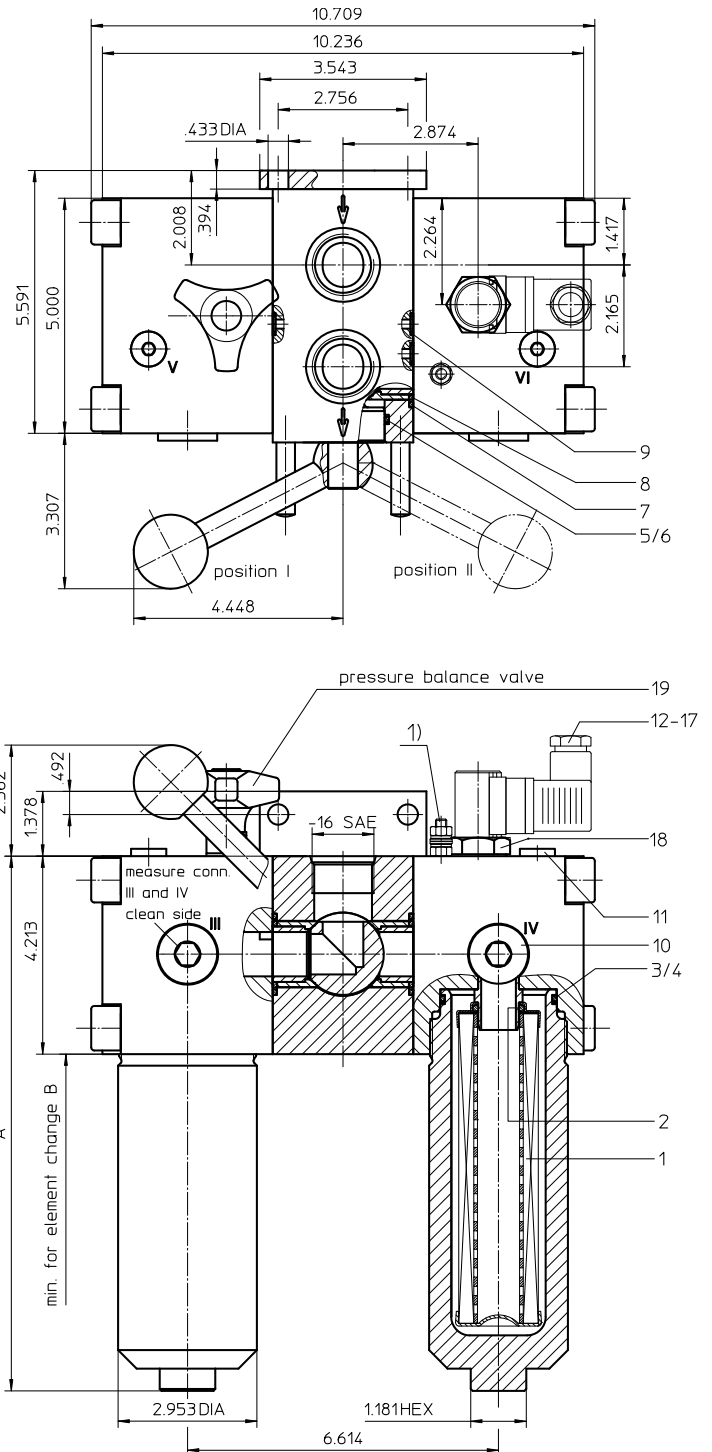


# Series EHD 61-151

## 4568 PSI



Position. I: left filter-side in operation  
 Position. II: right filter-side in operation  
 Connection V and VI used to  
 bleed filter or to relieve pressure

**Dimensions:**

type	EHD 61	EHD 91	EHD 151
connection	- 16 SAE		
A	8.81	11.37	15.70
B	8.26	13.38	17.71
weight approx.	66 lbs.	70 lbs.	77 lbs.
volume tank	2x .06 Gal.	2x .10 Gal.	2x .16 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

# Stainless Steel-Pressure Filter Series EHD 61-151 4568 PSI

## Description:

Stainless steel duplex filters series EHD have a working pressure up to 4568 PSI. Duplex filters can be serviced without interruption of operation.

The filter head has a three-way-change-over valve which diverts the flow from the dirty filter-side to the clean filter-side without interrupting operation of the filter. All filter housings have an integrated pressure balance valve to make main valve operation from one filter side to the other easier. Filter elements are available down to 5  $\mu\text{m}_{(c)}$ . 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 suitable for all petroleum based fluids, HW-emulsions, most synthetic hydraulic fluids and lubrication oils.

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>EHD. 91. 10VG. HR. E. P. VA. UG. 5. VA. -. AE</b>											
1	2	3	4	5	6	7	8	9	10	11	12

#### 1 series:

EHD = stainless steel-pressure filter, change over

#### 2 nominal size: 61, 91, 151

#### 3 filter-material and filter-fineness:

80G, 40G, 25G 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

#### 8 process connection:

UG = thread connection

#### 9 process connection size:

5 = -16 SAE

#### 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 = reversing valve,  $Q \leq 18.50$  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. 90. 10VG. HR. E. P. 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

## Accessories:

- gauge port- and bleeder connection, see sheet-no. 1650

## 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:	EN 10088-3-1.4571 (316 Ti according to AISI)
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
air bleeding and measure connections dirt side:	BSPP ¼
measure connections clean side:	BSPP ¼

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/)

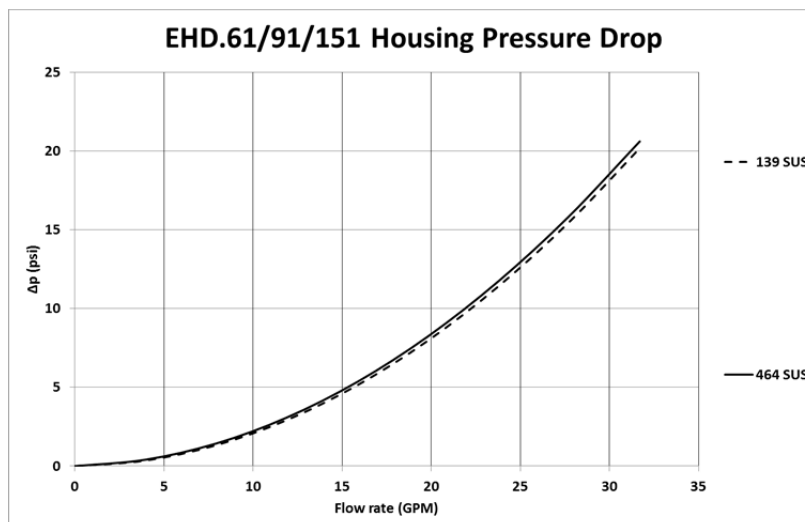
### Material gradient coefficients (MSK) for filter elements

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.

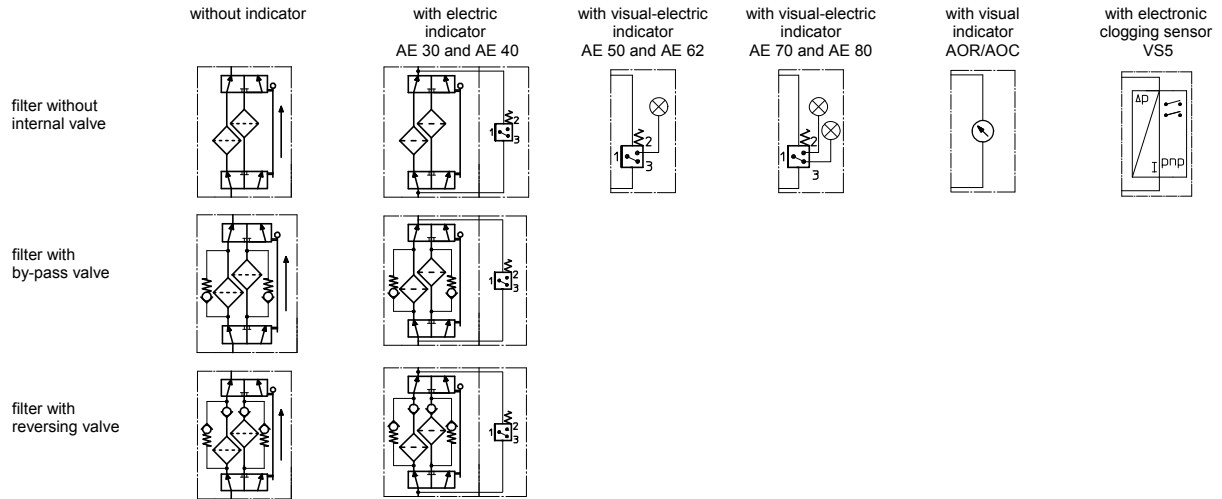
EHD	VG					G		
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G
61	6.748	4.685	2.999	2.577	1.760	0.2002	0.1868	0.1280
91	4.059	2.818	1.804	1.550	1.059	0.1210	0.1130	0.0774
151	2.422	1.681	1.076	0.925	0.632	0.0723	0.0675	0.0462

### $\Delta p = f(Q)$ – 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.	
			EHD 61	EHD 91	EHD 151		
1	2	filter element	01E.60...	01E.90...	01E.150 ...		
2	2	O-ring		22 x 3,5		304341 (NBR)	304392 (FPM)
3	2	O-ring		56 x 3		305072 (NBR)	305322 (FPM)
4	2	support ring		63 x 2,6 x 1			312309
5	3	O-ring		45 x 3		304991 (NBR)	304997 (FPM)
6	2	support ring		49,7 x 2,4 x 1			317709
7	4	O-ring		38 x 3		304340 (NBR)	317013 (FPM)
8	4	O-ring		28 x 3		316778 (NBR)	318366 (FPM)
9	4	O-ring		8 x 2		310004 (NBR)	316530 (FPM)
10	2	screw plug		¼ BSPP			313815
11	2	screw plug		¼ BSPP			306968
12	1	clogging indicator, visual		AOR or AOC			see sheet-no. 1606
13	1	clogging indicator, visual-electric		AE			see sheet-no. 1615
14	1	clogging sensor, electronic		VS5			see sheet-no. 1619
15	1	O-ring		15 x 1,5		315357 (NBR)	315427 (FPM)
16	1	O-ring		22 x 2		304708 (NBR)	304721 (FPM)
17	1	O-ring		14 x 2		304342 (NBR)	304722 (FPM)
18	1	screw plug		20913-4			314442
19	1	pressure balance valve		3/8"			310316

item 18 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