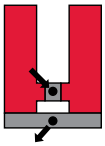
# NFD Series

## 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 an …..R…. 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.

## Applications



*Agricultural*



*Automotive*



*Construction*



*Gearboxes*



*Industrial*



*Offshore*

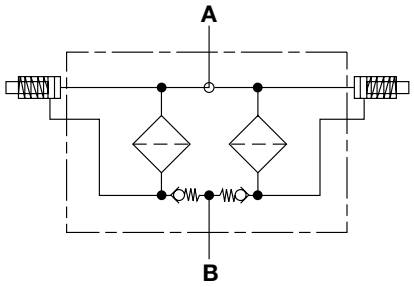


*Power Generation*



*Pulp & Paper*

## Hydraulic Symbol




Version 2.0

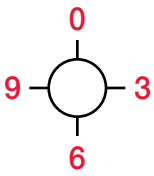
## Inlet / Outlet Port Location Configurator

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** | | |
| SN, 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.

## Model Code

**NFD SN 1340 D A P 3 B 1.X / _ _ _ _**

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

**Element Media**
SN = Sustainmicron
BN/AM = Betamicron®/Aquamicron®
AM = Aquamicron®
P/HC = Polyester
XSX = Stat-X®
ECON2 = ECOmicron®
W/HC = Wire Mesh
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)*
3, 5, 10, 20 = SN
40 = AM
3, 5, 10, 20 = XSX
25, 50, 100, 200 = W/HC
3, 10 = BN/AM
10, 20 = P/HC
3, 5, 10, 20 = ECON2
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)

**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
LED = 2 light emitting diodes for up to 24V DC
L24, L48, L110, L220 = Lamp for D-type clogging indicator *(LXX, XX = voltage)*
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
SB = Equalization valve set
EM = Manual vent valve set
VKD = Drain manifold

**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

**1300 R 003 SN / V _ _**

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

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

**Element Media**
SN, XSX, BN4AM, ECON2, AM, W/HC, P/HC, V

**Seals**
(omit) = standard - Nitrile rubber (NBR)
V = Fluorocarbon elastomer (FKM)

**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

**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**

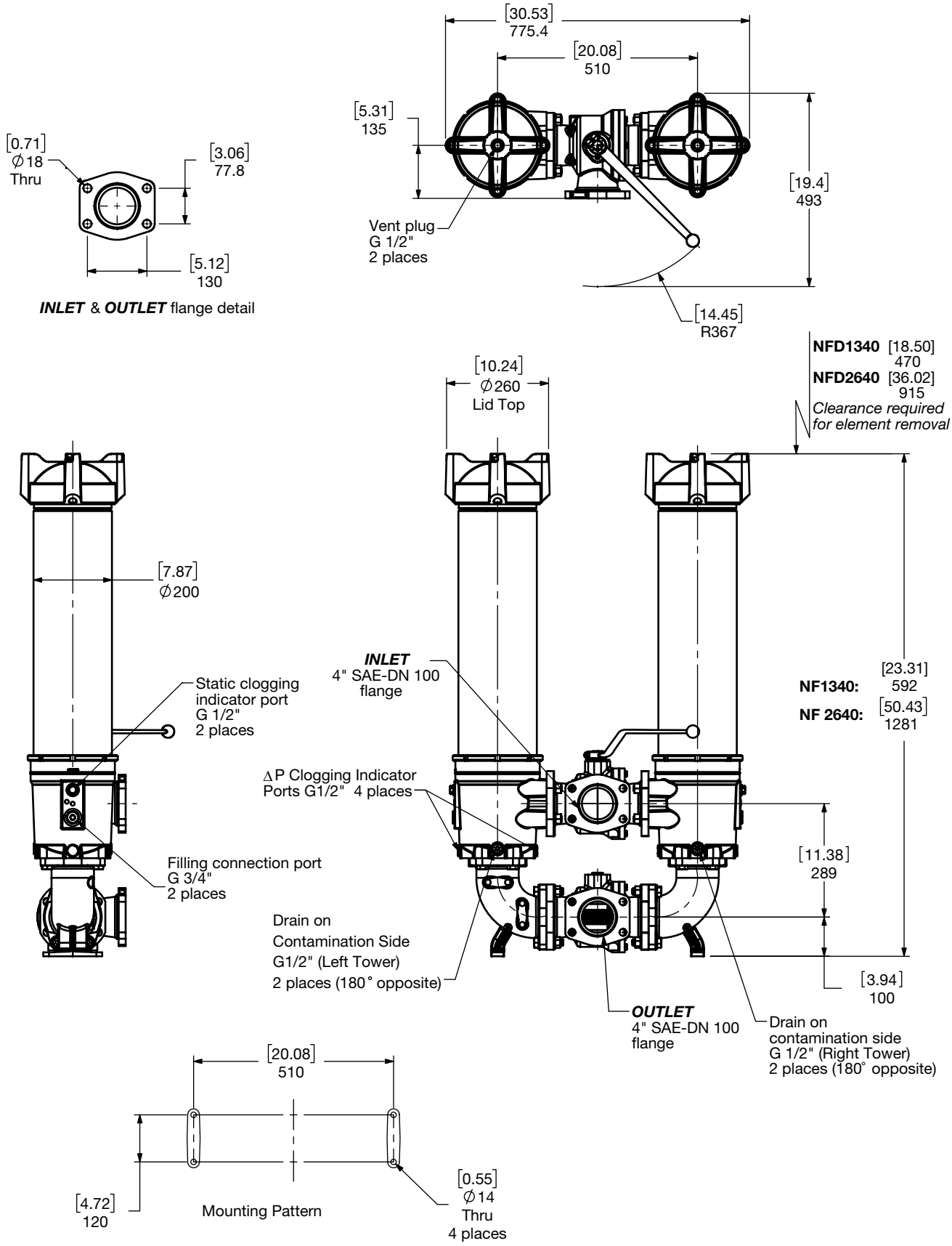
**Supplementary Details**
**Seals**
(omit) = Nitrile rubber (NBR) *(standard)*
V = Fluorocarbon elastomer (FKM)

**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*

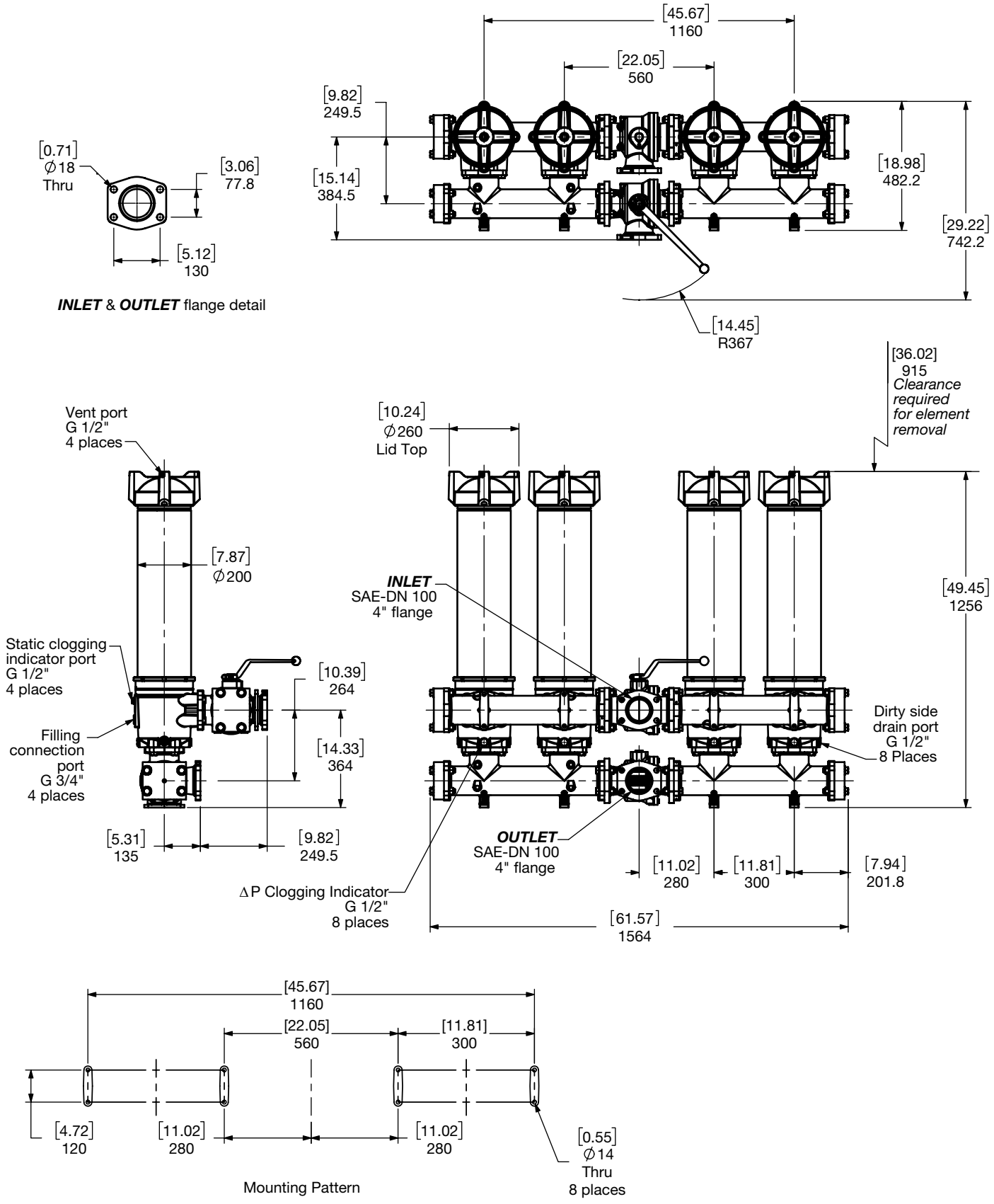
## Dimensions
## NFD 1340 / 2640 – 2.0 Version




| Size | 1340 Version 2.0 | 2640 Version 2.0 |
|---|---|---|
| Weight (lbs) | 187.6 | 220.7 |

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.

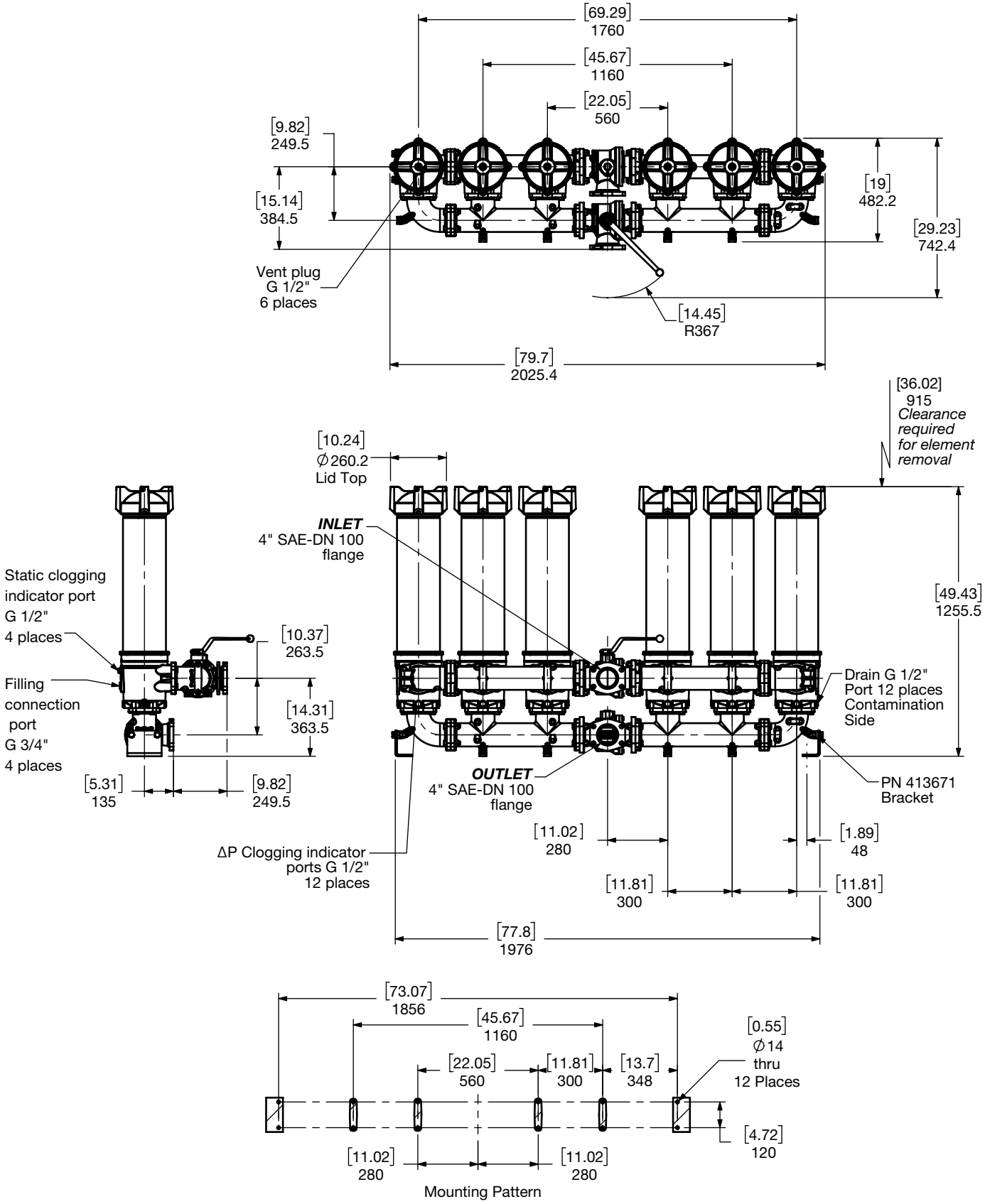
## Dimensions:
## NFD 5240 – 2.0 Version




| 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.

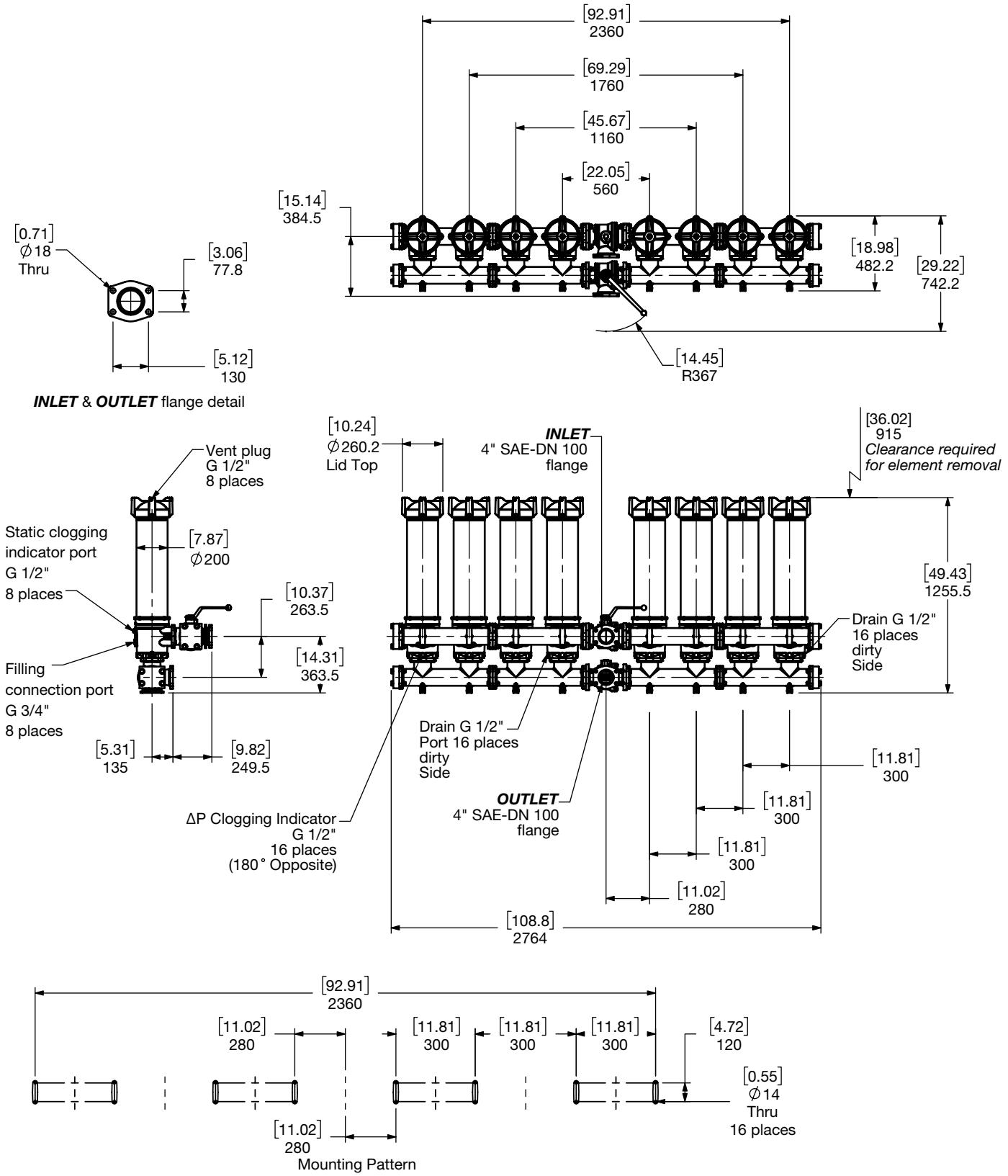
## Dimensions:
## NFD 7840 – 2.0 Version




| 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.

## Sizing Information

Total pressure loss through the filter is as follows:

Assembly ΔP = Housing ΔP + Element ΔP

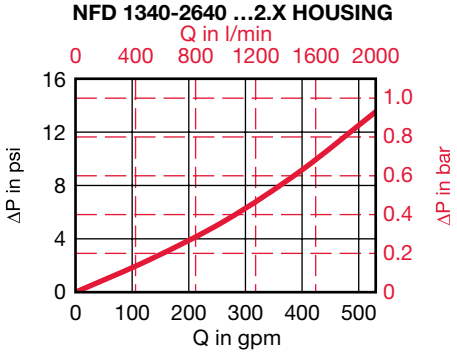
**Housing Curve:**

Pressure loss through housing is as follows:

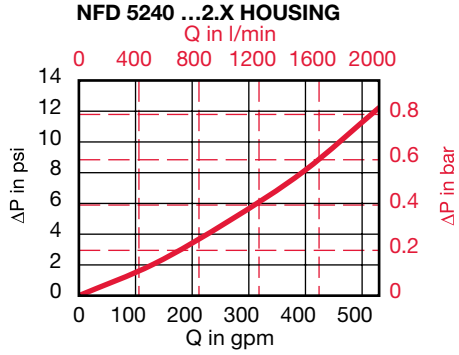
$$\text{Housing } \Delta P = \text{Housing Curve } \Delta P \times \frac{\text{Actual Specific Gravity}}{0.86}$$

Adjustments must be made for viscosity & specific gravity of the fluid to be used! *(see "Sizing HYDAC Filter Assemblies" in Section B - Overview)*

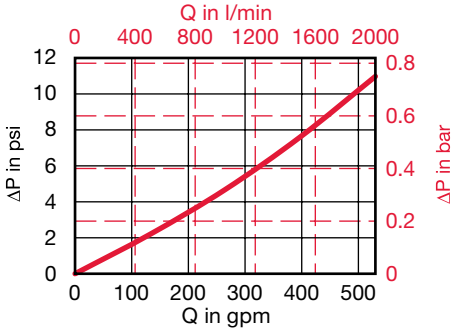
**NFD 1340-2640 ...2.X HOUSING**



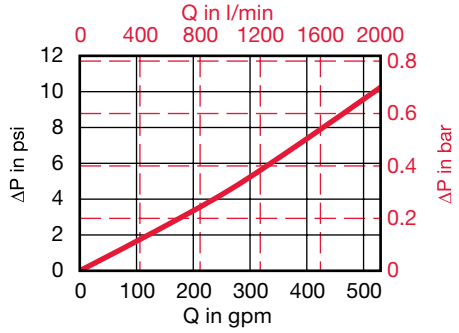

**NFD 5240 ...2.X HOUSING**




**NFD 7840 ...2.X HOUSING**




**NFD 10440 ...2.X HOUSING**




## Element K Factors

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

| Sustainmicron | ...R...SN Elements | | | |
|---|---|---|---|---|
| Size | 3 µm | 5 µm | 10 µm | 20 µm |
| 1300 R XXX SN | 0.0338 | 0.0306 | 0.0169 | 0.0092 |
| 2600 R XXX SN | 0.0169 | 0.0152 | 0.0085 | 0.0046 |

| 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 |

| Betamicron/Aquamicron | ...R...BN4AM | |
|---|---|---|
| Size | 3 µm | 10 µm |
| 1300 R XXX BN4AM | 0.088 | 0.033 |
| 2600 R XXX BN4AM | 0.055 | 0.016 |

| Aquamicron | ...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.

## Notes