



**Pressure Filters**

**D 072 • D 112 • D 152**

- In-line mounting
- Operating pressure up to 1450 psi
- Nominal flow rate up to 44.9 gpm

## 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  $v \leq 930$  SUS (cold start condition).

### Filter elements

Flow direction from outside to center. 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: Aluminum alloy  
Filter bowl: Aluminum alloy  
Seals: NBR (FKM 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

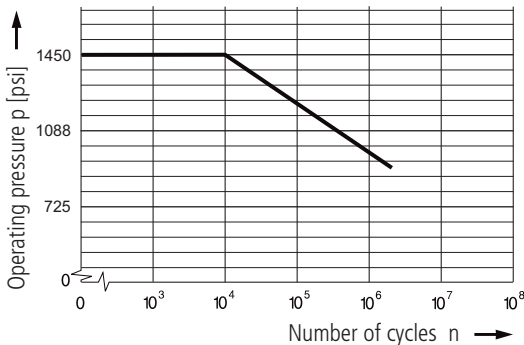
0 ... 914 psi, min.  $3 \times 10^6$  pressure cycles

Nominal pressure according to DIN 24550

0 ... 1450 psi, min.  $10^4$  pressure cycles

Quasi-static operating pressure

### Permissible pressures for other numbers of cycles



### Nominal flow rate

Up to 44.9 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  $v \leq 930$  SUS
- element service life > 1,000 operating hours at an average fluid contamination of 0.27 g per gpm flow volume
- flow velocity in the connection lines:  
up to 1450 psi  $\leq 19.7$  ft/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

- 22 °F ... + 212 °F (temporary - 40 °F ... + 248 °F)

### Viscosity at nominal flow rate

- at operating temperature:  $v < 280$  SUS
- as starting viscosity:  $v_{\text{max}} = 5560$  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

Preferably vertical, filter head on top

### Connection

Threaded ports according to SAE standard J514.

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

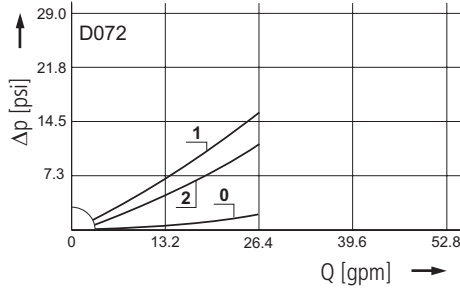
### Electrical clogging indicator

- 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)

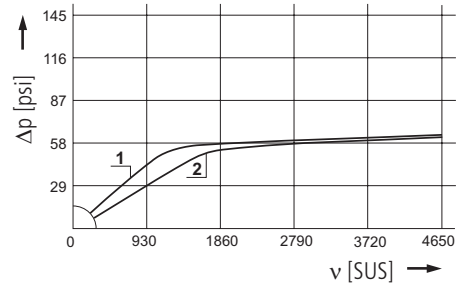
# Diagrams

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

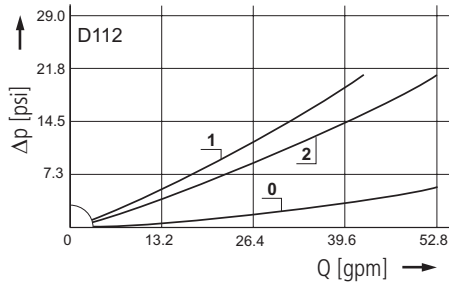
**D1** Pressure drop as a function of the **flow volume** at  $v = 162$  SUS (0 = casing empty)



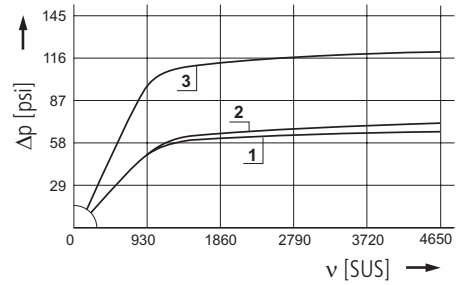
Pressure drop as a function of the **kinematic viscosity** at nominal flow



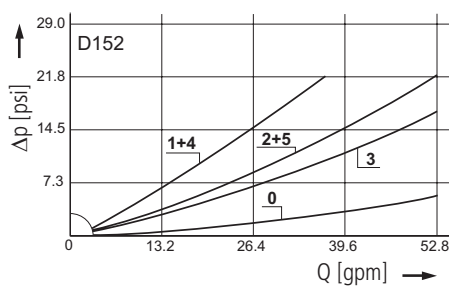
**D2** Pressure drop as a function of the **flow volume** at  $v = 162$  SUS (0 = casing empty)



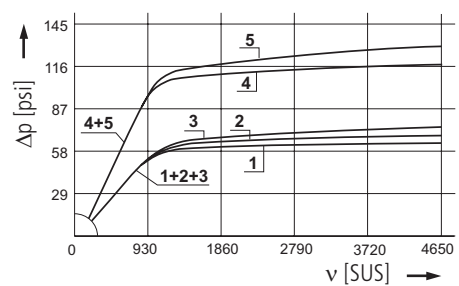
Pressure drop as a function of the **kinematic viscosity** at nominal flow



**D3** Pressure drop as a function of the **flow volume** at  $v = 162$  SUS (0 = casing empty)

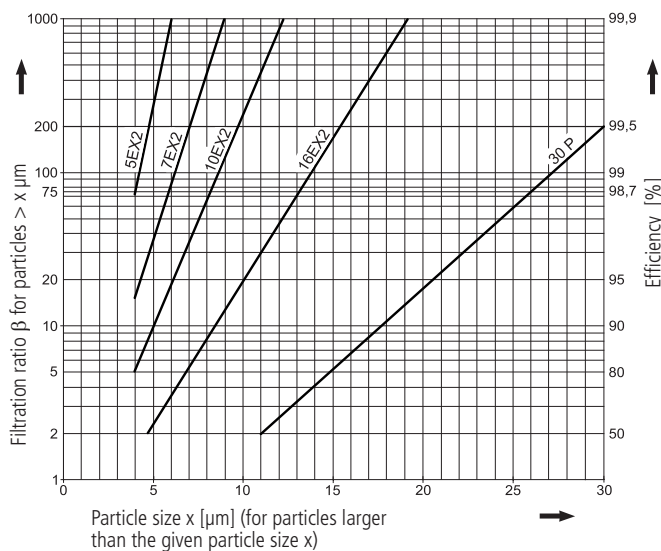


Pressure drop as a function of the **kinematic viscosity** at nominal flow



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

- 5EX2** =  $\beta_{5(c)}^{-1} = 200$  EXAPOR<sup>®</sup>MAX 2
- 7EX2** =  $\beta_{7(c)}^{-1} = 200$  EXAPOR<sup>®</sup>MAX 2
- 10EX2** =  $\beta_{10(c)}^{-1} = 200$  EXAPOR<sup>®</sup>MAX 2
- 16EX2** =  $\beta_{16(c)}^{-1} = 200$  EXAPOR<sup>®</sup>MAX 2
- 30 P** =  $\beta_{30(c)}^{-1} = 200$  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 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	gpm	3	4	g	SAE	psi	8	9	10	psi	12
D 072-756	12.7	<b>D1</b> /1	10EX2	12	-8 <sup>1</sup>	50	1	V3.0613-06	2.4	-	-
D 072-776	12.7	<b>D1</b> /1	10EX2	12	-8 <sup>1</sup>	50	2	V3.0613-06	2.6	optical (29)	-
D 072-766	12.7	<b>D1</b> /1	10EX2	12	-8 <sup>1</sup>	50	3	V3.0613-06	2.6	electrical (29)	change-over
D 072-758	12.7	<b>D1</b> /2	16EX2	12	-8 <sup>1</sup>	50	1	V3.0613-08	2.4	-	-
D 072-778	12.7	<b>D1</b> /2	16EX2	12	-8 <sup>1</sup>	50	2	V3.0613-08	2.6	optical (29)	-
D 072-768	12.7	<b>D1</b> /2	16EX2	12	-8 <sup>1</sup>	50	3	V3.0613-08	2.6	electrical (29)	change-over
D 112-756	18.5	<b>D2</b> /1	10EX2	17	-12 <sup>2</sup>	50	1	V3.0617-06	3.1	-	-
D 112-776	18.5	<b>D2</b> /1	10EX2	17	-12 <sup>2</sup>	50	2	V3.0617-06	3.3	optical (29)	-
D 112-766	18.5	<b>D2</b> /1	10EX2	17	-12 <sup>2</sup>	50	3	V3.0617-06	3.3	electrical (29)	change-over
D 112-758	27.7	<b>D2</b> /2	16EX2	17	-16 <sup>3</sup>	50	1	V3.0617-08	3.1	-	-
D 112-778	27.7	<b>D2</b> /2	16EX2	17	-16 <sup>3</sup>	50	2	V3.0617-08	3.3	optical (29)	-
D 112-768	27.7	<b>D2</b> /2	16EX2	17	-16 <sup>3</sup>	50	3	V3.0617-08	3.3	electrical (29)	change-over
D 112-786	34.3	<b>D2</b> /3	10EX2	17	-16 <sup>3</sup>	110	1	V3.0617-06	3.1	-	-
D 112-789	34.3	<b>D2</b> /3	10EX2	17	-16 <sup>3</sup>	110	2	V3.0617-06	3.3	optical (73)	-
D 112-796	34.3	<b>D2</b> /3	10EX2	17	-16 <sup>3</sup>	110	3	V3.0617-06	3.3	electrical (73)	change-over
D 152-753	15.9	<b>D3</b> /1	5EX2	17	-12 <sup>2</sup>	50	1	V3.0623-03	3.7	-	-
D 152-773	15.9	<b>D3</b> /1	5EX2	17	-12 <sup>2</sup>	50	2	V3.0623-03	4.0	optical (29)	-
D 152-763	15.9	<b>D3</b> /1	5EX2	17	-12 <sup>2</sup>	50	3	V3.0623-03	4.0	electrical (29)	change-over
D 152-756	26.4	<b>D3</b> /2	10EX2	23	-12 <sup>2</sup>	50	1	V3.0623-06	3.7	-	-
D 152-776	26.4	<b>D3</b> /2	10EX2	23	-12 <sup>2</sup>	50	2	V3.0623-06	4.0	optical (29)	-
D 152-766	26.4	<b>D3</b> /2	10EX2	23	-12 <sup>2</sup>	50	3	V3.0623-06	4.0	electrical (29)	change-over
D 152-158	35.7	<b>D3</b> /3	16EX2	25	-16 <sup>3</sup>	50	1	V3.0623-08	3.7	-	-
D 152-178	35.7	<b>D3</b> /3	16EX2	25	-16 <sup>3</sup>	50	2	V3.0623-08	4.0	optical (29)	-
D 152-168	35.7	<b>D3</b> /3	16EX2	25	-16 <sup>3</sup>	50	3	V3.0623-08	4.0	electrical (29)	change-over
D 152-783	29.1	<b>D3</b> /4	5EX2	17	-16 <sup>3</sup>	110	1	V3.0623-03	3.7	-	-
D 152-785	29.1	<b>D3</b> /4	5EX2	17	-16 <sup>3</sup>	110	2	V3.0623-03	4.0	optical (73)	-
D 152-793	29.1	<b>D3</b> /4	5EX2	17	-16 <sup>3</sup>	110	3	V3.0623-03	4.0	electrical (73)	change-over
D 152-786	44.9	<b>D3</b> /5	10EX2	23	-16 <sup>3</sup>	110	1	V3.0623-06	3.7	-	-
D 152-789	44.9	<b>D3</b> /5	10EX2	23	-16 <sup>3</sup>	110	2	V3.0623-06	4.0	optical (73)	-
D 152-796	44.9	<b>D3</b> /5	10EX2	23	-16 <sup>3</sup>	110	3	V3.0623-06	4.0	electrical (73)	change-over

**Remarks:**

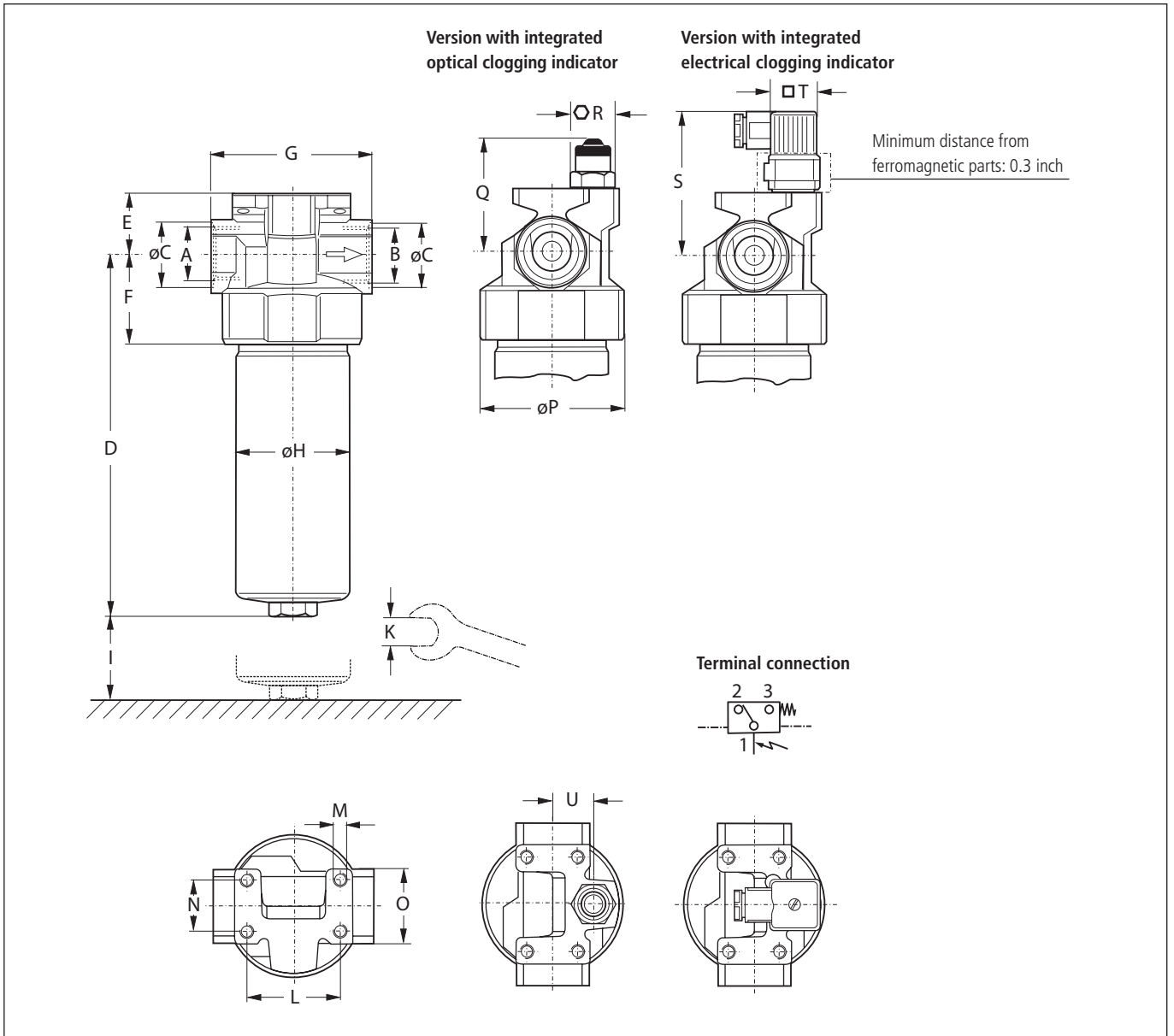
- The filters listed in this chart are standard filters. Other designs available on request.
- If an electrical indicator is used a transparent socket with LED for optical indication is also available with Part No. DG 041.1200.

<sup>1</sup> corresponds to 3/16 UNF-2B

<sup>2</sup> corresponds to 11/16-12 UN-2B

<sup>3</sup> corresponds to 19/16-12 UN-2B

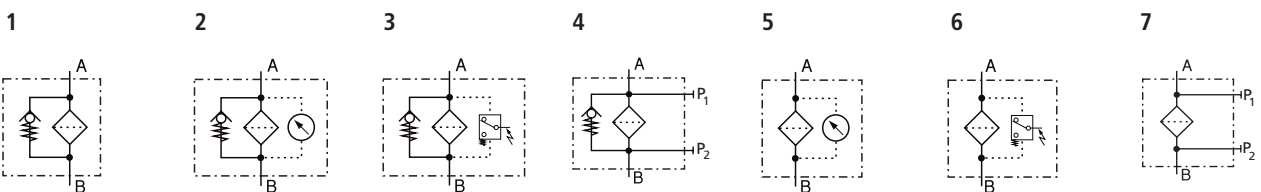
## Dimensions



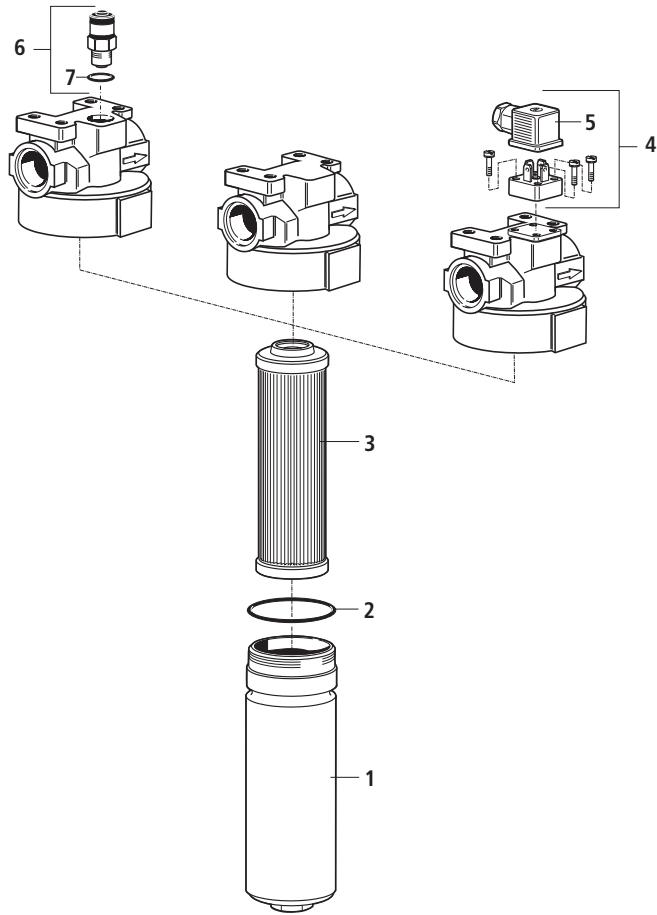
## Measurements

Type	A/B	C	D	E	F	G	H	I	K mm	L	M	N	O mm	P	Q	R mm	S	T mm	U
D 072	-8 SAE	1.06	7.01	1.22	1.83	3.31	2.78	2.36	AF27	2.20	M8 x 12	1.18	AF36	3.35	2.40	AF24	3.15	AF30	0.85
D 112	-12 SAE, -16 SAE	1.34	8.62	1.46	2.01	3.74	2.78	2.36	AF27	2.20	M8 x 12	1.18	AF44	3.35	2.40	AF24	3.39	AF30	0.96
D 152	-12 SAE, -16 SAE	1.57	11.14	1.46	2.01	3.74	2.78	2.36	AF27	2.20	M8 x 12	1.18	AF44	3.35	2.40	AF24	3.39	AF30	0.96

## 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 2.44 x 0.08	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 0.48 x 0.09	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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