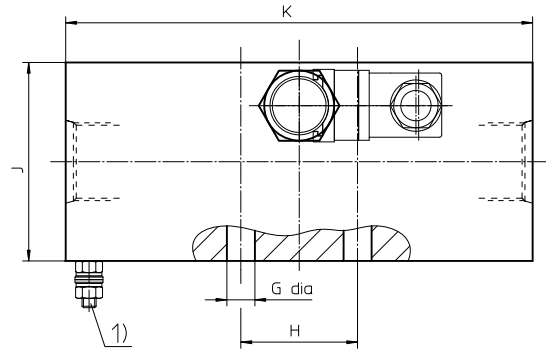


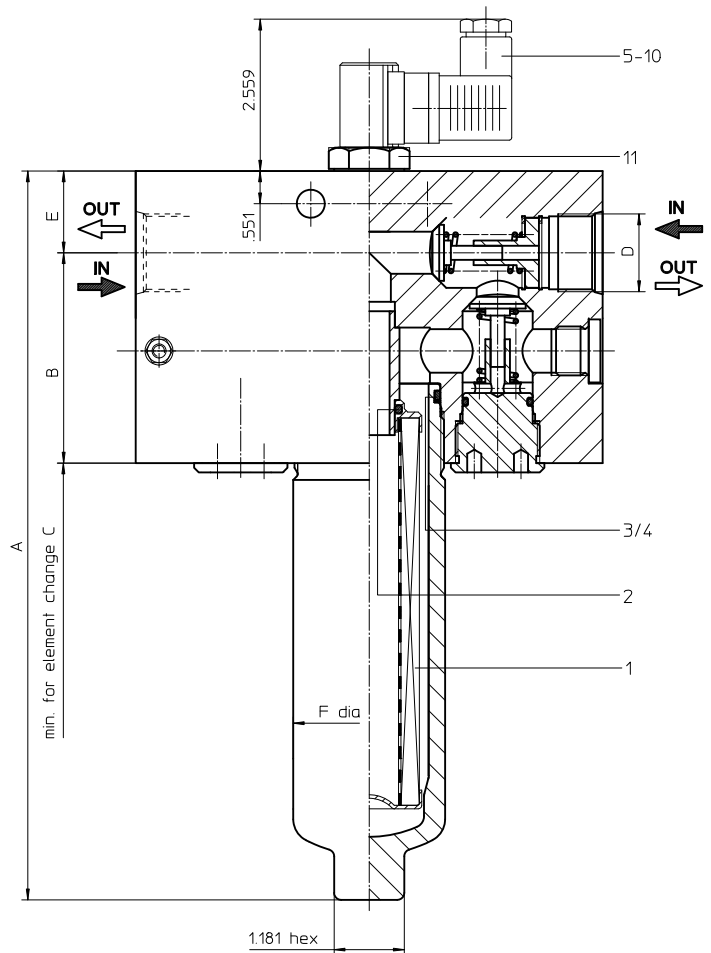
Series HPW 60-450 4568 PSI



Dimensions:

| type | HPW 60 | HPW 90 | HPW 150 |
|-------------|-----------|-----------|-----------|
| A | 9.72 | 12.28 | 16.58 |
| B | 3.54 | 3.54 | 3.54 |
| C | 10.63 | 13.19 | 17.52 |
| D | -16 SAE | -16 SAE | -16 SAE |
| E | 1.38 | 1.38 | 1.38 |
| F | 2.56 | 2.56 | 2.56 |
| G | .48 | .48 | .48 |
| H | 1.97 | 1.97 | 1.97 |
| J | 3.35 | 3.35 | 3.35 |
| K | 7.87 | 7.87 | 7.87 |
| weight | 35.2 lbs. | 36.3 lbs. | 37.4 lbs. |
| volume tank | .08 Gal. | .10 Gal. | .16 Gal. |

| type | HPW 170 | HPW 240 | HPW 360 | HPW 450 |
|-------------|-----------|-----------|-----------|-----------|
| A | 13.78 | 15.75 | 18.90 | 23.03 |
| B | 4.72 | 4.72 | 4.72 | 4.72 |
| C | 13.80 | 15.75 | 18.90 | 13.03 |
| D | -24 SAE | -24 SAE | -24 SAE | -24 SAE |
| E | 1.58 | 1.58 | 1.58 | 1.58 |
| F | 3.55 | 3.55 | 3.55 | 3.55 |
| G | .55 | .55 | .55 | .55 |
| H | 2.36 | 2.36 | 2.36 | 2.36 |
| J | 4.53 | 4.53 | 4.53 | 4.53 |
| K | 10.63 | 10.63 | 10.63 | 10.63 |
| weight | 85.8 lbs. | 88.0 lbs. | 92.4 lbs. | 96.8 lbs. |
| volume tank | .18 Gal. | .23 Gal. | .31 Gal. | .42 Gal. |



1) Connect the stand grounding tab to a suitable earth ground point.

Dimensions: inches

Designs and performance values are subject to change.



Powering Business Worldwide

Pressure Filter

Series HPW 60-450

4568 PSI

Description:

Pressure filter series HPW 60-450 are used in systems where the fluid requires bidirectional flow through the same filter. A series of four internal check valves ensure that the system fluid is directed to the outside of the element, regardless of flow direction.

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 $\mu\text{m}_{(c)}$.

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 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 2320 PSI and a rupture strength of Δp 3625 PSI.

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.

1. Type index:

1.1. Complete filter: (ordering example)

HPW. 170. 10VG. HR. E. P. - UG. 7. - - AE

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

1 series:

HPW = pressure filter for reversible filtration

2 nominal size: 60, 90, 150, 170, 240, 360, 450

3 filter-material and filter-fineness:

80G, 40G, 25G, 10G 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

8 process connection:

UG = thread connection

9 process connection size:

5 = -16 SAE HPW 60-150
7 = -24 SAE HPW 170-450

10 filter housing specification:

- = standard

11 internal valve:

- = without
S1 = with bypass valve Δp 51 PSI
S2 = with bypass valve Δp 102 PSI

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 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. 170. 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, 170, 240, 360, 450

3 - 7 see type index-complete filter

Technical data:

| | |
|--------------------------|--|
| design temperature: | 14 °F to +212 °F |
| operating temperature: | 14 °F to +176 °F |
| operating medium | mineral oil, other media on request |
| max. operating pressure: | 4568 PSI |
| test pressure: | 6532 PSI |
| process connection: | thread connection |
| 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/EC for mineral oil (fluid group 2), Article 4, Para. 3.
 Classified under ATEX Directive 2014/34/EC 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:

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

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

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

For ease of calculation our Filter Selection tool is available online at www.eatonpowersource.com/calculators/filtration/

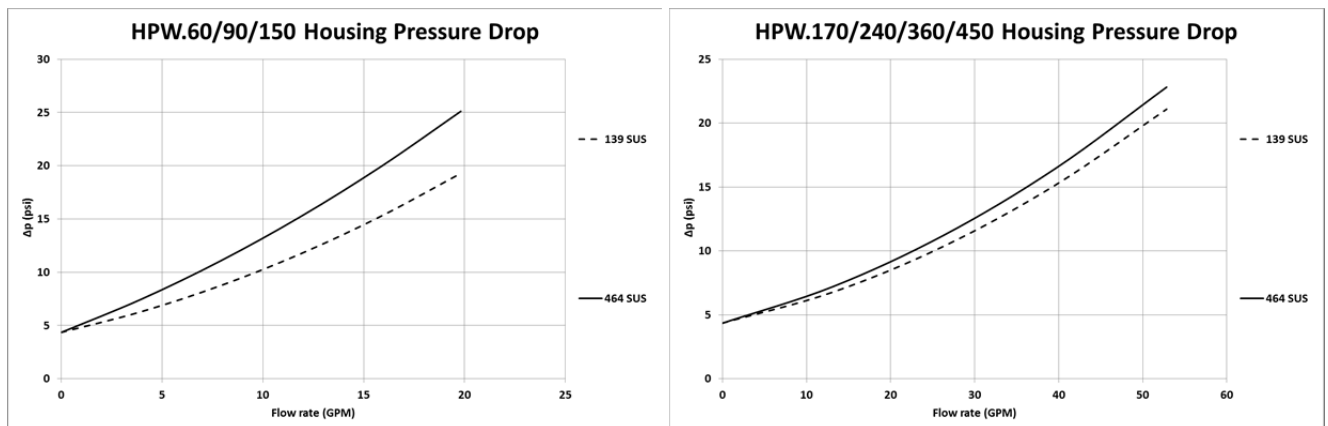
Material gradient coefficients (MSK) for filter elements

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.

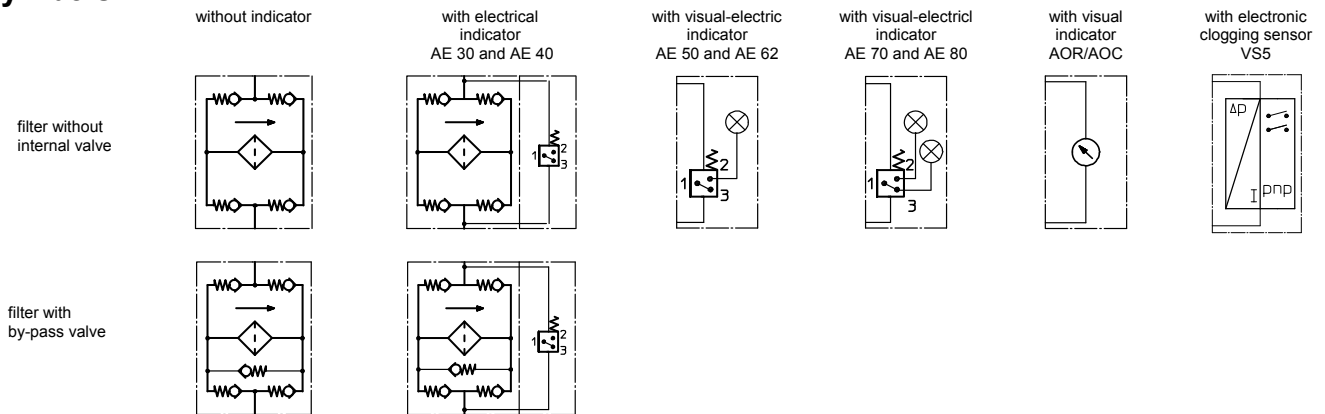
| HPW | VG | | | | | G | | |
|-----|-------|-------|-------|-------|-------|--------|--------|--------|
| | 3VG | 6VG | 10VG | 16VG | 25VG | 25G | 40G | 80G |
| 60 | 6.748 | 4.685 | 2.999 | 2.577 | 1.760 | 0.2002 | 0.1868 | 0.1280 |
| 90 | 4.059 | 2.818 | 1.804 | 1.550 | 1.059 | 0.1210 | 0.1130 | 0.0774 |
| 150 | 2.422 | 1.681 | 1.076 | 0.925 | 0.632 | 0.0723 | 0.0675 | 0.0462 |
| 170 | 2.714 | 1.884 | 1.206 | 1.036 | 0.708 | 0.0839 | 0.0783 | 0.0537 |
| 240 | 2.092 | 1.452 | 0.930 | 0.799 | 0.546 | 0.0651 | 0.0607 | 0.0416 |
| 360 | 1.530 | 1.062 | 0.680 | 0.584 | 0.399 | 0.0475 | 0.0444 | 0.0304 |
| 450 | 1.126 | 0.782 | 0.500 | 0.430 | 0.294 | 0.0349 | 0.0326 | 0.0223 |

$\Delta p = f(Q)$ – 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 and article-no. | | | | | | |
|------|------|--------------------------------------|---------------------------|-----------|------------------------------|------------------------------|--------------------|------------------------------|------------|
| | | | HPW 60 | HPW 90 | HPW 150 | HPW 170 | HPW 240 | HPW 360 | HPW 450 |
| 1 | 1 | filter element | 01E.60... | 01E.90... | 01E.150... | 01E.170... | 01E.240... | 01E.360... | 01E.450... |
| 2 | 1 | O-ring | 22 x 3,5 | | 304341 (NBR) 304392 (FPM) | 34 x 3,5 | | 304338 (NBR) 304730 (FPM) | |
| 3 | 1 | O-ring | 54 x 3 | | 304657 (NBR) 304720 (FPM) | 75 x 3 | | 302215 (NBR) 304729 (FPM) | |
| 4 | 1 | support ring | 61 x 2,6 x 1 | | | 304660 | 81 x 2,6 x 1 | | 304581 |
| 5 | 1 | clogging indicator visual | | | | AOR or AOC | see sheet-no. 1606 | | |
| 6 | 1 | clogging indicator visual-electrical | | | | AE | see sheet-no. 1615 | | |
| 7 | 1 | clogging sensor electrical | | | | VS5 | see sheet-no. 1619 | | |
| /8 | 1 | O-ring | | | 15 x 1,5 | 315357 (NBR) 315427 (FPM) | | | |
| 9 | 1 | O-ring | | | 22 x 2 | 304708 (NBR) 304721 (FPM) | | | |
| 10 | 1 | O-ring | | | 14 x 2 | 304342 (NBR) 304722 (FPM) | | | |
| 11 | 1 | screw plug | | | 20913-4 | 309817 | | | |

item 11 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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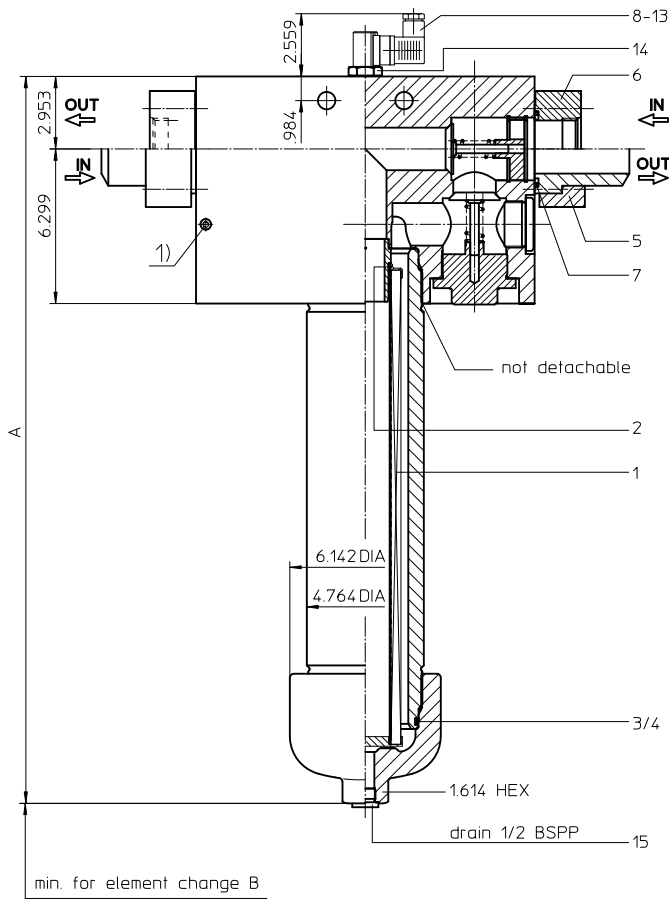
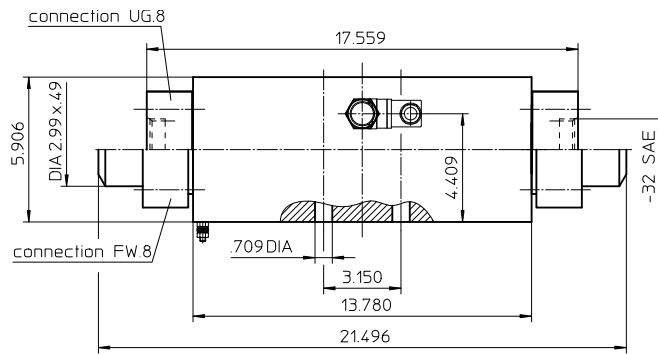
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Series HPW 601-1351

4568 PSI



Dimensions:

| type | HPW 601 | HPW 901 | HPW 1351 |
|-------------|----------|----------|-----------|
| connection | 2" | | |
| A | 23.70 | 29.60 | 39.37 |
| B | 12.20 | 18.11 | 27.95 |
| weight | 253 | 268 lbs. | 295 lbs. |
| volume tank | .55 Gal. | .82 Gal. | 1.21 Gal. |

1) Connect the stand grounding tab to a suitable earth ground point.

Dimensions: inches

Designs and performance values are subject to change.

Pressure Filter

Series HPW 601-1351

4568 PSI

Description:

Pressure filter series HPW 601-1351 are used in systems where the fluid requires bidirectional flow through the same filter. A series of four internal check valves ensure that the system fluid is directed to the outside of the element, regardless of flow direction.

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 $\mu\text{m}_{(c)}$.

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 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 2320 PSI and a rupture strength of Δp 3625 PSI.

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.

1. Type index:

1.1. Complete filter: (ordering example)

HPW. 901. 10VG. HR. E. P. - FW. 8. - - AE

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

1 series:

HPW = pressure filter for reversible filtration

2 nominal size: 601, 901, 1351

3 filter-material and filter-fineness:

80G, 40G, 25G, 10G 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

8 process connection:

FW = flange connection factory specification
UG = thread connection

9 process connection size:

8 = 2"

10 filter housing specification:

- = standard

11 internal valve:

- = without
S1 = with bypass valve Δp 51 PSI
S2 = with bypass valve Δp 102 PSI

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 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

Accessories:

- counter flange, see sheet-no. 1654

Technical data:

| | |
|--------------------------|--|
| design temperature: | 14 °F to +212 °F |
| operating temperature: | 14 °F to +176 °F |
| operating medium | mineral oil, other media on request |
| max. operating pressure: | 4568 PSI |
| test pressure: | 6532 PSI |
| process connection: | flange connection factory specification or thread connection |
| housing material: | C-steel , EN-GJS-400-18-LT |
| sealing material: | Nitrile (NBR) or Viton (FPM), other materials on request |
| installation position: | vertical |

Classified under the Pressure Equipment Directive 2014/68/EC for mineral oil (fluid group 2), Article 4, Para. 3.
 Classified under ATEX Directive 2014/34/EC 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:

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

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

$$\Delta p_{element} (PSI) = Q (GPM) \times \frac{MSK}{1000} \left(\frac{PSI}{GPM} \right) \times v (SUS) \times \frac{\rho}{0.876} \left(\frac{kg}{dm^3} \right)$$

For ease of calculation our Filter Selection tool is available online at www.eatonpowersource.com/calculators/filtration/

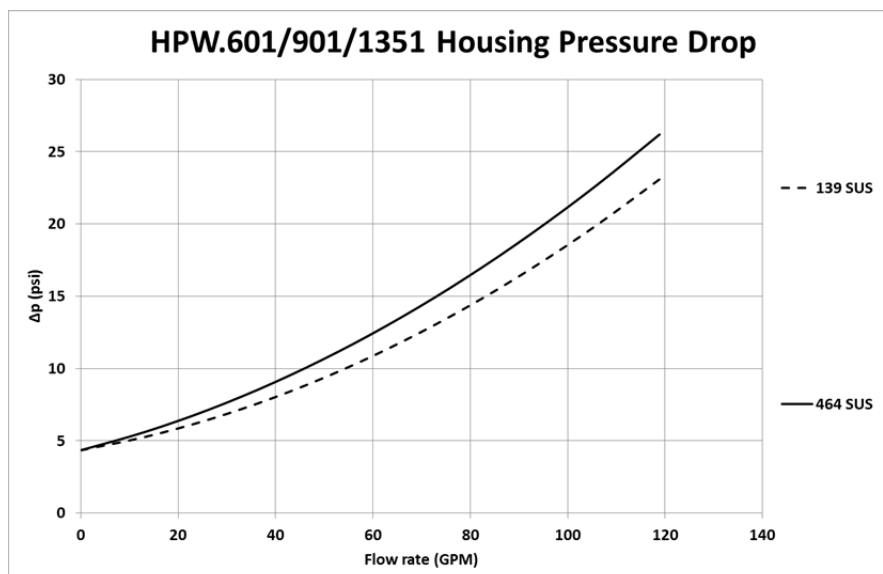
Material gradient coefficients (MSK) for filter elements

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.

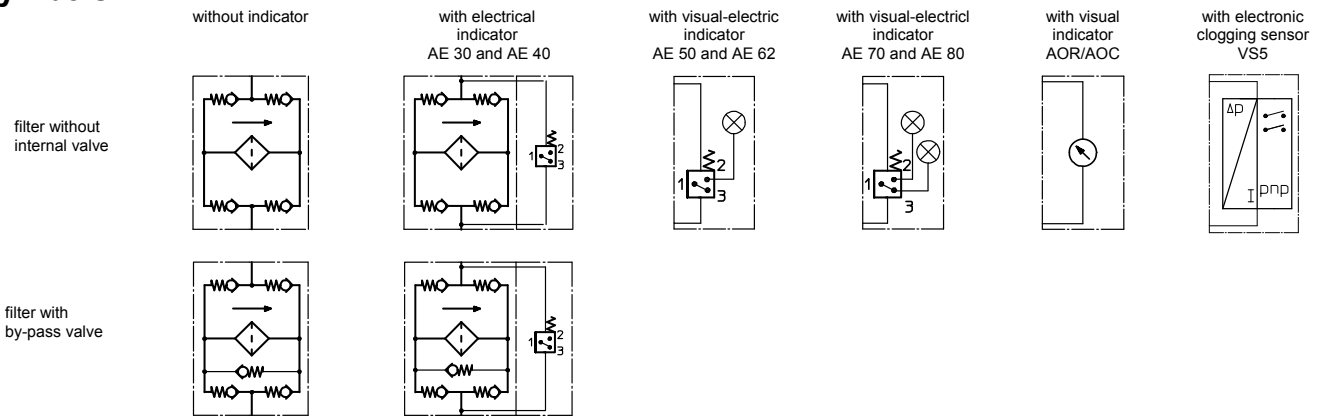
| HPW | VG | | | | | G | | |
|------|-------|-------|-------|-------|-------|--------|--------|--------|
| | 3VG | 6VG | 10VG | 16VG | 25VG | 25G | 40G | 80G |
| 601 | 0.963 | 0.669 | 0.428 | 0.368 | 0.251 | 0.0303 | 0.0282 | 0.0193 |
| 901 | 0.668 | 0.464 | 0.297 | 0.225 | 0.174 | 0.0189 | 0.0177 | 0.0121 |
| 1351 | 0.417 | 0.290 | 0.185 | 0.185 | 0.109 | 0.0122 | 0.0114 | 0.0078 |

$\Delta p = f(Q)$ – 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.. | |
|------|------|------------------------------------|-----------------------|-----------------------|-------------------------|--------------------|--------------|
| | | | HPW 601 01E.600... | HPW 901 01E.900... | HPW 1351 01E.1350... | | |
| 1 | 1 | filter element | | | | | |
| 2 | 1 | O-ring | | 48 x 3 | | 304357 (NBR) | 304404 (FPM) |
| 3 | 1 | O-ring | | 98 x 4 | | 301914 (NBR) | 304765 (FPM) |
| 4 | 1 | support ring | | 110 x 3,5 x 2 | | 304802 | |
| 5 | 2 | counter flange | | FW 50-4-2.99 x .49 | | 303717.1 | |
| 6 | 2 | adapter | | FW.8.UG.8 | | 320556 | |
| 7 | 2 | O-ring | | 68 x 5 | | 304376 (NBR) | 304394 (FPM) |
| 8 | 1 | clogging indicator visual | | AOR or AOC | | see sheet-no. 1606 | |
| 9 | 1 | clogging indicator visual-electric | | AE | | see sheet-no. 1615 | |
| 10 | 1 | clogging sensor electronic | | VS5 | | see sheet-no. 1619 | |
| 11 | 1 | O-ring | | 15 x 1,5 | | 315357 (NBR) | 315427 (FPM) |
| 12 | 1 | O-ring | | 22 x 2 | | 304708 (NBR) | 304721 (FPM) |
| 13 | 1 | O-ring | | 14 x 2 | | 304342 (NBR) | 304722 (FPM) |
| 14 | 1 | screw plug | | 20913-4 | | 309817 | |
| 15 | 1 | screw plug | | ½ BSPP | | 304678 | |

item 14 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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