Series EHP 60-90
DN15  PN700/1400

Dimensions:

<table>
<thead>
<tr>
<th>Type</th>
<th>EHP 60</th>
<th>EHP 90</th>
</tr>
</thead>
<tbody>
<tr>
<td>connection</td>
<td>NPT ½&quot;</td>
<td>NPT ½&quot;</td>
</tr>
<tr>
<td>A</td>
<td>261</td>
<td>320</td>
</tr>
<tr>
<td>B</td>
<td>238</td>
<td>303</td>
</tr>
<tr>
<td>C</td>
<td>360</td>
<td>425</td>
</tr>
<tr>
<td>weight kg</td>
<td>8.5</td>
<td>9.7</td>
</tr>
<tr>
<td>volume tank</td>
<td>0.3</td>
<td>0.4</td>
</tr>
</tbody>
</table>

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

Dimensions: mm

Designs and performance values are subject to change.
**Stainless Steel-Pressure Filter**  
**Series EHP 60-90**  
**DN15  PN700/1400**

**Description:**  
Stainless steel pressure filter series EHP 60-90 have a working pressure up to 700 bar or 1400 bar. Pressure peaks can be absorbed with a sufficient safety margin. The EHP-filter is in-line mounted.

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 5 μm. Finer filtration is available upon request.

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 160 bar and a rupture strength of Δp 250 bar.

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.

1. **Type index:**

1.1. **Complete filter:** (ordering example)

<table>
<thead>
<tr>
<th>EHP.</th>
<th>90.</th>
<th>10VG.</th>
<th>HR.</th>
<th>E.</th>
<th>P.</th>
<th>VA.</th>
<th>NPT.</th>
<th>3.</th>
<th>VA.</th>
<th>700</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>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>series:</td>
<td>EHP  = stainless steel-pressure filter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| nominal size: | 60, 90 |}

3. **filter-material:**

- 80G, 40G, 25G, stainless steel wire mesh  
- 25VG, 16VG, 10VG, 6VG, 3VG microglass

4. **filter element collapse rating:**

- 30  = Δp 30 bar  
- HR  = Δp 160 bar (rupture strength Δp 250 bar)

5. **filter element design:**

- E  = single-end open

6. **sealing material:**

- P  = Nitrile (NBR)  
- V  = Viton (FPM)

7. **filter element specification:**

- VA  = standard  
- IS06  = for HFC application, see sheet-no. 31601

8. **process connection:**

- NPT  = thread connection according to ANSI B1.20.1

9. **process connection size:**

- 3  = NPT ½"

10. **filter housing specification:**

- VA  = stainless steel

11. **pressure level:**

- 700  = max. operating pressure 700 bar  
- 1400  = max. operating pressure 1400 bar

1.2. **Filter element:** (ordering example)

<table>
<thead>
<tr>
<th>01E.</th>
<th>90.</th>
<th>10VG.</th>
<th>HR.</th>
<th>E.</th>
<th>P.</th>
<th>VA</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>
</tr>
<tr>
<td>series:</td>
<td>01E.  = filter element according to company standard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nominal size:</td>
<td>60, 90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>see type index-complete filter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Technical data:

operating temperature: -10 °C bis +100 °C
operating medium: mineral oil, other media on request
max. operating pressure: 700 bar, 1400 bar, 1000 bar, 2000 bar
test pressure: 1000 bar, 2000 bar
process connection: thread connection
housing material: EN10088-3 - 1.4418 + QT900
sealing material: Nitrile (NBR) or Viton (FPM), other materials on request
installation position: vertical

Pressure stage 700: Classified under the Pressure Equipment Directive 2014/68/EU for mineral oil (fluid group 2), Article 4, Para. 3.
Pressure stage 1400: Classified under the Pressure Equipment Directive 2014/68/EU for mineral oil category I (Modul A)
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:

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

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

\[
\Delta p_{\text{element}} (\text{mbar}) = Q \left( \frac{l}{\text{min}} \right) \times \text{MSK} \left( \frac{\text{mbar}}{\text{l/min}} \right) \times \nu \left( \frac{\text{mm}^2}{\text{s}} \right) \times \frac{\rho}{0.876} \left( \frac{\text{kg}}{\text{dm}^3} \right)
\]

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 mbar/[(l/min)] apply to mineral oil (HLP) with a density of 0.876 kg/dm³ and a kinematic viscosity of 30 mm²/s (139 SUS). The pressure drop changes proportionally to the change in kinematic viscosity and density.

<table>
<thead>
<tr>
<th>EHP</th>
<th>VG</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>3VG</td>
<td>5,438</td>
<td>2,271</td>
</tr>
<tr>
<td>6VG</td>
<td>3,775</td>
<td>1,454</td>
</tr>
<tr>
<td>10VG</td>
<td>2,417</td>
<td>1,266</td>
</tr>
<tr>
<td>16VG</td>
<td>2,104</td>
<td>0,865</td>
</tr>
<tr>
<td>25VG</td>
<td>1,438</td>
<td>0,1333</td>
</tr>
<tr>
<td>25G</td>
<td>0,2205</td>
<td>0,1635</td>
</tr>
<tr>
<td>40G</td>
<td>0,1526</td>
<td>0,0988</td>
</tr>
<tr>
<td>80G</td>
<td>0,1526</td>
<td>0,0922</td>
</tr>
</tbody>
</table>

\(\Delta p = f(Q) - \text{characteristics according to ISO 3968}\)

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:

![Symbol Image]

Spare parts:

<table>
<thead>
<tr>
<th>item</th>
<th>qty.</th>
<th>designation</th>
<th>EHP 60</th>
<th>EHP 90</th>
<th>article-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>filter element</td>
<td>01E.60.</td>
<td>01E.90.</td>
<td>304341 (NBR)</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>O-ring</td>
<td>22 x 3.5</td>
<td>304341 (NBR)</td>
<td>304997 (FPM)</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>O-ring</td>
<td>45 x 3</td>
<td>304341 (NBR)</td>
<td>304997 (FPM)</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>support ring</td>
<td>52 x 2.6 x 1</td>
<td>311013</td>
<td></td>
</tr>
</tbody>
</table>

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