

## LPF Series

### Inline Filters

1000 psi • up to 140 gpm



### 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) - except LPF 660.
- 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 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.



- Sizes 160/240/280
- 2-piece design
- Easier servicability
- Upgraded operating pressure; now 725 psi (50 bar)

### Applications



Agricultural



Automotive



Construction

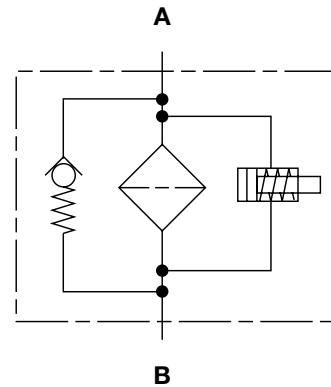


Industrial



Steel / Heavy Industry

### Hydraulic Symbol



### Technical Details

<b>Mounting Method</b>	35 - 55: 3 mounting holes 160 - 280: 2 mounting holes 660: 4 mounting holes																																					
<b>Port Connection</b>	35 - 55 SAE-8, 1/2" BSPP 160 - 280 SAE-20, 1 1/4" BSPP 660 SAE-24																																					
<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) 660 174 gpm (660 lpm)																																					
<b>Housing Pressure Rating</b>	<table border="1"> <tbody> <tr> <td>Max. Oper. Pressure</td> <td>35 - 55</td> <td>580 psi (40 bar)</td> </tr> <tr> <td></td> <td>160 - 280</td> <td>725 psi (50 bar)</td> </tr> <tr> <td></td> <td>660</td> <td>1000 psi (69 bar)</td> </tr> <tr> <td>Proof Pressure</td> <td>35 - 55</td> <td>870 psi (60 bar)</td> </tr> <tr> <td></td> <td>160 - 280</td> <td>1088 psi (75 bar)</td> </tr> <tr> <td></td> <td>660</td> <td>1500 psi (100 bar)</td> </tr> <tr> <td>Fatigue Pressure</td> <td>35 - 55</td> <td>Contact HYDAC</td> </tr> <tr> <td></td> <td>160 - 280</td> <td>725 psi (50 bar)</td> </tr> <tr> <td></td> <td>660</td> <td>1000 psi (69 bar)</td> </tr> <tr> <td>Burst Pressure</td> <td>35 - 55</td> <td>Contact HYDAC</td> </tr> <tr> <td></td> <td>160 - 280</td> <td>&gt; 3625 psi (200 bar)</td> </tr> <tr> <td></td> <td>660</td> <td>4000 psi (276 bar)</td> </tr> </tbody> </table>		Max. Oper. Pressure	35 - 55	580 psi (40 bar)		160 - 280	725 psi (50 bar)		660	1000 psi (69 bar)	Proof Pressure	35 - 55	870 psi (60 bar)		160 - 280	1088 psi (75 bar)		660	1500 psi (100 bar)	Fatigue Pressure	35 - 55	Contact HYDAC		160 - 280	725 psi (50 bar)		660	1000 psi (69 bar)	Burst Pressure	35 - 55	Contact HYDAC		160 - 280	> 3625 psi (200 bar)		660	4000 psi (276 bar)
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<b>Element Collapse Pressure Rating</b>	BH/HC, V 3045 psid (210 bar) BN/HC, W/HC 290 psid (20 bar)																																					
<b>Fluid Temp. Range</b>	-22° to 250°F (-30° to 121°C)																																					
<b>Fluid Compatibility</b>	Compatible with all petroleum oils and synthetic fluids rated for use with Fluoroelastomer or Ethylene Propylene seals. Contact HYDAC for information on special housing and element constructions available for use with water glycols, oil/water emulsions, and HWBF.																																					
<b>Indicator Trip Pressure</b>	ΔP = 29 psid (2 bar) -10% (optional) 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** **BN/HC** **280** **G** **E** **3** **A** **1** **.** **2** / **12** **B6**  
 LPF Inline filter

**Element Media** \_\_\_\_\_  
 BH/HC = Betamicon® (High Collapse)    BN/HC = Betamicon® (Low Collapse)  
 W/HC = Wire Screen

**Size** \_\_\_\_\_  
 35, 55, 160, 240, 280, 660

**Operating Pressure** \_\_\_\_\_  
 (omit) = 1000 psi (size 660)  
 G = 725 psi (sizes 160, 240, 280)  
 E = 580 psi (size 35 & 55)

**Type of Connection** \_\_\_\_\_  
 E = SAE 20    J = 3/4 - 16 UNF (size 35 & 55)

**Filtration Rating (microns)** \_\_\_\_\_  
 3, 5, 10, 20 = BH/HC, BN/HC                          25, 74, 149 = W/HC

**Type of ΔP Clogging Indicator** \_\_\_\_\_  
 A, B/BM, BF, C, D (size 660 only includes an SAE ported indicator, consult HYDAC for details)

**Type Number** \_\_\_\_\_  
 1  
 2 (sizes 160, 240, 280 only)

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

**Port Configuration** \_\_\_\_\_  
 0 = BSPP Ports (160 - 280 = G 1 1/4")    ] Not required for sizes 35 and 55  
 12 = SAE Thread

**Seals** \_\_\_\_\_  
 (omit) = Nitrile (NBR) (standard)                          V = Fluoroelastomer (FPM)                          EPR = Ethylene Propylene (EPDM)

**Bypass Valve** \_\_\_\_\_  
 (omit) = Without Bypass (BH4HC elements recommended)  
 B3 = 43 psid bypass (optional)  
 B6 = 87 psid bypass (standard) (sizes 160 - 660 only)  
 B7 = 102 psid bypass (standard) (sizes 35 - 55 only)

**Supplementary** \_\_\_\_\_  
 SO103H = Modification of BN4HC (Betamicon® Low Collapse) Element For Phosphate Ester Fluids  
 SO155H = Modification of BH4HC (Betamicon® High Collapse) Element For Phosphate Ester Fluids  
 SO150H = Anodized filter head for water based fluids (size 660 only)  
 L24, L48, L110, L220 = Lamp for D-type clogging indicator (LXX, XX = voltage)  
 T100 = Thermal Lockout on indicator at 100°F (contact HYDAC for B or BM type indicators)

## Replacement Element Model Code

\_\_\_\_\_ **0035** **D** **010** **BN4HC** / **V**  
**Size** \_\_\_\_\_  
 0035, 0055, 0160, 0240, 0280, 0660

**Filtration Rating (micron)** \_\_\_\_\_  
 3, 5, 10, 20 = BH4HC, BN4HC  
 25, 74, 149 = W/HC

**Element Media** \_\_\_\_\_  
 BH4HC, BN4HC, W/HC

**Supplementary Details** \_\_\_\_\_  
 (omit) = standard  
 V = Fluoroelastomer (FPM) seals

## Clogging Indicator Model Code

\_\_\_\_\_ **VM** **2** **B** . **X** /  
**Indicator Prefix** \_\_\_\_\_  
 VM = G 1/2 3000 psi (sizes 35-280)  
 Note: for size 660, consult HYDAC

**Trip Pressure** \_\_\_\_\_  
 2 = 29 psid (2 bar)    (optional)  
 5 = 72 psid (5 bar)

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

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

**Supplementary Details** \_\_\_\_\_  
**Seals** \_\_\_\_\_  
 (omit) = Nitrile (NBR) (standard)  
 V = Fluoroelastomer (FPM)

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

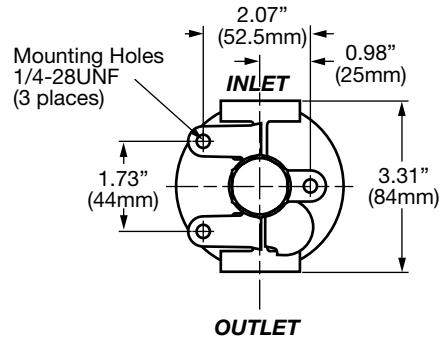
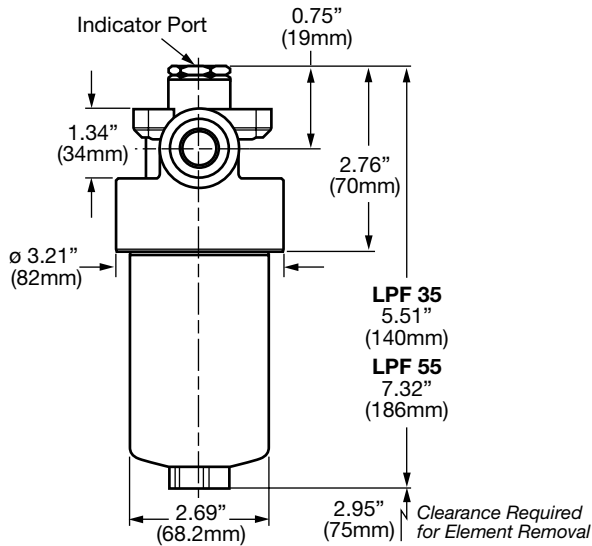
**Thermal Lockout** (VM, VD types C, D, J, and J4 only) \_\_\_\_\_  
 T100 = Lockout below 100°F

**Underwriters Approval** (VM, VD types C, D, J, and J4 only) \_\_\_\_\_  
 CRUUS = Electrical Indicators  
 (For additional details and options, see Clogging Indicators section.)

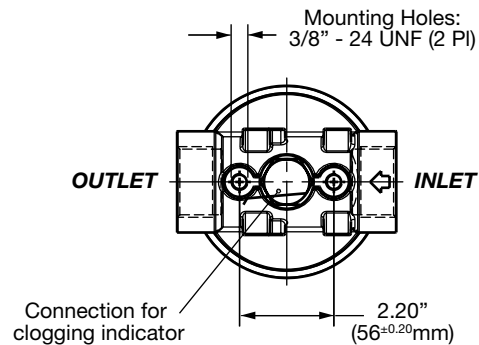
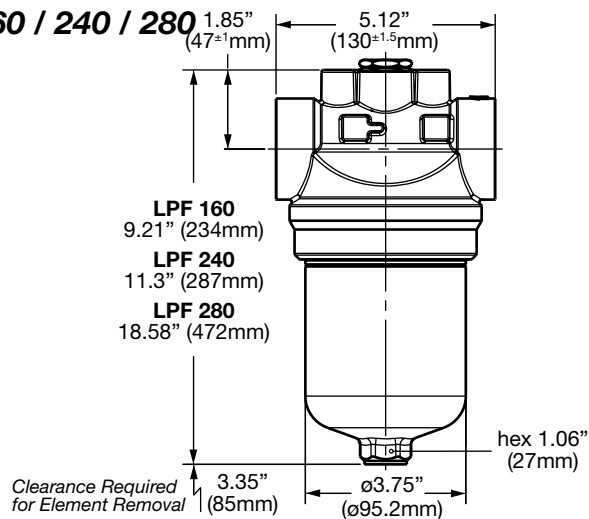
Model Codes Containing RED are non-stock items — Minimum quantities may apply — Contact HYDAC for information and availability

# HYDAC Medium Pressure Filters

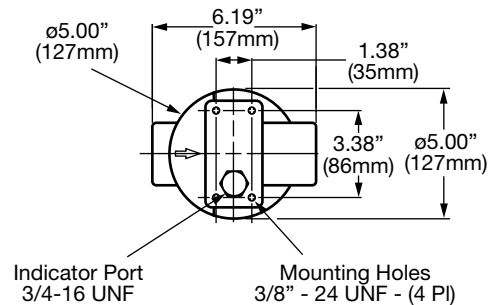
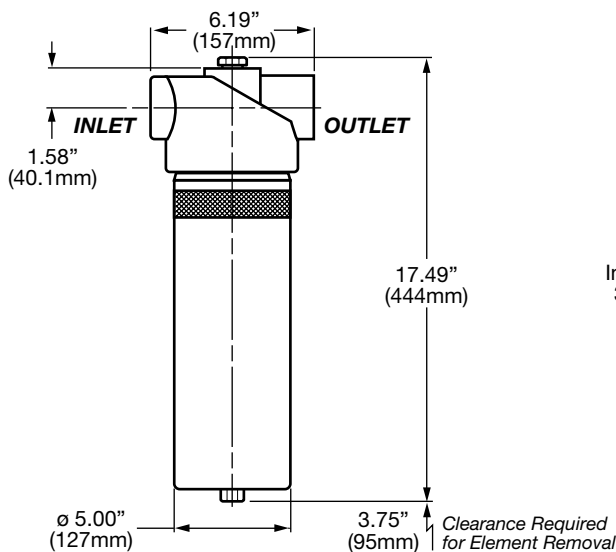
## Dimensions LPF 35 / 55



## LPF 160 / 240 / 280



## LPF 660



Size	35	55	160	240	280	660
Weight (lbs.)	2.2	2.4	5.1	5.5	7.5	11.7

Dimensions shown are for general information and overall envelope size only. Weights listed are without element. For complete dimensions please contact HYDAC to request a certified print.

## Sizing Information

Total pressure loss through the filter is as follows:

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

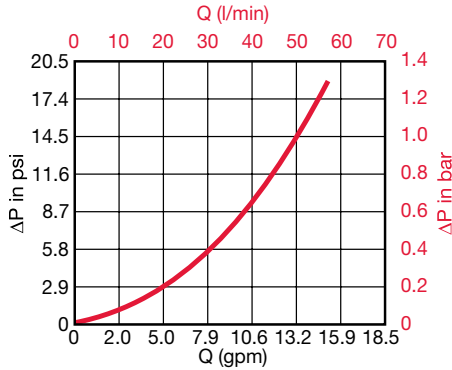
### Housing Curve:

Pressure loss through housing is as follows:

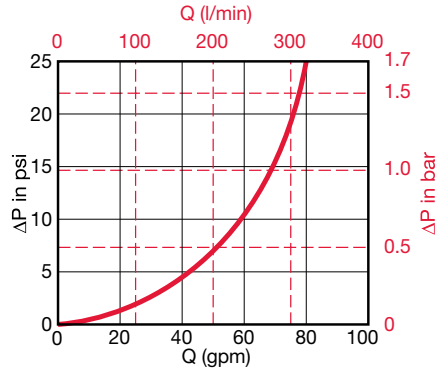
Housing  $\Delta P$  = Housing Curve  $\Delta P \times \frac{\text{Actual Specific Gravity}}{0.86}$

Adjustments must be made for viscosity & specific gravity of the fluid to be used! (see sizing section on page 19)

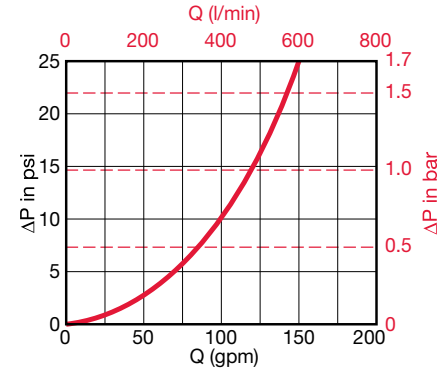
**LPF 35 / 55 Housing**



**LPF 160 / 240 / 280 Housing**



**LPF 660 Housing**



## Element K Factors

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

Size	...D...BN4HC (Betamicon® Low Collapse)			
	3 μm	5 μm	10 μm	20 μm
0035	1.294	1.041	0.811	0.510
0055	0.751	0.603	0.444	0.263
0160	0.718	0.480	0.252	0.193
0240	0.450	0.333	0.196	0.128
0280	0.220	0.171	0.092	0.071
0660	0.136	0.099	0.061	0.044

Size	...D...BH4HC (Betamicon® High Collapse)			
	3 μm	5 μm	10 μm	20 μm
0035	-	-	-	-
0055	-	-	-	-
0160	0.919	0.569	0.322	0.240
0240	0.578	0.374	0.214	0.158
0280	0.313	0.184	0.097	0.090
0660	0.179	0.106	0.055	0.049

Size	...D...W/HC (Wire Screen)
	25, 50, 100, 200 μm
0035	-
0055	-
0160	0.016
0240	0.010
0280	0.009
0660	0.004

All Element K Factors in psi / gpm.