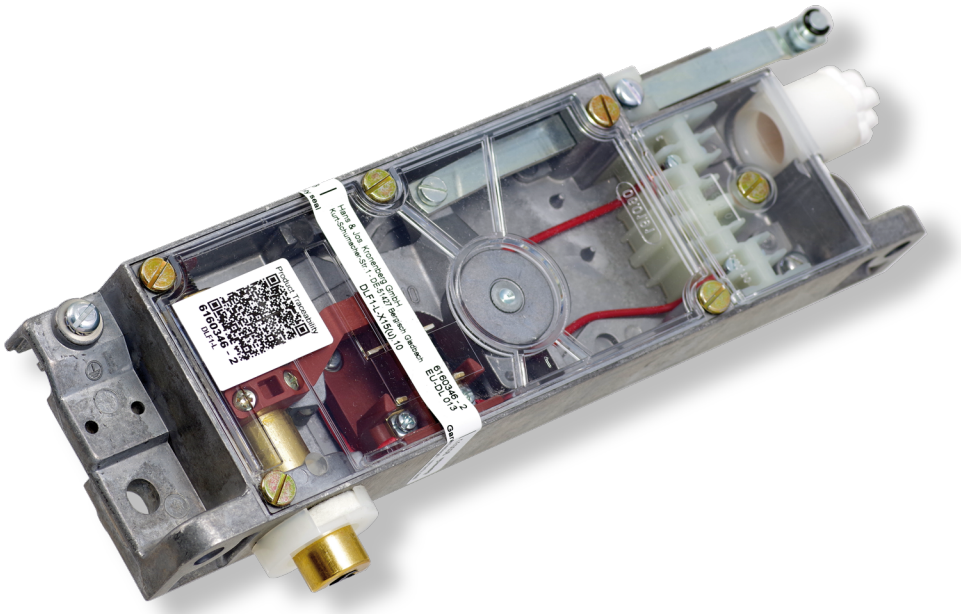
KRONENBERG

Door Interlocks DL/DLF*

Operating Instructions



*DL1/6, DLF1/7, DL1, DLF1, DL2, DLF2

kronenberg-gmbh.de

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Contents

1 General information

In these operating instructions you will find:

- information on function, installation, adjustment, maintenance and disposal of the door interlock DL/DLF and its components
- safety information
- assistance in case of malfunctions

Read these operating instructions carefully before you start using the door interlock DL/DLF 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 current Lift Directive
general features	• variants to choose from: – bolt position* left / right *based on cover-side view – without faulty closure device: DL1/6, DL1, DL1-IP67, DL1-EX, DL2 – with faulty closure device: DL**F**1/7, DL**F**1, DL**F**1-IP67, DL**F**1-EX, DL**F**2 • extensive options for equipment / actuation types • robust metal housing • transparent cover* for function control *at standard protection class (IP40 or IP20) and at IP67 • buffers for silent actuation • use of high-quality permanent lubricants for almost maintenance-free operation • electrical contacts with fine silver plating for reliable operation even at low-voltages / currents • convenient wiring positions

2.2 Door interlocks for standard applications

Overview of the features:

DL1/6, DLF1/7	• **basic** device for single-leaf doors • integrated contact holder insert with switch for locking mechanism and optional auxiliary switches • can be extended by an adjustable door switch for monitoring the closed position • different operating positions permitted
DL1, DLF1	• **universal** device for single-leaf doors • extensive options for equipment / actuation types • terminal block for switch for locking mechanism, door and auxiliary switch • different operating positions permitted
DL2, DLF2	• **basic** device for double-leaf doors • both latch bolts in one housing • extensive options for equipment / actuation types • terminal block for switch for locking mechanism (only DL**F**2), door and auxiliary switch • convenient wiring positions • operating position: use in the door transom above the doors

2.3 Door interlocks with increased protection classes (IP54, IP67, EX)

Overview of the features:

DL1-W, DLF1-W	• **universal** device for single-leaf doors • protection class IP54 • for horizontal installation position • chromed latch bolt • metal cover with seal • extensive terminal block for switch for locking mechanism and optional auxiliary switch
DL1-WV, DLF1-WV	• **universal** device for single-leaf doors • protection class IP54 • for vertical installation position • chromed latch bolt • metal cover with seal • extensive terminal block for switch for locking mechanism and optional auxiliary switch
DL1-IP67, DLF1-IP67	• **universal** device for single-leaf doors • protection class IP67 (electrical switches) • different operating positions permitted • chromed latch bolt • with connection cable • with optional auxiliary swich • optional metal cover with seal • optional with coupling for double-leaf doors
DL1-EX, DLF1-EX	• **universal** device for single-leaf doors • EX-protection class and water protection IP66 (electrical switches) • different operating positions permitted • stainless steel cover • with connection cable • with optional auxiliary switch • optional with coupling for double-leaf doors
DL2-W, DLF2-W	• **universal** device for double-leaf doors • protection class IP54 • for horizontal installation position • both latch bolts in one housing • chromed latch bolts • metal cover with seal • extensive terminal block for switch for locking mechanism and optional auxiliary switch

3 Intended use

The door interlocks DL1/6, DL1, DL2 are only considered to be used as intended:

- in the interlock with sliding bolt for direct locking of:
  - single-leaf swing landing doors (DL1/6, DL1)
  - double-leaf swing landing doors (DL2)
- in compliance with the permissible operating positions
- in compliance with the permissible protection classes

The door interlocks DLF1/7, DLF1, DLF2 are only considered to be used as intended:

- in the interlock with sliding bolt and faulty closure device for direct locking of:
  - single-leaf swing landing doors (DLF1/7, DLF1)
  - double-leaf swing landing doors (DLF2)
- the door interlocks DLF1 and DLF1/7 may also be used for double-leaf swing landing doors if each door leaf is directly locked with a separate door interlock DLF1, DLF1/7 with a sliding bolt and faulty closure device
- the door interlocks DLF1/7, DLF1, DLF2 can also function as a part of an interlocking device in which additional components are involved in the locking and monitoring of the swing landing door 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 permissible operating positions
- in compliance with the permissible protection classes

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:

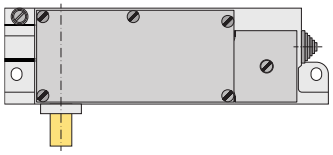
- repair, conversion or modification of the assembly groups DL1/6, DLF1/7, DL1, DLF1, DL2, DLF2
- the use in environments for which this assembly group is not approved, e.g. Ex-protection areas or areas for higher IP protection classes

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 DL1/6, DLF1/7, DL1, DLF1



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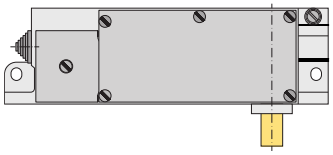

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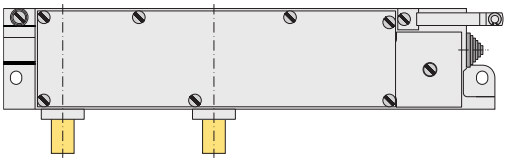
4.2 Version DL2, DLF2



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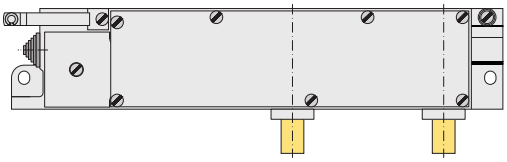

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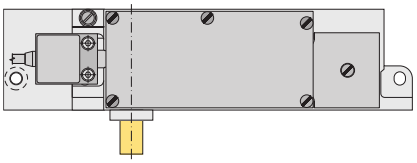
4.3 Version DL1-IP67, DLF1-IP67, DL1-EX, DLF1-EX



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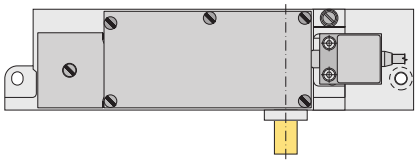

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4.4 Type code

The type code is made up of up to 11 individual items. It clearly identifies the door interlock and corresponds to the order specification for the assembly:

I – II – III IV V . VI . VII . VIII . IX . X . XI

Example: **DLF1 - IP67 - L X55 V2A . (u) . 20 . 1 . 60 . 9/01 . -30°**

	Description	Explanations
I	basic device	„DL1, DLF1, DL2, DLF2, ...“
II	protection class	W, WV, IP67, EX
III	version	„left / rigth“
IV	bolt length	„X-dimension“
V	bolt material	„brass, CHR, V2A“
VI	bolt version	„bevel: below, above, …“
VII	type of actuation	„pull rod, roller lever, annexed roller lever, ...“
VIII	emergency release	„base/cover side, external, ...“
IX	door switch	„actuated base/cover side“
X	auxiliary switch	„1 [2] contact(s), closed/open“
XI	special version	„-30°“ (special version)

Note

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 DL1/6, DLF1/7, DL1, DLF1, DL2, DLF2:

types DL1/6, DLF1/7, DL1, DLF1

Used for the direct locking of single-leaf swing landing doors by sliding bolt. Only the types DLF1/7 and DLF1 are equipped with an additional faulty closure device.

Note
The use of the door interlocks DLF1 and DLF1/7 is also permitted for double-leaf swing landing doors if each door leaf is direclty locked with a DLF1 or DLF1/7 by sliding bolt and faulty closure device.

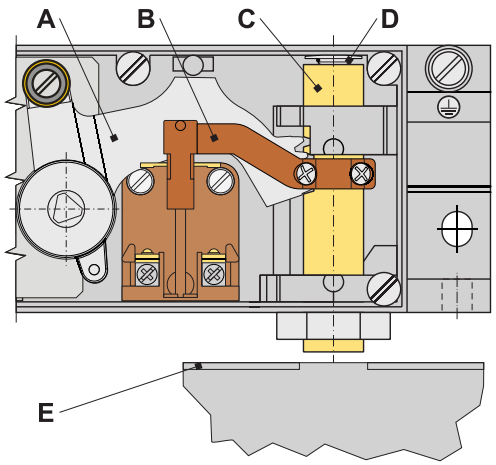
type DL2, DLF2

Used for direct locking of double-leaf swing landing doors by sliding bolt. Only the type DLF2 is equipped with an additional faulty closure device.

dropping retiring cam

The dropping retiring cam moves – via a roller lever mounted on the door lock or via a pull rod – a bolt lever (A) inside the door lock.
A toothing transmits the movement of the bolt lever to the latch bolt (C). As a result:

- the latch bolt (C) is lifted
- the return pressure spring (D) is preloaded
- the switch for locking mechanism (B) is positively opened
- the blocking of the swing landing door (E) is cancelled



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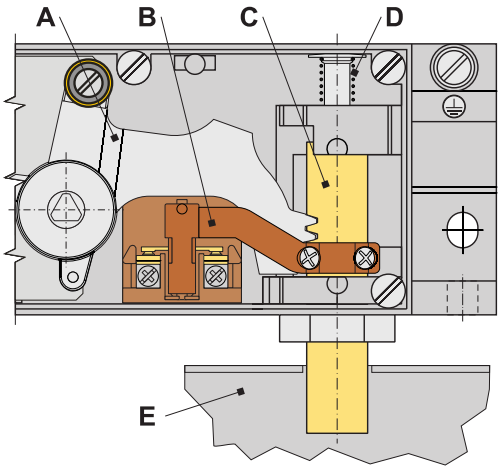
attracting retiring cam

The attracting retiring cam releases – via a roller lever mounted on the door lock or via a pull rod – the bolt lever (A) inside the door interlock, so that the preloaded pressure spring sets the latch bolt (C) in motion. As a result:

- the latch bolt (C) is lowered
- the return pressure spring (D) is released
- the switch for locking mechanism (B) is positively closed
- the swing landing door (E) is locked



5.2 Basic mode of operation of the faulty closure device

Basic mode of operation of the faulty closure device:

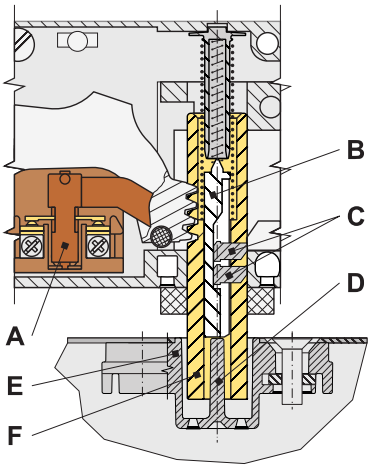
general information

The faulty closure device becomes effective if the latch bolt is released in the event of a fault – without the swing landing door being closed.
The faulty closure devices stops the movement of the latch bolt and thus prevents the closing of the switch for locking mechanism.

Note
Please note that only the door interlocks DL**F**1/7, DL**F**1, DL**F**2 are equipped with a faulty closure device!

status faulty closure device: „not effective“, the swing landing door was locked successfully

operating status:
swing landing door closed and locking successful

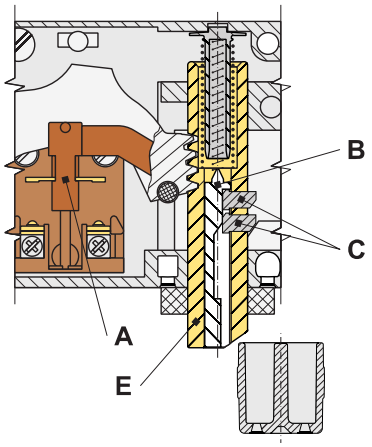


status description of the door interlock:

- The switch for locking mechanism (A) is closed.
- The stop valve (B) is in the release position.
- The locking pins (C) are retracted and release the latch bolt lowering.
- The faulty closure pin (D) in the latch plate (E) holds the stop valve (B) in its release positon.
- The latch bolt (F) is in locked position.

status faulty closure device: „effective“, the swing landing door was NOT locked successfully

operating status:
swing landing door open, locking faulty and latch bolt in faulty closure position



status description of the door interlock:

- The switch for locking mechanism (A) is open.
- The stop valve (B) is in the locking position.
- The locking pins (C) are extened and block further latch bolt lowering.
- The latch bolt (E) is in blocked position (faulty closure position).

6 Mounting and initial operation

Danger

Observe the safety rules for electrical engineering and for working on a lift installation.

6.1 Door interlock

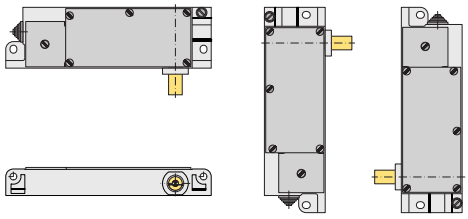
Installation information for the door interlock:

operating positions

Caution

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

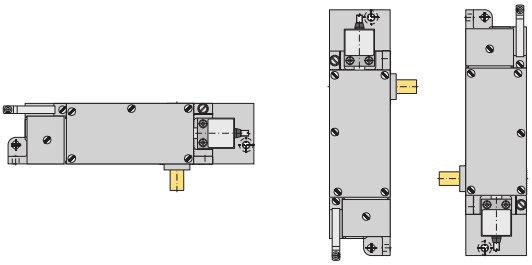
horizontal vertical



recumbent

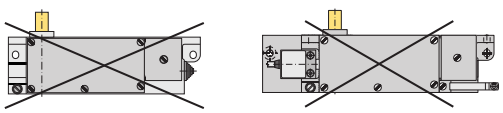
For the door interlocks with a higher protection class the operating positions are reduced to the following:

horizontal vertical



protection classes IP54 (-W), IP67 and EX-version

The following operating position is <u>not permitted</u> for <u>all</u> versions of the door interlock:



preparatory work	Check the following points before starting the installation. door interlock: • Do the on-site drill holes for fixation and for the bolt bushing match? • Do the diameters of the bolt bushing and bolt match? door interlock – door leaf: • Do the positions of the bolt and latch plate in the door leaf match (chapter 6.5)? • In the event that the door lock also contains the door switch: Do the positions of the door swich and the contact bridge at the door leaf match (chapter 6.6)? emergency release: • Do the holes / provisions fit the system of the emergency release?
procedure	Use the predetermined fixing holes for installation. There are 2 slotted holes (8x10) at the bottom and 2 holes (M8) at the front of the door lock for installation. After completing the installation, secure the srew connections with a suitable securing material.
final check	After completing the installation, check: • The screw connection of the door interlock for tigthtness • the cover of the door lock, it must not be damaged and must be firmly screwed

6.2 Latch bolt

6.2.1 Immersion depth of the latch bolt

Description of the immersion depth of the latch bolt:

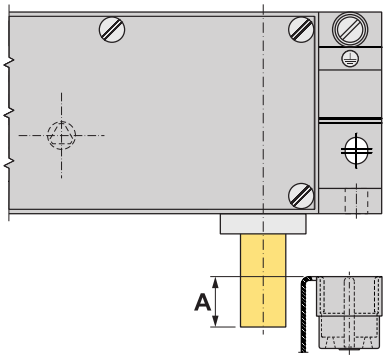
immersion depth of the latch bolt

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 checking of the position of the locking mechanism at a faulty closure device



Immersion depth (A):

- DLF1/7, DLF1, DLF2, DLF1-IP67, DLF-EX: **18.5 - 23 mm**
- DL1/6, DL1, DL2, DL1-IP67, DL1-EX: **10.5 - 21 mm**

6.2.2 Support of the latch bolt

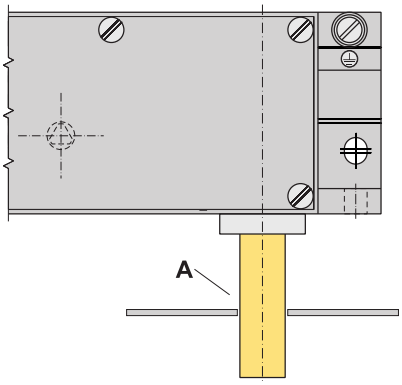
Caution

Latch bolts with a X-dimension of more than 75 mm must be additionally supported.

As a rule, you can achieve this support by drilling a correspondingly narrow hole in the door transom.

Information for additional support in the door transom:

support for latch bolt from an X-dimension of 75 mm



A: hole in door transom 19 to 20 mm diameter

6.2.3 Closing ability of the swing landing door

In the event of a faulty release of the latch bolt, the closing ability 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 level for testing and error correction.

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

Caution

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

Information on testing and error correction:

closing ability of the door interlock DLF	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 11.1) • 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.
closing ability of the door interlock DL <u>with</u> 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.

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If the latch bolt does not lift automatically, check:

- the value of the X-dimension (chapter 11.1)
- 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 DL1/6, DL1, DL2 by shimming – please note that the immersion depth of the latch bolt in the door leaf must be **min. 10.5 mm!**

closing ability of the door interlock DL <u>without</u> bevelled latch bolt

Check that the <u>swing landing door is bevelled in the area of the latch bolt</u> - 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 11.1)
- 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 a door interlock type DL1/6, DL1, DL2 by shimming - please note that the immersion depth of the latch bolt in the door leaf must be **min. 10.5 mm!**

6.3 Roller lever

6.3.1 Setting roller lever

Warning

The roller lever and the door interlock are supplied pre-assembled.

When adjusting the roller lever, make sure that the toothed washer is always mounted under the roller lever - i.e. between the door interlock and the roller lever. This is the only way to ensure a positive connection between the roller lever and the door interlock.

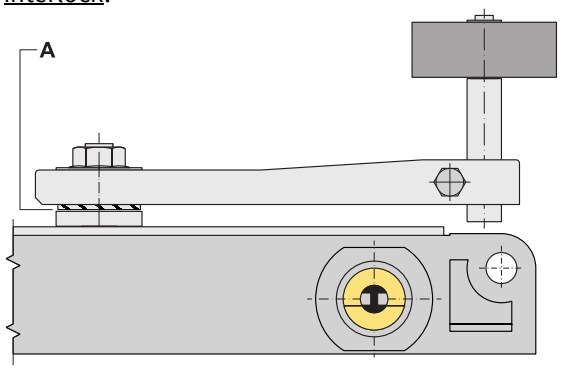
Removing the toothed washer or fitting the toothed washer under the fixing nut is not permitted and can lead to a malfunctioning of the door interlock. When loosening or tightening the fastening nut, make sure that you hold the roller lever against it. Excessive pressure on the axis of the door lock can lead to malfunction or destruction of the assembly.

Information on mounting and adjusting the roller lever:

position of the toothed washer

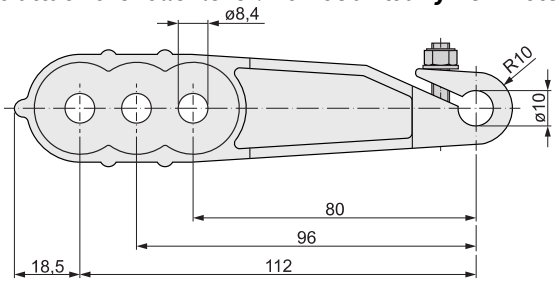
Caution

Always mount the toothed washer (A) as positive connection between roller lever and door interlock!



length of the roller lever

You can mount the roller lever in 3 different lengths. The lever length is available in 80, 96 or 112 mm. Only use the factory-fitted holes to attach the roller lever. Do **not drill any new holes**!



Note

Please note that the selection of a shorter lever length leads to:

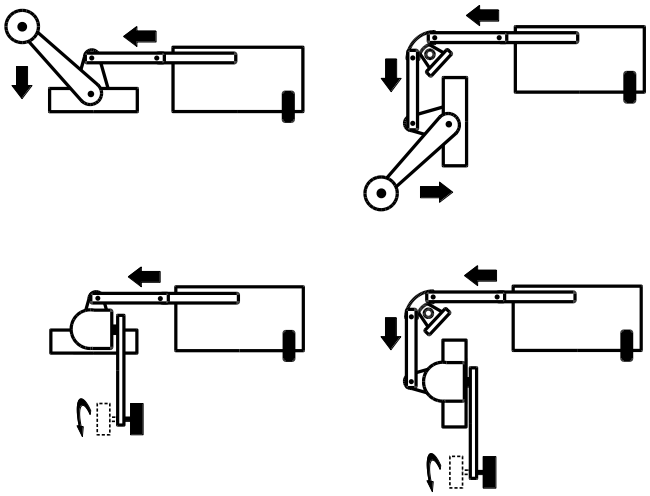
- a shorter actuation travel and
- consequently to higher effort

We recommend always selecting the longest lever length (112 mm) if conditions on site permit.

installation position of the roller lever when using pull rods

Note
When installing, ensure that the roller lever is in a hanging position. In this position, the dead weight of the roller lever prevents lost movement in the actuation travel (dead travel) of the door lock when using a reversing bearing block.
If a single bearing block is used, the dead travel is negligible and therefore does not need to be taken into account in the installation position of the roller lever.

Examples of the installation position of the roller lever when using pull rods:



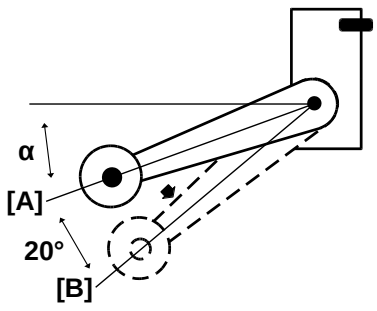
angular position of the roller lever

Note
The angle specifications apply to all mounting types of the roller lever – screwed to:

- the door interlock
- a single bearing block
- a reversing bearing block

Chapter 11.2 contains an adjumstent aid for the angle specifications.

Angular position using the example of a roller lever – screwed to the door interlock:



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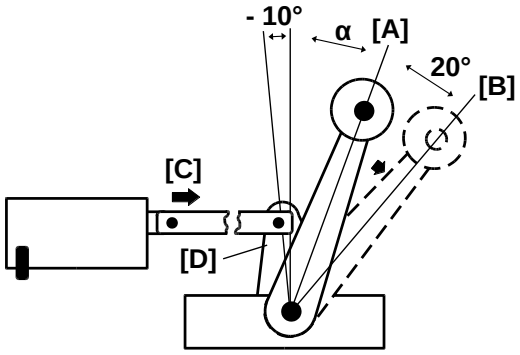
Angular position using the example of a roller lever – screwed to a single bearing block:



Caution
For the basic position (A) of the roller lever you can select an angle (α) between 15° - 27°. We recommend an angle (α) o 20°. In this position of the roller lever, the force of the retiring cam acts optimally to the end position (B) with a stroke of 35 mm.

Caution
A prerequisite for the angle specifications is that the drive lever (D) of the pull rod on the bearing bracket is -10° before the centre position! Optimum force transmission is only guaranteed if the drive lever is moved beyond the centre position. In addition, this setting ensures the necessary pull path (C) of 13.2 mm with a stroke (35 mm) of the retiring cam.

Note
The same specifications apply when using a reversing bearing block instead of the single bearing block shown above.

Please also note the example calculation of the actuating forces in chapter 11.3.

final check

Before initial operation, check:

- the position of the toothed washer, it must be mounted under the roller lever (see above)
- the tight fit of the nut for fastening the roller lever
- the free movement of the roller lever in the actuation
- the end position of the roller lever, the roller must not hit the bearing block in this position

6.3.2 Setting actuating roller

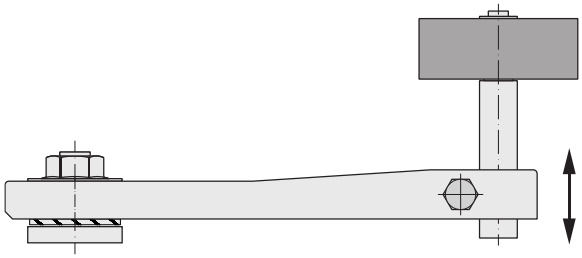
Information on setting the actuating roller:

roller types

axis lenght 45 mm (G45)

axis length 60 mm (G60)

installation positions and setting



The roller axis is infinitely adjustable. To do this, loosen the nut on the clamping screw for the roller axis.
Position the roller so that it is centred on the retiring cam when actuated.

Caution
When adjusting, ensure that the roller axis does not touch the housing of the door interlock or neighbouring parts during operation

Note
If the conditions on site permit, the actuating roller can be attached to the roller lever from the right or left.

final check

Before initial operation, check:

- the tight fit of the nut on the clamping screw for the roller axis
- the free movement of the roller and roller lever in the actuation
- the roller, as the car passes by, does not touch any attachments at the car

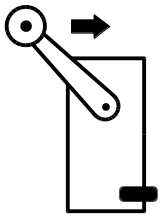
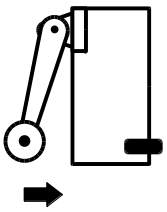
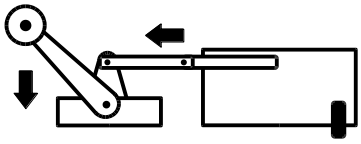
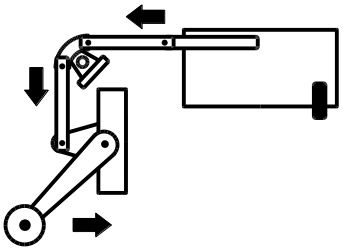
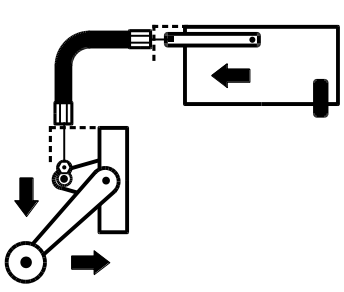
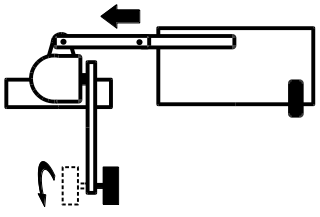
6.4 Actuation types of the door interlock

Note

The following overview shows all types of actuation.

The illustration is exemplary and only refers to one operating position (chapter 6.1). If a different operating position is selected on the installation, the information on mounting the actuation type is transferable.

The overview contains a chapter reference to further information on mounting the selected actuation type.

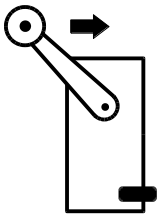
 „… by screwed on roller lever“ (chapter 6.4.1)	 „… by annexed roller lever“ (chapter 6.4.2)
 „… by pull rod with single bearing block“ (chapter 6.4.3)	 „… by pull rod with single bearing block and pull rod deflection“ (chapter 6.4.4)
 „… by bowden cable with single bearing block“ (chapter 6.4.5)	 „… by reversing bearing block“ (chapter 6.4.6)

6.4.1 Actuation by screwed on roller lever

Information on the selected actuation type:

example illustration:

- version: left
- operating position: vertikal
- actuation: screwed on roller lever



accompanying installation informaiton

Note
For the correct installation, please also refer to the information in:

- chapter 6.1 (door interlock)
- chapter 6.2 (latch bolt)
- chapter 6.3 (roller lever)

final check

After installation, check:

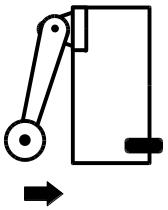
- the tight fit of all fixing screws
- the free movement of the latch bolt
- the closing ability of the door (chapter 6.2.3)

6.4.2 Actuation by annexed roller lever

Information on the selected actuation type:

example illustration:

- version: left
- operating position: vertical
- actuation: screwed on annexed roller lever



accompanying installation information

Note
For correct installation, please also refer to the information in:

- chapter 6.1 (door interlock)
- chapter 6.2 (latch bolt)
- chapter 6.3 (roller lever)

final check

After installation, check:

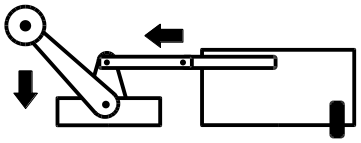
- the tight fit of all fixing screws
- the free movement of the latch bolt
- the closing ability of the door (chapter 6.2.3)

6.4.3 Actuation by pull rod with single bearing block

Information on the selected actuation type:

example illustration:

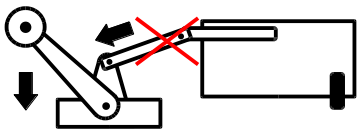
- version: right
- operating position: horizontal
- actuation: pull rod and single bearing block with roller lever



accompanying installation information

Caution
The pull rod must be moved in a straight line between the single bearing block and the door interlock!

non-authorized installation:



If the conditions at the lift installation prevent the pull rod from moving in a straight line, a pull rod deflection (chapter 6.4.4) must be installed!

The pull rod is connected to the bearing block and the door interlock via a bolt and secured using a lock washer in accordance with DIN 6799-4. The pull rod may only be secured with a lock washer in accordance with the above specification!

Note
This single bearing block provides an additional triangle for emergency release.

Note
For correct installation please also refer to the information in:

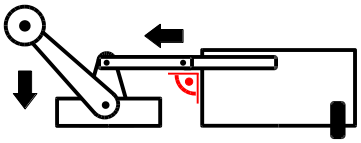
- chapter 6.1 (door interlock)
- chapter 6.2 (latch bolt)
- chapter 6.3 (roller lever)

installation information

Align the single bearing block so that it is in the starting position (i.e. not actuated by the retiring cam):

- the pull rod runs in a straight line from the single bearing block to the door interlock
- the drive lever on the bearing bracket is -10° before the centre position! Optimum force transmission is only guaranteed if the drive lever is moved beyond the centre position.

example of authorized installation:



Only use:

- the provided pull rod; if necessary, shorten the pull rod on one side and drill a hole ∅ 6 mm again to accommodate the connecting bolts
- the supplied lock washer in accordance with DIN 6799-4 for securing the pull rod

final check

After installation, check:

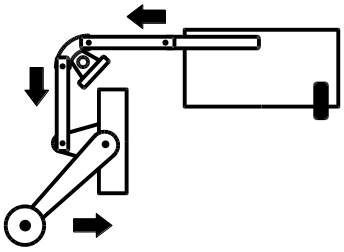
- the tight fit of all fixing screws and lock washers
- that the travel distance in the actuation is sufficient for the retraction of the latch bolt
- the free movement of the latch bolt
- the closing ability of the door (chapter 6.2.3)

6.4.4 Actuation by pull rod with single bearing block and pull rod deflection

Information on the selected actuation type:

example illustration:

- version: right
- operating position: horizontal
- actuation: pull rod, deflection, single bearing block with roller lever

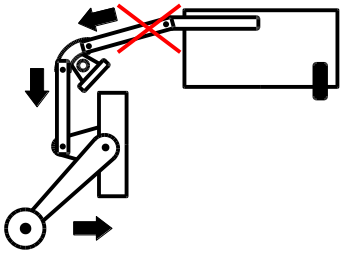


accompanying installation information

Caution

The pull rod must be moved in a straight line between the pull rod deflection and the door interlock!

non-authorizd installation:



Observe the maximum permissible installation angle and the installation recommendation for the pull rod deflection.

The pull rods are connected to the door interlock, the pull rod deflection and the single bearing block via a bolt and secured using a lock washer in accordance with DIN 6799-4. Each pull rod may only be secured with a lock washer in accordance with the above specification!

Note

The single bearing block provides an additional triangle for emergency release.

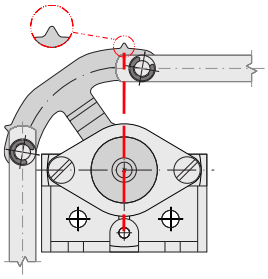
For the correct installation please also refer to the information in:

- chapter 6.1 (door interlock)
- chapter 6.2 (latch bolt)
- chapter 6.3 (roller lever)

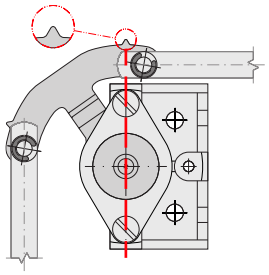
angle range for the installation of the pull rod deflection

An installation angle of between 0° and 90° is permissible for fault-free pull rod deflection. You can use the respective cam on the rotating part of the pull rod deflection for orientation on site.

Installation angle 0°

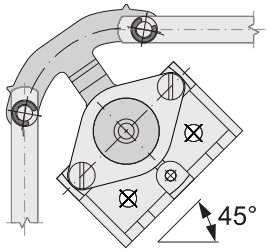


Installation angle 90°



installation information pull rod deflection

We recommend an installation angle of 45° for the pull rod deflection.
This gives you maximum travel for the movement of the pull rod.

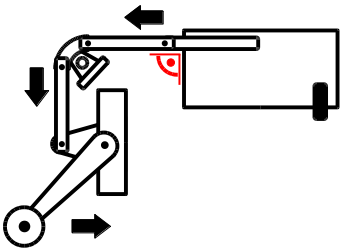


Select the position of the pull rod deflection so that the pull rod runs in a straight line to the door interlock!

installation information single bearing block

Select the position of the single bearing block so that the pull rod runs perpendicular to the pull rod deflection and the drive lever of the bearing block is -10° before the centre position! Optimum force transmission is only guaranteed if the drive lever is moved beyond the centre position.

example for authorized installation:



Only use:

- the provided pull rod; if necessary, shorten the pull rod on one side and drill a hole ∅ 6 mm
- the supplied lock washer in accordance with DIN 6799-4 for securing the pull rod

final check

After installation, check:

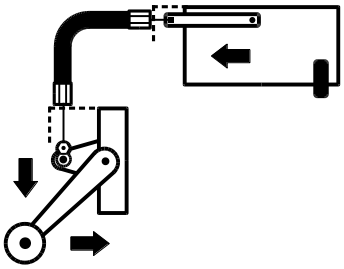
- the tight fit of all fixing screws and lock washers
- that the distance in the actuation is sufficient for the retraction of the latch bolt
- the free movement of the latch bolt
- the closing ability of the door (chapter 6.2.3)

6.4.5 Actuation by Bowden cable with single bearing block E-14

Information on the selected acuation type:

example illustration:

- version: right
- operating position: horizontal
- actuation: bowden cable, single beraing block E-14 with roller lever



accompanying installation information

Note

The single bearing block provides an additional triangle for emergency release.

When installing, ensure that the roller lever is in a hanging position. In this position, the dead weight of the roller lever largely prevents a lost movement in the actuation travel (dead travel) of the door interlock.

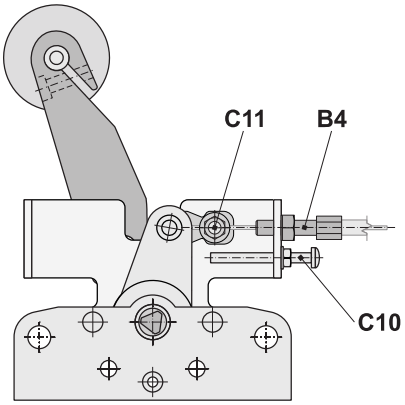
For the correct installation please also refer to the information in:

- chapter 6.1 (door interlock)
- chapter 6.2 (latch bolt)
- chapter 6.3 (roller lever)

recommendation for the installation sequence of the components

Procedure:

1. Install the door interlock.
2. Position and install the single bearing block E-14.
3. Check whether the adjusting screw (B4) for the Bowden cable and the stop screw (C10) are fitted on the side of the single bearing bracket E-14 where the Bowden cable is to be connected later. If not, reposition **both** screws.



… continued on next page

Note
The adjusting screw (B4) for the Bowden cable and the stop screw* (C10) can be mounted on the left or right side of the single bearing block E-14, depending on the conditions on the lift installation. Please note that both screws must always be fitted together on one side!

*The stop screw (C10) prevents the pull rope from being pushed back over the drive lever in the direction of the door interlock.

4. Turn the adjusting screw (B4) for the Bowden cable on both the single bearing block E-14 and the door interlock to a centre position.
5. Lay the Bowden cable and adjust the cable sheath if necessary.

Caution when laying the Bowden cable
- The installation must be kink-free and must not run over sharp edges.
- Maintain a bending radius of at least 100 mm during installation.
- The length of the cable sheath must be shortened if necessary. After shortening, check the cut point of the rope cover for sharp edges. Remove all sharp edges so that the pull rope is not damaged during subsequent use.
- The cable sheath must not touch any moving parts or the cabin after installation. Ensure correct and permanent fastening.

6. Adjust the stop screw (C10) so that the drive lever of the single bearing block E-14 is limited by the stop screw -10° before the centre position. The stop screw should touch the drive lever.

Caution
Ensure that the drive lever on the single bearing block E-14 is -10° before the centre position! Optimum force transmission is only guaranteed if the drive lever is moved beyond the centre position. In addition, this setting ensures the necessary pull path of 13.2 mm with a stroke (35 mm) of the retiring cam (chapter 6.3.1).

… continued on next page

7. Guide the pull rope through the adjusting screw (B4) and fix the pull rope to the drive lever with the clamping screw (C11).

Caution
The length of the pull rope must be shortened if necessary. When shortening, make sure that the strands do not splice. We recommend using wire rope shears for the cut and then protecting the cut with a suitable rope sleeve.

8. Use the adjusting screws on the single bearing block E-14 (B4) and on the door interlock to adjust the Bowden cable so that there is no lost motion in the actuation travel (dead travel) of the door locking interlock.
9. Adjust the position of the roller lever (chapter 6.3).
10. Use the adjusting screws on the single bearing block E-14 (B4) and on the door interlock to fine-tune the Bowden cable.
11. Check the position of the stop screw (C10) and adjust its setting if necessary.
12. Finally, secure the set screws and the stop screw (C10) with their lock nuts.

final check

After installation, check:

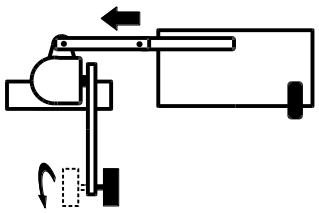
- the tight fit of all fixing screws
- the protection of the adjusting and stop screw on the single bearing block against adjustment
- the tight connection of the clamping screw for the pull rope on the single bearing block
- the car passes the Bowden cable routing without errors
- the free movement of the latch bolt
- the closing ability of the door (chapter 6.2.3)

6.4.6 Actuation by pull rod and reversing bearing block

Information on the selected acutation type:

example illustration:

- version: right
- operating position: horizontal
- actuation: pull rod, reversing bearing block with roller lever



… by reversing bearing block above

accompanying installation information

Caution
Never dismantle the reversing bearing block, as the bearing block will no longer function reliably after dismantling!
As a pull rod is also used here, the same installation specifications for the pull rods as in chapters 6.4.3 and 6.4.4 must be observed!

Note
The reversing bearing block provides an additional triangle for emergency release.

When installing, ensure thar the roller lever is in a hanging position. In this position, the dead weight of the roller lever prevents lost movement in the acutation path (dead travel) of the door interlock when using a reversing bearing block.

In the appendix you will find further variants of the ‘reversing bearing block’ actuation type (chapter 11.4).

For the correct installation please also refer to the information in:

- chapter 6.1 (door interlock)
- chapter 6.2 (latch bolt)
- chapter 6.3 (roller lever)

final check

After installation, check:

- the tight fit of all fixing screws
- the free movement of the latch bolt
- the closing ability of the door (chapter 6.2.3)

6.5 Latch plates

6.5.1 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

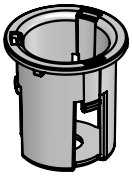
type BE-J

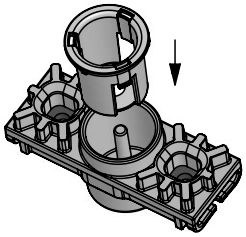
latch plate BE7
(up to 7 mm sheet thickness)

type BE7

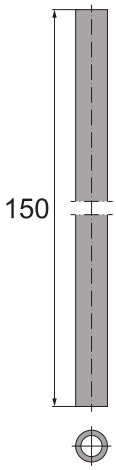
type BE7-J

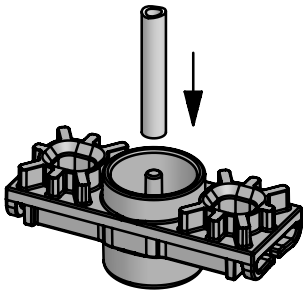
mounting accessories
(optional)





adjustment ring
(for the position of the latch bolt)

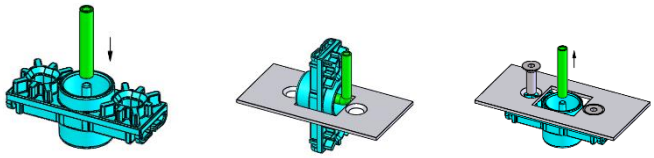




BE-mounting aid (for installation)

installation of the latch plate

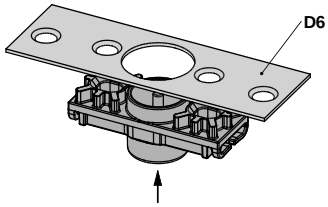
Installation of the latch plate through the hole in the door leaf:



step 1 step 2 step 3

1. Place the mounting aid on the pin of the latch plate and check the mounting aid for tight fit.
2. Hold the latch plate on the mounting aid and guide the latch plate through the hole in the door leaf.
3. Pull the latch plate on the mounting aid 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 monting plate:



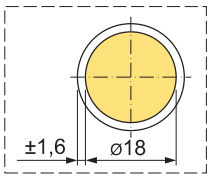
Note: The mounting plate (D6) is available on site or is manufactured to order.

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 latch plate via the sliding nut:

Sliding range of the latch bolt in the latch plate:



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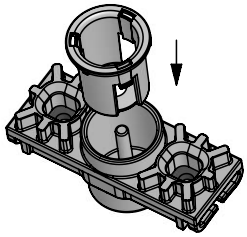
Preparatory work:

- 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!**
7. Finally check that:
    - the position of the latch plate matches the position of the 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.

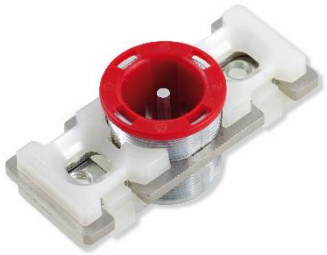
Setting without using the adjustment ring (accessory):

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 bolt is centred in the latch plate.
3. Lift the 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 bolt of the door interlock
    - the locking process runs smoothly

6.5.2 Latch plate BL-V

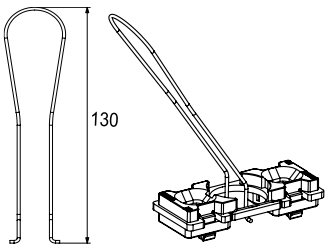
Information on the latch plate with accessories and on installation / setting:

latch plate BL-V

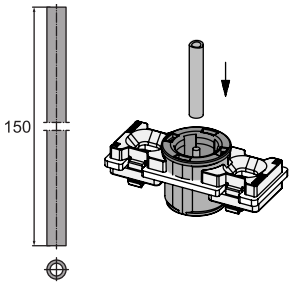


type BL-V (with adjustment ring)

mounting accessoris (optional)



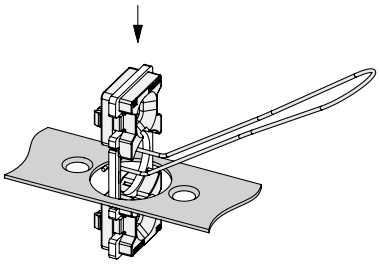
BS-V-Klammer
(use at a circular door leaf cut-out)



BL-V-Montagehilfe
(use at a square door leaf cut-out)

installation of the latch plate

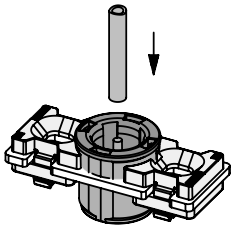
Installation of the latch plate at a **circular** door leaf cut-out:

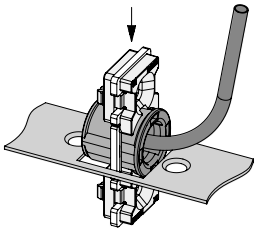


1. Unscrew the height-adjustable centre section of the latch plate.
2. Insert the BS-V-Klammer through the opeining in the centre section of the latch plate.
3. Hold the latch plate by the BS-V-Klammer and guide the latch plate through the hole in the door leaf.
4. Pull the latch plate up to the door leaf by using the BS-V-Klammer.
   Secure the latch plate with M6x20 countersunk screws. Make sure that the latch plate can still be moved for later adjustment.

… continued on next page

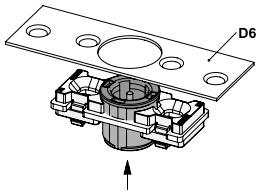
Installation of the latch plate at a **square** cut-out in the door leaf:





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

Installation of the latch plate via separete mounting plate:



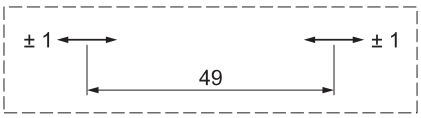
Note: The mounting plate (D6) is available on site or is manufactured to order.

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

setting the latch plate

Note

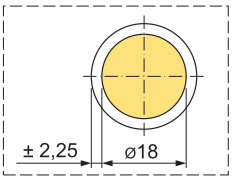
Adjustment range of the sliding nut holder:



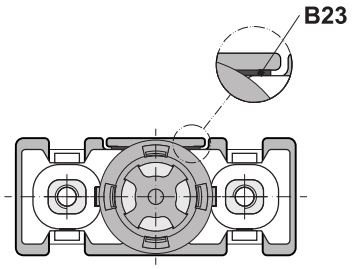
Adjustment range of the sliding nut within the holder:

… continued on next page

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.

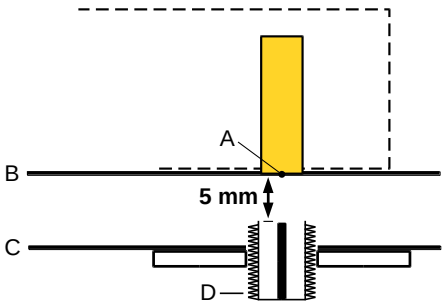


Preparatory work:

- 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.

Setting using the adjustment ring:

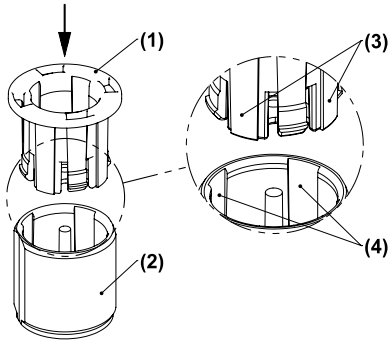
1. Adjust the height of the centre section (D) by turning it so that there is a gap of 5 mm between the upper edge of the centre section (D) and the lower edge of the fully retracted latch bolt (A).



(B) door frame, (C) door leaf

… continued on next page

2. Insert the adjument 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 gap of 5 mm between the upper edge of the centre section and the lower edge of the fully retracted latch bolt
    - the position of the latch plate matches the position of the 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.

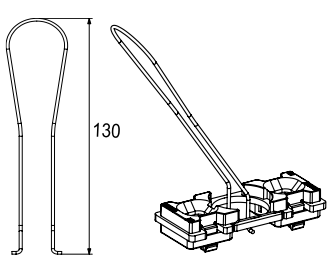
6.5.3 Latch plate BS-V

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

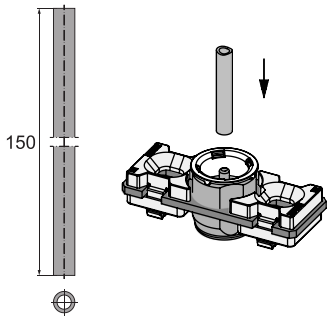
latch plate BS-V

type BS-V (with adjustment ring)

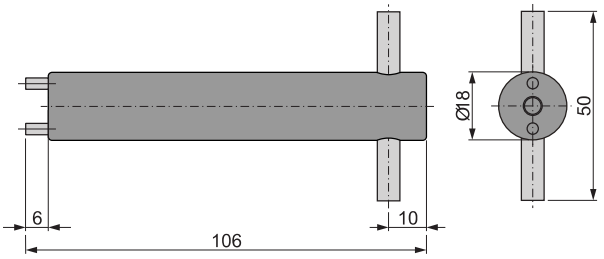
mounting accessories
(optional)



BS-V-Klammer
(use at at circular door leaf cut-out)



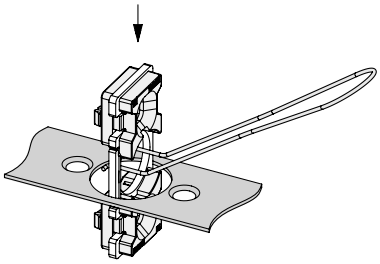
BE-Montagehilfe
(use at a square door leaf cut-out)



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:

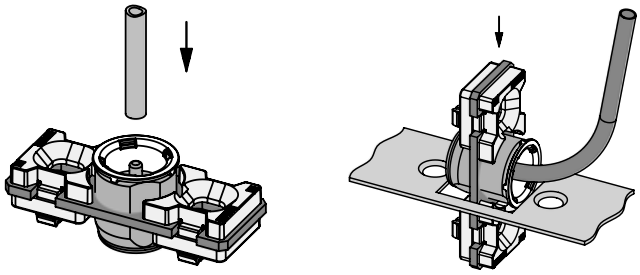


1. Unscrew the height-adjustable centre section of the latch plate.

… continued on next page

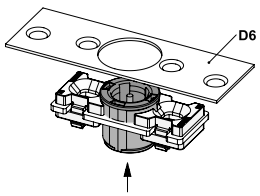
2. Insert the BS-V-Klammer through the opening in the centre section of the latch plate.
3. Hold the latch plate BS-V-Klammer and guide the latch plate through the hole in the door leaf.
4. Pull the latch plate up to the door leaf using the BSV-Klammer.
   Secure the latch plate with M6x20 countersunk screws. Make sure that the latch plate can still be moved for later adjustment.

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



1. Place the mounting aid on the pin of the latch plate and check the mounting aid for tight fit.
2. Hold the latch plate on the mounting aid and guide the latch plate through the hole in the door leaf. Pull the latch plate on the mounting aid up to the door leaf.
   Secure the latch plate with M6x20 countersunk screws. Ensure that the latch plate can still be moved for for the later setting.

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 sitll be moved for later adjustment.
2. Screw the mounting plate to the door leaf.

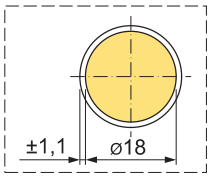
setting the latch plate

Note

Adjustment range of the sliding nut holder:

Adjustment range of the sliding nut within the holder::

Sliding range of the latch bolt in the latch plate:



The locking sleeve has **no** mechanical anti-rotation protection for the height-adjustable centre section. Secure the centre section by applying a screw securing material.

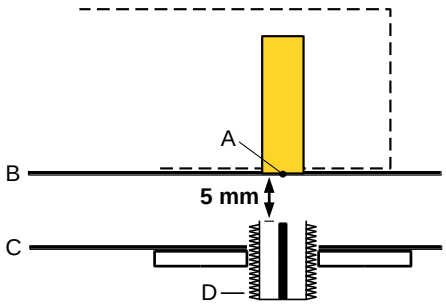
Preparatory work:

- 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.

… continued on next page

Setting using the adjustment ring:

1. Adjust the height of the centre section (D) by turning it so that there is a gap of 5 mm between the upper edge of the centre section (D) and the lower edge of the fully retracted locking bolt (A). We recommend using our BS-Dreh tool to adjust the height of the centre section.



(B) door frame, (C) door leaf

2. Insert the adjustment 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 latchplate 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. Tigthen the latch plate.
7. **Remove the adjustment ring from the latch plate.**
8. Finally check that:
   - there is a gap of 5 mm between the upper edge of the centre section and the lower edge of the fully retracted latch bolt
   - the position of the latch plate matches the position of the bolt of the door interlock
   - the locking process runs smoothly
9. Use a suitable screw securing material to secure the anti-rotation protection on the height-adjustable centre section.
10. We remommend storing the adjustment ring on the lift installation so that you can use this aid again for subsequent adjustment work.

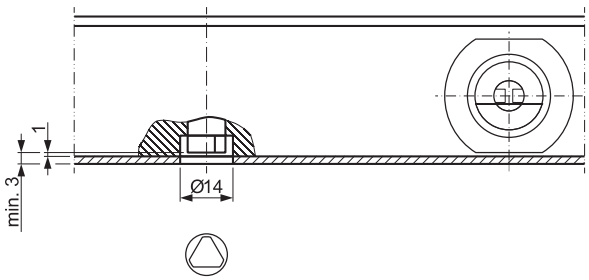
6.6 Emergency release

Caution

The triangle for the emergency release must be at least 3 mm behind the front edge of the door transom plate. This standardized specification must be taken into account when installing the door lock.

If the sheet thickness of the door transom is less than 2 mm, you can ensure the required distance to the transom sheet of at least 3 mm, for example by using a shim!

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



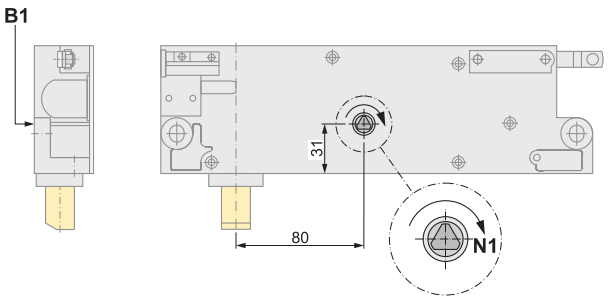
Note

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.

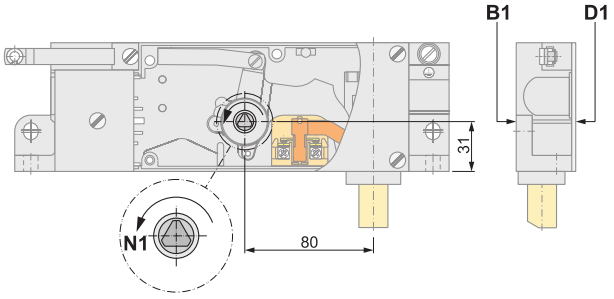
Information on emergency release:

emergency release at the bolt lever axle

– base side



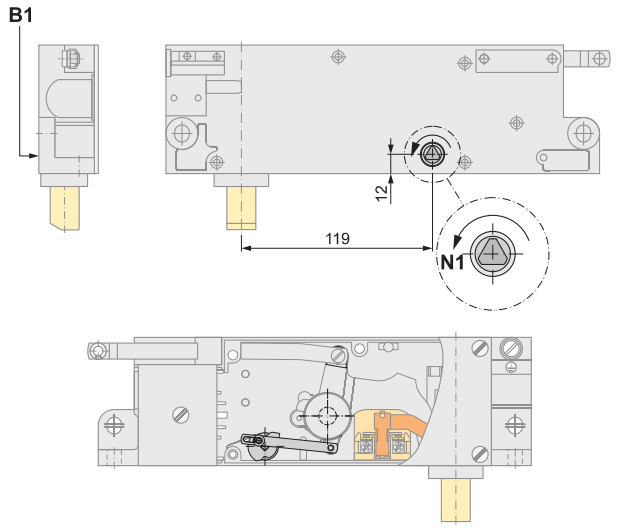
– base and cover side



B1 base side
D1 cover side
N1 unlocking direction

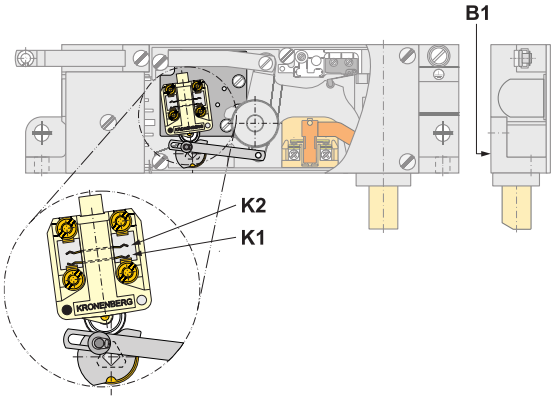
emergency release indirect
(laterally offset)

- base side



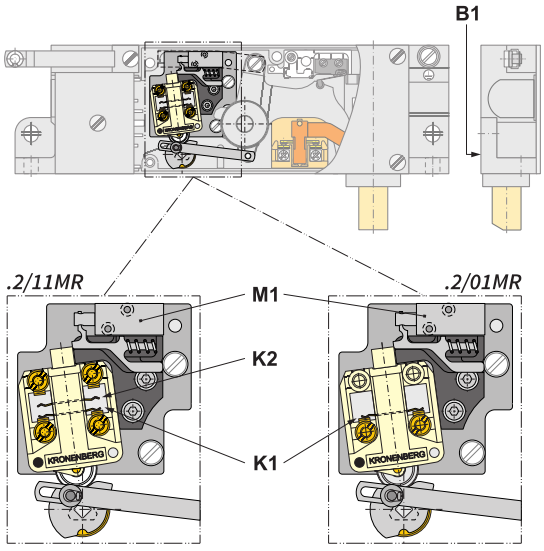
emergency release laterally offset

- base side
- integrated monitoring
- according to EN 81-21



dimensions see above (emergency release indirect / base side)

- base side
- integrated monitoring
- detent function
- according to EN 81-21



dimensions see above (emergency release indirect / base side)

B1	base side	**K2**	normally open contact
K1	positive opening contact	**N1**	unlocking direction
M1	electromagnet for the reset		

Technical data of the monitoring switches see chapter 9.6.

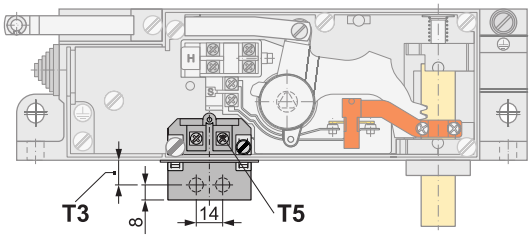
6.7 Switches

6.7.1 External door switch PZ73

Information on installation location, adjustment range and acutation variants:

external door switch
(installed)

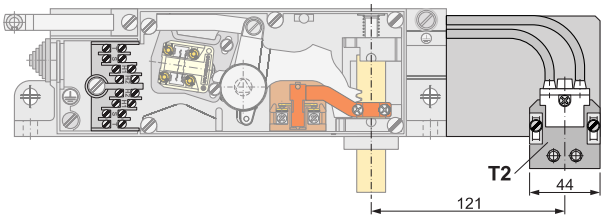
Note
Mounting location of the door switch available at:
DL1/6, DLF1/7, DL1, DLF1, DL2, DLF2



T3: The slotted holes allow and adjustment range of 9 mm to 15 mm during installation
T5: installed door switch (illustration: DLF1/7)

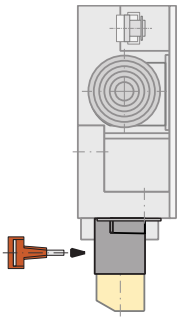
external door switch
(attached)

Note
Mounting locaction of the door switch available at:
DL1, DLF1, DL2, DLF2



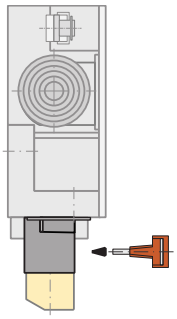
T2: attached door switch (illustration: DL1, DLF1)

actuation door switch



base side actuated

mounting location PZ73:
- installed: variant .6
- attached: variant .60



Cover side actuated

mounting locaction PZ73:
- installed: variant .7
- attached: variant .70

Note

Information on the contact bridges and their accessories can be found in chapter 6.7.2.

6.7.2 Contact bridges

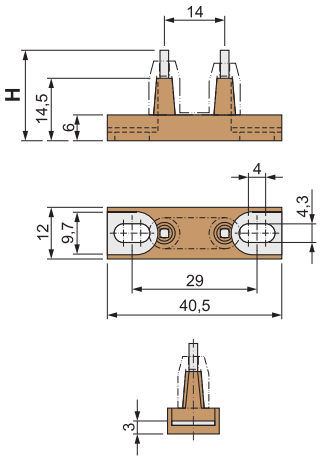
Information on contact bridges and their accessories:

contact bridges

PZ18

PZ21

dimensions



H (PZ18): 18mm
H (PZ21): 21mm

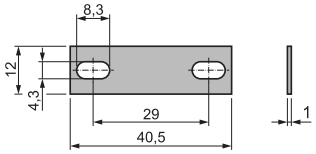
setting gauge
(optional)

setting gauge for contact bridge PZ18 / PZ21

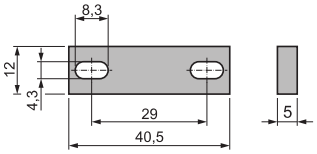
example: contact bridge PZ18 with attached setting gauge

pads for height adjustement of the contact bridge
(shimming)

PZ-U1



PZ-U5



Information on mounting the contact bridge and adjusting the position:

preparatory work

Take the lift system out of operation and secure the system against being switched on again.

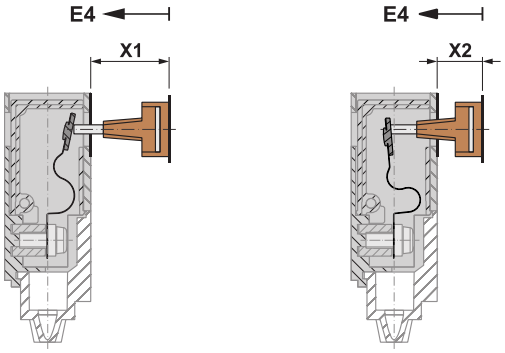
mounting the contact bridge

Note
We recommend using the contact bridge with attached setting gauge for installation and subsequent adjustment work.

… continued on next page

1. Mark the position of the contact bridge on the door leaf in the centre opposite the door switch.

Caution
Observe the following specifications for the contact touching (X1) and the travel (X2) in addition to the position of the contact bridge:



E4: movement direction of the contact bridge

X	switching travel (in mm)	PZ18	PZ21
X1	contact touching	14	17
$X_{opt.}$	**optimum overtravel**	**9**	**12**
X2	max. permissible overtravel	7	10

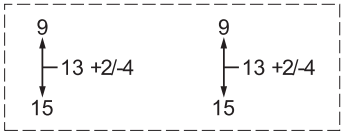
Note
In order to comply with the specifications, you may need to fit pads for height adjustment under the contact bridge.

2. Screw the contact bridge tight with M4 screws until the contact bridge can still be moved for later adjustment (see following specifications).

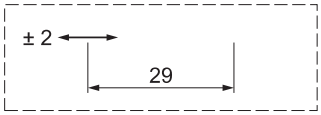
setting the position of the door switch and contact bridge

For fine adjustment, you can use the following adjustment ranges of the door switch and/or the contact bridge.

Note
Adjustment range of the door switch installed:



Adjustment range of the contact bridge:



… continued on next page

Caution
After completing the adjustment work, screw the contact bridge tight and remove the adjustment gauge from the contact bridge.
Operating the lift system with the adjustment gauge is not permitted!

final check

Before initial operation check:

- the door switch is screwed tight
- the contact bridge is screwed tight
- the cover of the door interlock is fitted and screwed tight
- the setting gauge has been removed from the contact bridge
- the insertion of the contact bridge into the door switch is faultless
- the position of the contact bridge fulfils the following specifications for the switching paths in the acutating direction:

X	switching travel (in mm)	PZ18	PZ21
X1	contact touching	14	17
$X_{opt.}$	**optimum overtravel**	**9**	**12**
X2	max. permissible overtravel	7	10

6.7.3 Auxiliary switches

Caution

The use of auxiliary switches for safety-relevant signals (e.g. monitoring the emergency release) is **not** permitted!

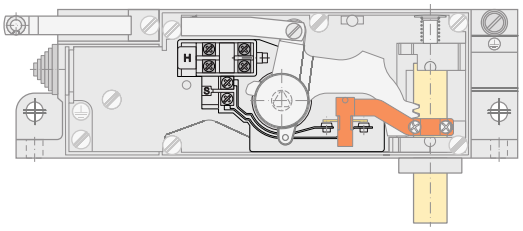
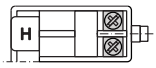
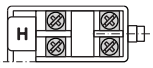
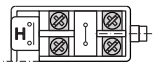
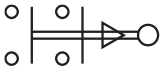
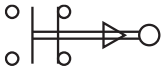
Note

The assignements of the contact blocks and the auxiliary switches are described in chapter 7.

Information on monitoring of the emergency release can be found in chapter 6.6.

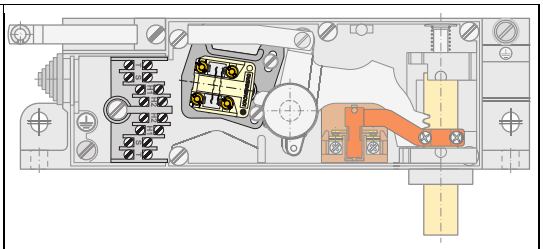
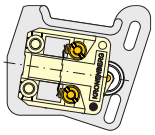
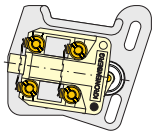
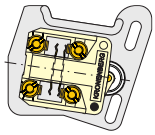
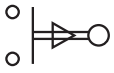
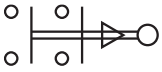
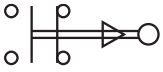
Overview of the auxiliary switch options for the door interlocks DL1/6, DLF1/7, DL1, DLF1, DL2, DLF2:

DL1/6, DLF1/7

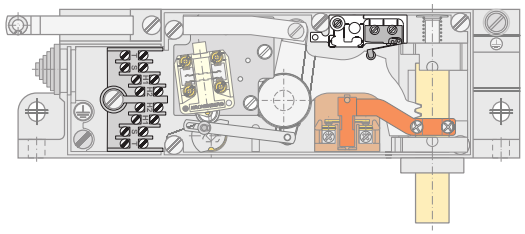
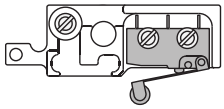
position:			
auxiliary switch:			
circuit diagram:			
contact(s)*:	closed	closed closed	closed open
variant:	.9/01	.9/02	.9/11

DL1, DLF1

DL2, DLF2

position:			
auxiliary switch:			
circuit diagram:			
contact(s)*:	closed	closed closed	closed open
variant:	.9/01	.9/02	.9/11

… continued on next page

position:	
auxiliary switch:	
circuit diagram:	
contact(s)*:	closed
variant:	.90/01**

* at unlocked door

** only in combination with integrated monitoring

7 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 a cable entry on the door interlock!

Please note that the type of cable entry (e.g. entry grommet, rubber grommet, ...) must be suitable for the intended use!

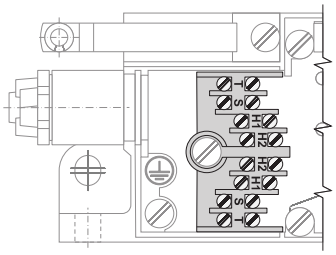
Particular attention must be paid to protected installation of the connecting cable, especially at the EX version.

Always use the electrical connections in their preassigned function.

7.1 Standard assignment of contact blocks

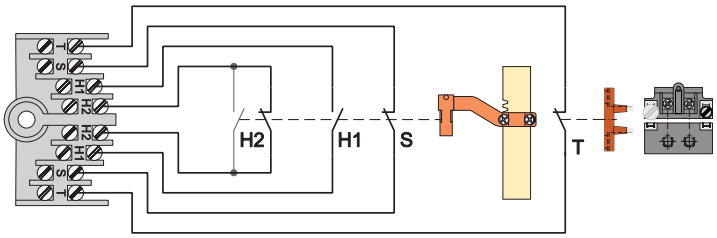
Contact blocks in the door interlocks DL/DLF and their standard assignment:

DL1, DLF1
DL2, DLF2



S	connecting terminals switch for locking mechanism
H1	connecting terminals auxiliary switch (optional)
H2	connecting terminals auxiliary switch (optional)
T	connecting terminals door switch (optional)

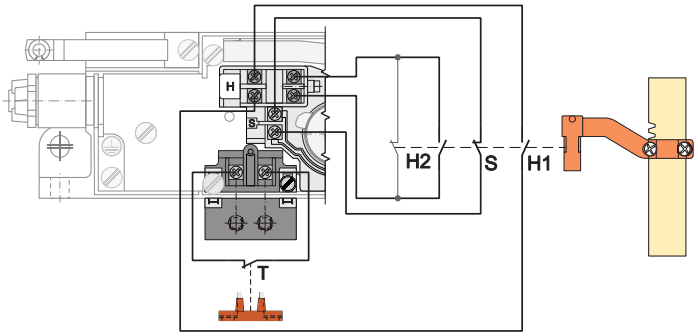
Standard assignment contact block with auxiliary and door switch:



S	switch for locking mechanism, positively opening
H1	auxiliary switch (optional)
H2	auxiliary switch (optional), as normally closed or normally open contact
T	door switch (optional)

DL1/6
DLF1/7

Standard assignment contact block with auxiliary and door switch:



S	switch for locking mechanism, positively opening
H1	auxiliary switch (optional)
H2	auxiliary switch (optional), as normally closed or normally open contact
T	door switch (optional)

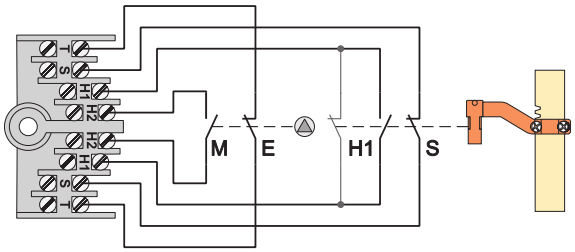
7.2 Assignment of the contact blocks for the integrated monitoring of the emergency release

Contact blocks in the door interlocks DL/DLF and their assignement:

DL1, DLF1
DL2, DLF2

Assignment for integrated monitoring of the emergency release in accordance with EN 81-21 with signalling contact and an additional auxiliary switch.

marking:
.2/11 .90/01

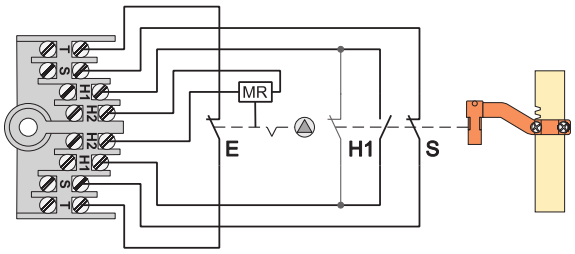


S	switch for locking mechanism, positively opening
E (T)	electrically monitored emergency release, positive opening
M (H2)	signal contact emergency release (optional)
H1	auxiliary switch (optional), normally closed or normally open contact

Caution
Ensure that terminals E (T) and H1 are used correctly.

marking:
.2/01MR .90/01

Assignment for integrated monitoring of the emergency release in accordance with EN 81-21 with mechanical detent of the actuated contacts and an additional auxiliary switch.



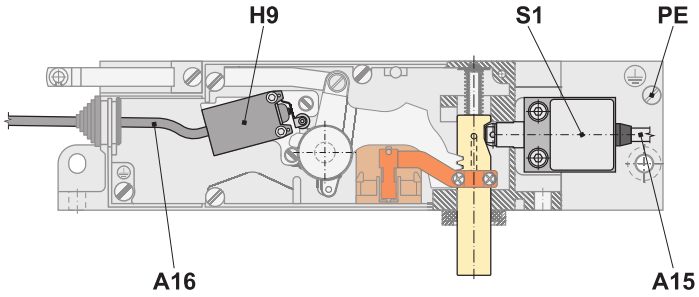
S	switch for locking mechanism, positive opening
E (T)	electrically monitored emergency release, positive opening
MR (H2)	magnetic unlocking
H1	auxiliary switch (optional), normally closed or normally open contact

Caution
Ensure that terminals E (T) and H1 are used correctly.

7.3 Assignment of the connecting cables DL1-IP67, DLF1-IP67, DL1-EX, DLF1-EX

Information on DL1-IP67, DLF1-IP67, DL1-EX, DLF1-EX:

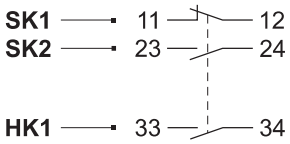
switches and connections



H9	separate auxiliary switch (optional) • HK1: normally open contact
S1	switch for locking mechanism, comprises: • SK1: positive opening contact / switch for locking mechanism • SK2: normally open contact, galvanically seperated
PE	connection earth conductor
A15	2 m connecting cable (switch for locking mechanism)
A16	3 m connecting cable (auxiliary switch)

Caution
When using the optional auxiliary switch (door interlock version: .9/01), the degree of protection is reduced to IP 66.

terminal assignment



SK1 (positive opening contact / switch for locking mechanism):

11	brown	12	blue

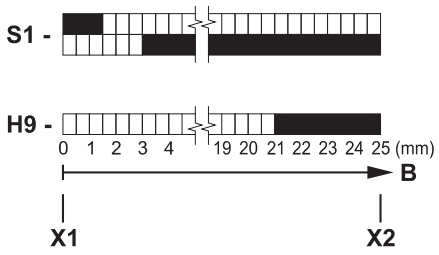
SK2 (normally open contact, galvanically separated):

23	grey	24	black

HK1 (auxiliary switch, closed at unlocked door):

33	grey	34	black

circuit diagrams



X1	bolt position „landing door locked“
X2	bolt position „landing door unlocked“
B	bolt stroke
■	contact closed
□	contact open

8 Maintenance, storage, disassembly and disposal

8.1 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 lock, the roller lever, the rubber roller and the cover are screwed tight and show no signs of damage.
- There is sufficient clearance between the attracted retiring cam and the rubber roller on the roller lever.
- The roller lever or the rubber roller do not touch any components of the car while travelling.
- The movement of the locking bolt is free and constant.
- The latch bolt moves freely into the latch plate.
- The connection cables and the entries in the door lock 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 8.1.1 for relubrication of the moving components in the external area.

8.1.1 Recommended lubricants

Recommended lubricants for assembly and maintenance:

specifications	 **Caution** The use of other types of lubricant 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. Do not oil the rubber roller, as the roller has a self-lubricating bearing.
external area of the locking bolt	lubricant: teflon grease e. g. Interflon Food Grease LT2
felt ring on the locking bolt (if available)	lubricant: high-performance hydraulic oil e. g. Total AZOLLA ZS 100
pull rod linkage bolt	lubricant: Teflon oil e. g. Interlfon Food Lube LT
Bowden cable	Lubricant: Teflon oil e. g. Interlfon Food Lube LT

8.2 Storage

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

8.3 Disassembly and disposal

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

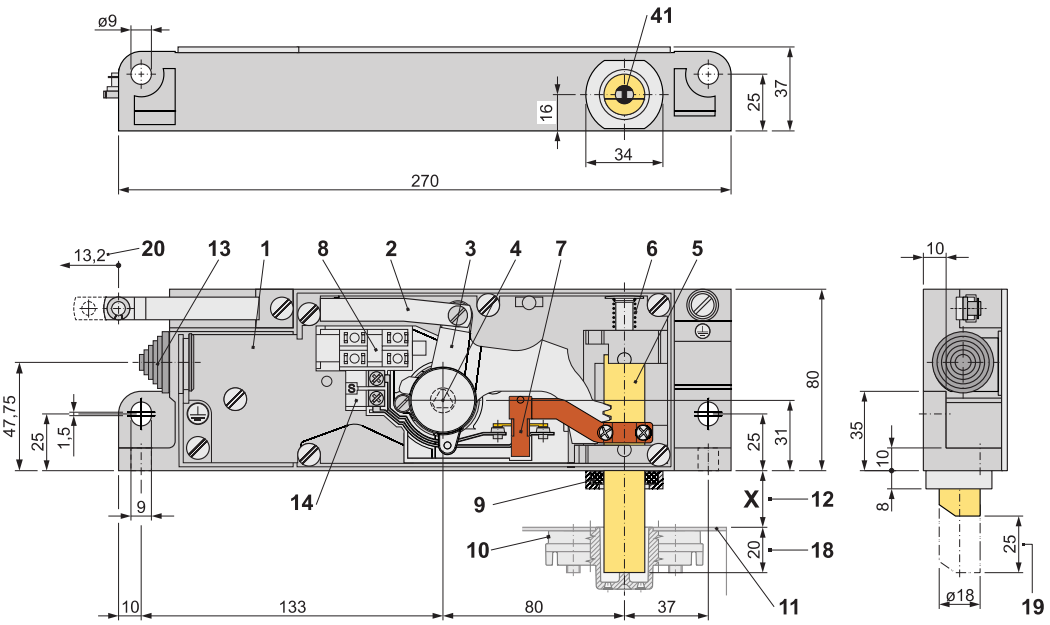
Only carry out disassembly when the device is de-energised.

Dispose of the components in accordance with national regulations.

9 Data sheets

9.1 Device dimensions and part descriptions DL1/6, DLF1/7

DLF1/7 shown DLF1/7 - R - X20 (u) .10

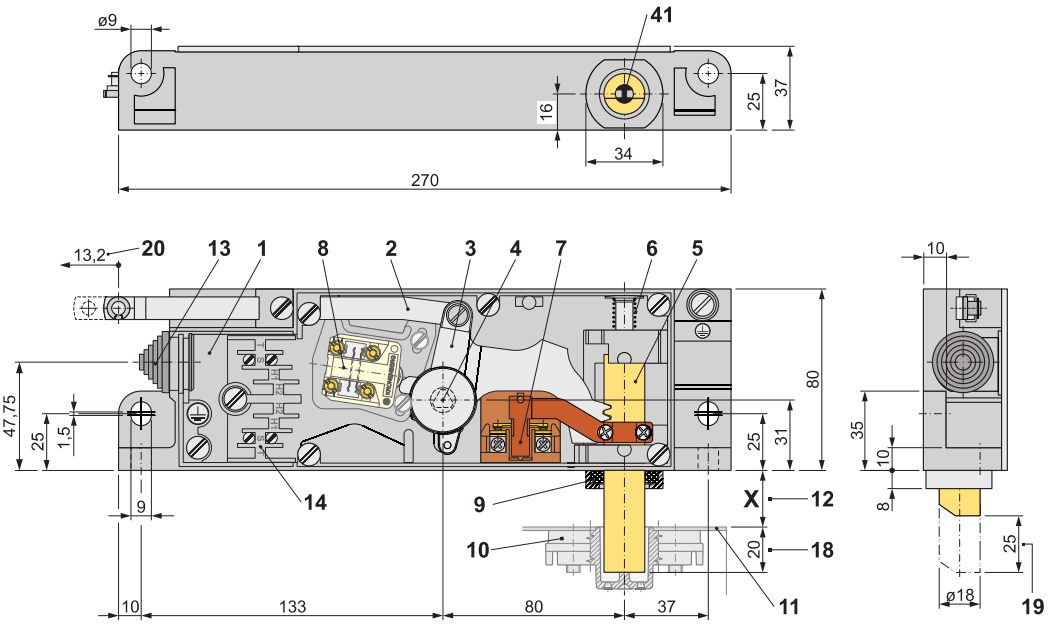


Legend:

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 (optional)
9 oiled felt ring with holder (from X ≥ 10 mm)
10 latch plate (does not apply at DL1/6)
11 door leaf / door edge
12 X-dimension according to customer specification
13 cable entry
14 connecting terminals
18 immersion depth of the latch bolt into the platch (nominal dimension)
19 bolt stroke
20 actuating travel
41 faulty closure device (does not apply at DL1/6)

9.2 Device dimensions and part descriptions DL1, DLF1

DL1, DLF1 shown DLF1 - R - X20 (u) .10 .9/11

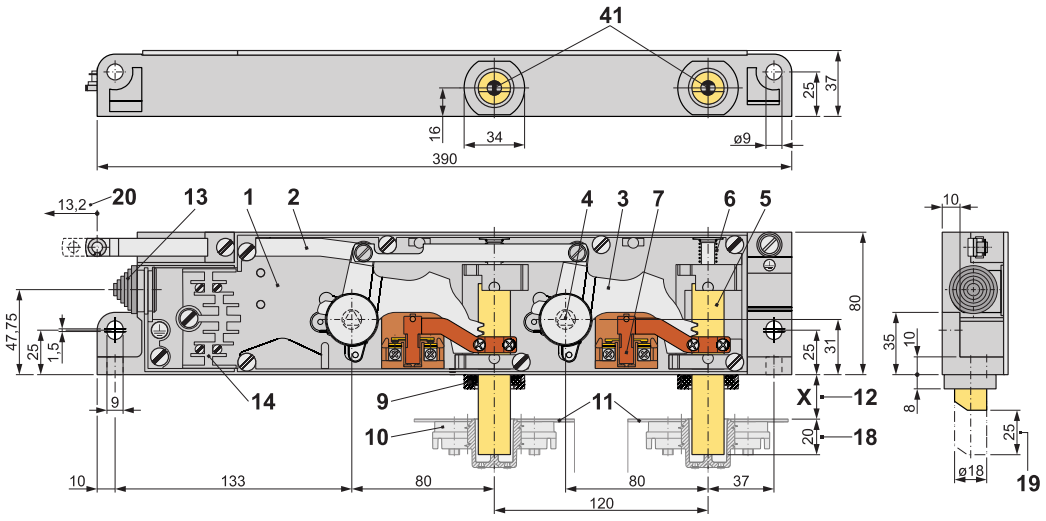


Legend:

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 (optional)
9 oiled felt ring with holder (from X ≥ 10 mm)
10 latch plate
11 door leaf / door edge
12 X-dimension according to customer specification
13 cable entry
14 connecting terminals
18 immersion depth of the latch bolt into the latch plate (nominal dimension)
19 bolt storke
20 actuating travel
41 faulty closure device

9.3 Device dimensions and part descriptions DL2, DLF2

DL2, DLF2 shown DLF2 - R - X20 (u) .10

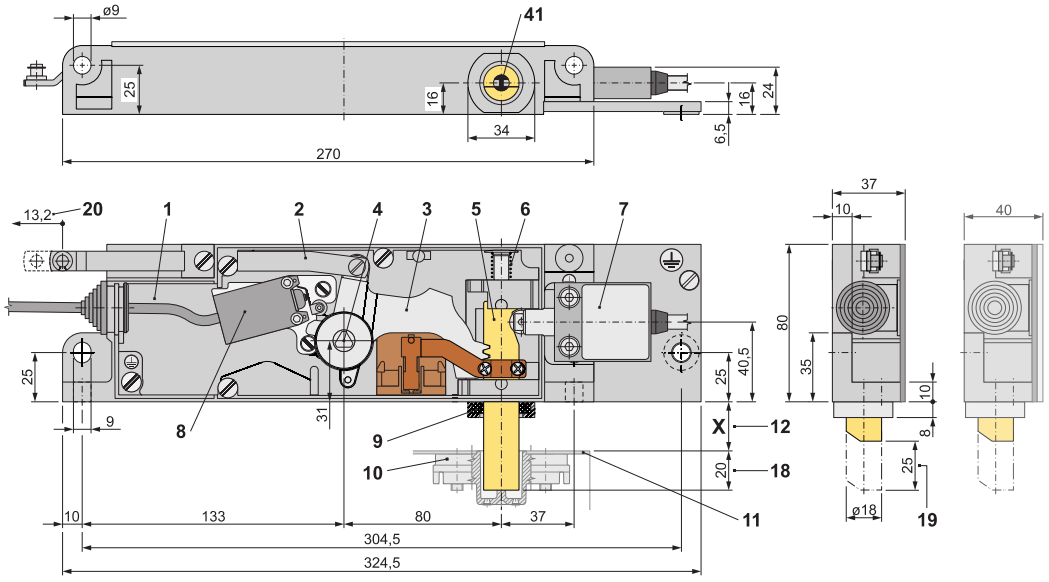


Legend:

1	housing	11	door leaf / door edge
2	pull rod	12	X-dimension according to customer specification
3	bolt lever	13	cable entry
4	bolt lever axis with triangle (base side)	14	connecting terminals
5	latch bolt (locking mechanism)	18	immersion depth of the latch bolt into the latch plate (nominal dimension)
6	return pressure spring	19	bolt stroke
7	switch for locking mechanism	20	actuating travel
9	oiled felt ring with holder (from X ≥ 10 mm)	41	faulty closure device
10	latch plate		

9.4 Device dimensions and part descriptions DL1-IP67, DLF1-IP67

DL1-IP67, DLF1-IP67 shown DLF1-IP67 - R - X20 - CHR (u) .10

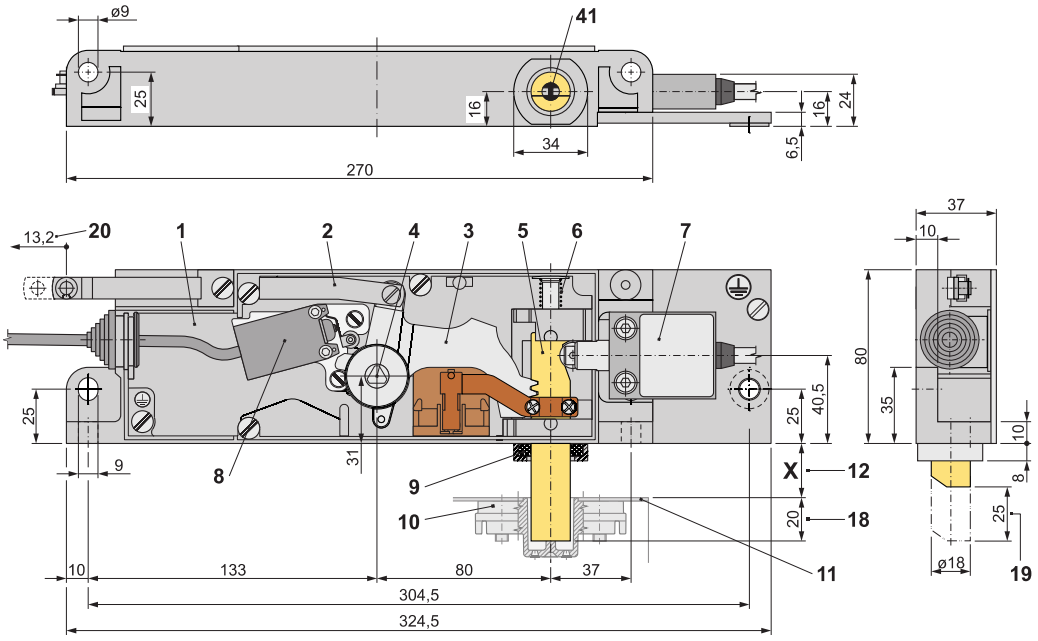


Legend:

1 housing
2 pull rod
3 bolt lever
4 bolt lever axis with triangle (base side)
5 latch bolt (locking mechanism), non-detachably pinned on the underside
6 return pressure spring
7 position switch (switch for locking mechanism) with connection cable
8 auxiliary switch (optional) with connection cable
9 oiled felt ring with holder (from X ≥ 10 mm)
10 latch plate (does not apply at DL1-IP67)
11 door leaf / door edge
12 X-dimension according to customer specification
18 immersion depth of the latch bolt into the latch plate (nominal dimension)
19 bolt stroke
20 actuating travel
41 faulty closure device (does not apply at DL1-IP67)

9.5 Device dimensions and part descriptions DL1-EX, DLF1-EX

DL1-EX, DLF1-EX shown DLF1-EX - R - X20 (u) .10 .9/01



Legend:

1 housing
2 pull rod
3 bolt lever
4 bolt lever axis with triangle (base side)
5 latch bolt (switch for locking mechanism), non-detachably pinned on the undersite
6 return pressure spring
7 position switch (switch for locking mechanism) with connection cable, fastening screws non-detachably moulded
8 auxiliary switch (optional) with connection cable
9 oiled felt ring with holder (ab X ≥ 10 mm)
10 latch plate (does not apply at DL1-EX)
11 door leaf / door edge
12 X-dimension according to customer specification
18 immersion depth of the latch bolt into the latch plate (nominal dimension)
19 bolt stroke
20 actuating travel
41 faulty closure device (does not apply at DL1-EX)

9.6 Technical data

switch for locking mechanism

norms	EN 81-20, EN 81-50, EN 60947-5-1
switching capacity	Ui = 250 V, Ith = 10 A, Uimp = 4 KV AC-15: Ue = 230 V, Ie = 2 A
short-circuit capacity	T 10 A, F 16 A
contact material	fine silver

monitoring switch of the emergency release

norms	EN 81-20, EN 81-50, EN 60947-5-1
switching capacity	Ui = 250 V, Ith = 10 A, Uimp = 4 KV AC-15: Ue = 230 V, Ie = 2 A | DC-13: Ue = 200 V, Ie = 0,5 A
short-circuit capacity	T 10 A, F 16 A
contact material	Fine silver
electromagnet reset	By current pulse 24 V, max. 5s (5 % ED), Typ: .2/11MR, .2/01MR

auxiliary switch - .9/…

switching capacity	AC-15: Ue = 230 V, Ie = 2 A | DC-13: Ue= 200 V, Ie = 0,5 A

auxiliary switch - .90/…

switching capacity	AC: Ue = 250 V, Ie = 6A EN 61058 DC: Ue= 200 V, Ie = 0,25 (0,1) A DC: Ue= 60 V, Ie = 1 (0,5) A DC: Ue= 24 V, Ie = 3 (2,0) A

actuation

actuation torque on the roller lever	DL1, DLF1: 1.5 Nm* | DL2, DLF2: 2.3 Nm*
actuation force on the pull rod	DL1, DLF1: 40 N* | DL2, DLF2: 60 N*
max. permissible force in locked state	DL1, DLF1: 5 N | DL2, DLF2: 6 N

* typical

general

connection	by screw terminals, max. 2,5 mm²
protection class	IP40 IP20 (for versions according to: .6, .7, .8, .16, .60, .70) IP54 (for versions according to: -W, -WV) (Note: the prescribed operating position must be observed!)
ambient air temperature	-10°C bis +65°C -30°C bis +65°C (special version)
weight	700 - 1700 g (each according to version)

10 EU-Declaration of Conformity

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

11 Appendix

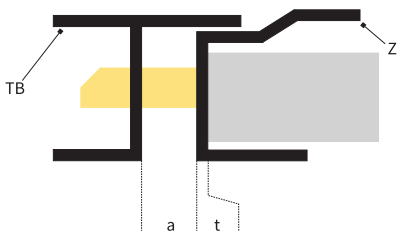
11.1 X-dimension use and determination

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 locking 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 tolerance DL, DLF: X +1,5 mm
minimum length X-dimension	The X-dimension must not be less / shorter than these lengths: • door interlocks **without** oiled felt ring: 5 mm • door interlocks **with** oiled felt ring: 10 mm
maximum length X-dimension	The X-dimension must not exceed the following length: • DL, DLF: 90 mm
recommended measuring equipment	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.

11.1.1 Determination X-dimension with door interlock installed

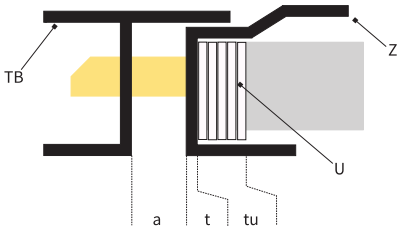
Information on measuring the X-dimension:

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

11.1.2 Determination X-dimension with door interlock uninstalled

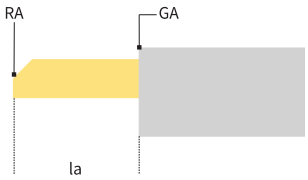
Information on 2 equivalent measurement variants:

measurement variant 1:
The latch bolt is extended.

Caution
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).



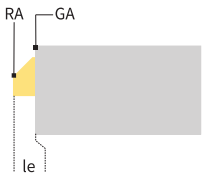
2. The X-dimension results from: X-dimension = la **-** 20 mm

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

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

Procedure:

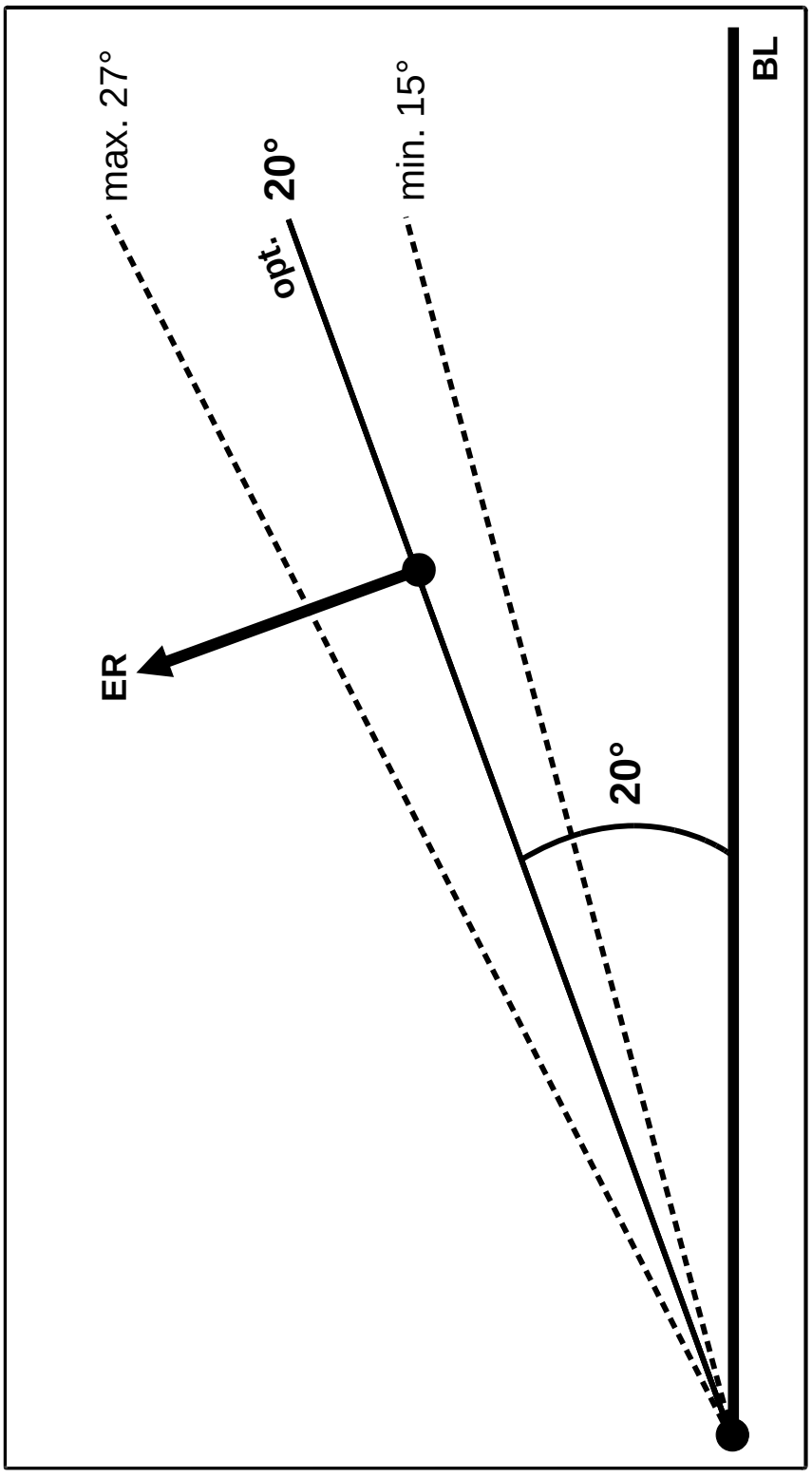
1. Measure the length [le] from the top edge of the latch bolt (RA) to the outside of the housing (GA).



2. The X-dimension results from: X-Maß = le + 5 mm

11.2 Adjustment aid for the angle of the roller lever

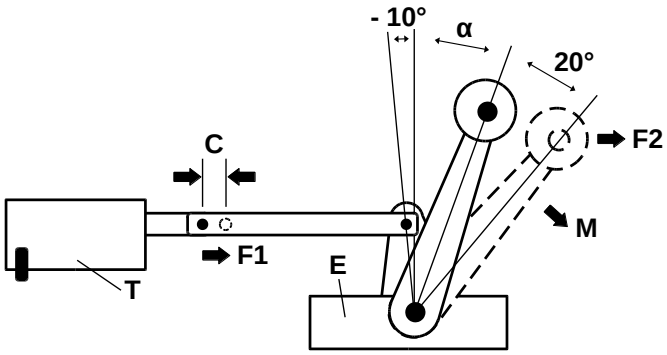
The template helps you to set the angle for the roller lever.



ER unlocking direction
opt. optimum setting angle of 20°
BL reference line

11.3 Actuating forces (example)

The example shows the necessary forces and torques based on actuation via a pull rod and a roller lever on the single bearing block.



Legend:

T door interlock
E single bearing block
C actuation travel of the pull rod = 13,2 mm
α angle* for basic roller lever setting = 15° - 27°
*Optimum utilization of the force from the retiring cam movement is guaranteed with an angle α = 20°.
In addition, the drive lever on the bearing block must be -10° before the centre position!
Optimum force transmission is only guaranteed if the drive lever is moved beyond the centre position.
M torque required on the roller lever
F1 force required on the pull rod
F2 force required on the roller lever

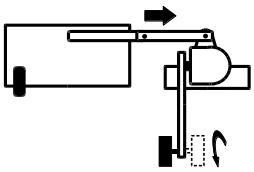
Note

Available force at the retiring cam:

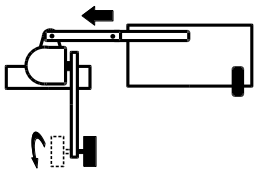
- RKMO: 65 N
- EMT17: 45 N

Door interlock	**F1** [N]	**M** [Nm]	**F2** [N]
DL1/6, DLF1/7, DL1, DLF1, DL1-IP67, DLF1-IP67, DL1-EX, DLF1-EX	40	1.5	17.5
DL1-W, DLF1-W, DL1-WV, DLF1-WV	45	1.7	20
DL2, DLF2	60	2.3	27
DL2-W, DLF2-W	65	2.5	29

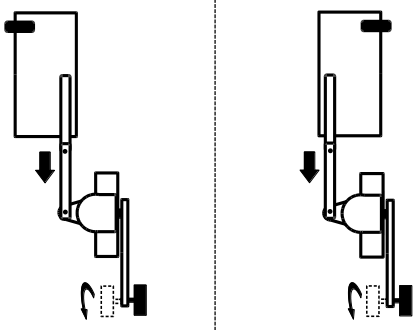
11.4 Overview of the variants for the actuation type „pull rod with reversing bearing block“



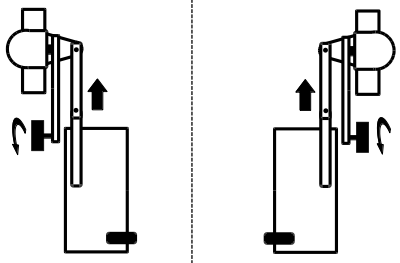
- door interlock: left
- reversing bearing block: left
- operating position: horizontal



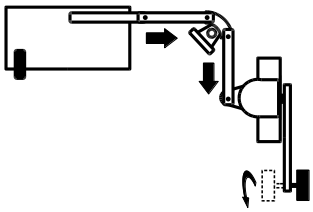
- door interlock: right
- reversing bearing block: right
- operating position: horizontal

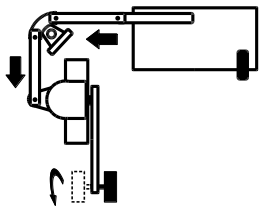


- door interlock: left/right
- reversing bearing block: below
- operating position: vertical

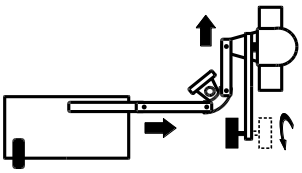


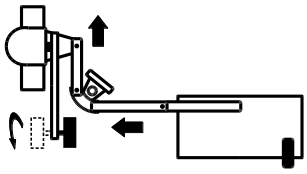
- door interlock: left/right
- reversing bearing block: above
- operating position: vertical





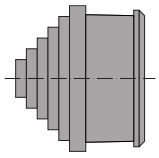
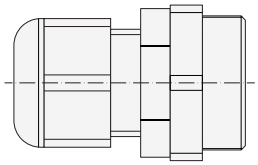
- door interlock: left/right
- pull rod deflection
- reversing bearing block: below
- operating position: horizontal





- door interlock: left/right
- pull rod deflection
- reversing bearing block: above
- operating positon: horizontal

11.5 Overview of cable entries

door interlock	cable entry	illustration	comments
DL1 DLF1 DL1/6 DLF1/7 DL2 DLF2	rubber grommet		• The rubber grommet is provided with several steps on the cable entry side. • Depending on the cable thickness, the corresponding step must be removed with a sharp knife. • If a standard cable is used, removing the inner step should be sufficient.
DL1-W DLF1-W DL1-WV DLF1-WV DL2-W DLF2-W	M25 reduced to M20		• Screw connection in the entry flange • Reduction M25 to M20

11.6 Overview of latch plates

The matrix summarizes the features of the different latch plates in an overview.

features	BE	BE-J	BE-0	BE7	BE7-J	BL-V	BS-V	BS-SEIT | BS-SEIT1
general information								
actuation of the faulty closure device, pin	●	●	○	●	●	●[1]	●	●
full metal design	●	●	●	●	●	○	○	●
centre section (latch plate) height-adjustable	○	○	○	○	○	●	●	●
sheet thickness (maximum) [mm]	1,5	1,5	1,5	7	7	●[2]	●[2]	●[2]
installation location								
installation in the door leaf	●	●	●	●	●	●	●	○
external installation	○	○	○	○	○	○	○	●
fastening								
sliding nuts for aligning the latch plate	●	●	●	●	●	●	●	○
slotted holes for aligning the latch plate	○	○	○	○	○	○	○	●
mounting tools								
BE -Montagehilfe (tube)	●	●	●	●	●	○	●	●
BL-V -Montagehilfe (tube)	○	○	○	○	○	●	○	○
BS-V -Klammer	○	○	○	○	○	●	●	○
BS-Dreh	-	-	-	-	-	○	●	●
adjustment bolt								
adjustment ring (in scope of delivery)	○	●	○	○	●	●	●	●
miscellaneous								
large circumferential clearance for latch bolt	○	○	○	○	○	●	○	○
anti rotation protection for height adjustment	-	-	-	-	-	●[3]	●[4]	●[4]

-

Legend:

- ● available
- ○ not available
- - not relevant

1 small pin diameter

2 adjustable by height adjustment

3 integrated, by spring pin mechanically latching

4 on site with screw securing material

Notes:

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