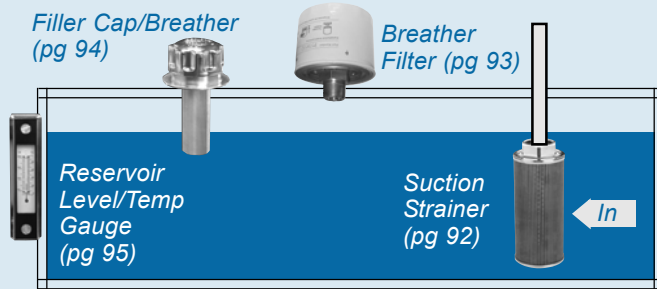


# Hydraulic System Accessories



- ☑ Hydraulic Filter Service Indicators
- ☑ Tank Breathers for hydraulic reservoirs
- ☑ Suction Strainers
- ☑ Filler Breather Caps
- ☑ Tank/Reservoir Level Gauges



Find service indicators for filter assemblies on pgs 96-97.

## Suction Strainers for Filtering Hydraulic Reservoirs

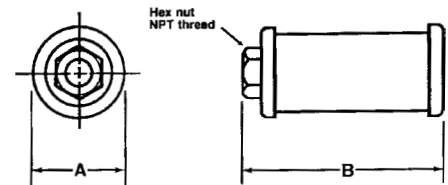


### Features

- Flow Range: 0-100 gpm / 0-389.5 l/min
- 1/2" NPTF to 3" NPTF
- Meets J.I.C. Standards
- One piece construction
- Available with or without relief valve
- Stainless steel pleated 100 mesh/140µm screen
- Plated perforated steel center core epoxy bonded to heavy gauge connector and end caps
- Reusable! Clean by swishing in non-caustic solvent, then blow from inner diameter to outer diameter with compressed air.

### Application

The Donaldson Suction Strainer filters petroleum-based hydraulic fluids, phosphate esters, water glycols, lubricating oils, coolants, fuels and water in fluid reservoirs, sumps, and similar applications.



## Suction Strainer Dimensional Specifications & Performance

with NO relief valve	with 3 psi relief valve	NPTF Pipe Size	A (Diameter)		B (Length)		Screen Area (sq. in.)	Weight		Flow <sup>1</sup>	
			in	mm	in	mm		lbs	kg	gpm	l/min
P169012		1/2"	2.63	66	3.10	79	62	0.4	.88	5	19
P169013	P173910	3/4"	2.63	66	3.55	80	68	0.5	1.1	8	30
P169014	P173911	1"	2.63	66	5.35	136	110	0.7	1.5	10	38
P169015	P173912	1 1/4"	3.38	86	6.85	174	162	1.0	2.2	20	76
P169016	P173913	1 1/2"	3.38	86	8.01	203	225	1.2	2.6	30	114
P169017	P173914	1 1/2"	3.94	100	9.8	250	340	1.4	3.1	50	189
P169018	P173915	2"	3.94	100	9.8	250	340	1.8	4.0	50	189
P169019	P173916	2 1/2"	5.12	130	10.1	256	400	2.3	5.0	75	284
P169020	P173917	3"	5.12	130	11.78	299	500	3.0	6.6	100	379

<sup>1</sup> On suction lines in hydraulic systems, the recommended flow velocity is 5 ft./sec. maximum. A clean filter with 225 SSU oil @ 100°F and a flow velocity of 5 ft./sec. will not exceed a pressure drop of 0.35 psi.

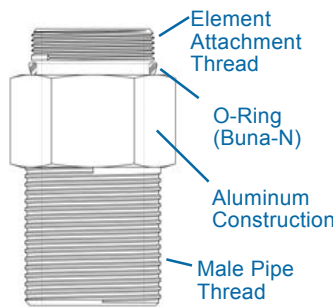
# Threaded Adapters for Creating Tank Breather Requirement

## Application

Adapting your hydraulic reservoir with a Donaldson breather filter...

- Reduces your parts inventory;
- Improves your filtration to extend equipment life;
- Lengthens filter service intervals.

To create a tank breather, choose either of the two threaded adapters below, then select a breather spin-on filter based on your desired efficiency level, filter dimensions and the maximum rate of reservoir drawdown or air exchange rate. As a rule of thumb, clean pressure drop should be limited to 0.18 *psi*/ 5" H<sub>2</sub>O.



## Installation Tips

A pipe flange, weld collar, or half coupling may be used to connect the breather adapter to the reservoir. Make sure that air cannot leak around the adapter. When mounting on the side of the reservoir, make sure the installation is as high as possible to stay above the surface of the fluid.

## Maintenance Tips

Change the filter after each 500 hours of operation. More frequent replacement may be required when operating in heavily contaminated areas such as grinding operations, primary metal mills, and on mobile equipment. Under such conditions, Donaldson recommends replacement every 250 hours.

## Breather Adapters

Part Number	Length in mm	Male Pipe Thread	Element Attachment Thread
P173544	2½ 57	¾" NPT	1"-12 UNF-2A
P173545	3 76	1¼" NPT	1½"-16 UN-2A

## Breather Spin-on Filters

Efficiency & Media Type	Part Number	Filter Series	Length in mm	Outer Dia. in mm	Flow <sup>1</sup> scfm gpm
<b>for P173545 Adapter</b>					
3µ Nominal, Cellulose	P550386	LPS05	7 178	5 172	35 262
	P550250	LPS05	11 279	5 172	42 314
3µ Absolute, Synteq®	P169430	HBK05	7 178	5 172	35 262
	P167832	HBK05	11 279	5 172	42 314
5µ Absolute, Synteq®	P167162	HBK05	7 178	5 172	59 440
	P165762	HBK05	11 279	5 172	64 479
10µ Nominal, Cellulose	P550388	LPS05	7 178	5 172	59 440
	P550251	LPS05	11 279	5 172	64 479
	P550253 <sup>2</sup>	LPS05	11 279	5 172	43 321
13µ Absolute, Synteq	P165875	HBK05	7 178	5 172	59 440
	P165876	HBK05	11 279	5 172	64 479
<b>for P173544 Adapter</b>					
3µ Nominal, Cellulose	P551550	LPS04	5 172	3.7 96	15 112
10µ Nominal, Cellulose	P551551	LPS04	5 172	3.7 96	23 172
	P550255	LPS04	9 229	3.7 96	28 216
25µ Nominal, Cellulose	P551554 <sup>2</sup>	LPS04	5 172	3.7 96	10 77

### Notes:

- (1) Based on a maximum pressure drop of 5" H<sub>2</sub>O/ 0.18 *psi* through a clean filter.
- (2) Water Absorbing Filter. Absorbs approximately 6.6 oz/198 ml of water @ 5 *gpm* to 10 *psi*.

### Replacement for Schroeder ABF3/10

P538455 Spin-on Breather & Adapter
P538532 Spin-on Breather only

**Specifications:**

Diameter: 3.69" / 93.7 mm

Height: 3.2" / 81.3 mm

Threads on adaptor: 3/4-14 NPT

Accessories

# Filler Breather Assemblies



## Features

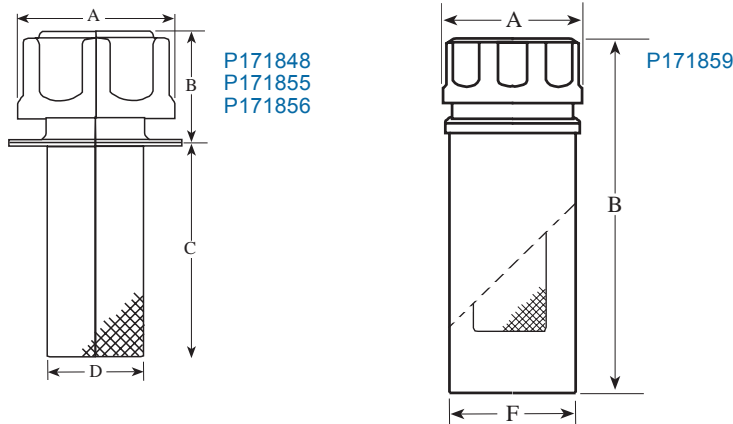
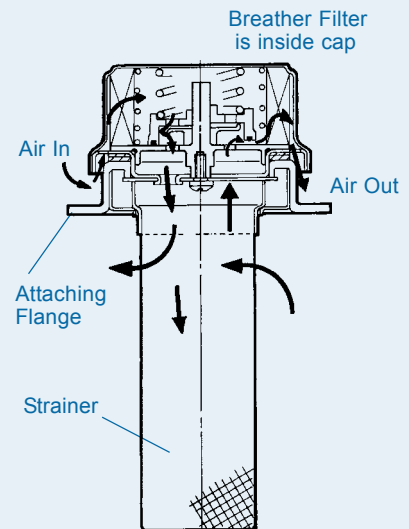
Removable 500µm mesh strainer. (Except model P171848, which has a non-removable strainer.)

10µm air breather/filter.

Models P171855 & P171848 include drilled flanges with attaching screws.

## How They Work

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 10µm 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 Number	FLANGE SPECIFICATIONS				FILLER BREATHER SPECIFICATIONS									
	Outer Dia. in	mm	No. of Holes	Hole Dia. in mm	Flow gpm	lpm	A in mm		B in mm		C in mm		D in mm	
P171848	2.01	51	3	.22 6	70	270	1.81	45	1.38	35	2.48	63	1.1	28
P171855	3.31	84	6	.22 6	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	n/a		7.09	180	2.50	64
P171860 *			n/a - weldable		124	470	2.76	70	n/a		7.09	180	2.50	64

\* For pressurized reservoirs

## Filler Cap Only (Replacement)

P173292 --- fits P171855, P171856, P171859

P173364 for pressurized reservoir --- fits P171860

# Tank/Reservoir Level Gauges



## Applications

To accurately monitor the oil level in your tanks and reservoirs, choose Donaldson level gauges. Three models indicate oil level and temperature, 35° to 210°F (30° to 90°C). Two models indicate oil level only.

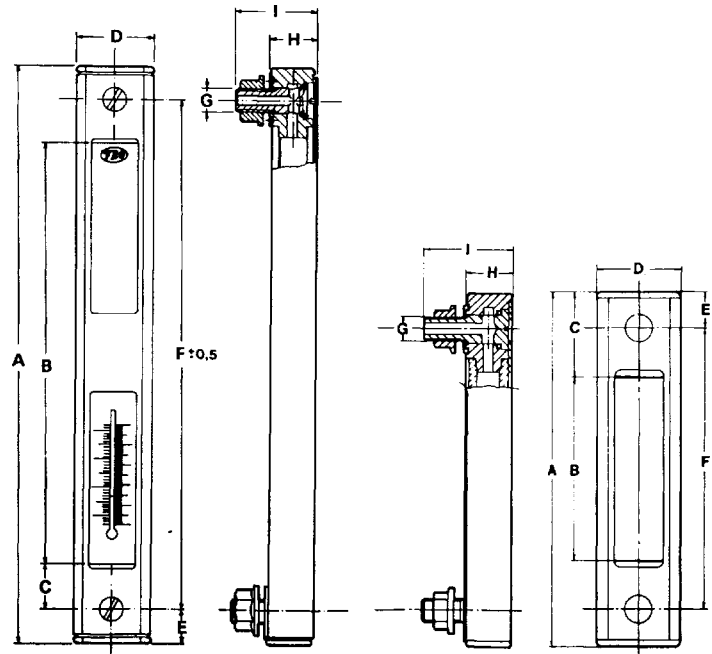
## Features

Transparent lens material is protected by metal bar with BunaN seals.

Maximum working pressure for all models is 14.5 *psi* / 1 bar / 100 kPa for pressurized tanks.

Recommended bolt tightening torque is 10 lbs-ft, with inside nut for tightening directly on the tank.

Suggested mounting hole diameter: 11mm or 13mm.



## Oil Level/Temperature Gauge Specifications (35° - 210°F/ 30° - 90°C) (shown above left)

Part Number	A		B		C		D		E		F		G	H		I	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm		in	mm	in	mm
P171920	6.22	158	3.22	82	.89	22.5	1.57	40	.61	15.5	5	127	m12	.78	20	1.57	40
P171922	11.22	285	8.23	209	.89	22.5	1.57	40	.61	15.5	10	254	m12	.78	20	1.57	40

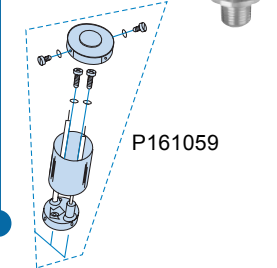
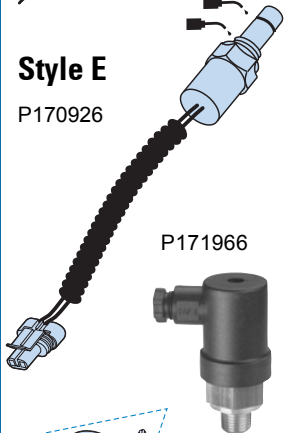
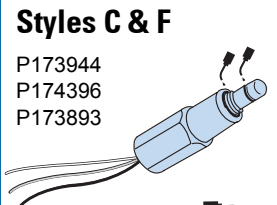
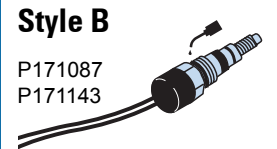
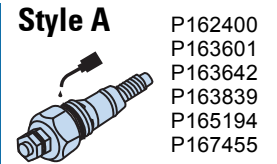
## Oil Level Gauge Specifications (shown above right)

Part Number	A		B		C		D		E		F		G	H		I	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm		in	mm	in	mm
P171918	6.22	158	3.23	82	.89	22.5	1.57	40	.61	15.5	5	127	m12	.78	20	1.57	40
P171913	4.21	107	1.22	31	.89	22.5	1.57	40	.61	15.5	3	76	m10	.78	20	1.57	40

# Electrical Service Indicators

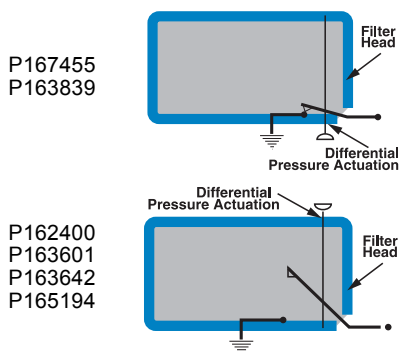
All electric models have a maximum operating temperature of 250°F/ 114°C.

Part No.	Use with Bypass Valve Pressure of:	Description	Where Used	Illustration
P160077	All	DC. Normally open.	HAK05, HDK06, HFK08	pg 47
P160089	All	DC 3 amps. Normally open.	HEK11	pg 51
P161059	All	AC 3 amps. Normally open.	HAK05, HDK06, HFK08	at right
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	Style A
P166298	50 psi/ 345 kPa	AC/DC 3-wire. Red: normally open; blue: normally closed; white: common.	HPK02, HPK03, HPK04, HPK05	pg 89
P167455	50 psi/ 345 kPa	DC/single post. Normally closed.	HMK04/24, HMK05/25	Style A
P170926	50 psi/ 345 kPa	DC 2-wire. Normally closed. Gold contacts. Microprocessor compatible.	HMK04/24, HMK05/25	Style E
P171087	50 psi/ 345 kPa	DC 2-wire. Packard Weatherpack connector. Normally open.	HMK03, HMK04/24, HMK05/25	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	FIK	at right
P173893	50 psi/ 345 kPa	DC 3-wire. Microprocessor compatible. White: normally open; red: normally closed; black: common.	HMK04/24, HMK05/25	Style F
P173944	25 psi/ 172 kPa	AC/DC 3-wire. 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. 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. 250 VAC or 30 VDC max. 0.5A resistive, 0.2A inductive.	FPK02	pg 77

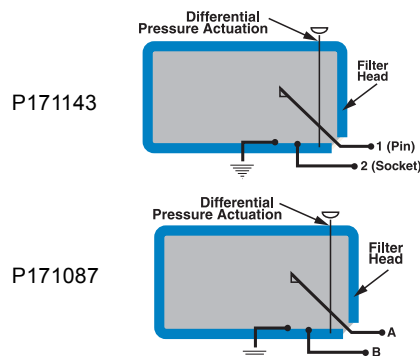


## Electrical Schematics

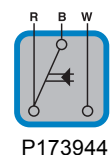
**Style A: Single Post DC Indicator**  
(Maximum: 200 mA DC @ 30 VDC)



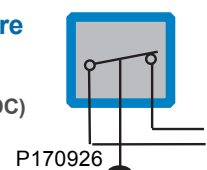
**Style B: DC 2-Wire Indicator**  
(Maximum: 200 mA DC @ 30 VDC)



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



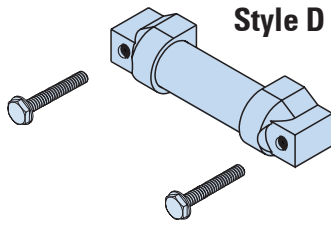
**Style E: DC 2-Wire Indicator**  
(Maximum: 100 mA DC @ 30 VDC)



# Visual Indicators & Pressure Gauges

## Visual Indicators (non-Electric)

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



**Style D**

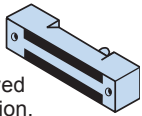
P162642  
P162694  
P162696  
P165965  
P167580

P171958



**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.



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
P162696	25 psi / 172 kPa	HBK04, HBK05, HMK04/24, HMK05/25	Style D
P164315	50 psi / 345 kPa	HPK02, HPK03, HPK04, HPK05	page 68
P165965	50 psi / 345 kPa	HMK03	Style D
P166603	50 psi / 345 kPa (reverse flow)	HPK04	page 82
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	page 74

## Pressure Gauges



**P174772**  
for LPS04 and LPS05 series

25 *psi*  
172 kPa  
1.7 bar



**P171956**  
for FIK series

-1 to +5 bar  
14.5 to 72.5 *psi*  
-100 to +500 kPa

## Remote Mount Differential Gauge

Use in Low or Medium Pressure Assemblies!

- Easy 'quick-glance' check zones:  
Green = filter is clean ; Red = time to change filter
- Maximum working pressure:  
500 *psi* / 3450 kPa / 34.5 bar
- Burst pressure: Exceeds 2000 *psi* / 13,795 kPa / 137.9 bar



Filter Bypass Rating	Part No.
25 <i>psi</i> / 172.5 kPa / 1.7 bar	P162037