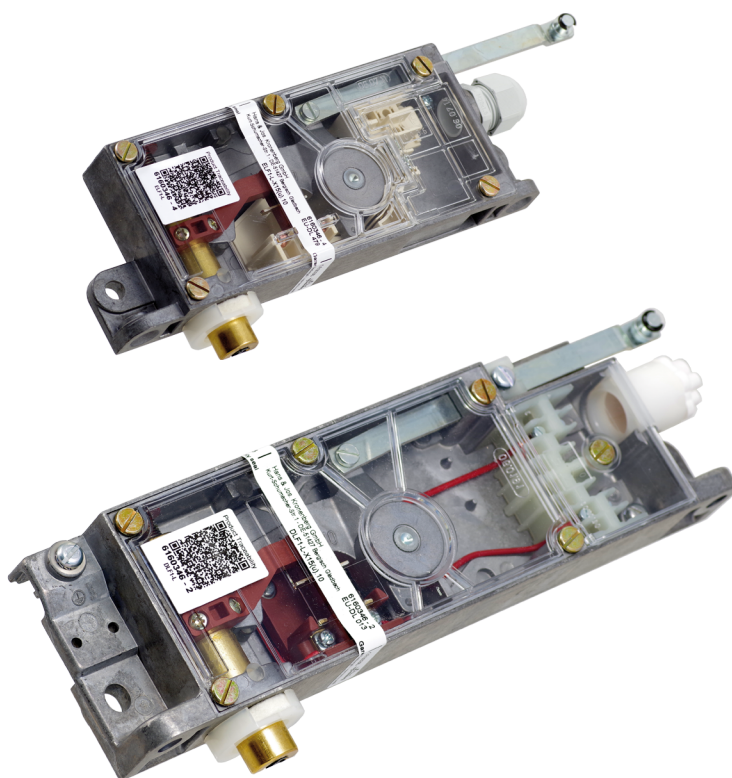


Door Interlocks DL(F) and EL(F)1 Operating Instructions



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Document information

Titel: kro_ba_tv_en_2021.indd, Stand: 15.03.2021

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General:

The drawings according to EC type approval certificate are part of the mounting instruction. They comprise the following information:

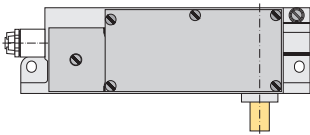
- dimensions
- fixing dimensions
- modes of operation
- emergency release
- variations and options
- customary positions
- penetration depth of the latch bolt
- function of the faulty closure device
- technical data

The door interlocks comply with all the requirements of the EN 81-20, EN 81-21, EN81-50 and EN 60947-5-1. This also includes the compliance with the necessary clearance and creepage distances.

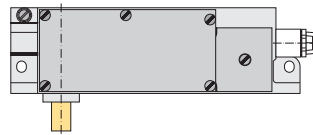
With the attachment of the test identification sign we confirm the compliance of the device with the type-tested model checked by the TÜV. A subsequent conversion into another version must not be carried out by a third party, as this leads to the loss of the approval. A rearrangement of the lateral annexed roller lever, the substitution of the roller lever or rubber roller bolt with the rubber roller is, however, permitted.

Operating Directions:

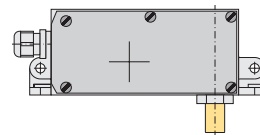
DL(F)1 - R



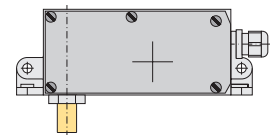
DL(F)1 - L



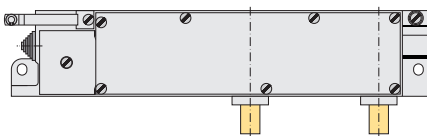
EL(F)1 - R



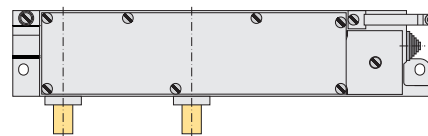
EL(F)1 - L



DL(F)2 - R



DL(F)2 - L



Maintenance:

Normally there is no maintenance necessary, because all parts are provided with high-quality lubricants. In extreme operating conditions we suggest in regular inspection periods:

1. The removal of rough contamination.
2. To check that the fastening screws are tightly fastened.
3. To check that the screw at the roller lever is tightly fastened.
4. To retighten terminals for electrical cables.
5. To check cable entries.
6. To lubricate again, if the lubricants have become ineffective.

Definition of the X-dimension:

X-dimension use:	The X-dimension is the length specification for the order-related production of the latch bolt.
scope:	this instruction applies to the following door lock systems: DL(F), EL(F)
measuring equipment:	A tape measure or similar measuring tools are sufficient.
tolerances:	X-dimension tolerance DL(F) and EL(F): X +1.5 mm
minimum length X-dimension:	the X-dimension must not be shorter than the following lengths: <ul style="list-style-type: none"> • door interlocks without oiled felt ring and holder: 5 mm • door interlocks with oiled felt ring and holder: 14 mm
maximum length X-dimension:	the X-dimension must not exceed the following lengths: <ul style="list-style-type: none"> • DL(F), EL(F): 90 mm

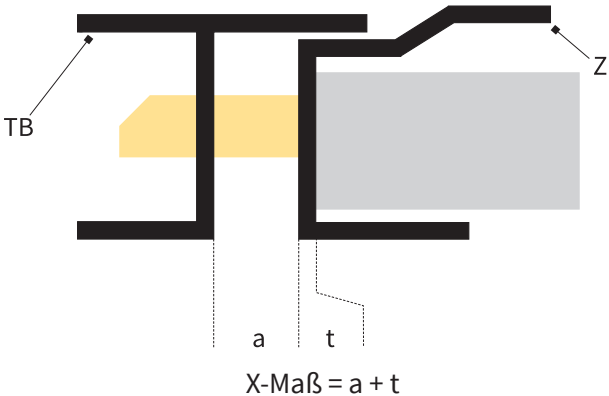
Measuring at door interlock installed:

If possible, we recommend to take the measurements at door interlock installed. You will find these two variants of the installation on site:

Installation without support

proceeding:

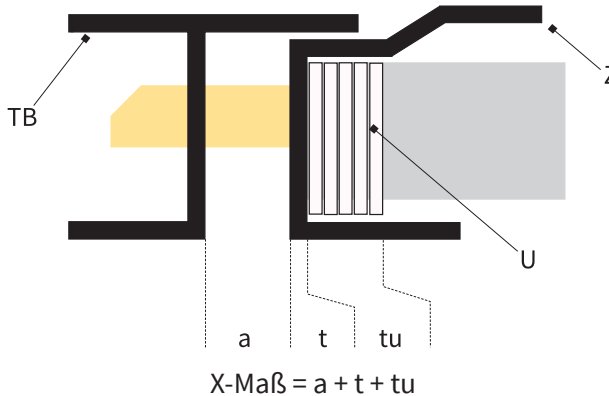
1. Measure the distance (a) between the door leaf (TB) and the frame (Z).
2. Measure the thickness (t) of the frame sheet.



Installation with support

proceeding:

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 support (U).



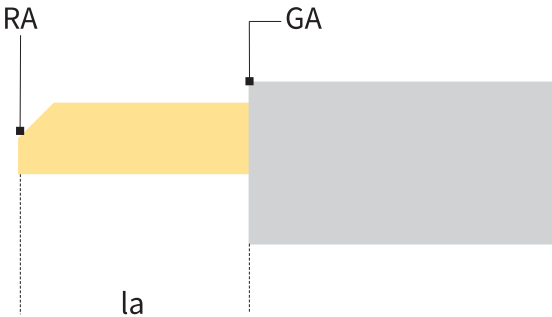
Measuring at door interlock uninstalled:

at uninstalled door interlock you can determine the X-dimension in two ways:

the latch bolt is extended

note: Ensure that the faulty closure device is cancelled at the door interlocks DLF and ELF1

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

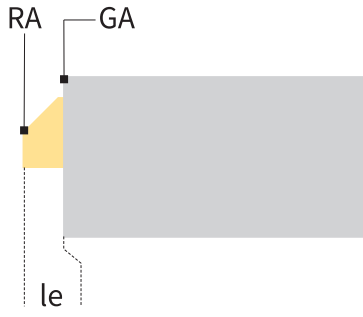


$X\text{-Maß} = la - 20 \text{ mm}$

the latch bolt is in the unlocking position

note: Ensure that the latch bolt is pushed in completely.

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

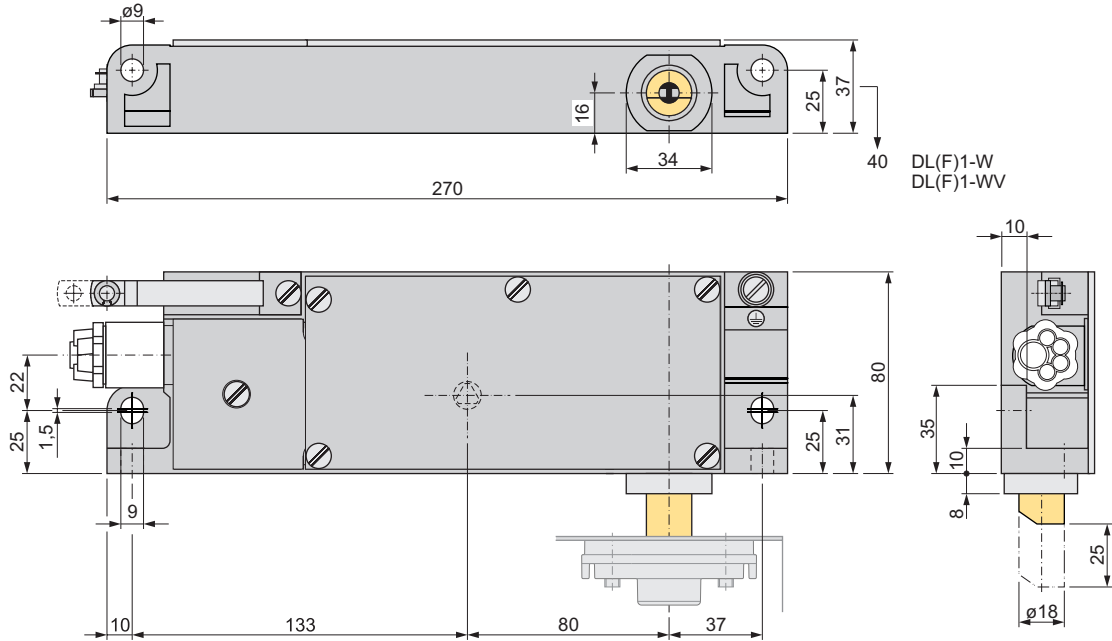


$X\text{-Maß} = le + 5 \text{ mm}$

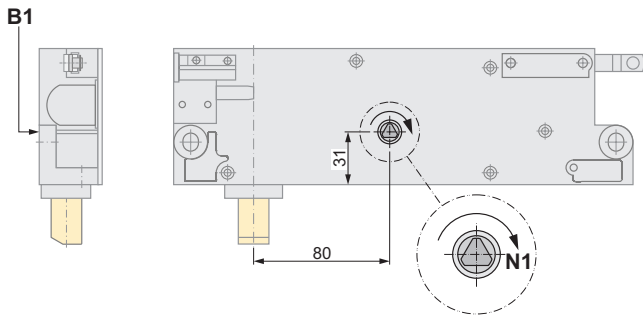
Note: Within a lift installation different X-dimensions can occur.

If several or all door interlocks at a lift installation are replaced, please check the X-dimension at the doors concerned!

Dimensions and fixation: DLF1 / DL1 and DLF1/7 ; DL1/6
 DLF1-W / DL1-W
 DLF1-WV / DL1-WV

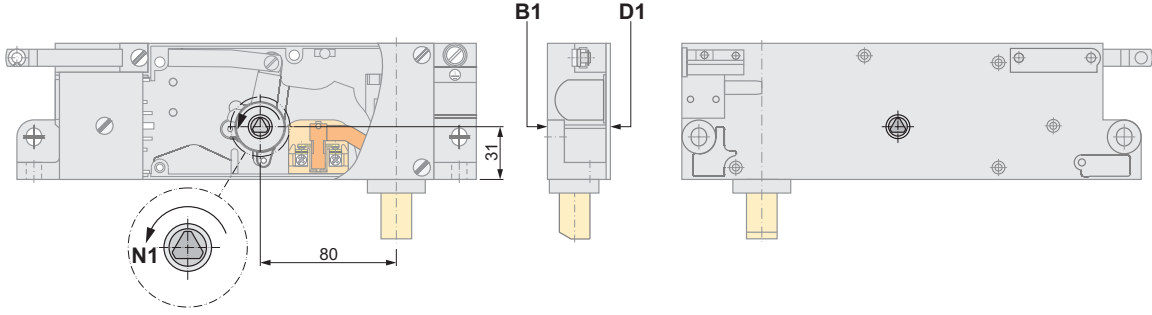


emergency release base side at the tooth lever axis

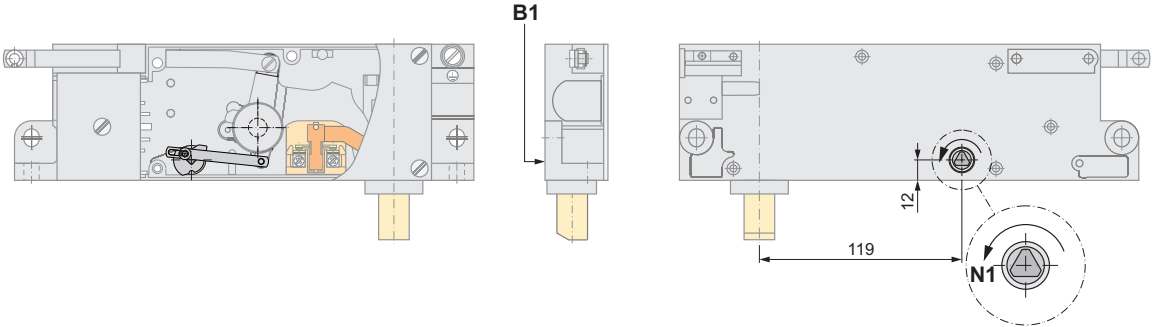


B1 base side
D1 cover side
N1 unlocking direction emergency release

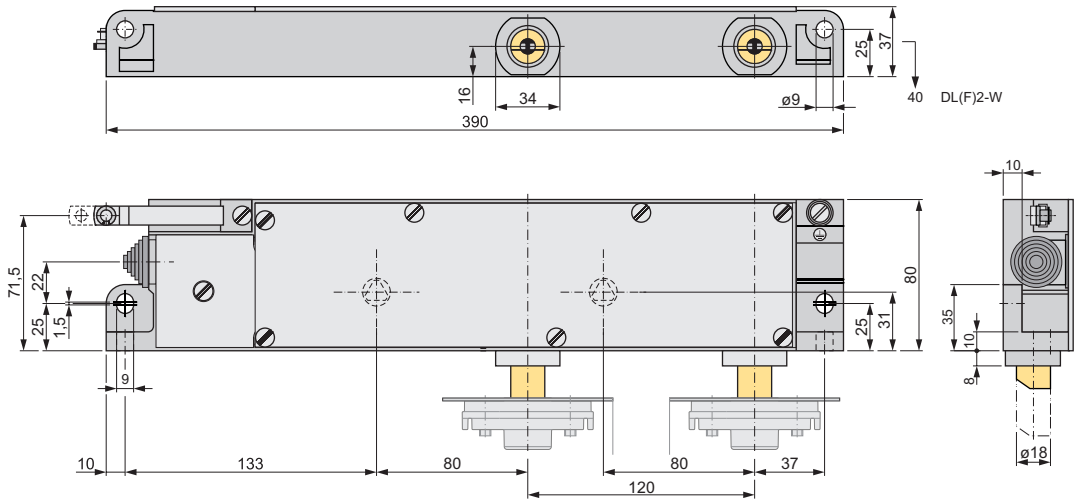
emergency release base side and cover side at the tooth lever axis in combination with actuation .10 (by pull rod)



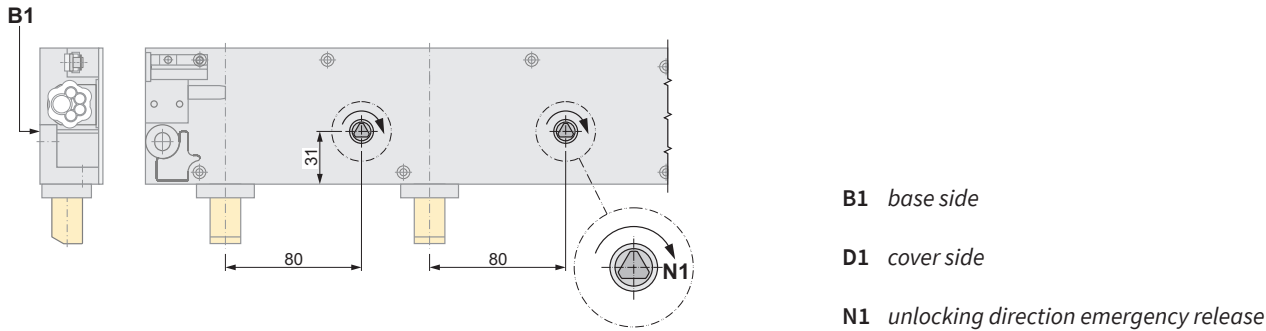
emergency release indirect base side



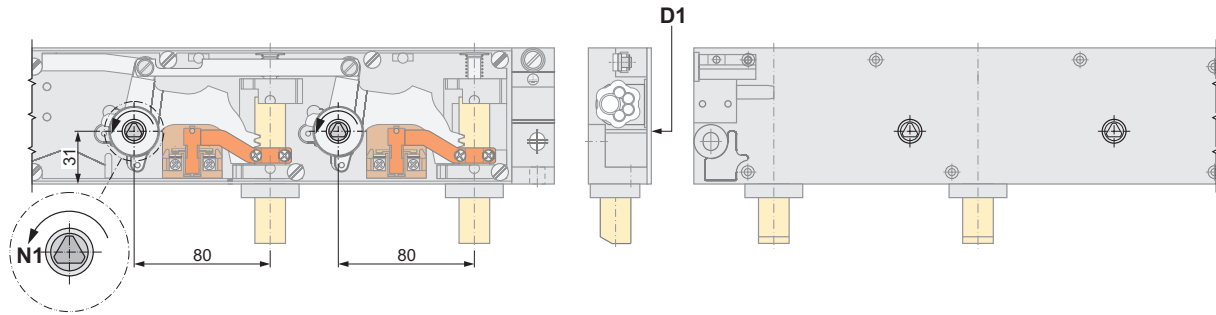
Dimensions and fixation: DLF2 / DL2
DLF2-W / DL2-W



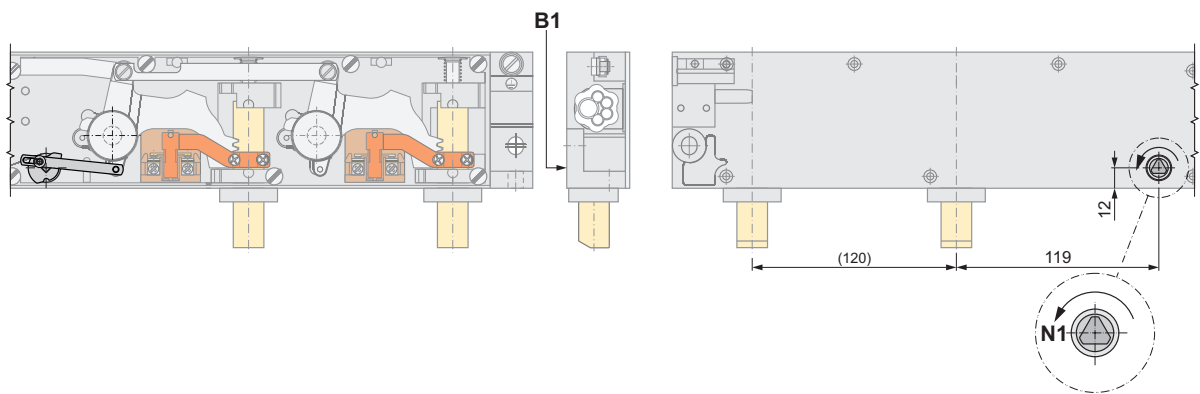
emergency release base side at the tooth lever axis



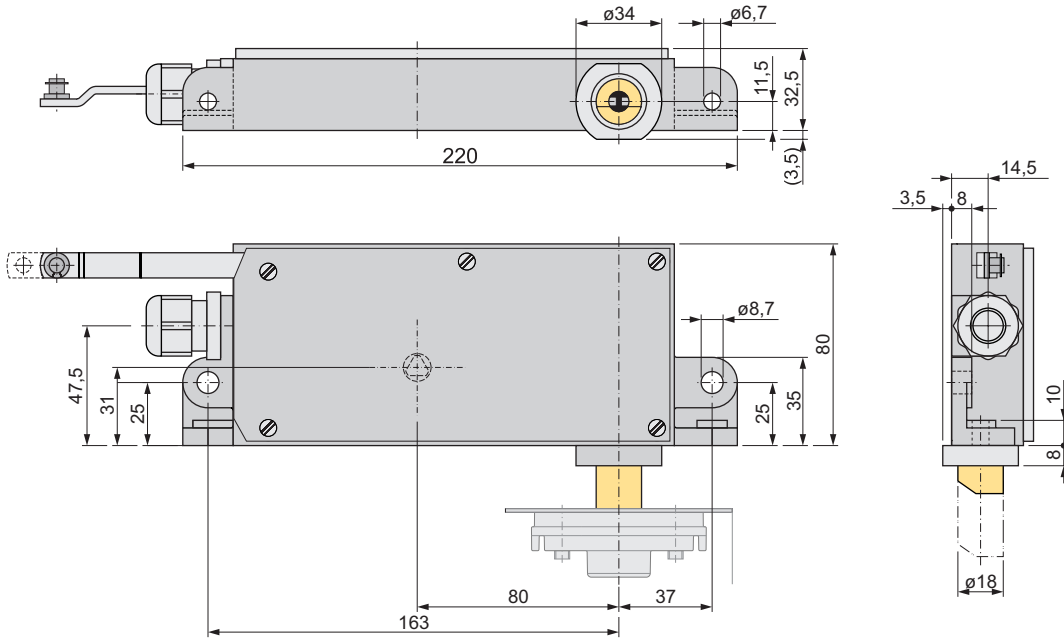
emergency release base side and cover side at the tooth lever axis in combination with actuation .10 (by pull rod)



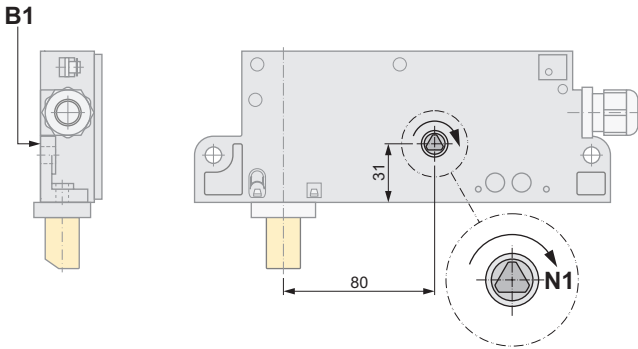
emergency release indirect base side



Dimensions and fixation: ELF1 / EL1

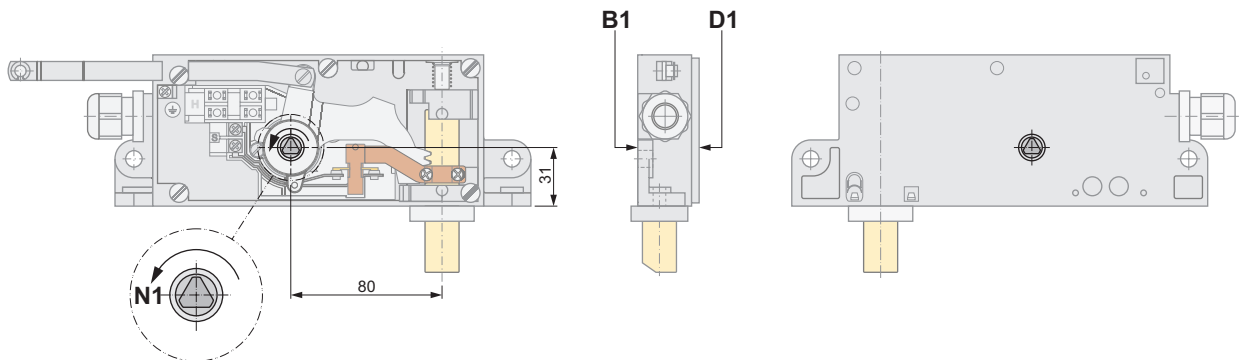


emergency release base side at the tooth lever axis

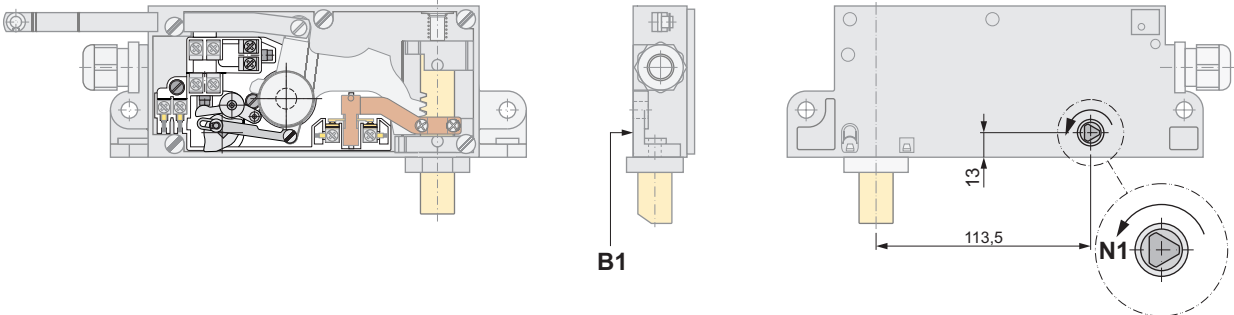


- B1** base side
- D1** cover side
- N1** unlocking direction emergency release

emergency release base side and cover side at the tooth lever axis in combination with actuation .10 (by pull rod)

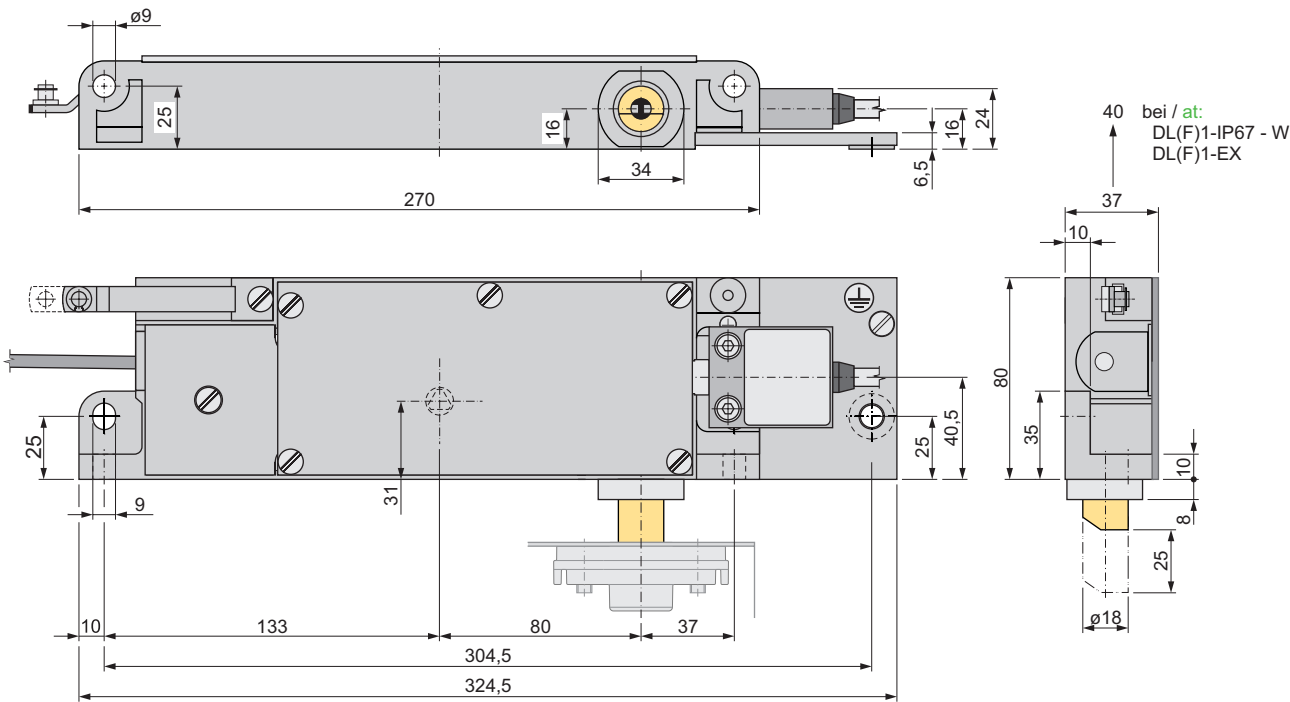


emergency release indirect base side with integrated monitoring according to EN 81-21

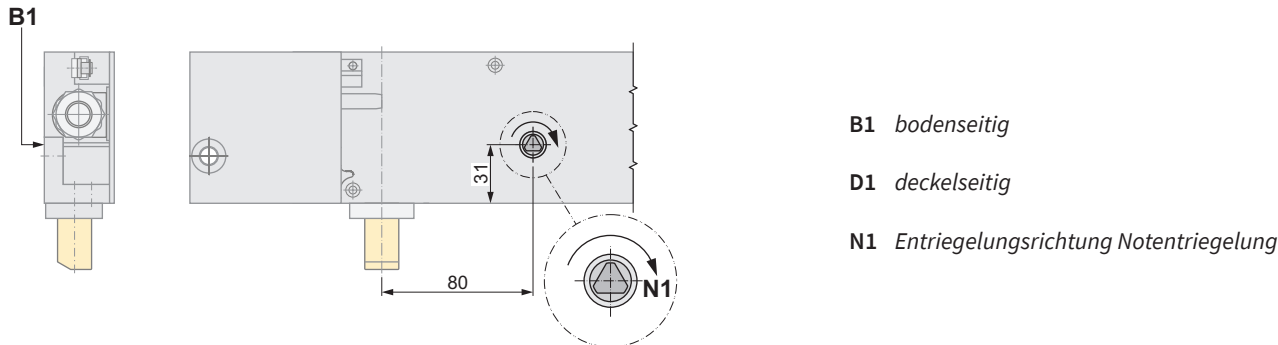


Dimensions and fixation: DLF1-IP67 / DL1-IP67

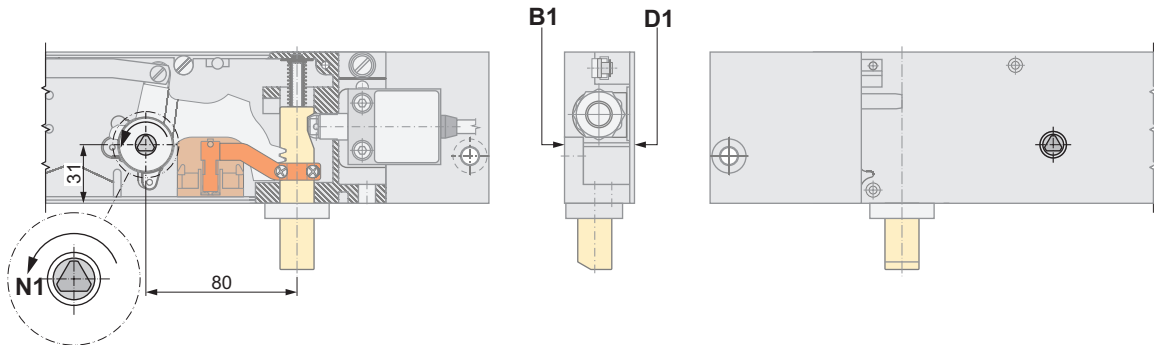
DLF1-EX / DL1-EX



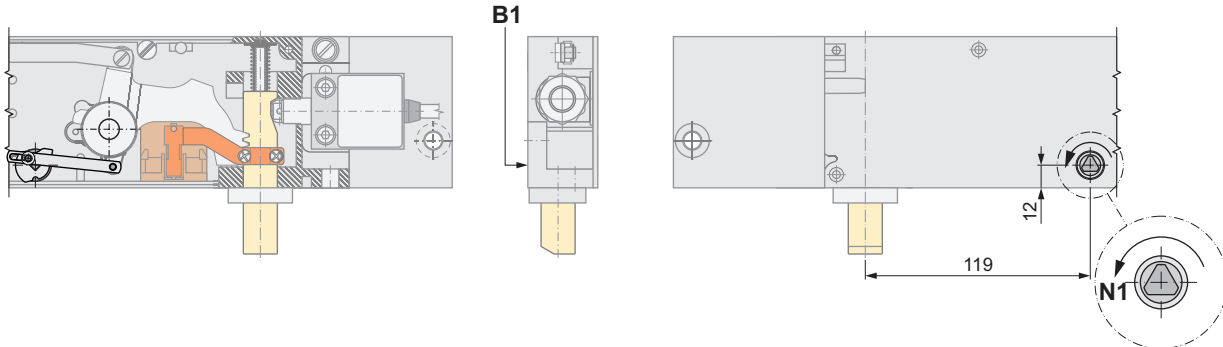
emergency release base side at the tooth lever axis



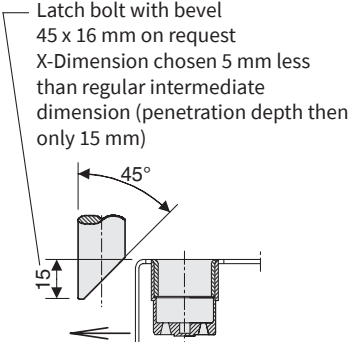
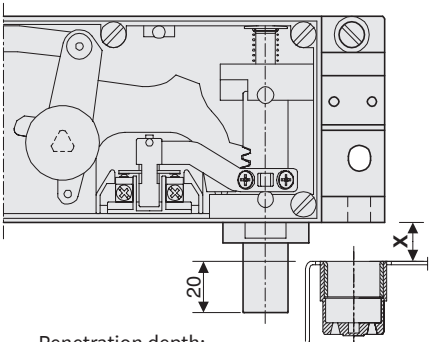
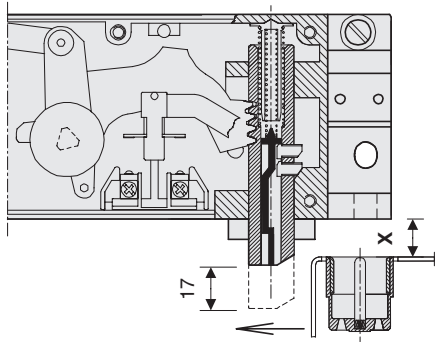
emergency release base side and cover side at the tooth lever axis, in combination with actuation .10 (by pull rod)



emergency release indirect base side



Closing of the door (with the latch bolt down):



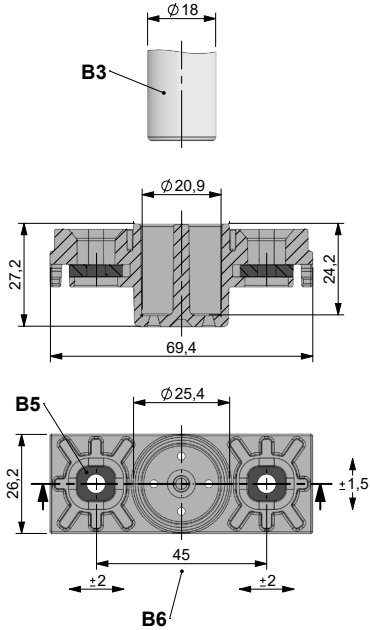
Penetration depth:
 DLF / ELF = 17.5 to 21 mm
 DL / EL = 8 to 21 mm

Latch sleeve without pin available on request

Closing of the door at DLF / ELF made incorrect, the faulty closure device keeps the latch bolt open about 17 mm before the final position, this not making the door locked contact.

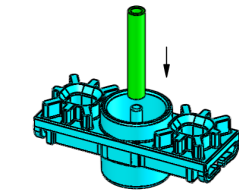
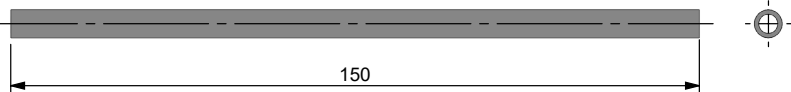
The latch bolt on DL and EL standard version has no bevel. As an option the latch bolt will be beveled by 45° x 16 mm. The closing of the door is made only, if the door is beveled or the X-Dimension is chosen 5 mm smaller than regular intermediate dimension. The penetration depth is then 15 mm, which is sufficient (permitted is 8 to 21 mm).

Latch plate BE for DLF and ELF:

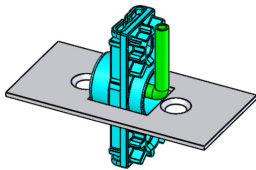


- B3** latch bolt
- B5** sliding nut with thread M6
- B6** inside micrometer of the sliding nuts

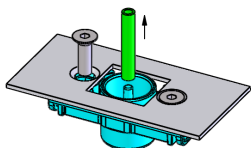
BE-MONTAGEHILFE
 Montagewerkzeug



attach mounting tool

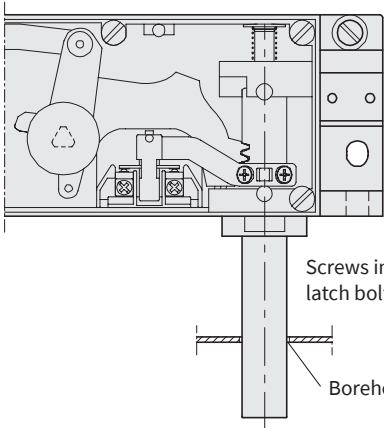


Push the latch plate through the borehole in the landing door.



Pull up the latch plate and tighten the countersunk screws.

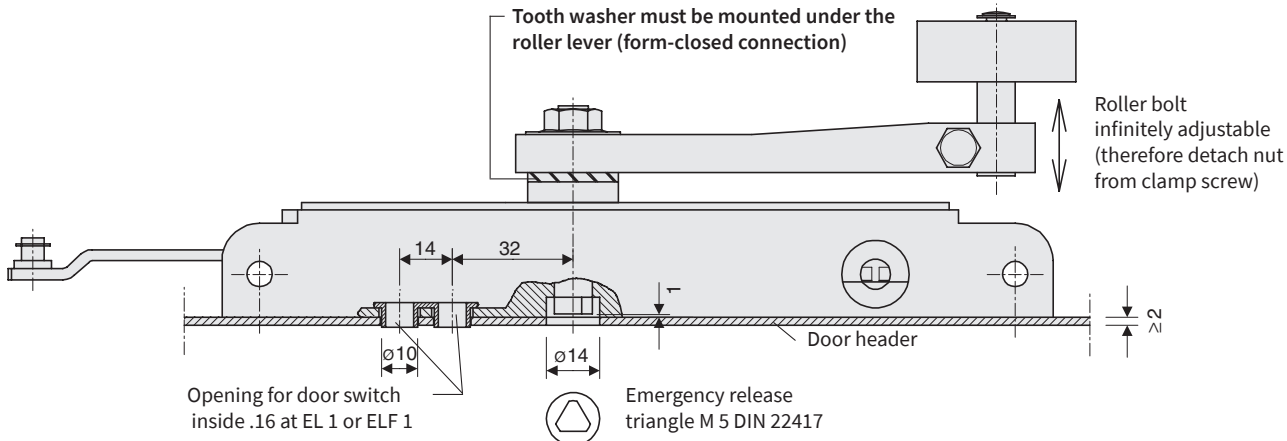
Support of the latch bolt and fire protection:



If the X-Dimension is 75 mm or more the latch bolt has to be supported additionally. Normally this will be made by an appropriate small hole in the door header.

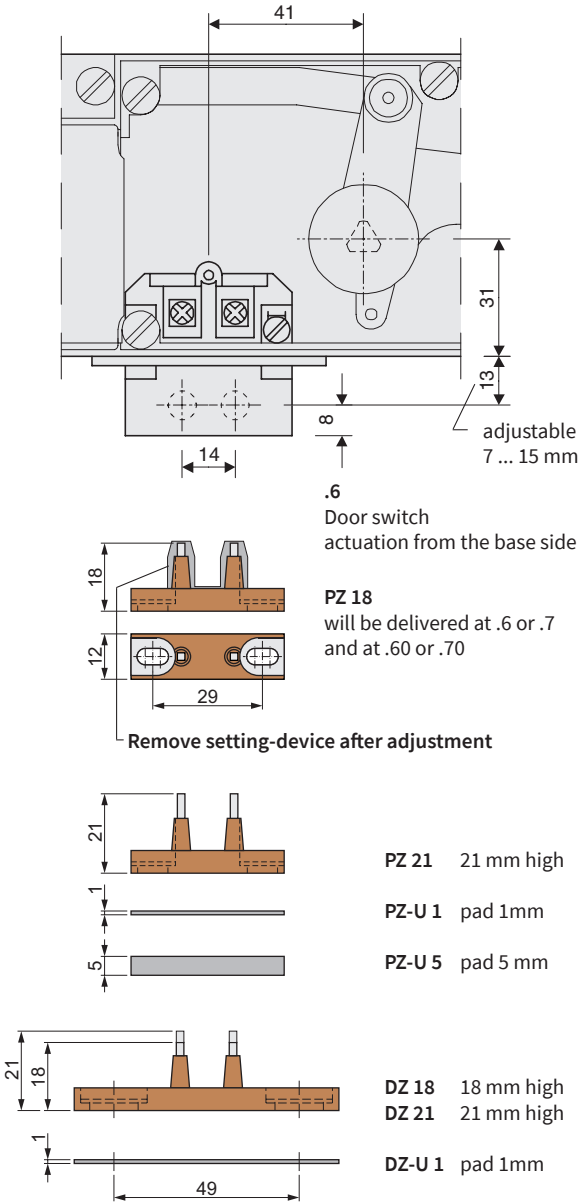
The hole in the door header must keep the latch bolt open in case of fire. The screws that are diagonally placed in the latch bolt shall retain the bolt there. In case of fire the closing of the door has to be maintained. The door interlock may be destroyed in the process. All plastic parts near the contact are self-extinguishing, so the door interlock will not become the cause of a fire.

Emergency release and roller lever:

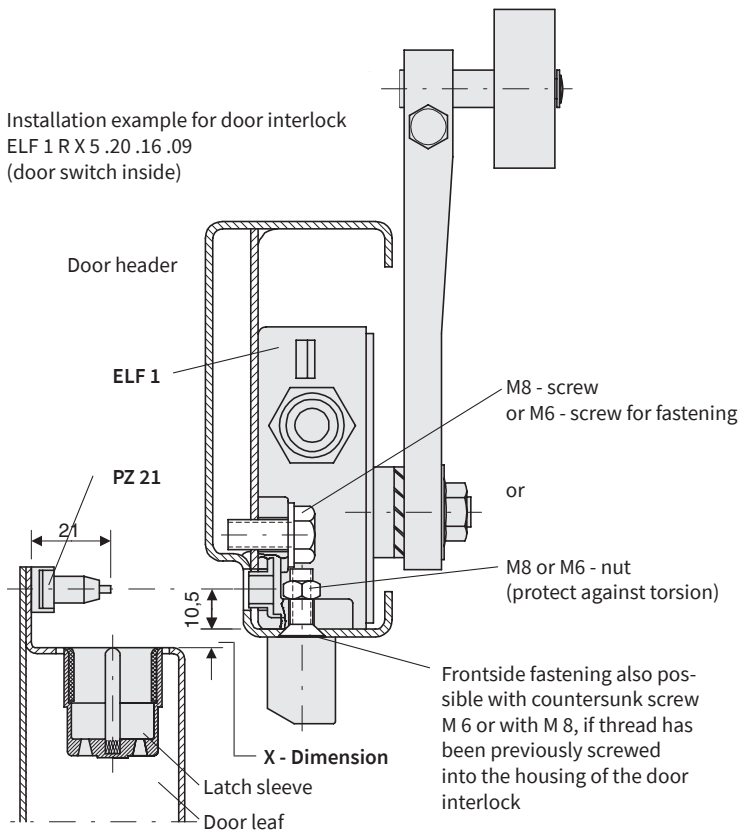


The European Norm EN 81 requires, that the triangle for the emergency release is placed minimal 3 mm back related to the front edge.
The door interlock has to be set on spacers, if the sheet metal thickness of the door header is less than 2 mm.

Door switch:



Installation example for door interlock ELF 1 R X 5 .20 .16 .09 (door switch inside)



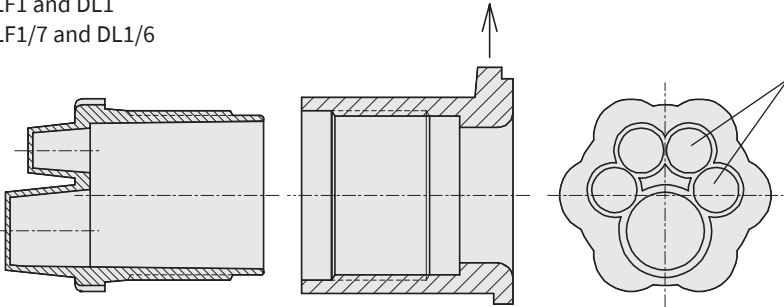
At the water- and explosion-proof version the installation of a door closed contact is not possible, because herewith the required level of protection can not be reached.
A separate door contact has to be mounted:
WZ at IP54
WZA at IP67
WZF2-EX at explosion-protected version

Auxiliary Switches:

Auxiliary switches can be installed on request. The version .9/01 signals the retracted latch bolt (open position). The versions IP67 and EX have this signal contact as standard, but then the latch bolt has not completely released the door yet.

Cable entry:

cable entry PG16 at
DLF1 and DL1
DLF1/7 and DL1/6

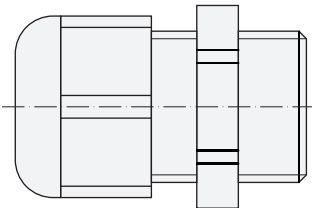


Special cable gland for four single-core and / or multi-core cable

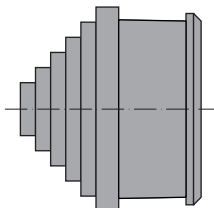
Tube insertion piece with inner thread PG16

Open lead-in nozzles on request. Safety cables have to be jacketed, e.g. NYM 1.5 mm². The cable insertion and the electrical connection may only be made by a qualified electrician!

cable entry M20 x 1.5 at
ELF und EL

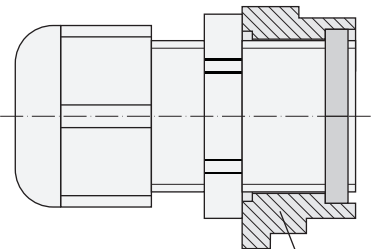


cable entry with rubber grommet at
DLF2 and DL2



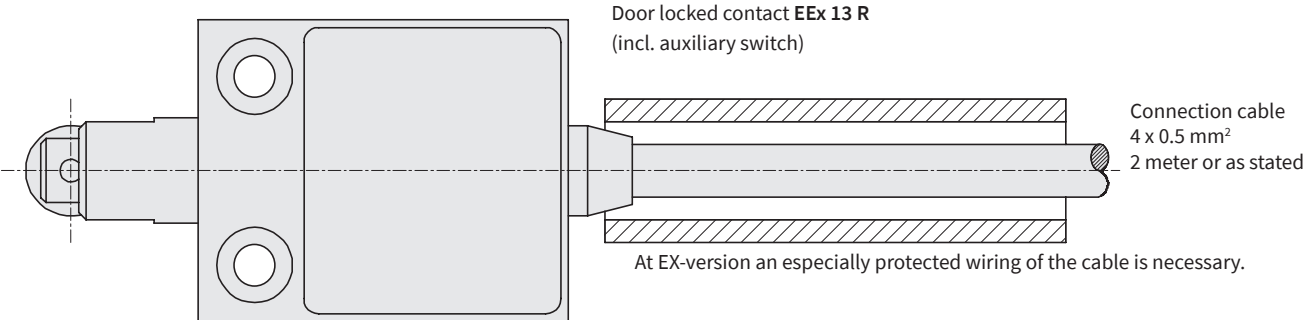
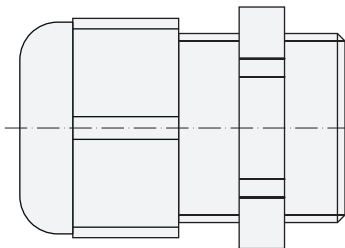
The rubber grommet is provided with several steps on the cable entry side. Depending on the cable thickness, cut away the corresponding step with a sharp knife. When using a standard cable, cutting away the inner step should be sufficient.

cable entry PG13.5 at
DLF1-W and DL1-W
DLF1-WW and DL1-WW



tube insertion flange

cable entry M25 x 1.5 at
DLF2-W and DL2-W



Door locked contact EEx 13 R (incl. auxiliary switch)

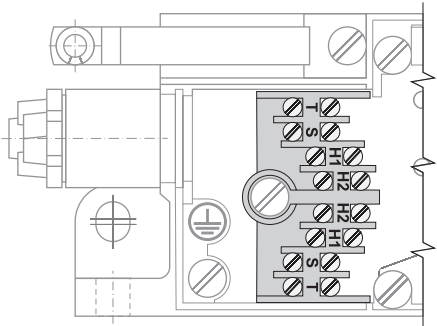
Connection cable 4 x 0.5 mm² 2 meter or as stated

At EX-version an especially protected wiring of the cable is necessary.

Electrical connections:

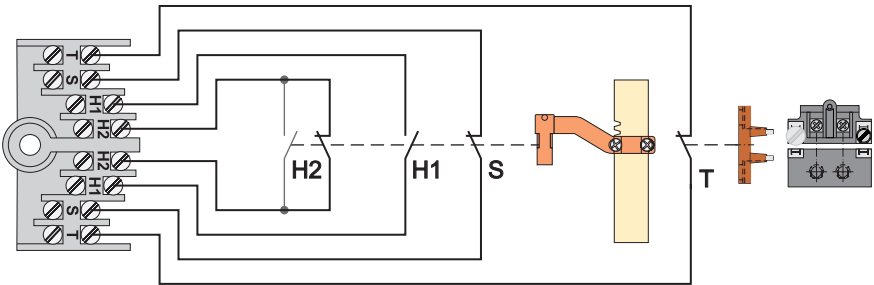
DLF1 / DL1 / DLF2 / DL2:

standard assignment for the contact block



- S connecting terminals
switch for locking mechanism
- H1 connecting terminals
auxiliary switch (as option)
- H2 connecting terminals
auxiliary switch (as option)
- T connecting terminals
door switch (as option)

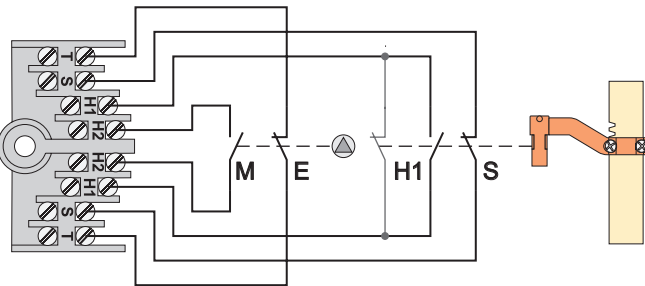
with auxiliary switch and door switch



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

DLF1 / DL1 / DLF2 / DL2: .2/11 .90/01

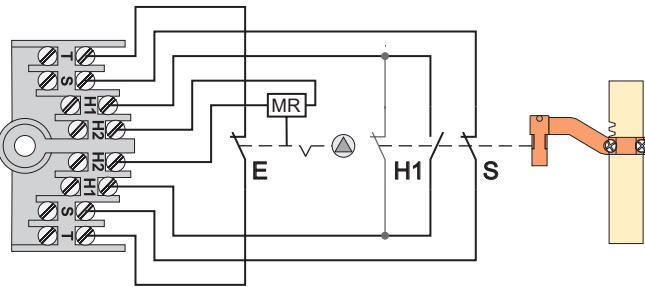
with integrated monitoring of the emergency release according to EN 81-21 and auxiliary switch



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

DLF1 / DL1 / DLF2 / DL2: .2/01MR .90/01

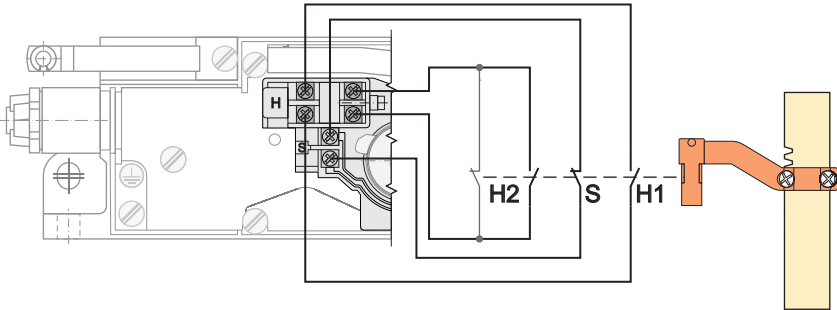
with integrated monitoring of the emergency release according to EN 81-21, detent function and auxiliary switch



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

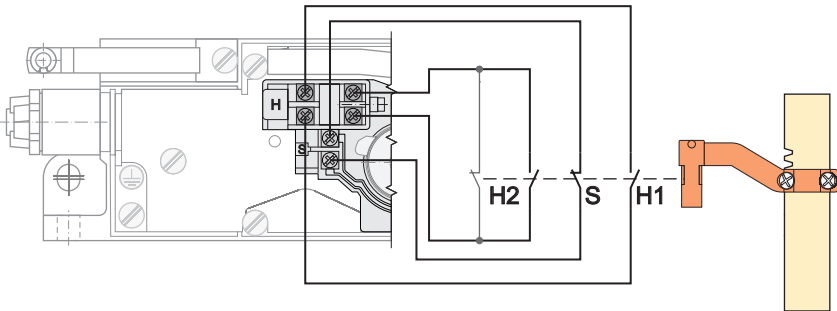
Electrical connections:

DLF1/7, DL1/6, ELF1, EL1:
with auxiliary switch



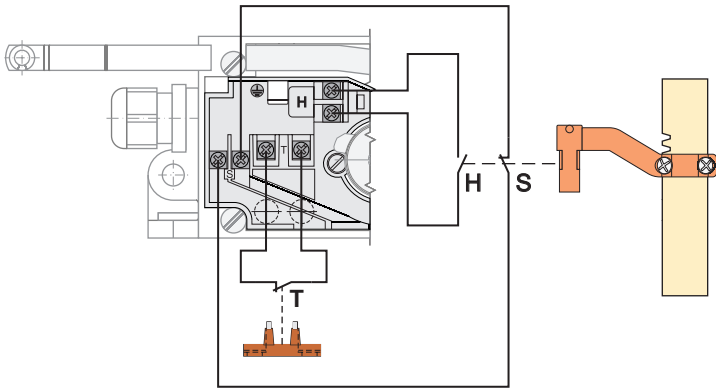
- S** switch for locking mechanism, positively opening
- H1** auxiliary switch (as option)
- H2** auxiliary switch (as option), normally closed or normally open contact

DLF1/7, DL1/6, ELF1, EL1:
with auxiliary switch and door switch(.6, .7, .26, .27)



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

ELF1, EL1:
with auxiliary switch and door switch (.16)

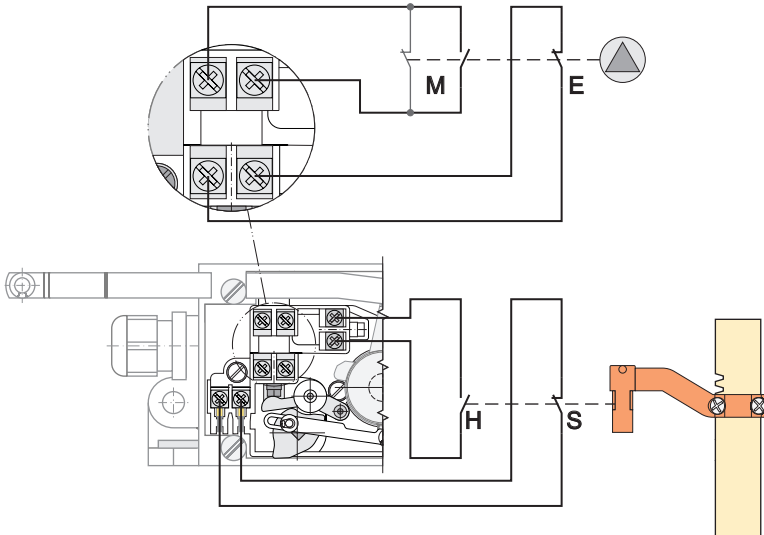


- S** switch for locking mechanism, positively opening
- H** auxiliary switch (as option)
- T** door switch (as option)

Electrical connections:

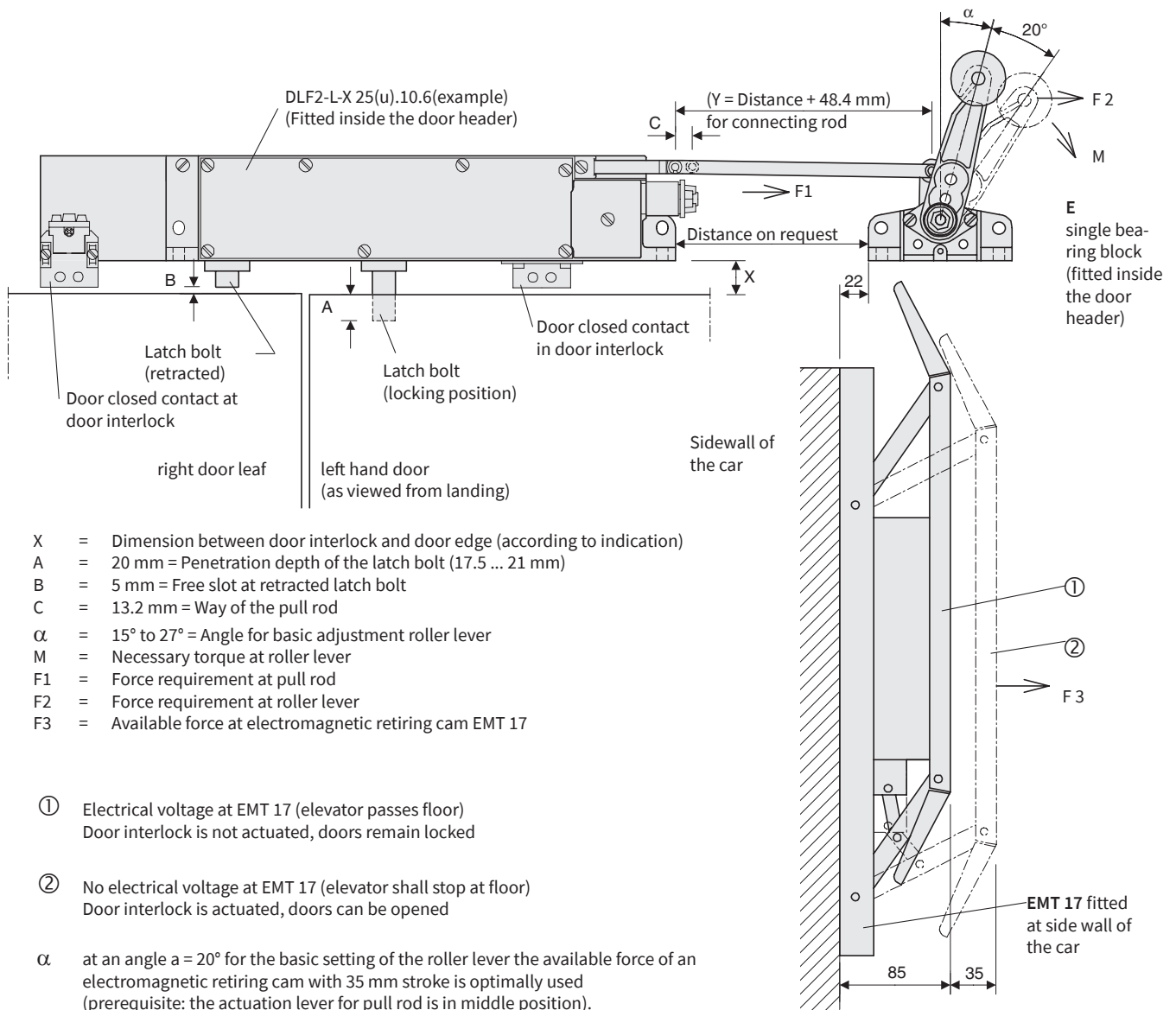
ELF1, EL1: .2/11 or .2/02

with integrated monitoring of the emergency release according to EN 81-21 and auxiliary switch



- S switch for locking mechanism,
positively opening
- H auxiliary switch (as option)
- E electrically monitored
emergency release, positively opening
- M signal contact emergency release (as option),
positively opening contact
or normally open contact

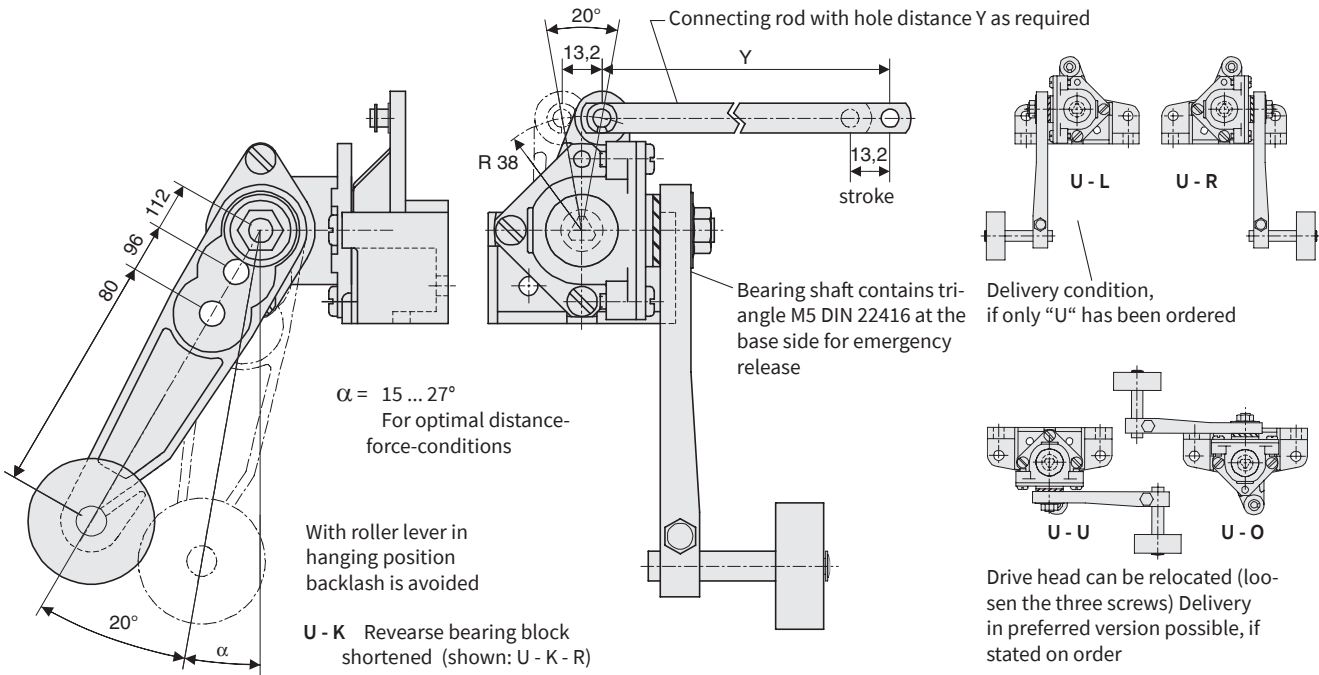
Actuation forces:



Forces	F1 [N]	M [Nm]	F2 [N]	F3 [N]	
	typical force requirement at the pull rod	necessary torque at the roller lever	typical force requirement at the roller lever ($\alpha = 20^\circ$)	available force of the EMT 17	available force of the RKMO
DL(F)1, EL(F)1, DLF1/7, DL1/6, DL(F)1-IP67, DL(F)1-EX	40	1.5	17.5	45	65
DL(F)1-W, DL(F)1-WV	45	1.7	20	45	65
DL(F)2	60	2.3	27	45	65
DL(F)2-W	65	2.5	29	45	65

Accessories:

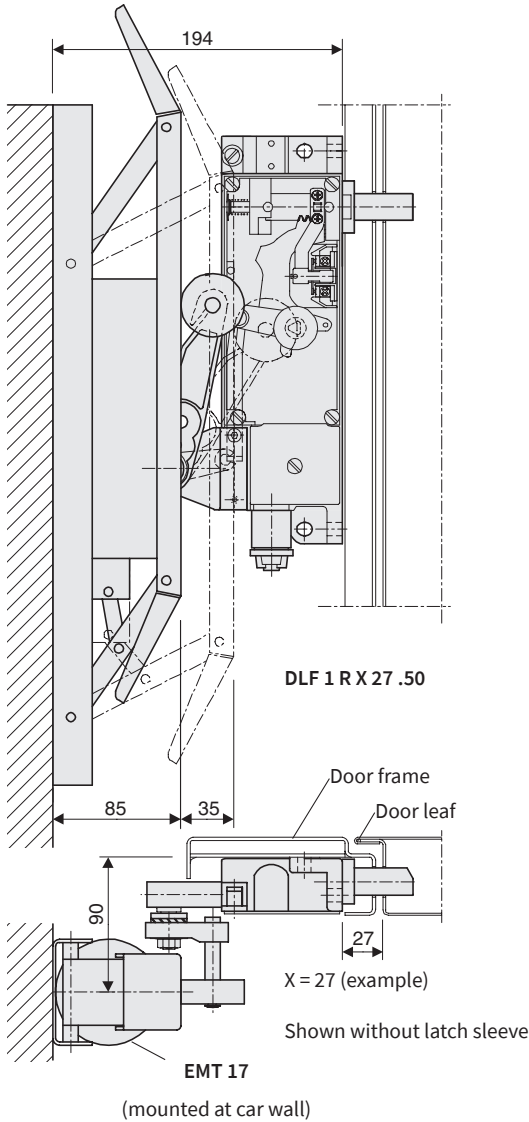
Reverse bearing block U



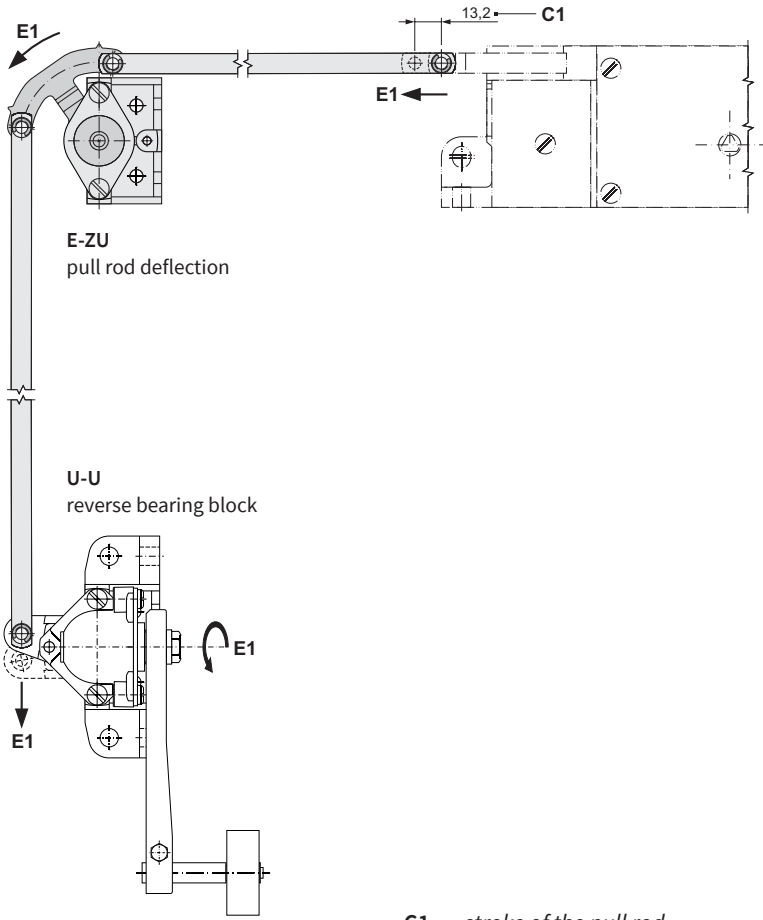
If the roller lever is relocated to 96 mm the distance is minimized by appr. 14.3% and the force requirement is accordingly higher. Relocated to 80 mm the difference is about 28.6%.

Accessories:

lateral annexed roller lever .50



pull rod deflection E-ZU



C1 stroke of the pull rod
E1 unlocking direction



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