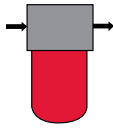


MEDIUM PRESSURE FILTERS

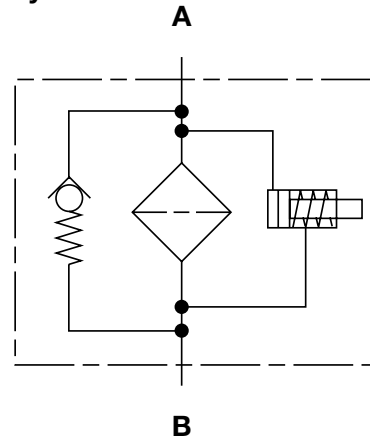
LF Series

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, BSPP and SAE straight thread O-ring boss to allow easy installation with maximum flexibility.
- O-ring seals are used to provide positive, reliable sealing. Choice of O-ring materials (nitrile rubber, fluorocarbon elastomer, ethylene propylene rubber) provides compatibility with petroleum oils, synthetic fluids, water-glycols, oil/water emulsions, and high water based 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.
- HYDAC differential Pressure 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, in the filter head, 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.

Technical Specifications

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 - 660) Steel (size 280)	
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) Fatigue Pressure 1500 psi (100 bar) Burst Pressure size 30 5510 psi (380bar) sizes 60 - 660 > 6090 psi (420 bar)	
Element Collapse Pressure Rating	BH4HC, V 3045 psid (210 bar) ON, W/HC 290 psid (20 bar)	
Fluid Temperature 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 = 72 psid (5 bar) -10% (standard)	
Bypass Valve Cracking Pressure	ΔP = 43 psid (3 bar) +10% (optional) ΔP = 87 psid (6 bar) +10% (standard)	

Applications



Agricultural



Automotive



Construction



Industrial



Railways



Steel / Heavy Industry

Model Code

LF ON 30 I B 3 B 1 . 0 / 12

Filter Type _____
 LF = Inline filter

Element Media _____
 ON = Optimicron® (low collapse) BH/HC = Betamicon® (High Collapse)
 W/HC = Wire Mesh V = Metal Fiber

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

Operating Pressure _____
 I = 1500 psi (100 bar)

Type of Connection _____
 B = 1/2" Threaded (size 30 only) E = 1 1/4" Threaded (sizes 160 - 280 only)
 C = 3/4" Threaded (sizes 60 & 110 only) F = 1 1/2" Threaded (sizes 330 - 660 only)

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

Type of ΔP Clogging Indicator _____
 A, B, BM, C, D (others available upon request)

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 rubber (NBR) (standard) V = Fluorocarbon elastomer (FKM) EPR = Ethylene propylene rubber (EPR)

Bypass Valve _____
 (omit) = Non-Bypass – Critical applications (high collapse element required)
 B3 = 43 psid (3 bar) (optional)
 B6 = 87 psid (6 bar) (standard setting for pressure filters)

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
 SO184 = G-1/2 Drain in Bowl Option For Sizes 60 - 280 (comes standard for sizes 330, 660, & 1320)
 T100 = Indicator Thermal Lockout, 100°F (C and D indicators only)
 W = Modification of "V" elements for use with oil water emulsions (HFA) and water polymer solutions (HFC)
 SFREE = Element specially designed to minimize electrostatic charge generation
 cRUus = Electrical Indicator with underwriter's recognition

Replacement Element Model Code

0030 D 003 ON / V

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

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

Element Media _____
 ON, BH4HC, W/HC, V

Seals _____
 (omit) = Nitrile rubber (NBR)
 V = Fluorocarbon elastomer (FKM)
 EPR = Ethylene propylene rubber (EPR)

Supplementary Details _____
 SO263 = Same as above
 W = Same as above
 SFREE = Element specially designed to minimize electrostatic charge generation

Clogging Indicator Model Code

VM 2 B . X /

Indicator Prefix _____
 VM = G 1/2 3000 psi

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

Type of Indicator _____
 A = No indicator, plugged port
 B = Pop-up indicator (auto reset)
 BM = Pop-up indicator (manual reset)
 C = Electric switch - SPDT
 D = Electric switch and LED light - SPDT

Modification Number _____

Supplementary Details _____
Seal _____
 (omit) = Nitrile rubber (NBR)
 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

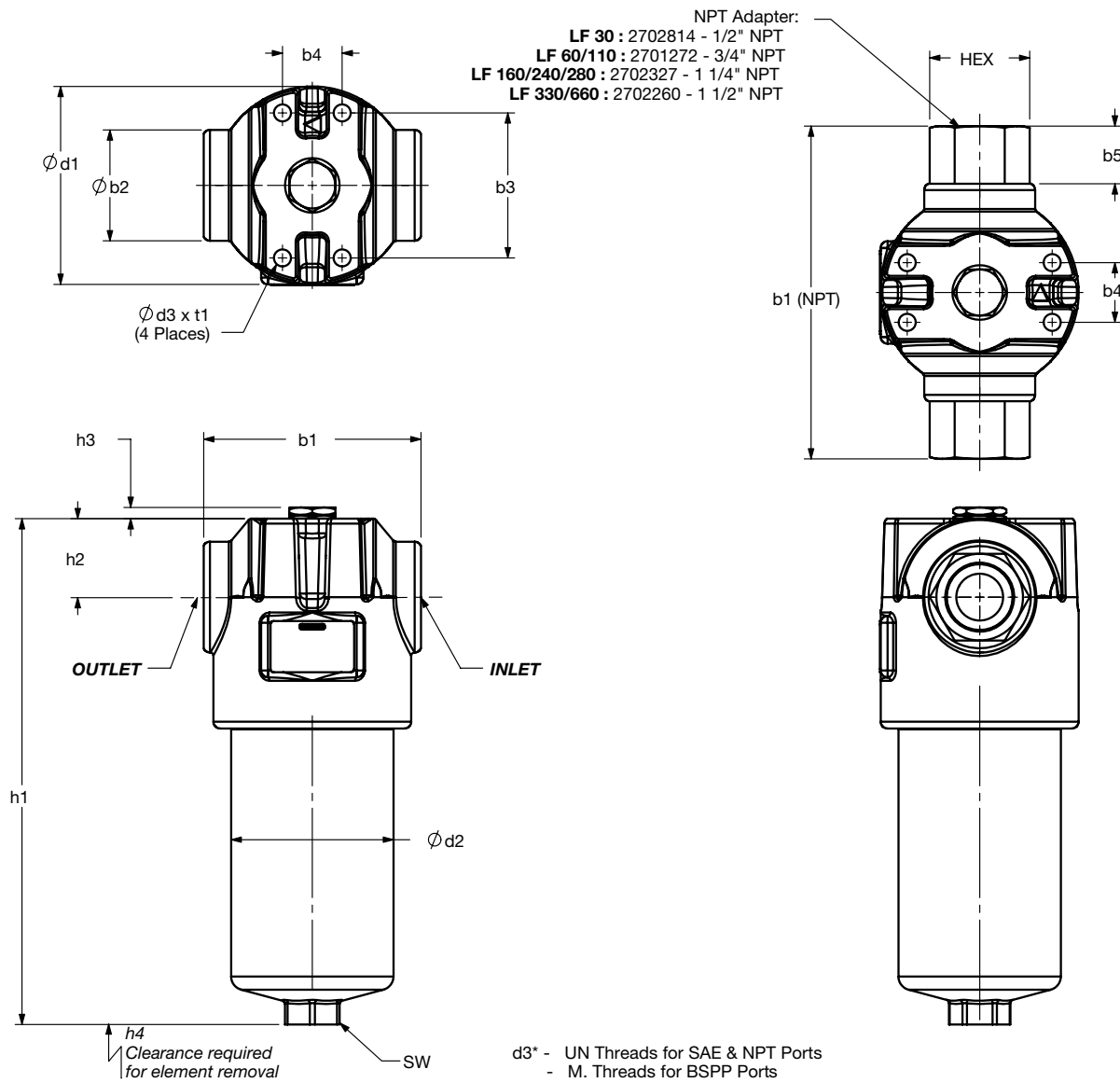
Underwriters Recognition (VM, VD types C, D, J, and J4 only) _____
 cRUus = Electrical Indicator with underwriter's recognition
 (For additional details and options, see Section H - Clogging Indicators.)

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

MEDIUM PRESSURE FILTERS

Dimensions

LF 30 - 660



Size	b1	b1 (NPT)	b2	b3	b4	b5	d1	d2	d3*	h1	h2	h3	h4	SW	t1	HEX
30	(2.72) 69	(4.84) 123	(1.42) 36	(1.77) 45	(1.18) 30	(1.062) 27	(2.64) 67	(2.05) 52	10-32UNF-2B M5 X 0.8	(6.16) 156	(1.22) 31	(0.28) 7	(2.95) 75	(0.94) 24	(0.24) 6	(1.125) 28.6
60	(3.54) 90	(5.80) 147.2	(1.89) 48	(2.20) 56	(1.26) 32	(1.126) 28.6	(3.31) 84	(2.68) 68	1/4-28UNF-2B M6 X 1.0	(6.95) 176.5	(1.54) 39	(0.24) 6	(2.95) 75	(1.06) 27	(0.35) 9	(1.38) 34.93
110	(3.54) 90	(5.80) 147.2	(1.89) 48	(2.20) 56	(1.26) 32	(1.126) 28.6	(3.31) 84	(2.68) 68	1/4-28UNF-2B M6 X 1.0	(9.68) 246	(1.54) 39	(0.24) 6	(2.95) 75	(1.06) 27	(0.35) 9	(1.38) 34.93
160	(4.92) 125	(7.67) 194.9	(2.56) 65	(3.35) 85	(1.38) 35	(1.376) 34.95	(4.57) 116	(3.74) 95	3/8-24UNF-2B M10 X 1.5	(9.29) 236	(1.81) 46	(0.24) 6	(3.74) 95	(1.26) 32	(0.55) 14	(2.00) 50.8
240	(4.92) 125	(7.67) 194.9	(2.56) 65	(3.35) 85	(1.38) 35	(1.376) 34.95	(4.57) 116	(3.74) 95	3/8-24UNF-2B M10 X 1.5	(11.67) 296.5	(1.81) 46	(0.24) 6	(3.74) 95	(1.26) 32	(0.55) 14	(2.00) 50.8
280	(4.92) 125	(7.67) 194.9	(2.56) 65	(3.35) 85	(1.38) 35	(1.376) 34.95	(4.57) 116	(3.74) 95	3/8-24UNF-2B M10 X 1.5	(18.98) 482	(1.81) 46	(0.24) 6	(3.74) 95	(1.26) 32	(0.55) 14	(2.00) 50.8
330	(6.26) 159	(9.07) 230.4	(3.35) 85	(4.53) 115	(2.36) 60	(1.406) 35.71	(6.3) 160	(5.12) 130	1/2-20UNF-2B M12 X 1.75	(11.90) 302.5	(1.97) 50	(0.24) 6	(4.13) 105	(1.42) 36	(0.67) 17	(2.25) 57.15
660	(6.26) 159	(9.07) 230.4	(3.35) 85	(4.53) 115	(2.36) 60	(1.406) 35.71	(6.3) 160	(5.12) 130	1/2-20UNF-2B M12 X 1.75	(18.40) 467.5	(1.97) 50	(0.24) 6	(4.13) 105	(1.42) 36	(0.67) 17	(2.25) 57.15

Size	30	50	110	160	240	330	660
Weight (lbs.)	1.8	3.4	4	8.2	9.5	17.7	24.3

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:

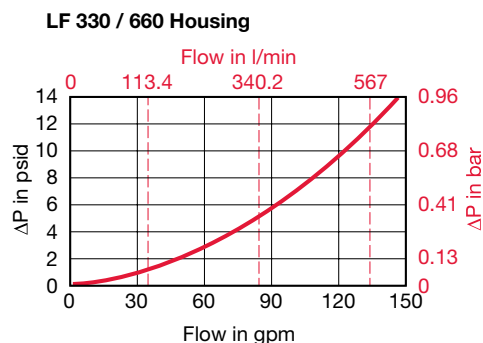
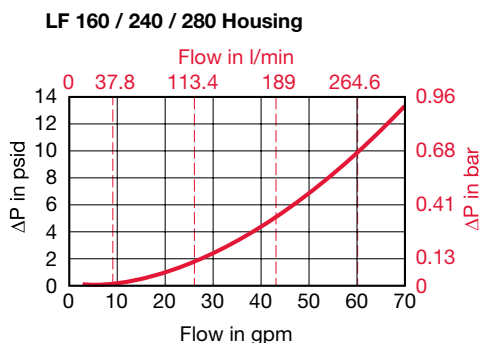
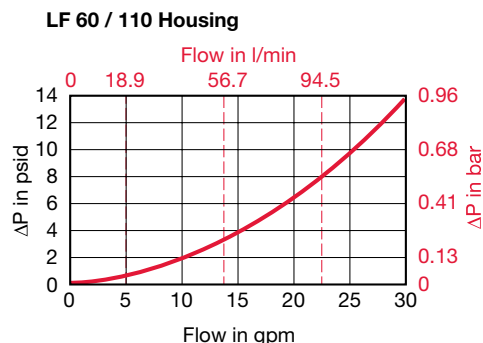
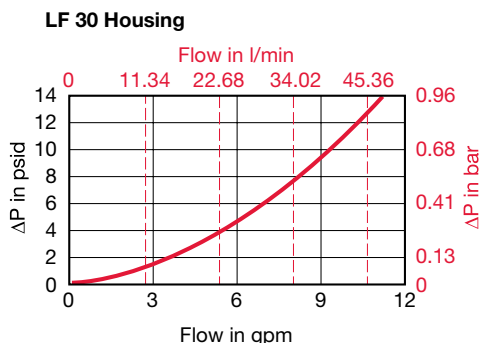
$$\text{Assembly } \Delta P = \text{Housing } \Delta P + \text{Element } \Delta P$$

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 HYDAC Filter Assemblies" in Section B - Overview)



Element K Factors

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

(From Tables Below)

"ON" Pressure Elements:	...D...ON (Optimicron Pressure Elements)					
	1 μm	3 μm	5 μm	10 μm	15 μm	20 μm
0030 D XXX ON	4.27	3.507	2.376	1.251	0.768	0.62
0060 D XXX ON	2.936	1.427	1.004	0.664	0.537	0.347
0110 D XXX ON	1.416	0.735	0.527	0.333	0.254	0.164
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
0330 D XXX ON	0.452	0.23	0.185	0.135	0.085	0.067
0660 D XXX ON	0.207	0.106	0.086	0.051	0.039	0.031

"D" Pressure Elements	...D...BH4HC (Betamicron High Collapse)			
	3 μm	5 μm	10 μm	20 μm
0030 D XXX BH4HC	5.005	2.782	1.992	1.043
0060 D XXX BH4HC	3.216	1.789	0.993	0.670
0110 D XXX BH4HC	1.394	0.818	0.489	0.307
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
0330 D XXX BH4HC	0.423	0.247	0.154	0.110
0660 D XXX BH4HC	0.181	0.104	0.055	0.049

Wire Mesh	...D...W/HC Elements (Low Collapse)
	Size
0030 D XXX W/HC	0.166
0060 D XXX W/HC	0.042
0110 D XXX W/HC	0.023
0160 D XXX W/HC	0.016
0240 D XXX W/HC	0.010
0280 D XXX W/HC	0.005
0330 D XXX W/HC	0.008
0660 D XXX W/HC	0.004

All Element K Factors in psi / gpm.