cleanliness level tolerable to the component.

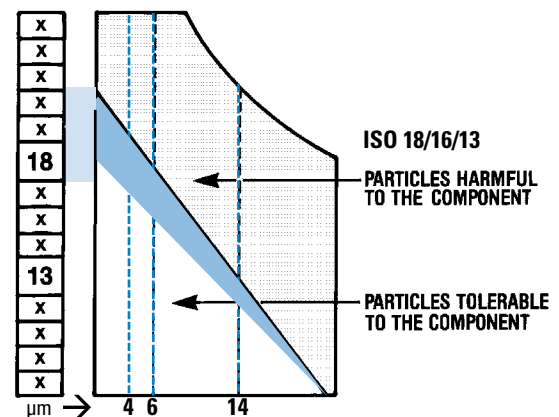
*In this case, $\beta_{12(C)} = 1000$

ISO 4406 Contamination Code

This correlates to the numbers in the boxes along the right side of the graph on the next page.

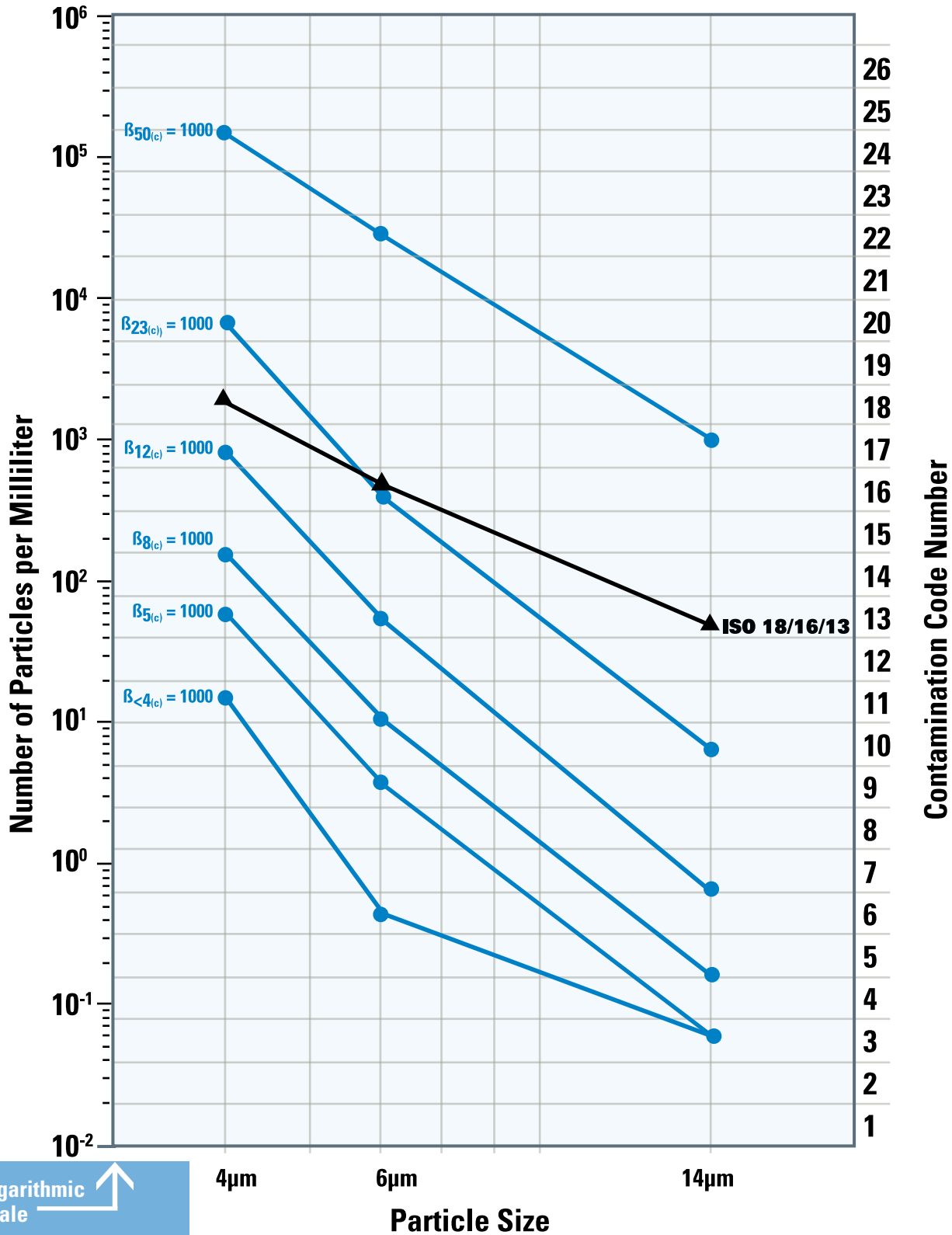
Range of number of particles per milliliter:

Code	More Than	Up to & Including	Code	More Than	Up to & Including
24	80,000	160,000	14	80	160
23	40,000	80,000	13	40	80
22	20,000	40,000	12	20	40
21	10,000	20,000	11	10	20
20	5,000	10,000	10	5	10
19	2,500	5,000	9	2.5	5
18	1,300	2,500	8	1.3	2.5
17	640	1,300	7	.64	1.3
16	320	640	6	.32	.64
15	160	320			





Application Guide for Donaldson Synthetic Filter Media



HYDRAULIC FILTRATION TECHNICAL REFERENCE

Logarithmic Scale

This represents the number of particles at a given size in the oil sample



Understanding the Alpha Rating System

This information is provided as an aid to understanding fluid filter efficiency terminology based on current ISO, ANSI and NFPA test standards. It is not proprietary and may be reproduced or distributed in any manner for educational purposes.

What is Alpha Ratio?

Alpha ratio (symbolized by α), similarly to Beta ratio, is a formula used to calculate the filtration efficiency of a particular fluid filter using base data obtained from multi-pass testing. Alpha ratio however is determined from cyclic flow conditions, ISO 23369, whereas Beta is determined from steady flow conditions, ISO 16889. Cyclic flow conditions allow for testing the filtration efficiency in real world hydraulic applications where the flowrate is not constant.

Like beta ratio, the formula used to calculate the alpha ratio is:

$$\text{Alpha ratio}_{(x)} = \frac{\text{particle count in upstream oil}}{\text{particle count in downstream oil}}$$

where (x) is a given particle size

Indicates that testing was done with APC's calibrated with NIST fluid

$$\alpha_{10(c)} = 1000$$

1000 times more particles upstream than downstream that are 10 μm and larger

Find further information on ISO 23369 at www.NFPA.com or your ISO document source. Ask for ISO 23369:2022 "Hydraulic fluid power — Multi-pass method of evaluating filtration performance of a filter element under cyclic flow conditions"

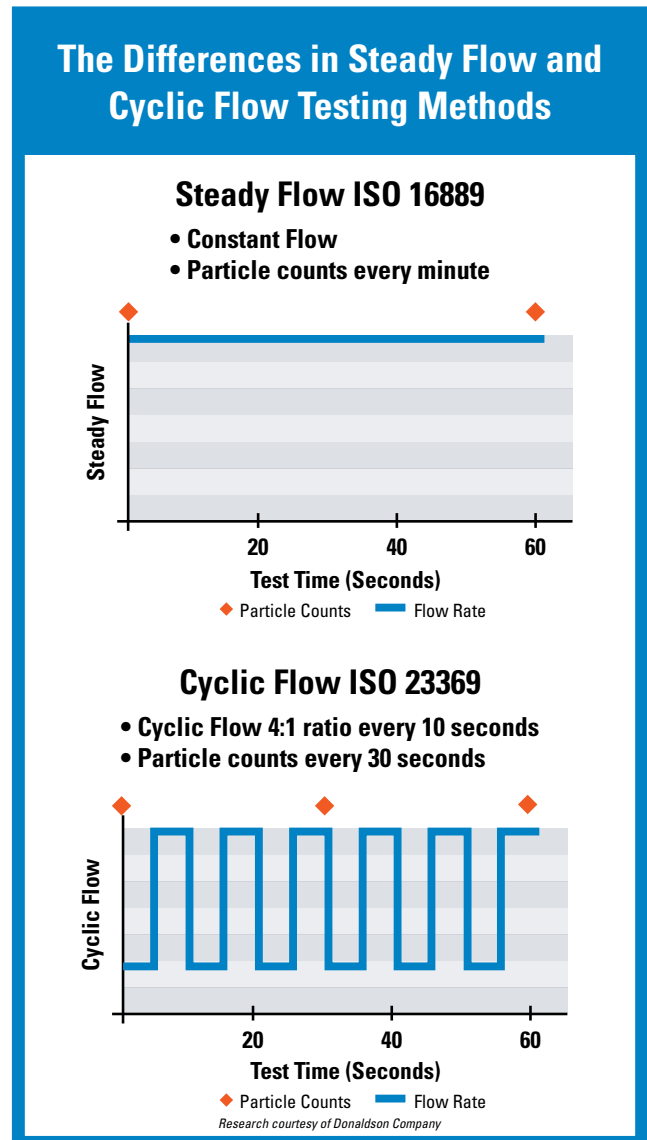
Why the Efficiency Rating Test Standard was Updated?

As anyone who has operated hydraulic equipment knows, steady flow conditions are a rarity in the field. Hydraulics regularly operate under "cyclic flow" conditions, meaning that pressures and flows fluctuate, causing contaminants to dislodge from filter media and re-enter the system, where they cause wear, drops in performance, component failure and eventually, unscheduled downtime of equipment and vehicles. ISO 16889 only required filters to be tested under "steady flow" conditions. Because real-world conditions don't reflect conditions dictated under ISO 16889, in 2021 a new standard, ISO 23369, was introduced as a multi-pass method of evaluating filtration performance in cyclic flow conditions.

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Filter Efficiency Standards

The ISO committee includes members of most of the major oil and lube filtration manufacturers, including Donaldson, which is a major reason the need for additional testing is recognized. No manufacturer wants to be accused of making filters that seem less efficient than advertised, which is what happens to currently approved filters under stress.

ISO developed this cyclic flow multi-pass test procedure for hydraulic filters in order to supplement the basic steady-state flow test of ISO 16889 for filter elements that are expected to be used in cyclic flow environments. Using an industry survey and a round-robin laboratory testing procedure, 16889 guidelines recommend a more stringent flow-rate cycle (0,1 Hz), although it also notes that if much higher cycle rates are expected in actual service, “the test should be conducted at that frequency to produce more meaningful results.” However, only values resulting from testing at the 0,1 will be recognized.

Multi-Pass tests that utilize cyclic flow rate require operators to choose a cyclic ratio of current change, normally between two-to-one or four-to-one. These ratios will stay consistent throughout testing and offer a one-step-closer approach to “real-world” filter performance results by showing the slough or shedding of particles from filters being tested during current changes in the test fluid. The new standard suggests that flow rates (measured in liters per minute) change every five seconds at a four-to-one ratio.

Just as importantly, the test requires fine dust (smaller than 1 micron) versus the medium dust (5 microns or larger) required by ISO 16889. The five-second changes and varying rates mean it’s possible that twice as much data can be recorded, although the data is averaged instead of exact.

Understanding the Beta Rating System

This information is provided as an aid to understanding fluid filter efficiency terminology based on current ISO, ANSI and NFPA test standards. It is not proprietary and may be reproduced or distributed in any manner for educational purposes.

What is Beta Ratio?

Beta ratio (symbolized by β) is a formula used to calculate the filtration efficiency of a particular fluid filter using base data obtained from multi-pass testing.

In a multi-pass test, fluid is continuously injected with a uniform amount of contaminant (i.e., ISO medium test dust), then pumped through the filter unit being tested. Filter efficiency is determined by monitoring oil contamination levels upstream and downstream of

the test filter at specific times. An automatic particle counter is used to determine the contamination level. Through this process an upstream to downstream particle count ratio is developed, known as the beta ratio. The formula used to calculate the beta ratio is:

$$\text{Beta ratio}_{(x)} = \frac{\text{particle count in upstream oil}}{\text{particle count in downstream oil}}$$

where (x) is a given particle size

Indicates that testing was done with APC's calibrated with NIST fluid

$$\beta_{10(c)} = 1000$$

1000 times more particles upstream than downstream that are 10 μm and larger

Find further information on ISO 16889 at www.NFPA.com or your ISO document source. Ask for ISO/TR16386: 1999 “The Impact of Changes in ISO Fluid Power Particle Counting—Contamination Control and Filter Test Standards.”

Efficiency Rating Test Standard Updates

The International Industry Standard (ISO) for multi-pass testing provides a common testing format for filter manufacturers to rate filter performance. This standardization gives you the ability to reliably compare published filter ratings among different brands of filters.

ISO test standards were updated in 1999 to reflect the improved technology available in particle counters and other test equipment. The newer particle counters provide more precise counting and greater detail—reflecting a truer indication of filter performance.

The National Fluid Power Association (NFPA), the National Institute of Standards & Technology (NIST), and industry volunteers, including several engineers from Donaldson, helped revise the ISO standard. ISO 16889 has been in force since late 1999 and ISO 4572 is officially discontinued.

Better Test Dust

The old test dust (AC fine test dust or ACFTD) was “ball milled,” which produced dust particles of varying size and shape. Particle distribution was often different from batch to batch. The accuracy of ACFTD distribution and previous APC calibration procedure was questioned by industry, due to lack of traceability and certification. ACFTD hasn’t been produced since 1992.

Now, the new test dust (ISO medium test dust) is “jet milled” to produce consistent particle size, shape, and distribution from batch to batch. See dust size comparison chart on the next page.



Liquid Automatic Particle Counters (APC's)

In the old test standard (ISO 4572), fluid samples obtained in bottles and off-line particle counting were allowed. Now, in the updated standard (ISO 16889), on-line, laser-based automatic particle counters, especially made for measuring liquids, are required and bottle counting methods are disallowed, as illustrated below. The old particle counter calibration was based on only one dimension of an irregularly-shaped particle (the longest cord). Today, the particle counter calibration is based on equivalent spherical area of an irregularly-shaped particle.

NIST provides calibration suspension, which is certified with X number of particles at a certain

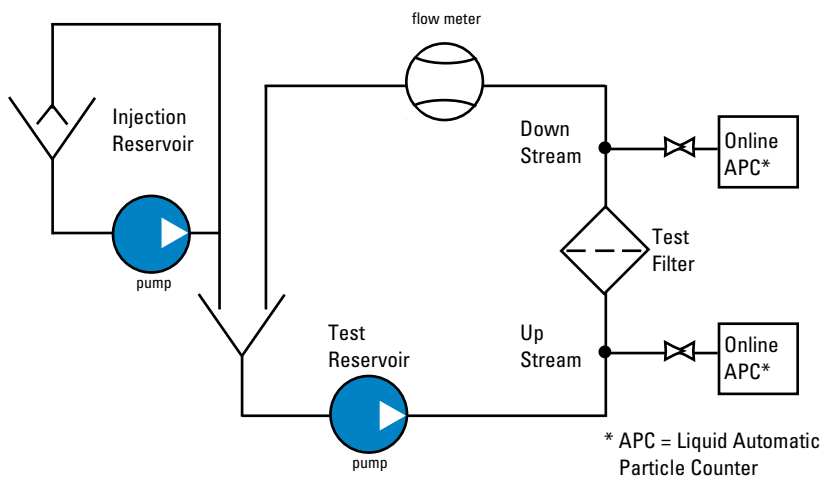
size. This is verified by NIST. The new way to list beta ratios includes a subscript (c) to indicate NIST certified test suspension and assures you of traceability and repeatability.

Overall, you can have strong confidence in filter ratings resulting from tests per ISO 16889, as they are highly accurate. As always, keep in mind that beta ratings are laboratory measurements under steady flow conditions with artificial contaminants — the real proof of the performance is how clean the filter keeps the fluids in the application. A good oil analysis program that checks the cleanliness of the oil periodically will verify that the proper filters are being used.

Test Dust Size Comparisons

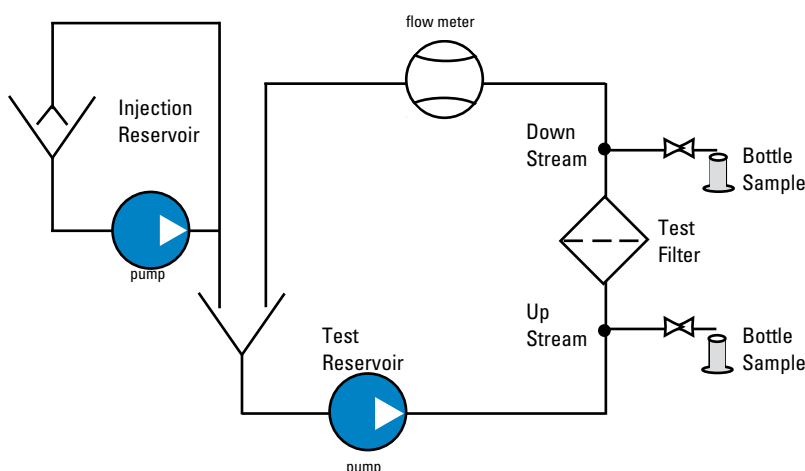
ACFTD calibrated size (μm) per ISO 4402 corresponds to a NIST-calibrated size [$\mu\text{m}_{(c)}$] per ISO 11171

ACFTD	0.8	1	2	2.7	3	4.3	5	7	10	12	15	15.5	20	25	30	40	50
NIST	4	4.2	4.6	5	5.1	6	6.4	7.7	9.8	11.3	13.6	14	17.5	21.2	24.9	31.7	38.2



ISO 16889

- In-Line Liquid Automatic Particle Counters (APC) are now required for proper testing.
- APC calibration follows ISO 11171 procedures
- ISO 11171 uses NIST (National Institute of Standards & Technology) certified calibration fluid



ISO 4572

(Discontinued)

- Either bottle samples or APC's were allowed.
- APC calibration followed ISO4402 ACFTD (Discontinued)



Highlights of ISO 16889

- ISO 4572 is now replaced by ISO 16889 as the international standard for Multi-Pass Tests to determine the efficiency (beta rating or beta ratio) and the dirt-holding capacity of the filter.
- The test bench for ISO 16889 must have On-Line Liquid Automatic Optical Particle Counters (APC) calibrated using NIST (National Institute of Standards & Technology)-certified calibration fluid. This includes added enhancements to APC's, to allow for better resolution, accuracy, repeatability and reproducibility.
- ISO 12103-1,A3 (ISO Medium, 5 µm - 80 µm)
- Test Dust was selected as replacement dust for calibration and testing procedures.
- APC's are calibrated by passing a sample of calibration fluid with a known particle size distribution and producing a calibration curve to match the known count distribution.
- NIST used the Scanning Electron Microscope analysis and statistical analysis techniques to certify the particle size distribution.
- Particle counts, upstream and downstream, are taken every minute of the test.
- Beta ratios are reported with (c) to designate NIST traceability.

ISO 16889 recommends reporting beta ratings at:

Rating	Efficiency
2	50%
10	90%
75	98.7%
100	99%
200	99.5%
1000	99.9%

Example: $\beta_{4(c)} = 200$ signifies that there are 200 times as many particles that are 4 µm and larger upstream as downstream. This is **99.5% efficiency**.

Example: $\beta_{5(c)} = 1000$ indicates that there are 1000 times as many particles that are 5 µm and larger upstream as downstream. This is **99.9% efficiency**.

Donaldson Hydraulic Filter Media Beta Ratings

Donaldson hydraulic filter media beta ratings are average ratings obtained from multi-pass tests performed per the new ISO 16889 standard.

According to the ISO standard, each filter manufacturer can test a given filter at a variety of flow rates and terminal pressure drop ratings that fit the application, system configuration and filter size. Your actual performance may vary depending on the configuration of the filter tested and test conditions.

Donaldson Filter Media Efficiency Ratings Per ISO 16889 Test Standards		
$\beta_{x(c)} = 2$	$\beta_{x(c)} = 200$	$\beta_{x(c)} = 1000$
Donaldson DT High-Performance™ Synthetic Media		
<4 µm	<4 µm	<4 µm
<4 µm	4 µm	5 µm
<4 µm	6 µm	8 µm
<4 µm	9 µm	12 µm
7 µm	18 µm	23 µm
Donaldson Synteq™ Synthetic Media		
<4 µm	<4 µm	<4 µm
5 µm	10 µm	13 µm
6 µm	16 µm	22 µm
7 µm	18 µm	23 µm
14 µm	>42 µm	50 µm
Donaldson Cellulose Media		
5 µm	18 µm	24 µm
7 µm	19 µm	23 µm
17 µm	>40 µm	>40 µm
27 µm	>40 µm	>40 µm
Donaldson Water Absorbing Media		
10 µm		
Donaldson Wire Mesh Media		
45 µm		
60 µm		
75 µm		
90 µm		
125 µm		
150 µm		



Cleanliness Level Correlation Table

Conversion of cleanliness specifications to filter performance is not an exact science because the contamination level in a hydraulic system is a function of the ingress and generation rate as well as the filter performance.

Factors That Affect Cleanliness Levels in a Hydraulic System

- Abrasive wear in space between adjacent moving surfaces of components.
- Erosive wear at component edges or direction changes where there is high fluid velocity.
- Fatigue wear by particles trapped between moving surfaces.

Identification of the Most Sensitive Component

- Required cleanliness level is dominated by the component with smallest clearances and/or highest loading on the lubricating film.
- Best source for determining this level is the specification published by the component manufacturer.
- Higher pressures reduce component life, unless contamination level is decreased accordingly.
- Operating at half the rated pressure of component will increase its life by more than four times.
- Percent of operating time at maximum pressure depends on individual machines and application.

ISO Code	Particles Per Milliliter >10 microns	ISO FTD* Gravimetric Level (mg/l)	Mil Std 1236A (1967)	NAS 1638 (1964)	SAE Level (1963)
30/26/23	140,000	1000			
29/25/23	85,000		1000		
26/25/20	14,000	100	700		
23/21/18	4,500			12	
2220/18	2,400		500		
22/20/17	2,300			11	
21/20/17	1,400	10			
21/19/16	1,200		10		
20/18/15	580			9	6
19/17/14	280		300	8	5
18/16/13	140	1		7	4
17/15/12	70			6	3
16/14/12	40		200		
16/14/10	35			5	2
15/13/10	14	0.1		4	1
14/12/9	9			3	0
13/11/8	5			2	
12/10/8	3		100		
12/10/7	2.3			1	
11/10/6	1.4	0.01			
11/9/6	1.2			0	
10/8/5	0.6			0	
9/7/5	0.3		50		
8/6/3	0.14	0.001			
7/5/2	0.04		25		
6/2/.8	0.01		10		

* SAE Fine Test Dust — ISO approved test and calibration contaminant.
Source: Milwaukee School of Engineering Seminar, Contamination & Filtration of Hydraulic Systems



Compatibility of Donaldson Filter Media with Hydraulic Fluids

While Donaldson has developed many formulations of media, they can be divided into two broad categories: natural fibers, usually cellulose, and synthetic or man-made fibers.

Recommended Filter Media

Petroleum-Based (Hydrocarbon) Fluids	Cellulose	Synteq	DT High-Performance
Straight oils	Yes	Yes	Yes
ATFs	Yes	Yes	Yes
Military hydraulic fluids	Yes	Yes	Yes
#2 Diesel fuel	Yes	Yes	Yes
Gasoline	Yes	Yes	Yes
E85 (85/15 Ethanol/Gasoline)	No	No	Yes
Fire Resistant Fluids	Cellulose	Synteq	DT High-Performance
HFA - Oil-in-water emulsion	No	<150°F	Yes
HFB - Water-in-oil emulsion	No	<150°F	Yes
HFC - Water glycol	No	<150°F	Yes
HFD Synthetics - Polyol esters, Esters, Diesters, & blends	No	Yes	Yes
HFD Synthetics - Phosphate esters	No	No	Yes
HFD Synthetics - Polyalkylene glycols (PAG), Polyalphaolefins (PAO), & blends	No	Yes	Yes
HFD Synthetics - Silicone (siloxane) oil	No	Yes	Yes
Biodegradable Fluids	Cellulose	Synteq	DT High-Performance
Vegetable-based oils - sunflower, rapeseed oils	No	Yes	Yes
Synthetic oils - PAG / PAO	No	Yes	Yes
Synthetic oils - Esters, Diesters	No	Yes	Yes



Piston Pump Damage

The severe score marks on the piston slippers leave no question about why good hydraulic filtration is important.

A Note on Seals

- Filters with seals made of nitrile are appropriate for most applications involving petroleum oil and some high water content fluids. Filters with seals made of fluorocarbon are required when using diesters, phosphate ester fluids. Donaldson offers both types. EPR (ethylene propylene rubber) seals are required for use with Skydrol® and Skydrol 500 fluids.
- In Donaldson filters with fluorocarbon seals, epoxy potting is used to accommodate higher temperature environments and for compatibility with fluids such as phosphate ester, diesters, and high water based fluids. The plastisol (heat cured) and urethane (self curing) potting materials used in other filters perform well with petroleum-based fluids.
- Seal installation instructions are included with relevant products, as well as the product page in the Hydraulic Filtration Product Guide.

Watch Out for Old Compression Gaskets!

A compression seal is a means of preventing migration of liquids, gases or solid contaminants across a joint or opening in an assembly or housing. A seal not only prevents the escape of fluid from inside and foreign material from entering the system from outside, but it must provide for easy installation and removal. A new gasket is critical for proper filter function. Remember:

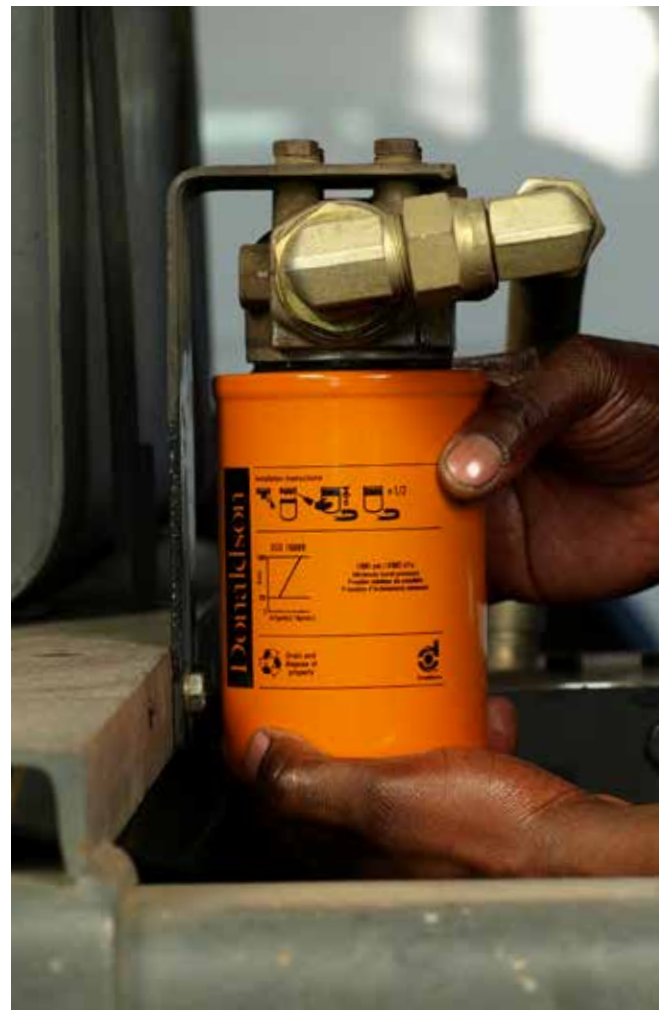
1. Remove used gaskets and thoroughly clean the sealing area
2. Always use a new gasket with a replacement filter
3. Over-tightening the filter may damage the head
4. Dispose of used filters properly

General Service and Installation Tips

When installing and servicing your liquid spin-on filters, follow these general rules of thumb:

Do not over-tighten

- Do not use tools or filter wrenches to install filters – this may cause damage to the filter, resulting in poor filter performance or leaks
- Do not use grease to lubricate the gasket
- Check and inspect the condition and security of the threaded spigot
- Dispose of any used oil or fuel filters in a safe and proper manner in accordance with local, state, and federal regulations



When changing any filter that has a gasket — use caution as old gaskets may stick!



How to Best Position Filters in Your Hydraulic Circuit

Within every hydraulic circuit there are many possible places for filters.

The best systems are strategically engineered to ensure that oil is filtered properly at each stage of its journey through the circuit. Ideally, filtration should occur in the following places:

- In the Reservoir
- Before/After the Pump
- In the Return-line System
- Off-line

In reality, many companies have to make tough decisions about which filters they can afford and which ones they'll have to live without.

Much depends on the cleanliness level requirements of the components, environment, duty cycle of the equipment and other variables that can vary from application to application.



Portable Kidney Loop Filter Cart

Kidney Loop Filters

Benefit: High

Sometimes referred to as "off-line" filters, kidney loop filters achieve very fine filtration by maintaining steady-state flow, independent of the hydraulic circuit.

With this type of filtration, the entire hydraulic system can keep operating while the kidney loop filter is being serviced.

A kidney loop filter utilizes low-pressure housings that are easily accessible and serviceable. These filters can either be integrated into the main hydraulic reservoir, or used in mobile filter carts like the one shown at left to service many hydraulic systems.

Note that kidney loop filters do not directly protect components — rather, their main function is to polish the oil to a very clean condition. It's also important to remember that an additional pump and motor will be required.

Filler / Breather

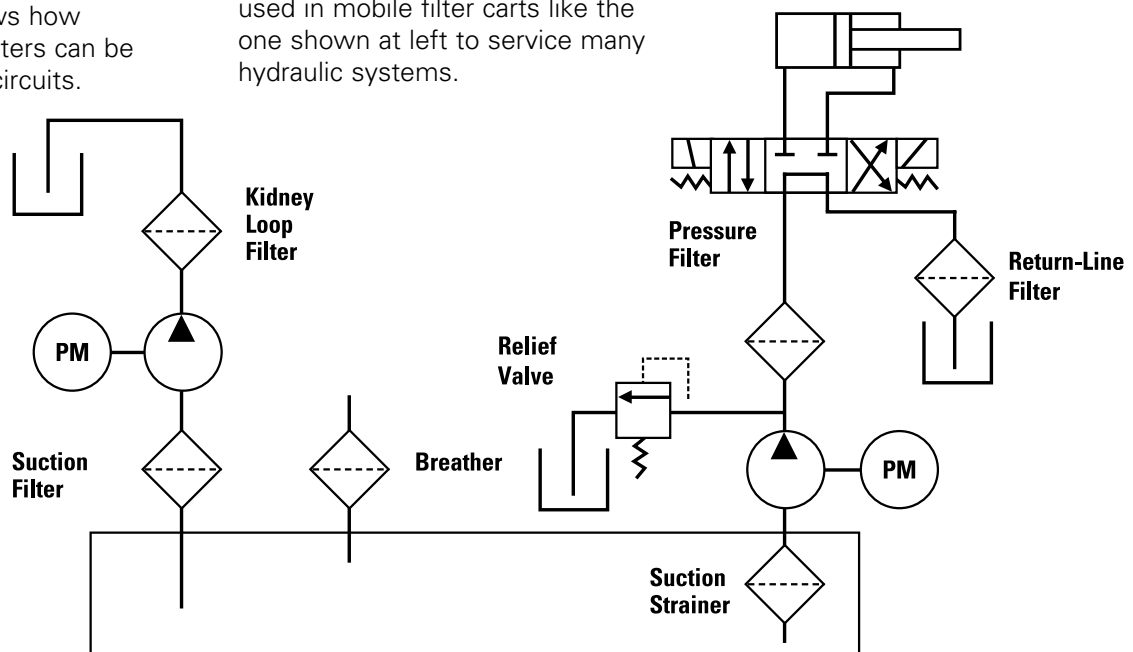
Benefit: High

Tank breathers are placed on hydraulic reservoirs to prevent atmospheric contamination from entering and to allow for sufficient air movement inside the reservoir.

Breathers should prevent particles larger than 3 microns from entering the system. This is a sensible, affordable solution for any hydraulic system, but by all means cannot be the only filter on a hydraulic system.



This diagram shows how various types of filters can be used in hydraulic circuits.





Suction Filter

Benefit: Medium

Normally placed between the reservoir and the pump, suction filters are designed to remove particles in the 5 to 150 micron range. They are easier to service and less expensive than many other types of filters—but because restriction in the suction line must be kept very low, filter housing size tends to be larger than similar flow return or pressure filter housings.

The most popular application for suction filters is with variable-speed hydrostatic pumps commonly found in off-road mobile applications and industrial variable-speed drives. They are also often used in harsh environments and charge pump applications.

Suction Strainer

Benefit: Low

Suction strainers, or sump-type filters, are often used in hydraulic fluid reservoirs. Their only real use is to keep cigarette butts, moths, nuts & bolts and the like out of the pump. Instead, such contaminants can easily be eliminated by keeping the reservoir sealed and by using a Filler/Breather and Return-Line Filter.

Return-Line Filter

Benefit: High

The advantages of return-line filters are many. They are usually low-pressure housings, which are typically less expensive. Their purpose is to collect the dirt from around the circuit as the oil returns to the reservoir. Much like the kidney loop, the return-line filter provides ultimate flexibility in positioning — it can perform almost anywhere within the return line circuit, either mounted inline or built into the reservoir.



Downsides are few, but worth noting: return-line filters can be subject to flow surges (which contribute to poor filter performance) and they do not filter the drain lines.

Note regarding return-line and kidney-loop filtration:

If you're looking for a great value filter that's easy to maintain and with lots of media choices, this is a wise investment. Although these filters are very common, one downside is that there are very few standards of consistency from one manufacturer to the next, so replacement cartridges are not necessarily interchangeable.

Pressure Filter

Benefit: High

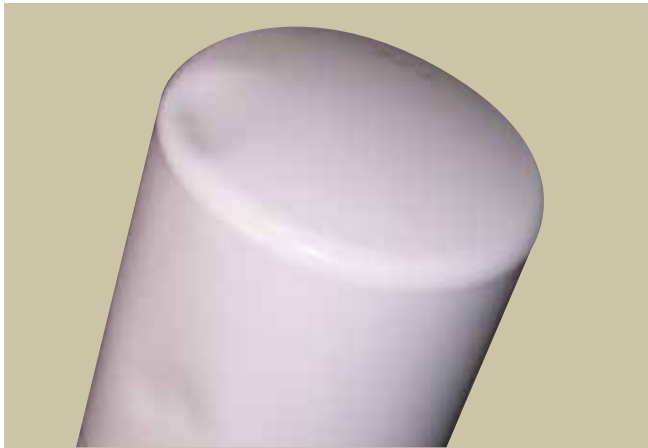
This is also known as “last-chance” filtration. High pressure filters keep clean the oil that comes directly from the pump so that the more expensive downstream components (such as valves and actuators) are protected. Pressure line filters offer protection from catastrophic pump failure. They are a worthwhile investment for high-value systems — as are found in the aircraft industry, paper and steel mills, plastic injection molding, and in die-casting machines.



One downside to high pressure filters is, ironically, the high pressure. The entire system must be stopped in order to service a high-pressure filter — unless a duplex configuration is used. When oil is shooting out of a pump at 6000+ psi, it will take out anything in its way! By nature, a high-pressure pump is a prime mover of fluids, so it will experience significant wear over time. Service can also be more difficult because of its heavy-duty construction—as anyone who's ever tried to change a slippery, 200-pound cast-iron filter can attest.



Do Not Use Dented or Damaged Filters



Dents in a steel filter canister create a concentration of stress—making the canister more susceptible to fatigue.

Filters that are dented prior to or during installation should not be used. Filters damaged while in service should be replaced immediately.

Dents May Cause Cracks

Cracked filters can be caused by dents made during improper installation. Filters that are dented prior to or during installation should not be used. Filters dented after installation should be replaced immediately. The cost of replacing a dented filter is much less than the cost of the damages that could result from a dented filter that fails during service.

Filter fatigue results from pressure pulses within the system. Pressure is regulated by a pressure regulating valve. This valve is spring operated and intermittently opens and closes to regulate pressure. Once pressure exceeds the setting of the spring in the regulating valve, the valve will open and relieve pressure until the spring can expand and close the valve. This function is repeated continuously during operation of the system, creating a pulsing effect. Filter canisters are subjected to the same pulsation. However, unlike the spring in the pressure regulating valve, canister material is susceptible to failure after such fatigue.

Filters are designed with a low carbon steel to resist fatigue and are formed so the stress created by the pulses in the system are equalized over the surface area of the canister. A dent provides an area of stress concentration where pressure pulses can greatly shorten the fatigue life of the canister.

If you receive filters that were dented prior to your receipt, you should contact Donaldson customer support for corrective action.

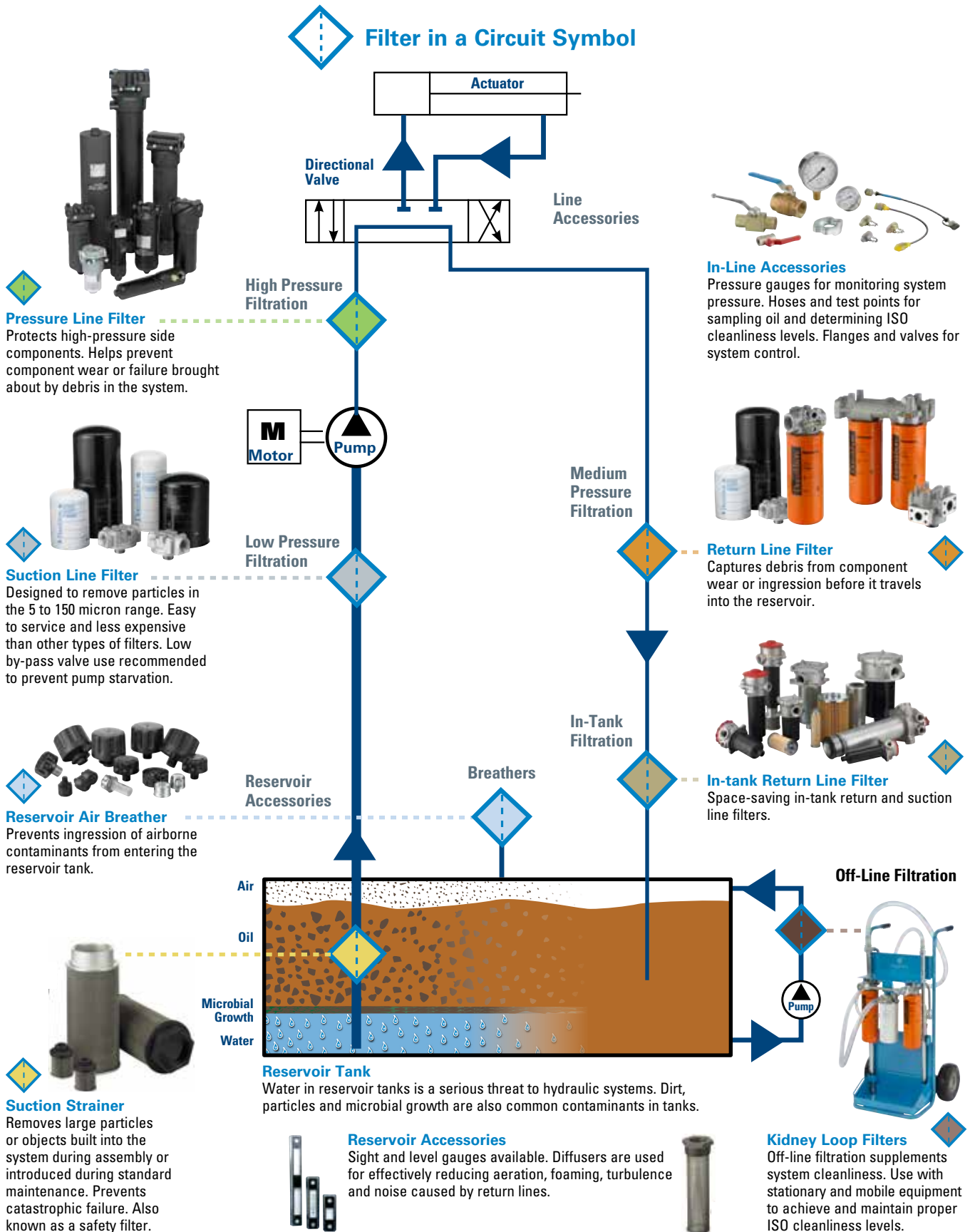
Storage and Handling of Filters On-Site

Whether it's an empty trailer or building, it's important to practice good storage and handling techniques when it comes to filters. Always store filters in their original packaging and cartons in a cool, dry, contamination-free environment. Before installing any filter on a piece of equipment make sure the filter is clean, unused and free of damage.

Filter Storage Tips and Recommendations for Contamination Control

- Check the condition of the element prior to fitting. Check the exterior of filter for signs of damage, and check the inside of the filter element for visible contamination.
- Never store a filter on a shelf without it being in a box or totally sealed from outside contaminant.
- When you see an open box of filters on the shelf, tape it shut—unless the filters inside the box are individually sealed.
- Handle filters with care to prevent filter damage; for example, don't throw filters into the back of a truck.
- If transporting filters from one job site to another, don't let them roll around on the floorboard or in the back of a truck as it may damage the filter.
- Metal storage shelves may cause condensation to form on filters if sitting directly on metal. Over time the filter may get rusty. This is another good reason to store filters in boxes.
- If a product box has layers of contaminant, take care that the contaminant doesn't get on the new filter as you remove it from the box.
- Practice "first-in, first-out" with your inventory. When possible, always use the oldest inventory first.
- Make sure labels with product information and manufacturing dates are visible to personnel selecting from the shelves.

Typical Hydraulic Circuit and Filter Locations





Maintenance Practices for Contamination Control

Here are recommended practices from Donaldson about hydraulic filter servicing and handling. These steps are universal to many hydraulic systems. This servicing information is provided as a best practices guide. Donaldson recommends that where possible, follow the filter service instructions supplied by your original equipment manufacturer. It is not however intended to replace or supersede the service instructions supplied by your equipment or vehicle manufacturer.

Spin-On Filter Servicing



Check the filter service indicator.

- Check to see that the OEM specified service interval has been reached or that the service indicator shows that the filter is due for servicing.



Turn system off and release pressure.

- Ensure that the hydraulic system is turned off.
- Check that there is no pressure present.



Unscrew and remove old filter and gasket.

- Properly dispose of the filter as may be required by local regulations or recycle it.



Wipe filter head with clean cloth.

- Clean the filter head or cover surfaces
- When performing a hydraulic oil change, it is best to use a clean cloth.



Inspect the new filter for damage.

- Check the new filter you will be installing for any shipping and handling damage.
- Do not install a dented filter since the canister has been weakened.



Lubricate the threads.

- Lubricate threads of filter head.

Failure to do this could result in thread galling



Apply thin film of clean oil to gasket.

- Lubricate seal(s) with clean oil.



Align threads. Spin filter until gasket contacts.

- Spin the new filter on until the top of the gasket first contacts the sealing surface.



Hand tighten the filter.

- Tighten per the guidance of the icons which appear on the filter housing. Do not over-tighten.



Bleed the system and check for leaks.

Filter Installation and Servicing Icons



Donaldson spin-on filters have pictograms on the sides to define the proper servicing steps.



Cartridge Filter Servicing



Check the filter service indicator.

- Check to see that the OEM specified service interval has been reached or that the service indicator shows that the filter is due for servicing.

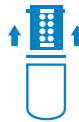


Turn system off and release pressure.

- Ensure that the hydraulic system is turned off.
- Check that there is no pressure present.



Unscrew the cartridge housing.



Remove the used filter and gasket, if applicable.



Clean out the housing seal area and cap.

- Clean out any sediment from the inside of the filter housing.
- Properly dispose of the cartridge according to local regulations.



Inspect the new filter cartridge for damage.

- Check the new filter you will be installing for any shipping and handling damage.



Lubricate seals, gaskets and threads. Install new cartridge.

- Lubricate the o-rings, gaskets, housing seals and threads with clean oil.



- Install filter into the housing.



Align threads. Spin filter until gasket contacts.

- Fit the housing to the filter head as instructions on the housing.



Hand tighten the filter.

- Tighten per the guidance of the icons which appear on the filter housing.
- Do not over-tighten.



Bleed the system and check for leaks.



In-tank Filter Servicing



Check the filter service indicator.

- Check to see that the OEM specified service interval has been reached or that the service indicator shows that the filter is due for servicing.

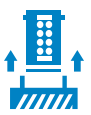


Turn system off and release pressure.

- Ensure that the hydraulic system is turned off.
- Check that there is no pressure present.



Remove the housing cover.



Remove the used filter, gasket and spring, if applicable.

- Remove the filter as gently as possible.
- Avoid contaminant dropping into the clean side of the housing.
- Properly dispose of the cartridge, seal and spring.

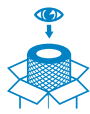


Clean the filter mount, cap, inside of the housing and cover.

- Clean out any sediment from the inside of the filter housing.



- Wipe away any sediment on the outside of the filter cover.



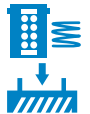
Inspect the new filter cartridge for damage.

- Check the new filter you will be installing for any shipping and handling damage.



Lubricate the filter gasket and cover seal.

- Lubricate the new filter cartridge O-ring and cover seal with clean oil.



Install new filter and spring, if applicable.



Reinstall the housing cover.

- Refit the cover following any instructions given.



Bleed the system and check for leaks.

Filtration Service Videos Now on YouTube®!

www.youtube.com/user/donaldsonengine

Thirty Donaldson Academy filter servicing videos are now available as a resource for understanding filtration selection and maintenance. They cover detailed hydraulic filter service steps and best practices. Air, lube, fuel and coolant training modules are also available.

These videos are easily accessible from smart phones – making them a great tool for mobile training!

YouTube® is a registered trademark of Google Inc.



SERVICE TRAINING VIDEOS

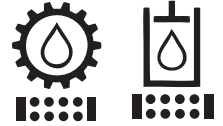


youtube.com/user/donaldsonengine

donaldson.com



HYDRAULIC FILTRATION FOR VEHICLES/EQUIPMENT APPLICATION DESIGN WORKSHEET



For proper development/design engineering solution, we ask you to provide details about your engine, project due dates, hydraulic or transmission system and performance (mechanical and filtration), system

mounting, service, final packaging and product markings. When completed, please forward to Donaldson. Email: engine@donaldson.com

Customer Name:		Revision:
Project Name:		
Contact Name:		Title:
Phone:	Fax:	Email:
Current Donaldson Model Used: (if applicable)		Customer Part Number:
Target Cost:		

Project Details

Type of Vehicle/Machine: _____
Units Per Year: _____
Key Project Dates:
 Design Proposal: _____
 Quote: _____
 Sample Delivery: _____
 Design Freeze: _____
 PPAP: _____
 Start of Production: _____

Application Information

Components That Need Protection
 Pump (type?): _____
 Circuit: Hydraulic Pilot
 Transmission: Hydrostatic Powershift

Filter Location:
 Suction Pressure Return
 Side Loop Charge Sump
 Other: _____

Port Size & Type:
NPT: 1/2" 3/4" 1-1/4" 1-1/2" 2-1/2"
SAE O-ring: -8 -12 -16 -20 -24
4 Bolt Flange: 2" SAE 3" SAE 4" ANSI
 2" Code 61 2-1/2" Code 61
BSP: 1/2" 3/4" 1"
Other: _____
Mounting Requirements:

Operating Conditions

Flow Rates: lpm or gpm
 Minimum _____ Normal _____ Maximum _____

Oil System Pressure (psi/kPa):
 Minimum _____ Normal _____ Maximum _____

Temperature: °C or °F
 Fluid: Min _____ Normal _____ Max _____
 Ambient: Min _____ Normal _____ Max _____

Fluid Type:
 Petroleum Water-glycol
 Phosphate-ester HWBF
 Other _____

Viscosity: (2 required)
 _____ cSt or Ssu @ _____ °C Temp
 _____ cSt or Ssu @ _____ °C Temp

Filtration Performance

ISO Contamination Level Required:

Beta_{x(c)} = 1000: _____ μm
 Filter Media: Synthetic Cellulose Wire Mesh
 Capacity:
 _____ gms ISO Medium @ _____ flow to _____ psid/kPaD

Pressure Drop Limits:

Limits	psid/kPaD		Flow (gpm/lpm)		Viscosity
1		@		@	
2		@		@	
3		@		@	

Structural Performance

Hydrostatic Pressure Resistance (Burst):

Test Method: _____

Minimum Value: _____ psi / kPa

Collapse Pressure:

Test Method: _____

Minimum Value: _____ psid / kPaD

Pressure Testing:

	Min. Cycles	Range (psid)	Frequency (Hz)
Hydrodynamic		to	
Flow Fatigue		to	
Vibration		to	

By-Pass Cracking Pressure

Test Method: _____

Minimum Value: _____ psid / kPa

By-pass Valve: In Head In Filter

Setting: _____ psi / kPa

Leak Testing

Test Method: _____

Minimum Value: _____ psid / kPa

Initial Product Cleanliness

Specification/Requirement: _____

Additional Information

Filter Service

Indicator Type: Electric Visual

Type: _____

Indicator Level: _____ psid/kPaD

Filter Change Interval:

_____ km or miles or hours

Do you require installation, service or maintenance recommendations from Donaldson? Yes No

Packaging

Do you have any special packaging requirements?

Yes No If yes, please check all that apply:

Protective caps: on inlet on outlet on port

Final Assembly:

Bulk / Bagged Bulk/Individual Boxes

Other _____

Product Markings/Identity

Do you have any product marking requirements?

Head Assembly? Yes No

Filters? Yes No

If yes, artwork it is assumed customer will provide artwork for filter markings. Donaldson can provide marking area for artwork design. Standard installation icons are available from Donaldson.

Special Requirements or Application Notes

Use this area to provide additional information that will assist Donaldson engineering.

For Donaldson Use Only

Date Received: _____

Request From: Catalog Web

Other _____

Assigned to:

Business Unit: _____

Account Manager: _____

Product Manager: _____

Engineer: _____



Donaldson Company, Inc.
PO Box 1299
Minneapolis, MN 55440-1200

Hydraulic Applications Engineering

F115354 (06/17) Rev.3

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Donaldson Company, Inc., PO Box 1299, Minneapolis, MN 55440-1299



Part No.	Page No.	Product Description
DBB0248	240	Filter
DBB5333	240	Filter
DBB7733	240	Filter
DBB8664	240	Filter
DBB8665	240	Filter
DBB8666	240	Filter
DBB8777	240	Filter
DBH5875	17, 20, 24, 28, 32, 193	Spin-on Filter
DBH3542	64, 233	Spin-on Filter
DBH0949	68, 23', 233, 235	Spin-on Filter
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DBH6019	157	Filter Cartridge
DBH6020	157	Filter Cartridge
DBH6138	157	Filter Cartridge
DBH6139	157	Filter Cartridge
DBH6140	157	Filter Cartridge
DFF1012	240	Filter Manifold
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P160125	95	O-Ring, Bypass Indicator
P160130	95	Bypass Spring
P160135	95	Top Handle
P160137	95	Head, O-ring
P160276	55	Port Plug
P160293	95	Baffle Assembly Kit
P160351	95	Valve Assembly
P160353	95	Bypass Valve Assembly
P160373	95	Valve Assembly
P160473	95, 103	Visual Indicator Kit
P160476	95	Cup Seal
P160700	94	Filter Cartridge
P160710	95, 103	Visual Indicator Repair Kit
P160779	95, 103	Hex Nut Retainer Kit
P161016	94	Filter Cartridge
P161275	103	Head, O-ring
P161277	103	Cup Seal
P161282	103	O-Ring
P161315	110	Visual Indicator
P161558	103	Valve Assembly
P161571	94	Filter Cartridge
P161851	95	O-Ring, Bypass Indicator
P162005	131	O-Ring
P162096	95	Head Assembly
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P165335	64, 233	Spin-on Filter
P165338	64, 233	Spin-on Filter
P165354	64, 233	Spin-on Filter
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P165449	54	Filter Cartridge
P165537	65	Head Assembly
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P165628	94	Filter Cartridge
P165641	21	Gasket
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P165672	68, 231, 233, 235	Spin-on Filter
P165675	68, 231, 233, 235	Spin-on Filter
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P165875	17, 20, 24, 28, 32, 193	Spin-on Filter
P165876	17, 20, 24, 28, 32, 193	Spin-on Filter
P165877	17, 20, 24, 28, 32	Spin-on Filter
P165878	17, 20, 24, 28, 32	Spin-on Filter
P165879	17, 20, 24, 28, 32	Spin-on Filter
P165880	17, 20, 24, 28, 32	Spin-on Filter
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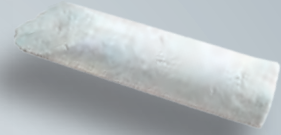
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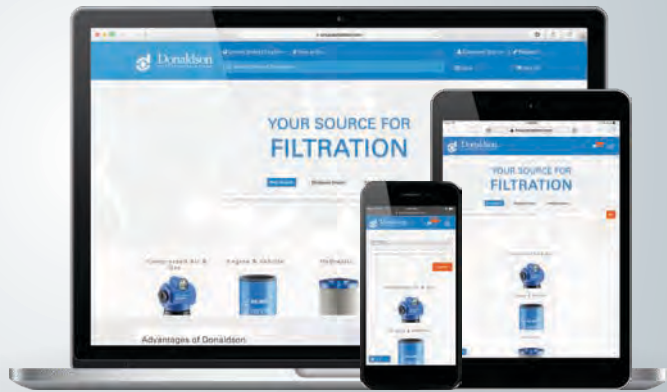
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X011558	126	Housing
X011559	150	Housing
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X920006	240	T.R.A.P. Breather

Easy.

2
+ 2
—



Easier.



NOW YOU CAN SHOP FOR DONALDSON REPLACEMENT FILTERS ONLINE.

Visit shop.donaldson.com on your computer, phone or tablet to find all your top-quality aftermarket filters including fuel, lube, coolant and air intake filters for diesel engines, hydraulic and bulk tank filtration—plus exhaust system components. Distributors can now order directly with a secure login that provides access to all your account information—including past orders—so you can simply re-order with a click.

Shop.donaldson.com makes ordering replacement filters easier than easy so you can keep your business moving.

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Global Presence with a Local Touch

At Donaldson, we've built a strong, flexible and responsive distribution network to serve our customers around the world.

Localized Manufacturing – It starts with 30+ manufacturing locations around the world – producing most filters in the regions where they're used.

Primary Distribution Centers – Filters then move to our regional warehouses and distribution center hubs – meaning the filters you need are never far away.

Logistics – We work with a network of transportation and logistics companies, consolidators and cross-docking facilities to deliver products to distribution partners quickly and efficiently.

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Finding your Donaldson filter online has never been easier.

DISCOVER.

Go online to donaldson.com to learn which filter you need.

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Engine Air Filtration

for Light, Medium, &
Heavy Dust Conditions

Air Cleaners • Pre-cleaners & Inlet Hoods • Rubber Adapters/Elbows • Filter Indicators • Mounting Bands



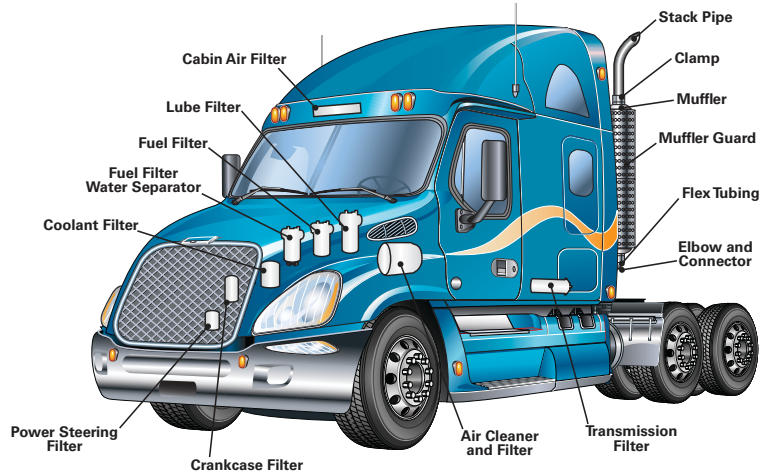
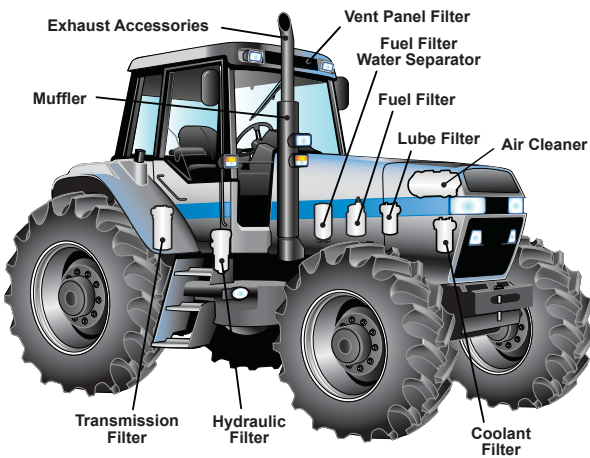
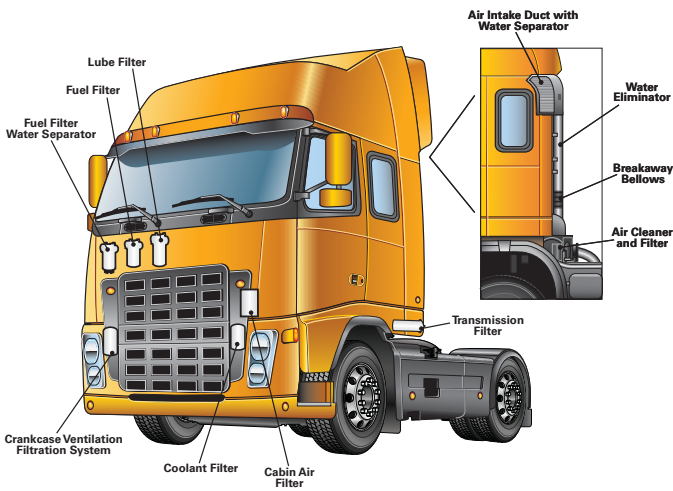
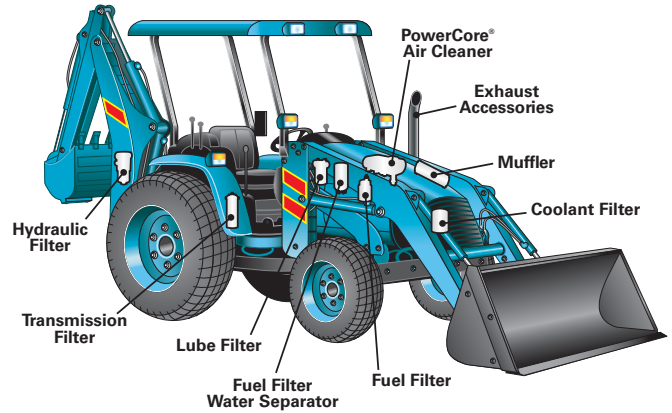
No matter the dust conditions or engine airflow requirements, you will find a Donaldson air cleaner or intake system accessory that will deliver clean air when your engine needs it most!

Distributed by:

Total Filtration Solutions

Vehicles • Engines • Equipment

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This publication contains a wide selection of standard, in-stock air cleaner models for both original equipment manufacturers and replacement parts vehicles, and equipment that operate in light to heavy dust conditions. For a variation or a custom designed intake system, please call your current supplier of Donaldson products.

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AIR INTAKE INNOVATION

– by Donaldson

Today's engines require *air intake systems* that can do more and last longer, often in increasingly smaller spaces.

They need to deliver:

- improved contaminant separation efficiency
- increased contaminant loading capacity
- low initial and overall airflow restriction
- lower overall system weight
- high temperature performance
- proven performance and durability.



You get all of this and more with Donaldson air cleaners and filters.

We've been delivering air intake systems that have met equipment manufacturers' and customers' needs for more than 100 years. We've been the leader in air filtration since Frank Donaldson invented the first air cleaner for a tractor in 1915. Since then, we've continuously innovated and refined filtration solutions that help keep engines running, lasting longer, and performing better.

Donaldson Air Intake Technologies

During the last century, we've developed new-to-the-world technologies that have set and redefined industry standards – keeping pace with evolving equipment technologies and customer requirements.

- **Donaldson RadialSeal™** systems replaced many axial or compression seal systems.
- **PowerCore®** air cleaners and its fluted filters have become the standard in many industries, replacing larger pleated air systems as space requirements have become tighter.
- Donaldson's latest air intake innovation, **PowerPleat™** is a highly-durable plastic RadialSeal air cleaner for equipment where space is not an issue, but performance is paramount.
- **Donaldson Blue®** filters with **Ultra-Web®** fine fiber media provides higher efficiency and greater contaminant-holding capacity than standard cellulose media.
- **Ultra-Web® HD** media now provides even higher filtration efficiency for extreme-dust mining and aggregate applications.

For any air intake system need – Donaldson Delivers Power!

Air Cleaners



PowerCore® An industry-changing air filtration system, PowerCore systems are more compact at a given performance level than standard pleated filters, and are used under the hood in on-road trucks and in many off-road applications.



PowerPleat™ This lightweight, plastic two-stage air cleaner provides a flexible solution for a wide variety of applications, from lawn maintenance equipment to heavy-duty excavators.



RadialSeal™ We pioneered RadialSeal technology for air filtration more than 20 years ago, when we created a superior seal and vibration-resistant interface between the air cleaner and filter.

Axial Seal

Axial Seal A traditional air cleaner workhorse, axial seal systems are still prevalent on job sites and in on-road functions. An axial seal relies on compression, usually a wing nut or latched cover, to form an air-tight seal.

Air Filters



Donaldson Blue® air filters offer the best technology for improved efficiency and enhanced engine and equipment protection. Users will also benefit from reduced maintenance costs and increased equipment uptime.



Donaldson air filters deliver superior protection for heavy-duty off-road and on-road equipment with a full line of premium filters, including those with PowerCore® filtration technology.



Donaldson Competitive Fit filters are manufactured as high-performing replacement filters for other manufacturers' air intake systems.

Air Cleaner Evolution

On-Road Housings

Bright Stainless Air Cleaner (Cowl Mount)



EPG RadialSeal™ Plastic Air Cleaner in engine compartment



Integrated Intake Systems with PowerCore® Filtration for underhood or behind cabs



Off-Road Housings

Metal Two-Stage Air Cleaner



FRG RadialSeal™ Plastic / Metal Air Cleaner



PSD PowerCore® Lightweight Air Cleaner with non-metal filters



PowerPleat™ Lightweight Air Cleaner



What's the Right Intake System?

As you develop the future design of your engine or application, it's important to consider the filtration system. Depending on your objectives, it may be beneficial to choose from a pre-configured catalog offering or to partner with Donaldson for a filtration solution tailored to your specific needs.

Reasons to select a pre-configured system.

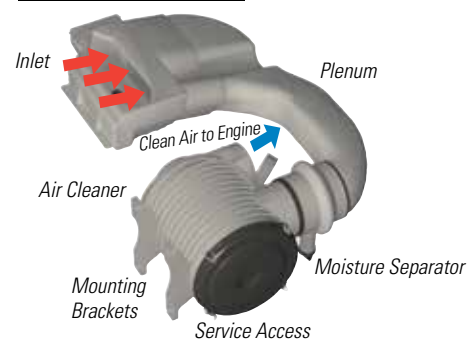
- Low budget for engineering collaboration, development time or cost, or component tooling.
- Prefer to have parts readily available — want to avoid manufacturing lead times (8 – 12 weeks) and not interested in warehousing service parts.
- Prefer an established configuration for service part access.

Reasons to consider a custom, integrated system.

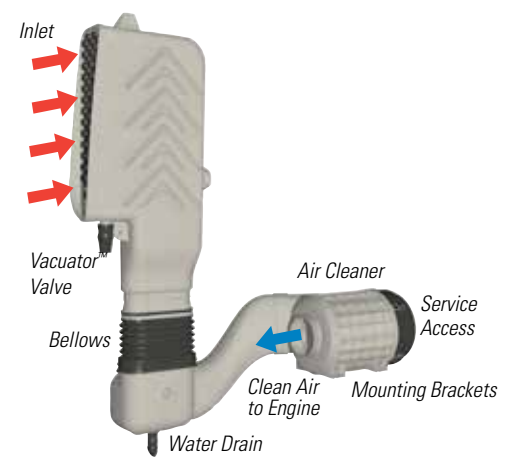
- Engine design team is integrating new components that require a higher degree of filtration.
- Looking for a system that does more, which may include pre-cleaning, sensors, unique intake plenums.
- Have budget for engineering collaboration, development time/cost.
- Interest in component / supplier consolidation — solutions that bridge a wide range of engine/vehicles.
- Offering a unique solution with ease of maintenance.

Molded Plastic Intake Systems

Under Hood Intake System



Behind the Cab System



PowerCore® Air Cleaner Technology

Big Performance, Small Footprint

When air intake designs began requiring smaller, lighter and more efficient air intake solutions, PowerCore filtration systems became the leader, replacing countless pleated filter designs.

PowerCore Filtration Technology offers:

- greater system design flexibility
- metal-free, lightweight filters
- straight-through airflow technology invented by Donaldson
- superior filtration performance

To learn more about the PowerCore advantages, see the PowerCore section beginning on page 31.



PowerPleat™ Air Cleaner Technology

Reliable Power, Smaller Size, Easy Integration

Donaldson PowerPleat air cleaners and filters offer equipment manufacturers and end users a powerful new filtration solution to protect engines from dust and contamination.

PowerPleat air intake systems offer:

- two-stage air filtration
- multiple inlet/outlet configurations
- all-plastic air cleaner housing (minus latches on larger sizes)

To learn more about the PowerPleat advantages, see the PowerPleat section beginning on page 55.



RadialSeal™ Air Cleaner Technology

Superior Seal and Vibration Resistant Interface

This industry changing sealing technology combines two components into one — the end cap and sealing gasket. The flexible sealing material creates a sure-fit and simplifies filter maintenance. The reliable seal helps protect engines in extreme operating conditions and in challenging heavy-duty applications.



Axial Seal Air Cleaner Technology

Trusted Compression Seal

Axial seal style filters have a metal end cap with an attached gasket. This design requires housing cover pressure on the gasket to create the critical seal.



Air Filter Features — Seals, Media, Beading, Liners

Technological advancements add up to big performance advantages.

Pleatloc™ media spacing

Ensures uniform pleat spacing, keeps filter media from bunching during operation and promotes longer filter service life.



Heavy-duty liners

Corrosion resistant, coated steel liners support the filter media during operation and maximize airflow.

Beading

Applied to filter liners, beading is designed to stabilize the media and prevent pleat tip wear.

Unique shapes

PowerCore® air filters come in a wide range of sizes and shapes, including these panel filters that fit in tight under-the-hood applications.



RadialSeal™ filter seals

RadialSeal filters provide a tight critical seal that also slip easily on and off the outlet tube during installation and service. This design eliminates the separate gaskets used with metal end cap filters.



Axial filter seals

Strong, pliable gasket ensures a leak-free seal when properly installed. The gasket won't harden or deteriorate over the useful life of the filter.

Straight-through air flow

PowerCore® air filters feature patented straight-through air flow that allows for reduced filter size and increased dust and soot holding capacity in a non-metal construction.

Donaldson Blue® Air Filter Technology

Air Filters with Ultra-Web® and Ultra-Web® HD

Donaldson Blue® premium air filters with Ultra-Web® and Ultra-Web® HD nanofiber technology protect engines by providing better initial and overall efficiency compared to conventional cellulose media.

- Advanced fine fiber filtration technology
- Invented by Donaldson
- Engineered to perform in extreme temperature and humidity conditions, unlike ordinary nanofibers
- Optimized fiber structure and fiber diameter so it's stronger and lasts longer in all environmental conditions
- High efficiency
- High capacity — holds more contaminant for longer filter life
- Identifiable by the blue media color
- Proven — used in diesel engines for more than two decades
- Ultra-Web HD provides even greater efficiency for heavy-duty, heavy-dust environments — like mining

Donaldson
BLUE

Donaldson Replacement Air Filters

A higher standard for air filters

Our company founder, Frank Donaldson, designed and built the first air cleaner and filter for a heavy duty engine in 1915. Since then, nearly every significant innovation in air cleaner technology has been led by Donaldson. Today our air filters are setting new standards in filtration quality, coverage and performance – with filters that fit our own air cleaners and those manufactured by others. When you choose Donaldson air filters, you get performance that's anything but standard.

Competitive Fit Air Filters

Raising the bar for air filters

We manufacture replacement filters for popular air intake systems that meet or exceed application requirements.

Please see the Competitive Fit section, beginning on page 14, for details on replacement filters for Fleetguard® Direct Flow™, Fleetguard® OptiAir™, Mann+Hummel® Entaron, Mann+Hummel® Europiclon®, Mann+Hummel® Iqoron®, and Mann+Hummel® Picoflex®.



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Air Cleaner Materials, Finishes & Construction

Designed for long life, rust resistance and good looks!

Injection and Blow-Molded Air Cleaners

Our non-metal finish is always black plastic and can be found on DuraLite™, PowerPleat™, PowerCore® (PSD and PCD) and other RadialSeal™ air cleaners (FPG, XRB, FKB). Advantages include:

- Lighter weight than metal air cleaners
- Corrosion and chemical resistant
- Impact, mar and vibration resistant



Injection and Blow-Molded Air Cleaners, e.g., PowerPleat, PowerCore

Polymer Coating Resists Corrosion

Donaldson's gloss black finish — on most of our metal air cleaners (ERA, FVG, FRG) — has the following advantages:

- Corrosion and chemical resistance. This polymer coating lasts five to 10 times longer than traditional paint.
- Impact and mar resistance. Polymer coating is up to 17 times harder than most solvent-based paint.
- Consistent coating thickness over the entire air cleaner, even in crevices and small, hard-to-reach places.



Polymer Coating

Buff Prime Finish

Most SSG & STG air cleaners have a buff prime finish — ready for you to apply paint to match the overall look of your equipment. (Exception: the SRG to SSG conversion kit contains an upper unit that has a white polymer coating.)



Buff Prime Finish

Pre-cleaner Technology

Pre-cleaners remove contaminant of varying sizes from entering the intake duct; they don't require any engine power to operate. Some devices collect the contaminant (Full-View), others just eject or drop the contaminant (TopSpin, Top Spin HD / in-line separator), or are connected via a scavenge system and route debris out the exhaust system (Donaspin / Strata Cap).

- Strata Cap and Donaspin are units for scavenge air system option for heavy dust condition operating environments. Additional components required for scavenge system (hoses, check valves, clamps and exhaust ejector)
- Pre-cleaners extend life of vehicle air filters and serve as rain caps
- Units are made of durable materials — either metal or impact resistant plastic
- Units install outside of engine compartment — leaving more space under hood for other components (exception-in-line separator)
- Pre-cleaners have no wires or power requirements
- Requires additional components for scavenge system (hoses, check valves, clamps and exhaust ejector)



Close-up of pre-cleaner section of a PowerCore® PSD air cleaner. Pre-cleaning tubes can be arranged in various patterns, depending on the space and efficiency requirements of your application.



Six pre-cleaner styles offer the broadest product range in the industry

Quick Comparison

More characteristics about our pre-cleaner line. For more details, contact your local distributor or dealer.

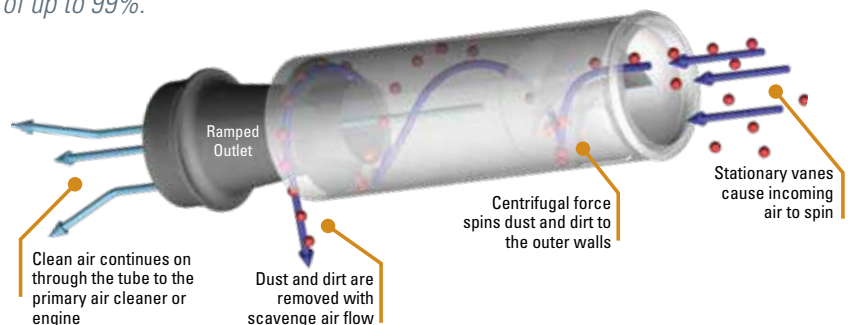
Dust Condition	Max. Sepr Efficiency	Pre-Cleaner Family	Scavenge Required	Service Required	Material
Heavy	96%	Strata™ Cap	Yes	Yes	Plastic
	90%	Donaspin™	Yes	No	Steel
Medium	85%	TopSpin™	No	No	Plastic
	80%	TopSpin™ HD	No	No	Aluminum/ Stainless Steel
	70%	In-Line Separator	No	No	Steel
	75%	Full-View	No	Yes	Steel/Plastic

To learn more about Donaldson Accessories, see the Accessories section beginning on page 190.

Donaldson inertial particle separation technology offers maintenance-free air filtration for turbines, diesel engines and environmental applications. Inertial separation technology is used extensively on ground vehicles, rotorcraft, off-road vehicles and other critical equipment exposed to harsh environments.

Our light-weight pre-cleaning tubes have no moving parts to wear out or break. They are self-cleaning and do not require regular maintenance.

Strata™ Tubes offer low airflow restriction with efficient contaminant removal of up to 99%.



Air Cleaner Selection

With the multitude of sizes and styles of air cleaners available from Donaldson, how do you choose the proper model that will reliably protect your engine and deliver maximum filter service life? Selection is based on two primary factors — airflow requirements of your engine and the environment the air cleaner will be operating in. Use our five-step selection method on the next few pages to make the right choice for your application:

1 Determine the combustion air requirements of the engine

For the most accurate engine airflow specifications, Donaldson recommends using the intake airflow rate specified by the engine manufacturer. If this information is not readily available, you can calculate your own numbers by using the preferred or alternative methods shown below. If the air cleaner will experience excessive engine vibration, include a pulsation factor into your calculations.

Ideal Method Obtain from Engine Manufacturer

For the most accurate engine airflow specifications, Donaldson recommends using the intake airflow rate specified by the engine manufacturer.

Preferred Method Engine Displacement Formula

4-Stroke (Cycle) Engine Formula

English Units

$$\text{Airflow (CFM)} = (\text{Engine Size (CID)} \times \text{RPM}) \times \text{VE} / 3456$$

Metric Units

$$\text{Airflow (m}^3\text{/min)} = (\text{Engine Size (Liters)} \times \text{RPM}) \times \text{VE} / 2000$$

VE = Volumetric Efficiency — 4-Stroke*

- 0.90 for naturally aspirated gas engine
- 0.90 for naturally aspirated diesel engine
- 1.60 for turbo charged diesel engine
- 1.85 for turbo charged after cooled diesel engine

2-Stroke (Cycle) Engine Formula

English Units

$$\text{Airflow (CFM)} = (\text{Engine Size (CID)} \times \text{RPM}) \times \text{VE} / 1728$$

Metric Units

$$\text{Airflow (m}^3\text{/min)} = (\text{Engine Size (Liters)} \times \text{RPM}) \times \text{VE} / 1000$$

VE = Volumetric Efficiency — 2-Stroke*

- 0.90 for naturally aspirated diesel engine
- 1.40 for scavenge blower diesel engine
- 1.90 for turbo charged diesel engine

* The VE values are guidelines. It is always best to use manufacturer ratings when they are available. Electronic controls on modern engines can raise VE ratings to 2.0 or greater.

Alternative Method Engine Horsepower Formula

English Units

$$\text{Airflow (CFM)} = \text{HP (SAE)} \times \text{SA}$$

SA = (Specific Airflow) per Horsepower

- 4-stroke naturally aspirated diesel engine — 2.0
- 4-stroke turbo charged diesel engine — 2.3
- 4-stroke turbo charged after cooled diesel engine — 2.3

- 2-stroke naturally aspirated diesel engine — 2.0
- 2-stroke scavenge blower diesel engine — 3.3
- 2-stroke turbo charged diesel engine — 3.6

Metric Units

$$\text{Airflow (m}^3\text{/min)} = \text{HP (SAE)} \times \text{SA}$$

SA = (Specific Airflow) per Horsepower

- 4-stroke naturally aspirated diesel engine — 0.057
- 4-stroke turbo charged diesel engine — 0.065
- 4-stroke turbo charged after cooled diesel engine — 0.065

- 2-stroke naturally aspirated diesel engine — 0.057
- 2-stroke scavenge blower diesel engine — 0.093
- 2-stroke turbo charged diesel engine — 0.102

The Pulsation Factor (PF)

On naturally aspirated** engines, intake airflow to the air cleaner can negatively affect the cubic displacement of the air into the engine. To compensate for the loss, we recommend you multiply the engine airflow by one of the following factors:

English Units

- 2.1 for 1 cyl.
- 1.5 for 2 cyl.
- 1.2 for 3 cyl.
- 1.0 for 4 or more cyl.

Metric Units

- 1,2 m³/min.

2 Determine the dust condition for the engine/machine and typical operating environment

For example, a standby hospital generator set would probably see light dust; whereas, a rock crusher would almost always be surrounded by an extremely heavy dust concentration of large dirt particles. Our air cleaner selection chart, on the next page, is a visual guide to select your vehicle type and operating environment.

** No airflow adjustment is required for turbo-charged engines on Donaldson air cleaners with high pulsation filter media (e.g., Donaldson DuraLite™ ECB, ECC, ECD air cleaners).

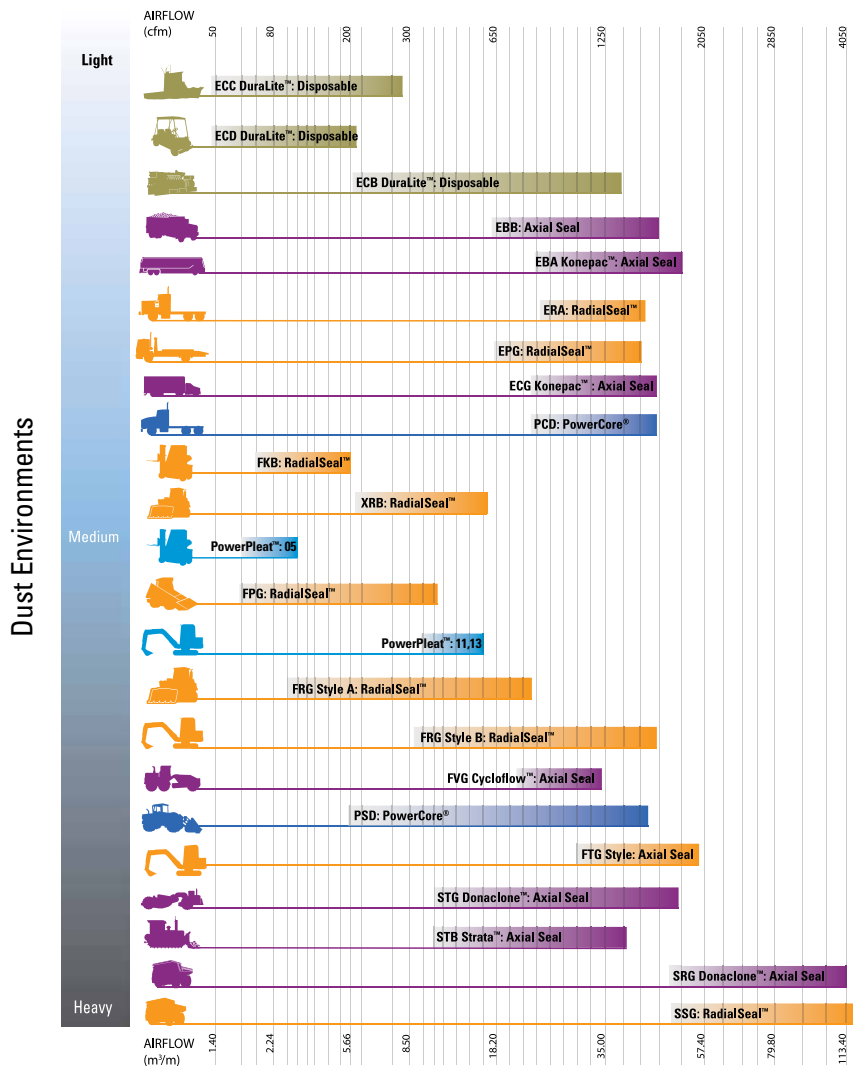
Air Cleaner Selection

3 Select an air cleaner series

Key design differences are color coded in our selection chart including PowerPleat™, PowerCore® filtration technology, RadialSeal™, axial seal, and disposable air cleaners.



Application notes, dimensional, locations of the inlet and outlet, and mounting configurations are appropriately considered at this step. These parameters are sometimes critical and may lead you to an alternative model or series that is better suited to your application.



Go to donaldson.com and search for Air Cleaners to see our online air cleaner selection tool.

4 Choose a specific air cleaner family or series

Use the table of contents from this guide to locate the choices for a particular air cleaner family according to the cfm your engine needs. Refer to the Initial Airflow Restriction table for the style you're considering. If there are two air cleaner models that fit your parameters, choose the one with the **lowest** restriction to ensure maximum service life from that air cleaner/filter.

5 Choose intake accessories

Even though they're called accessories, things like inlet hoods, mounting bands, rubber connectors, and clamps are important parts of the overall intake system. See our accessories section for more information.

Filter Minder® — the Most Trusted Name in Service Indicators — now available through Donaldson



Filter Minder® Products are the most trusted line of service indicators and switches available. They help you maximize equipment efficiency, uptime and performance.

Filter Minder® indicators, switches, and sensors are now available through thousands of Donaldson distributors around the world.

Filter Minder® offers the broadest and most comprehensive portfolio of air-intake monitoring technologies featuring multiple indicator types, mounting configurations and fitting styles.

To learn more about the Filter Minder and restriction indicators advantages, see the Indicator section in Air Intake Accessories.

SSG Conversion Kit for SRG Air Cleaner



SSG Style — Our Largest Engine Air Cleaner

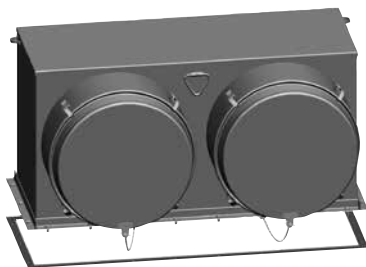
The SSG Air Cleaner offers design improvements over our older SRG air cleaner style — including filters with RadialSeal™ sealing technology, and a filter access cover with a quick release cover latches and chain.

Upgrade to newer filtration technology . . . with our Conversion Kit

Replacing an older SRG housing with the new SSG housing allows you to simplify your routine filter service — no more separate gaskets at each filter change or removing a bolted on cover. SSG filters have RadialSeal end caps that provide a more reliable, consistent seal.



No more bolt to unscrew for a filter change — simply unlatch the cover and let it hang from the housing during service.



Conversion kit includes all you need to replace the upper unit of an old SRG air cleaner, including the filters.

Choose from an upper assembly conversion kit or you may want to install a complete new housing if your current SRG assembly needs repair or is reaching the end of its useful life. See page 181 for details.

Note: Extra lead time may be required for processing and shipping.



Filtration Solutions

Global Capabilities — Design & Logistics

Donaldson has accumulated numerous engineering, design, and testing tools that are used during the design process.

Engineering Capabilities

- Design centers in three key regions — United States, Asia and Europe

Prediction and Simulation

- CAD
- Proprietary, internally developed filter modeling software
- Fundamental fluid mechanics
- Computational fluid dynamic methods
- Structural analysis
- Thermal analysis

Development and Validation

Analytical Evaluation

- Particle Characterization
- Chemical Analysis Laboratory
- Acoustic Analysis

Filter Durability

- Filtration performance testing per applicable SAE and ISO standards
- Fabrication integrity
- Environmental conditions
 - Salt spray and thermal cycling
- Pressure fatigue
- Flow fatigue
- Hydrostatic burst
- Flow benches
- Vibration benches
- Gravimetric analysis

Rapid Prototyping

- SLA, SLS, FDM, CLIP
- Investment casting
- RTV molding

Test & Evaluation Tools

Structural Analysis

- Per SAE, ISO, and NFPA standards
- Ansys & Abaqus
- Collapse
- Pressure impulse and fatigue

Tensile Compression

- Test material, component and assembly properties

Environmental Chambers

- Hot or cold temperature, with humidity control

Flow Test Benches

- Measurement of static and dynamic flow and restriction for a device
- Calculation of device restriction at varying flows and temperatures
- System simulation

Performance Testing

- ISO, SAE, NFPA
- Filter performance
- Efficiency testing
 - Gravimetric
 - Fractional
- Capacity testing per ISO5011
- Customer standards
- Crankcase ventilation tests
- Soot loading bench
- MAFS Test Bench
- Acoustic Test Chambers

Design Validation

Diesel Engine Test Cells

- Test cell locations in three key regions — United States, Asia and Europe
- Up to 600 kW / 800 hp capability
- Measurement of gaseous and particulate emissions
- Component durability
- Soot test bench
- 24/7 durability testing
- Web-based test cell monitoring access
- Tensile/Compression Tester
- Temperature Chambers

Vibration/Shaker

- Multiple systems capable of combined vibration and hot/cold thermal testing
- Vibration with flow test
- Sine, random, multi-mode, and shock profiles
- Can develop accelerated vibration schedules for specific applications using nCode Glyphworks

Field Testing

- On and off highway
- Heavy-duty
- End user and OEM vehicles

Field Data Acquisition

- Real time measurements
- Remote communications
- On-line collection tools
- Analyze operational trends

Filter Media

- Wide selection
- Media characterization testing
- In-house media capabilities



Donaldson Offers Air Filters for Most of Your Applications — including **Competitive Fit** Replacements



They may look a little different out of the box, but Donaldson competitive fit replacement air filters are specially designed to fit other manufacturer’s air cleaner housings used in both on- and off-road applications.

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Mann+Hummel® Picoflex® Iqoron® and Europiclon® are registered trademarks of Mann+Hummel®



Proven protection for heavy-duty diesel engines

Packed with proven technology

Equipped with Donaldson’s industry-shaping RadialSeal™ system, advanced media, and stable structural support, these air filters for Mann+Hummel® Entaron air cleaners are built to perform and provide effective engine protection, in a wide-range of challenging on- and off-road environments.



Donaldson Part No.*	Fleetguard	Mann + Hummel	Application examples
Primary Filter			
P629543		C21600	CAT Excavators, Track-type tractors, Loaders
P953474		C25900	AGCO/Fendt 5000 Series Harvester, Liebherr LTM Series
P953553	AF27955	C19450	Deere 5/6 Series Tractors

*Please visit shop.donaldson.com to confirm availability in your region

Vibration Resistant

Innovative Dual Compression saw-tooth design incorporates an inventive combination of soft and hard urethane that generates high levels of compression – maintaining secure RadialSeal integrity. Filter resists movement (even under heavy vibration) and delivers sure sealing under the most severe duty conditions.

RadialSeal™ design

Proven sure-fit Donaldson sealing system creates a reliable, vibration-resistant interface between the air cleaner and the filter. Slides easily on and off the outlet tube during servicing, making removal and replacement fast and simple.

Hard urethane

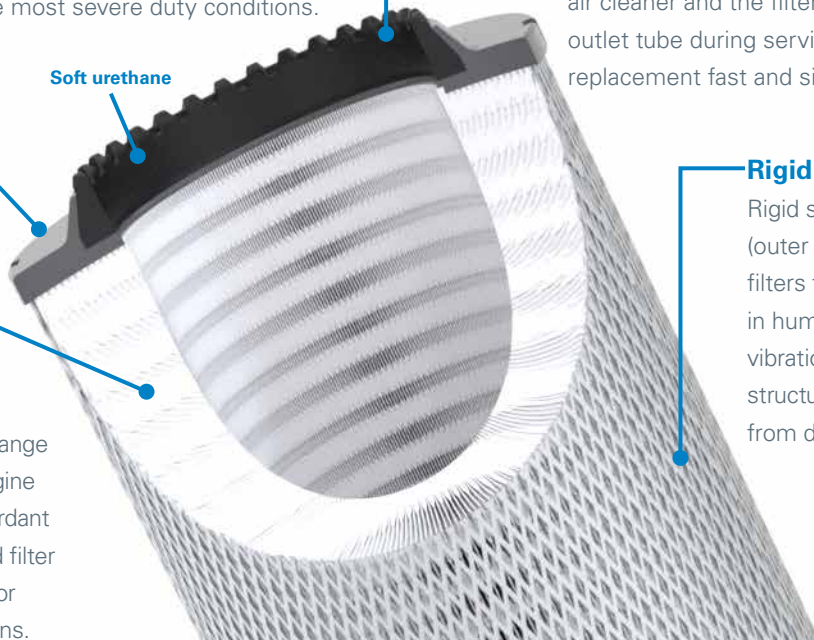
Soft urethane

High-efficiency cellulose media

Offering media options specifically designed to perform across a wide range of heavy-duty diesel engine applications. Flame-retardant media in UL Recognized filter elements are available for transportation applications.

Rigid structural support

Rigid structural support system (outer or inner liners) protect filters from damage or collapse in humid conditions or heavy vibration applications. The structure also protects the media from damage during servicing.





Superior, proven performance for heavy-duty diesel engines

Packed with proven technology

Equipped with Donaldson's industry-shaping RadialSeal™ system, advanced media, and stable structural support, these air filters for Mann+Hummel® Europiclon® air cleaners are built to perform and provide effective engine protection, in a wide-range of challenging on- and off-road environments.

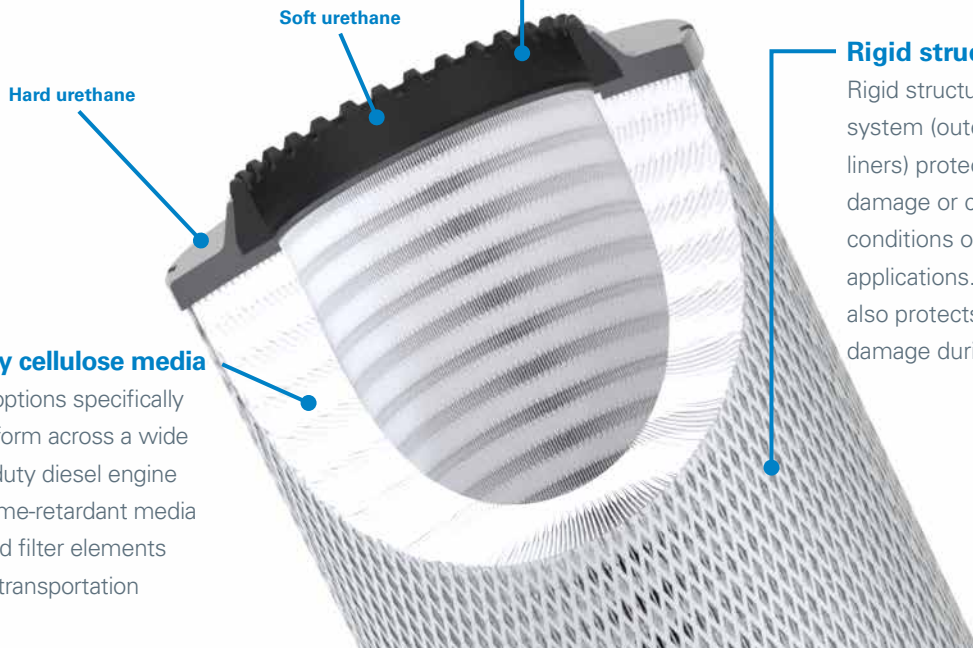


Vibration Resistant

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Rigid structural support

Rigid structural support system (outer or inner liners) protect filters from damage or collapse in humid conditions or heavy vibration applications. The structure also protects the media from damage during servicing.

High-efficiency cellulose media

Offering media options specifically designed to perform across a wide range of heavy-duty diesel engine applications. Flame-retardant media in UL Recognized filter elements are available for transportation applications.

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Europiclon® Replacement Part Numbers and Cross Reference

PRIMARY FILTER CROSS REFERENCE						
Donaldson Primary	Mann+Hummel	Baldwin	Fleetguard	Luber-finer	Wix	Application Examples
P778972	C16400	RS3922	AF26393	LAF9101	46818	Deutz, Fendt, Gehl, Massey Ferguson Tractors, Terex Lift Trucks
P778979	C11100	RS3990	AF26387	—	49978	Kubota Engines
P778984	C14200	RS3942	AF26389	LAF8749	49462	Massey Ferguson Tractors, Atlas Copco Compressors
P778989	C15300	RS3920	AF26391	LAF3947	46836	J.C. Bamford, Massey Ferguson, Volvo Equipment
P778994	C20500	RS3992	AF26395	LAF2342	49131	Deutz, Massey Ferguson, Liebherr, Volvo Equipment
P782104	C23610	RS3994	AF26397	LAF4601	49783	Atlas Copco Compressors, Caterpillar, Massey Ferguson Equipment
P782105	C257103	RS3996	AF26399	LAF6098	49711	Atlas Copco Compressors, Demag, Grove, Liebherr Cranes
P782106 / DBA5207**	C308103	RS3998	AF26401	LAF6998	49811	Caterpillar Equipment, Demag, Grove, Liebherr Cranes
P782328	C259501	RS4562	AF25704	LAF5704	—	DAF Trucks
P782880*	C258606	RS4969	AF25876	LAF6682	—	Iveco Trucks
P782881*	C256602	RS4968	AF25875	LAF6683	—	Iveco Trucks
P782936*	C2712501	RS4971	AF25894	LAF6936	—	MAN Trucks
P784198*	C258605	RS5537	—	—	—	Hitachi, MAN, Sullair Equipment
P784456	C2713202	RS5508	AF26202	—	—	Iveco Trucks
P784457*	C2713203	RS5358	AF26242	LAF6242	—	Mercedes-Benz Trucks
P784525*	C2711704	RS4959	AF25975	—	—	DAF Trucks
P785352*	C3214202	RS5356	AF26241	LAF6689	—	Iveco Trucks
P786421	C271170	RS5534	AF26246	LAF6246	49464	Liebherr LTM Cranes
P789377	C261100	RS5488	AF26677	—	—	MAN, Scania Trucks

*Flame retardant media

**P782106 is available with Donaldson Ultra-Web® fine fiber as DBA5207

SAFETY FILTER CROSS REFERENCE						
Donaldson Safety	Mann + Hummel	Baldwin	Fleetguard	Luber-finer	Wix	Application Examples
P780012	CF400	RS3923	AF26394	LAF9100	46829	Deutz, Fendt, Gehl, Massey Ferguson Tractors; Terex Lift Trucks
P780018	CF100	RS3991	AF26388	—	49968	Kubota Engines
P780024	CF200	RS3943	AF26390	LAF8750	49463	Massey Ferguson Tractors; Atlas Copco Compressors
P780030	CF300	RS3921	AF26392	LAF3948	46837	J.C. Bamford, Massey Ferguson, Volvo Equipment
P780036	CF500	RS3993	AF26396	LAF2343	49132	Deutz, Massey Ferguson, Liebherr, Volvo Equipment
P782107	CF610	RS3995	AF26398	LAF4602	49782	Atlas Copco Compressors, Caterpillar, Massey Ferguson Equipment
P782108	CF710	RS3997	AF26400	LAF6099	49710	Atlas Copco Compressors, Demag, Grove, Liebherr Cranes
P782109	CF810	RS3999	AF26402	LAF6999	49810	Caterpillar Equipment; Demag, Grove, Liebherr Cranes
P782937	CF1640	RS5361	AF25896	LAF6937	—	MAN Trucks

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Proven technology provides advanced protection

Donaldson PowerCore® provides proven performance and protection for off-road environments

Keeping machinery running smoothly and enabling it to perform longer between service intervals is vital, particularly in demanding off-road environments, like construction and agriculture. Machines on the sidelines usually means a loss of time and money — two things you can't afford to lose.

Donaldson's new line of air filters for Mann+Hummel® Iqoron® air cleaner housings can help increase uptime by maintaining extended service intervals and providing effective and proven engine protection and providing effective and proven engine protection.



- **Performance***

Matches OEM filter performance in efficiency and dust-holding capacity

- **Maintain Extended Service Intervals**

Optimal dust-holding capacity allows for more engine uptime between filter changes, so you can keep engines running longer and spend less on filters

- **Proven PowerCore® Media**

- Rugged construction holds up in heavy-duty work environments
- Dust encapsulation makes servicing easier and cleaner
- More than 20 years of proven performance in diesel engines

*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions, and application.

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Iqoron® Replacement Part Numbers, Cross Reference, and Applications

Donaldson Part No.	Mann + Hummel	Baldwin	Fleetguard	Luber-finer	Wix	Application examples
Primary Filters						
P639058	C30400/1	PA5289	AF25163	—	WA10014	CAT Equipment, Backhoe Loaders, Tractors
P636408	C34540/1	PA30275	AF4243	—	WA10115	CAT Tractors, Loaders, Excavators, Pavers, Forestry Equipment; CNH Tractors



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Proven technology offers improved filter performance

Donaldson PowerCore® provides proven protection for off-road environments

Off-road work environments, including construction and agriculture, are notoriously dirty, dusty, and downright filthy. Keeping a machine running smoothly and enabling it to perform longer between service intervals is vital. Downtime means an uptick in expenses.

Donaldson's new line of high-efficiency air filters for Mann+Hummel® PicoFlex® air cleaner housings can help increase uptime by maintaining extended service intervals and providing effective and proven engine protection.



- **Performance***

- Up to 18% lower initial restriction than OEM filter
- Matches OEM filter performance in efficiency and dust-holding capacity

- **Maintain Extended Service Intervals**

- Optimal dust-holding capacity allows for more engine uptime between filter changes, so you can keep engines running longer and spend less on filters

- **Proven PowerCore® Media**

- Rugged construction holds up in heavy-duty work environments
- Dust encapsulation makes servicing easier and cleaner
- More than 20 years of proven performance in diesel engines

*Results generated using laboratory testing of P635903 pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions, and application.

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Picoflex® Replacement Part Numbers, Cross Reference, and Applications

Donaldson Part No.	Mann + Hummel	Baldwin	Fleetguard	Luber-finer	Wix	Application examples
Primary Filters						
P608766	CP23210	CA4996	AF27873	LAF3236	49108	Backhoe Loaders
P635903	CP24420	–	–	–	–	Backhoe Loaders
P635904	CP29550	CA30071	AF1010	–	49501	Excavators
Safety Filters						
P785965	CF2135	PA4997	AF26248	LAF3237	49109	Backhoe Loaders
P635979	CF2550	–	–	–	–	Backhoe Loaders
P635980	CF2864	PA30072	AF1009	–	49502	Excavators



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The most powerful air filtration technology meets **sure seal** know how

Donaldson Blue® replacement filters incorporate **many** or our most advanced air filtration technologies into a complete package. They're specifically designed to fit and proven to perform in Fleetguard® Direct Flow™ air cleaners.

- **Proven** RadialSeal™ Sealing System
- **Proven** Ultra-Web® Nanofiber Media
- **Proven** PowerCore® or **Proven** Pleated Filter Design

Take charge of your engine protection. You have the power to choose the best filter for your Direct Flow air cleaners.

Choose **Donaldson Blue**.



50% more sealing area & 2x more gasket compression

THAN FLEETGUARD® DIRECT FLOW™ AIR FILTERS

Donaldson Blue filters with RadialSeal technology deliver two sealing advantages compared the OEM filter. They contain **50% more sealing area** and **have up to two times more gasket compression** around the frame for a sure-fit seal.

Compare this to a thin O-ring design that offers 50% less sealing area and less compression, and it's easy to see why more sealing area and more compression seal is better when it comes to protecting engines.

Fleetguard® is a registered trademark of Cummins, Inc.



Direct Flow™ Replacement Part Numbers, Cross Reference, and Applications

Primary Filters																																															
Donaldson Part No.	Baldwin	Fleetguard	Cummins	Wix	Application examples																																										
 DBA5290	PA31004	AF55020	5283826	WA10864	JLG Telehandlers w/Cummins QSF 3.8 Cummins Power Unit w/Cummins QSB 3.3 Gehl Telehandlers w/Cummins QSF 3.8 Broderson Cranes w/Cummins QSB 3.3 Broderson Cranes w/Cummins QSF 3.8 Luigong Excavators w/Cummins QSB 4.5 Dressta Dozers w/Cummins QSF 3.8																																										
 DBA5291	PA31012	AF55005	5261248	WA10705	Ford F-750 w/Cummins QSB 6.7 Hyundai Excavators w/ Cummins QSB 6.7																																										
 DBA5292 * Additionally available as: X011861 Kit Quantity: 2 DBA5292 for the applications requiring two filters	PA31002	AF55014	5261249	WA10714	Atlas Copco Drills w/Cummins QSK 15 Buhler Versatile Tractors w/Cummins QSX 11.9 Hitachi Wheel Loaders w/Cummins QSB 6.7 Hyster Forklifts w/Cummins QSB 6.7 Hyundai Loaders w/Cummins QSB 6.7 Hyundai Excavators w/Cummins QSB 6.7/QSX 11.9 Voegele Finishers w/Cummins QSB 6.7 Wirtgen Finishers w/Cummins QSL 9/QSX 15																																										
 DBA5293	PA31000	AF55015	5261250	WA10715	Buhler Versatile Tractors w/ Cummins QSL 9 Cummins Generator Sets w/ Cummins QSL 9 Hyster Material Handlers w/Cummins QSL 9/QSM11 Hyundai Excavators w/ Cummins QSL 9 Komatsu Excavators w/ Cummins QSL 9 Sennebogen Material Handlers w/ Cummins QSL 9 Taylor Lift Trucks w/ Cummins QSL 9 TigerCat Loaders w/ Cummins QSL 9 Wirtgen Finishers w/ Cummins QSL 9																																										
 DBA5294	PA31006	AF55021	5288553	WA10721	JLG Telehandlers w/Cummins QSB 4.5 Ottawa Yard Spotter w/Cummins QSB4.5 Vogele Finisher w/Cummins 4.5 Fletcher Roof Bolter DitchWich w/Cummins QSB 4.5 Hyster Forklift w/Cummins QSB 4.5 Vermeer Trencher w/Cummins QSB 4.5																																										
 DBA5306	PA31013	AF55030	5310323	WA10730	Bobcat Compact Loaders and Skid Steer Loaders w/Bobcat 2.4L																																										
 DBA5307	PA31010	—	—	WA10860	Bobcat Compact Loaders and Skid Steer Loaders w/Bobcat 3.4L																																										
 DBA5308	PA31008, PA31015	AF55024	3688918	—	<table border="0"> <thead> <tr> <th colspan="2">Tractor Model</th> <th>Engine</th> <th colspan="2">Tractor Model</th> <th>Engine</th> </tr> </thead> <tbody> <tr> <td>9370R</td> <td>—</td> <td>PSS 9.0L</td> <td>9520RT</td> <td>—</td> <td>PSS 13.5L</td> </tr> <tr> <td>9420R</td> <td>—</td> <td>PSS 13.5L</td> <td>9520RX</td> <td>—</td> <td>PSS 13.5L</td> </tr> <tr> <td>9470R</td> <td>—</td> <td>PSS 13.5L</td> <td>9570R</td> <td>—</td> <td>QSK15</td> </tr> <tr> <td>9470RT</td> <td>—</td> <td>PSS 13.5L</td> <td>9570RT</td> <td>—</td> <td>QSK15</td> </tr> <tr> <td>9470RX</td> <td>—</td> <td>PSS 13.5L</td> <td>9620R</td> <td>—</td> <td>QSK15</td> </tr> <tr> <td>9520R</td> <td>—</td> <td>PSS 13.5L</td> <td>9620RX</td> <td>—</td> <td>QSK15</td> </tr> </tbody> </table>	Tractor Model		Engine	Tractor Model		Engine	9370R	—	PSS 9.0L	9520RT	—	PSS 13.5L	9420R	—	PSS 13.5L	9520RX	—	PSS 13.5L	9470R	—	PSS 13.5L	9570R	—	QSK15	9470RT	—	PSS 13.5L	9570RT	—	QSK15	9470RX	—	PSS 13.5L	9620R	—	QSK15	9520R	—	PSS 13.5L	9620RX	—	QSK15
Tractor Model		Engine	Tractor Model		Engine																																										
9370R	—	PSS 9.0L	9520RT	—	PSS 13.5L																																										
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9520R	—	PSS 13.5L	9620RX	—	QSK15																																										
Safety Filters																																															
P638062	—	AF55320	5310325	—	See DBA5290 and DBA5294 for application examples																																										
P638061	—	AF55312	5310324	—	See DBA5290 and DBA5294 for application examples																																										
P633483 for DBA5291, DBA5292 X011872 Kit for X011861 Kit Quantity: 2 P633483 for the applications requiring two filters	—	AF55308	5261251	—	See DBA5291 and DBA5292 for application examples																																										
P633484 for DBA5293	—	AF55309	5261252	—	See DBA5293 for application examples																																										

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Advanced technology delivers complete engine protection

Packed with proven technology

Equipped with Donaldson's industry-shaping RadialSeal™ system, advanced media, and stable structural support, these air filters for Fleetguard® OptiAir™ air cleaners are built to perform and provide effective engine protection, in a wide-range of challenging on- and off-road environments.



Vibration Resistant

Innovative dual compression saw-tooth design incorporates a combination of soft and hard urethane that generates high levels of compression – maintaining secure RadialSeal integrity. Filter resists movement (even under heavy vibration) and delivers sure sealing under the most severe conditions.

RadialSeal™ Design

Proven sure-fit Donaldson sealing system creates a reliable, vibration-resistant interface between the air cleaner and the filter. Slides easily on and off the outlet tube during servicing, making removal and replacement fast and simple.

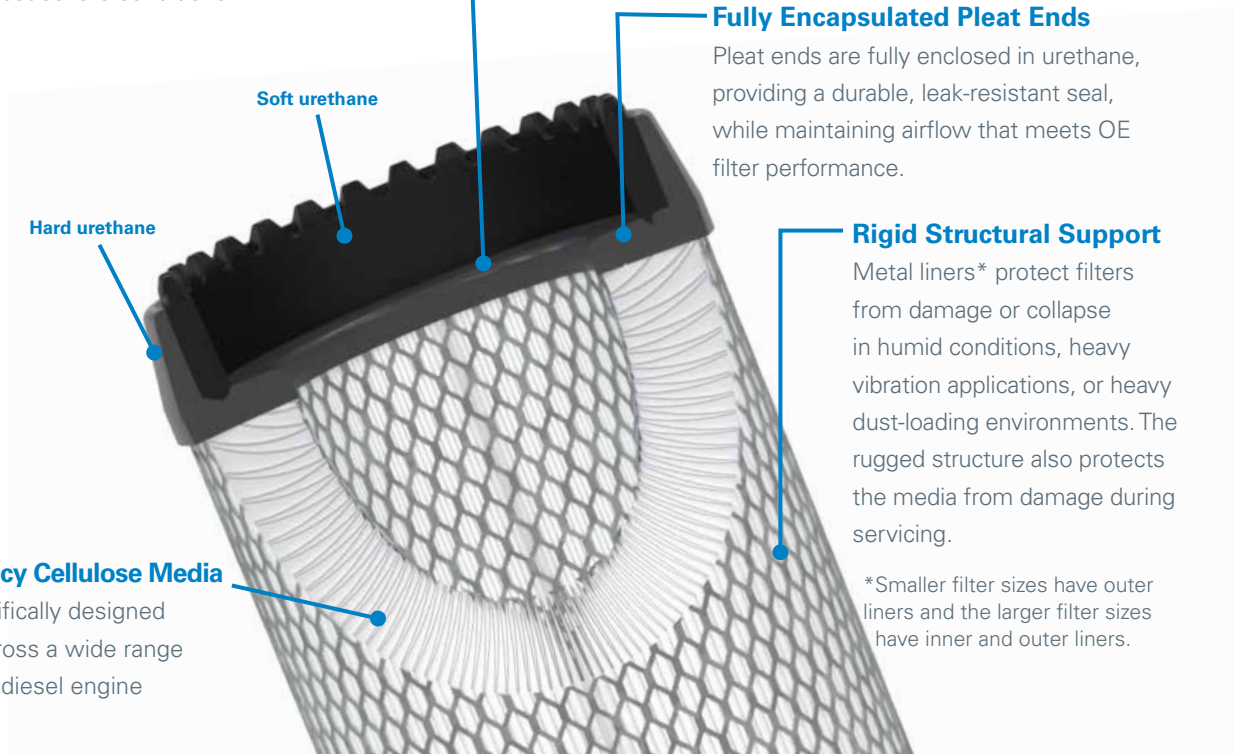
Fully Encapsulated Pleat Ends

Pleat ends are fully enclosed in urethane, providing a durable, leak-resistant seal, while maintaining airflow that meets OE filter performance.

Rigid Structural Support

Metal liners* protect filters from damage or collapse in humid conditions, heavy vibration applications, or heavy dust-loading environments. The rugged structure also protects the media from damage during servicing.

*Smaller filter sizes have outer liners and the larger filter sizes have inner and outer liners.



Soft urethane
Hard urethane

High-efficiency Cellulose Media

Media is specifically designed to perform across a wide range of heavy-duty diesel engine applications.

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OptiAir™ Replacement Part Numbers, Cross Reference, and Applications

PRIMARY FILTERS					
Donaldson Primary	Baldwin	Fleetguard	Luber-finer	Wix	Applications
P628323	—	AF26116	—	—	Fleetguard OptiAir 400 Series
P616641	RS5325	AF26168	LAF5325	49168	Fleetguard OptiAir 500 Series
P628325	—	AF26117	—	WA10162	Fleetguard OptiAir 600 Series
P628326	RS5745	AF25960	—	49021	Fleetguard OptiAir 800 Series
P628327	RS5749	AF26120	—	49035	Fleetguard OptiAir 1000 Series
P613334	RS4992	AF25962	LAF6922	46922	Fleetguard OptiAir 1100 Series
P617643	RS5429	AF26124	LAF6124	49148	Fleetguard OptiAir 1300 Series
P628324	RS5741	AF26364	—	49587	Bobcat Skidsteer
P628328	RS5747	AF27998	—	WA10035	Bobcat Loaders
P606503	RS4636	AF25707	LAF9099	46870	International 3532799C1
P613336	RS4862	AF26103	LAF6663	49088	International 3551814C1
P628329	RS5389FN	AF26104K	—	49029	International 3551816C1
P617646	RS5354	AF26337	LAF5354	49203	John Deere RE210102



Primary filter

SAFETY FILTERS						
Donaldson Safety	Baldwin	Fleetguard	Luber-finer	Wix	Applications	Filter type
P629463	—	AF26350	—	—	Fleetguard OptiAir 400 Series	Non-pleated
P629464	—	AF26351	—	49167	Fleetguard OptiAir 500 Series	Non-pleated
P629465	—	AF26118	—	—	Fleetguard OptiAir 600 Series	Non-pleated
P629466	RS5746	AF25961	—	49868	Fleetguard OptiAir 800 Series	Non-pleated
P629469	RS5750	AF26121	—	49036	Fleetguard OptiAir 1000 Series	Pleated
P613335	RS5329	AF25963	LAF6923	46923	Fleetguard OptiAir 1100 Series	Pleated
P617644	RS5430	AF26125	LAF6125	49149	Fleetguard OptiAir 1300 Series	Pleated
P629467	RS5742	AF26365	—	49588	Bobcat Skidsteer	Non-pleated
P629468	RS5748	AF27999	—	WA10045	Bobcat Loaders	Non-pleated
P613337	RS4863	AF26268	LAF6664	49089	International 3551815C1	Pleated
P609239	RS4637	AF25732	LAF9102	46871	International 3532800C1	Pleated
P617645	RS5355	AF26336	—	49103	John Deere RE210103	Pleated



Non-pleated safety filter



Pleated safety filter



Convenient DuraLite™ Disposables

Rugged Air Cleaners for Small and/or High Pulsation Gas & Diesel Engines

Donaldson's DuraLite Air Cleaners are tough, non-metallic, lightweight, self-supporting, and completely disposable. They are also easy to install, durable, and reliable.

They are designed to function well under high and severe pulsation conditions found in many applications, especially two- and three-cylinder engines. Vibration-resistant media is potted into molded housings of rugged ABS plastic — so they don't fall apart as other designs might.

Applications

- Can be mounted vertically or horizontally
- Gas and diesel engines and hybrid vehicles in light to medium dust conditions
- Powered vehicles and equipment
- Mobile engines
 - Stepvans
 - Recreational vehicles
 - Lawn and garden tractors
- Stationary engines
 - Air compressors
 - Refrigeration units
 - Material handling equipment pumps
 - Gen sets
 - Welding equipment
- Marine engines
 - Propulsion units
 - Gen sets
- Provides variety of airflow volumes to engine: from 42 to 2118 cfm
- Temperature tolerance:
 - 180 °F/83 °C continuous
 - 220 °F/105 °C intermittent



Donaldson recommends the use of a high torque hose clamp (up to 150 in-lbs) for DuraLite air cleaners. This clamp eliminates the need for double clamping. Order one for each DuraLite air cleaner. See Accessories Section for more information.



DuraLite™ Air Cleaners — sturdy, one-piece, and disposable — are designed to withstand the high pulsation of small engines such as the ones shown here. They are easy to maintain because there are no service parts. When the filter is full, simply throw it away.



Air Cleaner Features

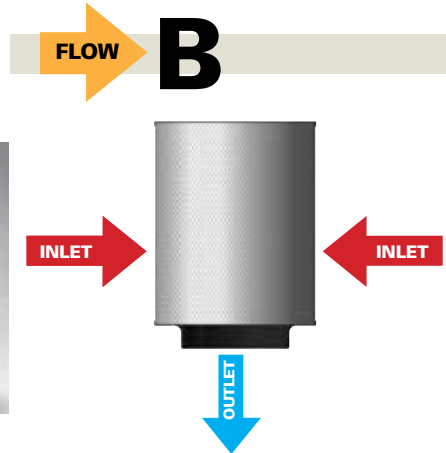
- No serviceable parts. Air cleaner housing and filter are one unit.
- Designed to withstand severe intake pulsation
- Economical replacement cost
- Self-supporting, sturdy
- Very reliable: only one critical seal
- Lightweight and compact in size
- Non-metallic (except B085008 which is galvanized steel), non-corrosive . . . ideal for marine applications
- Completely disposable . . . acceptable for normal trash pick-up (DuraLite should not be incinerated)
- Easily installed and maintained
- Minimal removal clearance needed — only 1.5"
- Three airflow styles available to fit virtually any engine intake configuration
- Various media available for specific applications — high pulsation and high humidity



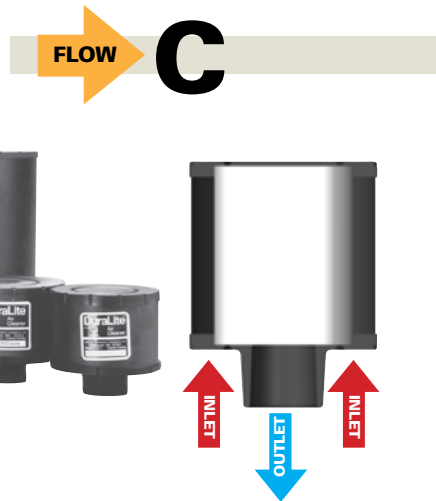
When Selecting an Air Cleaner . . .

Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table at right. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction estimates.

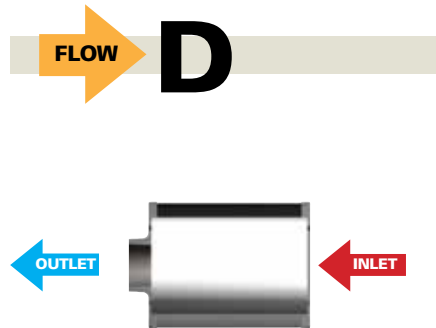
ECB DuraLite



ECC DuraLite



ECD DuraLite



Note: D065008 has inlet holes on both ends of filter

ECB Initial Airflow Restriction*

CFM @ "H ₂ O			Air Cleaner Model
4"	6"	8"	
175	250	300	B085008
275	335	390	B085001
275	335	390	B085048
280	400	470	B085011
280	400	470	B085046
380	440	480	B105020
400	580	710	B105002
450	590	680	B105006
700	882	1024	B125011
800	1060	1250	B125005
830	1110	1295	B125003
970	1215	1412	B085056
1060	1305	1500	B120439
1550	1836	2118	B120376

ECC Initial Airflow Restriction*

CFM @ "H ₂ O			Air Cleaner Model
4"	6"	8"	
42	55	64	C045001
55	70	82	C045002
64	82	94	C055003
70	90	106	C055002
95	111	140	C065001
108	137	162	C065002
112	145	170	C085001
115	147	190	C065015
115	150	175	C085005
120	150	175	C065003
130	165	188	C085002
135	170	195	C085006
135	170	195	C085043
150	180	215	C085003
170	205	245	C085004
170	205	245	C085041
325	400	480	C105003
352	400	480	C105028
400	500	620	C105004
400	500	620	C105017
670	830	950	C125004
670	830	950	C125017

ECD Initial Airflow Restriction*

CFM @ "H ₂ O			Air Cleaner Model
4"	6"	8"	
44	56	65	D045003
50	64	75	D045004
78	97	115	D055004
102	127	152	D065003
125	155	185	D065008

*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.



ECB DuraLite™ Specifications

Air Cleaner Models	Body Diameter (A)		Outlet Diameter (C)		Length (D)		Outlet Length (F)		Media Type	Weight	
	in	mm	in	mm	in	mm	in	mm		lbs	kg
B085001	8.50	216	3.00	76	11.00	279	1.38	35	A	4.2	1.9
B085008 ¹	8.75	222	3.00	76	8.50	216	1.38	35	A	5.5	2.5
B085011	8.50	216	4.00	102	11.00	279	1.38	35	A	4.2	1.9
B085046	8.50	216	4.00	102	11.00	279	1.38	35	B	4.2	1.9
B085048	8.50	216	3.00	76	11.00	279	1.38	35	B	4.2	1.9
B085056	7.72	196	5.9	150	11.02	280	1.38	35	B	3.2	1.5
B105002	10.50	267	5.00	127	15.00	381	1.38	35	C	5.9	2.7
B105006	10.50	267	4.00	102	10.50	267	1.38	35	A	5.2	2.4
B105020	10.50	267	4.00	102	10.50	267	1.38	35	B	3.6	1.6
B120376	12.5	318	7.8	198	15.75	400	1.89	48	D	8.0	3.6
B125011	12.5	318	5.0	127	9.0	229	1.38	35	D	6.6	3.0
B120439	12.5	318	7.78	197	15.75	400	1.57	40	A	3.5	1.6
B125003	12.50	318	6.00	152	15.00	381	1.38	35	C	7.1	3.2
B125005	12.50	318	5.50	140	9.00	229	1.38	35	D	5.0	2.3

ECC DuraLite™ Specifications

Air Cleaner Models	Body Diameter (A)		Outlet Diameter (C)		Length (D)		Outlet Length (F)		Media Type	Weight	
	in	mm	in	mm	in	mm	in	mm		lbs	kg
C045001	4.50	114	1.50	38	4.50	114	1.38	35	C	0.6	0.27
C045002	4.50	114	1.50	38	8.00	203	1.38	35	C	0.9	0.40
C055002	5.50	140	1.75	44	7.00	178	1.38	35	C	1.0	0.45
C055003	5.50	140	1.75	44	4.00	102	1.38	35	C	1.0	0.45
C065001	6.50	165	2.00	51	4.00	102	1.38	35	C	0.8	0.36
C065002	6.50	165	2.00	51	7.50	191	1.38	35	C	1.3	0.60
C065003	6.50	165	2.25	57	5.00	127	1.38	35	C	1.0	0.45
C065015	6.50	165	2.00	51	9.00	229	1.38	35	D	2.0	0.90
C085001	8.50	216	2.50	64	4.00	102	1.38	35	C	1.4	0.64
C085002	8.50	216	2.50	64	6.50	165	1.38	35	C	2.2	1.0
C085003	8.50	216	3.00	76	5.00	127	1.38	35	C	2.2	1.0
C085004	8.50	216	3.00	76	9.50	241	1.38	35	C	3.0	1.4
C085005	8.50	216	2.50	64	5.00	127	1.38	35	C	2.2	1.0
C085006	8.50	216	2.50	64	9.50	241	1.38	35	C	3.0	1.4
C085041 ²	8.50	216	3.00	76	9.50	241	1.38	35	C	3.0	1.4
C085043 ²	8.50	216	2.50	64	9.50	241	1.38	35	C	3.0	1.4
C105003	10.50	267	4.00	102	6.00	152	1.38	35	A	2.3	1.0
C105004	10.50	267	4.00	102	10.50	267	1.38	35	A	3.6	1.6
C105017 ²	10.50	267	4.00	102	10.50	267	1.38	35	A	3.6	1.6
C105028 ²	10.5	267	4.0	102	6.0	152	1.38	35	A	3.4	1.5
C125004	12.50	318	5.00	127	11.00	279	1.38	35	A	5.8	2.6
C125017 ³	12.50	318	5.00	127	11.00	279	1.38	35	A	5.8	2.6

ECD DuraLite™ Specifications

Air Cleaner Models	Body Diameter (A)		Outlet Diameter (C)		Length (D)		Outlet Length (F)		Media Type	Weight	
	in	mm	in	mm	in	mm	in	mm		lbs	kg
D045003	4.50	114	1.50	38	4.50	114	1.38	35	C	0.6	0.27
D045004	4.50	114	1.50	38	6.00	152	1.38	35	C	0.8	0.36
D055004	5.50	140	1.75	44	7.00	178	1.38	35	C	1.0	0.45
D065003	6.50	165	2.00	51	4.00	102	1.38	35	C	0.8	0.36
D065008 ⁴	6.50	165	2.00	51	9.00	229	1.38	35	D	1.5	0.68

Specification Illustrations

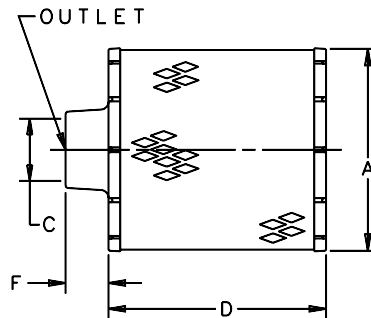
Specifications Notes:

- 1 - Body is galvanized steel with 4" (254mm) dia. inlet on side
- 2 - Screen inlet deters rodent infestation
- 3 - Has an outer liner on the media pack
- 4 - Has inlet holes at both ends of filter

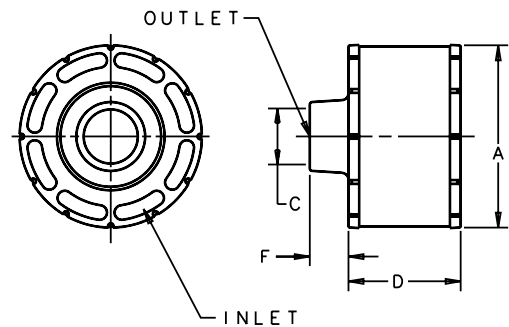
Media Types:

- A = Standard cellulose media
 B = Treated to withstand higher humidity; most often used in marine applications. Designed for higher airflow/low dust applications ... should NOT be used for normal engine operating environments.
 C = Reinforced to withstand higher pulsation applications
 D = Designed for higher airflow/low dust applications ... should NOT be used for normal engine operating environments

ECB DuraLite

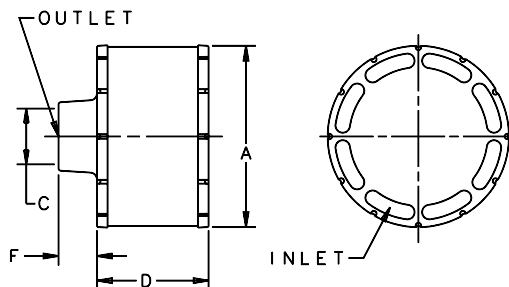


ECC DuraLite



Note: C125017 has an outer liner on the media pack

ECD DuraLite



Note: D065008 has inlet holes at both ends of filter



Installation Instructions

Installation

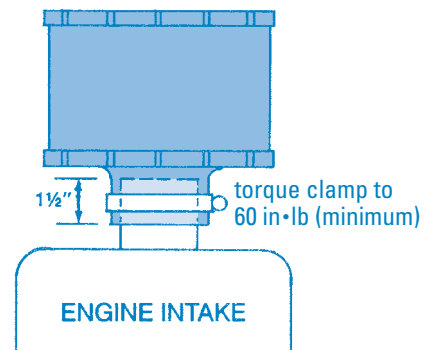
DuraLite air cleaners can be mounted in two ways:

1. **Direct Mount:** mounted directly on the intake manifold.
2. **Remote Mount:** mounted away from engine and connected to engine with inlet piping.

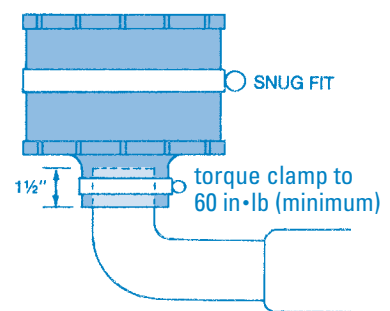
Installation Tips

- Engage outlet neck of the DuraLite over intake piping for a full 1½" to insure a secure, lasting seal.
- Tighten clamp around outlet neck to 60 in•lb minimum. A Donaldson high torque hose clamp is recommended.
- On remote mount style, avoid crushing the body with body clamps. A snug fit is best, and body clamps are not always required.
- Keep away from engine manifold and other very hot components (DuraLite is rated at 180 °F / 83 °C maximum sustained temperature).
- Keep away from battery acids, brake fluid, and other caustic fluids.

Direct Mount



Remote Mount



Service Recommendations

This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

Servicing Intervals

Choose either of two types:

- **Scheduled (Miles or Hours).** DuraLite service intervals can be integrated into any existing maintenance program.
- **Filter Service Indicator.** This method offers the most accurate filter maintenance program, delivering maximum filter life, less machine downtime, and reduced maintenance costs.
- Washing, cleaning or servicing the filter in any way voids the warranty.

Disposal

Follow your local disposal guidelines for disposal.

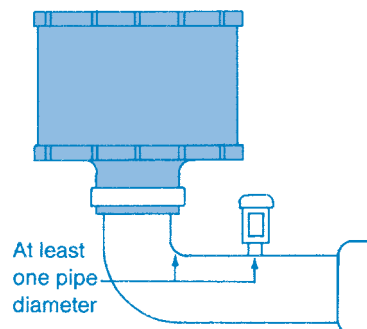
Service Indicator Location

For proper restriction readings, a restriction fitting tap must be

located between the engine intake and DuraLite outlet neck. The tap should be located in a straight section of the intake pipe at least one pipe diameter away from the manifold or any bends, elbows or reducers.

Servicing Tips

- Do NOT judge the filter on the basis of visual inspection! If it's doing its job, it



should look dirty. DuraLite filter life is longer than you may think. Change the filter only when restriction readings indicate to do so.



- During filter change out, do NOT leave the inlet ducting exposed any longer than necessary (a few minutes) during service.
- Never wash or clean the unit for reuse.



ECO® & ECOLITE® Air Cleaners

- Lightweight
- Sturdy
- One Piece Construction

Use the initial restriction table if your selecting an air cleaner. For a direct replacement to Parker, select the air cleaner style tables.

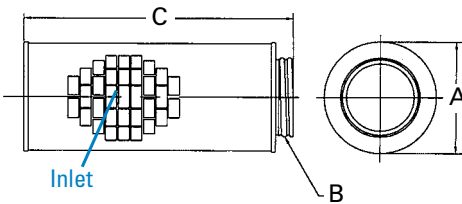
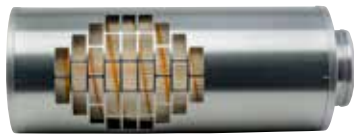
Initial Restriction*

Airflow	Air Cleaner Model
350 cfm @ 8" H ₂ O	P537451 ECO-SE
510 cfm @ 8" H ₂ O	P537452 ECO-SE
800 cfm @ 8" H ₂ O	P613679 ECO-SE
840 cfm @ 8" H ₂ O	P537453 ECO-SE
960 cfm @ 8" H ₂ O	P537454 ECO-SE
1000 cfm @ 5" H ₂ O	P537447 ECOLITE
1000 cfm @ 6" H ₂ O	P527586 ECO-CM
1000 cfm @ 7" H ₂ O	P524837 ECO-II
1100 cfm @ 6" H ₂ O	P537450 ECO-CM
1200 cfm @ 5" H ₂ O	P537448 ECOLITE
1200 cfm @ 6" H ₂ O	P154927 ECO-II
1230 cfm @ 8" H ₂ O	P607373 ECO-SE
1400 cfm @ 7" H ₂ O	P524838 ECO-II
1500 cfm @ 5" H ₂ O	P537449 ECOLITE
1500 cfm @ 7" H ₂ O	P528722 ECO-II
1530 cfm @ 8" H ₂ O	P537456 ECO-SM
1550 cfm @ 8" H ₂ O	P537455 ECO-SM

*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.

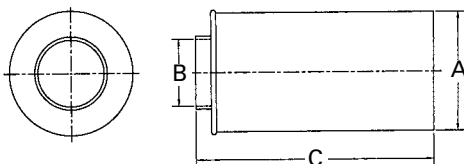
When Selecting an Air Cleaner . . .

Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table at left. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction estimates.



ECO®-II

Parker Number	Donaldson Number	Body Dia. (A)		Body Length (C)		Inlet Dia.		Outlet Dia. (B) I.D.	
		in	mm	in	mm	in	mm	in	mm
071338001	P524837	9.75	248	24.0	610	Grid	6.0	152	
071338002	P154927	11.0	279	24.0	610	Grid	7.0	178	
071338003	P524838	13.5	343	24.0	610	Grid	7.0	178	
071338004	P528722	13.5	343	18.0	457	Grid	7.0	178	



ECO®-SE

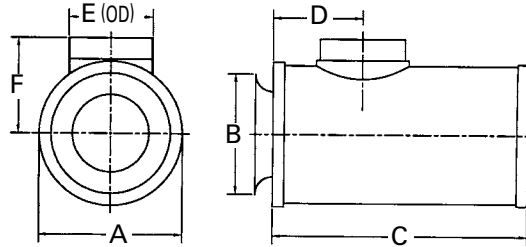
Parker Number	Donaldson Number	Body Dia. (A)		Body Length (C)		Inlet Dia.		Outlet Dia. (B) I.D.	
		in	mm	in	mm	in	mm	in	mm
114500001	P537451	6.75	171	14.2	361	End Perf	3.0	76	
114500002	P537452	7.75	197	17.2	437	End Perf	4.0	102	
114500003	P537453	9.67	246	20.2	513	End Perf	5.0	127	
114880003	P537454	9.70	246	18.1	460	6.0** 152**	5.0	127	
114880005	P613679	7.75	197	17.20	437	6.0** 152**	4.00	102	
400292000	P607373	11.50	292	16.88	429	6.0** 152**	7.00	178	

** side inlet (not illustrated)



ECO®-CM

Parker Number	Donaldson Number	Body Dia. (A)		Body Length (C)		Outlet Dia. (E)		Inlet Dia. (B)		(D)		(F)	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
078897002	P527586	11.0	279	24.0	610	6.0	152	8.0	203	18.5	470	8.9	226
078897001	P537450	13.5	343	24.0	610	7.0	178	8.0	203	5.5	140	11.1	282



Competitive Cross Reference

Baldwin	Donaldson
PA2650.....	P154927
PA2721.....	P537447
PA2722.....	P537448
PA2723.....	P537449
PA2724.....	P524838
PA2731.....	P537450
PA2874.....	P527586
PA2875.....	P528722
PA2876.....	P524837
PA3493.....	P537454
PA3554.....	P537451
PA3555.....	P537452
PA3556.....	P537453

Fleetguard	Donaldson
AH1103.....	P154927
AH1104.....	P537447
AH1105.....	P537448
AH1106.....	P537449
AH1135.....	P524838
AH1135F.....	P524838
AH1183.....	P528722
AH1184.....	P537450
AH1191.....	P537451
AH1192.....	P537452
AH1193.....	P537453
AH1194.....	P524837
AH1197.....	P537454
AH19014.....	P537455
AH19015.....	P537456

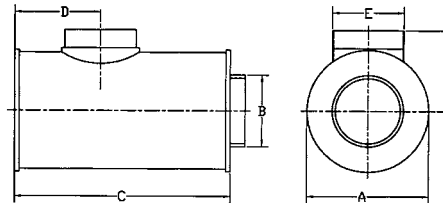
Fram	Donaldson
CA3770.....	P154927
CA6622.....	P524837
CA6623.....	P524838
CA6624.....	P528722
CA6854.....	P537451
CA6855.....	P537453
CA7229.....	P537447
CA7230.....	P537448
CA7231.....	P537449
CA8129.....	P537452
CA8131.....	P537450

Luber-finer	Donaldson
LAF1799.....	P528722
LAF1821.....	P537450
LAF1825.....	P527586
LAF1828.....	P537447
LAF1844.....	P537449
LAF1848.....	P537448
LAF1934.....	P537454
LAF2521.....	P537453
LAF8002.....	P154927
LAF8003.....	P524838

Wix	Donaldson
46743.....	P537451
46748.....	P537454
46755.....	P537453
46759.....	P537452
46848.....	P524837
46849.....	P528722
46850.....	P154927
46851.....	P524838
46857.....	P537455
46858.....	P537456
46891.....	P537447
46893.....	P537448
46895.....	P537449
46897.....	P537450
546755.....	P537453

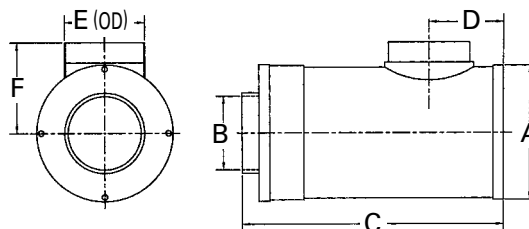
ECOLITE®

Parker Number	Donaldson Number	Body Dia. (A)		Body Length (C)		Outlet Dia. (E)		Inlet Dia. (B)		(D)		(F)	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
062891001	P537447	9.75	248	24.0	610	6.0	152	6.0	152	5.5	140	6.75	171
062891002	P537448	11.0	279	24.0	610	7.0	178	7.0	178	5.5	140	7.8	198
062891003	P537449	13.5	343	24.0	610	7.0	178	7.0	178	5.5	140	9.1	231



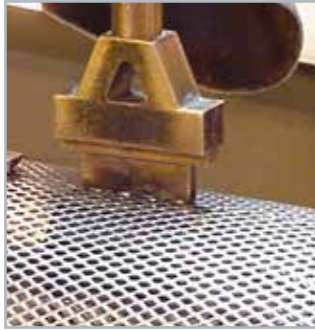
ECO®-SM

Parker Number	Donaldson Number	Body Dia. (A)		Body Length (C)		Outlet Dia. (B)		Inlet Dia. (E)		(D)		(F)	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
099842009	P537455	13.5	343	16.8	427	7.0	178	7.0	178	5.5	140	8.6	219
099842010	P537456	13.5	343	16.8	427	7.0	178	7.0	178	9.5	241	8.6	219



ECO and ECOLITE are registered trademarks of Parker-Hannifin Corp., Racor Division

Donaldson's Commitment to Quality & Continuous Improvement



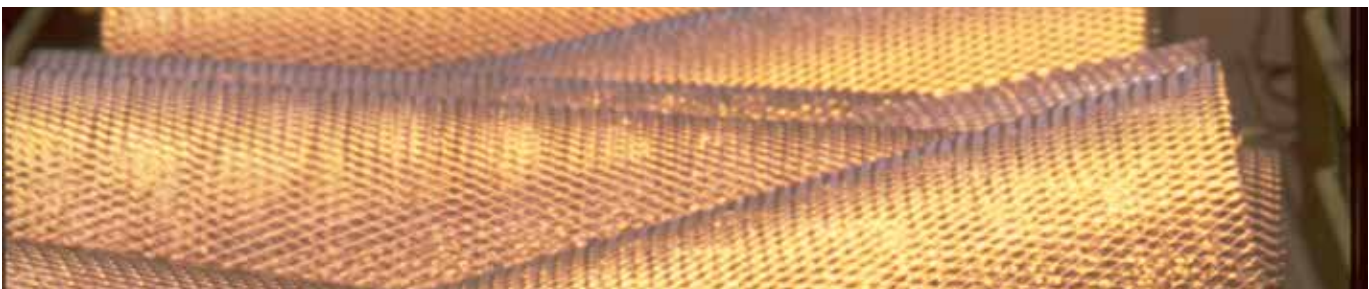
Donaldson Quality Commitment

Complete Customer Satisfaction,
Continuous Improvement and
Problem Prevention in All Activities.

Our process to achieving these goals includes:

- Elimination of waste and variation;
- Setting and maintaining world-class standards and benchmarks.
- Developing and empowering our people; and
- Standardizing processes and measurement of progress.

For the long-term success of our company, understanding their needs and fulfilling customer needs will benefit both our shareholders and our employees. Our management is accountable to ensuring that this policy is understood, implemented and maintained at all levels of our organization.





PowerCore®
A Donaldson Filtration Technology

PowerCore®
air cleaners deliver . . .

- System design flexibility
- Metal-free, lightweight materials
- Rugged construction
- Straight-through airflow technology invented by Donaldson
- RadialSeal™ advanced sealing technology

This air cleaner family offers high-efficiency filtration in a single, compact unit that delivers superior performance using our PowerCore® Filtration Technology.

PSD Family

Designed for medium to heavy dust conditions, the PSD air cleaner has a built-in inertial particle separator that can remove up to 96% of incoming contaminant. PSD air cleaners are also adaptable to a scavenged air system.

PCD Family

The PCD air cleaner family is better suited for light dust conditions since it does not have a built-in pre-cleaner like the PSD. It can, however, be connected to an external pre-cleaner.

PowerCore® Edge Family

PowerCore® Edge brings the smallest footprint yet to the PowerCore air cleaner line, without sacrificing performance.

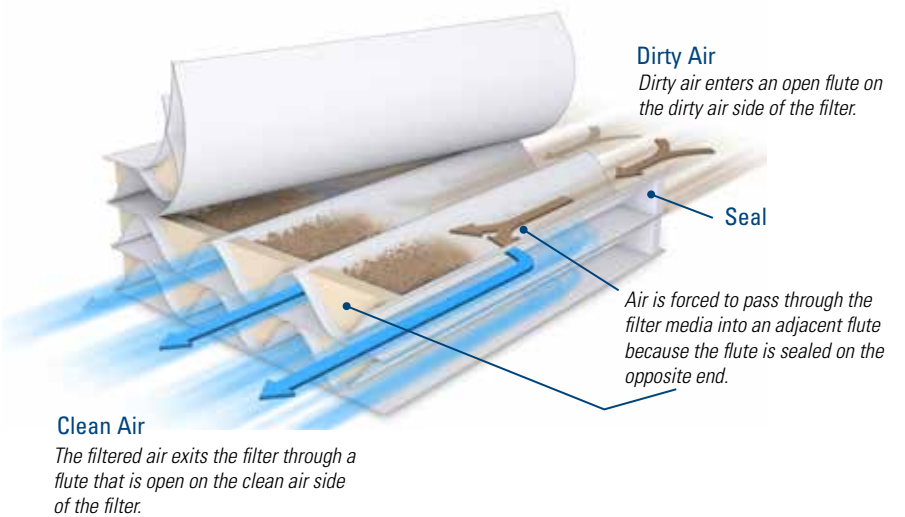
Ideally suited for medium to heavy dust environments, this front service air cleaner offers a built-in detachable pre-cleaner that allows for quick and easy servicing if it should ever plug in extreme conditions.



Section Index
Section Index

PSD — Two-Stage..... 34
 PCD — Single-Stage..... 49
 PowerCore® Edge — Two-Stage 57

PowerCore® Straight-Through Airflow Schematic



Big Performance, Small Footprint

PowerCore air filters are up to 65% smaller than a conventional RadialSeal™ filter.



Millions of PowerCore® Filters Installed on Original Equipment

This air cleaner family offers two-stage filtration in a single, compact unit that delivers superior filtration performance using our PowerCore® Filtration Technology.

This non-metal air cleaner (except for cover clamps) is ideal for equipment operating in medium to heavy dust environments.

Applications

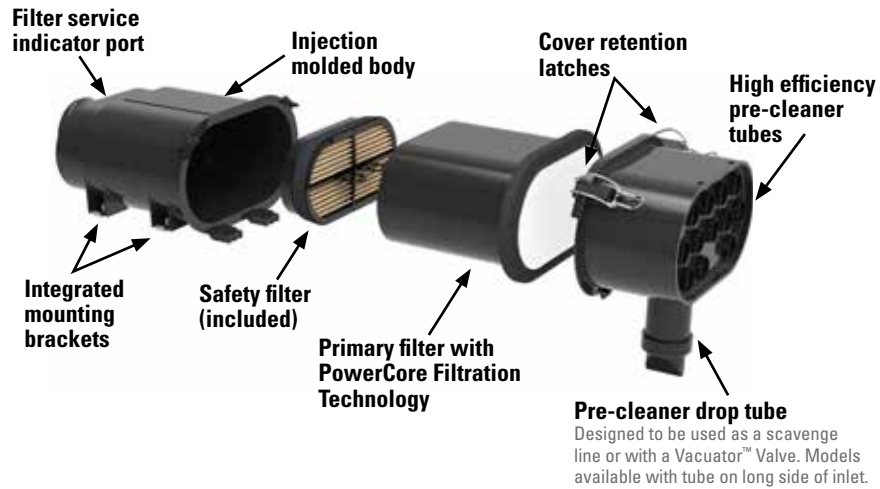
- Off-road equipment operating in medium to heavy dust conditions with engine airflow ranges up to 1252 cfm
- Scavenged system components — exhaust ejectors and check valves — now available. See page 39–38 for more details.
- Obround housing shape allows for a narrow or wide mounting orientation.
- Models have either end or side filter service access
- Sustained temperature tolerance: -40 °F to 180 °F / -40 °C to 82 °C

Features

- More compact at a given performance level than standard pleated filters
- Non-metal filters
- Improved engine protection: no media movement, expansion, contraction or bunching
- Improved contaminant encapsulation: dust and dirt stay contained in filter during service
- High efficiency integrated pre-cleaner improves filter life
- Improved handling and maintenance: lighter and smaller, changing filters is a snap
- Easily serviced; no tools required to remove or replace cover
- Can be used with scavenge line or Vacuator™ Valve
- Built-in mounting brackets eliminate the need to purchase separate mounting bands

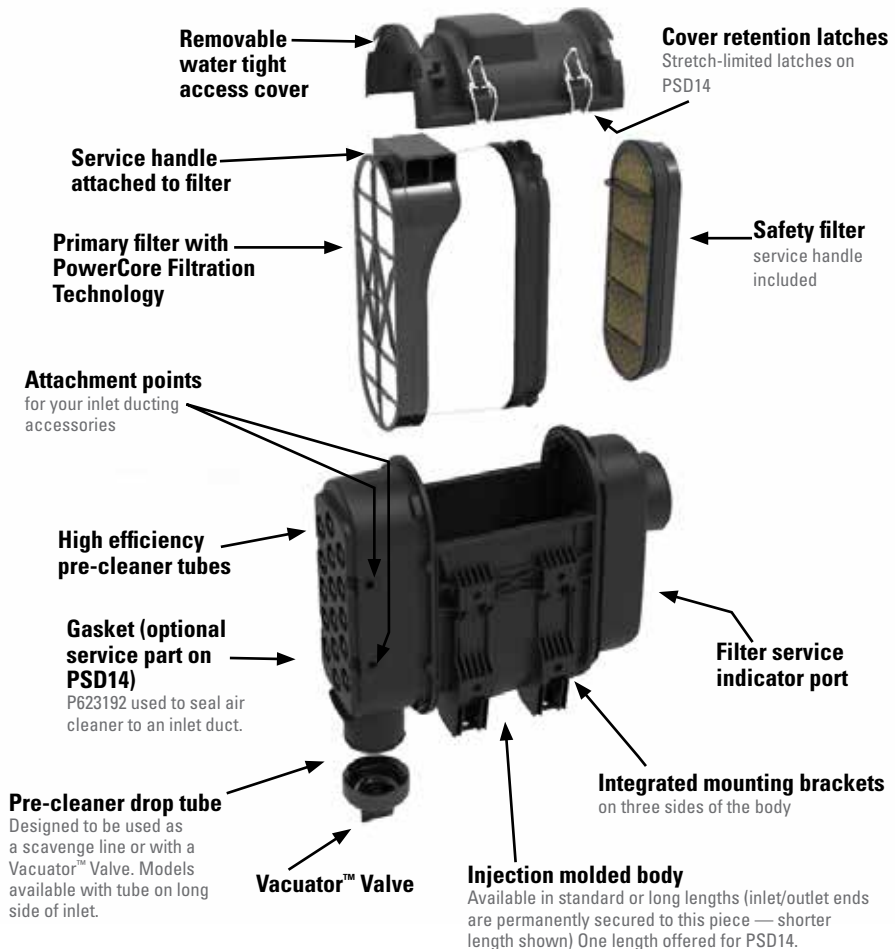
Service Access on Inlet End — PSD08

Exploded view of D080020



Service Access on Side — PSD08, PSD09, PSD10, PSD12 and PSD14

Exploded view of D090266





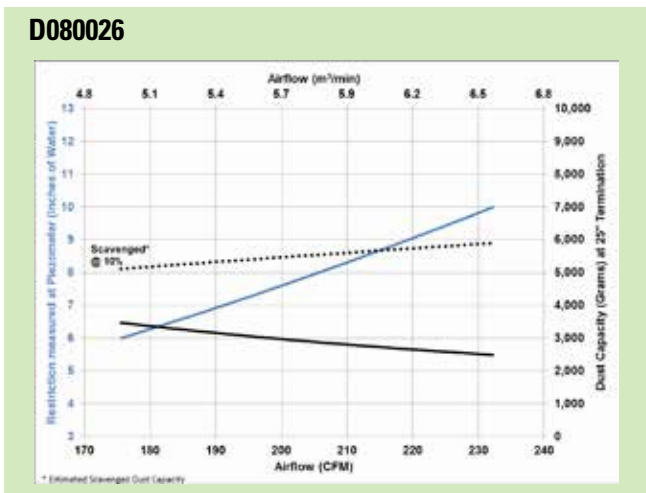
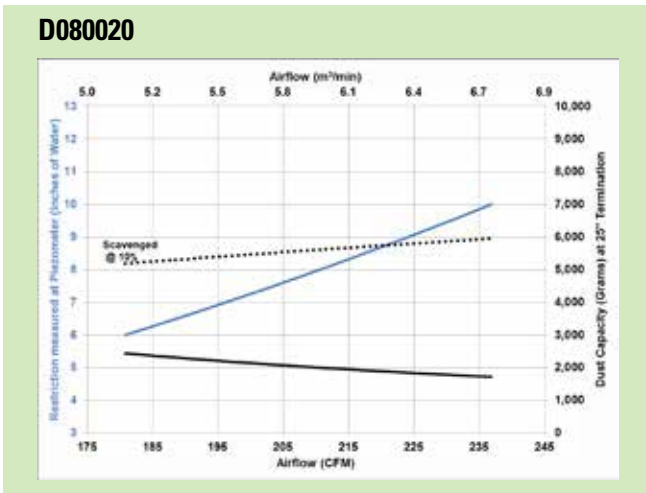
When Selecting an Air Cleaner . . .

Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table below. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction estimates.

PSD Air Cleaners and Scavenge Air Systems

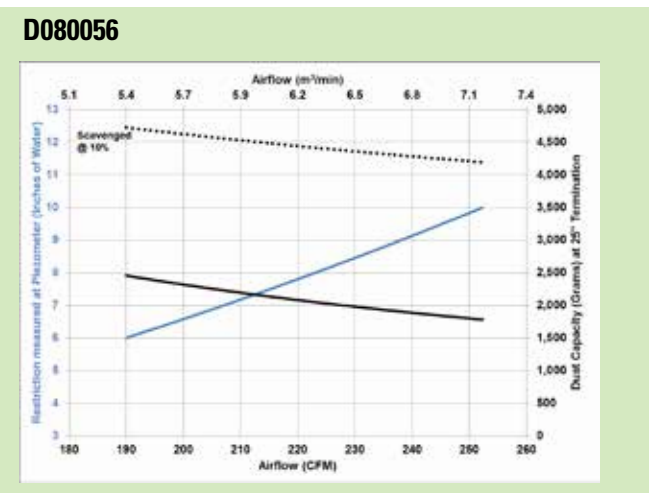
PSD air cleaners are designed to operate with or without aspiration, otherwise known as scavenging. PSD performance charts include scavenged performance data. It is recommended to use a scavenge system for horizontally mounted PSD12 and PSD14 applications. For more information on scavenging, refer to page 41.

PSD Air Cleaner Performance Curves*



Initial Airflow Restriction (non-scavenged)

CFM @ "H2O	m3/min. @mbar			Air Cleaner Model
	4"	6"	8"	
MODELS WITH SERVICE ACCESS ON END				
176	206	232	5.0 5.8 6.6	D080026
181	211	237	5.1 6.0 6.7	D080020
MODELS WITH SERVICE ACCESS ON SIDE				
190	223	252	5.4 6.3 7.1	D080056
284	332	374	8.0 9.4 10.6	D090285
291	339	382	8.2 9.6 10.8	D090266
291	338	380	8.2 9.6 10.8	D090278
311	359	401	8.8 10.2 11.4	D090286
311	359	401	8.8 10.2 11.4	D090287
460	539	609	13.0 15.3 17.2	D100366
512	597	672	14.5 16.9 19.0	D100384
512	597	672	14.5 16.9 19.0	D100398
534	622	700	15.1 17.6 19.8	D100390
539	629	708	15.3 17.8 20.0	D100391
539	629	708	15.3 17.8 20.0	D100397
629	737	832	17.8 20.9 23.6	D120339
648	755	849	18.3 21.4 24.0	D120320
682	795	895	19.3 22.5 25.3	D120340
687	800	899	19.5 22.7 25.5	D120338
951	1111	1252	26.9 31.5 35.5	D140111
955	1110	1246	27.0 31.4 35.3	D140110

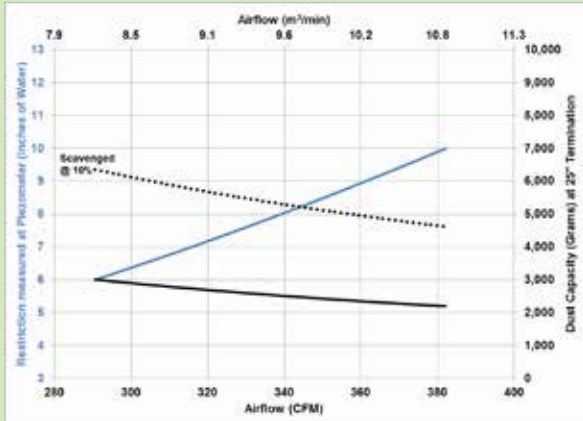


*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.

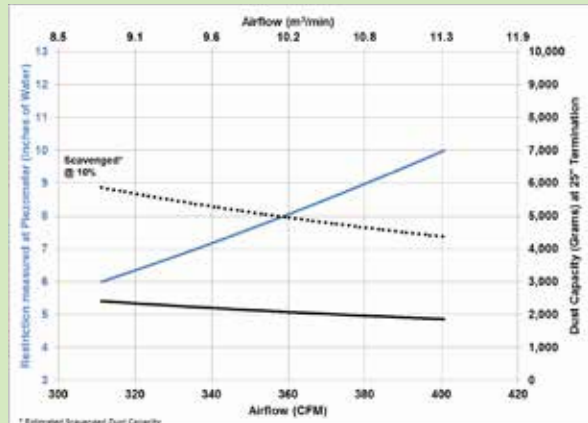


continued — PSD Air Cleaner Performance Curves

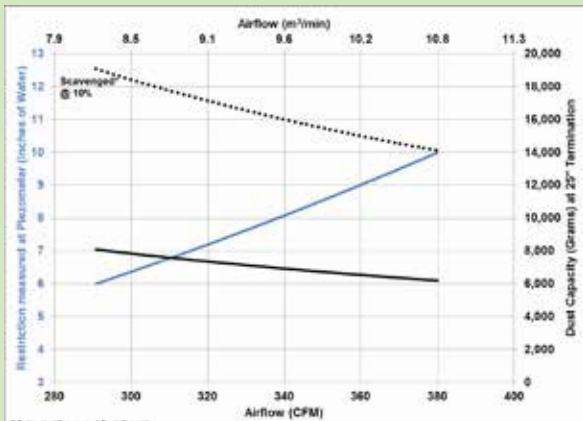
D090266



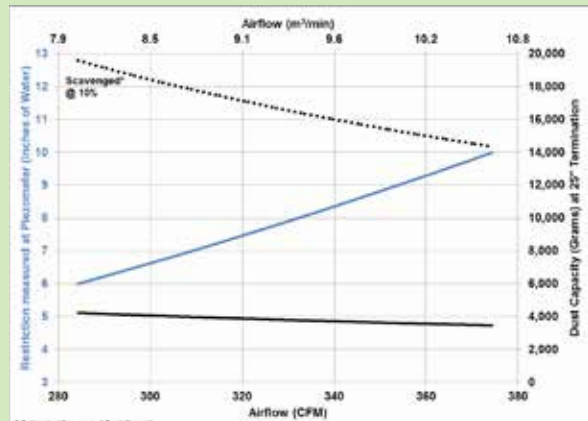
D090286, D090287



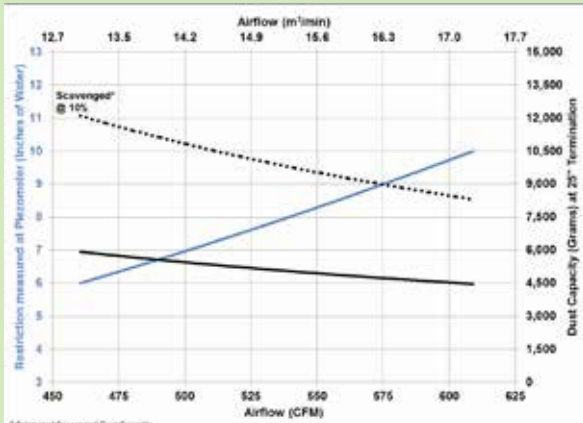
D090278



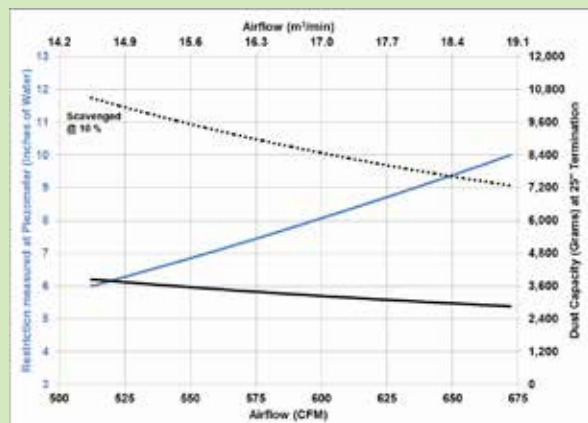
D090285



D100366

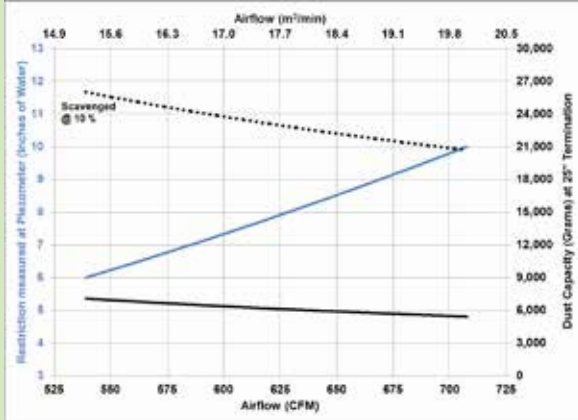


D100384, D100398

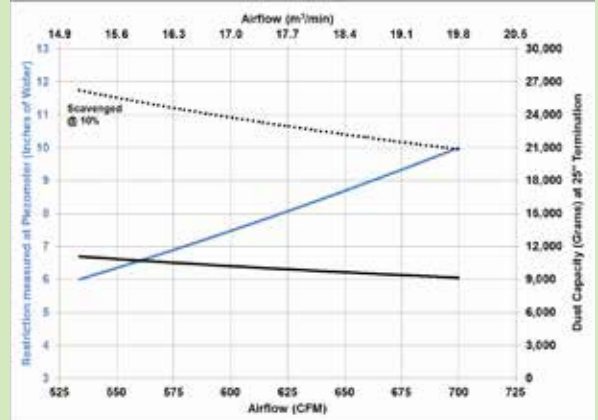


continued – PSD Air Cleaner Performance Curves

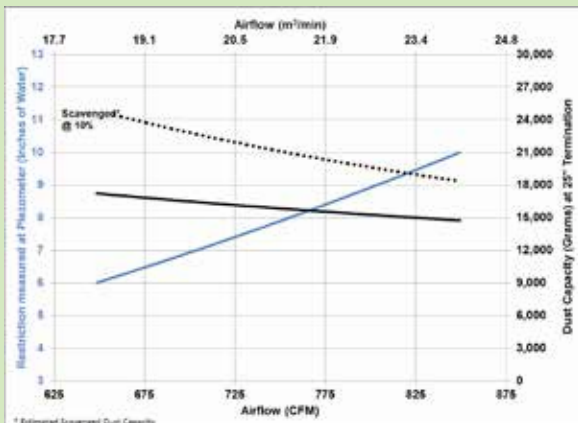
D100391, D100397



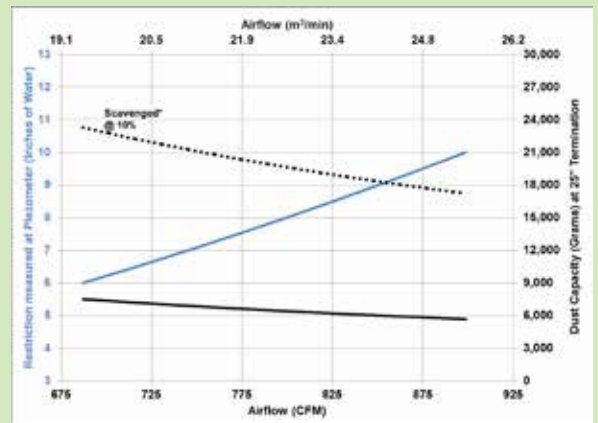
D100390



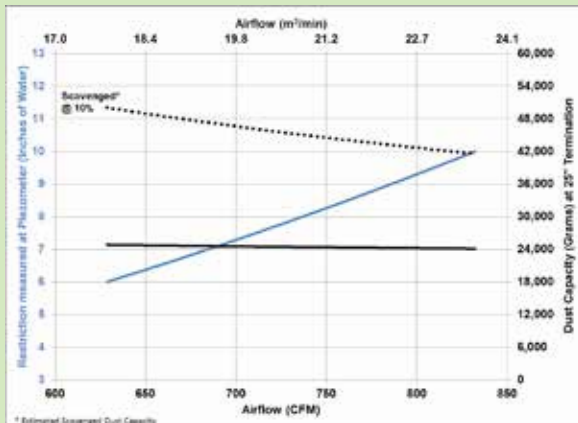
D120320



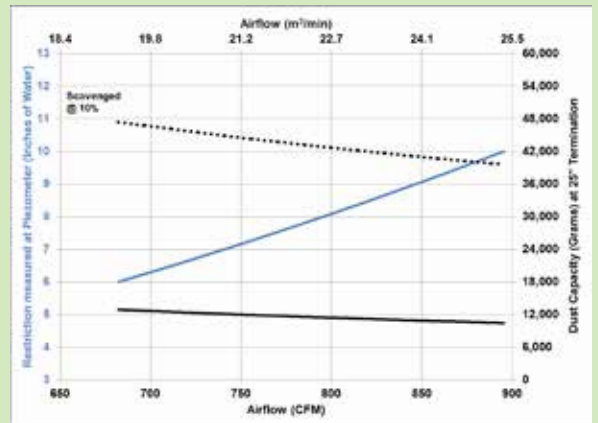
D120338



D120339

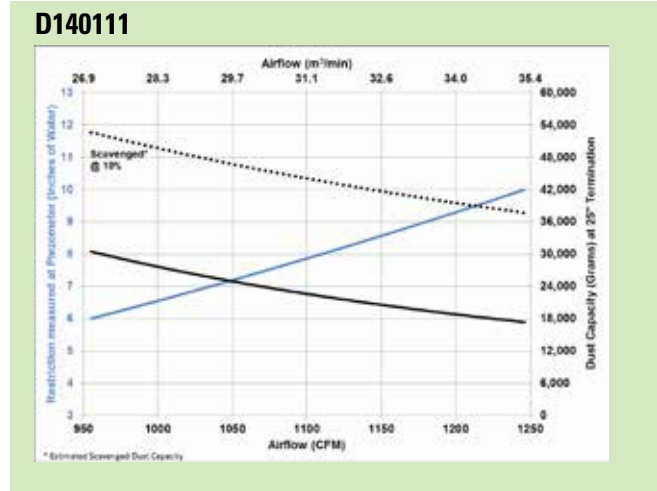
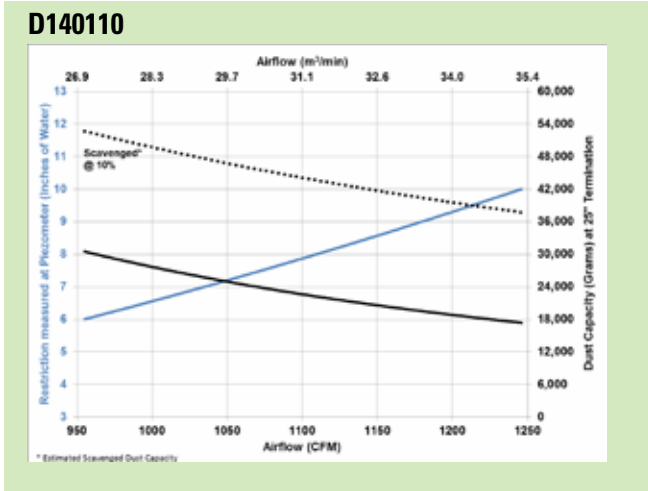


D120340



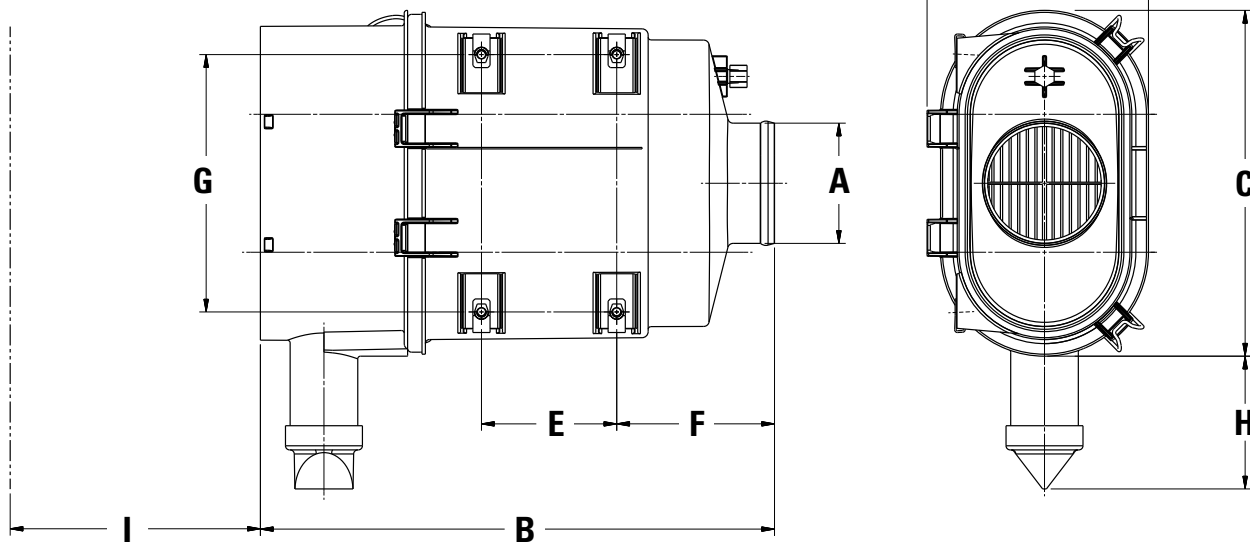


continued — PSD Air Cleaner Performance Curves



PSD Specification Illustrations

PSD08 Models — Service Access on End (Vertical Model Shown)



Note: a minimum service clearance of 50mm (2.00") is required for wire latches.



D080020 — Horizontal



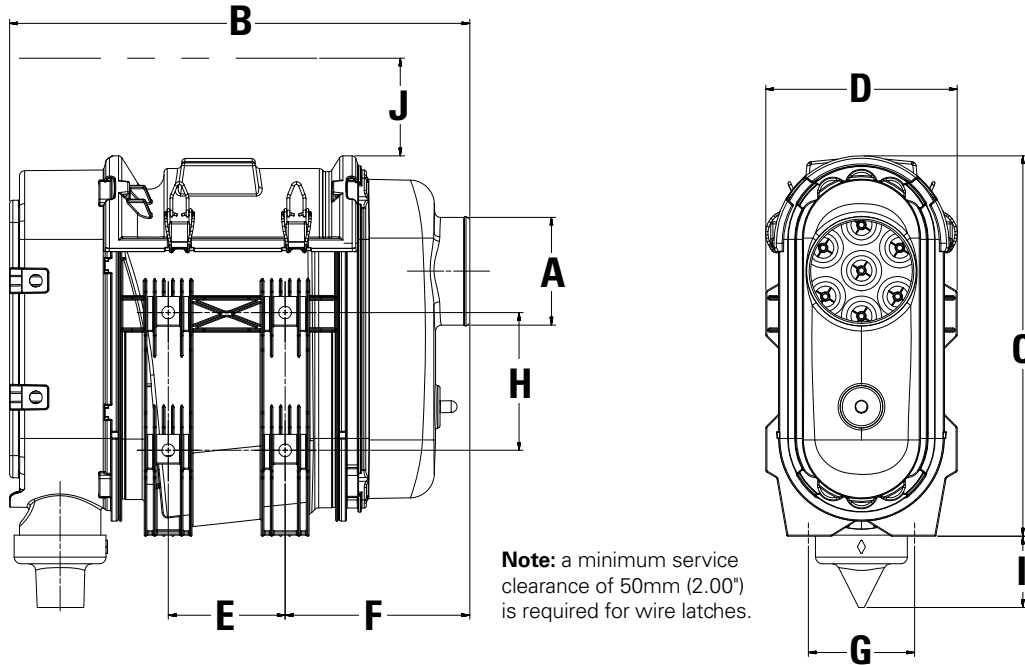
D080026 — Vertical

PSD Specifications (Letters are keyed to drawings)

Orientation: H=Horizontal; V=Vertical

Part No. / Orientation	A mm/in	B mm/in	C mm/in	D mm/in	E mm/in	F mm/in	G mm/in	H mm/in	Service Clearance (I) mm/in	Weight kg/lbs
MODELS WITH SERVICE ACCESS ON END										
D080020 H	89/3.50	380/14.97	256/10.07	154/6.05	100/3.94	117/4.59	191/7.50	98/3.87	80/3.2	4.8/10.5
D080026 V	102/4.00	553/21.77	365/14.37	180/7.09	180/7.09	183/7.21	100/3.94	130/5.12	80/3.2	4.8/10.5

PSD08, PSD09, PSD10, PSD12 — Service Access on Side (Vertical Model Shown)



D100398 — Horizontal



D120366 — Vertical



D120339 — Vertical

PSD Specifications (Letters are keyed to drawings)

Orientation: H=Horizontal; V=Vertical

Part No. / Orientation	A mm/in	B mm/in	C mm/in	D mm/in	E mm/in	F mm/in	G mm/in	H mm/in	I mm/in	Service Clearance (J) mm/in	Weight kg/lbs
MODELS WITH SERVICE ACCESS ON SIDE											
D080056 V	89/3.50	370/14.55	247/9.70	180/7.09	69/2.72	142/5.60	118/4.65	75/2.95	51.9/2.04	240/9.5	2.2/4.9
D090266 V	102/4.00	433/17.05	362/14.25	180/7.09	110/4.33	174/6.85	100/3.94	130/5.12	72/2.85	356/14.0	3.7/8.1
D090278 V	102/4.00	533/20.98	363/14.29	180/7.09	180/0.9	183/7.21	100/3.94	130/5.12	70/2.75	356/14.0	4.3/9.5
D090287 H*	102/4.00	433/17.05	360/14.17	180/7.09	110/4.33	174/6.85	110/4.32	130/5.12	60/2.36	356/14.0	3.7/8.1
D090285 H	102/4.00	533/20.98	363/14.29	180/7.09	180/7.09	183/7.21	110/4.32	130/5.12	60/2.36	356/14.0	4.3/9.5
D090286 H*	102/4.00	432/17.00	363/14.31	180/7.09	110/4.33	173/6.83	100/3.94	130/5.12	68/2.68	330/13.0	5.0/11.0
D100366V	127/5.00	429/16.90	374/14.74	254/10.01	110/4.33	165/6.50	110/4.33	110/4.33	63/2.48	356/14.0	5.3/11.7
D100384 H**	127/5.00	429/16.90	374/14.74	254/10.01	110/4.33	165/6.50	110/4.33	110/4.33	70/2.76	356/14.0	5.3/11.7
D100390 V	152/6.00	529/20.84	384/15.12	254/10.01	210/8.27	165/6.50	110/4.33	110/4.33	54/2.12	356/14.0	6.1/13.4
D100391 H***	152/6.00	529/20.84	384/15.12	254/10.01	210/8.27	165/6.50	110/4.33	110/4.33	70/2.76	356/14.0	6.1/13.4
D100397 H***	152/6.00	529/20.84	384/15.12	254/10.01	210/8.27	165/6.50	110/4.33	110/4.33	70/2.76	356/14.0	6.1/13.4
D100398 H**	127/5.00	429/16.90	374/14.74	254/10.01	110/4.33	165/6.50	110/4.33	110/4.33	70/2.76	356/14.0	5.3/11.7
D120320 V	152/6.00	496/19.53	430/16.93	306/12.04	168/6.62	160/6.30	154/6.08	110/4.33	68/2.68	405/16.0	7.0/15.5
D120338 H	152/6.00	496/19.53	430/16.93	306/12.04	168/6.62	160/6.30	154/6.08	110/4.33	68/2.68	405/16.0	7.0/15.5
D120339 V	152/6.00	596/23.46	441/17.36	306/12.04	268/10.56	160/6.30	154/6.08	110/4.33	68/2.68	405/16.0	7.9/17.4
D120340 H	152/6.00	596/23.46	441/17.36	306/12.04	268/10.56	160/6.30	154/6.08	110/4.33	68/2.68	405/16.0	7.9/17.4

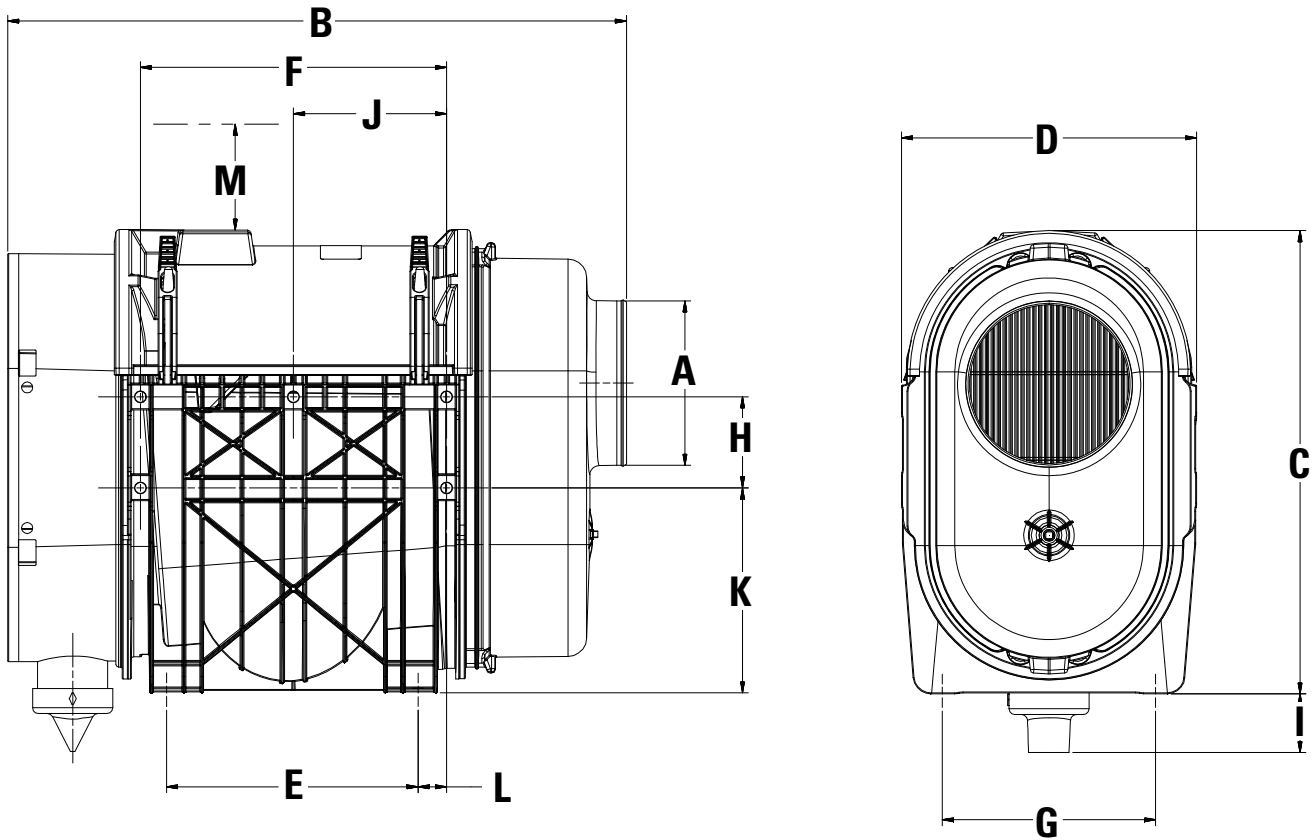
* D090287 access cover is positioned 180° compared to the access cover location on the D090286.

** D100384 access cover and outlet tube are positioned 180° compared to access cover and outlet tube locations on the D100398.

*** D100391 access cover and outlet tube are positioned 180° compared to access cover and outlet tube locations on the D100397.



PSD14 — Service Access on Side (Vertical Model Shown)



The PSD14 air cleaner **MUST** be mounted with nine U-clips — four on the side opposite the access cover and all five U-Clips on **ONE** of the two sides.



PSD14 Specifications (Letters are keyed to drawings)

Orientation: H=Horizontal; V=Vertical

Part No. / Orientation	A mm/in	B mm/in	C mm/in	D mm/in	E mm/in	F mm/in	G mm/in	H mm/in	I mm/in	J mm/in	K mm/in	L mm/in	Service Clearance	Weight	
													(M) mm/in	kg/lbs	
MODELS WITH SERVICE ACCESS ON SIDE															
D140110	V	178/7.00	670/26.37	501/19.71	318/12.52	272/10.68	330/13.0	230/9.00	98/3.87	65/2.53	165/6.5	222/8.75	29/1.2	460/18.1	11.4/25.0
D140111	H	178/7.00	670/26.37	501/19.71	318/12.52	272/10.68	330/13.0	230/9.00	98/3.87	66/2.60	165/6.5	222/8.75	29/1.2	460/18.1	11.4/25.0

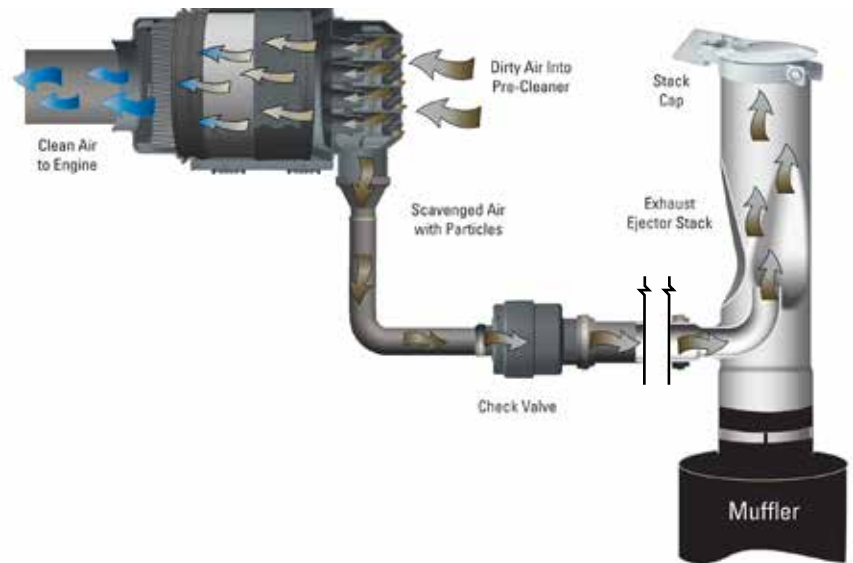
Scavenge System Components

Scavenging, also known as aspirating, is accomplished by introducing a secondary airflow to the drop tube on the air cleaner — generally through the use of an ejector or ejector muffler (see illustration on right). This flow pulls the separated contaminant from the pre-cleaner and inserts it into the exhaust stream.

- The advantages to scavenging are:
- Higher pre-cleaner efficiency (resulting in longer filter service life)
 - Completely self-servicing (no regular maintenance needed on pre-cleaner)

Exhaust ejectors, adapters (below), and check valves (next page) complement the PSD air cleaner product offering.

Illustration of Scavenge Connection with PSD10 Horizontal Model



Exhaust Ejectors

All exhaust ejectors are constructed of heavy-gauge, aluminized steel and painted with high-temperature black paint. Select the appropriate ejector by the intake airflow or exhaust flow (CFM) of your engine. These same parts and more information on ejectors can be found in the accessories section of this product guide.

Engine Intake CFM		Exhaust CFM @ 900 °F		Standard Ejectors			Expanded I.D. Ejectors			Scavenge Tube O.D.			
Low	High	Low	High	Inlet Dia.* inches	mm	Part Number	Inlet Dia.* inches	mm	Part Number	Length inches	mm	inches	mm
220	365	554	919	3.02	77.0	H002612	3.16	80.3	H002762	12.00	304.8	1.25	32
315	450	793	1133	4.02	102.0	H002613	4.17	105.9	H002763	18.00	457.2	1.25	32
425	600	1070	1511	4.02	102.0	H002614	4.17	105.9	H002764	18.00	457.2	1.50	38
500	740	1259	1864	5.03	127.8	H002615	5.17	131.0	H002765	22.00	558.8	1.50	38
660	950	1662	2393	5.03	127.8	H002616	5.17	131.0	H002766	22.00	558.8	1.75	44
800	1150	2015	2896	6.04	153.4	H002617	6.19	157.0	H002767	24.00	609.6	2.00	51
950	1350	2393	3400	6.04	153.4	H002618	6.19	157.0	H002768	24.00	609.6	2.00	51
1100	1500	2770	3778	6.04	153.4	H002619	6.19	157.0	H002769	24.00	609.6	2.00	51

Scavenge Adapters



Straight Adapter



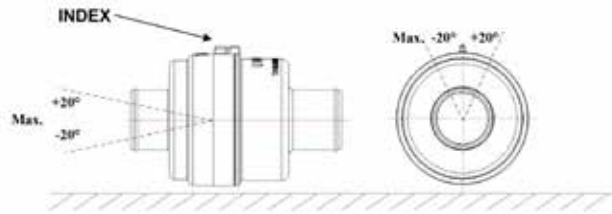
90° Adapter

Part Number	Adapter Type	Outlet Dia. inches	mm	Diameter inches	mm	Height inches	mm
P783746	3" TO 1.50" STRAIGHT	1.50	38	3.00	78	2.68	68
P783747	3" TO 1.25" STRAIGHT	1.25	32	3.00	78	2.68	68
P783748	3" TO 2.00" STRAIGHT	2.00	50	3.00	78	2.68	68
P784019	3" TO 1.25" 90 DEGREE	1.25	32	3.00	78	2.68	68
P617276	3" TO 2.00" 90 DEGREE	2.00	50	3.00	78	2.20	56

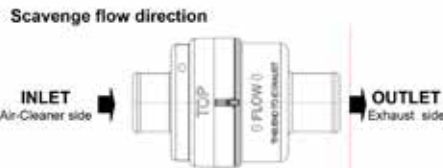


Check Valve Operation and Orientation

- Prevents back flow of exhaust gas into pre-cleaner
- For proper installation, it is important that the index is installed upward and horizontal with no more than a 20° variation. See below.
- Install inline check valve as close as possible to the air cleaner
- Temperature resistance of 200 °C / 400 °F



Part Number	Inlet Dia.		Outlet Dia.		Length		Body Dia.	
	inches	mm	inches	mm	inches	mm	inches	mm
P786337	1.25	32	1.25	32	4.45	113	2.80	71
P786340	1.50	38	1.50	38	4.45	113	2.80	71
P786343	2.00	50	2.00	50	4.45	113	2.80	71



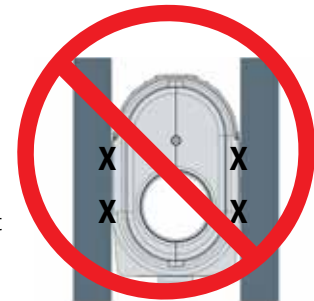
Mounting Flexibility

With mounting locations on three sides of the housing (exception D080020 & D080026) and two separate drop tube orientations, the PSD series offers the greatest amount of flexibility for a wide variety of installations.



U-clips are shipped with each air cleaner. Affix these to the mounting location (all in the same direction) and slide the housing into place. See dimensional illustration for u-clip mounting hole pattern on pages 39 and 40.

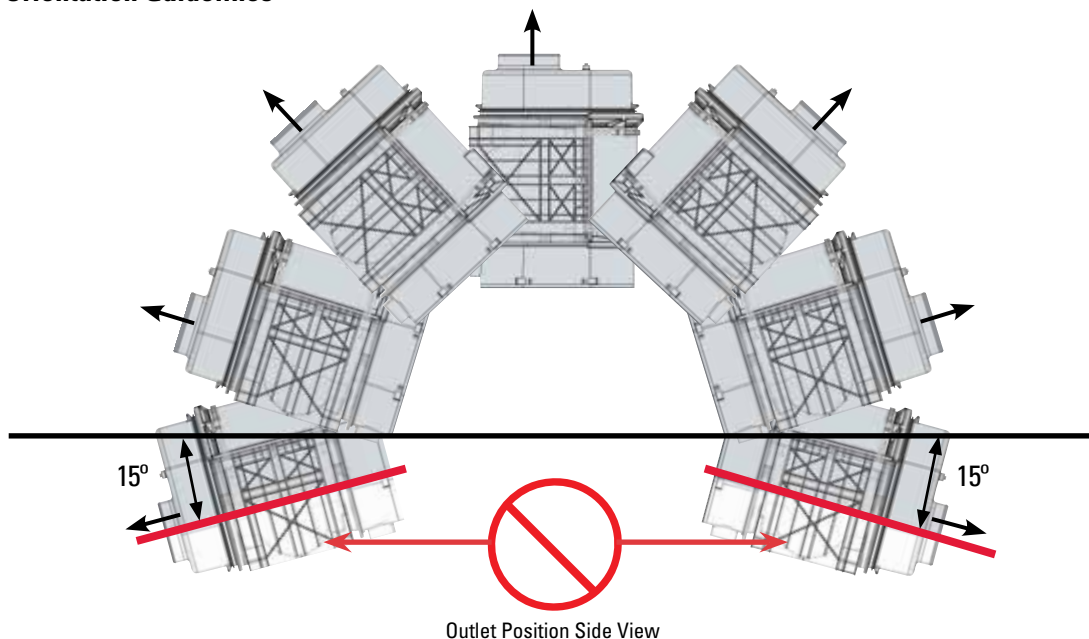
side. It should not be mounted using the two side mounting locations — as this will cause pressure/flexing, and could result in leaks. (See illustration, on right. Xs represent u-clips mounted on both sides adjacent to the access cover.) The u-clips accept M8 threaded fasteners. Maximum torque is 18 N•m.



The PSD air cleaner needs to be mounted to equipment on at least one mounting location (base, or either of two sides). It can also be mounted at two points, using the base and one

The PSD14 air cleaner **MUST** be mounted with nine U-clips — four on the side opposite the access cover and all five U-Clips on **ONE** of the two sides.

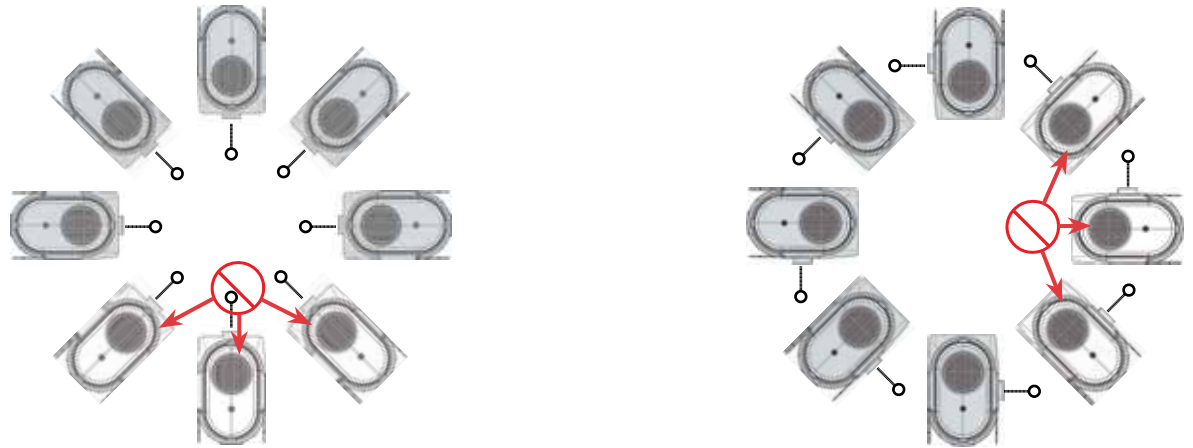
Mounting Orientation Guidelines



CAUTION: Outlet Tube Mounting Position

The outlet tube angled 15° below the horizontal axis could allow dust or foreign objects to fall into the air duct or engine during servicing.

Scavenged System Mounting (shaded air cleaners indicate proper mounting positions; indicates scavenge line direction)

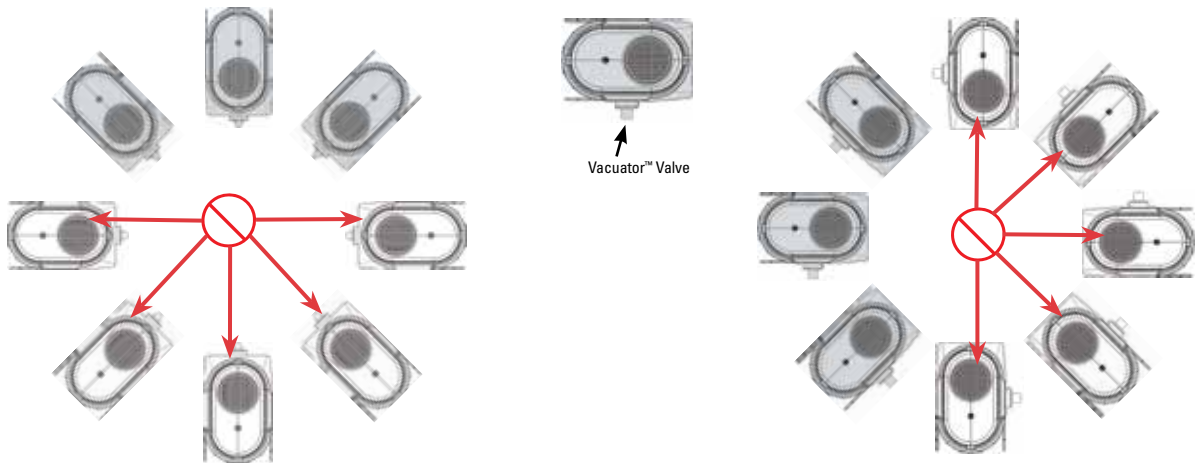


Non-Scavenged System Mounting with Vacuator™ Valve (shaded air cleaners indicate proper mounting positions)

Vertical PSD enlarged to show Vacuator™ Valve detail.



Horizontal PSD enlarged to show Vacuator™ Valve detail.



A PSD10 mounted horizontally was the equipment manufacturer's choice on this diesel-powered (285 HP @ 2,000 RPM) feller buncher.



This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer. Note: Your air cleaner service cover may be in a different position than shown.

1 Check the Restriction

Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer or on a regular scheduled service.



2 Check Vacuator™ Valve & Pre-Cleaner Tubes

Shut off the engine. Inspect the Vacuator™ Valve (or scavenge line) for damage. If damaged, replace. If plugged or full of contaminant, check the pre-cleaner tubes, which should be free of contaminant. If plugged or excess contaminant is visible, the pre-cleaner tubes will need to be cleaned.

To clean the pre-cleaner tubes, remove the housing service cover and Vacuator Valve and leave the filter installed (to avoid dust from entering the air induction outlet). Use a low-volume of compressed air to gently blow out the separator tubes. The compressed air can be pushed through both sides of the tubes AND from the drop tube where the Vacuator Valve attaches.

If compressed air is not available or the use of compressed air was not effective due to dried contaminant within the housing, remove the air cleaner from the machine, cover the air intake pipe to prevent contaminant. Remove the primary and secondary filters and Vacuator Valve. Use a low pressure water (e.g., garden hose) to clean the tubes and inside of housing. Direct the flow of water through the separator tubes from both ends and repeat as needed to clean out the housing. Spray out the Vacuator Valve port, alternating between it and the separator tubes. Make sure that all internal housing surfaces are dry prior to reinstalling the filters, Vacuator Valve, and unit on the machine.



NEVER use a pressure sprayer to clean out the air cleaner housing while it is installed on the machine. Avoid using excessive pressure when spraying out the separator tubes as damage can occur.

3 Remove the Primary Filter

For end service pull the filter out of the housing.

For side service push down on the service handle to tilt the filter to a 5° angle. This will loosen the seal. Then, pull up on the service handle to remove the filter from the housing.



4 Visually Inspect the Safety Filter

Remove any excess dirt and wipe out the housing with a damp cloth before servicing the safety filter. Visually inspect the safety filter but do not remove it unless it is damaged or due for change-out. Verify that the safety filter is properly seated in the housing. The safety filter should be replaced every three primary filter changes.



The safety filter should be replaced every three primary filter changes.

5 Remove Safety Filter if Indicated or if Excessively Contaminated

To remove the safety filter, use the plastic handle on the face of the safety filter. Pull the filter toward the center of the housing and remove it. Ensure that the outlet tube sealing area is clean and undamaged. If the safety filter is removed and the new filter is not to be installed immediately, be sure to cover the seal tube with a cloth so that dirt is not admitted. After removing the safety filter, wipe the air cleaner housing interior and seal surfaces with a clean, damp cloth.





6 Inspect the New Filters

Visually check for cuts, tears or indentations on the sealing surfaces and the media pack before installation. If any damage is visible, do not install.



7 Replace the Safety Filter

If replacing the safety filter, use the plastic handle. Slide the filter at an angle into the outlet side and push it in place until the filter seats firmly and evenly within the housing.

On side-service access models, insert the safety filter tab into the positioning slot before pushing the filter into place.



8 Insert the Primary Filter

For end service access models, slide the primary filter into the housing until the gasket seats against the housing. For side service access models, slide the filter down at approximately a 5° angle until it makes contact with the end of the housing. Rotate the filter toward the outlet section to complete the seal.



9 Replace the Service Cover

For end service access models with hinge tabs, insert the hinge tabs into the housing, tilt the service cover into place and secure latches. For end service models without hinge tabs, put the service cover into place and secure the latches. For side-service access models, place the service cover in position and fasten the metal or rubber (PSD14) latches. If the cover doesn't seat, remove and re-check the filter position and access cover orientation.



10 Inspect the Entire Air Cleaner System

Make sure that inlet and outlet connections are in good condition. Torque to and do not exceed 40 in·lb. Replace rubber connectors if necessary and reset the service indicator.





Service Parts & Accessories

D080020, D080026	PSD
Cover (D080020).....	P602985 ...3
Cover (D080026).....	P601735 ...3
Elbow, 45°.....	P109331
Elbow, 90°.....	P114318
Filter, primary.....	P608533 ...3
Filter, safety.....	P600975 ...3
Hump hose.....	P114319
Informer™ indicator 25" H ₂ O.....	X002277
Latch.....	P776033 ...3
Outlet band clamp.....	P148342
Vacuator™ Valve.....	P158914 ...3

D080056	PSD
Cover.....	P615530 ...3
Elbow, 45°.....	P109331
Elbow, 90°.....	P114318
Filter, primary.....	P617631 ...3
Filter, safety.....	P615493 ...3
Hump hose.....	P114319
Informer™ indicator 25" H ₂ O.....	X002277
Latch.....	P776033 ...3
Outlet band clamp.....	P148342
U-clip (4 clips).....	P784517 ...3
Vacuator™ Valve.....	P617632 ...3

D090286, D090266	PSD
Cover.....	P785651 ...3
Elbow, 45°.....	P105545
Elbow, 90°.....	P105533
Elbow, 90° reducing.....	P121482
Filter, primary.....	P641175 ...3
Filter, safety.....	P606121 ...3
Hump hose.....	P105609
Informer™ indicator 25" H ₂ O.....	X002277
Latch.....	P777366 ...3
Outlet band clamp.....	P148343
U-clip (4 clips).....	P784517 ...3
Vacuator™ Valve.....	P112803 ...3

D090278	PSD
Cover.....	P786989 ...3
Elbow, 45°.....	P105545
Elbow, 90°.....	P105533
Elbow, 90° reducing.....	P121482
Filter, primary.....	P641176 ...3
Filter, safety.....	P606121 ...3
Hump hose.....	P105609
Informer™ indicator 25" H ₂ O.....	X002277
Latch.....	P777366 ...3
Outlet band clamp.....	P148343
U-clip (4 clips).....	P784517 ...3
Vacuator™ Valve.....	P112803 ...3

D090287	PSD
Cover.....	P785651 ...3
Elbow, 45°.....	P105545
Elbow, 90°.....	P105533
Elbow, 90° reducing.....	P121482
Filter, primary.....	P641175 ...3
Filter, safety.....	P606121 ...3
Hump hose.....	P105609
Informer™ indicator 25" H ₂ O.....	X002277
Latch.....	P777366 ...3
Outlet band clamp.....	P148343
U-clip (4 clips).....	P784517 ...3
Vacuator™ Valve.....	P112803 ...3

D090285	PSD
Cover.....	P786989 ...3
Elbow, 45°.....	P105545
Elbow, 90°.....	P105533
Elbow, 90° reducing.....	P121482
Filter, primary.....	P641176 ...3
Filter, safety.....	P606121 ...3
Hump hose.....	P105609
Informer™ indicator 25" H ₂ O.....	X002277
Latch.....	P777366 ...3
Outlet band clamp.....	P148343
U-clip (4 clips).....	P784517 ...3
Vacuator™ Valve.....	P112803 ...3

D100366, D100384, D100398	PSD
Cover, with watertight seal.....	P619481 ...3
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Filter, primary.....	P957050 ...3
Filter, safety.....	P601560 ...3
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Latch.....	P777366 ...3
Outlet band clamp.....	P148345
U-clip (4 clips).....	P784517 ...3
Vacuator™ Valve.....	P112803 ...3

D100390, D100391, D100397	PSD
Cover, with watertight seal.....	P619482 ...3
Elbow, 45°.....	P105547
Elbow, 90°.....	P105535
Filter, primary.....	P641172 ...3
Filter, safety.....	P601560 ...3
Hump hose.....	P105612
Informer™ indicator 25" H ₂ O.....	X002277
Latch.....	P777366 ...3
Outlet band clamp.....	P148347
U-clip (4 clips).....	P784517 ...3
Vacuator™ Valve.....	P112803 ...3

D120320, D120338	PSD
Cover.....	P626291 ...3
Elbow, 45°.....	P105547
Elbow, 90°.....	P105535
Filter, primary.....	P639937 ...3
Filter, safety.....	P607557 ...3
Hump hose.....	P105612
Informer™ indicator 25" H ₂ O.....	X002277
Latch.....	P777366 ...3
Outlet band clamp.....	P148347
U-clip (4 clips).....	P784517 ...3
Vacuator™ Valve.....	P112803 ...3

D120339, D120340	PSD
Cover.....	P634418 ...3
Elbow, 45°.....	P105547
Elbow, 90°.....	P105535
Filter, primary.....	P641182 ...3
Filter, safety.....	P607557 ...3
Hump hose.....	P105612
Informer™ indicator 25" H ₂ O.....	X002277
Latch.....	P777366 ...3
Outlet band clamp.....	P148347
U-clip (4 clips).....	P784517 ...3
Vacuator™ Valve.....	P112803 ...3

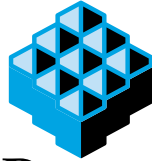
D140110, D140111	PSD
Cover, with watertight seal.....	P623026 ...3
Elbow, 45°.....	P105548
Elbow, 90°.....	P105536
Elbow, 90° reducing.....	P215307
Filter, primary.....	P621983 ...3
Filter, safety.....	P621984 ...3
Hump hose.....	P105613
Informer™ indicator 25" H ₂ O.....	X002277
Latch.....	P629526 ...3
Outlet band clamp.....	P148348
U-clip (9 clips).....	P622745 ...3
Vacuator™ Valve.....	P112803 ...3

NOTES:

3 = Shipped with air cleaner initially



Air Filtration for Tier IV Engines



PowerCore®
 A Donaldson Filtration Technology

Quality you expect
 Performance you need
 Support you won't find anywhere else
Donaldson Delivers

PSD AIR CLEANERS FOR CUMMINS ENGINE APPLICATIONS

Engine Model	Horsepower Range		Engine Size (L)	Speed (CID)	Speed (RPM)	Est. Nom. Airflow CFM	Donaldson Air Cleaner
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Agriculture, Construction/Industrial Equipment

B3.3	74	85	3.3	201	2600	242	PSD08
B3.3	60	65	3.3	201	2600	136	PSD08

Agriculture, Construction/Industrial Equipment, Oil and Gas

QSB3.3	75	110	3.3	201	2200	237	PSD08
QSB4.5 (Tier 4 Final)	121	173	4.5	275	2200	398	PSD09
QSB6.7 (Tier 4 Final)	146	310	6.7	409	2200	713	PSD10
QSC	205	305	8.3	506	2100	569	PSD10
QSF 2.8 (Tier 4 Final)	49	74	2.8	171	1600	170	PSD08
QSF 3.8 (Tier 4 Final)	74	130	3.8	232	2500	299	PSD09
QSL	250	365	8.9	543	2000	581	PSD10
QSL9 (Tier 4 Final)	250	400	9	549	2200	920	PSD14
QSM	290	400	10.8	659	2000	705	PSD10
QSX11.9	300	500	11.9	726	2200	855	PSD12
QSG12 (Tier 4 Final)	335	513	12	732	1900	1180	PSD14
QSX15 (Tier 4 Final)	450	675	15	912	2100	1553	PSD12 x 2

Construction/Industrial Equipment, Oil and Gas, Mining

QSK19	506	700	19	1159	2000	1241	PSD14
QSK19	506	700	19	1159	2000	1610	PSD14
QSK50 (Tier 4 Final)	1487	2000	50	3661	1800	4600	PSD14 x 4
QSK60 (Tier 4 Final)	1875	2850	60	3066	1800	6555	PSD14 x 5

Heavy-duty Truck, RV, Emergency Vehicle

ISX11.9	370	500	11.9	726	2100	816	PSD12
ISX15	455	600	15	915	2100	1029	PSD14

Medium-duty Truck, Bus, Emergency Vehicle

ISB6.7	260	360	6.7	409	2600	569	PSD10
ISC8.3	270	380	8.3	506	2200	596	PSD10
ISL9	345	450	9	549	2200	647	PSD10

On-highway, European, Euro II

ISMe	345	440	10.8	659	1900	670	PSD10
ISLe	350		8.9	543	2100	610	PSD10
ISBe — 6 Cylinder	275	285	6.7	409	2500	547	PSD10

On-highway, European, Euro III

ISMe	335	420	10.8	659	1900	670	PSD10
ISLe	209	260	8.9	543	2100	610	PSD10
ISBe - 4 Cylinder	138	185	4.5	275	2500	367	PSD09
ISBe - 6 Cylinder	285	275	6.7	409	2500	547	PSD10

On-highway, European, Euro IV

ISMe	350	445	10.8	659	1900	670	PSD10
ISLe	280	400	8.9	543	2100	610	PSD10
ISBe - 4 Cylinder	140	207	4.5	275	2500	367	PSD09
ISBe - 6 Cylinder	205	300	6.7	409	2500	547	PSD10

On-highway, European, Euro V

ISMe	350	445	10.8	659	1900	670	PSD10
ISLe	280	400	8.9	543	2100	610	PSD10



Finding PowerCore® air cleaners and filters online has never been easier.



DISCOVER.

Looking for a complete filtration system or advice on choosing the right filter option? Go online to **donaldson.com** to learn about the broad range of filtration solutions offered by Donaldson – and to help you decide which option is right for your application.

DECIDE.

If you're an equipment owner that needs to purchase filters and parts – it's easy to find the right Donaldson part, make an online shopping list and even request a quote from one of our distributors. We make finding filters *easier than easy* at **shop.donaldson.com**.



PowerCore®
A Donaldson Filtration Technology

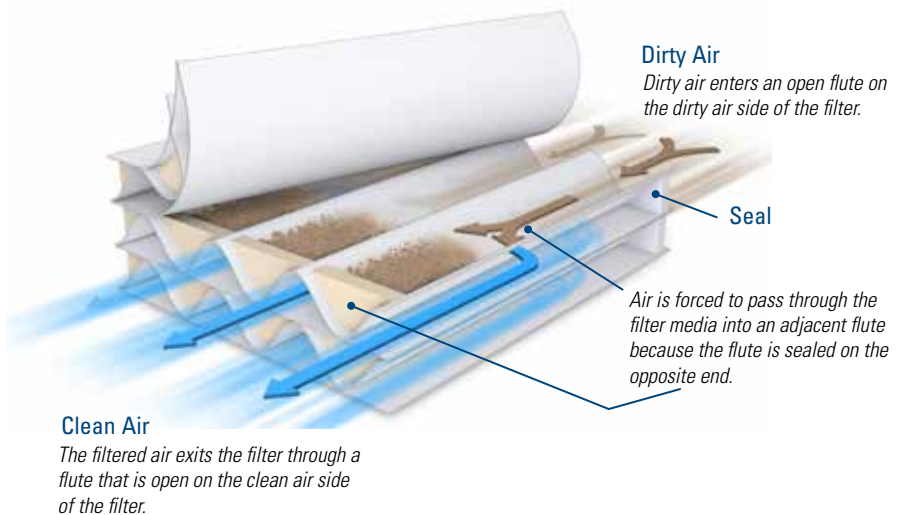
**PowerCore®
air cleaners deliver . . .**

- System design flexibility
- Metal-free, lightweight materials
- Rugged construction
- Straight-through airflow technology invented by Donaldson
- RadialSeal™ advanced sealing technology
- Ideal for light dust environments
- Connect the PCD to an external pre-cleaner for medium to heavy dust environments (see page 177 for external pre-cleaner options).

The PCD air cleaner family offers single-stage filtration in a single, compact unit that delivers superior filtration performance using our PowerCore Filtration Technology.



PowerCore® Straight-Through Airflow Schematic



Big Performance, Small Footprint

PowerCore air filters are up to 65% smaller than a conventional RadialSeal™ filter.



PCD PowerCore Air Cleaner is Ideal for Light Dust Environments



PowerCore®
A Donaldson Filtration Technology

This air cleaner family offers single-stage filtration in a compact unit that delivers superior filtration performance using our PowerCore® Filtration Technology.

This non-metal air cleaner (except for cover clamps) is ideal for equipment operating in light dust environments.

Applications

- Light dust conditions with engine airflow ranges up to 974 cfm.
- Obround housing shape allows for a narrow or wide mounting orientation
- Models have side filter service access
- Sustained temperature tolerance: -40 °F to 180 °F / -40 °C to 82 °C

Features

- More compact at a given performance level than standard pleated filters
- Non-metal filters
- Improved engine protection: no media movement, expansion, contraction or bunching
- Improved contaminant encapsulation: dust and dirt stay contained in filter during service
- Improved handling and maintenance: lighter and smaller

PCD09, PCD10

Exploded view of D090283



- Easily serviced; no tools required to remove or replace cover, changing filters is a snap
- Built in mounting brackets eliminate the need to purchase separate mounting bands
- Available with either inline inlet/outlet or offset inlet/outlet (see images on next page)



Easy Service. The filter can be easily removed with the built-in grab handle.

Excellent Performance in Half the Space

Inlet/outlet orientation

D090283 Offset Inlet/Outlet



D090282 Inline Inlet/Outlet



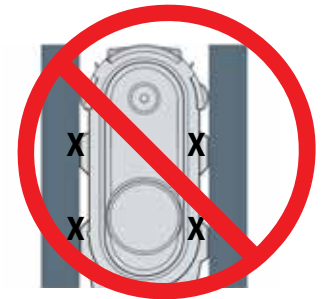
Mounting Flexibility

With mounting locations on three sides of the housing, the PCD series offers a great deal of flexibility for a wide variety of installations.

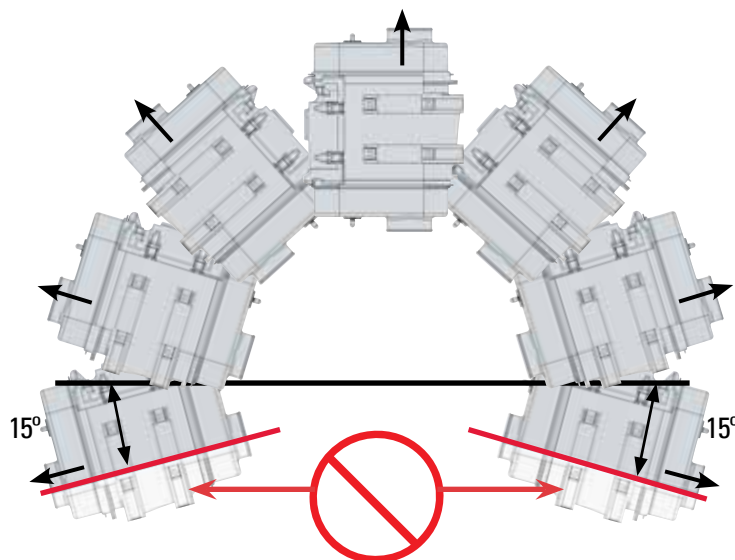


U-clips are shipped with each air cleaner. Affix these to the mounting location (all in the same direction) and slide the housing into place. See dimensional illustration for u-clip mounting hole pattern on page 50.

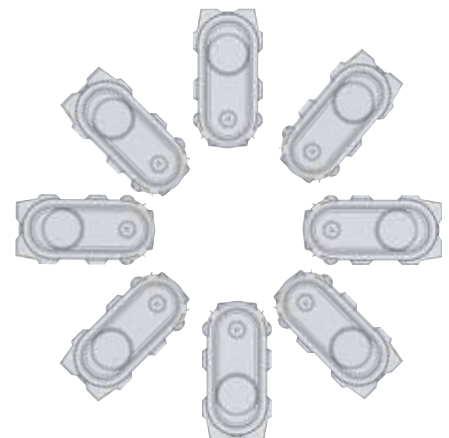
The PCD air cleaner needs to be mounted to equipment on at least one mounting location (base, or either of two sides). It can also be mounted at two points, using the base and one side. It should not be mounted using the two side mounting locations as this will cause pressure/flexing, and could result in leaks. See illustration, on right. The Xs represent u-clips mounted on both sides adjacent to the access cover. The u-clips accept M8 threaded fasteners. Maximum torque is 18 N•m.



Mounting Orientation Guidelines



Outlet Position Side View



Outlet Position Front View
Any Orientation is Acceptable



CAUTION: Outlet Tube Mounting Position

The outlet tube angled 15° below the horizontal axis could allow dust or foreign objects to fall into the air duct or engine during servicing.



When Selecting an Air Cleaner . . .

Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table below. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction estimates.

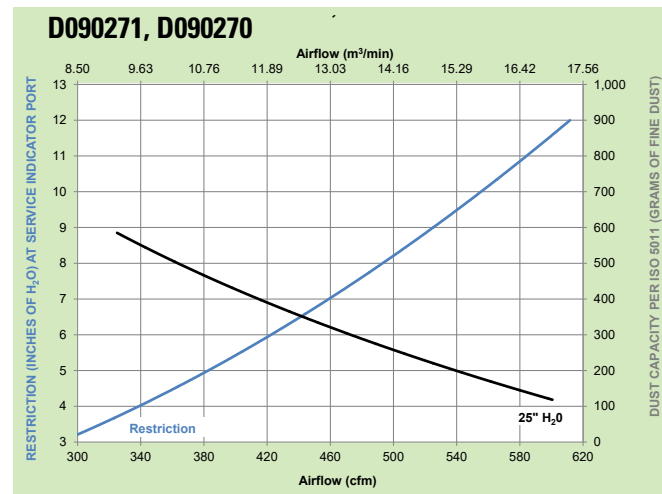
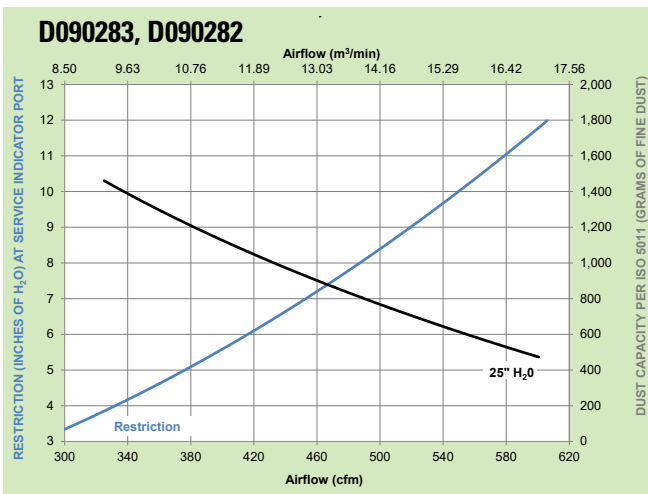
Initial Airflow Restriction

CFM @ "H ₂ O	CFM @ "H ₂ O			Air Cleaner Model
	6"	8"	10"	
416	487	550		D090283
416	487	550		D090282
422	493	555		D090271
422	493	555		D090270
725	848	956		D100395
725	848	956		D100394
746	867	974		D100388
746	867	974		D100387



PCD Offset Inlet/Outlet Options

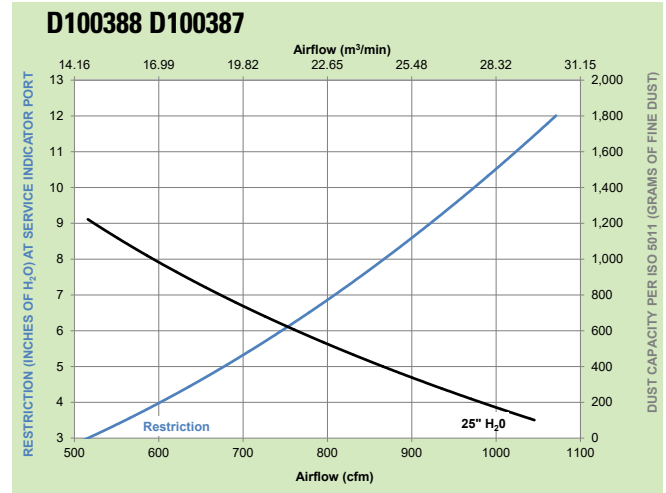
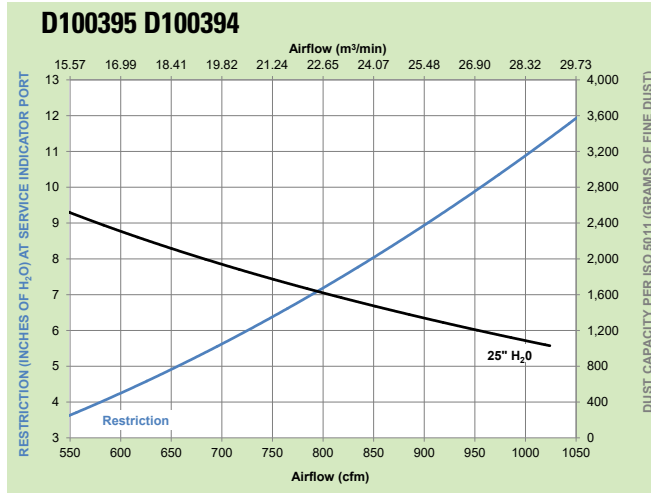
PCD Air Cleaner Performance Curves*



*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.



continued — PCD Air Cleaner Performance Curves



Service Parts & Accessories

D090271, D090270	PCD
Cover.....	P785651 ...3
Elbow, 45°.....	P105545
Elbow, 90°.....	P105533
Elbow, 90° reducing.....	P121482
Filter, primary.....	P641175 ...3
Filter, safety.....	P606121 ...3
Hump hose.....	P105609
Informer™ indicator 25" H ₂ O.....	X002277
Latch.....	P777366 ...3
Outlet band clamp.....	P148343
U-clip (4 clips).....	P784517 ...3

D090283, D090282	PCD
Cover.....	P786989 ...3
Elbow, 45°.....	P105545
Elbow, 90°.....	P105533
Elbow, 90° reducing.....	P121482
Filter, primary.....	P641176 ...3
Filter, safety.....	P606121 ...3
Hump hose.....	P105609
Informer™ indicator 25" H ₂ O.....	X002277
Latch.....	P777366 ...3
Outlet band clamp.....	P148343
U-clip (4 clips).....	P784517 ...3

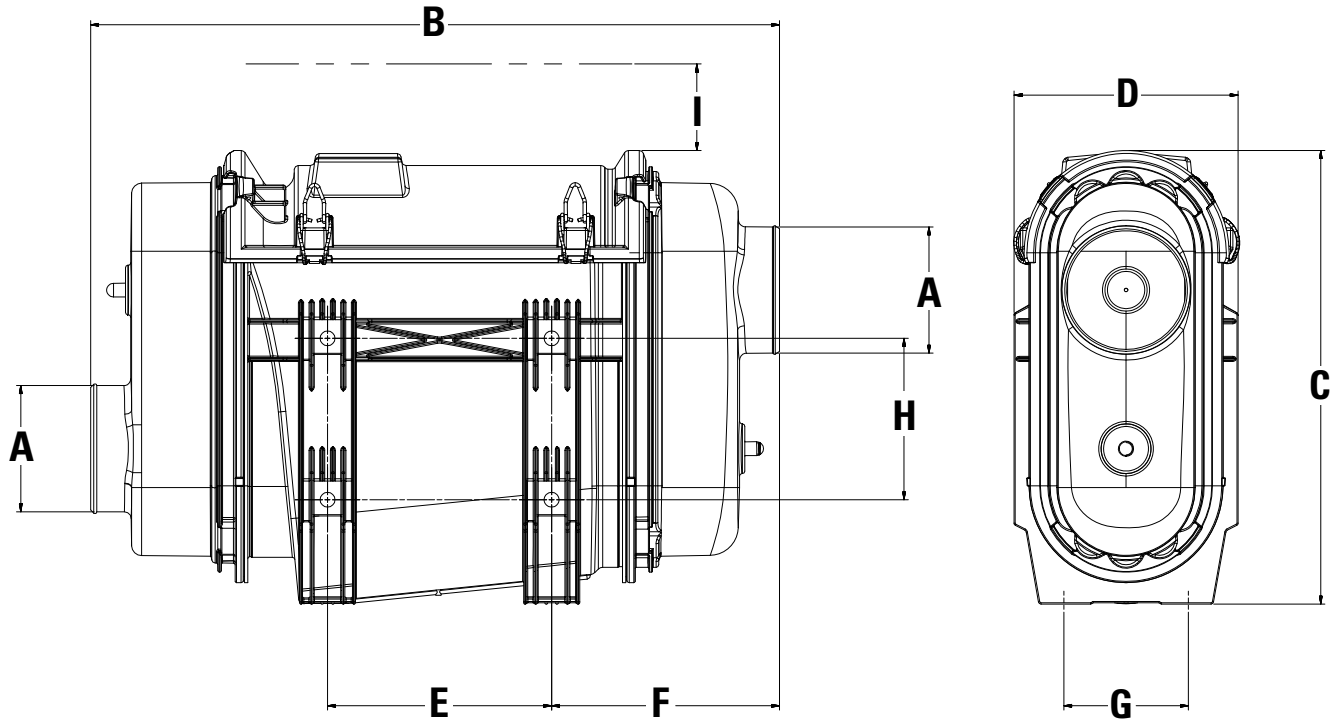
D100388, D100387	PCD
Cover.....	P784279 ...3
Cover, with watertight seal.....	P619481
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Filter, primary.....	P957050 ...3
Filter, safety.....	P601560 ...3
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Latch.....	P777366 ...3
Outlet band clamp.....	P148345
U-clip (4 clips).....	P784517 ...3

D100395, D100394	PCD
Cover.....	P784298 ...3
Cover, with watertight seal.....	P619482
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Filter, primary.....	P641172 ...3
Filter, safety.....	P601560 ...3
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Latch.....	P777366 ...3
Outlet band clamp.....	P148345
U-clip (4 clips).....	P784517 ...3

NOTES:
3 = Shipped with air cleaner initially



PCD09, PCD10



Note: a minimum service clearance of 50mm (2.00") is required for wire latches.



PCD09, PCD10 Specifications (Letters are keyed to drawings)

Inlet Orientation: I=Inline; O=Off-set

Part No. / Orientation	A		B		C		D		E		F		G		H		Service Clearance (I)		Weight	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lbs
D090283 O	102	4.00	553	21.77	365	14.37	180	7.09	180	7.09	183	7.21	100	3.94	130	5.12	356	14.0	4.8	10.5
D090282 I	102	4.00	553	21.77	365	14.37	180	7.09	180	7.09	183	7.21	100	3.94	130	5.12	356	14.0	4.8	10.5
D090271 O	102	4.00	453	17.85	360	14.18	180	7.09	110	4.33	173	6.83	100	3.94	130	5.12	330	13.0	4.1	9.1
D090270 I	102	4.00	453	17.85	360	14.18	180	7.09	110	4.33	173	7.21	100	3.94	130	5.12	330	13.0	4.1	9.1
D100395 O	127	5.00	536	21.10	384	15.12	254	10.01	210	8.27	165	6.50	110	4.33	110	4.33	356	14.0	5.9	13.0
D100394 I	127	5.00	536	21.10	384	15.12	254	10.01	210	8.27	165	6.50	110	4.33	110	4.33	356	14.0	5.9	13.0
D100388 O	127	5.00	436	17.17	375	14.75	254	10.01	110	4.33	165	6.50	110	4.33	110	4.33	356	14.0	5.2	11.4
D100387 I	127	5.00	436	17.17	375	14.75	254	10.01	110	4.33	165	6.50	110	4.33	110	4.33	356	14.0	5.2	11.4

This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer. Note: Your air cleaner service cover may be in a different position than shown.

1 Check the Restriction

Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer or on a regular scheduled service.



2 Remove the Primary Filter

Push down on the service handle to tilt the filter to a 5° angle. This will loosen the seal. Then, pull up on the service handle to remove the filter from the housing.



3 Visually Inspect the Safety Filter

Remove any excess dirt and wipe out the housing with a damp cloth before servicing the safety filter. Visually inspect the safety filter but do not remove it unless it is damaged or due for change-out. Verify that the safety filter is properly seated in the housing. The safety filter should be replaced every three primary filter changes.



NEVER use a pressure sprayer to clean out the air cleaner housing while it is installed on the machine.

4 Remove Safety Filter if Indicated or if Excessively Contaminated

To remove the safety filter, use the plastic handle on the face of the safety filter. Pull the filter toward the center of the housing and remove it. Ensure that the outlet tube sealing area is clean and undamaged. If the safety filter is removed and the new filter is not to be installed immediately, be sure to cover the seal tube with a cloth so that dirt is not admitted. After removing the safety filter, wipe the air cleaner housing interior and seal surfaces with a clean, damp cloth.



5 Inspect the New Filters

Visually check for cuts, tears or indentations on the sealing surfaces and the media pack before installation. If any damage is visible, do not install.



The safety filter should be replaced every three primary filter changes.

Continued on next page



6 Replace the Safety Filter

If replacing the safety filter, use the plastic handle. Slide the filter at an angle into the outlet side and push it in place until the filter seats firmly and evenly within the housing.



7 Insert the Primary Filter

Slide the filter down at approximately a 5° angle until it makes contact with the end of the housing. Rotate the filter toward the outlet section to complete the seal.



8 Replace the Service Cover

Place the service cover in position and fasten the metal latches. If the cover doesn't seat, remove and re-check the filter position and access cover orientation.



9 Inspect the Entire Air Cleaner System

Make sure that inlet and outlet connections are in good condition. Torque to and do not exceed 40 in•lb. Replace rubber connectors if necessary and reset the service indicator.



Front Service PowerCore® Air Cleaner with detachable pre-cleaner

PowerCore® Edge brings the smallest footprint yet to the PowerCore air cleaner line, without sacrificing performance.

Ideally suited for medium to heavy dust environments, this front service air cleaner offers a built-in detachable pre-cleaner that allows for quick and easy servicing if it should ever plug in extreme conditions.

Applications

- Off-road equipment operating in medium to heavy dust conditions with engine airflow ranges up to 388 cfm / 11m³/min.

- Permanent scavenge line connection stays in place while filter servicing occurs.
- Horizontal or vertical mounting options. Obround housing shape allows for a narrow or wide orientation.
- Sustained temperature tolerance: -40 °F to 212 °F / -40 °C to 100 °C

Features

- More compact at a given performance level than standard pleated filter air cleaners and slightly smaller than comparable PSD air cleaners
- High efficiency integrated pre-cleaner easily separates into

two pieces for quick and easy servicing

- Non-metal filters
- Improved engine protection: no media movement, expansion, contraction or bunching
- Improved contaminant encapsulation: dust and dirt stay contained in filter during service
- Improved handling and maintenance: lighter and smaller
- Easily serviced; no tools required to remove or replace cover
- Can be used with scavenge line or Vacuator™ Valve
- Built-in mounting brackets eliminate the need to purchase separate mounting bands

PowerCore Edge

Easy front servicing

The snap-fit latches require less space to operate than traditional latches. They can be locked in "open" position by pushing the front of the latch after they have been opened.

Improved pre-cleaner maintenance

Designed to easily separate into two pieces to allow for fast and easy cleaning

Unique seal design

Withstands temperatures up to 100°C / 212°F

PowerCore® primary air filter

Dust and dirt stay contained during service



Filter Minder integrated visual indicator or wireless technology (Optional)

Choose integrated visual indicator or real-time wireless information

Flexible mounting options

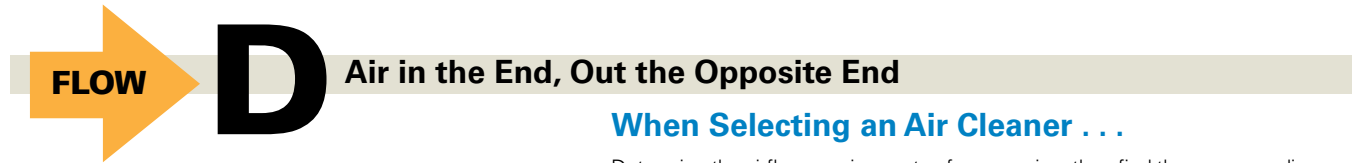
Allows for a range of installation locations and attachment configurations

Next generation pre-cleaner tubes

Bringing greater pre-cleaner efficiency for longer filter life

Permanent scavenge line connection on the body (Optional)

- Benefits:**
- Easy access to the filter servicing
 - Reduced overall service time
 - 100% secured scavenge connection



When Selecting an Air Cleaner . . .

Determine the airflow requirements of your engine, then find the corresponding cfm / m³/min. airflow in the table below. The restriction numbers indicate the approximate initial restriction of each model air cleaner at that cfm / m³/min. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction estimates.

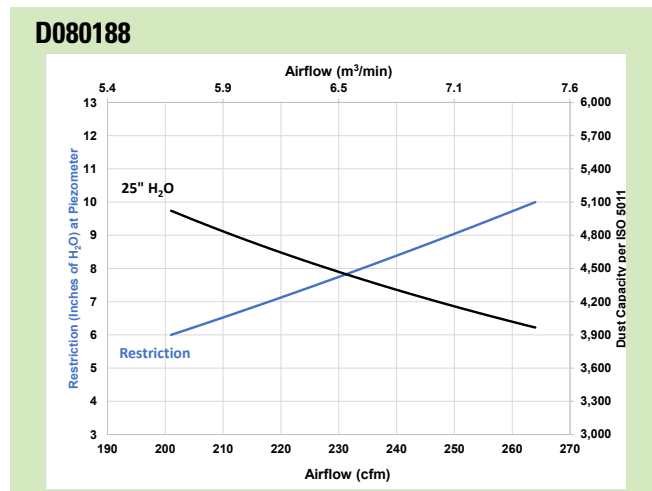
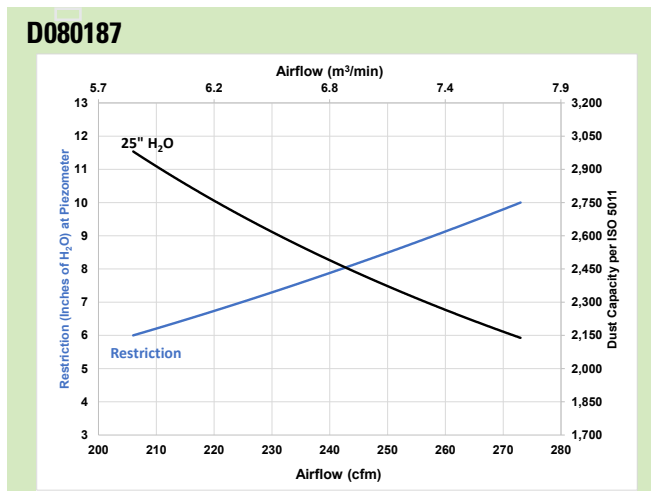
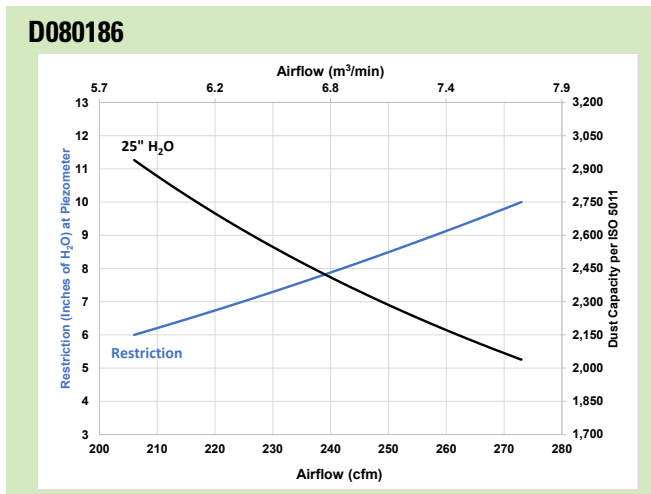
PowerCore Edge Air Cleaners and Scavenge Air Systems

PowerCore Edge air cleaners are designed to operate with or without aspiration, otherwise known as scavenging. PowerCore Edge performance charts include scavenged performance data.

Initial Airflow Restriction (non-scavenged)

Air Cleaner Model	CFM @ "H ₂ O			m ³ /min. @mbar		
	6"	8"	10"	15mbar	20mbar	25mbar
D080186	206	242	273	5.8	6.9	7.7
D080187	206	242	273	5.8	6.9	7.7
D080188	201	234	264	5.7	6.6	7.5
D090357	267	310	349	7.6	8.8	9.9
D090358	257	301	339	7.3	8.5	9.6
D090359	254	400	337	7.2	8.4	9.5

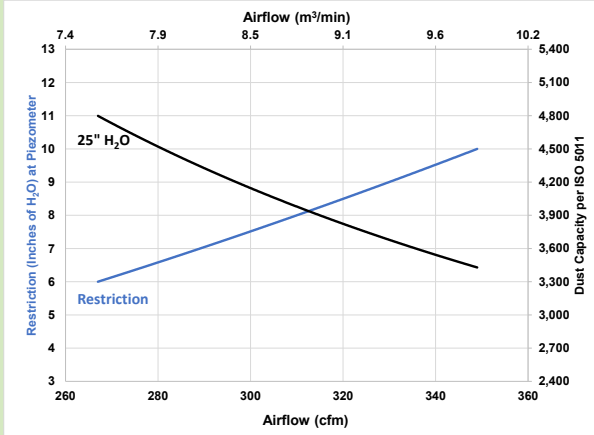
PowerCore Edge Air Cleaner Performance Curves*



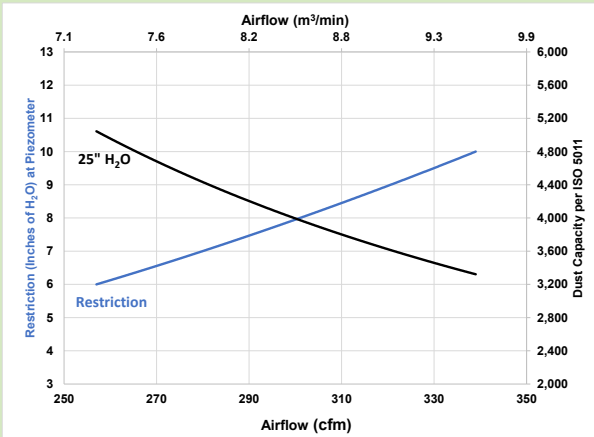
*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.



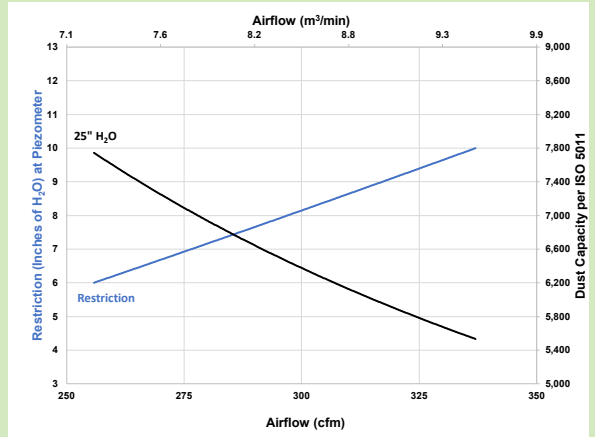
D090357



D090358



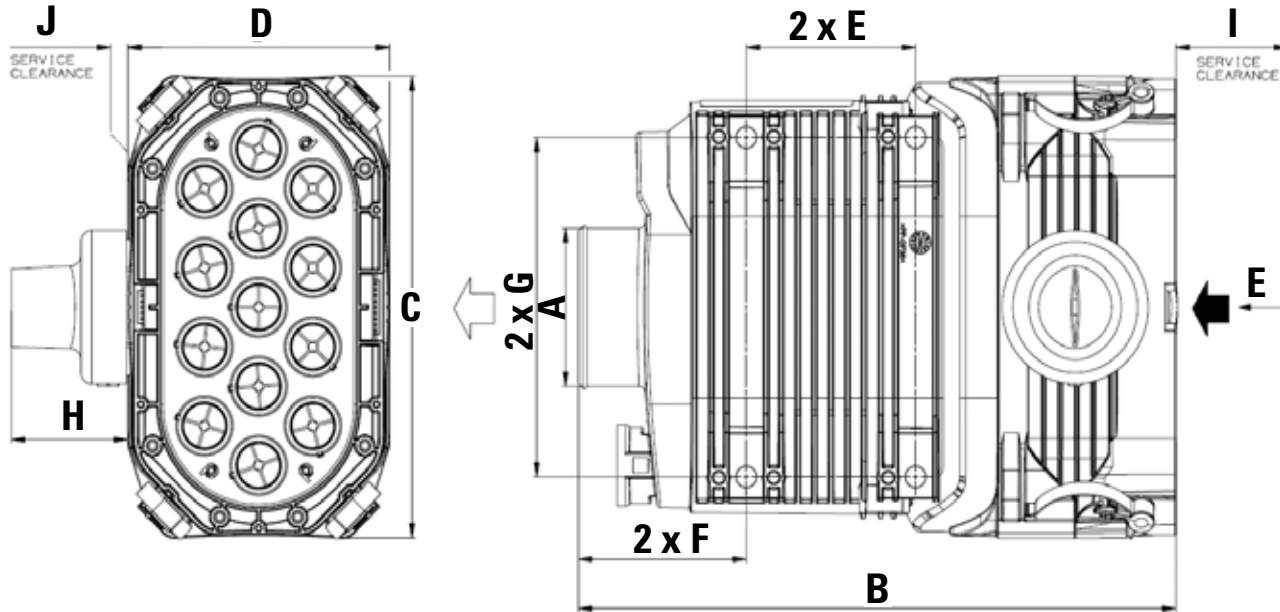
D090359



*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.



PowerCore Edge 08 & PowerCore Edge 09



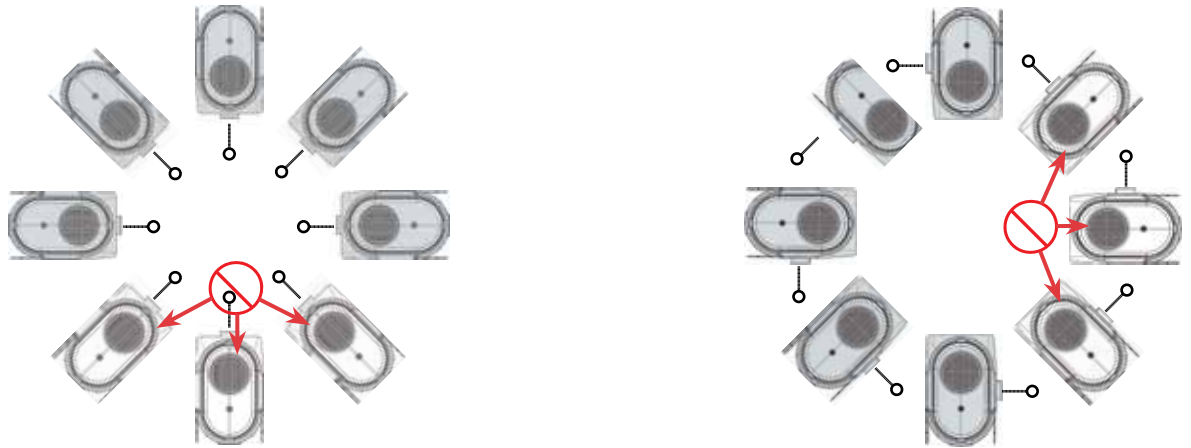
PowerCore Edge Specifications (Letters are keyed to drawings)

Orientation: H=Horizontal; V=Vertical

Part No. / Orientation	A mm/in	B mm/in	C mm/in	D mm/in	E mm/in	F mm/in	G mm/in	H mm/in	I mm/in	Service Clearance (J) mm/in	Weight kg/lbs
MODELS WITH SERVICE ACCESS ON SIDE											
D080186 H	89/3.50	353/13.9	260/10.2	155/6.1	100/3.9	99/3.9	191/7.5	69/2.7	115/4.5	10/0.4	2.4/1.1
D080187 V	89/3.50	353/13.9	260/10.2	155/6.1	100/3.9	99/3.9	191/7.5	69/2.7	115/4.5	10/0.4	2.4/1.1
D080188 V*	89/3.50	353/13.9	260/10.2	155/6.1	100/3.9	99/3.9	191/7.5	92/3.6	115/4.5	10/0.4	2.4/1.1
D090357 H	101/40	402/15.8	357/14.1	147/5.8	115/4.5	99/3.9	296/11.6	69/2.7	140/5.5	10/0.4	3.2/1.5
D090358 V	101/40	402/15.8	357/14.1	147/5.8	115/4.5	99/3.9	296/11.6	69/2.7	140/5.5	10/0.4	3.2/1.5
D090359 V*	101/40	402/15.8	357/14.1	147/5.8	115/4.5	99/3.9	296/11.6	92/3.6	140/5.5	10/0.4	3.2/1.5

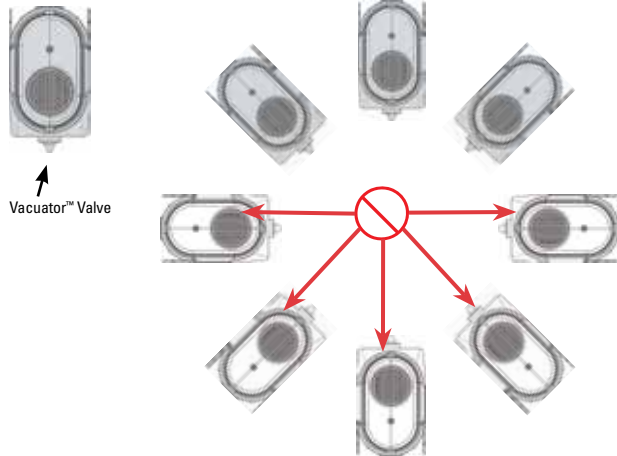
* Scavenge-ready

Scavenged System Mounting (shaded air cleaners indicate proper mounting positions; indicates scavenge line direction)

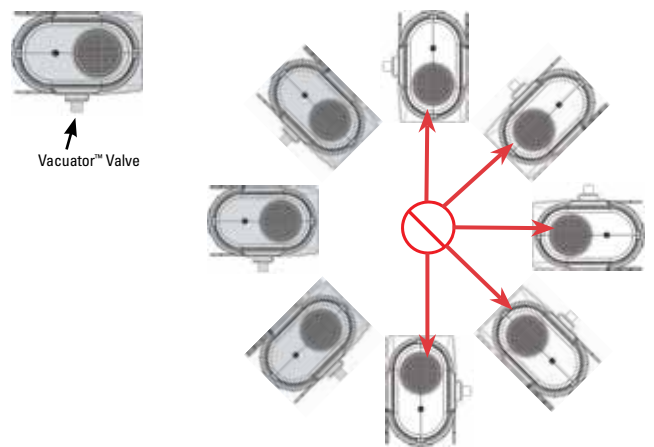


Non-Scavenged System Mounting with Vacuator™ Valve (shaded air cleaners indicate proper mounting positions)

Vertical Edge enlarged to show Vacuator™ Valve detail.



Horizontal Edge enlarged to show Vacuator™ Valve detail.





This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer. Note: Your air cleaner service cover may be in a different position than shown.

1 Check the Restriction

Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer or on a regular scheduled service.



2 Check Vacuator™ Valve

Shut off the engine. Inspect the Vacuator™ Valve (or scavenge line) for damage and release any remaining dust. If damaged, replace.



3



Unlock the pre-cleaner cover by pressing the side clips. Open the pre-cleaner cover to clean the chamber.



4 Replace the primary and safety filters

Remove the primary filter by pulling on the handles. Replace the primary filter with a new Donaldson PowerCore® Edge primary filter.



5 Close pre-cleaner and housing

Put the pre-cleaner back onto the filter housing. Close the main housing using the four metal latches. Ensure that all four latches are properly closed for optimal performance.



10 Inspect the Entire Air Cleaner System

Make sure that inlet and outlet connections are in good condition. Torque to and do not exceed 40 in•lb. Replace rubber connectors if necessary and reset the service indicator.





Service Parts & Accessories

D080186, D080187, D080188	Edge
Pre-Cleaner – D080186 Horizontal	P957804 ...3
Pre-Cleaner – D080187 & D080186 Vertical	P601735 ...3
Elbow, 45°	P109331
Elbow, 90°	P114318
Filter, primary	P958647 ...3
Filter, safety	P957712 ...3
Hump hose	P114319
Informer™ indicator 25" H ₂ O	X002277
Latch	P957720 ...3
Outlet band clamp	P148342
U-clip (4 clips)	P786050
Vacuator™ Valve	P112803 ...3

D080186, D080187, D080188	Edge
Pre-Cleaner – D090357 Horizontal	P957851 ...3
Pre-Cleaner – D090358 & D090359 Vertical	P957850 ...3
Elbow, 45°	P105545
Elbow, 90°	P105533
Filter, primary	P958648 ...3
Filter, safety	P957732 ...3
Hump hose	P105609
Informer™ indicator 25" H ₂ O	X002277
Latch	P957720 ...3
Outlet band clamp	P148343
U-clip (4 clips)	P784517
Vacuator™ Valve	P112803 ...3

NOTES:

3 = Shipped with air cleaner initially



The Next Generation of 2-stage Air Cleaners

PowerPleat™ air cleaners offer equipment manufacturers a powerful new filtration solution to protect engines from dust and contamination.



Section Index

PowerPleat 05.....	66
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PowerPleat air cleaners offer an optimal balance of air cleaner benefits, including:

Reliable Protection

Using Donaldson’s proven sealing technology, PowerPleat air cleaners provide reliable engine protection to equipment manufacturers and end users in the harshest, most demanding applications on the planet.

Higher Capacity

Optimized first stage separation in PowerPleat air cleaners means larger dust capacity than competitive air cleaners of equal size.

Easy integration

The innovative plastic design allows for system simplification that saves money — there’s no need for external pre-cleaners, scavenged systems or additional mounting brackets. Multiple inlet/outlet configurations make PowerPleat air cleaner system integration easy.

Contact Donaldson for PowerPleat availability in your region.



PowerPleat™ 05 — Compact, Durable All-plastic Housing

Servicing is quick and easy

Applications

- Provides up to 95 cfm airflow without a safety filter and 86 cfm airflow with a safety filter.
- Installation can be horizontal, vertical, or even at an angle (as long as Vacuator™ Valve points down)
- Temperature tolerance: -40 °F to 180 °F / -40 °C to 83 °C (Do not install next to turbocharger, muffler, exhaust pipes, or other high-temperature components.)

Equipment Types

- Skid Steers and light construction.
- Compressors and generator sets.
- Small to medium agriculture.
- All-Terrain Vehicles (ATVs).
- Lawn maintenance.

Air Cleaner Features

- Durable plastic housing — corrosion-free and lightweight.
- Two-stage air filtration. Built-in, tangential pre-cleaner ahead of primary filter removes up to 85% of incoming dust.
- Twist-on service cover with latch makes servicing easy — no tools required.
- Choose 90° or straight outlet to fit your application. Both outlets are rotatable to accommodate installation requirements.
- Filter service indicator port is included.

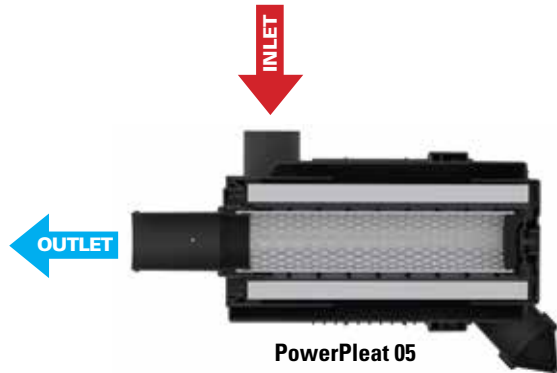
Filter Features

- One piece, molded urethane endcaps encase the filter media and liners.
- Safety filter protects engine during primary filter change outs. All PowerPleat models can accept safety filters. Specification table shows which air cleaner models ship with a safety filter installed.



Contact Donaldson for PowerPleat availability in your region.

FLOW **G** **Air in the Side, Out the End** (standard flow filters)



When Selecting an Air Cleaner . . .

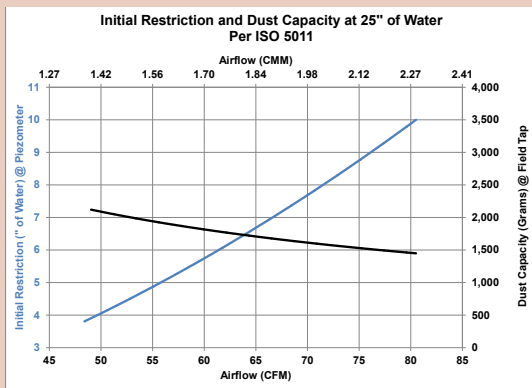
Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table at right. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction estimates.

Initial Airflow Restriction

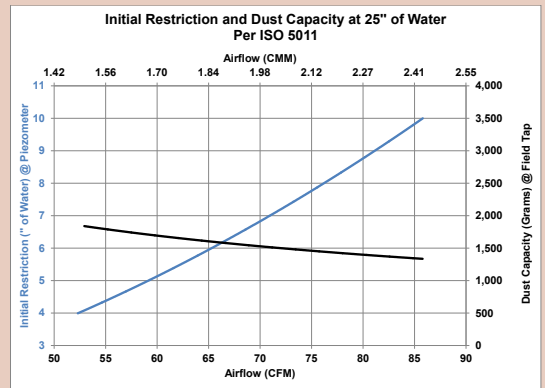
Airflow CFM @ H ₂ O			Air Cleaner Model
6"	8"	10"	
MODELS WITH PRIMARY & SECONDARY FILTERS			
61	72	81	G052741
65	76	86	G052742
MODELS WITH PRIMARY FILTER ONLY			
70	80	90	G052828
73	85	95	G052829

PowerPleat 05 Air Cleaner Performance Curves*

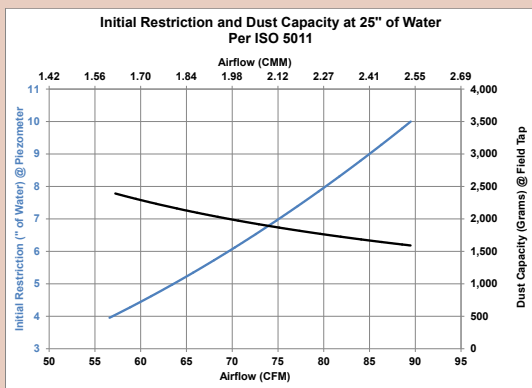
G052741 90° Outlet



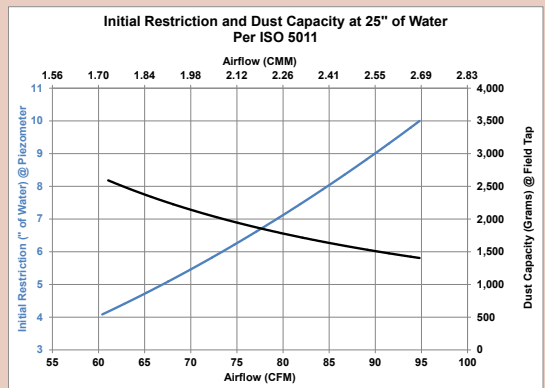
G052742 Straight Outlet



G052828 90° Outlet



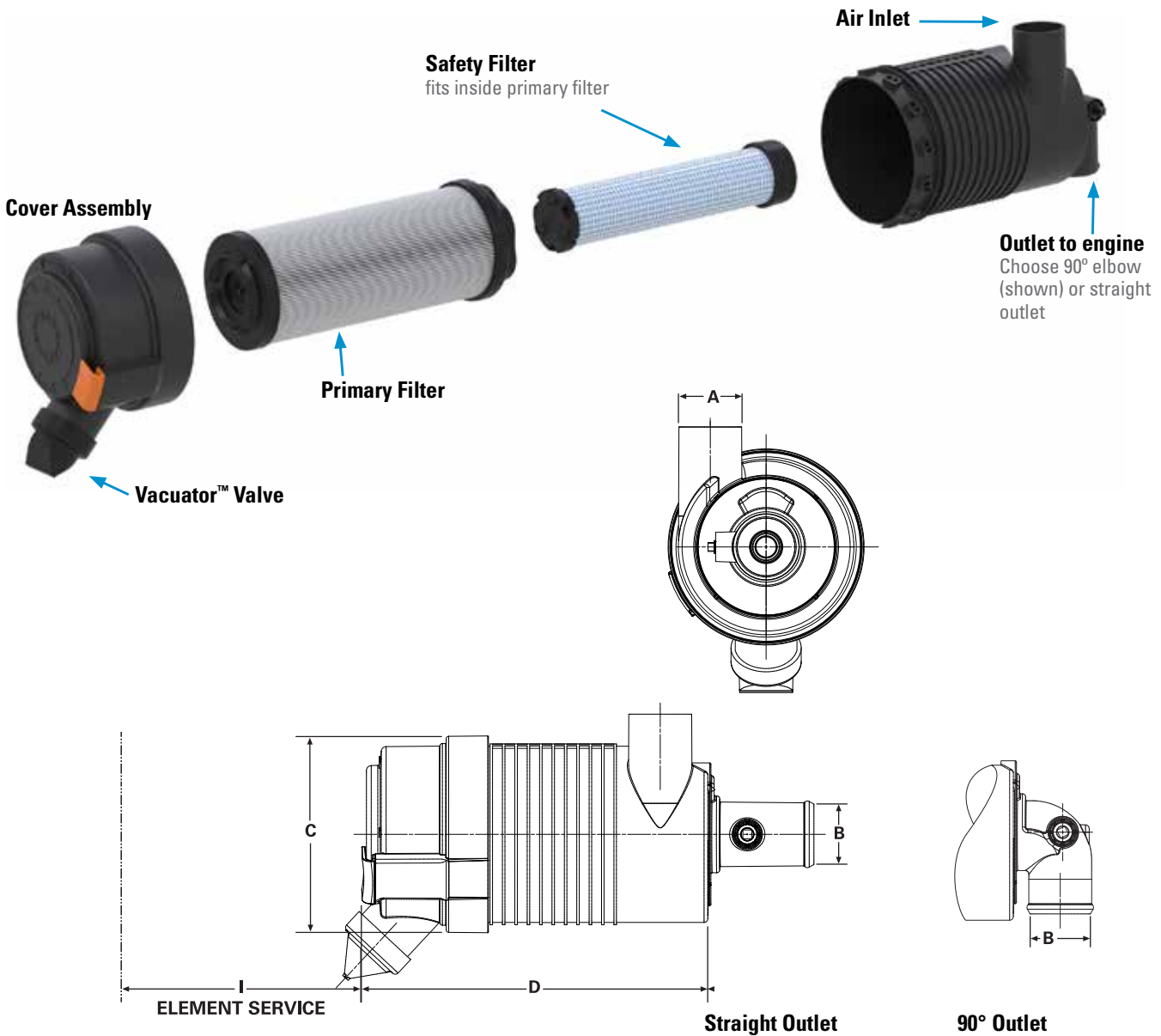
G052829 Straight Outlet



*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.



PowerPleat 05 Specifications



PowerPleat 05

Air Cleaner Models	With Safety Filter?	Inlet Dia. (A)	Outlet Dia. (B)	Body Dia. (C)	Housing Length (D)	Service Clear. (I)	Weight lbs kg
POWERPLEAT™ MODELS WITH 90° OUTLET TUBES							
G052741	Yes	2.00" 51mm	2.00" 51mm	5.60" 142mm	10.85" 276mm	8.27" 210mm	1.9lb .9kg
G052828	No	2.00" 51mm	2.00" 51mm	5.60" 142mm	10.85" 276mm	8.27" 210mm	1.9lb .9kg
POWERPLEAT™ MODELS WITH STRAIGHT TUBES							
G052742	Yes	2.00" 51mm	2.00" 51mm	5.60" 142mm	10.85" 276mm	8.27" 210mm	1.9lb .9kg
G052829	No	2.00" 51mm	2.00" 51mm	5.60" 142mm	10.85" 276mm	8.27" 210mm	1.9lb .9kg

PowerPleat 05 Service Parts & Accessories

G052741, G052742 PowerPleat 05

Cover.....	P628588	.....8
Filter, primary.....	P628390	.....3
Filter, safety.....	P628170	.....3
Informer™ indicator 25" H ₂ O.....	X002277	
Inlet hood, plastic.....	H001377	
Mounting bands, metal.....	H008443	
Mounting Bands, plastic.....	P777730	
Outlet band clamp.....	P115200	
Vacuator™ Valve.....	P522958	

G052828, G052829 PowerPleat 05

Cover.....	P628588	.....8
Filter, primary.....	P628390	.....3
Filter, safety.....	P628170	.....4
Informer™ indicator 25" H ₂ O.....	X002277	
Inlet hood, plastic.....	H001377	
Mounting bands, metal.....	H008443	
Mounting Bands, plastic.....	P777730	
Outlet band clamp.....	P115200	
Vacuator™ Valve.....	P522958	

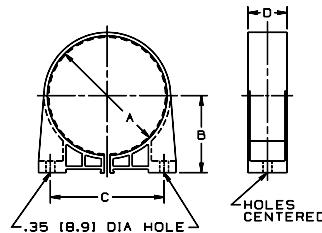
NOTES:

- 3 = Shipped with air cleaner initially
- 4 = Safety filter is designed to fit this air cleaner, but was not originally shipped with it (note that adding a safety filter will decrease the maximum airflow throughput)
- 8 = Cover assembly includes latches but no Vacuator™ Valve

Polymer Mounting Band

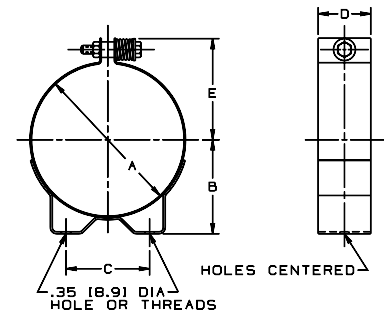
The one-piece, durable polymer mounting band will securely hold the housing in position. The band has tabs on the inside circumference which fit exactly into notches on the PowerPleat housing. Donaldson polymer bands are completely non-corrosive, lightweight, easy to install, and economical.

The band tightens around the air cleaner when the base of the band is bolted to a support, providing a fixed, stable mounting — even in high vibration applications.



Metal Mounting Band

The metal mounting band has a spring-loaded bolt at the top to maintain a constant hold on the housing throughout high and low temperature extremes.



Maximum Torque

Polymer Bands:
11 lbs-ft / 14.8 N•m

Metal Bands:
12 lbs-ft / 16.2 N•m

Application Note:

Polymer bands allow the air cleaner housing to be rotated and positioned at 10° increments.

PowerPleat Mounting Bands (Order one band per PowerPleat air cleaner)

Part Number	A		B		C		D		E		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kgm
POLYMER BAND												
P777730	5.75	146	3.52	90	5.35	136	1.99	51	n/a		0.37	167
METAL BAND												
H008443	5.75	146	3.54	90	3.15	80	1.99	51	3.83	97	1.30	590

WARNING: Do not use any other mounting bands or straps with PowerPleat air cleaners. Use of an unapproved mounting band voids warranty.



PowerPleat 05 servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

1 Check the Restriction

Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer or on a regular service schedule.



2 Clean Out the Vacuator™ Valve

If your air cleaner is equipped with a Vacuator™ Valve, visually check and physically squeeze it. Make sure the valve is flexible and not inverted, damaged or plugged. If damaged or missing, replace it.



3 Remove the Primary filter

Make sure engine is shut off. Pull orange latch handle outward from service cover, rotate cover counterclockwise until it stops turning, pull the cover straight away from the air cleaner body.

Grasp the end of the primary filter and pull it from the air cleaner while applying a slight side to side motion. **Do not** try to rotate the filter when removing it from the air cleaner.



4 Visually Check the Safety Filter and Clean Both Surfaces of the Outlet Tube

If your air cleaner has a safety filter, visually check it for signs of damage while in place. Do not remove the safety filter unless it is damaged or due for replacement. Also verify that the safety filter is properly seated in the housing.

The safety filter should be replaced every three primary filter changes, unless it has become excessively contaminated. Should it be necessary to wipe excessive contaminant from the primary seal surface, remove the safety element, block the outlet tube with a damp towel to gain access to clean primary seal surface. Inspect the outlet tube sealing area to make sure it is undamaged.

Contaminant on the sealing surface could hinder an effective seal and cause leakage. If the safety filter is to be replaced, avoid leaving the outlet tube exposed to the air. If there is to be a delay in installing the new safety filter, cover the air cleaner outlet tube to avoid admitting any dust.



Continued on next page



5 Inspect the Old Filter and New Filters

Inspect the old primary filter for any signs of leaks. A streak of dust on the inside of the filter is a telltale sign of a possible leak.

If you suspect a possible leak, verify the safety element is in good condition as it may need to be changed as well. If there is no safety element, make sure that there is no dust trails in the outlet tube. Also make sure to follow Step 8 to ensure all connections are tight so that dirty outside air cannot bypass the air cleaner.

Inspect the new filter for any damage that may have occurred through mishandling. NEVER install a damaged filter. Visually check the inside of the open end, which is the sealing area.

Do not wipe the filter's sealing area. PowerPleat filters have a lubricant on the seal to aid installation.



6 Insert the New Filter

First, if you're servicing the safety filter at this change-out, grasp the end of the filter and pull it out of the air cleaner while applying a slight side-to-side motion.

Block the outlet tube of the air cleaner using a small dampened towel prior to cleaning the seal and locking surfaces to avoid contaminating the induction system. With a clean damp cloth, thoroughly clean the inside of the housing, seal and locking surfaces if required.

After removing the dampened towel, seat the new safety filter properly into position by aligning the open end of the filter with the inside diameter of the outlet tube. Push filter into outlet tube while applying a slight side to side motion on the filter until it is fully seated in the tube.

Insert new filters carefully. To install primary filter, insert filter into air cleaner while rotating it until you feel the alignment ribs on the inside of the filter drop into the receiving slots in the outlet tube.

No cover pressure is required to hold the seal in place and you should NEVER use the service cover to apply pressure. This could damage the housing and fasteners and void the warranty. If the service cover presses against the filter before the cover is fully in place, the filter is not properly seated. Remove the cover and make sure the alignment ribs have connected with the receiving slots. Filters must be properly seated in order for service cover to be properly installed. Once the filter(s) is in place, secure the service cover.



If you perform filter maintenance service on a schedule versus using service indicators, you may want to write the service date on the end cap of both filters.

7 Install Service Cover

Slide cover onto the end of the air cleaner body with the vacuator valve positioned slightly counterclockwise from vertical until cover stops on end of body. Rotate the cover clockwise until it stops, and then push the latch handle into the cover. For best vacuator valve performance, it should be located in the six o'clock position.



8 Check Connectors for Tight Fit

Make sure service indicators are reset and in proper working order. Check that all mounting bands, clamps, bolts, and connections in the entire air cleaner system are tight. Check for holes in piping and repair or replace as needed. Any leaks in the intake piping will admit dust directly to the engine.





PowerPleat™ 11, 13 — Protection for Large Equipment

RadialSeal™ technology for quick and easy servicing

Applications

- PowerPleat 11 air cleaner provides up to 437 cfm airflow. The PowerPleat 13 air cleaner provides up to 597 cfm airflow.
- Temperature tolerance: -40 °F to 180 °F / -40 °C to 83 °C (Do not install next to turbocharger, muffler, exhaust pipes, or other high-temp components.)

Equipment Types

- Compressors and generator sets.
- Excavators, bull dozers, cranes and large construction.
- On- and off-highway vehicles.
- Marine and offshore equipment.

Air Cleaner Features

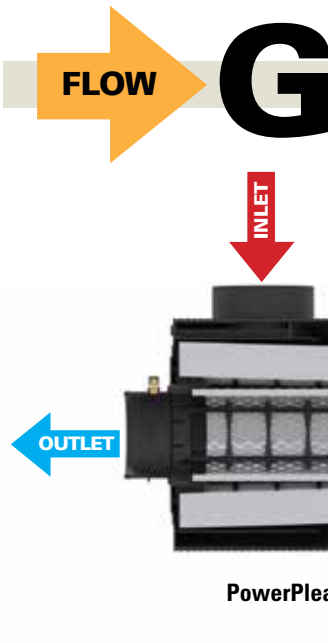
- Durable plastic housing — corrosion-free and lightweight
- Two-stage air filtration. Built-in, tangential pre-cleaner ahead of primary filter removes up to 85% of incoming dust.
- Easy to service. No tools needed. Usually done in 5 minutes or less.
- Clockwise and counterclockwise inlet orientation versions available.
- Easy-to-fasten latches secure cover.
- Service indicator port is included.
- Welded-on mounting bracket.
- A plastic inlet hood and stack (up to 18" /457mm tall) may be added.

Filter Features

- Filters have RadialSeal™ Sealing Technology that creates a reliable, critical seal and makes servicing easy.
- One piece, molded urethane endcaps encase the filter media and liners.
- Metal-free primary filter element.
- Safety filter protects engine during in-field filter change outs.



Contact Donaldson for PowerPleat availability in your region.



Air in the Side, Out the End (standard flow filters)

When Selecting an Air Cleaner . . .

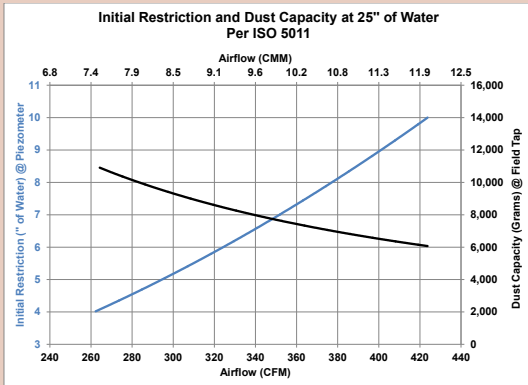
Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table at right. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction estimates.

Initial Airflow Restriction

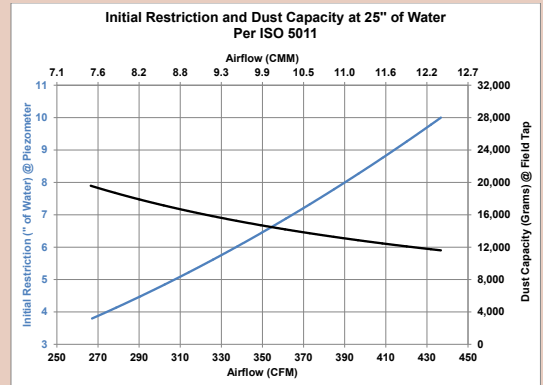
Airflow CFM @ H ₂ O			Air Cleaner Model
6"	8"	10"	
324	377	424	G110468 / G110469 (Short body)
337	390	437	G110474 / G110475 (Long body)
443	516	580	G130374 / G130375 (Short body)
463	534	597	G130372 / G130373 (Long body)

PowerPleat 11 – 13 Air Cleaner Performance Curves*

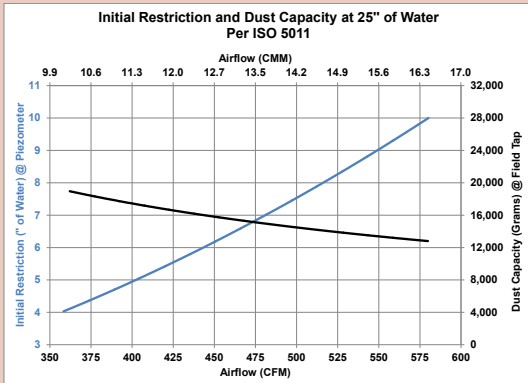
G110468/G110469



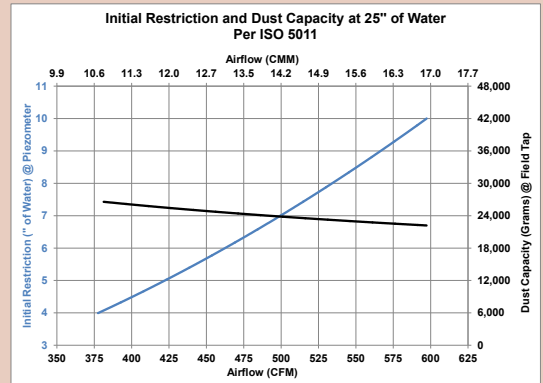
G110474/G110475



G130374/G130375



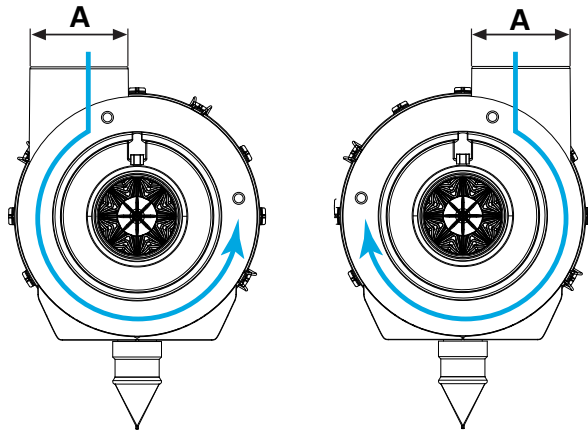
G130372/G130373



*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.

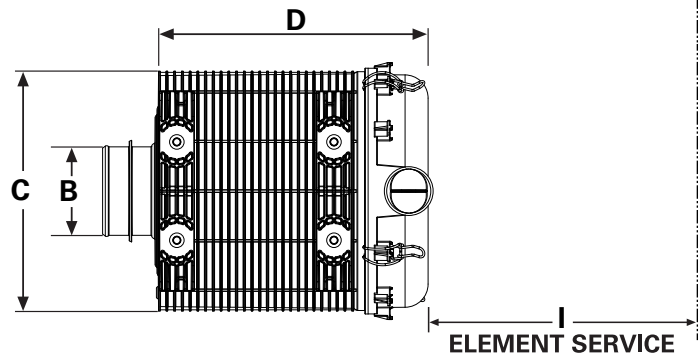
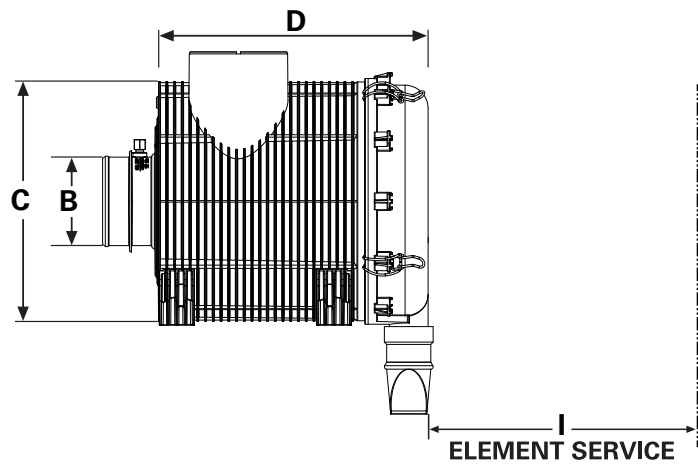


PowerPleat 11, 13 Specifications



Counterclockwise (CCW) inlet Clockwise (CW) inlet

Clockwise and counterclockwise inlet orientations are determined by the airflow path inside the air cleaner when looking into the outlet, as illustrated above with the blue arrows showing airflow.

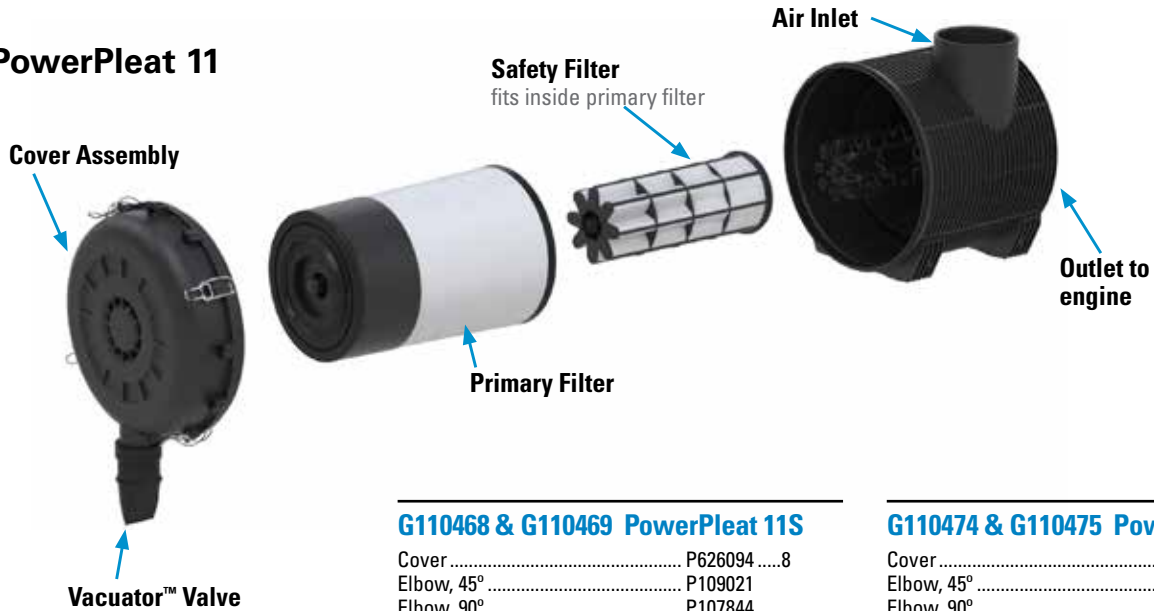


PowerPleat 11, 13

Air Cleaner Models	Inlet Orientation	Inlet Dia. (A)	Outlet Dia. (B)	Body Dia. (C)	Housing Length (D)	Service Clear. (I)	Weight lbs kg
G110468	CCW	5.0" 127 mm	4.5" 114 mm	12.2" 310 mm	13.8" 350 mm	13.8" 350 mm	10.1 lb 4.6 kg
G110469	CW	5.0" 127 mm	4.5" 114 mm	12.2" 310 mm	13.8" 350 mm	13.8" 350 mm	10.1 lb 4.6 kg
G110474	CCW	5.0" 127 mm	4.5" 114 mm	12.2" 310 mm	19.3" 490 mm	19.3" 490 mm	12.6 lb 5.7 kg
G110475	CW	5.0" 127 mm	4.5" 114 mm	12.2" 310 mm	19.3" 490 mm	19.3" 490 mm	12.6 lb 5.7 kg
G130374	CCW	6.0" 152 mm	5.0" 127 mm	13.5" 342 mm	16.7" 425 mm	19.3" 490 mm	14.3 lb 6.5 kg
G130375	CW	6.0" 152 mm	5.0" 127 mm	13.5" 342 mm	16.7" 425 mm	19.3" 490 mm	14.3 lb 6.5 kg
G130373	CCW	6.0" 152 mm	5.0" 127 mm	13.5" 342 mm	20.9" 530 mm	23.6" 600 mm	17.6 lb 8.0 kg
G130372	CW	6.0" 152 mm	5.0" 127 mm	13.5" 342 mm	20.9" 530 mm	23.6" 600 mm	17.6 lb 8.0 kg

PowerPleat 11, 13 Service Parts & Accessories

PowerPleat 11



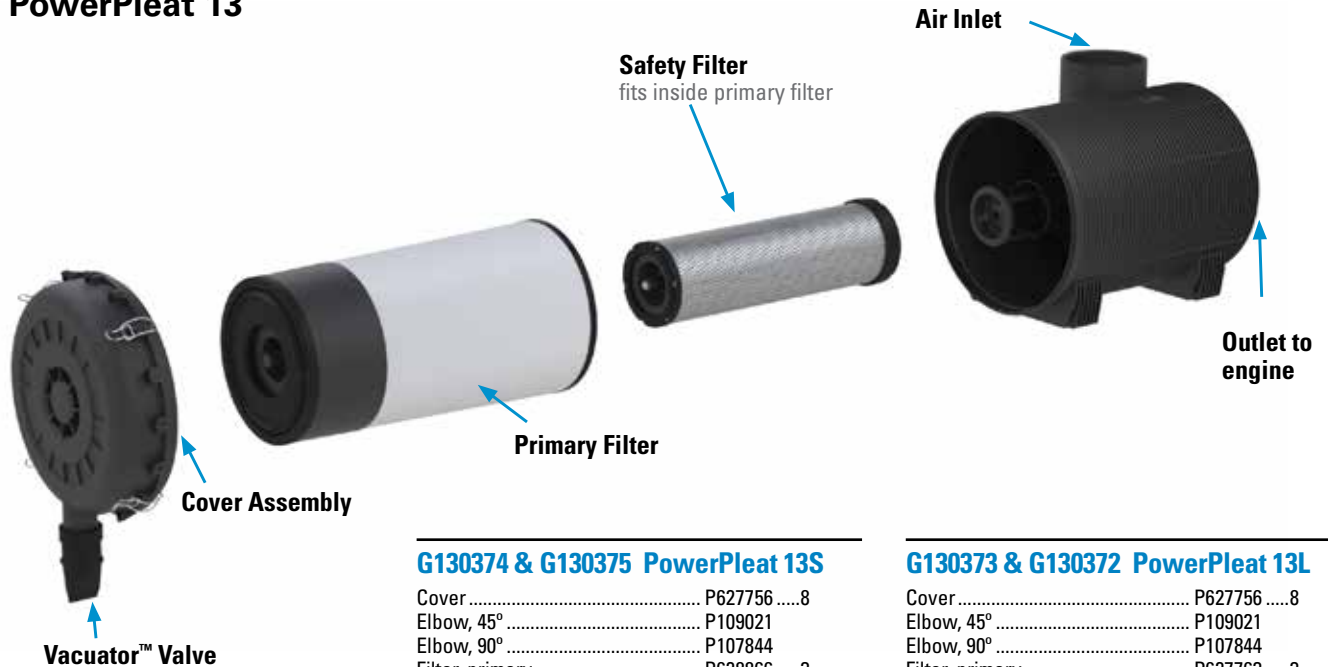
G110468 & G110469 PowerPleat 11S

Cover	P626094	.....8
Elbow, 45°	P109021	
Elbow, 90°	P107844	
Filter, primary	P626096	.....3
Filter, safety	P626104	.....3
Informer™ indicator 25" H ₂ O	X002277	
Inlet hood, plastic.....	H000468	
Inlet hood, metal.....	H000170	
O-ring seal.....	P625983	
Outlet band clamp.....	P148344	
Vacuator™ Valve	P776008	

G110474 & G110475 PowerPleat 11L

Cover	P626094	.....8
Elbow, 45°	P109021	
Elbow, 90°	P107844	
Filter, primary	P628805	.....3
Filter, safety	P628802	.....3
Informer™ indicator 25" H ₂ O	X002277	
Inlet hood, plastic.....	H000468	
Inlet hood, metal.....	H000170	
O-ring seal.....	P625983	
Outlet Hump Hose	P105610	
Outlet band clamp.....	P148344	
Vacuator™ Valve	P776008	

PowerPleat 13



G130374 & G130375 PowerPleat 13S

Cover	P627756	.....8
Elbow, 45°	P109021	
Elbow, 90°	P107844	
Filter, primary	P628866	.....3
Filter, safety	P628862	.....3
Informer™ indicator 25" H ₂ O	X002277	
Inlet hood, plastic.....	H000469	
Inlet hood, metal.....	H000165	
Outlet Hump Hose	P105610	
Outlet band clamp.....	P148345	
O-ring seal.....	P627758	
Vacuator™ Valve	P776008	

G130373 & G130372 PowerPleat 13L

Cover	P627756	.....8
Elbow, 45°	P109021	
Elbow, 90°	P107844	
Filter, primary	P627763	.....3
Filter, safety	P628203	.....3
Informer™ indicator 25" H ₂ O	X002277	
Inlet hood, plastic.....	H000469	
Inlet hood, metal.....	H000165	
Outlet Hump Hose	P105610	
Outlet band clamp.....	P148345	
O-ring seal.....	P627758	
Vacuator™ Valve	P776008	

NOTES:

- 3 = Shipped with air cleaner initially
- 8 = Cover assembly includes latches but no Vacuator™ Valve



PowerPleat 11, 13 servicing information is provided as a best practice guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

1 Check the Restriction

Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer or on a regular service schedule.



2 Remove the Primary Filter and check the Vacuator™ Valve

Shut off the engine. Unlatch the service cover.

Visually inspect and check Vacuator™ Valve, and replace if needed.

Because of its RadialSeal™, the filter fits tightly over the outlet tube and there will be some initial resistance, similar to breaking the seal on a jar. Gently move the end of the filter back and forth slightly to break the seal while rotating. Pull straight out to avoid knocking the filter against the safety filter support frame.

Once the primary filter has been removed, clean the primary filter seal surface with a damp cloth.



Make sure the valve is flexible and not inverted, damaged or plugged. Replace it if damaged or if it looks like any of these images. A damaged or missing vac valve will disrupt the designed flow of air through the air cleaner.

3 Visually Check the Safety Filter and Clean Both Surfaces of the Outlet Tube

If your air cleaner has a safety filter, visually check the safety filter in place for signs of damage. Do not remove the safety filter unless it is damaged or due for replacement. Also verify that the safety filter is properly seated in the housing.

The safety filter should be replaced every three primary filter changes, unless it has become excessively contaminated. Use a clean damp cloth to wipe both the filter sealing surface and the inside of the outlet tube. Ensure that the outlet tube sealing area is undamaged.

Contaminant on the sealing surface could hinder an effective seal and cause leakage. If the safety filter is to be replaced, avoid leaving the outlet tube exposed to the air.

Never leave air cleaner sitting without a safety filter.



Note: The PowerPleat 13 is shown above. The PowerPleat 11 has a different style of safety. See image on page 63.

Continued on next page

4 Inspect the Old Filter

Inspect the old primary filter for any signs of leaks. A streak of dust on the inside of the filter is a telltale sign of a possible leak.

If you suspect a possible leak, verify the safety element is in good condition as it may need to be changed as well. Also make sure to follow Step 8 to ensure all connections are tight so that dirty outside air cannot bypass the air cleaner.



5 Inspect the New Filter

Inspect the new filter for any damage that may have occurred through mishandling. NEVER install a damaged filter. Visually check the inside of the open end, which is the sealing area.

Do not wipe the filter seal area as the new Donaldson filter may have a lubricant on the seal to aid installation.



6 Insert the New Filter

First, if you're servicing the safety filter at this change-out, seat it properly into position before installing the primary filter. Insert new filters carefully. Seat the primary filter by hand, making certain it is inserted completely into the air cleaner housing. To complete a tight seal, apply pressure by hand at the outer rim of the filter, not the flexible center.

No cover pressure is required to hold the seal in place and one should NEVER use the service cover to apply pressure. This could damage the housing and fasteners and void the warranty. If the service cover presses against the filter before the cover is fully in place, remove the cover. With cover off, push the filter farther into the air cleaner by hand and then the cover will go on with no extra force. Once the filter is in place, secure the service cover.





7 Check Inlet Hoods and Pre-Cleaners

Check any intake hoods and pre-cleaner devices during maintenance routines.

A missing inlet hood will significantly shorten filter life. If your unit had a hood or pre-cleaner originally, make sure you replace it. Check openings and tubes on pre-cleaners to make sure they are not plugged. Replace any units that are damaged. Damaged or dented units will not operate properly.



8 Check Connectors for Tight Fit

Make sure service indicators are reset and in proper working order.

Check that all mounting bands, clamps, bolts, and connections in the entire air cleaner system are tight.

Check for holes in piping, and repair or replace as needed.

Any leaks in the intake piping will admit dust directly to the engine.



For Diesel, Gasoline and Compressed Natural Gas Engines, and Hybrid Vehicles Operating in Light to Light/Medium Dust Conditions

Over-highway trucks, stationary engines, light industrial vehicles, and sport utility/light trucks generally operate in low-dust environments. They still need top quality air filtration systems to protect them and keep them running at peak efficiency. Those operating in high carbon environments particularly need protection.



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PowerCore
A Donaldson Filtration Technology

If you're looking for a new air cleaner, check out the PowerCore® air cleaner section first!

PCD Air Cleaners with PowerCore Filtration Technology offer improved filtration performance compared to our older E Series air cleaners.



Durable, Corrosion-Free Air Cleaner
Improved Reliability, Superior Engine Protection, Easiest Serviceability

The EPG air cleaner series, which incorporates Donaldson RadialSeal™ Sealing Technology, offers improved reliability and durability, reduced weight and costs, and better serviceability.

EPG air cleaners: conquer underhood space limitations; are corrosion-free and lighter in weight than traditional metal units; are more sturdy than ever before; and have a reliable, easy-to-service design.

The filter inside the air cleaner is also quite different from filters with metal end caps. The one-piece molded end caps encase the ends of the media and filter liners. The filter fits over the housing outlet tube, creating a reliable seal — without the hassle of separate sealing gaskets.

Of the six models, three include a primary filter and three include a primary and safety filter.



Whether you are going to service by miles, hours or restriction, keep accurate maintenance records and log or track your filter changes.



This EPG RadialSeal™ Air Cleaner is part of a complete Donaldson intake system. The entire engine air intake system is made of molded plastic. Between the intake scoop and the air cleaner are Donaldson Strata™ tubes, which provide pre-cleaning. Particulate from this stage is scavenged off and out through the exhaust system. In this system, the EPG air cleaner provides the second stage of cleaning.



The EPG Air Cleaner, which fits neatly under the hood, has RadialSeal™ Sealing Technology that delivers a reliable seal in rugged environments and quick filter change-out.

Provides up to 1325 cfm Airflow per Air Cleaner

Applications

- Provides up to 1325 cfm airflow per air cleaner — double airflow to engine by using two units
- Horizontal or vertical installation

Ideal for

- On-highway vehicles
- Marine and offshore equipment
- Light construction vehicles
- Agricultural vehicles
- Compressors and generator sets

Air Cleaner Features

- Durable plastic housing is corrosion-free and weighs less than metal air cleaners
- Very few service parts. Easy to service.
- No mounting bands required. Installs securely via molded-in mounting flange(s) with pre-drilled holes on the side of the housing.
- Available in three body diameters: 11" (279mm), 13" (330mm), 15" (381mm)
- Temperature tolerances:
11" (279mm) dia: -40 °F to 220°F (-40 °C to 104 °C)
13" (330mm) 15" (381mm) dia: -40 °F to 200 °F (-40 °C to 93 °C)

Filter Features

- RadialSeal™ Sealing Technology ensures reliability, is easy to service and makes the filter self-centering, self-aligning and self-sealing
- All models can accommodate safety filter
- Donaldson Blue® high efficiency and extended service filters — which capture sub-micron contaminant such as soot and carbon — are available for some models (see service parts listing on page 83)

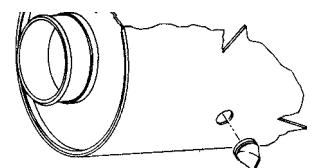


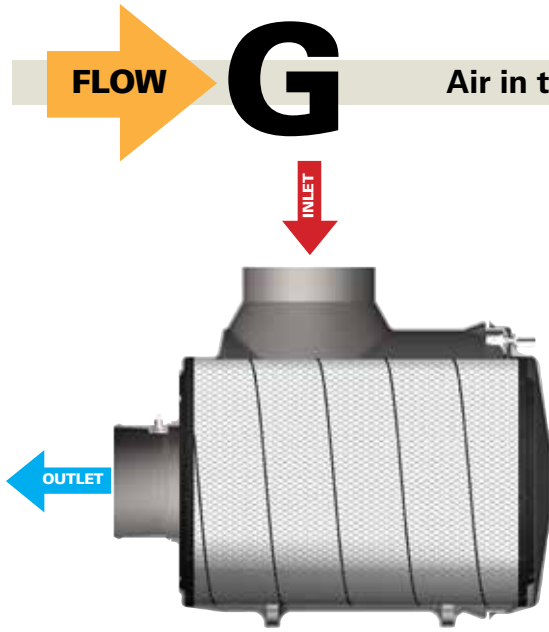
The Better Alternative to Drain Holes

The Donaldson Vacuator™ Valve is an optional accessory for the EPG that expels water from the air cleaner **before** any reaches the filter — thereby extending filter life. Bare drain holes can clog or take in back splash, but the Vacuator™ Valve never does. The P525956 is a 1" (25mm) diameter model designed for over-highway applications.

Installation is fast and easy:

1. Locate the lowest point of the air cleaner to allow proper drainage through Vacuator Valve.
2. Remove filter(s) before drilling.
3. Drill a 1" (25mm) hole centered at the lowest point of the air cleaner as shown in illustration. Remove debris from drilling.
4. Install Vacuator Valve (P525956) by pushing it into the hole.
5. Reinstall filter(s), reattach cover.





Air in the Side, Out the End (standard flow filters)

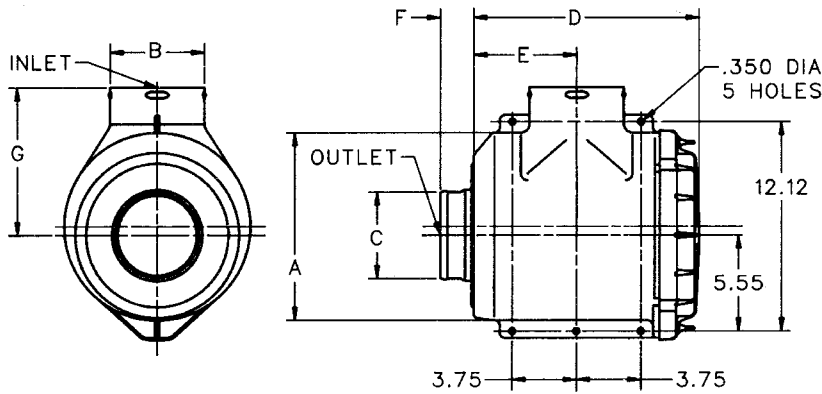
Initial Airflow Restriction*

Airflow	Air Cleaner Model
MODELS WITH PRIMARY & SAFETY FILTER	
450 cfm @ 5.5" H ₂ O	G110120
650 cfm @ 6" H ₂ O	G130089
800 cfm @ 5.5" H ₂ O	G150049
MODELS WITH PRIMARY FILTER	
625 cfm @ 5.5" H ₂ O	G110119
950 cfm @ 10" H ₂ O	G130079
1325 cfm @ 8" H ₂ O	G150048

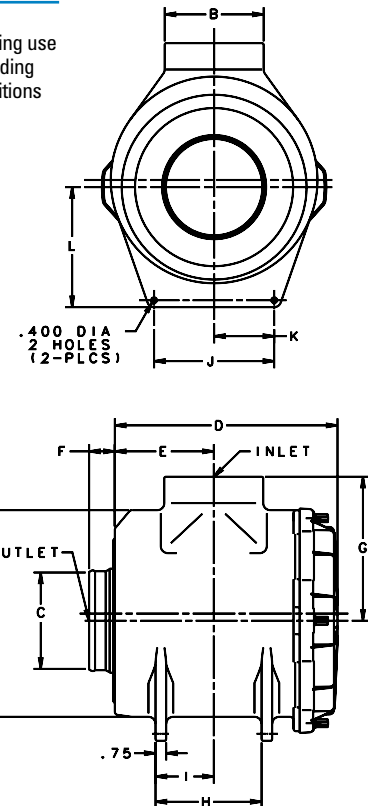
*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.

EPG Specification Illustrations

11" Models



13" & 15" Models



EPG Specifications

Air Cleaner Model	Body Dia. (A)	Inlet Dia. (B)	Outlet Dia. (C)	Length (D)	(G)	Outlet Length (F)	(E)	(H)	(I)	(J)	(K)	(L)
G110119	10.86" 276mm	5.50" 140mm	5.00" 127mm	12.89" 327mm	8.56" 217mm	1.95" 50mm	6.00" 152mm	See drawing above for dimensions on 11" models				
G110120	10.86" 276mm	5.50" 140mm	5.00" 127mm	12.89" 327mm	8.56" 217mm	1.95" 50mm	6.00" 152mm	See drawing above for dimensions on 11" models				
G130079	12.62" 321mm	6.00" 152mm	5.00" 127mm	16.02" 407mm	9.51" 242mm	3.00" 76mm	5.66" 144mm	7.75" 197mm	2.00" 51mm	8.00" 203mm	4.00" 102mm	6.00" 152mm
G130089	12.62" 321mm	6.00" 152mm	5.00" 127mm	16.02" 407mm	9.51" 242mm	3.00" 76mm	5.66" 144mm	7.75" 197mm	2.00" 51mm	8.00" 203mm	4.00" 102mm	6.00" 152mm
G150048	14.62" 371mm	7.00" 178mm	7.00" 178mm	15.75" 400mm	10.19" 259mm	1.82" 46mm	7.00" 178mm	7.50" 191mm	4.12" 105mm	8.50" 216mm	4.25" 108mm	8.00" 203mm
G150049	14.62" 371mm	7.00" 178mm	7.00" 178mm	15.75" 400mm	10.19" 259mm	1.82" 46mm	7.00" 178mm	7.50" 191mm	4.12" 105mm	8.50" 216mm	4.25" 108mm	8.00" 203mm

EPG Service Parts & Accessories

G110119 EPG

Cover.....	P529151
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Fastener kit.....	X006452
Filter, primary-Donaldson Blue®... DBA5067	
Filter, primary - SM.....	P527484 .....3
Filter, safety.....	P527680 .....4
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H000604
Outlet band clamp.....	P148345
Thumb screw.....	P527435
Vacuator™ Valve.....	P525956

G110120 EPG

Cover.....	P529151
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Fastener kit.....	X006452
Filter, primary-Donaldson Blue®... DBA5067	
Filter, primary - SM.....	P527484 .....3
Filter, safety.....	P527680 .....3
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H000604
Outlet band clamp.....	P148345
Thumb screw.....	P527435
Vacuator™ Valve.....	P525956

G130079 EPG

Cover.....	P533916
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Fastener kit.....	X006452
Filter, primary - SM.....	P533930 .....3
Filter, primary-Donaldson Blue®... DBA5109	
Filter, safety.....	P533890 .....4
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000275
Inlet hood, plastic.....	H000606
Outlet band clamp.....	P148345
Thumb screw.....	P527435
Vacuator™ Valve.....	P525956

G130089 EPG

Cover.....	P533916
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Fastener kit.....	X006452
Filter, primary - SM.....	P533930 .....3
Filter, primary-Donaldson Blue®... DBA5109	
Filter, safety.....	P533890 .....3
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000275
Inlet hood, plastic.....	H000606
Outlet band clamp.....	P148345
Thumb screw.....	P527435
Vacuator™ Valve.....	P525956



11" Model Shown

G150048 EPG

Cover.....	P523096
Elbow, 45°.....	P105548
Elbow, 90°.....	P105536
Fastener kit.....	X006452
Filter, primary-Donaldson Blue®... DBA5069	
Filter, primary - SM.....	P527682 .....3
Filter, safety.....	P527683 .....4
Hump hose.....	P105613
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000339
Inlet hood, plastic.....	H000607
Outlet band clamp.....	P148348
Thumb screw.....	P527435
Vacuator™ Valve.....	P525956



G150049 EPG

Cover.....	P523096
Elbow, 45°.....	P105548
Elbow, 90°.....	P105536
Fastener kit.....	X006452
Filter, primary - SM.....	P527682 .....3
Filter, primary-Donaldson Blue®... DBA5069	
Filter, safety.....	P527683 .....3
Thumb screw.....	P527435
Hump hose.....	P105613
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000339
Inlet hood, plastic.....	H000607
Outlet band clamp.....	P148348
Vacuator™ Valve.....	P525956

NOTES:

- 3 = Shipped with air cleaner initially
- 4 = Safety filter is designed to fit this air cleaner, but was not originally shipped with it (note that adding a safety filter will decrease the maximum airflow throughput)

SM= Scheduled Maintenance
Donaldson Blue® = High Efficiency, Extended Service



This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

1 Check the Restriction

Measure the restriction of the air cleaner with a Donaldson filter service indicator, service gauge or water manometer. Use the restriction tap provided on the air cleaner or at the transfer pipe. Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer or on a regular service schedule.

2 Remove the Filter

Unfasten or unlatch the service cover. The RadialSeal™ filter fits tightly over the outlet tube to create the critical seal, so there will be some initial resistance, similar to breaking the seal on a jar. Gently move the end of the filter back and forth to break the seal. Rotate while pulling the filter straight out. Avoid knocking the filter against the housing.



3 Clean Out the Vacuator™ Valve

Remove the Vacuator Valve and clean out any dust found in the drop tube. Reinstall Vacuator Valve or replace if found worn or damaged. If your air cleaner is equipped with a Vacuator Valve, visually check and physically squeeze it.



Make sure the valve is flexible and not inverted, damaged or plugged. Replace it if damaged or if it looks like any of these images. A damaged or missing Vacuator™ Valve will disrupt the designed flow of air through the air cleaner.

4 Inspect the Old Filter

Inspect the old filter for any signs of leaks. A streak of dust on the clean side of the filter is a telltale sign. Eliminate any source of air leaks before installing the new primary filter.



5 Visually Inspect the Safety Filter

If your air cleaner has a safety filter, do a visual inspection for damage. Verify that the safety filter is properly seated in the housing. Do not remove the safety filter unless it is damaged or due for replacement. The safety filter should be replaced every three primary filter changes. When you remove the safety filter, replace it immediately or make sure you cover the air cleaner outlet tube to avoid admitting any contaminant.

6 Clean Both Surfaces of the Outlet Tube

Use a clean damp cloth to wipe the filter sealing surface and the inside of the outlet tube. Contaminant on the sealing surface could hinder an effective seal and cause leakage.



7 Inspect the New Filter

Visually inspect the new filter, paying special attention to the sealing area which is inside the open end.

As you inspect the filter's RadialSeal take care not to wipe the sealing surface. The factory has placed a dry lubricant on the seal which aids in installation and removal. NEVER install a damaged filter.



8 Insert the New Filter Properly

If you're servicing the safety filter at this change-out, carefully seat it into position before installing the primary filter. Seat the filter by hand, making certain it is completely inserted into the air cleaner housing before securing the cover in place. To complete a tight seal, apply pressure by hand at the outer rim of the filter, not the flexible center.

Never use the service cover to push the filter into place since no cover pressure is required to hold the seal. Using the cover to apply pressure could damage the housing and cover fasteners, and will void the warranty.

If the new filter is not fully in place, remove the cover and push the filter further into the air cleaner with hand pressure on the outer rim. The cover should then go on with no extra force. Then secure the service cover.



9 Check Connectors for a Tight Fit

Make sure restriction indicators are reset and in proper working order.

Verify that all mounting bands, clamps, bolts, and connections in the entire air cleaner system are tight.

Check for holes in piping and repair or replace as needed. Any leaks in the intake piping will admit dust directly to the engine.





Cowl-Mounted Air Cleaner Superior Protection with RadialSeal™ Sealing Technology

Looking for a replacement to our older EBA cylindrical-shaped axial seal style air cleaner? Our ERA RadialSeal™ air cleaner series delivers a reliable filtration system for your engine and simplifies filter service.

Applications

- Light dust, single-stage air cleaner
- Vertical installation, mounted on the side of the truck
- Primarily for on-highway trucks
- Can be installed on driver or passenger's side
- Allows up to 1350 cfm airflow throughput per air cleaner

(Mounting the unit directly to the engine is not recommended)

Air Cleaner Features

- Black, corrosion and chemical resistant polymer paint retains its finish through all types of weather
- Available in 11" (279mm), 13" (330mm) and 15" (381mm) diameter sizes
- Order inlet hoods separately
- Double airflow throughput by using two air cleaners
- Vacuator™ Valve automatically expels moisture from bottom of housing

Filter Features

- RadialSeal sealing technology — high tech resilient urethane ends that hold the filter firmly in place and maintain a tight, reliable seal — reduces the number of components and ensures reliability
- High efficiency, extended service, Donaldson Blue® filters are available on some models (see service parts list on page 88 for part numbers)

Our older, classic EBA cowl-mounted air cleaner (shown on the right) has been replaced with our ERA Air Cleaner.

EBA replacement filters are still available through your local Donaldson outlet.



The ERA Style air cleaner has RadialSeal sealing technology and fewer access bolts to remove during service compared to our old EBA air cleaner design.

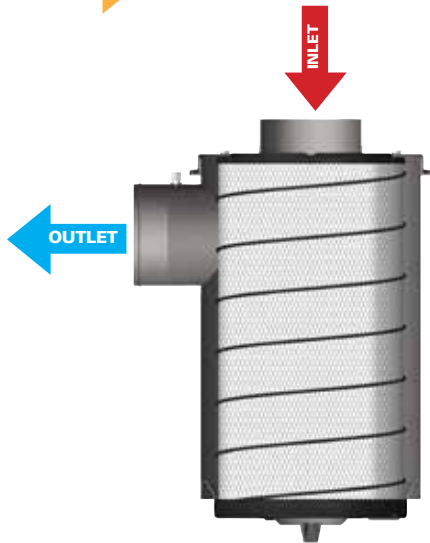
The exterior finish is glossy black, polymer paint.

Don't forget to protect the air cleaner from rain and exposure, by adding an inlet hood to the intake flange on the service cover. Pre-cleaner inlet hoods are featured in the accessories section.



FLOW

Air in the End, Out the Side (reverse flow filters)



When Selecting an Air Cleaner . . .

Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table at right. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction estimates.

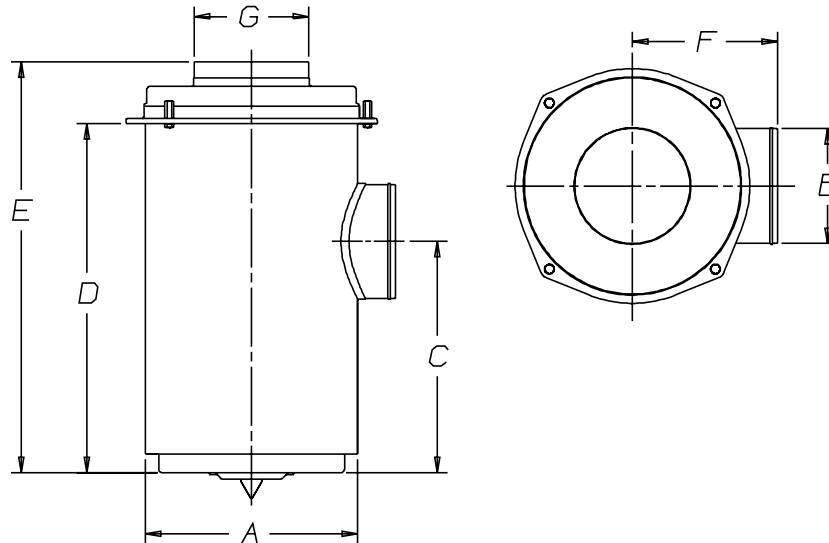
Initial Airflow Restriction*

CFM @ "H ₂ O			Air Cleaner Model
6"	8"	10"	
ERA AIR CLEANER			
750	870	970	A110052
760	880	890	A130115
760	880	980	A150141
1045	1205	1350	A150138

*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.

ERA Specification Illustrations

Side and Top View



ERA Specifications

Air Cleaner Models	Body Diameter (A)		Outlet Diameter (B)		Outlet Location (C)		Body Length (D)		Overall Length (E)		Outlet Location (F)		Inlet Dia. OD (G)		Service Clearance		Service Indicator Tap	Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm		lbs	kg
A110052	11.00	279	5.50	140	17.07	434	20.39	518	23.70	602	9.36	238	6.00	152	20.00	508	Yes	24	11
A130115	13.00	330	6.00	152	16.69	424	20.19	513	22.95	265	10.42	265	6.00	152	20.00	508	Yes	29	13
A150141	15.00	381	6.00	152	16.90	429	20.38	518	23.14	588	11.90	302	6.00	152	20.00	508	Yes	32	15
A150138	15.00	381	7.00	178	19.25	489	24.38	619	27.69	7.03	11.90	302	7.00	178	24.00	610	Yes	36	16



ERA Service Parts & Accessories

A110052 ERA

Bolt	P119463
Cover	P544744
Elbow, 45°	P105546
Elbow, 90°	P105534
Elbow, 90° reducing	P128990
Filter, primary-Donaldson Blue™ ...	DBA5148
Filter, primary - SM	P544741 .....3
Gasket, cover	P155211
Hump hose	P105611
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000275
Inlet hood, plastic	H000606
Mounting band, black, metal	P004079
Nut, plastic	P119325
Outlet band clamp	P148346
Retaining ring	P129469
Vacuator™ Valve	P149099

A130115 ERA

Bolt	P119463
Cover	P542475
Filter, primary - SM	P544950 .....3
Filter, primary-Donaldson Blue™ ...	DBA5149
Gasket, cover	P155264
Mounting band, black	P013722
Nut, plastic	P119325
Retaining ring	P129469
Vacuator™ Valve	P149099

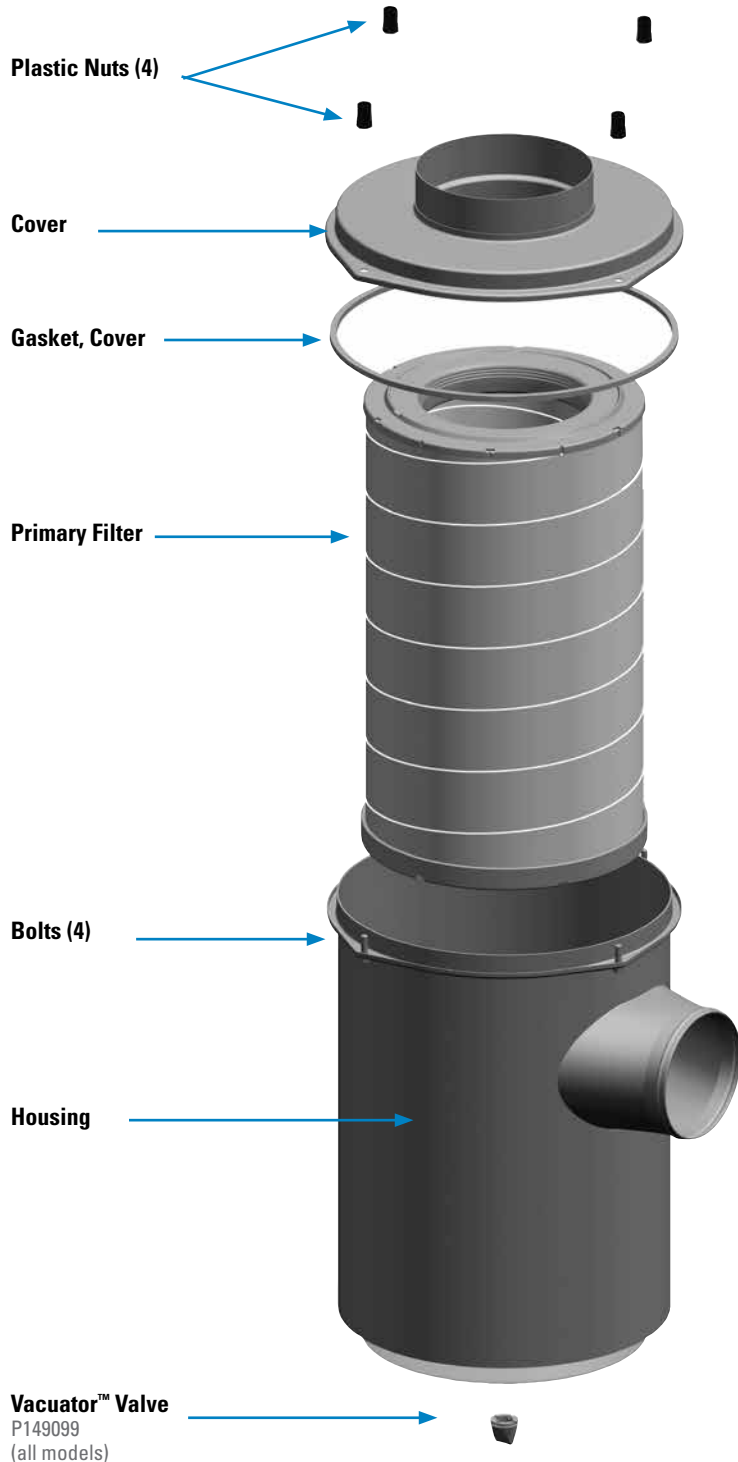
A150141 ERA

Bolt	P119463
Cover	P544827
Elbow, 45°	P105547
Elbow, 90°	P105535
Filter, primary-Donaldson Blue™ ...	DBA5151
Filter, primary - SM	P544243 .....3
Gasket, cover	P535559
Hump hose	P105612
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000275
Inlet hood, plastic	H000606
Mounting band, metal, black	P016845
Nut, plastic	P119325
Outlet band clamp	P148347
Retaining ring	P129469
Vacuator™ Valve	P149099

A150138 ERA

Bolt	P119463
Cover	P544238
Elbow, 45°	P105548
Elbow, 90°	P105536
Filter, primary-Donaldson Blue™ ...	DBA5150
Filter, primary - SM	P544301 .....3
Gasket, cover	P535559
Hump hose	P105613
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000339
Inlet hood, plastic	H000607
Mounting band, black, metal	P016845
Nut, plastic	P119325
Outlet band clamp	P148348
Retaining ring	P129469
Vacuator™ Valve	P149099

Requires Inlet Hood — See Accessories section for choices and order separately.



NOTES:
3 = Shipped with air cleaner initially

SM = Scheduled Maintenance
Donaldson Blue™ = High Efficiency, Extended Service

This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

1 Check the Restriction

Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer or on a regular service schedule. Restriction indicators, mounted on the air cleaner system are recommended for keeping an eye on restriction levels and indicating when servicing is due.



2 Remove the Filter

Unfasten or unlatch the service cover.

Because the filter fits tightly over the outlet tube to create the critical seal, there will be some initial resistance, similar to breaking the seal on a jar. Gently move the end of the filter back and forth to break the seal. Rotate while pulling the filter straight out. Avoid knocking the filter against the housing.



3 Check the Vacuator™ Valve

If your air cleaner is equipped with a Vacuator Valve, visually check and physically squeeze it. Make sure the valve is flexible and not inverted, damaged or plugged.



4 Inspect the Old Filter

Inspect the old filter for any signs of leaks. A streak of dust on the clean side of the filter is a telltale sign. Eliminate any source of air leaks before installing the new primary filter.



5 Clean Both Surfaces of the Outlet Tube

Use a clean damp cloth to wipe the filter sealing surface and the inside of the outlet tube. Contaminant on the sealing surface could hinder an effective seal and cause leakage.



Continued on next page



6

Inspect the New Filter

Visually inspect the new filter, paying special attention to the sealing area which is inside the open end. As you inspect the filter's RadialSeal™ take care not to wipe the sealing surface. The factory has placed a dry lubricant on the seal which aids in installation and removal.

NEVER install a damaged filter.



7

Insert the New Filter

Seat the filter by hand, making certain it is completely inserted into the air cleaner housing before securing the cover in place. To complete a tight seal, apply pressure by hand at the outer rim of the filter, not the flexible center. Never use the service cover to push the filter into place since no cover pressure is required to hold the seal.

Note that a cover gasket is usually supplied with ERA replacement filters. It is important that it be fitted at the same time as the new filter to ensure that the housing is airtight.

Using the cover to apply pressure could damage the housing and cover fasteners, and will void the warranty. If the new filter is not fully in place, remove the cover and push the filter further into the air cleaner with hand pressure on the outer rim. The cover should then go on with no extra force. Then, secure the service cover.



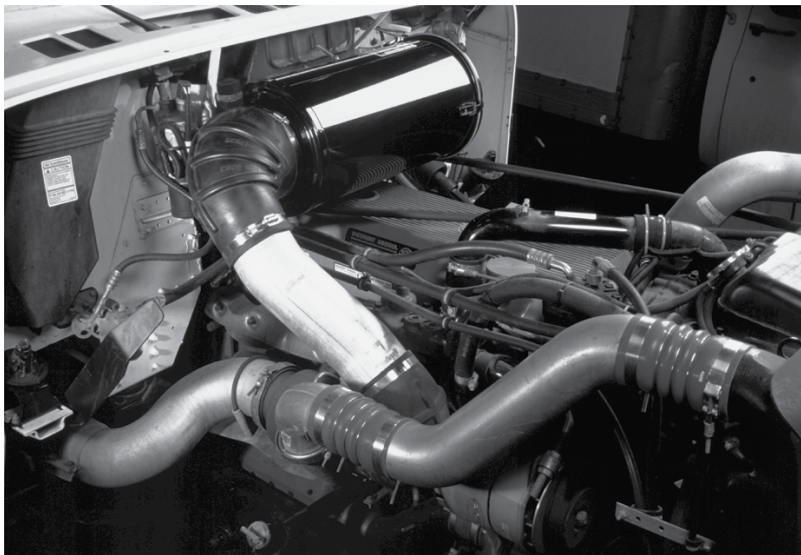
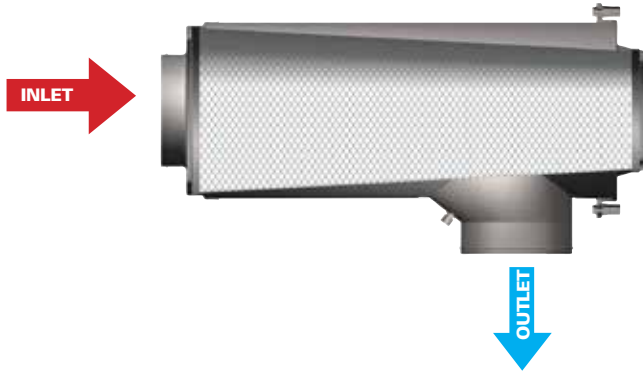
8

Check Connectors for a Tight Fit

Make sure restriction indicators are reset and in proper working order. Verify that all mounting bands, clamps, bolts, and connections in the entire air cleaner system are tight. Check for holes in piping and repair or replace as needed. Any leaks in the intake piping will admit dust directly to the engine.



FLOW **A** Air in the End, Out the Side



Because of the cone-shaped filter inside the housing, EBA Konepac™ is smaller in size compared to the ERA without sacrificing airflow. This allows trucks to meet width requirements in all states.

Picture of A112018 air cleaner with service cover on the opposite end of the inlet.



Applications

- Light-dust, single-stage air cleaner
- Typically mounted horizontally, underhood.

When Selecting an Air Cleaner . . .

Service parts for this axial style air cleaner may not be available due to newer filtration technology and housing designs. Donaldson now recommends RadialSeal™ style air cleaners for new applications.

If you do prefer this air cleaner style, please use the air cleaner selection steps outlined on the inside cover to determine which air cleaner is best for your engine.

Initial Airflow Restriction*

CFM @ "H ₂ O	6"	8"	10"	Air Cleaner Model
STYLE KPI				
1150	1300	1475		A112018
STYLE KPII				
875	1000	1130		A092037
1140	1300	1450		A112078
1400	1640	1850		A132001

*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.

Looking for the EBA Cylindrical models?

The four models previously available have been replaced by a more reliable ERA RadialSeal style air cleaner design. The ERA models are a direct replacement to the older axial seal air cleaner models.

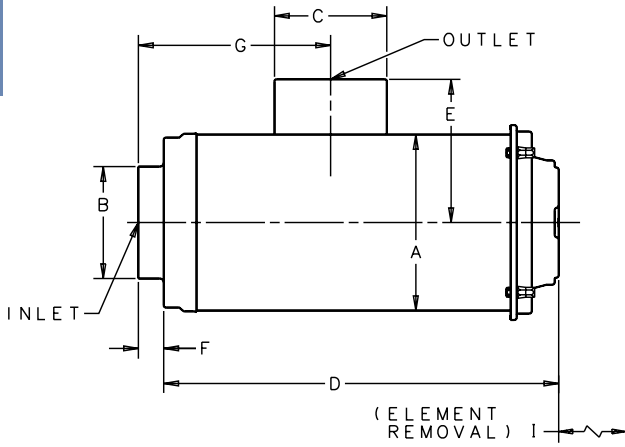
A110009 use A110052
A150039 use A150141

A130045 use A130115
A150128 use A150138

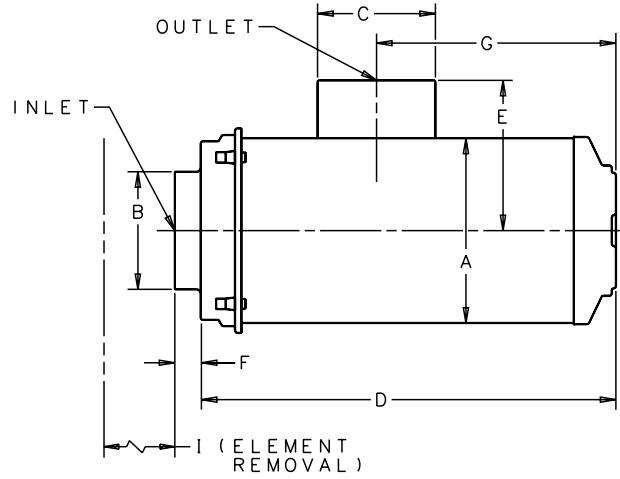


EBA Konepac™ Specification Illustrations

Style Konepac I (KPI)
Service cover opposite the inlet end



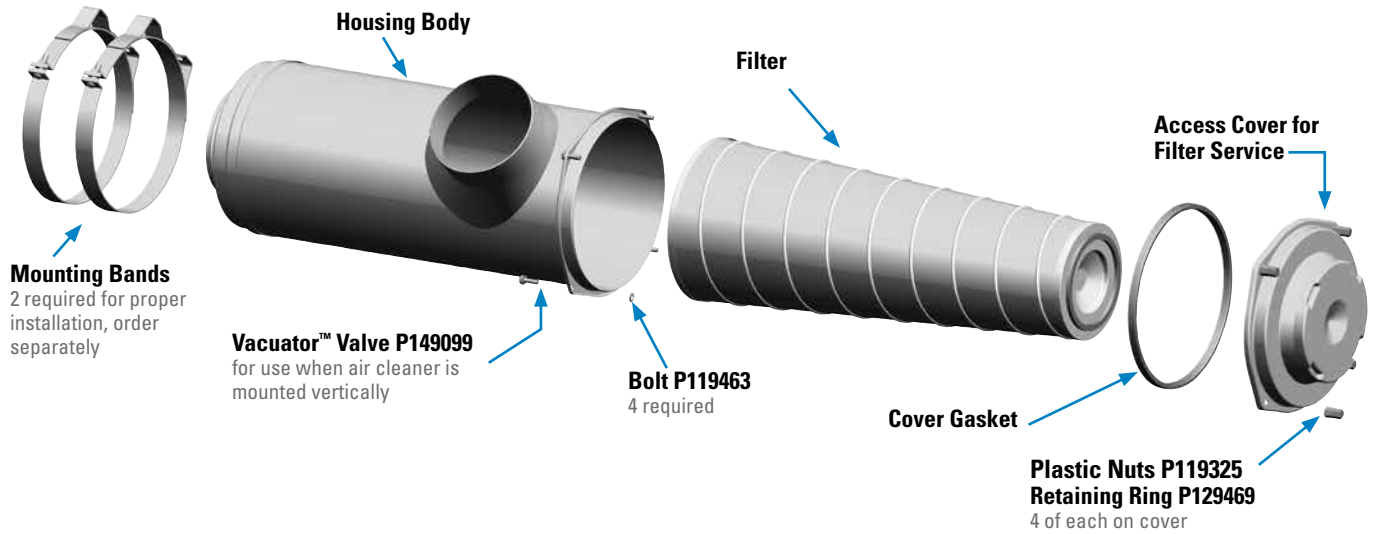
Style Konepac II (KPII)
Service cover on inlet end



EBA Konepac™ Specifications

Air Cleaner Models	Body Diameter (A)		Inlet Diameter (B)		Outlet Diameter (C)		Length (D)		(E)		Inlet Length (F)		(G)		Service Clearance (I)		Service Indicator Tap	Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm		lbs	kg
STYLE KPI																			
A112018	11.00	279	7.00	178	7.00	178	28.62	727	8.95	227	1.58	40	22.20	564	28.00	711	Yes	39.0	17.8
STYLE KPII																			
A092037	9.00	229	6.00	152	6.00	152	28.63	727	7.85	199	1.18	30	10.00	443	27.62	702	Yes	21.5	9.5
A112078	11.00	279	7.00	178	7.00	178	28.67	728	8.95	227	1.58	40	8.00	203	28.00	711	Yes	30.0	13.6
A132001	13.00	330	8.00	203	8.00	203	28.59	726	10.00	254	2.38	60	7.50	191	28.00	711	No	42.0	19.0

EBA Konepac Service Parts & Accessories
(KPII style shown)



A092037	Style KPII	
Elbow, 45°		P105547
Elbow, 90°		P105535
Filter, primary		P140822
Filter, primary-Donaldson Blue®	... DBA5025	
Filter, primary treated		P129472 .....1,3
Gasket, cover		P120597
Hump hose		P105612
Informer™ indicator 25" H ₂ O		X002277
Inlet hood, metal		H000275
Inlet hood, plastic		H000606
Mounting bands, metal		P004073
Nut, plastic		P119325
Outlet band clamp		P148347
Retaining ring		P129469
Vacuator™ Valve		P149099

A112078	EBA KPII	
Elbow, 45°		P105548
Elbow, 90°		P105536
Filter, primary		P151097
Filter, primary-Donaldson Blue®	... DBA5024	
Filter, primary treated		P129396 .....1,3
Gasket, cover		P155211
Hump hose		P105613
Informer™ indicator 25" H ₂ O		X002277
Inlet hood, metal		H000339
Inlet hood, plastic		H000607
Mounting band, metal		P004079 .....2
Nut, plastic		P119325
Outlet band clamp		P148348
Retaining ring		P129469
Vacuator™ Valve		P149099

A112018	EBA KPI	
Elbow, 45°		P105548
Elbow, 90°		P105536
Filter, primary		P151097 .....3
Filter, primary-Donaldson Blue®	... DBA5024	
Filter, primary treated		P129396 .....1
Gasket, cover		P155211
Hump hose		P105613
Informer™ indicator 25" H ₂ O		X002277
Inlet hood, metal		H000339
Inlet hood, plastic		H000607
Mounting band, metal		P004079 .....2
Nut, plastic		P119325
Outlet band clamp		P148348
Retaining ring		P129469
Vacuator™ Valve		P149099

A132001	EBA KPII	
Elbow, 45°		P112606
Elbow, 90°		P112605
Filter, primary		P141228 .....3
Filter, primary-Donaldson Blue®	... DBA5026	
Gasket, cover		P155264
Hump hose		P112608
Informer™ indicator 25" H ₂ O		X002277
Inlet hood, plastic		H001053
Mounting band, metal		P013722 .....2
Nut, plastic		P119325
Outlet band clamp		P629991
Retaining ring		P129469
Vacuator™ Valve		P149099

NOTES:

- 1 = Filter is treated with chemical for carbon resistance and is not cleanable
- 2 = Two required for proper installation
- 3 = Shipped with air cleaner initially

Donaldson Blue® = High Efficiency, Extended Service

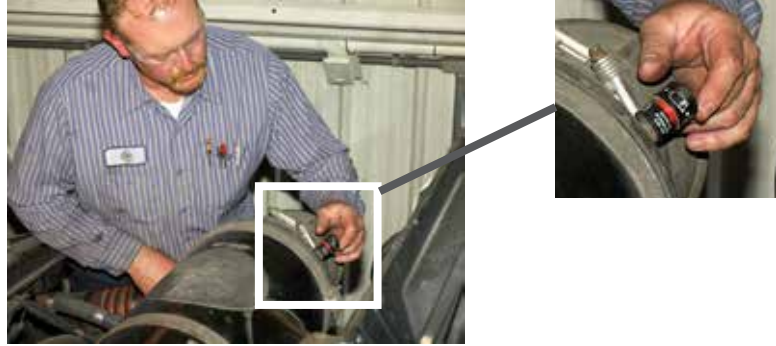


This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

1 Check the Restriction

Measure the restriction of the air cleaner with a Donaldson filter service indicator, service gauge, or a water manometer.

Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer or on a regular service schedule.



2 Gently Remove the Old Filter

Switch the engine off. Handle the dirty filter gently, until it is clear of the air cleaner housing. Accidental bumping will shake dirt loose inside the filter housing.



3 Clean the Inside of the Housing

Always clean the inside of the housing. Dirt left in the air cleaner housing can potentially damage your engine.

Use a clean, damp cloth to wipe every surface clean. Ensure that the outlet tube sealing area is clean and undamaged.



4 Check the Inside Visually Before Installing the Filter

Always clean the gasket sealing surface. An improper gasket seal is one of the most common causes of engine contamination. Make sure that all hardened dirt ridges are completely removed, both on the bottom and top of the air cleaner housing.

Check for uneven dirt patterns. Your old filter has valuable clues to dust leakage or gasket sealing problems. A pattern on the filter's clean side is a sign that the old filter was not firmly sealed or that a dust leak exists. Identify the cause of that leak and rectify it before installing a new filter.



5 Inspect the New Filter Before Installation

Check the new filter, but don't install it if it appears damaged. Check that the gasket is easily compressible and springs back promptly when finger pressure is released.



6 Install the New Filter

It is important to change the new supplied cover gasket with each filter service. Ensure that the filter is the correct size for the housing and install the filter, making sure the gasket seats evenly for a perfect seal. Without a proper seal, dirty air can by-pass the filter.



7 Ensure Air-tight Fit on All Connections and Ducts

Check that all clamps and flange joints are tight, as well as the air cleaner mounting bands. Attend to any leaks immediately to avoid dirt directly entering your engine. If the vehicle is fitted with air brakes, it is important to check the clean air supply hose which feeds the air brake compressor.





High Airflow in Compact Size for Horizontal Installation

Upgrade Path

To upgrade, consider the Donaldson EPG air cleaner or PSD air cleaners that use newer filtration technologies.

Applications

- Airflow range 775 to 1600 cfm airflow throughput per air cleaner
- Horizontal installation, side inlet
- Over-highway trucks: horizontal under hood or behind cab
- Buses: under hood

Air Cleaner Features

- Relatively small air cleaner with high airflow
- Designed for horizontal installation with side inlet
- Housing is metal and coated with a corrosion and chemical resistant polymer paint
- Direct engine mounting is not recommended due to excessive engine vibration
- All models have service access cover opposite the outlet end of the air cleaner

Filter Features

- Cone shaped filters, which we call Konepac, allow maximum media in a small package (one filter is shipped with each air cleaner)
- Other filter performance options, including Donaldson Blue® high efficiency, extended service filters, are available on some models (see service parts list on pages 98 and 99 for part numbers)



The latched service cover on the ECG Konepac allows for easy access to the filter for change out.



ECG Konepac with Latched Service Access
Left: a standard media filter, which is available with either standard or carbon-resistant media. **Middle:** the ECG Konepac™ metal air cleaner housing. **Right:** an extended service filter



ECG Konepac with Perforated Inlet — an alternative to disposable style housings. You'll get the economy of replacing the filter instead of the entire unit each time. The perforated inlet on the side of this G112417 housing (middle) is the same as the disposable's, so conversion is direct and easy. **Left:** Extended service filter. **Right:** Filter designed for scheduled maintenance.





Air in the Side, Out the End (standard flow filters)

When Selecting an Air Cleaner

Service parts for this axial style air cleaner may not be available due to newer filtration technology and housing designs. Donaldson now recommends one of two other families — the EPG or PCD.

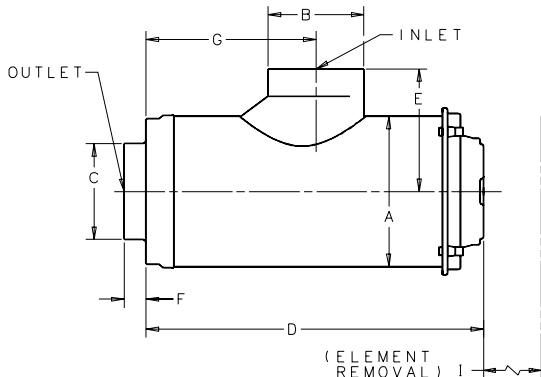
Initial Airflow Restriction*

CFM @ "H ₂ O			Air Cleaner Model
6"	8"	10"	
MODELS WITH BOLTED SERVICE ACCESS			
775	880	1000	G092001
1100	1300	1425	G112001
1200	1400	1550	G132000
MODELS WITH LATCHED SERVICE ACCESS			
800	925	1040	G092401
1200	1400	1600	G112404
1200	1400	1600	G112417 ¹
1200	1400	1600	G112501
1200	1400	1600	G112504

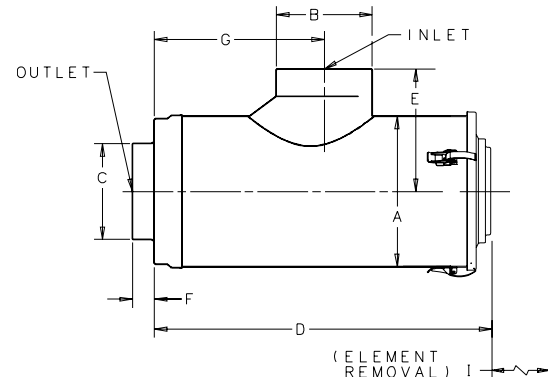
*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.

1 - No inlet tube, perforated inlet holes on side

ECG Konepac™ Specification Illustrations
Bolted Service Access



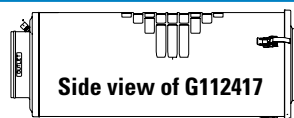
Latched Service Access



ECG Konepac Specifications

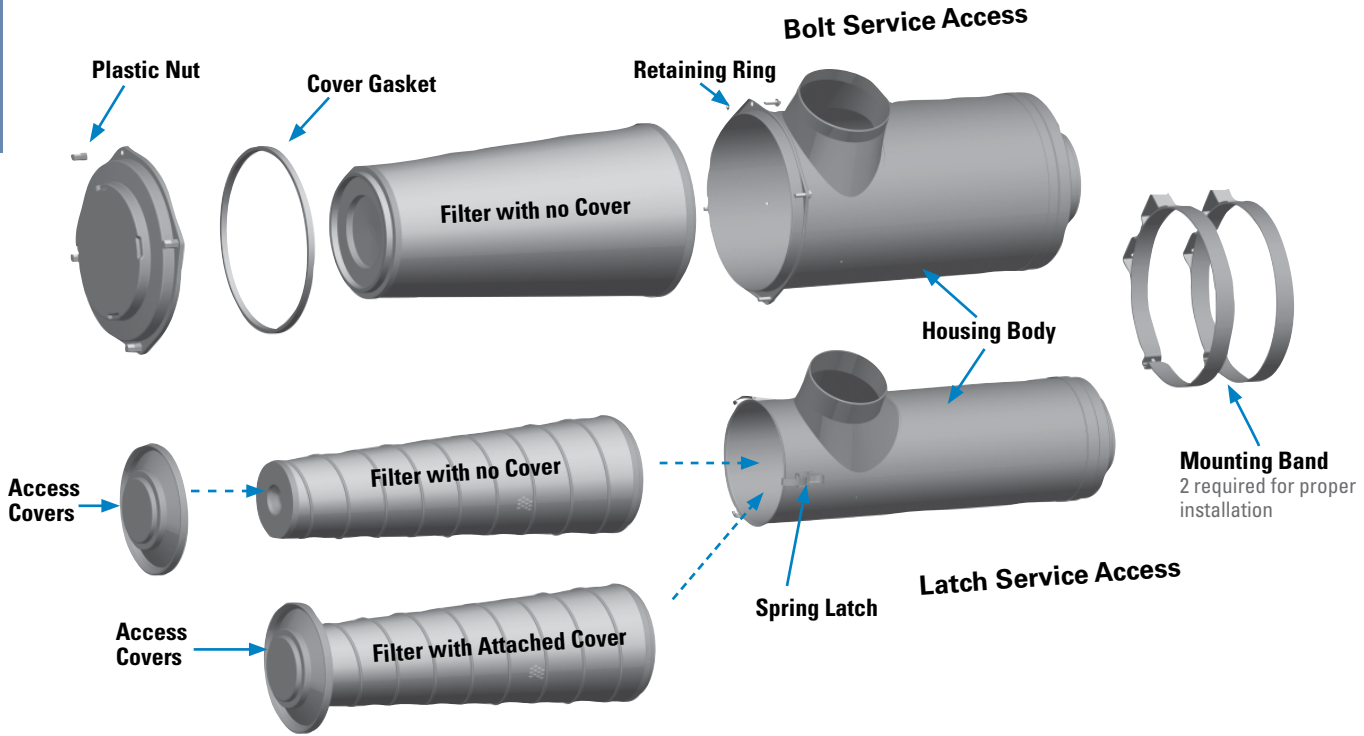
Air Cleaner Models	Body Diameter (A)		Inlet Diameter (B)		Outlet Diameter (C)		Overall Length (D)		(E)		Inlet Length (F)		(G)		Service Clearance		Service Indicator Tap	Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm		lbs	kg
BOLTED SERVICE ACCESS																			
G092001	9.00	229	6.00	152	6.00	152	28.63	727	7.85	199	1.18	30	18.63	473	27.62	702	No	30	14
G112001	11.00	279	7.00	178	7.00	178	28.62	727	8.95	227	1.58	40	20.62	524	27.00	686	No	38	17
G132000	13.00	330	7.00	178	7.00	178	24.59	625	9.54	242	2.38	60	18.25	464	27.62	702	No	36	16
LATCHED SERVICE ACCESS																			
G092401	9.00	229	6.00	152	6.00	152	28.70	729	7.86	200	1.18	30	21.75	553	27.62	702	No	30	14
G112404	11.00	279	7.00	178	7.00	178	22.70	577	8.97	228	2.00	51	12.32	313	22.00	559	Yes	33	15
G112417 ¹	11.00	279	--	--	7.00	178	28.70	729	--	--	2.00	51	15.11	384	28.00	711	Yes	30	14
G112501	11.00	279	7.00	178	7.00	178	28.30	719	8.97	228	2.00	51	21.22	539	28.00	711	Yes	23	10
G112504	11.00	279	7.00	178	7.00	178	22.30	566	8.97	228	2.00	51	12.32	313	22.00	559	Yes	20	9

1 - This model has no inlet tube; inlet consists of rectangular perforated holes on side of housing.





ECG Konepac Service Parts



ECG Konepac Service Parts & Accessories

G092001 Bolted Service Cover	
Elbow, 45°	P105547
Elbow, 90°	P105535
Filter, primary, no cover, treated	P148044 ....1,3
Hump hose	P105612
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000275
Inlet hood, plastic	H000606
Mounting band, metal	P004073 ....2
Nut, plastic	P119325
Outlet band clamp	P148347
Retaining ring	P129469

G092401 Latch Service Cover	
Elbow, 45°	P105547
Elbow, 90°	P105535
Filter, primary, attached cover	P150693 ....6
Filter, primary, no cover	P150692 ....3
Filter, primary, no cover, treated	P148044 ....1
Hump hose	P105612
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000275
Inlet hood, plastic	H000606
Mounting bands, metal	P004073
Outlet band clamp	P148347
Spring latch replacement kit	X006201

G112001 Bolt Service Cover	
Elbow, 45°	P105548
Elbow, 90°	P105536
Filter, primary, no cover, treated	P148043 ....1,3
Gasket, cover	P155211
Hump hose	P105613
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000339
Inlet hood, plastic	H000607
Kit	X006201
Mounting band, metal	P004079 ....2
Nut, plastic	P119325
Outlet band clamp	P148348
Retaining ring	P129469

G112404 Latch Service Cover	
Cover	P150862
Elbow, 45°	P105548
Elbow, 90°	P105536
Filter, primary, attached cover	P153551
Filter, primary, no cover, treated	P154575 ....1,3
Gasket, cover	P536493
Hump hose	P105613
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000339
Inlet hood, plastic	H000607
Mounting bands, metal	P004079
Outlet band clamp	P148348
Spring latch replacement kit	X006201



ECG style air cleaners have three cover latches that need to perform correctly to ensure the filter gasket is sealing properly. These latches should be checked for tightness and wear. To check for tightness, close all three latches, then open and close them one at a time. There should be good tension and they should snap tightly when closed. If any latches seem loose or rattle, they should be replaced.



G112417 Latch Service Cover

Cover.....	P150862
Elbow, 45°.....	P105548
Elbow, 90°.....	P105536
Filter, primary, attached cover.....	P150695
Filter, primary, attached cover	
- Donaldson Blue®.....	DBA5047
Filter, primary, no cover.....	P150694.....3,5
Filter, primary, no cover	
- Donaldson Blue®.....	DBA5029
Gasket, cover.....	P536493
Hump hose.....	P105613
Informer™ indicator 25" H ₂ O.....	X002277
Mounting bands, metal.....	P004079
Outlet band clamp.....	P148348
Spring latch replacement kit.....	X006201

G112501 Latch Service Cover

Elbow, 45°.....	P105548
Elbow, 90°.....	P105536
Filter, primary.....	P150694.....5
Filter, primary.....	P150695.....3,6
Filter, primary, attached cover	
- Donaldson Blue®.....	DBA5047
Filter, primary, no cover	
- Donaldson Blue®.....	DBA5029
Filter, primary treated.....	P148043.....1
Gasket, cover.....	P536493
Hump hose.....	P105613
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000339
Inlet hood, plastic.....	H000607
Mounting bands, metal.....	P004079
Outlet band clamp.....	P148348
Spring latch replacement kit.....	X006201

G112504 Latch Service Cover

Elbow, 45°.....	P105548
Elbow, 90°.....	P105536
Filter, primary, attached cover.....	P153551.....6
Filter, primary, attached cover	
- Donaldson Blue®.....	DBA5053
Filter, primary, no cover, treated... ..	P154575.....1
Gasket, cover.....	P536493
Hump hose.....	P105613
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000339
Inlet hood, plastic.....	H000607
Mounting bands, metal.....	P004079
Outlet band clamp.....	P148348
Spring latch replacement kit.....	X006201

G132000 Bolt Service Cover

Elbow, 45°.....	P105548
Elbow, 90°.....	P105536
Filter, primary, no cover.....	P142100.....3
Filter, primary, no cover	
- Donaldson Blue®.....	DBA5027
Gasket, cover.....	P120604
Hump hose.....	P105613
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000339
Inlet hood, plastic.....	H000607
Mounting band, metal.....	P013722.....2
Nut, plastic.....	P119325
Outlet band clamp.....	P148348
Retaining ring.....	P129469

NOTES:

- 1 = Filter is treated with chemical for carbon resistance and is not cleanable
- 2 = Two required for proper installation
- 3 = Shipped with air cleaner initially
- 5 = Also requires access cover P150862
- 6 = Access cover is attached to filter

Donaldson Blue® = High Efficiency, Extended Service

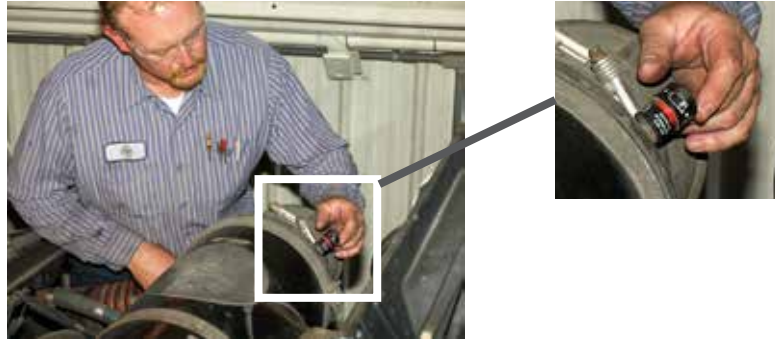


This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

1 Check the Restriction

Check the restriction of the air cleaner with a Donaldson filter service indicator, service gauge, or a water manometer.

Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer or on a regular service schedule.



2 Gently Remove the Old Filter

Switch the engine off. Handle the dirty filter gently, until it is clear of the air cleaner housing. Accidental bumping will shake dirt loose inside the filter housing.



3 Clean the Inside of the Housing

Always clean the inside of the housing. Dirt left in the air cleaner housing can potentially damage your engine.

Use a clean, damp cloth to wipe every surface clean. Ensure that the outlet tube sealing area is clean and undamaged.



4 Visually Check the Inside Before Fitting the New Filter

Always clean the gasket sealing surface. An improper gasket seal is one of the most common causes of engine contamination. Make sure that all hardened dirt ridges are completely removed, both on the bottom and top of the air cleaner housing.

Check for uneven dirt patterns. Your old filter has valuable clues to dust leakage or gasket sealing problems. A pattern on the filter's clean side is a sign that the old filter was not firmly sealed or that a dust leak exists. Identify the cause of that leak and rectify it before installing a new filter.



5 Inspect the New Filter Before Installation

Check the new filter but don't install it if it appears damaged. Check that the gasket is easily compressible and springs back promptly when finger pressure is released.



6 Install the New Filter

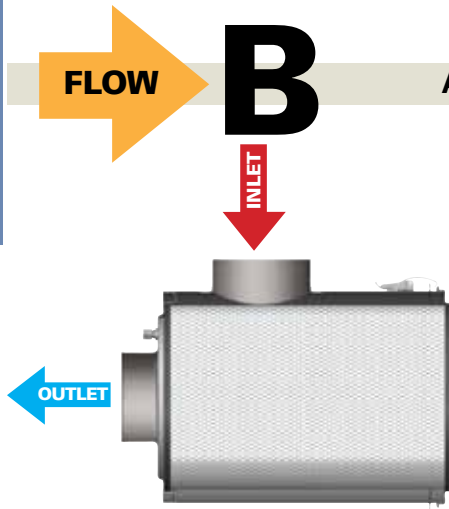
It is important to change the new supplied cover gasket with each filter service. Ensure that the filter is the correct size for the housing and install the filter, making sure the gasket seats evenly for a perfect seal. Without a proper seal, dirty air can by-pass the filter.



7 Ensure Air-tight Fit on All Connections and Ducts

Check that all clamps and flange joints are tight, as well as the air cleaner mounting bands. Attend to any leaks immediately to avoid dirt entering your engine directly. If the vehicle is fitted with air brakes, it is important to check the clean air supply hose which feeds the air brake compressor.





Air in the Side, out the End (standard flow filters)

When Selecting an Air Cleaner . . .

Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table below. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction.

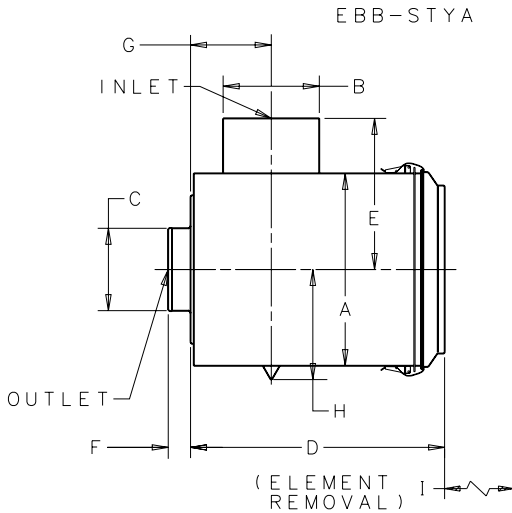


When servicing the EBB, make sure to replace the cover gasket when changing filters.

Initial Airflow Restriction*

CFM @ "H ₂ O			Air Cleaner Model
6"	8"	10"	
620	730	800	B120271
900	1050	1320	B140044
1360	1530	1640	B160049

*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.

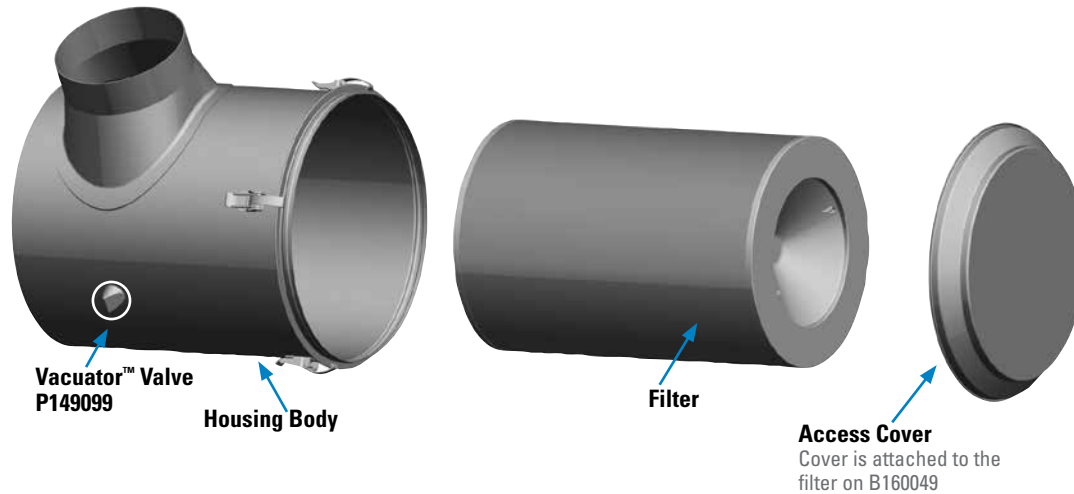


EBB Specifications NOTE: All EBB Air Cleaners are tapped to accept a filter service indicator

Air Cleaner Models	Body Diameter (A)		Inlet Diameter (B)		Outlet Diameter (C)		Length (D)		(E)		Inlet Length (F)		(G)		(H)		Service Clearance (I)		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg
B120271	11.81	300	5.50	140	5.00	127	16.42	417	7.64	194	2.00	51	5.80	147	--	--	16.0	406	16	7
B140044 ¹	14.00	356	7.00	178	6.00	152	18.50	470	10.90	277	1.62	41	5.88	149	8.00	203	17.5	445	19	8
B160049 ²	16.00	406	8.00	203	7.00	178	18.75	476	12.91	328	2.50	64	8.84	225	--	--	18.0	457	35	16

1 - B140044 is only model with installed Vacuator™ Valve 2 - Access cover secured with bolts

Service Parts & Accessories



B120271

Elbow, 45°	P109021
Elbow, 90°	P107844
Elbow, 90° reducing	P143895
Filter, primary	P182028
Filter, primary - Donaldson Blue®	DBA5028
Filter, primary - SM	P181028 ....3
Hump hose	P105610
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H000604
Mounting band, metal	H000349 ....2
Outlet band clamp	P148345

B140044 EBB

Elbow, 45°	P105547
Elbow, 90°	P105535
Filter, primary	P182015
Filter, primary - Donaldson Blue®	DBA5015
Filter, primary - SM	P181015 ....3
Hump hose	P105612
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000339
Inlet hood, plastic	H000607
Mounting band, metal	H000350 ....2
Outlet band clamp	P148347

B160049 EBB

Elbow, 45°	P105548
Elbow, 90°	P105536
Filter, primary	P182099 ....3,6
Filter, primary - Donaldson Blue®	DBA5099
Filter, primary - SM	P181099 ....6
Hump hose	P105613
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H001053
Mounting band, metal	H000351 ....2
Outlet band clamp	P148348

NOTES:

- 2 = Two required for proper installation
- 3 = Shipped with air cleaner initially
- 6 = Access cover is attached to filter

SM=Scheduled Maintenance
Donaldson Blue® = High Efficiency, Extended Service



This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

1 Check the Restriction

Check the restriction of the air cleaner with a Donaldson filter service indicator, service gauge, or a water manometer.

Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer or on a regular service schedule.



2 Gently Remove the Old Filter

Switch the engine off. Handle the dirty filter gently, until it is clear of the air cleaner housing. Accidental bumping will shake dirt loose inside the filter housing.



3 Clean the Inside of the Housing

Always clean the inside of the housing. Dirt left in the air cleaner housing can potentially damage your engine.

Use a clean, damp cloth to wipe every surface clean. Ensure that the outlet tube sealing area is clean and undamaged.



4 Check the Inside Visually Before Installing the Filter

Always clean the gasket sealing surface. An improper gasket seal is one of the most common causes of engine contamination. Make sure that all hardened dirt ridges are completely removed, both on the bottom and top of the air cleaner housing.

Check for uneven dirt patterns. Your old filter has valuable clues to dust leakage or gasket sealing problems. A pattern on the filter's clean side is a sign that the old filter was not firmly sealed or that a dust leak exists. Identify the cause of that leak and rectify it before installing a new filter.



5 Inspect the New Filter Before Installation

Check the new filter but don't install it if it appears damaged. Check that the gasket is easily compressible and springs back promptly when finger pressure is released.

Note: Air cleaners with over center latches do not require gaskets.



6 Install the New Filter

It is important to change the newly supplied cover gasket, if included in shipment with filter, with each filter service. Ensure that the filter is the correct size for the housing and install the filter, making sure the gasket seats evenly for a perfect seal. Without a proper seal, dirty air can by-pass the filter.



7 Ensure Air-tight Fit on All Connections and Ducts

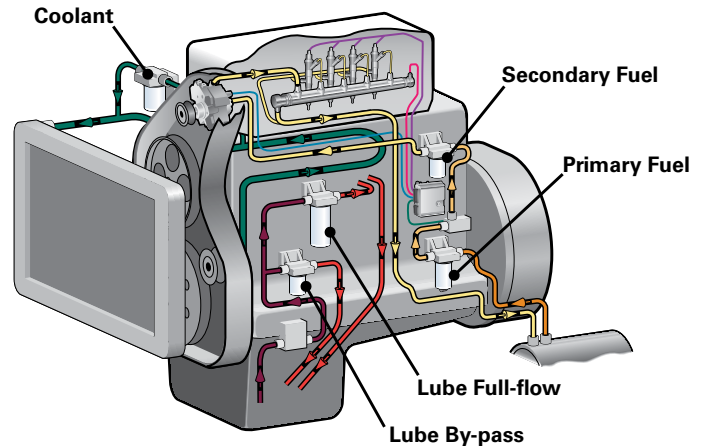
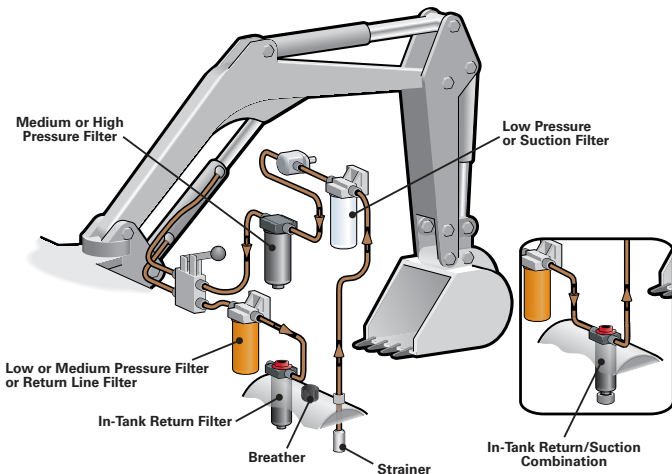
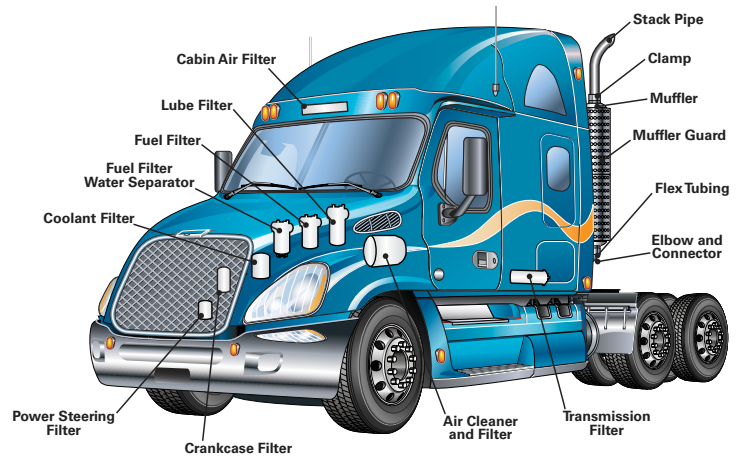
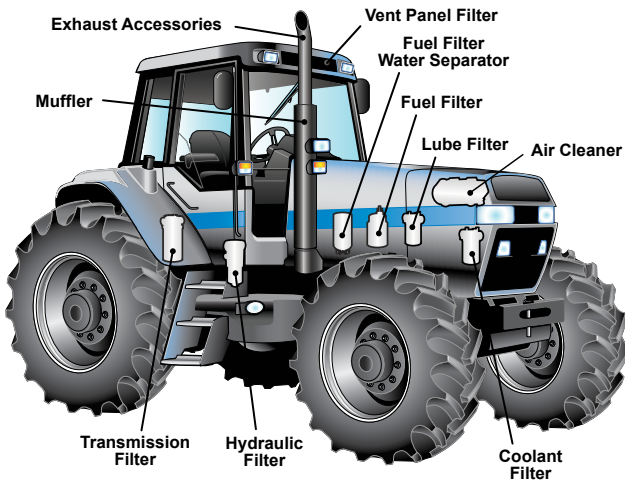
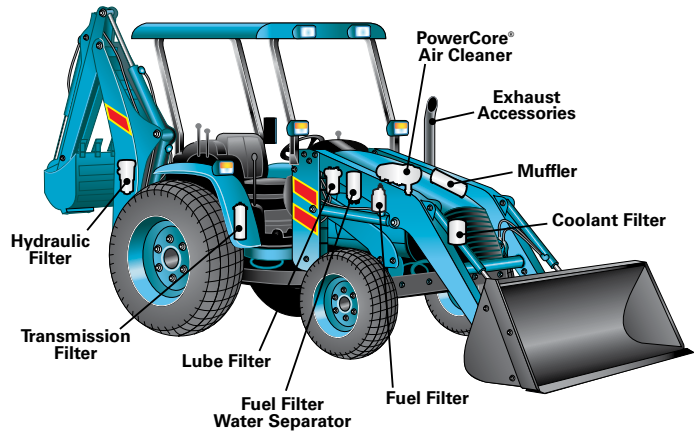
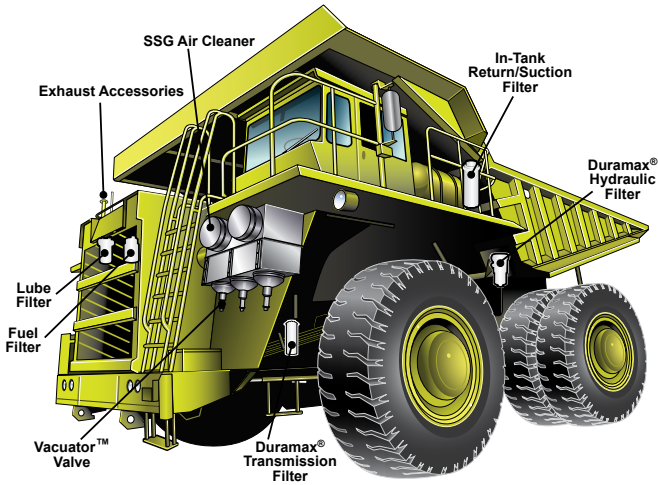
Check that all clamps, flange joints and air cleaner mounting bands are tight. Attend to any leaks immediately to avoid dirt entering your engine directly. If the vehicle is fitted with air brakes, it is important to check the clean air supply hose that feeds the air brake compressor.



Reset the Indicator

If your system has a remote indicator, don't forget to reset it after filter service.

Total Filtration Solutions
Vehicles • Engines • Equipment



Powerful Two-Stage Filtration for Diesel Engines Operating in Medium to Heavy Dust Conditions

The air cleaners featured in this section offer reliable two-stage filtration designs that have been proven by years of service in medium dust environments such as light construction, mining, agriculture, trucks, gen sets, compressors and industrial applications.



If you're looking for a new two-stage air cleaner, check out the PowerCore® and PowerPleat™ Air cleaner sections first!



PowerCore
A Donaldson Filtration Technology
page 33



PowerPleat™
A Donaldson Filtration Technology
page 65

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Looking for FHG or FWG Air Cleaner Families?

Older FHG	FPG Model	--- FRG Model --- Style A Style B	PowerPleat	PSD
G052558	G065424	G052686		
G052559	G065424	G052686		
G052560	G065424	G052686		
G052561	G057511	G052685	G052742	
G065104	G065432	G065541		
G065113	G065432	G065541		
G065212	G065432	G065541		
G065360	G065432	G065551		
G080147	G070019	G080582		
G080195	G082528	G080585		

Consult upgrade table in the Service Parts Listing/Upgrade section on page 253.



Smaller, Lightweight Alternative Two-Stage Air Cleaner Designed for horizontal installation

The FKB series is a family of two-stage air cleaners for medium dust conditions.

Compared to other air cleaner styles, this new air cleaner family delivers the performance of competitive larger air cleaners in a compact, rugged design.

With heavy-duty plastic construction and non-metal filters, the air cleaner is lighter, more efficient, and easier to install and replace than competing products.

Another key design feature is the built-in mounting brackets. There's no need for additional mounting support.

The two-stage design features a built-in pre-cleaner that separates up to 85% of airborne contaminants.



FKB air cleaners are smaller in diameter compared to competitive brands with similar airflow.

Cummins and Fleetguard are registered trademarks of Cummins, Inc.
Mann+Hummel is a registered trademark of Mann+Hummel GMBH

The FKB's plastic housing and durable construction enables installation in all types of operating environments and temperature ranges from -40 °C to 82 °C, operating in medium dust conditions with engine air flow from 70 to 207 cfm (2 to 5.9 m³/min).

FKB air cleaners effectively reduce contaminants flowing into the air intake system, provide a high level of engine protection from harmful contaminants and increase engine performance and fuel efficiency.

The air cleaner models ship with both the primary and safety filters.



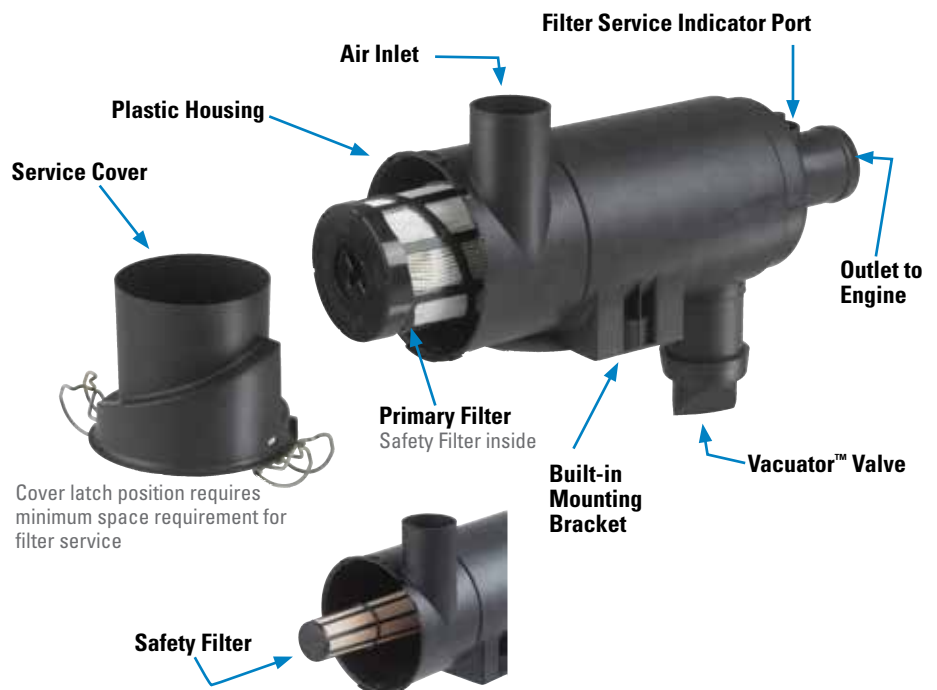
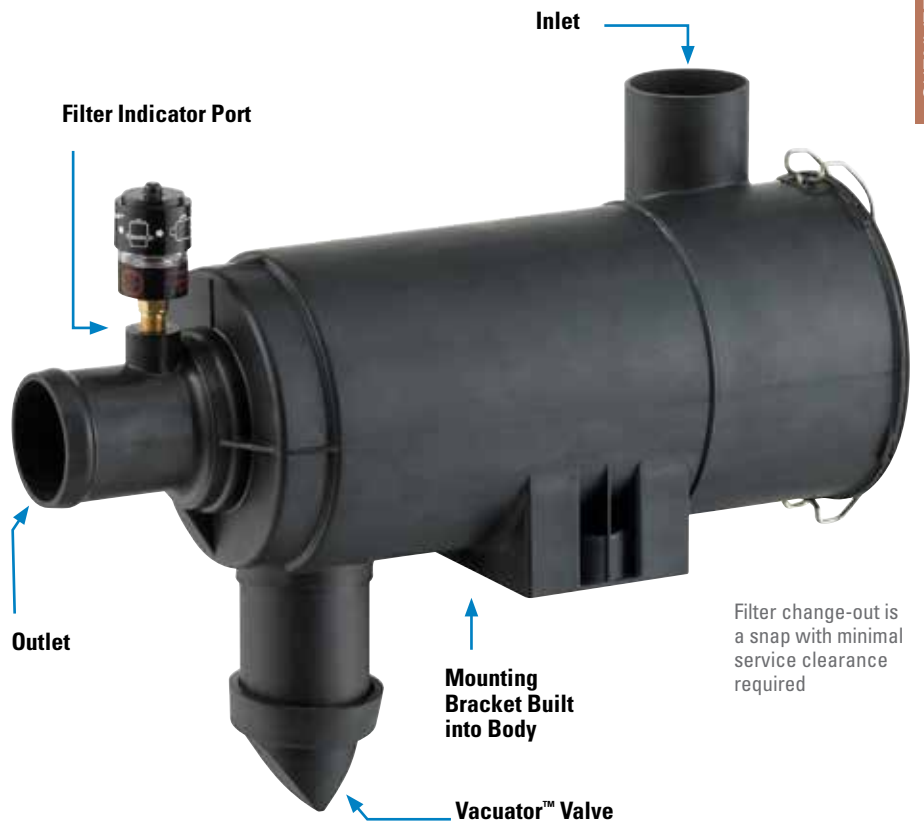
Built-in Mounting Brackets and Filter Indicator Port Easy to service with non-metal filters

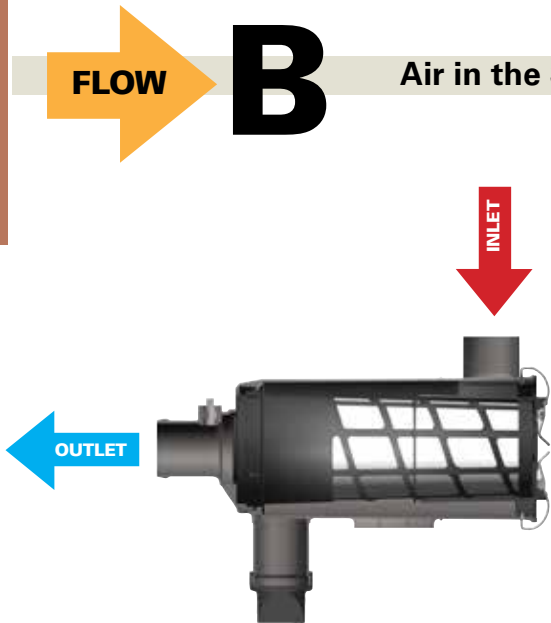
Applications

- Off-road equipment operating in medium-dust conditions with engine airflow range of 70 to 207 cfm (2 to 5.9 m³/min)
- Installs horizontally. Mounting the air cleaner directly to the engine is not recommended; excessive engine vibration can cause premature air cleaner structural failure
- Sustained temperature tolerance: -40 °F to 180 °F / -40 °C to 82 °C. Do not install next to components that exceed the maximum temperature (180 °F / 82 °C); like a turbocharger, muffler, exhaust pipe or other high temperature component

Air Cleaner Features

- Smaller in diameter compared to competitive brands with similar airflow
- Improved handling and maintenance — lighter and smaller, changing filters is a snap
- Product design includes:
 - primary filter
 - safety filter
 - filter service indicator port
- Improved filter disposal ease — no metal
- Cover latch position allows for minimum service clearance and eases filter service
- Built-in mounting brackets in air cleaner body eliminate need for mounting bands





Air in the Side, out the End (standard flow filters)

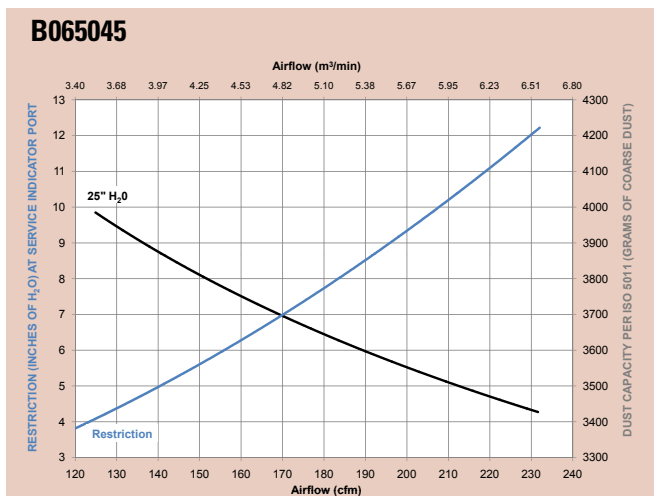
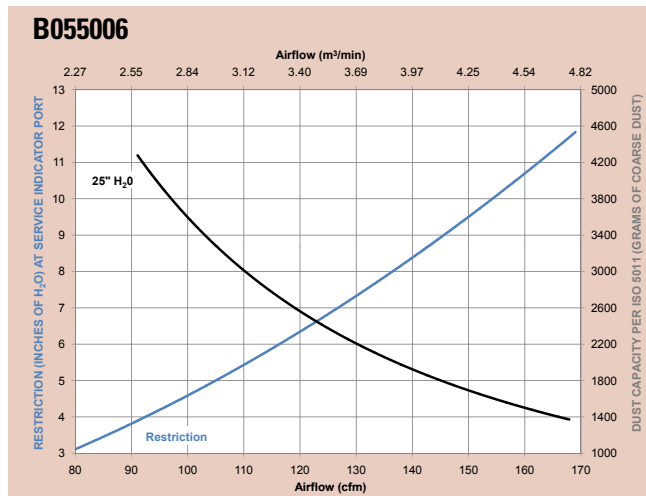
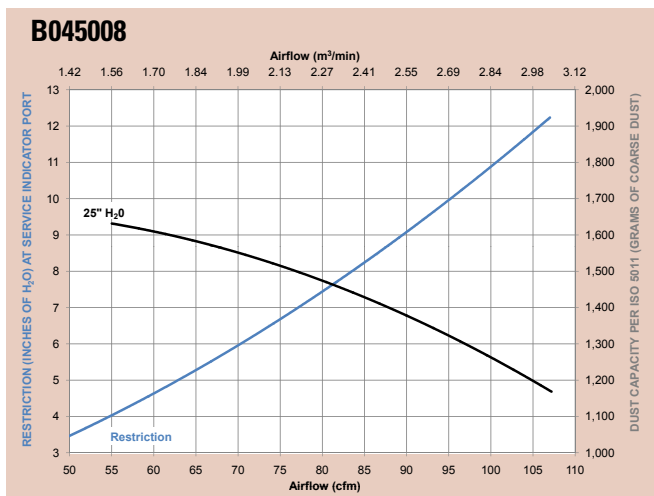
When spec'ing an Air Cleaner . . .

Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table at right. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, pre-cleaners, etc. See pages 271-272 for ducting restriction estimates.

Initial Airflow Restriction

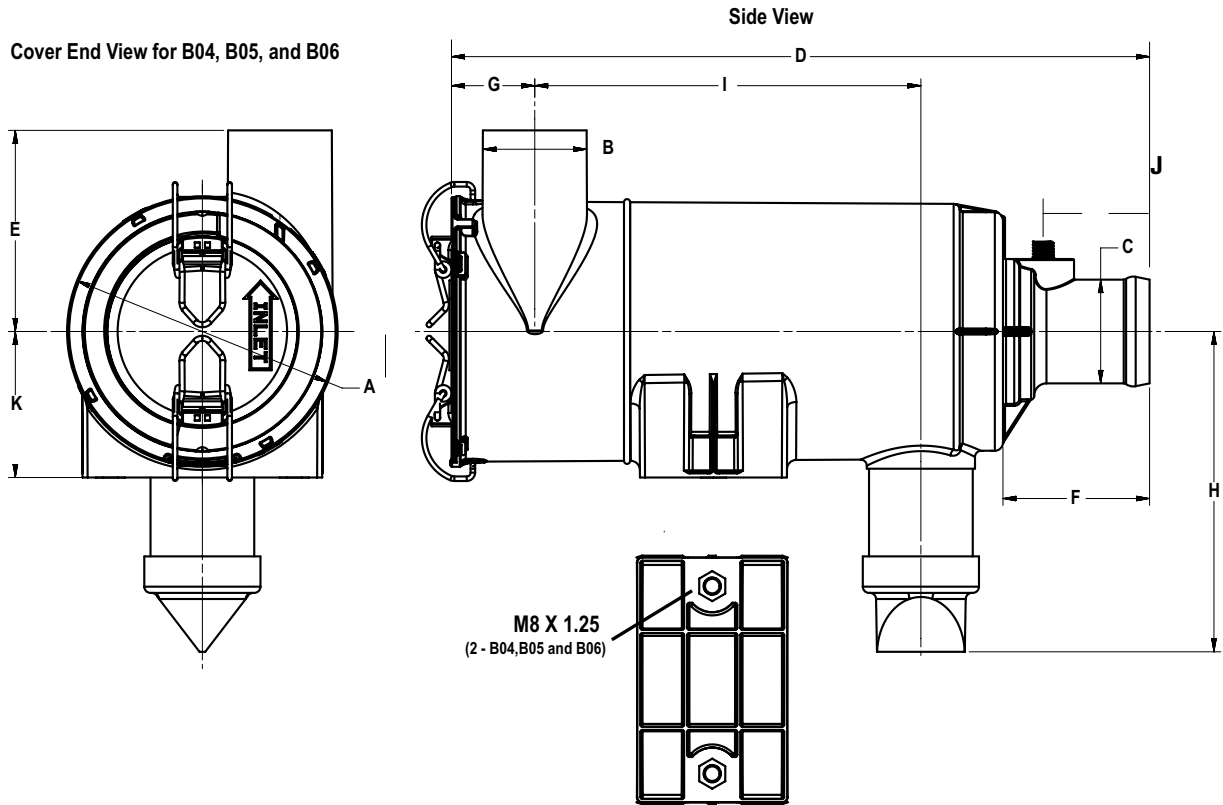
CFM@ H ₂ O			Air Cleaner Model
6"	8"	10"	
70	84	95	B045008
116	137	154	B055006
155	185	207	B065045

FKB Air Cleaner Performance Curves (Restriction & Dust Capacity)*



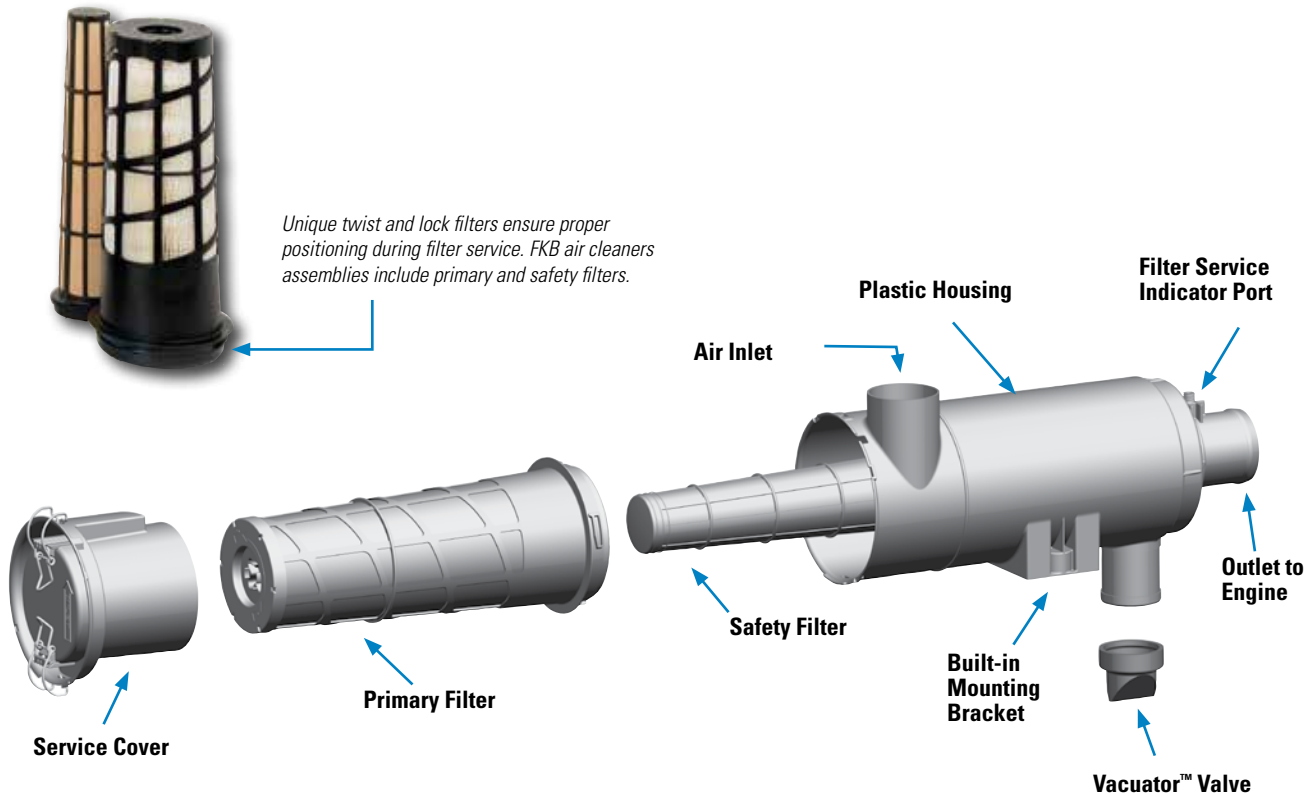
*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.

FKB Specification Illustrations



FKB Specifications

Air Cleaner Models	Body Dia. (A)	Inlet Dia. (B)	Outlet Dia. (C)	Housing Length (D)	Inlet Height (E)	Outlet Length (F)	Inlet Location (G)	Center Line to Valve (H)	Service Clear. (I)	Weight	Restr. Tap Loc. (J)	Mounting Bracket Height (K)
B045008	5.22" 133mm	2.00" 51mm	2.00" 51mm	13.46" 342mm	3.88" 99mm	2.83" 72mm	1.60" 41mm	6.18" 157mm	7.44" 189mm	2.1 lb 1.0 kg	2.02" 52mm	2.82" 72mm
B055006	5.97" 152mm	2.50" 64mm	2.50" 64mm	15.89" 404mm	3.88" 99mm	2.88" 73mm	1.93" 49mm	6.18" 157mm	9.61" 244mm	3.2 lb 1.4 kg	2.05" 52mm	3.03" 77mm
B065045	7.09" 180mm	3.00" 76mm	3.00" 76mm	16.06" 408mm	4.72" 120mm	2.87" 73mm	2.07" 53mm	7.41" 188mm	9.50" 241mm	3.7 lb 1.7 kg	2.05" 52mm	3.54" 90mm



FKB Service Parts & Accessories

B045008	FKB	B055006	FKB	B065045	FKB
Cover	P606497	Cover	P609219	Cover	P608592
Filter, primary	P604457 .....3	Filter, primary	P609218 .....3	Elbow, 45°	P105544
Filter, safety	P603729 .....3	Filter, safety	P602427 .....3	Elbow, 90°	P105532
Vacuator™ Valve	P158914	Vacuator™ Valve	P158914	Elbow, 90° reducing	P123462
Elbow, 45°	P105541	Elbow, 45°	P105543	Filter, primary	P609221 .....3
Elbow, 90°	P105529	Elbow, 90°	P105531	Filter, safety	P608599 .....3
Informer™ indicator 25" H ₂ O	X002277	Informer™ indicator 25" H ₂ O	X002277	Hump hose	P105608
Inlet hood, plastic	H001377	Inlet hood, plastic	H001378	Informer™ indicator 25" H ₂ O	X002277
Outlet band clamp	P148337	Outlet band clamp	P148339	Inlet hood, plastic	H001379
				Outlet band clamp	P148341
				Vacuator™ Valve	P158914

NOTES:
3 = Shipped with air cleaner initially

Installation Recommendations

- Shut off your engine.
- Air cleaner orientation is horizontal, with the drop tube pointing down — within +/- 15°. For service clearance, allow the entire length of the filter for removal and 35mm for service cover latches.
- Mounting is M8 x 1.25, with a maximum torque of 15 ft•lb.
- Connections: Inlet/Outlet maximum torque 40 in•lb. Indicator port maximum torque 1.5 ft•lb.
- **Inlet accessory note:** The air cleaner housing can accommodate a plastic inlet hood or plastic TopSpin™ pre-cleaner, but not a metal pre-cleaner or accessory.

This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

1 Check the Restriction

Measure the restriction of the air cleaner with a Donaldson filter service indicator, service gauge, or a water manometer. Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer or on a regular service schedule.



2 Clean out the Vacuator™ Valve

Remove the Vacuator Valve and clean out any dust found in the drop tube. Reinstall Vacuator Valve or replace it if it is worn or damaged.



3 Remove the Primary Filter

Unlatch and remove the service cover on the FKB air cleaner.

To remove the primary filter, press and rotate the filter counter-clockwise until free. Then extract the primary filter by slowly pulling it out of the housing.



Note: Avoid dislodging contaminant from the filter as it is removed from the air cleaner housing.



Continued on next page



4 Remove the Safety Filter or Liner

Next remove the safety filter (replace at every third primary filter change) or support liner by pulling it straight out. This allows necessary access to properly clean the primary filter's seal surface.

Inspect the seal surface and housing for any damage. Replace the complete air cleaner if damage is present.

It is not necessary to replace the support liner unless it is damaged. If you are reusing the safety filter keep it clean while servicing the housing to avoid contamination.



Note: If a safety filter or liner is not present, check to see if it has attached itself to the inside of the primary filter during removal.

To properly service this small diameter air cleaner, you will need to remove the safety filter or liner upon each filter service.

5 Clean the Inside Surface

Block the outlet tube of the air cleaner using a small dampened towel prior to cleaning the seal and locking surfaces to avoid contaminating the induction system.

With a clean damp cloth, thoroughly clean the inside surface of the housing, seal and lock surfaces.



Note: Failure to clean the inside surface may cause contaminants to be introduced to the outlet tube or onto the seal area of the primary filter during reinstallation resulting in a leak for dirty air.

6 Inspect the New Filters

Inspect the new primary and safety filters for any damage, voids, cuts, tears, or indentations in the media or urethane sealing surfaces.



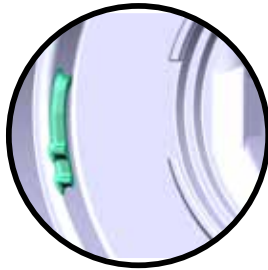
7 Install the Safety Filter

Remove the dampened towel from the outlet tube that was used to protect the induction system during servicing. Install the safety filter or support liner by pressing it firmly in place until seated. When properly fitted, it should fit snugly inside the outlet tube.



8 Install the Primary Filter

Install the new primary filter by pressing and rotating the filter clockwise until fully fitted against the stop.



Close-up of Filter Stop



Note: If you perform filter maintenance service on a schedule vs. using service indicators, you may want to write the service date on the filter end cap.

9 Fasten the Service Cover

The "INLET" arrow on the cover should line up with the air cleaner inlet.

Do not force the cover onto the air cleaner. It should go on easily with no extra force.



Re-fasten the latches which secure the cover. Make sure that latches penetrate the slots in both the body and the cover.

Note: If the cover does not fit flush to the body, the primary filter is not properly seated in the housing. Recheck the primary and safety filter installation following the proper installation procedure so they become fully seated.

10 Reset the Filter Indicator and Inspect the Air Cleaner System

If your system has a restriction indicator, reset the device.

Inspect and torque all clamps, bolts and connections in the entire air intake system. Check for holes in piping, and repair if needed.





Compact, RadialSeal™, Medium-Duty Air Cleaner

Designed for Horizontal Installation



Donaldson XRB air cleaners are built with Donaldson technologies.

The XRB air cleaner family is smaller in size compared to competitive models with similar airflow operating ranges.

XRB air cleaners effectively reduce contaminants flowing into the air intake system, provide a high level of engine protection from harmful contaminants and increase engine performance and fuel efficiency.

The XRB's plastic housing and durable construction enables installation in all types of operating environments and temperature ranges from -40 °F to 180 °F / -40 °C to 82 °C, operating in medium-dust conditions with engine airflow from 265 to 630 cfm.

The B080080 has non-metal primary and safety filters. The primary filters for the B100127 and B120420 have metal outer liners. The air cleaner models ship with both the primary and safety filters.

Like our FKB and PSD models, these air cleaners feature built-in mounting brackets. There's no need for additional mounting support.



Built-in mounting brackets on air cleaner body eliminate the need for mounting bands.



Cover latch position allows for minimum service clearance and eases filter service.



Air cleaners are equipped with the Donaldson Vacuator™ Valve.

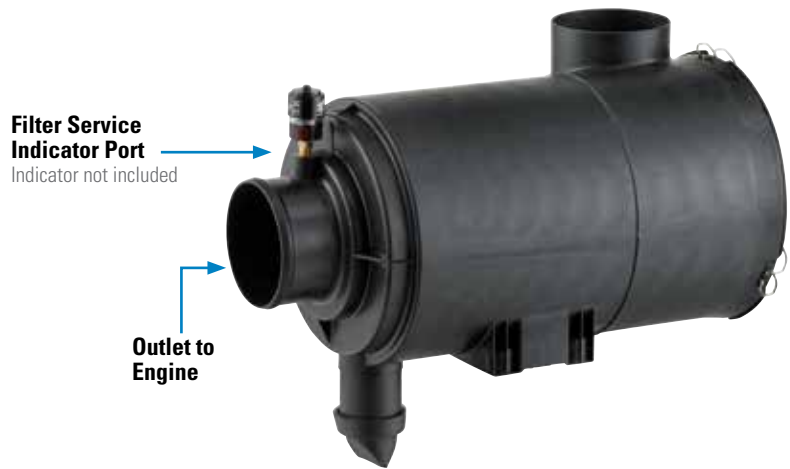
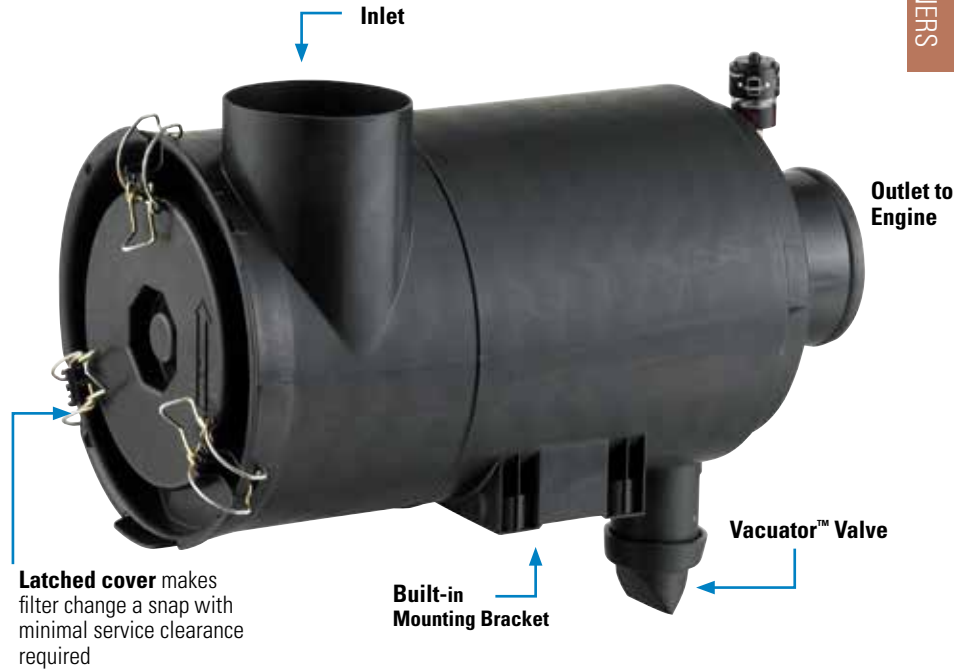
Built-in Mounting Brackets and Filter Indicator Port Easy to Service with Non-metal Filters

Applications

- On- and off-road equipment operating in medium-dust conditions with engine airflow range of 255 to 630 cfm (7.5 to 17.8 m³/min)
- Installs horizontally. Mounting the air cleaner directly to the engine is not recommended; excessive engine vibration can cause premature air cleaner structural failure.
- Sustained temperature tolerance: -40 °F to 180 °F / -40 °C to 82 °C. Do not install next to components that exceed the maximum temperature (180 °F / 82 °C) like a turbocharger, muffler, exhaust pipe or other high temperature component

Air Cleaner Features

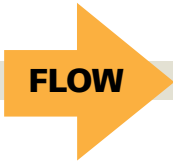
- Smaller in diameter compared to competitive brands with similar airflow
- Improved handling and maintenance — lighter and smaller, changing filters is a snap
- Product design includes:
 - primary filter
 - safety filter
 - filter service indicator port
- Cover latch position allows for minimum service clearance and eases filter service
- Built-in mounting brackets on air cleaner body eliminate the need for mounting bands



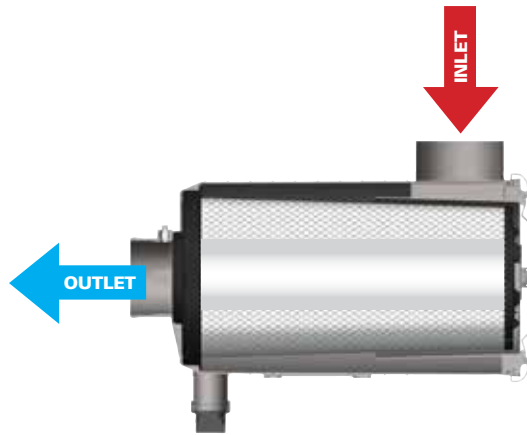
Primary and safety filters for XRБ housings.

Installation Recommendations

- Air cleaner orientation is horizontal, with the drop tube pointing down — within +/- 15°. For service clearance, allow the entire length of the filter for removal and 1.38" (35mm) for service cover latches.
- Mounting is M8 x 1.25, with a maximum torque of 15 ft•lb.
- Connections: Inlet/Outlet maximum torque 40 in•lb.
- **Inlet accessory note:** The air cleaner housing can accommodate a plastic inlet hood or plastic TopSpin™ pre-cleaner, but not a metal pre-cleaner or accessory.
- Filter Service Indicator port arrives with plug/cap. Order filter service indicator separately. See accessories section. Indicator port maximum torque 1.5 ft•lb.



Flow Air in the Side, out the End (standard flow filters)



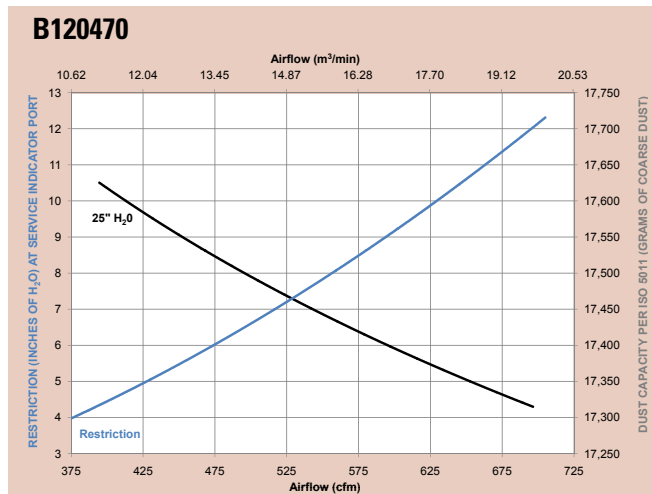
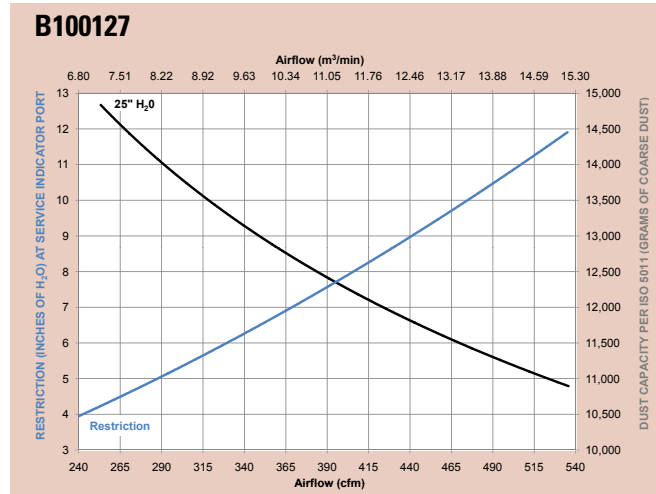
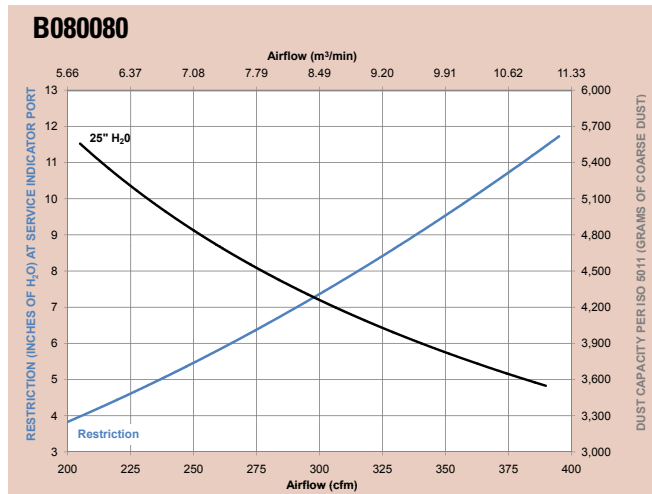
When Selecting an Air Cleaner . . .

Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table at right. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction estimates.

Initial Airflow Restriction

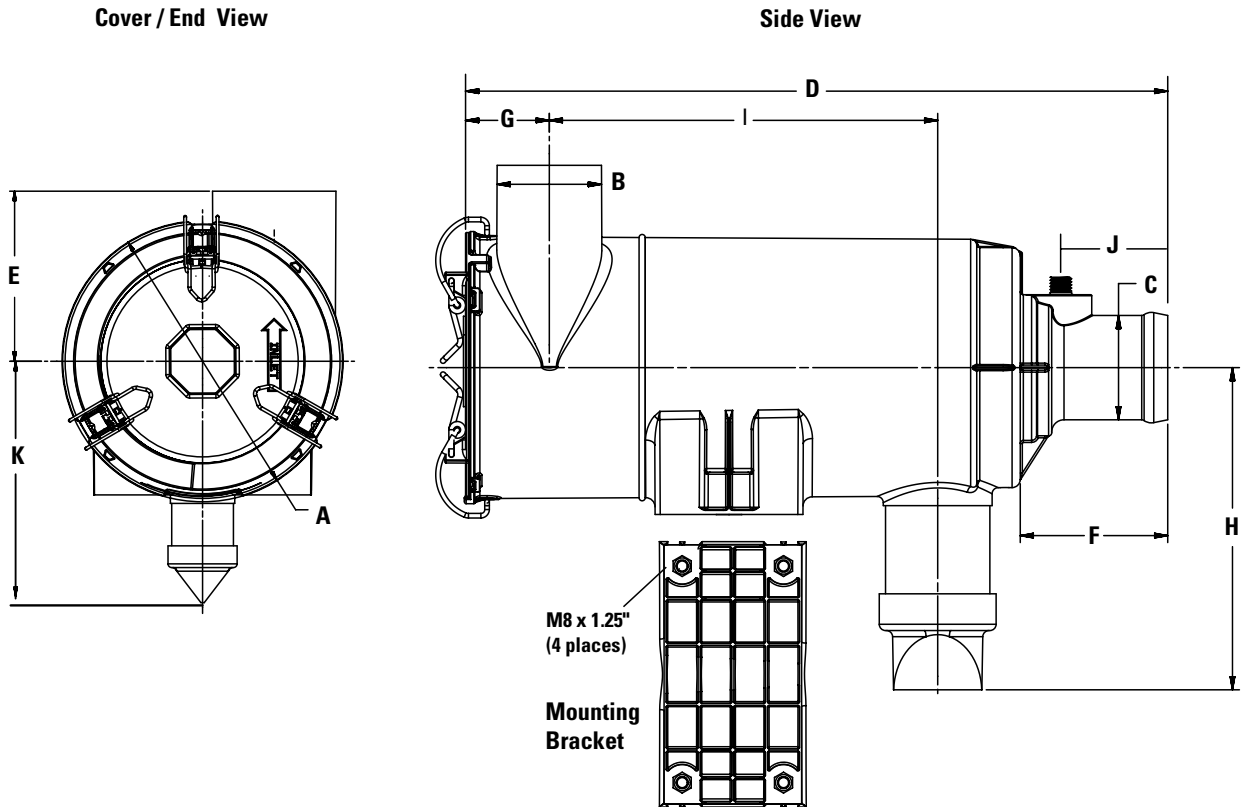
CFM @ H ₂ O			Air Cleaner Model
6"	8"	10"	
265	315	360	B080080
330	405	475	B100127
475	555	630	B120470

XR Air Cleaner Performance Curves (Restriction & Dust Capacity)*



*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.

XRB Specification Illustration

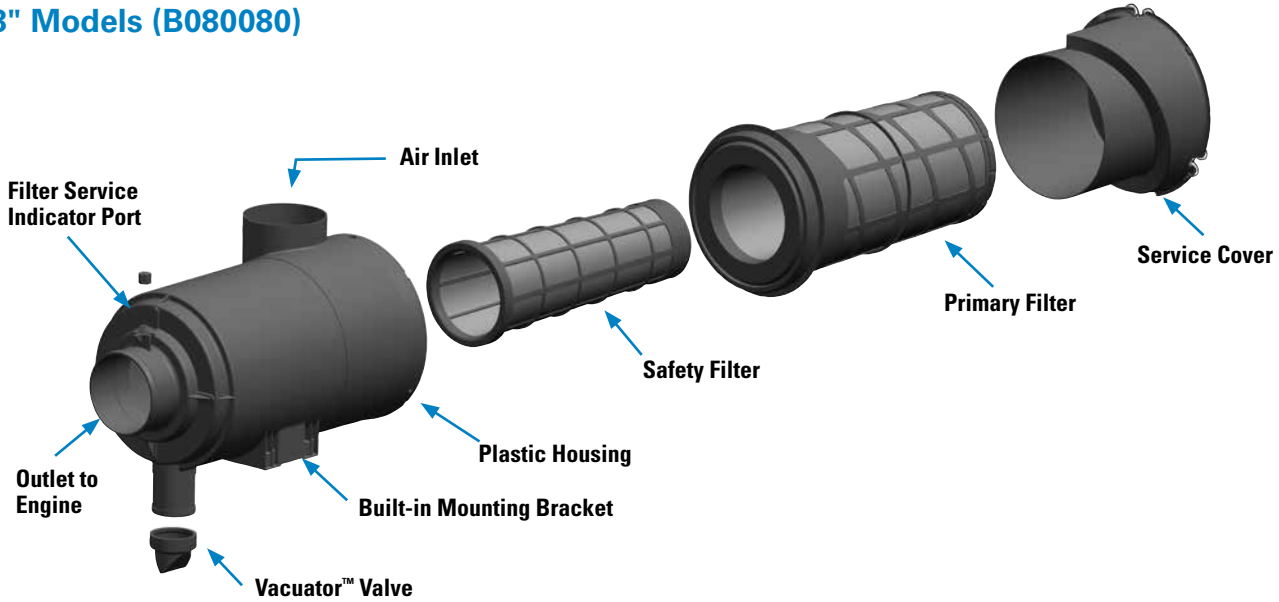


XRB Specifications

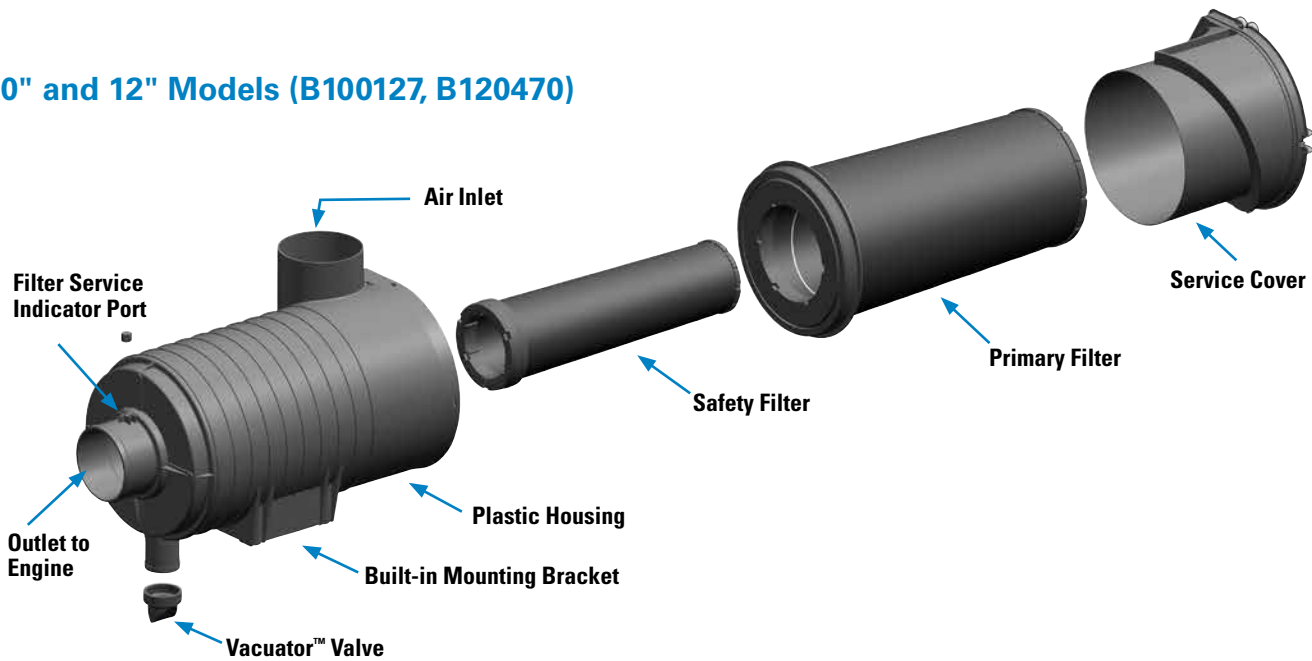
Air Cleaner Models	Body Dia. (A)	Inlet Dia. (B)	Outlet Dia. (C)	Housing Length (D)	Inlet Height (E)	Outlet Length (F)	Inlet Location (G)	Center Line to Valve (H)	Service Clear. (I)	Weight	Restr. Tap Loc. (J)	Mounting Bracket Height (K)
B080080	9.11" 231.3mm	4.00" 102mm	4.00" 102mm	16.75" 425mm	5.50" 140mm	2.40" 61mm	3.14" 80mm	7.78" 198mm	14.76" 375mm	5.52lb 2.5kg	1.57" 40mm	4.33" 110mm
B100127	11.31" 287mm	5.00" 127mm	4.50" 114mm	22.25" 565mm	7.80" 198mm	2.82" 72mm	3.47" 88mm	8.85" 225mm	19.41" 493mm	13.00lb 5.95kg	1.97" 50mm	5.71" 145mm
B120470	13.00" 330mm	6.00" 152mm	5.00" 128mm	23.68" 601mm	8.58" 218mm	2.81" 71mm	3.95" 100mm	9.63" 245mm	20.71" 526mm	20.00lb 9.07kg	1.97" 50mm	6.50" 165mm



8" Models (B080080)



10" and 12" Models (B100127, B120470)



Service Parts & Accessories

B080080	XRB	
Cover		P605731
Elbow, 45°		P105545
Elbow, 90°		P105533
Elbow, 90° reducing		P121482
Filter, primary (non metal)		P611190.....3
Filter, safety		P611189.....3
Hump hose		P105609
Informer™ indicator 25" H ₂ O		X002277
Inlet hood, plastic		H000467
Outlet band clamp		P148343
Vacuator™ Valve		P158914

B100127	XRB	
Cover		P609942
Elbow, 45°		P114316
Elbow, 90°		P113733
Filter, primary (metal liner)		P611539.....3
Filter, safety		P611540.....3
Hump hose		P114317
Informer™ indicator 25" H ₂ O		X002277
Inlet hood, metal		H000165
Inlet hood, plastic		H000469
Outlet band clamp		P148344
Vacuator™ Valve		P158914

B120470	XRB	
Cover		P608117
Elbow, 45°		P109021
Elbow, 90°		P107844
Elbow, 90° reducing		P143895
Filter, primary (metal liner)		P608116.....3
Filter, safety		P608391.....3
Hump hose		P105610
Informer™ indicator 25" H ₂ O		X002277
Inlet hood, metal		H000275
Inlet hood, plastic		H000606
Outlet band clamp		P148345
Vacuator™ Valve		P158914

NOTES:
3 = Shipped with air cleaner initially

This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

1 Check the Restriction

Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer or on a regular service schedule.



2 Clean out the Vacuator™ Valve

Remove the Vacuator Valve and clean out any dust found in the drop tube. Reinstall Vacuator Valve or replace if it is worn or damaged.



3 Remove Service Cover

Unlatch and remove the service cover on the air cleaner to access the filters.



4 Remove the Primary Filter

The primary filter makes such a tight seal, that you will encounter some initial resistance, similar to breaking the seal on a jar. To break the seal, grab the end of the filter and gently move the filter from side-to-side and pull it out of the housing.

Application Note: Avoid dislodging contaminant from the filter when it is removed from the air cleaner housing.



Continued on next page



5 Remove the Safety Filter

Replace the safety filter with every third primary filter change unless excessive dust has settled on it during servicing. If you are reusing the safety filter keep it clean while servicing the housing to avoid contamination.

Remove the safety filter by pulling it straight out — giving you easy access to properly clean the primary filter's seal surface.

Block the outlet tube of the air cleaner, using a small dampened towel, prior to cleaning the seal surface to avoid contaminating the induction system.



If a safety filter is not present, check to see it has attached itself to the inside of the primary filter during removal. Inspect the seal surface and housing for any damage. Replace the complete air cleaner if damage is present.

6 Clean the Inside Surface

With a second clean damp cloth, thoroughly clean the inside of the housing and seal surface.



Failure to clean the surface may cause contaminants to be introduced to the outlet tube or onto the seal area of the primary filter during reinstallation, resulting in a dirty air leaks.

7 Inspect the Primary and Safety Filters

Inspect new filters for any damage, voids, cuts, tears or indentations in the media or urethane sealing surface. If the filter is damaged, do not install.



8 Install the Safety Filter

Remove the dampened towel from the outlet tube that was used to protect the induction system during servicing.

Install the safety filter by pressing it firmly in place until seated. When properly fitted it should fit snugly inside the outlet tube.



9 Install the Primary Filter

Install the new primary filter by gently sliding it over the safety filter and pressing it into place until fully seated. When installing, apply pressure by hand at the outer rim of the filter, not in the center, to complete a tight seal. Continue pushing the filter into the outlet tube until it stops. The critical sealing area will compress slightly, adjust itself, and distribute the sealing pressure evenly.



If you perform filter maintenance service on a schedule versus using service indicators, you may want to write the service date on the filter end cap.

10 Fasten the Service Cover

Replace the service cover, with the "INLET" arrow lined up with the air cleaner inlet. Do not force the cover onto the air cleaner or use the service cover to push the filter into place.

Refasten latches to secure the cover and make sure that the latches penetrate the slots in both the body and the cover.



If the cover does not fit flush to the body, the primary filter is not properly seated in the housing. Recheck the primary and safety filter installation, following the proper installation procedure so they become fully seated. The cover will then go on easily. Using the cover to push the filters could cause damage to the housing and will void the warranty.

11 Inspect the Air Cleaner System

Inspect and torque all clamps, bolts and connections in the entire air intake system. Check for holes in piping and repair if needed.

Reset the filter service indicator if applicable.





Advanced Sealing Technology in Compact Two-Stage Design For the Most Reliable Engine Protection

The FPG Air Cleaner series is a two-stage engine air cleaner operating in medium to heavy dust conditions. The FPG series offers improved reliability and durability with reduced weight and costs.

Ever since Donaldson developed the first air cleaner in 1915, we have worked closely with original equipment manufacturers to provide filtration solutions to meet changing design and specification requirements for diesel engines.

Because they are made of injection molded high-strength plastic, FPG air cleaners offer the flexibility to overcome space limitations for underhood air cleaners. Donaldson employs innovative plastic materials and production techniques that result in air cleaners that are corrosion-free and lighter in weight than traditional metal air cleaners — yet without sacrificing sturdiness. Our extensive vibration testing reveals this to be a more durable design than most metal air cleaners.

The filter inside the air cleaner is also quite different from the traditional design: one-piece molded urethane endcaps encase the ends of the media and filter liners, eliminating the metal caps and plastisol potting compound that were traditionally used. The glued-on gasket found on Axial filters is gone — now, the inside surface of the open end is actually the RadialSeal™ sealing surface.



Despite its compact size, the FPG Air Cleaner offers complete engine air protection — removing 99.9% of the dust and dirt particulate that enters the engine airstream.



FPG and FPG Alexin™ Air Cleaners, with RadialSeal™ Sealing Technology, provide thorough two-stage cleaning of incoming engine air on industrial and construction vehicles operating in medium to heavy dust environments.

Small, Durable and Corrosion-Free The Easiest Air Cleaner to Service!

Applications

- Provides up to 346 cfm airflow per air cleaner — double throughput by using two units
- Installation can be horizontal, vertical, or even at an angle (as long as Vacuator™ Valve points down)
- Temperature tolerance: 180 °F / 83 °C sustained (Do not install next to turbocharger, muffler, exhaust pipes, or other high-temp component.)

Ideal for

- Compressors and generator sets
- Construction and in-plant vehicles
- On- and off-highway vehicles
- Marine and offshore equipment

Air Cleaner Features

- Easy to service. No tools needed. Usually done in 5 minutes or less.
- Durable plastic housing — corrosion-free and lightweight
- Two-stage air filtration. Built-in, tangential pre-cleaner ahead of primary filter removes up to 85% of incoming dust.
- Choose 90° or straight outlet to fit your application.
- Easy-to-fasten latches retain dust cup/cover. Four (larger) models have twist-off cover.
- Tapped to accept filter service indicator.
- A plastic inlet hood and stack (up to 18" /457mm tall) may be added.

Filter Features

- Filters have RadialSeal™ Sealing Technology that creates a reliable, critical seal and makes servicing easy.
- One piece, molded urethane endcaps encase the filter media and liners.
- Safety filter protects engine during in-field filter change outs. All FPG models can accept safety filters. Specification table shows which air cleaner models ship with a safety filter installed.
- High efficiency, extended service, Donaldson Blue® filters are available on some models (see service parts list on page 133 for part numbers)

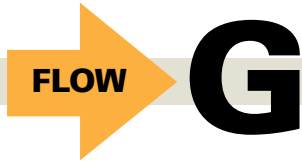


Try PowerPleat™ for the 5" see page 65.

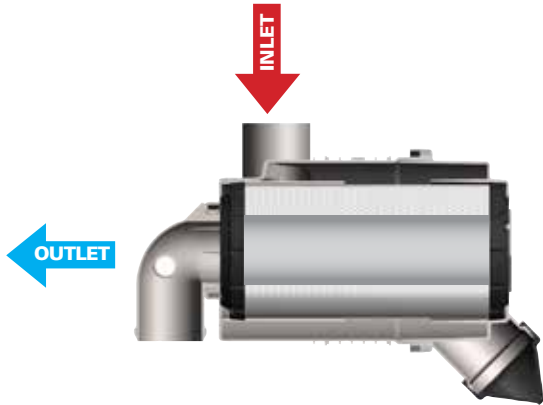


FPG Alexin™ 9" / 242 mm and 10" / 262mm dia. models available with the twist-off cover design





Air in the Side, Out the End (standard flow filters)



When Selecting an Air Cleaner . . .

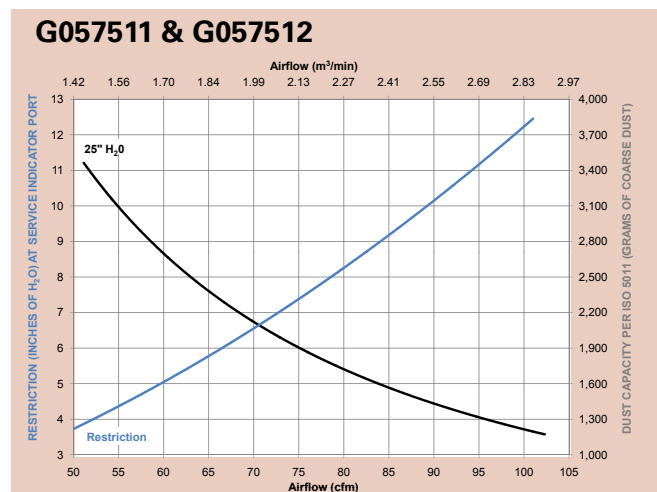
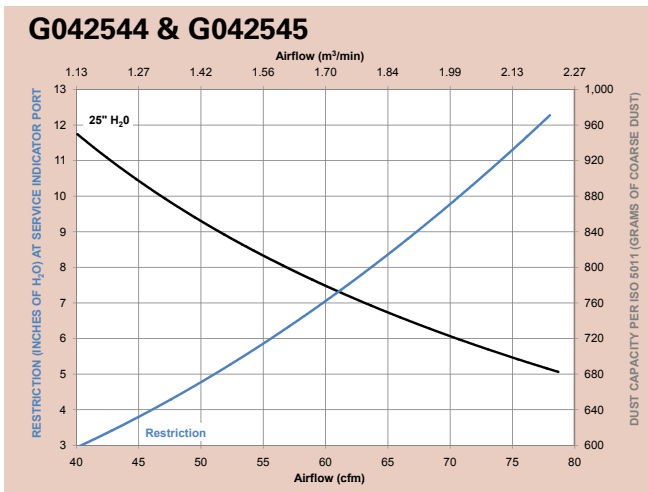
Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table at right. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction estimates.

Initial Airflow Restriction

Airflow CFM @ H ₂ O			Air Cleaner Model	
6"	8"	10"	90°	Straight
MODELS WITH PRIMARY FILTER ONLY				
55	65	70	G042545	G042544
80	95	105	G057514	G057513
120	135	155	G065433	G065432
150	170	190	G070020	G070019
205	245	275	G082528	G082527
MODELS WITH PRIMARY & SAFETY FILTER				
65	80	90	G057512	G057511
110	125	145	G065411	G065424
125	145	165	G070018	G070017
165	190	215	G082526	G082525
247	282	314	G100317 ¹	
259	297	328		G100319 ¹
265	300	335		G090225 ¹
256	317	346	G090219 ¹	

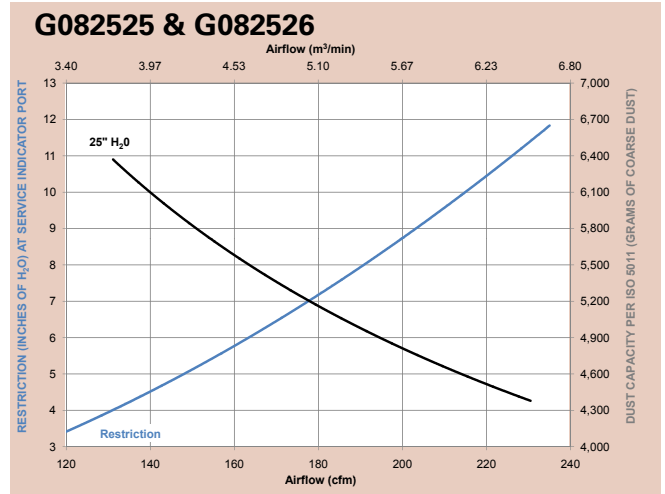
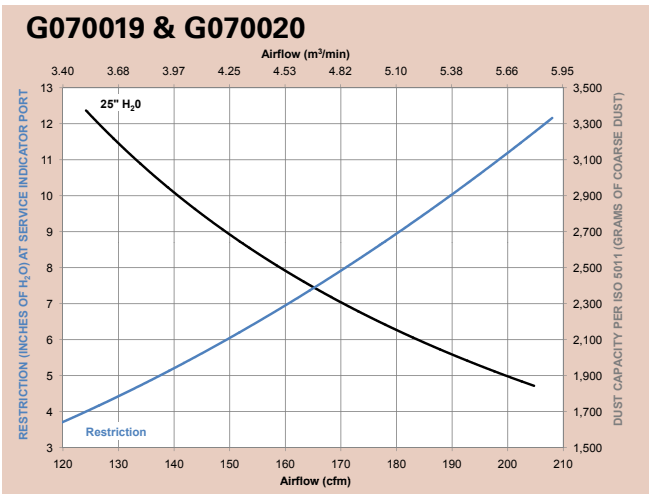
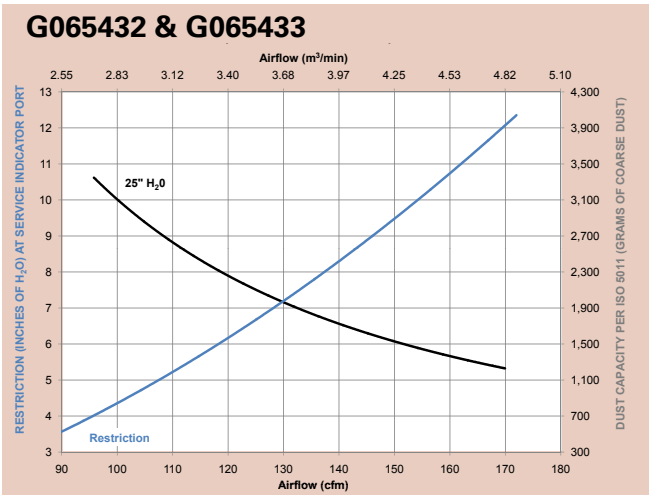
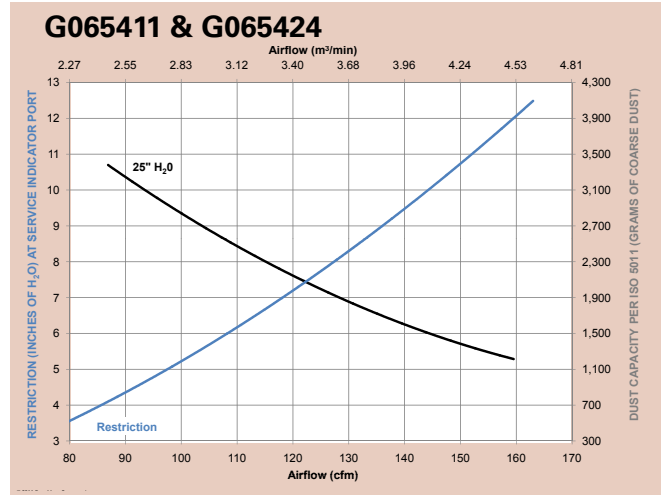
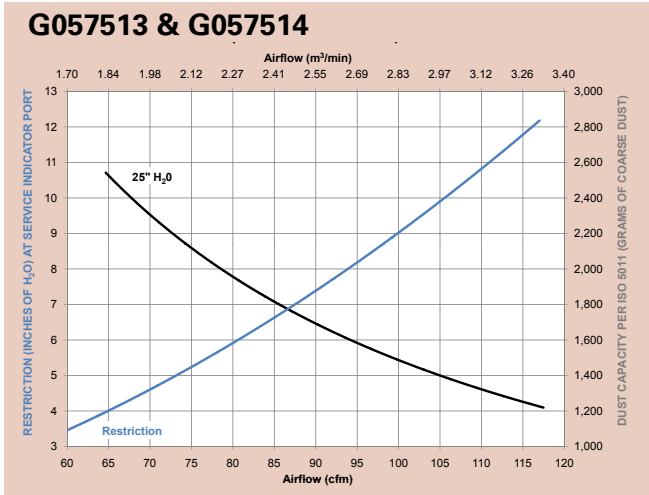
1 - Models with twist-off cover design (no latches)

FPG Air Cleaner Performance Curves*



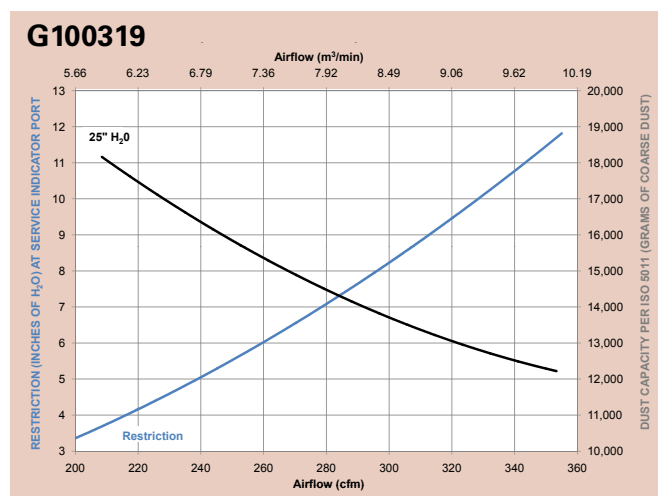
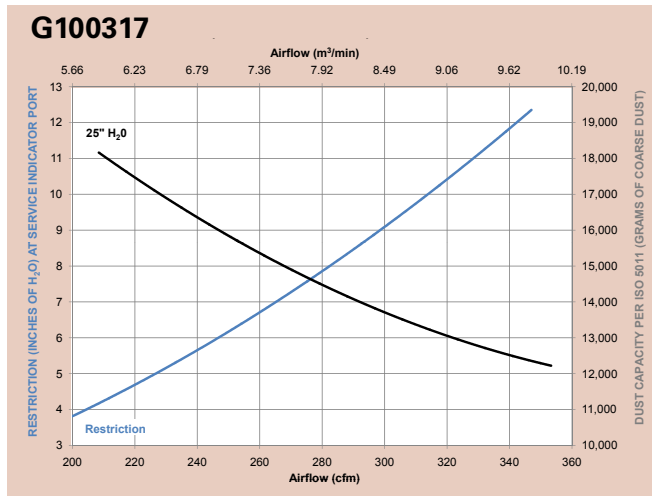
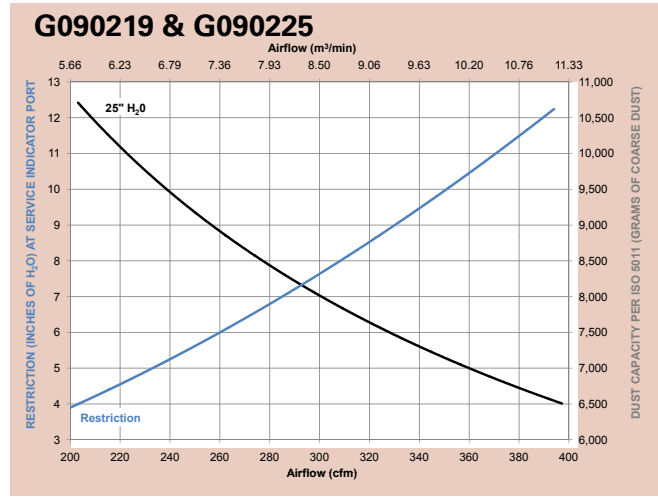
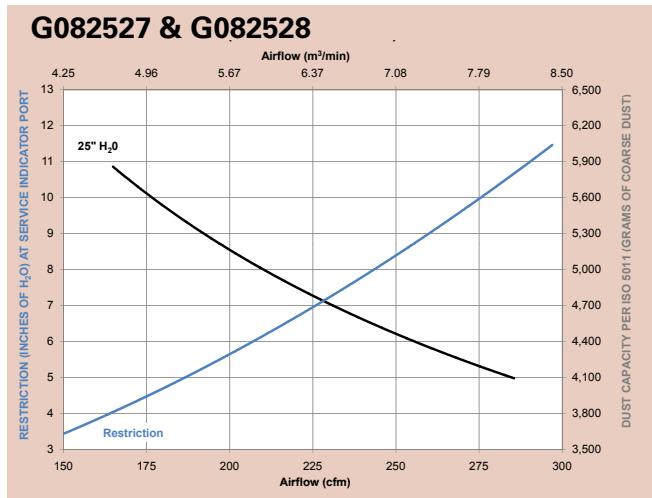
*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.

continued — FPG Air Cleaner Performance Curves (Restriction & Dust Capacity)

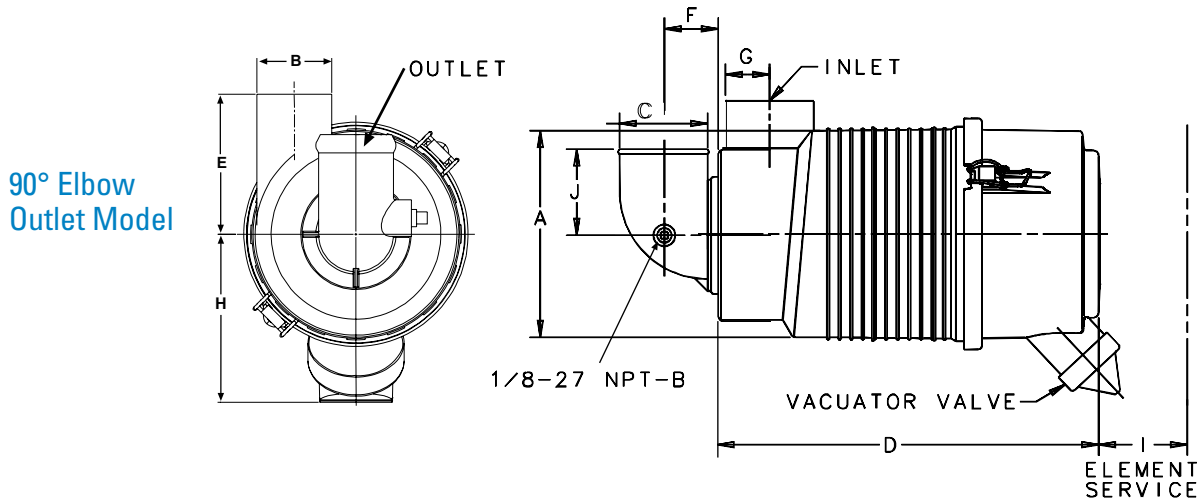




continued — FPG Air Cleaner Performance Curves (Restriction & Dust Capacity)



FPG Specification Illustrations



FPG Specifications

Air Cleaner Models	with Safety Filter?	Body Dia. (A)	Inlet Dia. (B)	Outlet Dia. (C)	Housing Length (D)	Inlet Height (E)	Outlet Length (F)	Inlet Location (G)	Center Line to Valve (H)	Service Clear. (I)	Weight lbs kg	Restr. Tap Loc. (J)
MODELS WITH 90° ELBOW OUTLET TUBE												
G042545	no	4.80" 122mm	1.75" 44mm	1.75" 44mm	7.45" 189mm	3.27" 83mm	1.23" 31mm	1.48" 38mm	3.96" 101mm	5.39" 137mm	1.3 lbs 0.6 kg	1.94" 48mm
G057512	yes	5.75" 146mm	2.00" 51mm	2.00" 51mm	10.96" 278mm	3.82" 97mm	1.36" 35mm	1.65" 42mm	4.66" 118mm	10.68" 271mm	2.5 lbs 1.1 kg	2.60" 66mm
G057514	no	5.75" 146mm	2.00" 51mm	2.00" 51mm	10.96" 278mm	3.82" 97mm	1.36" 35mm	1.65" 42mm	4.66" 118mm	7.95" 202mm	2.2 lbs 1.0 kg	2.60" 66mm
G065411	yes	6.74" 171mm	2.50" 64mm	2.50" 64mm	12.61" 320mm	4.41" 112mm	1.60" 41mm	1.70" 43mm	5.35" 136mm	12.24" 311mm	3.9 lbs 1.8 kg	3.06" 78mm
G065433	no	6.74" 171mm	2.50" 64mm	2.50" 64mm	12.61" 320mm	4.41" 112mm	1.60" 41mm	1.70" 43mm	5.35" 136mm	8.50" 216mm	3.5 lbs 1.6 kg	3.06" 78mm
G070018	yes	7.19" 183mm	3.00" 76mm	3.00" 76mm	13.09" 332mm	4.88" 124mm	1.88" 48mm	1.72" 44mm	5.45" 137mm	12.50" 318mm	4.3 lbs 1.9 kg	3.62" 92mm
G070020	no	7.19" 183mm	3.00" 76mm	3.00" 76mm	13.09" 332mm	4.88" 124mm	1.88" 48mm	1.72" 44mm	5.45" 137mm	8.87" 225mm	3.8 lbs 1.7 kg	3.62" 92mm
G082526	yes	8.35" 212mm	3.75" 95mm	3.50" 89mm	14.23" 361mm	5.43" 138mm	2.11" 54mm	2.11" 54mm	6.01" 153mm	13.91" 353mm	5.8 lbs 2.6 kg	4.13" 105mm
G082528	no	8.35" 212mm	3.75" 95mm	3.50" 89mm	14.23" 361mm	5.43" 138mm	2.11" 54mm	2.10" 53mm	6.01" 153mm	9.57" 243mm	5.2 lbs 2.3 kg	4.13" 105mm

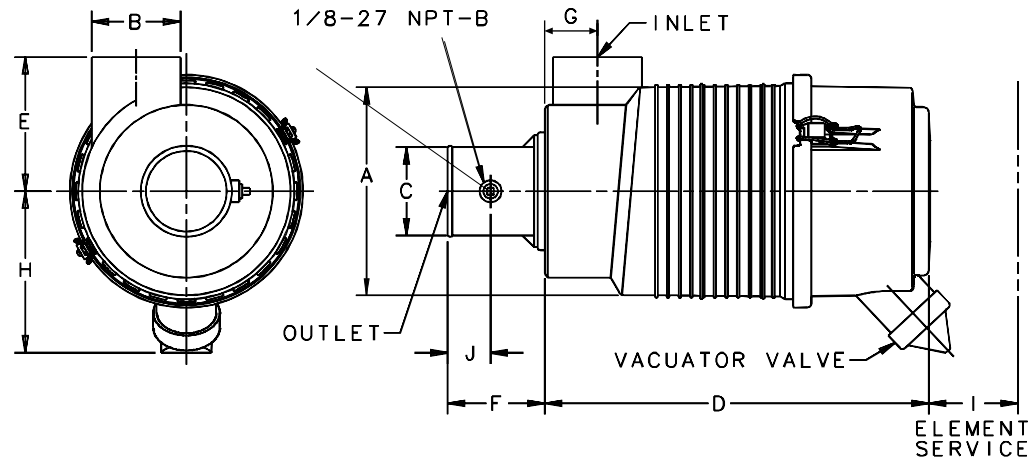
Application Notes

- 1) Safety filters: All FPG models can accept safety filters. This table shows which air cleaner models are shipped with a safety filter installed. If you want to add a safety filter to an existing model that did not originally have one, order the safety filter listed in the Service Parts table.
- 2) Mounting band specifications and ordering information are on page 131.
- 3) Inlet Accessories: A plastic inlet hood, a plastic TopSpin™ pre-cleaner, and/or a stack up to 18" (457mm) tall may be added to the inlet. See the Accessories section for information on optional inlet hoods and TopSpin pre-cleaners.
- 4) Service Indicators. See the Accessories section for information on filter service indicators.



FPG Specification Illustrations

Straight Outlet Tube Model



FPG Specifications

Air Cleaner Models	with Safety Filter?	Body Dia. (A)	Inlet Dia. (B)	Outlet Dia. (C)	Housing Length (D)	Inlet Height (E)	Outlet Length (F)	Inlet Location (G)	Center Line to Valve (H)	Service Clear. (I)	Weight lbs kg	Restr. Tap Loc. (J)
MODELS WITH STRAIGHT OUTLET TUBE												
G042544	no	4.80" 122mm	1.75" 44mm	1.75" 44mm	7.45" 189mm	3.27" 83mm	3.24" 82mm	1.48" 38mm	3.96" 101mm	5.39" 137mm	1.3 lbs 0.6 kg	1.88" 48mm
G057511	yes	5.75" 146mm	2.00" 51mm	2.00" 51mm	10.87" 276mm	3.82" 97mm	3.25" 83mm	1.65" 42mm	4.66" 118mm	10.68" 271mm	2.5 lbs 1.1 kg	1.88" 48mm
G057513	no	5.75" 146mm	2.00" 51mm	2.00" 51mm	10.87" 276mm	3.82" 97mm	3.25" 83mm	1.65" 42mm	4.66" 118mm	7.95" 202mm	2.2 lbs 1.0 kg	1.88" 48mm
G065424	yes	6.74" 171mm	2.50" 64mm	2.50" 64mm	12.61" 320mm	4.41" 112mm	3.23" 82mm	1.70" 43mm	5.35" 136mm	12.24" 311mm	3.9 lbs 1.8 kg	1.63" 41mm
G065432	no	6.74" 171mm	2.50" 64mm	2.50" 64mm	12.61" 320mm	4.41" 112mm	3.23" 82mm	1.70" 43mm	5.35" 136mm	8.48" 216mm	3.5 lbs 1.6 kg	1.63" 41mm
G070017	yes	7.19" 183mm	3.00" 76mm	3.00" 76mm	13.09" 332mm	4.88" 124mm	3.26" 83mm	1.72" 44mm	5.45" 138mm	12.50" 318mm	4.3 lbs 1.9 kg	1.88" 48mm
G070019	no	7.19" 183mm	3.00" 76mm	3.00" 76mm	13.09" 332mm	4.88" 124mm	3.26" 83mm	1.72" 44mm	5.45" 138mm	8.87" 225mm	3.8 lbs 1.7 kg	1.88" 48mm
G082525	yes	8.35" 212mm	3.75" 95mm	3.50" 89mm	14.23" 361mm	5.43" 138mm	3.27" 83mm	2.10" 53mm	6.01" 153mm	13.91" 353mm	5.8 lbs 2.6 kg	1.91" 49mm
G082527	no	8.35" 212mm	3.75" 95mm	3.50" 89mm	14.23" 361mm	5.43" 138mm	3.27" 83mm	2.10" 53mm	6.01" 153mm	9.57" 243mm	5.2 lbs 2.3 kg	1.91" 49mm

Application Notes

- 1) Safety filters: All FPG models can accept safety filters. This table shows which air cleaner models are shipped with a safety filter installed. If you want to add a safety filter to an existing model that did not originally have one, order the safety filter listed in the Service Parts table.
- 2) Mounting band specifications and ordering information are on the next page.
- 3) Inlet Accessories: A plastic inlet hood, a plastic TopSpin™ pre-cleaner, and/or a stack up to 18" (457mm) tall may be added to the inlet. See the Accessories section for information on optional inlet hoods and TopSpin pre-cleaners.
- 4) Service Indicators. See the Accessories section for information on filter service indicators.

Mounting Bands Designed Exclusively for the FPG Series

WARNING: Do not use any other mounting bands or straps with FPG air cleaners. Use of an unapproved mounting band voids warranty.

Polymer Mounting Band

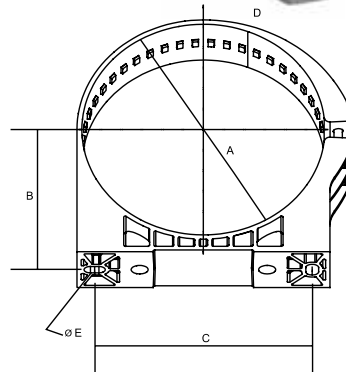
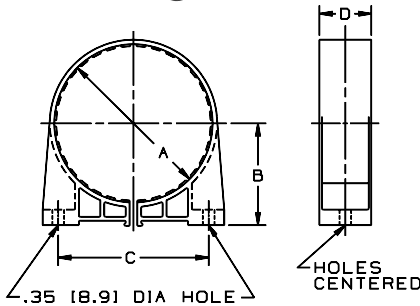
The one-piece, high tech polymer mounting band will securely hold the housing in position. The band has tabs on the inside circumference which fit exactly into notches on the FPG housing. Donaldson polymer bands are completely non-corrosive, lightweight, easy to install, and economical.

The band tightens around the air cleaner when the base of the band is bolted to a support, providing a fixed, stable mounting — even in high vibration applications.

Use on G04 and G05 FPG Air Cleaners.

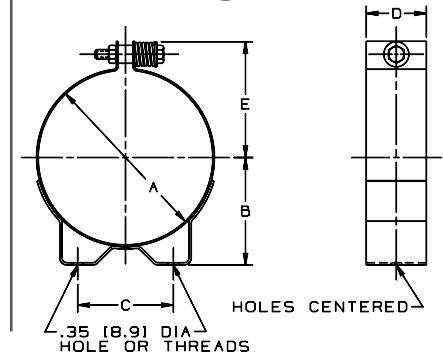


Use on G06-G10 FPG and Alexin Air Cleaners
Bands have spring-loaded screws



Metal Mounting Band

The metal mounting band has a spring-loaded bolt at the top to maintain a constant hold on the housing throughout high and low temperature extremes.



Maximum Torque

Polymer Bands:
11 lbs-ft / 14.8 N•m

Metal Bands:
12 lbs-ft / 16.2 N•m

Application Note:

To accommodate even hard-to-fit applications, polymer bands allow the air cleaner housings to be rotated and positioned at various increments, depending upon the size:

Housing Diameter	Increment
4.80" (122mm)	11°
5.75" (146mm)	10°
6.74" (171mm)	7.5°
7.19" (183mm)	7.5°
8.35" (212mm)	5°

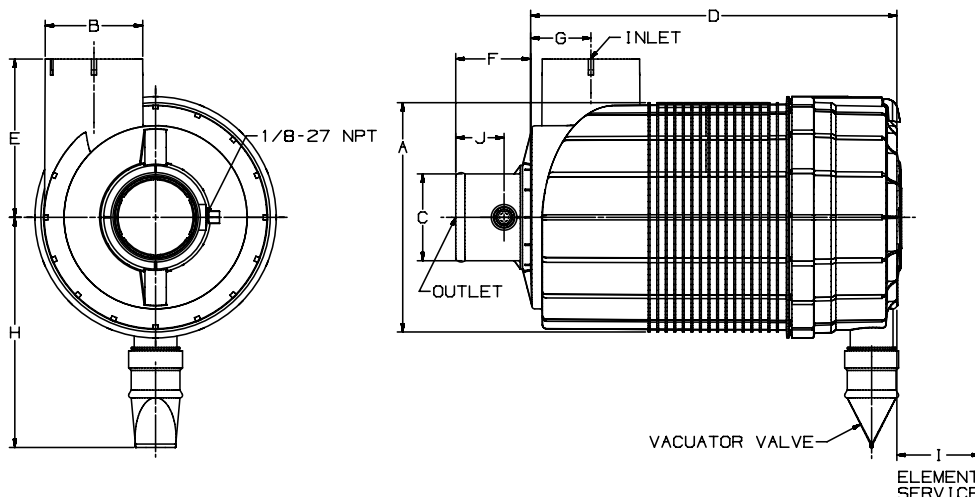
FPG Mounting Bands (Order one band per FPG air cleaner)

Part Number	A		B		C		D		E		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg
POLYMER BANDS												
P777151	4.80	122	3.09	79	4.56	116	1.57	40	n/a		0.26	118
P777730	5.75	146	3.52	90	5.35	136	1.99	51	n/a		0.37	167
P778810 ¹	6.79	173	3.94	100	6.00	154	1.99	51	n/a		0.40	182
P777731 ¹	7.17	182	4.11	105	6.50	165	1.99	51	n/a		0.45	206
P777732 ¹	8.35	212	4.70	120	7.48	190	1.99	51	n/a		0.56	253
P780532 ¹	9.48	241	5.47	136	5.63	143	1.99	51	n/a			
P780594 ¹	10.55	268	5.90	150	5.63	143	3.15	80	n/a			
METAL BANDS												
H008442	4.80	122	3.07	78	2.76	70	1.57	40	3.34	85	0.70	317
H008443	5.75	146	3.54	90	3.15	80	1.99	51	3.83	97	1.30	590
H008441 ²	6.79	173	3.94	100	3.54	90	1.99	51	4.35	111	1.40	635
H008444	6.79	173	3.94	100	3.54	90	1.99	51	4.35	111	1.40	635
H002070	7.19	183	4.09	104	3.74	95	1.99	51	4.55	116	1.50	680
H002023	8.35	212	4.72	120	4.33	110	1.99	51	5.14	131	1.60	726

1 - Mounting bands (with spring-loaded screws) for FPG09 and FPG10 models with twist-off cover
2 - Model H008441 has 8mm threads



Alexin™ Twist-Off Cover Model



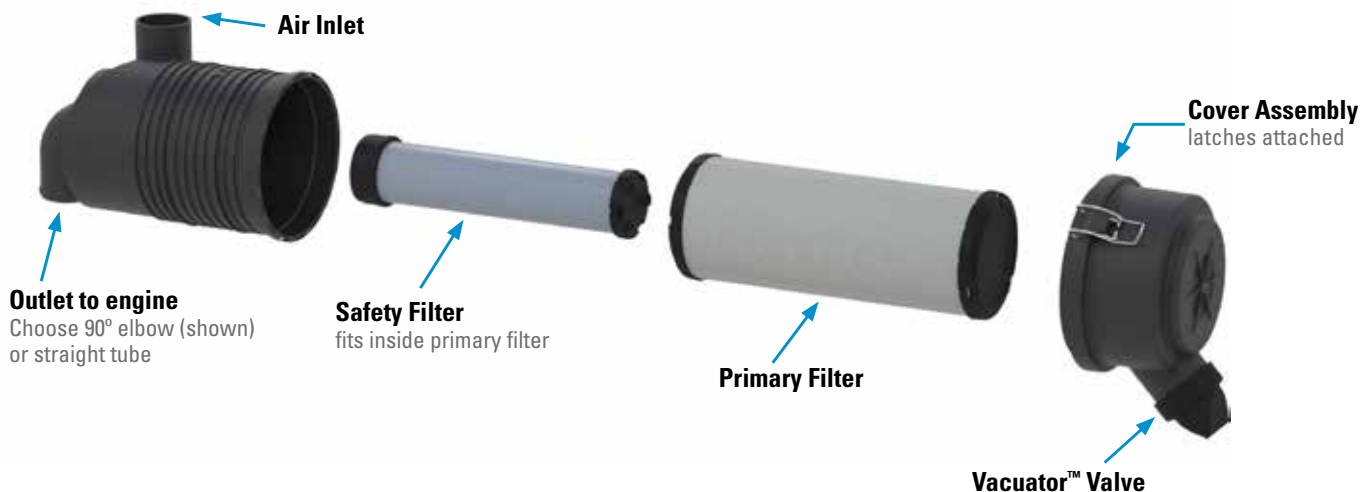
FPG ALEXIN™

Air Cleaner Models	with Safety Filter?	Body Dia. (A)	Inlet Dia. (B)	Outlet Dia. (C)	Housing Length (D)	Inlet Height (E)	Outlet Length (F)	Inlet Location (G)	Center Line to Valve (H)	Service Clear. (I)	Weight lbs kg	Restr. Tap Loc. (J)
FPG ALEXIN™ MODELS WITH TWIST-OFF COVER (90° AND STRAIGHT OUTLET TUBES)												
G090219 ¹	yes	9.53" 242mm	4.50" 114mm	3.50" 89mm	15.75" 400mm	6.69" 170mm	2.11" 54mm	2.42" 62mm	10.44" 260mm	12.79" 325mm	8.8 lbs 4.0 kg	4.13" 105mm
G100317 ¹	yes	10.55" 268mm	4.50" 114mm	4.00" 102mm	16.85" 428mm	7.28" 185mm	2.37" 60mm	2.85" 73mm	10.60" 269mm	13.98" 355mm	11.1 lbs 5.1 kg	4.72" 120mm
G090225 ²	yes	9.53" 242mm	4.50" 114mm	4.00" 102mm	15.75" 400mm	6.69" 170mm	3.43" 87mm	2.42" 62mm	10.04" 260mm	12.79" 325mm	8.7 lbs 3.9 kg	2.22" 57mm
G100319 ²	yes	10.55" 268mm	4.50" 114mm	4.00" 102mm	16.85" 428mm	7.28" 185mm	3.45" 88mm	2.85" 73mm	10.60" 269mm	13.98" 355mm	10.9 lbs 4.9 kg	2.22" 57mm

1 - FPG Alexin Models with 90° outlet tube

2 - FPG Alexin models with straight outlet tube

FPG Service Parts



FPG Service Parts & Accessories



G042544 & G042545 FPG	
Cover	P533685 .....8
Filter, primary	P822686 .....3
Filter, safety	P535396 .....4
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H002068
Latch	P538928
Mounting bands, metal	H008442
Mounting Bands, plastic	P777151
Outlet band clamp	P115200
Vacuator™ Valve	P522958

G057511 & G057512 FPG	
Cover	P533761 .....8
Elbow, 45°	P105541
Elbow, 90°	P105529
Filter, primary	P821575 .....3
Filter, safety	P822858 .....3
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H001377
Latch	P538928
Mounting bands, metal	H008443
Mounting Bands, plastic	P777730
Outlet band clamp	P148337
Vacuator™ Valve	P522958

G057513 & G057514 FPG	
Cover	P533761 .....8
Elbow, 45°	P105541
Elbow, 90°	P105529
Filter, primary	P821575 .....3
Filter, safety	P822858 .....4
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H001377
Latch	P538928
Mounting bands, metal	H008443
Mounting Bands, plastic	P777730
Outlet band clamp	P148337
Vacuator™ Valve	P522958

G065411 & G065424 FPG	
Cover	P539422 .....8
Elbow, 45°	P105543
Elbow, 90°	P105531
Filter, primary	P822768 .....3
Filter, safety	P822769 .....3
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H001378
Latch	P538928
Mounting bands, metal	H008441 or H008444
Mounting Bands, plastic	P778810
Outlet band clamp	P148339
Vacuator™ Valve	P158914

G065432 & G065433 FPG	
Cover	P539422 .....8
Elbow, 45°	P105543
Elbow, 90°	P105531
Filter, primary	P822768 .....3
Filter, safety	P822769 .....4
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H001378
Latch	P538928
Mounting bands, metal	H008441 or H008444
Mounting Bands, plastic	P778810
Outlet band clamp	P148339
Vacuator™ Valve	P158914

G070017 & G070018 FPG	
Cover	P536202 .....8
Elbow, 45°	P105544
Elbow, 90°	P105532
Elbow, 90° reducing	P123462
Filter, primary-Donaldson Blue®	DBA5225
Filter, primary	P827653 .....3
Filter, safety	P829332 .....3
Hump hose	P105608
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H001379
Latch	P538928
Mounting bands, metal	H002070
Mounting Bands, plastic	P777731
Outlet band clamp	P148341
Vacuator™ Valve	P158914

G070019 & G070020 FPG	
Clamp	P003951
Cover	P536202 .....8
Elbow, 45°	P105544
Elbow, 90°	P105532
Elbow, 90° reducing	P123462
Filter, primary-Donaldson Blue®	DBA5225
Filter, primary	P827653 .....3
Filter, safety	P829332 .....4
Hump hose	P105608
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H001379
Latch	P538928
Mounting bands, metal	H002070
Mounting Bands, plastic	P777731
Outlet band clamp	P148341
Vacuator™ Valve	P158914

G082525 & G082526 FPG	
Cover	P534048 .....8
Elbow, 45°	P109331
Elbow, 90°	P114318
Filter, primary-Donaldson Blue®	DBA5227
Filter, primary	P828889 .....3
Filter, safety	P829333 .....3
Hump hose	P114319
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H000466
Latch	P538928
Mounting bands, metal	H002023
Mounting Bands, plastic	P777732
Outlet band clamp	P148342
Vacuator™ Valve	P158914

G082527 & G082528 FPG	
Clamp	P102025
Cover	P534048 .....8
Elbow, 45°	P109331
Elbow, 90°	P114318
Filter, primary-Donaldson Blue®	DBA5227
Filter, primary	P828889 .....3
Filter, safety	P829333 .....4
Hump hose	P114319
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H000466
Latch	P538928
Mounting bands, metal	H002023
Mounting Bands, plastic	P777732
Outlet band clamp	P148342
Vacuator™ Valve	P158914

G090219 & G090225* FPG	
Cover	P780524
Elbow, 45°	P105545
Elbow, 90°	P105533
Elbow, 90° reducing	P121482
Filter, primary-Donaldson Blue®	DBA5226
Filter, primary	P780522
Filter, safety	P780523 .....3
Hump hose	P105609
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000170
Inlet hood, plastic	H000468
Mounting Bands, plastic	P780532 .....10
Outlet band clamp	P148343
Vacuator™ Valve	P776008

G100317 & G100319* FPG	
Cover	P780578
Elbow, 45°	P105545
Elbow, 90°	P105533
Elbow, 90° reducing	P121482
Filter, primary-Donaldson Blue®	DBA5228
Filter, primary	P781039
Filter, safety	P777639 .....3
Hump hose	P105609
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000170
Inlet hood, plastic	H000468
Mounting Bands, plastic	P780594 .....10
Outlet band clamp	P148343
Vacuator™ Valve	P776008

NOTES:

- 3 = Shipped with air cleaner initially
- 4 = Safety filter is designed to fit this air cleaner, but was not originally shipped with it (note that adding a safety filter will decrease the maximum airflow throughput)
- 8 = Cover assembly includes latches but no Vacuator™ Valve
- 10 = This air cleaner requires two mounting bands

Donaldson Blue® = High Efficiency, Extended Service

* = FPG Alexin models with twist off cover design (no latches)



UL Listed Air Cleaners

UL Listed FPG Air Cleaners

Air Cleaner Size	Part Number	Primary Element	Secondary Element	Outlet Tube Type
FPG04	G042547	P831520	–	Straight
FPG04	G042549	P831520	–	90°
FPG05	G057517	P831424	–	Straight
FPG05	G057516	P831424	–	90°
FPG06	G065427	P532410	–	Straight
FPG06	G065426	P532410	–	90°
FPG07	G070070	P535770	P542711	Straight
FPG07	G070026	P535770	–	Straight
FPG07	G070027	P535770	–	90°
FPG08	G082731	P604996	P604997	Straight
FPG08	G080599	P604996	–	Straight
FPG08	G082710	P604996	P604997	90°
FPG08	G082755	P604996	–	90°



What is UL?



UL is an American worldwide safety consulting and certification company. It maintains offices in 46 countries, and was established in 1894.

UL most notably aided in the public adoption of electricity. It now has hundreds of standards covering a wide range of products.

UL has certified that the Donaldson air cleaners listed in the table above meet specifications for UL558, which covers the fire safety aspects of industrial trucks with internal combustion engines. These air cleaners have been specifically verified as backfire defectors.

Please contact Donaldson for UL Listed FPG Air Cleaner availability.

This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

1 Check the Restriction

Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer or on a regular service schedule.



2 Clean Out the Vacuator™ Valve

If your air cleaner is equipped with a Vacuator™ Valve, visually check and physically squeeze it. Make sure the valve is flexible and not inverted, damaged or plugged.



3 Remove the Primary filter

Shut off the engine. Unfasten or unlatch the service cover. For the FPG Alexin™ models, the cover is unlocked with a yellow "finger," twisted to the left and removed from the filter housing.

The RadialSeal™ filter fits tightly over the outlet tube and there will be some initial resistance, similar to breaking the seal on a jar. Gently move the end of the filter back and forth to break the seal, then rotate while pulling straight out. Avoid knocking the filter against the housing.



4 Visually Check the Safety Filter and Clean Both Surfaces of the Outlet Tube

If your air cleaner has a safety filter, visually check it while in place for signs of damage. Do not remove the safety filter unless it is damaged or due for replacement. Also verify that the safety filter is properly seated in the housing.

The safety filter should be replaced every three primary filter changes. Use a clean damp cloth to wipe both the filter sealing surface and the inside of the outlet tube. Ensure that the outlet tube sealing area is undamaged.

Contaminant on the sealing surface could hinder an effective seal and cause leakage. If the safety filter is to be replaced, avoid leaving the outlet tube exposed to the air. If there is to be a delay in installing the new safety filter, cover the air cleaner outlet tube to avoid admitting any dust.



Continued on next page



5 Inspect the Old Filter

Inspect the old filter for any signs of leaks. A streak of dust on the clean side of the filter is a telltale sign. Eliminate any source of air leaks before installing the new primary filter.

6 Inspect the New Filter

Inspect the new filter for any damage that may have occurred through mishandling. NEVER install a damaged filter. Visually check the inside of the open end, which is the sealing area.

Do not wipe the filter RadialSeal™ sealing area. Donaldson RadialSeal™ filters have an invisible dry lubricant on the seal to aid installation.



7 Insert the New Filter

First, if you're servicing the safety filter at this change-out, seat it properly into position before installing the primary filter. Insert new filters carefully. Seat the primary filter by hand, making certain it is inserted completely into the air cleaner housing. To complete a tight seal, apply pressure by hand at the outer rim of the filter, not the flexible center.

No cover pressure is required to hold the seal in place and you should NEVER use the service cover to apply pressure. This could damage the housing and fasteners and void the warranty. If the service cover presses against the filter before the cover is fully in place, remove the cover. With the cover off, push the filter farther into the air cleaner by hand and then the cover will go on with no extra force. Once the filter is in place, secure the service cover.

For FPG Alexin™ models, twist the cover to the right until it stops, then push the yellow "finger" in to lock.



If you perform filter maintenance service on a schedule versus using service indicators, you may want to write the service date on the end cap of both filters.

8 Check Connectors for Tight Fit

Make sure service indicators are reset and in proper working order. Check that all mounting bands, clamps, bolts, and connections in the entire air cleaner system are tight. Check for holes in piping and repair or replace as needed. Any leaks in the intake piping will admit dust directly to the engine. Reset the filter service indicator.



Superior Protection for Larger Engines

RadialSeal™ Sealing Technology Means Reliable Filtration and Quicker Service

The Donaldson two-stage FRG RadialSeal™ air cleaners provide improved reliability, better durability and reduced weight compared to axial seal style air cleaner designs. Choose from more than 20 air cleaners that work in airflow ranges of 82 to 1600 cfm.

Two-Stage Filtration

Both Style A and B have an integral pre-cleaning stage that separates up to 85% of the incoming dust. The primary filter stops the rest, resulting in engine air that is 99.99% free of dust.

Try PowerPleat™ for 11" Style B and 13" Style B. See page 65.



Donaldson FRG Air Cleaners and Duramax hydraulics filters deliver superior filtration to pump-and-engine rigs used in the oil and gas industry.



The two-stage FRG Air Cleaner in operation on a Prentice 490 Skidder.



The FRG Air Cleaner on this Tyler Ag Sprayer eliminates 99.99% of the dirt from the engine airstream, while providing up to 945 cfm airflow to the engine.



Durable, Vibration Resistant Variety of Sizes in Two Separate Housing Styles

Applications

- Horizontal installation
- Medium and heavy dust environments
- **Style A** — From 82 to 795 cfm airflow throughput per air cleaner in body diameters ranging from 5" to 16" (127 – 406mm)
- **Style B** — From 270 to 1390 cfm airflow throughput per air cleaner in body diameters ranging from 10" to 18" (254 – 457mm)

Ideal for

- Construction equipment
- Agricultural machinery
- Mining equipment
- Off-highway vehicles

Air Cleaner Features

- Two-stage filter system: the first stage removes up to 85% of incoming dust
 - The first stage in the Style A uses the angled vanes on the primary filter
 - The first stage in the Style B has a tangential air inlet
- Inlet on side, outlet on end (G flow)
- Already tapped to accept filter service indicator
- Vacuator™ Valve automatically releases the pre-cleaned dust
- Recommended Vacuator Valve orientation angle is $\pm 30^\circ$
- Durable, long-lasting finish
 - Style A housing is metal and coated with a black, corrosion- and chemical-resistant polymer paint (service cover is accessed with clamp and bolt)
 - Style B is comprised of two materials: injection molded, high strength polymer service cover and a metal body (the service cover is accessed by latches)
- Mounting the unit directly to the engine is not recommended; excessive engine vibration can cause premature air cleaner structural failure

FRG Style A

The FRG Style A series replaces Donaldson's obsolete FHG series in size and airflow capacity.



While it looks like an axial seal air cleaner on the outside, this new style housing is equipped with a RadialSeal™ style primary filter and an optional safety filter. Easy to service; one wing-bolt clamp to undo to access filter(s).

Filter Features

The RadialSeal™ filter inside the air cleaner is also quite different from Axial filters. Its one-piece, molded urethane endcaps encase the filter media and liners, thereby reducing the number of components and increasing sealing reliability.



The inside surface of the filter's open end is the sealing surface, which eliminates the glued-on gasket found on the metal end cap of Axial filters. For added engine protection during filter service, consider a model with a safety filter.

High efficiency, extended service, Donaldson Blue® filters are available on some models (see service parts list on pages 134 and 135 for part numbers)

FRG Mounting Bands

- Two mounting bands are required for proper FRG installation (see service parts listing in this section).
- Durable, corrosion resistant, galvanized steel construction.
- Engineered and tested to resist the adverse effects of vibration.
- Mounting band feet are designed to continuously ensure maximum torque pressure.
- Dimensional information for mounting bands can be found in the accessories section.



FRG Style B

The FRG Style B series replaces Donaldson's obsolete FTG series in size and airflow capacity.

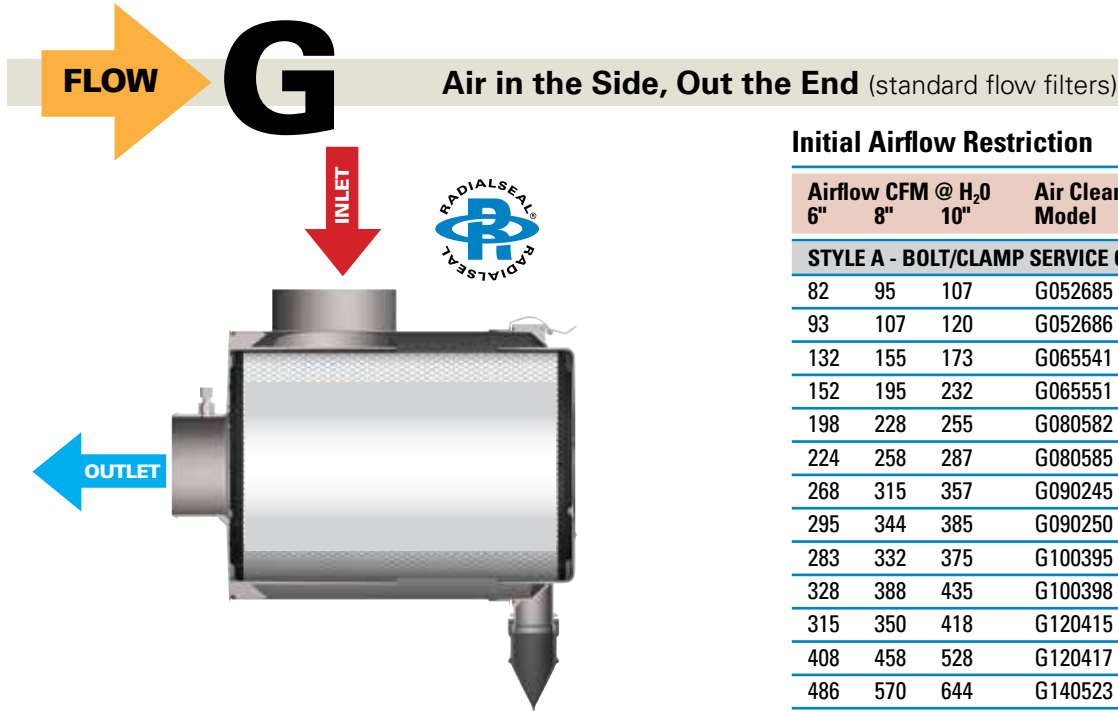


Injection-molded endcap, made of specially-engineered resins for high strength and durability, serves as the service cover. Filter change out is easier than ever — just unsnap the latches to access the filter.

Accessories

Donaldson intake accessories for your FRG Air Cleaner can help overcome or prevent various problems. For instance:

- If the installed air cleaner will be exposed to rain, snow or debris, an **inlet cap** can prevent moisture ingestion.
- A **filter service indicator** measures the airflow restriction across the filter and indicates when to replace the filter (see Accessories section of this catalog).
- **Mounting bands** for FRGs must be ordered separately.



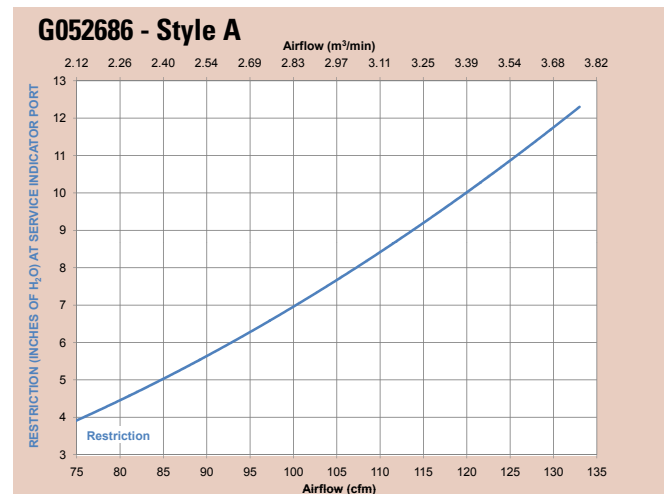
Initial Airflow Restriction

Airflow CFM @ H ₂ O		Air Cleaner Model	Weight		
6"	8"		lbs	kg	
STYLE A - BOLT/CLAMP SERVICE COVER					
82	95	107	G052685	5.5	2.5
93	107	120	G052686	5.2	2.4
132	155	173	G065541	7.6	3.4
152	195	232	G065551	7.1	3.2
198	228	255	G080582	11.0	5.0
224	258	287	G080585	10.5	4.8
268	315	357	G090245	13.1	5.9
295	344	385	G090250	12.1	5.5
283	332	375	G100395	30.1	13.7
328	388	435	G100398	28.6	13.0
315	350	418	G120415	26.5	12.0
408	458	528	G120417	28.1	12.7
486	570	644	G140523	34.9	15.8
560	657	742	G140526	33.3	15.1
590	700	795	G160679	41.7	18.9
STYLE B - LATCH SERVICE COVER					
270	305	340	G100297	12.0	5.4
300	360	400	G110214	13.1	5.9
370	430	490	G110206	17.5	8.0
440	510	570	G130107	20.6	9.3
520	590	655	G130097	25.0	11.4
715	805	945	G150092	30.0	13.6
1040	1230	1390	G180031	44.0	20.0

When Selecting an Air Cleaner . . .

Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table at right. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction estimates.

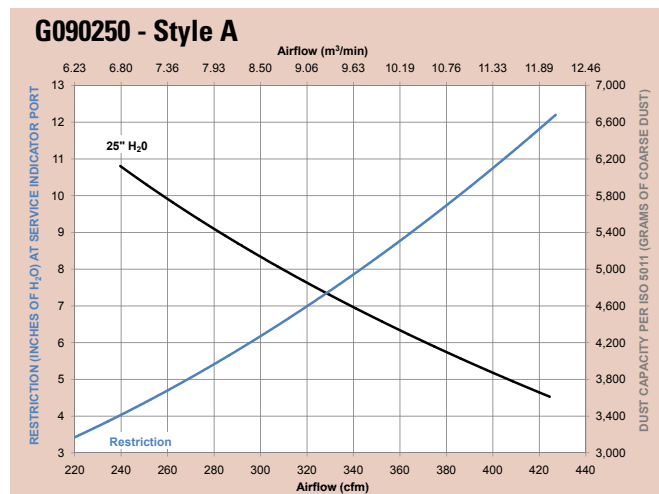
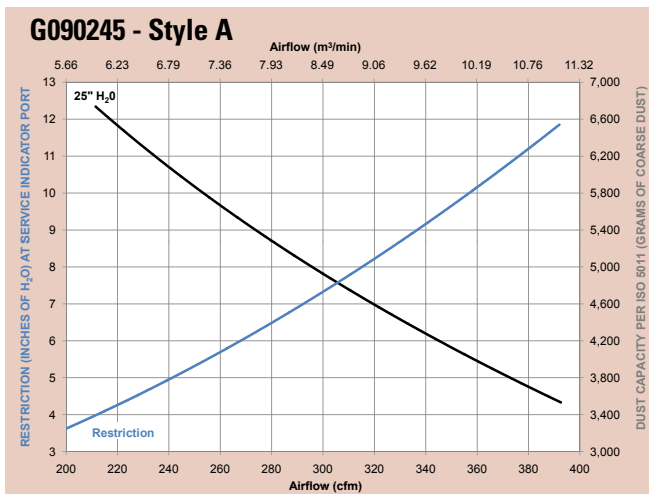
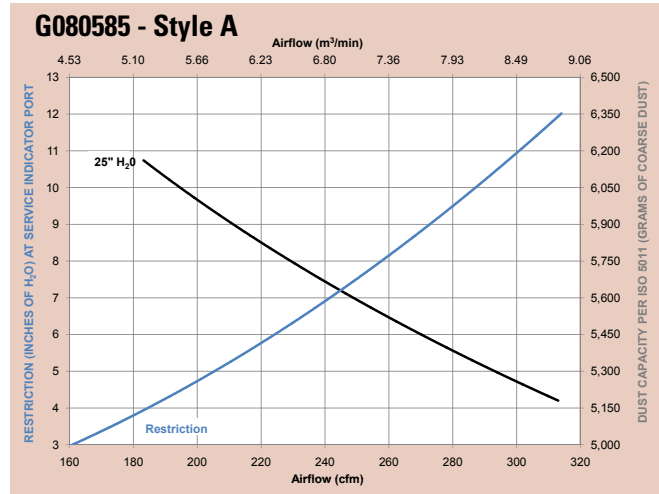
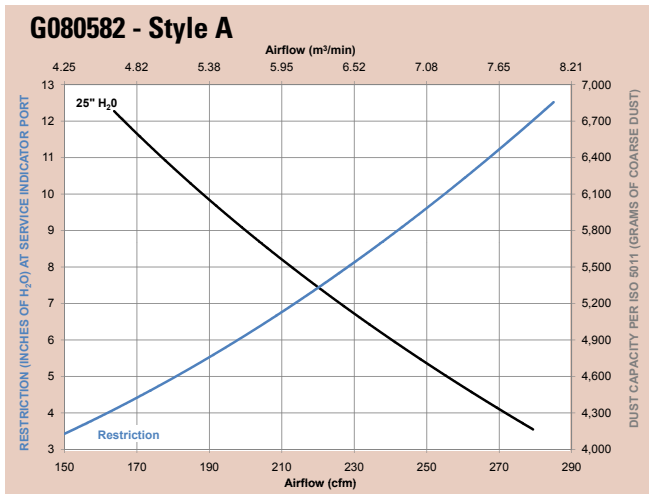
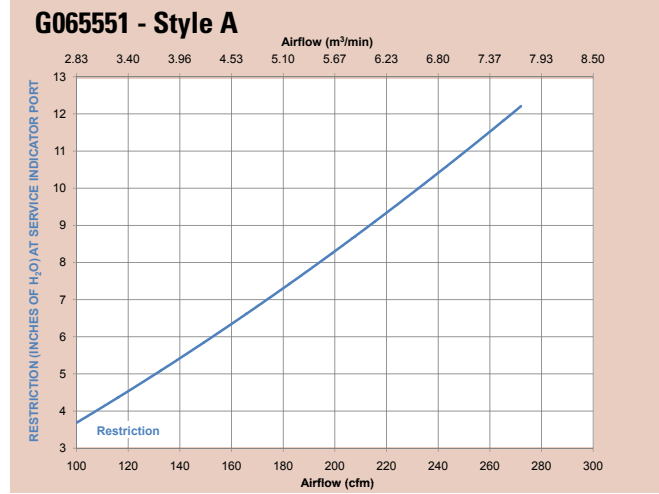
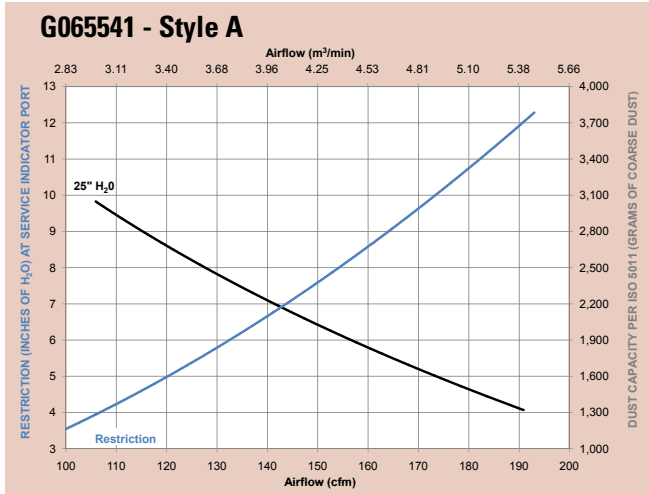
FRG Air Cleaner Performance Curves (Restriction & Dust Capacity)*



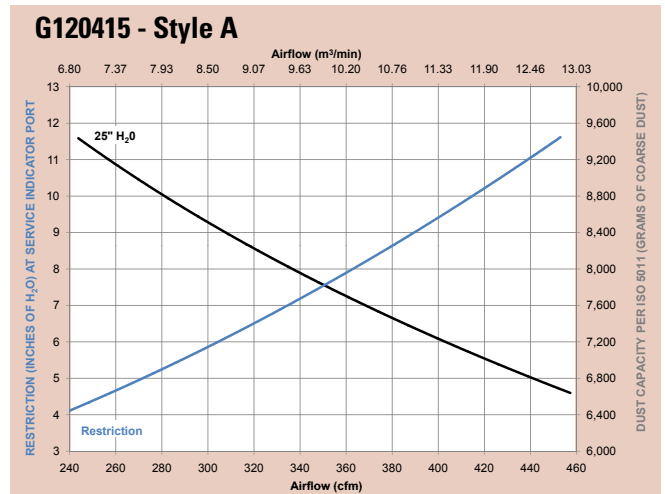
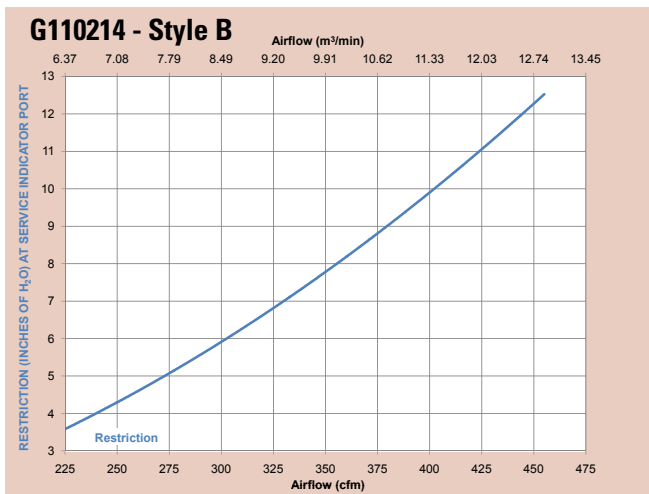
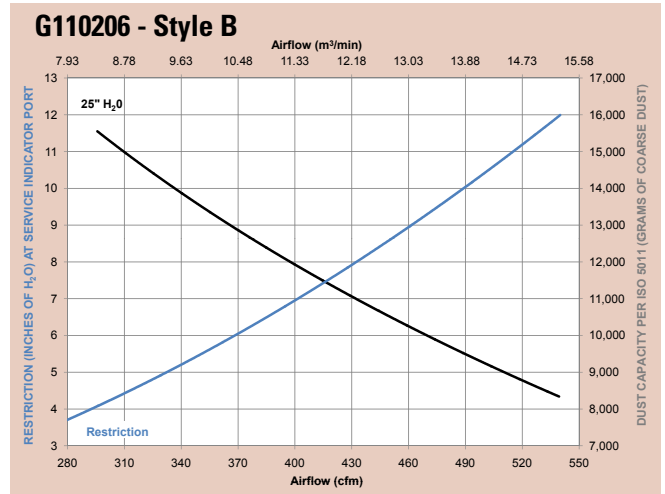
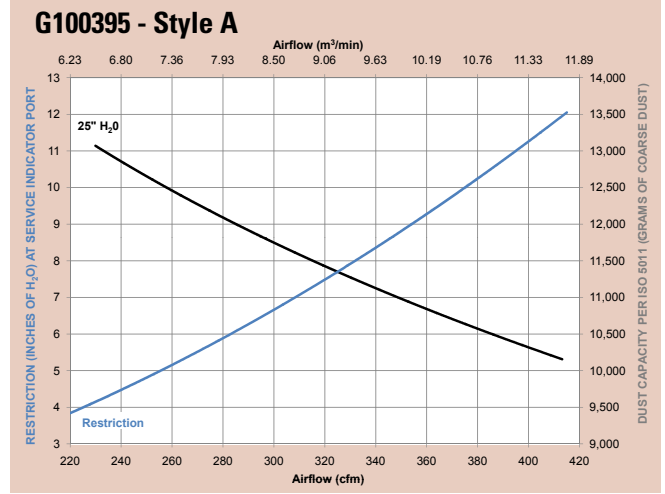
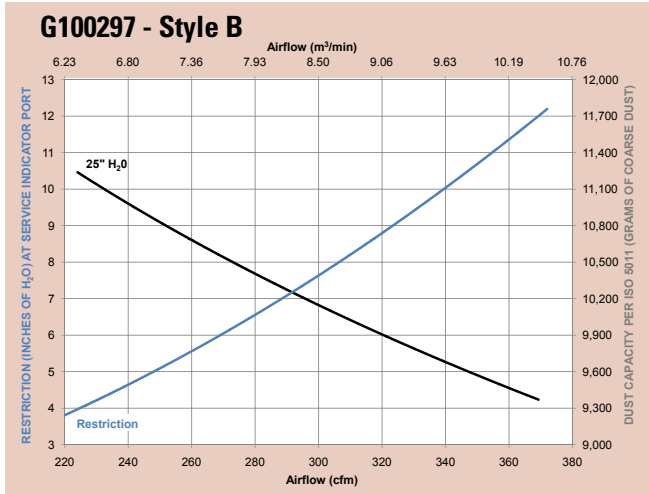
*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.



continued — FRG Air Cleaner Performance Curves (Restriction & Dust Capacity)

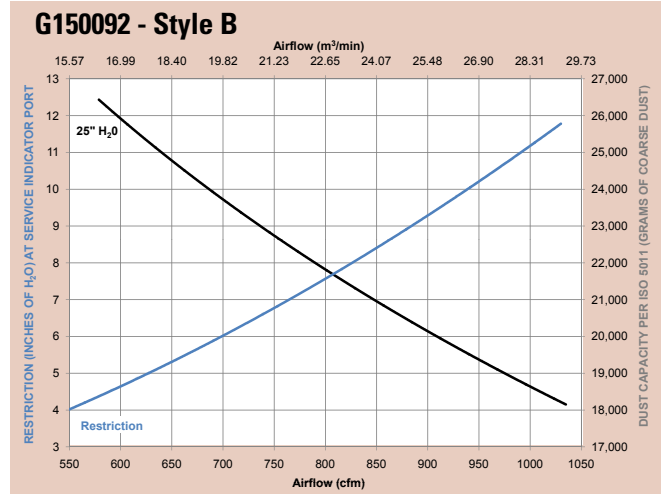
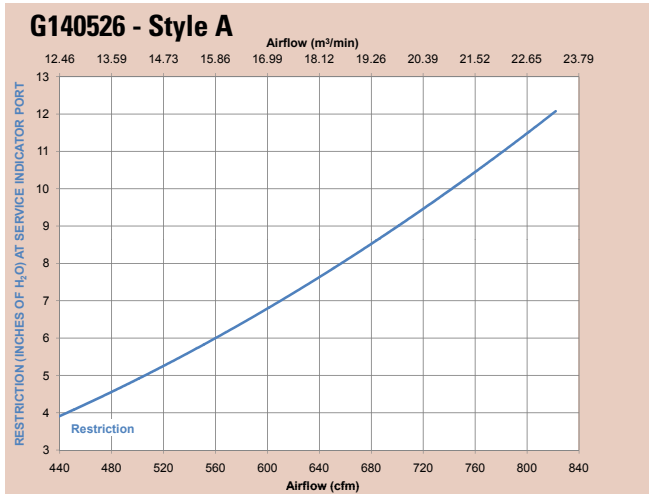
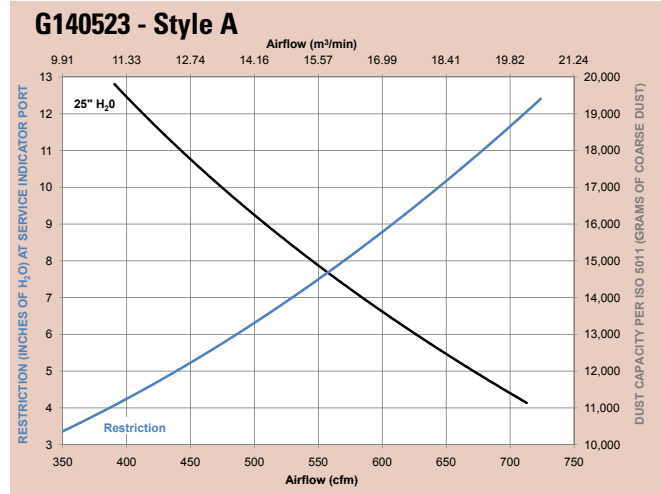
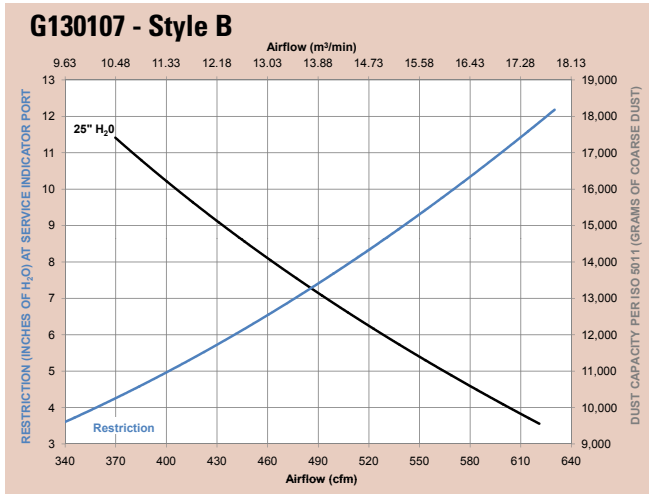
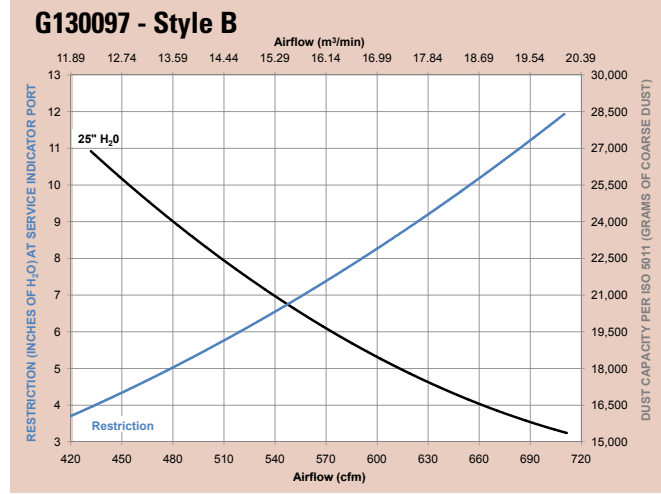
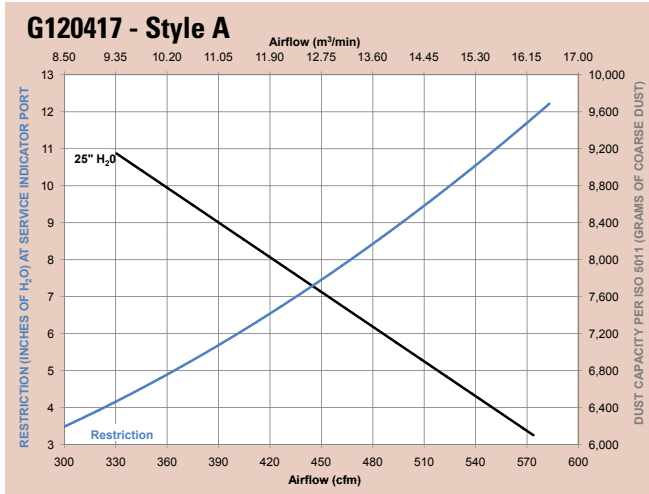


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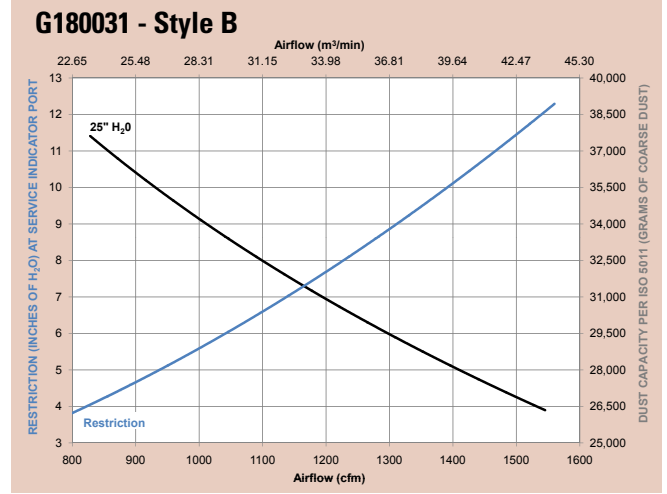
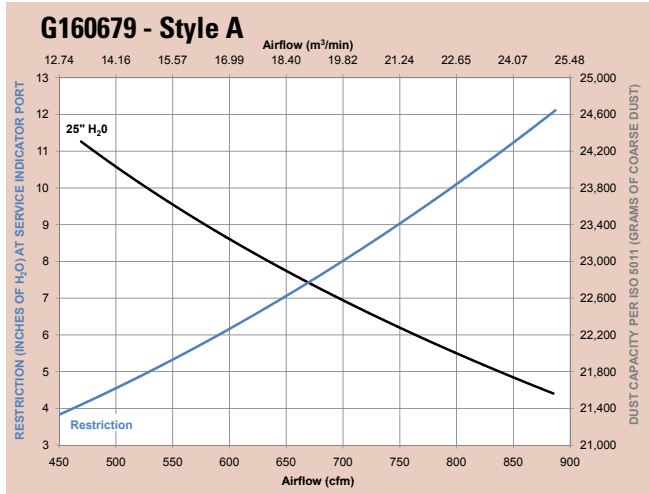




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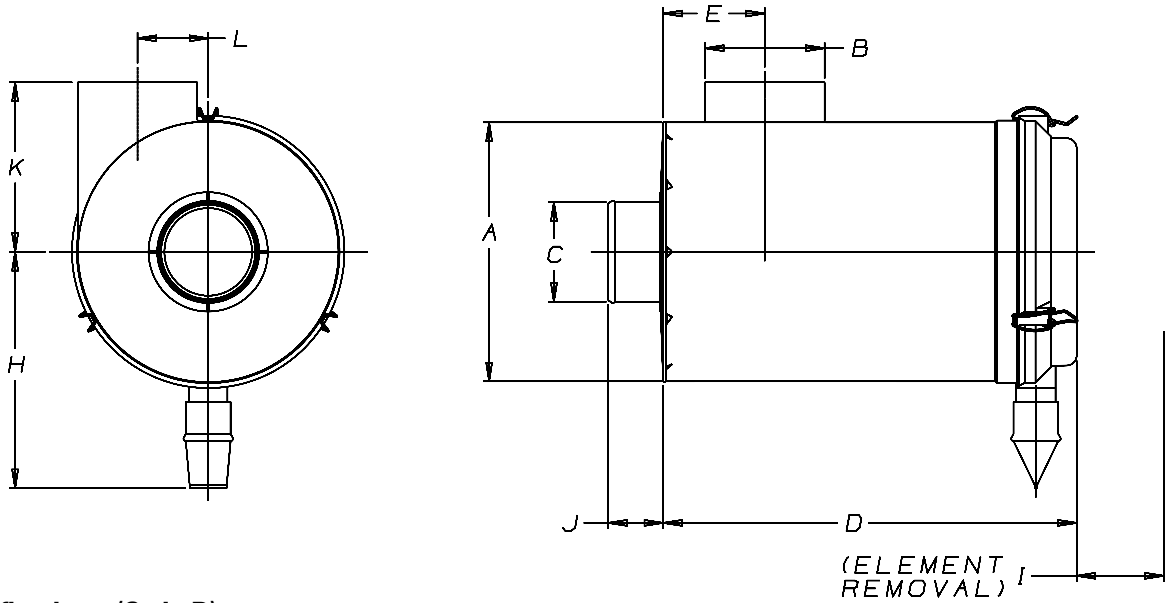


continued — FRG Air Cleaner Performance Curves (Restriction & Dust Capacity)



FRG Specification Illustrations

Style B — Latch Service Cover (Style A on next page)



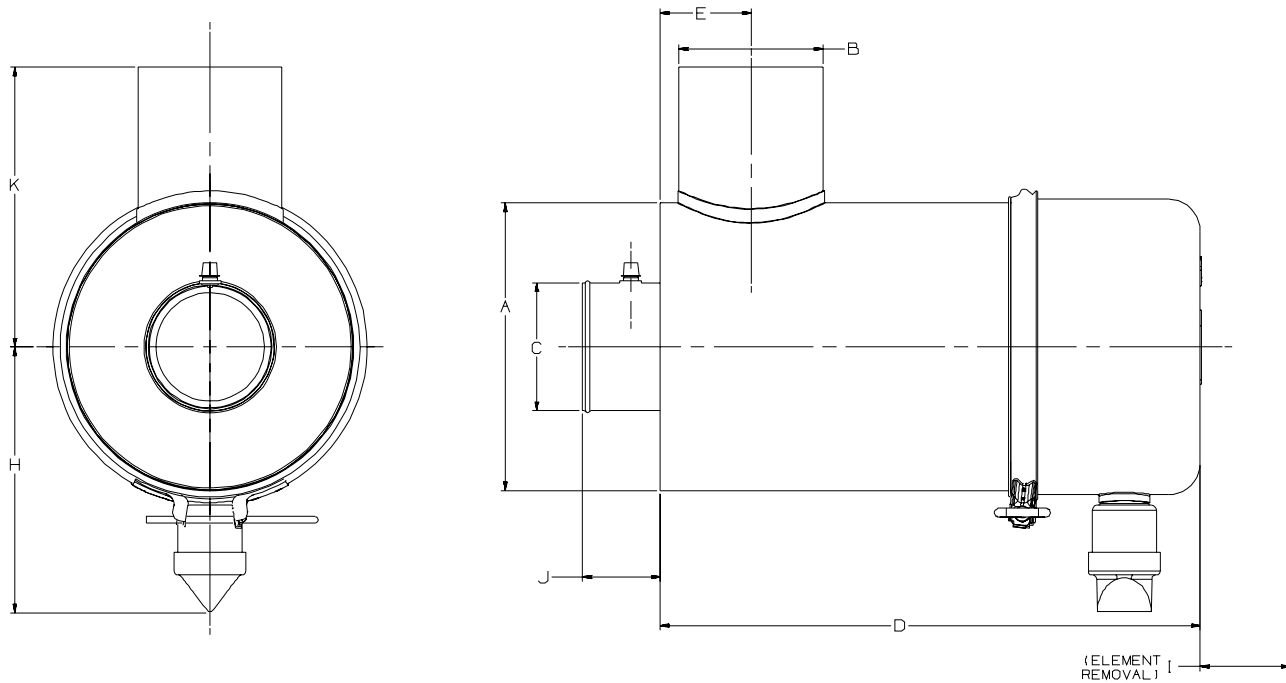
FRG Specifications (Style B)

Air Cleaner Models	Body Diameter (A)		Inlet Diameter (B)		Outlet Diameter (C)		Housing Length (D)		Inlet Location (E)		Center Line to Valve (H)		Service Clearance (I)		Outlet Length (J)		Inlet Length (K)		Offset Inlet Location (L)	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
STYLE B - LATCH SERVICE COVER																				
G100297	10.2	259	4.5	114	4.0	102	16.93	430	3.54	90	10.63	270	15.00	373	2.59	66	8.07	205	2.81	72
G110214	11.0	279	5.0	127	4.5	114	13.78	350	4.13	105	10.81	275	17.00	428	2.64	67	7.50	191	2.96	75
G110206	11.0	279	5.0	127	4.5	114	19.28	490	4.13	105	10.81	275	17.00	428	2.64	67	7.50	191	2.96	75
G130107	13.0	330	6.0	152	5.0	127	16.73	425	5.22	132	11.85	301	18.00	450	2.64	67	8.50	216	3.54	90
G130097	13.0	330	6.0	152	5.0	127	20.87	530	5.22	132	11.85	301	18.00	450	2.64	67	8.50	216	3.54	90
G150092	15.0	381	7.0	178	6.0	152	20.87	530	5.51	140	13.31	338	19.00	482	2.75	70	9.50	241	4.03	102
G180031	18.0	457	8.0	203	8.0	203	25.60	650	5.04	128	15.80	402	28.62	600	3.35	85	11.42	290	5.05	128



FRG Specification Illustrations

Style A — Bolt/Clamp Service Cover

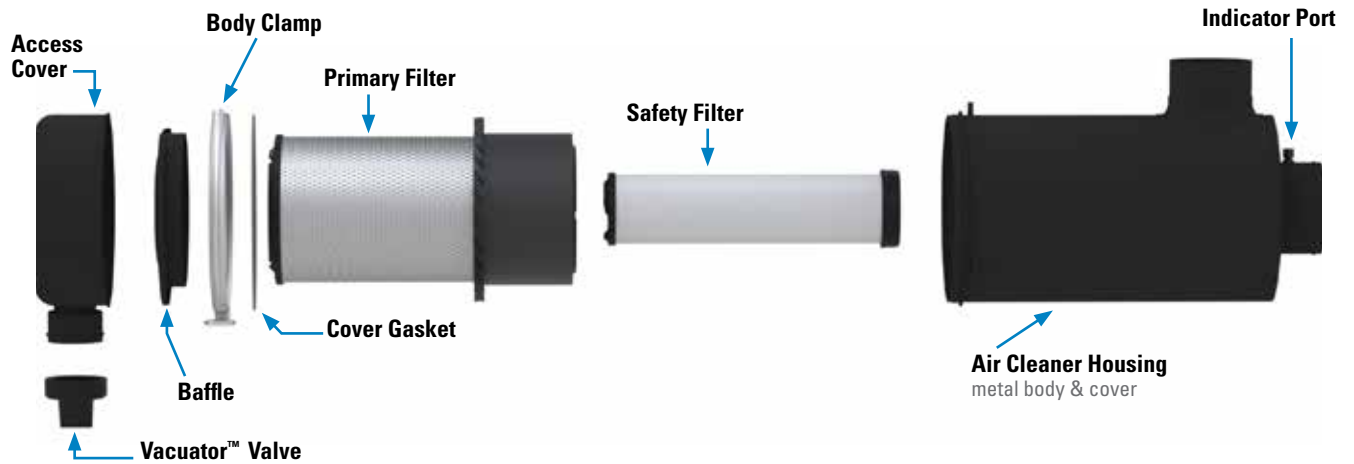


FRG Specifications (Style A)

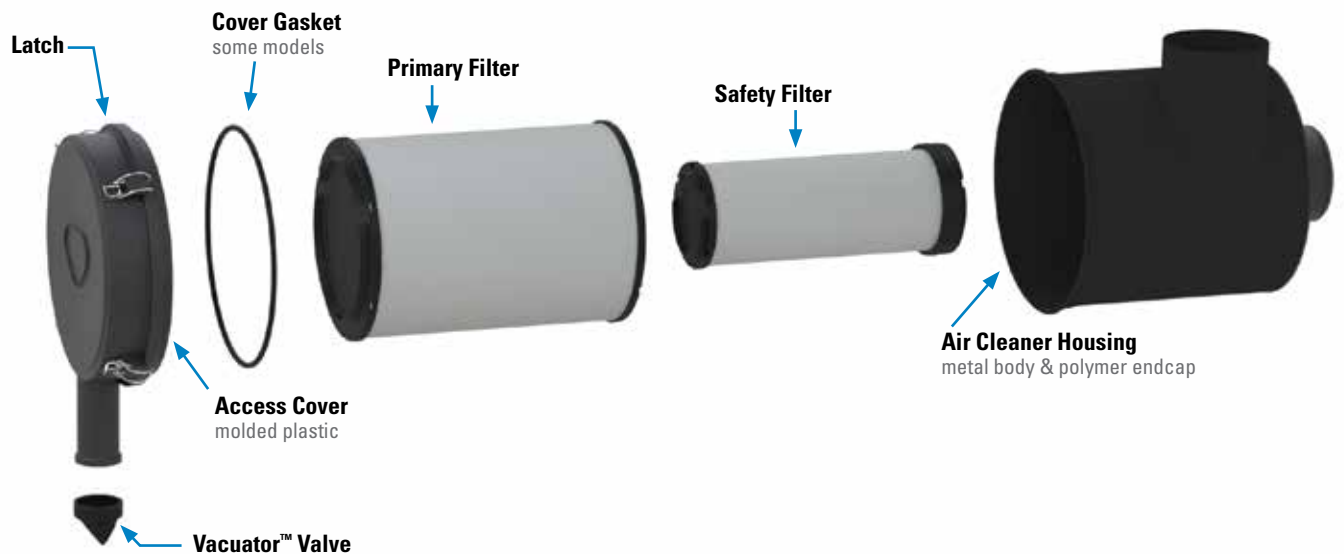
Air Cleaner Models	Body Diameter (A)		Inlet Diameter (B)		Outlet Diameter (C)		Housing Length (D)		Inlet Location (E)		Center Line to Valve (H)		Service Clearance (I)		Outlet Length (J)		Inlet Length (K)	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
STYLE A - BOLT/CLAMP SERVICE COVER																		
G052685	5.25	133	2.50	64	2.50	64	14.76	375	2.06	52	6.36	162	9.80	249	2.30	58	4.97	126
G052686	5.25	133	2.50	64	2.50	64	14.76	375	2.06	52	6.36	162	9.80	249	2.30	58	4.97	126
G065541	6.55	166	3.00	76	3.00	76	15.44	392	1.92	49	6.28	160	12.31	313	2.22	56	6.38	162
G065551	6.55	166	3.00	76	3.00	76	15.44	392	1.92	49	6.28	160	12.31	313	2.22	56	6.38	162
G080582	8.00	203	3.75	95	3.50	89	15.84	402	2.38	60	7.96	202	12.44	316	2.46	62	7.25	184
G080585	8.00	203	3.75	95	3.50	89	15.84	402	2.38	60	7.96	202	12.44	316	2.46	62	7.25	184
G090245	9.00	229	4.50	114	4.00	102	16.90	429	2.84	72	8.27	210	16.90	429	2.43	62	8.75	222
G090250	9.00	229	4.50	114	4.00	102	16.90	429	2.84	72	8.27	210	16.90	429	2.43	62	8.75	222
G100395	10.19	259	4.50	114	5.00	127	21.03	534	3.38	86	8.96	228	13.06	332	2.10	53	8.09	205
G100398	10.19	259	4.50	114	5.00	127	21.03	534	3.38	86	8.96	228	13.06	332	2.10	53	8.09	205
G120415	12.00	305	5.00	127	5.00	127	19.06	484	4.69	119	9.62	244	9.10	231	2.28	58	8.92	227
G120417	12.00	305	5.00	127	5.00	127	19.06	484	4.69	119	9.62	244	9.10	231	2.28	58	8.92	227
G140523	14.00	356	6.00	152	6.00	152	22.06	560	5.28	134	10.72	272	12.10	307	2.26	57	10.12	257
G140526	14.00	356	6.00	152	6.00	152	22.06	560	5.28	134	10.72	272	12.10	307	2.26	57	10.12	257
G160679	16.00	406	7.00	178	7.00	178	24.04	611	5.76	146	11.72	298	14.10	358	2.29	58	12.00	305

FRG Service Parts

Style A — Bolt/Clamp Service Cover



Style B — Latch Service Cover



FRG Service Parts & Accessories

G052685 FRG Style A

Clamp	P002904
Cover	P120279
Elbow, 45°	P105543
Elbow, 90°	P105531
Filter, primary	P600043 .....3
Filter, safety	P600047 .....3
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H001378
Mounting band	P002348 .....2
Mounting bands, metal	P002348
Outlet band clamp	P148339
Vacuator™ Valve	P158914

G052686 FRG Style A

Clamp	P002904
Cover	P120279
Elbow, 45°	P105543
Elbow, 90°	P105531
Filter, primary	P600043 .....3
Filter, safety (optional)	P600047
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H001378
Mounting band	P002348 .....2
Outlet band clamp	P148339
Vacuator™ Valve	P158914

SERVICE PARTS NOTES:

- 2 = Two required for proper installation
 - 3 = Shipped with air cleaner initially
 - 8 = Cover assembly includes latches but no Vacuator™ Valve
- Donaldson Blue® = High Efficiency, Extended Service



G065541 FRG Style A

Clamp	P002940
Cover	P522133
Elbow, 45°	P105544
Elbow, 90°	P105532
Elbow, 90° reducing	P123462
Filter, primary	P549271 .....3
Filter, safety	P549277 .....3
Hump hose	P105608
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H001379
Mounting band	P007191 .....2
Outlet band clamp	P148341
Vacuator™ Valve	P158914

G065551 FRG Style A

Clamp	P002940
Cover	P522133
Elbow, 45°	P105544
Elbow, 90°	P105532
Elbow, 90° reducing	P123462
Filter, primary	P549271 .....3
Filter, safety (optional)	P549277
Hump hose	P105608
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H001379
Mounting band	P007191 .....2
Outlet band clamp	P148341
Vacuator™ Valve	P158914

G080582 FRG Style A

Clamp	P003951
Cover	P600321
Elbow, 45°	P109331
Elbow, 90°	P114318
Filter, primary-Donaldson Blue®	DBA5223
Filter, primary	P601437 .....3
Filter, safety	P601476 .....3
Hump hose	P114319
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H000466
Mounting band	P004307 .....2
Outlet band clamp	P148342
Vacuator™ Valve	P158914

G080585 FRG Style A

Cover	P600321
Elbow, 45°	P109331
Elbow, 90°	P114318
Filter, primary-Donaldson Blue®	DBA5223
Filter, primary	P601437 .....3
Filter, safety (optional)	P601476
Hump hose	P114319
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H000466
Mounting band	P004307 .....2
Outlet band clamp	P148342
Vacuator™ Valve	P158914

G090245 FRG Style A

Clamp	P102025
Cover	P600657
Elbow, 45°	P105545
Elbow, 90°	P105533
Elbow, 90° reducing	P121482
Filter, primary-Donaldson Blue®	DBA5224
Filter, primary	P601280 .....3
Filter, safety	P601286 .....3
Hump hose	P105609
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000170
Inlet hood, plastic	H000468
Mounting band	P004073 .....2
Outlet band clamp	P148343
Vacuator™ Valve	P158914

G090250 FRG Style A

Cover	P600657
Elbow, 45°	P105545
Elbow, 90°	P105533
Elbow, 90° reducing	P121482
Filter, primary-Donaldson Blue®	DBA5224
Filter, primary	P601280 .....3
Filter, safety (optional)	P601286
Hump hose	P105609
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000170
Inlet hood, plastic	H000468
Mounting band	P004073 .....2
Outlet band clamp	P148343
Vacuator™ Valve	P158914

G100297 FRG Style B

Cover	P538200 .....8
Elbow, 45°	P105545
Elbow, 90°	P105533
Elbow, 90° reducing	P121482
Filter, primary-Donaldson Blue®	DBA5228
Filter, primary	P781039 .....3
Filter, safety	P777639 .....3
Gasket, cover	P537308
Hump hose	P105609
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H000468
Latch	P777366
Mounting band	P004076 .....2
Outlet band clamp	P148343
Vacuator™ Valve	P776008

G100395 FRG Style A

Baffle, metal	P602211
Clamp	P106071
Dust cup/cover	P103827
Elbow, 45°	P109021
Elbow, 90°	P107844
Elbow, 90° reducing	P143895
Filter, primary-Donaldson Blue®	DBA5222
Filter, primary	P601790 .....3
Filter, safety (optional)	P777639 .....3
Hump hose	P105610
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000170
Inlet hood, plastic	H000468
Mounting band	P004076 .....2
O-ring	P101401
Outlet band clamp	P148345
Vacuator™ Valve	P103198

G100398 FRG Style A

Baffle, metal	P602211
Clamp	P106071
Dust cup/cover	P103827
Elbow, 45°	P109021
Elbow, 90°	P107844
Elbow, 90° reducing	P143895
Filter, primary-Donaldson Blue®	DBA5222
Filter, primary	P601790 .....3
Filter, safety (optional)	P777639
Hump hose	P105610
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000170
Inlet hood, plastic	H000468
Mounting band	P004076 .....2
Mounting bands, metal	P004076
O-ring	P101401
Outlet band clamp	P148345
Vacuator™ Valve	P103198

G110206 FRG Style B

Cover	P538452 .....8
Elbow, 45°	P114316
Elbow, 90°	P113733
Filter, primary-Donaldson Blue®	DBA5105
Filter, primary - SM	P532966 .....3
Filter, safety	P533781 .....3
Gasket, cover	P526676
Hump hose	P114317
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000165
Inlet hood, plastic	H000469
Latch	P536439
Mounting band	P004079 .....2
Outlet band clamp	P148344
Vacuator™ Valve	P158914

G110214 FRG Style B

Cover	P538452 .....8
Elbow, 45°	P114316
Elbow, 90°	P113733
Filter, primary-Donaldson Blue®	DBA5230
Filter, primary	P536457 .....3
Filter, safety	P536492 .....3
Gasket, cover	P526676
Hump hose	P114317
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000170
Inlet hood, plastic	H000468
Latch	P536439
Mounting band	P004079 .....2
Outlet band clamp	P148344
Vacuator™ Valve	P158914



G120415 FRG Style A

Baffle, metal.....	P106329
Clamp.....	P121067
Dust cup/cover.....	P109296
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Filter, primary-Donaldson Blue®... DBA5231	
Filter, primary.....	P601767 .....3
Filter, safety.....	P601774 .....3
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000165
Inlet hood, plastic.....	H000469
Mounting band.....	H000349 .....2
O-ring.....	P017804
Outlet band clamp.....	P148345
Vacuator™ Valve.....	P103198

G120417 FRG Style A

Baffle, metal.....	P106329
Clamp.....	P121067
Dust cup/cover.....	P109296
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Filter, primary-Donaldson Blue®... DBA5231	
Filter, primary.....	P601767 .....3
Filter, safety (optional).....	P601774
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000165
Inlet hood, plastic.....	H000469
Mounting band.....	H000349 .....2
O-ring.....	P017804
Outlet band clamp.....	P148345
Vacuator™ Valve.....	P103198

G130097 FRG Style B

Cover.....	P538259 .....8
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Filter, primary-Donaldson Blue®... DBA5221	
Filter, primary.....	P537876 .....3
Filter, safety.....	P537877 .....3
Gasket, cover.....	P537699
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000275
Inlet hood, plastic.....	H000606
Latch.....	P776033
Mounting band.....	P013722 .....2
Outlet band clamp.....	P148345
Vacuator™ Valve.....	P776008

G130107 FRG Style B

Cover.....	P538259 .....8
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Filter, primary-Donaldson Blue®... DBA5220	
Filter, primary.....	P532503 .....3
Filter, safety.....	P532504 .....3
Gasket, cover.....	P537699
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000275
Inlet hood, plastic.....	H000606
Latch.....	P776033
Mounting band.....	P013722 .....2
Outlet band clamp.....	P148345
Vacuator™ Valve.....	P776008

G140523 FRG Style A

Baffle, metal.....	P106771
Clamp.....	P100866
Dust cup/cover.....	P109297
Elbow, 45°.....	P105547
Elbow, 90°.....	P105535
Filter, primary-Donaldson Blue®... DBA5220	
Filter, primary.....	P532503 .....3
Filter, safety.....	P532504 .....3
Hump hose.....	P105612
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000275
Inlet hood, plastic.....	H000606
Mounting band.....	H000350 .....2
O-ring.....	P017335
Outlet band clamp.....	P148347
Vacuator™ Valve.....	P103198

G140526 FRG Style A

Baffle, metal.....	P106771
Clamp.....	P100866
Dust cup/cover.....	P109297
Elbow, 45°.....	P105547
Elbow, 90°.....	P105535
Filter, primary-Donaldson Blue®... DBA5220	
Filter, primary.....	P532503 .....3
Filter, safety (optional).....	P532504
Hump hose.....	P105612
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000275
Inlet hood, plastic.....	H000606
Mounting band.....	H000350 .....2
O-ring.....	P017335
Outlet band clamp.....	P148347
Vacuator™ Valve.....	P103198

G150092 FRG Style B

Cover.....	P777920 .....8
Elbow, 45°.....	P105547
Elbow, 90°.....	P105535
Filter, primary-Donaldson Blue®... DBA5116	
Filter, primary.....	P777868 .....3
Filter, safety.....	P777869 .....3
Hump hose.....	P105612
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000339
Inlet hood, plastic.....	H000607
Latch.....	P776033
Mounting band.....	P016845 .....2
Outlet band clamp.....	P148347
Vacuator™ Valve.....	P776008

G160679 FRG Style A

Baffle, metal.....	P106637
Clamp.....	P100789
Dust cup/cover.....	P106952
Elbow, 45°.....	P105548
Elbow, 90°.....	P105536
Filter, primary-Donaldson Blue®... DBA5229	
Filter, primary.....	P549523 .....3
Filter, safety.....	P549530 .....3
Hump hose.....	P105613
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000339
Inlet hood, plastic.....	H000607
Mounting band.....	H000351 .....2
O-ring.....	P017336
Outlet band clamp.....	P148348
Vacuator™ Valve.....	P103198

G180031 FRG Style B

Cover.....	P783185
Elbow, 45°.....	P112606
Elbow, 90°.....	P112605
Filter, primary-Donaldson Blue®... DBA5156	
Filter, primary.....	P781098 .....3
Filter, safety.....	P781102 .....3
Hump hose.....	P112608
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H001053
Mounting band.....	H770037 .....2
Outlet band clamp.....	P629991
Vacuator™ Valve.....	P105220

SERVICE PARTS NOTES:

- 2 = Two required for proper installation
- 3 = Shipped with air cleaner initially
- 7 = Included with each replacement filter
- 8 = Cover assembly includes latches, but no Vacuator Valve.

Donaldson Blue® = High Efficiency, Extended Service



This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

1 Check the Restriction

Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer or on a regular service schedule.



2 Remove the Primary Filter and check the Vacuator™ Valve

Shut off the engine. Unfasten or unlatch the service cover.

Because of its RadialSeal™, the filter fits tightly over the outlet tube and there will be some initial resistance, similar to breaking the seal on a jar. Gently move the end of the filter back and forth to break the seal then rotate while pulling straight out. Avoid knocking the filter against the housing.

If your air cleaner is equipped with a Vacuator™ Valve, visually check and physically squeeze it.



Make sure the valve is flexible and not inverted, damaged or plugged. Replace it if damaged or if it looks like any of these images. A damaged or missing vac valve will disrupt the designed flow of air through the air cleaner.

3 Visually Check the Safety Filter and Clean Both Surfaces of the Outlet Tube

If your air cleaner has a safety filter, visually check the safety filter in place for signs of damage. Do not remove the safety filter unless it is damaged or due for replacement. Also verify that the safety filter is properly seated in the housing.

The safety filter should be replaced every three primary filter changes. Use a clean damp cloth to wipe both the filter sealing surface and the inside of the outlet tube. Ensure that the outlet tube sealing area is undamaged.

Contaminant on the sealing surface could hinder an effective seal and cause leakage. If the safety filter is to be replaced, avoid leaving the outlet tube exposed to the air.

If there is to be a delay in installing the new safety filter, cover the air cleaner outlet tube to avoid admitting any dust.



4 Inspect the Old Filter

Inspect the old filter for any signs of leaks. A streak of dust on the clean side of the filter is a telltale sign. Eliminate any source of air leaks before installing the new primary filter.



5 Inspect the New Filter

Inspect the new filter for any damage that may have occurred through mishandling. NEVER install a damaged filter. Visually check the inside of the open end, which is the sealing area.

Do not wipe the filter RadialSeal™ area as the new Donaldson RadialSeal filter may have a dry lubricant on the seal to aid installation.



6 Insert the New Filter

First, if you're servicing the safety filter at this change-out, seat it properly into position before installing the primary filter. Insert new filters carefully. Seat the primary filter by hand, making certain it is inserted completely into the air cleaner housing. To complete a tight seal, apply pressure by hand at the outer rim of the filter, not the flexible center.

No cover pressure is required to hold the seal in place and one should NEVER use the service cover to apply pressure. This could damage the housing and fasteners and void the warranty. If the service cover presses against the filter before the cover is fully in place, remove the cover. With cover off, push the filter farther into the air cleaner by hand and then the cover will go on with no extra force. Once the filter is in place, secure the service cover.



Continued on next page



7 Check Inlet Hoods and Pre-Cleaners

Check any intake hoods and pre-cleaner devices during maintenance routines.

A missing inlet hood will significantly shorten filter life. If your unit had a hood or pre-cleaner originally, make sure you replace it. Check openings and tubes on pre-cleaners to make sure they are not plugged. Replace any units that are damaged. Damaged or dented units will not operate properly.



8 Check Connectors for Tight Fit

Make sure service indicators are reset and in proper working order.

Check that all mounting bands, clamps, bolts, and connections in the entire air cleaner system are tight.

Check for holes in piping, and repair or replace as needed.

Any leaks in the intake piping will admit dust directly to the engine.



Under Hood Mount, Two-Stage Filtration For Large Construction & Mining Equipment

The FTG Cycloflow™ Air Cleaner is another two-stage air cleaner with a built-in pre-cleaner. This air cleaner has axial seal style filters. The FTG is typically mounted under hood with the service cover on the outside for access.

Applications

- Allows 32-59 m³/min. airflow throughput per air cleaner
- Horizontal installation
- Sustained temperature tolerance: to 82 °C

Ideal for

- Large industrial and construction equipment: crawler tractors, crane loaders, excavators and air compressors with large engines operating in severe dust environments
- Agricultural machinery
- Mining equipment
- Oil and gas hydraulic fracturing (fracking) equipment
- Off-highway vehicles

Air Cleaner Features

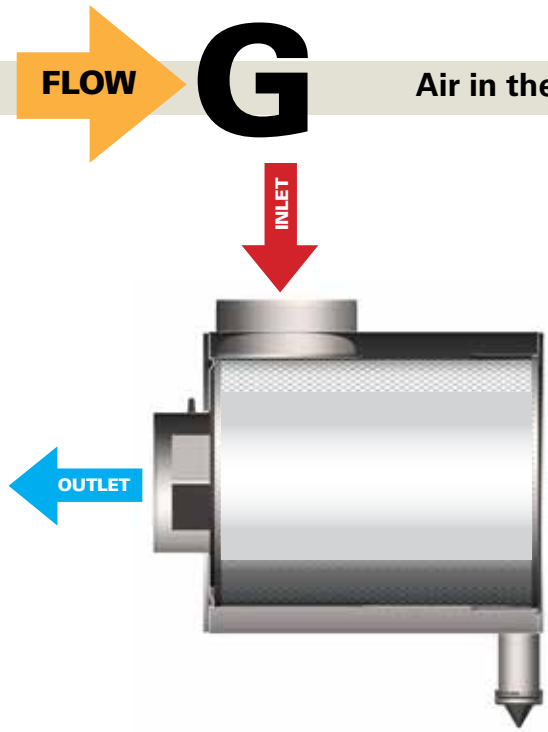
- Unique, flared inlet allows maximum airflow with low restriction
- 21" body diameter
- Two-stage filter system — the first stage removes up to 85% of incoming dust with a tangential air inlet
- Inlet on side, outlet on end (G flow)
- Already tapped to accept filter service indicator (1/8"-27 NPT male)
- Safety filter protects engine inlet during filter change out
- Vacuator™ Valve automatically releases the pre-cleaned dust
- Housing is metal and coated with a black, corrosion- and chemical-resistant polymer paint
- Mounting the unit directly to the engine is not recommended; excessive engine vibration can cause premature air cleaner structural failure



Accessories

- Mounting bands (order separately).
 - If the installed air cleaner will be exposed to rain, snow or debris, an **inlet cap** can prevent moisture ingestion.
 - A **service indicator** measures the airflow restriction across the filter, thereby showing how much useful life the filter has left and when to replace the filter (see Accessories section of this catalog).
- Note:* Outlet tapped to accept filter service indicator (1/8"-27 NPT male).





Air in the Side, Out the End (standard flow filters)

When Selecting an Air Cleaner . . .

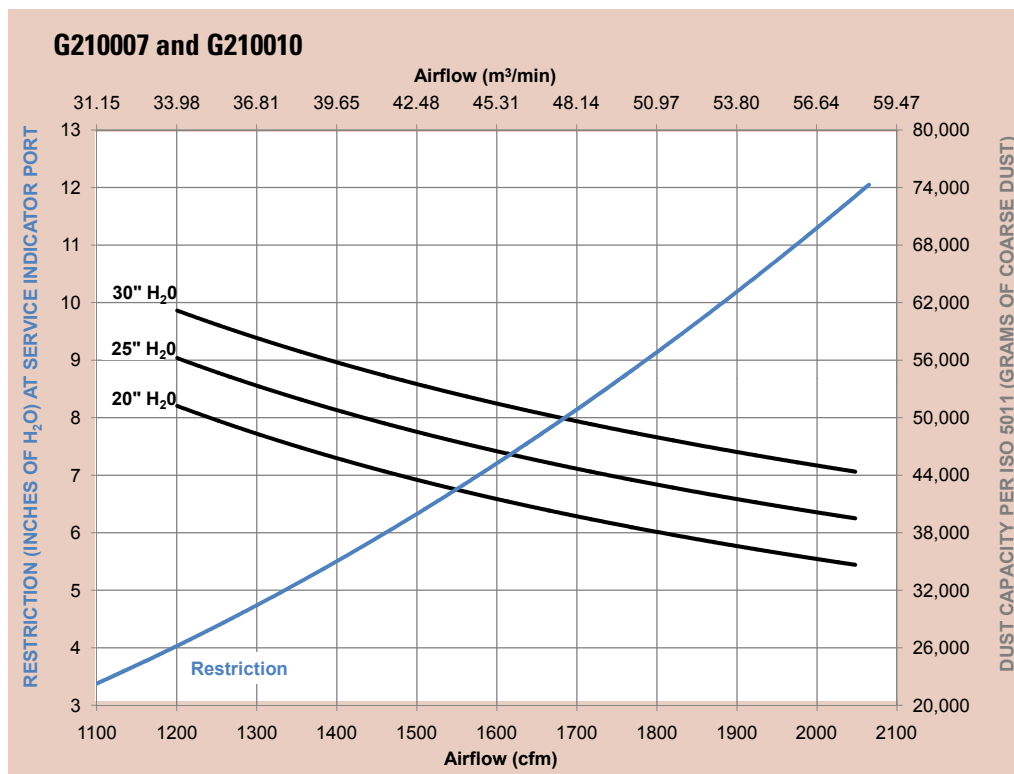
Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table below. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction estimates.

The only difference in these two models is the position of the inlet on the air cleaner body. For location and dimensions, see details on next page.

Initial Airflow Restriction

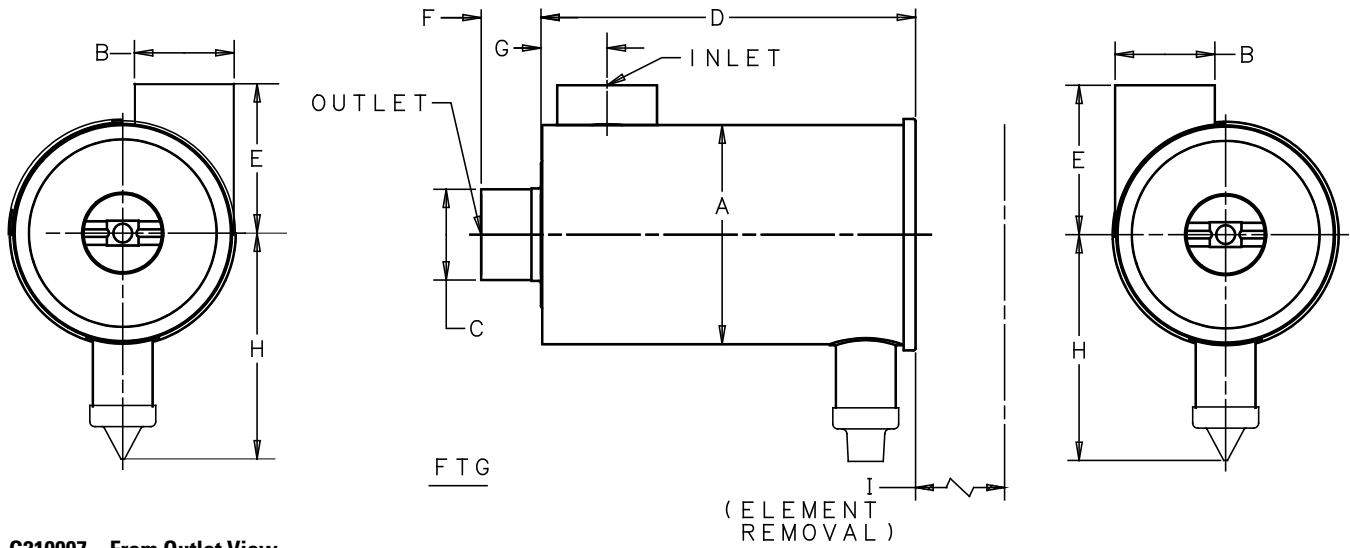
Airflow CFM @ H ₂ O			Air Cleaner Models	Weight	
6"	8"	10"		lbs	kg
1465	1680	1870	G210007 / G210010	88	40

FTG Air Cleaner Performance Curves (Restriction & Dust Capacity)*



*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.

FTG Specification Illustrations



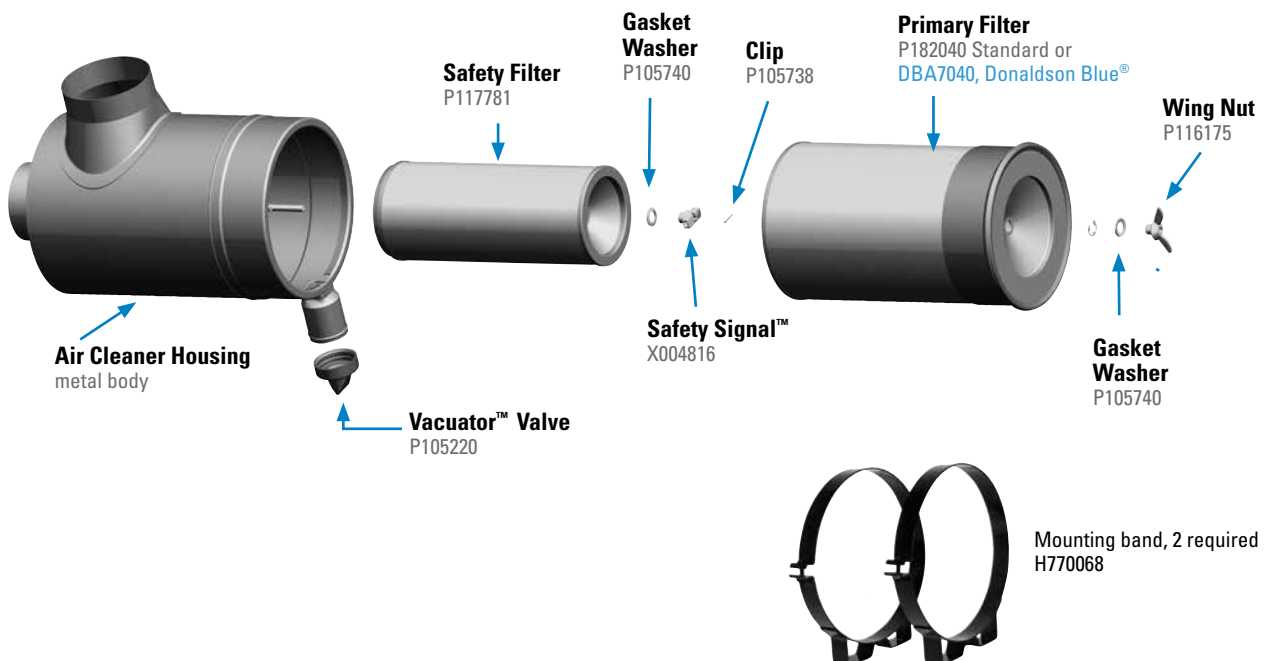
G210007 – From Outlet View
Inlet on RIGHT side of body

G210010 – From Outlet View
Inlet on LEFT side of body

FTG Specifications

Air Cleaner Models	Body Diameter (A)		Inlet Diameter (B)		Outlet Diameter (C)		Housing Length (D)		Inlet Location (E)		Center Line to Valve (H)		Service Clearance (I)		Outlet Length (F)		Inlet Centerline to Outlet Face (G)	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
G210007	21.00	546	10.00	254	10.00	254	24.13	613	13.00	330	17.40	442	24.13	613	3.54	90	5.90	150
G210010	21.00	546	10.00	254	10.00	254	24.13	613	13.00	330	17.40	442	24.13	613	3.54	90	5.90	150

FTG Service Parts





This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

1 Check the Restriction

Check the restriction level of the air cleaner filter service indicator. Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer or on a regular service schedule.



2 Clean Out the Vacuator™ Valve

Remove the Vacuator Valve and clean out any dust found in the drop tube. Reinstall Vacuator Valve or replace if found worn or damaged.



Make sure the valve is flexible and not inverted, damaged or plugged. Replace it if damaged or if it looks like any of these images. A damaged or missing Vacuator Valve will disrupt the designed flow of air through the air cleaner.

3 Gently Remove the Old Filter

Shut off the engine. Loosen and retain the wing nut bolt, remove bolt and washer. Replace both if damaged or worn.

Using the metal handle, pull the dirty filter gently from the housing. Accidental bumping will shake dirt loose inside the filter housing.



4 Visually Check the Safety Filter

Visually check the safety filter without removing it. Replace if damaged or every three primary filter changes. Also verify that the safety filter is properly seated in the housing.

If the safety filter is to be replaced, it should be done immediately or the clean air outlet should be sealed. Use a clean cloth to avoid contaminant being introduced to the engine during service.





5 Always Clean the Inside of the Housing

Dirt left in the air cleaner housing is harmful to your engine. Use a clean, damp cloth to wipe the inside of the housing before fitting the new filter.

Block the outlet tube of the air cleaner with a small dampened towel prior to cleaning the seal surface to avoid contaminating the induction system.



6 Clean the Gasket Sealing Surfaces

An improper gasket seal is one of the most common causes of engine contamination. Make sure that all hardened dirt ridges are completely removed, both on the bottom and top of the air cleaner housing.

7 Inspect Your Old Filter and Check for Uneven Dirt Patterns

Your old filter has valuable clues to dust leakage or gasket sealing problems. A dust pattern on the filter's clean side is a sign that the old filter was not firmly sealed or that a dust leak exists. Identify the cause of any leak and rectify it before installing a new filter.



8 Inspect New Filters

Before installing the new filters, visually inspect them for shipping damage and gasket integrity. If a filter is damaged, do not install it. If desired, write the date of the filter change on the outer end of the filter end cap.



9 Install the New Filters

First, if you're servicing the safety filter at this change-out, seat it properly into position before installing the primary filter. Insert new filters carefully over the center bolt, hand tighten wing nut bolt for both filters.

Make sure the primary filter gasket seats evenly to create a proper seal. If you don't have a good seal, dirty air can by-pass the filter.



10 Ensure an Air-tight Fit on all Connections and Ducts

Check that all clamps and flange joints are tight, as well as the air cleaner mounting bolts. Attend to any leaks immediately to avoid dirt entering your engine directly. Reset the filter service indicator.





Horizontal Mount, Integral Vacuator™ Valve

Severe Duty, Two-Stage Filtration for Large Construction & Mining Machines

Applications

- Allows up to 1200 cfm airflow throughput per air cleaner
- Horizontal installation
- Designed for large industrial and construction machines — crawler tractors, crane loaders, excavators, and air compressors with large engines operating in severe dust environments

Air Cleaner Features

- Unique, flared inlet allows maximum airflow with low restriction
- 21" body diameters
- Two-stage air cleaning deals with very dusty environment:
 - (1) Built-in louver spins air to separate up to 85% of incoming dust before it reaches the filter
 - (2) Primary filter removes up to 99.99% of the remaining dust
- Built-in Vacuator™ Valve collects and releases pre-cleaned dust
- Safety filter on all models protects engine inlet during primary filter change out
- Housing is metal and coated with a corrosion and chemical resistant polymer paint

Filter Features

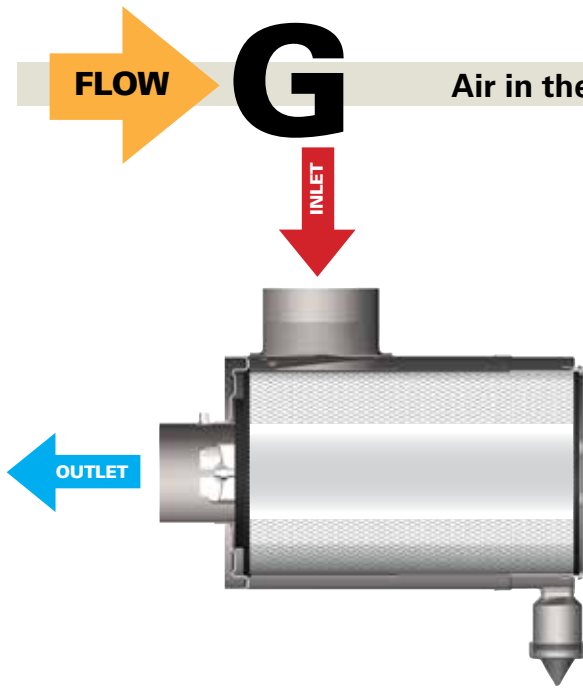
- Replacement filter choices include an extended service, high efficiency filter for restriction maintenance, or a standard life filter for scheduled maintenance

Accessories

- See the Accessories section for details on Donaldson air intake add-ons that can enhance the performance of your system
- Each FVG is tapped to accept a filter service indicator
- Order mounting bands, hoods, and other accessories separately



FVG air cleaners are used in tandem on this underground mining equipment to double the airflow throughput to the engine.



Air in the Side, Out the End (standard flow filters)

When Selecting an Air Cleaner . . .

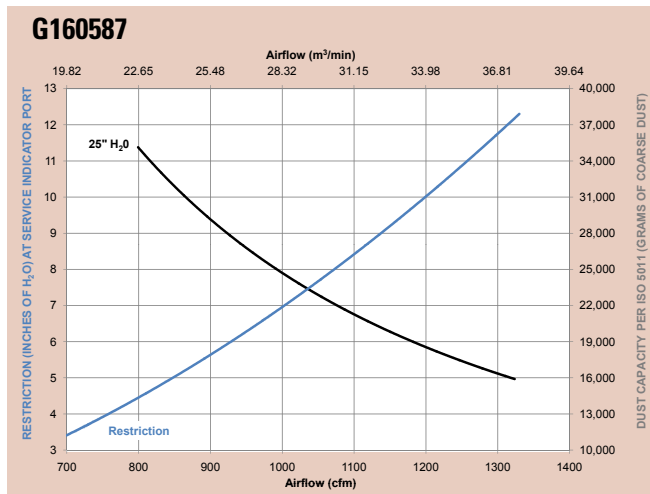
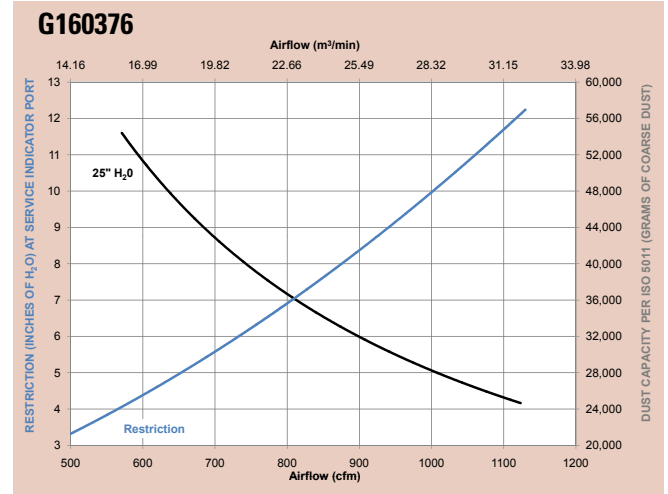
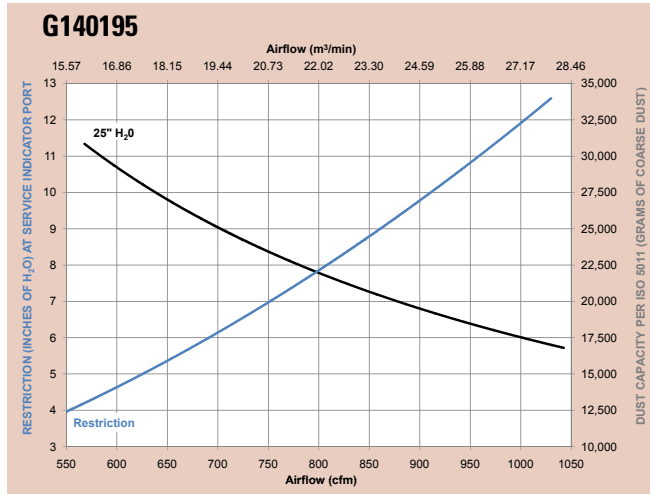
Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table below. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction estimates.

Initial Airflow Restriction

CFM @ "H ₂ O			Air Cleaner Model
6"	8"	10"	
690	810	910	G140195
730	880	1000	G160376
930	1070	1200	G160587

Looking for a different air cleaner with newer Donaldson technologies? Check out the FRG Air Cleaners. This line has models that cover this airflow range.

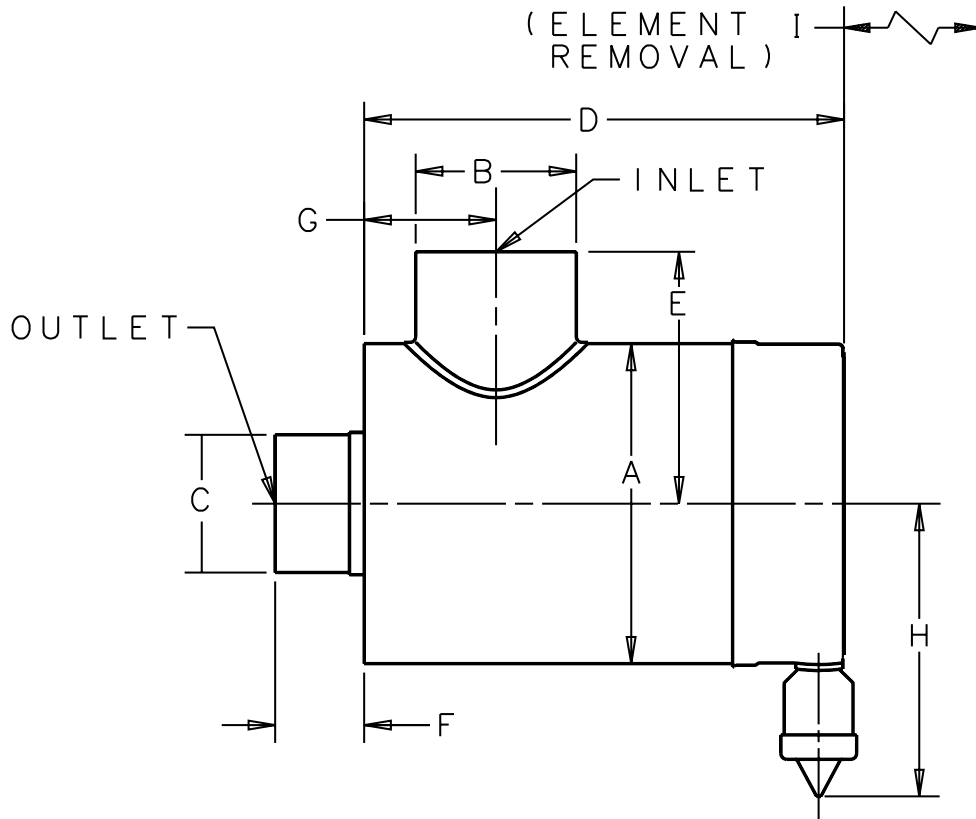
FVG Air Cleaner Performance Curves (Restriction & Dust Capacity)*



*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.



FVG Cycloflow™ Specification Illustration

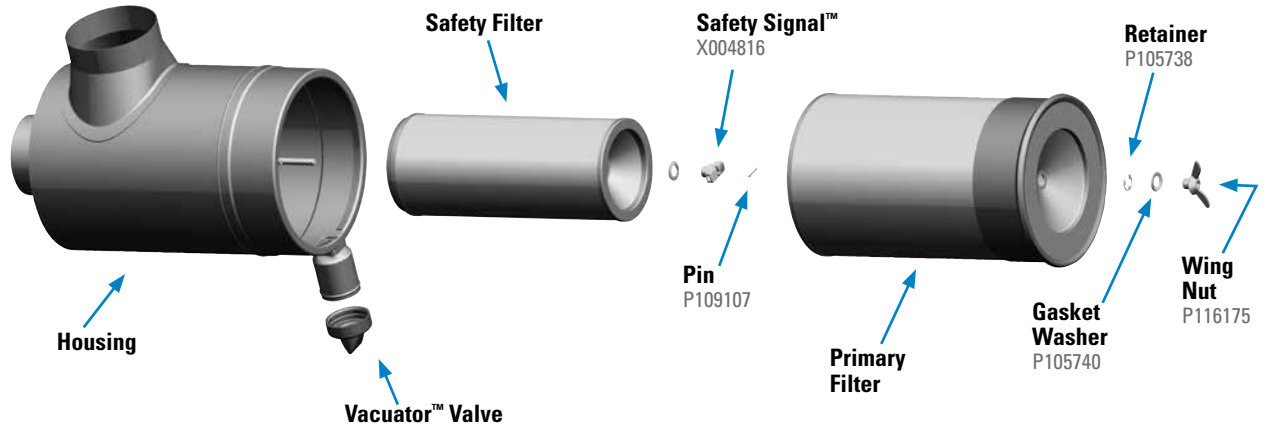


FVG Specifications

Air Cleaner Models	Body Diameter (A)		Inlet Diameter (B)		Outlet Diameter (C)		Length (D)		Inlet Length (E)		Inlet Length (F)		Inlet Diameter (G)		Service Clearance (H)		Service Clearance (I)		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg
G140195	13.95	354	7.00	178	6.00	152	20.87	530	10.98	279	3.88	99	5.75	146	12.71	323	20.72	526	48	22
G160376	16.00	406	7.00	178	7.00	178	20.87	530	13.00	330	3.88	99	5.28	134	13.80	351	20.72	526	62	28
G160587	16.00	406	7.00	178	7.00	178	24.87	632	13.00	330	3.88	99	5.75	146	13.80	351	24.50	622	66	30

For FVG air cleaner service servicing information see page 154.

FVG Exploded View



FVG Service Parts & Accessories

G140195	FVG	
Elbow, 45°	P105547	
Elbow, 90°	P105535	
Filter, primary	P182043	3
Filter, primary-Donaldson Blue®	DBA5043	
Filter, primary - SM	P181043	
Filter, safety	P124860	
Gasket washer	P105740	
Hump hose	P105612	
Informer™ indicator 25" H ₂ O	X002277	
Inlet hood, metal	H000339	
Inlet hood, plastic	H000607	
Mounting bands, metal	H000350	2
Outlet band clamp	P148347	
Pin	P109107	
Retainer	P105738	
SafetySignal indicator	X004816	
Vacuator™ Valve	P103198	
Wing nut	P116175	

G160376	FVG	
Elbow, 45°	P105548	
Elbow, 90°	P105536	
Filter, primary	P124867	
Filter, safety	P124866	
Gasket washer	P105740	
Hump hose	P105613	
Informer™ indicator 25" H ₂ O	X002277	
Inlet hood, metal	H000339	
Inlet hood, plastic	H000607	
Mounting bands, metal	H000351	2
Outlet band clamp	P148348	
Pin	P109107	
Retainer	P105738	
SafetySignal indicator	X004816	
Vacuator™ Valve	P103198	
Wing nut	P116175	

G160587	FVG	
Elbow, 45°	P105548	
Elbow, 90°	P105536	
Filter, primary	P182049	3
Filter, primary-Donaldson Blue®	DBA5049	
Filter, primary - SM	P181049	
Filter, safety	P116446	
Gasket washer	P105740	
Hump hose	P105613	
Informer™ indicator 25" H ₂ O	X002277	
Inlet hood, metal	H000339	
Inlet hood, plastic	H000607	
Mounting bands, metal	H000351	2
Outlet band clamp	P148348	
Pin	P109107	
Retainer	P105738	
Vacuator™ Valve	P105220	
Wing nut	P116175	

NOTES:

- 2 = Two required for proper installation
- 3 = Shipped with air cleaner initially

SM=Scheduled Maintenance
 Donaldson Blue® = High Efficiency, Extended Service

Even More
^

Donaldson Delivers Innovative Filtration Solutions for Engines, Equipment and the People Who Use Them

Fuel Filtration

Expanded line of fuel filters protect engine components and extend equipment life.

- Donaldson Blue® Fuel filters with Synteq XP™ nanofiber media deliver the cleanest fuel — providing better protection for your injectors.
- Includes a full complement of filters to fit Stanadyne® and Racor® fuel systems, and Cummins® engines.



Stanadyne® is a registered trademark of Stanadyne Corporation. Racor® is a registered trademark of Parker Hannifin Corporation. Cummins® is a registered trademark of Cummins Inc.

Hydraulic and Transmission Filtration

- Offering a broad line of spin-on, cartridge-style and in-tank hydraulic filters — including high, medium and low pressure options — that protect transmissions, machinery and components in hundreds of applications.
- A complete line of hydraulic accessories to accommodate virtually any mobile application.
- T.R.A.P.™ breather technology
- Donaldson Duramax® filters are the highest rated medium pressure filters available.



Lube Filtration

Donaldson lube filters keep engine oil clean by capturing contaminants that can cause engine damage.

- With coverage for a full range of popular engines, Donaldson lube filters meet or exceed application requirements.
- Donaldson Blue® lube filters — with Synteq™ media — deliver improved lubricant flow, improved cold start performance and a higher level of engine protection to prolong engine and equipment life.



Coolant Filtration

- Donaldson coolant filters remove contaminants and maintain cooling system balance — keeping today's hot-running engines cool and reducing downtime.
- Donaldson Blue® coolant filters allow you to extend filter life while maintaining coolant condition.



Mufflers & Exhaust Accessories

- For more than 60 years, Donaldson has been a leading supplier of exhaust systems, components and accessories for medium- and heavy-duty diesel powered trucks and equipment.





Heavy-Duty Two-Stage Filtration for Diesel Engines Operating in Severe Dust Conditions

Heavy construction vehicles (haul trucks, crawlers, dozers), above ground and underground mining machines, agricultural equipment (combines, tractors) and other off-highway vehicles and engines that operate daily in intensely dusty environments need powerful, reliable air filtration systems to protect them and keep them running reliably.

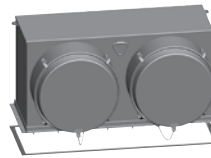
Donaldson S Series Air Cleaners provide:

- Durable, reliable protection
- Two cleaning stages to handle very dusty conditions
- Choice of filtration efficiency, Donaldson (standard) and Donaldson Blue® (high efficiency) replacement filters
- Low restriction so the engine receives a high volume of air
- Sturdy, vibration-resistant, long-life construction

SSG Air Cleaner



SRG Air Cleaner Conversion Kit



STG Air Cleaner



STB Air Cleaner



Section Index

SSG Donaclone™	162
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STG Donaclone™	172
Service Instructions	178
SRG to SSG Conversion Kit	181
SRG Donaclone™ Service Instructions	182
STB Strata™	186

Donaclone® Tubes

The pre-cleaner of our S Series air cleaners uses clusters of Donaclone tubes positioned ahead of the primary filter. The Donaclone tube has no mechanical moving parts, so there's nothing to break down; it works automatically and properly whenever the engine is on.



Air is drawn into the tube and spun. Centrifugal force separates much of the dirt in the airstream. Dirt falls out the bottom of the tube, while the cleaned air is drawn up through the middle of the tube and into the primary filter for further cleaning. Using the pre-cleaner as a first stage of filtration results in more effective engine air filtration and longer service life for the primary filter.

Attention: Upgrade SRG Models to Newer Filtration Technology!

The SRG air cleaner models will be phased out over time and replaced with our new SSG air cleaners.

Upgrade your housing to an SSG style with RadialSeal™ filters for faster filter changeout.

SRG Housing Item No.	SRG to SSG Kit Kit No.	SSG Housing Item No.
G200008	X009702	G200087
G200013	X009701	G200086
G290000	X009230	G290057
G290023	X009230	G290052
G290012	X009231	G290053



Designed for the Worst Dust Conditions

New Choice for Construction and Off-Highway Applications

The SSG Air Cleaner offers design improvements over our older SRG air cleaner style.

Design Improvements

The SSG Air Cleaner has filters that use RadialSeal™ sealing technology, compared to axial seal style filters.

This single design improvement eliminates the need to replace filter and cover gaskets, which means less service time and fewer parts to inventory.



Additional design improvements: the air cleaner service cover now has quick-release cover latches and a chain that connects it to the housing.



The large, massive mining vehicle in the picture above is an ideal match for the Donaldson SSG Air Cleaner.

Ultra-Web® HD

The Donaldson Blue® replacement filters for the SSG Air Cleaner (and the SRG, STG, and STB Air Cleaners) now come standard with Ultra-Web® HD media that provides even greater efficiency than previous generation nanofibers.



Ultra-Web® HD
Up to 99.999%
Filtration Efficiency
0.01 gram dust



Ultra-Web®
Up to 99.99%
Filtration Efficiency
0.1 gram dust



Cellulose
Up to 99.9%
Filtration Efficiency
1 gram dust

This illustration represents the relative amount of dust particles that pass through air filters to the engine.



Note: Extra lead time may be required for processing and shipping.

Versatile SSG Provides Airflow to 4800 cfm With Improved Design Features Compared to our Older SRG Model

Applications

- Allows 1700 to 2400 cfm airflow throughput for the SSG 20 model and 2580 to 4800 cfm airflow throughput for the SSG 29 models
- Horizontal installation
- Off-road, heavy or extreme dust conditions
- Ideal for scrapers, earth movers, graders and haul trucks

Air Cleaner Features

- Single and dual outlet models — two high-flow models available
- Inlet has perforated holes on three sides; rain shrouds available if required
- Filters have urethane end caps with RadialSeal™ sealing technology
- Built-in pre-cleaning tubes separate up to 97% of the in-coming dust
- Latch-style cover with attached safety chain for faster and simpler filter service
- Constructed of heavy-gauge steel with a primed, ready-to-paint finish
- Same overall package size as older Donaldson SRG axial seal style housings
- Dust Dumpa tube accessory available — simplifies routine air cleaner inspections

Filter Features

- Replacement primary filter choices: Standard life filters (for scheduled maintenance) and Donaldson Blue® Ultra-Web® HD ultra-high efficiency, extended service filters for restriction maintenance practices. Air cleaners ship with the standard filters.
- Grab handles on the primary filter to help remove the loaded filter during service
- Safety filter on all models



Dust Dumpa kits installed on a Donaldson SSG29 with rain shields. Notice the piles of dust gathered on the platform during vehicle operation.

Powerful Two-Stage Filtration

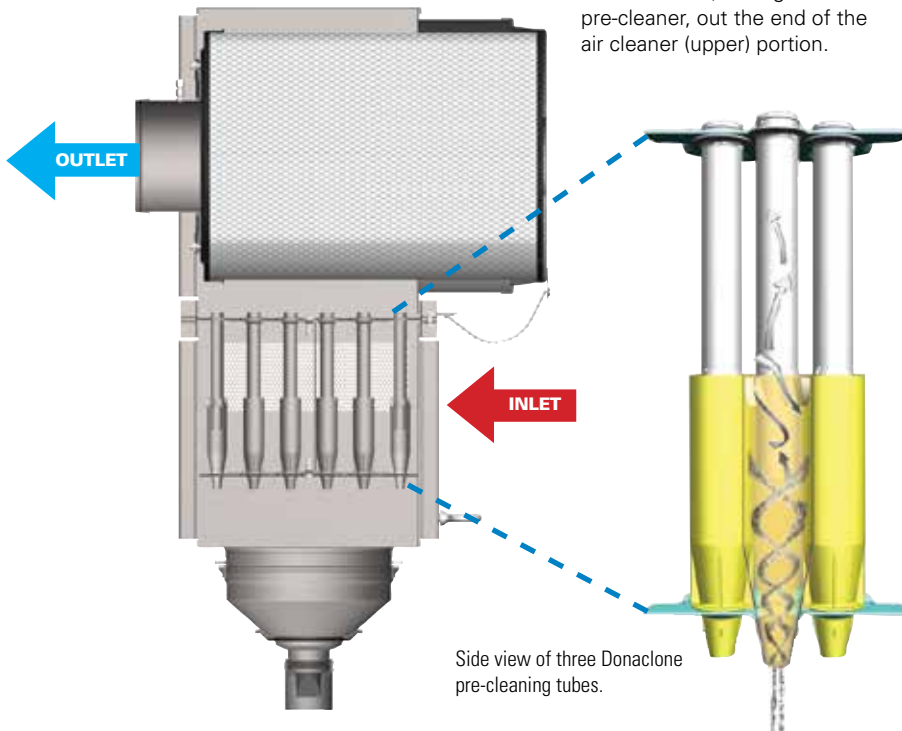
The first stage of this powerful air cleaner consists of hundreds of our exclusive, patented Donaclone™ pre-cleaner tubes. Each tube spins the incoming air to create a centrifugal force that separates up to 97% of the dust and dirt in the airstream. Donaclone™ tubes have no moving parts — so there is nothing to break down or maintain. They function properly whenever the engine is running.



The pre-cleaned dust is automatically ejected from the dust cup with a Vacuator™ Valve, which is located below the lower housing body.



The second stage of filtration is the primary filter. A safety filter, which fits inside the primary filter, is standard on all models for protection during primary filter change out.



Air in the side, through the pre-cleaner, out the end of the air cleaner (upper) portion.

Side view of three Donaclone pre-cleaning tubes.

Initial Airflow Restriction

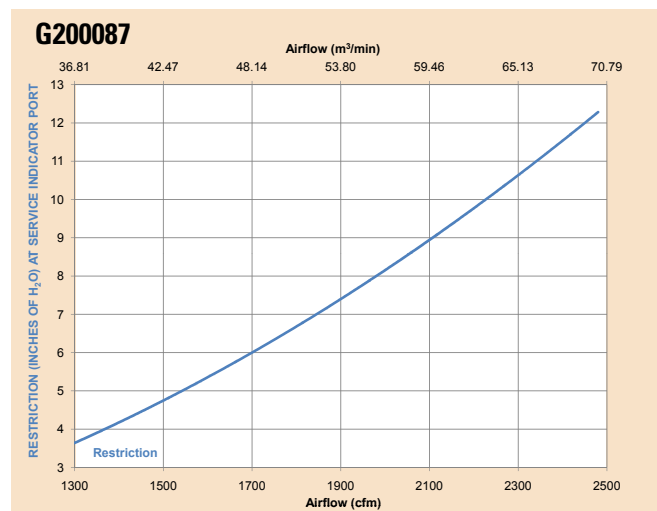
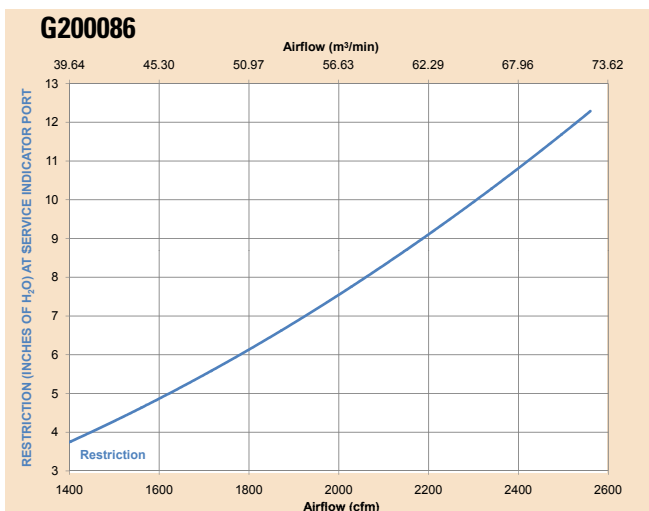
CFM @ 6"	"H ₂ O 8"	Air Cleaner Model
SINGLE OUTLET MODELS		
1700	1980	G200087
1780	2060	G200086
2100	2400	G200088*
DUAL OUTLET MODELS		
2580	3000	G290057
3340	3800	G290052
3600	4080	G290053
4200	4800	G290055*

*Sized to accommodate higher airflow.

When Selecting an Air Cleaner . . .

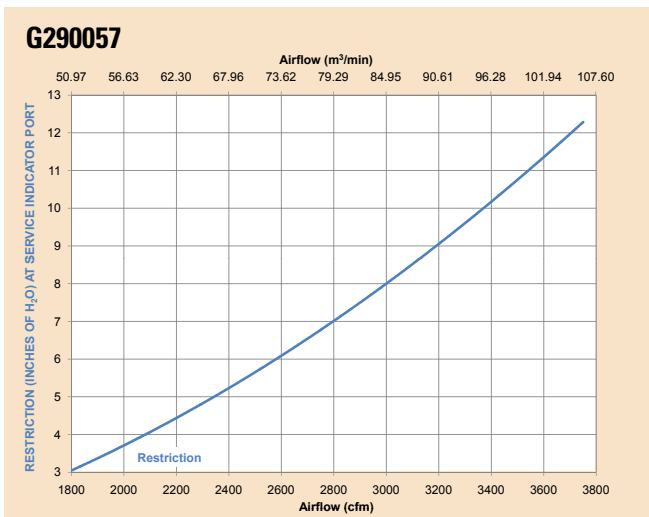
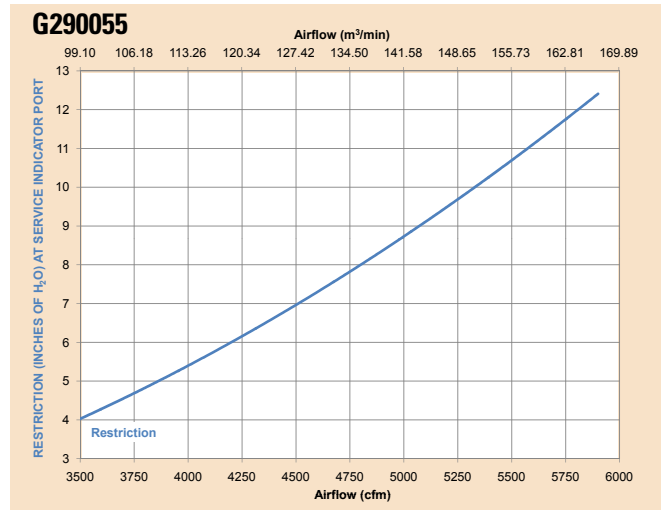
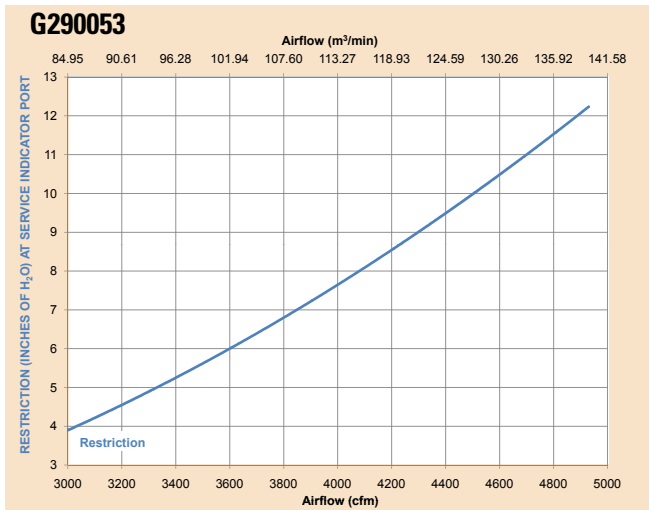
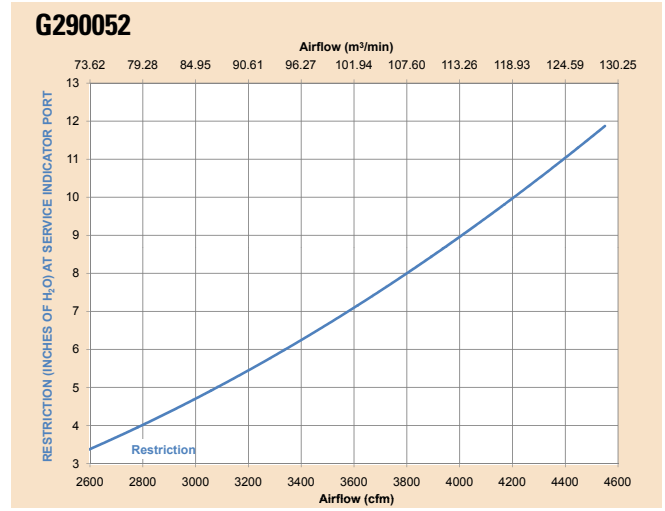
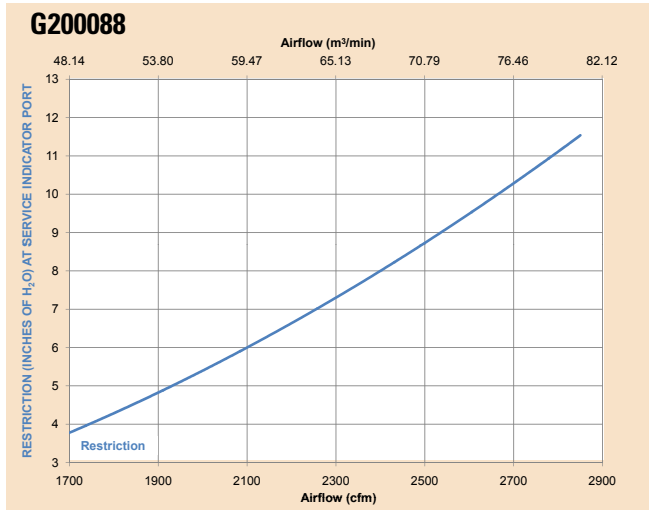
Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table above. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction estimates.

SSG Air Cleaner Performance Curves**



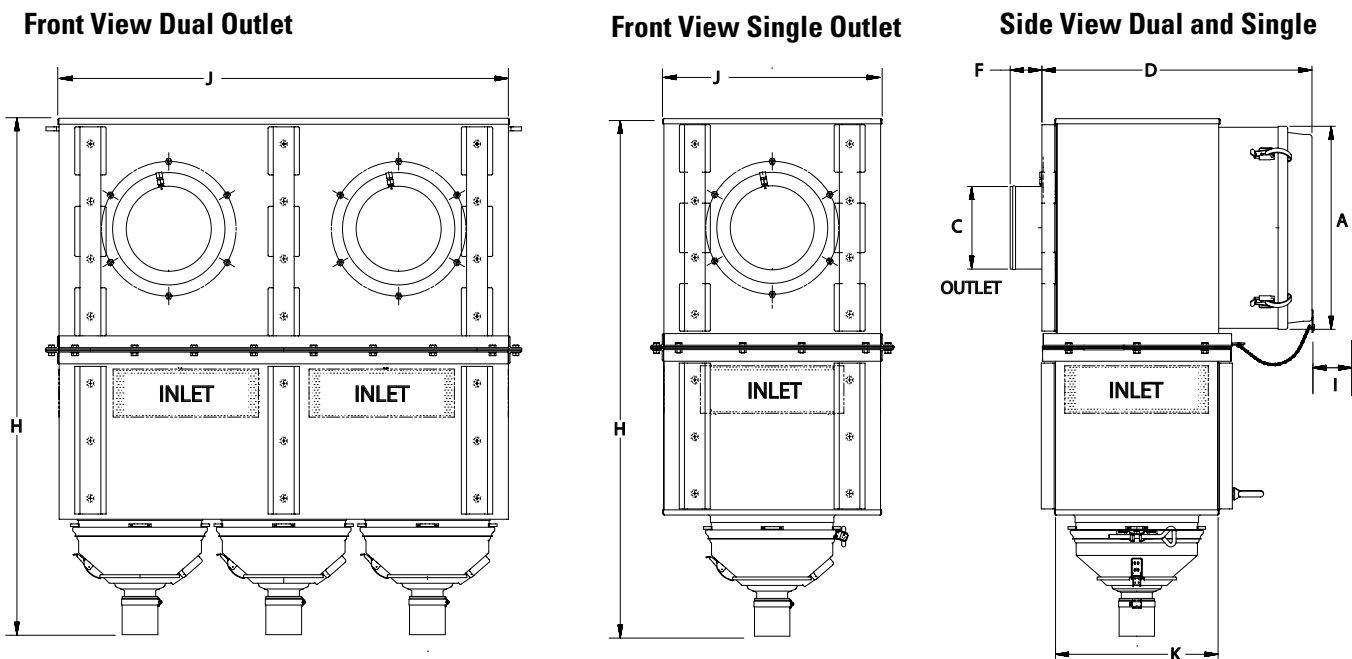
**Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.

continued — S&S Air Cleaner Performance Curves





SSG Specification Illustrations



SSG Specifications

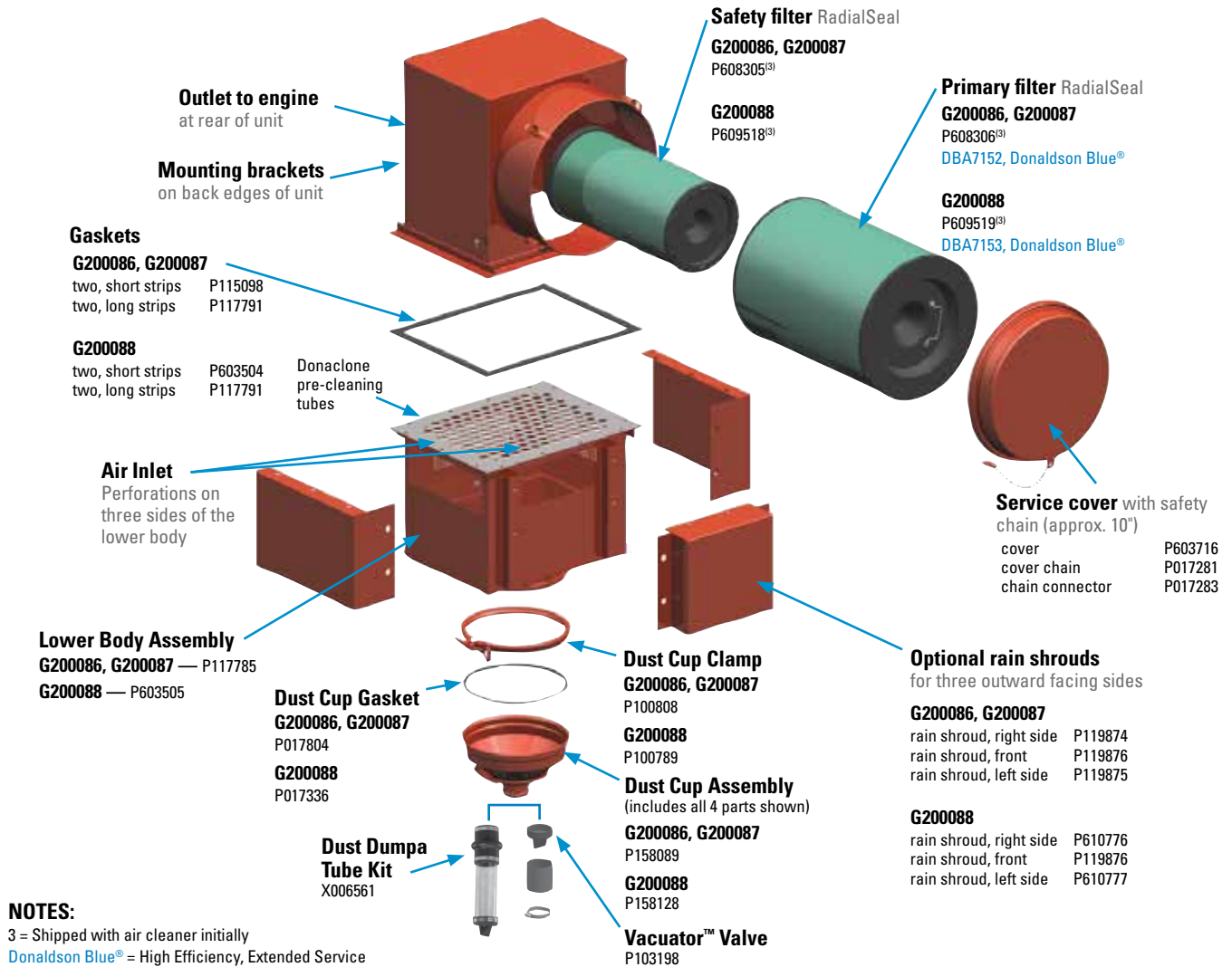
Air Cleaner Models	Body Diameter (A)		Outlet Diameter (C)		Length (D)		Outlet Length (F)		Height (H)		Service Clearance (I)		Width (J)		Depth (K)		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg
SINGLE OUTLET MODELS																		
G200087	19.67	500	8.0	203	26.2	665	3	76	50.15	1274	22.0	559	21.00	533	15.75	400	200	91
G200086	19.67	500	10.0	254	26.2	665	3	76	50.15	1274	22.0	559	21.00	533	15.75	400	200	91
G200088	19.67	500	10.0	254	31.4	798	3	76	50.15	1274	27.0	686	21.00	533	23.50	597	240	109
DUAL OUTLET MODELS																		
G290057	19.67	500	8.0	203	26.2	665	3	76	49.42	1255	22.0	559	43.00	1092	15.75	400	340	154
G290052	19.67	500	8.0	203	26.2	665	3	76	49.42	1255	22.0	559	43.00	1092	15.75	400	340	154
G290053	19.67	500	10.0	254	26.2	665	3	76	49.42	1255	22.0	559	43.00	1092	15.75	400	340	154
G290055	19.67	500	10.0	254	31.4	798	3	76	49.42	1255	27.0	686	43.00	1092	23.50	597	420	190

Accessories Recommendations

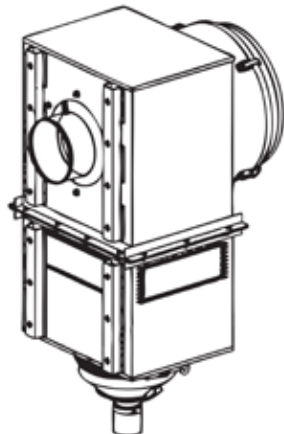
Air Cleaner Model	Outlet Band Clamp	Hump-hose Connector	Elbows		Restriction Indicator
			45°	90°	
G200088	P148350	P111414	P114313	P114314	X002277
G290055	P148350	P111414	P114313	P114314	X002277
G290057	P629991	P112608	P112606	P112605	X002277

Service Parts Listing by Model Number

Single Outlet Model — SSG 20



Mounting (back) side view of an SSG 20 model



SSG Housing Primary Filter Choices

For ultra-high efficiency filtration, upgrade to Donaldson Blue® Air Filters with Ultra-Web® HD Filtration Technology. SSG Air Cleaners and retrofit kits ship with standard life filters.

Air Cleaner	Standard Life	Ultra-High Efficiency
G200086	P608306	DBA7152
G200087	P608306	DBA7152
G200088	P609519	DBA7153

Ultra-Web® HD

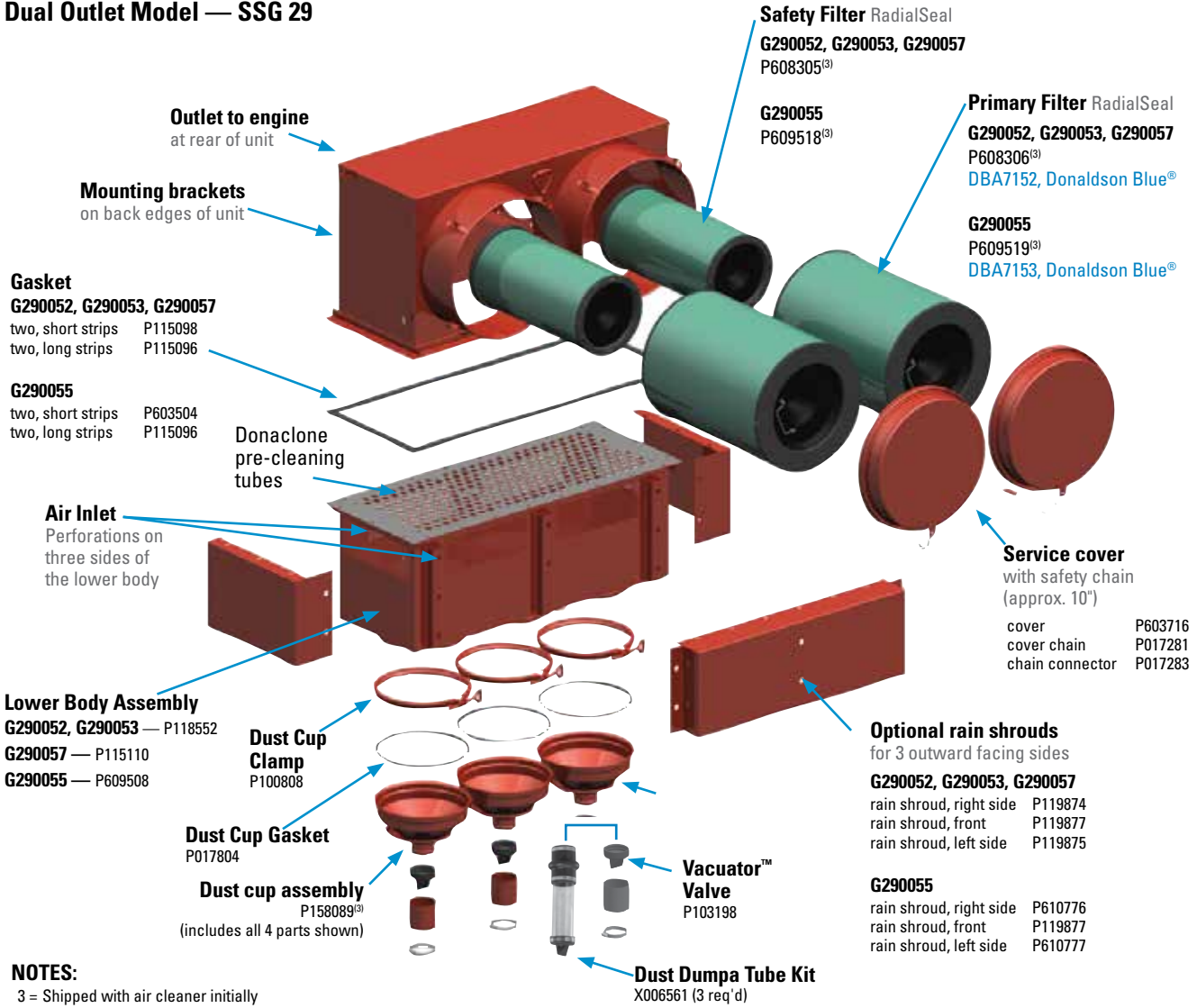
Donaldson Blue® air filters for SSG air cleaners have Ultra-Web® HD media that provides higher efficiency compared to previous generation nanofibers.





Service Parts Listing by Model Number

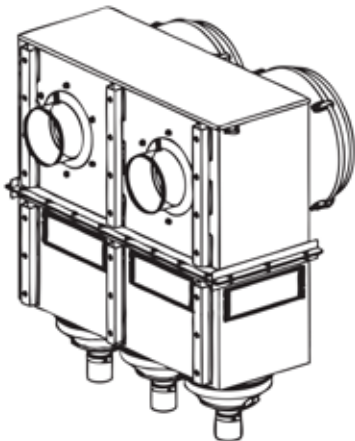
Dual Outlet Model — SSG 29



NOTES:

3 = Shipped with air cleaner initially
Donaldson Blue® = High Efficiency, Extended Service

Mounting (back) side view of an SSG 29 model



SSG Housing Primary Filter Choices

For ultra-high efficiency filtration, upgrade to Donaldson Blue® Air Filters with Ultra-Web® HD Filtration Technology. SSG Air Cleaners and retrofit kits ship with standard life filters.

Air Cleaner	Standard Life	High Efficiency
G290052	P608306	DBA7152
G290053	P608306	DBA7152
G290055	P609519	DBA7153
G230057	P608306	DBA7152

Ultra-Web® HD

Donaldson Blue® air filters for SSG air cleaners have Ultra-Web® HD media that provides higher efficiency compared to previous generation nanofibers.



This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

SERVICE TRAINING VIDEOS



<http://www.youtube.com/user/donaldsonengine>

Donaldson Service Training Videos are on YouTube. Scan the QR code or go to <http://www.youtube.com/user/donaldsonengine> to watch videos on how to service Donaldson Air Cleaners, like the SSG.

1 Check the Restriction

Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer.



2 Empty the Dust Cup & Check the Vacuator™ Valve

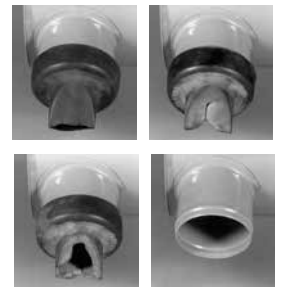
Shut off the engine. The dust cup should be emptied when it is 2/3 full. Frequency of dust cup service varies with dust severity. On dust cups with a Vacuator™ Valve, dust cup service is minimal.

Just check the Vacuator™ Valve to see that it is not inverted, damaged or plugged. If it looks damaged or is missing, replace it immediately. When reinstalling the dust cup, be sure it seals properly 360° around the air cleaner body.

The optional Donaldson Dust Dumpa tube extension is available for the SSG.



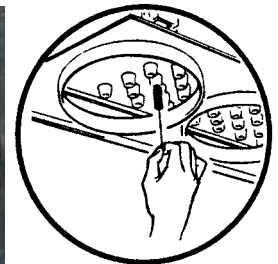
If your SSG Air Cleaner has a dust cup with a Vacuator Valve, replace it immediately if it is inverted or looks like any of the images below.



3 Inspect the Donaclone™ Pre-Cleaning Tubes

Visually check the Donaclone tubes. Generally, the tubes are self-cleaning and need no service, but under unusual circumstances, plugging can occur. In those circumstances, cleaning with a stiff brush may be required.

Never clean Donaclone tubes with compressed air unless both the primary and safety filters are properly fitted in place. Do not steam-clean Donaclone tubes.



Continued on next page



4 Remove the Primary Filter and Visually Inspect the Safety Filter

When the restriction indicates that filter service is required, unfasten or unlatch the filter service cover. Because the filter fits tightly over the outlet tube there will be some initial resistance, similar to breaking the seal on a jar. Grasp the filter service handle and pull the filter out. Gently move the filter from side to side to break the seal, but avoid knocking the filter against the housing during removal.

Visually check safety filter for damage and replace if damaged, but do not remove it unless a change-out is necessary. You should replace the safety filter every three primary filter changes. Also verify that the safety filter is properly seated in the housing. If the safety filter is removed and the new filter is not to be installed immediately, be sure to cover the seal tube with a cloth or the housing cover.

Wipe the interior of the air cleaner with a clean damp cloth.



Note: If you perform filter maintenance service on a schedule vs. using service indicators, you may want to write the service date on the filter end cap.

The safety filter should be replaced every three primary filter changes.

5 Inspect and Install the New Filter(s)

Inspect the new filter carefully, paying attention to the inside of the open end, which is the sealing area. NEVER install a damaged filter. A new Donaldson RadialSeal™ filter may have a dry lubricant on the seal to aid installation.

If you are servicing the safety filter, make sure it is seated into position before installing the primary filter.

Insert the new filter carefully by hand, making certain it is completely seated into the air cleaner housing before securing the cover in place.

The critical sealing area will compress slightly, adjust itself and distribute the sealing pressure evenly. To complete a tight seal, apply pressure by hand at the outer rim of the filter, not at the center. (Avoid pushing on the center of the end cap.) No cover pressure is required to hold the seal.



Note: NEVER use the service cover to push the filter into place! Using the cover to push the filter in could cause damage to the housing or cover fasteners and will void the warranty.

If the service cover contacts the filter before it is fully in place, remove the cover and push the filter (by hand) further into the air cleaner and try again. The cover should go on with no extra force.

Once the filter is in place, secure the service cover.



6 Inspect Air Cleaner System

Finally, inspect and tighten all air cleaner system hoses, tubing and connections. If there are holes or damage, replace immediately. Reset filter service indicators if they don't automatically reset.





STG Donaclone: Field Proven & Reliable

Heavy-Duty Workhorse for Construction & Off-Highway Applications

Donaldson's STG Donaclone™ air cleaner has been applied to a wide variety of heavy-duty equipment around the world. Its broad application is a testament to its reliability and durability.

Powerful Two-Stage Filtration

The first stage of this powerful air cleaner consists of a cluster of our Donaldson Donaclone™ tubes. They spin the incoming air to create a centrifugal force that separates up to 97% of the dust and dirt in the airstream. Donaclone™ tubes have no moving parts — so there is nothing to break down or maintain. They function properly whenever the engine is running.

Pre-cleaned dust falls into the dust cups and expels through Vacuator™ Valves at the bottom of the air cleaner.

The second stage of filtration is the primary filter, a cylindrical-shaped unit of specially-developed pleated filter media, designed to trap and stop dust particles, both large and small. The result is air to your engine that is up to 99.9% contaminant free!

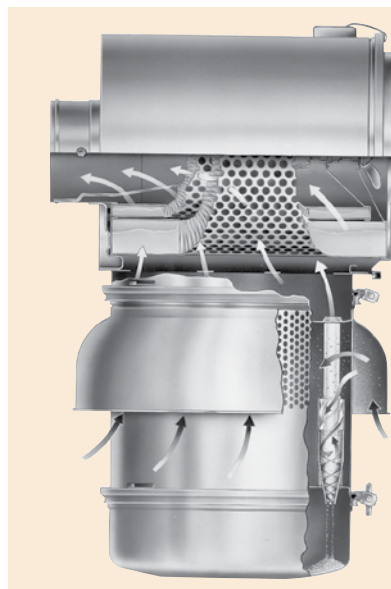
A safety filter, which fits inside the primary filter, is standard on all models for protection during primary filter changeout. Physical orientation does not affect the proper functioning of either cleaning stage. The STG can be mounted horizontally or vertically. If mounting horizontally, the Vacuator™ Valve option on the dust cup is required.



This STG Donaclone, mounted on a large mining machine, is protecting the engine from harmful dirt in this severe dust environment.

Mounting: Sturdy mounting brackets are attached to the top section of the STG. For secure mounting, Donaldson recommends an additional mounting band for the lower body.

STG air cleaners feature a corrosion-resistant, chemical-resistant coating that provides a long-lasting, hard protective finish.



How the Two-Stage STG Donaclone Works

Air is drawn in through the perforations in the lower part of the unit and forced down through a bank of Donaclone tubes. The Donaclone tubes spin the air so that centrifugal force causes the heavier dust particles to separate from the airstream.

While these particles fall into the cup at the bottom, the partially cleaned air is directed upward, into the primary filter in the upper portion of the unit for the second stage of filtration.

Versatile STG Provides Airflow to 1760 cfm Choose Peripheral or Tubular Inlet, Horizontal or Vertical Mount

Applications

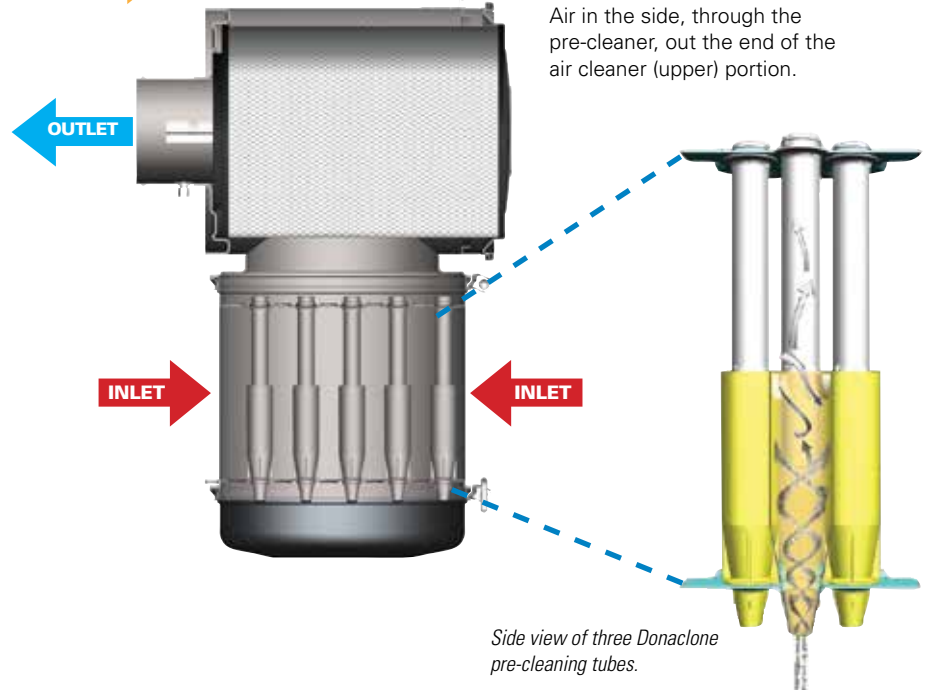
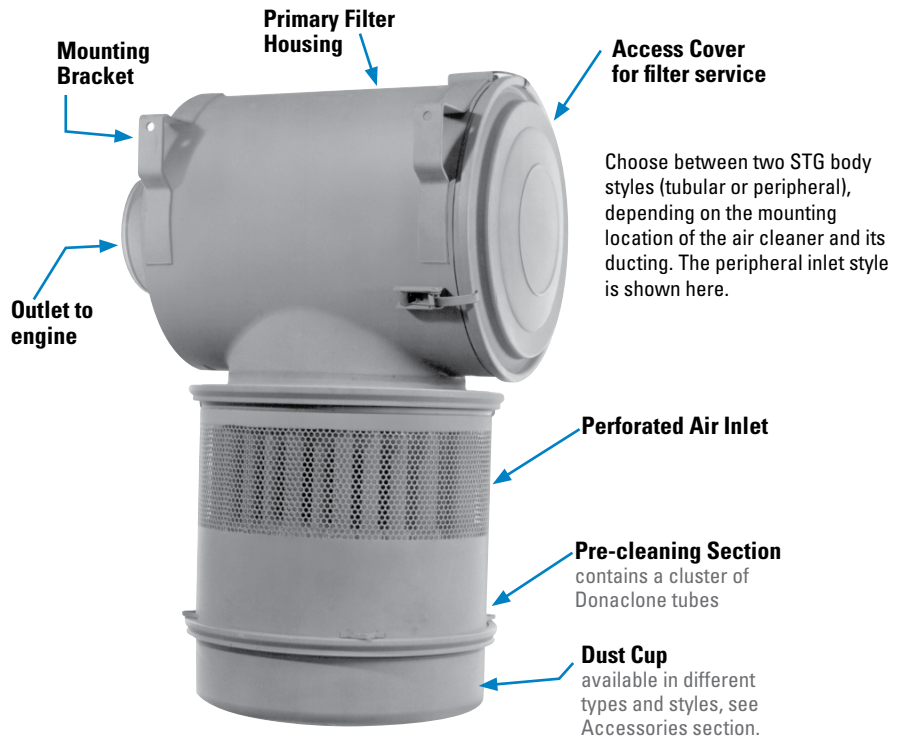
- Allows 390 to 1760 cfm airflow throughput per air cleaner
- Horizontal or vertical installation
- Off-road, high dust conditions
- Ideal for scrapers, earth movers, graders

Air Cleaner Features

- Very reliable. Only one critical filter seal.
- Airflow throughput can be doubled by using two air cleaners
- Two body styles (peripheral inlet, shown on right, and tubular inlet) to accommodate location and ducting
- Optional inlet shroud available for peripheral style
- When the air cleaner is mounted directly on the engine and there is clearance around it for airflow, choose the peripheral inlet style (shown on right)
- When the air cleaner is mounted above the cab or somewhere far from the engine to get above the dust cloud, choose the tubular inlet style, which will accept ducting into the inlet
- Built-in Donaclone pre-cleaning tubes separate up to 97% of incoming dust to the dust cup before it reaches the filter, resulting in more thorough cleaning and fewer filter changes.
- Choose the dust cup best suited to your maintenance practices. For choices see Accessories section.
- All models include a fitting for a filter service indicator

Filter Features

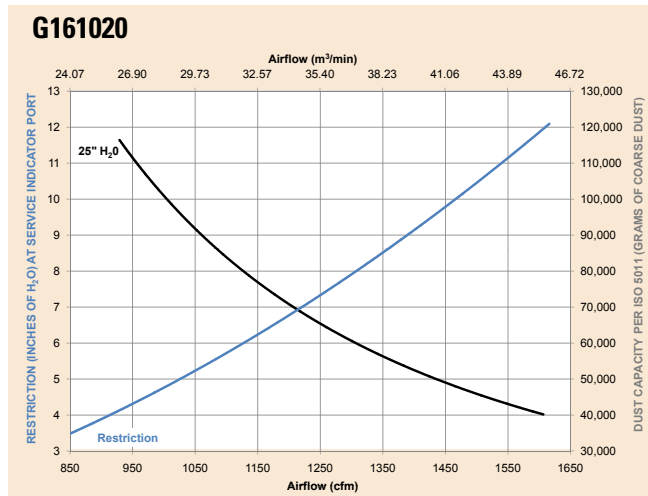
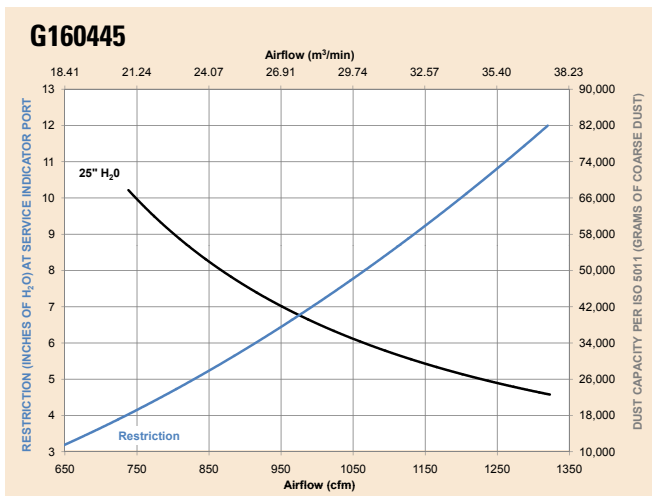
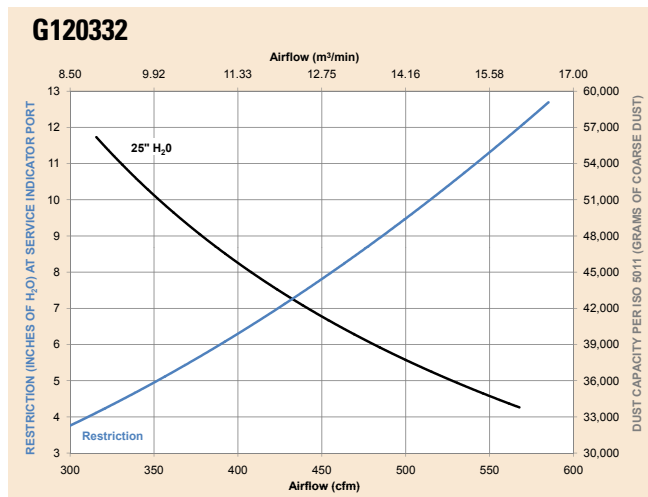
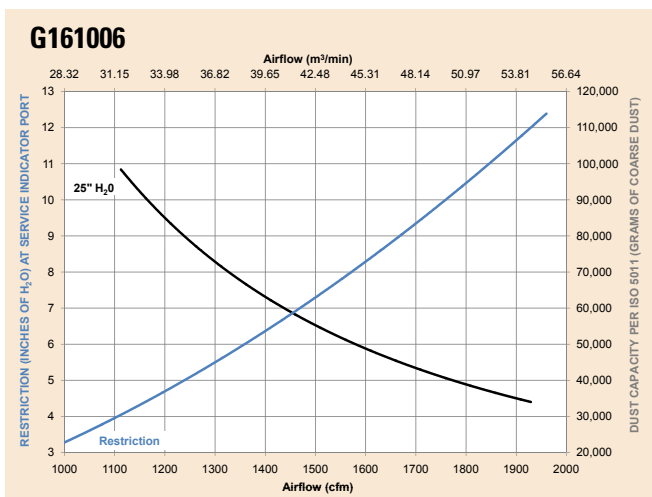
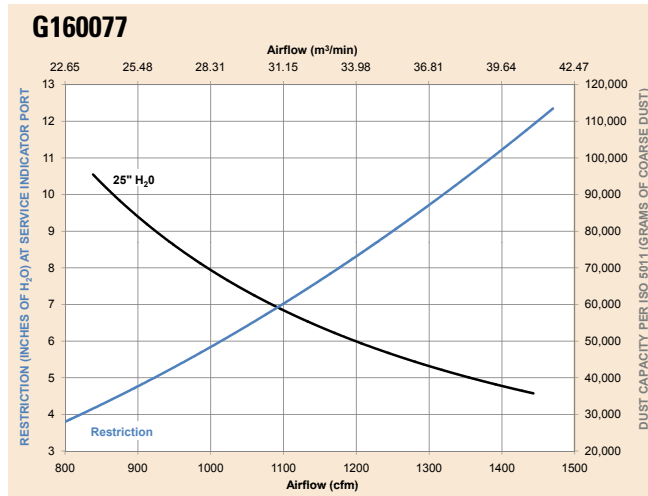
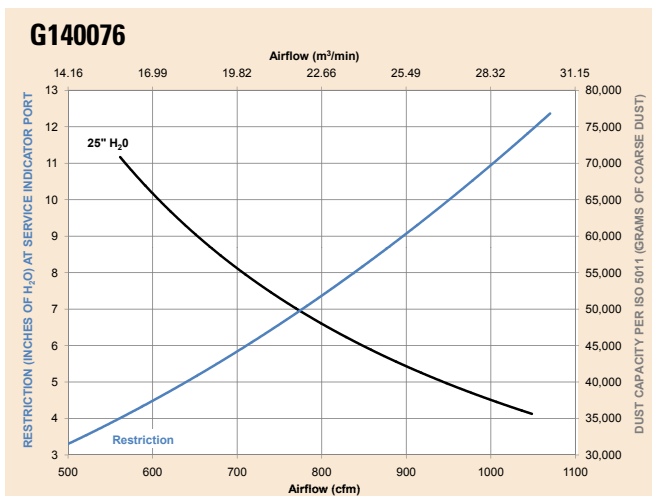
- Replacement primary filter choices: Standard life filters (for scheduled maintenance) and Donaldson Blue® Ultra-Web® HD ultra-high efficiency, extended service filters for servicing by restriction
- Uses standard airflow filters
- Safety filter on all models





STG Air Cleaner Performance Curves (Restriction & Dust Capacity)*

Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table on the next page. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction estimates.



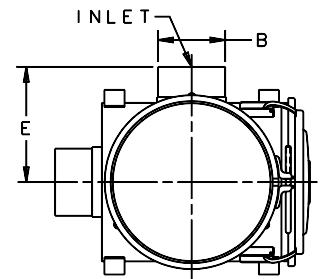
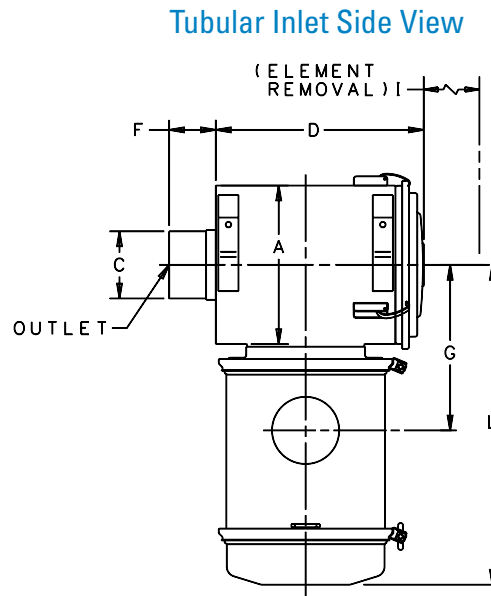
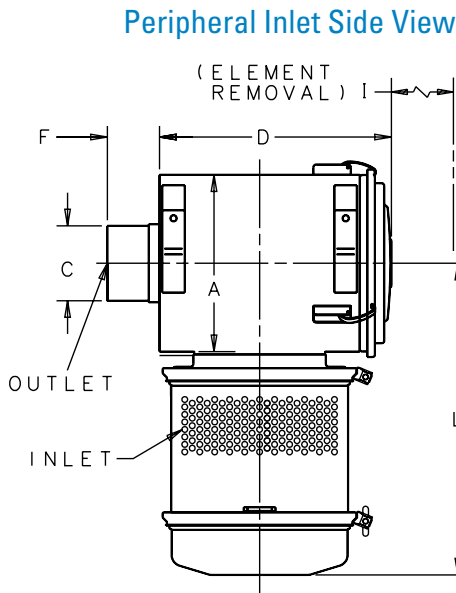
*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.

Initial Airflow Restriction

Air Cleaner Model	CFM @ "H ₂ O		
	6"	8"	10"
STG WITH PERIPHERAL INLET			
G140076	710	840	950
G160077	1015	1175	1320
G161006	1360	1570	1760

Air Cleaner Model	CFM @ "H ₂ O		
	6"	8"	10"
STG WITH TUBULAR INLET			
G120332	390	455	515
G160445	915	1065	1200
G161020	1127	1308	1466

STG Specification Illustrations



STG Donaclone™ Specifications

Air Cleaner Models	Body Diameter (A)		Inlet Diameter (B)		Outlet Diameter (C)		Length (D)		Inlet Length (F)		Inlet Length (G)		Service Clearance (I)		Length (L)		Weight			
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg		
STG WITH PERIPHERAL INLET																				
G140076	14.00	356	n/a		6.00	152	17.38	441	n/a	3.88	99	15.47	393	15.25	387	24.16	614	75	34	
G160077	16.00	406	n/a		7.00	178	19.69	500	n/a	3.88	99	17.29	439	17.00	432	26.16	664	91	41	
G161006	16.00	406	n/a		8.00	203	26.06	662	n/a	3.50	89	17.30	439	23.38	594	26.93	684	115	52	
STG WITH TUBULAR INLET																				
G120332	11.81	300	5.00	127	5.00	127	15.43	392	7.88	200	3.94	100	11.54	293	13.19	335	22.06	560	53	24
G160445	16.00	406	7.00	178	7.00	178	19.59	498	11.00	279	3.87	98	14.81	376	17.25	438	26.31	668	93	42
G161020 ¹	16.00	406	6.00	152	8.00	203	26.06	662	10.02	255	3.50	89	14.06	357	23.38	594	26.31	668	120	55

1 - G161020 has two inlets, each 6" (152mm) in diameter

NOTE: All STG models are tapped to accept a filter service indicator

Accessory Recommendations

Air Cleaner Model	Mounting Band Metal	Outlet Band Clamp	Hump-hose Connector	Elbows			Restriction Indicator	Inlet Hood	
				45°	90°	90° Reducing		Plastic	Metal
G120332	H000349	P148345	P105610	P109021	P107844	P143895	X002277	H000469	H000165
G140076	H000350	P148347	P105612	P105547	P105535	P143895	X002277		
G160077	H000351	P148348	P105613	P105548	P105536		X002277		
G161006	H000351	P629991	P112608	P112606	P112605		X002277		
G161020	H000351	P148347	P105612	P105547	P105535		X002277		



STG Peripheral Service Parts

G140076 STG-PERIPHERAL

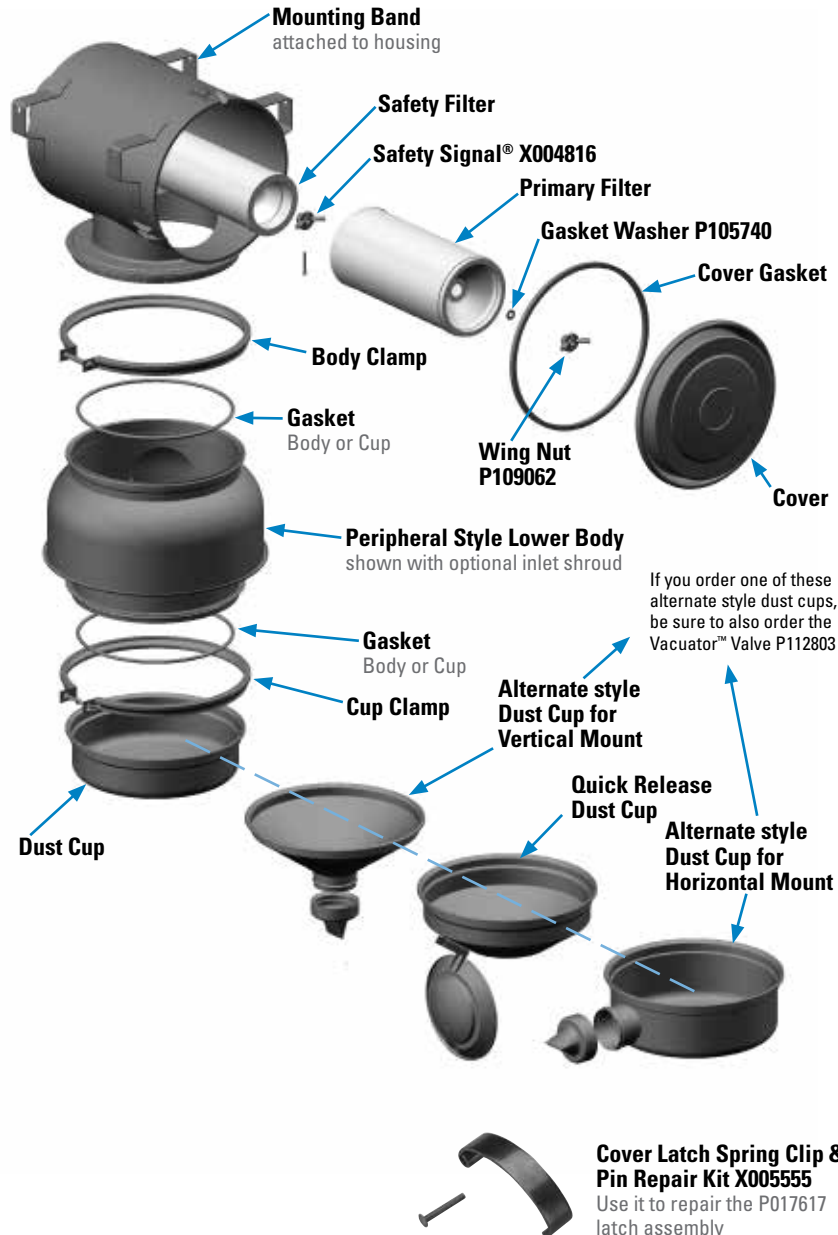
Body, lower	P102256
Clamp, cup.....	P100866
Cover latch assembly	P017617
Dust cup.....	P100860 .....3
Elbow, 45°	P105547
Elbow, 90°	P105535
Filter, primary	P182041 .....3
Filter, primary-Donaldson Blue® ... DBA7041	
Filter, primary - SM	P181041
Filter, safety	P119370
Gasket kit	X003538 .....9
Gasket washer.....	P105740
Gasket, body or cup.....	P017335
Gasket, cover.....	P016972
Inlet shroud	P102870
Mounting band	H000350 .....2
SafetySignal indicator.....	X004816
Spring clip & pin.....	X005555
Wing nut	P109062

G160077 STG-PERIPHERAL

Body, lower	P115023
Clamp, body.....	P100780
Clamp, cup.....	P100789
Cover	P109153
Cover latch assembly	P017617
Dust cup.....	P100794 .....3
Dust cup, quick release	P107377
Dust cup, VacValve, horz	P103530
Dust cup, VacValve, vert.....	P104973
Filter, primary	P182039 .....3
Filter, primary-Donaldson Blue® ... DBA7039	
Filter, primary - SM	P181039
Filter, safety	P114931
Gasket kit	X003539 .....9
Gasket washer.....	P105740
Gasket, body or cup.....	P017336
Gasket, cover.....	P017367
Inlet shroud	P101759
Mounting band	H000351 .....2
Outlet band clamp.....	P148348
SafetySignal indicator.....	X004816
Spring clip & pin.....	X005555
Wing nut	P109062

G161006 STG-PERIPHERAL

Body, lower	P115023
Clamp, body.....	P100780
Clamp, cup.....	P100789
Dust cup.....	P100794 .....3
Dust cup, quick release	P107377
Dust cup, VacValve, horz	P103530
Dust cup, VacValve, vert.....	P104973
Filter, primary	P182042 .....3
Filter, primary-Donaldson Blue® ... DBA7042	
Filter, primary - SM	P181042
Filter, safety	P128408
Gasket kit	X003539 .....9
Gasket washer.....	P105740
Gasket, body or cup.....	P017336
Gasket, cover.....	P017367
Inlet shroud	P101759
Mounting band	H000351 .....2
SafetySignal indicator.....	X004816
Wing nut	P109062



NOTES:

- 2 = Two required for proper installation
- 3 = Shipped with air cleaner initially
- 9 = Gasket Kit includes all gaskets listed

SM=Scheduled Maintenance
 Donaldson Blue® = High Efficiency, Extended Service

Simplify Service With Dust Dumpa Kits!

If your current STG air cleaner has adequate clearance, one of the Dust Dumpa kits has the potential to save service time.



X006562 includes new gasket
 Length 22.55" / 5723mm
 Not for horizontal mounted air cleaners.



X006561
 Length 16.54" / 420mm

STG Tubular Service Parts

G120332 STG-TUBULAR

Body, lower	P110875
Dust cup, quick release	P107375
Filter, primary	P182044 .....3
Filter, primary-Donaldson Blue®... DBA5044	
Filter, primary - SM	P181044
Filter, safety	P119371
Gasket washer	P105740
Gasket, body or cup	P017804
Gasket, cover	P017365
SafetySignal indicator	X004816
Spring clip & pin	X005555
Wing nut	P109062

G140445 STG-TUBULAR

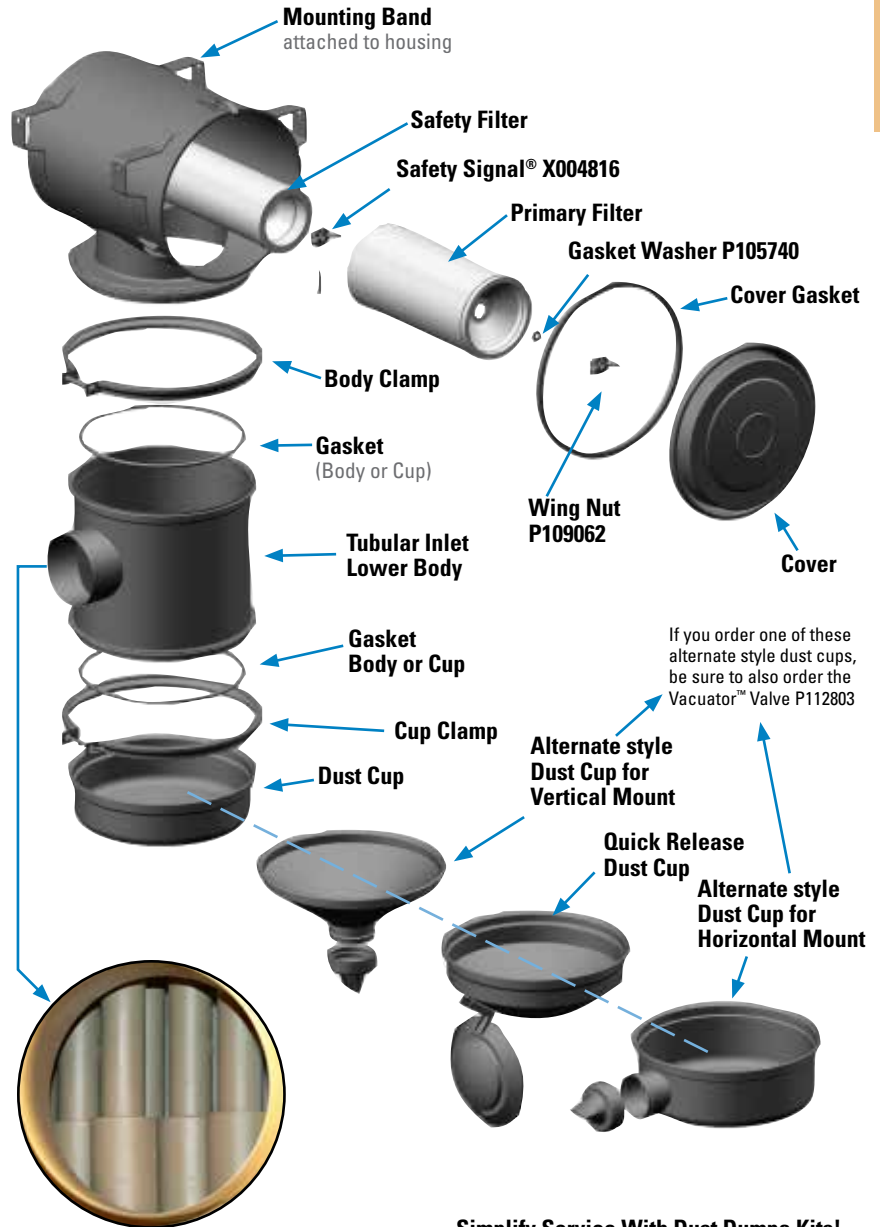
Body, lower	P114100
Cover latch assembly	P017617
Dust cup	P100860 .....3
Filter, primary - SM	P181041
Filter, primary-Donaldson Blue®... DBA7041	
Filter, primary	P182041 .....3
Filter, safety	P119370
Gasket kit	X003538
Gasket washer	P105740
Gasket, body or cup	P017335
Gasket, cover	P016972
Mounting band	H000350 .....2
SafetySignal indicator	X004816
Spring clip & pin	X005555
Wing nut	P109062

G160445 STG-TUBULAR

Cover	P109153
Cover latch assembly	P017617
Dust cup	P100794 .....3
Dust cup, quick release	P107377
Dust cup, VacValve, horz	P103530
Dust cup, VacValve, vert	P104973
Filter, primary - SM	P181039
Filter, primary-Donaldson Blue®... DBA7039	
Filter, primary	P182039 .....3
Filter, safety	P114931
Gasket, body or cup	P017336
Gasket, cover	P017367
Gasket kit	X003539 .....9
Mounting band	H000351 .....2
Spring clip & pin	X005555

G161020 STG-TUBULAR

Dust cup	P100794 .....3
Dust cup, quick release	P107377
Dust cup, VacValve, horz	P103530
Dust cup, VacValve, vert	P104973
Filter, primary	P182042 .....3
Filter, primary-Donaldson Blue®... DBA7042	
Filter, primary - SM	P181042
Filter, safety	P128408
Gasket kit	X003539 .....9
Gasket washer	P105740
Gasket, body or cup	P017336
Gasket, cover	P017367
Mounting band	H000351 .....2
Mounting bands, metal	H000351
Outlet band clamp	P148347
SafetySignal indicator	X004816
Wing nut	P109062



Inlet view of Donaclone™ pre-cleaning tubes inside the Lower Body Assembly.

NOTES:
 2 = Two required for proper installation
 3 = Shipped with air cleaner initially
 9 = Gasket Kit includes all gaskets listed
 SM=Scheduled Maintenance
 Donaldson Blue® = High Efficiency, Extended Service

Simplify Service With Dust Dumpa Kits!

If your current STG air cleaner has adequate clearance, one of the Dust Dumpa kits has the potential to save service time.



X006562 includes new gasket
 Length 22.55" / 5723mm
 Not for horizontal mounted air cleaners.



X006561
 Length 16.54" / 420mm



This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

1 Check the Restriction

Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer.



2 Empty the Dust Cup and Check the Vacuator™ Valves

Switch off the engine. The dust cup should be emptied when 2/3 full. Frequency of dust cup service varies with the dust severity.

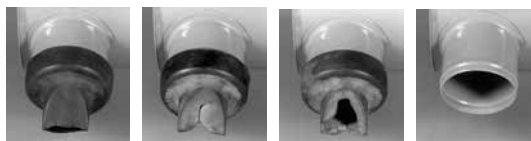
On dust cups with a Vacuator Valve, dust cup service is minimal. Just check the Vacuator Valve to see that it is not inverted, damaged or plugged. If it is damaged or missing, replace it immediately.

Visually inspect gasket between dust cup and lower body — if worn or damaged, replace.

Tip: Save Service Time — Install Dust Dumpa on Vertical STG Air Cleaners!



If your STG Air cleaner has a dust cup with a Vacuator Valve that is inverted or looks like any of the images below replace it immediately.

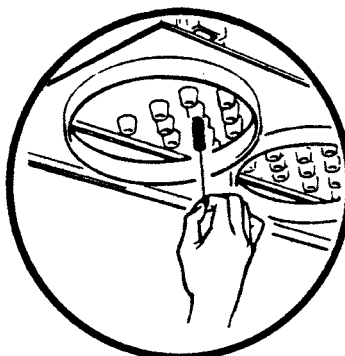


3 Inspect the Donaclone™ Pre-Cleaning Tubes

With the dust cup removed, check the tubes. Generally, the tubes are self-cleaning and need no service, but under unusual circumstances, plugging can occur. A visual inspection is usually adequate.

If the tubes carry light dust, remove it with a stiff brush. If plugging with fibrous material is evident, remove the Strata™ or Donaclone section. Clean it with compressed air or water no hotter than 160 °F / 72 °C.

Any time the Donaclone tube lower body is removed, the body gaskets should be replaced. When reinstalling the dust cup, be sure it seals 360° around the air cleaner body.



Never clean Donaclone tubes with compressed air unless both the primary and safety filters are installed in the air cleaner.

Do not steam-clean Donaclone or Strata tubes.

4 Remove the Primary Filter and Visually Inspect the Safety Filter

Unlatch the service cover to access the filters.

Loosen the wing nut and remove the primary filter. The wing nut on the old filter should be held in place with a clip. Visually inspect the safety filter but do not remove the filter unless it is damaged or due for change-out.

The safety filter should be replaced every three primary filter changes.



Note: If you perform filter maintenance service on a schedule vs. using service indicators, you may want to write the service date on the filter end cap.

The safety filter should be replaced every three primary filter changes.

5 Always Clean the Inside of the Filter Housing

Dirt left in the air cleaner housing can be harmful for your engine. Starting with the sealing surfaces, use a clean, damp cloth to wipe the inside surfaces clean. An improper gasket seal is one of the most common causes of engine contamination, so make sure that all hardened dirt ridges are completely removed.



Continued on next page



6 Install the New Filters

The safety filter should be replaced every three primary filter changes or as denoted by the SafetySignal™ service indicator. When replacing the safety filter, install the new filter immediately or cover the inlet with a cloth so that dirt is not ingested.

Before installing the new filters, inspect them for shipping damage and gasket integrity. If a filter is damaged, do not install it. If the safety filter is being replaced, and a SafetySignal is used, secure it in place with a cotter (split) pin.

Secure the primary filter in place with the wing nut (hand tighten) using a new gasket washer. Use a new wing nut clip and reset the filter service indicator.



7 Inspect Air Cleaner System

Finally, inspect and tighten all air cleaner system connections. If there are holes or damage, replace immediately. Inspect all air ducting for worn spots or damage. Annual replacement of air cleaner system gaskets is recommended.

Convert Older SRG Housing to new SSG Housing Style to Save Maintenance Time and Costs



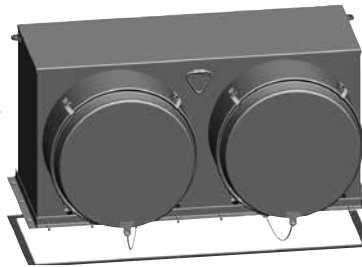
Replacing an older SRG housing with the new SSG housing allows you to simplify your routine filter service — no more separate gaskets at each filter change or removing a bolted on cover. SSG filters have RadialSeal™ end caps that provide a more reliable, consistent seal. Choose from an upper assembly conversion kit or you may want to install a complete new housing if your current SRG assembly needs repair or is reaching the end of its useful life.



SRG29 Housing



Upper Body Conversion Kit



SSG29 Housing



Kit Order Information

SRG Housing Item No.	SRG to SSG Kit* Kit No.	SSG Housing Item No.
G200008	X009702	G200087
G200013	X009701	G200086
G290000	X009230	G290057
G290023	X009230	G290052
G290012	X009231	G290053

* The finish on the replacement kit upper assembly is a white, powdered-coated paint. Installation instructions are included with the kit.

Note: Extra lead time may be required for processing and shipping.



This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

SERVICE TRAINING VIDEOS



<http://www.youtube.com/user/donaldsonengine>

Donaldson Service Training Videos are on YouTube. Scan the QR code or go to <http://www.youtube.com/user/donaldsonengine> to watch videos on how to service Donaldson Air Cleaners, like the SRG.

1 Check the Restriction

Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer.



2 Empty the Dust Cup and Check the Vacuator™ Valves

Switch off the engine. The dust cup should be emptied when 2/3 full. Frequency of dust cup service varies with dust severity.

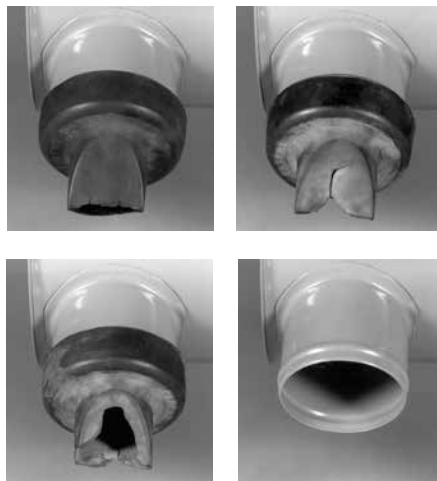
On dust cups with a Vacuator Valve, dust cup service is minimal. Just check the Vacuator Valve to see that it is not inverted, damaged or plugged. If it is damaged or missing, replace it immediately.

Visually inspect gasket between dust cup and lower body — if worn or damaged, replace.

Tip: Save Service Time — Install Dust Dumpa on SRG Air Cleaner Installations!



If your SRG Air Cleaner has a dust cup with a Vacuator Valve, replace it immediately if it is inverted or looks like any of the images below.



3 Inspect the Donaclone™ Pre-Cleaning Tubes

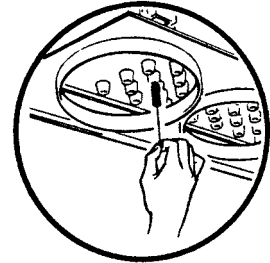
With the dust cup removed, check the tubes. Generally, the tubes are self-cleaning and need no service, but under unusual circumstances, plugging can occur. A visual inspection is usually adequate.

Any time the Donaclone tube lower body is removed, the body gaskets should be replaced. When reinstalling the dust cup, be sure it seals 360° around the air cleaner body.



View of Donaclone Tubes with Dust Cup removed.

If the tubes carry light dust, remove it with a stiff brush. If plugging with fibrous material is evident, remove the Strata™ or Donaclone section. Clean it with compressed air or water no hotter than 160 °F / 72 °C.



4 Remove the Primary Filter and Visually Inspect the Safety Filter

Unlatch the service cover to access the filters.

Loosen the wing nut and remove the primary filter. The wing nut on the old filter should be held in place with a clip. Visually inspect the safety filter but do not remove the filter unless it is damaged or due for change-out.



Continued on next page



5 Always Clean the Inside of the Filter Housing

Dirt left in the air cleaner housing can be harmful for your engine. Starting with the sealing surfaces, use a clean, damp cloth to wipe the inside surfaces clean. An improper gasket seal is one of the most common causes of engine contamination, so make sure that all hardened dirt ridges are completely removed.

Block the outlet tube of the air cleaner using a clean, dampened towel prior to proceeding with cleaning the inside of the housing to avoid contaminating the induction system.



6 Install the New Filters

The safety filter should be replaced every three primary filter changes or as denoted by the SafetySignal™ service indicator. When replacing the safety filter, install the new filter immediately or cover the inlet with a cloth so that dirt is not ingested.

Before installing the new filters, inspect them for shipping damage and gasket integrity. If a filter is damaged, do not install it. If the safety filter is being replaced, and a SafetySignal is used, secure it in place with a cotter (split) pin.

Secure the primary filter in place with the wing nut (hand tighten) using a new gasket washer. Use a new wing nut clip and reset the filter service indicator.



7 Inspect Air Cleaner System

Finally, inspect and tighten all air cleaner system connections. If there are holes or damage, replace immediately. Inspect all air ducting for worn spots or damage. Annual replacement of air cleaner system gaskets is recommended.



SRG20 Service Parts

Primary Filter Choices

G200008

Filter, primary - SM P181038
 Filter, primary-Donaldson Blue® ... DBA7038
 Filter, primary P1820383

G200013

Filter, primary - SM P181040
 Filter, primary-Donaldson Blue® ... DBA7040
 Filter, primary P182040 3

SRG29 Service Parts

Primary Filter Choices

G290000 & G290023

Filter, primary - SM P181038
 Filter, primary-Donaldson Blue® ... DBA7038
 Filter, primary P1820383

G290012 Filters

Filter, primary - SM P181040
 Filter, primary-Donaldson Blue® ... DBA7040
 Filter, primary P1820403

NOTES:

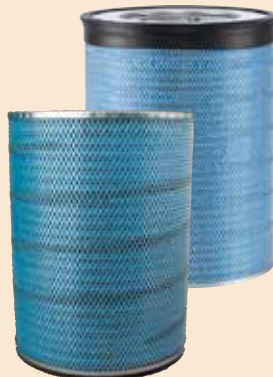
3 = Shipped with air cleaner initially

SM = Scheduled Maintenance
 Donaldson Blue® = High Efficiency, Extended Service

Changes That Can Save You Time and \$\$ After Converting to an SSG!

Upgrade to Donaldson Blue® Filters

Donaldson Blue, ultra-high efficiency filters are available for the SSG product line. These filters have Donaldson's advanced Ultra-Web® HD Filtration Technology to protect your engines from submicron and mixed contaminant.



Install Dust Dumpa

Dust Dumpa is a direct replacement to our dust cups. You can greatly reduce, if not eliminate, the routine step of emptying the dust cup — two models available X006561 [left] and X006562 [right].





The All-in-One STB Strata™ System Air Cleaner and Pre-Cleaner In One Package

Applications

- Allows 1050 to 1400 cfm airflow throughput per air cleaner
- For severe dust conditions, usually off-road applications: crawler tractors, scrapers, loaders, large agricultural tractors
- Horizontal installation

Air Cleaner Features

- Air cleaner and pre-cleaner in one package (exhaust ejector, scavenge hose and clamps sold separately)
- Pre-cleaned dust is ejected with the engine exhaust through an aspirated muffler or exhaust ejector
- Airflow pattern "B" air through the pre-cleaner, out the end of the air cleaner
- Perfect for:
 - turbocharged engines
 - intercooled engines
 - naturally aspirated engines
- Fitting for filter service indicator on all models
- Finished in corrosion-resistant paint
- Weight: 78 lbs. (35.4 kg)



The STB Strata™ System protects heavy-duty engines (like this one operating in severe dust conditions) with two-stage filtration and the convenience of aspirated dust ejection.

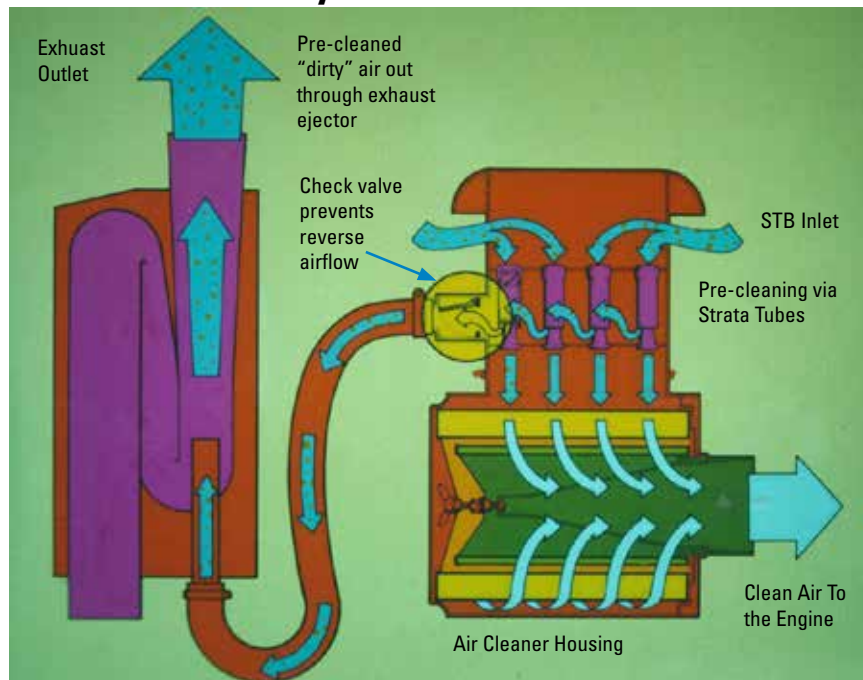
Ejector muffler, hose and clamps not included with B160071 — order parts separately.

Filter Features

- Two replacement filter choices: standard life filter for shops that service air cleaners on scheduled maintenance (shipped with STB initially), or extended life filter for those who measure restriction to obtain full filter life
- Safety filter on all models provide continuous protection during primary filter change out

For installation instructions on the STB system, see the Technical Reference section.

How the STB System Works



When Selecting an Air Cleaner . . .

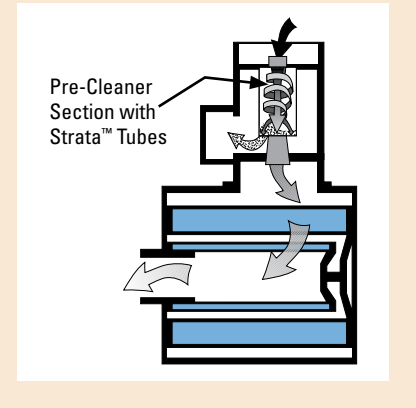
Determine the airflow requirements of your engine, then find the corresponding cfm airflow in the table at right. The restriction numbers (shown in inches of water) indicate the approximate initial restriction of each model air cleaner at that cfm. If there are two air cleaner models that fit your parameters, choosing the one with the lower restriction will provide longer filter service life. When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, and pre-cleaners. See pages 271-272 for ducting restriction estimates.

Initial Airflow Restriction

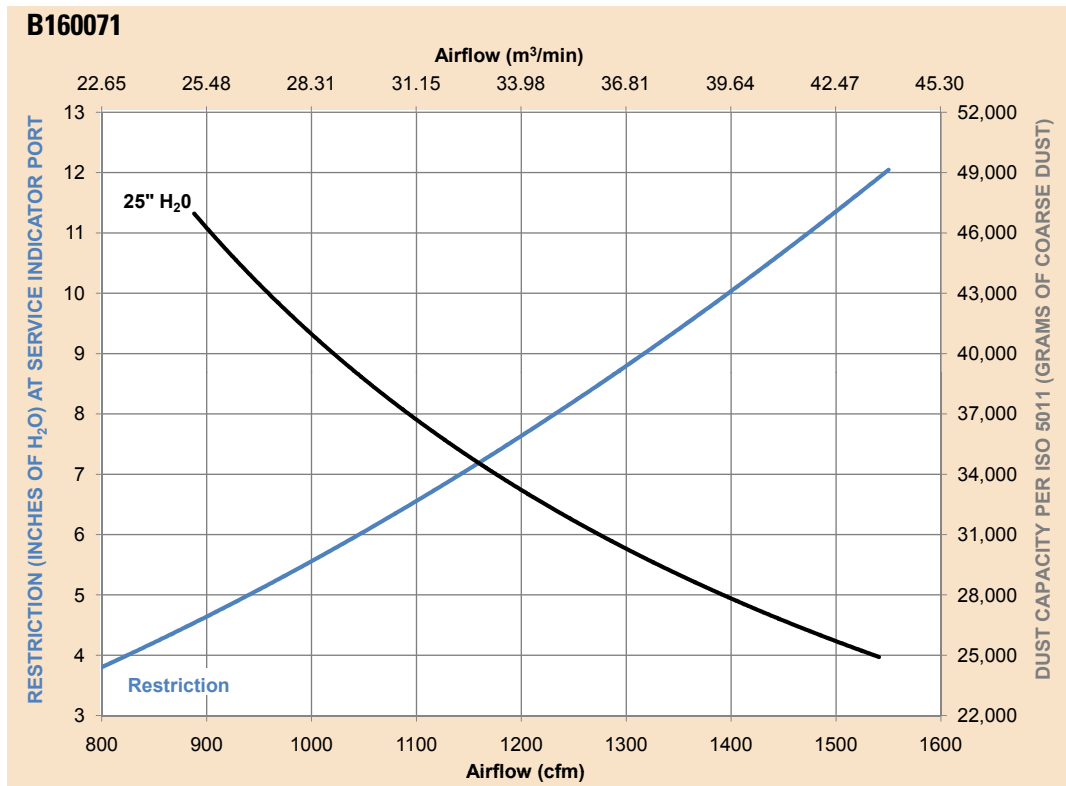
6"	CFM @ "H ₂ O		Air Cleaner Model
	8"	10"	
1050	1225	1400	B160071

Airflow Pattern "B"

Air in through the pre-cleaner, out the end of the air cleaner (lower) portion.



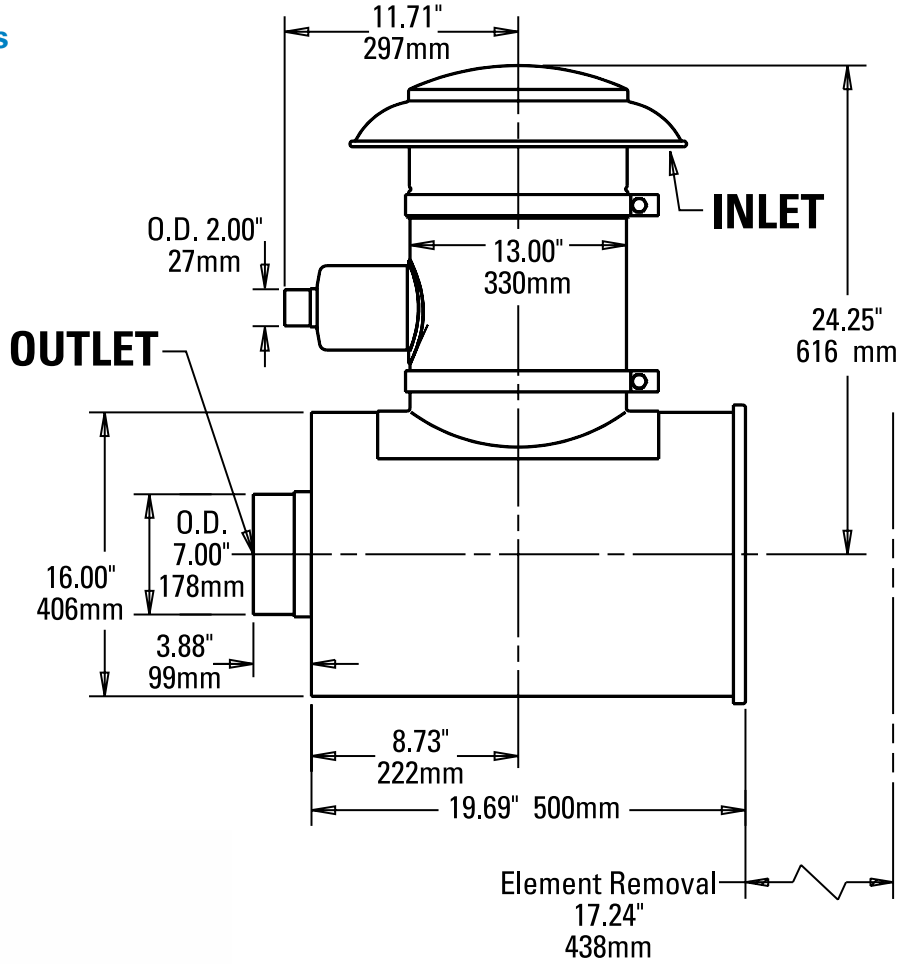
STB Air Cleaner Performance Curve (Restriction & Dust Capacity)*



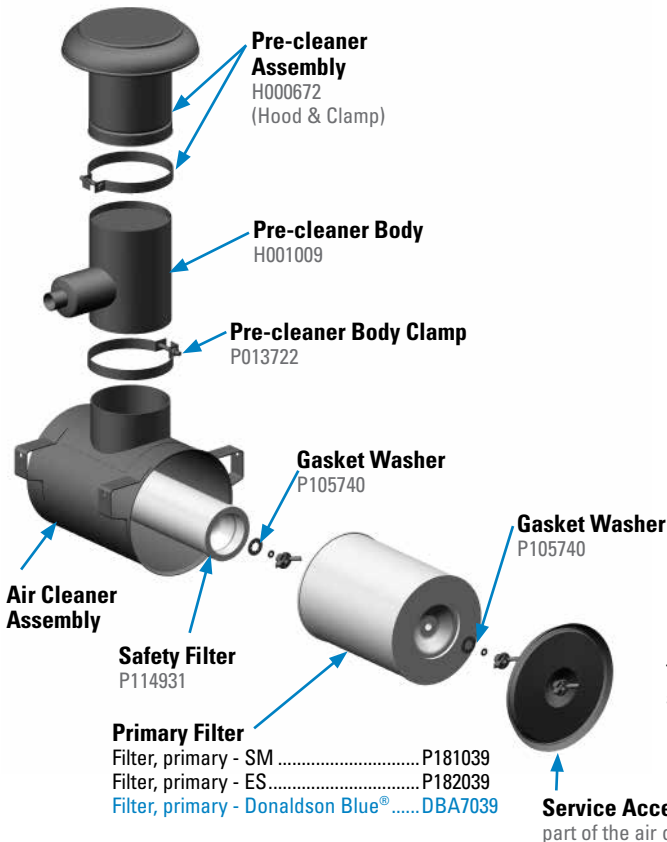
*Results generated using laboratory testing pursuant to ISO5011. Actual performance during use may vary depending on multiple factors, including specific product configuration, external conditions and application.



STB B160071 Specifications



B160071 Service Parts



The STB is tapped to accept a filter service indicator

SM = Scheduled Maintenance
 ES = Extended Service
 Donaldson Blue® = High Efficiency, Extended Service

Accessories Help You . . .

Set a Filter Service Schedule:

- Restriction indicators — go-no-go, lock-up styles, electric, in-field manometers, safety filter indicator.

Aspirate (or scavenge) an intake system:

- Strata™ Cap
- Large Vane Pre-Cleaner
- Donaspin™
- Exhaust Ejectors
- Air Stack Extension
- Check Valve

Evacuate air cleaner dust:

- Vacuator™ Valves
- Quick Release Dust Cups
- Dust Dumpa
- Donaspin™
- STB Air System

Solve air intake water problems:

- Air Ram™ Inlet Hood
- In-line Moisture Skimmer
- In-line Moisture Separator

Pre-clean or protect air inlet from debris:

- Pre-cleaners
 - Strata™ Cap
 - TopSpin™ Pre-Cleaner
 - TopSpin™ HD Pre-Cleaner
 - Large Vane Pre-Cleaner
 - Full-View Pre-Cleaner
 - In-line Separator
 - Donaspin™
- Air Ram™ Inlet Hood
- Inlet Hoods

Connect intake components:

- Rubber Elbows and Connectors
- Clamps
 - Aluminum Tubing
 - Rubber and Silicone Hump/Reducers
 - Charge Air Connectors

Mount or install an air cleaner:

- Mounting Bands
- Straight Pipe



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No Matter What Dust Condition, Pre-cleaners Extend Air Filter Life

Pre-cleaners remove contaminant of varying sizes from entering the intake duct, and they don't require any engine power to operate. Some devices collect the contaminant (Full-View), others just eject or drop the contaminant (TopSpin™, TopSpin™ HD, in-line separator), or are connected via a scavenge system and route debris out the exhaust system (Donaspin, Strata™ Cap).

Product Offering

- Six pre-cleaner styles offer the broadest product range in the industry
- Strata™ Cap is the new scavenge system option for operating in heavy dust environments
- TopSpin™ HD is the new all-metal option for heavy-duty applications where a rugged and durable pre-cleaner is needed
- Pre-cleaners extend life of vehicle air filters and serve as rain caps
- Units are made of durable materials — either metal or impact resistant plastic
- Most units install outside of engine compartment — leaving more space under hood for other components (exception-in-line separator)
- No wires or power requirements
- Please note: Strata Cap and Donaspin require additional components for scavenge system — hoses, check valves, clamps and exhaust ejector

To Scavenge or Not To Scavenge . . .

Air cleaners are designed to operate with or without aspiration. Aspiration (otherwise known as scavenging) is accomplished by introducing a secondary airflow in the intake ducting (generally through the use of an exhaust ejector or ejector muffler). This secondary airflow pulls the separated contaminant from the pre-cleaner and ejects it into the exhaust stream.



The advantages to scavenging are:

- Higher pre-cleaner efficiency (resulting in longer primary filter service life)
- Completely self-servicing (no regular maintenance needed on pre-cleaner)
- Drop tube can be located in a variety of orientations (not just straight down as is necessary on non-scavenged systems)

Aspirating an intake system through the use of a scavenging device adds more components (an ejector and some plumbing) to the overall system, but will enhance the separator efficiency of the pre-cleaner and consequently extend the primary filter service life.

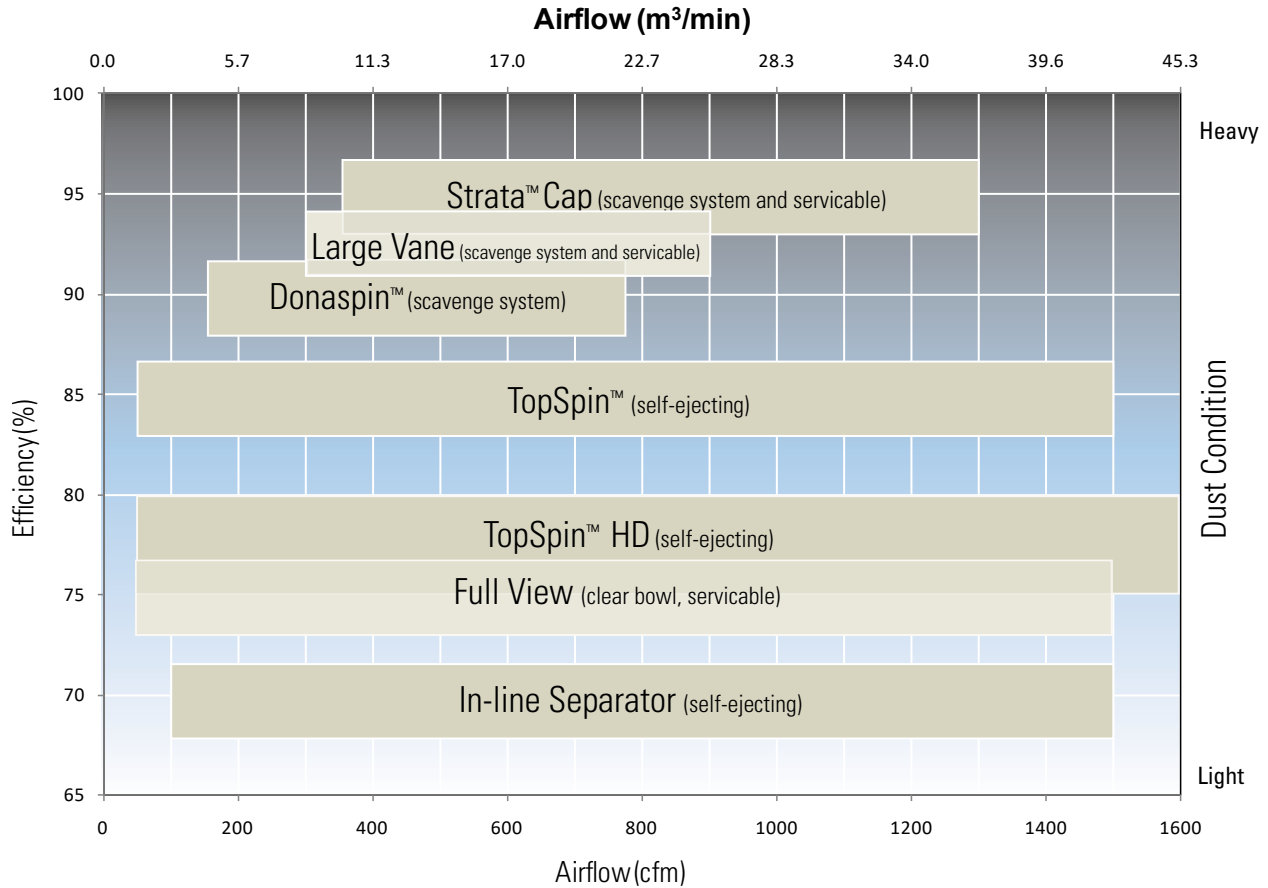
An alternative . . . Air Cleaners with Built-in Pre-Cleaning

Before you decide on adding a pre-cleaner. Take a look at our PowerCore® air cleaner housings — the PowerCore PSD Series. PowerCore air cleaners have a pre-cleaning section built directly into the housing. If you have the room, choosing a PowerCore air cleaner will reduce the number of components in your intake system — fewer parts to track, maintain and manage. And, some PSD air cleaner models can also be used in scavenged systems.

See the PowerCore PSD Series section, beginning on page 30, for more information.

Selection

Select the style that matches dust conditions, airflow and desired efficiency level. Each pre-cleaner family is presented on the following pages.



Compare – Weight, Scavenge, Service and Materials

Additional characteristics about our pre-cleaner line to help you decide on the style that’s best for you.

Dust Condition	Max. Sepr Efficiency	Unit Weight Range lbs.	Unit Weight Range kg.	Pre-Cleaner Family	Scavenge Required	Service Required	Material
Heavy	96%	6.2 – 9.1	2.82 – 4.14	Strata™ Cap	Yes	Yes	Plastic
	94%	2.5	1.13	Large Vane	Yes	No	Plastic
	90%	8.0 – 10.0	3.63 – 4.54	Donaspin™	Yes	No	Steel
Medium	85%	1.0 – 6.0	0.45 – 2.72	TopSpin™	No	No	Plastic
	80%	1.0 – 9.5	0.5 – 4.3	TopSpin™ HD	No	No	Aluminum/ Stainless Steel
Light	70%	11.5 – 14.8	5.23 – 6.70	In-Line Separator	No	No	Steel
	75%	0.8 – 9.2	0.37 – 4.17	Full-View	No	Yes	Steel/Plastic

Low Profile Pre-cleaner and Rain Cap in One!

The scavenged Strata™ Cap pre-cleaner removes up to 96% of incoming contaminant — the highest efficiency compared to all other Donaldson pre-cleaners. It is designed for the most demanding heavy dust environments in the construction and mining industry.

Features

Separates up to 96% of incoming contaminant per ISO 5011/SAE J726

- Significantly extends air filter life
- Reduces air filter servicing and replacement
- Lowers cost per operating hour
- Separates more than 99% of 20 micron and above particles

Low profile for maximum operator visibility

Robust design for heavy-duty environments

- No moving parts
- Both a rain cap and pre-cleaner
- No bowl to clean or empty
- UV resistant plastic construction

Simple installation

- Unit installs outside of engine compartment, leaving more space under hood for other components
- No wires or power requirements
- Requires additional standard components for scavenge

Lighter Weight

- Low profile
- Lighter weight compared to other Donaldson scavenge systems; e.g., STB System and Donaspin™ pre-cleaner

Application

- Accommodates a range of airflows from 350 to 1,300 cfm (9.9-36.8 m³/min).
- Primarily used in heavy dust environments
- Great for off-road vehicles and equipment from crawler tractors to farm tractors to skid steer loaders
- Recommended mounting: outside of engine compartment on top of the air cleaner inlet stack



The scavenged Strata™ Cap pre-cleaner removes up to 96% of incoming contaminant — the highest pre-cleaning efficiency ever invented by Donaldson.

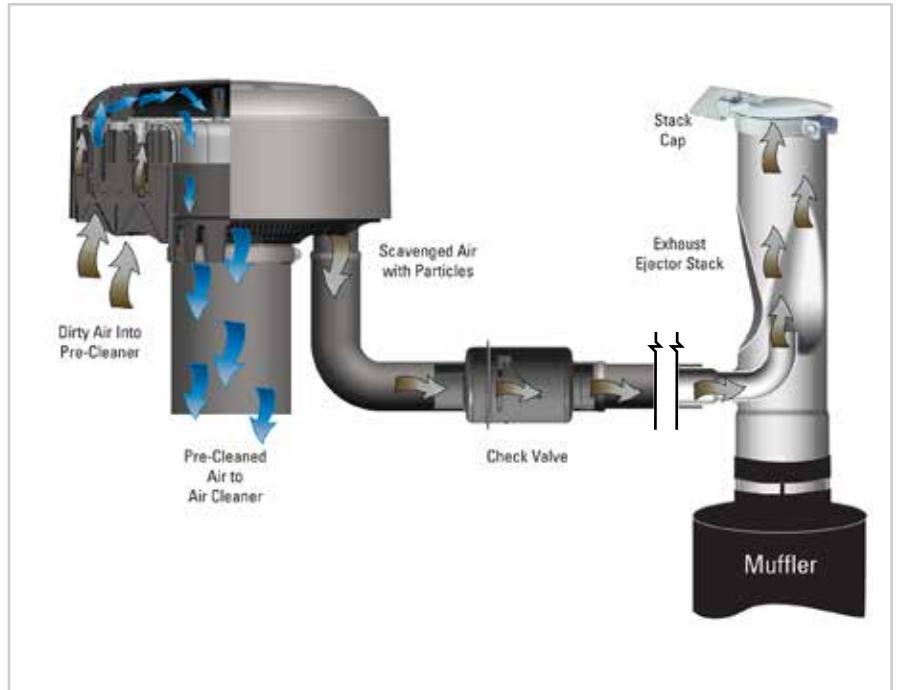


Advantages of Scavenging

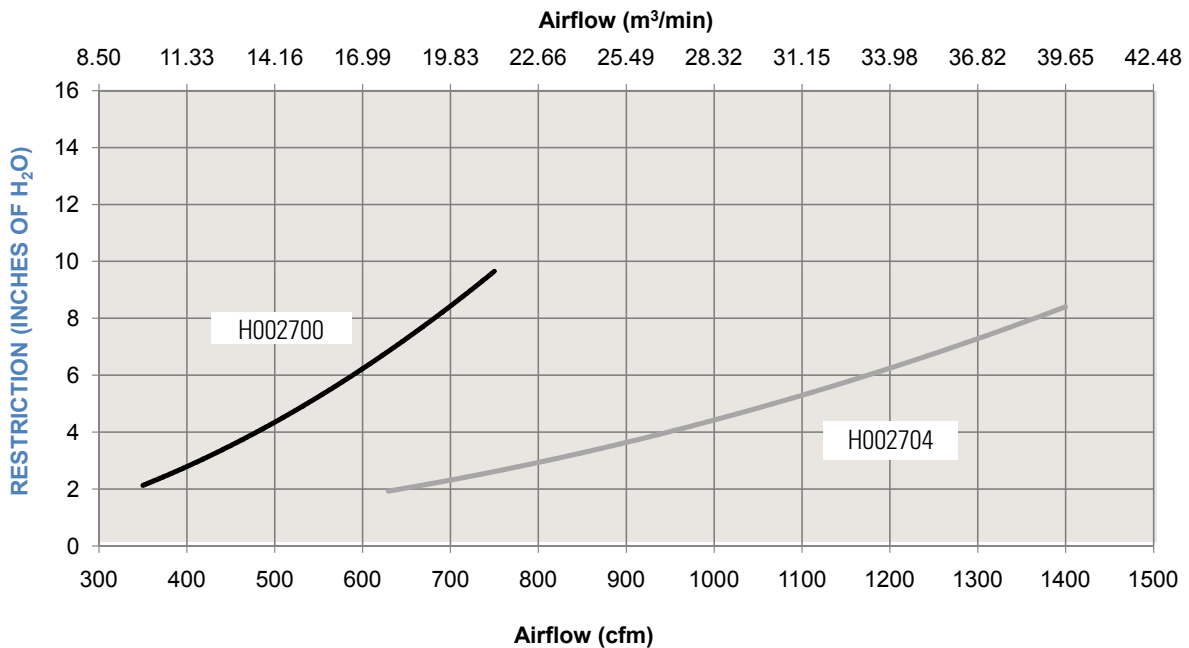
Scavenging is accomplished by introducing a secondary airflow to the drop tube on the air cleaner (generally through the use of an ejector or ejector muffler). This flow pulls the separated contaminant from the pre-cleaner and inserts it into the exhaust stream.

- Higher pre-cleaner efficiency (resulting in longer filter service life)
- Completely self-servicing (no regular maintenance needed on pre-cleaner)

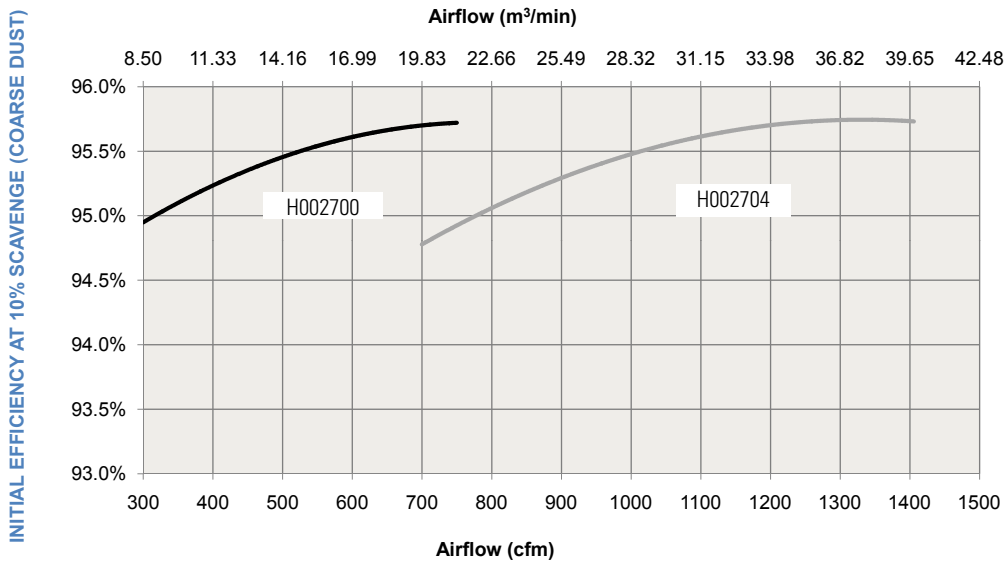
Aspirating an intake system through the use of a scavenging device adds more components (an ejector and some plumbing) to the overall system, but will enhance the separator efficiency of the pre-cleaner and consequently extend the filter service life.



Performance — Restriction at 10% Scavenge



Performance – Initial Efficiency at 10% Scavenge



Dimensional Specifications



Part Number	Overall Height (A)		Body Dia. (B)		Outlet I.D. (C)		Scavenge Hose I.D. (D)		Weight		Rated Air Flow @ 6" H ₂ O
	in	mm	in	mm	in	mm	in	mm	lbs.	kg.	
H002700	8.00	218	14.00	356	5.00	127	2.00	51	6.2	2.8	600 cfm / 17.0 m³/m
H002704	8.60	218	17.20	437	8.00	203	2.00	51	8.8	4.0	1140 cfm / 32.3 m³/m

Installation

For proper function, the pre-cleaner/rain cap installs over a 5.0" or 8.0" OD metal intake tube and connects to a 2.0" I.D. scavenge hose. The scavenge hose should be secured from movement within 12.0" / 305mm of the pre-cleaner/rain cap.

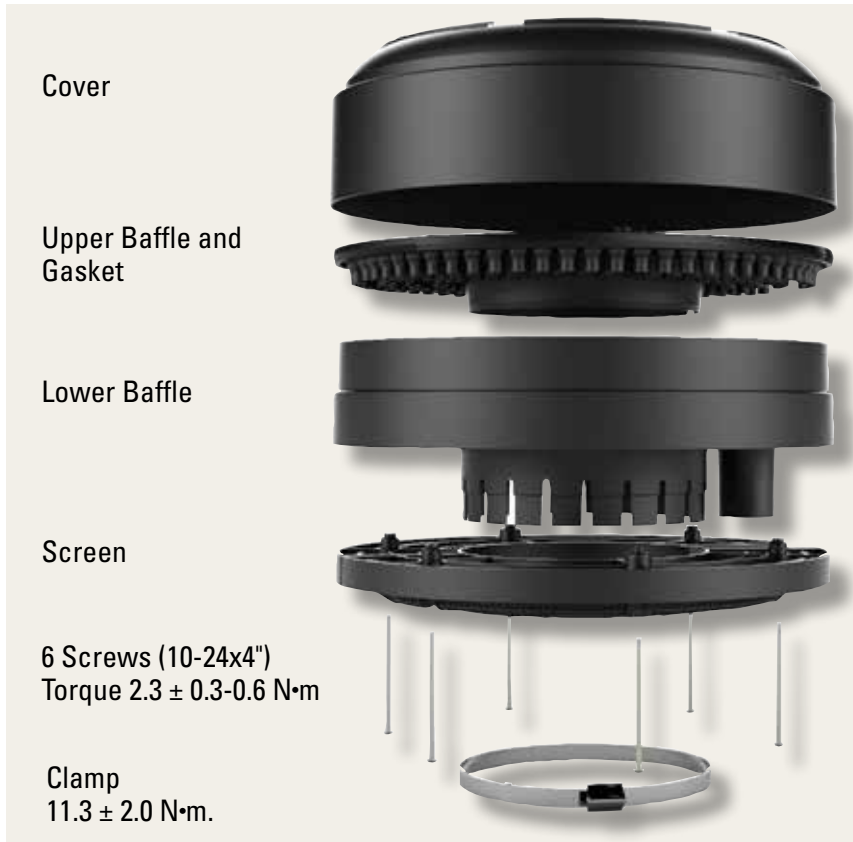
Additional components are required for proper installation:

- Scavenge hose (2.0" / 51mm I.D.) need enough for two cut lengths connecting to the Strata™ Cap to check valve and the check valve to exhaust ejector
- Hose clamps (x 4) (Part No. P115200)
- Check Valve (Part No. H000722)
- Metal Intake Tube (O.D.) to mount Strata™ Cap to Air Cleaner (5.0" / 127mm or 8.0" / 203mm Dia. — depends on your Strata™ Cap size)
- Standard and expanded I.D. exhaust ejectors available



Service Procedure

The pre-cleaner/rain cap may need to be cleaned over time. The procedure below recommends removal and disassembly of the unit to clean. The unit can be cleaned with either water, mild-soapy water or compressed air. Tapping or hitting the components to dislodge contaminant should be avoided. It may cause damage and prevent reassembly.



1. Turn off engine.
2. Loosen both connecting clamps (metal pipe and scavenge hose) and remove the Strata™ Cap pre-cleaner.
3. Turn unit upside down. Remove the screws (save for reassembly) and disassemble the unit (screen is two pieces).

Note: Cover or plug intake pipe to protect air intake system from contamination during service.

4. Clean all the parts to remove dust and debris from each component.
5. After cleaning, inspect the gasket on the perimeter of the upper baffle. If damaged in any way replace with new gasket. Check gasket position, make sure it is installed evenly around upper baffle perimeter.

Note: Using the unit without gasket properly installed will affect Strata™ Cap pre-cleaning performance.

Service Parts

Strata™ Cap Model No.

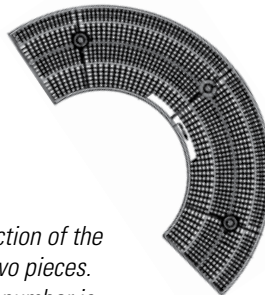
H002700
H002704

Gasket

P617476
P167475

1/2 Screen

P617922
P617923



Entire screen section of the Strata™ Cap is two pieces. The service part number is one screen only.

6. With cover upside down, reassemble components. Unit has alignment guides to aide reassembly.
7. With all components together, reinstall and torque the 6 screws to $2.3 \pm 0.3-0.6 \text{ N}\cdot\text{m}$

Note: Removable screw adhesive is to be used on the screws if original blue patch has been worn off.

8. Replace Strata™ Cap on intake stack, reconnect scavenge hose. Tighten clamps to torque specifications. If scavenge support was disconnected, reconnect.

TopSpin™ Can Extend Filter Life in Heavy Dust Conditions

Donaldson TopSpin™ will extend primary air filter life, boost system efficiency, and extend engine life.

Features

Separates up to 85% of incoming contaminant per ISO 5011/SAE J726

- Greatly extends air filter life
- Reduces air filter usage
- Lowers cost per operating hour
- Automatically ejects mixed debris
- Separates more than 99% of 20 micron and above particles

Self-cleaning/self-scavenging

- No maintenance to clean bowl
- No exhaust ejector required

Easy installation

- Quick installation
- One clamp to tighten
- No wires or power requirements

Dual mounted bearings

- More robust design
- Extends bearing life

Lighter Weight

- Lighter than competitive pre-cleaners
- Lighter than Donaldson full-view pre-cleaner

Application

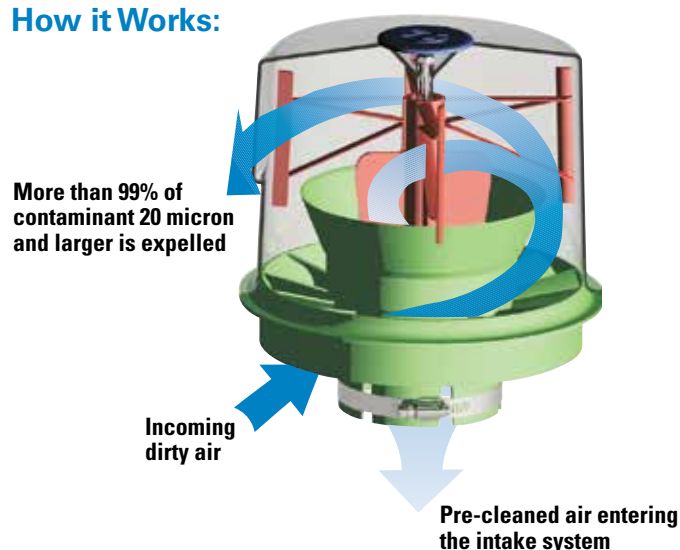
- Engine airflows of 80 to 1500 cfm (2.3-42.5 m³/min).
- Primarily used in medium to heavy dust environments
- Great for off-road vehicles and equipment from crawler tractors to farm tractors to skid steer loaders
- Recommended mounting: on top of the air cleaner inlet stack



Donaldson TopSpin™ in Action

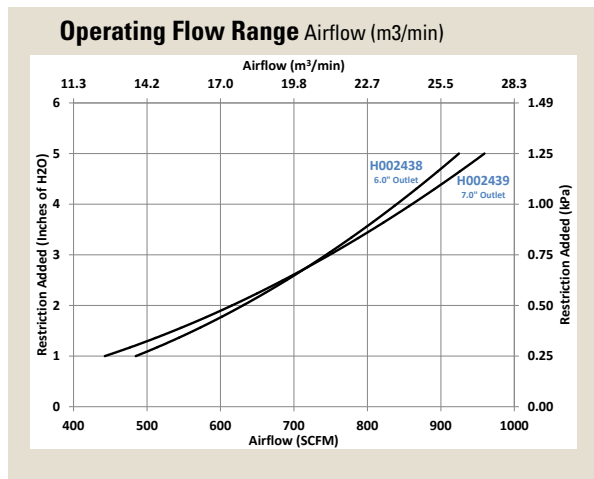
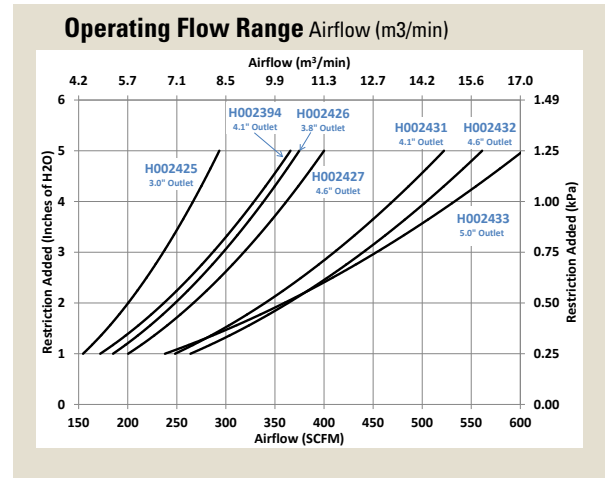
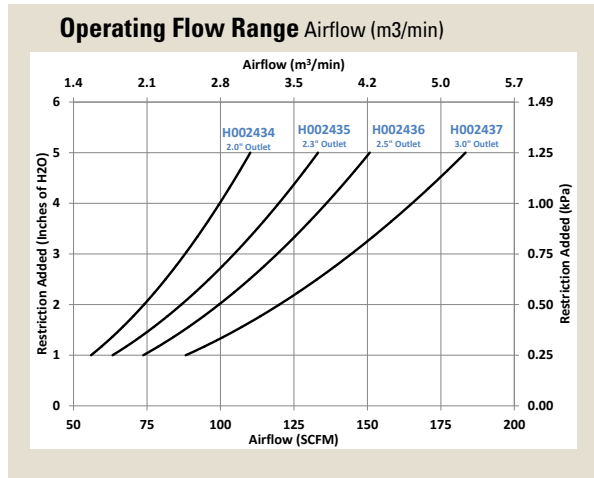
Upper left, TopSpin on excavator; **upper right**, military ground vehicle in middle east; **left**, TopSpin on pumper truck in Australia.

How it Works:



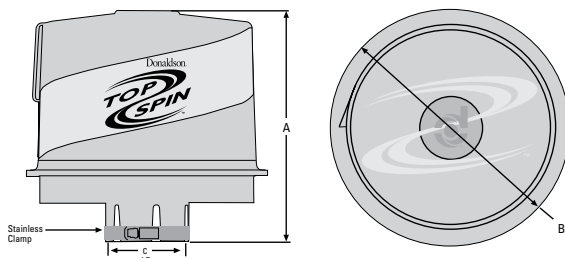
Performance Curves

Multiple tests conducted per ISO 5011/SAE J726 and average results are shown in charts below.



Dimensional Specifications

Donaldson TopSpin™ can be mounted horizontally or vertically. Installation instructions, stainless clamp and warranty are included. Operating temperature range: -40 °F to 180 °F (-40 °C to 82 °C)



Part Number	Overall Height (A)		Body Dia. (B)		Outlet I.D. (C)		Weight	
	in	mm	in	mm	in	mm	lbs.	kg.
H002434	5.75	146	6.38	162	2.03	52	1.0	0.4
H002435	5.75	146	6.38	162	2.27	58	1.0	0.4
H002436	5.75	146	6.38	162	2.53	64	1.0	0.4
H002437	5.75	146	6.38	162	3.03	77	1.0	0.4
H002425	9.39	238	9.51	242	3.07	78	2.2	1.0
H002426	9.39	238	9.51	242	3.83	97	2.2	1.0
H002394	9.39	238	9.51	242	4.06	103	2.2	1.0
H002431	11.30	287	11.32	288	4.06	103	2.7	1.2
H002427	9.39	238	9.51	242	4.57	116	2.2	1.0
H002432	11.30	287	11.32	288	4.57	116	2.7	1.2
H002433	11.30	287	11.32	288	5.03	128	2.7	1.2
H002438	13.57	345	15.62	397	6.03	153	6.0	2.7
H002439	13.57	345	15.62	397	7.03	179	6.0	2.7

All-Metal Pre-cleaner is Durable Solution for Punishing Conditions

Donaldson TopSpin™ HD will extend primary air filter life, boost system efficiency and extend engine life in medium to heavy dust environments.

Features

Separates up to 80% of incoming contaminant per ISO 5011

- All-metal construction
- Greatly extends air filter life
- Reduces air filter usage
- Lowers cost per operating hour
- Automatically ejects mixed debris

Self-cleaning/self-scavenging

- No maintenance to clean bowl
- No exhaust ejector required

Easy installation

- Quick installation
- One clamp to tighten
- No wires or power requirements

Application

- Engine airflows of 50 to 1600 cfm (1.4-45.3 m³/min).
- Primarily used in medium to heavy dust environments
- Great for off-road vehicles and equipment, including crawler tractors, farm tractors, skid steer loaders, mining, and fracking machines
- Recommended mounting: on top of the **metal** air cleaner inlet stack. Do not mount on non-metal inlet stack



Built as tough as your equipment

Rugged one-piece **aluminum hood** with recessed discharge louver sheds flying debris.

One-piece **stainless steel impeller** is the only moving part. Dual bearings ensure reliable performance.

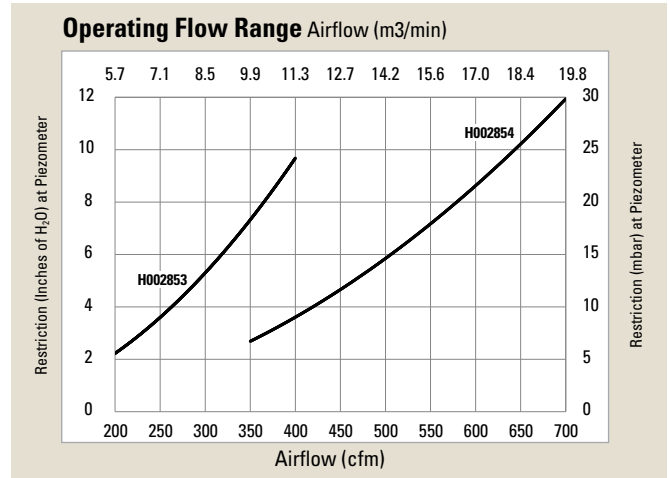
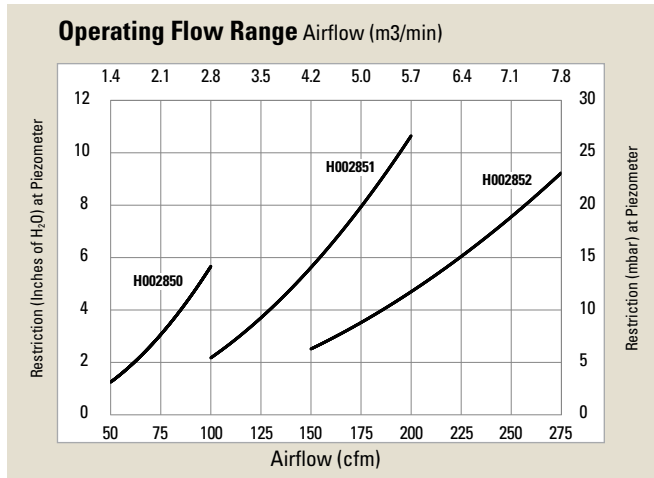


Stainless steel clamp with locking nut makes installation quick and secure. Clamp is included with each TopSpin HD.

All the interior components are solid stainless steel to resist dirt, water, heat, and debris encountered in demanding environments.

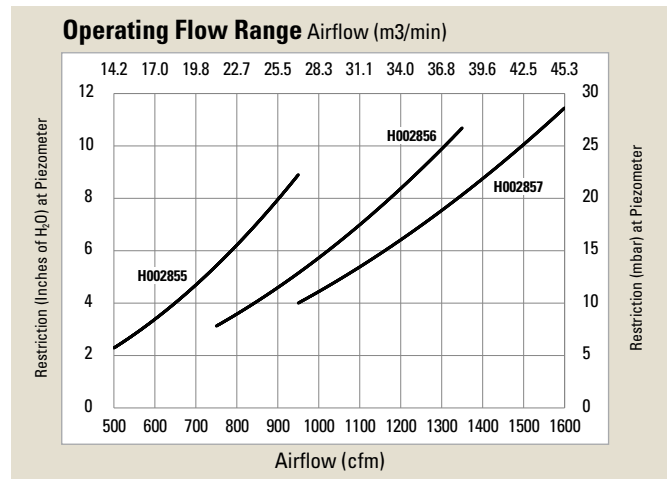
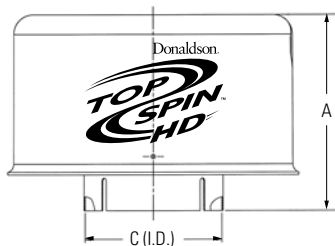
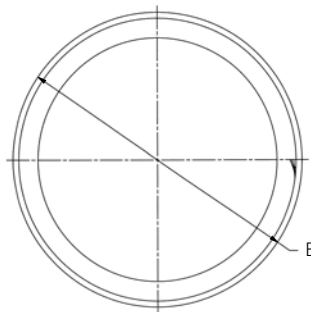


TopSpin HD Performance Curves



Dimensional Specifications

Donaldson TopSpin™ HD can be mounted in an upright position or horizontally with louver opening at the bottom. Installation instructions, stainless steel clamp and limited lifetime warranty are included. Operating temperature range: -40 °F to 180 °F (-40 °C to 82 °C).



Part Number	Overall Height (A)		Body Dia. (B)		Outlet I.D. (C)		Operating Flow Range		Weight	
	in	mm	in	mm	in	mm	SCFM*	m3/min.	lbs.	kg.
H002850	3.41	86.5	5.4	137.2	2.06	52.3	50-100	1.4-2.8	1.0	0.5
H002851	4.25	108	6.3	160	2.58	65.5	100-200	2.8-5.6	1.75	0.8
H002852	4.96	125.9	7.2	182.9	3.07	78	150-275	4.2-7.8	2.75	1.2
H002853	5.81	147.6	8.72	221.6	4.10	104.1	200-400	5.6-11.3	3.75	1.7
H002854	7.56	192.1	11.19	284.2	5.08	129	350-700	10-20	6.5	3.0
H002855	7.72	196	12.78	324.6	6.10	154.9	500-950	14-27	7.25	3.3
H002856	8.38	212.7	14.75	374.6	7.10	180.3	750-1350	21-38	9.5	4.3
H002857	8.38	212.7	14.75	374.6	8.08	205.2	950-1600	26.6-44.8	9.5	4.3

Cross reference from a Full-View pre-cleaner to a TopSpin™ HD pre-cleaner can be found on the Full-view Pre-cleaner page.

*SCFM = Standard Cubic Feet per Minute. The ISO 5011/SAE J726 test procedure was used to extract the results in the charts above. The ISO 5011/SAE J726 is a widely accepted industry test used by OEMs to evaluate the efficiency of the intake system components. Test results are an average from testing several units.

Extends Filter Life in Large Fibrous Contaminant and Heavy Dust Conditions

The large vane pre-cleaner is specifically designed to handle large fibrous contaminant and heavy dust in agricultural and forestry applications.

The large single-vane design easily separates chaff, cotton linters, wood fibers, and other large contaminant, in addition to removing extremely heavy dust. Pre-cleaners with smaller vanes typically struggle with these types of contaminants.

Application

- Harvesters and other agricultural equipment, refuse, logging and forestry
- For engine airflows from 300–900 cfm
- Recommended mounting: external, using bracket



Features

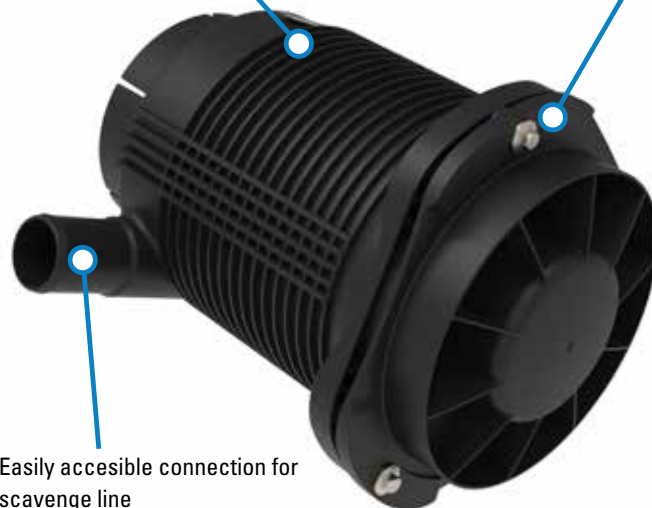
Separates up to 94% of incoming fibrous debris from the air intake system

- Built-in large vane spins air to separate up to 94% of incoming fibrous debris and up to 90% of incoming heavy dust from the air intake system
- Works as part of a scavenged flow system to continuously expel pre-cleaned contaminants through the scavenge source
- Durable, non-corroding reinforced plastic
- High efficiency with low restriction
- No maintenance. Self-cleaning. No moving parts.

Designed to help you get the job done on time!

Rugged injection-molded body for light weight design and modular-mounting options

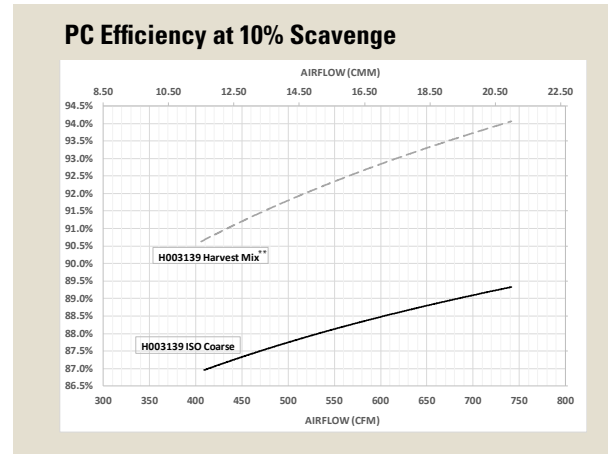
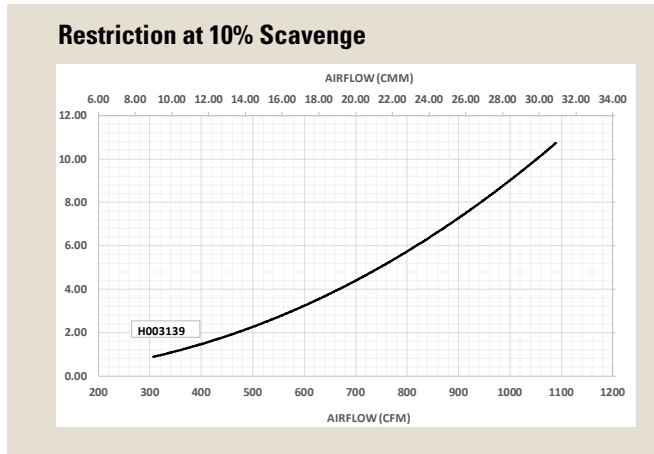
Removable inlet vane and captive fasteners improve serviceability



Easily accessible connection for scavenge line

Large Vane Performance Curves

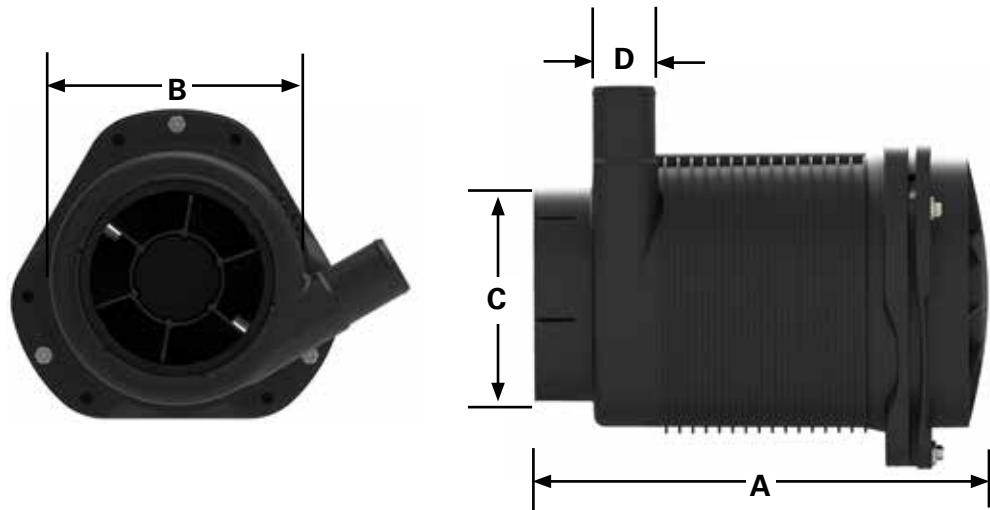
Multiple tests conducted per ISO 5011/SAE J726 and average results are shown in charts below



*SCFM = Standard Cubic Feet per Minute. The ISO 5011/SAE J726 test procedure was used to extract the results in the charts above. The ISO 5011/SAE J726 is a widely accepted industry test used by OEMs to evaluate the efficiency of the intake system components. Test results are an average from testing several units.

**Harvest Mix is a proprietary blend of large fibrous contaminant intended to best represent a worst-case scenario for agricultural, forestry, or similar type environment.

Dimensional Specifications



Part Number	Overall Height (A)		Body Dia. (B)		Outlet I.D. (C)		Scavenge Hose O.D. (D)		Weight		Operating Air Flow SCFM*/m³/min
	in	mm	in	mm	in	mm	in	mm	lbs.	kg.	
H003139	13.46	341.9	7.97	202.5	6.09	154.8	2.00	51	2.5	1.13	300-900 cfm / 8.5 - 25.5 m³/m

Large Vane Mounting Bands (Order one band per Large Vane pre-cleaner)

Part Number	A		B		C		D		E		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kgm
POLYMER BAND												
P777732 ¹	8.35	212	4.70	120	7.48	190	1.99	51	n/a	0.56	253	
METAL BAND												
H002023	8.35	212	4.72	120	4.33	110	1.99	51	5.14	131	1.60	726

WARNING: Do not use any other mounting bands or straps with Large Vane pre-cleaners. Use of an unapproved mounting band voids warranty.

Full-View Pre-Cleaner Helps Extend Filter Life on Agricultural & Construction Equipment

Features

- Recommended mounting: on top of the engine intake stack
- Centrifugal force in bowl separates up to 75% of incoming dust **before** it enters the engine air intake system
- Low maintenance
- Durable, lightweight, noncorrosive construction
- Full-view plastic bowl lets operator easily see when service is needed
- One-bolt cover retention for easy service. When dirt reaches the level of the arrow, remove top nut and plastic body, then empty — no tools required
- Mounting clamp included



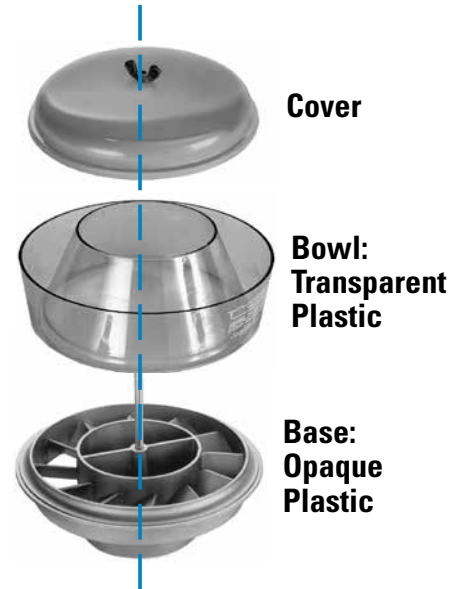
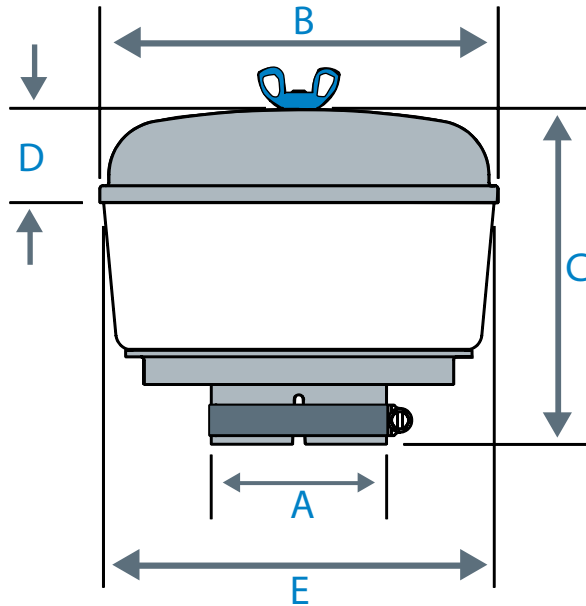
Tired of Emptying the Cup?

Before you consider replacing your full-view pre-cleaner with another one, check out the TopSpin™ and TopSpin™ HD models on the previous pages.



Pre-cleaner Upgrade Path

Full-View	TopSpin	TopSpin™ HD
H000820.....	H002425	
H000821.....	H002426	
H000858.....	H002394.....	H002853
H000823.....	H002427	
H001250.....	H002435	
H001251.....	H002436.....	H002851
H001249.....	H002437.....	H002852
H001823.....	H002434.....	H002850
H002043.....	H002433.....	H002854
H002044.....	H002432	
H002045.....	H002431	
H002223.....	H002438.....	H002855
H002224.....	H002439.....	H002856
N/A	N/A	H002857



Full-View Pre-Cleaners Specifications

Entire F.V. Pre-Cleaner	--- Replacement ---		Inlet (ID/OD)				--- C ---		--- D ---		--- E ---		Weight		Max. Airflow CFM
	Cover	Bowl	A in	A mm	B in	B mm	C in	C mm	D in	D mm	E in	E mm	lbs	kg	
H002042	P020116	P020115	1.75	44	5.59	142	4.75	121	1.72	44	5.50	140	0.8	0.37	80
H002040	P020116	P020115	2.00	51	5.59	142	4.75	121	1.72	44	5.50	140	0.9	0.41	90
H001823 ¹	P020648	P020227	2.00	51	7.34	186	6.19	157	1.72	44	7.25	184	1.4	0.64	110
H001250	P020648	P020227	2.25	57	7.34	186	6.19	157	1.72	44	7.25	184	1.5	0.68	130
H001251	P020648	P020227	2.50	64	7.34	186	6.19	157	1.72	44	7.25	184	1.5	0.68	150
H001249	P020648	P020227	3.00	76	7.34	186	6.19	157	1.72	44	7.25	184	1.6	0.73	170
H000820 ¹	P016548	P016330	3.00	76	10.63	270	7.66	195	1.84	47	10.50	267	3.4	1.54	320
H000821	P016548	P016330	3.75	95	10.63	270	7.66	195	1.84	47	10.50	267	3.4	1.54	330
H000858	P016548	P016330	4.00	102	10.63	270	7.66	195	1.84	47	10.50	267	3.4	1.54	340
H002045 ¹	P020345	P020344	4.00	103	12.06	306	8.19	208	2.00	51	11.94	303	4.5	2.04	660
H000823	P016548	P016330	4.50	114	10.63	270	7.66	195	1.84	47	10.50	267	3.4	1.54	340
H002044 ¹	P020345	P020344	4.50	114	12.06	306	8.19	208	2.00	51	11.94	303	4.5	2.04	700
H002043	P020345	P020344	5.00	127	12.06	306	7.69	195	2.00	51	11.94	303	4.5	2.04	740
H002223	P104691	P158324	6.00	152	16.25	413	10.00	254	2.81	71	15.94	405	9.2	4.17	1300
H002224	P104691	P158324	7.00	178	16.25	413	10.00	254	2.81	71	15.94	405	9.2	4.17	1500

¹ - Heavy Duty Option

Extends Filter Life in Extremely Heavy Dust Conditions

The Donaspin™ Pre-Cleaner extends the life your air filter by removing up to 90% of the dirt and contaminant before it reaches the filter and ejecting it automatically via the exhaust system.

Donaspin is designed especially for equipment operating in very heavy dust/debris environments.



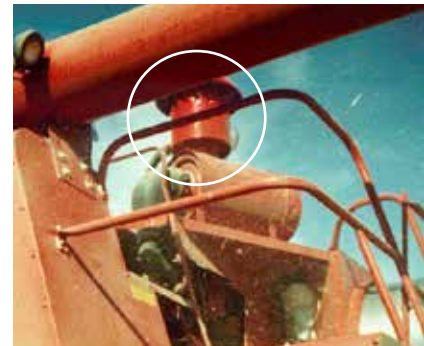
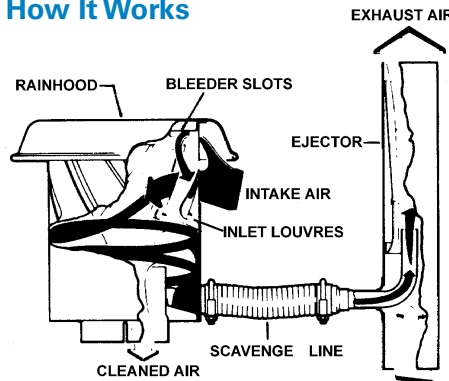
Application

- Vehicles: agricultural equipment, construction and waste haul vehicles
- For engine airflows of 305 to 800 cfm
- Recommended mounting: on top of the air inlet stack

Features

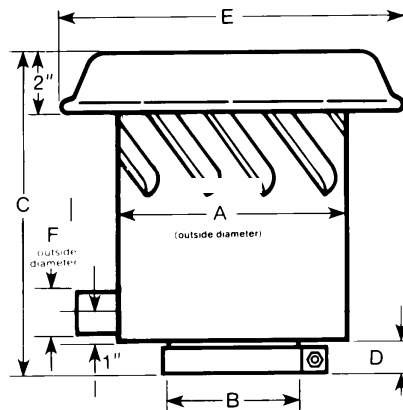
- Built-in louvers spin air to separate up to 90% of incoming dirt and debris from the air intake system
- Works as part of a scavenged flow system to continuously expel pre-cleaned contaminants through the exhaust flow
- Durable, corrosion-resistant steel construction
- High efficiency with low restriction
- No maintenance. Self-cleaning. No moving parts.
- Mounting clamp is included

How It Works



To create a scavenged flow system, combine the Donaspin with a Donaldson exhaust ejector and ejector check valve.

The Donaspin installed on this combine removes most of the incoming dirt, then directs the contaminant out of the system with the exhaust gases.



Donaspin™ Pre-Cleaner

Part Number	A		B (I.D.)		C		D		E		F		Rated Airflow @ 5" H ₂ O Added	Approx. Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm		lbs	kg
H001212	8.00	203	3.00	76	11.98	304	2.15	55	12.00	305	1.25	32	305	8	3.6
H001215	8.00	203	4.50	114	10.93	278	1.10	28	12.00	305	1.25	32	465	8	3.6
H001308	8.00	203	5.00	127	11.14	283	1.31	33	12.00	305	1.25	32	530	8	3.6
H001375	9.00	229	6.00	152	14.68	373	1.10	28	13.00	330	1.25	32	770	10	4.5

Two-stage Cleaning for Unexpected Dust/Moisture Conditions

When your truck is being used in heavier-than-anticipated dust or moisture conditions, you may not have to replace the entire air cleaner. The problem may be solved by adding a Donaldson in-line separator.

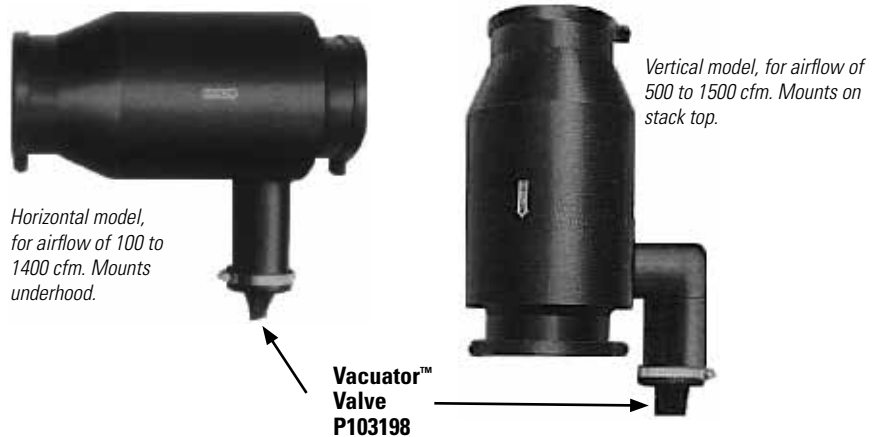
Installing this unit on your single-stage system **creates a two-stage air filtration system**. This enables an over-highway vehicle, which usually sees only light dust, to be easily and economically adapted to off-road medium to heavy dust conditions.

Applications

- **Vertical model:** On/off road, mounted on inlet tubing or cowl mounted directly to air cleaner
 - Compatible with engine airflows of 500 to 1500 cfm
- **Horizontal model:** On/off road, typically mounted underhood
 - Compatible with engine airflows of 100 to 1400 cfm

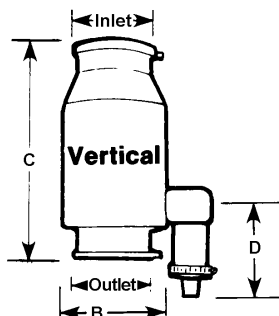
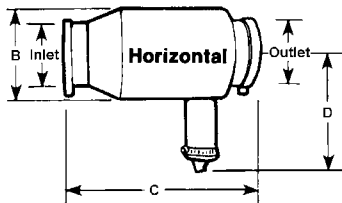
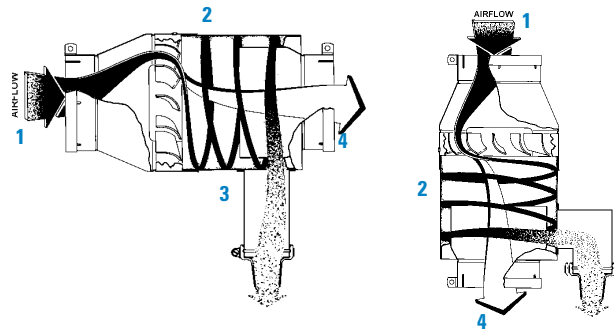
Features

- 80% water removal efficiency
- 70% dust removal efficiency



How It Works

1. When moisture — and/or dust-filled air — enters at one end, the built-in, stationary vanes cause the air to spin.
2. This spin creates centrifugal force, which pushes all moisture and dust to the outside wall where it separates from the air.
3. Moisture and dust are thrown into the Vacuator Valve tubing, then automatically released by the Vacuator Valve.
4. Clean air (acceptable for maximum filter life and engine performance) passes to the air cleaner.



In-Line Separators

Part Number	CFM Range	Inlet		Outlet		Diameter (B)		Length (C)		D	
		in	mm	in	mm	in	mm	in	mm	in	mm
HORIZONTAL STYLE											
H001474	100-400	4 OD ¹	102 OD	4 OD	102 OD	5.50	140	11.50	292	7.18	182
H000875	500-1,000	6 ID ²	152 ID	6 ID	152 ID	8.56	217	17.25	438	11.58	294
H001906	700-1,400	7 ID	178 ID	7 ID	178 ID	9.59	244	17.0	432	12.02	305
VERTICAL STYLE											
H000878	500-1,100	6 ID	152 ID	6 ID	152 ID	8.56	217	17.25	438	7.80	198
H000886	750-1,100	7 ID	178 ID	7 ID	178 ID	8.56	217	17.25	438	7.80	198
H001220	900-1,500	8 OD	203 OD	8 ID	203 ID	9.59	244	17.0	432	4.56	115

1 - Outer diameter
2 - Inner diameter

Protection Against Rain and Debris Ingestion

- Protects engine air intake from rain, snow, birds, and other large contaminants
- Mounts on stack or directly to air cleaner for on-road and off-road equipment
- Four styles in a wide variety of sizes
- Installs easily with one clamp. Clamp included with hood on styles B, C and D



Style A



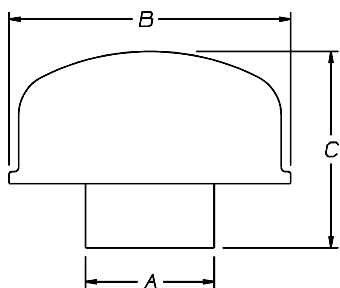
Style B



Style C



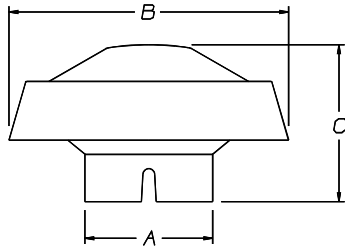
Style D



Inlet Hood — Style A¹

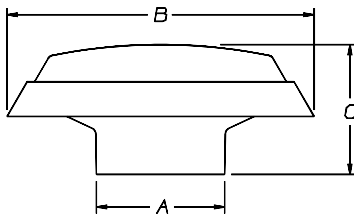
Part Number	Fits O.D. (A)		Hood Dia. (B)		Height (C)		Add to Stack		Mat'l	Weight	
	inch	mm	inch	mm	inch	mm	inch	mm		lbs	kgs
X002017	1.75	44	4.13	105	3.31	84	2.75	70	Metal	0.50	0.22
X002018	2.00	51	4.13	105	3.25	83	2.75	70	Metal	0.50	0.22
X002019	2.25	57	5.24	133	3.97	101	3.50	89	Metal	0.80	0.36
X001966	2.50	64	5.25	133	3.97	101	3.50	89	Metal	0.80	0.36
X002014	3.00	76	6.13	156	5.06	129	3.75	95	Metal	1.10	0.50
X001988	3.75	95	8.06	205	7.75	197	6.00	152	Metal	2.10	0.95
X002015	4.00	102	8.06	205	7.88	200	6.00	152	Metal	2.00	0.90

¹ - Clamps must be ordered separately for this style.



Inlet Hood — Style B

Part Number	Fits O.D. (A)		Hood Dia. (B)		Height (C)		Add to Stack		Mat'l	Weight	
	inch	mm	inch	mm	inch	mm	inch	mm		lbs	kgs
H002068	1.75	44	6.00	152	3.37	86	2.05	52	Plastic	0.20	0.09
H001377	2.00	51	6.00	152	3.31	84	2.50	64	Plastic	0.20	0.09
H001378	2.50	64	6.00	152	3.31	84	2.50	64	Plastic	0.20	0.09
H001379	3.00	76	6.00	152	3.31	84	2.50	64	Plastic	0.20	0.09

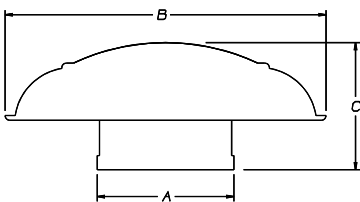


Inlet Hood — Style C

Part Number	Fits O.D. (A)		Hood Dia. (B)		Height (C)		Add to Stack		Mat'l	Weight	
	inch	mm	inch	mm	inch	mm	inch	mm		lbs	kgs
H001063	3.00	76	11.50	292	5.88	149	3.63	92	Plastic	1.10	0.50
H000466	3.75	95	11.50	292	5.13	130	3.63	92	Plastic	0.80	0.36
H000473 ²	3.75	95	11.50	292	5.13	130	3.63	92	Plastic	1.00	0.45
H000467	4.00	102	11.50	292	5.06	129	3.38	86	Plastic	0.90	0.40
H000472 ²	4.00	102	11.50	292	5.06	129	3.38	86	Plastic	1.00	0.45
H000468	4.50	114	11.50	292	4.88	124	3.38	86	Plastic	0.80	0.36
H000471 ²	4.50	114	11.50	292	4.88	124	3.38	86	Plastic	1.00	0.45
H000469	5.00	127	11.50	292	4.88	124	3.31	84	Plastic	0.80	0.36
H000470 ²	5.00	127	11.50	292	4.88	124	3.31	84	Plastic	1.00	0.45
H000605 ²	5.00	127	16.00	407	5.75	146	3.31	104	Plastic	1.80	0.80
H000604 ²	5.50	140	16.00	407	5.75	146	4.94	125	Plastic	1.80	0.80
H000606 ²	6.00	152	16.00	407	5.75	146	4.94	125	Plastic	1.80	0.80
H001756	6.00	152	13.00	330	4.06	103	2.69	68	Bright	1.50	0.68
H001948 ²	6.00	152	16.00	406	5.69	145	4.25	108	Bright	1.50	0.68
H001773	7.00	178	12.81	325	4.81	122	3.44	87	Bright	1.50	0.68
H001742	7.00	178	13.00	330	3.88	99	2.50	64	Bright	1.50	0.68
H000607 ²	7.00	178	16.00	406	5.75	146	4.09	104	Plastic	1.80	0.80
H001947 ²	7.00	178	16.00	406	5.69	145	4.25	108	Bright	1.50	0.68
H001053 ²	8.00	203	16.00	406	6.19	157	4.69	119	Plastic	1.80	0.80
H001946 ²	8.00	203	16.00	406	6.19	157	4.60	117	Bright	1.50	0.68

Air Inlet Hood Style C offers more models that provide added rain/water protection. While all inlet hoods offer top rain/water there are some that offer additional protection from splash on the underside of the hood.

2 - Hood has rain shroud on underside of hood style.



Inlet Hood — Style D

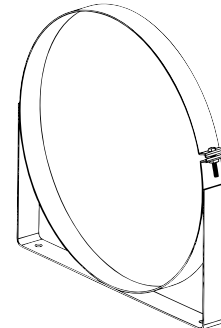
Part Number	Fits O.D. (A)		Hood Dia. (B)		Height (C)		Add to Stack		Mat'l	Weight	
	inch	mm	inch	mm	inch	mm	inch	mm		lbs	kgs
H000170	4.50	114	9.50	241	4.69	119	3.69	94	Metal	3.20	1.44
H000165	5.00	127	9.50	241	4.69	119	3.69	94	Metal	3.30	1.50
H000275	6.00	152	9.50	241	4.69	119	3.69	94	Metal	3.10	1.40
H000276 ²	6.00	152	9.50	241	4.69	119	3.69	94	Metal	3.20	1.44
H000339	7.03	179	17.00	432	6.75	171	5.75	146	Metal	4.60	2.08
H770082	10.00	256	15.98	406	7.42	188	5.28	134	Metal	5.0	2.27

W-Foot Mounting Bands Designed For Donaldson Air Cleaners

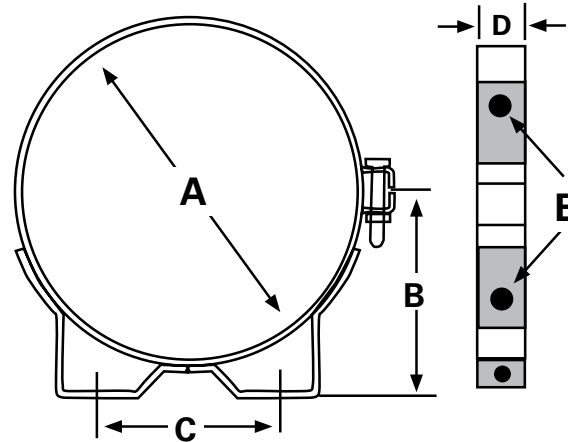
- Durable, corrosion-resistant, steel construction
- Fully engineered and tested to resist the adverse effects of vibration
- Mounting band feet are designed to ensure maximum torque pressure, continuously
- Air cleaners require minimum of two mounting bands per housing
- Gauge of steel increases as diameter of mounting band increases
- Bright stainless models available
- Bolt and nut included with mounting band



Most of our air cleaners with metal housings require two mounting bands.



Two models (H770068, H770037) have different foot band compared to others.



Air Cleaner Mounting Bands

Part Number	A		B		C		D		E		Weight		Max. Bolt Torque	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	lbs	kg	lbs-ft	N·m
P007189	4.00	102	2.56	65	2.50	64	.75	19	.31	8	0.30	0.14	1.50	2.03
P002348	5.25	133	3.19	81	3.25	83	.88	22	.34	9	0.70	0.32	1.50	2.03
P002351	6.00	152	3.56	90	3.25	83	1.00	25	.34	9	0.80	0.36	1.50	2.03
P007191	6.50	165	3.88	99	3.75	95	.88	22	.41	10	0.70	0.32	2.00	2.71
P004906	7.00	178	4.13	105	4.50	114	.88	22	.30	8	0.80	0.36	3.00	4.07
P003245	7.75	197	4.44	113	4.25	108	1.00	25	.34	9	0.90	0.41	3.50	4.75
P004307	8.00	203	4.50	114	4.25	108	1.00	25	.34	9	1.10	0.50	4.00	5.42
P004073	9.00	229	5.13	130	4.5	114	1.25	32	.45	11	1.50	0.68	4.00	5.42
P004076	10.19	259	5.75	146	5.00	127	1.25	32	.45	11	1.50	0.68	4.00	5.42
P004079	11.00	279	6.13	156	5.00	127	1.25	32	.45	11	1.70	0.77	4.00	5.42
H000349	11.81	300	6.88	175	6.00	152	1.50	38	.41	10	2.50	1.13	4.00	5.42
P013722	13.00	330	7.25	184	6.00	152	1.50	38	.41	10	2.80	1.50	4.00	5.42
P522439*	13.00	330	7.25	184	6.00	152	1.50	38	.41	10	2.80	1.50	4.00	5.42
H000350	14.00	356	8.13	207	8.00	203	1.50	38	.47	12	3.70	1.68	5.00	6.78
P016845	15.00	381	8.00	203	8.00	203	1.50	38	.47	12	4.10	1.86	6.00	8.14
P524552*	15.00	381	8.00	203	8.00	203	1.50	38	.47	12	4.10	1.86	6.00	8.14
H000351	16.00	406	9.13	232	10.00	254	1.50	38	.47	12	4.75	2.16	5.00	6.78
H770037	18.00	457	9.2	234	15.75	400	1.96	50	.55	14	5.25	2.38	5.00	6.78
H770068	21.5	546	10.97	279	19.29	490	1.96	50	.55	14	6.39	2.9	5.00	6.78

*Bright Stainless Model

Worm-Drive Hose Clamps

- Versatile clamps for wide size range of hose connections
- Made of strong, durable, noncorrosive stainless steel
- Inside of clamp is lined so that hose doesn't bulge through clamp holes
- Narrow band enables easy installation in confined areas

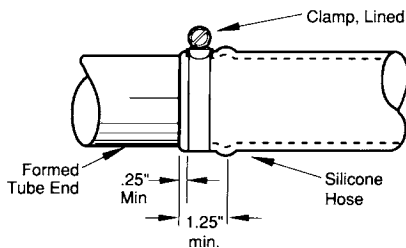


Lined Hose Clamp

Part Number	-- Min. to Max. Size -- inch	mm
P532919	9/16 – 13/16	14 – 21
P532920	11/16 – 15/16	17 – 24
P532921	13/16 – 1-1/16	21 – 27
P532923	13/16 – 1-1/2	21 – 38
P532924	13/16 – 1-3/4	21 – 44
P532922	15/16 – 1-1/4	29 – 32
P115200	1-9/16 – 2-1/2	40 – 62
P115201	2-1/16 – 3	52 – 76
P143422	2-13/16 – 3-3/4	71 – 95
P115202	3-5/16 – 4-1/4	84 – 108
P115203	4-5/16 – 5-1/4	109 – 133

Recommended application up to 40 in·lb torque

Donaldson lined hose clamps seal silicone and other soft hoses without damage. The inner liner extends under the perforations to protect the hose and prevents extrusions through the worm-gear perforations.



Initial torque on lined hose clamp should be 40 in·lb. If retorquing is required, limit to 20 in·lb.



Constant Torque Clamp

Part Number	-- Min. to Max. Size -- inch	mm
P532925	2-1/4 – 3-1/8	57 – 79
P532926	2-3/4 – 3-5/8	70 – 92
P532927	3-1/4 – 4-1/8	83 – 105
P532928	3-3/4 – 4-5/8	95 – 117
P532929	4-1/4 – 5-1/8	108 – 130

Recommended application up to 90 in·lb torque

Donaldson constant torque lined clamps are the best choice for systems where clamps cannot be retightened and have difficult access. Perfect for applications requiring higher torque, large diameters, temperature extremes, or where expansions and contractions within the system are common. This clamp is a good choice for critical coolant and charge-air connections.



High Torque Clamp

Part Number	-- Min. to Max. Size -- inch	mm
P636718	1-1/4 – 2-1/8	32 – 54
P636719	2-1/4 – 3-1/8	57 – 79
P544076	3-1/4 – 4-1/8	82 – 105
P115204	4-1/4 – 5-1/8	108 – 130
P115205	5-1/4 – 6-1/8	133 – 156
P115206	6-1/4 – 7-1/8	159 – 181
P115207	7-1/4 – 8-1/8	184 – 206
P115208	8-1/4 – 9-1/8	210 – 232
P115209	10-1/4 – 11-1/8	260 – 286

Recommended application up to 150 in·lb torque

This EXTRA heavy-duty clamp ensures total protection against leakage . . . eliminates the need for double clamping.

T-Bolt Clamps



Part Number	Nominal I.D. ¹	Min. to Max. Size inch	mm
P148337	2.00	2.25 – 2.53	57 – 64
P148338	2.25	2.50 – 2.78	63 – 70
P148339	2.50	2.81 – 3.09	71 – 78
P148340	2.75	3.06 – 3.34	78 – 85
P148341	3.00	3.31 – 3.59	84 – 91
P148342	3.50	3.81 – 4.09	98 – 104
P148343	4.00	4.31 – 4.59	109 – 116
P148344	4.50	4.81 – 5.09	122 – 129
P148345	5.00	5.31 – 5.59	135 – 142
P148346	5.50	5.94 – 6.21	151 – 158
P148347	6.00	6.38 – 6.65	162 – 169
P148348	7.00	7.38 – 7.78	187 – 198
P148349	8.00	8.25 – 8.56	210 – 217
P629991	8.25	8.50 – 8.81	216 – 224
P148350	10.00	10.50 – 10.91	267 – 277

¹ - Nominal I.D. dimension, shown in inches, corresponds to I.D. dimension of rubber part being clamped.

Recommended application up to 50 in·lb torque

Filter Service Indicators, Switches, and Sensors Maximize Filter Life

Trusted Filter Minder® Indicators and Switches — now part of Donaldson!



Replacing filters based on restriction readings can reduce your filter maintenance costs significantly. Visual inspection of air filters is not adequate and should not be used to determine service life. Filters that appear very dirty may still contain a great amount of life.

Over-servicing and excessive handling of filters can result in serious consequences: filter damage, improper installation, intake contamination from ambient dust, and increased service cost, time and material. In contrast, filter service based on restriction readings can help you obtain the longest life possible from the filter, provide the best engine protection, and decrease environmental impact by disposing of fewer filters.

Restriction Readings: Where & When

Restriction readings are normally taken at the air cleaner on the clean side of the air filter. If the air cleaner does not have a restriction tap, a tap can be added to the system in the ducting between the air cleaner and engine inlet. Check with the engine manufacturer for intake restriction requirements and measurement limits.



Filter service indicators are very effective when mounted *on the outlet tube of the air cleaner* (see The Informer™ above). This gives the operator constant and accurate visibility of filter life.

Engine Manufacturers Recommended Restriction Limits

Maximum allowable restriction limits are set by engine manufacturers. If your maximum limit is unknown contact your engine manufacturer. To accurately measure the maximum system restriction, all engines need to be operated at high idle and under full load. This will cause engines that boost airflow by using turbo chargers or superchargers to operate under full boost pressure causing maximum airflow to occur. Actual airflow during use may vary depending on multiple factors, including specific product configuration, external conditions and application.

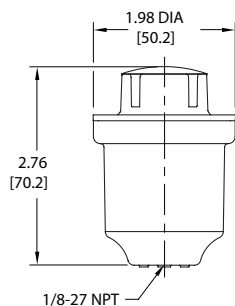
Choose Restriction Measurement Tools that Best Fit Your Applications

Donaldson offers a variety of restriction measuring devices that help you get the most from your filters. All measure restriction in inches of water vacuum. They are resistant to vibration, breakage, weather, corrosion, dust, and dirt to assure reliable filter restriction readings.

Restriction measurement tools are available in the following categories: Graduated Indicators, Single Position Indicators, Visual Indicator and Switch, Switch Only, Sensors, and LED Displays.

Graduated Indicators

Graduated indicators, which can be mounted on the air cleaner or in the dashboard, provide restriction readings in inches of water vacuum. A clear window shows the restriction level and when to change the filter.

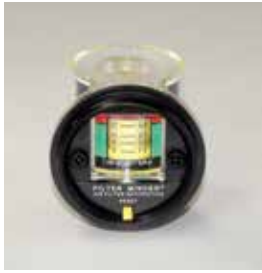


Filter Minder® Threaded

Part Number	Restriction Limit	Thread Size
135501-00820	20" H ₂ O/5 kPa	1/8 NPT
135501-00825	25" H ₂ O/6.2 kPa	1/8 NPT
136501-00520	20" H ₂ O/5 kPa	3/8-24 UNF
136501-00525	25" H ₂ O/6.2 kPa	3/8-24 UNF

This unit continuously monitors air filter restriction. The clear window fills with yellow as filter restriction increases. The indicator locks at several increments. The filter should be changed when the indicator reaches the red zone. Reset the indicator by pushing the yellow reset button.

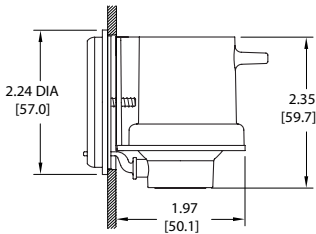
It can be mounted directly to the air cleaner housing in any orientation. An adaptor fitting is available, if required. Operating temperature: -40 °F to +250 °F (-40 °C to +121 °C).



Filter Minder® Dash Mount

Part Number	Restriction Limit
168501-00220	20" H ₂ O/5 kPa
168501-00225	25" H ₂ O/6.2 kPa

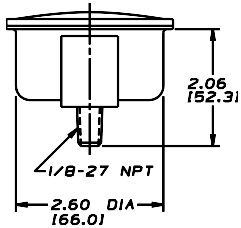
This unit continuously monitors air filter restriction. It can be mounted in the panel or dash for convenience of the driver or operator. Illuminated version is available. Bezels in chrome, black, or green. Air cleaner fittings and vacuum hose are available for order, separately. Operating temperature: -40 °F to +250 °F (-40 °C to +121 °C)



Service Gauge Dash Mount

Part Number	Restriction Limit	Kit Contents
X002730	30" H ₂ O/7.5 kPa	nuts, mounting bracket, and installation instructions
X002700	60" H ₂ O/15 kPa	restriction tap fitting (P112257), nuts, mounting bracket, and installation instructions

This unit reads restriction while the engine is running. It installs on an instrument panel or wherever operator can easily see the dial. Mounts into a 2-5/8" diameter hole. Hoses are available for order, separately.

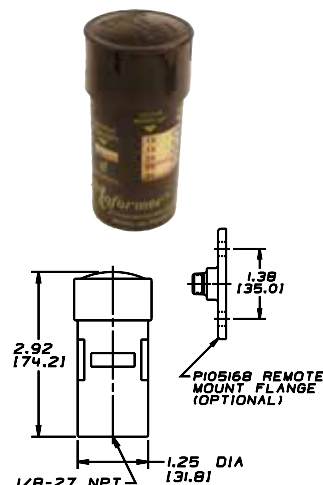


The Informer™

Part Number	Restriction Limit	Kit (gauge and fitting)
X002278	20" H ₂ O/5 kPa	X002103
X002277	25" H ₂ O/6.2 kPa	X002102
X002275	30" H ₂ O/7.5 kPa	X002101

This unit continuously monitors air filter restriction. A clear window turns red when maximum restriction has been reached. The reset button is on top.

Kit includes full installation instructions and a P100089 safety filter fitting. For remote mounting, order a P105168 flange and a P105622 90° elbow.



Single Position Indicators

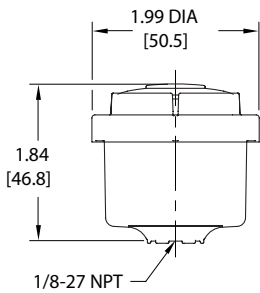
Single position indicators continuously monitor air filter restriction. Also known as Go/No-Go indicators, these units show whether maximum air filter restriction has or has not been reached. When maximum restriction has been reached, the unit either changes color to red, or displays an orange or red flag, depending on the model.



Filter Minder®

Part Number	Restriction Limit
175501-00125	25" H ₂ O/6.2 kPa
175501-00220	20" H ₂ O/5 kPa

The window turns red when the maximum air filter restriction has been reached. Indicator is reset by pushing the yellow button.



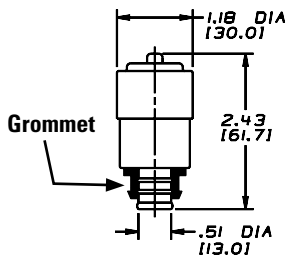
It can be mounted directly to the air cleaner housing in any orientation. An adaptor fitting is available if required. Operating temperature: -40 °F to +250 °F (-40 °C to +121 °C).



The Mini-Informer

Part Number	Restriction Limit	Gauge and Grommet
X007335	25" H ₂ O/6.2 kPa	X007276

The Mini-Informer restriction gauge is designed to mount in the plastic air cleaners of passenger cars, light trucks, and sport utility vehicles.



Through the clear window, a green flag shows when air filter restriction is below the service point. When the restriction reaches its limits, an orange flag imprinted with "Change Filter" pops up. The reset button is on top.

The Mini-Informer mounts in the air cleaner ducting in a rubber grommet.

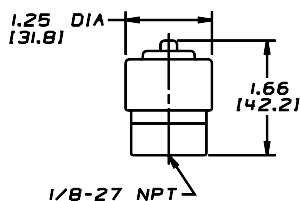


Servi-Signal™ Mini Indicator

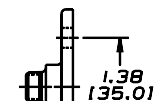
Part Number	Restriction Limit	Kit (gauge and fitting)
X002250	15" H ₂ O/ 3.7 kPa	X002350
X002251	20" H ₂ O/ 5 kPa	X002351
X002252	25" H ₂ O/ 6.2 kPa	X002352
X002254	30" H ₂ O/ 7.5 kPa	X002354

Small enough to fit just about anywhere (only 1.66" high), the Donaldson ServiSignal shows a highly visible, bright red flag in the full-view window when restriction limit is reached. Resets manually via top button after air cleaner service.

Kit includes 1/8" NPT threaded brass fitting for mounting on the air cleaner. For remote mount, also order P105168 flange. Hoses are available for order, separately.



1/8-27 NPT



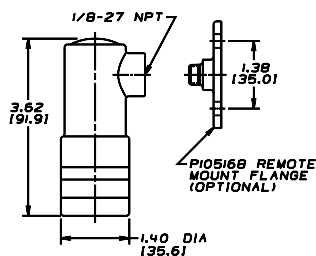
P105168 REMOTE MOUNT FLANGE (OPTIONAL)



Visual Restriction Indicator

Part Number	Restriction Limit	Kit (gauge and fitting)
X002215	15" H ₂ O/ 3.7 kPa	X002315
X002220	20" H ₂ O/ 5 kPa	X002320
X002225	25" H ₂ O/ 6.2 kPa	X002325
X002230	30" H ₂ O/ 7.5 kPa	X002330

This indicator can be mounted directly on the air cleaner or remotely on the instrument panel or firewall. When restriction limit is reached and filter service is needed, easily-visible, bright red shows through the full-view window. After the filter is serviced, reset via rubber button on top. For remote mount, also order a flange, P105168. Hoses are available for order, separately.

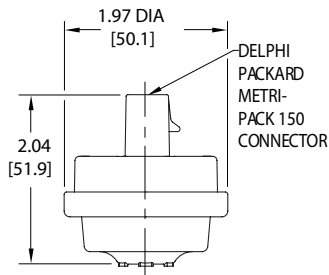


P105168 REMOTE MOUNT FLANGE (OPTIONAL)

Switches

Air Filter switches continuously monitor air filter restriction. There are two types of switches: Switch Only and Visual Indicator and Switch. Both types send electrical signals to remote “time to service filter” lights, which are usually located in the equipment cab.

Switch Only



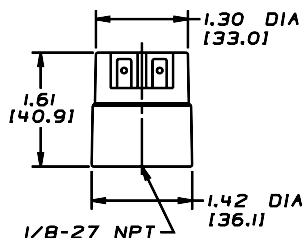
Filter Minder

Part Number	Restriction Limit	Switch	Thread Size
195389-00120	20" H ₂ O/5 kPa	N/O	1/8 NPT
195389-00125	25" H ₂ O/6.2 kPa	N/O	1/8 NPT
196398-11120	20" H ₂ O/5 kPa	N/C	3/8-24 UNF
196398-11125	25" H ₂ O/6.2 kPa	N/C	3/8-24 UNF

These non-locking air switches trigger an air filter warning light via the engine computer or directly to the warning light. They are used for air filter monitoring on diesel, gas, and alternate fuel engines, as well as other applications where low vacuum/pressure monitoring is required.

- Heavy duty, self-cleaning design for heavy-duty service.
- External shield, barrier filter, and labyrinth protects the switch.

It can be mounted directly to the air cleaner housing in any orientation. An adaptor fitting is available, if required. Operating temperature: -40 °F to +250 °F (-40 °C to +121 °C).



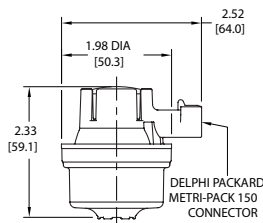
Electrical Indicator

Part Number	Restriction Limit
X770037	15" H ₂ O/ 3.7 kPa
X770050	20" H ₂ O/ 5.0 kPa
X770062	25" H ₂ O/ 6.2 kPa
X770075	30" H ₂ O/ 7.5 kPa

Our electrical indicator is designed for a variety of on- and off-highway applications within operating temperatures of -40 °F to +212 °F (-40 °C to +100 °C). When restriction level reaches the maximum recommended limit, an electrical signal activates a light, a buzzer, or a computer — it's your choice. The indicator automatically resets itself after the filter is serviced.

- 12-24 Volts. Maximum load: 6 watts (light or buzzer)
- Contacts have no polarity
- Switch contacts are normally in the open position
- Quick connectors and light, buzzer, or computer must be purchased separately

Visual Indicator and Switch

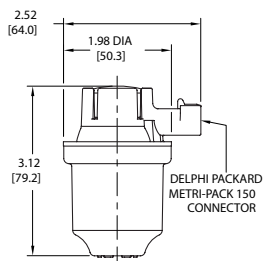


Filter Minder® Single Position Indicator and Switch

Part Number	Restriction Limit	Switch	Thread Size
175578-10225	25" H ₂ O/ 6.2 kPa	N/O	1/8 NPT
175587-13020	20" H ₂ O/ 5 kPa	N/C	1/8 NPT

This unit is a combination single position indicator and switch. When the maximum recommended air filter restriction has been reached, the window turns red and a signal is sent to the filter warning light on the dash or engine computer. The warning light locks on until the indicator is reset by pressing the yellow button. It operates in temperatures of -40 °F to +250 °F (-40 °C to +121 °C) and can be mounted in any orientation.

Wire harness adapters are available for order, separately.



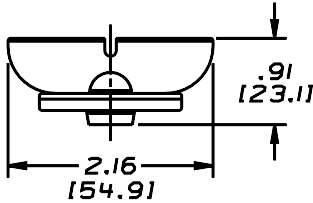
Filter Minder® Graduated Indicator and Switch

Part Number	Restriction Limit	Switch	Thread Size
135578-08420	20" H ₂ O/ 5 kPa	N/O	1/8 NPT
135578-08425	25" H ₂ O/ 6.2 kPa	N/O	1/8 NPT
135587-09225	25" H ₂ O/ 6.2 kPa	N/C	1/8 NPT
136578-07820	20" H ₂ O/ 5 kPa	N/O	3/8-24 UNF
136578-07825	25" H ₂ O/ 6.2 kPa	N/O	3/8-24 UNF

This unit is a combination graduated indicator and switch. The yellow indicator moves up in the window and locks at the highest air filter restriction. When it reaches the red zone, or highest recommended restriction, it sends a signal to the filter warning light on the dash or engine computer to record as a diagnostic fault. The warning light locks on until the indicator is reset by pressing the yellow button. It operates in temperatures of -40 °F to +250 °F (-40 °C to +121 °C) and can be mounted in any orientation.

Wire harness adapters are available for order, separately.

SafetySignal™ Wing Nut Indicator for Safety Filter



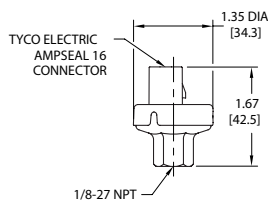
SafetySignal

Part Number	Air Cleaner	Thread Size	Included Washer
X004814	FTG 13" & 15", FHG12" & 14", FVG16"	7/16" – 20 UNF	P111551
X004815	FTG11	7/16" – 20 UNF	P101872
X004816	FVG14-16", STG12-16" & All SRG models	1/2" – 13 UNC	P105740

The SafetySignal service indicator replaces the wing nut on the metal end cap safety filters and constantly monitors air restriction. When service is required, it locks red and can be reset after service. The SafetySignal requires no special fittings or adapters. Donaldson safety filters are designed to last through multiple primary filter change-outs. The SafetySignal helps save time and money by preventing over-servicing.

Sensors

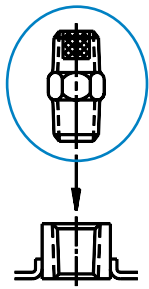
Low pressure sensors can monitor vacuum or pressure, and excel at maintaining accuracy across a wide temperature range. They have an integrated AMPSEAL 16 electrical connection, are available in multiple vacuum or pressure settings, and can be furnished with custom mounting. It operates in temperatures of -40 °F to +257 °F (-40 °C to +125 °C)



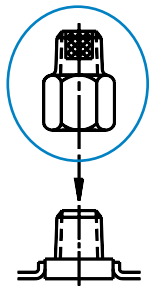
Filter Minder® Low Pressure Sensor

Part Number	Restriction Limit	Thread Size
115375-00002	2" H ₂ O/ 0.5 kPa	1/8 NPT
115305-00005	5" H ₂ O/ 1.25 kPa	1/8 NPT
115305-00040	40" H ₂ O/ 10 kPa	1/8 NPT

Restriction Tap Fittings



P100089



P122067

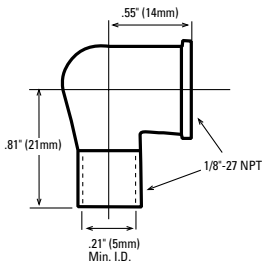


P633880



P633881

Restriction Indicator Fitting



P105622

Fittings

Part Number	Description
P100089	1/8-27; .44" (11mm) hex nut; Male threads both ends; internal sintered bronze safety filter
P122067	1/8-27; Female threads on one end, male threads on opposite end; internal sintered bronze safety filter
P105622	1/8-27; 90° elbow with threaded end
P633880	1/8-27 NPT x 3/8-24 UNF with Filter and Orifice
P633881	1/8-27 NPT Male to Hose Barb with Filter

Restriction Tap Sleeve

Install this sleeve in your intake system to convert from scheduled maintenance to more economical restriction maintenance practices.



Restriction Tap Sleeves

Part Number	Fits Pipe O.D.
P521639	5" / 127mm
P521641	6" / 152mm

Water Manometer Kit

The Donaldson water manometer kit includes the manometer (flexible tubing), green dye, and full instructions. Manometer, range 18-0-18 in., 17-1/2 oz. mercury.



P134534

Magnets conveniently hold top and bottom ends of manometer to side of equipment or vehicle. Special shut-off valve eliminates the need to empty water after use.

LED Display

Connect a Filter Minder LED Display to a Filter Minder® sensor to read filter restriction level in the cab.



P633871



P633873

Filter Minder LED Displays

Part Number	Display Type
P633871	Round
P633872	Round, Sealed
P633873	Square

Wire Harness Adapters

Wire harness adapters (flying leads) can accommodate most applications.



P633874



P633875

Filter Minder Wire Harness Adapters

Part Number	Application
P633874	AMP for Low Pressure Sensor
P633875	Packard for Switches

EPDM Hose

Hose is available in lengths of up to 20 feet.



P633876



P633878

Filter Minder EPDM Hose

Part Number	Length
P633876	3'
P633877	20'
P633878	10'

Remote Mount Bracket

The remote mount bracket increases mounting flexibility.



Filter Minder Remote Mount Bracket

Part Number	Application
P633879	3/8-24 UNF with O-ring

90° Rubber Elbows & Reducing/Expanding Elbows



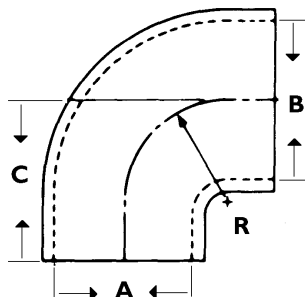
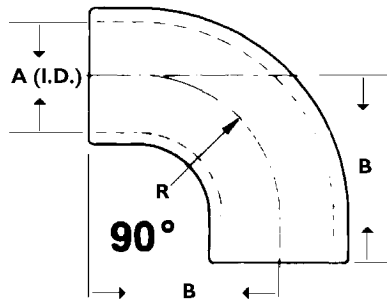
These flexible rubber adapters and elbows have smooth radii and inside surfaces to minimize flow resistance within the air intake system. These rubber products are heavy-duty.

Larger elbows (5"/125mm) are ribbed or compounded for added strength and durability. All Donaldson rubber products meet ASTM standards.

- Resist tears, punctures and vacuum collapse
- Absorb vibration
- Reduce intake noise levels under severe conditions
- Material: EPDM rubber construction
- Temperature range: -40 °F (-40 °C) to +212 °F (+100 °C)
- Do not use after turbo
- Application tip: A minimum 1½" of metal piping should be inserted into the rubber fitting.

90° Elbows

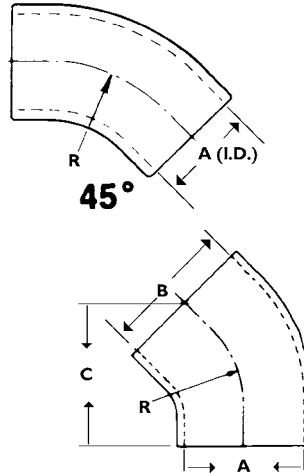
Inner Dia. (A) in mm	Center Height (B) in mm	Radius (R) in mm	Part Number
2.00 51	3.50 76	2.00 51	P105529
2.25 57	3.75 95	2.25 57	P105530
2.50 64	4.00 102	2.50 64	P105531
3.00 76	5.25 133	3.75 95	P105532
3.50 89	5.50 140	4.00 102	P114318
4.00 102	5.75 146	4.50 114	P105533
4.50 114	5.50 140	3.50 89	P113733
5.00 127	6.12 155	4.50 114	P107844
5.50 140	6.50 171	4.63 118	P105534
6.00 152	7.00 179	5.00 127	P105535
7.00 179	7.56 192	5.56 141	P105536
8.00 203	8.50 216	6.50 165	P112605
10.00 254	10.50 267	8.50 216	P114314



90° Elbow Reducers/Expanders

Inner Dia. (A) in mm	Inner Dia. (B) in mm	Center Height (C) in mm	Radius (R) in mm	Part Number
3.00 76	3.50 89	3.50 89	2.25 57	P123462
	4.00 102	4.50 114	3.00 76	P536163
4.00 102	5.00 127	6.00 152	3.75 95	P121482
	6.00 152	4.74 120	3.50 89	P537468
	6.00 152	6.00 152	4.25 108	P143895
5.00 127	7.00 179	6.25 159	4.25 108	P159820
	6.00 152	6.75 171	5.00 127	P117724
	7.00 179	6.25 159	4.38 111	P128990
7.0 179	6.0 152	9.0 229	4.37 111	P215307

45° Rubber Elbows, Reducing/Expanding Elbows and Hump Reducers

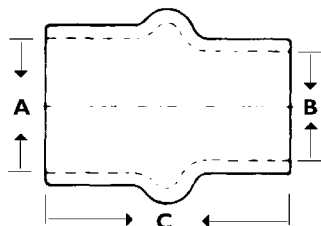


45° Elbows

Inner Dia. (A)		Radius (R)		Part Number
in	mm	in	mm	
2.00	51	2.00	51	P105541
2.25	57	2.25	57	P105542
2.50	64	2.50	64	P105543
3.00	76	3.75	95	P105544
3.50	89	3.50	89	P109331
4.00	102	4.25	108	P105545
4.50	114	3.50	89	P114316
5.00	127	4.50	114	P109021
5.50	140	4.75	121	P105546
6.00	152	5.00	127	P105547
7.00	178	5.56	141	P105548
8.00	203	6.50	165	P112606
10.00	254	8.50	216	P114313

45° Elbow Reducers/Expanders

Inner Dia. (A)		Inner Dia. (B)		Center Height (C)		Radius (R)		Part Number
in	mm	in	mm	in	mm	in	mm	
5.50	140	6.00	152	6.44	164	4.88	124	P133338
6.00	152	7.00	179	7.38	187	5.31	135	P133339



Rubber Hump Reducers/Expanders

Inner Dia. (A)		Inner Dia. (B)		Length (C)		Part Number
in	mm	in	mm	in	mm	
3.00	76	2.50	64	4.50	114	P102820
		2.75	70	3.50	89	P520883
3.50	87	3.00	76	5.00	127	P101290
		2.75	70	4.00	102	P520882
4.00	102	2.75	70	4.00	102	P520884
		3.00	76	5.25	133	P101291
		3.50	87	5.25	133	P101292
4.50	114	4.00	102	6.00	152	P540256
5.00	127	4.00	102	6.00	152	P101293
		4.50	114	6.25	159	P604045 ¹
		5.50	140	6.00	152	P101891
5.50	140	4.00	102	6.00	152	P103516
		5.00	127	6.00	152	P112611
6.00	152	5.00	127	6.00	152	P101294
		5.50	140	6.00	152	P101294
		7.00	179	7.00	179	P136494
7.00	179	5.00	127	7.00	179	P136494
		5.50	140	7.00	179	P126530
		6.00	152	6.00	152	P112610
8.00	203	5.50	140	7.00	179	P129660
		6.00	152	6.00	152	P114315
		7.00	179	6.00	152	P112609
10.00	254	8.00	203	6.00	152	P112607

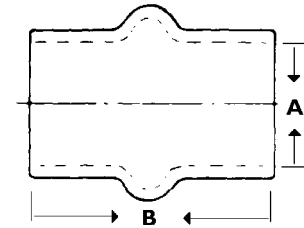
1 - Use clamp size for nominal 5" (127mm) I.D. each end.

Rubber Straight Humps, Reducing/Expanders & Cobra Adapters



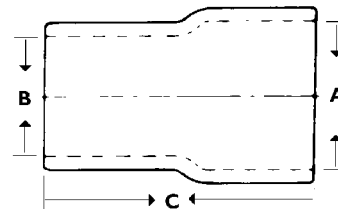
Rubber Straight Humps

Inner Dia. (A)		Length (B)		Part Number
in	mm	in	mm	
3.00	76	5.30	135	P105608
3.50	89	5.25	133	P114319
4.00	102	5.25	133	P105609
4.50	114	6.00	152	P114317
5.00	127	6.00	152	P105610
5.50	140	6.00	152	P105611
6.00	152	7.00	179	P105612
7.00	179	7.00	179	P105613
8.00	203	5.00	127	P112608
10.00	254	6.00	152	P111414



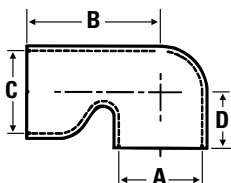
Rubber Reducers / Expanders

Inner Dia. (A)		Inner Dia. (B)		Length (C)		Part Number
in	mm	in	mm	in	mm	
2.00	51	1.50	38	2.50	64	P104087
		1.75	44			P102948
2.25	57	2.00	51	2.50	64	P104088
2.50	64	2.00	51	2.50	64	P104089
		2.25	57			P104090



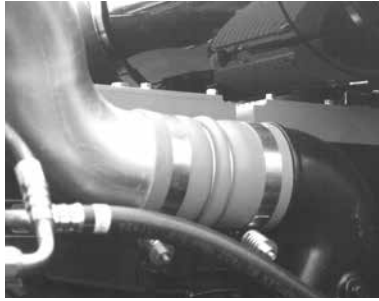
90° Cobra Adapters

Inner Dia. (A)		Inner Dia. (C)		Length (B)		(D)		Durometer	Part Number
in	mm	in	mm	in	mm	in	mm		
2.75	70	4.00	102	6.50	165	1.81	46	70	P600328
3.00	76	3.00	76	5.22	133	1.91	49	70	P547694
4.00	102	4.00	102	6.44	164	2.69	68	70	P600325
		4.00	102	6.44	164	2.69	68	80	P626161
		4.00	102	6.44	164	3.19	81	70	P600326
		5.00	127	6.44	164	3.19	81	70	P600327



Silicone Charge Air Connectors Isolate Intake Piping Vibration

Durable and Easy To Install



Our three styles of charge air connectors are designed to ease connections in air intake system piping. They compensate for slight misalignment and isolate vibration between hose connections. The silicone elastomer material resists chemicals, steam, ozone, and coolants that are normally found in any engine operating environment.

All three charge air connectors are for installation on the pressure side with maximum operating temperatures up to 500 °F (260 °C). They are orange to be easily identifiable and to signify that they are tolerant of high temperatures. They carry a one-year warranty.



Connectors/Sleeves — 50 psi*

Inner Dia. in	mm	Length in	mm	Part Number
2.00	51	36.00	914	P532948
2.25	57	36.00	914	P532949
2.50	64	36.00	914	P532950
3.00	76	36.00	914	P532951
3.38	86	3.50	89	P532952
		6.00	152	P532953
		36.00	914	P532954
3.50	89	3.50	89	P532956
		4.50	114	P532957
		36.00	914	P532958
4.00	102	36.00	914	P532959

* working pressure

Hump Hose Connectors — 40 psi*

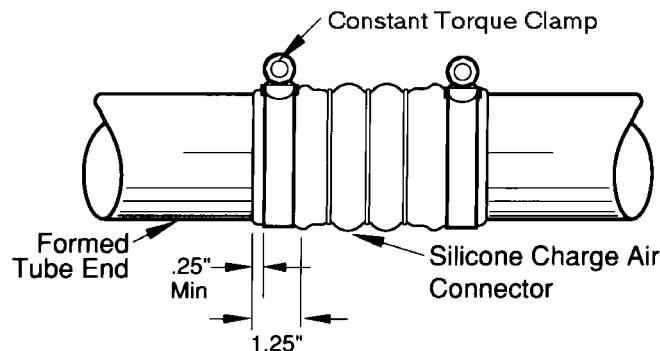
Inner Dia. in	mm	Length in	mm	Part Number
2.50	66	5.50	140	P532960
2.75	70	4.25	108	P532961
3.00	76	4.38	111	P532962

* working pressure

4-Ply Bellows — 40 psi*

Inner Dia. in	mm	Length in	mm	No. of Rings	Part Number
3.50	89	6.00	152	3	P535572
4.00	102	6.00	152	0	P532943
		6.00	152	2	P535571
		6.00	152	3	P532944
		7.50	191	3	P532945
8.00	203	3	3	P535573	

* working pressure



Use the illustration as a guide for installing your charge air connector. For proper installation, use Donaldson Constant Torque clamps to retain clamp load. Torque to 70-75 in·lb.

Vacuator™ Valves Automatically Expel Dust and Water

The Vacuator Valve, standard on the majority of Donaldson air cleaners, is an important part of the functionality of the air cleaner. It is an integral part of the pre-cleaning stage on two-stage air cleaners.

The dust cup, where pre-cleaned dust is collected, is normally under a slight vacuum when the engine is running. The normal engine pulsing of the vacuum causes the Vacuator Valve to open and close. This action automatically expels any collected dust and water. The Vacuator Valve also unloads when the engine is stopped.

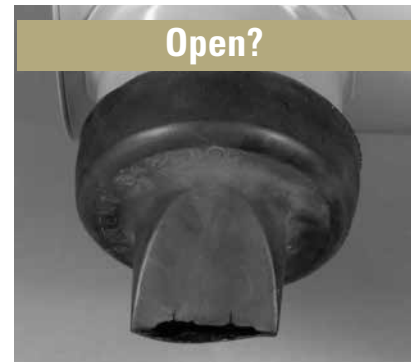
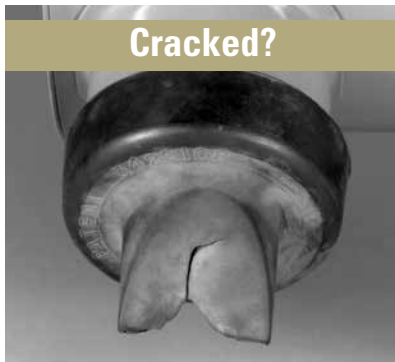
The Donaldson Vacuator Valve, also known as VacValve, is made in a variety of sizes and shapes to fit various applications. The Donaldson part number is molded into each part for easy identification.



If your air cleaner is equipped with a Donaldson Vacuator™ Valve, make sure your routine filter service includes checking it to make sure it's in good condition and not plugged. If the Vacuator Valve is plugged, clean it.

For the longest filter service life, replace damaged or missing Vacuator Valves immediately!

If your valve is cracked, torn, remains open, or is missing, dust particles that are normally expelled can deposit themselves onto the filter and will shorten air filter service life. Replace it!





The Donaldson Vacuator™ Valve can be found on the majority of Donaldson air cleaners.

Application Notes

For proper operation, the Vacuator Valve should be located at the lowest point on the air cleaner or dust cup pointing down.

Never paint the Vacuator Valve. Solvents and chemicals will shorten the usable life.

If the Vacuator Valve is torn, shredded or turned inside out, its durometer may be too soft for the application. Choose a model with a harder durometer (higher number). Conversely, if the Vacuator Valve doesn't empty itself properly, the durometer may be too hard. Choose one with a softer durometer (lower number.)



Vacuator™ Valves

Part Number	Diameter in	Diameter mm	Durometer	Used on Air Cleaner Styles
P103198	3.0	76	40	FRG 10", 12", 14" and 16"; FHG 10", 12", 14" and 16"; FTG; FWA 5" – 16"; FWG 4" – 16"; SRG; In-line Water Separators
P105220	3.0	76	60	FRG 18"; FHG 8"; FVG160587
P106593	3.0	76	60	FHG 6" – 8"; High Pulsation Models
P112803	3.0	76	40	FHG 6" – 8"; PSD 10", PSD 12"; SBG 14" – 16"; SDG; STG 12" – 16"
P149099	1.0	25	60	ERA; EBA; EBB; ECG
P158914	2.0	51	50	XRB, FKB; PSD 8"; PSD 9"; FPG 6" and 8"; FRG 5" – 9", 11"; FHG 5"; FWG; FWA; Moisture Skimmers
P522958	2.0	51	60	FPG 4" – 5"; FHG
P525956	1.0	25	60	EPG 11", 13", 15"
P617632	1.57	40	50	PSD 08"
P776008	2.0	51	60	FPG 9", 10" Twist-off cover; FRG 10", 13", and 15"

Replacement to Your Existing Dust Cup Assembly

Application

- Donaldson SRG, SSG, STG and PowerCore® PSD Air Cleaners

How It Works

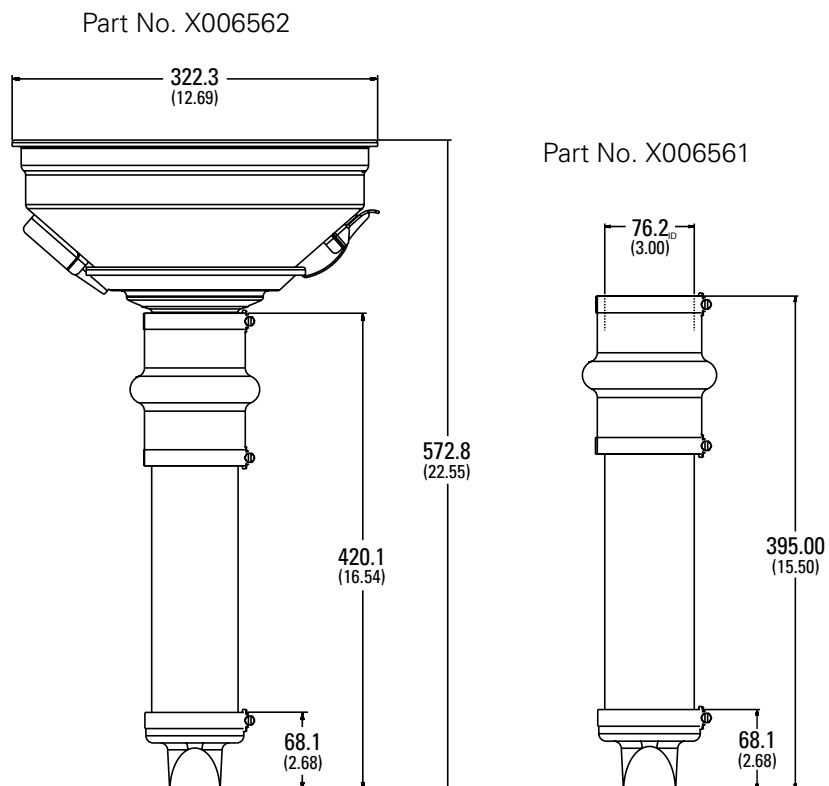
When installed on the dust cups on the lower assembly, the rubber connector vibrates during normal vehicle operation and gravity expels the pre-cleaned dust.

Features

- Improves dust evacuation from the air cleaner
- Clear tube allows for visual inspection of dust collection
- Improves safety of the air cleaner inspection process by eliminating the need for ladders or elevated platforms for daily inspections
- Allows operators to perform walk around inspections
- Keeps operators and maintenance personnel away from the nuisance dust normally encountered during air cleaner servicing operations.
- Improves vehicle up-time by minimizing pre/post-shift air cleaner inspections, thus facilitating increased air cleaner service intervals.
- Reduces air cleaner inspection time
- Ships fully assembled
- Proper conversion requires drop down tube for every dust cup



If the above maintenance practice looks familiar, adding the X006561 Dust Dumpa extension to the dust cups of the air cleaner will save you maintenance time and will minimize your employees exposure to nuisance dust during service.



Available for SRG and SSG Air Cleaners



Three kits are required for S Series dual outlet models. For proper performance all dust cups must have the new Dust Dumpa installed.

Dust Dumpa applied to PSD PowerCore® Air Cleaners



Dust Dumpa + PSD air cleaners extended the filter service life for a geothermal drill rig in Australia.



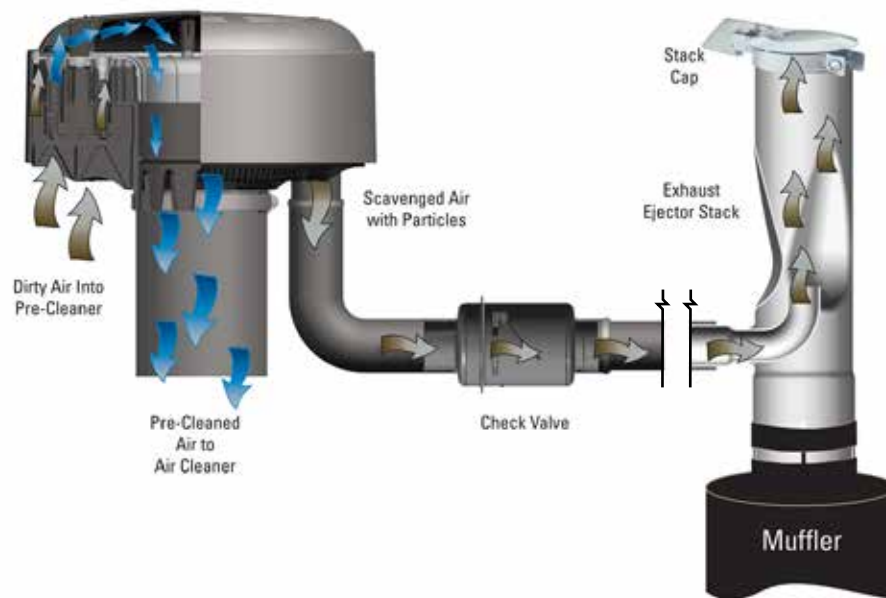
Components For Scavenged Air Systems — Exhaust Ejectors and Check Valves

Donaldson exhaust ejectors and check valves are key components to creating a scavenged or aspirated air system. The ejector is used with Donaldson Donaspin™ or Strata™ Cap pre-cleaners, Strata™ systems, or PowerCore® PSD air cleaners.

A scavenged air system is typically used in off-highway equipment to extend air filter life. The exhaust ejector mounts as a stack at the end of exhaust system. It is recommended that the stack be covered with a curved exhaust stack or rain cap.

The redesigned ejector line offers a shorter length tube than our original standard and expanded ID offerings. With less space to work with, the new offering may work in applications where the previous models did not fit.

----- Basic Scavenged Air System -----



Exhaust Ejectors

- Can be used with any pre-cleaner that has scavenge tube connection.
- Adds only 4" (102 mm) to 8" (203 mm) H₂O (.3" to .6" Hg.) to exhaust backpressure
- Models all fit up to a muffler outlet tube outer diameter
- All models have a nominal OD outlet end for proper fit of stack caps and other accessories
- For proper structural support, muffler outlet tube length and stack engagement must be a minimum length of 1.5-2.0" / 38-51 mm
- Finish on all models is high temperature, black, semi-gloss finish



Interested in Scavenging a PowerCore® Air Cleaner?

See PowerCore Section for specific components and parts.

Exhaust Ejectors for Scavenged or Aspirated Air System

All exhaust ejectors are constructed of heavy-gauge, aluminized steel, and painted with a high-temperature black paint. Select the appropriate ejector by the intake airflow or exhaust flow (CFM) of your engine.

Engine Intake CFM		Exhaust CFM @ 900° F		Standard Ejectors			Expanded I.D. Ejectors			Length		Scavenge Tube O.D.	
Low	High	Low	High	Inlet Dia.* inches	mm	Part Number	Inlet Dia.* inches	mm	Part Number	inches	mm	inches	mm
220	365	554	919	3.02	77.0	H002612	3.16	80.3	H002762	12.00	304.8	1.25	32
315	450	793	1133	4.02	102.0	H002613	4.17	105.9	H002763	18.00	457.2	1.25	32
425	600	1070	1511	4.02	102.0	H002614	4.17	105.9	H002764	18.00	457.2	1.50	38
500	740	1259	1864	5.03	127.8	H002615	5.17	131.0	H002765	22.00	558.8	1.50	38
660	950	1662	2393	5.03	127.8	H002616	5.17	131.0	H002766	22.00	558.8	1.75	44
800	1150	2015	2896	6.04	153.4	H002617	6.19	157.0	H002767	24.00	609.6	2.00	51
950	1350	2393	3400	6.04	153.4	H002618	6.19	157.0	H002768	24.00	609.6	2.00	51
1100	1500	2770	3778	6.04	153.4	H002619	6.19	157.0	H002769	24.00	609.6	2.00	51

* This dimension only applies to 2.5" / 64mm of length – not the full length of the ejector.

3 ft. / .91 m Silicone Scavenge Hose & Lined Hose Clamp for:

- 1.25" / 32 mm Scavenge Tube: Hose: P171376 and Lined Hose Clamp P532924
- 1.50" / 38 mm Scavenge Tube: Hose: P171378 and Lined Hose Clamp P115200
- 2.00" / 51 mm Scavenge Tube: Hose: P171381 and Lined Hose Clamp P115200

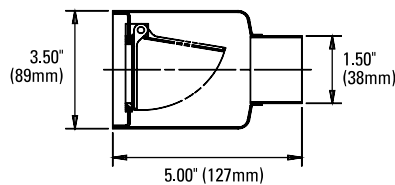
Ejector Check Valve Prevents Exhaust Backflow

The exhaust ejector check valve prevents backflow of damaging exhaust gases by way of an internal hinge flap. Add an ejector check valve when configuring the intake system to expel filtered contaminant through the exhaust system.

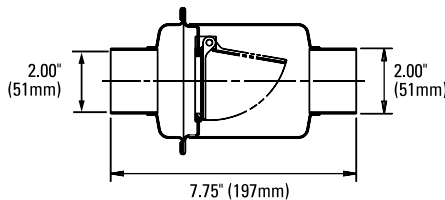
- Mounts horizontally (see installation diagrams)
- Durable, non-corrosive metal construction
- No servicing required



H001023



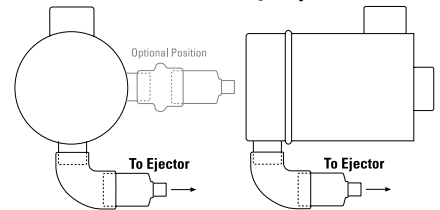
H000722



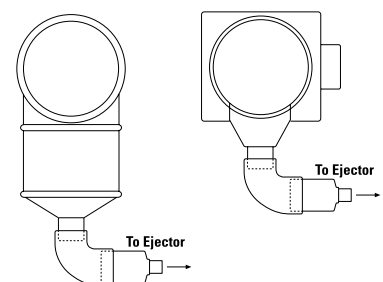
Check Valve Installation

The illustrations are side views of two-stage air cleaners, showing the position of the check valve. A 3" (76mm) inner diameter rubber reducing elbow or hump reducer is required for installation. See pages 206 – 208 for options.

Installation on F Series Cyclopac™



Installation on S Series Donacore™



3-in-1 Intake Accessory Protects Against Moisture

- Primarily over-highway trucks
- For engine airflow of 700 to 1000+ cfm
- Improves intake system airflow and fuel economy by reducing restriction. Examples:
 - at 33 mph, 53 kmh = 3.5" H₂O restriction
 - at 45 – 52mph, 72 – 74 kmh = 4" H₂O restriction
 - at 60 mph, 97 kmh = 5" H₂O restriction
- Lightweight, non-corrosive, and durable — no service needed
- Inlet screen prevents large debris from entering intake ducting
- Side louvers ensure continuous airflow to intake system
- Common inlet sizes fit most installations
- Eliminates water from air intake system
 - at 700 cfm airflow = 90%
 - at 800 cfm airflow = 93%
 - at 1000 cfm airflow = 93%*

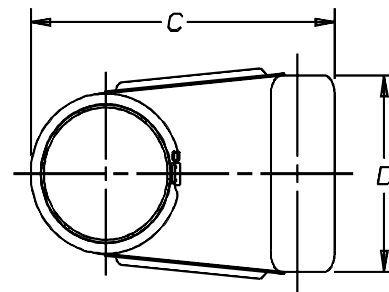
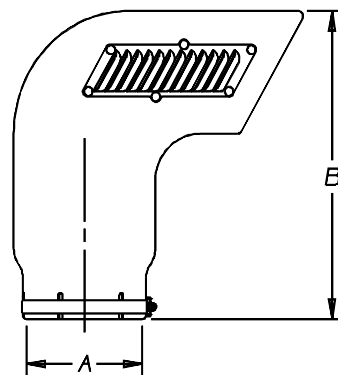
* based on item H001660



H001654
High profile model mounts on inlet stack, above and behind cab.



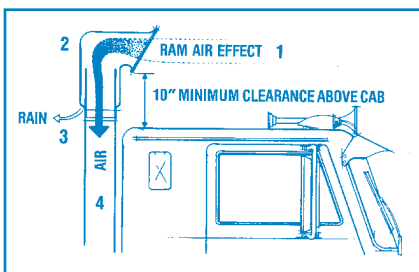
H001200
Low profile model designed for air cleaners mounted on the side of the cab.



Air Ram Inlet Hood

Part Number	Inlet Diameter (A)		Height (B)		Depth (C)		Width (D)	
	in	mm	in	mm	in	mm	in	mm
MODELS WITH LOUVERS ON SIDE								
H001660	6.06	154	14.80	376	14.85	377	8.98	228
H001654	7.06	179	15.53	394	15.63	397	9.86	250
H001661	8.06	205	16.16	410	16.95	431	10.92	277
MODELS WITHOUT LOUVERS (LOW PROFILE)								
H001200	7.06	179	6.25	159	12.03	306	13.20	335

Note: One mounting band is included with each Air Ram



How Air Ram™ Works

- 1-Moisture-filled air enters Air Ram.
- 2-Air is naturally forced against rear wall. Moisture sticks to the wall, separating from the air.
- 3-Moisture collects on the Air Ram wall and drains down to and out of the drain hole.
- 4-Virtually moisture-free air passes into air cleaner.

Installation Note

All Air Ram inlet hoods MUST be installed with the screen facing forward to ensure best performance. Airflow restriction will not be reduced if the Air Ram faces sideways; but if it faces backwards, restriction does increase and adversely affects engine performance.

Horizontal, In-Line Moisture Skimmer Removes Water

Applications

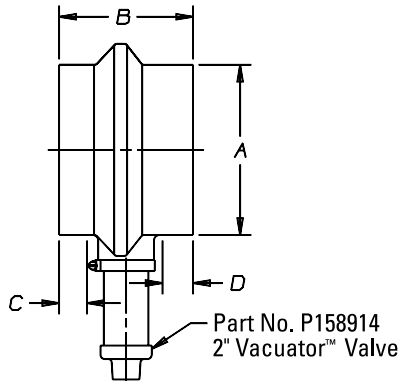
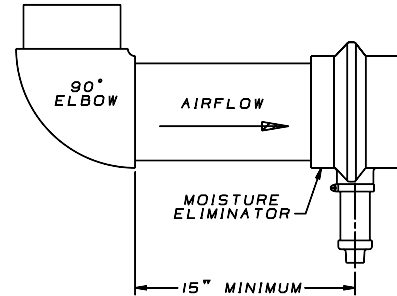
- Allows 600 to 1200 cfm airflow
- Horizontal mount in engine air intake ducting

Features

- Removes over 80% of water before it can reach and damage the filter
- No service needed
- Made of durable rubber
- Collected water is automatically released by Vacuator™ Valve
- Adds little or no restriction to airflow
- Common inlet sizes fit most installations



Mounting Position



Moisture Skimmer

Part Number	CFM	Inlet Dia. (A)		Height (B)		Depth (C)		Width (D)	
		in	mm	in	mm	in	mm	in	mm
X005822	600-1000	6.00	152	6.00	152	1.25	32	1.37	35
X005900	800-1200	7.00	178	6.00	152	1.25	32	1.37	35
X005901*	800-1200	7.00	178	6.00	152	1.25	32	1.37	35

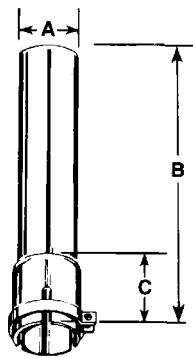
*Angled spout (see image on right)



Stack Extensions, Intake Tubing & Breathers

Air Stack Extensions

- For on-road and off-road trucks
- Helps extend filter life by elevating air inlet away from heavy dust concentrations and engine exhaust
- Installs easily and quickly with one clamp, which is included with unit
- Durable, corrosion-resistant steel construction



Air Stack Extension

-(A - O.D.)- in	mm	-----(B)---- in	mm	-----(C)---- in	mm	Part Number
3.75	95	29.00	737	1.50	38	X001744
4.50	114	30.25	768	1.50	38	X001746
5.00	127	29.00	737	1.50	38	X001747
6.00	152	31.50	800	1.50	38	H000484
7.00	178	28.62	727	1.50	38	H000483

Intake Tubing

- 16 gauge aluminum, unless footnoted
- 10 ft. (3m) length

Intake Tubing

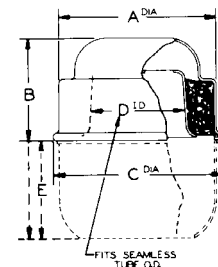
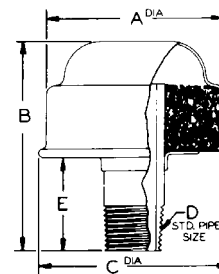
-- O.D. -- in	mm	Part Number
3.00	76	P224684
4.00	102	P207367
5.00	127	P206849
5.50	140	P207368
6.00	152	P206850
7.00	178	P206851
8.00	203	P207369



Breathers

As sealed machinery operates, its internal air heats and expands; later, this air cools and contracts. To allow hot air out and cool air in **safely**, use a Donaldson breather filter. These handy, spin-on filters use sturdy oil-wetted filter media that resists damage from vibration.

- Designed for engines, air compressors, crankcases, transmissions, gearcases, air cylinders, air presses, hydraulic reservoirs
- Mount either vertically or horizontally
- Can be cleaned and reused



Part Number	--- A --- in	mm	--- B --- in	mm	--- C --- in	mm	--- D ---	--- E --- in	mm
STYLE A									
S000011	2.50	64	2.00	51	2.68	68	1/4" NPT	1.00	25
S000072	2.50	64	2.97	75	2.68	68	1/2" NPT	1.12	28
S000080	2.50	64	2.32	59	2.68	68	3/4" NPT	0.68	17
S000183	3.06	78	3.50	89	3.50	89	1" NPT	1.18	30
S000099	4.06	103	4.50	114	5.12	130	2" NPT	1.68	43
STYLE B									
S000067	2.50	64	1.62	41	2.75	70		1.50	n/a

Section Index

Air Cleaner Service Parts Listing 220
 Air Cleaner Upgrades 239

The parts in the Service Parts section are listed by air cleaner part number, in alpha/numeric order. If you know the model number of your air cleaner (for instance, G100398), but not the style (e.g., FRG Style B, ERA, or STG), this section will help you find service parts quickly and easily.

AIR CLEANER SERVICE PARTS

Air Cleaner Service Parts Listing

Part Numbers with * indicates old/cancelled model (only service parts are available).

Air Cleaner Part No. and Style Description	Service Part No.	Air Cleaner Part No. and Style Description	Service Part No.	Air Cleaner Part No. and Style Description	Service Part No.
*G100161 SBG-TUB		G100395 FRG Style A		G110120 EPG	
Thumb screw.....	P016984	Baffle, metal.....	P602211	Outlet band clamp.....	P148345
Inner cover.....	P101798	Clamp.....	P106071	Thumb screw.....	P527435
Gasket, inner cover.....	P101077	Dust cup/cover.....	P103827	Vacuator™ Valve.....	P525956
Gasket, filter.....	P018182	Elbow, 45°.....	P109021		
Cover gasket.....	P018181	Elbow, 90°.....	P107844		
Gasket, body or cup.....	P101401	Elbow, 90° reducing.....	P143895		
Gasket washer.....	P018462	Filter, primary-Donaldson Blue®.....	DBA5222		
Filter, primary-extended life.....	P182071	Filter, primary.....	P601790		
Filter, primary.....	P181071	Filter, safety.....	P777639		
Cup.....	P018577	Hump hose.....	P105810		
Cover latch assembly.....	P017673	Informer™ indicator 25" H ₂ O.....	X002277		
Cover clip spring.....	P017673	Inlet hood, metal.....	H000170		
Cover.....	P018180	Inlet hood, plastic.....	H000468		
Clamp, body or cup.....	P101846	Mounting bands, metal.....	P004076		
Body, upper.....	P101070	O-ring.....	P101401		
Body, lower.....	P101086	Outlet band clamp.....	P148345		
		Vacuator™ Valve.....	P103198		
G100297 FRG Style B		G100398 FRG Style A		G110206 FRG Style B	
Cover.....	P538200	Baffle, metal.....	P602211	Cover.....	P538452
Elbow, 45°.....	P105545	Clamp.....	P106071	Elbow, 45°.....	P114316
Elbow, 90°.....	P105533	Dust cup/cover.....	P103827	Elbow, 90°.....	P113733
Elbow, 90° reducing.....	P121482	Filter, primary-Donaldson Blue®.....	DBA5228	Filter, primary-Donaldson Blue®.....	DBA5105
Filter, primary.....	P781039	Filter, primary.....	P601790	Filter, primary - SM.....	P527484
Filter, safety.....	P777639	Filter, safety.....	P777639	Hump hose.....	P105610
Gasket, cover.....	P537308	Hump hose.....	P105810	Informer™ indicator 25" H ₂ O.....	X002277
		Informer™ indicator 25" H ₂ O.....	X002277	Inlet hood, plastic.....	H000604
		Inlet hood, metal.....	H000170	Outlet band clamp.....	P148345
		Inlet hood, plastic.....	H000468	Thumb screw.....	P527435
		Mounting bands, metal.....	P004076	Vacuator™ Valve.....	P525956
		O-ring.....	P101401		
		Outlet band clamp.....	P148345		
		Vacuator™ Valve.....	P103198		

Air cleaner part numbers that have an "*" before the number are obsolete, only their service parts listed are available. If an air cleaner replacement is required and the model is no longer available, we recommend retrofitting to a newer air cleaner model. Newer air cleaner models offer improved filtration features, and replacement filters will be less expensive over time.

NOTE: You will not find our one-piece air cleaners, like our Duralite™ disposable series, in this section because they have no service parts.

Air Cleaner Service Parts Listing

Part Numbers with * indicates old/cancelled model (only service parts are available).



Air Cleaner Part No. and Style Description Service Part No.

*A145200 FGA

Side rod.....	P016731
Screen filter.....	P016688
Oil cup.....	P016696
Inner oil cup.....	P016694
Clip band.....	P101469

*A150039 EBA-CYL

Stud repair kit.....	X004464
Nut, plastic.....	P119325
Mounting band.....	P016845
Cover gasket.....	P116891
Filter, primary-extended life.....	P182008
Filter, primary.....	P181008
Filter, primary-Donaldson Blue®.....	DBA5008

*A150128 EBA-CYL

Stud repair kit.....	X004464
Nut, plastic.....	P119325
Mounting band.....	P016845
Cover gasket.....	P116891
Filter, primary-extended life.....	P182009
Filter, primary.....	P181009

A150138 ERA

Bolt.....	P119463
Cover.....	P544238
Elbow, 45°.....	P105548
Elbow, 90°.....	P105536
Filter, primary-Donaldson Blue®.....	DBA5150
Filter, primary - SM.....	P544301
Gasket, cover.....	P535559
Hump hose.....	P105613
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000339
Inlet hood, plastic.....	H000607
Mounting bands, metal.....	P016845
Nut, plastic.....	P119325
Outlet band clamp.....	P148348
Retaining ring.....	P129469
Vacuator™ Valve.....	P149099

A150141 ERA

Bolt.....	P119463
Cover.....	P544827
Elbow, 45°.....	P105547
Elbow, 90°.....	P105535
Filter, primary-Donaldson Blue®.....	DBA5151
Filter, primary - SM.....	P544243
Gasket, cover.....	P535559
Hump hose.....	P105612
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000275
Inlet hood, plastic.....	H000606
Mounting band, black.....	P016845
Mounting bands, metal.....	P016845
Nut, plastic.....	P119325
Outlet band clamp.....	P148347
Retaining ring.....	P129469
Vacuator™ Valve.....	P149099

Air Cleaner Part No. and Style Description Service Part No.

*A150174 EBA-CYL

Stud repair kit.....	X004464
Nut, plastic.....	P119325
Mounting band, bright.....	P524552
Inlet hood, bright.....	P524540
Cover gasket.....	P116891
Filter, primary-extended life.....	P182009
Filter, primary.....	P181009

A160001 FWA

Wing bolt.....	P018464
Gasket, body or cup.....	P017336
Filter, primary-extended life.....	P182001
Filter, primary.....	P181001
Dust cup, VacValve, vert.....	P103831
Cup.....	P101245
Clamp, cup.....	P100798
Baffle.....	P101244

*A160013 FWA

Wing bolt.....	P018464
Gasket, body or cup.....	P017336
Filter, primary-extended life.....	P182001
Filter, primary.....	P181001
Dust cup, VacValve, vert.....	P103831
Cup.....	P101245
Clamp, cup.....	P100798
Baffle.....	P101244

*A160173 EBA-CYL

Stud repair kit.....	X004464
Nut, plastic.....	P119325
Mounting band.....	H000351
Cover gasket.....	P123790
Filter, primary-extended life.....	P182011
Filter, primary.....	P181011

*A161500 FGA

Side rod.....	P016731
Screen filter.....	P016883
Oil cup.....	P016884
Inner oil cup.....	P016885
Gasket, body or cup.....	P017336
Clip band.....	P101471

*A161600 FGA

Side rod.....	P016731
Screen filter.....	P016883
Oil cup.....	P016884
Inner oil cup.....	P016885
Gasket, body or cup.....	P017336
Clip band.....	P101471

Air Cleaner Part No. and Style Description Service Part No.

B045008 FKB

Cover.....	P606497
Filter, primary.....	P604457
Filter, safety.....	P603729
Vacuator™ Valve.....	P158914
Elbow, 45°.....	P105541
Elbow, 90°.....	P105529
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H001377
Outlet band clamp.....	P148337

B055006 FKB

Cover.....	P609219
Filter, primary.....	P609218
Filter, safety.....	P602427
Vacuator™ Valve.....	P158914
Elbow, 45°.....	P105543
Elbow, 90°.....	P105531
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H001378
Outlet band clamp.....	P148339

B065045 FKB

Cover.....	P608592
Elbow, 45°.....	P105544
Elbow, 90°.....	P105532
Elbow, 90° reducing.....	P123462
Filter, primary.....	P609221
Filter, safety.....	P608599
Hump hose.....	P105608
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H001379
Outlet band clamp.....	P148341
Vacuator™ Valve.....	P158914

B080080 XRB

Cover.....	P605731
Elbow, 45°.....	P105545
Elbow, 90°.....	P105533
Elbow, 90° reducing.....	P121482
Filter, primary (non metal).....	P611190
Filter, safety.....	P611189
Hump hose.....	P105609
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H000467
Outlet band clamp.....	P148343
Vacuator™ Valve.....	P158914

*B100001 FWB

Filter, primary.....	P101038
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*B100002 FWB

Filter, primary.....	P101038
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FILTER DESCRIPTIONS:

SM=Scheduled Maintenance Donaldson Blue® = High Efficiency, Extended Service

Air Cleaner Service Parts Listing

Part Numbers with * indicates old/cancelled model (only service parts are available).



Air Cleaner Part No. and Style Description Service Part No.

D090055, D090073 PSD

Cover	P785651
Elbow, 45°	P105545
Elbow, 90°	P105533
Elbow, 90° reducing	P121482
Filter, primary	P608665
Filter, safety	P606121
Hump hose	P105609
Informer™ indicator 25" H ₂ O	X002277
Latch	P784506
Outlet band clamp	P148343
U-clip (4 clips)	P784417
Vacuator™ Valve	P112803

D090101 PSD

Cover	P786989
Elbow, 45°	P105545
Elbow, 90°	P105533
Elbow, 90° reducing	P121482
Filter, primary	P608675
Filter, safety	P606121
Hump hose	P105609
Informer™ indicator 25" H ₂ O	X002277
Latch	P777366
Outlet band clamp	P148343
U-clip (4 clips)	P784517
Vacuator™ Valve	P112803

D090108, D090109 PCD

Cover	P786989 3
Elbow, 45°	P105545
Elbow, 90°	P105533
Elbow, 90° reducing	P121482
Filter, primary	P608675
Filter, safety	P606121
Hump hose	P105609
Informer™ indicator 25" H ₂ O	X002277
Latch	P777366
Outlet band clamp	P148343
U-clip (4 clips)	P784517

D090114, D090115 PCD

Cover	P785651
Elbow, 45°	P105545
Elbow, 90°	P105533
Elbow, 90° reducing	P121482
Filter, primary	P608665
Filter, safety	P606121
Hump hose	P105609
Informer™ indicator 25" H ₂ O	X002277
Latch	P777366
Outlet band clamp	P148343
U-clip (4 clips)	P784517

D090120 PSD

Cover	P785651
Elbow, 45°	P105545
Elbow, 90°	P105533
Elbow, 90° reducing	P121482
Filter, primary	P608665
Filter, safety	P606121
Hump hose	P105609

Air Cleaner Part No. and Style Description Service Part No.

Informer™ indicator 25" H ₂ O	X002277
Latch	P777366
Outlet band clamp	P148343
U-clip (4 clips)	P784517
Vacuator™ Valve	P112803

D090121 PSD

Cover	P786989
Elbow, 45°	P105545
Elbow, 90°	P105533
Elbow, 90° reducing	P121482
Filter, primary	P608675
Filter, safety	P606121
Hump hose	P105609
Informer™ indicator 25" H ₂ O	X002277
Latch	P777366
Outlet band clamp	P148343
U-clip (4 clips)	P784517
Vacuator™ Valve	P112803

D100029, D100030 PSD

Cover	P784279
Cover, with watertight seal	P619481
Elbow, 45°	P109021
Elbow, 90°	P107844
Elbow, 90° reducing	P143895
Filter, primary	P608666
Filter, safety	P601560
Hump hose	P105610
Informer™ indicator 25" H ₂ O	X002277
Latch	P777366
Outlet band clamp	P148345
U-clip (4 clips)	P784517
Vacuator™ Valve	P112803

D100031, D100032 PSD

Cover	P784298
Cover, with watertight seal	P619482
Elbow, 45°	P105547
Elbow, 90°	P105535
Filter, primary	P608676
Filter, safety	P601560
Hump hose	P105612
Informer™ indicator 25" H ₂ O	X002277
Latch	P777366
Outlet band clamp	P148347
U-clip (4 clips)	P784517
Vacuator™ Valve	P112803

D100068 PSD

Cover	P784298
Cover, with watertight seal	P619482
Elbow, 45°	P105547
Elbow, 90°	P105535
Filter, primary	P608676
Filter, safety	P601560
Hump hose	P105612
Informer™ indicator 25" H ₂ O	X002277
Latch	P777366
Outlet band clamp	P148347
U-clip (4 clips)	P784517
Vacuator™ Valve	P112803

Air Cleaner Part No. and Style Description Service Part No.

D100072 PSD

Cover	P784279
Cover, with watertight seal	P619481
Elbow, 45°	P109021
Elbow, 90°	P107844
Elbow, 90° reducing	P143895
Filter, primary	P608666
Filter, safety	P601560
Hump hose	P105610
Informer™ indicator 25" H ₂ O	X002277
Latch	P777366
Outlet band clamp	P148345
U-clip (4 clips)	P784517
Vacuator™ Valve	P112803

D120035, D120036 PSD

Cover	P608171
Elbow, 45°	P105547
Elbow, 90°	P105535
Filter, primary	P608667
Filter, safety	P607557
Hump hose	P105612
Informer™ indicator 25" H ₂ O	X002277
Latch	P777366
Outlet band clamp	P148347
U-clip (4 clips)	P784517
Vacuator™ Valve	P112803

D120037, D120038 PSD

Cover	P608180
Elbow, 45°	P105547
Elbow, 90°	P105535
Filter, primary	P608677
Filter, safety	P607557
Hump hose	P105612
Informer™ indicator 25" H ₂ O	X002277
Latch	P777366
Outlet band clamp	P148347
U-clip (4 clips)	P784517
Vacuator™ Valve	P112803

***D140078, D140079 PSD**

Cover, with watertight seal	P623026
Elbow, 45°	P105548
Elbow, 90°	P105536
Elbow, 90° reducing	P215307
Filter, primary	P621984
Filter, safety	P621983
Hump hose	P105613
Informer™ indicator 25" H ₂ O	X002277
Latch	P622945
Outlet band clamp	P148348
U-clip (9 clips)	P622745
Vacuator™ Valve	P112803
Gasket	P623192

FILTER DESCRIPTIONS:

SM=Scheduled Maintenance Donaldson Blue® = High Efficiency, Extended Service

Air Cleaner Part No. and Style
 Description Service Part No.

D140110, D140111	PSD
Cover, with watertight seal.....	P623026
Elbow, 45°	P105548
Elbow, 90°	P105536
Elbow, 90° reducing	P215307
Filter, primary	P621983
Filter, safety.....	P621984
Hump hose	P105613
Informer™ indicator 25" H ₂ O	X002277
Latch.....	P629526
Outlet band clamp.....	P148348
U-clip (9 clips).....	P622745
Vacuator™ Valve	P112803
Gasket.....	P623192

D100142, D100143	PCD
Cover	P784298
Cover, with watertight seal.....	P619482
Elbow, 45°	P109021
Elbow, 90°	P107844
Filter, primary.....	P608676
Filter, safety.....	P601560
Hump hose	P105610
Informer™ indicator 25" H ₂ O	X002277
Latch.....	P777366
Outlet band clamp.....	P148345
U-clip (4 clips).....	P784517

D100145, D100146	PCD
Cover	P784279
Cover, with watertight seal.....	P619481
Elbow, 45°	P109021
Elbow, 90°	P107844
Elbow, 90° reducing	P143895
Filter, primary	P608666
Filter, safety.....	P601560
Hump hose	P105610
Informer™ indicator 25" H ₂ O	X002277
Latch.....	P777366
Outlet band clamp.....	P148345
U-clip (4 clips).....	P784517

G042503	FWG
Thumb screw.....	P017858
Gasket washer.....	P102784
Filter, primary-UL approved.....	P123065
Filter, primary-high vibration	P148970
Filter, primary	P102745
Cup.....	P102755
Clamp	P002846

G042529	FWG
Thumb screw.....	P017858
Gasket washer.....	P102784
Cup.....	P102755
Clamp	P002846
Baffle, Rubber.....	P102754
Baffle, Rubber.....	P102754

G042544	FPG
Cover	P533685
Filter, primary.....	P822686
Filter, safety.....	P535396
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic.....	H002068

Air Cleaner Part No. and Style
 Description Service Part No.

Latch.....	P538928
Mounting bands, metal	H008442
Mounting Bands, plastic.....	P777151
Outlet band clamp.....	P115200
Vacuator™ Valve	P522958

G042545	FPG
Cover	P533685
Filter, primary.....	P822686
Filter, safety.....	P535396
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic.....	H002068
Latch.....	P538928
Mounting bands, metal	H008442
Mounting Bands, plastic.....	P777151
Outlet band clamp.....	P115200
Vacuator™ Valve	P522958

*G042547	FPG
Vacuator™ Valve	P522958
Filter, safety.....	P535396
Filter, primary.....	P831520
Latch.....	P538928
Inlet hood (optional).....	H002068
Cover	P534392

*G042549	FPG
Vacuator™ Valve	P522958
Filter, safety.....	P535396
Filter, primary.....	P831520
Latch.....	P538928
Inlet hood (optional).....	H002068
Cover	P534392

G052510	FWG
Wing nut.....	P101870
Filter, primary-UL approved.....	P122510
Filter, primary-extended life	P182050
Filter, primary	P181050
Dust cup, VacValve, horz.....	P103838
Cup.....	P103007
Clamp	P002904
Baffle, Rubber.....	P102523

G052512	FWG
Filter, primary-UL approved.....	P122510
Filter, primary-extended life	P182050
Filter, primary	P181050
Dust cup, VacValve, horz.....	P103838
Cup.....	P103007
Clamp	P002904
Baffle, Rubber.....	P102523

*G052558	FHG-STYA
Wing nut.....	P101870
Vacuator™ Valve	P158914
Filter, safety.....	P120307
Filter, primary-high vibration	P148967
Filter, primary-extended life	P182072
Filter, primary	P181072
Cover/cup.....	P120729
Clamp	P002904

Air Cleaner Part No. and Style
 Description Service Part No.

*G052559	FHG-STYA
Wing nut	P101870
Filter, safety.....	P120307
Filter, primary-high vibration	P148967
Filter, primary-extended life	P182072
Filter, primary	P181072
Cover/cup.....	P120316
Clamp	P002904

*G052560	FHG-STYA
Wing nut	P101870
Vacuator™ Valve	P158914
Filter, safety.....	P120307
Filter, primary-high vibration	P148967
Filter, primary-extended life	P182072
Filter, primary	P181072
Cover/cup.....	P120729
Clamp	P002904

*G052561	FHG-STYA
Wing nut	P101870
Filter, safety.....	P120307
Filter, primary-high vibration	P148967
Filter, primary-extended life	P182072
Filter, primary	P181072
Cover/cup.....	P120316
Clamp	P002904

*G052617	FHG-STYA
Wing nut	P101870
Vacuator™ Valve	P522958
Filter, safety.....	P120307
Filter, primary	P148967
Cover/cup.....	P120729
Clamp	P002904

G052685	FRG Style A
Clamp	P002904
Cover	P120279
Elbow, 45°	P105543
Elbow, 90°	P105531
Filter, primary.....	P600043
Filter, safety.....	P600047
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic.....	H001378
Mounting band	P002348
Mounting bands, metal	P002348
Outlet band clamp.....	P148339
Vacuator™ Valve	P158914

G052686	FRG Style A
Clamp	P002904
Cover	P120279
Elbow, 45°	P105543
Elbow, 90°	P105531
Filter, primary	P600043
Filter, safety (optional).....	P600047
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic.....	H001378
Mounting band	P002348
Mounting bands, metal	P002348
Outlet band clamp.....	P148339
Vacuator™ Valve	P158914

Air Cleaner Service Parts Listing

Part Numbers with * indicates old/cancelled model (only service parts are available).



Air Cleaner Part No. and Style Description Service Part No.

G052741, G052742 PowerPleat

Cover	P628588
Filter, primary	P628390
Filter, safety	P628170
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H002068
Mounting bands, metal	H008442
Mounting Bands, plastic	P777151
Outlet band clamp	P115200
Vacuator™ Valve	P522958

G052828, G052829 PowerPleat

Cover	P628588
Filter, primary	P628390
Filter, safety	P628170
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H002068
Mounting bands, metal	H008442
Mounting Bands, plastic	P777151
Outlet band clamp	P115200
Vacuator™ Valve	P522958

G057511 FPG

Cover	P533761
Elbow, 45°	P105541
Elbow, 90°	P105529
Filter, primary	P821575
Filter, safety	P822858
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H001377
Latch	P538928
Mounting bands, metal	H008443
Mounting Bands, plastic	P777730
Outlet band clamp	P148337
Vacuator™ Valve	P522958

G057512 FPG

Cover	P533761
Elbow, 45°	P105541
Elbow, 90°	P105529
Filter, primary	P821575
Filter, safety	P822858
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H001377
Latch	P538928
Mounting bands, metal	H008443
Mounting Bands, plastic	P777730
Outlet band clamp	P148337
Vacuator™ Valve	P522958

G057513 FPG

Cover	P533761
Elbow, 45°	P105541
Elbow, 90°	P105529
Filter, primary	P821575
Filter, safety	P822858
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H001377
Latch	P538928
Mounting bands, metal	H008443
Mounting Bands, plastic	P777730
Outlet band clamp	P148337
Vacuator™ Valve	P522958

Air Cleaner Part No. and Style Description Service Part No.

G057514 FPG

Cover	P533761
Elbow, 45°	P105541
Elbow, 90°	P105529
Filter, primary	P821575
Filter, safety	P822858
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H001377
Latch	P538928
Mounting bands, metal	H008443
Mounting Bands, plastic	P777730
Outlet band clamp	P148337
Vacuator™ Valve	P522958

*G057516 FPG

Vacuator™ Valve	P522958
Filter, safety	P822858
Filter, primary	P831424
Latch	P538928
Inlet hood (optional)	H001377
Cover	P533801

*G057517 FPG

Vacuator™ Valve	P522958
Filter, safety	P822858
Filter, primary	P821424
Latch	P538928
Inlet hood (optional)	H001377
Cover	P533801

*G060003 SDG-PER

Gasket kit	X002997
Filter, primary	P118342
Cover latch assembly	P017617
Cover clip spring	P017673
Clamp, cup	P002691

G065008 FWG

Wing nut	P101870
Filter, primary-UL approved	P122514
Filter, primary-extended life	P182052
Filter, primary-Donaldson Blue®	DBA5134
Filter, primary	P181052
Dust cup, VacValve, horz	P103836
Cup	P102805
Clamp	P002940
Baffle, Rubber	P102510

G065012 FWG

Wing nut	P101870
Filter, primary-UL approved	P122514
Filter, primary-extended life	P182052
Filter, primary-Donaldson Blue®	DBA5134
Filter, primary	P181052
Dust cup, VacValve, horz	P103836
Cup	P102805
Clamp	P002940
Baffle, Rubber	P102510

*G065104 FHG-STYA

Wing nut	P101870
Filter, safety	P119539

Air Cleaner Part No. and Style Description Service Part No.

Filter, primary-high vibration	P148586
Filter, primary-extended life	P182062
Filter, primary	P181062
Cup	P102805
Clamp	P002940
Baffle, Rubber	P102510

*G065113 FHG-STYA

Wing nut	P101870
Filter, safety	P119539
Filter, primary-high vibration	P148586
Filter, primary-extended life	P182062
Filter, primary	P181062
Cup	P102805
Clamp	P002940
Baffle, Rubber	P102510

*G065212 FHG-STYA

Wing nut	P101870
Vacuator™ Valve	P112803
Filter, safety	P119539
Filter, primary-high vibration	P148586
Filter, primary-extended life	P182062
Filter, primary	P181062
Dust cup, VacValve, vert	P103839
Dust cup, VacValve, horz	P103836
Clamp	P002940
Baffle, Rubber	P102510

G065256 FHG-STYA

Wing nut	P101870
Vacuator™ Valve	P106593
Filter, safety	P119539
Filter, primary	P148586
Dust cup, VacValve, vert	P103839
Dust cup, VacValve, horz	P103836
Clamp	P002940
Baffle, Rubber	P102510

*G065261 FHG-STYB

Wing nut	P101870
Vacuator™ Valve	P106593
Filter, safety	P119539
Filter, primary	P148586
Cover	P114972

G065266 FWG

Wing nut	P101870
Filter, primary	P148966
Dust cup, VacValve, horz	P103836
Cup	P102805
Clamp	P002940
Baffle, Rubber	P102510

*G065359 FHG-STYB

Wing nut	P101870
Vacuator™ Valve	P112803
Filter, safety	P119539
Filter, primary-high vibration	P148586
Filter, primary-extended life	P182062
Filter, primary	P181062
Cover	P114972

FILTER DESCRIPTIONS:

SM=Scheduled Maintenance Donaldson Blue® = High Efficiency, Extended Service

Air Cleaner Part No. and Style Description Service Part No.
***G065360 FHG-STYB**

Wing nut.....	P101870
Vacuator™ Valve.....	P112803
Filter, safety.....	P119539
Filter, primary-high vibration.....	P148586
Filter, primary-extended life.....	P182062
Filter, primary.....	P181062

G065411 FPG

Cover.....	P539422
Elbow, 45°.....	P105543
Elbow, 90°.....	P105531
Filter, primary.....	P822768
Filter, safety.....	P822769
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H001378
Latch.....	P538928
Mounting bands, metal.....	H008441 or H008444
Mounting Bands, plastic.....	P778810
Outlet band clamp.....	P148339
Vacuator™ Valve.....	P158914

G065424 FPG

Cover.....	P539422
Elbow, 45°.....	P105543
Elbow, 90°.....	P105531
Filter, primary.....	P822768
Filter, safety.....	P822769
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H001378
Latch.....	P538928
Mounting bands, metal.....	H008441 or H008444
Mounting Bands, plastic.....	P778810
Outlet band clamp.....	P148339
Vacuator™ Valve.....	P158914

***G065426 FPG**

Vacuator™ Valve.....	P158914
Filter, safety.....	P822769
Filter, primary.....	P532410
Latch.....	P538928
Inlet hood (optional).....	H001378
Cover.....	P532699

***G065427 FPG**

Vacuator™ Valve.....	P158914
Filter, safety.....	P822869
Filter, primary.....	P532410
Latch.....	P538928
Inlet hood (optional).....	H001378
Cover.....	P532699

G065432 FPG

Cover.....	P539422
Elbow, 45°.....	P105543
Elbow, 90°.....	P105531
Filter, primary.....	P822768
Filter, safety.....	P822769
Informer™ indicator 25" H ₂ O.....	X002277

Air Cleaner Part No. and Style Description Service Part No.

Inlet hood, plastic.....	H001378
Latch.....	P538928
Mounting bands, metal.....	H008441 or H008444
Mounting Bands, plastic.....	P778810
Outlet band clamp.....	P148339
Vacuator™ Valve.....	P158914

G065433 FPG

Cover.....	P539422
Elbow, 45°.....	P105543
Elbow, 90°.....	P105531
Filter, primary.....	P822768
Filter, safety.....	P822769
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H001378
Latch.....	P538928
Mounting bands, metal.....	H008441 or H008444
Mounting Bands, plastic.....	P778810
Outlet band clamp.....	P148339
Vacuator™ Valve.....	P158914

G065541 FRG Style A

Clamp.....	P002940
Cover.....	P522133
Elbow, 45°.....	P105544
Elbow, 90°.....	P105532
Elbow, 90° reducing.....	P123462
Filter, primary.....	P549271
Filter, safety.....	P549277
Hump hose.....	P105608
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H001379
Mounting band.....	P007191
Mounting bands, metal.....	P007191
Outlet band clamp.....	P148341
Vacuator™ Valve.....	P158914

G065551 FRG Style A

Clamp.....	P002940
Cover.....	P522133
Elbow, 45°.....	P105544
Elbow, 90°.....	P105532
Elbow, 90° reducing.....	P123462
Filter, primary.....	P549271
Filter, safety (optional).....	P549277
Hump hose.....	P105608
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H001379
Mounting band.....	P007191
Mounting bands, metal.....	P007191
Outlet band clamp.....	P148341
Vacuator™ Valve.....	P158914

G070017 FPG

Cover.....	P536202
Elbow, 45°.....	P105544
Elbow, 90°.....	P105532
Elbow, 90° reducing.....	P123462
Filter, primary-Donaldson Blue®.....	DBA5225
Filter, primary.....	P827653
Filter, safety.....	P829332

Air Cleaner Part No. and Style Description Service Part No.

Hump hose.....	P105608
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H001379
Latch.....	P538928
Mounting bands, metal.....	H002070
Mounting Bands, plastic.....	P777731
Outlet band clamp.....	P148341
Vacuator™ Valve.....	P158914

G070018 FPG

Cover.....	P536202
Elbow, 45°.....	P105544
Elbow, 90°.....	P105532
Elbow, 90° reducing.....	P123462
Filter, primary-Donaldson Blue®.....	DBA5225
Filter, primary.....	P827653
Filter, safety.....	P829332
Hump hose.....	P105608
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H001379
Latch.....	P538928
Mounting bands, metal.....	H002070
Mounting Bands, plastic.....	P777731
Outlet band clamp.....	P148341
Vacuator™ Valve.....	P158914

G070019 FPG

Cover.....	P536202
Elbow, 45°.....	P105544
Elbow, 90°.....	P105532
Elbow, 90° reducing.....	P123462
Filter, primary-Donaldson Blue®.....	DBA5225
Filter, primary.....	P827653
Filter, safety.....	P829332
Hump hose.....	P105608
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H001379
Latch.....	P538928
Mounting bands, metal.....	H002070
Mounting Bands, plastic.....	P777731
Outlet band clamp.....	P148341
Vacuator™ Valve.....	P158914

G070020 FPG

Clamp.....	P003951
Cover.....	P536202
Elbow, 45°.....	P105544
Elbow, 90°.....	P105532
Elbow, 90° reducing.....	P123462
Filter, primary-Donaldson Blue®.....	DBA5225
Filter, primary.....	P827653
Filter, safety.....	P829332
Hump hose.....	P105608
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H001379
Latch.....	P538928
Mounting bands, metal.....	H002070
Mounting Bands, plastic.....	P777731
Outlet band clamp.....	P148341
Vacuator™ Valve.....	P158914

Air Cleaner Service Parts Listing

Part Numbers with * indicates old/cancelled model (only service parts are available).



Air Cleaner Part No. and Style Description Service Part No.

*G080009 SBG-PER

Vacuator™ Valve	P112803
Gasket, filter	P018406
Cover gasket	P100643
Gasket, body or cup	P018293
Gasket kit	X002996
Filter, primary-UL approved	P122521
Filter, primary-extended life	P182068
Filter, primary	P181068
Dust cup, VacValve, vert	P105010
Dust cup, VacValve, horz	P103740
Cup	P018298
Cover latch assembly	P017617
Cover clip spring	P017673
Clamp, body or cup	P003951

*G080010 SBG-TUB

Gasket, filter	P018406
Cover gasket	P100643
Gasket, body or cup	P018293
Filter, primary-UL approved	P122521
Filter, primary-extended life	P182068
Filter, primary	P181068
Cup	P018298
Cover latch assembly	P017617
Cover clip spring	P017673
Clamp, body or cup	P003951

G080023 FWG

Wing nut	P101870
Filter, primary-high vibration	P148968
Filter, primary-extended life	P182054
Filter, primary-Donaldson Blue®	DBA5054
Filter, primary	P181054
Dust cup, VacValve, horz	P103837
Cup	P103113
Clamp, body or cup	P003951
Baffle, Rubber	P102980

G080026 FWG

Wing nut	P101870
Filter, primary-high vibration	P148968
Filter, primary-extended life	P182054
Filter, primary-Donaldson Blue®	DBA5054
Filter, primary	P181054
Dust cup, VacValve, horz	P103837
Cup	P103113
Clamp, body or cup	P003951
Baffle, Rubber	P102980

*G080147 FHG-STYB

Wing nut	P101870
Vacuator™ Valve	P105220
Filter, safety	P112212
Filter, primary-high vibration	P148973
Filter, primary-extended life	P182059
Filter, primary-Donaldson Blue®	DBA5059
Filter, primary	P181059
Cover	P119711

Air Cleaner Part No. and Style Description Service Part No.

*G080195 FHG-STYA

Wing nut	P101870
Filter, safety	P119410
Filter, primary-high vibration	P148973
Filter, primary-extended life	P182059
Filter, primary-Donaldson Blue®	DBA5059
Filter, primary	P181059
Cup	P103113
Clamp	P003951
Baffle, Rubber	P102980

*G080200 FHG-STYA

Wing nut	P101870
Filter, safety	P119410
Filter, primary-high vibration	P148973
Filter, primary-extended life	P182059
Filter, primary-Donaldson Blue®	DBA5059
Filter, primary	P181059
Cup	P103113
Clamp	P003951
Baffle, Rubber	P102980

G080372 FHG-STYB

Wing nut	P101870
Vacuator™ Valve	P106593
Filter, safety	P119410
Filter, primary	P148573
Cover	P119711

*G080490 FHG-STYB

Wing nut	P101870
Vacuator™ Valve	P112803
Filter, safety	P119410
Filter, primary-high vibration	P148973
Filter, primary-extended life	P182059
Filter, primary-Donaldson Blue®	DBA5059
Filter, primary	P181059
Cover	P119711

*G080491 FHG-STYB

Wing nut	P101870
Vacuator™ Valve	P112803
Filter, safety	P119410
Filter, primary-high vibration	P148973
Filter, primary-extended life	P182059
Filter, primary-Donaldson Blue®	DBA5059
Filter, primary	P181059
Cover	P119711

G080582 FRG Style A

Clamp	P003951
Cover	P600321
Elbow, 45°	P109331
Elbow, 90°	P114318
Filter, primary-Donaldson Blue®	DBA5223
Filter, primary	P601437
Filter, safety	P601476
Hump hose	P114319
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H000466
Mounting band	P004307
Mounting bands, metal	P004307
Outlet band clamp	P148342
Vacuator™ Valve	P158914

Air Cleaner Part No. and Style Description Service Part No.

G080585 FRG Style A

Cover	P600321
Elbow, 45°	P109331
Elbow, 90°	P114318
Filter, primary-Donaldson Blue®	DBA5223
Filter, primary	P601437
Filter, safety (optional)	P601476
Hump hose	P114319
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H000466
Mounting band	P004307
Mounting bands, metal	P004307
Outlet band clamp	P148342
Vacuator™ Valve	P158914

G082525 FPG

Cover	P534048
Elbow, 45°	P109331
Elbow, 90°	P114318
Filter, primary-Donaldson Blue®	DBA5227
Filter, primary	P828889
Filter, safety	P829333
Hump hose	P114319
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H000466
Latch	P538928
Mounting bands, metal	H002023
Mounting Bands, plastic	P777732
Outlet band clamp	P148342
Vacuator™ Valve	P158914

G082526 FPG

Cover	P534048
Elbow, 45°	P109331
Elbow, 90°	P114318
Filter, primary-Donaldson Blue®	DBA5227
Filter, primary	P828889
Filter, safety	P829333
Hump hose	P114319
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H000466
Latch	P538928
Mounting bands, metal	H002023
Mounting Bands, plastic	P777732
Outlet band clamp	P148342
Vacuator™ Valve	P158914

G082527 FPG

Cover	P534048
Elbow, 45°	P109331
Elbow, 90°	P114318
Filter, primary-Donaldson Blue®	DBA5227
Filter, primary	P828889
Filter, safety	P829333
Hump hose	P114319
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H000466
Latch	P538928
Mounting bands, metal	H002023
Mounting Bands, plastic	P777732
Outlet band clamp	P148342
Vacuator™ Valve	P158914

FILTER DESCRIPTIONS:

SM=Scheduled Maintenance Donaldson Blue® = High Efficiency, Extended Service

Air Cleaner Part No. and Style
 Description Service Part No.

G082528 FPG

Clamp	P102025
Cover	P534048
Elbow, 45°	P109331
Elbow, 90°	P114318
Filter, primary-Donaldson Blue®	DBA5227
Filter, primary	P828889
Filter, safety	P829333
Hump hose	P114319
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H000466
Latch	P538928
Mounting bands, metal	H002023
Mounting Bands, plastic	P777732
Outlet band clamp	P148342
Vacuator™ Valve	P158914

***G090022 FHG-STYA**

Wing nut	P101870
Filter, safety	P119778
Filter, primary-extended life	P182063
Filter, primary-Donaldson Blue®	DBA5234
Filter, primary	P181063
Cover/cup	P112667
Clamp	P102025
Baffle	P105050

***G090024 FHG-STYA**

Wing nut	P101870
Filter, safety	P119778
Filter, primary-extended life	P182063
Filter, primary-Donaldson Blue®	DBA5234
Filter, primary	P181063
Cover/cup	P112667
Clamp	P102025
Baffle	P105050

***G090182 FHG-STYB**

Wing nut	P101870
Filter, safety	P119778
Filter, primary-extended life	P182063
Filter, primary-Donaldson Blue®	DBA5234
Filter, primary	P181063
Cover	P115466

***G090183 FHG-STYB**

Wing nut	P101870
Filter, safety	P119778
Filter, primary-extended life	P182063
Filter, primary-Donaldson Blue®	DBA5234
Filter, primary	P181063
Cover	P115466

G090219 FPG

Cover	P780524
Elbow, 45°	P105545
Elbow, 90°	P105533
Elbow, 90° reducing	P121482
Filter, primary-Donaldson Blue®	DBA5226
Filter, primary	P780522

Air Cleaner Part No. and Style
 Description Service Part No.

Filter, safety	P780523
Hump hose	P105609
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000170
Inlet hood, plastic	H000468
Mounting Bands, plastic	P780532
Outlet band clamp	P148343
Vacuator™ Valve	H776008

G090225 FPG

Cover	P780524
Elbow, 45°	P105545
Elbow, 90°	P105533
Elbow, 90° reducing	P121482
Filter, primary-Donaldson Blue®	DBA5226
Filter, primary	P780522
Filter, safety	P780523
Hump hose	P105609
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000170
Inlet hood, plastic	H000468
Mounting Bands, plastic	P780532
Outlet band clamp	P148343
Vacuator™ Valve	H776008

G090245 FRG Style A

Clamp	P102025
Cover	P600657
Elbow, 45°	P105545
Elbow, 90°	P105533
Elbow, 90° reducing	P121482
Filter, primary-Donaldson Blue®	DBA5224
Filter, primary	P601280
Filter, safety	P601286
Hump hose	P105609
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000170
Inlet hood, plastic	H000468
Mounting band	P004073
Mounting bands, metal	P004073
Outlet band clamp	P148343
Vacuator™ Valve	P158914

G090250 FRG Style A

Cover	P600657
Elbow, 45°	P105545
Elbow, 90°	P105533
Elbow, 90° reducing	P121482
Filter, primary-Donaldson Blue®	DBA5224
Filter, primary	P601280
Filter, safety (optional)	P601286
Hump hose	P105609
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000170
Inlet hood, plastic	H000468
Mounting band	P004073
Mounting bands, metal	P004073
Outlet band clamp	P148343
Vacuator™ Valve	P158914

G092001 ECG Bolt Service Cover

Elbow, 45°	P105547
Elbow, 90°	P105535
Filter, primary, no cover, treated	P148044

Air Cleaner Part No. and Style
 Description Service Part No.

Hump hose	P105612
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000275
Inlet hood, plastic	H000606
Mounting bands, metal	P004073
Nut, plastic	P119325
Outlet band clamp	P148347
Retaining ring	P129469

***G092004 ECG-KPII**

Stud repair kit	X004464
Nut, plastic	P119325
Mounting band	P004073
Cover gasket	P120597
Filter, primary treated	P148044

G092401 ECG Latch Service Cover

Elbow, 45°	P105547
Elbow, 90°	P105535
Filter, primary, attached cover	P150693
Filter, primary, no cover	P150692
Filter, primary, no cover, treated	P148044
Hump hose	P105612
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000275
Inlet hood, plastic	H000606
Mounting bands, metal	P004073
Outlet band clamp	P148347
Spring latch replacement kit	X006201

***G092501 ECG-KPI**

Latch replacement kit	X006201
Filter, primary-extended life	P150693
Filter, primary treated	P148044
Filter, primary	P150692

G100003 FWG

Wing bolt	P018464
Gasket, body or cup	P101401
Filter, primary-extended life	P182045
Filter, primary-Donaldson Blue®	DBA5204
Filter, primary	P181045
Dust cup, VacValve, horz	P103827
Cup	P103519
Clamp	P106071
Baffle, metal	P103135

G100004 FWG

Wing bolt	P018464
Gasket, body or cup	P101401
Filter, primary-extended life	P182045
Filter, primary-Donaldson Blue®	DBA5204
Filter, primary	P181045
Dust cup, VacValve, horz	P103827
Cup	P103519
Clamp	P106071
Baffle, metal	P103135

Air Cleaner Service Parts Listing

Part Numbers with * indicates old/cancelled model (only service parts are available).



Air Cleaner Part No. and Style Description Service Part No.

*G100028 FHG-STYA

Nut.....	P111852
Gasket, body or cup.....	P101401
Filter, safety.....	P119375
Filter, primary-extended life.....	P182064
Filter, primary-Donaldson Blue®.....	DBA
Filter, primary.....	P181064
Cup.....	P103519
Clamp.....	P106071
Baffle, metal.....	P103135

*G100029 FHG-STYA

Nut.....	P111852
Gasket, body or cup.....	P101401
Filter, safety.....	P119375
Filter, primary-extended life.....	P182064
Filter, primary-Donaldson Blue®.....	DBA5233
Filter, primary.....	P181064
Cup.....	P103519
Clamp.....	P106071
Baffle, metal.....	P103135

*G100035 FHG-STYA

Vacuator™ Valve.....	P103198
Nut.....	P111852
Gasket, body or cup.....	P101401
Filter, safety.....	P119375
Filter, primary-extended life.....	P182064
Filter, primary-Donaldson Blue®.....	DBA5233
Filter, primary.....	P181064
Dust cup, VacValve, vert.....	P103826
Dust cup, VacValve, horz.....	P103827
Clamp.....	P106071
Baffle, metal.....	P103135

*G100036 FHG-STYA

Vacuator™ Valve.....	P103198
Nut.....	P111852
Gasket, body or cup.....	P101401
Filter, safety.....	P119375
Filter, primary-extended life.....	P182064
Filter, primary-Donaldson Blue®.....	DBA5233
Filter, primary.....	P181064
Dust cup, VacValve, vert.....	P103826
Dust cup, VacValve, horz.....	P103827
Clamp.....	P106071
Baffle, metal.....	P103135

*G100160 SBG-PER

Vacuator™ Valve.....	P112803
Thumb screw.....	P016984
Inner cover.....	P011798
Gasket, inner cover.....	P101077
Gasket, filter.....	P018182
Cover gasket.....	P018181
Gasket, body or cup.....	P101401
Gasket washer.....	P018462
Gasket kit.....	X002995
Filter, primary-extended life.....	P182071
Filter, primary.....	P181071
Dust cup, VacValve, vert.....	P105011
Dust cup, VacValve, horz.....	P103742
Cup.....	P018577
Cover latch assembly.....	P017617
Cover clip spring.....	P017673
Cover.....	P018180
Clamp, body or cup.....	P101846
Body, upper.....	P101070

Air Cleaner Part No. and Style Description Service Part No.

*G100161 SBG-TUB

Thumb screw.....	P016984
Inner cover.....	P101798
Gasket, inner cover.....	P101077
Gasket, filter.....	P018182
Cover gasket.....	P018181
Gasket, body or cup.....	P101401
Gasket washer.....	P018462
Filter, primary-extended life.....	P182071
Filter, primary.....	P181071
Cup.....	P018577
Cover latch assembly.....	P017617
Cover clip spring.....	P017673
Cover.....	P018180
Clamp, body or cup.....	P101846
Body, upper.....	P101070
Body, lower.....	P101086

G100297 FRG Style B

Cover.....	P538200
Elbow, 45°.....	P105545
Elbow, 90°.....	P105533
Elbow, 90° reducing.....	P121482
Filter, primary-Donaldson Blue®.....	DBA5228
Filter, primary.....	P781039
Filter, safety.....	P777639
Gasket, cover.....	P537308
Hump hose.....	P105609
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H000468
Latch.....	P777366
Mounting band.....	P004076
Mounting bands, metal.....	P004076
Outlet band clamp.....	P148343
Vacuator™ Valve.....	P776008

G100317 FPG

Cover.....	P780578
Elbow, 45°.....	P105545
Elbow, 90°.....	P105533
Elbow, 90° reducing.....	P121482
Filter, primary-Donaldson Blue®.....	DBA5228
Filter, primary.....	P781039
Filter, safety.....	P777639
Hump hose.....	P105609
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000170
Inlet hood, plastic.....	H000468
Mounting Bands, plastic.....	P780594
Outlet band clamp.....	P148343
Vacuator™ Valve.....	H776008

G100319 FPG

Cover.....	P780578
Elbow, 45°.....	P105545
Elbow, 90°.....	P105533
Elbow, 90° reducing.....	P121482
Filter, primary-Donaldson Blue®.....	DBA5228
Filter, primary.....	P781039
Filter, safety.....	P777639
Hump hose.....	P105609
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000170
Inlet hood, plastic.....	H000468
Mounting Bands, plastic.....	P780594
Outlet band clamp.....	P148343
Vacuator™ Valve.....	H776008

Air Cleaner Part No. and Style Description Service Part No.

G100395 FRG Style A

Baffle, metal.....	P602211
Clamp.....	P106071
Dust cup/cover.....	P103827
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Filter, primary-Donaldson Blue®.....	DBA5222
Filter, primary.....	P601790
Filter, safety.....	P777639
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000170
Inlet hood, plastic.....	H000468
Mounting bands, metal.....	P004076
O-ring.....	P101401
Outlet band clamp.....	P148345
Vacuator™ Valve.....	P103198

G100398 FRG Style A

Baffle, metal.....	P602211
Clamp.....	P106071
Dust cup/cover.....	P103827
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Filter, primary-Donaldson Blue®.....	DBA5222
Filter, primary.....	P601790
Filter, safety (optional).....	P777639
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000170
Inlet hood, plastic.....	H000468
Mounting band.....	P004076
Mounting bands, metal.....	P004076
O-ring.....	P101401
Outlet band clamp.....	P148345
Vacuator™ Valve.....	P103198

*G110103 FTG

Wing nut.....	P126054
Wing nut.....	P126049
Vacuator™ Valve.....	P103198
SafetySignal indicator.....	X004815
Cover gasket.....	P127329
Filter, safety.....	P124046
Filter, primary-extended life.....	P182070
Filter, primary-Donaldson Blue®.....	DBA5126
Filter, primary.....	P181070
Cover.....	P127331
Clip.....	P154710

G110119 EPG

Cover.....	P529151
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Fastener kit.....	X006452
Filter, primary-Donaldson Blue®.....	DBA5067
Filter, primary - SM.....	P527484
Filter, safety.....	P527680
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H000604
Outlet band clamp.....	P148345
Thumb screw.....	P527435
Vacuator™ Valve.....	P525956

Air Cleaner Part No. and Style Description Service Part No.
G110120 EPG

Cover	P529151
Elbow, 45°	P109021
Elbow, 90°	P107844
Elbow, 90° reducing	P143895
Fastener kit	X006452
Filter, primary-Donaldson Blue®	DBA5067
Filter, primary - SM	P527484
Filter, safety	P527680
Hump hose	P105610
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H000604
Outlet band clamp	P148345
Thumb screw	P527435
Vacuator™ Valve	P525956

G110206 FRG Style B

Cover	P538452
Elbow, 45°	P114316
Elbow, 90°	P113733
Filter, primary-Donaldson Blue®	DBA5105
Filter, primary - SM	P532966
Filter, safety	P533781
Gasket, cover	P526676
Hump hose	P114317
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000165
Inlet hood, plastic	H000469
Latch	P536439
Mounting band	P004079
Mounting bands, metal	P004079
Outlet band clamp	P148344
Vacuator™ Valve	P158914

G110214 FRG Style B

Cover	P538452
Elbow, 45°	P114316
Elbow, 90°	P113733
Filter, primary-Donaldson Blue®	DBA5230
Filter, primary	P536457
Filter, safety	P536492
Gasket, cover	P526676
Hump hose	P114317
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000170
Inlet hood, plastic	H000468
Latch	P536439
Mounting band	P004079
Mounting bands, metal	P004079
Outlet band clamp	P148344
Vacuator™ Valve	P158914

G110468 & G110469 PowerPleat

Cover	P626094
Elbow, 45°	P109021
Elbow, 90°	P107844
Filter, primary	P626096
Filter, safety	P626104
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H000468
Inlet hood, metal	H000170
O-ring seal	P625983
Outlet band clamp	P148344
Vacuator™ Valve	P776008

Air Cleaner Part No. and Style Description Service Part No.
G110474 & G110475 PowerPleat

Cover	P626094
Elbow, 45°	P109021
Elbow, 90°	P107844
Filter, primary	P628805
Filter, safety	P628802
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H000468
Inlet hood, metal	H000170
Outlet Hump Hose	P105610
Outlet band clamp	P148344
Vacuator™ Valve	P776008

***G112000 ECG-KPII**

Stud repair kit	X004464
Nut, plastic	P119325
Mounting band	P004079
Cover gasket	P117477
Filter, primary treated	P148043

G112001 ECG Bolt Service Cover

Elbow, 45°	P105548
Elbow, 90°	P105536
Filter, primary, no cover, treated	P148043
Gasket, cover	P155211
Hump hose	P105613
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000339
Inlet hood, plastic	H000607
Kit	X006201
Mounting bands, metal	P004079
Nut, plastic	P119325
Outlet band clamp	P148348
Retaining ring	P129469

***G112401 ECG-KPI**

Latch replacement kit	X006201
Filter, primary-extended life	P150695
Filter, primary treated	P148043
Filter, primary	P150694
Cover	P150862

G112404 ECG Latch Service Cover

Cover	P150862
Elbow, 45°	P105548
Elbow, 90°	P105536
Filter, primary, attached cover	P153551
Filter, primary, attached cover-Donaldson Blue®	DBA5053
Filter, primary, no cover, treated	P154575
Gasket, cover	P536493
Hump hose	P105613
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000339
Inlet hood, plastic	H000607
Mounting bands, metal	P004079
Outlet band clamp	P148348
Spring latch replacement kit	X006201

Air Cleaner Part No. and Style Description Service Part No.
G112417 ECG Latch Service Cover

Cover	P150862
Elbow, 45°	P105548
Elbow, 90°	P105536
Filter, primary, attached cover	P150695
Filter, primary, attached cover-Donaldson Blue®	DBA5047
Filter, primary, no cover	P150694
Filter, primary-Donaldson Blue®	DBA5029
Gasket, cover	P536493
Hump hose	P105613
Informer™ indicator 25" H ₂ O	X002277
Mounting bands, metal	P004079
Outlet band clamp	P148348
Spring latch replacement kit	X006201

G112501 ECG Latch Service Cover

Elbow, 45°	P105548
Elbow, 90°	P105536
Filter, primary	P150694
Filter, primary	P150695
Filter, primary-Donaldson Blue®	DBA5047
Filter, primary-Donaldson Blue®	DBA5029
Filter, primary treated	P148043
Gasket, cover	P536493
Hump hose	P105613
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000339
Inlet hood, plastic	H000607
Mounting bands, metal	P004079
Outlet band clamp	P148348
Spring latch replacement kit	X006201

G112504 ECG Latch Service Cover

Elbow, 45°	P105548
Elbow, 90°	P105536
Filter, primary, attached blackcover	P537791
Filter, primary, attached cover	P153551
Filter, primary-Donaldson Blue®	DBA5053
Filter, primary, no cover, treated	P154575
Gasket, cover	P536493
Hump hose	P105613
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000339
Inlet hood, plastic	H000607
Mounting bands, metal	P004079
Outlet band clamp	P148348
Spring latch replacement kit	X006201

***G120012 FHG-STYA**

Baffle, metal	P106329
Clamp	P100808
Cup	P106589
Filter, primary	P181034
Filter, primary-extended life	P182034
Filter, primary-Donaldson Blue®	DBA5034
Filter, safety	P119374
Gasket, body or cup	P017804
Nut	P111852

FILTER DESCRIPTIONS:

SM=Scheduled Maintenance Donaldson Blue® = High Efficiency, Extended Service

Air Cleaner Service Parts Listing

Part Numbers with * indicates old/cancelled model (only service parts are available).



Air Cleaner Part No. and Style Description Service Part No.

***G120014 FHG-STYA**

Baffle, metal.....	P106329
Clamp.....	P100808
Cup.....	P106589
Filter, primary.....	P181034
Filter, primary-extended life.....	P182034
Filter, primary-Donaldson Blue®.....	DBA5034
Filter, safety.....	P119374
Gasket, body or cup.....	P017804
Nut.....	P111852

***G120036 FHG-STYA**

Baffle, metal.....	P106329
Clamp.....	P121067
Dust cup, VacValve, horz.....	P109296
Dust cup, VacValve, vert.....	P103828
Filter, primary.....	P181034
Filter, primary-extended life.....	P182034
Filter, primary-Donaldson Blue®.....	DBA5034
Filter, safety.....	P119374
Gasket, body or cup.....	P017804
Nut.....	P111852
Vacuator™ Valve.....	P103198

***G120037 FHG-STYA**

Baffle, metal.....	P106329
Clamp.....	P121067
Dust cup, VacValve, horz.....	P109296
Dust cup, VacValve, vert.....	P103828
Filter, primary.....	P181034
Filter, primary-extended life.....	P182034
Filter, primary-Donaldson Blue®.....	DBA5034
Filter, safety.....	P119374
Gasket, body or cup.....	P017804
Nut.....	P111852
Vacuator™ Valve.....	P103198

G120059 FWG

Baffle, metal.....	P106329
Clamp.....	P100808
Cup.....	P106589
Dust cup, VacValve, horz.....	P109296
Filter, primary.....	P181035
Filter, primary-extended life.....	P182035
Filter, primary-UL approved.....	P122525
Gasket, body or cup.....	P017804
Wing bolt.....	P018464

G120063 FWG

Baffle, metal.....	P106329
Clamp.....	P100808
Cup.....	P106589
Dust cup, VacValve, horz.....	P109296
Filter, primary.....	P181035
Filter, primary-extended life.....	P182035
Filter, primary-UL approved.....	P122525
Gasket, body or cup.....	P017804
Wing bolt.....	P018464

***G120075 STG-PER**

Cover gasket.....	P017365
Dust cup, quick release.....	P107375
Filter, primary.....	P181044
Filter, primary-extended life.....	P182044
Filter, safety.....	P119371

Air Cleaner Part No. and Style Description Service Part No.

Gasket kit.....	X003537
Gasket washer.....	P105740
Gasket, body or cup.....	P017804
Inlet shroud.....	P102881
Mounting band.....	H000349
SafetySignal indicator.....	X004816
Wing nut.....	P109062

***G120250 SBG-PER**

Clamp.....	P100808
Cover.....	P017897
Cover clip spring.....	P017673
Cover gasket.....	P017365
Cover latch assembly.....	P017617
Cup.....	P100807
Dust cup, quick release.....	P107375
Dust cup, VacValve, horz.....	P103744
Dust cup, VacValve, vert.....	P105015
Filter, primary.....	P181033
Filter, primary-extended life.....	P182033
Gasket kit.....	X002994
Gasket washer.....	P018462
Gasket, body or cup.....	P017804
Gasket, filter.....	P018033
Gasket, inner cover.....	P100894
Inner cup.....	P101669
Thumb screw.....	P016984
Vacuator™ Valve.....	P112803

***G120251 SBG-TUB**

Clamp.....	P100808
Cover.....	P017897
Cover clip spring.....	P017673
Cover gasket.....	P017365
Cover latch assembly.....	P017617
Cup.....	P100807
Filter, primary.....	P181033
Filter, primary-extended life.....	P182033
Gasket washer.....	P018642
Gasket, body or cup.....	P017804
Gasket, filter.....	P018033
Gasket, inner cover.....	P100894
Inner cup.....	P101669
Thumb screw.....	P016984

G120332 STG-TUB

Body, lower.....	P110875
Dust cup, quick release.....	P107375
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Filter, primary.....	P182044
Filter, primary-Donaldson Blue®.....	DBA5044
Filter, primary - SM.....	P181044
Filter, safety.....	P119371
Gasket washer.....	P105740
Gasket, body or cup.....	P017804
Gasket, cover.....	P017365
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000165
Inlet hood, plastic.....	H000469
Mounting band.....	H000349
Mounting bands, metal.....	H000349
Outlet band clamp.....	P148345
SafetySignal indicator.....	X004816
Spring clip & pin.....	X005555
Wing nut.....	P109062

Air Cleaner Part No. and Style Description Service Part No.

G120415 FRG Style A

Baffle, metal.....	P106329
Clamp.....	P121067
Dust cup/cover.....	P109296
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Filter, primary-Donaldson Blue®.....	DBA5231
Filter, primary.....	P601767
Filter, safety.....	P601774
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000165
Inlet hood, plastic.....	H000469
Mounting band.....	H000349
Mounting bands, metal.....	H000349
O-ring.....	P017804
Outlet band clamp.....	P148345
Vacuator™ Valve.....	P103198

G120417 FRG Style A

Baffle, metal.....	P106329
Clamp.....	P121067
Dust cup/cover.....	P109296
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Filter, primary-Donaldson Blue®.....	DBA5231
Filter, primary.....	P601767
Filter, safety (optional).....	P601774
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000165
Inlet hood, plastic.....	H000469
Mounting band.....	H000349
Mounting bands, metal.....	H000349
O-ring.....	P017804
Outlet band clamp.....	P148345
Vacuator™ Valve.....	P103198

***G130043 FTG**

Clip.....	P154710
Cover.....	P127368
Cover gasket.....	P127377
Filter, primary.....	P181082
Filter, primary-extended life.....	P182082
Filter, primary-Donaldson Blue®.....	DBA5127
Filter, safety.....	P138722
SafetySignal indicator.....	X004814
Vacuator™ Valve.....	P103198
Wing nut.....	P126049
Wing nut.....	P126054

G130079 EPG

Cover.....	P533916
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Fastener kit.....	X006452
Filter, primary - SM.....	P533930
Filter, primary-Donaldson Blue®.....	DBA5109
Filter, safety.....	P533890
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000275
Inlet hood, plastic.....	H000066
Outlet band clamp.....	P148345
Thumb screw.....	P527435
Vacuator™ Valve.....	P525956

Air Cleaner Part No. and Style
 Description Service Part No.

G130089 EPG

Cover.....	P533916
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Fastener kit.....	X006452
Filter, primary - SM.....	P533930
Filter, primary-Donaldson Blue®.....	DBA5109
Filter, safety.....	P533890
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000275
Inlet hood, plastic.....	H000606
Outlet band clamp.....	P148345
Thumb screw.....	P527435
Vacuator™ Valve.....	P525956

G130097 FRG Style B

Cover.....	P538259
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Filter, primary-Donaldson Blue®.....	DBA5221
Filter, primary.....	P537876
Filter, safety.....	P537877
Gasket, cover.....	P537699
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000275
Inlet hood, plastic.....	H000606
Latch.....	P776033
Mounting band.....	P013722
Mounting bands, metal.....	P013722
Outlet band clamp.....	P148345
Vacuator™ Valve.....	P776008

G130107 FRG Style B

Cover.....	P538259
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Elbow, 90° reducing.....	P143895
Filter, primary-Donaldson Blue®.....	DBA5220
Filter, primary.....	P532503
Filter, safety.....	P532504
Gasket, cover.....	P537699
Hump hose.....	P105610
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000275
Inlet hood, plastic.....	H000606
Latch.....	P776033
Mounting band.....	P013722
Mounting bands, metal.....	P013722
Outlet band clamp.....	P148345
Vacuator™ Valve.....	P776008

G130374 & G130375 PowerPleat 13S

Cover.....	P627756
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Filter, primary.....	P628866
Filter, safety.....	P628862
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H000469
Inlet hood, metal.....	H000165

FILTER DESCRIPTIONS:

SM=Scheduled Maintenance Donaldson Blue® = High Efficiency, Extended Service

Air Cleaner Part No. and Style
 Description Service Part No.

Outlet Hump Hose.....	P105610
Outlet band clamp.....	P148345
O-ring seal.....	P627758
Vacuator™ Valve.....	P776008

G130373 & G130372 PowerPleat 13L

Cover.....	P627756 8
Elbow, 45°.....	P109021
Elbow, 90°.....	P107844
Filter, primary.....	P627763 3
Filter, safety.....	P628203 3
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, plastic.....	H000469
Inlet hood, metal.....	H000165
Outlet Hump Hose.....	P105610
Outlet band clamp.....	P148345
O-ring seal.....	P627758
Vacuator™ Valve.....	P776008

G132000 ECG Bolt Service Cover

Elbow, 45°.....	P105548
Elbow, 90°.....	P105536
Filter, primary, no cover.....	P142100
Filter, primary-Donaldson Blue®.....	DBA5027
Gasket, cover.....	P120604
Hump hose.....	P105613
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000339
Inlet hood, plastic.....	H000607
Mounting bands, metal.....	P013722
Nut, plastic.....	P119325
Outlet band clamp.....	P148348
Retaining ring.....	P129469

***G140022 FHG-STYA**

Nut.....	P111852
Gasket, body or cup.....	P017335
Filter, safety.....	P119373
Filter, primary-extended life.....	P182046
Filter, primary.....	P181046
Cup/baffle.....	P118784
Clamp.....	P100866

***G140023 FHG-STYA**

Nut.....	P111852
Gasket, body or cup.....	P017335
Filter, safety.....	P119373
Filter, primary-extended life.....	P182046
Filter, primary.....	P181046
Cup/baffle.....	P118784
Clamp.....	P100866

***G140054 FHG-STYA**

Vacuator™ Valve.....	P103198
Nut.....	P111852
Gasket, body or cup.....	P017335
Filter, safety.....	P119373
Filter, primary-extended life.....	P182046
Filter, primary.....	P181046
Dust cup, VacValve, vert.....	P103829
Dust cup, VacValve, horz.....	P109297
Clamp.....	P100866
Baffle, metal.....	P106771

Air Cleaner Part No. and Style
 Description Service Part No.

***G140055 FHG-STYA**

Vacuator™ Valve.....	P103198
Nut.....	P111852
Gasket, body or cup.....	P017335
Filter, safety.....	P119373
Filter, primary-extended life.....	P182046
Filter, primary-Donaldson Blue®.....	DBA5046
Filter, primary.....	P181046
Dust cup, VacValve, vert.....	P103829
Dust cup, VacValve, horz.....	P109297
Clamp.....	P100866
Baffle, metal.....	P106771

G140076 STG-PER

Body, lower.....	P102256
Clamp, cup.....	P100866
Cover latch assembly.....	P017617
Dust cup.....	P100860
Elbow, 45°.....	P105547
Elbow, 90°.....	P105535
Filter, primary.....	P182041
Filter, primary-Donaldson Blue®.....	DBA7041
Filter, primary - SM.....	P181041
Filter, safety.....	P119370
Gasket kit.....	X003538
Gasket washer.....	P105740
Gasket, body or cup.....	P017335
Gasket, cover.....	P016972
Hump hose.....	P105612
Informer™ indicator 25" H ₂ O.....	X002277
Inlet shroud.....	P102870
Mounting band.....	H000350
Mounting bands, metal.....	H000350
Outlet band clamp.....	P148347
SafetySignal indicator.....	X004816
Spring clip & pin.....	X005555
Wing nut.....	P109062

G140083 FWG

Wing bolt.....	P018464
Gasket, body or cup.....	P017335
Filter, primary-UL approved.....	P122529
Filter, primary-extended life.....	P182000
Filter, primary.....	P181000
Cup.....	P106773
Clamp.....	P100866
Baffle, metal.....	P106771

G140195 FVG

Elbow, 45°.....	P105547
Elbow, 90°.....	P105535
Filter, primary.....	P182043
Filter, primary - ES & HE.....	DBA5043
Filter, primary - SM.....	P181043
Filter, safety.....	P124860
Gasket washer.....	P105740
Hump hose.....	P105612
Informer™ indicator 25" H ₂ O.....	X002277
Inlet hood, metal.....	H000339
Inlet hood, plastic.....	H000607
Mounting band.....	H000350
Mounting bands, metal.....	H000350
Outlet band clamp.....	P148347
Pin.....	P109107
Retainer.....	P105738
SafetySignal indicator.....	X004816
Vacuator™ Valve.....	P103198
Wing nut.....	P116175

Air Cleaner Service Parts Listing

Part Numbers with * indicates old/cancelled model (only service parts are available).



Air Cleaner Part No. and Style Description Service Part No.

G160376 FVG

Elbow, 45°	P105548
Elbow, 90°	P105536
Filter, primary-Donaldson Blue®	DBA5136
Filter, primary	P124867
Filter, safety	P124866
Gasket washer	P105740
Hump hose	P105613
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000339
Inlet hood, plastic	H000607
Mounting band	H000351
Mounting bands, metal	H000351
Outlet band clamp	P148348
Pin	P109107
Retainer	P105738
SafetySignal indicator	X004816
Vacuator™ Valve	P103198
Wing nut	P116175

*G160443 STG-PER

Cover gasket	P017367
Dust cup, quick release	P107377
Dust cup, VacValve, horz	P103530
Dust cup, VacValve, vert	P104973
Filter, primary	P181039
Filter, primary-extended life	P182039
Filter, primary-Donaldson Blue®	DBA7039
Filter, safety	P114931
Gasket kit	X003539
Gasket washer	P105740
Gasket, body or cup	P017336
Inlet shroud	P101759
Mounting band	H000351
SafetySignal indicator	X004816
Wing nut	P109062

G160445 STG-TUB

Cover	P109153
Cover, latch assembly	P017617
Dust cup	P100794
Dust cup, quick release	P107377
Dust cup, VacValve, horz	P103530
Dust cup, VacValve, vert	P104973
Filter, primary	P181039
Filter, primary-Donaldson Blue®	DBA7039
Filter, primary - SM	P182039
Filter, safety	P114931
Gasket kit	X003539
Gasket, body or cup	P017336
Gasket, cover	P017367
Mounting band	H000351
Spring clip & pin	X005555

G160587 FVG

Elbow, 45°	P105548
Elbow, 90°	P105536
Filter, primary	P182049
Filter, primary-Donaldson Blue®	DBA5049
Filter, primary - SM	P181049
Filter, safety	P116446
Gasket washer	P105740
Hump hose	P105613
Informer™ indicator 25" H ₂ O	X002277

Air Cleaner Part No. and Style Description Service Part No.

Inlet hood, metal	H000339
Inlet hood, plastic	H000607
Mounting band	H000351
Mounting bands, metal	H000351
Outlet band clamp	P148348
Pin	P109107
Retainer	P105738
Vacuator™ Valve	P105220
Wing nut	P116175

*G160588 STG-TUB

Air Inlet Hood	H000607
Body, lower	P115022
Cover	P109153
Cover gasket	P017367
Dust cup, quick release	P107377
Dust cup, VacValve, horz	P103530
Dust cup, VacValve, vert	P104973
Filter, primary-extended life	P182039
Filter, safety	P114931
Gasket kit	X003539
Gasket washer	P105740
Gasket, body or cup	P017336
Mounting band	H000351
SafetySignal indicator	X004816
Wing nut	P109062

G160679 FRG Style A

Baffle, metal	P106637
Clamp	P100789
Dust cup/cover	P106952
Elbow, 45°	P105548
Elbow, 90°	P105536
Filter, primary-Donaldson Blue®	DBA5229
Filter, primary	P549523
Filter, safety	P549530
Hump hose	P105613
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, metal	H000339
Inlet hood, plastic	H000607
Mounting band	H000351
Mounting bands, metal	H000351
O-ring	P017336
Outlet band clamp	P148348
Vacuator™ Valve	P103198

G161006 STG-PER

Body, lower	P115023
Clamp, body	P100780
Clamp, cup	P100789
Dust cup	P100794
Dust cup, quick release	P107377
Dust cup, VacValve, horz	P103530
Dust cup, VacValve, vert	P104973
Elbow, 45°	P112606
Elbow, 90°	P112605
Filter, primary	P182042
Filter, primary-Donaldson Blue®	DBA7042
Filter, primary - SM	P181042
Filter, safety	P128408
Gasket kit	X003539
Gasket washer	P105740
Gasket, body or cup	P017336
Gasket, cover	P017367
Hump hose	P112608
Informer™ indicator 25" H ₂ O	X002277
Inlet shroud	P101759
Mounting band	H000351

Air Cleaner Part No. and Style Description Service Part No.

Mounting bands, metal	H000351
Outlet band clamp	P629991
SafetySignal indicator	X004816
Wing nut	P109062

G161020 STG-TUB

Dust cup	P100794
Dust cup, quick release	P107377
Dust cup, VacValve, horz	P103530
Dust cup, VacValve, vert	P104973
Elbow, 45°	P105547
Elbow, 90°	P105535
Filter, primary	P182042
Filter, primary-Donaldson Blue®	DBA7042
Filter, primary - SM	P181042
Filter, safety	P128408
Gasket kit	X003539
Gasket washer	P105740
Gasket, body or cup	P017336
Gasket, cover	P017367
Hump hose	P105612
Informer™ indicator 25" H ₂ O	X002277
Mounting band	H000351
Mounting bands, metal	H000351
Outlet band clamp	P148347
SafetySignal indicator	X004816
Wing nut	P109062

G180031 FRG Style B

Cover	P783185
Elbow, 45°	P112606
Elbow, 90°	P112605
Filter, primary-Donaldson Blue®	DBA5156
Filter, primary	P781098
Filter, safety	P781102
Hump hose	P112608
Informer™ indicator 25" H ₂ O	X002277
Inlet hood, plastic	H001053
Mounting band	H770037
Mounting bands, metal	H770037
Outlet band clamp	P629991
Vacuator™ Valve	P105220

G200008 SRG

Body, lower	P117785
Clamp	P100808
Clip	P105738
Dust cup, quick release	P107375
Elbow, 45°	P112606
Elbow, 90°	P112605
Filter, primary	P182038
Filter, primary-Donaldson Blue®	DBA7038
Filter, primary - SM	P181038
Filter, safety	P115070
Gasket washer	P105740
Gasket, body	P117791
Gasket, body	P115098
Gasket, body or cup	P017804
Gasket, QR cup	P112789
Hump hose	P112608
Informer™ indicator 25" H ₂ O	X002277
Outlet band clamp	P629991
Rain shroud, front	P119876
Rain shroud, left side	P119875
Rain shroud, right side	P119874
SafetySignal indicator	X004816
Vacuator™ Valve	P103198
Wing nut	P116175

FILTER DESCRIPTIONS:

SM=Scheduled Maintenance Donaldson Blue® = High Efficiency, Extended Service

Air Cleaner Service Parts Listing

Part Numbers with * indicates old/cancelled model (only service parts are available).

Air Cleaner Part No. and Style Description Service Part No.

G290023 SRG

Clamp	P100808
Clip	P105738
Dust cup, quick release	P107375
Elbow, 45°	P112606
Elbow, 90°	P112605
Filter, primary	P182038
Filter, primary-Donaldson Blue®	DBA7038
Filter, primary - SM	P181038
Filter, safety	P115070
Gasket washer	P105740
Gasket, body	P115096
Gasket, body	P115098
Gasket, body or cup	P017804
Gasket, QR cup	P112789
Hump hose	P112608
Informer™ indicator 25" H ₂ O	X002277
Outlet band clamp	P629991
Rain shroud, front	P119877
Rain shroud, left side	P119875
Rain shroud, right side	P119874
SafetySignal indicator	X004816
Vacuator™ Valve	P103198
Wing nut	P116175

G290052, G290053 SSG

Body gasket strips (two, long)	P115096
Body gasket strips (two, short)	P115098
Cover	P603716
Cover chain	P017281
Chain connector	P017283
Dust cup (3 on unit)	P158089
Dust cup gasket (3 on unit)	P017804
Dust cup clamp (3 on unit)	P100808
Vacuator Valve (3 on unit)	P103198
Filter, primary - RadialSeal	P608306
Filter, primary-Donaldson Blue®	DBA7152
Filter, safety - RadialSeal	P608305
Lower body assembly	P118552
Rain shroud, right side	P119874
Rain shroud, front	P119877
Rain shroud, left side	P119875
Informer™ indicator 25" H ₂ O	X002277

Air Cleaner Part No. and Style Description Service Part No.

G290055 (longer upper body) SSG

Body gasket strips (two, long)	P115096
Body gasket strips (two, short)	P603504
Chain connector	P017283
Cover	P603716
Cover chain	P017281
Dust cup (3 on unit)	P158089
Dust cup clamp (3 on unit)	P100808
Dust cup gasket (3 on unit)	P017804
Vacuator Valve (3 on unit)	P103198
Elbow, 45°	P114313
Elbow, 90°	P114314
Filter, primary - RadialSeal	P609519
Filter, primary-Donaldson Blue®	DBA7153
Filter, safety - RadialSeal	P609518
Hump hose	P111414
Informer™ indicator 25" H ₂ O	X002277
Lower body assembly	P609508
Outlet band clamp	P148350
Rain shroud, front	P119877
Rain shroud, left side	P610777
Rain shroud, right side	P610776

G290057 SSG

Body gasket strips (two, long)	P115096
Body gasket strips (two, short)	P115098
Chain connector	P017283
Cover	P603716
Cover chain	P017281
Dust cup (3 on unit)	P158089
Dust cup clamp (3 on unit)	P100808
Dust cup gasket (3 on unit)	P017804
Vacuator Valve (3 on unit)	P103198
Elbow, 45°	P112606
Elbow, 90°	P112605
Filter, primary - RadialSeal	P608306
Filter, primary-Donaldson Blue®	DBA7152
Filter, safety - RadialSeal	P608305
Hump hose	P112608
Informer™ indicator 25" H ₂ O	X002277
Lower body assembly	P115110
Outlet band clamp	P629991
Rain shroud, front	P119877
Rain shroud, left side	P119875
Rain shroud, right side	P119874

X007953 PowerCore® Kit-Ford

Filter, primary - RadialSeal	P606122
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FILTER DESCRIPTIONS:

SM=Scheduled Maintenance Donaldson Blue® = High Efficiency, Extended Service

Air Cleaner Family Upgrades

These old air cleaner families are being phased out of our product offering. To help you transition from these older air cleaner designs to newer designs with improved filtration technology, the upgrade tables below will guide you to a newer air cleaner housing (or family) that is a close match to the older model. See the service parts section for available parts for older air cleaner housings. If you need help to upgrade, contact Donaldson. See back cover for contact information.

Upgrade paths for FHG, FWG, FPG, and FRG, to PowerPleat™ or PowerCore®

Older FHG	FPG Model	--- FRG Model --- Style A	--- Style B	PowerPleat	PSD
G052558	G065424	G052686			
G052559	G065424	G052686			
G052560	G057511	G052685		G052742	
G052561	G057511	G052685		G052742	
G065104	G070019	G065551			
G065113	G065432	G065541			
G065212	G065432	G065541			
G065360	G065432	G065551			
G080147	G070019	G080582			
G080195	G082528	G080585			
G080200	G082527	G080582			
G080490	G082527	G080582			
G090022	G090225	G090245	G100297		
G090024	G090225	G090250	G110206	G110474	D090073
G090182	G090225	G090245	G100297		
G090183	G090225	G090250	G100297		
G100035	G100319	G100398	G110206	G110474	D090073
G100036	G100319	G100395	G100297		
G120012		G120417	G110206	G110474	D090073
G120014		G120415	G110206	G110474	D090073
G120036		G120415	G110206	G110474	D090073
G120037		G120417	G110206	G110474	D090073
G140022		G140523	G130097	G130373	D100031
G140054		G140523	G130097	G130373	D100031
G140055		G140526	G130097	G130373	D100031
G160078		G160679	G150092		

Older FWG	FPG	FRG	PowerPleat	PSD
G042503	G042544			
G042529	G042544			
G052510	G057511		G052742	
G052512	G057511		G052742	
G065266	G070017			
G080023	G082528			
G080026	G082528			
G120365		G100297		
G100003		G100297		
G100004		G100297		
G120059		G110206	G110474	D090073
G120063		G110206	G110474	D090073
G140077		G130097	G130373	D100031
G140083		G130097	G130373	D100031
G160104		G150092		
G160107		G150092		

Upgrade SRG to SSG for easier maintenance



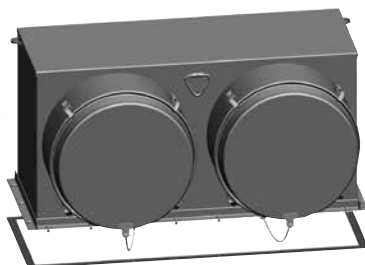
Replacing an older SRG housing with the new SSG housing allows you to simplify your routine filter service — no more separate gaskets at each filter change or removing a bolted on cover. SSG filters have RadialSeal™ end caps that provide a more reliable, consistent seal. Choose from an upper assembly conversion kit or you may want to install a complete new housing if your current SRG assembly needs repair or is reaching the end of its useful life.



SRG29 Housing



Upper Body Conversion Kit



SSG29 Housing



Kit Order Information

SRG Housing Item No.	SRG to SSG Kit* Kit No.	SSG Housing Item No.
G200008	X009702	G200087
G200013	X009701	G200086
G290000	X009230	G290057
G290023	X009230	G290052
G290012	X009231	G290053

* The finish on the replacement kit upper assembly is a white, powdered-coated paint. Installation instructions are included with the kit.

Note: Extra lead time may be required for processing and shipping.

Donaldson provides this technical reference as a collection for those who want to gain a better understanding of air filtration for engines.

Good filtration needs to be an integral part of the system to ensure the long life and proper operation of the vehicle and engine components. Today diesel engines are very sophisticated with many precision systems working together. These systems require optimum filtration to ensure their performance.

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Donaldson has air cleaner housings that work in a variety of dust conditions and air flow patterns (A – D and G).

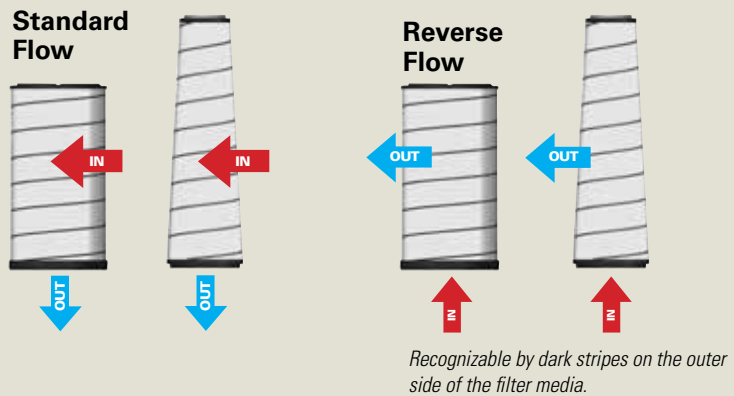
For improved filtration reliability and quicker filter service compared to older axial seal style air cleaners, Donaldson recommends installing either PowerCore® air cleaners or housings with RadialSeal™ sealing technology, whenever possible.

Flow Direction Legend

Description	Part No. Example
A = Air in the End, Out the Side	A 042511, A 112018
B = Air in the Side, Out the End	B 045008, B 120271
C = Air in the End, Out the Same End	C 080025, C 065003
D = Air in the End, Out the Opposite End	D 100030, D 055004
G = Air in the Side, Out the End	G 290010, G 110214

Standard & Reverse Flow Filters

These filters look exactly the same except there are dark lines viewable on the filter media of one of the filters. What's different? One is a standard flow filter, the other reverse flow. They fit housings that have specific flow requirements and are not interchangeable even though they look like they could be.

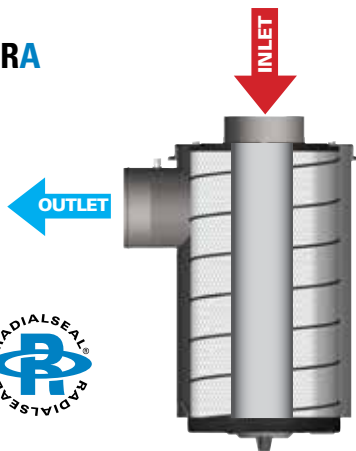


AIR FILTRATION TECHNICAL REFERENCE

A Air in the End, Out the Side (reverse flow filters)

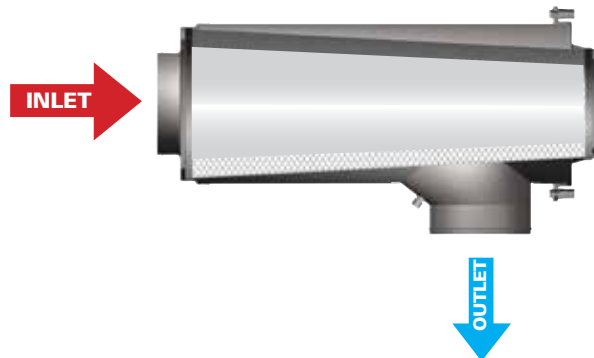
Light Dust — ERA

Classic cylindrical design, black finish, cowl-mounted for vertical installation. Airflows to 1350 cfm. *Page 58*



Light Dust — EBA Konepac™

Same housing as original EBA but with cone shaped filter (Konepac), can be mounted either horizontally or vertically. Airflows to 1850 cfm. *Page 63*



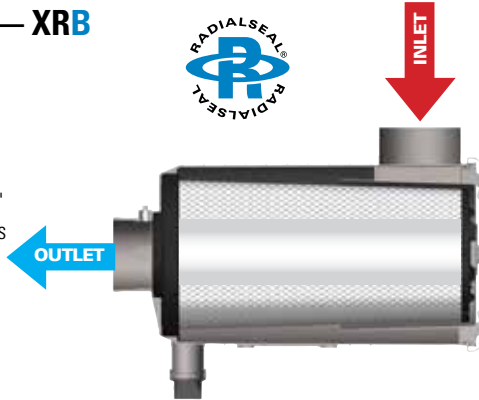
FLOW

B

Air in the Side, out the End (standard flow filters)

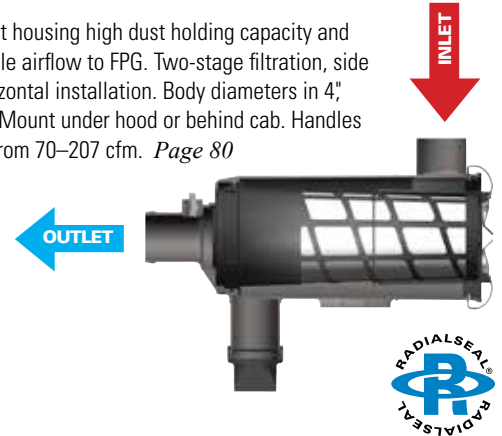
Medium Dust — XRB

The RadialSeal, plastic, two-stage air cleaner with side inlet for horizontal installation. Body diameters in 8", 10" and 12". Handles airflows of 265-630 cfm. Mount under hood or behind cab. *Page 88*



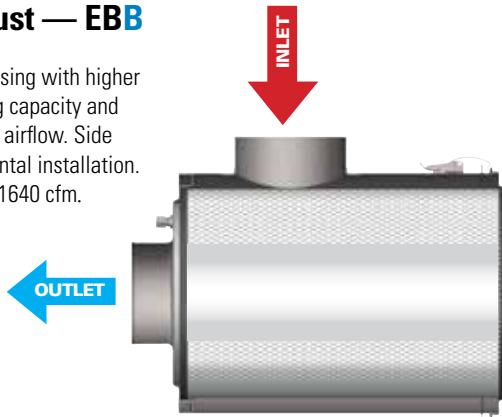
Light and Medium Dust — FKB

A compact housing high dust holding capacity and comparable airflow to FPG. Two-stage filtration, side inlet, horizontal installation. Body diameters in 4", 5" and 6". Mount under hood or behind cab. Handles airflows from 70–207 cfm. *Page 80*



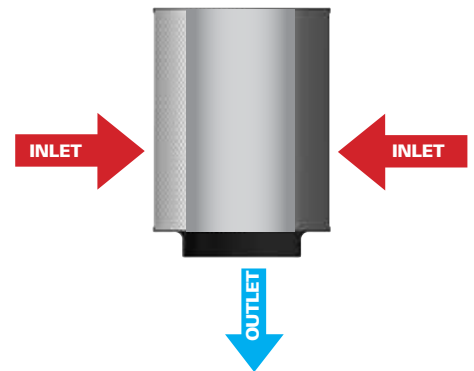
Light Dust — EBB

A small housing with higher dust holding capacity and comparable airflow. Side inlet, horizontal installation. Airflows to 1640 cfm. *Page 74*



Light Dust — ECB

Disposable, small, lightweight and unitized (housing and filter in one). For high-vibration engines. Can be vertically or horizontally mounted. Airflows to 2118 cfm. *Page 46*



FLOW

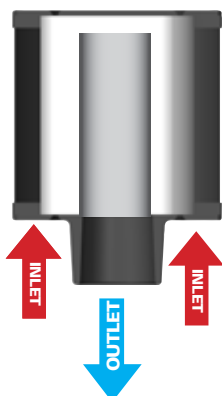
C

Air in and out the Same End (standard flow filters)

Light Dust — ECC

Disposable, small, lightweight and unitized (housing and filter in one). For high-vibration engines. Can be vertically or horizontally mounted. Airflows to 760 cfm.

Page 46



FLOW

D

Air in the End, out Opposite End

Medium to Heavy Dust — PSD



PSD units are small and compact with built-in mounting brackets. Can be vertically or horizontally mounted. Airflows to 1490 cfm.

Page 32



Light Dust — ECD

Disposable, small, lightweight and unitized (housing and filter in one). For high-vibration engines. Can be vertically or horizontally mounted. Airflows to 185 cfm.

Page 46



Light Dust — PCD



PCD units are small and compact with built-in mounting brackets. Can be vertically or horizontally mounted. Does not have an integrated pre-cleaner. Airflows to 974 cfm.

Page 32



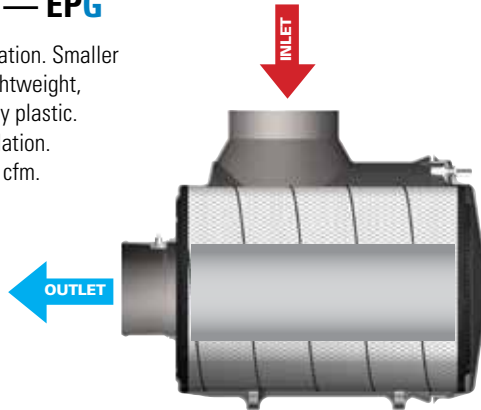
FLOW

G

Air in the Side, Out the End (standard flow filters)

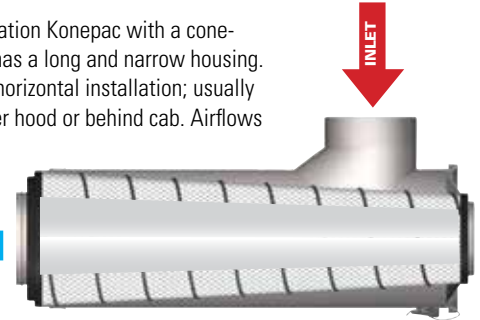
Light Dust — EPG

Single stage filtration. Smaller than ECG and lightweight, sturdy, and totally plastic. Horizontal installation. Airflows to 1325 cfm. *Page 52*



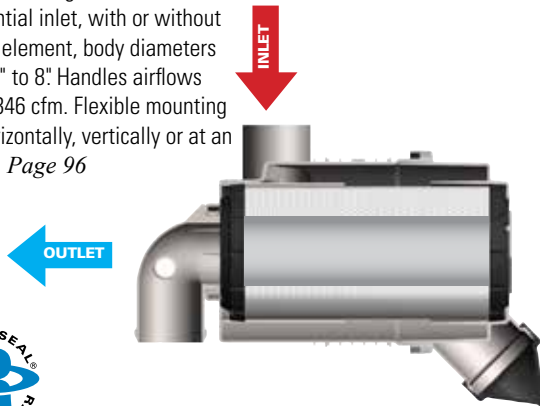
Light Dust — ECG Konepac™

Second generation Konepac with a cone-shaped filter has a long and narrow housing. Designed for horizontal installation; usually mounted under hood or behind cab. Airflows to 1600 cfm. *Page 68*



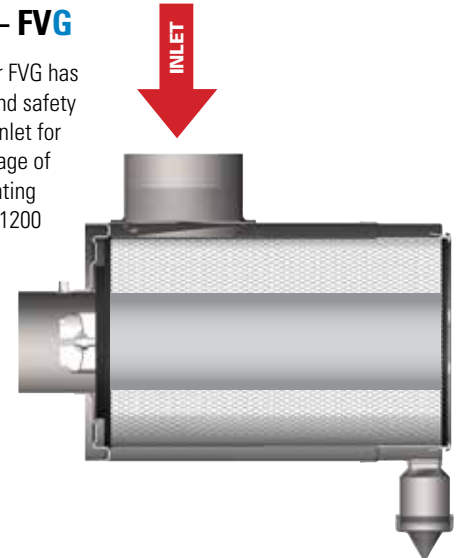
Medium Dust — FPG

The first fully plastic air cleaner in our two-stage filtration line. Tangential inlet, with or without safety element, body diameters from 4" to 8". Handles airflows of 55-346 cfm. Flexible mounting — horizontally, vertically or at an angle. *Page 96*



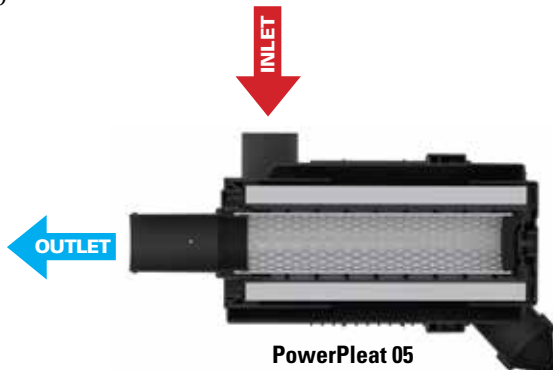
Medium Dust — FVG

A heavy-duty housing, our FVG has high airflow throughput and safety filter. Adds a vane in the inlet for a more aggressive first stage of cleaning. Horizontal mounting required. Airflows of 690-1200 cfm. *Page 126*



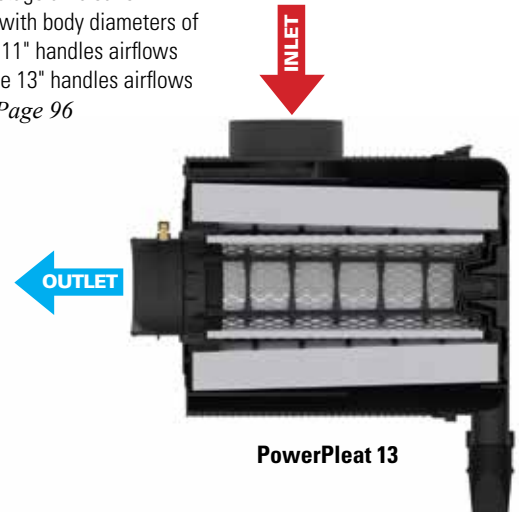
Medium Dust — PowerPleat 05

All plastic, two-stage air cleaner. Tangential inlet, with or without safety element, body diameter of 5". Handles airflows up to 95 cfm. Available in 90° or straight outlet. *Page 96*



Medium Dust — PowerPleat 11, 13

All plastic, two-stage air cleaner. Tangential inlet with body diameters of 11" and 13". The 11" handles airflows up to 437 and the 13" handles airflows up to 597 cfm. *Page 96*



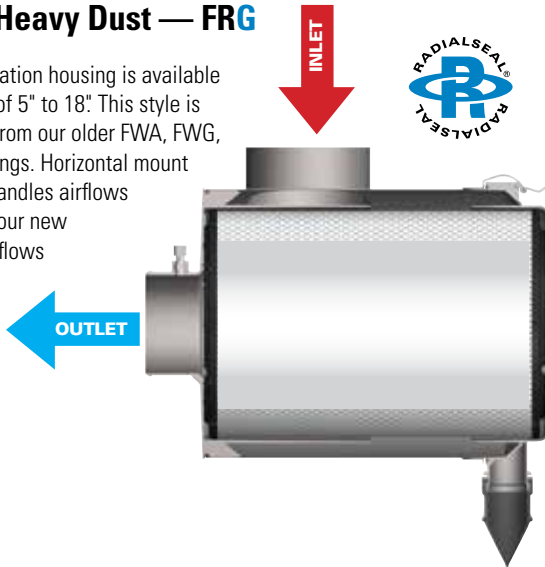
FLOW

G

Air in the Side, Out the End (standard flow filters)

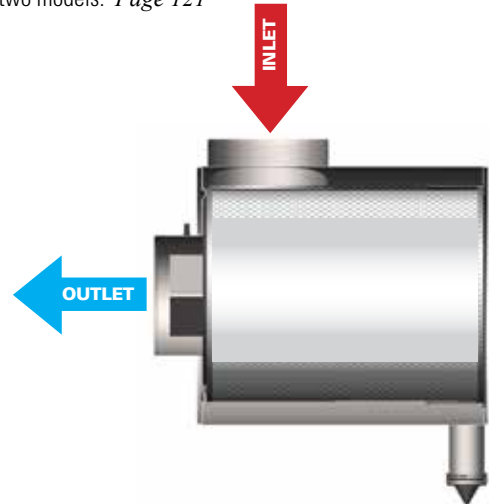
Medium to Heavy Dust — FRG

This two-stage filtration housing is available in body diameters of 5" to 18". This style is the ideal upgrade from our older FWA, FWG, FHG and FTG housings. Horizontal mount required. Style A handles airflows up to 795 cfm and our new Style B handles airflows up to 1390 cfm.
Page 107



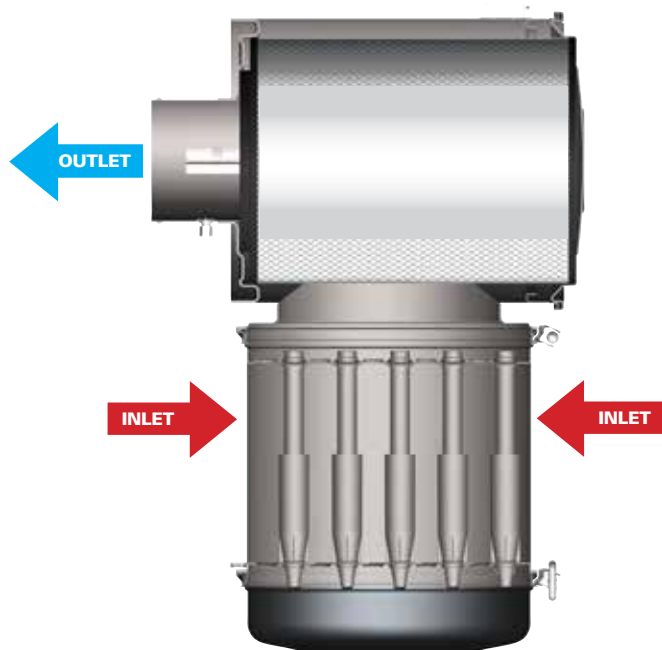
Heavy Dust — FTG

Two models available and designed for the engines on large equipment. Both have exact same airflow (from 1480-1870). Inlet tube position on housing body is only difference between the two models. *Page 121*



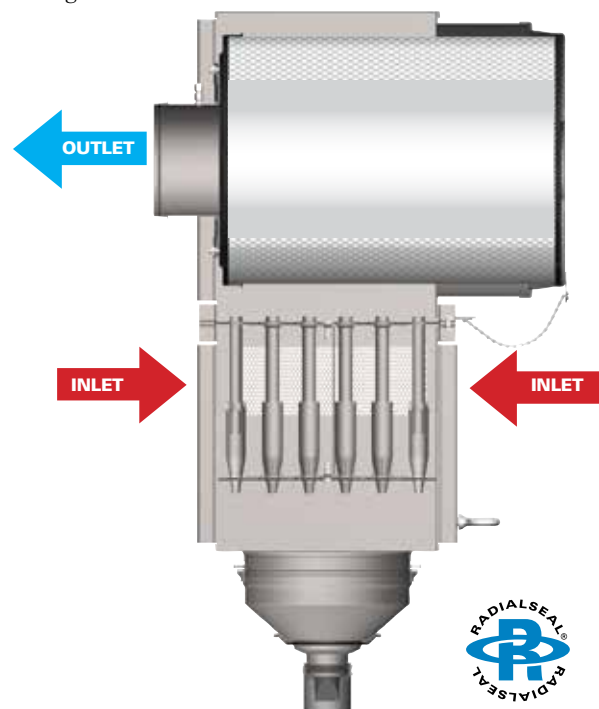
Heavy (Severe) Dust — STG

The efficient "T" design of the STG allows high airflow and strong two-stage filtration. Two styles available — one with a peripheral inlet and another with a tubular inlet. Handles airflows from 390-1760 cfm. Can be mounted vertically or horizontally.
Page 142



Heavy (Severe) Dust — SSG

These models replace our older SRG models. Donaldson's largest two-stage engine air cleaner, designed for the engines on large equipment. Handles airflows up to 4800 cfm per air cleaner. Multiple units can be used on very large equipment. The best protection for 500 to 3000+ horsepower diesel engines. This model uses RadialSeal™ sealing technology for filter retention.
Page 132



AIR FILTRATION TECHNICAL REFERENCE

Simple Facts for Owners of Diesel-Powered Equipment

The following **Shoptalk** section contains maintenance tips, cost reduction ideas, and product features and benefits.



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Air Filter Service — Best Practices

Here are some dos and don'ts from Donaldson about air filter servicing and handling. This servicing information is provided as a best practices guide. It is not however intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer.

Don't remove an air filter from its housing simply to inspect it.



- Removing and replacing the same filter can do more harm than good.
- Ridges of dirt on the gasket sealing surface can drop on the clean filter side when the gasket is released.

Never hit a filter to try cleaning it.

- Rapping hard enough to knock off dust damages the filter and can place your engine at risk for dust ingestion.
- Deeply embedded dirt is never released by tapping.
- It is always safer to keep operating until you can change to a new filter than to try and tap out the dirt.



Never operate a system with only a safety filter in place.

- Safety or secondary filters used alone will let harmful contaminant enter the engine.
- Safety or secondary air filters are designed to compliment the primary filtration or provide protection during primary filtration service.

For longer service between filter changes, consider upgrading to an extended service filter such as Donaldson Blue® air filters. Then service the filter by restriction only.



Ideally, service your air filter by restriction measurement or follow your regular maintenance schedule.

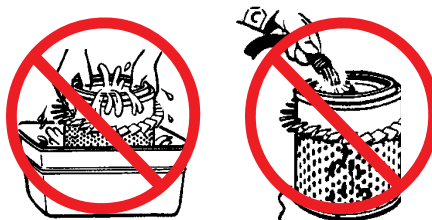
- If you don't trust your current filter service indicator, getting a new one is a good idea.
- Restriction indicators, mounted on the air cleaner system are recommended for keeping an eye on restriction levels and indicating when servicing is due.
- For testing of initial restriction and confirming remaining filter life, we recommend the greater accuracy of a clock-type restriction gauge or water manometer.



When the indicator window shows "RED," it's time to replace the air filter. A "GREEN" window indicates all is OK.

Do not clean a primary or safety filter instead of replacing it.

- Heavy-duty air filtration manufacturers do not recommend any type of cleaning process to be used on their products.
- Once an air filter has been cleaned or washed, the Donaldson filter warranty is no longer valid.
- The dirt holding capacity of a filter is reduced 20 – 40% with each cleaning attempt.
- There is also the real risk of dirt reaching the clean side of the filter if cleaning is attempted.
- The risk of filter damage from washing, tapping, high pressure water, or compressed air cleaning is very real.
- The potential savings from risky attempts at filter cleaning won't come close to offsetting potential damage to engine components.
- Increased engine wear and damage is the result of the ingress of contaminant over time.



Don't use a dented or damaged filter.



AIR FILTRATION TECHNICAL REFERENCE

Tips and Maintenance Practices for Equipment Longevity!

Check any intake hoods and pre-cleaner devices during maintenance routines.

- A missing inlet hood will significantly shorten filter life. If your unit had a hood or pre-cleaner originally, make sure you replace it.
- Check openings and tubes on pre-cleaners to make sure they are not plugged
- Replace any units that are damaged. Damaged or dented units will not operate properly.



Never leave an air cleaner open longer than necessary. An open air cleaner with filter removed is a direct entry to the engine.

- Keep your engine protected during filter changes.
- Contaminants that are smaller than the eye can see can be damaging to an engine.
- If the air cleaner housing is not going to be reassembled immediately, be sure to cover the opening.



At filter change-out, check to ensure that there is no damage to the air cleaner housing itself.



Check for any air leaks in the ducting on both sides of the air cleaner.

An air leak between the air cleaner and the engine gives dirt a direct path into the engine.

Do not judge the filter's remaining life by looking at it. A dirty-looking filter may still have plenty of life left.

- On the other hand, a clean-looking filter can also be deceiving.
- You can't see the dirt that's embedded deep within the filter media, and carbon contamination may not be visible to the eye.
- One of the best options for lowest filter maintenance costs and best engine protection is to monitor air filter life with a restriction indicator.
- It's a low-cost and smart investment.



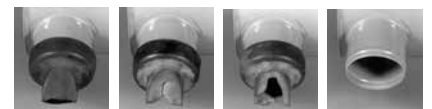
Don't ignore a worn or damaged gasket. If your air cleaner has a cover gasket, replace it with a new one when changing filters.

- Some air cleaners, such as the EBA and ERA models, specifically call for a new gasket with each filter change-out.
- Never reuse the old one. Replace it according to the service instructions.

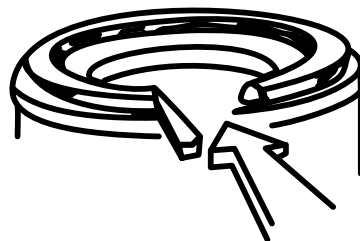


Don't take chances with weather-worn Vacuator™ Valves which can admit dirt instead of expelling it.

- Replace any missing or damaged Vacuator Valves and any air cleaner fasteners.
- Make sure the valve is flexible and not inverted, damaged or plugged. Replace it if damaged or if it looks like any of these images. A damaged or missing Vacuator Valve will disrupt the designed flow of air through the air cleaner.



Both of these filters look ready for replacement, but neither have reached their final servicing point.



More Tips and Maintenance Practices for Equipment Longevity!

Never substitute one filter with another one that has a different model number.

- The only exception is in cases where another filter is recommended as an upgrade to an older style filter.
- Filters may look almost identical, but even a small difference in size can prevent a good seal or affect airflow.
- Selecting a filter by fit alone may also give you the wrong media with potentially serious consequences for your engine over time.

A water manometer is the most accurate method to verify airflow restriction.

- For testing of initial restriction and confirming remaining filter life, we recommend the greater accuracy of a clock type restriction gauge or water manometer.
- Use the restriction tap provided on the air cleaner or at the transfer pipe.
- Replace the filter only when the restriction level has reached the maximum recommended by the engine or equipment manufacturer.
- Restriction indicators that are mounted on the air cleaner system are recommended for keeping an eye on restriction levels and indicating when servicing is due.



Installing RadialSeal™ filters

- Donaldson RadialSeal filters have a dry lubricant on the seal which aids in installation and removal. Do not remove the lubricant.
- No cover pressure is required to hold the seal in place and one should NEVER use the service cover to apply pressure.
- Forcing a cover could damage the housing, filter and fasteners and void the warranty.
- If the service cover presses against the filter before the cover is fully in place, remove the cover, push the filter further into the air cleaner by hand and then the cover will go on with no extra force.



Filter service & maintenance records

- Vehicle and engine manufacturers provide filter maintenance practices for the equipment they sell. Make sure to follow their recommendations for routine filter service. Being able to show/reveal your maintenance records for potential warranty claims is essential.
- Like all components, air intake systems have evolved and older styles and filters have different maintenance procedures. Make sure your maintenance personnel are familiar with the proper service techniques.
- Log or track your filter changes. Whether you are going to service by miles, hours or restriction.
- Many maintenance shops find it helpful to record the date of filter change directly on the filter.
- If you have to replace an entire air cleaner housing, consider designs that offer improved filtration performance (high efficiency filtration) or enhanced sealing (Donaldson RadialSeal™ housings).



Avoid cross contamination during filter service.

When a dirty filter is at its service point — the inlet side of the filter is loaded with contaminant — take these precautions to eliminate contaminant from getting on the outlet side of your new filter or clean sealing surfaces (gaskets or RadialSeal™ end caps).

- If you wear gloves during service, remove them prior to handling the new filter.
- If you don't use gloves, wash or clean your hands before handling the new filter.
- Keep your new filter in its box until you're ready to replace.
- If product box has layers of contaminant, take care that the contaminant doesn't get on the new filter as you remove it from the box.



The clean side of your air filter can vary depending on the application. Some filters load on the outer surface (shown above — referred to as standard flow), and some load on the inside surfaces of the filter (referred to as reverse flow).

Inspect the entire air induction system

The last step to any air filter service, is to inspect and tighten all air cleaner system connections.

- Immediately replace or repair any visible holes or damaged components.
- Inspect all air ducting for worn spots or damage — elbows, connections and seals.
- Check all clamps, making sure they're secure and tight.
- Inspect your pre-cleaners or inlet hoods (if equipped).
- Annual replacement of air cleaner system gaskets is recommended.
- Reset manual filter indicators.
- Record action items taken in your filter service records.

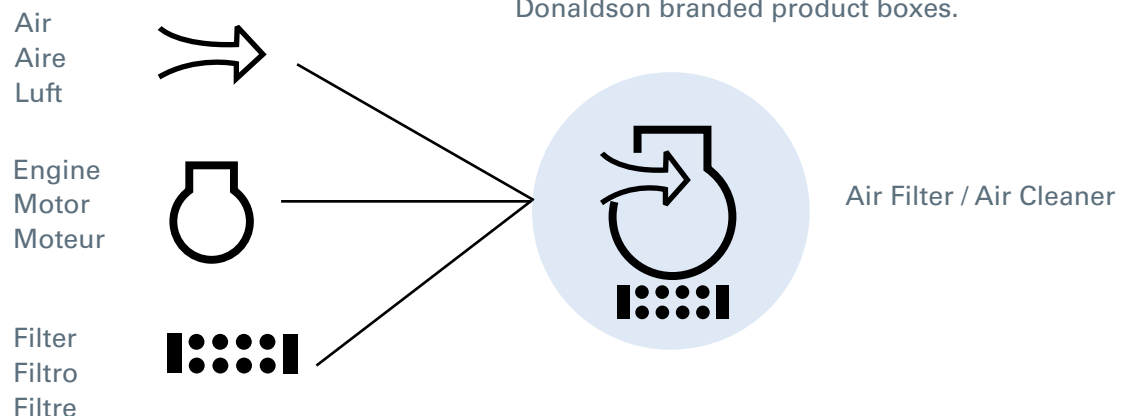


Tips and Recommendations for Storage and Handling

Whether it's an empty trailer or building, it's important to practice good storage and handling techniques when it comes to filters. Before installing any filter on a piece of equipment make sure the filter is clean, unused and free of damage and is not more than six years old from the manufacturing date.

- Never store an air filter on a shelf without it being in a box or totally sealed from outside contaminant.
- When you see an open box of filters on the shelf, tape it shut — unless the filters inside the box are individually sealed.
- Handle filters with care to prevent filter damage; for example, don't throw filters into the back of a truck.
- If transporting filters from one job site to another, don't let them roll around on the floorboard or in the back of the truck, as this may cause damage.
- Metal storage shelves may cause condensation to form on filters if sitting directly on metal. Over time the filter may get rusty. This is another good reason to store filters in boxes.
- If the product box has layers of contaminant, take care that the contaminant doesn't get on the new filter when you remove it from the box.
- Practice "first-in, first-out" with your inventory. When possible, always use the oldest inventory first.
- Make sure any labels with product information and manufacturing dates are visible to personnel pulling from the shelves.
- The conditions under which the filters are stored can have a significant impact upon the shelf life of the filter; e.g., conditions of excessive temperatures or exposures to certain chemical environments can have an adverse effect on shelf life.
- Avoid cross contamination from an old filter to a new one. Make sure your hands are clean when handling the new filter and avoid touching/handling the outlet side of the filter.

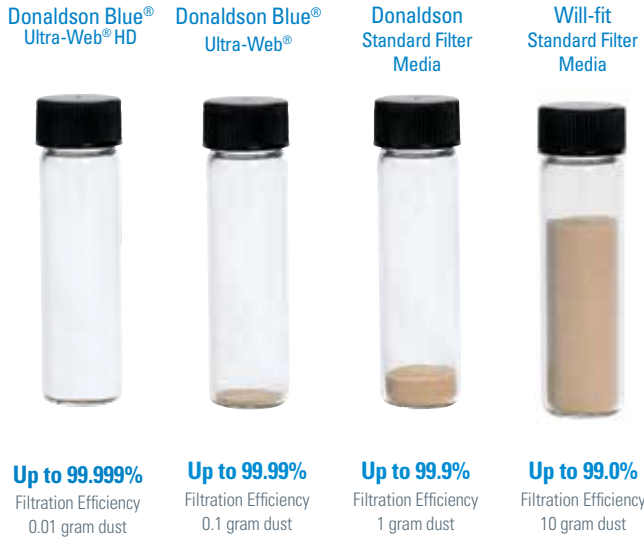
Air Filter/Air Cleaner Pictogram



The Donaldson pictogram for air filters and housings is a combination of three industry shapes. You'll also see the pictogram on Donaldson branded product boxes.

Take a Look at Air Filtration Efficiency and Dust Holding Capacity

Compare for yourself — see how much dust can pass through your air filter during 100 hours of operation.



You Can See the Difference!

These dust vials show the actual amount of Arizona fine test dust that passes through the air filter media for every one kilogram of dust fed to the air filter, which is equivalent to 100 hours* of equipment operation.

Will-fit filters can allow up to 100 times more dirt to pass through the filter into the engine than Donaldson Blue air filters with Ultra-Web filter media.

* Estimate based upon typical medium dust operating conditions with 92% pre-cleaner efficiency. Actual results may vary.

Donaldson Ultra-Web® and Ultra-Web® HD fine fiber filtration technology delivers cost-saving benefits:

- Superior filtration
- Long filter life with submicron contaminant
- Highest efficiency
- Ideal for extended maintenance intervals
- Longer engine life

Don't leave engine protection to chance!

Use Donaldson Blue air filters with either Ultra-Web fine fiber media or Ultra-Web HD ultra-fine fiber media for maximum filtration efficiency and superior dust holding capacity.

All Nanofibers are Not Created Equal

Since Donaldson introduced Ultra-Web® to industrial applications nearly 30 years ago and to the diesel engine market almost 20 years ago, the technology has been continually advanced and perfected to deliver longer filter life and higher efficiency while protecting the environment.

Ultra-Web and Ultra-Web HD fine fiber filtration technologies strike just the right balance between the strength of the fiber density of the web and the level of filtration. Donaldson fine fibers produce a very fine, continuous fiber that form a permanent web-like net that traps dust on the surface of the filter media.

Longer Filter Life

Ultra-Web technology is proven and perfected to last up to two times longer than Axial filters. What's the secret? Ultra-Web technology keeps particulate on the surface of the media.



Filtration scientists attribute surface loading of dust with lower operating pressure drop over a much longer period of time. This means less energy is required to pulse off the dust and allows the filter to perform longer. Conversely with other

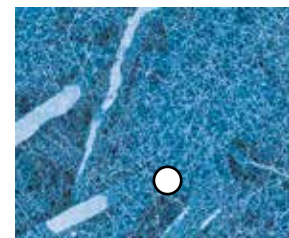
types of filters, pressure drop starts higher and continues to rise quickly, which shortens the life of the filter and uses more energy.

Donaldson Nanofiber Technology

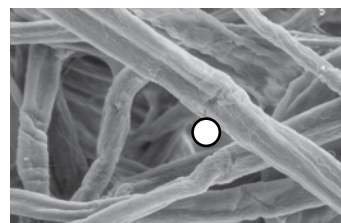
Donaldson Blue® Ultra-Web®



Donaldson Blue® Ultra-Web® HD



Standard Cellulose



○ = 10 micron particulate at 1000x enlargement.

Don't Throw Away a Good Filter Just Because it Looks "Dirty"



Although this air filter may look "dirty" — it can go plenty more miles. Installation of a restriction indicator can save you money and time.

Why Service By Restriction?

Proper air cleaner servicing will result in maximum engine protection against the ravages of dust. Proper servicing can also save you time and money by increasing filter life and dust cleaning efficiency.

By using proper filter restriction measurement tools you will use the full life of the filter at maximum efficiency. **DON'T BE FOOLED** by filter appearance: it should look dirty.



The only way to determine when a filter is plugged or plugging is to measure the restriction on the system with the engine working at max airflow.

Two of the most common air cleaner servicing problems are:

1. Over-servicing: the least efficient time in the life of the filter is when it is new. Filter elements increase in efficiency as dust builds up on the media.
2. Improper servicing: your engine is highly vulnerable to abrasive dust contaminants during the servicing process when the filter is removed from the housing. A leading cause of engine damage is due to careless servicing procedures.

Choose Restriction Measurement Tools that Best Fit Your Applications

Donaldson offers a variety of restriction measuring devices that help you get maximum filter utilization. All measure restriction in inches of water vacuum. All are resistant to vibration, breakage, weather, corrosion, dust, and dirt to assure reliable filter restriction readings.



Restriction measurement tools are available in the following categories: Graduated Indicators, Single Position Indicators, Visual Indicator and Switch, Switch Only, Sensors, and LED Displays. Refer to page 196 for a complete listing of restriction measurement tools that now includes Filter Minder®.



Will Using Aftermarket Filters or Mufflers Void My Warranty?

Answer: Good News! No need to worry about voiding your warranty — you can use aftermarket products! You still need to follow your manufacturer’s recommended maintenance practices, but your warranty is protected under the Magnuson-Moss Warranty Act. Information on the Magnuson-Moss Warranty Act is available at <https://www.ftc.gov/tips-advice/business-center/guidance/businesspersons-guide-federal-warranty-law#Magnuson-Moss>.

In addition, Donaldson warrants its aftermarket products against failure due to defects in materials and workmanship for the period specified under the Terms and Conditions for the particular product.

Worried About Water in Your Air Intake System?



Sometimes you can’t help operating equipment in extreme moisture environments, but it’s good to know a few things to help keep your air intake system running at top efficiency.

Typical Symptoms of Water Ingestion:

- High restriction indications
- Mud caked in the Vacuator™ Valve
- Wet, wavy air filter media
- System rust, corrosion and/or water damage
- Moisture-related environmental problems such as icing

Simple Tips to Keep Water Out of Your System:

- Check and clear the VacValve daily
- Make sure the air cleaner cover and filter are installed properly
- Inspect air intake system for any leaks



Caution: A water-soaked air filter will occasionally lock-up a restriction indicator!

A restriction indicator’s “lock-up” restriction level is generally marked on the indicator itself. To check an indicator, remove it, wipe the base clean, then apply a small amount of vacuum. If the indicator locks up, it is okay. If not, replace the indicator.

AIR FILTRATION TECHNICAL REFERENCE

Warranty Coverage
Donaldson warrants its Aftermarket products against failure due to defects in materials and workmanship for the period specified under Terms and Conditions for the particular product. Donaldson's obligation under this warranty covers replacing the failed product, including transportation charges, only. If the Donaldson product failure is the sole and direct cause of damage to the equipment on which the product was properly installed, Donaldson will reimburse reasonable costs to restore before the failure. This warranty does not cover failure due to misapplication, misuse, abuse, neglect, rust through and corrosion (mufflers), improper installation, modifications, improper service practices or non-Donaldson approved Engine and equipment manufacturers warranties remain in effect when Donaldson products are used.

Notification
Donaldson must be notified in writing of any claims covered by this warranty within one year of the date of failure. Donaldson, at its discretion, will either physically visit the site where the alleged failure has been found, or request that all parts (Donaldson and other relevant parts) be shipped prepaid to its General Office, in care of the Product Lab or as otherwise specified.

Terms and Conditions
Warranty coverage begins on the date and mileage the product is purchased by the user and expires when the specified number of years or miles has passed, whichever occurs first. The length of warranty for replacement products provided under Warranty coverage is the balance of the warranty period remaining on the product being replaced.

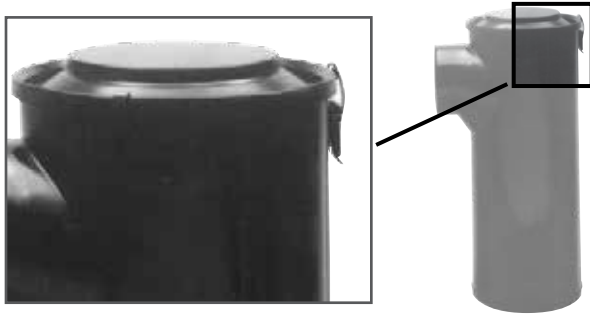
Warranty Length by Product Type

Filtration Products	Warranty from Date of Delivery to User
Liquid Filter Assemblies and Accessories	1 year
Air and Liquid Filters	1 year from in-service date or until first cleaned or serviced in any manner
Air Cleaner Housings and Accessories	1 year
TopSpin™ HD	1 year
Air/Oil Separators	Limited Lifetime Warranty
	(8 months / 1,000 hours from in-service date)
Exhaust Products	Warranty from Date of Delivery to User
Diesel Mufflers	4 years or 500,000 miles (800,000 km)
Vertical Installation	3 years or 500,000 miles (800,000 km)
Horizontal Installation	1 year
Gas Mufflers	4 years or 500,000 miles (800,000 km)
Silent Partner™ Exhaust Silencer	8 years or 1,000,000 miles (1,600,000 km)
Stainless Steel	4 years or 500,000 miles (800,000 km)
Aluminized Steel	1 year
Exhaust Accessories	1 year
Chrome Parts (peeling and blistering only)	1 year or 100,000 (160,000 km)
Flex Pipe	30 days
Long-Life Flex Pipe	1 year or 120,000 (200,000 km); on-highway use only

Donaldson Company, Inc.
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North America: 852-374-1374

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Keep Those ECG Konepac™ Air Cleaner Latches Inspected



ECG style air cleaners have three cover latches that need to perform correctly to ensure the element gasket is sealing properly. These latches should be checked for tightness and wear. To check for tightness, close all three latches, then open and close them one at a time. There should be good tension and should snap tightly when closed. If any latches seem loose or rattle, they should be replaced.



The spring clip and pin repair kit is X009291 and fits all ECG style air cleaners.



The most obvious place to check for wear is the spring latch tip (the part that hooks into the notch on the filter cover). The tip may become sharp and cut into the filter cover with extended wear. The tip may also wear to the point where it will not hook onto the filter cover at all. If any of these conditions are evident, the latch should be replaced.

No Matter What Dust Condition, Pre-cleaners Extend Air Filter Life



Six pre-cleaner styles offer the broadest product range in the industry

Pre-cleaners remove contaminant of varying sizes from entering the intake duct; they don't require any engine power to operate. Some devices collect the contaminant (Full-View), others just eject or drop the contaminant (TopSpin, Top Spin HD / in-line separator), or are connected via a scavenge system and route debris out the exhaust system (Donaspin / Strata Cap).

- Strata Cap and Donaspin are units for scavenge air system option for heavy dust condition operating environments. Additional components required for scavenge system (hoses, check valves, clamps and exhaust ejector)
- Pre-cleaners extend life of vehicle air filters and serve as rain caps
- Units are made of durable materials — either metal or impact resistant plastic
- Units install outside of engine compartment — leaving more space under hood for other components (exception-in-line separator)
- Pre-cleaners have no wires or power requirements
- Requires additional components for scavenge system (hoses, check valves, clamps and exhaust ejector)

Quick Comparison

More characteristics about our pre-cleaner line. For more details, contact your local distributor or dealer.

Dust Condition	Max. Sepr Efficiency	Pre-Cleaner Family	Scavenge Required	Service Required	Material
Heavy	96%	Strata™ Cap	Yes	Yes	Plastic
	90%	Donaspin™	Yes	No	Steel
Medium	85%	TopSpin™	No	No	Plastic
	80%	TopSpin™ HD	No	No	Aluminum/ Stainless Steel
	70%	In-Line Separator	No	No	Steel
	75%	Full-View	No	Yes	Steel/Plastic

Did You Know that Your Truck, Tractor, and Airplane Can All Use Donaldson Filters?



If you own or operate a Beechcraft, Piper, Cessna or Mooney airplane, or a Bell, Aerospatiale (Eurocopter) or MD Hughes rotorcraft, chances are it was delivered with Donaldson filters onboard. Airframe and engine manufacturers trust Donaldson quality. We've been providing superior pleated media engine air intake, fuel, lube and hydraulic filters for piston-powered aircraft for more than 40 years. When it comes time for your next maintenance check, don't compromise the integrity of your airplane! Ask your mechanic to install Donaldson OEM filters for maximum performance and filter life.



Donaldson General Aviation Engine Air Intake Filters

Contact Information for Filtration Systems for the Aerospace & Defense Industry

North America 1-866-323-0394

Europe Aerospace +00 800-63-29-2750

Europe Defense +00 800-28-00-2900

For additional locations and contact information, visit:
www.donaldsonaerospace-defense.com

Donaldson Keeps Military Vehicles Moving



The Bradley M2/A3 Fighting Vehicle relies on a Donaldson air cleaner and muffler.

Did you know . . .

Donaldson designs and manufactures filtration and exhaust products for a large variety of defense applications and equipment? For example . . .



The LCAC Hovercraft uses Donaldson Strata™ panel filters to supply clean air to its engine.



Donaldson Defense Group introduced the Strata™ tube pre-cleaner on the Sikorsky CH-53 Helicopter.

We've designed filters to perform in extreme environments. Our filters are used worldwide in the roughest military applications, effectively filtering air and exhaust, as well as transmission fluid, hydraulic systems, lube oil, coolant, and fuel.

What is Airflow Restriction?
The resistance to the flow of air through the air cleaner system; typically measured in inches of H₂O or kPa.

Restriction across the air cleaner is the difference in static pressure between the atmosphere and the outlet side of the system being measured. *Analogy: trying to pull liquid through a straw that is kinked versus one that is not. Obviously, the greater the kink, the harder it is to move liquid through.*

Air in an intake pipe acts much the same way. Any time the direction of the air is changed, there is a resulting pressure that increases the restriction of the system. While we can't totally avoid direction changes, they should be minimized.

Include Entire Airflow System When Calculating Initial Airflow Restriction

Any intake system design should incorporate the best protection at the lowest initial restriction possible. Because each intake component contributes to the total restriction of the system, it is recommended that the position of the air cleaner be as close to the engine as possible. It is also important to minimize the elbows, bends and long runs of duct work.

Changing the direction of the intake air movement causes restriction, which causes the engine to work harder. While this is something we like to avoid, the reality is that it cannot be avoided totally . . . but just how much is too much, and what can be done about it?

Conversions:

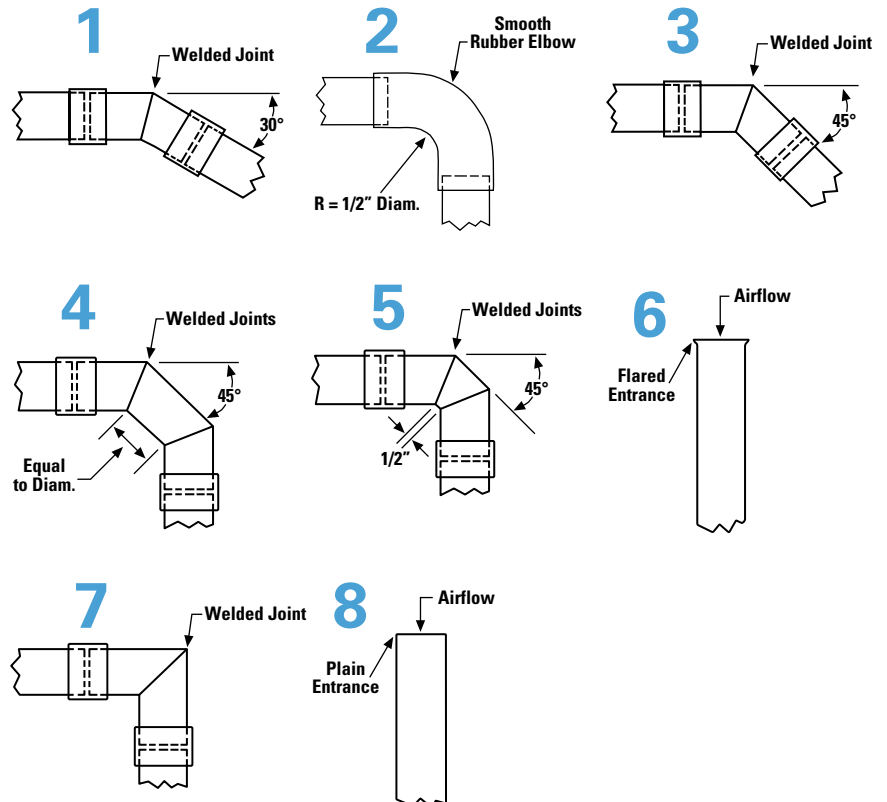
- 1" H₂O = 0.0361 psi = 0.249 kPa
- 1 cfm = 0.0283 M³/minute
- 1" = 25.4 mm
- 1 lb-ft = 1.35 N•m

The Affect of Elbows & Entrance Diameters on Air Cleaner System Restriction

Generally, the smoother the direction change, such as radiused tubes versus mitered bends, the lower the restriction. A 30° bend (figure 1) adds the least amount of restriction, while the 90° bend (figure 7) adds significantly more.

Remember that even straight pipe causes restriction and pipe with a cut-off blunt end will add much more than one with a flared inlet end. The slight flare makes a major difference in air turbulence, and consequently, in restriction.

Not only bends, but *length* of pipe is also a factor. For further details on the amount of restriction added to the system by piping and bends, see the next page.



The Goal: Minimize the number of bends AND use bends that cause the least amount of restriction

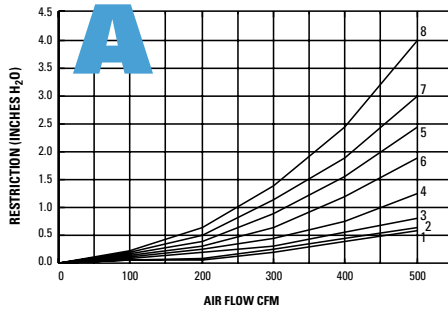
Graphs A, B, C, D and E show the amount of restriction of different piping diameters, with various types of bends (illustrations 1 – 8 as shown on opposite page), at various airflow levels. You will notice that the smoother the direction change, such as radiused tubes versus mitered bends, the lower the restriction. A 30° bend (shown in illustration 1) adds the least amount of restriction, while the 90° bend (shown in illustration 7) adds significantly more.

You may think it odd that straight pipe (shown in illustration 8) causes the highest amount of restriction. This is because of the blunt end. Compare the restriction curve to illustration 6, which shows a flared end. The slight flare makes a major difference in air turbulence, and consequently, in restriction.

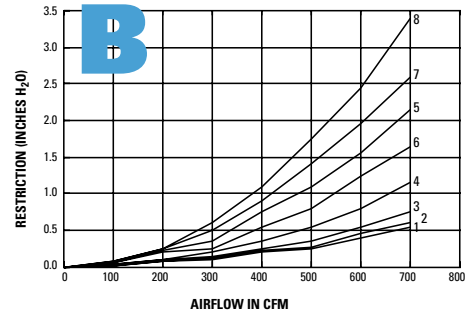
Length of pipe is also a factor, as shown in graph E. Find the line that represents your pipe diameter at the airflow level you're running to give you a restriction figure for each foot of pipe length; then multiply by the length (in feet) of your plumbing and you have the amount of restriction added by that length of pipe. (See example below graph E.)

These curves should allow you to do a quick calculation on the plumbing you are planning for your system. Add this figure to the restriction of your air cleaner (and pre-cleaner when used) to know if your system is too restrictive for the engine. Many engine manufacturers specify restriction limits for new, "clean" engine air intake systems.

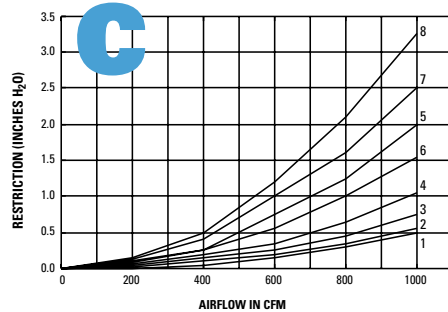
4" Diameter Piping



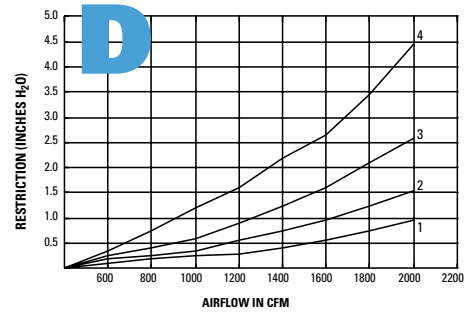
5" Diameter Piping



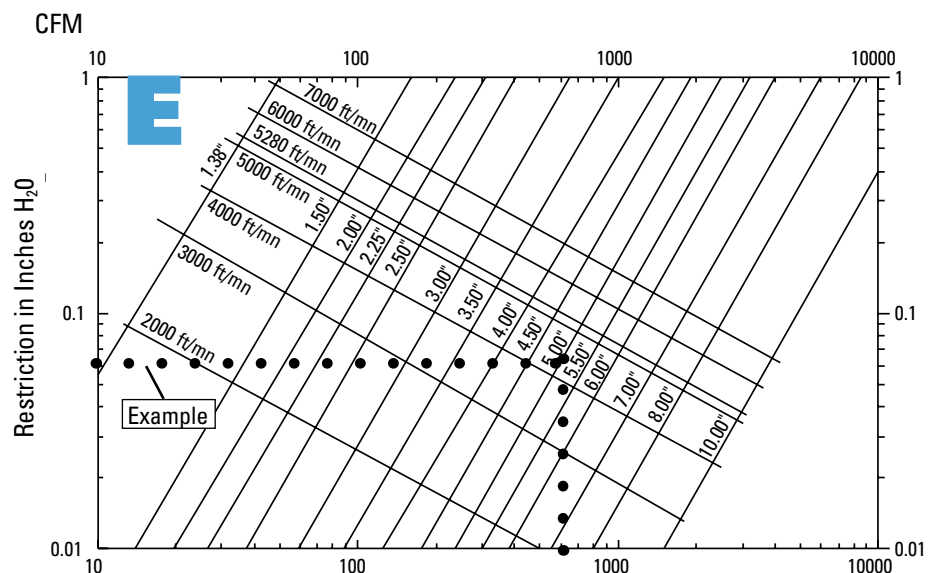
6" Diameter Piping



7" & 8" Diameter Piping



Straight Piping of Various Diameters



Example (Assuming a 600 cfm system with 5" piping)

1. At 600 cfm on horizontal axis, draw a line up to the 5" diameter line.
2. Draw a line from that intersection point over to the vertical axis to find the restriction point, in this case .06 H₂O.
3. Calculate: .06 x 10 feet of piping = .6" H₂O. This means that the 10 feet of 5" diameter piping add .6" H₂O of restriction to the engine air intake system.

AIR FILTRATION TECHNICAL REFERENCE

Air Filter/ Air Cleaner

Device which removes particles suspended in the airflow as it is drawn into the engine.

Airflow Requirements

Air is critical to the operation of an engine. The amount of air required by the engine depends on the type of engine, if it has a turbocharger, and the engine horsepower (kilowatt) rating. The engine airflow requirement or specification is set by the engine manufacturer. Airflow requirements from the engine manufacturer should be requested for any changes or upgrades made to the air system.

Axial Seal

The axial seal sealing method requires a force between the air filter and air cleaner that provides enough compression on the gasket between the parts to create the seal.

CFM

CFM means cubic feet per minute. This is the unit of airflow measurement. An engine requires a flow of air for combustion.

Differential Pressure

Difference in static pressure measured immediately upstream and downstream of the unit under test.

Dust Capacity

Dust capacity is the amount of contaminant that will be collected on a filter before a specified restriction level (set by the engine manufacturer) is reached.

Dust Concentration

Dust concentration expresses the mass of dust in a specified volume of air. Typical ambient conditions are around 0.1 milligrams per cubic meter. Off-road conditions are around 100 milligrams per cubic meter.

Filter Media

Filter media is the material in the filter that removes the contaminant. Filter media in primary filters is made from cellulose and various combinations and blends of fibers combined with resins to keep the fibers together.

Manometer

A manometer is a device that can be used in-field for testing of a filter's initial restriction and confirming its remaining filter life. A manometer, or clock-type gauge, can be a more accurate method of restriction measurement.

Overall Efficiency

Overall efficiency is the percentage of dust that the air cleaner with a filter removes from intake air. Donaldson air cleaners, with a Donaldson air filter, have a 99.99+% overall efficiency.

Primary Filter

The primary filter is the filter in the air cleaner that removes around 99.9+% of the air's dust. The air flows through the primary filter first.

RadialSeal™ Technology

RadialSeal refers to filter sealing technology that uses the urethane end cap and the cleaner's outlet tube to create the seal. This has become the preferred method of sealing over older axial seal designs.

Rated AirFlow

Flow rate specified by the user or manufacturer; to be the maximum airflow required by the engine.

Restriction

Restriction represents the resistance to the flow of air through the air cleaner system. The static pressure is measured immediately downstream of the unit under test.

Typical units are inches of water ("H₂O) or kilopascal (kPa). Air cleaners with clean filters should have restrictions between 6-10"H₂O or 0,5 and 4 kPa

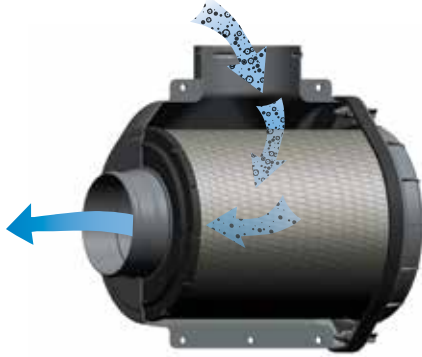
- 1 H₂O = 9,80665 Pa (Pascal)
- 1000 PA = 1 kPa (kilopascal)
- 100 Pa = 1mbar (milibar)
- 10 Pa = 1 daPa (decapascal)

Restriction Tap

This is the point on an air cleaner where a port exists to add a filter service indicator. Air filter service indicators measure air restriction and trip or engage depending on the airflow pressure on the inlet side of the housing.

Single-Stage Air Cleaner

A single-stage air cleaner is a dust removing system for intake air with a filter and no pre-cleaner.



Safety (Secondary) Filter

The safety (or secondary) filter is an optional filter that protects the engine during servicing of the primary filter and in case of a leak in the primary filter.

Multi-Stage Air Cleaner

Air cleaner consisting of two or more stages, the first usually being a pre-cleaner followed by one or more filters. If two filters are employed, the first is called the primary filter and the second one is called the safety or secondary filter.



Pre-cleaner

Device usually employing inertial or centrifugal means to remove a portion of contaminant prior to reaching the filter.



Test Air Flow

Measure of quantity of air drawn through the air cleaner outlet per unit time. The flow rate shall be expressed in cubic meters per minute or cubic feet per minute (CFM).

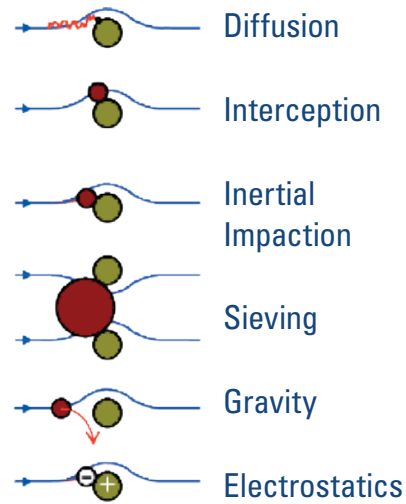
The Science of Air Filtration

Filtration & Separation Mechanisms

Filtration and separation mechanisms are integrated into the design tools used by Donaldson personnel in the development cycle of new products.

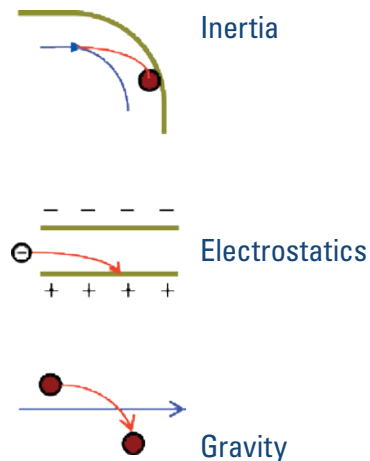
Filtration Mechanisms

Primary



Separation Mechanisms

Primary



AIR FILTRATION TECHNICAL REFERENCE

Filter Media

Filtration media represents the central point of any filter design. Mastering this science is a key focus at Donaldson. While our users may not need to share this same level of understanding, some basics are always helpful. With the media representations below we hope to educate our customers on some of the more commonly used media types in this ever changing industry.

Today's engines are built to more stringent specifications and finer tolerances. Engine components require cleaner air to achieve better combustion and lower emissions. Your air intake system filter media and service practices can make the difference between engine power and engine problems.



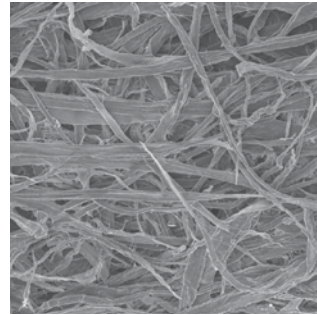
Cellulose (traditional media)

Primary dry filter media is a cellulose base material and used in the majority of our air filter applications. It is used primarily in two types of engine intake systems — single- or two-stage. Applications include off-road, on-highway trucks, buses, and underground mines.

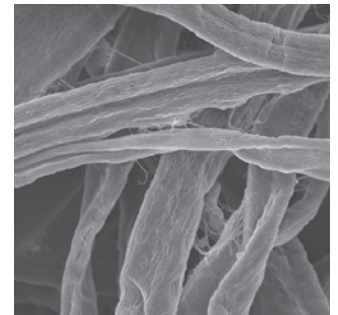
How it Works



SEM 100x



SEM 600x



Media Image

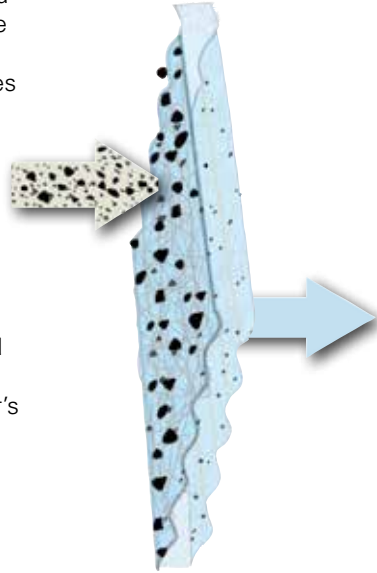


Donaldson Blue® Ultra-Web® Nanofiber Technology

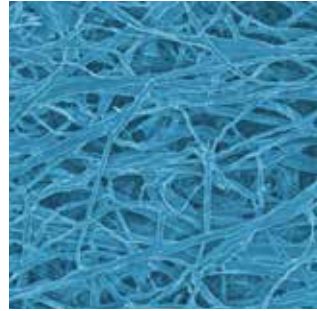
Ultra-Web® filter media is composed of a cellulose or a cellulose/synthetic substrate with nanofibers applied to one side. This media provides a durable filtration solution in the high temperature and humid environments experienced by diesel, turbine, hybrid, and other powered engines.

Ultra-Web offers a higher initial efficiency vs. standard cellulose, has very high efficiency throughout a filter's life, and provides excellent engine protection from sub-micron particulate (e.g. exhaust soot).

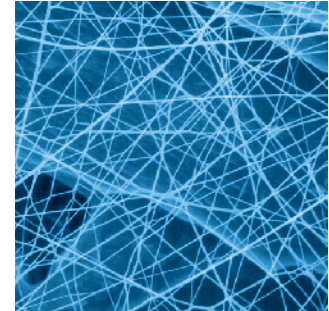
How it Works



SEM 100x



SEM 600x



Media Image

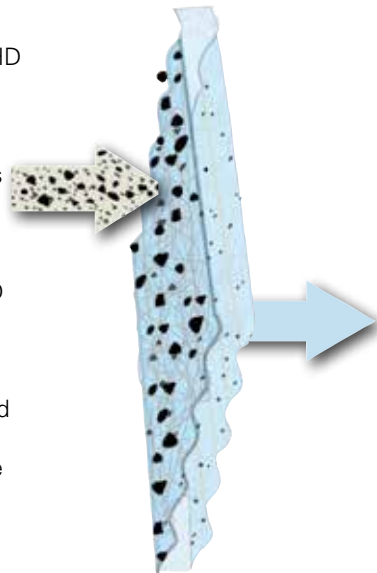


Donaldson Blue® Ultra-Web® HD Nanofiber Technology

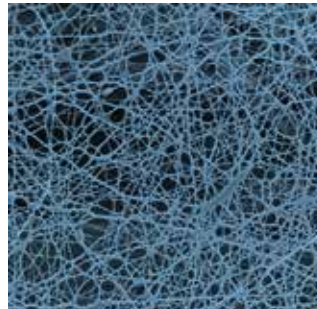
While traditional Ultra-Web® media will protect your equipment in harsh environments, Ultra-Web® HD has been developed for use in extreme fine dust environments. It's the nano-technology that makes this filter such a strong performer.

Donaldson's Ultra-Web® HD media creates consistent inter-fiber spacing at a microscopic level. Because these fibers are so small and strong, we can add more of them to the critical ultra-fine fiber layer without creating additional restriction. The result is a filter that delivers everything required to combat dust ingress, providing ultra-long life and ultra-high efficiency.

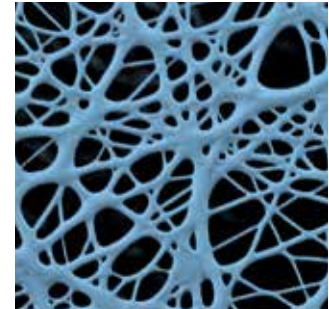
How it Works



SEM 1000x



SEM 5000x



Media Image

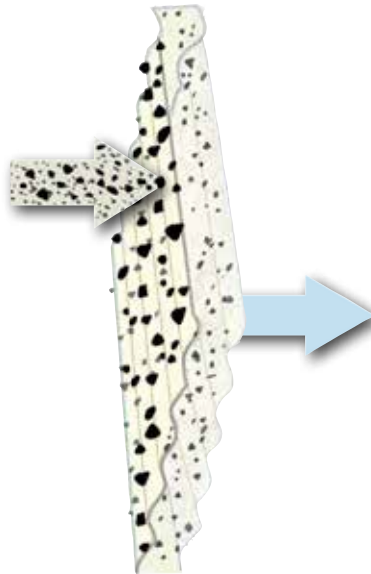


Vibration Resistant Media

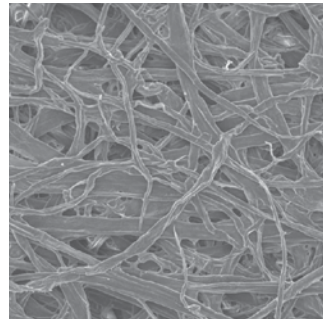
Vibration resistant filter media is a cellulose base material that offers maximum filtration protection and withstands high pulsation/vibration situations that would normally destroy other filter medias.

Applications include, but are not limited to, one, two and three cylinder engines and piston compressors.

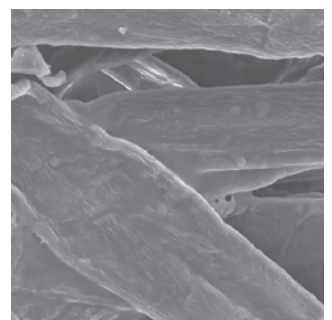
How it Works



SEM 100x



SEM 600x



Media Image

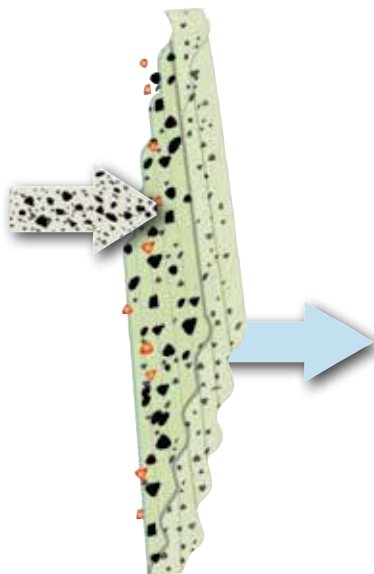


Flame Retardant, UL-approved Media

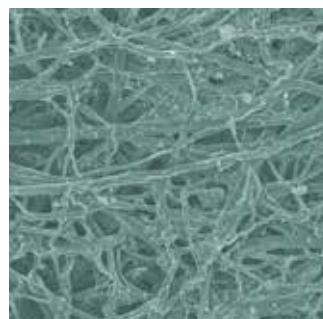
Flame retardant/UL-approved filter media is a cellulose base material specially treated for use on vehicles operating in industrial applications where sparks or flames from backfiring through the intake system create a fire hazard.

Grain elevators and warehouses are good examples of UL-approved filter media applications.

How it Works



SEM 100x



SEM 600x



Media Image

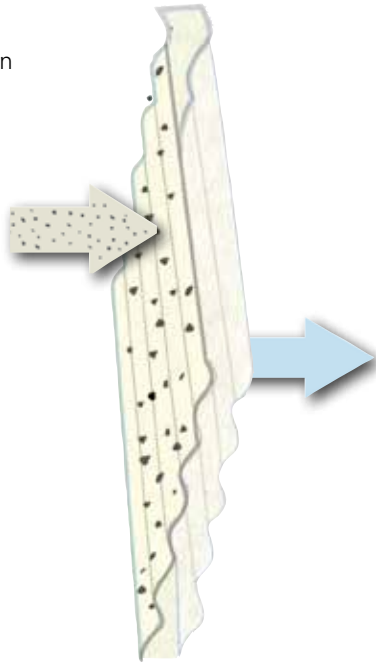


Safety Filter Media

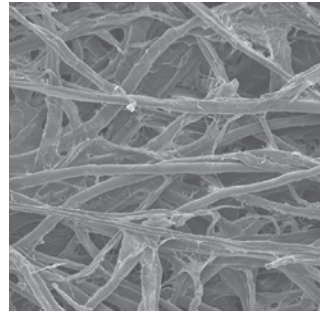
Pleated safety filter media is designed for heavy duty air cleaner systems with high velocity airflow and is used in safety filters — both single- and two-stage air cleaner systems. The safety filter protects the intake system while servicing the primary filter and in the event the primary filter is damaged.

The same media may be used for ventilation panel filters to remove dust, chaff and pollen from air entering vehicle cabs in construction, agricultural, industrial and mining applications.

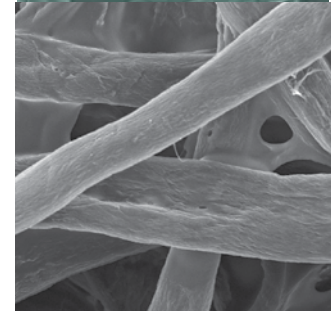
How it Works



SEM 100x



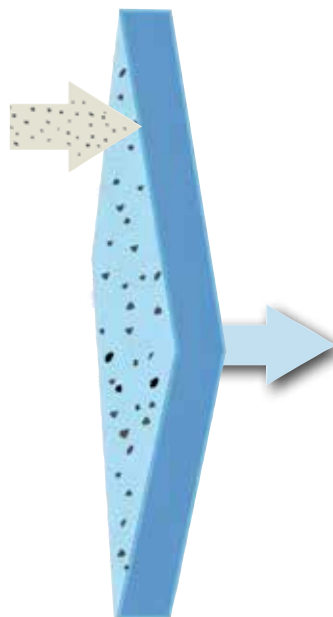
SEM 600x



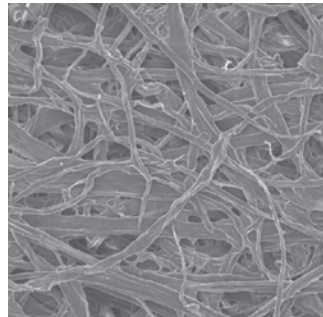
Media Image



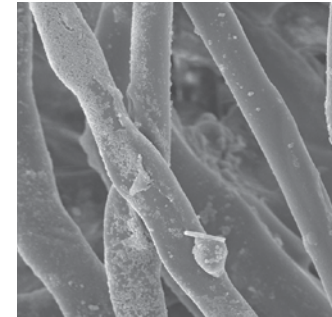
How it Works



SEM 100x



SEM 600x



Media Image



AIR FILTRATION TECHNICAL REFERENCE

Filter Efficiency: Donaldson air filters in Donaldson air cleaner housings have a 99.9+% minimum overall efficiency.

Questions often arise about the micron ratings and test procedures on air cleaners and replacement air filters. Typically, air cleaners and air filters are not assigned a “micron rating.” Micron rating is a term used in liquid filtration. Air filters are evaluated for life and efficiency using an industry-wide standard (ISO 5011). The following should clarify the questions surrounding this issue.

Filter life is measured in total grams fed or in hours of lab life and is determined by testing at a standard test dust concentration of 1 g/m³ (0.028 g/ft³) for single stage air cleaners or 2 g/m³ (0.056 g/ft³) for multistage units at either a constant or variable airflow. The end of the life testing is determined using the restriction method. When the predetermined restriction service point is reached, the test is stopped and the filter is weighed. The amount of test dust held by the filter is considered the capacity or life of the filter. The life of an air cleaner requires some additional consideration. Many air cleaners have inertial separators included in the housing. These inertial separators remove up to 98% of the dust that is fed during one of these tests. Therefore, the inertial separator efficiency must also be evaluated.

Filter efficiency is calculated by determining the increase in weight of an absolute filter (an absolute filter captures any dust that passes the test filter) located downstream of the test filter versus the weight of the total dust fed.

Table 1 details the particle size distribution of the standard test dust used for life and efficiency evaluations (ref. ISO 12103-1).

Table 2 lists common contaminants found in field environments, as well as their particle size ranges. Although field conditions vary from one location to the next and from time to time, this test allows for a standard means of comparison and a laboratory method of evaluating air cleaner life and efficiency.

Table 1 — Particle Size Distribution by Weight %

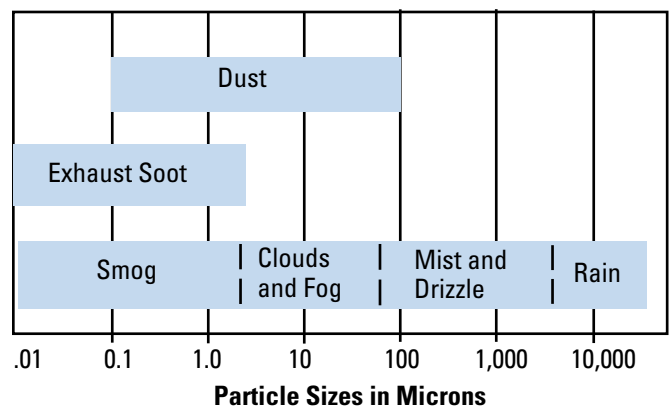
Fine test dust is used for testing primary dry air cleaners that are most often used in on-road and automotive applications, and coarse dust is used for multi-stage air cleaners that typically use inertial separators and operate in very dusty applications.

Particle Size Range (in microns)	Weight %*	
	Fine (on-road)	Coarse (off-road)
0 - 5 μ	39 %	12 %
5 - 10 μ	18 %	12 %
10 - 20 μ	16 %	14 %
20 - 40 μ	18 %	23 %
40 - 80 μ	9 %	30 %
80 - 200 μ	0%	9 %

* Percentage of weight can vary by ±2-3 % in each particle range



Table 2 — Common Contaminants and Micron Sizes



Reference: FMCTSB 04-03

Filter Cleaning:

Donaldson recommends servicing air filters by monitoring the airflow restriction levels in the intake system.

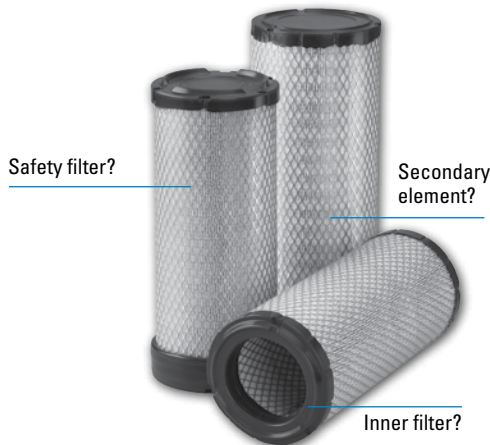
Some vehicle owners and maintenance supervisors, concerned with lowering their operating costs, will clean and reuse their heavy-duty air filters. Before you decide whether cleaning or washing of air filters is appropriate for your vehicle or fleet, please consider these factors:

- Heavy-duty air filtration manufacturers do not recommend any type of cleaning process be used on their products. Donaldson, like other heavy duty air filter manufacturers, does not warrant the air filter once it has been cleaned.
- Filter dirt holding capacity is reduced 20 – 40% with each cleaning.
- Rather than cleaning or reusing filters, consider upgrading to an extended service filter (i.e., Donaldson Blue® air filters) and service the filter by restriction.
- There is a risk of dirt reaching the clean side of the filter while cleaning, plus possible filter damage from high pressure water or compressed air, making cleaning or washing a gamble. Be sure to add the potential cost or risk of filter damage to the cost of cleaning when determining the value of a filter cleaning process.
- Damaged filters should not be cleaned or reused. If a filter is damaged in service, investigate the source of damage and make corrections to avoid future damage.
- Reusing a cleaned heavy-duty filter increases the likelihood of improper air cleaner servicing because of the shortened service life. Each time the air intake system is serviced, it is exposed to the chance of contamination.
- Never attempt to clean a safety filter. Replace it after three primary filter change outs.



Reference: FMC Technical Service Bulletin 89-4R2.

What is the Purpose of a Safety Filter?



Safety filter . . . Secondary element . . . Inner filter . . .
Spare filter? These filters go by many names . . .

At Donaldson we prefer to call it a “safety” filter. A safety filter backs up the primary (main) filter and protects the engine while the primary filter is out of the housing during servicing. The engine should never be run with only a safety filter in place.

The safety is NOT a spare filter! Its purpose is to protect the engine if something goes wrong with the primary (main) filter. Until then, it quietly does its job.

Compared to a primary filter, the safety filter is more open for lower restriction and is less efficient. A safety filter does not increase the overall operating efficiency of an air cleaner.

A safety filter is there to protect the engine against hidden damage to a primary filter — damage from cleaning, mis-installation, a “will-fit” that doesn’t quite fit, or the installation of the wrong size filter. A safety filter is never to be used as a “spare” filter.



Switching from a Scheduled Maintenance Air Filter to an Extended Service Filter?

Interested in switching your scheduled maintenance air filter to Donaldson Blue® extended service air filter?

- Use only Donaldson Blue® Air Filters
- Maintain accurate records of current competitive cellulose media change intervals
- Keep accurate track of miles driven with Donaldson Blue® air filters and maintenance records
- Provide filter for inspection
- Rely on your filter service indicator to tell you when to change out your primary filter.
- Standard Donaldson warranty terms and conditions apply



Installation Guidelines for STB Strata System

Positioning the Strata™ Pre-Cleaner

- It is usually best to have the pre-cleaner positioned above the hood of the vehicle so that cleaner air (above the dust cloud) can be drawn into the unit.
- The pre-cleaner section should be below the exhaust stack. Be careful NOT to mount the Strata™ pre-cleaning section in such a way that it draws in exhaust gases from the exhaust stack.

If the pre-cleaner cannot be positioned according to the above guidelines, consider adding an extension to put the intake point at a higher level.

- The extension should be added above the Strata tube section, below the inlet hood.
- Do NOT mount the Strata pre-cleaner on top of the extension as its weight would make the arrangement top heavy and unstable.

Scavenge Hose

The scavenge line between the air cleaner and the exhaust ejector should be kept as short and as straight as possible. The ideal scavenge hose length for a Strata system is under five feet and should never be longer than 10 feet.

Minimize bends and be sure that the hose is supported properly. (Unsupported lengths of hose should not exceed five feet.) Bend radii of the hose should not be less than 15 inches. Minimize the number of 90° bends — preferably two or fewer.

Donaldson recommends three-ply silicone hose for the scavenge line. All Donaldson hose is supplied in 3-foot lengths (do not use flexible metal nor rigid tubing).

STB Model	Scavenge Outlet OD	Hose Part No	Hose ID
B160071	2.0"	P171381	2.0"

Connecting Scavenge Hose to Pre-cleaner

A check valve is built into the Strata Pre-cleaner. Connect the scavenge hose directly to the outlet tube with a clamp. A Donaldson lined hose clamp is recommended (see Intake Accessories section).

Connecting Hose to Ejector

When connecting the scavenge hose to the exhaust ejector, leave 2" (52 mm) between the end of the hose and the body of the ejector.

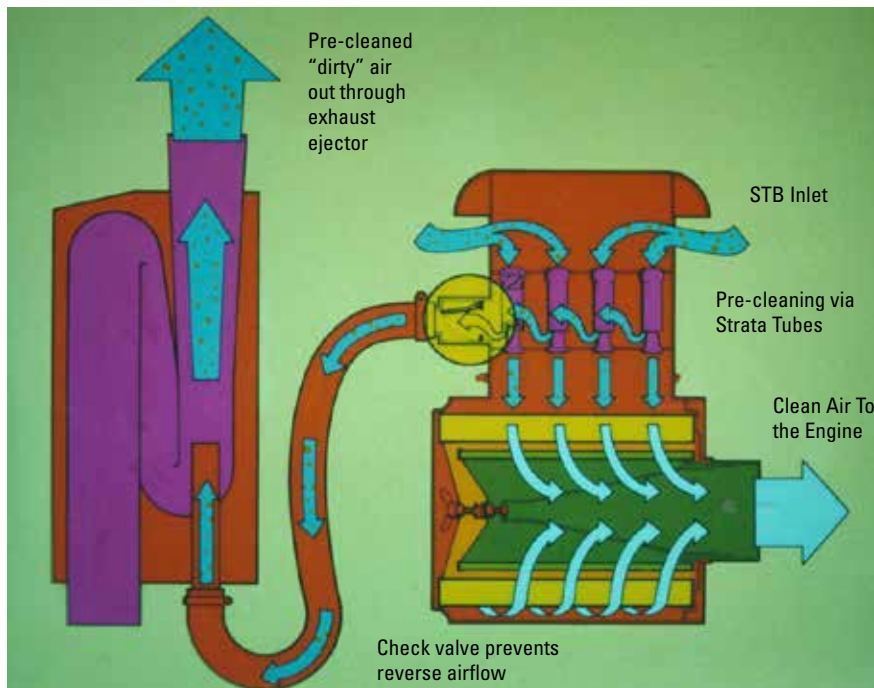
Exhaust Ejectors

See the accessories section for details on our exhaust ejector product offering.

Do not add or create any additional back pressure downstream (e.g., at the exhaust outlet) of the Strata pre-cleaner. Doing so may cause exhaust back flow to the pre-cleaner.

Examples of what NOT to do: mount a spark arrestor on top of the ejector, or operate with a stuck or frozen rain cap on the exhaust ejector.

How the Strata™ System Works



Note: Scavenge Hose, Exhaust Ejectors, Clamps Sold Separately

Q: Why am I experiencing short air filter life?

A: The amount of dirt an air filter can hold before servicing depends on many variables. The environment must be considered (severe dust, soot, and moisture) as it is crucial to know how much contaminant reaches the filter. This depends on the severity of the environment and whether the air cleaner is a one- or two-stage design. Another factor is the size of the air cleaner and filter relative to the airflow requirement. How long a filter lasts is largely a function of the Original Equipment Manufacturer's intake design.
Reference FMC TSB 89-3R3 and 06-2 for further details.

Q: What is the micron rating of my air filter?

A: Typically, air cleaners and air filters are not assigned a "micron rating." Micron rating is a term used in liquid filtration. Air filters are evaluated for efficiency using an industry-wide standard ISO 5011. Efficiency is the percentage of contaminant that a filter removes from the intake air relative to its capacity.
Reference FMC TSB 04-3 for further details.

Q: What do inches or millimeters of H₂O have to do with an air cleaner?

A: In an intake filtration system the resistance to airflow is called restriction. Restriction is typically measured in units called inches or millimeters of H₂O vacuum, and is defined as the difference in static pressure between the atmosphere and the outlet side of the system being measured. The higher the restriction the harder an engine has to work to obtain clean air for combustion. Engine manufacturers specify a restriction level at which the air filter should be serviced.
Reference FMC TSB 89-3R3 for further details.

Q: Why do some air filters require U.L. approval?

A: Some engine air filters utilize flame retardant filter media to meet UL safety requirements. The U.L. rating covers fire safety and backfire resistance aspects of industrial trucks with internal-combustion engines, such as tractors, platform-lift trucks, fork-lift trucks, and other specialized vehicles for industrial use. These requirements do not cover other possible safety aspects of such equipment. Additional information can be found in UL 558 specification.

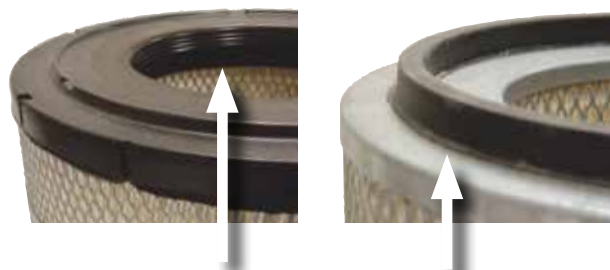
Q: Can you judge air filter service life by visual inspection?

A: Visual inspection is not a recommended method for determining an air filter's service condition. Measuring intake system restriction is the most reliable determination of filter life. Service by restriction allows the filter to remain in service until the maximum allowable restriction limit for the application is reached. Various restriction indicating devices are available for this purpose.
Reference FMC TSB 89-3R3 for further details.

Q: Can I replace my axial seal filter with the new RadialSeal™ design?

A: Axial seal and RadialSeal air filters are designed to seal differently. "Radial" sealing design filters cannot be fitted into a housing design for axial sealing replacement filters without the use of a conversion kit.

Reference FMC TSB 97-3R2 for further details.



RadialSeal™ Technology
RadialSeal filters slip easily on and off the outlet tube during installation and service. This design eliminated the separate gaskets used with metal endcap filters.

Axial Seal
Axial seal style filter has a metal endcap with an attached gasket. This design requires housing cover pressure on a gasket to create the critical seal.

Q: Can heavy duty air filters be cleaned or reused?

A: Most heavy duty air filter manufacturers do not recommend any type of cleaning process to be used on their products. Furthermore, they do not warrant their product once it has been cleaned.

Donaldson does not recommend cleaning filters. Cleaning a filter in any way, will void the filter warranty.
Reference FMC TSB 89-4R2 for further details.

Q: Will more frequent servicing of my air cleaner extend my engines life?

A: Just the opposite, over-servicing will cause increased service cost, time and material and dust contamination of the engine due to:

1. Filter damage, due to excessive handling,
2. Improper installation of filter,
3. Increased initial inefficiencies.

Reference FMCTSB 89-3R3 for further details.

Q: What is a scavenged intake system?

A: Some intake system pre-cleaners are inertial separating devices that require a scavenge flow of air to function properly. The scavenge flow is required to expel the inertially separated dust particles from the pre-cleaner assembly. Scavenge flow is typically provided by a vacuum from an exhaust ejector that may be designed in as a function of the exhaust system muffler or as an add-on exhaust ejector stack.

Scavenged systems are typically specified on severe-duty applications to increase airflow and extend primary filter life.

Q: What's the best type of pre-cleaner for a given application?

A: Intake system pre-cleaners are typically inertial separating devices intended to work in conjunction with the air cleaner to clean intake air prior to the final filtration stage provided by the filter. Separating some of the contamination from the intake air prior to reaching the filter provides an increase in filter service life. The type of pre-cleaner recommended for an application typically will depend on the severity of the environment. To maximize filter service life, choose the pre-cleaner design that provides the best efficiency within space and weight limits of the application.

Q: When should I service an air filter?

A: The filter in any air cleaner should be serviced when the maximum allowable restriction, established by the engine manufacturer, has been reached. The filter should not be serviced on the basis of visual observation because this will generally lead to over-servicing.

Over-servicing will cause increased service cost, both time and material, and may cause dust contamination of the engine due to:

1. Filter damage from excessive handling,
2. Increased chance of improper installation of filter,
3. Increased initial inefficiencies.

Achieving Maximum Air Filter Efficiency

The efficiency of an air filter increases as it is used. As soon as the air filter is put into operation, it begins to remove harmful dust particles. As these particles accumulate throughout the filter media, the microscopic openings in the media become obstructed. This on-going reduction in the size of the openings helps the filter stop increasingly finer dust particles, thus resulting in a more efficient filter. As the filter continues to plug with contamination, the restriction to air flow will increase. Most engine manufacturers establish a maximum degree of vacuum in the air induction system that the engine can tolerate and still operate efficiently.

Measuring Restriction in Air Cleaners

As a dry air cleaner filter becomes loaded with dust, the vacuum on the "engine side" of the air cleaner (at the air cleaner outlet) increases. This vacuum is generally measured as restriction in "H₂O or Kpa.

The engine manufacturer often places a maximum allowable limit on the amount of restriction the engine can withstand without loss of performance before the filter must be serviced.

Mechanical gauges, warning devices, indicators, and water manometers are available to inform the operator when the air cleaner restriction reaches this recommendation limit. These gauges and devices are generally reliable, but the water manometer is the most accurate and dependable.

To use the manometer, hold vertically and fill both legs approximately half full with water. One of the upper ends is connected to the restriction tap on the outlet side of the air cleaner by means of a flexible hose. The other end is left open to atmosphere. With the manometer held vertically and the engine drawing maximum air, the difference in the height of the water columns in the two legs — measured in inches — is the air cleaner restriction.



A restriction indicator's "lock-up" restriction level is generally marked on the indicator itself. A quick method to check a visual indicator is to remove it, wipe the base clean, then suck on the indicator with your mouth. If the indicator locks up, it is operational, if not, replace indicator. A more accurate method is to check the calibration against a water manometer.

Q: Why Service?

A: Proper air cleaner servicing will result in maximum engine protection against the ravages of dust. Proper servicing can also save you time and money by increasing filter life and efficiency.

Two of the most common servicing problems are:

- 1) Over-servicing — new filters increase in efficiency as dust builds up on the media. DON'T BE FOOLED by filter appearance, it should look dirty. By using proper filter restriction measurement tools you will use the full life of the filter at maximum efficiency.
- 2) Improper servicing — your engine is highly vulnerable to abrasive dust contaminants during the servicing process. The most common cause of engine damage is due to careless servicing procedures. By following the steps shown in this catalog, you can avoid unnecessary dust contamination to the engine.

Q: Why Would a Heavy-Duty Diesel Engine Air Filter Collapse

A: Most reputable filter manufacturers design their air filters to operate well beyond the recommended engine intake restriction service points. In fact, there is usually a safety factor of at least 2 – 3 times over the stated service point. However, there are circumstances when filter collapse can take place. When an engine is operating with a collapsed filter, there is a good chance that unfiltered air is getting to it, which could result in costly repairs. Most of the time poor maintenance is the cause, but there are some operating conditions to consider as well.

Collapse of a heavy-duty air filter is defined as a permanent deformation of the unit after airflow is removed. This occurs when the pressure drop across the filter exceeds the design limit of the device. Because of the safety factors built-in when the filter is engineered, this is an unusual event and is normally preventable.

A common cause of filter collapse is not paying attention to the service point recommended by the engine manufacturer. Diesel engines typically have an intake filter service point of 20-30" H₂O (5-7.5 kPa), depending on the manufacturer. As stated above, exceeding this by an incremental amount won't cause the filter to collapse, as they are designed to withstand



a much higher level of restriction. However, because filters tend to load very quickly after a certain point, not servicing them soon after the maximum allowable restriction is reached (as recommended by the engine manufacturer) can end up causing a very high level of pressure drop across the filter, and may result in a collapse condition. The best way to avoid this is to install and monitor a restriction measuring device (gauge, pop-up indicator or dash light), and replace the filter when it indicates the service point has been reached.

Another possibility of filter collapse is sub-standard filter construction or remanufacture. Generally, obtaining air filters from a reputable manufacturer will avoid this issue. Quality heavy-duty air filters are made with materials that can withstand high levels of pressure drop and resist collapse, while sub-standard filters may not. It is also important to inspect all filters before installation. Dented liners or end caps may result in a loss of structural integrity and filter collapse.

Damage may be present but not very visible. If the filter shows any sign of damage, don't use it. This is especially critical when using cleaned filters. Couple the possibility of damaged filters with weakened media (if it were washed or cleaned with too high of a pressure) and the filter may have a much lower resistance to collapse. Operating conditions should be considered as well. For example, high levels of soot (generally from diesel engine exhaust) can plug an air filter rapidly, which may shorten the life of a filter dramatically. If a restriction indicating device isn't monitored closely, an extremely high pressure drop across the filter could occur, which could cause it to collapse. If high levels of soot are experienced, the cause of the ingestion should be investigated and, if possible, corrected. These include (but are not limited to) proximity of the intake to the exhaust; exhaust leaks near the air intake; vehicles operating or idling in close quarters; and operating in certain areas where exhaust concentrations are high.

Extremely high levels of water ingestion can be a concern, too. Although most filters can take a certain amount of moisture with no problems, large amounts of water can weaken and plug the filter media long enough to cause collapse. However, this is an unusual situation because most vehicles that are likely to be used in these types of conditions have a water separation device installed. One possible cause of excessive water ingestion not often accounted for is the introduction of high levels of moisture during the washing of the vehicle. The best practice is to ensure the engine is not operating during washing and water is not sprayed directly into the engine air intake.

In summary, following the engine manufacturer's service recommendations, using quality undamaged products and using a restriction indicating device are the best practices to prevent air filter collapse. If a filter collapse occurs, it is important to ascertain whether lack of maintenance caused the problem or if the vehicle is used in conditions that dramatically shorten filter life, and then take corrective action to keep it from happening again.



Off-Road Case Study
PowerCore® Air Cleaner

Despite heavy concentrations of dust and soot, the Donaldson PowerCore® Air Cleaner helped keep a dozer in the field when it was most needed.



Frank Keath (right) with son Colin stand with the Fiat FD14E Dozer.

As respected members of the Country Fire Association (CFA) Frank Keath of Keaths Excavations along with sons Colin, Andrew and Graham and the company's service mechanic Andrew, were at the forefront of beating back bush fires that recently threatened properties around Eildon and neighbouring Marysville. At the height of the bushfires, Keaths Excavations deployed each of their units including three Hitachi Excavators, two Fiat Dozers, a Caterpillar Grader, a Cat Excavator and two smaller Backhoes to help build firebreaks and retainers.

Frank recalls that the conditions at the height of the fires in the Marysville area were "the most extreme conditions I have ever faced" with the air full of engine-arresting dust and soot.

"The soot was like thick layers of Talcum powder," he says.

Despite these conditions, Frank praises the recently fitted Donaldson D100031 PowerCore® Air Cleaner as helping keep his equipment in the field when it was needed the most.

Given that it can take less than half a cup of dust to destroy an engine, having an efficient air filtration system is a necessity in hot and dusty conditions. In such conditions, the engine's ability to breathe and provide optimal performance can be compromised.

In Frank's experience with the PowerCore unit, he found that the PowerCore filter lasted substantially longer than other units with which he has had experience.

"The PowerCore achieved 150 hours in the field. That may seem quite small but due to the extreme nature of the conditions and the sheer amount of smoke, dust and soot in the air, the PowerCore unit far outlasted traditional filters which struggled to provide 50 hours worth of life," says Frank.



The D100031 PowerCore air cleaner.





The Dozer at work (above and below) during the clean up of the Marysville area. The dirt and soot left in the aftermath can badly affect engine performance.

The PowerCore unit was fitted to a Fiat FD14E Dozer after consultation with Hitachi Aftermarket Parts Specialist George Calyk and Donaldson Australian Territory Manager, Tony Cooper.

Keaths Excavations fitted the unit themselves at their newly opened service workshop at Yarck. The unit was mounted vertically in the Dozer's engine housing. The Keaths Excavations team chose to install an aluminum reflector plate between the engine and the PowerCore unit to protect the unit from any radiant heat from the engine. Servicing the PowerCore unit is straightforward as the four retaining clips on top of the unit remain accessible and away from heat allowing for easy removal of the PowerCore filter.



PowerCore filters feature a patented technology that provides maximum filter efficiency with contaminant holding capacity greater than that of traditional cellulose filters. PowerCore filters are also available with Donaldson's patented nanofiber Ultra-Web® technology which provides even greater performance and protection. The performance abilities of the filter media are augmented by the design of the PowerCore unit itself which features a unique, built-in, pre-cleaning section that removes up to 98.9% of heavy contaminant before it hits the filter. This makes the PowerCore unit the perfect solution for high dust environments or environments where fine contaminant can pose a risk to engine performance.

equipment that needs to be in peak performance over extended periods.

In Frank Keath's opinion, the PowerCore unit more than did its job and he remains impressed with the performance of the unit as the clean up in the Marysville area continues. When not fighting fires, you'll find Frank, Colin, Graham, and the two Andrews of Keaths Excavations, a Hitachi Dealership, at their service centre on the Maroondah Highway, Yarck, Victoria. Keaths Excavations specialize in providing earthmoving, landscaping, construction and excavation equipment and associated services including off road vehicle maintenance for a wide range of heavy-duty equipment. The team can be contacted on (03) 5773 4242.



10" PowerCore units are available

PSD PowerCore air cleaner line was designed with the idea that most newer machinery has less available space under the engine cowl or hood than older equipment. By combining compact sizing with multiple options for mounting the unit horizontally or vertically, the PSD product offering becomes a perfect retrofit solution for



PowerCore aftermarket filters are quick to replace making service a breeze.



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Methods for Diesel Engine Air Intake and Filtration System Size Reductions

Dan Adamek, Director-Engine Air Filtration Development

September, 2008

TECHNICAL BULLETIN

Current Situation

Innovative vehicle designs and increased environmental awareness call for new engineering solutions for on-road and off-road vehicle components. Diesel engine air intake suppliers are facing increasing challenges as vehicle manufacturers demand higher performance in a smaller volume while minimizing life-cycle costs. This paper will discuss the market drivers behind these changes, air filtration solutions that have worked in the past, and a new filter technology that promises to better meet these increasing challenges.

Many factors are affecting the changing demands on diesel engine air intake systems. One of the most prominent changes in the market is the various emissions standards being adopted around the world (Fig. 1).

These new requirements not only increase the space consumed by advanced emission components, but also impact other vehicle parameters. For example, current and future diesel engine designs are placing more emphasis on lower restrictions in the air intake system, as higher restrictions can increase the emission levels being measured in the engine exhaust.¹

These air intake system pressure losses have long been considered during vehicle and component design to minimize the performance and fuel efficiency penalty that these restrictions incur. Although fuel efficiency changes due to diesel engine intake restriction changes appear small on a percentage basis (<1%¹¹), the annual additional fuel usage with a sub-optimal air filter can easily exceed the original purchase price of the filter. With continued increases in fuel costs, efforts to squeeze additional fuel economy out of vehicles have resulted in additional time and expenses being allotted to lowering these intake losses. These fuel savings also translate into reduced CO₂ emissions. In addition to benefiting our environment, CO₂ reductions will result in additional financial benefits in regions where taxation is based on vehicles emissions.

Many manufacturers are placing more emphasis on safety, and improved visibility for the vehicle operator is one part of those efforts. This has resulted, in some cases, in the lowering of engine compartment hoods in order to improve the operators' sightlines. The effect of lowering the vehicles' engine compartment hoods has been an additional reduction in space for components such as the air intake systems.

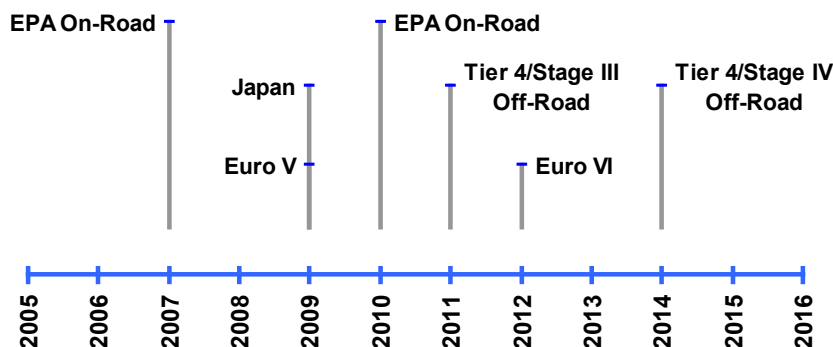


Figure 1. Diesel Engine Emission Regulation Target Dates

In the search to improve the value provided by vehicle components, air intake system life cycle costs continue to be examined. This can often take the form of either increasing the air filter's life at equal cost, or reducing the air filter cost at equivalent life. In some cases, customers are looking for ways to reconfigure the air intake system layout to reduce cost. In on-highway trucks for example, behind the cab air intake systems have been typical for some regions because of the under hood space constraints. Size reductions in the system can allow for alternate configuration such as a frontal intake system. This can shorten the ductwork thereby reducing costs and also utilize the engine compartment to mitigate noise transmission through the inlet.

These market drivers are challenging air intake system providers to deliver products that simultaneously improve multiple system properties that have historically been engineering trade-offs.

Engineering Approach

Design of diesel engine air intake systems requires the integration of many technologies and the balancing of many factors. Figure 2 is a simple graphic illustrating how the primary value measurements of a system can be affected by design changes in other system properties.

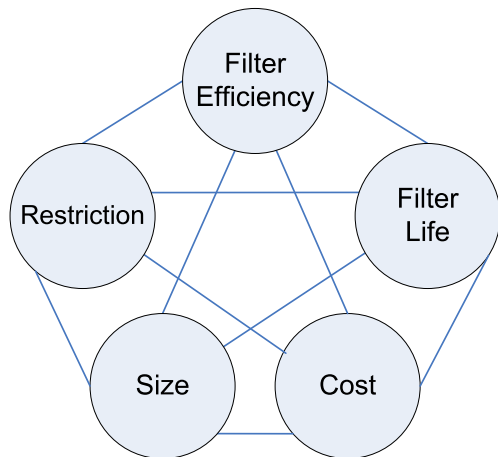


Figure 2. Air Filter Primary Design Tradeoff Relationships

At a given technology level, each property can be improved through compromises in another property. For example, size can be reduced by reducing filter efficiency, reducing filter life, or increasing filter pressure loss. Advancements in technology are required

to achieve simultaneous improvement in multiple parameters. These technology advancements can take several forms, from simply improving via design and materials expertise, to the utilization of advanced tools such as computation fluid dynamics (CFD), to the development of breakthrough configurations (Fig. 3).

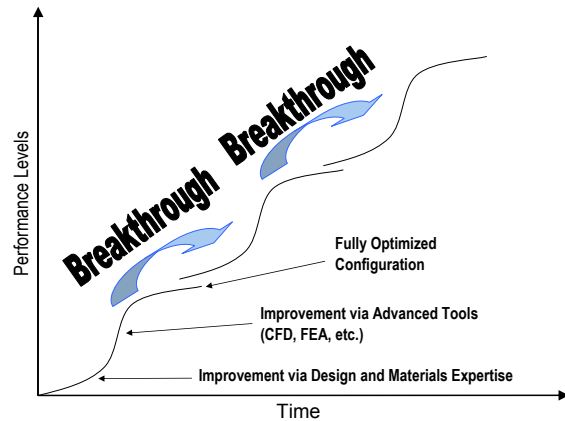


Figure 3. Typical performance advancement means and rates

Other system requirements need to be addressed during the design process as well, and can include items such as noise attenuation, elevated temperature operation, chemical resistance, durability under vibration and shock, and many others.

The ability of a supplier to satisfy these diverse air intake system requirements is perhaps most determined by the design and performance of the air filter. The air filter removes contaminant from the air in order to protect the engine from damaging wear. Engine wear rates have been calculated to decrease by a factor of 10 when high efficiency air filters are used in place of standard efficiency filters.ⁱⁱⁱ

High efficiency levels have been achieved through the optimization of the fibrous structure of the filter media. The use of nanofibers on the media surface (Fig. 4) has allowed the thickness and density of the media to be reduced thereby decreasing the pressure losses through the media and the amount of material used. These nanofibers also show very high initial efficiency compared to standard cellulose media which only achieves its targeted efficiency level after it has built up a sufficient dust cake on its surface.

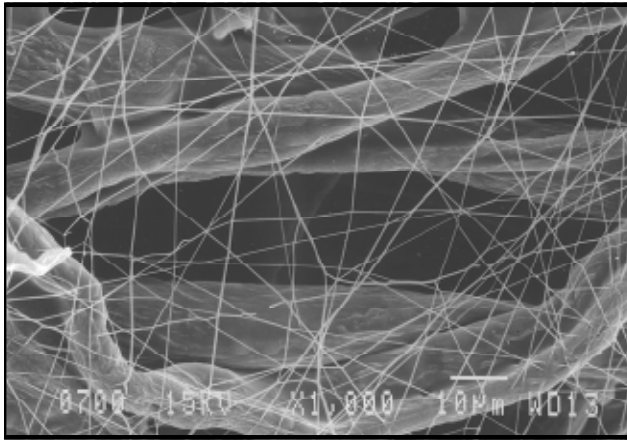


Figure 4. Scanning Electron Microscope photograph of Donaldson's Ultra-Web® nanofiber filter technology

The build-up of contaminant on the filter media causes pressure losses to increase over time, until it reaches a magnitude which is determined to be the maximum allowable by the engine. This filter life is desired to be as long as possible to minimize the cost of filter replacement. The ability of an air filter to load slowly, that is have low pressure loss for an extended period of time, is also important because the longer an engine operates at low restriction, the lower the average fuel consumption that can be achieved.

Product Solutions

Cylindrical filters have been the technology of choice in the past. The radial seal version of this type of filter was an advancement that occurred in the 1980's that enabled the transition from metal air cleaner housings to polymeric housings, thereby greatly reducing product costs and improving product quality.



Figure 5. Conventional filters (axial and radial seal).

A breakthrough alternative to cylindrical filters for diesel engine air intake systems was introduced in the 1990's. Donaldson's PowerCore filter demonstrates an axial flow arrangement that allows the airflow to pass straight through the filter without the 90° change in direction that is required for cylindrical filter configurations. This simplified airflow path decreases the potential pressure losses within the air intake system.

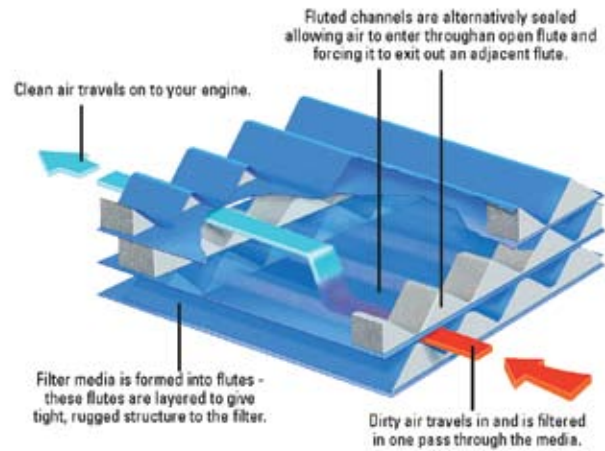


Figure 6. Schematic representation of airflow through axial flow PowerCore air filter



Figure 7. Example of an axial flow PowerCore intake system.

While axial flow style air filters have proven their value to vehicle manufactures, very recent advances in this style of filter have achieved even higher levels of performance. PowerCore G2 is an advanced, next generation axial flow filter that has optimized the internal configuration of the filter such that every geometric feature within the filter has been reconfigured to reduce pressure losses and increase filter life (Fig. 8).

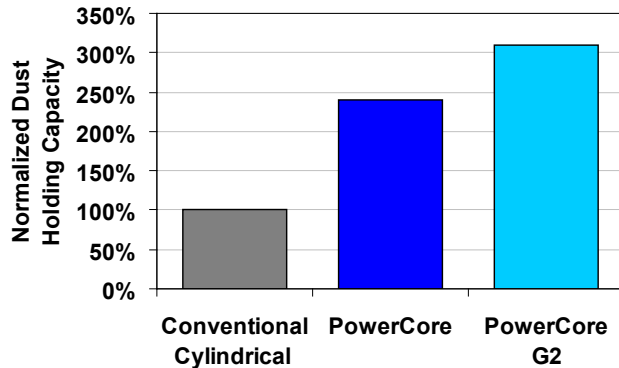


Figure 8. Normalized ISO fine dust capacity for equal sized air filters. Performance may vary with geometry and operating conditions.

One challenge in air filter design and particularly in axial style filters is the effort to minimize the media area that is unutilized or underutilized due to masking. PowerCore G2 reduces media masking when compared to previous axial flow air filters. Because increases in effective media area decrease the velocity through media, it has the dual effect of decreasing the pressure loss across the media and reducing the loading per unit area. Therefore, the increase in life is higher (Fig. 9) than the increase in effective media area.

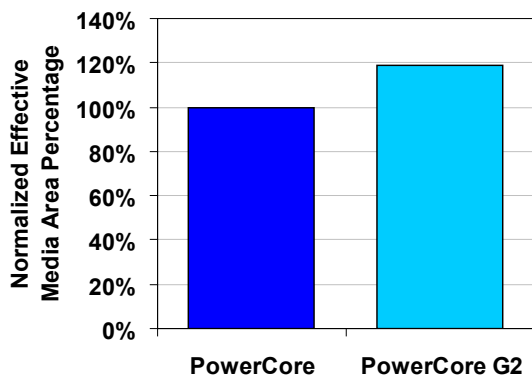


Figure 9. Normalized effective media area as a percentage of total air filter media area. Performance may vary with geometry and operating conditions.

Additionally, PowerCore G2 has been designed to allow for increased total media area to be packaged into a filter through a unique media forming process. This can lead to increased filter life when combined with the correct filter channel configurations. (Fig. 10)

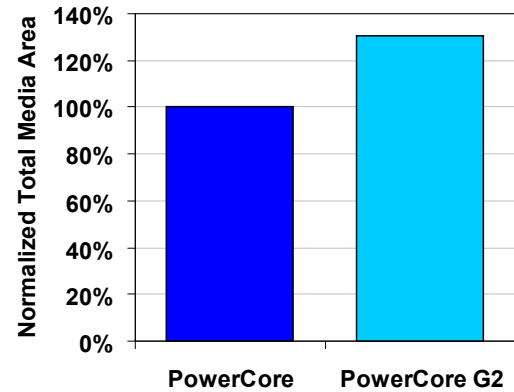


Figure 10. Normalized total media area for equal size air filters. Performance may vary with geometry and operating conditions.

Channel pressure losses can be lowered through increasing the air filter's channel size. This also decreases the amount of media, however, so the application requirements need to be factored into the choice of channel size.

Increases in channel space can also be obtained by utilizing thin filter media. Nanofiber laminates allow for thinner media because particulate efficiency increases as media fiber size decreases.

The effect of these changes and others on filtration performance has been theoretically modeled using fluid mechanics and advanced filtration theory. The use of advanced modeling tools has allowed optimal configurations to be determined by comparison of the performance of millions of unique axial flow filter configurations. Prototypes of these selected configurations have been tested and validated against the theoretical model. Figure 11 shows an example of the restriction increase versus dust loading of an advanced axial flow filter and a previously available axial flow filter.

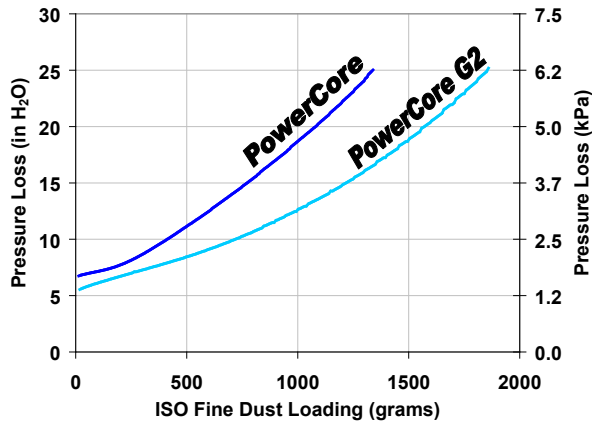


Figure 11. Example ISO Fine Dust Loading for Equal Size Element at Constant Flow rate. Performance may vary with geometry and operating conditions.

While this example illustrates achieving improved life for a constant volume, it would be a straightforward matter to provide an air filter with equal life, but smaller volume utilizing these technology advancements. Another benefit that can be seen in Figure 11 is that PowerCore G2 can provide a lower pressure loss throughout the loading period. This lower weighted average pressure loss translates into potential increased fuel efficiency and a more desirable condition for emission performance. However, in applications where initial pressure loss is less of a concern, even greater air filter life than shown in Figure 11 may be obtained with PowerCore G2.

PowerCore G2 has been developed as a family of air filtration solutions. By varying the parameters described above, greater performance can be achieved and therefore greater value can be provided to diesel engine and vehicle manufacturers. This technology breakthrough has allowed for simultaneous improvement in multiple system properties such as restriction, size, and life, and provides a variety of configuration choices in order to best match performance to customer needs.

Conclusion

Continued demand for further reductions in air intake system size and restriction has resulted in innovative solutions such as PowerCore G2. For given filter life and efficiency targets, the PowerCore G2 configurations can result in a 30% reduction in size from previous axial flow filters and a 60% reduction in size from cylindrical filters (Figures 12 and 13). Additionally, improvements in restriction and air filter life are now possible with PowerCore G2.

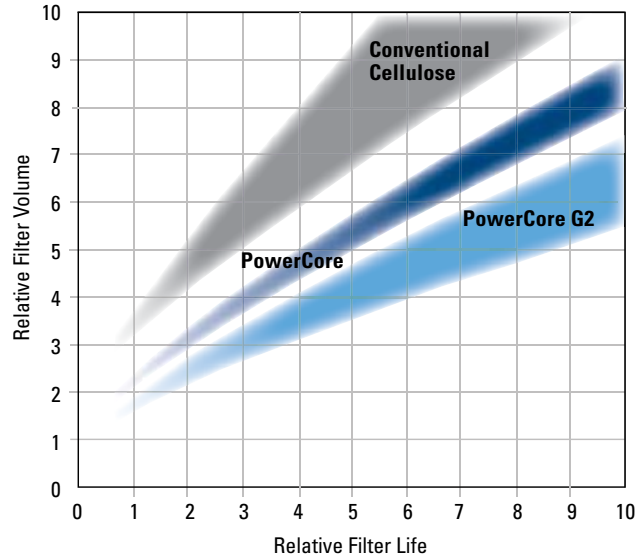


Figure 12. Relative air filter volume versus life. Performance may vary with geometry and operating conditions.



Figure 13. Photographic comparison of equivalent performance air filters of varying technology level.

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Technical Article

Spiracle™ Crankcase Filtration Technology

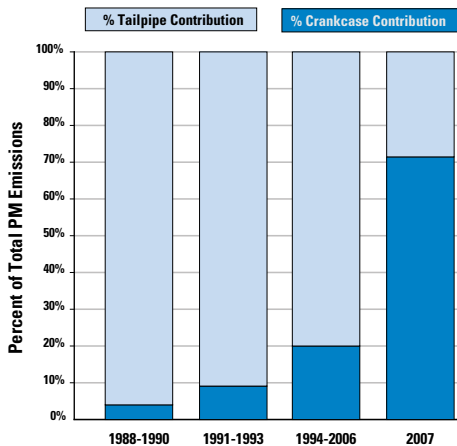
Author:

Veli Kalayci
 Spiracle™ Systems Team Leader

For more than 30 years, a focus on environmental air improvement has led original equipment manufacturers (OEMs) to require their manufacturing business partners to design filtration systems that reduce the amount of crankcase blow-by aerosols vented into the atmosphere from diesel engines. This push to reduce diesel emissions and other particulate matter (PM) contaminants from the atmosphere began in the 1970s with the passing of the U.S. Environmental Protection Agency (EPA) Clean Air Act, which regulated on-road diesel emissions and was later amended, in 1990, to include regulations for off-road diesel vehicles. These standards set maximum allowable levels of emissions for new diesel engines and diesel fuel that have been incrementally reducing emissions levels since 1988.

With the significant technology advancements achieved in curbing the exhaust emissions from the engine tailpipe, the relative contribution of the emissions from the crankcase blow-by aerosols started to become an increasing contributor in total engine emissions. Figure 1 shows the increasing relative contribution of crankcase emissions for on-road engines through 2007.

FIGURE 1
EMISSIONS CONTRIBUTIONS
TAILPIPE & CRANKCASE



Crankcase emissions levels in diesel engines have remained relatively low compared to tailpipe emissions until 2006. On newer engines, as emissions from tailpipes reduce, crankcase emissions become a greater share of total allowable particulate matter (PM) emissions.

As these regulations evolved in the U.S. and around the world, Donaldson Company, a leading manufacturer of air and liquid filtration systems and replacement parts, led the industry in the development of crankcase filtration technologies with the Spiracle™ Crankcase Filtration Systems (CFS). The engineering advancements of Spiracle™ CFS have continually been used to help meet the EPA's stringent regulatory requirements by providing high efficiency filtration solutions to OEMs and fleet operators around the world.



Filtration Technology by Donaldson

Crankcase Ventilation Filtration Systems

Crankcase ventilation filtration systems are designed to be either "open" or "closed" systems.

Open crankcase ventilation filtration systems (OCV) filter engine aerosols, including oil and soot, along with any bulk oil coming out of the valve cover or crankcase vent and discharges filtered air into the atmosphere.

In closed crankcase ventilation filtration systems (CCV), crankcase blow-by aerosols, including oil and soot, are filtered and the filtered crankcase flow is directed back to the intake manifold or to the turbo compressor. Using high efficiency closed crankcase filtration systems, the performance of intake filters, turbochargers, aftercoolers and exhaust system components can be maintained over extended engine usage.

Crankcase Emissions from Diesel Engines and Emission Control

Crankcase emissions are created during the combustion process of reciprocating engines. The primary source of crankcase emissions are combustion gases and particulate matter (PM) that escape past the piston rings and enter the crankcase. Other sources of crankcase emissions include turbocharger shaft seal leaks, valve guides and general movement of parts. These "blow-by" gases must be vented through a tube into the atmosphere to avoid pressurizing and damaging components of the engine. After mixing with oil mists in the crankcase, the gases, PM, and oil aerosols either coalesce and drop out of the vent tube onto the ground, or enter into the atmosphere as pollutants.

Crankcase emissions vary greatly depending on a number of factors. Engine rating, displacement, engine operating conditions such as load, speed and the age of the engine all influence the blow-by volumetric flow rate, mass output rate and particle size

distribution. Just as important, the crankcase emissions can vary depending on the engine design especially the tolerances, materials, turbocharger, wear factors and operating conditions can impact the amount of blow-by escaping past the piston rings.

Donaldson has developed engine blow-by characterization methods and tools as part of its standard range of capabilities for crankcase filtration technology and product development. One such piece of equipment is a mobile blow-by characterization system that Donaldson uses to measure the blow-by output of diesel engines. The test bench can quantify the gravimetric and fractional content of the blow-by mass output, volumetric flow rate, pressure and temperature at different engine operating conditions.

FIGURE 2
CRANKCASE BLOW-BY CHARACTERIZATION AT THREE ENGINE OPERATING MODES

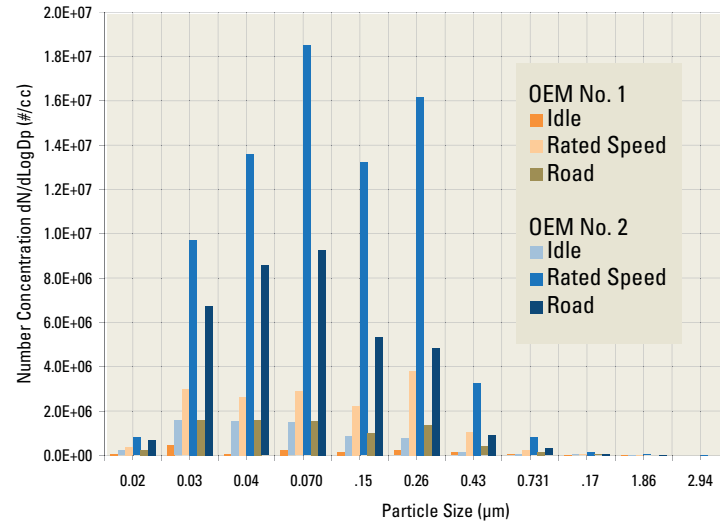
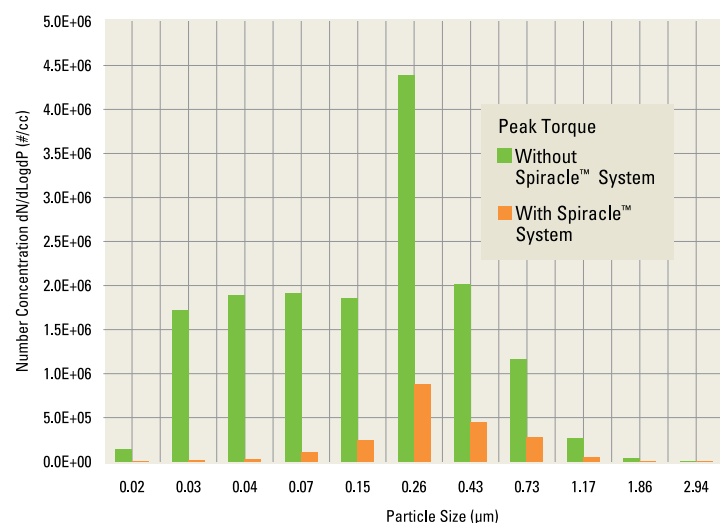


FIGURE 3
PEAK ENGINE TORQUE COMPARISON WITH AND WITHOUT SPIRACLE™ FILTRATION SYSTEM



AIR FILTRATION TECHNICAL REFERENCE

The mobile blow-by characterization system allows Donaldson to quantitatively assess their customers' crankcase emissions under dynamic conditions (Fig. 2 and Fig. 3) from their diesel engines and tailor filtration systems to address these needs. This cutting-edge technology allows Donaldson a unique capability in the industry and provides the benefit of custom designed products to fit customer needs.

It is imperative that crankcase filtration manufacturers develop products that can handle crankcase emissions that vary significantly over the operating range and life of the engine. In addition, these systems must be designed to operate in the extreme conditions for temperature, shock, and vibration – typical of medium- and heavy-duty applications.

Spiracle™ Filtration Technology

Donaldson has a long track record of success with its Spiracle CFS technology. In an effort to meet EPA's continued mandates and realizing the health benefits to passengers⁽¹⁾, school bus fleet owners have installed a Spiracle CFS combined with a second emissions reduction technology; i.e., Diesel Oxidation Catalysts (DOC), Diesel Particulate Filters (DPF) or a Diesel Multi-stage Filters (DMF). The combination creates a retrofit solution that delivers maximum emission reduction both inside and outside the bus.

Crankcase filtration manufacturers are challenged to tailor their products to meet a host of manufacturers' applications with differing size, efficiency, pressure loss, and life requirements while delivering high efficiency filtration and reliability.

With the introduction of Donaldson Synteq XP™, a revolutionary, patented filter media, Donaldson engineered the Spiracle CFS creating new open and closed crankcase filtration systems solutions.

FIGURE 5
PARTICLE SIZES AND FILTRATION PRINCIPALS

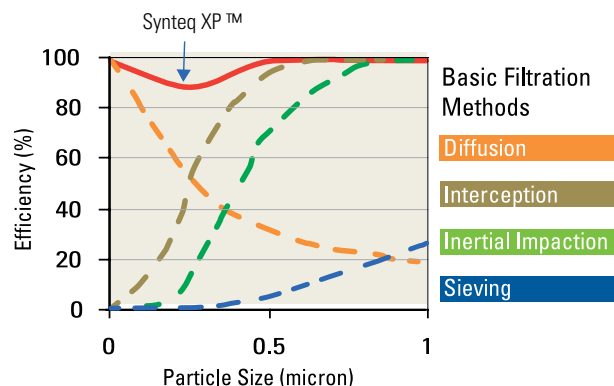


FIGURE 4
SPIRACLE SYSTEM ON A SCHOOL BUS



As part of California ARB and US EPA emissions retrofit programs, over 16,000 units have been installed on school buses and trucks across the U.S.

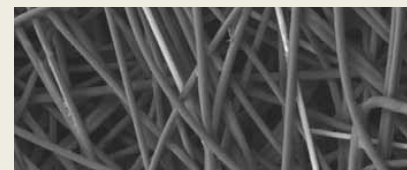
The precise dimensions, shapes and innovative fiber bonding of the Synteq XP media provide the ideal solution for the challenge of balancing high efficiency and low pressure drop, and increased filter life.

Larger particles, typically from 1 to 10 microns are efficiently separated by interception and inertial impaction. Sub-micron particles, often the most harmful for compressor blades, are efficiently separated by diffusion. Donaldson's Synteq XP media is specifically designed to combine interception, inertial impaction and diffusion, thereby offering high efficiency for all particle sizes (see Fig. 5).

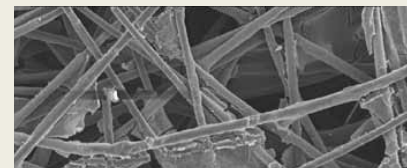
After the oil mist particles are captured, they are coalesced into larger droplets and drained from the media. The drainage within the media pack is also optimized. Pressure drop across the self-draining filter is kept low and stable over time, and no engine downtime is required to drain the oil out of the media pack.

The large pore size of Synteq XP media (Fig. 6) reduces the pressure drop across the filter. Multiple layers of the media allows custom design flexibility for a wide range of filtration efficiencies and field life depending on the needs and requirements of OEMs.

FIGURE 6
SCANNING ELECTRON MICROGRAPHS OF SYNTEQ XP™ MEDIA @ 200X



Close-up of Synteq XP media (clean)

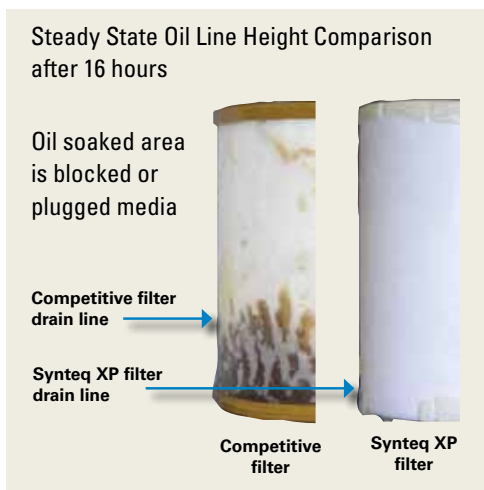


Close-up of Synteq XP media after 1200 hours of field use. The open areas that are free of contaminant offer additional filter service life.

One of the unique features of Synteq XP filtration technology is its exceptional ability to coalesce oil and then drain.

Oil that is held in the filter will increase pressure drop and reduce efficiency, resulting in shorter filter life. In Fig. 7, there is no wet line on the Spiracle filter shown on the right after 16 hours of operation. Better drainage means less pressure drop, better efficiency and improved life.

FIGURE 7
FILTER OIL LINE COMPARISON AFTER 16 HOURS

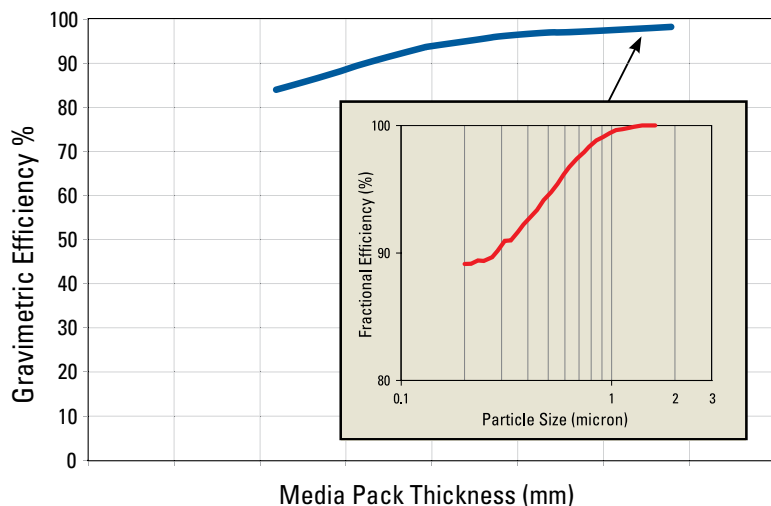


Better oil drainage means less pressure drop, improved efficiency and filter life.

Synteq XP media offers great flexibility to Donaldson engineers in customizing crankcase solutions. Spiracle CFS can be developed to any target gravimetric and fractional efficiency depending on the requirements of the customer and the diesel engine crankcase blow-by characteristics. This media technology offers the best combination of high efficiency with low pressure drop.

Synteq XP media in combination with a Spiracle housing for OCV or CCV applications allows increased engineering design flexibility (see Fig. 8) for custom fit solutions. This design flexibility translates into improved serviceability including mounting location and direction and aligning the filter service interval with other maintenance intervals to reduce downtime and maintenance costs.

FIGURE 8
CRANKCASE FILTRATION PERFORMANCE DESIGN FLEXIBILITY WITH SYNTEQ XP MEDIA



A Better Product and Technology to Control Diesel Engine Crankcase Emissions

Donaldson Spiracle CFS is a serviceable unit. Its benefits include lower cost, higher efficiency, and reliability over a wide range of engine conditions and longer filter life creating less demand on the diesel engine.

Benefits of Spiracle CFS with Synteq XP Media include:

- ◆ Lower operating pressure drop
- ◆ Continuous oil drainage even at low pressure differentials
- ◆ Higher gravimetric and fractional efficiency including the sub-micron particle size range
- ◆ Longer filter life compared to traditional media

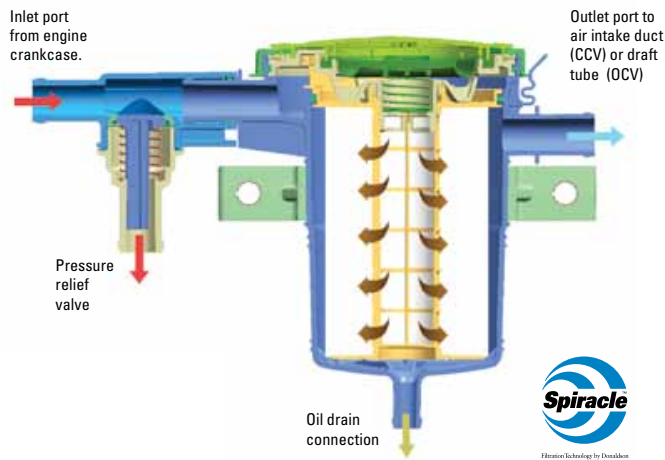
Donaldson Synteq XP media provides continuous drainage at low pressure differentials. Just as importantly, a Spiracle CFS provides high gravimetric efficiency at broad flow ranges in a dynamic engine operating environment where consistency is required no matter the duty cycle of the engine. The Spiracle CFS also provides high fractional efficiency on sub-micron particles. Sub-micron particles along with larger aerosol contaminants contribute to wear and damage to the air intake system components on diesel engines. Typical manifestation of such damage is wear on compressor blades and the housing of the turbocharger system, or a reduction in aftercooler efficiency which negatively impacts engine performance. This outstanding performance of the Spiracle filtration technology over any contaminant size range including sub-micron particles, clearly sets it apart from other



methods of filtering crankcase blow-by contaminants. The technology offers the added advantage of providing optimum filtration performance in low and high temperature extremes.

The Spiracle CFS does not have any moving parts and does not require any electric or hydraulic power to function; therefore, it does not require engine power to operate, which may otherwise cause parasitic losses and decrease fuel efficiency.

FIGURE 9
SPIRACLE SYSTEM SCHEMATIC



Due to its reliability over the life of the engine, Spiracle CFS is the ideal solution for controlling crankcase emissions whether in open or closed crankcase ventilation systems. As the soot and other contaminants build up on the Spiracle filters after extended engine use, typically over 1,500 hours, the end user simply replaces an

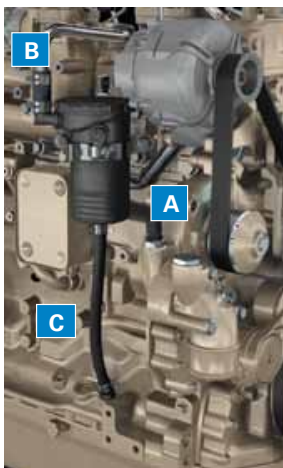
SPIRACLE FILTRATION SYSTEMS ON ENGINES

A - Outlet B - Inlet C - Oil Drain

FIGURE 10



FIGURE 11



inexpensive, easily accessible filter. This can be accomplished quickly (typically under 1 minute), thus resulting in minimal downtime servicing the engine and more vehicle uptime. Periodic replacement of the filter returns the system to a known performance level each and every time.

Donaldson Spiracle Systems deliver high performance crankcase filtration over all engine operating conditions. Figure 10 and 11 show examples of Spiracle CFS on engines.

"Green" Benefits

At Donaldson, we protect our customers' engines by cleaning the air going into the engine, all the fluids around and throughout the engine, and the exhaust gases coming out of the engine. In turn, our filtration systems are improving the sustainability of the environments in which they are used.

Spiracle CFS offers the following green benefits:

- ◆ reduces or eliminates crankcase emissions
- ◆ improves cabin air quality ⁽¹⁾
- ◆ reduces engine oil consumption; and
- ◆ maintains a cleaner engine compartment

Conclusion

Donaldson's diesel engine know-how combined with its cutting edge crankcase blow-by characterization technology and Synteq XP media based Spiracle Systems offer the emissions reduction solutions that are needed by the diesel engine OEMs to meet worldwide emissions regulations.

Reference:

- (1) Three independent studies concluded Spiracle CFS improves in-cab air quality. Links to studies can be found on Donaldson Emissions Resource Center at www.donaldson.com/en/erc

Acronyms

OCV	Open Crankcase Vent/Ventilation
CCV	Closed Crankcase Vent/Ventilation
CFS	Crankcase Filtration System
OE	Original Equipment
OEM	Original Equipment Manufacturer
EPA	Environmental Protection Agency
ARB	Air Resources Board; California Air Resources Board
PM	Particulate Matter

Internet Resources:

www.donaldson.com/en/engine/crank/

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Brochure No. F113025 (03/10)

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AIR INTAKE FOR VEHICLES/EQUIPMENT APPLICATION DESIGN WORKSHEET



For proper development/design engineering solution, we ask you to provide details about your engine, project due dates, intake system and performance (mechanical and filtration), system mounting, service, final packaging and product markings.

When completed, please forward to Donaldson.
Email: engine@donaldson.com

Customer Name:		Revision:
Project Name:		
Contact Name:		Title
Phone:	Fax:	Email:

Current Donaldson Model Used: (if applicable)	Your Part Number:
--	--------------------------

Project Details

Type of Machine: _____
Units Per Year: _____
Key Project Dates:
 Design Proposal: _____
 Prototype Delivery: _____
 Design Freeze: _____
 PPAP: _____
 Start of Production: _____

Engine Information

Manufacturer _____
Model _____
No of Cylinders _____
Rating _____ hp/kw at _____ rpm

External Requirements

Dust Condition:
 Light Medium Heavy
 Other Conditions:
 High Carbon (soot) Mist Seed/Chaf
 Other: _____
Does this air cleaner need to be flame retardant?
 Yes No
Air Temperature:
 _____ ° C Engine Compartment
 _____ ° C Max. Intake Air Temperature
 _____ ° C Max. Temp. in close proximity to air cleaner

Air Intake Requirements

Airflow: (Specify units, standard conditions if 20° C and 101.3 kPa, unless other specified.)
 Maximum Rated with EGR _____
 Maximum Rated with out EGR _____
 Maximum Initial Restriction:
 _____ (pressure) at _____ (flow rate)
 Service Restriction Limit:
 _____ (pressure) at _____ (flow rate)
Pre-cleaner Scavange Available: Yes No
Type of Maintenance: Scheduled Restriction
Service Interval Desired:
 _____ hours OR miles
Air Temperature:
 _____ ° C Engine Compartment
 _____ ° C Max. Intake Air Temperature
 _____ ° C Max. Air Cleaner Housing Skin Temp.

Intake System Mounting Requirements

Under Hood: Frame/Rail Engine Firewall
 Other _____
Outside of Engine Compartment
 Cowl Mounted Frame/Rail
 Other, please describe
Location / Space Footprint:
 Limitations (include inches or metric) Dia. _____
 Length: _____ Inlet _____ Outlet _____
Model of Space Envelope Attached? Yes No

AIR FILTRATION TECHNICAL REFERENCE

Vibration

PSD/Time History Data Attached Yes No

Natural Frequencies to avoid (engine fundamental, track/wheel/tire input): _____

What is B10 life? _____ hours or miles

Machine Axis	Acceleration (g) Max. G Load	Peak Shock Loads (g)	Expected No. of Cycles-Shock
Vertical			
Fore/Aft			
Side to Side			

Intake Plumbing

Describe any special intake ducting, clamp, or torque requirements.

Outlet Plumbing

Describe any special intake ducting, clamp, or torque requirements.

Clamp Torque Specification _____

Restriction Indicator Port? Yes No

Intake Air Temperature Sensor? Yes No

Mass Air Flow Sensor? Yes No

Crankcase Ventilation Port? Yes No

Additional Fittings? Yes No

If yes, describe (location, thread/seal type)

Additional Information

Is a safety/secondary filter required?

Yes No

Flame retardant required?

Yes No

Do you have any special finish requirements?

Yes No

Accessories

Mounting Bands Yes No

Rain Caps / Hoods Yes No

Moisture Eliminators Yes No

Filter Indicators Yes No

Packaging

Check all that apply?

Protective caps: on inlet on outlet on port

Other _____

Final Assembly:

Bulk Individual Boxes Returnable

Other _____

Markings

Do you have any marking requirements?

Intake Assembly? Yes No

Filters? Yes No

Pre-Cleaner? Yes No

Installation & Service

Do you require installation, service or maintenance recommendations from Donaldson? Yes No

Additional Comments on Requirements?

For Donaldson USE ONLY

Date Received: _____

Request From: Catalog Web Site
 Other _____

Assigned to:

Business Unit: _____

Account Manager: _____

Product Manager: _____

Engineer: _____



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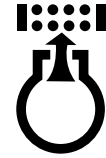
Engine Air Intake
Applications Engineering

Doc. No. F115348 Rev.0 October 2010
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ENGINE CRANKCASE FILTRATION APPLICATION DESIGN WORKSHEET



For proper development/design engineering solution, we ask you to provide details about your project, engine and crankcase parameters, performance (mechanical and filtration), system mounting, service, final packaging and product markings.

When completed, please forward to Donaldson.
Email: engine@donaldson.com

Customer Name: _____		Revision: _____	
Project Name: _____			
Contact Name: _____		Title _____	
Phone: _____	Fax: _____	Email: _____	

Current Donaldson Model Used: (if applicable) _____	Your Part Number: _____
--	--------------------------------

Project Details

Type of Machine: _____
Units Per Year: _____
Key Project Dates:
 Design Proposal: _____
 Prototype Delivery: _____
 Design Freeze: _____
 PPAP: _____
 Start of Production: _____

Engine Information

Manufacturer _____
 Model _____
 Emissions regulations (U.S. EPA, Euro) being met?

 No of Cylinders _____
 Engine Displacement _____ l
 Rating _____ kW at _____ rpm
 Number of Turbochargers _____
 Oil Type/Grade _____
 Height between housing oil exit to
 oil pan _____ cm
 Engine Tilt Requirements: Degree _____
 Duration _____ Direction _____
 Engine Compartment Temperature _____ °C

Crankcase Design Parameters

Desired Crankcase Filtration System Type:
 Open Closed Not Sure
 Desired Filter Life: _____ hours or miles
 Minimum crankcase filtration efficiency (%) _____
 Maximum blow-by gas flow _____ l/min
 Blow-by gas flow difference between new engine and old
 engine _____ l/min
 Blow-by gas flow rate at engine brake _____ l/min
 Maximum temperature of blow-by gas _____ °C
 Crankcase pressure range (kPa)
 minimum: _____ maximum: _____
 Pressure relief valve required? Yes No
 Pressure regulation valve required? Yes No
 Engine oil carry-over _____ g/h
 Check valve on oil return line Yes No
 Engine Air Cleaner Restriction (kPa)
 Initial _____ Final _____

continued on next page

Mounting Requirements

Location / Space Footprint:

Limitations (include inches or metric) Dia. _____

Length: _____ Inlet _____ Outlet _____

Model of Space Envelope Attached? Yes No

Vibration

PSD/Time History Data Attached Yes No

Natural Frequencies to avoid (engine fundamental, track/wheel/tire input:) _____

What is B10 life? _____ hours or miles

Machine Axis	Acceleration (g) Max. G Load	Peak Shock Loads (g)	Expected No. of Cycles-Shock
Vertical			
Fore/Aft			
Side to Side			

Additional Information

Do you have any special finish requirements?

Yes No

Accessories

Hoses Yes No

Clamps Yes No

Filter Indicators Yes No

Packaging

Check all that apply?

Protective caps: on inlet on outlet on port

Other _____

Final Assembly:

Bulk Individual Boxes Returnable

Other _____

Markings

Do you have any marking requirements?

Assembly? Yes No

Filters? Yes No

Installation & Service

Do you require installation, service or maintenance recommendations from Donaldson? Yes No

Additional Comments on Requirements?

For Donaldson USE ONLY

Date Received: _____

Request From: Catalog Web Site
 Other _____

Assigned to:

Business Unit: _____

Account Manager: _____

Product Manager: _____

Engineer: _____



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Minneapolis, MN 55440-1200

Engine Air Filtration
Applications Engineering

Doc. No. F115356 Rev.1

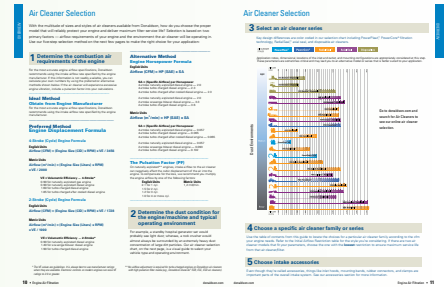
January 2012

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Engine Air Consumption & HP Rating Guide



The data on engines in this section is to be used as a reference only. If you are selecting a new air cleaner for an engine, Donaldson recommends that you acquire this information from the engine manufacturer. If this information is not available, we calculate the airflow based on instructions shown in the first section of this catalog.



DO NOT use this guide or data for the selection of retrofit emissions devices.

- | | | |
|--------------------|----------------------|------------|
| Allis Chalmers | Kohler | Renault |
| Case | Kubota | Same |
| Caterpillar | Lister | Teledyne |
| Continental Motors | Lombardini | Volkswagon |
| Cummins | Mack | Volvo |
| Detroit Diesel | Mercedes-Benz | Waukesha |
| Deutz | Mitsubishi | White Eng |
| Ford | MTU of North America | Yanmar |
| Hatz Diesel | Navistar | |
| Hino | Nissan | |
| Isuzu | Perkins | |
| Iveco | | |
| John Deere | | |

For assistance in calculating engine airflow, please contact Donaldson customer service. See back cover for contact information.

Engine Model	RPM	HP	-- Exhaust --	
			Intake Temp. (°F)	Flow (CFM)
ALLIS CHALMERS				
10000	2200	145	265	
11000	2200	220	560	
16000	2100	250	420	
17000 MKII	2100	300	780	
2000	2100	59	97	
21000 MKII	2100	375	875	
213	3600	32	75	
2200	2100	55	97	
25000 MKII	2100	450	1050	
2800	2600	85	200	
2900	2600	135	340	
320	3600	53	114	
3400	2400	125	240	
3500	2400	175	380	
3700	2400	200	400	
426	3600	72	150	
433I	2400	100	247	
433T	2400	90	242	
6000	2200	104	218	
61000	2100	800	2300	
6138I	2100	450	1060	
6138LT	2100	325	790	
6138T	2100	375	875	
649I	2600	155	430	
649T	2600	135	390	
65000	2100	900	2400	
670I	2400	200	490	
670T	2400	175	460	
685I	2200	266	680	
685T	2200	220	555	
7000	2200	160	300	
D175	2200	52	85	
D262	2200	78	128	
D344	1800	88	143	

CASE					
301BD	2200	94	153	1000	414
336BD	2200	104	171	1000	462
336BDT	2200	126	267	850	648
451BD	2200	142	360	1000	973
451BDT	2200	181	380	900	957
504BD	2200	155	275	950	718
504BDT	2200	221	440	900	1108
504BDTI	2200	256	600	950	1567
A267D	2000	73	123	1000	333
A284	2000		136	1000	368
A377	1800		139	1000	376
A451D	2000	145	200	1000	541
G188	2000	49	82	1000	222
G188D	2250	62	138	1000	373

CATERPILLAR					
1160	2800	225	410	1050	1146
1673T	2200	250	600	950	1567
1674TA	2200	270	690	900	1738
1693TA	2100		1080	900	2720
3116	2600	200	618	856	1511
	2600	250	713	867	1755
	2450	275	685	929	1773
	2600	300	745	984	2006

Engine Model	RPM	HP	-- Exhaust --		
			Intake Temp. (°F)	Flow (CFM)	
3126B	2200	175	1239	660	2640
	2300	190	1355	716	3017
	2200	210	1327	741	3031
	2200	230	593	808	1471
	2200	250	635	821	1595
	2200	275	649	867	1683
	2200	300	660	916	1778
	2400	330	709	931	1937
3140	2800		410	1000	1109
3145	2800		410	1050	1146
3150	2800		410	1000	1109
3160	2800		410	1080	1169
3176	1800	275	692	676	1458
	1800	300	738	693	1579
	1800	350	802	760	1819
	1800	365	805	808	1900
3204NA	2400	66	193	980	515
3208ATAC	up to 300		950		
3208N	2200	165	325	1076	930
3208NA	2800	210	410	1000	1109
3208T	2800	250	646	900	1627
	2200	215	591	855	1443
3208T-DIATAAC					
	2600	275	752	854	1837
	2800	300	871	874	2162
3208T-DIT	2600	250	649	976	1740
3304B up to 165 950					
3304NA	2200	102	206	1050	576
3304T	2200	165	264	900	665
3306	1900	300	745	1019	2059
3306B	1800	285	745	825	1781
	1800	300	777	843	1887
3306NA	2200	150	325	950	849
3306T	2200	250	600	900	1511
	up to 300		850		
3306TA	2200	270	624	950	1629
3406	1900	425	1109	880	2758
3406B	1800	300	930	655	1917
	1800	330	986	705	2125
	1800	350	1016	739	2255
	1800	400	1052	753	2364
	1800	425	1077	806	2532
	1900	460	1108	847	2694
3406E	1800	355	967	762	2301
	1800	375	1023	899	2717
	1800	435	1066	901	2872
	1800	455	1083	919	2925
	1800	475	1105	937	3017
	1800	500	1119	954	3098
	1800	575	1164	959	3236
	1800	600	1164	959	3236
3406T	2100	339	910	900	2292
3406TA	2100	375	1000	900	2519
3408T	2100	425	980	900	2468
3408TA	2100	475	1220	900	3073
3412T	2100	650	1719	870	4234
3412TA	2100	750	2426	900	6420
3508	1800	1000	2490	900	6271
3512	1800	1500	3695	900	9306
3516	1800	2000	4830	900	12164
3606	1000	2475	5850	850	14192
3608	1000	3330	7235	800	16882
3612	1000	4950	11700	800	27300
3616	1000	6655	14470	800	33763
5.4-6	2000	437	1041	950	2718
5.4-8	1900	614	1477	950	3857

Engine Model	RPM	HP	-- Exhaust --		
			Intake Temp. (°F)	Flow (CFM)	
5.4V12	1900	896	1936	900	4876
5.75-6	1330	317	780	950	2037
6.25-6	1375	440	1111	950	2901
C-10	1800	305	755	821	1888
	1800	335	766	918	2078
	1800	350	752	892	1997
	1800	370	766	918	2078
C-12	1800	335	805	876	2110
	1800	355	815	859	2121
	1800	380	826	898	2202
	1800	395	833	924	2265
	1800	410	836	937	2287
	1800	425	815	922	2220
	1800	430	826	948	2276
	1800	455	819	953	2269
C-15	1800	355	963	762	2294
	1800	375	1023	899	2714
	1800	435	1066	902	2830
	1800	455	1083	919	2925
	1800	475	1105	937	3017
	1800	500	1119	954	3098
C-16	1800	575	1154	941	3165
	1800	600	1164	959	3236
D330NA	2200	100	227	1050	635
D330T	2200	165	418	950	1091
D333NA	2200	150	349	1000	944
D333T	2200	250	613	900	1544
D334TA	2200	280	689	950	1799
D336TA	2200	350	895	950	2337
D342NA	1300	200	418	1050	1169
D342T	1300	300	887	950	2316
D343T	2000	315	786	950	2052
D343TA	2000	425	996	900	2508
D346TA	2000	565	1350	900	3400
D348TA	2000	850	2048	900	5158
D349TA	2000	1130	2827	900	7120
D353TA	1300	490	1091	900	2748
D379TA	1300	650	1501	900	3780
D398TA	1300	975	2323	900	5851
D399T	1300	1300	3009	900	7578
CONTINENTAL MOTORS					
E201	2400		104	1100	300
F124	2400		65	1100	188
F135	2000	40	58	1100	168
F140	2400		84	1100	243
F162	2400	60	84	1100	243
F186	2400		101	1100	292
F209	2400		109	1100	315
F226	2400		115	1100	332
F227	2400	78	116	1100	335
F244	2400		126	1100	364
F245	2400	88	127	1100	367
G134	2000		58	1100	168
G157	2000		68	1100	196
H227	2000		96	1100	277
H243	2000		104	1100	300
H260	2000		112	1100	324
J382	2000		160	1100	462
L478	2400	162	265	1100	766
M271	2400		141	1100	407
M290	2400		151	1100	436
M330	2400		172	1100	497
M363	2400	122	201	1100	581
N56	2200		27	1100	78
N62	2400		31	1100	90

Engine Model	RPM	HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
CONTINENTAL MOTORS CONTINUED					
R513	2400		267	1100	771
R572	2400		298	1100	861
R602	2400	191	313	1100	904
S749	2200		358	1100	1034
S802	2200		392	1100	1132
S820	2400	250	455	1100	1314
T&B371	2400		193	1100	558
T&B427	2400	133	241	1100	696
U501	2400		260	1100	751
V603	2800		313	1100	904
Y112	2400	37	58	1100	168
Y69	2400		37	1100	107
Y91	2400	27	91	1100	263

CUMMINS

3B2.9	2500	56	115	1000	311
4B3.9	2500	76	150	1050	419
4BT	2500	105	289	890	750
4BT	2500	120	336	970	922
4BT3.9	2500	100	253	1000	684
4BT3.9-G1	1800	86	147	850	357
4BT3.9-G2	1800	102	157	850	381
4BTA3.9	2500	120	298	900	751
6B5.9	2500	116	226	1000	611
6BT	2500	190	590	780	1290
	2500	230	535	1031	1531
	2300	230	520	910	1380
6BT5.9	2500	152	381	900	960
6BT5.9-G1	1800	135	224	900	564
6BT5.9-G2	1800	166	285	900	718
6BTA5.9	2500	180	449	900	1131
6C8.3	2500		316	1000	854
6CT	2300	250	570	930	1740
	2200	300	742	1000	2140
	2000	275	590	985	1665
6CT8.3	2500		555	900	1398
6CTA8.3	2500	250	632	900	1592
C-160	2500	153	300	900	756
C-180	2500	173	350	900	881
C-190	2500	190	495	900	1247
FLEET 270	1600	270	710	900	1788
FLEET 300	1600	300	765	900	1927
	1600	300	710	900	1788
Formula 240	1800	240	630	900	1587
	1800	240	618	900	1556
Formula 270	1800	270	720	900	1813
Formula 300	1800	300	761	900	1917
	1800	300	745	900	1876
	1800	300	744	900	1874
Formula 315	1800	315	735	900	1851
Formula 350	1800	350	821	900	2068
	1800	350	800	900	2015
	1800	350	857	900	2158
Formula 400	1900	400	1060	900	2670
	1900	400	930	950	2428
	1900	400	986	900	2483
Formula 450	1900	450	1110	950	2898
Formula L10-240					
	1900	240	522	900	1315
	1900	240	580	900	1461
	1900	240	585	900	1473

Engine Model	RPM	HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
Formula L10-270					
	1900	270	556	900	1400
	1900	270	618	900	1556
	1900	270	606	900	1526
Formula L10-300					
	1900	300	609	900	1534
GNH-220-IP	1800	177	250	900	630
GNH-250-IP	1800	204	265	900	667
GV-12-525-IP	1800	408	580	900	1461
ISB	2500	185	578	698	1257
	2600	190	526	801	1250
	2500	205	508	831	1246
	2600	210	526	857	1313
	2500	225	510	892	1311
	2500	240	610	812	1456
	2500	245	610	812	1456
	2600	260	622	886	1592
	2500	275	620	956	1673
ISC	2400	225	708	706	1417
	2400	240	721	746	1485
	2400	260	743	765	1578
	2200	285	682	833	1531
	2200	300	688	860	1578
	2200	315	682	919	1686
	2200	330	693	927	1758
	2200	350	706	966	1841
ISL	2100	310	689	891	1682
	2100	330	708	933	1740
ISM	2100	280	777	670	1523
	1800	310	734	721	1528
	1800	330	773	742	1610
	2100	350	888	720	1778
	2100	370	918	737	1853
	2100	400	918	737	1853
	2100	425	855	969	2171
	2100	450	974	789	2030
	2100	500	940	965	2341
ISX	1800	400	1063	655	2036
	1800	450	1129	696	2218
	2000	475	1126	842	2504
	2000	500	1125	905	2633
	2000	600	1227	975	3202
KT-1150-C	2100	450	1130	900	2846
KT-2300-C	2100	900	2400	880	5956
KT-450	2100	450	1130	850	2741
KTA-1150-C	2100	600	1400	900	3526
	2100	525	1410	880	3499
KTA-2300-C	2100	1200	2900	900	7304
	2100	1050	2700	900	6800
KTA-3067-C	2100	1600	3760	900	9470
	2100	1350	3455	900	8701
KTA-525	2100	525	1425	850	3457
KTA-525-FORM					
	1900	525	1200	850	2911
KTA-600	2100	600	1400	850	3396
KTTA-19-C		650		900	
KTTA-38-C		1350		900	
KTTA-50-C		2000		900	
L10	1700	260	615	745	1300
	1700	280	640	760	1407
	1600	310	638	825	1470
	2100	270	670	900	1687
	2100	300	659	900	1660

Engine Model	RPM	HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
M11	1600	280	615	817	1476
	1600	310	670	813	1390
	1600	350	760	822	1554
	1600	370	770	828	1641
	1600	400	840	832	1801
N-855-C	2100	220	460	850	1116
	2100	235	460	850	1116
N-927	1950	240	465	880	1154
	2100	260	495	880	1228
	2100	240	495	880	1228
N14	1800	330	1014	657	1997
	1800	400	1126	723	2354
	2100	350	1212	606	2254
	2100	370	1283	651	2474
	2100	460	1329	737	2737
	2100	500	1380	802	2984
	2100	525	1380	802	2984
	2100	410	1164	670	2614
	2100	435	1302	714	2639
	2100	550	1380	802	2984
	2100	525	1380	802	2984
NH-220	2100	212	470	900	1184
NH-230	2100	220	460	900	1159
NH-230S	1800	186	460	900	1159
NH-250-M	2100	240	460	950	1201
	1800	190	395	1050	1105
	1800	200	395	900	995
	2100	210	460	900	1159
NHC-250	2100	240	460	900	1159
	2300	240	710	900	1788
NHC-250-D	2100	240	460	900	1159
NHD-230	2100	220	495	900	1247
NHF-240	2300	230	505	900	1272
NHF-265	2300	255	505	900	1272
NHH-250	2100	240	460	900	1159
NHHTC-335	2100	335	850	850	2062
NHTF-295	2300	295	710	900	1788
NT-335-M	1800	235	625	950	1632
	1800	265	650	900	1637
	2100	285	775	950	2024
	2100	335	800	950	2089
NT-380-M	2300	380	950	950	2481
	2000	253	700	1000	1893
	2000	300	750	900	1889
	2300	320	900	980	2400
NT-855-C	2100	310	895	880	2221
	2100	280	860	850	2086
	2100	250	825	850	2001
	2100	335	920	900	2317
	2100	335	900	900	2267
	2100	280	820	900	2065
	2100	250	680	880	1687
	2100	310	835	900	2103
NTA-370	1950	335	810	850	1965
	2100	370	950	850	2305
NTA-400	2100	400	1000	850	2426
NTA-420	2300	420	1080	900	2720
NTA-855-C	2100	400	1000	880	2481
	2100	360	960	880	2382
	2100	360	980	900	2468
	2100	400	1050	900	2644
NTC-270-CT	2100	240	740	850	1795
	2100	225	760	900	1914
	2100	270	825	900	2078

Engine Model	RPM	HP	-- Exhaust --			
			Intake CFM	Temp. (°F)	Flow (CFM)	
CUMMINS CONTINUED						
NTC-290	2100	270	665	950	1736	
	2100	290	685	900	1725	
	1950	255	580	920	1482	
NTC-300	2100	300	936	900	2357	
	NTC-335	2100	280	780	880	1936
		2100	300	805	880	1998
NTC-350	2100	335	850	900	2141	
	2100	320	830	900	2090	
	2100	350	885	900	2229	
NTC-400	2100	335	865	880	2146	
	2100	320	845	880	2097	
	1950	310	760	850	1844	
NTCC-300	2100	350	986	900	2483	
	2100	350	930	900	2342	
	2100	400	1165	950	3042	
NTCC-350	2100	400	1030	900	2594	
	2100	300	868	900	2186	
	2100	350	1000	900	2519	
NTF-295	2100	400	1090	900	2745	
	2300	295	710	850	1722	
	2300	365	960	920	2453	
P.TORQ 240	2100	240	618	900	1556	
	2100	240	735	900	1851	
	2100	270	840	900	2116	
P.TORQ 315	2100	315	890	950	2324	
	P.TORQ L10-240	2100	240	645	900	1624
		2100	240	577	900	1453
2100		240	647	900	1629	
P.TORQ L10-270	2100	270	630	900	1587	
	Signature	2000	500	1072	959	2638
		2000	565	1117	986	2777
2000		600	1164	1013	2936	
SUPER 250	2100	240	495	900	1247	
	V-12-500-M	2100	480	840	900	2116
		1800	370	720	950	1880
1800		400	720	900	1813	
V-378-C	2100	425	840	950	2193	
	3000	145	277	900	698	
	3000	195	357	900	899	
V-504-C	3300	202	425	950	1110	
	2500	158	322	900	811	
	3300	197	386	900	972	
V-555	3300	216	470	880	1166	
	3000	215	430	850	1043	
	3300	202	470	900	1184	
V-555-C	2600	307	610	900	1536	
	2600	255	610	900	1536	
	2600	269	610	900	1536	
V-555-E	2600	288	610	880	1514	
	2600	295	610	880	1514	
	2600	265	610	850	1480	
V-903	2600	307	610	950	1593	
	2300	250	545	900	1373	
	2500	302	585	900	1473	
V-903-C	2200	250	520	880	1290	
	V5-120-635-M	1800	435	1060	900	2670
		V5-120-635-M	2100	540	1380	900	3476
3300			149	318	950	830
3300	178		425	950	1110	
3300	202	425	950	1110		

Engine Model	RPM	HP	-- Exhaust --			
			Intake CFM	Temp. (°F)	Flow (CFM)	
V8-300	3000	288	580	970	1536	
	V8-300-M	3000	288	585	950	1528
		2600	220	505	900	1272
VT-12-635-M	2800	260	545	950	1423	
	VT-12-700-M	2100	635	1460	950	3812
		1800	490	1100	900	2770
VT-12-800-M	2100	700	1600	980	4267	
	1800	480	1130	900	2846	
	1800	545	1190	900	2997	
VT-1710-C	2100	595	1500	950	3917	
	2100	800	1820	950	4752	
	1800	550	1325	900	3337	
VT-555	1800	620	1400	900	3526	
	1800	680	1700	950	4439	
	2100	635	1700	900	4281	
VT-555-C	3000	220	625	900	1574	
	3000	230	585	850	1419	
	2600	307	850	900	2141	
VT-903	2600	350	1050	900	2644	
	2600	320	930	900	2342	
	2600	350	920	900	2317	
VT-903-C	2600	320	905	900	2279	
	3000	370	930	950	2428	
	2600	270	760	900	1914	
VT8-370-M	2800	320	865	950	2259	
	2100	700	1880	950	4909	
	2100	800	2100	980	5600	
VTA-1710-C	2100	800	2100	980	5600	
VTR-28-C	900			900		
DETROIT DIESEL						
12V-149	1900	800	2800	850	6793	
	12V-149T	1900	1000	3600	850	8733
		1900	1200	4300	850	10431
12V-149TI	1800	350	1128	850	2736	
	2300	471	1430	850	3469	
	2100	456	1309	850	3176	
12V-71T	2100	525	1800	850	4367	
	1800		1650	850	4003	
	1900	1060	3600	850	8733	
16V-149	1900	1325	4800	850	11644	
	1900	1600	5500	850	13343	
	2100	608	1748	850	4241	
16V-149TI	1800	466	1506	850	3653	
	1800		2240	850	5434	
	2100	700	2300	850	5580	
16V-71T	1800	600	1960	850	4755	
	2100	720	2300	850	5580	
	2100	860	3200	850	7763	
16V-92	1800		2600	850	6307	
	1800		130	850	315	
	1200		91	850	221	
2-53	200		142	850	344	
	200	65	223	850	541	
	1800	48	200	850	485	
3-53/2-VAL	1200		131	850	318	
	2200	75	242	850	587	
	1800	59	202	850	490	
3-53T	2200		253	850	614	
	2800	98	319	850	774	
	2500	125	500	850	1213	
3-71	2500	125	500	850	1213	
	1800	82	319	850	774	
	2100	109	375	850	910	
1200		207	850	502		

Engine Model	RPM	HP	-- Exhaust --			
			Intake CFM	Temp. (°F)	Flow (CFM)	
4-35T	2500	170	596	850	1446	
	4-53/2-VAL	2200	103	340	850	825
		1000		282	850	684
4-53T	2200		356	850	864	
	2800	136	450	850	1092	
	2500	170	596	850	1446	
6-71	1200		275	850	667	
	2300	159	550	850	1334	
	1800	117	425	850	1031	
6-71T	2100	152	500	850	1213	
	2300	236	825	850	2001	
	1800	175	637	850	1545	
6-71T	2100	228	750	850	1819	
	1200		413	850	1002	
	2100	275	1045	850	2535	
6-71TT	1950	230	930	850	2256	
	2300	236	715	850	1735	
	1800	175	564	850	1368	
6V-53	2100	228	655	850	1589	
	2200		534	850	1295	
	2800	210	675	850	1638	
6V-53T	2600		627	850	1521	
	2500	230	855	850	2074	
	1800	225	730	850	1771	
6V-92	2100	270	860	850	2086	
	1800		1000	850	2426	
	2100	322	1200	850	2911	
6V-92TA	2100	335	1225	850	2972	
	1950		1030	850	2499	
	1950	270	1050	850	2547	
8.2LN	3000	165	376	850	912	
	3000	205	553	850	1342	
	2200		693	850	1681	
8V-53	2500		786	850	1907	
	1800	233	753	850	1827	
	2300	314	954	850	2314	
8V-71	2100	304	874	850	2120	
	2100	350	1200	850	2911	
	1800		1100	850	2669	
8V-71TA	2100	370	1240	850	3008	
	1950		1240	850	3008	
	1950	305	1055	850	2559	
8V-71TT	1800	300	980	850	2377	
	2100	360	1150	850	2790	
	2100	430	1600	850	3881	
8V-92	1800		1300	850	3154	
	2100	435	1434	850	3479	
	1950		1300	850	3154	
8V-92TA	1950	365	1250	850	3032	
	Series 40E (7.6 LTA)					
	2300	175	675	670	1450	
Series 40E (8.7 LTA)	2600	190	705	710	1575	
	2600	210	740	765	1730	
	2600	230	700	885	1810	
Series 40E (7.6 LTA)	2400	195	715	720	1610	
	2400	250	700	885	1810	
	2200	250	685	850	1725	
Series 40E (8.7 LTA)	2200	275	705	955	1890	
	2200	300	710	965	1930	
	2200	320	715	985	1995	

Engine Model	RPM	Intake HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
DETROIT DIESEL CONTINUED					
Series 50 (8.5 Ltr)					
2100	250	760	625	1575	
2100	275	790	680	1720	
2100	300	820	715	1845	
2100	320	815	730	1861	
2100	350	815	850	2055	
Series 60 (12.7 Ltr)					
2100	330	1050	610	2157	
2100	350	1090	645	2310	
2100	370	1010	725	2300	
2100	400	1050	780	2500	
2100	430	1080	820	2652	
2100	470	1170	825	2877	
2100	500	1170	825	2877	
Series 60 (14 Ltr)					
2100	550	1231	986	3402	
2100	575	1271	867	3221	

DEUTZ

BF12L 714	2300	390	695	850	1686
BF6L 913	2800	175	396	850	961
F10L 413	2650	310	595	850	1443
F10L 714	2300	275	577	850	1400
F12L 413	2650	370	714	850	1732
F12L 714	2300	330	695	850	1686
F1L 208	3600	9	70	850	170
F1L 210	3000	16	96	850	233
F1L 411D	3000	16	98	850	238
F2L 411D	3000	32	133	850	323
F2L 411W	3000	30	133	850	323
F2L 912	2500	36	150	850	364
F2L 912W	2500	34	150	850	364
F3L 912	2800	60	176	850	427
F3L 912W	2500	50	158	850	383
F4L 912	2800	80	202	850	490
F4L 912W	2500	67	180	850	437
F5L 912	2800	100	210	850	509
F5L 912W	2500	84	187	850	454
F6L 413	2650	185	357	850	866
F6L 714	2300	165	347	850	842
F6L 912	2800	120	252	850	611
F6L 912W	2500	101	224	850	543
F8L 413	2650	250	476	850	1155
F8L 714	2300	220	463	850	1123

FORD

00	2400	59	101	900	254
172DF	2400	59	101	900	254
175DF	2500	52	108	900	272
183D	2200	52	99	900	249
192DF	2400	65	113	900	285
201DF	2250	66	111	900	280
220	2400	69	130	900	327
233D	2100	68	120	900	302
242D	2230	76	133	900	335
242DF	2500	79	149	900	375
254DF	2500	80	157	900	395
256DF	2500	89	157	900	395
3320DF	2500	111	203	900	511
362DF	2500	121	223	900	562
363DFT	2400	150	214	900	539
380DF	2500	120	233	900	587
401DF	2500	132	246	900	620
401DFT	2500	167	246	900	620

Engine Model	RPM	Intake HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
67GF	3600	32	60	900	151
98GF	3600	45	87	900	219
X	2250	60	122	900	307
Y	2250	96	183	900	461

HATZ DIESEL

2L30	3000	30	68	1100	196
2L40	3000	37	82	1100	237
2M40	3000	40	85	1100	246
3L30	3000	45	101	1100	292
3L40	3000	55	123	1100	355
3M40	3000	60	130	1100	376
4L30	3000	60	135	1100	390
4L40	3000	74	164	1100	474
4M40	3000	80	170	1100	491
E573	3000	3	14	1100	40
E673	3000	5	16	1100	46
E75	3000	7	18	1100	52
E780	3000	10	25	1100	72
E786	3000	14	30	1100	87
E79	3000	8	20	1100	58
E88	2600	10	28	1100	81
E89	2600	12	30	1100	87
E950	3000	17	36	1100	104
Z788	3000	23	55	1100	159

HINO

Z790	3000	30	61	1100	176
DK10	2000	132	325	900	819
DK10T	1800	160	425	900	1070
DM100	2400	62	165	900	416
EB300	2000	132	315	900	793
EC100	2600	76	208	900	524
EF550	2200	230	572	900	1441
EF750	2200	245	589	900	1483
EF750T	2200	272	850	900	2141
EH100	2600	93	244	900	615
EH500	2800	114	277	900	698
EH700	2800	118	290	900	730
EK100	2200	196	467	900	1176
EL100	2600	132	327	900	824
EL100T	2400	145	440	900	1108
EM100	2400	148	362	900	912
ER100	2200	160	407	900	1025
EV700	2200	298	700	900	1763

ISUZU

QD100	3200	87	185	900	466
QD130	2800	115	230	900	579
QD145	3200	129	280	900	705
QD145T	2500	139	305	900	768
QD200	2200	194	410	900	1033
QD200T	2000	218	515	900	1297
QD27	2800	26	50	900	126
QD40	2800	40	80	900	201
QD60	3800	55	140	900	353
QD85	3000	68	162	900	408
QD90	2800	75	150	900	378
QT15	3600	14	55	900	139
QT23	3600	22	75	900	189
QT35	3000	32	96	900	242

Engine Model	RPM	Intake HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)

IVECO

803 i 3L-NA	2500	51	120	1100	347
804 i 4L-NA	2500	68	155	1100	448
805 i 5L-NA	2500	84	74	1100	214
806 i 6L-NA	2500	102	235	1100	679
806 i tc 6L-TC	2500	131	340	900	856
8210 i 6L-NA	2000	205	440	1100	1271
8280 i V8-NA	2200	287	600	1100	1733
8281 SRi V8-TCA	2200	424	900	900	2267
8281 Si V8-TC	2000	331	790	900	1990
8361 Si 7L-TC	2400	157	450	900	1133
8361 i 6L-NA	2500	139	322	1100	930

JOHN DEERE

3164D	2500	52	100	900	252
3179D	2500	58	100	900	252
3179T	2500	79	178	900	448
4219D	2500	70	135	900	340
4239A	2500	117	277	900	698
4239D	2500	80	148	900	373
4239T	2500	109	258	900	650
4276D	2500	82	160	900	403
4276T	2200	98	266	900	670
6076A	2200	240	568	900	1431
6076H	2200	250	647	900	1629
6076T	2200	190	505	900	1272
6329D	2500	104	200	900	504
6359A	2500	176	470	900	1184
6359D	2500	121	228	900	574
6359T	2500	163	370	900	932
6414D	2200	118	228	900	574
6414T	2200	146	360	900	907
6466A	2100	233	579	900	1458
6466D	2200	138	258	900	650
6466T	2200	185	484	900	1219
6619A	2100	301	680	900	1713
8955A	2100	456	1130	900	2846
8955T	2100	356	978	900	2463

KOHLER

K161	3600	7	14	1150	42
K181	3600	8	16	1150	48
K241	3600	10	20	1150	60
K301	3600	12	24	1150	72
K321	3600	14	26	1150	78
K341	3600	16	30	1150	89
K582	3600	23	48	1150	143
K91	3600	4	7	1150	21
KT17	3600	17	35	1150	104
KT19	3600	19	39	1150	116

Engine Model	RPM	Intake HP	-- Exhaust --	
			Temp. (°F)	Flow (CFM)

KUBOTA

D1402-B	2800	31	62	900	156
D3200-B	2400	66	123	900	310
D600-B	3600	16	35	900	88
DH850-BW	3000	20	41	900	103
DH850-B	3600	23	49	900	123
S2800-B	2600	58	116	900	292
V1100-B	3000	26	55	900	139
V1702-B	2800	40	77	900	194
V1902-B	2800	42	83	900	209
V4300-B	2400	88	164	900	413
VH1100-B	3600	31	66	900	166
Z400-B	3600	11	23	900	58
Z600-BW	3200	14	29	900	73
ZB400-B	3200	10	21	900	53
ZB600C-1-B	3200	14	29	900	73
ZH600-B	3600	16	33	900	83

LISTER

HL3	2500	125	900	315	
HL4	2500	167	900	421	
HL6	2500	250	900	630	
HLT6	2100	300	900	756	
HR2	2200	73	900	184	
HR3	2200	110	900	277	
HRW2	2200	31	74	900	186
HRW3	2200	47	110	900	277
HRW4	2200	62	146	900	368
HRW6	2200	93	220	900	554
HRWS6	2000	102	200	900	504
LT1	3600	8	24	900	60
LV1	3600	9	28	900	71
LV2	3600	18	55	900	139
ST1	3000	10	31	900	78
TL2	3000	27	74	900	186
TL3	3000	40	111	900	280
TS2	3000	22	61	900	154
TS3	3000	33	91	900	229

LOMBARDINI

10LD 400-2	3000	16	34	1000	92
10LD 400-2/B1					
	3600	18	41	1000	111
11LD 535-3	3000	33	74	1000	200
11LD 625-3	3000	38	84	1000	227
3LD 450	3000	10	20	1000	54
3LD 510	3000	11	22	1000	59
3LD 510/L	2200	8	17	1000	46
4LD 640	3000	14	28	1000	76
4LD 640/L	2200	10	22	1000	59
4LD 705	2600	15	27	1000	73
4LD 820	2600	18	32	1000	87
4LD 820/L	2200	14	27	1000	73
5LD 675-2	3000	29	58	1000	157
5LD 675-3	3000	44	87	1000	235
5LD 825-2	2600	34	63	1000	170
5LD 825-2/L	2200	27	53	1000	143
5LD 825-3	2600	52	94	1000	254
5LD 825-3/L	2200	40	80	1000	216
5LD 825-4	2600	67	125	1000	338
5LD 825-4/L	2200	54	106	1000	287
5LD 930-3	2600	54	105	1000	284
5LD 930-4	2600	72	140	1000	379
6LD 260	3600	5	15	1000	41
6LD 260/C	1800	5	14	1000	38

Engine Model	RPM	Intake HP	-- Exhaust --	
			Temp. (°F)	Flow (CFM)

6LD 325	3600	7	17	1000	46
6LD 325/C	1800	7	17	1000	46
6LD 360	3600	8	19	1000	51
6LD 360 V	3600	8	19	1000	51
6LD 400	3600	8	21	1000	57
7LD 665	3000	15	29	1000	78
7LD 665/F	3000	15	29	1000	78
7LD 740/L	3000	16	32	1000	87
8LD 600-2	3000	26	52	1000	141
8LD 665-2	3000	29	58	1000	157
8LD 665-2/L	2200	22	44	1000	119
8LD 740-2	2600	29	52	1000	141
9LD 561-2	3000	26	48	1000	130
9LD 561-2/L	2200	18	37	1000	100

MACK

E6	NA	350	NA	750	1950
E7	NA	300	NA	728	1561
	NA	350	NA	742	1679
	NA	400	NA	791	1934
	NA	427	NA	795	2136
	NA	460	NA	814	2315
	NA	310/330	NA	728	1550
	NA	330/355	NA	735	1653
	NA	355/380	NA	736	1767
E9	NA	500	NA	740	3050
EN291	2800	178	900	448	
EN331	2800	206	900	519	
EN402	2800	246	900	620	
EN438	2600	247	900	622	
EN540	2400	280	900	705	
EN707C	2100	306	900	771	
END465	2600	325	900	819	
END475	2400	280	900	705	
END5673C	2100	250	600	900	1511
END5864	2300	270	850	900	2141
END673E	2100	180	400	900	1007
END707	2100	200	410	900	1033
END864BC	2450	540	900	1360	
ENDT475	2400	460	900	1159	
ENDT673	2100	225	600	900	1511
ENDT675	2100	237	625	900	1574
ENDT676	2100	800	900	2015	
ENDT864A	2300	860	900	2166	
ENDT865	2600	325	960	900	2418
ENDT866	2400	275	1050	900	2644
ENDTF673	2300	665	900	1675	
ENDTF673C	2200	625	900	1574	

MERCEDES-BENZ

OM314	2800	85	170	900	428
OM346	2800	427	900	1075	
OM352	2800	130	260	900	655
OM352A	2800	168	336	900	846
OM355	2000	200	327	900	824
OM360	2500	190	308	900	776
OM401	2500	195	340	900	856
OM402	2500	260	340	900	856
OM403	2500	325	463	900	1166
OM404	2500	430	738	900	1859
OM407	2200	240	480	900	1209
OM407A	2200	280	560	900	1410
OM407h	2200	240	480	900	1209
OM407hA	2200	280	560	900	1410
OM421	2300	216	432	900	1088

Engine Model	RPM	Intake HP	-- Exhaust --	
			Temp. (°F)	Flow (CFM)

OM422	2300	280	560	900	1410
OM422A	2300	330	660	900	1662
OM422LA	2300	375	750	900	1889
OM423	2300	355	710	900	1788
OM423LA	2100	470	940	900	2367
OM424	2300	420	840	900	2116
OM424A	2300	530	1060	900	2670
OM424LA	2300	615	1230	900	3098
OM616	3600	67	134	900	337
OM617	3600	82	164	900	413
OM636	3500	40	95	900	239

MITSUBISHI

S12A-PT	1800	660	1620	900	4080
S12A-PTA	1800	850	2080	900	5239
S12A-PTK	1800	900	2190	900	5516
S12N-PT	1800	1000	2440	900	6145
S12N-PTA	1800	1130	2750	900	6926
S12N-PTK	1800	1230	3000	900	7556
S12U-PTA	1200	3100	7910	900	19921
S12U-PTK	1200	3300	8400	900	21156
S16N-PT	1800	1320	3210	900	8084
S16N-PTA	1800	1500	3670	900	9243
S16N-PTK	1800	1620	3960	900	9973
S6A-PT	1800	330	810	900	2040
S6A-PTA	1800	425	1020	900	2569
S6A-PTK	1800	450	1100	900	2770
S6B-PT	1800	260	640	900	1612
S6B-PTA	1800	320	780	900	1964
S6B-PTK	1800	360	880	900	2216
S6N-PT	1800	500	1240	900	3123
S6N-PTA	1800	565	1380	900	3476
S6N-PTK	1800	615	1480	900	3727
S6U-PTA	1200	1550	3960	900	9973
S6U-PTK	1200	1650	4200	900	10578
S8N-PT	1800	660	1620	900	4080
S8N-PTA	1800	750	1840	900	4634
S8N-PTK	1800	810	1980	900	4987

MTU OF NORTH AMERICA

12V-396-TB-83					
	1845	1560	3919		3338
12V-396-TB-93					
	1845	1200	4534		3862
12V-396-TC-82					
	1745	1300	2902		2472
8V-396-TB-83					
	1845	1050	2436		2075
8V-396-TB-93					
	1845	1800	2944		2508
8V-396-TC-82					
	1745	870	1864		1588

NAVISTAR

4-196	3800	86	162	1150	483
6.9 L	3000	170	330	1000	892
7.3 LT (T444)	2600	190	605	753	1359
7.3 L	3000	175	349	1000	944
9.0 L (DV550)	2800	185	410	1050	1146
C-200	2500	74	109	1150	325
C-221	2600	90	124	1150	370
C-263	2800	109	160	1150	477
C-301	2800	118	183	1150	546
C-345	3000	160	224	1150	668

Engine Model	RPM	HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
NAVISTAR CONTINUED					
C-392	3000	180	255	1150	760
C-549	3200	232	381	1150	1136
C135B	2400	46	70	1150	209
C153	2400	53	80	1150	239
C175	2500	63	95	1150	283
D155	2500	48	95	900	239
D179	2400	59	99	900	249
D188	2400	62	104	900	262
D206	2500	56	119	900	300
D236	2400	65	131	900	330
D239	2500	80	138	900	348
D268	2500	85	165	900	416
D282	2400	95	156	900	393
D310	2300	101	165	900	416
D312	3000	117	216	900	544
D360	3000	136	250	900	630
D370	2200	105	188	900	473
D407	2600	127	245	900	617
D414	3000	157	287	900	723
D466	3000	165	323	900	813
D550B	3000	200	382	900	962
D554	2300	150	294	900	740
D691	1600	150	256	900	645
DT239	2500	110	225	900	567
DT358	2400	130	340	900	856
DT360	2700	190	588	850	1426
DT361	2600	146	341	900	859
DT402	2400	165	380	900	957
DT407	2500	160	368	900	927
DT414	3000	220	449	900	1131
DT420	2600	225	403	900	1015
DT466	2400	195	664	737	1520
DT466	2400	210	650	765	1530
DT466	2400	230	677	855	1710
DT466	2400	250	650	845	1640
DT466	2400	275	650	984	1820
DT573	2600	300	539	900	1357
DT573B	2600	260	525	900	1322
DT817	2100	385	975	900	2456
DT817B	2100	320	975	900	2456
DT817C	2200	420	975	900	2456
DVT800	2600	310	752	900	1894
MV-404	3600	188	315	1150	939
MV-446	3600	235	348	1150	1038
UC60	2500	17	33	1150	98
UR-450	2400	158	234	1150	698
UV-401	2800	165	243	1150	725
V-304	4400	180	298	1150	888
V-345	3800	172	284	1150	847
V-345	3800	168	284	1150	847
V-392	3600	236	306	1150	912
V-537	3200	208	372	1150	1109
VS-478	3400	224	352	1150	1049
VS-549	3200	243	381	1150	1136

NISSAN

A-12	4800	58	74	900	186
A-15	4800	78	95	900	239
ED-33	3200	83	168	900	423
FD-33T	3200	105	235	900	592
FD-6	2700	131	243	900	612
FD-6T	2700	148	340	900	856
H-20	3100	55	82	900	207
H-30	2600	66	102	900	257

Engine Model	RPM	HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
J-15	2800	32	55	900	139
LD-20	2600	38	80	900	201
LD-28	2600	53	115	900	290
ND-6	2400	130	260	900	655
P-40	2300	80	120	900	302
PD-6	2200	173	360	900	907
PD-6T	2200	227	505	900	1272
PE-6	2200	200	408	900	1028
PE-6T	2200	250	570	900	1436
RD10	2400	330	682	900	1718
RD10T	2400	415	1000	900	2519
RD10TA	2300	485	1200	900	3022
RD8	2400	265	545	900	1373
RD8T	2400	320	763	900	1922
SD-16	3200	36	85	900	214
SD-22	3200	51	110	900	277
SD-25	3200	60	126	900	317
SD-33	3200	79	165	900	416
SD-33T	3200	92	230	900	579

PERKINS

3.1522	2500	44	95	900	239
4-107	4000	57	99	900	249
4-108	4000	60	100	900	252
4-154	3600	80	128	900	322
4-203	2600	63	122	900	307
4-236	2800	80	153	900	385
4-248	2500	85	144	900	363
4-270	2000	62	125	900	315
4-300	2200	90	152	900	383
4-302	2300	76	161	900	405
4-318	2000	75	147	900	370
4-99	4000	55	92	900	232
4.108	4000	49	102	900	257
4.165	3600	70	135	900	340
4.2032	2250	58	117	900	295
4.236	2800	82	157	900	395
4.248	2500	84	152	900	383
4.318	2000	70	140	900	353
6-305	2600	89	184	900	463
6-354	2800	120	230	900	579
6-372	2500	121	215	900	541
6.247	3600	101	205	900	516
6.3544	2800	238	370	900	599
6.3724	2500	227	340	900	572
D3-152	2500	52	88	900	222
D3.152	2500	49	83	900	215
D4.203	2500	52	88	900	222
T6-354	2400	150	307	900	773
T6-354-3	2500	140	320	900	806
T6.3544	2600	370	560	900	932
TV8.640	2600	685	1040	900	1725
V8-510	2800	185	331	900	834
V8-540	2500	166	312	900	786
V8-605	2500	200	350	900	881
V8.540	2600	370	560	900	932
V8.640	2600	411	620	900	1035

RENAULT

18TS/GTS	5750	92	230	1150	686
20 TL/GTL	5500	98	200	1150	596
20 TX	5500	112	230	1150	686
20 TX	5000	112	230	1150	686
4 GTL	4000	33	70	1150	209
4L/TL	4250	20	40	1150	119

Engine Model	RPM	HP	Intake CFM	-- Exhaust --	
				Temp. (°F)	Flow (CFM)
9 TD/GTD	4800			900	
FUEGO TURBO D	4250	85	211	900	531
TRAFIC	4750	46	90	1150	268
TRAFIC	5000	46	90	1150	268
TRAFIC PROP	4000	56	140	900	353

SAME

1052 LP	2500	39	83		71
1053 P	2500	64	124		106
1054 P	2500	85	165		141
1054 PT	2300	90	152		129
1055 P	2500	105	206		175
1056 P	2500	126	248		211
1056 PS	2300	148	228		194
1056 PT	2300	160	228		194
916.3A	3000	61	131		112
916.4A	3000	81	175		149

TELEDYNE

ACN	3600	6	13		11
AENL	3600	9	20		17
AGND	3200	12	26		22
BKN	3600	7	16		14
EY18-3W	3600	5	10		9
EY21W	3800	17	33		28
EY25W	3600	6	15		13
EY27W	3600	8	16		14
EY44W	3600	10	22		19
NH4D	2800	30	75		64
R08	5000	27	60		51
R11	4200	34	73		62
R14	4200	48	105		89
R17	5000	83	180		153
R22	5500	101	220		187
RD16	4800	54	135		115
RD21	4200	62	155		132
S-12D	3600	12	31		26
S-14D	3600	14	30		26
S-8D	3600	8	18		15
TJD	3600	18	48		41
TM13	3000	33	70		60
TM13	3000	22	45		38
TM20	3000	52	100		85
TM20	3000	44	90		77
TM27	3000	69	125		106
TM27	3000	59	120		102
TMD13	3000	29	72		61
TMD20	3000	44	110		94
TMD27	3000	121	300		256
TRA-12D	3600	12	25		21
V-465D	3000	66	133		113
V460D	3000	65	133		113
VE4	2400	48	110		85
VF4	2400	56	120		94
VG4D	2400	37	75		64
VH4	2800	61	120		94
VH4D	2800	30	65		55
VR4D	2200	37	122		104
W2-1230	3600	25	55		47
W2-1235	3600	30	68		58
W2-880	3600	20	44		37
W4-1770	3000	35	72		61
WD1-340	3000	7	18		15

Engine Model	RPM	HP	-- Exhaust --	
			Intake Temp. (°F)	Flow (CFM)

TELEDYNE CONTINUED

WD1-350.....	3000	8	20	17
WD1-430.....	3000	10	24	20
WD1-450.....	3400	10	26	22
WD1-660.....	3000	15	38	32
WD1-670.....	3000	16	40	34
WD1-750.....	3000	17	43	37
WD2-1000.....	3000	21	52	44
WD2-860.....	3000	19	48	41
WI-145.....	4000	4	8	7
WI-145V.....	3600	4	8	7
WI-185.....	3600	5	10	9
WI-185V.....	3600	5	10	9
WI-340.....	3600	9	20	17
WI-390.....	3600	11	22	19
WI-588.....	3600	16	34	29

VOLKSWAGON

026.2.....	2200	70	140	1150	417
068.5.....	4000	48	90	900	227
068.A.....	4000	60	120	900	302
075.1.....	4000	75	145	900	365
126A.....	2000	45	90	1150	268

VOLVO

D45BPP.....	2300	75	195	900	491
TD100G.....	2000	223	460	900	1159
TD100GPP.....	2000	223	460	900	1159
TD120HP.....	2000	286	575	900	1448
TD121G.....	2000	284	575	900	1448
TD45B.....	2200	90	235	900	592
TD61A.....	2500	154	330	900	831
TD61AP.....	2500	165	350	900	881
TD61AW.....	2500	162	350	900	881
TD71A.....	2200	189	360	900	907
TD71AP.....	2200	192	360	900	907
TD71AW.....	2400	190	360	900	907
TID100KPP.....	2000	249	515	900	1297
TID121KP.....	2000	343	695	900	1750
TID121LP.....	1800	401	800	900	2015
TID71A.....	2200	216	380	900	957
TID71AP.....	2200	209	400	900	1007

Engine Model	RPM	HP	-- Exhaust --	
			Intake Temp. (°F)	Flow (CFM)

WAUKESHA

190DLC.....	2800	84	128	109
197DLC.....	2800	91	208	177
197DLCS.....	2800	131	320	273
D317D.....	2400	118	285	243
D317DS.....	2400	142	340	290
F1197D.....	1800	258	620	528
F1197DS.....	1800	400	960	818
F1197DSI.....	2400	462	1100	937
F1905DS.....	1200	397	860	733
F1905DSI.....	2200	514	1015	865
F2896D.....	1200	415	804	685
F2896DS.....	1200	695	1032	879
F2896DSI.....	1200	877	1305	1112
F475D.....	2400	182	440	375
F475DS.....	2400	216	520	443
F674D.....	2200	226	540	460
F674DS.....	2200	229	550	469
H1077D.....	2400	346	630	537
H1077DS.....	2400	522	1080	920
H1077DSI.....	2400	557	1190	1014
H866DS.....	2300	384	920	784
L1616D.....	2400	520	940	801
L1616DS.....	2400	785	1680	1431
L1616DSI.....	2400	836	1850	1576
L5100D.....	1200	830	1420	1210
L5100DS.....	1200	1232	2170	1849
L5100DSI.....	1200	1375	2560	2181
L5790D.....	1200	905	1710	1457
L5790DS.....	1200	1235	2600	2215
L5790DSI.....	1200	1754	3080	2624
LRDCS.....	1200	695	1032	879
NKDC.....	1200	297	566	482
NKDCS.....	1200	390	860	733
P2154D.....	2200	592	1420	1210
P2154DS.....	2200	1017	2450	2087
P2154DSI.....	2200	1077	2600	2215
VLRD.....	1200	905	1710	1457
VLRDS.....	1200	1235	2600	2215
VRD232.....	2200	68	160	136
VRD283.....	2200	76	180	153
VRD310.....	2400	106	255	217
WAKD.....	1800	258	530	451
WAKDS.....	1800	400	810	690

Engine Model	RPM	HP	-- Exhaust --	
			Intake Temp. (°F)	Flow (CFM)

WHITE ENG

D-2000.....	2600	70	120	102
D-2300.....	2400	137	117	117
D-2300T.....	2400	211	180	180
D-3000.....	2800	110	193	164
D-3000T.....	2600	130	280	239
D-3300T.....	1800	175	149	149
D-3400.....	2400	210	179	179
D-3400T.....	2400	333	284	284
D-4800.....	2400	260	221	221
D-4800T.....	2400	400	341	341
D-4800TA.....	2400	400	341	341
D-4800TAH.....	1800	431	367	367
G-1600.....	2400	102	87	87
G-2000.....	2800	84	102	102
G-2300.....	2400	130	111	111
G-3000.....	2800	130	154	154
G-3400.....	2400	210	179	179

YANMAR

12LAAL-DT.....	1800	1060	2772	900	6981
3T95LE.....	2800	51	114	900	287
4HAL.....	1800	110	260	900	655
4T95LE.....	2800	68	150	900	378
4T95LTE.....	2800	85	208	900	524
6HAL.....	1800	165	390	900	982
6HAL-DT.....	1800	330	837	900	2108
6HAL-HT.....	1800	264	692	900	1743
6HAL-T.....	1800	209	512	900	1289
6LAAL-DT.....	1800	530	1370	900	3450
6T95LE.....	2800	102	233	900	587
6T95LTE.....	2800	128	314	900	791
8LAAL-DT.....	1800	705	1800	900	4533



All air cleaner housings and intake accessories featured in this catalog are listed in this section by part number in alpha/numeric order. If you have a part number (for instance, H000466), but don't know what it is, this section will tell you a brief description and the page number where the item can be found in this catalog.

Some descriptions in this section list the first two letters of the air cleaner series name. For instance, ST includes all STB and STG air cleaners; EB includes all EBA and EBB air cleaners; and so on.

If an air cleaner model directs you to the Air Cleaner Service Parts Section, you will be able to find service parts that are still available for an obsolete air cleaner model.

Abbreviations

- A/C = Air Cleaner Assembly
- HORZ = Horizontal
- ID = Inner Diameter
- OD = Outer Diameter
- PER = Peripheral Inlet
- RS = Rain Shield
- TUB or TUBE = Tubular Inlet
- VERT = Vertical

Part No.	Page No.	Product Description
115305-00005	217	Sensor, Filter Minder, 5" Limit
115305-00040	217	Sensor, Filter Minder, 40" Limit
115375-00002	217	Sensor, Filter Minder, 2" Limit
135501-00820	211	Indicator, Filter Minder, 20" Limit
135501-00825	211	Indicator, Filter Minder, 25" Limit
135578-08420	216	Indicator and Switch, Filter Minder, 20" Limit
135578-08425	216	Indicator and Switch, Filter Minder, 25" Limit
135587-09225	216	Indicator and Switch, Filter Minder, 25" Limit
136501-00520	211	Indicator, Filter Minder, 20" Limit
136501-00525	211	Indicator, Filter Minder, 25" Limit
136578-07820	216	Indicator and Switch, Filter Minder, 20" Limit
136578-07825	216	Indicator and Switch, Filter Minder, 25" Limit
168501-00220	212	Indicator, Dash, Filter Minder, 20" Limit
168501-00225	212	Indicator, Dash, Filter Minder, 25" Limit
175501-00125	225	Indicator, Filter Minder, 25" Limit
175501-00220	213	Indicator, Filter Minder, 20" Limit
175578-10225	216	Indicator and Switch, Filter Minder, 25" Limit
175587-13020	216	Indicator and Switch, Filter Minder, 20" Limit
195389-00120	215	Switch, Filter Minder, 20" Limit
195389-00125	215	Switch, Filter Minder, 25" Limit
196398-11120	215	Switch, Filter Minder, 20" Limit
196398-11125	215	Switch, Filter Minder, 25" Limit

Part No.	Page No.	Product Description
A042511	233-254	Air Cleaner, FGA
A052526	233-254	Air Cleaner, FWA
A052527	233-254	Air Cleaner, FWA
A060022	233-254	Air Cleaner, FGA
A065007	233-254	Air Cleaner, FWA
A065015	233-254	Air Cleaner, FWA
A080022	233-254	Air Cleaner, FWA
A080031	233-254	Air Cleaner, FWA
A092018	233-254	Air Cleaner, EBA-KPI
A092019	233-254	Air Cleaner, EBA-KPII
A092037	92-93	Air Cleaner, EBA Konepac
A100013	233-254	Air Cleaner, FGA
A100017	233-254	Air Cleaner, FWA
A100019	233-254	Air Cleaner, FWA
A110007	233-254	Air Cleaner, EBA-CYL
A110052	87-88	Air Cleaner, ERA RadialSeal
A112018	92-93	Air Cleaner, EBA Konepac
A112078	92-93	Air Cleaner, EBA Konepac
A120003	233-254	Air Cleaner, FWA
A120036	233-254	Air Cleaner, FWA
A127200	233-254	Air Cleaner, FGA
A130045	233-254	Air Cleaner, EBA-CYL
A130060	233-254	Air Cleaner, EBA-CYL
A130087	233-254	Air Cleaner, EBA-CYL
A130115	87-88	Air Cleaner, ERA RadialSeal
A132001	92-93	Air Cleaner, EBA Konepac
A132004	233-254	Air Cleaner, EBA-KPI
A132020	233-254	Air Cleaner, EBA-KPII
A140002	233-254	Air Cleaner, FWA

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A140003	233-254	Air Cleaner, FWA
A140033	233-254	Air Cleaner, FWA
A140036	233-254	Air Cleaner, FWA
A144800	233-254	Air Cleaner, FGA
A144900	233-254	Air Cleaner, FGA
A145200	233-254	Air Cleaner, FGA
A150039	233-254	Air Cleaner, EBA-CYL
A150128	233-254	Air Cleaner, EBA-CYL
A150138	87-88	Air Cleaner, ERA RadialSeal
A150141	87-88	Air Cleaner, ERA RadialSeal
A150174	233-254	Air Cleaner, EBA-CYL
A160001	233-254	Air Cleaner, FWA
A160013	233-254	Air Cleaner, FWA
A160173	233-254	Air Cleaner, EBA-CYL
A161500	233-254	Air Cleaner, FGA
A161600	233-254	Air Cleaner, FGA
B045008	111-112	Air Cleaner, FKB
B055006	111-112	Air Cleaner, FKB
B065045	111-112	Air Cleaner, FKB
B080080	119-120	Air Cleaner, XRB
B085001	27-28	Air Cleaner, ECB DuraLite
B085008	27-28	Air Cleaner, ECB DuraLite
B085011	27-28	Air Cleaner, ECB DuraLite
B085046	27-28	Air Cleaner, ECB DuraLite
B085048	27-28	Air Cleaner, ECB DuraLite
B085056	27-28	Air Cleaner, ECB DuraLite
B100001	233-254	Air Cleaner, FWB
B100002	233-254	Air Cleaner, FWB
B100028	233-254	Air Cleaner, STB

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B100127	119-120	Air Cleaner, XRB
B105002	27-28	Air Cleaner, ECB DuraLite
B105006	27-28	Air Cleaner, ECB DuraLite
B105020	27-28	Air Cleaner, ECB DuraLite
B120105	233-254	Air Cleaner, EBB-STYB
B120129	233-254	Air Cleaner, STB
B120271	102-103	Air Cleaner, EBB
B120376	27-28	Air Cleaner, ECB DuraLite
B120439	27-28	Air Cleaner, ECB DuraLite
B120470	119-120	Air Cleaner XRB
B125003	27-28	Air Cleaner, ECB DuraLite
B125005	27-28	Air Cleaner, ECB DuraLite
B125011	27-28	Air Cleaner, ECB DuraLite
B140019	233-254	Air Cleaner, STB
B140044	102-103	Air Cleaner, EBB
B140149	233-254	Air Cleaner, EBB-STYB
B140150	233-254	Air Cleaner, EBB-STYB
B160049	102-103	Air Cleaner, EBB
B160071	187-188	Air Cleaner, STB
C045001	27-28	Air Cleaner, ECC DuraLite
C045002	27-28	Air Cleaner, ECC DuraLite
C055002	27-28	Air Cleaner, ECC DuraLite
C055003	27-28	Air Cleaner, ECC DuraLite
C065001	27-28	Air Cleaner, ECC DuraLite
C065002	27-28	Air Cleaner, ECC DuraLite
C065003	27-28	Air Cleaner, ECC DuraLite
C065015	27-28	Air Cleaner, ECC DuraLite
C085001	27-28	Air Cleaner, ECC DuraLite
C085002	27-28	Air Cleaner, ECC DuraLite
C085003	27-28	Air Cleaner, ECC DuraLite
C085004	27-28	Air Cleaner, ECC DuraLite
C085005	27-28	Air Cleaner, ECC DuraLite
C085006	27-28	Air Cleaner, ECC DuraLite
C085041	27-28	Air Cleaner, ECC DuraLite
C085043	27-28	Air Cleaner, ECC DuraLite
C105003	27-28	Air Cleaner, ECC DuraLite
C105004	27-28	Air Cleaner, ECC DuraLite
C105017	27-28	Air Cleaner, ECC DuraLite
C105028	27-28	Air Cleaner, ECC DuraLite
C125004	27-28	Air Cleaner, ECC DuraLite
C125017	27-28	Air Cleaner, ECC DuraLite
D045003	27-28	Air Cleaner, ECD DuraLite
D045004	27-28	Air Cleaner, ECD DuraLite
D055004	27-28	Air Cleaner, ECD DuraLite
D065003	27-28	Air Cleaner, ECD DuraLite
D065008	27-28	Air Cleaner, ECD DuraLite
D080020	38-40	Air Cleaner, PSD, PowerCore®
D080026	38-40	Air Cleaner, PSD, PowerCore®
D080056	38-40	Air Cleaner, PSD, PowerCore®
D080186	60	Air Cleaner, Edge, PowerCore®
D080187	60	Air Cleaner, Edge, PowerCore®
D080188	60	Air Cleaner, Edge, PowerCore®
D090266	38-40	Air Cleaner, PSD, PowerCore®
D090278	38-40	Air Cleaner, PSD, PowerCore®

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D090108	52-54	Air Cleaner, PCD, PowerCore®
D090109	52-54	Air Cleaner, PCD, PowerCore®
D090114	52-54	Air Cleaner, PCD, PowerCore®
D090115	52-54	Air Cleaner, PCD, PowerCore®
D090287	38-40	Air Cleaner, PSD, PowerCore®
D090285	38-40	Air Cleaner, PSD, PowerCore®
D090357	60	Air Cleaner, Edge, PowerCore®
D090358	60	Air Cleaner, Edge, PowerCore®
D090359	60	Air Cleaner, Edge, PowerCore®
D100366	38-40	Air Cleaner, PSD, PowerCore®
D100384	38-40	Air Cleaner, PSD, PowerCore®
D100390	38-40	Air Cleaner, PSD, PowerCore®
D100391	38-40	Air Cleaner, PSD, PowerCore®
D100397	38-40	Air Cleaner, PSD, PowerCore®
D100398	38-40	Air Cleaner, PSD, PowerCore®
D100142	52-54	Air Cleaner, PCD, PowerCore®
D100143	52-54	Air Cleaner, PCD, PowerCore®
D100145	52-54	Air Cleaner, PCD, PowerCore®
D100146	52-54	Air Cleaner, PCD, PowerCore®
D120320	38-40	Air Cleaner, PSD, PowerCore®
D120338	38-40	Air Cleaner, PSD, PowerCore®
D120339	38-40	Air Cleaner, PSD, PowerCore®
D120340	38-40	Air Cleaner, PSD, PowerCore®
D140078	233-254	Air Cleaner, PSD, PowerCore®
D140079	233-254	Air Cleaner, PSD, PowerCore®
D140110	38-40	Air Cleaner, PSD, PowerCore®
D140111	38-40	Air Cleaner, PSD, PowerCore®
DBA5002	233-254	Filter, primary - Donaldson Blue®
DBA5007	233-254	Filter, primary - Donaldson Blue®
DBA5008	233-254	Filter, primary - Donaldson Blue®
DBA5015	103	Filter, primary - Donaldson Blue®
DBA5016	233-254	Filter, primary - Donaldson Blue®
DBA5024	93	Filter, primary - Donaldson Blue®
DBA5025	93	Filter, primary - Donaldson Blue®
DBA5026	93	Filter, primary - Donaldson Blue®
DBA5027	98-99	Filter, primary, no cover - Donaldson Blue®
DBA5028	101	Filter, primary - Donaldson Blue®
DBA5029	98-99	Filter primary, no cover - Donaldson Blue®
DBA5034	233-254	Filter, primary - Donaldson Blue®
DBA5043	159	Filter, primary - Donaldson Blue®
DBA5044	177	Filter, primary - Donaldson Blue
DBA5046	233-254	Filter, primary - Donaldson Blue®
DBA5047	98-99	Filter, primary, attached cover - Donaldson Blue®
DBA5049	159	Filter, primary - Donaldson Blue®
DBA5053	98-99	Filter, primary, attached cover - Donaldson Blue®
DBA5054	233-254	Filter, primary - Donaldson Blue®
DBA5059	233-254	Filter, primary - Donaldson Blue®
DBA5067	83	Filter, primary - Donaldson Blue®
DBA5069	83	Filter, primary - Donaldson Blue®
DBA5099	101	Filter, primary - Donaldson Blue®
DBA5105	145-147	Filter, primary - Donaldson Blue®

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DBA5109	93	Filter, primary - Donaldson Blue®
DBA5116	145-147	Filter, primary - Donaldson Blue®
DBA5126	233-254	Filter, primary - Donaldson Blue®
DBA5127	233-254	Filter, primary - Donaldson Blue®
DBA5128	233-254	Filter, primary - Donaldson Blue®
DBA5134	233-254	Filter, primary - Donaldson Blue®
DBA5136	231-250	Filter, primary - Donaldson Blue®
DBA5148	88	Filter, primary - Donaldson Blue®
DBA5149	88	Filter, primary - Donaldson Blue®
DBA5150	88	Filter, primary - Donaldson Blue®
DBA5151	88	Filter, primary - Donaldson Blue®
DBA5156	145-147	Filter, primary - Donaldson Blue®
DBA5204	233-254	Filter, primary - Donaldson Blue®
DBA5207	17	Filter, primary - Donaldson Blue®
DBA5220	145-147	Filter, primary - Donaldson Blue®
DBA5221	145-147	Filter, primary - Donaldson Blue®
DBA5222	145-147	Filter, primary - Donaldson Blue®
DBA5223	145-147	Filter, primary - Donaldson Blue®
DBA5224	145-147	Filter, primary - Donaldson Blue®
DBA5225	133	Filter, primary - Donaldson Blue®
DBA5226	133	Filter, primary - Donaldson Blue®
DBA5227	133	Filter, primary - Donaldson Blue®
DBA5228	133	Filter, primary - Donaldson Blue®
DBA5230	145-147	Filter, primary - Donaldson Blue®
DBA5231	145-147	Filter, primary - Donaldson Blue®
DBA5233	233-254	Filter, primary - Donaldson Blue®
DBA5234	233-254	Filter, primary - Donaldson Blue®
DBA5290	23	Filter, primary - Donaldson Blue®
DBA5294	23	Filter, primary - Donaldson Blue®
DBA5291	23	Filter, primary - Donaldson Blue®
DBA5292	23	Filter, primary - Donaldson Blue®
DBA5293	23	Filter, primary - Donaldson Blue®
DBA5306	23	Filter, primary - Donaldson Blue®
DBA5307	23	Filter, primary - Donaldson Blue®
DBA5308	23	Filter, primary - Donaldson Blue®
DBA7038	233-254	Filter, primary - Donaldson Blue®
DBA7039	175-177	Filter, primary - Donaldson Blue®
DBA7040	233-254	Filter, primary - Donaldson Blue®
DBA7041	175-177	Filter, primary - Donaldson Blue®
DBA7042	175-177	Filter, primary - Donaldson Blue®
DBA7152	166-168	Filter, primary - Donaldson Blue®
DBA7153	166-168	Filter, primary - Donaldson Blue®
G042503	233-254	Air Cleaner, FWG
G042529	233-254	Air Cleaner, FWG
G042544	129-132	Air Cleaner, FPG RadialSeal
G042545	129-132	Air Cleaner, FPG RadialSeal
G042547	233-254	Air Cleaner, FPG
G042549	233-254	Air Cleaner, FPG
G052510	233-254	Air Cleaner, FWG
G052512	233-254	Air Cleaner, FWG
G052558	233-254	Air Cleaner, FHG-STYA
G052559	233-254	Air Cleaner, FHG-STYA
G052560	233-254	Air Cleaner, FHG-STYA
G052561	233-254	Air Cleaner, FHG-STYA

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G052617	233-254	Air Cleaner, FHG-STYA
G052685	143-147	Air Cleaner, FRG RadialSeal
G052686	143-147	Air Cleaner, FRG RadialSeal
G052741	67-68	Air Cleaner, PowerPleat™ 05
G052742	67-68	Air Cleaner, PowerPleat™ 05
G052828	67-68	Air Cleaner, PowerPleat™ 05
G052829	67-68	Air Cleaner, PowerPleat™ 05
G057511	129-132	Air Cleaner, FPG RadialSeal
G057512	129-132	Air Cleaner, FPG RadialSeal
G057513	129-132	Air Cleaner, FPG RadialSeal
G057514	129-132	Air Cleaner, FPG RadialSeal
G057516	233-254	Air Cleaner, FPG
G057517	233-254	Air Cleaner, FPG
G060003	233-254	Air Cleaner, SDG-PER
G065008	233-254	Air Cleaner, FWG
G065012	233-254	Air Cleaner, FWG
G065104	233-254	Air Cleaner, FHG-STYA
G065113	233-254	Air Cleaner, FHG-STYA
G065212	233-254	Air Cleaner, FHG-STYA
G065256	233-254	Air Cleaner, FHG-STYA
G065261	233-254	Air Cleaner, FHG-STYB
G065266	233-254	Air Cleaner, FWG
G065359	233-254	Air Cleaner, FHG-STYB
G065360	233-254	Air Cleaner, FHG-STYB
G065411	129-132	Air Cleaner, FPG RadialSeal
G065424	129-132	Air Cleaner, FPG RadialSeal
G065426	233-254	Air Cleaner, FPG
G065427	233-254	Air Cleaner, FPG
G065432	129-132	Air Cleaner, FPG RadialSeal
G065433	129-132	Air Cleaner, FPG RadialSeal
G065541	143-147	Air Cleaner, FRG RadialSeal
G065551	143-147	Air Cleaner, FRG RadialSeal
G070017	129-132	Air Cleaner, FPG RadialSeal
G070018	129-132	Air Cleaner, FPG RadialSeal
G070019	129-132	Air Cleaner, FPG RadialSeal
G070020	129-132	Air Cleaner, FPG RadialSeal
G080009	233-254	Air Cleaner, SBG-PER
G080010	233-254	Air Cleaner, SBG-TUB
G080023	233-254	Air Cleaner, FWG
G080026	233-254	Air Cleaner, FWG
G080147	233-254	Air Cleaner, FHG-STYB
G080195	233-254	Air Cleaner, FHG-STYA
G080200	233-254	Air Cleaner, FHG-STYA
G080372	233-254	Air Cleaner, FHG-STYB
G080490	233-254	Air Cleaner, FHG-STYB
G080491	233-254	Air Cleaner, FHG-STYB
G080582	143-147	Air Cleaner, FRG RadialSeal
G080585	143-147	Air Cleaner, FRG RadialSeal
G082525	129-132	Air Cleaner, FPG RadialSeal
G082526	129-132	Air Cleaner, FPG RadialSeal
G082527	129-132	Air Cleaner, FPG RadialSeal
G082528	129-132	Air Cleaner, FPG RadialSeal
G090022	233-254	Air Cleaner, FHG-STYA
G090024	233-254	Air Cleaner, FHG-STYA

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G090182	233-254	Air Cleaner, FHG-STYB
G090183	233-254	Air Cleaner, FHG-STYB
G090219	129-132	Air Cleaner, FPG RadialSeal
G090225	129-132	Air Cleaner, FPG RadialSeal
G090245	143-147	Air Cleaner, FRG RadialSeal
G090250	143-147	Air Cleaner, FRG RadialSeal
G092001	97-99	Air Cleaner, ECG Konepac
G092004	233-254	Air Cleaner, ECG-KPII
G092401	97-99	Air Cleaner, ECG Konepac
G092501	233-254	Air Cleaner, ECG-KPI
G100003	233-254	Air Cleaner, FWG
G100004	233-254	Air Cleaner, FWG
G100028	233-254	Air Cleaner, FHG-STYA
G100029	233-254	Air Cleaner, FHG-STYA
G100035	233-254	Air Cleaner, FHG-STYA
G100036	233-254	Air Cleaner, FHG-STYA
G100160	233-254	Air Cleaner, SBG-PER
G100161	233-254	Air Cleaner, SBG-TUB
G100297	143-147	Air Cleaner, FRG RadialSeal
G100317	129-132	Air Cleaner, FPG RadialSeal
G100319	129-132	Air Cleaner, FPG RadialSeal
G100395	143-147	Air Cleaner, FRG RadialSeal
G100398	143-147	Air Cleaner, FRG RadialSeal
G110103	233-254	Air Cleaner, FTG
G110119	82-83	Air Cleaner, EPG 11" RadialSeal
G110120	82-83	Air Cleaner, EPG 11" RadialSeal
G110206	143-147	Air Cleaner, FRG RadialSeal
G110214	143-147	Air Cleaner, FRG RadialSeal
G110468	74	Air Cleaner, PowerPleat™ 11
G110469	74	Air Cleaner, PowerPleat™ 11
G110474	74	Air Cleaner, PowerPleat™ 11
G110475	74	Air Cleaner, PowerPleat™ 11
G112000	233-254	Air Cleaner, ECG-KPII
G112001	97-99	Air Cleaner, ECG Konepac
G112401	233-254	Air Cleaner, ECG-KPI
G112404	97-99	Air Cleaner, ECG Konepac
G112417	97-99	Air Cleaner, ECG Konepac
G112501	97-99	Air Cleaner, ECG Konepac
G112504	97-99	Air Cleaner, ECG Konepac
G120012	233-254	Air Cleaner, FHG-STYA
G120014	233-254	Air Cleaner, FHG-STYA
G120036	233-254	Air Cleaner, FHG-STYA
G120037	233-254	Air Cleaner, FHG-STYA
G120059	233-254	Air Cleaner, FWG
G120063	233-254	Air Cleaner, FWG
G120075	233-254	Air Cleaner, STG-PER
G120250	233-254	Air Cleaner, SBG-PER
G120251	233-254	Air Cleaner, SBG-TUB
G120332	175-177	Air Cleaner, STG Donaclone Tubular
G120415	143-147	Air Cleaner, FRG RadialSeal
G120417	143-147	Air Cleaner, FRG RadialSeal
G130043	233-254	Air Cleaner, FTG
G130079	82-83	Air Cleaner, EPG 13" RadialSeal
G130089	82-83	Air Cleaner, EPG 13" RadialSeal

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G130097	143-147	Air Cleaner, FRG RadialSeal
G130107	143-147	Air Cleaner, FRG RadialSeal
G130372	73-74	Air Cleaner, PowerPleat™ 13
G130373	73-74	Air Cleaner, PowerPleat™ 13
G130374	73-74	Air Cleaner, PowerPleat™ 13
G130375	73-74	Air Cleaner, PowerPleat™ 13
G132000	97-99	Air Cleaner, ECG Konepac
G140022	233-254	Air Cleaner, FHG-STYA
G140023	233-254	Air Cleaner, FHG-STYA
G140054	233-254	Air Cleaner, FHG-STYA
G140055	233-254	Air Cleaner, FHG-STYA
G140076	175-177	Air Cleaner, STG Donaclone Peripheral
G140083	233-254	Air Cleaner, FWG
G140195	158-159	Air Cleaner, FVG Cycloflow
G140260	233-254	Air Cleaner, SBG-PER
G140261	233-254	Air Cleaner, SBG-TUB
G140270	233-254	Air Cleaner, SBG-PER
G140523	143-147	Air Cleaner, FRG RadialSeal
G140526	143-147	Air Cleaner, FRG RadialSeal
G150039	233-254	Air Cleaner, FTG
G150048	82-83	Air Cleaner, EPG 15" RadialSeal
G150049	82-83	Air Cleaner, EPG 15" RadialSeal
G150092	143-147	Air Cleaner, FRG RadialSeal
G160035	233-254	Air Cleaner, SBG-TUB
G160048	233-254	Air Cleaner, FHG-STYA
G160049	233-254	Air Cleaner, FHG-STYA
G160057	233-254	Air Cleaner, FHG-STYA
G160077	175-177	Air Cleaner, STG Donaclone Peripheral
G160078	233-254	Air Cleaner, FHG-STYA
G160104	233-254	Air Cleaner, FWG
G160107	233-254	Air Cleaner, FWG
G160158	233-254	Air Cleaner, STG-TUB
G160254	233-254	Air Cleaner, FHG-STYA
G160331	233-254	Air Cleaner, SBG-TUB
G160340	233-254	Air Cleaner, SBG-PER
G160359	233-254	Air Cleaner, SBG-PER
G160376	158-159	Air Cleaner, FVG Cycloflow
G160443	233-254	Air Cleaner, STG-PER
G160445	175-177	Air Cleaner, STG Donaclone Tubular
G160587	158-159	Air Cleaner, FVG Cycloflow
G160679	143-147	Air Cleaner, FRG RadialSeal
G161006	175-177	Air Cleaner, STG Donaclone Peripheral
G161020	175-177	Air Cleaner, STG Donaclone Tubular
G180031	143-147	Air Cleaner, FRG RadialSeal
G200008	233-254	Air Cleaner, SRG Donaclone, Vertical
G200013	233-254	Air Cleaner, SRG Donaclone, Vertical
G200016	233-254	Air Cleaner, SRG
G200086	166-168	Air Cleaner, SSG Donaclone, RadialSeal
G200087	166-168	Air Cleaner, SSG Donaclone, RadialSeal
G200088	166-168	Air Cleaner, SSG Donaclone, RadialSeal
G210007	152-153	Air Cleaner, FTG Cycloflow
G210010	152-153	Air Cleaner, FTG Cycloflow
G290000	233-254	Air Cleaner, SRG Donaclone, Vertical
G290001	233-254	Air Cleaner, SRG

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G290010	233-254	Air Cleaner, SRG
G290012	233-254	Air Cleaner, SRG Donaclone, Vertical
G290023	233-254	Air Cleaner, SRG Donaclone, Vertical
G290052	166-168	Air Cleaner, SSG Donaclone, RadialSeal
G290053	166-168	Air Cleaner, SSG Donaclone, RadialSeal
G290055	166-168	Air Cleaner, SSG Donaclone, RadialSeal
G290057	166-168	Air Cleaner, SSG Donaclone, RadialSeal
H000165	219	Inlet Hood, metal
H000170	219	Inlet Hood, metal
H000275	219	Inlet Hood, metal
H000276	219	Inlet Hood, metal
H000339	219	Inlet Hood, metal
H000349	220	Mounting Band
H000350	220	Mounting Band
H000351	220	Mounting Band
H000466	219	Inlet Hood, plastic
H000467	219	Inlet Hood, plastic
H000468	219	Inlet Hood, plastic
H000469	219	Inlet Hood, plastic
H000470	219	Inlet Hood, plastic
H000471	219	Inlet Hood, plastic
H000472	219	Inlet Hood, plastic
H000473	219	Inlet Hood, plastic
H000483	232	Air Stack Extension
H000484	232	Air Stack Extension
H000604	219	Inlet Hood, plastic
H000605	219	Inlet Hood, ST 12" Tube A/C
H000606	219	Inlet Hood, plastic
H000607	219	Inlet Hood, plastic
H000672	188	Pre-Cleaner Hood Assembly-STB
H000722	229	Ejector Check Valve
H000820	203	Pre-Cleaner, Full-View
H000821	203	Pre-Cleaner, Full-View
H000823	203	Pre-Cleaner, Full-View
H000858	203	Pre-Cleaner, Full-View
H000875	203	In-Line, Horizontal Separator
H000878	203	In-Line, Vertical Separator
H000886	203	In-Line, Vertical Separator
H001009	188	Pre-Cleaner Body Assembly-STB
H001023	219	Ejector Check Valve
H001053	219	Inlet Hood, plastic
H001063	219	Inlet Hood, plastic
H001200	230	Air Ram, Low Profile
H001212	204	Donaspin P/C & Exhaust Ejector, 3" ID
H001215	204	Donaspin P/C & Exhaust Ejector, 4.50" ID
H001220	203	In-Line Separator, Vertical, 8"
H001249	203	Pre-Cleaner, Full-View
H001250	203	Pre-Cleaner, Full-View
H001251	203	Pre-Cleaner, Full-View
H001308	204	DonaSpin P/C & Exhaust Ejector, 5" ID
H001375	204	DonaSpin P/C & Exhaust Ejector, 6" ID
H001377	219	Inlet Hood, plastic, 2" OD
H001378	219	Inlet Hood, plastic, 3" OD
H001379	219	Inlet Hood, plastic, 3.5" OD

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H001474	205	In-Line Separator, Horizontal, 4"
H001654	230	Air Ram, Louvered
H001660	230	Air Ram, Louvered
H001661	230	Air Ram, Louvered
H001742	219	Inlet Hood, Bright SSSL, 7" OD
H001756	219	Inlet Hood, Bright SSSL Low Profile, 6" ID
H001773	219	Inlet Hood, EB A132020 A/C
H001823	203	Pre-Cleaner, Full-View
H001906	205	In-Line Separator, Horizontal
H001946	219	Inlet Hood, Bright Stainless, 8" OD
H001947	219	Inlet Hood, Bright Stainless, 7" OD
H001948	219	Inlet Hood, Bright Stainless, 6" OD
H002023	131	Mounting Band
H002040	203	Pre-Cleaner, Full-View
H002042	203	Pre-Cleaner, Full-View
H002043	203	Pre-Cleaner, Full-View
H002044	203	Pre-Cleaner, Full-View
H002045	203	Pre-Cleaner, Full-View
H002068	219	Inlet Hood, plastic, 1.75"
H002070	131	Mounting Band, metal
H002223	203	Pre-Cleaner, Full-View
H002224	203	Pre-Cleaner, Full-View
H002394	197	Pre-Cleaner, TopSpin™
H002425	197	Pre-Cleaner, TopSpin™
H002426	197	Pre-Cleaner, TopSpin™
H002427	197	Pre-Cleaner, TopSpin™
H002431	197	Pre-Cleaner, TopSpin™
H002432	197	Pre-Cleaner, TopSpin™
H002433	197	Pre-Cleaner, TopSpin™
H002434	197	Pre-Cleaner, TopSpin™
H002435	197	Pre-Cleaner, TopSpin™
H002436	197	Pre-Cleaner, TopSpin™
H002437	197	Pre-Cleaner, TopSpin™
H002438	197	Pre-Cleaner, TopSpin™
H002439	197	Pre-Cleaner, TopSpin™
H002612	49, 229	Exhaust Ejector
H002613	49, 229	Exhaust Ejector
H002614	49, 229	Exhaust Ejector
H002615	49, 229	Exhaust Ejector
H002616	49, 229	Exhaust Ejector
H002617	49, 229	Exhaust Ejector
H002618	49, 229	Exhaust Ejector
H002619	49, 229	Exhaust Ejector
H002700	193-194	Pre-Cleaner, Strata™ Cap
H002704	193-194	Pre-Cleaner, Strata™ Cap
H002762	49, 229	Exhaust Ejector
H002763	49, 229	Exhaust Ejector
H002764	49, 229	Exhaust Ejector
H002765	49, 229	Exhaust Ejector
H002766	49, 229	Exhaust Ejector
H002767	49, 229	Exhaust Ejector
H002768	49, 229	Exhaust Ejector
H002769	49, 229	Exhaust Ejector
H002850	199	Pre-Cleaner, TopSpin™ HD

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H002851	199	Pre-Cleaner, TopSpin™ HD
H002852	199	Pre-Cleaner, TopSpin™ HD
H002853	199	Pre-Cleaner, TopSpin™ HD
H002854	199	Pre-Cleaner, TopSpin™ HD
H002855	199	Pre-Cleaner, TopSpin™ HD
H002856	199	Pre-Cleaner, TopSpin™ HD
H002857	199	Pre-Cleaner, TopSpin™ HD
H003139	200	Pre-Cleaner, Large Vane
H008441	131	Mounting Band, 8mm Threaded Holes
H008442	131	Mounting Band, metal
H008443	131	Mounting Band, metal
H008444	131	Mounting Band, metal
H770037	220	Mounting Band, metal
H770068	220	Mounting Band, metal
H770082	219	Inlet Hood
P002348	220	Mounting Band, 5.25" ID A/C
P002351	220	Mounting Band, 6" ID A/C
P003245	2 220 18	Mounting Band, 7.75" ID A/C
P004073	220	Mounting Band, metal
P004076	220	Mounting Band, 10.19" ID A/C
P004079	220	Mounting Band, metal
P004307	220	Mounting Band, 8" ID A/C
P004906	220	Mounting Band, 7" ID A/C
P007189	220	Mounting Band, 4" ID A/C
P007191	220	Mounting Band, 6.5" ID A/C, ST 10" PC
P013722	220	Mounting Band, metal
P016330	203	Bowl Assembly, PB 3; 3.75; 4" & 4.5" OD, P/C
P016548	203	Cover Assembly, PB 3; 3.75; 4; 4.5" OD, P/C
P016845	220	Mounting Band
P016972	176	Gasket Kit for Cover OF ST 14" A/C
P017281	166-168	Cover chain
P017283	166-168	Chain connector
P017365	177	Cover Gasket SB, ST 12" A/C
P017367	176	Cover Gasket SB, ST 16" A/C
P017617	176	Latch, Over Center
P020115	203	Bowl Assembly, PB 1.38"-2" OD, P/C
P020116	203	Cover Assembly, PB P/C, 1.38"-2" OD
P020227	203	Bowl Assembly, PB 2"-3" OD, P/C
P020344	203	Bowl Assembly, PB 4; 4.5; 5.0" OD, P/C
P020345	203	Cover Assembly, PB P/C 4; 4.5; 5.0" OD
P020648	203	Cover Assembly, PB P/C, 2"-3" OD
P100089	218	Restriction Tap for Safety Filter Fitting
P100780	176	Body Clamp Assembly
P100794	176	Dust Cup for STG Air Cleaners
P100808	166-168	Clamp Assembly, FH, FW, SB, SR, SS A/C
P100860	176	Dust Cup, STG
P101290	221	Rubber Hump Reducer, 3.5/3" ID
P101291	221	Rubber Hump Reducer, 4/3" ID
P101292	221	Rubber Hump Reducer, 4/3.5" ID
P101293	221	Rubber Hump Reducer, 5/4" ID
P101294	221	Rubber Hump Reducer, 6/5.5" ID
P101759	176	Inlet Shroud, ST 16" Peripheral A/C
P101891	221	Rubber Hump Reducer, 5.5/4" ID
P102820	221	Rubber Hump Reducer 3/2.5" ID

Part No.	Page No.	Product Description
P102870	176	Inlet Shroud, ST 14" Peripheral A/C
P102948	222	Rubber Reducer, 2"/1.75" ID
P103198	225	Vacuator™ Valve 30 Durometer, 3" Dia.
P103516	221	Rubber Hump Reducer, 5.5"/5" ID
P103530	175-177	Dust Cup, Horz w/Vac Valve, SB/ST 16" RS/Tube A/C
P104087	222	Rubber Reducer, 2"/1.5" ID
P104088	222	Rubber Reducer, 2.25"/2" ID
P104089	222	Rubber Reducer, 2.5"/2" ID
P104090	222	Rubber Reducer, 2.5"/2.25" ID
P104691	203	Cover Assembly, PB P/C 6"-7" OD
P104973	176	Dust Cup w/Vac Valve, STG
P105220	225	Vacuator™ Valve, 60 Durometer
P105529	220	Rubber 90° Elbow, 2" ID
P105530	220	Rubber 90° Elbow, 2.25" ID
P105531	220	Rubber 90° Elbow, 2.5" ID
P105532	220	Rubber 90° Elbow, 3" ID
P105533	220	Rubber 90° Elbow, 4" ID
P105534	220	Rubber 90° Elbow, 5.5" ID
P105535	220	Rubber 90° Elbow, 6" ID
P105536	220	Rubber 90° Elbow, 7" ID
P105541	221	Rubber 45° Elbow, 2" ID
P105542	221	Rubber 45° Elbow, 2.25" ID
P105543	221	Rubber 45° Elbow, 2.5" ID
P105544	221	Rubber 45° Elbow, 3" ID
P105545	221	Rubber 45° Elbow, 4" ID
P105546	221	Rubber 45° Elbow, 5.5" ID
P105547	221	Rubber 45° Elbow, 6" ID
P105548	221	Rubber 45° Elbow, 7" ID
P105608	222	Rubber Straight Hump, 3" ID
P105609	222	Rubber Straight Hump, 4" ID
P105610	222	Rubber Straight Hump, 5" ID
P105611	222	Rubber Straight Hump, 5.5" ID
P105612	222	Rubber Straight Hump, 6" ID
P105613	222	Rubber Straight Hump, 7" ID
P105622	218	Remote Mnt, 90° Elb Rest Tap. Fitting
P106329	145-147	Air Cleaner Baffle Assembly, FRG
P106593	225	Vacuator™ Valve 60 Durometer
P106637	145-147	Air Cleaner Baffle Assembly
P106771	145-147	Air Cleaner Baffle Assembly
P106952	145-147	Dust Cup/Cover
P107375	175-177	Quick Release Dust Cup, SB, SR, ST A/C
P107377	175-177	Quick Release Dust Cup, SB, ST 16" A/C
P107844	220	Rubber 90° Elbow, 5" ID
P109021	221	Rubber 45° Elbow, 5" ID
P109062	175-177	Wing Nut
P109107	158-159	Pin
P109153	175-177	Cover Assembly, ST 16" A/C
P109296	145-147	Vacuator Dust Cup
P109297	145-147	Vacuator Dust Cup
P109331	221	Rubber 45° Elbow, 3.5" ID
P110875	175-177	Air Cleaner Body Assembly
P111414	222	Rubber Straight Hump, 10" ID
P112605	220	Rubber 90° Elbow, 8" ID

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P112606	221	Rubber 45° Elbow, 8" ID
P112607	221	Rubber Hump Reducer, 10"/8" ID
P112608	222	Rubber Straight Hump, 8" ID
P112609	221	Rubber Hump Reducer, 8"/7" ID
P112610	221	Rubber Hump Reducer, 7"/6" ID
P112611	221	Rubber Hump Reducer, 6"/5" ID
P112789	233-254	Gasket, Quick Release Dust Cup
P112803	225	Vacuator™ Valve 40 Durometer
P113733	220	Rubber 90° Elbow, 4.5" ID
P114313	221	Rubber 45° Elbow, 10" ID
P114314	220	Rubber 90° Elbow, 10" ID
P114315	221	Rubber Hump Reducer, 8"/6" ID
P114316	221	Rubber 45° Elbow, 4.5" ID
P114317	222	Rubber Straight Hump, 4.5" ID
P114318	220	Rubber 90° Elbow, 3.5" ID
P114319	222	Rubber Straight Hump, 3.5" ID
P114931	175-177	Filter, safety
P115023	176	Lower Body Assembly, ST, SB 16" RS A/C
P115070	233-254	Filter, safety
P115096	166-168	Gasket, Body for SSG, SRG AC
P115098	166-168	Gasket, Body for SSG, SRG AC
P115110	166-168	SRG, SSG AC lower body assembly
P115200	209	Clamp, Hose-type Lined
P115201	209	Clamp, Hose-type Lined
P115202	209	Clamp, Hose-type Lined
P115203	209	Clamp, Hose-type Lined
P115204	209	Clamp, Hose-Type Lined High Torque
P115205	209	Clamp, Hose-Type Lined High Torque
P115206	209	Clamp, Hose-Type Lined High Torque
P115207	209	Clamp, Hose-Type Lined High Torque
P115208	209	Clamp, Hose-Type Lined High Torque
P115209	209	Clamp, Hose-Type Lined High Torque
P116175	158-159	Wing Nut for FV A/C
P116446	158-159	Filter, safety
P117724	220	Rubber 90° Elbow Reducer, 5.5"/6" ID
P117781	233-254	Filter, safety
P117785	166-168	Lower Body Assembly, SSG, SRG A/C
P117791	166-168	Gasket, SR, SSG A/C
P118552	166-168	SSG AC lower body assembly
P119325	88	Nut, Plastic for E Series A/C
P119370	176	Filter, safety
P119371	176	Filter, safety
P119463	88	Bolt
P119874	168	Intake/Rain Shield for SS, SR 29" A/C
P119875	168	Intake/Rain Shield for SS, SR 29" A/C
P119876	167	Intake/Rain Shield for SS, SR 20" A/C
P119877	168	Intake/Rain Shield for SS, SR 29" A/C
P120279	145-147	Cover
P120604	88-89	Gasket, Cover
P121067	145-147	Clamp Assembly, FH, FR 12" A/C
P121482	220	Rubber 90° Elbow Reducer, 4"/5" ID
P122067	218	Restriction Tap Filter Fitting
P123462	220	Rubber 90° Elbow Reducer, 3"/3.5" ID

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P124860	158-159	Filter, safety
P124866	158-159	Filter, safety
P124867	158-159	Filter, primary
P126530	221	Rubber Hump Reducer, 7"/5.5" ID
P127009	233-254	Clamp, pre-cleaner body
P128408	175-177	Filter, safety
P128990	220	Rubber 90° Elbow Reducer, 5.5"/7" ID
P129396	93	Filter, primary, treated
P129469	88	Retaining Ring
P129472	93	Filter, primary, treated
P129660	221	Rubber Hump Reducer, 8"/5.5" ID
P133338	221	Rubber 45° Elbow Reducer, 5.5"/6" ID
P133339	221	Rubber 45° Elbow Reducer, 6"/7" ID
P134534	218	Water Manometer Kit
P136494	221	Rubber Hump Reducer, 7"/5" ID
P140822	93	Filter, primary
P141228	93	Filter, primary
P142100	88-89	Filter, primary, no cover
P143422	209	Clamp, Lined Hose-Type
P143895	220	Rubber 90° Elbow Reducer, 5"/6" ID
P148043	88-89	Filter, primary, treated
P148044	88-89	Filter, primary, no cover, treated
P148337	209	Clamp, T-bolt, 2" ID
P148338	209	Clamp, T-bolt, 2.25" ID
P148339	209	Clamp, T-bolt, 2.5" ID
P148340	209	Clamp, T-bolt, 2.75" ID
P148341	209	Clamp, T-bolt, 3" ID
P148342	209	Clamp, T-bolt, 3.5" ID
P148343	209	Clamp, T-bolt, 4" ID
P148344	209	Clamp, T-bolt, 4.5" ID
P148345	209	Clamp, T-bolt, 5" ID
P148346	209	Clamp, T-bolt, 5.5" ID
P148347	209	Clamp, T-bolt, 6" ID
P148348	209	Clamp, T-bolt, 7" ID
P148349	209	Clamp, T-bolt, 8" ID
P148350	209	Clamp, T-bolt, 10" ID
P149099	225	Vacuator™ Valve, 1" EBA, EBB A/C
P150692	88-89	Filter, primary, no cover
P150693	88-89	Filter, primary, attached cover
P150694	88-89	Filter primary
P150695	88-89	Filter primary
P150862	88-89	Access Cover, ECG Konepac 11" A/C
P151097	93	Filter, primary
P153551	88-89	Filter primary, attached cover
P154575	88-89	Filter primary, no cover, treated
P154927	30-31	Air Cleaner, ECO®-II
P155211	88	Gasket, Cover
P155264	88	Gasket, Cover
P158089	166-168	SSG AC, dust cup
P158324	203	Bowl Assembly, PB 7" OD, P/C
P158914	225	Vacuator™ Valve
P159820	220	Rubber 90° Elbow Reducer, 7"/5" ID
P181015	103	Filter, primary - SM

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P181028	103	Filter, primary - SM
P181038	233-254	Filter, primary - SM
P181039	188	Filter, primary - SM
P181040	233-254	Filter, primary - SM
P181041	175-177	Filter, primary - SM
P181042	175-177	Filter, primary - SM
P181043	158-159	Filter, primary - SM
P181044	175-177	Filter, primary - SM
P181049	158-159	Filter, primary - SM
P181099	103	Filter, primary - SM
P182015	103	Filter, primary
P182028	103	Filter, primary
P182038	233-254	Filter, primary
P182039	188	Filter, primary - ES
P182040	233-254	Filter, primary
P182041	175-177	Filter, primary
P182042	175-177	Filter, primary
P182043	158-159	Filter, primary
P182044	175-177	Filter, primary
P182049	158-159	Filter, primary
P182099	103	Filter, primary
P206849	232	Aluminum Intake Tubing
P206850	232	Aluminum Intake Tubing
P206851	232	Aluminum Intake Tubing
P207367	232	Aluminum Intake Tubing
P207368	232	Aluminum Intake Tubing
P207369	232	Aluminum Intake Tubing
P224684	232	Aluminum Intake Tubing
P520882	221	Rubber Hump Reducer, 3.5"/2.75" ID
P520883	221	Rubber Hump Reducer, 3"/2.75" ID
P520884	221	Rubber Hump Reducer, 4"/2.75" ID
P521639	218	Restriction Tap Sleeve, 5"
P521641	218	Restriction Tap Sleeve, 6"
P522133	145-147	Cover, FRG
P522439	208	Mounting Band Bright, 13" ID
P522958	225	Vacuator™ Valve, 2"
P523096	83	Cover, EPG
P524552	206	Mounting Band, Bright Stainless, EB 15" AC
P524837	30-31	Air Cleaner, ECO®-II
P524838	30-31	Air Cleaner, ECO®-II
P525956	225	Vacuator™ Valve, 1"
P526676	145-147	Cover Gasket, FRG
P527435	83	Thumb Screw
P527484	83	Filter, primary - SM
P527586	30-31	Air Cleaner, ECO®-CM
P527680	83	Filter, safety
P527682	83	Filter, primary - SM
P527683	83	Filter, safety
P528722	30-31	Air Cleaner, ECO®-II
P529151	83	Cover, EPG
P532503	145-147	Filter, primary
P532504	145-147	Filter, safety
P532919	209	Clamp, Lined Hose-Type
P532920	209	Clamp, Lined Hose-Type

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P532921	209	Clamp, Lined Hose-Type
P532922	209	Clamp, Lined Hose-Type
P532923	209	Clamp, Lined Hose-Type
P532924	209	Clamp, Lined Hose-Type
P532925	209	Clamp, Constant Torque Hose-Type
P532926	209	Clamp, Constant Torque Hose-Type
P532927	209	Clamp, Constant Torque Hose-Type
P532928	209	Clamp, Constant Torque Hose-Type
P532929	209	Clamp, Constant Torque Hose-Type
P532943	223	Silicone 4-ply Bellows
P532944	223	Silicone 4-ply Bellows
P532945	223	Silicone 4-ply Bellows
P532948	223	Silicone Charged Air Connector
P532949	223	Silicone Charged Air Connector
P532950	223	Silicone Charged Air Connector
P532951	223	Silicone Charged Air Connector
P532952	223	Silicone Charged Air Connector
P532953	223	Silicone Charged Air Connector
P532954	223	Silicone Charged Air Connector
P532956	223	Silicone Charged Air Connector
P532957	223	Silicone Charged Air Connector
P532958	223	Silicone Charged Air Connector
P532959	223	Silicone Charged Air Connector
P532960	223	Silicone Hump Hose Connector
P532961	223	Silicone Hump Hose Connector
P532962	223	Silicone Hump Hose Connector
P532966	145-147	Filter, primary
P533685	133	Cover Assembly, FPG
P533761	133	Cover Assembly, FPG
P533781	145-147	Filter, safety
P533890	83	Filter, safety
P533916	83	Service Cover, EPG
P533930	83	Filter, primary
P534048	133	Cover Assembly, FPG
P535396	133	Filter, safety
P535559	88	Gasket, Cover
P535571	223	Silicone 4-ply Bellows
P535572	223	Silicone 4-ply Bellows
P535573	223	Silicone 4-ply Bellows
P536163	220	Rubber 90° Elbow Reducer, 3"/4" ID
P536202	133	Cover Assembly
P536439	145-147	Latch
P536457	145-147	Filter, primary
P536492	145-147	Filter, safety
P536493	88-89	Gasket, Cover
P537308	145-147	Cover Gasket
P537447	30-31	Air Cleaner, ECOLITE®
P537448	30-31	Air Cleaner, ECOLITE®
P537449	30-31	Air Cleaner, ECOLITE®
P537450	30-31	Air Cleaner, ECO®-CM
P537451	30-31	Air Cleaner, ECO®
P537452	30-31	Air Cleaner, ECO®
P537453	30-31	Air Cleaner, ECO®
P537454	30-31	Air Cleaner, ECO®

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P537455	30-31	Air Cleaner, ECO®-SM
P537456	30-31	Air Cleaner, ECO®-SM
P537468	220	Rubber 90° Elbow Reducer, 5"/6" ID
P537699	145-147	Gasket Cover
P537791	88-89	Filter primary attached black cover
P537877	145-147	Filter, safety
P538200	145-147	Cover Assembly
P538259	145-147	Cover Assembly
P538452	145-147	Service Cover
P538928	133	Cover Latch
P539422	133	Cover Assembly
P540256	221	Rubber Hump Reducer, 4.5"/4" ID
P542475	88	Cover
P544238	88	Cover
P544243	88	Filter, primary
P544301	88	Filter, primary
P544741	88	Filter, primary
P544744	88	Cover
P544827	88	Cover
P544950	88	Filter, primary
P547694	221	Elbow, 90 Deg, Reducer, Rubber, Cobra Adapter
P549271	145-147	Filter, primary
P549277	145-147	Filter, safety
P549523	145-147	Filter, primary
P549530	145-147	Filter, safety
P600043	145-147	Filter, primary
P600047	145-147	Filter, safety
P600321	145-147	Cover
P600325	221	Elbow, 90 Deg, Reducer, Rubber, Cobra Adapter
P600326	221	Elbow, 90 Deg, Reducer, Rubber, Cobra Adapter
P600327	221	Elbow, 90 Deg, Reducer, Rubber, Cobra Adapter
P600328	221	Elbow, 90 Deg, Reducer, Rubber, Cobra Adapter
P600657	145-147	Cover
P600975	46	Filter, safety
P601280	145-147	Filter, primary
P601286	145-147	Filter, safety
P601437	145-147	Filter, primary
P601476	145-147	Filter, safety
P601560	46	Filter, safety
P601735	46	Cover
P601767	145-147	Filter, primary
P601774	145-147	Filter, safety
P601790	145-147	Filter, primary
P602211	145-147	Baffle Assembly
P602427	112	Filter, safety
P602985	46	Cover
P603504	166-168	Body gasket strips (two, short)
P603505	166-168	Lower body assembly
P603716	166-168	Cover
P603729	112	Filter, safety

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P604045	221	Rubber Hump Reducer, 5/4.5" ID
P604457	112	Filter, primary
P605731	120	Cover
P606121	46	Filter, safety
P606497	112	Cover
P606503	25	Filter, primary
P607373	30-31	Air Cleaner, ECO®
P607557	46	Filter, safety
P608116	120	Filter, primary (metal liner)
P608117	120	Cover
P608171	46	Cover
P608180	46	Cover
P608305	166-168	Filter, safety RadialSeal
P608306	166-168	Filter, primary RadialSeal
P608391	120	Filter, safety
P608533	46	Filter, primary
P608592	112	Cover
P608599	112	Filter, safety
P608766	21	Filter Primary
P609218	112	Filter Primary
P609219	112	Cover
P609221	112	Filter Primary
P609508	166-168	Lower body assembly
P609239	25	Filter, safety
P609518	166-168	Filter, safety RadialSeal
P609519	166-168	Filter, primary RadialSeal
P609942	120	Cover
P610776	166-168	Rain shroud, right side
P610777	166-168	Rain shroud, left side
P611189	120	Filter, safety
P611190	120	Filter, primary (metal liner)
P611539	120	Filter, primary (metal liner)
P611540	120	Filter, safety
P613334	25	Filter, primary
P613335	25	Filter, safety
P613336	25	Filter, primary
P613337	25	Filter, safety
P613679	30-31	Air Cleaner, ECO®
P615493	46	Filter, Safety
P615530	46	Cover
P616641	25	Filter, primary
P617276	41	Scavenge Adapter, 90 Deg
P617631	46	Filter, Primary
P617632	225	Vacuator™ Valve
P617643	25	Filter, primary
P617644	25	Filter, safety
P617645	25	Filter, safety
P617646	25	Filter, primary
P619481	46	Cover, Watertight
P619482	46	Cover, Watertight
P621983	46	Filter, primary
P621984	46	Filter, safety
P622745	46	U-clip (9 clips)
P622945	233-254	Latch

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P623026	46	Cover, with watertight seal
P623192	46	Gasket
P625983	75	O-ring
P626094	75	Cover
P626096	75	Filter, primary
P626104	75	Filter, safety
P627756	75	Cover
P627758	75	O-ring
P627763	75	Filter, primary
P628203	75	Filter, safety
P628323	25	Filter, primary
P628324	25	Filter, primary
P628325	25	Filter, primary
P628326	25	Filter, primary
P628327	25	Filter, primary
P628328	25	Filter, primary
P628170	69	Filter, safety
P628329	25	Filter, primary
P628390	69	Filter, primary
P628588	69	Cover
P628802	75	Filter, safety
P628805	75	Filter, primary
P628862	75	Filter, safety
P628866	75	Filter, primary
P629463	25	Filter, safety
P629464	25	Filter, safety
P629465	25	Filter, safety
P629466	25	Filter, safety
P629467	25	Filter, safety
P629468	25	Filter, safety
P629469	25	Filter, safety
P629526	46	Latch
P629543	15	Filter, primary
P629991	209	Clamp, T-bolt, 8.25" ID
P633483	23	Filter, safety
P633484	23	Filter, safety
P633871	219	LED Display
P633872	219	LED Display
P633873	219	LED Display
P633874	219	Wire Harness Adapter
P633875	219	Wire Harness Adapter
P633876	219	EPDM Hose, 3'
P633877	219	EPDM Hose, 20'
P633878	219	EPDM Hose, 10'
P633879	219	Remote Mount Bracket
P633880	218	Fitting, 1/8-27 NPT x 3/8-24 UNF with Filter and Orifice
P633881	218	Fitting, 1/8-27 NPT Male to Hose Barb with Filter
P635903	21	Filter, primary
P635904	21	Filter, primary
P635979	21	Filter, safety
P635980	21	Filter, safety
P638061	23	Filter, primary

Part No.	Page No.	Product Description
P638062	23	Filter, primary
P639937	46	Filter, primary
P641172	46	Filter, primary
P641175	46	Filter, primary
P641176	46	Filter, primary
P641182	46	Filter Primary
P776008	225	Vacuator™ Valve
P776033	46	Latch
P777151	131	Mounting Band, plastic, FPG 04
P777366	46	Latch, Air Cleaner
P777639	145-147	Filter, safety
P777730	131	Mounting Band, plastic
P777731	131	Mounting Band, plastic
P777732	131	Mounting Band, polymer
P777868	145-147	Filter, primary
P777869	145-147	Filter, safety
P777920	145-147	Cover
P778810	131	Mounting Band, polymer
P778972	17	Filter, primary
P778979	17	Filter, primary
P778984	17	Filter, primary
P778989	17	Filter, primary
P778994	17	Filter, primary
P780012	17	Filter, safety
P780018	17	Filter, safety
P780024	17	Filter, safety
P780030	17	Filter, safety
P780036	17	Filter, safety
P780522	133	Filter, primary
P780523	133	Filter, safety
P780532	131	Mounting Band, FPG Alexin
P780594	131	Mounting Band, FPG Alexin
P781039	145-147	Filter, primary
P781098	145-147	Filter, primary
P781102	145-147	Filter, safety
P782104	17	Filter, primary
P782105	17	Filter, primary
P782106	17	Filter, primary
P782107	17	Filter, safety
P782108	17	Filter, safety
P782109	17	Filter, safety
P782328	17	Filter, primary
P782880	17	Filter, primary
P782881	17	Filter, primary
P782936	17	Filter, primary
P782937	17	Filter, safety
P783185	145-147	Cover
P783746	41	Scavenge Adapter, Straight
P783747	41	Scavenge Adapter, Straight
P783748	41	Scavenge Adapter, Straight
P784198	17	Filter, primary
P784456	17	Filter, primary
P784457	17	Filter, primary

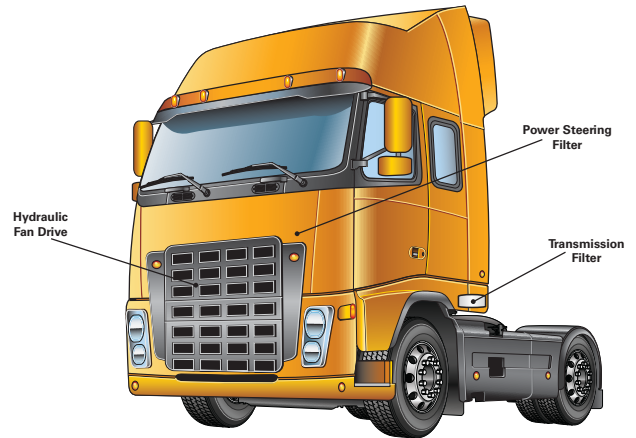
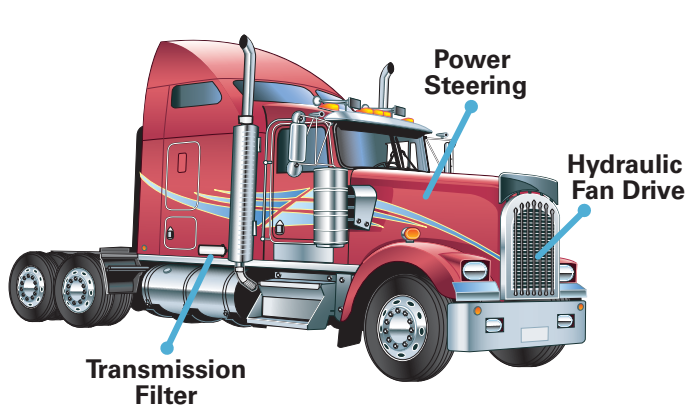
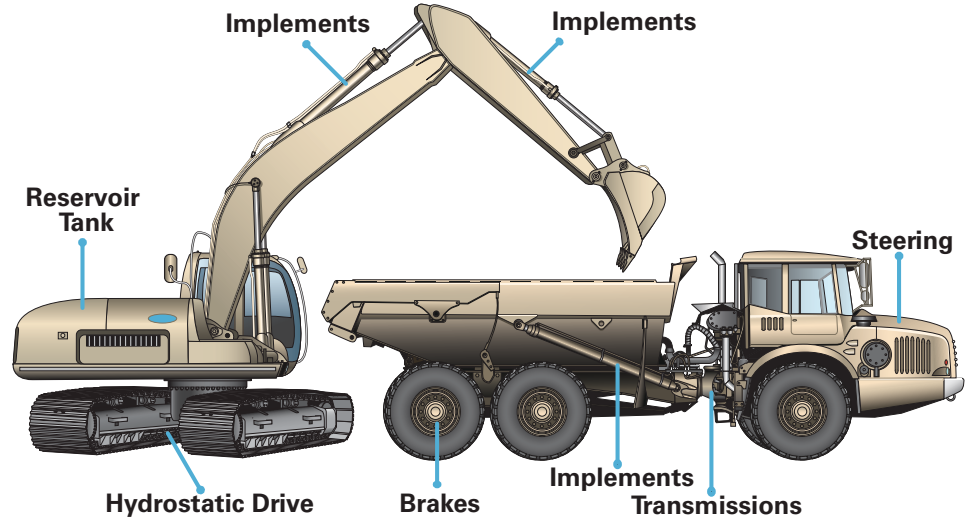
Part No.	Page No.	Product Description
P784525	17	Filter, primary
P785352	17	Filter, primary
P786421	17	Filter, primary
P789377	17	Filter, primary
P784019	41	Scavenge Adapter, 90 Deg
P784279	46	Cover
P784298	46	Cover
P784517	46	U-clip (4 clips)
P785651	46	Cover
P785965	21	Filter, safety
P786050	68	U-clip
P786337	42	Check Valve
P786340	42	Check Valve
P786343	42	Check Valve
P784517	46	U-clip
P786989	46	Cover
P821575	133	Filter, primary
P822686	133	Filter, primary
P822768	133	Filter, primary
P822769	133	Filter, safety
P822858	133	Filter, safety
P827653	133	Filter, primary
P828889	133	Filter, primary
P829332	133	Filter, safety
P829333	133	Filter, safety
P957050	46	Filter, primary
P957712	64	Filter, safety
P957720	64	Latch
P957732	64	Filter, safety
P957804	64	Pre-cleaner
P957850	64	Pre-cleaner
P957851	64	Pre-cleaner
P958647	64	Filter, primary
P958648	64	Filter, primary
S000011	232	Breather, 1/4" NPT
S000067	232	Breather, 1.50" ID
S000072	232	Breather, 1/2" NPT
S000080	232	Breather, 3/4" NPT
S000099	232	Breather, 2" NPT
S000183	232	Breather, 1" NPT
X001744	232	Air Stack Extension
X001746	232	Air Stack Extension
X001747	232	Air Stack Extension
X001966	206	Inlet Hood, metal, 2.5" OD
X001988	206	Inlet Hood, metal, 3.75" OD
X002014	206	Inlet Hood, metal, 3" OD
X002015	206	Inlet Hood, metal, 4" OD
X002017	206	Inlet Hood, metal, 1.75" OD
X002018	206	Inlet Hood, metal, 2" OD
X002019	206	Inlet Hood, metal, 2.25" OD
X002101	212	Restriction Gauge Kit, Informer, 30" Limit
X002102	212	Restriction Gauge Kit, Informer, 25" Limit
X002103	212	Restriction Gauge Kit, Informer, 20" Limit

Part No.	Page No.	Product Description
X002215	214	Restriction Indicator, 15" Limit
X002220	214	Restriction Indicator, 20" Limit
X002225	214	Restriction Indicator, 25" Limit
X002230	214	Restriction Indicator, 30" Limit
X002250	214	Restriction Indicator, ServiSignal, 15" Limit
X002251	214	Restriction Indicator, ServiSignal, 20" Limit
X002252	214	Restriction Indicator, ServiSignal, 25" Limit
X002254	214	Restriction Indicator, ServiSignal, 30" Limit
X002275	224	Restriction Gauge, Informer, 30" Limit
X002277	224	Restriction Gauge, Informer, 25" Limit
X002278	224	Restriction Gauge, Informer, 20" Limit
X002315	214	Restriction Indicator Kit, 15" Limit
X002320	214	Restriction Indicator Kit, 20" Limit
X002325	214	Restriction Indicator Kit, 25" Limit
X002330	214	Restriction Indicator Kit, 30" Limit
X002350	214	Restriction Indicator Kit, ServiSignal, 15" Limit
X002351	214	Restriction Indicator Kit, ServiSignal, 20" Limit
X002352	214	Restriction Indicator Kit, ServiSignal, 25" Limit
X002354	214	Restriction Indicator Kit, ServiSignal, 30" Limit
X002700	224	Restriction Gauge Kit, 60" H ₂ O
X002730	224	Restriction Gauge Kit, 30" H ₂ O
X003538	176-177	Gasket Kit, ST 14" Tube/Peripheral
X003539	176-177	Gasket Kit, ST 16" Tube/Peripheral
X004814	217	Indicator, Safety Signal, 7/16"-20 UNF
X004815	217	Indicator, Safety Signal, 7/16"-20 UNF
X004816	217	Indicator, Safety Signal, 1/2"-13 UNF
X005555	176-177	Latch Repair Kit
X005822	231	In-Line Moisture Skimmer, 6" Dia.
X005900	231	In-Line Moisture Skimmer, 7" Dia.
X005901	231	In-Line Moisture Skimmer, 7" Dia.
X006452	95	Fastener Kit
X006561	226-227	Dust Dumpa
X006562	226-227	Dust Dumpa with Dust Cup
X007276	213	Mini-Informer Kit, 25" H ₂ O
X007335	213	Mini-Informer, Restriction Indicator, 25" H ₂ O
X009230	181	SRG/SSG Conversion Kit
X009231	181	SRG/SSG Conversion Kit
X009291	88-89	Latch Replacement Kit
X009701	181	SRG/SSG Conversion Kit
X009702	181	SRG/SSG Conversion Kit
X011861	23	Filter Kit, primary - Donaldson Blue®
X011872	23	Filter Kit, safety
X770037	215	Restriction Electrical Indicator, 15" Limit
X770050	215	Restriction Electrical Indicator, 20" Limit
X770062	215	Restriction Electrical Indicator, 25" Limit
X770075	215	Restriction Electrical Indicator, 20" Limit

Part No.	Page No.	Product Description
X002215	214	Restriction Indicator, 15" Limit
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X002230	214	Restriction Indicator, 30" Limit
X002250	214	Restriction Indicator, ServiSignal, 15" Limit
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X770062	215	Restriction Electrical Indicator, 25" Limit
X770075	215	Restriction Electrical Indicator, 20" Limit

Hydraulic & Transmission Filtration for Mobile Equipment

Donaldson offers a complete line of hydraulic and transmission filtration solutions that will keep your equipment operating at peak performance.



Single-pass Bulk Fuel Filtration System

Bulk Fuel & Lubricant Filtration

Donaldson offers a range of custom and standard filtration products and services specifically targeted to resolve fuel and bulk oil filtration problems, including:

- On-site surveys
- Facility upgrade options
- Condition monitoring
- Contamination control training/audit
- Installation support, commissioning and fluid management systems
- Achieve target ISO cleanliness levels in a single pass to meet OEM specifications.
- Support from a local Donaldson distributor for replacement filters and spare parts.

Air Cleaner Selection Steps — see pages 10, 11 inside for complete details.

1. Determine the combustion air requirements of the engine
2. Determine the dust condition for the engine/machine and typical operating environment
3. Select an air cleaner series
4. Choose a specific air cleaner family or series
5. Choose intake accessories

Engine Displacement Formula

4-Stroke (Cycle) Engine Formula

English Units

$$\text{Airflow (CFM)} = (\text{Engine Size (CID)} \times \text{RPM}) \times \text{VE} / 3456$$

Metric Units

$$\text{Airflow (m}^3\text{/min)} = (\text{Engine Size (Liters)} \times \text{RPM}) \times \text{VE} / 2000$$

VE = Volumetric Efficiency — 4-Stroke*

0.90 for naturally aspirated gas engine

0.90 for naturally aspirated diesel engine

1.60 for turbo charged diesel engine

1.85 for turbo charged after cooled diesel engine

2-Stroke (Cycle) Engine Formula

English Units

$$\text{Airflow (CFM)} = (\text{Engine Size (CID)} \times \text{RPM}) \times \text{VE} / 1728$$

Metric Units

$$\text{Airflow (m}^3\text{/min)} = (\text{Engine Size (Liters)} \times \text{RPM}) \times \text{VE} / 1000$$

VE = Volumetric Efficiency — 2-Stroke*

0.90 for naturally aspirated diesel engine

1.40 for scavenge blower diesel engine

1.90 for turbo charged diesel engine

Engine Horsepower Formula

English Units

$$\text{Airflow (CFM)} = \text{HP (SAE)} \times \text{SA}$$

SA = (Specific Airflow) per Horsepower

4-stroke naturally aspirated diesel engine — 2.0

4-stroke turbo charged diesel engine — 2.3

4-stroke turbo charged after cooled diesel engine — 2.3

2-stroke naturally aspirated diesel engine — 2.0

2-stroke scavenge blower diesel engine — 3.3

2-stroke turbo charged diesel engine — 3.6

Metric Units

$$\text{Airflow (m}^3\text{/min)} = \text{HP (SAE)} \times \text{SA}$$

SA = (Specific Airflow) per Horsepower

4-stroke naturally aspirated diesel engine — 0.057

4-stroke turbo charged diesel engine — 0.065

4-stroke turbo charged after cooled diesel engine — 0.065

2-stroke naturally aspirated diesel engine — 0.057

2-stroke scavenge blower diesel engine — 0.093

2-stroke turbo charged diesel engine — 0.102

How to Read Air Cleaner Performance Curves

Performance Curve Explanation & Conversions

B055006

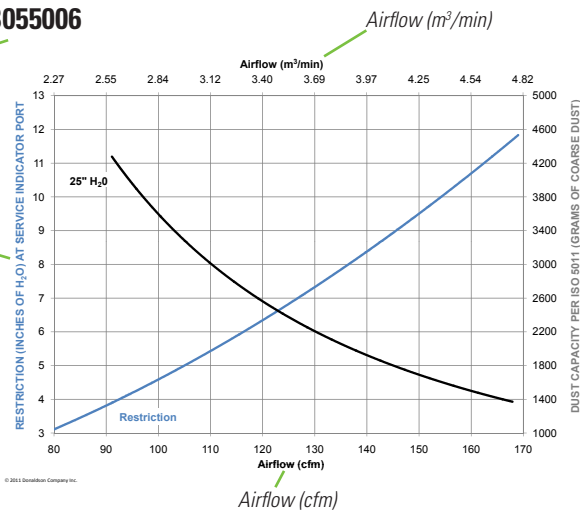
Air Cleaner Model Number

More than one model may be on a chart. Notations will be added for models with safety or for scavenge systems.

Restriction (inches of H₂O) at Tap.

Tap is the restriction indicator tap located on the air cleaner outlet.

Convert inches of H₂O to . . .
inches of Hg — Multiply by 0.076
mm of Hg — Multiply by 1.8682
Kg/m² — Multiply by 25.3985
millibars — Multiply by 2.4907



Dust Capacity per ISO 5011 (grams of Coarse Dust)

Coarse Dust = 1g/m³ dust concentration

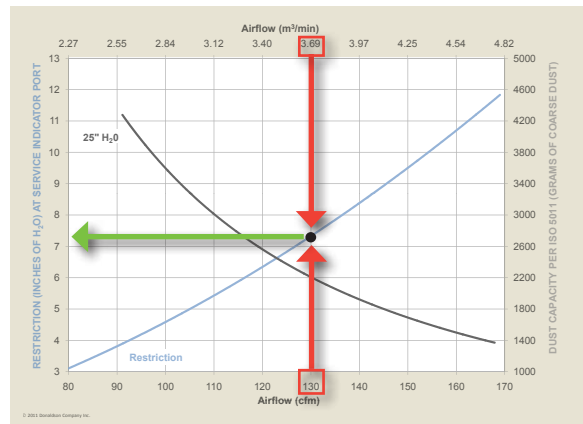
Airflow conversion calculations

1 Cubic Foot per Minute (cfm) = 0.0283 Cubic Meters per Minute (m³/min)

1 Cubic Meters per Minute (m³/min) = 35.315 Cubic Feet per Minute (cfm)

To determine the Restriction of an air cleaner . . .

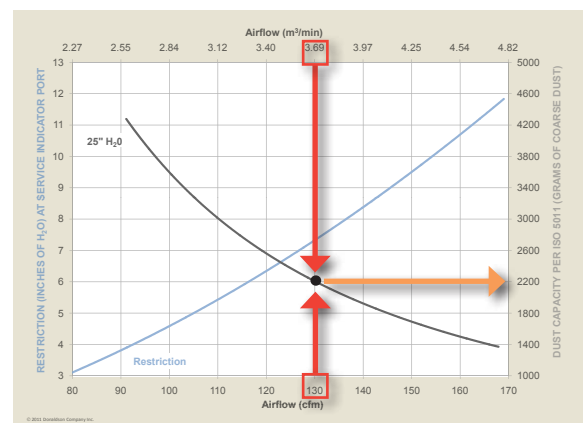
- 1) Find the desired airflow in either cfm or m³/min on the horizontal axis. (Red Arrows)
 cfm = cubic feet per minute (cfm)
 m³/min = cubic meters per minute
- 2) Find the clean air cleaner restriction level (in inches of H₂O) on the vertical left hand axis that intersects with the airflow level on the blue restriction curve. (Green Arrow)



To determine the Dust Capacity of an air cleaner

. . .

- 1) Find the desired airflow in either cfm or m³/min on the horizontal axis. (Red arrows)
 cfm = cubic feet per minute (cfm)
 m³/min = cubic meters per minute
- 2) Follow the point on the H₂O black curve to the right hand axis in the chart. The axis intersect point is the "Dust Capacity" in grams at the stated H₂O restriction. (Orange Arrow)



Global Presence with a Local Touch

At Donaldson, we've built a strong, flexible and responsive distribution network to serve our customers around the world.

Localized Manufacturing – It starts with 30+ manufacturing locations around the world – producing most filters in the regions where they're used.

Primary Distribution Centers – Filters then move to our regional warehouses and distribution center hubs – meaning the filters you need are never far away.

Logistics – We work with a network of transportation and logistics companies, consolidators and cross-docking facilities to deliver products to distribution partners quickly and efficiently.

Distribution Partners – We've built one of the largest, strongest and most responsive distributor networks in the filter industry – meaning you can find the filters and support you need, nearly anywhere in the world.



Donaldson Company, Inc.
Minneapolis, MN USA

www.shop.donaldson.com
www.donaldson.com

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Mexico, Latin America & Caribbean 52-449-910-6150
Brazil 55-11-2119-1604
Europe 32-16-38-3811

South Africa 27-11-997-6000
South East Asia 65-6311-7373
Greater China 852-2405-8388
Japan 81-42-540-4112
Korea 82-2-517-3333
Australia 61-02-4350-2033
India 91-124-2290060

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