

Suction Filters

**ES 075**

Tank top mounting · Connection up to G1¼ · Nominal flow rate up to 80 l/min / 21.1 gpm



Suction Filter ES 075

Description

**Application**

To be installed in the suction line of the pumps of hydraulic systems resp. upstream of the charge pumps of hydrostatic drives.

**Performance features**

*Protection against wear:*

By means of filter elements that even in full-flow filtration meet the highest demands regarding cleanliness classes.

*Protection against malfunction:*

By full-flow filtration in the suction line, the pumps above all are protected from dirt particles remaining in the system after assembly, repairs, or which are generated by wear or enter the system from outside.

**Special features**

- › Bypass valve (optionally):  
The location close to the suction inlet prevents dirt particles retained by the filter element from entering into the clean oil side.
- › Foot valve:  
When the screw-on cap is removed for maintenance, the foot valve closes automatically. This makes it possible to service the filter even if it is submerged below the oil level in a full tank.

**Filter elements**

Flow direction from center to outside.

The star-shaped pleating of the filter material results in:

- › large filter surfaces
- › low pressure drop
- › high dirt-holding capacities
- › particularly long service intervals
- › In versions with a magnet system, ferromagnetic particles first flow through the effective area of a strong magnetic field and are separated.

**Filter maintenance**

By using a clogging indicator, the correct moment for maintenance is stated, what guarantees an optimum utilization of the filter life.

## Materials

Screw-on cap:	Polyester, GF reinforced
Filter head:	Aluminum alloy
Filter bowl:	Polyamide, GF reinforced
Seals:	NBR (FPM on request)
Filter media:	EXAPOR®MAX 3 - inorganic multi-layer microfiber web Paper – cellulose web, impregnated with resin

## Accessories

Electrical and / or optical clogging indicators are available on request. Dimensions and technical data see catalogue sheet 60.20.

## Characteristics

### Nominal flow rate

Up to 80 l/min / 21.1 gpm (see Selection Chart, column 2).  
The nominal flow rates indicated by ARGO-HYTOS are based on the following features:

- › closed bypass valve at  $v \leq 200 \text{ mm}^2/\text{s}$  / 927 SUS
- › Element service life > 1000 operating hours at an average fluid contamination of 0.07 g per l/min / 0.27 g per gpm flow volume.
- › Flow velocity in the connection lines  $\leq 1.5 \text{ m/s}$  / 4.9 ft/s

If units, not equipped with a bypass valve, are used in hydrostatic drives, the recommendations regarding their technical application given on catalog sheet 10.310 should be observed.

### Connection

Threaded ports according to

- › ISO 228 or DIN 13
- › SAE standard J514

Sizes see Selection Chart, column 6,  
(other port threads on request).

For installation recommendations, see info sheet 00.325.

### Filter fineness

16  $\mu\text{m(c)}$  ... 30  $\mu\text{m(c)}$

$\beta$ -values according ISO 16889

(see Selection Chart, column 4 and diagram Dx).

### Dirt-holding capacity

Values in g test dust ISO MTD according to ISO 16889  
(see Selection Chart, column 5).

### 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 °C (temporary -40 °F ... + 248 °F)

### Viscosity at nominal flow rate

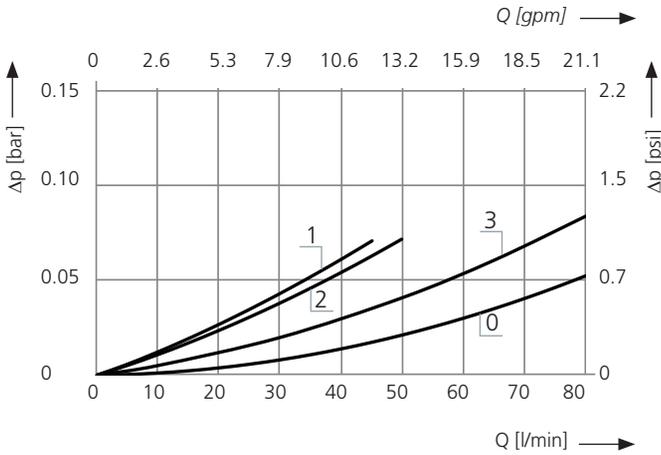
- › at operating temperature:  $v < 60 \text{ mm}^2/\text{s}$  / 280 SUS
- › start-up viscosity:  
Determine  $v_{\text{max}}$ , observing the permissible pressure at the pump inlet according to diagram D; determine  $\Delta p$  as a function of the viscosity (take pressure loss in connection lines into account!)
- › at initial operation of units equipped with a bypass valve:  
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 bypass 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

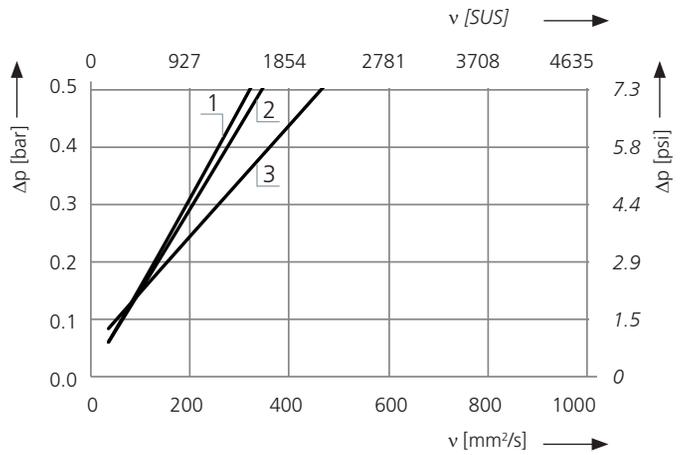
Vertical mounting to be preferred, suction opening pointing downwards. Due to the standardly assembled foot valve, all filters of series ES 075 may also be mounted in horizontal position.

**Δp-curves for complete filters in Selection Chart, column 3**

**D1** Pressure drop as a function of the **flow volume**  
at  $v = 35 \text{ mm}^2/\text{s} / 162 \text{ SUS}$  (0 = casing empty)

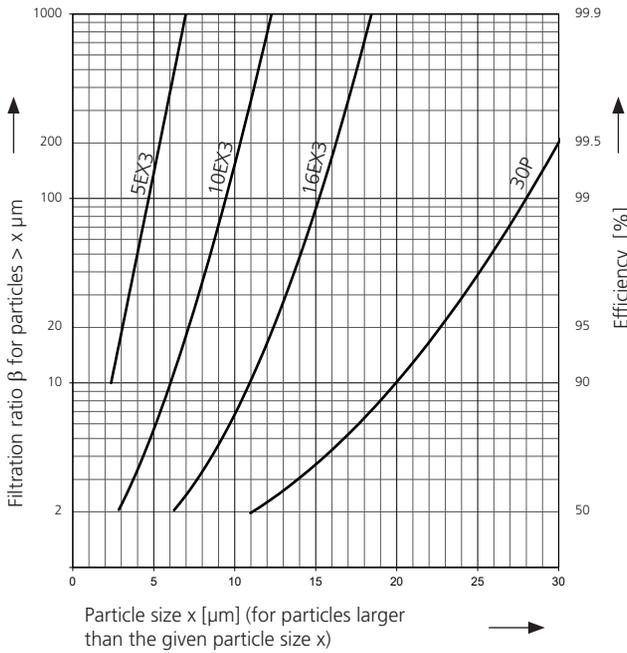


Pressure drop as a function of the **kinematic viscosity** at nominal flow



**Filter fineness curves in Selection Chart, column 4**

**Dx** Filtration ratio  $\beta$  as a function of particle size  $x$  obtained by the Multi-Pass-Test according to ISO 16889



The abbreviations represent the following  $\beta$ -values resp. finenesses:

**For EXAPOR®MAX 3 and Paper elements:**

- 16EX3 =  $\bar{\beta}_{16(c)}$  = 200 EXAPOR®MAX 3
- 30P =  $\bar{\beta}_{30(c)}$  = 200 Paper
- 50P =  $\bar{\beta}_{50(c)}$  = 200 Paper

Based on the structure of the filter media of the 30P and 50P paper elements, deviations from the printed curves are quite probable.

**For screen elements:**

- 40S = screen material with mesh size 40 μm
- 60S = screen material with mesh size 60 μm
- 100S = screen material with mesh size 100 μm

Tolerances for mesh size according to DIN 4189.

For special applications, finenesses differing from these curves are also available by using special composed filter material.

## Selection Chart

Part No.	Nominal flow rate	Pressure drop see diagram <b>D1</b> /curve no.	Filter fineness see diagram <b>Dx</b>	Dirt holding capacity Filter surface ( )	Connection B	Cracking pressure of by-pass valve <sup>2</sup>	Foot valve	Symbol	Replacement filter element Part. No.	Weight	Remarks
	l/min			g		bar				kg	
1	2	3	4	5	6	7	8	9	10	11	12
ES 075-6801	40 <sup>1</sup>	<b>D1/1</b>	16EX3	42	G1¼	-	•	1	V3.1130-08	1.6	-
ES 075-6811	40 <sup>1</sup>	<b>D1/1</b>	16EX3	42	G1	-	•	1	V3.1130-08	1.6	-
ES 075-6141	45 <sup>1</sup>	<b>D1/2</b>	30P	23	G1¼	-	•	1	P3.1130-01	1.6	-
ES 075-6121	45 <sup>1</sup>	<b>D1/2</b>	30P	23	G1	-	•	1	P3.1130-01	1.6	-
ES 075-0001	80	<b>D1/3</b>	60S	(1650 cm <sup>2</sup> )	G1¼	-	•	2	S7.1130-00	2.0	<sup>3</sup>

	gpm			g		psi				lbs	
1	2	3	4	5	6	7	8	9	10	11	12
ES 075-6801	10.6 <sup>1</sup>	<b>D1/1</b>	16EX3	42	G1¼	-	•	1	V3.1130-08	3.5	-
ES 075-6811	10.6 <sup>1</sup>	<b>D1/1</b>	16EX3	42	G1	-	•	1	V3.1130-08	3.5	-
ES 075-6141	11.9 <sup>1</sup>	<b>D1/2</b>	30P	23	G1¼	-	•	1	P3.1130-01	3.5	-
ES 075-6121	11.9 <sup>1</sup>	<b>D1/2</b>	30P	23	G1	-	•	1	P3.1130-01	3.5	-
ES 075-0001	21.1	<b>D1/3</b>	60S	(255.8 inch <sup>2</sup> )	G1¼	-	•	2	S7.1130-00	4.4	<sup>3</sup>

<sup>1</sup> Those values apply when used in hydrostatic drives. Instructions in catalogue sheet 10.310 have to be observed.

<sup>2</sup> Versions with by-pass valve on request.

<sup>3</sup> With magnetic system in the filter element

All filters are delivered with a plugged clogging indicator connection G¼. As clogging indicators either manometers or vacuum switches can be used.

Optional extension pipes adapt the filter length to various tank depths. For ordering of accessories please use the below mentioned codes.

**Order example: The filter ES 075-6801 has to be supplied with an extension pipe (EV) for a mounting depth of 400 mm / 15.75 inch.**

**Order description:** ES 075-6801 / EV 400

**Part No. (Basic unit)** \_\_\_\_\_

**Extension pipe (2 lengths are available)** \_\_\_\_\_

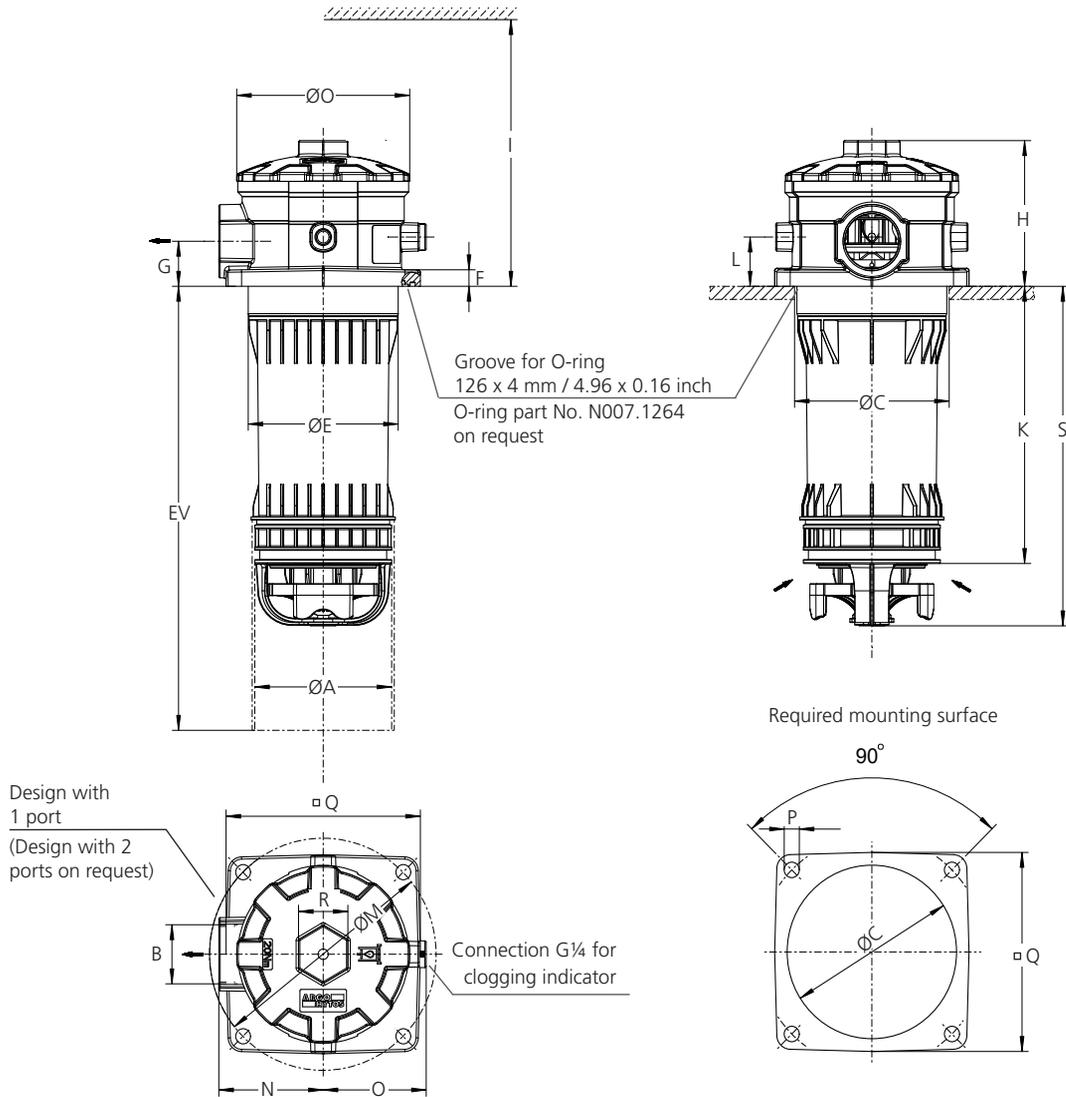
EV = 400 / 500 mm (15.75 / 19.69 inch) see dimensions and measurements

**For the appropriate clogging indicator see catalog sheet 60.20.**

### Remarks:

- › Clogging indicators are optional and always delivered detached from the filter.
- › At versions with by-pass valve (available on request), the start of the red area respectively the actuating pressure of the vacuum switch has always to be higher than the cracking pressure of the by-pass valve.
- › The filters listed in this chart are standard filters. Other designs available on request.

## Dimensions



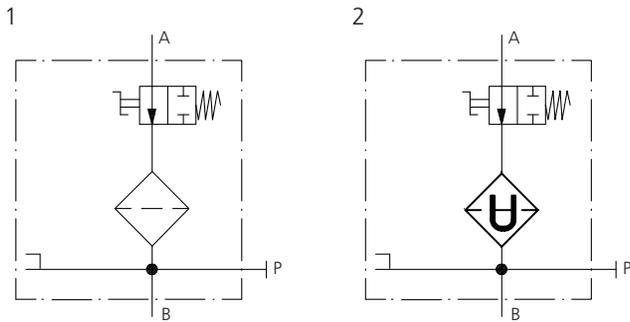
## Measurements in mm

Type	A	B	C min./max.	D	E	F	G	H	I	K	L	M	N	O
ES 075	100	G1, G1¼	111/121	126	110	11,5	32	104	400	197,5	35	165	76	75
Type	P	Q	R	S										
ES 075	11	141.5	AF 36	241										

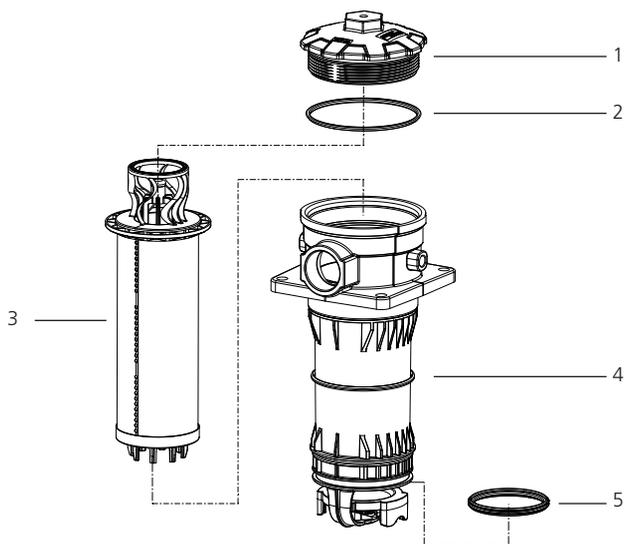
## Measurements in inch

Type	A	B SAE	C min./max.	D	E	F	G	H	I	K	L	M	N	O
ES 075	3.94	G1, G1¼	4.37/4.76	4.96	4.33	0.45	1.26	4.09	15.75	7.78	1.38	6.50	2.99	2.95
Type	P	Q	F mm	S										
ES 075	0.43	5.57	AF 36	9.49										

## Symbol



## Spare Parts



Pos.	Designation	Part No.
1	Screw-on cap with Pos. 2	ES 074.1212
2	O-ring 100 x 4 mm 3.94 x 0.16 inch	N007.1004
3	Replacement filter element	see Selection Chart / col. 10
4	O-ring 126 x 4 mm* 4.96 x 0.16 inch*	N007.1264
5	Rubber ring	ES 075.0109

\*not included in basic equipment

The functions of the complete filters as well as the outstanding features of the filter elements assured by ARGO-HYTOS can only be guaranteed if original ARGO-HYTOS spare parts are used.

## 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

**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.