

OPERATING INSTRUCTIONS AND SAFETY NOTES

MOBIFixx

12 V DC · 24 V DC · 35 l/min



FMT Swiss AG

This documentation is exclusively intended for the operating company and their staff.

Without our written consent, the content of this documentation (textes, figures, drawings, charts, diagrams etc.), must not be duplicated or distributed, neither in full or in part, utilized for the purpose of competition or passed on/made available to third parties.

FMT Swiss AG

Fluid Management Technologies Swiss AG

Gewerbestraße 6

6330 Cham / Schweiz

Tel. +41 41 712 05 37

Fax +41 41 720 26 21

Email: info@fmtag.com

Internet: www.fmtag.com

Operating instructions translation

Date of issue: 09/2019

We reserve the right to make design and product modifications, which serve to improve the product.

Table of Contents

1.	Introduction _____	4
1.1	Preface _____	4
1.2	Obligations of the personnel _____	4
1.3	Symbols in this manual _____	4
1.3.1.	Structure of the warning notes _____	4
1.3.2.	Hazard symbols _____	5
1.3.3.	General symbols _____	5
2.	Safety notes _____	5
2.1	Authorized personnel _____	6
2.2	Notes for maintenance, cleaning and repair _____	6
2.3	Intended conditions of use _____	6
2.4	Risks when handling the MOBIFlxx diesel pump _____	7
2.5	Risks when handling diesel fuels and heating oils _____	7
3.	Transport and temporary storage _____	7
4.	Design and functional description _____	7
4.1	Area of application _____	8
4.2	Requirements for installation location _____	8
5.	Technical data _____	8
6.	Installation _____	9
6.1	Installing the siphon protection _____	10
7.	Commissioning and operation _____	11
8.	Preventive maintenance _____	11
9.	Maintenance _____	11
9.1	Replacing worn vanes _____	12
9.2	Replacing the fuse _____	12
10.	Trouble shooting _____	12
11.	Repair/Service _____	12
12.	Disposal _____	13
13.	EC Declaration of Conformity _____	13
14.	Exploded view MOBIFlxx _____	14

1. Introduction

1.1 Preface

Please carefully read these operating instructions and observe in particular all safety notes!

Our staff will be pleased to provide support if you have any questions about the product.

Yours sincerely, FMT Swiss AG

1.2 Obligations of the personnel

Before they start to work, all persons who are entrusted with work with the Mobifix diesel pump, are obliged:

- to follow all applicable regulations on occupational safety and accident prevention.
- to read and to comply with all safety instructions and warning notes contained in these operating instructions.

Please observe the following instructions in the interest of all concerned:

- Refrain from any unsafe working methods!
- Adhere to all hazard and warning notes contained in this manual!
- In addition to this documentation, keep to all generally accepted safety rules, legal provisions as well as all other binding rules regarding occupational safety, accident prevention and environmental protection!
- Wear appropriate protective clothing in accordance with the work to be done!
- Perform only work for which you have been sufficiently trained and instructed!
- Only genuine spare parts as well as original tools and auxiliaries of the manufacturer are allowed to be used in order to ensure the functional safety and maintain the warranty coverage.

1.3 Symbols in this manual

1.3.1 Structure of the warning notes

The warning notes have the following structure:



SIGNAL WORD

Type and source of the hazard

- Consequences of non-compliance with the notes
 - Measures to avoid that risk
-

Depending on the danger level, different signal words are used:




Signal word	Danger level	Consequences of non-compliance
DANGER	Imminent threat of danger	Death or serious bodily injury
WARNING	Possible threat of danger	Death or serious bodily injury
CAUTION	Possibly dangerous situation	Minor bodily injury
ATTENTION	Possibly dangerous situation	Damage to material property



NOTE

Indicates further information or tips which facilitate work.

1.3.2 Hazard symbols

Symbol	Meaning
	General hazard symbol. The warning note marked in this way contains supplementary information on the type of hazard.
	This symbol warns of dangerous electrical voltages.
	This symbol warns of a hazardous explosive atmosphere.

1.3.3 General symbols

Symbol	Meaning
■	A small black square indicates the work you have to perform.
–	The dash denotes lists.
⇒	The arrow identifies cross-references. If cross-references to other chapters are required within the text, the expression is shortened for reasons of clarity. Example: ⇒ Chapter 2 Safety notes This means: please refer to chapter 2 for the safety notes.

2. Safety notes

Various dangers may occur if the diesel pump is improperly handled during installation, commissioning and daily operation.



WARNING

Risk of injury and damage to material property because of improper handling.

- Hold the manual at the disposal of the operating staff at the usage site of the unit.
- Country-specific safety measures and accident prevention regulations must be observed.

2.1 Authorized personnel

Only qualified and authorized persons are allowed to operate and to work on the diesel pump.

Persons are qualified if they are, due to their training, experience, instruction and knowledge of the relevant standards, able to assess assigned tasks and to identify potentially hazardous situations.

These persons must have been authorized by the person responsible for the safety of the unit and must be able to identify and to avoid potential dangers.

All persons charged with installation, operation, maintenance and repair work, must have read and understood this operation manual.

A copy of this operating manual must be stored permanently and ready at hand at the place of usage of the unit.

2.2 Notes for maintenance, cleaning and repair

Only qualified technical personnel is allowed to carry out repair and work on the electrical system.



WARNING

Risk of injury and damage to material property because of improper maintenance and repair.

- **Allow the pump to cool down prior to maintenance and service work.**
- Keep to the specified inspection and maintenance intervals.
(⇒ Chapter Maintenance)
- Should unusual noises occur, immediately stop the diesel pump. Immediately identify and eliminate the cause in order to avoid consequential damages.

2.3 Intended conditions of use

The MOBIFlxx 12 V and 24 V diesel pumps are to be used only for the delivery of diesel fuels and heating oil.



DANGER

Risk of injury and material damage from explosive vapors

- **Never use it to deliver explosive fluids such as petrol or other fluids with similar flashpoints!**
- Since the motor and the switch are not explosion-protected, the pump must **not** be operated in an explosion risk area.

The MOBIFlxx pump must be connected, according to the type, only to a 12 Volt- or 24 Volt-DC supply.

To ensure that usage stipulations are met, read through the Operating Instructions completely before using the pump and observe all stipulations.

Any departure from the usage stipulations (other fluid media, use of force) or user modifications (changes, use of non-original parts) can be dangerous and are considered as non-intended usage.

The user is liable for any damage resulting from non-intended use.

During repairs to any electrical components, the appropriate safety and test requirements are to be observed.

Only genuine replacement parts are to be used for any repairs, because otherwise the warranty will be invalidated.

In order to prevent dirt from entering the pump chamber, it is absolutely necessary to install a strainer with pre-cleaner in the suction line, because otherwise the warranty may be invalidated.

2.4 Risks when handling the MOBIFlxx diesel pump

Any application beyond the intended use can lead to hazardous situations and shall be regarded as non-intended use.



DANGER

Risk of injury and material damage because of improper installation, electric current or contaminated media

Never work on a pump that is running!

- Mount or remove attachments and accessories only when the pump is switched off.
- For your own safety, disconnect the pump in addition from the power supply.

Do not pump contaminated fluids

- Take special care to ensure that there are no contaminants in the fluid to be pumped.
- Install a strainer on the suction pipe.

Risk of stumbling because of power cable and fuel hoses!

- Lay the supply cable so that it will not cause any risk of stumbling.
- Provide fuel hoses of sufficient length and lay them so that they will not cause any risk of stumbling.

Damaged attachments and accessories can lead to personal injury and material damage

- Attachments and accessories must be checked for wear, splits or other damage throughout its period of use.
- Only use genuine switches and power cables as replacement parts.
- Damaged accessories and attachments must be replaced immediately.
- With reference to the period of use, please note the details in ZH 1/A45.4.2 or DIN 20066 Part 5.3.2.

Escaping liquids can cause environmental harm

Comply with the stipulations of the German Water Resources Act (WHG) and of the Plant Regulations of the German federal states.

2.5 Risks when handling diesel fuels and heating oils

Diesel fuels and heating oils are flammable liquids. If improperly handled, they can cause risks to human health or to the environment.



NOTE

Observe the safety sheet for diesel fuels and heating oils!

3. Transport and temporary storage

Prior to transport, ensure that there are no liquids in the pump (diesel fuel or heating oil residues) any more. All additional attachments must be removed from the pump.

Do not use the cable to transport the pump!

Storage and transport conditions:

- Weather-protected storage with temperature control, protection against frost, moisture and rain. Maximum relative humidity: 80 %.
- Storage temperature range from -10 °C to + 40 °C

4. Design and functional description

The diesel pump can be used as portable or fixed unit.

It can be fitted with a variety of FMT accessories.

The diesel pump is available with the following specifications:

- **MOBIFlxx, 12 V DC and 24 V DC, 35 l/min**

To avoid environmental damage, the diesel pump is equipped with a siphon protection system.

This means that if the discharge hose is damaged while the pump is stopped, siphon action will prevent the tank from being emptied.

4.1 Area of application

The MOBIFlxx 12 V and 24 V diesel pumps are only suitable for the delivery of diesel and heating oil provided that they are not heated above their flash points.

The temperature of the delivery fluids must be between -10 °C and $+40\text{ °C}$. The temperatures must not be above or below these limit values.



DANGER

Risk of injury and material damage from explosive vapors

The motor and the switch of the pump are not explosion-protected

- **Do not operate the pump in an explosion-risk area! There is a risk of explosion!**
- **Smoking and naked flames are prohibited in the vicinity of the pump.**
- The pump must **not** be used to deliver fuels of danger classification A I, A II and B.

4.2 Requirements for installation location

Heating oil and diesel are water polluting substances. Therefore the country specific rules and regulations regarding the delivery and storage of such fluids must be obeyed.

According to § 19g WHG (German Water Resources Act), the filling installation must be constructed, built, maintained and operated in such a way, that any risk of water pollution and/or of any other environmental damage is excluded.

The operator of such an installation is, according to § 19i WHG (German Water Resources Act) responsible for continuously monitoring the compliance with the above stated requirements at the place of installation.

5. Technical data

Description		MOBIFlxx 12 V	MOBIFlxx 24 V
Pump design		vane pump, selfpriming	
Pumping media		diesel fuel and heating oil	
Fluid temperature	°C	-10 / +40	-10 / +40
Delivery rate under free discharge up to	l/min	35	35
Discharge pressure up to	bar	1,6	1,6
Suction height up to	m	3	3
Connection thread		G 3/4" female, with adapter to G 1" male	
Motor data			
Power consumption	A	18	13
Power	kW	0,22	0,32
Fuse	A	25	25
Duty cycle (min) under free discharge max.	min	60	60
Voltage	V	12	24
Rotation speed	min ⁻¹	3300	3500
Protection class		IP 54	IP54
Connecting cable	m	3	3
Weight	kg	3,4	3,5
Dimensions LxWxH	mm	200x150x150	200x150x150

Tab. 5-1: Technical data

6. Installation

If the diesel pump is to be locally mounted, four M6 bolts (not included) are required.

- When installing the pump, ensure that it is mounted on a stable surface. Select a secure location (protected from splash water damage and theft).
- If the pump is not secured with bolts, it must be operated on a firm, level and dry base.
- First, remove the plastic plugs from the suction and discharge junctions.
- Connect the hoses to the suction and delivery connectors. Attach a strainer to the end of the suction hose.
- Attach the nozzle valve to the delivery hose.



WARNING

- Before connecting the pump to the voltage source, check to ensure that the pump is switched off.

- Connect the red connecting clamp to the positive, and the black connecting clamp to the negative pole of the power supply. Ensure that the connecting clamps are securely fixed.

The pump is now ready for operation.



NOTE

Ensure cleanliness during installation and that all attachments are correctly connected and sealed.

6.1 Installing the siphon protection

Remove the bolt screwed into the upper part of the pump housing, together with the seal (⇒ Fig. 6-1.1).

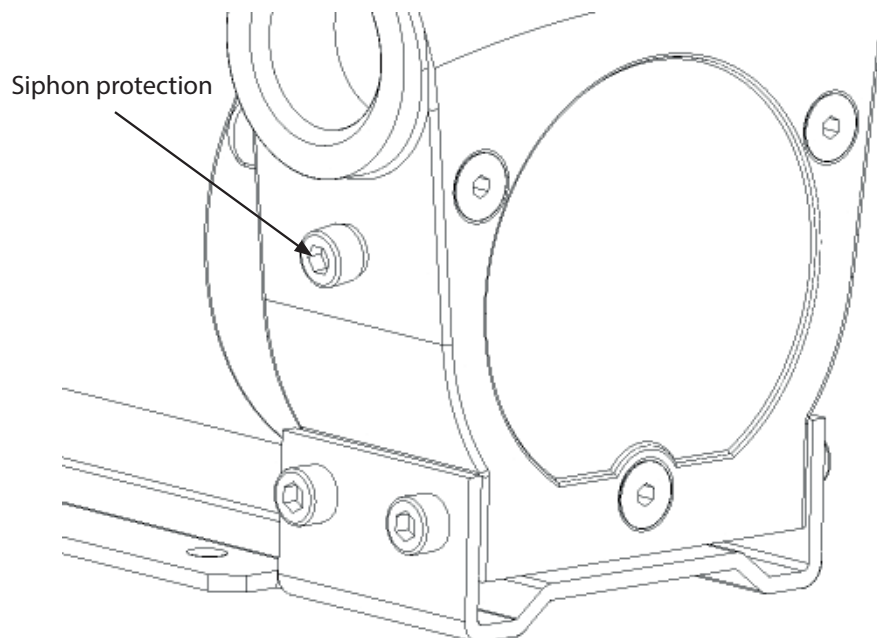


Fig. 6-1.1: Siphon protection boring with screw (as delivered)

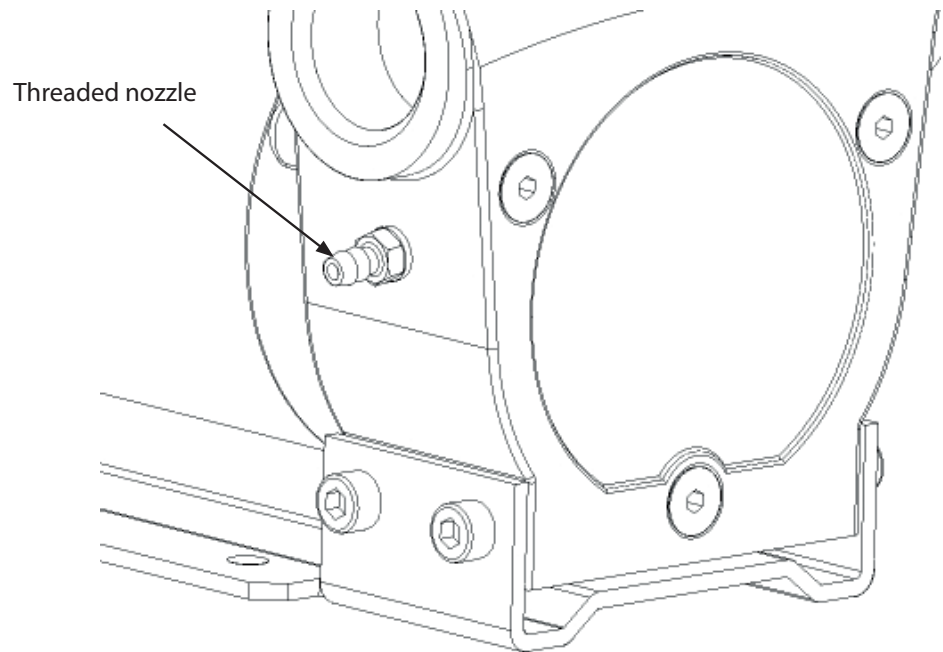


Fig. 6-1.2: Threaded nozzle for siphon protection screwed in place

Screw into the same thread the supplied threaded nozzle with the new seal (refer to Fig. 6-1.2).

Connect the hose to the threaded nozzle and lead it into the tank.



NOTE

When installing the siphon protection system, ensure that the end of the hose is **not** immersed in the fluid. If it is, the siphon protection system will **not** work!

7. Commissioning and operation

Put the pump only in operation after it has been securely fixed at its place of installation.

Check the diesel pump and the installed accessories for completeness and damage. Replace any damaged components immediately. Never use a pump if damaged.

- After initial start-up, check the pump and the connections for tightness.
- Check the suction strainer for damage each time the tank is filled/emptied and replace it if damaged. Never operate the pump without the suction strainer because otherwise the pump will not be protected against contamination by foreign bodies.



NOTE

To ensure that the tank can be completely emptied, the suction hose must reach to the bottom of the tank!

- Before switching on the pump, check to ensure that the nozzle valve is closed.
- Operate the rocker switch to switch on the pump.



CAUTION

- Never operate the pump for longer than 2 minutes without liquid. The pump may be damaged by running dry.

Press the nozzle valve lever up according to the delivery rate required, or lock it in position for constant flow (only applicable to automatic nozzle valve, not included in standard delivery).



CAUTION

- The diesel pump does not switch off automatically, therefore when filling, never let the pump running without supervision.
- After having finished the filling of a tank, check to ensure that the inlet and outlet hoses are empty before removing them.
- Wipe up immediately any spilled diesel fuel.

- For finishing the filling operation, release the nozzle valve control lever. Never operate the pump for longer than 2 min with closed nozzle valve.
- Operate the rocker switch to switch off the pump.
- Position the nozzle valve so that no diesel fuel can pollute the environment.



CAUTION

Danger of product damage

- The power source must be of the correct voltage for the pump type.

8. Preventive maintenance

In general, the diesel pump is very easy to maintain and to service.

Preventive maintenance must be done by qualified technical personnel.



WARNING

Danger of contact with energized components

- When working on the electrical system of the pump, disconnect the pump in addition from the power supply and protect it against restarting!

Due to the operator responsibilities according to § 19i WHG (German Water Resources Act) the following components must be regularly checked and replaced as necessary to minimise the risk of environmental or equipment damage or personal injury:

- Pump housing/bypass housing
- Delivery hose
- Nozzle valve

9. Maintenance

Maintenance must be done by qualified technical personnel. External impact may cause a loss of performance, constitute a risk of damage to persons and/or property and void the guarantee. Observe the following recommendations for operating the pump:



WARNING

Danger of contact with energized components

- When working on the electrical system of the pump, disconnect the MOBIFlxx pump in addition from the power supply and protect it against restarting.
- Before performing any maintenance work, disconnect the MOBIFlxx pump from all electric and hydraulic supply sources.

- Always wear personal protective equipment when carrying out maintenance work.
- If there is danger of freezing, the pump and the circuit must be emptied and stored at a location with a temperature not lower than 0 °C / 32 °F.
- Check to ensure that the labels and decals have not become illegible and have not come loose in the course of time.
- Check at regular intervals that the line connections have not worked loose in order to avoid that liquid escapes.
- Regularly check and clean the suction line filter.
- From time to time, check the pump housing and remove any dirt.
- Check to ensure that the power cables are in perfect working order.

9.1 Replacing worn vanes

- Loosen the cylinder head screws (⇒ chapter 14; pos. 18).
- Carefully remove the pump housing (⇒ chapter 14; pos. 4) from the motor.
- Replace the worn vanes (⇒ chapter 14; pos. 6) with new original FMT spare parts. Ensure that they are correctly located.
- Carefully put the pump housing (⇒ chapter 14; pos. 4) on the motor again and fasten it with the screws. Ensure that the sealing rings are correctly positioned.

9.2 Replacing the fuse

- Open the fuse holder.
- Pull the defective fuse out of the fuse holder and replace it by a new one with the same current rating.
- Close the fuse holder.

10. Trouble shooting

Malfunction	Cause	Solution
Discharge rate too low or no discharge	<ul style="list-style-type: none"> ▶ Discharge hose kinked or clogged ▶ Resistance in the suction line too high ▶ Too many bends or fittings in the suction line ▶ Filter resistance too high ▶ Voltage too low ▶ Nozzle valve not completely open ▶ Leak in the suction line ▶ Worn vanes 	<ul style="list-style-type: none"> ▶ Check the discharge hose ▶ Suction line too long or kinked, suction height too high ▶ Use 45° bends for example or don't use bends ▶ Check and clean the suction filter ▶ Check the voltage ▶ Completely open the nozzle valve ▶ Check and seal the suction line ▶ Replacement of worn vanes (⇒chapter 9.1)
Discharge pressure too low	<ul style="list-style-type: none"> ▶ Wrong direction of rotation ▶ Voltage too low ▶ Impurities ▶ Defective or clogged bypass in the pump 	<ul style="list-style-type: none"> ▶ Check the direction of rotation (connection to voltage supply) ▶ Check the voltage ▶ Clean the suction filter ▶ Check the bypass
Pump runs too loudly	<ul style="list-style-type: none"> ▶ Air in the suction line ▶ Supply rate too low 	<ul style="list-style-type: none"> ▶ Check the suction line for tightness ▶ Clean the suction filter
Leak	<ul style="list-style-type: none"> ▶ Defective O-ring 	<ul style="list-style-type: none"> ▶ Replace the O-ring ⇒ Chapter 14 pos. 8 exploded view
Pump rotates with difficulty	<ul style="list-style-type: none"> ▶ Deposits or impurities in the pump ▶ Pump out of use for a long time 	<ul style="list-style-type: none"> ▶ Clean the pump ▶ Fill a little bit of oil in the suction side of the pump

Tab. 11-1: Trouble shooting

11. Repair/Service

The MOBIFlxx pump is developed and produced according to the highest quality standards.

Should a problem develop, despite all quality controls, please contact our customer service:

FMT Swiss AG

Tel +49 9462 17-216

Fax +49 9462 1063

service@fntag.ch

12. Disposal

The operating company is responsible for the proper disposal of the pump.

Hereby, the industry-specific and local regulations must be observed when disposing of the pump.

Only qualified personnel is authorized to disassemble and dispose of the MOBIFlxx pump.

13. EC Declaration of Conformity



Manufacturer:

FMT Swiss AG

Fluid Management Technologies Swiss AG

Gewerbestraße 6

6330 Cham / Schweiz

Declares under his sole responsibility that the machine:

Model type	MOBIFlxx
Motor voltage	12 / 24 V
Weight	3,4 / 3,5 kg
Function	Pumping diesel fuels and heating oil
Complies with all relevant provisions of the following Directive:	
EC Directives	2006/42/EC EC Machinery Directive 2014/30/EC EMC Directive
Applicable standards	EN 809; EN ISO 4144; EN 60204-1; EN 12100 : 2010; EN 55011

Authorized representative for the compilation of the technical documentation:

Name: Maria Gross
Address: Fluid Management Technologies Swiss AG
Gewerbestraße 6
6330 Cham / Schweiz
Phone: +49 09462/ 17 -218

FMT Swiss AG

Cham, 16.09.2019

Dipl.-Ing. Rudolf Schlenker

(Managing Director)

14. Exploded view MOBIFlxx

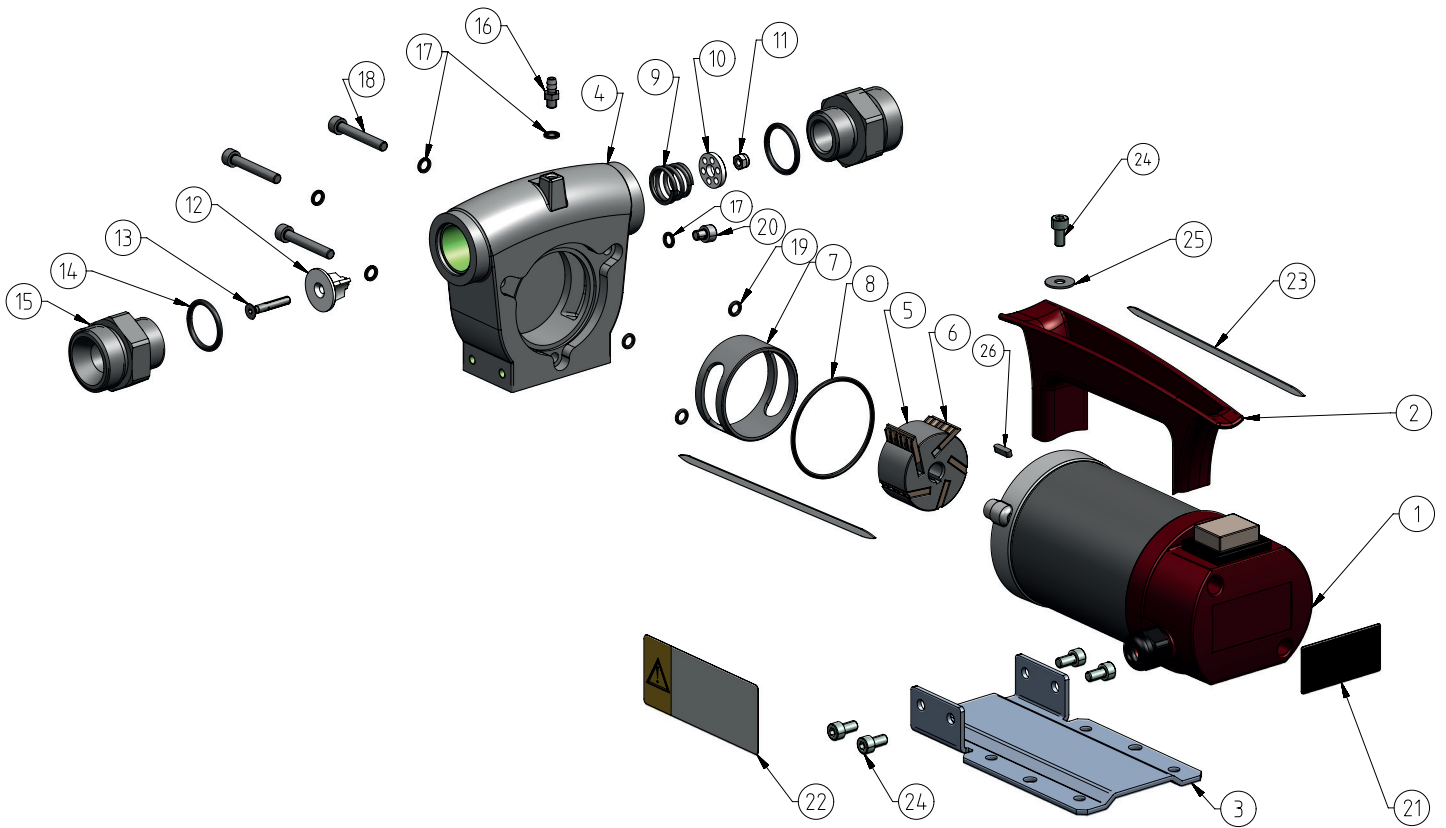


Fig. 14.-1: Exploded view MOBIFlxx

Pos.	Quantity	Description	MOBIFlxx
1	1	ELM-12 V-0,22 kW-IP54	89 432
2	1	Pump handle	89 424
3	1	Pump foot	89 418
4	1	Pump housing	89 430
5	1	Rotor	89 417
6	5	Vane	89 429
7	1	Ball race 35 Lit. for 12 V	89 431
8	1	O-Ring-NBR 70-50x2	89 438
9	1	Spring conical 2x13,5x16	89 384
10	1	Washer	83 575
11	1	Nut DIN 985	03 496
12	1	Tappet	83 574
13	1	Countersunk screw M 4x25	83 400
14	2	O-ring-NBR 70-22x2,5	00 914
15	2	Adapter G 1" male - 3/4" male	85 369
16	1	Threaded nozzle M 5x4	89 278
17	5	Sealing ring	89 279
18	3	Cylinder head screw M5x35	00 240
19	3	O-ring-NBR 70-5x1,5	01 371
20	1	Cylinder head screw M 5x6	89 445
21	1	Type plate	89 882
22	1	Warning note	89 297
23	2	Cable tie	87 561
24	5	Cylinder head screw M 5x10	89 443
25	1	Washer DIN522 A	02 853
26	1	Adjusting spring DIN 6885 A	00 602

Tab. 14-1: Overview of components with item numbers relating to fig. 14-1

FMT Swiss AG

Fluid Management Technologies Swiss AG

Gewerbestraße 6

6330 Cham / Schweiz

Tel. +41 41 712 05 37

Fax +41 41 720 26 21

info@fmtag.com

www.fmtag.com