Series EH 240-450
DN40 PN420

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

Dimensions:

<table>
<thead>
<tr>
<th></th>
<th>EH 240</th>
<th>EH 450</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>connection</td>
<td>G1 ½ or SAE 1 ½</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>380</td>
<td>565</td>
</tr>
<tr>
<td>B</td>
<td>330</td>
<td>515</td>
</tr>
<tr>
<td>C</td>
<td>320</td>
<td>500</td>
</tr>
<tr>
<td>weight kg</td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>volume tank</td>
<td>0.85 l</td>
<td>1.55 l</td>
</tr>
</tbody>
</table>

Dimensions: mm

Designs and performance values are subject to change.
Stainless steel-pressure filter series EH 240-450 have a working pressure up to 420 bar. Pressure peaks can be absorbed with a sufficient safety margin. The EH-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.

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 are suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.

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)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>EH</td>
<td>240.10VG.HR. E. P. VA FS. 7. VA. - . - AE</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>

1 series:  
EH = stainless steel-pressure filter

2 nominal size: 240, 450

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

6 sealing material:  
- = standard
VA = stainless steel

7 process connection:  
FS = SAE-flange connection 6000 PSI
G = thread connection (only with counter flange)

8 process connection size:  
7 = 1 ½"

9 filter housing specification:  
VA = stainless steel

10 specification pressure vessel:  
- = standard (PED 2014/68/EU)
IS20 = ASME VIII Div.1 with ASME equivalent material, see sheet-no. 55217 (max. operating pressure 280 bar)

11 internal valve:  
- = without
S1 = with by-pass valve Δp 3.5 bar
S2 = with by-pass valve Δp 7.0 bar
R = reversing valve, Q ≤ 211,008 l/min

12 clogging indicator or clogging sensor:  
- = without
AOR = visual, see sheet-no. 1606
AOC = visual, see sheet-no. 1608
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)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>01E. 240. 10VG.HR. E. P. VA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 series:  
01E. = filter element according to company standard

2 nominal size: 240, 450

3 7 see type index-complete filter

...
Technical data:

- **Operating temperature:** -10°C to +100°C
- **Operating medium:** mineral oil, other media on request
- **Max. operating pressure:** 420 bar
- **Test pressure:** 600 bar
- **Max. operating pressure at IS20:** 280 bar
- **Test pressure at IS20:** 364 bar
- **Process connection:** SAE-flange 6000 PSI or thread connection
- **Housing material:** EN10088-1.4571 (320 S 18, 320 S 31 according to B.S.)
- **Sealing material:** Nitrile (NBR) or Viton (FPM), other materials on request
- **Installation position:** vertical

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:

$$\Delta p_{\text{assembly}} = \Delta p_{\text{housing}} + \Delta p_{\text{element}}$$

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

$$\Delta p_{\text{Element}} (\text{mbar}) = Q \left( \frac{1}{\text{min}} \right) \times \frac{\text{MSK}}{10} \times v \left( \frac{\text{mm}{^2}}{\text{s}} \right) \times \frac{p}{0.876} \left( \frac{\text{kg}}{\text{dm}^3} \right)$$

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>EH</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>240</td>
<td>1.685</td>
<td>1.170</td>
<td>0.749</td>
<td>0.652</td>
<td>0.446</td>
<td>0.0531</td>
<td>0.0496</td>
<td>0.0340</td>
</tr>
<tr>
<td>450</td>
<td>0.907</td>
<td>0.630</td>
<td>0.403</td>
<td>0.351</td>
<td>0.240</td>
<td>0.0285</td>
<td>0.0266</td>
<td>0.0182</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.

- 30 mm²/s
- 100 mm²/s

![EH.240 Housing Pressure Drop](image1.png)

![EH.450 Housing Pressure Drop](image2.png)
Symbols:
- without indicator
- with electric indicator
- with visual-electric indicator
- with visual indicator
- with electronic clogging sensor

Spare parts:

<table>
<thead>
<tr>
<th>item</th>
<th>qty.</th>
<th>designation</th>
<th>dimension</th>
<th>article-no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>filter element</td>
<td>EH 240...</td>
<td>01E.240...</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>O-ring</td>
<td>34 x 3,5</td>
<td>304338 (NBR)</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>O-ring</td>
<td>76 x 4</td>
<td>305599 (NBR)</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>support ring</td>
<td>84 x 3,2 x 1,5</td>
<td>312307.0</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>O-ring</td>
<td>47,22 x 3,53</td>
<td>305078 (NBR)</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>counter flange SAE 6000 PSI</td>
<td>1 ½”</td>
<td>312406</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>clogging indicator visual</td>
<td>AOR or AOC</td>
<td>see sheet-no. 1606</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>clogging indicator visual-electric</td>
<td>AE</td>
<td>see sheet-no. 1615</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>clogging sensor electronic</td>
<td>VS5</td>
<td>see sheet-no. 1619</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>screw plug</td>
<td>20913-4</td>
<td>314442</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