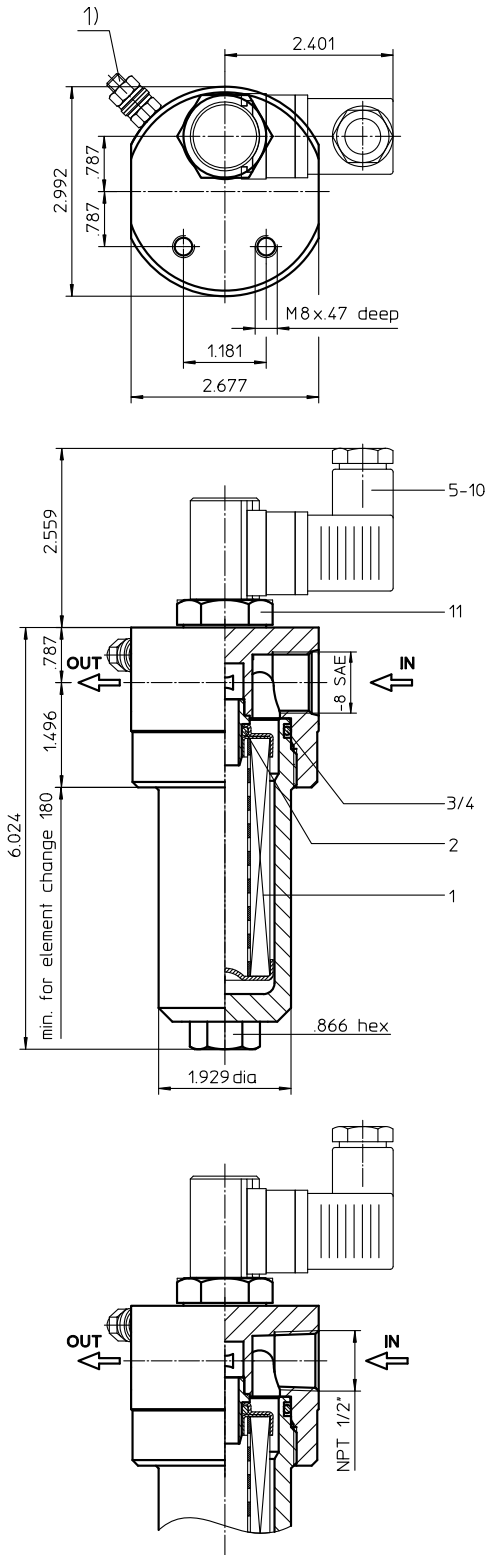


# Series EH 31 6000 PSI



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

Weight: approx. 7 lbs.

Dimensions: inches

Designs and performance values are subject to change.



Powering Business Worldwide

# Pressure Filter

## Series EH 31

### 6000 PSI

#### Description:

The stainless steel pressure filters series EH 31 have a working pressure up to 6000 PSI. 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 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  $\Delta p$  2320 PSI and a rupture strength of  $\Delta p$  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)

**EH. 31. 10VG. HR. E. P. VA. UG. 3. VA. - AE**

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

- |    |  |
|----|--|
| 1  | <b>series:</b><br>EH = stainless steel-pressure filter   |
| 2  | <b>nominal size:</b> 31  |
| 3  | <b>filter-material and filter-fineness:</b><br>80G, 40G, 25G, 10G stainless steel wire mesh<br>25VG, 16VG, 10VG, 6VG, 3VG microglass   |
| 4  | <b>filter element collapse rating:</b><br>30 = $\Delta p$ 435 PSI<br>HR = $\Delta p$ 2320 PSI (rupture strength $\Delta p$ 3625 PSI)   |
| 5  | <b>filter element design:</b><br>E = single-end open   |
| 6  | <b>sealing material:</b><br>P = Nitrile (NBR)<br>V = Viton (FPM)   |
| 7  | <b>filter element specification:</b> (see catalog)<br>- = standard<br>VA = stainless steel<br>IS06 = for HFC applications, see sheet-no. 31601   |
| 8  | <b>process connection:</b><br>UG = thread connection<br>NPT = thread connection according to ANSI B1.20.1  |
| 9  | <b>process connection size:</b><br>3 = -8 SAE or 1/2" NPT  |
| 10 | <b>filter housing specification:</b><br>VA = stainless steel   |
| 11 | <b>internal valve:</b><br>- = without<br>S1 = with by-pass valve $\Delta p$ 51 PSI<br>S2 = with by-pass valve $\Delta p$ 102 PSI   |
| 12 | <b>clogging indicator or clogging sensor:</b><br>- = without<br>AOR = visual, see sheet-no. 1606<br>AOC = visual, see sheet-no. 1606<br>AE = visual-electric, see sheet-no. 1615<br>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. 30. 10VG. HR. E. P. VA**

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

- |   |   |
|---|---|
| 1 | <b>series:</b><br>01E. = filter element according to company standard |
| 2 | <b>nominal size:</b> 30   |
| 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:	6000 PSI
test pressure:	8700 PSI
process connection:	thread connection or ANSI B1.20.1
housing material:	EN10088 - 1.4571 (316 Ti according to AISI)
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
volume tank:	0.03 Gal

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  $\Delta p$  and the element  $\Delta p$  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/](http://www.eatonpowersource.com/calculators/filtration/)

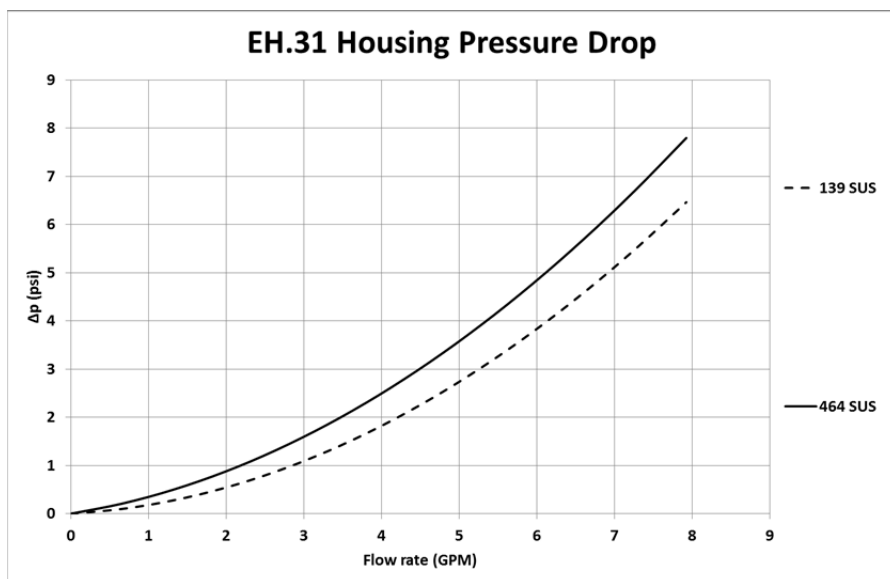
### Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm<sup>3</sup> and a kinematic viscosity of 139 SUS (30 mm<sup>2</sup>/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

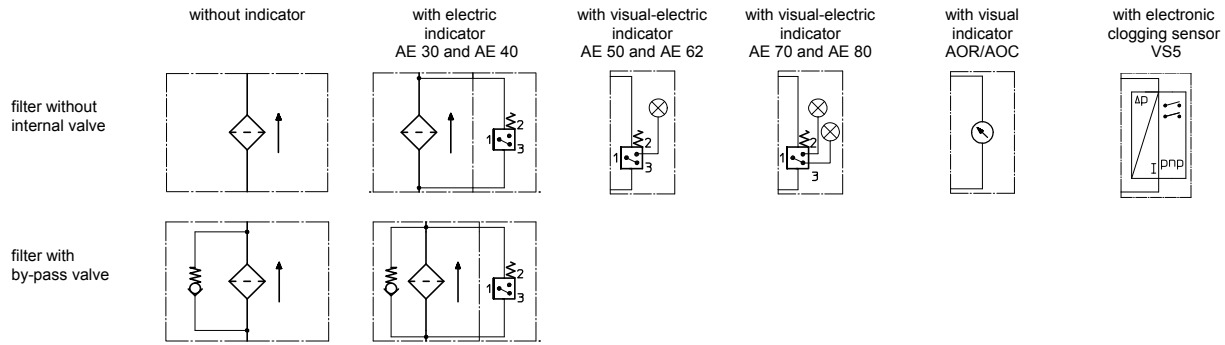
EH	VG					G		
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G
31	12.554	8.716	5.580	4.794	3.275	0.2539	0.2369	0.1623

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

The pressure drop characteristics apply to mineral oil (HLP) with a density of 0.876 kg/dm<sup>3</sup>. The pressure drop changes proportionally to the density.



## Symbols:



## Spare parts:

item	qty.	designation	dimension	article-no.	
1	1	filter element	01E.90...		
2	1	O-ring	11 x 3	312603 (NBR)	312727 (FPM)
3	1	O-ring	42 x 3,5	329381 (NBR)	338204 (FPM)
4	1	support ring	48 x 2,6 x 1	305391	
5	1	clogging indicator, visual	AOR or AOC	see sheet-no. 1606	
6	1	clogging indicator, visual-electric	AE	see sheet-no. 1615	
7	1	clogging sensor, electronic	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	314442	

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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### Brazil

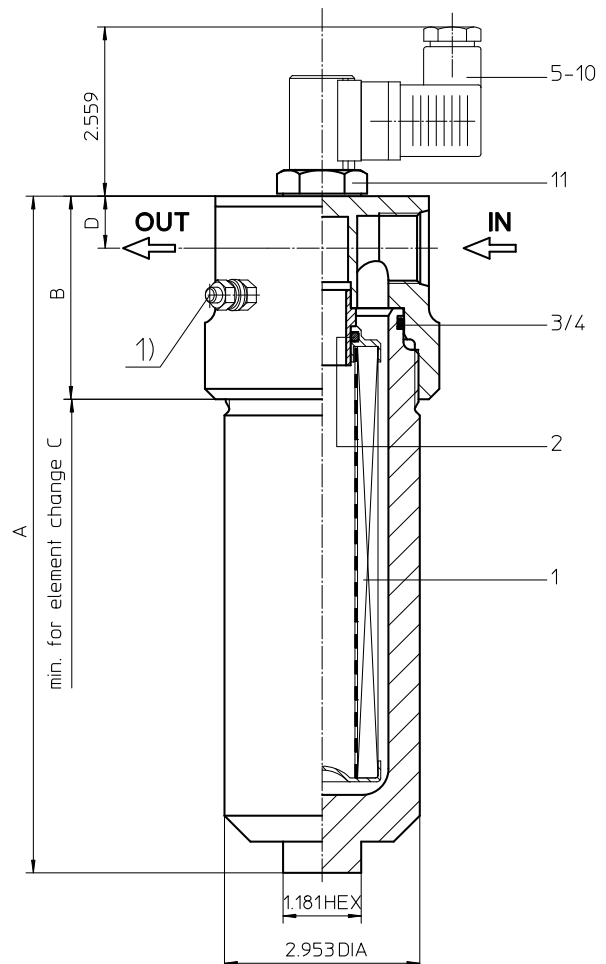
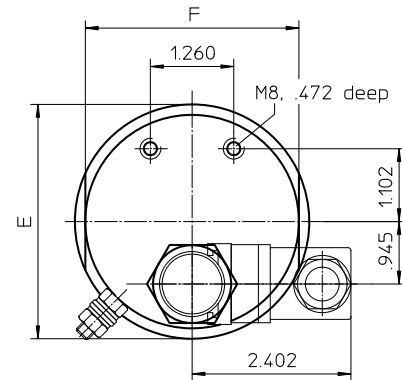
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# Series EH 60-150 6000 PSI



**Dimensions:**

type	EH 60	EH 90	EH 150
connection	- 8 SAE or NPT 1/2"	-12 SAE or NPT 3/4"	-16 SAE or NPT 1"
A	7.67	10.23	14.56
B	3.07	3.07	3.30
C	8.46	11.02	15.35
D	.78	.78	.90
E	3.54	3.54	3.74
F	3.22	3.22	3.30
weight approx.	18.70 lbs.	20.95 lbs.	27.55 lbs.
volume tank	.08 Gal.	.10 Gal.	.16 Gal.

Connection assignments as shown in the table are standard.  
To exchange connections see item 9 in type index.

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 EH 60-150

### 6000 PSI

#### Description:

The stainless steel pressure filters series EH 60-150 have a working pressure up to 6000 PSI. 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 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  $\Delta p$  2320 PSI and a rupture strength of  $\Delta p$  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.

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)

<b>EH.</b>	<b>90.</b>	<b>10VG.</b>	<b>HR.</b>	<b>E.</b>	<b>P.</b>	<b>VA.</b>	<b>UG.</b>	<b>4.</b>	<b>VA.</b>	<b>-.</b>	<b>AE</b>
1	2	3	4	5	6	7	8	9	10	11	12

#### 1 series:

EH = stainless steel-pressure filter

#### 2 nominal size: 60, 90, 150

#### 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 =  $\Delta p$  435 PSI  
HR =  $\Delta p$  2320 PSI (rupture strength  $\Delta p$  3625 PSI)

#### 5 filter element design:

E = single-end open

#### 6 sealing material:

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

#### 7 filter element specification: (see catalog)

- = standard  
VA = stainless steel  
IS06 = for HFC applications, see sheet-no. 31601

#### 8 process connection:

UG = thread connection  
NPT = thread connection according to ANSI B1.20.1

#### 9 process connection size:

3 = -8 SAE or 1/2" NPT  
4 = -12 SAE or 3/4" NPT  
5 = -16 SAE or 1 NPT

#### 10 filter housing specification: (see catalog)

VA = stainless steel

#### 11 internal valve:

- = without  
S1 = with by-pass valve  $\Delta p$  51 PSI  
S2 = with by-pass valve  $\Delta p$  102 PSI  
R = with reversing valve,  $Q \leq 55.75$  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 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)

<b>01E.</b>	<b>90.</b>	<b>10VG.</b>	<b>HR.</b>	<b>E.</b>	<b>P.</b>	<b>VA</b>
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:

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:	6000 PSI
test pressure:	8700 PSI
process connection:	thread connection or ANSI B1.20.1
housing material:	EN10088 - 1.4571 (316 Ti according to AISI)
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  $\Delta p$  and the element  $\Delta p$  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/](http://www.eatonpowersource.com/calculators/filtration/)

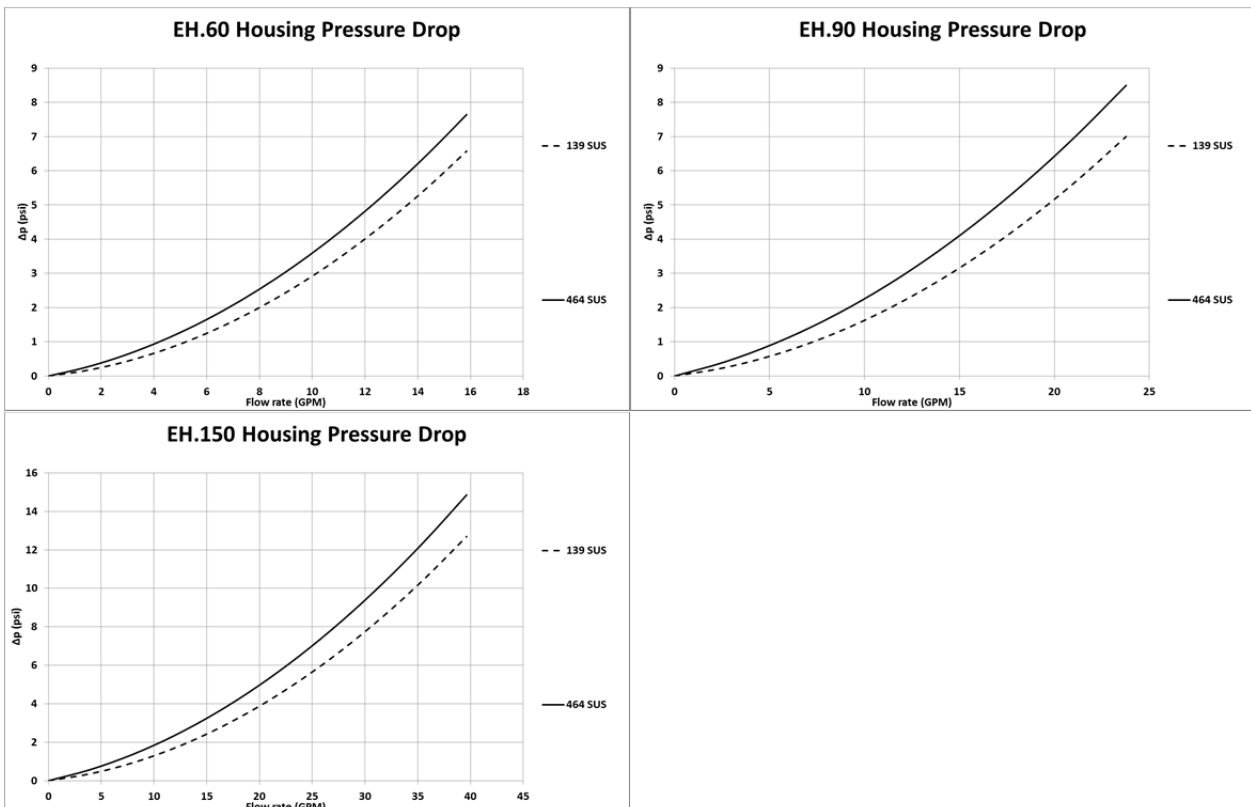
### Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm<sup>3</sup> and a kinematic viscosity of 139 SUS (30 mm<sup>2</sup>/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

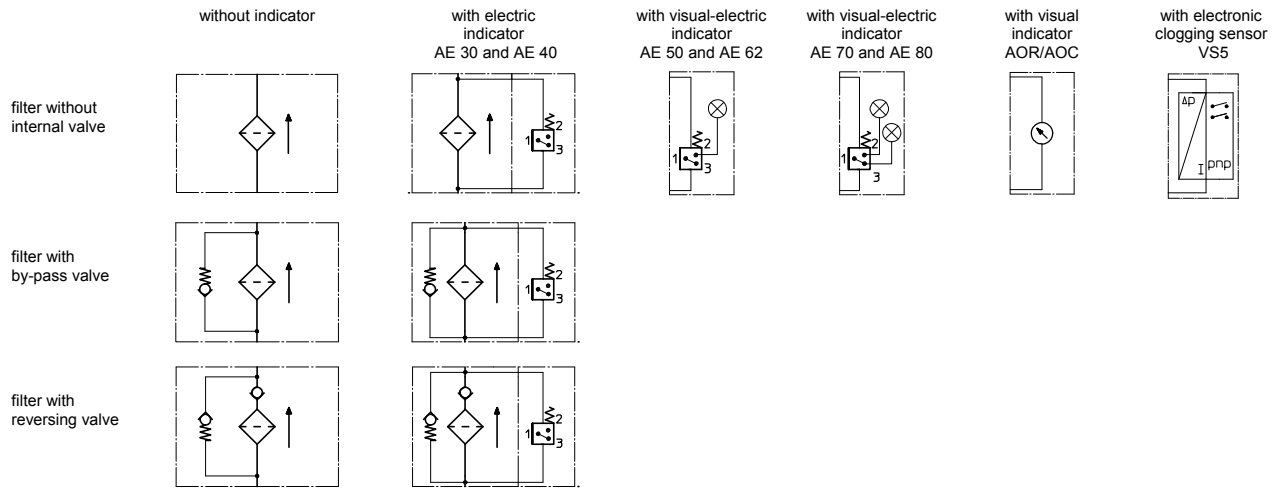
EH	VG					G		
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G
60	6.748	4.685	2.999	2.577	1.760	0.2002	0.1868	0.1280
90	4.059	2.818	1.804	1.550	1.059	0.1210	0.1130	0.0774
150	2.422	1.681	1.076	0.925	0.632	0.0723	0.0675	0.0462

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

The pressure drop characteristics apply to mineral oil (HLP) with a density of 0.876 kg/dm<sup>3</sup>. The pressure drop changes proportionally to the density.



## Symbols:



## Spare parts:

item	qty.	designation	dimension			article-no.	
			EH 60 01E.60...	EH 90 01E.90...	EH 150 01E.150...		
1	1	filter element					
2	1	O-ring	22 x 3,5			304341 (NBR)	304392 (FPM)
3	1	O-ring	56 x 3			305072 (NBR)	305322 (FPM)
4	1	support ring	63 x 2,6 x 1			312309	
5	1	clogging indicator, visual	AOR or AOC			see sheet no. 1606	
6	1	clogging indicator, visual-electric	AE			see sheet no. 1615	
7	1	clogging sensor, electronic	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			314442	

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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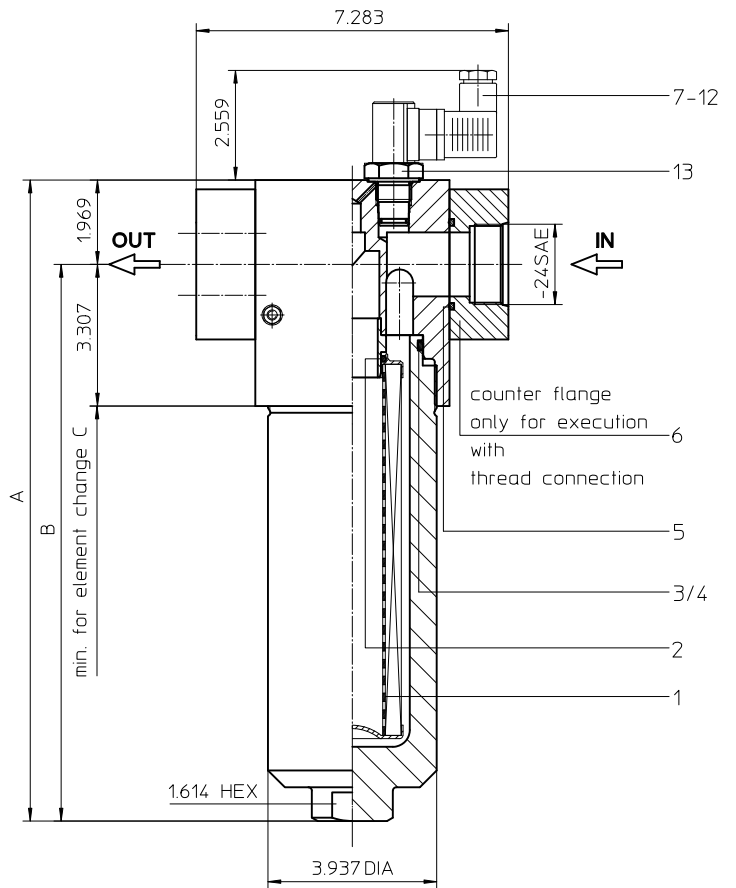
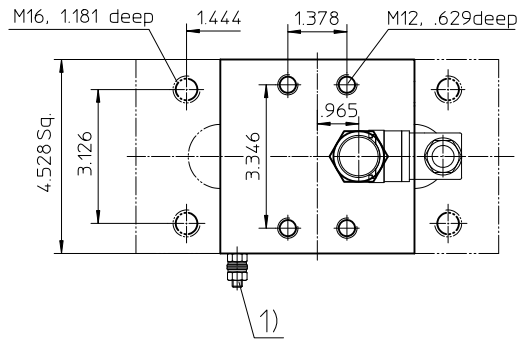
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# Series EH 240-450 6000 PSI

delineation without counter flange



**Dimensions:**

type	EH 240	EH 450
connection	-24 SAE or SAE 1 1/2"	
A	14.96	22.24
B	12.90	20.27
C	12.59	19.68
weight approx.	48 lbs.	66 lbs.
volume tank	.22 Gal.	.40 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 EH 240-450

### 6000 PSI

#### Description:

The stainless steel pressure filters series EH 240-450 have a working pressure up to 6000 PSI. 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 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  $\Delta p$  2320 PSI and a rupture strength of  $\Delta p$  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.

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)

**EH. 240. 10VG. HR. E. P. VA. FS. 7. VA. -. AE**

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

- |    |  |
|----|--|
| 1  | <b>series:</b><br>EH = stainless steel-pressure filter   |
| 2  | <b>nominal size:</b> 240, 450  |
| 3  | <b>filter-material and filter-fineness:</b><br>80G, 40G, 25G, 10G stainless steel wire mesh<br>25VG, 16VG, 10VG, 6VG, 3VG microglass   |
| 4  | <b>filter element collapse rating:</b><br>30 = $\Delta p$ 435 PSI<br>HR = $\Delta p$ 2320 PSI (rupture strength $\Delta p$ 3625 PSI)   |
| 5  | <b>filter element design:</b><br>E = single-end open   |
| 6  | <b>sealing material:</b><br>P = Nitrile (NBR)<br>V = Viton (FPM)   |
| 7  | <b>filter element specification:</b> (see catalog)<br>- = standard<br>VA = stainless steel<br>IS06 = for HFC applications, see sheet-no. 31601   |
| 8  | <b>process connection:</b><br>UG = thread connection<br>FS = SAE-flange 6000 PSI   |
| 9  | <b>process connection size:</b><br>7 = 1 1/2"  |
| 10 | <b>filter housing specification:</b><br>VA = stainless steel   |
| 11 | <b>internal valve:</b><br>- = without<br>S1 = with by-pass valve $\Delta p$ 51 PSI<br>S2 = with by-pass valve $\Delta p$ 102 PSI<br>R = with reversing valve, $Q \leq 55.75$ GPM   |
| 12 | <b>clogging indicator or clogging sensor:</b><br>- = without<br>AOR = visual, see sheet-no. 1606<br>AOC = visual, see sheet-no. 1606<br>AE = visual-electric, see sheet-no. 1615<br>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. 240. 10VG. HR. E. P. VA**

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

- |   |   |
|---|---|
| 1 | <b>series:</b><br>01E. = filter element according to company standard |
| 2 | <b>nominal size:</b> 240, 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:	6000 PSI
test pressure:	8700 PSI
process connection:	thread connection or SAE-flange 6000 PSI
housing material:	EN10088 - 1.4571 (316 Ti according to AISI)
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  $\Delta p$  and the element  $\Delta p$  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/](http://www.eatonpowersource.com/calculators/filtration/)

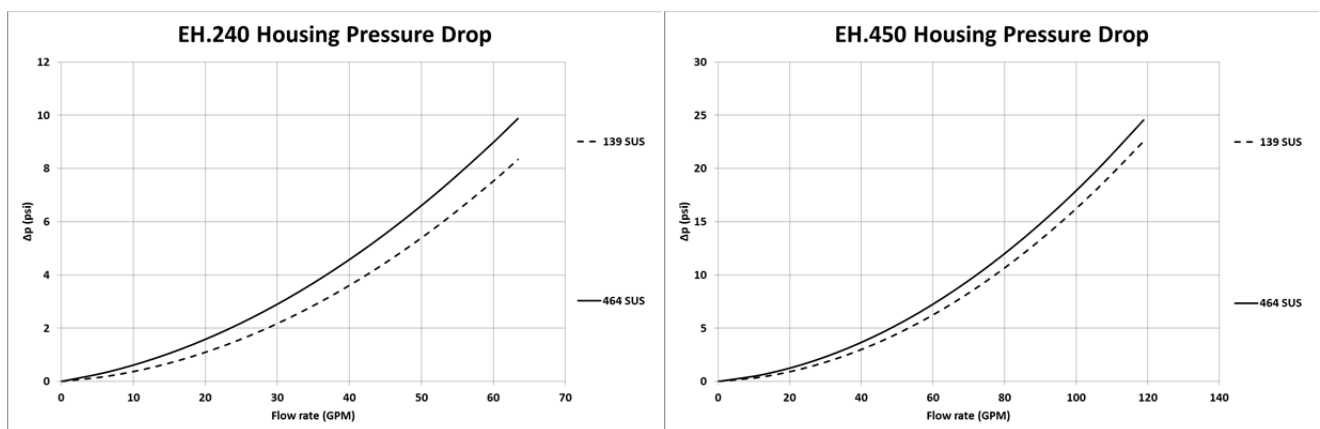
### Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm<sup>3</sup> and a kinematic viscosity of 139 SUS (30 mm<sup>2</sup>/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

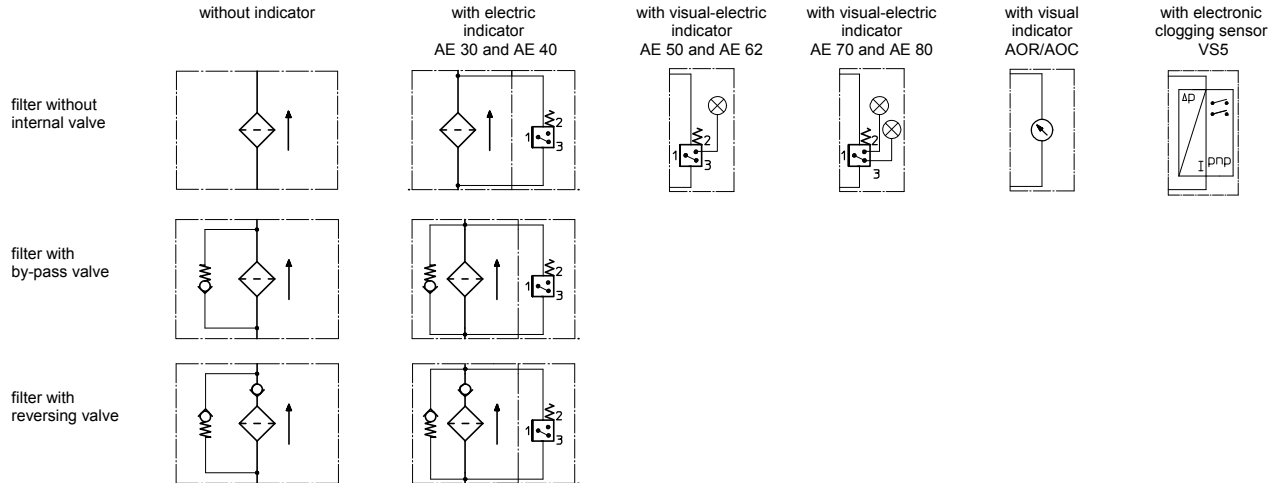
EH	VG					G		
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G
240	2.092	1.452	0.930	0.799	0.546	0.0651	0.0607	0.0416
450	1.126	0.782	0.500	0.430	0.294	0.0349	0.0326	0.0223

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

The pressure drop characteristics apply to mineral oil (HLP) with a density of 0.876 kg/dm<sup>3</sup>. The pressure drop changes proportionally to the density.



## Symbols:



## Spare parts:

item	qty.	designation	dimension		article-no.	
			EH 240	EH 450		
1	1	filter element	01E.240...	01E.450...		
2	1	O-ring	34 x 3,5		304338 (NBR)	304730 (FPM)
3	1	O-ring	76 x 4		305599 (NBR)	310291 (FPM)
4	1	support ring	84 x 3,2 x 1,5		312307	
5	2	O-ring (only with counter flange)	47,22 x 3,53		305078 (NBR)	310269 (FPM)
6	2	counter flange 6000 PSI	SAE 1 1/2"		322274	
7	1	clogging indicator, visual	AOR or AOC		see sheet no. 1606	
8	1	clogging indicator, visual-electric	AE		see sheet no. 1615	
9	1	clogging sensor, electronic	VS5		see sheet no. 1619	
10	1	O-ring	15 x 1,5		315357 (NBR)	315427 (FPM)
11	1	O-ring	22 x 2		304708 (NBR)	304721 (FPM)
12	1	O-ring	14 x 2		304342 (NBR)	304722 (FPM)
13	1	screw plug	20913-4		314442	

item 13 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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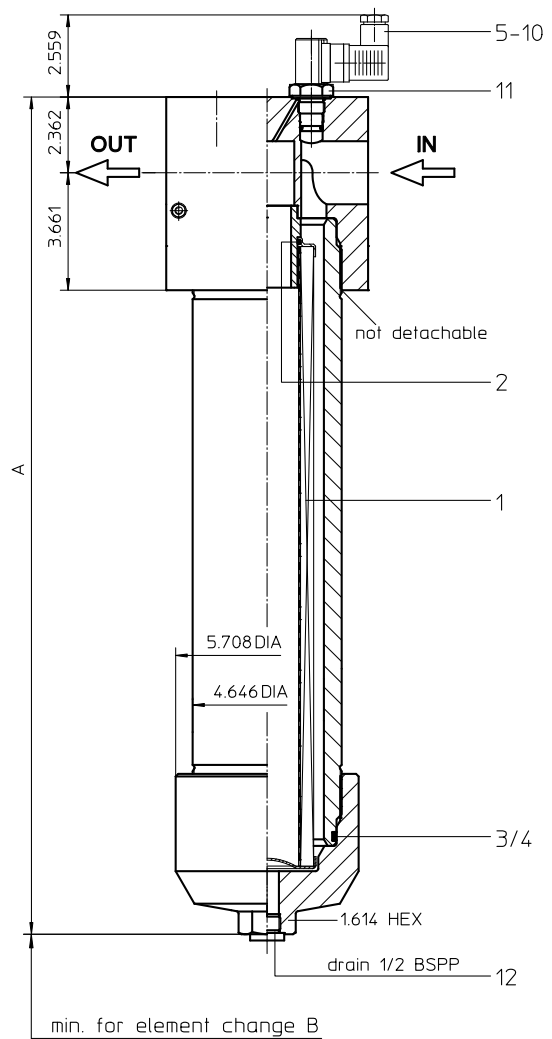
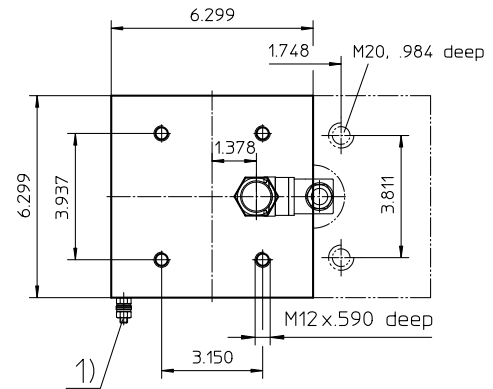
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# Series EH 601-1351

## 4568 PSI



**Dimensions:**

type	EH 601	EH 901	EH 1351
connection	SAE 2"		
A	20.47	23.37	36.14
B	12.20	18.11	27.95
weight approx.	108 lbs.	123 lbs.	150 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.



Powering Business Worldwide

# Pressure Filter

## Series EH 601-1351

### 4568 PSI

#### Description:

The stainless steel pressure filters series EH 601-1351 have a working pressure up to 4568 PSI. . 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 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  $\Delta p$  2320 PSI and a rupture strength of  $\Delta p$  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.

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)

**EH.901.10VG.HR. E. P. VA. FS. 8. VA. -. AE**

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

- 1 series:**  
EH = stainless steel-pressure filter
- 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 =  $\Delta p$  435 PSI  
HR =  $\Delta p$  2320 PSI (rupture strength  $\Delta p$  3625 PSI)
- 5 filter element design:**  
E = single-end open
- 6 sealing material:**  
P = Nitrile (NBR)  
V = Viton (FPM)
- 7 filter element specification:** (see catalog)  
- = standard  
VA = stainless steel  
IS06 = for HFC applications, see sheet-no. 31601
- 8 process connection:**  
FS = SAE-flange 6000 PSI
- 9 process connection size:**  
8 = 2"
- 10 filter housing specification:**  
VA = stainless steel
- 11 internal valve:**  
- = without  
S1 = with by-pass valve  $\Delta p$  51 PSI  
S2 = with by-pass valve  $\Delta p$  102 PSI  
R = with reversing valve,  $Q \leq 122.94$  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 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. VA**

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:

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:	6525 PSI
process connection:	SAE-flange 6000 PSI
housing material:	EN10088 - 1.4571 (316 Ti according to AISI)
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  $\Delta p$  and the element  $\Delta p$  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/](http://www.eatonpowersource.com/calculators/filtration/)

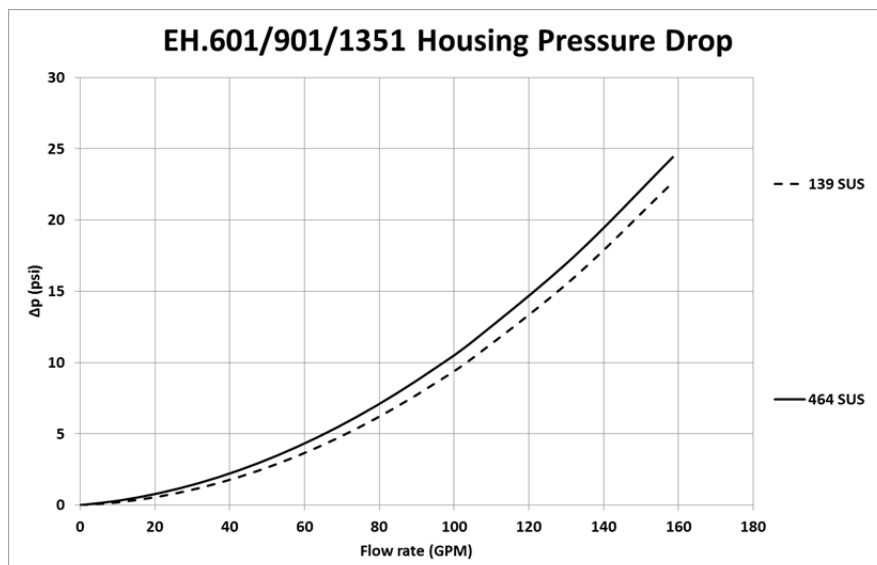
### Material gradient coefficients (MSK) for filter elements

The material gradient coefficients in psi/gpm apply to mineral oil (HLP) with a density of 0.876 kg/dm<sup>3</sup> and a kinematic viscosity of 139 SUS (30 mm<sup>2</sup>/s). The pressure drop changes proportionally to the change in kinematic viscosity and density.

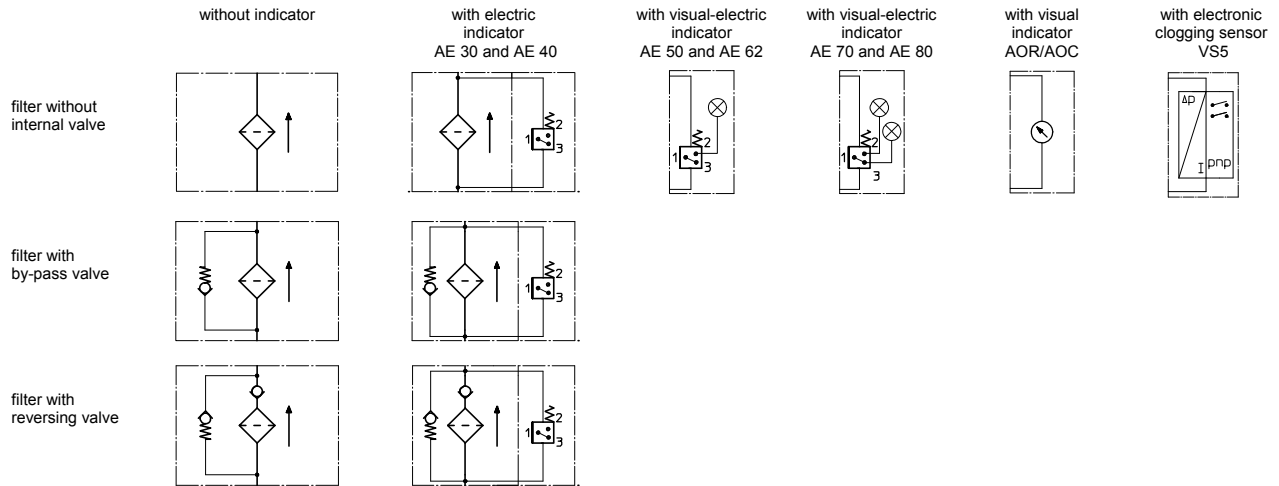
EH	VG					G		
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G
601	0.963	0.669	0.428	0.368	0.251	0.0303	0.0282	0.0193
901	0.668	0.464	0.297	0.225	0.174	0.0189	0.0177	0.0121
1351	0.417	0.290	0.185	0.185	0.109	0.0122	0.0114	0.0078

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

The pressure drop characteristics apply to mineral oil (HLP) with a density of 0.876 kg/dm<sup>3</sup>. The pressure drop changes proportionally to the density.



## Symbols:



## Spare parts:

item	qty.	designation	dimension			article-no.	
			EH 601	EH 901	EH 1351		
1	1	filter element	01E.600...	01E.900...	01E.1350...		
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	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		VS1		see sheet no. 1617	
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		314442	
12	1	screw plug		½ BSPP		306966	

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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