Pedestrian Sliding Door Operator
record 16 STA
record 16 STA-UL

Manual E

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2 General remarks

This manual is intended for qualified, trained and authorised installers of the record 16 STA / record 16 STA-UL pedestrian sliding door operator.

The manual describes the correct installation and commissioning procedure.

The product is subject to technical modification. There can therefore be differences between the product and the manual.

Product designation: ***Automatic pedestrian sliding door operator***

Product name: ***record 16 STA / record 16 STA-UL***

2.1 Symbols

Various symbols are used in this manual for simplification:

Note Especially useful details concerning installation

Caution Special details indispensable for satisfactory operation of the system

Danger Details for the prevention of damage to persons and material

3 Safety instructions

The ***record 16 STA / record 16 STA-UL*** pedestrian sliding door operator has been constructed in accordance with the latest state of the art and the recognised technical safety regulations, including limiting of forces and speeds. Nevertheless, danger can arise for the user if not used as intended.

Installation, maintenance and repairs to the ***record 16 STA / record 16 STA-UL*** pedestrian sliding door operator must only be performed by qualified, trained and authorised personnel (technicians).

3.1 Use for the intended purpose

The ***record 16 STA / record 16 STA-UL*** pedestrian sliding door operator is designed exclusively for normal service with automatic pedestrian sliding doors and must be installed indoors.

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

Use for the intended purpose also includes observation of the operating conditions specified by the manufacturer, in addition to regular care, maintenance and repair.

Unauthorised modifications to the pedestrian sliding door operator and/or its installation exclude all liability of the manufacturer for resulting damage.

3.2 General safety and accident prevention regulations

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

No persons or objects must be present in the opening area/path of the sliding door, in order to avoid crushing and cutting.

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

3.3 Safety and accident prevention instruction for installations in compliance with UL325

Before applying the mains voltage to the power supply the installer has to ensure, that the mains voltage selector switch on the power supply NET 16-UL is switched to the correct position (115V / 230V).

The mains power connection has to be done via the mains power cord, provided with the pedestrian sliding door operator. Proper grounding has to be applied. Only permanent wiring is allowed with this pedestrian sliding door operator.

Wherever ***230V*** only is mentioned throughout this manual, either 115V or 230V is meant, according to the applied mains voltage in the country it is to be installed.

If any electrical unit (photoelectric sensor, radar, control unit, control panel,…) is not mounted within the existing construction of the automatic sliding door installation (e.g. on an adjacent wall) the installer shall protect the cabling from any damage and shall prevent any stress on their connections by proper means. The local installation codes have always to be followed.

WARNING : To avoid risk of electric shock, disconnect mains power (115 / 230V) before servicing.
The delivered red label with the above text has to be placed within the cover above the NET 16-UL module in such a manner, that it be seen as soon as the cover is opened.

DANGER : The edges of the cut profiles may be sharp. Be careful so as to avoid injury.

WARNING : The installer shall minimize the sharp edges at each profile, especially at the end of the profiles, where the side covers are placed.

NOTE :The installer must visually inspect the pedestrian sliding door operator for sharp edges and eliminate them before completing the installation.

WARNING : Caution, the pedestrian sliding door operator contains moving parts. Be careful, after having opened the cover.

WARNING : to reduce risk of injury to persons, use this operator only with sliding pedestrian doors for residential, commercial or industrial use.

WARNING : Use copper conductors only for any wiring on the pedestrian sliding door operator installation.

WARNING : For continued protection against fire, replace any fuse only with the same type and rating.

If the pedestrian sliding door operator is used without a radar sensor to be opened, and a switch is used instead, the switch is to be installed in a location from which operation of the door can be observed by the person operating the switch.

The glazing material in both fixed and sliding panels of a sliding door shall comply with the requirements in the ***Safety Performance Specifications and Methods of Test*** within the standard **ANSI Z97.1-1984** ***Safety Glazing Material Used in Buildings***. (chapter 29.5 of UL 325)

WARNING : The correct behaviour of the door according to the programmed parameters via the BDE must be verified during commissioning.

3.4 Final adjustments and tests on site for proper operation for compliance with UL325 :

1. Check that all tasks defined in chapter *8 Commissioning and final work* have be carried out properly.
2. Check that the door may be opened manually without power applied to the unit.
3. Remove mains power supply and battery connection and check, that the door may be opened manually with a force not greater than 222.4N (50 lbf). (chapter 29.3.2 of UL 325)
4. Check that the door does not develop kinetic energy in excess of 9.49J (7 ft-lbf). (chapter 29.4.1 of UL 325)
5. Check that the door does not require a force greater than 133.4N (30 lbf) applied in either direction to prevent the door from closing. (chapter 29.4.1 of UL 325)
6. Check, that one photoelectric sensor is installed in a height between 150 and 300mm.
7. Check with a white vertical surface (305 by 152mm), that the photoelectric sensor is working correctly at a total of 5 different locations including a distance of 25.4mm from each end. (chapter 35.2 of UL 325)
8. Check that the mains power field wired connections are located inside the enclosure of the operator.

4 Technical data & operating conditions

Opening widths A

- D-STA 800 - 3'000 mm
- E-STA 800 - 3'000 mm

Clear passage height G

- Recommended maximum value 3'000 mm

Total door leaf weights (max. 67 kg per carriage))

Standard operator :

- D-STA max. 2 x 120 kg
- E-STA max. 1 x 200 kg

Heavy duty operator DUO (two motors) :

- D-STA max. 2 x 200 kg
- E-STA max. 1 x 250 kg

Dimensions, incl. internal cover (see general plans)

- Height 200 mm
- Depth 160 mm

Door movements (with a door leaf weight of 75% of maximum weight)

- Door opening speed (D-STA) 0,7 m opening width in 1,0 sec.
- Door opening speed (E-STA) 0,7 m opening width in 1,5 sec.

Standard module

Module length 1920 mm:

- D-STA 800 - 2'800 mm

Versions of special modules, dependent on A-dimension

- D-STA see point 6.2
- E-STA see point 6.2

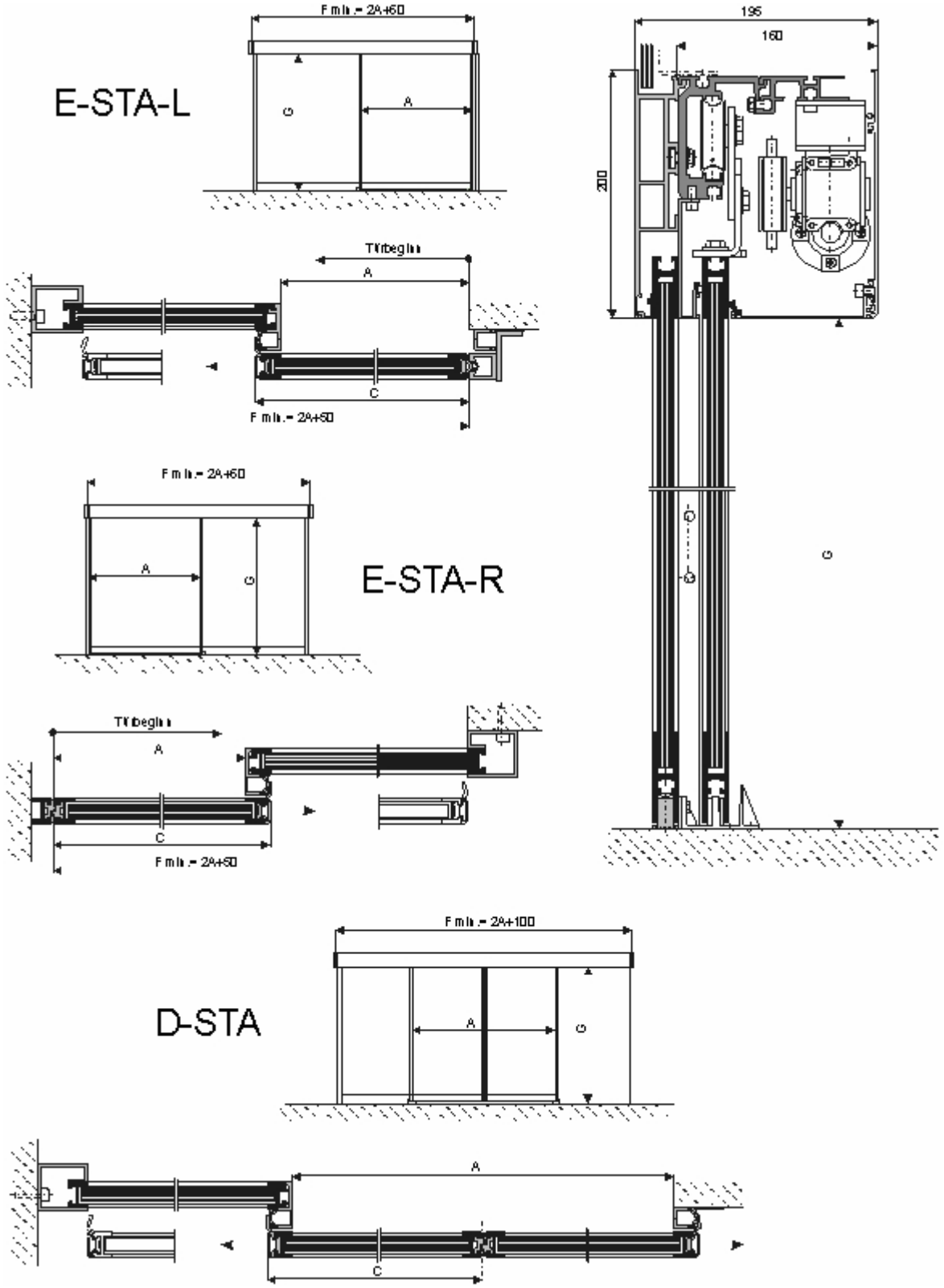
Power supply data

- Mains voltage (NET 16-UL) 115/230V (with mains voltage selector switch)
- Mains frequency 50 … 60 Hz
- Power rating 200 W
- Fuse protection 2.5 AT slow-acting

Environmental conditions

- Temperature range -15° to +50° C
- Humidity range up to 85% rel. humidity, non-thawing

5 Elevation and plan views



refer also to corresponding general plans

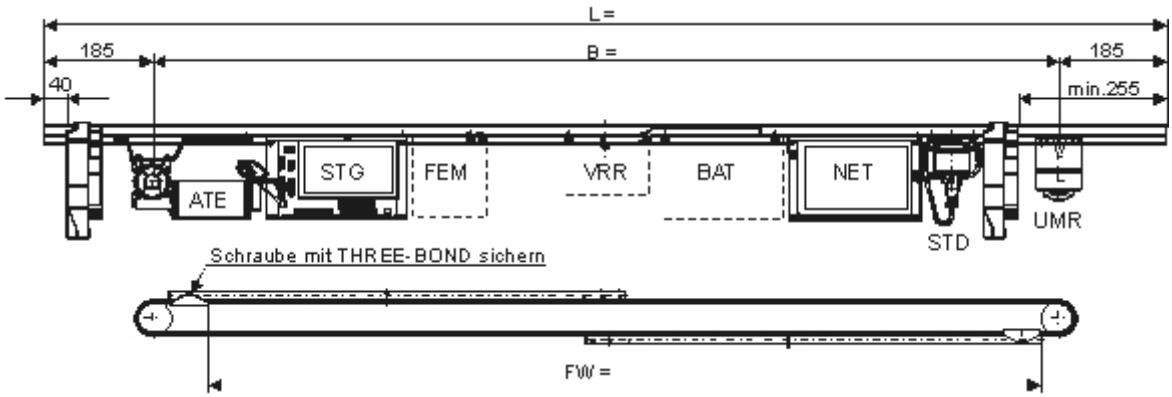
6 Preparation for installation

6.1 Preliminary work in workshop

- Prepare material according to preparation list
- Cut profiles to length and treat surfaces
- Finish door leaves and side screens and protective screens if necessary according to relevant installation drawings

6.2 Drive module

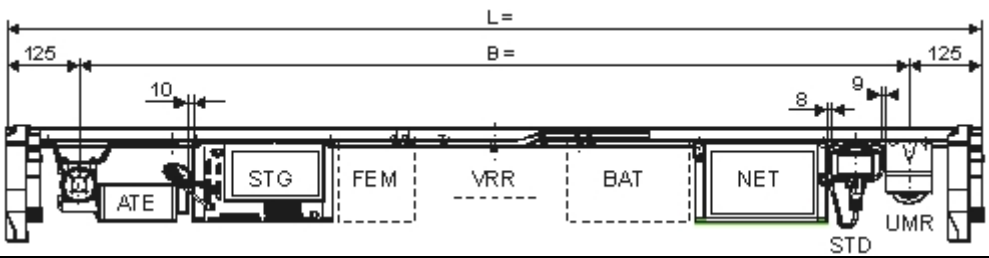
D-STA / D-TSA



Lock the screws with THREE-BOND.

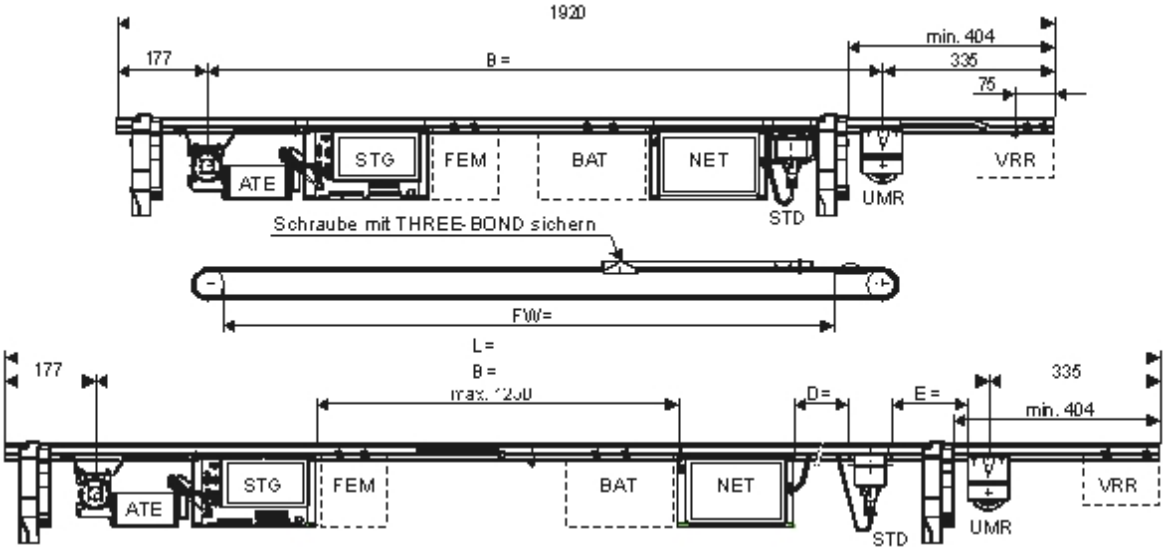
D-STA						
opening widths A =	module support L =	F-dimension F =	ATE ←→ UMR B =	door travel FW =	slidebar	gear belt length
800 – 925	1920	1950 fix	1550	470	016.000.066	2x 1616
926 - 2800	1920	2A + 100	1550	1400	016.000.066	2x 1616
2801 - 3000	2320	2A + 100	1950	1500	016.000.019	2x 2016
D-TSA						
1200 - 1320	1920	2180 fix	1550	660	016.000.066	2x 1616
1321 – 2800	1920	1,5A + 200	1550	1400	016.000.066	2x 1616
2801 – 3640	2320	1,5A + 200	1950	1820	016.000.019	2x 2016
3641 – 4000	2700	1,5A + 200	2330	2000	016.000.019	2x 2396

Version of special modules



D-STA						
opening widths A =	module support L =	F-dimension F =	ATE ←→ UMR B =	door travel FW =	slidebar	gear belt length
800 – 925	1670	2A + 100	1420	470	016.000.008	2x 1488
D-TSA						
1200 – 1320	1670	1,5A + 200	1420	660	016.000.008	2x 1488

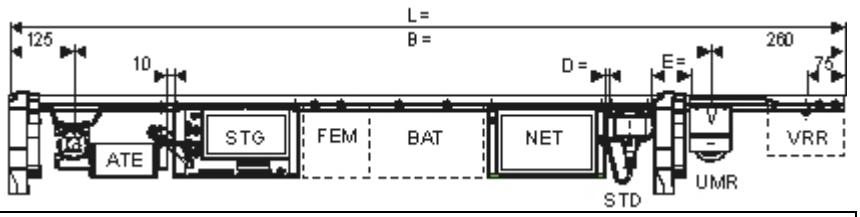
E-STA-L / E-TSA-L



Lock the screws with THREE-BOND.

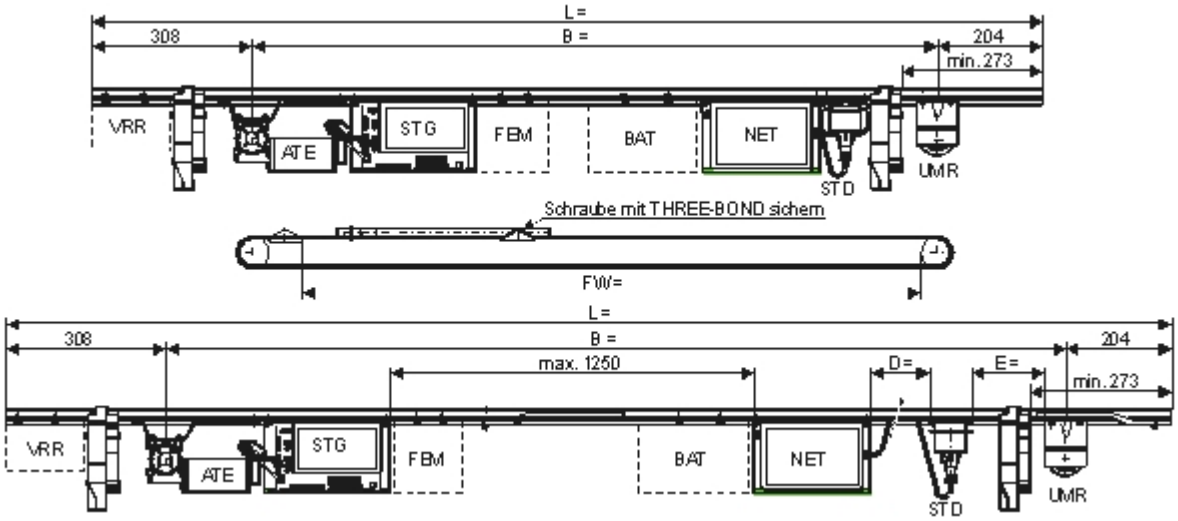
E-STA-L (slidebar 016.000.067)							
opening widths A =	module support L =	F-dimension F =	ATE ←→ UMR B =	NET ←→ STD D =	STD ←→ UMR E =	door travel FW =	gear belt length
800 – 905	1830	1860 fix	1318	8	94	905	2806
906 – 1190	1830	2A + 50	1318	8	94	1190	2806
1191 – 1760	2400	2A + 50	1888	240	94	1760	3946
1761 – 2900	3540	2A + 50	3028	400	598	2900	6226
2901 – 3000	3640	2A + 50	3128	400	698	3000	6426
E-TSA-L (slidebar 016.000.067)							
800 – 1173	1830	1860 fix	1318	8	94	1173	2806
1174 – 1190	1830	1,5A + 100	1318	8	94	1190	2806
1191 – 1216	1855	1,5A + 100	1343	8	94	1216	2856
1217 – 1257	1895	1,5A + 100	1383	8	94	1257	2936
1258 – 1320	1957	1,5A + 100	1445	8	94	1320	3060
1321 – 1415	2051	1,5A + 100	1539	8	94	1415	3248
1416 – 1559	2194	1,5A + 100	1682	8	94	1559	3534
1560 – 1776	2410	1,5A + 100	11898	240	94	1776	3966
1777 – 2102	2735	1,5A + 100	2223	240	94	2102	4616
2103 – 2592	3224	1,5A + 100	2712	400	282	2592	5594
2593 - 3000	3650	1,5A + 100	3138	400	708	3000	6446

Version of special modules



E-STA-L (slidebar 016.000.049)							
opening widths A =	module support L =	F-dimension F =	ATE ←→ UMR B =	NET ←→ STD D =	STD ←→ UMR E =	door travel FW =	gear belt length
800 – 1105	1620	2A + 50	1235	8	74	1105	2640
825 - 1155	1670	2A + 50	1285	8	74	1155	2740
E-TSA-L (slidebar 016.000.049)							
1065 – 1105	1620	1,5A + 100	1235	8	74	1105	2640
1095 - 1155	1670	1,5A + 100	1285	8	74	1155	2740

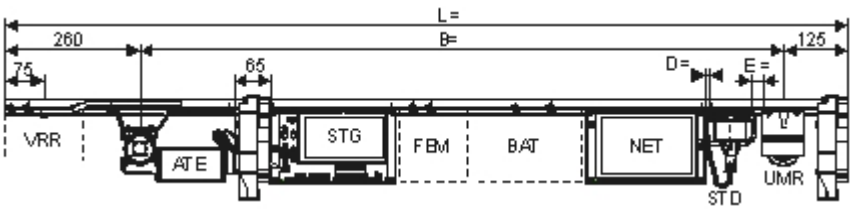
E-STA-R / E-TSA-R



Lock the screws with THREE-BOND.

E-STA-R (slidebar 016.000.067)							
opening widths A =	module support L =	F-dimension F =	ATE ←→ UMR B =	NET ←→ STD D =	STD ←→ UMR E =	door travel FW =	gear belt length
800 – 905	1830	1860 fix	1318	8	94	905	2806
906 – 1190	1830	2A + 50	1318	8	94	1190	2806
1191 – 1760	2400	2A + 50	1888	240	94	1760	3946
1761 – 2900	3540	2A + 50	3028	400	598	2900	6226
2901 – 3000	3640	2A + 50	3128	400	698	3000	6426
E-TSA-R (slidebar 016.000.067)							
800 – 1173	1830	1860 fix	1318	8	94	1173	2806
1174 – 1190	1830	1,5A + 100	1318	8	94	1190	2806
1191 – 1216	1855	1,5A + 100	1343	8	94	1216	2856
1217 – 1257	1895	1,5A + 100	1383	8	94	1257	2936
1258 – 1320	1957	1,5A + 100	1445	8	94	1320	3060
1321 – 1415	2051	1,5A + 100	1539	8	94	1415	3248
1416 – 1559	2194	1,5A + 100	1682	8	94	1559	3534
1560 – 1776	2410	1,5A + 100	11898	240	94	1776	3966
1777 – 2102	2735	1,5A + 100	2223	240	94	2102	4616
2103 – 2592	3224	1,5A + 100	2712	400	282	2592	5594
2593 - 3000	3650	1,5A + 100	3138	400	708	3000	6446

Version of special modules



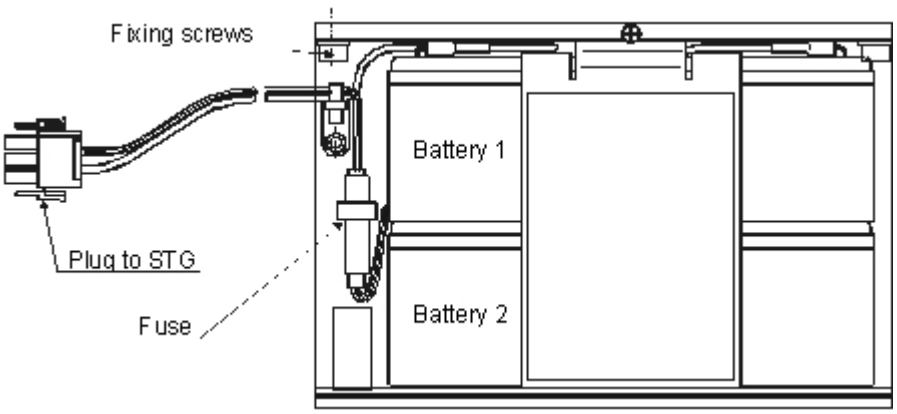
E-STA-R (slidebar 016.000.049)							
opening widths A =	module support L =	F-dimension F =	ATE ←→ UMR B =	NET ←→ STD D =	STD ←→ UMR E =	door travel FW =	gear belt length
800 – 1105	1620	2A + 50	1235	8	19	1105	2615
825 - 1155	1670	2A + 50	1285	8	32	1155	2715
E-TSA-R (slidebar 016.000.049)							
1065 – 1105	1620	1,5A + 100	1235	8	19	1105	2615
1095 - 1155	1670	1,5A + 100	1285	8	32	1155	2715

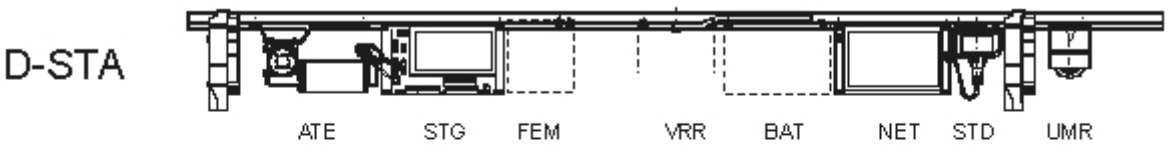
6.3 Completing drive module with options

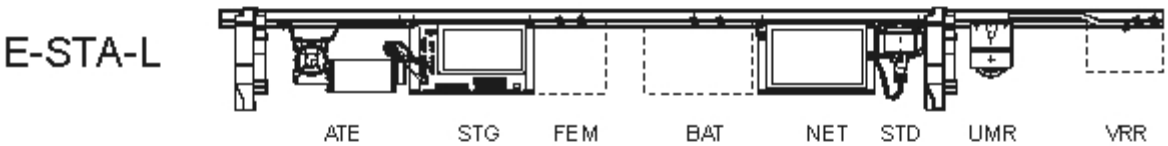
Finish or complete drive module with options such as BAT, VRR, etc.

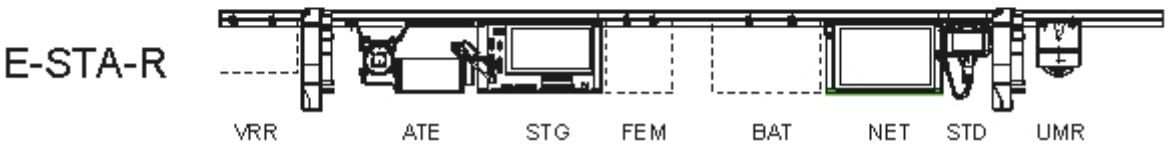
Options can also be fitted directly at the place of installation

6.4 Fitting battery BAT

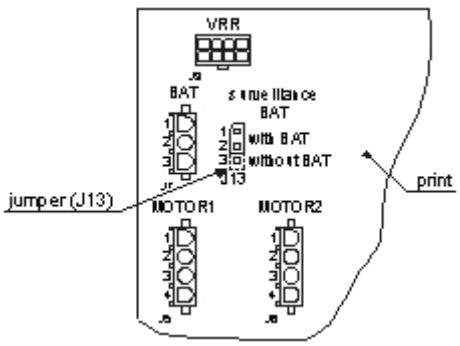




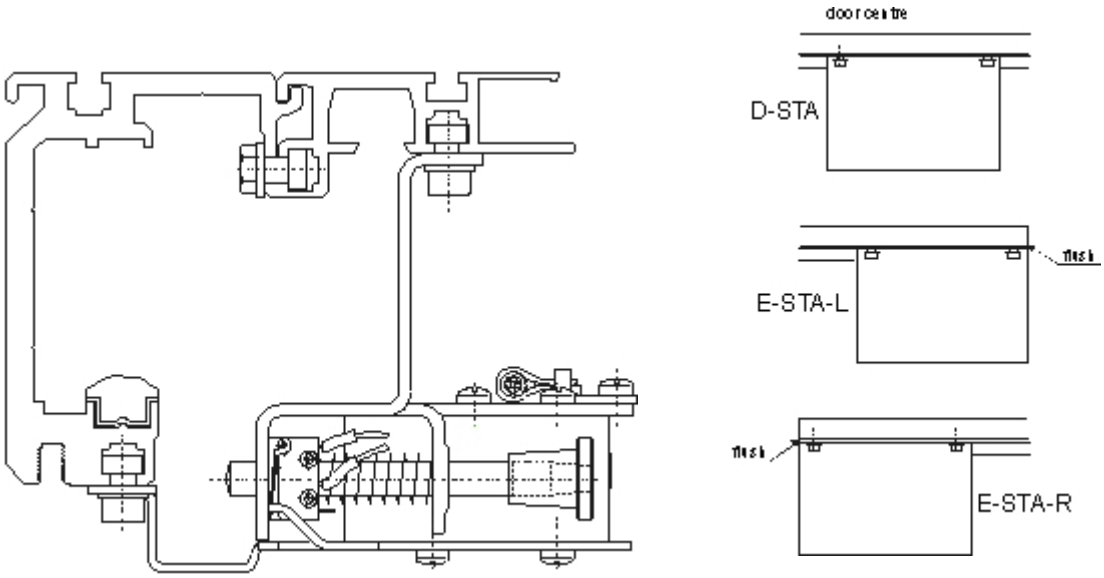




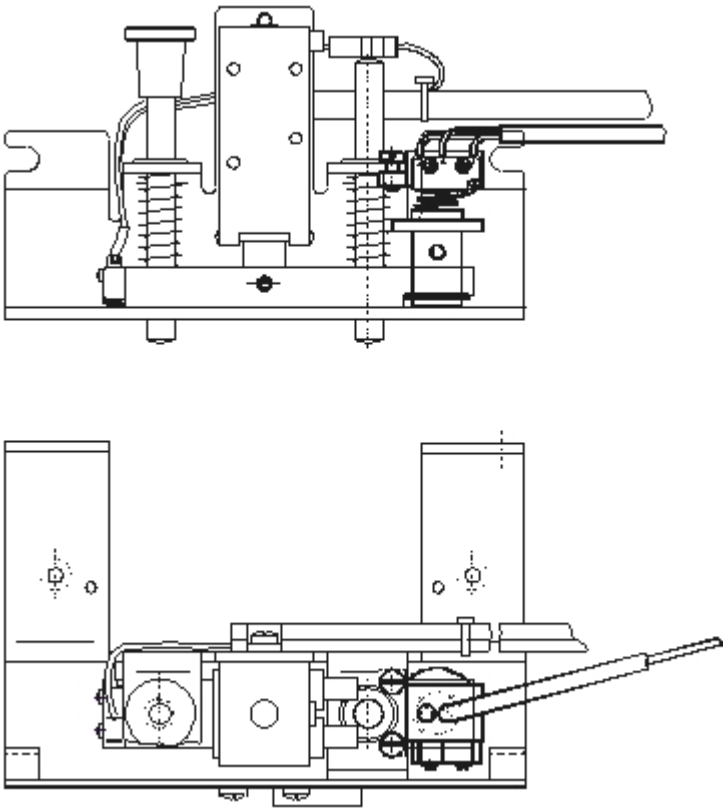
1. System without power
2. Fitting according to diagram
3. The BAT is fitted in the header, or externally with connection if there is no space (conductor length max. 10 m)
4. Changeover jumper J13 on STG if necessary (from „without BAT“ to „with BAT“)



6.5 Fitting lock VRR



6.6 Fitting HEI / HEA

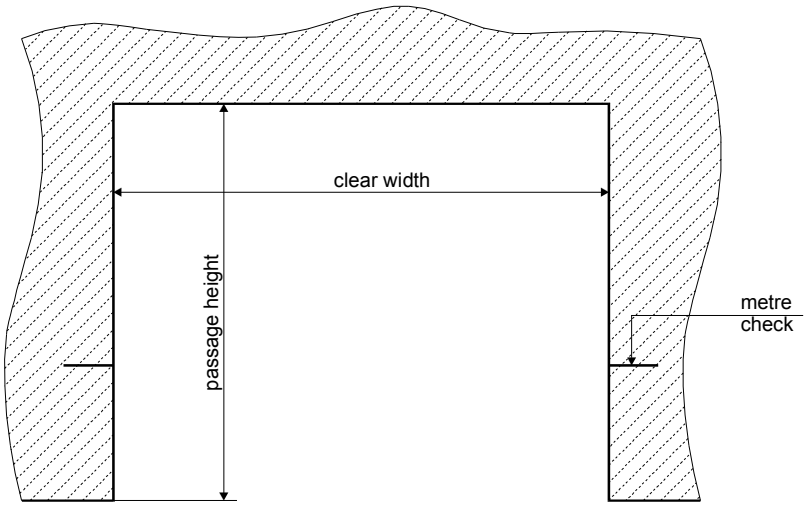


6.7 Testing drive module

Loose slidebars must not touch anywhere!

6.8 Preliminary clarification on site

- Check clear width and passage height on installation drawings



- Check work performed by principal
  Are the tubes required and correct cables provided by the electrician?
  What finish has the wall surface?
- Choice of fixing elements for drive
  Brickwork: chemical dowels or similar (e.g. Hilti)
  Concrete blockwork: all dowels suitable for this purpose
  Steel plates inset by principal (for installation welding)
  Installation angles
- Check floor level with spirit level
- Mark header position
- Mark door centre

6.9 Determining type of installation

see installation alternatives

When using side screens the cladding profile P1307 should be provided for all applications!

7 Installation instructions

Start of installation ***with*** cladding profile: from 7.1

Start of installation ***without*** cladding profile: from 7.10

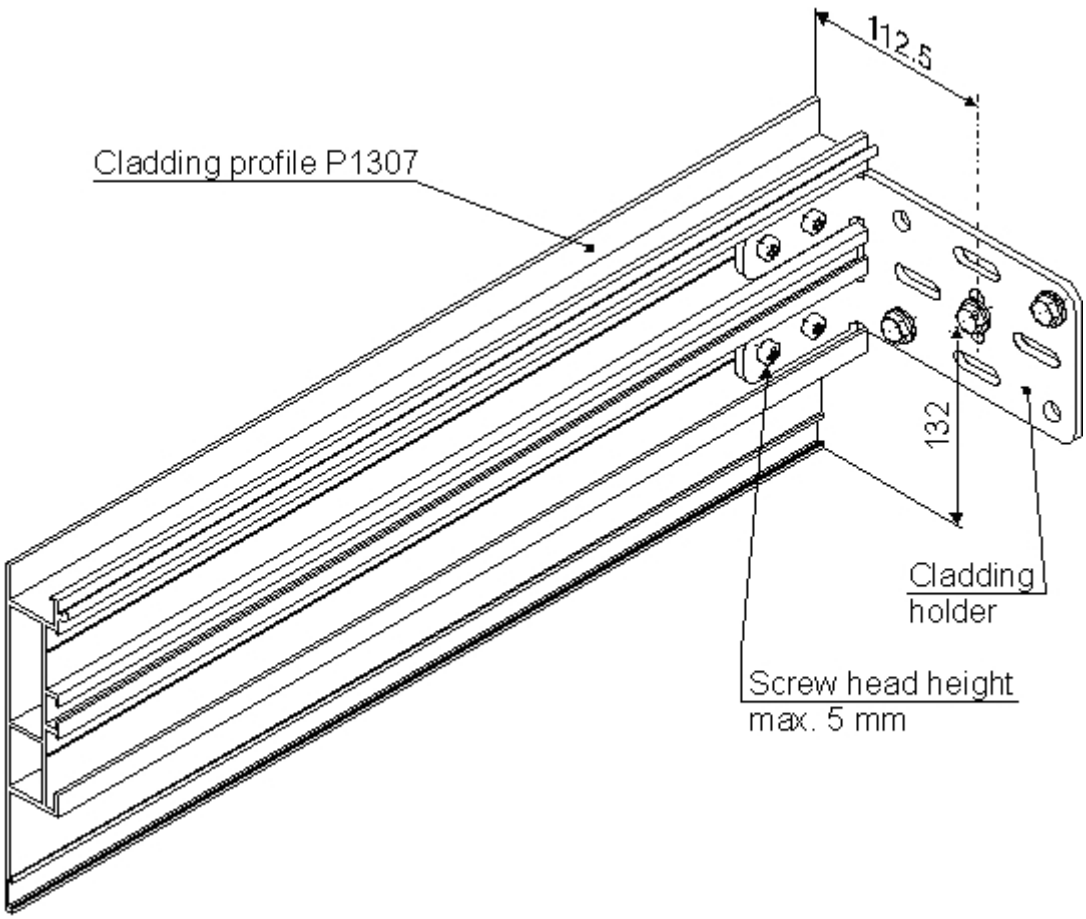
7.1 Start of installation using cladding profile

The exact dimensions are given on the general installation drawings or on separate drawings or diagrams.

7.2 Fixing the cladding profile P1307

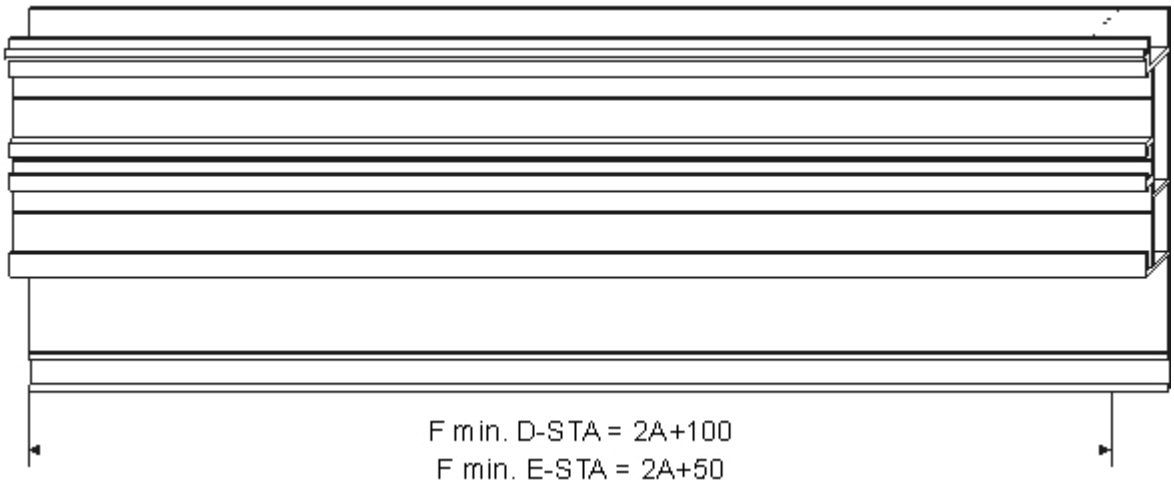
7.2.1 Type of installation: self-supporting

1. Fitting of cladding holder 016.000.005
2. Inserting cladding profile P1307
3. Fixing cladding profile to cladding holders with 4 self-tapping screws (contained in 016.006.000)



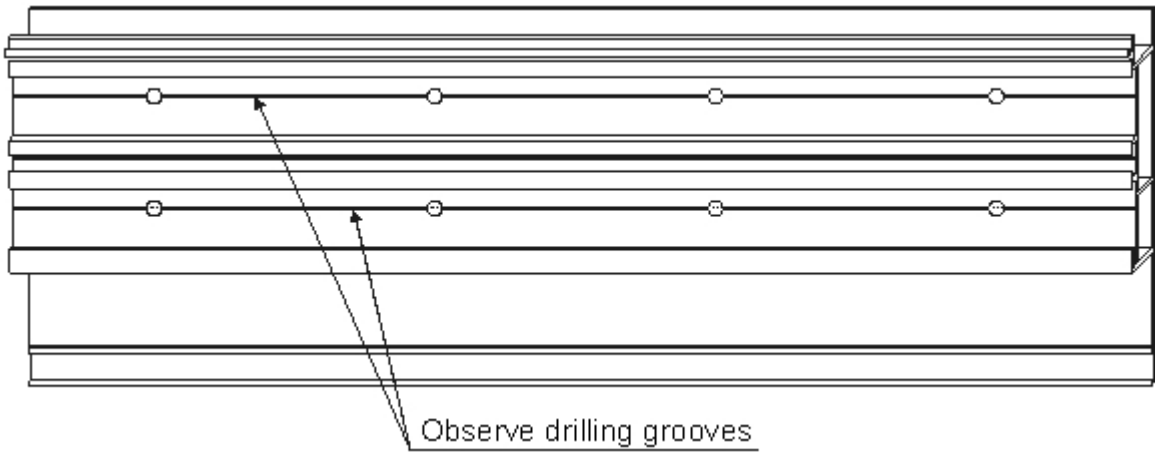
7.2.2 Type of installation: lintel installation


Cut cladding profile to length




Drill fixing holes in cladding profile


Through holes 9 mm dia.

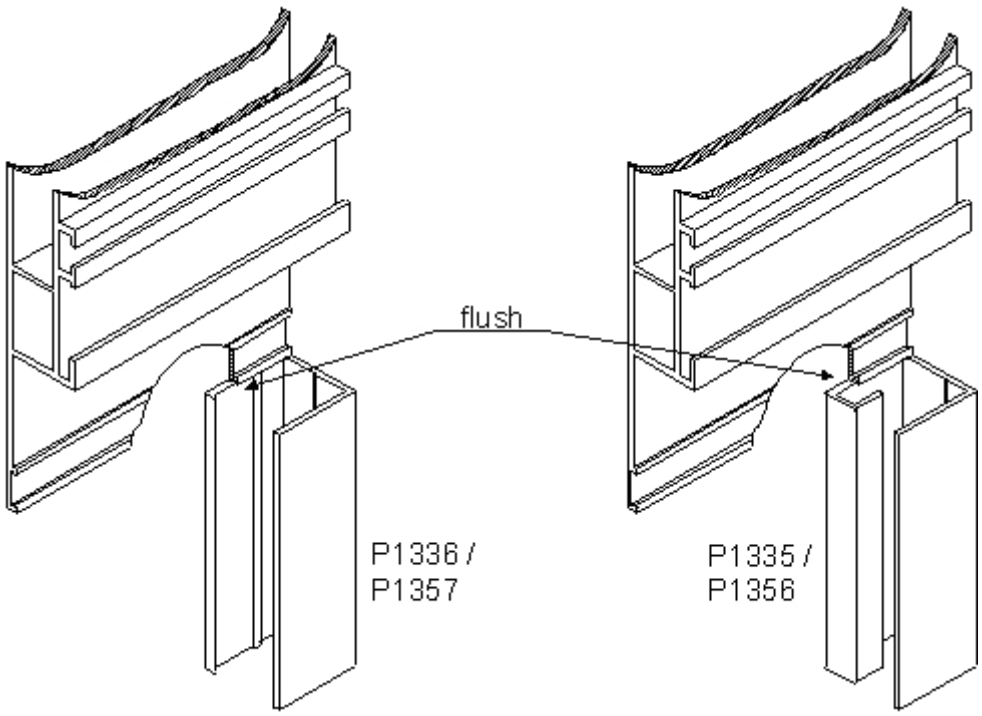


Fit cladding profile exactly horizontally and vertically. At least four screws should be used for fixing. The cladding profile must lie flat. It is self-supporting up to 5,1 m (A = 2,5m) by using side screens.

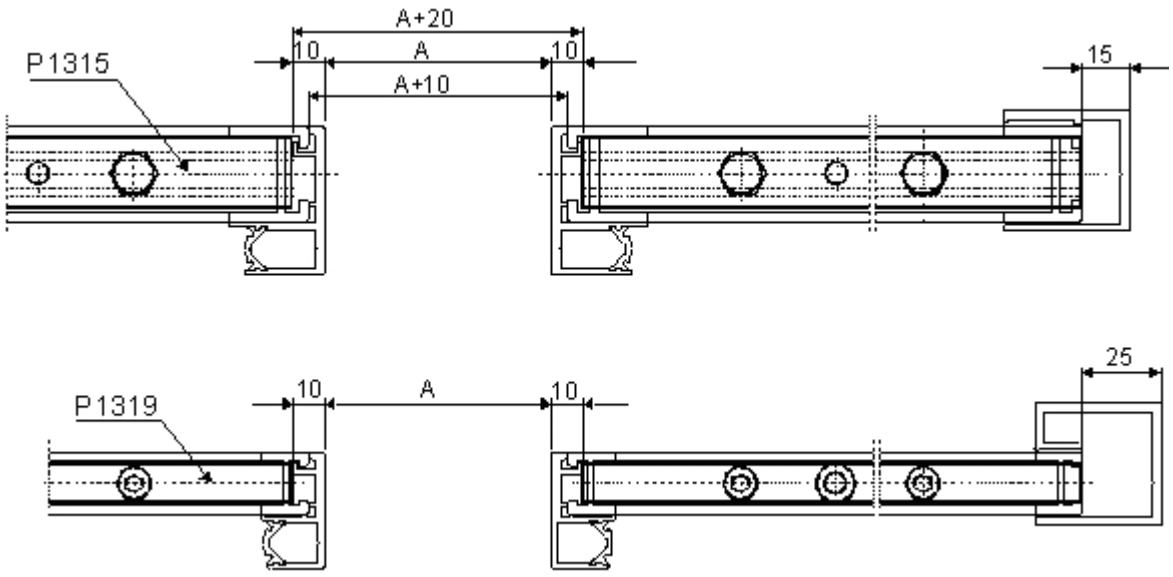
7.3 Installation of side screens and/or wall connection profile

Side screens:

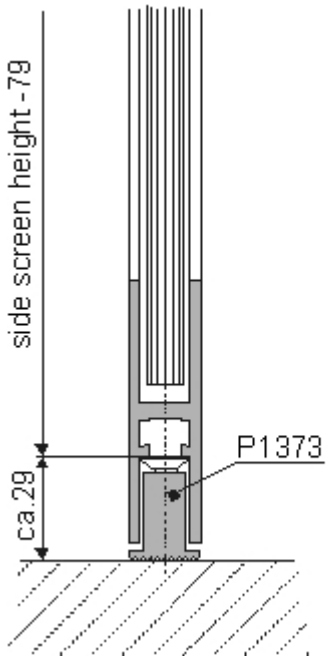
- Mark centre of door on floor
- Cut wall connection profile P1336 / P1357 to length (30 mm) or P1335 / P1356 (20 mm)
- Align and fix profile

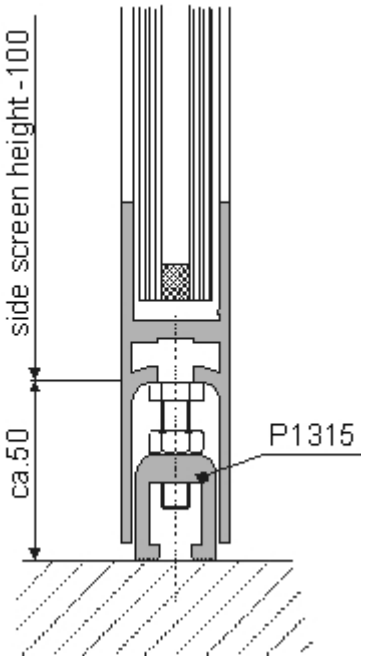


- Align and fix floor profile P1315 (30 mm) or P1319 (20 mm)

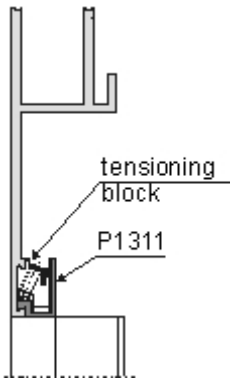


- Perform height levelling with hex. screw or socket-head hex. screw (contained in 016.121.000 for 20mm or 016.141.000 for 30mm)

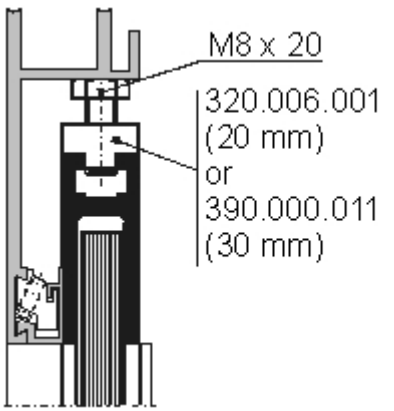


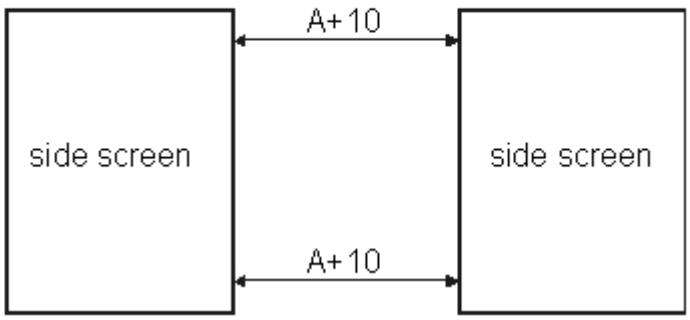


- When using a 20 mm profile system a infill-profile 10 mm P1311 with tensioning blocks (016.000.007) must be used in the cladding profile P1307. Fixing of tensioning blocks with a 2 mm Allen key (contained in 016.121.000).



- Insert side screen
- Align side screen so that A-dimension is correct

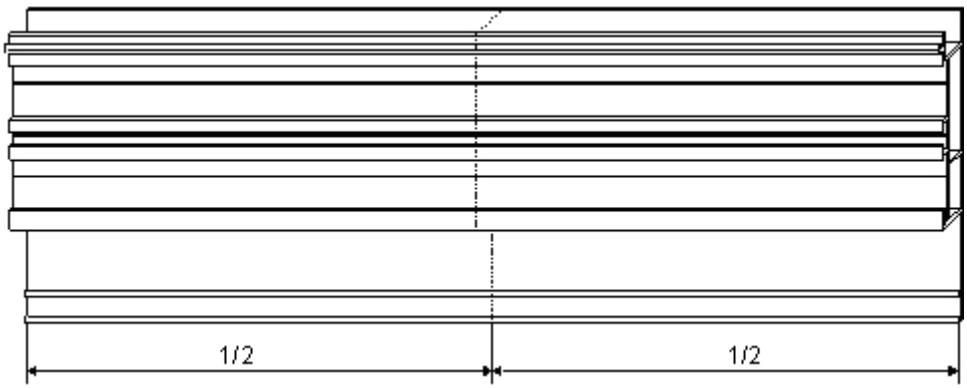




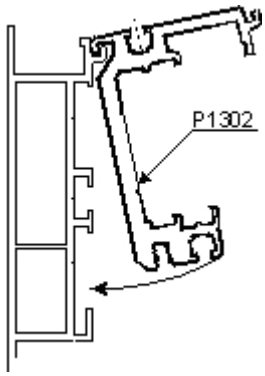
Recommendation: support cladding profile P1307 on side screens (contained in 016.121.000 or 016.141.000)

7.4 Inserting track support section

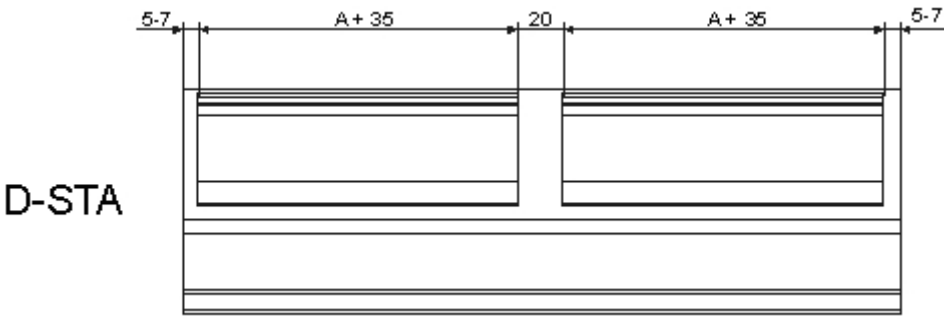
- Mark door centre with cladding profile

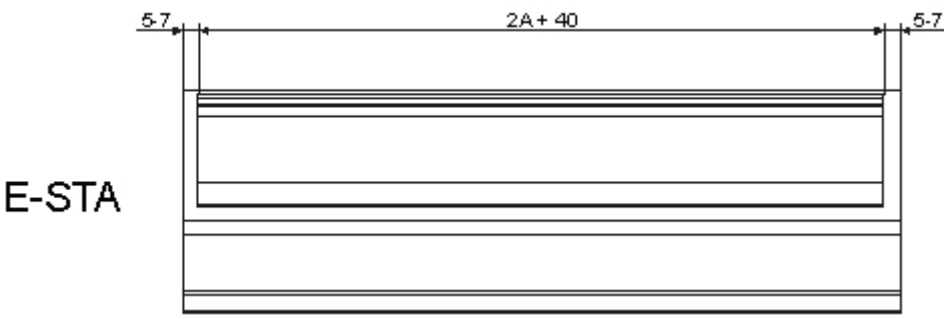


- Hanging the 1- or 2-piece track support sections P1302

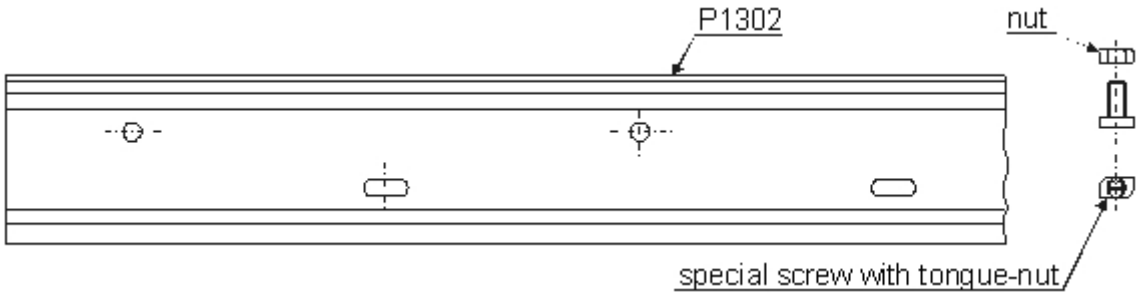


- Aligning track support sections:
  Gap of approx. 20 mm at centre (to D-STA), left and right approx. 5 - 7mm each



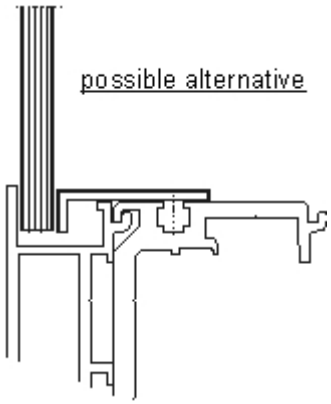


- Fixing with nuts and special screws with tongue-nut in lower oval holes (contained in 016.006.000)



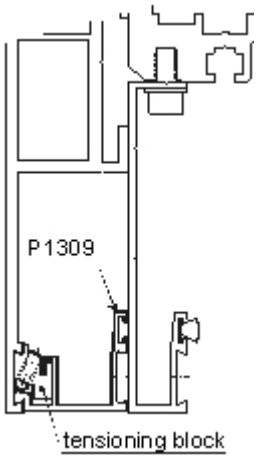
7.5 Inserting fanlight if provided

- Position connecting profile according to building situation and fit fanlight



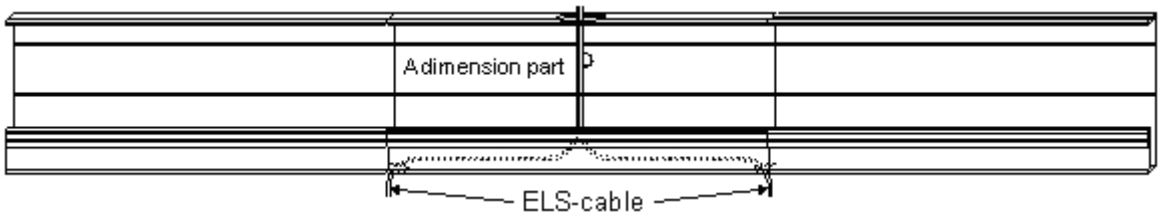
7.6 Inserting infill profile P1309

- If built-in radar is used in the cladding, provide corresponding recess (see installation instructions built-in radar)
- Cut infill profile P1309 to length and insert in door opening with tensioning blocks (016.000.007) (contained in 016.006.000).

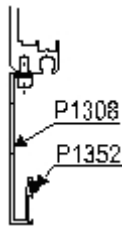


7.7 Horizontal sealing profile and strip brush

The horizontal sealing profile P1308 with integral strip brush P1352 is in 3 parts, with 1 part of A dimension +40 mm with slots in both pieces and at top centre for cable passage.



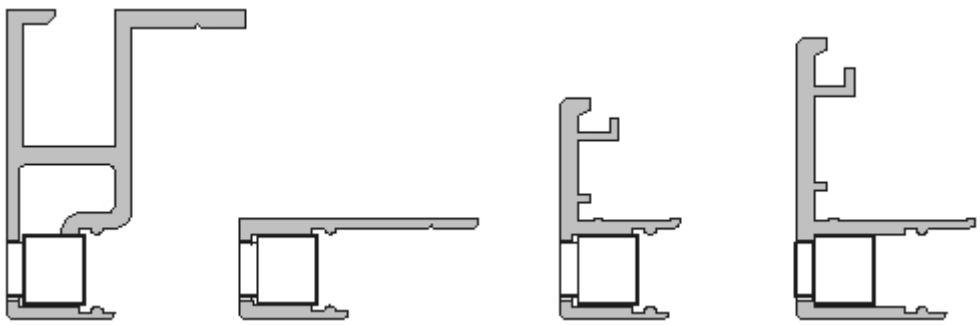
- Insert strip brush P1352, likewise 3-piece, and affix lightly
- Fit the A dimension part in the doorway (clear opening) and fix on track support profile with 2 screws



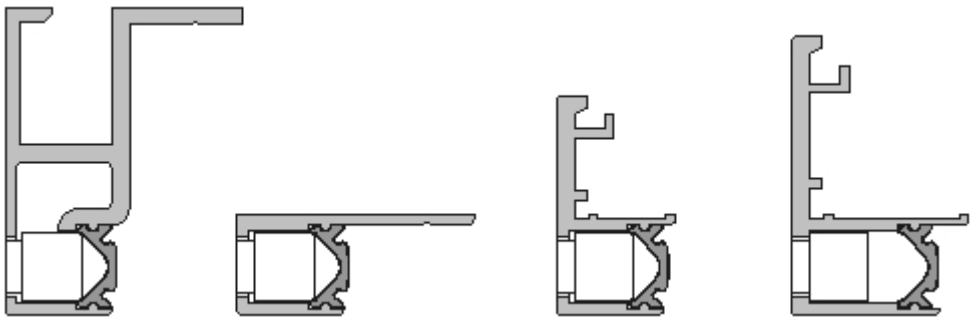
- Cut both side pieces to length and likewise secure flush with track support profile with 2 screws

7.8 Fitting ELS

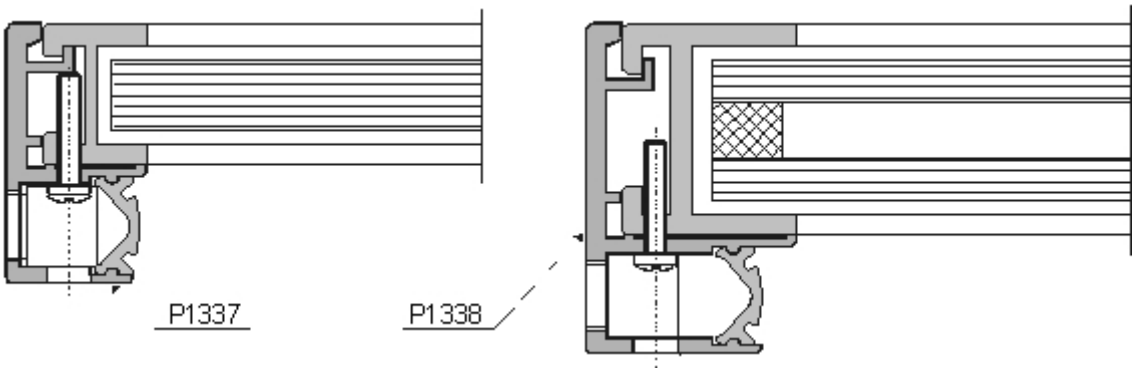
- Fit in alu profile in the correct length
- Fitting ELS in aluminium profile and affix



- Draw in rubber cover profile P1339

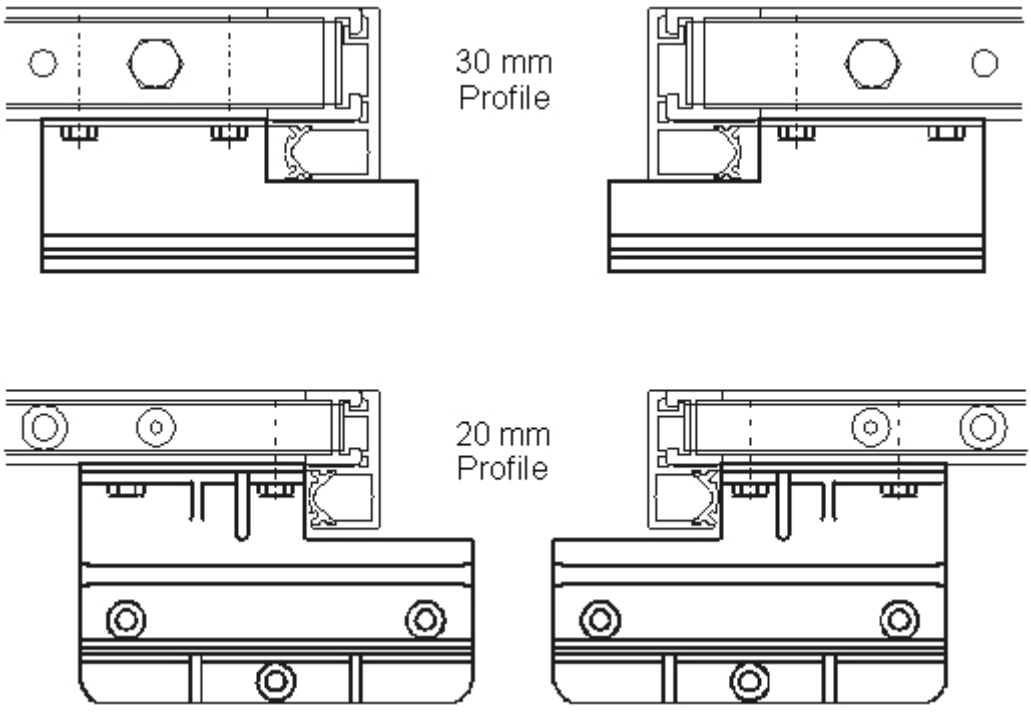


- Drill fixing holes (∅ 2,8mm) in cover profile P1338 (30mm) or P1337 (20mm) and side screen
- Screw cover profile to side screen (contained in 016.141.000 or 016.121.000)

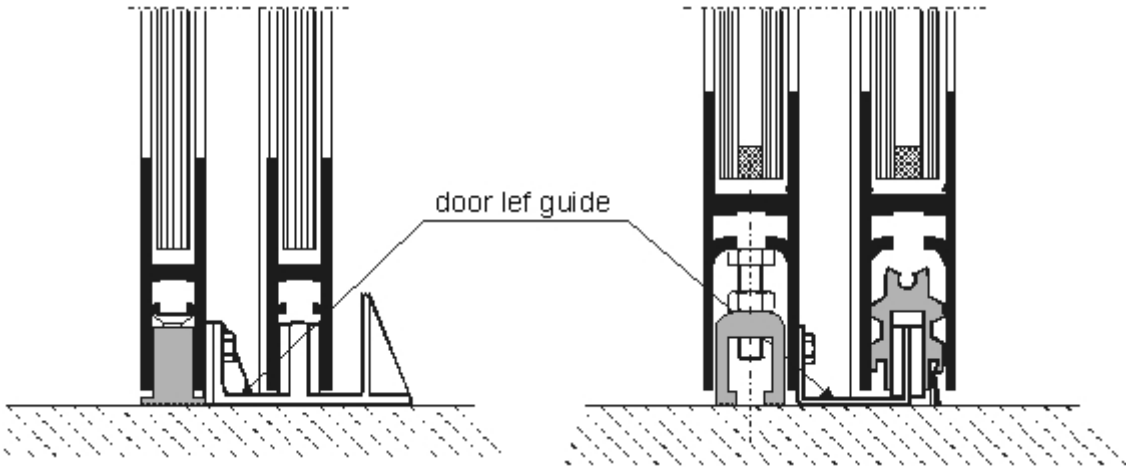


7.9 Fitting door leaf guides

- Mark position



- Drill fixing holes
- Fix guides



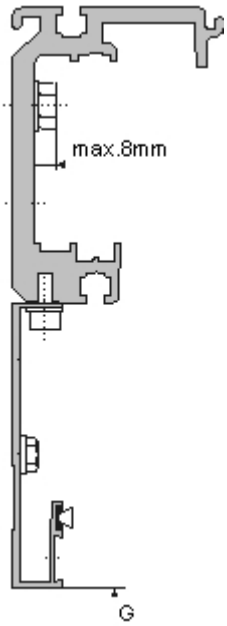
7.10 Starting installation *without* cladding profile (without side screen)

- Cut horizontal sealing profile P1308 to length

- Draw in strip brush P1352 into horizontal sealing profile and affix 1 - 2 cm at both ends

With a wall to wall installation the strip brush cannot be replaced later, unless the horizontal sealing profile P1308 is divided into two parts, so that 1 part can be removed again if necessary to withdraw the brush.

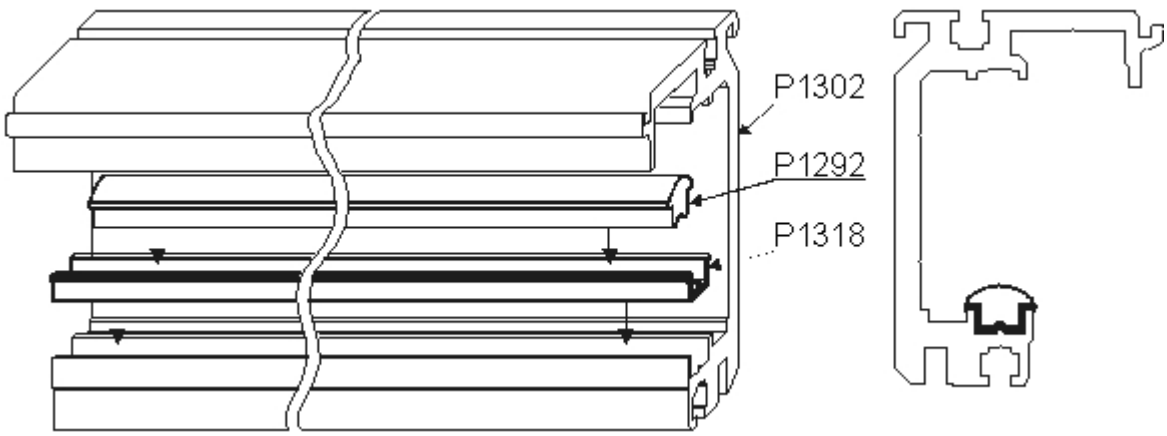
- Fix horizontal sealing profile horizontally P1308 to dimension G provisionally (e.g. with screw clamp).
- Place 1- or 2-piece track support profile P1302 on horizontal sealing profile and mark fixing holes.
- Type of fixing depends on surface. It must be ensured that the profiles lie exactly parallel and aligned.
- Fix horizontal sealing profile P1308 on track support profile P1302 with M6 x 12 mm screws.
- Fix sealing profile to lintel if necessary with 2 - 3 screws.



The screw heads must not project more than 8 mm

7.11 Inserting track profile

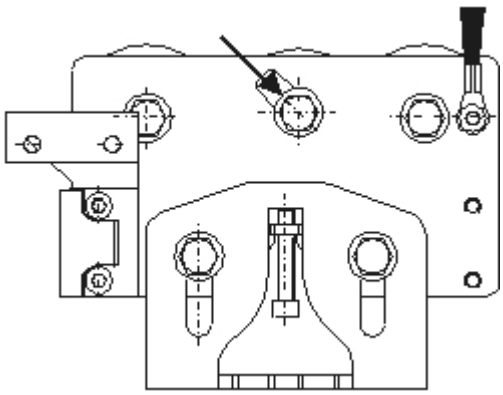
- Clean track support profile P1302
- Clean running surface on track profile
- Spray a little soapy water in slot if necessary
- Insert rubber damping profile P1318
- Spray soapy water again on rubber damping profile
- Place 1- or 2-piece track profile P1292 on rubber damping profile P1318 and press into profile from the centre outwards
- The rubber damping profile must still be visible at front and rear



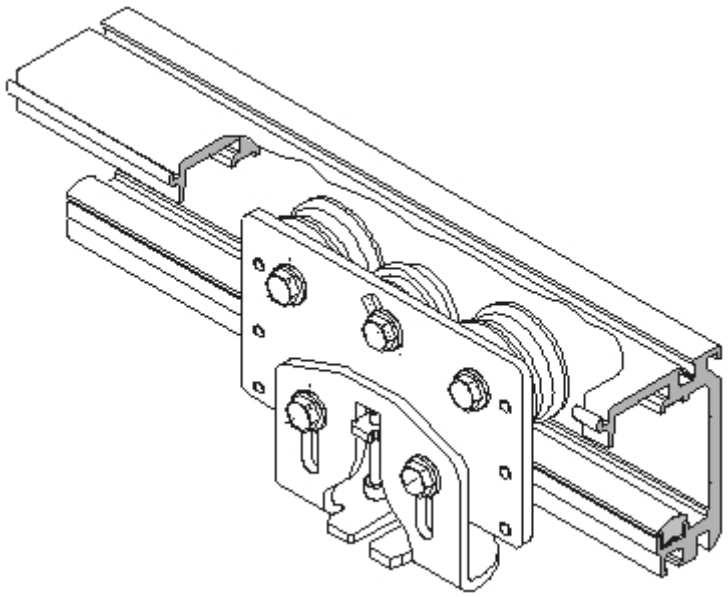
7.12 Inserting carriage

Max. door leaf weight 67 kg per carriage

- Release counter wheels

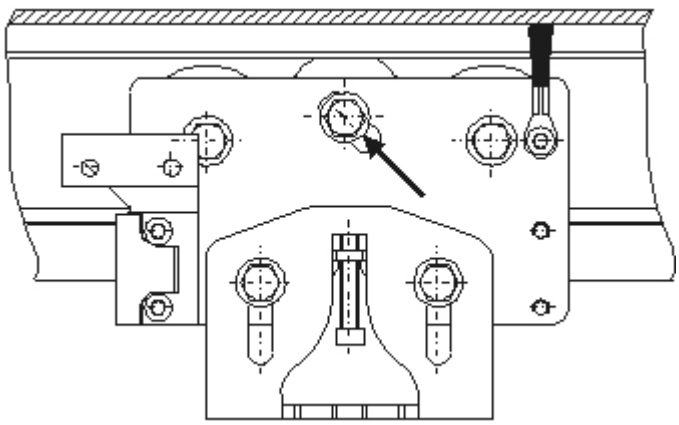


- Turn door leaf hangers right down
- Insert carriage



- Adjust counter wheels slightly:

  Place insert nut on screw of counter wheel and press firmly up with the thumbs and tighten



7.13 Setting end stops

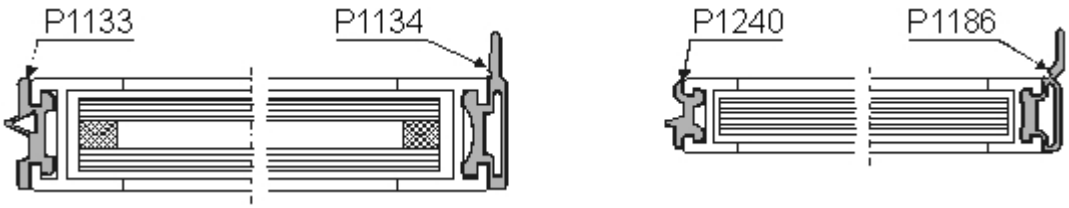
- Fit end stops provisionally, so that the carriages do not drop out

7.14 External radar

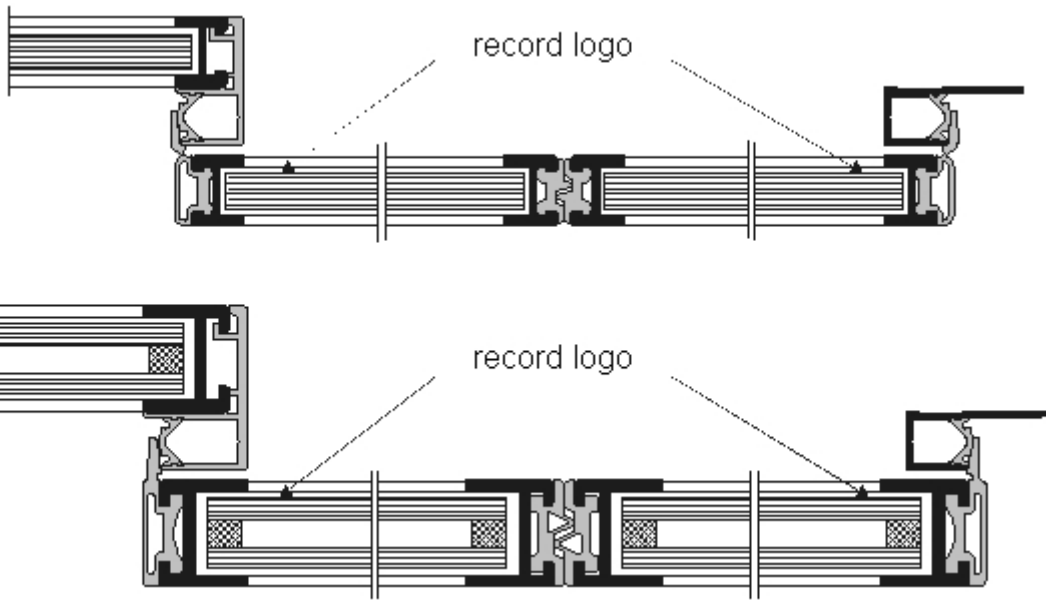
- Mark radar position on outside of door with radar drilling templates and drill, or use built-in radar in cladding (see installation instructions for built-in radar)
- Fit radar and draw in cable on inside

7.15 Hanging door leaves

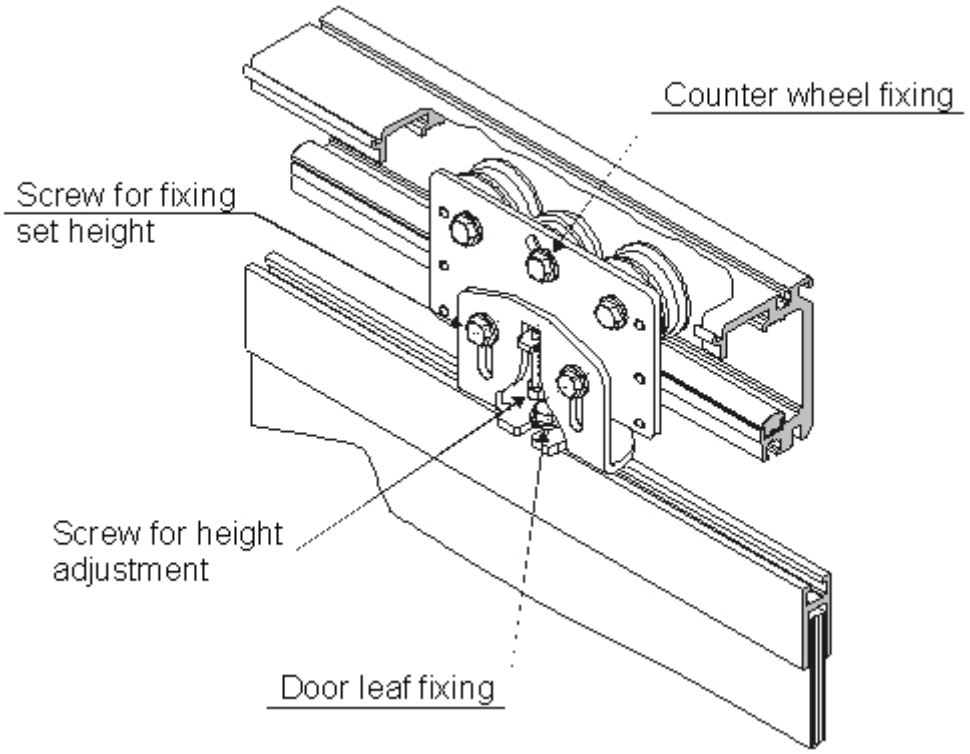
- Draw in rubber seals on door leaves and secure (drawing in is simplified by moistening the rubber seal with soapy water)



- Hanging door leaves (if present: etched record logo must be legible from outside)

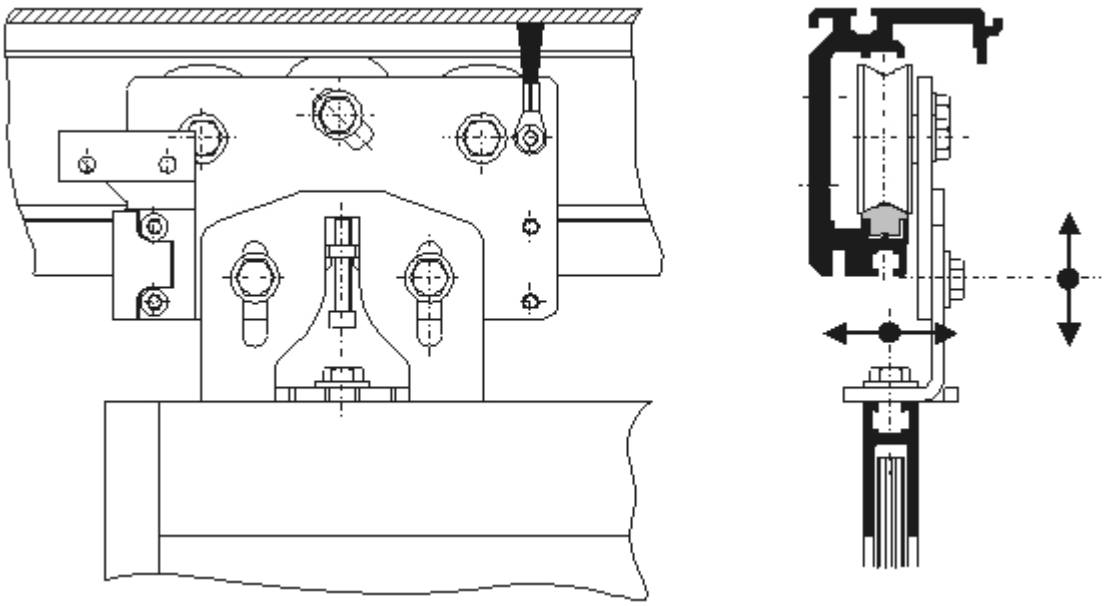


- Connect door leaves with hangers of carriages



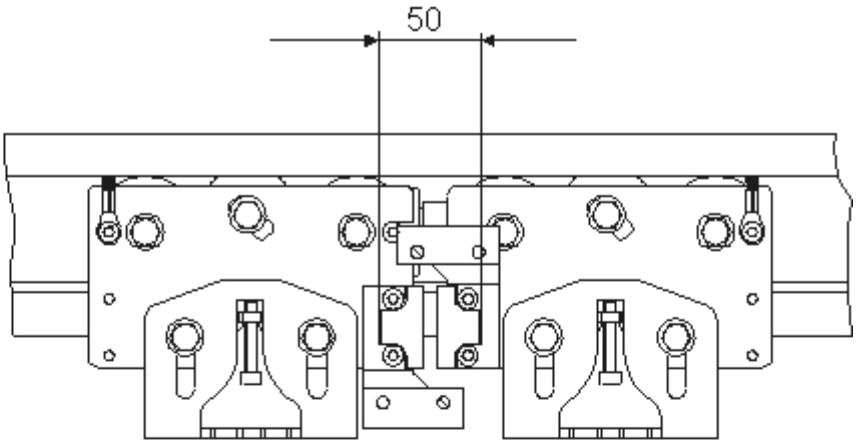
7.16 Adjusting door leaves

- First set height

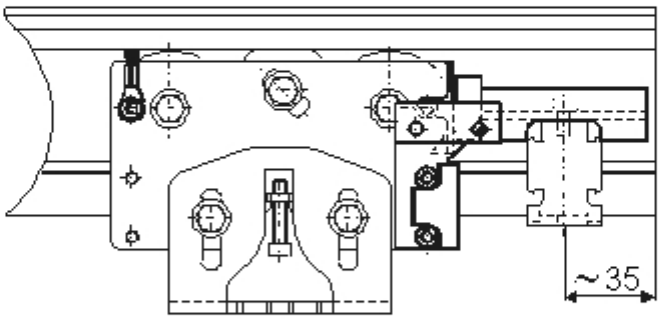


- Distance behind of locking bar = 50mm (important when using a VRR). The centre buffer of the left, central carriage serves simultaneously as setting gauge.

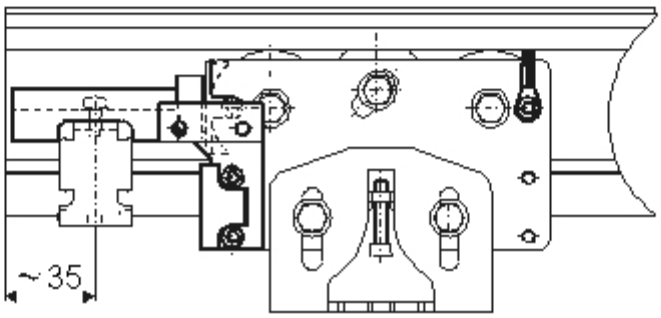
D-STA



E-STA-L

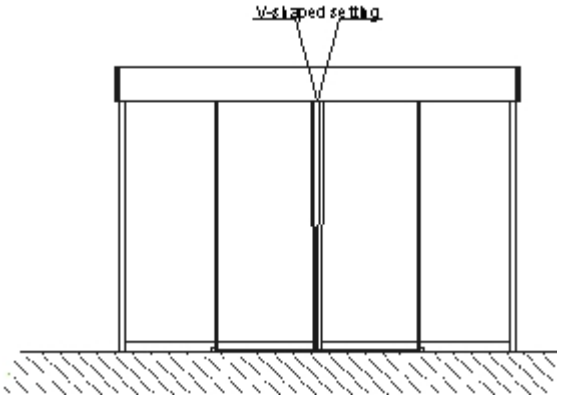


E-STA-R



- All 4 carriages must be aligned
- The door leaves must not be too close to the brush profile

- Align door leaves slightly V-shaped

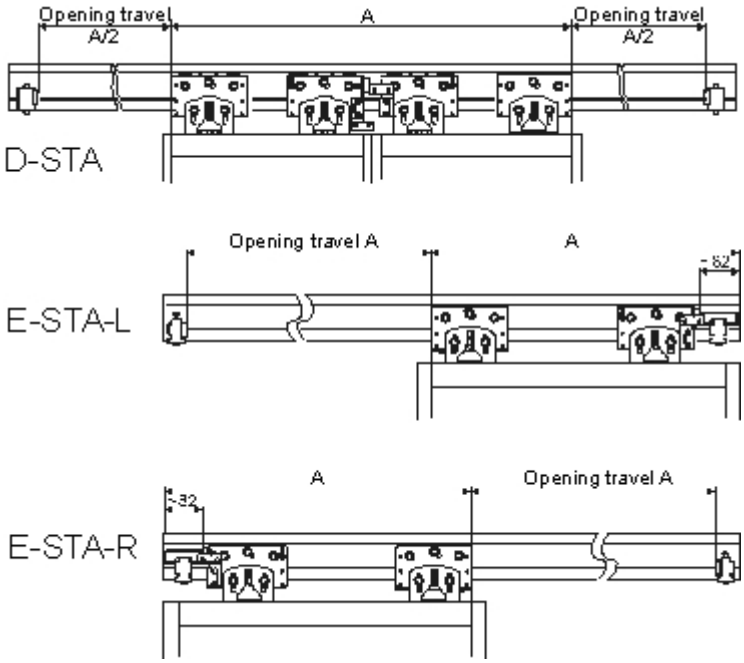


- Tighten fixing screws (door leaf suspension with carriage) firmly
- Tighten door leaf fixing screw (door leaf with door leaf suspension) firmly

Check counter wheels: they must not be in line and it must be possible to turn them easily!

7.17 Fixing end stops

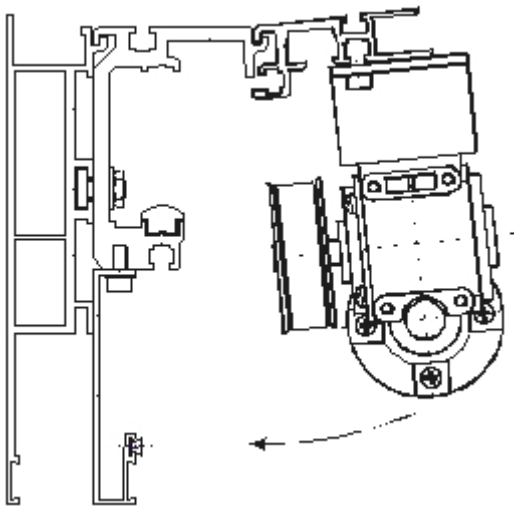
The door can be mechanically locked from inside in this condition. For this purpose the door leaves must be closed by hand and fixed with the two end stops in this position. (Tighten only screw below)



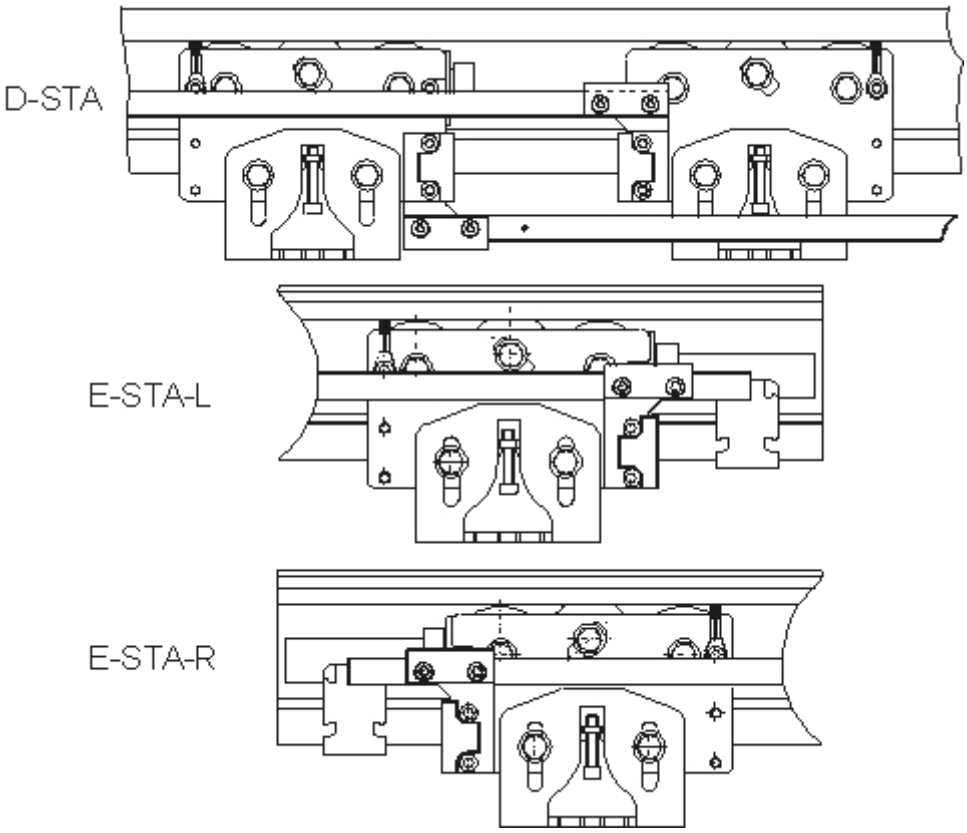
- Aligning and fixing end stops

7.18 Attaching drive module

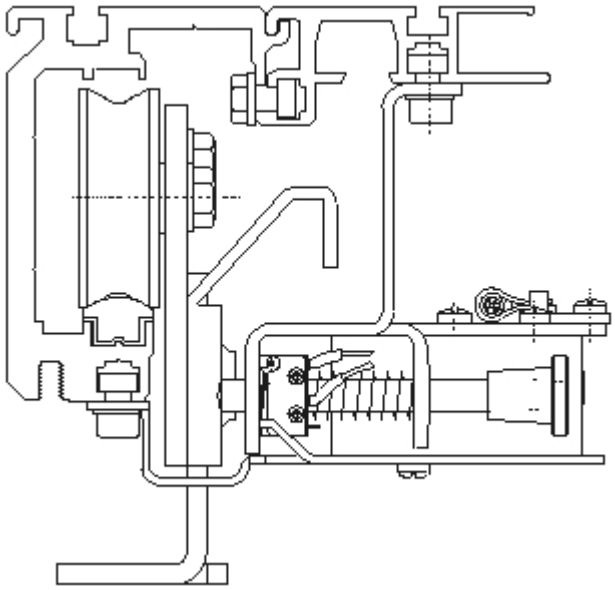
- Open door leaves approx. 400 mm
- Attach drive module



- Centre drive module provisionally
- Fix slidebars, remove slidebar lock if necessary (cable ties) if they interfere with the motion



- Centre module with door leaf exactly with respect to side screens
- When using a lock, check engagement of locking bolts and move VRR if necessary

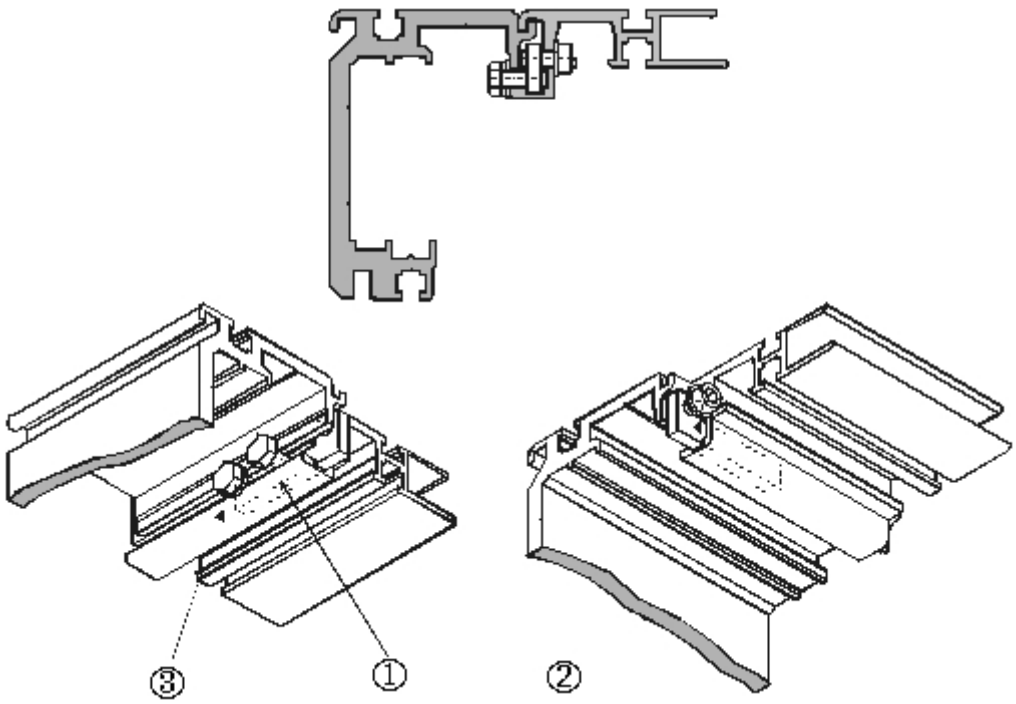


- Fix module left and right with slotted angle:

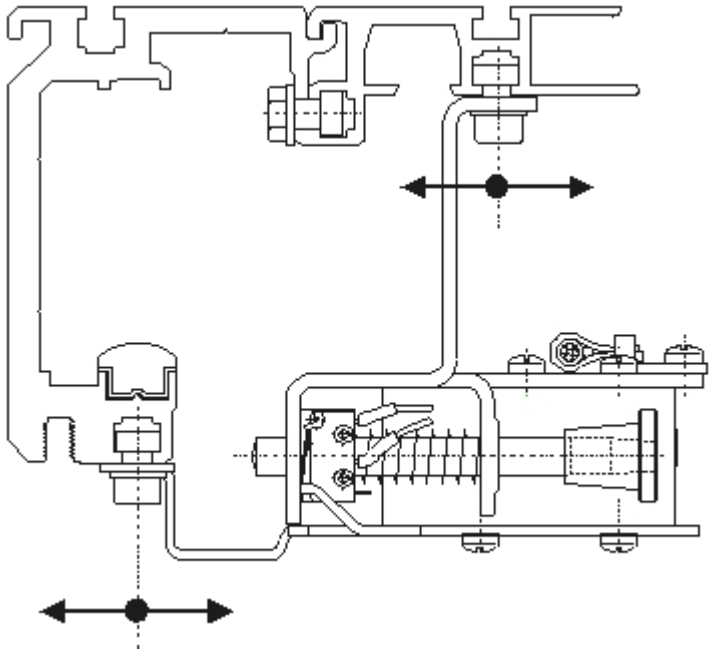
– First tighten centre screw (1) (M6 x 16)

– Level with Allen screw (2) (M6 x 12)

– Fix with socket-head hex. screw (3) (M6 x 10 and washer)



- Fix lock (if provided) on track support profile P1302 with 2 additional screws **M6 x 10mm and tongue nuts**



- If there is no locking device, an additional fixing will be necessary (contained in 016.005.000)

7.19 Checking toothed belt tension

- Check toothed belt tension and tighten if necessary:
  - Guide pulley support must be parallel to track (no distortion)
  - Tighten guide pulley support firmly

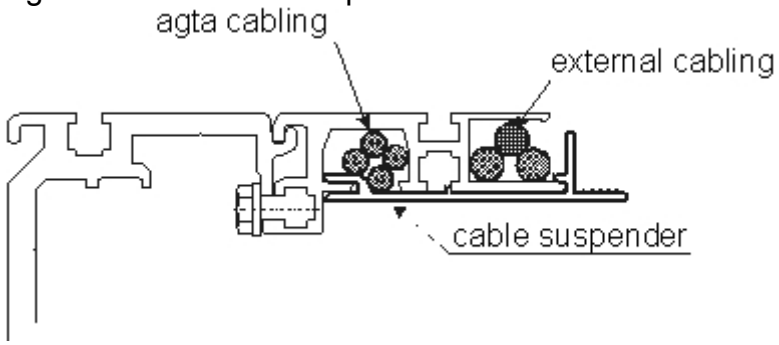
7.20 Checking door leaves by hand

- Move door leaves by hand and check for easy running

7.21 Options (if not already completed as preliminary work in workshop)

7.22 Cable layout

- A slot is provided for the mains cable above the header
- AGTA cabling below header in slot provided



7.23 Connecting electrical units

Connect BDE, ELS, radar, etc. according to chapter Cable Routing page 50 and chapter

- Wiring diagram page 51 and fit cable cover.
- The power regulations must obeyed, when the BDE (factory data capture unit) is used in multiple combinations!

- For ***record 16 STA-UL*** : Before applying the mains voltage to the power supply NET16-UL, the installer has to ensure, that the mains voltage selector switch on the power supply is switched to the correct position (115V / 230V).
- The mains power connection has to be done via the mains cord supplied with the pedestrian sliding door operator (see also schematic LS.016.001A chapter 0 page 51). Proper grounding has to be applied. Only permanent wiring is allowed with this pedestrian sliding door operator.
- The local installation codes have always to be followed.

7.24 Protection wings

- Fit any protection wings

7.25 Final mechanical test

- Manual door opening satisfactory over the entire opening range
- No abnormal noises present
- All screws tight

8 Commissioning and final work

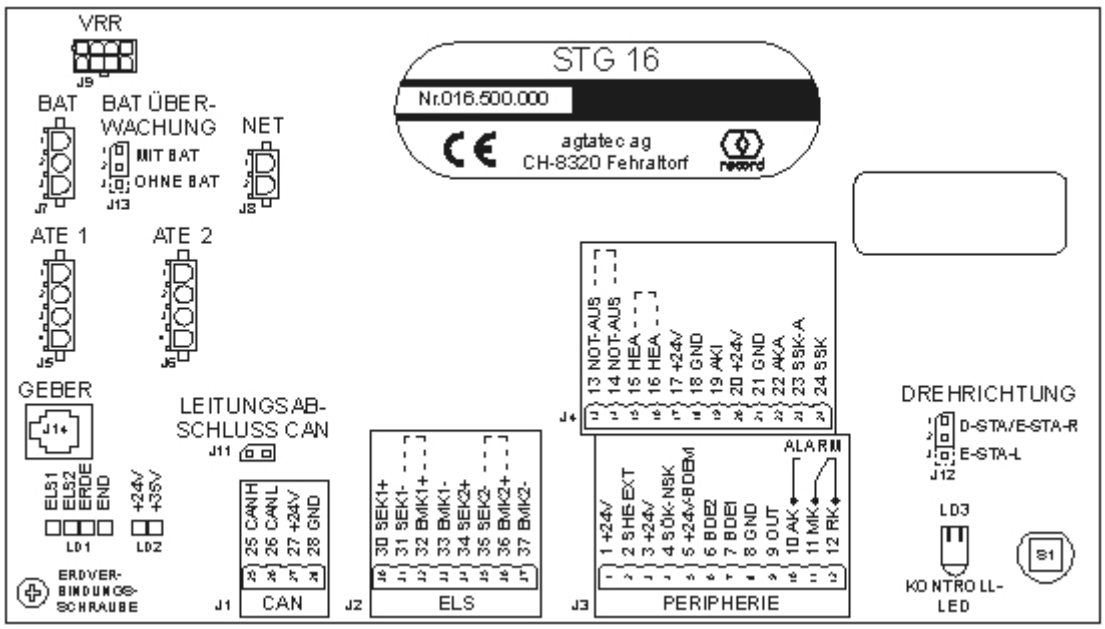
8.1 Preparation

Read safety instructions (page 4) and observe!

1. Interrupt power supply with main switch or power plug
2. Leave door leaves open approx. 1 m
3. Check wiring according to general schematic diagram AS.E.016.001, page 51.

8.2 Checking settings

1. Position jumpers for the required function
2. Check external jumpers for auxiliary units not connected, such as EMERGENCY STOP, HEA, ELS 1, ELS 2



8.3 Switching on power supply and calibration run

1. Switch on power supply
2. A calibration run is performed automatically when switching on the supply voltage for the first time or following a hardware reset (see status messages) the door is braking for test during calibration the weight of door leaves
3. The door parameters are determined during the first 3 - 4 opening cycles

The door must not be obstructed in any way during the calibration run

In the event of uncontrolled door motion, interrupt the power supply immediately and disconnect battery and call your service partner or installer.

8.4 Checking LED's on the STG

Check LED's 1, 2 and 4 - 7 according to the table on page 38

8.5 Checking BDE functions and actuating devices

BDE position ⇦⇨

1. Door must open and remain open
2. Check movement characteristics
3. Door cannot be moved by hand when open
4. Manual operation is obtained by pressing ⇦⇨ again and the door can be moved freely

BDE position ⊸

1. Door must close
2. Check movement characteristics
3. Check locking if present (see page 42 for status message for wrong behaviour)
4. Pressing initiates an SSK opening
5. SSK must release (if present)
6. AKI and AKA must not operate

BDE position ⛔

1. AKI and SSK must operate
2. AKA must not be triggered when door is closed

BDE position ❄

1. AKI, AKA and SSK must operate
2. Check reduced opening width
3. Press ⇦⇨ : door opens to reduced width

8.6 Programming door speeds and hold-open times

These functions are described in chapter 3rd level (programming level) on page 42 .

8.7 Configuration of specific customer settings

The possibilities are described in application information 16.770

All modifications must be entered on the configuration sheet (situated in the operator)

8.7.1 Configuration for UL 325 installations

In the 5th configuration level, the configuration “STA 16 UL” must be activated. For details see application information 16.770 .

⛔	❄	☼	⇦⇨	🔑	**Function (coded 5 bits)**	**Factory setting (Default)**	**Default LED 1=on**
0	1	1	0	1	STA 16 UL	not activated	(**V 2.2**) **

** Software-version

8.8 Checking safety

1. BDE position ☼
2. Open door (e.g. with AKI)
3. Cover a photocell (ELS) while closing. Door must re-open.
4. The same check must be performed if a 2nd ELS or another safety device is present

8.9 Checking automatic reverse

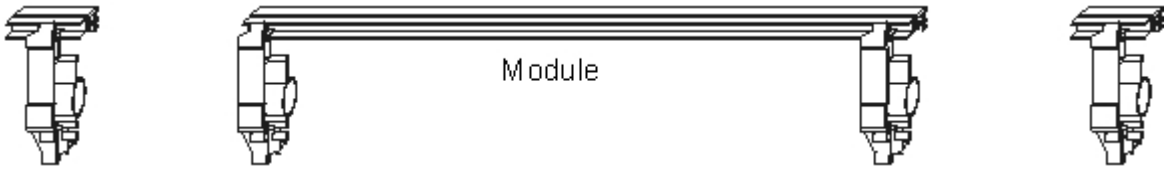
1. Obstruct door while closing Ô door must reverse. When the door next closes it moves at creep speed past the obstruction point.
2. Obstruct the door while opening Ô door stops for hold-open time and closes. When the door next opens it moves at creep speed past the obstruction point.

8.10 Checking BAT functions

1. Status 13 must be indicated on the BDE-E when removing the battery connection J7. If not indicated, jumper J13 is not at position 1 - 2 (see page 11).

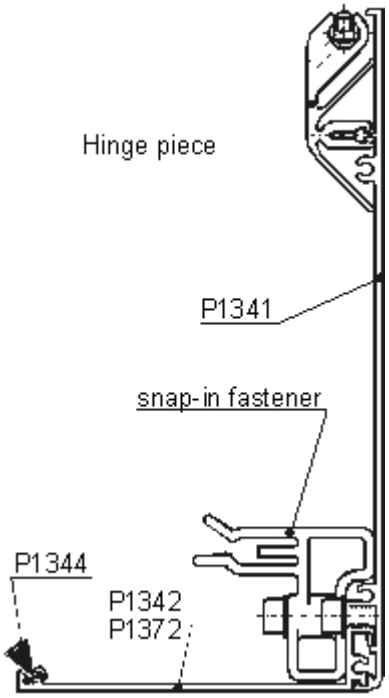
8.11 Casing

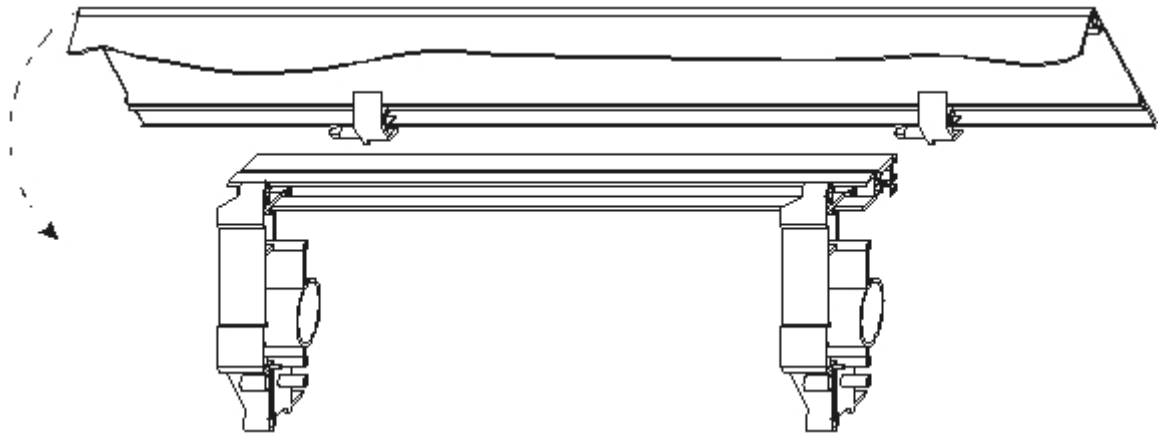
- With an F-dimension >3'500 mm, 2 more multi-headers (016.007.000) must be fitted (total 4) to support the casing



Fitting casing

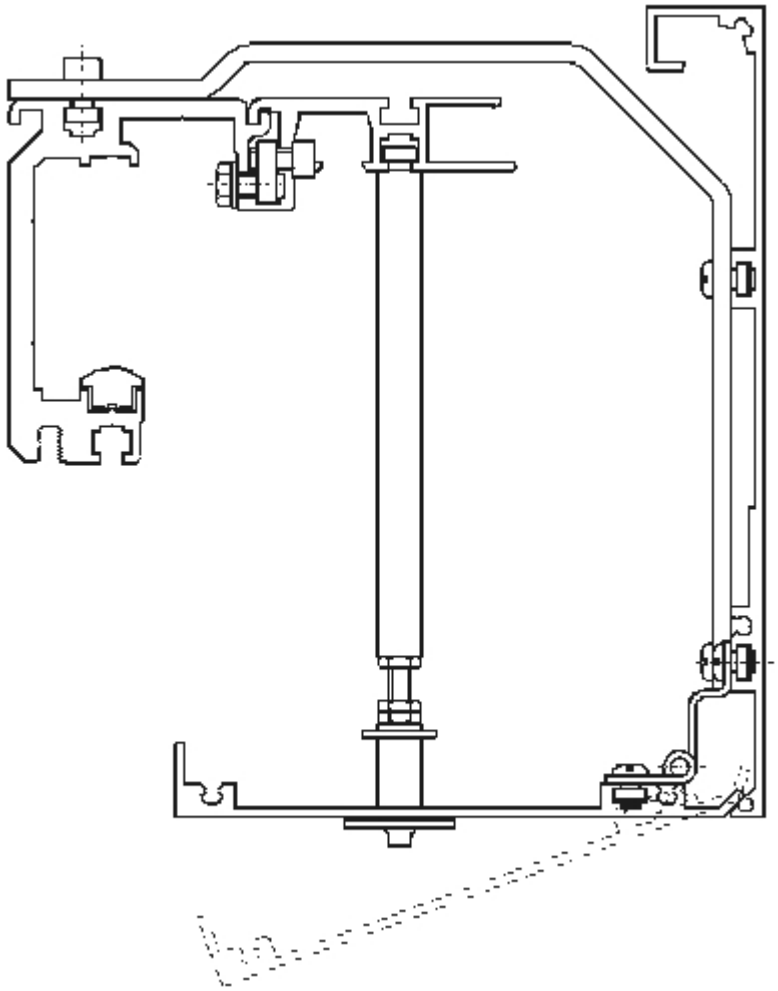
- Divide the casing into lengths, screw together, use snap-in fastener and brush seal P1344
- Insert white hinge piece on casing P1341
- Push-in/engage casing
- Align casing





- Fit side covers if necessary
- Close casing and check for perfect setting

8.12 Casing version with suspended ceiling



8.13 Fitting internal radar

- Fit radar on casing with the aid of the drilling template or fit built-in radar
- Check radar settings inside and outside

8.14 Handing over to customer

1. Commissioning has been performed correctly according to this list
2. The system should be handed over to the customer

3. The functions and safety instructions must be explained with reference to the operating instructions
4. The customer should be given a copy of the operating instructions

9 Operating instructions

9.1 Controls on STG 16

9.1.1 General:

The STG 16 operates with active HIGH level, i.e. a +24 V level must be applied to activate a function. Safety inputs are activated during interruptions. The signal ground (0 V) is connected to protective earth. This connection can be removed for test purposes with the earthing screw at bottom left.

9.1.2 Jumpers:

J11: (left) For CAN line termination (see AN1)

J12: (right) Direction of rotation:
jumper at position 1-2 for ***D-STA*** or ***E-STA-R*** (factory setting)
jumper at position 2-3 for ***E-STA-L***

J13: (top) Battery monitoring:
jumper at position 1-2 for systems ***with*** battery (factory setting)
jumper at position 2-3 for systems ***without*** battery

9.1.3 LED's (left to right):

LED 1: (red) Photocell 1: lights when obstruction present

LED 2: (red) Photocell 2: lights when obstruction present

LED 3: (red) Ground: must light when earthing screw removed (bottom left). Otherwise an earth connection is present

LED 4: (red) Limit switch: lights up when limit switch is closed

LED 5: (green) +24V: lights when mains or battery voltage present

Caution: in the event of a power failure processor reset only takes place 1 sec. after this LED extinguishes

LED 6: (green) +35 V: off for power failure

LED 7: (red) Large control LED right for push-button operation

9.1.4 Key:

This multifunction key has several functions. The selection of function is made with the aid of the neighbouring control LED according to the following table:

Release key while:	**Function:**
1st light pulse on LED 7	AKI
2nd light pulse on LED 7	Learn ELS
3rd light pulse on LED 7	Learn door parameters
4th light pulse on LED 7	Configuration mode on
5th light pulse on LED 7	BAT emergency reaction if no mains present
6th light pulse on LED 7	Factory setting for redundancy module
8th light pulse on LED 7	Factory setting of programming and configurations
Press key approx. 13 seconds	Hardware reset (new control start)

9.2 Functions of electronic BDE-E

9.2.1 General:

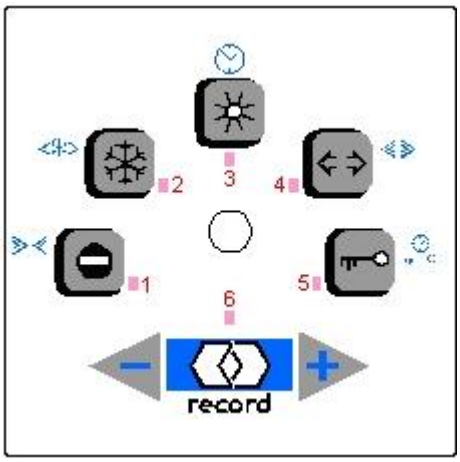
The electronic control unit BDE-E is a convenient input and output unit. It contains several virtual control levels. The normal level (1st level) contains the standard modes of operation.

All LED's light in sequence during the first few seconds after switching on the power supply (run light) and the last operating mode is then displayed.

9.2.2 1st level (operating modes)

9.2.3 Key functions:

- One-way operation
- Winter mode
- Automatic mode
- Continuously open
- Locked
- Programming
- Programming decrement
- Programming increment



A LED indication is assigned to every key, with the exception of the two keys and .
The LED is off in this level.

If the key is pressed again in the „locked" status, an SSK opening takes place

If the key is pressed again in the „continuously open" status, manual operation takes place

If the key is pressed for approx. 5 secs. the control is restarted. The programmed data remain stored.

9.2.4 2nd level (control lock)

Entry to this level with key sequence:
The LED lights. The BDE is blocked.

Exit from this level with key sequence:
This releases operation again.

9.2.5 3rd level (programming level)

Entry to this level with key sequence: record ▶ record

The record LED flashes slowly

Selection of following menus by key operation

The value is displayed while the key remains pressed

The ***value display*** takes place proportionately in max. 40 increments

Divided in 5 LED's from left to right, with each LED divided into 8 increments. The range from 0% to 100% is thereby covered.

Example: 75% winter opening

LED's fully lit (corresponding to 3 times 8 increments)

LED has an on/off ratio of 6/2 (corresponding to 6 increments)

LED remains off. Therefore total 30 increments, i.e. 75%.

Menu functions:

	Function	Range	Step width	Factory setting
	Closing speed	3 - 50 cm/s	1,25 cm/s	40 cm/s
	Winter opening width *	20 cm - 100%	approx. 1 cm steps	62,5%
	Door hold-open time	0 - 20 s	0,5 s	1 s
	Door hold-open time SSK	0 - 20 s	0,5 s	10 s
	Opening speed	3 - 70 cm/s	1,75 cm/s	50 cm/s

* on „continuously open" the door follows the ONLINE winter opening width

Setting:

Following menu selection (the LED of the menu selected lights) the value can be changed by pressing the ◀ or ▶ keys several times

The current value is continuously displayed while this key is pressed

At the highest range limit the setting returns to the lowest value and vice-versa

The value is reset to the factory setting by pressing the ◀ and ▶ keys simultaneously

Exit from this level is made by pressing the record key briefly or if no operation is made for 3 minutes

9.3 Functions of mechanical BDE-M

9.3.1 General:

The mechanical control unit BDE-M is a simple input unit with a key switch. The key can be withdrawn at any position. Winter operation is possible if required.

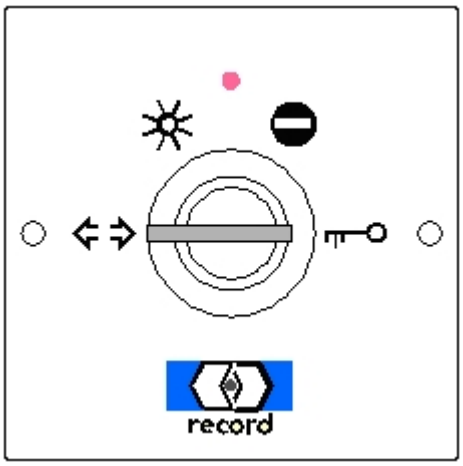
9.3.2 Modes of operation

One-way operation (or winter)

Automatic mode

Continuously open

Locked



Operating indication

The LED lights when mains or battery voltage is present

9.3.3 Reset key

This hidden key is operated with a paper clip approx. 25 mm long. A small hole is provided for this purpose at the centre of the record logo.
If this key is pressed for approx. 5 seconds, the control unit starts completely new. The programmed data remain stored.

10 Status and fault signals

Status level (display only)

In the event of irregularity change is made automatically from the operating mode level to the status level. Change is then made approx. every 5 seconds between status and operating mode level. No status display is given in the remaining levels. Characteristic of the status level are 2 or more rapidly flashing LED's of total 6 LED's. This permits a maximum of 58 different status numbers to be output. A status with „W" is a warning, which is not followed by switching of the fault output relay. The status is deleted in various ways according to the detailed description (resetting).

LED's on BDE-E:

1 ⊗	2 ⊗	3 ⊗	4 ⊗	5 ⊗	6 ⊗	LED no status:	Remarks
				x	x	03	AKI sensor active longer than 60 s
			x			04W	Manual operation
			x		x	05	AKA sensor active longer than 60 s
			x	x		06	Unlocking error
		x			x	09	Battery fuse blown
		x		x		10	Locking error; door not closed
		x	x			12	Battery defective (voltage too low)
		x	x	x		14	Locking n/o contact defective
	x		x			20 *	Door leaf interception error
	x	x		x		26	Overload at FEM outputs
	x	x	x		x	29	TOS is not locked in the "locking" mode
	x	x	x	x		30	TOS is locked in the "automatic" mode
	x	x	x	x	x	31	EMERGENCY STOP button operated
x					x	33	Error ELS 1
x				x		34	Error ELS 2
x			x		x	37	Wrong motor current
x			x	x		38	Excess temperature motor 1
x			x	x	x	39	Overload on +24 V supply
x		x				40	Excess temperature motor 2
x		x			x	41	Motor 1 - thermal sensor defective
x		x		x		42	Motor 2 - thermal sensor defective
x		x		x	x	43	Incremental generator defective
x		x	x			44W	Motor current time product high
x		x	x		x	45	Motor current time product too high
x		x	x	x		46	Control unit defective
x		x	x	x	x	47	Ext. safety active longer than 60 s
x	x					48	NSK or SÖK active

* These status numbers only exist in CO48 systems

Status level (continued)

LED' on BDE-E:

1 ⊗	2 ⊗	3 ⊗	4 ⊗	5 ⊗	6 ⊗	LED no status:	Remarks
x	x				x	49 *	Alarm CO48 Ventouse
x	x			x		50	Control unit CPU2 is faulty
x	x		x	x		54W	Calibration run
x	x		x	x	x	55	Power failure
x	x	x		x		58	FEM connection interrupted
x	x	x		x	x	59	ELS sensor active longer than 60 s
x	x	x	x			60	Parameter memory defective (EEPROM)
x	x	x	x		x	61	SSK - sensor active longer than 60 s
x	x	x	x	x		62	BDE has no priority

Detail description of status indications

General:

A status can usually be deleted by pressing the record key for 5 s (= reset). This produces a new start in the control unit.
If, however, the cause of the fault has not been eliminated, the status message will appear again if the fault occurs again.

The causes of faults are listed with decreasing probability in the following list. The fault may be suspected with the least probability in the STG at the end of the faults.

Status 03: AKI sensor active longer than 60 s
Automatic resetting, provided in order, or by service fitter

Status 04: Manual control

Status 05: AKA sensor active longer than 60 s
Automatic resetting, provided in order, or by service fitter

Status 06: Unlocking fault
Possibly lock jammed
Reset by service fitter

Status 09: Battery fuse blown
Jumper J13 possibly missing if no battery present
Fuse possibly defective or cable interrupted
Reset by service fitter

Status 10: Locking fault
Possibly obstruction in door
Automatic resetting provided door is closed and locking possible

Status 12: Battery defective (voltage too low)
Battery exchanged by service fitter
Automatic resetting

Status 14: Locking n/o contact defective
VAK contact possibly wrongly adjusted or interrupted
Reset by service fitter

Status 20 Door leaf interception error
Buffers (end stops) are possibly adjusted the wrong way
Possible wire break at the magnet
Reset by pressing the program key “record” for 5 sec.

Status 26 Overload at FEM outputs
Reset by service fitter
Remove overload and generate reset with STG key

Status 29 TOS is not locked in the “locked” mode
Automatic reset if ok or service fitter

Status 30 TOS is locked in the “automatic” mode
Automatic reset if ok or service fitter

Status 31: EMERGENCY STOP operated
Reset by resetting EMERGENCY STOP key

Status 33: Fault ELS 1 during ELS learning cycle
Door possibly too wide or ELS sensor dirty
ELS cable or ELS head possibly defective
Reset by cleaning or service fitter

Status 34: Fault ELS 2
see status 33

Status 37: Defective motor current
STG or ATE defective
Reset by service fitter

Status 38: Excess temperature motor 1
Manual control effective
Door leaves possibly too heavy or there is too much friction
Reset by motor cooling or by service fitter

Status 39: Overload on +24 V supply
Possibly too many external units connected
Reset by service fitter

Status 40: Excess temperature motor 2
see status 38

Status 41: Motor 1 - thermal sensor defective
Motor possibly not connected
Sensor in motor possibly defective or cable broken in sensor lead
Reset by service fitter

Status 42: Motor 2 - thermal sensor defective
see status 41

Status 43 Incremental generator defective
Generator cable possibly not connected or cable broken in lead
Motor possibly blocked
Reset by service fitter

Status 44: Motor current time product high
Possibly too much traffic or door leaves too heavy
Minimum hold-open time extended to approx. 4 s
Automatic resetting by cooling

Status 45: Motor current time product too high
Possibly too much traffic with door leaves too heavy
Hold-open time extended to approx. 20 s
Automatic resetting by cooling

Status 46: Control unit defective
Includes the following individual faults:
EPROM, RAM, Watchdog, Imax, ImaxT, difference on SHE-EXT
Reset by service fitter

Status 47: External safety sensor active longer than 60 s
Automatic resetting, if in order, or by service fitter

Status 48: Emergency fail close contact or emergency opening contact active (interrupted)
Automatic resetting if contact recloses

Status 49 Alarm CO48 Ventouse
Interruption sandow switch or interruption at the switch
Close Ventouse, tighten sandow or adjust switch
Reset is carried out automatically

Status 50 Control unit CPU2 is faulty
Reset by service fitter

Status 54: Calibration run
Wait until door is closed
Automatic resetting after completion of 3 openings

Status 55: Power failure
Battery operation if battery present
Automatic resetting when power restored

Status 58 FEM connection interrupted
The connection did exist but is now interrupted
Check the cable, FEM may also be faulty

Status 59: ELS sensor active longer than 60 s
Automatic resetting, if in order, or by service fitter

Status 60: Parameter memory defective (EEPROM)
Change control unit
Reset by service fitter

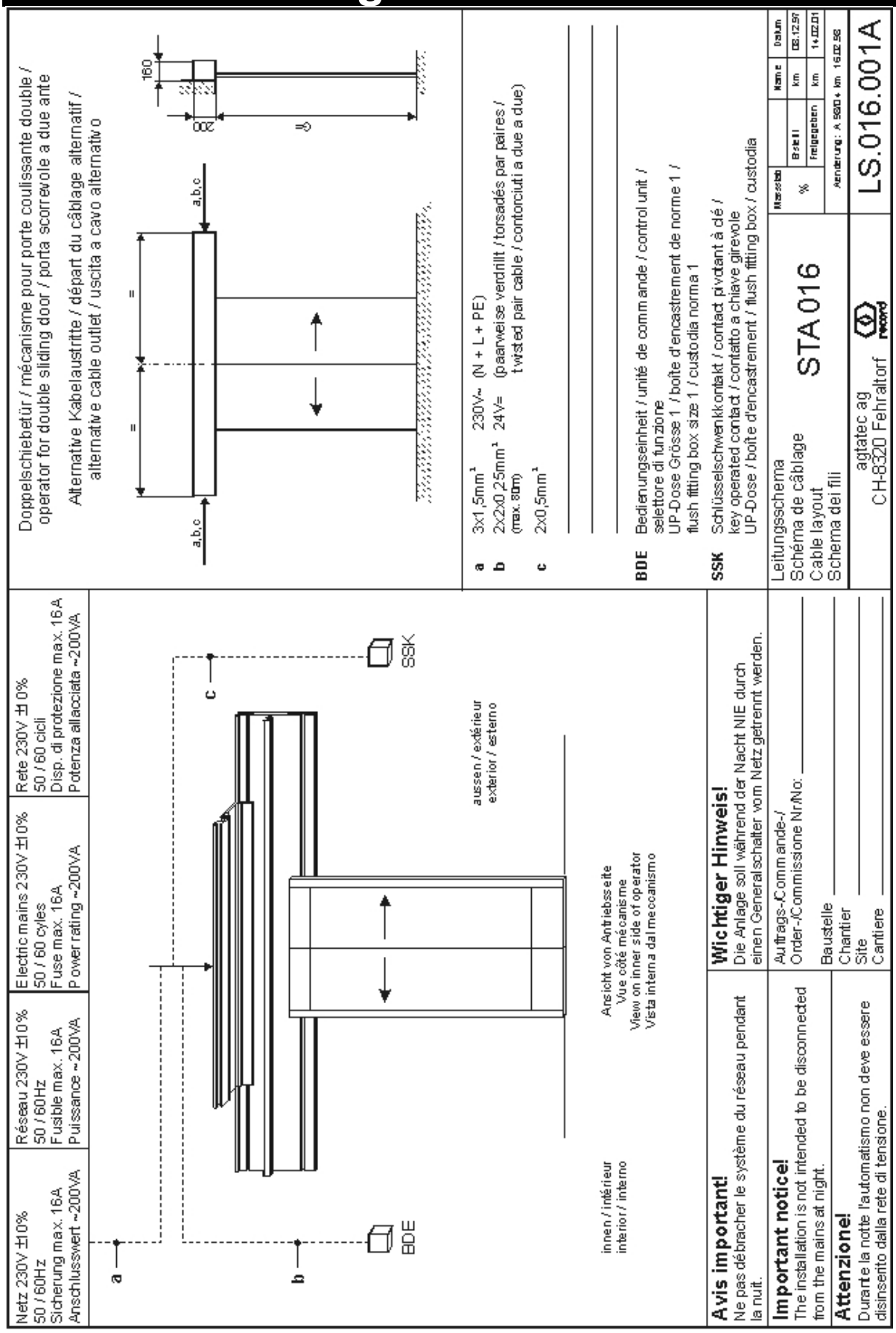
Status 61: SSK sensor active longer than 60 s
Automatic resetting, if in order, or by service fitter

Status 62: BDE has no priority, since higher-level signal present (e.g. time switch)
Automatic resetting by releasing BDE key

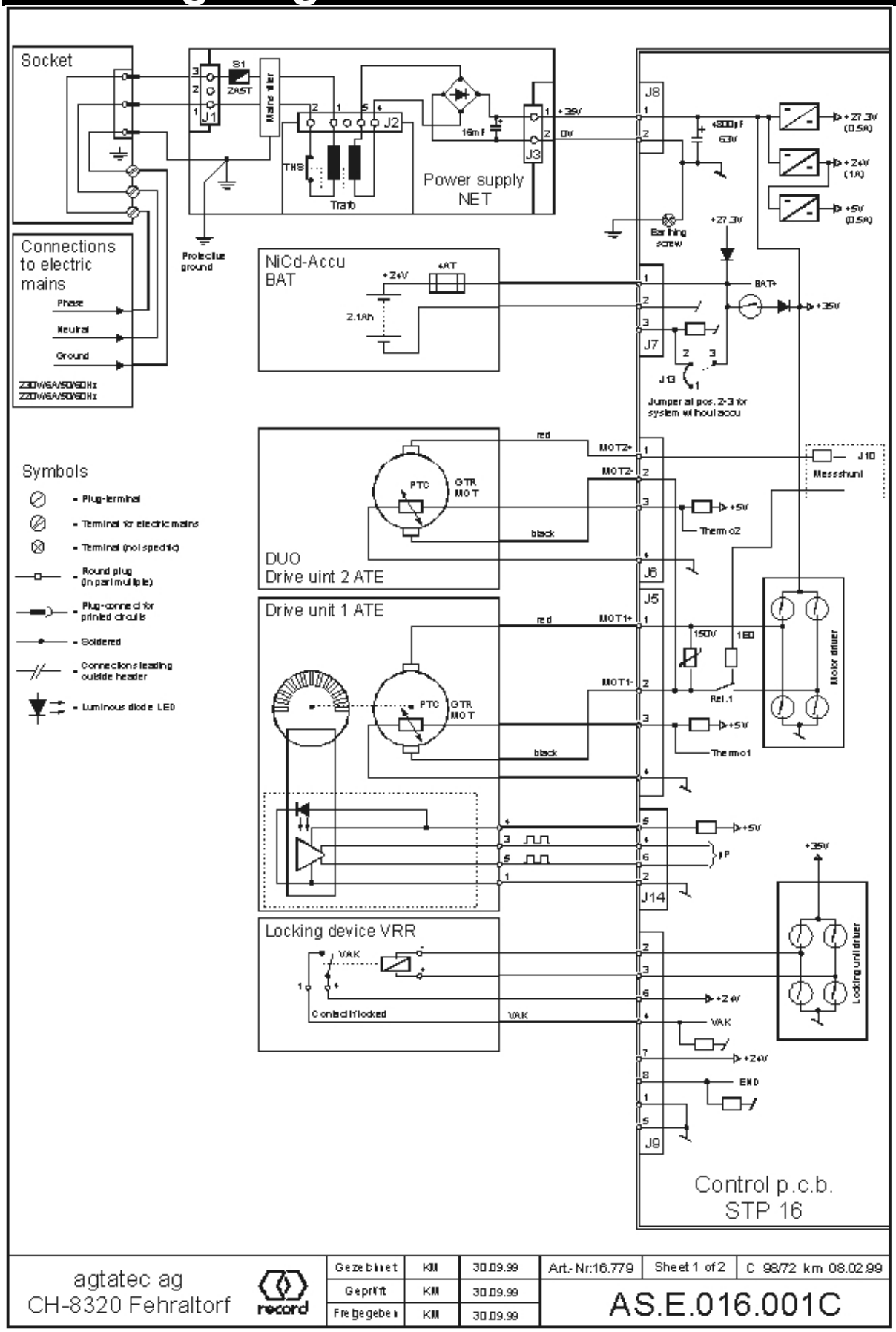
11 Abbreviations

A	A	Width of passage
	AKA	Actuating contact „outside“
	AKI	Actuating contact „inside“
	AMP	Lamp
	APA	actuating switch for pharmacies
	APD	Pushbutton for pharmacies
	APR	locking bar for pharmacies
	APS	safety device for pharmacies
	AS	Connection or general schematic diagram
	ATE	Drive unit
	ATM	Drive module
B	BAT	Battery-pack
	BDE	Control unit
	BDE-E	Control unit electronic
	BDE-M	Control unit mechanical
	BDE-R	Control unit redundant
	BS	BDE with lock
C	CAN-H	Serial interface
	CAN-L	Serial interface
	CO48	special standard in France
	CPU	microprocessor
D	D-STA	Double sliding door drive
	DUO	heavy door operator
E	EEPROM	parameter storage
	ELS	Light barrier
	EMK	Receiver head
	EPROM	program storage
	ES	Electrical connection diagram
	E-STA	Single sliding door drive
	E-STA-L	Single sliding door drive left
	E-STA-R	Single sliding door drive right
F	F	Length of header
	FEM	Extended functions module
	FIRST	redundant operator
G	G	Height of passage
	GTR	Gearbox
H	HEA	Manual unlocking „from outside“
	HEI	Manual unlocking „from inside“
	HES	Manual unlocking switch
K	KA	Cable exit
L	LED	Light-emitting diode
	LS	Wiring diagram
M	MOT	Motor
	MP	General installation plan
N	NET	Power supply
	NSK	Emergency fail close contact
O	OUT	Output
	OVA	Optical lock indicator
R	RAD-A	Radar „outside“
	RAD-I	Radar „inside“
	RED	Redundant module
S	SAA	interlock control “exit actuation blocked”
	SAG	Control unit
	S-AUS	Interlock control
	SEA	Interlock control “entrance actuation blocked”
	SEK	Transmitter head
	SHE	Safety element, external
	SÖK	Emergency opening contact
	SPS	Stored program control SPC
	SSA	Slidebar operator
	SSK	Key-operated contact
	STA	Sliding door drive
	STD	Socket
	STG	Control unit
	STM	Control module
	STP	Control p.c.b.
	SUR-A	Time switch contact “exit mode”
	SUR-V	Time switch contact “locking mode”
T	THS	Thermostatic switch
	TOS	Break-out system
	TOZ	Door hold-open time
	TSA	Telescopic sliding door operator
	TÜV	Industrial inspectorate
U	UMR	Guide pulley
	µP	Microprocessor
V	VAK	Lock indicating contact
	VAL	Locking alarm
	VL	Wiring list
	VRR	Locking device
Z	ZLP	Supplementary printed circuit board

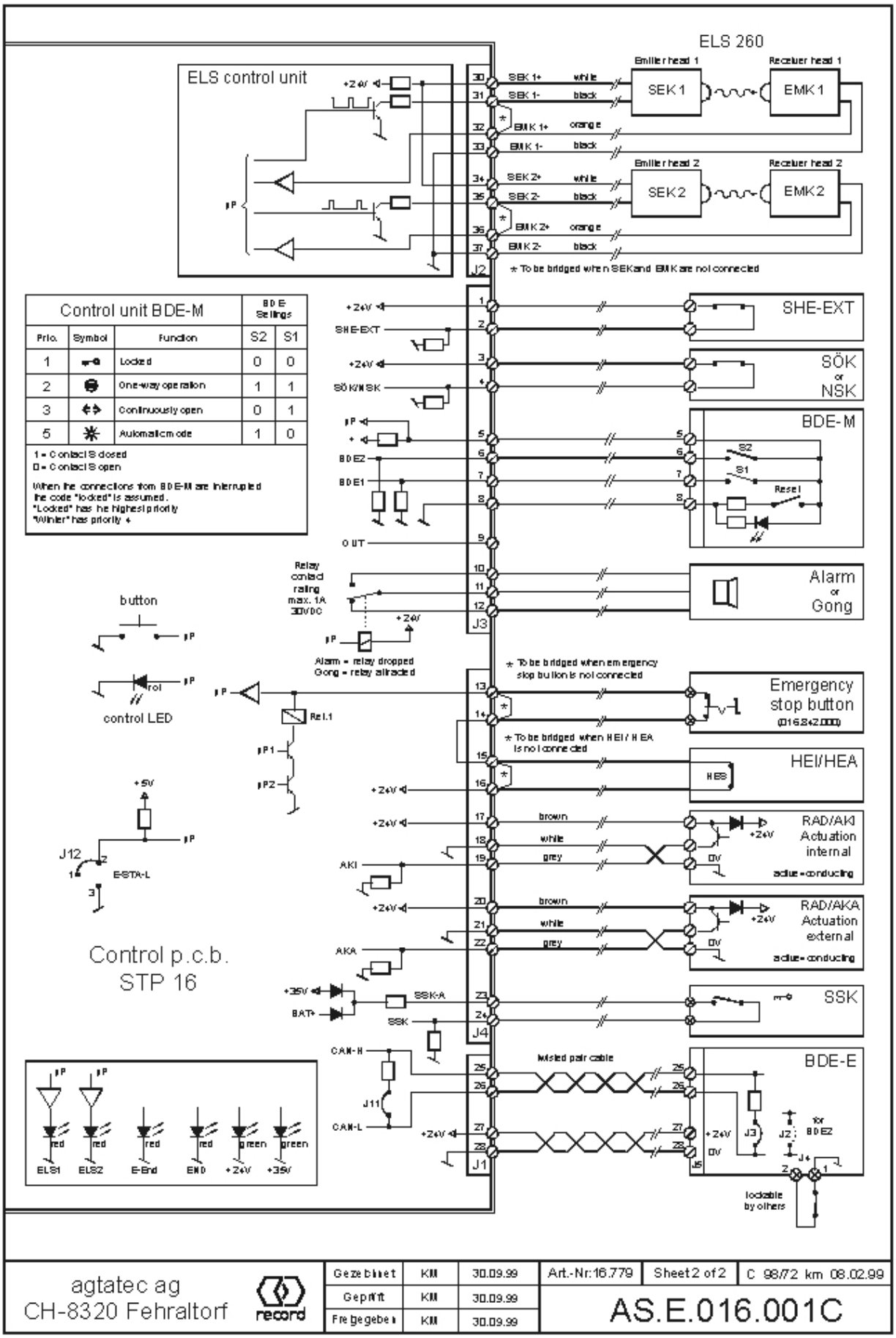
12 Cable Routing



13Wiring diagram



Chapter : Wiring diagram



14 Addresses of subsididaries

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