HY-PRO

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 $\beta 2.5_{[C]} \geq 1000$ or $\beta 5_{[C]} \geq 1000$ + water removal, you can be sure contamination stays exactly where you want it: out of your fluid.

Multiple configurations.

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.

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.

Filter Sizing Guidelines

Filter Assembly 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 32 cSt (150 SUS) viscosity and 0.86 fluid specific gravity. Use the following steps to calculate clean element assembly pressure drop.

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 10% of bypass ΔP gauge/indicator set point 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.

Step 1: Calculate ΔP coefficient for actual viscosity

Using Saybolt Universal Seconds (SUS)

$$\text{ΔP Coefficient} = \frac{\text{Actual Operating Viscosity1 (SUS)}}{150} \times \frac{\text{Actual Specific Gravity}}{0.86}$$

Using Centistokes (cSt)

$$\text{ΔP Coefficient} = \frac{\text{Actual Operating Viscosity}^{1}\text{ (cSt)}}{32} \times \frac{\text{Actual Specific Gravity}}{0.86}$$

Step 2: Calculate actual clean filter assembly ΔP at both operating and cold start viscosity

$$\text{Actual Assembly Clean ΔP} = \text{Flow Rate} \times \text{ΔP Coefficient (from Step 1)} \times \text{Assembly ΔP Factor (from sizing table)}$$

Filter Sizing[1]

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

ΔP Factors[1]

Series	Length	Units	Media 1M	3M	6M	12M	16M	25M	**W
S75	L4	psid/gpm	0.332	0.280	0.217	0.195	0.190	0.183	0.033
		bard/lpm	0.006	0.005	0.004	0.004	0.003	0.003	0.001
	L8	psid/gpm	0.183	0.155	0.120	0.107	0.105	0.101	0.018
		bard/lpm	0.003	0.003	0.002	0.002	0.002	0.002	0.000
S75D	L4	psid/gpm	0.166	0.140	0.108	0.097	0.095	0.092	0.017
		bard/lpm	0.003	0.003	0.002	0.002	0.002	0.002	0.000
	L8	psid/gpm	0.092	0.077	0.060	0.054	0.053	0.051	0.009
		bard/lpm	0.002	0.001	0.001	0.001	0.001	0.001	0.000
S76	L4	psid/gpm	0.573	0.484	0.375	0.336	0.329	0.317	0.057
		bard/lpm	0.010	0.009	0.007	0.006	0.006	0.006	0.001
	L8	psid/gpm	0.310	0.261	0.203	0.182	0.178	0.171	0.031
		bard/lpm	0.006	0.005	0.004	0.003	0.003	0.003	0.001

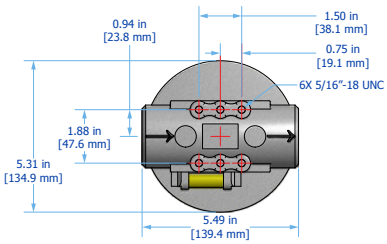
Series	Length	Units	Media 3A	6A	12A	25A	3C	10C	25C
S75	L4	psid/gpm	0.311	0.241	0.216	0.204	0.448	0.292	0.284
		bard/lpm	0.006	0.004	0.004	0.004	0.008	0.005	0.005
	L8	psid/gpm	0.172	0.133	0.119	0.113	0.247	0.161	0.157
		bard/lpm	0.003	0.002	0.002	0.002	0.005	0.003	0.003
S75D	L4	psid/gpm	0.156	0.121	0.108	0.102	0.224	0.146	0.142
		bard/lpm	0.003	0.002	0.002	0.002	0.004	0.003	0.003
	L8	psid/gpm	0.086	0.067	0.060	0.056	0.124	0.081	0.078
		bard/lpm	0.002	0.001	0.001	0.001	0.002	0.001	0.001
S76	L4	psid/gpm	0.533	0.413	0.370	0.349	0.774	0.505	0.491
		bard/lpm	0.010	0.008	0.007	0.006	0.014	0.009	0.009
	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

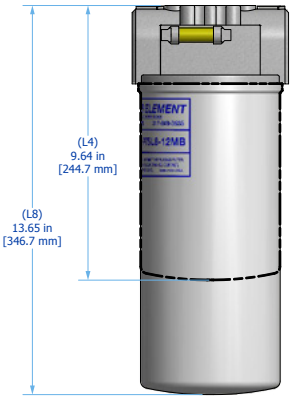
[1]Max flow rates and ΔP factors assume υ = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula.

S75-76 Specifications

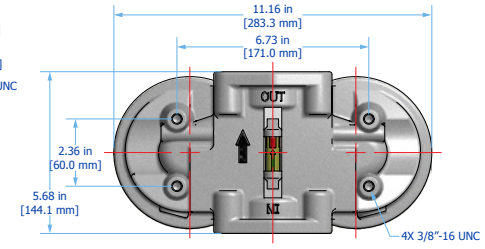
Installation Drawing

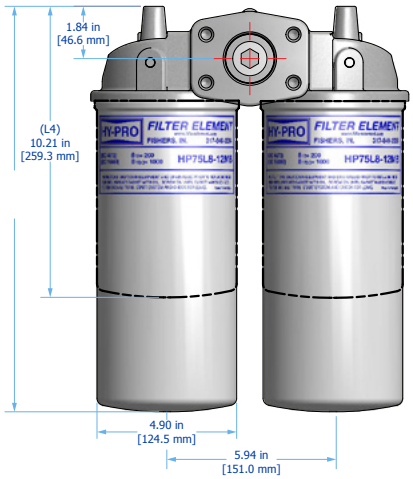
S75 Installation Drawing



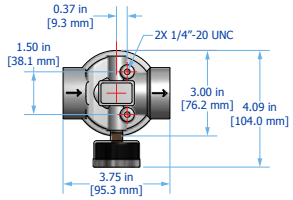


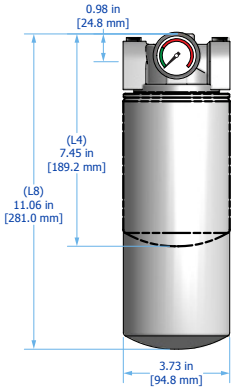
S75D Installation Drawing





S76 Installation Drawing





Operating Temperature

Fluid Temperaturev
30°F to 225°F
(0°C to 105°C)

Ambient Temperature
-4°F to 140°F
(-20C to 60C)

Operating Pressure

200 psi (13.8 bar) max

ΔP Indicator Trigger

22 psi (1.5 bar) or 44 psi (3.0 bar)

Element Collapse

100 psid (6.9 bard) max

Materials of Construction

Head
Cast aluminum

Can
Stamped steel

Element Bypass Valve
Nylon

Element End Caps
Zinc or Tin coated carbon steel

Media Description

M
G8 Dualglass, our latest generation of DFE rated, high performance glass media for all hydraulic & lubrication fluids. $\beta x_{[C]} \geq 1000$ ($\beta x \geq 200$)

A
G8 Dualglass high performance media combined with water removal scrim. $\beta x_{[C]} \geq 1000$ ($\beta x \geq 200$)

W
Stainless steel wire mesh media $\beta x_{[C]} \geq 2$ ($\beta x \geq 2$)

Replacement Elements

To determine replacement elements, use corresponding codes from your assembly part number:

Series	Filter Element Part Number	Example
S75	HP75L[Length Code] – [Media Selection Code] [Seal Code]	HP75L4-25MV
S75D	HP75L[Length Code] – [Media Selection Code] [Seal Code]	HP75L8-12AB
S76	HP76L[Length Code] – [Media Selection Code] [Seal Code]	HP76L8-3MB

Fluid Compatibility

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

S75-76 Part Number Builder

S [ ] [ ] [ ] [ ] [ ] - [ ] - [ ] [ ]

Series | Connection | Element Length | Bypass | ΔP Indicator | Special Options | Media | Seal

Series

Series

75	HP75 Series Filter Element, single head
75D	HP75 Series Filter Elements, double head
76	HP76 Series Filter Element, single head

Max Flow Rate

50 gpm (189 lpm)[1]
100 gpm (379 lpm)[1]
30 gpm (111 lpm)[1]

Connection

S75

B20	1¼" BSPT
N20	1¼" NPT
S20	1¼" SAE, 1⅝" - 12

S75D

F32	2" Code 61 flange
G20	1¼" BSPP
G24	1½" BSPP
N24	1½" NPT
S24	1½" SAE, 1⅞" - 12

S76

B12	¾" BSPT
N12	¾" NPT
N16	1" NPT
S8	½" SAE, ¾" - 16
S12	¾" SAE, 1 1/16" - 12

Element Length

4	4" (10 cm) nominal length filter element
8	8" (20 cm) nominal length filter element

Bypass

02[2]	3 psid (0.2 bard)
2	25 psid (1.7 bard)
3[3]	50 psid (3.4 bard)
X	No bypass

ΔP Indicator

DX	Electrical pressure switch (DIN Connector)
E	Electrical pressure switch 3-Wire
G[4]	Visual pressure gauge
V[5]	Visual ΔP indicator (sliding green to red)
X	No indicator (port plugged)

Special Options

S	Oil sampling port on filter head

Media Selection

G8 Dualglass

1M	$\beta 2.5_{[C]} \geq 1000, \beta 1 \geq 200$
3M	$\beta 5_{[C]} \geq 1000, \beta 3 \geq 200$
6M	$\beta 7_{[C]} \geq 1000, \beta 6 \geq 200$
12M	$\beta 12_{[C]} \geq 1000, \beta 12 \geq 200$
16M	$\beta 17_{[C]} \geq 1000, \beta 17 \geq 200$
25M	$\beta 22_{[C]} \geq 1000, \beta 25 \geq 200$
40M	$\beta 35_{[C]} \geq 1000, \beta 40 \geq 200$

G8 Dualglass+water removal

3A	$\beta 5_{[C]} \geq 1000, \beta 3 \geq 200$
6A	$\beta 7_{[C]} \geq 1000, \beta 6 \geq 200$
12A	$\beta 12_{[C]} \geq 1000, \beta 12 \geq 200$
25A	$\beta 22_{[C]} \geq 1000, \beta 25 \geq 200$

Cellulose

3C	$\beta 5_{[C]} \geq 5, \beta 3 \geq 5$
10C	$\beta 12_{[C]} \geq 5, \beta 12 \geq 5$
25C	$\beta 25_{[C]} \geq 5, \beta 25 \geq 5$

Stainless wire mesh

25W	25µ nominal
40W	40µ nominal
74W	74µ nominal
149W	149µ nominal

Seals

B	Nitrile (Buna)
V	Fluorocarbon
E-WS[6]	EPR seals + stainless steel support mesh

[1]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.
[2]Only available with "G" indicator option, supplied as vacuum gauge. Contact factory for other options or pressure applications.
[3]Only available with S75/S75D Series options.
[4]Select (2) G - "GG" - for reading differential pressure / vacuum between the two gages.
[5]Only available with S75/S75D, Bypass Option "2" - 25 psid (1.7 bard).
[6]Only available with filter element HP75L8-3M

HY-PRO