

ED 100/ED 250

Mounting instructions
Firmware V3.2/Hardware 01/2022



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1 About this document

1.1 Contents and purpose

The purpose of this manual is the safe and efficient mounting and commissioning of the ED sliding door operators (hereinafter also called "operator"). Before commencing any work, personnel must have carefully read through and understood this manual. Complying with all safety instructions and action steps provided in this manual is the basic prerequisite for safe working.

1.2 Target group

This manual is designed for use by qualified assembling technicians. Thanks to their professional training and experience, as well as their knowledge of technical terminology and the relevant standards and regulations, a qualified assembling technician is able to mount and commission the operator and to independently detect and avert possible dangers. The assembling technician should have knowledge and experience in the following areas:

- Industrial safety, operational safety, and accident prevention regulations
- Using ladders and scaffolding
- Using tools and machinery
- Attachment of fixing materials
- Assessment of the building fabric

1.3 Documents storage

This manual and the applicable documents must be kept during the service life of the product and must be passed on with the product.

1.4 Symbols used

1.4.1 Hazard categories



DANGER

This signal word indicates a situation of immediate risk, which will lead to death or serious injury if not averted.



WARNING

This signal word indicates a possible hazardous situation that may result in death or serious injury if not averted.



CAUTION

This signal word indicates a possible hazardous situation that may result in minor or slight injury if not averted.



ATTENTION

This signal word indicates a possible hazardous situation that may result in damage to property or the environment if not averted.

1.4.2 Other symbols



Note

This signal word indicates useful information for efficient and trouble-free operation.

2 Safety

2.1 Intended use

ED 100 and ED 250 are electromechanical swing door operators and are used solely for opening and closing swing doors in indoor areas with a door leaf weight of max. 160 or 400 kg.

2.2 Improper use

The use of control elements, settings or procedures not described in this documentation may cause electric shocks, hazards posed by electrical voltages/ currents, and/or hazards posed by mechanical processes.

2.3 Reasonably foreseeable misuse

Any mounting above and beyond the correct mounting is considered to be incorrect mounting.

2.4 Risk assessment by installer

The assembling technician should ensure that the results of the risk assessment are complied with. The assembling technician should carry out their own inspection and flag up any unresolved hazards.

2.4.1 Special protection requirements with regard to particularly vulnerable people

If the risk assessment results in an unacceptable impact for a door user, in terms of a health risk or risk of injury, protection must be added in the form of a safety device (connecting a safety sensor or mounting a protective panel). This is to be taken into special consideration if particularly vulnerable persons (e.g. children, elderly people or disabled people) use the door area.

2.5 Use of ED 100 and ED 250 on fire and smoke protection doors

Before installation, it is necessary to check whether the operator and door combination is permitted and complies with local standards. As a rule operators must be switched off in the event of fire. When used in Germany, the system must be operated as a local hold-open system. The EVAC function can be used as an optional subordinate function.

2.6 Residual risk

The danger point on each swing door (also those that are manually operated) at the secondary closing edge is generally known to all users of a door. The danger point is not controllable by the operator manufacturer, and their protection is often not possible in terms of design and functional technology. Any suitable jam protection (e.g. rubber or textile cover) is available in specialist shops and is not included in the scope of delivery.

2.7 Briefing

After successfully setting, commissioning and functional testing of the door unit, the mounting and operation instructions must be handed to the facility operator and a briefing on the operation and maintenance of the door unit must be carried out.

2.8 Basic warnings



DANGER

Danger to life through electric current

Works on electrical units must only be carried out by qualified electricians.

- Before starting work on electrical units and equipment, establish a voltage-free state and maintain this state for the entire duration of the work.



DANGER

Danger to life through electric current

There are live components inside the door operator.

- Do not insert any metal objects into the openings of the door operator.



DANGER

Danger to life through electric current

If the ED 100 or ED 250 is mounted on a metal door leaf, there is a risk of the current being transferred to the door leaf.

- Ground door leaf.

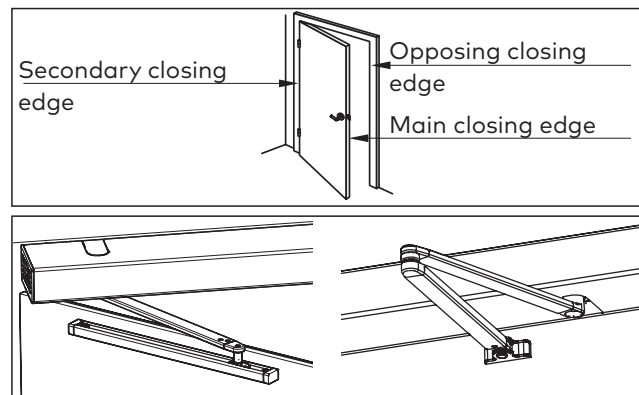


CAUTION

Risk of injury by crushing

On doors with operators there is a risk of crushing and shearing on slide rail levers and rods.

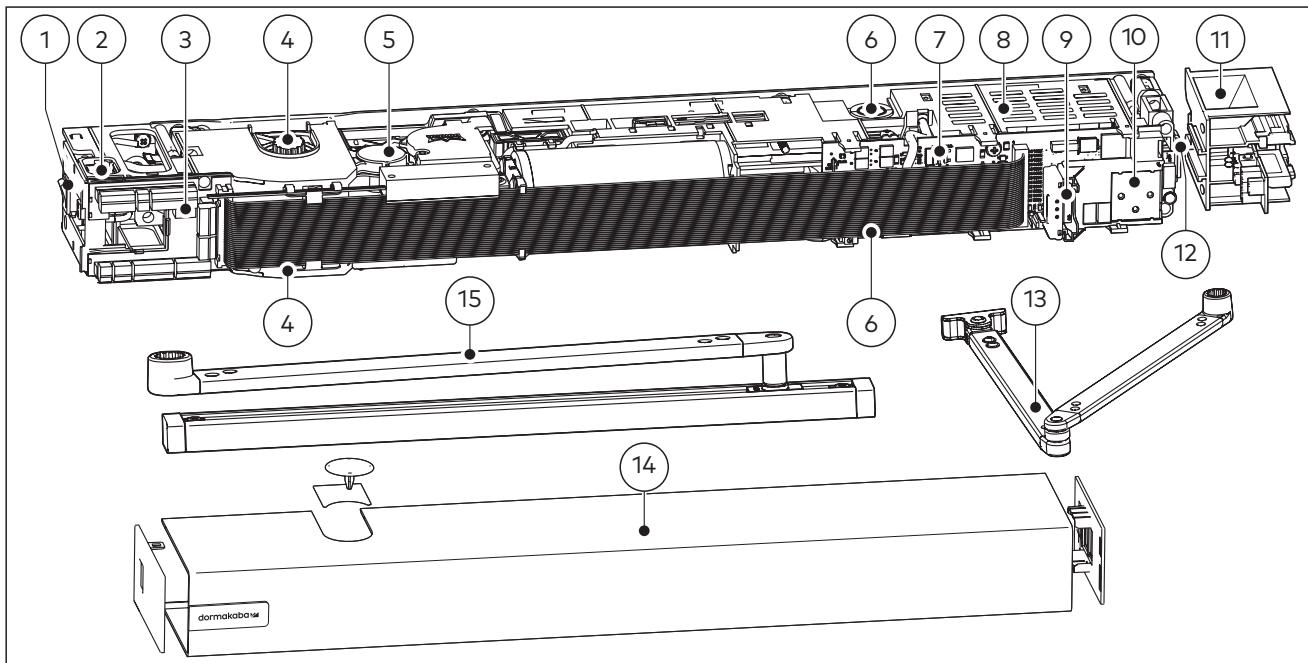
- Inform the door's facility operator of the danger.



3 Product description

3.1 Operator system

The operator system includes all core components. It is selected according to the door leaf width and the door leaf weight.



- | | |
|--|--|
| (1) Power switch | (9) Slot for upgrade cards |
| (2) Mains connection | (10) User interface with information display |
| (3) Connection board | (11) *ED Cover Basic RM, ED Cover Vario RM |
| (4) Double-sided axle output | (12) *Internal program switch |
| (5) Operator system (motor/gear mechanism/
closer spring) | (13) *Normal arm |
| (6) Closing force adjustment | (14) *Complete cladding |
| (7) Control unit | (15) *Slide rail (set) |
| (8) Switching power supply | |
- *Not included with the operator system

3.2 Functions

3.2.1 Operating modes

The ED 100, ED 250 can be operated in 2 ways, as a door closer or as an automatic swing door operator. In door closer mode (see chapter Parameterization -> Service -> Parameter hd = 1) the operator is optimized for manual access. The optionally available Power Assist function in this operating mode is intended for use if the doors are mainly opened manually and a door closer-like behavior is desired. Automatic mode (see chapter Parameterization -> Service -> Parameter hd = 0) is designed for automatic access after the impulse has been entered by a motion detector or push button.

3.2.2 Power Assist function (PA)

The Power Assist function can be activated in door closer mode (see chapter Parameterization -> Service -> Parameters hd = 1). Servo support is then provided during manual opening. The servo support is automatically adjusted to the set door closer size. The servo support strength is adjustable so that the requirements of DIN 18040, DIN Spec 1104, CEN/TR 15894, BS 8300/2100 and document "M", can be

met even up to EN 6. The smallest adjustable opening force is 23 N (5 lbf), as long as the hold-open system has not been triggered or the supply voltage fails. The Power Assist function can meet the requirements of EN 1154 while at the same time providing barrier-free access in normal operation. A combination with the Push & Go function or wind load control is not possible, as these act against easy manual opening.

3.2.3 Push & Go

The Push & Go function can be activated in automatic mode (see chapter Parameterization -> Service -> PG = 1). Automatic opening is then carried out if the door is manually moved from the "CLOSE" position by an angle of 4° in the "OPEN" direction.

3.2.4 Wind load control

The ED 100 and ED 250 operators are particularly suitable for use on external doors that are exposed to changing wind loads or on interior doors that separate rooms in which pressure differences may occur. In automatic mode, the wind load control monitors the actual travel speed and adjusts when the travel speed deviates from the set value. The operator can provide up to 150 N at the main closing edge with the Full Energy Upgrade Card, which can then be used to compensate for environmental influences. The closing process during the last 10° can be additionally supported by the electronic end stop. The door can be opened manually, we recommend using the Push & Go function.

3.2.5 Evacuation function EVAC

Swing door operators are switched off in the event of an alarm and can only be accessed manually. Barrier-free access is then no longer possible, especially with heavy doors. When the EVAC function is activated, the operator does not switch off completely in the event of an alarm, but deactivates the motion detectors and optionally the safety sensors as well, and switches from full to low energy operation. The Power Assist function can now continue to be used without safety sensors to ensure barrier-free access. In addition, time-limited automatic opening via the Night/Bank input is possible for 20 seconds. To use the EVAC function, one Professional Upgrade Card is required per operator. Control is by means of a opener/closer contact on the 43/3 feedback contact. The triggered function is displayed internally with IN18.



Note

In Germany, this function may only be used in addition to operation as a local hold-open system.

3.2.6 SPV smoke extraction/pressure ventilation function

Doors are often exposed to pressure differences. This may create large loads, particularly in combination with smoke extraction and pressure ventilation systems which stop doors from opening or closing properly. The SPV function provides an additional set of parameters that can be set with the hand-held terminal in order to optimally adapt the travel parameters to the pressure conditions in the event of an alarm. To use the SPV function, the Professional Upgrade Card is required for each operator. Control is by means of a opener/closer contact on the 43/3 feedback contact. The triggered function is displayed internally with IN19. The SPV-relevant parameters are set via the hand-held terminal.

3.3 Low energy product

The ED 100/250 can be set in such a way that the requirements of a low energy application (Low Energy Operator) according to EN 16005 or DIN 18650, ANSI 156.19 and BS 7036-4 are met. During commissioning, the operator parameters must be compared with the specifications of the currently valid standard.

The required safety of the unit is achieved by the following features:

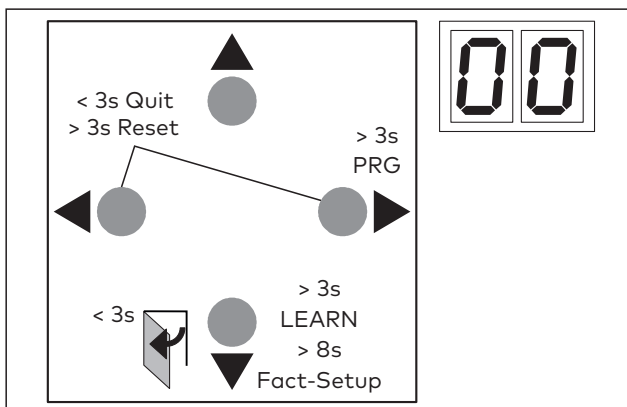
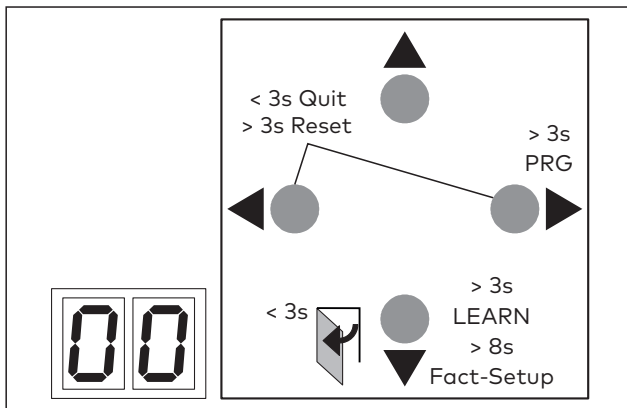
- Reduced dynamic door leaf/contact forces
- Low travel speeds
- Reduced static door leaf/contact forces
- Force limitation

Due to system tolerances, following the automatic learning cycle the actual forces on the door leaf need to be measured and, if necessary, changed accordingly to meet local standards and regulations. The use of additional safety sensors to provide protection against rotational movement is not mandatory, but can be used as an option if this is necessary due to the risk assessment being performed on an individual basis. Protection of the secondary closing edge must be considered on a separate basis.

3.4 Operating elements

The ED 100 and ED 250 operators are electromechanical operators. It is only possible to open and close the motor gear unit and the control unit automatically. For this, the control unit must detect certain parameters of the door in order to achieve optimum behavior.

The control unit has a user interface with 4 keys and a 2-digit display. This can be used to perform all the settings specified in the parameter list. During commissioning, the key functions and the display are configured so that, regardless of the mounting direction, the keys always correctly display the same functions and the numbers and digits according to their arrangement. The legend of the keys can be removed and rotated.



The following functions can be executed by pressing the keys:

▼ Bottom key

- Adjust the mounting direction after a power supply reset.
- Scroll through parameters and error messages
- Decrease the parameter value
- Opening impulse
- Learning cycle
- Reset to factory settings (Fact-Setup)

▲ Top key

- Scroll through parameters and error messages
- Increase the parameter value

▶ Right key

- Open parameters menu
- Change the selected parameter.
- Save the changed value.

◀ Left key

- Cancel the parameter change process.
- Close parameters menu

◀ ▶ Left and right key pressed at the same time

- Error acknowledgement
- Reset

3.5 Upgrade Cards

dormakaba upgrade cards can be used to extend the functional scope of swing door operators ED 100 and ED 250. When installing the upgrade cards, information is exchanged between the operator control unit and the upgrade card and these are permanently assigned to each other. The desired function can be used provided the upgrade card remains installed in the operator system.

- The first installed upgrade card becomes a container module. The functions of further Upgrade Cards are stored in the container module. Each control unit has only one container module.
- The status of the upgrade card is displayed on 3 integrated LEDs. The red LED lights up with the DCW Upgrade Card as soon as DCW nodes have logged in and indicates that DCW telegrams are replaced.

3.5.1 Combination options

A variety of functions are available.

The upgrade cards are colored to differentiate them.

Upgrade Card	Color	ED 100	ED 250
Full Energy	blue	X	
Full Energy	blue transparent		X
Fire Protection	red	X	
Fire Protection	red transparent		X
Professional	green	X	X
DCW	yellow	X	X
Accessible WC	Black	X	X

3.5.2 Full Energy Upgrade Card blue/blue transparent

By using the Full Energy Upgrade Card, the full adjustment range of the opening and closing speed parameters as well as opening and closing force is available. Use in 2-leaf units is possible.

3.5.3 Fire Protection Upgrade Card red/red transparent

The Fire Protection Upgrade Card is required to set up a fixed system according to EN 14637 or similar standards. The cable-monitored detector input is only available with the Fire Protection Upgrade Card installed to connect the RM-ED or the integrated smoke detector. The Full Energy function is automatically activated. Use in 2-leaf units is possible.

3.5.4 Professional Upgrade-Card green

The nurse bed, extended hold-open time, current pulse and EVAC/ SPV functions can be activated using the Professional Upgrade Card. Use in 2-leaf units is possible. Two Upgrade Cards are required for 2-leaf units to use the EVAC/SPV function.

3.5.5 DCW Upgrade Card • yellow

The DCW Upgrade Card enables the connection of DCW-compatible accessory components to the operator. Use in 2-leaf units is possible.

3.5.6 Accessible WC Upgrade Card • black

By using the Accessible WC Upgrade Card the inputs and outputs of the control unit are assigned the functions specifically required for this application, and the necessary accessory components can be connected directly. The Accessible WC Upgrade Card is not used on 2-leaf units.

3.6 Accessories

In addition to the extensive dormakaba accessories, many activators, locks, safety sensors and other accessories from other manufacturers are available that could be operated with the operators ED 100 and ED 250. dormakaba cannot guarantee compatibility for devices from other manufacturers. If the devices are nevertheless used, this may mean that the full range of functions of the operators is not available or that the devices do not function properly. Damage to the operator or the connected device is also possible. The operator can provide a maximum of 1.5 A at 24 V DC for external loads. If a higher demand (even for a short time) is required, an external power supply must be used to prevent malfunctions of the operator.

3.6.1 Activator

Generally, devices of the following type are referred to as activators:

Radar motion detectors, buttons, switches, passive infrared motion detectors, sensor buttons, radio, IR receivers, access control systems, telephone and intercom systems

Minimum requirements:

Operating voltage when supplied by the operator:
24 V DC \pm 5%

Pulse duration:
min. 200 ms

Potential-free output:
(when used on the signal input inside,
outside detector or night/bank)

Voltage-provided output (telephone units):
Max. 24 V DC/AC \pm 5%

3.6.2 Locking device

Locking devices are generally referred to as the following type:

electric door opener (e-opener), motor locks, multi-point locks with feedback contact, holding magnets. Motor locks without lock feedback can be connected directly to the operator if the unlocking time is less than 4 seconds. To ensure safe operation of the operator and locking combination, the locking device must comply with the following specification:

Minimum requirements:

Operating voltage when supplied by the operator:
24 V DC \pm 5%

Operating voltage for external supply:
Max. 48 V DC/AC

Load on the relay locking device contact:
Max. 1 A

Electric door opener duty cycle:
min. 30%

Motor lock duty cycle:
100

3.6.3 Key switch ST 32 DCW

Left key > 3s: A connected DCW program switch changes after Off, and the red LED lights up.

Right key < 3s: Night/bank impulse

Right key > 3s: A connected DCW program switch changes after automatic, and the green LED lights up.

3.6.4 I/O module DCW

Address: 00 (DIP switch settings)

In 1 to In 4 have no function

Functions for Out 1 to Out 4 (adjustable via the handheld)

0	No function	4	Door closed and locked
1	Door is closed	5	Information or errors
2	Door is open	6	Greater than door angle
3	Fault	x°	

Factory setting

Out 1 **4** Out 2 **2** Out 3 **5** Out 4 **6**

3.7 Technical data

Conditions of use	
Ambient temperature	-15 to +50°C
Only for dry rooms	Relative humidity max. 93% non-condensing
Voltage supply	230 V AC + 10% to 15% 50 Hz
Protection class	IP 20
General	
Dimensions (W x H x D)	685 x 70 x 130 mm
min. hinge gap 2-wing with professional cladding	1400 mm
with ESR	+50 mm
with RM	+200 mm
with EN7	+200 mm
with EN7 and RM	+400 mm
min. hinge gap 2-wing with VARIO cladding	1500 mm
with RM	+110 mm
with EN7	+200 mm
with EN7 and RM	+310 mm
Operator weight:	12 kg
Power supply for external loads	24 V DC ± 5%, 1.5 A
Door opening angle	Max. 95°-110° depending on the mounting type
Fuse supplied by the customer	16 A
Operating noise:	Max. 50 dB(A)
Inputs	
Connection terminals	Max. 1.5 mm ²
Potential-free activator	Inside and outside (closer contact)
Night/bank (communication system)	8-24 V DC/AC + 5%
Night/bank (key switch)	Closer contact/opener contact
Safety sensor	BS and BGS (opener contact)
Safety sensor test signal	BS and BGS
Shutdown of operator function (lock switch)	Opener contact/closer contact
Outputs	
Connection terminals	Max. 1.5 mm ²
Potential-free status contact	Door closed Door open Malfunction Dorr closed and locked
Integrated functions	
End stop	Thickness adjustable

Hold-open time for automatic opening	0-30 seconds (optional 0-180 seconds)
Night/bank hold-open time	0-30 seconds
Hold-open time when opening the door manually	0-30 seconds
Blocking behavior	Reversing/door closer function
Unlocking time door opener	0-4 seconds
Locking feedback	Motor lock
Wind load control	up to 150 N
Voltage-independent brake circuit	Adjustable with potentiometer
LED status display	
green	Voltage control fault signal
red	Service interval display
yellow	
Integrated program switch	Off Automatic Permanently open Output (only in the case of 1-leaf units)
User interface with information display	Status display and parameterization
Slot for Upgrade Cards	Extension of the scope of function
Update interface	Update Firmware
TMP - Temperature management program	Overload protection
IDC - Initial Drive Control	Travel curve optimization
Cycle counter	0-1,000,000
Power Assist function (PA)	Servo support when opened manually
Push & Go function	Door opening when manually moving by 4°

ED 250	
Max. power consumption	240 watts
Closing force:	EN 4–7 infinitely adjustable
Max. door leaf weight up to 300 mm frame reveal depth (kg)	400 kg, depending on the door leaf width
Max. door leaf weight 301–500 mm frame reveal depth	160 kg
Door leaf width	700–1600 mm
Fire protection door leaf width	700–1600 mm
Opening speed 0–90°	3*–12 seconds
Closing speed 90–0°	4*–21 seconds
Axle extension	20/30/60/90 mm)
Frame reveal depth slide rail (CPD)	± 30 mm (30–60 mm)
Frame reveal depth slide rail CPD 250	60–250 mm
with fire protection	60–100 mm
	see table on Page 12
ED 100	
Max. Power consumption	120 watts
Closing force EN 1154	EN 3–4 infinitely adjustable
Max. door leaf weight up to 300 mm frame reveal depth	160 kg, depending on the door leaf width
Door leaf width	700–1100 mm
Opening speed 0–90°	4*–12 seconds
Closing speed 90–0°	5*–21 seconds
Axle extension	20/30/60 mm
Frame reveal depth slide rail (CPD)	± 30 mm (30–60 mm)
Frame reveal depth slide rail CPD 250	60–250 mm
with fire protection	60–100 mm
	see table on Page 12
Frame reveal depth standard arm assembly	0–300 mm

*Automatically limited depending on the door leaf weight in accordance with EN 16005 or DIN 18650, BS 7036-4 and ANSI 156.19 in low-energy mode. Max. speeds can be reached only in full-energy mode, with a low door leaf weight and a taught-in opening angle of min. speeds can be reached only in full-energy mode, with a low door leaf weight and a taught-in opening angle of min. 95°.

3.8 Overview of the torque

ED 100

Mounting type	Frame reveal mounting hinge side slide rail pulling		Frame reveal mounting opposite side to the hinge normal arm pushing/ slide rail pushing	
	Minimum	Maximum	Minimum	Maximum
Closer size EN 1154	EN 3	EN 4	EN 3	EN 4
Closing torque manually (Nm) ^{***}	18	37	18	37
Closing force automatically (N) ^{**}	20	FE: 150/LE: 67	20	FE: 150/LE: 67
Opening torque manual (Nm)	40	50	40	55
Opening force automatic (N) ^{**}	20	FE: 150/LE: 67	20	FE: 150/LE: 67
Opening force manually activated Power Assist function (N) [*]	23	23	23	23

ED 250

Mounting type	Frame reveal mounting hinge side slide rail pulling		Frame reveal mounting opposite side to the hinge normal arm pushing/ slide rail pushing	
	Minimum	Maximum	Minimum	Maximum
Closer size EN 1154	EN 4	EN 6	EN 4	EN 7
Closing torque manually (Nm) ^{***}	26	65	26	90
Closing force automatic (N) ^{**}	20	FE: 150/LE: 67	20	FE: 150/LE: 67
Opening torque manual (Nm)	55	85	60	90
Opening force automatic (N) ^{**}	20	FE: 150/LE: 67	20	FE: 150/LE: 67
Opening force manually activated Power Assist function (N) [*]	23	23	23	23

FE With the installed Full-Energy or Fire Safety Upgrade Card

LE Low-energy basic device without Upgrade Card

* With maximum set Power Assist support, effective from 0° opening width

** The force is available in automatic mode when opened automatically.

*** Pressing the slide rail mounting type reduces all values by approx. 33%

4 Preparing assembly

The cable length for external components must not exceed 30 m.

Unless otherwise specified, all dimensions are specified in mm.

1. Ensure that the door is equipped with hinges suitable for automatic operation.
2. Before mounting on a smoke or fire safety door, check whether the device is approved in conjunction with the door.
Use the data below to check whether the device meets the necessary requirements. Mounting can be started when the parameters are followed.

	ED 100 EN 3-4	ED 250 EN 4-6	EN 7	
Standard arm 225 29271xxx	F/225	F/225	F/125	
Standard arm 500 29272xxx	F/300	F/500	o	
Slide rail pulling 29275xxx	F/± 30	F/± 30	x	
Slide rail pushing 29275xxx	o	F/EN 4/30	x	
CPD slide rail pulling 29276xxx	F/30-60	F/30-60	x	
CPD 250 slide rail pulling 29276xxx	F/60-100 o/> 100	F/60-100 o/> 100	x	
Axle extensions	20 mm 29278012	F	F	
	30 mm 29278013	F	F	
	60 mm 29278016	F	F	
	90 mm 29278019	x	F/350	o

F Suitable for use on standard and smoke protection doors.

F/xxx Suitable for use on standard and fire and smoke safety doors, the frame reveal depth is limited to xxx mm.

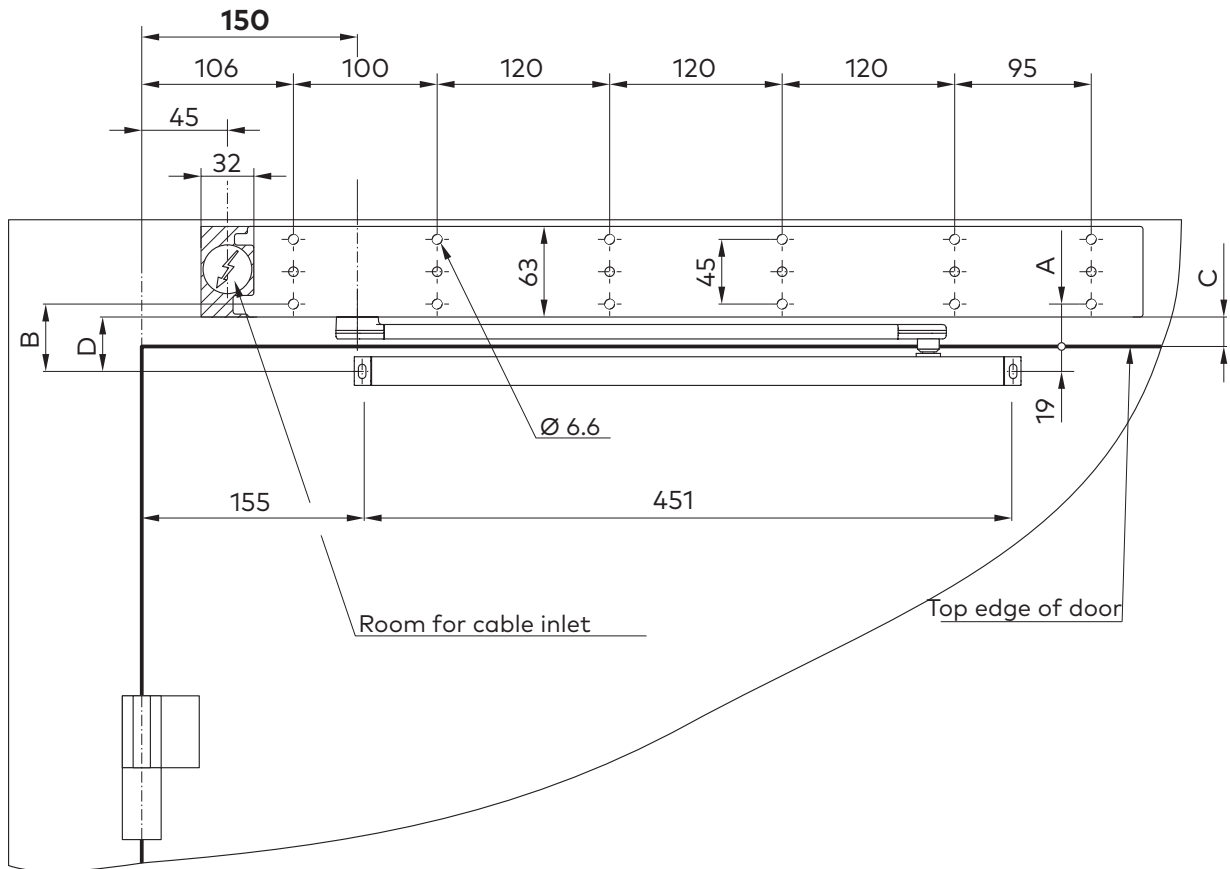
F/EN 4/xxx Suitable for use on standard and on fire and smoke safety doors, restricted to EN 4, the frame reveal depth is limited to xxx mm.

o Suitable for use on standard doors.

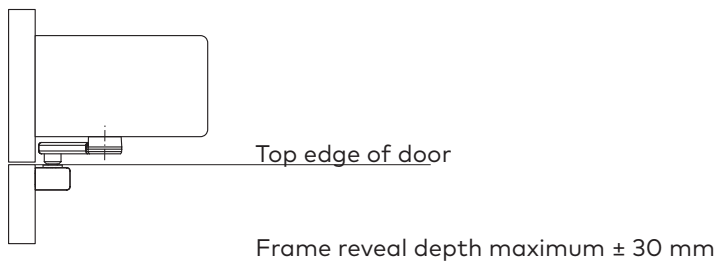
x Combination not possible

3. Depending on the installation situation, select the corresponding drilling image on pages 13-23.
4. Drill the holes shown in the drill image in door leaves and door frame/wall.

Mounting on the hinge side pulling with slide rail and short lever bolts

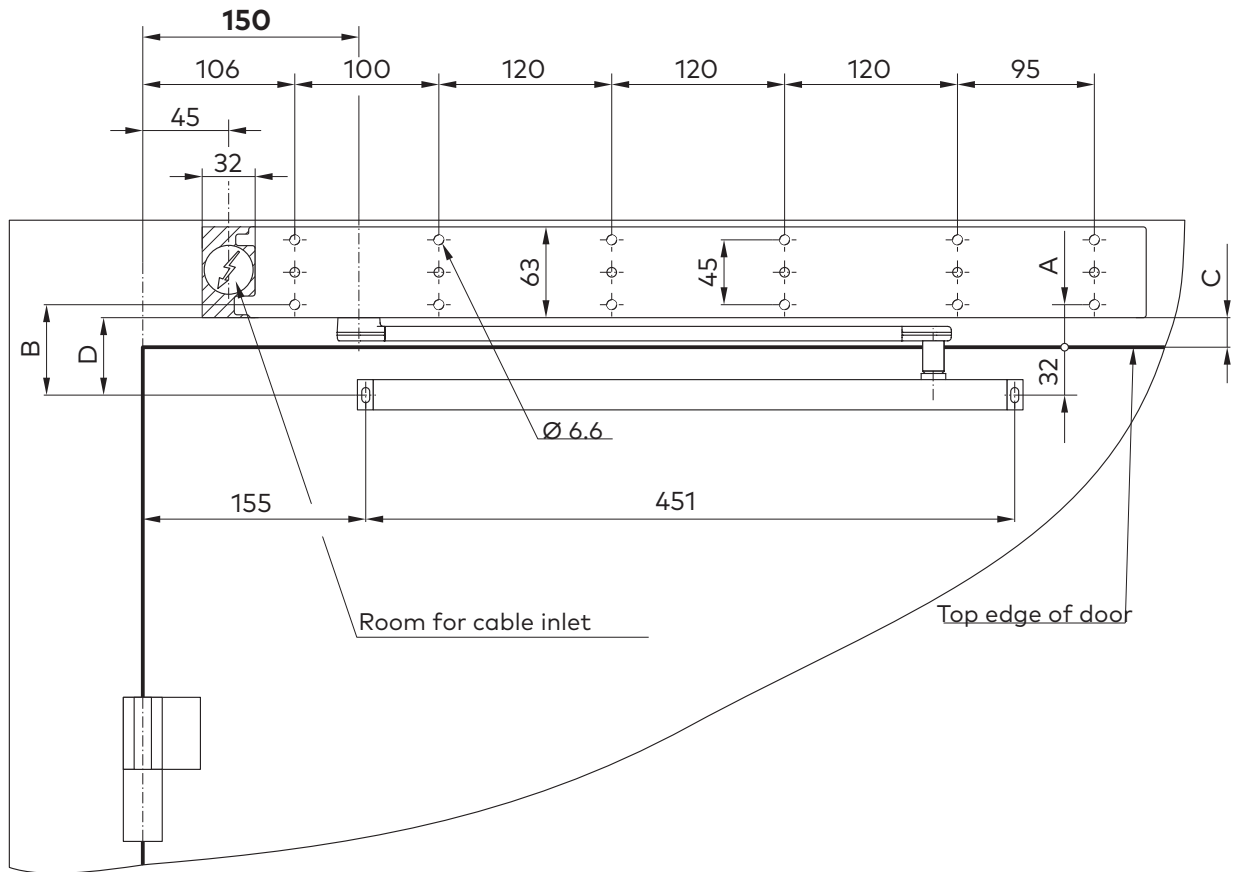


Door without rebate

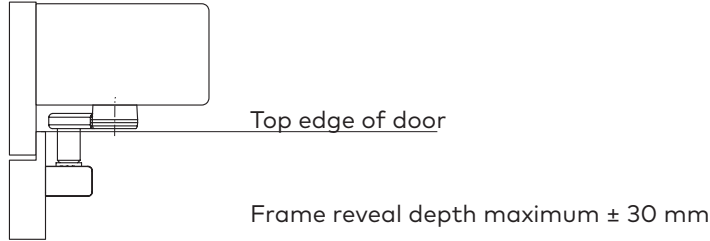


Axle extension	ED 100	ED 250	A	W	C	D
Default	●	●	31 mm	50 mm	22 mm	41 mm
20 mm	●	●	51 mm	70 mm	42 mm	61 mm
30 mm	●	●	61 mm	80 mm	52 mm	71 mm
60 mm	●	●	91 mm	110 mm	82 mm	101 mm
90 mm	---	●	121 mm	140 mm	112 mm	131 mm

Mounting on the hinge side pulling with slide rail and long lever bolts

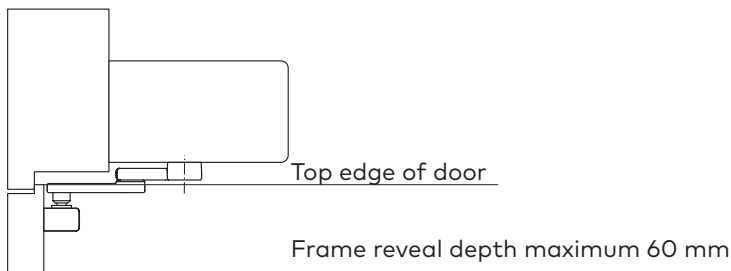
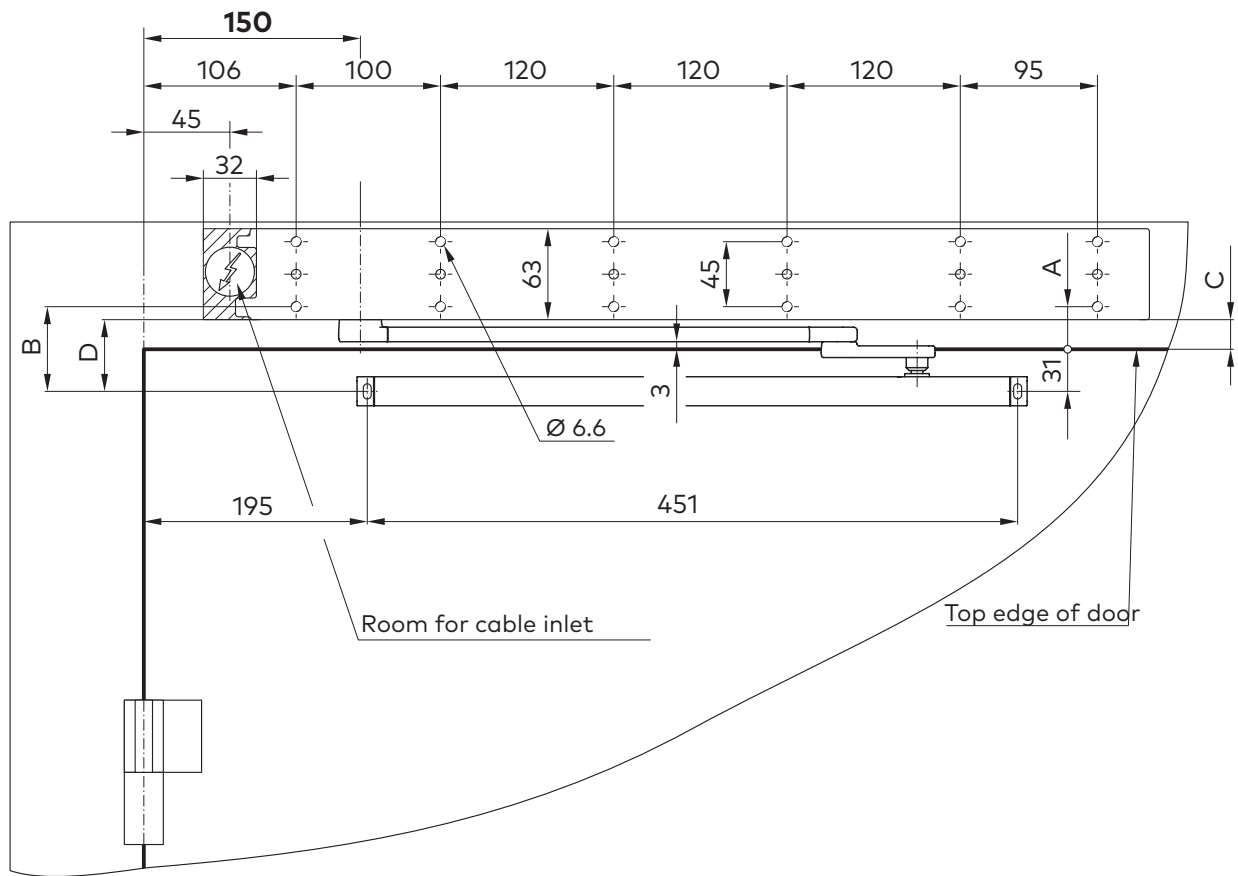


Door with rebate



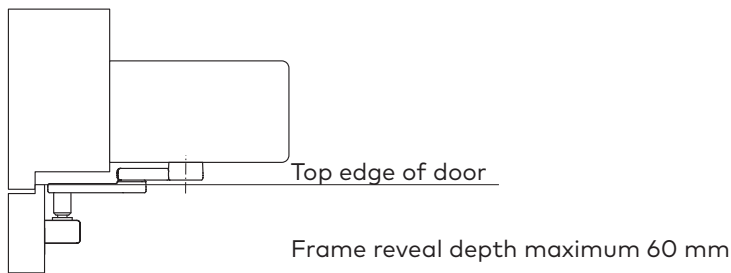
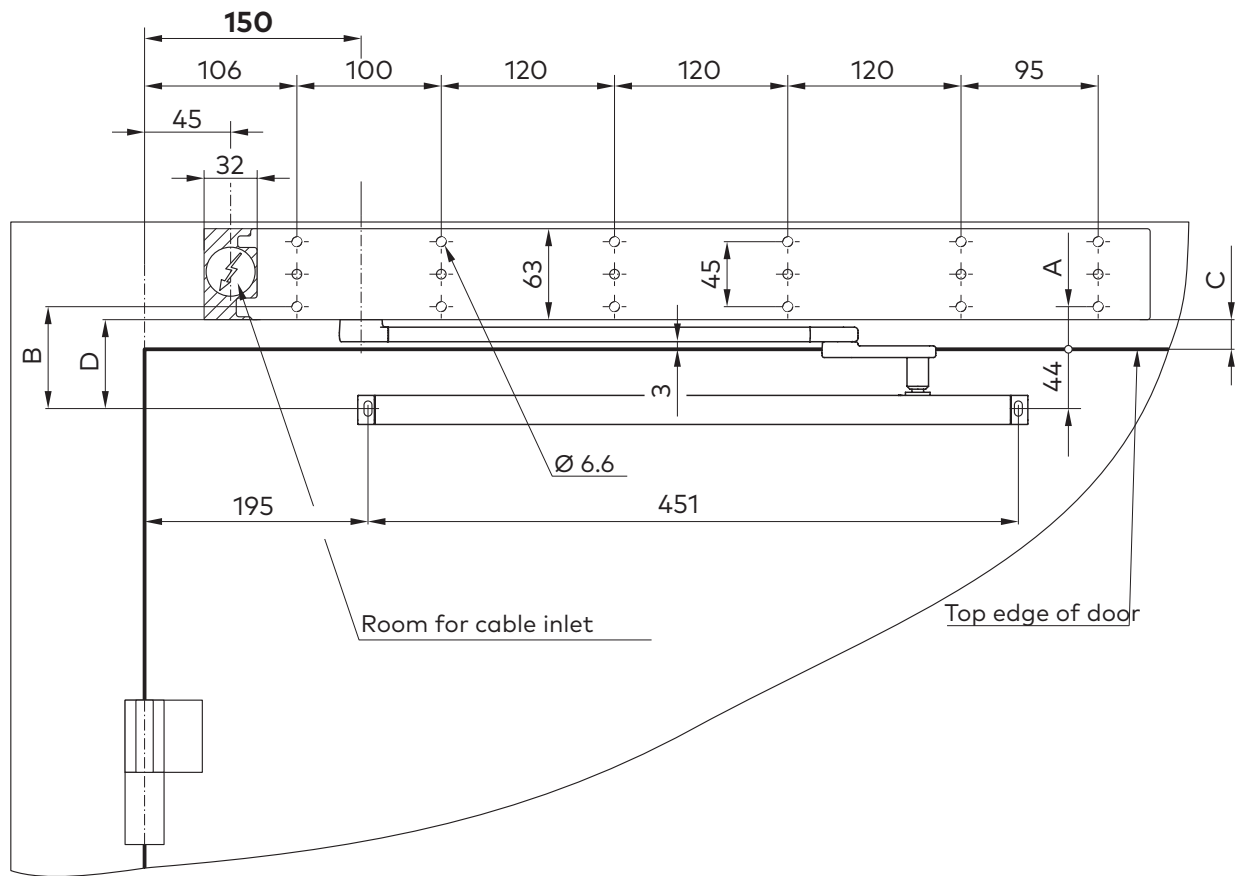
Axle extension	ED 100	ED 250	A	W	C	D
Default	●	●	31 mm	63 mm	22 mm	54 mm
20 mm	●	●	51 mm	83 mm	42 mm	74 mm
30 mm	●	●	61 mm	93 mm	52 mm	84 mm
60 mm	●	●	91 mm	123 mm	82 mm	114 mm
90 mm	---	●	121 mm	153 mm	112 mm	144 mm

Mounting on the hinge side pulling with CPD slide rail and short lever bolts



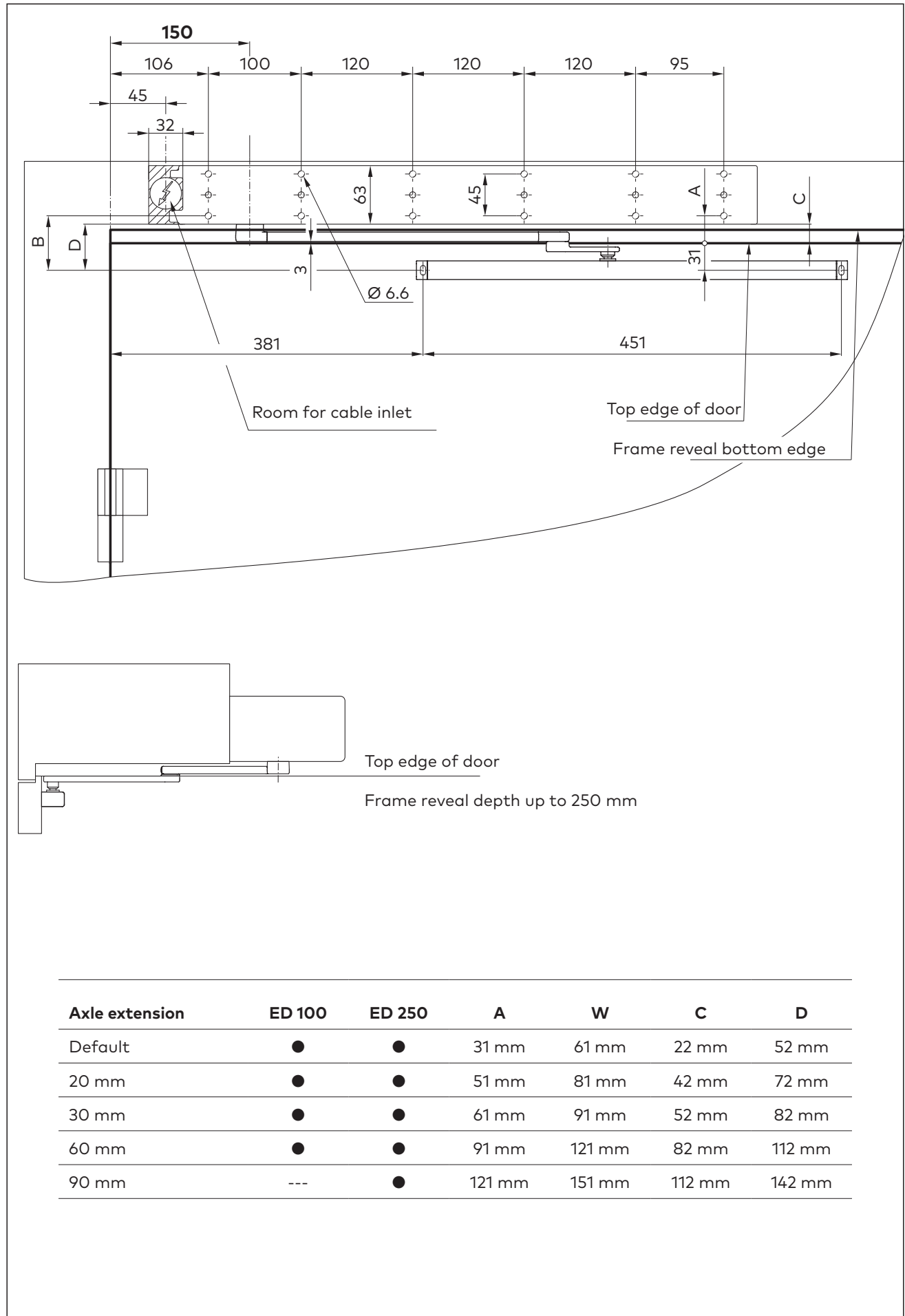
Axle extension	ED 100	ED 250	A	W	C	D
Default	●	●	31 mm	62 mm	22 mm	53 mm
20 mm	●	●	51 mm	82 mm	42 mm	73 mm
30 mm	●	●	61 mm	92 mm	52 mm	83 mm
60 mm	●	●	91 mm	122 mm	82 mm	113 mm
90 mm	---	●	121 mm	152 mm	112 mm	143 mm

Mounting on the hinge side pulling with CPD slide rail and long lever bolts

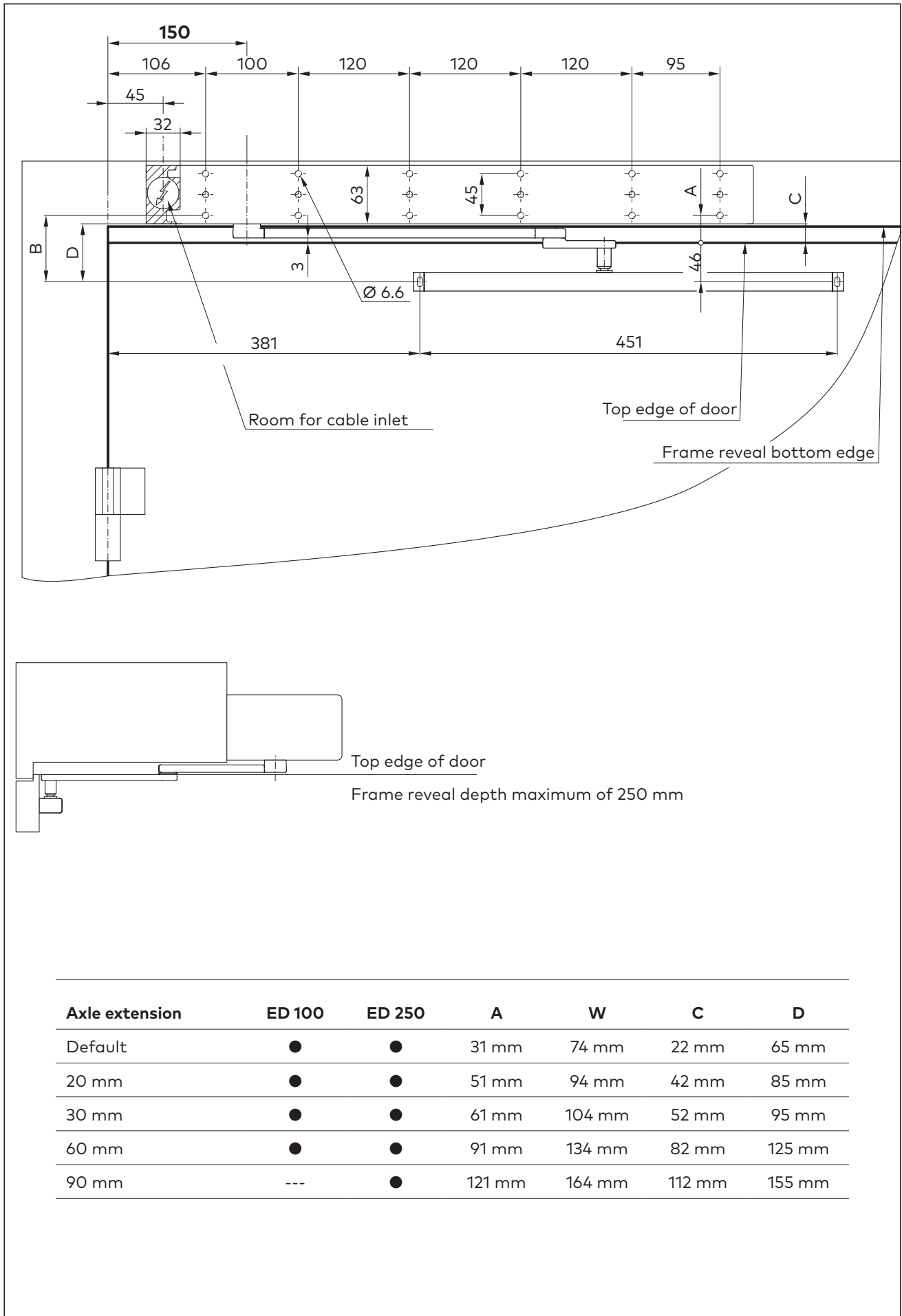


Axle extension	ED 100	ED 250	A	W	C	D
Default	●	●	31 mm	75 mm	22 mm	66 mm
20 mm	●	●	51 mm	95 mm	42 mm	86 mm
30 mm	●	●	61 mm	105 mm	52 mm	96 mm
60 mm	●	●	91 mm	135 mm	82 mm	126 mm
90 mm	---	●	121 mm	165 mm	112 mm	156 mm

Mounting on the hinge side pulling with CPD 250 slide rail and short lever bolts

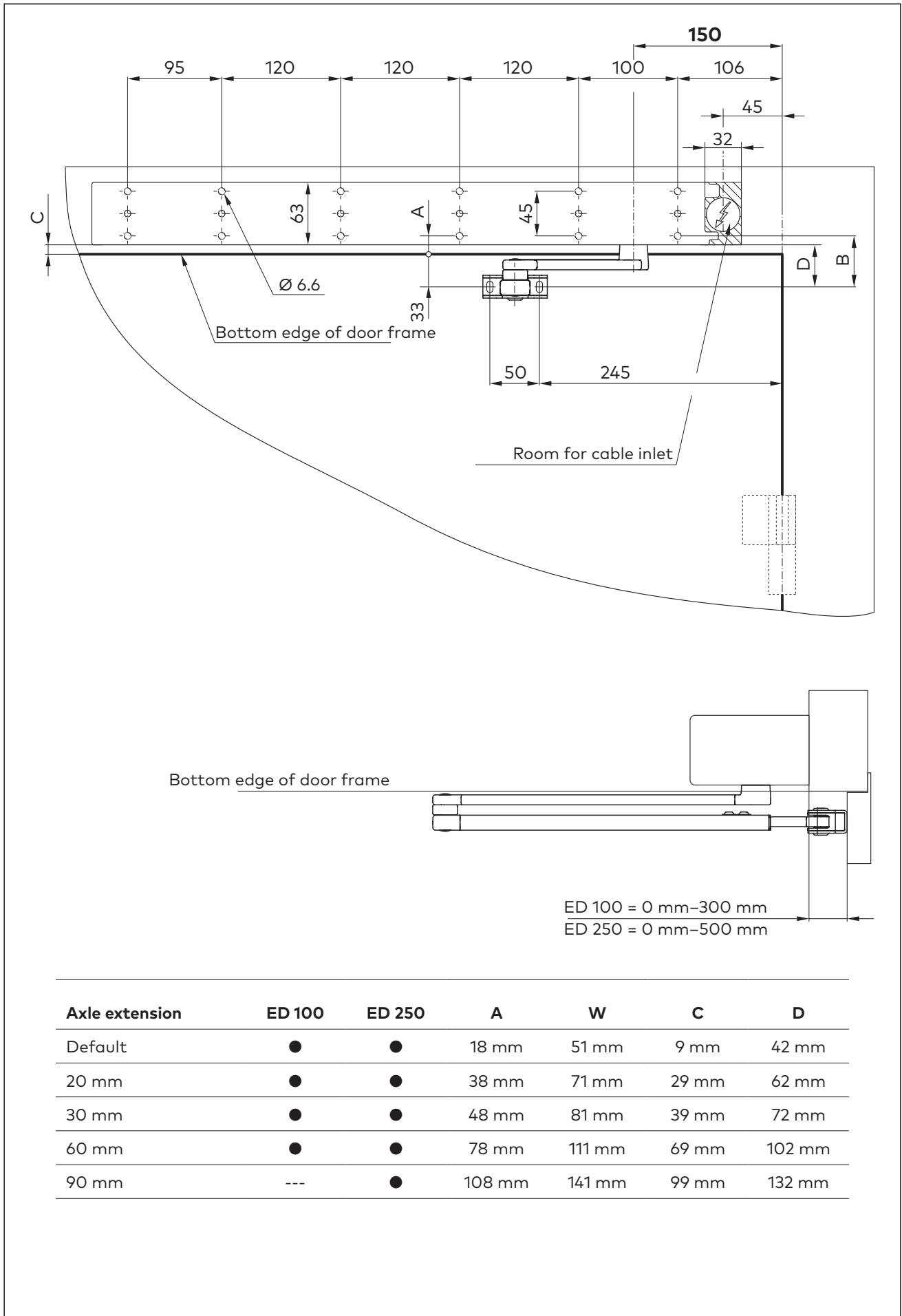


Mounting on the hinge side pulling with CPD 250 slide rail and long lever bolts



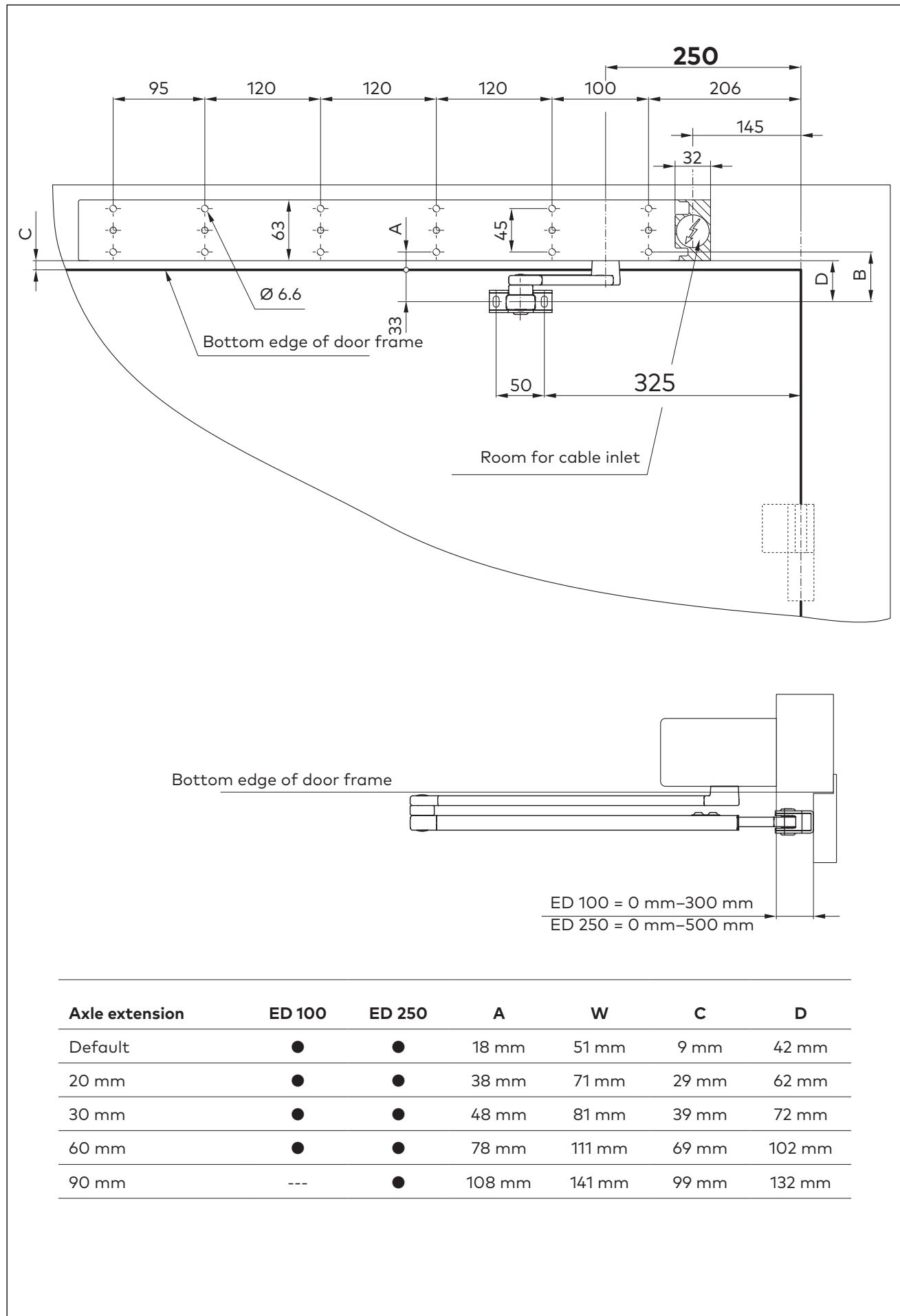
Axle extension	ED 100	ED 250	A	W	C	D
Default	●	●	31 mm	74 mm	22 mm	65 mm
20 mm	●	●	51 mm	94 mm	42 mm	85 mm
30 mm	●	●	61 mm	104 mm	52 mm	95 mm
60 mm	●	●	91 mm	134 mm	82 mm	125 mm
90 mm	---	●	121 mm	164 mm	112 mm	155 mm

Mounting on the opposite side to the hinge pulling with arm

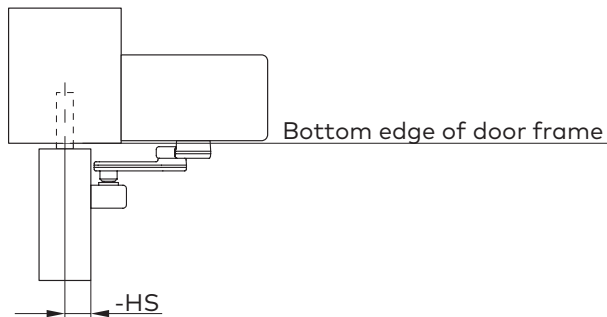
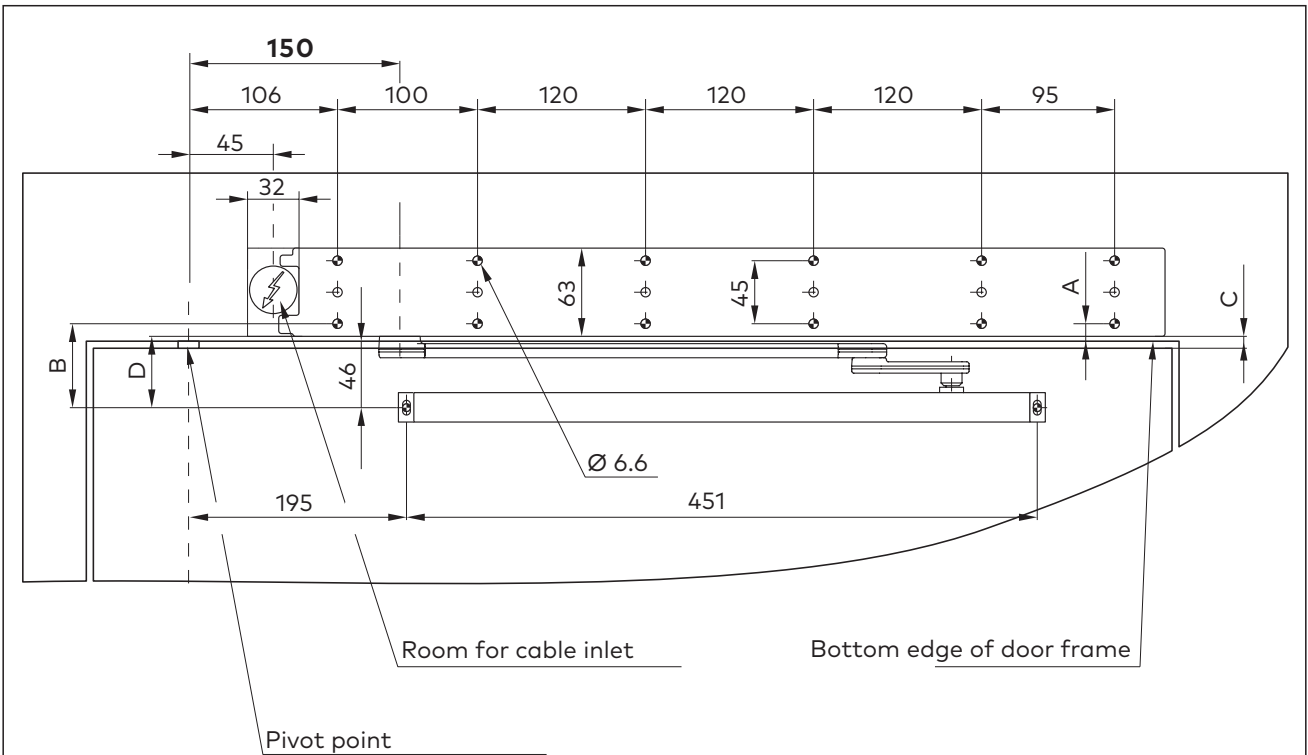


Axle extension	ED 100	ED 250	A	W	C	D
Default	●	●	18 mm	51 mm	9 mm	42 mm
20 mm	●	●	38 mm	71 mm	29 mm	62 mm
30 mm	●	●	48 mm	81 mm	39 mm	72 mm
60 mm	●	●	78 mm	111 mm	69 mm	102 mm
90 mm	---	●	108 mm	141 mm	99 mm	132 mm

Mounting on the opposite side to the hinge pushing with EN 7 arm



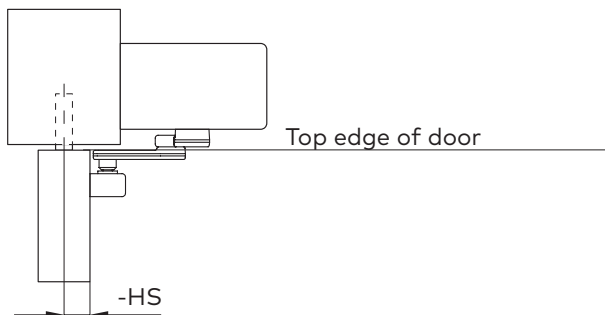
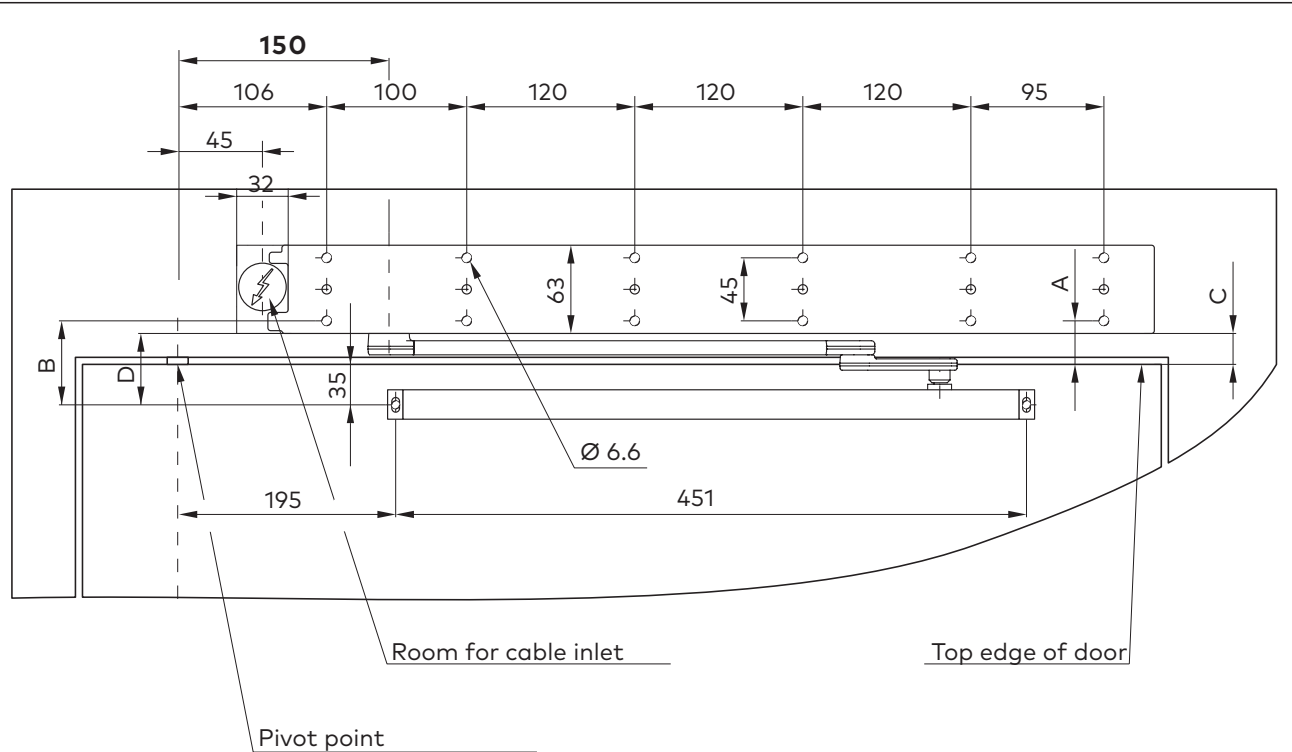
Mounting on a centrally-mounted door with CPD slide rail and short lever bolts



The HS parameter (band spacing) must be changed to the negative area.

Axle extension	ED 100	ED 250	A	W	C	D
Default	●	●	15 mm	61 mm	6 mm	52 mm
20 mm	●	●	35 mm	81 mm	26 mm	72 mm
30 mm	●	●	45 mm	91 mm	36 mm	82 mm
60 mm	●	●	75 mm	121 mm	66 mm	112 mm
90 mm	---	●	105 mm	151 mm	96 mm	142 mm

Mounting on a centrally-mounted door pulling with CPD slide rail and short lever bolts



The parameter **HS** (band spacing) must be changed to the negative area.

Axle extension	ED 100	ED 250	A	W	C	D
Default	●	●	31 mm	61 mm	22 mm	52 mm
20 mm	●	●	51 mm	81 mm	42 mm	72 mm
30 mm	●	●	61 mm	91 mm	52 mm	82 mm
60 mm	●	●	91 mm	121 mm	82 mm	112 mm
90 mm	---	●	121 mm	151 mm	112 mm	142 mm

5 Mounting the operator



WARNING

Danger of injury from falling objects.

Falling parts or tools can cause injury.

- Secure workplace against unauthorized entry.

The procedure described here is an example. Structural or local conditions, existing aids or other circumstances may make a different approach sensible.

5.1 Requirements

- A 230 V/50-60 Hz connection with 16 A fuse protection is provided at the door location.
- The door leaf must be in perfect mechanical condition and run smoothly.

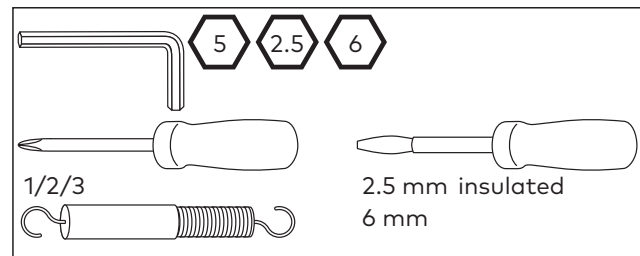
5.2 Standard tightening torques

M 5 5 Nm

M 6 9.5 Nm

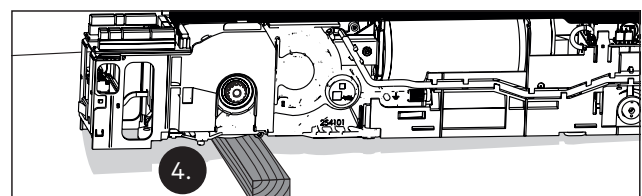
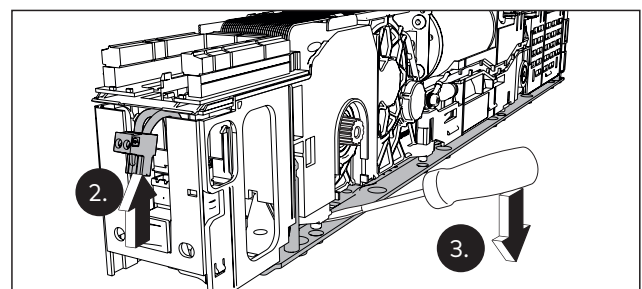
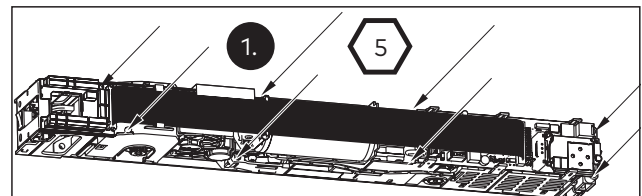
M 8 23 Nm

5.3 Tools required



5.4 Dismantling the operator from the mounting plate

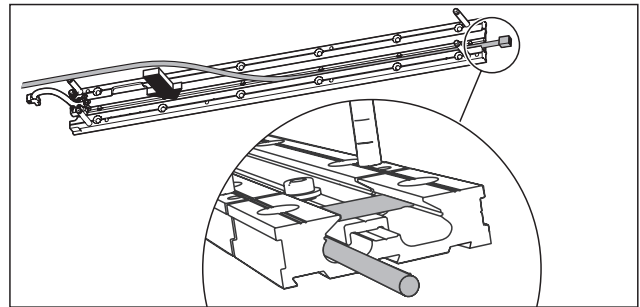
1. Loosen the 8 mounting screws
2. Remove the 230 V plug.
3. Disconnect the operator from the mounting plate. To do this, use a screwdriver as a lever between the operator and the base plate.
4. Place a piece of wood or similar under the operator so that the connecting part cannot detach.



5.5 Optional installation stages

5.5.1 Route smoke detector cables for integrated smoke detectors (optional)

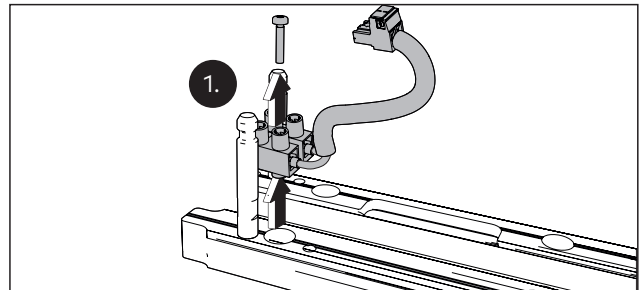
See ED Cover Basic RM, ED Cover VARIO RM mounting instructions.



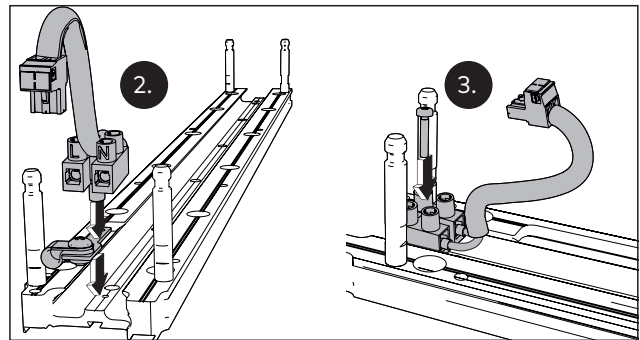
5.5.2 Mounting the strain relief (optional)

Mount the strain relief before attaching the mounting plate to the door/wall.

1. Remove the screw and remove the mains connection from the mounting plate.

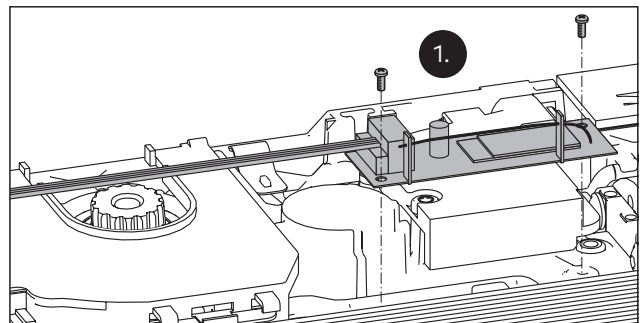


2. Place the strain relief below the mains connection.
3. Screw the mains connection and strain relief into the mounting plate.

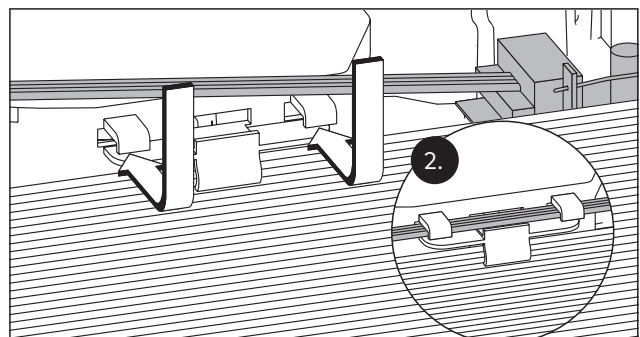


5.5.3 Mounting the radio receiver (optional)

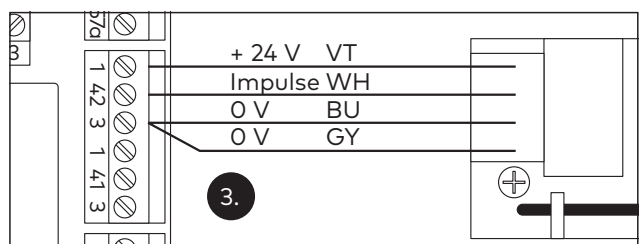
1. Screw the radio receiver board onto the operator.



2. Guide the cable through the mounting bracket.



3. Connect the radio receiver.



5.6 Mounting the mounting plate.

1. Screw the mounting plate firmly with 12 screws into the prepared holes.



Note

Use dowels and screws adapted to the substrate for fixing.

2. Insert the supplied holding bolt into the lower of the two holes with a hammer.



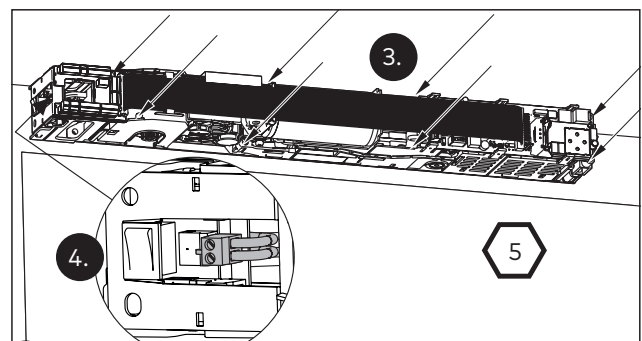
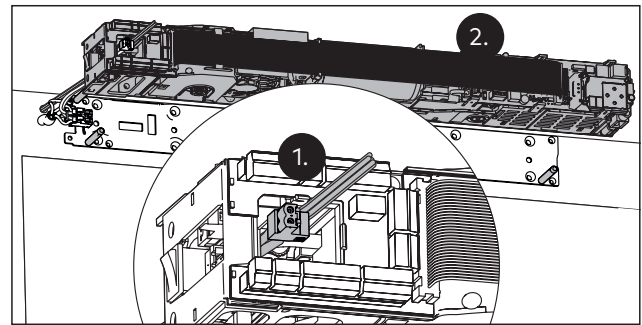
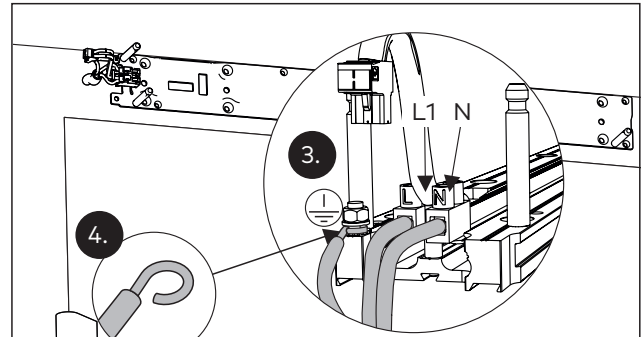
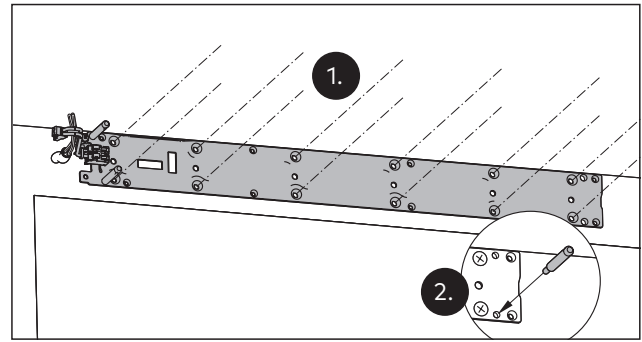
Danger!

Danger to life through electric current. Work on the electrical system must only be carried out by qualified electricians.

3. Clamp the 230 V connection cable.
4. Bend the cable end of the grounding cable to form an eye and screw tight onto the earthing screw.

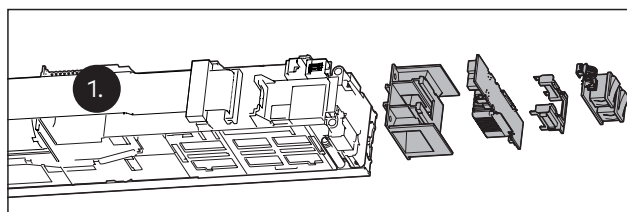
5.7 Fix the operator to the mounting plate

1. Guide the connection cables through the housing and plug the operator onto the bolts on the base plate.
2. Press on the operator until it audibly snaps into place.
3. Tighten the 8 screws
4. Insert the mains connection plug.



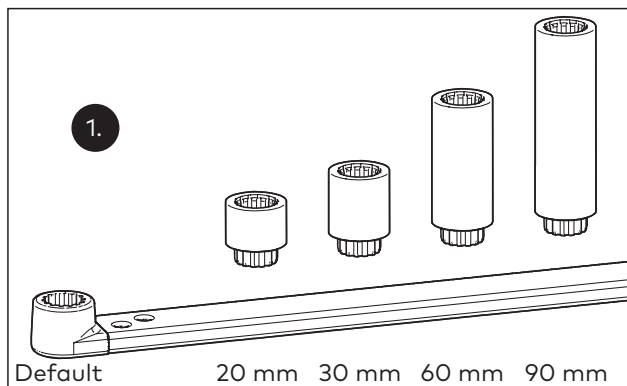
5.8 Mounting the ED Cover Basic RM (optional)

1. Mount the integrated smoke detector on the operator.
See ED Cover Basic RM, ED Cover VARIO RM mounting instructions.



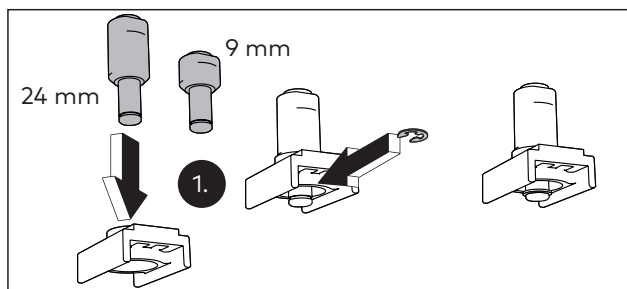
5.9 Insert axle extension into the lever

1. If necessary, insert the axle extension into the lever.



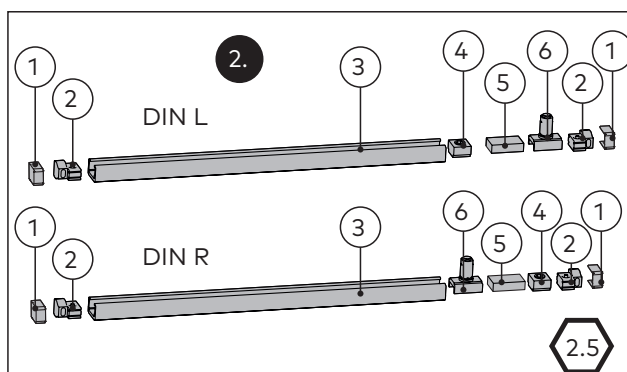
5.10 Mount the slide rail

1. Insert the lever bolt (short = 9 mm or long = 24 mm) into the sliding block and fasten with the locking washer. The short bolt is used for doors without rebate.



2. Insert the individual parts into the slide rail as shown in the picture and tighten the fixing pieces.

- (1) End cap
- (2) Fixing piece
- (3) Slide rail
- (4) End stop
- (5) Buffer
- (6) Sliding block

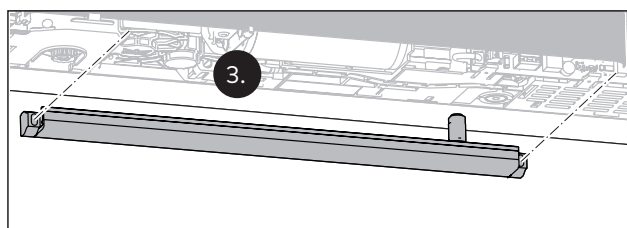


3. Tighten the slide rail with 2 screws in the prepared holes.

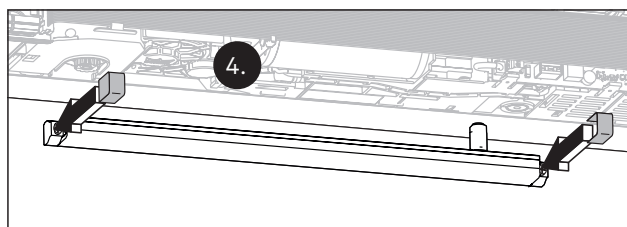


Note

Use dowels and screws adapted to the substrate for fixing.



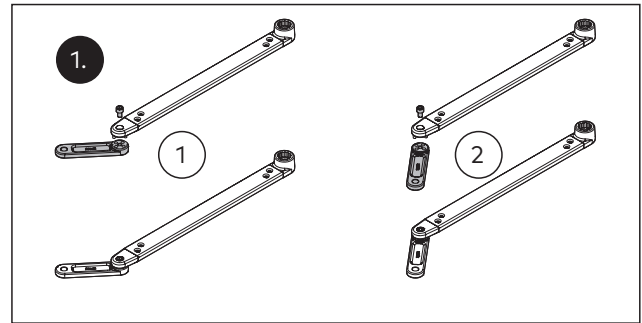
4. Place the end caps on the slide rail.



5.11 Mounting CPD/CPD 250

When using the CPD/CPD 250 slide rail lever, this must be assembled.

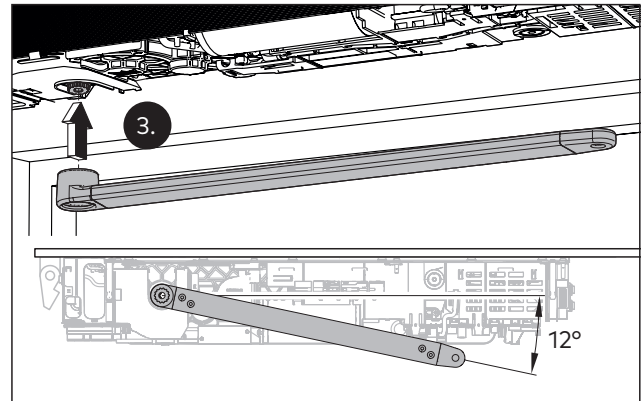
1. Unscrew the lever to suit the installation situation.
 - (1) Hinge side DIN right and opposite side to the hinge DIN left
 - (2) Hinge side DIN left and opposite side to the hinge DIN right



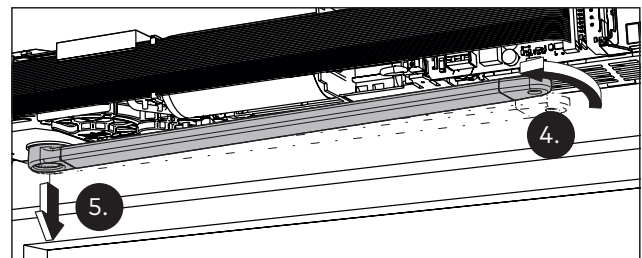
5.12 Mount lever

In order to mount the lever in the correct position, the axle must be brought into zero position.

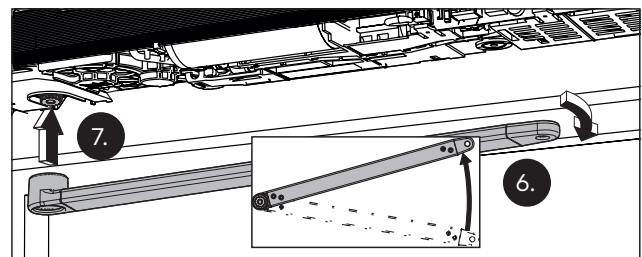
1. Set the spring preload to approx. 10 rotations, see "5.15 Adjust spring tension" on page 30.
 - ▶ The axle rotates to the zero position.
2. Turn the spring preload back to 0 rotations.
3. Push the lever onto the axle at an angle of approx. 12° to the operator.
4. Turn the lever with the operator axle approx. 10° in the door's opening direction.
5. Withdraw the lever from the axle.



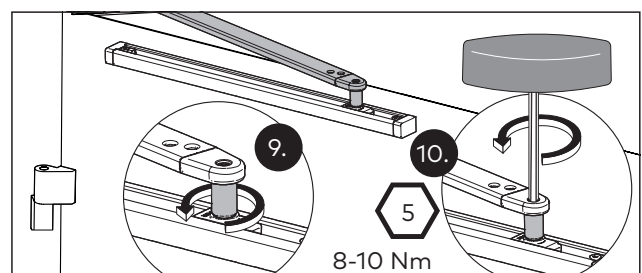
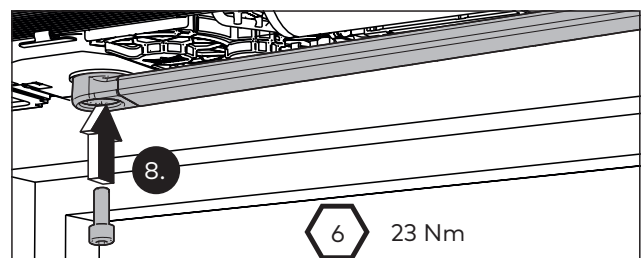
6. Turn the lever one tooth in the door's closing direction. In the case of greater frame reveal depths, the lever must be rotated by several teeth.
7. Put the lever on the axle.



8. Tighten the lever to 23 Nm.



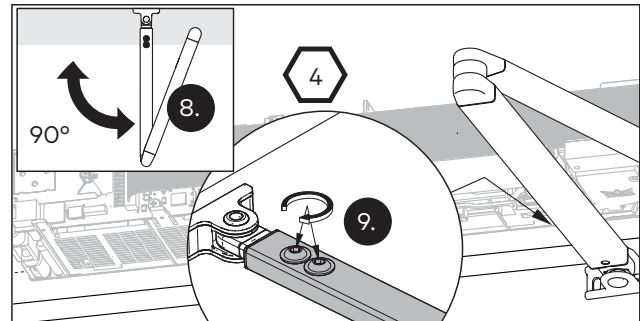
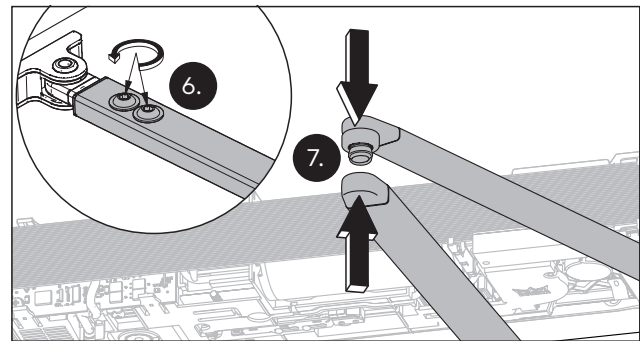
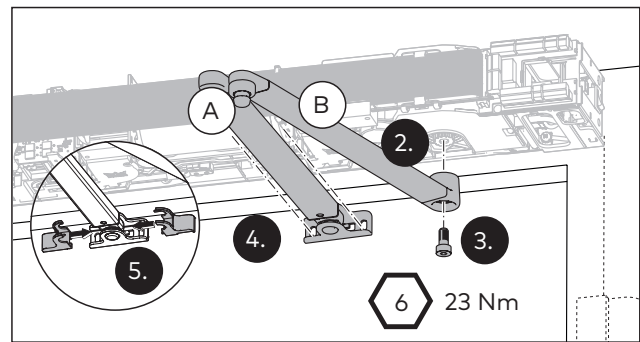
9. Screw the lever bolt into the lever.
10. Tighten the lever bolt to 8-10 Nm.



5.13 Mounting the standard arm

In order to mount the lever in the correct position, the axle must be brought into zero position.

1. Set the spring preload to approx. 10 rotations, see "5.15 Adjust spring tension" on page 30.
 - The axle rotates to the zero position.
2. Put the lever (B) on the axle at an angle of approx. 90° to the operator.
3. Tighten the lever to 23 Nm.
4. Screw the telescopic arm (A) to the door leaf using 2 screws.
5. Place the covers on the telescopic arm's joint.
6. Loosen the 2 screws on the telescopic arm.
7. Push the telescopic arm's ball head into the holder on the lever.
8. Turn the arm so that the telescopic arm is at an angle of 90° to the door leaf.
9. Tighten the 2 screws



5.14 Adjust braking circuit.

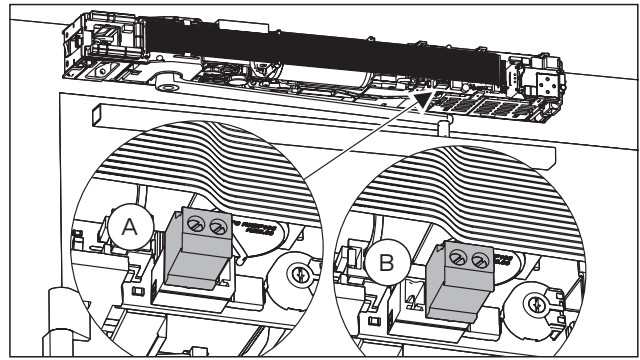
1. Ensure that the mains voltage is switched off.



WARNING!

Risk of being crushed by the door.
If the plug is inserted incorrectly, the brake circuit will not work. The door can close at high speed.

2. Plug in the plug depending on the mounting type.
(A) = pull mounting (B) = push mounting



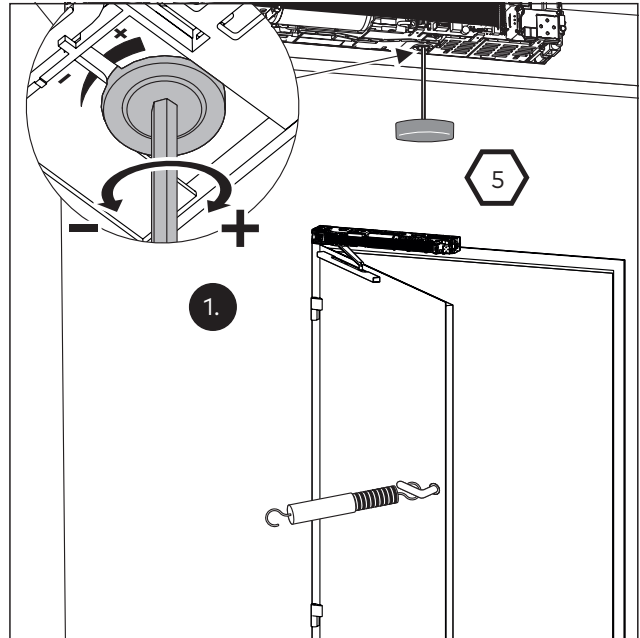
5.15 Adjust spring tension

The spring is relaxed on delivery. A preload of at least 10 rotations is required for operation. The setting is checked during the learning cycle. If the spring tension is too low, the learning cycle is interrupted. If the spring setting is changed, a new learning cycle must be carried out.

1. Remove the full revolutions required in the table for the spring setting and adjust the spring's tension.

EN class selection					
Door leaf width in mm	950	1100	1250	1400	1600
EN class	EN 3	EN 4	EN 5	EN 6	EN 7
min. closing torque at 2°	18 Nm	26 Nm	37 Nm	54 Nm	87 Nm
Rotations of the spring setting					
ED 100	14	16	--	--	--
ED 250	--	14	18	24	24
Combination option arm					
Standard arm	X	X	X	X	X
Slide rail	X	X	X	X	

The table shows proximity values, so the closing torque must be checked at 2° according to EN 1154 and corrected if necessary. For frame reveal depths greater than 300 mm, the min. closing torque of 88°-92° can be checked.

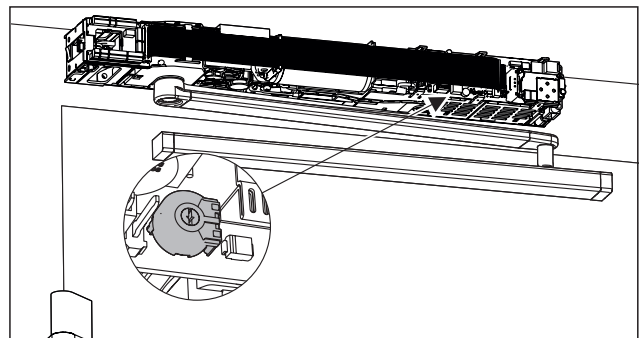


5.16 Set the closing speed when the power is off

1. Set the closing speed on the potentiometer.
It is imperative that the speed is set. If the door closes in less than 3 seconds, this will result in error message 73 (braking circuit check).

5.17 Commission the operator

1. Commission the operator
See "7 Commissioning" on page 37.



5.18 Adjust the end stop on the slide rail

The end stop must be set so that the set opening angle cannot be exceeded by manual pushing.

1. Switch the program switch to position PERMANENTLY OPEN.
 - ▶ The door opens up to the set opening width.
2. Push the buffer and end stop up to 5 mm to the sliding block.
3. Tighten the screws on the end stop



ATTENTION!

dormakaba recommends the use of a doorstop. When using the standard rod, a doorstop must be used.

5.19 Mount the cladding



ATTENTION!

The use of a metallic hood is required for CE conformity.



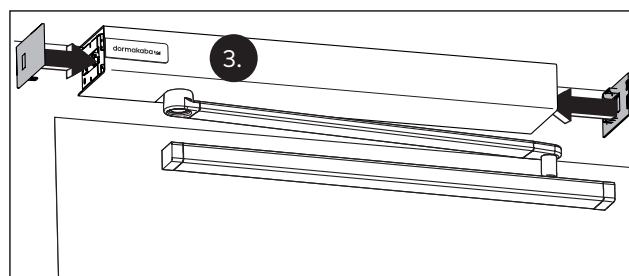
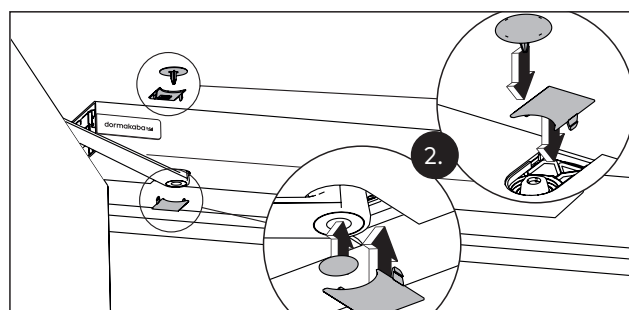
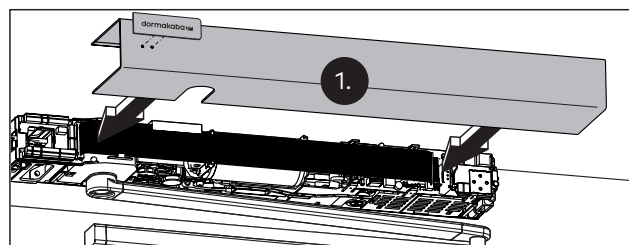
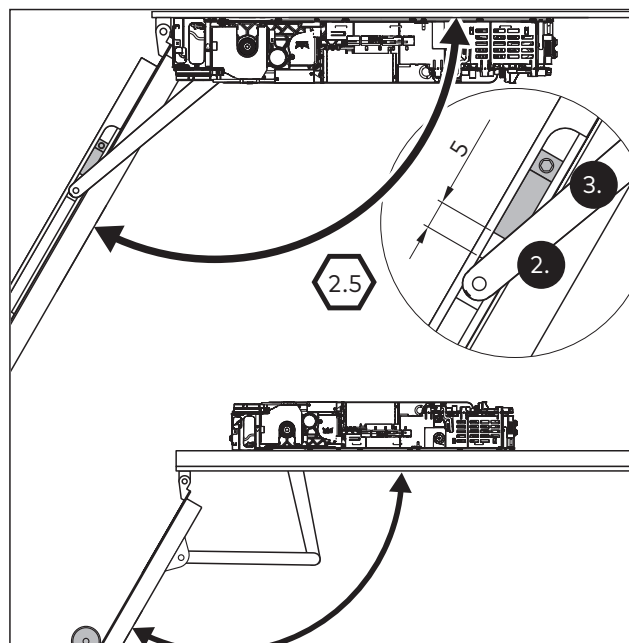
ATTENTION!

Do not pinch any wires.

1. Insert the protective cover onto the operator and press until it audibly snaps into place.
2. Fit the axle covers.

3. Fit the side covers.

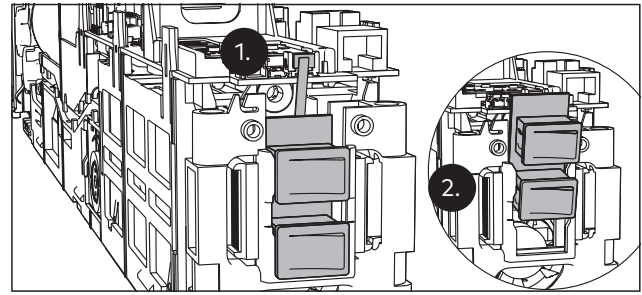
On the side with the program switch, the insertion depth is variable by catches in order to compensate for slight length differences of the protective cover.



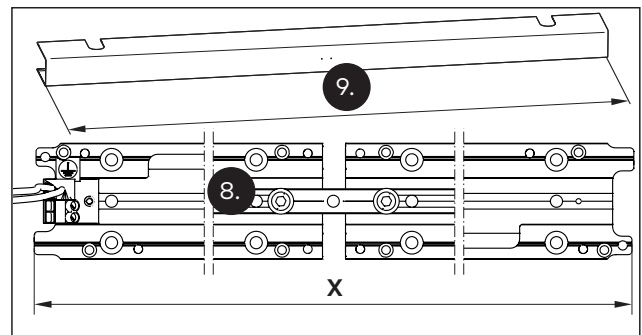
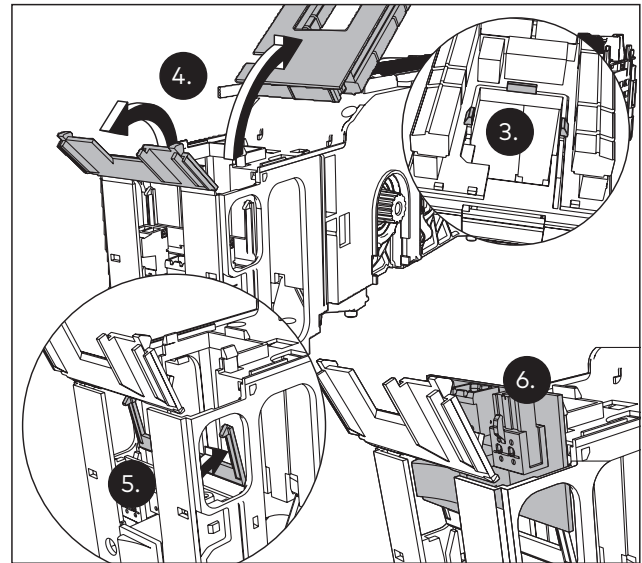
5.20 Mounting 2-leaf door (optional)

Perform the following steps before mounting the operators:

1. Remove the connection cable on both operators.
2. Pull the boards with the internal program switches upward.
3. On the operator, which is not installed on the mains connection side, push in the 3 terminals on the connection board and remove the connection board.
4. Open the two folds above the mains connection board.
5. Unplug the plug
6. Remove the mains connection board.
7. Close the two folds and insert the connection board.



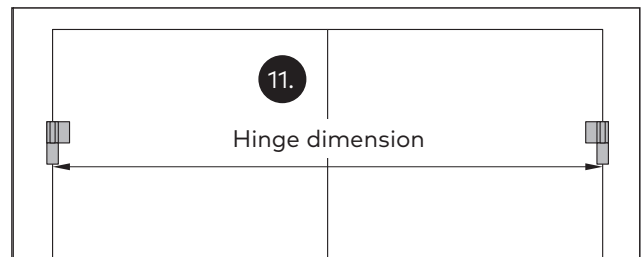
8. Place the mounting plates on a straight base and align them accurately.
9. Measure the length of the protective cover and calculate the length of the assembled mounting plates using the following formula.
Hood length - 91 = X
10. Screw the mounting plates together.
Observe the instructions in Figures 4 and 5a-5c.



Note

After assembling the mounting plates, attach the operators and check whether the cladding fits.

11. Determine the size of the hinge.



12. Connect the mounting plates.

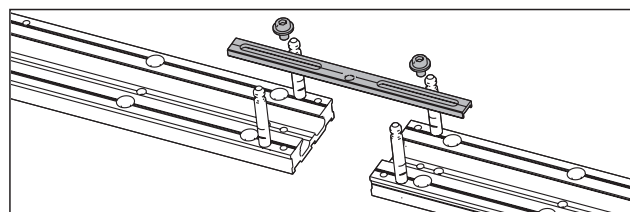
There are 3 ways to connect the mounting plates with each other. Which of these is used depends on the size of the hinge.

- | | |
|-------------------------|------------------|
| Hinge size 1400-1415 mm | = Connection "A" |
| Hinge size 1416-1475 mm | = Connection "B" |
| Hinge size from 1476 mm | = Connection "C" |

Connection "A"

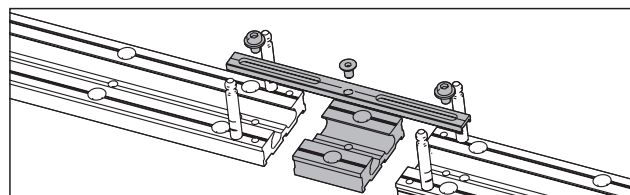
Hinge size 1400-1415 mm

Connect the mounting plates to the long connector.

**Connection "B"**

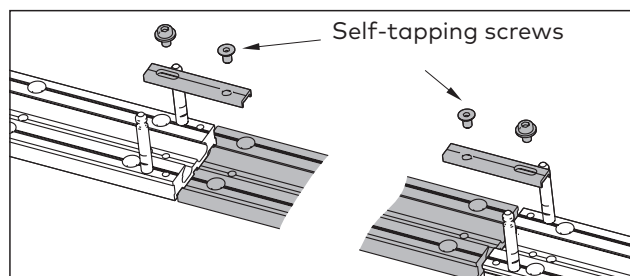
Hinge size 1416-1475 mm

Connect the mounting plates to the long connector and the small intermediate plate.

**Connection "C"**

Hinge size from 1476 mm

Connect the mounting plates with the two short connectors and the appropriate cut-over intermediate plate.



13. Screw the mounting plate firmly with 12 screws into the prepared holes.

**Note**

Use dowels and screws adapted to the substrate for fixing.

14. Insert the supplied holding bolt into the lower of the two holes with a hammer.

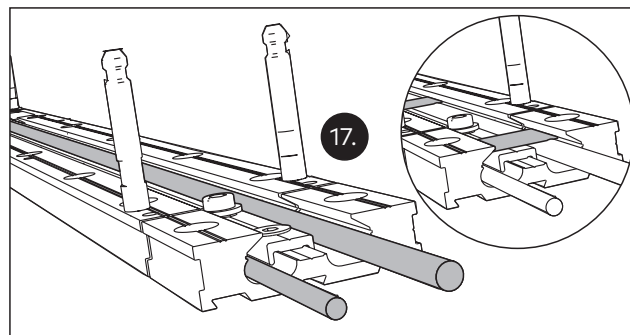
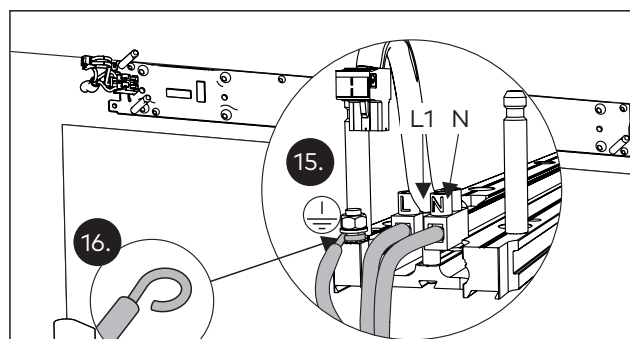
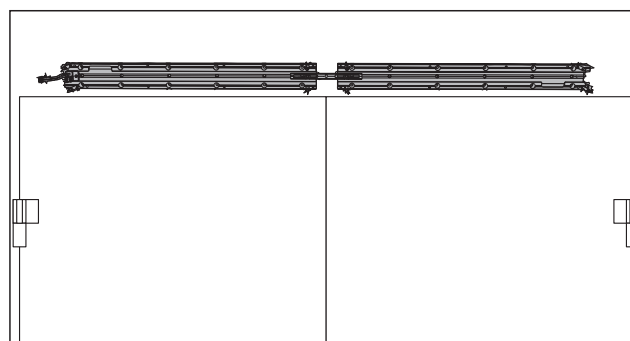
**Danger!**

Danger to life through electric current. Work on the electrical system must only be carried out by qualified electricians.

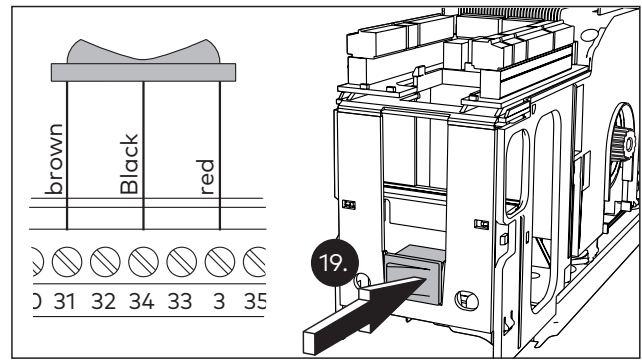
15. Clamp the 230 V connection cable.
16. Bend the cable end of the grounding cable to form an eye and screw tight onto the grounding screw.
17. Place the mains connection cable for the second operator and, if necessary, the program switch cable into the groove of the mounting plates and attach them with the enclosed plastic plates.
18. Mounting both operators, see "5.7 Fix the operator to the mounting plate" on page 26.

If the unit is to be equipped with a sequential locking control, install it now, (see the mounting instructions ED 100/250 ESR).

If the unit is to be fitted with an ED Cover Vario RM, install it now, refer to the ED Cover Basic RM, ED Cover VARIO RM mounting instructions.

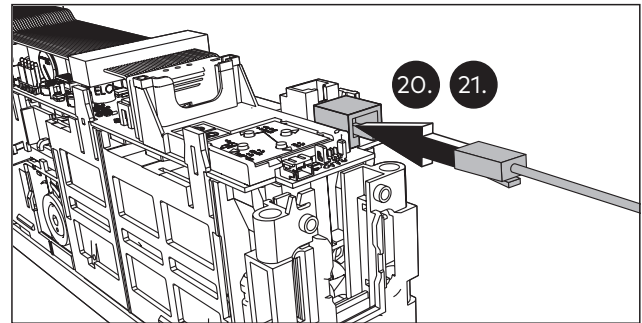


19. Clip the new program switch into holding the remote power switch and connect it to the operator for the active door leaf. The connection is made on the connection board on the terminals for the external program switch.



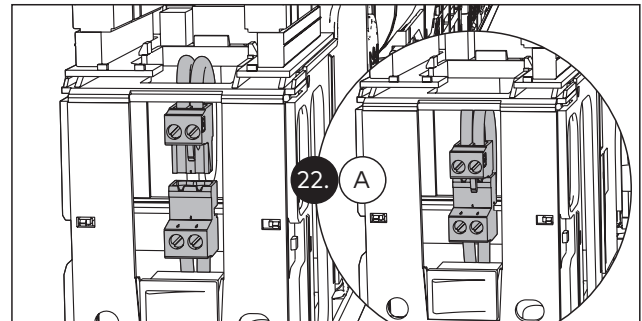
20. If the program switch has been mounted on the operator for the active door leaf, the connection cable must be shortened. The cable ends must have cable lugs.

21. Plug the communication cable into the two "lying" connectors on the control unit.



22. Connect the mains connection cable for the second operator.

A shows the connection to the active door leaf.



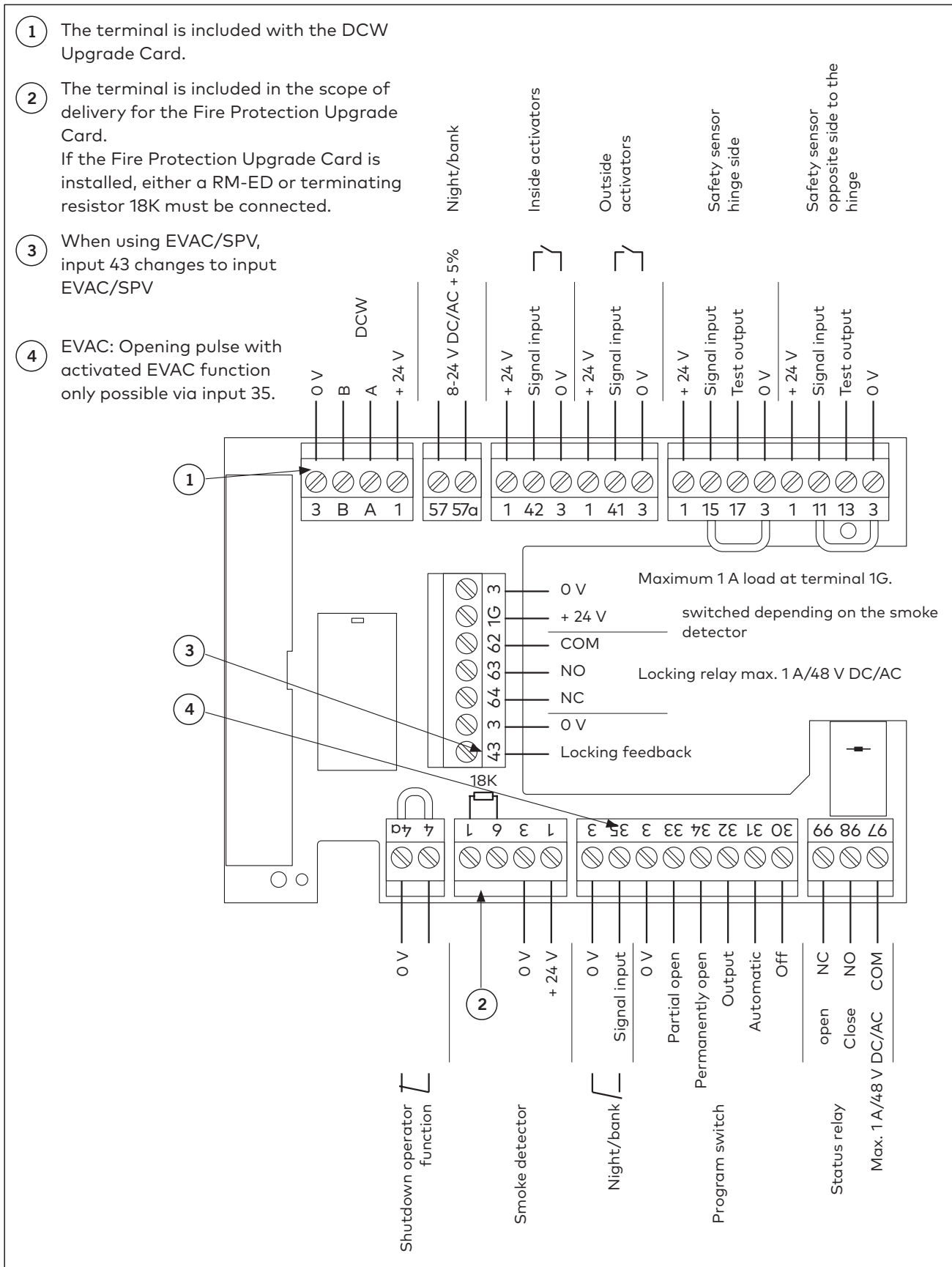
B shows the connection to the passive door leaf.



6 Connect accessories

1. Clamp the connection cables to the connectors and plugs on the connection board.
 - Maximum 1.5 A total load at terminals 1, 1G and 3, a maximum of 1 A load at terminal 1G.
 - Cable length a maximum of 30 m when using J-Y(ST)Y 0.8 mm

6.1 Assignment of terminals

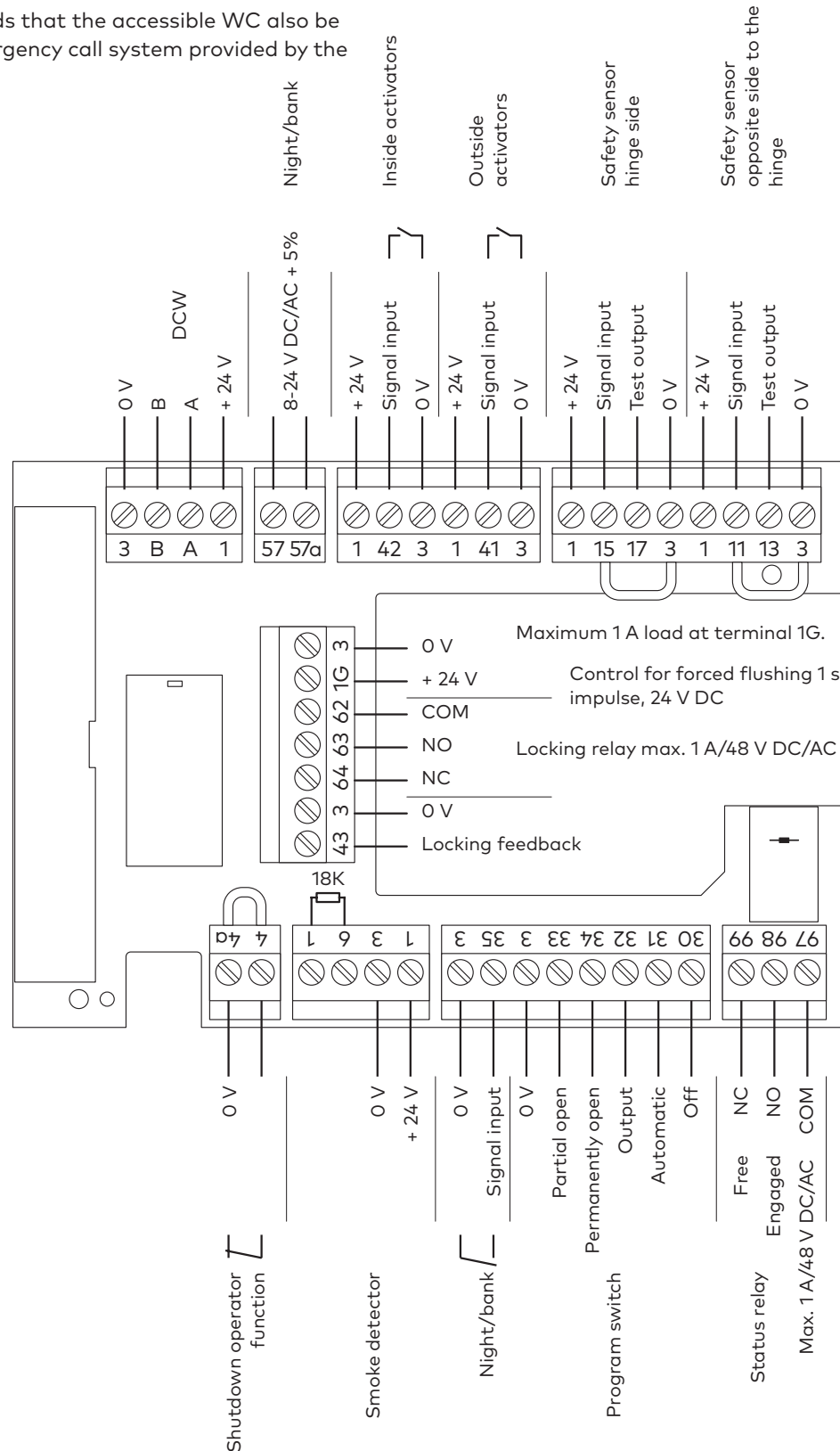


6.2 Terminal assignment when using the Accessible WC Upgrade Card

The door unit must be equipped with the following components:

- Quiescent current door opener or a suitable motorized panic lock
- Inside with a door handle and outside with a knob
- Inside and outside with surface buttons
- Outside with status display "free/engaged"
- Inside with status display "engaged"

Emergency switch can be optionally mounted inside and outside.
 dormakaba recommends that the accessible WC also be integrated into an emergency call system provided by the customer.



7 Commissioning

(also after reset to factory settings (Fact-Setup))

7.1 Requirements

- The operator is fully installed and correctly connected to the door leaf.
- The parts supplied separately such as program switch and activator (radar detector, night/bank key switch) are mounted and connected.
- The motor is cold.

7.2 Commission the operator

1. Switch on the operator on the power switch.
 - ▶ The display shows a sequence of characters that reflect the current processing state.



The system is being checked.



2 back and forth segments in the middle indicate that the control unit is waiting for internal signals (maximum 1 second).



2 drop-down underscores show that the installation position can be entered. If entered incorrectly, the characters in the display are upside down.

2. Press the lower key (only necessary for the first commissioning).



The device detection "runs" through the display. ED 100 or ED 250 and the firmware version (represented by XX XX).



Small, rotating "o" and "P" show that further parameterization is required (only during the first commissioning or after reset with factory settings).

3. The parameters: Set the mounting type (AS), frame reveal depth (rd) and door width (Tb), see "9 Parameterization" on page 40.

7.3 Change parameters

1. ▶ Press for 3 seconds to open the parameters menu.
2. ▼ or ▲ press to select the desired parameter.
3. ▶ Press to display the parameter value.
4. ▶ press to select the value to change. => the value flashes
5. ▼ or ▲ press to set the desired value.
6. ▶ press to save the changed value.
7. ◀ Press to return to the parameters menu.
8. ▼ or ▲ press to select the next parameter.



After leaving the parameterization mode, the display shows a small, rotating "o" and "P".

7.4 Carrying out a learning cycle

The learning cycle must be carried out with a cold motor. During the learning cycle, the door leaf must not be moved or stopped manually, otherwise the control unit cannot correctly determine the parameters. Safety sensors and activators are switched off during the learning cycle so that the learning cycle process is not disturbed. Smoke detectors and operator function shutdown are active.

1. Secure the range of motion of the door leaves.
2. Close the door and switch the program switch to the OFF position.



A rotating "o" and "O" show that a learning cycle is required.

3. Press the key ▼ for 3 seconds.
 - ▶ The door performs different movements and the display shows a sequence of characters. The movements of the door leaf must not be stopped.



The door is in 70° position and is waiting for the opening width to be set.

4. Move the door to the desired open position and press the button ▼.



If the spring tension is too low, the display shows the small rotating "o" and "F".

5. In this case, the spring tension must be increased and the learning cycle restarted.



Door is ready for operation



Note

Due to system tolerances, following the automatic learning cycle the actual forces on the door leaf need to be measured and, if necessary, changed accordingly to meet local standards and regulations.

7.5 Commissioning of a 2-leaf unit

1. Put the active door leaf into operation.
2. After the learning cycle, switch the program switch to PERMANENTLY OPEN.
3. Put the passive door leaf into operation.

Additional parameterization

- On active door leaf
Set parameter >dL< (door type) to "1".
Set parameters >Ad< (end run angle) to the desired value.
- On passive door leaf
Set parameter >dL< to "2".

7.6 Zero point detection after mains reset



During the zero point detection, the display shows the small rotating "o" and "b".

7.7 Commissioning with integrated smoke detector

See ED Cover Basic RM, ED Cover VARIO RM mounting instructions.

8 Install upgrade cards

8.1 Requirements:

- The operator must be fully assembled.
- The learning cycle has been successfully completed.
- The power supply is switched on.
- The program switch is in the "Off" position.
- The information display indicates a state of rest.



8.2 Use in 2-leaf units

Full Energy:

The Full Energy Upgrade Card can be installed on one or both operators.

Fire protection:

The Fire Protection Upgrade Card must be installed on both operators.

Professional:

The Professional Upgrade Card is only installed on the operator for the active door leaf.

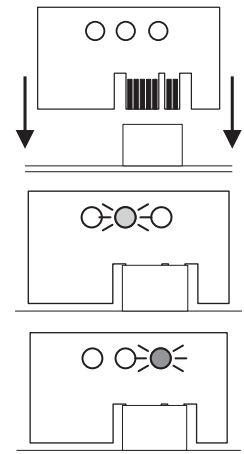
For the EVAC or SPV functions in 2-leaf systems, 1 Professional Upgrade Card is required for each operator on which the functions are to be used.

DCW:

The DCW Upgrade Card is only installed on the operator to which DCW products are connected.

8.3 Installing the first Upgrade Card

1. Insert the Upgrade Card into the slot, see "3.1 Operator system" on page 5.

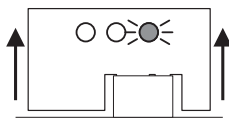


- ▶ During insertion, the yellow LED flashes once.
- ▶ The data is transferred. The communication between the modules is indicated by slow flashing of the green LED.
- ▶ The corresponding function is now released and can be activated, see "9 Parameterization" on page 40, parameters F1-F8.
- ▶ The unit is ready for operation.

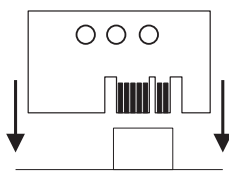
8.4 Installing further upgrade cards

Additional Upgrade Cards can be installed. The first installed Upgrade Card takes over the function of the container module. All installed functions can be used as long as the container module is installed in the operator system.

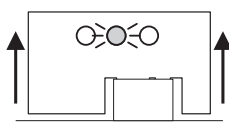
1. Remove the container module.



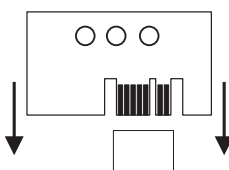
2. Insert the next upgrade card.
 - ▶ The function is copied into the operator system and the upgrade card is devalued.



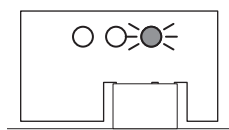
3. Remove the upgrade card as soon as the yellow LED lights up.



4. Plug in the container module.
 - ▶ The control unit detects the container module and saves the new function in it.



- ▶ Slow flashing of the green LED indicates the successful operation, the function can be activated, see "9 Parameterization" on page 40, parameters F1-F8.

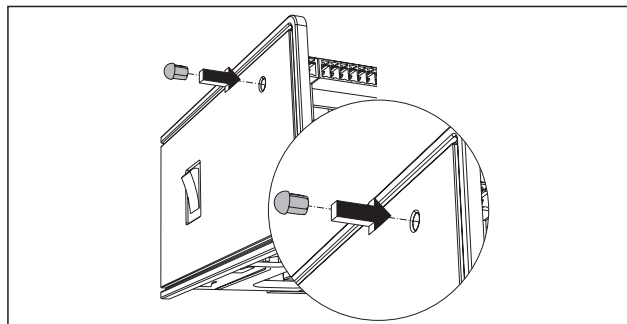


The following must be taken into account during installation:

- If the container module is removed, the previously released functions are deactivated after some time.
- To reinstall the upgrade cards, an extended factory setting must be carried out.
- When replacing the control unit, the container module is connected from the old control unit to the new control unit. The new control unit synchronizes with the container module, and all functions are available again.
- If a upgrade card is already activated, this is rejected. This is indicated by quick flashing of the yellow LED. A devaluation of the module is then not carried out.
- When plugging in the container module to a third-party, the container module is rejected. This is indicated by quick flashing of the yellow and green LEDs. The module can only be firmly synchronized with one control unit.

8.4.1 Installing the Fire Protection Upgrade Card

1. Install the Fire Protection Upgrade Card as described in points 8.3 and 8.4.
2. Insert the supplied light conductor into the larger drill hole in the side cover on the power switch side.



8.4.2 Accessible WC Upgrade Card

1. Install the Accessible WC Upgrade Card as described in points 8.3 and 8.4.
1. Turn the ED 100, ED 250 off and then on again so that the functions are taken over.

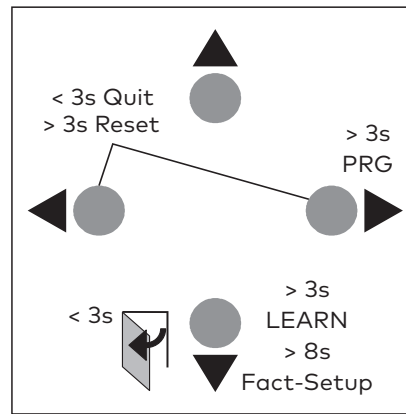











Note












If the Accessible WC Upgrade Card is used, observe the changed terminal layout in point 6.2.












9 Parameterization











After carrying out the learning cycle, the operator can be operated with the basic parameters. The system also offers the option to adapt the travel parameters to the actual conditions as well as to activate advanced functions. These parameters should be set according to the user's wishes during commissioning.




















Parameters/ display	Value range	Unit Factory setting = bold	Explanation
Mounting type 	0-7	0 1 2 3 4 5 6 7	Frame reveal mounting hinge side, slide rail pulling EN 4-6 Frame reveal mounting opposite side to the hinge, scissor arm pushing Frame reveal mounting opposite side to the hinge, slide rail pushing OHC_R OHC_L Frame reveal mounting opposite side to the hinge, scissor arm pushing EN7 Frame reveal mounting hinge side pulling with CPD lever Frame reveal mounting hinge side pulling with CPD 250 lever
Frame reveal depth 	ED 100: - 3-30 ED 250: - 3-50	0	The frame reveal depth is set in 10 mm increments. The required dimensions can be found in the assembly drawings.
Door leaf width 	ED 100: 7-11 ED 250: 7-16	10	The rebate is included in the door leaf width. The door width is specified in 100 mm increments.
Door type 	0-4	0 1 2 3 4	Single-leaf door 2-leaf door, active door leaf, overlapping door leaf 2-leaf door, passive door leaf, overlapping door leaf 2-leaf door, active door leaf, edgeless door leaf 2-leaf door, passive door leaf, edgeless door leaf
Opening speed 	ED 100: 8-50 ED 250: 8 - 60 (with Low Energy, each reduced to max. 27°/sec.)	Degree/ second 25	The opening speed refers to automatic operation. Country-specific limits must be adhered to and checked after setting. The full setting range is only available with an installed Full Energy Upgrade Card. The speed can be changed via this parameter. The admissibility of the setting is checked by internal monitoring. If it is exceeded, the set value is displayed alternately with the effective value.
Closing speed 	ED 100: 2-50 ED 250: 2 - 60 with Low Energy, each reduced to max. 27°/sec.)	Degree/ second 25	The closing speed refers to automatic operation. Country-specific limits must be adhered to and checked after setting. The full setting range is only available with an installed Full Energy Upgrade Card. The speed can be changed via this parameter. The admissibility of the setting is checked by internal monitoring. If it is exceeded, the set value is displayed alternately with the effective value.
Hold-open time 	0-30 (Specification with Low Energy min. 5 s) 0-180 with Professional Upgrade Card	seconds 5	The hold-open time should be set so that people have enough time to pass through the door. If a longer hold-open time is required, the setting range can be extended to 180 s with the Professional Upgrade Card. The hold-open time starts after the contact/voltage is opened at the activator inputs, inside, outside, safety, Push & Go and the door is in an open position. The signal can be retrIGGERED. In the Low Energy operating mode, the min. hold-open time of 5 s should not be undershot. The values of 0-30 seconds can be set in 1 second increments and values over 30 seconds in 5 second increments.
Night/bank hold-open time 	0-30	seconds 10	The night/bank hold-open time (key switch) can be set separately. The night/bank hold-open time starts when the contact at the night/bank pulse generator input is opened and the door is in an open position. The signal can be retrIGGERED.
Hold-open time when opened manually 	0-30	seconds 1	The hold-open time after manual opening works with purely manual opening, including when the Power Assist function is activated and after a stop by the sensor strip.

Parameters/ display	Value range	Unit Factory setting = bold	Explanation
BS wall blanking 	60-99 99 = disabled	Degree 80	When the set angle is reached, the input signal from the hinge side safety sensor is ignored. Wall blanking is required when the door opens against an obstacle. The further the detection range of the safety sensor used, the larger the area in which detection is ignored. In terms of personal protection, we recommend minimizing this area. If the wall blanking angle is exceeded when the door is opened, a quick-flashing point appears in the top left of the control unit's display. This indicator goes out when the angle is lower.
Safety sensor test 	0-6	0	Test Off. The safety sensors are not tested. To be used with the safety sensor IRS-2. In combination with safety sensors according to EN 16005 or DIN 18650, one of parameters 1-6 must be used. The test level low active and high active depends on the sensor and must be set to the same value as in the operator.
		1	BS test sensor - level high active
		2	BGS test sensor - level high active
		3	BS test sensor & BGS sensor - level high active
		4	BS test sensor - level low active
		5	BGS test sensor - level low active
		6	BS test sensor & BGS sensor - level low active
Pulse from safety sensor opposite side to the hinge 	0-1	0	The security sensor input signal is ignored once the door is closed.
		1	When the door is closed the safety sensor can trigger an opening impulse.
Suppression of BS safety sensor during initial travel 	0-1	0	The BS safety sensor is not active during initial travel (is hidden).
		1	The BS safety sensor is active during initial travel.
Unlocking time 	0-40	100 ms 1	The unlocking time starts after a pulse is given. The door is only opened after the unlocking time has elapsed. For setting "0" pressing is not executed before unlocking. The process changes depending on the locking device used and in combination with the feedback contact.
Unlocking force: 	0-9	0	The unlocking force determines the strength with which the door is pushed in the CLOSED direction before opening. The time is determined by the unlocking time parameter. Pushing in the "CLOSE" direction can be useful in order to relieve a possible electric strike release and to ensure that it is opened. The higher the value is set, the greater the load on the arm attachment. In order to maintain a long service life of the system, only set the force as high as is really necessary.
PR module test: 	0-1	0	Test off
		1	In the SVP-2000 DCW and for the M-SVP 2000 DCW from V1.5, a Power Reserve module can be used, which must be tested regularly. The test is automatically activated if a fire protection module is detected in conjunction with SVP-2000 DCW or M-SVP 2000 DCW from V 1.5. The parameter can be set to 0 later, but will be reactivated again when reset to factory settings. The test of the PR module is performed every 24 hours, 10 minutes after the network has been switched on. In the event of an error, unlockings are no longer carried out and thus no automatic door movements are started.
Static force in opening direction (basic parameters for wind load control). 	2-15 (reduced at low energy)	10 N 6	The forces acting on the closing edge can be changed using this parameter. The admissibility of the setting is checked by internal monitoring. If it is exceeded, the set value is displayed alternately with the effective value. Due to system tolerances, following the automatic learning cycle the actual forces on the door leaf need to be measured and, if necessary, changed accordingly to meet local standards and regulations.
Static force in closing direction (basic parameters for wind load control). 	2-15 (reduced at low energy)	10 N 6	The forces acting on the closing edge can be changed using this parameter. The admissibility of the setting is checked by internal monitoring. If it is exceeded, the set value is displayed alternately with the effective value. Due to system tolerances, following the automatic learning cycle the actual forces on the door leaf need to be measured and, if necessary, changed accordingly to meet local standards and regulations.
End stop pulse 	0-9	0	With the motorized end stop action, door seals or locks can be overcome when closing. The setting should be increased starting from a small value to prevent damaging the door.
End stop angle 	2-10	Degree 3	The end stop angle defines the door opening angle from which the motorized end stop pulse is effective.

Parameters/ display	Value range	Unit Factory setting = bold	Explanation
Locking force 	0-9	0 = off 1-9 = on	The locking force is permanently applied after the end stop. This force should hold the door in the CLOSED position even if there is a wind force on the door. The locking force is adjustable from 0 (off) to 9 (maximum).
Push & Go 	0-1	0 = off 1 = on	After activation, automatic opening of the door starts if it is manually moved from the CLOSED position through an angle of 4° in the OPEN direction. For this function, the "hd" value must also be set to 0.
Program switch type 	0-5	0	Internal program switch is active.
		1	An external program switch with contacts is connected to the connection board. The connection plug of the internal program switch must be removed.
		2	An external DCW program switch is connected to the connection board. The connection plug of the internal program switch must be removed.
		3	Controlling the program switch via TMS software
EPS DCW behavior after mains reset 	0-1	0	In the event of a power failure or deliberate switch-off of the operator, the program switch is automatically switched to the last known position when the power is switched on. Important: The time of switching on the network can also be outside of business hours and therefore has an impact on the insurance-related lock.
		1	In the event of a power failure or deliberate switch-off of the operator, the program switch is automatically switched to the OFF position when the power is switched on. This function should be used if the insurance-related lock must be provided.
Internal program switch power up delay 	0-1	0	The function of the internal program switch (PGS) is taken over by the operator immediately after switching.
		1	After switching over the internal program switch, the function is accepted with a delay of 10 s. This function makes sense if the PGS has to be changed and the person still has to pass through the standard detector after changing the door. An additional Night/Bank push button is not required.
Daily activation 	0-1	0	The door is always locked when the CLOSED position is reached.
		1	The door is not locked in automatic mode when the CLOSED position is reached. The locking contact remains switched permanently. This enables faster opening in conjunction with motor locks. When using an electric strike release, this opener must be suitable for 100% switch-on time to eliminate damage.
Status relay function 	0-6	0	The status relay is deactivated.
		1	The status relay is switched as soon as the set CLOSED position is reached.
		2	The status relay is switched as soon as the set OPEN position is reached.
		3	Faults All faults that lead to a message on the internal display are reported by output on the status relay.
		4	Door CLOSED and locked
		5	Fault or information Any fault or information that results in a message on the internal display is reported by output on the status relay.
Control unit Output 1G, with input 4/4a 	0-1	0	Output 1G is independent of contact 4/4a.
		1	The locking output (terminal 1G) switches as soon as the 4/4a contact is opened. The contact switches permanently, so it is imperative that an electric strike release with 100% duty-opening time is required, e.g. a quiescent current opener. This function is not active via DCW for motor locks.
Cycle counter 	0-99	10,000 cycles	The display takes place in steps to 10,000 cycles. Example: Display 4 = 40,000 cycles, display 53 = 530,000 cycles. The value can be precisely set using the handheld device. The value 99 on the internal display means 990,000 or higher.
Delete error memories 	0-1	0	No function
		1	The error memory is deleted. The parameter is then automatically reset to 0.
Reset service interval display (LED yellow) 	0-1	0	No function
		1	The service cycle and time counter is reset to the values of 200,000 cycles and 12 months. Any setting deviating from this must be carried out with the handheld device (see also Service LED function).

Parameters/ display	Value range	Unit Factory setting = bold	Explanation
Factory settings level 	1-2	1	By pressing the Fact Setup key on the user interface for > 8 seconds, the operator can be reset to the factory settings. The SL parameter can be used to specify which data will be deleted before implementing the factory setting. Standard factory settings: All parameters are reset to the default setting. Any installed upgrade cards are retained and do not need to be reinstalled.
		2	Extended factory settings: All parameters are reset to the default setting. The installed upgrade cards are deleted from the control unit memory. The control unit and upgrade card can be used independently of each other again (delivery state).
Opening angle 	0-110	Degree	The opening angle set during the learning cycle is displayed here. A change can only be made via a learning cycle. The display may differ from the actual door position due to mounting and parameter tolerances.
Door closer/ Automatic mode 	0-1	0	Automatic mode should be used if the door is preferably opened automatically and motion detectors are used. If there are blockages during closing, the operator reverses automatically. The travel curve is optimized for safe closing. The wind load control and the Push & Go function can only be used in automatic mode.
		1	Door closer mode should be used if the door is mainly opened manually and only rarely automatically. In the case of blocking during closing, the door remains at the current position. The travel curve is optimized for manual opening. The Power Assist function should only be used in door closer mode.
Power Assist Start angle 	1-5	Degree 3	Setting the angle from which the Power Assist function should take effect. The smaller the value, the more sensitively the Power Assist function reacts. In conjunction with the "hS" parameter to be set separately, access from the closed position is possible. The support force can be set via the "hF" value.
Power Assist support force 	0-10	0	Setting the strength of the Power Assist support. The larger the value, the easier it is to open the door manually. The function is deactivated at 0. The Power Assist function is only available in door closer mode (hd = 1). If the support is set too high, the door can open by itself!
Support Manual mode in CLOSED position 	0-99	0	Setting the strength of the Power Assist support in the CLOSED position. The larger the value, the easier it is to open the door manually from the CLOSED position. The Power Assist function is only available in door closer mode (hd = 1).
Upgrade Cards			
		0	Upgrade card not installed, function not available.
		1	Upgrade Card installed, function not activated.
		2	Upgrade Card installed, function activated.
		3	Upgrade Card has been removed, function is no longer available.
Fire Protection Upgrade Card 		0, 2, 3	After installation, the value changes to 2. The Fire Protection Upgrade Card is required to set up a fixed system according to EN 14637 or similar standards. The cable-monitored detector input is only available with the Fire Protection Upgrade Card installed to connect the RM-ED or the integrated smoke detector. The Full Energy function is automatically activated.
Full-Energy Upgrade Card 		0, 2, 3	After the upgrade card has been installed, the value 2 is activated automatically. After activation, the full adjustment range is available for the So, Sc, Fo and Fc parameters.
Professional Upgrade Card			
Power surge 		0, 1, 2, 3	After installation, the value changes to 1. The function must be additionally activated by setting the F3 parameter to the value 2. With the power surge function, a door can be controlled as needed without hold-open time via a push button. The door opens at the first pulse and only closes again at the second pulse of the push button. The buttons must be connected to a night/bank input (3 & 35 or 57 & 57a). Inside and outside detectors continue to be controlled by the dd hold-open time. The combination with the nurse bed function is possible, in addition to the night/bank inputs, pulses at the nurses or beds' inputs also cause permanent opening.
Extended hold- open time: 		0, 2, 3	After installation, the value changes to 2. The setting range of the dd parameter is extended to 0-180 seconds from 0-30 seconds, so the door can be kept open for longer.

Parameters/ display	Value range	Unit Factory setting = bold	Explanation
Nurse beds (combination with EVAC function not possible) 		0 , 1, 2, 3	After installation, the value changes to 1. The function must be additionally activated by setting the F5 parameter to the value 2. The function allows separate (only active door leaf, nurse) or joint (active and passive door leaf, beds) opening of 2-leaf doors. The activator for the nurse opening must be connected to the terminals of the outside detector 41 & 3, the one for the bed opening to the terminals of the inside detector 42 & 3. If the Push & Go function, parameter PG, is activated at the same time, only the active door leaf opens automatically during manual access. The Night/Bank entrances cause the active door leaf to open only. When this function is activated, the program switch function output is not available. A combination with the power surge function is possible. Impulses at the nurses or beds' inputs then cause it to open permanently.
EVAC/ SPV 		0	no Upgrade Card Professional installed
		1	Upgrade Card installed
		2	EVAC mode activated The function is controlled via input 43. The operating direction is set via the hand-held terminal. Special function menu: EV/S switch mode: Opener/closer function Input 43 not active Normal operation Input 43 active - Display IN 18 <ul style="list-style-type: none"> • Low-energy operation automatic opening possible via input 35, hold-open time limited to 20s. Power assist support possible, see parameters hA, hF, hS • Optional: Switch-off of safety sensors, see parameter S6 • Optional: End stop EVAC, see parameter S7
		3	SPV mode activated The function is controlled via input 43. The operating direction is set via the hand-held terminal. Special function menu: EV/S switch mode: Opener/closer function Input 43 not active Normal operation Input 43 active - Display IN 19 <ul style="list-style-type: none"> • SPV travel parameters are used. • Setting only possible via hand-held terminal. Special functions menu • Power assist function is switched off, operator operates in automatic mode hd = 0 • Speed up to/SPV ED 100: 2–50 %/s ED 250: 2–60 %/s with Low Energy each reduced to max. 27%/s • Force open/close SPV ED 100: max. 150 N ED 250: max. 200 N with Low Energy each reduced to max. 60 N • Optional: Locking force SPV Function See parameter FH • Optional: End stop pulse SPV Function See parameter S7 • Optional: Pressure time SPV Strength 0-10s After closing, the door is pressed shut for the set time with increased force. • Optional Safety sensors switch-off, see parameter S6
	4		Upgrade card was removed, 2/3 deactivated
Disabled WC upgrade card 		0 , 1, 2, 3	After installation, the value changes to 1. The function must be additionally activated by setting the F7 parameter to the value 2. After activation, a network reset is also required. To do this, turn the device off and on again after 10 seconds. Using the Accessible WC Upgrade Card, the inputs and outputs of the control unit are used with the functions specifically required for this application, and the necessary accessory components can be connected directly.
DCW Upgrade Card 		0 , 2, 3	After installation, the value changes to 2. After activation, the DCW bus is available on the operator. The following components can be connected - program switch EPS DCW (max. 2 pieces), - motor lock control unit SVP-S 2x DCW (max. 2 pieces) SVP 2000 motor lock (max. 1 piece) key switch ST 32 DCW (max. 2 pieces) I/O module DCW (max. 1 piece)

Parameters/ display	Value range	Unit Factory setting = bold	Explanation
Configuration of the COM1 interface (standing plug) 	0-1	0	Handheld operation. The interface is programmed for communication with the handheld.
		1	Door Pilot Interface for controlling the device using the Door Pilot App. - TMS software
Backcheck when opening by hand 	5-40	10°	The angle is entered here from which the door is braked when opened manually. The value entered counts backwards from the set opening angle. Example: Opening angle: 90° bc parameter: 12° => Backcheck starts at 78°
door thickness 	0-99	0... 35 ...99 mm	The door thickness has an influence on the measured door opening angle. If a more precise resolution is required, the actual door thickness can be specified.
Switch-off of operator operating direction 	0-1	0	Opener contact When the contact is open, the operator function is switched off. This operating direction must be used for lock switches that are equipped with a changeover or opener contact.
		1	Closer contact When the contact is closed, the operator function is switched off. This operating direction must be used for lock switches that are equipped with a closer contact.
Night/bank Operating direction 	0-1	0	Closer contact The night/bank function is triggered when the contact is closed. This operating direction is preferred for a key switch or access control.
		1	Opener contact The night/bank function is triggered when the contact is open. This operating direction is often used when connecting to an RWA or GLT unit to control doors with an opener contact.
Triggering the hold-open system by reversing the door leaf 	0-1	1	Function switched on If the operator is operated as a hold-open system, it can be triggered manually by manually closing the door leaf by 10° (+/- 2°) from the learned hold-open position. A manual release button is not required.
		0	Function switched off If the operator is operated as a hold-open system, a manual release button is required for manual release.
Trailing angles on 2-leaf doors. 	0-30	0... 30°	The angle that the active door leaf should have covered before the passive door leaf (SF) begins to open is set here.
Hinge gap 	+ 5-- 5	3	The hinge gap is decisive for the calculated door angle. If it has little effect, it can be adjusted to increase accuracy in extreme cases. The default setting of the HS parameter is 3, for 30 mm. The setting in the negative area must be changed for Center-Pivoted Doors. A learning cycle is then required as the system creates an angle table depending on the set parameters.
Permanently open via Night/Bank input 	0-1	0 = not active 1 = active	If the Night/Bank activator is actuated for > 5 seconds, the operator switches to the Permanently open function. The function is canceled by actuating the activator again.
Vandalism release 	0-1	0 = not active 1 = active	If the door is operated manually against the motor's direction of rotation, this is detected and the motor is released to prevent damage to the mechanical system.
Special function 	0-1	0 = not active 1 = active	Reversing when triggering SL-BGS in operating mode hd = 1
Special function EVAC/SPV mode, safety sensors inactive 	0-1	0	BS and BGS safety sensors are active in EVAC/SPV mode
		1	Safety sensors BS and BGS are deactivated in EVAC/SPV mode. Switching them off can create danger points and people may be hit by the door. We recommend continuing to use safety sensors, especially when using the SPV function. Any switch-off should be documented in the risk assessment.
Special function EVAC/SPV mode, end stop angle 	0-10	0...10°	The end stop angle defines the door opening angle from which the motorized end stop pulse is effective in EVAC/SPV mode. This can be used independently of the standard end stop EP.

10 Diagnosis/troubleshooting

ED 100, ED 250 operators comply with a high level of safety and all necessary technical rules and requirements. Internal as well as external safety circuits managed by the operator are cyclically monitored. During operation of the devices, situations may occur that result in an error message. The operator attempts to determine the cause and react accordingly. The reaction occurs depending on the severity of the cause and ranges from information to switching off the automatic function of the operator. In this case, the operator switches to emergency operation and functions as a door closer. The door can be manually opened.

Information "In" and error messages "E0" ... "E9" is output on the user interface display and the red LED on the internal program switch.

The output on the LED is encoded and can be found in the error table. Error messages "E0" ... "E9" is stored in the error memory and can be read out on the user interface display or using the handheld device. Up-to-date error information always shows the error message memory location E0. It is moved to the error message location E1 if there is another error or if it is acknowledged.

A maximum of 9 errors can be saved in the error memories E1 - E9. Identical error messages that occur one after the other are not saved again.

To call up error messages E0... E9 short ▶ press.

10.1 Handling information "In"

"In" information is used to make the operator easier to service and shows both faults and operating states, that suppress the automatic operation of the operator.

Example:

In 08 -> Emergency off is pressed, the operator does not execute any automatic functions.

In 01 -> A blockage was detected, operator continues to work.

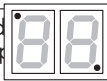
Information can be redirected to an error message if it occurs repeatedly.

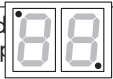
10.2 Handling error messages "E0" ... "E9"

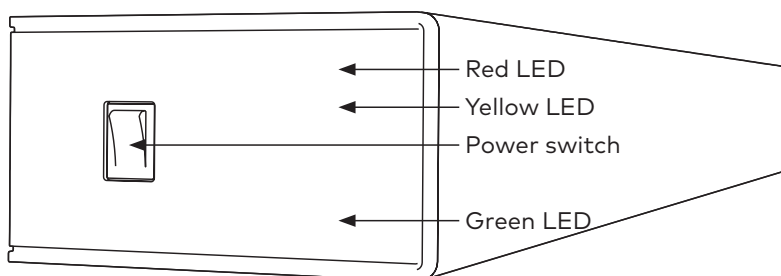
Error messages indicate a hardware defect. But mounting errors and manual operation during safety tests can also cause error messages, and the system switches to emergency operation. The following options are available to reset error messages:

- Switch the program switch to Off or reset by pressing the reset button on the user interface when the cladding is open.
- Mains reset. Switch off the power switch. Switch on again after 10 seconds.

Before acknowledging an error message, cause analysis and removal should always take place. The table below provides assistance.

Fault	Possible cause	Remedy
Door can only be opened manually or the door does not open automatically after an opening impulse has been given.	Check the green LED. If the green LED does not light up, there is a problem with the power supply.	Power switch must be switched on. The mains voltage supply must be checked and, if necessary, restored.
	Check the red LED. When the red LED on the power switch flashes, the control unit has detected an error and emergency operation is activated.	Troubleshooting is described in the "Information and error messages" list.
	The program switch is in the Off or Output position.	Set the program switch to the Automatic or Permanently open position.
During installation: The door can only be opened manually very difficultly, and the closing movement takes place at high speed.	There is a signal from the safety sensor on the hinge side and this prevents opening.	The signals from the safety sensors are a for diagnosis directly with the 2 decimal of the LED display at the control interface.  When entered, the respective decimal point lights up. The wiring and function of the sensor must be checked. When the LED flashes at the top left, wall blanking is active. There is no error.
	The plug of the brake circuit is in the wrong position.	The plug must be positioned depending on the arm used. See page 23, point 5.11.
The learning cycle cannot be started.	The program switch is in the wrong position.	Switch the program switch to the OFF position.
	The signal switch-off operator function (4/4a) is active.	Check the smoke detector or stop signal wiring at 4/4a.

Fault	Possible cause	Remedy
The internal/external program switch does not function or only defectively.	The program switch type parameter is set incorrectly.	The type used must be set correctly as the program switch type parameter.
	The internal program switch cable is not connected.	Check cable and attach if necessary.
	Connection error or switch fault. The switch's wiring and function must be checked.	
The door opens automatically, but only closes after a long time or not at all.	The hold-open time parameter is set for too long.	Reduce hold-open time.
	The program switch is in the Permanently open position.	Change the program switch.
	There is a signal from the security sensor on the opposite side to the hinge to prevent closing.	The signals from the safety sensors are displayed for diagnosis directly with the 2 decimal points on the LED display at the control interface.  When entered, the respective decimal point lights up. The wiring and function of the sensor must be checked. When the LED flashes at the top left, wall blanking is active. There is no error.
The travel speeds differ greatly from the set parameters.	There is a signal from a connected activator that prevents closing.	The wiring of the connected activators must be checked. A closer contact must be used in all cases. The signal input 57/57a may be operated with an external voltage. For localization of the error, signal lines 35, 57, 42 and 41 must be removed in sequence.
	The learning cycle was carried out with a warm motor, and the door leaf weight was determined incorrectly.	Repeat learning cycle with a cold motor.



11 Error messages

Display	LED display	Meaning/cause	Troubleshooting
In 01	None	Blocking The door is blocked by an obstacle, and the door movement was stopped by the operator.	The door movement should be checked in a de-energized state, and any possible stiffness must be eliminated. Permanent operation on a defective door can lead to damage to the operator. Blocking is often also triggered by people. This can be due to the fact that the detection range of the sensors does not match the opening speed of the operator and the door is inevitably touched during access. In this case, the detection range of the sensors and/or the opening speed of the operator should be increased. Its effectiveness should be demonstrated by means of walking tests.
In 08	None	Shutdown operator function Contact 4/4a is open. The operator switches to emergency operation and can only be accessed manually.	An emergency command device, lock switch or other safety system may be connected at the input. Either the system has triggered or there is a defect. The trigger must be reset. The operator starts the operation automatically. If this is not the case, the wiring and the causing systems must be checked.
In 09	None	Upgrade Card signal error The installed Upgrade Card was removed or the first installed Upgrade Card (container module) was not reconnected during the installation of 2 Upgrade Cards.	Installed upgrade cards must remain permanently in the control unit and must not be removed. If several Upgrade Cards are installed, the upgrade card used first acquires the function of a container module and must be reconnected to the control unit as the last (see chapter Upgrade Cards). In the event of a defect in the container module, a new set of function modules must be used.
In 11	The red LED lights up	Hold-open system triggered The hold-open system was triggered.	The hold-open system can be automatically triggered by the smoke detector and manually by a manual release button or release of the door leaf. According to DIN 18263-4, recommissioning must be carried out as a conscious act. Depending on the configuration of the unit, this is done through the manual opening of the door up to the learned opening angle, via the PGS by switching to the OFF position, or reset using the buttons ◀ and ▶ on the internal operator field. Care must be taken to ensure that the smoke detector has not triggered. If a reset is unsuccessful, there may be a defect in the smoke detector connection, and the unit must be checked by qualified personnel.
In 14	None	The 24 V for external components is not available.	The most common cause is a short circuit of the 24 V supply.
In 18		EVAC mode is active	
In 19		SPV mode is active	
In 23	None	Lock alarm The door is blocked in the CLOSED position. Opening is not possible.	The most common cause is a locked door. The error can be avoided if a lock switch is installed. The lock switch detects the switching status of the lock bolt and switches the operator off if necessary. It is recommended to insert a lock switch, as permanent opening against the locked door can lead to damage to the operator or the door.
In 61	None	Communication error during 2-leaf operation Communication between the two devices is interrupted.	The communication cable between the two operators must be checked. After a visual check, check the use of the correct interface on the control unit.
In 71	None	Error of 2nd shutdown path The test of the 2nd shutdown path failed	After an error of the 2nd shutdown path, the test is repeated during the next closing movement. If there is no error then the information is deleted, otherwise the error is still displayed.
In 72	None	Current measurement circuit The cyclically performed test of the internal current measurement circuit could not be carried out successfully.	System tolerances and environmental conditions affect current measurement. It cannot always be completed successfully the first time. A notification is then issued. This is the case, for example, if the door is manually opened at the moment of measurement. The test is automatically repeated.
In 73	None	Brake circuit test The cyclically performed test (every 24 hours) of the internal braking circuit could not be carried out successfully.	System tolerances and environmental conditions influence the brake circuit test. Therefore, the test cannot always be completed successfully the first time. In this case, notification is issued. This is the case, for example, if the door is manually opened at the moment of measurement. If the test 10 x is subsequently negative, the E 73 error message is issued.
In 91	None	DCW communication At least 1 logged-in DCW device is missing.	Reconnect the corresponding DCW device. If this is not possible, the operator must be restarted. To do so, press the keys ◀ and ▶ press on the internal operator field at the same time for a min. of 3 seconds.

Display	LED display	Meaning/cause	Troubleshooting
E 02	2 x flashing	Locking fault The operator attempts to open or close a locking device with feedback or a DCW locking device. This causes an error.	This can be assumed to be caused by a defect in the locking device or a wiring error. The locking device feedback system must be checked and replaced if necessary.
E 03	3 x flashing	DCW program switch fails	Check the DCW program switch and replace it if necessary.
E 04	4 x flashing	Safety sensor test error The test of the movable safety sensors was not successful. Before each opening or closing movement, a test signal is sent to the corresponding sensor. The operator expects a response in a certain time window.	The first step is to check whether the "Test Safety sensor" parameter is configured according to the equipment. It must then be checked whether the test is also activated on the sensors itself and is operated at the same level. The test is switched off upon delivery of the sensors.
E 12	12 x flashing	EEPROM error The internal memory check could not be completed positively. The operator works in closer mode.	An attempt can be made to achieve reinitialize it by reloading the valid firmware. If this fails, the control unit must be replaced.
E 13	13 x flashing	Power surge detection The system removes more power than the power supply can provide.	The motor takes up too much current or the control stage is defective. In the event of a repeat, the components of the motor gear unit and/or control unit must be changed.
E 15	15 x flashing	Learning cycle faulty The learning cycle could not be completed.	The error may occur if the learning cycle has been interrupted, e.g. by tampering with the door during the process. The learning cycle must be restarted.
E 25	5 x flashing	SVP DCW PR module The test was negative.	Check wiring and replace PR module if necessary.
E 51 E 52 E 53	5 x flashing	Incremental encoder error The incremental encoder monitoring has detected a faulty condition.	In the event of a fault, check the plug connections of the incremental encoder and the motor as well as the circuit of the locking device for short circuits. If no error is detected, the motor gear unit must be replaced. The error may be caused by a defective motor or short circuit in the locking circuit. In the event of defective motor, the motor gear unit must be replaced.
E 62	6 x flashing	The second system has an incompatible firmware version for 2-leaf operation.	Equip both control units with the same firmware version.
E 63	6 x flashing	The second unit has an incompatible fire protection setting.	With 2-leaf systems, the Fire Protection Upgrade Card must be installed on both control units.
E 71	7 x flashing	System error 1 (2nd shutdown path) Several switching elements are used to always switch off the drive safely. These are cyclically tested for function.	If the test fails permanently, the control unit must be changed.
E 72	7 x flashing	System error 2 (power measurement circuit) The power measuring circuit belongs to the safety devices and is cyclically tested for function. The operator works in emergency mode.	If the test fails permanently, the control unit must be changed.
E 73	7 x flashing	System error 3 (brake circuit) The brake circuit is a safety element in closer mode and is tested every 24 hours. During the test, the drive is switched off during the closing movement and the door closes at a fixed angle in emergency mode. The test can be taken as a brief yank on the door leaf and is not a reason for complaint.	The door closes too quickly in a de-energized state (in less than 3 seconds). Check the closing speed and if necessary, reduce it (see page 24, point 5.13). If the test fails permanently, despite the set closing speed, the control unit must be changed.
PF		Short circuit of the 24V supply voltage	Eliminate short circuit
- 1		Energy management The motor is too hot (e.g. due to excessive ambient temperature).	The travel dynamic in the direction of CLOSED is reduced.
- 2		The system responds automatically.	The travel dynamic in the direction of OPEN and CLOSED is reduced.
- 3			The system switches off for 3 minutes (door closing mode).
- 4			The hold-open time is extended.

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