HY-PRO FILTRATION

F8 High Flow Filter

500 psi, 35 bar Max Operating Pressure
G8 Dualglass Filter Element Technology

Performance

Temperature: Buna: -45°F ~ 225°F, -43°C ~ 107°C
EPR: -65°F ~ 300°F, -53°C ~ 148°C
Viton: -20°F ~ 250°F, -29°C ~ 121°C

Standard Element Collapse: ΔP 250 psi, ΔP 17 bar

- Ideal for high viscosity lubricating fluids and high flow hydraulic applications.
- Top loading housing contains fluid during service to minimize mess.
- Full flow bypass valve located in the topside cover.
- Several element configurations available including; Hy-Pro coreless element with integral bypass, industry standard 8310 style deep pleat (core-in) and 8314 style deep pleat coreless.
- Port to port configuration matches Pall H*8300/8314 series filter assemblies.
- Mounting brackets available in the spare parts list.

Materials	
Head & top cover	Cast aluminum (anodized)
Bowl	Coated steel
Seals	Buna, EPR (skydrol) or Viton
Media options	G8 Dualglass $\beta x_{[c]} > 1000$ Stainless steel wire mesh G8 Glass $\beta x_{[c]} > 1000$, H_2O removal
ISO standards	
ISO 2941	Collapse and burst resistance
ISO 2942	Fabrication and integrity test
ISO 2943	Material compatibility with fluids
ISO 3724	Flow fatigue test
ISO 3968	Pressure drop vs flow rate
ISO 16889	Multi-pass filter performance
DIN 24550	Nominal pressure rating
Temperature rating	Buna -40°F(-40°C) to 225°F(107°C) Viton -15°F(-26°C) to 275°F(135°C)
Fluid compatibility	Biodegradable and mineral based fluids. For high water based or specified synthetics consult factory

DFE rated elements (Dynamic Filter Efficiency)	G8 Dualglass media filter elements ensure fluid cleanliness In hydraulic & lube systems with high capture & retention efficiency (See DFE literature for details)
Circumferential o-ring bowl seal	Circumferential seal on the bowl eliminates leaking and weeping.
Low housing pressure drop	Unique internal flow paths provide low resistance to flow. (Low pressure drop)
Coreless elements	HP106/107 coreless elements Include integral bypass valve (new bypass with each element change) HP105/8314/8310 feature bypass valve integrated into the housing
Differential indicator (dirty filter)	Available with visual, electrical, or electrical with visual signal pop-up differential indicator.

HIGH PERFORMANCE FILTER ELEMENTS - THE HEART OF A FILTER

Dynamic Filter Efficiency (DFE) Testing

Revolutionary test methods assure that DFE rated elements perform true to rating even under demanding variable flow and vibration conditions. Today's industrial and mobile hydraulic circuits require elements that deliver specified cleanliness under ALL circumstances. Wire mesh supports the media to ensure against cyclical flow fatigue, temperature, and chemical resistance failures possible in filter elements with synthetic support mesh. Contact your distributor or Hy-Pro for more information and published articles on DFE testing.

Media Options

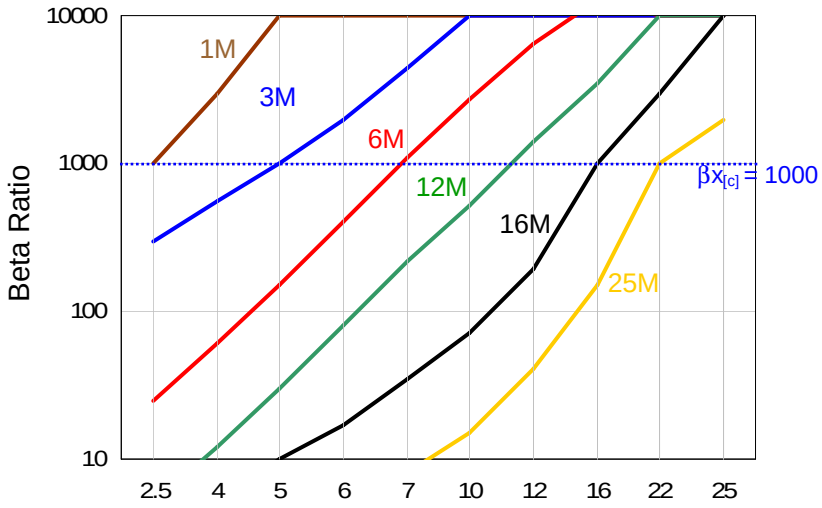
Through extensive testing we have developed media choices to handle any application. Options include G7 Dualglass, Dynafuzz (stainless fiber), and Wire mesh (stainless).

Fluid Compatibility

Petroleum based fluids, water glycol, polyol ester, phosphate ester, high water based fluids and many other synthetics. Contact us for seal material selection assistance.

FILTER MEDIA SPECIFICATIONS

Glass Media Code Filtration Efficiency (Beta Ratio) vs Micron Size



Elements Tested to ISO quality standards

ISO 2941	Collapse and burst resistance
ISO 2942	Fabrication and Integrity test
ISO 2948	Material compatibility with fluids
ISO 3724	Flow fatigue characteristics
ISO 3968	Pressure drop vs. flow rate
ISO 16889	Multi-pass performance testing

Coreless Filter Element Technology

Hy-Pro coreless elements are featured in the FCL series. The elements are oversized to yield extended element life and handle a wide variety of high viscosity oils. Hy-Pro coreless elements utilize wire mesh pleat support which ensures that the pleats won't collapse or lose integrity.

media code	media description
A	G8 Dualglass high performance media combined with water removal scrim. $\beta x_{[c]} = 1000$ ($\beta x = 200$)
M	G8 Dualglass our latest generation of DFE rated, high performance glass media for all hydraulic & lubrication fluids. $\beta x_{[c]} = 1000$ ($\beta x = 200$)
W	Stainless steel wire mesh media $\beta x_{[c]} = 2$ ($\beta x = 2$) nominally rated

HY-PRO FILTRATION

www.filterelement.com

SELECTION AND SIZING GUIDELINES

Effective filter sizing requires consideration of flow rate, viscosity (operating and cold start), fluid type and degree of filtration. When properly sized, bypass during cold start can be avoided/minimized and optimum element efficiency and life achieved. The filter assembly differential pressure values provided for sizing differ for each media code, and assume 150 SSU (32Cts) viscosity and 0.86 fluid specific gravity. Use the following steps to identify the correct high pressure filter assembly.

1. Calculate Δp coefficient at both operating and cold start viscosity:

$$\Delta p \text{ Coefficient} = \frac{\text{Actual Operating Viscosity (SSU)}}{150} \times \frac{\text{Actual S.G.}}{0.86}$$

2. Calculate actual clean filter assembly Δp at both operating and cold start viscosity:

Actual assembly clean Δp = Flow rate x Δp Coefficient x Assembly Δp factor (from sizing table)

3. Sizing Recommendations to optimize performance and permit future flexibility:

- To avoid or minimize bypass during cold start the actual assembly clean Δp calculation should be repeated for start-up conditions if cold starts are frequent.
- Actual assembly clean Δp should not exceed 5 psid at normal operating viscosity.
- If suitable assembly size is approaching the upper limit of the recommended flow rate at the desired degree of filtration consider increasing the assembly to the next larger size if a finer degree of filtration might be preferred in the future. This practice allows the future flexibility to enhance fluid cleanliness without compromising clean Δp or filter element life.
- Once a suitable filter assembly size is determined consider increasing the assembly to the next larger size to optimize filter element life and avoid bypass during cold start.
- When using water glycol or other specified synthetics we recommend increasing the filter assembly by 1~2 sizes.
- High viscosity fluid (ie gear lube ISO 220) will typically display very high viscosity as the temperature drops below 100f. For such applications avoiding bypass during start-up might not be possible.

F8 Element Assembly (housing + element) Differential Pressure Factors

Media code	Port size	L36, 39 Max flow gpm (lpm)	Length code	Δp factor* (psid/gpm)	Δp factor* (bar/lpm)	Length code	Δp factor* (psid/gpm)	Δp factor* (bar/lpm)
1M	2" Flange	100 (375)	16	0.064	0.00123	36,39	0.047	0.00090
3M		150 (560)		0.054	0.00104		0.042	0.00081
6M		150 (560)		0.052	0.00100		0.041	0.00079
10M, 12M		150 (560)		0.050	0.00094		0.040	0.00077
16M		200 (750)		0.046	0.00089		0.038	0.00073
25M		200 (750)		0.040	0.00083		0.037	0.00071
**W		300 (1125)		0.005	0.00077		0.035	0.00067
1M	2.5" Flange	150 (560)	16	0.051	0.00085	36,39	0.034	0.00065
3M		200 (750)		0.041	0.00079		0.030	0.00058
6M		200 (750)		0.039	0.00075		0.029	0.00055
10M, 12M		250 (935)		0.037	0.00072		0.028	0.00053
16M		300 (1125)		0.033	0.00065		0.026	0.00050
25M		300 (1125)		0.030	0.00058		0.024	0.00046
**W		300 (1125)		0.027	0.00051		0.022	0.00042

*Max flow rate and Δp factor assumes υ = 150 sus, 32 Centistokes. See Δp viscosity conversion formula for viscosity

F8 FILTER ASSEMBLY PART NUMBER GUIDE

	table 1		table 2		table 3	table 4	table 5		table 6		table 7		
F8		-		-				-		-		-	Hy-Pro Code

FILTER ELEMENT PART NUMBER GUIDE

	table 1		table 2		table 3	table 4
HP		L		-		

table 1 code	Element Configuration
8310	Core-in deep pleat filter element Interchanges with Pall HC8310 o-ring seals
105	HP105 coreless series, positive o-ring seals.
106	HP106 element with bypass, 25 psid (1,8 bar) bypass, orings
107	HP107 element with bypass 50 psid (3,5 bar) bypass, orings
8314	Coreless filter element Interchanges with Pall HC8314, o-ring seals, max recommended

table 2 code	Element Length
16*	Single length (table 1 codes 105, 106, 107, 8310, 8314). HP105/106/107L16 are shorter than HP105/106/107L18 elements and are not interchangeable.
36	Extended length (table 1 element codes 105, 106, 107 only)
39	Extended length (table 1 element codes 8310, 8314 only)

*Call for availability (possible longer lead times)

table 3 code	Filtration rating
1M	$\beta 2.5_{[c]} = 1000$ ($\beta 1 = 200$)
3M	$\beta 5_{[c]} = 1000$ ($\beta 3 = 200$)
6M	$\beta 7_{[c]} = 1000$ ($\beta 6 = 200$)
6A	$\beta 7_{[c]} = 1000$ + water removal
10M*	$\beta 12_{[c]} = 1000$ ($\beta 12 = 200$)
10A*	$\beta 12_{[c]} = 1000$ + water removal
16M	$\beta 17_{[c]} = 1000$ ($\beta 17 = 200$)
16A	$\beta 17_{[c]} = 1000$ + water removal
25M	$\beta 22_{[c]} = 1000$ ($\beta 25 = 200$)
25A	$\beta 22_{[c]} = 1000$ + water removal
25W	25µ nominal wire mesh
40M	$\beta 35_{[c]} = 1000$ ($\beta 40 = 200$)
40W	or 40µ nominal wire mesh
74W	74µ nominal wire mesh
149W	149µ nominal wire mesh
250W	250µ nominal wire mesh

*For table 1 element code 8310, 8314 use 12M or 12A for respective media code (Not 10M, 10A)

table 4 code	Seals
B	Buna (Nitrile)
E-WS	EPR + stainless steel support mesh (Skydrol specific fluid applications)
V	Viton (Fluorocarbon)

table 5 code	Porting Option
F1	**2" SAE four bolt flange (Code 61)**
F2*	2 1/2" SAE four bolt Flange (Code 61)
S1*	SAE-24 threaded 1 7/8" - 12 UN

*Call for availability (possible longer lead times)

table 6 code	Bypass Valve Setting
X	Bypass valve integrated into filter element (table 1 element codes 106, 107 only)
25	25 psid (1,5 bar) bypass valve (table 1 element codes 105, 8310, 8314 only) **Recommend indicator V1 or L1 **
50	50 psid (3,5 bar) bypass valve (table 1 element codes 105, 8310, 8314 only) **Recommend indicator V3 or L3 **

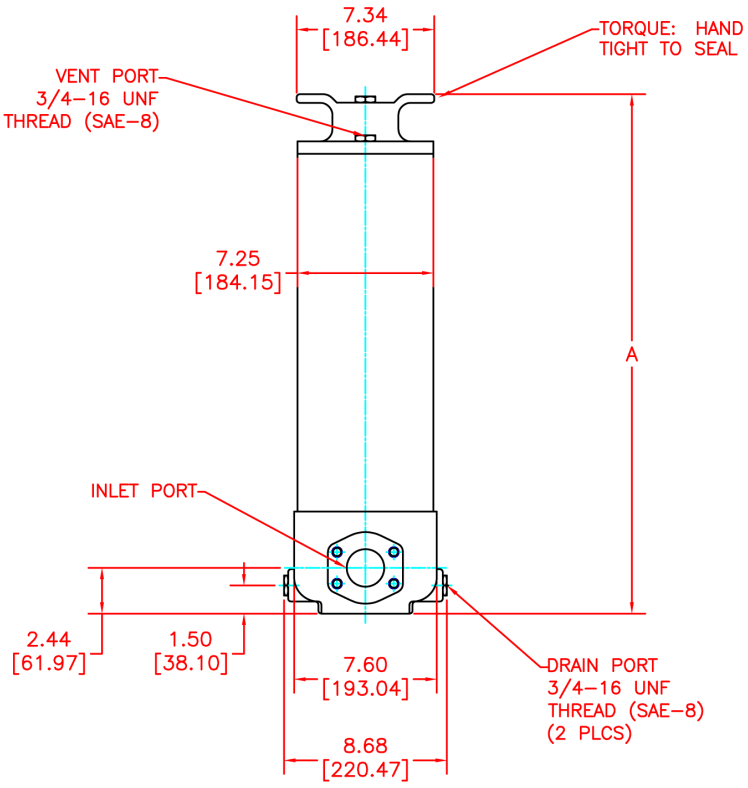
table 7 code	ΔP Indicator
V1	Visual only 15 psid (1 bar)
L1	Visual / Electrical 15 psid (1 bar)
V3	Visual only 35 psid (2,4 bar)
L3	Visual / Electrical 35 psid (2,4 bar)

*V1 and L1 indicator options are recommended for bypass valve setting 25 (table 6 code), HP106 element option (table 1 code) or specific applications with non-bypass. V3 and L3 indicator options are recommended for bypass valve setting 50 (table 6 code), HP107 element option (table 1 code) or specific applications with non-bypass.

F8 Medium Pressure Assembly

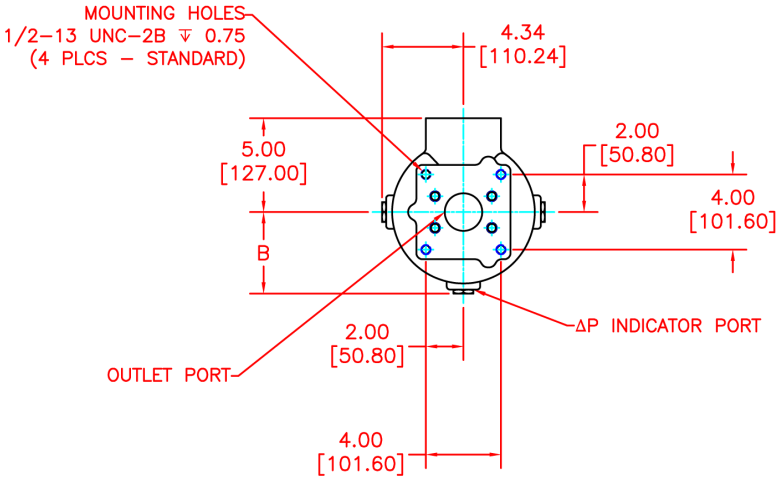
INSTALLATION DRAWING

	16 length code IN (mm)	36/39 length code IN (mm)
F1 Port Option	2" SAE four bolt flange (code 61)	2" SAE four bolt flange (code 61)
F2 Port Option	2 1/2" SAE four bolt flange (code 61)	2 1/2" SAE four bolt flange (code 61)
S1 Port Option	SAE-24 threaded 1 7/8" - 12 UN	SAE-24 threaded 1 7/8" - 12 UN
A (Length)	25.50" (648)	47.25" (1200)
B (Indicator)	Visual 5.52" (140.2) Vis/Elec 6.03" (153.2)	Visual 5.52" (140.2) Vis/Elec 6.03" (153.2)
Ele. Removal	14.90" (379)	34.70" (882)
Weight	58.5 Lb (26.6 Kg)	96.2 Lb (43.7 Kg)

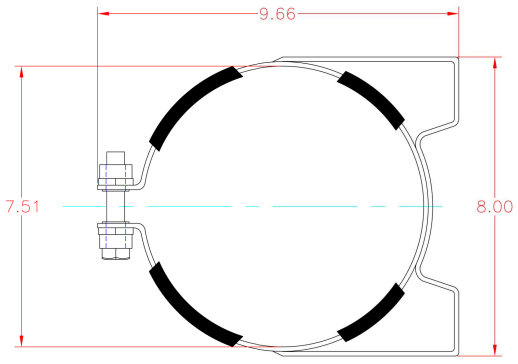


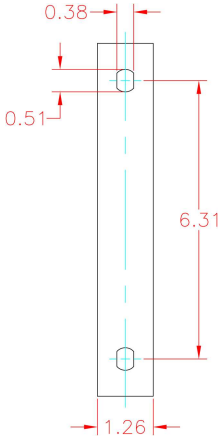
SPARE PARTS LIST

1	**Element**	**See element p/n guide**
2	**Bowl seal kit**	
	Nitrile NBR	F8SKB
	Fluorocarbon	F8SKV
3	**Replacement bowl**	
	16 length	F8B-1
	36 / 39 length	F8B-2
4	**Indicator**	
	Visual 15 psid, Buna	F8IV1B
	Visual 15 psid, Viton	F8IV1V
	Visual 35 psid, Buna	F8IV3B
	Visual 35 psid, Viton	F8IV3V
	Visual + Electrical 15 psid, Buna	F8IL1B
	Visual + Electrical 15 psid, Viton	F8IL1V
	Visual + Electrical 35 psid, Buna	F8IL3B
	Visual + Electrical 35 psid, Viton	F8IL3V
5	**Mounting bracket**	
	Housing mounting bracket	F8BR



F8BR mounting bracket (use at least 2 for L36/39)





Hirschman 4-pin DIN 43650

Electrical indicator wiring diagram (female DIN socket not included)