ARGO HYTOS

Off-line Filter Units

FNA 008 · FNA 016

- Operating pressure up to 58 psi
- Nominal flow rate up to 4.2 gpm
- For tank capacities up to 400 gpm

80.40-6us

Description

Application
Off-line filtration in hydraulic and lubricating oil systems.

Performance features
Protection against wear: By means of filter elements that meet even the highest demands regarding cleanliness classes and dirt-holding capacity.
Protection against malfunction: By means of permanent filtration in the off-line circuits excellent cleanliness classes can be achieved. This can lead to significantly longer intervals between maintenance work and oil changes, as well as reduction of machine failures due to contamination.

Special design features
Cover: The cover can be opened without special auxiliary tools.
Because of the cover design the filter element can be changed almost without losing any oil. No pipes are needed except for the connection lines. The power units feature minimal noise output and low power consumption.
Pressure relief valve: An integrated PRV (pressure relief valve) protects against overload.
Dirt retention valve: Ensures that dirt accumulated in the filter is removed together with the element. Settled dirt cannot return into the system.

Filter elements
Flow direction from center to outside. 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
Pump housing: Aluminum alloy
Filter housing: Steel
Cover: Aluminum alloy
Seals: NBR (FKM on request)
Filter media: EXAPOR®MAX 2 - inorganic, multi-layer microfibre web

Accessories
Water-absorbing filter elements (EXAPOR® AQUA) are available on request.
With Part No. FNA 008.1700 a mounting set that facilitates the fitting of incoming and outgoing pipes onto an existing filling/venting connection is available.
For installation in filter cooling circuits a version with by-pass valve is available on request.
Electrical and optical clogging indicators are available.
Dimensions and technical data see catalog sheet 60.20.

Characteristics

Nominal flow rate
Up to 4.2 gpm at $\nu = 162$ SUS
(see Selection Chart, column 2)

Connection
Threaded port according to ISO 228 or DIN 13.
Sizes see Selection Chart, columns 9 and 10

Filter fineness
3 µm(c) ... 10 µm(c)
β-values according to ISO 16889
(see Selection Chart, column 3 and Diagram Dx)

Dirt-holding capacity
Values in g test dust ISO MTD according to ISO 16889
(see Selection Chart, column 4)

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

Temperature range of fluids
32 °F ...+149 °F (also see viscosity range)

Ambient temperature range
32 °F ...+122 °F

Viscosity range

Electro motor air cooled type of protection: IP 55	**Continous operation min.**	**Continous operation max.**	**Short-term operation max.**
3 ~ 400 V / 460 V	70 SUS	930 SUS	1860 SUS
1 ~ 230 V	70 SUS	930 SUS	1860 SUS
1 ~ 110 V	70 SUS	930 SUS	1860 SUS

Vessel volume
approx. 0.6 gallons

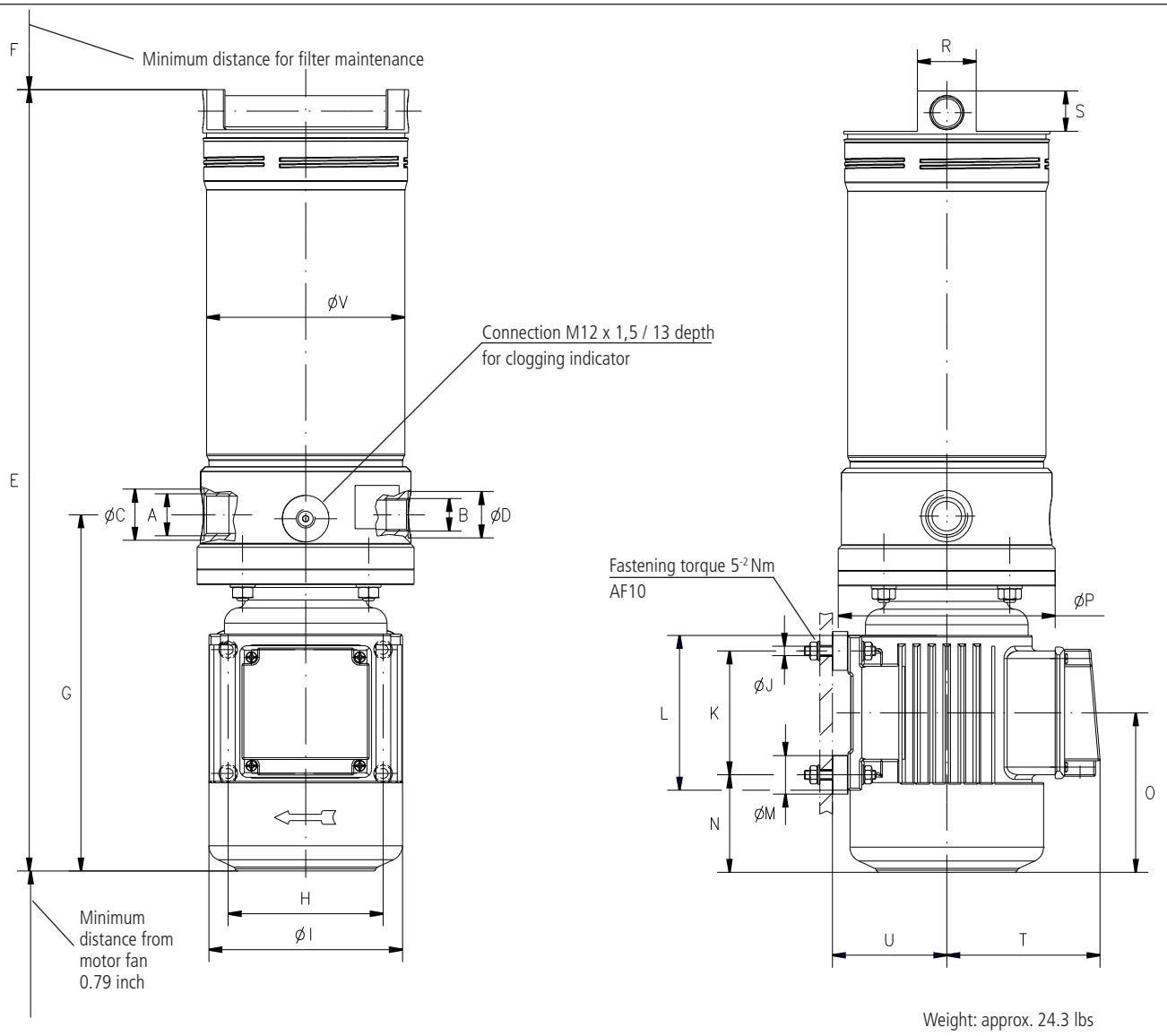
Maximum suction height
4.9 feet

Operating pressure
Max. 58 psi, pressure protection with pressure relief valve;
cracking pressure see Selection Chart, column 11

Operating position
Vertical, motor at the bottom

Recommended tank capacities
FNA 008: 25 ... 200 gallons
FNA 016: 100 ... 400 gallons
Off-line filter units for tank capacities exceeding 400 gallons
see catalog sheet 80.50

Dimensions



Measurements

Type*	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R	S	T	U	V
1	G 3/4	G 1/2	1.30	1.18	20.08	13.39	9.06	3.94	4.92	M6	3.15	3.94	0.98	2.48	4.13	5.51	1.52	1.06	3.94	2.91	5.04
2	1 1/16-12 UN-2B	3/4-16 UNF-2B	1.30	1.18	20.08	13.39	9.06	3.94	4.92	M6	3.15	3.94	0.98	2.48	4.13	5.51	1.52	1.06	3.94	2.91	5.04
3	1 1/16-12 UN-2B	3/4-16 UNF-2B	1.30	1.18	21.06	13.39	10.04	3.94	4.92	M6	3.15	3.94	0.98	3.46	5.12	5.51	1.52	1.06	4.92	2.91	5.04
4	G 3/4	G 1/2	1.30	1.18	20.67	13.39	9.65	3.94	4.92	M6	3.15	3.94	0.98	3.54	4.76	5.51	1.52	1.06	4.92	2.87	5.04

*Type see Selection Chart, column 14

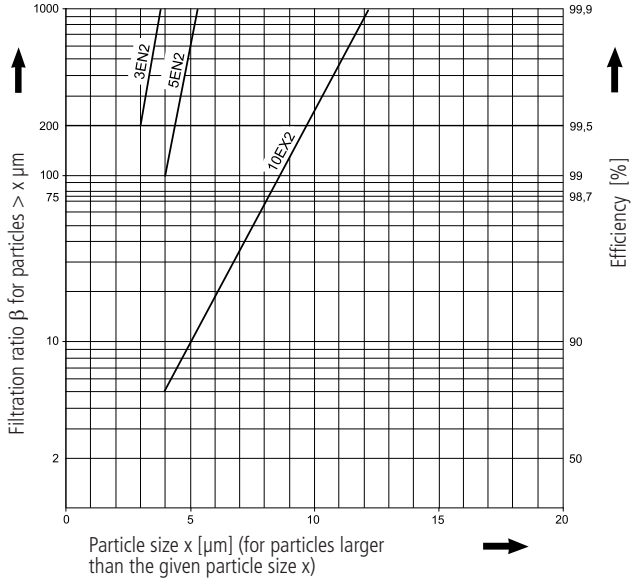
Selection Chart, columns 1-10

Part No.	Nominal flow rate	Filter fineness, see Diagr. **Dx**	Dirt-holding capacity	E-motor operating voltage	E-motor operating frequency (max.)	E-motor power (max.)	E-motor speed at 50 Hz (max.)	Connection A Inlet	Connection B Outlet
	gpm		g	V	Hz	kW	min^{-1}		
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
FNA 008-763	2.1	3EN2	490	1 ~ 110 V	(60)	0.25 (0.3)	1400 (1700)	$1^{1}/_{16}$-12 UN-2B	$^{3}/_{4}$-16 UN-2B
FNA 008-163	2.1	5EN2	460	1 ~ 110 V	(60)	0.25 (0.3)	1400 (1700)	$1^{1}/_{16}$-12 UN-2B	$^{3}/_{4}$-16 UN-2B
FNA 008-573	2.1	3EN2	490	1 ~ 230 V	50	0.25	1400 (1700)	G $^{3}/_{4}$	G $^{1}/_{2}$
FNA 008-553	2.1	3EN2	490	3 ~ 400 V/460 V	50 (60)	0.25 (0.3)	1400 (1700)	G $^{3}/_{4}$	G $^{1}/_{2}$
FNA 008-753	2.1	3EN2	490	3 ~ 400 V/460 V	50 (60)	0.25 (0.3)	1400 (1700)	$1^{1}/_{16}$-12 UN-2B	$^{3}/_{4}$-16 UN-2B
FNA 008-153	2.1	5EN2	460	3 ~ 400 V/460 V	50 (60)	0.25 (0.3)	1400 (1700)	G $^{3}/_{4}$	G $^{1}/_{2}$
FNA 008-556	2.1	10EX2	340	3 ~ 400 V/460 V	50 (60)	0.25 (0.3)	1400 (1700)	G $^{3}/_{4}$	G $^{1}/_{2}$
FNA 016-763	4.2	3EN2	280	1 ~ 110 V	(60)	(0.3)	2800 (3300)	$1^{1}/_{16}$-12 UN-2B	$^{3}/_{4}$-16 UN-2B
FNA 016-163	4.2	5EN2	270	1 ~ 110 V	(60)	(0.3)	2800 (3300)	$1^{1}/_{16}$-12 UN-2B	$^{3}/_{4}$-16 UN-2B
FNA 016-573	4.2	3EN2	280	1 ~ 230 V	50	0.45	2700 (3200)	G $^{3}/_{4}$	G $^{1}/_{2}$
FNA 016-173	4.2	5EN2	270	1 ~ 230 V	50	0.45	2700 (3200)	G $^{3}/_{4}$	G $^{1}/_{2}$
FNA 016-553	4.2	3EN2	280	3 ~ 400 V/460 V	50 (60)	0.45 (0.55)	2700 (3200)	G $^{3}/_{4}$	G $^{1}/_{2}$
FNA 016-753	4.2	3EN2	280	3 ~ 400 V/460 V	50 (60)	0.45 (0.55)	2700 (3200)	$1^{1}/_{16}$-12 UN-2B	$^{3}/_{4}$-16 UN-2B
FNA 016-153	4.2	5EN2	270	3 ~ 400 V/460 V	50 (60)	0.45 (0.55)	2700 (3200)	G $^{3}/_{4}$	G $^{1}/_{2}$
FNA 016-773	4.2	5EN2	270	3 ~ 400 V/460 V	50 (60)	0.45 (0.55)	2700 (3200)	$1^{1}/_{16}$-12 UN-2B	$^{3}/_{4}$-16 UN-2

Diagrams

Filter fineness curves in Selection Chart, column 3

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-elements:

3EN2 = $\bar{\beta}_{3\,(c)}$ = 200 EXAPOR®MAX 2
5EN2 = $\bar{\beta}_{5\,(c)}$ = 200 EXAPOR®MAX 2
10EX2 = $\bar{\beta}_{10\,(c)}$ = 200 EXAPOR®MAX 2

For special applications, finenesses differing from these curves are also available by using special composed filter media.

Selection Chart, columns 11-17

Part No.	Cracking pressure of by-pass	Symbols hydraulic	Symbols electric	Measurements, Type No.	Replacement filter element Part No.	Clogging indicator	Remarks
	psi						
	11	**12**	**13**	**14**	**15**	**16**	**17**
FNA 008-763	58	1	3	3	V7.1220-113	optional	-
FNA 008-163	58	1	3	3	V7.1220-13	optional	-
FNA 008-573	58	1	3	4	V7.1220-113	optional	-
FNA 008-553	58	1	1, 2	1	V7.1220-113	optional	-
FNA 008-753	58	1	1, 2	2	V7.1220-113	optional	-
FNA 008-153	58	1	1, 2	1	V7.1220-13	optional	-
FNA 008-556	58	1	1, 2	1	V7.1220-06	optional	-
FNA 016-763	58	1	3	2	V7.1220-113	optional	-
FNA 016-163	58	1	3	2	V7.1220-13	optional	-
FNA 016-573	58	1	3	1	V7.1220-113	optional	-
FNA 016-173	58	1	3	1	V7.1220-13	optional	-
FNA 016-553	58	1	1, 2	1	V7.1220-113	optional	-
FNA 016-753	58	1	1, 2	2	V7.1220-113	optional	-
FNA 016-153	58	1	1, 2	1	V7.1220-13	optional	-
FNA 016-773	58	1	1, 2	2	V7.1220-13	optional	-

All filter units are delivered with an unplugged clogging indicator connection M12 x 1.5. As clogging indicators either manometers or electrical pressure switches can be used.

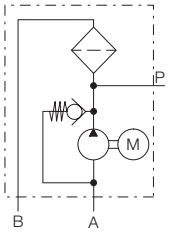
For the appropriate clogging indicators see catalog sheet 60.20.
By the use of a manometer version DG 200-16* has to be chosen.

Remarks:
- If operating frequency increases, pump delivery will increase as well.
- The filter units listed in this chart are standard units. If modifications are required, e.g. with water-absorbing filter elements, pipe extensions or mounting sets, we kindly ask for your request.
- The clogging indicators are optionally available and then will be loosely provided.

* Manometer without throttle screw

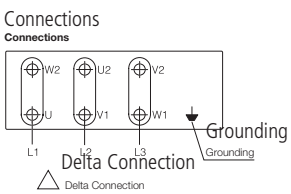
Symbols

Hydraulic:
1



Electric:

1



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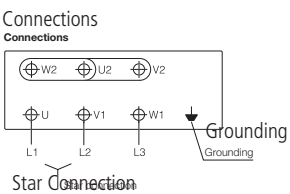

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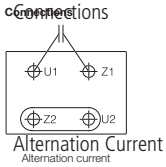

Quality Assurance

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.

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.

We produce fluid power solutions
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Subject to change
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