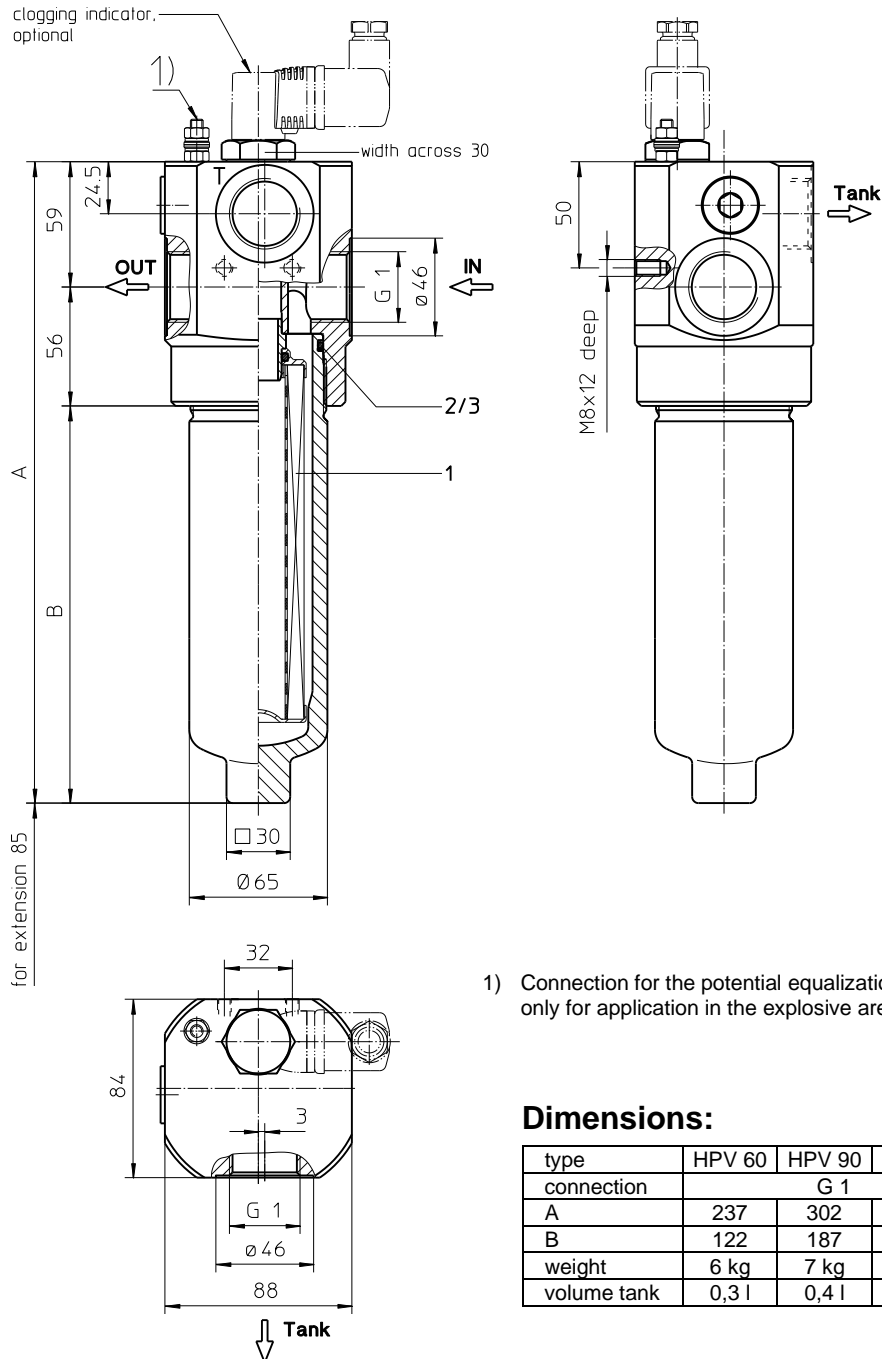


Series HPV 60-150

DN25 PN420



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

Dimensions:

| type | HPV 60 | HPV 90 | HPV 150 |
|-------------|--------|--------|---------|
| connection | G 1 | | |
| A | 237 | 302 | 411 |
| B | 122 | 187 | 296 |
| weight | 6 kg | 7 kg | 8 kg |
| volume tank | 0,3 l | 0,4 l | 0,6 l |

Dimensions: mm

Designs and performance values are subject to change.



Powering Business Worldwide

Pressure Filter

Series HPV 60-150

DN25 PN420

Description:

Pressure filter series HPV 60-150 have a working pressure up to 420 bar. Pressure peaks can be absorbed with a sufficient safety margin. The HPV-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 $\mu\text{m}_{(c)}$. Finer filtration is available upon request.

For cleaning the stainless steel mesh element (see special leaflets 21070-4 and 39448-4) or changing the filter element, remove the filter bowl 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 can be used for petroleum-based fluids, HW emulsions, water glycols, most synthetic fluids and lubrication fluids. Consult factory for specific fluid applications.

Eaton filter elements are available up to a pressure resistance of Δp 160 bar and a rupture strength of Δp 250 bar.

The differential pressure-valve opens independently of the operating pressure at a chosen differential pressure-valve between IN and OUT and leaves an unfiltered partial-flow flowing from „IN“ to the tank.

Type index:

Complete filter: (ordering example)

HPV. 90. 10VG. HR. E. P. -. G. 5. -. D2. AE

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|----|----|----|

- 1 series:**
HPV = pressure filter with differential pressure-valve
- 2 nominal size:** 60, 90, 150
- 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:**
- = standard
VA = stainless steel
- 8 process connection:**
G = thread according to ISO 228
- 9 process connection size:**
5 = G1
- 10 filter housing specification:**
- = standard
- 11 internal valve:**
D1 = differential pressure-valve Δp 3,5 bar
D2 = differential pressure-valve Δp 7,0 bar
- 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.

Filter element: (ordering example)

01E. 90. 10VG. HR. E. P. -

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|

- 1 series:**
01E. = filter element according to company standard
- 2 nominal size:** 60, 90, 150
- 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 |
| process connection: | thread according to ISO 228 |
| housing material: | C-steel |
| 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 Δp and the element Δp and is calculated as follows:

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

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

$$\Delta p_{element} (mbar) = Q \left(\frac{l}{min} \right) \times \frac{MSK (mbar)}{10 (l/min)} \times v \left(\frac{mm^2}{s} \right) \times \frac{p}{0,876} \left(\frac{kg}{dm^3} \right)$$

For ease of calculation our Filter Selection tool is available online at www.eaton.com/hydraulic-filter-evaluation

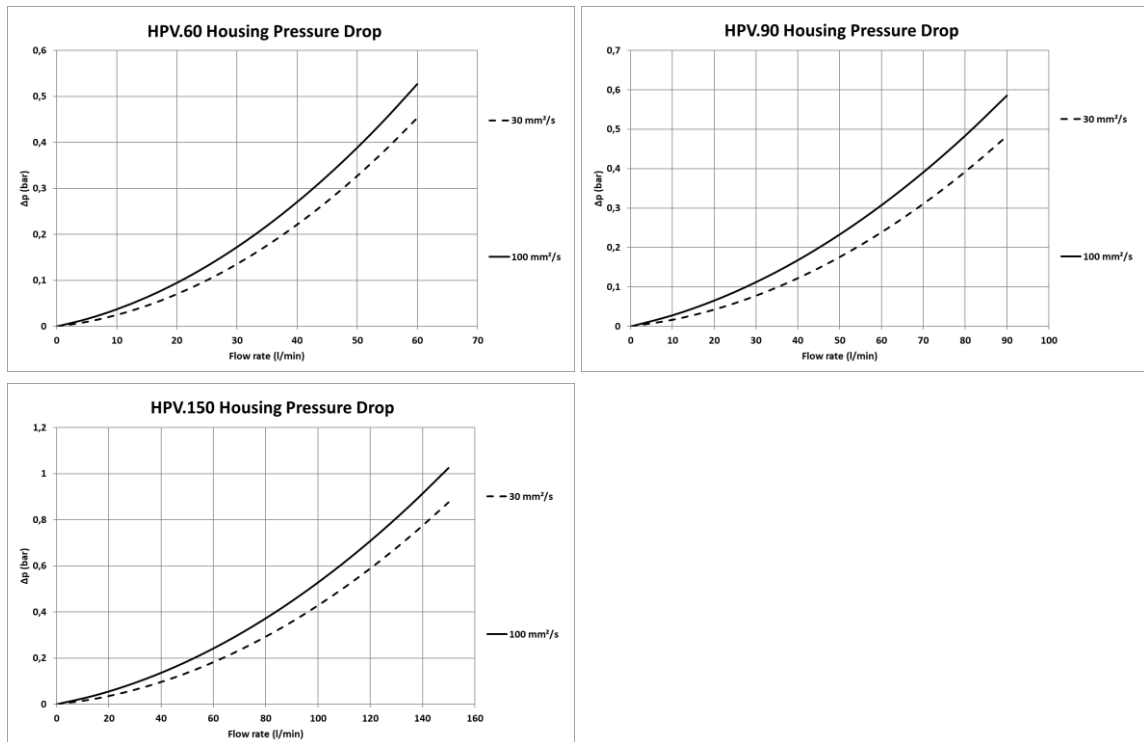
Material gradient coefficients (MSK) for filter elements

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.

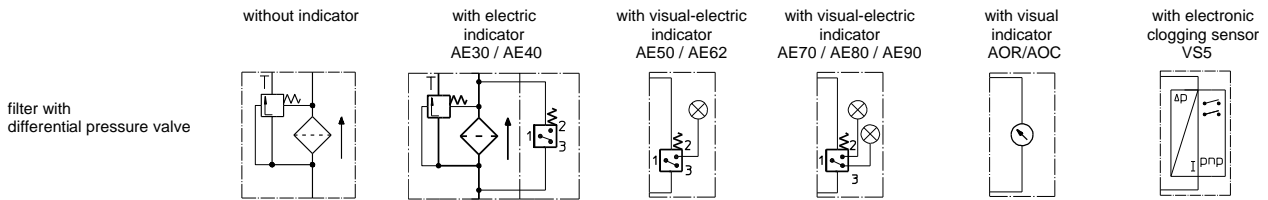
| HPV | VG | | | | | G | | |
|-----|-------|-------|-------|-------|-------|--------|--------|--------|
| | 3VG | 6VG | 10VG | 16VG | 25VG | 25G | 40G | 80G |
| 60 | 5,438 | 3,775 | 2,417 | 2,104 | 1,438 | 0,2205 | 0,1635 | 0,1526 |
| 90 | 3,271 | 2,271 | 1,454 | 1,266 | 0,865 | 0,1333 | 0,0988 | 0,0922 |
| 150 | 1,952 | 1,355 | 0,867 | 0,755 | 0,516 | 0,0796 | 0,0590 | 0,0551 |

$\Delta p = f(Q)$ – 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.



Symbols:



Spare parts:

| item | qty. | Designation | dimension | | | article-no. | |
|------|------|----------------|--------------|-----------|------------|--------------|--------------|
| | | | HPV 60 | HPV 90 | HPV 150 | | |
| 1 | 1 | filter element | 01E.60... | 01E.90... | 01E.150... | | |
| 2 | 1 | O-ring | 54 x 3 | | | 304657 (NBR) | 304720 (FPM) |
| 3 | 1 | support ring | 61 x 2,6 x 1 | | | 304660 | |

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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