HYDAC INTERNATIONAL

Dewatering and Filtration Unit FluidAqua Mobil

FAM 10

Description

The FluidAqua Mobil units in the series FAM 10 operate according to the principle of vacuum dewatering to separate free and dissolved water and gases from hydraulic and lubrication fluids.

By using HYDAC offline filter element technology with its high contamination retention capacity and separation capacity, the unit is extremely economical.

As an option, all units can be equipped with and also controlled by measuring instruments for monitoring the water content and particle contamination continuously. A built-in heater is also available as an option to increase the dewatering capacity.

The Siemens S7 series of programmable logic control (PLC) in combination with a Siemens control panel in various languages guarantees simple and reliable operation.

Advantages

Extremely low residual water levels, gas levels and particle contamination in the operating fluid ensure:

- Longer oil change intervals
- Improved component service life
- Greater machine availability
- Reduction in the LifeCycle Cost (LCC)

Technical Details

Flow rates at 50 Hz	≈ 10 l/min (FAM-10), ≈ 15 l/min (FAM-10/15)
Flow rates at 60 Hz	≈ 12 l/min (FAM-10), ≈ 18 l/min (FAM-10/15)
Permitted fluids**	Fluids compatible with NBR seals: ● Mineral oils to DIN 50524 ● Gear oils to DIN 51517, 51524 Fluids compatible with FPM (Viton) seals: ● Synthetic esters (HEES) DIN 51524/2 ● Vegetable oils (HETG, HTG) ● HFD fluids (not for pure phosphate ester which requires EPDM seals). Fluids compatible with EPDM seals: ● Aviation phosphoric acid esters e. g. Skydrol® or Hyjet®
Viscsity range	15 ... 800 mm²/s
Sealing material	see model code
Filter size of fine filter	OLF-5
Filter elements of fine filter xxx= Filtration rating	N5DMxxx (please order separately)
Contamination retention capacity to ISO 4572	200 g
clogging indicator	VM 2 C.0
Setting pressure of differential pressure clogging indicator	2 bar
Pump type, filtration unit	Vane pump
Pump type, drainage pump	Gear pump
Pump type, vacuum pump	Rotary vane vacuum pump
operating pressure	max. 4.5 bar
Max. permitted pressure at suction port (without suction hose)	-0.2 ... +0.2 bar
Fluid temperature range**	10 ... 80 °C (10 ... 70 °C)
Ambient temperature **	10 ... 40°C
Electrical power consumption FAM 10 / 10/15	Standard: ≈ 1800/2000 W with heater: ≈ 4700/4900 W
External fuse required	16 A or 32 A (see model code)
Heating output (optional)	≈ 2900 W only for version with 3 phase
Protection class	IP 54
Power cable, length	10 m
Hoses, length	5 m
Material of hoses	see model code
INLET connection	1BSP
OUTLET connection	G ½
Weight when empty	≈ 300 kg
Typical dewatering speed l/h	≈ 0.8
Achievable residual water content	< 100 ppm – hydraulic and heavy oils < 50 ppm – turbine oils (ISO VG 32/46) < 10 ppm – transformer oils ***
Special models on request.	

* Maximum specifications given, depends on equipment
** For other fluids, viscosities or temperature ranges, please contact us.
*** Units not suitable for "Online" and "Onload" operation (transformer in operation and connected to grid).

Model code

FAM – 10 – M – 1 – A – 05 – R – H – B – AC1 – 00 – /-V

Basic model
FAM = FluidAqua Mobil

Size and nominal flow rate
10 = 10 l/min (for 50 Hz operation), 12 l/min (for 60 Hz operation)
10/15 = 15 l/min (for 50 Hz operation), 18 l/min (for 60 Hz operation)

Operating fluid
M = Mineral oil – NBR seals, NBR hoses, tested using mineral oil *
I = Insulating oil - NBR seals, NBR hoses, tested using insulating oil **
X = HFD-R phosphoric acid ester fluids - FPM seals, UPE hoses tested using HFD-R fluid *
P = Aviation phosphoric acid ester fluid e.g. Skydrol® or Hyjet®, EPDM seals tested using Hyjet®
B = Rapidly biodegradable oils (based on esters) - FPM seals, NBR hoses tested using rapidly biodegradable fluid (based on esters) *

Mechanical version
1 = stationary
2 = mobile

Voltage/Frequency/Power supply
A = 400 V/50 Hz/3Ph+PE
B = 415 V/50 Hz/3Ph+PE
C = 200 V/50 Hz/3Ph+PE [1)]
D = 200 V/60 Hz/3Ph+PE [1)]
E = 220 V/60 Hz/3Ph+PE [1)]
F = 230 V/60 Hz/3Ph+PE [1)]
G = 380 V/60 Hz/3Ph+PE
H = 440 V/60 Hz/3Ph+PE
J = 230 V/50 Hz/3Ph+PE [1)]
K = 480 V/60 Hz/3Ph+PE
L = 220 V/50 Hz/3Ph+PE [1)]
M = 230 V/50 Hz/1Ph+PE (non heater possible)
N = 575 V/60 Hz/3Ph+PE
O = 460 V/60 Hz/3Ph+PE
X = other voltage on request

Filter size of fine filter
05 = OLF-5

Type of vacuum pump
R = Rotary vane vacuum pump

Heater
H = Heater
Z = without Heizer

Control type
B = Basic
(Control panel language: German/English/French/Spanish/Portuguese
(other languages on request))

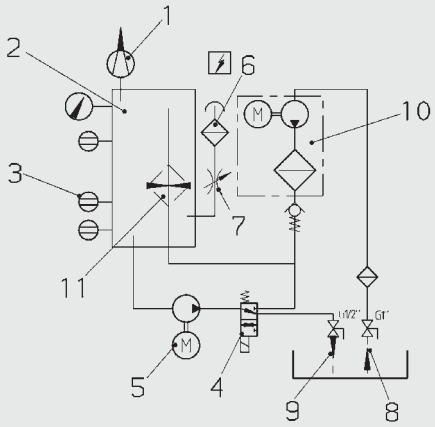
Measuring equipment
A = AquaSensor
AC1 = AquaSensor + ContaminationSensor ISO4406:1999
AC2 = AquaSensor + ContaminationSensor SAE AS 4059(D)
AC3 = AquaSensor + ContaminationSensor NAS 1638

Modification number
00 = the latest version is always supplied

Supplementary details
No details = standard
V = FPM seals for **operating medium** "M" and "I" (if non-standard seal required for the particular **operating medium** (see Model Code under "Operating medium") : Example:. FAM-10-M....-/V)

[1)] at option heater with 32 A plug, otherwise 16 A
* Residues of test fluid will remain in the unit after testing.
** Units not suitable for "Online" and "Onload" operation (transformer in operation and connected to grid).

Hydraulic circuit diagram



1 = Vacuum pump
2 = Vacuum column
3 = Level switch
4 = Change-over valve
5 = Drain pump
6 = Air inlet
7 = Vacuum adjustment
8 = Inlet
9 = Outlet
10 = Filtration unit
11 = Heater (optional)

Sizing

As a rough guide, the FluidAqua Mobil can be sized according to the tank volume of the system. If the water ingress per hour is known, then a unit can be selected according to the typical dewatering capacities of the various sizes.

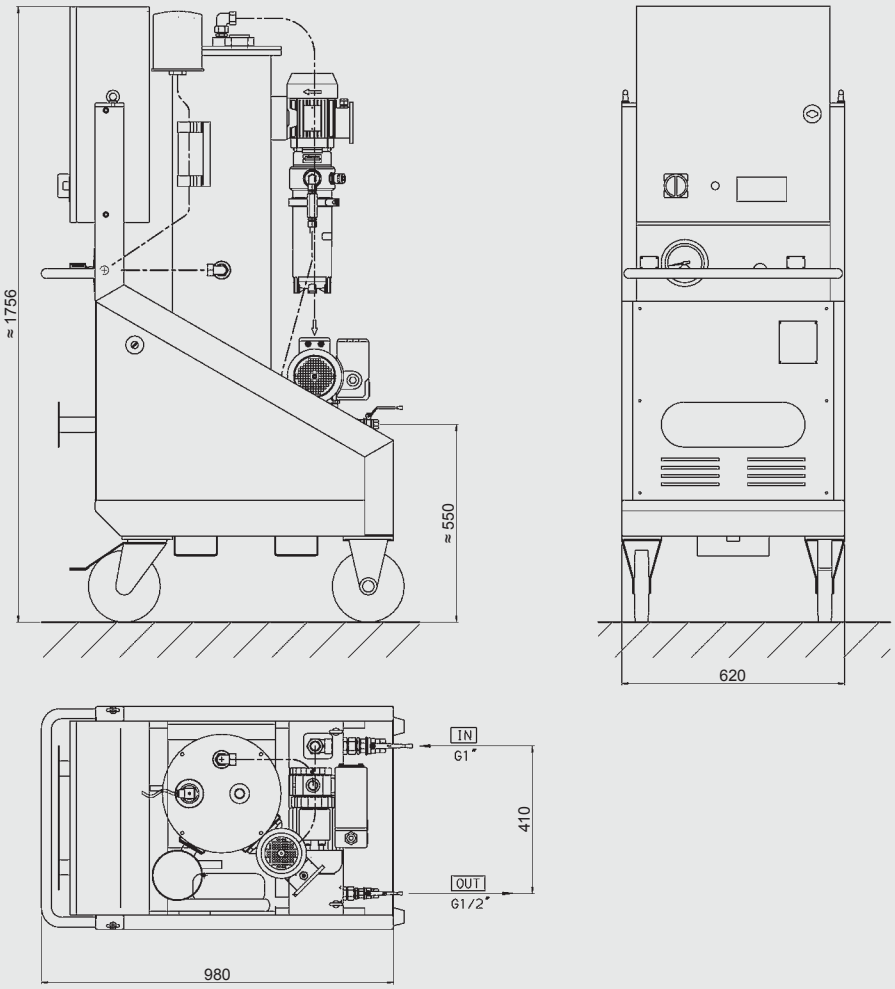
Tank volume	FAM
< 2,000 l	FAM 10
2,000 –7,000	FAM 10/15
7,000 – 15,000	FAM 25 *
15,000 –25,000	FAM 45 *
25,000 –35,000	FAM 60 *
35,000 – 45,000	FAM 75 *
> 45,000	FAM 95 *

* See brochure no. E 7.613... FluidAqua Mobil FAM 25/45/60/75/95 Series

In general, it must however be noted that sizing will depend on the application, the fluid, the temperature of the fluid and the ambient temperature, the fluid quantity and the water ingress into the system. These have a great affect on the dewatering capacity. Therefore the specifications can only serve as an indication.

		Dewatering rate
Water content	⇧	⇧
Fluid temperature	⇧	⇧
Detergent additives	⇧	⇩
Flow rate of the FAM	⇧	⇧

Dimensions



Items supplied

– FluidAqua Mobil, ready-for-connection
– Suction and pressure hoses supplied with mobile version
– Key, square 6 mm (for switch cabinet and cover panel)
– Vacuum pump oil (1 litre) for initial filling of vacuum pump
– Technical documentation consisting of:
  - Operating and Maintenance Manual
  - Electrical circuit diagram
  - Test certificate
– CE declaration of conformity

Heater option

By using the built-in heater, the dewatering capacity can be increased, particularly in the case of high viscosity fluids or fluids at low temperatures.

If the temperature of the fluid is raised by 10 °C then the dewatering capacity increases by up to 50 %. The ideal temperature for dewatering is between 50 - 60 °C.

Generally speaking, for operating viscosities of between 350 ... 550 mm²/sec the heater option must be selected and the heater must be in operation.

Filter elements for fine filter

Filter elements for the fine filter must be ordered separately and must be fitted before initial operation on site.

FAM-10

OLF 5: 1 filter element of the type N5DMxxx is required.

Part number	Description	Filtration rating	Seal
349494	N5DM002	2 µm	FPM
3068101	N5DM005	5 µm	FPM
3102924	N5DM010	10 µm	FPM
3023508	N5DM020	20 µm	FPM

NOTE

The information in this brochure relates to the operating conditions and applications described.

For applications or operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.

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