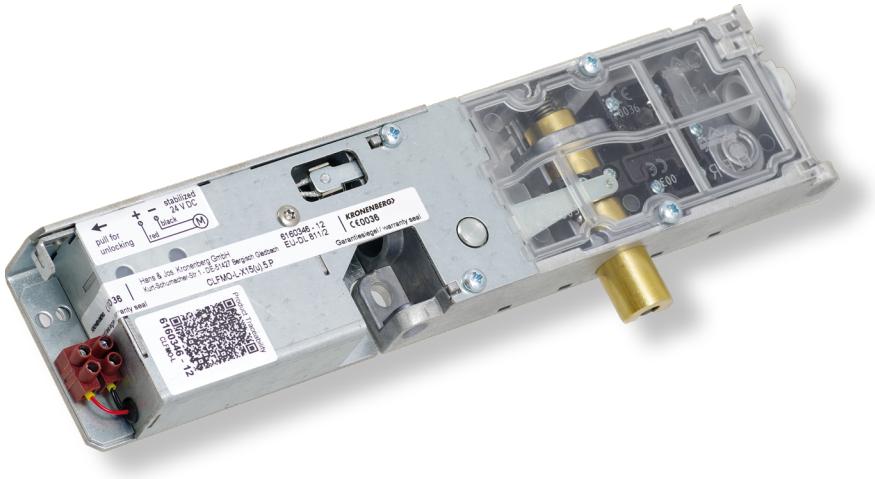
KRONENBERG

Door Interlocks CLFMO*

Operating Instructions



*CLMO, CLMO-UL, CLFMO, CLFMO-UL

kronenberg-gmbh.de

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1 General information

In these operating instructions you will find:

- information on function, installation, adjustment, maintenance and disposal of the door interlocks CLMO, CLMO-UL, CLFMO, CLFMO-UL and its components
- safety information
- assistance in case of malfunctions

Read these operating instructions carefully before you start using the door interlock CLMO, CLMO-UL, CLFMO, CLFMO-UL and its components. Pay special attention to the safety instructions, as the failure to comply with them might result in severest injuries, environmental damage or damage to the assembly and to machines.

1.1 Key words and warning symbols used



Danger

Indicates an imminent danger for life and health of persons.



Warning

Indicates a possibly dangerous situation. Disregarding the warning may result in death or serious injury. This advice additionally warns of risks for machine, material or environment.



Attention

Indicates possible minor personal injury due to neglect.



Caution

Indicates possible material damage when disregarding these instructions or gives an important advice for the function.



Note

Identifies general information on the handling or the product.

2 Brief description

2.1 Normative reference and general features

Overview:

Normative reference	• The door interlocks comply: – in design and function the requirements of the current Lift Directive – the safety regulations for the construction and installation of passenger, goods and small goods lifts – EU type-examination certificate in accordance with the Annex to the current Lift Directive
General features	• 4 variants to choose from: – bolt position* left / right * based on cover-side view – without faulty closure device: CLMO, CLMO-UL – with faulty closure device: CLFMO, CLFMO-UL • extensive range of accessories • robust metal housing • transparent cover for function control • buffers for silent actuation • use of high-quality permanent lubricants for almost maintenance-free operation • electrical contacts with fine silver plating for a reliable function even at low voltages / currents • integrated actuation by maintenance-free, low-noise three-phase motor and decelerated dropping of the latch bolt • low pull-in current (< 1 A at 24 V) • energy saving due to automatic switching over to reduced holding current (0.2 A) • status display by coloured LEDs • low construction height • reduced bolt stroke • integrated auxiliary switch (built-in) • same position of the emergency release triangle, even at versions with indirect monitoring • lever for self-liberation from the pit (manual operation) and preparation for external cable pull always existing

2.2 Versions for standard applications

Overview of the features:

CLMO	• **universal** device for single-leaf doors • **without** faulty closure device • different operating positions permitted
CLFMO	• **universal** device for single-leaf doors • **with** faulty closure device • different operating positions permitted

2.3 Versions with UL-approval

Overview of the features:

CLMO-UL	• **universal** device for single-leaf doors • **without** faulty closure device • European- and UL-approval for North America • chromed latch bolt • different operating positions permitted
CLFMO-UL	• **universal** device for single-leaf doors • **with** faulty closure device • European- and UL-approval for North America • chromed latch bolt • different operating positions permitted

3 Intended use

The door interlocks CLMO / CLMO-UL are only considered to be used as intended:

- as a part of an interlocking device with sliding bolt (without faulty closure device) and motorized actuation of landing doors
- in the function as part of a locking device for landing doors, if a separate EU type examination in accordance with Directive 2014/33/EU is available for this use and for any additional parts involved in locking the landing door and monitoring it
- in compliance with the conditions set out in the annex to the EU type-examination certificate
- in compliance with the permissible operating positions
- in compliance with the permissible protection class and version
- when installing the CLMO-UL door interlock exclusively in lifts for private residences (homelifts)

The door interlocks CLFMO / CLFMO-UL are only considered to be used as intended:

- in the interlocking device with sliding bolt, faulty closure device and motorized operation for immediate locking of single-leaf swing landing doors
- in the interlocking device with sliding bolt and faulty closure device for immediate locking of double-leaf swing landing doors when each door leaf is immediately locked with a CLFMO / CLFMO-UL door interlock
- in the function as part of an interlocking device in which additional components are involved in locking the landing door and monitoring it, and a separate EU type-examination in accordance with Directive 2014/33/EU is available for these additional parts and this use
- in compliance with the conditions set out in the annex to the EU type-examination certificate
- in compliance with the permissible operating positions
- in compliance with the permissible protection class and version
- when installing the CLMO-UL door interlock exclusively in lifts for private residences (homelifts)

Any other use is considered **improper** and may result in personal injury, environmental damage and/or property damage. In particular, the following are not permitted:

- repair, conversion or modification of the assembly groups CLMO, CLMO-UL, CLFMO, CLFMO-UL
- the use in environments for which the assembly group is not approved, e. g. Ex-protection areas

Hans & Jos. Kronenberg GmbH do not assume any liability for damages caused by:

- improper or incorrect use
- use of non-approved spare parts or accessories
- non-observance of these operating instructions

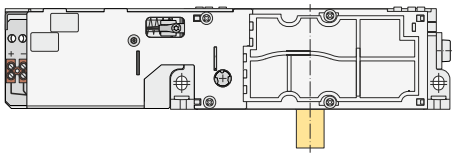
4 Versions and type codes

4.1 Version

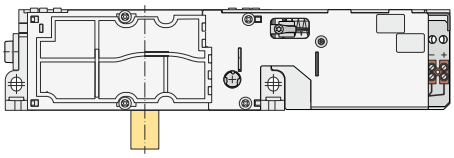
Overview:

CLMO, CLFMO,
CLMO-UL, CLFMO-UL

- left version
  (drive left-hand)



- right version
  (drive right-hand)



4.2 Type code

The type code is made up of 6 individual items. It clearly identifies the door interlock and corresponds to the order specification for the assembly:

I – II – III IV . V . VI

Example: **CLFMO - L - X25 (u) . 5 . P**

	Description	Explanations	Example see above
I	basic device	„CLMO, CLFMO, CLMO-UL, CLFMO-UL“	CLFMO
II	version	motor drive „left / right“	left
III	latch bolt length	„X-dimension“	25 mm
IV	latch bolt version	„bevel: below, above …“	below
V	emergency release	„base side, monitored internally, external, ...“	base side*
VI	monitoring end position	„sensor for monitoring of the end position“	built-in

* in addition to the base side emergency release (triangular), each door interlock also has a release lever and a connection for a pull rope

Note

The type code for the CLMO-UL and CLFMO-UL door interlocks corresponds to the above nomenclature, supplemented by the specifications from the UL-approval.

Supplementary and further detailed product information can be found:

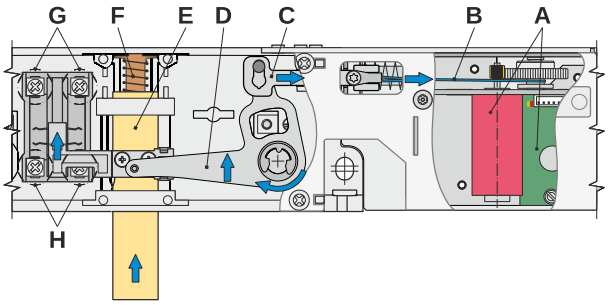
- in the associated type-examination certificates
- in our catalogues „door interlocks“ and „accessories“ or at kronenberg-gmbh.de

5 Functional description

5.1 Basic mode of operation of the door interlock

Basic operation of the door interlocks CLMO, CLFMO, CLMO-UL, CLFMO-UL:

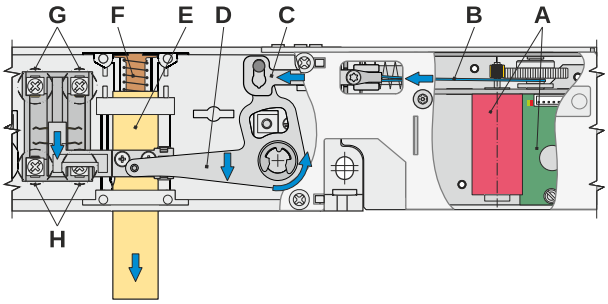
Power supply switches on



Switching on the power supply starts the drive motor (A) of a cable winch. The movement of the cable pull (B) transfers the pull rod (C) to the bolt lever (D). The bolt lever moves the latch bolt (E) upwards. As a result:

- the latch bolt (E) is raised to its upper end position
- the return spring (F) is preloaded
- the switch for locking mechanism (H) is positively opened
- the auxiliary switch (G) is closed (in upper end position)
- the blocking of the swing landing door is cancelled

Power supply switches off



The loss of power supply switches off the drive motor (A), allowing the preloaed return spring (F) to move the latch bolt (E) downwards. The bolt lever (D) transfers the downward movement of the latch bolt to the pull rod (C). The pull rod unwinds the cable pull (B) from the cable winch. The drive motor (A) acts as motor brake during this movement and dampens the lowering of the latch bolt (E). As a result:

- the latch bolt (E) is lowerd to its lower end position
- the return spring (F) is released
- the auxiliary switch (G) is opened
- the switch for locking mechanism (H) is closed
- the swing landing door is locked

Function of the faulty closure device

Note
Only the CLFMO and CLFMO-UL door interlocks are equipped with a faulty closure device! The function of the faulty closure device is described in chapter 5.2.

5.2 Basic mode of operation of the faulty closure device

Basic operation of the door interlocks CLFMO, CLFMO-UL:

General information

Note
Only the door interlocks CLFMO and CLFMO-UL are equipped with a faulty closure device!

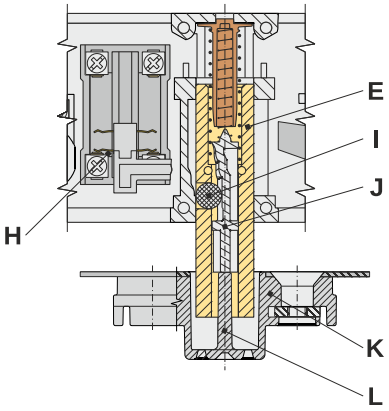
The faulty closure device becomes effective if the latch bolt is lowered during a fault condition without the swing landing door being closed.
The faulty closure device stops the downward movement of the latch bolt and thus prevents the closing of the switch for locking mechanism when the door is open.

Status faulty closure device:

„not effective“, the swing landing door was locked successfully

Operating status:

- swing landing door closed
- locking successful



Procedure description:

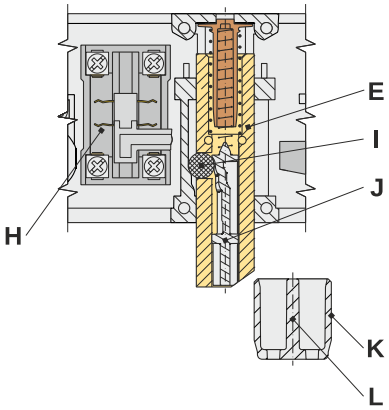
- The swing landing door is closed.
- The latch bolt (E) lowers into the latch plate (K) of the swing landing door.
- The failed-close pin (L) in the latch plate (K) holds the stop valve (J) in its release position and ensures that the locking ball (I) can engage in the latch bolt (E).
- The immersed locking ball (I) allows the latch bolt (E) to lower to its lower end position.
- The latch bolt (E) locks the swing landing door.
- The switch for locking mechanism (H) is closed.

Status faulty closure device:

„effective“,
the swing landing door was NOT locked successfully

Operating status:

- swing landing door open
- locking **faulty**
- latch bolt **in faulty closure position**



Procedure description:

- The swing landing door is open.
- The latch bolt (E) does not lower into the latch plate (K) of the swing landing door.
- The failed-close pin (L) in the latch plate (K) cannot move the stop valve (J) into its release position, so that the locking ball (I) cannot engage in the latch bolt (E).
- The locking ball (I) prevents the latch bolt (E) from lowering further.
- The latch bolt (E) is blocked.
- The switch for locking mechanism (H) remains open.
- The swing landing door is not locked.

6 Mounting

Danger

Observe the safety rules for working on a lift installation.

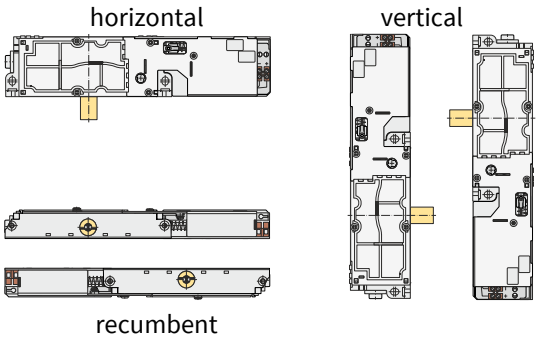
6.1 Door interlock

Installation information for the door interlock:

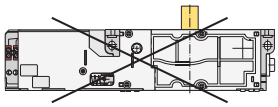
Operating positions

Caution

Please note that only the following operating positions (installation positions) are permitted for installing the door interlock:



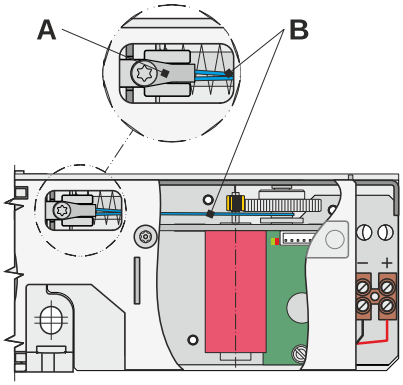
The following operating position is <u>not permitted</u>:



Cable pull attachment to the drive unit

Caution

The length of the cable pull (B) is factory-set. The cable pull fastening (A) must **<u>NOT</u> be openend** and the cable pull length must **<u>NOT</u> be changed**. A **manipulation** of the factory settings will cause a **malfunction of the door interlock!**



A: cable pull fastening, B: cable pull
(Illustration: CLMO / CLFMO „right“ version)

Preparatory work	Check the following points before starting the installation. Door interlock: • Do the drill holes provided on site for fixation and for the latch bolt passage match? • Do the diameters of the latch bolt guide and the latch bolt match? Door interlock – door leaf: • Do the position of the latch bolt and latch plate in the door leaf match (chapter 6.3)? Emergency release: • Do the holes / provisions fit the system of the emergency release?
Procedure	For installation, use the predetermined fixing holes. There are 2 slotted holes (7x9) on the bottom and two threaded holes (M6) on the front of the door interlock for installation. After completing the installation, secure the screw connections with a suitable securing material.
Final check	After completing the installation, check: • the screw connection of the door interlock for tightness • the transparent cover (cover of the door interlock) must not be damaged and must be firmly screwed • the latch bolt and emergency release must operate smoothly (chapter 6.4)

6.2 Latch bolt

6.2.1 Immersion depth of the latch bolt

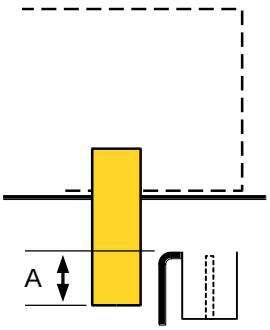
Description of the immersion depth of the latch bolt:

Immersion depth of the latch bolt

Caution

Please note that a minimum immersion depth is specified for the latch bolt.
The minimum immersion depth ensures:

- a correct mechanical locking
- a correct switching of the electrical safety device
- a correct testing of the position of the locking mechanism at a faulty closure device



Immersion depth (A):

- CLFMO, CLFMO-UL: **min. 12 mm**
- CLMO, CLMO-UL: **min. 8.5 mm**

6.2.2 Closing capability of the swing landing door

In the event of a faulty release of the latch bolt, the closing capability of the swing landing door ensures that a closing swing landing door automatically lifts and locks the latch bolt.

Warning

It may be necessary to position the car between two levels for testing and error correction.

Observe all safety measures, including protection against falling, entering the car and operating the lift system incorrectly.

Attention

Be aware of a possible crushing hazard when closing and opening the swing landing door.

Information on testing and error correction:

Closing capability of the door interlocks CLFMO and CLFMO-UL

Procedure:

1. Hold the swing landing door open.
2. Extend the latch bolt in the faulty closure position.
3. Close the swing landing door.
4. Check that the latch bolt lifts automatically and engages in the latch plate of the closed swing landing door.

If the latch bolt does not lift automatically, check:

- the value of the X-dimension (chapter 12.1)
- the installation position of the door interlock

You can adjust the installation position of the door interlock by:

- use of the slotted holes in the fastening (if used)
- an additional shimming of the door interlock

If the value of the X-dimension and the position of the door interlock are correct, you can bevel the landing swing door in the area of the latch bolt as a further measure.



Caution
If you raise the position of a door interlock type CLFMO or CLFMO-UL by shimming, please note that the immersion depth of the latch bolt into the latch plate **must be min. 12 mm!**

Closing capability of the door interlock CLMO and CLMO-UL with bevelled latch bolt

Procedure:

1. Hold the swing landing door open.
2. Extend the latch bolt in the final position.
3. Close the swing landing door.
4. Check that the latch bolt lifts automatically and engages in the closed swing landing door.

If the latch bolt does not lift automatically, check:

- the value of the X-dimension (chapter 12.1)
- the installation position of the door interlock

You can adjust the installation position of the door interlock by:

- use of the slotted holes in the fastening (if used)
- an additional shimming of the door interlock

… continued on next page

Closing capability of the door interlocks CLMO and CLMO-UL with bevelled latch bolt

(continued)

If the value of the X-dimension and the position of the door interlock are correct, you can bevel the swing landing door in the area of the latch bolt as a further measure.



Caution
If you raise the position of a door interlock type CLMO or CLMO-UL by shimming – please note that the immersion depth of the latch bolt in the door leaf **must be min. 8.5 mm!**

Closing capability of the door interlock CLMO and CLMO-UL without bevelled latch bolt

Check that the swing landing door is bevelled in the area of the latch bolt – if there is no bevel, bevel the swing landing door in the area of the latch bolt as a first measure.

Procedure:

1. Hold the swing landing door open.
2. Extend the latch bolt in the end position.
3. Close the swing landing door.
4. Check that the latch bolt lifts automatically and engages in the closed swing landing door.

If the latch bolt does not lift automatically, check:

- the value of the X-dimension (chapter 12.1)
- the installation position of the door interlock

You can adjust the installation position of the door interlock by:

- use of the slotted holes in the fastening (if used)
- an additional shimming of the door interlock



Caution
If you raise the position of the door interlock type CLMO or CLMO-UL by shimming – please note that the immersion depth of the latch bolt in the door leaf **must be min. 8.5 mm be!**

6.3 Latch plates

6.3.1 Latch plate BE / BE7

Information on the latch plates with accessories and on installation/setting:

Latch plate BE
(up to 1.5 mm sheet thickness)



type BE



type BE-J

Latch plate BE7
(up to 7 mm sheet thickness)

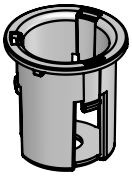


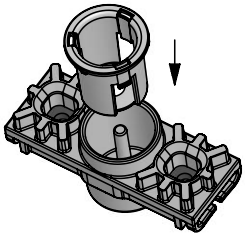
type BE7



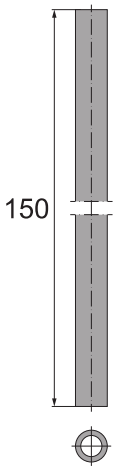
type BE7-J

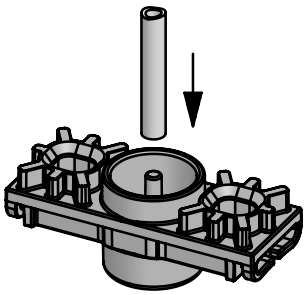
Mounting accessories
(optional)





BE-adjustment ring
(for the position of the latch bolt)

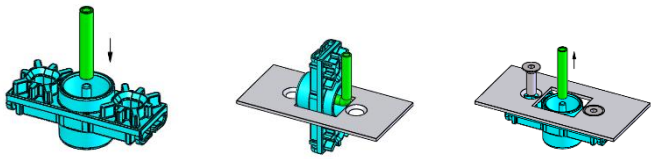




BE-MONTAGEHILFE (for installation)

Installation of the latch plate

Installation of the latch plate through the cut-out in the door leaf:

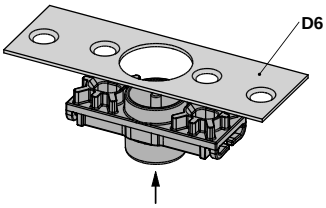


step 1 step 2 step 3

Note
We recommend using the "BE-MONTAGEHILFE" tool from our range of accessories for assembly.

1. Place the mounting tool on the pin of the latch plate and check the mounting tool for tight fit.
2 Hold the latch plate on the mounting tool and guide the latch plate through the cut-out in the door leaf.
3. Pull the latch plate on the mounting tool up to the door leaf. Secure the latch plate with M6x20 countersunk screws.
   Ensure that the latch plate can still be moved for subsequent (fine) adjustment.

Installation of the latch plate via separate mounting plate:



Note: The mounting plate (D6) is available on site or is manufactured to order.

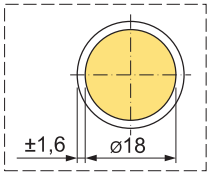
1. Fix the latch plate to the mounting plate using M6x20 countersunk screws.
   Ensure that the latch plate can still be moved for later (fine) adjustment.
2. Screw the mounting plate to the door leaf.

Setting the latch plate

Note
Adjustment range of the latch plate via the sliding nut in the mounting bracket:



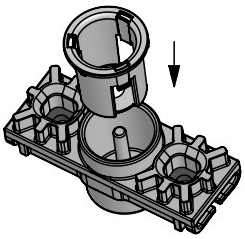
Sliding range of the latch bolt in the latch plate:



Preparatory work:

- Take the lift system out of operation and secure the system against being switched on again.
- Check that the screw connection of the latch plate is loose and that the latch plate can be adjusted with the sliding nut.

Setting using the adjustment ring (accessory):



1. Insert the adjustment ring into the latch plate up to the base.
2. Close the swing landing door.
3. Lower the latch bolt of the door interlock into the latch plate. By the adjusting ring the latch plate moves into the correct position.
4. Lift the latch bolt of the door interlock out of the latch plate and ensure that the position of the latch plate no longer changes.
5. Tighten the latch plate.
6. **Remove the adjustment ring from the latch plate!**

… continued on next page

Setting the latch plate
(continued)

7. Finally check that:
    - the position of the latch plate matches the position of the latch bolt of the door interlock
    - the locking process runs smoothly
8. We recommend storing the adjustment ring on the lift installation so that you can use this aid again for subsequent adjustment work.

<u>Setting without using the adjustment ring (accessory):</u>

1. Close the swing landing door.
2. Lower the latch bolt of the door interlock into the latch plate. The correct position is reached when the latch bolt is centred in the latch plate.
3. Lift the latch bolt of the door interlock out of the latch plate and make sure that the position of the latch plate does not change.
4. Tighten the latch plate.
5. Finally check that:
    - the position of the latch plate matches the position of the latch bolt of the door interlock
    - the locking process runs smoothly

6.3.2 Latch plate BL-V

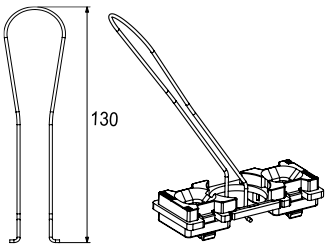
Information on the latch plate with accessories and on installation / setting:

Latch plate BL-V

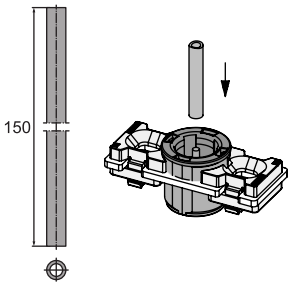


type BL-V (including adjustment ring)

Mounting accessories
(optional)



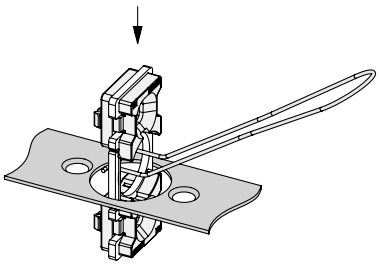
BS-V-KLAMMER
(use at a circular cut-out in the door leaf)



BL-V-MONTAGEHILFE
(use at a square cut-out in the door leaf)

Installation of the latch plate

Installation of the latch plate at a **circular** cut-out in the door leaf:



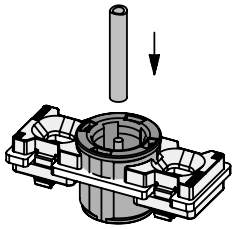
Note
We recommend using the "BS-V-KLAMMER" tool from our range of accessories for assembly.

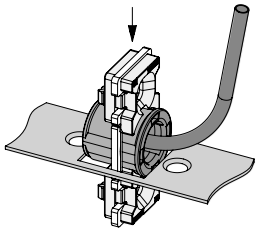
1. Unscrew the height-adjustable centre section of the latch plate.
2. Insert the mounting tool through the opening in the centre section of the latch plate.
3. Hold the latch plate by the mounting tool and guide the latch plate through the cut-out in the door leaf.
4. Pull the latch plate up to the door leaf by using the mounting tool.
   Secure the latch plate with M6x20 countersunk screws.
   Make sure that the latch plate can still be moved for later (fine) adjustment.

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Installation of the latch plate
(continued)

Installation of the latch plate at a **square** cut-out in the door leaf:

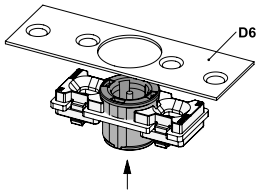




Note
We recommend using the BL-V-MONTAGEHILFE“ tool from our range of accessories for assembly.

1. Place the mounting tool on the pin of the latch plate and check the mounting tool for tight fit.
2. Hold the latch plate on the mounting tool and guide the latch plate through the cut-out in the door leaf.
3. Then pull the latch plate up to the door leaf using the mounting tool.
   Screw the latch plate tight with M6x20 countersunk screws.
   Make sure that the latch plate can still be moved for later (fine) adjustment.

Installation of the latch plate via **separate mounting plate**:



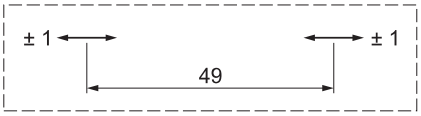
Note: The mounting plate (D6) is available on site or is manufactured to order.

1. Fix the latch plate to the mounting plate using countersunk screws size M6x20. Make sure that the latch plate can still be moved for later adjustment.
2. Screw the mounting plate to the door leaf.

Setting the latch plate

Note

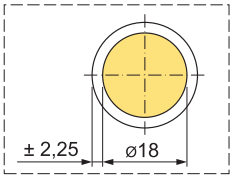
Adjustment range of the sliding nut mounting bracket:



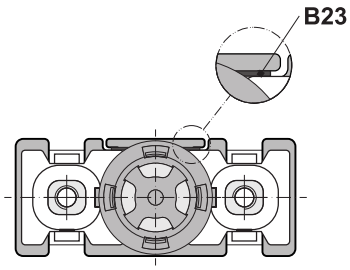
Adjustment range of the sliding nut within the mounting bracket:



Sliding range of the latch bolt in the latch plate:



The latch plate is equipped with a spring wire (B23) as anti-rotation protection for the height-adjustable centre section. This means that the use of an additional screw securing material is not necessary.



Preparatory work:

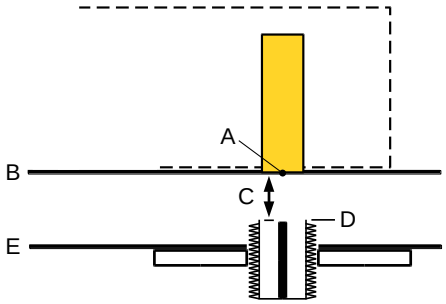
- Take the lift system out of operation and secure the system against being switched on again.
- Check that the screw connection of the latch plate is loose and that the latch plate can be ajdusted with the sliding nut.

… continued on next page

Setting the latch plate
(continued)

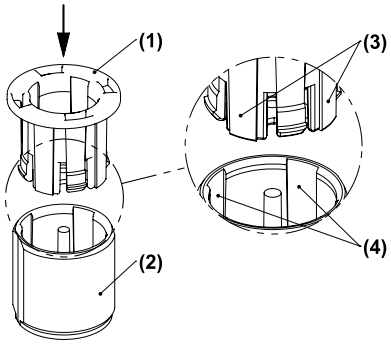
Setting using the adjustment ring:

1. Adjust the height of the centre section (D) by turning it until there is a clearance of **3.5** mm between the top edge of the centre section (D) and the bottom edge of the fully retracted latch bolt (A).



door frame (B), door leaf (E)

2. Insert the adjustment ring into the latch plate up to the base. Ensure that the ridges (3) of the adjustment ring (1) engage in the grooves (4) of the centre section (2).

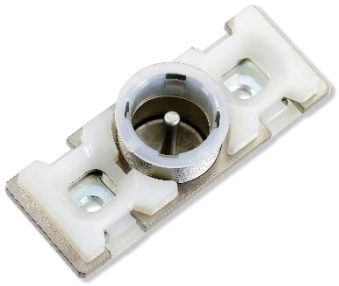


3. Close the swing landing door.
4. Lower the latch bolt of the door interlock into the latch plate. By the adjusting ring the latch plate moves into the correct position.
5. Lift the latch bolt of the door interlock out of the latch plate and ensure that the position of the latch plate no longer changes.
6. Tighten the latch plate.
7. **Remove the adjustment ring from the latch plate!**
8. Finally check that:
   - there is a clearance of 3.5 mm between the top edge of the centre section and the bottom edge of the fully retracted latch bolt
   - the position of the latch plate matches the position of the latch bolt of the door interlock
   - the locking process runs smoothly
9. We recommend storing the adjustment ring on the lift installation so that you can use this aid again for subsequent adjustment work.

6.3.3 Latch plate BS-V

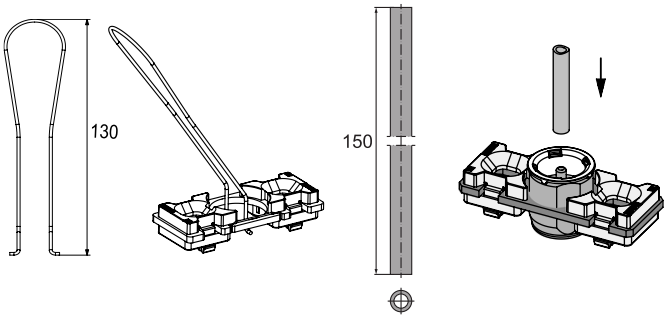
Information on the latch plate with accessories and on installation / setting:

Latch plate BS-V



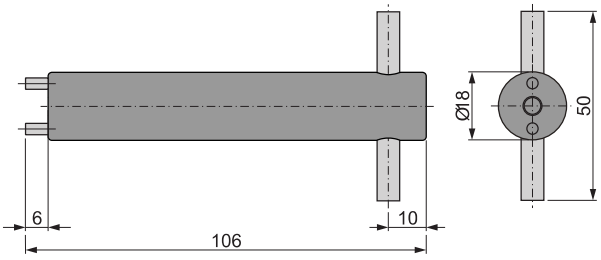
type BS-V (including adjustment ring)

Mounting accessories
(optional)



BS-V-KLAMMER
(use at circular cut-out in the door leaf)

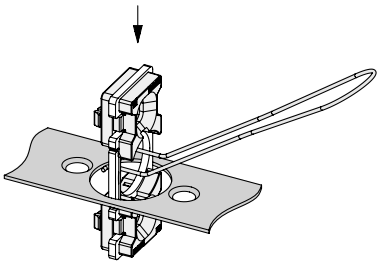
BE-MONTAGEHILFE
(use at a square cut-out in the door leaf)



BS-DREH
(tool for height adjustment of latch plate BS-...)

Installation of the latch plate

Installation of the latch plate at a circular cut-out in the door leaf:



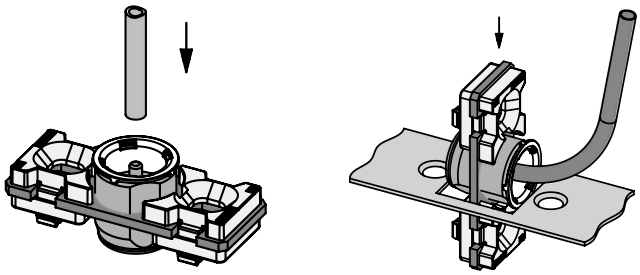
Note
We recommend using the "BS-V-KLAMMER" tool from our range of accessories for assembly.

… continued on next page

Installation of the latch plate
(continued)

1. Unscrew the height-adjustable centre section of the latch plate.
2. Insert the mounting tool through the opening in the centre section of the latch plate.
3. Hold the latch plate mounting tool and guide the latch plate through the hole in the door leaf.
4. Pull the latch plate up to the door leaf using the mounting tool.
   Secure the latch plate with M6x20 countersunk screws.
   Make sure that the latch plate can still be moved for later (fine) adjustment.

Installation of the latch plate at a square cut-out in the door leaf:



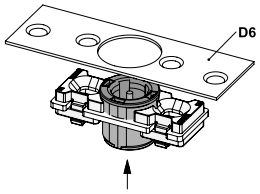
Note
We recommend using the "BE-MONTAGEHILFE" tool from our range of accessories for assembly.

1. Place the mounting tool on the pin of the latch plate and check the mounting tool for tight fit.
2. Hold the latch plate on the mounting tool and guide the latch plate through the cut-out in the door leaf.
3. Then pull the latch plate on the mounting tool up to the door leaf.
   Screw the latch plate tight with M6x20 countersunk screws.
   Make sure that the latch plate can still be moved for later fine adjustment.

… continued on next page

Installation of the latch plate
(continued)

Installation of the latch plate via separate mounting plate:



Note: The mounting plate (D6) is available on site or is manufactured to order.

1. Fix the latch plate to the mounting plate using countersunk screws size M6x20. Make sure that the latch plate can still be moved for later fine adjustment.
2. Screw the mounting plate to the door leaf.

Setting the latch plate

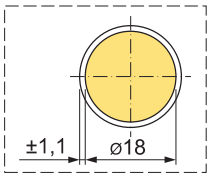
Note
Adjustment range of the sliding nut mounting bracket:



Adjustment range of the sliding nut within the mounting bracket:



Sliding range of the latch bolt in the latch plate:



The latch plate does **not** have a mechanical anti-rotation mechanism for the height-adjustable centre section. Secure the centre section by applying a threadlocker.

Preparatory work:

- Take the lift system out of operation and secure the system against being switched on again.
- Check that the screw connection of the latch plate is loose and that the latch plate can be ajdusted with the sliding nut.

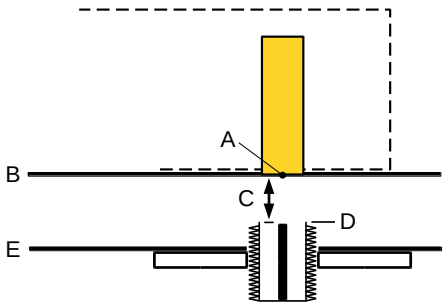
… continued on next page

Setting the latch plate
(continued)

Setting using the adjustment ring:

Note
We recommend using the "BS-DREH" tool from our range of accessories to adjust the height of the centre section.

1. Adjust the height of the centre section (D) by turning it so that there is a clearance (C) of **3.5 mm** between the top edge of the centre section (D) and the bottom edge (A) of the fully retracted latch bolt. We recommend using our BS-DREH tool to adjust the height of the centre section.



door frame (B), door leaf (E)

2. Insert the adjument ring into the latch plate.
3. Close the swing landing door.
4. Lower the latch bolt of the door interlock into the latch plate. By the adjusting ring the latch plate moves into the correct position.
5. Lift the latch bolt of the door interlock out of the latch plate and ensure that the position of the latch plate no longer changes.
6. Tighten the latch plate.
7. **Remove the adjustment ring from the latch plate.**
8. Finally check that:
   - there is a clearance of 3.5 mm between the top edge of the centre section and the bottom edge of the fully retracted latch bolt
   - the position of the latch plate matches the position of the latch bolt of the door interlock
   - the locking process runs smoothly
9. Use a suitable threadlocker to secure the anti-rotation mechanism on the height-adjustable centre section.
10. We recommend storing the adjustment ring on the lift installation so that you can use this mounting tool again for subsequent adjustment work.

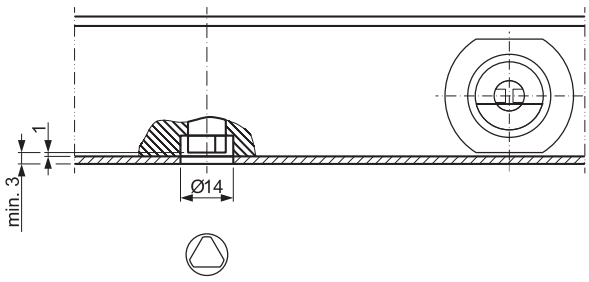
6.4 Emergency release

Caution

The triangle key for emergency release must be recessed at least 3 mm from the front edge of the door transom plate. This requirement in accordance with the applicable standard must be taken into account when installing the door interlock.

If the thickness of the door transom plate is less than 2 mm, the required minimum clearance of 3 mm from the transom plate can be ensured, for example, by using a spacer!

Example of the minimum distance of a triangle (emergency release) to the door transom:



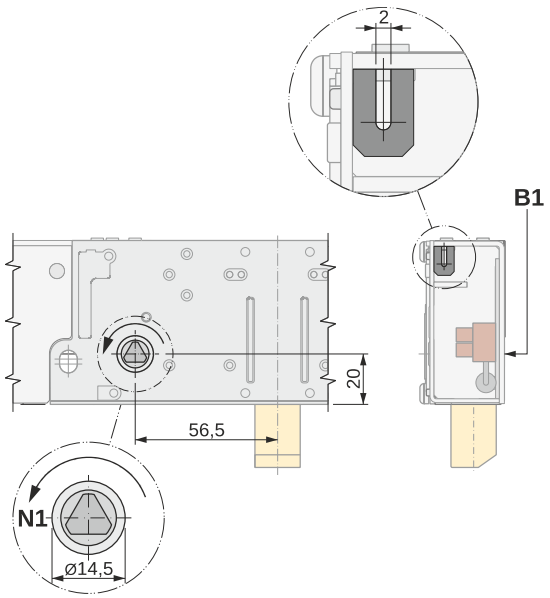
Note

In addition to the internal emergency release, an external emergency release can also be fitted. Information on our external emergency release solutions can be found at kronenberg-gmbh.de.

Information on emergency release:

Emergency release at the bolt lever axle

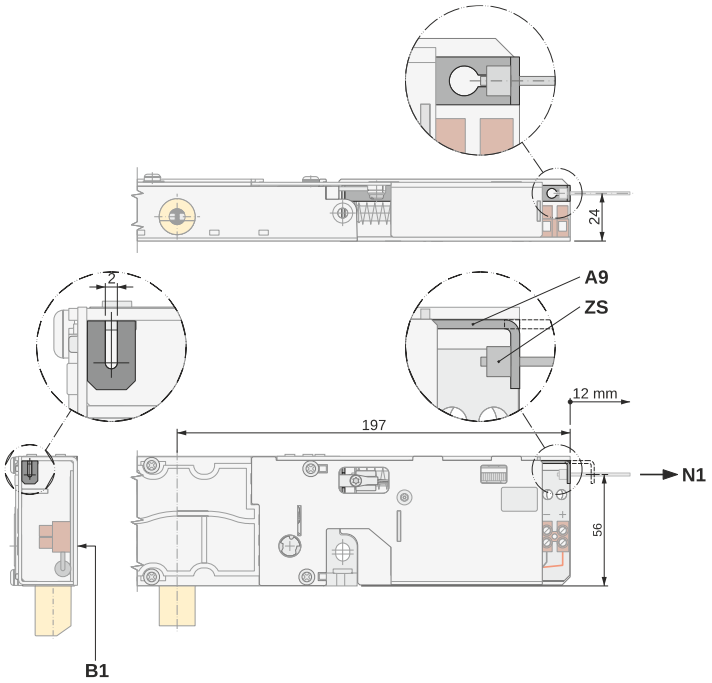
- base side
  (always existing)



N1 unlocking direction **B1** base side

Emergency release via release lever

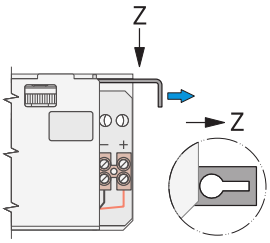
- manual operation
- connection for pull rope



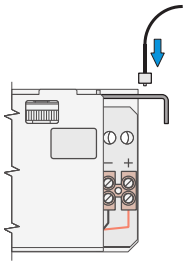
A9	release lever	**B1**	base side
ZS	pull rope	**N1**	unlocking direction

Procedure for „connecting the pull rope“:

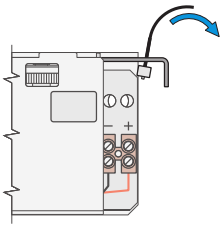
1. Pull the release lever out of the door interlock housing until the mounting hole for the pull rope becomes visible.



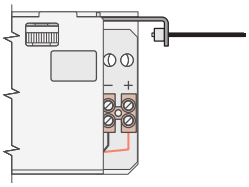
2. Insert the pull cable nipple into the mounting hole from above.



3. Rotate the pull rope by 90°.

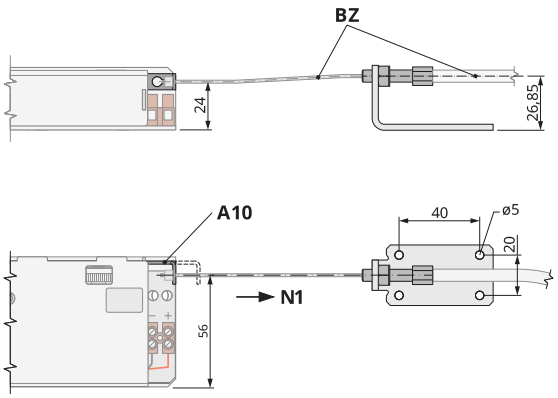


4. Guide the rotated pull rope to the lower end of the mounting hole.



Emergency release via release lever

- manual operation
- connection via Bowden cable



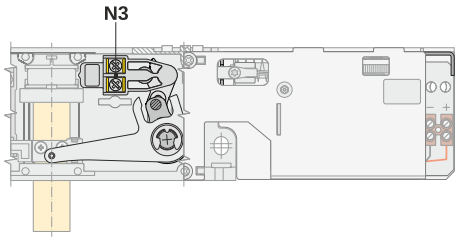
BZ Bowden cable (accessories)

A10 release lever

N1 unlocking direction

Terminals for the integrated monitoring

- according to EN 81-21
- optional



N3 terminal for monitored emergency release

Note

For further information, see also:

- chapter 7.1 (electrical connections)
- chapter 10.2 (technical data)

7 Initial operation

7.1 Electrical connections

Danger

The electrical connection may only be carried out when the system is de-energised and by a qualified electrician!

Observe the safety regulations for electrical engineering when working on a lift system.

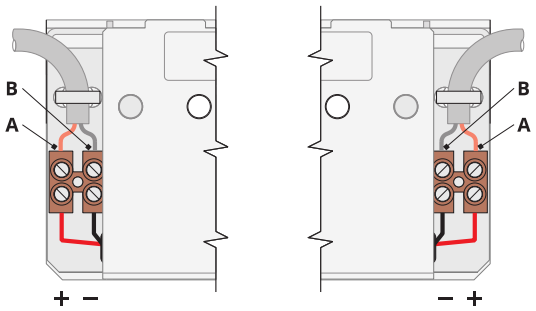
Caution

Always use the supplied cable entry on the door interlock!

Always use the electrical connections in their preassigned function!

Information on the electrical connection of the motor drive:

Connecting terminals



version „left“ version „right“

Assignmen:

A connecting terminal for +24 V DC
B connecting terminal for 0 V DC

Control

Caution

Only a regulated 24 V DC power supply (-10 % / +25 %) is permitted for the motor control. An unregulated power supply can cause a malfunction of the assembly!

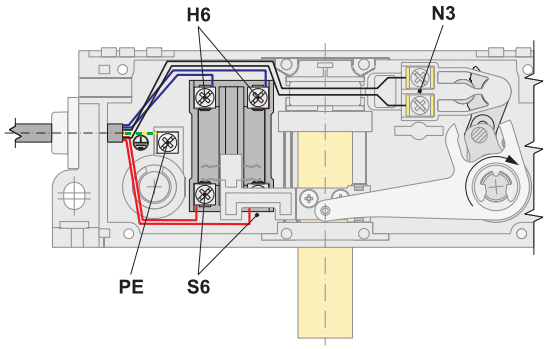
Ensure that power is supplied to the motor control unit only when the car is within the designated unlocking zone.
As the motor has a 100% duty cycle, power may be supplied to the motor control unit for as long as required.
The power supply must only be switched off when:

- the door is closed and
- the latch bolt can engage freely into the latch plate or the corresponding door opening

After the power supply is switched off, the drive unit provides an automatic motor brake for a few seconds, allowing the latch bolt to lower in a controlled manner. Switching off the power supply too early impairs the motor brake and may cause noise when the latch bolt is lowering.

Information on connecting the switching elements and PE:

Overview switching elements and PE



(Illustration: door interlock version „right-hand“)

Assignment switching elements

– connecting terminals

H6 auxiliary switch

Swing landing door:	Contact:
locked	open
unlocked	closed

N3 electric. monitored emergency release (optional)

Emergency release:	Contact:
actuated via triangle	open
not actuated	closed

S6 switch for locking mechanism (positively driven)

Swing landing door:	Contact:
locked	closed
unlocked	open
swing landing door open and door interlock in faulty clos. pos.	

PE earth connection

Assembly / disassembly transparent cover

Caution

Please note that the transparent cover is fitted with a slide closure:

- Removal procedure: Loosen the screws, slide the cover outwards, then lift it off
- Installation procedure: Slide the cover onto the housing from the outside, then tighten the screws

Incorrect removal or installation may damage the transparent cover!

Caution

The auxiliary switch contacts (H6) must not be used for safety-critical signals (e. g. monitoring of the emergency release)!

Note

For information on the technical specifications of the switching elements, please refer to chapter 10.2.

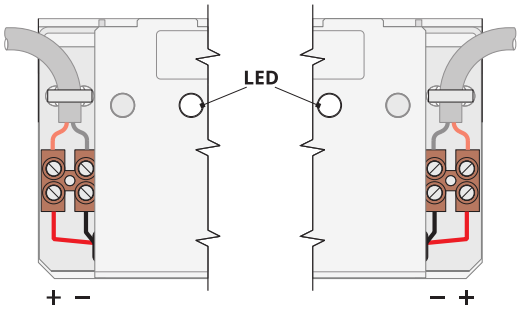
7.2 Functional test

Please note the following information regarding functional testing:

Function description

The function of the door interlock is described in chapter 5.

Position of the LED indicator on the assembly



version „left“ version „right“

Legend of the LED indicator

The LED ligths up:	R	red	G	green
The LED flashes:	R	red	G	green
The LED is off:	○			

Power supply switched on

When operating correctly, the LED indicator goes through the following sequence:

- The drive moves the latch bolt towards its upper end position. G
- The latch bolt has reached its upper end position and remains in this position. G

Power supply switched off

When operating correctly, the LED indicator goes through the following sequence:

- The latch bolt moves towards its lower end position. R
- The latch bolt has reached its lower end position. ○

Behavior in case of a blocked latch bolt

If the latch bolt becomes blocked whilst moving towards its upper end position, the drive control automatically initiates the following sequence:

1. The drive attempts to move the latch bolt to its upper end position over a period of approximately 30 seconds using short stop/start sequences. G R
2. The drive attempts to move the latch bolt to its upper end position over a period of approx. 5 seconds using slower stop/start sequences and a higher torque. G R
3. If neither of the two measures mentioned above is successful, the drive switches off. G R

Tests	Check that: • the latch bolt moves smoothly in both directions • the automatic sequence in the drive control system starts when the latch bolt is blocked • the door interlock cover is in place and securely screwed to the housing • the chosen routing of the electrical cable does not cause any malfunctions during operation of the lift

Note

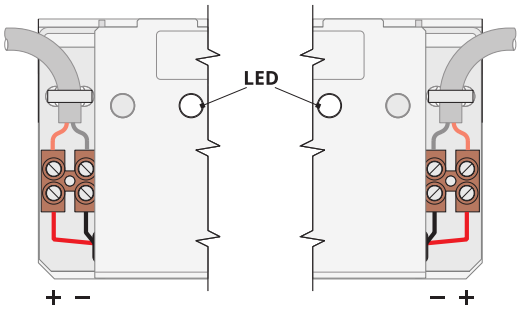
Information on error diagnostics can be found in chapter 8.

8 Error diagnostics

8.1 Error cases which can be identified via LED indicators

The LED indicator on the CLFMO and CLMO door interlocks forms the basis in the error diagnostics:

Position of the LED indicator on the assembly



version „left“ version „right“

Legend of the LED indicator

The LED ligths up:	Ⓡ	red	Ⓖ	green
The LED flashes:	Ⓡ	red	Ⓖ	green
The LED is off:	○			

Error case: The latch bolt in the door interlock does **not** move upwards.

The table below describes the LED indicators for the door interlock in the event of the above-mentioned error-case:

→ red LED ○ → green LED ○	Possible cause(s): – no voltage or reverse polarity Measure(s): – check the voltage and, if necessary, the polarity
→ red LED Ⓡ → green LED ○	Possible cause(s): – voltage too low Measure(s): – check the voltage – only regulated 24 V DC (-10 % / +25 %) is permitted

→ red LED  → green LED 	Possible cause(s): – voltage is unstable (e. g. in the case of half-wave rectification) or too low – driven by an AC voltage Measure(s): – check the type and voltage level – only regulated 24 V DC (-10 % / +25 %) permitted

Error case: The door interlock makes a knocking noise when the latch bolt is retracted and the latch bolt does **not** reach its upper end position.

The table below describes the LED indicators for the door interlock in the event of the above-mentioned error case:

→ red LED  → green LED 	Possible cause(s): – latch bolt or mechanism blocked or damaged; insufficient motor torque Measure(s): – check the latch bolt and mechanisms for faults and ensure they move smoothly; remove any obstructions if necessary  Also refer to the section ‘Behavior in case of a blocked latch bolt in chapter 7.2.

8.2 Further error cases

The table below describes further error cases **without** a possible LED indicator:

The latch bolt releases occasionally and then tightens again.	Possible cause(s): – short power failure or voltage drop Measure(s): – identify and eliminate the cause of voltage drops – check switches, contacts, the power supply unit, the control system, the wiring and other electrical loads
The latch bolt reaches its upper end position and the door interlock makes a knocking noise.	Possible cause(s): – the end position is not detected Measure(s): – check the mechanism for faults and remove any obrstuctions if necessary

9 Maintenance, storage, disassembly and disposal

9.1 Maintenance



Danger – Danger to life due to crushing!

Do not lean over the car roof when the car is travelling!

Carry out the following visual checks every time you carry out maintenance:

- The door interlock and the cover are screwed tight and show no signs of damage.
- The movement of the latch bolt is free and constant.
- The latch bolt engages freely into the latch plate.
- The connection cables and the entries in the door interlock are not damaged.

Check the correct functioning of the following during every maintenance:

- mechanical locking
- faulty closure device
- electrical contacts



Note

The door interlock is sealed with a cover at the factory. All moving components inside the door interlock are protected by high-quality lubricants and do not require any maintenance.

Remove coarse dirt from the outside of the door interlock at regular intervals.

Observe the manufacturer's instructions in chapter 9.1.1 for relubrication of the moving components in the external area.

9.1.1 Recommended lubricants

Recommended lubricants for assembly and maintenance:

Specifications	
	Caution The use of other types of lubricants can lead to increased wear and malfunctions during operation. Do not open the housing of the door interlock. All moving parts inside the door interlock are lubricated at the factory and are maintenance-free.
External area of the latch bolt	Lubricant: teflon grease e. g. Interflon Food Grease LT2
Bowden cable	Lubricant: teflon oil e. g. Interflon Food Lube LT

9.2 Storage

Store the assemblies in a clean and dry place. Do not place any loads on the assemblies

9.3 Disassembly and disposal



Danger – Risk of injury or death due to electric current!

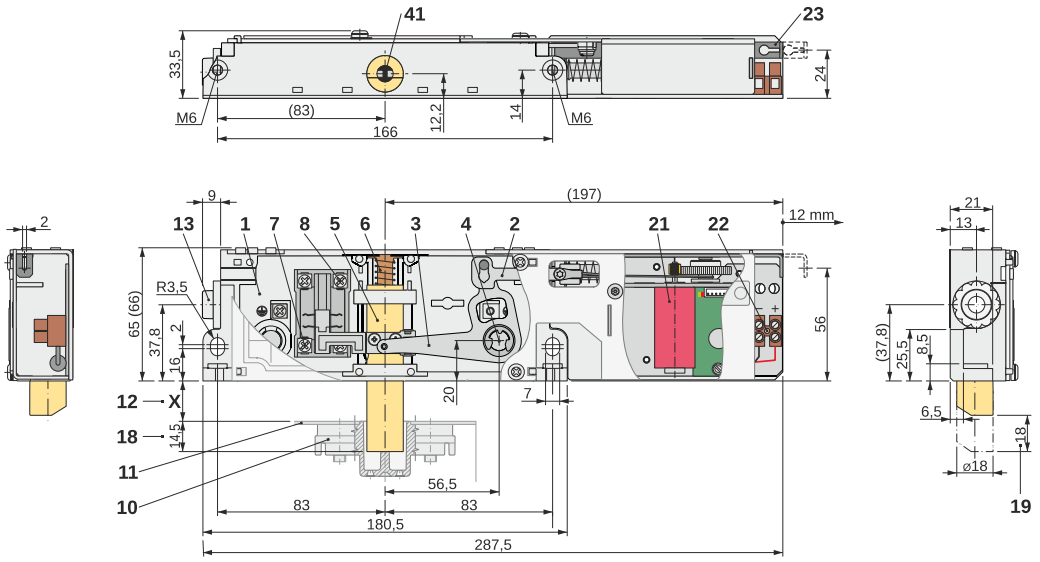
Only carry out disassembly when the door interlock is de-energised.

Dispose of the components in accordance with national regulations.

10 Data sheets

10.1 Device dimensions and part descriptions

CLMO, CLMO-UL, CLFMO, CLFMO-UL shown CLFMO -R - X20 (u)



Legend:

1 housing
2 pull rod
3 bolt lever
4 bolt lever axis with triangle (base side)
5 latch bolt (locking mechanism)
6 return pressure spring
7 switch for locking mechanism
8 auxiliary switch
10 latch plate
(does not apply at CLMO, CLMO-UL)
11 door leaf
12 X-dimension according to customer specification
13 cable entry
18 immersion depth of the latch bolt into the latch plate (nominal dimension)
19 latch bolt stroke
21 motor drive
22 electrical connection motor drive
23 unlocking lever and connecting cable for emergency release
41 faulty closure device
(does not apply at CLMO, CLMO-UL)

Note

The CLMO and CLMO-UL door interlocks do **not** feature a faulty closure device.

The CLMO-UL and CLFMO-UL door interlocks are identical in function and design to the CLMO and CLFMO door interlocks.

10.2 Technical data

10.2.1 Standard version

Norms	EN 81-20, EN 81-50, EN 81-21, EN 60947-5-1
Certificates	type-examination certificates: EU-DL 811/2 (CLF) und EU-DL 812/2 (CL)
Switching capacity:	Ui = 250 V, Ith = 10 A, Uimp = 4 KV
Sw. for locking mechanism	AC-15: Ue = 230 V, Ie = 2 A | DC-13: Ue = 200 V, Ie = 1 A
Monitoring switch	AC-15: Ue = 230 V, Ie = 2 A | DC-13: Ue = 200 V, Ie = 2 A
Auxiliary switch	AC-15: Ue = 230 V, Ie = 2 A | DC-13: Ue = 200 V, Ie = 1 A
Short-circuit capacity	T 10 A, F 16 A
Contact material	fine silver
Drive of the latch bolt:	
Operating voltage	24 V DC (-10 % / +25 %) regulated
Pull-in current / time (typical)	0.85 A / < 0,5 s
Holding current	0.2 A
Connection	by screw terminal, max. 1.5 mm²
	cable entry M20x1.5 with clamping gland
Level of protection	IP40
Ambient air temperature	-10 °C up to +45 °C
Weight	950 g to 1100 g (according to version)

10.2.2 UL - version

For North America:

Norms	UL 104, ASME A17.1 und CSA B44
Certificates	UL 20191113-SA34041 for use in homelifts
Switching capacity	2 A / 24 V DC
Connection	by screw terminal
Connection cable	copper cables only, solid or stranded, 1 x 16–20 AWG temperature resistance: +60 °C to +75 °C
Tightening torque for the terminal screws of the switch for locking mechanism	0.5 Nm

For Europe:

Norms	EN 81-20, EN 81-50, EN 81-21, EN 60947-5-1
Certificates	type-examination certificates: EU-DL 811/2 (CLFMO) und EU-DL 812/2 (CLMO)
Switching capacity:	Ui = 250 V, Ith = 10 A, Uimp = 4 KV
Sw. for locking mechanism	AC-15: Ue = 230 V, Ie = 2 A | DC-13: Ue = 200 V, Ie = 1 A
Monitoring switch	AC-15: Ue = 230 V, Ie = 2 A | DC-13: Ue = 200 V, Ie = 2 A
Auxiliary switch	AC-15: Ue = 230 V, Ie = 2 A | DC-13: Ue = 200 V, Ie = 1 A
Connection	by screw terminals, max. 1.5 mm²

General:

Short-circuit capacity	T 10 A, F 16 A
Contact material	fine silver
Drive of the latch bolt:	
Operating voltage	24 V DC (-10 % / +25 %) regulated
Pull-in current / time (typical)	0.85 A / < 0,5 s
Holding current	0.2 A
Cable entry	M20x1,5 with clamping gland
Level of protection	IP40
Ambient air temperature	-10 °C up to +45 °C
Weight	950 g to 1100 g (according to version)

11 EU-Declaration of Conformity and EU type-examination certificate

The current edition of the Declaration of Conformity is available for download on our homepage at kronenberg-gmbh.de.

12 Appendix

12.1 X-dimension use and determination

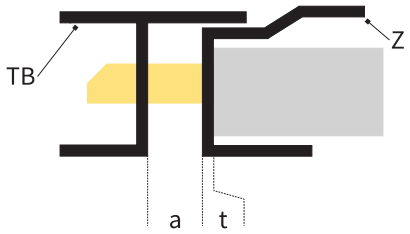
General information on the X-dimension:

Use	Each latch bolt is manufactured to order. The X-dimension is the most important specification for the length of the latch bolt in production **Caution** The X dimension must be determined before ordering the latch bolt on the lift system! Incorrect values for the X-dimension will result in an incorrect bolt length and consequently the door locking function will be faulty.
Tolerances* **X-dimension**	The X-dimension must comply with these tolerances: • CLMO, CLFMO: X +2 / -1 mm • CLMO-UL, CLFMO-UL: X +2 / -1 mm
Minimum length* **X-dimension**	The X-dimension must not be shorter than 5 mm.
Maximum length* **X-dimension**	The X-dimension must not exceed the following length: • CLMO / CLFMO types: 35 mm • CLMO-UL / CLFMO-UL types: 35 mm
Recommended measuring equipement	A metre rule or comparable measuring equipment is sufficient.
Different X-dimensions on a lift system	If several or all door interlocks on a lift system are replaced, the X-dimension must be determined / checked on the doors concerned.

* applies to all variants of the same design

12.1.1 Determination X-dimension with door interlock installed

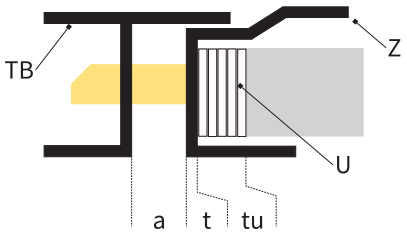
Information on measuring the X-dimension:

Installed door interlock without shimming	Procedure: 1. Measure the distance (a) between the door leaf (TB) and the frame (Z). 2. Measure the thickness (t) of the frame sheet.  3. The X-dimension results from: X-dimension = a + t

Installed door interlock with shimming

Procedure:

1. Measure the distance (a) between the door leaf (TB) and the frame (Z).
2. Measure the thickness (t) of the frame sheet.
3. Measure the thickness (tu) of the shimming (U).



4. The X-dimension results from: X-dimension = a + t + tu

12.1.2 Determination X-dimension with door interlock uninstalled

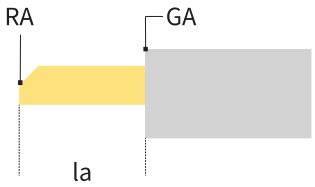
Information on 2 equivalent measurement variants:

Measurement variant 1:
The latch bolt is extended.

Note
Ensure that the faulty closure device of the door interlock is cancelled.

Procedure:

1. Measure the length (la) from the top edge of the latch bolt (RA) to the outside of the housing (GA).



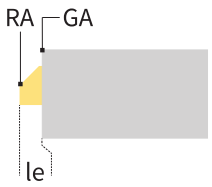
2. The X-dimension results from:
   X-dimension = la – 14.5 mm

Measurement variant 2:
The latch bolt is in unlocking position.

Note
Make sure that the latch bolt is fully pressed in.

Procedure:

1. Measure the length (le) from the top edge of the latch bolt (RA) to the outside of the housing (GA).



2. The X-dimension results from: X-dimension = le + 3.5 mm

Notes:

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