### TF4 In-Tank Filter Assembly

Ideal for installation on the return line to remove contaminant ingested or generated by the system.

#### Max Operating Pressure: 100 psi (6.9 bar)



hyprofiltration.com/TF4



#### Elements that go beyond industry standard.

Hy-Pro's DFE rated G8 dualglass elements are rated to assure performance even when exposed to the toughest conditions that hydraulic systems can generate. Designed to provide the best filtration and ease of use, the HP4C coreless element gives you more options for disposal, meaning you improve your environmental impact **and** your bottom line.





#### Works with your system.

Available with one or two inlet ports (180° orientation) for maximum flexibility of installation, you'll be amazed at how easily the TF4 integrates into your system. For applications requiring AIAG HF4 automotive standards compliance, the H4 special option incorporates the HPK filter element to ensure you meet compatibility requirements and exceed efficiency expectations.

#### Minimize the mess.

With most of the assembly inside the reservoir, the top loading housing on the TF4 provides easy and clean access when servicing or changing the element. To top it off, keyways on the twist open cover require only loosening of the bolts to access the element so lost parts during service becomes a thing of the past.



#### TF4 Installation Drawing







#### The perfect fit.

Coming in at just over 7" (185 mm) in diameter, the TF4 is the perfect compact solution for keeping your mobile equipment or power units operating at peak performance. And with mounting patterns to fit both North American and European formats, you'll get clean oil and increased efficiency no matter where you are.

Drop Tube Option	Length including Drop Tube
4" Nominal Extension	14.3" (363 mm)
6" Nominal Extension	16.3" (414 mm)
8" Nominal Extension	18.3" (465 mm)
9" Nominal Extension	19.3" (490 mm)
10" Nominal Extension	20.3" (516 mm)
12" Nominal Extension	22.3" (566 mm)



### TF4 Specifications 158

Dimensions	See Installat	ion Drawings o	n page 157 f	or model specific	dimensions.			
Operating Temperature	<b>Fluid Temp</b> 30°F to 225° (0°C to 105°)	<b>erature</b> F C)			<b>Ambient Ter</b> -4°F to 140°F (-20C to 60C)	nperature		
Operating Pressure	100 psi (6.9	bar) maximum						
Pressure Switch Trigger	22 psi (1.5 b	ar)						
Element Collapse Rating	<b>HP4CL9</b> 150 psid (10	.3 bard)			<b>HPKL9</b> 290 psid (20	bard)		
Integral Bypass Setting	25 psid (1.7	bard)						
Materials of Construction	<b>Head</b> Cast alumin	um			<b>Bowl</b> Polyammide			
Media Description	M G8 Dualglass of DFE rated media for al fluids. βx <sub>[C]</sub> ≥	s, our latest gei l, high perform l hydraulic & lu ≥ 1000 (βx ≥ 200	neration ance glass brication ))	<b>A</b> G8 Dualglass hi, media combine scrim. $\beta$ x <sub>[C]</sub> ≥ 10	gh performance d with water rem 00 (βx ≥ 200)	<b>W</b> Stainle oval media	ess steel wire m βx <sub>(C)</sub> ≥ 2 (βx ≥ 2	esh )
Replacement Elements	To determ Configurati Standard Fili Special Option	nine replace on ter Element on H4	<b>Ment elen</b> <b>Filter Ele</b> HP4CL9 - HPKL9 -	nents, use corr ement Part Num - [Media Selection [Media Selection (	r <mark>esponding co ber</mark> Code] [Seal Code] Code] [Seal Code]	e]	<b>Example</b> HP4CL9-10, HPKL9-6ME	v part number:
Fluid Compatibility	Petroleum a other specif	nd mineral bas ied synthetic flu	ed fluids (sta iids use fluo	andard). For polyc rocarbon seal opt	)l ester, phosphat ion or contact fac	te ester, and ttory.		
Filter Sizing <sup>1</sup>	Filter assem filter asseml applications	bly clean eleme bly bypass setti with extreme o	ent ΔP after a ng. See page cold start cor	actual viscosity co 2 22 for filter asse ndition contact Hy	rrection should n mbly sizing guide ⁄-Pro for sizing re	ot exceed 10% lines & exampl commendation	of es. For s.	
△P Factors <sup>1</sup>	Units	Media 1M	3M	6M	10M	16M	25M	**W
	psid/gpm bard/lpm	0.2370 0.0043	0.2000 0.0036	0.1550 <b>0.0028</b>	0.1390 <b>0.0025</b>	0.1360 <b>0.0025</b>	0.1310 0.0024	0.0240 0.0004

1Max flow rates and ΔP factors assume u = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula on page 22 for viscosity change.



TF4	Ρ	art Nu	JN	nber B	uilder	159
TF4	Вур	ass Indicator Special	Options	Media Seal		
Connection	Port B20 N20 S20	C Option 1.25" BSPT 1.25" NPT 1.25" SAE	Ma: 40 g 40 g	x Flow Rate pm (151 lpm) <sup>1</sup> pm (151 lpm) <sup>1</sup> pm (151 lpm) <sup>1</sup>		
Bypass	2	Integrated bypass - 25 psid (	1.7 bard)			
Pressure Indicator	DX E G X	Electric pressure switch (DIN Electric switch with flying lea Visual pressure gauge No indicator (port plugged)	connect ds (3-wir	ion) e connection)		
Special Options	D2 <sup>2</sup> H4 <sup>3</sup> 4 6 8 9 10 12	Dual inlet ports, 180° orientati HPK series element for autom 4" (10 cm) nominal drop tube 6" (15 cm) nominal drop tube 8" (20 cm) nominal drop tube 9" (23 cm) nominal drop tube 10" (25 cm) nominal drop tube	on extensior extensior extensior extensior extensior extensio	ndards compatibility I I I I I I I I I I I I		
Media Selection	G8 1M 3M 6M 10M <sup>3</sup> 16M 25M	$\begin{array}{l} \beta 2.5_{[C]} \geq 1000, \ \beta 1 \geq 200 \\ \beta 5_{[C]} \geq 1000, \ \beta 3 \geq 200 \\ \beta 7_{[C]} \geq 1000, \ \beta 6 \geq 200 \\ \beta 12_{[C]} \geq 1000, \ \beta 12 \geq 200 \\ \beta 17_{[C]} \geq 1000, \ \beta 17 \geq 200 \\ \beta 22_{[C]} \geq 1000, \ \beta 25 \geq 200 \end{array}$	G8 3A 6A 10A 25A	Dualglass + water removal $\beta 5_{[C]} \ge 1000, \beta 3 \ge 200$ $\beta 7_{[C]} \ge 1000, \beta 6 \ge 200$ $\beta 12_{[C]} \ge 1000, \beta 12 \ge 200$ $\beta 22_{[C]} \ge 1000, \beta 25 \ge 200$	Stainless wire mesh25W25μ nominal40W40μ nominal74W74μ nominal149W149μ nominal	
Seals	B V E-WS	Nitrile (Buna) Fluorocarbon EPR seals + stainless steel su	pport me	esh		

<sup>1</sup>Maximum recommended flow rate based on velocity through port and internal flow path. Consult sizing guidelines or consult factory for sizing based on flow rate, viscosity, temperature, filter media selection. <sup>2</sup>Available with S4 port only. <sup>3</sup>Replaces standard HP4C series element with HPKL9. Use 12M or 12A for respective media code in place of 10M or 10A.



### **TFR** In-Tank Filter Assemblies

Hy-Pro TFR in-tank filter assemblies are ideal for particulate contamination removal in hydraulic power unit return line and mobile hydraulic OEM installations.

#### Max Operating Pressure: 150 psi (10 bar)



#### Filtration starts with the filter.

Advanced DFE rated filter elements deliver lower operating ISO Codes with high efficiency particulate removal and retention efficiency. With a range of media options down to  $\beta 2.5_{cl} > 1000 +$  water absorbing options, you get the perfect element for your application, every time.





#### Inside to out flow.

The dirtiest fluid in you system can be found before the filter element in the filter housing. Here, contaminants collect in the filter media and unless disposed of properly, can wreak havoc on your system after element service. That's why when you service the TFR element, which utilizes inside-to-outside flow, you remove all the dirt and contaminated fluid with the element.

#### Integral element bypass.

TFR elements include an integral, zero-leak bypass valve. Every time an element is changed a new bypass is installed eliminating bypass valve fatigue and leakage over time.





#### Minimize the mess.

With most of the assembly inside the reservoir, the top loading TFR housing provides easy and clean access during element service, no slippery spin-ons to handle. With the keyway cover and bolt arrangement lost parts during element service become a thing of the past.

#### Compact and sized for your system.

With three head sizes, multiple connection sizes, filter element lengths and diffuser options to choose from, TFR assemblies smoothly deliver clean fluids back to tank with a design that keeps things compact.





#### Eliminate aeration.

Smaller reservoirs with higher turnover and less settling time typically lead to aeration as fluids are churned and recirculated. The unique TFR element design minimizes turbulence and integral diffuser tube prevents aeration in compact hydraulic and high velocity return line applications by maintaining a column of fluid outside the filter element and above the fluid line to ensure your fluids are returned clean and without aeration.

## TFR Installation Drawings



# **TFR Installation Drawings**





#### TFR Weld Flange Installation Drawing



Series	TFR1	TFR2	TFR3
A	5/16" - 18 UNC-2A	3/8" - 16 UNC-2A	3/8" - 16 UNC-2A
В	5.33"	7.18"	21.2
	(135.4 mm)	(18.2 mm)	(21.2 mm)
С	1.00"	1.00"	1.00"
	(25.4 mm)	(25.4 mm)	(25.4 mm)
D	3.59"	5.30"	6.67"
	(91.2 mm)	(134.6 mm)	(169.4 mm)
E	3.8-4.5"	5.5-6.25"	6.75-7.25"
	(96.5-114.3 mm)	(139.7-158.75 mm)	(171.5-184.2 mm)







### TFR Specifications

Dimensions	See Install	ation Drawin	igs on page 16	52-163 for m	odel specifi	c dimension:	S.			
Operating Temperature	Fluid Tem 30°F to 22 (0°C to 10	<b>perature</b> 5°F 5°C)		<b>Ambie</b> -4°F to (-20C to	<b>nt Tempera</b> 140°F p 60C)	ature				
Operating Pressure	150 psi (10	) bar) maxim	um							
Pressure Switch Trigger	22 psi (1.5 45 psi (3.1	bar) bar)								
Visual Gauge	0-22 psi (0 0-45 psi (0	-1.5 bar), gre -3.1 bar), gre	en to red en to red							
Element Collapse Rating	100 psid (	5.9 bard)								
Integral Bypass Setting	25 psid (1 Part Num	.7 bard) stand ber Builder a	dard. For 50 p: nd add "-50" to	sid (3.4 bard o the end of	l) option, sel Replaceme	lect Bypass ( nt Element p	Option "3" part numb	in Assembly er.		
Materials of Construction	<b>Head</b> Cast alum	inum		<b>Diffus</b> Powde	er r coated or j	plated steel		<b>Element Bypa</b> Plated steel	ss Valve	
Media Description	<b>M</b> G8 Dualgl of DFE rat media for fluids. βx <sub>t</sub>	ass, our lates ed, high perf all hydraulic $_{3} \ge 1000 (βx)$	t generation ormance glass & lubrication ≥ 200)	<b>A</b> G8 Dua s media scrim.	alglass high   combined w $\beta x_{[C]} \ge 1000$	performance ⁄ith water rei (βx ≥ 200)	e moval	<b>W</b> Stainless steel media $\beta x_{[C]} \ge 2$	wire mesh (βx ≥ 2)	
Replacement Elements	To deter Series Code	rmine repl Bypass Code	acement el	ements, ເ ent Part Nເ	ise corres Imber	ponding c	odes fro	om your asso	embly pa Example	rt number:
	1	2 3	HPTFR1L[Ele HPTFR1L[Ele	ement Lengt ement Lengt	h Code] – [M h <b>Code] – [M</b>	edia Selectio edia Selectio	n Code][S n Code][S	eal Code] eal Code] – 50	HPTFR1L	6–6MV 6–6MV–50
	2	2 3	HPTFR2L[Ele HPTFR2L[Ele	ement Lengt ement Lengt	h Code] – [M h Code] – [M	edia Selectio edia Selectio	n Code][S n Code][S	eal Code] eal Code] – 50	HPTFR2L	27–10AB 2 <b>7–10AB–50</b>
	3	2 3	HPTFR3L[Ele HPTFR3L[Ele	ement Lengt ement Lengt	h Code] – [M h Code] – [M	edia Selectio edia Selectio	n Code][S n Code][S	eal Code] eal Code] – 50	HPTFRL1 HPTFRL1	9–3ME-WS 9–3ME-WS–50
Fluid Compatibility	Petroleum other spec	and minera cified synthet	l based fluids ic fluids use fl	(standard). uorocarbon	For polyol es seal option	ster, phosph or contact f	ate ester, actory.	and		
Filter Sizing <sup>1</sup>	Filter asse filter asse applicatio	mbly clean e mbly bypass ns with extre	lement ∆P afte setting. See pa me cold start	er actual vis age 22 for fi condition co	cosity correc lter assembl ontact Hy-Pr	ction should ly sizing guid o for sizing r	not excee elines & e ecommer	ed 10% of examples. For idations.		
ΔP Factors <sup>1</sup>	Model	Length	Units	Media 1M	ЗM	6M	10M	16M	25M	**W
	TFR1	L6	psid/gpm bard/lpm	0.5640 0.0103	0.4759 0.0087	0.3688 0.0067	0.3308 0.0060	0.3236 0.0059	0.3117 0.0057	0.0571 0.0010
		L11	bard/lpm psid/gpm	0.0088	0.0074	0.0058	0.0052	0.0051	0.0049	0.0009
	TFR2	L8	psid/gpm bard/lpm	0.0062 0.2370 0.0043	0.2000 0.2000 0.0036	0.0040 0.1550 0.0028	0.0036 0.1390 0.0025	0.1360	0.0034 0.1310 0.0024	0.0006 0.0240 0.0004
		L11 	psid/gpm bard/lpm psid/gpm	0.1774 0.0032 0.1009	0.1497 0.0027 0.0852	0.1160 0.0021 0.0660	0.1041 0.0019 0.0592	0.1018 0.0019 0.0579	0.0981 0.0018 0.0558	0.0180 0.0003 0.0102
	TFR3	L11	bard/lpm psid/gpm	0.0018	0.0016	0.0012	0.0011	0.0011	0.0010	0.0002
		L15	psid/gpm bard/lpm	0.0020	0.0017 0.0704 0.0013	0.0013	0.0012	0.0012	0.0011 0.0461 0.0008	0.0002
		L19	psid/gpm bard/lpm	0.0688	0.0580	0.0450	0.0403	0.0395	0.0380	0.0070 0.0001
		LJ4	bard/lpm	0.0007	0.0006	0.0200	0.0234	0.0228	0.00220	0.00040

 $^{1}$ Max flow rates and  $\Delta P$  factors assume  $\upsilon$  = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula on page 22 for viscosity change.

### **TFR Part Number Builder**

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TFR						-	-					
Series	Cor	nnection Length	Bypass	Indic	ator	Special Options	s Media	Seal				
Series	Seri 1 2 3	es 1.25" maximum in 1.5" maximum inle 2.5" maximum inle	let et et	Max 40 gp 60 gp 150 g	: Flow R om (151 lp om (227 lp gpm (568	ate om) <sup>1</sup> om) <sup>1</sup> Ipm) <sup>1</sup>						
Connection	TFR B16 B20 N16 S16 S20	1 1" BSPT (tapered) 1.25" BSPT (tapere 1" NPT 1" SAE 1.25" SAE	d)	TFR2 B24 F24 N24 S24	2 1.5" BSF 1.5" Coc 1.5" NP1 1.5" SAE	T (tapered) le 61 flange		TFR3 F40	2.5" Co	de 61 flang	ge	
Element Length <sup>2</sup>	TFR 6 8 11	1 6" (15 cm) nomina 8" (20 cm) nomina 11" (28 cm) nomin	l I al	TFR2 8 11 18 27 39	2 8" (20 cr 11" (28 d 18" (46 d 27" (69 d 39" (99 d	n) nominal cm) nominal cm) nominal cm) nominal cm) nominal		TFR3 11 15 19 34	11" (28 15" (38 19" (48 34" (86	cm) nomir cm) nomir cm) nomir cm) nomir	nal nal nal) nal	
Bypass	<b>2</b> <sup>3</sup> <b>3</b> <sup>4</sup>	Integrated bypass Integrated bypass	- 25 psid (1.7 - 50 psid (3.4	bar) bar)								
Pressure Indicator	DX E G X	Electric pressure s Electric switch wit Visual pressure ga No indicator (port	witch (DIN con n flying leads ( uge plugged)	nnectio (3-wire	on) connect	ion)						
Special Options	R <sup>5</sup> W	Exclude diffuser tu Reservoir weld fla	pe nge									
Media Selection	G8 [ 1M 3M 6M 10M 16M 25M	$\begin{array}{l} \text{Dualglass} \\ \beta_{2.5} \geq 1000, \beta_{1} \geq \\ \beta_{5} \geq 1000, \beta_{3} \geq 2 \\ \beta_{7} \geq 1000, \beta_{3} \geq 2 \\ \beta_{7} \geq 1000, \beta_{6} \geq 2 \\ \beta_{12} \geq 1000, \beta_{12} \\ \beta_{17} \geq 1000, \beta_{17} \\ \beta_{22} \geq 1000, \beta_{25} \end{array}$	≥ 200 200 ≥ 200 ≥ 200 ≥ 200 ≥ 200	G8 C 3A 6A 10A 25A	$\begin{array}{l} \beta \\ \beta \\ \beta \\ \beta \\ \beta \\ \gamma \\ c \\ 1 \\ \beta \\ \gamma \\ c \\ 1 \\ 2 \\ c \\ c$	s + water re $000, \beta3 ≥ 200$ $000, \beta6 ≥ 200$ $1000, \beta12 ≥ 2$ $1000, \beta25 ≥ 2$	moval 00 00	Stain 25W 40W 74W 149W	<b>less wi</b> n 25μ nor 40μ nor 74μ nor 149μ no	re mesh minal minal minal ominal		
Seals	B V E-WS	Nitrile (Buna) Fluorocarbon EPR seals + stainle	ss steel suppo	ort me	sh							

<sup>&</sup>lt;sup>1</sup>Maximum recommended flow rate based on velocity through port and internal flow path. Consult sizing guidelines or consult factory for sizing based on flow rate, viscosity, temperature, filter media selection. <sup>2</sup>Improper length selection could result in reservoir foaming. Consider diffuser and element length and anticipated reservoir



fluid level when sizing. To protect against foaming, using longer lengths is recommended. <sup>3</sup>Standard Bypass Rating. Consult Hy-Pro for alternate valve setting. <sup>4</sup>When selected, add "-50" to end of replacement element part number.

<sup>&</sup>lt;sup>5</sup>Excluding diffuser tube can result in reservoir foaming in high flow density applications.

### **LF(M)** High Viscosity Filter Assemblies

Low pressure filter assemblies optimized for high flow hydraulic, high viscosity lube and heavily contaminated fuel applications.

#### Max Operating Pressure: 150 psi (10 bar) Available options up to 1000 psi (68.9 bar)



hyprofiltration.com/LF







#### Filtration starts with the filter.

The oversized coreless filter element in every LF delivers lower ISO Codes over a long element lifespan to ensure low disposal impact, simultaneously reducing your environmental footprint and your bottom line. To top it off, select elements come standard with an integral zero-leak bypass so with every filter change you get a new bypass along with peace of mind.



#### Element configuration & media options.

With media options down to  $\beta 0.9_{[C]} > 1000$ , insoluble varnish removal and water absorbing options, you get the perfect element for your application, every time. Element configurations include Hy-Pro HP106 and HP107 coreless style elements with integral, zero-leak bypass valves. For those plants using 8314 style industry standard elements, the HP8314 offers an improved bypass valve design.



#### Built for industrial use.

Constructed from heavy duty carbon steel (standard) or the optional 304 or 316 stainless steel, the LF filter housings are designed to excel in even the toughest industrial conditions. Multiround units go even further to provide increased capacity whether you're operating with incredibly high viscosity oils, extreme flow rates or need extended service intervals.



#### Setting the new standard.

Sampling and condition monitoring are no longer optional, they're a necessity. That's why every LF comes standard with sample ports and green to red true  $\Delta P$  gages that indicate exact element condition at all times. With access to accurate system cleanliness conditions, you'll know exactly how well your filtration is performing.

#### Minimize the mess.

Top loading filter housings minimize the mess from element services and changes. And with the easy open swing bolt lid design, you'll be back to filtering your fluids without having to search for all those lost parts.





#### Seamlessly integrated into your systems.

Multiple connection options and port customization provide the flexibility to integrate LF directly into existing re-circulating or auxiliary side loop and dispensing lines to improve fluid cleanliness and optimize existing assets. Get filtration exactly where you need it without extra expense of installing new plumbing and electrical.



### LF Installation Drawings





## LFM Installation Drawings



Series	Number of Elements	Port Size	Vessel Diameter	А	В	С	D	E	F	G	Weight
LFM	3	2	16.0 in	27.1 in	13.0 in	14.1 in	16.8 in	26.0 in	78.5 in	37.0 in	465.0 lb
			40.6 cm	68.8 cm	33.0 cm	35.8 cm	42.7 cm	66.0 cm	199.4 cm	94.0 cm	210.9 kg
		3	16.0 in	27.1 in	13.0 in	14.1 in	16.8 in	26.0 in	78.5 in	37.0 in	465.0 lb
			40.6 cm	68.8 cm	33.0 cm	35.8 cm	42.7 cm	66.0 cm	199.4 cm	94.0 cm	210.9 kg
		4	16.0 in	27.1 in	13.0 in	14.1 in	16.8 in	26.0 in	78.5 in	37.0 in	65.0 lb
			40.6 cm	68.8 cm	33.0 cm	35.8 cm	42.7 cm	66.0 cm	199.4 cm	94.0 cm	29.5 kg
	4	2	18.0 in	29.8 in	13.0 in	16.1 in	17.5 in	26.0 in	83.0 in	37.0 in	550.0 lb
			45.7 cm	75.7 cm	33.0 cm	40.9 cm	44.5 cm	66.0 cm	210.8 cm	94.0 cm	249.5 kg
		3	18.0 in	29.8 in	13.0 in	16.1 in	17.5 in	26.0 in	83.0 in	37.0 in	550.0 lb
			45.7 cm	75.7 cm	33.0 cm	40.9 cm	44.5 cm	66.0 cm	210.8 cm	94.0 cm	249.5 kg
		4	18.0 in	29.8 in	13.0 in	16.1 in	17.5 in	26.0 in	83.0 in	37.0 in	550.0 lb
			45.7 cm	75.7 cm	33.0 cm	40.9 cm	44.5 cm	66.0 cm	210.8 cm	94.0 cm	249.5 kg
	9	3	24.0 in	32.3 in	13.0 in	23.5 in	23.7 in	37.3 in	89.0 in	37.0 in	645.0 lb
			61.0 cm	82.0 cm	33.0 cm	59.7 cm	60.2 cm	94.7 cm	226.1 cm	94.0 cm	292.6 kg
		4	24.0 in	32.3 in	13.0 in	23.5 in	23.7 in	37.3 in	89.0 in	37.0 in	645.0 lb
			61.0 cm	82.0 cm	33.0 cm	59.7 cm	60.2 cm	94.7 cm	226.1 cm	94.0 cm	292.6 kg
		6	24.0 in	32.3 in	13.0 in	23.5 in	23.7 in	37.3 in	89.0 in	37.0 in	645.0 lb
			61.0 cm	82.0 cm	33.0 cm	59.7 cm	60.2 cm	94.7 cm	226.1 cm	94.0 cm	292.6 kg

<sup>1</sup>Dimensions are approximations taken from base model and will vary according to options chosen and customer sizing requirements.

HY-PRO

## <sup>170</sup> LF(M) Specifications

Dimensions	See Instal	lation Draw	ings on pag	e 168-169 f	for model	specific	dimensior	IS.							
Operating Temperature	Fluid Ten 30°F to 22 (0°C to 10	l <b>uid Temperature</b> D°F to 225°F S°C to 105°C)						Ambient Temperature -4°F to 140°F (-20C to 60C)							
Operating Pressure	150 psi (1	0 bar) stanc	litional p	pressure ratings.											
Element Collapse Rating	<b>HP105</b> 150 psi (1	0.3 bar)	<b>H</b> 15	<b>P106</b> 50 psi (10.3	bar)		<b>HP107</b> 150 psi (1	0.3 bar)		<b>HP8314 (/</b> 150 psi (1	<b>All Codes)</b> 0.3 bar)	)			
Integral Bypass Setting	<b>HP106 – in</b> <b>element l</b> 25 psid (1	<b>ntegral</b> bypass .7 bard)	<b>H</b> <b>e</b> l 50	<b>P107 – Inte</b> <b>ement byp</b> ) psid (3.4 k	<b>gral</b> bass bard)		<b>HP8314 (</b> <b>Integral </b> 25 psid (1	<b>Code 82) –</b> nousing by .7 bard)	pass	HP8314 ( Integral I 50 psid (3	<b>Code 83) -</b> nousing b .4 bard)	- ypass			
Materials of Construction	Housing Carbon st Optional	eel with ind 304/316 sta	ustrial coat inless steel	ing											
Media Description	<b>M</b> G8 Dualgl generatio performa all hydrau fluids. βx <sub>t</sub>	ass, our late n of DFE rat nce glass m Ilic & lubrica c1 ≥ 1000 (β)	A est G red, high po edia for co ation so < ≥ 200)	8 Dualglass erformance ombined wi crim. $βx_{[c]} \ge$	s high e media th water r 1000 (βx	removal ≥ 200)	<b>W</b> Stainless media βx <sub>I</sub>	steel wire r <sub>cj</sub> ≥ 2 (βx ≥	nesh 2)	<b>VTM</b> $\beta 0.9_{[C]} \ge 1$ insoluble by-produce removal r	000 partic oxidation ct and wat nedia	ulate, er			
Replacement Elements	<b>To dete</b> <b>Element</b> 5 6 7	rmine rep Type Code	Filter E Filter E HP105L HP106L HP107L	t element Pa Element Pa [Length Co [Length Co [Length Co	ts, use o art Numb de] – [Mea de] – [Mea de] – [Mea	corresp er dia Select dia Select dia Select	tion Code][ tion Code][ tion Code][	Codes fro [Seal Code] [Seal Code] [Seal Code]	om your	ur assembly part number: Example HP105L36-6AB HP106L18-10MV HP107L36-VTM710V					
	8X 82 85		HP8314 HP8314 HP8314	IL[Length C IL[Length C IL[Length C	ode] – [Me ode] – [Me ode] – [Me	edia Sele edia Sele edia Sele	ction Code ction Code ction Code	][Seal Code ][Seal Code ][Seal Code	2] 2] 2]	HP8314L3 HP8314L1 HP8314L3	89–25WV 6–12MB 89–16ME–1	WS			
Fluid Compatibility	Petroleun contact fa skydrol flu	n and miner actory for co uid (S9) com	al based flu mpatibility patibility se	iids, #2 dies with fluoro lect fluid co	sel fuels (s carbon se ompatibili	standarc al option ty from s	l). For spec n. For phos special opt	tified synth sphate este tions.	etics er (P9) or						
Filter Sizing <sup>1</sup>	Filter asse filter asse applicatio	embly clean mbly bypas ons with extr	element ΔP s setting. Se reme cold st	after actua ee page 22 f tart conditio	al viscosity for filter a on contac	y correct issembly t Hy-Pro	ion should sizing gui for sizing	l not excee delines & e recommen	d 10% of xamples. dations.	For					
∆P Factors <sup>1</sup>	Model	Length	Units	Media VTM	05M	1M	ЗM	6M	10M	16M	25M	**W			
	LF	16/18 36/39	psid/gpm bard/lpm psid/gpm bard/lpm	0.0628 0.0011 0.0440	0.0473 0.0009 0.0331	0.0463	3 0.0391 3 0.0007 4 0.0273	0.0303 0.0006 0.0212	0.0271 0.0005 0.0190	0.0266 0.0005 0.0186	0.0256 0.0005 0.0179	0.0046 0.0001 0.0032 0.0001			
	LFM3	36/39	psid/gpm	0.0008	0.0000	0.000	0.0005	0.0004	0.0005	0.0003	0.00035	0.0029			
	LFM4	36/39	psid/gpm	0.0002	0.0002	0.000	7 0.0001	0.0001	0.0001	0.0001	0.0001	0.0025			
	Model	Length	Units	Media 1A	3A	6A	10.0001	16A	25A	0.0001	0.0001	0.00005			
	LF	16/18	psid/gpm bard/lpm	0.0514 0.0009	0.0434 0.0008	0.0336	5 0.0302 5 <b>0.0005</b>	0.0295	0.0284						
		36/39	psid/gpm	0.0360	0.0304	0.0235	5 0.0211	0.0207	0.0199						
	LFM3	36/39	psid/gpm	0.0007	0.0006	0.0004	+ 0.0004 5 0.0040	0.0004	0.0004						
		26/22	bard/lpm	0.0001	0.0001	0.0001	1 0.0001	0.0001	0.0001						
	LHVI4	36/39	bard/lpm	0.0060	0.0043	0.0040	0.0036 1 0.0001	0.0033	0.0029						

<sup>1</sup>Max flow rates and △P factors assume u = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula on page 22 for viscosity change.

### LF(M) Part Number Builder

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LF				_			-
Series	Cor	nnection Element Type I	Element Length ΔP	Indicator	Special Option	ns	Media Seal
Series	Nur omit M3 M4 M9 M14 M22 M38	nber of Elements 1 elements 4 elements 9 elements 14 elements 22 elements 38 elements	Max Fl 200 gpm 600 gpm 800 gpm 1800 gpm 2800 gpm 4400 gpm 7600 gpm	ow Rate 1 (757 lpm) <sup>1</sup> 1 (2271 lpm) <sup>1</sup> 1 (3028 lpm) <sup>1</sup> 1 (6814 lpm 1 (10,600 lpi 1 (16,656 lpi 1 (28,769 lpi	) <sup>1</sup> m) <sup>1</sup> m) <sup>1</sup>		
Connection	A2 A3 A4 A6 A8 A10 D2 D3 D4 D6	2" ANSI flange - 150# 3" ANSI flange - 150# 4" ANSI flange - 150# 6" ANSI flange - 150# 8" ANSI flange - 150# 10" ANSI flange - 150# DN50 DIN flange - PN DN80 DIN flange - PN DN100 DIN flange - PN DN150 DIN flange - PN	standard standard standard standard standard 16 standard 16 standard V16 standard V16 standard		D D F G G S N N N S Z	8 2 <sup>1</sup> 3 <sup>1</sup> 2 3  2  3  4 2 <sup>2</sup>	DN200 DIN flange – PN16 standard DN250 DIN flange – PN16 standard 2" Code 61 flange 3" Code 61 flange 2" G thread (BSPP) 3" G thread (BSPP) 2" NPT 3" NPT 4" NPT 2" SAE threaded O-ring boss
Element Type	5 6 7	HP105 – no bypass HP106 – 25 psid (1.7 b HP107 – 50 psid (3.4 b	ard) integral ele ard) integral ele	ement bypas ement bypas	8) 55 82 55 85	X 2 5	HP8314 – no bypass HP8314 – 25 psid (1.7 bard) integral housing bypass HP8314 – 50 psid (3.4 bard) integral housing bypass
Element Length	18 <sup>3</sup> 36 <sup>3</sup>	L18 single length filter L36 single length filter	housing and co housing and co	oreless elem oreless elem	ent <b>16</b> ent <b>39</b>	6 <sup>3</sup> 9 <sup>3</sup>	L16 single length filter housing and coreless element L39 single length filter housing and coreless element
ΔP Indicator	D E F G	22 psid visual gauge + 22 psid visual gauge 45 psid visual gauge + 45 psid visual gauge	electric switch electric switch		H J P X		65 psid visual gauge + electric switch 65 psid visual gauge (elements 5 or 8* only) 2 pressure gages (industrial liquid filled) None (ports plugged)
Special Options	omit F G P9 <sup>4</sup> S1 <sup>5</sup> S2 <sup>5</sup> S3 <sup>5</sup>	t 150 psi (10.3 bar) max Filter element ΔP gaug Spill retention pan with 1 Phosphate ester fluid 150 psi (10.3 bar) max o 250 psi (17.2 bar) max o 450 psi (31.0 bar) max o	operating pres e with tattle tal ork guides (indu compatibility m oper. pressure, 3 oper. pressure, 3 oper. pressure, 3	sure, carbor le follower no strial coated s nodification 804 stainless s 804 stainless s 804 stainless s	n steel S4 eedle S9 steel) U steel X steel X steel Y steel Z	4⁵ 9 <sup>6</sup> 1 /	1000 psi (68.9 bar) max oper. pressure, 304 stainless steel Skydrol fluid compatibility modification U Code (ASME U code certified) Automatic air bleed valve 250 psi (17.2 bar) max oper. pressure, carbon steel 450 psi (31.0 bar) max oper. pressure, carbon steel 1000 psi (68.9 bar) max oper. pressure, carbon steel
Media Selection	G8 [ 05M 1M 3M 6M 10M 16M 25M VTM	$\begin{array}{l} \text{Dualglass} \\ \beta_{0.9_{tCl}} \geq 1000, \ \beta_{1} \geq 200 \\ \beta_{2.5_{tCl}} \geq 1000, \ \beta_{1} \geq 200 \\ \beta_{5_{tCl}} \geq 1000, \ \beta_{3} \geq 200 \\ \beta_{7_{tCl}} \geq 1000, \ \beta_{3} \geq 200 \\ \beta_{7_{tCl}} \geq 1000, \ \beta_{6} \geq 200 \\ \beta_{7_{tCl}} \geq 1000, \ \beta_{12} \geq 20 \\ \beta_{17_{tCl}} \geq 1000, \ \beta_{12} \geq 20 \\ \beta_{17_{tCl}} \geq 1000, \ \beta_{12} \geq 20 \\ \beta_{22_{tCl}} \geq 1000, \ \beta_{25} \geq 20 \\ \end{array}$	G8 1A 3A 6A 10A <sup>2</sup> 0 25A	Dualglass + $\beta 2.5_{[C]} \ge 10$ $\beta 5_{[C]} \ge 100$ $\beta 7_{[C]} \ge 100$ $\gamma \beta 12_{[C]} \ge 100$ $\beta 22_{[C]} \ge 10$	F water re 200, β1 ≥ 2 0, β3 ≥ 200 0, β6 ≥ 200 00, β12 ≥ 2 00, β25 ≥ 2 .	em 200 0 200 200	noval Stainless wire mesh 25W 25μ nominal 40W 40μ nominal 74W 74μ nominal 149W 149μ nominal
Seals	VTM B V E-WS	יםסי גוויסי געסיק <sub>נכן</sub> > 1000 partic Nitrile (Buna) Fluorocarbon EPR seals + stainless s	teel support me	e oxidation b esh	by-product	t ar	nd water removal media

<sup>1</sup>Maximum recommended flow rate based on velocity through port and internal flow path. Consult sizing guidelines or consult factory for sizing based on flow rate, viscosity, temperature, filter media selection. <sup>2</sup>Code 61 flange and SAE connection options include all other ports with SAE connections. When selected, no NPT connections are present in the assembly. <sup>3</sup>Compatibility will be based on Element Type selection. For elements HP105, HP106, and HP107, use Length Code 18 or 36. Length Codes 16 and 39 only compatible with HP8314 element.

<sup>4</sup>When selected, must be paired with Seal option "V." Contact factory for more information or assistance in fluid compatibility.

<sup>5</sup>Lid closure hardware is plated carbon steel. <sup>6</sup>When selected, must be paired with Seal option "E-WS." Contact factory for more information or assistance in fluid compatibility. <sup>7</sup>For elements HP8314, use 12M or 12A for respective media code in place of 10M or 10A.

<sup>©</sup>Only available on HP107 series elements. Max recommended flow rate 16 gpm (60 lpm) for HP107L36-VTM710\* elements and 8 gpm (30 lpm) for HP107L18-VTM710\* elements.

hyprofiltration.com/LF



### **LFW** Wall Mounted Filter Assemblies

A compact, dedicated off-line contamination solution ideal for small reservoirs, gearboxes and diesel engine crankcase conditioning. Coming in at a whopping 0 ft<sup>2</sup> of floor space, the LFW is designed to get your filtration off the ground and positioned conveniently for you, whether you're polishing off that high viscosity gearbox oil or just want to add a little more protection for your critical components from heavy contaminants. And with Hy-Pro filter elements inside, the possibilities are endless for what you can do with the LFW.

#### Max Operating Pressure: 150 psi (10 bar) Available options up to 250 psi (17.2 bar)



C

#### Elements that go beyond industry standard.

DFE rated advanced media technologies provide the highest level of particulate capture and retention capabilities so your equipment operates unimpeded by contamination. With media options down to  $\beta 0.9_{CC} > 1000 + water$  absorption and integral element bypass valves, you get the perfect element for your application, every time.





#### User friendly on a whole new scale.

With everything you need together in one tiny little package, LFW service and operation couldn't be easier. From the top loading housing to the sample ports, the LFW is built to match powerful filtration with your convenience. And with the easy-open swing bolt enclosure, worrying about lost parts during service becomes a thing of the past.

#### On board fuel filter upgrade.

New diesel engine fuel cleanliness requirements for high pressure injectors call for higher efficiency filters, rendering your existing on-board filters too small. The LFW element is sized just right and with available water absorbing media options, you'll get clean, dry fuel and the knowledge that your diesel engines are running more efficiently than ever.

#### LFW Installation Drawing





# LFW Specifications

Dimensions	See Installation Drawings on	page 173 for model specific	c dimensions.	
Operating Pressure	150 psi (10 bar) maximum sta	andard. For 250 psi (17.2 ba	ar) select Special option "X."	
Operating Temperature	Fluid Temperature 30°F to 225°F (0°C to 105°C)		Ambient Temperature -4°F to 140°F (-20C to 60C)	
Materials of Construction	<b>Vessel</b> Carbon steel with industrial c	oating	Element Bypass Valve Nickel plated steel	
Media Description	M G8 Dualglass, our latest generation of DFE rated, high performance glass media for all hydraulic & lubrication fluids. βx <sub>tcl</sub> ≥ 1000 (βx ≥ 200)	<b>A</b> G8 Dualglass high performance media combined with water removal scrim. $βx_{[C]} ≥ 1000 (βx ≥ 200)$	<b>VTM</b> β0.9 <sub>[C]</sub> ≥ 1000 particulate, insoluble oxidation by-product and water removal media	<b>W</b> Stainless steel wire mesh media $βx_{[C]} ≥ 2$ (βx ≥ 2)
Replacement Elements	<b>To determine replacem</b> <b>Element Type Code</b> 6 7	ent elements, use con Filter Element Part Nun HP106L10 – [Media Select HP107L10 – [Media Select	rresponding codes from yo nber tion Code] [Seal Code] tion Code] [Seal Code]	<b>Example</b> HP106L10-10AB HP107L10-3MV
Fluid Compatibility	Petroleum and mineral based contact factory for compatibil skydrol fluid (S9) compatibilit	d fluids, #2 diesel fuels (sta lity with fluorocarbon seal y select fluid compatibility t	ndard). For specified synthetics option. For phosphate ester (P9) ( from special options.	or
Filter Sizing <sup>1</sup>	Filter assembly clean element filter assembly bypass setting applications with extreme col	t ΔP after actual viscosity co g. See page 22 for filter asso d start condition contact H	prrection should not exceed 10% embly sizing guidelines & example y-Pro for sizing recommendation	of es. For s.

∆P Factors <sup>1</sup>	Units	Media VTM	1M	3M	6M	10M	16M	25M	**W
	psid/gpm	0.1700	0.1670	0.0980	0.0600	0.0390	0.0250	0.0200	0.0160
	bard/lpm	0.0031	0.0030	0.0018	0.0011	0.0007	0.0005	0.0004	0.0003

<sup>1</sup>Max flow rates and ΔP factors assume u = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula on page 22 for viscosity change.



### LFW Part Number Builder



Connection	Por G12 J12 N12	t Option ¾" G thread (BSPP) ¾" male JIC with 37° flare ¾" FNPT	Max Flow Rate 25 gpm (95 lpm)' 25 gpm (95 lpm)' 25 gpm (95 lpm)'		
Element Type	6 7	HP106 coreless element, 25 HP107 coreless element, 50	5 psid (1.7 bard) integral el 0 psid (3.4 bard) integral el	ement ement	bypass bypass
ΔP Indicator	D E F G P	22 psid visual gauge + elect 22 psid visual gauge 45 psid visual gauge + elect 45 psid visual gauge 2 pressure gages (industria	tric switch tric switch I liquid filled)		
Special Options	F P9 <sup>2</sup> S2 S9 <sup>3</sup> W X	Filter element ∆P gauge wit Phosphate ester fluid comp 51" (130 cm) Mounting star Skydrol fluid compatibility r Automatic air bleed valve 250 psi (17.2 bar) max oper	th tattle tale follower needl patibility modification nd – ships fully assembled modification r. pressure	e	
Media Selection	G8 05M 1M 3M 6M 10M 16M 25M	$\begin{array}{l} \textbf{Dualglass} \\ \beta 0.9_{[C]} \geq 1000, \ \beta 1 \geq 200 \\ \beta 2.5_{[C]} \geq 1000, \ \beta 1 \geq 200 \\ \beta 5_{[C]} \geq 1000, \ \beta 3 \geq 200 \\ \beta 7_{[C]} \geq 1000, \ \beta 6 \geq 200 \\ \beta 12_{[C]} \geq 1000, \ \beta 12 \geq 200 \\ \beta 17_{[C]} \geq 1000, \ \beta 17 \geq 200 \\ \beta 22_{[C]} \geq 1000, \ \beta 25 \geq 200 \end{array}$		G8 0 3A 6A 10A 25A	Dualglass + water removal $\beta 5_{[C]} \ge 1000, \beta 3 \ge 200$ $\beta 7_{[C]} \ge 1000, \beta 6 \ge 200$ $\beta 12_{[C]} \ge 1000, \beta 12 \ge 200$ $\beta 22_{[C]} \ge 1000, \beta 25 \ge 200$
	VTN VTM	<b>/</b> 710⁴β0.9 <sub>[C]</sub> ≥ 1000 particulate, by-product and water re	, insoluble oxidation moval media	Stain 25W 40W 74W 149W	h <mark>less wire mesh</mark> 25μ nominal 40μ nominal 74μ nominal 149μ nominal
Seals	B V E-WS	Nitrile (Buna) Fluorocarbon FPR seals + stainless steel s	support mesh		

<sup>1</sup>Maximum recommended flow rate based on velocity through port and internal flow path. Consult sizing guidelines or consult factory for sizing based on flow rate, viscosity, temperature, filter media selection. <sup>2</sup>When selected, must be paired with Seal option "V." Contact factory for more information or assistance in fluid compatibility. <sup>3</sup>When selected, must be paired with Seal option "E-WS." Contact factory for more information or assistance in fluid compatibility. <sup>6</sup>Only available on HP107 series elements. Max recommended flow rate 4 gpm (15 lpm) for HP107L10-VTM710\* elements.



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### **F8** Low Pressure, High Flow Filter Assembly

Ideal for high viscosity lubricating fluids, high flow hydraulic, and heavily contaminated fuel applications. Drop-in mounting interchange for common pulp and paper industry 8300/8310/8314 filter assemblies.

#### Max Operating Pressure: 500 psi (34.5 bar)



hyprofiltration.com/F8





#### Filtration starts with the filter.

Advanced DFE rated filter elements deliver lower operating ISO Codes with high efficiency particulate removal and retention efficiency. With a range of media options down to  $\beta 2.5_{cl} > 1000 +$  water absorbing options, you get the perfect element for your application, every time.





#### Minimize the mess.

The top loading housing on F8 filter assemblies provide easy and clean access when servicing or changing the element. Accessing the element is as simple as removing the housing cover, meaning you have no heavy bowl to lift and can get back in operation more quickly than ever.

#### Setting the new (industry) standard.

Designed as a drop-in replacement for industry standard 8300 series filter housings, only the F8 from Hy-Pro gives you the flexibility to choose from numerous DFE rated filter arrangements. Even upgrade your existing 83\*\* series filter elements with the HP107 series to get a new integral bypass valve with every filter.



#### **F8** Installation Drawing F8 Mounting Bracket (Not to scale) 7.31 in [185.7 mm] Torque: Hand Ø 7.51 in [190.8 mm] tighten to seal Vent Port 16 UNF Thread (SAE-8) 7.25 in (L36/39) 47.48 in [1205.9 mm] [184.2 mm] 9.66 in [245.4 mm] 4.13 in [104.8 mm] Ø 5.66 in 5.00 in 143.7 mm] 8.00 in [127.0 mm] [203.2 mm] 45° 6.31 (L16) 25.48 in [647.3 mm] **Outlet Port** [160.1 mm] 2" / 2-1/2" 1/2-13 UNC - 2B Code 61 Flange 6.03 in ΔP Indicator Port Ø 0.38 in (Inlet Port) [15.3 mm] [9.7 mm] • 0 7.60 in 0.51 in [193.0 mm] [13.0 mm] 1.50 in 8.25 in 2.44 in HY-PR( [62.0 mm] [38.1 mm] [209.6 mm]

## **F8** Specifications

Dimensions	See Installation Drawings on page 177 for model specific dimensions.											
Operating Temperature	<b>Fluid Temp</b> 30°F to 225 (0°C to 105	oerature °F °C)				Ambient Temp -4°F to 140°F (-20C to 60C)	perature					
Operating Pressure	500 psi (34.	5 bar) max										
∆P Indicator Trigger	15 psi (1 ba 35 psi (2.4 l	r): 25 psid byp oar): 50 psid by	ass /pass + non	bypass								
Materials of Construction	Head/Lid Cast alumir	num (anodized	)			<b>Bowl</b> Industrial coate	ed steel					
Media Description	<b>M</b> G8 Dualgla: generation performan- all hydrauli fluids. βx <sub>[C]</sub>	MAWVTMG8 Dualglass, our latest generation of DFE rated, high performance glass media for all hydraulic & lubrication fluids. $\beta x_{ICI} \ge 1000$ ( $\beta x \ge 200$ )Stainless steel wire mesh media $\beta x_{ICI} \ge 2$ ( $\beta x \ge 2$ ) $\beta 0.9_{ICI} \ge 1000$ part insoluble oxidatio by-product and w removal media										
Replacement Elements	<b>To detern</b> <b>Element Ty</b> 5 6 7	mine replace /pe Code	ement ele Filter HP105 HP106 HP107	Ements, use Element Part L[Length Code] L[Length Code]	COrresp Number ] – [Media ] – [Media ] – [Media	Selection Code][ Selection Code][ Selection Code][ Selection Code]	es from you Seal Code] Seal Code] Seal Code]	r assembly p Example HP105L36-6/ HP106L16-10 HP107L36-11	Dart number: AB DMV MV			
	32 35		HP831 HP831	0L[Length Code 0L[Length Code	e] – [Medi e] – [Medi	a Selection Code a Selection Code	][Seal Code] ][Seal Code]	HP8310L16-2 HP8310L39-3	25AV 3MB			
	8X 82 85		HP831 HP831 HP831	4L[Length Code 4L[Length Code 4L[Length Code	e] – [Medi e] – [Medi e] – [Medi	a Selection Code a Selection Code a Selection Code	][Seal Code] ][Seal Code] ][Seal Code]	HP8314L39-2 HP8314L16-1 HP8314L39-1	25WV I 2MB I 6ME–WS			
Fluid Compatibility	Petroleum and other s	and mineral ba pecified synth	ased fluids, etic fluids u	#2 diesel fuels se fluorocarbo	(standaro n seal opt	d). For polyol est tion or contact fa	er, phosphate actory.	ester,				
Filter Sizing <sup>1</sup>	Filter assen filter assen application	lter assembly clean element ΔP after actual viscosity correction should not exceed 10% of Iter assembly bypass setting. See page 22 for filter assembly sizing guidelines & examples. For oplications with extreme cold start condition contact Hy-Pro for sizing recommendations.										
∆P Factors <sup>1</sup>	Length	Units	Media									
			1M	3M	6M	10M	16M	25M	**W			
	16	psid/gpm bard/lpm	0.0463	0.0391	0.0303	3 0.0271	0.0266	0.0256	0.0046			
	36/39	psid/gpm	0.0324	0.007	0.0212	2 0.0190	0.0005	0.0005	0.0032			
		bard/lpm	0.0006	0.0005	0.0004	4 0.0003	0.0003	0.0003	0.0001			

<sup>1</sup>Max flow rates and △P factors assume u = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula on page 22 for viscosity change.



F8 P	)9	irt Nun	h	oer	E	Builder	79
F8	Element	Type Element Length Indicator	Special	Options Media	Se	Seal	
Connection	Port F32 F40	t <mark>Option</mark> 2" Code 61 flange 2.5" Code 61 flange	Max 300 g 300 g	Flow Rate pm (1,136 lpm) <sup>1</sup> pm (1,136 lpm) <sup>1</sup>			
Element Type	5 6 7	HP105 – no bypass HP106 – 25 psid (1.7 bard) integ HP107 – 50 psid (3.4 bard) integ	gral ele gral ele	ment bypass ment bypass	32 35 8X 82 85	<ul> <li>HP8310 - 25 psid (1.7 bard) integral housing bypa</li> <li>HP8310 - 50 psid (3.4 bard) integral housing bypa</li> <li>HP8314 - no bypass</li> <li>HP8314 - 25 psid (1.7 bard) integral housing bypa</li> <li>HP8314 - 50 psid (3.4 bard) integral housing bypa</li> </ul>	SS SS SS SS
Element Length	16 36 <sup>2</sup> 39 <sup>2</sup>	L16 single length filter housing L36 single length filter housing L39 single length filter housing	and co and co and co	reless element reless element reless element			
ΔP Indicator	D V X	Visual with electric switch (DIN o Visual/Mechanical No indicator (port plugged)	connec	tion)			
Special Options	M1	Mounting stand for base moun	t applic	cations			
Media Selection	G8 [ 1M 3M 6M 10M 16M 25M	Dualglass $β2.5_{[C]} ≥ 1000, β1 ≥ 200$ $β5_{[C]} ≥ 1000, β3 ≥ 200$ $β7_{[C]} ≥ 1000, β6 ≥ 200$ $β12_{[C]} ≥ 1000, β12 ≥ 200$ $β17_{[C]} ≥ 1000, β17 ≥ 200$ $β22_{[C]} ≥ 1000, β25 ≥ 200$	G8 D 3A 6A 10A <sup>3</sup> 25A	Dualglass + wate $β5_{[C]} \ge 1000, β3 \ge$ $β7_{[C]} \ge 1000, β6 \ge$ $β12_{[C]} \ge 1000, β12$ $β22_{[C]} \ge 1000, β22$	r ren 200 200 2 ≥ 20 5 ≥ 20	emovalStainless wire mesh25W25μ nominal40W40μ nominal20074W74μ nominal200149W	
Seals	B V E-WS	Nitrile (Buna) Fluorocarbon EPR seals + stainless steel supp	ort me	sh			



### **S75-76** Low Pressure Spin-On Filter Assemblies

Hy-Pro low pressure S series filters are designed for installation on the return line to remove contaminant ingested or generated by the system. Functions include off-line filtration (kidney loop or filter cart) and some suction applications.

Ideal for automotive manufacturing and assembly machine tools, mobile applications such as waste haulers and transit, filter carts and filter panels, and power unit return line/suction.

#### Max Operating Pressure: 200 psi (13.8 bar)



#### Media matters.

DFE rated filter elements stay true to efficiency ratings and ensure the highest level of particulate capture and retention capabilities. And with media options down to  $\beta 2.5_{[C]} \ge 1000$  or  $\beta 5_{[C]} \ge 1000$  + water removal, you can be sure contamination stays exactly where you want it: out of your fluid.



### Multiple configurations.

B12= 200

B12[c]= 1000

HY-PR

ISO 4572)

(SO 16889)

With a variety of connection types and sizes, mounting options, pressure indicators, media options and sample ports, there is a Spin-On assembly to meet the needs for almost any application.

FILTER ELEMENT

HP75L8-12AB

WATER REMOVAL

ANDERSON, IN

317-849-3535

#### Double duty.

S75D assemblies pack double the punch using two Hy-Pro Spin-Ons in a parallel flow arrangement. Ideal for high flow or high viscosity applications, these assemblies offer unmatched filtration surface area in a compact size.



#### **S75 Installation Drawing**

#### S75D Installation Drawing

#### **S76 Installation Drawing**















### S75-76 Specifications

Dimensions	See Insta	See Installation Drawings on page 181 for model specific dimensions.									
Operating Temperature	<b>Fluid Ter</b> 30°F to 22 (0°C to 10	<b>mperature</b> 25°F 05°C)				<b>Ambier</b> -4°F to (-20C to	<b>nt Temperat</b> 140°F 60C)	ure			
Operating Pressure	200 psi (1	3.8 bar) ma	Х								
∆P Indicator Trigger	22 psi (1.	5 bar) or 44	psi (3.0 bar)								
Element Collapse	100 psid	(6.9 bard) m	ах								
Materials of Construction	<b>Head</b> Cast alum	ninum	<b>Ca</b> Sta	i <b>n</b> amped ste	eel	<b>Elemen</b> Nylon	nt Bypass Va	lve	<b>Element End</b> Zinc or Tin coa carbon steel	<b>Caps</b> ted	
Media Description	<b>M</b> G8 Dualg of DFE ra media foi fluids. βx	lass, our lato ted, high pe r all hydraul <sub>[□</sub> ≥ 1000 (β)	est generatic rformance g ic & lubricati x ≥ 200)	A Galass m on sc	8 Dualglass hig edia combine rim. βx <sub>[C]</sub> ≥ 100	gh performa d with water 00 (βx ≥ 200)	nce removal )	<b>W</b> Stainless media βx	steel wire mesh <sub>(C]</sub> ≥ 2 (βx ≥ 2)	1	
Replacement Elements	To dete Series S75 S75D S76	ermine rep	Dlacement Fil HF HF HF	e <b>lemer</b> ter Eleme 75L[Leng 75L[Leng 76L[Leng	ts, use corr <b>Ent Part Num</b> th Code] – [Me th Code] – [Me th Code] – [Me	<b>espondin</b> <b>ber</b> dia Selection dia Selection dia Selection	g codes fro Code][Seal ( Code][Seal ( Code][Seal (	om your Iode] Iode] Iode]	assembly pa Example HP75L4-25MV HP75L8-12AB HP76L8-3MB	art number:	
Fluid Compatibility	Petroleur other spe	etroleum and mineral based fluids (standard). For polyol ester, phosphate ester, and her specified synthetic fluids use fluorocarbon seal option or contact factory.									
Filter Sizing <sup>1</sup>	Filter asso filter asso applicatio	embly clean embly bypas ons with exti	element ΔP s setting. See reme cold sta	after actu e page 22 art conditi	al viscosity cor for filter asser on contact Hy	rrection shou mbly sizing g -Pro for sizir	uld not excee guidelines & e ng recommer	ed 10% of examples. ndations.	For		
ΔP Factors <sup>1</sup>	Series	Length	Units	Media	204	CNA	4214	4614	2514	++\*/	
	S75	L4	psid/gpm bard/lpm	0.332 0.006	0.280 0.005	0.217 0.004	0.195 0.004	0.190 0.003	0.183 0.003	0.033 0.001	
		L8	psid/gpm	0.183	0.155	0.120	0.107	0.105	0.101	0.018	
	S75D	L4	psid/gpm	0.166	0.003	0.108	0.002	0.002	0.002	0.017	
			bard/lpm	0.003	0.003	0.002	0.002	0.002	0.002	0.000	
		Lõ	bard/lpm	0.092	0.0077	0.000	0.054	0.053	0.001	0.009	
	S76	L4	psid/gpm	0.573	0.484	0.375	0.336	0.329	0.317	0.057	
		1.8	bard/lpm	0.010	0.009	0.007	0.006	0.006	0.006	0.001	
		LO	bard/lpm	0.006	0.005	0.004	0.003	0.003	0.003	0.001	
	Series	Length	Units	Media	)				10.5		
	\$75	14	nsid/onm	<b>3A</b>	<b>6A</b>	0.216	0 204	3C	0 292	<b>25C</b>	
	575	LT	bard/lpm	0.006	0.004	0.004	0.004	0.008	0.005	0.005	
		L8	psid/gpm	0.172	0.133	0.119	0.113	0.247	0.161	0.157	
	C75D		bard/lpm	0.003	0.002	0.002	0.002	0.005	0.003	0.003	
	UC16	L4	bard/lpm	0.003	0.002	0.002	0.102	0.224	0.140	0.003	
		L8	psid/gpm	0.086	0.067	0.060	0.056	0.124	0.081	0.078	
	676		bard/lpm	0.002	0.001	0.001	0.001	0.002	0.001	0.001	
	5/6	L4	psia/gpm bard/lpm	0.533	0.413	0.370	0.349	0.774	0.505	0.491	
		L8	psid/gpm	0.288	0.223	0.200	0.188	0.418	0.273	0.265	
			bard/lpm	0.005	0.004	0.004	0.003	0.008	0.005	0.005	

<sup>1</sup>Max flow rates and ΔP factors assume u = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula on page 22 for viscosity change.

### S75-76 Part Number Builder

c			
Series C	Connection	Lement Length Bypass     ΔP Indicator     Special Options     Media     Seal	
Series	Seri 75 75D 76	esMax Flow RateHP75 Series Filter Element, single head50 gpm (189 lpm)1HP75 Series Filter Elements, double head100 gpm (379 lpm)1HP76 Series Filter Element, single head30 gpm (111 lpm)1	
Connection	S75 B20 N20 S20	S75D         S76           1¼" BSP         F32         2" Code 61 flange         B12         ¾" BSP           1¼" NPT         N24         1½" NPT         N12         ¾" NPT           1¼" SAE, 1%" - 12         S24         1½" SAE, 1%" - 12         N16         1" NPT           58         ½" SAE, 1½" SAE, 1½" SAE, 1½" - 12         S8         ½" SAE, 1½" - 16	
Element Length	4 8	4" (10 cm) nominal length filter element 8" (20 cm) nominal length filter element	
Bypass	02 03 1 2 3 X	3 psid (0.2 bard) 5 psid (0.3 bard) 15 psid (1.0 bard) 25 psid (1.7 bard) 50 psid (3.4 bard) No bypass	
∆P Indicator	DX E G V <sup>2</sup> X	Electrical pressure switch (DIN Connector) Electrical pressure switch 3-Wire Visual pressure gauge Visual ΔP indicator (sliding green to red) No indicator (port plugged)	
Special Options	S	Oil sampling port on filter head	
Media Selection	G8 [ 1M 3M 6M 12M 16M 25M 40M	<b>Dualglass</b> $\beta_{2,5_{[C]}} \ge 1000, \beta_1 \ge 200$ $\beta_{5_{[C]}} \ge 1000, \beta_3 \ge 200$ <b>G8 Dualglass+water removal</b> $3A$ $\beta_{5_{[C]}} \ge 1000, \beta_3 \ge 200$ $6A$ $\beta_{7_{[C]}} \ge 1000, \beta_1 \ge 200$ $\beta_{7_{[C]}} \ge 1000, \beta_1 \ge 200$ $\beta_{12_{[C]}} \ge 1000, \beta_1 \ge 200$ <b>Cellulose</b> $3C$ $\beta_{12_{[C]}} \ge 5, \beta_1 \ge 5$ $25C$ $\beta_{25_{[C]}} \ge 5, \beta_2 \ge 5$ <b>Stainless wire</b> $40W$ $40\mu nom$ $149W$ $149\mu nor$ $\beta_{12_{[C]}} \ge 1000, \beta_1 \ge 200$ $\beta_{12_{[C]}} \ge 1000, \beta_1 \ge 200$ $\beta_{12_{[C]}} \ge 1000, \beta_1 \ge 200$ $3C$ $\beta_{25_{[C]}} \ge 5, \beta_2 \ge 5$ $3C$ $\beta_{25_{[C]}} \ge 5, \beta_2 \ge 5$ $3W$ $25W$ $25W$ $25V$ $25W$ $25V$ $25W$ $25V$ $\beta_{12_{[C]}} \ge 1000, \beta_1 \ge 200$ $\beta_{12_{[C]}} \ge 1000, \beta_2 \ge 200$ $3S_{[C]} \ge 1000, \beta_1 \ge 200$ $3S_{[C]} \ge 1000, \beta_2 \ge 200$ $3S_{[C]} \ge 1000, \beta_2 \ge 200$ $\beta_{11} = 0$ $\beta_{12} = 0$ $\beta_{12} = 0$ $\beta_{12} = 0$	mesh inal inal inal ninal
Seals	B V E-WS	Nitrile (Buna) Fluorocarbon <sup>3</sup> EPR seals + stainless steel support mesh	

<sup>1</sup>Maximum recommended flow rate based on velocity through port and internal flow path. Consult sizing guidelines or consult factory for sizing based on flow rate, viscosity, temperature, filter media selection. <sup>2</sup>Only available with S75/S75D, Bypass Option "2" - 25 psid (1.7 bard). <sup>3</sup>Only available with filter element HP75L8-3M



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### **S409** Medium Pressure Spin-On Filter Assemblies

Hy-Pro medium pressure S series filters are designed for installation on the return line to remove contaminant ingested or generated by the system. Functions include off-line filtration (kidney loop or filter cart) and some suction applications.

Ideal for automotive manufacturing and assembly machine tools, mobile applications such as waste haulers and transit, filter carts and filter panels, and power unit return line/suction.

#### Max Operating Pressure: 500 psi (35 bar)



hyprofiltration.com/S409





#### Media matters.

Only Hy-Pro S409 Spin-On assemblies come with DFE rated filter elements to ensure maximum particulate capture and retention. And with media options down to  $\beta 2.5_{C} \ge 1000$ , you can be sure contamination stays exactly where you want it: out of your fluid.





#### Easily configured.

With a variety of connection types and sizes, indicator options, and included mounting provisions all in a compact package, the S409 is ready to go to work in mobile equipment, return line, hydrostatic and other applications.

#### Fits in all the right places.

With flow rates up to 35 gpm (132 lpm), temperature resistance to 200°F (93°C), a 2:1 safety factor, high fluid compatibility and a tight footprint, the S409 delivers the best filtration everywhere you need it. Even combine two S409 assemblies in series for incredibly low ISO Codes and water removal in a single pass.



#### S409 Installation Drawing







# S409 Specifications

Dimensions <sup>1</sup>	See Installation Drawings on page 185 for model specific dimensions.											
Operating Temperature	Fluid Tem 30°F to 225 (0°C to 105	<b>perature</b> 5°F °C)			<b>An</b> -4° (-2	<b>nbient Tempe</b> °F to 140°F .0C to 60C)	erature					
Operating Pressure	500 psi (34	.5 bar) max										
ΔP Indicator Trigger	22 psi (1.5	bar) or 44 psi (	3.0 bar)									
Element Collapse Rating	100 psid (6	.9 bard) max										
Materials of Construction	<b>Head</b> Cast alumi	num	<b>Can</b> Stampe	ed steel	<b>El</b> e Ny	e <b>ment Bypass</b> /lon	<b>Element End</b> Zinc or Tin co carbon steel	<b>l Caps</b> bated				
Media Description	M G8 Dualgla of DFE rate media for a fluids. βx <sub>[C]</sub>	ss, our latest g d, high perfor all hydraulic & ≥ 1000 (βx ≥ 2	generation mance glass lubrication 200)	<b>A</b> G8 Dualgl media col scrim. βx <sub>t</sub>	lass high perform mbined with v <sub>CI</sub> ≥ 1000 (βx ≥	s steel wire me: $x_{[C]} \ge 2 (\beta x \ge 2)$	sh					
Replacement Elements	To deter Filter Elen HP409L9 –	mine replac Tent Part Nun [Media Selectio	ement ele nber on Code][Seal	ments, use	e correspor Ex HP	nding codes ample 2409L9-10MB	from you	r assembly	oart number:			
Fluid Compatibility	Petroleum other spec	and mineral b ified synthetic	ased fluids (s fluids use flu	tandard). For orocarbon se	r polyol ester, eal option or c	phosphate est contact factory	ter, and					
Filter Sizing <sup>1</sup>	Filter assembly clean element $\Delta P$ after actual viscosity correction should not exceed 10% of filter assembly bypass setting. See page 22 for filter assembly sizing guidelines & examples. For applications with extreme cold start condition contact Hy-Pro for sizing recommendations.											
ΔP Factors <sup>1</sup>	Length	Units	Media 1M	ЗM	6M	10M	25M	25A	**W			
	L9	psid/gpm bard/lpm	0.2961 0.0054	0.2499 0.0046	0.1937 0.0035	0.1737 0.0032	0.1699 0.0031	0.1869 0.0034	0.0306 0.0006			

<sup>1</sup>Max flow rates and ΔP factors assume υ = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula on page 22 for viscosity change.



### S409 Part Number Builder

S409								_				
C	onnection	Element Length	Bypass	ΔP Indicator	۵ L	P Indicator ocation	ΔP Indicator Setting	Ν	vledia	Seal	_	
Connectio	N Por N12 N16 S12 S16	t Option 3/4" NPT 1" NPT 3/4" SAE-1 1" SAE-16,	2, 1 <sup>1</sup> /16″ - 12 1 <sup>5</sup> /16″ - 12	N 22 9 22 9 22	<b>/</b> ax 5 gp 5 gp 5 gp 5 gp	x Flow Ra om (95 lpm om (132 lpr om (95 lpm om (132 lpr	te ) <sup>1</sup> n) <sup>1</sup> ) <sup>1</sup>					
Element Length	9 X	9" (23 cm) No elemer	nominal leng nt	gth filter ele	emer	nt						
Bypass	2 3 X	25 psid (1. 50 psid (3. No bypass	7 bard) bypa 4 bard) bypa ;	SS SS								
ΔP Indicate	Or C D V X	dc electric Visual with Visual, Me No indicat	al signal wire n electric swit chanical or (port plug	(no DIN or cch (DIN Co ged)	visu nneo	ual indicatio ction)	on)					
ΔP Indicate Location	Or L R T X	Left side Right side Top moun No indicat	t or (port plug	ged)								
∆P Indicato Setting	Or 2 3 X	ΔP 22 psi ( ΔP 44 psi ( No indicat	1.5 bar) indic 3.0 bar) indic or (port plug	ator setting ator setting ged)								
Media Selection	G8 1M 3M 6M 10M 16M 25M	Dualglass $\beta 2.5_{[C]} \ge 100$ $\beta 5_{[C]} \ge 100$ $\beta 7_{[C]} \ge 100$ $\beta 12_{[C]} \ge 100$ $\beta 12_{[C]} \ge 100$ $\beta 17_{[C]} \ge 100$ $\beta 22_{[C]} \ge 100$	000, β1 ≥ 200 0, β3 ≥ 200 0, β6 ≥ 200 00, β12 ≥ 200 00, β17 ≥ 200 00, β25 ≥ 200	( 3 6 1 0 2	58 C 3A 3A 0A 25A	$\begin{array}{l} \text{Dualglass} \\ \beta 5_{\text{IC}} \geq 100 \\ \beta 7_{\text{IC}} \geq 100 \\ \beta 12_{\text{IC}} \geq 100 \\ \beta 22_{\text{IC}} \geq 100 \end{array}$	+ water rer 20, $\beta 3 \ge 200$ 20, $\beta 6 \ge 200$ 200, $\beta 12 \ge 20$ 200, $\beta 25 \ge 20$	<b>mov</b> 00 00	al	<b>Stainless w</b> 2 <b>5W</b> 25μ no 74W 74μ no 149W 149μ n	vire mesh ominal ominal nominal	I
Seals	B V E-WS	Nitrile (Bu Fluorocark EPR seals	na) oon + stainless st	eel support	t me	sh						

<sup>1</sup>Maximum recommended flow rate based on velocity through port and internal flow path. Consult sizing guidelines or consult factory for sizing based on flow rate, viscosity, temperature, filter media selection.

hyprofiltration.com/S409



# Medium Pressure Filter Assemblies

Ideal for mobile equipment return line applications as an alternative to spin-ons, on-board fuel and dispensing and hydrostatic charge circuits.

#### Max Operating Pressure: 1,200 psi (83 bar)



#### Filtration starts with the filter.

DFE rated advanced media technologies provide the highest level of particulate capture and retention capabilities so your equipment operates unimpeded by contamination. With media options down to  $\beta 2.5_{[C]} \ge 1000$ , + water absorption, you get the perfect element for your application, every time.



#### HF3 Compatible Design.

Port to port dimension, mounting pattern, and element design meet HF3 automotive specification. And with standard SAE drain ports, lightweight aluminum bowls, and knurled texture on the bowls provide ease for element servicing, you get all of the convenience you want with the compatibility you need.

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#### Inherently versatile.

Unique internal flow paths providing a low clean pressure drop and element sizes from 4-16", the MF3 can be used in a variety of applications including Hydrostatic charge circuit for mobile equipment, CAT 5-Star service center, and return line alternative to spin-on assembles.





# MF3 Specifications

Dimensions	See Installation Drawings on page 189 for model specific dimensions.												
Operating Temperature	Fluid Tem 30°F to 225 (0°C to 105	p <b>erature</b> 5°F °C)				<b>Ambient Temp</b> -4°F to 140°F (-20C to 60C)	perature						
Operating Pressure	1200 psi (8	3 bar) max											
Burst Pressure	3000 psi (2	06.8 bar) ma	Х										
∆P Indicator Trigger	22 psid (1.5 45 psid (3.1	52 bard) for 2 10 bard) for 5	25 psid bypass 60 psid bypass	and non byp	Dass								
Element Collapse Rating	290 psid (2	0 bard)											
Materials of Construction	<b>Head</b> Cast alumir	Head     Bowl     Element Bypass Valve     Element End Caps       Cast aluminum     L4/L8: Cast aluminum     Nylon     Zinc or Tin coated carbon steel       Value     Number of the structure of the structu											
Media Description	<b>M</b> G8 Dualgla of DFE rate media for a fluids. βx <sub>[C]</sub>	MAWG8 Dualglass, our latest generation of DFE rated, high performance glass media for all hydraulic & lubrication fluids. $βx_{[c]} \ge 1000$ ( $βx \ge 200$ )G8 Dualglass high performance media combined with water removal scrim. $βx_{[c]} \ge 1000$ ( $βx \ge 200$ )W											
Replacement Elements	To detern Filter Elem HP60L[Leng	mine repla Tent Part Nu gth Code] – [I	acement ele Imber Media Selectior	e <mark>ments, us</mark> n Code] [Seal	e corresp	onding codes Example HP60L16-6MB	from your	rassembly	part number:				
Fluid Compatibility	Petroleum other speci	and mineral fied syntheti	based fluids (s c fluids use flu	standard). Fo Jorocarbon s	or polyol este eal option o	er, phosphate est r contact factory.	er, and						
Filter Sizing <sup>1</sup>	Filter assen filter assen application	nbly clean el nbly bypass s s with extrer	ement ∆P afte setting. See pa ne cold start c	r actual visco ge 22 for filte ondition con	osity correcti er assembly tact Hy-Pro	on should not ex sizing guidelines for sizing recomn	ceed 10% of & examples. nendations.	For					
ΔP Factors <sup>1</sup>	Length	Units	Media 1M	ЗМ	6M	12M	16M	25M	**W				
	L4	psid/gpm	0.459	0.357	0.268	0.186	0.171	0.149	0.027				
		bard/lpm	0.008	0.007	0.005	0.003	0.003	0.003	0.000				
	L8	psid/gpm	0.324	0.252	0.206	0.156	0.151	0.143	0.026				
		bard/lpm	0.006	0.005	0.004	0.003	0.003	0.003	0.000				
	L13	psid/gpm	0.237	0.200	0.155	0.139	0.136	0.131	0.024				
		bard/lpm	0.004	0.004	0.003	0.003	0.002	0.002	0.000				
	L16	psid/gpm	0.203	0.174	0.148	0.134	0.131	0.129	0.023				
		bard/lpm	0.004	0.003	0.003	0.002	0.002	0.002	0.000				

1Max flow rates and ΔP factors assume u = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula on page 22 for viscosity change.



### MF3 Part Number Builder



Connection	Port G20 N20 N24 S20 S24	Coption 1.25" G thread (BSPP) 1.25" NPT 1.5" NPT 1.25" SAE 1.5" SAE	Ma 75 75 100 75 100	ax gp gp 0 gp 0 gp	Flow Rate n (284 lpm) <sup>1</sup> n (284 lpm) <sup>1</sup> om (379 lpm) <sup>1</sup> n (284 lpm) <sup>1</sup> om (379 lpm) <sup>1</sup>		
Element Length	4 8 13 16	4" (10 cm) nominal length fi 8" (20 cm) nominal length fi 13" (33 cm) nominal length 16" (41 cm) nominal length	lter elen lter elen filter ele filter ele	ner ner eme	t and housing t and housing nt and housing nt and housing		
Bypass	1 3 X	25 psid (1.7 bard) bypass 50 psid (3.4 bard) bypass No bypass					
ΔP Indicator	D V X	Visual with electric switch (I Visual/Mechanical No indicator (port plugged)	DIN Conr	nec	tion)		
Media Selection	G8 E 1M 3M 6M 12M 16M 25M	$\begin{array}{l} \text{Dualglass} \\ \beta_{2.5}_{[C]} \geq 1000, \ \beta_{1} \geq 200 \\ \beta_{5}_{[C]} \geq 1000, \ \beta_{3} \geq 200 \\ \beta_{7}_{[C]} \geq 1000, \ \beta_{6} \geq 200 \\ \beta_{12}^{[C]} \geq 1000, \ \beta_{12} \geq 200 \\ \beta_{17}^{[C]} \geq 1000, \ \beta_{17} \geq 200 \\ \beta_{22}^{[C]} \geq 1000, \ \beta_{25} \geq 200 \end{array}$	G8 3A 6A 12/ 25/	B D	ualglass + water removal $\beta_{f_{[C]}} \ge 1000, \beta_3 \ge 200$ $\beta_{f_{[C]}} \ge 1000, \beta_6 \ge 200$ $\beta_{f_{[C]}} \ge 1000, \beta_{f_{2}} \ge 200$ $\beta_{f_{[C]}} \ge 1000, \beta_{f_{2}} \ge 200$	Sta 25 40 74 14	ainless wire mesh W 25μ nominal W 40μ nominal W 74μ nominal 9W 149μ nominal
Seals	B V E-WS	Nitrile (Buna) Fluorocarbon 2 EPR seals + stainless steel s	upport r	me	h		

<sup>1</sup>Maximum recommended flow rate based on velocity through port and internal flow path. Consult sizing guidelines or consult factory for sizing based on flow rate, viscosity, temperature, filter media selection. <sup>2</sup>Only available with ΔP Indicator option "X" selected.



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### **PF2** High Pressure In-Line Filter Assembly

Ideal for a variety of applications including mobile applications, paper and saw mills, power generation, general industrial machine tools, and automotive manufacturing. With HF2 compatible port-to-port dimension, mounting pattern, and element design to meet the automotive manufacturing standard.

#### Max Operating Pressure: 4000 psi (275 bar)



hyprofiltration.com/PF2





#### Filtration starts with the filter.

G8 Dualglass and PE glass elements are DFE rated to assure performance even when exposed to the toughest hydraulic systems and provide unmatched particulate capture and retention to remove contamination from your hydraulic and lube oils, for good.





#### Small size, huge results.

The compact size of PF2 filter assemblies make them the perfect addition directly upstream of your control valves and other sensitive components even in the tightest of spaces. And with two different mounting options to choose from, the incredible versatility of the PF2 makes it ideal for all of your high pressure filter applications.

#### Works under pressure.

Applications for the PF2 include mobile, general industrial machine tools, paper mills, sawmills, and speed control circuits for power generation systems. So whether you're operating waste haulers, cement mixers, fire trucks, cranes, or CNC routers, you can be sure the PF2 will protect your critical components even when the pressure is on.



#### In-Line Mount Installation Drawing



#### Manifold Mount Installation Drawing



## PF2 Specifications

Dimensions	See Installation Drawings on page 193 for model specific dimensions.													
Operating Temperature	Fluid Temp 30°F to 225 (0°C to 105°	o <b>erature</b> °F °C)						<b>Ar</b> -4' (-2	<b>mbient T</b> °F to 140° 20C to 600	<b>emperat</b> °F C)	ure			
Operating Pressure	4000 psi (27	75 bar) max												
Flow Fatigue Rating	2000 psi (13	37 bar)												
Burst Pressure	12,000 psi (	827 bar) ma	ах											
ΔP Indicator Trigger	50 psid (3.4 Thermal loc indicators v	bard) for b kout indica vith exception	ypass. 1 tor func on to "V'	02 psi tions " optic	id (7 bar at or abo on (auto	d) for no ove 68°F reset sta	n-bypas (20°C), r ndard).	ss. mar	nual rese	t on visua				
Element Collapse Rating	<b>Normal Co</b> 290 psid (20	<b>llapse</b> 0 bard)						<b>Hi</b> 30	<b>igh Colla</b> )00 psid (i	<b>pse</b> 206 bard)				
Integral Bypass Setting	60 psid (4.1	bard)												
Materials of Construction	<b>Head</b> Anodized a (grade T606	luminum 51)		<b>Bowl</b> Anodi (grade Bowl	ized alur e T6061) drain #4	minum ) I SAE star	ndard	<b>El</b> Ni	<b>ement B</b> ickel plate	<b>ypass Va</b> led/Stainle	<b>ve</b> ss steel	<b>Element</b> Zinc or T carbon s	End Cap in coated teel	S
Media Description	M G8 Dualglas generation performand all hydrauli fluids. βx <sub>[C]</sub>	ss, our lates of DFE rate ce glass meα c & lubricati ≥ 1000 (βx ≥	t d, high dia for on ≥ 200)	A G8 Du perfor with v $\beta x_{[C]} \ge$	<b>A</b> G8 Dualglass high performance media combined with water removal scrim. $\beta x_{[C]} \ge 1000 (\beta x \ge 200)$				<b>:</b> ynafuzz st edia βx <sub>[c]</sub>	tainless st ≥ 1000 (β	eel fiber x ≥ 200)	<b>W</b> Stainless media β>	steel wiro κ <sub>[C]</sub> ≥ 2 (βx	e mesh : ≥ 2)
Replacement Elements	To detern Filter Elem HP2[Collaps	nine repla ent Part N se Rating Co	aceme umber de]L[Ler	e <mark>nt el</mark> ngth C	ement ode] – [N	<b>s, use c</b> Media Sele	corres	<mark>poı</mark> Code	nding co	odes fro	om your	<b>Example</b> HP20L4-	oly part e 12MV	number:
Fluid Compatibility	Petroleum other speci	and minera fied synthet	l based f ic fluids	fluids use fl	(standar uorocar	rd). For p bon seal	olyol es option	ter, or d	, phospha contact fa	ate ester, actory.	and			
Filter Sizing <sup>1</sup>	Filter assem filter assem application:	nbly clean e ibly bypass s with extre	lement <i>l</i> setting. me cold	∆P afte See pa start	er actual age 22 fo conditio	l viscosity or filter a n contac	/ correc ssembly t Hy-Pro	tior y siz o fo	n should r zing guide r sizing re	not excee elines & e ecommen	d 10% of xamples. dations.	For		
$\Delta P$ Factors <sup>1</sup>	Collapse	Length	5	Media 1M	2M	3M		6M	12M	15M	16M	25M	**W	
	20 L4 psid/gpm 2.145 bard/lpm 0.039					N/A N/A	1.810	) 3	1.403 0.026	1.258 0.023	N/A N/A	1.231 0.022	1.185 0.022	0.213
		L8	psid/g bard/li	pm pm	1.118 0.020	N/A N/A	0.944	4 7	0.731 <b>0.013</b>	0.656 0.012	N/A N/A	0.642 0.012	0.618 0.011	0.111 0.002
	21	L4	psid/g	pm	2.287	1.930	N/A		1.496	N/A	1.341	1.312	1.264	0.228
	bard/lpm 0.042 0.035						N/A		0.027	N/A	0.024	0.024	0.023	0.004
		bard/Ipm 0.042 0.035 L8 psid/gpm 1.188 1.003 bard/Ipm 0.022 0.018							0.777 0.014	N/A N/A	0.672 0.012	0.657 <b>0.012</b>	0.647 <b>0.012</b>	0.116 <b>0.002</b>

1Max flow rates and ΔP factors assume υ = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula on page 22 for viscosity change.



### PF2 Part Number Builder

PF2							
Connection	Collapse	Length	Bypass	Indicator	Media	Sear	
Connection	Port Op G12 <sup>1</sup> <sup>3</sup> / <sub>4</sub> " ( M12 <sup>3</sup> / <sub>4</sub> "   S12 <sup>1</sup> <sup>3</sup> / <sub>4</sub> "	<b>tion</b> G thread (BSPP) Manifold top mo SAE	ount	Max 20 g 20 g 20 g	x Flow Rate pm (76 lpm) <sup>2</sup> pm (76 lpm) <sup>2</sup> pm (76 lpm) <sup>2</sup>		
Collapse Rating	<b>0</b> <sup>3</sup> 290 <b>1</b> 300	psid (20 bard) 0 psid (206 bard	normal collap d) high collap	ose element se element			
Element Length	<b>4</b> 4" (1 <b>8</b> 8" (2	10 cm) nominal 20 cm) nominal	length filter ( length filter (	element and he	ousing ousing		
Bypass	4 60 p X No	osid (4.1 bard) b bypass	ypass				
ΔP Indicator	DX Elec T Visu V Visu X No	ctrical switch on Jal/mechanical Jal/mechanical indicator (port p	ly (DIN conne with thermal plugged)	ection) lockout			
Media Selection	G8         U         J           1M         β2.3           2M <sup>4</sup> β5           3M <sup>5</sup> β5 <sup>-</sup> <sub>10</sub> 6M         β7 <sup>-</sup> <sub>10</sub> 12M <sup>5</sup> β12           15M <sup>4</sup> β12           16M         β17           25M         β22	glass $5_{cc} ≥ 1000, \beta1 ≥$ $2 ≥ 1000, \beta3 ≥ 2$ $2 ≥ 1000, \beta3 ≥ 2$ $2 ≥ 1000, \beta3 ≥ 2$ $2 ≥ 1000, \beta6 ≥ 2$ $2 ≥ 1000, \beta12 ≥$ $2 ≥ 1000, \beta17 ≥$ $2 ≥ 1000, \beta25 ≥$	200 00 00 200 200 200 200 200 200		G8 [ 3A 6A 12A 25A	Dualglass + water removal $\beta 5_{[C]} \ge 1000, \beta 3 \ge 200$ $\beta 7_{[C]} \ge 1000, \beta 6 \ge 200$ $\beta 12_{[C]} \ge 1000, \beta 12 \ge 200$ $\beta 22_{[C]} \ge 1000, \beta 25 \ge 200$	
	<b>Dynafuzz</b> 3SF β5 <sub>τ</sub> 10SF β12	z stainless fibe ∃ ≥ 1000, β3 ≥ 2 <sub>TC</sub> ≥ 1000, β12 ≥	r 00 : 200		Stair 25W 40W 74W 149W	nless wire mesh 25μ nominal 40μ nominal 74μ nominal <b>V</b> 149μ nominal	
Seals	<ul><li>B Nitr</li><li>V Fluc</li><li>E-WS EPR</li></ul>	rile (Buna) procarbon & seals + stainles	s steel suppo	ort mesh			

<sup>1</sup>Vent connection standard on G12 and S12 models - #4 SAE.

<sup>2</sup>Maximum recommended flow rate based on velocity through port and internal flow path. Consult sizing guidelines or consult factory for sizing based on flow rate, viscosity, temperature, filter media selection. <sup>3</sup>When chosen, must be paired with Bypass option "4" <sup>4</sup>Compatible only with High Collapse Rating option "1." <sup>5</sup>Not available on High Collapse Rating option "1."



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### **PF4** High Pressure Base Mounted Filter Assemblies

Hy-Pro PF4 pressure filters are designed for protecting sensitive components in hydraulic circuits. Install the series upstream of specific components or directly after the pressure pump to minimize risk of failure and costly system downtime.

Ideal for components that are sensitive to particulate contamination, such as the servo valve, and require clean pressurized fluid for reliable operation.

### HY-PRO

hyprofiltration.com/PF4





#### Filtration starts with the filter.

G8 Dualglass elements are DFE rated to assure performance even when exposed to the toughest hydraulic systems and provide unmatched particulate capture and retention to protect servo valves and ensure you're operating at maximum efficiency.





#### Minimize the mess.

The top loading housing on PF4 filter assemblies provide easy and clean access when servicing or changing the element. Accessing the element is as simple as removing the housing cover, meaning you have no heavy bowl to lift and can get back in operation quicker than ever.

#### HF4 Compatible Design.

The PF4 series is engineered to meet mill and plant target cleanliness codes and required ISO4406:1999 cleanliness standards to meet hydraulic component manufacturers warranties. Available with HF4 compatible port to port dimension, mounting pattern, and element design to meet the automotive manufacturing standard.







## PF4 Specifications

Dimensions	See Installation Dra	See Installation Drawings on page 197 for model specific dimensions.											
Operating Temperature	Fluid Temperatur 30°F to 225°F (0°C to 105°C)	e				<b>Ambient Te</b> -4°F to 140° (-20C to 60C	emperature F						
Operating Pressure	5,000 psi (310 bar)	max											
Flow Fatigue Rating	3,500 psi (238 bar)												
Burst Pressure	13,500 psi (931 bar	-)											
ΔP Indicator Trigger	35 psid (2.4 bard) k All indicators rever	ypass or 1 t to origina	00 psid (6.9 I state whe	) bard) non-l n ΔP is remo	bypass oved (aut	to-reset).							
Element Collapse Rating	<b>HPK</b> 290 psid (20.0 barc	1)	<b>HPK3</b> 3000 psid	l (206.8 bard	)	<b>HPK5</b> 5000 psid (3	44.7 bard)	<b>НРК</b> 150 р	<b>C</b> osid (10.3 ba	ard)			
Integral Bypass Setting	50 psid (3.4 bard)	d (3.4 bard) Lid Bowl Element Bypass Valve Seamless steel tubing Nulon											
Materials of Construction	<b>Head/Lid</b> Ductile iron	Bowl     Element Bypass Valve       ile iron     Seamless steel tubing											
Media Description	M G8 Dualglass, our l of DFE rated, high media for all hydra fluids. βx <sub>[C]</sub> ≥ 1000	AW8 Dualglass, our latest generation TDFE rated, high performance glass ledia for all hydraulic & lubrication uids. $\beta x_{rc1} \ge 1000$ ( $\beta x \ge 200$ )Stainless steel wire mesh media $\beta x_{1C1} \ge 2$ ( $\beta x \ge 2$ )											
Replacement Elements	To determine r Filter Element Par HP[Collapse Rating	eplacem rt Number Code]L[Lei	ent elem ngth Code]	ents, use – [Media Sele	corres	oonding co de] [Seal Code	o <mark>des from</mark> Exa e] HPk	<b>your asse mple</b> (L18–16MV	embly par	t number:			
Fluid Compatibility	Petroleum and mir other specified syn	neral based thetic fluid	l fluids (sta s use fluor	ndard). For p ocarbon sea	oolyol es l option	ter, phosphat or contact fac	te ester, and ctory.						
Filter Sizing <sup>1</sup>	Filter assembly clear filter assembly byp applications with e	an element ass setting xtreme col	ΔP after ac . See page d start con	ctual viscosit 22 for filter a dition contae	y correct assembly ct Hy-Pro	tion should n y sizing guide o for sizing rea	ot exceed 10 lines & exam commendati	% of ples. For ons.					
∆P Factors <sup>1</sup>	Collapse	Length	Units	Media 1M	3M	6M	12M	16M	25M	**W			
	PF4K**, PF4K1**, PF4KC**	L9	psid/gpm bard/lpm	0.2374 0.0043	0.2003	0.1553 0.0028	0.1392 0.0025	0.1362 0.0025	0.1312 0.0024	0.0236 0.0004			
		L18	psid/gpm	0.1167	0.0985	0.0764	0.0685	0.0670	0.0645	0.0116			
		27	pard/lpm	0.0021	0.0018	s 0.0014	0.0012	0.0012	0.0012	0.0002			
			bard/lpm	0.0014	0.0012	2 0.0009	0.0008	0.00444	0.00428	0.0001			
	PF4K3** (non-	L9	psid/gpm	0.3376	0.2849	0.2208	0.1980	0.1937	0.1866	0.0336			
	bypass housing)	ypass housing) bard/lpm 0.0061 0.0052 0.0040 0.0036 0.0035 0.0034 0.0006											
		LIS	psid/gpm bard/lpm	0.1651	0.1393	5 0.1080	0.0968	0.0947	0.0912	0.0164			
		L27	psid/gpm	0.1094	0.0924	1 0.0716	0.0642	0.0628	0.0605	0.0109			
			bard/lpm	0.0020	0.0017	0.0013	0.0012	0.0011	0.0011	0.0002			

1Max flow rates and ΔP factors assume υ = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula on page 22 for viscosity change.



### PF4 Part Number Builder

PF4	Coll	apse	Length	Bypass	Indio	cator	Media		Seal					
Connection	Port C24 F24 M24 S24	Coption 1.5" Coc 1.5" Coc Manifol 1.5" SAE	le 62 flange le 61 flange d mount (se	e installatio	n detai	1)		Max 115 gr 115 gr 115 gr 115 gr	Flow R om (435 om (435 om (435 om (435	Rate Ipm) <sup>1</sup> Ipm) <sup>1</sup> Ipm) <sup>1</sup> Ipm) <sup>1</sup>				
Collapse Rating	K K3 K5 KC	290 psic 3000 ps 5000 ps 150 psic	d (20.0 bard) id (206.8 ba id (344.7 ba d (10.3 bard)	), HF4 eleme rd), HF4 ele rd), HF4 ele ), Coreless v	ent con ment co ment co vith o-r	figuratio onfigurat onfigurat ing seals	n tion tion							
Element Length	9 18 27	9" (23 cr 18" (46 c 27" (69 c	n) nominal cm) nomina cm) nomina	length filter I length filte I length filte	elemen er eleme er eleme	nt and ho ent and h ent and h	ousing nousing nousing							
Bypass	3 X	50 psid No bypa	(3.4 bard) b	ypass										
ΔP Indicator	D V X	Visual w Visual/M No indio	rith electric : Aechanical cator (port p	switch (DIN Ilugged)	connec	ction)								
Media Selection	G8 1M 3M 6M 12M 16M 25M	$\begin{array}{l} \begin{array}{l} \beta 2.5_{\text{C}} \geq \\ \beta 5_{\text{C}} \geq 1 \\ \beta 7_{\text{C}} \geq 1 \\ \beta 7_{\text{C}} \geq 1 \\ \beta 12_{\text{C}} \geq \\ \beta 12_{\text{C}} \geq \\ \beta 22_{\text{C}} \geq \end{array}$	S 1000, β1 ≥ 000, β3 ≥ 20 000, β6 ≥ 20 1000, β12 ≥ 1000, β17 ≥ 1000, β25 ≥	200 00 200 200 200	G8 0 3A 6A 12A 25A	$\begin{array}{l} \beta S_{[C]} \geq 1\\ \beta S_{[C]} \geq 1\\ \beta T_{[C]} \geq 1\\ \beta 12_{[C]} \geq \\ \beta 22_{[C]} \geq \end{array}$	<mark>s + Wa</mark> 000, β3 000, β6 1000, β 1000, β	ter rei ≥ 200 ≥ 200 12 ≥ 20 12 ≥ 20	moval 00 00		Stainless           25W         25µ r           40W         40µ r           74W         74µ r           149W         149µ	wire me nominal nominal nominal nominal	esh I	
Seals	B V E-WS	Nitrile (I Fluoroca EPR sea	3una) arbon ls + stainles	s steel supp	oort me	sh								

<sup>1</sup>Maximum recommended flow rate based on velocity through port and internal flow path. Consult sizing guidelines or consult factory for sizing based on flow rate, viscosity, temperature, filter media selection.

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### **PFH** High Pressure In-Line Filter Assemblies

Hy-Pro's PFH pressure filters are designed to protect sensitive components in hydraulic circuits. Install the series upstream of specific components or directly after the pressure pump in smaller systems to minimize risk of failure and costly system downtime.

Ideal for use on a power unit pump discharge filter or pilot filter directly in front of valves and actuators.

#### Max Operating Pressure: 9137 psi (630 bar)



#### **Dynamic Filter Efficiency**

Hydraulic applications see dynamic flow changes on a regular basis. Dynamic Filter Efficiency testing takes the ISO 4409 Multi-Pass testing even further with variable flow shifts to ensure your filter elements stand up to real world conditions and maintain the highest capture and retention rates in the industry.





#### Industrial duty.

Standard mounting holes for optional brackets, stainless steel ID tags, a variety of indicator options, and standard drain ports make the PFH the ideal choice for heavy duty hydraulic filtration.

#### Unique applications.

With available nickel plating of internal components and coarse wire mesh media options, the PFH series is perfect for applications like drill rig mud pump and gearbox applications where water contamination wrecks traditional filtration. Even include Hy-Pro's G8 Dualglass media with Water Removal to take out dirt and water and leave your equipment operating more efficiently than ever.





#### Extend the life of your element.

Unique internal flow paths provide low resistance to flow, resulting in a low housing pressure drop. Hy-Pro's advanced filter media delivers lower operating ISO Codes to eliminate internally generated contamination meaning your filter will have an incredibly long service life to protect your sensitive components better than ever.



#### Minimize the mess.

The PFH series is available with Hy-Pro's coreless filter elements that can be readily disposed of through crushing or incineration. The circumferential o-ring bowl seal eliminates leaking and weeping. For easy cleaning and service, PFH bowls comes standard with drain plugs.



### The ideal choice for hydraulics.

Use the PFH as the main high pressure filter(s) in a hydraulic system or upstream of sensitive components as a pilot filter to protect your valves and actuators. The PFH series are engineered to provide lower operating ISO Codes than what is required for compliance with hydraulic component manufacturers warranties.

## PFH Installation Drawings



## PFH Sizing Guide

Filter Sizing<sup>1</sup> Filter assembly clean element ΔP after actual viscosity correction should not exceed 10% of filter assembly bypass setting. See page 22 for filter assembly sizing guidelines & examples. For applications with extreme cold start condition contact Hy-Pro for sizing recommendations.

∆P Factors <sup>1</sup>	Series	Length	Units	Media 1M	3M	6M	10M	16M	25M	**W
	PFH131	L4	psid/gpm bard/lpm	2.4121 0.0439	2.0355 <b>0.0371</b>	1.5775 0.0287	1.4147 0.0258	1.3842 0.0252	1.3333 0.0243	0.2400 0.0044
		L8	psid/gpm bard/lpm	1.1674 0.0213	0.9852 0.0179	0.7635 0.0139	0.6847 0.0125	0.6699 0.0122	0.6453 0.0118	0.1162 0.0021
	PFH152	L4	psid/gpm bard/lpm	0.9438 0.0172	0.7964 0.0145	0.6172 0.0112	0.5535 0.0101	0.5416 0.0099	0.5217 0.0095	0.0939 0.0017
		L8	psid/gpm bard/lpm	0.6769 0.0123	0.5712 0.0104	0.4427 0.0081	0.3970 0.0072	0.3884 0.0071	0.3742 0.0068	0.0673 0.0012
	PFH419	L4	psid/gpm bard/lpm	0.4735 0.0086	0.3996 0.0073	0.3097 0.0056	0.2777 0.0051	0.2717 0.0049	0.2617 0.0048	0.0471 0.0009
		L8	psid/gpm bard/lpm	0.3415 0.0062	0.2882 0.0052	0.2234 0.0041	0.2003 0.0036	0.1960 <b>0.0036</b>	0.1888 0.0034	0.0340 0.0006
		L13	psid/gpm bard/lpm	0.2364 0.0043	0.1995 0.0036	0.1546 0.0028	0.1387 0.0025	0.1357 0.0025	0.1307 0.0024	0.0235 0.0004
	PFH840	L15	psid/gpm bard/lpm	0.1613 0.0029	0.1361 0.0025	0.1055 0.0019	0.0946 0.0017	0.0926 0.0017	0.0892 0.0016	0.0160 0.0003
		L26	psid/gpm bard/lpm	0.1054 0.0019	0.0889 0.0016	0.0689 0.0013	0.0618 0.0011	0.0605 0.0011	0.0582 0.0011	0.0105 0.0002

 $^{1}$ Max flow rates and  $\Delta$ P factors assume u = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula on page 22 for viscosity change.





## PFH Specifications

Dimensions	See Installation Drawings on	page 202 for model specific dim	nensions.		
Operating	Fluid Temperature 30°F to 225°F		Ambient Temperat -4°F to 140°F	ure	
remperature	(0°C to 105°C)		(-20C to 60C)		
Operating Pressure	<b>PFH131</b> 5800 psi (400 bar) min. 2 x 10 <sup>6</sup> pressure cycles Nominal pressure according to DIN 24550	<b>PFH152</b> 5800 psi (400 bar) min. 2 x 10 <sup>6</sup> pressure cycles Nominal pressure according to DIN 24550	<b>PFH419</b> <sup>1</sup> 5220 psi (360 bar) min. 2 x 10 <sup>6</sup> pressur Nominal pressure according to DIN 24.	e cycles 550	<b>PFH840</b> 5800 psi (400 bar) min. 2 x 10 <sup>6</sup> pressure cycles Nominal pressure according to DIN 24550
Flow Fatigue Rating	<b>PFH131</b> 9137 (630 bar) min. 2 x 10 <sup>4</sup> pressure cycles Quasi-static operating pressure	<b>PFH152</b> 9137 (630 bar) min. 2 x 10 <sup>4</sup> pressure cycles Quasi-static operating pressure	<b>PFH419</b> 9137 (630 bar) min. 2 x 10 <sup>4</sup> pressur Quasi-static operation pressure	e cycles ng	<b>PFH840</b> 9137 (630 bar) min. 2 x 10 <sup>4</sup> pressure cycles Quasi-static operating pressure
∆P Indicator Trigger	73 psid (5 bard)				
Element Collapse Rating	<b>HP***N</b> 450 psid (31.0 bard) max	<b>HP***H</b> 3000 psid (206.8 ba	ird) max	<b>HP***C</b> 250 psid	(17.2 bard) max
Integral Bypass Setting	<b>PFH131</b> 102 psid (7 bard)	<b>PFH152</b> 102 psid (7 bard)	<b>PFH419</b> 102 psid (7 bard)		<b>PFH840</b> 87 psid (6.0 bard) – Integral element bypass
Materials of Construction	<b>Head</b> Cast steel	<b>Bowl with Drain Plug</b> PFH131-419: Cold forged steel PFH840: DOM tubing	<b>Interior Coating</b> Phosphate		Exterior Coating Industrial powder coating
Media Description	<b>M</b> G8 Dualglass, our latest genu of DFE rated, high performat media for all hydraulic & lub fluids. $\beta x_{[C]} \ge 1000 (\beta x \ge 200)$	AerationG8 Dualglass high pnce glassmedia combined wricationscrim. $\beta x_{cc} \ge 1000$ (	performance ith water removal βx ≥ 200)	<b>W</b> Stainless media βx	steel wire mesh $_{[C]} \ge 2 \ (\beta x \ge 2)$
Replacement Elements	To determine replacenSeries CodeFilter Eleme131HP131[Colla152HP152[Colla419HP419[Colla840HP840[Colla	nent elements, use the sel ent Part Number pse Code] L [Length Code] – [Med pse Code] L [Length Code] – [Med pse Code] L [Length Code] – [Med pse Code] L [Length Code] – [Med	ected codes from lia Selection Code][Sea lia Selection Code][Sea lia Selection Code][Sea lia Selection Code][Sea	I Code]   Code]   Code]   Code]   Code]	owing page below: Example HP131HL4-10MB HP152NL8-16MV HP419CL13-3AB HP840NL15-25MB
Fluid Compatibility	Biodegradable and mineral l	based fluids. For high water base	ed or specified synthe	tics consu	lt factory.

1PFH419 C20 Connection Option rated for 6000 psi (414 bar) max operating pressure. M20 Connection Option rated for 7520 psi (518 bar) max operating pressure.



### **PFH Part Number Builder**

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PFH								_	_		
Series	Cor	nection	Collapse	Length	Bypass	s ΔP II	ndicator	Special O	ptions Media	Se	al
Series	131 152 419 840	Nomina Nomina Nomina Nomina	al flow rate up al flow rate up al flow rate up al flow rate up	o to 15 gp o to 35 gp o to 95 gp o to 150 g	om (57 lpm om (132 lpr om (360 lpr gpm (568 lp	) <sup>1</sup> m) <sup>1</sup> m) <sup>1</sup> om) <sup>1</sup>					
Connection	PFH G12 S8 S12	131 ¾" G th ½" SAE ¾" SAE	read (BSPP)	PFH G16 S16	1" G threa 1" SAE	ad (BSPP)	PFH2 C20 1 G20 1 M20 1 S20 1 S24 1	119 1⁄4" Code 62 1⁄4" G thre .22" Mani 1⁄4" SAE 1⁄2" SAE	2 flange (6000 p ad (BSPP) fold mount	PFł si) <b>C32</b>	<b>1840</b> 2" Code 62 flange (6000 psi)
Collapse Rating	C <sup>2</sup> H N <sup>3</sup>	250 psid 3000 ps 450 psid	d (17.2 bard) sid (206.8 bard) d (31.2 bard)	– Coreles d) – High – Core-in	s element collapse el element w	with integr lement with vith housing	al bypass n no hou g bypass	s (includes sing bypas	s post assemb ss	ly for ele	ment support)
Length	PFH 4 8	1 <mark>31</mark> 4" (10 ci 8" (20 ci	m) nominal m) nominal	PFH 4 8	1 <mark>152</mark> 4" (10 cm 8" (20 cm	ı) nominal ı) nominal	PFH4 4 8 13	4" (10 ci 8" (20 ci 13" (33	m) nominal m) nominal cm) nominal	PFF 15 26	<b>1840</b> 15" (38 cm) nominal 26" (66 cm) nominal
Bypass	<b>7</b> <sup>4</sup> X <sup>5</sup>	102 psic No bypa	d (7 bard) byp ass	Dass							
ΔP Indicator	DX L V X	Electrica Visual w Visual/M No indio	al switch only vith electric sv Aechanical cator (port plu	(DIN cor witch (DII ugged)	nnection) N connectio	on) + LED ir	ndicator				
Special Options	N <sup>6</sup>	Nickel p	olated interna	l compor	nents for h	igh water a	pplicatio	ns			
Media Selection	G8 [ 1M 3M 6M 10M 16M 25M	$\begin{array}{l} \begin{array}{l} \beta 2.5_{[C]} \geq \\ \beta 5_{[C]} \geq 1 \\ \beta 7_{[C]} \geq 1 \\ \beta 12_{[C]} \geq \\ \beta 17_{[C]} \geq \\ \beta 17_{[C]} \geq \\ \beta 22_{[C]} \geq \end{array}$	S 1000, $β1 ≥ 2$ 000, $β3 ≥ 200$ 000, $β6 ≥ 200$ 1000, $β12 ≥ 2$ 1000, $β17 ≥ 2$ 1000, $β25 ≥ 2$	00 ) 200 200 200	G8 [ 3A 6A 10A 25A	Dualglass $\beta 5_{[C]} \ge 100$ $\beta 7_{[C]} \ge 100$ $\beta 12_{[C]} \ge 10$ $\beta 22_{[C]} \ge 10$	+ water 00, β3 ≥ 2 00, β6 ≥ 2 000, β12 000, β25	removal 200 ≥ 200 ≥ 200 ≥ 200	Stainl 25W 40W 74W 149W	<b>ess wire</b> 25μ non 40μ non 74μ non 149μ no	e <mark>mesh</mark> ninal ninal ninal minal
Seals	B V <sup>7</sup> E-WS	Nitrile Fluoro 7 EPR se	(Buna) ocarbon eals + stainles	s steel su	upport mes	sh					

<sup>&</sup>lt;sup>1</sup>Maximum recommended flow rate based on velocity through port and internal flow path. Consult sizing guidelines or consult factory for sizing based on flow rate, viscosity, temperature, filter media selection. <sup>1</sup>Maximum recommended flow rate based on velocity through port and internal flow path. Consult sizing guidelines or consult factory for sizing based on flow rate, viscosity, temperature, fr
 <sup>2</sup>Available on PFH419 and PFH840 only.
 <sup>3</sup>PFH840 includes integral element bypass and does not include a bypass in the housing.
 <sup>4</sup>PFH840 bypass setting is 87 psid (6.0 bard).
 <sup>5</sup>Only available when paired with "H" high collapse element.
 <sup>6</sup>When selected, automatically adds nickel plating to filter element. For replacement elements, add"-N" to end of filter element part number. Not available on PFH840 series.
 <sup>7</sup>Not available with PFH840 series housings.



### **PFHB** High Pressure Full Flow Bi-Directional Filter Assemblies

Hy-Pro's PFHB high pressure filter assemblies are designed for applications where flow direction changes and fluid must be filtered with full flow in both directions. Protect both components and clean fluid that typically does not return to the reservoir.

Ideal for steel mills, board plants, scrap yards, and concrete mixers.

#### Max Operating Pressure: 7252 psi (500 bar)



hyprofiltration.com/PFHB



#### Elements that go beyond industry standard.

DFE rated advanced media technologies provide the highest level of particulate capture and retention capabilities to combat the dynamic flow changes in all hydraulic applications. With media options down to  $\beta 2.5_{CI} \ge 1000$ , + water absorption, you get the perfect element for your application, every time.



#### Two directions, one result.

With unique flow paths and internal check valves, PFHB assemblies allow hydraulic fluids to travel in both directions while maintaining the highest of filter efficiencies. Whether installed at the end of a remotely located cylinder or small cylinders where used fluid is not able to return to the tank for standard filtration, the PFHB captures contaminants in both flow directions where others can't.

#### Always ready.

Perfect for use in hydrostatic loop circuits and any system where flow can change direction, the PFHB is ready for capturing particles in both directions with absolute efficiency - automatically.

#### PFHB Installation Drawing





Bi-Directional Schematic



hyprofiltration.com/PFHB



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## PFHB Specifications

Dimensions <sup>1</sup>	See Installation Drawing on	page 207 fc	or model spe	cific dimensions.	
Operating Temperature	Fluid Temperature 30°F to 225°F (0°C to 105°C)			<b>Ambient Temper</b> -4°F to 140°F (-20C to 60C)	ature
Operating Pressure	7252 psi (500 bar)				
∆P Indicator Trigger	73 psid (5 bard)				
Element Collapse Rating	<b>HP419NL</b> 450 psid (31.0 bard) max		<b>HP419HL</b> 3000 psid (	206.8 bard) max	<b>HP419CL</b> 250 psid (17.2 bard) max
Materials of Construction	<b>Head</b> Cast steel	<b>Bowl</b> <sup>1</sup> Extruded	d steel	<b>Interior Coating</b> Phosphate	<b>Exterior Coating</b> Industrial powder coating
Media Description	<b>M</b> G8 Dualglass, our latest gen of DFE rated, high performa media for all hydraulic & lub fluids. $\beta x_{[c]} \ge 1000$ ( $\beta x \ge 200$ )	eration nce glass prication )	<b>A</b> G8 Dualgla media com scrim. βx <sub>[c]</sub>	ss high performance bined with water removal ≥ 1000 ( $βx ≥ 200$ )	<b>W</b> Stainless steel wire mesh media $\beta x_{[C]} \ge 2$ (βx ≥ 2)
Replacement Elements	To determine replacen Filter Element Part Number HP419[Collapse Code] L [Len	nent elen er gth Code] –	n <mark>ents, use</mark> [Media Select	the selected codes fro	m the following page below: Example HP419NL13-25MB
Fluid Compatibility	Biodegradable and mineral	based fluids	s. For high wa	ater based or specified synth	netics, consult factory.
Filter Sizing <sup>2</sup>	Filter assembly clean elemen filter assembly bypass settin applications with extreme co	nt ΔP after a ng. See page old start cor	actual viscosi 22 for filter ndition conta	ty correction should not exco assembly sizing guidelines 8 ct Hy-Pro for sizing recomm	eed 10% of « examples. For endations.

∆P Factors <sup>2</sup>	Length	Units	Media 1M	3M	6M	10M	16M	25M	**W
	L8	psid/gpm bard/lpm	0.3415 0.0062	0.2882 0.0052	0.2234 0.0041	0.2003 0.0036	0.1960 0.0036	0.1888 0.0034	0.0340 0.0006
	L13	psid/gpm bard/lpm	0.2364 0.0043	0.1995 0.0036	0.1546 0.0028	0.1387 0.0025	0.1357 0.0025	0.1307 0.0024	0.0235 0.0004

<sup>1</sup>Bowl comes standard with drain plug. <sup>2</sup>Max flow rates and  $\Delta P$  factors assume u = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula on page 22 for viscosity change.



PFH	В	Part N	lu	Imber	Βι	uilder	209
PFHB	ection	Collapse Length Bypass		Indicator Media S	Seal		
Connection	Port C20 C24	C Option 1¼" Code 62 flange 1½" Code 62 flange	Max 95 gr 95 gr	< Flow Rate om (360 lpm) <sup>1</sup> om (360 lpm) <sup>1</sup>			
Collapse	C H N	250 psid (17.2 bard) – Coreless 3000 psid (206.8 bard) – High c 450 psid (31.2 bard) – Core-in e	elemei ollapse element	nt with integral bypass (inclue e element with no housing by t with housing bypass	des post asse pass	mbly for element support,	)1
Element Length	8 13	8" (20 cm) nominal length filter 13" (33 cm) nominal length filte	eleme er elem	nt and housing ent and housing			
Bypass	7 X	102 psid (7 bard) bypass No bypass					
ΔP Indicator	DX L V X	Electrical switch only (DIN conr Visual with electric switch (DIN Visual/Mechanical No indicator (port plugged)	ection) connec	) ction) + LED indicator			
Media Selection	G8 [ 1M 3M 6M 10M 16M 25M	Dualglass β2.5 <sub>[C]</sub> ≥ 1000, β1 ≥ 200 β5 <sub>[C]</sub> ≥ 1000, β3 ≥ 200 β7 <sub>[C]</sub> ≥ 1000, β6 ≥ 200 β12 <sub>[C]</sub> ≥ 1000, β12 ≥ 200 β17 <sub>[C]</sub> ≥ 1000, β17 ≥ 200 β22 <sub>[C]</sub> ≥ 1000, β25 ≥ 200	G8 [ 3A 6A 10A 25A	Dualglass + water remova $\beta 5_{[C]} \ge 1000, \beta 3 \ge 200$ $\beta 7_{[C]} \ge 1000, \beta 6 \ge 200$ $\beta 12_{[C]} \ge 1000, \beta 12 \ge 200$ $\beta 22_{[C]} \ge 1000, \beta 25 \ge 200$	al Sta 25W 40W 74W 149	inless wire mesh 25μ nominal 40μ nominal 74μ nominal W 149μ nominal	
Seals	B V E-WS	Nitrile (Buna) Fluorocarbon EPR seals + stainless steel supp	port me	esh			

<sup>1</sup>Maximum recommended flow rate based on velocity through port and internal flow path. Consult sizing guidelines or consult factory for sizing based on flow rate, viscosity, temperature, filter media selection.





### **DLF(M)** Low Pressure High Flow Duplex Filter Assembly

Designed to maintain continuous filtration, even throughout element servicing, the DLF series filter assemblies provide two high efficiency, high capacity filter housings coupled by a user-friendly 6-way, 3 position valve that completely seals the system from the atmosphere. Use the DLF(M) to remove particulate and water from a variety of fluids and maximize your uptime.

Ideal for systems where filters must be serviced without system interruption such as hydraulic, gearbox, pulp and paper, rolling mill oil, bulk oil handling, and high flow return-line filtration.

#### Max Operating Pressure: 150 psi (10 bar) Available options up to 450 psi (31 bar)



hyprofiltration.com/DLF



#### One assembly, twice the filtration.

DLF assemblies combine two powerful LF housings to deliver lower ISO Codes faster than ever. With a turn of the lever, you'll introduce a new element to your fluid while simultaneously valving the used element out of service to easily change and replace, all while your system continues operating at full capacity.



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#### Built for industrial use.

Constructed from heavy duty carbon steel (standard) or the optional 304 or 316 stainless steel, the DLF filter housings are designed to excel in even the toughest industrial conditions. Multiround units go even further to provide increased capacity whether you're operating with incredibly high viscosity oils or extreme flow rates.

#### Filtration starts with the filter.

The oversized coreless filter element in every DLF delivers lower ISO Codes over a long element lifespan to ensure low disposal impact, simultaneously reducing your environmental footprint and your bottom line. To top it off, select elements come standard with an integral zero-leak bypass so with every filter change you get a new bypass along with peace of mind.



### Seamlessly integrated into your systems.

Multiple connection options provide you with the ability to integrate the DLF directly in-line on your systems and get the most impact from your filtration directly where you need it.

#### Inherently safe.

The true 6-way valve with internal pressure equalization and fill line allows for seamless transition of flow from one housing to the other. As the valve is repositioned, oil from the in-service housing is redistributed to the out-of-service housing to purge air before it can move downstream – meaning you maintain fluid levels, preserve system control and prevent cavitation of your components, all while ensuring your fluid stays remarkably clean.





#### Clean oil has never been easier.

Designed to combine incredible capacity and low maintenance, the oversized housing with secure swivel bolts allow for effortless element changes with all the parts kept right where they need to be. The top loading housing and post/nipple system provide incredible ease of use and make element installation and maintenance easier than ever.



## DLF Installation Drawing



Series	Port Size	Vessel Diameter	А	В	С	Weight	
DLF	2	8.0 in	11.7 in	14.0 in	41.4 in	389.0 lb	
		20.3 cm	29.7 cm	35.6 cm	105.2 cm	176.4 kg	
	3	8.0 in	11.7 in	14.0 in	43.4 in	451.0 lb	
		20.3 cm	29.7 cm	35.6 cm	110.2 cm	204.6 kg	
	4	8.0 in	15.2 in	17.0 in	50.7 in	544.0 lb	
		20.3 cm	38.6 cm	43.2 cm	128.8 cm	246.8 kg	

<sup>1</sup>Dimensions are approximations taken from base model and will vary according to options chosen and customer sizing requirements.



T

# **DLFM Installation Drawing**





#### Series Number Port В (D Е F G Vessel А Weight of Size Diameter Elements

DLFM	3	2	16.0 in	28.7 in	13.0 in	60.0 in	17.0 in	14.0 in	78.5 in	37.0 in	1190.0 lb
			40.6 cm	72.9 cm	33.0 cm	152.4 cm	43.2 cm	35.6 cm	199.4 cm	94.0 cm	539.8 kg
		3	16.0 in	29.7 in	13.0 in	63.0 in	17.0 in	14.0 in	78.5 in	37.0 in	1251.0 lb
			40.6 cm	75.4 cm	33.0 cm	160.0 cm	43.2 cm	35.6 cm	199.4 cm	94.0 cm	567.4 kg
		4	16.0 in	32.2 in	13.0 in	70.0 in	17.0 in	17.0 in	78.5 in	37.0 in	1344.0 lb
			40.6 cm	81.8 cm	33.0 cm	177.8 cm	43.2 cm	43.2 cm	199.4 cm	94.0 cm	609.6 kg
	4	2	18.0 in	29.1 in	13.0 in	66.0 in	17.5 in	14.0 in	83.0 in	37.0 in	1360.0 lb
			45.7 cm	73.9 cm	33.0 cm	167.6 cm	44.5 cm	35.6 cm	210.8 cm	94.0 cm	616.9 kg
		3	18.0 in	30.7 in	13.0 in	68.0 in	17.5 in	14.0 in	83.0 in	37.0 in	1421.0 lb
			45.7 cm	78.0 cm	33.0 cm	172.7 cm	44.5 cm	35.6 cm	210.8 cm	94.0 cm	644.6 kg
		4	18.0 in	27.6 in	13.0 in	75.0 in	17.5 in	17.0 in	83.0 in	37.0 in	1514.0 lb
			45.7 cm	70.1 cm	33.0 cm	190.5 cm	44.5 cm	43.2 cm	210.8 cm	94.0 cm	686.7 kg
	9	3	24.0 in	31.6 in	13.0 in	87.0 in	17.5 in	14.0 in	89.0 in	37.0 in	1811.0 lb
			61.0 cm	80.3 cm	33.0 cm	221.0 cm	44.5 cm	35.6 cm	226.1 cm	94.0 cm	821.5 kg
		4	24.0 in	34.1 in	13.0 in	94.0 in	17.5 in	17.0 in	89.0 in	37.0 in	1904.0 lb
			61.0 cm	86.6 cm	33.0 cm	238.8 cm	44.5 cm	43.2 cm	226.1 cm	94.0 cm	863.6 kg
		6	24.0 in	35.3 in	13.0 in	99.0 in	17.5 in	20.0 in	89.0 in	37.0 in	2081.0 lb
			61.0 cm	89.7 cm	33.0 cm	251.5 cm	44.5 cm	50.8 cm	226.1 cm	94.0 cm	943.9 kg

<sup>1</sup>Dimensions are approximations taken from base model and will vary according to options chosen and customer sizing requirements. Contact factory to request model specific drawings or for any models not listed above.



# DLF(M) Specifications

Dimensions	See Installation Drawing on pages 212-213 for model specific dimensions.										
Operating Temperature	Fluid Tem 30°F to 22 (0°C to 105	<b>perature</b> 5°F 5°C)				<b>Ambient 1</b> -4°F to 140 (-20C to 60	<b>Femperat</b> )°F )C)	ure			
Operating Pressure	150 psi (10	).3 bar) stand	ard. See spee	cial option	ns for addition	al pressure ra	atings.				
Element Collapse Rating	<b>HP105</b> 150 psi (10	).3 bar)	<b>HP1</b> 150	<b>06</b> psi (10.3	bar)	<b>HP107</b> 150 psi (10	).3 bar)		<b>HP831</b> 150 ps	4 <b>(All Code</b> : ii (10.3 bar)	s)
Integral Element Bypass Setting	<b>HP106</b> 25 psid (1.	7 bard)	<b>HP1</b> 50 p	<b>07</b> sid (3.4 b	ard)	<b>HP8314 (C</b> 25 psid (1.	<b>:ode 82)</b> 7 bard)		<b>HP831</b> 50 psid	4 <b>(Code 83)</b> d (3.4 bard)	
Materials of Construction	<b>Housing</b> Industrial	coated carbor	n steel								
Media Description	<b>M</b> G8 Dualgla of DFE rate media for fluids. βx <sub>IC</sub>	MAW58 Dualglass, our latest generation of DFE rated, high performance glass media for all hydraulic & lubricationG8 Dualglass high performance media combined with water removal scrim. $\beta x_{[C]} \ge 1000 \ (\beta x \ge 200)$ Stainless steel wire mesh media $\beta x_{[C]} \ge 2 \ (\beta x \ge 2)$ Humidia Gamma Tuidis. $\beta x_{[C]} \ge 1000 \ (\beta x \ge 200)$ Stainless steel wire mesh media $\beta x_{[C]} \ge 2 \ (\beta x \ge 2)$									
Replacement Elements	To determine replacement elements, use corresponding codes from your assembly part numberElement Type CodeFilter Element Part NumberExample5HP105L[Length Code] - [Media Selection Code][Seal Code]HP105L36-6AB6HP106L[Length Code] - [Media Selection Code][Seal Code]HP106L18-10MV7HP107L[Length Code] - [Media Selection Code][Seal Code]HP107L36-25MB								number:		
	8X 82 85		HP83 HP83 HP83	314L[Leng 314L[Leng 314L[Leng	gth Code] – [Me gth Code] – [Me gth Code] – [Me	edia Selection edia Selection edia Selection	Code][Sea Code][Sea Code][Sea	l Code] l Code] l Code]	HP831 HP831 HP831	4L39–25WV 4L16–12MB 4L39–16ME	–WS
Fluid Compatibility	Petroleum contact fac skydrol flu	and mineral ctory for com id compatibil	based fluids, patibility with ity select flui	, #2 diese n fluoroca d compat	el fuels (standa arbon seal opti tibility from spo	rd). For specil on. For phosp ecial options.	fied syntho phate este	etics er or			
Filter Sizing <sup>1</sup>	Filter asser filter asser applicatior	mbly clean ele nbly bypass s ns with extren	ement ΔP aft etting. See p ne cold start	er actual age 22 fc conditior	viscosity corre or filter assemb n contact Hy-Pi	ction should bly sizing guid ro for sizing re	not excee elines & e ecommen	d 10% of xamples. F dations.	or		
∆P Factors <sup>1</sup>	Model	Length	Units	Media 1M	Э ЗМ	6M	10M	16M		25M	**W
	DLF	L36/L39	psid/gpm bard/lpm	0.0324 0.0009	0.0273 0.0008	0.0212 0.0007	0.0190 0.0007	0.01	86 07	0.0179 0.0007	0.0032 0.0006
	DLFM3	L36/L39	psid/gpm	0.0081	0.0055	0.0051	0.0045	0.00	41	0.0035	0.0029
			bard/lpm	0.00015	5 0.0001	0.00009	0.0000	8 0.00	007	0.00006	0.00005
	DLFM4	L36/L39	psid/gpm	0.0067	0.0048	0.00044	0.004	0.00	3/	0.0032	0.0025
	DI FM9	1 36/1 39	nsid/onm	0.00012	0.00009	0.00008	0.0000	0.00	19	0.00006	0.00005
	2 = 2		bard/lpm	0.00006	6 0.00005	0.00004	0.0000	4 0.00	003	0.00003	0.00002

 $^{1}$ Max flow rates and  $\Delta$ P factors assume  $\upsilon$  = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula on page 22 for viscosity change.



### DLF(M) Part Number Builder 215

DLF							_			_						
Series	Por Cor	t nfiguration	Connection	Element Type	e ΔP Ir	ndicator	Spe	ecial Optio	ons	Media	Seal					
Series	Nur omit M3 M4 M9 M14 M22	nber of 1 eleme 3 eleme 4 eleme 9 eleme 14 eleme 22 eleme	Elements nt nts nts nts ents ents ents	ng (180°), sai	Max 200 g 600 g 800 g 1800 2800 4400	Flow I pm (757 pm (227 pm (302 gpm (302 gpm (10 gpm (10	Rate 7 Ipm) 71 Ipm 28 Ipm 314 Ipr 314 Ipr 5,600 I 5,656 I	1 1) <sup>1</sup> m) <sup>1</sup> [pm) <sup>1</sup> [pm) <sup>1</sup>								
Configuration	O S	Opposit Opposit Same si	e side portir de porting (s	ng (180°), in- standard)	line (di	ifferent	center	r line)								
Connections	A15 A2 A3 A4 A6 A8 D15 D2 D3	1.5" ANS 2" ANSI 3" ANSI 4" ANSI 6" ANSI 8" ANSI DN40 D DN50 D DN80 D	51 flange flange flange flange flange flange IN flange IN flange IN flange					D D F F F	4 96 98 15 2 3	DN100 DII DN150 DII DN200 DII 1.5" Code 2" Code 61 3" Code 61	N flange N flange 61 flange 1 flange 1 flange	e e e e				
Element Type	5 6 7	HP105 - HP106 - HP107 -	- no bypass - 25 psid (1.7 - 50 psid (3.4	7 bard) integ 1 bard) integ	ral ele ral ele	ment by ment by	pass	8) 8; 8;	X 2 5	HP8314 - HP8314 - HP8314 -	no bypa 25 psid 50 psid	ass (1.7 bar (3.4 bar	rd) inte rd) inte	egral hous egral hous	sing bypass sing bypass	
∆P Indicator	D E F G	22 psid 22 psid 45 psid 45 psid	visual gauge visual gauge visual gauge visual gauge	e + electric sv e e + electric sv e	witch witch			H J P X		65 psid vis 65 psid vis 2 pressure None (por	sual gau sual gau e gages rts plugg	ıge + ele ıge (elen (industr ged)	ectric s nents ial liqu	witch 5 or 8* or uid filled)	nly)	
Special Options	omit F G P9 <sup>2</sup> S1 <sup>3</sup> S2 <sup>3</sup>	: 150 psi Filter ele Spill rete Phosph 150 psi ( 250 psi (	(10.3 bar) m ement ΔP ga ntion pan wit ate ester flui 10.3 bar) ma 17.2 bar) ma	ax operating uge with tat ch fork guides id compatibi x oper. press x oper. press	g press tle tale (indus ility mo sure, 30 sure, 30	sure, car e followe trial coat odificatio 04 stainle 04 stainle	bon si er nee ed stee on ess ste ess ste	teel Si dle Si el) U wel X eel Y	3 <sup>3</sup> 9 <sup>4</sup> 11 V	450 psi (31 Skydrol flu U Code (AS Automatic 250 psi (17 450 psi (31	.0 bar) r uid com SME U c air ble 7.2 bar) r .0 bar) r	max oper patibility ode certi ed valve max oper max oper	r. pres y modi ified) r. pres r. pres	sure, 304 ification sure, carb sure, carb	stainless stee oon steel oon steel	2
Media Selection	G8 [ 1M 3M 6M 10M <sup>3</sup> 16M 25M	$\begin{array}{l} \text{Dualglas} \\ \beta_{2.5_{[C]}} \geq \\ \beta_{5_{[C]}} \geq 1 \\ \beta_{7_{[C]}} \geq 1 \\ \beta_{7_{[C]}} \geq \\ \beta_{12_{[C]}} \geq \\ \beta_{17_{[C]}} \geq \\ \beta_{22_{[C]}} \geq \end{array}$	S 1000, $β1 ≥ 2$ 000, $β3 ≥ 20$ 000, $β6 ≥ 20$ 1000, $β12 ≥$ 1000, $β17 ≥$ 1000, $β25 ≥$	200 0 200 200 200 200	G8 D 3A 6A 10A <sup>5</sup> 25A	$\begin{array}{l} \beta \\ \beta \\ \beta \\ \beta \\ \beta \\ \gamma \\ c \\ \beta \\ \beta \\ 12 \\ c \\ \beta \\ 22 \\ c \\ c \\ c \end{array} \ge \begin{array}{l} \beta \\ \beta \\ \beta \\ \beta \\ c \\ c \\ c \\ c \\ c \\ c \\$	55 <b>+ W</b> 1000, 1000, 1000, 1000, 1000,	vater re $β3 \ge 20$ $β6 \ge 20$ , $β12 \ge$ , $β25 \ge$	em 0 200 200	oval	Sta 25W 40W 74W 149V	inless w 25μ n 40μ n 74μ n N 149μ	vire m omina omina omina nomin	nesh al al al al		
Seals	B V	Nitrile (I Fluoroc	Buna) arbon													

<sup>1</sup>Maximum recommended flow rate based on velocity through port and internal flow path. Consult sizing guidelines or consult factory for sizing based on flow rate, viscosity, temperature, filter media selection. <sup>2</sup>When selected, must be paired with Seal option "V." Contact factory for more information or assistance in fluid compatibility. <sup>3</sup>Lid closure hardware is plated carbon steel.

<sup>4</sup>When selected, must be paired with Seal option "E-WS." Contact factory for more information or assistance in fluid compatibility. <sup>5</sup>For elements HP8314, use 12M or 12A for respective media code in place of 10M or 10A.



### **DFN** Low Pressure Duplex Filter Assembly

Designed to maintain continuous filtration, even throughout element servicing, the DFN series filter assemblies provide a compact and user-friendly 4-way, 2 position housing completely sealed from the atmosphere. Remove particulate and water from a variety of fluids including hydrogen seal, oil, turbine lube oil, bearing lube oil, and FD-ID-PA fan lube.

Ideal for systems where filters must be serviced without system interruption such as hydraulic, gearbox, wind turbine, boiler feed pump, mechanical/ electro hydraulic control, and servo systems.

#### Max Operating Pressure: 888 psi (61.2 bar)



hyprofiltration.com/DFN



#### Two positions, one result.

DFN housings provide unmatched in-line filtration with incredible ease of use. With a squeeze of the trigger and turn of the wrist, you'll introduce a new element to your fluid while simultaneously valving the used element out of service to easily change and replace, all while your system continues operating at full capacity.





#### All duplexes are not created equal.

Air in any lube system can quickly cause failure and force you to take your system down for maintenance. DFN assemblies utilize internal equalization and external vent ports to automatically push oil into and purge air out from the unused housing without any added effort.

#### Elements that go beyond industry standard.

DFE rated advanced media technologies provide the highest level of particulate capture and retention capabilities so your equipment operates unimpeded by contamination. With media options down to  $\beta 2.5_{\text{[C]}} \ge 1000$  + water absorption, you get the perfect element for your application, every time.

⊢ 3.5 in [87.9 mm]



– 5.5 in -[139.7 mm]

⊷ 4.3 in -[108.9 mm]

#### 6.8 in [172.0 mm] 11.1 in [283.0 mm] **DFN19 DFN39** - 4.0 in -[100.4 mm] 8.2 in [207.1 mm] Installation Installation Drawing 4X M8X1 25 3.0 in Drawing 3.0 in [76.4 mm] [76.4 mm] 4X M12X1.25 0 2.1 in [52.6 mm] 2.4 in [62.0 mm] 0.7 in [17.7 mm] 0.8 in [20.1 mm] 6.7 in [170.2 mm] 5.8 in [147.2 mm] o 2.2 in [56.0 mm] 1.9 in [49.0 mm] 3.9 in [98.8 mm] 3.2 in [81.4 mm] (L6) 11.1 in [283.1 mm] (L4) 7.7 in [194.7 mm] (L6) (10)10.1 in [255.3 mm] 15.0 in [380.0 mm] (L10) 13.6 in [346.4 mm] (L15) 20.7 in [526.9 mm] 2.6 in [66.3 mm]

## DFN Specifications

Dimensions	See Instal	lation Drawi	ng on page 217	for model sp	pecific dime	ensions.				
Operating Temperature	<b>Fluid Ten</b> 30°F to 22 (0°C to 10	<b>perature</b> 25°F 5°C)				<b>Ambient T</b> -4°F to 140° (-20C to 600	emperature <sup>?</sup> F C)	2		
Operating Pressure	<b>DFN19</b> 888 psi (6	1.2 bar) max				<b>DFN39</b> 350 psi (24.	1 bar) max			
∆P Indicator Trigger	32 psid (2	.21 bard)								
Element Collapse Rating	Normal C 450 psid (	<b>Collapse (Co</b> l 31.0 bard)	lapse Option I	ע)		High Collar 3000 psid (2	<b>ose (Collaps</b> 206.8 bard)	e Option H	)	
Materials of Construction	<b>Head</b> Aluminum	٦	<b>Bowl</b> Alumir	num		Interior Co Anodized	ating			
Media Description	<b>M</b> G8 Dualgl of DFE rat media for fluids. βx <sub>r</sub>	ass, our late ed, high per all hydraulic cj ≥ 1000 (βx	st generation formance glass : & lubrication ≥ 200)	<b>A</b> G8 Dualg media co scrim. β	glass high p ombined w K <sub>[C]</sub> ≥ 1000 (	performance ith water ren βx ≥ 200)	W Sta noval me	iinless steel edia βx <sub>[c]</sub> ≥ 2	wire mesh (βx ≥ 2)	
Replacement Elements	To deten Series Co 19 39	rmine rep de Filter I HP19[0 HP39[0	lacement ele Element Part N Collapse Code] L Collapse Code] L	ements, us lumber [Length Cod [Length Cod	e] – [Media e] – [Media	ponding co Selection Coo Selection Coo	des from de][Seal Cod de][Seal Cod	e] HP3	embly par mple 9HL6-10MB 9NL6-6AV	rt number:
Fluid Compatibility	Biodegrad	dable and mi	neral based flu	ids. For high	water base	ed of specifie	d synthetics	, consult fac	tory.	
Filter Sizing <sup>1</sup>	Filter asse filter asse applicatio	embly clean e mbly bypass ns with extre	element ΔP afte setting. See pa eme cold start c	r actual visco ge 22 for filt ondition cor	osity correc er assembl ntact Hy-Pro	tion should r y sizing guide o for sizing re	not exceed 1 elines & exa ecommenda	0% of nples. For tions.		
$\Delta P$ Factors <sup>1</sup>	Model	Length	Units	Media 1M	3M	6M	10M	16M	25M	**W
	DFN19N	L4	psid/gpm bard/lpm	3.4021 <b>0.0620</b>	2.8710 0.0523	1.9270 0.0351	1.3030 <b>0.0237</b>	0.9198 <b>0.0168</b>	0.8860 0.0161	0.4700 <b>0.0086</b>
		L6	psid/gpm bard/lpm	2.0986 0.0382	1.7710 0.0323	1.1980 <b>0.0218</b>	1.0420 0.0190	0.8658 0.0158	0.8340 0.0152	0.4170 0.0076
		L10	psid/gpm	1.4943	1.2610	1.0420	0.7820	0.6489	0.6250	0.3130
		16	bard/lpm	0.0272	0.0230	0.0190	0.0142	0.0118	0.0114	0.0057
	DEN39N	LO	psia/gpm bard/lpm	0.6541	0.5520	0.4170	0.3440	0.2/10	0.2010	0.1550
		L10	psid/gpm	0.5190	0.4380	0.3230	0.2870	0.2429	0.2340	0.1350
			bard/lpm	0.0095	0.0080	0.0059	0.0052	0.0044	0.0043	0.0025
		L15	psid/gpm	0.4633	0.3910	0.3010	0.2660	0.2180	0.2100	0.1170
			bard/lpm	0.0084	0.0071	0.0055	0.0048	0.0040	0.0038	0.0021

1Max flow rates and ΔP factors assume u = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula on page 22 for viscosity change.



## DFN Part Number Builder

2	21	19	)

DFN		opposition	Callansa	Longth			AD Indicator		Madia	Cool				
Series		onnection	Collapse	Length	ВУ	Dass	ΔP Indicator		Media	Seal				
Series	19 39	25 gpm (9 70 gpm (2	95 lpm) max 265 lpm) ma	flow rate <sup>1</sup> x flow rate <sup>1</sup>										
Connection	DFN F16 <sup>2</sup> G16	<b>119</b> 1" Code 6 1" G threa	51 flange ad (BSPP)					DFN F24 <sup>2</sup> G24	<b>139</b> 1½" Code 61 1½" G thread	flange d (BSPP)				
Collapse Rating	H N	3000 psic 450 psid	d (206.8 barc (31.0 bard)	1)										
Element Length	DFN 4 6 10	<b>119</b> 4" (10 cm 6" (15 cm 10" (25 cr	) nominal le ) nominal le m) nominal l	ngth filter ele ngth filter ele ength filter e	emer emer leme	nt and hou nt and hou ent and ho	using d using d ousing d	DFN 6 10 15	<b>139</b> 6" (15 cm) n 10" (25 cm) i 15" (38 cm) i	ominal ler nominal le nominal le	ngth f ength ength	ïlter ele filter el filter el	ment an ement a ement a	d housing nd housing nd housing
Bypass	3 X	Integrated No bypas	d bypass – 50 s	) psid (3.4 bar	d)									
ΔP Indicator	D V X	Visual with Visual/Me No indicat	h electric swi echanical tor (port plug	tch (DIN conr gged)	nectic	n)								
Media Selection	G8 [ 1M 3M 6M 10M 16M 25M	$\begin{array}{l} \text{Dualglass} \\ \beta 2.5_{(c)} \geq 1 \\ \beta 5_{(c)} \geq 10 \\ \beta 7_{(c)} \geq 10 \\ \beta 12_{(c)} \geq 1 \\ \beta 12_{(c)} \geq 1 \\ \beta 17_{(c)} \geq 1 \\ \beta 22_{(c)} \geq 1 \end{array}$	1000, β1 ≥ 2( 00, β3 ≥ 200 00, β6 ≥ 200 000, β12 ≥ 2 000, β17 ≥ 2 000, β25 ≥ 2	00 3 6 1 00 2 00 00	G8 D 3A <sup>3</sup> 5A <sup>3</sup> 10A <sup>3</sup> 25A <sup>3</sup>	3 Dualglass + water re <sup>3</sup> β5 <sub>t</sub> ≥ 1000, β3 ≥ 20 <sup>3</sup> β7 <sub>t</sub> ≥ 1000, β6 ≥ 20 <b>A</b> <sup>3</sup> β12 <sub>t</sub> ≥ 1000, β12 ≥ <b>A</b> <sup>3</sup> β22 <sub>t</sub> ≥ 1000, β25 ≥			noval	Stainless wire mesh25W25μ nominal40W40μ nominal74W74μ nominal149W149μ nominal				
Seals	B V	Nitrile (Bu Fluorocar	una) rbon											

<sup>1</sup>When selected, must be paired with Seal option "V." Contact factory for more information or assistance in fluid compatibility. <sup>3</sup>Watric threads for flange connection bolts. See Appendix for exact connection sizes and specifications. <sup>3</sup>Water Removal Media available only with Collapse option "N."



### **DFH** High Pressure Duplex Filter Assembly

The DFH series is designed to remove particulate and water from a variety of fluids including hydrogen seal oil, turbine lube oil, bearing lube oil, and FD-ID-PA fan lube. Applicable for wind turbine, boiler feed pump, mechanical/electro hydraulic control, and fuel handling systems.

Ideal for systems where filters must be serviced while continuous operation is not interrupted such as hydraulic, gearbox, and servo systems.

#### Max Operating Pressure: 3600 psi (248 bar)



hyprofiltration.com/DFH





#### Elements that go beyond industry standard.

DFE rated advanced media technologies provide the highest level of particulate capture and retention capabilities so your equipment operates unimpeded by contamination. With media options down to  $\beta 2.5_{CI} \ge 1000$ , + water absorption, you get the perfect element for your application, every time.



#### Two positions, one result.

DFH housings provide unmatched in-line filtration with incredible ease of use. With a squeeze of the trigger and turn of the wrist, you'll introduce a new element to your fluid while simultaneously valving the used element out of service to easily change and replace, all while your system continues operating at full capacity.

#### All duplexes are not created equal.

Air in any lube system can quickly cause failure and force you to take your system down for maintenance. DFN assemblies utilize internal equalization and external vent ports to automatically push oil into and purge air out from the unused housing without any added effort.



#### 11.1 in [282.6 mm] **DFH19** 7.3 in [186.0 mm] **DFH39** 8.3 in [210.1 mm] 3.9 in [100.0 mm] Installation Installation 3.4 in 0.4 in [86.4 mm] [10.0 mm] Drawing Drawing 4X M12X1.25 4X M8X1.25 4.2 in [107.3 mm] 2.4 in [62.0 mm] 2.2 in [55.0 mm] 1.2 in [31.1 mm] 5.5 in [140.0 mm] 6.2 in [157.4 mm] 2.1 in [54.1 mm] 2.1 in [52.8 mm] 1.9 in [48.4 mm] 1.5 in [38.0 mm] (L6) (L4) 11.9 in [302.2 mm] 7.2 in [182.7 mm] (L6) 9.6 in [243.8 mm] (L10) (L10) 15.4 in [392.1 mm] 13.1 in [331.5 mm] (L15) 21.5 in [545.9 mm]

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## DFH Specifications

Dimensions	See Instal	llation Drawi	ng on page 221 f	or model s	pecific dime	ensions.								
Operating Temperature	<b>Fluid Ten</b> 30°F to 22 (0°C to 10	<b>nperature</b> 25°F 05°C)			Ambient Temperature -4°F to 140°F (-20C to 60C)									
Operating Pressure	<b>DFH19</b> 3600 psi (	(248.2 bar) n	nax			<b>DFH39</b> 3000 psi (206.8 bar) max								
∆P Indicator Trigger	73 psid (5	bard)												
Element Collapse Rating	450 psid (31.0 bard)													
Materials of Construction	<b>Head</b> Cast steel			<b>Bowl</b> Cast stee	2		<b>H</b> S	Housing Bypass Valve Steel						
Media Description	<b>M</b> G8 Dualg of DFE rat media for fluids. βx <sub>1</sub>	lass, our late ted, high per r all hydrauli <sub>c]</sub> ≥ 1000 (βx	est generation formance glass c & lubrication ≥ 200)	<b>A</b> G8 Dual media co scrim. β	glass high p ombined wi < <sub>[C]</sub> ≥ 1000 (	performance th water ren βx ≥ 200)	<b>V</b> S noval n	<b>W</b> Stainless steel wire mesh media $\beta x_{[C]} \ge 2 \ (\beta x \ge 2)$						
Replacement Elements	To determine replacement elements, use corresponding codes from your assembly part noSeries CodeFilter Element Part NumberExample19HP19[Collapse Code] L [Length Code] – [Media Selection Code][Seal Code]HP19HL6-10MB39HP39[Collapse Code] L [Length Code] – [Media Selection Code][Seal Code]HP39NL6-6AV													
Fluid Compatibility	Biodegradable and mineral based fluids. For high water based of specified synthetics, consult factory.													
Filter Sizing <sup>1</sup>	Filter assembly clean element ΔP after actual viscosity correction should not exceed 10% of filter assembly bypass setting. See page 22 for filter assembly sizing guidelines & examples. For applications with extreme cold start condition contact Hy-Pro for sizing recommendations.													
$\Delta P$ Factors <sup>1</sup>	Model	Length	Units	Media 1M	3M	6M	10M	16M	25M	**W				
	DFH19	L4 L6	psid/gpm bard/lpm psid/gpm bard/lpm	3.402 0.0620 2.099 0.0382	2.871 0.0523 1.771 0.0323	1.927 0.0351 1.198 0.0218	1.303 0.0237 1.042	0.920 0.0168 0.866 0.0158	0.886 0.0161 0.834 0.0152	0.470 0.0086 0.417 0.0076				
		L10	psid/gpm bard/lpm	1.494 0.0272	1.261 0.0230	1.042 0.0190	0.782	0.649	0.625	0.313				
	DFH39	L6	psid/gpm bard/lpm psid/gpm	0.654 0.0119	0.552 0.0101 0.438	0.417 0.0076	0.344 0.0063 0.287	0.271 0.0049 0.243	0.261 0.0048 0.234	0.155 0.0028 0.135				
		L15	bard/lpm psid/gpm bard/lpm	0.0095 0.463 0.0084	0.0080 0.391 0.0071	0.0059 0.301 0.0055	0.0052 0.266 0.0048	0.0044 0.218 0.0040	0.0043 0.210 0.0038	0.0025 0.117 0.0021				

<sup>1</sup>Max flow rates and ΔP factors assume υ = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula on page 22 for viscosity change.



## DFH Part Number Builder

DFHSeries	C	onnection	Collapse	Length	Bypass	ΔΡ	Indicator	_	Media	Seal				
Series	19 39	25 gpm (9 70 gpm (2	95 lpm) max 265 lpm) ma	flow rate <sup>1</sup> x flow rate <sup>1</sup>										
Connection	DFH F16 <sup>2</sup> G16	179 1″ Code 6 1″ G threa	51 flange ad (BSPP)				C F G	DFH 24 <sup>2</sup> 524	<b>139</b> 1½" Code 1½" G thre	61 flange ead (BSPP)	)			
Collapse	H N	3000 psic 450 psid	d (206.8 bard) (31.0 bard)	(k										
Element Length	DFH 4 6 10	4" (10 cm 6" (15 cm 10" (25 cr	i) nominal le i) nominal le m) nominal l	ngth filter e ngth filter e ength filter	lement a lement a element	nd housir nd housir and housi	ng <b>6</b> ng <b>1</b> ing <b>1</b>	DFH 5 10 15	1 <mark>39</mark> 6" (15 cm) 10" (25 cn 15" (38 cn	) nominal l n) nominal n) nominal	ength lengtl lengtl	filter el h filter ( h filter (	ement a element element	nd housing and housing and housing
Bypass	7 X	102 psid ( No bypas	(7 bard) bypa s	SS										
∆P Indicator	D V X	Visual wit Visual/Me No indica	th electric sv echanical ator (port plu	vitch (DIN co Igged)	onnectior	ר)								
Media Selection	G8 [ 1M 3M 6M 10M 16M 25M	$\begin{array}{l} \textbf{Dualglass} \\ \beta_{2.5}_{[c]} \geq 1000, \ \beta_{1} \geq 200 \\ \beta_{5}_{[c]} \geq 1000, \ \beta_{3} \geq 200 \\ \beta_{7}_{[c]} \geq 1000, \ \beta_{6} \geq 200 \\ \hline \beta_{12}_{[c]} \geq 1000, \ \beta_{12} \geq 200 \\ \hline \beta_{17}_{[c]} \geq 1000, \ \beta_{17} \geq 200 \\ \hline \beta_{22}_{[c]} \geq 1000, \ \beta_{25} \geq 200 \end{array}$			<b>G8 Dualglass + water removal</b> <b>3A</b> <sup>3</sup> $\beta_{5_{[C]}} \ge 1000, \beta_3 \ge 200$ <b>6A</b> <sup>3</sup> $\beta_{7_{[C]}} \ge 1000, \beta_6 \ge 200$ <b>10A</b> <sup>3</sup> $\beta_{12_{[C]}} \ge 1000, \beta_{12} \ge 200$ <b>25A</b> <sup>3</sup> $\beta_{22_{[C]}} \ge 1000, \beta_{25} \ge 200$				Stainless wire mesh 25W 25μ nominal 40W 40μ nominal 74W 74μ nominal 149W 149μ nominal					
Seals	B V	Nitrile (Bi Fluorocai	una) rbon											

<sup>1</sup>When selected, must be paired with Seal option "V." Contact factory for more information or assistance in fluid compatibility. <sup>2</sup>Metric threads for flange connection bolts. See Appendix for exact connection sizes and specifications.

<sup>3</sup>Water Removal Media available only with Collapse option "N."



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