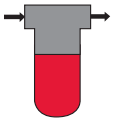
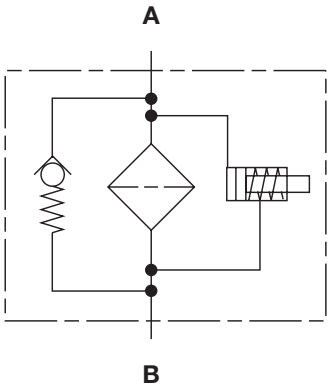
LPF Series

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

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

LPF ON 280 G E 3 B 1 . 2 / 12 B6

Filter Type
LPF Inline filter

Element Media
ON = Optimicron® *(Low Collapse)* BH/HC = Betamicron® *(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

Replacement Element Model Code

0280 D 003 ON / V

Size
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)*

Clogging Indicator Model Codes

VM 5 B . X /

Indicator Prefix
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

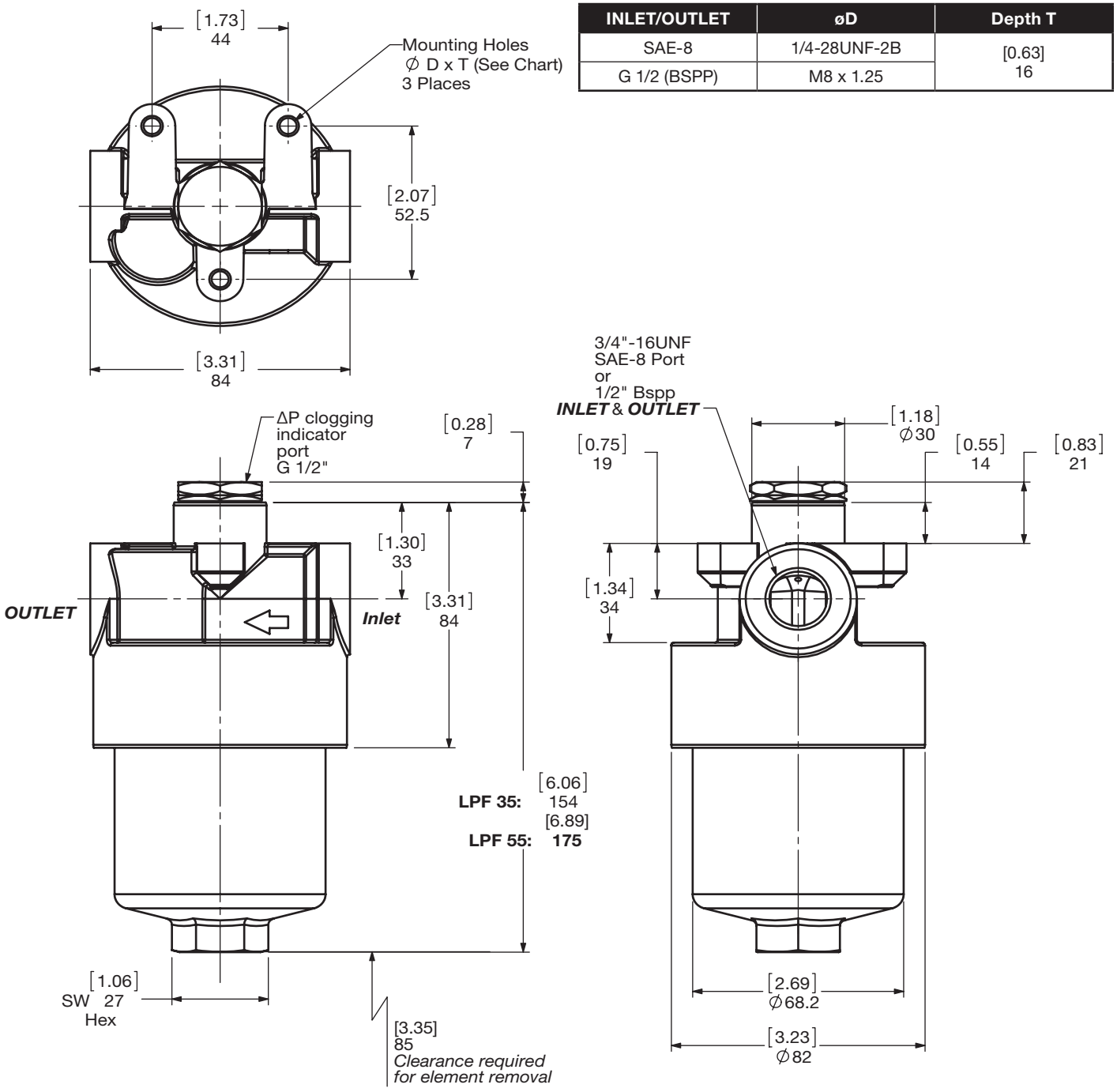
Underwriters Recognition *(VM, VD types C, D, J, and J4 only*
cRUus = Electrical Indicator with underwriter's recognition

(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



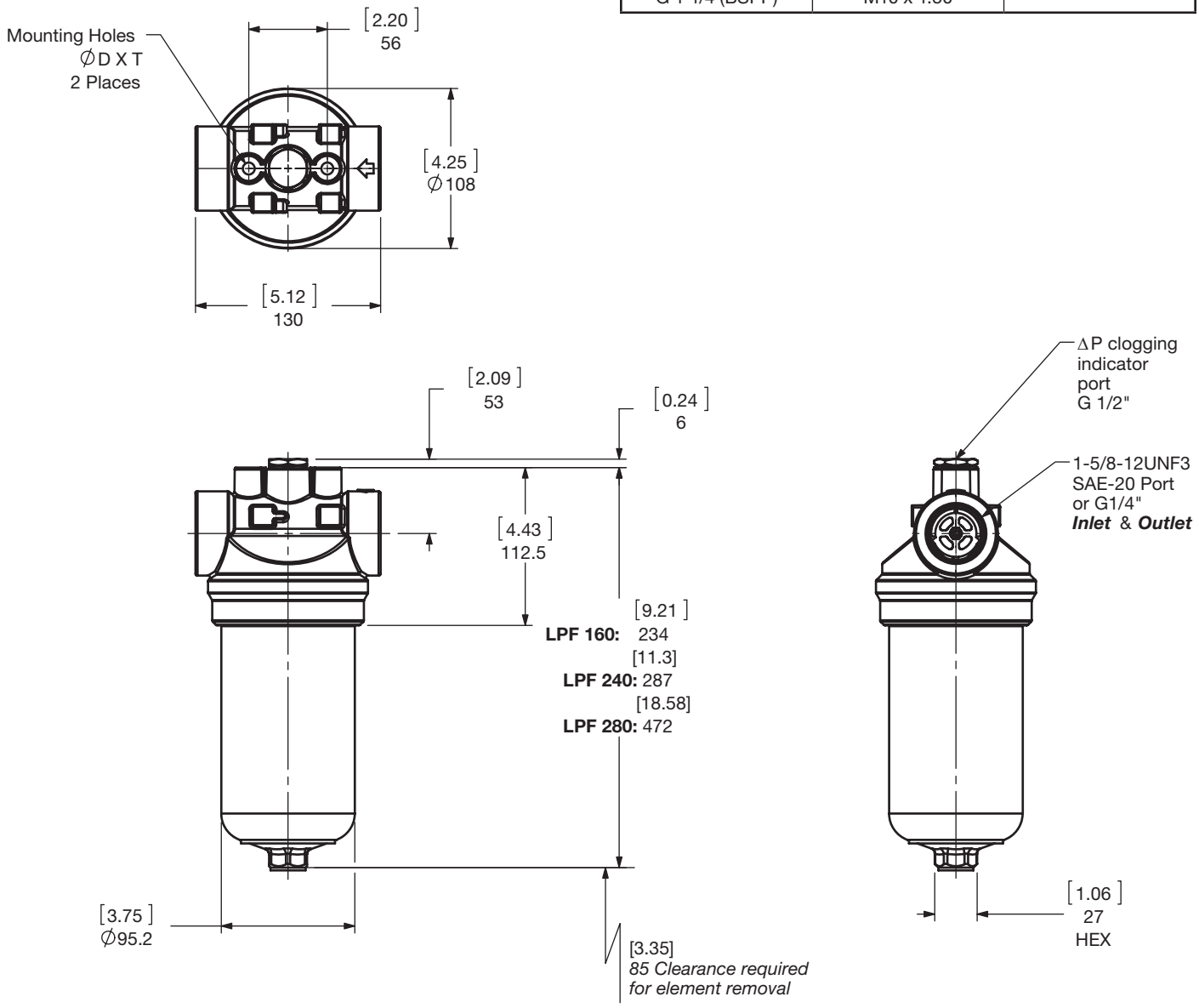
INLET/OUTLET	øD	Depth T
SAE-8	1/4-28UNF-2B	[0.63] 16
G 1/2 (BSPP)	M8 x 1.25	

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.

Sizing Information

Total pressure loss through the filter is as follows:

Assembly ΔP = Housing ΔP + Element ΔP

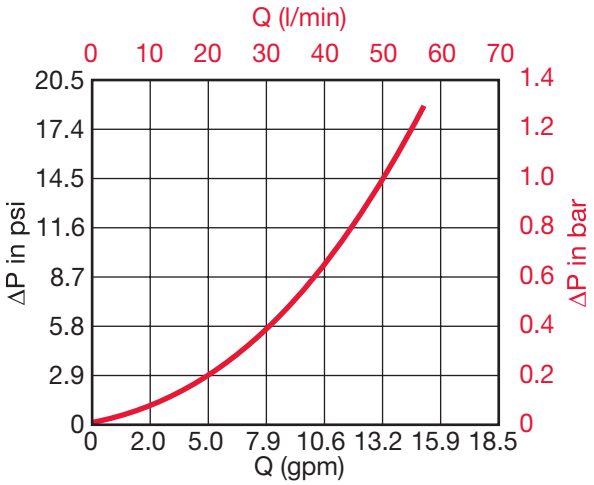
Housing Curve:

Pressure loss through housing is as follows:

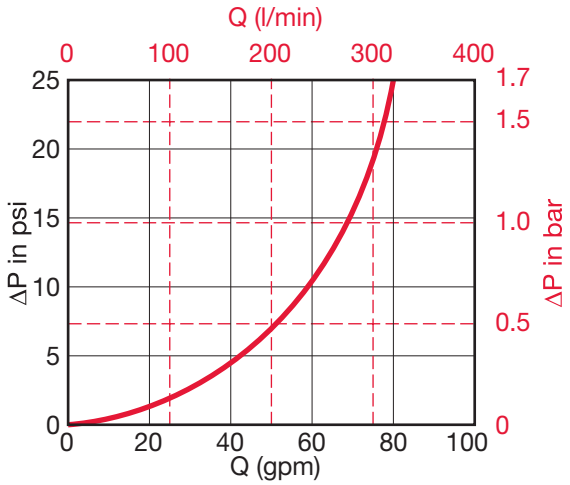
$$\text{Housing } \Delta P = \text{Housing Curve } \Delta P \times \frac{\text{Actual Specific Gravity}}{0.86}$$

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

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

"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