

# FPL Spin-On Filter Panel

Flow rate up to 11 gpm (41 lpm), Max operating pressure 150 psi, 10 bar



Ideal for hydraulic fluids (ISO VG22 ~ ISO VG68)

Filter new fluids during replenishment (top-off)

Enhance existing filtration (high efficiency elements.)

Remove particle and water contaminant.

## Materials of Construction

Assembly Frame: Painted Steel  
Filter Assembly: Aluminum head, Steel canister  
25 psid bypass valve  
True differential pressure indicator

## Operating Temperature

Nitrile (Buna) -40°F to 150°F  
-40°C to 66°C  
  
Fluorocarbon (Viton)\* -15°F to 200°F  
-26°C to 93°C  
\*High temperature / phosphate ester design

## Fluid Compatibility

Petroleum and mineral based fluids (standard).  
For polyol ester, phosphate ester, and other specified synthetics use Viton seal option or contact factory.

## Weight

FPL1: 110 Lbs (49.90 kg) approximate  
FPL2: 120 Lbs (54.43 kg) approximate

## Explosion Proof Option

Class 1, Div 2, Group C/D explosion optional.

## Electrical Service

115VAC 60Hz 1P (standard)  
see options table for other selections

## Electric Motor Specifications

TEFC or ODP, 56C frame  
FC1: 1 HP, 1750 RPM, thermal overload reset  
FC2: 1 HP, 1750 RPM, thermal overload reset

## Recommended Viscosity Range

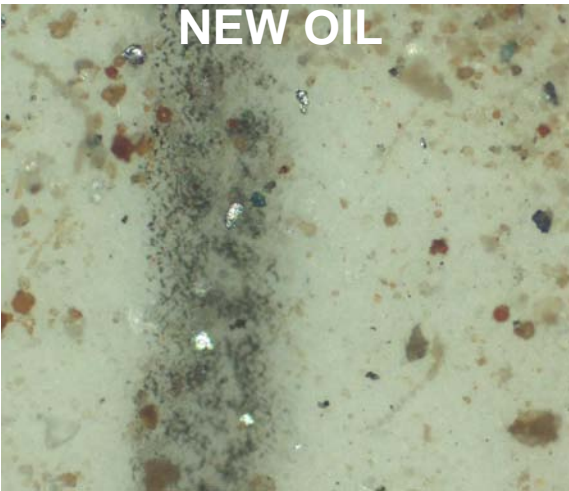
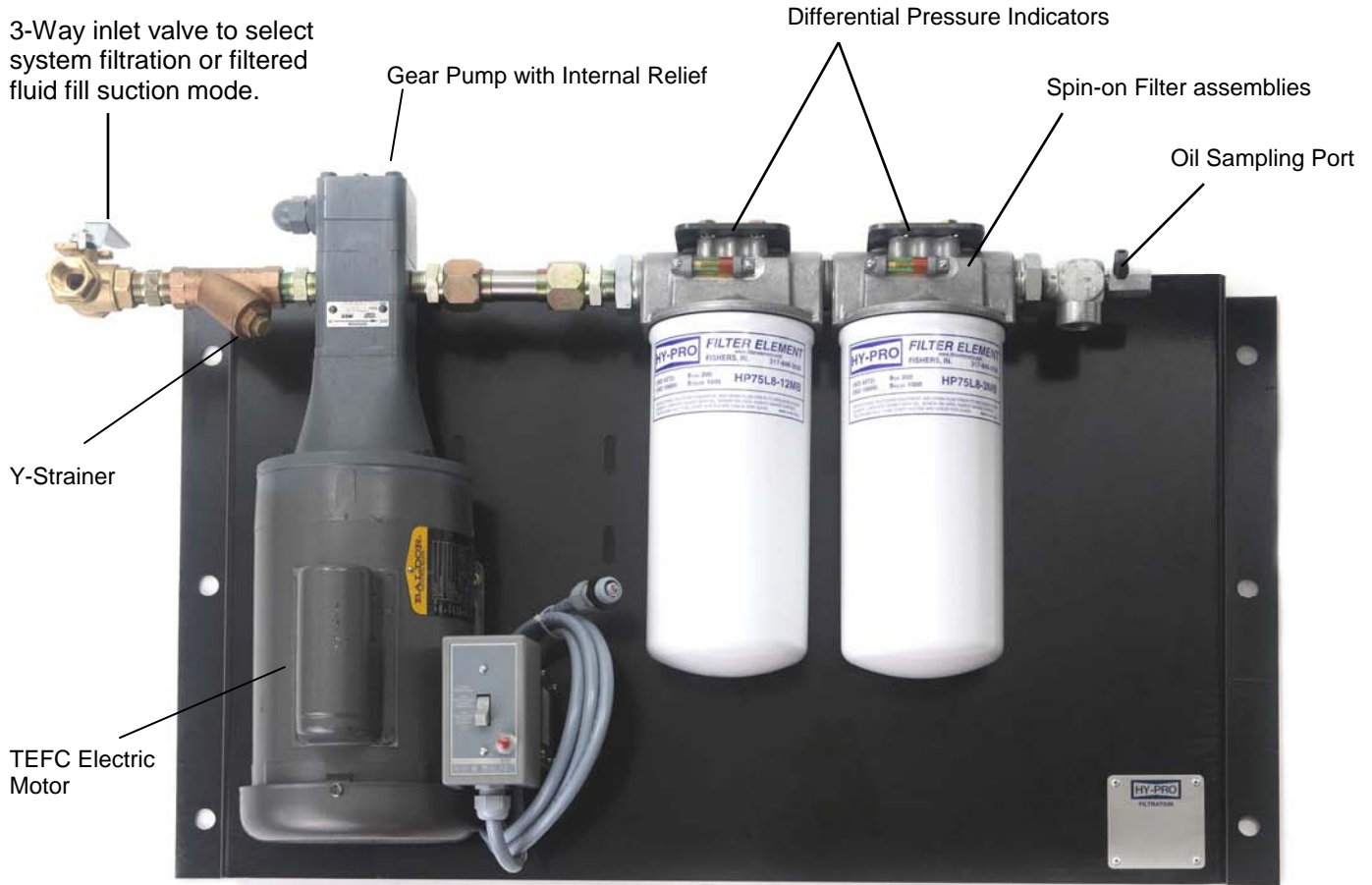
FC1\*: 28 SSU ~ 2000 SSU, 6 cSt ~ 400 cSt  
FC2\*: 28 SSU ~ 1000 SSU, 6 cSt ~ 200 cSt

\*At maximum viscosity clean element pressure drop with 3M media code < 12 psid/0.85 bar. Check maximum viscosity of oil in coldest condition. For high viscosity lubricating oils consider the FCL series or call Hy-Pro.

## Pump Specifications

Gear pump  
Internal relief full flow 100 psi, 6 bar standard

**FPL1, FPL2 FILTER PANEL APPLICATION INFO**



**Filtering New Oil - Particulate and Water**

New oil is typically not clean oil, and not suitable for use in hydraulic and lube systems. During the production and transportation process new oil collects high levels of solid contaminant and water. A common ISO code for new oil is 24/22/19. New oil is one of the worst sources of particulate contaminant system ingress.

The FPL will effectively remove free water while capturing particulate with high efficiency. Free and dissolved water in hydraulic and lube systems leads to accelerated abrasive wear, corrosion of metal surfaces, increased electrical conductivity, viscosity variance, loss of lubricity, fluid additive breakdown, bearing fatigue, and more. The FPL series filter panel includes a wide range of element combination options to tackle any challenge. The HP75L8-25AB water removal element holds 23 ounces of water while controlling particles with a beta ratio of  $\beta_{25} = 200$ ,  $\beta_{22}[c] = 1000$ .

**Flush and Condition Existing Systems**

The FPL is also effective for conditioning fluids that are already in service. Hy-Pro high efficiency elements can be used to enhance the filtration existing on the system without affecting system performance due to higher element differential pressures.



# FPL1, FPL2 FILTER PANEL APPLICATION INFO

## Cleaner Fluid, Greater Reliability

When establishing a target ISO cleanliness code first identify the most sensitive component. New oil added should be cleaner than the target ISO code for the system.

Figure 1 details the improvement in component life as the ISO cleanliness is improved for roller contact bearings. Improving and stabilizing fluid cleanliness codes can increase hydraulic component and bearing life exponentially.

Lab and field tests prove time and time again that Hy-Pro filters deliver lower ISO cleanliness codes, and do it with greater consistency.

Figure 1

Current ISO Code	Target ISO Code	Target ISO Code	Target ISO Code	Target ISO Code
Start	2 x Life	3 x Life	4 x Life	5 x Life
28/26/23	25/22/19	22/20/17	20/18/15	19/17/14
27/25/22	23/21/18	21/19/16	19/17/14	18/16/13
26/24/21	22/20/17	20/18/15	19/17/14	17/15/12
25/23/20	21/19/16	19/17/14	17/15/12	16/14/11
25/22/19	20/18/15	18/16/13	16/14/11	15/13/10
23/21/18	19/17/14	17/15/12	15/13/10	14/12/9
22/20/17	18/16/13	16/14/11	15/13/10	13/11/8
21/19/16	17/15/12	15/13/10	13/11/8	-
20/18/15	16/14/11	14/12/9	-	-
19/17/14	15/13/10	13/11/8	-	-
18/16/13	14/12/9	-	-	-

## The Right Element Combination

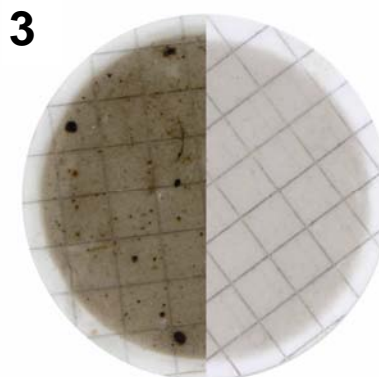
Figure 2 illustrates some possible combinations to use on the FPL series panel. When water removal is desired use the 12A or 25A media code as a pre-filter. A finer media can be used on the second filter to capture smaller particulate and reduce the ISO code. When conditioning a tote or flushing a fluid already in use the 1M media code will yield the quickest result on particulate.

Figure 2

Current Condition	Pre-Filter	Main-Filter
ISO 25/24/22 (New oil) with High water content	HP75L8-25AB β22[c] = 1000 + water removal	HP75L8-3MB β5[c] = 1000
ISO 25/24/22 (New oil)	HP75L8-12MB β12[c] = 1000	HP75L8-1MB β2.5[c] = 1000
ISO 21/19/16	HP75L8-3MB β5[c] = 1000	HP75L8-1MB β2.5[c] = 1000

## Don't Put Dirty Oil Into Your System

Figure 3 shows the difference in particulate contamination between unfiltered new fluid with an ISO Code of 24/22/19 and fluid that has been conditioned to an ISO Code of 16/14/11.



Prepared using PTK1 patch test kit

# FILTER MEDIA . . . 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 filters with synthetic support mesh. Contact your distributor or Hy-Pro for more information and published articles on DFE testing.

## Media Options

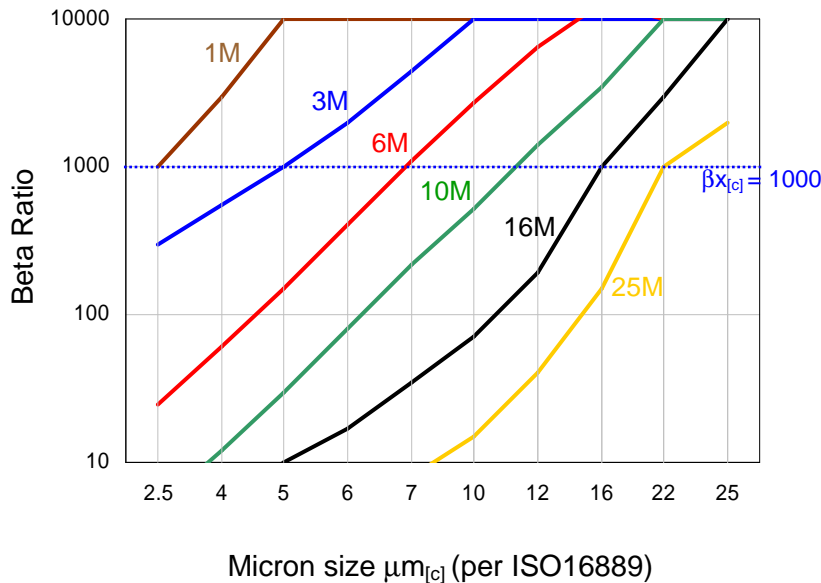
Through extensive testing we have developed media choices to handle any application. Options include G7 Dualglass, G7 Dualglass + Water Removal and Stainless steel wire mesh.

## Fluid Compatibility

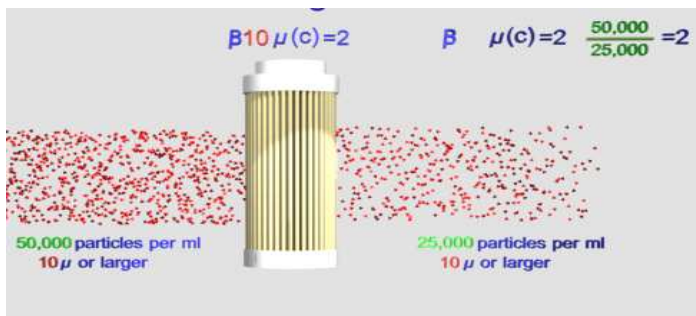
Petroleum based fluids, water glycol, polyol ester, phosphate ester, high water based fluids, and many other synthetics. Contact us for seal material selection assistance.

# FILTER MEDIA SPECIFICATIONS

Glass Media Code Filtration Efficiency (Beta Ratio) vs Micron Size (per ISO16889 multipass)

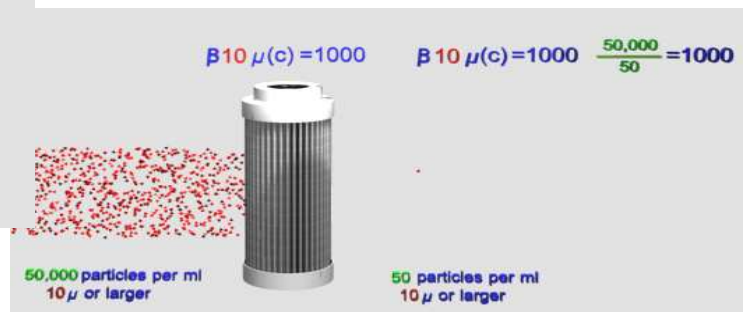


media code	media description
A	G7 Dualglass high performance media combined with water removal scrim. $\beta_{x[c]} = 1000$ ( $\beta_x = 200$ )
M	G7 Dualglass our latest generation of DFE rated, high performance glass media for all hydraulic & lubrication fluids. $\beta_{x[c]} = 1000$ ( $\beta_x = 200$ )
W	Stainless steel wire mesh media $\beta_{x[c]} = 2$ ( $\beta_x = 2$ ) nominally rated

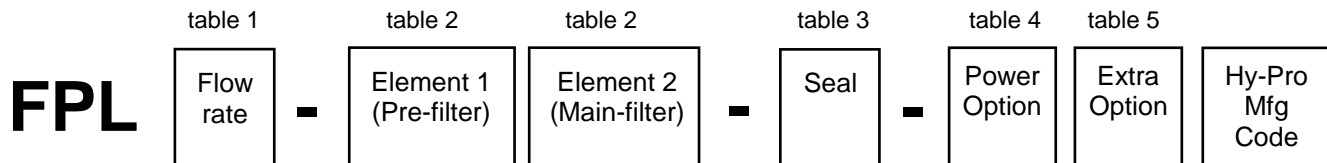


Typical cellulose media performance

Hy-Pro G7 Dualglass media performance



## FPL1, FPL2 FILTER PANEL PART NUMBER GUIDE



## REPLACEMENT FILTER ELEMENT PART NUMBER GUIDE

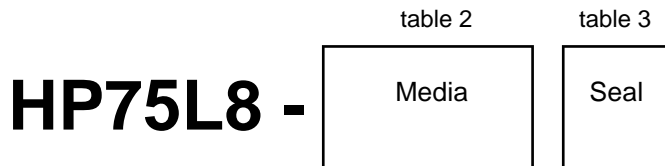


table 1	
code	flow rate gpm (lpm)
1	5 gpm (18,7 lpm) 2 x S75, single element heads (in series)
2	10 gpm (37,5 lpm) 2 x S75, single element heads (in series)

table 3	
code	seal material
B	Nitrile (Buna)
V	*Specified synthetics or High Temperature (>150F). Viton seals

table 2		
code	filtration rating	media type
1M	$\beta_{2.5[c]} = 1000$ ( $\beta_1 = 200$ )	G7 Dualglass
3M	$\beta_{5[c]} = 1000$ ( $\beta_3 = 200$ )	G7 Dualglass
6M	$\beta_{7[c]} = 1000$ ( $\beta_6 = 200$ )	G7 Dualglass
12A	$\beta_{12[c]} = 1000$ ( $\beta_{12} = 200$ )	G7 Dualglass + Water removal
12M	$\beta_{12[c]} = 1000$ ( $\beta_{12} = 200$ )	G7 Dualglass
25A	$\beta_{22[c]} = 1000$ ( $\beta_{25} = 200$ )	G7 Dualglass + Water removal
25M	$\beta_{22[c]} = 1000$ ( $\beta_{25} = 200$ )	G7 Dualglass
74W	74u nominal	wire mesh
149W	149u nominal	wire mesh

\*Phosphate Ester, Water Glycol & other synthetics.

table 4	
code	power options
Omit (standard)	115 VAC, 60Hz, 1P (1750 RPM motor)
E1	120 VAC, 50Hz, 1P (1450 RPM motor)
E2	230 VAC, 60Hz, 1P (1750 RPM motor)
E3	230 VAC, 50Hz, 1P (1450 RPM motor)
E4	24 VDC (Consult factory for application)
E5	440-480 VAC, 60 Hz, 3P (1750 RPM motor)
E6	380-420 VAC, 50Hz, 3P (1450 RPM motor)

table 5	
code	special options
C1	Explosion proof electrical (Class 1, Div 2, Grp C/D)

\*3 phase electrical option carts are supplied with terminated electrical cord only, and do not include electrical cord reel or electrical cord plug.



# FPL1, FPL2 DIMENSIONS

