

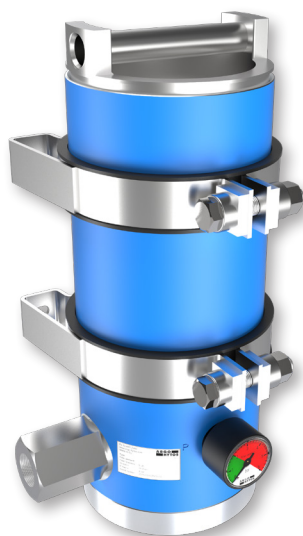
Off-line Filters

FNS1 040

Operating pressure up to 320 bar / 4640 psi · Flow rate up to 6 l/min / 1.6 gpm · Water capacity up to 370 ml / 0.09 gal



FNS1 040 without mounting clamps



FNS1 040 with mounting clamps

Description

Application

Off-line filter in hydraulic and lubrication systems. Ideal for mobile machines equipped with large working cylinders and mechanical drive chain. In such applications the hydraulic system is not filtered except moments of cylinders movement and the drain oil in the pumps. By adding small but constant flow through the FNS1 040 filter the oil cleanliness could be improved significantly. Additionally, EXAPOR®AQUA filter media provides excellent water absorption irrespectively of temperature in the system.

Performance features

The EXAPOR®MAX and EXAPOR®AQUA ultra-fine elements are the heart of the ARGO-HYTOS off-line filters. High separation efficiencies guarantee excellent cleanliness levels and thereby highest protection of components. The high dirt and water capacity of the EXAPOR®MAX and EXAPOR®AQUA elements allows economical operation of the machine.

Special design features

User-friendly filter element change:

The cover of the FNS1 040 can be opened without special auxiliary tools. The filter element can be removed from the housing together with the cover.

Dirt retention valve:

The element is flown through from the inside to the outside. The built-in dirt retention valve closes automatically when the element is removed, ensuring that all dirt is removed from the housing together with the element. Because of the cover design, the filter element change can be carried out almost without losing any oil.

Filter elements

Flow direction from the inside to the outside. The star-shaped pleating of the filter material results in:

- › large filter surfaces
- › low pressure drop
- › high dirt-holding capacities
- › particularly long maintenance intervals

Operating pressure

Max. 320 bar / 4640 psi
(max. 12 bar / 174 psi without pressure compensated flow control valve)

Minimum inlet pressure at the pressure compensated flow control valve: 10 bar / 145 psi

Cracking pressure of by-pass

3.5 bar / 51 psi

Nominal flow rate

Max. 6 l/min / 1.6 gpm (see Ordering Code, table Nominal Flow)
(max 60 l/min / 15 gpm without pressure compensated flow control valve)

Filter fineness

- › 3 µm(c) ... 10 µm(c) for EXAPOR®MAX separating solid particles
- › 3 µm(c) ... 7 µm(c) for EXAPOR®AQUA separating water and solid particles

β-values according to ISO 16889
(see Ordering Code, table Filter Element)

Dirt-holding capacity

The dirt-holding capacity values in grams from the ISO MTD test dust are in accordance with the ISO 16889 requirements (see Ordering Code, table Filter Element).

Materials

Filter housing: Aluminum alloy powder painted RAL 5015
Filter end plate: Aluminum alloy
Cover: Aluminum alloy
Seals: NBR (FPM on request)
Filter media: EXAPOR®MAX 2 - inorganic, multi-layer microfiber web
EXAPOR®AQUA - combination of water absorbing filter layers and inorganic, multi-layer microfiber web

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

Viscosity at nominal flow rate

- › at operating temperature: $\nu < 35 \text{ mm}^2/\text{s} / 162 \text{ SUS}$
- › as starting viscosity: $\nu_{\text{max}} = 400 \text{ mm}^2/\text{s} / 5560 \text{ SUS}$

Mounting position

Vertical, connection port at the bottom

Weight

Without mounting clamps: 6.7 kg / 14.77 lbs
With mounting clamps: 8.3 kg / 18.3 lbs

Connection

Threaded ISO 228 or UNF ports
(see Ordering Code and Dimensions Drawing)

Accessories

A mounting kit (2 pcs of mounting clamps) may be ordered together with the off-line filter (M in the order code) or separately (order code FNS 060.1730).
Electrical and / or optical clogging indicators may be ordered together with the off-line filter. For choosing the proper clogging indicator, see table Clogging Indicator in the Ordering Code. The clogging indicator can be ordered separately.
For dimensions and technical data of the clogging indicators, see catalog sheets 60.20 and 60.30.

Remarks

Other colors of the filter housing are available on request.
Special versions, not shown in this catalog, are also available on request.

Ordering Code

FNS1 040 / - -

Type of filter	Code
Off-line filter with flow control valve	FNS1

Nominal size	Code
	040

Flow setting		Code
Defined by the pressure compensated flow control valve (Inlet pressure min. 10 bar / 145 psi, max. 320 bar / 4640 psi)		
Flow control valve	Flow setting	
FNS 060.1520	1 l/min / 0.26 gpm	001
FNS 060.1530	2 l/min / 0.53 gpm	002
FNS 060.1540	4 l/min / 1.06 gpm	004
FNS 060.1550	6 l/min / 1.6 gpm	006

Connection port	Code
In: G1 Out: G $\frac{3}{4}$	G
In: 1 $\frac{5}{16}$ -12 UN-2B Out: 1 $\frac{1}{16}$ -12 UN-2B	U

Filter element	Fineness ($\beta=200$) Dirt-holding capacity in grams (dependent on flow setting)					Water capacity in ml	Cracking pressure of by-pass	Spare filter element code	Code
		6 l/min	4 l/min	2 l/min	1 l/min				
EXAPOR [®] MAX	3 μ m	620	895	1720	3370	-	3.5 bar / 51 psi	V7.1220-113	V003
EXAPOR [®] MAX	5 μ m	580	830	1580	3080	-	3.5 bar / 51 psi	V7.1220-13	V005
EXAPOR [®] MAX	10 μ m	435	620	1170	2270	-	3.5 bar / 51 psi	V7.1220-06	V010
EXAPOR [®] AQUA	3 μ m	200	280	515	980	340	3.5 bar / 51 psi	Y7.1220-113	Y003
EXAPOR [®] AQUA	7 μ m	180	260	495	960	370	3.5 bar / 51 psi	Y7.1220-05	Y007

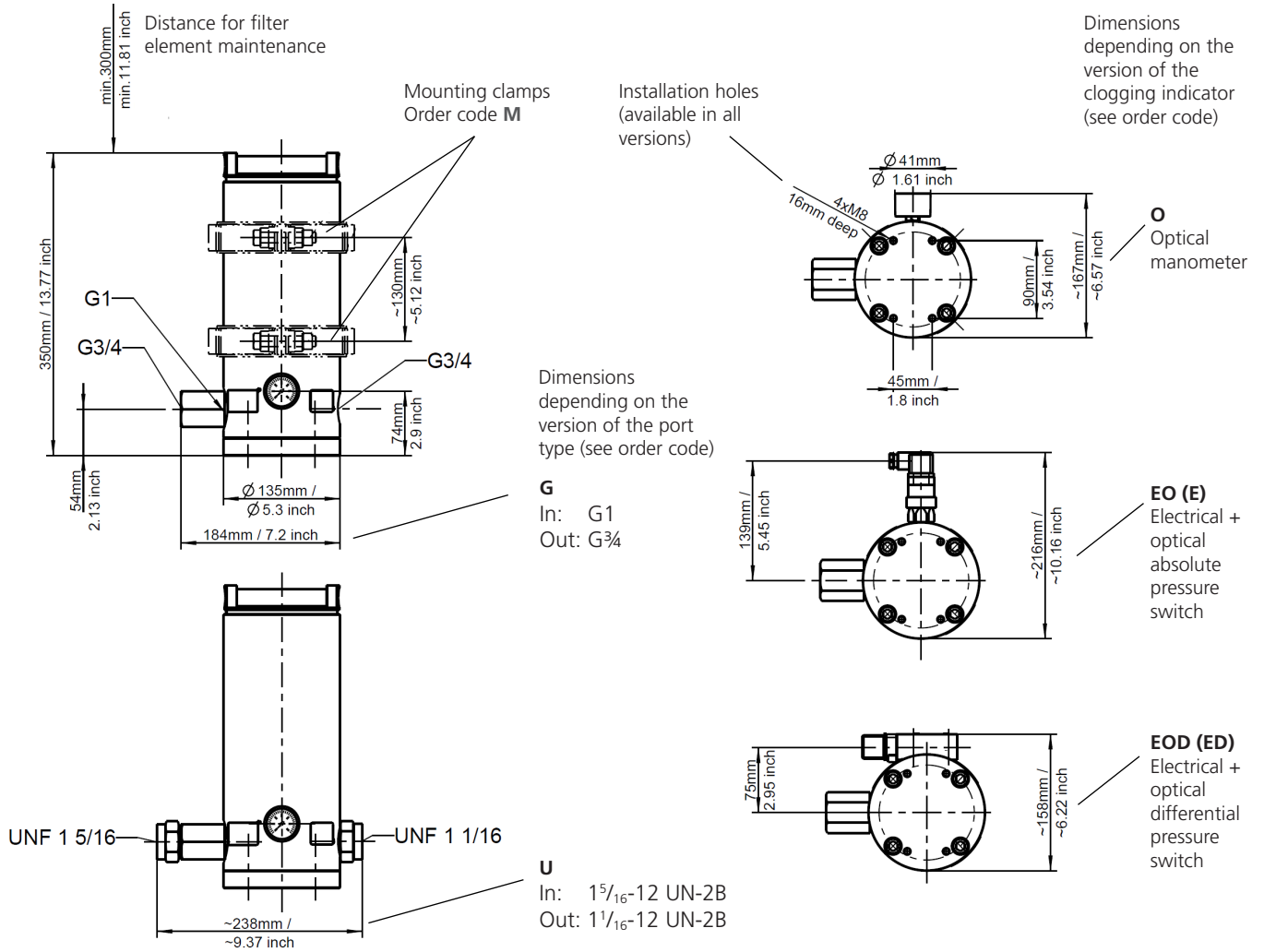
Clogging indicator					Code
Type	Code of indicator	Connection	Hydraulic symbol		
Manometer	optical	DG 200-16	M12 x 1.5	1	O
Pressure switch	electrical	DG 813-21	M12 x 1.5	2	E
Pressure switch	optical + electrical	DG 815-12	M12 x 1.5	3	EO
	without indicator		M12 x 1.5	4	X
Differential pressure clogging indicator	optical	DG 042-01	Flange	5	OD
	electrical	DG 041-31	Flange	6	ED
	optical + electrical	DG 041-44	Flange	7	EOD
	without indicator		Flange	8	XD

Mounting clamps	Code
No	
Yes	M

Order example:

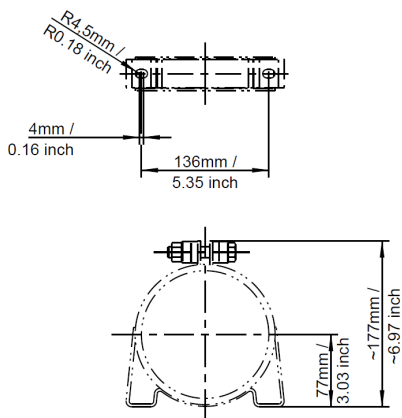
FNS1 040/006U-Y003-ED off-line filter with nominal flow 6 l/min (1.6 gpm) with UNF ports, EXAPOR[®]AQUA filter element 3 μ m, electrical differential pressure clogging indicator, without mounting clamps.

Dimensions



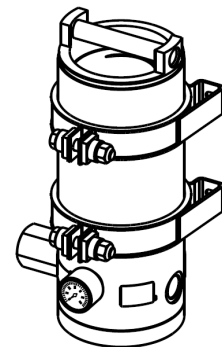
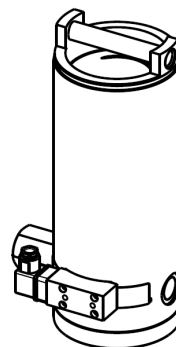
Version with mounting clamps:
Order code **M**

Isometric views for selected versions



Example 1

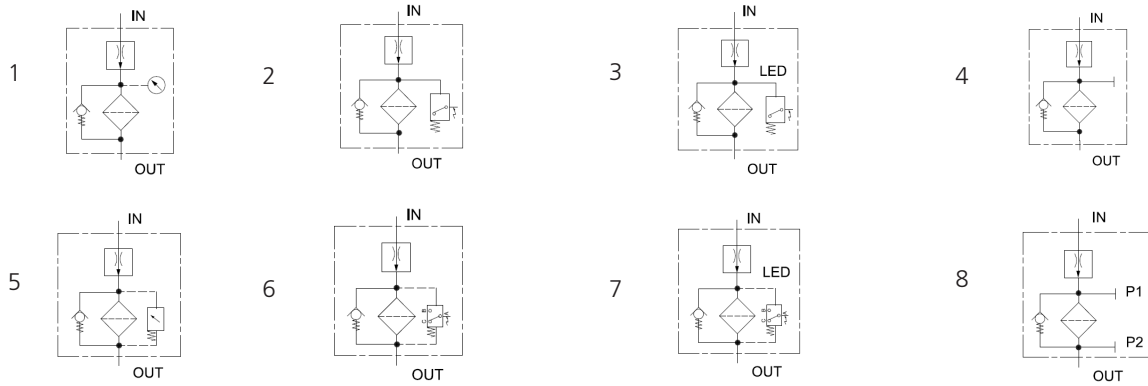
Example 2



Order code*:
FNS1 040/xxxG-xxxx-ED

Order code*:
FNS1 040/xxxG-xxxx-OM

*x should be replaced by correct code according to Ordering Code



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 leak-free 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.