

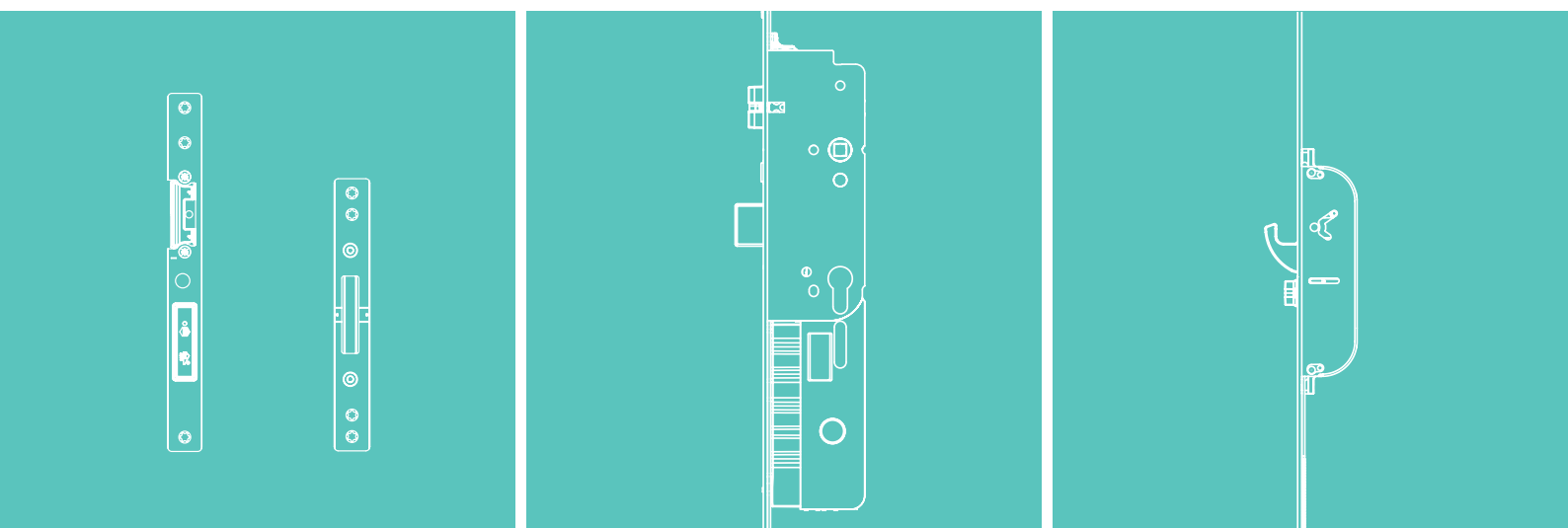


TECHNOLOGY IN MOTION

EXCLUSIVELY
FOR CERTIFIED SPECIALISTS!

MACO PROTECT

DOOR LOCKS



ASSEMBLY INSTRUCTIONS

M-TS
Motorised door lock

ALUMINIUM

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Certification Key

Certificate according to EN 14846

The M-TS has been tested and certified in accordance with EN 14846:2008.

	Mayer & Co Beschläge GmbH Alpenstraße 173 5020 Salzburg Austria								
20-004299-PR01	21								
EN 14846:2008	3	S	7	0	0	J	0	1	1

Further certificates and performance certificates can be found under www.maco.eu/protect.

Declarations of conformity can be found at:



EU Declaration of Conformity:
Bluetooth Module Instinct, A-TS, M-TS

Technical Data

Ambient temperature	-10 °C to +55 °C
Relative humidity	20 % to 80 %
Protection Class	IP 40



Important Information

Introduction

Read these instructions carefully before starting the M-TS assembly. Mount all hardware parts professionally as described in this manual and observe all safety instructions. Failure to follow these instructions cannot guarantee the proper functioning of the system. In the event of non-compliance, we assume no liability for damage to persons or material.

Match the required fixing material with the building structure and the corresponding load, and expand on it if necessary. Any supplied fixing material only meets a part of the requirements.

Target audience for this guide

This documentation is intended exclusively for specialist companies and certified specialists. The work-steps described herein may only be carried out by certified specialists.

Retention of documents / briefing

Retain these assembly instructions for later use and maintenance.

Hand over the user manual (downloadable under maco.eu - Order No. 757585) to the end user and ensure they are briefed.

Please pay attention to your **duty to inform the end user!** The complete delivery of a window or door element also includes the operating and maintenance instructions and, where necessary, a window sticker for different operating modes! We make these available for our customers in the download area of our website (www.maco.eu)!

Installation and operation

Before installation - test doors and safety elements. The integrity and smoothness of the doors must be ensured.

All work (assembly, adjustment, etc.) must be carried out in a powered-down state.

Before installing the drive motor, the current temperature range must be checked for environment suitability.

To fix the hardware, use sufficiently long screws which must extend into the steel reinforcement when using PVC profiles.

Unless otherwise indicated, all measurements are made in millimetres.

All diagrams are only symbolic.

Printing errors, mistakes and changes are reserved.

Important Information

Informative note



This indicates important additional information that is important for the error-free assembly of the product.

Key



Backset DM

FFH Sash rebate height



Distance E

K+ Case dimension top



Handle height GM

K- Case dimension bottom



Profile Front Edge



Important note

MF Multi-function latch

EV End piece



Important Information

Intended use

- › The M-TS is intended to be installed in vertical front doors, apartment doors and side doors made of PVC, timber, aluminium or steel and combinations thereof.
- › Mount all hardware parts professionally as described in this manual and observe all safety instructions.
- › In order to avoid errors in the electronics due to damaged cables, all milling/drilling in the area of the cable routing must be carefully deburred!
- › Installation and electrical installations must be carried out in accordance with these instructions. Incorrect wiring can lead to the destruction of the electronics.
- › When screwing in, make sure that the cables are not damaged by the fastening screws!
- › Before installation, ensure that all components are in perfect condition - damaged or faulty components must not be used under any circumstances. Use M-TS only in a perfect condition.
- › Power to the power supply must be switched off before all work on the M-TS and the voltage-carrying components is performed.

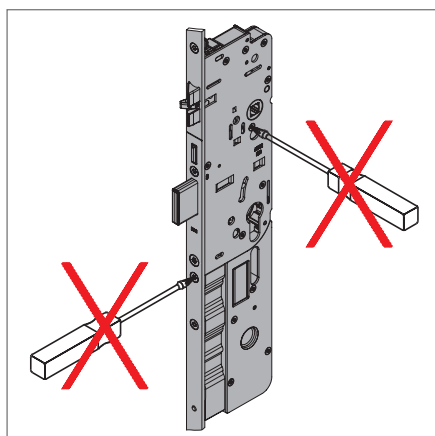
Improper use

- › The M-TS must NOT be used for escape or panic doors according to EN179 or EN1125.
- › The hardware parts described in this guide are made of stainless steel or galvanised passivated steel and sealed in accordance with DIN EN 12329. They must not be used in environments with aggressive, corrosive air content.
- › Do not use acid-curing sealants, as these can lead to corrosion of the hardware parts.

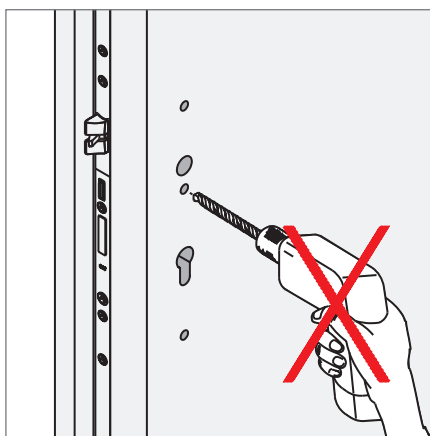
Improper assembly, misuse or unusual use, the use of system accessories not expressly approved by MACO, or modifications or repair work not expressly approved by MACO may lead to malfunctions and must be avoided. Any measures not expressly permitted by MACO shall result in the loss of all liability, warranty and, if necessary, separately agreed warranty claims.

Important Information

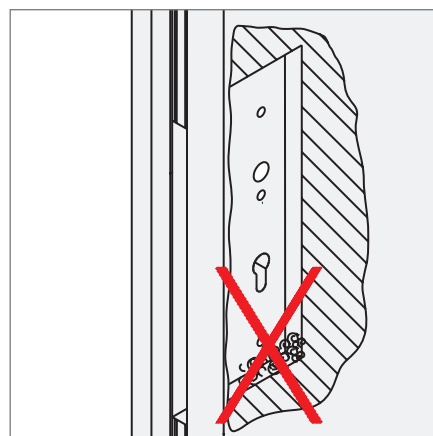
Improper use



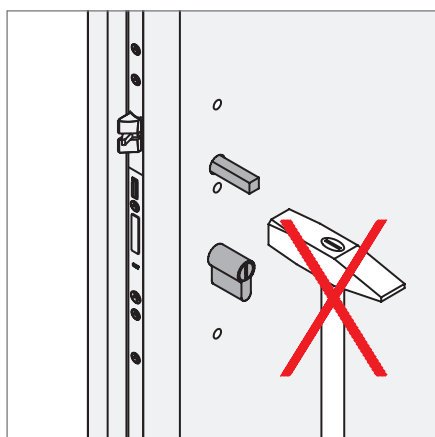
Never open the lock case!



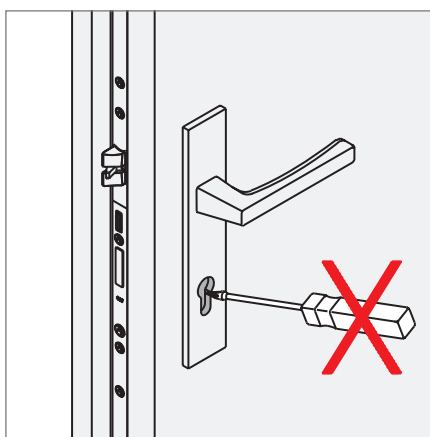
Drill all holes before installation of the lock.



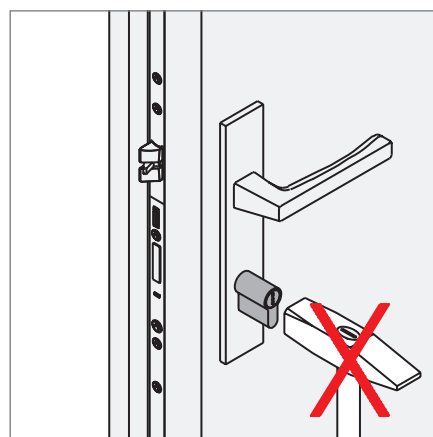
Remove swarf from the routing pockets!



Do not force the handle pin through the lock nut!



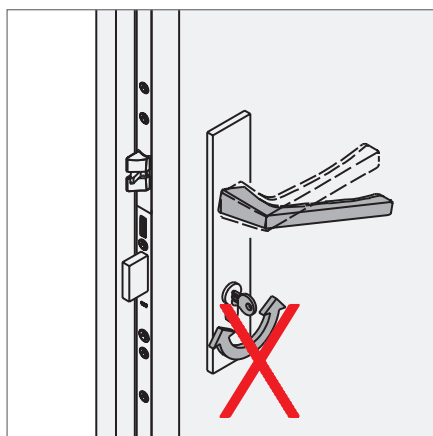
Only close the lock with the corresponding operating key!



Do not use force during the cylinder assembly!

Important Information

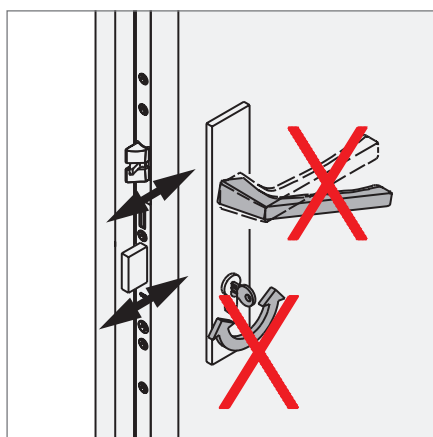
Improper use



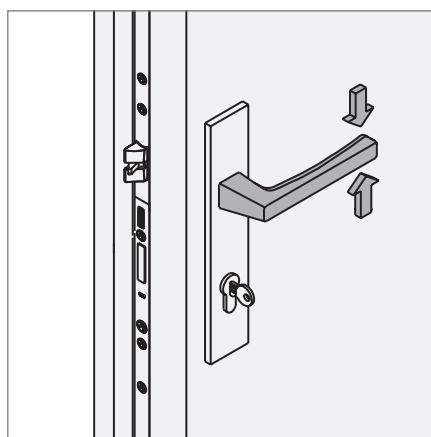
Do not simultaneously press the handle and turn the key!



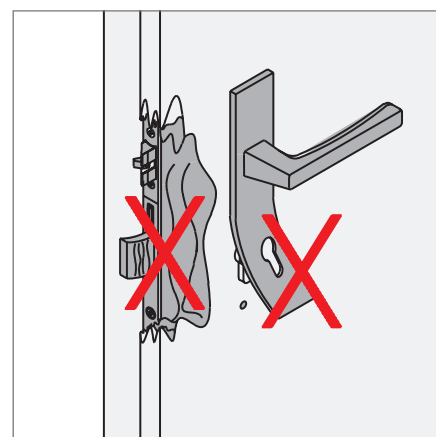
Do not turn the key using force!
The latch of the main lock must not rub against the striker plate – this also applies to multi-point locks without door acceleration, and all latches of the side locks. For this, use the adjustment option on the striker plates and door hinges. Adjustment of the holes in the striker plates is not permitted.



Do not press the handle or activate the key during electric locking and unlocking!



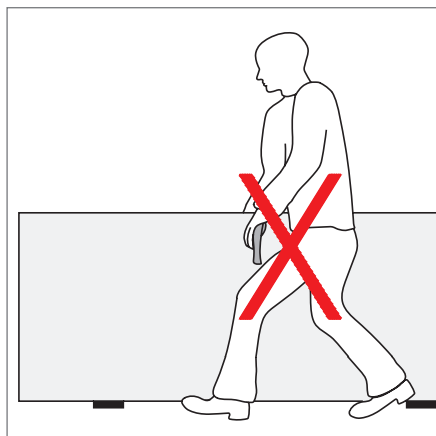
Only apply load to the handle in the normal direction! Apply a maximum force of 15 kg in the direction of actuation (on the handle).



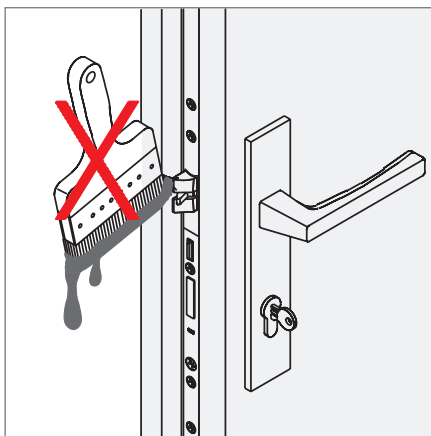
The multi-point lock must be replaced as soon as traces of use of force are visible!

Important Information

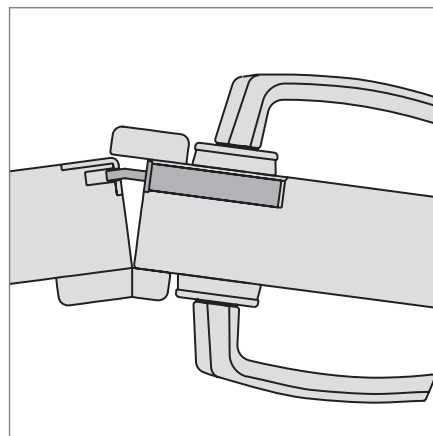
Improper use



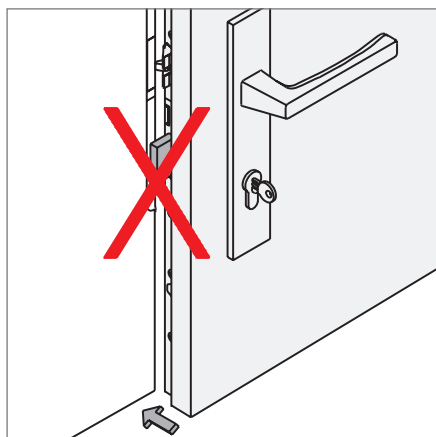
Do not carry the door leaf with the handle!



Do not paint or varnish over the padlock bolt or latch!



Double-sash doors must not be forced over the inactive leaf!



Do not lock the locking bar when the door is open!

Important Information

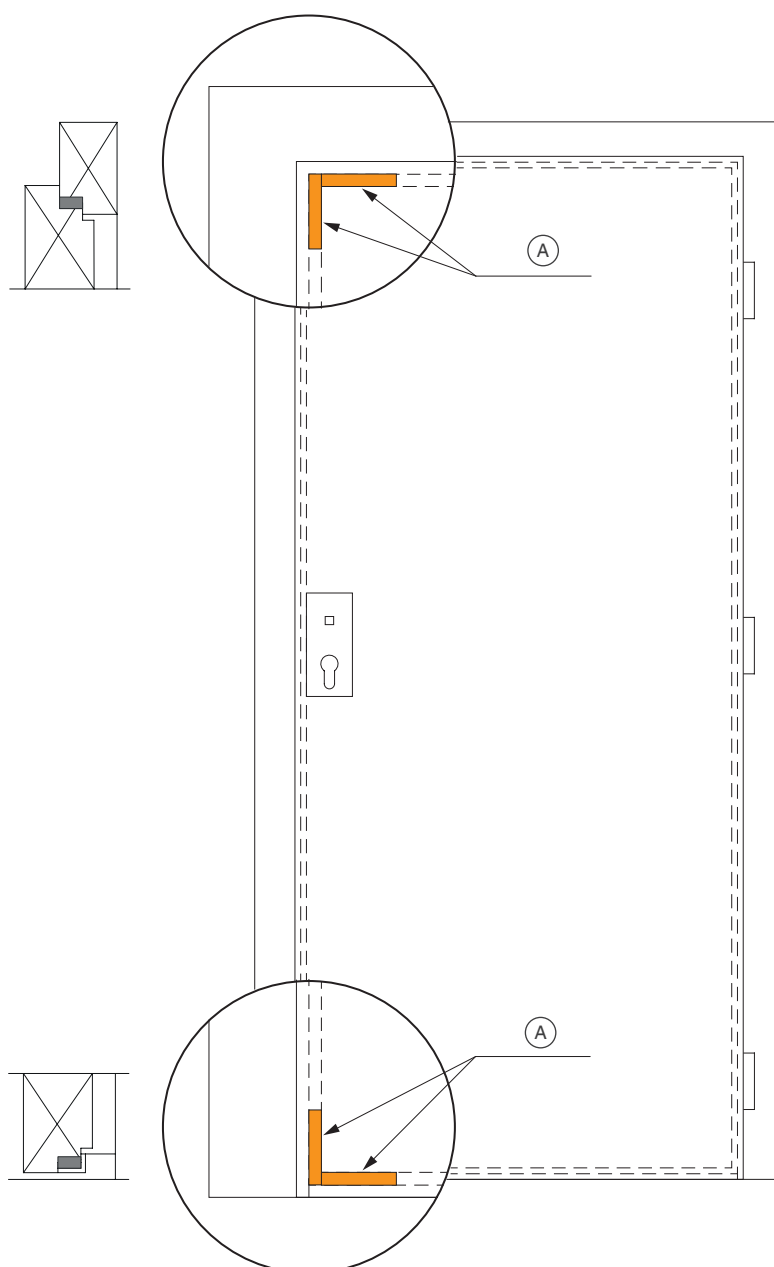
Use of transportation protection devices



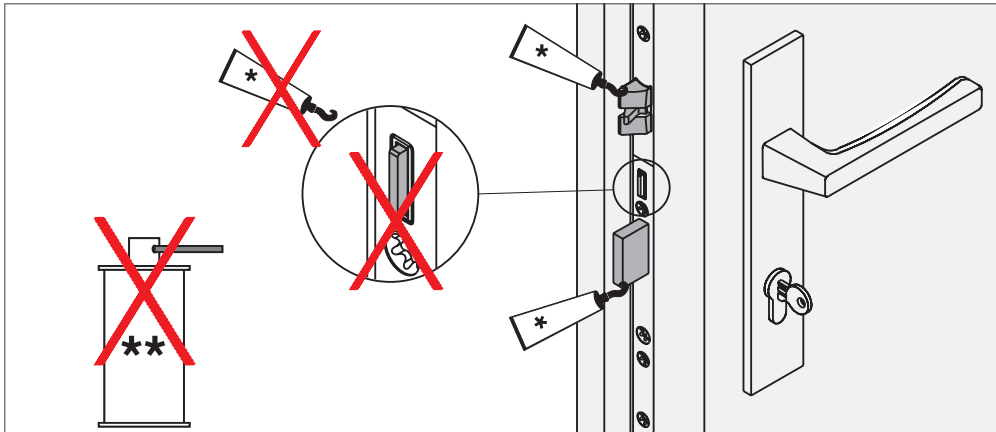
During transport, the rebate gap between the sash and the frame must be ensured by means of appropriate transport protection. Otherwise, it can lead to damage to the trigger sensor and thus to functional failure of the M-TS.

Simple transport protection devices, wedges or blocks ensure a safe transport of the entire door element. Remove only after installation.

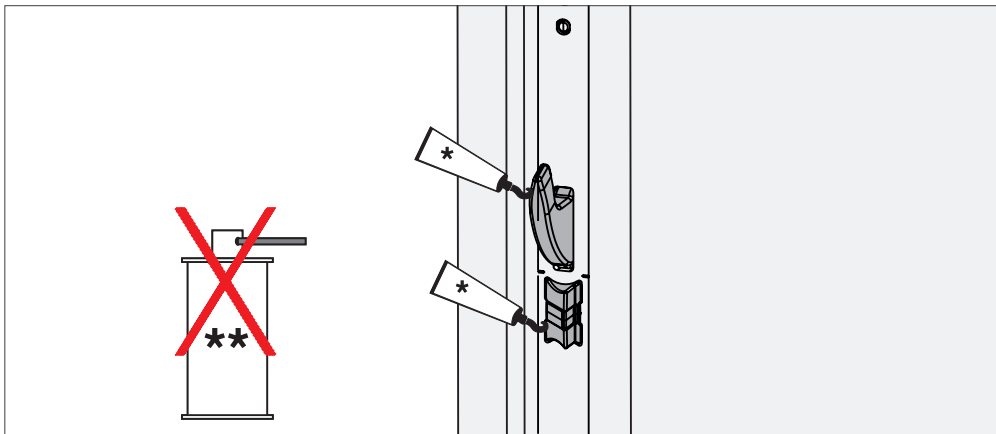
Ⓐ Transport protection device position



Maintenance



The door lock (lock case) is delivered with an intensive lubrication of high performance greases and must **NOT** be re-lubricated! Lubricate the latch and locking bolt 1x annually!



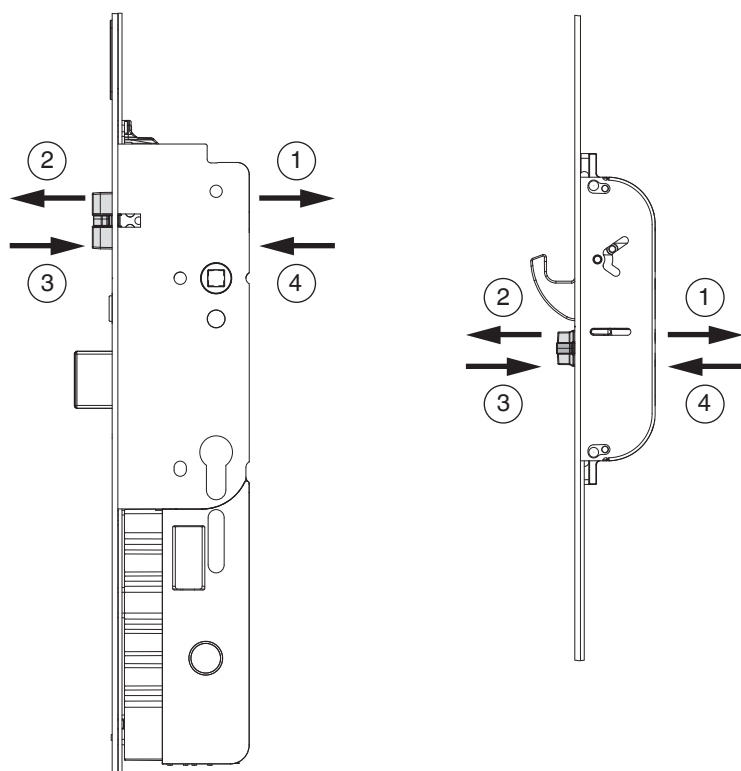
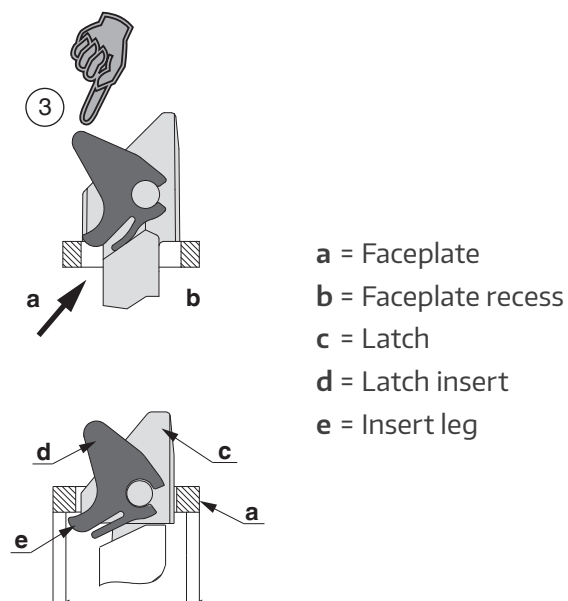
Lubricate the MF-HO locking element 1x annually!



Do not use any lubricating oils, rust remover, silicone sprays etc!
Lubricate only with grease or technical petroleum jelly!

* Spray grease (455341), ** Rust remover

Latch adjustment



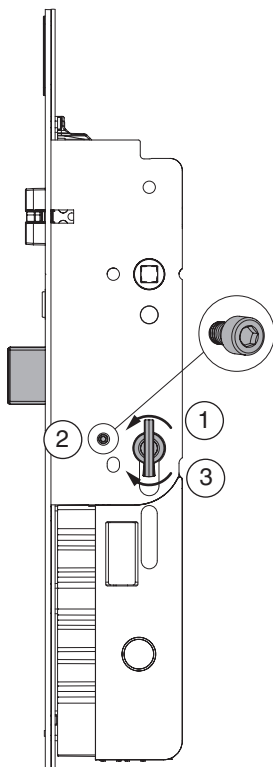
- ① Loosen the screw completely and press forward with a screwdriver!
- ② Remove the latch!
- ③ Turn the latch over and place it on the faceplate (a) so that you can press the insert leg (e) of the latch insert (d) under the faceplate recess (b).
- ④ Only then press the latch in completely! Screw in (torque min. 1.5 Nm to max. 2 Nm)!




Perform functional check!

Installation Instructions


Set lock for day release function (assembler)



Set day release function

- ① Lock
- ② Remove the day release screw
(2.5 mm )
- ③ Unlock

Manufacture delivery state

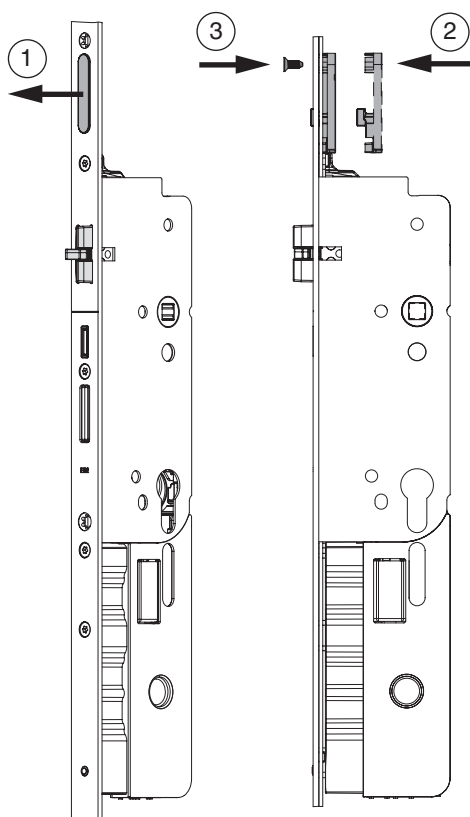
- ① Lock
- ② Insert day release screw
(2.5 mm )
- ③ Unlock



If the day release function is set, the main latch is not actuated during motorised operation (door does not automatically jump open)!
Use the E-Opener for day-release unlocking (see page 16)!

Installation Instructions

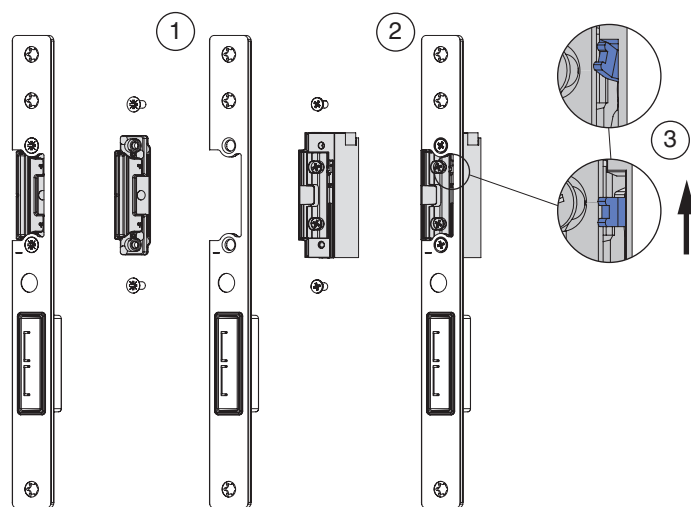
Day release element assembly on the lock (assembler)



- ① Remove the faceplate cover.
- ② Position the day release element on the back of the faceplate (directly on the latch above the lock case).
- ③ Screw on the day release element with the attached TX20 M4x10 screw on the front of the faceplate!

Installation Instructions

MACO day release opener assembly on the striker plate (assembler)

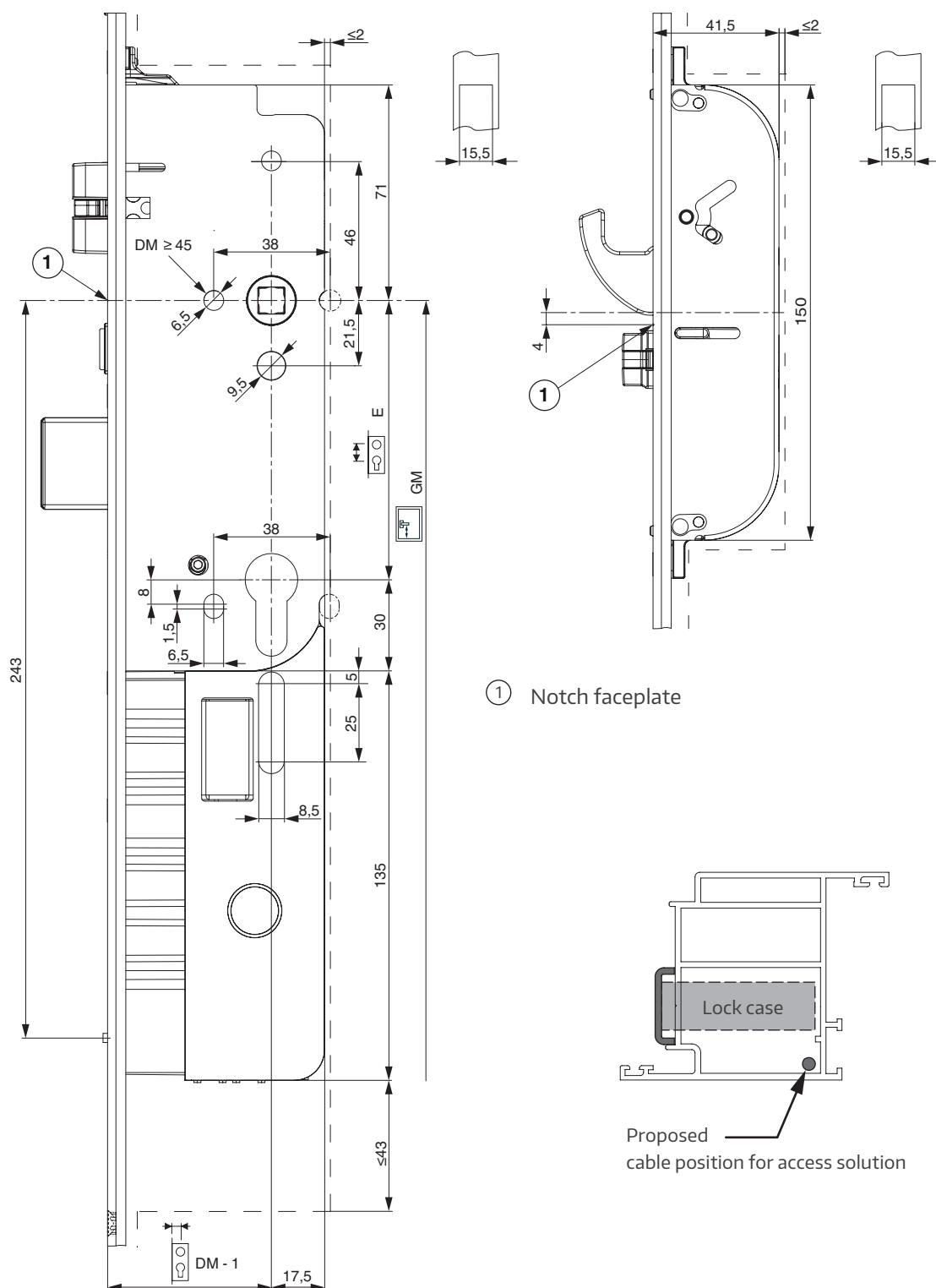


- ① Remove the latch insert.
- ② Assemble the MACO day release opener.
- ③ Activate the mechanical unlocking on the day release opener using the lever.

Circuit Diagram toggle switch (motorised day release) see page 47.

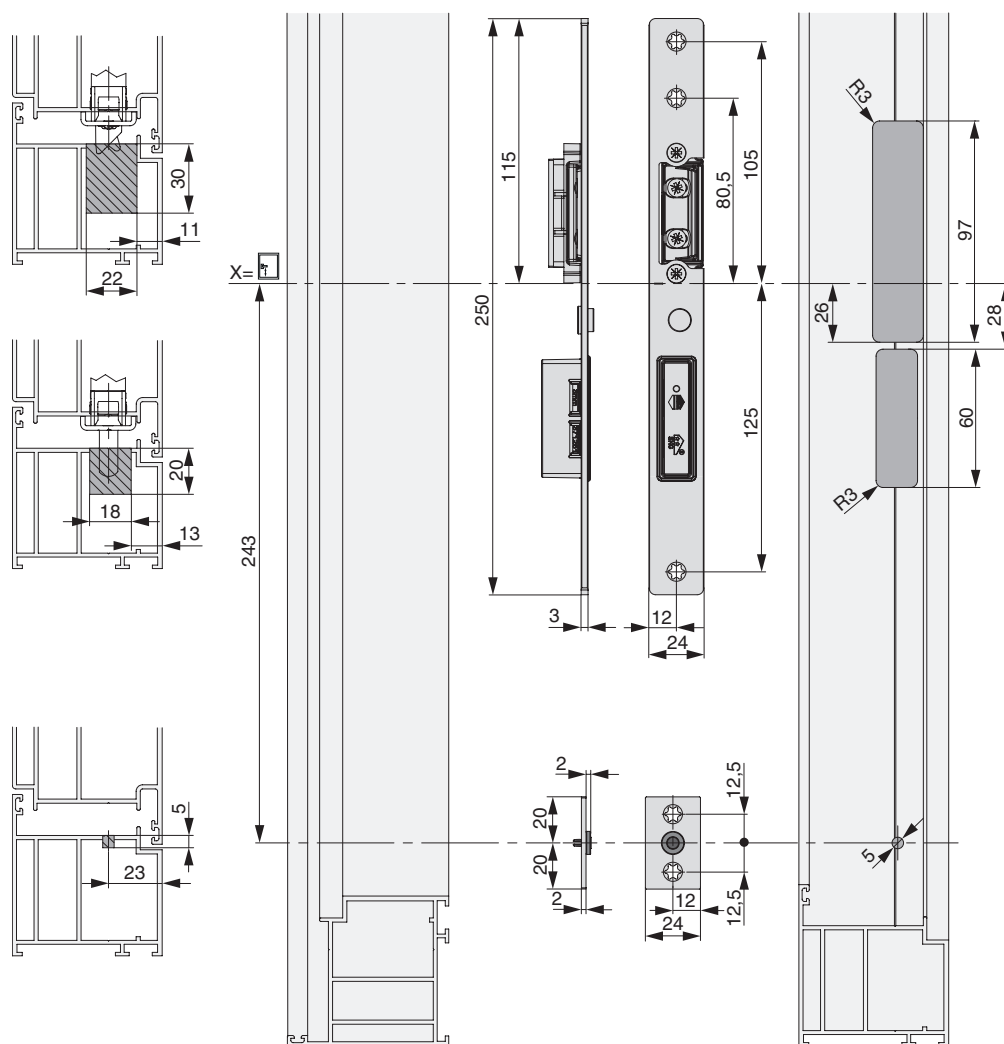
Drilling and routing patterns

Lock case and multifunction latch with hook lock



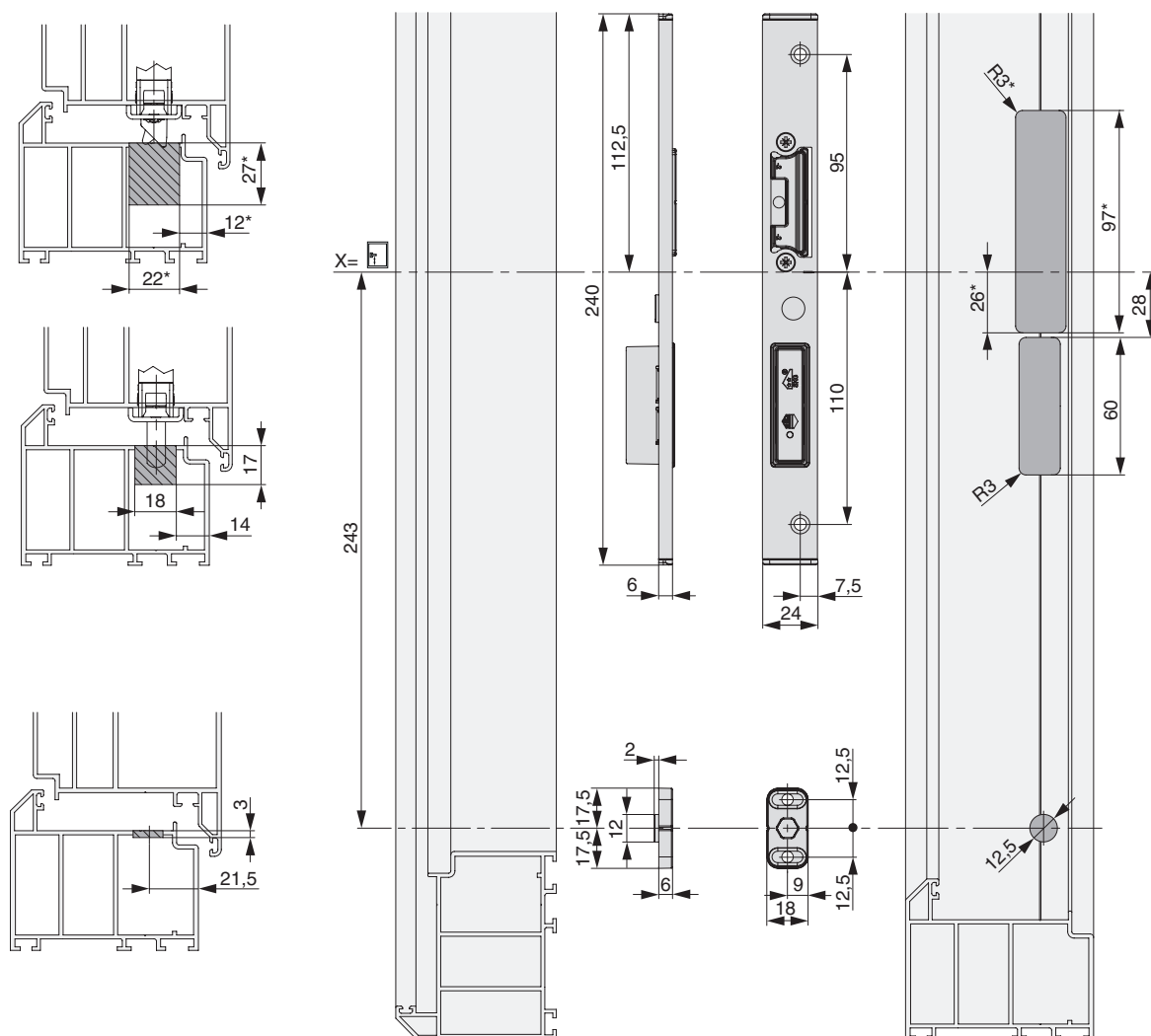
Drilling and routing patterns

Latch and dead bolt striker plate 3 mm



Drilling and routing patterns

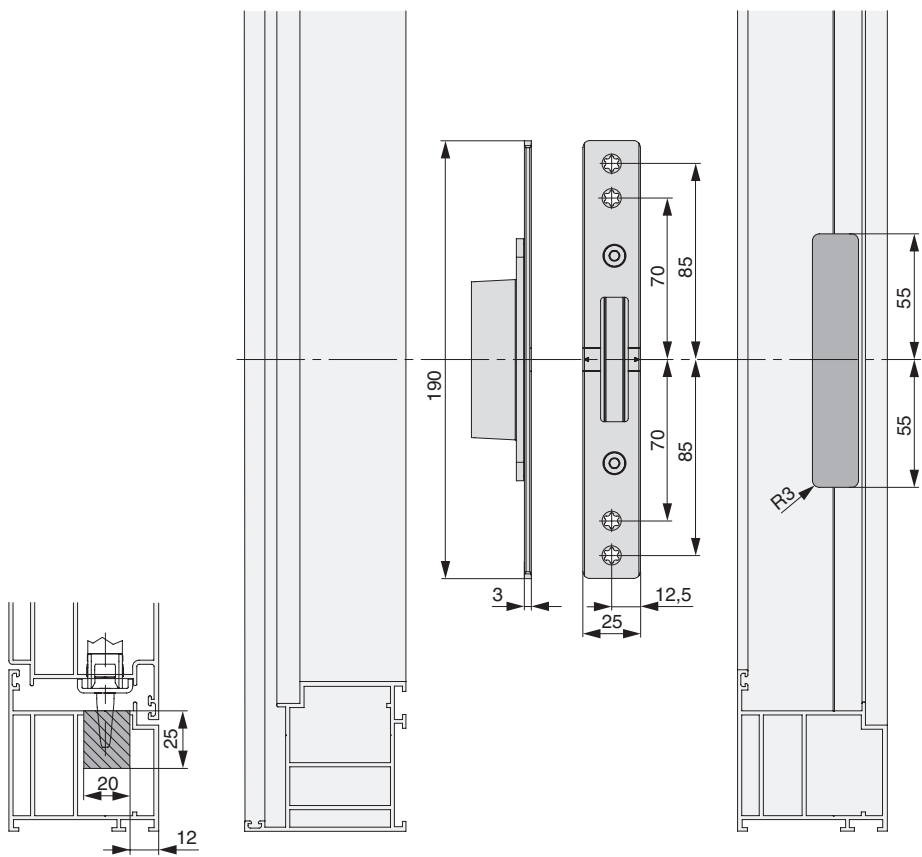
Latch and dead bolt striker plate 6 mm



*Routing pattern E-Opener

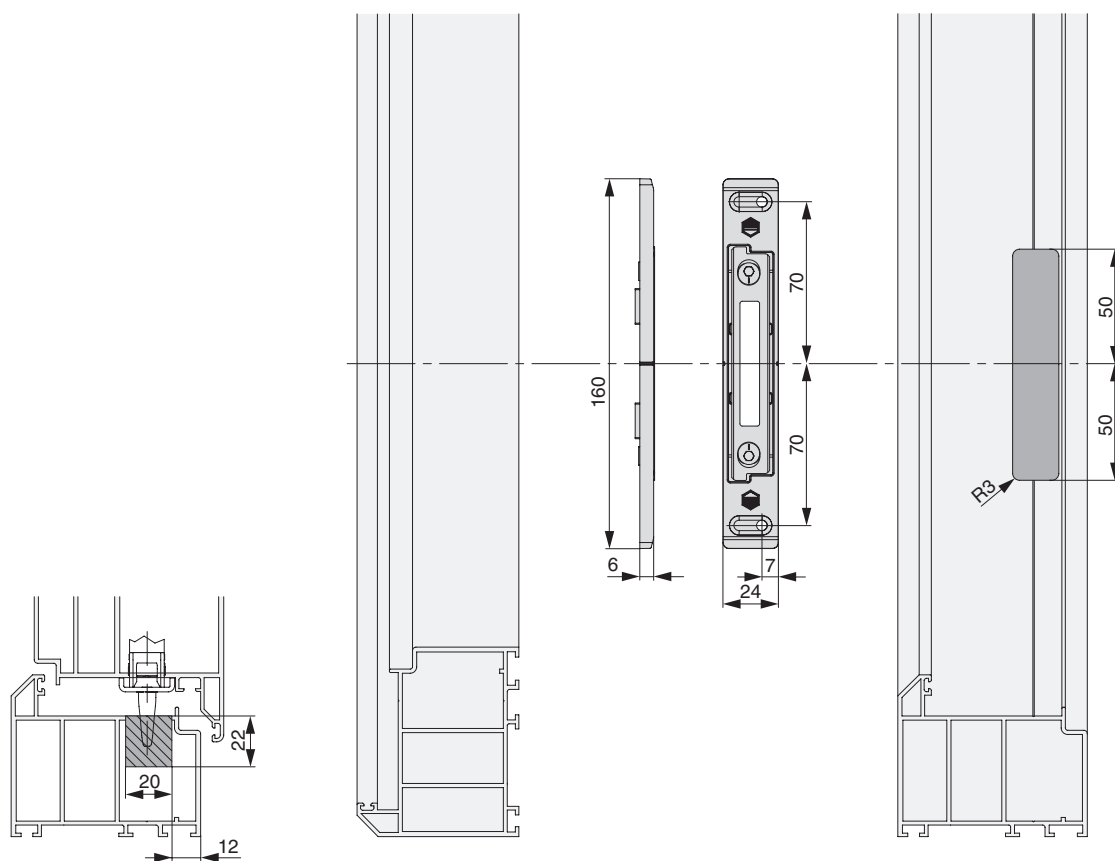
Drilling and routing patterns

Multifunction hook striker plate 3 mm



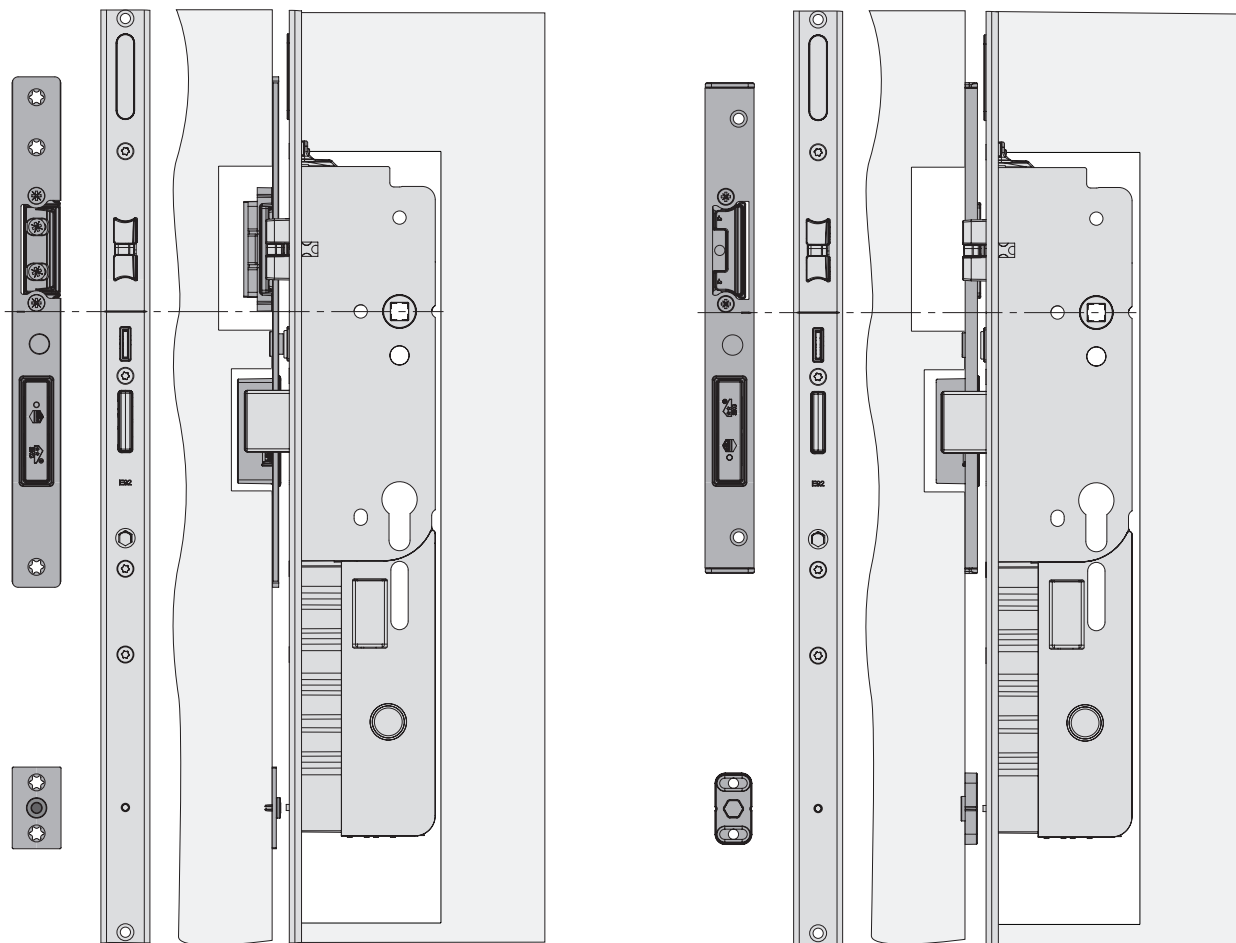
Drilling and routing patterns

Multifunction hook striker plate 6 mm



Positioning of the striker plates

Latch and dead bolt striker plate



Gasket compression adjustment:

+/- 2 mm with latch and dead bolt striker plate

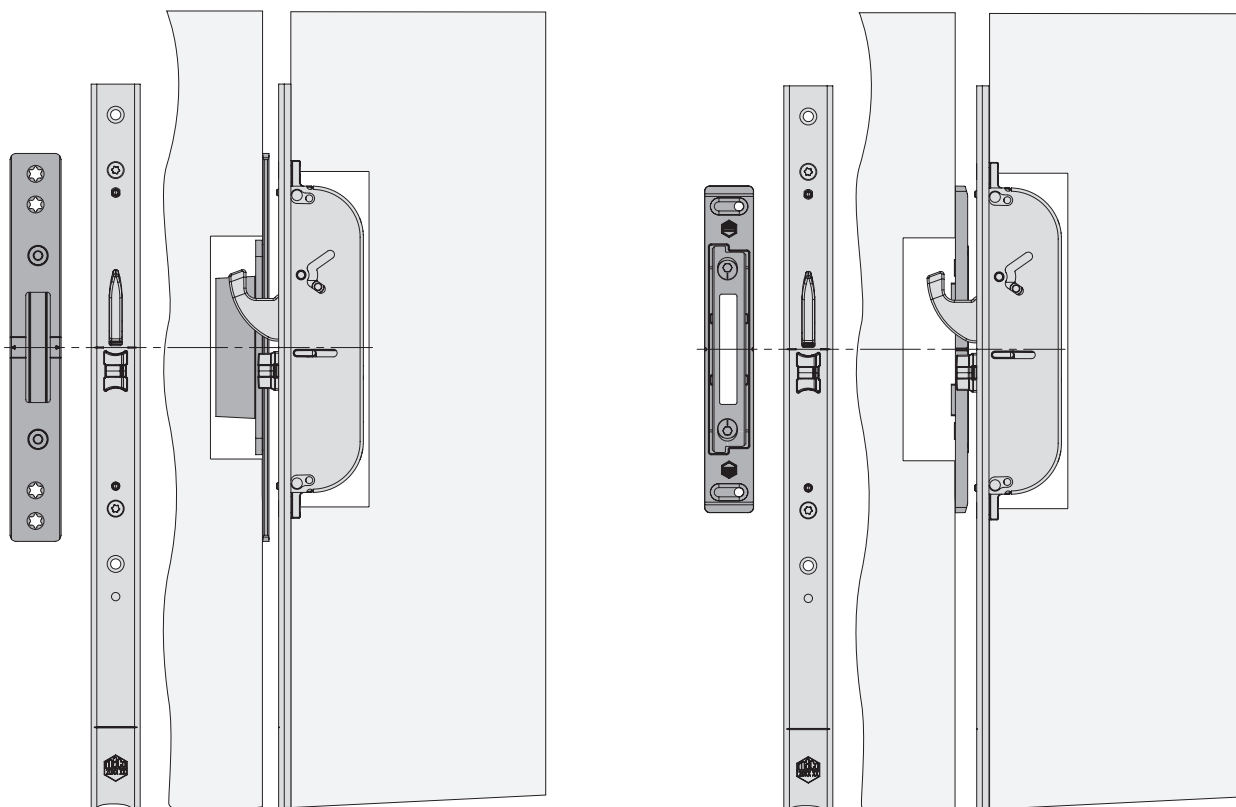
Positioning of notch faceplate = notch strike plate



A rebate gap of 2 - 6 mm must be kept in the installed state!

Positioning of the striker plates

Dead bolt striker plate, multifunction latch with hook lock



Gasket compression adjustment:

+/- 1.5 mm with MF-HO striker plate

Positioning of notch faceplate = notch strike plate



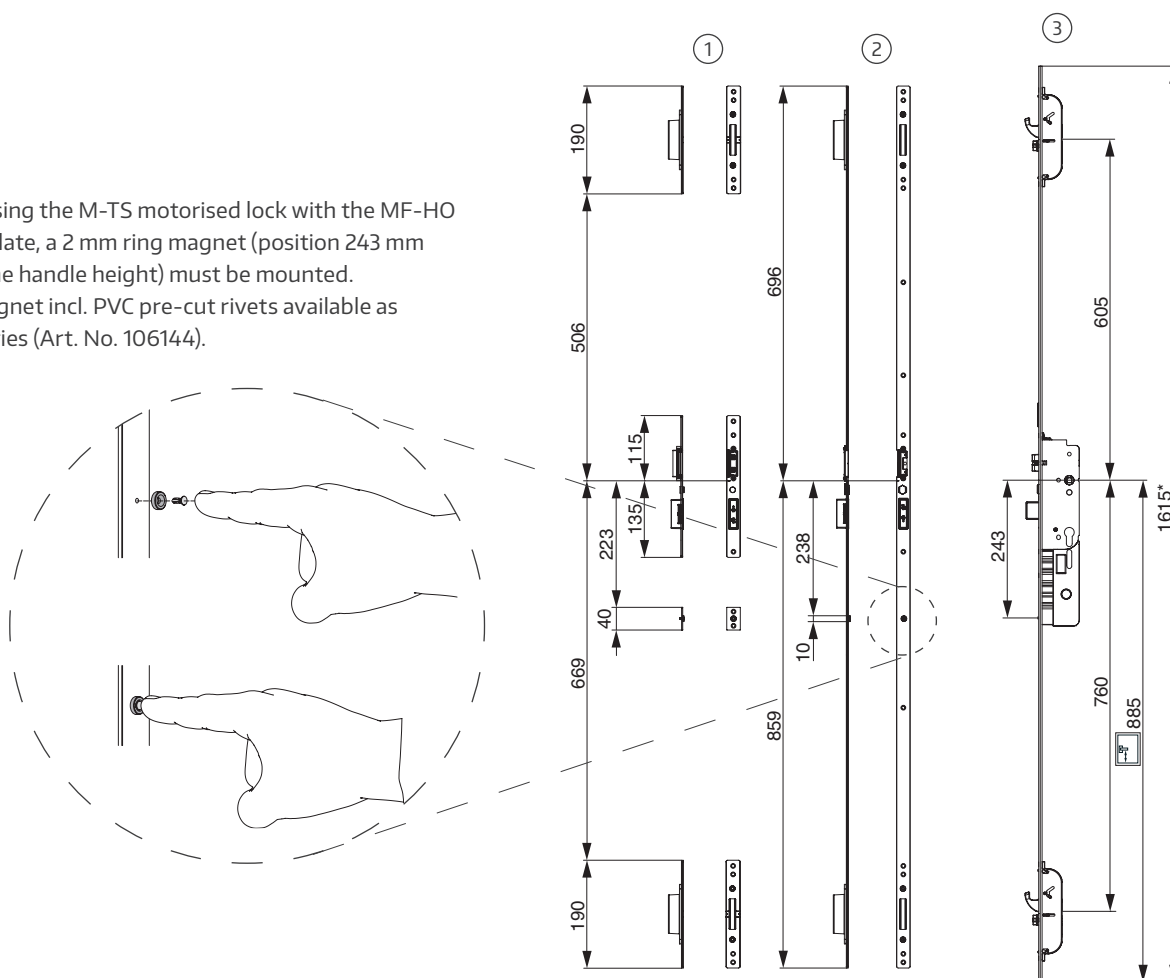
A rebate gap of 2 - 6 mm must be kept in the installed state!

Positioning of the striker plates

2 multifunction latch with hooks, Low K+605, single sash, 3 mm

- ① Single striker plate
- ② Single piece door striker
- ③ Lock

When using the M-TS motorised lock with the MF-HO striker plate, a 2 mm ring magnet (position 243 mm below the handle height) must be mounted.
Ring magnet incl. PVC pre-cut rivets available as accessories (Art. No. 106144).

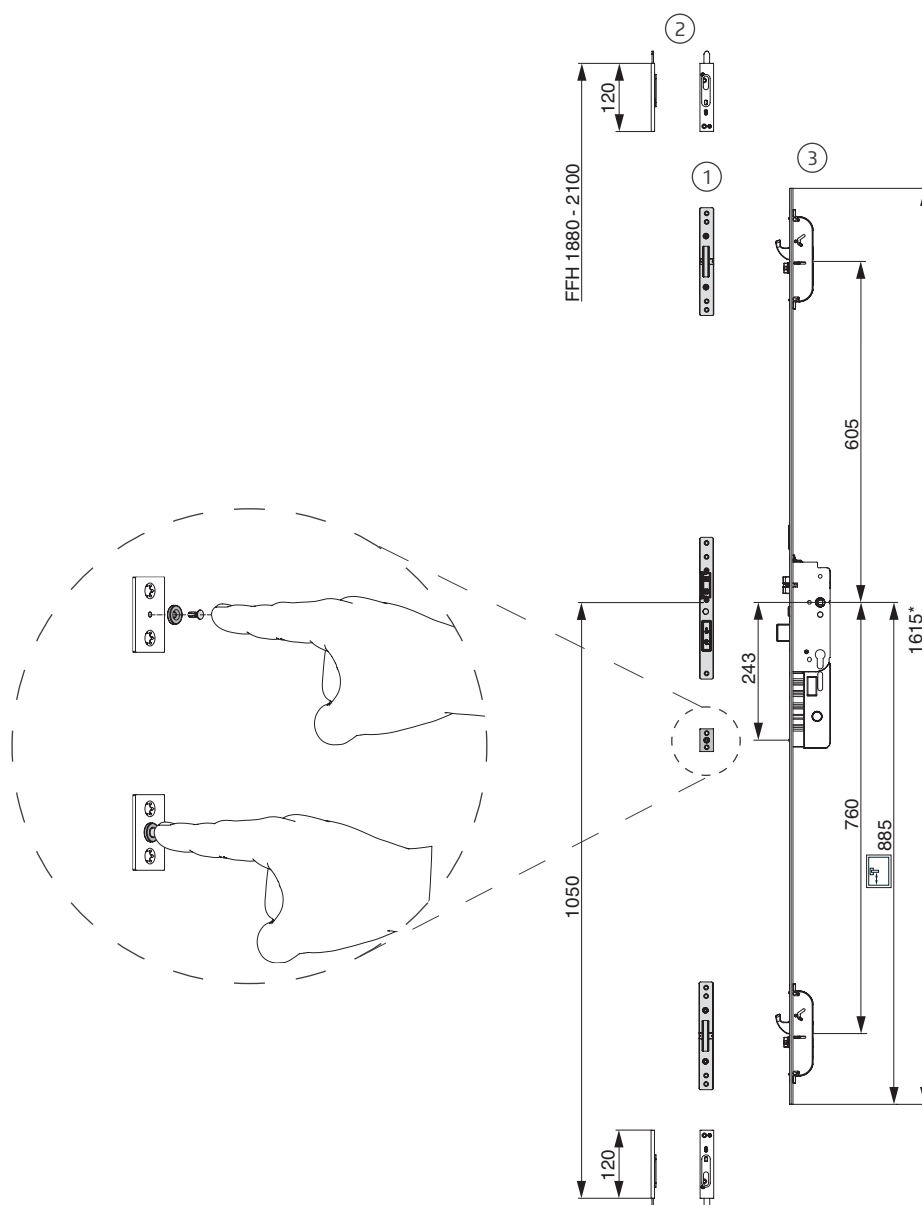


*Use faceplate strip cover for higher SRH!

Positioning of the striker plates

2 multifunction latch with hooks, Low K+605, double sash, 3 mm

- ① Single striker plate
- ② Finger operated door shootbolt
- ③ Lock



*Use faceplate strip cover for higher SRH!

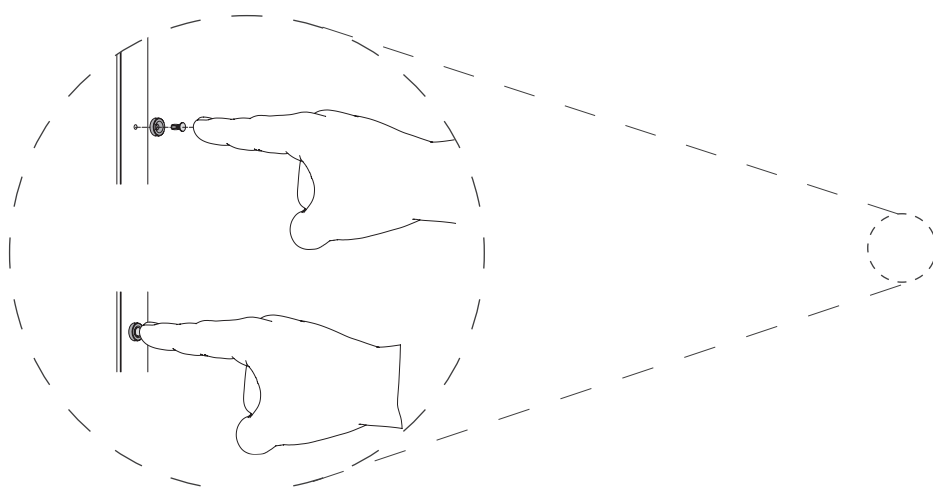
Positioning of the striker plates

2 multifunction latch with hooks, Standard K+730, single sash, 3 mm

- ① Single striker plate
- ② Single piece door striker
- ③ Lock

When using the M-TS motorised lock with the MF-HO striker plate, a 2 mm ring magnet (position 243 mm below the handle height) must be mounted.

Ring magnet incl. PVC pre-cut rivets available as accessories (Art. No. 106144).

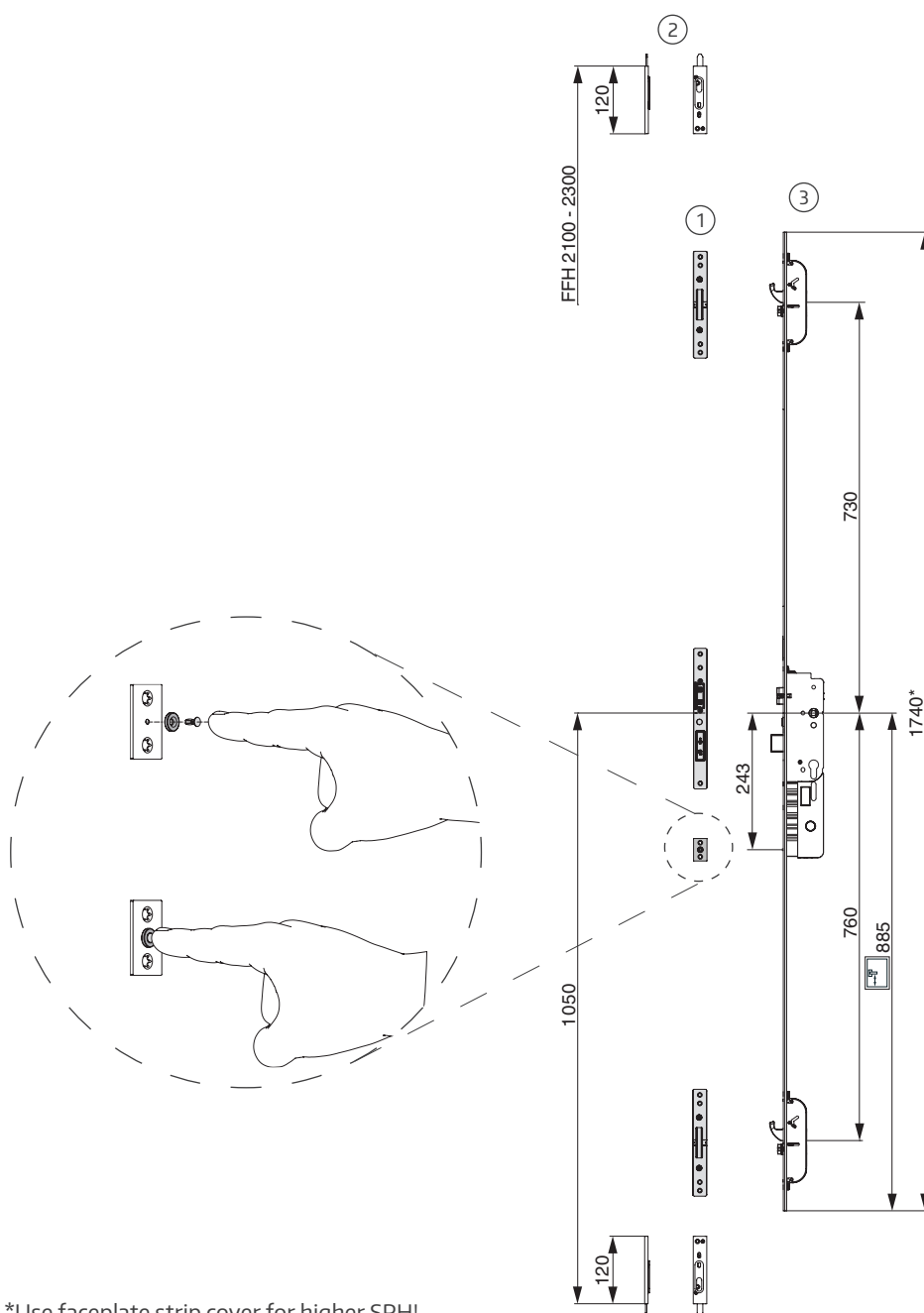


*Use faceplate strip cover for higher SRH!

Positioning of the striker plates

2 multifunction latch with hooks, Standard K+730, double sash, 3 mm

- ① Single striker plate
- ② Finger operated door shootbolt
- ③ Lock



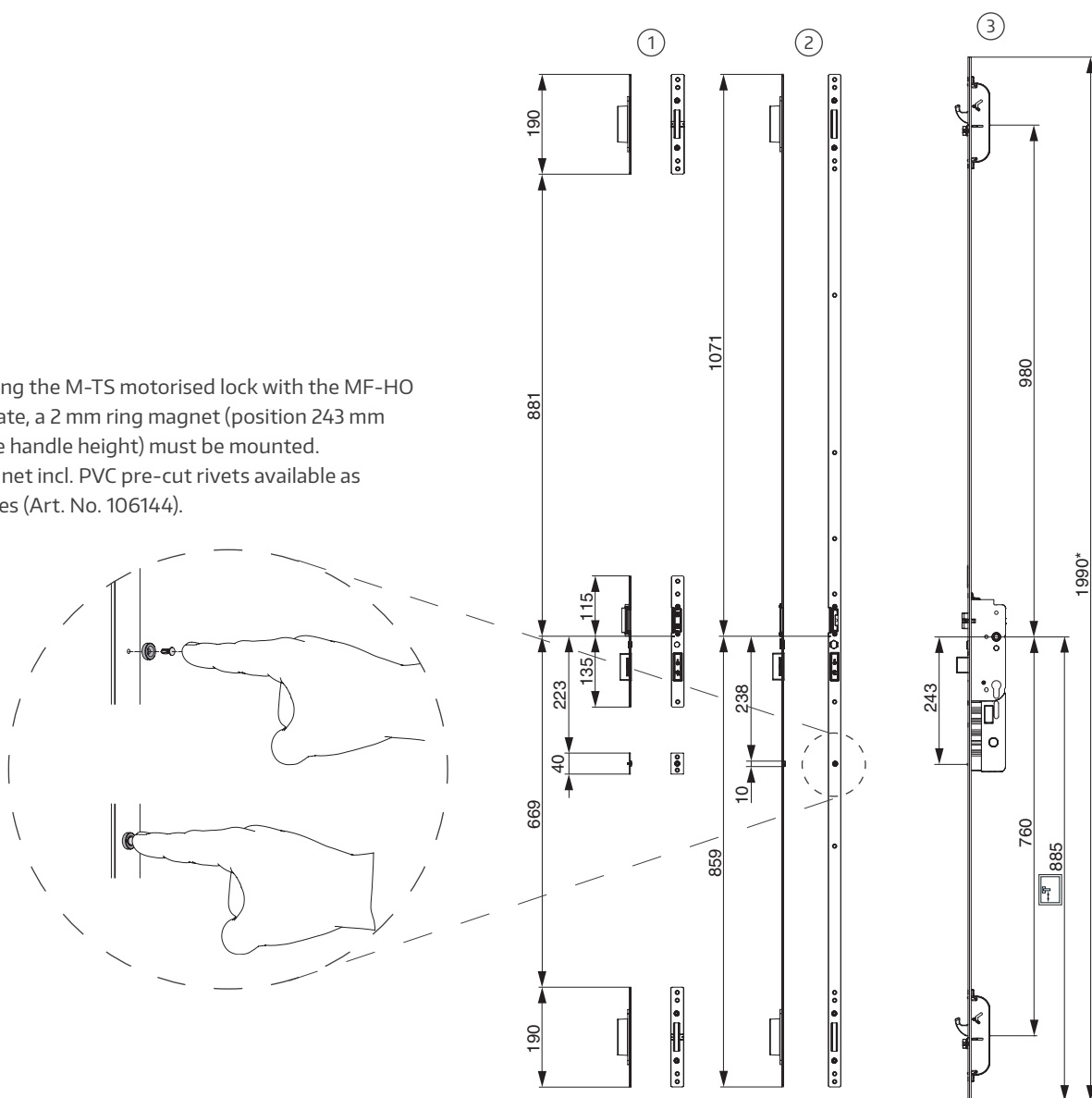
*Use faceplate strip cover for higher SRH!

Positioning of the striker plates

2 multifunction latch with hooks, High K+980, single sash, 3 mm

- ① Single striker plate
- ② Single piece door striker
- ③ Lock

When using the M-TS motorised lock with the MF-HO striker plate, a 2 mm ring magnet (position 243 mm below the handle height) must be mounted.
Ring magnet incl. PVC pre-cut rivets available as accessories (Art. No. 106144).

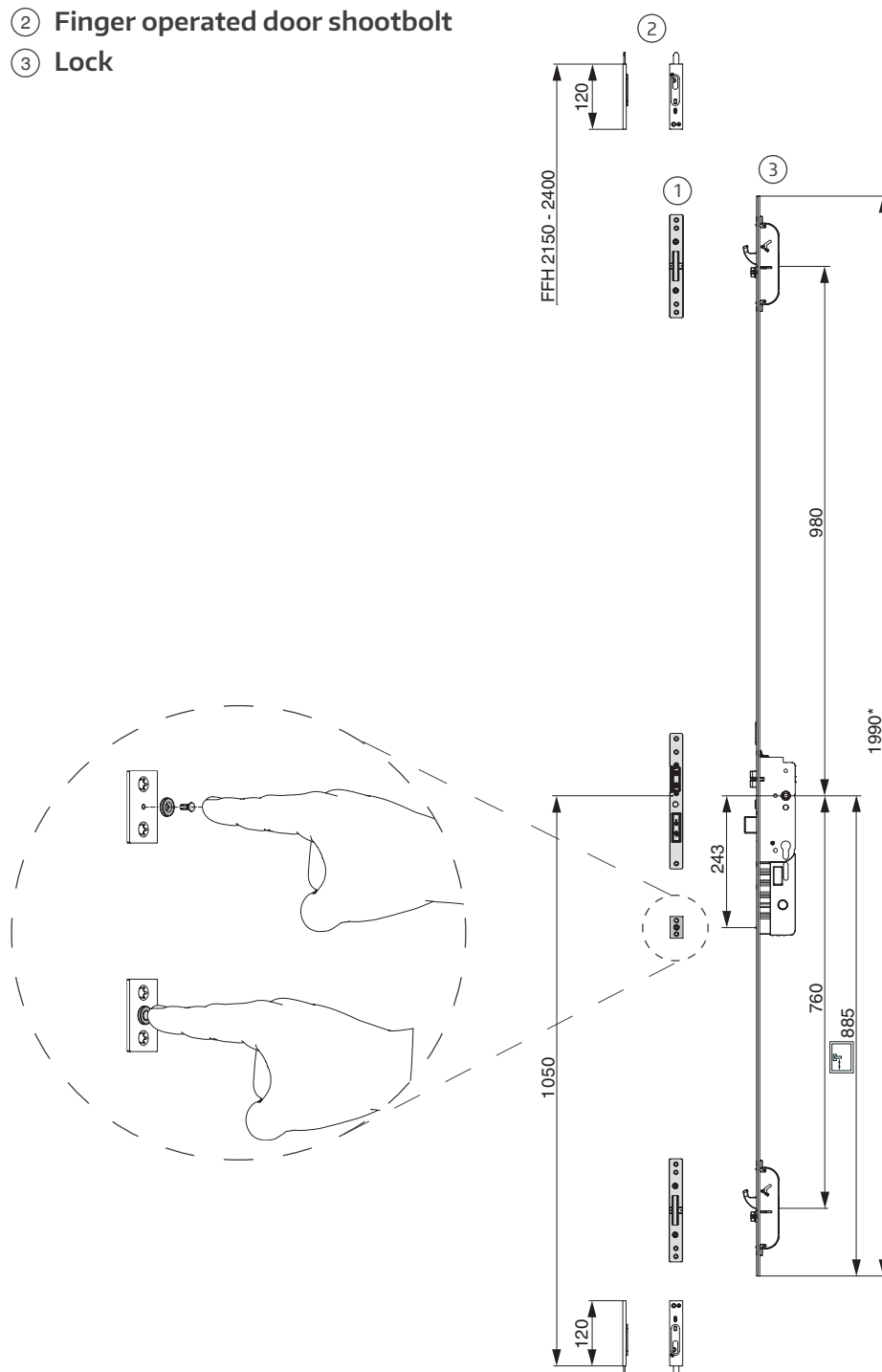


*Use faceplate strip cover for higher SRH!

Positioning of the striker plates

2 multifunction latch with hooks, High K+980, double sash, 3 mm

- ① Single striker plate
- ② Finger operated door shootbolt
- ③ Lock



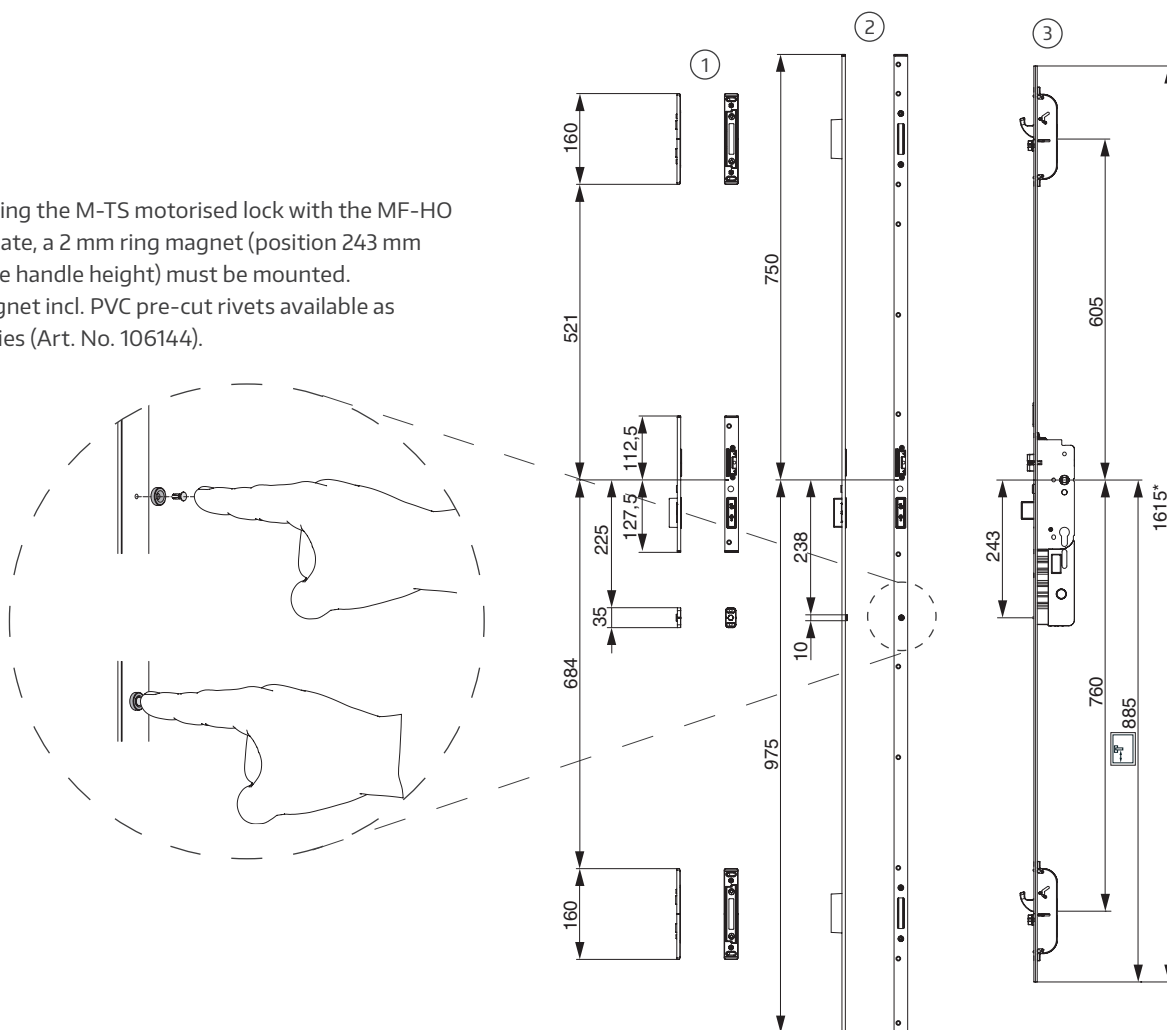
*Use faceplate strip cover for higher SRH!

Positioning of the striker plates

2 multifunction latch with hooks, Low K+605, single sash, 6 mm

- ① Single striker plate
- ② Single piece door striker
- ③ Lock

When using the M-TS motorised lock with the MF-HO striker plate, a 2 mm ring magnet (position 243 mm below the handle height) must be mounted.
Ring magnet incl. PVC pre-cut rivets available as accessories (Art. No. 106144).

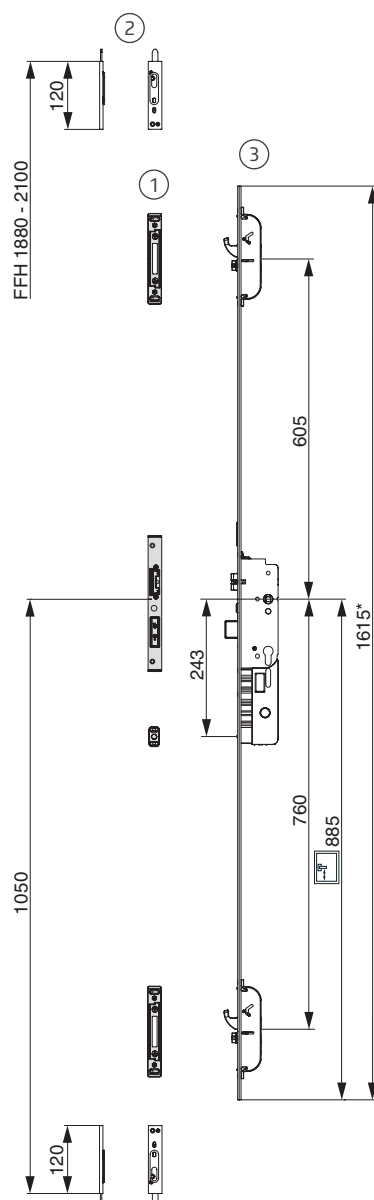


*Use faceplate strip cover for higher SRH!

Positioning of the striker plates

2 multifunction latch with hooks, Low K+605, double sash, 6 mm

- ① Single striker plate
- ② Finger operated door shootbolt
- ③ Lock



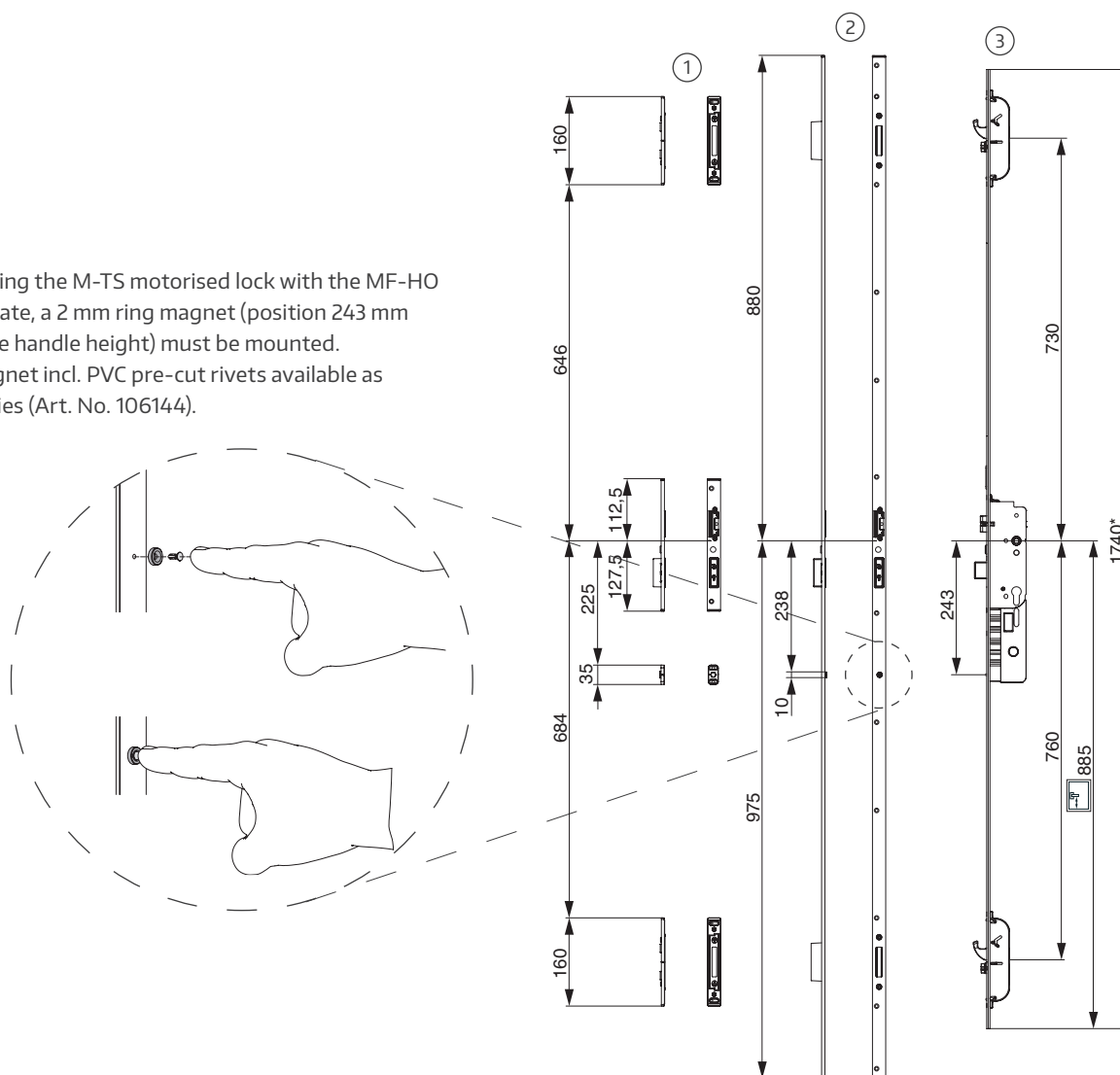
*Use faceplate strip cover for higher SRH!

Positioning of the striker plates

2 multifunction latch with hooks, Standard K+730, single sash, 6 mm

- ① Single striker plate
- ② Single piece door striker
- ③ Lock

When using the M-TS motorised lock with the MF-HO striker plate, a 2 mm ring magnet (position 243 mm below the handle height) must be mounted.
Ring magnet incl. PVC pre-cut rivets available as accessories (Art. No. 106144).

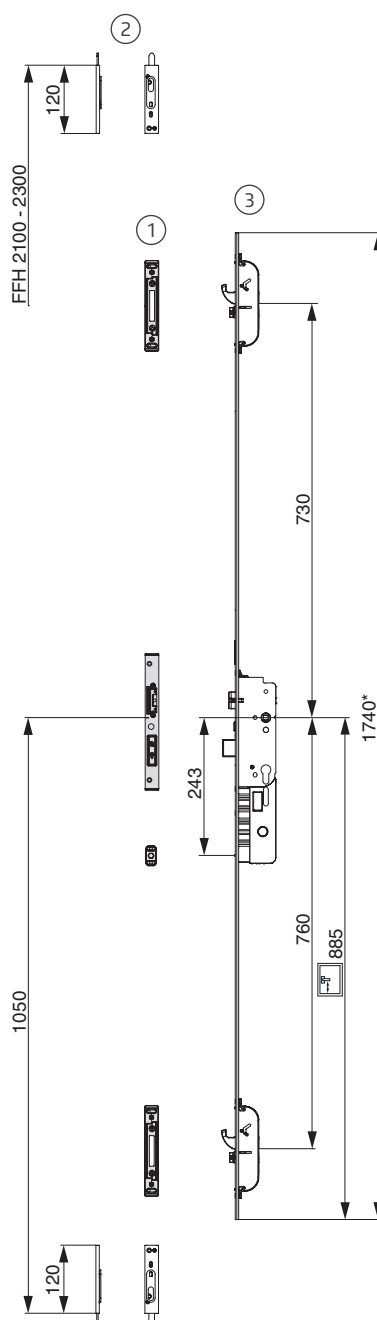


*Use faceplate strip cover for higher SRH!

Positioning of the striker plates

2 multifunction latch with hooks, Standard K+730, double sash, 6 mm

- ① Single striker plate
- ② Finger operated door shootbolt
- ③ Lock



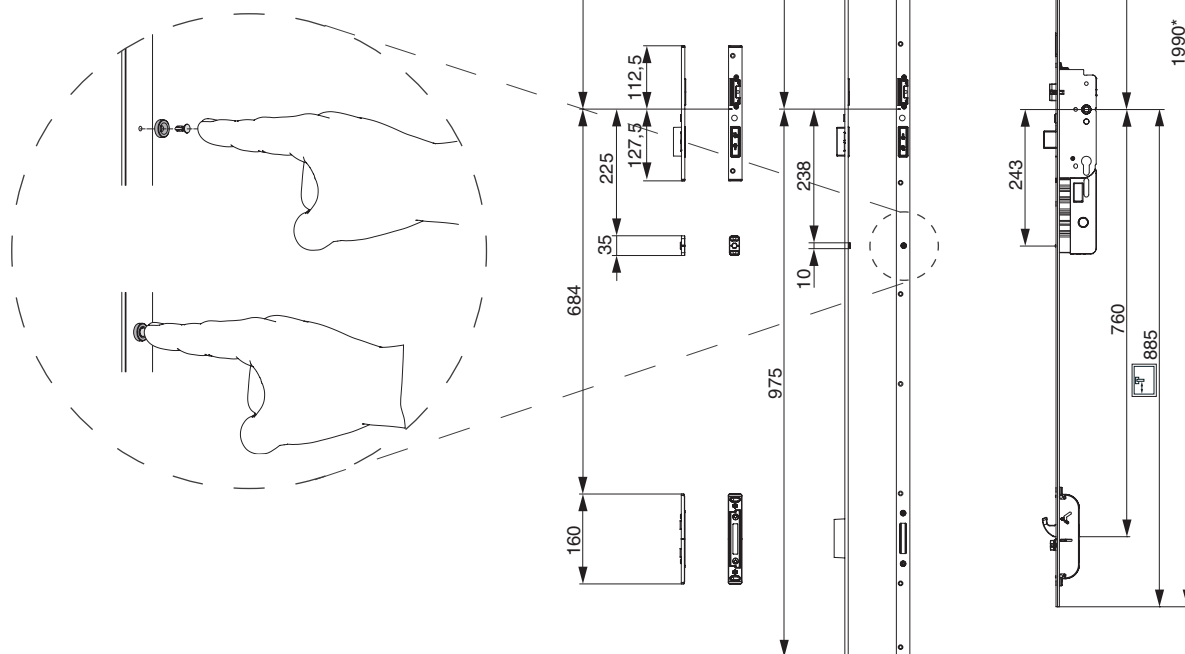
*Use faceplate strip cover for higher SRH!

Positioning of the striker plates

2 multifunction latch with hooks, High K+980, single sash, 6 mm

- ① Single striker plate
- ② Single piece door striker
- ③ Lock

When using the M-TS motorised lock with the MF-HO striker plate, a 2 mm ring magnet (position 243 mm below the handle height) must be mounted.
Ring magnet incl. PVC pre-cut rivets available as accessories (Art. No. 106144).

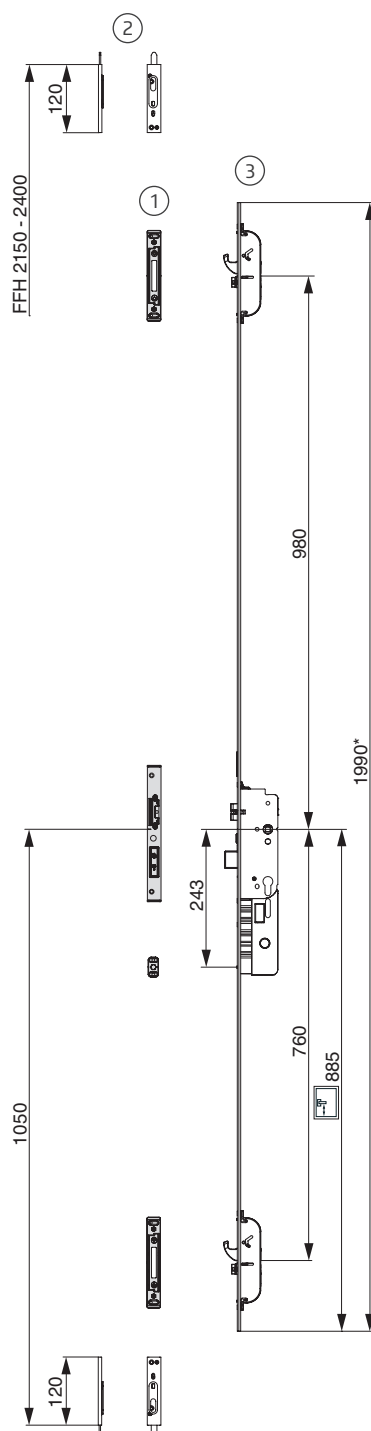


*Use faceplate strip cover for higher SRH!

Positioning of the striker plates

2 multifunction latch with hooks, High K+980, double sash, 6 mm

- ① Single striker plate
- ② Finger operated door shootbolt
- ③ Lock

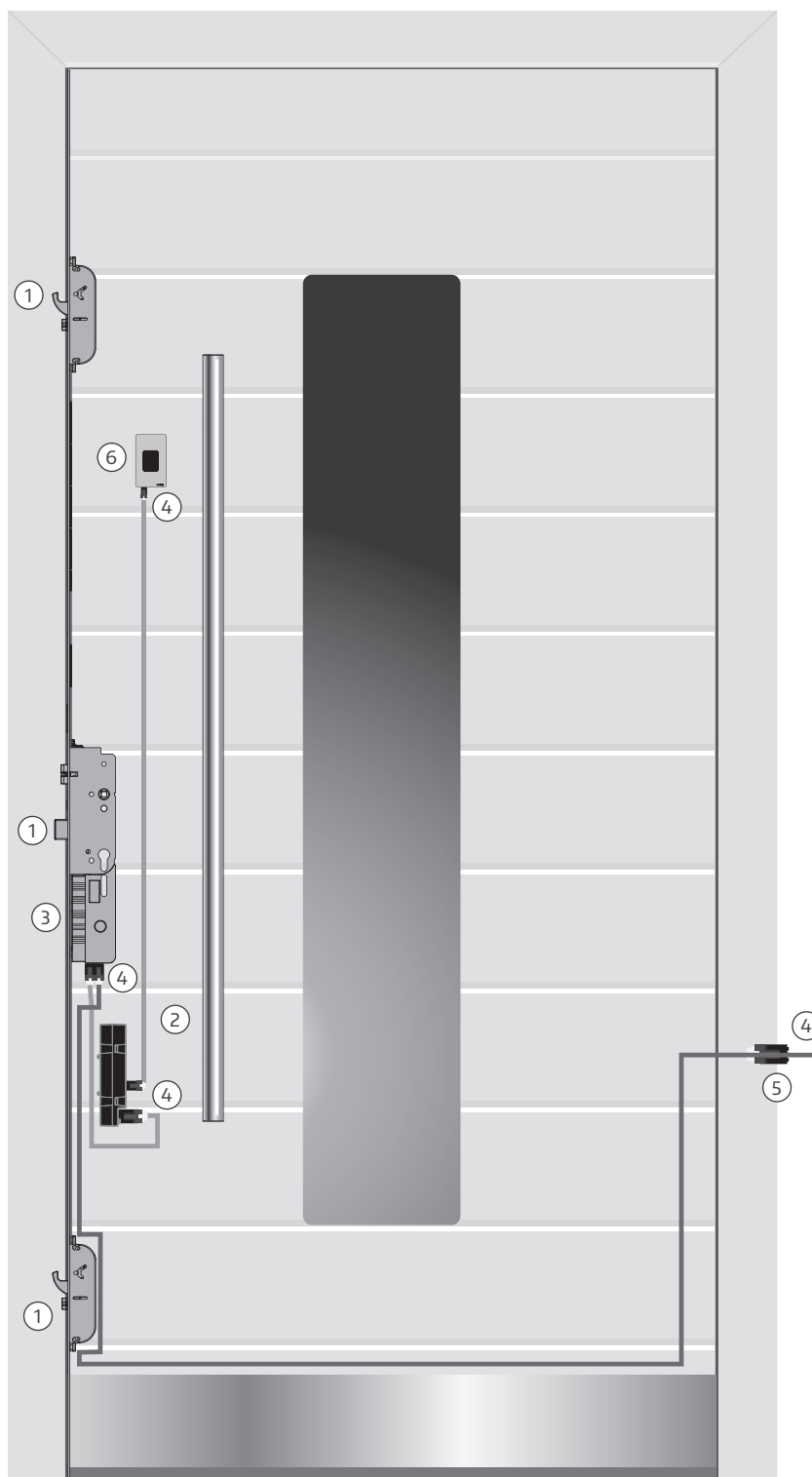


*Use faceplate strip cover for higher SRH!

Access solutions & interfaces

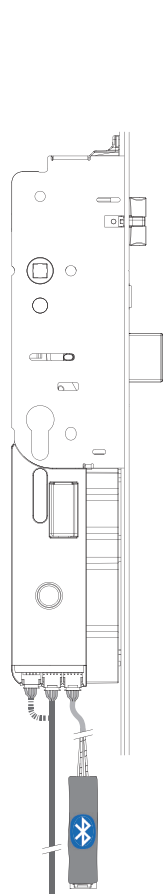
Overview

- ① **M-TS motorised lock with 3-latch technology**
Optimum gasket compression thanks to 3 latches and motorised locking of the steel hooks and the locking bolt.
- ② **Tamper-proof**
Control unit protected from unauthorised access.
- ③ Maximum comfort and safety thanks to **motorised locking and unlocking.**
- ④ **Plug & Play**
Simple, non-mistakable plug-in connection.
- ⑤ **EASY mounting and de-mounting** of the door thanks to plug-in cable transition.
- ⑥ **openDoor Touchkey dLine**

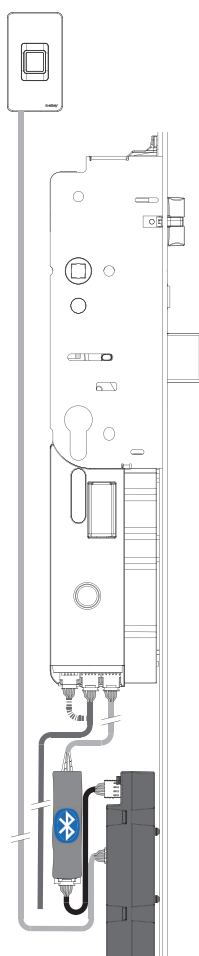


Access solutions & interfaces

Connection options BLE module for control via MACO SMARTPHONE APP



Option 1:
Connection to a
free slot on the
motor



Option 2:
Connection
between access
control and motor



The INSTINCT App is available free of charge for iOS and Android.

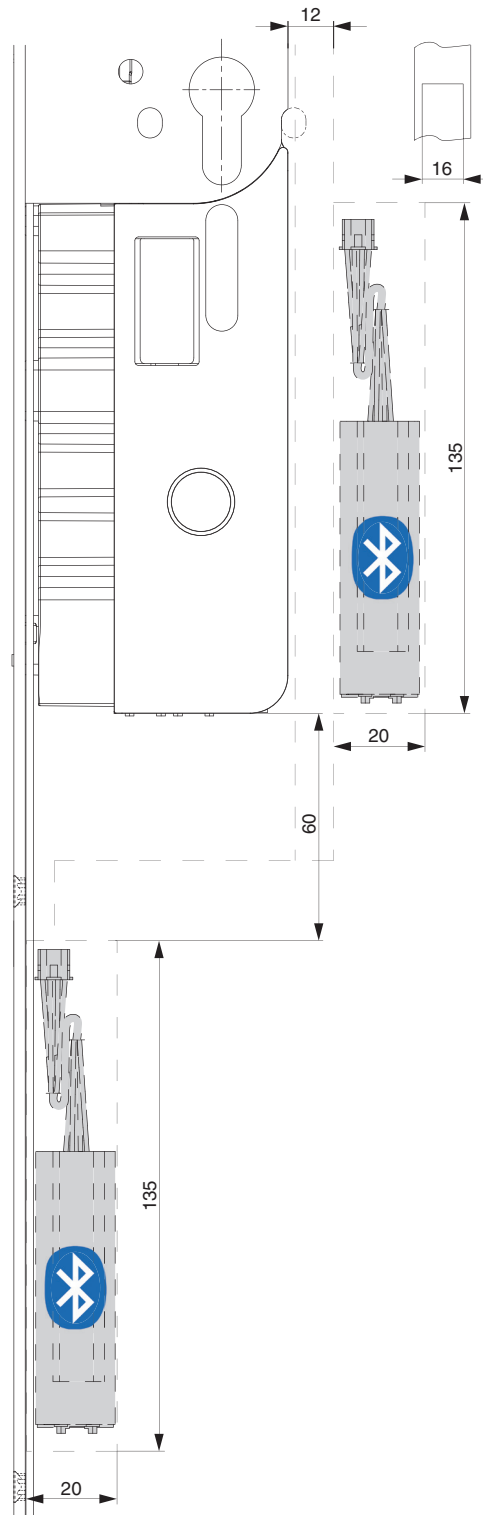
It is easy to install, activate with the admin card QR code and off you go.

No complicated web-based programming is required.



Access solutions & interfaces

Milling for BLE module



Access solutions & interfaces

Transponder Plus, Keypad and Touchkey

Cable installation - cable transition 6 m external installation length / 1.5 m, 2.5 m, 4.5 m in the door leaf

Plug & Play connection motor to:

- Ⓐ Cable transition
- Ⓑ Access Solution
- Ⓒ ⚡ Power supply**
- Ⓓ Loop for tension release

Plug & Play connector / cable installation

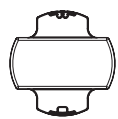
- ① Brown: motor operating voltage minus -
- ② White: motor operating voltage plus +
- ③ Green: control voltage* minus -
- ④ Yellow: control voltage* plus +
(③ + ④ Potential-free input)

*The control voltage is required for switch (switch impulse) and toggle switch (Day Release activation/deactivation)!
See page 46/47.

In order to avoid damage to the cables, drilling/milling must be deburred!

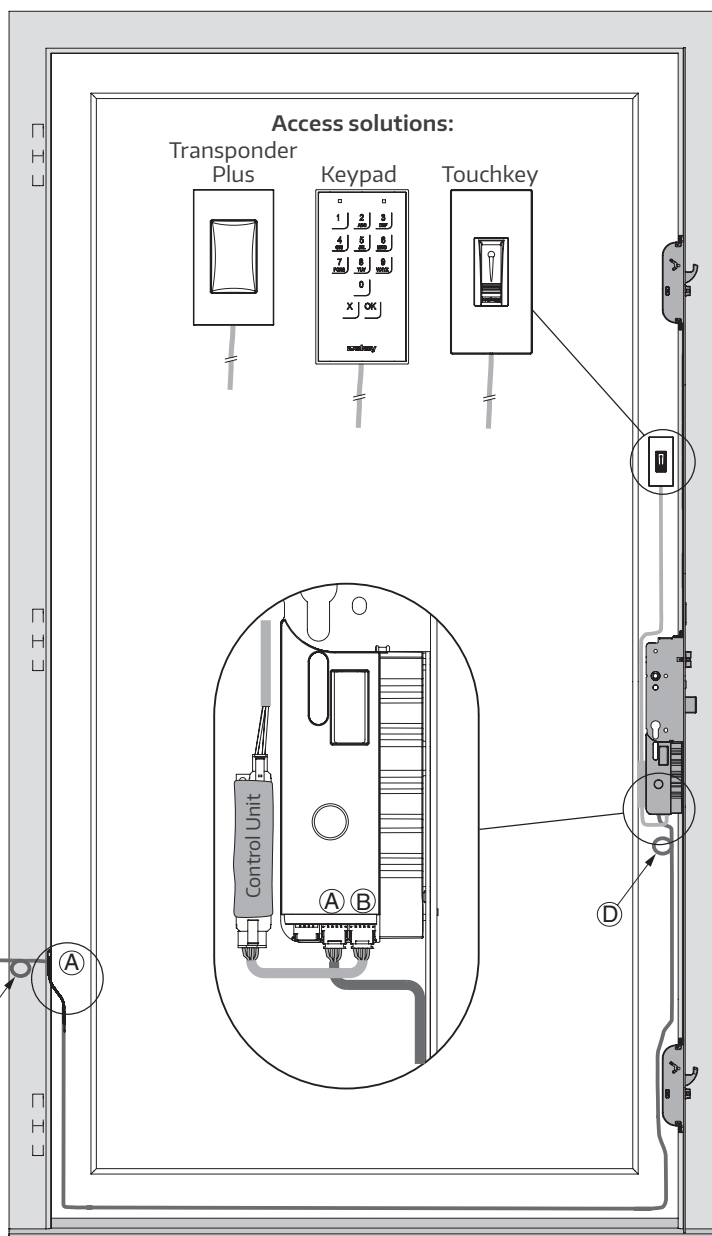
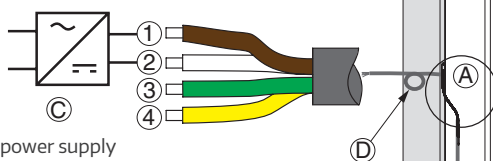


Electrical connections (connection of power supply, connection cable 6 m) may only be carried out by authorised personnel!



**Flush-mounted power supply

**DIN rail power supply



**The M-TS motorised lock may only be operated with the power supplies provided, tested and approved for this purpose. These are designed for an input voltage of 220-240V / 50-60Hz and are available from MACO.

Access solutions & interfaces

Transponder Plus, Keypad and Touchkey

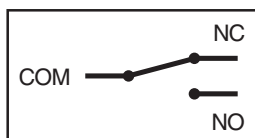
Cable installation - cable transition for locking monitoring 10 m external installation length / 1.5 or 2.5 m in the door leaf

Plug & Play connection motor to:

- (A) Cable transition
- (B) Access solution
- (E) Closure monitoring
- (C) ⚡ Power supply**
- (D) Loop for tension release

Plug & Play connector / cable installation:

- (1) Brown: motor operating voltage minus -
- (2) White: motor operating voltage plus +
- (3) Green: control voltage* minus -
- (4) Yellow: control voltage* plus +
(3) + (4) Potential-free input
- (5) Blue COM
- (6) Red NO } Output e.g. for alarm systems

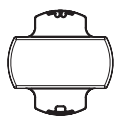


(NC not implemented/
not occupied)

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See pages 46/47.

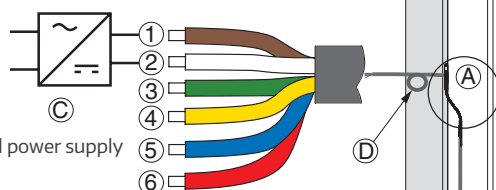


Electrical connections (connection of power supply, connection cable 10 m) may only be carried out by authorised personnel!

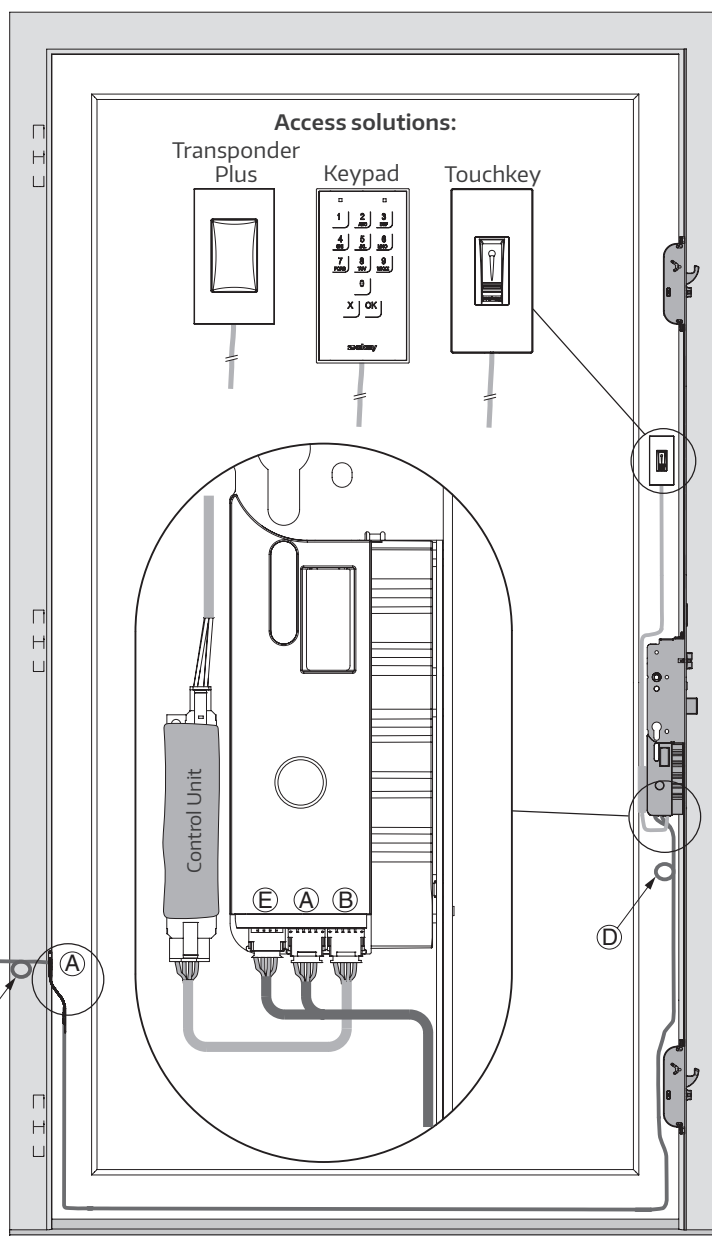


**Flush-mounted power supply

**DIN rail power supply



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Access solutions & interfaces

Touchkey dLine

Cable installation - cable transition 6 m external installation length / 1.5 m, 2.5 m, 4.5 m in the door leaf

Plug & Play connection motor to:

- Ⓐ Cable transition
- Ⓑ Access solution
- Ⓒ ⚡ Power supply**
- Ⓓ Loop for tension release

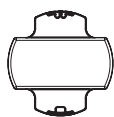
Plug & Play connector / cable installation:

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- ③ Green: control voltage* minus -
- ④ Yellow: control voltage* plus +
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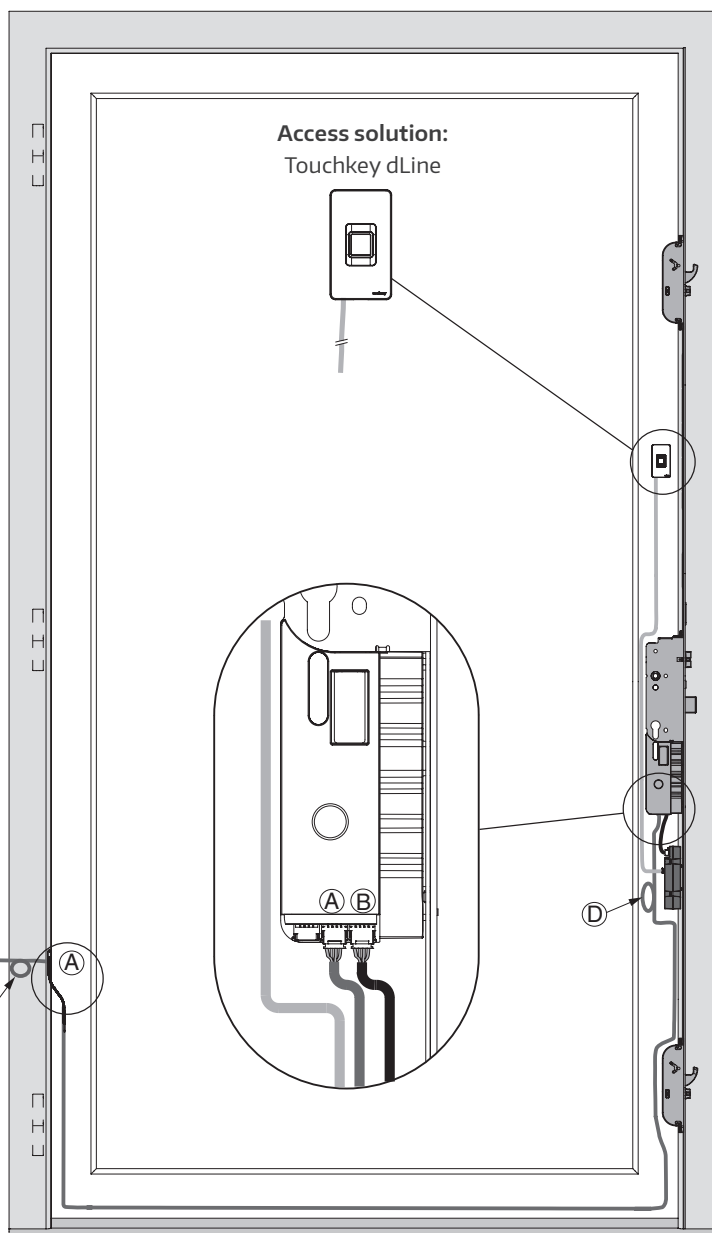
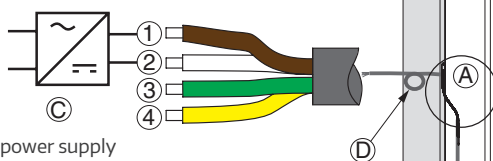


Electrical connections (connection of power supply, connection cable 6 m) may only be carried out by authorised personnel!



**Flush-mounted power supply

**DIN rail power supply



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Access solutions & interfaces

Touchkey dLine

Cable installation - cable transition 6 m external installation length / 1.5 m, 2.5 m, 4.5 m in the door leaf

Plug & Play connection motor to:

- | | |
|------------------------------|------------------------------------|
| (A) Cable transition | (E1) Cable controller - Fingerscan |
| (B) Access solution | (E2) Cable controller - Motor |
| (C) ⚡ Power supply** | (E3) Cable transition - Motor |
| (D) Loop for tension release | |

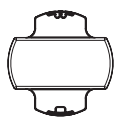
Plug & Play connector / cable installation:

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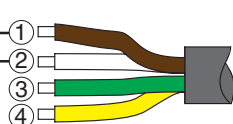
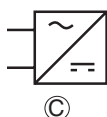
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See pages 46/47.



Electrical connections (connection of power supply, connection cable 6 m) may only be carried out by authorised personnel!

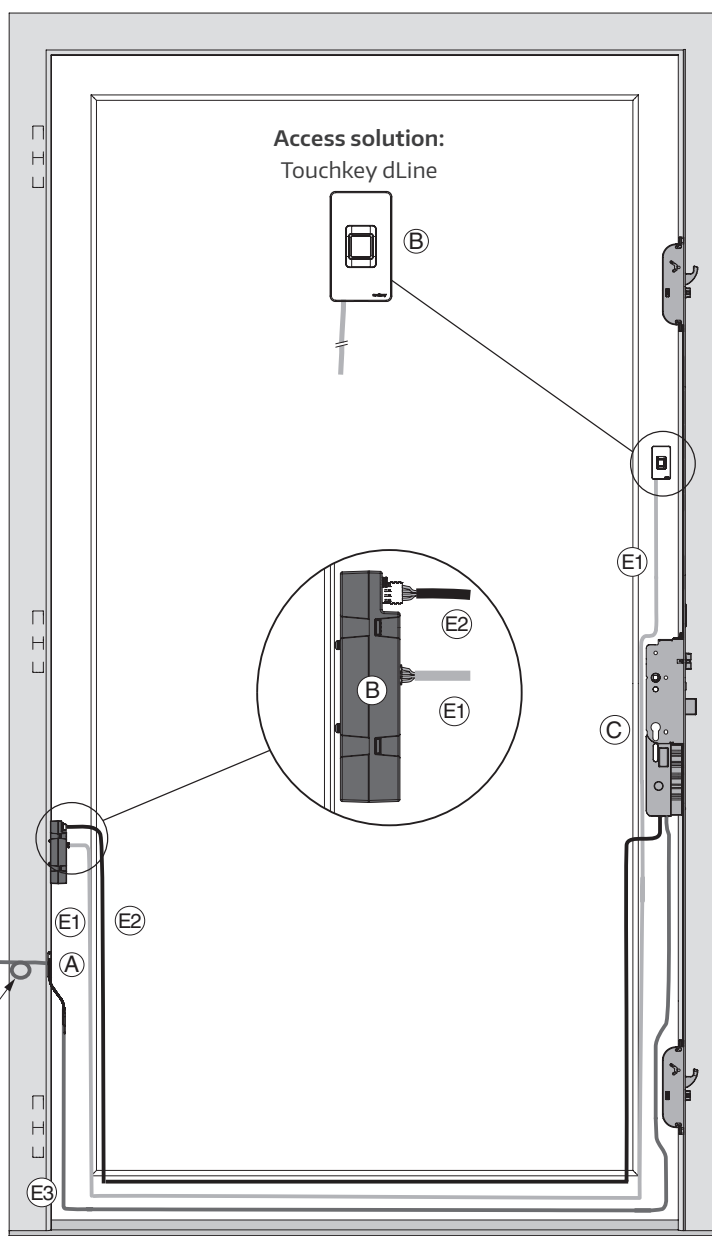


**Flush-mounted power supply



**DIN rail power supply

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These are designed for an input voltage of 220-240V / 50-60Hz and are available from MACO.



Access solutions & interfaces

Touchkey dLine

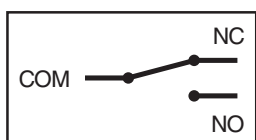
Cable installation - cable transition for locking monitoring 10 m external installation length / 1.5 or 2.5 m in the door leaf

Plug & Play connection motor to:

- (A) Cable transition
- (B) Access solution
- (E) Closure monitoring
- (C) ⚡ Power supply**
- (D) Loop for tension release

Plug & Play connector / cable installation:

- (1) Brown: motor operating voltage minus -
- (2) White: motor operating voltage plus +
- (3) Green: control voltage* minus -
- (4) Yellow: control voltage* plus +
(3 + 4) Potential-free input
- (5) Blue COM
- (6) Red NO } Output e.g. for alarm systems

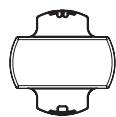


(NC not implemented/
not occupied)

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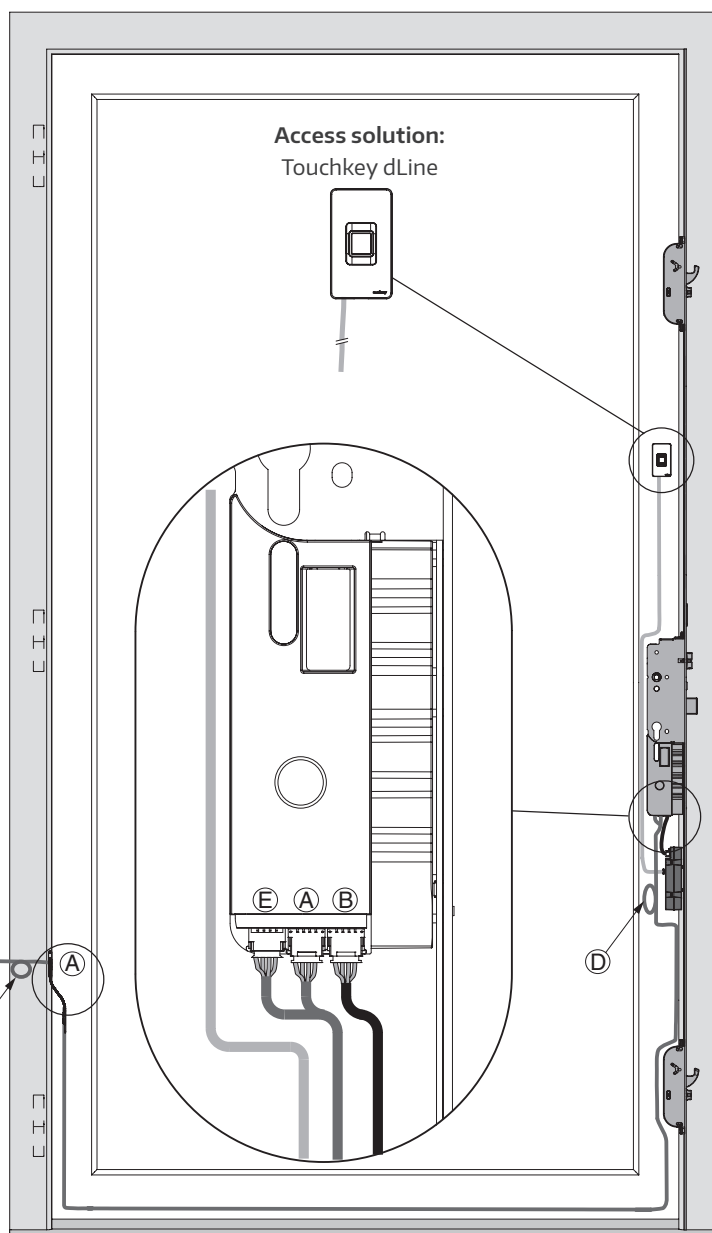
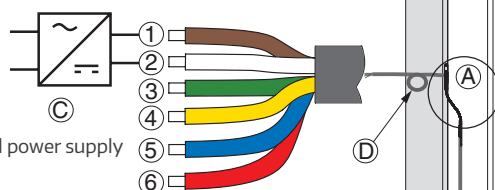


Electrical connections (connection of power supply, connection cable 10 m) may only be carried out by authorised personnel!



**Flush-mounted power supply

**DIN rail power supply



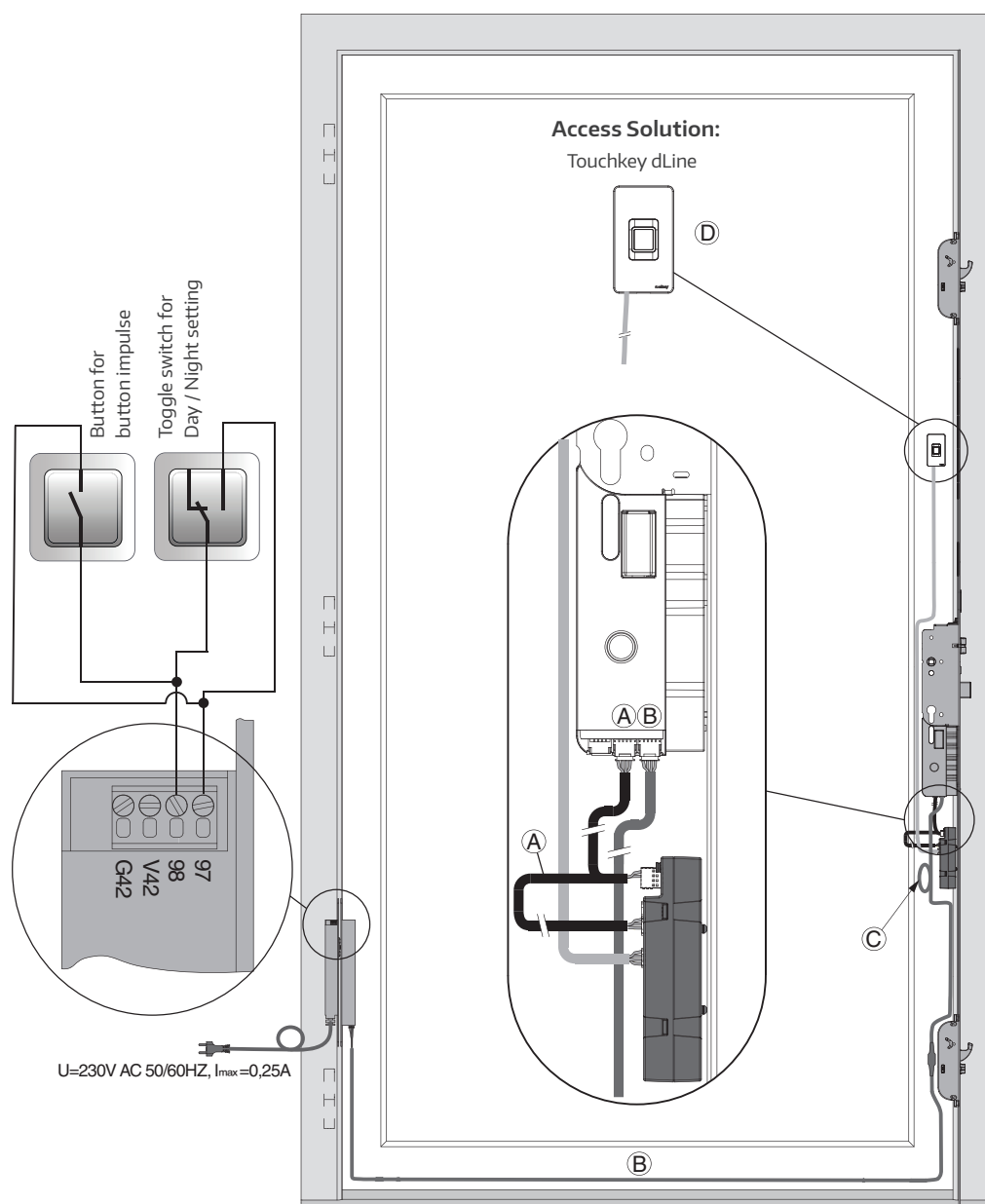
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Access solutions & interfaces

Plunger contact secureConnect Touchkey dLine

Plug & Play connection motor to:

- Ⓐ Adapter cable for plunger contact to dLine
- Ⓑ Adapter cable for plunger contact to motor
- Ⓒ Loop for tension release
- Ⓓ dLine access control



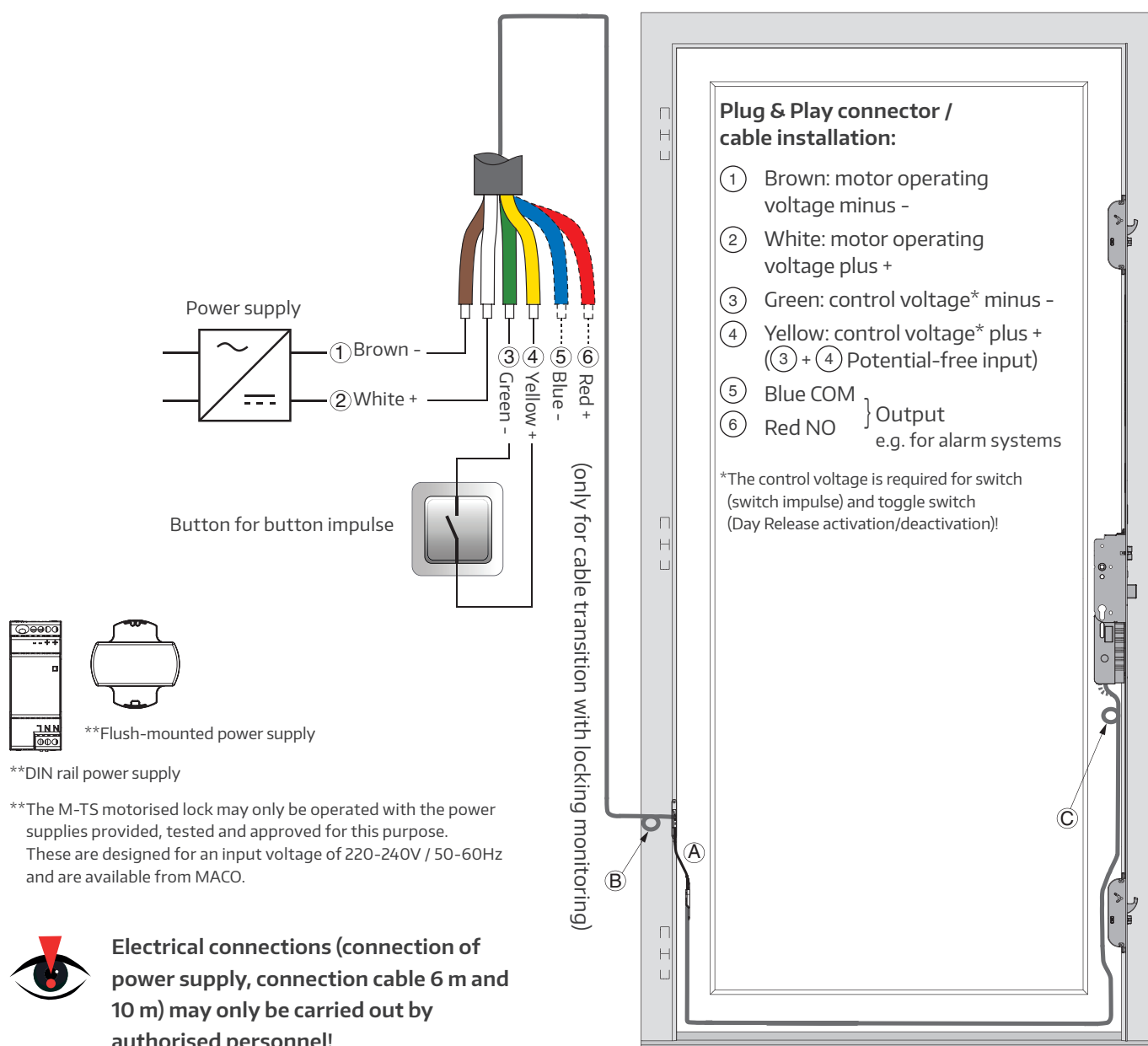
Access solutions & interfaces

Circuit diagram button impulse

Cable transition with locking monitoring 10 m external installation length / 1.5 or 2.5 m in the door leaf

Cable transition 6 m external installation length / 1.5 m, 2.5 m, 4.5 m in the door leaf

- (A) Cable transition
- (B) Tension release
- (C) Loop for assembly

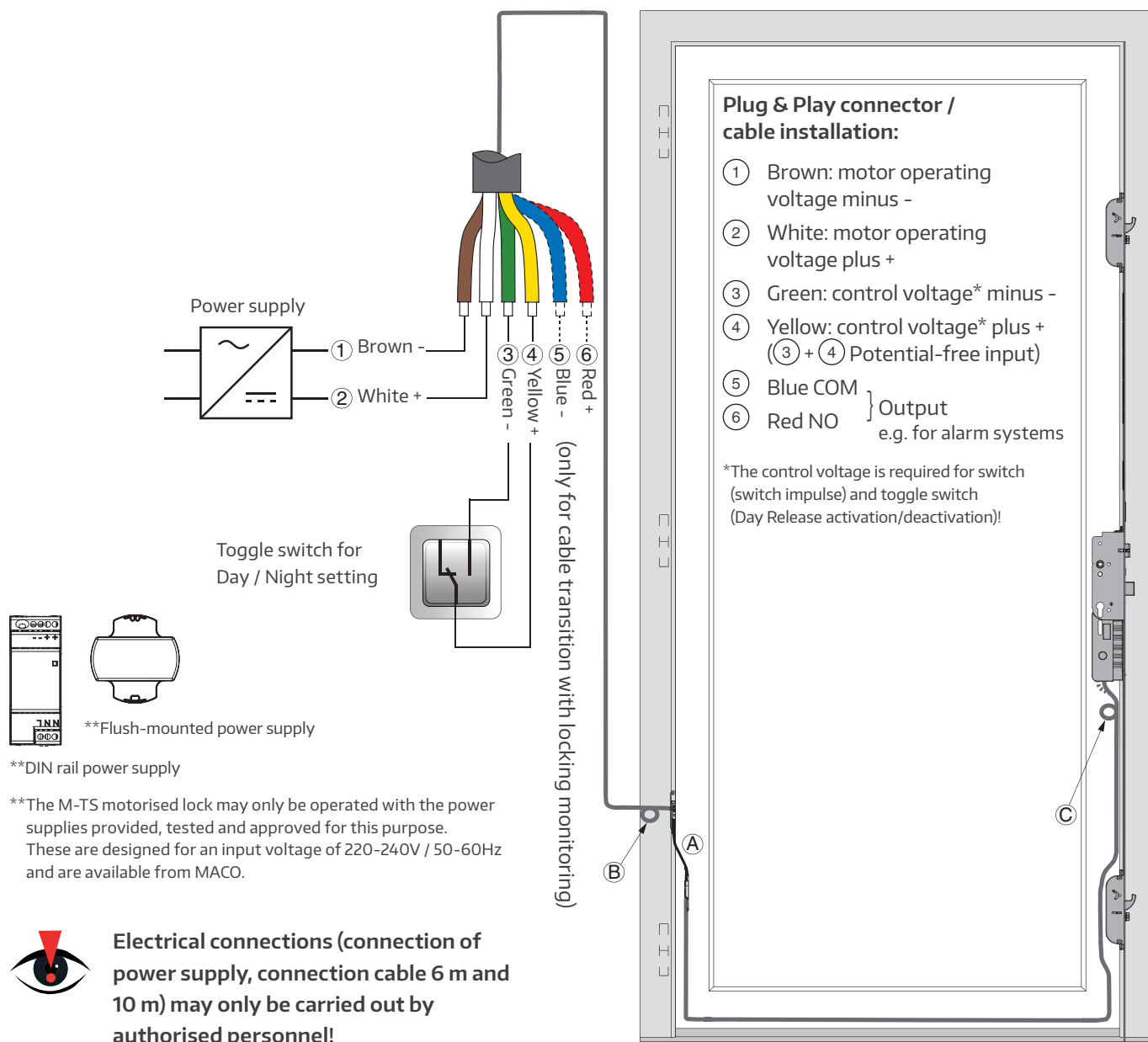


Access solutions & interfaces

Circuit diagram toggle switch (motorised day release)

Cable transition 10 m / 1.5 or 2.5 m with locking monitoring or
cable transition 6 m / 1.5 m, 2.5 m, 4.5 m in the door leaf

- Ⓐ Cable transition
- Ⓑ Tension release
- Ⓒ Loop for assembly



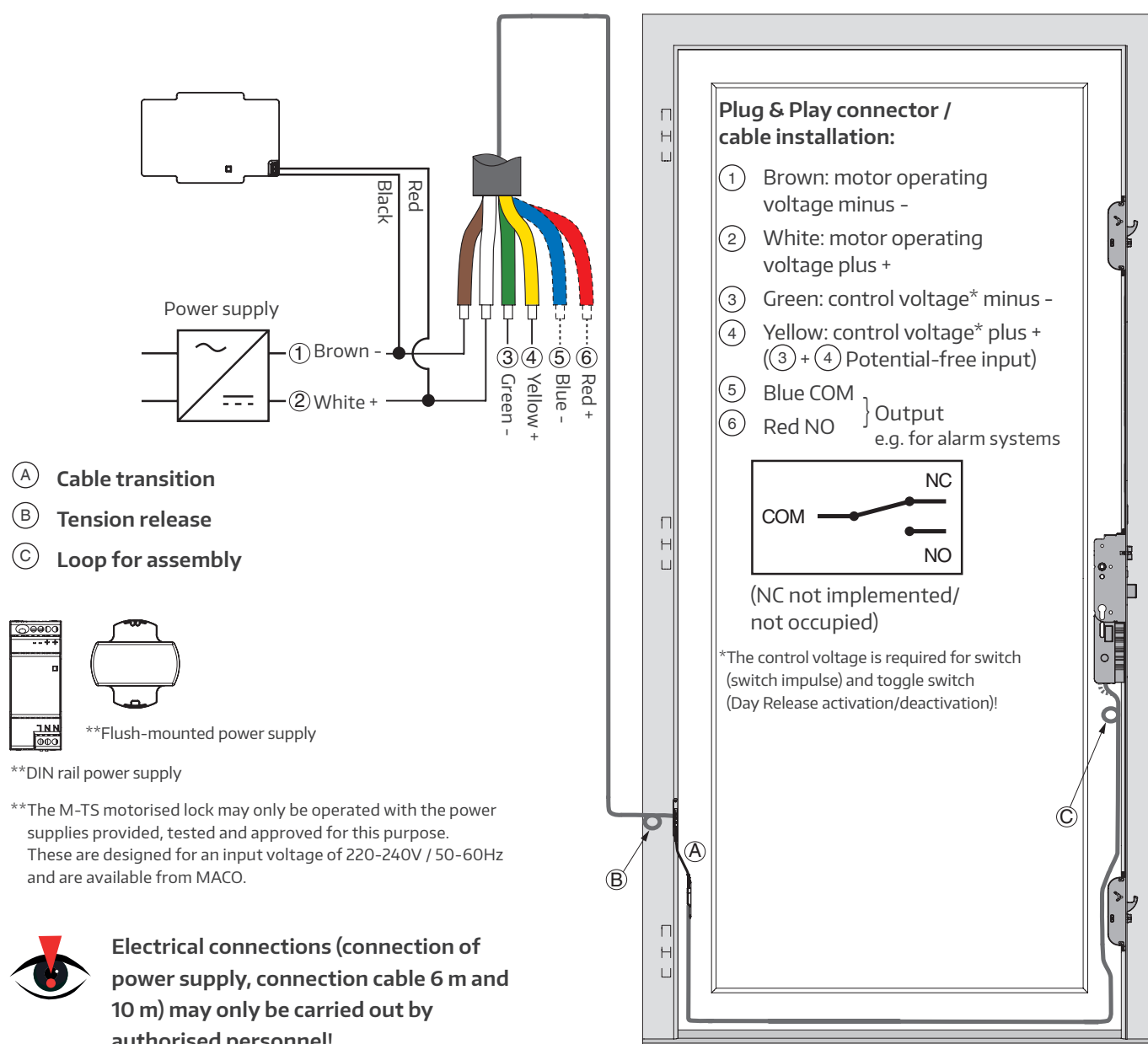
Access solutions & interfaces

Connection plan UPS (uninterruptible power supply)

The use of the MACO UPS (Art. No. 480987) is recommended by MACO and bridges common, short-term power outages without functional restrictions. The bridging time depends on the actual system configuration. Should the unlikely event occur that a power failure occurs during a motorised opening or closing process, the mechanics may block. With the UPS, the lock moves to the desired position. Without a UPS, the M-TS can be operated manually by means of a key or handle (from the inside) in the event of a power failure in the closed or open state.

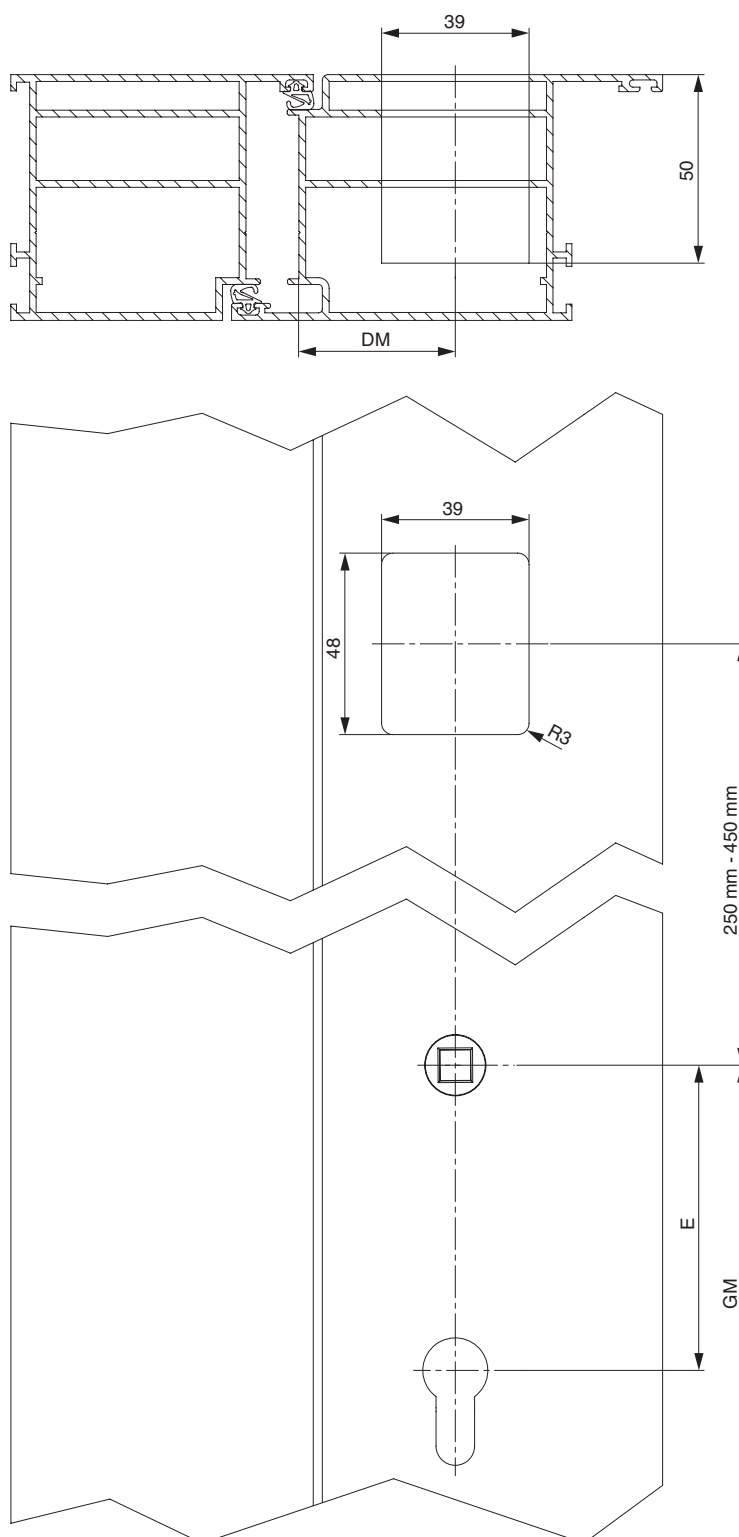
For use in buildings where there is a potential danger to life and limb in the event of a power failure, this is mandatory (e.g. multi-party houses, public buildings and the like)!

IMPORTANT! For UPS operation, at least one additional user (BLE module, access control,...) must be connected. Otherwise, the UPS will fall into standby mode and will NOT be active in the event of a power failure.



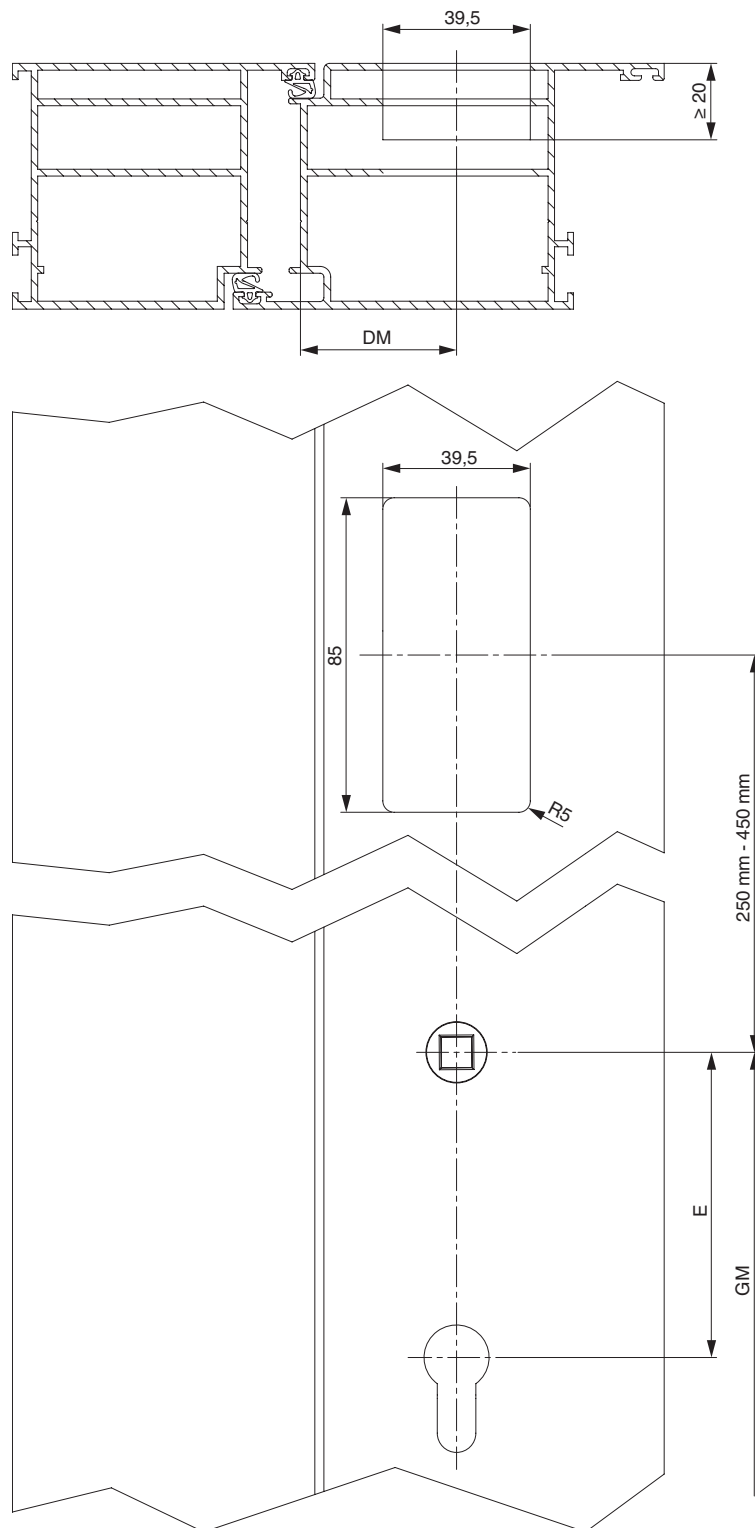
Access solutions & interfaces

Routing patterns Transponder plus



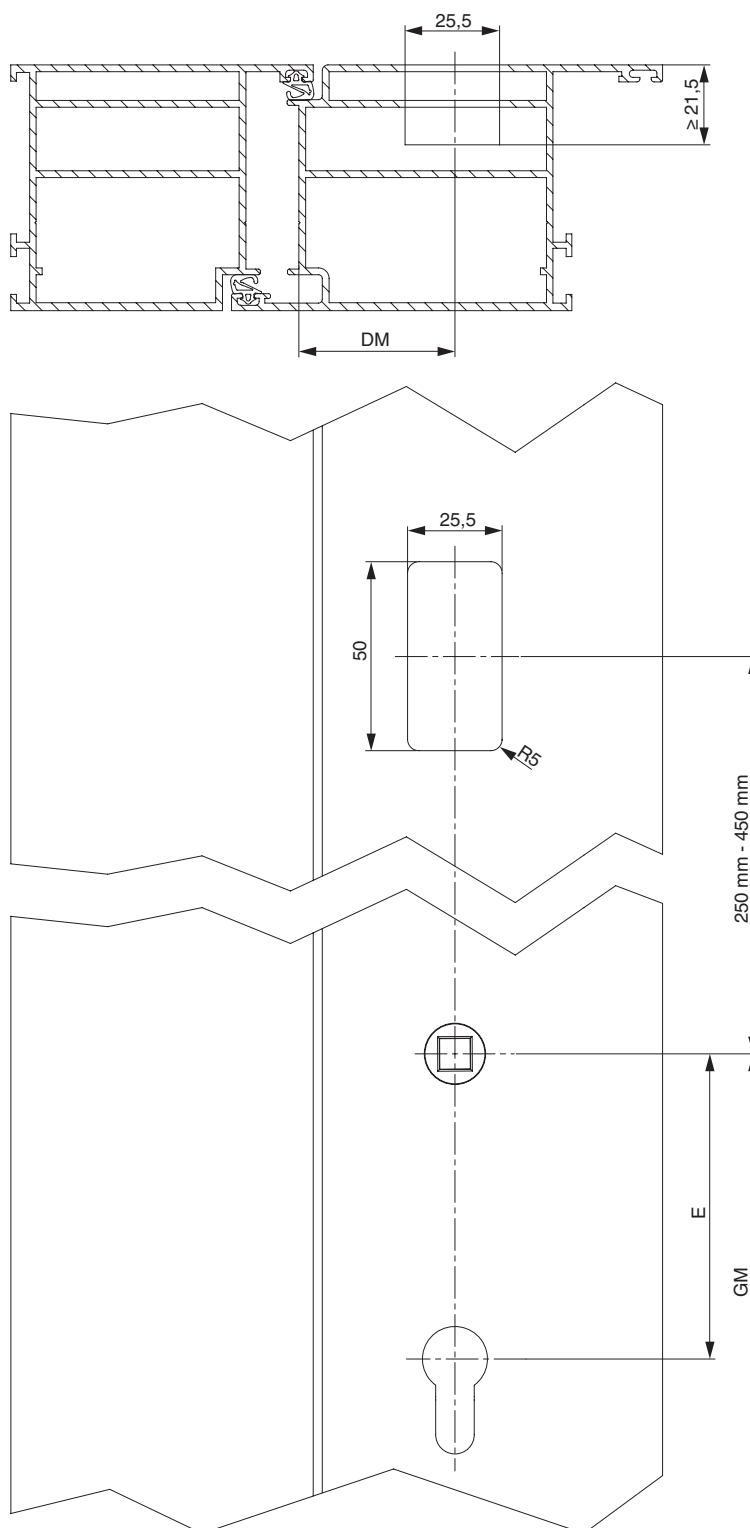
Access solutions & interfaces

Routing patterns Keypad / Touchkey



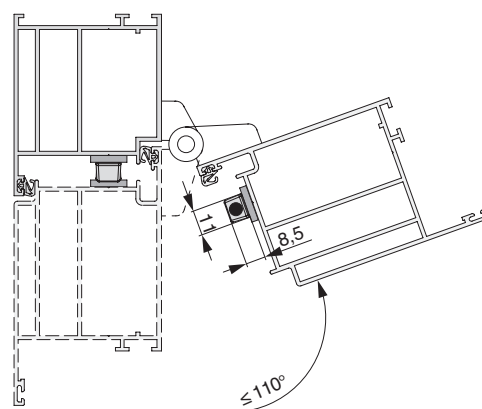
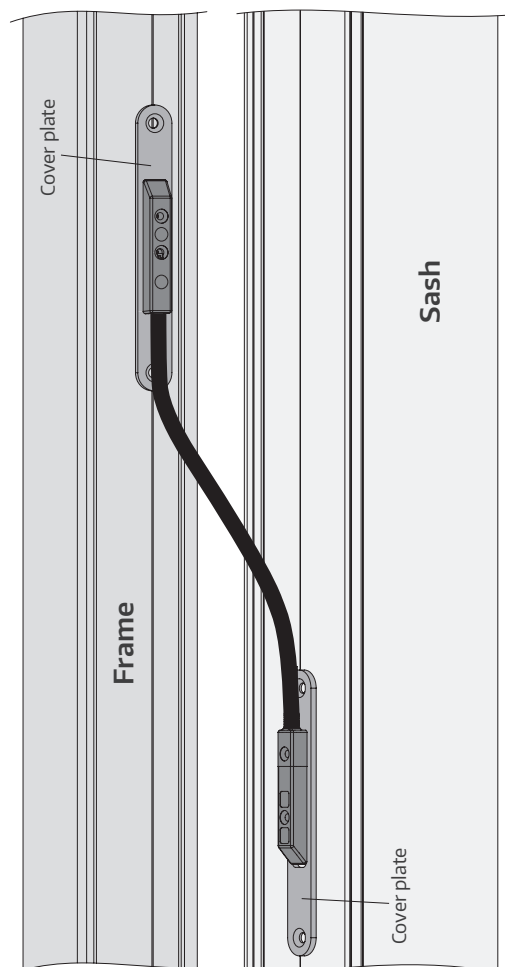
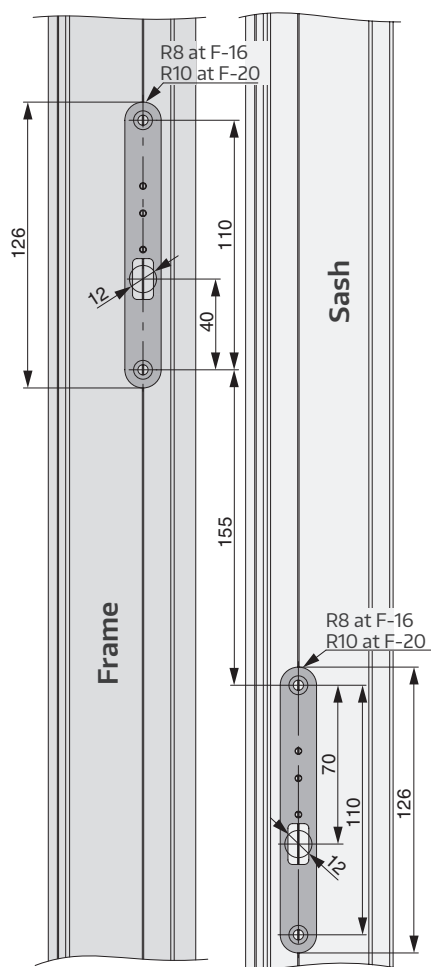
Access solutions & interfaces

Routing patterns Touchkey dLine



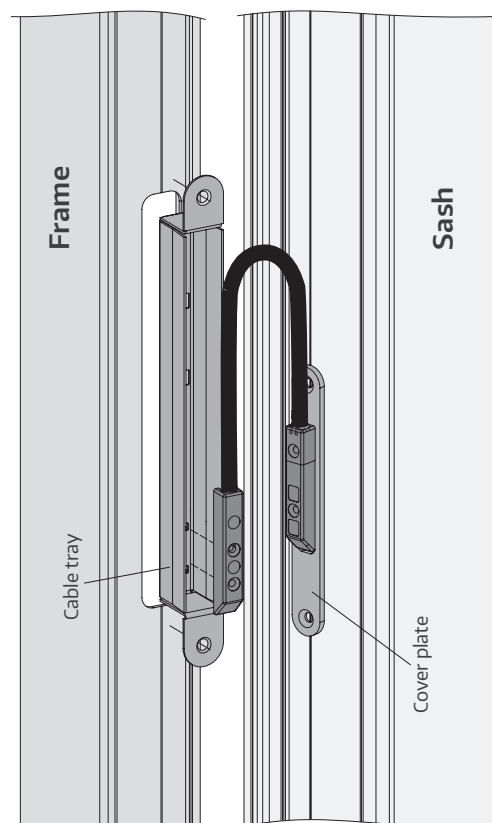
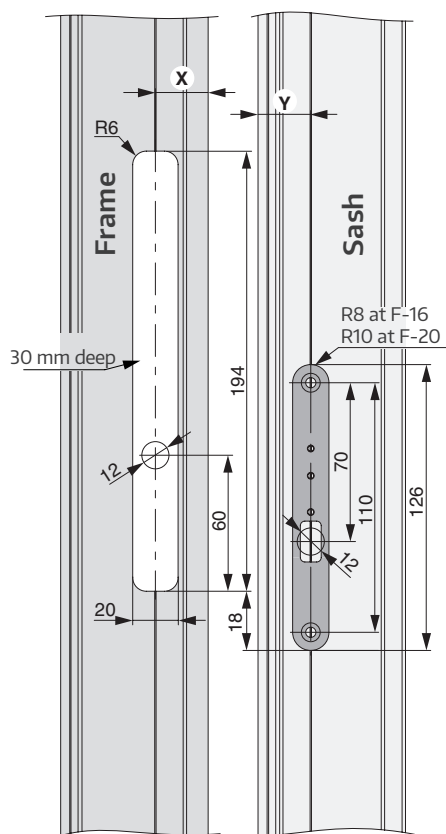
Access solutions & interfaces

Cable transition for opening angle $\leq 110^\circ$, 12 gap

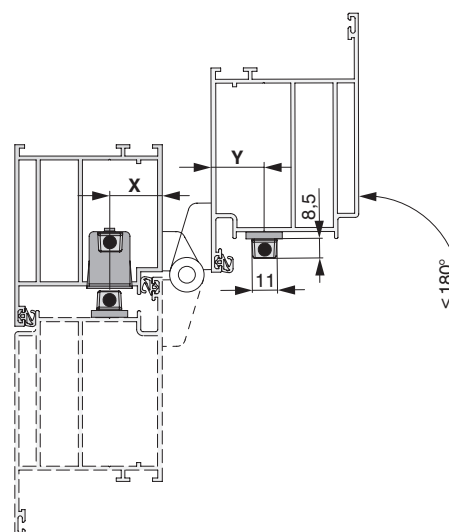


Access solutions & interfaces

Cable transition for opening angle $\leq 180^\circ$, 4 gap, 2 gap



Due to the various hinge options and the resulting turning axes, the position of the cable tray (dimension X) and the cover plate (dimension Y) must be determined independently!



Technical data M-TS Motor

Lock box dimensions (W x H x D)	15 x 327,8 x Backset dimension + 14,5 mm
Net weight	343 g (without lock box)
Rated voltage (SELV)	24 V DC +/- 5% (no AC)
Rated current	1 A (briefly max. 3 A)
Standby consumption	15,3 mA = 367 mW (no relay)
Operating temperature	-10 ... +55 °C
Air humidity	20 ... 80%, non-condensing
Storage temperature	-40 ... +85 °C
User groups	Private users, e.g. lay people, children
Usage environment	in covered and enclosed spaces
Application area	Industrial area: yes Residential area, business/commercial area, small businesses: yes
Inputs	1 potential-free input
Outputs	2 (max. 30 V DC max. 1 A resistive, galvanically isolated from each other and the supply)
Protection type	not specified
Certificate	CE
Duty cycle	DC 50%
Service life	200,000 cycles
Protection class	III (SELV)



Technical data Bluetooth module for A-TS + M-TS

Dimensions (W x H x D)	8,3 x 88,6 x 21,2 mm
Net weight	18 g
Cable length	approx. 300 mm
Frequency range	2,40 GHz ... 2,48 GHz
Rated voltage (SELV)	12 ... 24 V DC
Rated current	0,01 A
Standby consumption	approx. 0,11 W
Operating temperature	-10 ... +55 °C
Air humidity	≤95%, non-condensing
Storage temperature	-25 ... +70 °C
User groups	private users, e.g. lay people, children
Usage environment	in covered and enclosed spaces
Application area	Industrial sector: no Residential area, business/commercial area, small businesses: yes
Inputs	-
Outputs	1 potential-free output
Certificate	CE

Technical data UPS (uninterruptible power supply)

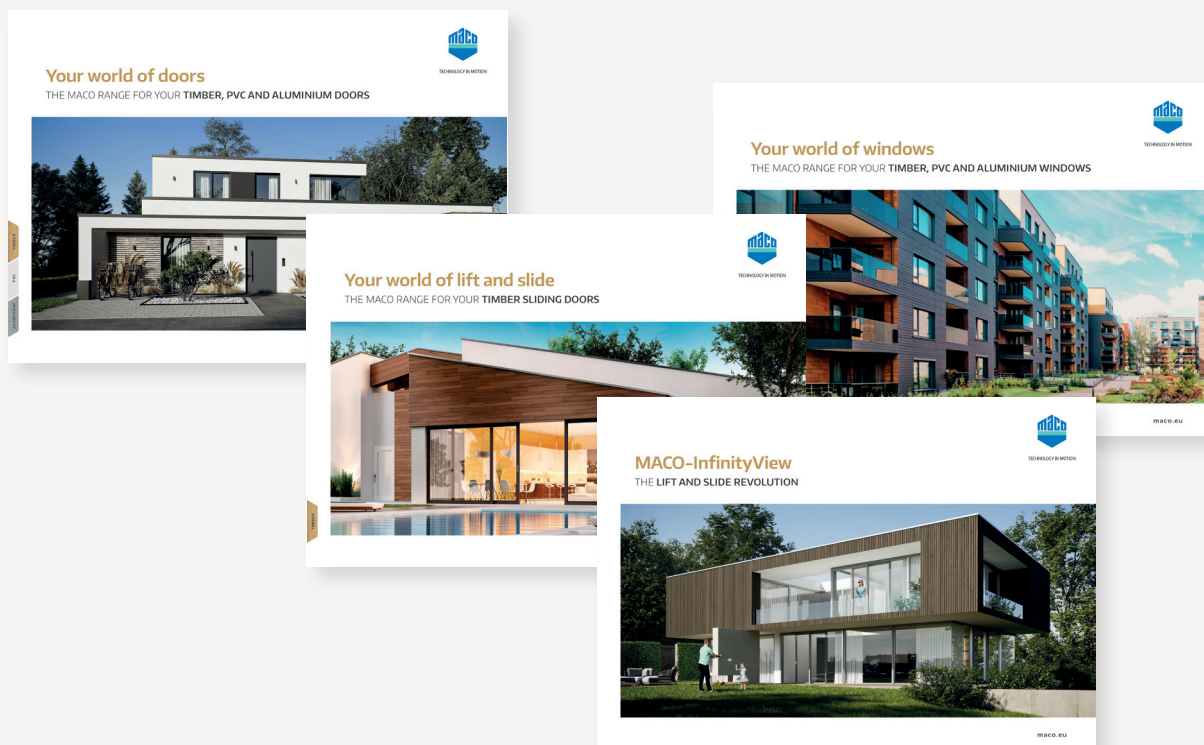
see installation instructions and UPS module data sheet, order no. 759528

Technical data Power supply

see installation instructions and data sheet power supplies 480276 and 480277, order no. 759529

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TECHNOLOGY IN MOTION



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