

Return Filters

RFI 606 · RFI 1006

For calmed oil flow in the tank · Tank mounting · Nominal flow rate up to 960 l/min / 254 gpm



Return Filter RFI 1006

Description

Application

In the return line circuits of hydraulic systems.

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 means of full-flow filtration in the system return, 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

This concept can be particularly advantageous in mobile equipment that operates with high volume flows, relative to the tank capacity. The flow direction of the filter element from the inside to the outside, reduces the flow velocities of the hydraulic medium. In conjunction with large drain openings, the filter achieves velocities of less than 0.5 m/s / 1.64 ft/s. The oil enters the tank over the entire circumference, close to the surface, which favors the deairation.

The filter inlet is located at the bottom at the filter bowl and can be provided via a spigot, either directly from below or as an elbow from the side. This results in a tidy tank top, without hydraulic lines. Only the cover is visible, which can be opened cleanly and easily for filter service.

The bypass valve is attached to the cover and, together with the cover, centers the filter element in the filter bowl.

Materials

Housing:	Polyamide, GF reinforced
Cover:	Aluminum alloy
Seals:	NBR (FPM on request)
Filter media:	EXAPOR®MAX3 - inorganic multi-layer microfiber web

Accessories

Electrical and optical clogging indicators are available on request. Dimensions and technical data see catalog sheets 60.20 and 60.30.

Nominal flow rate

Up to 960 l/min / 254 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 $v \leq 200 \text{ mm}^2/\text{s}$ / 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 $\leq 4.5 \text{ m/s}$ / 14.8 ft/s

Installation

Tank immersed installation with return line from bottom or side of the reservoir.

Filter fineness

10 $\mu\text{m(c)}$... 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 ISO 16889
(see Selection Chart, column 5).

Connection

Mounting for a $\varnothing 75 \text{ mm}$ / 2,95 inch spigot on the bottom of the filter element.

For installation recommendations, see info sheet 00.325.

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 ... +100 °F (temporary -40 °F ... +248 °F)

Viscosity at nominal flow rate

- › at operating temperature: $v < 60 \text{ mm}^2/\text{s}$ / 280 SUS
- › as starting viscosity: $v_{\text{max}} = 1200 \text{ mm}^2/\text{s}$ / 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% 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..

Operating pressure

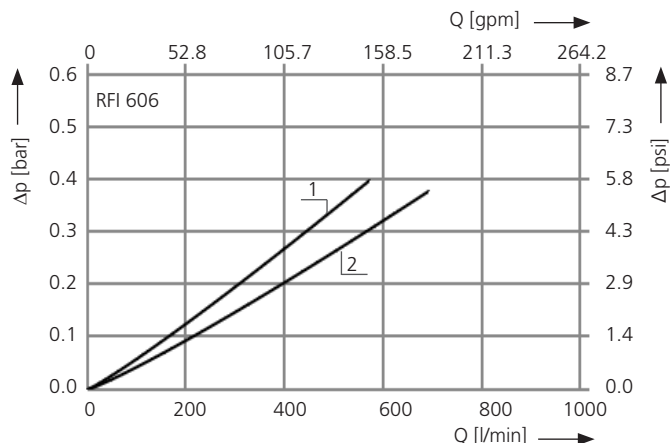
Max. 8 bar / 116 psi

Mounting position

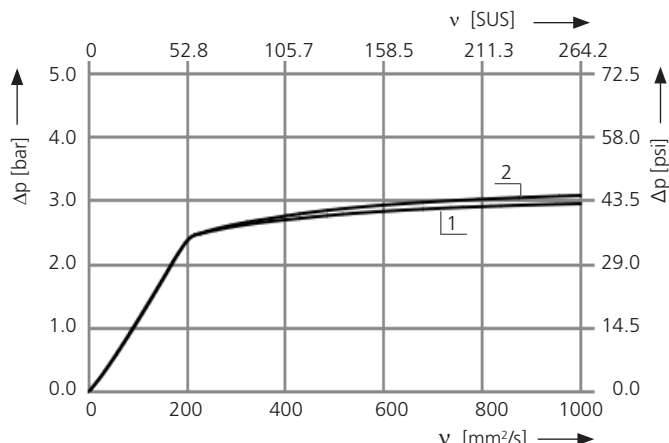
Preferably vertical, inlet downwards.

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

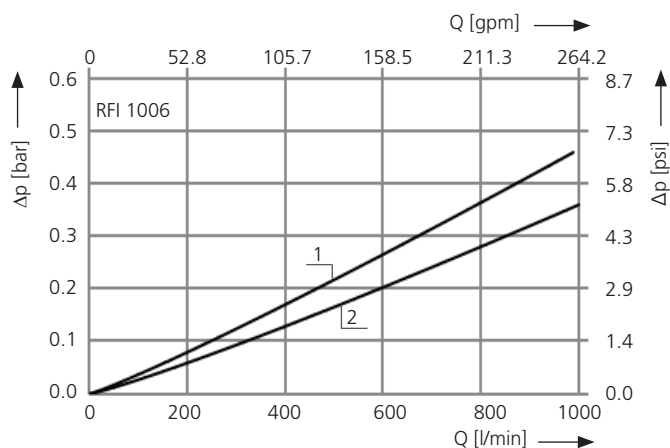
D1 Pressure drop as a function of the flow volume
at $v = 35 \text{ mm}^2/\text{s} / 162 \text{ SUS}$



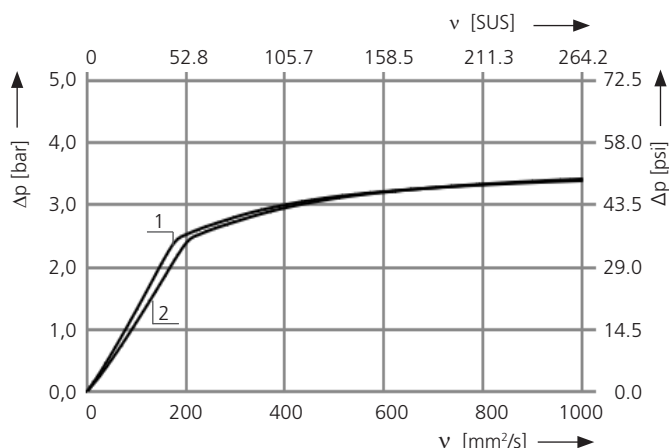
Pressure drop as a function of the
kinematic viscosity at nominal flow



D2 Pressure drop as a function of the **flow volume**
at $v = 35 \text{ mm}^2/\text{s} / 162 \text{ SUS}$



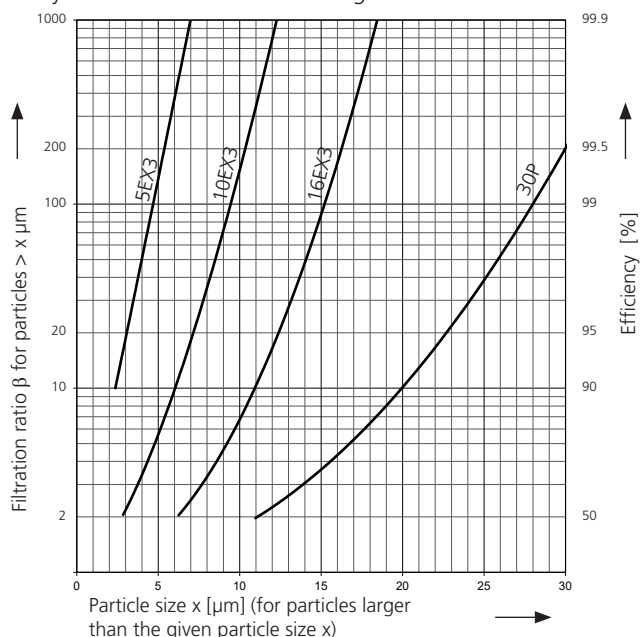
Pressure drop as a function of the
kinematic viscosity at nominal flow



Note: Pressure losses generated by fittings, collectors and piping are added to the pressure losses of the return filter.

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 3 and Paper elements:

5EX3	$\beta_{5(c)} = 200$	EXAPOR®MAX 3
10EX3	$\beta_{10(c)} = 200$	EXAPOR®MAX 3
16EX3	$\beta_{16(c)} = 200$	EXAPOR®MAX 3
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 diagram D /curve no.	Filter fineness see Diag. Dx	Dirt-holding capacity	Connection A	Cracking pressure of by-pass	Symbol	Replacement filter element Part no.	Weight	Remarks			
	l/min	gpm										g	mm	inch
1	2		3	4	5	6		7		8	9	10		11
RFI 606-156	520	137.4	D1/1	10EX3	180	Ø 75	Ø 2.95	2.5	36	1	V2.1340-26	4.1	9	-
RFI 606-158	630	166.4	D1/2	16EX3	180	Ø 75	Ø 2.95	2.5	36	1	V2.1340-28	4.1	9	-
RFI 1006-156	900	238	D2/1	10EX3	250	Ø 75	Ø 2.95	2.5	36	1	V2.1360-26	5.4	12	-
RFI 1006-158	960	254	D2/2	16EX3	280	Ø 75	Ø 2.95	2.5	36	1	V2.1360-28	5.4	12	-

For clogging monitoring, pressure gauges, electrical pressure switches or differential pressure switches are available on request.

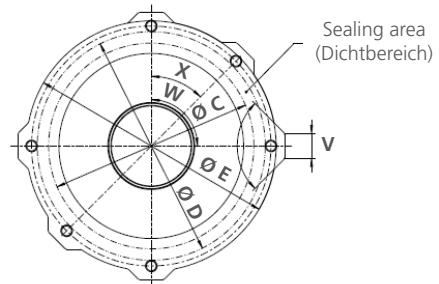
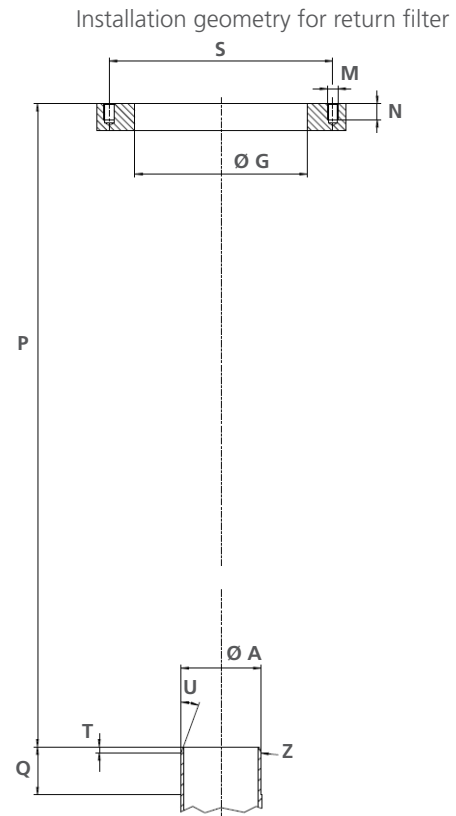
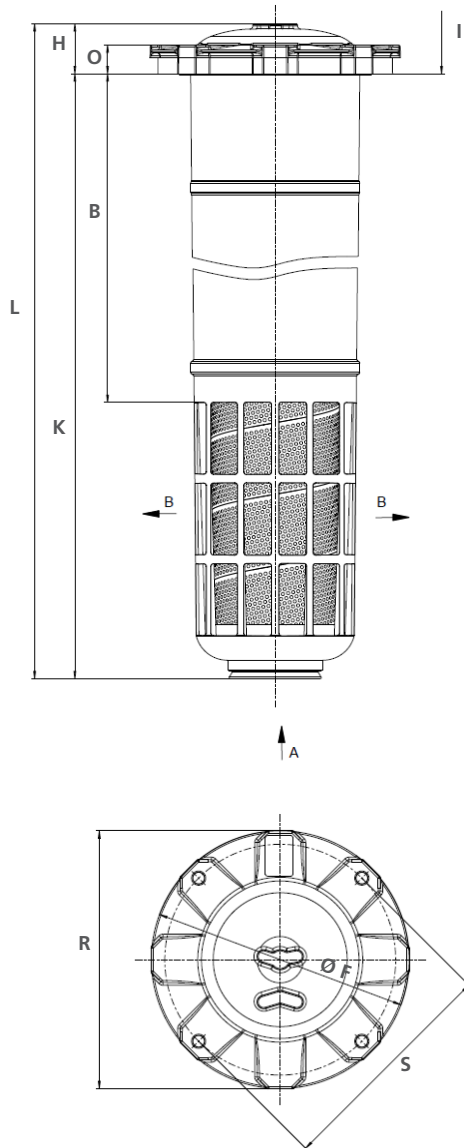
For the appropriate clogging indicators see catalog sheets 60.20. and 60.30 (differential pressure).

Remarks:

- › The switching pressure of the electrical pressure switch has always to be lower than the cracking pressure of the by-pass valve (see Selection Chart, column 7).
- › Clogging indicators are optional and always delivered detached from the filter.
- › The filters listed in this chart are standard filters. Other designs, e.g. other filter finenesses or different lengths of the filters, are available on request.

Dimensions

RFI 606 / RFI 1006



Measurements in mm

Type	A Ø	B	C Ø	D Ø	E Ø	F Ø	G Ø	H	I	K	L	M
RFI 606	75	239	180	200	219	234.5	162	47	395	434	481	M10
RFI 1006	75	380	180	200	219	234.5	162	47	600	639	686	M10

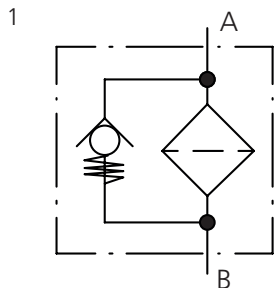
Type	N	O	P	Q	R	S	T	U	V	W	X	Z
RFI 606	15	27	399	min. 45	235	210	5.5	20°	22	90°	45°	R1
RFI 1006	15	27	604	min. 45	235	210	5.5	20°	22	90°	45°	R1

Measurements in inch

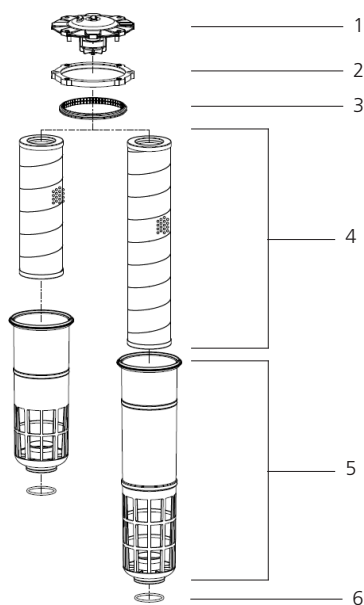
Type	A Ø	B	C Ø	D Ø	E Ø	F Ø	G Ø	H	I	K	L	M (mm)
RFI 606	2.95	9.41	7.09	7.87	8.62	9.23	6.38	1.85	15.55	17.09	18.94	M10
RFI 1006	2.95	14.96	7.09	7.87	8.62	9.23	6.38	1.85	23.62	25.16	27.01	M10

Type	N	O	P	Q	R	S	T	U	V	W	X	Z (mm)
RFI 606	0.59	1.06	15.71	min. 1.77	9.25	8,27	0.22	20°	0.87	90°	45°	R1
RFI 1006	0.59	1.06	23.78	min. 1.77	9,25	8.27	0.22	20°	0.87	90°	45°	R1

Symbol



Spare Parts



Pos.	Designation	Part No.
1	Cover incl. bypass valve	RFI 1006.1220
2	Adapter	RFI 1006.0206
3	Molded seal	RFI 1006.0102
4	Replacement filter element	s. table / col. 9
5	Housing RFI 606	RFI 606.0101
5	Housing RFI 1006	RFI 1006.0101
6	O-ring Ø 75.57 x 5.33 mm ¹ Ø 2.975 x 0.21 inch ¹	31631600

¹ not included in pos. 5

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.