FMT Swiss AG

PREMAxx Diesel Pump

230 V • 24 V-DC • 12 V-DC



Operating instructions and safety notes

87 987 932 A809 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 PREMAXX 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
- Consquences 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 noncompliance
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 warning 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 PREMAxx diesel pump is improperly handled during installation, comissioning and daily operation.



WARNING

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

- Hold the instructions 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 PREMAxx dieselpump.

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 pump.

2.2 Notes for maintenance, cleaning and repair



WARNING

Risk of injury and damage to material property because of improper mainte-nance and repair

- Keep to the specified inspection and maintenance intervals **(Chapter Maintenance).**
- Should unusual noises occur, immediately stop the pump. Immediately identify and eliminate the cause in order to avoid consequential damages.
- Observe the safety sheet for diesel and heating oil.

2.3 Intended conditions of use

The PREMAxx diesel pump is an electrically driven axial gear pump for the delivery of diesel fuel and heating oil.

The temperature of the conveying liquid must be between –10 °C and + 35 °C.

Pumping of explosive fluids is forbidden.

The use in the food industry is forbidden.

The pump may only be connected to a suitable power source (see nameplate).

Proper usage also includes complying with the operating manual, which must be completely read before the unit is put into operation.

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.

Use of the pump only in compliance with the intended conditions of use.

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



DANGER

Risk of injury and material damage from explosive vapors!

- **Never use the pump to deliver fatty substances or 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.
- Pumping caustic or other hazardous chemical or biological substances is forbidden.
- Do **NOT** use the pump in an explosion-risk area. **No** open fire, no smoking. Use the pump exclusively for delivering diesel fuels or heating oils.

2.4 Risks when handling the PREMAxx diesel pump



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 from all sources of energy.
- Before the pump is put into operation, this one must be tightly screwed to the dispensing container.
- The pump is only allowed to be operated, if it is screwed to the dispensing container and thus cannot carry out any uncontrolled movements.
- The pump is only allowed to be operated if the dispensing container, to which the pump is connected, stands on a firm and level surface.
- For your own safety, disconnect the pump in addition from the power supply.
- Never leave the pump unattended.
- Check to ensure that the pump does not work against the closed nozzle.

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.

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 their period of use.
- 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 (VawS).

2.5 Risks when handling diesel and heating oil

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 and heating oil!

3. Transport and temporary storage

Before transport, ensure that there is no liquid (diesel or heating oil residues) in the pump. All additional extensions 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 -5 °C bis +55 °C.

4. Design and functional description

The PREMAxx diesel pump is an electrically driven axial gear pump for the delivery of diesel fuels and heating oil. It is only designed for use as a barrel pump and can be screwed on storage barrels and containers.

The PREMAxx diesel pump is not a self-priming pump.

Operate the pump by hand before putting the pump into operation for the first time or if the fluid column has dropped down, because the radial shaft seal may be destroyed by a dry run of the pump.

The pump is compact and handy and quickly ready for use thanks to its integrated priming stage, which allows to manually pump small quantities of fluid before commissioning or in case of a power failure.

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

In case the discharge hose is damaged while the pump is stopped, siphon action will prevent the fluid from escaping.

The pump housing is made of high-quality, impact-resistant plastic.

Numerous accessories from FMT allow a simple and quick mounting on each installation.

The materials the pump is made from are compatible with fluids like diesel fuel and heating oil.

The pump is electrically driven by an alternating current motor suitable for continuous operation. The pump is directly flange-mounted to the motor. In case of overload, a thermal protection device automatically switches off the electric motor.

When the motor has cooled down, the thermal protection device automaticall restarts.

Pump data ⇨ Chapter Technical data.

The PREMAx diesel pump is available in the following versions:
– Premaxx, 48 l/min-12.6 gpm 230 V-1~AC-50 Hz
– Premaxx , 35 l/min-9.2 gpm 12 V-DC battery terminal clips
– Premaxx , 40 l/min-10.5 gpm 24 V-DC battery terminal clips

4.1 Area of application

The PREMAxx diesel pump is an electrically driven pump for the delivery of diesel fuels, heating oil and antifreeze (undiluted). It is only designed for use as a barrel pump and can be screwed on storage barrels and containers.

The temperature of the delivery fluids must be between –10 °C and + 35 °C.
The temperatures must not be above or below these limit values.

Since the motor and the switch are not explosion-protected the pump **must not** be operated in an explosion risk area.

5. Technical data

Description	230 V 23 730	12 V-DC 23 710	24 V-DC 23 720
Connecting cable, length (m) (ft)		2 / 6.6	
Connection container		G 2“ male, drum adapter	
Connection suction side		Hose fitting DN 19	
Connection discharge side		G 1“ male	
Hydraulic data			
Pump design		axial gear	
Delivery rate under free discharge (l/min) / (gpm)	48 / 12.6	35 / 9.2	35 / 9.2
Suction height (m) / (ft)		2,5 / 8.2	
Discharge height max. (m) / (ft)		15 / 49.2	
Pumping media		heating oil, diesel fuels and antifreeze (undiluted)	
Temperature range of pumping media		-10 °C / +35 °C	
Motor data			
Voltage (V)	230	12 DC	24 DC
Frequency (Hz)	50		
Power consumption (A)	2,0	14	10
Power (kW)	0,42	0,18	0,24
Thermal protection		self resetting	
Duty cycle (min)		30	
Rotation speed at 0,5 bar counterpressure (r/min)	10000	7500	7500
Safety class / Protection class		IMB 5	
Schutzart / Schutzklasse		IP 34 / II	
Material of pump housing and pump	PA 6 PA6 GF30	PA 6 PA6 GF30	PA 6 PA6 GF30
Dimensions of pump LxWxH (mm) / (inch)		130 x 130 x 350 / 5.1 x 5.1 x 13.7	
Weight (kg) (lbs)		2,5 / 5.5	

Tab. 5-1: Technical data

6. Installation

The Premaxx diesel pump is designed for installations in indoor and outdoor areas.

For outdoor installation, a housing is required to protect against weather influences.

The installation must be carried out in the following sequences (see fig. 6-1):

- Push the suction hose (2) on the suction tube (11) with filter (1).
- Push the hose clamp (19) over the suction hose (2).
- Screw the pump tightly into the opening of the tank using the barrel screw fitting (20).
- The pump outlet can be moved to any position by turning the pump housing (5) when screwed in.



NOTE

- Fully extend the telescopic suction tube before mounting the pump on the storage container.
- The length automatically adjusts to the height of the respective storage container. This allows almost complete emptying of any container.

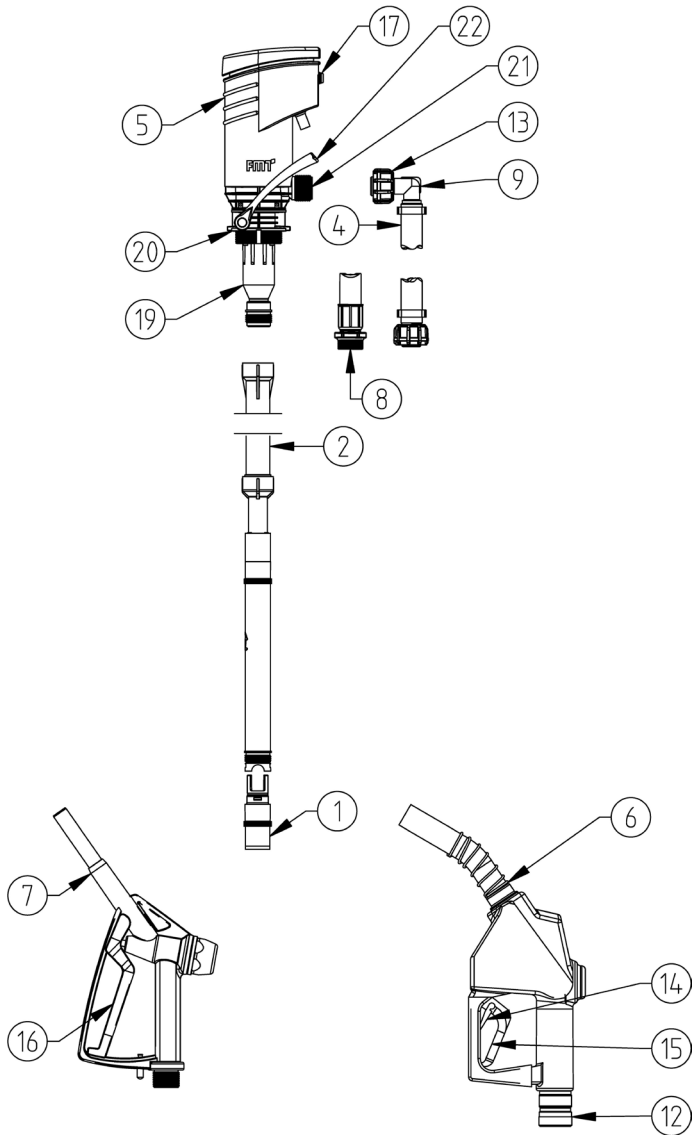


CAUTION

Risk of injury through incorrect installation

- Mount and operate the pump only in vertical position on a storage container.
- The pump is only allowed to be operated if it is firmly screwed with the dispensing container, so that it cannot carry out any uncontrolled movements.
- The pump is only allowed to be operated if the dispensing container, to which the pump is connected, stands on a firm and level surface.

- Screw the union nut (13) of the black discharge hose down to the discharge port (21) of the pump.
- Screw the free end of the discharge hose with the male thread (8) into the thread of the nozzle valve (6 or 7).



1	Suction filter
2	Three-piece telescopic tube
3	No longer applicable
4	Hose for diesel, DN 19
5	PREMAxx diesel pump
6	Automatic nozzle valve, diesel
7	Nozzle valve-G 1“ female-80 l/min
8	Press nipple
9	Bend 90°
10	No longer applicable
11	No longer applicable
12	Easy-turn swivel joint-DN 19
13	Nut G1“
14	Lock
15	Lever, automatic nozzle valve
16	Lever, standard nozzle valve
17	On/off rocker switch
18	No longer applicable
19	Intake pipe socket
20	Barrel screw connection G2“
21	Discharge port
22	Hand lever

Fig. 6-1: Overview of the PREMAxx diesel pump with acessories

- Connect the pump to a power source using the mains plug or the terminal clamps. The pump is ready for commissioning.



CAUTION

Risk of injury from 24 V and 12 V batteries

- When handling the 24 V and 12 V battery (lead-acid battery), observe the specifications and the material data safety sheet of the battery manufacturer.

Carry out the following steps when connecting the pump (24/12 V) to the battery:

- The switch of the pump must be in the OFF position.
- Remove the protection cap from the positive battery terminal (+).
- Connect the red terminal clamp to the positive battery terminal.
- Remove the protection cap from the negative battery terminal (-).
- Connect the black terminal clamp to the negative battery terminal.

Proceed in reverse order when disconnecting the pump from the battery:

- At first, disconnect the black clamp from the negative terminal and then the red clamp from the positive terminal.
- Put the protection caps on the terminals again.

7. Operation

7.1. First and re-commissioning

Check the operativeness of the pump before use and after a failure-related or scheduled downtime.

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



ATTENTION

Danger of product damage!

- Before switching on the pump for the first time and when the liquid column has dropped, manually prime the pump, as dry running can damage the radial shaft seal.

Preparing the pump for operation (see fig. 6-1):

- Hold the nozzle valve (6 or 7) into a container.
- Push the lever (15 or 16) and keep it pushed or fix it by the lock (14) (if equipped with automatic nozzle valve). Hold the nozzle valve into the container to be filled.
- Manually pump fluid by means of the hand lever (22) until fluid is pumped out of the nozzle valve (6 or 7). Due to the integrated siphon protection, the fluid column may drop in case of long periods of disuse so that a manual pumping may be necessary again.
- Actuate the rocker switch (17) to switch on the pump.



ATTENTION

Danger of product damage

- Never operate the pump without liquid. The PREMAxx diesel pump may be damaged by running dry.
- Mount and operate the pump only in vertical position on a storage container.
- The diesel axial gear pump does not switch off automatically, therefore never let the pump running without supervision during filling operations.

- 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 media can pollute the environment.

8. Preventive maintenance

In general, the PREMAxx diesel axial gear pump is very easy to maintain and to service. Maintenance work has always to be done by qualified technical personal.



DANGER

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
- 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.



DANGER

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!
- Before performing any maintenance work, disconnect the PREMAxx diesel pump from all electric and hydraulic supply sources.

Observe the following recommendations for operating the pump:

- 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. Troubleshooting

Malfunction	Cause	Solution
Motor does not run	No power supply	Check the electric connections
Discharge rate too low	Discharge hose kinked or clogged	Check the discharge hose
	Suction line resistance too high	Check the suction line, it may be kinked or clogged
		Check the suction filter and the check valve
	Filter resistance too high	Check and clean the suction filte
	Nozzle valve not completely open	Completely open the nozzle valve

Tab. 10-1: Troubleshooting

11. Repair/Service

The PREMAxx diesel pump was 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
Phone +49 9462 17-246 | Fax +49 9462 1063 | service@fmtag.ch

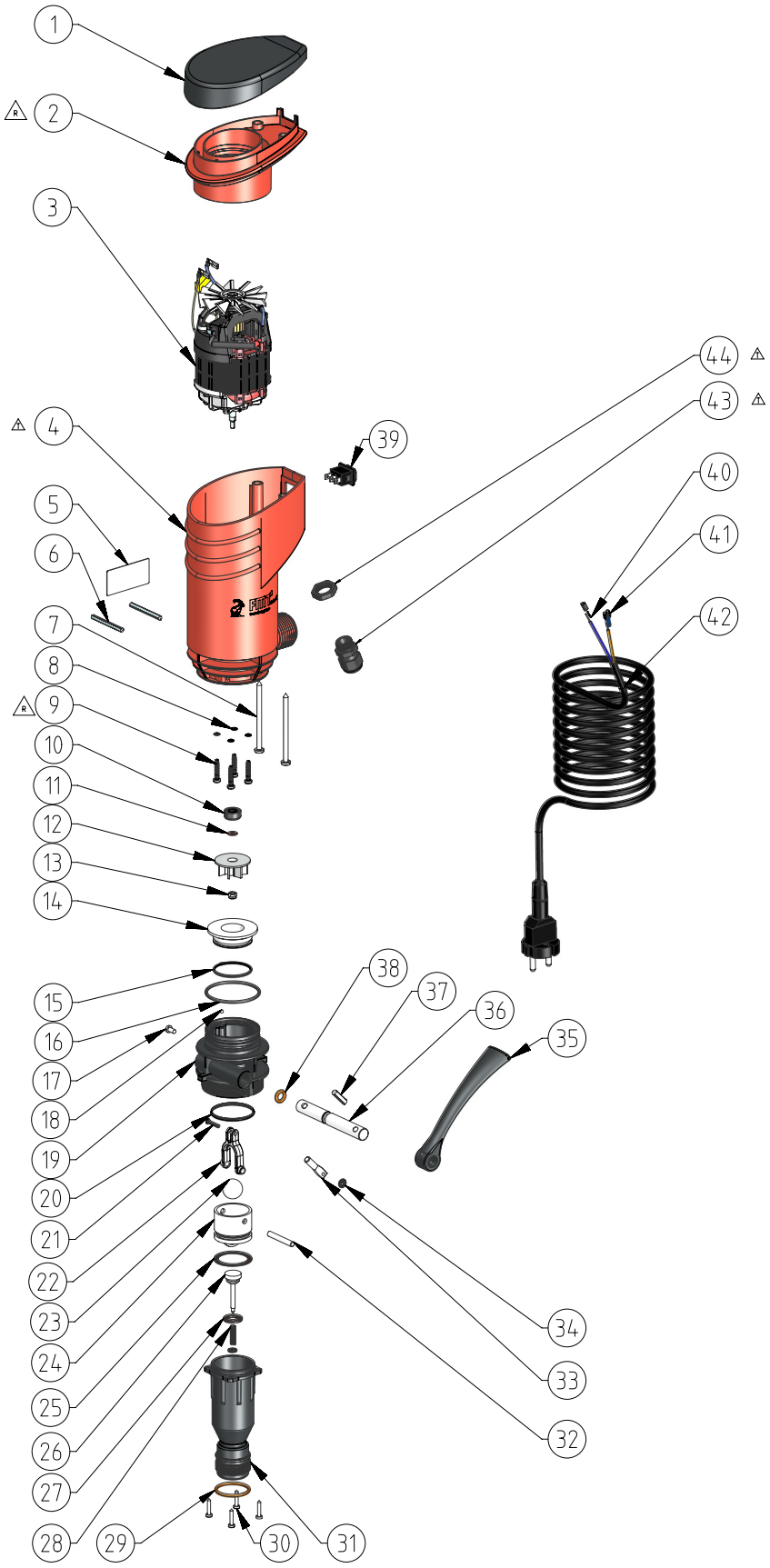
12. Disposal

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 different materials.

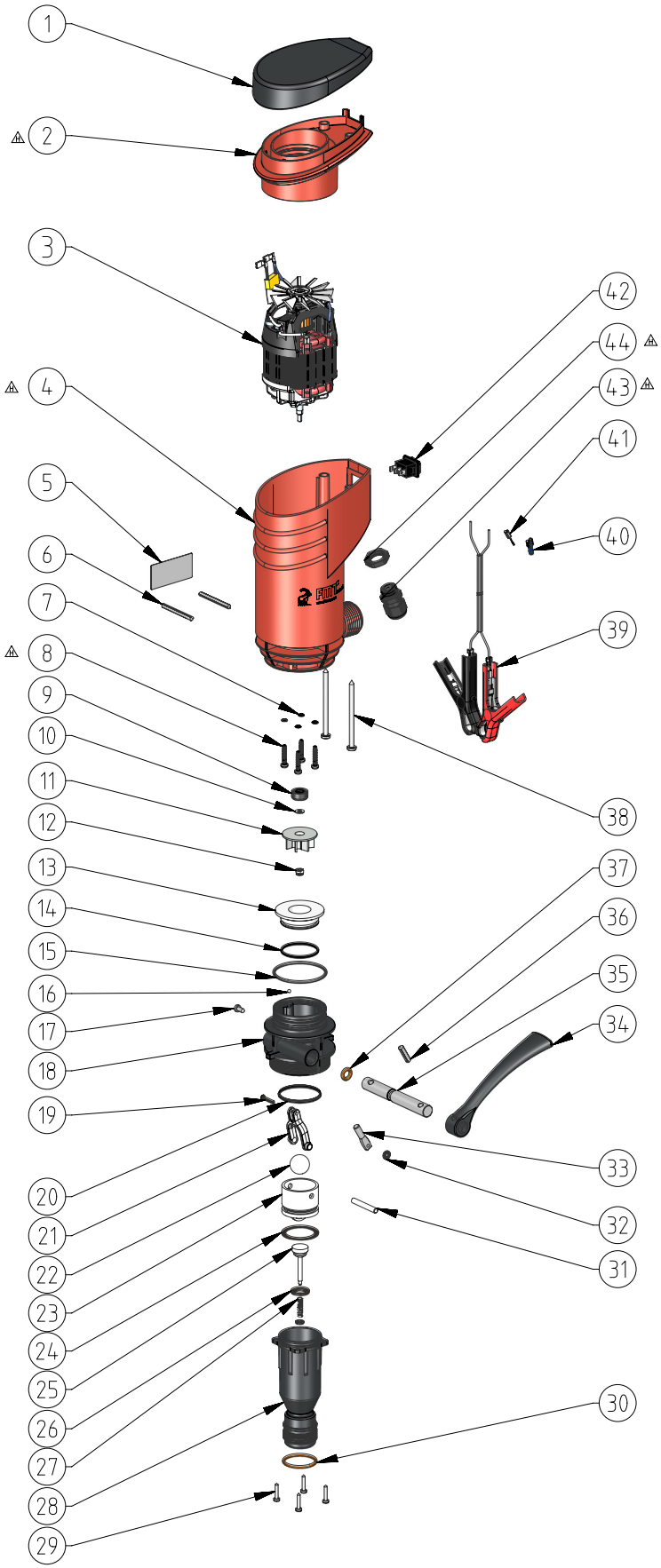
Only qualified personnel is authorized to disassemble and dispose of the PREMAxx diesel pump.

13. Exploded view of the PREMAxx diesel pump 230 V
Item number **23 730**



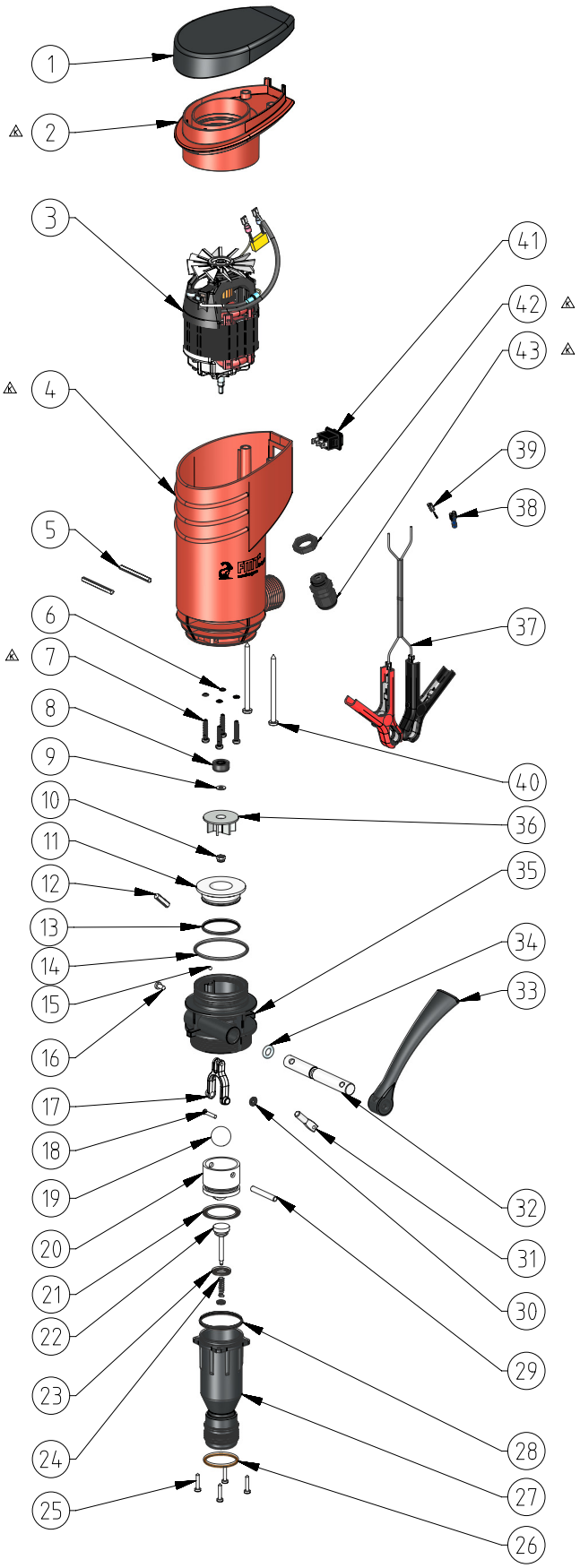
Pos.	EBS No.	Designation	Quantity
1	87960	Housing cover	1
2	87968	Intermediate cover	1
3	81441	Electric motor 24 V-0,22 KW	1
4	87911	Housing	1
5	89882	Plate	1
6	87927	Taper grooved pin	2
7	87924	Chipboard screw	2
8	87943	O-ring FKM 70 - 4x1	4
9	87926	Plastic screw 4x20	4
10	88611	Pressure ring	1
11	00724	Washer	1
12	87974	Impeller	1
13	03496	Nut DIN 985	1
14	87976	Intermediate piece	1
15	87185	O-ring NBR 70-31x2.2	1
16	87916 878	O-ring FKM 80	1
17	87929	Sheet metal screw 3.9x9.5	1
18	01233	Steel ball	1
19	87912	Screw connection	1
20	87917	O-ring NBR 70-35x2	1
21	88047	Rivet DIN 660	1
22	87990	Connecting rod	1
23	87631	Steel ball	1
24	87978	Piston	1
25	87941 878	Piston seal	1
26	87982	Valve cone	1
27	87920	Flat gasket	1
28	87932	Compression spring	1
29	89111 878	O-ring FKM 80-29x2.5	1
30	87930	Chipboard screw 3x16	4
31	87980	Pump cylinder	1
32	87991	Connecting rod pin	1
33	87993	Threaded bolt	1
35	87988	Lever	1
36	87992	Pump shaft	1
37	87934	Taper grooved pin DIN 1471	1
38	87921 878	O-ring FKM 70 - 7x3	1
39	80710	Rocker switch, green illuminated	1
40	80714	Flat plug sleeve, 4.8 x 0.8 mm	1
41	88050	Flat plug sleeve	1
42	87915	Cable H07 RN F2 G 1.5	1
43	85057	CSA locknut M 16 x 1.5 mm	1
44	85058	CSA cable gland M16 x 1.5 mm	1

14. Exploded view of the PREMAxx diesel pump 24 V-DC
Item number **23 720**



Pos.	EBS No.	Designation	Quantity
1	87960	Housing cover	1
2	87968	Intermediate cover	1
3	81446	Electric motor 24 V-0,22 KW	1
4	87911	Housing	1
5	89882	Plate	1
6	87927	Taper grooved pin	2
7	87943 878	O-ring FKM 70 - 4x1	4
8	87926	Plastic screw 4x20	4
9	88611	Pressure ring	1
10	00724 878	Washer DIN 125	1
11	87974	Impeller	1
12	03496 878	Hexagon nut DIN 985	1
13	87976	Intermediate piece	1
14	87185	O-ring NBR 70-31x2.2	1
15	87916 878	O-ring FKM 80	1
16	01233	Steel ball	1
17	87929	Sheet metal screw 3.9x9.5	1
18	87912	Screw connection	1
19	88047	Rivet DIN 660	1
20	87917	O-ring NBR 70-35x2	1
21	87990	Connecting rod	1
22	87631 870	Ball, Ø 19.05 mm	1
23	87978	Piston	1
24	87941 878	Piston seal	1
25	87982	Valve cone	1
26	87920	Flat gasket	1
27	87932	Compression spring	1
28	87980	Pump cylinder	1
29	87930	Chipboard screw 3x16	4
30	89111 878	O-ring FKM 80-29x2.5	1
31	87991	Connecting rod pin	1
32	00159 889	Retaining washer	2
33	87993 878	Threaded bolt	1
34	87988	Lever	1
35	87992 878	Pump shaft	1
36	87934	Taper grooved pin DIN 1471	1
37	87921 878	O-ring FKM 70 - 7x3	1
38	87924	Chipboard screw 4.5x70	2
39	87962	Cable H07 RN F2 G 1.5	1
40	88050	Flat plug sleeve, 4.8 x 0.8 mm	1
41	80714	Flat plug sleeve DIN 46247	1
42	80710	Rocker switch, green illuminated	1
43	85057	CSA locknut M 16 x 1.5 mm	1
44	85058	CSA cable gland M16 x 1.5 mm	1

15. Exploded view of the PREMAxx diesel pump 12 V-DC
Item number **23 710**



Pos.	EBS No.	Designation	Quantity
1	87960	Housing cover	1
2	87968	Intermediate cover	1
3	81431	Electric motor 12 V - 0.22 kW	1
4	87911	Housing	1
5	87927	Taper grooved pin	2
6	87943 878	O-ring FKM 70 - 4x1	4
7	87926	Plastic screw 4x20	4
8	88611	Pressure ring	1
9	00724 878	Washer DIN 125	1
10	03496 878	Hexagon nut DIN 985	1
11	87976	Intermediate piece	1
12	87934	Taper grooved pin DIN 1471	1
13	87185	O-ring NBR 70-31x2.2	1
14	87916 878	O-ring FKM 80	1
15	01233	Steel ball	1
16	87929	Sheet metal screw 3.9x9.5	1
17	87990	Connecting rod	1
18	88047 878	Semi-tubular rivet DIN 660	1
19	87631 870	Ball, Ø 19.05 mm	1
20	87978	Piston	1
21	87941 878	Piston seal	1
22	87982	Valve cone	1
23	87920	Flat gasket	1
24	87932	Compression spring	1
25	87930	Chipboard screw 3x16	4
26	89111 878	O-ring FKM 80-29x2.5	1
27	87980	Pump cylinder	1
28	87917	O-ring NBR 70-35x2	1
29	87991	Connecting rod pin	1
30	00159 889	Retaining washer	2
31	87993 878	Threaded bolt	1
32	87992 878	Pump shaft	1
33	87988	Lever	1
34	87921 878	O-ring FKM 70 - 7x3	1
35	87912	Screw connection	1
36	87974	Impeller	1
37	87962	Cable H07 RN F2 G 1.5	1
38	88050	Flat plug sleeve, 4.8 x 0.8 mm	1
39	80714	Flat plug sleeve DIN 46247	1
40	87924	Chipboard screw 4.5x70	2
41	80710	Rocker switch, green illuminated	1
42	85058	CSA locknut M 16 x 1.5 mm	1
43	85057	CSA cable gland M16 x 1.5 mm	1

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Operating instructions and safety notes