

High Pressure Safety Filters

**HD 040 · HD 081 · HD 150**

In-line mounting · Operating pressure up to 500 bar / 7250 psi · Nominal flow rate up to 100 l/min / 26.4 gpm



High-Pressure Safety Filter HD 081

Description

**Application**

In the high-pressure circuits of hydraulic systems.

**Performance features**

Functional protection:

The high-pressure safety filter retains residues remaining in the system due to installation or after repairs, and intake chops from pumps (especially gear pumps). This prevents functional failures or faults on downstream components, particularly control / regulation or throttle valves.

Protection against wear:

For wear protection, a fine filter should be installed elsewhere in the system.

**Filter elements**

Flow direction from outside to center.

The star-shaped pleating of the filter material provides:

- › large filter surfaces
- › low pressure drop
- › high dirt-holding capacities
- › long service life

**Materials**

Housing: Steel, zinc plated

Seals: NBR (FPM on request)

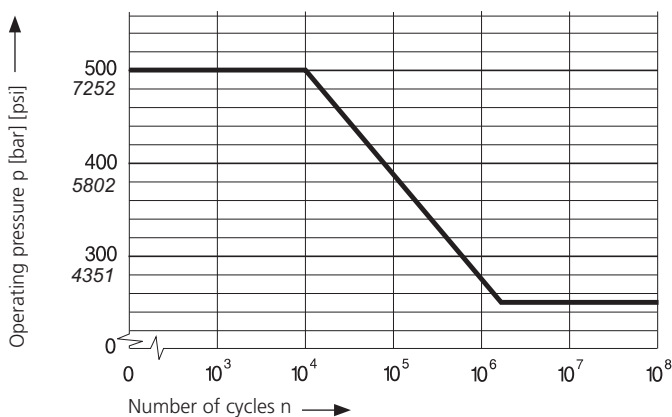
Filter media: Stainless steel wire mesh (1.4301)

**Operating pressure**

0 ... 250 bar / 3625 psi, min.  $2 \times 10^6$  pressure cycles  
 Nominal pressure according to DIN 24550

0 ... 500 bar / 7250 psi, min.  $10^4$  pressure cycles  
 Quasi-static operating pressure

**Permissible pressure for other numbers of cycles**



**Nominal flow rate**

Up to 100 l/min / 26.4 gpm (see Selection Chart, column 2)  
 The nominal flow rates indicated by ARGO-HYTOS are based on the following features:

- closed by-pass valve at  $v \leq 200 \text{ mm}^2/\text{s} / 927 \text{ SUS}$
- flow velocity in the connection lines:  
 up to 250 bar  $\leq 8 \text{ m/s} / \text{ up to } 3626 \text{ psi} \leq 26.3 \text{ ft/s}$   
 > 250 bar  $\leq 12 \text{ m/s} / > 3626 \text{ psi} \leq 39.4 \text{ ft/s}$

**Filter fineness**

60  $\mu\text{m}$ , 100  $\mu\text{m}$   
 (see Selection Chart, column 4).

**Hydraulic fluids**

Mineral oil and biodegradable fluids  
 (HEES and HETG, see info-sheet 00.20).

**Temperature range**

-30 °C ... +100 °C (temporary -40 °C ... +120 °C)  
 -22 °F ... +212 °F (temporary -40 °F ... +248 °F)

**Viscosity at nominal flow rate**

- at operating temperature:  $v < 60 \text{ mm}^2/\text{s} / 280 \text{ SUS}$
- as starting viscosity:  $v_{\text{max}} = 1200 \text{ mm}^2/\text{s} / 5560 \text{ SUS}$
- at initial operation:  
 The recommended starting viscosity can be read from the diagram D (pressure drop as a function of the kinematic viscosity) as follows: find the 70%  $\Delta p$  of the cracking pressure of the by-pass valve on the vertical axis. Draw a horizontal line so that it intersects the  $\Delta p$  curve at a point. Read this point on the horizontal axis for the viscosity.

**Mounting position**

As desired.

**Connection**

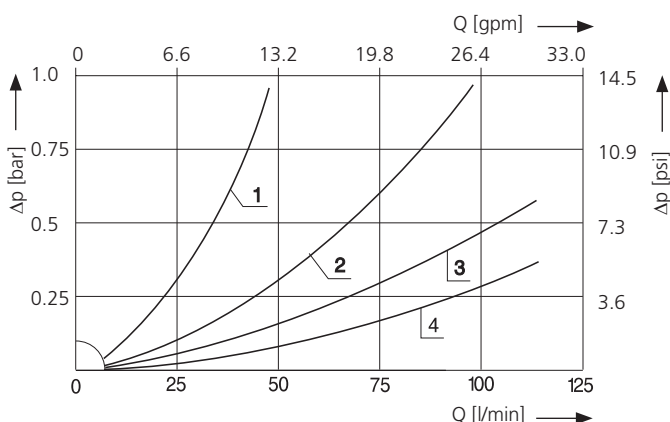
Threaded ports according to  
 ▶ ISO 228, DIN 13 or DIN 3861  
 ▶ SAE standard J514  
 Sizes see Selection Chart, column 7  
 (other port threads on request).

For installation recommendations, see info sheet 00.325.

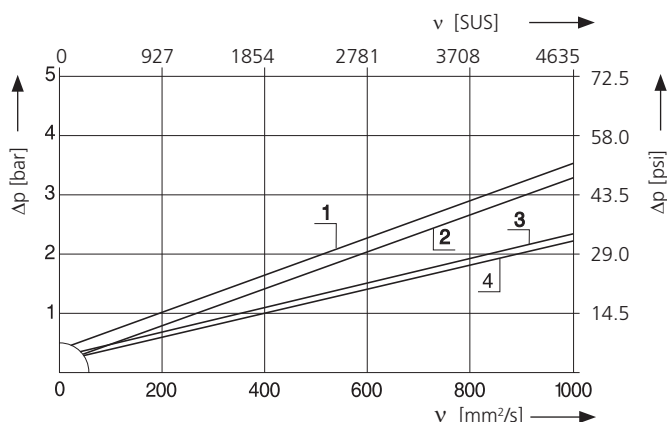
Diagrams

**$\Delta p$ -curves for the filters in Selection Chart, column 3**

**D1** Pressure drop as a function of the flow volume at  $v = 35 \text{ mm}^2/\text{s} / 162 \text{ SUS}$



Pressure drop as a function of the kinematic viscosity at nominal flow



## Selection Chart

Part No.	Nominal flow rate	Pressure drop see diagram D1/curve no.	Filter fineness	Filter surface	Cracking pressure of by-pass	Connection A/B	Dimension C	Dimension D	Dimension E	Dimension F	Dimension H	Dimension L	Width across flats AF <sup>1/2</sup>	Symbol	Weight	Remarks
	l/min		µm	cm <sup>2</sup>	bar		mm	mm	mm	mm	mm	mm			kg	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
HD 040-110	40	<b>D1/1</b>	100	60	-	M22 x 1.5	12	-	7	15	63	97	36/36	1	0.45	1+2
HD 081-111	80	<b>D1/2</b>	100	125	-	M26 x 1.5	12	52	7.5	18	11	130	46/46	1	1.10	1+2
HD 150-01	100	<b>D1/3</b>	100	300	-	G <sup>3/4</sup>	12	65	10.5	-	-	142.5	55/36	1	2.00	<sup>1</sup>
HD 150-50	100	<b>D1/4</b>	60	320	3.5	G <sup>3/4</sup>	12	65	10.5	-	-	142.5	55/36	2	1.90	-

<sup>1</sup> Filter element differential pressure stable up to 160 bar / 2320 psi

<sup>2</sup> Connection according to DIN 3861

	gpm		µm	inch <sup>2</sup>	psi		inch	inch	inch	inch	inch	inch	mm		lbs	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
HD 040-710	10.6	<b>D1/1</b>	60	9.3	-	-10/ -8 SAE <sup>3</sup>	0.47	-	0.28	0.59	2.48	3.82	36/36	1	1.0	<sup>1</sup>
HD 081-711	21.1	<b>D1/2</b>	100	19.4	-	-12 SAE <sup>4</sup>	0.47	2.05	0.30	0.71	0.43	5.12	46/46	1	2.4	<sup>1</sup>
HD 150-701	26.4	<b>D1/3</b>	100	46.5	-	-12 SAE <sup>5</sup>	0.47	2.56	0.41	-	-	5.61	55/36	1	4.4	<sup>1</sup>

<sup>1</sup> Filter element differential pressure stable up to 2320 psi / 160 bar

<sup>3</sup> Corresponds to 1-14 UNS-2A / <sup>13</sup>/<sub>16</sub>-16 UN-2A

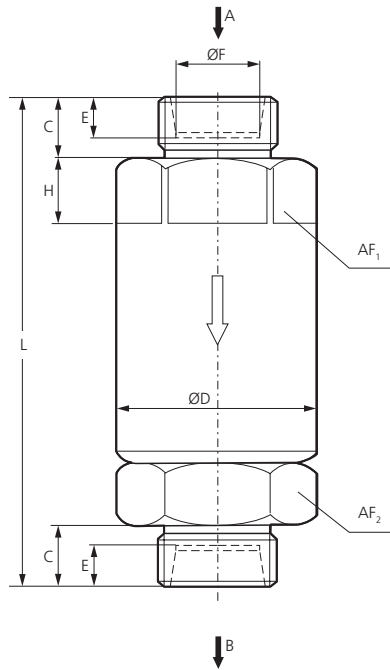
<sup>4</sup> Corresponds to 1<sup>1</sup>/<sub>16</sub>-12 UN-2A

<sup>5</sup> Corresponds to 1<sup>1</sup>/<sub>16</sub>-12 UN-2B

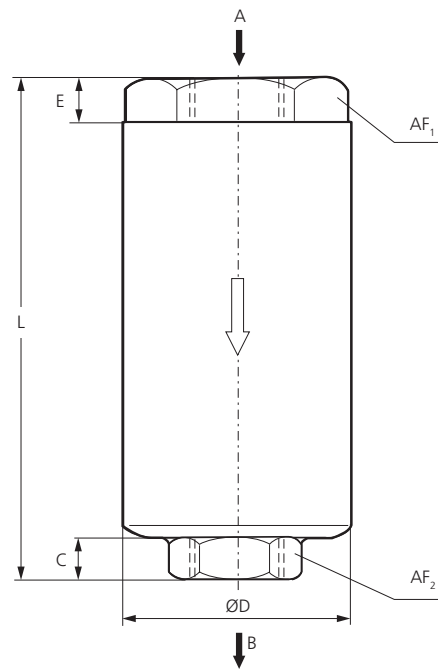
### Remark:

The filters listed in the chart are standard filters. If modifications are required, e.g. different filter finenesses, we kindly ask for your request.

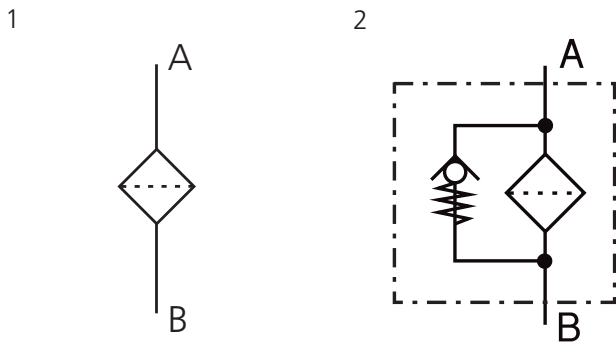
HD 040 / HD 081



HD 150



Symbols



Quality Assurance

Quality management according to DIN EN ISO 9001

To ensure constant quality in production and operation, ARGO-HYTOS filter elements undergo strict controls and tests according to the following ISO standards:

- ISO 2941 Verification of collapse / burst pressure rating
- ISO 2942 Verification of fabrication integrity (Bubble Point Test)
- ISO 2943 Verification of material compatibility with fluids
- ISO 3968 Evaluation of pressure drop versus flow characteristics
- ISO 16889 Multi-Pass-Test (evaluation of filter fineness and dirt-holding capacity)
- ISO 23181 Determination of resistance to flow fatigue using high viscosity fluid

**Before release into the series production the filter casing is tested for fatigue strength in our pressure pulse test rig. Various quality controls during the production process guarantee the leakfree function and solidity of our filters.**

Illustrations may sometimes differ from the original. ARGO-HYTOS is not responsible for any unintentional mistake in this specification sheet.