



High Pressure Filters

HD 044 • HD 064

- Flangeable
- Operating pressure up to 500 bar
- Nominal flow rate up to 105 l/min

Description

Application

In the high pressure circuits of hydraulic 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: Spheroidal graphite cast iron (SGI)
Filter bowl: Cold extruded steel
Coating: Powder paint
Seals: NBR (FPM on request)
Filter media: EXAPOR®MAX2 - inorganic multi-layer microfibre web

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.

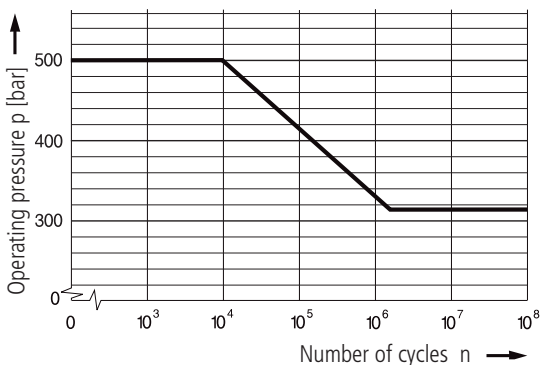
Characteristics

Operating pressure

0 ... 315 bar, min. 2×10^6 pressure cycles
Nominal pressure according to DIN 24550

0 ... 500 bar, min. 10^4 pressure cycles
Quasi-static operating pressure

Permissible pressures for other numbers of cycles



Nominal flow rate

Up to 105 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 250 bar $\leq 8 \text{ m/s}$
 - > 250 bar $\leq 12 \text{ m/s}$

Filter fineness

$5 \mu\text{m(c)}$... $16 \mu\text{m(c)}$
 β -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 ISO16889
(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: $< 60 \text{ mm}^2/\text{s}$
- 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 % Δp of the cracking pressure of the by-pass valve on the vertical axis. Draw a horizontal line so that it intersects the Δp curve at a point. Read this point on the horizontal axis for the viscosity.

Mounting position

Preferably vertical, filter head on top

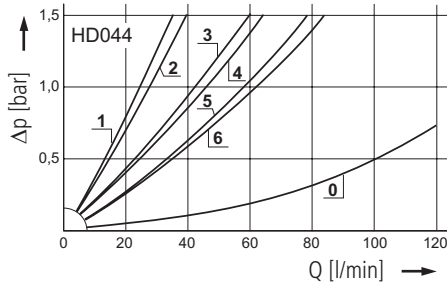
Connection

$2 \times \varnothing 15 \text{ mm}$ on plain flange

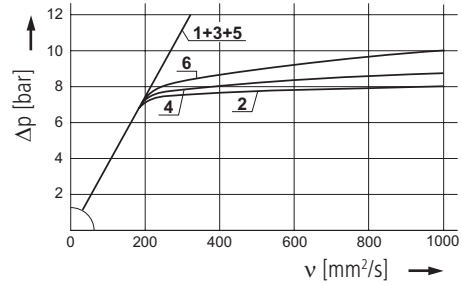
Diagrams

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

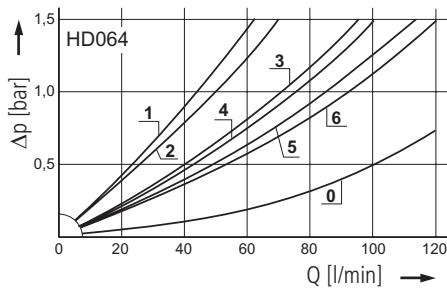
D1 Pressure drop as a function of the **flow volume**
at $v = 35 \text{ mm}^2/\text{s}$ (0 = casing empty)



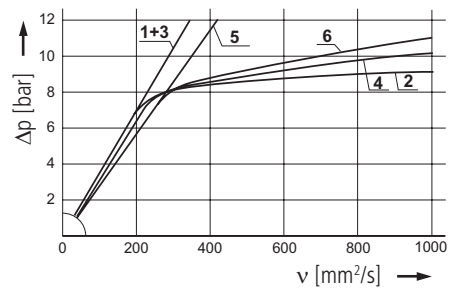
Pressure drop as a function of the **kinematic viscosity**
at nominal flow



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

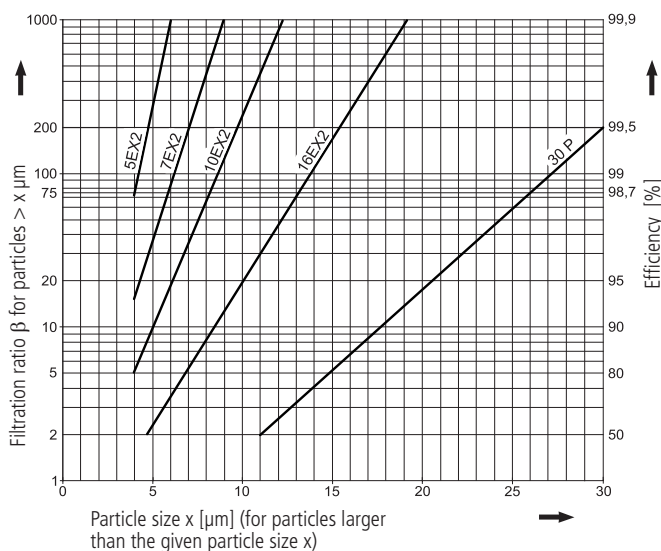


Pressure drop as a function of the **kinematic viscosity**
at nominal flow



Filter fineness curves in Selection Chart, column 4

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



The abbreviations represent the following β -values resp. finenesses:

For EXAPOR®MAX 2- and Paper elements:

5EX2 = $\beta_{5(c)} = 200$ EXAPOR®MAX 2

7EX2 = $\beta_{7(c)} = 200$ EXAPOR®MAX 2

10EX2 = $\beta_{10(c)} = 200$ EXAPOR®MAX 2

16EX2 = $\beta_{16(c)} = 200$ EXAPOR®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 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 media.

Selection Chart

Part No.	Nominal flow rate	Pressure drop see diagram D /curve no.	Filter fineness	Dirt-holding capacity	Connection A/B	Cracking pressure of by-pass	Symbol	Replacement filter element Part No.	Weight	Clogging indicator	Remarks
1	l/min	3	4	g	bar	7	8	9	10	11	12
HD 044-183	27	D1 /1	5EX2	5,2	Ø 15	-	7	V3.0510-13 ¹	3,4	optional	²
HD 044-153	30	D1 /2	5EX2	4,9	Ø 15	7	4	V3.0510-03	3,4	optional	-
HD 044-186	47	D1 /3	10EX2	5,1	Ø 15	-	7	V3.0510-16 ¹	3,4	optional	²
HD 044-156	50	D1 /4	10EX2	6,8	Ø 15	7	4	V3.0510-06	3,4	optional	-
HD 044-178	65	D1 /5	16EX2	5,6	Ø 15	-	7	V3.0510-18 ¹	3,4	optional	²
HD 044-158	75	D1 /6	16EX2	6,9	Ø 15	7	4	V3.0510-08	3,4	optional	-
HD 064-183	50	D2 /1	5EX2	8,7	Ø 15	-	7	V3.0520-13 ¹	4,6	optional	²
HD 064-153	60	D2 /2	5EX2	10	Ø 15	7	4	V3.0520-03	4,5	optional	-
HD 064-196	85	D2 /3	10EX2	11	Ø 15	-	7	V3.0520-16 ¹	4,6	optional	²
HD 064-156	85	D2 /4	10EX2	14	Ø 15	7	4	V3.0520-06	4,5	optional	-
HD 064-178	100	D2 /5	16EX2	12	Ø 15	-	7	V3.0520-18 ¹	4,6	optional	²
HD 064-158	105	D2 /6	16EX2	15	Ø 15	7	4	V3.0520-08	4,5	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 HD 064-156 has to be supplied with optical clogging indicator - response pressure 5,0 bar

Order description:

HD 064-156 / DG 042-02 M

Part No. (Basic unit)

Clogging indicator

Mounted

For the appropriate clogging indicators see catalogue sheet 60.30.

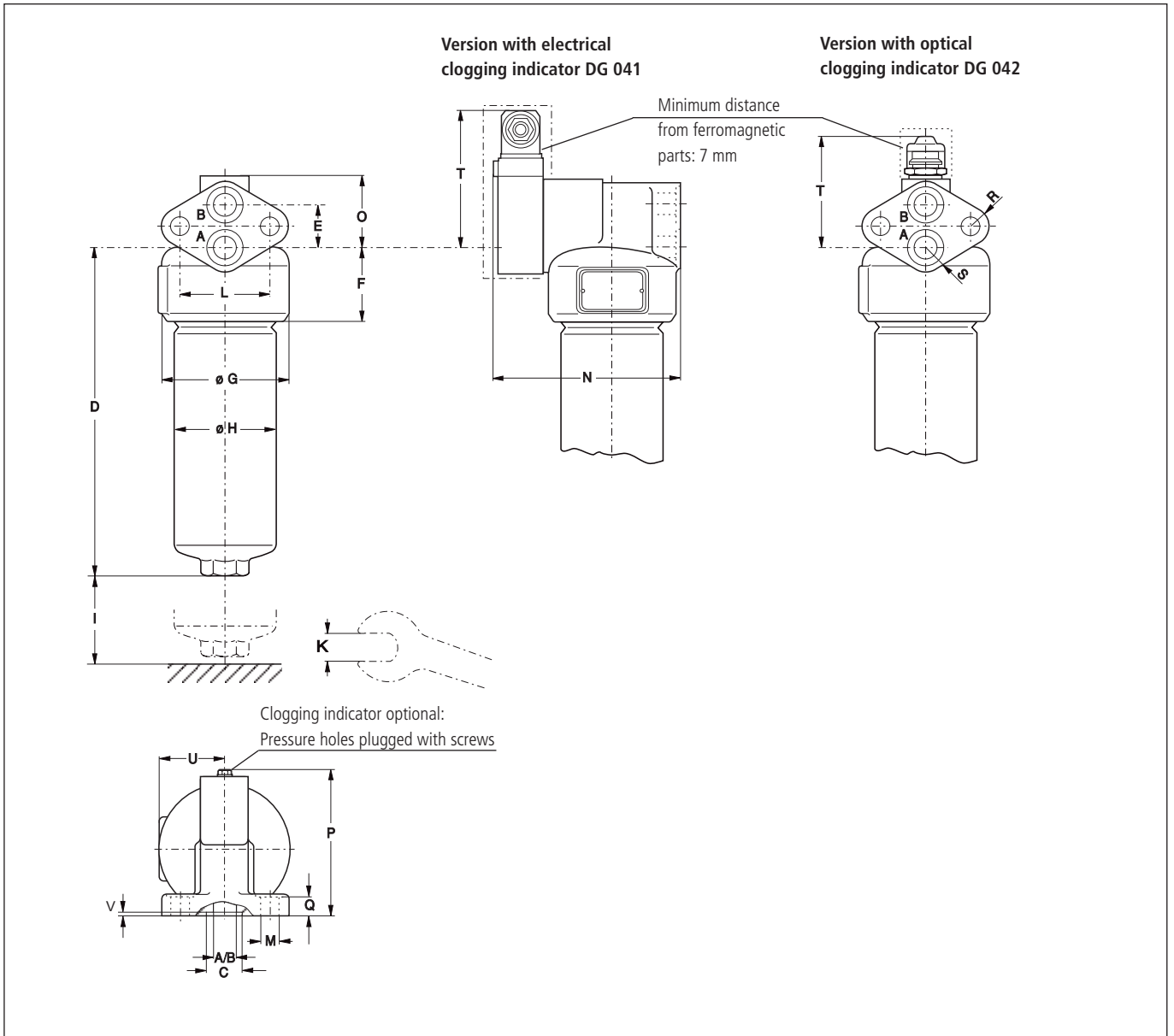
Remarks:

- Filter versions without by-pass valves must always be equipped with a clogging indicator.
- The filters listed in this chart are standard filters. If modifications are required, e.g. filter fineness 30 P, we kindly ask for your request.

¹ Element differential pressure stable up to 160 bar

² Clogging indicator is obligatory

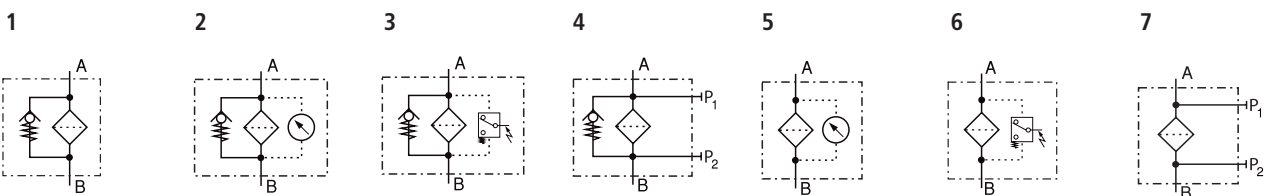
Dimensions



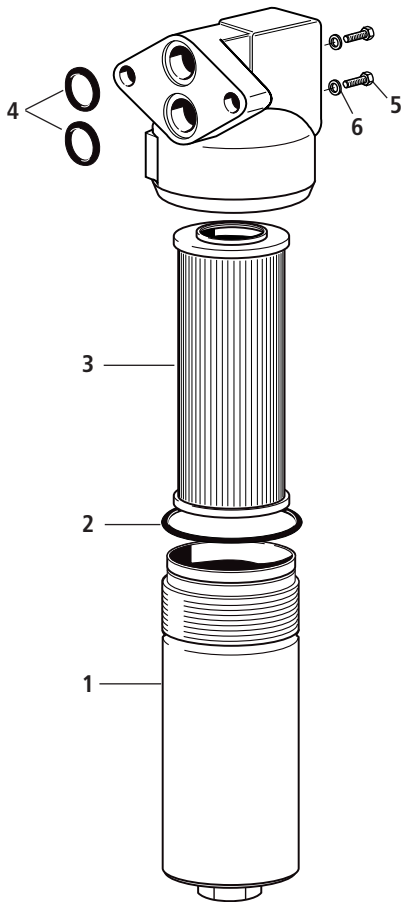
Measurements

Type	A/B	C	D	E	F	G	H	I	K	L	M	N	O	P	Q	R	S	T	U	V
HD 044	Ø 15	23,5	145	26	49	83	66	70	36	58	12,5	118,5	48	90	17	13	16	106 / 79	45	2
HD 064	Ø 15	23,5	241	26	49	83	66	70	36	58	12,5	118,5	48	90	17	13	16	106 / 79	45	2

Symbols



Spare Parts



Pos.	Designation	Part No.
1	Filter bowl HD 044	HD 052.0102
1	Filter bowl HD 064	HD 072.0102
2	O-ring 53,57 x 3,53	N007.0543/1
3	Filter element	s. Chart / col. 9
4	O-ring 18,72 x 2,62 *	N007.0193
5	Hexagonal head screw M4x8 DIN 933-8.8	11385800
6	Bonded Seal 4,1 x 7,2 x 1	12504600

*Not supplied with filter - has to be ordered separately

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

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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