

LOW PRESSURE FILTERS

NFD Series

Inline Duplex Filters

360 psi • up to 450 gpm



(2.0)



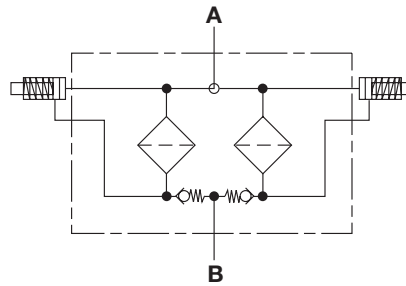
Version 2.0 pictured

Features

- NFD Filters have an extremely large filtration area and flow capacity of 450 gpm (4" pipe size limitation).
- Vent and drain ports are standard
- Aluminum alloy is water tolerant - anodization is not required for high water based fluids (HWBF)
- Screw-on lid provides easy access to filter element for replacement
- Filters can be fitted with clogging indicators to monitor the contamination level of the element
- NFD duplex filters have a ball-type diverter valve to provide continuous filtration and eliminate the need to shut-down the system during element changeout
- Flange connection bolts included for all SAE-DIN flange ports

Note: This filter is configured with anR.... type (return/low pressure) element, so if the filter requires a bypass, the bypass is located in the closed end cap of the cartridge element.

Hydraulic Symbol



Version 2.0

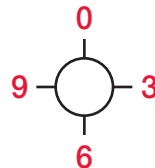
Inlet / Outlet Port Location Configurator

NFD1340/2640 2.X Inlet/Outlet
Available Configurations

	03		09
	33		39
	93		99

NFD5240/7840/10440 2.X Inlet/Outlet
Available Configurations

00	03		09
30	33		39
60			69
	93		99



- 0 = Pointed to Top
- 3 = Pointed to Front
- 6 = Pointed to Bottom
- 9 = Pointed to Back

33 = Stand Configuration
(not given as supplementary details)

First Number = Inlet Orientation
Second Number = Outlet Orientation

Technical Specifications

Mounting Method	See drawings	
Port Connection	SAE DN 102 Flange Code 61	
Flow Direction		
2.0 version	Inlet: Side	Outlet: Side
Construction Materials		
Head, Housing, Lid	Aluminum	
Elbows, Manifolds	Ductile Iron	
Flow Capacity		
1340	343 gpm (1300 lpm)	
2640, 5240, 7840, 10440	450 gpm (1700 lpm)	
Housing Pressure Rating		
Max. Allowable Working Pressure*	360 psi (25 bar)	
Fatigue Pressure	360 psi (25 bar)	
Burst Pressure	Contact HYDAC office	
Element Collapse Pressure Rating		
ON, W/HC	290 psid (20 bar)	
ECON2, BN4AM, P/HC, AM	145 psid (10 bar)	
V	435 psid (30 bar)	
Fluid Temperature Range	-22°F to 212°F (-30°C to 100°C)	
Consult HYDAC for applications 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.	
Indicator Trip Pressure		
ΔP = 29 psid (2 bar) -10%	2.X - Differential	
ΔP = 72 psid (5 bar) -10%		
Bypass Valve Cracking Pressure		
ΔP = 14.5 psid (1 bar) +10%		
ΔP = 43 psid (3 bar) +10% (standard)		
ΔP = 87 psid (6 bar) +10%		

*Note: All NFD...1.0 Filters MAWP reduce to 7 bar (101.5 psi) when using the following "VMF" and "VR" indicators: B, BM, E, ES, GC, LE, LZ.

Applications



Agricultural



Automotive



Construction



Gearboxes



Industrial



Offshore



Power Generation



Pulp & Paper

Model Code

Filter Type _____ **NFD** **ON** **1340** **D** **A** **P** **3** **B** **1.X** /

Filter Type _____
NFD = Duplex In-Tank Return Line Filter

Element Media _____
ON = Optimicron® XSX = Stat-X®
BN/AM = Betamicron®/Aquamicron® ECON2 = ECOmicron®
AM = Aquamicron® W/HC = Wire Mesh
P/HC = Polyester V = Metal Fiber

Size _____
1340, 2640, 5240, 7840, 10440

Operating Pressure _____
D = 360 psi (25 bar)
V = 101.5 psi (7 bar) (When using the following "VR" indicators: B, BM, E, ES, GC, LE, LZ)

Type of Change Over _____
A = Ball valve

Type of Connection _____
P = SAE DN 102 (4") Code 61 flange

Filtration Rating (micron) _____
1, 3, 5, 10, 15, 20 = ON 3, 5, 10, 20 = XSX 3, 10 = BN/AM 3, 5, 10, 20 = ECON2
40 = AM 25, 50, 100, 200 = W/HC 10, 20 = P/HC 3, 5, 10, 20 = V

Type of Static (1.X Configuration) or ΔP (2.X Configuration) Clogging Indicator _____
A, B, BM, C, D (Others available upon request, see Clogging Indicators section.)

Type Number / Modification Number _____
2.X = Inline Filter - ΔP Indicator

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

Bypass Valve _____
(omit) = 43 psid (3 bar) (standard)
B1 = 14.5 psid (1 bar) (lube or coolant)
B6 = 87 psid (6 bar) (return line extended life)
KB = no bypass (flushing system)] not available with ECON2

Supplementary Details _____
SO263 = Modification of elements for Skydrol or HYJET phosphate ester fluids SB = Equalization valve set
LED = 2 light emitting diodes for up to 24V DC EM = Manual vent valve set
L24, L48, L110, L220 = Lamp for D-type clogging indicator (LXX, XX = voltage) VKD = Drain manifold
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
QPG5 = Quality-Protected Design (sizes 1340-10440)
SO376 = Modification of ON and W/HC elements for HFA, HFB, HFC, and HFD flame retardant liquids
SO882 = Quality Protection Design

Flow Path _____
00, 03, 09, 30, 39, 60, 69, 93, 99
(omit) = 33 - Front Inlet/Front Outlet (standard)

Note: See previous page of "Inlet / Outlet Port Configurator" for flow path positions.

Replacement Element Model Code

Size _____ **1300** **R** **003** **ON** / **V**

Size _____
1300 - for housings: 1340
2600 - for housings: 2640, 5240, 7840, 10440

Filtration Rating (micron) _____
1, 3, 5, 10, 15, 20 = ON 3, 5, 10, 20 = XSX
3, 10 = BN4AM 3, 5, 10, 20 = ECON2
40 = AM 25, 50, 100, 200 = W/HC
10, 20 = P/HC 3, 5, 10, 20 = V

Element Media _____
ON, XSX, BN4AM, ECON2, AM, W/HC, P/HC, V

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

Bypass Valve _____
(omit) = 43 psid (3 bar) (standard) B1 = 14.5 psid (1 bar)
B6 = 87 psid (6 bar) KB = no bypass

Supplementary Details _____
SO263 = (same as above) W = (same as above)
SFREE = (same as above) SO376 = (same as above)
QPG5 = Quality-Protected Design (sizes 1340-2640)
SO882 = (same as above)

Note: Element contamination retainer = P/N 01204141

Clogging Indicator Model Code

Indicator Prefix _____ **VM** **2** **B** **X** /

Indicator Prefix _____
VM = ΔP Indicators (2.X version)

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

Type of Indicator _____
A = No indicator, plugged port
B = Pop-up indicator (auto reset - static only - 1.0)
BM = Pop-up indicator (manual reset)
C = Electric switch - SPDT
D = Electric switch and LED light - SPDT

Modification Number _____

Supplementary Details _____

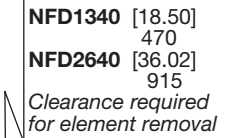
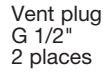
Seals _____
(omit) = Nitrile rubber (NBR) (standard)
V = Fluorocarbon elastomer (FKM)
EPR = Ethylene propylene rubber (EPR)

Light Voltage (D type indicators only) _____
L24 = 24V L48 = 48V L110 = 110V L220 = 220V
(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

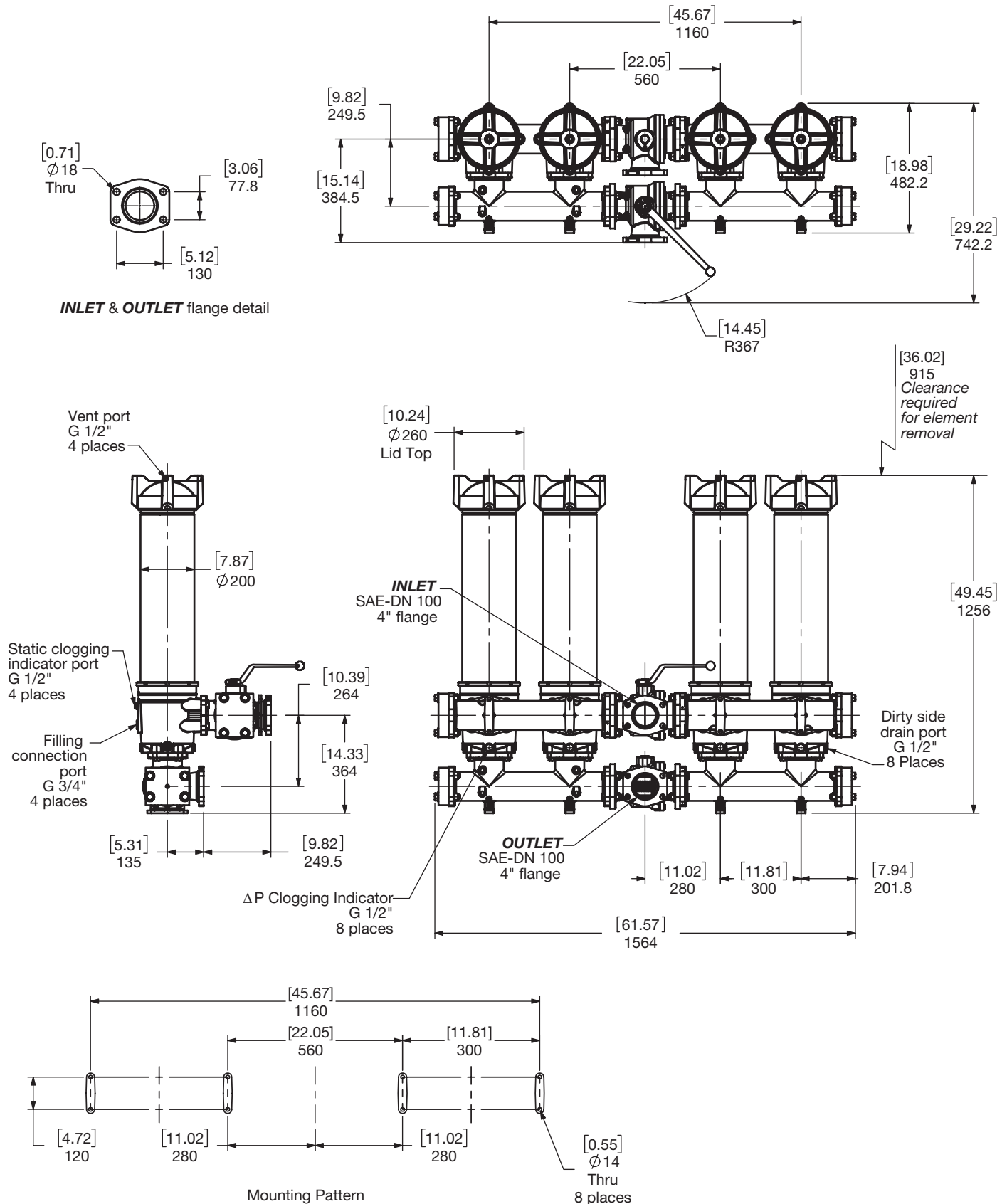
Dimensions

NFD 1340 / 2640 – 2.0 Version



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: NFD 5240 – 2.0 Version

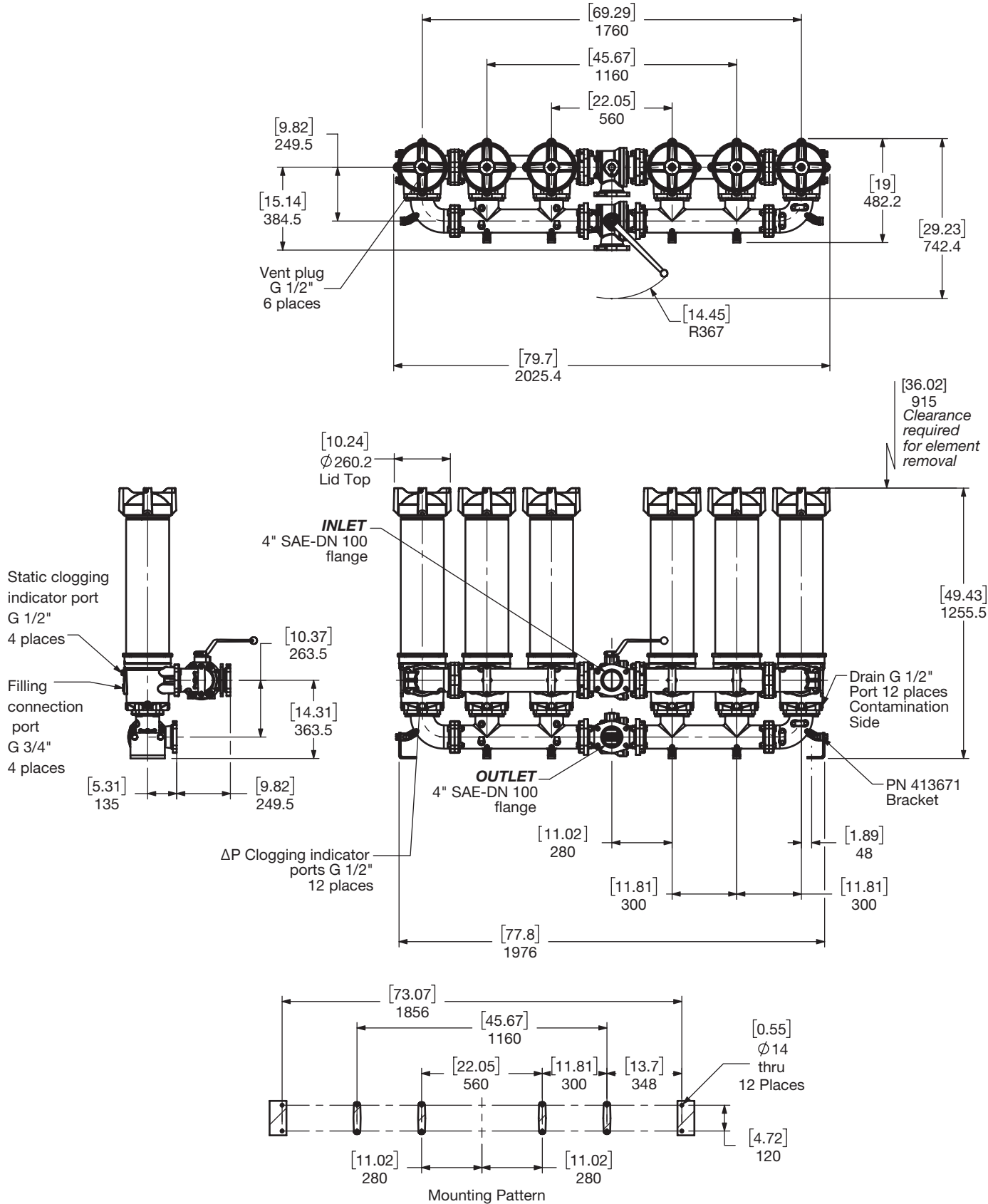


Size	5240 Version 2.0
Weight (lbs.)	590.3

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.

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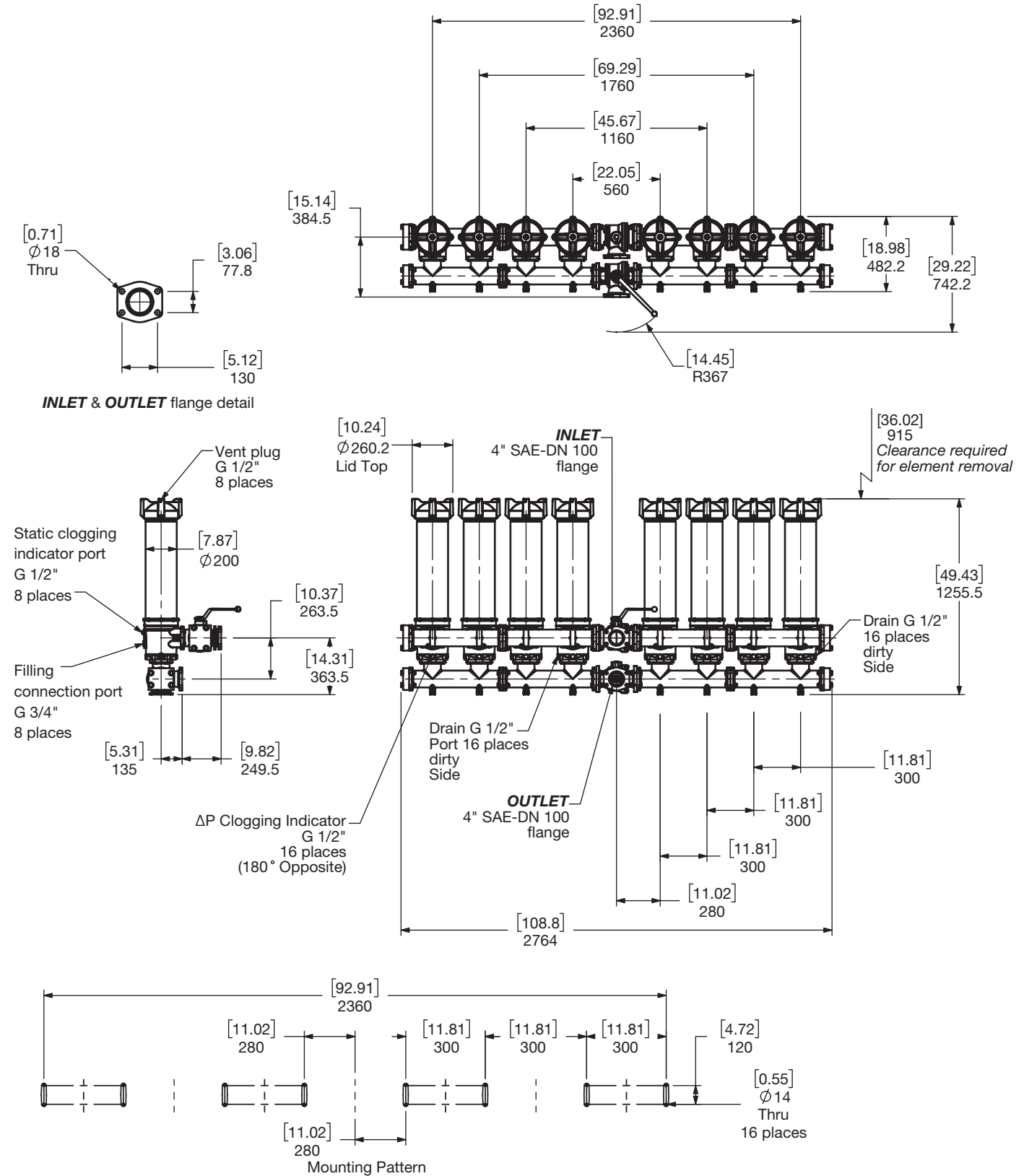
Dimensions:
NFD 7840 – 2.0 Version



Size	7840 Version 2.0
Weight (lbs.)	833.4

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: NFD 10440 – 2.0 Version



Size	10440 Version 2.0
Weight (lbs.)	1085.3

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.

LOW PRESSURE FILTERS

Sizing Information

Total pressure loss through the filter is as follows:

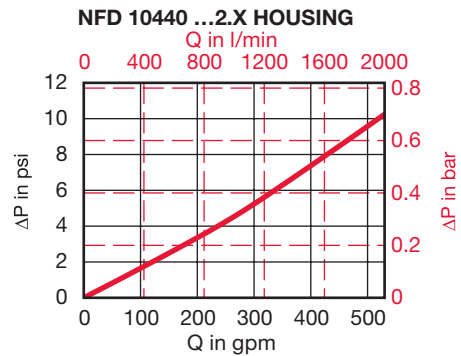
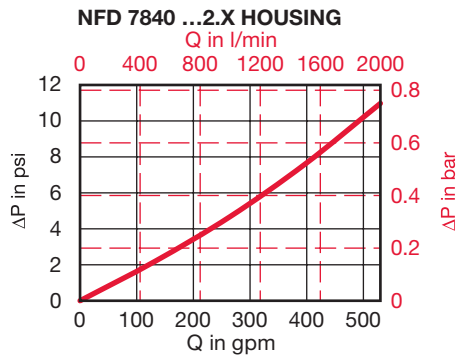
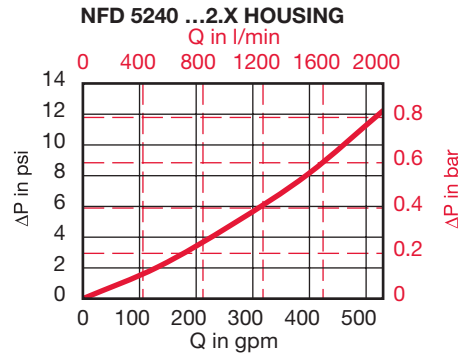
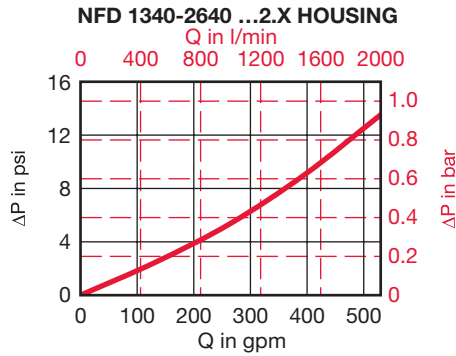
Assembly ΔP = Housing ΔP + Element ΔP

Housing Curve:

Pressure loss through housing is as follows:

Housing ΔP = 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

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

Optimicron	...R...ON					
Size	1 μm	3 μm	5 μm	10 μm	15 μm	20 μm
1300 R XXX ON	0.094	0.04	0.032	0.019	0.018	0.012
2600 R XXX ON	0.046	0.02	0.016	0.01	0.009	0.006

Stat-X	...R...XSX			
Size	3 μm	5 μm	10 μm	20 μm
1300 R XXX XSX	0.04	0.032	0.019	0.012
2600 R XXX XSX	0.02	0.016	0.01	0.006

ECOMICRON	...R...ECON2			
Size	3 μm	5 μm	10 μm	20 μm
1300 R XXX ECON2	0.044	0.033	0.022	0.016
2600 R XXX ECON2	0.022	0.016	0.011	0.005

Betamicon/Aquamicon	...R...BN4AM	
Size	3 μm	10 μm
1300 R XXX BN4AM	0.088	0.033
2600 R XXX BN4AM	0.055	0.016

Aquamicon	...R...AM
Size	40 μm
1300 R 040 AM	0.026
2600 R 040 AM	0.013

Wire Mesh	...R...W/HC
Size	25, 50, 100, 200 μm
1300 R XXX W/HC	0.002
2600 R XXX W/HC	0.001

Polyester	...R...P/HC	
Size	10 μm	20 μm
1300 R XXX P/HC	0.004	0.002
2600 R XXX P/HC	0.002	0.001

All Element K Factors in psi / gpm.

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