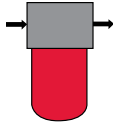


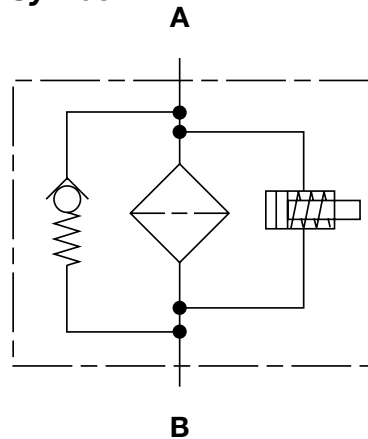
LF Series

Inline Filters

1500 psi • up to 180 gpm



Hydraulic Symbol



Features

- Non-welded housing design reduces stress concentrations and prevents fatigue failure.
- Aluminum alloy is water tolerant - anodization is not required for water based fluids (HWBF).
- Inlet & outlet port options include NPT and SAE straight thread O-ring boss to allow easy installation without costly adapters.
- O-ring seals are used to provide positive, reliable sealing. Choice of O-ring materials (Nitrile, Fluoroelastomer, EPDM) provides compatibility with petroleum oils, synthetic fluids, water-glycols, oil/water emulsions, and high water base fluids.
- Screw-in bowl mounted below the filter head requires minimal clearance to remove the element for replacement, and contaminated fluid cannot be washed downstream when element is serviced.
- Differential Pressure Indicators. HYDAC indicators have no external dynamic seal. This results in a high system reliability due to magnetic actuation, thus eliminating a potential leak point.
- A poppet-type bypass valve (optional) is separate from the main flow path (except LF 60 / 110) to provide positive sealing during normal operation and fast opening during cold starts and flow surges.
- For special finishes and coatings – consult HYDAC for minimum quantities, availability and pricing.

Applications



Agricultural



Automotive



Construction



Industrial



Railways



Steel / Heavy Industry

Technical Details

Mounting Method	4 mounting holes	
Port Connection	30 SAE-8, 1/2" NPT, 1/2" BSPP 60/110 SAE-12, 3/4" NPT, 3/4" BSPP 160/240/280 SAE-20, 1 1/4" NPT, 1 1/4" BSPP 330/660 SAE-24, 1 1/2" NPT, 1 1/2" BSPP	
Flow Direction	Inlet: Side	Outlet: Side
Construction Materials	Head Cast Aluminum Bowl Aluminum Extrusion (sizes 30 - 330) Steel (sizes 280 & 660)	
Flow Capacity	30 8 gpm (30 lpm) 60 16 gpm (60 lpm) 110 29 gpm (110 lpm) 160 42 gpm (160 lpm) 240 63 gpm (240 lpm) 280 74 gpm (280 lpm) 330 84 gpm (330 lpm) 660 174 gpm (660 lpm)	
Housing Pressure Rating	Max. Operating Pressure 1500 psi (100 bar) Proof Pressure 2250 psi (150 bar) Fatigue Pressure 1500 psi (100 bar) Burst Pressure size 30 5510 psi (380bar) sizes 60 - 660 > 6090 psi (420 bar)	
Element Collapse Pressure Rating	BH/HC, V 3045 psid (210 bar) BN/HC, W/HC 290 psid (20 bar)	
Fluid Temperature Range	-22° to 250°F (-30° to 121°C)	
Fluid Compatibility	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.	
Indicator Trip Pressure	ΔP = 29 psid (2 bar) -10% (optional) 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)	

Model Code

LF BH/HC 30 I B 3 A 1 . 0 / 3

Filter Type _____
LF = Inline filter

Element Media _____
BH/HC = Betamicon® (High Collapse) BN/HC = Betamicon® (Low Collapse)
V = Metal Fiber W/HC = Wire Screen

Size _____
30, 60, 110, 160, 240, 280, 330, 660

Operating Pressure _____
I = 1500 PSI (100 bar)

Type of Connection _____
B = SAE-8 (size 30 only) E = SAE-20 (sizes 160, 240, & 280 only)
C = SAE-12 (sizes 60 & 110 only) F = SAE-24 (sizes 330 & 660 only)

Filtration Rating (microns) _____
3, 5, 10, 20 = BH/HC, BN/HC 3, 5, 10, 20 = V 25, 74, 149 = W/HC

Type of ΔP Clogging Indicator _____
A, B/BM, C, D

Type Number _____
1 = Sizes 30 to 660

Modification Number (latest version always supplied) _____

Port Configuration _____
0 = BSPP
3 = NPT Ports (with adapters)
12 = SAE Straight Thread O-Ring Boss Ports

Seals _____
(omit) = Nitrile (NBR) (standard) V = Fluoroelastomer (FPM) EPR = Ethylene Propylene (EPDM)

Bypass Valve _____
(omit) = Without Bypass (BH4HC or V elements recommended)
B3 = 43PSID Bypass (optional)
B6 = 87PSID Bypass (standard)

Supplementary Details _____
SO103H = Modification of BN4HC (Low Collapse) Element For Phosphate Esters
SO150H = Head & Bowl Anodized for High Water Based Fluids (HWBF) (sizes 60 & 110 only)
SO155H = Modification of BH4HC (High Collapse) Element For Phosphate Esters
SO184 = G-1/2 Drain in Bowl Option For Sizes 60 - 280 (comes standard for sizes 330, 660, & 1320)
W = Indicator with brass piston (for use with water based fluids)
L24, L48, L110, L220 = Lamp for D-type clogging indicator (LXX, XX = voltage)
T100 = Indicator Thermal Lockout, 100°F (C and D indicators only)

Replacement Element Model Code

0030 D 010 BN4HC / V

Size _____
0030, 0060, 0110, 0160,
0240, 0280, 0330, 0660

Filtration Rating (micron) _____
3, 5, 10, 20 = BH4HC, BN4HC
3, 5, 10, 20 = V
25, 74, 149 = W/HC

Element Media _____
BH4HC, BN4HC, V, 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

Trip Pressure _____
2 = 29 psid (2 bar)
5 = 72 psid (5 bar) (optional)

Type of Indicator _____
A = no indicator, plugged port
B/BM = Visual pop-up (auto/manual reset)
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

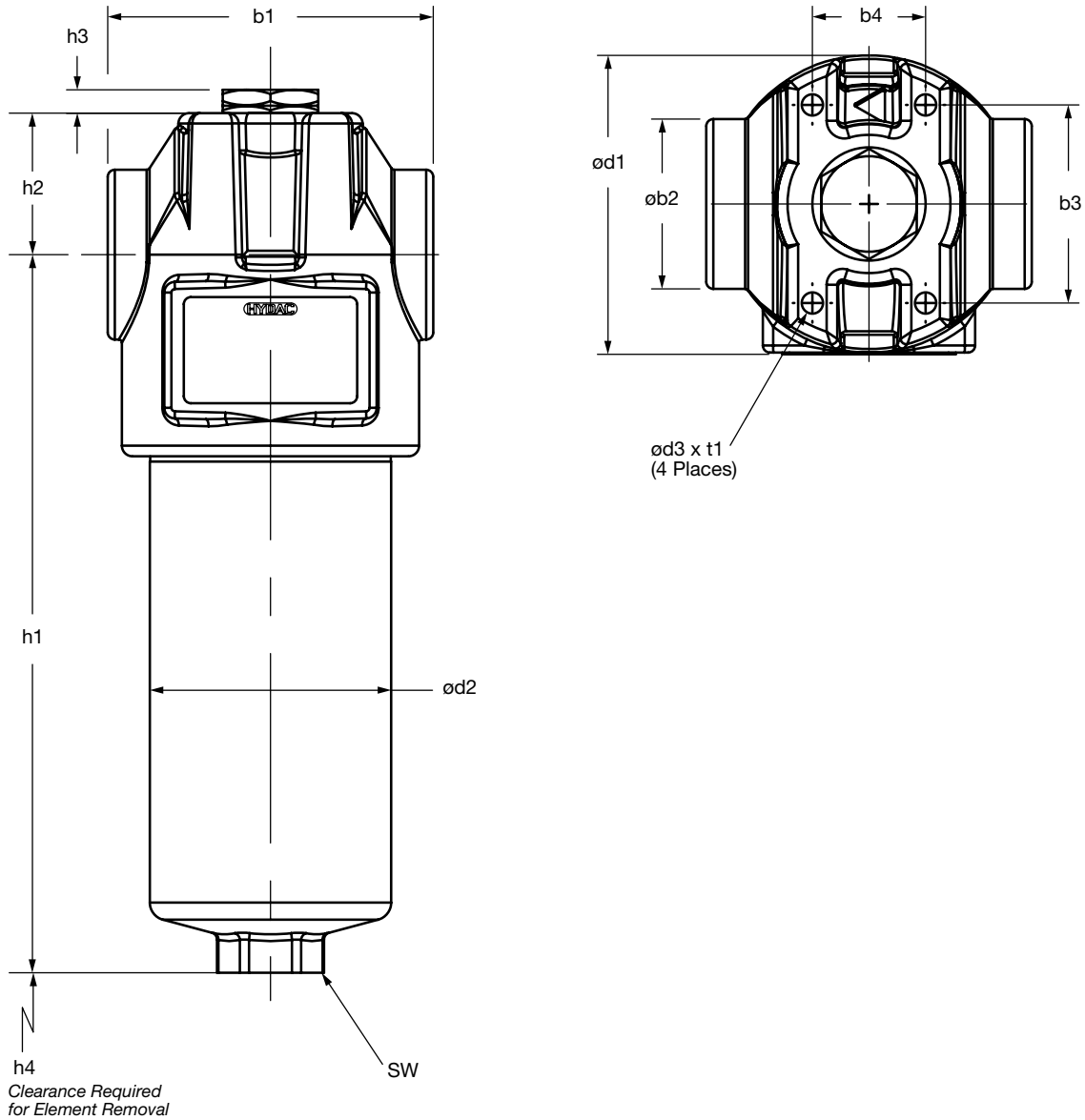
Thermal Lockout (VM, VD types C, D, J, and J4 only) _____
T100 = Lockout below 100°F

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 LF 30 - 660



Size	b1	b2	b3	b4	d1	d2	d3	h1	h2	h3	h4	SW	t1
30	2.72" 69mm	1.42" 36mm	1.77" 45mm	1.18" 30mm	2.64" 67mm	2.05" 52mm	10-32UNF-2B	4.94" 125.5mm	1.22" 31mm	0.27" 7.0mm	2.95" 75mm	0.94" 24mm	0.24" 6.0mm
60	3.54" 90mm	1.89" 48mm	2.20" 56mm	1.26" 32mm	3.31" 84mm	2.68" 68mm	1/4-28UNF-2B	5.41" 137.5mm	1.53" 39mm	0.24" 6.0mm	2.95" 75mm	1.06" 27mm	0.35" 9.0mm
110	3.54" 90mm	1.89" 48mm	2.20" 56mm	1.26" 32mm	3.31" 84mm	2.68" 68mm	1/4-28UNF-2B	8.15" 207mm	1.53" 39mm	0.24" 6.0mm	2.95" 75mm	1.06" 27mm	0.35" 9.0mm
160	4.92" 125mm	2.56" 65mm	3.35" 85mm	1.38" 35mm	4.57" 116mm	3.74" 95mm	3/8-24UNF-2B	7.50" 190.5mm	1.81" 46mm	0.24" 6.0mm	3.74" 95mm	1.26" 32mm	0.55" 14mm
240	4.92" 125mm	2.56" 65mm	3.35" 85mm	1.38" 35mm	4.57" 116mm	3.74" 95mm	3/8-24UNF-2B	9.86" 250.5mm	1.81" 46mm	0.24" 6.0mm	3.74" 95mm	1.26" 32mm	0.55" 14mm
280	4.92" 125mm	2.56" 65mm	3.35" 85mm	1.38" 35mm	4.57" 116mm	3.74" 95mm	3/8-24UNF-2B	9.86" 250.5mm	1.81" 46mm	0.24" 6.0mm	3.74" 95mm	1.26" 32mm	0.55" 14mm
330	6.26" 159mm	3.35" 85mm	4.53" 115mm	2.36" 60mm	6.30" 160mm	5.12" 130mm	1/2-20UNF-2B	9.94" 252.5mm	1.97" 50mm	0.24" 6.0mm	4.13" 105mm	1.42" 36mm	0.47" 12mm
660	6.26" 159mm	3.35" 85mm	4.53" 115mm	2.36" 60mm	6.30" 160mm	5.12" 130mm	1/2-20UNF-2B	16.44" 417.5mm	1.97" 50mm	0.24" 6.0mm	4.13" 105mm	1.42" 36mm	0.47" 12mm

Size	30	60	110	160	240	280	330	660
Weight (lbs.)	1.76	3.3	3.96	8.15	9.5	25.6	17.6	38.8

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:

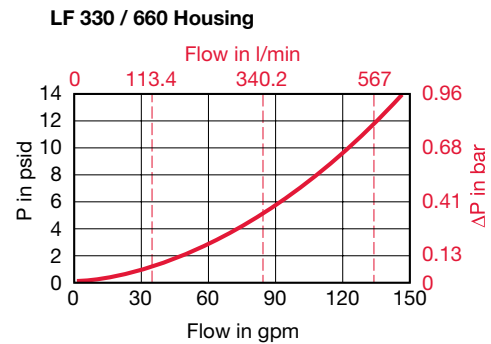
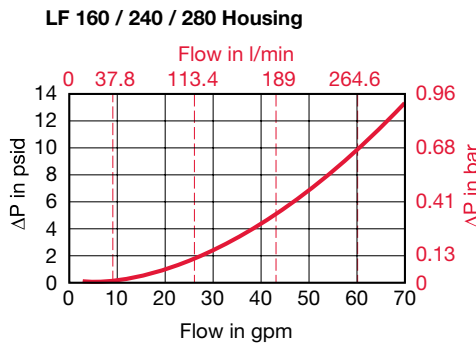
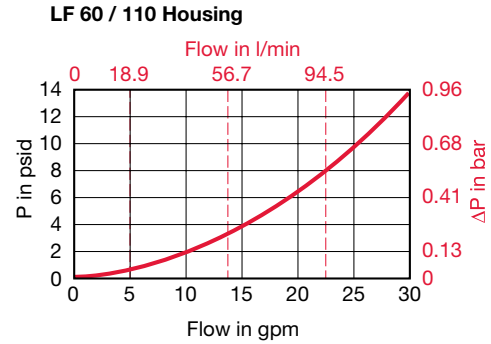
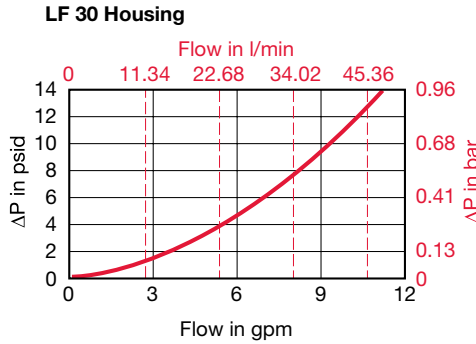
$$\text{Assembly } \Delta P = \text{Housing } \Delta P + \text{Element } \Delta P$$

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 section on page 19)



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)

Size	...D...BN4HC (Betamicon® Low Collapse)			
	3 μm	5 μm	10 μm	20 μm
0030	3.504	2.374	1.251	0.618
0060	1.582	1.116	0.723	0.433
0110	0.819	0.585	0.361	0.205
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
0330	0.294	0.215	0.163	0.095
0660	0.136	0.099	0.061	0.044

Size	...D...BH4HC (Betamicon® High Collapse)			
	3 μm	5 μm	10 μm	20 μm
0030	5.000	2.780	1.989	1.042
0060	3.210	1.785	0.993	0.669
0110	1.394	0.819	0.488	0.307
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
0330	0.422	0.244	0.154	0.108
0660	0.179	0.106	0.055	0.049

Size	...D...V Elements			
	3 μm	5 μm	10 μm	20 μm
0030	1.011	0.740	0.411	0.200
0060	0.877	0.511	0.296	0.183
0110	0.452	0.304	0.182	0.118
0160	0.251	0.177	0.123	0.079
0240	0.169	0.137	0.093	0.062
0280	0.126	0.093	0.064	0.041
0330	0.121	0.097	0.065	0.043
0660	0.063	0.050	0.034	0.021

Size	...D...W/HC Elements			
	25, 50, 74, 100, 149, 200 μm			
0030	0.166			
0060	0.042			
0110	0.023			
0160	0.016			
0240	0.010			
0280	0.009			
0330	0.008			
0660	0.004			

All Element K Factors in psi / gpm.