

Return Filters

RFI 206 · RFI 406

For calmed oil flow in the tank \cdot Tank mounting \cdot Nominal flow rate up to 400 l/min / 105.7 gpm





Return Filter RFI 206

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 of the filter element, 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 of the filter element 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 part of the filter element and centering is realized by an integrated clamp at the filter element.

Materials

Screw-on cap and end caps: (filter element) Seals: Filter media:

Polyamide, GF reinforced NBR (FPM on request)

EXAPOR®MAX3 - inorganic multi-layer microfiber web

Accessories

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

Characteristics

Nominal flow rate

Up to 400 l/min / 105.7 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 $v \le 200 \text{ mm}^2/\text{s} / 927 \text{ SUS}$
- 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 m/s / 14.8 ft/s

Installation

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

Filter fineness

10 μm(c) ... 16 μm(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 Ø 44.5 mm /1.75 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: $v < 60 \text{ mm}^2/\text{s} / 280 \text{ SUS}$
- > as starting viscosity: $v_{max} = 1200 \text{ mm}^2/\text{s} / 5560 \text{ SUS}$
- > 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. 10 bar / 145 psi

Mounting position

Preferably vertical, inlet downwards.

Diagrams



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



The abbreviations represent the following $\beta\mbox{-values resp.}$ finenesses:

For EXAPOR®MAX 3 and Paper elements:

5EX3 =	$\overline{\beta}_{5(c)}$	= 200	EXAPOR®MAX 3
10EX3 =	$\overline{\beta}_{10}(c)$	= 200	EXAPOR®MAX 3
16EX3 =	$\overline{\beta}_{16(c)}$	= 200	EXAPOR®MAX 3
30P =	$\overline{\beta}_{30 (c)}$	= 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.

www.argo-hytos.com

```
Subject to change \cdot 20.65-EN \cdot 0625
```

Selection	Chart													
Part NO.		Morinalic	Press	BOR INC.	o	ot Contraction of the contractio	a constion b	, ~	Cracking	pressure switch	AND DE	illet electron	the state	Renation
	l/min	gpm			g	mm	inch	bar	psi	ĺ		kg	lbs	
1	-	2	3	4	5	6	5	-	7	8	9	1	0	11
RFI 206-276	160	42.3	D1 /1	10EX3	38	Ø 44.5	Ø 1.75	2.5	36	1	K9.1126-56	1.0	2.2	-
RFI 206-278	210	55.5	D1 /2	16EX3	39	Ø 44.5	Ø 1.75	2.5	36	1	K9.1126-58	1.0	2.2	-
RFI 406-276	330	87.2	D2 /1	10EX3	81	Ø 44.5	Ø 1.75	2.5	36	1	K9.1147-56	2.0	4.4	-
RFI 406-278	400	105.7	D2 /2	16EX3	86	Ø 44.5	Ø 1.75	2.5	36	1	K9.1147-58	2.0	4.4	-

As clogging indicators either manometers or electrical pressure switches can be used. All filters are equipped with a bypass valve protective strainer.

For the appropriate clogging indicators see catalog sheet 60.20.

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 filter element, are available on request.

RFI 206 / RFI 406





Measure	ments in	mm									
Туре	A Ø	В	C Ø	D	E Ø	F Ø	G Ø	H Ø	I	К	L
RFI 206	44.5	55	94.8	111	106.7	116.2	min. 136	29	260	256	281
RFI 406	44.5	55	94.8	111	106.7	116.2	min. 136	29	470	470	495
Туре	M	N	0	Р	Q	R	S	Т	U	V	W
										Ø	Ø
RFI 206	M110x3	7.5	28	236	min. 60	136	SW36	4	20°	88	106
RFI 406	M110x3	7.5	28	450	min. 60	136	SW36	4	20°	88	106

Measurements in inch

Туре	A Ø	В	C Ø	D	E Ø	F Ø	G Ø	H Ø	I	K	L
RFI 206	1.75	2.17	3.73	4.37	4.2	4.58	min. 5.35	1.14	10.24	10.08	11.06
RFI 406	1.75	2.17	3.73	4.37	4.2	4.58	min. 5.35	1.14	18.5	18.5	19.49

Installation geometry for return filter

Туре	M (mm)	Ν	0	Р	Q	R	S (mm)	Т	U	V Ø	W Ø
RFI 206	M110x3	0.3	1.1	9.29	min. 2.36	5.35	AF36	1.58	20°	3.47	4.17
RFI 406	M110x3	0.3	1.1	17.72	min. 2.36	5.35	AF36	1.58	20°	3.47	4.17

Symbol

1



Spare Parts



Pos.	Designation	Part No
1	Srew-on cap (incl. Pos. 2)	ES 074.1212
2	O-Ring 100 x 4 mm 3.94 x 0.16 inch	N007.1004
3	Replacement filter element	see Chart / col. 9

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.