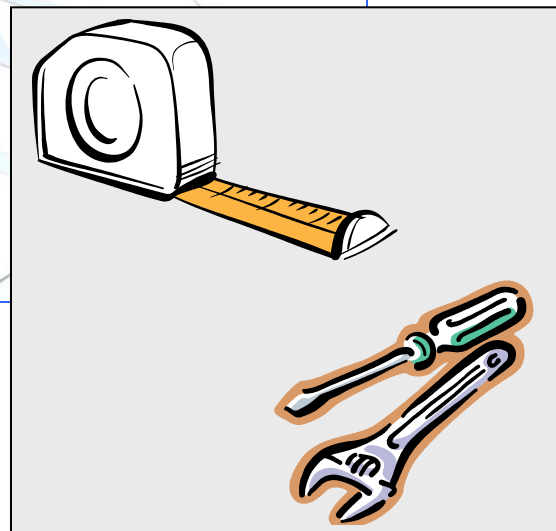
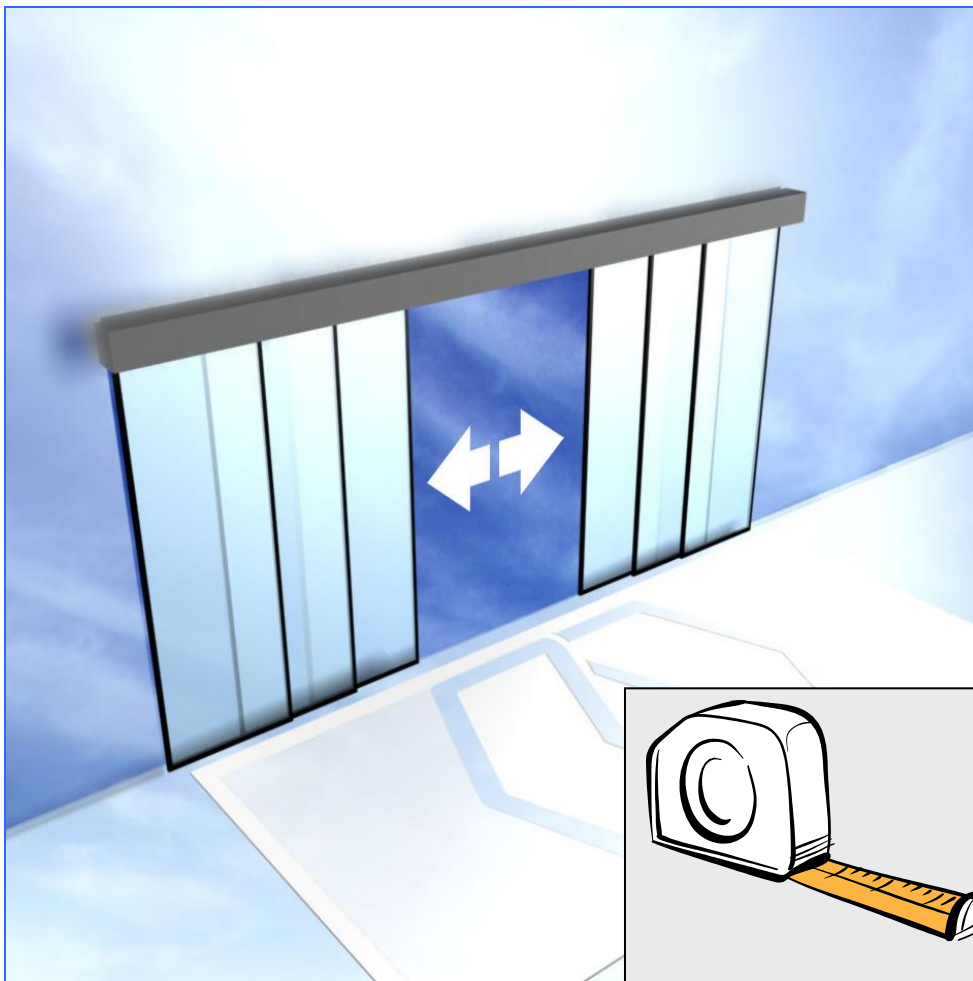


Installation and commissioning

Sliding door record system 20



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Product identification

For an exact identification please read the following data on the type plate, which is located on the rear side of the product:

Serial number	 Certified Management System  ISO 9001 Reg. No. 11069  Serial-Nr. SA472275 Typ STA-20 Production month/year 8/08  classification
Type	
Classification	

1	2	3	4	5	6	7	8
2, 4	3	2, 4	0	1, 2	1	1, 4	2

Document identification

Installation and commissioning system 20 en

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Foreword

For better readability only the masculine forms of pronouns are used in this document. Nevertheless, these instructions also apply for feminine specialists.

Goal and application field

These instructions describe the installation and commissioning of the record system 20 and are meant for all people who are in charge of these operations.

Please carefully read these instructions before installing and commissioning an automatic sliding door and observe all safety instructions.

Definitions

For improved readability of this document, the following terms are used:

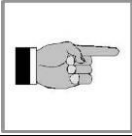
Term / abbreviation:	Explanation:
Product designation	Automatic door denotes the sliding door driving system, type STA 20, of the agtatec ag company, 8320 Fehraltorf, CH. Whenever these instructions refer to a specific type, it will be noted in the text.
Manufacturer	Manufacturer of the automatic door denotes the agtatec ag company, 8320 Fehraltorf, CH.
End-User	End-user of the automatic door refers to the owner, regardless whether he operates it himself or supplies it to a third party.
Staff	Staff denotes all the people who carry out any sort of activity on or with an automatic door at any of its life phases, and who qualify for these activities according to the manufacturer's criteria, which implies they are authorized.
Specialist	Specialist refers to all the persons who are authorized to carry out some specific activity on a sliding door installation, on the base of their training. Thus an electrician specialised in connecting the sliding doors to the mains is considered as a specialist.
Phases of life	Phases of life denote all the condition and use stages of the sliding door, from leaving the factory until disposal.

1. General remarks

These instructions are intended for the qualified and authorized fitters of the record system 20 automatic sliding door.

This product is subject to technical modifications, which could lead to discrepancies between product and instructions.

The following symbols are used for better comprehensibility of the text:

	NOTE	Especially useful details concerning installation.
	ATTENTION	Special details essential for the satisfactory operation of the system.
	CAUTION	A possibly dangerous situation, which could lead to light injury and material damage.
	WARNING	An imminent dangerous situation, which could lead to severe or fatal injury and cause extensive material damage.
	DANGER	An imminent dangerous situation, which could cause severe or fatal injury.
	ELECTRIC HAZARDS	A latent or imminent dangerous situation, which could cause an electric shock and thereby lead to severe or fatal injury.

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2. Safety instructions

The record STA/TSA 20 sliding door operator has been constructed with state of the art technology and recognised technical safety regulations. The record system 20 complies with the requirements of Machine Guideline 2006/42/EG as well as of DIN 18650.

Nevertheless, danger can arise if not used as intended.



ATTENTION

- Installation, maintenance and repairs to the record STA/TSA 20 must only be performed by qualified, trained and authorized technicians.
- A risk assessment is to be carried out for the whole installation.

2.1. Use for the intended purpose

The record STA/TSA 20 operator is designed exclusively for normal service with automatic pedestrian sliding doors in dry rooms and must be installed indoors or on the inner side of a building. It can also be mounted on the outer side, if the customer provides for a proper sealing and if technical data are observed.

Any other application or use beyond this purpose is not considered to be an intended purpose. The manufacturer bears no liability for any resulting damage; the operator alone shall bear the responsibility.

The intended purposes also include observation of the operating conditions specified by the manufacturer, in addition to regular care, maintenance and repair.

Unauthorized modifications to the automatic door will release the manufacturer from all liability for any resulting damage.

2.2. General safety and accident prevention regulations



WARNING

No safety devices (sensors) may be dismantled or placed out of use.



CAUTION

No persons or objects may be present in the opening area of the sliding door, in order to avoid squashing and cutting.



ATTENTION

The automatic pedestrian sliding door operator is *NOT* intended to be disconnected from the mains at night!

3. Preparations

3.1. List of tools

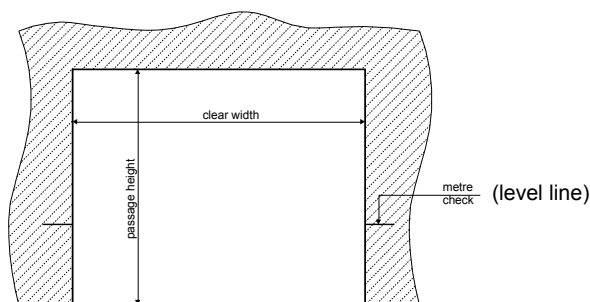
In order to work efficiently, the tools listed below are necessary/recommended:

- Levelling device
- Drilling machine with usual Ø bit + 11.5 and 13 Ø
- Hacksaw
- Battery-screwdriver
- Allen key no. 2, 3, 4 and 5
- Socket wrench no. 10 and 13
- Screwdriver no. 0 and 1
- Phillips-screwdriver no. 0 and 1
- Torx screwdriver no. T10, T20 and T25
- Spanner no. 8, 10 and 13
- Ratchet no. 10 and 13
- Soft face mallet
- Special Allen key for hinged casing (5 mm head)
- Pliers

3.2. Preliminary clarification on site

Verify the following issues according to the installation plans:

- Installation on lintel/wall
- Self-supporting/inline installation
- Ceiling installation
- With or without side screen
- Without cladding and without side screen (check how far from each other the ELS-profiles – i.e. the light beam profiles - must lie)
- With fanlight



- Check clear width (=A) and passage height (=G) on installation drawings
- Control fabric dimensions (height, width, level line)

- Check work provided by the client:
 - Control electrical connections
 - Take finish of wall surface into account
- Choose convenient fixing material according to sub-surface
- Check floor level (with levelling device)
- In case of a floor track, check position
- Mark header position
- Mark door centre
- Control height of header (108 mm or 150 mm)

3.3. Order of installation

As a general rule, installation unfolds from top to bottom. The floor, which must first be controlled, serves as reference.

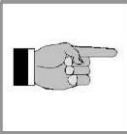
In the case of a floor track, the reference must first be created, which means that the exact positioning of the floor track is crucial to the later installation of the door.

3.4. Determining position of exterior sensor (AKA)

Depending on the positioning of the exterior sensor and the possible cable routing, some adjustment will be necessary. This should be planned during the installation, in order to avoid time-consuming subsequent work.

4. Technical data

4.1. STA

Construction basic data		Line of products 20		Line of products 21
		Standard	DUO/RED	Standard (1)
Opening width A (mm)	D-STA E-STA	800 - 3000		800 – 2500 800 – 2000
Clear passage height G (mm)	Recom- mended max. size	3000		2500
Max. authorized door weight (kg)	D-STA	2 x 120	2 x 150	2 x 75
	E-STA	1 x 150	1 x 150	1 x 120
 NOTE 3 carriages per leaf required, when door leaf weight > 90 kg 4 carriages per leaf required, when door leaf weight > 125 kg				
Door opening speed (for max. 75% of authorized door weight)	D-STA	0.7 m in 1 second		
	E-STA	0.7 m in 1.5 second		

Power supply data		
Mains voltage	100-240 VAC 50/60 Hz	200-240 VAC 50/60 Hz
Rated power	90 watts	85 watts
Fuse protection	3.15 amps	
Standby power consumption (including sensors, control unit and locking device)	approx. 25 watts	

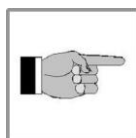
(1) no DUO/RED application with line of products 21!

Dimensions, including casing (see general plans)

Height of operator casing	150 mm / 108 mm
Depth of construction (with/without cladding)	182 mm / 145 mm

Environmental conditions

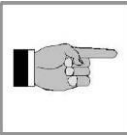
Temperature range	-15° to +50° C
Humidity range	up to 85% relative humidity, non-condensating



Admissible load for a self-supporting installation

Reference values for bearing capacity of a self-supporting installation are to be found in chapter 6 *Self-supporting installation*.

4.2. TSA

Construction basic data		Line of products 20		Line of products 21
		Standard	DUO/RED	Standard (1)
Opening width A (mm)	D-TSA	1440 - 4000		1440 - 3000
	E-TSA	800 - 3000		800 - 2500
Clear passage height G (mm)	Recom- mended max. size	3000		2500
Max. authorized door weight (kg)	D-TSA	4 x 80	4 x 90	4 x 50
	E-TSA	2 x 90	2 x 150	2 x 80
 NOTE • 3 carriages per leaf required, when door leaf weight > 90 kg • 4 carriages per leaf required, when door leaf weight > 125 kg				
Door opening speed (for max. 75% of authorized door weight)	D-TSA	0.7 m in 1 second		
	E-TSA	0.7 m in 1.5 second		

Power supply data		
Mains voltage	100-240 VAC 50/60 Hz	200-240 VAC 50/60 Hz
Rated power	90 watts	85 watts
Fuse protection	3.15 amps	
Standby power consumption (including sensors, control unit and locking device)	approx. 25 watts	

(1) no DUO/RED application with line of products 21!

Dimensions, including casing (see general plans)

Height of operator casing	150 mm / 108 mm
Depth of construction (with/without cladding)	247 mm / 210 mm

Environmental conditions

Temperature range	-15° to +50° C
Humidity range	up to 85% relative humidity, non-condensating

4.3. TOS

Construction basic data		Line of products 20 (1)
Opening width A (mm)	D-TOS	800 – 2500
Clear passage height G (mm)	Authorized max. size	2500
Max. authorized door weight (kg)	D-TOS	2 x 120
Door opening speed (for max. 75% of authorized door weight)	D-TOS	0.7 m in 1 second

Power supply data	
Mains voltage	100-240 VAC 50/60 Hz
Rated power	90 watts
Fuse protection	3.15 amps
Standby power consumption (including sensors, control unit and locking device)	approx. 25 watts

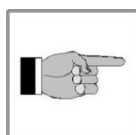
(1) no TOS application with line of products 21!

Dimensions, including casing (see general plans)

Height of operator casing	150 mm
Depth of construction (with/without casing)	182 mm

Environmental conditions

Temperature range	-15° to +50° C
Humidity range	up to 85% relative humidity, non-condensating



Escape route

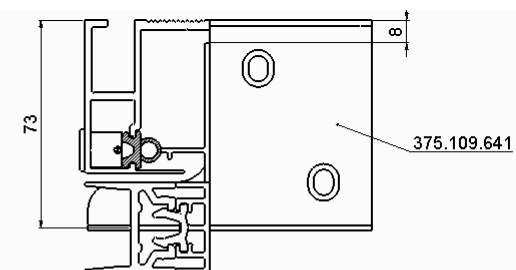
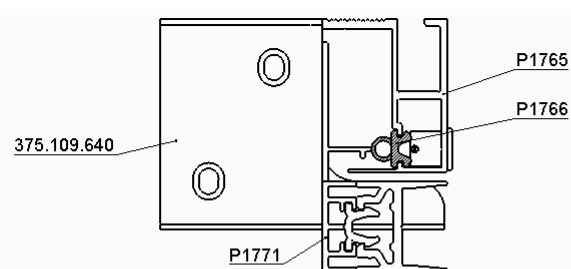
Only the implementation on escape route will be treated in these instructions.
The necessary surveillance of door wings and lateral wings requires an operator height of 150 mm.

5. General plans

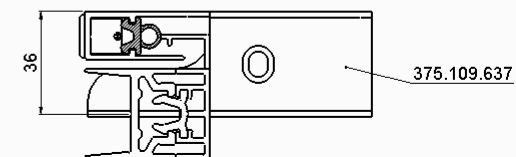
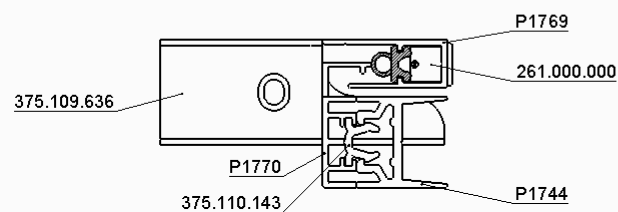
5.1. D-STa – 32 mm profile system

5.1.1. ALUMINIUM finishing profile - 32 mm

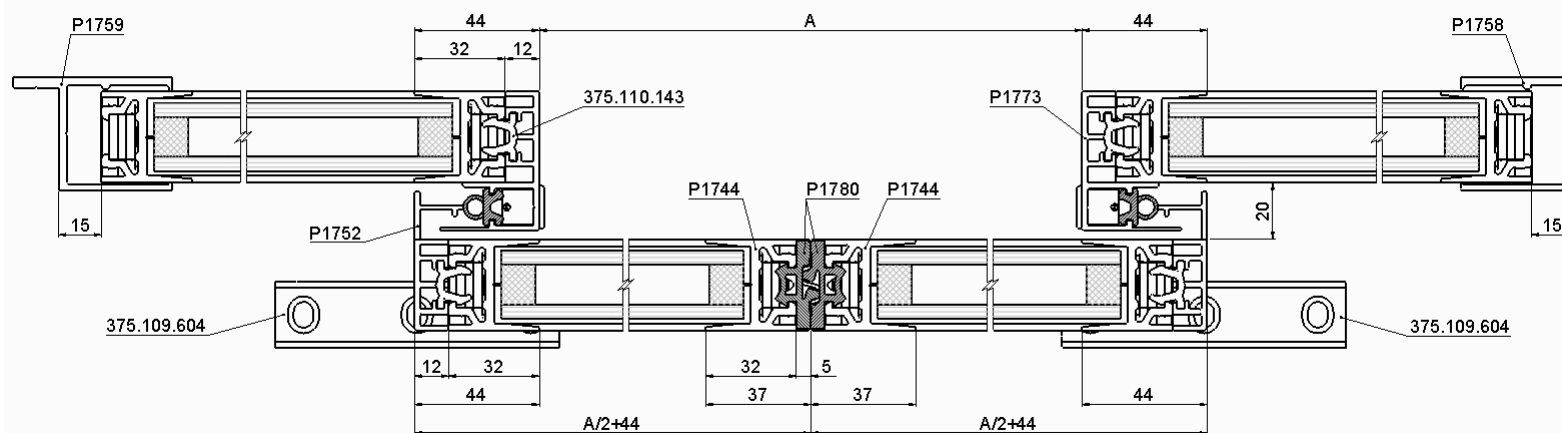
WITH cladding
WITHOUT side
screen



WITHOUT cladding

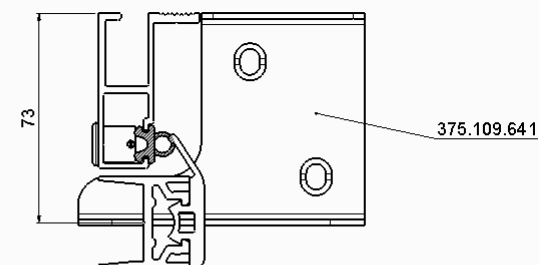
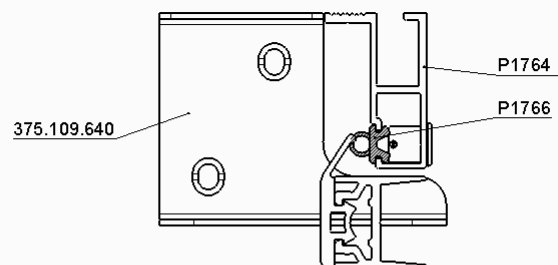


WITH side screen
and cladding

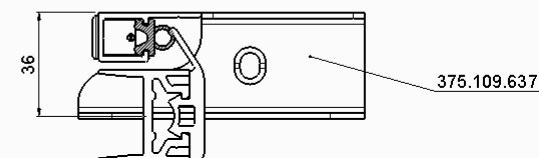
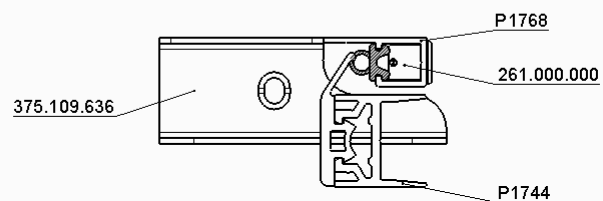


5.1.2. RUBBER finishing profile - 32 mm

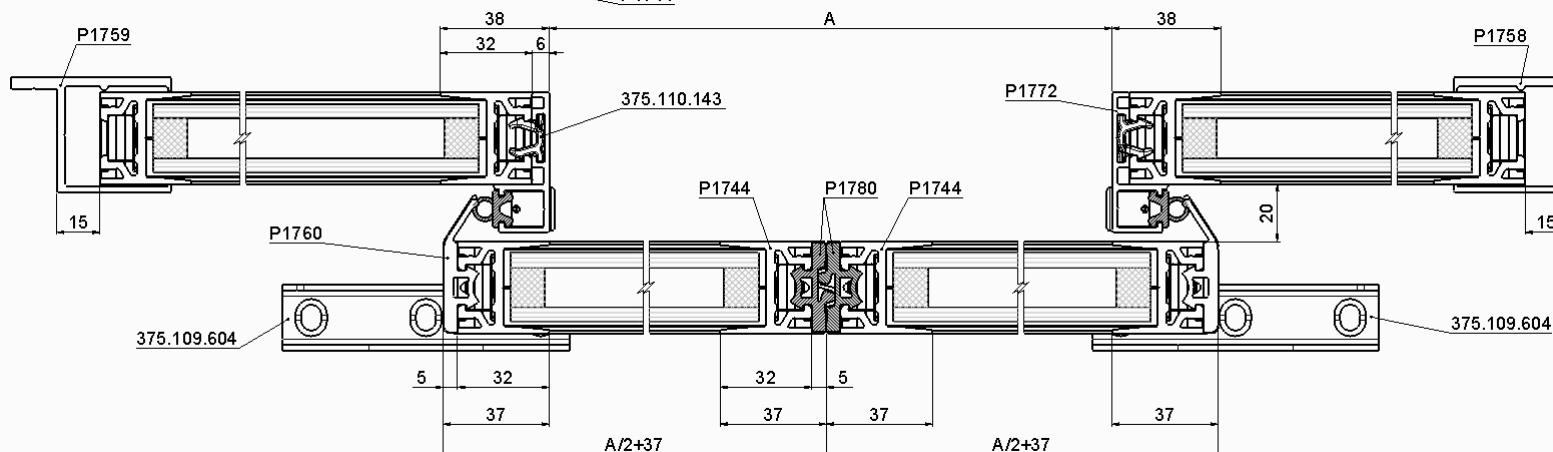
**WITH cladding
WITHOUT side
screen**



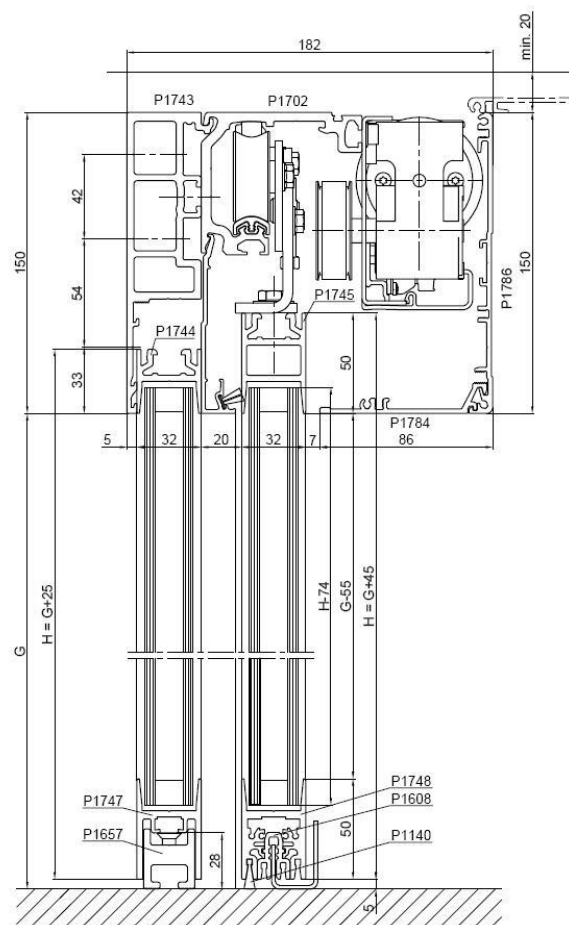
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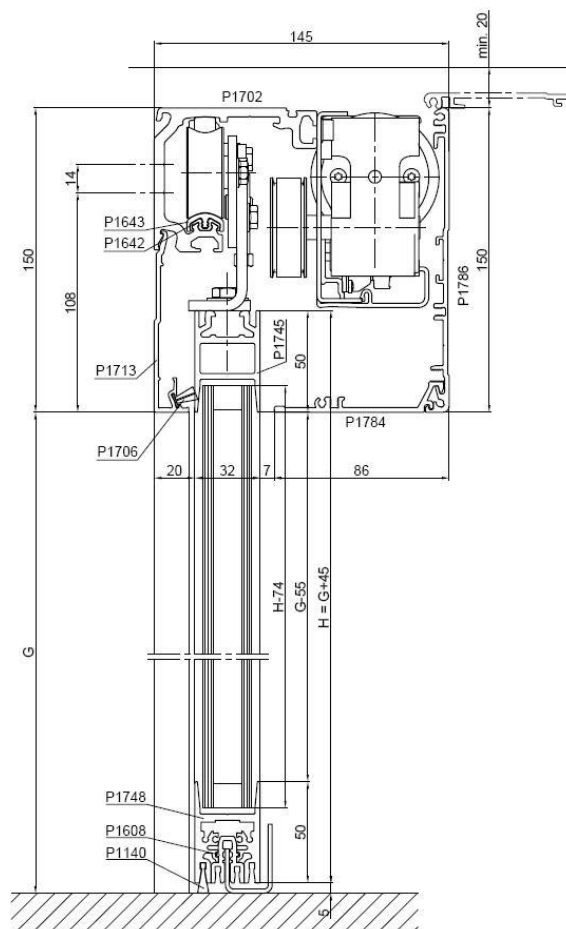
**WITH side screen
and cladding**



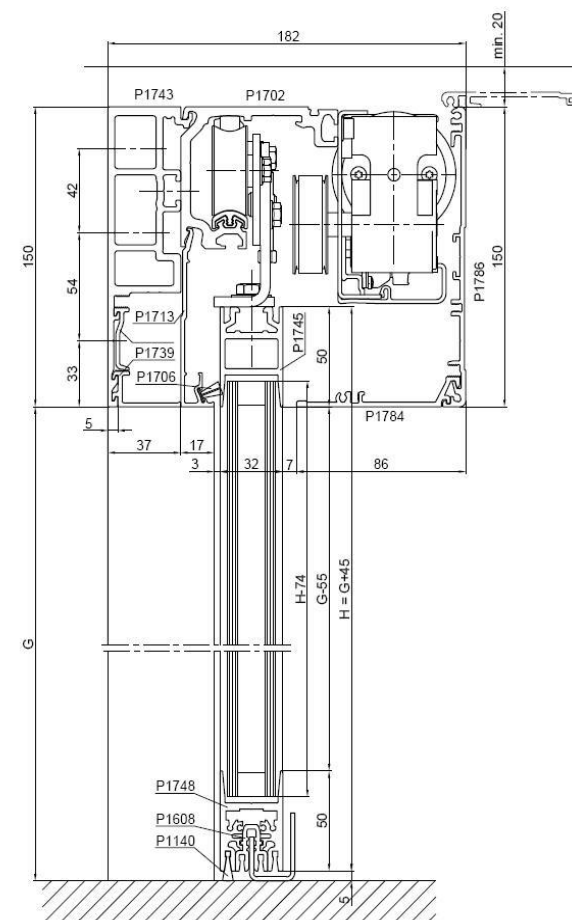
5.1.3. Vertical cross sections – 32 / 150 mm



WITH side screen and cladding



WITHOUT cladding

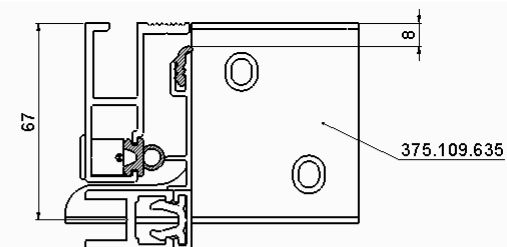
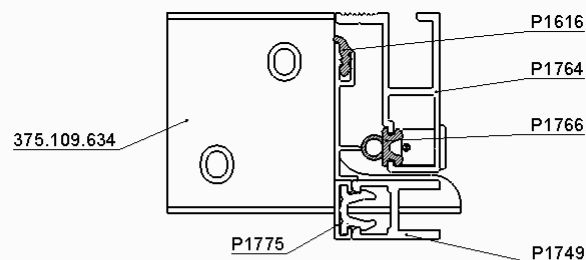


WITH cladding – WITHOUT side screen

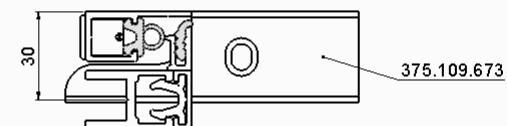
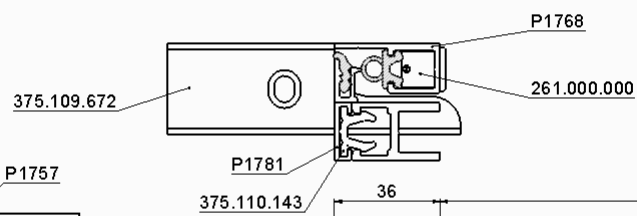
5.2. D-STa – 20 mm profile system

5.2.1. ALUMINIUM finishing profile – 20 mm

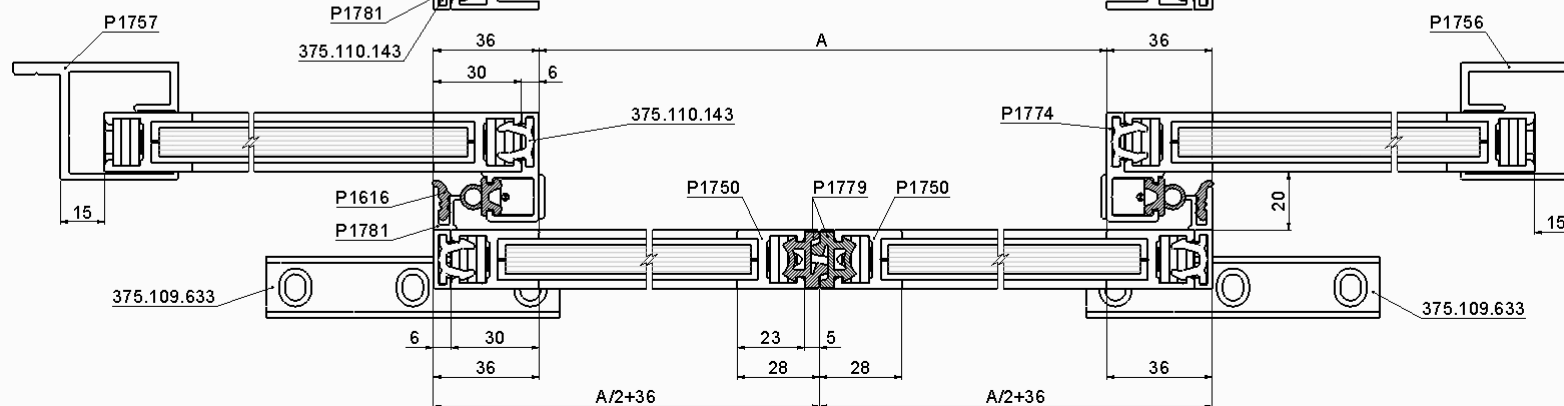
WITH cladding



WITHOUT cladding

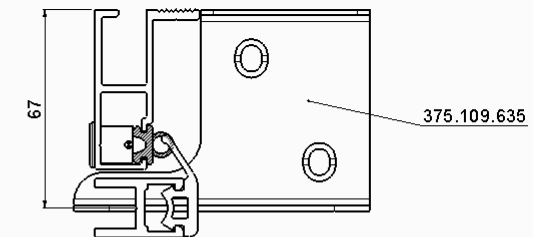
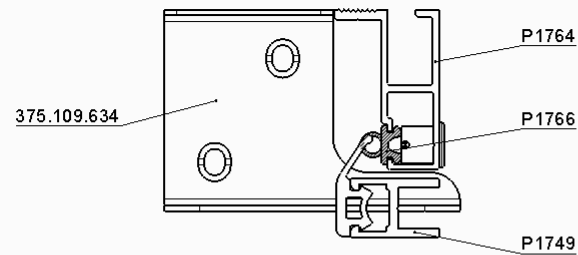


WITH side screen
and cladding

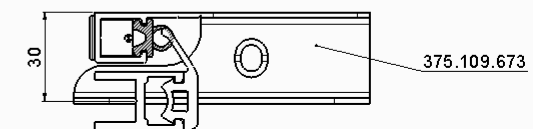
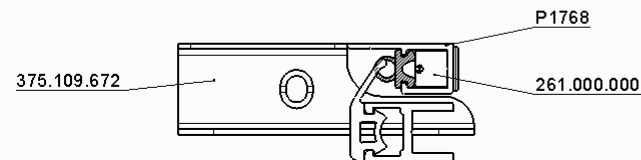


5.2.2. RUBBER finishing profile – 20 mm

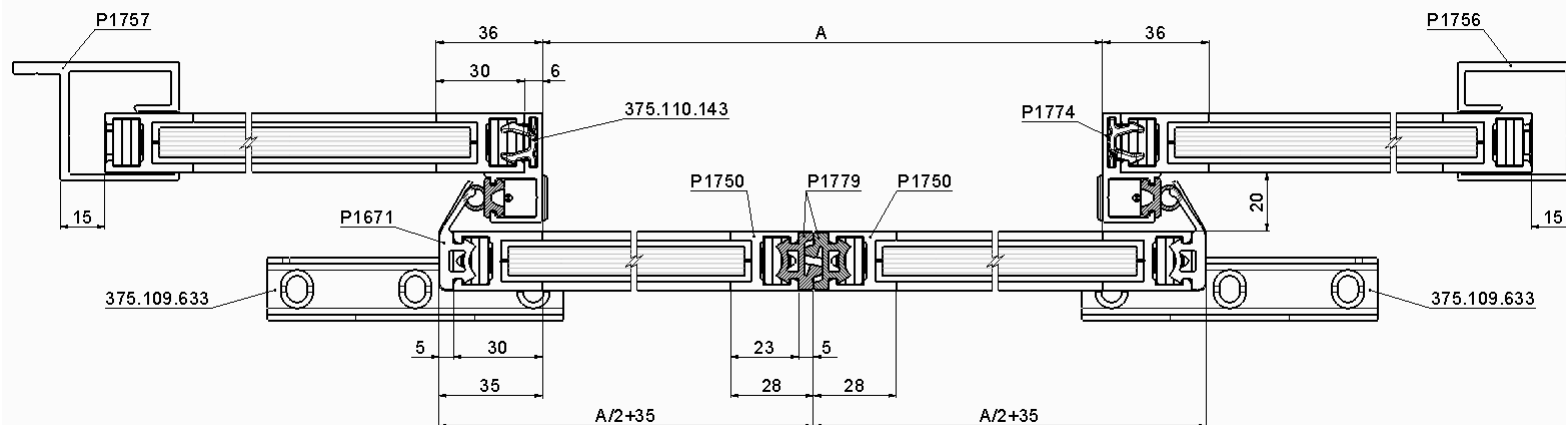
WITH cladding



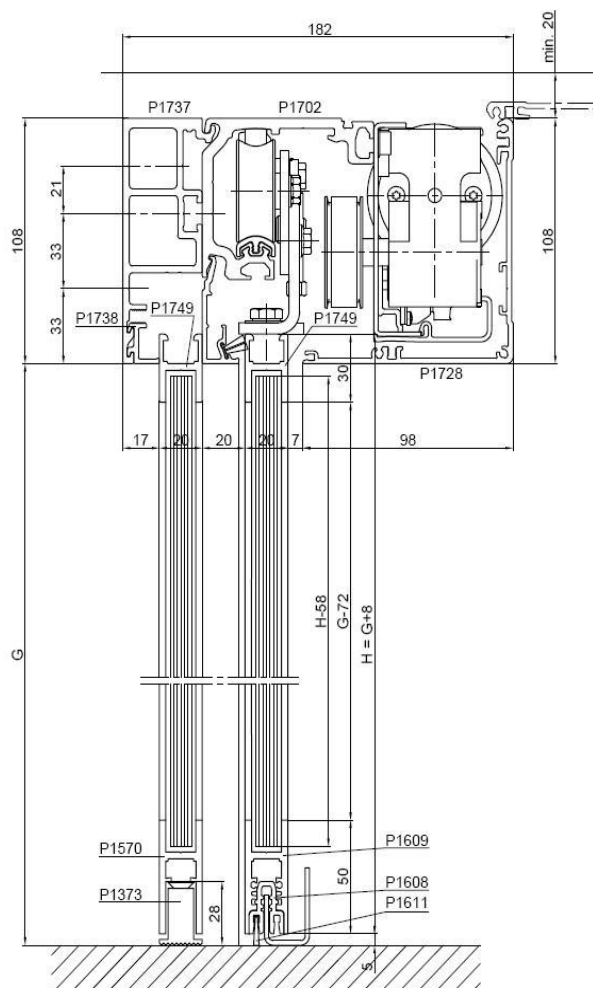
WITHOUT cladding



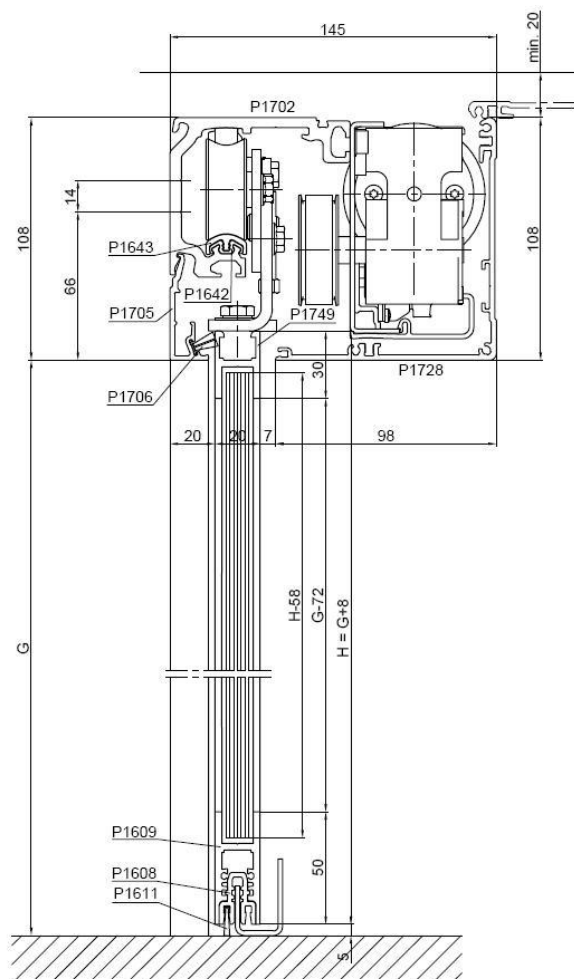
WITH side screen and cladding



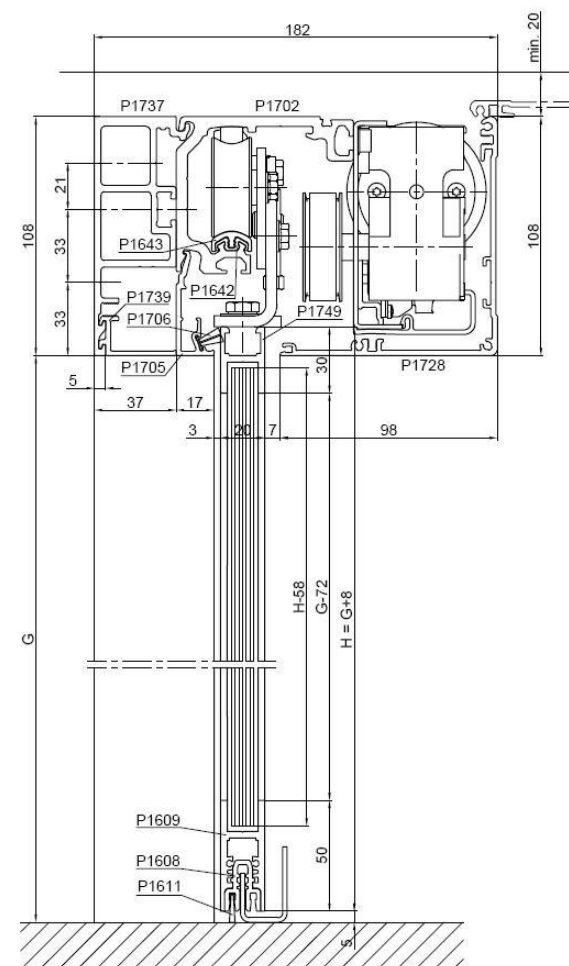
5.2.3. Vertical cross sections – 20 / 108 mm



WITH side screen and cladding



WITHOUT cladding

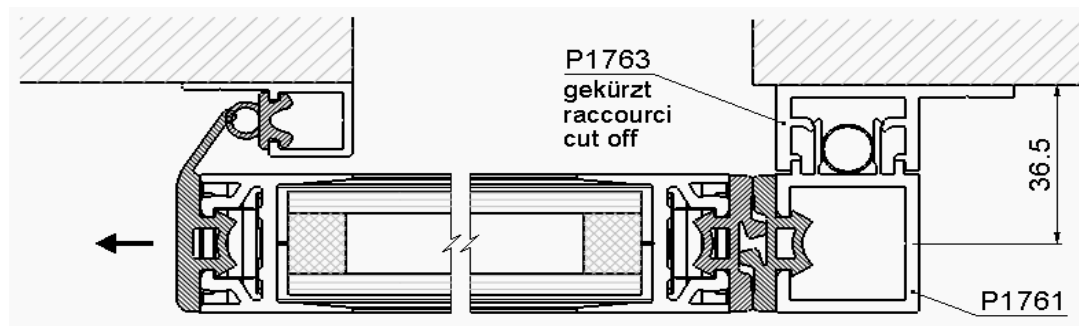


WITH cladding – WITHOUT side screen

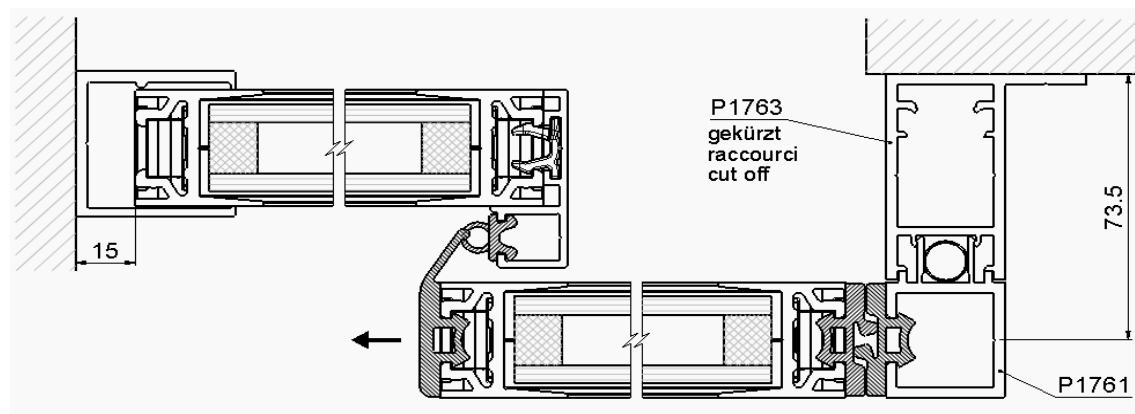
5.3. E-STA – closing profile details

5.3.1. Profile system 32

WITHOUT cladding



WITH cladding
and side screen

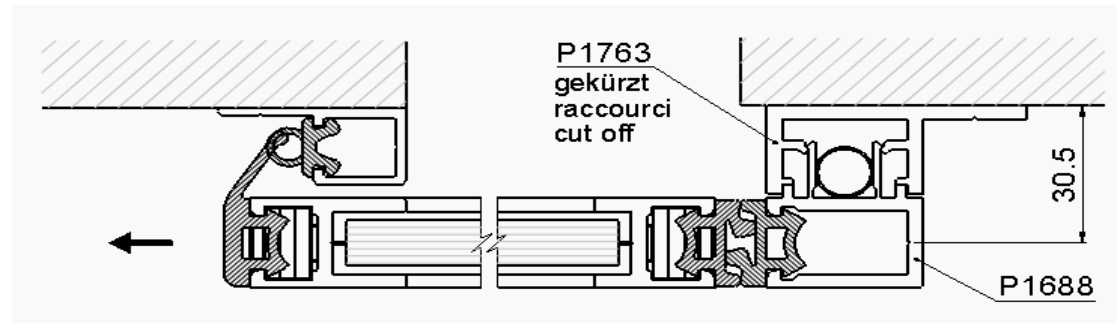


ATTENTION

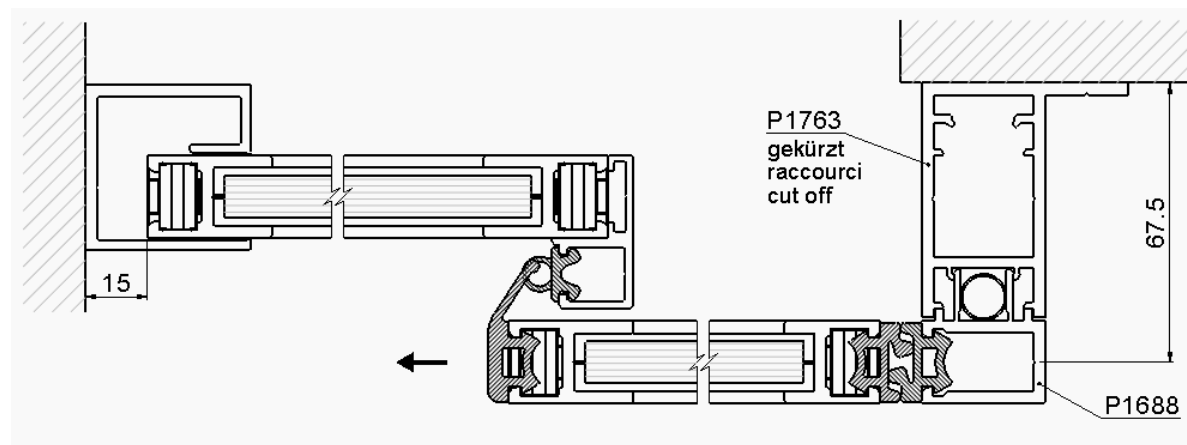
- In the event of a single leaf installation take care that the main closing profile is NOT used as an end stop!
- The closing forces shall be limited by the mechanical end stop integrated in the drive!

5.3.2. Profile system 20

WITHOUT cladding



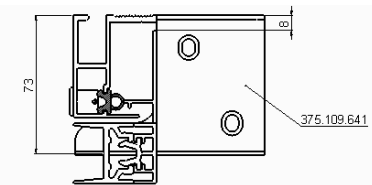
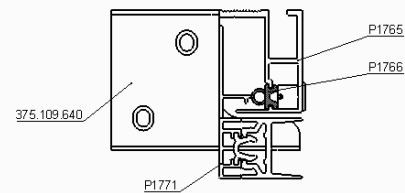
**WITH cladding
and side screen**



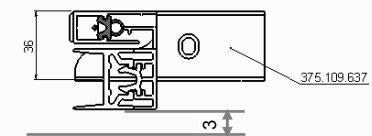
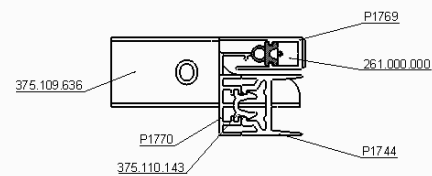
5.4. D-TSA – 32 mm profile system

5.4.1. ALUMINIUM finishing profile – 32 mm

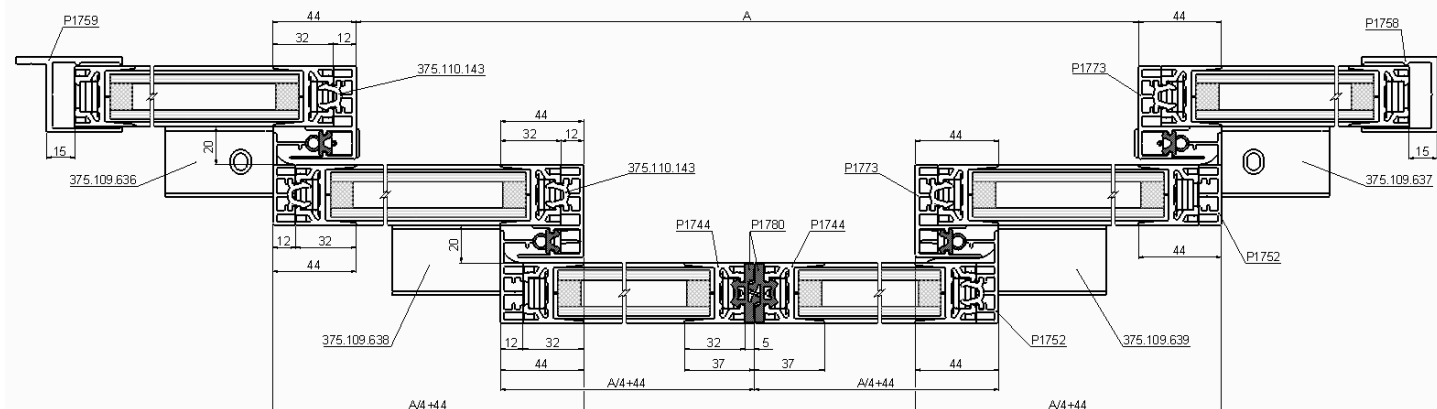
WITH cladding
WITHOUT side screen



WITHOUT cladding

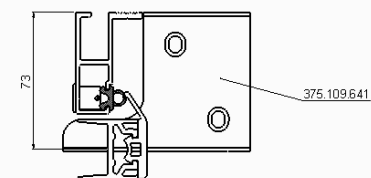
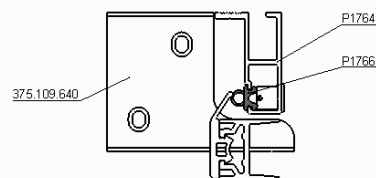


**WITH side screen
and cladding**

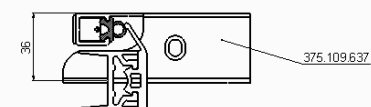
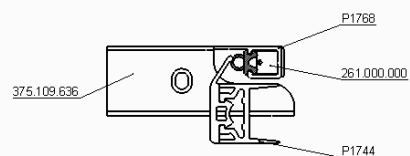


5.4.2. RUBBER finishing profile – 32 mm

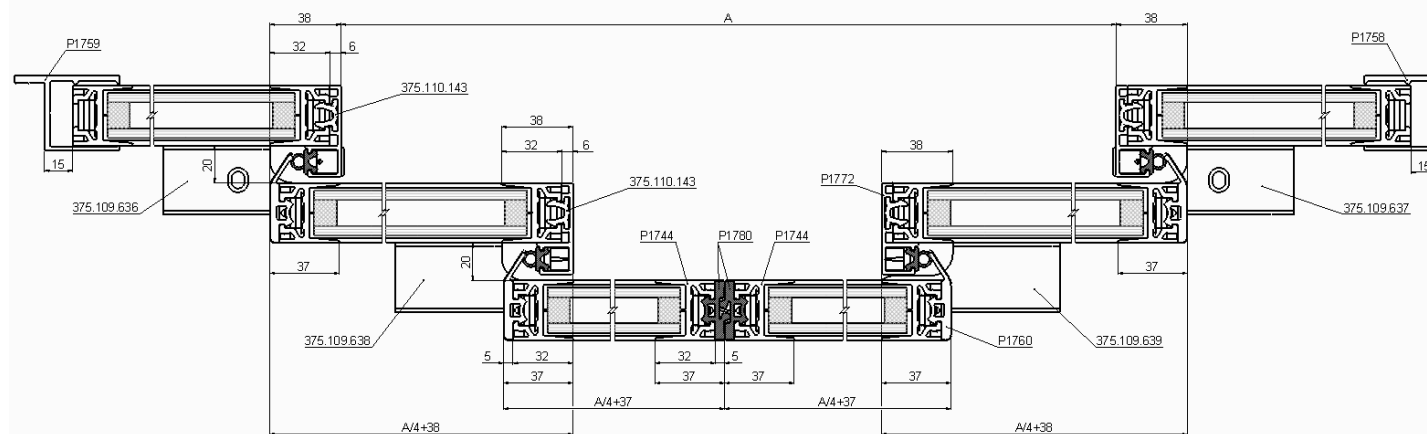
**WITH cladding
WITHOUT side screen**



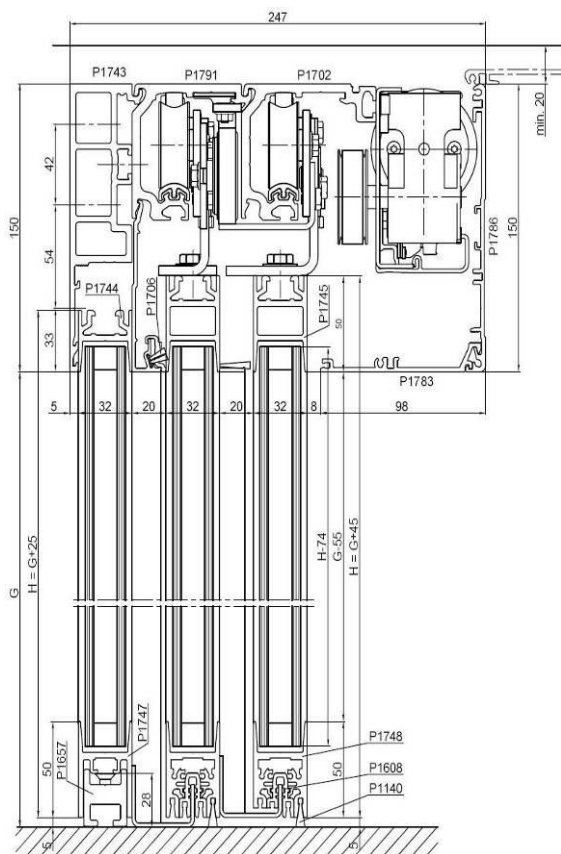
WITHOUT cladding



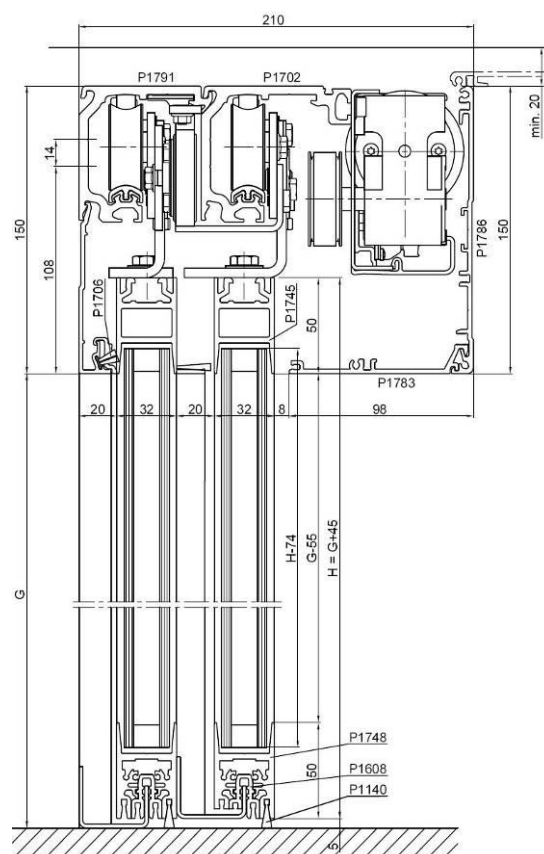
WITH side screen



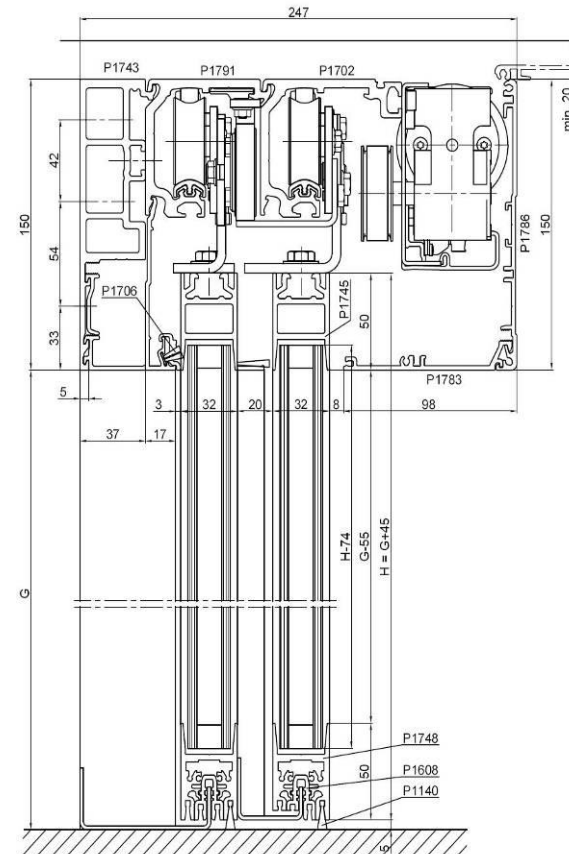
5.4.3. Vertical cross-sections – TSA with door leaf guides – 32 / 150 mm



WITH side screen and cladding



WITHOUT cladding



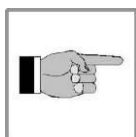
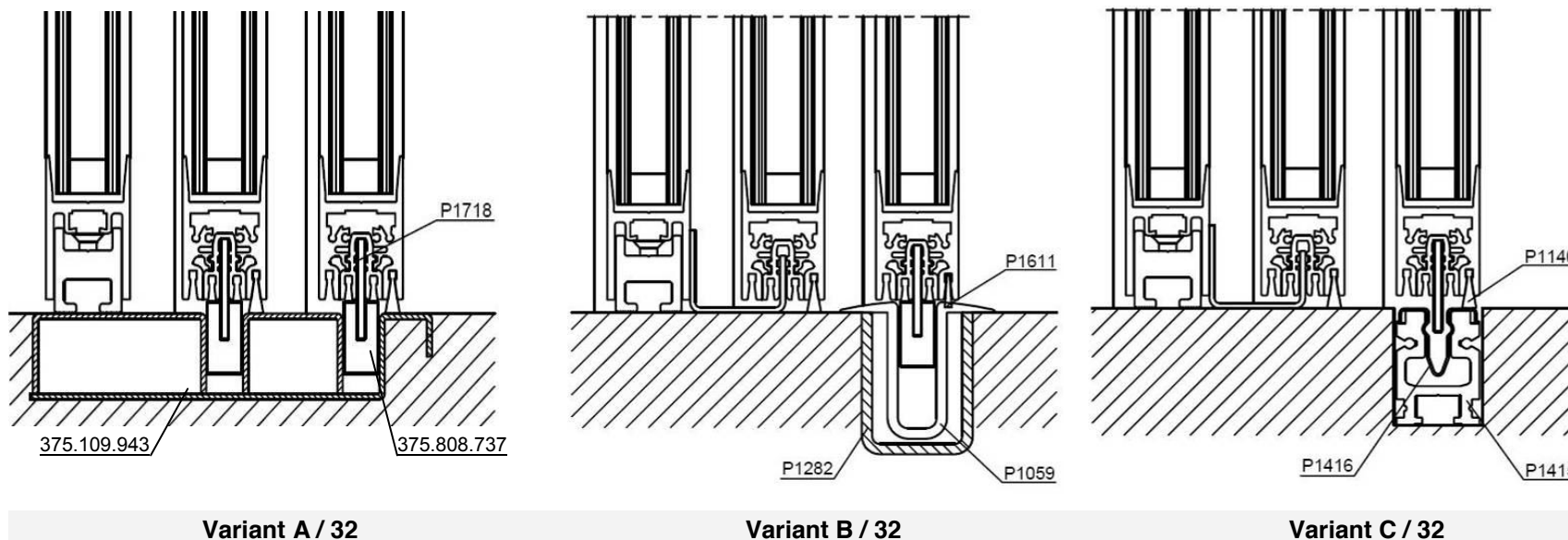
WITH cladding – WITHOUT side screen



ATTENTION

To improve anti-burglary protection it is recommended to install an inbuilt floor track on exterior doors!

5.4.4. Inbuilt floor tracks – optional versions – profile system 32



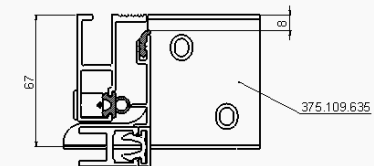
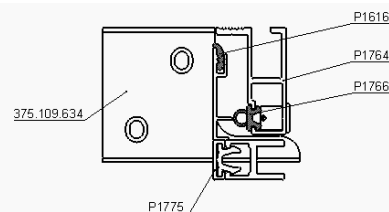
NOTE

- Every variant shown above is available in different combinations according to customer's requirements.
- In this regard we refer you to relevant project plans.
- In the event of problems when spacing the door leaves, the eccentric sliding elements (375.110.488) can be helpful in variants A and B.

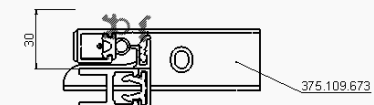
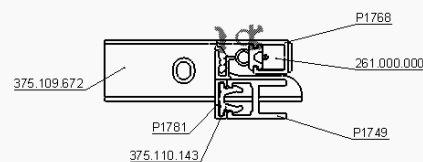
5.5. D-TSA – profile system 20 mm

5.5.1. ALUMINIUM finishing profile - 20 mm

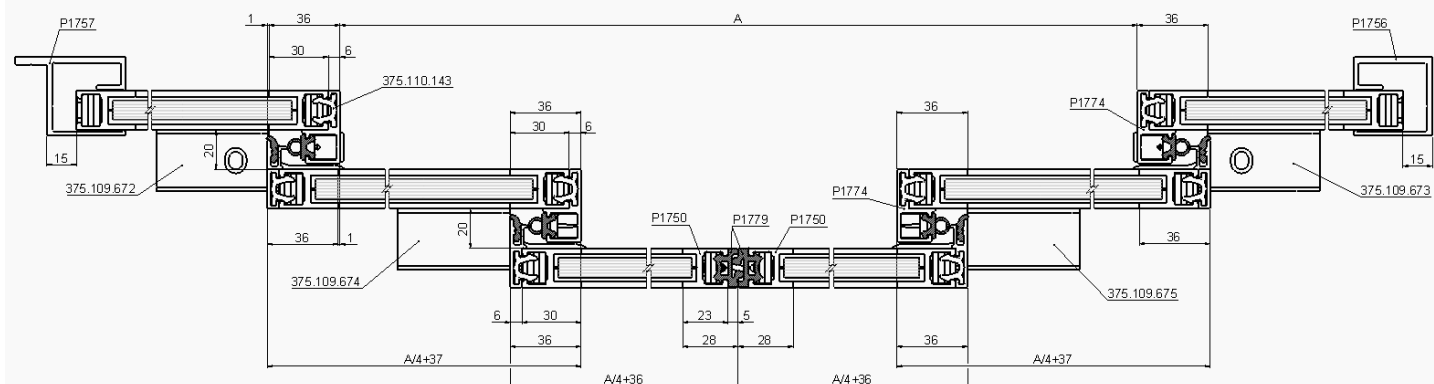
WITH cladding
WITHOUT side screen



WITHOUT cladding

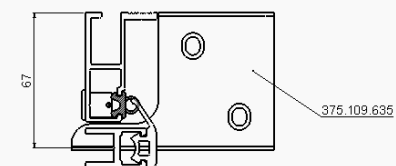
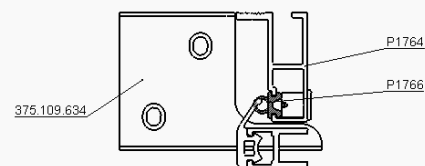


WITH side screen

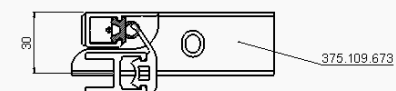
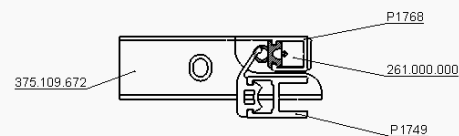


5.5.2. RUBBER finishing profile – 20 mm

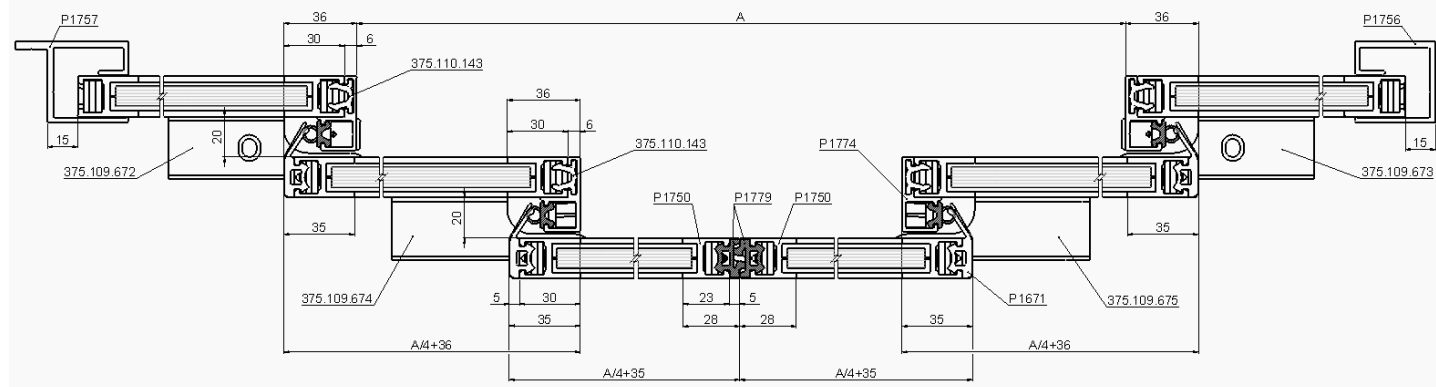
**WITH cladding
WITHOUT side screen**



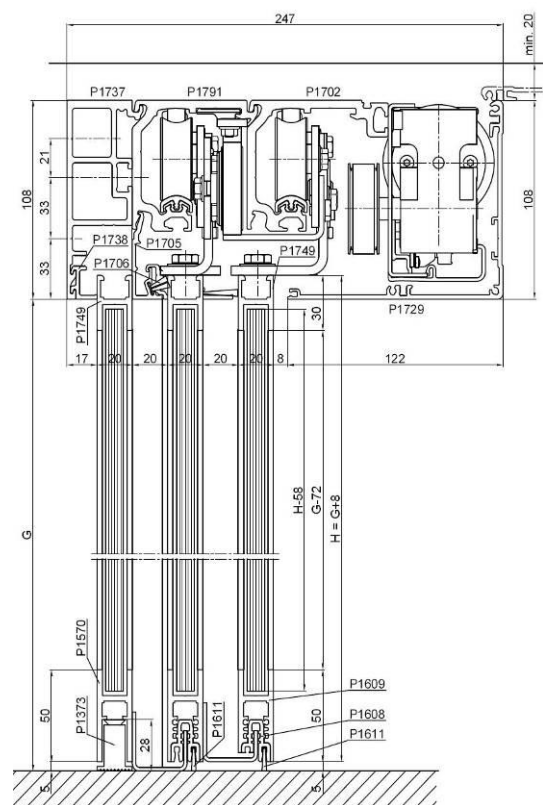
WITHOUT cladding



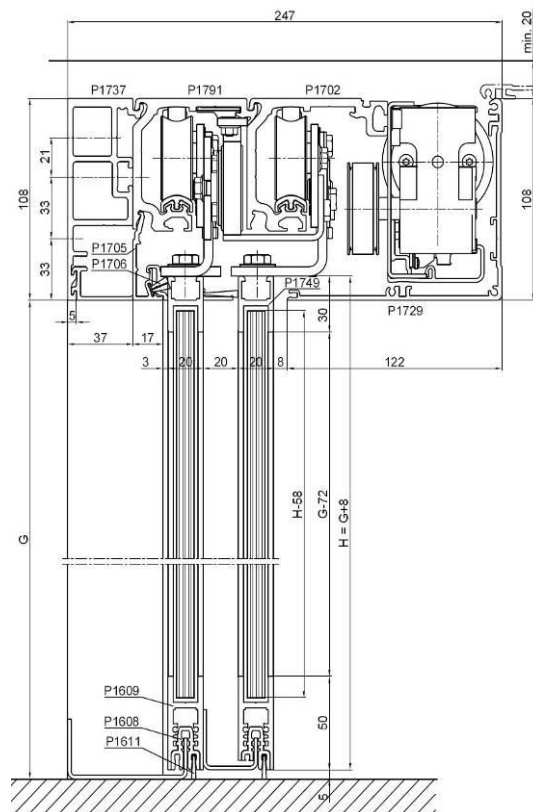
WITH side screen



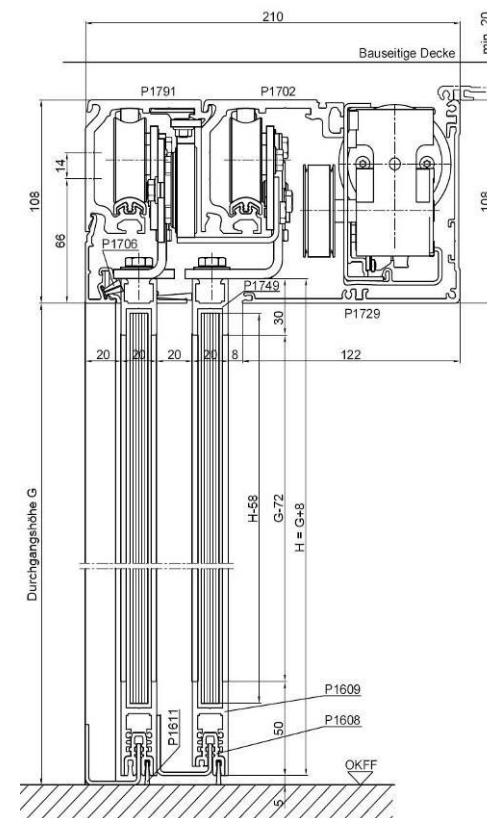
5.5.3. Vertical cross-sections - TSA with door leaf guide – 20 / 108 mm



WITH side screen and cladding



WITHOUT cladding



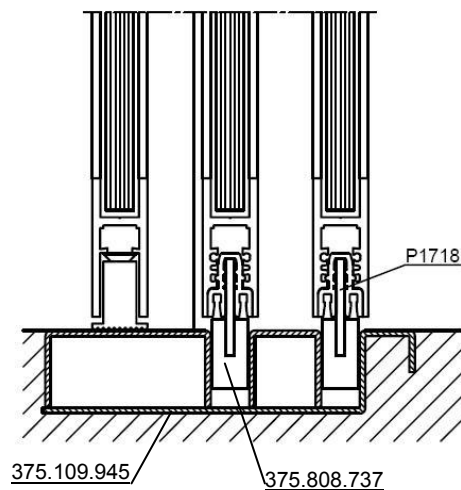
WITH cladding – WITHOUT side screen



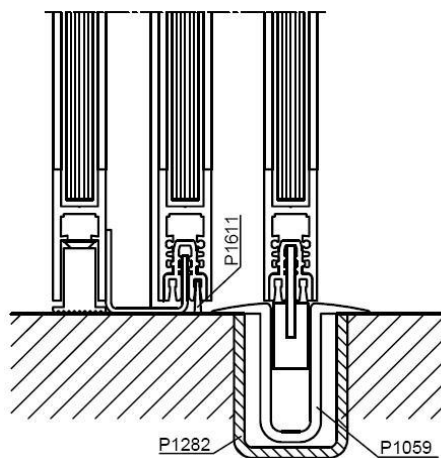
ATTENTION

To improve anti-burglary protection it is recommended to install an inbuilt floor track on exterior doors!

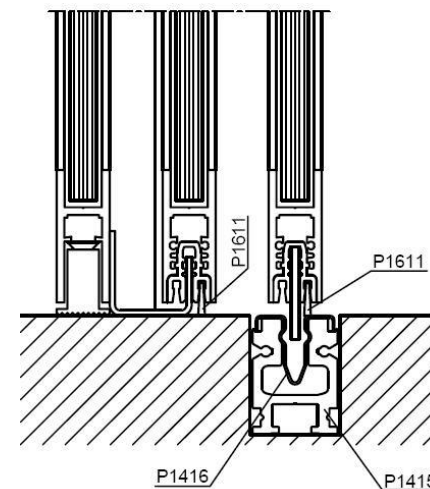
5.5.4. Inbuilt floor tracks – optional versions – profile system 20



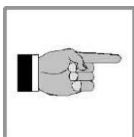
Variant A / 20



Variant B / 20



Variant C / 20



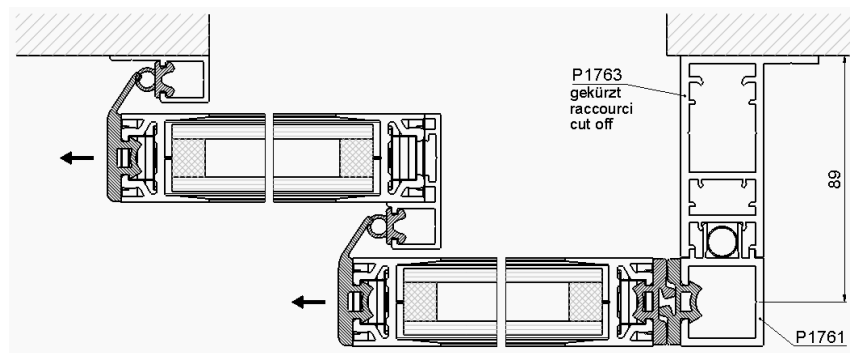
NOTE

- Every variant shown above is available in different combinations according to customer's requirements.
- In this regard we refer you to relevant project plans.
- In the event of problems with the spacing of the door leaves, the eccentric sliding elements (375.110.488) can be helpful in variants A and B.

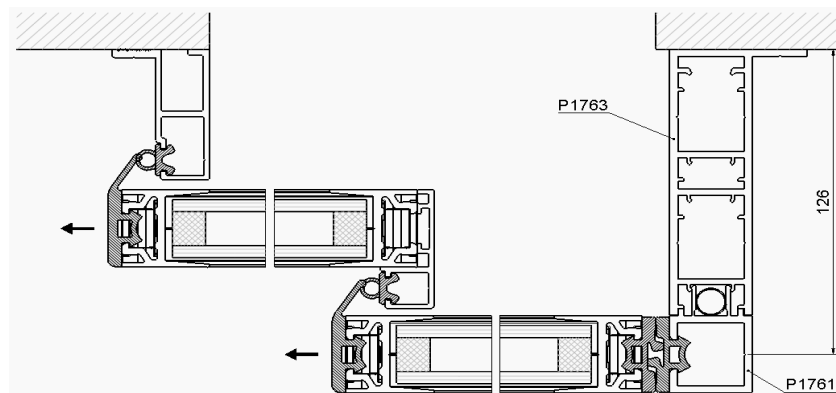
5.6. E-TSA – closing profile details

5.6.1. Profile system 32

WITHOUT cladding



WITH cladding
and side screen

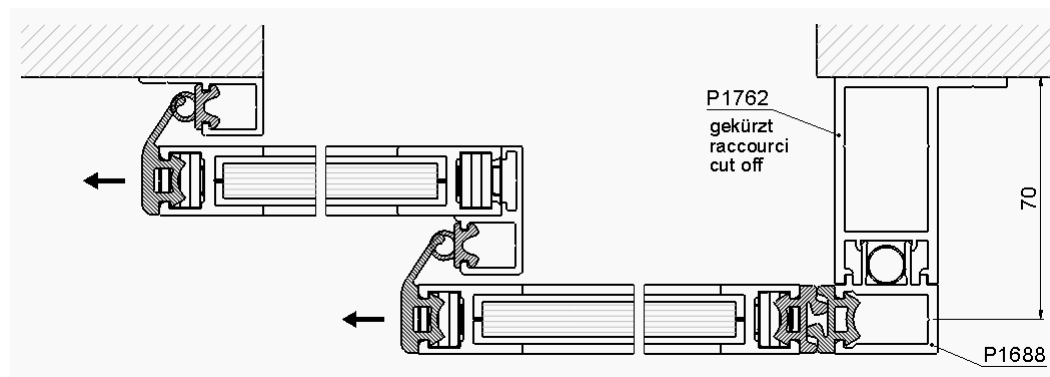


ATTENTION

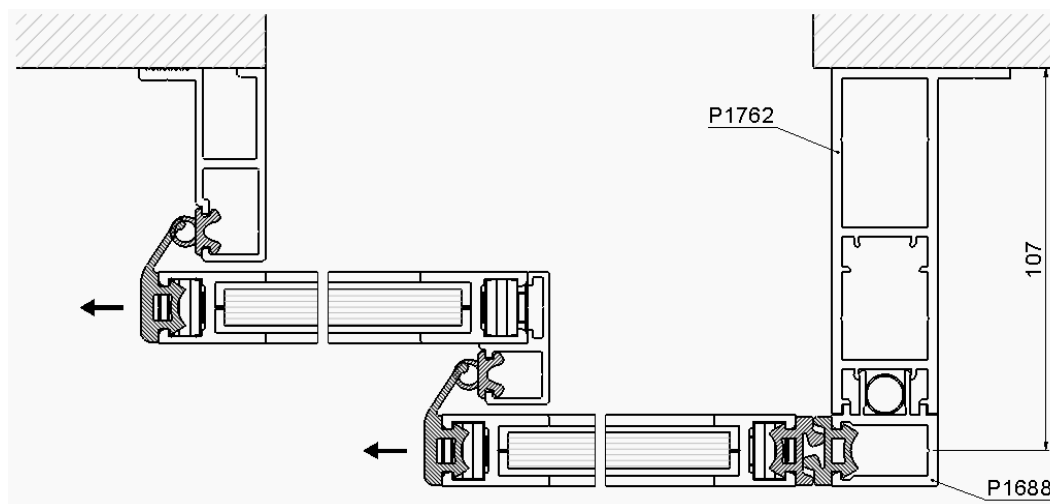
- In the event of a single leaf installation take care that the main closing profile is NOT used as an end stop!
- The closing forces shall be limited by the mechanical end stop integrated in the drive!

5.6.2. Profile system 20

WITHOUT cladding

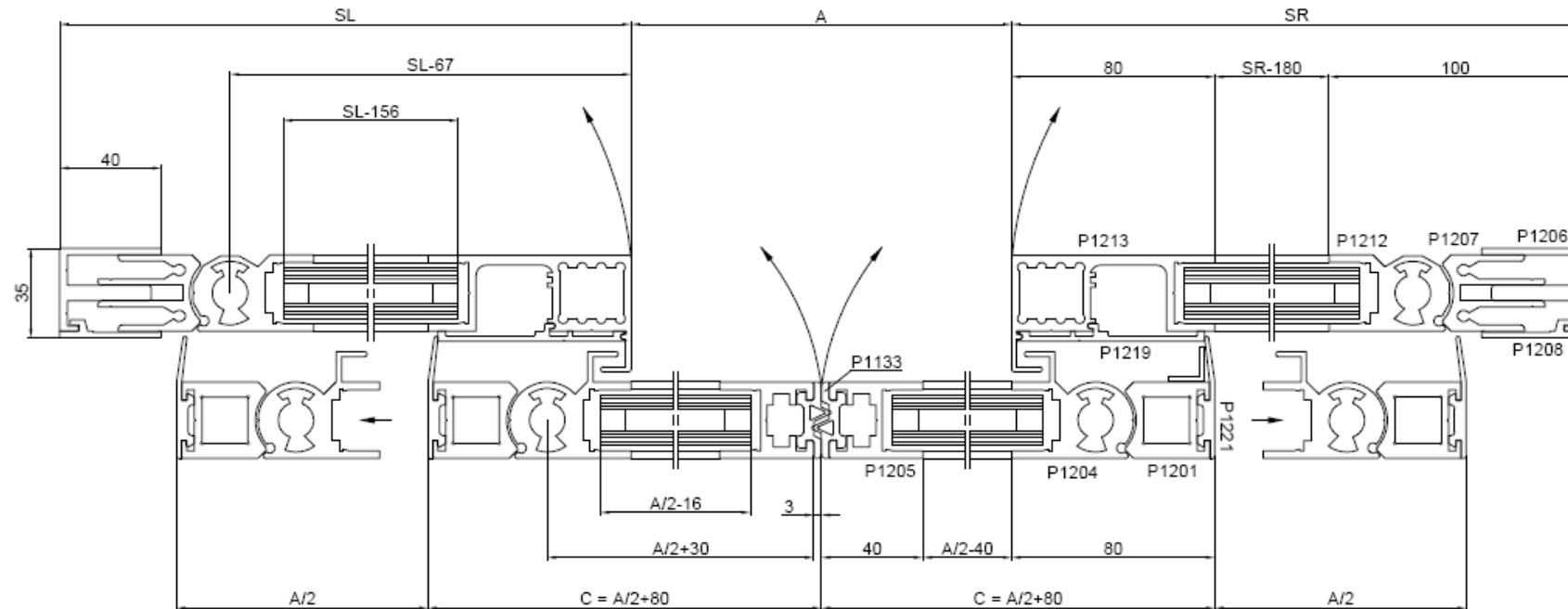


**WITH cladding
and side screen**

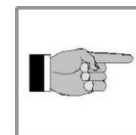
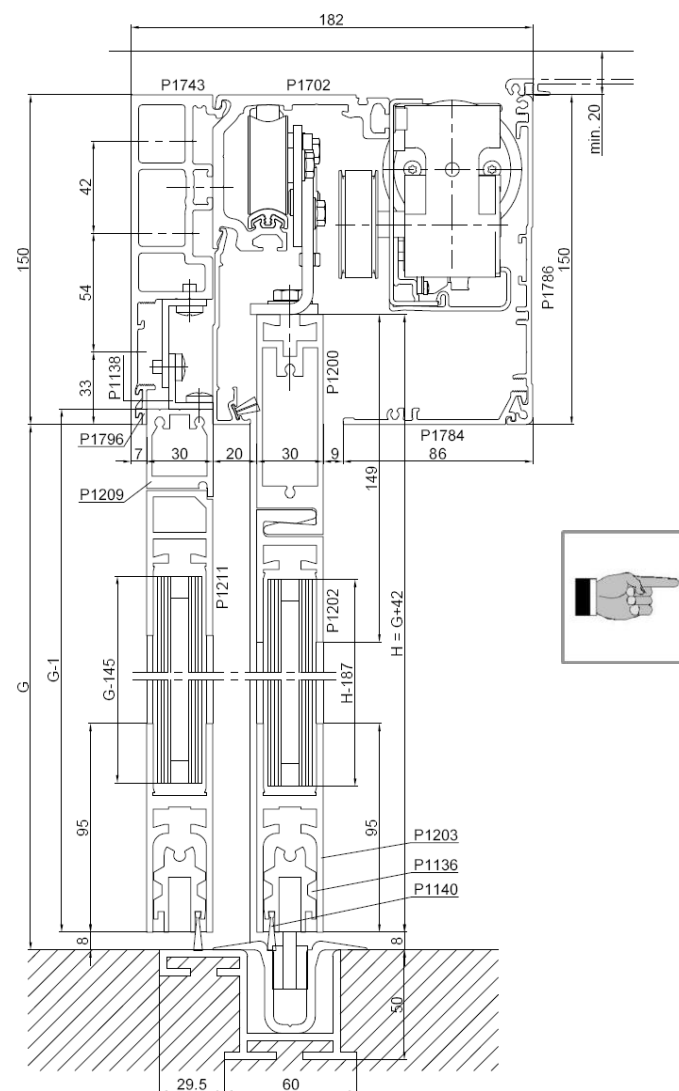


5.7. D-TOS – profile system 30 mm

5.7.1. Horizontal cross-section



5.7.2. Vertical cross-section with floor track



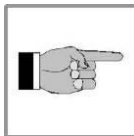
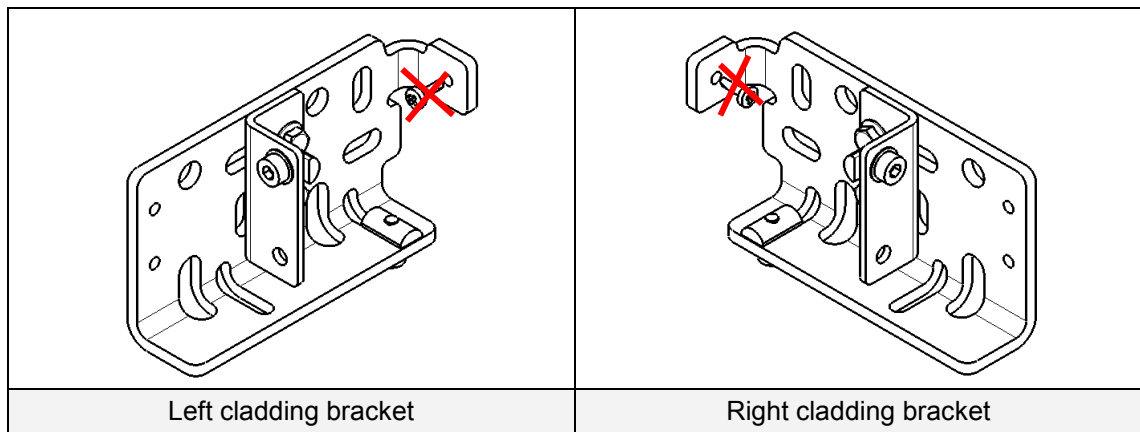
NOTE

Installation tolerance: $G = \pm 2 \text{ mm}$.

6. Self-supporting installation D-STA / E-STA

6.1. Fixing the cladding to the sides

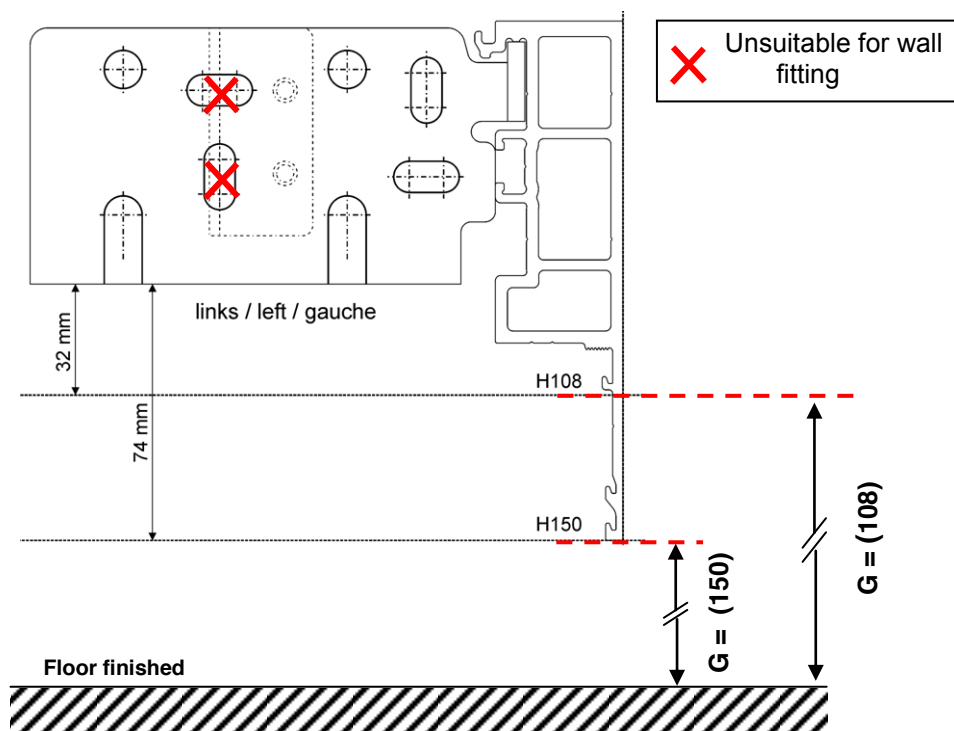
MS self-supporting installation	020.808.349
• with instruction • with drilling templates (left/right)	



NOTE

Screws to fix cladding brackets to cladding are currently not usable.

- Definition of the installation height of the cladding brackets (use templates)



Self-supporting installation D-STA / E-STA 6

How to proceed:

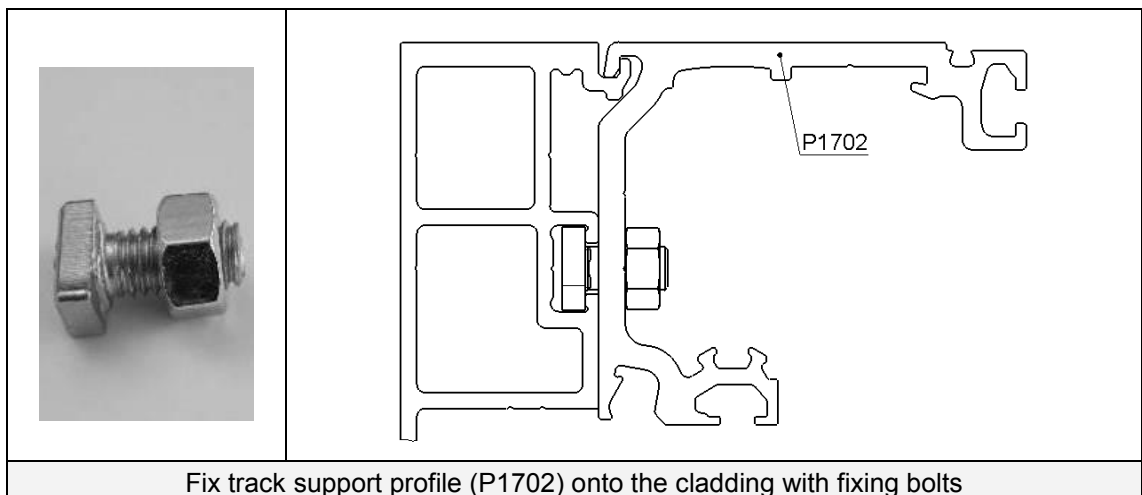
- Position left and right cladding brackets and screw them to the wall (use appropriate screws)
- Insert cladding, adjust and screw it with safety bolts.

6.2. Installing track support profile and track

6.2.1. Inserting track support profile (P1702) and fixing it to the wall

MS cladding	375.808.474
-------------	-------------

DST	Track support profile F/2 - 25
EST	Track support profile F - 40
	<i>F = cladding length</i>



Fix track support profile (P1702) onto the cladding with fixing bolts

- Screw it on at least 6 different points (regularly spaced fixing points)
- Screw head height: max. 10 mm!

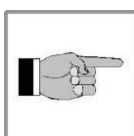


CAUTION

In case of a self-supporting installation, place the fixing bolts as near the ends as possible.

Reference values for self-supporting installation

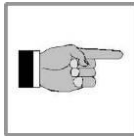
record profile system	Drive: 108 mm			Drive: 150 mm		
Max. A-dimension – mm	1900	2100	2300	2200	2400	2800
Max. door weight – kg	2x120	2x90	2x75	2x150	2x120	2x90



NOTE

- The reference values above are based on a construction with side screens, which are also connected to the track support profile for stabilising reasons!
- The track support profile (P1702) must NOT be cut!

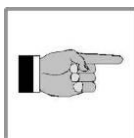
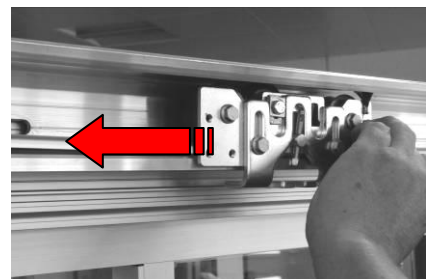
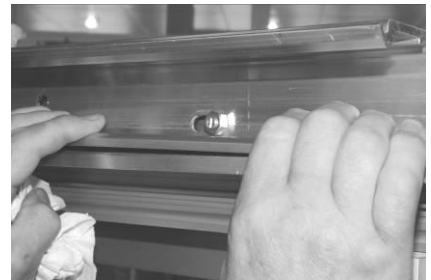
6.2.2. Inserting track on building site



NOTE

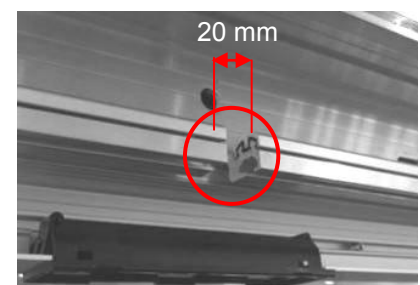
The track is delivered separately on the site and is only inserted after the support profile has been fixed. This avoids any damage that could occur to the track while fixing the support profile.

- Moisten rubber profile with soapy water or comparable product
- Insert track at the end and press it manually over about 20 cm into the profile
- Insert carriages
- Lock stabilizer-wheel in place (towards the top) as much as you can
- Slide carriages manually over the whole profile length
- The track is thus inserted into the track support profile

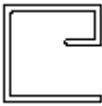
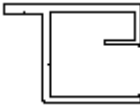
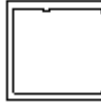
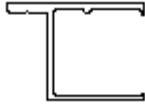


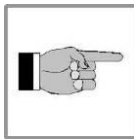
NOTE

- *One-piece track support profile in event of an installation without cladding or of a self-supporting installation:*
Guide the cables through the middle of the track support profile. The track is NOT severed, which allows better leading of ELS (light beam)/radar cables.
- *Two-piece track support profile:*
Leave a 20 mm gap between the two track support sections, in order to lead through it the photo cell and sensor cables.



6.3. Mounting wall connection profiles

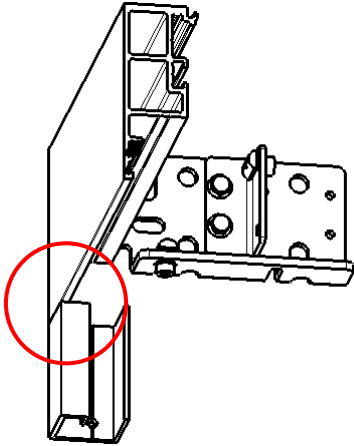
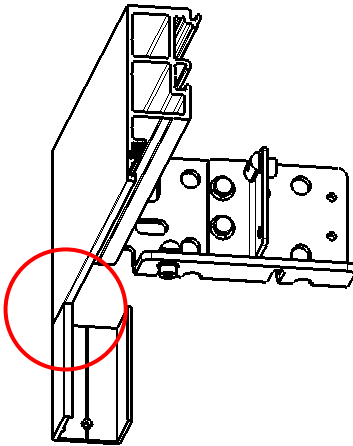
20 mm profile system		32 mm profile system	
			
Self-supporting	Wall installation	Self-supporting	Wall installation

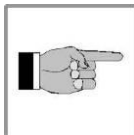


NOTE

Cut wall connection profile to length (length = G + level correction)

- Adjust wall connection profiles, make sure that they are **flush** with the cladding and fix them to the wall

	
Wall connection – profile system 20	Wall connection – profile system 32

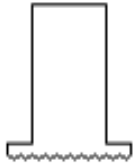
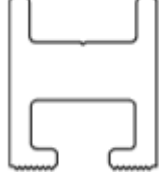


NOTE

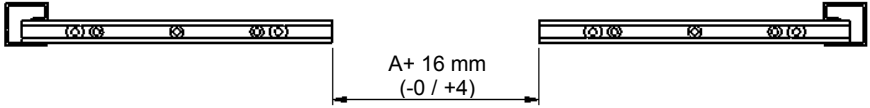
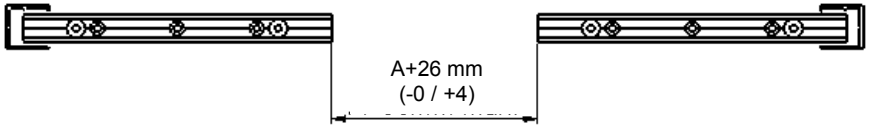
If the floor is flawless and horizontal, wall connection profiles can be fitted first. Then the cladding is laid down on the wall connection profiles.

6.4. Installing floor profile

MS 20 mm side screen	375.808.483
MS 32 mm side screen	375.808.502

	
20 mm: floor profile P1373	32 mm: floor profile P1657

- Mark **door centre** and **A-dimension** on the floor and on the cladding
- Set floor profile and align it with chalk line – compensation in case of sloping floor might be necessary
- In case of asymmetrical alignment of the holes for the height adjustment screw, the longest part must be orientated towards the wall connection profile

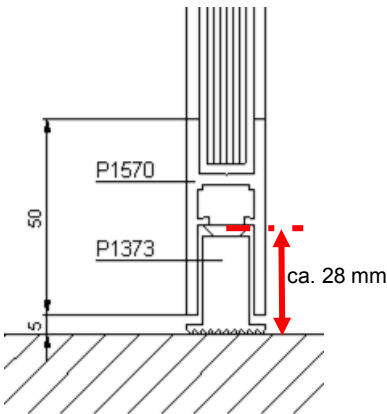
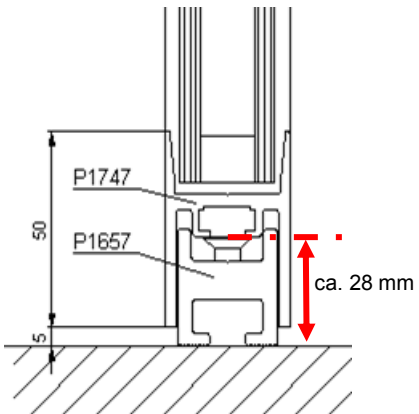
Profile system 20/32 with rubber finish	Reference dimension  $A + 16 \text{ mm}$ $(-0 / +4)$
Profile system 20 with alu finish	
EXCEPTION!	Reference dimension  $A + 26 \text{ mm}$ $(-0 / +4)$
Profile system 32 with alu finish	



CAUTION

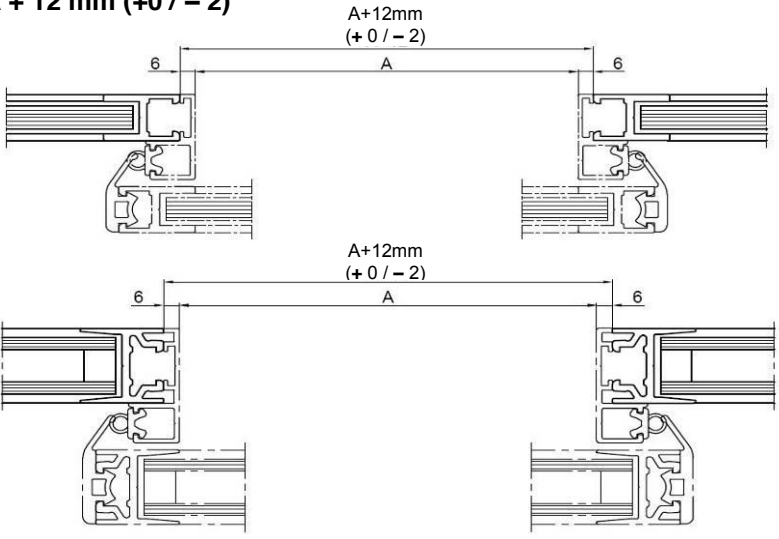
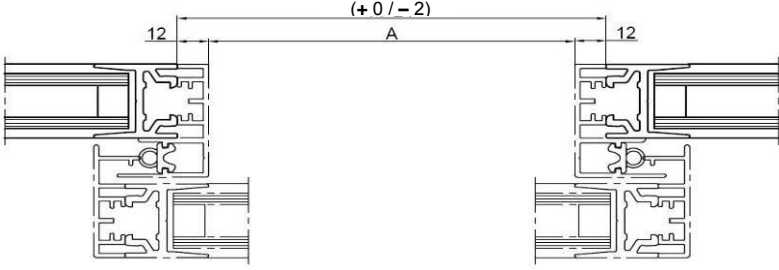
Before drilling, check the composition of the floor (e.g. slate or ceramic tiles) and the position of possible floor heating pipes and electric sheaths!

- Adjust height according to data given below

	
Floor profile P1373	Floor profile P1657

Self-supporting installation D-STA / E-STA 6

- With profile system 20 (floor profile P1373) the head screw features a reduced diameter of 13.5 mm
- Insert side screen into wall connection profile
- Adjust side screen vertically to A-dimension

General situation: • Finishing profile 20 rubber/aluminum • Finishing profile 32 rubber	A + 12 mm (+0 / - 2) 
EXCEPTION! Finishing profile 32 aluminum	A + 24 mm (+ 0 / - 2) 

- Adjust side screen horizontally (with levelling device)

6.5. Installing soffit in the side screen area

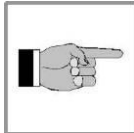
MS adapters soffit

020.808.527

- With 20 mm profiles, mount soffit P1738 and temporarily fix it with **set screws** (M6x8) from the cladding mounting set (020.808.474)

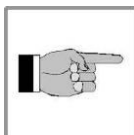
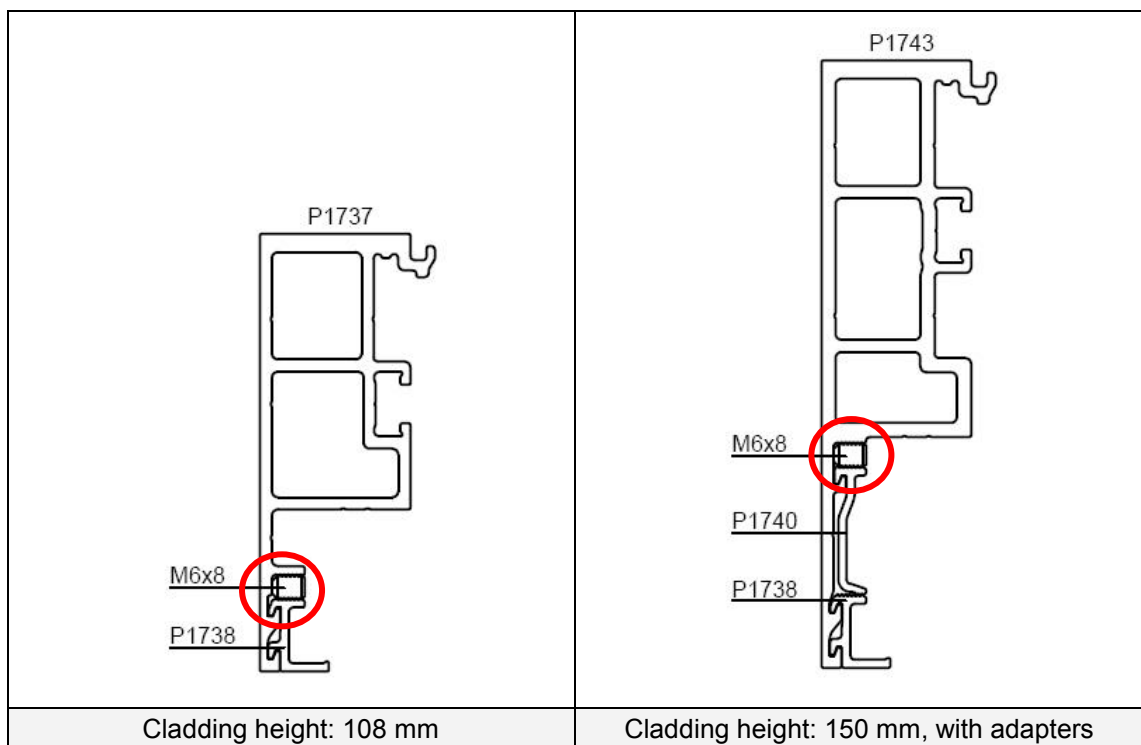


Soffit P1738 – in the the side screen area



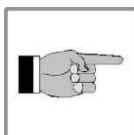
NOTE

Adapters P1740 (from MS adapters soffit) are necessary in case of a high cladding (150 mm).



NOTE

32 mm side screens are directly adjusted to the cladding **without soffit**.

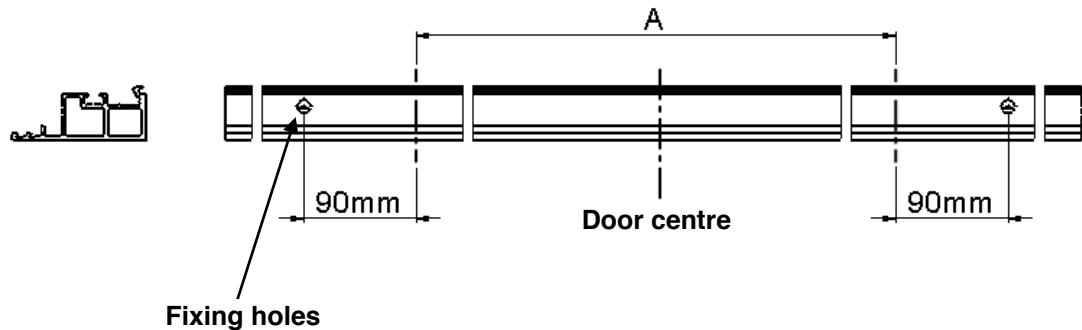


NOTE

See also paragraph *Installing soffit in doorway*

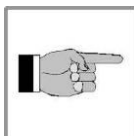
6.6. Inserting and fixing side screens

- Minimum dimensions to be respected for drilling the fixing holes **in the cladding**



- Fixing holes: $\varnothing 11$ mm

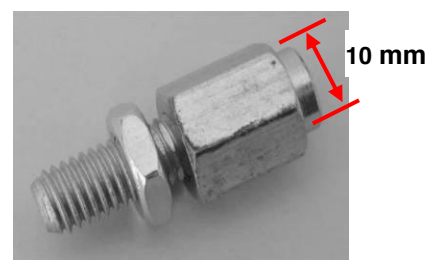
Profilsystem 20 10.5 Profilsystem 32 16.5	P1738
Drilling grooves	Profile system 32: Adjust side screen directly to cladding



NOTE

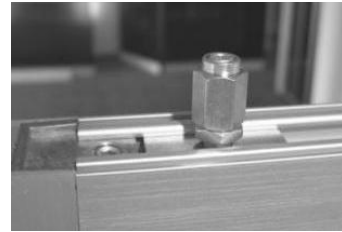
- Drill holes ($\varnothing 11$ mm) **BEFORE** inserting the side screen.
- Check that the tension screw is already inserted into the side screen!

- Tension screw to fix side screen to the cladding



Self-supporting installation D-STA / E-STA 6

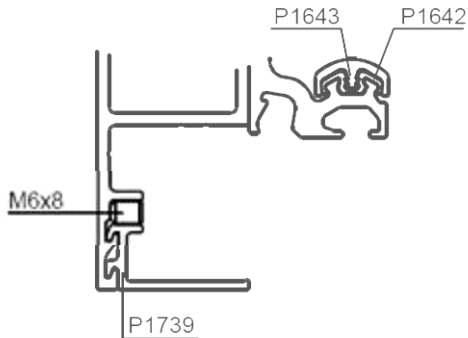
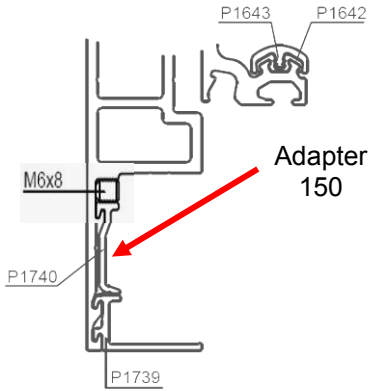
- Screw tension screw into the tongue-nut – which must already be inserted into the side screen!
- Screw it to the cladding with fingers
- Tighten it with spanner

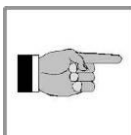


ATTENTION

While tightening, take care that the cladding is not lifted!

6.7. Installing soffit in the passage area

	
Cladding height 108 mm	Cladding height 150 mm

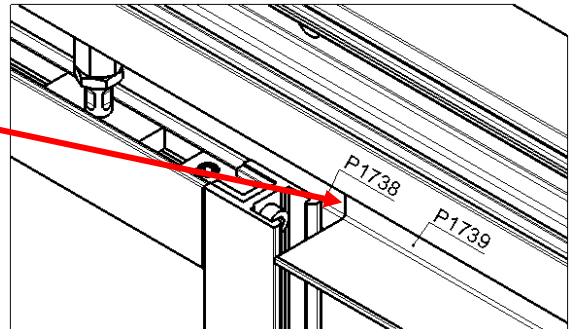


NOTE

Soffit 32 (P1739) applies for both profile systems 20 and 32!

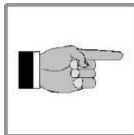
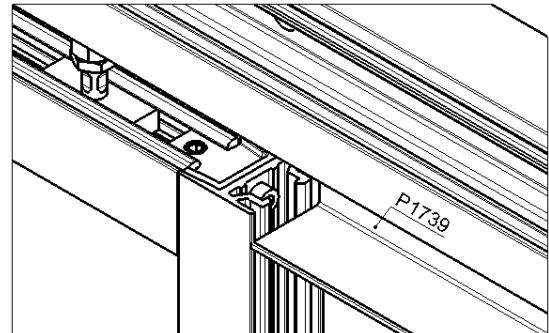
Self-supporting installation D-STA / E-STA 6

- Adjust soffit P1738 to profile P1739 (in doorway)
- Both profiles must be flush



Adjusting soffit - profile system 32

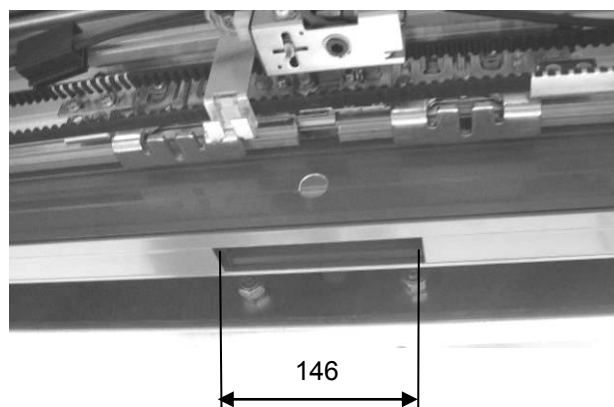
- Adjust soffit P1739 (in doorway) to vertical frame profile



NOTE

These joints will later be covered by the cover profile.

- Cutting out the soffit to insert an in-built radar RAD 290 (AKA)



ATTENTION

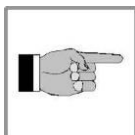
record sensor **RIC 290** is ONLY **integrable** in the casing as AKI with an operator height of **150 mm**!

6.8. Fixing door leaf guides and side screens

- Use door leaf guide as template
- Drill core hole – Ø 3.5 mm



- Fix to floor and to side screen (improves stability of side screen)

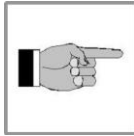


NOTE

Screws for the fixing to the side screen:

- Thread-grooving, Torx, counter sink screws M4x16
- Contained in mounting set *MS side screen*
 - 375.808.502 – profile system 32
 - 375.808.483 – profile system 20

6.8.1. Positioning door leaf guides with 20 mm profile system



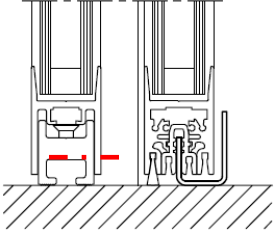
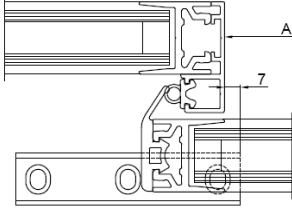
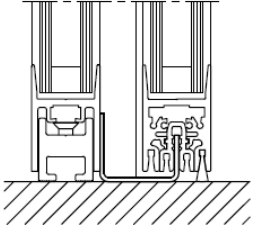
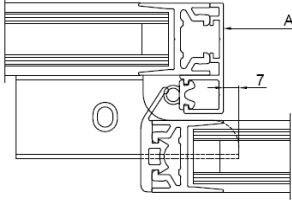
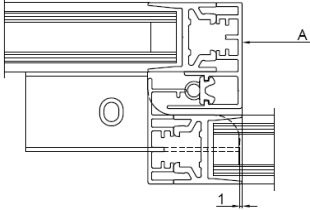
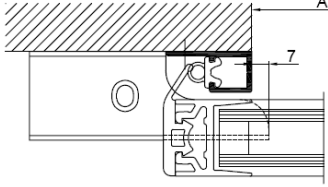
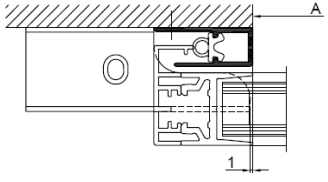
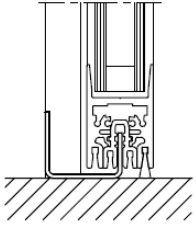
NOTE

- Determine with accuracy the position of the door leaf guide in comparison with A-dimension.
- . — . — . Screwing the bottom rail to floor profile increases the stability of the side screen in the doorway area.

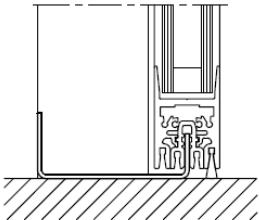
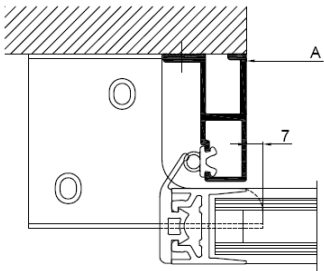
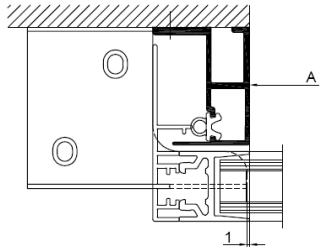
Application	Designation + Art. no.	Fixing left (right: mirror image)
STA with side screen	Door leaf guide 20 375.109.633	With rubber or aluminium seal
STA with side screen	Door leaf guide STA/TSA 20 left 375.109.672 Door leaf guide STA/TSA 20 right 375.109.673	With rubber or aluminium seal
STA w/o side screen w/o cladding		With rubber or aluminium seal
STA w/o side screen with cladding	Door leaf guide STA/TSA 20 left w/o side screen 375.109.634 Door leaf guide STA/TSA 20 right w/o side screen 375.109.635	With rubber or aluminium seal

Self-supporting installation D-STA / E-STA 6

6.8.2. Positioning door leaf guides with 32 mm profile system

Application	Designation + Art. no.	Fixing left (right: mirror image)
STA with side screen 	 Door leaf guide 32 375.109.604	With rubber or aluminium seal 
STA with side screen 	 Door leaf guide STA/TSA 32 left - 375.109.636 Door leaf guide STA/TSA 32 right - 375.109.637	With rubber seal  With aluminium seal  With rubber seal  With aluminium seal 
STA w/o side screen w/o cladding 		

Self-supporting installation D-STA / E-STA 6

STA w/o side screen with cladding 	 Door leaf guide STA/TSA 32 left w/o side screen 375.109.640 Door leaf guide STA/TSA 32 right w/o side screen 375.109.641	With rubber seal  With aluminium seal 
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6.9. Installing cover profiles (light barrier profiles)

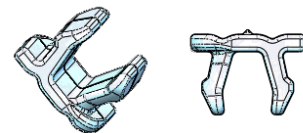
- Cut the light barrier profile to the right length
- If needed compensate for unevenness of the floor
- Clip the light barrier into cover profile
- Form a loop with the cable and place it downwards, in order to facilitate later replacement



- Insert finishing rubber



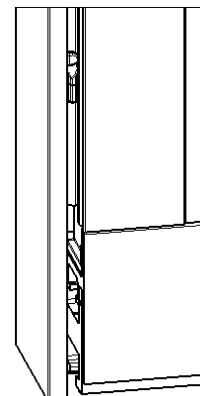
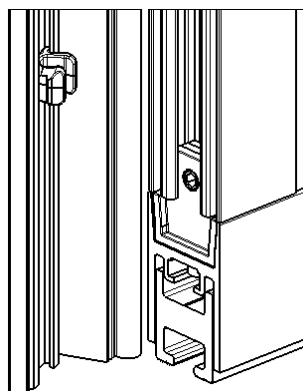
- Insert clips about every 30 cm into groove of the cover profile and rotate 90° with screwdriver to lock them in place
- These clips are one-way clips, which means that if the cover profile is dismantled, they must be replaced!



NOTE

It is **essential** that profiles and clips are **dry** fitted. Do not use any cleaning agent or washing-up liquid!

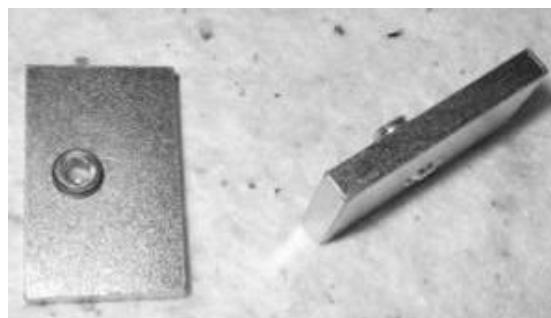
- Place cover profile as parallel as possible to side screen and insert with care!



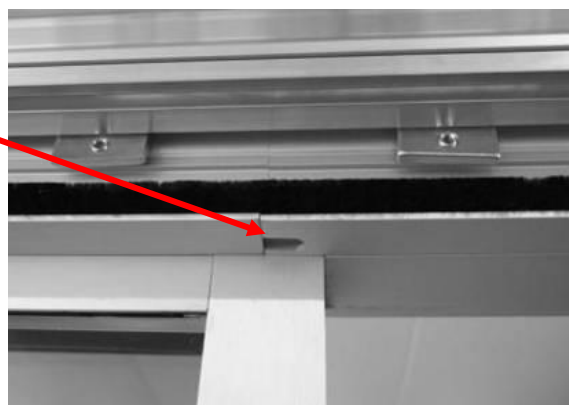
6.10. Fitting sealing profile

Cladding height 108 mm Sealing profile P1705 + brush sealing P1706	Cladding height 150 mm Sealing profile P1713 + brush sealing P1706

- Install three-piece **sealing profile** P1705 (108) or P1713 (150) and fix it with the **ten-sioning blocks** pictured aside (and contained in MS 020.808.467)

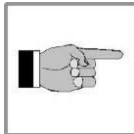


- Slot for photocell (ELS) cable (if applicable)



Self-supporting installation D-STA / E-STA 6

- Feed photocell (ELS) cable left and right into **sealing profile**
- Trap cable with pieces of foam
- Insert brush into profile



NOTE

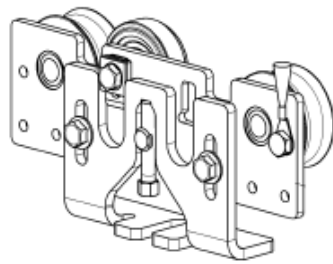
If a three-piece sealing profile applies, first install the two outer sections, then place the brush and finally install the middle section.

Installing running gear D-STA / E-STA 7

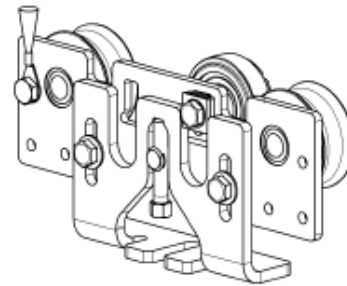
7. Installing running gear D-STA / E-STA

7.1. Carriage principle

MS carriages (for 1 door leaf)	020.808.476
--------------------------------	-------------



Left carriage

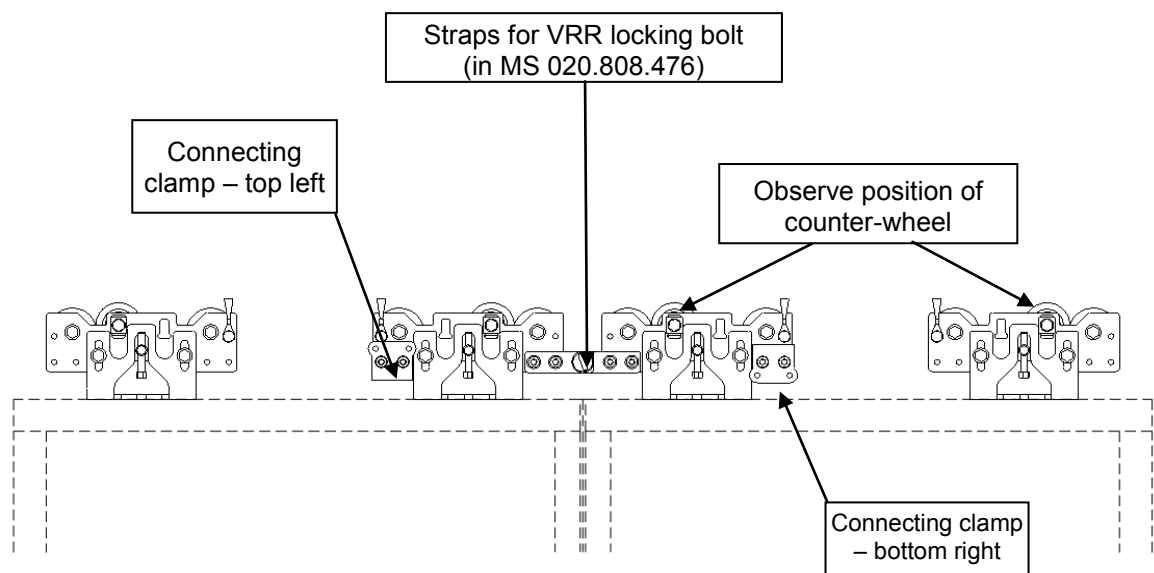


Right carriage

7.2. Preparation of carriages

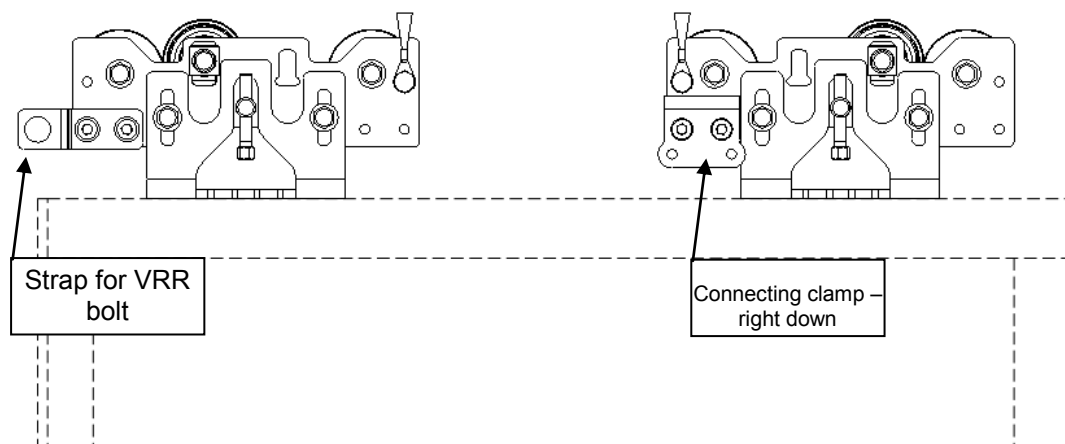
- Fix connecting clamp to carriages
- Fix straps for locking device to carriages

7.2.1. D-STA carriages

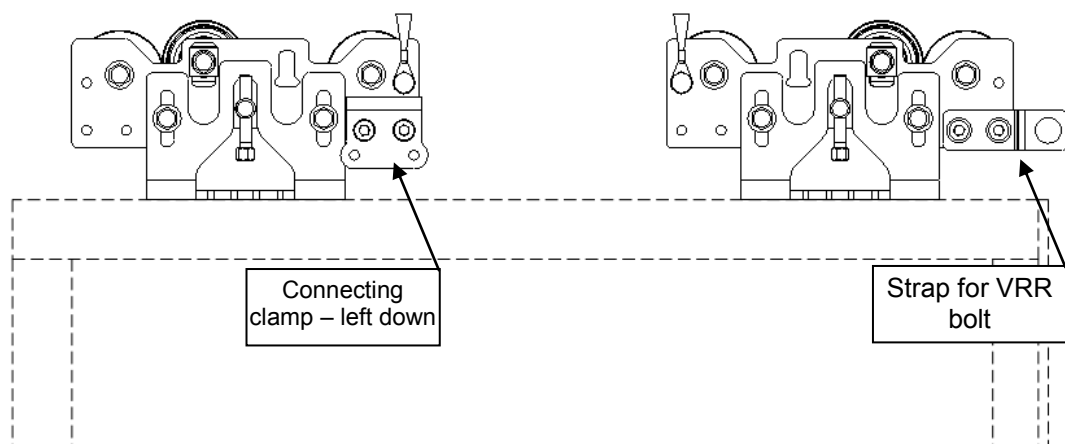


Installing running gear D-STA / E-STA 7

7.2.2. Right E-STA carriage



7.2.3. Left E-STA carriage

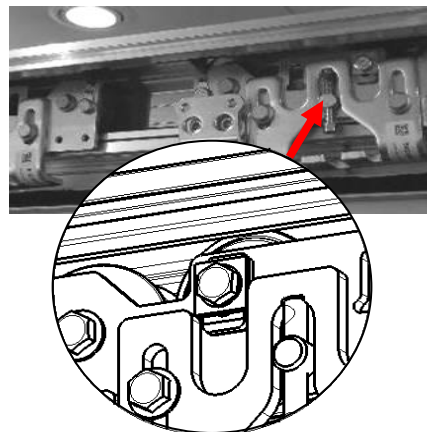


ATTENTION

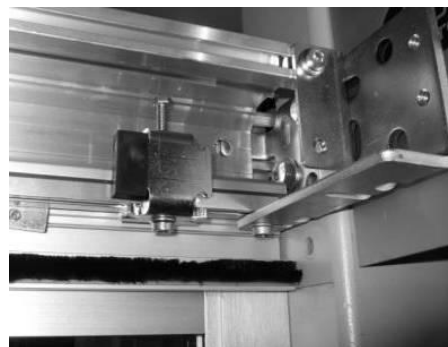
With an E-STA-L (opening to the left) connect carefully jumper JP4 to STM 20.

7.3. Inserting carriages

- Place carriages
- Lock stabilizer-wheel in place



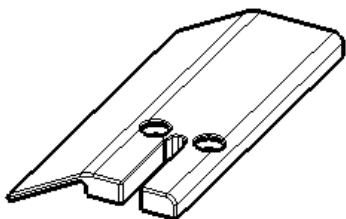
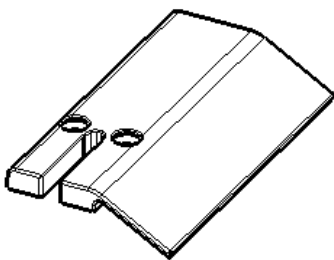
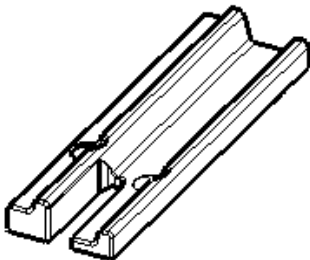
- Locate **end stops** temporarily with tongue-nuts (contained in basic set fixing material **020.808.467**)
- Bottom screw is M6x12 and not M6x10

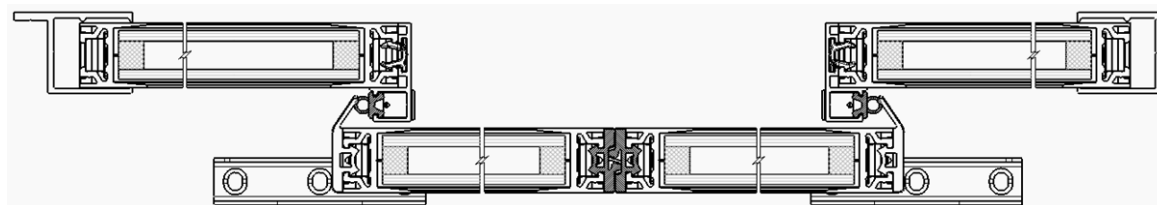


8. Installing door leaves D-STA / E-STA

8.1. Door leaf caps

Several mounting sets are available according to side (left or right) and glass thickness.

Lateral closing edge		Main closing edge
		
Rear cap left	Rear cap right	Middle cap 20 mm



Lateral closing edge
Rear cap

Main closing edge
Middle cap

Lateral closing edge
Rear cap

8.2. Rubber seals

- Press middle seal (P1779 or P1780) into **main closing profile** and care for correct positioning of the asymmetric rubber seal. Watch cap position!
- Press sealing rubber (P1671 or P1760) into **lateral closing profile**
- With profile system 32:
Insert fixing clip for plastic guiding profile P1608 (guiding profile will be inserted later)



- Fix rear cap with Torx T10 screws



ATTENTION

Always mount rubber seals on lateral closing profiles on site. If the fitting takes place at the factory, the rubber edge is often distorted during transport and cannot achieve a proper sealing of the door in the closed position.

8.3. Hanging door leaves

8.3.1. Inserting and adjusting door leaves

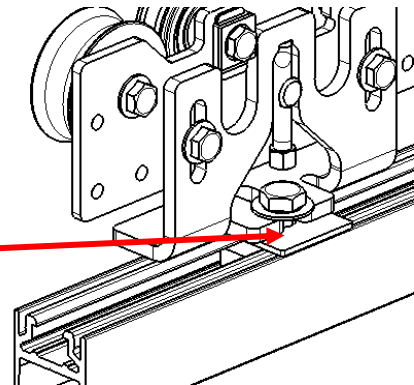
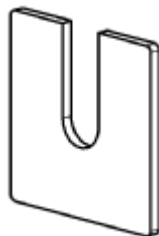
- The 2 screws M8x17 for the door leaf attachment are contained in the MS carriages
- Insert door leaves and fix them to the carriages



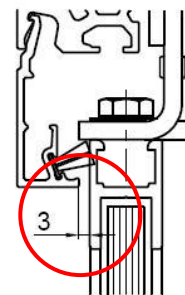
ATTENTION

While tightening, take care that the door leaf does not twist. (Carriages and track have to remain parallel.)

- Wedge for door suspension INOX 020.110.485 – 2 mm
- **Application:** in the event of **insufficient** connection between carriage and door leaf

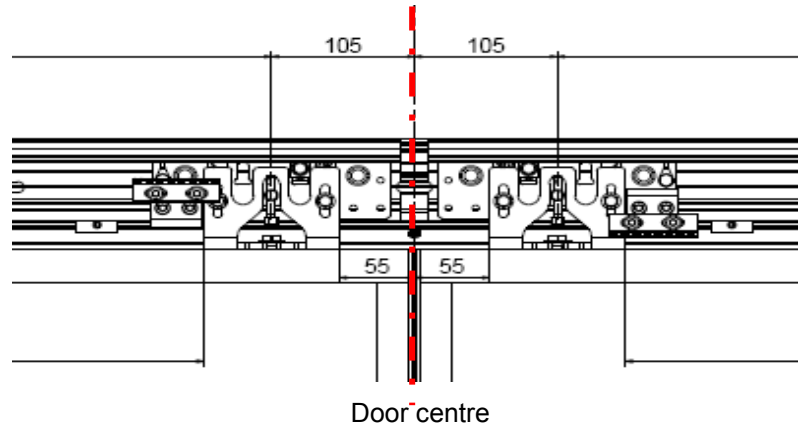


- Leave a 3 mm space between sealing profile and door leaf

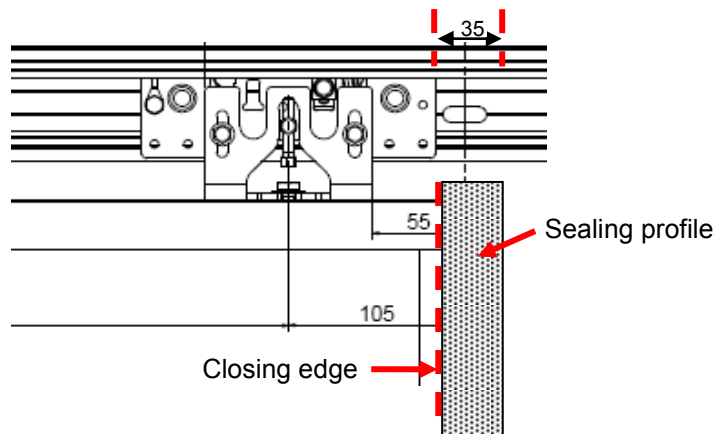


8.3.2. Positioning carriages

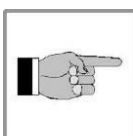
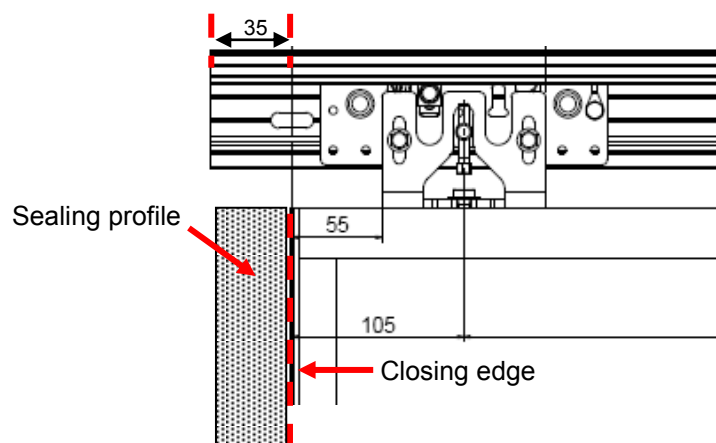
D-STA



E-STA-L



E-STA-R



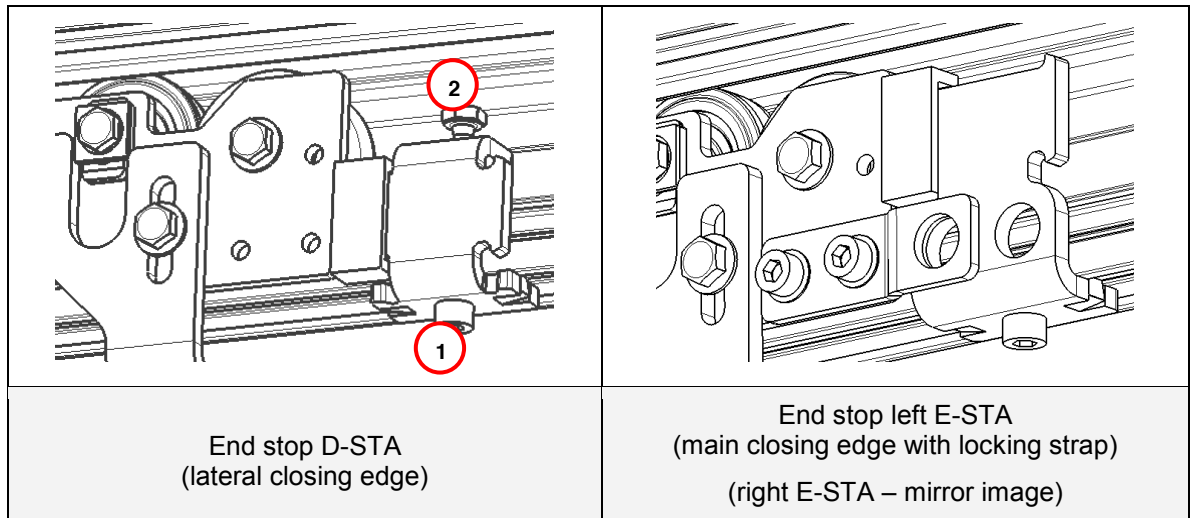
NOTE

If a locking device is installed on an **E-STA**, the carriage must be moved **50 mm** inside.

Installing door leaves D-STA / E-STA 8

8.3.3. Positioning end stops

- Slide the doors open manually and adjust main closing profile to side screen
- Adjust end stops on door leaf and tighten them
- Place end stops correctly

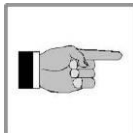


1

Fixing screw M6x12

2

Earthing screw



NOTE

In the event of a **single** door fitted **with a locking device**, the end stop on the closing edge is replaced with:

MS accessories VRR E-STA

020.808.511

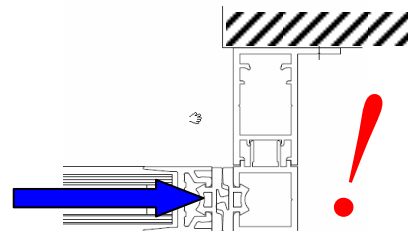


ATTENTION

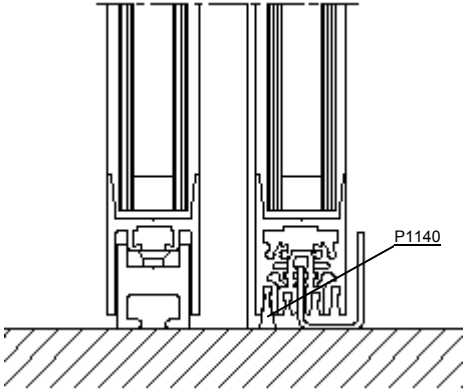
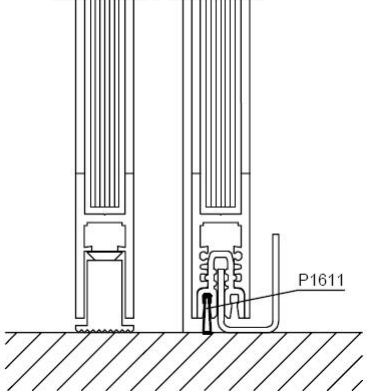
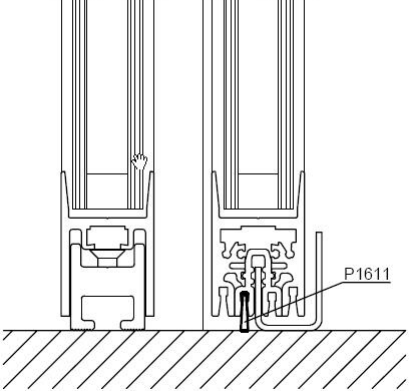
In the case of a single leaf installation, the closing profile should not be used as an end stop.

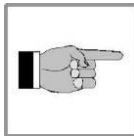
The closing forces shall be limited by the end stop fitted on the running gear.

- Make sure that the door is perfectly airtight in the closed position



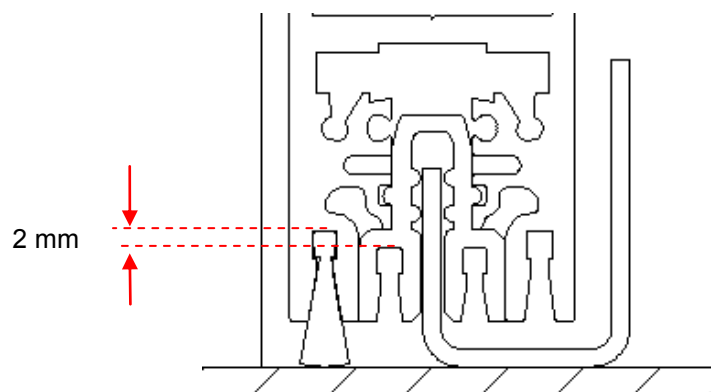
8.3.4. Inserting plastic guiding profile

Position of brush	20 mm profile	32 mm profile
In bottom profile	Not possible	
In plastic guiding profile (on opposite side of door leaf guide)		

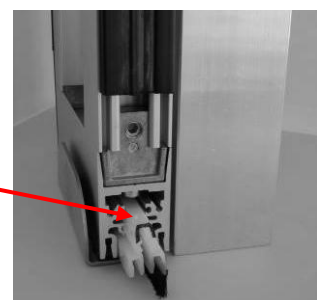


NOTE

- Brush profile (P1611) → 13 mm (standard)
- Brush profile (P1140) → 15 mm (also for uneven floors)
- Observe the difference height of 2 mm as shown below



- Insert plastic guiding profile (P1608)
- Cut both sides away with a cutter (necessary for fixing clip)
- Insert brush profile (P1140 or P1611 according to floor)



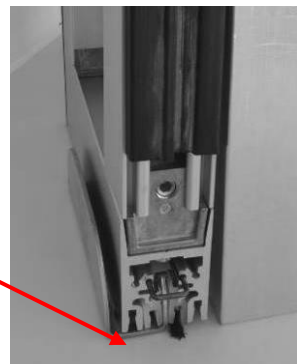
Installing door leaves D-STA / E-STA 8



ATTENTION

Always install the brush profile in a way that it does not run over the door leaf guide!

- With profile system 32:
Secure plastic guiding profile with clip

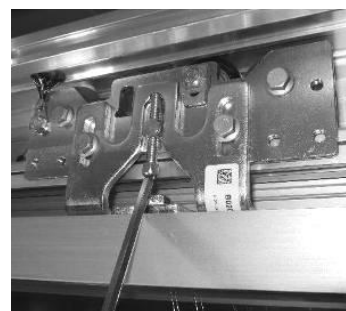


- Fix middle cap with Torx T10 screws

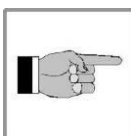
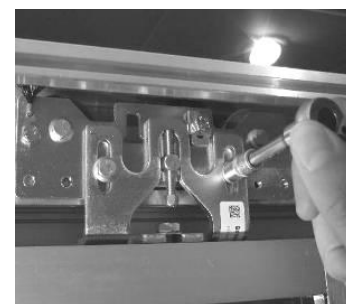


8.3.5. Height levelling and adjustment

- Height levelling with Allen key



- and tighten safety screws with ratchet

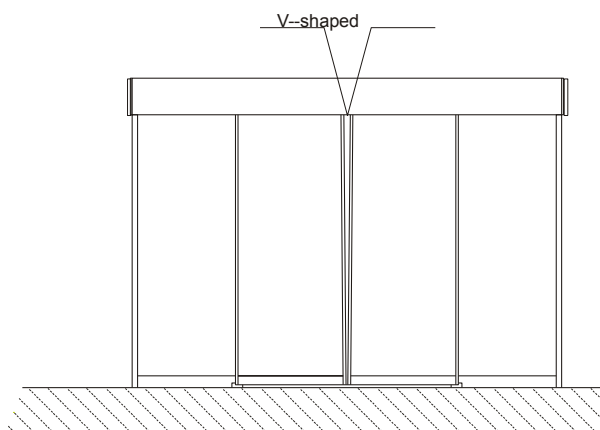


NOTE

Carriages must be aligned!

Installing door leaves D-STA / E-STA 8

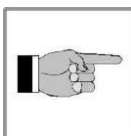
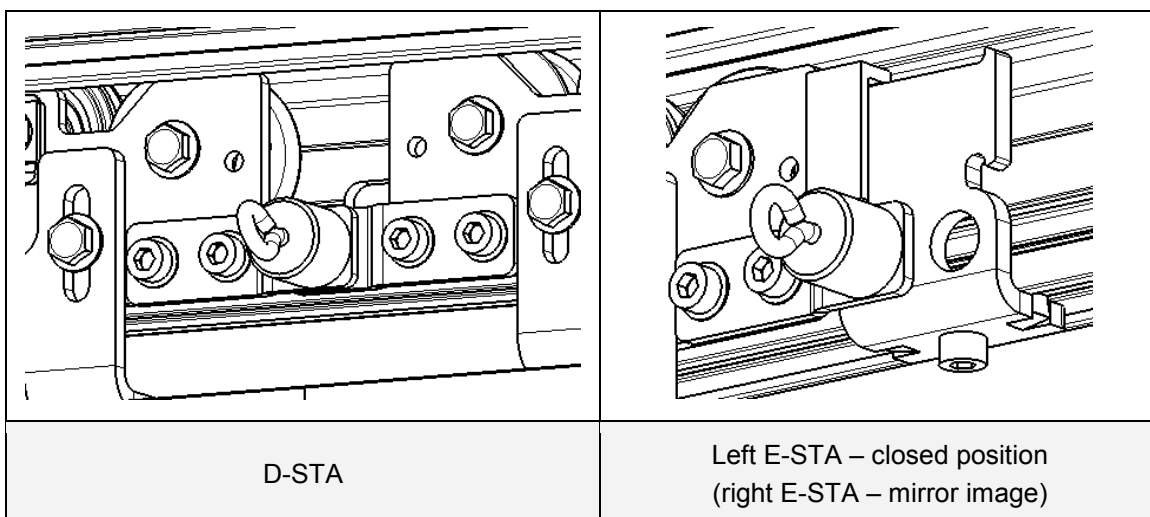
- Align door leaves in a slightly V-shaped angle
When door leaves are adjusted, tighten all screws firmly. But please do not overtighten!
- Move door leaves by hand and check for easy running



ATTENTION

Stabilizer-wheels must be able to turn easily!

- Check locking straps – Close door leaves completely by hand



NOTE

A 12.5 mm Ø bolt is a suitable setting help for positioning the door.
(art. no. 020.808.741)

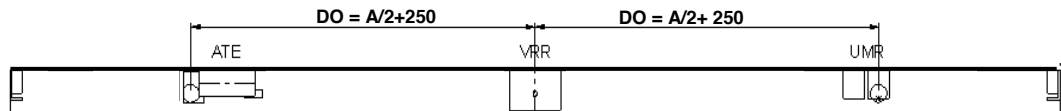
9. Attaching drive module D-STA / E-STA

MS drive unit STM 20

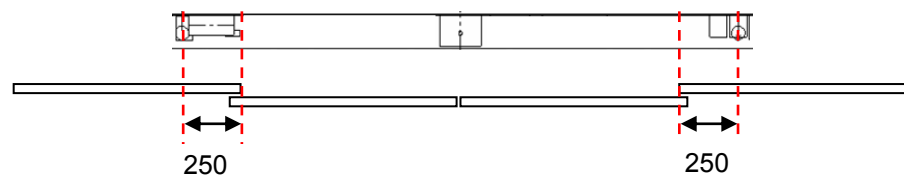
020.808.477

9.1. Axle spacing: drive unit / guide pulley (without MPV 20)

► D-STA – A = > 950 – 3000 mm

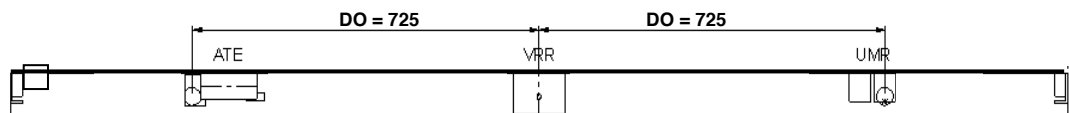


- For doors with **A > 1100** the distance can be increased to 300 (**$DO = A/2 + 300$**)
- Alternative to define the distance between axles:
Position ATE or UMR pulley to lateral closing edge (side screen) = **250 mm**



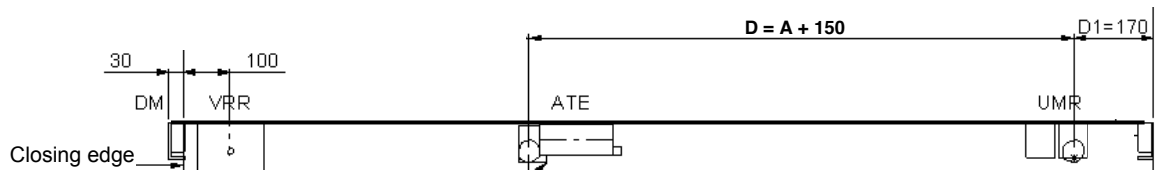
- Total length of toothed belt: $2A + 1150$ mm (**recommended cut: $2 \times A + 1250$**)

► D-STA - A = 800 - 950 mm



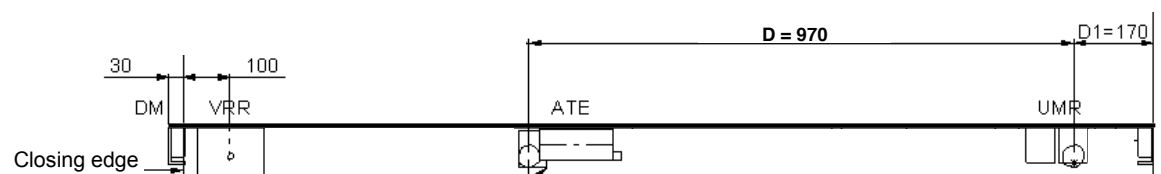
- Total length of toothed belt: 3050 mm (**recommended cut: 3150**)

► E-STA – A = > 820 – 3000 mm



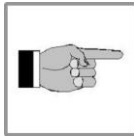
- Total length of toothed belt: $2A + 450$ mm (**recommended cut: $2 \times A + 550$**)

► E-STA – A = 800 – 820 mm



- Total length of toothed belt: 2085 mm (**recommended cut: 2150**)

Legend: DO = Distance guide pulley / closing edge
D = Axle spacing drive unit / guide pulley

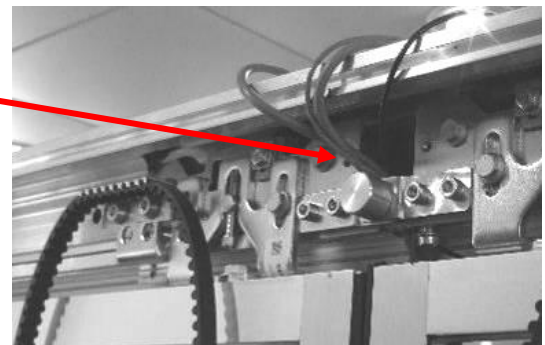
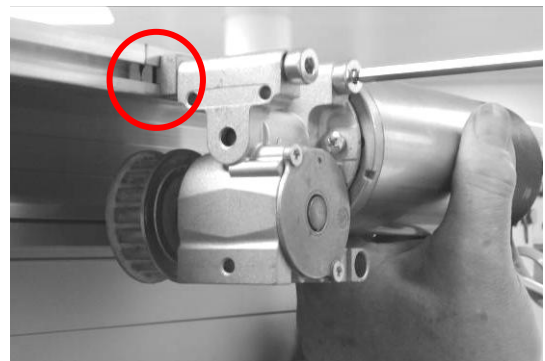
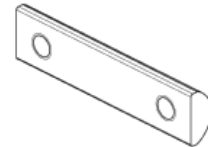


NOTE

Should a MPV 20 be used, distances from ATE and guide pulley (UMR) must be increased by 100 mm and the toothed belt must be cut about 200 mm longer.

9.2. Fitting drive unit and toothed belt

- Insert domed tongue-nut 020.109.861 into the upper groove of the track support profile
- Fix motor (ATE) using tongue-nuts (proceed according to paragraph *Axle spacing*)
- Do not forget spacer !
- Fit guide pulley support and tongue-nut (positioning according to paragraph *Axle spacing*)
- Make sure that the distance of the connecting clamp to the drive and guide pulley is sufficient
- Cut toothed belt to length according to specifications or estimate the length required by guiding it over the drive and guide pulley
- Bring both belt ends together with a belt clamp
- Press together with a pair of pliers
- Fix toothed belt on top of left carriage
- Fix door leaves with 12.5 mm bolt
- Lay belt on motor and on guide pulley and tighten it slightly



Attaching drive module D-STA / E-STA 9

- Place second belt clamp on the right hand side of the door leaf, press it onto the place set by the connecting clamp and screw it to the carriage
- Insert screwdriver no. 4 or 5 into the gap and tighten toothed belt with a rotating movement
- Tighten screws on guide pulley support
- Check that door leaves are properly centred – i.e. symmetrical to the sealing profiles
- Control manually on the whole sliding section that door leaves are properly adjusted



9.3. Standard locking device

MS bolt-locking device VRR 20 (motorized) - with connecting cable - with anti-burglary device	020.808.415
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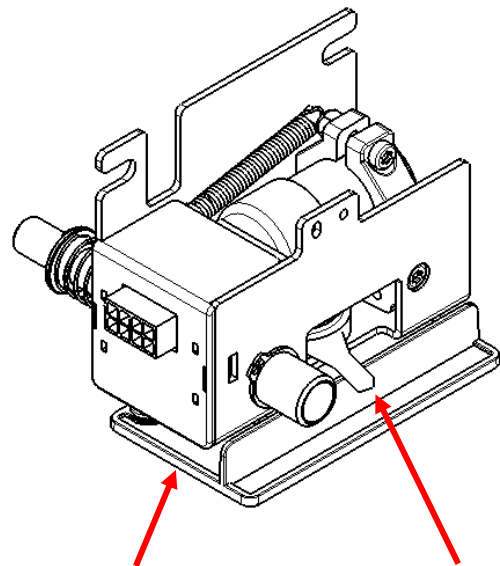
Extension cable necessary for:

- E-STA / E-TSA
- D-STA / D-TSA – A > 2400 mm

Extension cable VRR 1100 mm	016.085.000
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9.3.1. Motor-driven bolt-locking device (bistable) – with anti-burglary protection

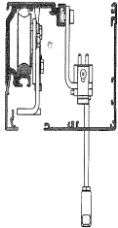
- Install locking device and check for proper engaging of the bolt into the straps



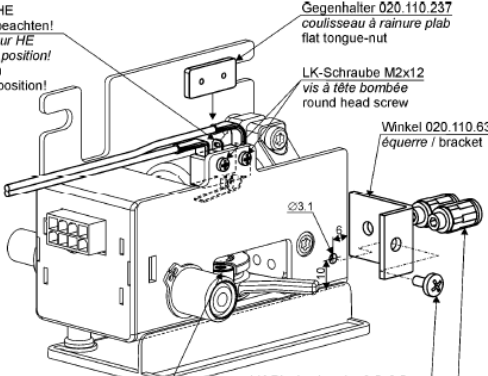
Anti-burglary device **Manual unlocking**

9.3.2. Manual unlocking from inside HEI

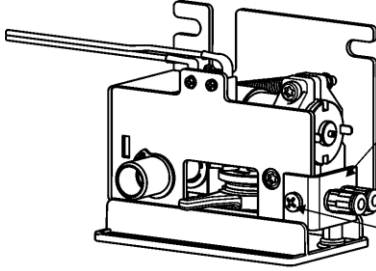
► Variants

Wall console EXIT 020.808.757	Actuating case 014.101.000	MS HEI with Bowden cable 020.808.512
		
Only for inside fitting	Variant: Outside fitting with cylinder	Extension: Special rod 016.075.008

► Accessories required for all variants

Basic set HE 020.808.513	Bowden cable
 Schalter HE Stellung beachten! Interrupteur HE Observer position! HE switch Observe position! Gegenhalter 020.110.237 coulisseau à rainure plat flat tongue-nut LK-Schraube M2x12 vis à tête bombée round head screw Winkel 020.110.638 équerre / bracket	• 32136 steel rope INOX Ø 1.5 mm • 32167 sheath

► Use of TWO manual unlocking devices

Contained in basic set
 Winkel / équerre / bracket 020.110.638 Einschraubanschlüsse raccords insérés screw-in connections LK-Blechschaube 3.5x6.5 Bohren Ø3.1 sofern nicht vorhanden vis à tête bombée 3.5x6.5 percer trou Ø3.1 sauf si déjà existant round head self-tapping screw 3.5x6.5 drill Ø3.1 if not yet existing



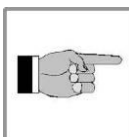
ATTENTION

- In case of an incorrect installation, trouble-free emergency actuation cannot be guaranteed!

Guiding the Bowden cable

- No pressure or tension should be exerted on the locking device by the Bowden cable sheath!
- Take special care that the motor does not lift off the locking bolt.

9.3.3. Door leaf and locking device surveillance



NOTE

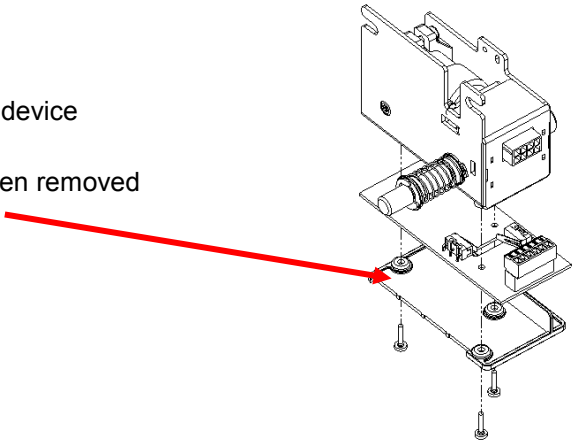
- The accessories illustrated below are exclusively used for the **external surveillance** of the door by a security or a central door management system
- The terminal series (contained in MS 020.808.730) is always required

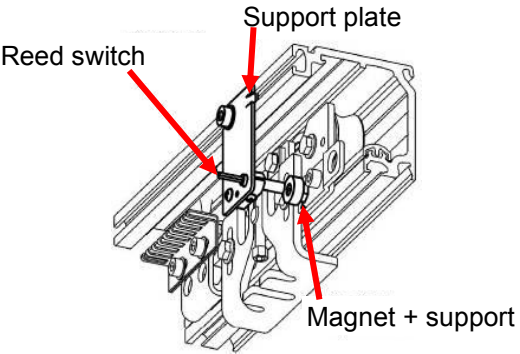
Attaching drive module D-STA / E-STA 9

MS external locking device surveillance	020.808.670	
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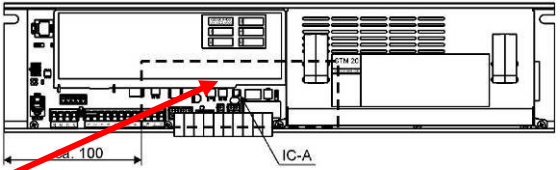
Assembling :

- Break off strap on anti-burglary device BEFORE assembling
- On picture strap has already been removed



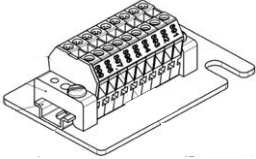
MS door leaf surveillance	020.808.588	
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- Position of metal sheet shield on rear face of STM 20



ATTENTION

- Affix metal sheet shield (contained in MS) on rear face of STM 20 for EMC protection according to instruction sheet 020.110.141 (also contained in MS)
- The temperature of the pieces to affix must be over 10°C.

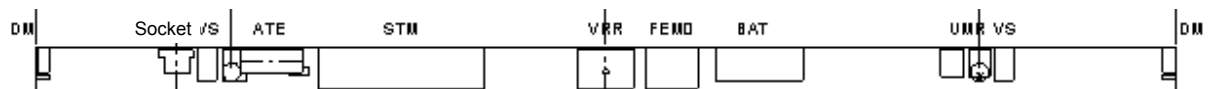
MS terminal series (interface with external management system)	020.808.730	
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9.4.

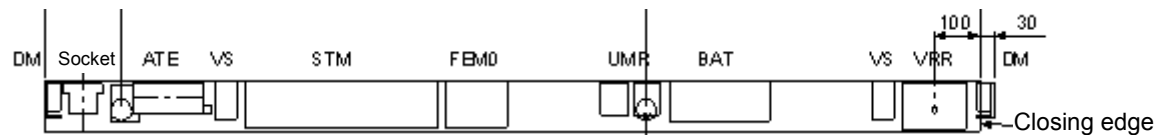
9.5. Positioning and connecting electric components

- Due to variable width of passage (A-dimension) several cable lengths are available
- The single components can be installed in the following order

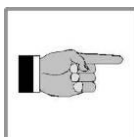
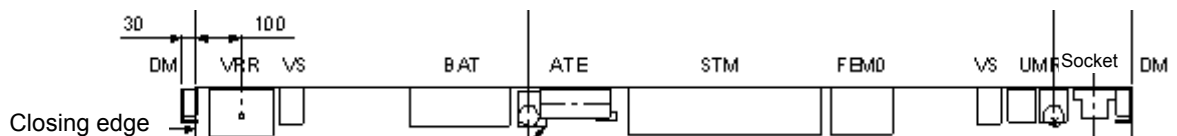
D-STA A = > 810 mm



E-STA-L



E-STA-R



NOTE

- On the above principle schemas, position of casing supports has not been taken into consideration
- Especially on installations with narrow opening width, it might be necessary to shift certain elements

Legend:

ATE	Drive unit
BAT	Lead-acid or NiCd battery-pack
DM	Wall console for self-supporting installation
Socket	Mains voltage
FEM-0	Extended functions module for light barriers, other manufacturers' sensors
STM	Control module
UMR	Guide pulley
VRR	Motorized locking device
VS	Casing console

9.5.1. Fitting and connecting single elements

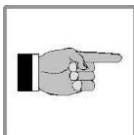
- Mount control module (STM) and fix cable holders
- Mount optional FEM-0 and fix cable holders
- Attach ATE and connect it to STM
- Fit cable holders next to ATE
- Attach optional battery
- Fix socket



WARNING

Connection to the mains must be performed by an authorized person.

- Guide cables out of operator components through plastic supports
- Tip: if the elements are too loose, wedge in between a piece of round-section cord

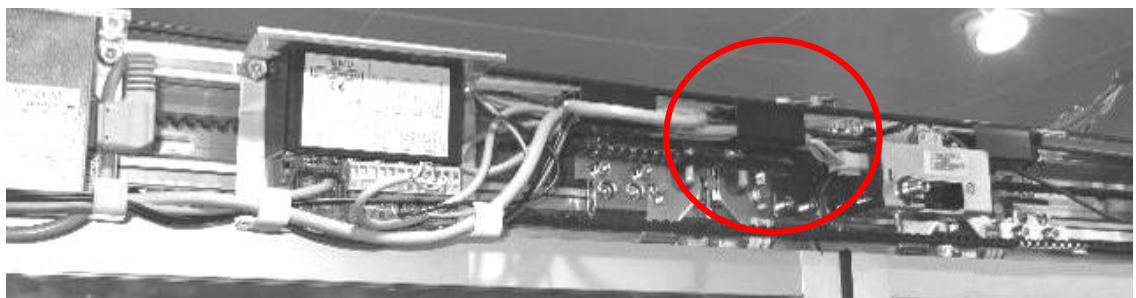


NOTE

While connecting all components with the supplied cables, care should be taken to avoid any unnecessary cable loops!

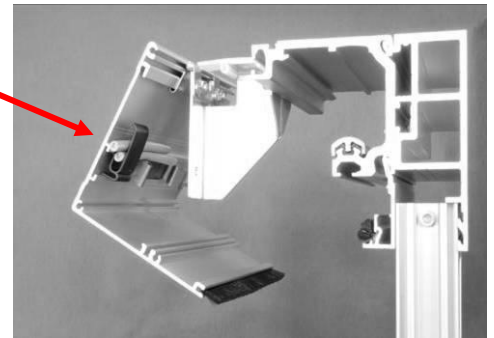
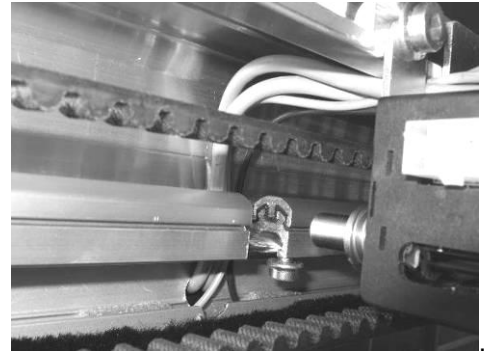
9.5.2. Leading AKA and ELS cables to control module STM 20

- Cable holders are contained in set 020.808.477



Attaching drive module D-STA / E-STA 9

- Pay attention that cables do not come into contact with toothed belt
- **Variant :**
Do NOT cut track, which facilitates cable guiding
- Lead AKI cable along casing
- Cable holders contained in set 020.808.471



9.5.3. Preparing FPC connection

MS FPC connection

contained in drive unit set STM 20 (020.808.477)

020.808.479

- FPC connection placed under fixing device of end stop
 - This solution requires enough space on the side



Attaching drive module D-STA / E-STA 9

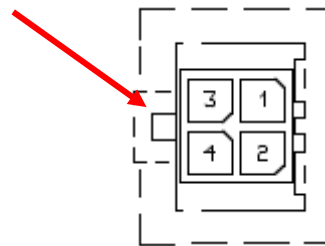
- FPC connection integrated in the casing
 - Can also be fitted on narrow installations
 - Drilling Ø 13 mm must be absolutely ACCURATE
 - Use instant glue as anti-twist device



- Connector pin assignment for FPC connection

- Connection 1 (cable: white)
data bus → CAN-H
- Connection 2 (cable: red)
data bus → CAN-L
- Connection 3 (cable: green)
feed = 24 V
- Connection 4 (cable: black)
feed = 0 V

Cam-lock for FPC
connector



View of FPC connection

10. Operator casing D-STA / E-STA

MS casing mounting bracket + holding bar

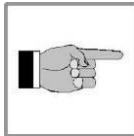
020.808.471

Additional material needed for casings longer than 3.5 m:

MS casing mounting bracket > 3.5 m
--

020.808.719

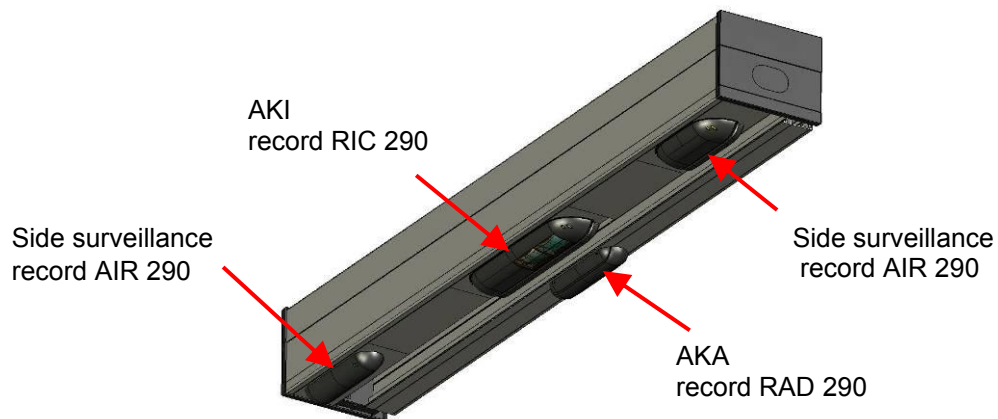
10.1. Preparing casing profiles



NOTE

- Any necessary cutting-out or drilling should be done at the factory
- The appropriate templates are delivered together with the sensors

Example: record sensor line 290



ATTENTION

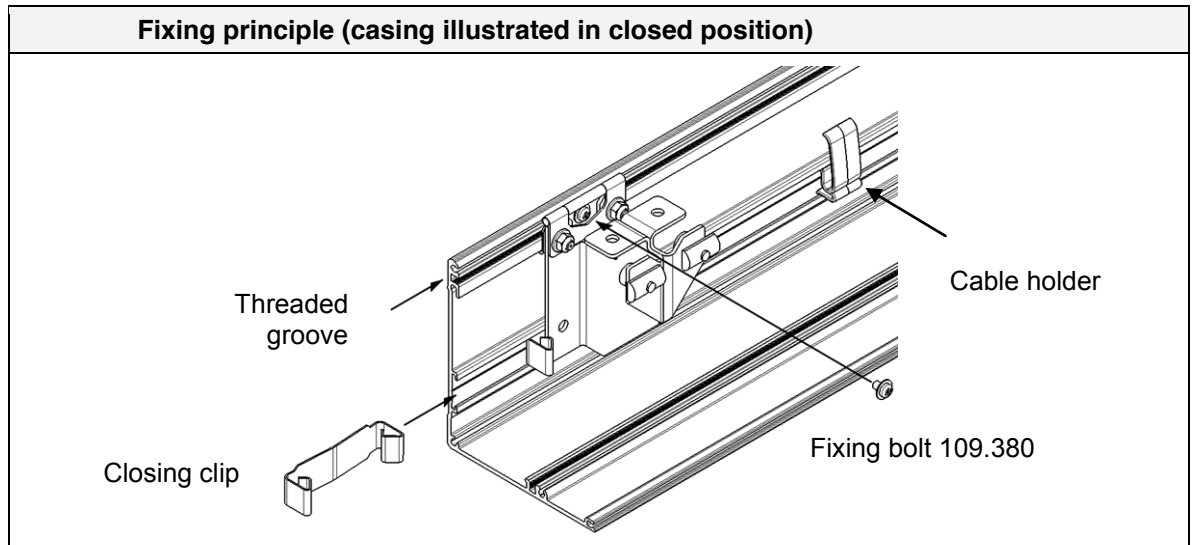
Take care that no metal dust falls into the drive mechanism.



ATTENTION

With a casing height of 108 mm, it is impossible to fit a record RIC 290 inside the casing for space reasons.

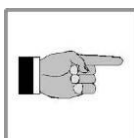
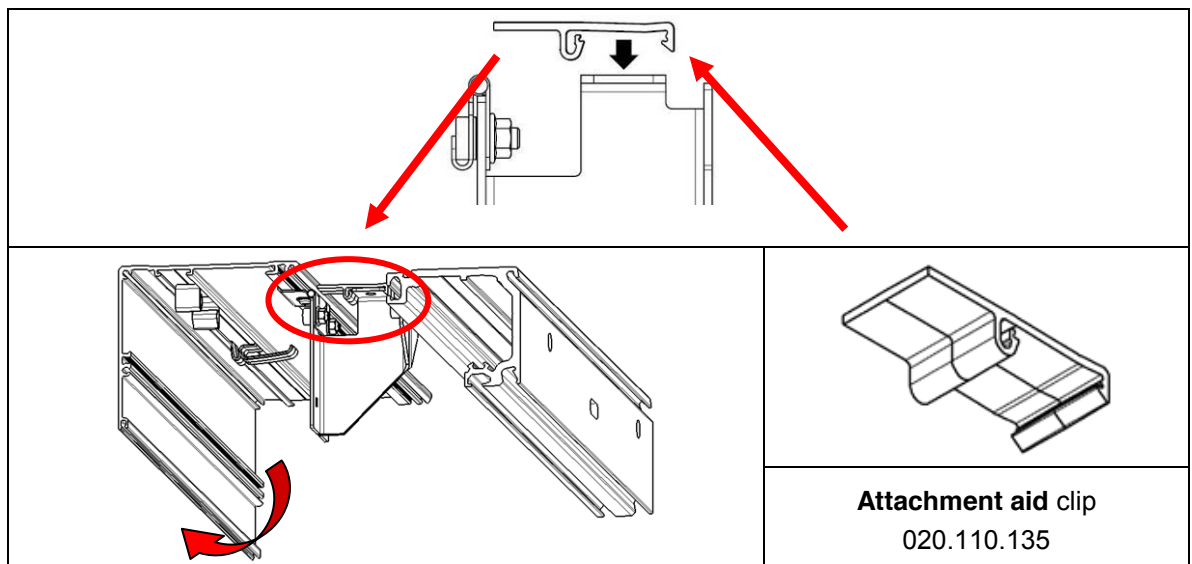
10.2. Fitting operator casing



CAUTION

For safety reasons the casing must be tightened to the hinges (special threaded groove in casing profile) with screws (no. 109.380). This prevents the casing from falling while opening.

- Fix casing mounting brackets left and right of the track support profile
- Slide attachment aid clips into groove of casing



NOTE

Attachment aid clips prevent casing from slipping out backwards while opening, when fixing bolts 109.380 are not yet firmly screwed. Besides, they hold cables in place.

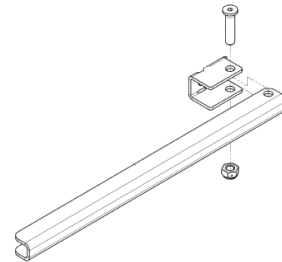


ATTENTION

For casing lengths $L > 3.5 \text{ m}$, use 3 hinges (MS 020.808.719)

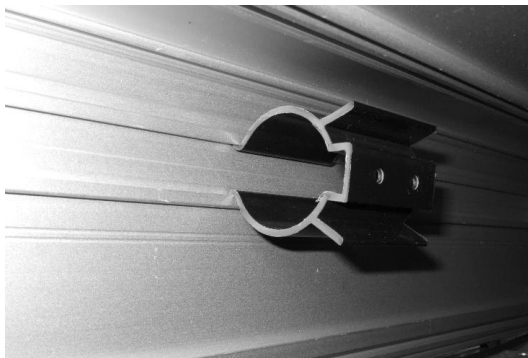
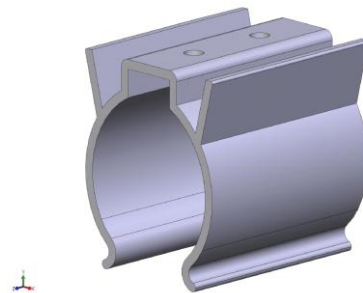
10.2.1. Fixing holding bar

- Holding bar allows keeping casing open (is contained in MS 020.808.471)
- Attaching holding bar onto track support profile (nut on the bottom)



10.2.2. Document-holder

- Position document-holder at the most appropriate place (free spot in the operator with minimum length of 22 to 30 cm)



Document-holder in casing profile



Document-holder with configuration sheet

10.3. Final step of casing installation

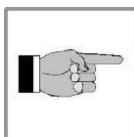
- If applicable, screw **side caps** onto casing. According to circumstances, this step can take place before mounting the casing



Casing edge is covered by side cap

Type of side caps	Door type	Mounting set
108 x 145 mm, plastic (standard), without cladding	STA	020.808.465
108 x 182 mm, plastic (standard), with cladding	STA	020.808.466
150 x 145 mm, plastic (standard), without cladding	STA	020.808.515
150 x 182 mm, plastic (standard), with cladding	STA	020.808.516

- Position casing onto cladding
- Close casing and check for alignment

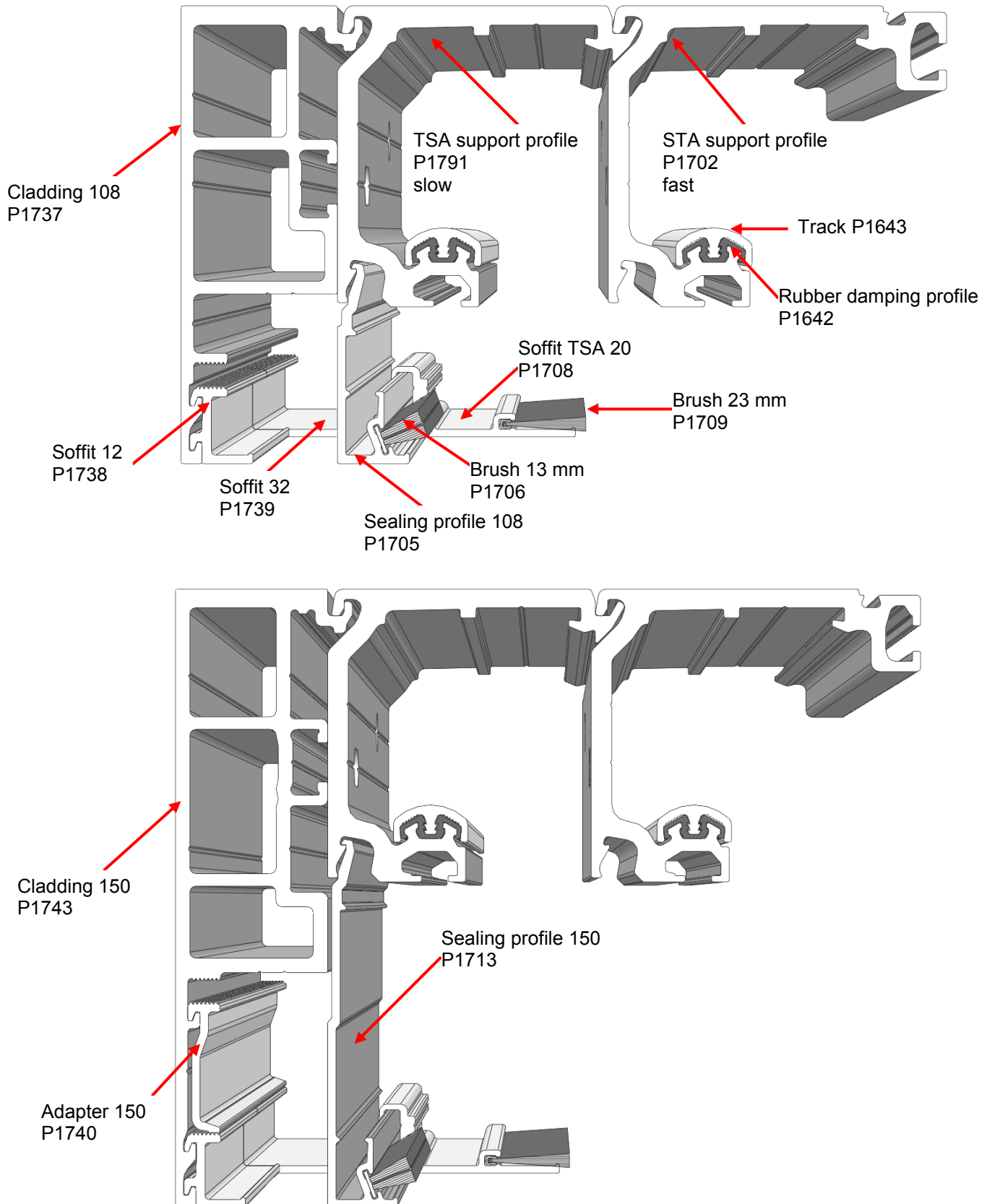


NOTE

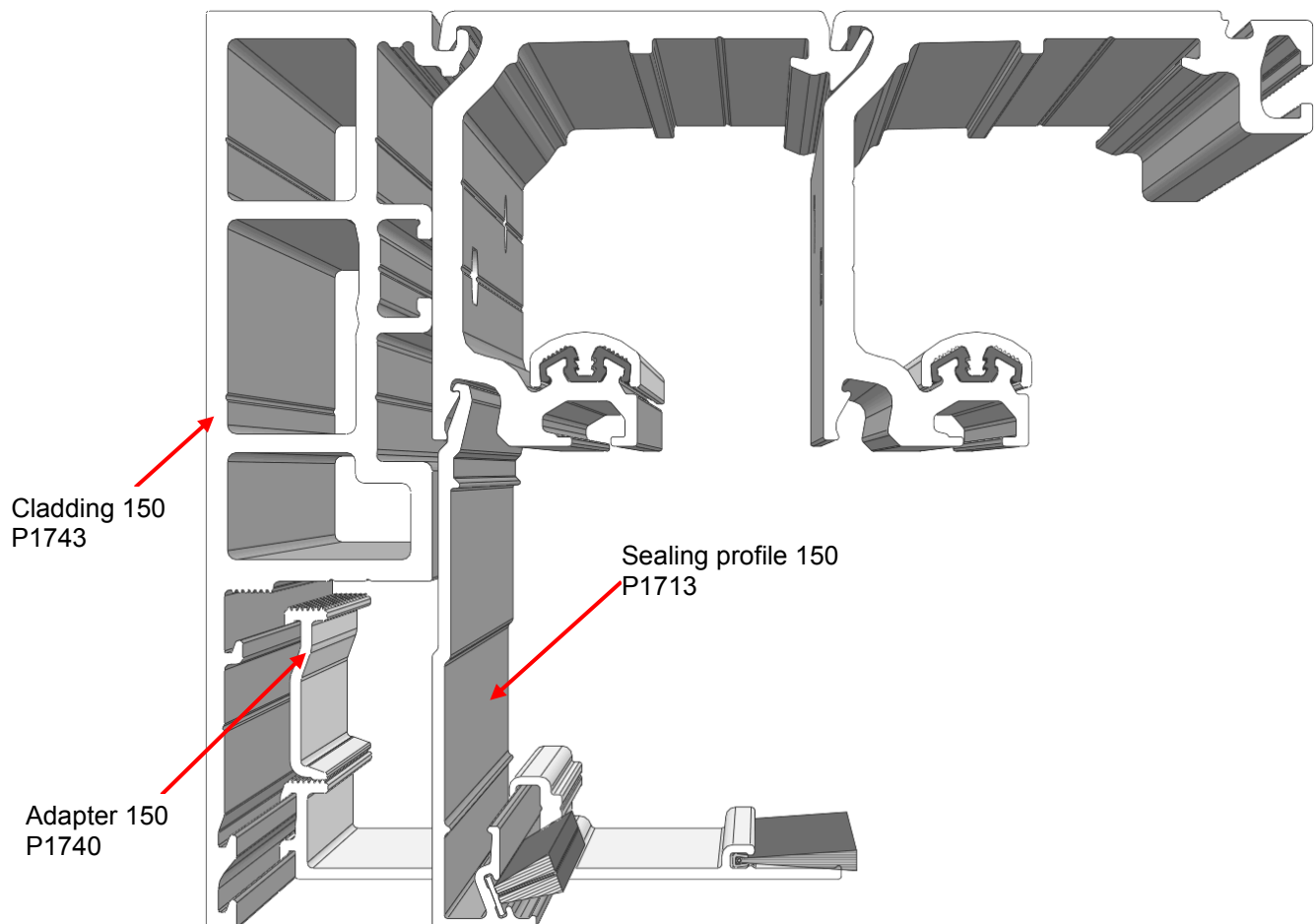
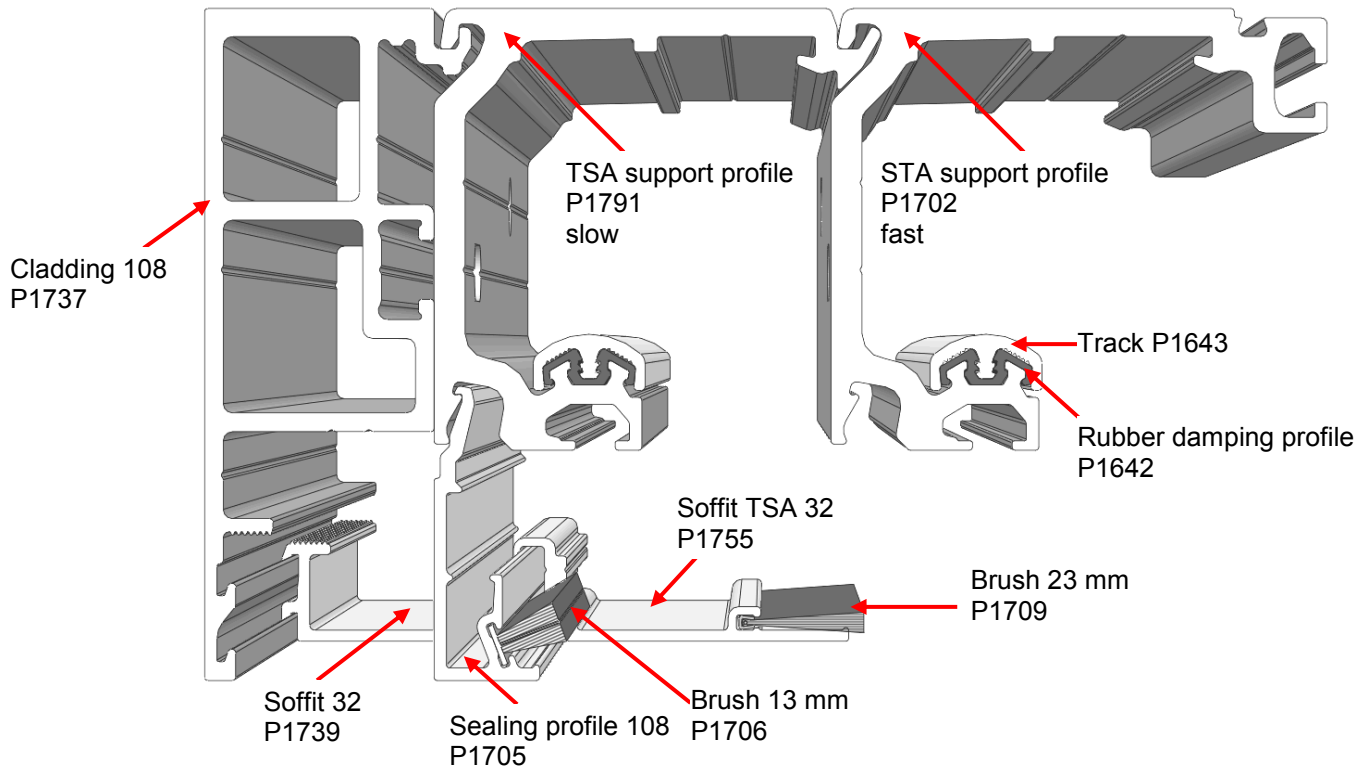
- Prepare attachment holes and cable routing for radar before mounting the casing.
- Operator casings are delivered in overlengths – adapt if necessary to the conditions on site.

11. Profile system D-TSA / E-TSA – overview

11.1. Telescopic profile system 20 (108 and 150 heights)



11.2. Telescopic profile system 32 (108 and 150 heights)



12. Self-supporting installation D-TSA / E-TSA

12.1. Lateral wall fixing of cladding

Same procedure as for D-TSA / E-TSA

12.2. Floor tracks

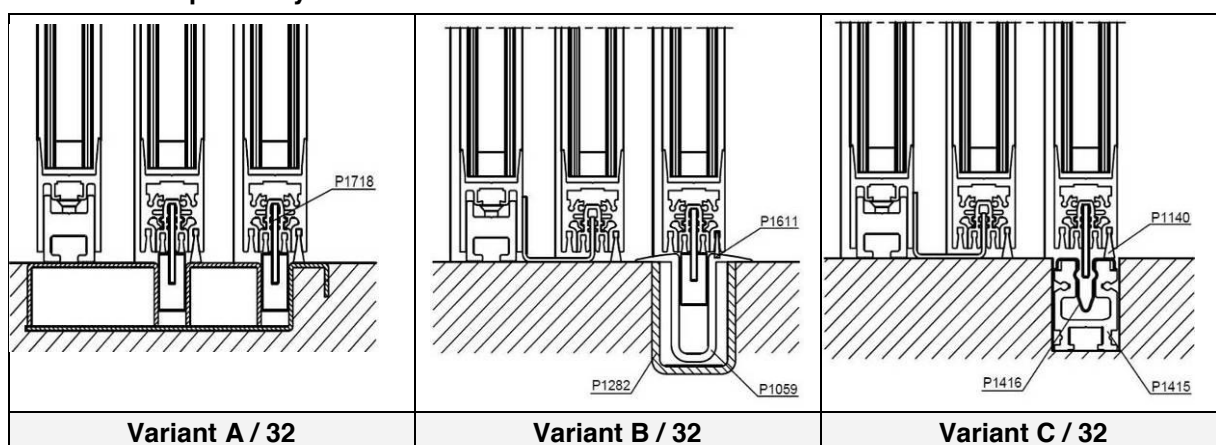
A floor track is basically used for outside doors or for doors with higher anti-burglary requirements.



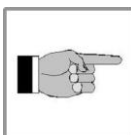
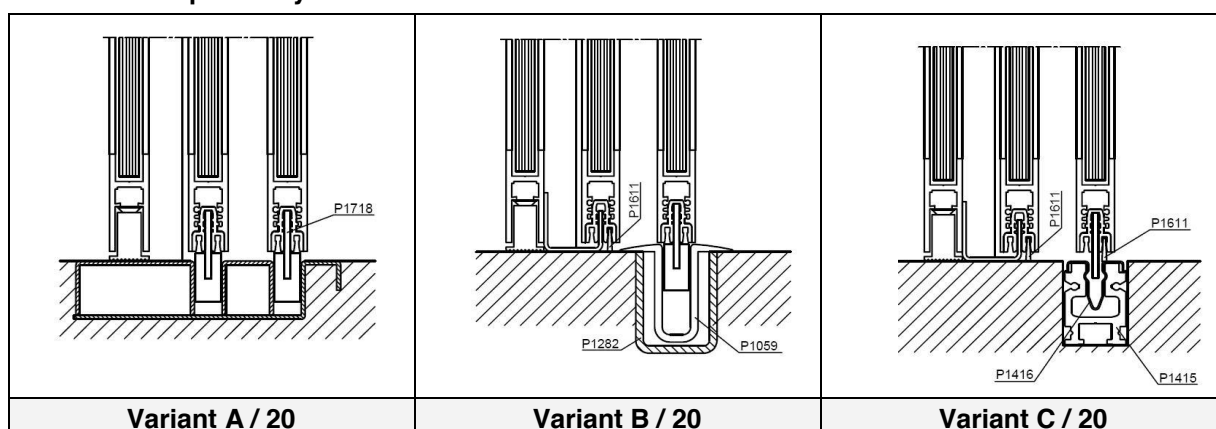
ATTENTION

- If a continuous – or partially continuous – floor track is planned, the appropriate profiles must be embedded in the floor before installing the door!
- For correct positioning please refer to relevant project drawings

12.2.1. Variants with profile system 32



12.2.2. Variants with profile system 20



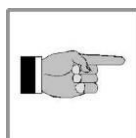
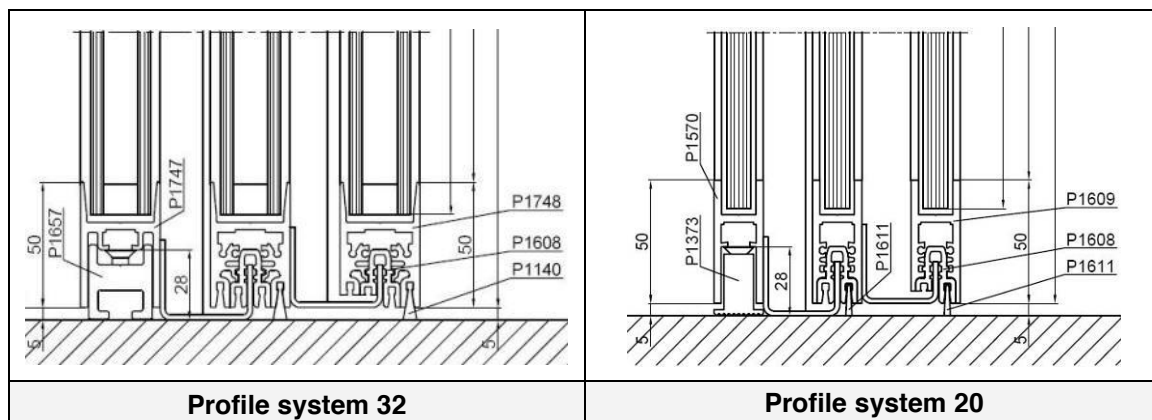
NOTE

In the event of problems with door leaves spacing, eccentric sliding elements (375.110.488) might help in variants A and B.

12.3. Door leaf guides

For inside doors traditional door leaf guides can be used.

Mounting analogue to paragraph *Fixing door leaf guides and side screen*



NOTE

For telescopic doors fitted with a locking device, the use of a floor track as in paragraph *Floor tracks* is recommended, especially in the case of wide doorways!

12.4. Preparing and mounting side screens / door leaves

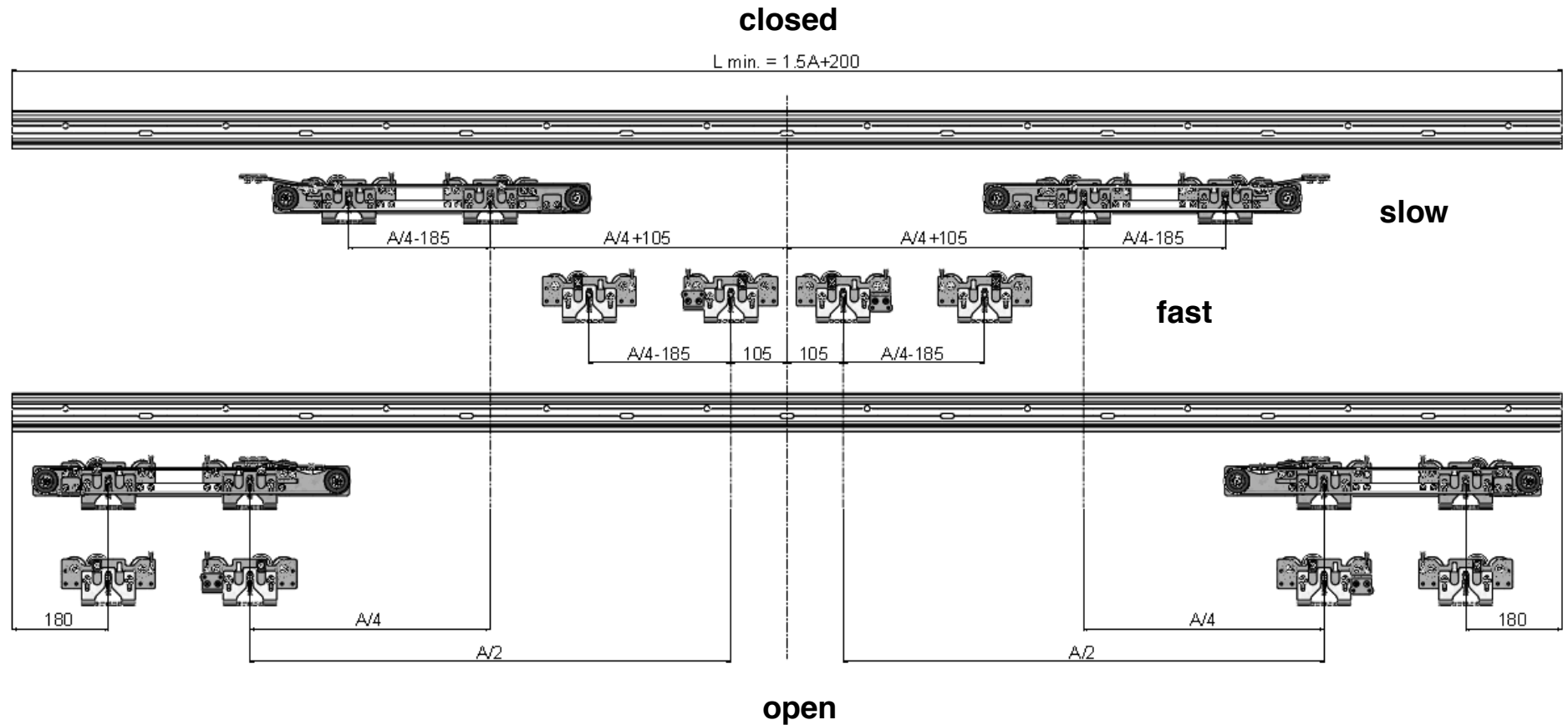
Mounting analogue to chapter *Self-supporting installation D-STA / E-STA*

12.4.1. Fixing ELS rubber into slow door leaf



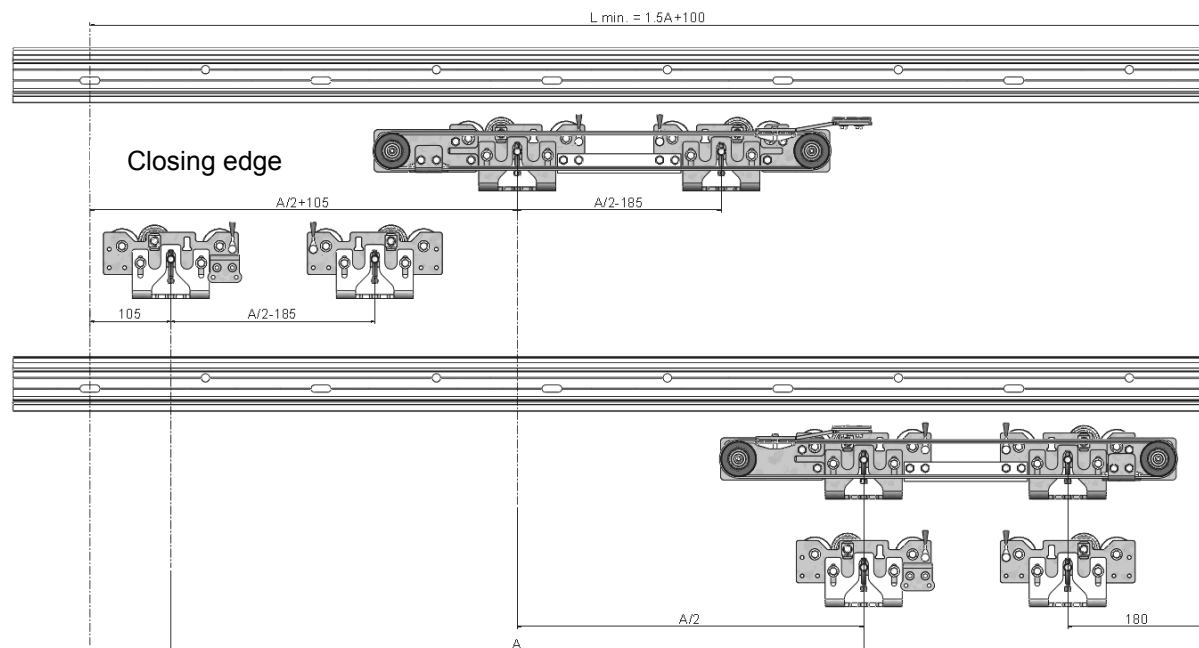
13. Attaching and adjusting carriages

13.1. D-TSA – closed and open positions

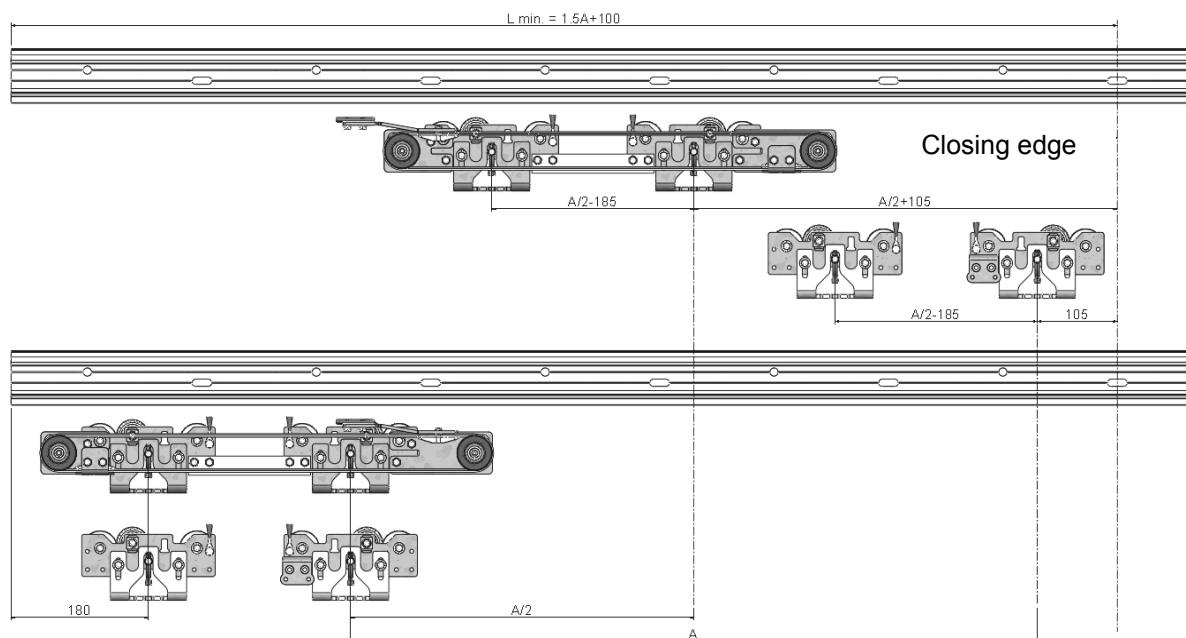


13.2. E-TSA – closed and open positions

Opening to the right



Opening to the left



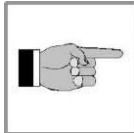
ATTENTION

With an E-TSA-L (opening to the left) position jumper JP4 to STM 20.

Installing slow running surface D-TSA / E-TSA} 14

14. Installing slow running surface D-TSA / E-TSA

MS track support profile connection + soffit TSA with diagonal braces	020.808.508
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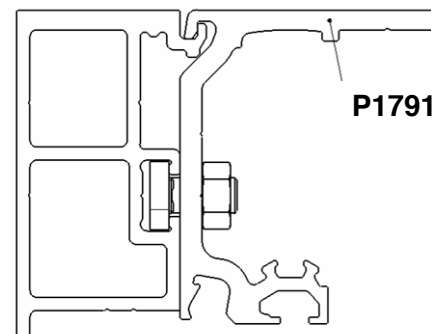
NOTE

The following mounting description applies to the **right** running gear. The procedure is similar for the left side.

14.1. Profiles – slow running surface



Fixing bolt



- Fix track support profile P1791 onto the cladding with fixing bolts
- At least 6 fixing points, evenly spaced
- Screw head height: max. 10 mm

Profile system 20

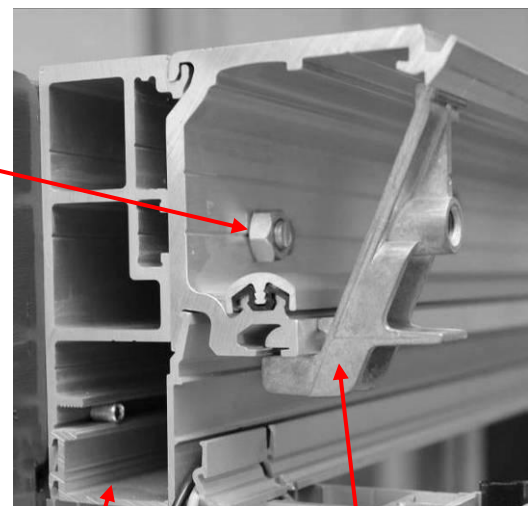
- Set soffit P1739 according to paragraph *Installing soffit in the side screen area*
- Insert and fix side screen according to paragraph *Inserting and fixing side screens*

Profile system 32

- Adjust side screen directly to the cladding and fix it

TSA diagonal braces

- Position diagonal braces according to paragraph *Positioning diagonal braces*



Soffit P1739

Diagonal brace TSA

Installing slow running surface D-TSA / E-TSA} 14

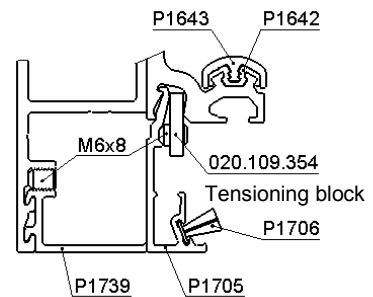


CAUTION

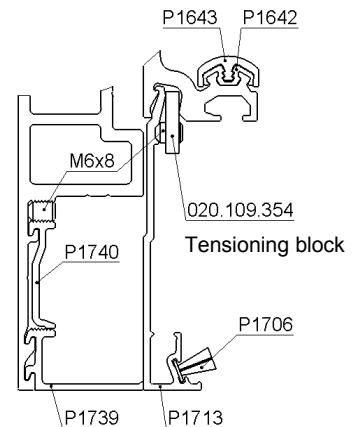
In case of a self-supporting installation, place the fixing bolts as near the ends as possible.

- Fix sealing profile P1705 (108 mm) or P1713 (150 mm)

- Cladding height **108 mm**
Sealing profile P1705 + brush P1706



- Cladding height **150 mm**
Sealing profile P1713 + brush P1706



- Prepare cable routing for ELS – if applicable
- Cut-out in sealing profile P1705 (108 mm) or P1713 (150 mm)



Installing slow running surface D-TSA / E-TSA 14

14.2. TSA carriage principle – slow running surface

- 1 Fixing point on track support profile
- 2 Connecting clamp for nubbed belt
- 3 Connecting bracket P1754

L = A/4-290 (D-TSA)

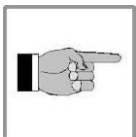
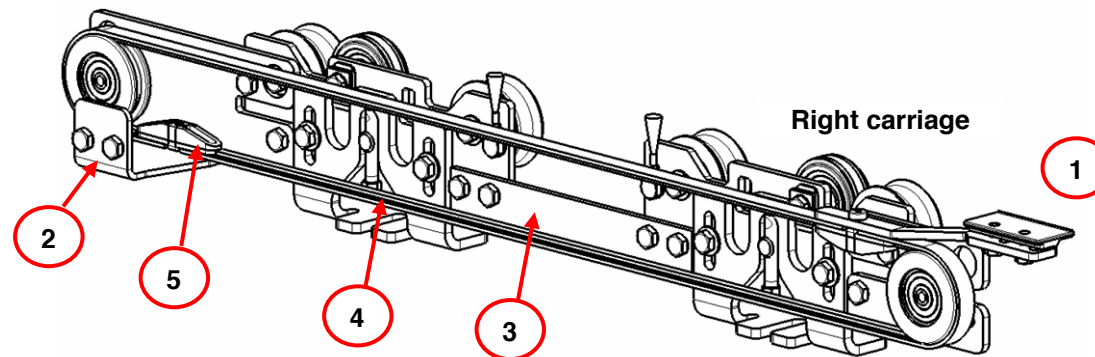
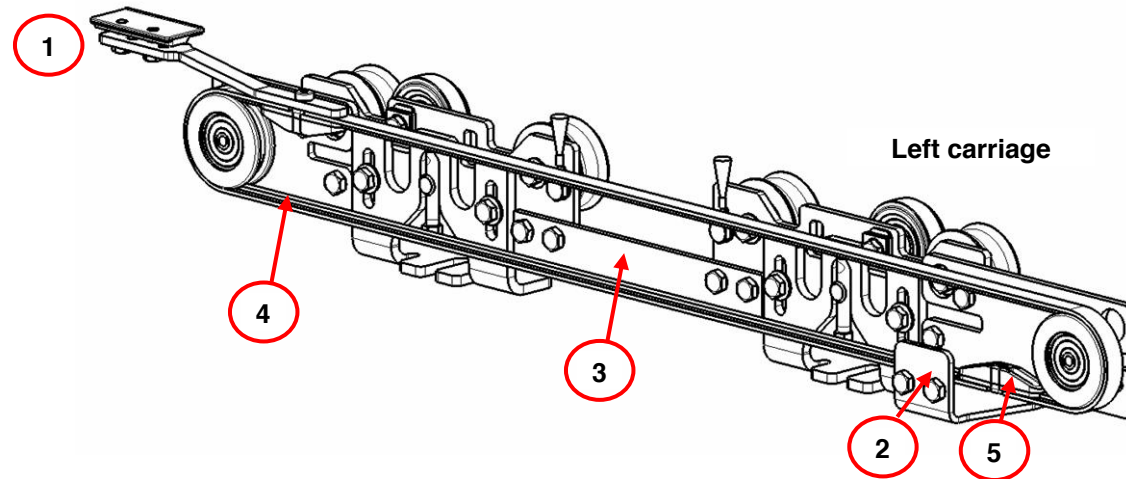
L = A/2-290 (E-TSA)

- 4 Nubbed belt N10-10

L = 2 * A/4+160 (D-TSA)

L = 2 * A/2+160 (E-TSA)

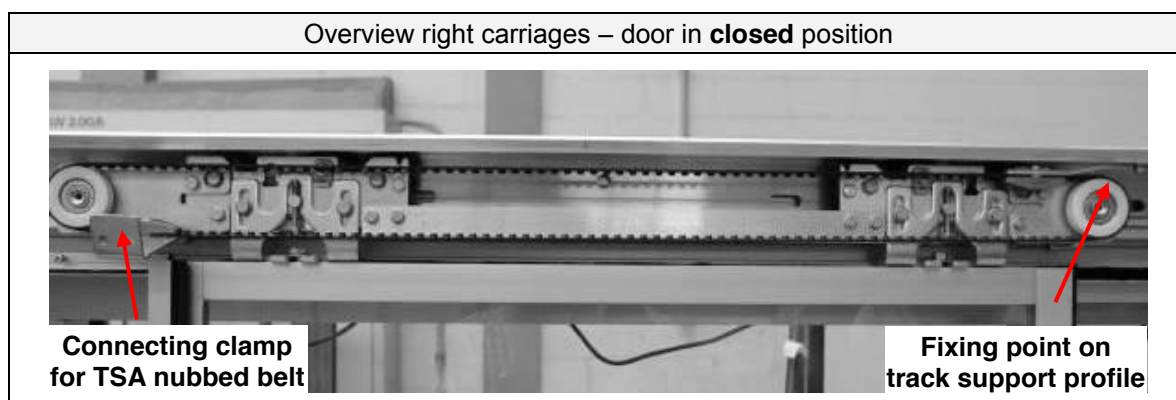
- 5 Belt fastener TSA



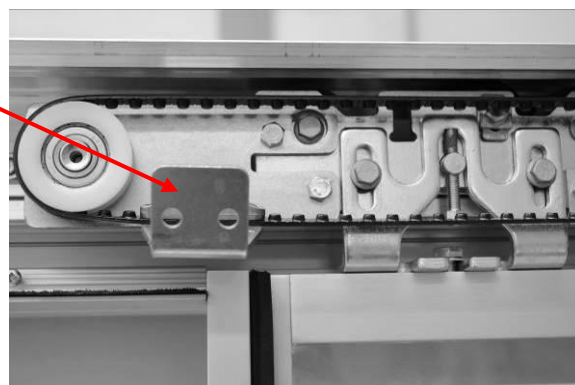
NOTE

The carriages of the slow running surface are delivered to the building site "pre-assembled and adjusted to the specific passage width".

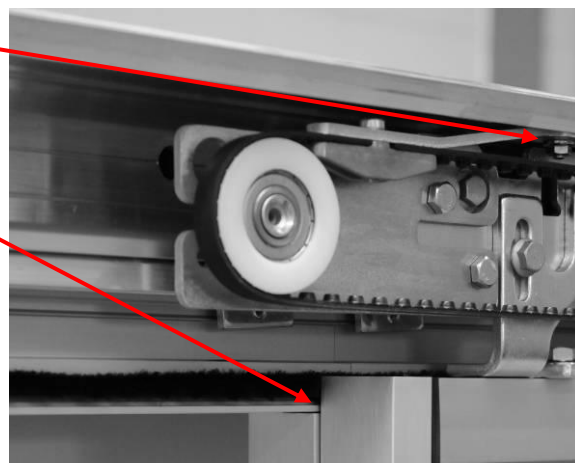
14.3. Adjusting door leaves – slow running surface



- Nubbed belt connecting clamp for later fixing of fast running carriage
- Door in **closed** position



- Fixing point on track support profile
- Door leaf must be adjusted to side screen
- Door in **open** position

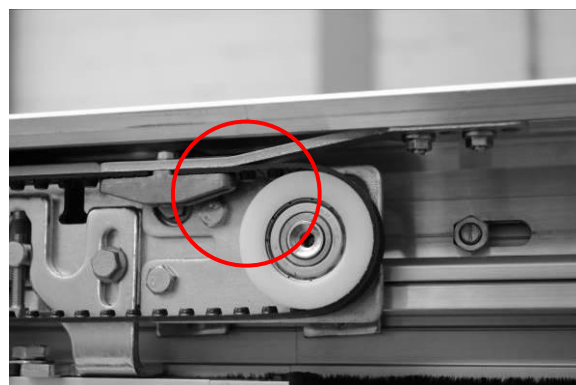
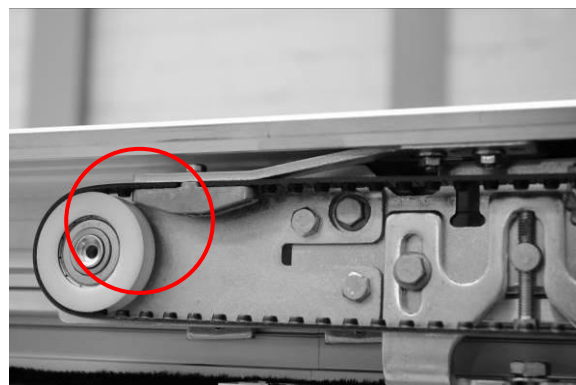


Installing slow running surface D-TSA / E-TSA 14

- Correct fixing point on track support profile

- **Control**
Slide door leaf manually in closed or open position

In both cases the belt fastener should not come into contact with the guide pulley of the nubbed belt and should not touch the carriage



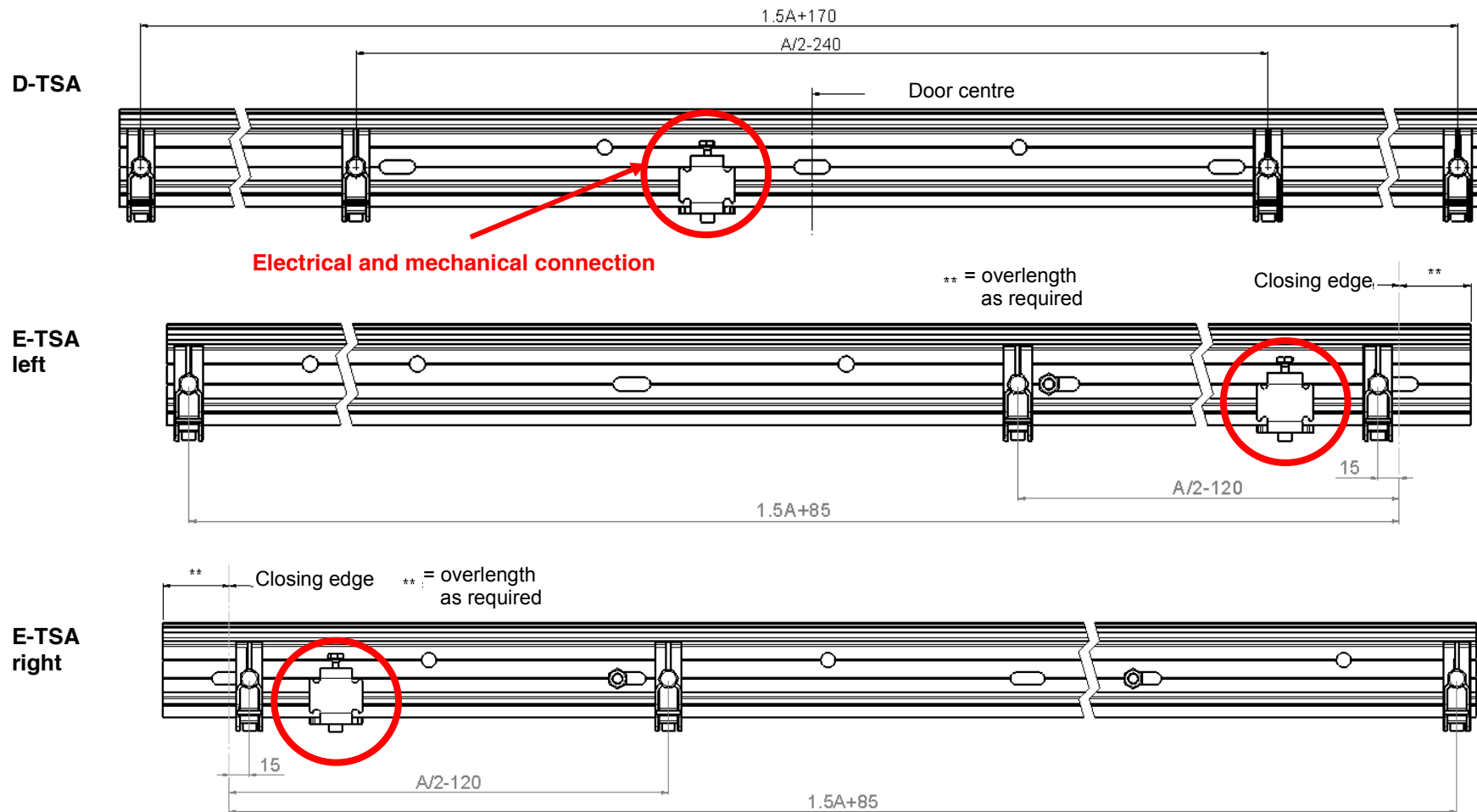
- Correct positioning of tensioning element in support profile



Installing fast running surface D-TSA / E-TSA 15

15. Installing fast running surface D-TSA / E-TSA

15.1. Positioning diagonal braces

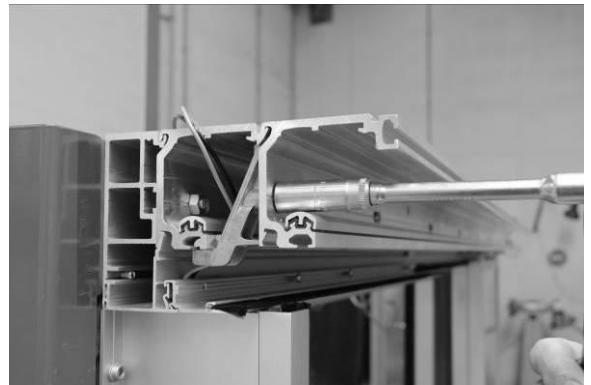


15.2. Profiles – fast running surface

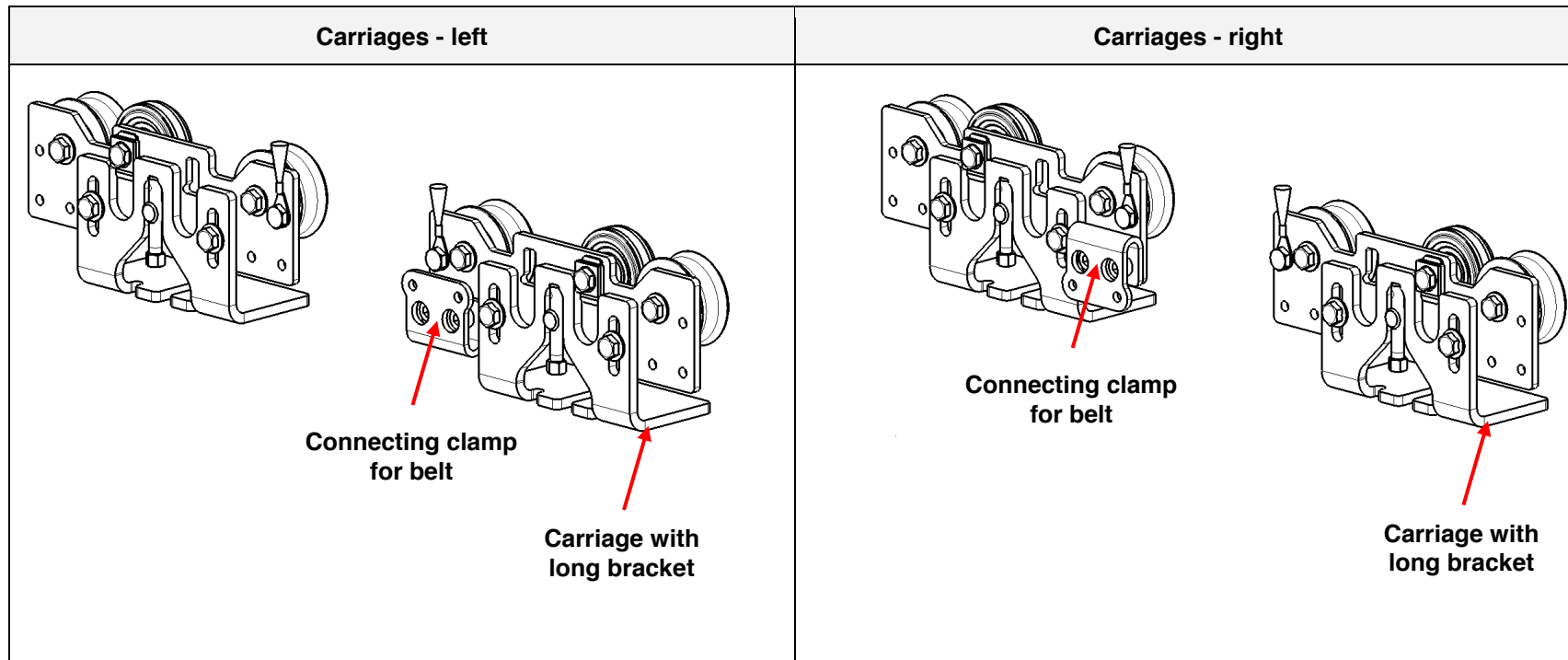
- Determine the number of necessary diagonal braces according to the above information
- Fix diagonal braces onto TSA track support profile (P1791)
- Insert connecting elements (end stops). These are indispensable for the electrical and mechanical connection between track support profile and track
- Insert STA track support profile (P1702) with track (P1643) into TSA track support profile (P1791)
- Screw STA track support profile (P1702) onto diagonal braces
- In order to improve stability it is recommended to install a connecting plate (020.808.591) per 2 meters support length
- Connecting plates are placed between diagonal braces and screwed from underneath.
- Screw TSA 32 soffit (P1755) – or TSA 20 soffit (P1708) – to sealing profile
- Clamp profile together around 23 mm brush (P1709)
- Take care that no marks appear on the soffit surface at this stage

Variant:

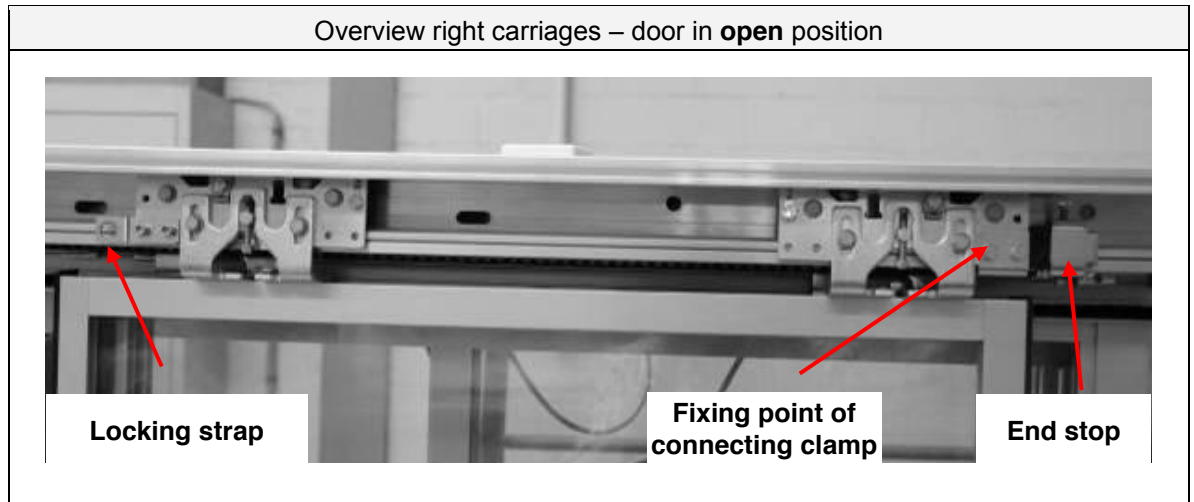
- Slightly bend 23 mm brush before inserting it



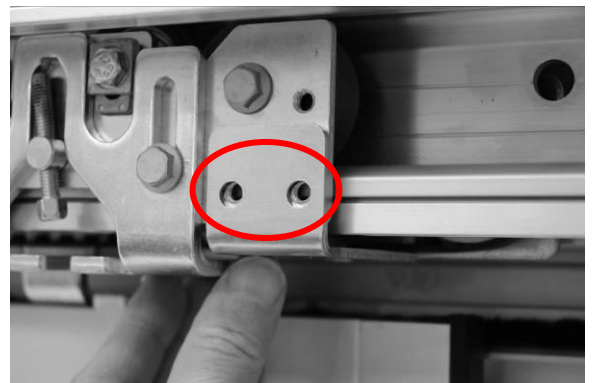
15.3. TSA carriage principle – fast running surface



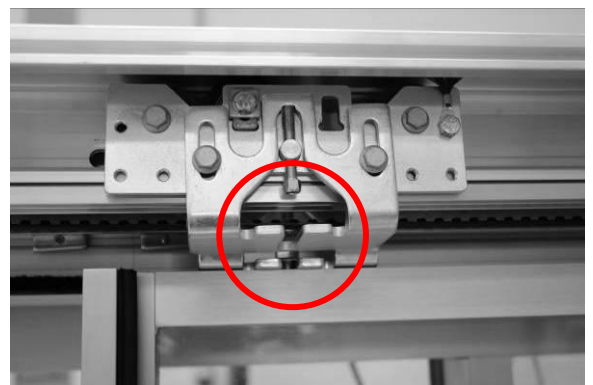
15.4. Adjusting door leaves – fast running surface



- Insert carriages
- Adjust right carriage head to connecting clamp of nubbed belt
- Fix it with 2 screws to connecting clamp of slow running carriage



- Hang door leaf and adjust it
- **Control:**
Adjust door suspension slots of both carriages (slow / fast) in open position



Installing fast running surface D-TSA / E-TSA 15

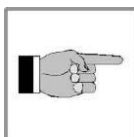
- Then slide both door leaves manually in open position
- Position end stop and fix it



- Fix locking strap
- Check that fixing bolts of door leaf are firmly tightened



- Check closed position by hand
- Check for proper tightness of closing edges
- If required, adjust door leaf
- Fix end stop in closed position
- Control and adjust locking strap with bolt



NOTE

Similar procedure with bi-parting telescopic doors D-TSA.

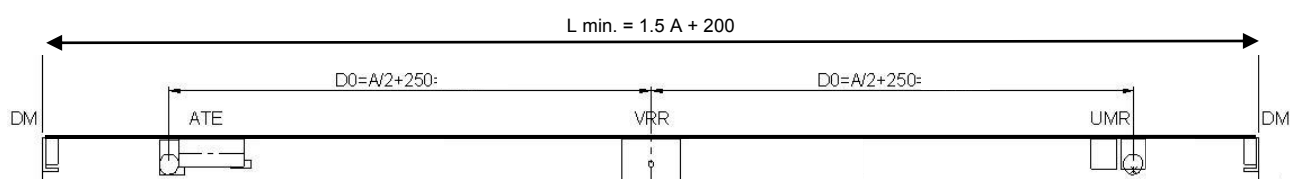
16. Attaching drive unit set D-TSA / E-TSA

Drive unit set STM 20

020.808.477

16.1. Axle spacing drive unit / guide pulley

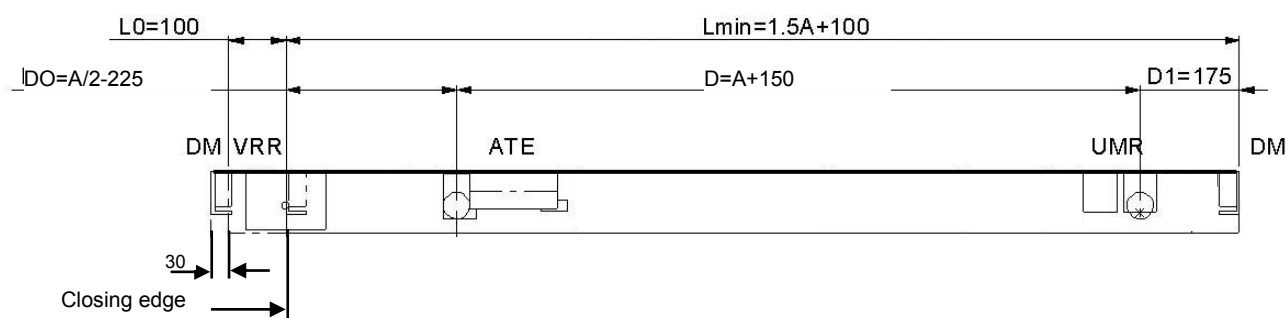
16.1.1. Axle spacing D-TSA



Standard opening widths 1440 – 4000 mm

Total length of toothed belt $2A + 1144$ mm

16.1.2. Axle spacing E-TSA



Standard opening widths: 800 – 3000 mm

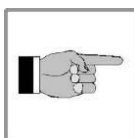
Total length of toothed belt: $2A + 444$ mm

Deviations from minimum A: According to the option selected, the following data apply:

Lead-acid battery	Lead-acid batt. + FEM-0
900 mm	1050 mm

Legend

D0	=	Distance pulley / closing edge
D1	=	Distance pulley / opposite side
L0	=	Support overlength at closing edge
DM	=	Wall console in self-supporting installation



NOTE

If using an MPV 20, spaces between ATE (motor) and UMR (pulley) must be increased by ca. 100 mm and toothed belt must be cut 200 mm longer.

16.2. Locking devices on TSA

The locking devices are basically identical to those on a standard single or bi-parting sliding door.

See chapter

Attaching drive module D-STA, E-STA

and more particularly paragraph

Standard locking device

Operator casing D-TSA / E-TSA

MS casing mounting brackets + holding bar
--

020.808.471

Additional material needed for casings longer than 3.5 m:

MS casing mounting bracket > 3.5 m
--

020.808.719

16.3. General remark

Mounting the operator casing is carried out in a similar way for either a single or a bi-parting sliding door.

16.4. Side caps for telescopic installations

Type of side caps	Door type	Mounting set
108 x 210 mm, plastic (standard), without cladding	TSA	020.808.517
108 x 247 mm, plastic (standard), with cladding	TSA	020.808.518
150 x 210 mm, plastic (standard), without cladding	TSA	020.808.519
150 x 247 mm, plastic (standard), with cladding	TSA	020.808.520

TOS installations – for escape and rescue routes

16.5. Description of function

A TOS (Total Opening System) installation is an automatic sliding door, which can, if necessary, be swivelled out from any initial position towards outside by 90° by pushing from inside.

For safety reasons, an optional night locking device precludes unauthorized opening as well as swivelling out door leaves and side leaves. If using a TOS installation on escape and rescue routes, safety features are monitored by micro-switch.

Application range

TOS installations have a wide range of applications. Due to the possibility of swivelling out door leaves and side leaves, this system is particularly appropriate in the following cases:

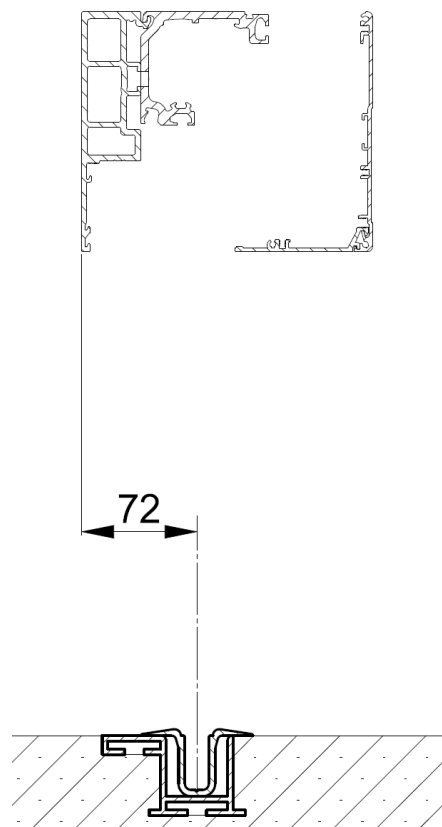
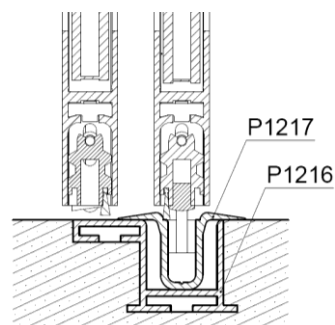
- escape and rescue routes, taking into account country-specified safety guidelines
- exhibition halls, which are meant to house bulky items
- normal pedestrian doorways

17. Self-supporting installation D-TOS / E-TOS

17.1. Fitting floor track

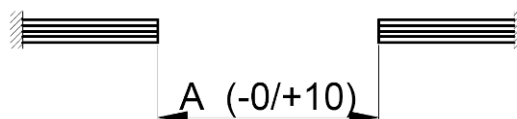
How to proceed:

- Delivery beforehand of track to be built into the floor
- Deliver appropriate data about exact position
- Floor track positioning according to data opposite



Two-section floor track

- Adjust to A-dimension according to data opposite



17.2. Mounting support structure

The fitting procedure (wall bracket / support profile / cladding and track) is identical to that of a normal D-STA door.

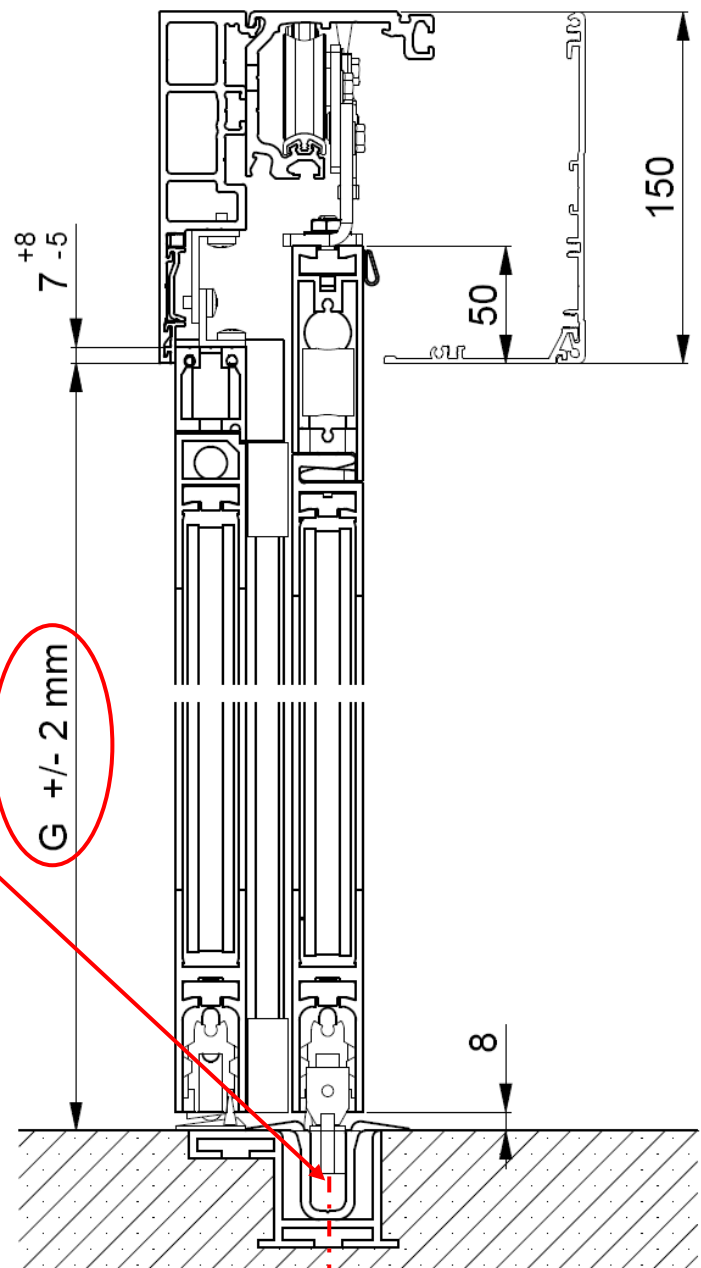


ATTENTION

While positioning the support structure, special care must be paid to the **mounting height**. Subsequent height adjustment of door and side leaves is limited. Strictly observe measures below. Possibility of corrections is very narrow!

Correct fitting height

- Observe carefully G-dimension while mounting support structure!
- Compared to the version used before, the side leaf is 3 mm higher to improve height adjustment possibilities of door leaf.
-
- Should tolerances shown opposite not be respected, the door leaf cannot be swivelled out from under the frame structure of the side leaf !
- After aligning door leaf / floor track, floor track is fixed with screws at the bottom



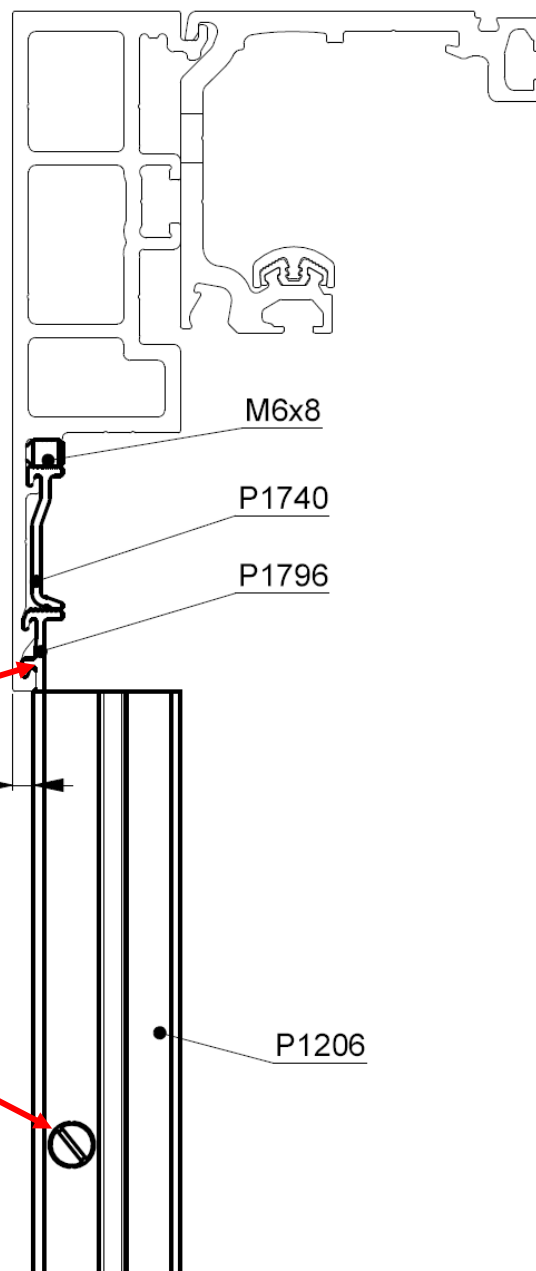
17.3. Installing wall connection profiles

- Wall connection profiles have to absorb increased forces when door/side leaves are being swivelled out, and they must firmly be fixed into the wall in order to avoid loosening

- **Observe:** → inside aligned

- Choose appropriate fixing material according to sub-surface
- Care for sufficient fixing points

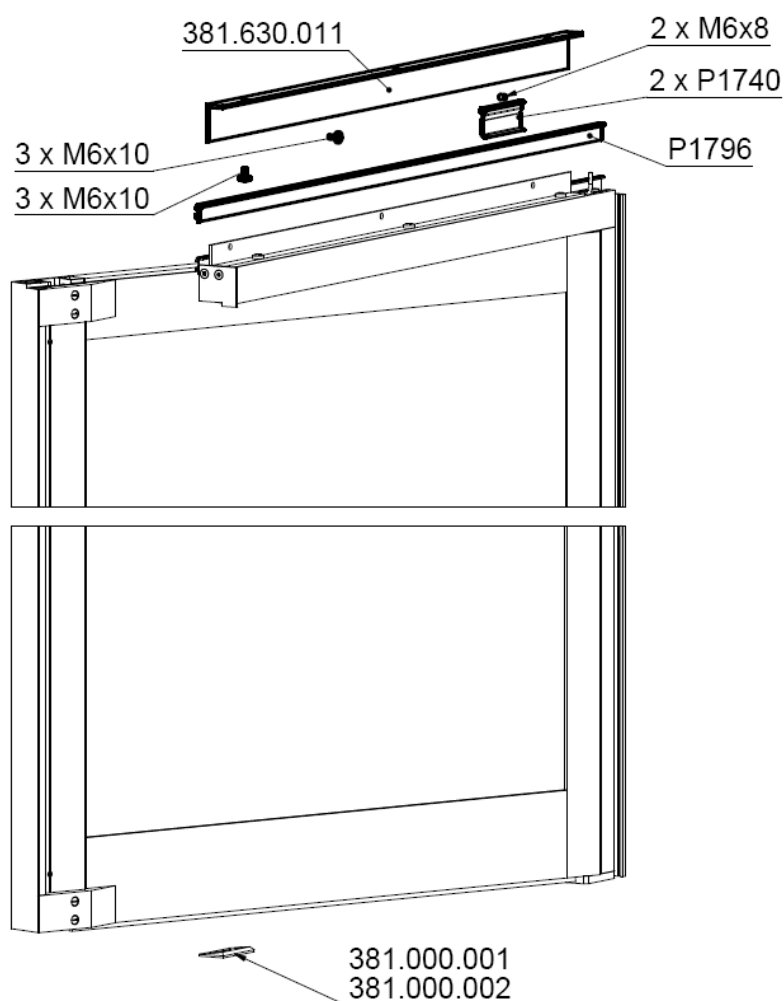
- Light partition walls, plasterboards, etc. are not suitable for proper fixing of a TOS installation



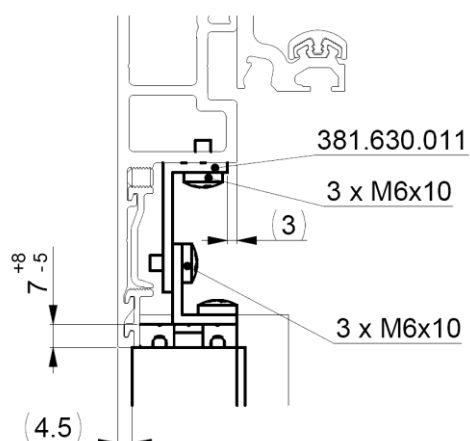
17.4. Inserting side leaves

MS TOS left swivelling side leaf, site	381.630.008
MS TOS right swivelling side leaf, site	381.830.005

Components overview

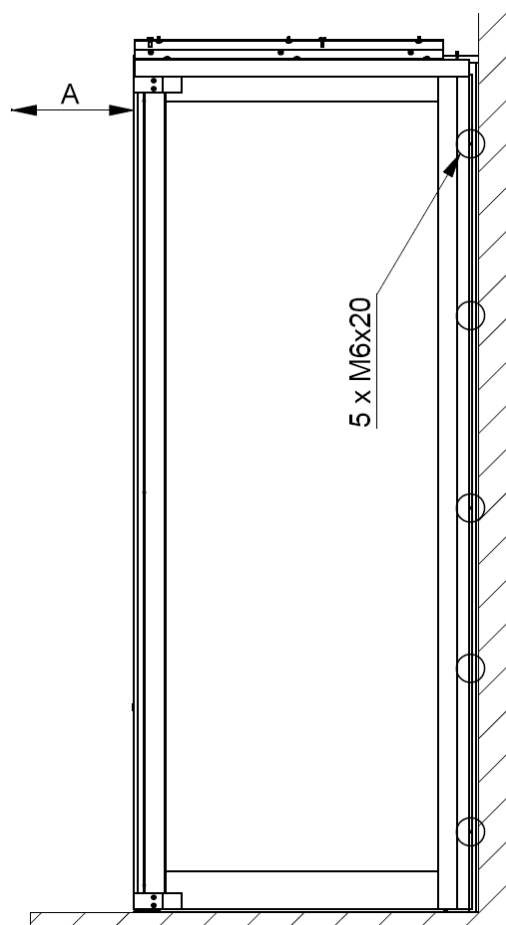


- Screw top L-shaped profile (381.630.011) to cladding
- Use front threaded groove!
- Insert side leaf into place



Adjusting side leaves

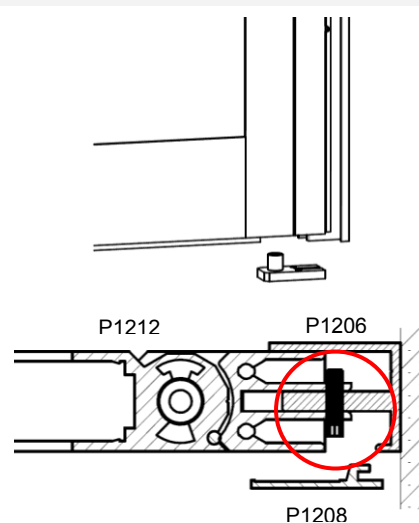
- A-dimension must be exactly respected
- Side leaves must absolutely be inserted **vertically**!
- Screw to rotating point according to information below



Details from above overview

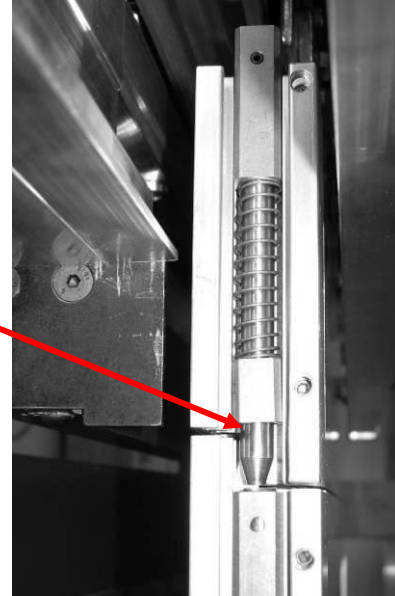
Side leaf – bottom pivot bearing

- Is delivered to site pre-assembled and integrated in side leaf
- No adjusting required
- Fit together with M6x20
- Insert cover profile P1208 and partially fix it with double-sided tape
- Screws and adhesive tape are contained in mounting set TOS side leaf site



17.5. Fitting and adjusting door leaves

- **Door leaves** are delivered to site with pre-fitted door furniture
- If using a **multipoint locking device (MPV)**
 - control locking rods
 - control easy sliding of device
 - parted rods (L-shaped frame / door profile)

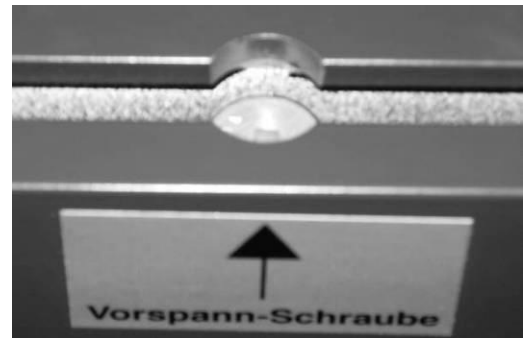


Floor roller

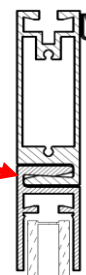
- Is recommended if A-dimension > 2000 mm
- Prevents door leaves, when swivelled out, from sinking too much
- Floor should be even – a sloping floor cannot ensure flawless operating

Door leaves: initial tension / height adjustment

- Door leaves are basically fitted and adjusted in the same way as for a normal sliding door
- Pay careful attention to: correct initial tension (adjustable in L-shaped frame)

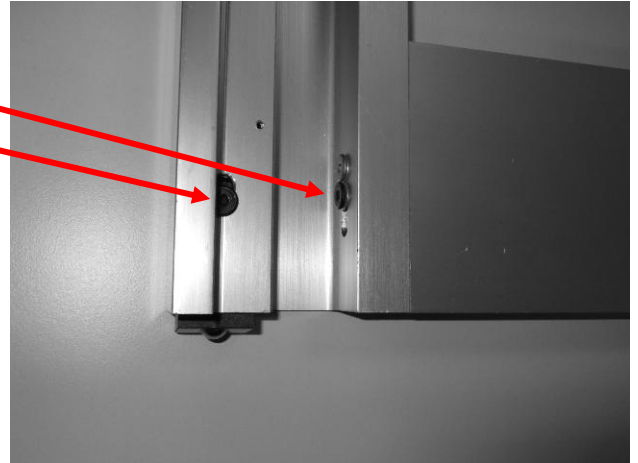


- Make sure that door leaves, when swivelled out, can be smoothly inserted into top suspension profile
- Control height adjustment: door leaves must be able to pivot under horizontal slide-in profile (P1209 – side leaf)



Self-supporting installation D-TOS / E-TOS 17

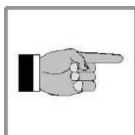
- Adjust height of brushes on door/side leaves
- Front adjusting bolt on side leaf is near to adjusting bolt of bottom latch



- Rear adjusting bolt is hidden in rounded profile and can only be reached when leaf is swivelled out



17.6. Adjusting closing force of latches



NOTE

A special screwdriver for round nuts no. 9 is required!



ATTENTION

Door leaves and side leaves must be able to swivel out with a force of ca. 3.5 kg – measured at front edge.

17.6.1. Adjustment on side leaves

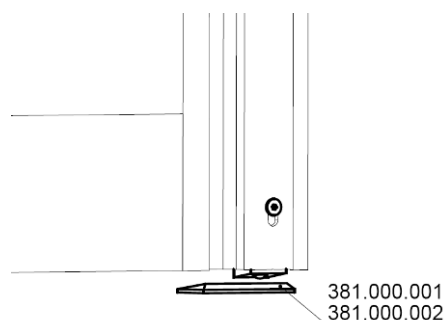
- Control closing force of latches
- Adjust with adjusting bolt illustrated opposite

Top latch



- Adjusting bolt is accessible under cover profile P1219

Bottom latch



17.6.2. Adjustment on door leaves

- Control closing force of top latch
- Adjust with adjusting bolt illustrated opposite
- Check switching point of switch for door leaves surveillance – door leaves in positions swivelled in and out



17.7. Surveillance of locking device, door leaves and side leaves

17.7.1. Principle of surveillance

A TOS door must be fitted with not only a normal locking device but also with a system ensuring that the swivelling-out device can be locked at night. In the automatic operating mode and on a door placed on an escape and rescue route, the locking device is also monitored to guarantee escaping at any time.

17.7.2. Installations fitted with MPV

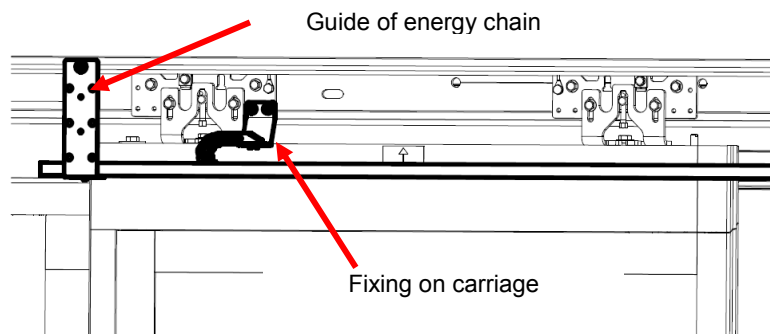
Regarding MPV fitting and adjusting, see explanations in the attachment of these instructions.



DANGER

For safety reasons, surveillance of swivelling point on **escape and rescue routes** is indispensable. This requires the fitting of an energy chain!

- **Fitting energy chain**



17.7.3. Installations with standard locking devices and manual rotary switches

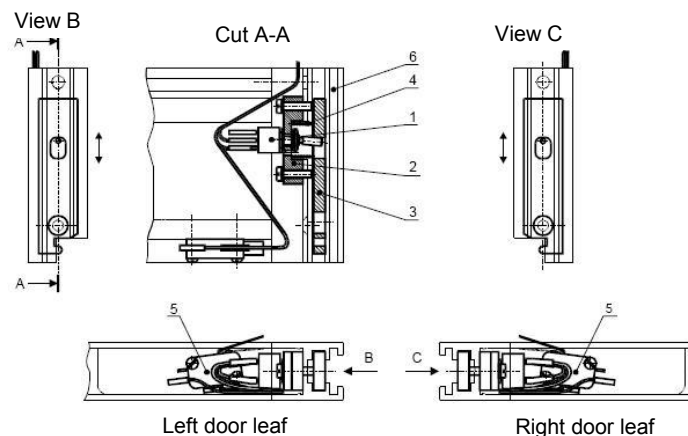
The locking device (rotary switches in door profile) is previously mounted into the door profile before being delivered to the site. Installation is carried out according to the following description.



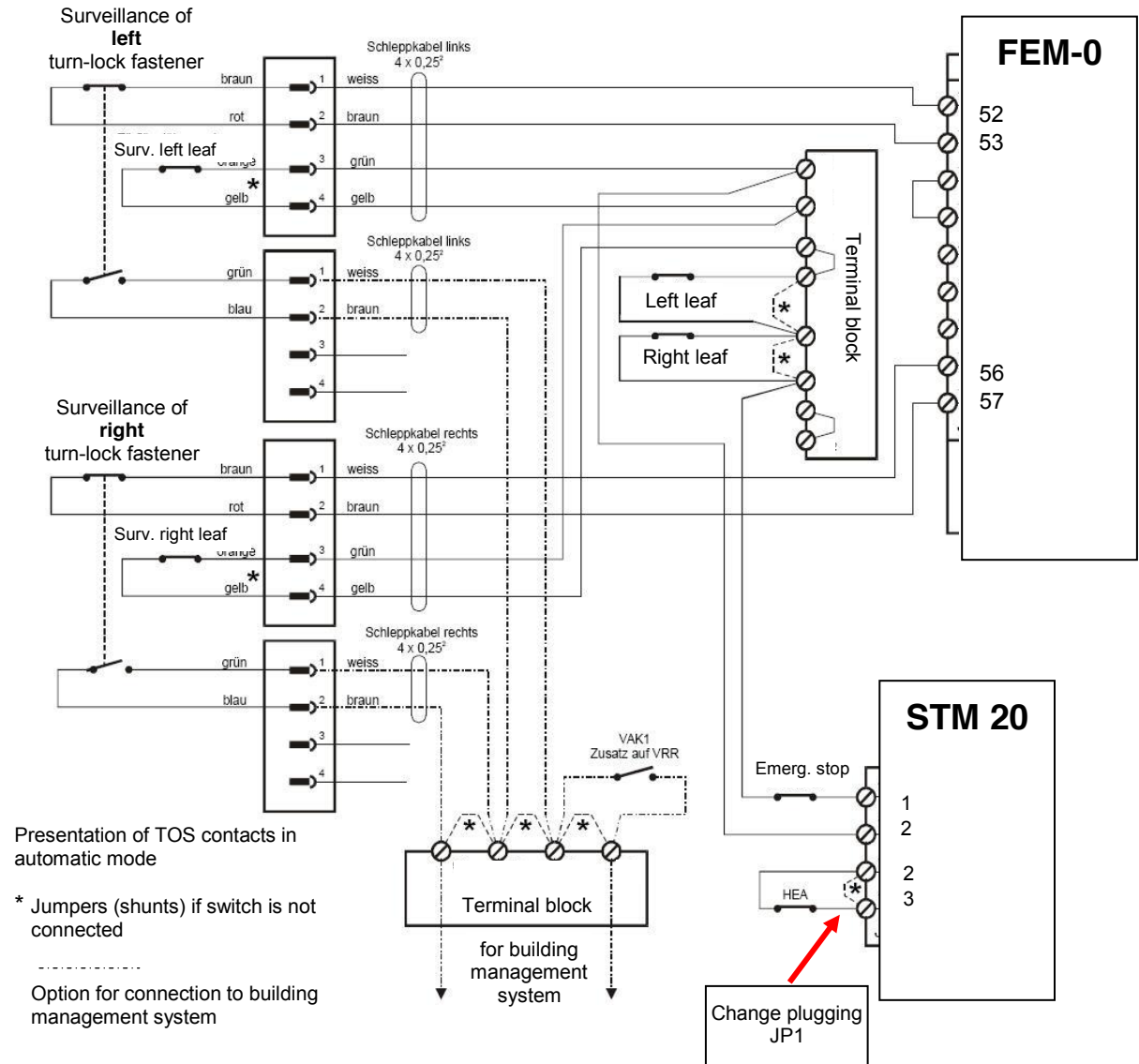
ATTENTION

To mount the following components, a FEM-0 is required!

- **Rotary switches for manual locking of swivelling-out device**



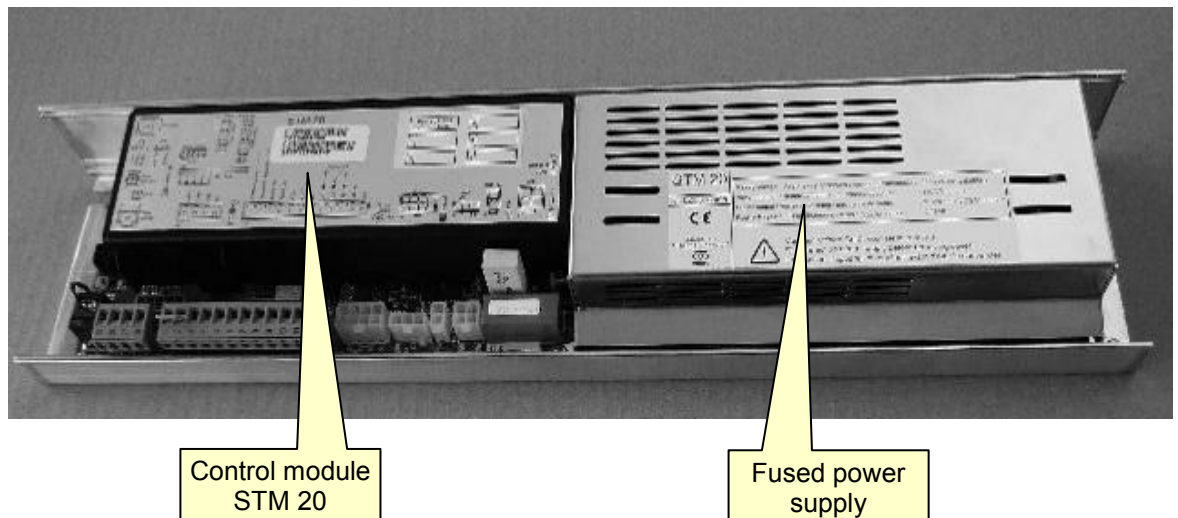
Electrical connections



18. Control module STM 20

18.1. Controlling elements on STM 20

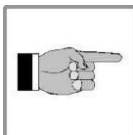
Control module STM 20 works with an active HIGH level. That means that a minimum of +24V is required to activate a function. Safety functions of inputs are activated in case of interruption. OV is connected to the ground. This connection can be interrupted for test reasons by use of the ground screw, located next to terminal 12. LED 2 (red) comes on.



ELECTRIC SHOCK

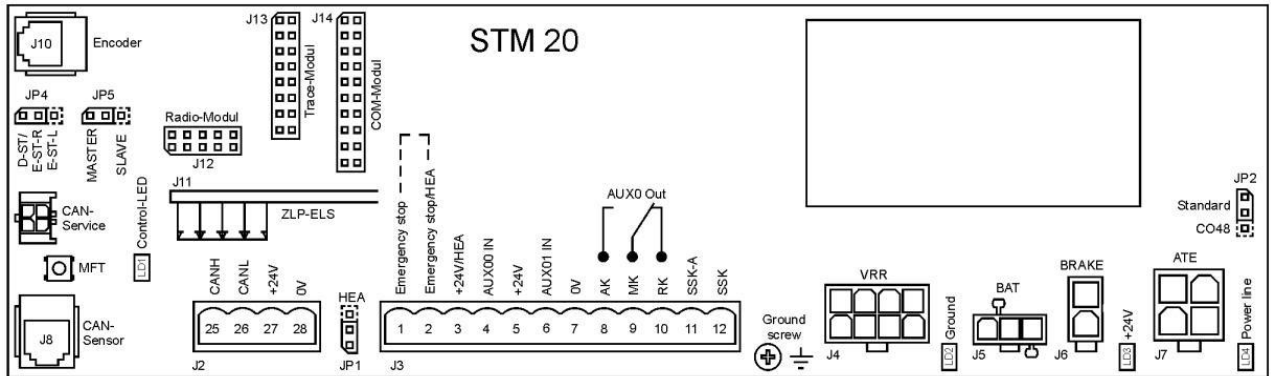


- Before opening the metallic cover of the power supply unit, disconnect it from the mains.
- The installation may only be connected to the mains again, **after** the protection cover has been closed again.



NOTE

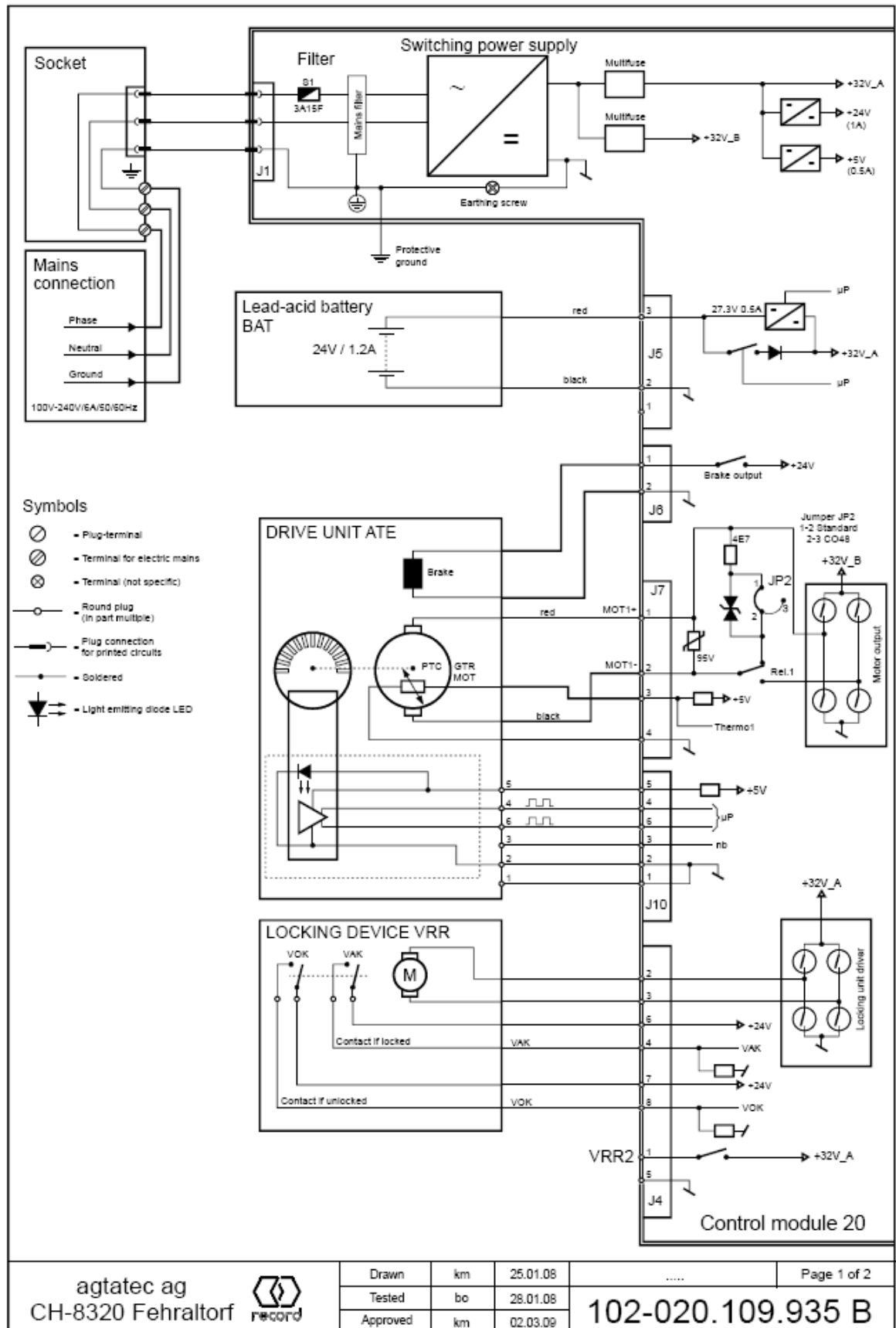
record STM 20 control module has been tested after ISO standard 13849-1:2006, category 2 PLc.

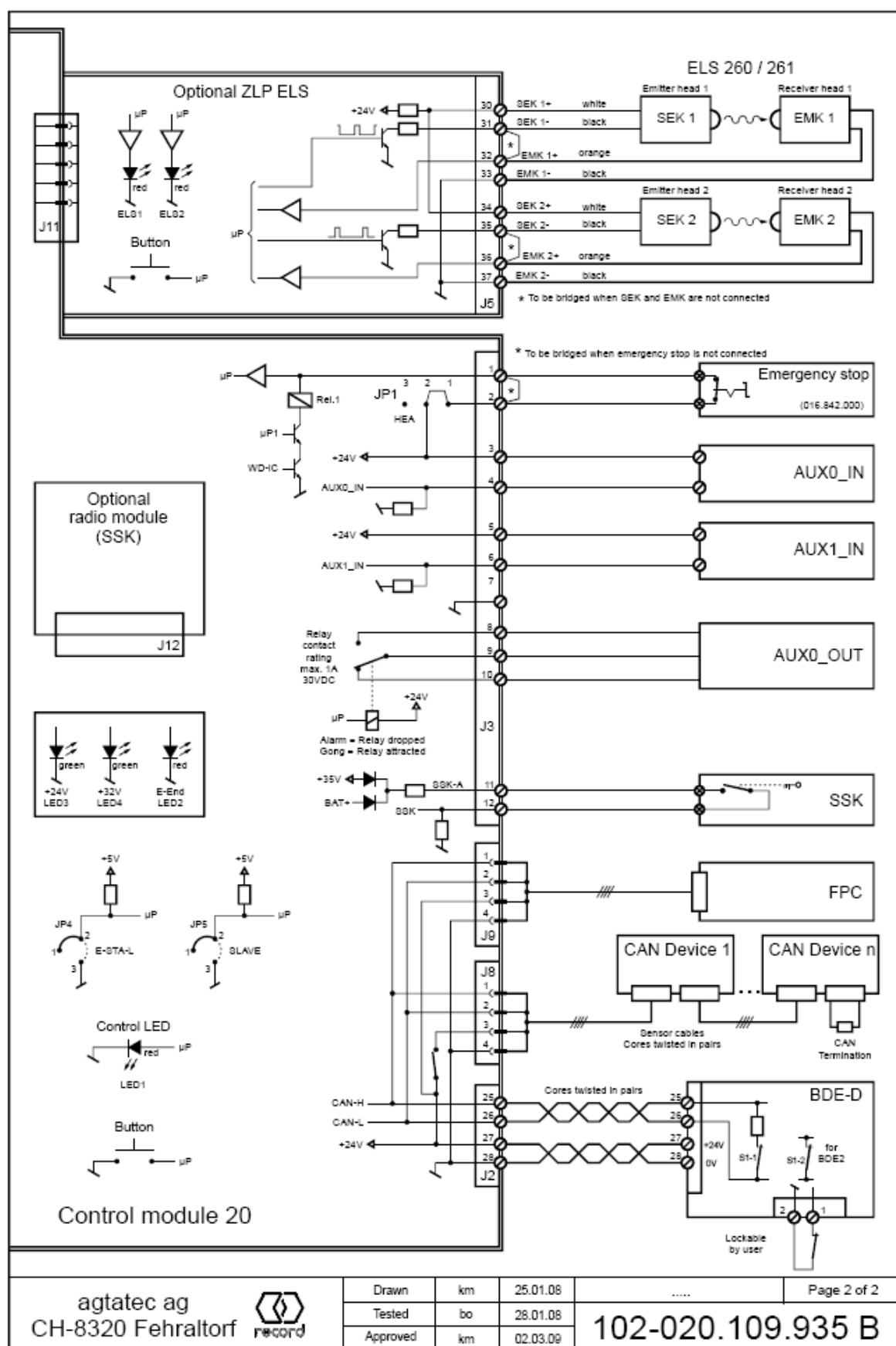
18.2. Type plate STM 20

Jumper (shunt)		Change of function
JP1	Jumper on HEA	Allows emergency stop and HEA to be connected in series: - HEA → 3-2 - Emergency stop → 2-1
JP2	Standard / CO48	Influences motor-driven braking function in case of power failure (weaker with CO48)
JP3	Syst.-conditioned, internal	Not visible – required for VRR 2
JP4	Standard D-ST & EST-L	- Change plugging to reverse rotational direction (EST-R) - Then resetting STM 20 is required
JP5	Standard master mode	Slave – only in case of two STM 20
Light-emitting diode		Meaning
LD 1	Red control-LED	For multifunctional key S1 – blinks when key is pressed
LD 2	Red	- Must light up, if earthing screw is withdrawn - Otherwise grounding is on
LD 3	Green + 24 V	- Is on, if 24 volt circuit OK - Comes off in case of by-pass in 24 volt circuit
LD 4	Green + 32 V	Is on, if system connected to mains voltage
Multifunctional key		Function, after impulses have been given
1 pulse		Releases an opening movement (AKI)
2 pulses		Calibrating ELS
3 pulses		Calibrating door parameters
4 pulses		Entering programming level
5 pulses		- Battery emergency reaction, as long as system is disconnected from mains - Battery test in case of mains connection
8 pulses		Loads default values of door type selected
9 pulses		Back to factory settings (afterwards emergency stop must be actuated within 10 seconds)
14 pulses		Hardware reset is performed within ca. 12 seconds

Connector designation	Connections
J1	Mains plug
J2	Terminals 25 - 28 → for BDE-D
J3	Terminals 1 - 12: Functions according to wiring diagram 020.109.935
J4	Locking device
J5	Battery
J6	Motor brake
J7	ATE motor
J8	CAN bus
J9	CAN bus plug for FPC-servicing
J10	Encoder motor
J11	Extra printed circuit board ELS (ZLP ELS)
J12-J14	Reserved for future modules

18.3. Wiring diagram STM 20





agrotec ag
CH-8320 Fehraltorf



Drawn	km	25.01.08
Tested	bo	28.01.08
Approved	km	02.03.09

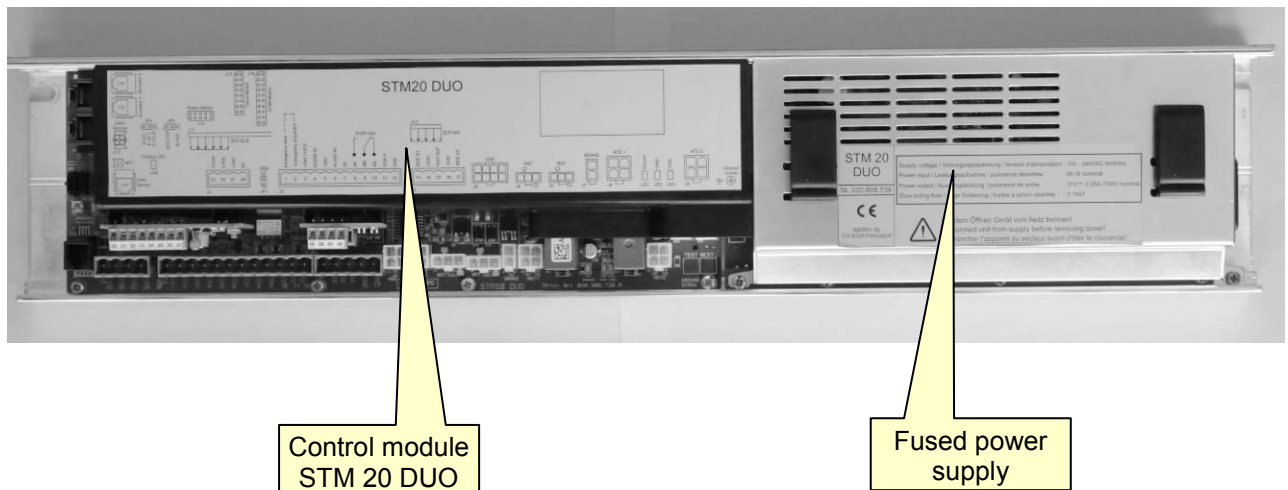
102-020.109.935 B

Page 2 of 2

19. Control module STM 20 DUO / RED

19.1. Controlling elements on STM 20 DUO

Control module STM 20 works with an active HIGH level. That means that a minimum of +24V is required to activate a function. Protective inputs are activated in case of interruption. OV is connected to the ground. This connection can be interrupted for test reasons by use of the ground screw, located next to terminal 12. LED 1 (red) comes on.



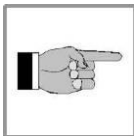
ELECTRIC SHOCK

- Before opening the metallic cover of the power supply unit, disconnect it from the mains.
- The installation may only be connected to the mains again, **after** the protection cover has been closed again.

19.2. Applications

Control module STM 20 DUO is – according to the software implemented and the appropriate authorization – used for the installations below.

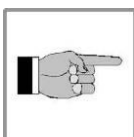
19.2.1. Escape and rescue routes as RED installations



NOTE

Control module STM 20 DUO **with RED software** has been tested after EN 13849-1:2006, **category 3 PLd**.

19.2.2. Heavy door leaves as DUO installations



NOTE

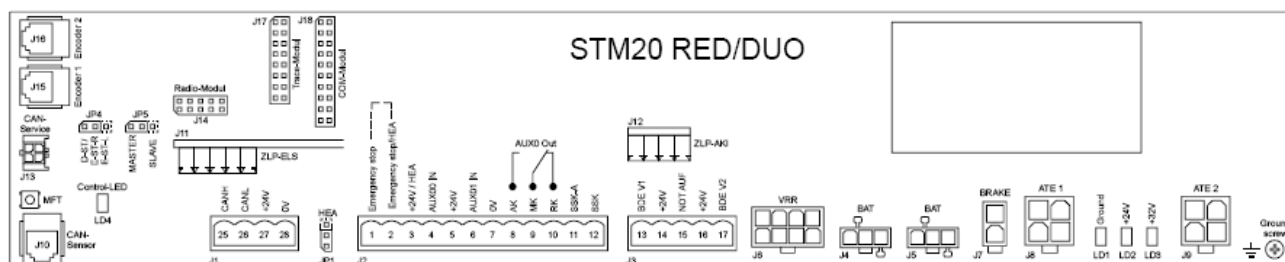
Control module STM 20 DUO **with DUO software** has been tested after EN 13849-1:2006, **category 2 PLc**.



ATTENTION

- STM 20 DUO is **usually delivered with a RED software!**
- In the event of applications as DUO-operators (heavy doors), the appropriate DUO-software must be later on installed on CPU 1 and CPU 2!
- FPC flash → manual installation

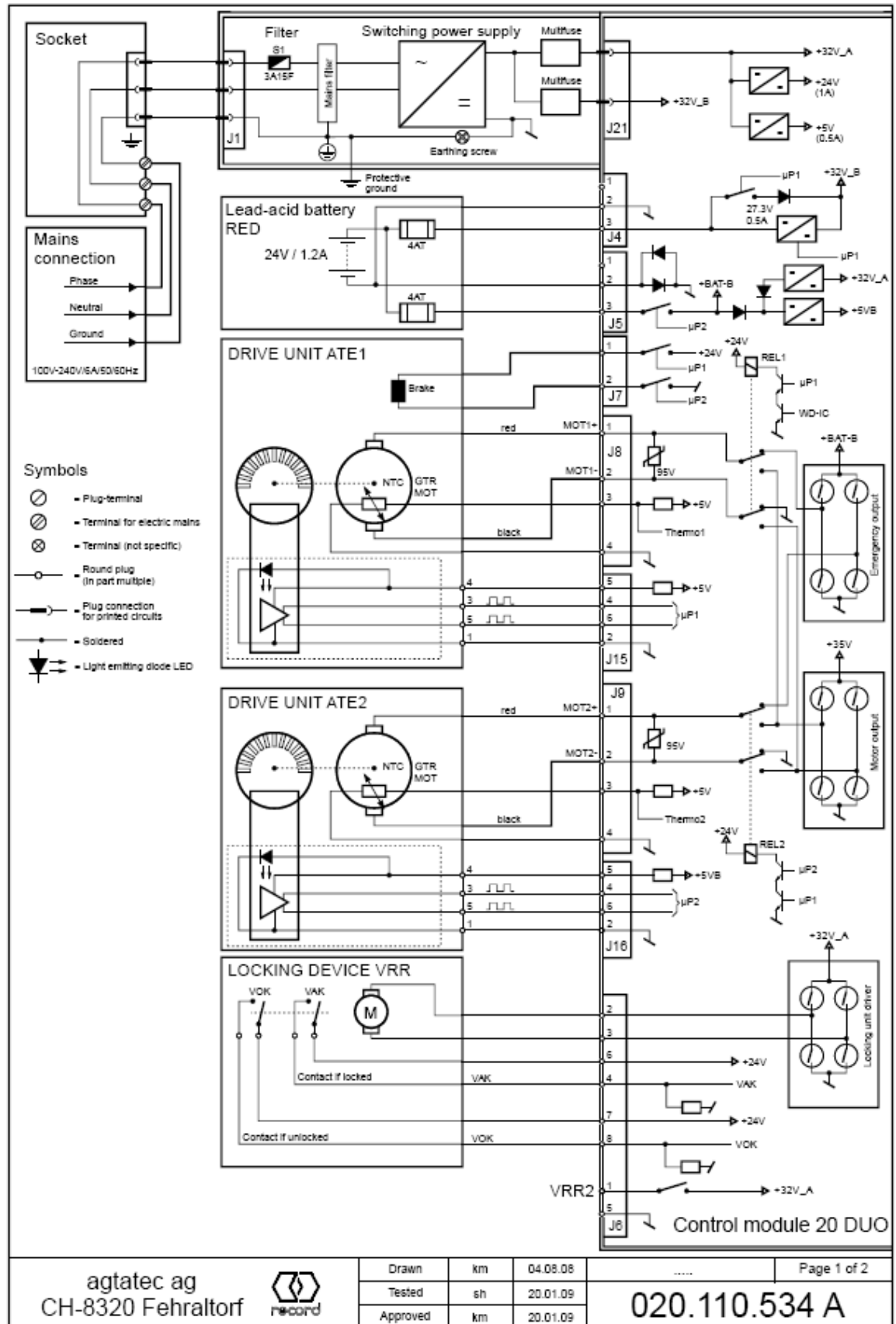
19.3. Type plate STM 20 RED/DUO

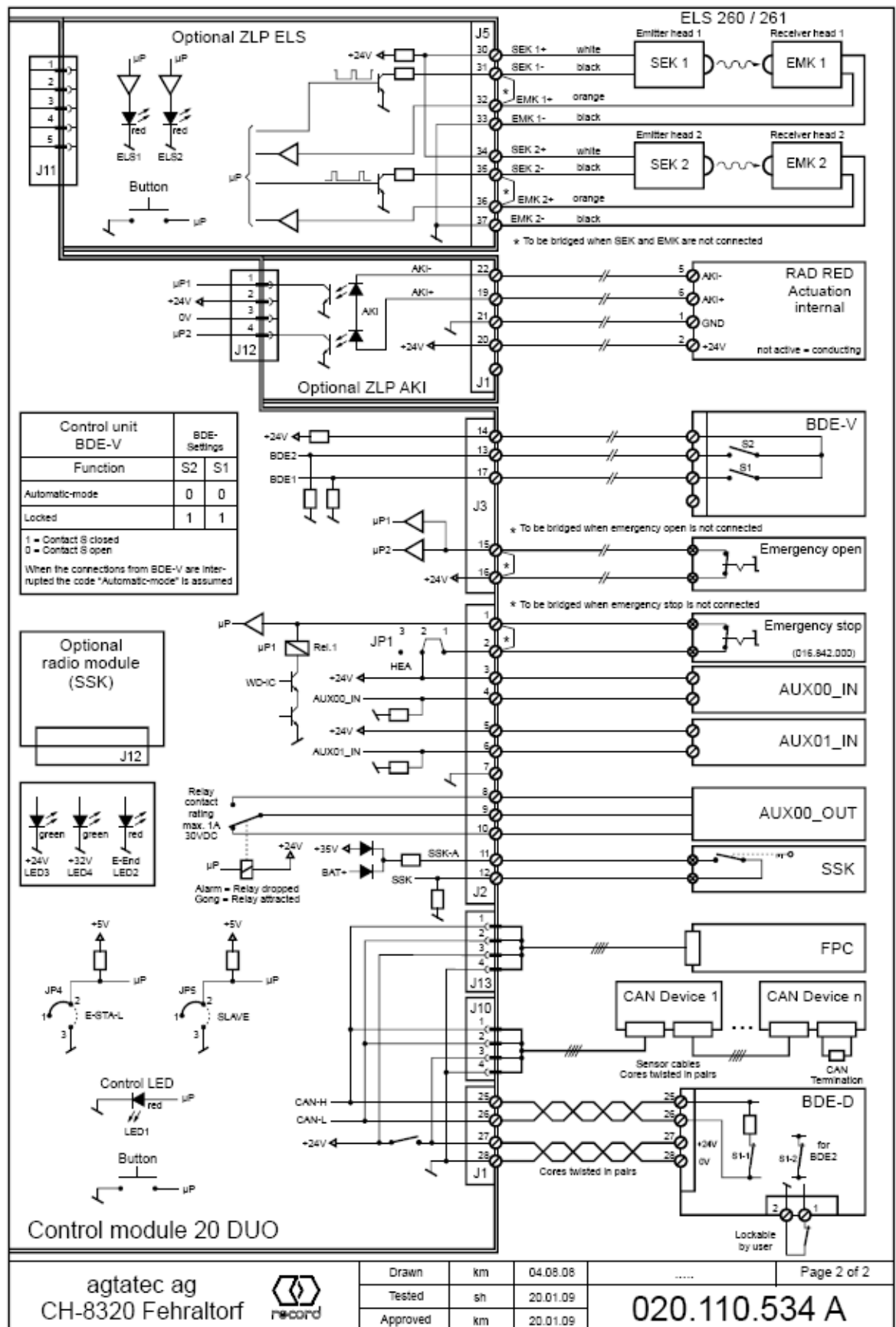


Jumper (shunt)		Change of function
JP1	Jumper on HEA	Allows emergency stop and HEA to be connected in series: - HEA → 3-2 - Emergency stop → 2-1
JP2		Not printed
JP3	Syst.-conditioned, internal	Not visible – required for VRR2 (MPV 16)
JP4	On RED and DUO installation	
	D-ST & EST-R	Factory setting
	EST-L	Fixing connecting clamp to upper part of toothed belt - Shunt position remains unchanged !
JP5	Standard : master mode	Slave – only in case of two STM 20
Light-emitting diodes		Meaning
LD 1	Red	- Ground – must light up, if earthing screw is withdrawn - Otherwise grounding is on
LD 2	Green + 24 V	- Is on, if 24 volt circuit OK - Comes off in case of by-pass in 24 volt circuit
LD 3	Green + 32 V	Is on, if system connected to mains voltage
LD 4	Red control-LED	For MF key S1 – blinks, if key is pressed
Multifunctional key (MF)		Function, after pulses have been given
1 pulse		Releases an opening movement (AKI)
2 pulses		Calibrating ELS
3 pulses		Calibrating door parameters
4 pulses		Entering programming level
5 pulses		RED - Redundancy test, if system connected to mains voltage DUO - Batt. emerg. reaction, as long as syst. disconnected from mains - Battery test in case of mains connection
8 pulses		Loads default values of door type selected
9 pulses		Back to factory settings (afterwards emergency stop must be actuated within 10 seconds)
14 pulses		Hardware reset is performed within 12 seconds

Connector designation	Connections
J1	Terminals 25 - 28 → for BDE-D
J2	Terminals 1 - 12: Functions according to wiring diagram 020.110.534
J3	Terminals 13 - 17 (only used with RED applications): Functions according to wiring diagram 020.110.534
J4	Battery 1 (used with DUO and RED applications)
J5	Battery 2 (only used with RED applications)
J6	Locking
J7	Motor brake
J8	ATE motor 1
J9	ATE motor 2
J10	CAN bus / CAN sensors
J11	Extra printed circuit board ELS (ZLP-ELS)
J12	Extra printed circuit board AKI (ZLP-AKI)
J13	CAN bus plug for FPC-servicing
J14	Reserved for future modules
J15	Encoder motor 1
J16	Encoder motor 2
J17	Reserved for future modules
J18	Reserved for future modules

19.4. Wiring diagram for STM 20 DUO/RED

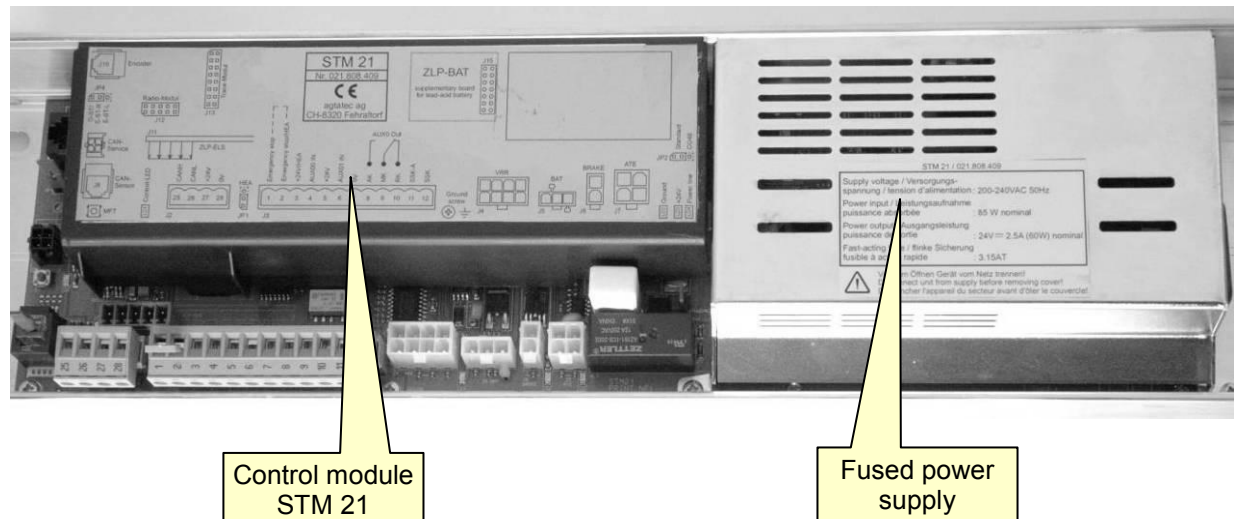




20. Control module STM 21

20.1. Controlling elements on STM 21

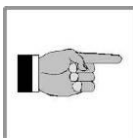
Control module STM 20 works with an active HIGH level. That means that a minimum of +24V is required to activate a function. Protective inputs are activated in case of interruption. OV is connected to the ground. This connection can be interrupted for test reasons by use of the ground screw, located next to terminal 12. LED 2 (red) comes on.



ELECTRIC SHOCK



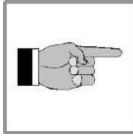
- Before opening the metallic cover of the power supply unit, disconnect it from the mains.
- The installation may only be connected to the mains again, **after** the protection cover has been closed again.



NOTE

record STM 20 control module has been tested after ISO standard 13849-1:2006, category 2 PLc.

20.2. Application field of control module STM 21



NOTE

Control module STM 21 is exclusively used in combination with a weaker drive unit featuring restricted functional requirements and limited door weight.

20.2.1. Typical range of applications

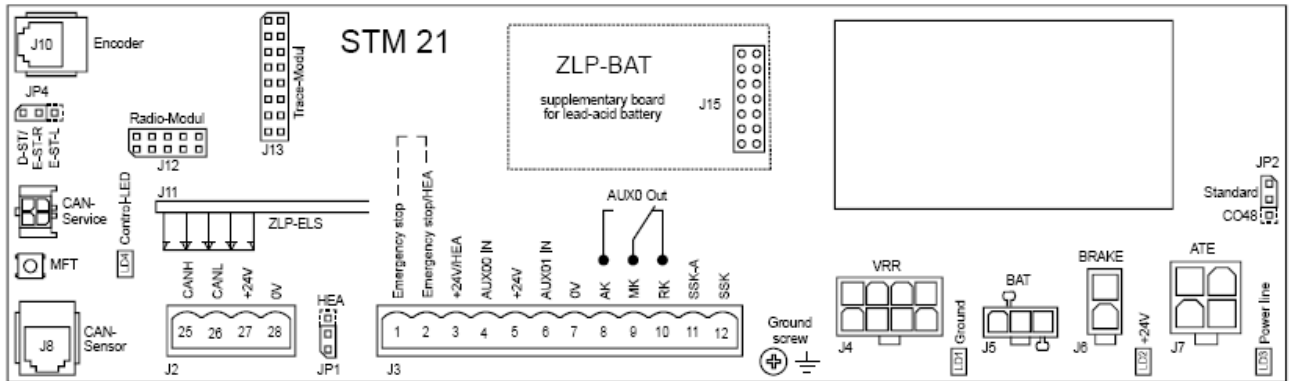
- Low-cost door installations with limited possibilities of upgradability
- Inside and outside applications

20.2.2. Unavailable applications

The following applications are **not** available with control module STM 21:

- No RED installation (redundant for escape and rescue routes)
- No DUO installation (heavy doors)
- No TOS installation (sliding/swivelling doors)
- No MPV (multipoint locking device)

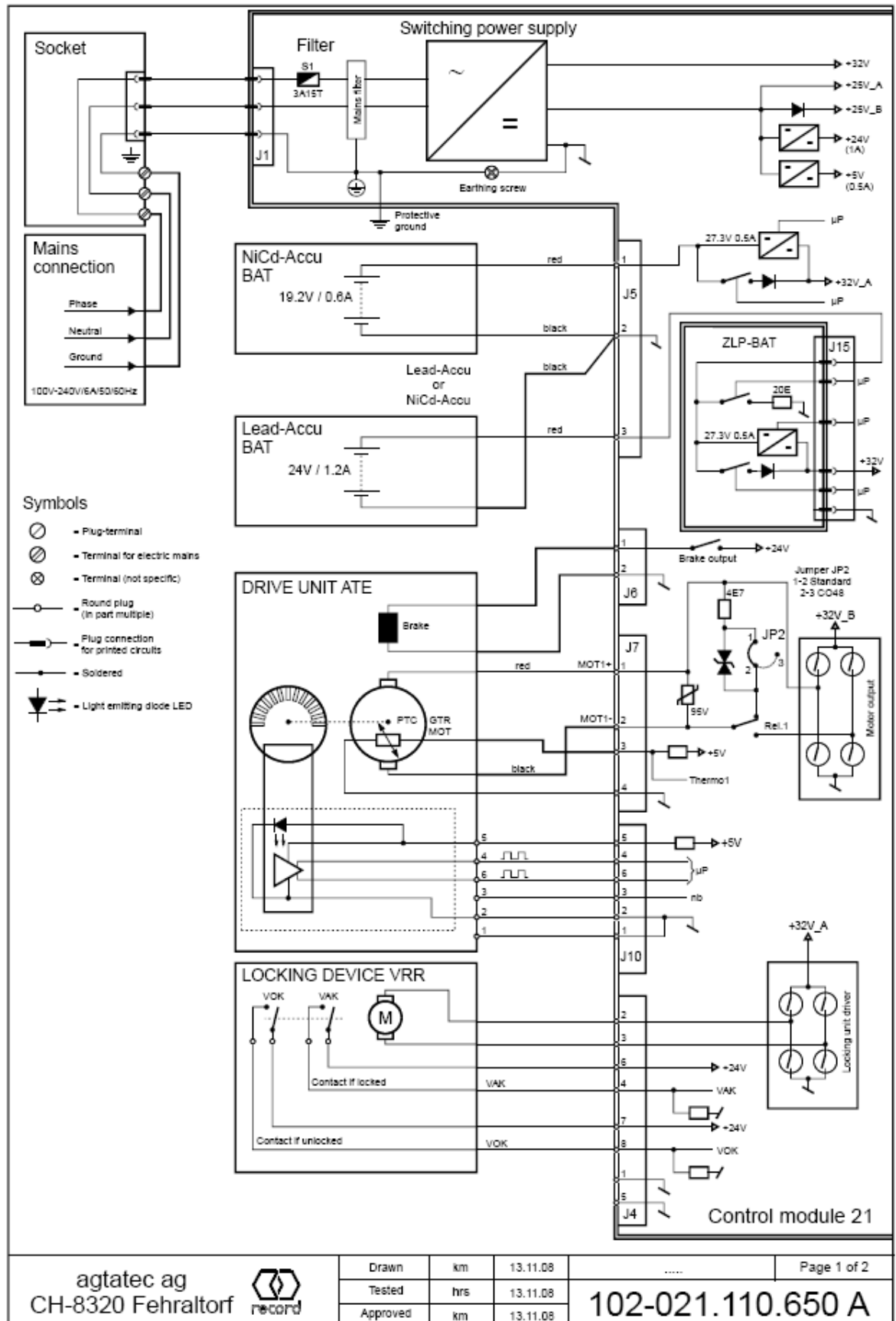
20.3. Type plate STM 21

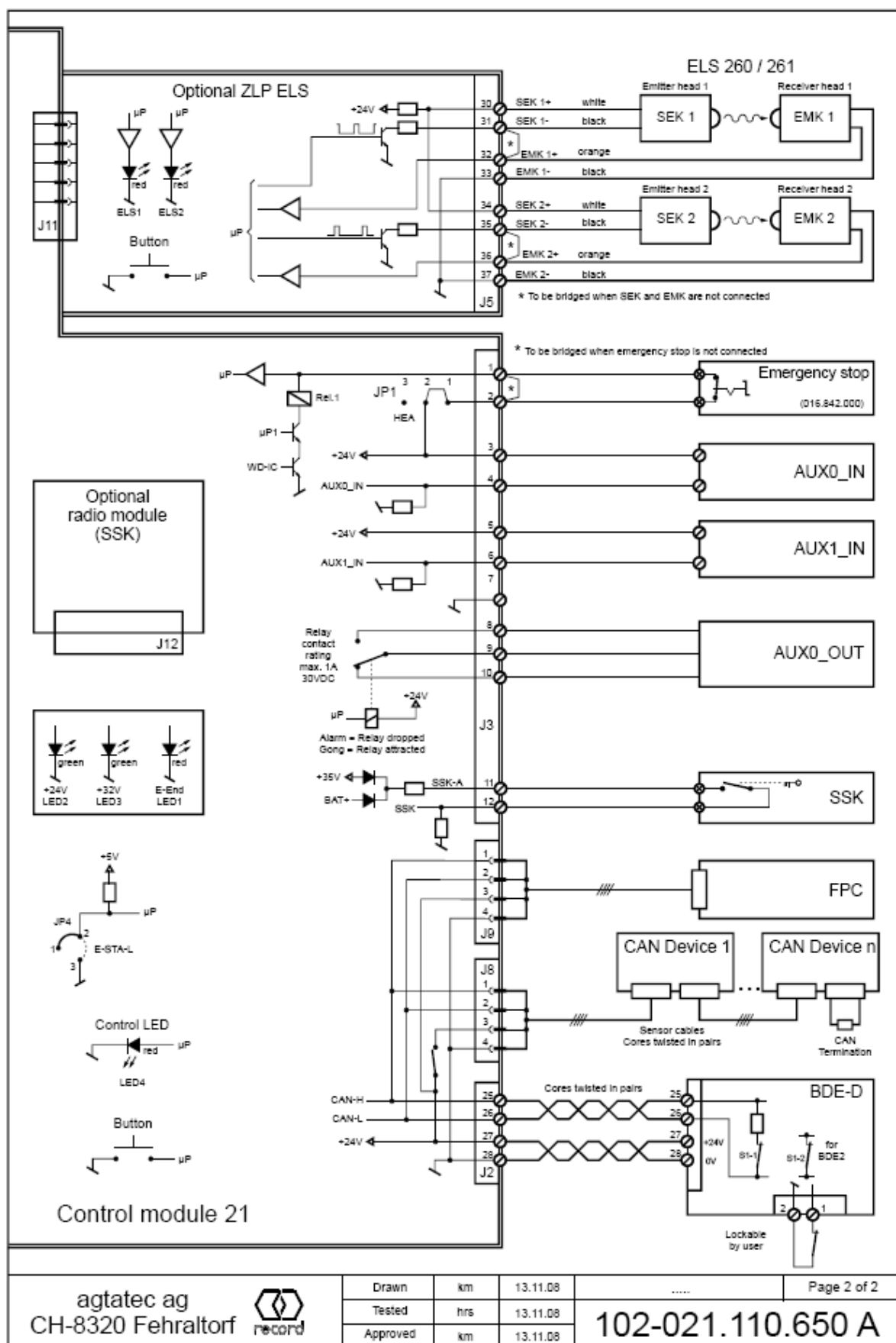


Jumper (shunt)		Change of function
JP1	Jumper on HEA	Allows emergency stop and HEA to be connected in series:: - HEA → 3-2 - Emergency stop → 2-1
JP2	Standard / CO48	Influences motor-driven braking function in case of power failure (weaker with CO48)
JP3	Syst.-conditioned, internal	Not visible – reserved for future applications
JP4	Standard D-ST & EST L	- Change plugging to reverse rotational direction (EST-R) - Then resetting STM 20 is required
Light-emitting diode		Meaning
LD 1	Red control-LED	For multifunctional key S1 – blinks when key is pressed
LD 2	Red	- Change plugging to reverse rotational direction (EST-R) - Then resetting STM 20 is required
LD 3	Green + 24 V	- Is on, if 24 volt circuit OK - Comes off in case of by-pass in 24 volt circuit
LD 4	Green + 32 V	Is on, if system connected to mains voltage
Multifunctional key		Function, after impulses have been given
1 pulse		Releases an opening movement (AKI)
2 pulses		Calibrating ELS
3 pulses		Calibrating door parameters
4 pulses		Entering programming level
5 pulses		- Battery emergency reaction, as long as system is disconnected from mains - Battery test in case of mains connection
8 pulses		Loads default values of door type selected
9 pulses		Back to factory settings (afterwards emergency stop must be actuated within 10 seconds)
14 pulses		Hardware reset is performed within ca. 12 seconds

Connector designation	Connections
J1	Mains plug
J2	Terminals 25 - 28 → for BDE-D
J3	Terminals 1 - 12: Functions according to wiring diagram 021.110.650
J4	Locking device
J5	Battery
J6	Motor brake
J7	ATE motor
J8	CAN bus
J9	CAN bus plug for FPC-servicing
J10	Encoder motor
J11	Extra printed circuit board ELS (ZLP-ELS)
J12-J13	Reserved for future modules
J15	Extra printed circuit board BAT (ZLP-BAT) for lead-acid battery

20.4. Wiring diagram STM 21





agtatec ag
CH-8320 Fehraltorf

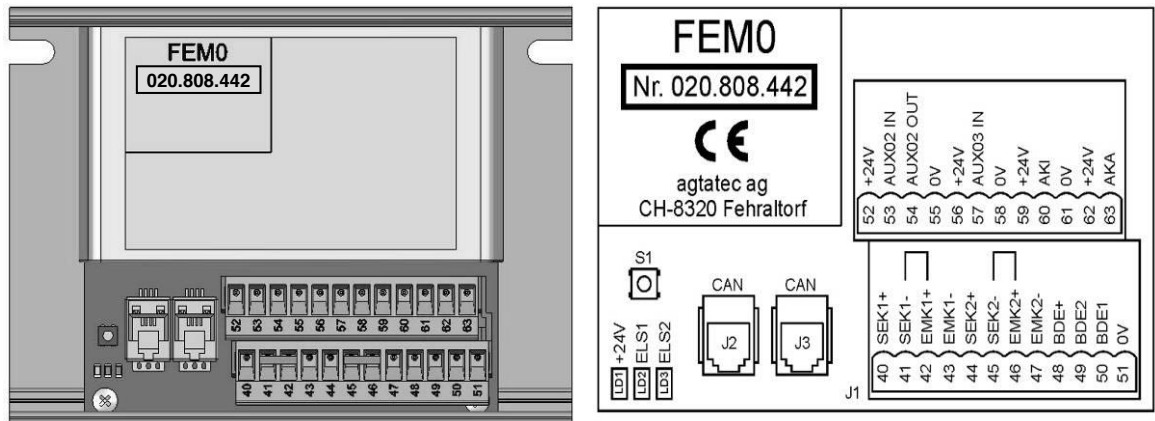


Drawn	km	13.11.08
Tested	hrs	13.11.08
Approved	km	13.11.08

102-021.110.650 A

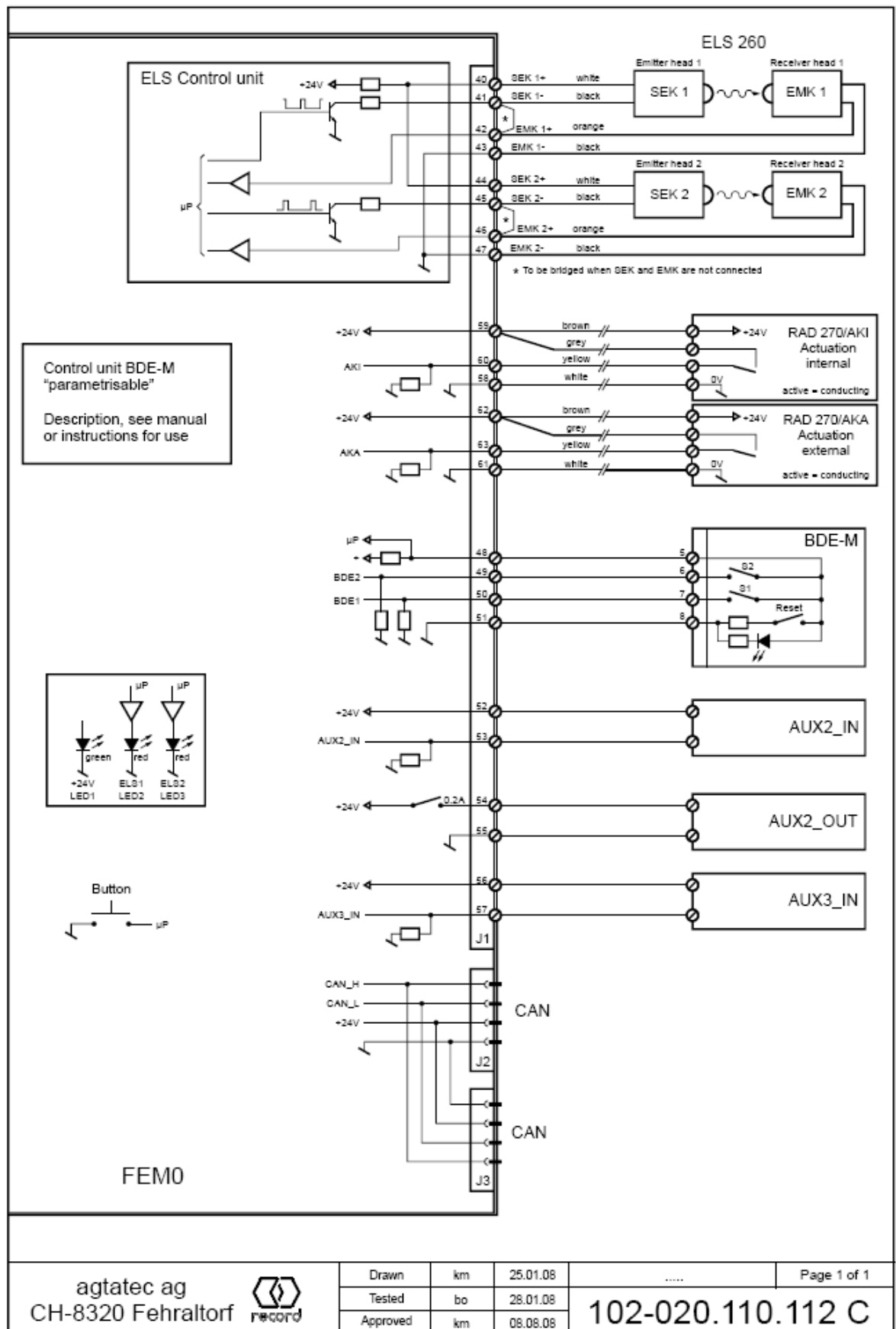
21. Extended functions module

21.1. Type plate, connections and controlling elements of FEM-0



FEM-0 Extended functions module	Function / connections
S1 – blue function key	2 pulses → calibrating ELS
LED 1 - green	+ 24 V
LED 2 – red	Interruption ELS 1
LED 3 – red	Interruption ELS 2
Connector J1	Connections of conventional sensors according to wiring diagram 020.110.112
Connectors J2 and J3	CAN bus connections: Both connectors must always be connected

21.2. Wiring diagram FEM-0



22. Parameter explanations

PARAMETER		Factory setting	Comment
DRIVING CYCLE			
↳ Closing speed		0..20..40	Speed = slow - fast <i>Note:</i> - 0 = creeping - with small doors the end speed might not be reached according to acceleration
↳ Opening speed		0..36..40	See closing speed
↳ Open			
	↳ Acceleration	0..30..40	Acceleration = small – big
	↳ Deceleration	0..30..40	Braking momentum during opening movement Deceleration = small - big braking force
	↳ Creep section	0..40	Adjustable creep section at the end of the opening movement Creep section = 0 - 100% of A-dimension <i>Note:</i> - 0 = no creeping - 1 = 2.5% of running section - 40 = 100% of running section
↳ Close			
	↳ Acceleration	0..30..40	Acceleration = small - big
	↳ Deceleration	0..30..40	Braking momentum during closing movement Deceleration = small - big braking force
	↳ Creep section	0..40	Adjustable creep section at the end of the closing movement Creep section = 0 - 100% of A-dimension <i>Note:</i> - 0 = no creeping - 1 = 2.5% of running section - 40 = 100% of running section
	↳ Holding force	0..20..40	Holding force in closed position Holding force = small - big <i>Note:</i> - in case of high holding force the engine temperature increases due to power loss
↳ Ramp			Not yet implemented
TIME DELAY OPEN			
↳ Time delay open		0..40	Hold-open time when actuating via AKA / AKI Open time = 0 - 60 seconds <i>Note:</i> - Time starts when trigger signal disappears - 0 - 20 = increment 1 second → 0 - 20 seconds - 21 - 40 = increment 2 seconds → 22 - 60 seconds

PARAMETER		Factory setting	Comment
↳ Time delay SSK		0..4..40	Hold-open time when opening via SSK SSK open time = 0 - 60 seconds <i>Note:</i> - Time starts when trigger signal disappears - 0 - 20 = increment 1 second → 0 - 20 seconds - 21 - 40 = increment 2 seconds → 22 - 60 seconds
↳ Start delay SSK		0..40	Delay after actuating SSK until opening begins SSK delay = 0 - 8 seconds <i>Note:</i> - 0 = no delay - 40 = opening delayed by 8 seconds
DRIVE			
↳ Reduced opening width		0..26..40	Reduced opening as energy-saving measure Reduced opening width = 20 cm - A-dimension <i>Note:</i> - 0 = minimal opening = 10 cm per door leaf - 40 = complete opening (A dimension) - Adjusting possibility: door on "Continuously open", adjust reduced opening width with FPC, on confirmation the door drives to the adjusted position - Is ignored with 1st opening, SÖK, emergency opening, deadman, TOWA, battery emergency operation
↳ Collision close		0..20..40	Reaction point of collision during closing run (→ main closing edge) Collision close - 0 = very gentle - 40 = violent
↳ Collision open		0..20..40	Reaction point of collision during opening run (→ lateral closing edge) Collision open - 0 = very gentle - 40 = violent
↳ Brake			
	↳ Without	X	Engine without brake, or brake is not used
	↳ Closed position		Is braked into closed position, also in operating mode "Locked"
	↳ Open position		Is braked into open position in operating mode "Continuously open" as well as with "Reduced opening", and also in case of release via SSK
	↳ Closed/open position		Is braked into closed and open positions. Open position as described, in closed position ALSO in operating mode "Locked"
	↳ Closed/One-Way/Locked		Is braked into closed position (mode "One-Way") and in mode "Locked"
	↳ Closed, Locked		Is braked into operating mode "Locked"

PARAMETER		Factory setting	Comment
↳ Motor			
	↳ Without	X	
	↳ ATE 20		Motor is automatically identified Designation: ATE STA 20 (size 63x55)
	↳ ATE 21		Motor is automatically identified Designation: ATE STA 21 (size 63x25)
	↳ ATE 19 small		Designation: ATE STA 19 (size 63x25)
	↳ ATE 19 big		Designation: ATE 19 (size 63x55)
	↳ ATE 16 normal		Designation: ATE 16 (016.029.001)
	↳ ATE 16 heavy		Designation: ATE 16 (016.025.001)
	↳ ATE 17		Designation ATE 17 (size 63x25)
↳ Two motors			
	↳ Disabled	X	
	↳ Enabled		Only possible with STM 20 DUO/RED
↳ Emergency operating BAT			Configured action is carried out with lead-acid battery: - when charging voltage is low or - Emergency operation is configured with NiCd battery: - in case of power failure <i>Note:</i> - Afterwards STM is disconnected - In spite of control unit being disconnected, an emergency opening via SSK is possible.
	↳ Close, do not lock		Door closes, but does not lock
	↳ Unlock and open		Door unlocks and opens
	↳ Close and lock		Door closes and locks
	↳ Open if not locked	X	Door opens, as long as it is not in mode "Locked"
↳ Power failure			
	↳ Battery operation		Door goes on functioning until battery capacity is low, then the configured Emergency operating BAT is executed.
	↳ Emergency operation	X	After a power failure, the door carries out the configured "Emergency operating BAT".
↳ Battery			
	↳ Without battery	X	
	↳ Lead-acid battery		Battery is automatically identified, when it is plugged in (with STM 21, later on also possible for lead-acid batteries with extra charge circuit)
	↳ NiCd		NiCd battery: only usable with STM 21
DOOR SYSTEM			
↳ A-dimension			In mm
↳ G-dimension			In mm
↳ Door leaf			Supports calculation of door parameters
	↳ DST		Bi-parting door D-STA, D-TSA
	↳ EST-L/R		Single-leaf door left / right: E-STA, E-TSA
↳ Interlock (with FEM-1)			Requires a FEM-1

PARAMETER		Factory setting	Comment
	↳ Disabled	X	
	↳ All operating modes		
	↳ Only One-way and Locked		
↳ Door type			<i>Attention:</i> a modification of door type causes a reset of the running parameters and sets certain parameters, as e.g. AUX0-IN, to a predefined function
	↳ Basic drive	X	
	↳ CO48 Ventouse	Not available	Mechanical power storage, with separate carriage, which is maintained in closed position by a magnet
	↳ TOS		Surveillance of manual locking devices on the door leaves. Inputs must be programmed on FEM-0: TOS_DV1, TOS_DV2. Operating mode "Automatic" or "One-Way": manual locking device(s) must be open (0V/open on AUX2_IN and AUX3_IN), otherwise door fails to open Operating mode "Locked": manual locking devices must be closed, otherwise anti-burglar protection is not guaranteed anymore → error 29 on BDE-D. SSK function is ensured
	↳ Flip flow	Not available	
	↳ CO48 Sandow direct		Direct sliding-along power storage device Note (automatic adjustments): - Without battery In France only authorized without battery - Cord surveillance on AUX01_IN - Brake closed/open position Motor with brake required
	↳ Basic escape route		Standard requirement for England, always with lead-acid battery Power failure: Reaction according to Emergency operating BAT After come-back of mains voltage, back to previous operating mode Battery problem: In case of a defective or insufficiently charged battery, the door opens and can be reset - by starting again the control unit via FPC or via Emergency Stop - and so be set back again into service.
	↳ Breakout USA		Parameter modification: - Emergency stop with reset is disabled - SIO is set on creeping
	↳ Ratchet		Function for pulse control AUX0_IN is activated by 0V → 24V changeover (similar to activating a switch) - Door closed: changeover opens the door, which stays open - Door open: changeover closes the door - Door opening: changeover stops the door, a second changeover opens the door completely

PARAMETER		Factory setting	Comment
			- Door closing: changeover opens the door - SÖK/NSK are not activable
	↳ Dead man		Dead man – control for doors activated by hand AUX0_IN = Dead man open AUX1_IN = Dead man closed - 24V on AUX0_IN: Door opens, as long as signal is on - 24V on AUX1_IN: Door closes, as long as signal is on - If both signals are on simultaneously, door stops and both signals must first disappear to enable the movement to resume - If door is locked, it will be unlocked by AUX0_IN signal and it will open After reaching the closed position (AUX1_IN), door locks again
	↳ Sliding window	Not available	
	↳ Tight OP door	Not available	
	↳ Hermetically tight OP door	Not available	
	↳ Folding door	Not available	
	↳ Smoke-proof door	Not available	
	↳ 3 switches		Functions: OPEN – CLOSED – STOP AUX0_IN = switch open AUX1_IN = switch closed AUX2_IN = switch stop - 0V → 24V changeover on AUX0_IN: door opens - 24V on AUX1_IN: door closes, as long as signal is on (AUX0_IN must be disabled) - 24V on AUX2_IN stops the door. A new 0V → 24V changeover is required to resume the opening movement, i.e. similar to previous switch, release and then actuate again - A door locked is unlocked and opened with 0V → 24V changeover on AUX0_IN - SSK function is not possible
CONTROL PANEL			
↳ BDE-M			Connect to AUX00_IN and AUX01_IN or with FEM-0
	↳ Disabled	X	
	↳ Standard One-Way		S1 & S2 With FEM-0 no more BDE-M outputs can be programmed
	↳ Analogue BDE-A		Mechanical BDE for USA
	↳ Standard Reduced		S1 & S2 With FEM-0 no more BDE-M outputs can be programmed

PARAMETER		Factory setting	Comment
↳ BDE-D (different language packets)			<i>Note:</i> So that modified settings can be transferred, the control must be reset in most instances
	↳ Language (packet 1)		Language is selected when first starting the BDE-D (and after resetting factory settings): Deutsch / Français / English / English US
	↳ Keyboard	Normal	Normal, OFF-mode <i>Note:</i> - OFF-mode = Locking impossible
	↳ Contrast BDE 1	0..20..40	Display-contrast for BDE-D 1 <i>Note:</i> - 0 = lower contrast (hardly noticeable) - 40 = higher contrast (possible streaking on display)
	↳ Contrast BDE 2	0..20..40	See contrast BDE 1
	↳ Brightness BDE 1	0..20..40	Display brightness (backlight) <i>Note:</i> - 0 = pale backlight for applications with weak ambient light - 40 = intense backlight for applications with much ambient light
	↳ Brightness BDE 2	0..20..40	See brightness BDE 1
	↳ Light time	0..10..40	Lighting period for backlight <i>Note:</i> - 0 = no lighting - 1 – 39 = lighting period in seconds - 40 = permanent lighting
↳ Default operating mode			This operating mode is executed, if no BDE-D or FEM-0 are connected or interrupted and if no BDE-M outputs are configured
	↳ Off		
	↳ Locked		
	↳ Automatic	X	<i>Attention:</i> a locked door may change to operating mode "Automatic" in case of an interruption to BDE-D or of a defect of BDE-D. This means setting the desired reaction together with the end-user!
	↳ Continuously open		
LOCKING			
↳ Locking function			
	↳ Normally locked	X	Is locked through selection of operating modes
	↳ One-Way locked		One-way functionality with automatic locking and unlocking via AKI (+ SSK). Mode "Locked" works as usual.
	↳ Always locked		Automatic locking and unlocking in modes "Automatic" and "One-Way". Mode "Locked" works as usual.

PARAMETER		Factory setting	Comment
↳ Locking type			Locking types are not automatically identified. They must be programmed.
	↳ Without	X	
	↳ Motor-powered		VRR 20 (motorised, bistable)
	↳ Bistable		VRR 16 (magnetic, bistable)
	↳ MPV 20		Multipoint locking device, system 20 (motorised)
	↳ MPV 16		Multipoint locking device, system 16 (motorised)
	↳ Magnet		Magnet locking device (without VAK) unlockable without current (monostable)
	↳ Fail secure		Monostable locking device, lockable without current
	↳ Fail safe		Monostable locking device, unlockable without current (France: sécurité positive)
↳ Start delay		0..40	Delay: max. 8 seconds until door opens after unlocking
↳ Closed VRR error			
	↳ Disabled	X	After locking error and 10 cm opening test, door stays in that position to show the error on BDE-D
	↳ Enabled	Not available	After locking error and 10 cm opening test, door drives back to closed position. The error remains and is displayed on BDE-D.
↳ Closing force		0..40	Increases the closing force for a short time while locking and unlocking.
CAN BUS			
↳ Units on CAN bus			Any unit connected is automatically identified and displayed with a 1. Disconnected units are displayed with ? and must be removed manually with FPC. Not available units are displayed with a 0.
	↳ FEM-0 to FEM-2	0	Extended function modules – separate description
	↳ AKI1	0	RAD: motion sensor 1 – inside
	↳ SI1	0	RIC: safety sensor 1 – inside
	↳ AKA1	0	RAD: motion sensor 1 – outside
	↳ SA1	0	RIC: safety sensor 1 – outside
	↳ SL	0	AIR: safety „lateral closing edge“ – left
	↳ SR	0	AIR: safety „lateral closing edge“ – right
	↳ AKI2	0	RAD: motion sensor 2 – inside
	↳ SI2	0	RIC: safety sensor 2 – inside
	↳ AKA2	0	RAD: motion sensor 2 – outside
	↳ SA2	0	RIC: safety sensor 2 – outside
INPUT			
↳ AUX00_IN & AUX01_IN			Terminals 4 & 6 on control module STM 20 <i>Note:</i> With safety parameters an open input (=0V) means that the signal is enabled, i.e. possible circuit interruptions are identified.
	↳ Disabled	X	

PARAMETER		Factory setting	Comment																														
	↳ SÖK or NSK		Safety opening or closing are first priority. Adjustment of functionality under SÖK/NSK. Input voltage: 0V/open = SÖK/NSK active 24V = SÖK/NSK not active																														
	↳ SURV		Timer Locked Input voltage: 0V/open = operating mode „Locked“ 24V = mode according to BDE-D Cannot be unlocked by BDE-D → no priority SSK is active → safety sensors are active Closes and locks also in the modes „Manual“ and „Continuously open“																														
	↳ BDE-M		AUX00_IN – BDE-M → S2 AUX01_IN – BDE-M → S1 or connect to FEM-0 (preconfigured connections) <i>Note:</i> - BDE-M must be activated under control unit - No second BDE-M can be connected - A parallel operation with BDE-D is possible, operating mode “Locked” has priority → see table <table><tr><th colspan="3">Bedienungseinheit BDE-M</th><th colspan="2">BDE-Stellung</th></tr><tr><th>Prio.</th><th>Symbol</th><th>Funktion</th><th>S2</th><th>S1</th></tr><tr><td>1</td><td></td><td>Verriegelt</td><td>0</td><td>0</td></tr><tr><td>2</td><td></td><td>Einbahn-Betrieb</td><td>1</td><td>1</td></tr><tr><td>3</td><td></td><td>Offen</td><td>0</td><td>1</td></tr><tr><td>5</td><td></td><td>Normal-Betrieb</td><td>1</td><td>0</td></tr></table> 1 = Kontakt S geschlossen 0 = Kontakt S offen Bei unterbrochenem BDE-M-Anschluss wird der Code "verriegelt" angenommen. Verriegelt hat höchste Priorität. Winter hat Priorität 4	Bedienungseinheit BDE-M			BDE-Stellung		Prio.	Symbol	Funktion	S2	S1	1		Verriegelt	0	0	2		Einbahn-Betrieb	1	1	3		Offen	0	1	5		Normal-Betrieb	1	0
Bedienungseinheit BDE-M			BDE-Stellung																														
Prio.	Symbol	Funktion	S2	S1																													
1		Verriegelt	0	0																													
2		Einbahn-Betrieb	1	1																													
3		Offen	0	1																													
5		Normal-Betrieb	1	0																													
	↳ Continuously open		1st pulse: open, 2nd pulse: original operating mode <i>Note:</i> - Pulse means changeover 24V → 0V/open (similar to releasing a switch) - A locked door can be unlocked, safety sensors are active																														
	↳ SIS		Safety while closing. Door inverts sliding movement and remains open as long as signal is on. Open contact (0V) means active safety.																														
	↳ SIO		Safety while opening. Functionality given in case of release via SSK too. Open contact (0V) means active safety. <i>Note:</i> Door stops or slows down according to parameterisation in menu Input/SIO																														
	↳ Opening reduced		Opens to reduced opening width as soon as input is enabled (24V). A parallel activation (AKI/AKA/SSK) opens the door completely and if signal stays on (“Opening reduced”) door remains in open position. Setting „TOWA“ is not																														

PARAMETER		Factory setting	Comment
			relevant. <i>Note:</i> a locked door cannot be opened through signal „Opening reduced“
	↳ Broken rubber cord		Surveillance CO48 cord. A message is displayed on the BDE-D. All operating modes, incl. „Locked“ are still possible. <i>Note:</i> Switch must be closed in case of „good“ cord, i.e. 24V on AUX0_IN and must open in case of torn cord → error 20 and door opens if not locked
	↳ Dead man open		As long as signal is on (24V), door opens. If signal disappears, door stops.
	↳ Dead man close		As long as signal is on (24V), door closes. If signal disappears, door stops.
	↳ Switch OPEN		Opening pulse – ONLY suitable for pushbutton. Door also closes when signal stays on. Opening pulse = closing contact (0V → 24V changeover)
	↳ Switch CLOSED		Closing pulse – at the moment no function
	↳ Ratchet		Sequential control (pulse)
	↳ Emergency opening		Opens, if not locked, at reduced speed. Afterwards back to original operating mode. Emergency opening happens when contact is open (0V).
	↳ SURA		Clock timer „One-Way“, if not locked. Open contact (0V) means operating mode „One-Way“ is enabled. If it is impossible to set it on „Automatic“, etc via BDE-D → no priority. However, mode „Locked“ has priority.
↳ AUX02_IN & AUX03_IN			Terminals 53 & 57 on FEM-0
	↳ Disabled	X	
	↳ SURV		Clock timer „Locked“
	↳ Continuously open		1 pulse: open, 2 pulses: closed
	↳ SIS		Safety while closing (door inverts movement)
	↳ SIO		Safety while opening (door stops or slows down to creep speed)
	↳ Opening reduced		Reduced opening width
	↳ Broken rubber cord		Surveillance CO48 cord
	↳ Dead man open		As long as signal is on (24V), door opens. If signal disappears, door stops.
	↳ Dead man close		As long as signal is on (24V), door closes. If signal disappears, door stops.
	↳ Switch OPEN		Opening pulse – ONLY suitable for pushbutton. Door also closes when signal stays on.
	↳ Switch CLOSED		Closing pulse – at the moment no function
	↳ Ratchet		Sequential control (pulse)
	↳ Emergency opening		Opens, if not locked, at reduced speed
	↳ SURA		Clock timer „One-Way“
	↳ TOS DV 1		Turn-lock surveillance of door leaf 1

PARAMETER		Factory setting	Comment
	↳ TOS DV 2		Turn-lock surveillance of door leaf 2. Rotary switches ensure that the position of the switches matches the door function.
↳ AKA_IN			
	↳ AKA	X	Outside sensor is active while closing in the operating modes „One-Way“ and „Locked“ for safety.
	↳ Disabled on One-Way and Locked		Outside sensor is not active while closing in the operating modes „One-Way“ and „Locked“ for safety.
↳ SOK / NSK			NSK: Motion and safety sensors have no function during closing movements
	↳ Disabled		
	↳ SOK		First priority safety opening. Opens also in mode „Locked“. Reduced opening width is ignored. Opening movement at reduced speed, but without automatic reverse in case of collision.
	↳ NSK manual, SSK enabled		Emergency closing: door is closed, not locked, at reduced speed in any circumstance. Safety sensors are not active. Door can be opened by hand and closes again after 10 s. SSK is active. A locked door can be unlocked but remains closed.
	↳ NSK locked	X	Emergency closing, door locks. SSK disabled.
	↳ NSK locked, SSK enabled		Emergency closing, door locks. SSK is active.
	↳ NSK manual		Emergency closing. Door can be opened by hand and closes again after 10 s. SSK not active. A locked door can be unlocked but remains closed.

PARAMETER		Factory setting	Comment
↳ ZLP-1			Extra printed circuit board for connection of conventional safety light barriers. Once identified (automatic identification), a ZLP-ELS can only be reset manually via FPC.
	↳ Without	X	No extra p.c.b. connected
	↳ ELS		Extra p.c.b. for 2 ELS connected
↳ ZLP-2			Extra p.c.b. for application on RED installations with third-party sensors. Once identified (automatic identification), a ZLP-AKI can only be reset manually via FPC.
	↳ Without	X	No extra p.c.b. connected
	↳ AKI		Extra p.c.b. for AKI connected on RED installations
↳ Emergency Stop with Reset			Motor relay is switched off and on again (engine identification)
	↳ Disabled		Does not carry out a new start after reset
	↳ Enabled	X	Carries out a new start after reset
↳ SIO			
	↳ Stop		When actuating SIO, door stops then closes again.
	↳ Creep	X	When actuating SIO, door goes on sliding but at crawl speed then closes again.
OUTPUT			
↳ AUX0_OUT (STM)			Terminals 8, 9, 10 on STM 20, floating changeover contact 30 volts 1 A DC
	↳ Disabled	X	
	↳ Test sensors	Not available	Is required as function test for safety sensors and is activated before every "dangerous" door movement (e.g. closing movement)
	↳ Alarm out		No alarm: relay is activated/switched on
	↳ Gong		No ELS signal (safety while closing/SIS): Relay is in rest position / switched off. Reacts to ELS or presence surveillance signal, when door is opened/released. If signal stays on, a one-second-long pulse is given every 10 s. This is also valid during the calibrating phase of RIC 290
	↳ Locked		Not locked: Relay is in rest position / switched off.
↳ AUX2_OUT (FEM-0)			Output on FEM-0 terminal 54 Switches 24 volts DC / 0.2 A at output
			Same functions as AUX0_OUT
MISCELLANEOUS			
↳ TOWA			
	↳ Disabled	X	If both devices AKA and AKI are simultaneously actuated, door in position "Reduced" opens just the same totally.
	↳ Enabled		

PARAMETER		Factory setting	Comment
↳ Push to actuate			Operators without brake can be opened by pushing the door manually in the opening direction. <i>Note:</i> - Adjustment of holding force when closing is ignored - In case of ATE with brake, the brake may not be active in the closed position
	↳ Disabled	X	
	↳ Normal		Opening width similar to adjustment on BDE-D (total or reduced)
	↳ Reduced		Reduced opening width

22.1. Parameter overview STM 20 / STM 20 DUO

record parameter overview				STM 20 ≥ V1.11 STM 20 DUO ≥ V1.01					
D = Value is not reset after loading default parameter M = Parameter modification via multifunctional key (MFT) on control unit (technical level)									
PARAMETER				Parameter value (factory settings printed bold)					
	Description	D	M	1	2	3	4	5	6
DIVING CYCLE									
↳	Closing speed			20	(Speedo)				
↳	Opening speed			36	(Speedo)				
↳	OPEN								
↳	Acceleration		M	30	(Speedo)				
↳	Deceleration		M	30	(Speedo)				
↳	Creep section		M	0	(Speedo)				
↳	CLOSE								
↳	Acceleration		M	30	(Speedo)				
↳	Deceleration		M	30	(Speedo)				
↳	Creep section		M	0	(Speedo)				
↳	Holding force		M	20	(Speedo)				
↳	Ramp		M	Without	Ramp 1	Ramp 2	Ramp 3	Ramp 4	
TIME DELAY OPEN									
↳	Time delay open			0	(Speedo)				
↳	Time delay open SSK			4	(Speedo)				
↳	Start delay SSK		M	0	(Speedo)				
DRIVE									
↳	Reduced opening width			26	(Speedo)				
↳	Collision CLOSE		M	20	(Speedo)				
↳	Collision OPEN		M	20	(Speedo)				
↳	Brake	D	M	Without	Closed position	Open position	Closed/open position	Closed, One-Way / Locked	Closed, Locked
↳	Motor	D	M	Without	ATE20	ATE21	ATE19 small	ATE19 big	ATE16 normal
				ATE16 heavy	ATE17				
↳	Two motors	D	M	Disabled	Enab. (DUO)				
↳	Emergency operating BAT	D	M	Close, do not lock	Unlock and open	Close and lock	Open, if not locked		
↳	Power failure	D	M	Battery operation	Emergency operation				
↳	Battery	D	M	Without	Lead	NiCd			
ENTRANCE SYSTEM									
↳	A dimension	D	M	0	(Entering number, field 0..xxx)				
↳	G dimension	D	M	0	(Entering number, field 0..xxx)				
↳	Door leaf	D	M	DST	EST-L/R				
↳	Interlock (with FEM-1)	D	M	Disabled	All operating modes	Only One-Way Locked			
				Basic operator	CO48 ventouse	TOS	Flip flow	CO48 sandow	
↳	Door type	D	M	Basic escape route	Breakout USA	Ratchet USA	Dead man	Sliding window	
				Tight OP-door	Hermet. tight OP door	Folding door	Smoke-proof door	3 switches	
CONTROL PANEL									
↳	BDE-M (connection: AUX 0..3)		M	Disabled	Standard One-Wav	Analogue BDE-A	Standard Reduced		

record parameter overview					STM 20 STM 20 DUO					≥ V1.11 ≥ V1.01	
D = Value is not reset after loading default parameter M = Parameter modification via multifunctional key (MFT) on control unit (technical level)											
↳ BDE-D (diff. language packets)											
↳ Language (pkt 1)		D	M	Deutsch	Français	English	English US				
↳ Keyboard			M	Normal	OFF mode						
↳ Contrast BDE 1		D	M	20	(Speedo)						
↳ Contrast BDE 2		D	M	20	(Speedo)						
↳ Brightness BDE 1		D	M	20	(Speedo)						
↳ Brightness BDE 2		D	M	20	(Speedo)						
↳ Light time		D	M	10	(Speedo, 40 = permanent lighting)						
↳ Default operating mode			M	Off	Locked	Automatic	Contin. open				
LOCKING DEVICE											
↳ Locking function		D	M	Normally locked	One-way locked	Always locked					
↳ Locking type		D	M	Without	Motor-powered	Bistable	MPV 20	MPV 16	Magnet		
				Fail Secure	Fail Safe						
↳ Start delay		D	M	0	(Speedo)						
↳ Closed VRR error		D	M	Disabled	Enabled						
↳ Closing force			M	0	(Speedo)						
CAN BUS											
↳ (Units on CAN bus)		D		FEM-0-FEM-2	AKI 1	SI 1	AKA 1	SA 1	SL		
				SR	AKI 2	SI 2	AKA 2	SA 2			
INPUT											
↳ AUX0_IN (STM)			M	Disabled	SOK_NSK	SURV	BDEM_2	Contin. open	SIS		
				SIO	Opening red.	Brok. rub.cord	Deadman op.	Deadman clos.	Taste AUF		
				Switch CLOSE	Ratchet	Emerg. open.	SURA				
↳ AUX1_IN (STM)			M	Disabled	SOK_NSK	SURV	BDEM_1	Contin. open	SIS		
				SIO	Opening red.	Brok. rub.cord	Deadman op.	Deadman clos.	Taste AUF		
				Switch CLOSE	Ratchet	Emerg. open.	SURA				
↳ AUX2_IN (FEM)			M	Disabled	SURV	Contin. open	SIS	SIO	Open. red		
				Brok. rub.cord	Deadman op.	Deadman clo.	Switch OPEN	Switch CLOSE	Ratchet		
				Emerg. open.	SURA	TOS-DV1	TOS-DV2				
↳ AUX3_IN (FEM)			M	Disabled	SURV	Contin. open	SIS	SIO	Open. red.		
				Brok. rub.cord	Deadman op.	Deadman clo.	Switch OPEN	Switch CLOSE	Ratchet		
				Emerg. open.	SURA	TOS-DV1	TOS-DV2				
↳ AKA IN			M	AKA	Disabled with One-Way and Locked						
↳ SOK/NSK			M	Disabled	SOK	NSK manual, SSK active	NSK locked	NSK locked, SSK active	NSK manual		
↳ ZLP											
↳ ELS			M	Without	ELS						
↳ Emerg. stop with Reset			M	Disabled	Enabled						
↳ SIO			M	Stop	Creep						
OUTPUT											
↳ AUX0_OUT (STM)			M	Disabled	Test sensors	Alarm out	Gong	Locked			
↳ AUX2_OUT (FEM)			M	Disabled	Test sensors	Alarm out	Gong	Locked			
MISCELLANEOUS											
↳ TOWA			M	Disabled	Enabled						
↳ Push to actuate			M	Disabled	Normal	Reduced					

22.2. Parameter overview STM 21

record parameter overview					STM 21					≥ V1.0	
D = Value is not reset after loading default parameter M = Parameter modification via multifunctional key (MFT) on control unit (technical level)											
PARAMETER				Parameter value (factory settings printed bold)							
	Description	D	M	1	2	3	4	5	6		
DRIVING CYCLE											
↳	Closing speed			20	(Speedo)						
↳	Opening speed			36	(Speedo)						
↳	OPEN										
↳	Acceleration		M	30	(Speedo)						
↳	Deceleration		M	30	(Speedo)						
↳	Creep section		M	0	(Speedo)						
↳	CLOSE										
↳	Acceleration		M	30	(Speedo)						
↳	Deceleration		M	30	(Speedo)						
↳	Creep section		M	0	(Speedo)						
↳	Holding force		M	20	(Speedo)						
↳	Ramp		M	Without	Ramp 1	Ramp 2	Ramp 3	Ramp 4			
TIME DELAY OPEN											
↳	Time delay open			0	(Speedo)						
↳	Time delay SSK			4	(Speedo)						
↳	Start delay SSK		M	0	(Speedo)						
DRIVE											
↳	Reduced opening width			26	(Speedo)						
↳	Collision CLOSE		M	20	(Speedo)						
↳	Collision OPEN		M	20	(Speedo)						
↳	Brake	D	M	Without	Closed position	Open position	Closed/open position	Closed, One-Way / Locked	Closed, Locked		
↳	Motor	D	M	Without	ATE21	ATE17	ATE19 small				
↳	Emergency operating BAT	D	M	Close, do not lock	Unlock and open	Close and lock	Open, if not locked				
↳	Power failure	D	M	Battery operation	Emergency operation						
↳	Battery	D	M	Without	Lead	NiCd					
ENTRANCE SYSTEM											
↳	A dimension	D	M	0	(Entering number, field 0..xxx)						
↳	G dimension	D	M	0	(Entering number, field 0..xxx)						
↳	Door leaf	D	M	DST	EST-L/R						
↳	Door type	D	M	Basic operator	CO48 ventouse	CO48 sandow	Basic escape route				
CONTROL PANEL											
↳	BDE-M (connection: AUX 0..3)		M	Disabled	Standard One-Way	Analogue BDE-A	Standard Reduced				
↳	BDE-D (diff. language packets)										
↳	Language (pkt 1)	D	M	Deutsch	Français	English	English US				
↳	Keyboard		M	Normal	OFF mode						
↳	Contrast BDE 1	D	M	20	(Speedo)						
↳	Contrast BDE 2	D	M	20	(Speedo)						
↳	Brightness BDE 1	D	M	20	(Speedo)						
↳	Brightness BDE 2	D	M	20	(Speedo)						
↳	Light time	D	M	10	(Speedo, 40 = permanent lighting)						
↳	Default operating mode		M	Off	Locked	Automatic	Contin. open				

record parameter overview				STM 21								≥ V1.0	
D = Value is not reset after loading default parameter M = Parameter modification via multifunctional key (MFT) on control unit (technical level)													
LOCKING DEVICE													
↳ Locking function		D	M	Normally locked	One-Way locked	Always locked							
↳ Locking type		D	M	Without	Motor-powered	Bistable	Magnet	Fail Secure	Fail Safe				
↳ Start delay		D	M	0	(Speedo)								
↳ Closed VRR error		D	M	Disabled	Enabled								
↳ Closing force			M	0	(Speedo)								
CAN BUS													
↳ ((Units on CAN bus)		D		FEM 0...FEM 2	AKI 1	SI 1	AKA 1	SA 1	SL				
				SR	AKI 2	SI 2	AKA 2	SA 2					
INPUT													
↳ AUX0_IN (STM)			M	Disabled	SOK_NSK	SURV	BDEM_2	Contin. open	SIS				
				SIO	Opening red.	Brok. rub.cord	Switch OPEN	Emerg. open.	SURA				
↳ AUX1_IN (STM)			M	Disabled	SOK_NSK	SURV	BDEM_2	Contin. open	SIS				
				SIO	Opening red.	Brok. rub.cord	Switch OPEN	Emerg. open.	SURA				
↳ AUX2_IN (FEM)			M	Disabled	SURV	Contin. open	SIS	SIO	Opening red.				
				Brok. rub.cord	Switch OPEN	Emerg. open.	SURA						
↳ AUX3_IN (FEM)			M	Disabled	SURV	Contin. open	SIS	SIO	Opening red.				
				Brok. rub.cord	Switch OPEN	Emerg. open.	SURA						
↳ AKA IN			M	AKA	Disabled with One-Way and Locked								
↳ SOK/NSK			M	Disabled	SOK	NSK manual, SSK active	NSK locked	NSK locked, SSK active	NSK manual				
↳ ZLP													
↳ ELS			M	Without	ELS								
↳ Emerg. stop with Reset			M	Disabled	Enabled								
↳ SIO			M	Stop	Creep								
OUTPUT													
↳ AUX0_OUT (STM)			M	Disabled	Test sensor	Alarm out	Gong	Locked					
↳ AUX2_OUT (FEM)			M	Disabled	Test sensor	Alarm out	Gong	Locked					
MISCELLANEOUS													
↳ TOWA			M	Disabled	Enabled								
↳ Push to actuate			M	Disabled	Normal	Reduced							

22.3. Parameter overview STM 20 RED

record parameter overview				STM 20 RED						≥ V1.06	
D = Value is not reset after loading default parameter M = Parameter modification via multifunctional key (MFT) on control unit (technical level)											
PARAMETER				Parameter value (factory settings printed bold)							
	Description	D	M	1	2	3	4	5	6		
DRIVING CYCLE											
↳	Closing speed			20	(Speedo)						
↳	Opening speed			36	(Speedo)						
↳	OPEN										
↳	↳ Acceleration		M	30	(Speedo)						
↳	↳ Deceleration		M	30	(Speedo)						
↳	↳ Creep section		M	0	(Speedo)						
↳	CLOSE										
↳	↳ Acceleration		M	30	(Speedo)						
↳	↳ Deceleration		M	30	(Speedo)						
↳	↳ Creep section		M	0	(Speedo)						
↳	↳ Holding force		M	20	(Speedo)						
↳	Ramp		M	Without							
TIME DELAY OPEN											
↳	Time delay open			0	(Speedo)						
↳	Time delay open SSK			4	(Speedo)						
↳	Start delay SSK		M	0	(Speedo)						
DRIVE											
↳	Reduced opening width			40	(Speedo)						
↳	Collision CLOSE		M	20	(Speedo)						
↳	Collision OPEN		M	20	(Speedo)						
↳	Motor	D	M	Without	ATE20			ATE19 small	ATE19 big		ATE16 normal
↳	Two Motors	D	M	Enabled							
↳	Emergency operating BAT	D	M	Unlock and open	Open, if not locked						
↳	Power failure	D	M	Battery operation	Emergency operation						
↳	Battery	D	M	Lead							
ENTRANCE SYSTEM											
↳	A dimension	D	M	0	(Entering number, field 0..xxx)						
↳	G dimension	D	M	0	(Entering number, field 0..xxx)						
↳	Door leaf	D	M	DST	EST-L/R						
↳	Interlock (with FEM-1)	D	M	Disabled							
↳	Door type	D	M	RED battery							
CONTROL PANEL											
↳	BDE-D (diff. language packets)										
↳	↳ Language (Pkt 1)	D	M	Deutsch	Français	English	English US				
↳	↳ Keyboard		M	Normal							
↳	↳ Contrast BDE 1	D	M	20	(Speedo)						
↳	↳ Contrast BDE 2	D	M	20	(Speedo)						
↳	↳ Brightness BDE 1	D	M	20	(Speedo)						
↳	↳ Brightness BDE 2	D	M	20	(Speedo)						
↳	↳ Light time	D	M	10	(Speedo, 40 = permanent lighting)						
↳	Default operating mode		M	Automatic	Contin. open						

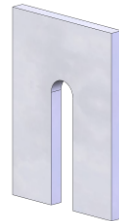
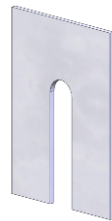
record parameter overview					STM 20 RED					≥ V1.06	
D = Value is not reset after loading default parameter M = Parameter modification via multifunctional key (MFT) on control unit (technical level)											
LOCKING DEVICE											
↳ Locking function	D	M	Normally locked								
↳ Locking type	D	M	Without	Motor-powered	Bistable	MPV 20	MPV 16	Magnet			
			Fail Safe								
↳ Start delay	D	M	0	(Speedo)							
↳ Closed VRR error	D	M	Disabled	Enabled							
↳ Closing force		M	0	(Speedo)							
CAN BUS											
↳ (Units on CAN bus)	D		FEM 0..FEM 2	AKI 1	SI 1	AKA 1	SA 1	SL			
			SR	AKI 2	SI 2	AKA 2	SA 2				
INPUT											
↳ AUX0_IN (STM)		M	Disabled	SOK_NSK	Contin. open	SIS	SIO	Opening red.			
			SURA								
↳ AUX1_IN (STM)		M	Disabled	SOK_NSK	Contin. open	SIS	SIO	Opening red.			
			SURA								
↳ AUX2_IN (FEM)		M	Disabled	Contin. open	SIS	SIO	Opening red.	SURA			
↳ AUX3_IN (FEM)		M	Disabled	Contin. open	SIS	SIO	Opening red.	SURA			
↳ AKA IN		M	AKA	Disabled with One-Way and Locked							
↳ SOK/NSK		M	Disabled	SOK							
↳ ZLP											
↳ ZLP1 (ELS)		M	Without	ELS							
↳ ZLP2 (AKI)		M	Without	AKI							
↳ Emerg. stop with Reset		M	Disabled	Enabled							
↳ SIO		M	Stop	Creep							
OUTPUT											
↳ AUX0_OUT (STM)		M	Disabled	Test sensors	Alarm out	Gong	Locked				
↳ AUX2_OUT (FEM)		M	Disabled	Test sensors	Alarm out	Gong	Locked				
MISCELLANEOUS											
↳ TOWA		M	Disabled	Enabled							
↳ Push to actuate		M	Disabled	Normal	Reduced						

How to proceed:

- Position track support profile (P1702) and fix it to the wall
 - Track support profile must lie horizontally and vertically
 - Use pre-perforated holes (on upper groove) – minimum 4 fixing points
- Adjust track support profile with wedges if necessary to compensate for uneven surface of the wall

PVC spacers

- 2 mm – 020.110.486
- 5 mm – 020.110.487



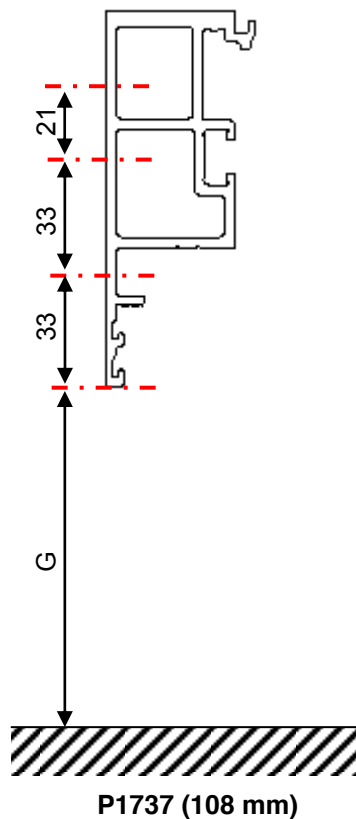
- Insert track (P1643) into sealing profile (P1642)
(see paragraph *Installing track support profile and track*)

23.2. Wall installation – with cladding

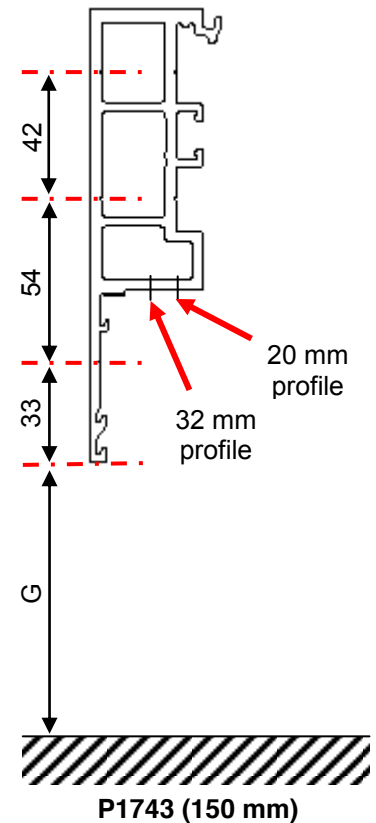
MS cladding with instruction sheet	020.808.474
MS fixing material With instruction sheet	020.808.467

Preparation of the cladding

- Cut cladding profile to length
- Mark door centre on cladding
- If side screens are used, drill according to plan 020.109.929



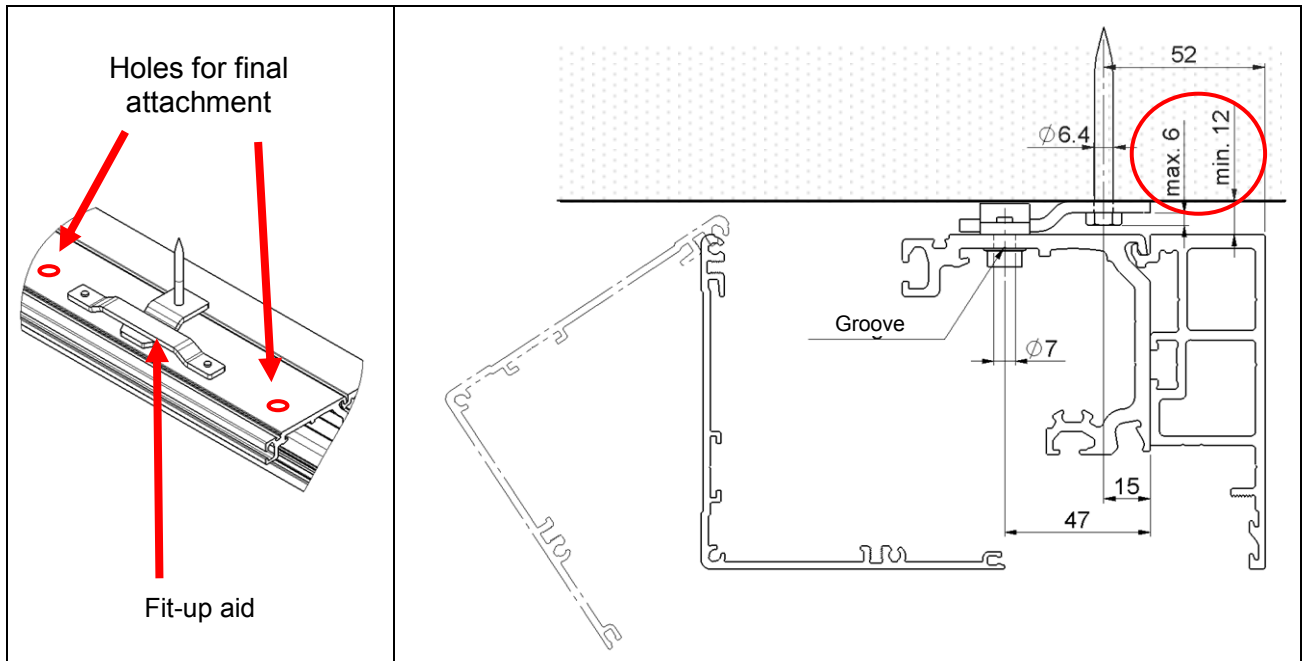
Use drilling grooves to place fixing holes



ATTENTION

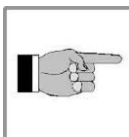
For any type of installation, the space to the ceiling must measure at least 20 mm!

23.3. Ceiling installation – with swinging out casing



ATTENTION (see drawing)

- Screw head height: **max. 6 mm!**
- Space to ceiling: **min. 12 mm!**



NOTE

- Use in-built sensors in the casing
- Pre-assemble cladding and track support profile **previous to** the installation
- Drive set may be thoroughly pre-assembled if required

How to proceed:

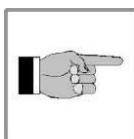
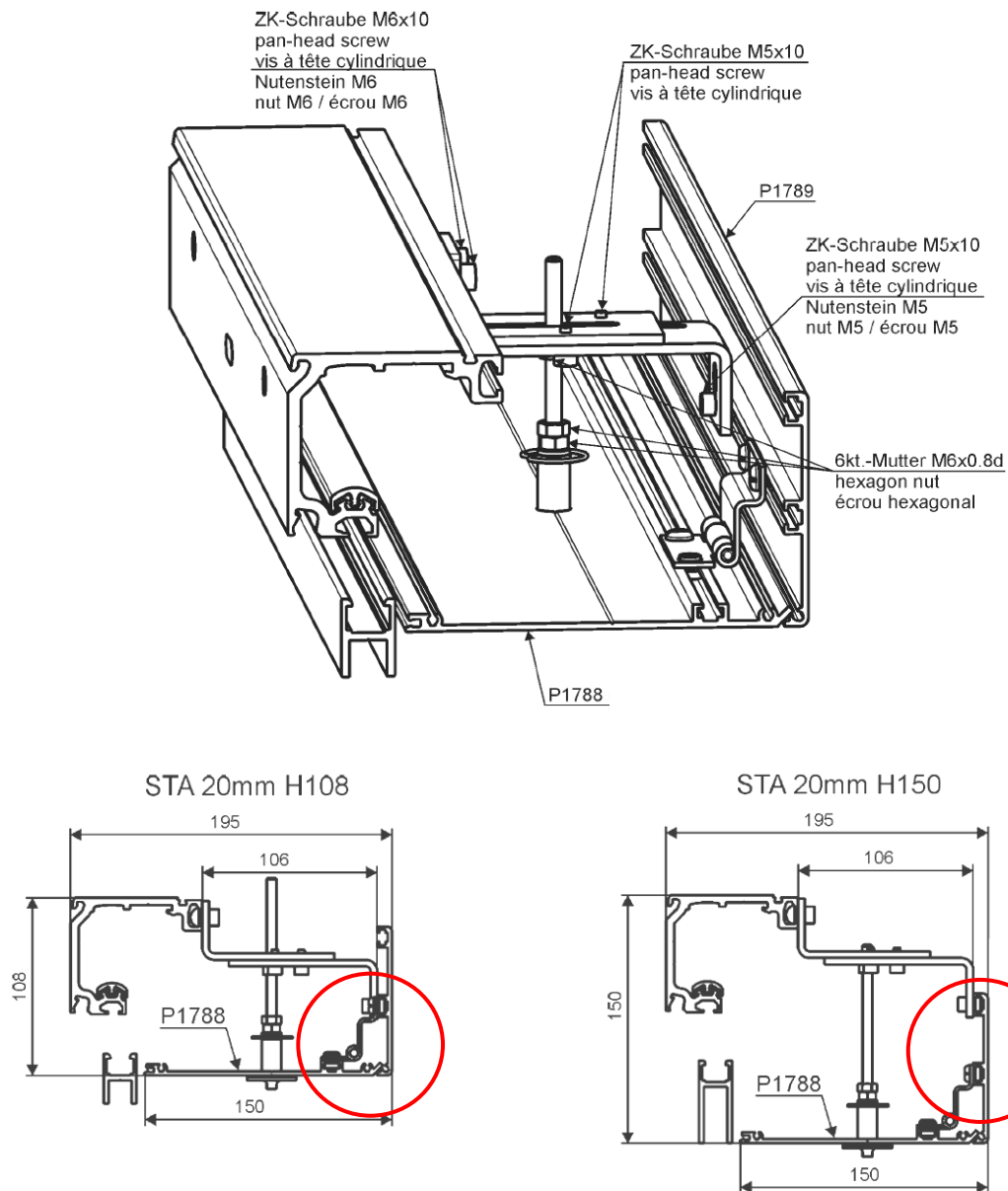
- To be done BEFORE installing the track support profile:
 - Drill holes into groove of track support profile for fit-up aids and for final attachment screws
 - Fix fit-up aids to the ceiling
Fit-up aid device is only required when the operator is installed by one single person and without external help.
- According to the surface – concrete, bricks, wood or metal – select suitable fasteners
- The fixing holes must be drilled into the groove and regularly spaced on the whole length of the groove
- Depending on the weight of the installation and on the supporting side screens, the number of fixing screws might be increased (anyway at least 4 fixing points)
- Screw support profile (P1702 – one-piece) – including pre-assembled cladding - to the ceiling, leaving a 20 mm space between ceiling and profile

23.4. Installation in drop ceiling

MS hinged swing down casing

020.808.510

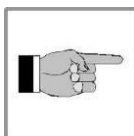
- To ensure a neat finish with the ceiling, this type of installation requires a swing down casing (profiles P1788 + P1789)



NOTE

- Similar installation with profile system 32
- With profile system 32, use the same profile (P1788)
- With 150 mm casing height, use **upper fixing groove**
- With support lengths exceeding 3.5 m, an extra mounting set should be used to increase stability (020.808.719)

23.5. Lockable operator casing

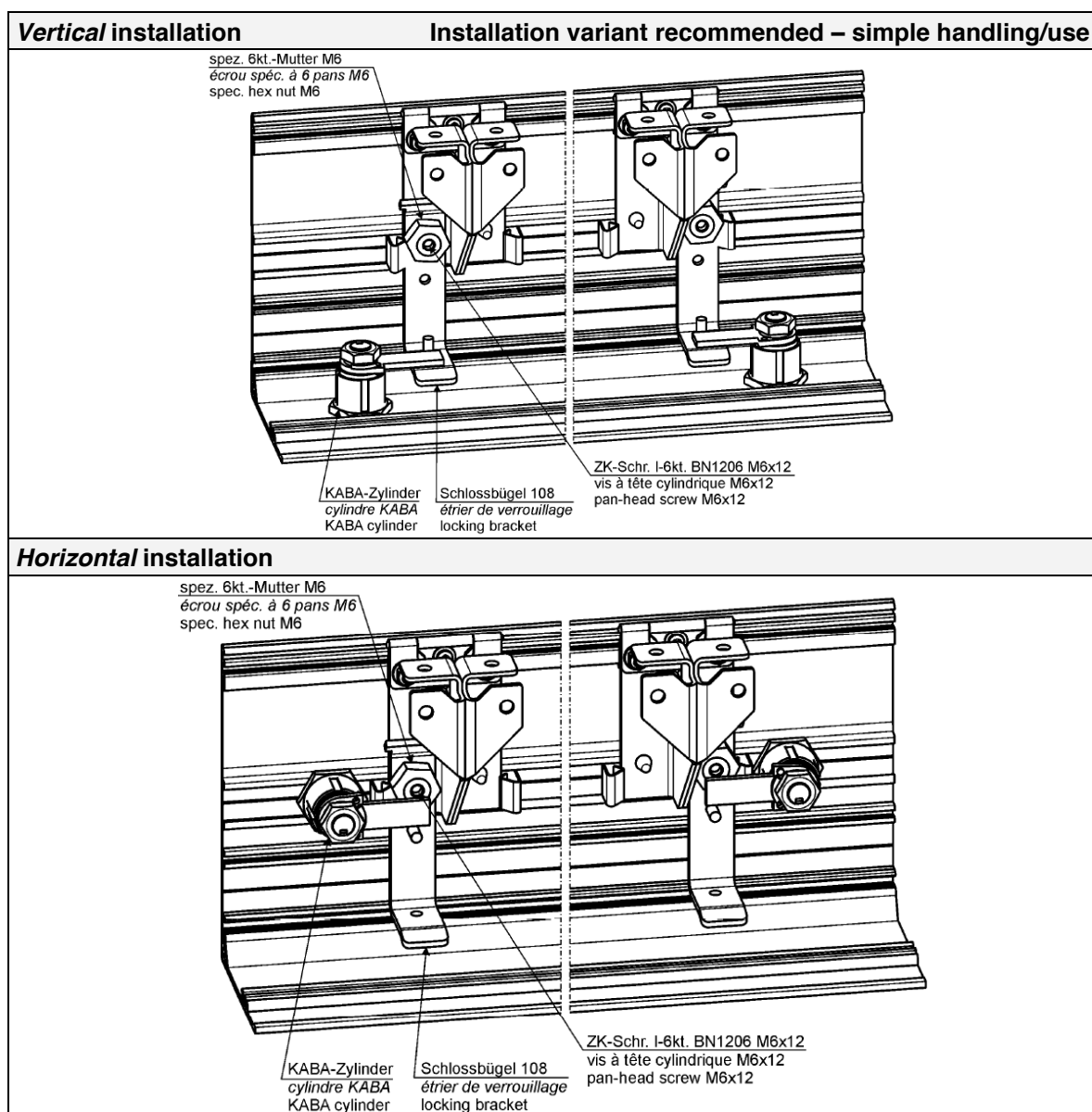


NOTE

Mounting sets are delivered together with a detailed instruction sheet about correct positioning and required preparation works.

23.5.1. Basic installation – operator heights 150 mm or 108 mm

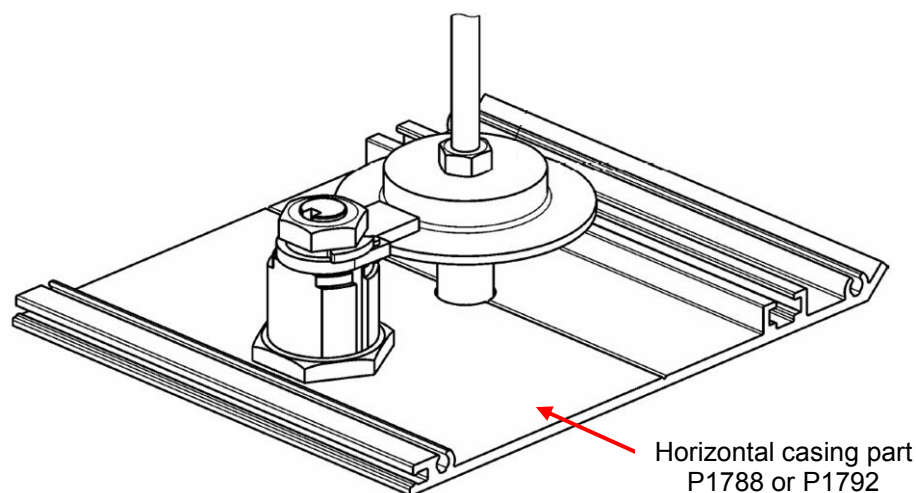
MS lockable casing 150 with instruction sheet	020.808.778
Set lockable casing 108 with instruction sheet	020.808.777



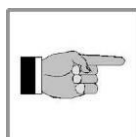
23.5.2. Basic installation of swinging down casing

MS lockable swinging down casing
with instruction sheet

020.808.793

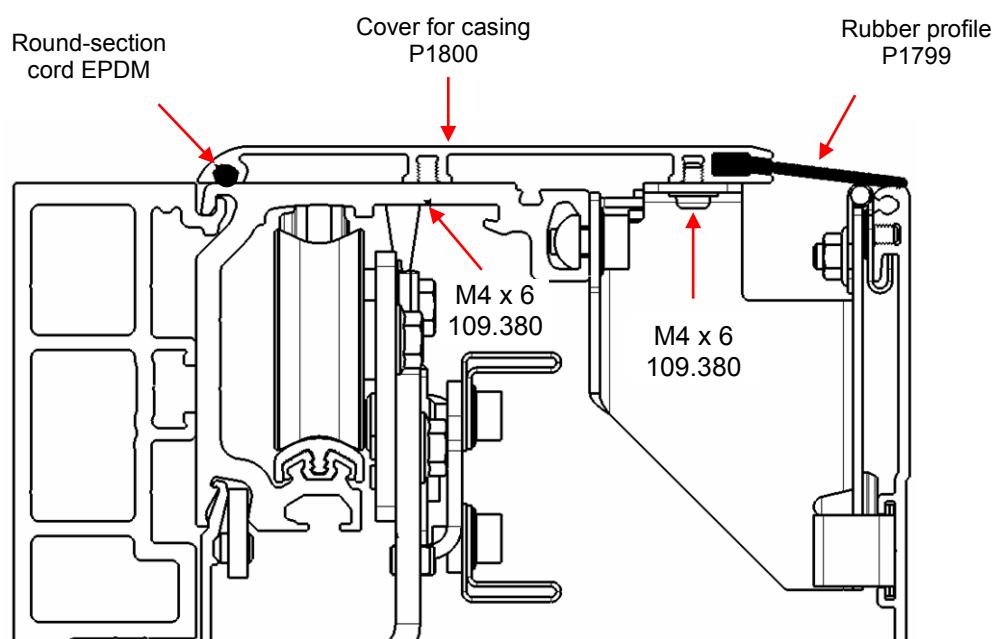


23.6. Cover for casing



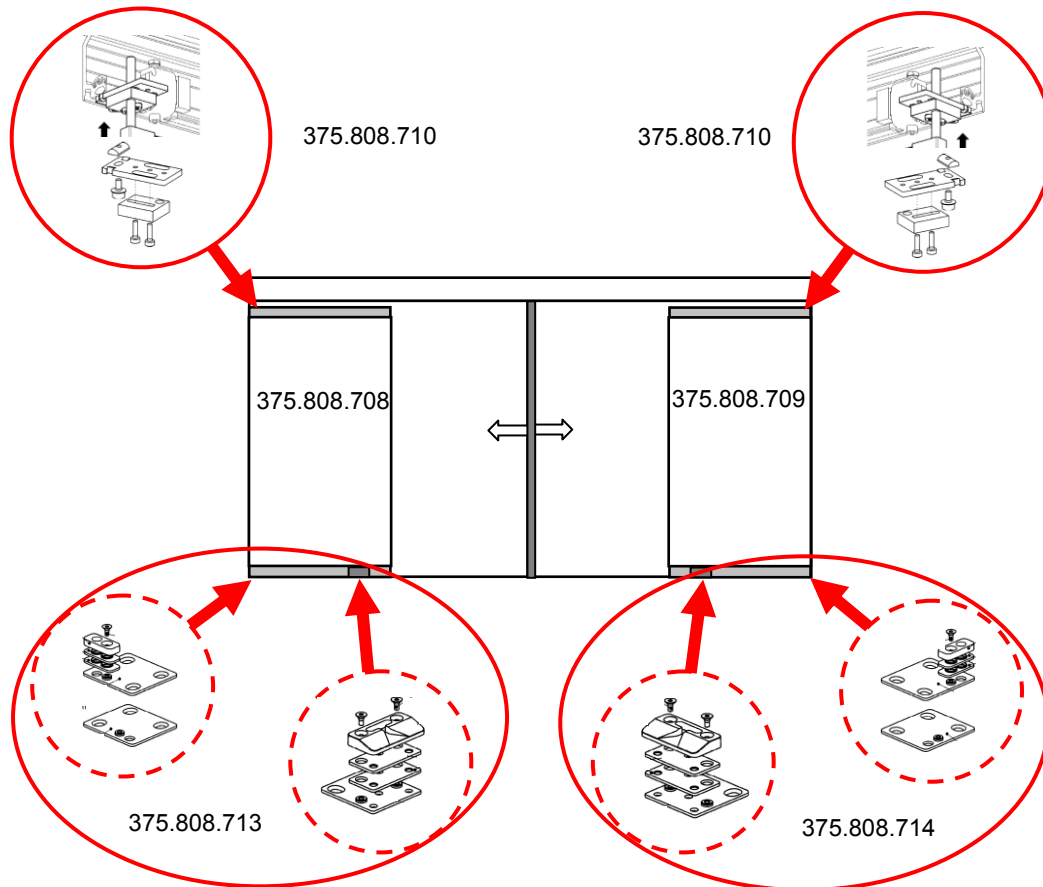
NOTE

It is recommended to plan the casing cover over the whole length of the operator.



23.7. Protective screen for profile systems 20 and 32

23.7.1. Wall installation – Overview of protective screen components



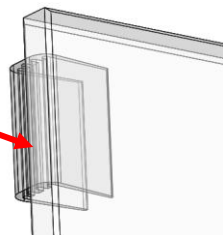
23.7.2. Installation procedure



ATTENTION

- Helpful tips about installation variants and adjustment possibilities are mentioned in the detailed instruction sheet which is attached to the mounting set.
- Control fixing of bearing bolts. If necessary, retighten!

• Position and fix bearing plate below	Drilling templates Profile system 20 375.110.417 - Floor elements left 375.110.419 - Floor elements right Profile system 32 375.110.413 - Floor elements left 375.110.415 - Floor elements right	
• Fix bearing above • Position and adjust protective screen	MS bearing – wall installation le/ri	375.808.710

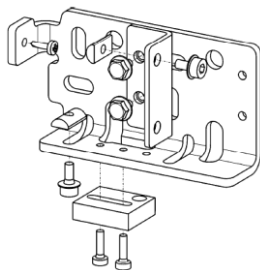
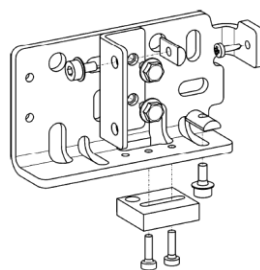
- Swivel protective screen onto closed position and set position of locking plate - Fix locking plate - Observe spacers for height adjustment - Adjust lock – bolt must engage perfectly without hindrance!	Drilling templates Profile system 20 375.110.418 - Locking plate left 375.110.420 - Locking plate right Profile system 32 375.110.414 - Locking plate left 375.110.416 - Locking plate right
- Place edge protection P1778 (30 mm) on top of the protective screen: - prevents sliding leaf from damaging glass panel - is also available over whole length of door leaf	

23.7.3. Variant mounting sets

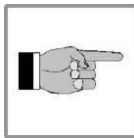


ATTENTION

- Installation procedure is the same as for a wall installation.
- Make sure that the wall is vertical. In case of irregularity, move bearing towards inside to compensate !

Self-supporting installation	MS bearing – left (with wall bracket)	375.808.711
		
	MS bearing – right (with wall bracket)	375.808.712
		
Bearing and floor elements for INOX track (type A1 – H1)	MS floor elements CH INOX left	375.808.715
	MS floor elements CH INOX right	375.808.716
Bearing and lock elements 18 for INOX track	MS floor elements 18 INOX le/ri	375.808.798

23.8. Multipoint locking MPV 20

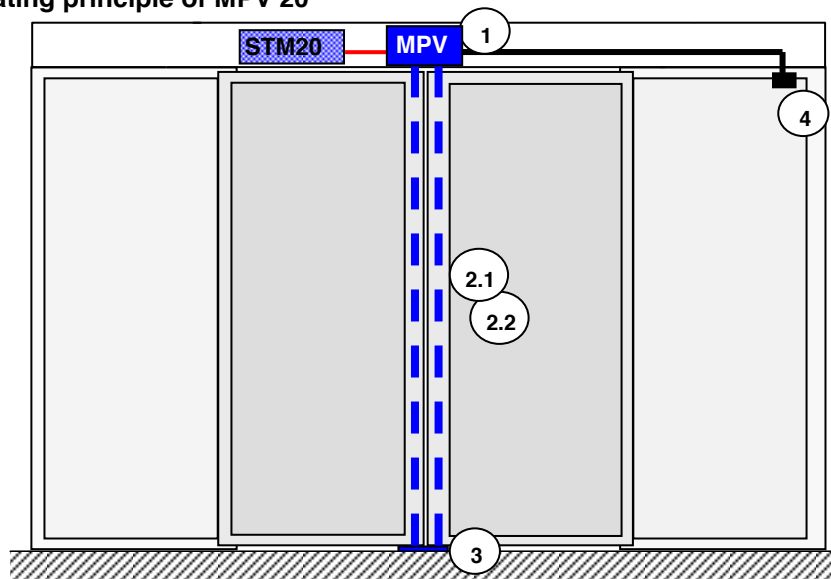


NOTE

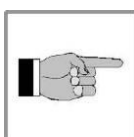
Application range:

The multipoint locking device MPV 20 can **exclusively** be installed with the **STM 20** and the **STM 20 DUO/RED**, in combination with **profile systems 32 and 30 (TOS)**!

23.8.1. Operating principle of MPV 20



1		MPV 20 Multipoint locking device, complete	172.808.526
2a		MS rod for installations with door leaf guides	172.808.675
2b		MS rod for installations with blade guide	172.808.682
3		MS perforated plate STA/TSA	172.808.723
4		Manual unlocking device (HE) → Bowden cable is to order SEPARATELY	020.808.512
		Alternative: Manual unlocking device (HE) surface-mounted	014.102.000
		Manual unlocking device (HE) flush-mounted	014.103.000



NOTE

The manual unlocking device (HE) illustrated opposite (**EXIT wall console 020.808.757**) is **NOT COMPATIBLE** with the MPV!



23.8.2. Multipoint locking device MPV 20 in detail

MPV 20 multipoint locking device, complete

with connecting cable 171.009.000

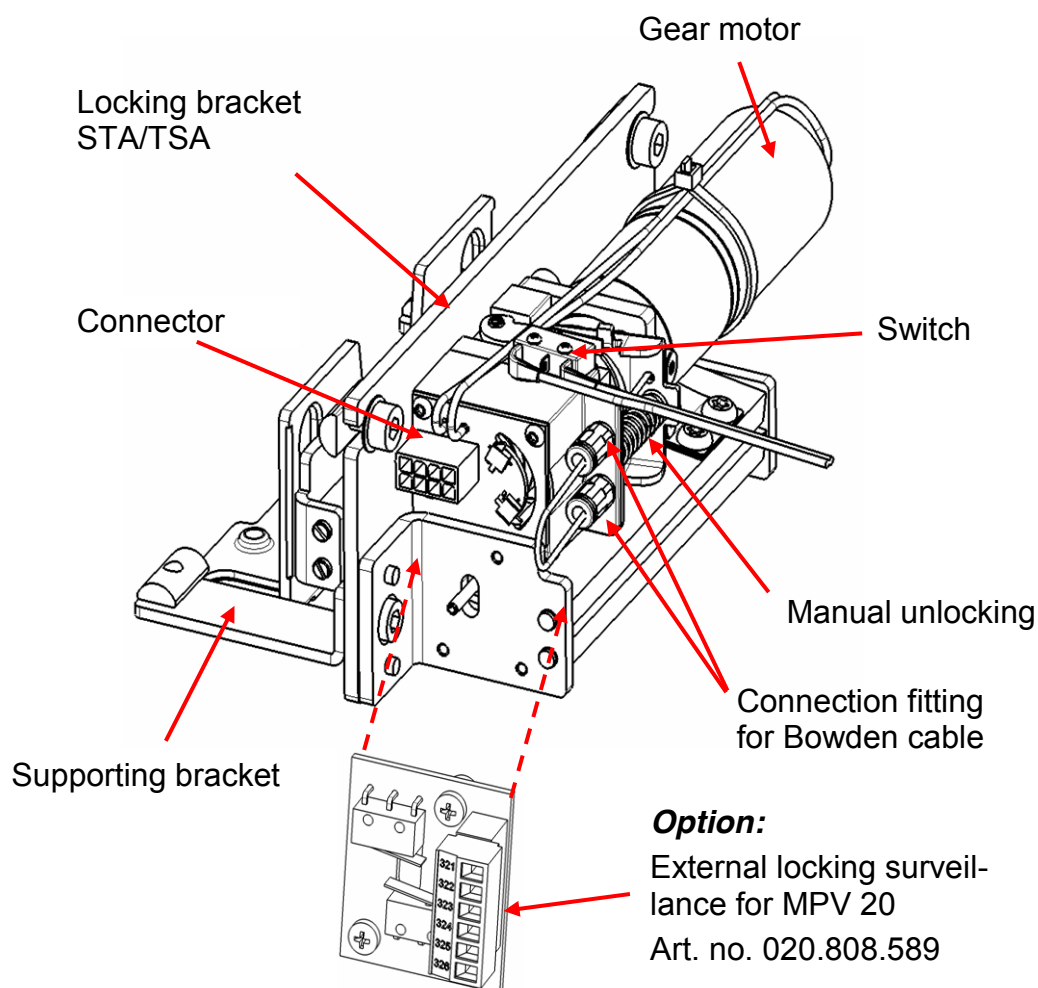
172.808.526

Extension cable required for:

- E-STA / E-TSA
- D-STA / D-TSA – A > 2400 mm

Extension cable VRR 1100 mm

016.085.000



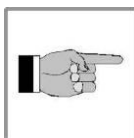
Technical data

Throw Force 11 mm
250 N

23.8.3. Application of MPV 20 on E-STA and E-TSA

MS rods
with **eccentric** bolts assembly

172.808.675

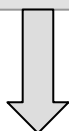


NOTE

Thanks to eccentric assembly of the bolts, the total door opening is available.

Mounting set 172.808.675
(delivered on site in-built in the door frame)

Contents of delivery:



1 x transmission, complete

3 x guides
(only 2 are illustrated)

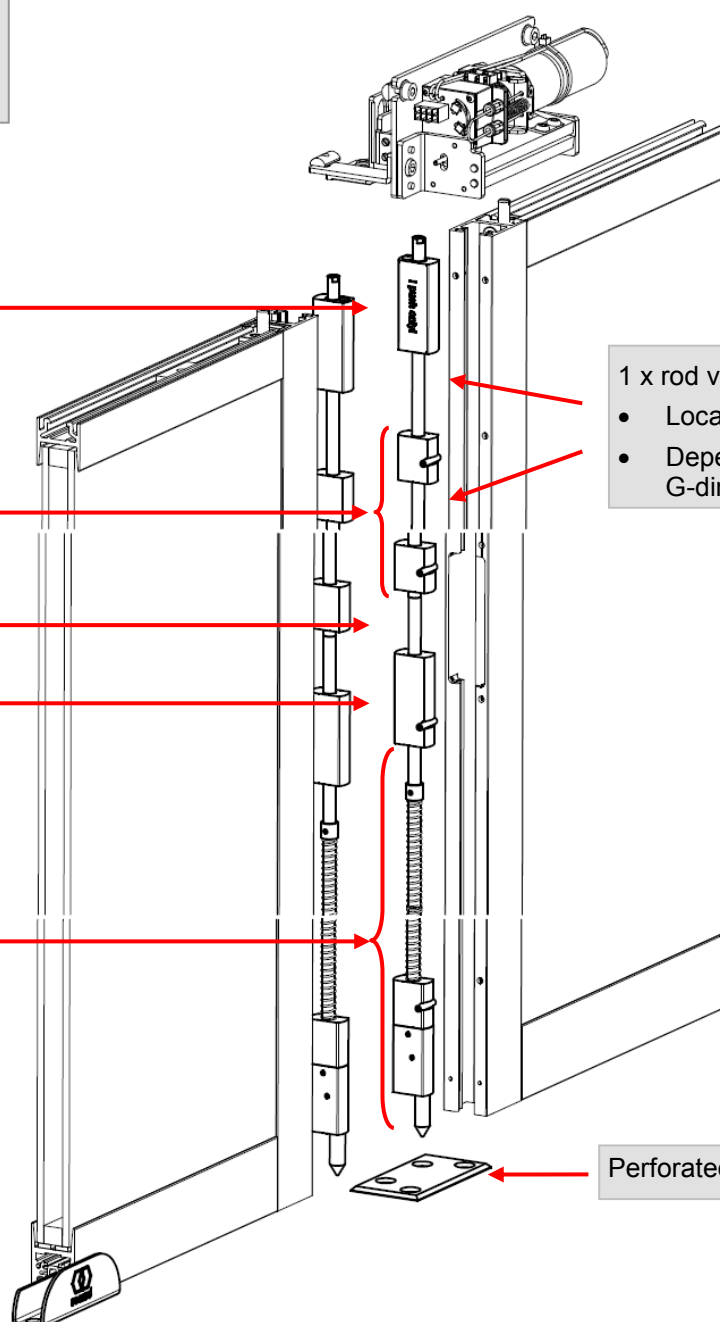
1 x bar, middle

1 x guide, middle

1 x bottom rod, complete

1 x rod variable 40.530
• Local treatment
• Depends on G-dimension

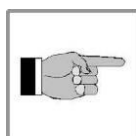
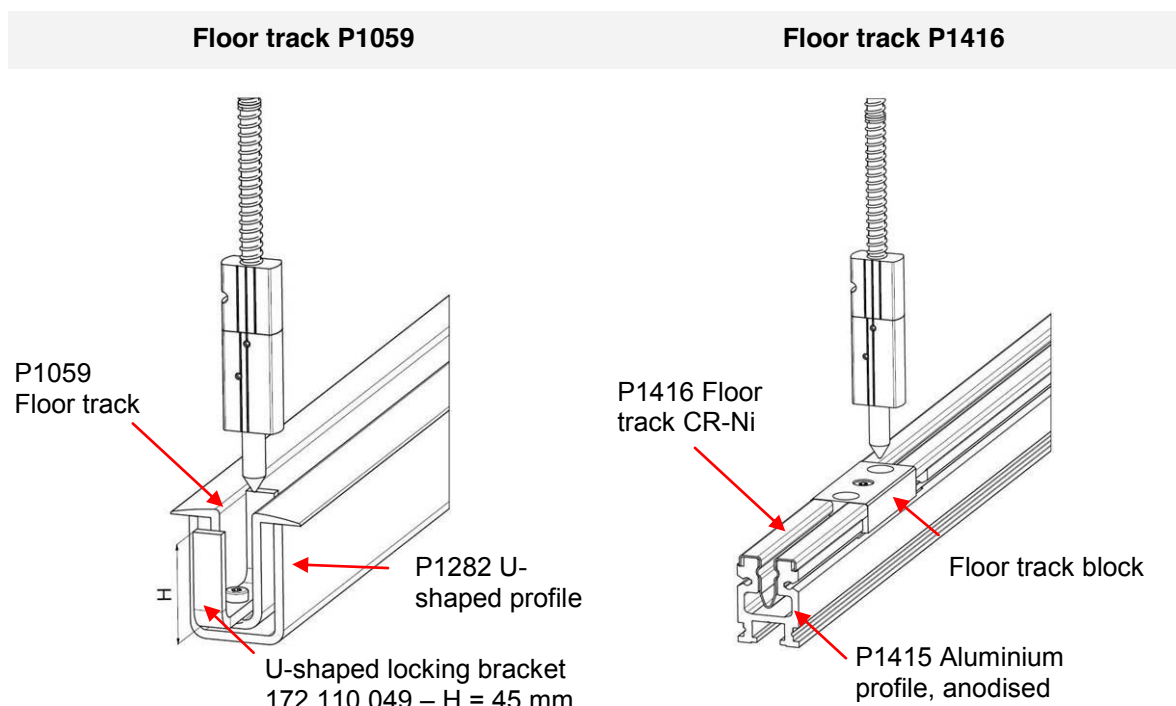
Perforated plate



23.8.4. MPV 20 for continuous floor guide (guiding blade)

MS rod for guiding blade

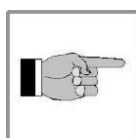
172.808.682



NOTE

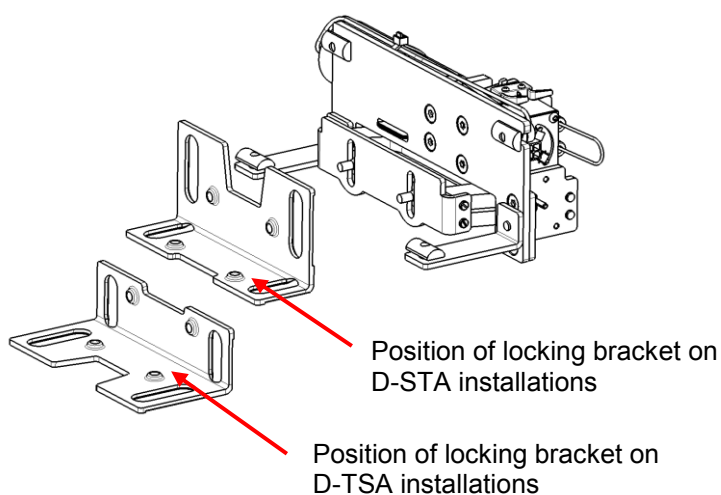
MPV U-shaped locking bracket 172.110.048 – H = **25** mm is used together with the CNS floor track, type A-1, B-1, C-1 and D-1.

23.8.5. MPV 20 – retrofitting STA into TSA



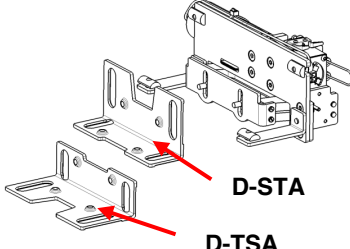
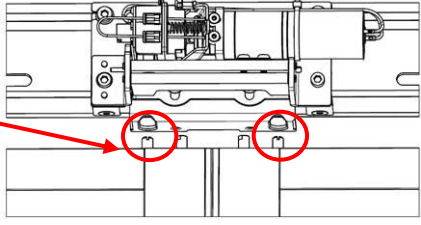
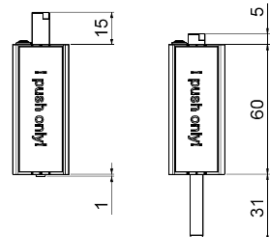
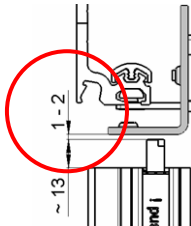
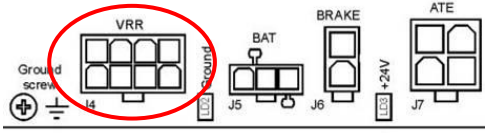
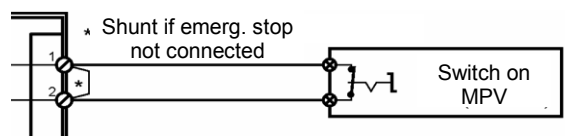
NOTE

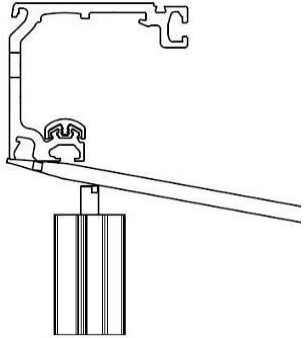
The same elements are used in the event of a bi-parting STA or TSA. The only difference consists in the position of the locking bracket. See drawing below.



23.8.6. Installation and commissioning of MPV

Fitting situation – operator height 150 mm or 108 mm				
Position: unlocked			Position: locked	
Correct position of carriages				
Door type	Comments	S ₀ / mm	min. „c“ / mm	
			STA	TSA
D-STA / D-TSA	None	110	430	430
E-STA / E-TSA	Without cut-out on MPV	230	830	550
E-STA / E-TSA	In case of narrow space conditions, MPV must be reworked – see following chapter!	155	–	470

Adjustment and commissioning of MPV	
TSA installations – turn locking bracket	 D-TSA D-TSA
Single-leaf installations (E-TSA and TSA) MPV must be refitted before installation	See following paragraph
- Adjust MPV on the side to the upper locking bolt (clearance = 98 mm) - Fix MPV to support profile	
 ATTENTION Transmission MPV 20 - Actuate cylinder only by applying pressure DO NOT pull - Transmission rate: 1 : 3	
- Adjust locking bracket - Clearance of 1-2 mm to transmission piston	
Plug connecting cable (171.009.000) into STM 20 or STM 20 DUO	
Wire switch of manual unlocking device (on MPV) to emergency stop (in STM 20)	 * Shunt if emerg. stop not connected Switch on MPV

Define position of perforated plate or MPV U-shaped locking bracket: • Press MPV rod downwards – the door being shut. • Use clear marks on the floor • Position perforated plate and fix it Variant Place door on „Locked“ via BDE-D – Marks on the floor are clearly visible In case of continuous floor track • Position properly U-shaped locking bracket (Control by manual actuating of MPV) • Fix U-shaped locking bracket into the floor track	
Commissioning	
• Programme MPV via BDE-D or FPC • MPV is identified	
• Lock door via BDE-D	• Throw of locking device must be at least of 11 mm • Door can be locked with upper locking bolt • Door can be unlocked with lower rod tips
• Unlock door via BDE-D	• Upper bolts are released • Lower rod tips are released • Automatic functions of the door are OK
• Control of manual unlocking device	• Actuate manual unlocking device • <i>Control:</i> upper locking bolts as well as lower rod tips must unlock within < 1 second ! • Installation switched to emergency stop (control on BDE-D) • Automatic installation reset after return to initial position

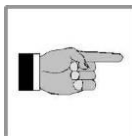
23.8.7. Fitting MPV 20 on single-leaf installations E-STA or E-TSA

Retrofit-set MPV-E

(required, if overlength is not enough)

- Locking bracket E-STA/TSA
- Supporting bracket E
- Countersunk head screw M6x12 for end-stop

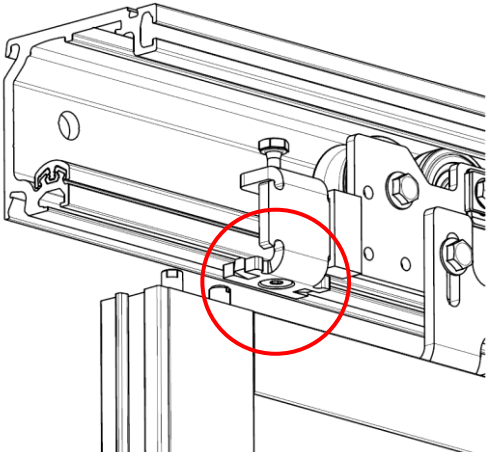
172.808.726



NOTE

- In case of narrow space conditions in operator assembly, the locking bracket can be reworked according to the data below.
- The mounting procedure is identical to the one described in the previous chapter.

Fitting conditions on closing edge	
Opening to the left	Opening to the right
★ replace existing supporting bracket by supporting bracket E (contained in mounting set)	
Procedure in case of NARROW space	
Opening to the left	Opening to the right
• Cut out hatched area of locking bracket • Remove existing supporting bracket	

	ATTENTION Replace fixing screw of end stop by countersunk head screw M6x12!	
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23.9. Extra components DUO / RED

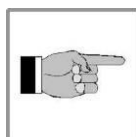
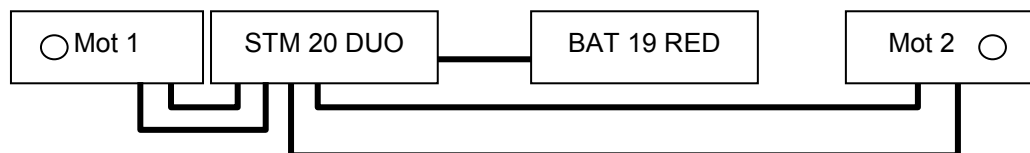
MS control module STM 20 DUO/RED • control module STM 20 DUO/RED • 2 motors ATE 20 • socket • cables and fasteners	020.808.749
BAT 19 RED	019.808.181

All the components for an installation that complies with the standards of a record RED door are basically contained in both mounting sets mentioned above.

In terms of mechanic there is no difference between a proper DUO installation and a RED installation (with authorization for rescue and escape route). However, for a RED installation a special RED software configured for CPU1 and CPU2 is loaded onto the control module STM 20. This software meets the standard: EN 13849-1:2006 category 8 PLd.

23.9.1. Extra components overview

Basically, components are mounted and wired in the same way as for a normal sliding door. The required extra components for a RED installation are presented below.



NOTE

Observe that STM 20 DUO is afterwards positioned on MOT 1 (short encoder connecting cable).

The BDE-V for night closing must be purchased locally. Two make contacts (NOC) are required.