Top-mounted drive (SI 14.15 / SI 14.20, Fig. 1/2)

Inspect drive shaft for damage or dirt, e. g. dents, weld splashes, paint, tape ect. Generously grease hollow shaft and stub shaft. Align keyway and carefully slide unit onto stub shaft key appears.
In a continuous shaft groove, the key (1) is secured against displacement with 2 screws on both sides of the gear hollow shaft.
In order to mount the torque support and/or flange bracket (2), holes should be provided in the bracket on the attachment side. The tightening torque required for the fixings is 20 Nm.

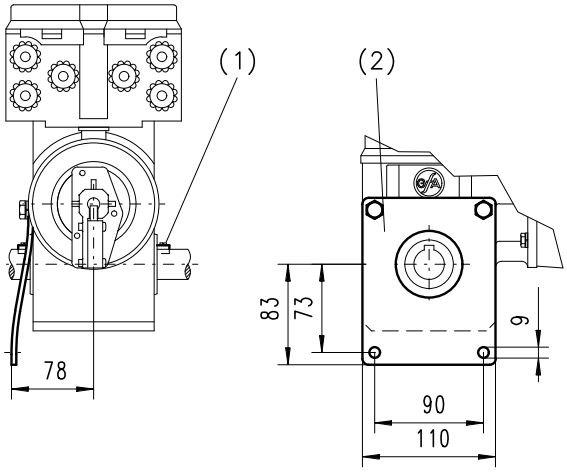


Fig. 1: Top-mounted drive with torque support

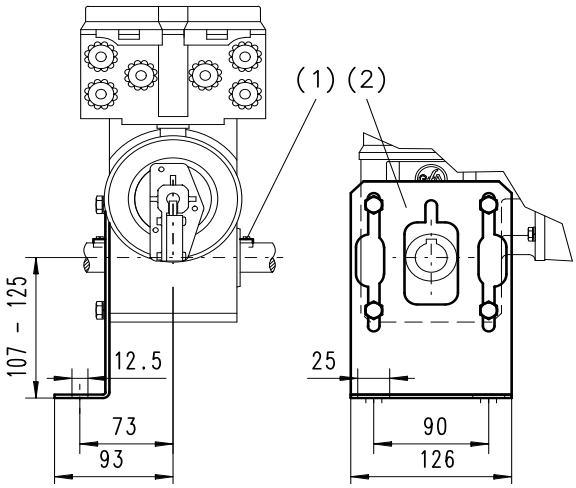


Fig. 2: Top-mounted drive with flange bracket

Top-mounted drive (Fig. 3)

Inspect drive shaft for damage or dirt, e. g. dents, weld splashes, paint, tape ect. Generously grease hollow shaft and stub shaft. Align keyway and carefully slide unit onto stub shaft key appears.
Do not fix ELEKTROMATEN axially when mounting. For axial fixing use the stub shaft on the bearing side.
Floating foot to be used in horizontal fitting position and vertical position (only permitted by using a separate torque mount bracket and bearing) valid for SI 75.10 - SI 100.24.
See catalogue page 1.96 - 8.2 torque mount.

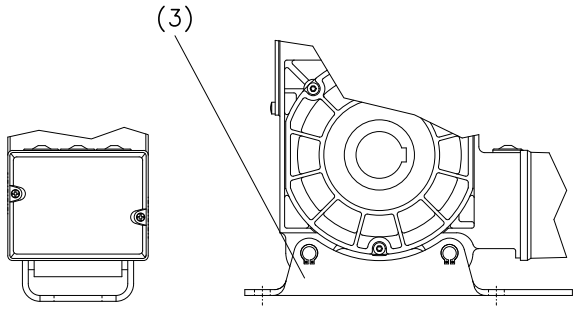


Fig. 3: safe drive with floating foot

If the gearbox housing is provided with an additional coat of p aint, the shaft sealing rings should not be painted under any circumstances.

EMERGENCY MANUAL OPERATION

52250012

The emergency manual operation is provided in order to open or close the door without an electrical supply.

Warning! Danger of injury through improper operation!

- Before using the emergency manual operation, the main switch must be switched off.
- The emergency manual operation must only be carried out when the motor is stationary.
- A secure position must be adopted to operate the equipment manually.
- In the case of ELEKTROMATEN® with a spring-operated brake, the door must be opened or closed with the brakes on.
- For safety reasons, the brakes must only be lifted for inspection.
- Precautions must be taken on the construction site to prevent the brake from being lifted unintentionally.

The door must not be moved beyond the normal end positions by the emergency manual operation, since this will operate the safety limit switch. Electrical operation of the door is then no longer possible.

Emergency manual operation by the manual hand crank (NHK) (Fig. 1)

- The manual crank must be inserted into the manual switch receptacle and is turned whilst pressing gently until it engages, on that way the control circuit would be interrupted. It is no longer possible to operate the door electrically.
- The door can be opened and closed by turning the manual crank
- After pulling out the manual crank, electrical operation is once possible.

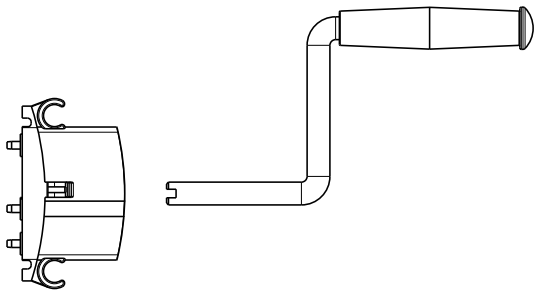


Fig. 1: Emergency manual operation by the manual hand crank

EMERGENCY MANUAL OPERATION

52250011

Execution: **SK** **"Rapid hand chain operator"** (Fig. 1)
Execution: **KNH** **"Chain operator"** (without Fig.)

Emergency manual operation
"Rapid hand chain operator" (Fig. 1)

- The red handle of the engaging and disengaging mechanism is first pulled lightly until it stops (max. operating force 50N), the control circuit is now interrupted, it is no longer possible to operate the door electrically.
- The door can be opened and closed by pulling the chain (2).
- By lightly pulling the engaging and disengaging mechanism by the green handle until it stops (3) (max. operating force 50N), the control circuit is re-made and the door is electrically operational.

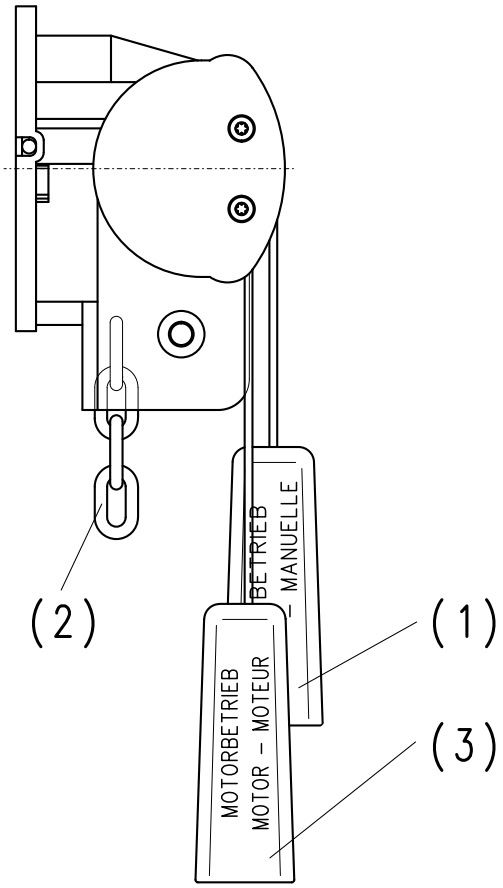


Fig. 1: Emergency manual operation "Rapid hand chain operator"

Variation of the hand chain length (Fig. 2)

- The hand chain can be opened at the connection point and can be lengthened or shortened with connecting links.
- The connecting links should be bent together carefully.
- When changing the chain length, care should be taken that the chain is cross - assembled (Fig. 2).

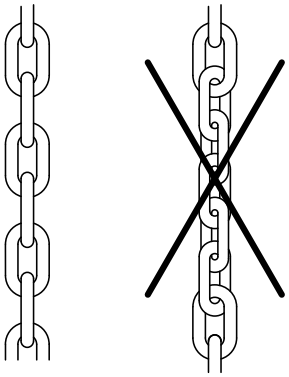


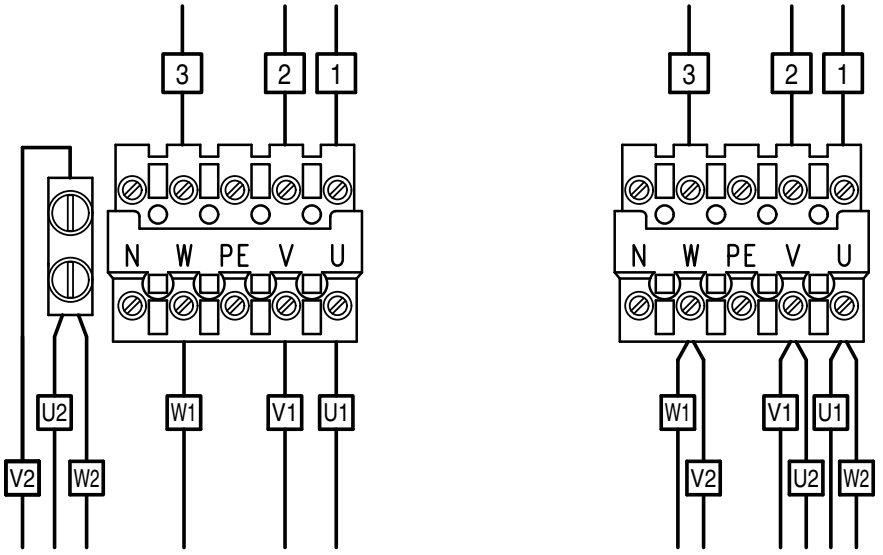
Fig. 2: Variation of the hand chain length

VOLTAGE CHANGEOVER OF MOTORS

52390009

Warning! Danger to life through electric shock
Before starting assembly, disconnect the cables from the electricity supply and check that they are dead.

The motor windings are wired so that it is possible to operate the ELEKTROMATEN® on a 3 X 400 V or 3 X 230 V supply.
Ex factory the motor is wired in star connection for a 3 X 400 V mains. The motor should be in delta connection for a 230 V mains.
In order to change-over the voltage of the motor, the ends of the coils should be re-arranged, as shown in Fig. 1.



Star connection
400 VAC

Delta connection
230 VAC

Fig. 1: Motor terminals plug in connection

When attaching the motor cables, care should be taken that the individual cables are inserted deep enough to ensure secure connection.
This connection can be checked by pulling the cables.

If the motor is changed over for operation in a 3 X 230 V mains, the reversing cont actor board should also be modified.
At Universal - contactor board, fit link G between T1 -T2.
(electrical operating 51171134)

LIMIT SWITCH ADJUSTMENT "The Safedrive compact" 52340003

Adjusting the working limit switches sets the upper and lower stopping positions of the door. In order to make this adjustment, the ELEKTROMA TEN should be connected electrically. The limit switch board (Fig. 2: limit switch board with 7 limit switches) is accessible after unscrewing the limit switch cover. If no external control devices are fitted, the door can be moved in dead man operation using the built-in OPEN, CLOSE and STOP push buttons (S11-13) where a reversing starter has also been supplied.
The door should open when the pushbutton S11 is operated, otherwise the two phases L1 and L2 should be exchanged at the contactor with the current switched off.

Lower stopping position

In order to adjust the limit switch for the lower stopping position of the door, the following steps should be carried out (Fig. 1):

- shut the door
- rotate switching cam (1) of the limit switch "CLOSE" to the middle of the switching cam (2) and tighten the coarse adjustment screw (3) with the hexagonal socket screw key supplied
- open door until the limit switch "CLOSE" switches back again
- close door again
- correct lower stopping position, possibly by turning the fine adjustment screw (4); the fine adjustment screw can be moved from both sides with the hexagonal socket screw key supplied
- the "CLOSED SAFETY" limit is pre-adjusted automatically by the limit switch adjustment "CLOSE"
- the switch point for the safety limit switch must be corrected, possibly using the fine adjustment screw, so that the door still stops safely if the direction of rotation is reversed or the operating limit switch fails.

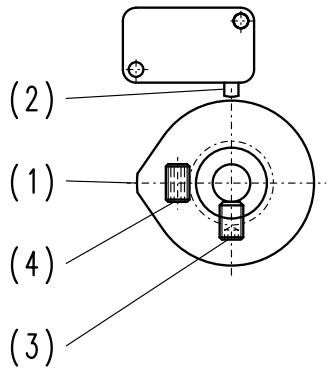


Fig. 1: Limit switch cam

Upper stopping position

After opening the door, the "OPEN" and/or "OPEN SAFETY" limit switch are adjusted similarly to the lower position.

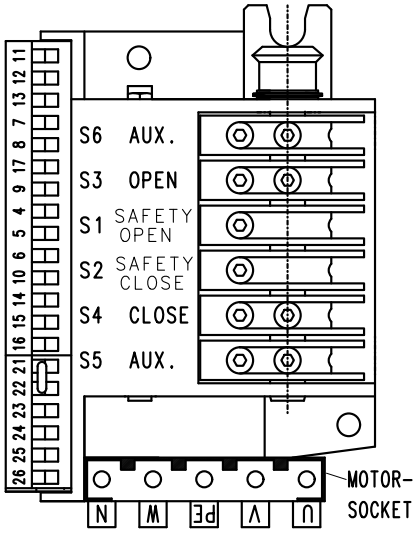


Fig. 2: Limit switch board

SAFETY CIRCUIT

The terminals 21 to 26 on the limit switch board (Fig. 2) are reserved for the safety circuit. An interruption of the safety circuit causes the control current to be interrupted. Electrical operation is then no longer possible.
The terminals 23 to 26 on the limit switch board are connected to the safety switch of the emergency manual operation and/or the thermal protection of the motor.
The terminals 21, 22 on the limit switch board are provided with bridges. Additional safety switches can be attached instead of these bridges.

LIMIT SWITCH ADJUSTMENT "The Safedrive"

Adjusting the working limit switches sets the upper and lower stopping positions of the door. In order to make this adjustment, the ELEKTROMATEN should be connected electrically. The limit switch board (Fig. 2: limit switch board with 7 limit switches) is accessible after unscrewing the limit switch cover. If no external control devices are fitted, the door can be moved in dead man operation using the built-in OPEN, CLOSE and STOP push buttons (S11-13) where a reversing starter has also been supplied.
The door should open when the pushbutton S11 is operated, otherwise the two phases L1 and L2 should be exchanged at the contactor with the current switched off.

Lower stopping position

In order to adjust the limit switch for the lower stopping position of the door, the following steps should be carried out (Fig. 1):

- shut the door
- rotate switching cam (1) of the limit switch "CLOSE" to the middle of the switching cam (2) and tighten the coarse adjustment screw (3) with the hexagonal socket screw key supplied
- open door until the limit switch "CLOSE" switches back again
- close door again
- correct lower stopping position, possibly by turning the fine adjustment screw (4); the fine adjustment screw can be moved from both sides with the hexagonal socket screw key supplied
- the "CLOSED SAFETY" limit is pre-adjusted automatically by the limit switch adjustment "CLOSE"
- the switch point for the safety limit switch must be corrected, possibly using the fine adjustment screw, so that the door still stops safely if the direction of rotation is reversed or the operating limit switch fails.

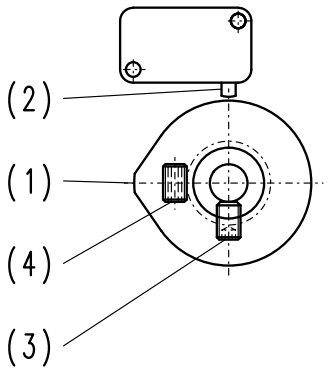


Fig. 1: Limit switch cam

Upper stopping position

After opening the door, the "OPEN" and/or "OPEN SAFETY" limit switch are adjusted similarly to the lower position.

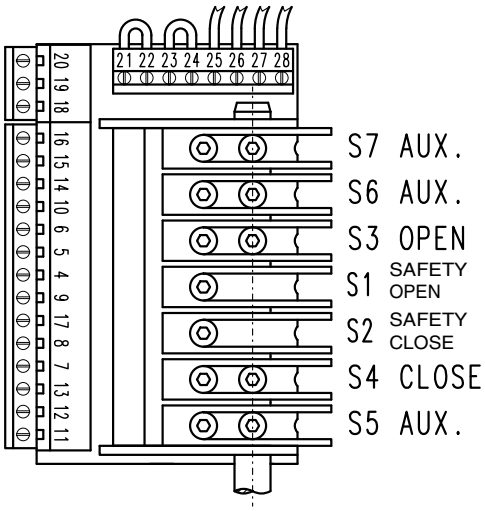


Fig. 2: Limit switch board

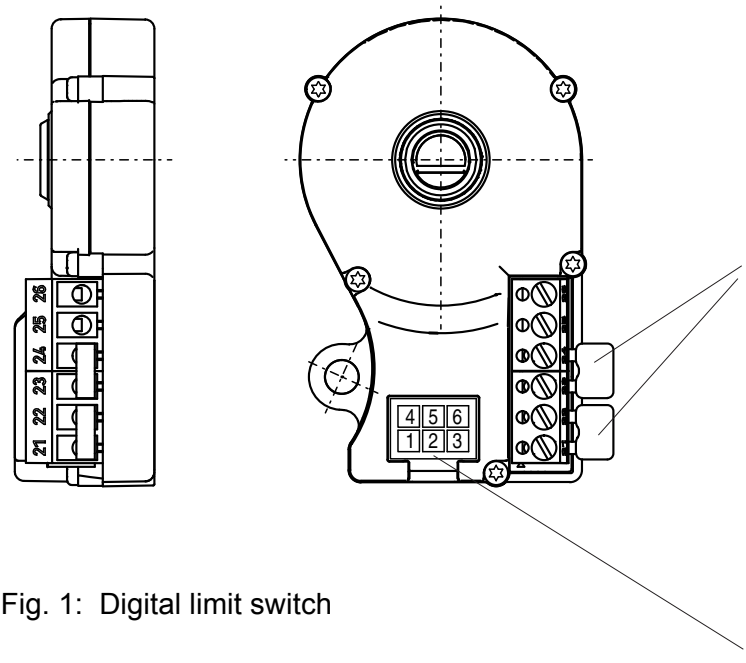
SAFETY CIRCUIT

The terminals 21 to 28 on the limit switch board (Fig. 2) are reserved for the safety circuit. An interruption of the safety circuit causes the control current to be interrupted. Electrical operation is then no longer possible.
The terminals 25 to 28 on the limit switch board are connected to the safety switch of the emergency manual operation and/or the thermal protection of the motor.
The terminals 21 to 24 on the limit switch board are provided with bridges. Additional safety switches can be attached instead of these bridges.

DIGITAL LIMIT SWITCH (type DES)

52340012

The digital limit (type DES) is an absolute position encoder for doors.
Evaluation and installation of the limit positions is done through the control panel, which corresponds to the electronic limit.
For installation only a 6 pole plug has to be connected. Adjustment of mechanical parts is not required.
The connections for the safety circuit (e.g. safety limits) are on the side of the DES.



Safety circuit connections
Connections for safety switches e.g. motor thermal switch, manual override interlock switch etc.

6-pole plug

Fig. 1: Digital limit switch

ANNUAL INSPECTION

The maintenance of power-assisted windows, doors and gates should only be carried out by persons authorised by the employer and who are familiar with the respective maintenance work.

Directions for the inspector

Gearbox:
The gear construction is maintenance-free and has lifetime lubrication. The output shaft should be kept rust-free.

Attachments:
All attachment screws should be inspected to make sure they are fitted securely and are in perfect condition.

Brake (if fitted)
The correct function of the brake should be checked during the annual inspection.
Where there is increased wear, the brake lining or - once the rectifier has been disconnected - the entire brake can be exchanged.

Safety brake (if fitted):
In a properly functioning drive, the safety brake is in order and does not need to be inspected. Constructional measures ensure that the safety brake revolves without any load. If the worm gear fails, the safety brake holds the door without jerk in every position. Even if the safety brake fails, the gear construction locks and the leaf is held.

TRANSPORT / STORAGE / DISPOSAL

The ELEKTROMATEN® is assembled completely and is wired ready for connection.
Transport and any storage must be carried out in the provided (or equivalent) p ackaging to avoid damage.
On disposal the ELEKTROMATEN®,

- metals
- plastic parts
- electric parts
- lubricants

must be separated.

SERVICE / REPLACEMENT PARTS / ACCESSORIES

Please note that replacement p arts and accessories which have not been supplied by us have also not been tested and released by us.
Fitting and / or using such product s can therefore negatively affect the above properties of the ELEKTROMATEN® and thus reduce its safety.

GfA accepts no liability for nor provides any guarantee against damage caused by using non-original replacement parts and accessories.

Faults which the users cannot rectify themselves must only be corrected by the manufacturer of the door equipment or another specialist firm. Replacement p arts can also be requested from such firms.

DECLARATION OF INCORPORATION

Machinery Directive 2006/42/EG, Appendix II Part 1 B

EMV-Directive 2004/108/EG

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We, the

GfA - Gesellschaft für Antriebstechnik

here by declare that the following product are conform with the above EC guidelines and are only intended for installation in door equipment.

ELEKTROMATEN®
"SAFEDRIVE®"
"SAFEDRIVE® - COMPACT"

Harmonised norms applied

EN 12453	Safety in use of power operated doors - Requirements
EN 12604	Industrial, commercial and garage doors and gates - Mechanical aspects- Requirements
EN 60335-1	Household and similar electrical appliances - Safety - Part 1: General requirements
IEC 61000-6-2	Electromagnetic compatibility (EMC) – Part 6-2 Immunity for industrial environments
IEC 61000-6-3	Electromagnetic compatibility (EMC) – Part 6-3 Emission standard for residential, commercial and light-industrial e nvironments

We are committed to submit the special documents with regard to the complete machine via our documentation department to the market surveillance authorities on a reasoned request.
Authorised representative for the compilation of the relevant technical documents

(internal EU address)
Dipl. Ing. Bernd Joachim Synowsky
Documentation representative

Incomplete machines within the meaning of the EC Directive 2006/42/EC shall only be intended to be integrated into other machines or into other incomplete machines or systems or to be assembled together with such in order to form a machine within the sense of the Directive indicated above. Therefore, this product cannot be commissioned before it is determined that the entire machine/ system to which it was integrated shall comply with the provisions of the Machinery Directive indicated above.

Düsseldorf, 01.01.2010

Stephan Kleine
CEO

Signature

Erstelldatum: **01.01.2010** Zeichnungs-Nr.: **52397050** Revisionsstand: **b**