

FluidAqua Mobil

FAM-1OEM

Description

The FluidAqua Mobile FAM-1OEM is a stationary, low-maintenance and cost-effective OEM (Original Equipment Manufacturer) module for the permanent dewatering, filtration and degassing of hydraulic and lubricating oils in systems with low flow rates.

The FAM-1OEM removes free water as well as a large percentage of dissolved water and reduces the air content in the oil at the same time.

The integrated filter ensures an efficient separation of solid particles.

Due to the small and compact design, it is especially suitable for integration in small hydraulic and lubrication systems where water entry cannot be excluded due to the process or ambient conditions.

The unit consists of a dewatering and degassing system as well as a filter. Depending on the customer specification, a motor-pump assembly, a heater or a heat exchanger (to increase energy efficiency) are also integrated.

Applications

Small hydraulic and lubrication systems e.g. in

- Machine tools
- Plastic injection molding machinery
- Mobile machines
- Small turbines and compressors
- Gear boxes

Advantages

Extremely low residual water levels, gas levels and particle contamination in the operating fluids make for:

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

Technical Data

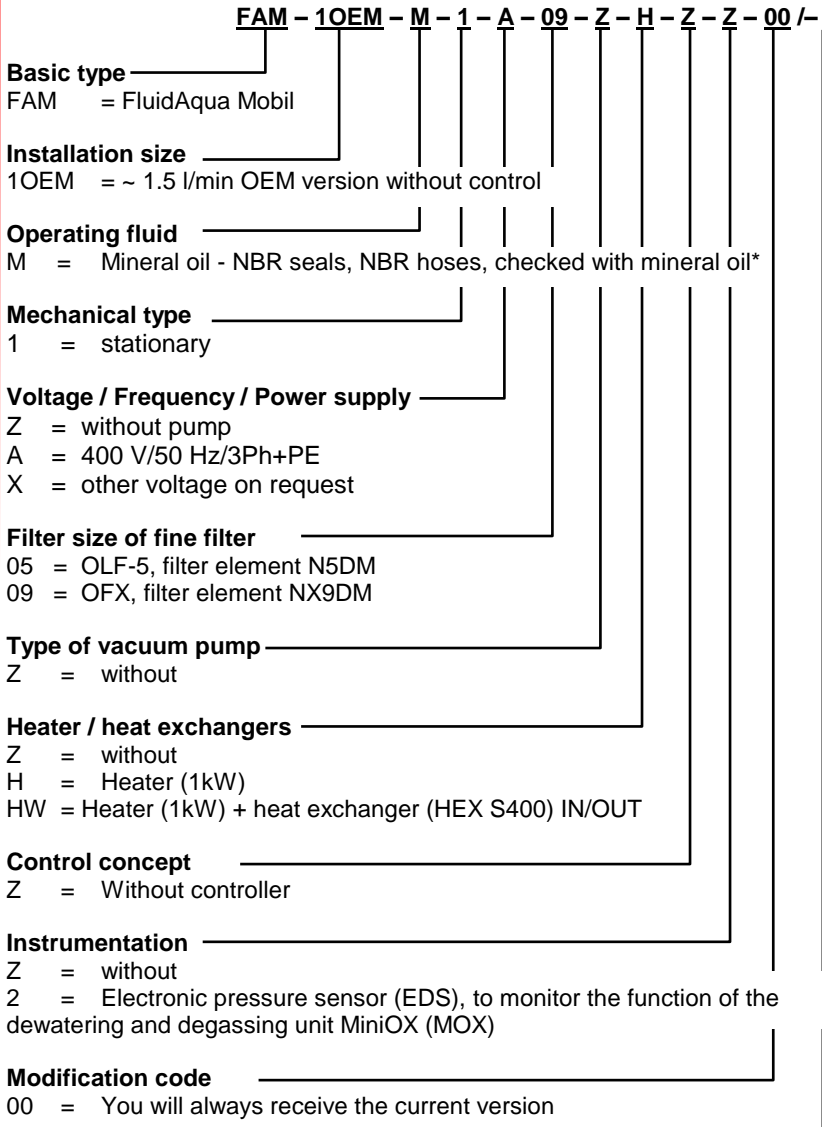
Flow rate at 50 Hz	~ 1.5 l/min (amount that is dewatered and degassed)	
Permitted fluids**	Fluids compatible with NBR/FKM seals: <ul style="list-style-type: none"> • Mineral oils acc. to DIN 51524 • Gear oils according to DIN 51517, 51524 	
Filter size of fine filter	OLF-5	OFX
Fine filter filter element (xxx = Filtration rating) Please order the filter element separately, see * Filter elements for fine filter*.	N5DMxxx	NX9DMxxx
Clogging indicator	Differential pressure indicator, visual or electrical	Differential pressure indicator, visual
Pump type	Vane pump	Gear pump
Sealing material	FKM	NBR
Operating pressure	0 ... 10 bar	
Permissible suction pressure at suction port * **	-0,4 ... +0,5 bar	
Required pressure/flow rate for version without pump	8 ... 10 bar, 7 ... 10 l/min	
Permissible viscosity range for operation* **	15 ... 300 mm ² /s	15 ... 200 mm ² /s
Fluid temperature range**	10 ... 80 °C	
Ambient temperature **	-5 ... 40 °C	
Storage temperature range**	0 ... 40 °C	
Relative ambient humidity	maximum 90%, non-condensing	
Electrical power consumption * (without heater)	~ 0,37 kW / 50Hz	~ 0,75 kW / 50Hz
Heating output (optional) *	max. 1 kW (depending on the nominal voltage)	
IP class **	IP 54	
Length of power cable / plug	Without control and without cable/connector	
Length of connection hoses	Without	
Material hoses	Without	
Hydraulic connections * **		
	IN	OUT
	G1", Innengewinde	G3/4", Innengewinde
	G1/2", Innengewinde	G1/2", Innengewinde
Empty weight *	Max. ~ 50 kg	
Achievable residual water content	< 100 ppm - Hydraulic and lube oils	
Minimum purity of the oil at the inlet section **	Cleanliness class 20/18/15 acc. to ISO4406/99	
Noise level ***	< 75 db(A) at 1m distance	

* Typical specification (depending on equipment and setup)

** Others on request

*** On the basis of BGV B3 acc. to DIN 45645

Order details

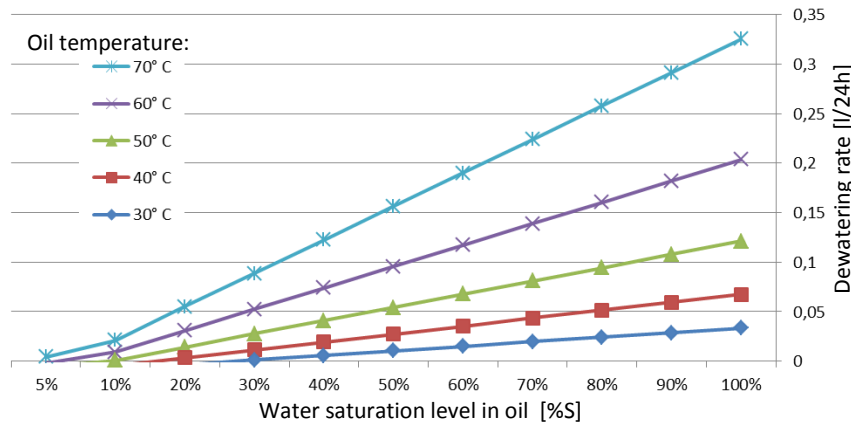


Supplementary details

Without details = series
C = Electrical differential pressure indicator (VM2C.0), size OLF-5 only

* Residues of test fluid will remain in the unit after testing

Theoretical dewatering rates FAM-1-OEM
Depends on oil temperature and water saturation level in oil
Oil: ISO VG46. Ambient air: 50% rel. humidity, 20° C



Sizing

As a rough guide, the FluidAqua Mobil can be sized according to the tank volume of the system.

Tank volume in liters	Size
< 1,000	FAM 1
< 2,000	FAM 5 *
1,000 – 7,000	FAM 10/15 ** / 10**
7,000 – 15,000	FAM 25 ***
15,000 – 25,000	FAM 45 *** / 45E ****
25,000 – 35,000	FAM 60 ***
35,000 – 45,000	FAM 75 *** / 75E ****
> 45,000	FAM 95 ***

* see brochure no. 7.639 FluidAqua Mobil FAM 5
** see brochure no. 7.949 FluidAqua Mobil FAM 10
*** see brochure no. 7.613 FluidAqua Mobil FAM 25/45/60/75/95
**** see brochure no. 7.654 FluidAqua Mobil FAM Economy

- Select larger dimensions for systems with very high and continuous process-related water entry (e.g. roller mills).
- In contrast, for systems with just a small amount of humidity entry via tank breathing, one size smaller can be selected (e.g. gas turbines).
- Ideally, the water content is measured periodically, thus making it possible to determine the water entry per hour/day. Our sales specialists can then determine the suitable size if they know the oil type, oil temperature, operating viscosity, system dimensions, ambient conditions and target water content.

In this respect, please fill out our checklist:

- FAM Checklist, document no.: 1000495854

Dewatering rates

Generally it must be observed that the dewatering rates and design is dependent on the application, the operating fluid, the operating fluid temperature and ambient temperature, the amount of operating fluid as well as the water infiltration in the system. These factors greatly affect dewatering performance.

It is for that reason that the specifications can serve only as a starting point.

		Dewatering rate
Water content	↑	↑
Fluid temperature	↑	↑
Detergent additives	↑	↓
FAM flow rate	↑	↑

Degassing and dewatering unit MOX (MiniOX)

The degassing and dewatering unit is hydraulically driven and uses a hydraulic piston (oil surface) and generates vacuum for removing gas and moisture.

During the filling process, oil is pumped into the degassing unit through the prefill valve. The rising oil level displaces the air and forces it out of the degassing unit.

During the emptying process, the oil in the degassing unit is sucked out by an ejector pump.

Vacuum is generated by the falling surface level of the oil. As a result of this negative pressure, gases and moisture are removed from the oil.

The gases and moisture then accumulate above the surface of the oil and are expelled when the tank is filled again.

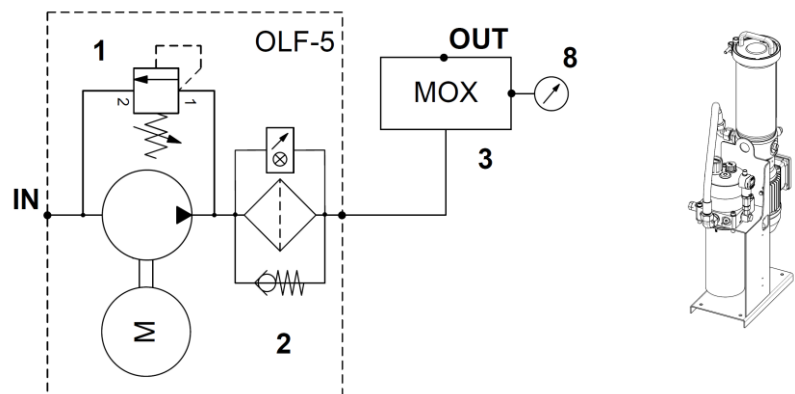
Heater

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

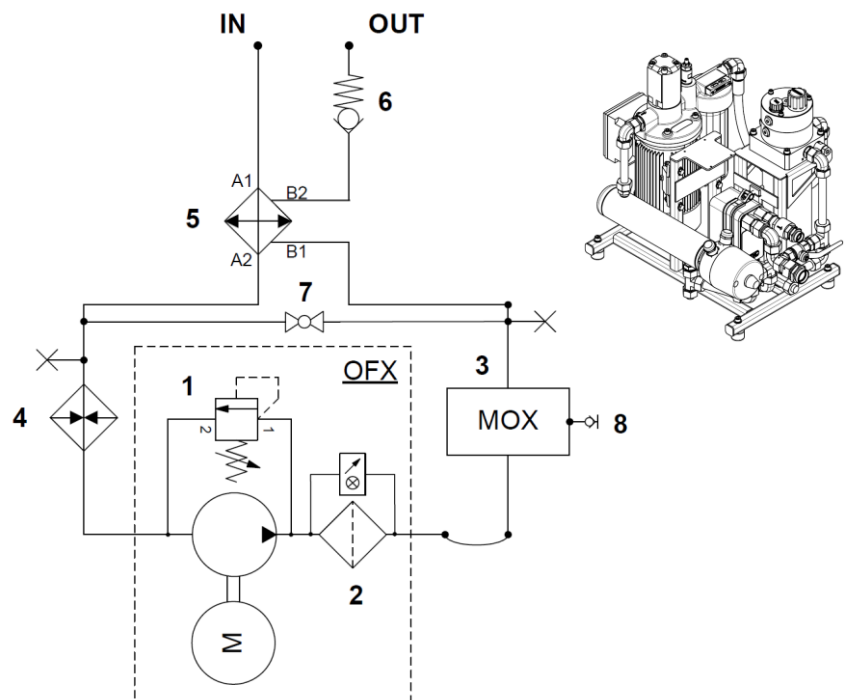
If the temperature of the operating fluid is raised by 10 °C then the dewatering capacity increases by approx. 50%. The ideal temperature for dewatering is 50 ... 60 °C.

Hydraulic circuit diagram

Example: FAM – 1OEM – M – 1 – A – 05 – Z – Z – Z – 2 – 00



Example: FAM – 1OEM – M – 1 – A – 09 – Z – HW – Z – Z – 00



Item	Description
1	Motor-pump assembly (optional)
2	Fine filter for eliminating solid particles, OLF-5 or OFX
3	Degassing and dewatering unit (MOX)
4	Heater (optional)
5	Plate heat exchanger (optional)
6	Check valve (optional)
7	Ball valve (optional)
8	Port for pressure sensor (EDS) (optional)

Heat exchanger

The heat exchanger can be used

- for enhancing energy efficiency – lower heating output required (~ 0.7 kW)
- for dewatering optimisation - higher oil temperature = higher dewatering rates.
- for reducing the temperature input into customer system.

Filter elements for fine filter

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

OLF-5:

One filter element of the type N5DMxxx is required:

Part no.	Type
349494	N5DM002 (FKM)
3068101	N5DM005 (FKM)
3102924	N5DM010 (FKM)
3023508	N5DM020 (FKM)

OFX:

One filter element of the type NX9DMxxx is required:

Part no.	Type
4055032	NX9DM002/-B3.5 (NBR)
3798282	NX9DM005/-B3.5 (NBR)
4074180	NX9DM010/-B3.5 (NBR)
4074181	NX9DM020/-B3.5 (NBR)

xxx = Filtration rating (µm)

Note

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

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

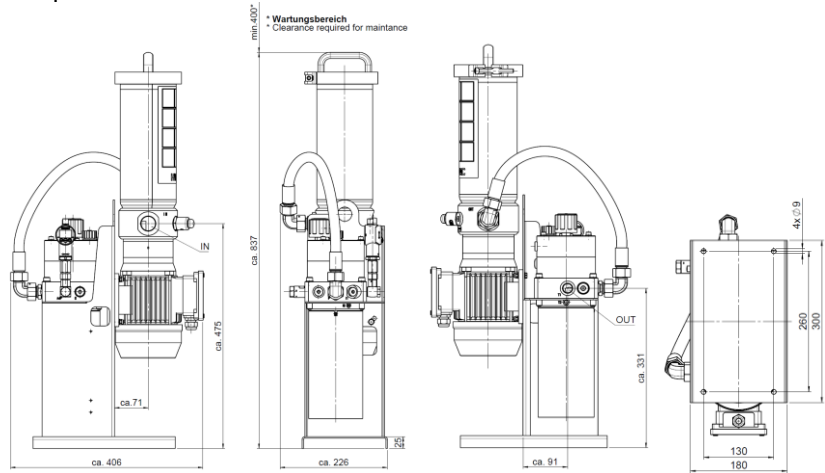
Subject to technical modifications.

HYDAC FILTER SYSTEMS GMBH

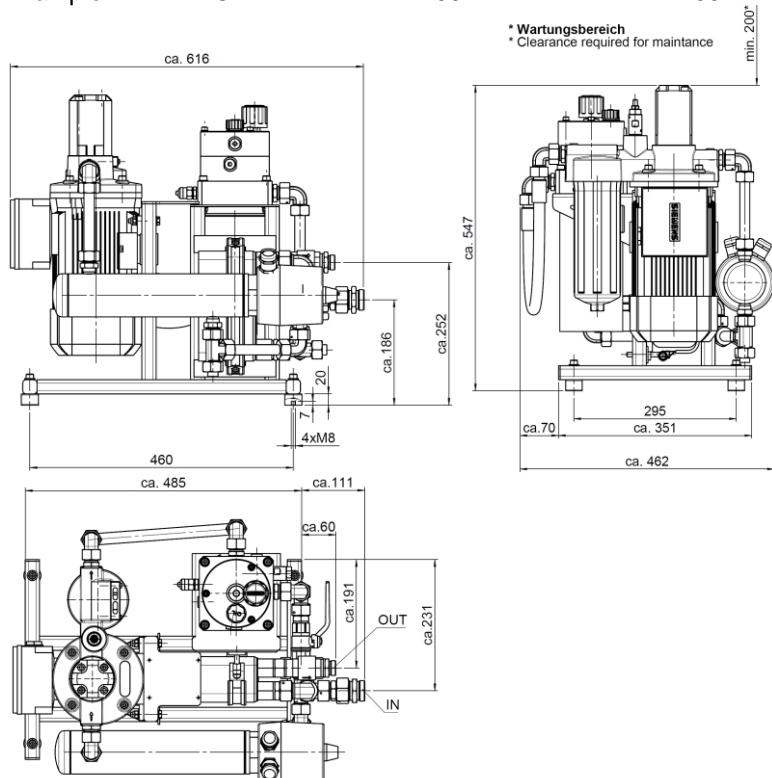
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Dimensions

Example: FAM – 1OEM – M – 1 – A – 05 – Z – Z – Z – 2 – 00



Example: FAM – 1OEM – M – 1 – A – 09 – Z – HW – Z – Z – 00



Items supplied

- FluidAqua Mobil
- Technical documentation:
 - Installation and Maintenance Instructions
 - Test certificate
 - Declaration of incorporation