OPERATING INSTRUCTIONS AND SAFETY NOTES

MOBIFIxx / MOBIMAxx

12 V DC · 24 V DC · 35 l/min · 54 l/min



FMT Swiss AG

89 447 932 A807 GB

FMT Swiss AG

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Operating instructions translation

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

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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 Mobifixx and Mobimaxx diesel pumps, 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 safety notes

The safety 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 instructions 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 on 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 MOBIFIxx and MOBIMAxx 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 MOBIFIxx uns MOBIMAxx 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 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.

2.5. Risks when handling diesel fuels and heating oils

Diesel fuels and heating oils are flammable liquids, which must be taken into consideration for their storage. If improperly handled, they can cause risks to human health or to the environment.

Escaping liquids can cause environmental harm. Do not allow to enter sewage or ground water. Local and country rules and regulations relating to domestic water supplies and fuel storage must be obeyed.



DANGER

Use of diesel fuels

- May be fatal if swallowed and enters airways.
- Do not smoke, do not use open fire and do not weld when handling fuel.

Use of heating oil

- Heating oil may cause lung damage if swallowed.



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:

- **MOBIFIxx, 12 V DC and 24 V DC, 35 l/min**
- **MOBIFIxx, 12 V DC and 24 V DC, 35 l/min - with interference suppression and automatic switch-off function**
- **MOBIMAxx, 12 V DC and 24 V DC, 54 l/min**
- **MOBIMAxx, 12 V DC and 24 V DC, 54 l/min - with interference suppression and automatic switch-off function**

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 MOBIFIxx and MOBIMAxx diesel pumps is 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 °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 nakes 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 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		**MOBIFIxx 12 V 23 404 23 404 002**	**MOBIFIxx 24 V 23 405 23 405 002**	**MOBIMAxx 12 V 23 406 23 406 002**	**MOBIMAxx 24 V 23 407 23 407 002**
Pump design		vane pump, selfpriming			
Pumping media		diesel fuel and heating oil			
Fluid temperature	°C	-10 / +40	-10 / +40	-10 / +40	-10 / +40
Delivery rate under free discharge up to	l/min	35	35	54	54
Discharge pressure up to	bar	1,6	1,6	1,8	1,8
Suction height up to	m	3	3	3	3
Connection thread	G	1“ female	1“ female	1“ female	1“ female
Motor data					
Insulation class		F	F	F	F
Power consumption	A	19	11	30	21
Power	W	230	270	360	500
Fuse	A	30	25	40	25
Setting of overflow valve	bar	1,8	1,8	1,8	1,8
Voltage	V	12	24	12	24
Rotation speed	min^{-1}	3000	3000	2500	2500
Protection class	IP	66	66	66	66
Connecting cable	m	3	3	3	3
Weight	kg	5	5	5,6	5,6
Dimensions LxWxH	mm	270x120x120	270x120x120	290x120x120	290x120x120

Table 5.-1: Technical Data

6. Installation

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

The pump can be installed in 8 different positions (refer to fig. 6.-1 and 6.-2).

- 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.

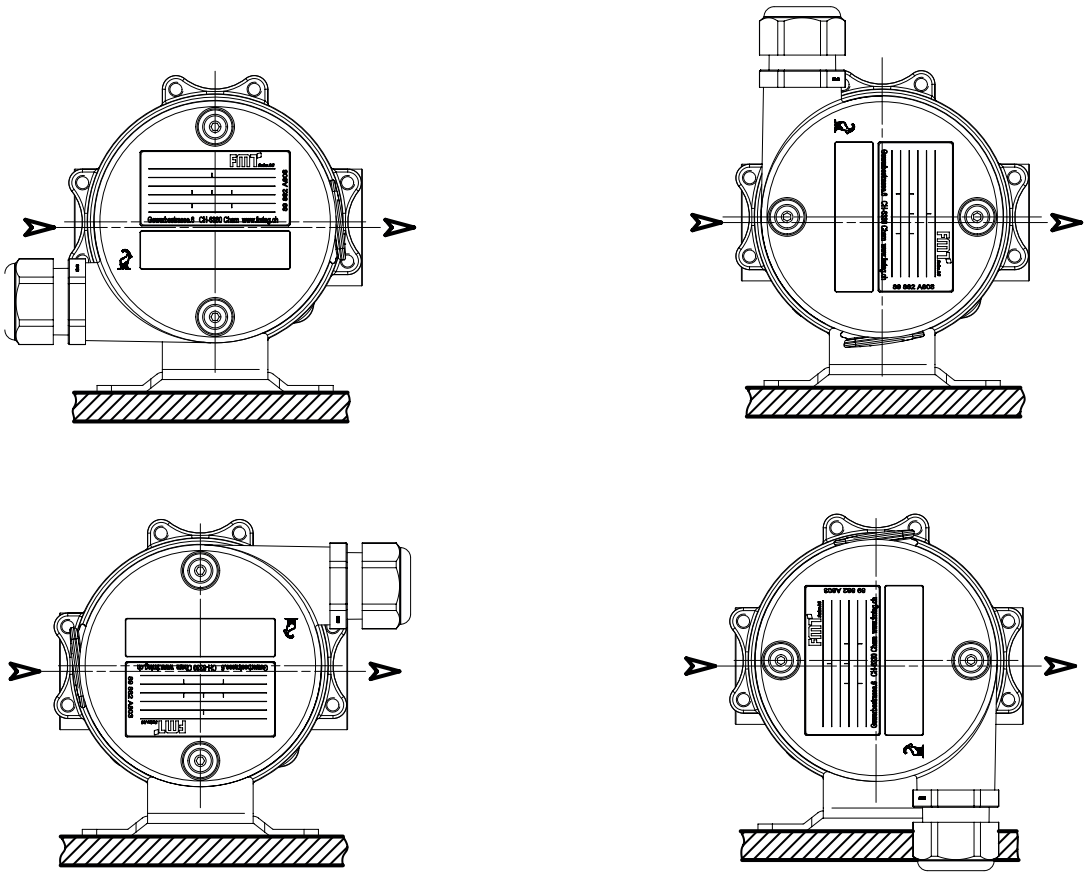


Fig. 6.-1: Possible installation of the switch cover

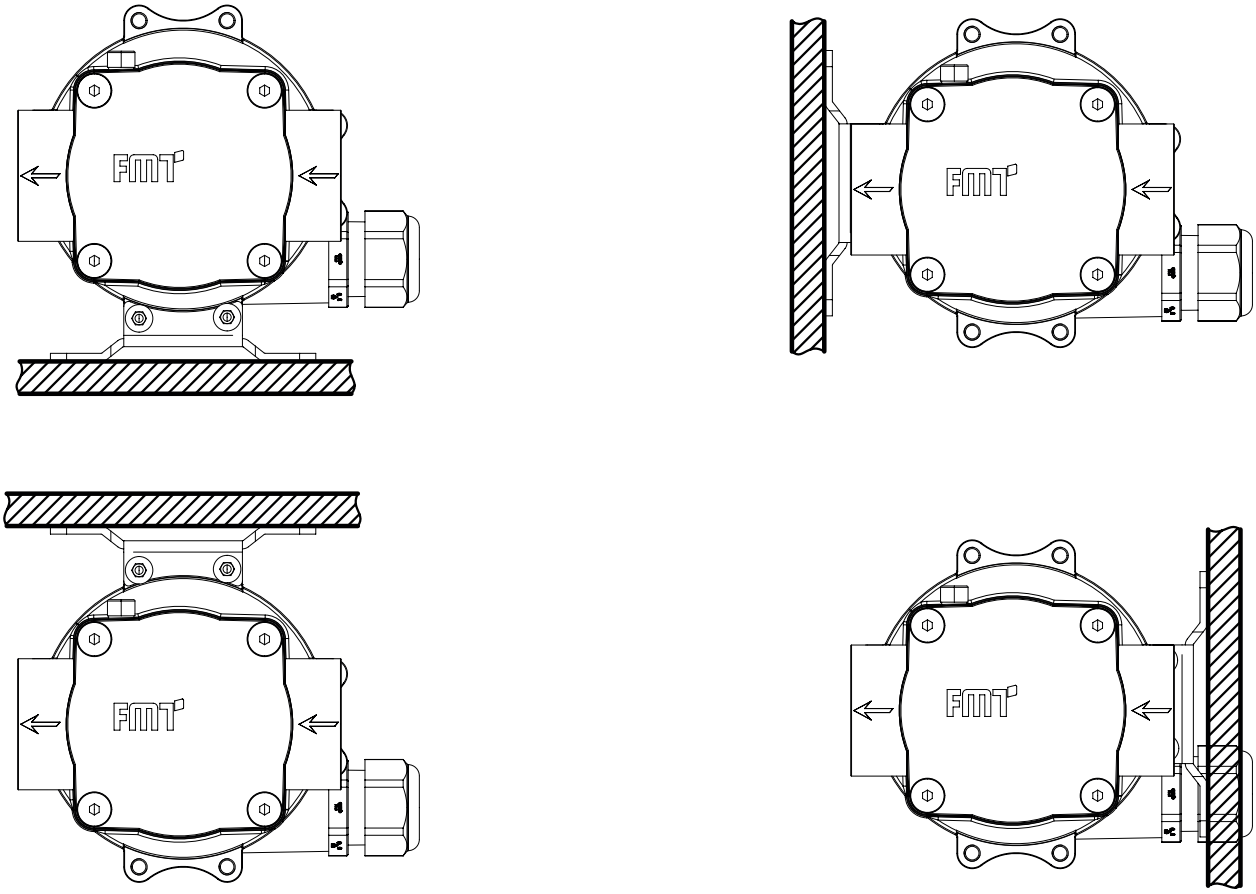


Fig. 6.-2: Possible installation of the pump head

6.1. Installing the siphon protection

Remove the bolt screwed into the upper part of the pump housing, together with the seal (ref. to Fig. 6-1-1).

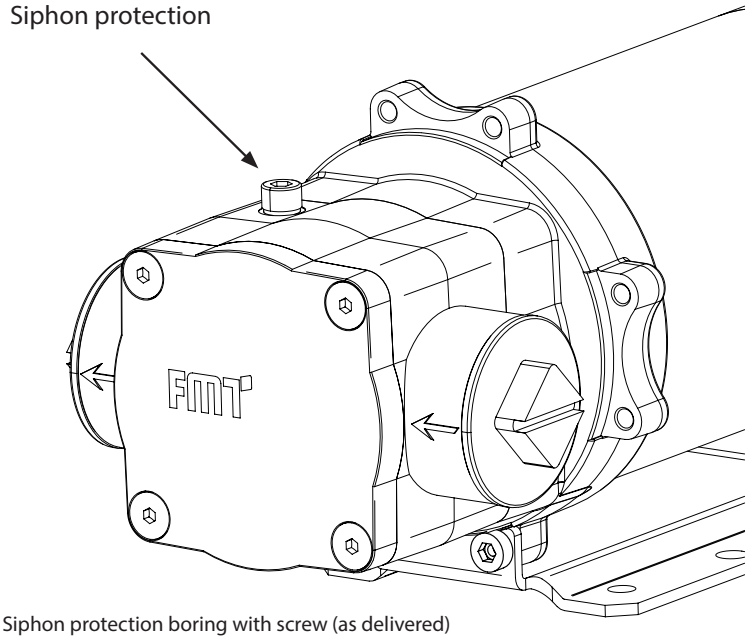


Fig 6.1.-1: Siphon protection boring with screw (as delivered)

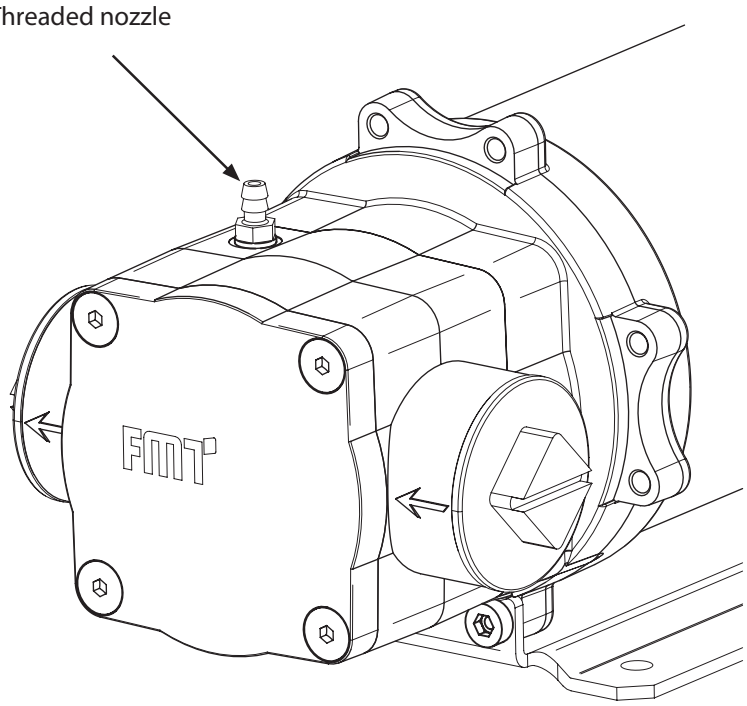


Fig. 6.1.-2: Threaded nozzle for siphon protection screwed in place

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.

ATTENTION

- When installing the siphon protection, ensure that the end of the hose is not immersed in the fluid. Otherwise the siphon protection 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. Pump with automatic switch-off function

The diesel pump is equipped with an automatic switch-off function and a switch-on delay to protect the pump against dry or bypass operation (closed nozzle valve).



NOTE

To ensure correct function of the automatic switch-off electronics, the following voltage must be applied:

- for 12 V pumps (**MOBIFIxx**) the voltage must be between 11-13 volts.
- for 24 V pumps (**MOBIMAxx**) the voltage must be between 23-25 volts.

Different operating conditions are indicated by flash code sequences. A flash code sequence consists of a specific number of LED flashing cycles, followed by a break time until the flash code sequence is repeated. The number of LED flashing cycles per flash code sequence indicates the current operating state.

Flash code sequence	Description	Self-healing (*)
Permanent flashing	Delay of the relay after switching on the pump	Yes
2 flashes	Current voltage value invalid. Occurs in case of undervoltage, overvoltage and in the undefined area between 12 V and 24 V.	Yes
4 flashes	The maximum admissible temperature has been exceeded in the interior of the housing. (T off > 105 °C; T on < 95 °C)	Yes
5 flashes	Dry running detected. Power consumption for pump operation without medium or against bypass without medium for longer than the permissible detection time (2 minutes).	No
6 flashes	Power consumption for pump operation with medium or against the bypass with medium has been exceeded for longer than the permissible detection time (2 minutes).	No
7 flashes	Voltage value does not correspond to the motor selection.	No

(*) Self-healing means that the pump automatically re-starts to work as soon as the switch-off conditions are eliminated.

The above operating states are indicated by the different flashing codes!

Turn off and on the pump in order to reset the error messages.

9. Preventive maintenance

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

Preventive maintenance must be done by qualified technical personnel.



DANGER

Danger of contact with energized components

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



CAUTION

- Regularly check the hoses and their seals. Replace any damaged parts immediately.

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

10. 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:



DANGER

Danger of contact with energized components

- When working on the electrical system of the pump, disconnect the MOBIFIxx/ MOBIMAxx pump in addition from the power supply and protect it against restarting.
- Before performing any maintenance work, disconnect the 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.

10.1. Replacing worn vanes

- Loosen the countersunk screws (86 979).
- Carefully remove the bypass housing and the cover (83 762) from the motor (83 763).
- Replace the worn vanes (89 254) by new genuine FMT spare parts, ensure that they are correctly located.
- Carefully put the bypass housing (83 763) and the cover (83 762) on the motor again and fasten them with the screws. Ensure that the sealing rings are correctly positioned.

10.2. 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.

11. Troubleshooting

Malfunction	Cause	Solution
Discharge rate too low or no discharge	▸ 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	▸ 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 ▸ Saugleitung prüfen und abdichten ▸ Replacement of worn vanes (⇨chapter 10.1)
Discharge pressure too low	▸ Wrong direction of rotation ▸ Voltage too low ▸ Impurities ▸ Defective or clogged bypass in the pump	▸ Check the direction of rotation (connection to voltage supply) ▸ Check the voltage ▸ Clean the suction filter ▸ Check the bypass
Pump runs too loudly	▸ Air in the suction line ▸ Supply rate too low	▸ Check the suction line for tightness ▸ Clean the suction filter
Leak	▸ Defective O-ring	▸ Replace the O-ring ⇨ Chapter 15/16 pos. 17 exploded view
Pump rotates with difficulty	▸ Deposits or impurities in the pump ▸ Pump out of use for a long time	▸ Clean the pump ▸ Fill a little bit of oil in the suction side of the pump

Table 11-1: Troubleshooting

12. Repair/Service

The MOBIFIxx and MOBIMAxx pumps were 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 17-246

Fax +49 9462 1063

service@fmtag.ch

13. 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 MOBIFIxx and MOBIMAxx pumps.

14. EC Declaration of Conformity

CE

Manufacturer:

FMT Swiss AG

Fluid Management Technologies Swiss AG

Gewerbestraße 6

6330 Cham / Switzerland

Declares under his sole responsibility that the machine:

Model type	**MOBIFIxx** **MOBIMAxx**
Motor voltage	12 / 24 V
Weight	5 / 6 kg
Function	Pumping diesel fuels and heating oil
Complies with all relevant provisions of the following Directive:	
EC Directives	2006/42/EG EC Machinery Directive 2014/30/EC EMC Directive
Applicable standards	EN 809; EN ISO 4144; EN 60204-1; EN 12100 : 2010; EN 55011

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FMT Swiss AG

Cham, 19.07.2019

Dipl.-Ing. Rudolf Schlenker

(Managing Director)

15. Exploded view MOBIFIxx

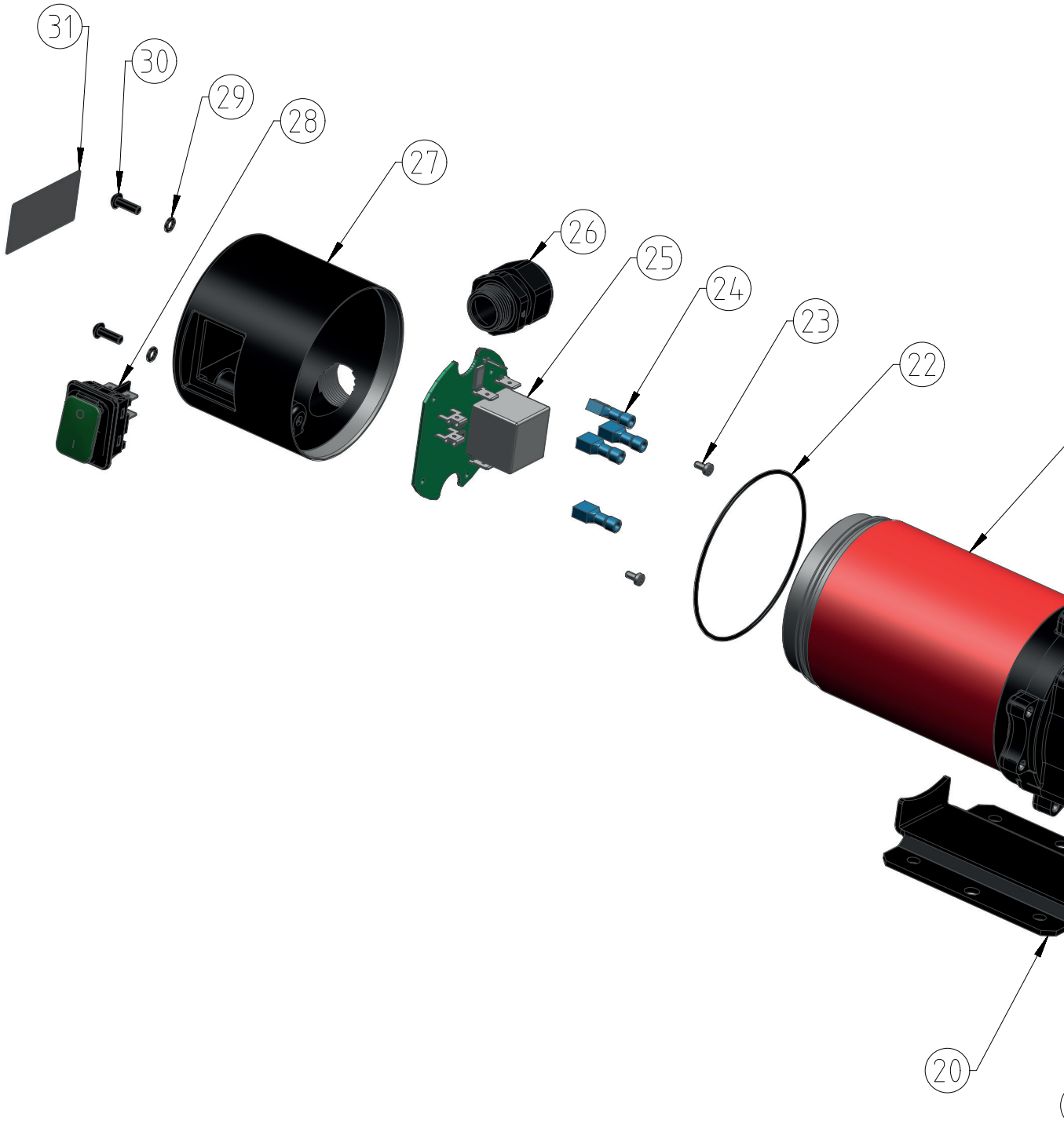
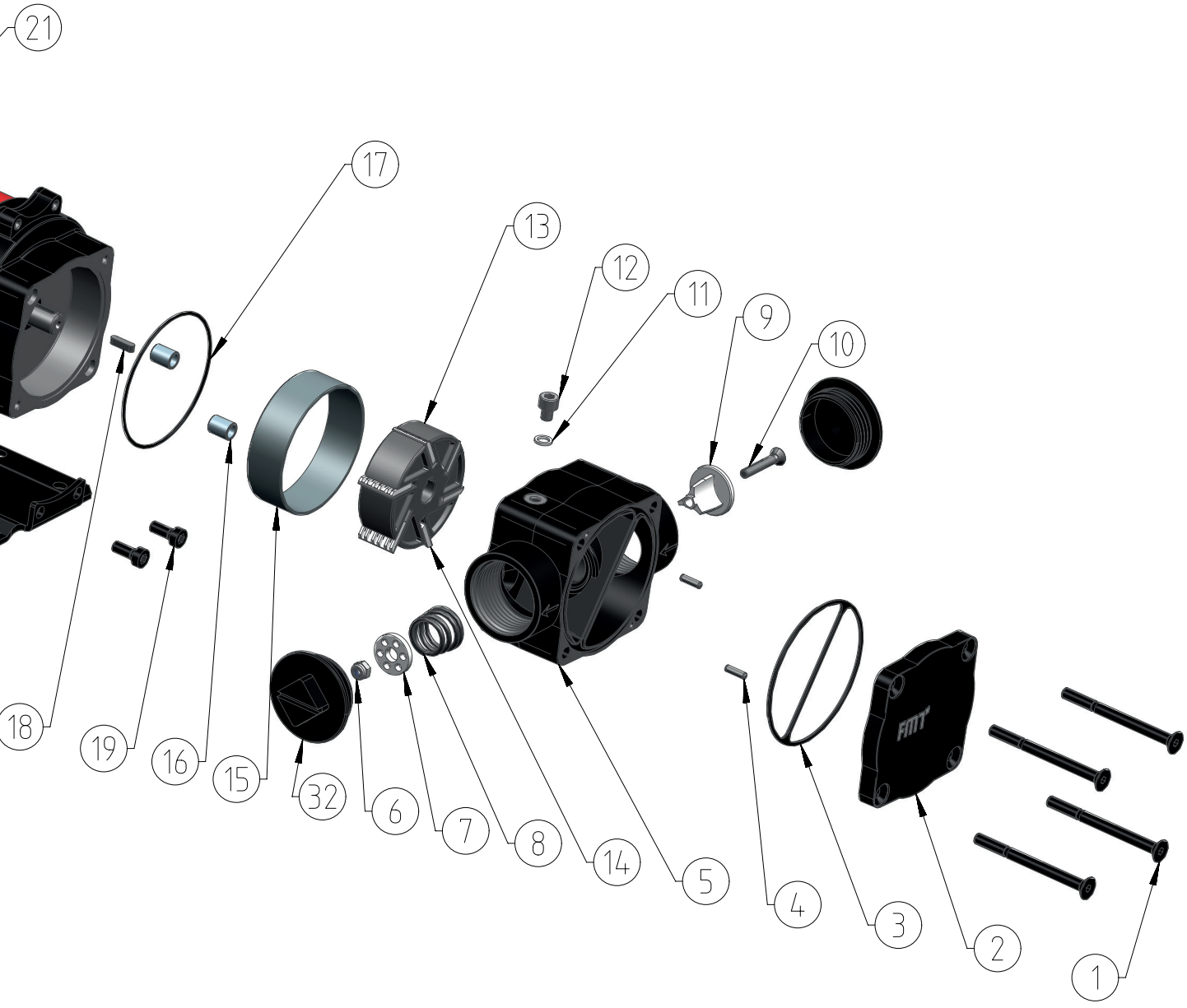


Fig. 15.-1: Exploded view MOBIFIxx


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16. Exploded view MOBIMAxx

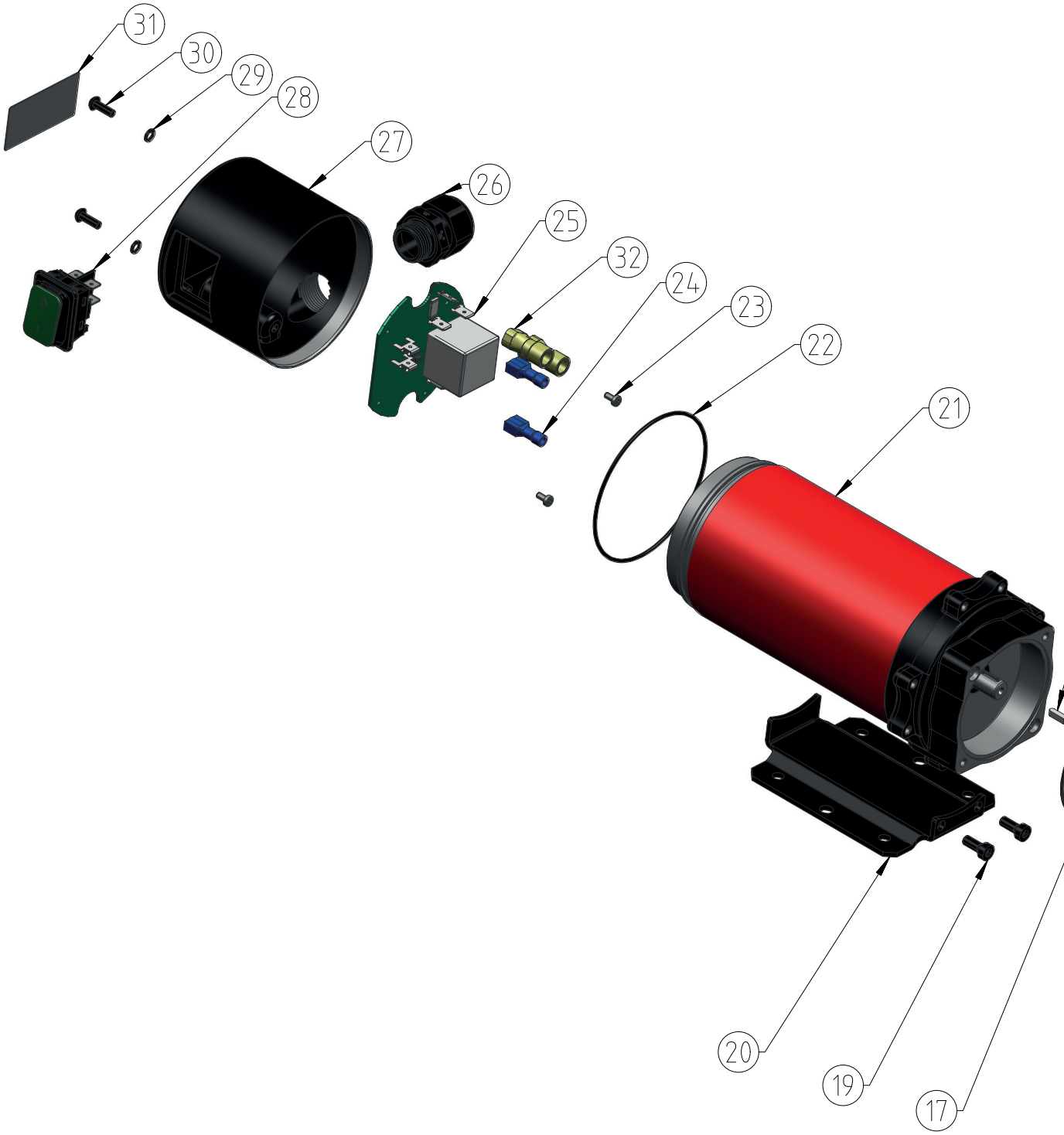
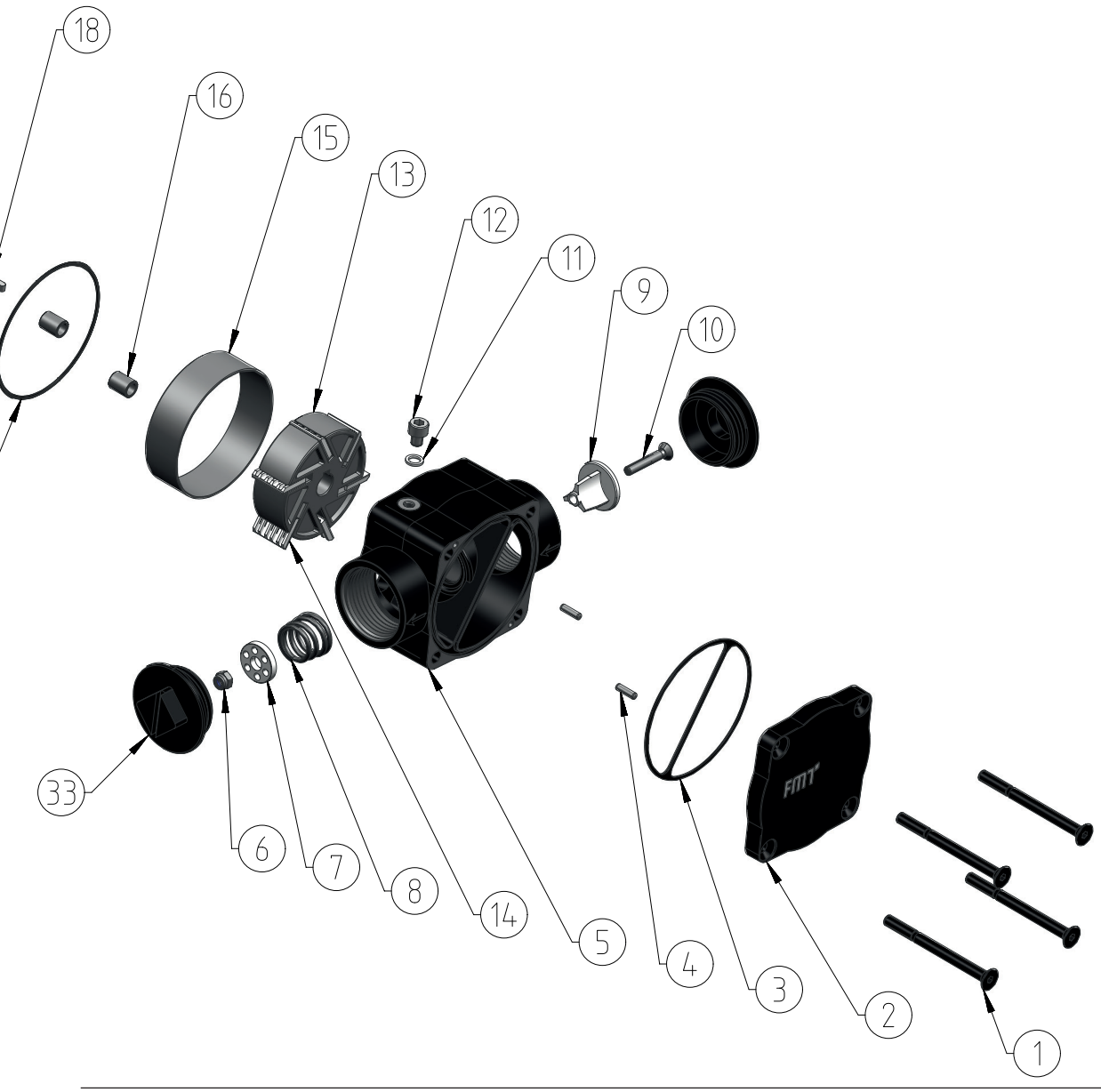


Fig. 16.-1: Exploded view MOBIMAxx


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Item	Quantity	Description	MOBIFIxx
1	4	Countersunk screw M 5 x 60	86 979
2	1	Cover bypass	83 762
3	1	Cover gasket	83 769
4	2	Straight pin ISO 2338 - 3 m 6 x 10 -St	85 637
5	1	Bypass housing	83 763
6	1	Nut DIN 985	03 496
7	1	Disc with bore hole for bypass	83 575
8	1	Compression spring - tapered 2x13.5x16	89 384
9	1	Valve tappet	83 574
10	1	Countersunk screw M 4 x 25	83 400
11	1	Sealing ring	89 279
12	1	Cap screw M 5 x 6	89 445
13	1	Rotor 60 l chamfered slots	86 844
14	6	Vane	89 254
15	1	Raceway	86 471
16	2	Guide bush - blue galvanized	83 775
17	1	O-ring-NBR 70-60x1,5	86 491
18	1	Feather key DIN 6885 A	00 602
19	2	Hexagon socket screw DIN 6912	84 044
20	1	Pump foot 12-24V	82 681
21	1	ELM 12 V-0,25 kW	84 719
22	1	O-ring-NBR 70-78,99x1,78	86 026
23	2	Fillister head screw M 3x6	85 572
24	4	Cable lug, blue, fully insulated	85 062
25	1	Motor protection control	80 469
26	1	Blade receptacle M 20 x 1,5 mm	86 855
27	1	Switch housing, cylindrical, radially sealed	86 884
28	1	Waterproof switch	83 697
29	2	Sealing ring	80 638
30	2	Fillister head screw M 4x12	86 975
31	1	Plate	89 882
32	2	Screw plug black PP 710 GPN	86 055

Table 15.-1: Overview of components with item numbers relating to fig. 15.-1

Item	Quantity	Description	MOBIMAxx
1	4	Countersunk screw M 5 x 60	86 979
2	1	Cover bypass	83 762
3	1	Cover gasket	83 769
4	2	Straight pin ISO 2338 - 3 m 6 x 10 -St	85 637
5	1	Bypass housing	83 763
6	1	Nut DIN 985	03 496
7	1	Disc with bore hole for bypass	83 575
8	1	Compression spring - tapered 2x13.5x16	89 384
9	1	Valve tappet	83 574
10	1	Countersunk screw M 4 x 25	83 400
11	1	Sealing ring	89 279
12	1	Cap screw M 5 x 6	89 445
13	1	Rotor 60 l chamfered slots	86 844
14	6	Vane	89 254
15	1	Raceway	82 471
16	2	Guide bush - blue galvanized	83 775
17	1	O-ring-NBR 70-62x1,5	82 673
18	1	Feather key DIN 6885 A	00 602
19	2	Hexagon socket screw DIN 6912	84 044
20	1	Pump foot 12-24V	82 681
21	1	ELM 12 V-0,36 kW	84 736
22	1	O-ring-NBR 70-78,99x1,78	86 026
23	2	Fillister head screw M 3x6	85 572
24	2	Blade receptacle, blue, fully insulated	85 062
25	1	Motor protection control	80 469
26	1	Cable gland M 20 x 1,5 mm	86 855
27	1	Switch housing, cylindrical, radially sealed	86 884
28	1	Waterproof switch	83 697
29	2	Sealing ring	80 638
30	2	Fillister head screw M 4x12	86 975
31	1	Plate	89 882
32	2	Cable lug, yellow, fully insulated	80 622
33	2	Screw plug black PP 710 GPN	86 055

Table 16.-1: Overview of components with item numbers relating to fig. 16.-1

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