



**Pressure Filters**

**D 072 • D 112 • D 152**

- In-line mounting
- Operating pressure up to 100 bar
- Nominal flow rate up to 170 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

### Accessories

If an electrical indicator is used a transparent socket with LED for optical indication is also available with Part. No. DG 041.1200.

## Characteristics

### Operating pressure

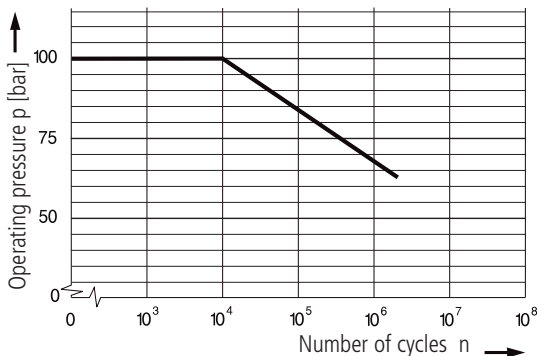
0 ... 63 bar, min.  $3 \times 10^6$  pressure cycles

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

$\beta$ -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.

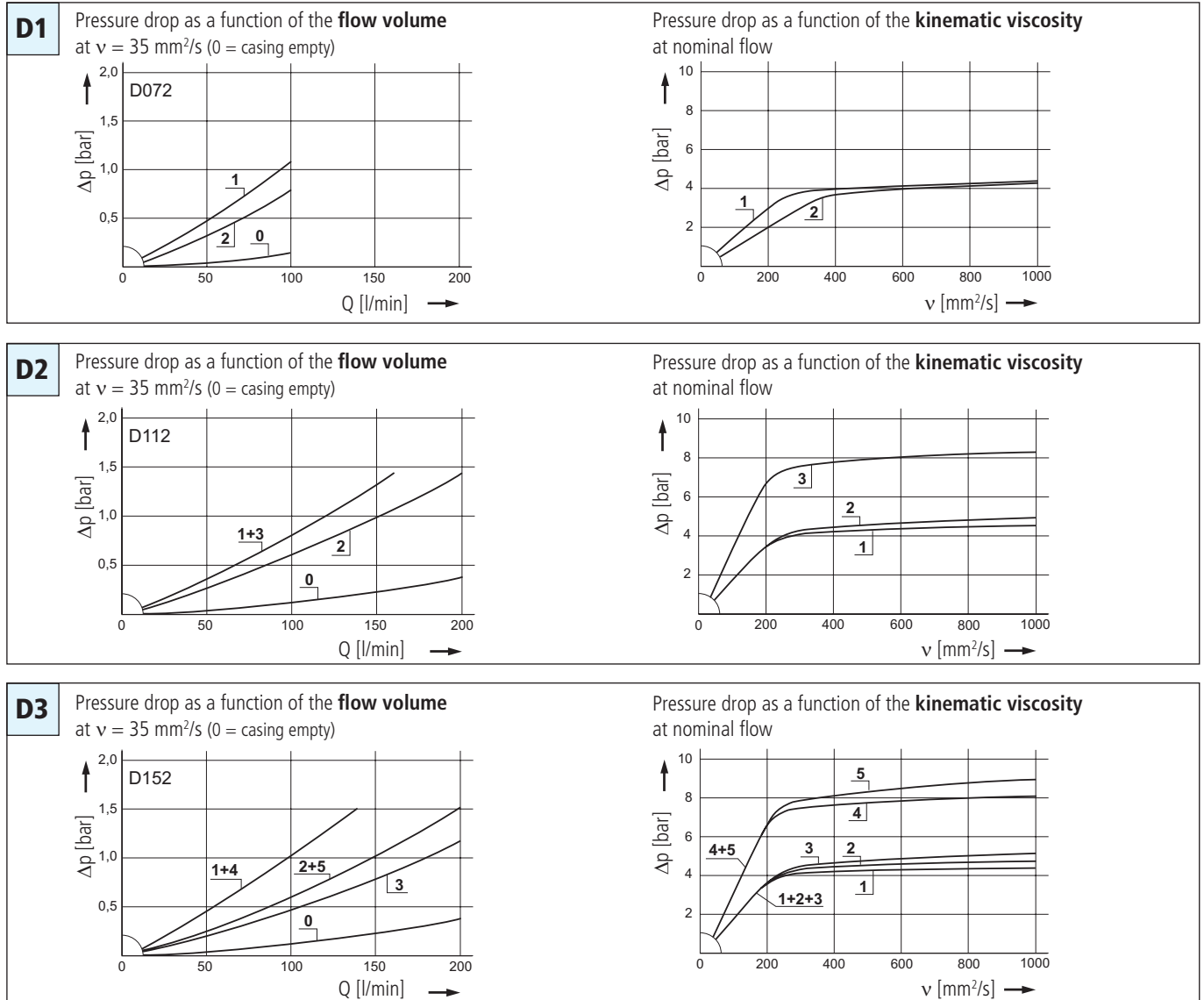
Sizes see Selection Chart, column 6 (other port threads on request).

### Electrical clogging indicator

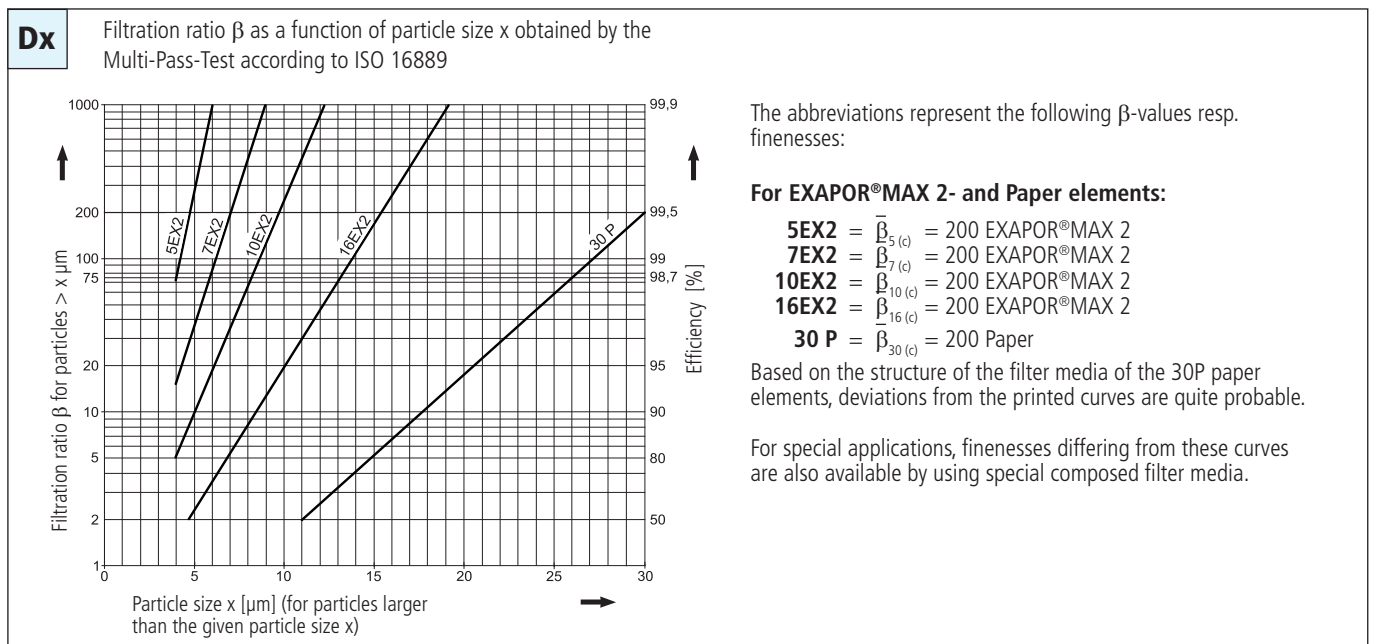
- Switching voltage: max. 120 V AC / 175 V DC
- Switching current: max. 0,17 A AC / 0,25 A DC
- Switching power: max. 3,5 VA AC / 5 W DC
- Type of contact: change-over
- Electrical protection: IP 65 (with mounted and secured socket)

# Diagrams

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



## Filter fineness curves in Selection Chart, column 4



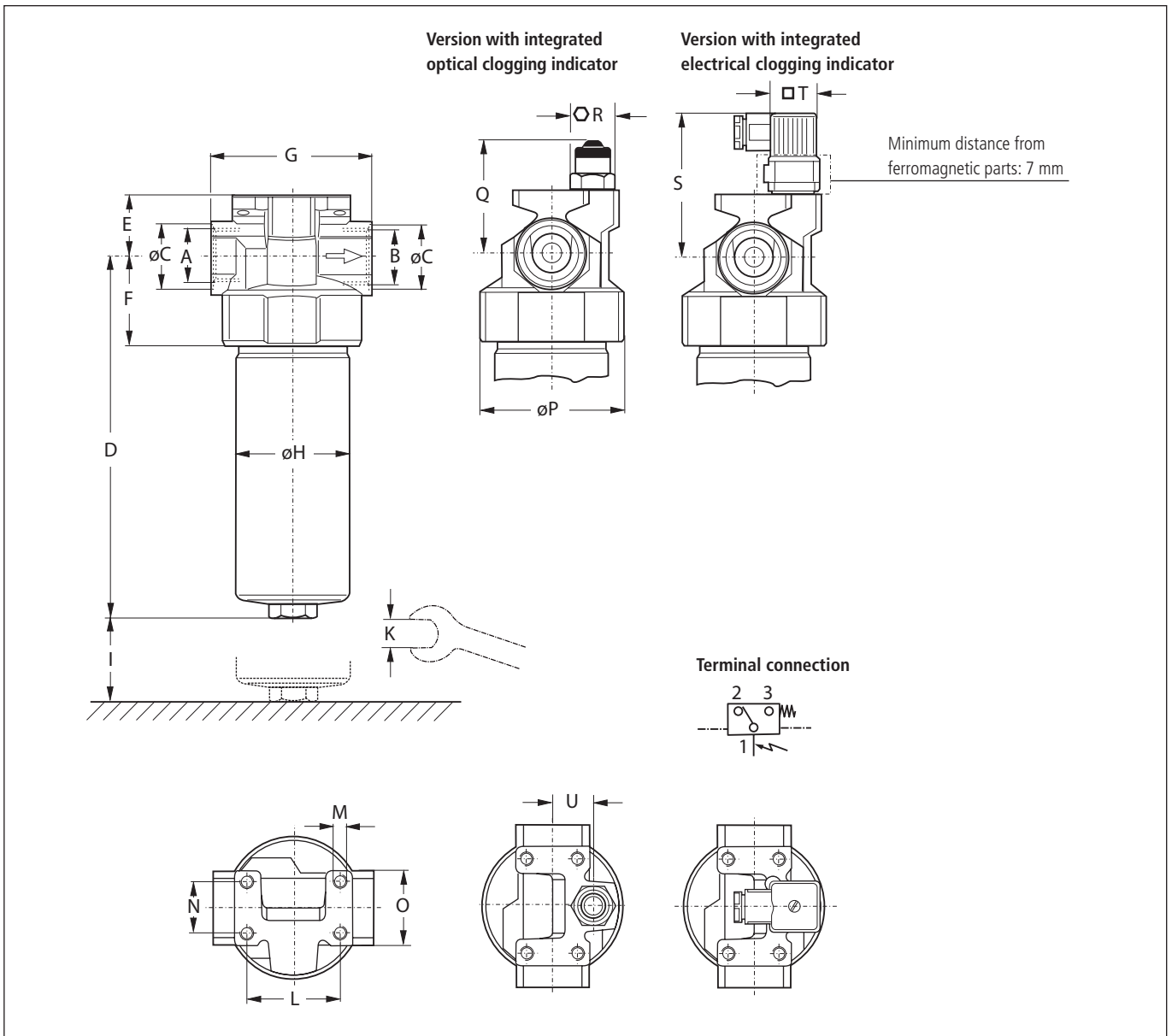
## Selection Chart

Part No.	Nominal flow rate	Pressure drop see diagram <b>D</b>	Filter fineness no.	Dirt-holding capacity	Connection A/B	Cracking pressure of by-pass	Symbol	Replacement filter element Part No.	Weight	Clogging indicator cracking pressure ( )	Remarks
1	l/min	3	4	g	bar	8	9	10	kg	bar	12
D 072-156	48	<b>D1/1</b>	10EX2	12	G½	3,5	1	V3.0613-06	1,1	-	-
D 072-176	48	<b>D1/1</b>	10EX2	12	G½	3,5	2	V3.0613-06	1,2	optical (2)	-
D 072-166	48	<b>D1/1</b>	10EX2	12	G½	3,5	3	V3.0613-06	1,2	electrical (2)	change-over
D 072-158	48	<b>D1/2</b>	16EX2	12	G½	3,5	1	V3.0613-08	1,1	-	-
D 072-178	48	<b>D1/2</b>	16EX2	12	G½	3,5	2	V3.0613-08	1,2	optical (2)	-
D 072-168	48	<b>D1/2</b>	16EX2	12	G½	3,5	3	V3.0613-08	1,2	electrical (2)	change-over
D 112-156	70	<b>D2/1</b>	10EX2	17	G¾	3,5	1	V3.0617-06	1,4	-	-
D 112-176	70	<b>D2/1</b>	10EX2	17	G¾	3,5	2	V3.0617-06	1,5	optical (2)	-
D 112-166	70	<b>D2/1</b>	10EX2	17	G¾	3,5	3	V3.0617-06	1,5	electrical (2)	change-over
D 112-158	105	<b>D2/2</b>	16EX2	17	G1	3,5	1	V3.0617-08	1,4	-	-
D 112-178	105	<b>D2/2</b>	16EX2	17	G1	3,5	2	V3.0617-08	1,5	optical (2)	-
D 112-168	105	<b>D2/2</b>	16EX2	17	G1	3,5	3	V3.0617-08	1,5	electrical (2)	change-over
D 112-186	130	<b>D2/3</b>	10EX2	17	G1	7,0	1	V3.0617-06	1,4	-	-
D 112-189	130	<b>D2/3</b>	10EX2	17	G1	7,0	2	V3.0617-06	1,5	optical (5)	-
D 112-196	130	<b>D2/3</b>	10EX2	17	G1	7,0	3	V3.0617-06	1,5	electrical (5)	change-over
D 152-153	60	<b>D3/1</b>	5EX2	17	G¾	3,5	1	V3.0623-03	1,7	-	-
D 152-173	60	<b>D3/1</b>	5EX2	17	G¾	3,5	2	V3.0623-03	1,8	optical (2)	-
D 152-163	60	<b>D3/1</b>	5EX2	17	G¾	3,5	3	V3.0623-03	1,8	electrical (2)	change-over
D 152-156	100	<b>D3/2</b>	10EX2	23	G¾	3,5	1	V3.0623-06	1,7	-	-
D 152-176	100	<b>D3/2</b>	10EX2	23	G¾	3,5	2	V3.0623-06	1,8	optical (2)	-
D 152-166	100	<b>D3/2</b>	10EX2	23	G¾	3,5	3	V3.0623-06	1,8	electrical (2)	change-over
D 152-158	135	<b>D3/3</b>	16EX2	25	G1	3,5	1	V3.0623-08	1,7	-	-
D 152-178	135	<b>D3/3</b>	16EX2	25	G1	3,5	2	V3.0623-08	1,8	optical (2)	-
D 152-168	135	<b>D3/3</b>	16EX2	25	G1	3,5	3	V3.0623-08	1,8	electrical (2)	change-over
D 152-183	110	<b>D3/4</b>	5EX2	17	G1	7,0	1	V3.0623-03	1,7	-	-
D 152-185	110	<b>D3/4</b>	5EX2	17	G1	7,0	2	V3.0623-03	1,8	optical (5)	-
D 152-193	110	<b>D3/4</b>	5EX2	17	G1	7,0	3	V3.0623-03	1,8	electrical (5)	change-over
D 152-186	170	<b>D3/5</b>	10EX2	23	G1	7,0	1	V3.0623-06	1,7	-	-
D 152-189	170	<b>D3/5</b>	10EX2	23	G1	7,0	2	V3.0623-06	1,8	optical (5)	-
D 152-196	170	<b>D3/5</b>	10EX2	23	G1	7,0	3	V3.0623-06	1,8	electrical (5)	change-over

**Remarks:**

- The filters listed in this chart are standard filters. Other designs available on request.
- If an electrical indicator is used a transparent socket with LED for optical indication is also available with Part. No. DG 041.1200.

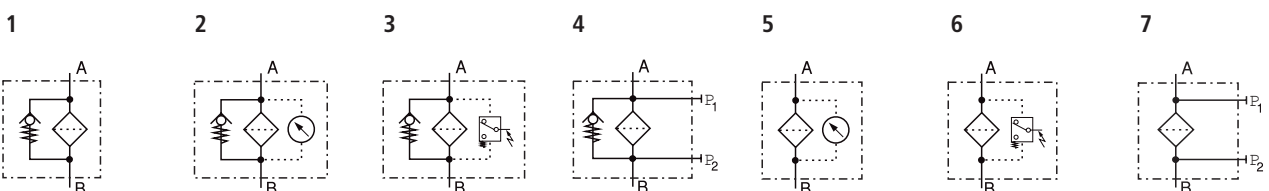
## Dimensions



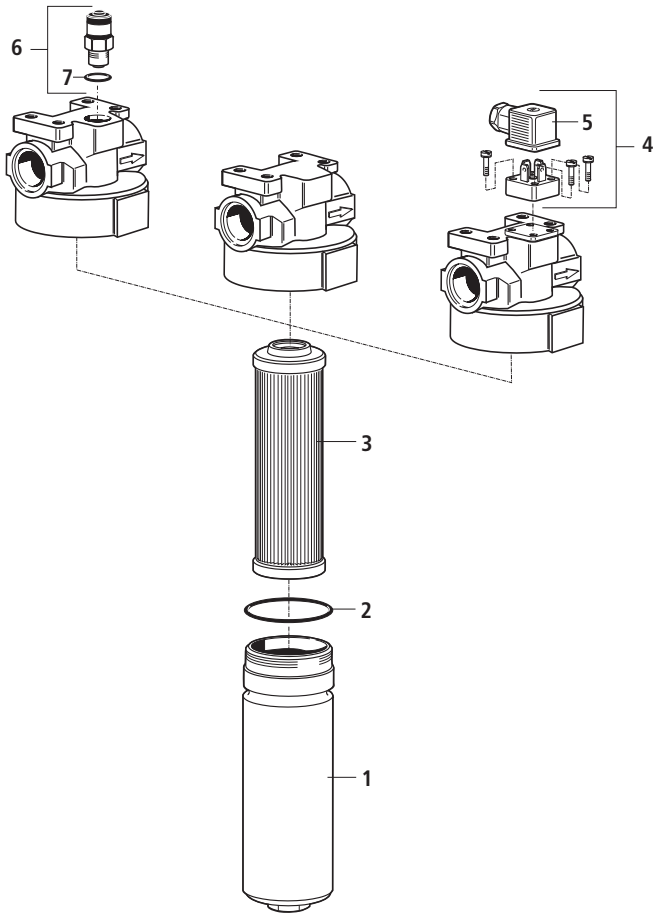
## Measurements

Type	A/B	C	D	E	F	G	H	I	K	L	M	N	O	P	Q	R	S	T	U
D 072	G½	27	178	31	46,5	84	70,5	60	AF27	56	M 8 x 12	30	AF36	85	61	AF24	80	AF30	21,5
D 112	G¾, G1	34	219	37	51	95	70,5	60	AF27	56	M 8 x 12	30	AF44	85	67	AF24	86	AF30	24,5
D 152	G¾, G1	40	283	37	51	95	70,5	60	AF27	56	M 8 x 12	30	AF44	85	67	AF24	86	AF30	24,5

## Symbols



## Spare Parts



Pos.	Designation	Part No.
1	Filter bowl D 072	D 072.0101
1	Filter bowl D 112	D 112.0101
1	Filter bowl D 152	D 152.0101
2	O-ring 62 x 2	N007.0622
3	Filter element (with seal)	see Chart / col. 9
4	Reed switch with screws and socket (Pos. 5)	HD 049.1410
5	Socket DIN 43650-AF3	DG 041.1220
6	Optical clogging indicator (with Pos. 7)	D 232.1400
7	O-ring 12,3 x 2,4	N007.0124

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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