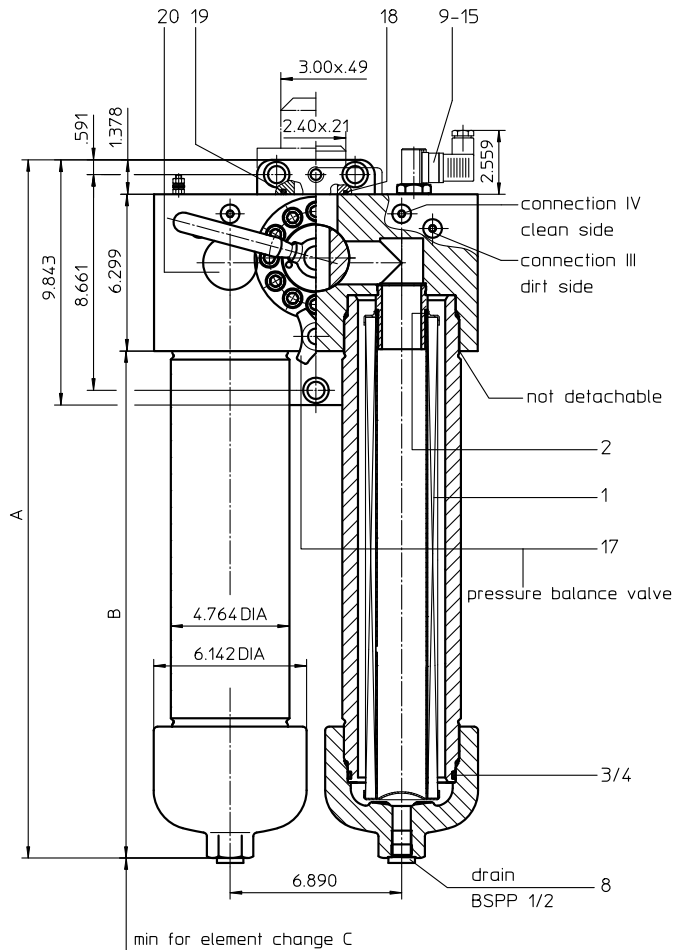
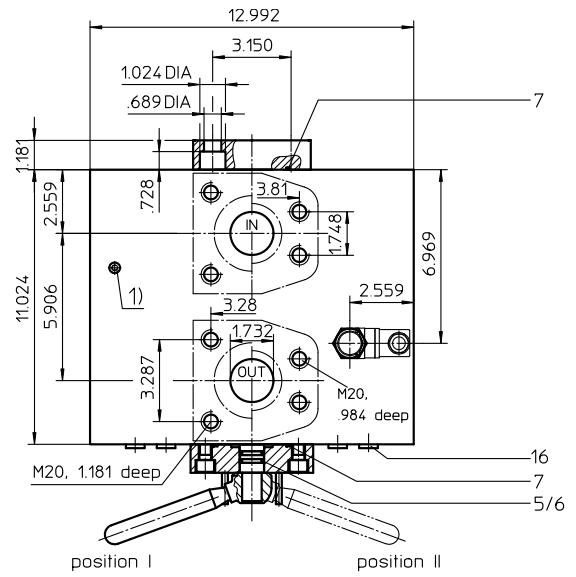


# Series HDD 601-1351 4568 PSI



Position. I: left filter-side in operation  
 Position. II: right filter-side in operation  
 Connection III and IV should be used to bleed filter or to relieve pressure.

**Dimensions:**

type	HDD 601	HDD 901	HDD 1351
connection	SAE 2"		
A	22.32	28.22	37.99
B	14.65	20.55	30.30
C	12.20	18.11	27.95
weight approx.	315 lbs.	330 lbs.	356 lbs.
volume tank	2x .55 Gal.	2x .82 Gal.	2x 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 HDD 601-1351

### 4568 PSI

#### Description:

Duplex pressure filter series HDD 601-1351 with change-over valve have a working pressure up to 4568 PSI. Pressure peaks can be absorbed with a sufficient safety margin. 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  $\mu\text{m}_{(0)}$ . 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)

**HDD. 901. 10VG. HR. E. P. -. FS. 8. -. -. AE**

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

- |    |                                                                                                                                                                                                                          |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | <b>series:</b><br>HDD = pressure filter, change over                                                                                                                                                                     |
| 2  | <b>nominal size:</b> 601, 901, 1351                                                                                                                                                                                      |
| 3  | <b>filter-material and filter-fineness:</b><br>80G, 40G, 25G 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><br>- = standard<br>VA = stainless steel                                                                                                                                             |
| 8  | <b>process connection:</b><br>FS = SAE-flange 6000 PSI (standard)<br>FV = AVIT-flange 4640 PSI (special design)                                                                                                          |
| 9  | <b>process connection size:</b><br>8 = 2"                                                                                                                                                                                |
| 10 | <b>filter housing specification:</b><br>- = standard                                                                                                                                                                     |
| 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 = reversing valve, $Q \leq 122.94$ 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. 900. 10VG. HR. E. P. -**

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

- |   |                                                                       |
|---|-----------------------------------------------------------------------|
| 1 | <b>series:</b><br>01E. = filter element according to company standard |
| 2 | <b>nominal size:</b> 600, 900, 1350                                   |
| 3 | - 7   see type index-complete filter                                  |

#### Accessories:

- gauge port- and bleeder connection, see sheet-no. 1650
- SAE-counter flange, see sheet-no. 1652
- AVIT-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:	4538 PSI
test pressure:	6525 PSI
process connection:	SAE-flange 6000 PSI (standard) or AVIT-flange 4640 PSI (special design)
housing material:	EN-GJS-400-18-LT, C-steel
sealing material:	Nitrile (NBR) or Viton (FPM), other materials on request
installation position:	vertical
air bleeding connections:	BSPP ¼
measure connections:	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/)

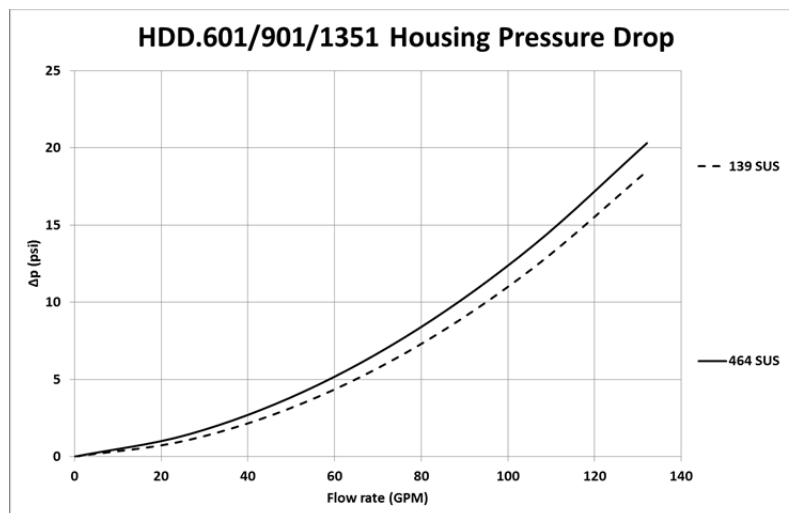
### Material gradient coefficients (MSK) for filter elements

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.

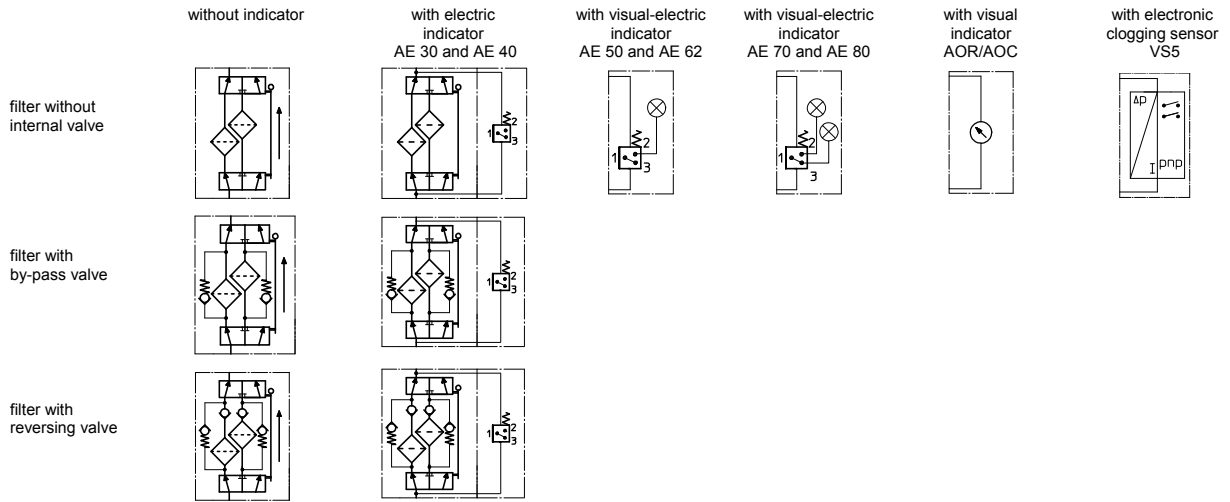
HDD	VG					G		
	3VG	6VG	10VG	16VG	25VG	25G	40G	80G
601	0.963	0.669	0.428	0.368	0.251	0.0303	0.0282	0.0193
901	0.668	0.464	0.297	0.225	0.174	0.0189	0.0177	0.0121
1351	0.417	0.290	0.185	0.185	0.109	0.0122	0.0114	0.0078

### $\Delta p = f(Q)$ – 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.	
			HDD 601 01E.600...	HDD 901 01E.900...	HDD 1351 01E.1350...		
1	2	filter element		48 x 3		304357 (NBR)	304404 (FPM)
2	2	O-ring		98 x 4		301914 (NBR)	304765 (FPM)
3	2	O-ring		110 x 3,5 x 2		304802	
4	2	support ring		18 x 3		304359 (NBR)	304399 (FPM)
5	2	O-ring		25 x 2,5 x 0,5		311311	
6	2	support ring		71 x 3		306451 (NBR)	306897 (FPM)
7	2	O-ring		1/2 BSPP		304678	
8	2	screw plug		AOR or AOC		see sheet no. 1606	
9	1	clogging indicator, visual		AE		see sheet no. 1615	
10	1	clogging indicator, visual-electric		VS5		see sheet no. 1619	
11	1	clogging sensor, electronic		15 x 1,5		315457 (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	O-ring		20913-4		309817	
15	1	screw plug		1/4 BSPP		305003	
16	4	screw plug		3/8"		305000	
17	1	pressure balance valve		56,75 x 3,53		306035 (NBR)	310264 (FPM)
18	1	O-ring (only with counter flange SAE)		61 x 5			
19	1	O-ring (only with counter flange AVIT)		1 1/2 BSPP		311475	
20	8	screw plug					

item 15 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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