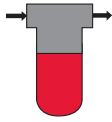


# MEDIUM PRESSURE FILTERS

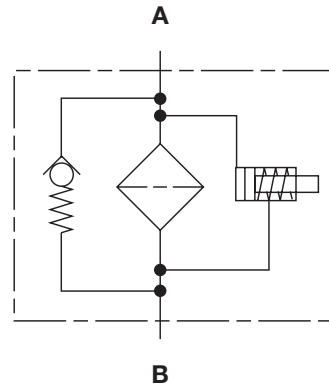
## LPF Series

Inline Filters

725 psi • up to 74 gpm



### Hydraulic Symbol



### Features

- LPF filters are manufactured with cast aluminum head and aluminum cold formed bowls.
- Aluminum alloy is water tolerant - anodization is not required for water based fluids (HWBF).
- LPF filters are a desirable substitute for spin-on filters when dynamic fluid conditions call for the superior durability and leak-proof quality of a well-constructed cartridge filter.
- Quick-response, bypass valves, located in the filter head, protect against high differential pressures caused by cold start-ups, flow surges and pressure spikes. Filters can also be supplied without bypasses.
- The simple inline design minimizes pressure drop and provides the significant benefit of compactness. The use of lightweight materials, makes these filters ideal for mobile equipment applications.

### Applications



Agricultural



Automotive



Construction



Industrial



Steel / Heavy Industry

### Technical Specifications

<b>Mounting Method</b>	35 - 55: 3 mounting holes 160 - 280: 2 mounting holes	
<b>Port Connection</b>	35 - 55 SAE-8, 1/2" BSPP 160 - 280 SAE-20, 1 1/4" BSPP	
<b>Flow Direction</b>	Inlet: Side	Outlet: Side
<b>Construction Materials</b>	Head Cast Aluminum Bowl Aluminum Extrusion	
<b>Flow Capacity</b>	35 9 gpm (35 lpm) 55 15 gpm (55 lpm) 160 42 gpm (160 lpm) 240 63 gpm (240 lpm) 280 74 gpm (280 lpm)	
<b>Housing Pressure Rating</b>	Max. Allowable Working Pressure 35 - 55 580 psi (40 bar) 160 - 280 725 psi (50 bar)* *Note: 580 psi (40 bar) when using BF indicator Fatigue Pressure 35 - 55 580 psi (40 bar) (10 <sup>7</sup> cycles) 160 - 280 725 psi (50 bar) (10 <sup>6</sup> cycles) 35 - 55 Contact HYDAC Burst Pressure 160 - 280 > 3625 psi (200 bar)	
<b>Element Collapse Pressure Rating</b>	BH4HC, V 3045 psid (210 bar) ON, W/HC 290 psid (20 bar)	
<b>Fluid Temp. Range</b>	-22°F to 212°F (-30°C to 100°C) Consult HYDAC for applications operating below -22°F (-30°C)	
<b>Fluid Compatibility</b>	Compatible with all hydrocarbon based, synthetic, water glycol, oil/water emulsion, and high water based fluids when the appropriate seals are selected	
<b>ΔP Indicator Trip Pressure</b>	ΔP = 29 psid (2 bar) -10% (optional) ΔP = 36.25 psid (2.5 bar) (BF indicator) ΔP = 72 psid (5 bar) -10% (standard)	
<b>Bypass Valve Cracking Pressure</b>	ΔP = 43 psid (3 bar) +10% (optional) ΔP = 87 psid (6 bar) +10% (standard sizes 160 - 660) ΔP = 100 psid (7 bar) +10% (standard sizes 35 / 55)	

## Model Code

**Filter Type** \_\_\_\_\_ **LPF** \_\_\_\_\_ **ON** \_\_\_\_\_ **280** \_\_\_\_\_ **G** \_\_\_\_\_ **E** \_\_\_\_\_ **3** \_\_\_\_\_ **B** \_\_\_\_\_ **1** \_\_\_\_\_ **2** \_\_\_\_\_ **/** \_\_\_\_\_ **12** \_\_\_\_\_ **B6** \_\_\_\_\_

**Filter Type** \_\_\_\_\_  
LPF = Inline filter

**Element Media** \_\_\_\_\_  
ON = Optimicron® (Low Collapse)      BH/HC = Betamicon® (High Collapse)  
W/HC = Wire Mesh

**Size** \_\_\_\_\_  
35, 55, 160, 240, 280

**Operating Pressure** \_\_\_\_\_  
G = 725 psi (sizes 160, 240, 280)  
E = 580 psi (size 35 & 55)

**Type of Connection** \_\_\_\_\_  
B = 1/2" threaded, SAE, BSPP (LPF 35,55)      E = 1 1/4" threaded SAE, BSPP (LPF 160-280)

**Filtration Rating (microns)** \_\_\_\_\_  
1, 3, 5, 10, 15, 20 = ON      3, 5, 10, 20 = BH/HC      25, 50, 100, 200 = W/HC

**Type of ΔP Clogging Indicator** \_\_\_\_\_  
A, B, BM, BF, C, D (Others available upon request, see Clogging Indicators section.)

**Type Number** \_\_\_\_\_  
1

**Modification Number** (latest version always supplied) \_\_\_\_\_

**Port Configuration** \_\_\_\_\_  
0 = BSPP Ports (160 - 280 = G 1 1/4")      12 = SAE Parallel Straight Thread Ports

**Seals** \_\_\_\_\_  
(omit) = Nitrile rubber (NBR) (standard)      V = Fluorocarbon elastomer (FKM)      EPR = Ethylene propylene rubber (EPR)

**Bypass Valve** \_\_\_\_\_  
(omit) = Without Bypass (BH4HC elements recommended)      B6 = 87 psid bypass (standard) (sizes 160 - 280 only)  
B3 = 43 psid bypass (optional)      B7 = 102 psid bypass (standard) (sizes 35 - 55 only)

**Supplementary Details** \_\_\_\_\_

- L24, L48, L110, L220 = Lamp for D-type clogging indicator (LXX, XX = voltage)  
 SO263 = Modification of elements for Skydrol or HYJET phosphate ester fluids  
 T100 = Thermal Lockout on indicator at 100°F (contact HYDAC for B or BM type indicators)  
 W = Modification of "W/HC" and "V" elements for use with oil water emulsions (HFA) and water polymer solutions (HFC)  
 BFL = BF Clogging indicator on left looking into inlet.  
 BFR = BF Clogging indicator on right looking into inlet.  
 SFREE = Element specially designed to minimize electrostatic charge generation  
 cRUus = Electrical Indicator with underwriter's recognition  
 SO376 = Modification of ON and W/HC elements for HFA, HFB, HFC, and HFD flame retardant liquids  
 SO882 = Quality Protection Design

## Replacement Element Model Code

**Size** \_\_\_\_\_ **0280** \_\_\_\_\_ **D** \_\_\_\_\_ **003** \_\_\_\_\_ **ON** \_\_\_\_\_ **/** \_\_\_\_\_ **V** \_\_\_\_\_

0035, 0055, 0160, 0240, 0280

**Filtration Rating (micron)** \_\_\_\_\_  
1, 3, 5, 10, 15, 20 = ON  
3, 5, 10, 20 = BH4HC  
25, 50, 100, 200 = W/HC

**Element Media** \_\_\_\_\_  
ON, BH4HC, W/HC

**Seals** \_\_\_\_\_  
(omit) = Nitrile rubber (NBR) (standard)  
V = Fluorocarbon elastomer (FKM)  
EPR = Ethylene propylene rubber (EPR)

**Supplementary Details** \_\_\_\_\_  
 SFREE = (same as above)  
 SO263 = (same as above)  
 W = (same as above)  
 SO376 = (same as above)  
 SO882 = (same as above)

## Clogging Indicator Model Codes

**Indicator Prefix** \_\_\_\_\_ **VM** \_\_\_\_\_ **5** \_\_\_\_\_ **B** \_\_\_\_\_ **X** \_\_\_\_\_ **/** \_\_\_\_\_

VM = G 1/2 3000 psi (sizes 35-280)  
 VL = 580 psi (sizes 160-280) (BF only)

**Trip Pressure** \_\_\_\_\_  
 2 = 29 psid (2 bar)  
 2.5 = 36.25 psid (2.5 bar) (BF only)  
 5 = 72 psid (5 bar)

**Type of Indicator** \_\_\_\_\_  
 A = no indicator, plugged port  
 B = Visual pop-up (auto reset)  
 BM = Visual pop-up (manual reset)  
 BF = Visual analog (sizes 160-280 only)  
 C = Electric switch - SPDT  
 D = Electric switch and LED light - SPDT

**Modification Number** \_\_\_\_\_

**Supplementary Details** \_\_\_\_\_

**Seals** \_\_\_\_\_  
 (omit) = Nitrile rubber (NBR) (standard)  
 V = Fluorocarbon elastomer (FKM)  
 EPR = Ethylene propylene rubber (EPR)

**Light Voltage** (D type indicators only) \_\_\_\_\_  
 L24 = 24V      L110 = 110V

**Thermal Lockout** (VM, VD types C, D, J, and J4 only) \_\_\_\_\_  
 T100 = Lockout below 100°F

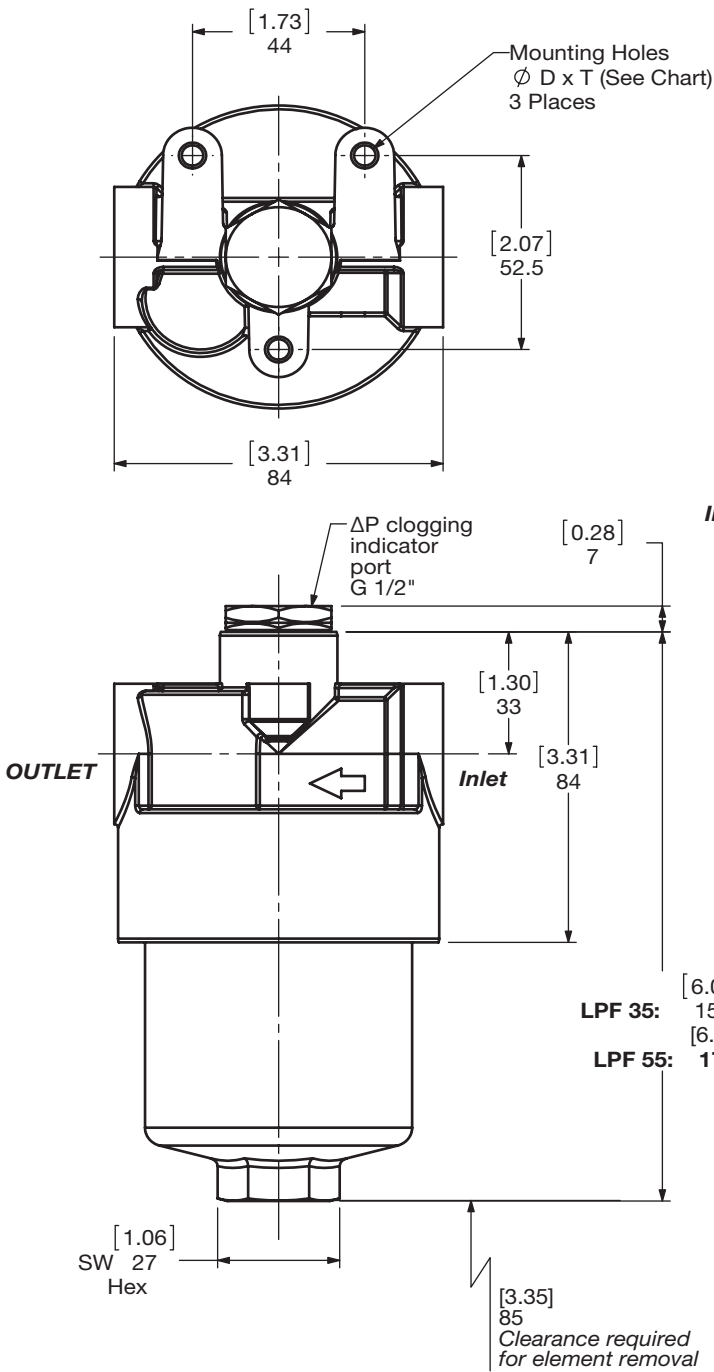
**Underwriters Recognition** (VM, VD types C, D, J, and J4 only) \_\_\_\_\_  
 cRUus = Electrical Indicator with underwriter's recognition

(For additional details and options, see Clogging Indicators section.)

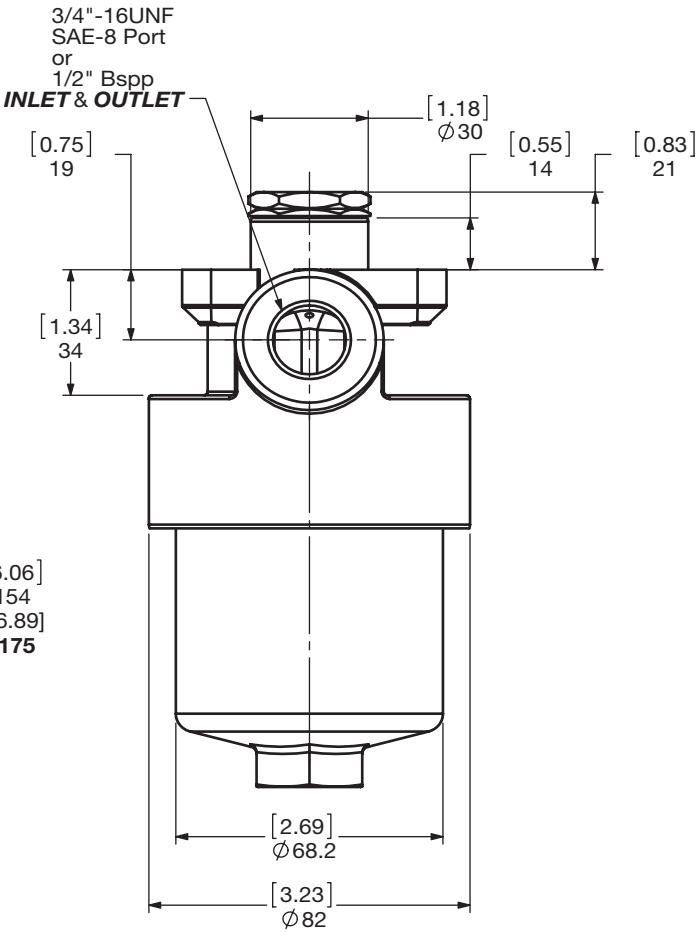
Model Codes Containing RED are non-stock items — Minimum quantities may apply — Contact HYDAC for information and availability

# MEDIUM PRESSURE FILTERS

Dimensions  
LPF 35 / 55



INLET/OUTLET	$\phi$ D	Depth T
SAE-8	1/4-28UNF-2B	[0.63] 16
G 1/2 (BSPP)	M8 x 1.25	

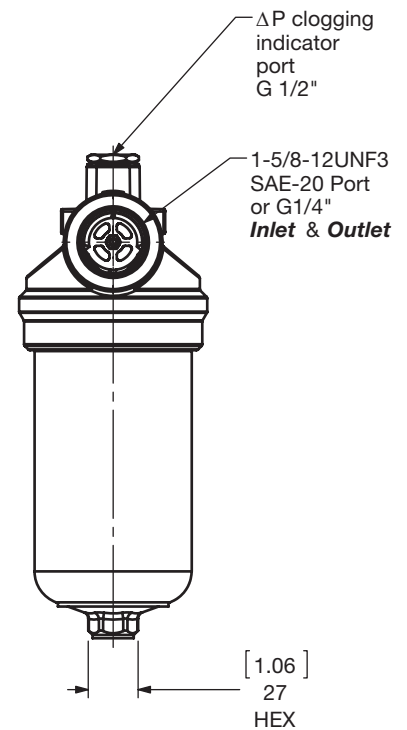
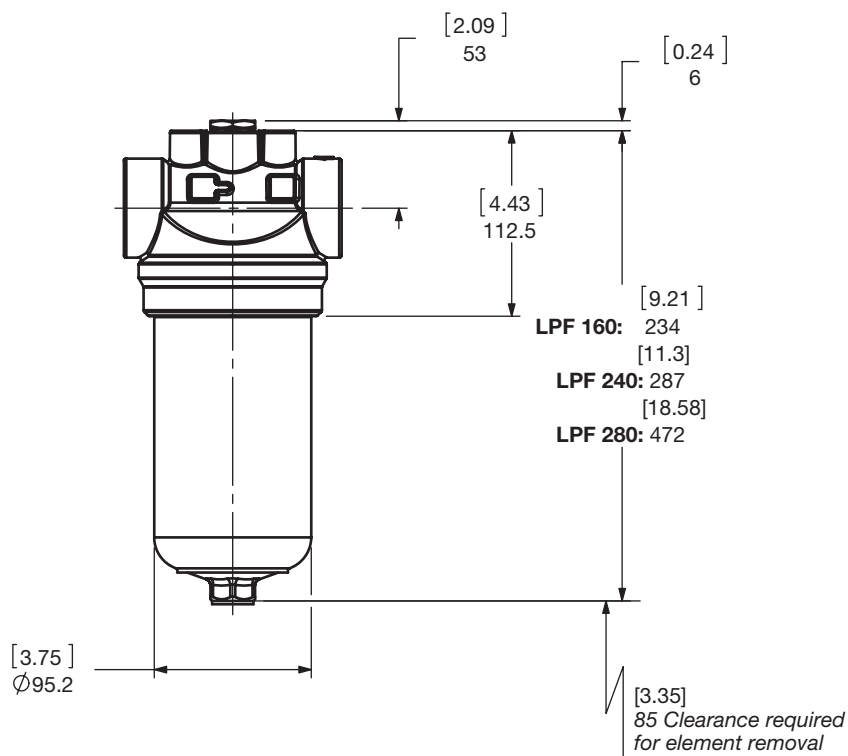
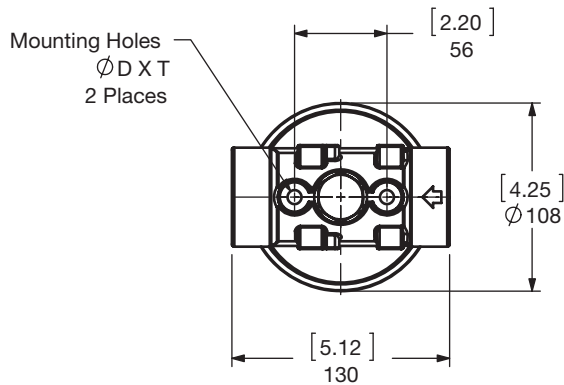


Size	35	55
Weight (lbs.)	2.3	2.6

Dimensions shown are [inches] millimeters for general information and overall envelope size only. Weights listed include element.  
For complete dimensions please contact HYDAC to request a certified print.

## Dimensions LPF 160 / 240 / 280

INLET/OUTLET	øD	Depth T
SAE-20	3/8-24 UNF-2B	[0.551] 14
G 1-1/4 (BSPP)	M10 x 1.50	



Size	160	240	280
Weight (lbs.)	4.5	5.1	7.3

Dimensions shown are [inches] millimeters for general information and overall envelope size only. Weights listed include element. For complete dimensions please contact HYDAC to request a certified print.

# MEDIUM PRESSURE FILTERS

## Sizing Information

Total pressure loss through the filter is as follows:

Assembly  $\Delta P$  = Housing  $\Delta P$  + Element  $\Delta P$

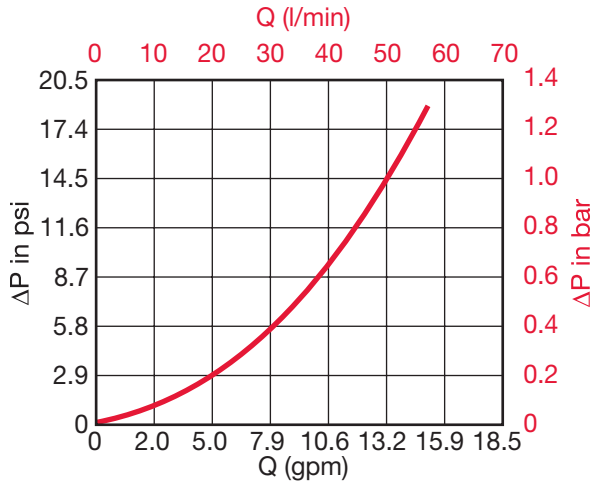
### Housing Curve:

Pressure loss through housing is as follows:

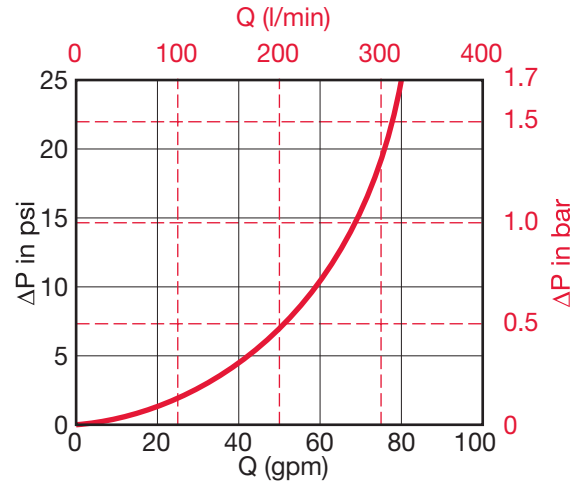
Housing  $\Delta P$  = Housing Curve  $\Delta P \times \frac{\text{Actual Specific Gravity}}{0.86}$

Adjustments must be made for viscosity & specific gravity of the fluid to be used! (see "Sizing HYDAC Filter Assemblies" in Section B - Overview)

### LPF 35 / 55 Housing



### LPF 160 / 240 / 280 Housing



## Element K Factors

$\Delta P \text{ Elements} = \text{Elements (K) Flow Factor} \times \text{Flow Rate (gpm)} \times \frac{\text{Actual Viscosity (SUS)}}{141 \text{ SUS}} \times \frac{\text{Actual Specific Gravity}}{0.86}$   
(From Tables Below)

"ON" Pressure Elements	...D...ON (Optimicron Pressure Elements)					
Size	1 μm	3 μm	5 μm	10 μm	15 μm	20 μm
0035 D XXX ON	2.755	1.169	0.938	0.752	0.549	0.408
0055 D XXX ON	1.427	0.675	0.543	0.434	0.284	0.211
0160 D XXX ON	1.015	0.604	0.423	0.225	0.204	0.175
0240 D XXX ON	0.631	0.379	0.293	0.175	0.134	0.115
0280 D XXX ON	0.304	0.185	0.15	0.082	0.075	0.064

"D" Pressure Elements	...D...BH4HC (Betamicron High Collapse)			
Size	3 μm	5 μm	10 μm	20 μm
0035 D XXX BH4HC	2.623	1.542	0.922	0.576
0055 D XXX BH4HC	1.328	0.779	0.466	0.291
0160 D XXX BH4HC	0.922	0.571	0.324	0.241
0240 D XXX BH4HC	0.582	0.373	0.214	0.159
0280 D XXX BH4HC	0.313	0.187	0.099	0.088

Wire Mesh	...D...W/HC Elements (Low Collapse)	
Size	...D...W/HC Elements 25, 50, 100, 200 μm	
0160 D XXX W/HC	0.016	
0240 D XXX W/HC	0.010	
0280 D XXX W/HC	0.005	

All Element K Factors in psi / gpm.

## Notes

