



**Pressure Filters**

**D 042 • D 062**

- In-line mounting
- Operating pressure up to 100 bar
- Nominal flow rate up to 90 l/min

## Description

### Application

In the pressure circuits of hydraulic and lubrication systems.

### Performance features

Protection

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

Protection against malfunction: Through installation near to the control valves or other expensive components. The specific determined flow rate guarantees a closed by-pass valve even at  $v \leq 200 \text{ mm}^2/\text{s}$  (cold start condition).

### Filter elements

Flow direction from outside to centre. The star-shaped pleating of the filter material results in:

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

### Filter maintenance

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

### Materials

Filter head: Aluminium alloy  
Filter bowl: Aluminium alloy  
Seals: NBR (FPM on request)  
Filter media: EXAPOR®MAX 2 - inorganic multi-layer microfibre web  
Paper - cellulose web, impregnated with resin

### Accessories

Electrical and/or optical clogging indicators are available - optionally with one or two switching points resp. temperature suppression.  
Dimensions and technical data see catalogue sheet 60.30.

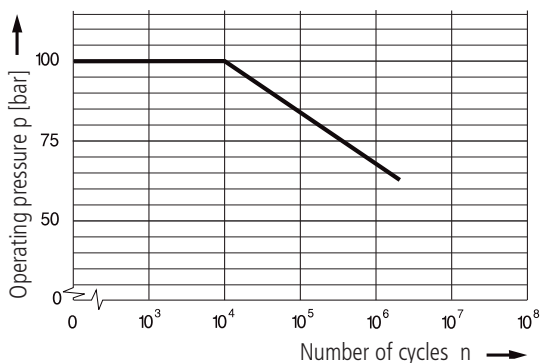
## Characteristics

### Operating pressure

0 ... 63 bar, min.  $3 \times 10^6$  pressure cycles  
Nominal pressure according to DIN 24550

0 ... 100 bar, min.  $10^4$  pressure cycles  
Quasi-static operating pressure

### Permissible pressures for other numbers of cycles



### Nominal flow rate

Up to 90 l/min (see Selection Chart, column 2)  
The nominal flow rates indicated by ARGO-HYTOS are based on the following features:

- closed by-pass valve at  $v \leq 200 \text{ mm}^2/\text{s}$
- element service life > 1.000 operating hours at an average fluid contamination of 0,07 g per l/min flow volume
- flow velocity in the connection lines:  
up to 100 bar  $\leq 6 \text{ m/s}$

### Filter fineness

$5 \mu\text{m(c)} \dots 30 \mu\text{m(c)}$   
 $\beta$ -values according to 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)

### Viscosity at nominal flow rate

- at operating temperature:  $v < 60 \text{ mm}^2/\text{s}$
- as starting viscosity:  $v_{\text{max}} = 1.200 \text{ mm}^2/\text{s}$
- 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

Preferably vertical, filter head on top

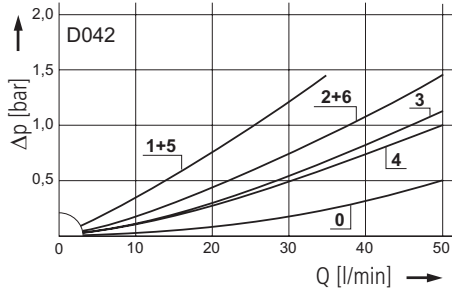
### Connection

Threaded ports according to ISO 228 or DIN 13.  
Sizes see Selection Chart, column 6 (other port threads on request).

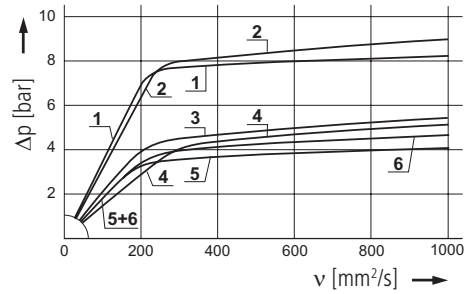
# Diagrams

## $\Delta p$ -curves for complete filters in Selection Chart, column 3

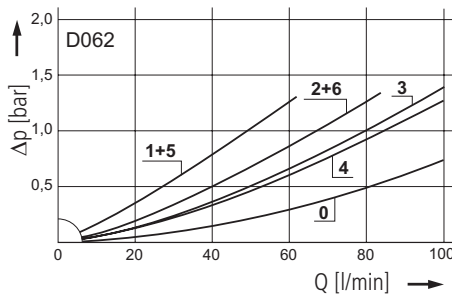
**D1** Pressure drop as a function of the **flow volume** at  $v = 35 \text{ mm}^2/\text{s}$  (0 = casing empty)



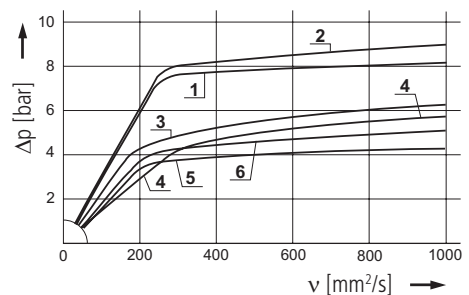
Pressure drop as a function of the **kinematic viscosity** at nominal flow



**D2** Pressure drop as a function of the **flow volume** at  $v = 35 \text{ mm}^2/\text{s}$  (0 = casing empty)

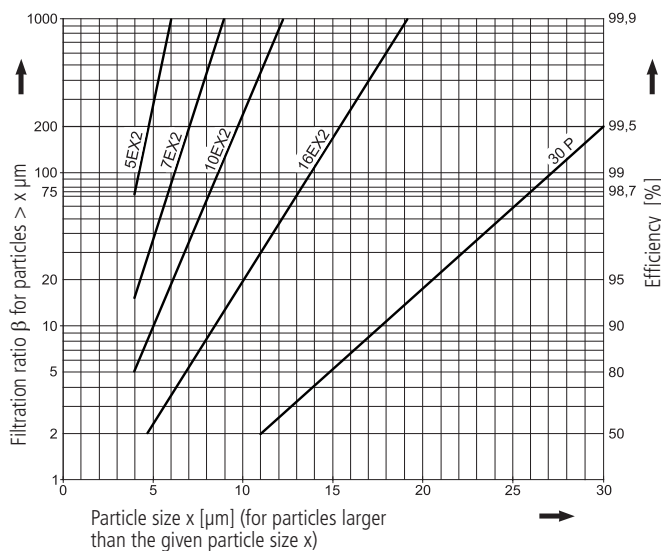


Pressure drop as a function of the **kinematic viscosity** at nominal flow



## 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<sup>®</sup>MAX 2 and Paper elements:**

**5EX2** =  $\beta_{5(c)} = 200$  EXAPOR<sup>®</sup>MAX 2

**7EX2** =  $\beta_{7(c)} = 200$  EXAPOR<sup>®</sup>MAX 2

**10EX2** =  $\beta_{10(c)} = 200$  EXAPOR<sup>®</sup>MAX 2

**16EX2** =  $\beta_{16(c)} = 200$  EXAPOR<sup>®</sup>MAX 2

**30P** =  $\beta_{30(c)} = 200$  Paper

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

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

# Selection Chart

Part No.	Nominal flow rate	Pressure drop see diagram <b>D</b> /curve no.	Filter fineness see diagram <b>Dx</b>	Dirt-holding capacity	Connection A/B	Cracking pressure of by-pass	Symbol	Replacement filter element	Weight	Clogging indicator	Remarks
1	l/min	3	4	g	bar	7	8	9	10	11	12
D 042-153	16	D1/1	5EX2	4,9	G½	3,5	4	V3.0510-03	0,8	optional	-
D 042-156	27	D1/2	10EX2	6,8	G½	3,5	4	V3.0510-06	0,8	optional	-
D 042-158	44	D1/3	16EX2	6,9	G½	3,5	4	V3.0510-08	0,8	optional	-
D 042-151	40	D1/4	30P	3,6	G½	3,5	4	P3.0510-11*	0,8	optional	-
D 042-183	30	D1/5	5EX2	4,9	G½	7	4	V3.0510-03	0,8	optional	-
D 042-186	44	D1/6	10EX2	6,8	G½	7	4	V3.0510-06	0,8	optional	-
D 062-153	32	D2/1	5EX2	10	G½	3,5	4	V3.0520-03	1,1	optional	-
D 062-156	57	D2/2	10EX2	14	G¾	3,5	4	V3.0520-06	1,1	optional	-
D 062-158	90	D2/3	16EX2	15	G¾	3,5	4	V3.0520-08	1,1	optional	-
D 062-151	80	D2/4	30P	7,1	G¾	3,5	4	P3.0520-01*	1,1	optional	-
D 062-183	48	D2/5	5EX2	10	G½	7	4	V3.0520-03	1,1	optional	-
D 062-196	80	D2/6	10EX2	14	G¾	7	4	V3.0520-06	1,1	optional	-

Optical or electrical indicators are available to monitor the clogging condition of the element. If the indicator should be already mounted onto the filter head use the abbreviation "M" behind the part number of the indicator. The printed order acknowledgements show both items separately.

**Order example: The filter D 042-156 has to be supplied with optical clogging indicator - response pressure 2,0 bar**

**Order description:** **D 042-156 / DG 042-01 M**

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

**Clogging indicator** \_\_\_\_\_

**For the appropriate clogging indicators see catalogue sheet 60.30**

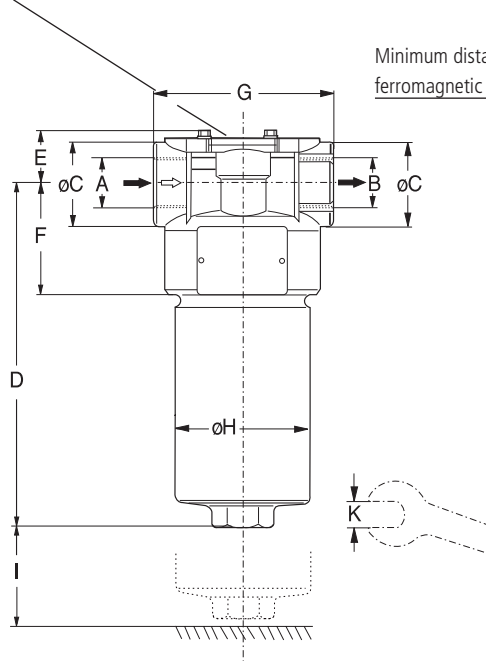
**Remarks:**

- The switching pressure of the clogging indicator has always to be lower than the cracking pressure of the by-pass valve (see Selection Chart, column 7).
- The filters listed in this chart are standard filters. Other designs available on request.

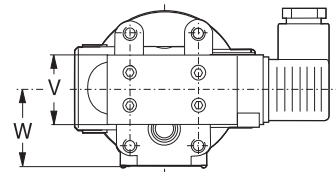
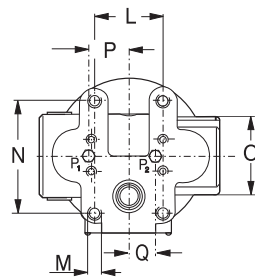
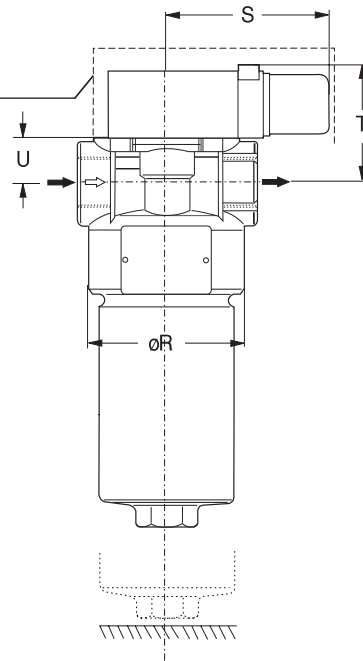
\* Paper media supported with metal gauze

## Dimensions

Clogging indicator optional:  
Pressure holes plugged with screws M4



Version with electrical clogging indicator  
DG 041

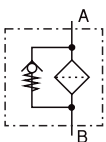


## Measurements

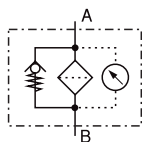
Type	A/B	C	D	E	F	G	H	I	K	L	M Ø/depth	N	O	P	Q	R	S	T	U	V	W
D 042	G $\frac{1}{2}$	39	148	27	45,5	80	58,5	55	27	35	M6/8	44	AF36	19	15	70	81	55	23	30	35,5
D 062	G $\frac{1}{2}$ , G $\frac{3}{4}$	39	244	27	45,5	80	58,5	55	27	35	M6/8	44	AF36	19	15	70	81	55	23	30	35,5

## Symbols

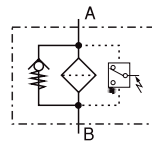
1



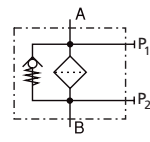
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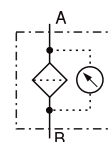
3



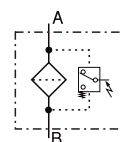
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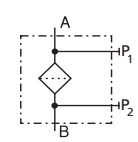
5



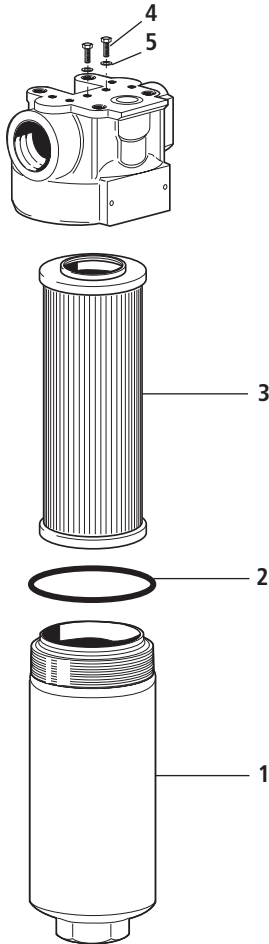
6



7



## Spare Parts



Pos.	Designation	Part No.
1	Filter bowl D 042	D 044.0101
1	Filter bowl D 062	D 064.0101
2	O-ring 50 x 2	N007.0501
3	Filter element (with seal)	see Chart / col. 9
4	Hexagonal head screw M4 x 8 DIN 933-8.8	11385800
5	Bonded seal 4,1 x 7,2 x 1	12504600

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:

<b>ISO 2941</b>	Verification of collapse/burst pressure rating
<b>ISO 2942</b>	Verification of fabrication integrity (Bubble Point Test)
<b>ISO 2943</b>	Verification of material compatibility with fluids

<b>ISO 3968</b>	Evaluation of pressure drop versus flow characteristics
<b>ISO 16889</b>	Multi-Pass-Test (evaluation of filter fineness and dirt-holding capacity)
<b>ISO 23181</b>	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.

Our engineers will be glad to advise you in questions concerning filter application, selection as well as the cleanliness class of the filtered medium attainable under practical operating conditions.

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

### We produce fluid power solutions

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