



en Translation of the
original instructions
**UNIVERSAL MOTORS
MA II / MI 4**



0697-501 MA/MI - 12/2020



Please read this manual before starting up.
To be retained for future reference.

ERC    
IP24 IP54 CE

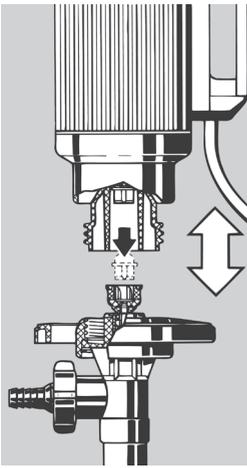


Fig. 1

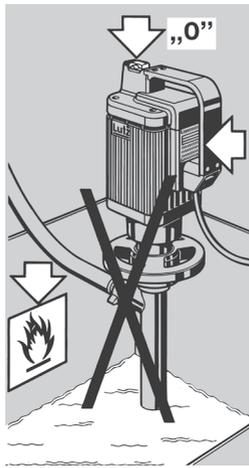


Fig. 2

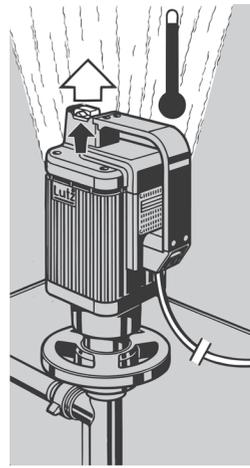


Fig. 3 (Motor MA II)

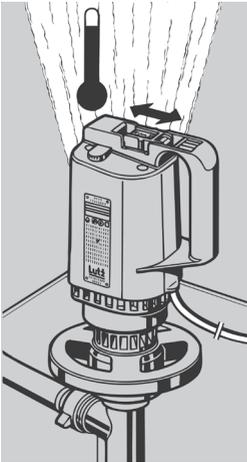


Fig. 4 (Motor MI 4)

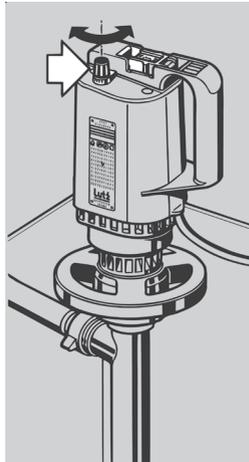


Fig. 5

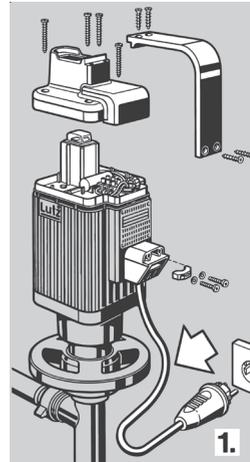


Fig. 6 (Motor MA II)

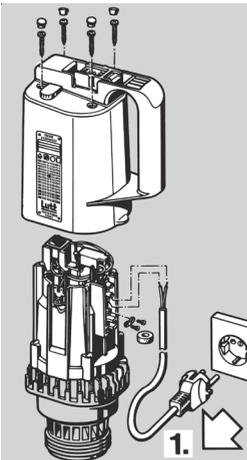


Fig. 7 (Motor MI 4)

Table of Contents

1. Concerning this manual.....	4
1.1 Terms.....	4
1.2 Target groups	4
1.3 Associated applicable documents	4
1.4 Warnings and symbols.....	5
1.5 Latest state	5
1.6 Copyright	5
2. Safety	6
2.1 General safety information	6
2.2 Proper use	8
3. Configuration and function	9
3.1 Identification.....	9
3.2 Configuration	9
3.3 Function	10
4. Transport and storage	10
4.1 Transport.....	10
4.2 Storage.....	10
5. Installation/Assembly and connection	11
5.1 Assembly of pump tube and motor.....	11
5.2 Connect motor electrically	11
6. Operation.....	11
6.1 Operation of the motor with overcurrent release	11
6.2 Operation of the motor with low voltage release (only MA II).....	12
6.3 Operation of the motor without low voltage release	12
6.4 Operation of the motor with electronic speed controller (only MI 4-230 E, MI 4-120 E, MI 4-100 E).....	12
7. Maintenance and servicing.....	13
7.1 Change carbon brushes	13
7.2 Change power cable.....	13
8. Repairs.....	13
9. Waste disposal	13
10. Annex.....	14
Declaration of conformity.....	15

1. Concerning this manual

This manual

- is part of this product
- is valid for all mentioned series
- describes the safe and proper use in all operating stages

1.1 Terms

User: Single person or organisation who is using the products e.g. customer, user, assistant

Children: Young persons up to and including the age of 14 years.

1.2 Target groups

Target group	Task
User	<ul style="list-style-type: none"> ▶ Retain these operating instructions at the product's place of use for future reference. ▶ Demand the staff to read and observe these instructions and the additional valid documents, in particular the safety information and warnings. ▶ Observe additional regulations and instructions concerning the plant.
Qualified personnel, installer	<ul style="list-style-type: none"> ▶ Read, observe and follow these instructions and the additional valid documents, in particular the safety information and warnings.

Tab. 1: Target groups and their tasks

1.3 Associated applicable documents

Document	Purpose
Operating instructions pump tube	Safe and proper use of the pump tube.
Supplementary operating instructions	for additional delivered components

Tab. 2: Associated applicable documents and purpose

1.4 Warnings and symbols

Warning	Level of risk	Consequences in case of non-compliance
DANGER	direct danger	death or serious injury
WARNING	possible direct danger	death or serious injury
CAUTION	possible dangerous situation	light physical injury
NOTICE	possible dangerous situation	damage of property

Tab. 3: Warnings and consequences in case of non-compliance

Symbol	Meaning
	Safety information ▶ Comply with all measures that are marked with a safety sign to prevent injuries or death.
	Information / Recommendation
	What to do
	Cross reference
	Requirement

Tab. 4: Symbols and meaning

1.5 Latest state

Please find the latest state of this operating instruction under www.lutz-pumpen.de.

1.6 Copyright

The content of this operating instruction and the images contained in them are subject to the copyright protection of Lutz Pumpen GmbH.

2. Safety

The manufacturer will not be held responsible for any damages resulting from non-compliance of the overall documentation, in particular for damages in case of non-compliance of the operating instructions.

2.1 General safety information

Observe following regulations before accomplishing all activities.

Product safety

The motor is constructed in conformity with the state of the art and approved safety-related standards. Danger however can occur during use for life and health of the user or third parties or damage of the motor and other material assets. Therefore:

- Operate the motor only in a technically sound state, for its proper use, and conscious of safety and hazards taking into account these instructions.
- Ensure that these instructions and all associated applicable documents are complete, legible, and stored in a place that personnel can access at all times.
- Refrain from any manner of working that endangers personnel or uninvolved third parties.
- In case of a safety-relevant malfunction, stop the motor immediately and enlist a responsible person to rectify the malfunction.
- In addition to the overall documentation, observe the statutory or other safety and accident prevention regulations, as well as the valid standards and guidelines of the respective operating country.

Modifications

Unless the manufacturer has provided its consent in writing, the manufacturer is not liable for interventions performed by the user (modifications) on the product, such as conversion, alteration, new design, etc. Modifications not agreed with the manufacturer may have the following effects, among others:

- Functional impairments on the appliance or plant
- Damage to the appliance and other property damage
- Environmental damage
- Personal injuries right through to death

Duties of the operator

Safety-conscious working

- Operate the motor only in a technically sound state, for its proper use, and conscious of safety and hazards taking into account these instructions.
- Ensure observance and monitoring of:
 - Proper use
 - Statutory or other safety and accident prevention regulations
 - Safety provisions in handling hazardous substances
 - Valid standards and guidelines in the respective country of operation

- Provide protective equipment.

Personnel qualification

- This device must not be used by children. It may be used by persons of reduced physical, sensory or mental capacity or by persons lacking in experience or knowledge provided that they are supervised or have been instructed in the safe use of the device and understand the associated hazards. Cleaning or user maintenance must not be performed by children.
- Ensure that personnel tasked with work on the motor have read and understood these instructions and all associated applicable documents, particularly safety, maintenance and servicing information, before they start work.
- Clarify responsibilities, competencies and monitoring of the personnel.
- Ensure that all work is carried out by technical qualified personnel only:
 - Assembly, servicing, maintenance work
 - Work on the electrics
- Personnel to be trained must only work on the motor under the supervision of technical personnel.
- Personnel holding the motor in their hands during operation will be subjected to vibrations. The upper limbs are exposed to an acceleration of less than 2.5 m/s².

Statutory warranty

- During the guarantee period, obtain the manufacturer's permission for modifications, maintenance work or alterations.
- Use only original parts.

Duties of the personnel

- Observe the notices on the motor and maintain them in a legible state.
- Use protective equipment where necessary.
- Only perform work on the motor during downtime.
- Ensure that the motor is disconnected before you carry out assembly and maintenance work.

- After completing all the work on the motor, remount the safety devices in accordance with specifications.

2.2 Proper use

- The motor may only be installed in an upright position.
- Observe operating limits.
- Motor may only be operated with pump tube.

If the product and supplied accessories are used for other purposes than the intended purpose, it is the responsibility of the user to check the suitability and admissibility. Product use not confirmed in writing by the manufacturer absolves the manufacturer of any liability.

The manufacturer is not liable for consequences of incorrect treatment, use, maintenance, servicing and operation of the appliance, as well as normal wear and tear. The same applies if faults arise from intervention or configurations on the part of the user not confirmed by the manufacturer.

Prevention of obvious misapplication (examples)

- Do not use the motor in or on swimming pools, garden ponds or similar locations.
- Do not immerse the motor in the liquid being pumped.
- Do not pump flammable liquids.
- Do not operate the motor in explosion hazard area.

3. Configuration and function

3.1 Identification

Rating plate



Rating plate motor MA (example)

- 1 Type of motor
- 2 Technical data of the motor
- 3 Serial number of the motor
- 4 Year of construction of the motor (last two digits of the serial number e.g. -13 for 2013)

Rating plate motor MI (example)

- 1 Type of motor
- 2 Technical data of the motor
- 3 Serial number of the motor
- 4 Year of construction of the motor (last two digits of the serial number e.g. -13 for 2013)

3.2 Configuration

The motor type MA II and MI 4 are single-phase series-wound motors with the following versions (→ table 6, table 7):

- operating voltage
- power output

- frequency

Versions

Type	MA II	MI 4
Double-pole on/off switch	✓	✓
Single-pole thermal overcurrent release	✓	✓
Low voltage release	Optional	–
Protection class	I ¹⁾	II
Protection class	IP 54	IP 24
H_{\max} (m wc) ²⁾	23	21
<p>¹⁾ Motors MA II 3-12, MA II 5-42 and MA II 5-24 correspond to protection class III.</p> <p>²⁾ The maximum delivery head H_{\max} is a value determined by means of a test bench and measured with water at a medium temperature of approx. 20°C. The measurement is carried out at the pressure joint of the pump, without hose, nozzle or flow meter. The delivery head achievable in use is lower and depends on the individual application, the media properties and the configuration of the pump. The maximum delivery head is dependent on the pump design, motor and fluid.</p>		

Tab. 5: Available electrical designs

3.3 Function

Together with the respective pump tube, the motor types MA II and MI 4 are suitable for pumping non-flammable, aggressive and thin-bodied liquids.

4. Transport and storage

4.1 Transport

Unpacking and checking condition of delivery

- ▶ Unpack the motor on receipt and check for transport damages.
- ▶ Report transport damages to the manufacturer immediately.
- ▶ Check that the consignment is complete as ordered.

4.2 Storage

NOTICE

Damage of property as a result of incorrect storage!

- ▶ Store the motor properly.
- ▶ Store the motor protected from weather influences and UV rays.

5. Installation/Assembly and connection

! DANGER

Danger of death by using the motor in explosion hazard areas!

- ▶ Do not use the motor in explosion hazard areas.
- ▶ Do not pump flammable liquids.

5.1 Assembly of pump tube and motor

- ✓ Motor is switched off
- ▶ Connect the motor with the pump tube.
- ▶ Turn the motor slightly to ensure that the driver engages in the coupling.
- ▶ Firmly connect the motor and pump tube by means of the handwheel (right-hand thread) (→ Fig. 1).

5.2 Connect motor electrically

! DANGER

Danger of death by electric shock!

- ▶ On/off switch must be set to "0" (→ Fig. 2).

- ✓ Motor is switched off
- ▶ The voltage specified on the rating plate must comply with the mains/battery voltage (→ Fig. 2).
- ▶ Connect motor to power supply.
- ▶ Motor for direct current operation: Motor can be connected in any required polarity to the power supply.

6. Operation

- ✓ All connections and fittings are properly tightened.
- ▶ To avoid limitations of the service life, the motor should not be used outdoor over a longer period.

6.1 Operation of the motor with overcurrent release

The integrated overcurrent release switches off the motor if overloaded.

- ▶ Let the motor cool down.

- ▶ The on/off switch must be actuated again in order to restart the motor (→ Fig. 3, Fig. 4).

6.2 Operation of the motor with low voltage release (only MA II)

Motors of type MA II are optionally equipped with low voltage release and do not start automatically again after interruption of power supply. On networks with large voltage fluctuations, the low voltage release can prevent the motor from being switched on.

- ✓ Supply voltage available

- ▶ The on/off switch must be actuated again in order to restart the motor.

6.3 Operation of the motor without low voltage release

WARNING

Danger of injury due to uncontrolled restarting of the motor after interruption in the power supply!

- ▶ On/off switch must be set to "0".

- ▶ Restart the motor again.

6.4 Operation of the motor with electronic speed controller (only MI 4-230 E, MI 4-120 E, MI 4-100 E)

WARNING

Danger of injury due to uncontrolled restarting of the motor!

- ▶ Do not stop the motor by using the speed controller.

Motors of type MI 4 are available with an electronic speed controller with which the flow rate can be adjusted as required. The flow rate at minimum speed depends on the respective mains supply. At a free discharge it corresponds to approx. 40% of the maximum flow rate.

- ▶ Flow rate can be adjusted as required by turning the rotary handle (→ Fig. 5). Observe scale.

7. Maintenance and servicing

DANGER

Danger of death by electric shock!

- ▶ Have work on the electrical system carried out only by the manufacturer or an authorized repair shop or a similarly qualified person.
- ▶ Unplug the motor before carrying out repairs.

7.1 Change carbon brushes

After 350 hours of operation the carbon brushes must be inspected or changed by the manufacturer or an authorized repair shop.

7.2 Change power cable

MA II:

- ▶ Disconnect the mains plug.
- ▶ Open the terminal compartment of the motor (→ Fig. 6).
- ▶ Replace the power cable by a cable of type H05 RN-F.
- ▶ Remount the motor cover.

MI 4:

- ▶ Disconnect the mains plug.
- ▶ Open the terminal compartment of the motor (→ Fig. 7).
- ▶ Replace the power cable by a cable of type H05 RN-F.
- ▶ Reset on-/off switch to position „I“ to prevent damage of the overcurrent release.
- ▶ Remount the motor cover.

8. Repairs

- ▶ Repairs should be made by the manufacturer or authorized repair shops.
- ▶ Only use original Lutz Pumpen spare parts. If other spare parts are used, liability on the part of Lutz Pumpen is obsolete.

9. Waste disposal

Dispose of the motor according to the locally applicable regulations.

10. Annex

Type	Voltage	Frequency	Power	Sound pressure level ³⁾	Weight	Order No. Without LVR ⁴⁾	Order No. With LVR ⁴⁾
MA II 3	220-230 V ¹⁾	50 Hz	430-460 W	71 dB(A)	4.6 kg	0060-000	0060-008
	100-120 V	50-60 Hz	395 W	71 dB(A)	4.6 kg	0060-044	0060-016
MA II 5	220-230 V ¹⁾	50 Hz	540-575 W	70 dB(A)	5.4 kg	0060-001	0060-009
	220-230 V	60 Hz	450-490 W	70 dB(A)	5.4 kg	0060-042	0060-043
	100-120 V	50-60 Hz	510 W	70 dB(A)	5.4 kg	0060-045	0060-017
	42 V	50 Hz	520 W	70 dB(A)	5.9 kg	*	0060-014
	24 V	=	400 W	70 dB(A)	5.3 kg	*	0060-015
MA II 5 S**	220-230 V	50 Hz	540-575 W	70 dB(A)	6.2 kg	0060-091	–
	100-120 V ²⁾	50-60 Hz	510 W	70 dB(A)	5.4 kg	0060-094	–
MA II 7	220-230 V ¹⁾	50 Hz	750-795 W	69 dB(A)	6.6 kg	0060-002	0060-010
	100-120 V	50-60 Hz	700 W	69 dB(A)	6.6 kg	0060-046	0060-018

¹⁾ VDE-approval
²⁾ Not interference protected, therefore not CE-conformal
³⁾ At 10000 rpm, measured at a distance of 1 m.
⁴⁾ LVR: Low voltage release

* at extra charges
** acid-proof

Tab. 6: Motor types MA II

Type	Voltage	Frequency	Power	Sound pressure level ²⁾	Weight	Order No. Without speed controller	Order No. With speed controller
MI 4-230 ¹⁾	220-230 V	50 Hz	450-500 W	70 dB(A)	2.8 kg	0030-000	–
MI 4-230 E ¹⁾	220-230 V	50 Hz	450-500 W	70 dB(A)	2.8 kg	–	0030-001
MI 4-230	220-230 V	60 Hz	380-400 W	70 dB(A)	2.8 kg	0030-015	–
MI 4-230 E	220-230 V	60 Hz	380-400 W	70 dB(A)	2.8 kg	–	0030-016
MI 4-120	110-120 V	50-60 Hz	550-640 W	70 dB(A)	2.8 kg	0030-003	–
MI 4-120 E	110-120 V	50-60 Hz	550-640 W	70 dB(A)	2.8 kg	–	0030-006
MI 4-100 E	100 V	50-60 Hz	520-550 W	70 dB(A)	2.8 kg	–	0030-008

¹⁾ VDE-approval
²⁾ At 10000 rpm, measured at a distance of 1 m.

Tab. 7: Motor types MI 4

Translation of the original declaration of conformity

We herewith declare under the sole responsibility that the following product complies with the EU Directives listed.

Product: **Universal motor for driving drum and container pumps**

Types: **MA II 3-230, MA II 5-230, MA II 7-230,
MA II 3-120, MA II 5-120, MA II 7-120,
MA II 5-42, MA II 5-24, MA II 3-12, MA II 5-230 S
MI 4-230, MI 4-120, MI 4-230E, MI 4-120E**

Manufacturer: Lutz Pumpen GmbH
Erlenstraße 5-7
D-97877 Wertheim

Relevant European Directives:

LVD	2014/35/EU
EMC	2014/30/EU
RoHS	2011/65/EU, 2015/863/EU

Applicable harmonized standards:

- EN 60335-1
- EN 60335-2-41
- EN 62233
- EN 55014-1
- EN 55014-2
- EN IEC 61000-3-2
- EN 61000-3-3

Wertheim, 06.04.2020



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