Series HP 601-1351
6000 PSI

Dimensions:

<table>
<thead>
<tr>
<th>Type</th>
<th>HP 601</th>
<th>HP 901</th>
<th>HP 1351</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection</td>
<td>SAE 2&quot;</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>A</td>
<td>20.27</td>
<td>26.18</td>
<td>35.94</td>
</tr>
<tr>
<td>B</td>
<td>12.20</td>
<td>18.11</td>
<td>27.95</td>
</tr>
<tr>
<td>Weight lbs</td>
<td>108</td>
<td>123</td>
<td>150</td>
</tr>
<tr>
<td>Volume tank</td>
<td>.55 Gal</td>
<td>.82 Gal</td>
<td>1.21 Gal</td>
</tr>
</tbody>
</table>

1) Connection for the potential equalization, only for application in the explosive area.

Dimensions: inches

Designs and performance values are subject to change.

EDV 11/17
Description:

Pressure filter series HP 601-1351 have a working pressure up to 6000 PSI. Pressure peaks can be absorbed with a sufficient safety margin. The HP-filters are flange mounted to the hydraulic system.

The filter element consists of star-shaped, pleated filter material, which is supported on the inside by a perforated core tube and is bonded to the end caps with a high-quality adhesive. The flow direction is from outside to inside. Filter elements are available down to 4 µm. Finer filtration is available upon request.

For cleaning the stainless steel mesh element or changing the filter element, remove the cover and take out the element. The mesh elements are not guaranteed to maintain 100% performance after cleaning.

Eaton filter elements are known for high intrinsic stability and an excellent filtration capability, a high dirt-retaining capacity and a long service life.

Eaton filter elements are available up to a pressure resistance of Δp 2320 PSI and a rupture strength of Δp 3625 PSI.

Eaton filter can be used for petroleum-based fluids, HW emulsions, water glycols, most synthetic fluids and lubrication fluids. Consult factory for specific fluid applications.

The internal valve is integrated into the filter head. After reaching the bypass pressure setting, the bypass valve will send unfiltered partial flow around the filter.

The reversing valve provides another level of protection for the filter element. The reverse flow will not be filtered.

1. Type index:

1.1. Complete filter: (ordering example)

| HP. 901. 10VG. HR. E. P. - FS. 8. - . AE |
|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

1 series
2 nominal size: 601, 901, 1351
3 filter material:
   - 80G, 40G, 25G stainless steel wire mesh
   - 25VG, 16VG, 10VG, 6VG, 3VG microglass
4 filter element collapse rating:
   - 30 = Δp 435 PSI
   - HR = Δp 2320 PSI (rupture strength Δp 3625 PSI)
5 filter element design:
   - E = single-end open
6 sealing material:
   - P = Nitrile (NBR)
   - V = Viton (FPM)
7 filter element specification:
   - - = standard
   - VA = stainless steel
   - IS06 = for HFC application, see sheet-no. 31601
8 process connection:
   - FS = SAE-flange connection 6000 PSI
9 process connection size:
   - 8 = 2”
10 filter housing specification:
   - - = standard
   - IS06 = for HFC application, see sheet-no. 31605
11 internal valve:
   - - = without
   - S1 = with by-pass valve Δp 51 PSI
   - S2 = with by-pass valve Δp 102 PSI
   - R = with reversing valve, Q ≤ 122.94 GPM
12 clogging indicator or clogging sensor:
   - - = without
   - AOR = visual, see sheet-no. 1606
   - AOC = visual, see sheet-no. 1606
   - AE = visual-electric, see sheet-no. 1615
   - VS5 = electronic, see sheet-no. 1619

To add an indicator/sensor to your filter, use the corresponding indicator data sheet to find the indicator details and add them to the filter assembly model code.

1.2. Filter element: (ordering example)

| 01E. 900. 10VG. HR. E. P. - |
|-------------------|------------------|------------------|------------------|------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

1 series:
   - 01E. = filter element according to company standard
2 nominal size: 600, 900, 1350
3 - 7 see type index-complete filter
Technical data:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>design temperature:</td>
<td>14 °F to +212 °F</td>
</tr>
<tr>
<td>operating temperature:</td>
<td>14 °F to +176 °F</td>
</tr>
<tr>
<td>operating medium:</td>
<td>mineral oil, other media on request</td>
</tr>
<tr>
<td>max. operating pressure:</td>
<td>6000 PSI</td>
</tr>
<tr>
<td>test pressure:</td>
<td>8580 PSI</td>
</tr>
<tr>
<td>process connection:</td>
<td>SAE-flange 6000 PSI</td>
</tr>
<tr>
<td>housing material:</td>
<td>C-steel</td>
</tr>
<tr>
<td>sealing material:</td>
<td>Nitrile (NBR) or Viton (FPM), other materials on request</td>
</tr>
<tr>
<td>installation position:</td>
<td>vertical</td>
</tr>
</tbody>
</table>

Classified under the Pressure Equipment Directive 2014/68/EU for mineral oil (fluid group 2), Article 4, Para. 3. Classified under ATEX Directive 2014/34/EU according to specific application (see questionnaire sheet-no. 34279-4).

Pressure drop flow curves:

Filter calculation/sizing

The pressure drop of the assembly at a given flow rate \( Q \) is the sum of the housing \( \Delta p \) and the element \( \Delta p \) and is calculated as follows:

\[
\Delta p_{\text{assembly}} = \Delta p_{\text{housing}} + \Delta p_{\text{element}}
\]

\[
\Delta p_{\text{housing}} = (\text{see } \Delta p = f(Q) - \text{characteristics})
\]

\[
\Delta p_{\text{element}} (\text{PSI}) = Q \left( \frac{\text{PSI}}{\text{GPM}} \right) \times \frac{\text{MSK}}{1000} \times \frac{\nu (\text{SUS}) \times \rho}{0.876} \left( \frac{\text{kg/dm}^3}{\text{dm}^3} \right)
\]

For ease of calculation our Filter Selection tool is available online at [www.eatonpowersource.com/calculators/filtration/](http://www.eatonpowersource.com/calculators/filtration/)

Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in PSI/GPM apply to mineral oil (HLP) with a density of 0.876 kg/dm³ and a kinematic viscosity of 139 SUS (30 mm²/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

<table>
<thead>
<tr>
<th>HP</th>
<th>3VG</th>
<th>6VG</th>
<th>10VG</th>
<th>16VG</th>
<th>25VG</th>
<th>25G</th>
<th>40G</th>
<th>80G</th>
</tr>
</thead>
<tbody>
<tr>
<td>601</td>
<td>0.963</td>
<td>0.669</td>
<td>0.428</td>
<td>0.368</td>
<td>0.251</td>
<td>0.0303</td>
<td>0.0282</td>
<td>0.0193</td>
</tr>
<tr>
<td>901</td>
<td>0.668</td>
<td>0.464</td>
<td>0.297</td>
<td>0.225</td>
<td>0.174</td>
<td>0.0189</td>
<td>0.0177</td>
<td>0.0121</td>
</tr>
<tr>
<td>1351</td>
<td>0.417</td>
<td>0.290</td>
<td>0.185</td>
<td>0.185</td>
<td>0.109</td>
<td>0.0122</td>
<td>0.0114</td>
<td>0.0078</td>
</tr>
</tbody>
</table>

\( \Delta p = f(Q) \) – characteristics according to ISO 3968

The pressure drop characteristics apply to mineral oil (HLP) with a density of 0.876 kg/dm³. The pressure drop changes proportionally to the density.
Symbol:

- **without indicator**
  - AE 30 and AE 40
- **with electric indicator**
  - AE 50 and AE 62
- **with visual-electric indicator**
  - AE 70 and AE 80
- **with visual indicator**
  - AOR/AOC
- **with electronic sensor**
  - VS5

**Spare parts:**

<table>
<thead>
<tr>
<th>Item</th>
<th>qty.</th>
<th>designation</th>
<th>HP 601</th>
<th>HP 901</th>
<th>HP 1351</th>
<th>article-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>filter element</td>
<td>01E.600</td>
<td>01E.900</td>
<td>01E.1350</td>
<td>304357 (NBR)</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>O-ring</td>
<td>48 x 3</td>
<td></td>
<td></td>
<td>301914 (NBR)</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>O-ring</td>
<td>98 x 4</td>
<td></td>
<td></td>
<td>304765 (FPM)</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>support ring</td>
<td>110 x 3.5 x 2</td>
<td></td>
<td></td>
<td>304802</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>clogging indicator visual</td>
<td>AOR or AOC</td>
<td></td>
<td></td>
<td>see sheet-no. 1606</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>clogging indicator visual-electric</td>
<td>AE</td>
<td></td>
<td></td>
<td>see sheet-no. 1615</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>clogging sensor electronic</td>
<td>VS5</td>
<td></td>
<td></td>
<td>see sheet-no. 1619</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>screw plug</td>
<td>20913-4</td>
<td></td>
<td></td>
<td>309817</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>filter element BSPP ½</td>
<td></td>
<td></td>
<td></td>
<td>304678</td>
</tr>
</tbody>
</table>

Item 8 execution only without clogging indicator or clogging sensor

**Test methods:**

Filter elements are tested according to the following ISO standards:

- **ISO 2941** Verification of collapse/burst resistance
- **ISO 2942** Verification of fabrication integrity
- **ISO 2943** Verification of material compatibility with fluids
- **ISO 3723** Method for end load test
- **ISO 3724** Verification of flow fatigue characteristics
- **ISO 3968** Evaluation of pressure drop versus flow characteristics
- **ISO 16889** Multi-pass method for evaluating filtration performance

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