HY-PRO

# PFH62

## High Pressure In-Line Filter Assemblies

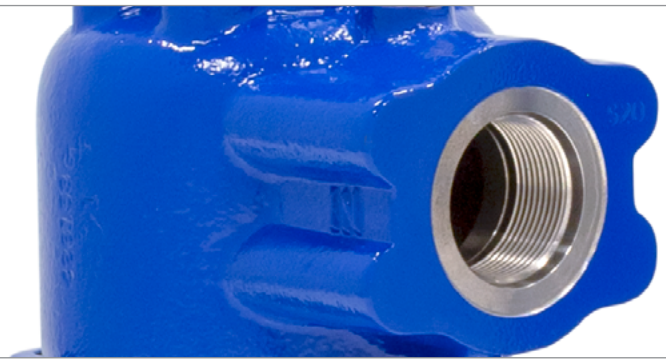
Hy-Pro's PFH62 pressure filters are designed to protect sensitive components in hydraulic circuits. Install the series upstream of specific components or directly after the pressure pump to minimize risk of failure and costly system downtime.

Ideal for use as a power unit pump discharge filter and to protect components that are sensitive to particulate contamination and require clean pressurized fluid for reliable operation, such as servo valves.

**Max Operating Pressure: 6,600 psi (455 bar)**

## Dynamic Filter Efficiency

Hydraulic applications see dynamic flow changes on a regular basis. Dynamic Filter Efficiency testing takes the ISO16889 Multi-Pass testing even further with variable flow shifts to ensure your filter elements stand up to real world conditions and maintain the highest capture and retention rates in the industry.



## Unique applications.

With available nickel plating, the PFH62 is an ideal choice for rough duty, high water contamination applications. Media options include wire mesh, water removal, and Dualglass to address even the most unique contamination. A reverse flow check valve option enables usage in reversing hydrostatic drive systems.

## Industrial duty.

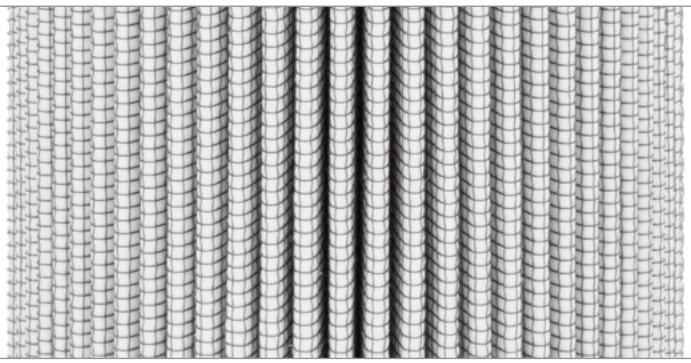
Standard mounting holes for an optional mounting bracket, a variety of indicator options, head-up or inverted mounting options, and side-in / end-out “L-Head” port orientation or a sub-plate manifold mount option make the PFH62 the ideal choice for heavy duty hydraulic filtration.

## Minimize the mess.

The top loading housing on PFH62 filter assemblies provide easy and clean access when servicing or changing the element. Accessing the element is as simple as removing the housing cover, meaning you have no heavy bowl to lift and can get back in operation quicker than ever.

## Extend the life of your element.

Unique internal flow paths provide low resistance to flow, resulting in a low housing pressure drop. Hy-Pro’s advanced filter media delivers lower operating ISO Codes to eliminate internally generated contamination meaning your filter will have an incredibly long service life to protect your sensitive components better than ever.

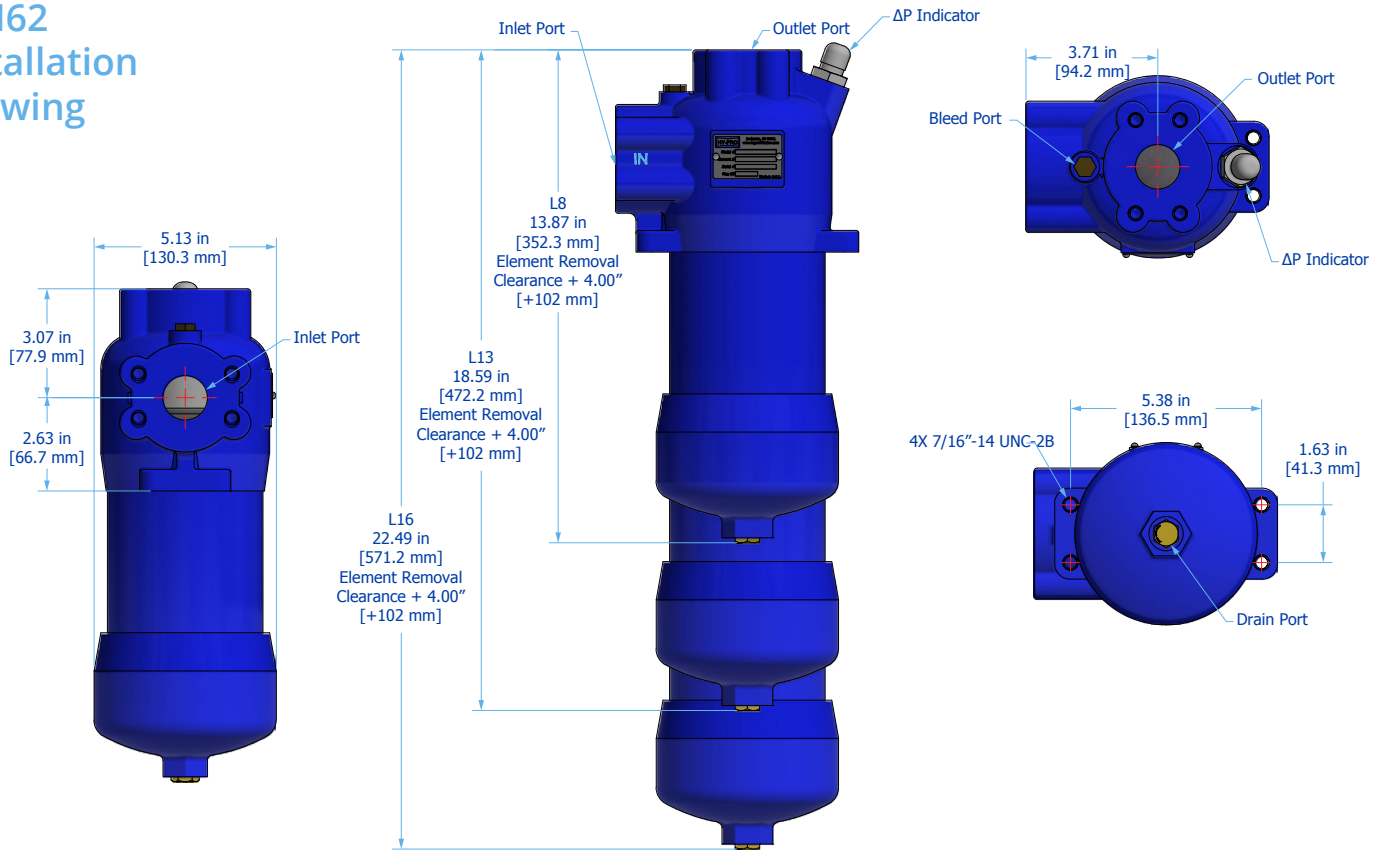


## The ideal choice for hydraulics.

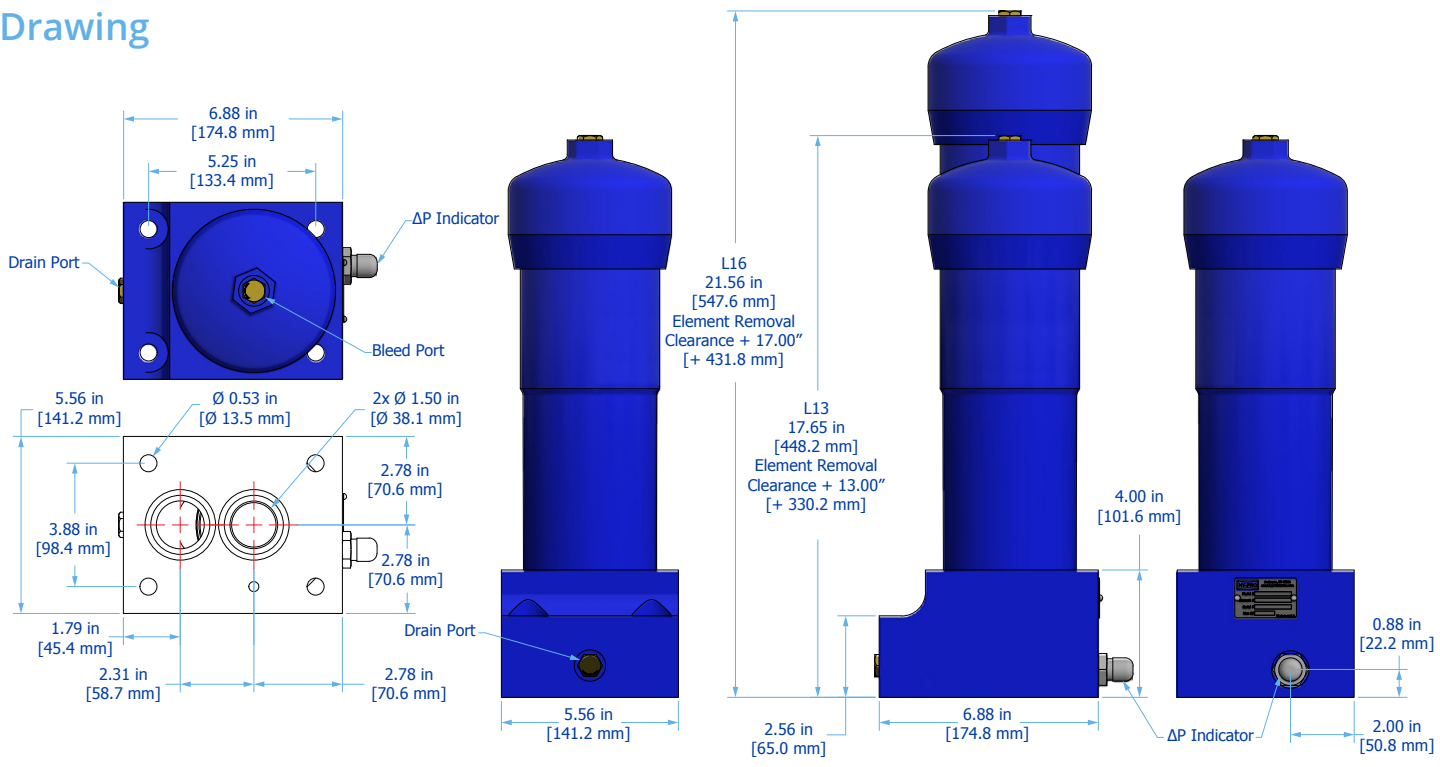
Use the PFH62 as the main high pressure filter(s) in a hydraulic system or upstream of sensitive components as a pilot filter to protect your valves and actuators. The PFH series are engineered to provide lower operating ISO Codes than what is required for compliance with hydraulic component manufacturers’ warranties.

# PFH62 Installation Drawings

## PFH62 Installation Drawing




## PFH62M Installation Drawing



# PFH62 Sizing Guidelines

## Filter Assembly Sizing Guidelines

Effective filter sizing requires consideration of flow rate, viscosity (operating and cold start), fluid type and degree of filtration. When properly sized, bypass during cold start can be avoided/minimized and optimum element efficiency and life achieved. The filter assembly differential pressure values provided for sizing differ for each media code, and assume 32 cSt (150 SUS) viscosity and 0.86 fluid specific gravity. Use the following steps to calculate clean element assembly pressure drop.

## Sizing recommendations to optimize performance and permit future flexibility

- To avoid or minimize bypass during cold start the actual assembly clean ΔP calculation should be repeated for start-up conditions if cold starts are frequent.
- Actual assembly clean ΔP should not exceed 10% of bypass ΔP gauge/indicator set point at normal operating viscosity.
- If suitable assembly size is approaching the upper limit of the recommended flow rate at the desired degree of filtration consider increasing the assembly to the next larger size if a finer degree of filtration might be preferred in the future. This practice allows the future flexibility to enhance fluid cleanliness without compromising clean ΔP or filter element life.
- Once a suitable filter assembly size is determined consider increasing the assembly to the next larger size to optimize filter element life and avoid bypass during cold start.
- When using water glycol or other specified synthetics, we recommend increasing the filter assembly by 1~2 sizes.

### Step 1: Calculate ΔP coefficient for actual viscosity

#### Using Saybolt Universal Seconds (SUS)

$$\text{ΔP Coefficient} = \frac{\text{Actual Operating Viscosity1 (SUS)}}{150} \times \frac{\text{Actual Specific Gravity}}{0.86}$$

#### Using Centistokes (cSt)

$$\text{ΔP Coefficient} = \frac{\text{Actual Operating Viscosity}^{1}\text{ (cSt)}}{32} \times \frac{\text{Actual Specific Gravity}}{0.86}$$

### Step 2: Calculate actual clean filter assembly ΔP at both operating and cold start viscosity

$$\text{Actual Assembly Clean ΔP} = \text{Flow Rate} \times \text{ΔP Coefficient (from Step 1)} \times \text{Assembly ΔP Factor (from sizing table)}$$

# PFH62 Sizing Guide

## Filter Sizing[1]

Filter assembly clean element ΔP after actual viscosity correction should not exceed 10% of filter assembly bypass setting. See page 4 for filter assembly sizing guidelines & examples. For applications with extreme cold start condition contact Hy-Pro for sizing recommendations.

## ΔP Factors[1]

| Element Type | Length | Units | Media 1M | 3M | 6M | 10M | 16M | 25M | **W |
|---|---|---|---|---|---|---|---|---|---|
| 60 | L8 | psid/gpm | 0.378 | 0.319 | 0.247 | 0.221 | 0.217 | 0.209 | 0.038 |
| | | bard/lpm | 0.007 | 0.006 | 0.004 | 0.004 | 0.004 | 0.004 | 0.001 |
| | L13 | psid/gpm | 0.237 | 0.200 | 0.155 | 0.139 | 0.136 | 0.131 | 0.024 |
| | | bard/lpm | 0.004 | 0.004 | 0.003 | 0.003 | 0.002 | 0.002 | 0.000 |
| | L16 | psid/gpm | 0.181 | 0.153 | 0.118 | 0.106 | 0.104 | 0.100 | 0.018 |
| | | bard/lpm | 0.003 | 0.003 | 0.002 | 0.002 | 0.002 | 0.002 | 0.000 |
| 61 | L8 | psid/gpm | 0.488 | 0.412 | 0.319 | 0.286 | 0.280 | 0.270 | 0.049 |
| | | bard/lpm | 0.009 | 0.008 | 0.006 | 0.005 | 0.005 | 0.005 | 0.001 |
| | L13 | psid/gpm | 0.307 | 0.259 | 0.201 | 0.180 | 0.176 | 0.170 | 0.031 |
| | | bard/lpm | 0.006 | 0.005 | 0.004 | 0.003 | 0.003 | 0.003 | 0.001 |
| | L16 | psid/gpm | 0.161 | 0.136 | 0.105 | 0.095 | 0.093 | 0.089 | 0.016 |
| | | bard/lpm | 0.003 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.000 |
| 964 | L8 | psid/gpm | 0.409 | 0.345 | 0.268 | 0.240 | 0.235 | 0.226 | 0.041 |
| | | bard/lpm | 0.007 | 0.006 | 0.005 | 0.004 | 0.004 | 0.004 | 0.001 |
| | L13 | psid/gpm | 0.248 | 0.209 | 0.162 | 0.145 | 0.142 | 0.137 | 0.025 |
| | | bard/lpm | 0.005 | 0.004 | 0.003 | 0.003 | 0.003 | 0.002 | 0.000 |
| | L16 | psid/gpm | 0.186 | 0.157 | 0.122 | 0.109 | 0.107 | 0.103 | 0.019 |
| | | bard/lpm | 0.003 | 0.003 | 0.002 | 0.002 | 0.002 | 0.002 | 0.000 |

[1]Max flow rates and ΔP factors assume υ = 150 SUS, 32 cSt. See filter assembly sizing guideline for viscosity conversion formula.

# PFH62 Specifications

| | | | |
|---|---|---|---|
| Dimensions | See Installation Drawings on page 3 for model specific dimensions. | | |
| Weight | **PFH62 L8**<br>33 lbs(15 kg) | **PFH62 L13**<br>42 lbs(19 kg) | **PFH62 L16**<br>48 lbs(21.8 kg) |
| Operating Temperature | -20°F to 250°F<br>(-29°C to 121°C) | | |
| Operating Pressure | 6,600 psi (455 bar) max | | |
| Burst Pressure | 19,900 psi (1,372 bar) max | | |
| Flow Fatigue Rating | 2000 cycles at 0-300 bar per NFPA T3.10.5.1, R2 2000 | | |
| ΔP Indicator Trigger | 73 psid (5 bard) | | |
| Element Collapse Rating | **HP60**<br>290 psid (20 bard) max | **HP61**<br>3000 psid (206.8 bard) max | **HP964**<br>150 psid (20 bard) max |
| Integral Bypass Setting | 90 psid (6.2 bard) | | |
| Materials of Construction | **Head + Cover**<br>Ductile iron | **Bowl**<br>Seamless steel tubing | **Exterior Coating**<br>Powder coated |

| | | | | |
|---|---|---|---|---|
| Media Description | **M**<br>G8 Dualglass, our latest generation of DFE rated, high performance glass media for all hydraulic & lubrication fluids. $\beta x_{[C]} \geq 4000$ | **A**<br>G8 Dualglass high performance media combined with water removal scrim. $\beta x_{[C]} \geq 4000$ | **SF**<br>Dynafuzz stainless steel fiber media $\beta x_{[C]} \geq 4000$ | **W**<br>Stainless steel wire mesh media $\beta x_{[C]} \geq 2$ |

Replacement Elements

To determine replacement elements, use the selected codes from the following page below:

**Filter Element Part Number**
HP[Element Type Code] L [Length Code] – [Media Selection Code][Seal Code]

**Example**
HP61L8-2MB

| | |
|---|---|
| Fluid Compatibility | Biodegradable and mineral based fluids. For high water based or specified synthetics consult factory. |

# PFH62 Part Number Builder

**PFH62** [ ] [ ] [ ] [ ] [ ] [ ] - [ ] - [ ] [ ]

Connection | Element Type | Collapse | Length | Bypass | ΔP Indicator | Special Options | Media | Seal

## Connection

### Port Option

| | |
|---|---|
| **C20** | 1.25" Code 62 flange (6000 psi) |
| **F20** | 1.25" Code 61 flange |
| **F24** | 1.5" Code 61 flange |
| **G16** | 1" G thread (BSPP) |
| **G20** | 1.25" G thread (BSPP) |
| **M24** | Manifold mount (see installation detail) |
| **S16** | 1" SAE |
| **S20** | 1.25" SAE |
| **S24** | 1.5" SAE |

### Max Flow Rate

| |
|---|
| 100 gpm (379 lpm) |
| 100 gpm (379 lpm) |
| 150 gpm (568 lpm) |
| 50 gpm (189 lpm) |
| 100 gpm (379 lpm) |
| 150 gpm (568 lpm) |
| 50 gpm (189 lpm) |
| 100 gpm (379 lpm) |
| 125 gpm (473 lpm) |

## Element Type

| | |
|---|---|
| **60**[1] | 290 psid (20 bard) cored filter element (HF3 compatible) |
| **61** | 3000 psid (207 bard) cored filter element (HF3 compatible) |
| **964**[1] | 150 psid (10.7 bard) coreless filter element |

## Element Length

| | |
|---|---|
| **8** | 8" (20 cm) nominal element |
| **13** | 13" (33 cm) nominal element |
| **16** | 16" (40 cm) nominal element |

## Bypass

| | |
|---|---|
| **6** | 90 psid (6.2 bard) bypass |
| **X**[2] | No bypass |

## ΔP Indicator

| Indicator Options | | Thermal Lockout | Surge Control | Reset |
|---|---|---|---|---|
| **D** | Visual / Electrical (DIN 43650) | No | No | Auto |
| **DX** | Electrical switch only (DIN 43650) | No | No | Auto |
| **S** | Visual / Electrical (DIN 43650) | Yes | Yes | Manual |
| **T** | Visual / Electrical (DIN 43650) | Yes | No | Manual |
| **V** | Visual/Mechanical | No | No | Auto |
| **X** | No indicator (port plugged) | – | – | – |
| **Y** | Visual only | Yes | Yes | Manual |

## Special Options

| | |
|---|---|
| **C** | Reverse flow check valve |
| **M2** | Mounting bracket |
| **M3** | 3/4" manifold bolts (Requires connection M24) |
| **N**[3] | Nickel plated internal components for high water applications (non-bypass only) |

## Media Selection

### G8 Dualglass

| | |
|---|---|
| **1M** | $\beta 3_{[C]} \geq 4000$ |
| **2M**[4] | $\beta 4_{[C]} \geq 4000$ |
| **3M**[5] | $\beta 4_{[C]} \geq 4000$ |
| **6M** | $\beta 6_{[C]} \geq 4000$ |
| **12M**[5] | $\beta 11_{[C]} \geq 4000$ |
| **15M**[4] | $\beta 11_{[C]} \geq 4000$ |
| **16M** | $\beta 16_{[C]} \geq 4000$ |
| **25M** | $\beta 22_{[C]} \geq 4000$ |

### G8 Dualglass + water removal

| | |
|---|---|
| **3A**[5] | $\beta 4_{[C]} \geq 4000$ |
| **6A**[5] | $\beta 6_{[C]} \geq 4000$ |
| **12A**[5] | $\beta 11_{[C]} \geq 4000$ |
| **25A**[5] | $\beta 22_{[C]} \geq 4000$ |

### Dynafuzz stainless fiber

| | |
|---|---|
| **3SF** | $\beta 4_{[C]} \geq 4000$ |
| **6SF** | $\beta 6_{[C]} \geq 4000$ |
| **10SF** | $\beta 11_{[C]} \geq 4000$ |
| **25SF** | $\beta 22_{[C]} \geq 4000$ |

### Stainless wire mesh

| | |
|---|---|
| **10W** | 10µ nominal |
| **25W** | 25µ nominal |
| **40W** | 40µ nominal |
| **74W** | 74µ nominal |
| **149W** | 149µ nominal |

## Seals

| | |
|---|---|
| **B** | Nitrile (Buna) |
| **V**[7] | Fluorocarbon |
| **E-WS**[7] | EPR seals + stainless steel support mesh |

[1]Requires Bypass option 6 selected.
[2]Only available when paired with "H" high collapse element.
[3]When selected, automatically adds nickel plating to filter element. For replacement elements, add"-N" to end of filter element part number.
[4]Compatible only with Element Type "61", HP61L filter elements.
[5]Compatible only with Element Types "60" and "964", HP60L and HP964L filter elements

# Filtration starts with the filter.

**Lower ISO Codes: Lower Total Cost of Ownership** Hy-Pro filter elements deliver lower operating ISO Codes so you know your fluids are always clean, meaning lower total cost of ownership and reducing element consumption, downtime, repairs, and efficiency losses.

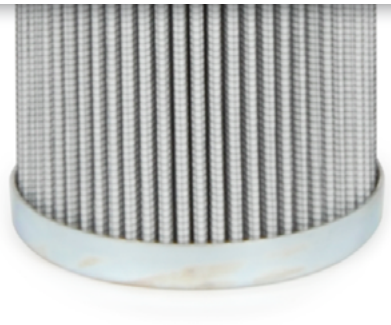
**DFE Rated Filter Elements** DFE is Hy-Pro's proprietary testing process which extends ISO 16889 Multi Pass testing to include real world, dynamic conditions and ensures that our filter elements excel in your most demanding hydraulic and lube applications.

**Upgrade Your Filtration** Keeping fluids clean results in big reliability gains and upgrading to Hy-Pro filter elements is the first step to clean oil and improved efficiency.

**Advanced Media Options** DFE glass media maintaining efficiency to $\beta 0.7_{[c]} > 1000$, Dualglass + water removal media to remove free and emulsified water, stainless wire mesh for coarse filtration applications, and Dynafuzz stainless fiber media for EHC and aerospace applications.

**Delivery in days, not weeks** From a massive inventory of ready-to-ship filter elements to flexible manufacturing processes, Hy-Pro is equipped for incredibly fast response time to ensure you get your filter elements and protect your uptime.

**More than just filtration** Purchasing Hy-Pro filter elements means you not only get the best filters, you also get the unrivaled support, training, knowledge and expertise of the Hy-Pro team working shoulder-to-shoulder with you to eliminate fluid contamination.



**Want to find out more? Get in touch.**

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