FNA1 008 / 016

Operating pressure up to 4 bar / 58 psi · Nominal flow rate up to 19 l/min / 5.0 gpm

Off-line Filter Unit

Description

Application

In the by-pass flow of hydraulic and lubrication systems.

Performance features

Protection against wear:
By means of filter elements that meet the highest demands regarding cleanliness class and dirt-holding capacity.

Protection against failure:
By means of continuous partial filtration, excellent cleanliness classes can be achieved. Machine failures, due to contamination, are reduced, maintenance and oil change intervals are extended.

Special design features

Housing cover:
The cover can be opened without special auxiliary tools.

Compact:
The unique cover design allows that the filter element can be changed without losing any oil.
No pipes are needed except for the connection lines. The filter units feature low power consumption and minimal operational noise.

Pressure relief valve:
An integrated PRV (pressure relief valve) protects against overload.

Dirt retention valve:
At the bottom of the filter element, flown through from the inside to the outside, there is a dirt retention valve. This closes while pulling the filter element, which is hung up at the cover, out of the housing. Sedimented dirt is removed together with the filter 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

Filter maintenance

By using a clogging indicator, the correct moment for maintenance is stated, what guarantees optimum utilization of the filter life.

Materials

Pump housing:	Aluminum alloy
Filter housing:	Steel
Cover:	Aluminum alloy
Seals:	NBR (FPM on request)
Filter media:	EXAPOR®MAX 2 - inorganic, multi-layer microfiber web

Accessories

With Part No. FNA 008.1700, a mounting set is available, that facilitates the fitting of incoming and outgoing pipes onto an existing filling / venting connection.

Electrical and / or optical clogging indicators may be ordered together with the off-line filter unit. For choosing the proper clogging indicator see table Clogging Indicator in the Ordering Code. A separate order of the clogging indicator is possible. For dimensions and technical data of the clogging indicators - see catalog sheet 60.30.

Hydraulic fittings and hoses for installation of the unit in the system are available on request.

For installation in filter cooling circuits, a version with by-pass valve is available on request.

Characteristics

Nominal flow rate

Up to 19 l/min at ν = 35 mm²/s /
up to 5 gpm at ν = 162 SUS

Viscosity range

15 - 250 mm²/s / 70 - 1160 SUS - continuous operation
15 - 400 mm²/s / 70 - 1860 SUS - short term operation

Off-line filter units for higher viscosities
(up to 1500 mm²/s / 6950 SUS)
see catalog sheet FNA1HV 008 / 016 no. 80.41

Connection

Threaded port according to ISO 228
(see Ordering Code and Dimension Drawing)

Filter fineness

3 µm(c) ... 10 µm(c) for EXAPOR®MAX 2
separating solid particles
3 µm(c) ... 7 µm(c) for EXAPOR®AQUA
separating water and solid particles

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).

Hydraulic fluids

Mineral oil and biodegradable fluids
(HEES and HETG, see info-sheet 00.20)

Temperature range of fluids

0 °C ... +65 °C / +32 °F ... +149 °F
(also see viscosity range)

Ambient temperature range

0 °C ... +50 °C / +32 °F ... +122 °F

Suction height

max. 1 m / 3.28 ft (unfilled)
max. 6 m / 19.69 ft (in operating condition)

Operating pressure

Max. 4 bar / 58 psi, pressure protection with pressure relief valve

Operating position

Vertical, motor at the bottom

Recommended tank capacities

FNA1 008: up to 800 l / 200 gal
FNA1 016: up to 1500 l / 400 gal

Off-line filter units for tank capacities exceeding
1500 l / 400 gal see catalog sheet FNA 045 no. 80.50.

Ordering code

FNA1 ___ ___ - ___ / ___ - ___

Type of filter unit	Code
Off-line filter unit	FNA1

Nominal flow rate*	Code
8 l/min / 2.11 gpm	008
16 l/min / 4.23 gpm	016

Connection port		Code
Size	Dimensions type no.	
In: G¾ Out: G½	1 or 2	G
In: $1^{1}/_{16}$-12 UN-2B Out: $^{3}/_{4}$-16 UN-2B	3 or 4	U

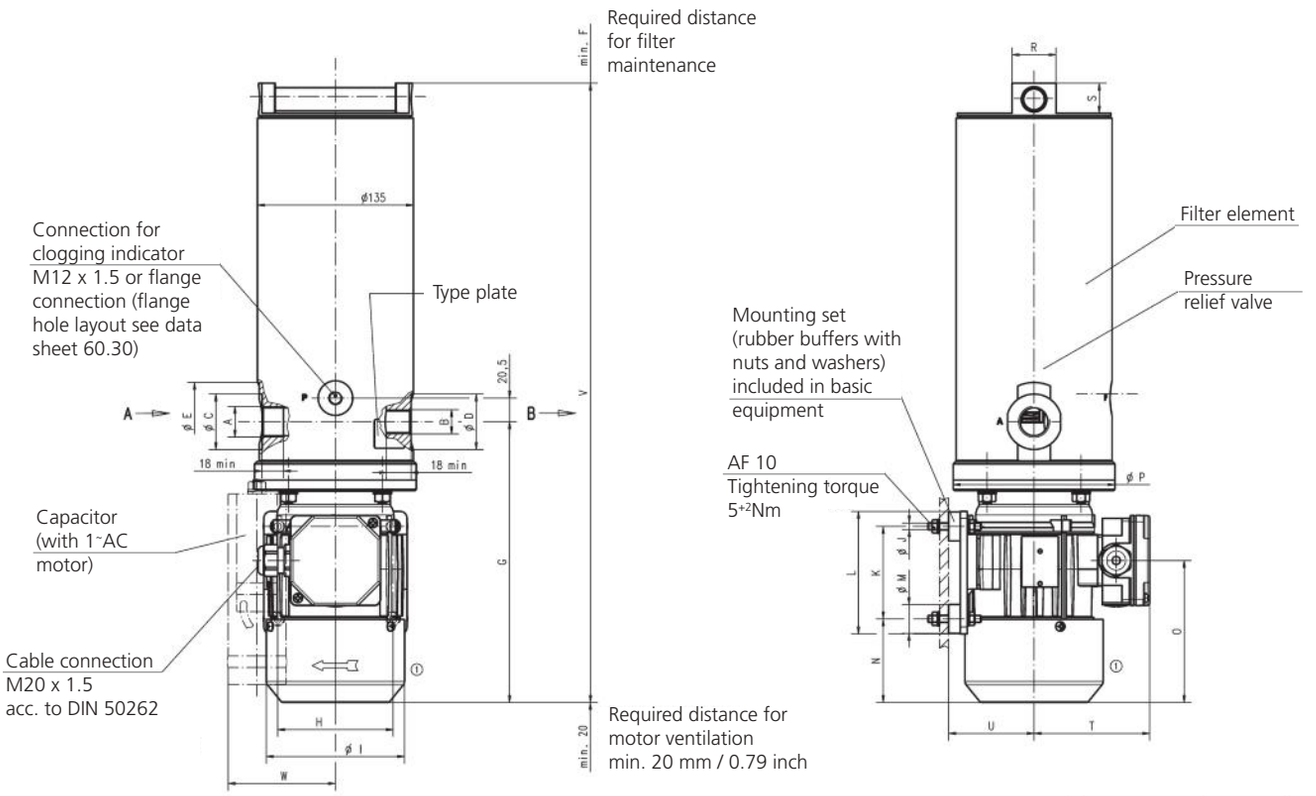
Filter element					Code
	Fineness (β=200) Dirt-holding capacity according to ISO 16889 / water capacity			Filter element	
		FNA1 008	FNA1 016		
EXAPOR®MAX 2	3 µm	490 g	280 g	V7.1220-113	V003
EXAPOR®MAX 2	5 µm	460 g	270 g	V7.1220-13	V005
EXAPOR®MAX 2	10 µm	340 g	190 g	V7.1220-06	V010
EXAPOR®AQUA	7 µm	64 g / 320 ml	38 g / 190 ml	Y7.1220-05	Y007
EXAPOR®AQUA	3 µm	45 g / 340 ml	25 g / 205 ml	Y7.1220-113	Y003

Electric motor*					Code
Phase(s), voltage	Frequency	Power FNA 1 008 / 016	Electric connection	Dimensions type no.	
3~400/460 VAC	50/60 Hz	0.25 / 0.45 kW	1	1 or 3	40050
1~230 VAC	50/60 Hz	0.25 / 0.45 kW	2	2 or 4	23050
1~110 VAC	50/60 Hz	0.25 / 0.45 kW	2	2 or 4	11050

Clogging indicator						Code
Type		Code of indicator	Data sheet no.	Connection	Hydraulic symbol	
Manometer	optical	DG 200-16	60.20	M12 x 1.5	1	O
Pressure switch	electrical	DG 813-21	60.20	M12 x 1.5	2	E
Pressure switch	optical / electrical	DG 815-12	60.20	M12 x 1.5	3	EO
without indicator				M12 x 1.5	4	X
Differential pressure clogging indicator	optical	DG 042-01	60.30	Flange	5	OD
	electrical	DG 041-32	60.30	Flange	6	ED
	electrical + optical	DG 041-32 + DG 041.1200	60.30	Flange	7	EOD
without indicator				Flange	8	XD

* Indications at 50 Hz. At 60 Hz, the value increases by approx. 20 %.
For version with DC motor, 24 or 12 V see data sheet FNA 014 no. 80.35

Dimensions



Weight approx. 11 kg / 24.3 lbs

Measurements in mm

Type*	A	B	C	D	E	F	G	H	I	J	K	L	M
1	G 3/4	G 1/2	48	48	68	340	243	100	120	M6	80	106	25
2	G 3/4	G 1/2	48	48	68	340	243	100	120	M6	80	106	25
3	11/16-12 UN-2B	3/4-16 UNF-2B	41	30	68	340	243	100	120	M6	80	106	25
4	11/16-12 UN-2B	3/4-16 UNF-2B	41	30	68	340	243	100	120	M6	80	106	25

Type*	N	O	P	R	S	T	U	V	W
1	72	123	140	38	26	101	74	535	-
2	72	123	140	38	26	101	74	535	100
3	72	123	140	38	26	101	74	535	-
4	72	123	140	38	26	101	74	535	100

Measurements in inch

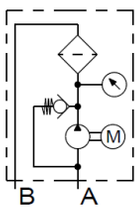
Type*	A	B	C	D	E	F	G	H	I	J	K	L	M
1	G 3/4	G 1/2	1.89	1.89	2.68	13.39	9.57	3.94	4.72	M6	3.15	4.17	0.98
2	G 3/4	G 1/2	1.89	1.89	2.68	13.39	9.57	3.94	4.72	M6	3.15	4.17	0.98
3	11/16-12 UN-2B	3/4-16 UNF-2B	1.61	1.18	2.68	13.39	9.57	3.94	4.72	M6	3.15	4.17	0.98
4	11/16-12 UN-2B	3/4-16 UNF-2B	1.61	1.18	2.68	13.39	9.57	3.94	4.72	M6	3.15	4.17	0.98

Type*	N	O	P	R	S	T	U	V	W
1	2.83	4.84	5.51	1.50	1.02	3.98	2.91	21.06	-
2	2.83	4.84	5.51	1.50	1.02	3.98	2.91	21.06	3.94
3	2.83	4.84	5.51	1.50	1.02	3.98	2.91	21.06	-
4	2.83	4.84	5.51	1.50	1.02	3.98	2.91	21.06	3.94

*Type see Ordering Code (Dimensions Type no.)

Hydraulic symbols

1



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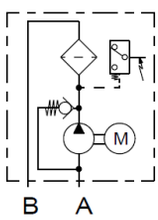

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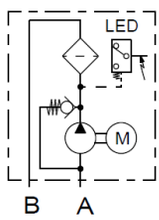

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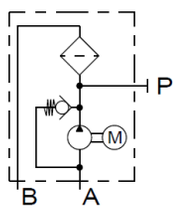

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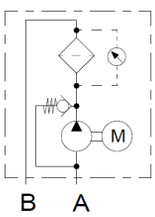

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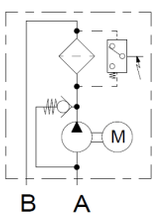

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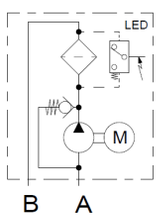

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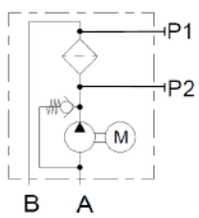
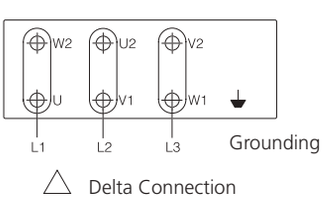


Electric connections

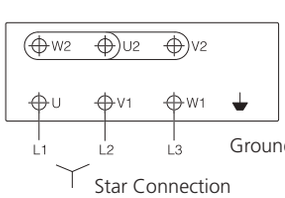
1

Delta connection



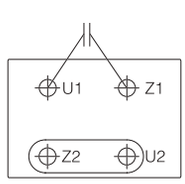
Delta Connection

Star connection



Star Connection

2



Order example

FNA1 016G-V003/23050-E

Off-line filter unit with nominal flow rate 16 l/min / 4.23 gpm, inlet port G¾, outlet port G½, EXAPOR®MAX 2 filter element, fineness 3 µm, electric motor 1~230 VAC and electric clogging indicator

Dimensions type: 2

Remarks:

Combinations listed in this data sheet are standard units. If modifications are required, we kindly ask for your request.