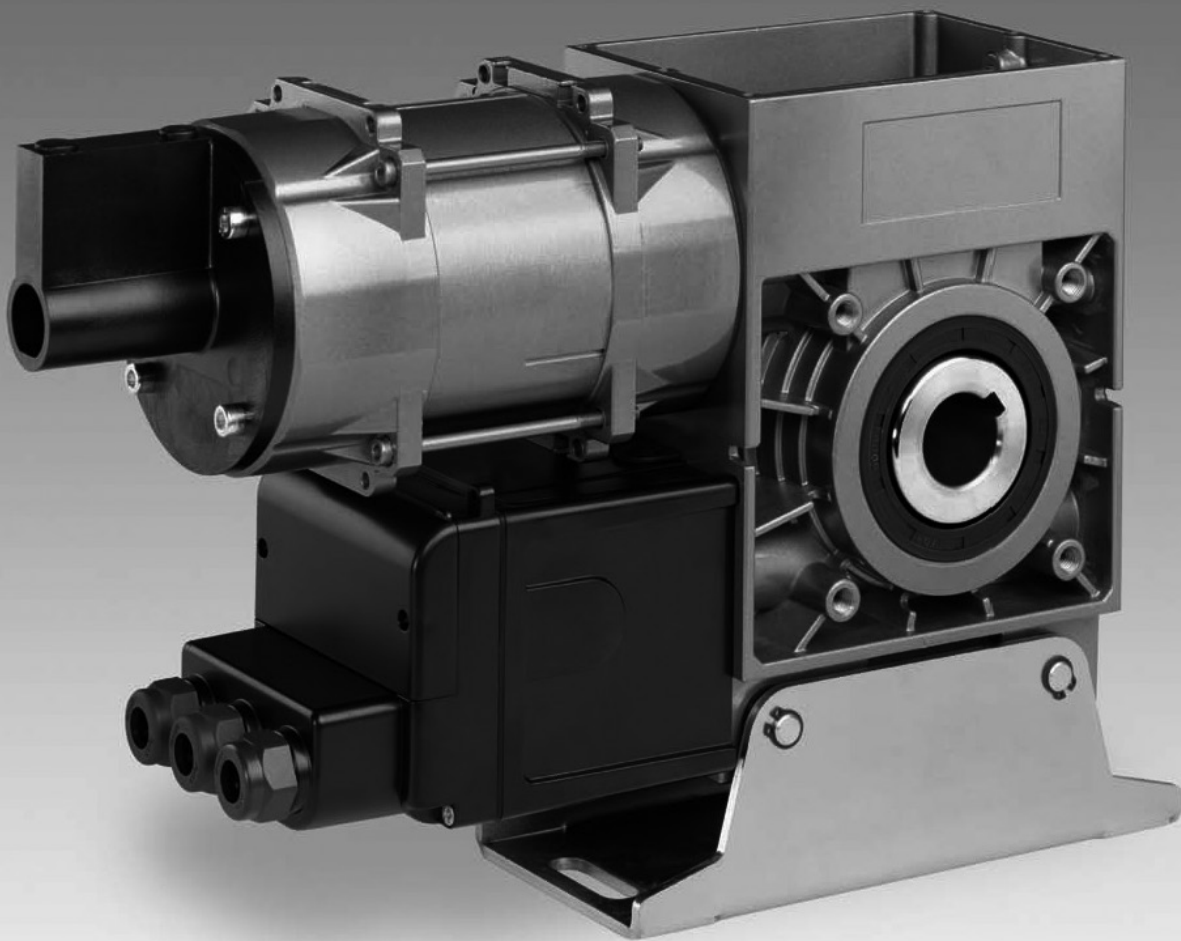


Instructions for Rolling Door Operator type :

MDF



Warning : Please read these instructions fully before installation

1. Contents

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2. Key to symbols



Danger of personal injury!
The safety instructions must be observed!



Warning! Danger to property!
The safety instructions must be observed!



Information
Special information
OR
Reference to other sources of information

3. General safety instructions

Guarantee

The function and safety of the equipment is only guaranteed if the warning and safety instructions included in these operating instructions are adhered to.

Marantec UK is not liable for any personal injury or damage to property that occurs as a result of the warning and safety instructions being disregarded.

Marantec UK does not accept any liability or warranty for damage due to the use of non-approved spare parts and accessories.

Using the equipment for its intended purpose

Operators of the MDF range are designed exclusively for opening and closing rolling doors, roller shutter grilles and springless or weight-counter balanced sectional doors.

Target group

Only qualified and trained specialists are permitted to install and service the operator. Qualified and trained professionals fulfil the following requirements:

- knowledge of the general and specific safety and accident prevention regulations,
- Knowledge of the relevant regulations,
- trained in the use and care of appropriate safety equipment,
- Capable of recognising the dangers associated with installation.

Only qualified and trained electricians may connect the operator and carry out electrical maintenance.

Qualified and trained electricians fulfil the following requirements:

- knowledge of the general and specific safety and accident prevention regulations,
- knowledge of the relevant electrical regulations,
- trained in the use and care of appropriate safety equipment,
- capable of recognising the dangers associated with electricity.

Instructions for installation and connection

- The controls must be disconnected from the electricity supply before carrying out electrical works. It must be ensured that the electricity supply remains disconnected during the works.
- Local protective regulations must be complied with.
- Mains cables and control cables must be laid separately.

Regulations and bases for testing

For connecting, programming and servicing, the following regulations must be observed (the list is not exhaustive).

Construction product standards

- EN 13241-1 (Products without fire resistance or smoke control characteristics)
- EN 12445 (Safety in use of power operated doors - Test methods)
- EN 12453 (Safety in use of power operated doors - Requirements)
- EN 12635 (Industrial, commercial and garage doors and gates - Installation and use.)
- EN 12978 (Safety devices for power operated doors and gates - Requirements and test methods)

Electromagnetic compatibility

- EN 55014-1 (Radio disturbance, household appliances)
- EN 61000-3-2 (Disturbances in supply systems - harmonic currents)
- EN 61000-3-3 (Disturbances in supply systems - voltage fluctuations)
- EN 61000-6-2 (Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments)
- EN 61000-6-3 (Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments)

Machinery guidelines

- EN 60204-1 (Safety of machinery, electrical equipment of machines, part 1: general requirements)
- EN 12100-1 (Safety of machinery. Basic concepts, general principles for design. Basic terminology, methodology)

Low voltage

- EN 60335-1 (Household and similar electrical appliances - Safety)
- EN 60335-2-103 (Particular requirements for drives for gates, doors and windows)

4. Overview of products

4.1 Safety catch device as a safety feature

The MDF rolling door operator is a slip-on direct drive with an incorporated safety catch device. The safety catch device is load-free and wear-free.

If the drive unit fails, the safety catch device is automatically triggered. The load moved by the operator is then smoothly brought to a standstill in the position concerned. The power transmission between the motor and the door shaft is interrupted after the drive unit fails. The operator is no longer usable after the safety catch device has been triggered and must be replaced.

The safety catch device is distinguished by the following features:

- Protection against worm shaft and worm gear failure
- Independent of the rotational speed
- Independent of the direction of rotation
- Can be mounted in any position
- Unsusceptible to vibrations
- Maintenance-free
- Self-controlling
- Excellent damping properties when safety catch device is triggered

4. Overview of products

4.2 Various options

The following package options are available for the MDF operator:

- MDF 20-22-12 KU
- MDF 20-15-12 KU HD
- MDF 20-22-12 KE

- MDF 30-30-12 KU
- MDF 30-42-12 KU
- MDF 30-50-12 KU
- MDF 30-65-10 KU
- MDF 30-27-12 KU HD
- MDF 30-30-12 KE
- MDF 30-42-12 KE
- MDF 30-50-12 KE
- MDF 30-65-10 KE

- MDF 50-75-10 KU
- MDF 50-75-10 KE
- MDF 50-65-10 KU HD

- MDF 60-100-9 KU
- MDF 60-140-9 KU
- MDF 60-100-9 KU HD
- MDF 60-100-9 KE
- MDF 60-140-9 KE

- MDF 70-165-8 KU
- MDF 70-200-8 KU

- MWF 20-22-12 KU
- MWF 20-22-12 KE

- MWF 30-38-12 KU
- MWF 30-38-12 KE



Information / Key:

MDF - 3PH Operator

MWF - 1PH Operator

1st Digit - Operator gearbox size

2nd Digit - Nm Output x10, (30 = 300Nm)

3rd Digit - Operator rpm

KU - High Level Emergency Hand Crank

KE - Floor Level Emergency Hand Chain

5. Installation

5.1 Preparation



Danger!

To avoid injury, the following points must be observed:

- The operator must be installed free of any tension.
- The operator must not move on the shaft.
- The design and subsurface of all components must be suitable for the forces encountered.



Warning!

To avoid damage to the operator and the door, the operator must only be fitted if:

- the operator is undamaged,
- the ambient temperature is -20 °C to +60 °C,
- the altitude of the location does not exceed 1,000 m,
- a suitably rated mains protection device has been selected.

☞ Before installation, ensure that:

- the operator is not blocked,
- the operator has been newly prepared after a lengthy storage period,
- all connections have been carried out correctly,
- the direction of rotation of the drive motor is correct,
- all motor protective devices are active,
- no other sources of danger exist,
- the installation site has been cordoned off over a wide area.

5.2 Direct drive assembly example



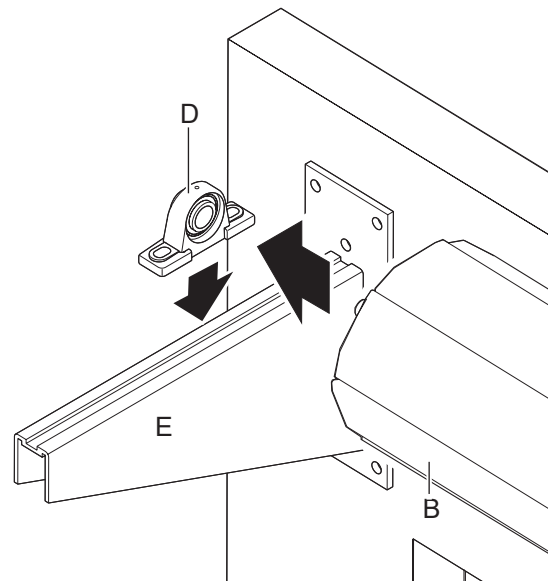
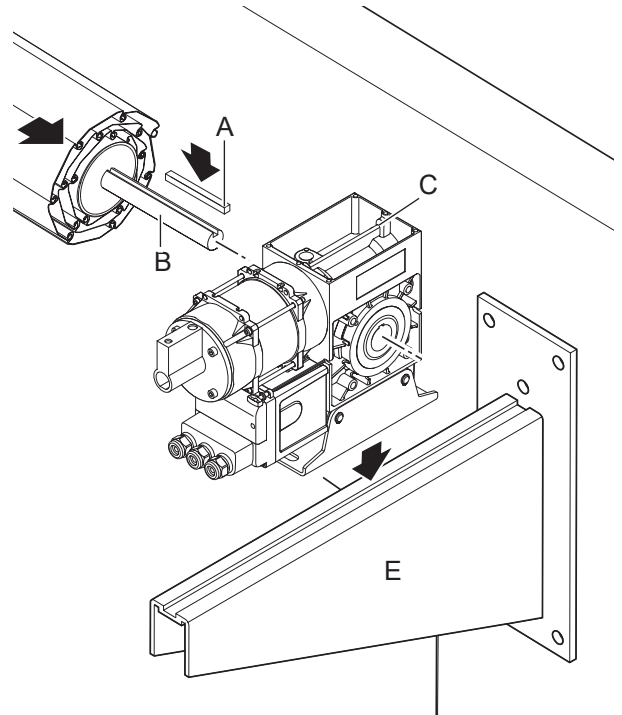
Warning!

To avoid damage to the operator and to the door, the operator must be mounted on a support bracket with a mounting foot or a torque support bracket so that it is vibration dampened.



Information:

The relevant instructions for the door must be observed when fitting the operator to the door.



- Insert the feather key (A) into the shaft (B).
- Slide the operator (C) onto the shaft (B).
- Slide the counter bearing (D) onto the shaft (B).
- Fix the shaft (B) with the operator (C) and counter bearing (D) to the brackets (E).

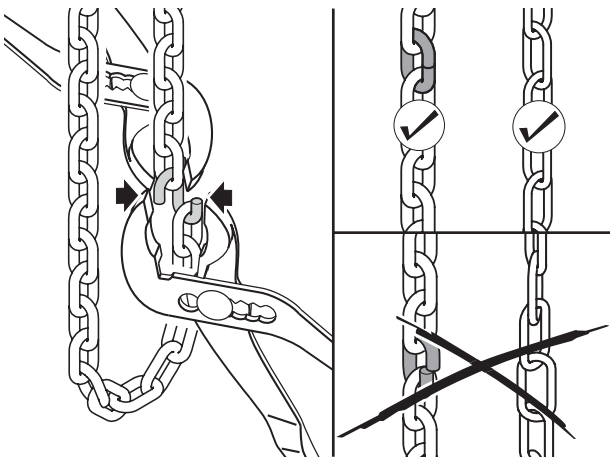
5. Installation

5.3 Installation of the emergency hand chain (only for operators with emergency hand chain)



Information:

To ensure that they work correctly, the chain links must not be twisted.



Join the ends of the emergency hand chain together with a chain connecting link.



Warning!

To avoid damage to the operator and the door, the emergency hand chain must be secured while the door is operated electrically.

Limit Switch Key

- S1 Additional limit switch, OPEN (A)
- S2 **Limit switch, OPEN (B)**
- S3 Safety limit switch, OPEN (C)
- S4 Safety limit switch, CLOSED (D)
- S5 **Limit switch, CLOSED (E)**
- S6 Additional limit switch, CLOSED (F)
- S7 Safety limit switch for manual operation
- F2 Thermal overload protection for motor

6. Initial Operation

6.1 Preparation



Warning!

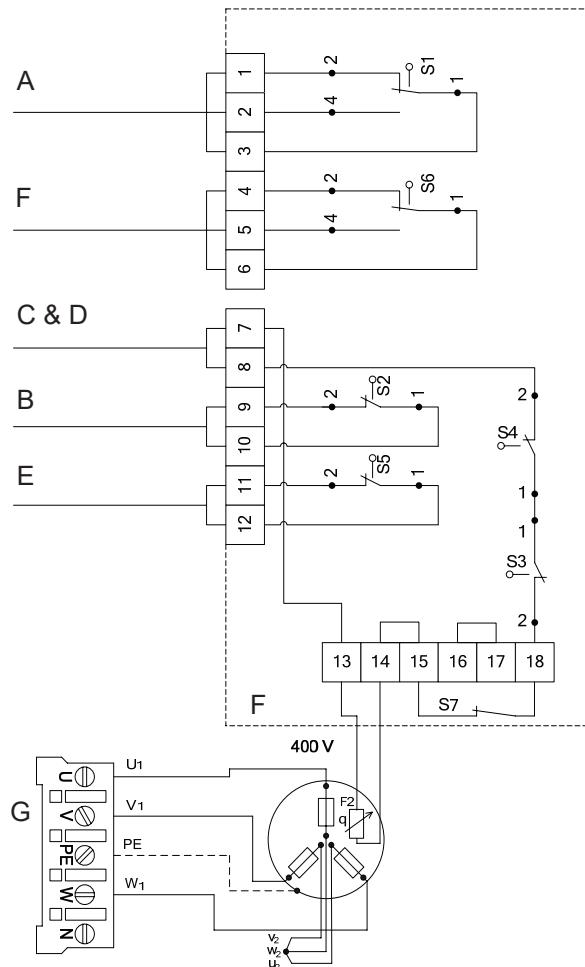
To avoid damage to the operator, the following points must be observed:

- The types of cable and their diameters must be selected according to current regulations.
- The nominal currents and the type of connection must correspond to those on the motor type plate.
- The drive details must agree with the connected loads.

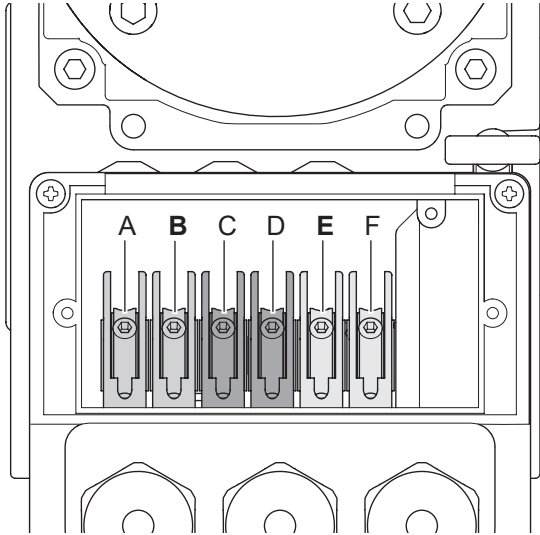


Information:

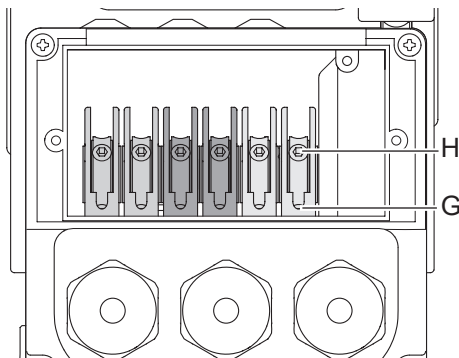
When operated with electronic control units, the corresponding start-up instructions and circuit diagrams must be complied with.



6.2 Mechanical limit setting for model MDF 20 and subsequent models



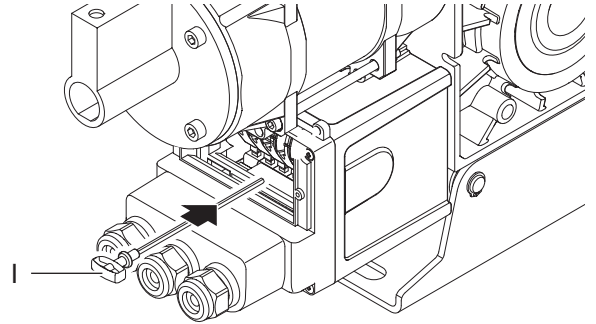
- A Control cam for additional limit switch, OPEN (green)
- B Control cam for limit switch, OPEN (green)**
- C Control cam for safety limit switch, OPEN (red)
- D Control cam for safety limit switch, CLOSED (red)
- E Control cam for limit switch, CLOSED (white)**
- F Control cam for additional limit switch, CLOSED (white)



- G Fine adjustment screw
- H Locking screw

Each control cam has a locking screw (H) and a fine adjustment screw (G).

The locking screw (H) is used to lock the corresponding control cam in the desired position. Finer adjustment can be made with the fine adjustment screw (G).



Use the adjusting tool (I) to tune the fine adjustment screw and the locking screw.

Set the CLOSED end position

- Drive the door to the CLOSED end position.
- Set the control cam so that the CLOSED limit switch (E) is actuated.
- Tighten the locking screw (H).

The CLOSED safety limit switch (D) must be set in such a way that it switches immediately when the CLOSED limit switch (E) is passed over.

- Adjust the CLOSED safety limit switch (D).

Set the OPEN end position

- Drive the door to the OPEN end position.
- Set the control cam so that the OPEN limit switch (B) is actuated.
- Tighten the locking screw (H).

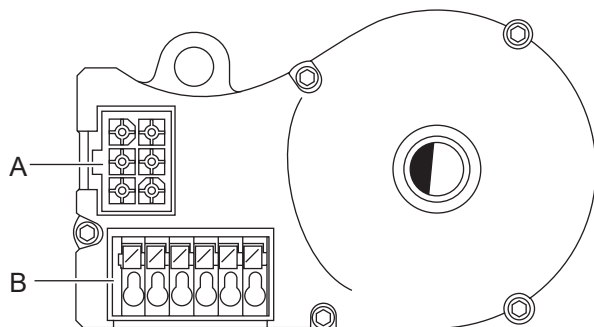
The OPEN safety limit switch (C) must be set in such a way that it switches immediately when the OPEN limit switch (B) is passed over.

- Adjust the OPEN safety limit switch (C).

6. Initial Operation

6.3 Digital Encoder (Kostal AWG) – Limit switch and safety circuit for drive

Electronic interface



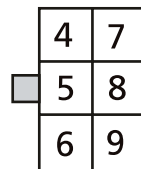
- A: AVE plug (absolute value encoder plug)
- B: AVE plug terminal (absolute value encoder plug terminal)



Information:

Please refer to the control unit operating manual for instructions on setting the limit end positions.

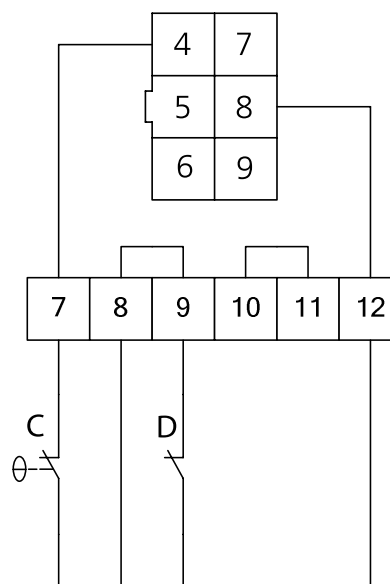
Wiring allocation, AVE (absolute value encoder) plug



The numbers on the plug are also the wire-numbers.

- 4: Safety circuit input
- 5: RS 485 B
- 6: GND
- 7: RS485 A
- 8: Safety circuit output
- 9: 7...18V_{DC}

AVE (absolute value encoder) plug terminal (7-12)



- C: Thermal element in the drive
- D: Manual emergency control
(emergency crank or emergency chain)

6.4 Check the system

Check the direction of travel

☞ Drive the door in the CLOSED direction.
The operator must close the door.

☞ Drive the door in the OPEN direction.
The operator must open the door.



Information:

If the direction of travel of the door does not correspond to the commands keyed in, then the direction of rotation must be changed. Instructions for changing the direction of rotation are given in the control unit operating manual.
After this the direction of travel must be checked again.

Check the limit switch settings

☞ Drive the door to the CLOSED end position.
The operator must stop in the desired position.

☞ Drive the door to the OPEN end position.
The operator must stop in the desired position.

Check the mechanical functions

After assembling and installing all components the functions of the system must be checked.

- ☞ Check that all mountings have been securely tightened.
- ☞ Check all the functions of the system.
- ☞ Check that the operator runs smoothly.
- ☞ Check whether the operator is leaking oil.

If the operator makes unusual noises or leaks oil:

- The operator must be taken out of service immediately,
- The customer service must be informed.

7. Emergency operation



Danger!

To avoid injury, the following points must be observed:

- Emergency operation may only be carried out from a safe standing position.
- Emergency operation may only be carried out when the motor is stationary.
- The system must be disconnected from the power supply during emergency operation.
- Operators with an electric brake must be actuated against the closed brake when opening or closing the door.
- For safety reasons, brakes in doors without a weight counterbalance must only be activated in the closed door position for testing purposes.
- Accidental activation of the brake must be rendered impossible by preventive measures at the installation site.

During maintenance works or in the case of an electrical failure, the door can be moved towards the OPEN or CLOSED positions with the help of the emergency manual override equipment.



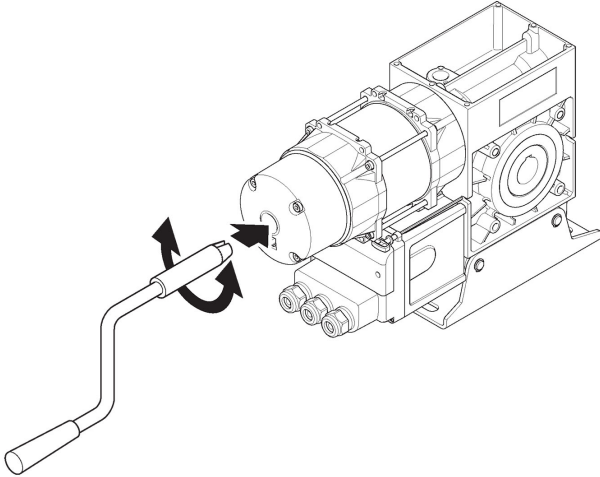
Information:

If the door is moved beyond the CLOSED or OPEN end positions, the operator can no longer be activated electrically

- place the door back into a normal position before attempting powered operation.

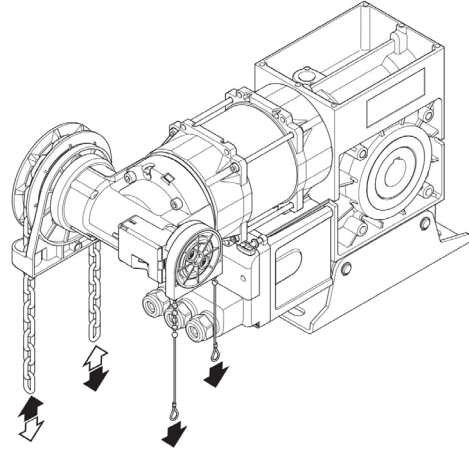
7. Emergency operation

Operation with emergency hand crank (KU)



- Push the emergency hand crank into the operator as far as it will go. The control voltage will be interrupted and the door can no longer be operated electrically.
- Move the door in the OPEN or CLOSE direction by turning the emergency hand crank.
- Remove the emergency hand crank from the operator after completing emergency manual operation. The control voltage will be switched on again and the door can be operated electrically.

Operation with emergency hand chain (KE)



Releasing

- Gently pull the cable with the red handle downwards as far as possible. The control voltage will be interrupted and the door can no longer be operated electrically.
- Release the emergency hand chain from its fixing.
- Move the door in the OPEN or CLOSE direction by pulling on the emergency hand chain on the side concerned.

Locking

- Gently pull the cable with the green handle downwards as far as possible. The control voltage will be switched on again and the door can be operated electrically.
- Attach the emergency hand chain to its fixing. The door can now be moved with the operator.

8. Maintenance



Warning!

To avoid damage to the operator and door, the following points must be observed:

- Maintenance must only be carried out by authorized persons.
- Directive BGR 232 must be complied with.
- Worn or faulty parts must be replaced.
- Only approved parts may be installed.

All maintenance work must be documented.



Information:

The drive unit has lifetime lubrication and is maintenance-free.

- ☞ Check that all mountings have been securely tightened.
- ☞ Check the brake (if available).
- ☞ Check the limit switches and safety switches.
- ☞ Check for noises and oil leaks.
- ☞ Check the mounting of the operator for corrosion.
- ☞ Check the housing for damage.

9. EU Declaration of Conformity

Manufacturer:

MFZ Antriebe GmbH & Co. Kg, Neue Muehle 4,
48739 Legden, Germany

We hereby declare that by virtue of their conceptual development and design, as well as their manufacture as we have brought them onto the market, the products cited below:

Rolling Door Operator / MDF

conform to the relevant basic health and safety regulations of the following EU directives and standards:

EU Construction Products Regulation 305/2011/EU

DIN EN 13241-1
DIN EN 12453
DIN EN 12445
DIN EN 12978
DIN EN 12604

EU Electromagnetic Compatibility Directive 2004/30/EU

EN 55014-1
EN 61000-3-2
EN 61000-3-3
EN 61000-6-2
EN 61000-6-3

EU Machinery Directive 2006/42/EU

EN 60204-1
EN ISO 12100-1

EU Low Voltage Directive 2014/35/EU

EN 60335-1
EN 60335-2-103

BGR 232 - Directive for Power-driven Windows, Doors and Gates

Legden, 20/04/2016

Manufacturer's signature:

Dirk Wesseling

Position of signatory:
Management

