Low, Medium & High Pressure Filters

Flows from 23 L/min (6 USgpm) to 1135 L/min (300 USgpm)
Pressures from 7 bar (100 psi) to 414 bar (6000 psi)
# Table of Contents

General Information .................................................................................................................. 5
Media/Seal Kit Information .......................................................................................................... 6
Guidelines for Selecting Filters .................................................................................................. 7
  Specific Gravity Corrections for Pressure Drop .................................................................... 7
  Viscosity Corrections for Pressure Drop ............................................................................. 8
Low Pressure Filters, Up to 41 bar (600 psi) .......................................................................... 9
  L041 Series In Line .............................................................................................................. 9
  L042 Series In Line ............................................................................................................. 12
  H061 Series In Line ........................................................................................................... 15
  HL15 Series In Tank .......................................................................................................... 18
  HL16 Series In Tank .......................................................................................................... 21
  HT10 Series In Tank .......................................................................................................... 24
  HT15 Series In Tank .......................................................................................................... 27
  OFR-15/30 Series In Line ................................................................................................... 30
  OFR-60/120 Series In Line .................................................................................................. 34
  OFRS-15 Series Spin-on .................................................................................................... 39
  OFRS-25 Series Spin-on .................................................................................................... 43
  OFRS-60 Series Spin-on .................................................................................................... 47
  H021/H023 Series Spin-on ................................................................................................ 52
  H022 Series Twin Spin-on ................................................................................................ 55
  OF3 Series Inlet Strainers .................................................................................................. 58
  10F, 50F & 100F Series Indicating Inlet Strainers ............................................................... 60
Medium Pressure Filters, Up to 310 bar (4500 psi) .................................................................... 66
  H331 Series In Line .......................................................................................................... 66
  H340 Series In Line & Subplate ....................................................................................... 69
  H350 Series In Line .......................................................................................................... 72
  H360 Series In Line .......................................................................................................... 75
  H440 Series In Line & Subplate ....................................................................................... 80
  H451 Series In Line & Subplate ....................................................................................... 83
High Pressure Filters, Up to 415 bar (6000 psi) ....................................................................... 86
  H610 Series In Line & Subplate ....................................................................................... 86
  S610 Series Side Mount .................................................................................................... 89
  H620 Series In Line .......................................................................................................... 92
  S620 Series Side Mount .................................................................................................... 95
Accessories ............................................................................................................................... 98
High Performance Control
Vickers high performance filters are designed for low, medium and high pressure applications. With flows rated to 300 gpm (1135 L/min) and pressures rated to 6000 psi (414 bar), Vickers provides a variety of options to implement Systemic Contamination ControlSM in hydraulic systems.

To achieve Target Cleanliness Levels, filters are available in a wide range of:
- Port sizes
- Bypass valves
- ΔP indicators
- Media grades

Each grade of Vickers high efficiency filters is thoroughly multipass tested (ISO 4572, β ≥ 200) and rated to achieve cleanliness levels in accordance with ISO 4406. For assistance in determining the Target Cleanliness Level and selecting the proper filter element consult your local Vickers representative.

The Systemic Approach to Contamination Control
For a hydraulic or oil lubricated machine, the development of a Target Cleanliness Level and the plan to achieve it is as much a part of system design as the selection of the pump, valves, actuators or bearings. Proper selection and placement of contamination control devices in a system to attain the targeted cleanliness eliminates (the root cause) up to 80% of hydraulic system failures.

Additionally, the system cleanliness approach assures the user of the hydraulic system a cost effective approach to contamination control that allows the price of the filters and elements to be quickly recovered by the savings of improved performance, increased component life, increased oil life, increased uptime and fewer repairs.

To stress the interacting relationship between component design, system design, filter performance and filter replacement, Vickers has named our approach to filters and filtration “Vickers Guide to Systemic Contamination ControlSM.” This approach has three steps:

- **Set a target cleanliness level.** Using the Vickers Target Cleanliness Worksheet (#578), it is easy to determine the target ISO Cleanliness Level. This target is based on the application's components and system dynamics.

- **Select filters and filter replacements to achieve the target.** The Vickers Guide to Systemic Contamination Control (#561) offers options to consider when selecting our high efficiency filters, such as the options available for location and sizing of filters in the system to achieve a specified target cleanliness level.

- **Monitor the system to ensure the target is maintained.** The Vickers Fluid Analysis Laboratory and the Target-Pro Portable Particle Counter report the fluid cleanliness in the three digit ISO Code Cleanliness level format, corresponding to the 2, 5 and 15 micron particle counts. From this information, it is possible to determine whether the system has the clean fluid it needs for long, dependable operation.

### Supporting Literature
- Vickers Reservoir Vent Filters #5027/EN/0196/P
- Vickers Differential Pressure Indicator Guide #580
- Vickers CleanCart Portable Filtering Transfer Cart #601
- Vickers Fluid Analysis Service #588
- Vickers Fluid Analysis Technical Brochure #664
- Vickers Guide to Alternative Fluids #579
- Vickers Recommended Sampling Chart #603
- Vickers Return in Investment: ProActive Maintenance #707
- Vickers Guide to Systemic Contamination Control #561
- Vickers Target Cleanliness Worksheet #578
- Vickers Target-Pro Particle Counter #709
- Vickers Water Contamination Solutions #5026/EN/0196/A
- ANSI Systems Standards for Stationary Industrial Machinery #675
- EcoPak Coreless Filter Elements #5037.00/EN/0696/A

### System Cleanliness Ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Typical ISO 4406 cleanliness level achieved*</th>
<th>Number of times pump flow passes through filter</th>
<th>Typical filter placements</th>
</tr>
</thead>
</table>
| 03   | 14/12/10                                    | 2.0                                           | Full flow pressure and return line  
|      | 15/13/11                                    | 1.5                                           | Full flow pressure or return line |
|      | 16/14/12                                    | 1.0                                           | Recirculation loop sized to 10% of system vol/min |
|      | 17/15/13                                    | .5                                            | Full flow pressure and return line |
| 05   | 16/14/12                                    | 2.0                                           | Full flow pressure and return line |
|      | 17/15/13                                    | 1.5                                           | Full flow pressure or return line |
|      | 18/16/14                                    | 1.0                                           | Recirculation loop sized to 10% of system vol/min |
|      | 19/17/15                                    | .5                                            | Full flow pressure and return line |
| 10   | 18/16/14                                    | 2.0                                           | Full flow pressure and return line |
|      | 19/17/14                                    | 1.5                                           | Full flow pressure or return line |
|      | 20/18/15                                    | 1.0                                           | Recirculation loop sized to 10% of system vol/min |
|      | 21/19/16                                    | .5                                            | Full flow pressure and return line |

* For assistance in determining the Target Cleanliness Level and selecting the proper filter element consult your local Vickers representative.
Element: Proprietary Five Layer Media

Vickers Pak Construction

All Vickers filter elements are constructed with five layers, making them durable and highly efficient.

1. High strength support
2. Non woven synthetic diffuser layer
3. Proprietary Vickers glass micro fiber media with special resin binder
4. Non woven synthetic diffuser (drainage) layer
5. High strength support

E-Pak Construction

Like Vickers standard elements, E-Pak elements are constructed with five layers, making them durable and highly efficient. The pleated five layers are then enclosed by a proprietary polymer mesh outer wrap to stabilize pleat spacing and support the entire pak under surge and inadvertent reverse flow conditions.

E-Pak elements can be crushed to reduce disposal volume by up to 60% and they can also be incinerated.

Beyond reduced disposal costs, Vickers E-Pak elements are more than 50% lighter than traditional elements, making it easier for the operator to change out elements in large filter assemblies.

The Vickers E-Pak element is actually a media pak which slides on and off of a reusable media support tube or “core tube.” Depending on the application, the core tubes are either installed permanently in the housing or they are removed with the media pak.

H-Pak Construction

For systems where a bypass valve is undesirable, such as servo systems, the H-Pak media provides high collapse rated housing pressures. H-Pak media construction utilizes 304 stainless steel inner and outer mesh support along with heavier core tubes and media support to protect the system.

C-Pak Construction

C-Pak media uses proprietary media and five layer construction. C-Pak incorporates epoxy coated carbon steel as the two outer face layers to retain the inner media pak layers.

R-Pak Construction

The R-Pak spin-on filter elements are designed for low clean pressure drop and high efficiency. R-Pak incorporates a five layer media construction with outer layers of epoxy coated carbon steel wire to retain the inner media pak layers.

L-Pak Construction

The L-Pak is specially designed for lubrication applications. Using the same five layer construction as the C-Pak, the L-Pak also has a deep pleat construction to maximize element life in steady flow, low pulsation systems.

Seal Kits

Seal kits include all soft goods to fully service a unit.

<table>
<thead>
<tr>
<th>Seal Kit Part #</th>
<th>Seal Type</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>041</td>
<td>Buna-N</td>
<td>P-427466-19</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-427466-21</td>
</tr>
<tr>
<td>042</td>
<td>Buna-N</td>
<td>P-427466-40</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-427466-42</td>
</tr>
<tr>
<td>044</td>
<td>Buna-N</td>
<td>P-427466-43</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-427466-44</td>
</tr>
<tr>
<td>061</td>
<td>Buna-N</td>
<td>P-427466-1A</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-427466-3A</td>
</tr>
<tr>
<td>330/331</td>
<td>Buna-N</td>
<td>P-427466-28</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-427466-30</td>
</tr>
<tr>
<td>340</td>
<td>Buna-N</td>
<td>P-427466-31</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-427466-33</td>
</tr>
<tr>
<td>350</td>
<td>Buna-N</td>
<td>P-427466-1B</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-427466-3B</td>
</tr>
<tr>
<td>360</td>
<td>Buna-N</td>
<td>P-427466-34</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-427466-36</td>
</tr>
<tr>
<td>440</td>
<td>Buna-N</td>
<td>P-427466-22</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-427466-23</td>
</tr>
<tr>
<td>450</td>
<td>Buna-N</td>
<td>P-427466-37</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-427466-39</td>
</tr>
<tr>
<td>451</td>
<td>Buna-N</td>
<td>P-427466-46</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-427466-48</td>
</tr>
<tr>
<td>610</td>
<td>Buna-N</td>
<td>P-427466-04</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-427466-06</td>
</tr>
<tr>
<td>620</td>
<td>Buna-N</td>
<td>P-427466-10</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-427466-12</td>
</tr>
<tr>
<td>HL15/HL16</td>
<td>Buna-N</td>
<td>P-233055-01</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-233055-03</td>
</tr>
<tr>
<td>HT10</td>
<td>Buna-N</td>
<td>P-235876-01</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-235876-03</td>
</tr>
<tr>
<td>HT15</td>
<td>Buna-N</td>
<td>P-233054-01</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-233054-03</td>
</tr>
<tr>
<td>S610</td>
<td>Buna-N</td>
<td>P-427466-07</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-427466-09</td>
</tr>
<tr>
<td>S620</td>
<td>Buna-N</td>
<td>P-427466-13</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-427466-15</td>
</tr>
<tr>
<td>OFR60/120</td>
<td>Buna-N</td>
<td>590021 (Bowl 591761 seal only)</td>
</tr>
<tr>
<td></td>
<td>Viton-A</td>
<td>P-427466-22 seal only</td>
</tr>
<tr>
<td>OFR15/30</td>
<td>Buna-N</td>
<td>226214 (Bowl 262242 seal only)</td>
</tr>
</tbody>
</table>

* Viton is a registered trademark of E.I. Dupont
Guidelines for Selecting Filters

Target Cleanliness
Using the Vickers Target Cleanliness Worksheet (#578), it is easy to determine the target ISO Cleanliness Level for a system. This target is based on the application’s components and system dynamics.

Placement and Media
Use the chart below to help select the appropriate filter placement and grade of media to achieve the target cleanliness level. For more detail, consult the Vickers Guide to Systemic Contamination ControlSM, your Vickers representative, or the ANSI Systems Standards for Stationary Industrial Machinery.

Filter Placements
The chart below helps engineers select the grade of Vickers media and the filter placement(s) that will achieve the required target cleanliness. It assumes the system will experience “average” ingression and that maintenance of the system will be consistent with current technology.

- If in operation the system is running dirtier than expected, corrective actions should be initiated. Suggested corrective actions are:
  - Check the indicator to see if the filters are on by-pass.
  - Check the sources of ingression and correct problems.
  - Check that the filters are positioned properly to see maximum fluid flow.
  - Consider using a finer Pak grade.
  - Add a filter to the system.

- CAUTION
  Before servicing the element, the bleed plug in filter housing must be loosened to relieve pressure. This will minimize fluid overflow.

- Housing
  The selected housing should be rated within the required flow and pressures of the application.
  Important: If the system fluid’s specific gravity (SG) is greater than 0.9 (for example, water glycol), the housing pressure drop (\( \Delta P \)) should be corrected for the actual application.

Specific Gravity Corrections for Pressure Drop
The filter housing flow curves in this catalog can be adjusted using the following equation:

\[
\text{Adjusted } \Delta P_{\text{Housing}} = \Delta P_{\text{Curve}} \times \frac{\text{Actual SG}}{0.9}
\]

Bypass Valve
Bypass valve selection is based upon system requirements. According to ANSI Standard 12.2.6, filter assemblies whose elements cannot withstand full system differential pressure without damage should be equipped with bypass valves. Generally, a higher bypass pressure setting will allow for longer element life.

Some systems require filtration with no bypass, such as servo applications. Vickers H-Pak media is recommended for non-bypass systems.

<table>
<thead>
<tr>
<th>Target Cleanliness</th>
<th>Recommended filter placement for high ingestion systems with fixed volume pumps</th>
<th>Recommended filter placement for systems with variable volume pumps</th>
<th>Recommended filter placement for high ingestion systems with variable volume pumps</th>
</tr>
</thead>
<tbody>
<tr>
<td>14/12/10</td>
<td>Full flow pressure line or return line</td>
<td>Pressure line/ recirculating loop at 20% of system volume per minute</td>
<td>Pressure line plus return line plus recirculating loop at 20% of system volume per minute</td>
</tr>
<tr>
<td>15/13/11</td>
<td>–</td>
<td>03</td>
<td>03</td>
</tr>
<tr>
<td>16/14/12</td>
<td>–</td>
<td>03</td>
<td>05</td>
</tr>
<tr>
<td>17/15/13</td>
<td>03</td>
<td>05</td>
<td>05 or 10</td>
</tr>
<tr>
<td>18/16/14</td>
<td>05</td>
<td>10</td>
<td>05 or 10</td>
</tr>
<tr>
<td>19/17/15</td>
<td>05 or 10</td>
<td>10</td>
<td>05 or 10</td>
</tr>
</tbody>
</table>

- Important: If the system fluid’s specific gravity (SG) is greater than 0.9 (for example, water glycol), the housing pressure drop (\( \Delta P \)) should be corrected for the actual application.
**Indicator**

To meet ANSI Standard 12.2.5, filter assemblies should have a device to indicate when the filter requires servicing. Per ANSI Standard 12.2.6, the indicator should "trip" at approximately 80% of the bypass pressure setting. If using a non-bypass housing, an indicator setting of approximately 100 psid is recommended. Differential pressure indicators are rated 6000 psi working, 3500 psi fatigue.

**Thermal Lock-out**

Some hydraulic filter service indicators are available with Thermal Lock-out (TLO). This mechanism is used inside an indicator and prevents premature actuation due to cold start up. The TLO will prevent actuation of an indicator when the hydraulic oil is below 60°F (16°C). Once the oil reaches 100°F (38°C) and if there is still high differential pressure, the indicator will actuate.

**Surge Control**

Surge control is used on systems where spikes and surges in the hydraulic system could prematurely trip the indicator. Surge control slows the indicator response. If the indicator encounters a continuous high differential pressure, it will trip at the rated setting.

**Element**

The Vickers element media grade should be selected to achieve the Target Cleanliness Level. The Vickers media construction should be chosen based upon system requirements such as flow characteristics, pressure surges and specific application conditions.

**Important:** If the system fluid's specific gravity (SG) is greater than 0.9 (for example, water glycol), the element pressure drop (ΔP) should be corrected.

**Viscosity Corrections for Pressure Drop**

The element flow curves can be adjusted using the following equations:

**Adjusted Clean ΔP**

\[
\text{Actual viscosity in } \text{cP} \times 29 \times \Delta P_{\text{Curve}}
\]

\[
\text{Actual viscosity in } \text{cSt}/32 \times \text{Actual SG} \times 0.9 \times \Delta P_{\text{Curve}}
\]

\[
\text{Actual viscosity in } \text{SUS}/150 \times \text{Actual SG} \times 0.9 \times \Delta P_{\text{Curve}}
\]

A good "rule of thumb": To ensure satisfactory element life, the clean element pressure drop should generally be less than or equal to 40 percent of the indicator's rated differential pressure:

\[
\Delta P_{\text{Element}} \leq 0.4 \times \Delta P_{\text{Indicator}}
\]

The best way to extend element service life is to minimize ingestion (vents, seals, cylinder rods) and maintain system cleanliness at or below the Target Cleanliness Level.

**Selecting a Model Code**

**Note**

Model codes for housings only contain eight designations; model codes for filter assemblies (housing and element) contain ten designations.

To select a filter housing with the element included, attach the Element Construction and Fluid Cleanliness Rating designators at the end of the Housing Model Code. For example:

**LO41 1 D 4 YH 1 B 2 L 05**

**Include**

To select a filter housing only (with no element), omit the Element Construction and Fluid Cleanliness Rating designators at the end of the Housing Model Code. For example:

**LO41 1 D 4 YH 1 B 2**

To select a filter element only, use the Element Model Code. For example:

**VO41 1 B 2 L 05**

**Note**

Refer to page 99 for Differential Pressure Indicator Selection Chart.

---

**Indicator Switch Schematic Wiring Diagram**

**Note**

The female connector is to be furnished by the customer.

**Note**

When fitting indicator, torque to 41-47 Nm (30-35 lb. ft.).

**Hirschmann (DIN 43650 Type AM) Receptacle**

**Brad Harrison (41512) Receptacle**

**Electrical**

Switch: SPDT
Rating: 7 amps, resistive
4 amps, inductive
2 amps, lamp load @28 VDC, 115 VAC 60 Hz & 220 VAC 50 Hz or 60 Hz

---

**LO41 1 D 4 YH 1 B 2 L 05**

**Include**

LO41 1 D 4 YH 1 B 2

VO41 1 B 2 L 05

**Note**

Refer to page 99 for Differential Pressure Indicator Selection Chart.
LOW PRESSURE FILTERS

L041 Series Filters  Flows to 1135 L/min (300 USgpm) – Pressures to 27 bar (400 psi)

Features and Benefits
- Designed to comply with ANSI specifications and ISO cleanliness standards.
- Easy to grasp handle allows element changes without the use of tools (no loose parts).
- Visual, electrical and electrical/visual ΔP indicator options for flexibility in system design.
- Anodized aluminum head/bowl/ body, designed to resist corrosion.
- 2 diagnostic ports in cover plus 2 drain ports in head for easy maintenance.
- High strength bypass valve assembly for durable, reliable performance.
- 3 bowl length options to fit in a variety of systems.
- Replacement elements available in L-Pak or C-Pak media for high performance to achieve target cleanliness levels.
- Accepts Eco-Pak coreless elements.

Design Specifications
Rated flow: 284 L/min (75 USgpm) with bowl length 2
568 L/min (150 USgpm) with bowl length 5
1135 L/min (300 USgpm) with bowl length 8

Housing & Element
- Compatible with most petroleum oil, water
- Compatibility: glycol, oil-in-water and water-in-oil fluids.
- Optional seals available for phosphate esters.

Temp range: -54°C to +135°C
(-65°F to +275°F)

Pressure rating:
- Operating 27 bar (400 psi)
- Proof 41 bar (600 psi)
- Burst 100 bar (1500 psi)

Material:
- Head Anodized aluminum
- Bowl Anodized aluminum

Dry weight: (Approximate)
- Bowl length 2 12.0 Kg (26.55 lbs)
- Bowl length 5 17.9 Kg (39.60 lbs)
- Bowl length 8 35.0 Kg (77.12 lbs)

Housing Model Code

<table>
<thead>
<tr>
<th>Filter series</th>
<th>L041</th>
<th>1</th>
<th>D</th>
<th>4</th>
</tr>
</thead>
</table>

Element collapse rating
1 - 150 PSID
NOTE: E-Pak & L-Pak elements are rated at 100 PSID collapse. If used in a Non-Bypass housing, a monitored differential pressure indicator (70 PSID max) should be used.

Port options
D - 1.875-12UN SAE-24 str. thd. (11/2")
J - 2" SAE-4-bolt split flange Code 61
K - 2 1/4" SAE-4-bolt split flange Code 61

Valve options
1 - Non-Bypass
2 - Bypass set at 22 ± 3 PSID cracking pressure
4 - Bypass set at 50 ± 5 PSID cracking pressure

NOTE: Do not use option 1 in systems with surge pressures over 120 PSID.

ΔP indicator & receptacle options

Valve options ΔP indicator
1 (Non-Bypass) J,E,O,T,W or Z
2 (Bypass 22 PSID) J,C,F,K,Q or X
4 (Bypass 50 PSID) J,D,G,L,M,R or Y

Element construction
C - C-Pak (grade 3, 5, 10, 20)
E - E-Pak (grade 1, 3, 5, 10)
L - L-Pak (grade 1, 3, 5, 10)

Fluid cleanliness ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Flushing only</td>
</tr>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/16 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

This table assumes limited ingestion/single pass of pump flow through the element. For detailed assistance, consult Vickers Guide to Systemic Contamination Control or contact your local Vickers Distributor.
Dimensions

L041 Housing

mm (inch)
Fill plug 3/4”-16 SAE-8 straight thread

Clearance for element removal, refer to element length.

203.2 (8.00) Dia. max

Visual differential pressure indicator

207.0 (8.15) Dia.

177.0 (7.00)

155.0 (6.10)

127.0 (5.00)

Inlet port

Drain plug 3/4”-16 SAE-8 Straight thread

50.8 (2.00) typ.

110.2 (4.34)

Outlet port

Electrical differential pressure indicator

Refer to model code

Bleed plug 7/16”-20 SAE-4 straight thread

Torque hand tight to seal.

Bracket Assembly

mm (inch)

Order part number P-226230-01

89.0 (3.50)
bolt length

222.0
(8.74)

99.5
(3.92)

193.0
(7.60)

175.0
(6.89)

3.2 (0.12) typ.

3.2
(0.12)

15.0 (0.59)

16.5 (0.65)

30.0
(1.18)

9.0
(0.35)

50,8 (2.00)
typ.

101,6
(4.00)
typ.

38.2 (1.50)

61.7 (2.43)

3.2 (0.12) typ.

3.2
(0.12)

15.0 (0.59)

16.5 (0.65)

30.0
(1.18)

9.0
(0.35)

50,8 (2.00)
typ.

101,6
(4.00)
typ.

38.2 (1.50)

61.7 (2.43)

Brackets

Bowl Length

1 req’d 2
2 req’d 5
3 req’d 8

CAUTION

Before servicing the element, the bleed plug in filter housing must be loosened to relieve pressure. This will minimize fluid overflow.

Filter Housing/Bypass Valve Flow Data

Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 6 for specific gravity corrections for pressure drop.)

Housing

Bypass Valve

Pressure drop – PSID

Pressure drop – PSID

Flow Rate - USgpm

Flow Rate - USgpm

0 2 4 6 8 10 12

0 20 40 60 80 100 120

0 50 100 150 200 250 300

0 50 100 150 200 250 300

2" SAE-4-bolt split flange

11/2” SAE-24 straight thread

21/2” SAE-4-bolt split flange

50 PSID cracking

22 PSID cracking

Full flow thru bypass valve
**Element Model Code**

<table>
<thead>
<tr>
<th>V041</th>
<th>1</th>
<th>B</th>
<th>2</th>
<th>L</th>
<th>03</th>
</tr>
</thead>
</table>

1. **Filter element**
   V041 - For use with L041 and L042 series housings

2. **Element collapse rating**
   1 - 150 PSID (C-Pak)
   NOTE: E-Pak & L-Pak elements are rated at 100 PSID collapse. If used in a Non-Bypass housing, a monitored differential pressure indicator (70 PSID max.) should be used.
   (Indicator option A, B, I, U, or V)

**Design Specifications**

- **Rated flow**: 284 L/min (75 USgpm) with bowl length 2
- **Rated flow**: 568 L/min (150 USgpm) with bowl length 5
- **Rated flow**: 1135 L/min (300 USgpm) with bowl length 8

- **Housing & Element Compatibility**: Compatible with most petroleum oil, water, glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.

- **Construction media**: Proprietary C-Pak, E-Pak or L-Pak

- **Temperature range**: -54°C to +135°C
- **Temperature range**: -65°F to +275°F

**Dimensions**

- **E-Pak O-ring per AS568-239 typ.**
- **C-Pak/L-Pak O-ring per AS568-243 typ.**

- **Refer to model code**

**Seal material**

- **B** - Buna-N
- **V** - Viton-A

Viton is a registered trademark of E.I. DuPont

**Bowl length**

<table>
<thead>
<tr>
<th>mm (inch)</th>
<th>Element length mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - 384 (15.1)</td>
<td>203 (8)</td>
</tr>
<tr>
<td>5 - 602 (23.7)</td>
<td>406 (16)</td>
</tr>
<tr>
<td>8 - 1158 (45.6)</td>
<td>990 (39)</td>
</tr>
</tbody>
</table>

**Element construction**

- **C** - C-Pak (grade 3, 5, 10, 20)
- **E** - E-Pak (1, 3, 5, 10)
- **L** - L-Pak (grade 1, 3, 5, 10, 20)

**Fluid cleanliness ratings**

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Flushing only</td>
</tr>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

This table assumes limited ingression/single pass of pump flow through the element. For detailed assistance, consult Vickers Guide to Systemic Contamination Control or contact your local Vickers Distributor.

**Filter Element Flow Data**

**Flow Rate - USgpm**

**Flow Rate - USgpm**

- **C-Pak element**
- **E-Pak/L-Pak element**

- **0411 C-Pak element**
- **0411 E-Pak/L-Pak element**

Refer to model code
**Features and Benefits**
- Designed to comply with ANSI specifications and ISO cleanliness standards.
- Hydrostatically balanced, cam operated, positive sealing valve for low torque shifting.
- Visual, electrical and electrical/visual ΔP indicator options for flexibility in system design.
- Anodized aluminum head/bowl/body, designed to resist corrosion.
- 2 diagnostic ports in cover plus 2 drain ports in head for easy maintenance.
- 2 bowl length options to fit in a variety of systems.
- Element changes without the use of tools (no loose parts).
- Dual poppet outlet checks for positive isolation during element replacement.
- Accepts Eco-Pak coreless elements.

**Design Specifications**

<table>
<thead>
<tr>
<th>Rated flow:</th>
<th>568 L/min (150 USgpm) with bowl length 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1135 L/min (300 USgpm) with bowl length 8</td>
</tr>
<tr>
<td>Housing &amp; Element Compatibility:</td>
<td>Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optimal seals available for phosphate esters.</td>
</tr>
<tr>
<td>Temp range:</td>
<td>-54°C to +135°C (-65°F to +275°F)</td>
</tr>
<tr>
<td>Pressure rating:</td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>27 bar (400 psi)</td>
</tr>
<tr>
<td>Proof</td>
<td>41 bar (600 psi)</td>
</tr>
<tr>
<td>Burst</td>
<td>100 bar (1500 psi)</td>
</tr>
<tr>
<td>Material:</td>
<td></td>
</tr>
<tr>
<td>Head</td>
<td>Aluminum alloy</td>
</tr>
<tr>
<td>Bowl</td>
<td>Aluminum alloy</td>
</tr>
<tr>
<td>Dry weight: (Approximate)</td>
<td></td>
</tr>
<tr>
<td>Bowl length 5</td>
<td>98.2 Kg (216 lbs)</td>
</tr>
<tr>
<td>Bowl length 8</td>
<td>131.8 Kg (290 lbs)</td>
</tr>
</tbody>
</table>

**Housing Model Code**

| L042 | 1 | L | 4 | YH | B | 8 | L | 05 |

**Filter series**

**Element collapse rating**
1 - 150 PSID
NOTE: E-Pak & L-Pak elements are rated at 100 PSID collapse. If used in a Non-Bypass housing, a monitored differential pressure indicator (70 PSID max.) should be used. (Indicator option A, B, I, U, or v)

**Port**
L - 3" SAE 4-bolt split flange Code 61

**Valve options**
1 - Non-Bypass
2 - Bypass set at 22 ± 3 PSID cracking pressure
4 - Bypass set at 50 ± 5 PSID cracking pressure
NOTE: Do not use option 1 in systems with surge pressures over 120 PSID.

**ΔP indicator & receptacle options**

<table>
<thead>
<tr>
<th>Use with</th>
<th>1 (Non-Bypass)</th>
<th>J, E, O, T, W or Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 (Bypass 22 PSID)</td>
<td>J, C, F, K, Q or X</td>
<td></td>
</tr>
<tr>
<td>4 (Bypass 50 PSID)</td>
<td>J, D, G, L, M, R or Y</td>
<td></td>
</tr>
</tbody>
</table>

**ΔP indicator**
A - Visual ΔP indicator with 70 ± 7 PSID with surge control
B - Electrical/visual ΔP indicator with 70 ± 7 PSID with surge control
C - Electrical/visual ΔP 15 ± 4 PSID
D - Electrical/visual ΔP 35 ± 5 PSID
E - Electrical/visual ΔP 100 ± 12 PSID
F - Electrical/visual ΔP 15 ± 4 PSID thermal lockout (100°F)
G - Electrical/visual ΔP 35 ± 5 PSID thermal lockout (100°F)
I - Visual ΔP indicator with 70 ± 7 PSID thermal lockout (100°F)
J - No ΔP indicator
K - Visual ΔP indicator w/ 15 ± 4 PSID actuation & thermal lockout (100°F)
L - Visual ΔP indicator w/ 35 ± 5 PSID actuation & thermal lockout (100°F)
M - Visual ΔP indicator w/ 35 ± 5 PSID, thermal lockout (100°F) and surge control
O - Visual ΔP indicator w/100 ± 12 PSID actuation & thermal lockout (100°F)
Q - Electrical ΔP switch w/15 ± 4 PSID actuation
R - Electrical ΔP switch w/ 35 ± 5 PSID actuation

**Second designator (Electrical receptacle)**
B - 5 pin Brad Harrison (41512)
H - DIN 43650/Hirschman receptacle (GSA plug) 3 poles plus ground
N - No receptacle – Use with visual ΔP indicator only

**Seal material**
B - Buna-N
V - Viton-A

**Element construction**
C - C-Pak (grade 3, 5, 10, 20)
E - E-Pak (grade 1, 3, 5, 10)
(permanent core tube installed in housing)
L - L-Pak (grade 1, 3, 5, 10, 20)

**Fluid cleanliness ratings**

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Flushing only</td>
</tr>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

This table assumes limited ingestion/single pass of pump flow through the element. For detailed assistance, consult Vickers Guide to Systemic Contamination Control or contact your local Vickers Distributor.
Dimensions

L042 Housing
mm (inch)

Refer to model code 184,6 (7.27) " SAE-4-bolt flange Code 61

Inlet and outlet ports

Mounting holes
1/2–13 UNC–2B x .75 min.
full thd. 4 places

3” SAE-4-bolt flange
Code 61

Inlet and outlet ports

Support leg 2 places

Filter Housing/Bypass Valve Flow Data
Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 6 for specific gravity corrections for pressure drop.)
041 Series Replacement Filter Elements

Element Model Code

<table>
<thead>
<tr>
<th>V041</th>
<th>1</th>
<th>B</th>
<th>5</th>
<th>L</th>
<th>05</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

1 Filter element
V041 - For use with L041 and L042 series housings

2 Element collapse rating
1 - 150 PSID (C-Pak)
NOTE: E-Pak & L-Pak elements are rated at 100 PSID collapse. If used in a Non-Bypass housing, a monitored differential pressure indicator (70 PSID max.) should be used. (Indicator option A, B, I, U, or V)

3 Seal material
B - Buna-N
V - Viton-A
Viton is a registered trademark of E.I. DuPont

4 Assay. length
Element length

<table>
<thead>
<tr>
<th></th>
<th>Element length</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>574 (22.6)</td>
</tr>
<tr>
<td>8</td>
<td>1303 (51.3)</td>
</tr>
</tbody>
</table>

5 Element construction
C - C-Pak (grade 3, 5, 10, 20)
E - E-Pak (grade 1, 3, 5, 10)
L - L-Pak (grade 1, 3, 5, 10, 20)

Fluid cleanliness ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Flushing only</td>
</tr>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

This table assumes limited ingestion/single pass of pump flow through the element. For detailed assistance, consult Vickers Guide to Systemic Contamination Control or contact your local Vickers Distributor.

Design Specifications
Rated flow: 568 L/min (150 USgpm)
with bowl length 5
1135 L/min (300 USgpm) with bowl length 8

Housing & Element Compatibility:
Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.

Construction media:
Proprietary C-Pak, E-Pak or L-Pak construction

Temp range: -54°C to +135°C
(-65°F to +275°F)

Dimensions

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>E-Pak</td>
</tr>
<tr>
<td>O-ring per AS568-239 typ.</td>
</tr>
</tbody>
</table>

152.4 dia. typ. (6.00)

Refer to model code

Filter Element Flow Data

<table>
<thead>
<tr>
<th>0411 C-Pak element</th>
</tr>
</thead>
<tbody>
<tr>
<td>406 (16) length</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
<th>Pressure drop – PSID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>80</td>
<td>4</td>
</tr>
<tr>
<td>120</td>
<td>6</td>
</tr>
<tr>
<td>160</td>
<td>8</td>
</tr>
<tr>
<td>200</td>
<td>10</td>
</tr>
<tr>
<td>240</td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>0411 E-Pak/L-Pak element</th>
</tr>
</thead>
<tbody>
<tr>
<td>406 (16) length</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
<th>Pressure drop – PSID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>80</td>
<td>4</td>
</tr>
<tr>
<td>120</td>
<td>6</td>
</tr>
<tr>
<td>160</td>
<td>8</td>
</tr>
<tr>
<td>200</td>
<td>10</td>
</tr>
<tr>
<td>240</td>
<td>12</td>
</tr>
</tbody>
</table>

Fluid cleanliness ratings for 150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 7 for viscosity corrections for pressure drop.)
## Features and Benefits
- Designed to comply with ANSI specifications and ISO cleanliness standards.
- Conforms to HF3 specifications (#2 bowl length).
- Diagnostic port in head for pressure sensing and fluid sampling flexibility.
- Visual, electrical and electrical/visual \( \Delta P \) indicator options for flexibility in system design.
- Fully serviceable without tools.
- Plated nodular iron head and steel bowl (deep drawn) for durability and corrosion resistance.
- Bypass valve with steel body and polymer soft seat construction for zero-leak bypass.
- Replacement elements available in C-Pak media for high performance to achieve Target Cleanliness Levels.
- High collapse H-Pak element available for use in non-bypass applications.
- Accepts Eco-Pak coreless elements.

## Design Specifications
**Meets or exceeds HF3 filter element specifications when used with bowl length 2.**

<p>| | | | | | | | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated flow:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95 L/min (25 USgpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with bowl length 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>189 L/min (50 USgpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with bowl length 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>378 L/min (100 USgpm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with bowl length 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Housing & Element Compatibility:**
- Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids.
- Optional seals available for phosphate esters.

**Temp range:**
- -54°C to +135°C
- (-65°F to +275°F)

**Pressure rating:**
- Operating: 41 bar (600 psi)
- Proof: 62 bar (900 psi)
- Burst: 100 bar (1500 psi)
- Fatigue: 41 bar (600 psi)

**Material:**
- Head: Cast iron
- Bowl: Steel

**Dry weight: (Approximate)**
- Bowl length 1: 3.6 Kg (7.90 lbs)
- Bowl length 2: 4.0 Kg (8.90 lbs)
- Bowl length 4: 4.6 Kg (10.20 lbs)

## Housing Model Code

<p>| | | | | | | | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H061</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1</strong></td>
<td><strong>A</strong></td>
<td><strong>3</strong></td>
<td><strong>XH</strong></td>
<td><strong>B</strong></td>
<td><strong>1</strong></td>
<td><strong>C</strong></td>
<td><strong>05</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Filter series
- H061

### Element collapse rating
1 - 150 PSID
3 - 600 PSID (H-Pak only)

*NOTE: Use 1 only with bypass valve or monitored \( \Delta P \) indicator.*

### Port options
- A - 1.062-12UN SAE-12 str. thd. (3/4" tube)
- B - 1.312-12UN SAE-16 str. thd. (1" tube)

### Valve options
1 - Non-Bypass
3 - Bypass set at 22 ± 3 PSID cracking pressure
4 - Bypass set at 50 ± 5 PSID cracking pressure

*NOTE: Use option 1 only with 600 psid collapse filter element.*

### \( \Delta P \) indicator & receptacle options

#### First designator (Indicator type)
- C - Electrical/visual \( \Delta P \) 15 ± 4 PSID
- D - Electrical/visual \( \Delta P \) 35 ± 5 PSID
- E - Electrical/visual \( \Delta P \) 100 ± 12 PSID
- F - Electrical/visual \( \Delta P \) 15 ± 4 PSID thermal lockout (100°F)
- G - Electrical/visual \( \Delta P \) 35 ± 5 PSID thermal lockout (100°F)
- H - No \( \Delta P \) indicator
- K - Visual \( \Delta P \) indicator w/ 15 ± 4 PSID actuation & thermal lockout (100°F)
- L - Visual \( \Delta P \) indicator w/ 35 ± 5 PSID actuation & thermal lockout (100°F)
- M - Visual \( \Delta P \) indicator w/ 35 ± 5 PSID, thermal lockout (100°F) & surge control
- O - Visual \( \Delta P \) indicator w/100 ± 12 PSID actuation & thermal lockout (100°F)
- P - Visual \( \Delta P \) indicator w/100 ± 12 PSID actuation & thermal lockout (100°F) & surge control
- Q - Electrical \( \Delta P \) switch w/15 ± 4 PSID actuation
- R - Electrical \( \Delta P \) switch w/ 35 ± 5 PSID actuation
- T - Electrical \( \Delta P \) switch w/100 ± 12 PSID actuation

#### Second designator (Electrical receptacle)
- B - 5 pin Brad Harrison (41512)
- H - DIN 43650/ Hirschman receptacle (GSA plug) 3 poles plus ground
- N - No receptacle
- Y - Visual indicator w/100 ± 4 PSID actuation & thermal lockout (100°F)
- Z - Electrical/visual \( \Delta P \) indicator w/ 35 ± 4 PSID & surge control

#### Seal material
- B - Buna-N
- V - Viton-A

*Viton is a registered trademark of E.I. DuPont*

#### Assy. length

<p>| | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>First designator (Indicator type)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Target fluid cleanliness level:**
- 01 - Flushing only
- 03 - 18/14/12 or better
- 05 - 18/16/14 or better
- 10 - 20/18/15 or better
- 20 - 22/19/16 or better

This table assumes limited ingression/ single pass of pump flow through the element. For detailed assistance, consult Vickers Guide to Systemic Contamination Control or contact your local Vickers Distributor.
**Dimensions**

**061 Housing**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td></td>
</tr>
<tr>
<td>Inlet</td>
<td></td>
</tr>
<tr>
<td>Outlet</td>
<td></td>
</tr>
<tr>
<td>Inlet PC</td>
<td></td>
</tr>
<tr>
<td>Outlet PC</td>
<td></td>
</tr>
<tr>
<td>Housing</td>
<td></td>
</tr>
<tr>
<td>Inlet</td>
<td></td>
</tr>
<tr>
<td>Outlet</td>
<td></td>
</tr>
<tr>
<td>Inlet PC</td>
<td></td>
</tr>
<tr>
<td>Outlet PC</td>
<td></td>
</tr>
</tbody>
</table>

**Flow Data**

Flow versus pressure drop:

150 SUS (32 cSt) oil with specific gravity of ≤ 0.9

(See page 6 for specific gravity corrections for pressure drop.)

**Filter Housing/Bypass Valve**

**Flow Data**

Flow versus pressure drop:

150 SUS (32 cSt) oil with specific gravity of ≤ 0.9

(See page 6 for specific gravity corrections for pressure drop.)

<table>
<thead>
<tr>
<th>Pressure drop – PSID</th>
<th>Flow Rate - USgpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>12</td>
<td>60</td>
</tr>
</tbody>
</table>

**Housing**

3/4" SAE-12 Str. thd.
1" SAE-16 Str. thd.

**Bypass Valve**

Pressure drop – PSID

50 PSID cracking
22 PSID cracking

**CAUTION**

Before servicing the element, the bleed plug in filter housing must be loosened to relieve pressure. This will minimize fluid overflow.

Torque bowl to 15 lb. ft (20 Nm) max.

Visual: 44.4 (1.75) max.
Elec: 71.1 (2.80) max.

38.1 (1.5) min. req’d. for element & bowl removal

Refer to model code
602 Series Replacement Filter Elements

**Element Model Code**

<table>
<thead>
<tr>
<th>V602</th>
<th>1</th>
<th>B</th>
<th>1</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

1. Filter element
   - V602 - For use with 061, 350, 620 & OFR30 series filters

2. Element collapse rating
   - 1 - 150 PSID
   - 3 - 600 PSID (H-Pak)
   - NOTE: Use 1 only with bypass valve or monitored ΔP indicator.

**Design specifications**

Meets or exceeds HF3 filter element specifications when used with bowl length 2.

- Rated flow: 95 L/min (25 USgpm) with bowl length 1
  - 189 L/min (50 USgpm) with bowl length 2
  - 378 L/min (100 USgpm) with bowl length 4

- Housing & Element Compatibility: Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.

- Temp range: -54°C to +135°C (-65°F to +275°F)

- Construction & media: Proprietary C-Pak, E-Pak or H-Pak

- Dimensions
  - mm (inch)
  - E-Pak O-ring per AS568-135
  - C-Pak/H-Pak O-ring per AS568-131

**Seal material**

- B - Buna-N
- V - Viton-A

Viton is a registered trademark of E.I. DuPont

**Element construction**

- C - C-Pak (grade 01, 3, 5, 10, 20)
- E - E-Pak (grade 3, 5, 10)
- H - H-Pak (grade 3, 10)

**Fluid cleanliness ratings**

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Flushing only</td>
</tr>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

This table assumes limited ingestion/single pass of pump flow through the element. For detailed assistance, consult Vickers Guide to Systemic Contamination Control or contact your local Vickers Distributor.

**Filter Element Flow Data**

<table>
<thead>
<tr>
<th>Bowl length</th>
<th>Element length</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm (inch)</td>
<td>mm (inch)</td>
</tr>
<tr>
<td>1 - 185,4 (7.3)</td>
<td>101 (4)</td>
</tr>
<tr>
<td>2 - 276,8 (10.9)*</td>
<td>203 (8)*</td>
</tr>
<tr>
<td>4 - 398,3 (15.6)</td>
<td>330 (13)</td>
</tr>
</tbody>
</table>

* HF3

**Flow versus pressure drop:**

150 SUS (32 cSt) oil with specific gravity of \( \leq 0.9 \) (See page 7 for viscosity corrections for pressure drop.)

Refer to model code

```
79.8 (3.14) dia. typ

1.27 (0.05) max.
```
**Features and Benefits**
- Designed to comply with ANSI specifications and ISO cleanliness standards.
- Available with C-Pak media for high performance to achieve target cleanliness levels.
- Conforms to HF4 specifications.
- Quick disconnect cover for easy servicing (no loose parts).
- Optional second inlet port allows additional return line or prefiltering of new oil.
- Optional reservoir mounting weld flange.
- Optional electrical pressure switch or pressure gauge allows design flexibility.
- Two pressure gauge ports allow flexibility in locating gauges.
- Small size convenient for mobile or space confined applications.

**Design Specifications**

*Meets HF4 specifications*

**Rated flow:** 189 L/min (50 USgpm)

**Housing & Element Compatibility:** Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.

**Temp range:** -32°C to +135°C (−25°F to +275°F)

**Pressure rating:**
- Operating: 14 bar (200 psi)

**Material:**
- Head: Aluminum
- Cover: Aluminum
- Bowl: Carbon steel

**Dry weight:** (Approximate)
- Bowl length 3: 2.3 Kg (5.25 lbs)
- Bowl length 9: 2.8 Kg (6.25 lbs) (w/ 12" extension tube)

**Fluid cleanliness ratings**

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Flushing only</td>
</tr>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

This table assumes limited ingression/single pass of pump flow through the element. For detailed assistance, consult Vickers Guide to Systemic Contamination Control or contact your local Vickers Distributor.

---

**HL15 Series Filters** Flows to 189 L/min (50 USgpm) – Pressures to 14 bar (200 psi)

---

**Housing Model Code**

**Filter series**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HL15</td>
<td></td>
</tr>
</tbody>
</table>

**Element collapse rating**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>150 PSID</td>
</tr>
</tbody>
</table>

**Port options**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>1.875-12UN SAE-24 straight thread (1½&quot; O.D. tube)</td>
</tr>
<tr>
<td>E</td>
<td>1½&quot; SAE 4-bolt split flange Code 61</td>
</tr>
</tbody>
</table>

**Valve bypass setting**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Bypass set at 25 ± 3 PSID cracking pressure</td>
</tr>
<tr>
<td>4</td>
<td>Bypass set at 50 ± 5 PSID cracking pressure</td>
</tr>
</tbody>
</table>

**Indicator Selection Guide**

- **Bypass Indicator**
  - 1, 4, 6, 8
  - 1, 2, 7, 9

**Indicator type**

- **No indicator**
- **Pressure gauge**
  - 0 to 200 psi pressure gauge
  - 0 to 60 psi pressure gauge, color coded
- **Electrical switch**
  - 18 psi - Brad Harrison
  - 35 psi - Brad Harrison
  - 18 psi - DIN 43650
  - 35 psi - DIN 43650 (See page 7 for wiring diagram.)

**Seal material**

- **Buna-N**
- **Viton-A**

**Element construction**

- **C-Pak** (grade 01, 3, 5, 10, 20)

---

*Viton is a registered trademark of E.I. DuPont*
Dimensions

**HL15 Housing**

mm (inch)

![Diagram of HL15 Housing]

- Optional second inlet port
- Gauge port 1/8 NPTF plugged 2 places
- 0.44 Dia. holes (4) equally spaced on a 6.25 dia. bolt circle.
- 7/16-20 UNF Grade 8 bolts (4) recommended.

**Element bowl length**

mm (inch)

<table>
<thead>
<tr>
<th>Model Code</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>193.5</td>
<td>329.4</td>
<td>30.5</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>(7.62)</td>
<td>(12.97)</td>
<td>(1.20)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>193.5</td>
<td>329.4</td>
<td>—</td>
<td>307.9</td>
</tr>
<tr>
<td></td>
<td>(7.62)</td>
<td>(12.97)</td>
<td></td>
<td>(12.12)</td>
</tr>
</tbody>
</table>

**Accessories**

- Electrical switch (18 psi) Brad Harrison P-234117-01
- Electrical switch (35 psi) Brad Harrison P-234118-01
- Electrical switch, (18 psi) DIN P-233051-01
- Electrical switch, (35 psi) DIN P-233573-01
- Gauge, (0-60 psi*) (Color coded) P-232965-01
- Gauge, (0-200 psi) P-232974-01
- Weld flange P-232964-01

*For use with 25 psi bypass only

- See page 97 for electrical switch installation.
- See page 97 for gauge installation.
- See page 97 for weld flange installation.

**Filter Housing Flow Data**

Flow versus pressure drop:

- 150 SUS (32 cSt) oil with specific gravity of \( \leq 0.9 \)

(See page 6 for specific gravity corrections for pressure drop.)

![Graph of Flow Rate vs Pressure Drop]

**Bypass Valve**

- 50 PSID Valve
- 25 PSID Valve
405 Series Replacement Filter Elements

Element Model Code

V405  1  B  3  C  05
1    2    3    4    5

1 Filter element
V405 - For use with HL15, OFR60 & H451

2 Element collapse rating
1 - 150 PSID

Design Specifications
Meets HF4 filter specifications

Rated flow: 189 L/min (50 USgpm) (9" element)

Housing & Element
Compatibility: Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.

Temp range: -32°C to +135°C (-25°F to +275°F)

Construction & media: Proprietary C-Pak

Filter Element Flow Data

Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 7 for viscosity corrections for pressure drop.)

4051 C-Pak  229 (9) length

Fluid cleanliness ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Flushing only</td>
</tr>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

This table assumes limited ingestion/ single pass of pump flow through the element. For detailed assistance, consult Vickers Guide to Systemic Contamination Control or contact your local Vickers Distributor.

Element construction
C - C-Pak (grade 01, 3, 5, 10, 20)

Seal material
B - Buna-N
V - Viton-A
Viton is a registered trademark of E.I. DuPont

Dimensions

mm (inch)

100.3 dia. typ (3.95)

Refer to model code

Refer to model code

Refer to model code
**Features and Benefits**

- Designed to comply with ANSI specifications and ISO cleanliness standards.
- Conforms to HF4 specifications.
- Available with C-Pak media for high performance to meet target cleanliness code.
- Quick disconnect cover for easy servicing (no loose parts).
- Optional second inlet port available for an additional return line connection or prefiltering new oil.
- Optional reservoir mounting weld flange available.
- Optional with electrical pressure switch or pressure gauge for design flexibility.
- Two pressure gauge ports allows flexibility in locating gauges.
- Accepts Eco-Pak coreless elements.

**Design Specifications**

Meets HF4 specifications with stacked 9 inch elements

<table>
<thead>
<tr>
<th>Rated flow:</th>
<th>379 L/min (100 USgpm) (When used with bowl length 6)</th>
<th>568 L/min (150 USgpm) (When used with bowl length 7)</th>
</tr>
</thead>
</table>

Compatibility: Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.

Temp range: −32°C to +135°C (−25°F to +275°F)

Pressure rating: Operating 14 bar (200 psi)

Material: Head Aluminum, Cover Aluminum, Bowl Carbon steel

Dry weight: (Approximate) Bowl length 6 7.3 Kg (16 lb), Bowl length 7 10.4 Kg (23 lb)

**Housing Model Code**

```
<table>
<thead>
<tr>
<th>HL16</th>
<th>D</th>
<th>3</th>
<th>4</th>
<th>6</th>
<th>N</th>
<th>B</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

- **Filter series**
  - HL16

- **Element collapse rating**
  - 1 - 150 PSID

- **Port options**
  - D - 1.875-12UN SAE-24 straight thread (11/2" O.D. tube)
  - E - 11/2" SAE 4-bolt split flange Code 61

- **Valve bypass setting**
  - 3 - Bypass set at 25 ± 3 PSID cracking pressure
  - 4 - Bypass set at 50 ± 5 PSID cracking pressure

**Indicator Selection Guide**

<table>
<thead>
<tr>
<th>Bypass</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1, 4, 6, 8</td>
</tr>
<tr>
<td>4</td>
<td>1, 2, 7, 9</td>
</tr>
</tbody>
</table>

**Indicator type**

- 1 - No indicator
- 2 - 0 to 200 psi pressure gauge, color coded
- 6 - Electrical switch, 18 psi - Brad Harrison
- 7 - Electrical switch, 35 psi - Brad Harrison
- 8 - Electrical switch, 18 psi - DIN 43650
- 9 - Electrical switch, 35 psi - DIN 43650

(See page 7 for wiring diagram.)

**Secondary port option**

- T - 1.875-12UN SAE 24 straight thread (11/2" O.D. tube)
- Z - 11/2" SAE 4-bolt split flange Code 61
- N - No secondary port

**Seal material**

- B - Buna-N
- V - Viton-A

Viton is a registered trademark of E.I. DuPont

**Element construction**

- C - C-Pak (grade 01, 3, 5, 10, 20)
- E - E-Pak (grade 3, 5, 10)

**Fluid cleanliness ratings**

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Flushing only</td>
</tr>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

This table assumes limited ingestion/single pass of pump flow through the element. For detailed assistance, consult Vickers Guide to Systemic Contamination Control or contact your local Vickers Distributor.
Dimensions

HL16 Housing
mm (inch)

Refer to model code for port options

Element Bowl Length
mm (inch)

<table>
<thead>
<tr>
<th>Model Code</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>431.8 (17.00)</td>
</tr>
<tr>
<td>7</td>
<td>670.1 (26.38)</td>
</tr>
</tbody>
</table>

Filter Housing/Bypass Valve Flow Data
Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of \( \leq 0.9 \)
(See page 6 for specific gravity corrections for pressure drop.)

Accessories

- Electrical switch (18 psi) Brad Harrison P-234117-01
- Electrical switch (35 psi) Brad Harrison P-234118-01
- Electrical switch, (18 psi) DIN P-233051-01
- Electrical switch, (35 psi) DIN P-233573-01
- Gauge, (0-60 psi*) (Color coded) P-232965-01
- Gauge, (0-200 psi) P-232974-01
- Weld flange P-232964-01

*For use with 25 psi bypass only

See page 97 for electrical switch installation.
See page 97 for gauge installation.
See page 97 for weld flange installation.

Gauge port 1/8 NPTF plugged
2 places

Optional second inlet port

Refer to table.
405 Series Replacement Filter Elements

Element Model Code

<table>
<thead>
<tr>
<th>V405</th>
<th>1</th>
<th>B</th>
<th>6</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Filter element
  V405 - For use with OFR120, HL16 & H451

- Element collapse rating
  1 - 150 PSID

Design specifications

Meets HF4 filter specifications with stacked 9 inch elements.

- Rated flow: 379 L/min (100 USgpm) (When used with bowl length 6)
  568 L/min (150 USgpm) (When used with bowl length 7)
- Housing & Element Compatibility:
  - Compatible with most petroleum oil, water, glycol, oil-in-water and water-in-oil fluids.
  - Optional seals available for phosphate esters.
- Temp range: -32°C to +135°C (-25°F to +275°F)
- Construction & media: Proprietary & media: C-Pak or E-Pak

Dimensions

<table>
<thead>
<tr>
<th>E-Pak O-ring per AS568-135</th>
</tr>
</thead>
<tbody>
<tr>
<td>100,3 dia. typ (3.95)</td>
</tr>
</tbody>
</table>

Seal material

- B - Buna-N
- V - Viton-A
- Viton is a registered trademark of E.I. DuPont

Fluid cleanliness ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Flushing only</td>
</tr>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

This table assumes limited ingestion/single pass of pump flow through the element. For detailed assistance, consult Vickers Guide to Systemic Contamination Control or contact your local Vickers Distributor.

Filter Element Flow Data

<table>
<thead>
<tr>
<th>mm (inch)</th>
<th>Flow Rate - USgpm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
</tr>
<tr>
<td>4051 E-Pak/C-Pak 457 (18) length</td>
<td></td>
</tr>
<tr>
<td>C20</td>
<td>03</td>
</tr>
<tr>
<td>Pressure drop – PSID</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>04</td>
</tr>
<tr>
<td>Flow Rate USgpm</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>10</td>
</tr>
</tbody>
</table>

Replacement Element Connector

Vickers 457 mm (18 inch) and 685 mm (27 inch) elements are single elements. This eases handling and element replacement.

228 mm (9 inch) elements may be stacked rather than using one longer element.

Order P-227567-01 replacement element connector when stacking 228 mm (9 inch) elements.

Removable core kits for Eco-Pak:
- 18” for bowl length 6: PH451R6BN
- 27” for bowl length 7: PH451R7BN
HT10 Series Filters Flows to 38 L/min (10 USgpm) – Pressures to 7 bar (100 psi)

Features and Benefits
- Designed to comply with ANSI specifications and ISO cleanliness standards.
- Available with C-Pak media.
- C-Pak media includes strong epoxy bonding and inner and outer steel mesh for increased element reliability.
- Optional reservoir mounting weld flange available.
- Optional with electrical pressure switch or pressure gauge allows design flexibility.

Design Specifications
Rated flow: 38 L/min (10 USgpm)
Housing & Element Compatibility: Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.
Temp range: -32°C to 135°C (-25°F to +275°F)
Pressure rating:
  Operating 7 bar (100 psi)
Material:
  Head Aluminum
  Cover Aluminum
  Bowl Steel
Dry weight: (Approximate) 0.43 kg (0.95 lbs.)

Housing Model Code

<table>
<thead>
<tr>
<th>HT10</th>
<th>1</th>
<th>O</th>
<th>3</th>
<th>1</th>
<th>B</th>
<th>1</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Filter series
HT10

2 Element collapse rating
1 - 150 PSID

3 Port
O - 3/4-16 UNF SAE-8 straight thread (1/4" tube)

4 Valve bypass setting
3 - Bypass set at 25 ± 3 PSID cracking pressure

5 Indicator type
1 - No indicator
4 - 0 to 60 psi pressure gauge, color coded
6 - Electrical switch, 18 psi - Brad Harrison
8 - Electrical switch, 18 psi – DIN 43650

6 Seal material
B - Buna-N
V - Viton-A

Viton is a registered trademark of E.I. DuPont

7 Bowl length
mm (inch)
1 - 60.7 (2.39)

8 Element length
mm (inch)
70 (2.75)

9 Fluid cleanliness ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

This table assumes limited ingestion/single pass of pump flow through the element. For detailed assistance, consult Vickers Guide to Systemic Contamination Control or contact your local Vickers Distributor.
Dimensions

HT10 Housing
mm (inch)

1/4-20 UNF Screw
3 places

1/8" NPT (Gauge port plugged)

82.8 (3.26)

7.1 (0.28) Located on
89.9 (3.54) BC
2 places

16.8 (0.66)
32.3 (1.27)

3/4-16 UNF SAE-8
thread (1/2" tube)

105.1 (4.14)

Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of \( \leq 0.9 \)
(See page 6 for specific gravity corrections for pressure drop.)

Accessories
Electrical switch (18 psi) *
Brad Harrison
P-234117-01
Electrical switch, (18 psi) DIN:
P-233051-01
Gauge, (0-60 psi) (Color coded)
P-232965-01 †
Weld flange
P-235421 
* See page 97 for electrical switch installation.
† See page 97 for gauge installation.
See page 97 for weld flange installation.
Customer to furnish mating connector.
VT10 Series Replacement Filter Elements

**Element Model Code**

<table>
<thead>
<tr>
<th>VT10</th>
<th>1</th>
<th>N</th>
<th>1</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

1. **Filter element**
   - VT10 - For use with HT10 series filters

2. **Element collapse rating**
   - 1 - 150 PSID

3. **Seal material**
   - N - Element does not contain seals

4. **Bowl length**
   - mm (inch)  Element length
   - 1 - 60.7 (2.39)  70 (2.75)

5. **Element construction**
   - C - C-Pak (grade 3, 5, 10, 20)

6. **Fluid cleanliness ratings**
   - [Table with fluid cleanliness ratings and specific target levels]

Design Specifications

- Rated flow: 38 L/min (10 USgpm)
- Housing & Element Compatibility: Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.
- Temp range: -32°C to +135°C (-25°F to +275°F)
- Construction & media: Proprietary & C-Pak

**Dimensions**

- mm (inch)
  - Diameter: 50.0 (2.0)
  - Height: 70.0 (2.75)

**Filter Element Flow Data**

Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 7 for specific gravity corrections for pressure drop.)

![Graph showing flow rate vs. pressure drop](image-url)
### HT15 Series Filters
Flows to 76 L/min (20 USgpm) – Pressures to 7 bar (100 psi)

#### Features and Benefits
- Designed to comply with ANSI specifications and ISO cleanliness standards.
- Available with C-Pak media.
- Quick disconnect cover for easy servicing.
- Optional reservoir mounting weld flange available.
- Optional with electrical pressure switch or pressure gauge allows design flexibility.

#### Design Specifications
- **Rated flow:** 76 L/min (20 USgpm)
- **Housing & Element Compatibility:** Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.
- **Temp range:** -32°C to +135°C (-25°F to +275°F)
- **Pressure rating:** Operating 7 bar (100 psi)
- **Material:**
  - Head: Aluminum
  - Cover: Aluminum
  - Bowl: Steel
- **Dry weight:** (Approximate) 1.1 Kg (2.35 lbs)

### Housing Model Code

<table>
<thead>
<tr>
<th>S3</th>
<th>Ass'y length (mm)</th>
<th>Element length (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HT15</td>
<td>1 A 3 4 B 1 C 05</td>
<td>1 - 121.0 (4.76)</td>
</tr>
</tbody>
</table>

#### Housing Model Code Breakdown:
- **HT15:** Filter series
- **1:** Head sub-assembly only (No element, bowl or indicator)
- **A:** C-Pak (grade 3, 5, 10, 20)
- **3:** Valve bypass setting
  - 3: Bypass set at 25 ± 3 PSID cracking pressure
  - NOTE: Bypass valve is an integral part of the element and is set at 25 ± 3 psid cracking pressure.
- **4:** Indicator type
  - 1: No indicator
  - 4: 0 to 60 psi pressure gauge, color coded
  - 6: Electrical switch, 18 psi - Brad Harrison
  - 8: Electrical switch, 18 psi - DIN 43650 (See page 7 for wiring diagram.)
- **B:** Seals material
  - B: Buna-N
  - V: Viton-A

*Viton is a registered trademark of E.I. DuPont*

#### Fluid cleanliness ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

This table assumes limited ingression/single pass of pump flow through the element. For detailed assistance, consult Vickers Guide to Systemic Contamination Control or contact your local Vickers Distributor.
Dimensions

HT15 Housing
mm (inch)

Gauge port
\( \frac{1}{8} \) NPTF plugged 2 places

8.9 (0.35) dia.
located on 4.70
BC (2 places)

Accessories

Electrical switch (18 psi)※:
Brad Harrison
P-234117-01◆

Electrical switch, (18 psi) DIN※:
P-233051-01◆

Gauge, (0-60 psi) (Color coded)
P-232965-01†

Weld flange
P-333637◇

◆ See page 97 for electrical switch installation.
† See page 97 for gauge installation.
◇ See page 97 for weld flange installation.

※ Customer to furnish mating connector.

Filter Housing Flow Data

Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 6 for specific gravity corrections for pressure drop.)

![Flow versus pressure drop graph](image-url)
## VT15 Series Replacement Filter Elements

### Element Model Code

<table>
<thead>
<tr>
<th>VT15</th>
<th>1</th>
<th>V</th>
<th>1</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
</table>

1. **Filter element**
   VT15 - For use with HT15 series filters

2. **Element collapse rating**
   1 - 150 PSID
   *NOTE: Bypass valve is an integral part of the element and is set at 25 + 3 psid cracking pressure.*

3. **Seal material**
   V - Viton-A (Standard)
   *Viton is a registered trademark of E.I. DuPont*

4. **Bowl length**
   mm (inch) 1 - 121.0 (4.76) 130.0 (5.1)

5. **Element construction**
   C - C-Pak (grade 3, 5, 10, 20)

6. **Fluid cleanliness ratings**

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

This table assumes limited ingression/single pass of pump flow through the element. For detailed assistance, consult Vickers Guide to Systemic Contamination Control or contact your local Vickers Distributor.

### Design Specifications

- **Rated flow:** 76 L/mim (20 USgpm)
- **Housing & Element Compatibility:**
  - Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids.
  - Optional seals available for phosphate esters.
- **Temp range:** -32°C to +135°C (-25°F to +275°F)
- **Construction & media:** Proprietary & C-Pak

### Dimensions

**mm (inch)**

- Diameter: 69.2 (2.73)
- Height: 133.3 (5.25)

### Filter Element Flow Data

Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 7 for specific gravity corrections for pressure drop.)

![Flow Rate vs. Pressure Drop Graph]

<table>
<thead>
<tr>
<th>Pressure drop - PSID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>
OFR-15/30 Series Filters  Flows to 114 L/min (30 USgpm) – Pressures to 41 bar (600 psi)

Features and Benefits
- OFR-30 conforms to HF3 specifications.
- Two bowl length options.
- Flows to 30 USgpm.
- Visual indicator is standard.
- Electrical indicator also available.
- Bypass valve is standard.
- Replacement elements available in C-Pak or single layer construction.
- Accepts Eco-Pak coreless elements. (OFR30 only)

Filter Elements
These return line filters are offered in C-Pak media and in single layer media.

The C-Pak media has been designed to meet the requirements of Vickers Systemic Contamination Control program and are available in 3, 5, 10 and 20 micron (99% efficient) ratings. To learn more on this program, consult Vickers brochure. Replacement elements for C-Pak are ordered by model code.

In some systems, the single layer media may offer an alternative. These are available in 15, 25 and 50 micron (99% efficient) ratings.

Refer to the model code page for further information on filter elements and cleanliness ratings.

Indicators
Mechanical
A rotary type indicator is mechanically associated with the bypass valve and indicates the condition of this valve. Visible through the transparent windows in the protecting hood, the indicator will show green for a closed bypass valve and progressively show yellow for a warning that the element pressure drop is getting into the danger zone and red for an open bypass valve. By removing the protecting hood and reassembling the rotary indicator 180° on its stem, the indicator now provides a “memory” in that it rotates to the maximum opening of the bypass valve and remains in this position until manually returned by rotation of the knurled projecting knob.

Electrical
A lever actuated electrical switch is mounted in the enclosure. An actuator mounted to the bypass valve depresses the switch just prior to the opening of the bypass valve to change the completion of the electrical switch circuit from the common and the normally closed terminals to the common and normally open terminals. The 1/2 inch pipe tap is provided for connection to external conduit and lengths of color coded wires are soldered to the switch terminals for connection to the external circuit through the wires in the conduit. The switch contacts are rated for 5 amperes resistive loading up to 250 Vac.

System Pressure
The housing is suitable for greater than 10 million pressure pulsations from 0 to 600 psi.

Mounting Position
Any mounting position is permitted. Vertical is preferred from a servicing standpoint.

Ports
Straight thread ports accept the SAE fittings. Flange ports accept the 4-bolt SAE flange.

Straight thread connections provide superior external leakage protection in applications having pulsating pressures or system vibrations.

Fluids and Seals
Hydraulic oils, water glycols and water-in-oil emulsions can be filtered with the standard unit.

Soluble oil in water fluids can also be filtered with the standard unit if the fluid pH does not exceed 8.5. A higher pH than this has an adverse effect on the aluminum components.

Synthetic fluids require special seals which can be obtained by prefixing the model number with “F3”.

Refer to Vickers “Hydraulic Hints & Troubleshooting Guide” #694 for hydraulic fluid and temperature recommendations.

Design Specifications
Rated flow:
- OFR15  57 L/min (15 USgpm)
- OFR30  114 L/min (30 USgpm)

Fluid compatibility:  Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids.

Temp range:  -40°C to +107°C (-40°F to +225°F)

Pressure rating:
- Operating  41 bar (600 psi)
- Element collapse rating:  100 psid

Standard bypass valve setting:  25 ± 4 psid

Material:
- Head  Die cast aluminum
- Bowl  Carbon steel

Dry weight: (Approximate)
- OFR15  4.1 kg (9 lbs.)
- OFR30  5.4 kg (12 lbs.)

General Data
These filters are designed for use in the return lines of hydraulic systems. They remove particulate contaminants from the system fluid, thus improving performance and reliability of the system components while extending their service life. A bypass valve and mechanical visual indicator are standard.

Bypass Valve
An internal relief valve parallels the element to limit the pressure drop across the element. The valve is set to open at 25 PSID as standard.
Performance Curves

Filter Housing/Bypass Valve Flow Data
Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of \( \leq 0.9 \)
(See page 6 for specific gravity corrections for pressure drop.)

Filter Element Flow Data
mm (inch)
The OFR-30 with 8” element meets HF3 specifications.
Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of \( \leq 0.9 \)
(See page 6 for viscosity corrections for pressure drop.)

6021 C-Pak 203 (8) length

Single layer 101 (4) length

Single layer 203 (8) length
## Model Codes

### Filter and Element

<table>
<thead>
<tr>
<th>Model</th>
<th>Element Kit Code</th>
<th>Micron</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFR-15</td>
<td>737841</td>
<td>3M</td>
</tr>
<tr>
<td></td>
<td>737840</td>
<td>7G</td>
</tr>
<tr>
<td></td>
<td>737838</td>
<td>10M</td>
</tr>
<tr>
<td>OFR-30</td>
<td>737849</td>
<td>3M</td>
</tr>
<tr>
<td></td>
<td>737848</td>
<td>7G</td>
</tr>
<tr>
<td></td>
<td>737847</td>
<td>7M</td>
</tr>
<tr>
<td></td>
<td>737846</td>
<td>10M</td>
</tr>
</tbody>
</table>

**NOTE: Single layer construction elements are not assigned cleanliness codes and therefore cannot be applied toward Vickers Systemic Contamination Control Extended Warranty program.**

---

### Single layer media**

**NOTE: Single layer construction elements are not assigned cleanliness codes and therefore cannot be applied toward Vickers Systemic Contamination Control Extended Warranty program.**

---

### V-Pak or C-Pak element only

(Meets HF3 Specifications)

<table>
<thead>
<tr>
<th>Model</th>
<th>Element Kit Code</th>
<th>Micron</th>
</tr>
</thead>
<tbody>
<tr>
<td>V602</td>
<td>737845</td>
<td>3M</td>
</tr>
<tr>
<td></td>
<td>737844</td>
<td>7G</td>
</tr>
<tr>
<td></td>
<td>737843</td>
<td>7M</td>
</tr>
<tr>
<td></td>
<td>737842</td>
<td>10M</td>
</tr>
</tbody>
</table>

**NOTE: Single layer construction elements are not assigned cleanliness codes and therefore cannot be applied toward Vickers Systemic Contamination Control Extended Warranty program.**

---

### Design

S50 - Head sub-assembly only (No element, bowl or indicator)

---

### Special suffix

B - G1 (formerly 1" BSPF) thread
F - 1" SAE 4-bolt flange Code 61
S - 1.3125-12 UN SAE-16 straight thread 1" O.D. tube

---

### Fluid cleanliness ratings

**NOTE: Single layer construction elements are not assigned cleanliness codes and therefore cannot be applied toward Vickers Systemic Contamination Control Extended Warranty program.**

---

### Element options

C-Pak construction*
(For use with OFR-30 only)

<table>
<thead>
<tr>
<th>Code</th>
<th>Fluid Cleanliness rating</th>
<th>Element construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>C01</td>
<td>Flushing only</td>
<td>C-Pak</td>
</tr>
<tr>
<td>C03</td>
<td>16/14/12</td>
<td>C-Pak</td>
</tr>
<tr>
<td>C05</td>
<td>18/16/14</td>
<td>C-Pak</td>
</tr>
<tr>
<td>C10</td>
<td>20/18/15</td>
<td>C-Pak</td>
</tr>
<tr>
<td>C20</td>
<td>22/19/16</td>
<td>C-Pak</td>
</tr>
</tbody>
</table>

**NOTE: The C-Pak table assumes limited ingestion and a single pass of pump flow through the element. For more detailed assistance, please consult Vickers Guide to Systemic Contamination Control, or contact your local Vickers representative.**

---

### ΔP indicator options

Blank - Mechanical 25 psid
E - Electrical 25 psid

---

### Port options

B - G1 (formerly 1" BSPF) thread
F - 1" SAE 4-bolt flange Code 61
S - 1.3125-12 UN SAE-16 straight thread 1" O.D. tube

---

### Seals

Blank - Buna-N
F3 - Viton

Viton is a registered trademark of E.I. DuPont

---

### Filter type

OFR - Oil filter return line

---

### Flow capacity

15 - 57 L/min (15 USgpm)
30 - 114 L/min (30 USgpm)

---

### Element length

mm (inch)

2 - 203 (8) (HF3 length) (OFR30)

---

### Model Codes

---

### Codes

F3 - Viton

---

### Seals

Blank - Buna-N
F3 - Viton

Viton is a registered trademark of E.I. DuPont

---

### Design

S50 - Head sub-assembly only (No element, bowl or indicator)
Dimensions

Mechanical Indicator

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>133,4</td>
<td>(5.25)</td>
</tr>
<tr>
<td>66,5</td>
<td>(2.62)</td>
</tr>
<tr>
<td>131,8</td>
<td>(5.19)</td>
</tr>
</tbody>
</table>

Outlet port

Inlet port

Drain plug

Memory reset knob

Visual indicator

3/8-16 UNC-2B
0.64 min. full thread
2-places

218,9 (8.62)
OFR-15

180,8 (7.12)
OFR15

273,1 (10.75)
OFR30

267,5 (10.53)
OFR-15

359,7 (14.16)
OFR-30

269,7 (10.62)
OFR-15

362,0 (14.25)
OFR30

25,4 (1.00) Clearance for element removal

Electrical Indicator

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>177,8</td>
<td>(7.00)</td>
</tr>
<tr>
<td>53,8</td>
<td>(2.12)</td>
</tr>
</tbody>
</table>

1/2 NPTF thd.

min. lead extension

Connections

1.312-12 UN SAE
1" G1 British pipe thread or
1" SAE 4-bolt flg.

Torque head bolts to
25–30 ft.lbs
(33–41 Nm)

Electrical Indicator Switch Circuit

Green
Blue
Red
Black

C NC NO
OFR-60/120 Series Filters  Flows to 454 L/min (120 USgpm)-Pressures to 27 bar (400 psi)

Features and Benefits
- Two bowl length options.
- Visual indicator is standard.
- Electrical indicator also available.
- Bypass valve is standard.
- Replacement elements available in C-Pak or single layer construction.
- Accepts Eco-Pak coreless elements.

Design Specifications
Meets HF4 specifications

| Rated flow: | OFR60 227 L/min (60 USgpm) | OFR120 454 L/min (120 USgpm) |
| Fluid compatibility: | Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. |
| Temp range: | -40°C to +107°C (-40°F to +225°F) |
| Pressure rating: | Operating 27 bar (400 psi) |
| Standard bypass valve setting: | 25 ± 4 psid |
| Material: | Head Die cast aluminum | Bowl Carbon steel |
| Dry weight: | OFR60 6.8 kg (15 lbs.) | OFR120 9.5 kg (21 lbs.) |

General Data
These filters are designed for use in the return lines of hydraulic systems. They remove particulate contaminants from the system fluid, thus improving performance and reliability of the system components while extending their service life. A bypass valve and mechanical visual indicator are standard.

Bypass Valve
An internal relief valve parallels the element to limit the pressure drop across the element. The valve is set to open at 25 PSID as standard.

Filter Elements
These return line filters are offered in C-Pak media and in single layer media.

Electrical indicator also available.

The C-Pak media has been designed to meet the requirements of Vickers Systemic Contamination Control program and are available in 3, 5, 10 and 20 micron (99% efficient) ratings. To learn more on this program, consult Vickers brochure. Replacement elements for C-Pak are ordered by model code.

In some systems, the single layer media may offer an alternative. These are available in 15, 25 and 50 micron (99% efficient) ratings.

Refer to the model code page for further information on filter elements and cleanliness ratings.

Indicators

Mechanical
A rotary type indicator is mechanically associated with the bypass valve and indicates the condition of this valve. Visible through the transparent windows in the protecting hood, the indicator will show green for a closed bypass valve and progressively show yellow for a warning that the element pressure drop is getting into the danger zone and red for an open bypass valve. By removing the protecting hood and reassembling the rotary indicator 180° on its stem, the indicator now provides a “memory” in that it rotates to the maximum opening of the bypass and remains in this position until manually returned by rotation of the knurled projecting knob.

Electrical
A lever actuated electrical switch is mounted in the enclosure. An actuator mounted to the bypass valve depresses the switch just prior to the opening of the bypass valve to change the completion of the electrical switch circuit from the common and the normally closed terminals to the common and normally open terminals. Cover can be rotated at 90° increments to four different positions.

The 1/2 inch pipe tap is provided for connection to external conduit and lengths of color coded wires are soldered to the switch terminals for connection to the external circuit through the wires in the conduit. The switch contacts are rated for 5 amperes resistive loading up to 250 Vac.

Mounting Position
Any mounting position is permitted. Vertical is preferred from a servicing standpoint.

Ports
Straight thread ports accept the SAE fittings. Flange ports accept the 4-bolt SAE flange.

Straight thread connections provide superior external leakage protection in applications having pulsating pressures or system vibrations.

Fluids and Seals
Hydraulic oils, water glycols and water-in-oil emulsions can be filtered with the standard unit.

Soluble oil in water fluids can also be filtered with the standard unit if the fluid pH does not exceed 8.5. A higher pH than this has an adverse effect on the aluminum components.

Synthetic fluids require special seals which can be obtained by prefixing the model number with “F3”.

Refer to Vickers “Hydraulic Hints & Troubleshooting Guide” #694 for hydraulic fluid and temperature recommendations.
Performance Curves

Filter Housing/Bypass Valve Flow Data
Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of \( \leq 0.9 \)
(See page 6 for specific gravity corrections for pressure drop.)

Filter Element Flow Data
mm (inch)
Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of \( \leq 0.9 \)
(See page 7 for viscosity corrections for pressure drop.)
Model Codes

Filter and Element

<table>
<thead>
<tr>
<th>(F3)</th>
<th>OFR</th>
<th>60</th>
<th>S</th>
<th>C03</th>
<th>E</th>
<th>*</th>
<th>30</th>
<th>S50</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>

1. **Seals**
   - Blank - Buna-N
   - F3 - Viton
   *Viton is a registered trademark of E.I. DuPont*

2. **Filter type**
   - OFR - Oil filter return line

3. **Flow capacity**
   - 60 - 60 USgpm (227 L/min)
   - 120 - 120 USgpm (454 L/min)

4. **Port options**
   - F - 1 1/2" SAE 4-bolt flange Code 61
   - S - 1.875-12 UN SAE-24 straight thread for 1 1/2" O.D. tube

5. **Element options**
   - **C-Pak construction***

<table>
<thead>
<tr>
<th>Code</th>
<th>Fluid Cleanliness rating</th>
<th>Element construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>C01</td>
<td>Flushing only</td>
<td>C-Pak</td>
</tr>
<tr>
<td>C03</td>
<td>16/14/12</td>
<td>C-Pak</td>
</tr>
<tr>
<td>C05</td>
<td>18/16/14</td>
<td>C-Pak</td>
</tr>
<tr>
<td>C10</td>
<td>20/18/15</td>
<td>C-Pak</td>
</tr>
<tr>
<td>C20</td>
<td>22/19/16</td>
<td>C-Pak</td>
</tr>
</tbody>
</table>

6. **element options**
   - **Blank** - Mechanical
   - E - Electrical

7. **Bypass setting**
   - Blank - 25 PSID Standard
   - 35 - 35 PSID
   - 50 - 50 PSID***

8. **Design**
   - **Special suffix**
     - (Omit if not required.)

9. **S50** - Filter housing minus element
    - (Omit element options designation.)

**NOTE: Single layer construction elements are not assigned cleanliness codes and therefore cannot be applied toward Vickers Systemic Contamination Control Extended Warranty program.

**CAUTION**
Applications involving high flow surges may cause element collapse due to instantaneous pressure spikes.

---

C-Pak element only
(Meets HF4 Specifications)

<table>
<thead>
<tr>
<th>V405</th>
<th>1</th>
<th>B</th>
<th>3</th>
<th>C</th>
<th>03</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

1. **Element length**
   - mm (inch)
   - 3 - 229 (9) (Use in OFR-60)
   - 6 - 457 (18) (Use in OFR-120)

2. **Element construction**
   - C - C-Pak (grade 01, 3, 5, 10, 20)

3. **Seals**
   - B - Buna-N
   - V - Viton-A
   *Viton is a registered trademark of E.I. DuPont*

---

Single layer media**
replacement element kits
(Meets HF4 Specifications)

**NOTE: Single layer construction elements are not assigned cleanliness codes and therefore cannot be applied toward Vickers Systemic Contamination Control Extended Warranty program.

<table>
<thead>
<tr>
<th>Model</th>
<th>Element Kit</th>
<th>Element Code</th>
<th>Micron</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFR-60</td>
<td>737825</td>
<td>3M</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>737823</td>
<td>7M</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>737822</td>
<td>10M</td>
<td>50</td>
</tr>
<tr>
<td>F3-OFR-60</td>
<td>737829</td>
<td>3M</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>737828</td>
<td>7G</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>737827</td>
<td>7G</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>737826</td>
<td>10M</td>
<td>50</td>
</tr>
<tr>
<td>OFR-120</td>
<td>737833</td>
<td>3M</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>737831</td>
<td>7M</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>737830</td>
<td>10M</td>
<td>50</td>
</tr>
<tr>
<td>F3-OFR-120</td>
<td>737837</td>
<td>3M</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>737836</td>
<td>7G</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>737835</td>
<td>7G</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>737834</td>
<td>10M</td>
<td>50</td>
</tr>
</tbody>
</table>

---

***CAUTION***
Applications involving high flow surges may cause element collapse due to instantaneous pressure spikes.
**Mechanical Indicator**

**mm (inch)**

- Outlet port: 168.1 (6.62)
- Inlet port: 84.1 (3.31)
- Dia. 117.9 (4.64)
- Drain plug: 117.9 (4.64) Dia.
- 88.9 (3.50) Memory reset knob
- 44.5 (1.75) Visual indicator
- .500-13 UNC-2B thd.
- .75 deep
- 2 holes for mounting
- 25.4 (1.00) Clearance for element removal
- 19.1 (0.75)
- 320.5 (12.62) OFR60
- 550.9 (21.69) OFR120
- 93.0 (3.66)

**Note**
Plastic plug, part number 737365, is installed in the filter element to close the end of the element. When servicing element, remove and retain plastic plug 737365. Install new element with plastic plug on bottom.

**Electrical Indicator**

**mm (inch)**

- 1/2 NPTF thd.
- 177.8 (7.00) min. lead extension
- 53.8 (2.12)

**Electrical Indicator Switch Circuit**

- Green
- Blue
- Red
- Black
- C NC
- NO

**Drain plug**

- 90.9 (3.58)
- 119.1 (4.69)

- Torque head bolts to 50 ft.lbs (67.79 Nm) dry
- 35 ft.lbs. (47.45 Nm) lubricated
Design Specifications

Maximum flow capacity: 946 L/min (250 USgpm)
Pressure rating:
- Operating: 27 bar (400 psi)
- Temp range: -40°C to +107°C (-40°F to +225°F)
Weight assembly:
- OFRM-12-20-10: 2.7 kg (6.0 lbs.)

General Data

This SAE flange manifold assembly is designed for use with OFR-60 and OFR-120 large return line filters.

The manifold assembly includes the following:
- (2) Cast aluminum manifolds
- (4) Seals
- (8) Bolts

Pressure Drop

Pressure drop ($\Delta P$) across manifolds is approximately 2 psi when passing 240 gpm flow ($Q$) of 100 SUS fluid(s) having .865 flow rate.

For any other flow rate ($Q_1$), the pressure drop ($\Delta P_1$) will be approximately:

$$\Delta P_1 = \Delta P \left( \frac{Q_1}{Q} \right)^2$$

For any other specific gravity ($G_1$), the pressure drop ($\Delta P_1$) will be approximately:

$$\Delta P_1 = \Delta P \left( \frac{G_1}{G} \right)$$

For any other viscosity(s), the pressure drop ($\Delta P$) will change as follows:

<table>
<thead>
<tr>
<th>Other viscosity(s)</th>
<th>% of ($\Delta P$) (Approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>75</td>
<td>93</td>
</tr>
<tr>
<td>150</td>
<td>111</td>
</tr>
<tr>
<td>200</td>
<td>119</td>
</tr>
<tr>
<td>250</td>
<td>126</td>
</tr>
<tr>
<td>300</td>
<td>132</td>
</tr>
<tr>
<td>350</td>
<td>137</td>
</tr>
<tr>
<td>400</td>
<td>141</td>
</tr>
</tbody>
</table>

Model Code

<table>
<thead>
<tr>
<th>Type</th>
<th>OFRM - Oil filter, return line manifold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line Connection Size</td>
<td>OFRM - Oil filter, return line manifold</td>
</tr>
<tr>
<td>Design</td>
<td>OFRM - Oil filter, return line manifold</td>
</tr>
</tbody>
</table>

Dimensions

mm (inch)

Model Code

<table>
<thead>
<tr>
<th>OFRM</th>
<th>12</th>
<th>20</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

1. **Type**: OFRM - Oil filter, return line manifold
2. **Filter Connection Size**: 12 - 1½" SAE flange Code 61
3. **Line Connection Size**: 20 - 2 ½" SAE flange Code 61
4. **Design**: Subject to change. Installation dimensions remain the same for designs 10 through 19.
OFRS-15 Series Filters Flows to 57 L/min (15 USgpm) – Pressures to 7 bar (100 psi)

Features and Benefits
- Simple spin-on element design for easy maintenance.
- Bypass valves prevent excessive pressure drop and accidental element collapse.
- Two available ports for use as gauge and/or diagnostic ports.

Design Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated flow</td>
<td>57 L/min (15 USgpm)</td>
</tr>
<tr>
<td>Fluid compatibility</td>
<td>Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids.</td>
</tr>
<tr>
<td>Temp range</td>
<td>-40°C to +107°C (-40°F to +225°F)</td>
</tr>
<tr>
<td>Pressure rating</td>
<td>Operating 7 bar (100 psi)</td>
</tr>
<tr>
<td>Material</td>
<td>Head Die cast aluminum</td>
</tr>
<tr>
<td></td>
<td>Bowl Carbon steel</td>
</tr>
<tr>
<td>Dry weight</td>
<td>(Approximate) 1.0 kg (2.2 lbs.)</td>
</tr>
</tbody>
</table>

General Data
These filters are designed for use in the return lines of hydraulic systems. They remove particulate contaminants from the fluid, thus improving performance and reliability of the system components while extending their service life. R-Pak and single layer filter elements are available. The elements are of the disposable spin-on cartridge type for ease of maintenance.

Integral Bypass Valve
This bypass valve prevents excessive pressure drop and prevents the element from collapsing and releasing retained contaminants back into the hydraulic system. The valve starts to open when pressure drop across the element exceeds the valve setting due to flow surges, high viscosity oil, a clogged element, or a combination of these factors.

Filter Elements
These return line filters are offered with two types of elements. When system requirements call for flow to 15 USgpm and pressure drops to 30 psid, the 5 layer high pressure R-Pak construction meets these demands. Replacement elements for R-Pak are ordered by model code.

In applications where less demands are placed on the system, the single layer element may offer a more practical alternative. Replacement kits are available for servicing the single layer element.

Spin-On Cartridge
The disposable cartridge screws onto the filter head and should be hand tightened per instructions printed on the cartridge.

Refer to the model code page for further information on filter cartridges and cleanliness ratings.

Mounting Position
Any mounting position is permitted. Vertical is preferred from a servicing standpoint.

Fluids and Seals
These filters are suitable for petroleum based, oil-water emulsions, high water base, and most water glycol fluids.

Gauge Ports and Pressure Gauge
An optional port in the filter head allows installation of a pressure gauge (P/N 736129) to indicate the element’s condition. This optional gauge is shipped uninstalled from the filter.
Performance Curves

Filter Assembly and Element Flow Data
Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of \(\leq 0.9\)
(See page 6 for specific gravity corrections and page 7 for viscosity corrections for pressure drop.)

Single Layer with 10 psid Bypass Valve

NOTE: The % shown is the % of flow which passes thru a clean element with 150 SUS fluid. The remaining flow will pass thru the bypass valve without filtration.

Single Layer with 25 psid Bypass Valve

V0191 R-Pak Filter Element 147 (5.8) length

V0191 R-Pak Filter Element 203 (8) length
## Model Codes

### Filter and Element

<table>
<thead>
<tr>
<th>Series designation</th>
<th>Element type</th>
<th>Pressure gauge option</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFRS - Oil Filter, Return line, Spin-on</td>
<td>Code</td>
<td>Canister Length (mm)</td>
</tr>
<tr>
<td>15 - 15 USGpm (57 L/min)</td>
<td>1R03</td>
<td>147 (5.8)</td>
</tr>
<tr>
<td></td>
<td>1R05</td>
<td>147 (5.8)</td>
</tr>
<tr>
<td></td>
<td>1R10</td>
<td>147 (5.8)</td>
</tr>
<tr>
<td></td>
<td>2R03</td>
<td>203 (8.0)</td>
</tr>
<tr>
<td></td>
<td>2R05</td>
<td>203 (8.0)</td>
</tr>
<tr>
<td></td>
<td>2R10</td>
<td>203 (8.0)</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>Pressure gauge 0-120 psi (0-8 bar)</td>
</tr>
<tr>
<td></td>
<td>Blank</td>
<td>Omit if not required.</td>
</tr>
</tbody>
</table>

#### Port type

- B - G1 (formerly 1" BSPF) thd.
- P - 1" NPTF
- S - 1.312-12 UN SAE-16 straight thd. for 1" OD tube

#### Inlet gauge port location

- B - Location B
- Blank - Omit if not required.

#### Outlet gauge port location

- B - Location B
- Blank - Omit if not required.

#### Bypass valve

- 10 - Bypass valve set at 10 psid
- Blank - Bypass valve set at 25 psid

#### Design number

Subject to change. Dimensions remain the same for designs 10 through 19.

#### Special suffix

(Omit if not required.)

S50 - Filter housing minus element (Omit element options designation.)

### Single Layer Media Element

<table>
<thead>
<tr>
<th>Replacement element</th>
<th>Micron</th>
<th>Rating</th>
<th>Nominal Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>573082</td>
<td>25</td>
<td>B_{25} = 100</td>
<td>10 micron</td>
</tr>
<tr>
<td>573083</td>
<td>40</td>
<td>B_{40} = 100</td>
<td>25 micron</td>
</tr>
</tbody>
</table>

### R-Pak Element

<table>
<thead>
<tr>
<th>Series designation</th>
<th>Element type</th>
<th>Single Layer Media Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 150 psid</td>
<td>03</td>
<td>16/14/12</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14</td>
<td>R–Pak</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15</td>
<td>R–Pak</td>
</tr>
</tbody>
</table>

#### Element collapse rating

1 - 150 psid

#### Seal material

B - Buna–N

#### Element length

mm (inch)

1 - 147 (5.8)

2 - 203 (8.0)

#### Element construction

R - R–Pak

NOTE: Because single layer elements are not assigned Fluid Cleanliness Codes, they are not eligible for Vickers Systemic Contamination Control Extended Warranty program.

### V019

<table>
<thead>
<tr>
<th>Replacement element</th>
<th>Micron</th>
<th>Rating</th>
<th>Nominal Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>573082</td>
<td>25</td>
<td>B_{25} = 100</td>
<td>10 micron</td>
</tr>
<tr>
<td>573083</td>
<td>40</td>
<td>B_{40} = 100</td>
<td>25 micron</td>
</tr>
</tbody>
</table>

NOTE: Because single layer elements are not assigned Fluid Cleanliness Codes, they are not eligible for Vickers Systemic Contamination Control Extended Warranty program.
**Dimensions**

**Filter Housing**

mm (inch)

- B Pressure gauge connection
- E Pressure gauge connection
- .375-16 UNC-2B thd.
- 19,1 (0.75) min. full thd.
- 2 holes for mounting
- Mounting screw torque
- 20-27 Nm (15-20 ft-lb)
- 3.05R Typ.
- (0.12R)
- .375-16 UNC-2B thd.
- 11,2 (0.44)
- 7.87R (0.31R)
- 9,53/9,78R (0.375/0.385R) Typ.
- 23,9 (0.94)
- 11,2 (0.44)

Clearance required for removal of cartridge

Optional pressure gauge

- Approx. 55,9 (2.20)
- Inlet port
- Outlet port

- 47,8 (1.88)
- 26,9 (1.06)
- 26,9 (1.06)

- 24,4 (0.96)
- Hex. – both ends
- 44,4 (1.75)

- Std. 194,6 (7.66)
- Long 250,4 (9.86)

- Std. 170,2 (6.70)
- Long 226,1 (8.9)

- Ø 97,5 (3.84) Max.
OFRS-25 Series Filters  Flows to 95 L/min (25 USgpm) – Pressures to 7 bar (100 psi)

Features and Benefits

- Simple spin-on element design for easy maintenance.
- Bypass valve prevents excessive pressure drop and accidental element collapse.
- Six available ports for use as gauge and/or diagnostic ports.

Design Specifications

| Rated flow: | 95 L/min (25 USgpm) |
| Fluid compatibility: | Suitable for use with petroleum based, oil-water emulsions, high water based and most water-glycol fluids. |
| Temp range: | -40°C to +107°C (-40°F to +225°F) |
| Pressure rating: | Operating 7 bar (100 psi) |
| Material: | Head Die cast aluminum Canister Carbon steel |
| Dry weight: (Approximate) | 0.9 kg (2.0 lbs.) |

General Data

These filters are designed for use in the return lines of hydraulic systems. They remove particulate contaminants from the fluid, thus improving performance and reliability of the system components while extending their service life. R-Pak and single layer filter elements are available. The elements are of the disposable spin-on cartridge type for ease of maintenance.

Integral Bypass Valve

This bypass valve prevents excessive pressure drop and prevents the element from collapsing and releasing retained contaminants back into the hydraulic system. The valve starts to open when pressure drop across the element exceeds the valve setting due to flow surges, high viscosity oil, a clogged element, or a combination of these factors.

Filter Elements

These return line filters are offered with two types of elements. When system requirements call for flow to 25 USgpm and pressure drops to 30 psid, the 5 layer high pressure R-Pak construction meets these demands. Replacement elements for R-Pak are ordered by model code. In applications where less demands are placed on the system, the single layer element may offer a more practical alternative. Replacement kits are available for servicing the single layer element. Refer to the model code page for further information on filter elements and cleanliness ratings.

Gauge Ports and Pressure Gauge

An optional port in the filter head allows installation of a pressure gauge (P/N 736129) to indicate the element’s condition. This optional gauge is shipped uninstalled from the filter.

Spin-On Cartridge

The disposable cartridge screws onto the filter head and should be hand tightened per instructions printed on the cartridge. Refer to the model code page for further information on filter cartridges and cleanliness ratings.

Mounting Position

Any mounting position is permitted. Vertical is preferred from a servicing standpoint.

Fluids and Seals

These filters are suitable for petroleum based, oil-water emulsions, high water base, and most water glycol fluids.
Performance Curves

Filter Assembly and Element Flow Data

mm (inch)

Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of \( \leq 0.9 \)
(See page 6 for specific gravity corrections and page 7 for viscosity corrections for pressure drop.)

Single Layer with 25 psid Bypass Valve

V0191 R-Pak Filter Element 147 (5.8) length

V0191 R-Pak Filter Element 203 (8.0) length
Model Codes

Model Series
OFRS - Oil Filter, Return line, Spin-on

Flow rating
25 - 25 USgpm (95 L/min)

Port type
B - G1 (formerly 1” BSPF) thd.
F - 1” SAE 4-bolt flange Code 61
P - 1” NPTF
S - 1.312-12 UN SAE-16 straight thd. for 1” OD tube

Element type
Code Canister Fluid Cleanliness
Length Code
1R03 147 (5.8) 16/14/12
1R05 147 (5.8) 18/16/14
1R10 147 (5.8) 20/18/15
2R03 203 (8.0) 16/14/12
2R05 203 (8.0) 18/16/14
2R10 203 (8.0) 20/18/15

Outlet gauge port location
(1/8” NPTF)
D - Location D
E - Location E
F - Location F
Blank - Omit if not required.

Bypass valve
0 - Non-bypass
Blank - Bypass valve set at 25 psid

Design number
Subject to change. Dimensions remain the same for designs 10 through 19.

Special suffix
(Open if not required.)
S50 - Filter housing minus element (Omit element options designation.)

Single Layer Media Element

Replacement element Micron Rating Nominal Rating
573082 25 B25 = 100 10 micron
573083 40 B40 = 100 25 micron

R-Pak element

Series designation
V019 - Filter element for use with OFRS15/OFRS25 series filters (R-Pak construction only)

Element collapse rating
1 - 150 psid

Seal material
B - Buna–N

Element length
mm (inch)
1 - 147 (5.8)
2 - 203 (8.0)

Element construction
R - R–Pak

Element type
Code Fluid Cleanliness Element
Construction Code
03 16/14/12 R–Pak
05 18/16/14 R–Pak
10 20/18/15 R–Pak

The table assumes limited ingestion/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or consult your local Vickers representative.
Filter Housing

mm (inch)

Dimensions

Clearance required for removal of cartridge

.375-16 UNC-2B thd.
15.7 (0.62) min. full thd.
4 holes for mounting
Mounting screw torque 20-27 Nm (15-20 ft-lb)

Pressure gauge connection
1/8" NPTF pipe thd.
6 locations (see Model Code)

.375-16 UNC-2B thd.
16.3 (0.64) min. full thd.
4 holes each end only when
F port type is specified.
Use Vickers FL1-8-08P-10 or
FL1-8-08W-10 flanges.

Approx. 66.7 (2.62)

23.9 (0.94)

26.9 (1.06)

53.8 (2.12)

103.1 (4.06)

51.6 (2.03)

56.4 (2.22)

Outlet port

Inlet port

Optional pressure gauge

612.0x792.0
OFRS-60 Series Filters  Flows to 227 L/min (60 USgpm) – Pressures to 7 bar (100 psi)

Features and Benefits

- Available with Vickers proprietary R-Pak media.
- Simple spin-on element design for easy maintenance.
- Optional bypass valves prevent excessive pressure drop and accidental element collapse.
- Six available ports for use as gauge and/or diagnostic ports.
- H₂O-Pro Water Removing Element available.

Gauge Ports/Pressure Gauge

Optional ports in the filter head allow installation of a pressure gauge (part 736129) to indicate the element’s condition. The optional gauge is shipped uninstalled from the filter.

Filter Elements

These return line filters are offered with two types of elements.

When system requirements call for flow to 60 USgpm and pressure drops to 30 psid the high pressure R-Pak construction meets these demands. Replacement elements for R-Pak are ordered by model code.

In applications where less demands are placed on the system the single layer element may offer a more practical alternative. Replacement kits are available for servicing the single layer element. Refer to the model code page for further information on filter elements and cleanliness ratings.

Spin-On Cartridge

The disposable cartridge screws onto the filter head and should be tightened per instructions on the cartridge.

Mounting Position

Any mounting position is permitted. Vertical is preferred for servicing.

Fluids and Seals

These filters are suitable for petroleum based, oil-water emulsions, high water base, and most water glycol fluids.

Design Specifications

Rated flow: 227 L/min (60 USgpm)
Fluid compatibility: Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids.
Temp range: 0°C to 107°C (32°F to 225°F)
Pressure rating:
  - Operating: 7 bar (100 psi)
Material:
  - Head: Die cast aluminum
  - Bowl: Carbon steel
Dry weight: (Approximate)
  - Bowl length 1: 4.4 Kg (5.0 lbs)
  - Bowl length 2: 5.6 Kg (6.5 lbs)

Filter Housing Flow Data

Flow versus pressure drop: 150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 6 for specific gravity corrections for pressure drop.)

Filter Element mm (inch)

Flow versus pressure drop: 150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 7 for viscosity corrections for pressure drop.)

R-Pak Elements

0211 R-Pak element 184 (7) length

Single Layer Elements

Bypass valve only (blocked element)
Filter assembly with 25 micron element
Filter assembly with 15 micron element
Filter assembly with 60 micron element

H₂O-Pro Water Removing Element W0211B2W10  286 (11) length

General Data

These filters are designed for use in the return lines of hydraulic systems. They remove particulate contaminants from the fluid, thus improving performance and reliability of the system components while extending their service life. R-Pak and single layer filter elements are available. The elements are of the disposable spin-on cartridge type for ease of maintenance.

Integral Bypass Valve

This option prevents excessive pressure drop and prevents the element from collapsing and releasing retained contaminants back into the hydraulic system. The valve starts to open when pressure drop across the element exceeds 25 psi due to flow surges, high viscosity oil, a clogged element, or a combination of these factors.
Dimensions

OFRS-60
Body or Line Mounting

mm (inch)

<table>
<thead>
<tr>
<th>Element</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>211.1 (8.31)</td>
</tr>
<tr>
<td>Long</td>
<td>312.7 (12.31)</td>
</tr>
</tbody>
</table>

NOTE
A, B, C Inlet gauge port locations
D, E, F Outlet gauge port locations

33.3 (1.31) Clearance required for removal of cartridge

56.4 (2.22) Inlet port

Optional pressure gauge

31.7 (1.25) Outlet port

5000-13 UNC-2B thd.
0.875 min. full thd.
4 holes each end only when F port type is specified.
Use Vickers FL1-12-12P-10 or FL1-12-12W-10 flanges.

.375-16 UNC-2B thd.
0.75 min. full thd.
2 holes for mounting
Mounting screw torque 15-20 lb. ft (20-27 Nm)

.5000-13 UNC-2B thd.
0.75 min. full thd.
2 holes for mounting
Mounting screw torque 15-20 lb. ft (20-27 Nm)
OFRS-60-2
Manifold Mounting
Outlet Port Connection

Dimensions

**Note**
- A, B, C: Inlet gauge port locations
- D, E, F: Outlet gauge port locations

Pressure gauge in locations D and F will require additional fitting to clear mounting bolt hex nuts. Use Aeroquip No. 2040-2-25 or equivalent.

**Seal groove to accept A-225 seal**
- 5.38 (2.12) OD x 47.7 (1.88) ID x 3.05 (0.12) C/S

**Optional pressure gauge**

**Clearance required for removal of cartridge**
- 33.3 (1.31)

**Pressure gauge connection**
- 3/8" NPTF pipe thd. 6 locations (see Model Code)

**Mounting**
- 2 holes for mounting
- Mounting screw torque 15-20 lb. ft (20-27 Nm)

**Inlet port**
- 56.4 (2.22)

**Outlet port**
- 10.3 (0.41)

**Thru holes for mounting**
- 211.1 (8.31")

**Approx.**
- 85.7 (3.38)

**Clearance**
- 31.7 (1.25)

**Pressure gauge connection**
- 1/8" NPTF pipe thd. 6 locations

**Gauge connection**
- 38.1 (1.50)

**Threading**
- .375-16 UNC-2B thd.
- .5000-13 UNC-2B thd.

**Threading Dimensions**
- 0.75 min. full thd.
- 0.875 min. full thd.
- 5,38 (2.12) OD x 47.7 (1.88) ID x 3.05 (0.12) C/S

**Use**
- Vickers FL1-12-12P-10 or FL1-12-12W-10 flanges.

**Pressure Gauge**
- Pressure gauge connection 3/8" NPTF pipe thd. 6 locations (see Model Code)

**Mounting**
- Optional pressure gauge

**Mounting**
- Pressure gauge connection 3/8" NPTF pipe thd. 6 locations
Model Codes

Filter and Element

<table>
<thead>
<tr>
<th>OFRS</th>
<th>60</th>
<th>S</th>
<th>1R03</th>
<th>PAD</th>
<th>10</th>
<th>S50</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

1 Series designation
OFRS - Oil Filter, Return line, Spin-on

2 Flow rating
60 - 60 USgpm (227 L/min)

3 Mounting
2 - Reservoir mount flange (outlet)
Blank - Body or line mounting

4 Port type
B - G1 1/2 (formerly 1 1/2” BSPF) thd.
F - 1 1/2” SAE 4-bolt flange
P - 1 1/2” NPTF
S - 1.875-12 UN SAE-24 straight thd. for 1 1/2” OD tube

5 Element type
<table>
<thead>
<tr>
<th>Code</th>
<th>Canister Length (mm)</th>
<th>Fluid Cleanliness Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1R03</td>
<td>184 (7)</td>
<td>16/14/12</td>
</tr>
<tr>
<td>1R05</td>
<td>184 (7)</td>
<td>18/16/14</td>
</tr>
<tr>
<td>1R10</td>
<td>184 (7)</td>
<td>20/18/15</td>
</tr>
<tr>
<td>1R20</td>
<td>184 (7)</td>
<td>22/19/16</td>
</tr>
<tr>
<td>2R03</td>
<td>286 (11)</td>
<td>16/14/12</td>
</tr>
<tr>
<td>2R05</td>
<td>286 (11)</td>
<td>18/16/14</td>
</tr>
<tr>
<td>2R10</td>
<td>286 (11)</td>
<td>20/18/15</td>
</tr>
<tr>
<td>2R20</td>
<td>286 (11)</td>
<td>22/19/16</td>
</tr>
<tr>
<td>2W10</td>
<td>286 (11)</td>
<td>Water Removal</td>
</tr>
</tbody>
</table>

The table assumes limited ingestion/ single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.

Other element options:

<table>
<thead>
<tr>
<th>Code</th>
<th>Filtration rating</th>
<th>Element construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>3M</td>
<td>15 micron</td>
<td>Single layer</td>
</tr>
<tr>
<td>25M</td>
<td>60 micron</td>
<td>Single layer</td>
</tr>
<tr>
<td>Blank</td>
<td>25 micron</td>
<td>Single layer</td>
</tr>
</tbody>
</table>

NOTE: Because single layer elements are not assigned Fluid Cleanliness Codes, they are not eligible for Vickers Systemic Contamination Control Extended Warranty program.

6 Pressure gauge option
P - Pressure gauge
Blank - Omit if not required

7 Inlet gauge port location
(1/8” NPTF)
A - Location A
B - Location B
C - Location C
Blank - Omit if not required

8 Outlet gauge port location
(1/8” NPTF)
D - Location D
E - Location E
F - Location F
Blank - Omit if not required

NOTE: Gauges cannot be mounted side by side. If inlet and outlet gauges are required, specify non-adjacent ports such as A and E.

9 Bypass valve
0 - No bypass valve
Blank - Bypass valve set at 25 psid

10 Design number
Subject to change. Dimensions remain the same for designs 10 through 19.

11 Special feature suffix
S14 - Long 25 micron element
S50 - Housing without element (omit code for element type)
Blank - Omit if not required
Model Codes

R-Pak Element Only

<table>
<thead>
<tr>
<th>Series designation</th>
<th>Seal material</th>
<th>Fluid cleanliness rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>V021 - Filter element for use with H021, H022, H023 and OFRS-60 series filters (R-Pak construction only)</td>
<td>B - Buna-N</td>
<td></td>
</tr>
<tr>
<td>W021 - Water Removal element for use with H021, H022, H023 and OFRS-60 series filters</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Element collapse rating**: 1 - 150 psid

- **Canister length**: mm (inch)
  1 - 184 (7)
  2 - 286 (11)

  *NOTE: Water removal element only available in length 2.*

- **Element construction**
  R - R-Pak (grade 3,5,10,20)
  W - W-Pak (Water Removal) (grade 10)

- **Seal material**
  B - Buna-N

- **Fluid cleanliness rating**

<table>
<thead>
<tr>
<th>Fluid Cleanliness Code</th>
<th>Element construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>03 - 16/14/12</td>
<td>R-Pak</td>
</tr>
<tr>
<td>05 - 18/16/14</td>
<td>R-Pak</td>
</tr>
<tr>
<td>10 - 20/18/15</td>
<td>R-Pak, W-Pak</td>
</tr>
<tr>
<td>20 - 22/19/16</td>
<td>R-Pak</td>
</tr>
</tbody>
</table>

The table assumes limited ingression/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.

Single Layer Media Element Only

<table>
<thead>
<tr>
<th>Replacement Element Number</th>
<th>Micron</th>
<th>Rating</th>
<th>Nominal Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>941190 Std. Length</td>
<td>15</td>
<td>B_{15} = 100</td>
<td>3 micron</td>
</tr>
<tr>
<td>941107 Std. Length</td>
<td>25</td>
<td>B_{25} = 100</td>
<td>10 micron</td>
</tr>
<tr>
<td>926388 Long Length</td>
<td>25</td>
<td>B_{25} = 100</td>
<td>10 micron</td>
</tr>
<tr>
<td>941191 Std. Length</td>
<td>60</td>
<td>B_{60} = 100</td>
<td>25 micron</td>
</tr>
</tbody>
</table>

**NOTE**

Because single layer elements are not assigned Fluid Cleanliness Codes, they are not eligible for Vickers Systemic Contamination Control Extended Warranty program.
**H021/23 Series Filters** Flows to 227 L/min (60 USgpm) - Pressures to 14 bar (200 psi)

### Features and Benefits
- Designed to comply with ANSI specifications and ISO cleanliness standards.
- Large selection of visual, electrical and visual visual ΔP indicators available for design flexibility.
- Spin-on cartridges make servicing fast and easy.
- Replacement elements available in R-Pak media.
- H₂O-Pro Water Removing element available.

### Design Specifications
- **Rated flow:**
  - H021: 113.5 L/min (30 USgpm)
  - H023: 227 L/min (60 USgpm)
- **Housing & Element Compatibility:** Compatible with most petroleum oil, water and water-in-oil fluids.
- **Temp range:** -32°C to +107°C (-25°F to +225°F)
- **Pressure rating:**
  - Operating: 14 bar (200 psi)
- **Material:**
  - Head: Cast iron
  - Cannister: Stainless steel
- **Dry weight:**
  - 7 inch: 1.4 Kg (3 lbs.)
  - 11 inch: 2.2 Kg (5 lbs.)

### Housing Model Code

<table>
<thead>
<tr>
<th>H021</th>
<th>1</th>
<th>C</th>
<th>3</th>
<th>4N</th>
<th>B</th>
<th>2</th>
<th>R</th>
<th>05</th>
</tr>
</thead>
</table>

#### Filter series
- H021 - Machined for pressure gauge only
- H023 - Machined for ΔP indicators

**NOTE:** Filter head H021 is furnished with two ports drilled, tapped and plugged for gauge or switch option.
**NOTE:** H023 plugged ΔP port machined for indicators.

#### Port options
- C - 1.625-12UN SAE-20 straight thread (11/4" tube)
- P - 11/4" NPT

#### Valve bypass setting
- 3 - Bypass set at 25 ± 3 PSID
- 4 - Bypass set at 50 ± 5 PSID

#### Indicator Selection Guide

<table>
<thead>
<tr>
<th>Bypass</th>
<th>Head Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>H021</td>
<td>H023</td>
</tr>
</tbody>
</table>

| 3   | 1, 4, 6, 8 C,F,J,K,Q,X |
| 4   | 1, 2, 7, 9 D,G,J,L,M,R,Y |

#### Indicator type
- **First designator (Differential pressure indicator for H023):**
  - C - Electrical/visual ΔP 15 ± 4 PSID
  - D - Electrical/visual ΔP 35 ± 5 PSID
  - F - Electrical/visual ΔP 15 ± 4 PSID thermal lockout (100°F)
  - G - Electrical/visual ΔP 35 ± 5 PSID thermal lockout (100°F)
  - J - No ΔP indicator
  - K - Visual ΔP indicator with 15 ± 4 PSID actuation & thermal lockout (100°F)
  - L - Visual ΔP indicator with 35 ± 5 PSID actuation & thermal lockout (100°F)
  - M - Visual ΔP indicator w/ 35 ± 5 PSID, thermal lockout (100°F) & surge control
  - Q - Electrical ΔP switch with 15 ± 4 PSID actuation
  - R - Electrical ΔP switch with 35 ± 5 PSID actuation
  - X - Electrical/visual ΔP 15 ± 4 PSID thermal lockout (100°F) & surge control
  - Y - Electrical/visual ΔP 35 ± 5 PSID thermal lockout (100°F) & surge control

#### Upstream pressure indicators for H021
- 1 - No indicator – Pipe plug installed
- 2 - 0 to 200 psi pressure gauge
- 4 - 0 to 60 psi pressure gauge
- 6 - Electrical switch, 18 psi - Brad Harrison
- 7 - Electrical switch, 35 psi - Brad Harrison
- 8 - Electrical switch, 18 psi - DIN 43650
- 9 - Electrical switch, 35 psi - DIN 43650

(See page 7 for wiring diagram.)

#### Second designator (Receptacle Style)
- B - 5 pin Brad Harrison (41512)
- H - DIN 43650 or Hirschman receptacle (GSA plug) 3 poles plus ground
- N - No receptacle – Use with visual ΔP indicators and gauge options 1, 2 & 4

#### Seal material
- B - Buna-N

#### Canister length
- mm (inch)
  - 1 - 184 (7)
  - 2 - 286 (11)

**NOTE:** Water removal element only available in length 2.

#### Element construction
- R - R-Pak (grade 3.5,10,20)
- W - W-Pak, Water Removal (grade 10)

#### Fluid cleanliness ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
<th>Element construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>16/14/12</td>
<td>R-Pak</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14</td>
<td>R-Pak</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15</td>
<td>R-Pak</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16</td>
<td>R-Pak</td>
</tr>
</tbody>
</table>

The table assumes limited ingestion/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.
Dimensions

H021/H023 Housing

mm (inch)

5/16–18 UNC
5/8 deep full thread (4 places)

5/16–18 UNC
5/8 deep full thread (4 places)

△P Indicator
(H023 head only)

Accessories

Electrical switch (18 psi)※
Brad Harrison
P-234117-01◆

Electrical switch (35 psi)※
Brad Harrison
P-234118-01◆

Electrical switch, (18 psi) DIN▷
P-233051-01◆

Electrical switch, (35 psi) DIN▷
P-233573-01◆

Gauge, (0-60 psi*) (Color coded)
P-232965-01◆

Gauge, (0-200 psi) P-232974-01†

*For use with 25 psi bypass only
◆ See page 97 for electrical switch installation.
† See page 97 for gauge installation.
※ Customer to furnish mating connector.

Filter Housing/Bypass Valve Flow Data

Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 6 for specific gravity corrections for pressure drop.)

Housing

Pressure drop – PSID

Flow Rate – USgpm

Bypass Valve

Pressure drop – PSID

Flow Rate – USgpm
021 Series Replacement Filter Elements

### Element Model Code

<table>
<thead>
<tr>
<th>V021</th>
<th>1</th>
<th>B</th>
<th>2</th>
<th>R</th>
<th>05</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

1. **Filter element**
   - **V021**: For use with H021, H022, H023, and OFRS-60 series filters
   - **W021**: Water Removal Element for use with H021, H022, and H023 filters

2. **Element collapse rating**
   - 1 - 150 PSID

3. **Seal material**
   - B - Buna-N

### Design specifications

- **Rated flow**
  - 113.5 L/min (30 USgpm) cannister length 1
  - 227 L/min (60 USgpm) cannister length 2

- **Fluid compatibility**
  - Compatible with most petroleum oil, water, glycol, oil-in-water and water-in-oil fluids.

- **Construction media**
  - R-Pak, W-Pak

- **Temp range**
  - -32°C to +107°C
  - -25°F to +225°F

### Filter Element Flow Data

**Dimensions**
- mm (inch)
  - 184 (7.3)
  - 286 (11.3)
  - 126 (5.0)

**Flow Rate - USgpm**
- 1 1/2 - 16UN thd.

**R-Pak Elements**
- **V0211 R-Pak 184 (7) length**

**H2O-Pro Water Removing Element**
- **W0211B2W10 286 (11) length**

### Fluid cleanliness ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
<th>Element construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>16/14/12</td>
<td>R-Pak</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14</td>
<td>R-Pak</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15</td>
<td>W-Pak</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16</td>
<td>R-Pak</td>
</tr>
</tbody>
</table>

The table assumes limited ingression/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.
H022 Series Filters Flows to 454 L/min (120 USgpm) – Pressure to 14 bar (200 psi)

Features and Benefits

- Designed to comply with ANSI specifications and ISO cleanliness standards.
- Flexible mounting capability with optional heavy duty bracket.
- Large selection of visual, electrical and electrical visual ΔP indicators available for design flexibility.
- Spin-on cartridges make servicing fast and easy.
- Replacement elements available in R-Pak media.
- H20-Pro Water Removing Element available.

Design Specifications

| Rated flow | 227 L/min (60 USgpm) |
| 454 L/min (120 USgpm) |
| Housing & Element Compatibility | Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. |
| Temp range | -32°C to +107°C (-25°F to +225°F) |
| Pressure rating: Operating | 14 bar (200 psi) |
| Material: Head | Aluminum |
| Dry weight: (Approximate) | 3.2 Kg (7.0 lb) |

Housing Model Code

- H022 Series Filters
- 1 - Filter series H022
- 2 - Element collapse rating
- 1 - 150 PSID
- 3 - Port options
- D - 1.875-12Un SAE-24 straight thread (1 1/2" tube)
- E - 1 1/2" SAE 4-bolt split flange Code 61
- U - 1 1/2" NPT
- 4 - Valve bypass setting
- 3 - Bypass set at 25 ± 3 PSID
- 4 - Bypass set at 50 ± 5 PSID

Indicator Selection Guide

<table>
<thead>
<tr>
<th>Bypass</th>
<th>Pressure</th>
<th>ΔPressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1, 4, 6, 8</td>
<td>C,F,J,K,Q,X</td>
</tr>
<tr>
<td>4</td>
<td>1, 2, 7, 9</td>
<td>D,G,J,L,M,R,Y</td>
</tr>
</tbody>
</table>

ΔP indicator & receptacle options

First designator (Indicator type)

- C - Electrical/visual ΔP 15 ± 4 PSID
- D - Electrical/visual ΔP 15 ± 4 PSID thermal lockout (100°F)
- F - Electrical/visual ΔP 15 ± 4 PSID thermal lockout (100°F)
- G - Electrical/visual ΔP 35 ± 5 PSID thermal lockout (100°F)
- J - No ΔP indicator
- K - Visual ΔP indicator with 15 ± 4 PSID actuation & thermal lockout (100°F)
- L - Visual ΔP indicator with 35 ± 5 PSID actuation & thermal lockout (100°F)
- M - Visual ΔP indicator w/ 35 ± 5 PSID, thermal lockout (100°F) and surge control
- Q - Electrical ΔP switch with 15 ± 4 PSID actuation
- R - Electrical ΔP switch with 35 ± 5 PSID actuation
- X - Electrical/visual ΔP 15 ± 4 PSID thermal lockout (100°F) & surge control
- Y - Electrical/visual ΔP 35 ± 5 PSID thermal lockout (100°F) & surge control

Upstream pressure indicators for H022

- 1 - No indicator – pipe plug installed
- 2 - 0 to 200 psi pressure gauge
- 4 - 0 to 60 psi pressure gauge
- 6 - Electrical switch, 18 psi - Brad Harrison
- 7 - Electrical switch, 35 psi - Brad Harrison
- 8 - Electrical switch, 18 psi - DIN 43650
- 9 - Electrical switch, 35 psi - DIN 43650

Second designator (Receptacle style)

- B - 5 pin Brad Harrison (41512)
- H - DIN 43650 or Hirschman receptacle (GSA plug) 3 poles plus ground
- N - No receptacle – Use with visual ΔP indicators and gauge options 1, 2 & 4 (See page 7 for wiring diagram.)

Brackets

- 1 - No bracket (Order #P-233052-01)

Seal material

- B - Buna-N

Canister length

- mm (inch)
- 1 - 184 (7)
- 2 - 266 (11)

NOTE: Water removal element only available in length 2.

S50 - Head sub-assembly only (No element, bowl or indicator)

Element construction

- R - R-Pak media (grade 3, 5, 10, 20)
- W - W-Pak, Water Removal (grade 10)

Fluid cleanliness ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
<th>Element construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>16/14/12</td>
<td>R-Pak</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14</td>
<td>R-Pak</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15</td>
<td>R-Pak</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16</td>
<td>R-Pak</td>
</tr>
</tbody>
</table>

The table assumes limited ingress/singel pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.
Dimensions

H022 Housing
mm (inch)

![Diagram of H022 Housing]

**NOTE**
- Filter head is furnished with two ports drilled, tapped and plugged for gauge or switch option.
- Plugged ΔP port machined for indicators.

Filter Housing/Bypass Valve Flow Data
Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 6 for specific gravity corrections for pressure drop.)

**Housing**

![Graph of Flow Rate vs. Pressure Drop for Housing]

**Bypass Valve**

![Graph of Flow Rate vs. Pressure Drop for Bypass Valve]

**Accessories**

- Electrical switch (18 psi) P-234117-01
- Brad Harrison P-234118-01
- Electrical switch, (18 psi) DIN P-233051-01
- Electrical switch, (35 psi) DIN P-233573-01
- Gauge, (0-60 psi) (Color coded) P-232965-01
- Pressure drop – PSID
- Flow – USgpm
- Flow Rate – USgpm

- 50 PSID Valve
- 25 PSID Valve

*For use with 25 psi bypass only

Mounting bracket P-233052-01

- See page 97 for electrical switch installation.
- See page 97 for gauge installation.
- See page 98 for mounting bracket installation.

* Customer to furnish mating connector.
# 021 Series Replacement Filter Elements

## Element Model Code

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>V021</td>
<td>Filter element</td>
</tr>
<tr>
<td>V021</td>
<td>For use with H021, H022, H023 and OFR-S60 series filters</td>
</tr>
<tr>
<td>W021</td>
<td>Water Removal Element for use with H021, H022, H023 and OFR-S60 series filters</td>
</tr>
</tbody>
</table>

### Element collapse rating

- 1 - 150 PSID

### Seal material

- B - Buna-N

## Design specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated flow</td>
<td>227 L/min (60 USgpm) cannister length 1</td>
</tr>
<tr>
<td></td>
<td>454 L/min (120 USgpm) cannister length 2</td>
</tr>
<tr>
<td>Fluid compatibility</td>
<td>Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids.</td>
</tr>
<tr>
<td>Construction media</td>
<td>R-Pak, W-Pak</td>
</tr>
<tr>
<td>Temp range</td>
<td>-32°C to +107°C (-25°F to +225°F)</td>
</tr>
</tbody>
</table>

### Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>184 (7.30)</td>
<td></td>
</tr>
<tr>
<td>286 (11.30)</td>
<td></td>
</tr>
<tr>
<td>126 (5.00)</td>
<td></td>
</tr>
</tbody>
</table>

### Filter Element Flow Data

- Flow versus pressure drop
- 150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
- (See page 7 for viscosity corrections for pressure drop.)

### R-Pak Elements

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
<th>Element construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>16/14/12</td>
<td>R-Pak</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14</td>
<td>R-Pak</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15</td>
<td>W-Pak</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16</td>
<td>R-Pak</td>
</tr>
</tbody>
</table>

The table assumes limited ingression/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.

### H2O-Pro Water Removing Element

- H022 assemblies use two elements in parallel. The flow thru each element will be 1/2 the total flow.
OF3 Series Inlet Strainers  Flows to 379 L/min (100 USgpm)

Features and Benefits
- Stainless steel elements have 149 micron (100 mesh) screen to protect hydraulic pumps from solid contaminants.
- Available flow rates to 379 L/min (100 USgpm). Higher rates can be achieved by using multiple strainers.
- Bypass valve available to prevent system shutdown.
- Element media is pleated for long life.
- Elements can be cleaned and reused.

General Data
These Vickers inlet strainers protect hydraulic pumps and control systems from solid contaminants. They should be used as immersion suction strainers on pump inlet lines.

Bypass Valve
An available integral relief valve parallels the element and is preset to open at a 3 psi pressure drop across the element. Element bypassing can be caused by excess flow rates, high fluid viscosity, dirt-loaded elements, or a combination of these.

Design Specifications
Rated flow:
- OF3-08 38 L/min (10 USgpm)
- OF3-10 76 L/min (20 USgpm)
- OF3-12 114 L/min (30 USgpm)
- OF3-16 189 L/min (50 USgpm)
- OF3-20 284 L/min (75 USgpm)
- OF3-24 379 L/min (100 USgpm)

Fluid compatibility:
These strainers are compatible with all commonly used hydraulic fluids, including phosphate esters and water-based fluids.

Temp range: -40°C to +107°C (-40°F to +225°F)

Filtration: Unit is supplied with 149 micron (100 mesh) wire cloth element.

Material:
- Head: Nylon
- Element: Pleated stainless steel

Dry weight: (Approximate)
- OF3-08 0.3 kg (0.7 lbs)
- OF3-10 0.4 kg (1.0 lbs)
- OF3-12 0.6 kg (1.4 lbs)
- OF3-16 0.8 kg (1.8 lbs)
- OF3-20 1.0 kg (2.3 lbs)
- OF3-24 1.4 kg (3.0 lbs)

Model Code

<table>
<thead>
<tr>
<th>Model Series</th>
<th>OF3 12 3RV 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Size (NPTF)</td>
<td>08 - 1”</td>
</tr>
<tr>
<td></td>
<td>10 - 1 1/4”</td>
</tr>
<tr>
<td></td>
<td>12 - 1 1/2”</td>
</tr>
<tr>
<td></td>
<td>16 - 2”</td>
</tr>
<tr>
<td></td>
<td>20 - 2 1/2”</td>
</tr>
<tr>
<td></td>
<td>24 - 3”</td>
</tr>
</tbody>
</table>

Bypass Valve
3RV - 3 psi differential opening pressure
Blank - Omit if not required

Design number
Subject to change. Dimensions remain the same for designs 10 through 19.

Cleaning
The strainer elements should be cleaned periodically. Remove the elements from the reservoir, wash thoroughly in a suitable solvent, and blow dry with air from inside to outside.
Installation Dimensions

Inlet Strainer
mm (inch)

<table>
<thead>
<tr>
<th>Model Series</th>
<th>Minimum Screen Area cm² (in²)</th>
<th>A (NPTF pipe thread)</th>
<th>B</th>
<th>C ± 3.2 (± 0.125)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OF3-08</td>
<td>710 (110)</td>
<td>1&quot;</td>
<td>67,8 (2.67)</td>
<td>135,9 (5.35)</td>
</tr>
<tr>
<td>OF3-10</td>
<td>1032 (160)</td>
<td>1 1/4&quot;</td>
<td>88,1 (3.47)</td>
<td>174,0 (6.85)</td>
</tr>
<tr>
<td>OF3-12</td>
<td>2194 (340)</td>
<td>1 1/2&quot;</td>
<td>101,6 (4.00)</td>
<td>250,2 (9.85)</td>
</tr>
<tr>
<td>OF3-16</td>
<td>2194 (340)</td>
<td>2&quot;</td>
<td>101,6 (4.00)</td>
<td>250,2 (9.85)</td>
</tr>
<tr>
<td>OF3-20</td>
<td>2581 (400)</td>
<td>2 1/2&quot;</td>
<td>131,3 (5.17)</td>
<td>256,5 (10.10)</td>
</tr>
<tr>
<td>OF3-24</td>
<td>3226 (500)</td>
<td>3&quot;</td>
<td>131,3 (5.17)</td>
<td>299,2 (11.78)</td>
</tr>
</tbody>
</table>

Typical Installations

Access opening should be provided so strainers can be removed for cleaning without draining fluid from tank.
10F, 50F and 100F Series - Indicating Inlet Strainers
Flows to 700 L/min (185 USgpm) - Pressures to 0.3 bar (5 psi) vacuum to 20 bar (300 psi) positive

Features and Benefits
- Stainless elements have 149 micron (100 mesh) screen to protect pumps from solid contaminants.
- Available flows to 700 L/min (185 USgpm) on pressure inlets and 530 L/min (140 USgpm) on vacuum inlets.
- Standard integral air bleed feature prevents formation of large bubbles. This provides faster priming of pumps at startup and prevents pump damage.
- Housing can be adapted to handle most hydraulic fluids.
- Large, easy to read, standard visual indicator (or optional electrical indicator) informs operator when element needs to be cleaned.
- Elements can be cleaned and reused.
- Standard bypass valve protects against pump damage.

Maximum Flow Ratings
This table presents recommendations for use in both pressurized inlet systems and the more common vacuum inlet systems. The effects of fluid viscosity, specific gravity, and fluid flow rate on the pump inlet system (including the filter) have been taken into consideration. Even with a bypass condition in effect due to element dirt loading, a margin of pump protection is still afforded.

<table>
<thead>
<tr>
<th>Model Series</th>
<th>Vacuum Inlet*</th>
<th>Pressurized Inlet**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal Service†</td>
<td>Special Service† ††</td>
</tr>
<tr>
<td></td>
<td>L/min (USgpm)</td>
<td>L/min (USgpm)</td>
</tr>
<tr>
<td>10FA</td>
<td>45 (12)</td>
<td>30 (8)</td>
</tr>
<tr>
<td>50FB</td>
<td>106 (28)</td>
<td>76 (20)</td>
</tr>
<tr>
<td>50FC</td>
<td>178 (47)</td>
<td>125 (33)</td>
</tr>
<tr>
<td>50FD</td>
<td>254 (67)</td>
<td>178 (47)</td>
</tr>
<tr>
<td>100FE</td>
<td>367 (97)</td>
<td>284 (75)</td>
</tr>
<tr>
<td>100FF</td>
<td>530 (140)</td>
<td>367 (97)</td>
</tr>
</tbody>
</table>

* 0,3 bar (5 psi) vacuum to 0 bar (0 psi)
** 0 bar (0 psi) to 50 bar (3.5 psi)
† For use with petroleum oil up to 48 cSt (225 SUS) with less than 457 mm (18 in.) lift on vacuum applications.
†† For use with petroleum oils above 48 cSt (225 SUS) and fire resistant fluids.

Design Specifications
- Rated flow: See table
- Temp range: -40°C to +107°C (-40°F to +225°F)
- Pressure rating:
  - 10F and 50F: 0.3 bar (5 psi) vacuum to 3 bar (50 psi) positive
  - 100F: 20 bar (300 psi)
- Filtration: Filter is supplied with 149 micron (100 mesh) wire cloth element.
- Fluid and seals: Standard model is compatible with most petroleum oil, water glycol, and water-in-oil fluids. Optional seals sand coatings are available for use in phosphate esters and oil-water emulsions. See fluids and seals note in Model Code.
- Material:
  - Cover: Die cast aluminum
  - Housing: Cast aluminum
- Dry weight: (Approximate)
  - 10F: 2.5 kg (5.5 lb.)
  - 50F: 5.7 kg (12.5 lb.)
  - 100F: 16.3 kg (36.0 lb.)
Indicating Inlet Strainers

General Data
These units have been designed for use in the intake lines of hydraulic pumps to afford a degree of protection from contaminants to the pump and other components in the hydraulic system.

Bypass Valve
An integral relief valve parallels the element and is preset to open at a 2 psi (standard) or 3 psi (optional) pressure drop across the element. Element bypassing can be caused by excess flow rates, high fluid viscosity, dirt-loaded elements, or a combination of these.

Air Bleed
These strainers include a standard integral air bleed. It provides faster pump priming on startup and limits the agglomeration of small air bubbles into larger ones. Large air bubbles are detrimental to pump operation.

The unit may be mounted in any position desired. To ensure proper operation of the air bleed feature, however, the inlet port must be pointed down.

Magnets
Magnets are available as an accessory and are installed in the filter on the outside of the element. They act to attract and retain ferrous particles of all sizes, some of which could be small enough to pass through the element mesh and into the pump if no magnets were present.

Indicators
Visual
A highly visible mechanical indicator is linked to the bypass valve. The indicator shows green when the bypass valve is closed and progressively more yellow as a warning when the element pressure drop gets into the danger zone. Red indicates an open bypass valve. The indicator will also automatically show red, (bypass condition) if the unit is accidentally operated without an element.

The visual indicator can also be reassembled to provide a “memory” function. If the protecting hood is removed and the rotary indicator turned 180° on its stem, the unit will indicate the maximum opening of the bypass and remain in that position until reset by rotating the knurled projecting knob.

Electrical
A lever-actuated electric switch is mounted in the indicator enclosure. The switch is depressed by a cam mounted to the bypass valve just prior to the opening of the valve. This changes the completion of the electrical switch circuit from the common and the normally closed terminals to the common and normally open terminals. Switch actuation will also occur when the unit is accidentally operated without an element.

Switch Circuit

A 1/2" pipe tap is provided for connecting a conduit, and lengths of color coded wires are soldered to the switch terminals for connecting to the external circuit through the conduit wires. The switch contacts are rated for 5 amps resistive loading up to 250V AC.
Model Code

<table>
<thead>
<tr>
<th>1</th>
<th>Fluid Compatibility*</th>
</tr>
</thead>
<tbody>
<tr>
<td>F3</td>
<td>Special seals</td>
</tr>
<tr>
<td>F6</td>
<td>For oil-in-water emulsions</td>
</tr>
<tr>
<td>Blank</td>
<td>Omit if not required.</td>
</tr>
</tbody>
</table>

* Use of synthetic, fire-resistant fluids requires filter with special seals. Add prefix F3 to model number when phosphate esters or their blends are to be used. Oil-in-water emulsions require corrosion protection of aluminum parts. Add prefix F6 when using such fluids. Water glycol, water-in-oil emulsions, and petroleum oil fluids may be used with standard seals.

<table>
<thead>
<tr>
<th>2</th>
<th>Package Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10 size</td>
</tr>
<tr>
<td>50</td>
<td>50 size</td>
</tr>
<tr>
<td>100</td>
<td>100 size</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3</th>
<th>Model Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Indicating type inlet filter</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4</th>
<th>Port Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1” (10F)</td>
</tr>
<tr>
<td>B</td>
<td>1 1/2&quot; (50F)</td>
</tr>
<tr>
<td>C</td>
<td>2&quot; (50F)</td>
</tr>
<tr>
<td>D</td>
<td>2 1/2&quot; (50F)</td>
</tr>
<tr>
<td>E</td>
<td>3&quot; (100F)</td>
</tr>
<tr>
<td>F</td>
<td>3 1/2&quot; (100F)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5</th>
<th>Mean Filtration Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>149 micron (100 mesh)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6</th>
<th>Port Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>G1 (formerly 1” BSPF) thd. (10F only)</td>
</tr>
<tr>
<td>F</td>
<td>4-bolt SAE flange</td>
</tr>
<tr>
<td>P</td>
<td>NPTF pipe thd. in housing**†</td>
</tr>
<tr>
<td>S</td>
<td>SAE straight thd. in housing (except 50FD and 100 F)</td>
</tr>
<tr>
<td>PF</td>
<td>Inlet: NPTF pipe thd. in housing Outlet: 4-bolt SAE flange</td>
</tr>
<tr>
<td>SF</td>
<td>Inlet: SAE straight thd. in housing Outlet: 4-bolt SAE flange</td>
</tr>
</tbody>
</table>

** Not recommended
†CAUTION

Use pipe sealant to ensure airtight connections on pipe threaded models. See tag on unit.

<table>
<thead>
<tr>
<th>7</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Electrical</td>
</tr>
<tr>
<td>L</td>
<td>Less (without) indicator parts</td>
</tr>
<tr>
<td>Blank</td>
<td>Omit for mechanical.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8</th>
<th>Bypass Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3 psi differential opening pressure</td>
</tr>
<tr>
<td>Blank</td>
<td>Omit for 2 psi differential opening pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9</th>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>Magnets</td>
</tr>
<tr>
<td>Blank</td>
<td>Omit if not required.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10</th>
<th>Design number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject to change. Dimensions remain the same for designs 12 and 20.</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Mechanical indicator or no indicator</td>
</tr>
<tr>
<td>20</td>
<td>Electrical indicator</td>
</tr>
</tbody>
</table>
Dimensions

10FA Model Series

mm (inch)

.375-16 UNC 2B thd.
22.5 (0.88) deep
4 holes, 2 places

Cover can be rotated in 90° increments to suit installation.

25.4 (1.00)
two places

SAE Flange Ports

Clearance required for removal of cartridge

215.9 (8.50)

Threaded Ports

Wrench flats

In

0.375-16 UNC 2B thd.
22.5 (0.88) deep
4 holes, 2 places

Mechanical Indicator

Outlet port

Memory reset knob

Visual indicator

1/2" NPTF thd.

Electrical Indicator

Inlet and Outlet Port Threads

<table>
<thead>
<tr>
<th>Element Area cm² (in²)</th>
<th>Inlet and Outlet Port Threads</th>
</tr>
</thead>
<tbody>
<tr>
<td>419.4 (65)</td>
<td>Pipe Thread*</td>
</tr>
<tr>
<td></td>
<td>SAE Straight Thread</td>
</tr>
<tr>
<td></td>
<td>1&quot; NPTF G1 (1&quot; BSPF)</td>
</tr>
</tbody>
</table>

*Not recommended
## Dimensions

**50F* Model Series**

**mm (inch)**

### Inlet and Outlet Port Threads

<table>
<thead>
<tr>
<th>Model</th>
<th>Element Area cm² (in²)</th>
<th>Pipe Thread*</th>
<th>SAE Straight Thread</th>
<th>Tube Size</th>
<th>NPTF Flange*</th>
<th>Welded Flange</th>
</tr>
</thead>
<tbody>
<tr>
<td>50FB</td>
<td>645.2 (100)</td>
<td>1 1/2&quot;</td>
<td>1.875-12 UN</td>
<td>1.50</td>
<td>FLI-12-12P-10</td>
<td>FLI-12-12W-10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>35.7 (1.41)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17.8 (0.70)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>35.1 (1.38)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>69.8 (2.75)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>38.1 (1.50)</td>
</tr>
<tr>
<td>50FC</td>
<td>1419.4 (220)</td>
<td>2&quot;</td>
<td>2.500-12 UN</td>
<td>2.00</td>
<td>FLI-16-16P-10</td>
<td>FLI-16-16W-10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>42.9 (1.68)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>21.3 (0.84)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>38.9 (1.53)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>77.8 (3.06)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50.8 (2.00)</td>
</tr>
<tr>
<td>50FD</td>
<td>1419.3 (220)</td>
<td>2 1/2&quot;</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>FLI-20-20P-10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FLI-20-20W-10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50.8 (2.00)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25.4 (1.00)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>44.4 (1.75)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>88.9 (3.50)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>63.5 (2.50)</td>
</tr>
</tbody>
</table>

*Not recommended
## Dimensions

### 100F* Model Series

**mm (inch)**

<table>
<thead>
<tr>
<th>Inlet and Outlet Port Threads</th>
<th>SAE Flange Port Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td><strong>Element Area cm² (in²)</strong></td>
</tr>
<tr>
<td>100FE</td>
<td>2580.6 (400)</td>
</tr>
<tr>
<td>100FF</td>
<td>2580.6 (400)</td>
</tr>
</tbody>
</table>

*Not recommended

---

**Note:**

- Inlet and Outlet Ports:
  - Clearance required for removal of cartridge.
  - Cover can be rotated in 90° increments to suit installation.
  - For proper air bleed operation, center line must be horizontal with inlet port pointed down.

- **Wrench flats:** .625-11 UNC 2B thd.
  - 33.3 (1.31) deep
  - 4 holes, 2 places

- **Mechanical Indicator:**
  - 227.1 (8.94)
  - 113.5 (4.47)

- **Electrical Indicator:**
  - 177.8 (7.00) min.
  - 4 wires

- **Inlet Port:**
  - 73.1 (2.88)

- **Outlet Port:**
  - 73.1 (2.88)
**Features and Benefits**

- Positive sealing poppet type bypass for reliability and zero leakage.
- Compact, low weight design for use with servo or proportional pilot valves.
- Visual, electrical and electrical/visual ΔP indicator options for flexibility in system design.
- High collapse H-Pak element available for use with non-bypass applications.

**Design Specifications**

| Rated flow: | 23 L/min (6 USgpm) |
| Operating pressure: | 210 bar (3000 psi) |
| Proof pressure: | 310 bar (4500 psi) |
| Burst pressure: | 517 bar (7500 psi) |
| Fatigue pressure: | 100 bar (1500 psi) |
| Material: Head | Aluminum alloy 2024-T351 |
| Material: Bowl | Aluminum alloy 2024-T351 |
| Dry weight: (Approximate) | 1.9 Kg (4.2 lbs) |

**Housing Model Code**

- **Filter series**
  - H331

- **Element collapse rating**
  - 1 - 150 PSID (C-Pak)
  - 5 - 4500 PSID (H-Pak)

  **NOTE:** Use 1 only with bypass valve or monitored ΔP indicator.

- **Valve options**
  - 1 - Non-Bypass
  - 4 - Bypass set at 50 ± 5 PSID cracking pressure

  **NOTE:** Use option 1 only with 4500 PSID collapse filter element (H-Pak).

- **ΔP indicator & receptacle options**
  - First designator (Indicator type) cont’d
    - T - Electrical ΔP switch w/100 ± 12 PSID actuation
    - W - Electrical/visual ΔP 100 ± 12 PSID thermal lockout (100°F)
    - Y - Electrical/visual ΔP 35 ± 5 PSID thermal lockout (100°F) & surge control
    - Z - Electrical/visual ΔP 100 ± 12 PSID thermal lockout (100°F) & surge control

**Second designator (Electrical receptacle)**

- B - 5 pin Brad Harrison (41512)
- H - DIN 43650 or Hirschman receptacle (GSA) plug 3 pole plus ground
- N - No receptacle – Use with visual ΔP indicator.

  **NOTE:** Order P-227533-01 for replacement aluminum indicator plug.

- **Seal material**
  - B - Buna-N
  - V - Viton-A
  
  *Viton is a registered trademark of E.I. DuPont*

- **Element construction**
  - C - C-Pak media (grade 3,5,10)
  - H - H-Pak media (grade 3,10)
  - S50 - Head sub-assembly only (No element, bowl or indicator)

- **Fluid cleanliness ratings**

<table>
<thead>
<tr>
<th>Code</th>
<th>Fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
</tbody>
</table>

The table assumes limited ingression/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.
Dimensions

**H331 Housing**

mm (inch)

- Flow Rate - USgpm
- Pressure drop – PSID

**Filter Housing Flow Data**

Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of ≤ 0.9

**Bypass Valve Flow Data**

Flow Rate - L/min
303 Series Replacement Filter Elements

Element Model Code

<table>
<thead>
<tr>
<th>V303</th>
<th>1</th>
<th>B</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1. Filter element
   V303 - For use with H/M331 series filters

2. Element collapse rating
   1 - 150 PSID
   5 - 4500 PSID (H-Pak only)
   NOTE: Use 1 only with bypass valve or monitored ΔP indicator.

3. Seal material
   B - Buna-N
   V - Viton-A
   Viton is a registered trademark of E.I. DuPont

4. Fluid cleanliness ratings
   Code   Fluid cleanliness level
   03      16/14/12 or better
   05      18/16/14 or better
   10      20/18/16 or better

   The table assumes limited ingestion/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.

5. Fluid compatibility
   Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids.
   Optional seals available for phosphate esters.

Design specifications

- Rated flow: 23 L/min (6 USgpm)
- Fluid compatibility: C-Pak or H-Pak
- Temp range: -54°C to +135°C (-65°F to +275°F)
- Construction media: Proprietary
- Dimensions: 87.3 mm (3.44 in) diameter, 41.3 mm (1.62 in) nominal

Filter Element Flow Data

Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of ≤ 0.9

3031 C-Pak element

Flow Rate - L/min
Pressure drop - Bar
0 0
1 0.1
2 0.4
3 0.7
4 1.0
5 1.3
6 1.6
0 10
4 8
8 6
12 4
16 2
20 1
24 0

3035 H-Pak element

Flow Rate - L/min
Pressure drop - PSID
0 0
1 0.3
2 0.6
3 0.9
4 1.2
5 1.5
6 1.8
0 30
4 20
8 10
12 0
H340 Series Filters

Flows to 91 L/min (24 USgpm) – Pressures to 210 bar (3000 psi)

Features and Benefits

- Positive sealing poppet type bypass for reliability and zero leakage.
- High density anodized aluminum head and bowl.
- Compact, low weight design for use with servo or proportional valves.
- Conforms to HF2 specifications (#2 bowl length).
- Visual, electrical and electrical/visual ΔP indicator options for flexibility in system design.
- Two bowl length options for design flexibility.
- Replacement elements available in C-Pak media.
- High collapse H-Pak element available for use with non-bypass applications.

Design Specifications

Meets HF2 filter specifications when used with bowl length No. 2.

Rated flow:
- 45 L/min (12 USgpm)
- 91 L/min (24 USgpm) (with bowl length Code 2)

Fluid compatibility:
- Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids.
- Optional seals available for phosphate esters.

Temp range:
- -54°C to +135°C
- (-65°F to +275°F)

Pressure rating:
- Operating: 210 bar (3000 psi)
- Burst: 310 bar (4500 psi)
- Fatigue: 100 bar (1500 psi)

Material:
- Head: Aluminum alloy
  - 2024-T351
- Bowl: Aluminum alloy
  - 2024-T351

Dry weight: (Approximate)
- Bowl length 1: 1.2 Kg (2.70 lb)
- Bowl length 2: 1.7 Kg (3.85 lb)

Housing Model Code

<table>
<thead>
<tr>
<th>H340</th>
<th>1</th>
<th>A</th>
<th>4</th>
<th>RH</th>
<th>B</th>
<th>1</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

Filter series

H340

Element collapse rating

1 - 150 PSID (C-Pak only)
5 - 4500 PSID (H-Pak only)

NOTE: Use 1 only with bypass valve or monitored ΔP indicator.

Port options

A - 1.062-12UN SAE-12 straight thread (9/16" tube)
S - Subplate mounting

Valve options

1 - Non-Bypass
4 - Bypass set at 50 ± 5 PSID cracking pressure.

NOTE: Use option 1 only with 4500 PSID collapse filter element (H-Pak).

ΔP indicator

Use with

1 (Non-Bypass) J,B,N or S
4 (Bypass 50 PSID) J,A,L or R

ΔP indicator & receptacle options

First designator (Indicator type)

A - Electrical/visual ΔP switch with 35 ± 5 PSID actuation
B - Electrical/visual ΔP switch with 90 ± 10 PSID actuation
J - No ΔP indicator
L - Visual ΔP indicator with 35 ± 5 PSID actuation & thermal lockout (100°F)
N - Visual ΔP indicator with 90 ± 10 PSID actuation & thermal lockout (100°F)
R - Electrical indicator with 35 ± 5 PSID actuation
S - Electrical ΔP switch with 90 ± 10 PSID actuation

Second designator (Electrical receptacle)

B - 5 pin Brad Harrison (41512)
H - DIN 43650 or Hirschman receptacle (GSA plug) 3 poles plus ground
N - No receptacle – Use with visual ΔP indicator only

NOTE: Order P-227533-01 for replacement aluminum indicator plug.

Seal material

B - Buna-N
V - Viton-A

Viton is a registered trademark of E.I. DuPont

Bow length

<table>
<thead>
<tr>
<th>mm (inch)</th>
<th>mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>161.8 (6.37)</td>
</tr>
<tr>
<td>2</td>
<td>257.8 (10.15)*</td>
</tr>
</tbody>
</table>

* HF2

SS0 - Head sub-assembly only (No element, bowl or indicator)

Element construction

C - C-Pak (grade 3, 5, 10)
H - H-Pak (grade 3,10)

Fluid cleanliness ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
</tbody>
</table>

The table assumes limited ingression/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.
Dimensions

H340 Housing

**mm (inch)**

- Inlet port: 50.8 (2.00)
- Outlet port: 101.6 (4.00)
- Torque bowl to 15 lb. ft (20 Nm) max.
- .265 dia. thru hole (2)
- 1.062-12UN SAE-12 st. thd. (3/4" tube)
- 79.4 (3.12) ± 0.13 (.005)
- 95.2 (3.75) Clearance for bowl/element removal

**Filter Housing/Bypass Valve Flow Data**

Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 6 for specific gravity corrections for pressure drop.)

**Flow Data**

- Flow Rate - USgpm
- Pressure drop - PSID

### Housing

**Pressure drop - PSID**

**Flow Rate - USgpm**

![Flow Data Graph](image)

### Bypass Valve

**Pressure drop - PSID**

**Flow Rate - USgpm**

![Bypass Valve Graph](image)

**Subplate Mounting**

- Inlet: 17.0 (0.67)
- Outlet: 88.9 (3.50)
- Indicator location: 31.7 (1.25)
- .350 dia. thru 1.80 deep mounting holes (4)
- 5/16" - 18 x 2.50 long grade 8 bolts are recommended for .63 enlargement (4 req'd).

**Clearance for bowl/element removal**

- 95.2 (3.75)
### Element Model Code

<table>
<thead>
<tr>
<th>V304</th>
<th>1</th>
<th>B</th>
<th>1</th>
<th>C</th>
<th>O5</th>
</tr>
</thead>
</table>

1. **Filter element**
   - V304 - For use with 340 & 440 series filters

2. **Element collapse rating**
   - 1 - 150 PSID (C-Pak only)
   - 5 - 4500 PSID (H-Pak only)

NOTE: Use 1 only with bypass valve or monitored ΔP indicator.

#### Seal material
- B - Buna-N
- V - Viton-A

Viton is a registered trademark of E.I. DuPont

#### Bowl length

<table>
<thead>
<tr>
<th>Seal material</th>
<th>Element length</th>
</tr>
</thead>
<tbody>
<tr>
<td>B - Buna-N</td>
<td>161.8 (6.37)</td>
</tr>
<tr>
<td>V - Viton-A</td>
<td>257.8 (10.15)*</td>
</tr>
</tbody>
</table>

* HF2

#### Fluid cleanliness ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
</tbody>
</table>

The table assumes limited ingress/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.

### Design Specifications

**Rated flow:**
- 45 L/min (12 USgpm) (with bowl length 1)
- 91 L/min (24 USgpm) (with bowl length 2)

**Fluid compatibility:**
Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids.
Optional seals available for phosphate esters.

**Temp range:**
- -54°C to +135°C (-65°F to +275°F)

**Construction & media:**
- Proprietary
- C-Pak or H-Pak construction

### Dimensions

- 44.5 dia. nominal (1.75)

Refer to model code

### Filter Element Flow Data

Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 7 for viscosity corrections for pressure drop.)

#### Filter Element Flow Data

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
<th>Pressure drop - PSID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>12</td>
<td>30</td>
</tr>
</tbody>
</table>

#### 3041 C-Pak 101 (4) length

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
<th>Pressure drop - PSID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>12</td>
<td>30</td>
</tr>
</tbody>
</table>

#### 3041 C-Pak 203 (8) length

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
<th>Pressure drop - PSID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>12</td>
<td>30</td>
</tr>
</tbody>
</table>

#### 3045 H-Pak 101 (4) length

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
<th>Pressure drop - PSID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>12</td>
<td>30</td>
</tr>
</tbody>
</table>

#### 3045 H-Pak 203 (8) length

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
<th>Pressure drop - PSID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>12</td>
<td>30</td>
</tr>
</tbody>
</table>

#### 3045 H-Pak 203 (8) length
H350 Series Filters
Flows to 189 L/min (50 USgpm) – Pressures to 210 bar (3000 psi)

Features and Benefits
- Conforms to HF3 specifications (#2 bowl length).
- Plated nodular iron head and plated forged steel bowl for easy system analysis and superior corrosion resistance.
- Diagnostic port in head.
- Safety grip on bowl.
- Forged hex on bowl for easy element changes.
- Visual, electrical and electrical/visual ΔP indicator options for flexibility in system design.
- Two bowl length options for design flexibility.
- Replacement elements available in C-Pak media.
- High collapse H-Pak element available for use in non bypass applications.
- Accepts Eco-Pak coreless elements.

Design Specifications
Meets HF3 filter specifications when used with bowl length No. 2.

Rated flow: 95 L/min (25 USgpm) (with bowl length Code 1)
189 L/min (50 USgpm) (with bowl length Code 2)

Housing & Element Compatibility: Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.

Temp range: -54°C to +135°C (-65°F to +275°F)

Pressure rating:
Operating: 210 bar (3000 psi)
Proof: 310 bar (4500 psi)
Burst: 517 bar (7500 psi)
Fatigue: 103 bar (1500 psi)

Material:
Head: Cast nodular iron
Bowl: Steel

Dry weight: (Approximate)
Bowl length 1: 3.8 Kg (8.45 lbs)
Bowl length 2: 4.5 Kg (9.90 lbs)

Housing Model Code

<table>
<thead>
<tr>
<th>Housing Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>H350 1 B 3 XH B C 05</td>
</tr>
</tbody>
</table>

Filter series
H350

Element collapse rating
1 - 150 PSID
4 - 3000 PSID (H-Pak only)

NOTE: Use 1 only with bypass valve or monitored ΔP indicator.

Port
B - 1.312-12UN SAE-16 straight thread (1” tube)

Valve options

<table>
<thead>
<tr>
<th>Use with</th>
<th>ΔP indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>E, J, O, P, T, W or Z</td>
</tr>
<tr>
<td>3</td>
<td>C, F, J, K, Q or X</td>
</tr>
<tr>
<td>4</td>
<td>D, G, J, L, M, R or Y</td>
</tr>
<tr>
<td>6</td>
<td>A, B, I, J, U or V</td>
</tr>
</tbody>
</table>

Valve options

<table>
<thead>
<tr>
<th>ΔP indicator &amp; receptacle options</th>
</tr>
</thead>
<tbody>
<tr>
<td>First designator (Indicator type)</td>
</tr>
<tr>
<td>A - Visual ΔP indicator w/70±7 PSID w/surge control</td>
</tr>
<tr>
<td>B - Electrical/visual ΔP 70±7 PSID w/surge control</td>
</tr>
<tr>
<td>C - Electrical/visual ΔP 15±4 PSID w/surge control</td>
</tr>
<tr>
<td>D - Electrical/visual ΔP 35±5 PSID w/surge control</td>
</tr>
<tr>
<td>E - Electrical/visual ΔP 100±12 PSID w/surge control</td>
</tr>
<tr>
<td>F - Electrical/visual ΔP 15±4 PSID thermal lockout (100°F)</td>
</tr>
<tr>
<td>G - Electrical/visual ΔP 35±5 PSID thermal lockout (100°F)</td>
</tr>
<tr>
<td>I - Visual ΔP indicator w/70±7 PSID thermal lockout (100°F)</td>
</tr>
<tr>
<td>J - No ΔP indicator</td>
</tr>
<tr>
<td>K - Visual ΔP indicator w/15±4 PSID actuation &amp; thermal lockout (100°F)</td>
</tr>
<tr>
<td>L - Visual ΔP indicator w/35±5 PSID actuation &amp; thermal lockout (100°F)</td>
</tr>
<tr>
<td>M - Visual ΔP indicator w/35±5 PSID actuation, thermal lockout (100°F) &amp; surge control</td>
</tr>
<tr>
<td>O - Visual ΔP indicator w/100±12 PSID actuation &amp; thermal lockout (100°F) &amp; surge control</td>
</tr>
<tr>
<td>P - Visual ΔP indicator w/100±12 PSID actuation &amp; thermal lockout (100°F) &amp; surge control</td>
</tr>
<tr>
<td>Q - Electrical ΔP switch w/15±4 PSID actuation</td>
</tr>
</tbody>
</table>

Second designator (Electrical receptacle)

B - 5 pin Brad Harrison (41512)
H - DIN 43650 or Hirschman receptacle (GSA plug) 3 poles plus ground
N - No receptacle – Use with visual ΔP indicator

(See page 7 for wiring diagram.)

NOTE: Order P-227533-01 for replacement aluminum indicator plug.

Seal material
B - Buna-N
V - Viton-A

Viton is a registered trademark of E.I. DuPont

Assy. length

<table>
<thead>
<tr>
<th>Element length</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm (inch)</td>
</tr>
<tr>
<td>mm (inch)</td>
</tr>
<tr>
<td>1 - 216 (8.5)</td>
</tr>
<tr>
<td>102 (4)</td>
</tr>
<tr>
<td>2 - 310 (12)*</td>
</tr>
<tr>
<td>203 (8)</td>
</tr>
</tbody>
</table>

*HF3

S50 - Head sub-assembly only (No element, bowl or indicator)

Element construction
C - C-Pak (grade 01, 3, 5, 10, 20)
E - E-Pak (grade 3.5, 10)
H - H-Pak (grade 3.10)

Fluid cleanliness ratings

<table>
<thead>
<tr>
<th>Fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
</tr>
<tr>
<td>01 - Flushing only</td>
</tr>
<tr>
<td>03 - 16/14/12 or better</td>
</tr>
<tr>
<td>05 - 18/16/14 or better</td>
</tr>
<tr>
<td>10 - 20/18/15 or better</td>
</tr>
<tr>
<td>20 - 22/19/16 or better</td>
</tr>
</tbody>
</table>

The table assumes limited ingress/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.
Dimensions

H350 Housing

mm (inch)

CAUTION
Before servicing the element, the bleed plug in filter housing must be loosened to relieve pressure. This will minimize fluid overflow.

Filter Housing/Bypass Valve Flow Data
Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of \( \leq 0.9 \)
(See page 6 for specific gravity corrections for pressure drop.)
602 Series Replacement Filter Elements

Element Model Code

<table>
<thead>
<tr>
<th>V602</th>
<th>1</th>
<th>B</th>
<th>1</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

1. Filter element
   V602 - For use with 061, 620, 350 & OFR 30 series filters

2. Element collapse rating
   1 - 150 PSID
   4 - 3000 PSID (H-Pak only)
   NOTE: Use 1 only with bypass valve or monitored δ P indicator.

3. Seal material
   B - Buna-N
   V - Viton-A
   Viton is a registered trademark of E.I. DuPont

4. Bowl length
   Element length
   mm (inch)  mm (inch)
   1 - 216 (8.5)  102 (4)
   2 - 308 (12)*  203 (8)
   *HF3

5. Element construction
   C - C-Pak (grade 01, 3, 5, 10, 20)
   E - E-Pak (grade 3, 5, 10)
   H - H-Pak (grade 3, 10)

6. Fluid cleanliness ratings
<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Flushing only</td>
</tr>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

The table assumes limited ingestion/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.

Design Specifications
Meets or exceeds HF3 filter element specifications when used with bowl length No. 2.

- Rated flow: 95 L/min (25 USgpm) (with bowl length code 1)
  189 L/min (50 USgpm) (with bowl length code 2)
- Fluid compatibility: Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.
- Temp range: - 54°C to +135°C (- 65°F to +275°F)
- Construction & media: Proprietary C-Pak, E-Pak or H-Pak construction

Filter Element Flow Data

Rated flow: 95 L/min (25 USgpm)
(with bowl length code 1)
189 L/min (50 USgpm)
(with bowl length code 2)

Fluid: 150 SUS (32 cSt) oil with specific gravity of 0.9
(See page 7 for viscosity corrections for pressure drop.)

Refer to model code

Dimensions

- E-Pak O-ring per AS-568-135
- C-Pak/H-Pak O-ring per AS568-131
- 79.8 (3.14) dia. typ
- 1.27 (0.05) max.
Features and Benefits

- Easy installation into hydraulic system.
- Protects sensitive valves from malfunction due to contamination.
- Visual, electrical and electrical/visual ΔP indicator options for flexibility in system design.
- Two bowl length options for design flexibility.
- Diagnostic port in head for easy system analysis.
- Plated forged steel bowl with drain port (hex design) for easy element changes.
- Bowl length options for design flexibility.
- Bolt kits available to attach the servovalve and sandwich plate to the manifold.

Housing Model Code

| H360 | 4 | W | 1 | ** | V | 1 | C | 03 |

1 - Filter series
H360

2 - Element collapse rating
1 - 150 PSID
4 - 3000 PSID (H-Pak only)

NOTE: Use 1 only with monitored ΔP indicator.

3 - Port
W - Sandwich plate mount – vertical bowl

4 - Valve
1 - Non-Bypass

5 - ΔP indicator & receptacle options
First designator (Indicator type)

D - Electrical/visual ΔP 35 ± 5 PSID actuation & thermal lockout (100°F) & surge control
E - Electrical/visual ΔP 100 ± 12 PSID actuation & thermal lockout (100°F) & surge control
G - Electrical/visual ΔP 35 ± 5 PSID actuation & thermal lockout (100°F) & surge control
L - Visual ΔP indicator with 35 ± 5 PSID actuation & thermal lockout (100°F) & surge control
M - Visual ΔP indicator with 35 ± 5 PSID actuation & thermal lockout (100°F) & surge control
O - Visual ΔP indicator w/100 ± 12 PSID actuation & thermal lockout (100°F) & surge control
P - Visual ΔP indicator with 100 ± 12 PSID actuation & thermal lockout (100°F) & surge control
R - Electrical ΔP switch with 35 ± 5 PSID actuation
T - Electrical ΔP switch with 100 ± 12 PSID actuation
W - Electrical/visual ΔP 100 ± 12 PSID thermal lockout (100°F) & surge control
Y - Electrical/visual ΔP 35 ± 5 PSID thermal lockout (100°F) & surge control
Z - Electrical/visual ΔP 100 ± 12 PSID thermal lockout (100°F) & surge control

Second designator (Electrical receptacle)
B - 5 pin Brad Harrison (41512)
H - DIN 43650 or Hirschman receptacle (GSA plug) 3 poles plus ground
N - No receptacle – Use with visual ΔP indicator

NOTE: Order P-227533-01 for replacement aluminum indicator plug.
(See page 7 for wiring diagram.)

6 - Seal material
V - Viton-A
Viton is a registered trademark of E.I. DuPont

7 - Bowl length

<table>
<thead>
<tr>
<th>Code</th>
<th>Fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>11/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
</tbody>
</table>

The table assumes limited ingestion/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.

NOTE: Two mounting bolts are supplied with filter to attach filter housing to sandwich plate.
Dimensions

H360 Housing

mm (inch)

Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of \( \leq 0.9 \)
(See page 6 for specific gravity corrections for pressure drop.)

Servo-Pro filters are supplied with AS568-017 viton seals and two 7/16-20 UNF bolts for mounting the filter housing to the sandwich plate.
601 Series Replacement Filter Elements

**Element Model Code**

<table>
<thead>
<tr>
<th>V601</th>
<th>1</th>
<th>B</th>
<th>1</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
</table>

**Filter element**

V601 · For use with 360 or 610 series filters

**Element collapse rating**

1 · 150 PSID
4 · 3000 PSID (H-Pak only)

*NOTE: Use 1 only with bypass valve or monitored ΔP indicator.*

**Design Specifications**

Rated flow:
- 57 L/min (15 USgpm) with bowl length 1
- 114 L/min (30 USgpm) with bowl length 2

Housing & Element Compatibility:
- Compatible with most petroleum oil, water, glycol, oil-in-water and water-in-oil fluids.
- Optional seals available for phosphate esters.

Temp range:
- -54°C to +135°C (-65°F to +275°F)

Construction & media: Proprietary H-Pak or C-Pak construction

**Dimensions**

mm (inch)

- O-ring per AS568-119
- 50.8 dia. (2.00)
- 1.27 (.050) max.

**Seal material**

- B - Buna-N
- V - Viton-A

Viton is a registered trademark of E.I. DuPont

**Fluid cleanliness ratings**

<table>
<thead>
<tr>
<th>Code</th>
<th>Fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
</tbody>
</table>

The table assumes limited ingestion/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.

**Filter Element Flow Data**

**6011 C-Pak element 101,6 (4) length**

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
<th>Pressure drop - PSID</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>14</td>
<td>9</td>
</tr>
</tbody>
</table>

**6014 H-Pak element 101,6 (4) length**

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
<th>Pressure drop - PSID</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>14</td>
<td>9</td>
</tr>
</tbody>
</table>

**6011 C-Pak element 203,0 (8) length**

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
<th>Pressure drop - PSID</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>14</td>
<td>9</td>
</tr>
</tbody>
</table>

**6014 H-Pak element 203,0 (8) length**

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
<th>Pressure drop - PSID</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>14</td>
<td>9</td>
</tr>
</tbody>
</table>

Flow versus pressure drop:
- 150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
- (See page 7 for viscosity gravity corrections for pressure drop.)
Servovalve Sandwich Plates

Design Specifications

Sandwich plates are available to mount the Servo-Pro filter with Vickers SM4-20 and SM4-40 series servovalves. In addition, standard sandwich plates are available for mounting either CETOP3 or CETOP5 proportional valves.

Sandwich plates are supplied with Viton seals. Sandwich plate mounting bolts are available and must be ordered separately. Refer to table below for bolt kit numbers.

<table>
<thead>
<tr>
<th>Model</th>
<th>Sandwich Plate Material</th>
<th>Weight</th>
<th>Bolt Kit</th>
<th>Bolt Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM4–20</td>
<td>Steel</td>
<td>5,9 (13.0)</td>
<td>7,3 (16.0)</td>
<td></td>
</tr>
</tbody>
</table>

Dimensions

mm (inch)

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
<th>P</th>
<th>Q</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM4–20</td>
<td>120.7 (4.75)</td>
<td>50.8 (2.00)</td>
<td>65.0 (2.56)</td>
<td>30.2 (1.19)</td>
<td>50.8 (2.00)</td>
<td>44.5 (1.75)</td>
<td>22.4 (0.88)</td>
<td>12.7 (0.50)</td>
<td>9.9 (0.39)</td>
<td>63.5 (2.50)</td>
<td>25.7 (1.01)</td>
<td>13.0 (0.51)</td>
<td>25.4 (1.00)</td>
<td>50.8 (2.00)</td>
<td>46.0 (1.81)</td>
<td>23.1 (0.91)</td>
<td>101.6 (4.00)</td>
</tr>
<tr>
<td>SM4–40</td>
<td>139.7 (5.50)</td>
<td>57.2 (2.25)</td>
<td>60.5 (2.38)</td>
<td>32.5 (1.28)</td>
<td>63.5 (2.50)</td>
<td>92.2 (3.63)</td>
<td>22.4 (0.81)</td>
<td>20.6 (0.81)</td>
<td>63.5 (2.50)</td>
<td>25.7 (1.01)</td>
<td>13.0 (0.51)</td>
<td>25.4 (1.00)</td>
<td>63.5 (2.50)</td>
<td>22.4 (0.81)</td>
<td>23.1 (0.91)</td>
<td>127.0 (5.00)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>aa</th>
<th>bb</th>
<th>cc</th>
<th>dd</th>
<th>ee</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM4–20</td>
<td>2.5 (0.10 DIA)</td>
<td>8.6 (0.34 DIA)</td>
<td>16.0 (0.63 DIA)</td>
<td>8.3 (0.33 DIA)</td>
<td>13.5 (0.53 DIA)</td>
</tr>
<tr>
<td>SM4–40</td>
<td>4.06 (0.16 DIA)</td>
<td>14.7 (0.58 DIA)</td>
<td>16.0 (0.63 DIA)</td>
<td>8.3 (0.33 DIA)</td>
<td>22.1 (0.87 DIA)</td>
</tr>
</tbody>
</table>

NOTE: SM4–20 cover must be rotated 90° for use with this assembly.

SM4–40 sandwich plate shown
Dimensions

Proportional Valve Sandwich Plates

mm (inch)

CETOP 3

<table>
<thead>
<tr>
<th>Dimension (mm)</th>
<th>Dimension (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>32.5 (1.28)</td>
<td></td>
</tr>
<tr>
<td>76.2 (3.00)</td>
<td></td>
</tr>
<tr>
<td>8.9 (0.35)</td>
<td></td>
</tr>
<tr>
<td>30.2 (1.20)</td>
<td>21.5 (0.85)</td>
</tr>
<tr>
<td>40.3 (1.60)</td>
<td>5.3 (0.21)</td>
</tr>
<tr>
<td>15.4 (0.61)</td>
<td></td>
</tr>
</tbody>
</table>

Hole no. 1, 2 & 3 drilled thru

∅ 7.85 (0.31) – 8.0 (0.32)

CETOP 5

<table>
<thead>
<tr>
<th>Dimension (mm)</th>
<th>Dimension (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1 (0.4375)</td>
<td></td>
</tr>
<tr>
<td>54.0 (2.13)</td>
<td></td>
</tr>
<tr>
<td>37.3 (1.47)</td>
<td>27.0 (1.06)</td>
</tr>
<tr>
<td>50.8 (2.00)</td>
<td></td>
</tr>
<tr>
<td>16.7 (0.66)</td>
<td></td>
</tr>
<tr>
<td>36.5 (1.44)</td>
<td>3.2 (0.13)</td>
</tr>
</tbody>
</table>

∅ 11.1 (0.4375) Hole no. 1, 2, 3 & 4 drilled thru

∅ 7.1 (0.28) 4 plcs.

∅ 12.7 (0.50) 4 plcs.

∅ 15.9 (0.63) 5 plcs.
H440 Series Filters

Flows to 91 L/min (24 USgpm) – Pressures to 280 bar (4000 psi)

Features and Benefits

- Positive sealing poppet type bypass for reliability and zero leakage.
- Nodular iron head and forged steel bowl for maximum durability.
- Compact design for use with servo or proportional valves.
- Conforms to HF2 specifications (#2 bowl length).
- Visual, electrical and electrical/visual ΔP indicator options for flexibility in system design.
- Two bowl length options for design flexibility.
- High collapse H-Pak element available for use with non-bypass applications.

Design Specifications

Meets HF2 filter specifications when used with bowl length No. 2.

| Rated flow: | 45 L/min (12 USgpm) (with bowl length Code 1) 91 L/min (24 USgpm) (with bowl length Code 2) |
| Fluid compatibility: | Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters. |
| Temp range: | - 54°C to +135°C (- 65°F to +275°F) |
| Pressure rating: | Operating 280 bar (4000 psi)  
Proof 420 bar (6000 psi)  
Burst 700 bar (10000 psi)  
Fatigue 170 bar (2450 psi) |
| Material: | Head Cast nodular iron  
Bowl Forged steel |
| Dry weight: (Approximate) | Bowl length 1  
Bowl length 2 |

Housing Model Code

<table>
<thead>
<tr>
<th>H440</th>
<th>1</th>
<th>A</th>
<th>4</th>
<th>RH</th>
<th>B</th>
<th>1</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
</table>
| 1 | Filter series  
H440 |  
2 | Element collapse rating  
1 - 150 PSID (C-Pak only)  
5 - 4500 PSID (H-Pak only)  
NOTE: Use 1 only with bypass valve or monitored ΔP indicator.  
3 | Port options  
A - 1.062-12UN SAE-12 straight thread (3/4" tube)  
S - Subplate mounting  
4 | Valve options  
1 - Non-Bypass  
4 - Bypass set at 50 ± 5 PSID cracking pressure.  
6 - Bypass set at 90 ± 10 PSID cracking pressure  
NOTE: Use option 1 only with 4500 PSID collapse filter element (H-Pak).  
5 | ΔP indicator & receptacle options  
First designator (Indicator type)  
A - Visual ΔP indicator w/70 ± 7 PSID thermal lockout (100°F)  
B - Electrical/visual ΔP 70 ± 7 PSID w/surge control  
D - Electrical/visual ΔP 35 ± 5 PSID w/surge control  
E - Electrical/visual ΔP 100 ± 12 PSID  
G - Electrical/visual ΔP 35 ± 5 PSID thermal lockout (100°F)  
I - Visual ΔP indicator with 70 ± 7 PSID thermal lockout (100°F)  
J - No ΔP indicator  
L - Visual ΔP indicator with 35 ± 5 PSID actuation, thermal lockout (100°F) & surge control  
M - Visual ΔP indicator with 35 ± 5 PSID actuation, thermal lockout (100°F) & surge control  
O - Visual ΔP indicator w/100 ± 12 PSID actuation & thermal lockout (100°F)  
Second designator (Electrical receptacle)  
B - 5 pin Brad Harrison (41512)  
H - DIN 43650 or Hirschman receptacle (GSA plug)  
V - No receptacle – Use with visual ΔP indicator only  
NOTE: Order P-227533-01 for replacement aluminum indicator plug.  
6 | Seal material  
B - Buna-N  
V - Viton-A  
Viton is a registered trademark of E.I. DuPont |
| 7 | Bowl length | Element length |
| mm (inch) | mm (inch) |
| 1 - | 189 (7.18) | 101 (4) |
| 2+ - | 280 (10.8) | 203 (8) |
| SSO - | *HF2 |
| S50 - | Head sub-assembly only (No element, bowl or indicator) |
| 8 | Element construction  
C - C-Pak (grade 3, 5,10)  
H - H-Pak (grade 3,10) |
| 9 | Fluid cleanliness ratings  
Code | Target fluid cleanliness level |
| 03 | 16/14/12 or better |
| 05 | 18/16/14 or better |
| 10 | 20/18/15 or better |
| 20 | 22/19/16 or better |

The table assumes limited ingression/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.
Dimensions

**H440 Housing**

**mm (inch)**

Inlet

46.2 (1.82)

Outlet

81.3 (3.20)

50.8 (2.00)

101.6 (4.00)

81.8 (3.22) max.

03.6 (4.08) max.

Refer to model code

**Drain plug SAE-6**

63.5 (2.50) min. required for element and bowl removal

**Inlet and Outlet Port SAE-12**

57.2 (2.25)

24.6 (.97)

79.4 (3.12)

25.4 (1.00)

Visually:

81.8 (3.22) max.

Electrical:

03.6 (4.08) max.

**Drill Ø8.9 (.35) hole thru 4 plcs.**

**Pressure drop - PSID**

Filter Housing Flow Data

Flow versus pressure drop

150 SUS (32cSt) oil with a specific gravity of ≤ 0.9

(See page 6 for specific gravity corrections for pressure drop.)

Bypass Valve Flow Data

100

80

60

40

20

Pressure drop - PSID

Flow Rate - USgpm

0 5 10 15 20 25 30

0 4 8 12 16 20 24

Subplate Mounting

**mm (inch)**

Inlet Port

15.9 (.62) typ.

Outlet Port

88.9 (3.50)

121.9 (4.80)

Construction plugs not for flow connection.

Drill Ø8.9 (.35) hole thru 4 plcs.

**Pressure drop - PSID**

Flow Rate - USgpm

0 5 10 15 20 25 30

0 4 8 12 16 20 24

Drain plug to 15 lb. ft (20 Nm) max.

17.5 (.69) hole Ø25.4 (.100) c bore for -117 O-ring 2 plcs.

Torque bowl

Refer to model code

**Pressure drop - PSID**

Flow Rate - USgpm

0 5 10 15 20 25 30

0 4 8 12 16 20 24

Refer to model code

**Pressure drop - PSID**

Flow Rate - USgpm

0 5 10 15 20 25 30

0 4 8 12 16 20 24

Refer to model code

**Pressure drop - PSID**

Flow Rate - USgpm

0 5 10 15 20 25 30

0 4 8 12 16 20 24

Refer to model code
**304 Series Replacement Filter Elements**

---

### Element Model Code

<table>
<thead>
<tr>
<th>V304</th>
<th>1</th>
<th>B</th>
<th>1</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
</table>

1. **Filter element**  
   V304 - For use with 340 & 440 series filters

2. **Element collapse rating**  
   1 - 150 PSID (C-Pak only)  
   5 - 4500 PSID (H-Pak only)

*NOTE: Use 1 use only with bypass valve or monitored ΔP indicator.*

---

### Design Specifications

- **Rated flow:**  
  - 45 L/min (12 USgpm) (with bowl length Code 1)  
  - 91 L/min (24 USgpm) (with bowl length Code 2)

- **Fluid compatibility:**  
  Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids.  
  Optional seals available for phosphate esters.

- **Temp range:**  
  - -54°C to +135°C (-65°F to +275°F)

- **Construction & media:**  
  Proprietary C-Pak or H-Pak construction

---

### Filter Element Flow Data

Flow versus pressure drop:

150 SUS (32 cSt) oil with specific gravity of ≤ 0.9  
(See page 7 for viscosity corrections for pressure drop.)

---

**3041 C-Pak 101 (4) length**

**3045 H-Pak 101 (4) length**

**3041 C-Pak 203 (8) length**

**3045 H-Pak 203 (8) length**

---

**Viton** is a registered trademark of E.I. DuPont

---

The table assumes limited ingression/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.
H451 Series Filters Flows to 568 L/min (150 USgpm) – Pressures to 310 bar (4500 psi)

Features and Benefits
- Designed to comply with ANSI specifications and ISO cleanliness standards.
- Conforms to HF4 specifications (all bowl lengths).
- Plated seamless drawn steel bowl and plated nodular iron head and cap for corrosion resistance.
- Diagnostic port in cap for easy system analysis.
- Visual, electrical and electrical/visual ΔP indicator options for flexibility in system design.
- Three bowl length options for design flexibility.
- Drain port in base.
- Rugged positive seating bypass valve with heavy duty guided and retained spring for zero leakage.
- Replacement elements available in C-Pak or H-Pak media.
- Accepts Eco-Pak coreless elements.

Design Specifications

Meets HF4 specifications

| Rated flow: | 189 L/min (50 USgpm) with bowl length 3 |
|            | 379 L/min (100 USgpm) with bowl length 6 |
|            | 568 L/min (150 USgpm) with bowl length 7 |

Housing & Element Compatibility:
- Compatible with most petroleum oil, water, glycol, oil-in-water, and water-in-oil fluids. Optional seals available for phosphate esters.

Temp range: -54°C to +135°C (-65°F to +275°F)

Pressure rating:
- Operating: 310 bar (4500 psi)
- Proof: 465 bar (6750 psi)
- Burst: 931 bar (13500 psi)
- Fatigue: 190 bar (2750 psi)

Material:
- Head: Ductile iron
- Bowl: Carbon steel

Dry weight: (Approximate)
- Bowl length 3: 25.4 Kg (56.0 lb)
- Bowl length 6: 37.5 Kg (82.5 lb)
- Bowl length 7: 49.5 Kg (109.0 lb)

Housing Model Code

<table>
<thead>
<tr>
<th>Filter series</th>
<th>H451</th>
<th>D</th>
<th>1</th>
<th>YH</th>
<th>B</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Element collapse rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 150 PSID</td>
</tr>
<tr>
<td>4 - 3000 PSID (H-Pak only)</td>
</tr>
</tbody>
</table>

NOTE: Use only with bypass valve or monitored ΔP indicator.

<table>
<thead>
<tr>
<th>Port options</th>
</tr>
</thead>
<tbody>
<tr>
<td>D - 1.875-12UN SAE-24 straight thread (1 1/2&quot; tube)</td>
</tr>
<tr>
<td>E - 1 1/2&quot; SAE 4-bolt split flng. Code 61</td>
</tr>
<tr>
<td>R - 1 1/2&quot; SAE 4-bolt split flng. Code 62</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Valve options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Non-Bypass</td>
</tr>
<tr>
<td>4 - Bypass set at 50 ± 5 PSID cracking pressure</td>
</tr>
<tr>
<td>6 - Bypass set at 90 ± 10 PSID cracking pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ΔP indicator &amp; receptacle options</th>
</tr>
</thead>
<tbody>
<tr>
<td>A, B, I, J, U or V</td>
</tr>
</tbody>
</table>

Valve options

<table>
<thead>
<tr>
<th>Filter series</th>
<th>H451</th>
<th>1</th>
<th>D</th>
<th>4</th>
<th>YH</th>
<th>B</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Port options</th>
</tr>
</thead>
<tbody>
<tr>
<td>D - 1.875-12UN SAE-24 straight thread (1 1/2&quot; tube)</td>
</tr>
<tr>
<td>E - 1 1/2&quot; SAE 4-bolt split flng. Code 61</td>
</tr>
<tr>
<td>R - 1 1/2&quot; SAE 4-bolt split flng. Code 62</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Valve options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Non-Bypass</td>
</tr>
<tr>
<td>4 - Bypass set at 50 ± 5 PSID cracking pressure</td>
</tr>
<tr>
<td>6 - Bypass set at 90 ± 10 PSID cracking pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ΔP indicator &amp; receptacle options</th>
</tr>
</thead>
<tbody>
<tr>
<td>A, B, I, J, U or V</td>
</tr>
</tbody>
</table>

Valve options

<table>
<thead>
<tr>
<th>Filter series</th>
<th>H451</th>
<th>1</th>
<th>D</th>
<th>4</th>
<th>YH</th>
<th>B</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Element collapse rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 150 PSID</td>
</tr>
<tr>
<td>4 - 3000 PSID (H-Pak only)</td>
</tr>
</tbody>
</table>

NOTE: Use only with bypass valve or monitored ΔP indicator.

<table>
<thead>
<tr>
<th>Port options</th>
</tr>
</thead>
<tbody>
<tr>
<td>D - 1.875-12UN SAE-24 straight thread (1 1/2&quot; tube)</td>
</tr>
<tr>
<td>E - 1 1/2&quot; SAE 4-bolt split flng. Code 61</td>
</tr>
<tr>
<td>R - 1 1/2&quot; SAE 4-bolt split flng. Code 62</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Valve options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Non-Bypass</td>
</tr>
<tr>
<td>4 - Bypass set at 50 ± 5 PSID cracking pressure</td>
</tr>
<tr>
<td>6 - Bypass set at 90 ± 10 PSID cracking pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ΔP indicator &amp; receptacle options</th>
</tr>
</thead>
<tbody>
<tr>
<td>A, B, I, J, U or V</td>
</tr>
</tbody>
</table>

Valve options

<table>
<thead>
<tr>
<th>Filter series</th>
<th>H451</th>
<th>1</th>
<th>D</th>
<th>4</th>
<th>YH</th>
<th>B</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Element collapse rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 150 PSID</td>
</tr>
<tr>
<td>4 - 3000 PSID (H-Pak only)</td>
</tr>
</tbody>
</table>

NOTE: Use only with bypass valve or monitored ΔP indicator.

<table>
<thead>
<tr>
<th>Port options</th>
</tr>
</thead>
<tbody>
<tr>
<td>D - 1.875-12UN SAE-24 straight thread (1 1/2&quot; tube)</td>
</tr>
<tr>
<td>E - 1 1/2&quot; SAE 4-bolt split flng. Code 61</td>
</tr>
<tr>
<td>R - 1 1/2&quot; SAE 4-bolt split flng. Code 62</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Valve options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Non-Bypass</td>
</tr>
<tr>
<td>4 - Bypass set at 50 ± 5 PSID cracking pressure</td>
</tr>
<tr>
<td>6 - Bypass set at 90 ± 10 PSID cracking pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ΔP indicator &amp; receptacle options</th>
</tr>
</thead>
<tbody>
<tr>
<td>A, B, I, J, U or V</td>
</tr>
</tbody>
</table>

Valve options

Selected designator (Electrical receptacle)
- B: 5 pin Brad Harrison (41512)
- H: DIN 43650 or Hirschman receptacle (GSA plug ) 3 poles plus ground
- N: No receptacle. Use with visual ΔP indicator

(See page 7 for wiring diagram.)

Seal material
- B: Buna-N
- V: Viton-A

Viton is a registered trademark of E.I. DuPont

Assy. length
- 3 - 388.7 (15.31) 229 (9)
- 6 - 627.9 (24.70) 457 (18)
- 7 - 863.6 (34.00) 686 (27)

All meet HF4 specifications.

Element construction
- C: C-Pak (grade 01, 3, 5, 10)
- E: E-Pak (3, 5, 10)
- H: H-Pak (grade 3, 10)

Fluid cleanliness ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Flushing only</td>
</tr>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

The table assumes limited ingress/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.

Note: Order P-227533-01 for replacement aluminum indicator plug.
**Dimensions**

**H451 Housing**

Refer to model code for port options

Outlet Port on opposite face

Refer to model code

**Subplate mounting**

Inlet Port

45.9 (1.81) C’bore for

-130 O-ring

38.1 (1.50) flow port Dia.

(both)

Outlet

**Filter housing/Bypass Valve flow data**

Flow versus pressure drop:

150 SUS (32 cSt) oil with specific gravity of ≤ 0.9

(See page 6 for specific gravity corrections for pressure drop.)

<table>
<thead>
<tr>
<th>Pressure drop – PSID</th>
<th>Flow Rate – USgpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>50</td>
</tr>
<tr>
<td>20</td>
<td>75</td>
</tr>
<tr>
<td>24</td>
<td>100</td>
</tr>
<tr>
<td>24</td>
<td>125</td>
</tr>
<tr>
<td>24</td>
<td>150</td>
</tr>
</tbody>
</table>

**Housing**

1 1/2” flg. SAE 4-bolt

1 1/2” SAE-24

<table>
<thead>
<tr>
<th>Pressure drop – PSID</th>
<th>Flow Rate – USgpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

**Bypass Valve**

<table>
<thead>
<tr>
<th>Pressure drop – PSID</th>
<th>Flow Rate – USgpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>110</td>
<td>110</td>
</tr>
</tbody>
</table>

50 PSID cracking

90 PSID cracking

90 PSID cracking

50 PSID cracking
### Design Specifications

**Meets HF4 filter specifications**

**Rated flow:**
- 189 L/min (50 USgpm) with bowl length 3
- 379 L/min (100 USgpm) with bowl length 6
- 568 L/min (150 USgpm) with bowl length 7

**Fluid compatibility:**
Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.

**Temp range:**
- -54°C to +135°C
- (-65°F to +275°F)

**Construction & media:**
Proprietary E-Pak, C-Pak or H-Pak construction

### Element Model Code

<table>
<thead>
<tr>
<th>V405</th>
<th>1</th>
<th>B</th>
<th>3</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter element</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V405 - For use with OFR60/120, 451, HL15 and HL16 series filters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Element collapse rating**
1 - 150 PSID
4 - 3000 PSID (H-Pak only)

**NOTE:** Use 1 only with bypass valve or monitored ΔP indicator.

### Dimensions

<table>
<thead>
<tr>
<th>E-Pak</th>
<th>O-ring per AS-568-135</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refer to model code</td>
<td></td>
</tr>
</tbody>
</table>

### Filter Element Flow Data

**mm (inch)**

**Flow versus pressure drop:**
150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 7 for viscosity corrections for pressure drop.)

#### 4051 E-Pak/C-Pak 229 (9) length

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>Pressure drop - PSID</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

#### 4051 E-Pak/C-Pak 457 (18) length

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>Pressure drop - PSID</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

#### 4051 E-Pak/C-Pak 686 (27) length

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>Pressure drop - PSID</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

### Fluid Cleanliness Ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Target fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Flushing only</td>
</tr>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

- The table assumes limited ingestion/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.

### Replacement Element Connector

- Vickers 228 mm (9 inch), 457 mm (18 inch) and 686 mm (27 inch) elements are single elements. This eases handling and element replacement.
- 228 mm (9 inch) elements may be stacked rather than using one 457 mm (18 inch) or 686 mm (27 inch) element.
- Order P-227567-01 replacement element connector when stacking two or more 228 mm (9 inch) elements.

#### Replacement Element Connector

- Vickers 228 mm (9 inch), 457 mm (18 inch) and 686 mm (27 inch) elements are single elements. This eases handling and element replacement.
- 228 mm (9 inch) elements may be stacked rather than using one 457 mm (18 inch) or 686 mm (27 inch) element.
- Order P-227567-01 replacement element connector when stacking two or more 228 mm (9 inch) elements.
HIGH PRESSURE FILTERS

H610 Series Filters  Flows to 208 L/min (55 USgpm) – Pressures to 414 bar (6000 psi)

Features and Benefits

- Designed to comply with ANSI specifications and ISO cleanliness standards.
- Plated forged steel bowl and plated nodular iron head for corrosion resistance.
- Optional subplate mounting.
- Diagnostic port in head for easy system analysis.
- Unique bypass valve design (simple and reliable).
- Flexible mounting capability with optional heavy duty brackets.
- Visual, electrical and electrical/visual ΔP indicator options for flexibility in system design.
- Two bowl length options for design flexibility.
- High collapse H-Pak element available for use with non-bypass applications.

Design Specifications

Rated flow: 95 L/min (25 USgpm) with bowl length 1
208 L/min (55 USgpm) with bowl length 2

Fluid compatibility: Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.

Temp range: -54°C to +135°C (-65°F to +275°F)

Pressure rating:
- Operating: 414 bar (6000 psi)
- Proof: 620 bar (9000 psi)
- Burst: 1379 bar (20000 psi)
- Rated fatigue: 241 bar (3500 psi)

Material:
- Head: Cast iron
- Bowl: Forged steel

Dry weight: (Approximate)
- Bowl length 1: 4.4 Kg (9.72 lb)
- Bowl length 2: 5.6 Kg (12.33 lb)

Housing Model Code

<table>
<thead>
<tr>
<th>Housing Model Code</th>
<th>H610</th>
<th>1</th>
<th>B</th>
<th>4</th>
<th>YH</th>
<th>1</th>
<th>B</th>
<th>1</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
</table>

Filter series
- H610

Element collapse rating
1 - 150 PSID
4 - 3000 PSID (H-Pak only)

NOTE: Use 1 only with bypass valve or monitored ΔP indicator.

Port options
- A - 1.062-12UN SAE-12 str. thd. (3/4") tube
- B - 1.312-12UN SAE-16 str. thd. (1" tube)
- F - 1" SAE 4-bolt split flange Code 61
- M - 1" SAE 4-bolt split flange Code 62

NOTE: Use option 1 only with 3000 PSID collapse filter element.

Valve options
- 1 - Non-Bypass
- 4 - Bypass set at 50 ± 5 PSID cracking pressure
- 6 - Bypass set at 90 ± 10 PSID cracking pressure

NOTE: Use option 1 only with 3000 PSID collapse filter element.

ΔP indicator & receptacle options
- A - Visual ΔP indicator with 70 ± 7 PSID thermal lockout (100°F)
- B - Electrical/visual ΔP indicator with 70 ± 7 PSID thermal lockout (100°F)
- C - Electrical/visual ΔP indicator with 70 ± 7 PSID thermal lockout (100°F) and surge control
- D - Electrical/visual ΔP indicator with 70 ± 7 PSID thermal lockout (100°F) and surge control
- E - Electrical/visual ΔP indicator with 70 ± 7 PSID thermal lockout (100°F) and surge control
- G - Electrical/visual ΔP indicator with 70 ± 7 PSID thermal lockout (100°F) and surge control
- H - Electrical/visual ΔP indicator with 70 ± 7 PSID thermal lockout (100°F) and surge control
- I - Electrical/visual ΔP indicator with 70 ± 7 PSID thermal lockout (100°F) and surge control
- J - No ΔP indicator
- K - Electrical/visual ΔP indicator with 35 ± 5 PSID actuation & thermal lockout (100°F) and surge control
- L - Electrical/visual ΔP indicator with 35 ± 5 PSID actuation & thermal lockout (100°F) and surge control
- M - Electrical/visual ΔP indicator with 35 ± 5 PSID actuation & thermal lockout (100°F) and surge control
- N - Electrical/visual ΔP indicator with 35 ± 5 PSID actuation & thermal lockout (100°F) and surge control
- O - Electrical/visual ΔP indicator with 100 ± 12 PSID actuation & thermal lockout (100°F) and surge control
- P - Electrical/visual ΔP indicator with 100 ± 12 PSID actuation & thermal lockout (100°F) and surge control

Brackets
- 1 - No bracket
(Order #P-426225-01)

Seal material
- B - Buna-N
- V - Viton-A

Viton is a registered trademark of E.I. DuPont

Bowl length
- mm (inch)
- 1 - 171.5 (6.75)
- 2 - 264.2 (10.40)

Element length
- mm (inch)
- 102 (4)
- 203 (8)

Fluid cleanliness ratings
- Code
- Fluid cleanliness level
- 03 - 16/14/12 or better
- 05 - 18/16/14 or better
- 10 - 20/18/15 or better

The table assumes limited ingestion/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.
Filter Housing/Bypass Valve Flow Data

Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 6 for specific gravity corrections for pressure drop.)

Mounting Bracket
Order Part number
P-426225-01
(See page 98 for mounting bracket installation.)
601 Series Replacement Filter Elements

Element Model Code

<table>
<thead>
<tr>
<th>V601</th>
<th>1</th>
<th>B</th>
<th>1</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

- Filter element
  - V601 - For use with 610 and 360 series filters

- Element collapse rating
  - 1 - 150 PSID
  - 4 - 3000 PSID (H-Pak only)
  - NOTE: Use 1 only with bypass valve or monitored ΔP indicator.

Design Specifications

- Rated flow: 95 L/min (25 USgpm) with bowl length 1
  - 208 L/min (55 USgpm) with bowl length 2

- Fluid compatibility: Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.

- Temp range: -54°C to +135°C (-65°F to +275°F)

- Construction & media: Proprietary C-Pak or H-Pak construction

Dimensions

<table>
<thead>
<tr>
<th>mm (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>O-ring per AS68-119</td>
</tr>
<tr>
<td>50.8 dia. (2.00)</td>
</tr>
</tbody>
</table>

Filter Element Flow Data

- Flow versus pressure drop: 150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
  - See page 7 for viscosity corrections for pressure drop.

- Fluid cleanliness ratings
  - Code | Target fluid cleanliness level
  - 03 | 16/14/12 or better
  - 05 | 18/16/14 or better
  - 10 | 20/18/15 or better

The table assumes limited ingression/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.
S610 Series Filters Flows to 208 L/min (55 USgpm) – Pressures to 414 bar (6000 psi)

Features and Benefits
- Designed to comply with ANSI specifications and ISO cleanliness standards.
- Plated forged steel bowl and plated nodular iron head for corrosion resistance.
- Diagnostic port in head for easy system analysis.
- Unique bypass valve design (simple and reliable).
- Visual, electrical and electrical/visual ΔP indicator options for flexibility in system design.
- Two bowl length options for design flexibility.
- High collapse H-Pak element available for use with non-bypass applications.
- Side subplate mounting design.

Design Specifications
Rated flow: 95 L/min (25 USgpm)
with bowl length 1
208 L/min (55 USgpm)
with bowl length 2

Fluid compatibility: Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.

Temp range: -54°C to +135°C (-65°F to +275°F)

Pressure rating:
Operating 414 bar (6000 psi)
Proof 620 bar (9000 psi)
Burst 1379 bar (20000 psi)
Fatigue 221 bar (3200 psi)

Material:
Head Cast nodular iron
Bowl Forged steel

Dry weight: (Approximate)
Bowl length 1 4.4 Kg (9.72 lb)
Bowl length 2 5.6 Kg (12.33 lb)

Housing Model Code

<table>
<thead>
<tr>
<th>S610</th>
<th>1</th>
<th>S</th>
<th>4</th>
<th>YH</th>
<th>1</th>
<th>B</th>
<th>1</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>ΔP indicator</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Use with</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>(Non-Bypass)</td>
<td>E,J,O,P,T,W or Z</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>(Bypass 50 PSID)</td>
<td>D,G,J,L,M,R or Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>(Bypass 90 PSID)</td>
<td>A,B,I,J, U or V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ΔP indicator & receptacle options
First designator (Indicator type)
A - Visual ΔP indicator with 70 ± 7 PSID with surge control
B - Electrical/visual ΔP 70 ± 7 PSID with surge control
D - Electrical/visual ΔP 35 ± 5 PSID
E - Electrical/visual ΔP 100 ± 12 PSID
G - Electrical/visual ΔP 35 ± 5 PSID thermal lockout (100°F)
I - Visual ΔP indicator with 70 ± 7 PSID thermal lockout (100°F)
J - No ΔP indicator
L - Visual ΔP indicator with 35 ± 5 PSID actuation & thermal lockout (100°F)
M - Visual ΔP indicator with 35 ± 5 PSID actuation & thermal lockout (100°F) and surge control
O - Visual ΔP indicator w/100 ± 12 PSID actuation & thermal lockout (100°F)
P - Visual ΔP indicator with 100 ± 12 PSID actuation & thermal lockout (100°F) and surge control
R - Electrical ΔP switch with 35 ± 5 PSID actuation

Second designator (Electrical receptacle)
B - 5 pin Brad Harrison (41512)
H - DIN 43650 or Hirschman receptacle (GSA plug) 3 poles plus ground
N - No receptacle – Use with visual ΔP indicator

(See page 7 for wiring diagram.)

NOTE: Order P-227533-01 for replacement aluminum indicator plug.

Brackets
1 - No bracket

Seal material
B - Buna-N
V - Viton-A

Viton is a registered trademark of E.I. DuPont

Element construction
C - C-Pak (grade 3,5,10)
H - H-Pak (grade 3,10)

 Fluid cleanliness ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
</tbody>
</table>

The table assumes limited ingression/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.
**Dimensions**

**S610 Housing**

mm (inch)

Outlet
44.6 (1.75) C’bore
for -222 O-ring
30.5 (1.20) flow port dia.
(both ports)

Inlet
109.9 (4.33) 59.9 (2.36)
52.1 (2.05) 6.09 (0.24)

Refer to model code

Ø22.9 (0.90) dia. thru
4 places
5/8 - 9 UNC x 2.50 long
grade 8 bolts for 1.20
enlargement are
recommended (4 req’d)
Torque to 185-250 lb. ft
(250-270 Nm)

Ø88.9 (3.50)

S610 Housing

**Filter Housing/Bypass Valve Flow Data**

Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 6 for specific gravity corrections for pressure drop.)

**Housing**

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
<th>Pressure drop - PSID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>30</td>
<td>12</td>
</tr>
<tr>
<td>40</td>
<td>16</td>
</tr>
<tr>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>60</td>
<td>24</td>
</tr>
</tbody>
</table>

**Bypass Valve**

<table>
<thead>
<tr>
<th>Flow Rate - USgpm</th>
<th>Pressure drop - PSID</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>30</td>
<td>60</td>
</tr>
</tbody>
</table>

50 PSID cracking
90 PSID cracking
110 PSID cracking
601 Series Replacement Filter Elements

Element Model Code

<table>
<thead>
<tr>
<th>V601</th>
<th>1</th>
<th>B</th>
<th>1</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

- **Filter element**
  - V601 - For use with H610, S610 and H360 series filters

- **Element collapse rating**
  - 1 - 150 PSID
  - 4 - 3000 PSID (H-Pak only)
  - NOTE: Use 1 only with bypass valve or monitored ΔP indicator.

- **Seal material**
  - B - Buna-N
  - V - Viton-A
  - Viton is a registered trademark of E.I. DuPont

- **Bowl length**
  - mm (inch)
  - Flow versus pressure drop: 150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
  - (See page 7 for viscosity corrections for pressure drop.)

  - 1 - 165 (6.5)
  - 2 - 259 (10)

- **Element length**
  - mm (inch)
  - 101.6 (4)
  - 203 (8)

- **Element construction**
  - C - C-Pak (grade 3, 5, 10)
  - H - H-Pak (grade 3, 10)

- **Fluid cleanliness ratings**
  - Code | Target fluid cleanliness level
  - 03 | 16/14/12 or better
  - 05 | 18/16/14 or better
  - 10 | 20/18/15 or better

  The table assumes limited ingestion/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.

Design Specifications

- **Rated flow**:
  - 95 L/min (25 USgpm)
  - with bowl length 1
  - 208 L/min (55 USgpm)
  - with bowl length 2

- **Fluid compatibility**: Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.

- **Temp range**:
  - -54°C to +135°C
  - (-65°F to +275°F)

- **Construction & media**: Proprietary
  - C-Pak or H-Pak construction

Filter Element Flow Data

- **6011 C-Pak element 101 (4) length**
  - Flow Rate - USgpm
  - Pressure drop - PSID

- **6014 H-Pak element 101 (4) length**
  - Flow Rate - USgpm
  - Pressure drop - PSID

- **6011 C-Pak element 203 (8) length**
  - Flow Rate - USgpm
  - Pressure drop - PSID

- **6014 H-Pak element 203 (8) length**
  - Flow Rate - USgpm
  - Pressure drop - PSID

Refer to model code

Dimensions

- **mm (inch)**
- O-ring per AS568-119
- 50.8 dia. (2.00)
- 1,27 (0.05) max.
**Features and Benefits**

- Designed to comply with ANSI specifications and ISO cleanliness standards.
- Conforms to HF3 specifications (#2 bowl length).
- Plated nodular iron head and plated forged steel bowl for corrosion resistance.
- Reverse flow valve option available for hydrostatic applications.
- Diagnostic port in head for easy system analysis.
- Visual, electrical and electrical/visual ΔP indicator options for flexibility in system design.
- Four bowl length options for design flexibility.
- Flexible mounting capability with optional heavy duty brackets.
- Unique bypass valve design (simple and reliable).
- Replacement elements available in C-Pak media.
- High collapse H-Pak element available for use with non by-pass applications.
- Accepts Eco-Pak coreless elements.

**Design Specifications**

Meets HF3 specifications when used with bowl length No. 2.

**Rated flow:** 157 L/min (40 USgpm) with bowl length 1 284 L/min (74 USgpm) with bowl length 2 454 L/min (120 USgpm) with bowl length 4 568 L/min (150 USgpm) with bowl length 5

**Fluid compatibility:** Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.

**Temp range:** -54°C to +135°C (-65°F to +275°F)

**Pressure rating:**
- Operating 414 bar (6000 psi)
- Proof 620 bar (9000 psi)
- Burst 965 bar (14000 psi)
- Fatigue 210 bar (3000 psi)

**Material:**
- Head Cast iron
- Bowl Forged steel

**Dry weight:** (Approximate)
- Bowl length 1 8.9 Kg (19.80 lb)
- Bowl length 2 11.0 Kg (24.30 lb)
- Bowl length 4 13.4 Kg (29.70 lb)
- Bowl length 5 18.0 Kg (39.78 lb)

**Housing Model Code**

<table>
<thead>
<tr>
<th>Filter series</th>
<th>H620</th>
<th>B</th>
<th>4</th>
<th>YH</th>
<th>1</th>
<th>B</th>
<th>1</th>
<th>C</th>
<th>05</th>
</tr>
</thead>
</table>

**Element collapse rating**

- 1 - 150 PSID
- 4 - 3000 PSID (H-Pak only)

NOTE: Use only with bypass valve or monitored ΔP indicator

**Port options**

- B - 1.312-12UN SAE-16 str. thd. (1" lb.)
- C - 1.625-12UN SAE-20 str. thd. (11/4" tube)
- D - 1.875-12UN SAE-24 str. thd. (13/4" tube)
- E - 11/8" 4-bolt SAE split flng. Code 61
- G - 11/4" 4-bolt SAE split flng. Code 61
- Q - 11/4" 4-bolt SAE split flng. Code 62

**Valve options**

- 1 - Non-Bypass
- 4 - Bypass set at 50 ± 5 PSID cracking pressure
- 6 - Bypass set at 90 ± 10 PSID
- 8 - Reverse flow valve non-bypass
- 9 - Reverse flow valve with bypass set at 50 ± 5 PSID

NOTE: Options 1 & 8, use only with 3000 PSID collapse filter element.

**Valve options & ΔP indicator**

<table>
<thead>
<tr>
<th>Use with</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 8 (Non-Bypass)</td>
</tr>
<tr>
<td>4 &amp; 9 (Bypass 50 PSID)</td>
</tr>
<tr>
<td>6 (Bypass 90 PSID)</td>
</tr>
</tbody>
</table>

**ΔP indicator & receptacle options**

**First designator (Indicator type)**

- A - Visual ΔP indicator w/70 ± 7 PSID w/surge control
- B - Electrical/visual ΔP 70 ± 7 PSID w/surge control
- D - Electrical/visual ΔP 35 ± 5 PSID
- E - Electrical/visual ΔP 100 ± 12 PSID
- G - Electrical/visual ΔP 35 ± 5 PSID thermal lockout (100°F)
- I - Visual ΔP indicator with 70 ± 7 PSID thermal lockout
- J - No ΔP indicator
- L - Visual ΔP indicator w/35 ± 5 PSID actuation & thermal lockout (100°F)
- M - Visual ΔP indicator w/35 ± 5 PSID actuation, thermal lockout (100°F) & surge control
- O - Visual ΔP indicator w/100 ± 12 PSID actuation & thermal lockout (100°F)
- P - Visual ΔP indicator w/100 ± 12 PSID actuation, thermal lockout (100°F) & surge control

**Second designator (Electrical receptacle)**

- B - 5 pin Brad Harrison (41512)
- H - DIN 43650 or Hirschman receptacle (GSA plug) 3 poles plus ground
- N - No receptacle – Use with visual ΔP indicator

(See page 7 for wiring diagram.)

**NOTE:** Order P-227533-01 for replacement aluminum indicator plug.

**Brackets**

- 1 - No bracket

(Order #P-426218-01)

**Seal material**

- B - Buna-N
- V - Viton-A

Viton is a registered trademark of E.I. DuPont

**Bowl length**

<table>
<thead>
<tr>
<th>Element length</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm (inch)</td>
</tr>
<tr>
<td>1 - 180 (7)</td>
</tr>
<tr>
<td>2 - 272 (11)*</td>
</tr>
<tr>
<td>4 - 392 (15)</td>
</tr>
<tr>
<td>5 - 490 (19)</td>
</tr>
</tbody>
</table>

*HF3

**S50** - Head sub-assembly only (No element, bowl or indicator)

**Element construction**

- C - C-Pak (grade 01, 3, 5, 10, 20)
- E - E-Pak (grade 3, 5, 10)
- H - H-Pak (grade 3, 10)

**Fluid cleanliness ratings**

<table>
<thead>
<tr>
<th>Code</th>
<th>Fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Flushing only</td>
</tr>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

The table assumes limited ingestion/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.
Dimensions

H620 Housing

mm (inch)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drain plug SAE-6</td>
<td>77.7 max. (3.06)</td>
</tr>
<tr>
<td>31.8 hex (1.25)</td>
<td>76.2 min. (3.00)</td>
</tr>
<tr>
<td>Bow(1/16 UNC 2B thd. mounting holes)</td>
<td>4 places</td>
</tr>
<tr>
<td>7/16 -14 UNC 2B thd. mounting holes</td>
<td>4 places</td>
</tr>
<tr>
<td>Safety grip</td>
<td>136.5 (5.37)</td>
</tr>
<tr>
<td>2 places</td>
<td>31.8 hex (1.25)</td>
</tr>
<tr>
<td>Bowl torque to 15 lb. ft (20 Nm)</td>
<td>Drain plug SAE-6</td>
</tr>
<tr>
<td>41.3 (1.62)</td>
<td>2 Places</td>
</tr>
<tr>
<td>7/16 -14 UNC 2B thd. mounting holes)</td>
<td>4 places</td>
</tr>
<tr>
<td>7/16 -14 UNC 2B thd. mounting holes</td>
<td>4 places</td>
</tr>
<tr>
<td>Safety grip</td>
<td>136.5 (5.37)</td>
</tr>
<tr>
<td>2 places</td>
<td>31.8 hex (1.25)</td>
</tr>
<tr>
<td>Bowl torque to 15 lb. ft (20 Nm)</td>
<td>Drain plug SAE-6</td>
</tr>
<tr>
<td>41.3 (1.62)</td>
<td>2 Places</td>
</tr>
<tr>
<td>7/16 -14 UNC 2B thd. mounting holes)</td>
<td>4 places</td>
</tr>
<tr>
<td>7/16 -14 UNC 2B thd. mounting holes</td>
<td>4 places</td>
</tr>
<tr>
<td>Safety grip</td>
<td>136.5 (5.37)</td>
</tr>
<tr>
<td>2 places</td>
<td>31.8 hex (1.25)</td>
</tr>
<tr>
<td>Bowl torque to 15 lb. ft (20 Nm)</td>
<td>Drain plug SAE-6</td>
</tr>
<tr>
<td>41.3 (1.62)</td>
<td>2 Places</td>
</tr>
<tr>
<td>7/16 -14 UNC 2B thd. mounting holes)</td>
<td>4 places</td>
</tr>
<tr>
<td>7/16 -14 UNC 2B thd. mounting holes</td>
<td>4 places</td>
</tr>
<tr>
<td>Safety grip</td>
<td>136.5 (5.37)</td>
</tr>
<tr>
<td>2 places</td>
<td>31.8 hex (1.25)</td>
</tr>
<tr>
<td>Bowl torque to 15 lb. ft (20 Nm)</td>
<td>Drain plug SAE-6</td>
</tr>
<tr>
<td>41.3 (1.62)</td>
<td>2 Places</td>
</tr>
<tr>
<td>7/16 -14 UNC 2B thd. mounting holes)</td>
<td>4 places</td>
</tr>
<tr>
<td>7/16 -14 UNC 2B thd. mounting holes</td>
<td>4 places</td>
</tr>
<tr>
<td>Safety grip</td>
<td>136.5 (5.37)</td>
</tr>
<tr>
<td>2 places</td>
<td>31.8 hex (1.25)</td>
</tr>
<tr>
<td>Bowl torque to 15 lb. ft (20 Nm)</td>
<td>Drain plug SAE-6</td>
</tr>
<tr>
<td>41.3 (1.62)</td>
<td>2 Places</td>
</tr>
<tr>
<td>7/16 -14 UNC 2B thd. mounting holes)</td>
<td>4 places</td>
</tr>
<tr>
<td>7/16 -14 UNC 2B thd. mounting holes</td>
<td>4 places</td>
</tr>
<tr>
<td>Safety grip</td>
<td>136.5 (5.37)</td>
</tr>
<tr>
<td>2 places</td>
<td>31.8 hex (1.25)</td>
</tr>
<tr>
<td>Bowl torque to 15 lb. ft (20 Nm)</td>
<td>Drain plug SAE-6</td>
</tr>
<tr>
<td>41.3 (1.62)</td>
<td>2 Places</td>
</tr>
<tr>
<td>7/16 -14 UNC 2B thd. mounting holes)</td>
<td>4 places</td>
</tr>
<tr>
<td>7/16 -14 UNC 2B thd. mounting holes</td>
<td>4 places</td>
</tr>
<tr>
<td>Safety grip</td>
<td>136.5 (5.37)</td>
</tr>
<tr>
<td>2 places</td>
<td>31.8 hex (1.25)</td>
</tr>
<tr>
<td>Bowl torque to 15 lb. ft (20 Nm)</td>
<td>Drain plug SAE-6</td>
</tr>
<tr>
<td>41.3 (1.62)</td>
<td>2 Places</td>
</tr>
<tr>
<td>7/16 -14 UNC 2B thd. mounting holes)</td>
<td>4 places</td>
</tr>
<tr>
<td>7/16 -14 UNC 2B thd. mounting holes</td>
<td>4 places</td>
</tr>
<tr>
<td>Safety grip</td>
<td>136.5 (5.37)</td>
</tr>
<tr>
<td>2 places</td>
<td>31.8 hex (1.25)</td>
</tr>
<tr>
<td>Bowl torque to 15 lb. ft (20 Nm)</td>
<td>Drain plug SAE-6</td>
</tr>
</tbody>
</table>

Filter Housing/Bypass Valve Flow Data

Flow versus pressure drop:
150 SUS (32 cSt) oil with specific gravity of ≤ 0.9
(See page 6 for specific gravity corrections for pressure drop.)

Housing

<table>
<thead>
<tr>
<th>Pressure drop - PSID</th>
<th>Flow Rate - USgpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>50</td>
</tr>
<tr>
<td>6</td>
<td>75</td>
</tr>
<tr>
<td>8</td>
<td>100</td>
</tr>
<tr>
<td>10</td>
<td>125</td>
</tr>
<tr>
<td>12</td>
<td>150</td>
</tr>
</tbody>
</table>

Bypass Valve

<table>
<thead>
<tr>
<th>Pressure drop - PSID</th>
<th>Flow Rate - USgpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>50</td>
</tr>
<tr>
<td>6</td>
<td>75</td>
</tr>
<tr>
<td>8</td>
<td>100</td>
</tr>
<tr>
<td>10</td>
<td>125</td>
</tr>
<tr>
<td>12</td>
<td>150</td>
</tr>
</tbody>
</table>
602 Series Replacement Filter Elements

**Element Model Code**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>V602</td>
<td>1</td>
</tr>
</tbody>
</table>

1. Filter element
   - V602: For use with 061, 350, 620 and OFR30 series filters

2. Element collapse rating
   - 1: 150 PSID
   - 4: 3000 PSID (H-Pak only)

**NOTE:** Use only with bypass valve.

3. Seal material
   - B: Buna-N
   - V: Viton-A

Viton is a registered trademark of E.I. DuPont

**Design Specifications**

Meets or exceeds HF3 element specifications when used with bowl length No. 2.

- **Rated flow:**
  - 157 L/min (40 USgpm) with bowl length 1
  - 284 L/min (74 USgpm) with bowl length 2
  - 454 L/min (120 USgpm) with bowl length 4
  - 568 L/min (150 USgpm) with bowl length 5

- **Fluid compatibility:** Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids.
  - Optional seals available for phosphate esters.

- **Temp range:**
  - -54°C to +135°C
  - (-65°F to +275°F)

- **Construction & media:** Proprietary E-Pak, C-Pak or H-Pak construction

**Filter Element Flow Data**

**Fluid cleanliness ratings**

<table>
<thead>
<tr>
<th>Code</th>
<th>Fluid cleanliness</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Flushing only</td>
</tr>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

**Rated flow:**
- 157 L/min (40 USgpm) with bowl length 1
- 284 L/min (74 USgpm) with bowl length 2
- 454 L/min (120 USgpm) with bowl length 4
- 568 L/min (150 USgpm) with bowl length 5

**Flow versus pressure drop:** 150 SUS (32 cSt) oil with specific gravity of 0.9 (See page 7 for viscosity corrections for pressure drop.)

The table assumes limited ingestion/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.
S620 Series Filters  Flows to 568 L/min (150 USgpm) – Pressures to 414 bar (6000 psi)

### Features and Benefits
- Designed to comply with ANSI specifications and ISO cleanliness standards.
- Plated forged steel bowl and plated nodular iron head for corrosion resistance.
- Diagnostic port in head for easy system analysis.
- Unique bypass valve design (simple and reliable).
- Visual, electrical and electrical/visual ΔP indicator options for flexibility in system design.
- Four bowl length options for design flexibility.
- Side subplate mounting design.
- Accepts Eco-Pak coreless elements.

### Design Specifications

**Rated flow:**
- 157 L/min (40 USgpm) with bowl length 1
- 284 L/min (74 USgpm) with bowl length 2
- 454 L/min (120 USgpm) with bowl length 4
- 568 L/min (150 USgpm) with bowl length 5

**Fluid compatibility:** Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids. Optional seals available for phosphate esters.

**Temp range:**
- -54°C to +135°C (-65°F to +275°F)

**Pressure rating:**
- Operating: 414 bar (6000 psi)
- Proof: 620 bar (9000 psi)
- Burst: 1379 bar (20000 psi)
- Fatigue: 210 bar (3000 psi)

**Material:**
- Head: Cast nodular iron
- Bowl: Forged steel

### Housing Model Code

<table>
<thead>
<tr>
<th>Filter series</th>
<th>S620</th>
<th>1</th>
<th>S</th>
<th>4</th>
<th>YH</th>
<th>1</th>
<th>B</th>
<th>1</th>
<th>C</th>
<th>03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valve options</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔP indicator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First designator (Indicator type)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ΔP indicator &amp; receptacle options</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bowl length</td>
<td>Element length mm (inch)</td>
<td>mm (inch)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 300 (11.8)</td>
<td>101 (4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - 392 (15.5)</td>
<td>203 (8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 - 512 (20.2)</td>
<td>330 (13)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 - 611 (24.1)</td>
<td>406 (16)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 - 769 (30)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 - 1050 (41)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 - 12 (0.5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Fluid cleanliness ratings

<table>
<thead>
<tr>
<th>Code</th>
<th>Fluid cleanliness level</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

The table assumes limited ingression/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.
Dimensions

**S620 Housing**

**mm (inch)**

- \( \varnothing 22.9 \) (0.90) dia. thru 4 places
- \( \frac{7}{8} \) - 9 UNC x 2.50 long grade 8 bolts for 1.20 enlargement are recommended (4 req’d)
- Torque to 185-200 lb. ft (250-270 N.m)

Refer to Model Code

Torque bowl to 15 lb. ft (20 Nm) max.

\( \varnothing 120.6 \) (4.75) required for element removal

**Filter Housing/Bypass Valve Flow Data**

Flow versus pressure drop: 150 SUS (32 cSt) oil with specific gravity of \( \leq 0.9 \)

(See page 6 for specific gravity corrections for pressure drop.)

<table>
<thead>
<tr>
<th>Pressure drop - PSID</th>
<th>Flow Rate - USgpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0  25  50  75  100  125  150</td>
</tr>
<tr>
<td>S620 Subplate Mount</td>
<td></td>
</tr>
</tbody>
</table>

**Bypass Valve**

- 90 PSID cracking 110
- 50 PSID cracking 65
602 Series Replacement Filter Elements

**Element Model Code**

<table>
<thead>
<tr>
<th>V602</th>
<th>1</th>
<th>B</th>
<th>1</th>
<th>C</th>
<th>03</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

**Filter element**
V602 - For use with 061, 350, 620 & OFR30 series filters

**Element collapse rating**
1: 150 PSID
4: 3000 PSID (H-Pak only)

*NOTE: Use 1 only with bypass valve.*

**Seal material**
B - Buna-N
V - Viton-A

Viton is a registered trademark of E.I. DuPont

**Temp range:** -54°C to +135°C (-65°F to +275°F)

**Construction & media:** Proprietary E-Pak or H-Pak construction

**Fluid cleanliness ratings**

<table>
<thead>
<tr>
<th>Code</th>
<th>Fluid cleanliness</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Flushing only</td>
</tr>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

The table assumes limited ingestion/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.

### Design Specifications

**Rated flow:**
- 157 L/min (40 USgpm) with bowl length 1
- 284 L/min (74 USgpm) with bowl length 2
- 454 L/min (120 USgpm) with bowl length 4
- 568 L/min (150 USgpm) with bowl length 5

**Fluid compatibility:** Compatible with most petroleum oil, water glycol, oil-in-water and water-in-oil fluids.

Optional seals available for phosphate esters.

**Temp range:**
- -54°C to +135°C
- (-65°F to +275°F)

**Construction & media:** Proprietary E-Pak or H-Pak construction

**Fluid cleanliness ratings**

<table>
<thead>
<tr>
<th>Code</th>
<th>Fluid cleanliness</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Flushing only</td>
</tr>
<tr>
<td>03</td>
<td>16/14/12 or better</td>
</tr>
<tr>
<td>05</td>
<td>18/16/14 or better</td>
</tr>
<tr>
<td>10</td>
<td>20/18/15 or better</td>
</tr>
<tr>
<td>20</td>
<td>22/19/16 or better</td>
</tr>
</tbody>
</table>

The table assumes limited ingestion/single pass of pump flow through element. For detailed assistance, see Vickers Guide to Systemic Contamination Control or contact your local Vickers representative.

### Filter Element Flow Data

**Flow Rate - USgpm**

<table>
<thead>
<tr>
<th>Pressure drop - PSID</th>
<th>Flow Rate - USgpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>0</td>
</tr>
<tr>
<td>03</td>
<td>1</td>
</tr>
<tr>
<td>05</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
</tr>
</tbody>
</table>

**Flow versus pressure drop:** 150 SUS (32 cSt) oil with specific gravity of 3 ≤ 0.9

(See page 7 for viscosity corrections for pressure drop.)

**Dimensions**

<table>
<thead>
<tr>
<th>E-Pak O-ring per AS568-135</th>
<th>C-Pak/H-Pak O-ring per AS568-131</th>
</tr>
</thead>
<tbody>
<tr>
<td>79.8 dia. (3.14)</td>
<td>1,27 (0.05) max.</td>
</tr>
</tbody>
</table>

Refer to model code

### Filter Element Flow Data

**Flow Rate - USgpm**

<table>
<thead>
<tr>
<th>Pressure drop - PSID</th>
<th>Flow Rate - USgpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>0</td>
</tr>
<tr>
<td>03</td>
<td>1</td>
</tr>
<tr>
<td>05</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
</tr>
</tbody>
</table>

**Flow versus pressure drop:** 150 SUS (32 cSt) oil with specific gravity of 3 ≤ 0.9

(See page 7 for viscosity corrections for pressure drop.)

**Dimensions**

<table>
<thead>
<tr>
<th>E-Pak O-ring per AS568-135</th>
<th>C-Pak/H-Pak O-ring per AS568-131</th>
</tr>
</thead>
<tbody>
<tr>
<td>79.8 dia. (3.14)</td>
<td>1,27 (0.05) max.</td>
</tr>
</tbody>
</table>

Refer to model code
## Accessories

### Electrical Switch

(See page 7 for electrical diagram.)

<table>
<thead>
<tr>
<th>Number</th>
<th>Circuit</th>
<th>Connector</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Common</td>
<td>DIN 43650</td>
<td>48.2</td>
<td>34.9</td>
</tr>
<tr>
<td>2</td>
<td>Normally open</td>
<td>DIN 43650</td>
<td>59.2</td>
<td>45.7</td>
</tr>
<tr>
<td>3</td>
<td>Normally closed</td>
<td>Brad Harrison</td>
<td>59.2</td>
<td>45.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Housing</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HL15, HL16, HT10, HT15, H021, H022, H023</td>
<td>P-234117-01 (18 psi) Brad Harrison</td>
</tr>
<tr>
<td></td>
<td>P-233051-01 (18 psi) DIN</td>
</tr>
<tr>
<td>HL15, HL16, H021, H022, H023</td>
<td>P-234118-01 (35 psi) Brad Harrison</td>
</tr>
<tr>
<td></td>
<td>P-233573-01 (35 psi) DIN</td>
</tr>
</tbody>
</table>

### Gauge

<table>
<thead>
<tr>
<th>Housing</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HL15, HL16, HT10, HT15, H021, H022, H023</td>
<td>P-232965-01 (0-60 psi) Color coded</td>
</tr>
<tr>
<td>HL15, HL16, H021, H022, H023</td>
<td>P-232974-01 (0-200 psi)</td>
</tr>
</tbody>
</table>

### Weld Flange

<table>
<thead>
<tr>
<th>Housing</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>HL15, HL16</td>
<td>P-232964-01 7/16 - 20 UNF thru (4) on 6.25 dia. BC equally spaced</td>
</tr>
<tr>
<td>HT10</td>
<td>P-235421 1/4 - 20 UNC thru (4) on 88.9 (3.5) BC equally spaced</td>
</tr>
<tr>
<td>HT15</td>
<td>P-333637 5/16 - 18 UNF thru (4) on 4.70 dia. BC equally spaced</td>
</tr>
</tbody>
</table>

■ Recommended bolts
### Mounting Bracket
**H022 Housing**

**mm (inch)**

Order part number
P-233052-01

![Mounting Bracket H022 Housing Diagram](image)

### Mounting Bracket
**H610 Housing**

Order part number
P-426225-01

![Mounting Bracket H610 Housing Diagram](image)

### Mounting Bracket
**H620 Housing**

Order part number
P-425218-01

![Mounting Bracket H620 Housing Diagram](image)
### Differential Pressure Indicator Selection Chart

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PV015T1N1A</td>
<td>P-227505-</td>
<td>K</td>
</tr>
<tr>
<td>35 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PV035T1N1A</td>
<td>P-227508-</td>
<td>L</td>
</tr>
<tr>
<td>35 X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PV035T1N1A</td>
<td>P-227509-</td>
<td>L</td>
</tr>
<tr>
<td>35 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PV035T1N1A</td>
<td>P-227510-</td>
<td>M</td>
</tr>
<tr>
<td>70 X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PV070N1N1A</td>
<td>P-234615-</td>
<td>A</td>
</tr>
<tr>
<td>70 X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PV070T1N1A</td>
<td>P-233270-</td>
<td>I</td>
</tr>
<tr>
<td>90 X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PV090T1N1A</td>
<td>P-227513-</td>
<td>N</td>
</tr>
<tr>
<td>100 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PV100T1N1A</td>
<td>P-227514-</td>
<td>O</td>
</tr>
<tr>
<td>100 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PV100T1N1A</td>
<td>P-227515-</td>
<td>P</td>
</tr>
<tr>
<td>15 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>PE015N1A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PE015N1A</td>
<td>P-227518-</td>
<td>Q</td>
</tr>
<tr>
<td>35 X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PE035N1A</td>
<td>P-232108-</td>
<td>R</td>
</tr>
<tr>
<td>35 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PE035N1A</td>
<td>P-227524-</td>
<td>R</td>
</tr>
<tr>
<td>70 X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PE070N1A</td>
<td>P-234003-</td>
<td>U</td>
</tr>
<tr>
<td>90 X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PE090N1A</td>
<td>P-232109-</td>
<td>S</td>
</tr>
<tr>
<td>100 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PE100N1A</td>
<td>P-227530-</td>
<td>T</td>
</tr>
<tr>
<td>15 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>PD015N1A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PD015N1A</td>
<td>P-230297-</td>
<td>C</td>
</tr>
<tr>
<td>15 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>PD015T1A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PD015T1A</td>
<td>P-230300-</td>
<td>F</td>
</tr>
<tr>
<td>15 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>PD015T1A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PD015T1A</td>
<td>P-230303-</td>
<td>X</td>
</tr>
<tr>
<td>35 X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PD035N1A</td>
<td>P-230295-</td>
<td>A</td>
</tr>
<tr>
<td>35 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>PD035N1A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PD035N1A</td>
<td>P-230298-</td>
<td>D</td>
</tr>
<tr>
<td>35 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>PD035N1A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PD035N1A</td>
<td>P-230301-</td>
<td>G</td>
</tr>
<tr>
<td>35 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>PD035N1A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PD035N1A</td>
<td>P-230304-</td>
<td>Y</td>
</tr>
<tr>
<td>70 X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PD070N1A</td>
<td>P-234266-</td>
<td>B</td>
</tr>
<tr>
<td>70 X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PD070N1A</td>
<td>P-233271-</td>
<td>V</td>
</tr>
<tr>
<td>90 X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PD090N1A</td>
<td>P-230296-</td>
<td>B</td>
</tr>
<tr>
<td>100 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>PD100N1A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PD100N1A</td>
<td>P-230299-</td>
<td>E</td>
</tr>
<tr>
<td>100 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>PD100N1A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PD100N1A</td>
<td>P-230302-</td>
<td>W</td>
</tr>
<tr>
<td>100 X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>PD100N1A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PD100T1A</td>
<td>P-230305-</td>
<td>Z</td>
</tr>
</tbody>
</table>

#### Part Number Suffix

For ordering seal material type and electrical receptacle:

**To basic kit part number add:**

- **01** Buna-N seals
- **03** Viton-A seals

**Followed by:**

- **N** No receptacle. Use with all visual (non-electrical) ΔP indicators
- **H** DIN 43650 or Hirschmann receptacle (GSA plug) 3 pole, plus ground
- **B** 5 pin Brad Harrison (41512)

#### Ordering Information

Select the appropriate indicator for your application from the above option chart. Add to this the part number suffix for your seal compound and electrical receptacle requirements.

**Example:**

For filter series 041, electrical ΔP @ 35 +/- 5 PSID with Buna-N seals and Hirschmann receptacle, order kit: **P-227524-01H**.

Indicators may be ordered by model code or part number.
Specifications

**Mechanical**
Material: Aluminum alloy.
Consult Vickers for special material requirements.

**Electrical**
Switch: SPDT
Rating:
- 7 amps, resistive
- 4 amps, inductive
- 2 amps, lamp load
@ 28 VDC, 115 VAC 60 Hz

The electrical indicators automatically reset when the pressure differential is reduced below the set value.

The visual and electrical/visual indicators will remain in the indicated position after actuation. The indicators should be manually reset after filter element change.

<table>
<thead>
<tr>
<th>Setting (PSID)</th>
<th>Tolerance (PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>± 4</td>
</tr>
<tr>
<td>35</td>
<td>± 5</td>
</tr>
<tr>
<td>70</td>
<td>± 9</td>
</tr>
<tr>
<td>90</td>
<td>± 10</td>
</tr>
<tr>
<td>100</td>
<td>± 12</td>
</tr>
</tbody>
</table>

High-Performance Filter Housings

**Visual (Mechanical) Indicator with pop-out button**

**Electrical Indicators with SPDT switch and Electrical/Visual Indicator with pop-out button and SPDT switch**

**Port Plug**
Part No. P-227533-01

Dimension A
Electrical Indicators with SPDT Switch
A = 48.3 (1.9) max.
Button extension for Electrical/Visual Indicators
A = 54.1 (2.13) max.

**Port Plug**
Part No. P-227533-01

NOTES:
TLO @100°F (38°C) means the indicator will not signal below 60°F (16°C), and will signal above 100°F (38°C).

Mating connector to be furnished by customer.

Order #02-310053 Hirschmann style mating plug.