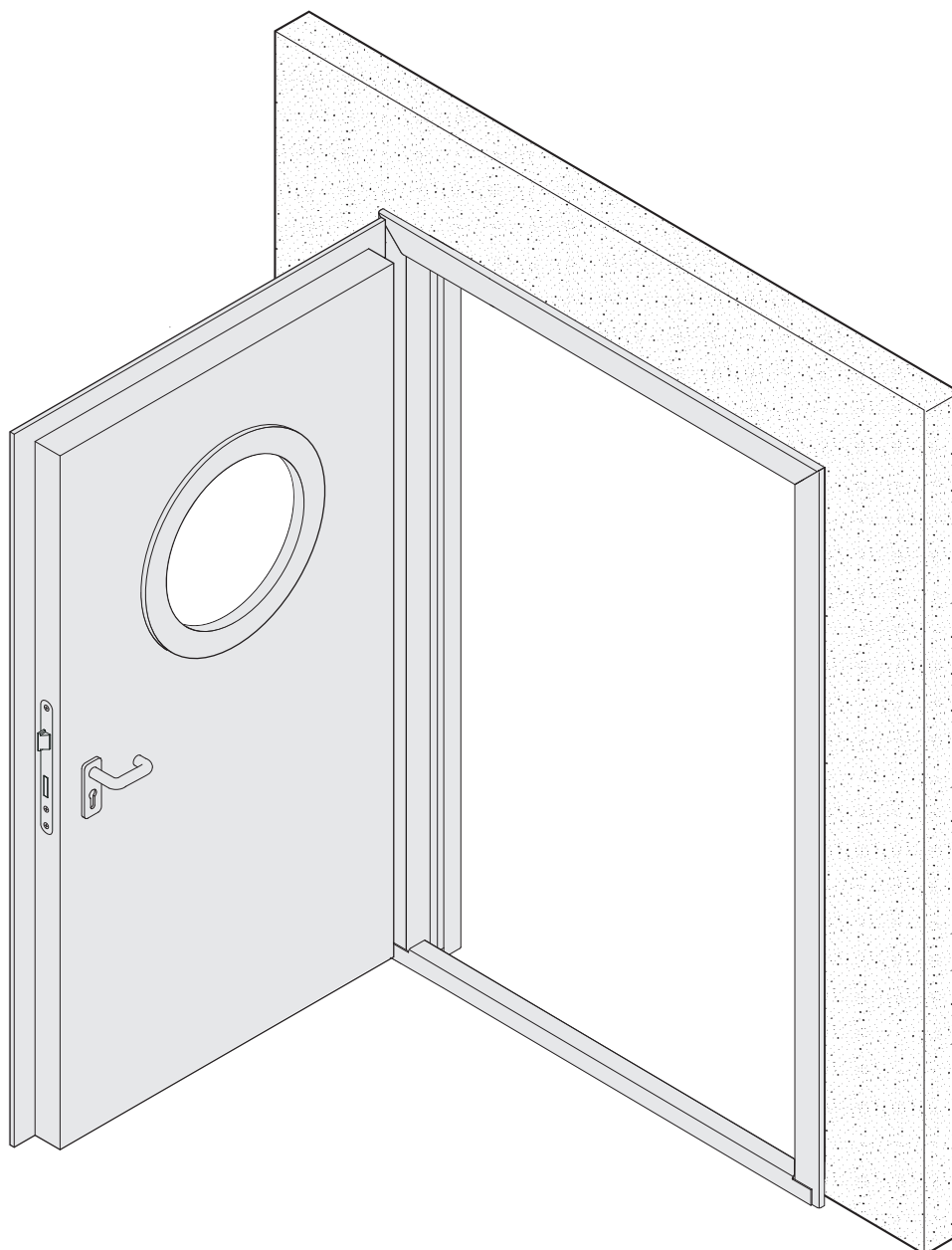


# Planning, Installation and Maintenance Instructions

for single-leaf and double-leaf doors

Valid from 1 April 2010

GB



**Teckentrup**

Türen · Tore · Zargen

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## 2. Symbol Explanation



**Caution! Risk of personal injuries!**

**Attention! Risk of material damages!**

**Note**

**Function check**

**Reference**



**Information on  
fire doors**



**Information on  
smoke protection doors**



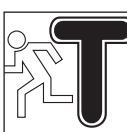
**Information on  
sound insulated doors**



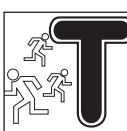
**Information on  
security doors**



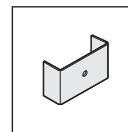
**Information on  
multi-purpose doors**



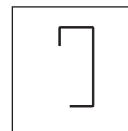
**Information on  
escape doors**



**Information on  
panic doors**



**Information on anchor types**  
(anchor bracket shown here)



**Information on frame types**  
(counter frame shown here)

### 3. General Information



#### Caution!

Read and follow all the instructions in this manual as well as the information specified below to ensure safe installation and correct operation. Non-adherence to warnings may result in personal injury and property damage.

#### 3.1 Target group

**Installation should only be carried out by fully qualified specialists.**

Qualified and trained door installation specialists have

- knowledge of general and special safety and accident prevention regulations,
- knowledge of the standards and regulations required for installation,
- participated in training courses for the application of safety equipment,
- been trained in the safe use of hand and electric tools,
- regularly participated in courses provided by the manufacturer.

The installation of electrical components (motorized/block locks, electric door openers, etc.) should only be carried out by authorized specialists trained and qualified to stringent professional standards (VDE - German Association for Electrical, Electronic & Information Technologies).

#### 3.2 Warranty

**A warranty as regards functioning and safety can only be provided if**

- the safety and warning notices have been adhered to,
- installation has been carried out correctly and in the order specified in the instructions,
- only authorized accessories are used,
- the supplied parts have not been adjusted or adapted,
- regular door maintenance has been carried out,
- the operator has been provided with all the relevant operating instructions.

#### 3.3 General safety instructions



#### Caution!

- Any enclosed drawings take priority over this manual.
- Documents supplied with accessories take priority over this manual.
- Installation must occur in the sequence specified in this manual.
- Cordon off the danger zone prior to installation.
- Ensure that people who are not involved with installation are kept away from the danger zone.
- Installation must be carried out by at least two people.
- During the entire installation process, ensure that the door leaves and frame parts cannot fall down or be knocked down.
- Only use approved original spare parts for the door.
- Never modify components.
- Installation must be carried out from a secure position.
- The door must be mounted to adjoining components tightly enough to ensure that
  - expected forces are permanently supported when the door closes automatically,
  - forces resulting from a fire are permanently absorbed and
  - the expected forces do not endanger the stability of adjoining components (wall, ceiling and floor).
- Only use intact as well as certified and tested lifting devices (assembly cranes, fork lifts) which are suitable for the intended load.
- Prevent draughts (wind load) during installation.
- Always use scaffolding or lifting platforms to carry out installation work at heights above 2 m.
- Welding and cutting should only be carried out if
  - they have been expressly approved and
  - if the subsurface is free of dust and flammable materials.
- When using mortar, wait for the mortar to cure before commencing the next installation step.
- Always wear suitable protective clothing during installation.

## 3. General Information

### 3.4 General requirements

#### Installation company

The owner or the client is entitled to a declaration of conformity signed by the installation company (also see last page of the respective approval).

#### Installation site

This product should only be installed and operated in countries in which the approval, the test certificate and further relevant documents are valid.

The door should only be installed on substructures which are approved for the static loading conditions.

The height of the finished floor must be specified.

Alternative arrangements as regards the door height must be documented in writing prior to installation.

#### Wall types

Table 1: Wall types

Function	Door type	Masonry	Concrete	Autoclaved aerated concrete blocks or high precision units	Reinforced autoclaved aerated concrete slabs	Only corner frame for autoclaved aerated concrete	Installation walls F90 acc. to Table 8	Installation fire walls F90 acc. to Table 9	Concealed steel supports / girders acc. to Table 7
Fire protection	T30-1-62, T30-1-62 T60-1-62, T60-2-62	115	100	150	150	Yes	1, 3, 4, 5 12, 15, 18	—	1-9
	T30-1-K, T30-1-D, T30-1-OS			Yes 1)		1-18			
	T30-2-H-52, T30-2-D T30-1-DF-52, T30-2-DF-52				175				
	T30-1-DF-62, T30-2-DF-62 T30-2-H-62				200		175		
	T90-1-K	—		—					
	T90-1-OS, T90-1-OS 72	175	140	175	175	11, 12, 16	1-9, 11-12		
	T90-1-DF			200					
	T90-1-T, T90-2-T				240				
	T90-2-SV, T90-2-DF	175							
Smoke protection	RS1-K3, RS1-OS	115		100	150	150	Yes		
	RS1-DF, RS2-H-52, RS2-DF		175						
	RS2-H-62	175	140	200	175				
Security	DW42-1, DW54-1, DW64-1 DW42-2, DW52-2, DW54-2 DW64-2 Cell door, Cell door T15	See separate Table 6					No	Yes	
Sound insulation	DW52-1/S, DW54-1/S, DW75-1/S DW52-2/S, DW54-2/2	Yes		No					
Multi-purpose	DW42-1, DW52-1, DW64-1, DW64-1-XL DW42-2, DW52-2, DW64-2, DW64-2-XL Water1, Water2	Yes							

1) only possible for doors up to a modular dimension of 1250x2250 (single leaf) or 2250x2250 (double leaf) without glazing

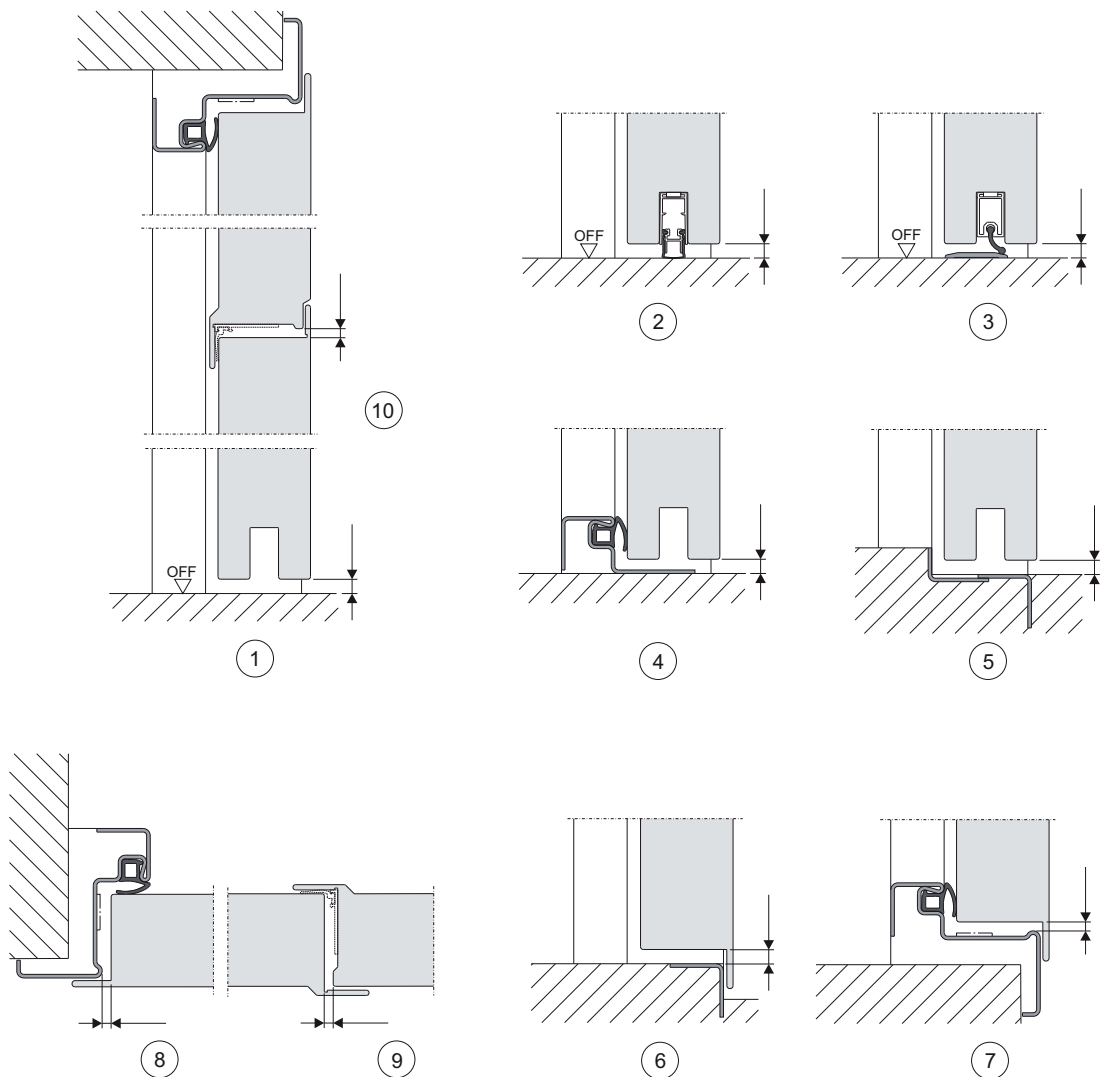
### 3. General Information

#### Gap dimensions

Table 2: Gap dimensions

Position	Version	Drawing no.	T30/60-1-62 T30/60-2-62	All other doors
Bottom	3-sided	1	8 (+7/-4)	
	3-sided with buffer seal	4		
	3-sided with buffer	5		
	3-sided retractable bottom seal	2	8 (+2/-4)	
	4-sided, 3-sided frame	6		
	3-sided sliding threshold seal	3	8 (+2/-1)	
	4-sided, 4-sided frame	7		
Hinge side		8	8 (+2/-4)	5 (+1/-2)
Top (also with casing)		10		
Lock side		8	8 (+0/-4)	
Central rebate		9	6 (+1/-1)	

#### 3.4 / 1



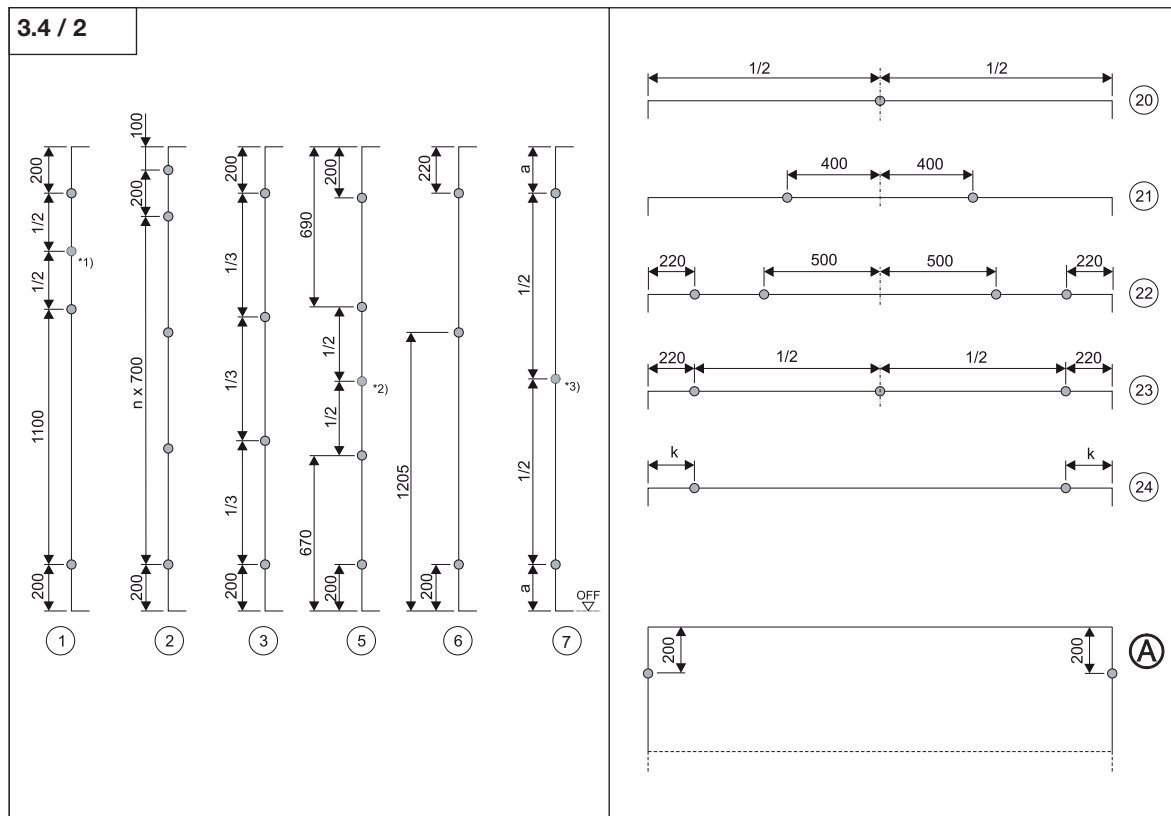
### 3. General Information

#### Anchor positions

Table 3: Anchors

Door type	Wall type	Vertical pattern	Horizontal pattern
T30-1-62 hatch	Masonry, concrete, installation wall, autoclaved aerated concrete	7 (a=160)	-
T60-1-62 hatch			20
T90-1-K		7 (a=150)	-
T30-1-K		7 (a=200)	24 (k=100)
T30-1-62, T60-1-62	Concrete, masonry	6	-
	Autoclaved aerated concrete / Installation wall < 1000	5	20
	Autoclaved aerated concrete / Installation wall > 1000		24 (k=220)
T30-2-62, T60-2-62	Concrete, masonry	6	23
	Autoclaved aerated concrete / Installation wall < 2250	5	
	Autoclaved aerated concrete / Installation wall > 2250		
T30-2-H, T30-2-D, T90-2-T T90-2-SV, T90-2-DF, T30-2-DF, all other double-leaf doors	Concrete, masonry, installation wall	1	21
	Autoclaved aerated concrete	2	
T90-1-OS, T90-1-DF, T30-1-OS T30-1-DF, T30-1-D, T90-1-T, all other single-leaf doors	Concrete, masonry, installation wall	1	20
	Autoclaved aerated concrete lock side	3	
	Autoclaved aerated concrete hinge side	2	

#### 3.4 / 2



- A Casing  
 1 > 2500  
 2 > 2250  
 3 > 1250; T30-1-K in installation wall, not for T30/T60-1-62

#### Note:

An additional anchor must be installed 60 mm above the upper edge finished floor (OFF) for doors without a floor recess.



### 3. General Information

#### Dimensions

Approved tolerances for the wall opening dimensions according to DIN 18100:

Width: Modular dimension +20 mm / -0 mm

Height: Modular dimension +15 mm / -0 mm

Correct operation and stability of the door are not guaranteed if tolerances are exceeded.

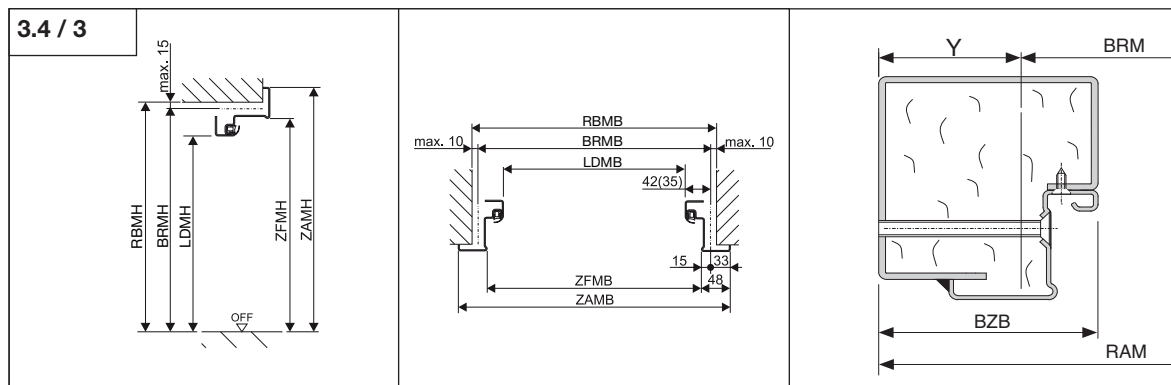
**Table 4: Dimensions**

Designation	Abbreviation	Formula
Modular dimensions - width	BRMB	
Dim. in unfinished state - standard width	RBMB	BRMB + 10
Frame clearance dimension - width	LDMB	BRMB - 84 (70)
Overall frame dimension - width	ZAMB	BRMB + 66
Frame rebate dimension - width	ZFMB	BRMB - 30
Overall frame dimension - block frame width	RAMB	BRMB + 2 x Y
Dim. in unfinished state - block frame width	RBMB	RAMB + 10
Dim. in unfin. state - block frame width 2.2	RBMB	LDMB

Block frame type	Dimension Y
1.1; 1.2	73 mm
1.3	65 mm
2.1; 2.2; 3.1	58 mm
4.1	33 mm
5A; 5B; 5C	37 mm

Designation	Abbreviation	Formula
Modular dimension - height	BRMH	
Dim. in unfinished state - standard height	RBMH	BRMH + 10
Frame clearance dimension - height	LDMH	BRMH - 42 (35)
Overall frame dimension - height	ZAMH	BRMH + 33
Frame rebate dimension - height	ZFMH	BRMH - 15
Overall frame dimension - block frame height	RAMH	BRMH + Y
Dim. in unfinished state - block frame height	RBMH	RAMH + 5
Dim. in unfin. state - block frame height 2.2	RBMH	LDMH

( ) Dimensions in brackets apply for T30-D and DW42 doors with a corner frame.



#### Surface treatment

- If the primer has been removed or damaged during installation, it must be subsequently touched up.
- Never paint over seals, locks, identification plates or other hardware.
- To prevent a loss of adhesion of the top coat, it is recommended to clean and lightly sand the subsurface (except the insulation layer).
- Remove the frame seals prior to applying the final coat, and reinsert them correctly afterwards according to specifications.
- Primer paint (all doors, except type 42): The door leaves are coated with an acrylic resin based 2K PUR primer. This ensures that a permanent and universal final coat can be applied using commercially available 1K and 2K systems, guaranteeing excellent corrosion protection.

#### Attention!

Apply a final coat to doors, at the latest, 3 months after installation; otherwise we shall not accept liability for corrosion damage. We do not recommend the use of synthetic resin paints due to saponification on galvanized surfaces and the resulting loss of adhesion.





### 3. General Information



- Powder-coated primer (only type 42 doors): The door leaves and frames have an environmentally friendly powder-coated primer. Sand the surface and clean it thoroughly for further colour treatment. Solvent-based 2K polyurethane paint can be used for single-layer painting. Always apply a solvent-based Epoxy primer before using synthetic enamels.

#### Attention!

Strong sunlight can cause a bi-metal effect on double-skinned sheet steel doors used outdoors, resulting in door leaf warpage. Dark colours increase heat absorption at the door surface - especially with direct sunlight – thus significantly increasing the effect.

This physically influenced heat expansion is not a reason for complaint.

To prevent damage to the door:

- structural measures (e.g. projecting roof) which prevent direct sunlight must be taken,
- it should be painted in a bright, light reflecting colour.

#### Wall plugs

The following requirements must be met:

- Only use wall plugs (dia. 10) which are building authority approved for the substructure.
- Wall plugs do not have to be explicitly approved for use at fire doors.
- Wall plugs must be used with the respective screws.
- Follow the specifications of the wall plug manufacturers (wall plug distances/edge distances).
- Always pay attention to the diameter and depth of the hole.
- Always clean the hole of dust and debris before inserting the wall plug.
- Never use the hammer setting when drilling perforated bricks.
- If the wall type and the edge distances allow it, it is also possible to use building authority approved steel expansion plugs.

**Table 5: Wall plug types**

Type	Concrete	Masonry	Autoclaved aerated concrete
Atrion ARU	✓	✓	✓
fischer FUR	✓	✓	–
fischer SXR <sup>1)</sup>	✓	✓	✓
Hilti HRD	✓	✓	✓
Mungo MBR-X <sup>2)</sup>	✓	✓	–
Würth W-RU	✓	✓	✓
Würth W-UR	✓	✓	✓

<sup>1)</sup> Use a frame anchor in accordance with the manufacturer's instructions when drilling autoclaved aerated concrete

<sup>2)</sup> Hole diameter 9 mm

#### Escape routes and emergency exits:

- Bottom buffers and thresholds are not permitted for escape routes and emergency exits. Only half-round thresholds with a circular cross section and a maximum height of 5 mm are permitted. However, due to operational reasons half-round thresholds are not permitted in hospitals, nursing homes, etc. (risk of tripping, transportation of bed-ridden patients).
- Always observe valid health and safety regulations.
- The hardware for escape doors and panic doors must meet the following requirements:
  - Block locks, additional locks and locking elements are not permitted.
  - Hardware, accessories, other locks and lock retainers must be labelled with a universal classification code.
  - When retrofitting or replacing parts, the components must have a universal classification code.
  - The doors must be regularly inspected and maintained.
- When using Knauf cylinders or digital lock cylinders, the anti-panic lock must provide respective free running.
- When using key-operated profile cylinders, the anti-panic function is only guaranteed when the key has been removed.
- A driver flap must be installed at double-leaf door systems with full panic equipment.

### 3. General Information



**Escape doors** (a hazardous situation should not be associated with a panic situation)

If a door is designed as an escape door, the locks and hardware must comply with DIN EN 179.



**Panic doors** (a hazardous situation should be associated with a panic situation)

If a door is designed as a panic door, the locks and hardware must comply with DIN EN 1125.

### 3.5 Protection classes

#### General

- The respective approval/test certificate can be viewed at **[www.teckentrup.biz/download/technische-informationen.html](http://www.teckentrup.biz/download/technische-informationen.html)**
- Fire, smoke protection and burglar resistant doors are labelled with a name plate.
- Connecting steel bolts must be secured using the supplied connecting steel bolt clips.
- The owner is responsible for the perfect condition of the door
- The installation bracket (if available), which keeps frame parts at the correct distance in the bottom section, must be removed immediately after installation.



#### Note:

The desired protection class can only be achieved if the specified requirements are fulfilled during installation. If a door should achieve several protection classes, all the installation requirements must be fulfilled.



#### Fire doors (BS)

- Door modifications should only be carried out in accordance with the measures specified in the DIBt communication (Modifications for Fire Barriers; [www.teckentrup.biz/download/technische-informationen.html](http://www.teckentrup.biz/download/technische-informationen.html) ).
- Only use hardware (also electrical), handle sets, locks and locking mechanisms which are approved for fire protection (verification of suitability, building authority test certificates). Observe the installation specifications in order to achieve the correct level of fire protection. The specifications are listed in the hardware, handle set, lock and locking mechanism documents. Components should only be replaced if it does not entail reworking the door. Please also note that the replaced parts must be approved parts for the specific door and supplied by Teckentrup.
- Fire doors must be fitted with profile cylinders (not included) or alternatively with hardware incl. a metal cover for both sides of the profile cylinder hole.
- Carry out installation in accordance with DIN 18093.
- The doors must close automatically.
- A counter frame is required for installation in autoclaved aerated concrete (exceptions see Table 1).
- Standard doors should only be installed up to a maximum height of 500 mm above the upper edge finished floor OFF (on both sides). For greater heights, the door leaf and frame must be rebated on four sides (manhole door).
- Use the supplied seal profiles.
- Fire doors should not be installed in outdoor areas.

### 3. General Information



#### Smoke protection doors (RS)

- Only use hardware (also electrical), handle sets, locks and locking mechanisms which are approved for smoke protection (verification of suitability, building authority test certificates). Observe the installation specifications in order to achieve the correct level of smoke protection. The specifications are listed in the hardware, handle set, lock and locking mechanism documents. Components should only be replaced if it does not entail reworking the door.
- Carry out installation in accordance with DIN 18093.
- The doors must close automatically.
- Wall sealing joints must be sealed on one side using a permanently elastic sealing compound (e.g. acrylic).
- Smoke protection doors must be fitted with profile cylinders (not included).
- In addition to the wall types specified in the table, smoke protection doors can also be installed in the following wall types:
  - Installation wall F30A according to DIN 4102, Part 4, Table 48
  - Installation wall F30B according to DIN 4102, Part 4, Table 49
  - Installation wall F90B according to DIN 4102, Part 4, Table 49
  - Installation wall F30 according to ABP
  - Steel or wooden girders / supports which are not concealed
- When using a retractable bottom seal, the floor must be straight, even, smooth and firm. Alternatively, use a threshold onto which the bottom seal is lowered. Carpet is not permissible.
- The frame seals must be mitred and pushed close together at the connections.



#### Sound insulated doors

- The approved insulation value can only be achieved if all the areas (wall, floor, ceiling) have been planned correctly.
- The insulation values of walls, floors and ceilings must be 10 dB above the insulation value of the door.
- Moreover, there should not be any acoustic bridges.
- The surrounding components influence the entire sound insulation. The sound insulation of the wall and door must be verified separately, since it cannot be derived from the sound insulation value of the door.
- The doors must be equipped with profile cylinders.
- Plaster or a plastic sealing compound should be used to create the connection between the wall and the frame.
- Separate the screed in the threshold area.
- The specified sound insulation value is only achieved with a maximum bottom clearance of 10 mm. It is recommended to minimize the gap dimension within the permissible tolerance range, as this has a major influence on the sound insulation value.
- When using a retractable bottom seal, the floor must be straight, even, smooth and firm. Alternatively, use a threshold onto which the bottom seal is lowered. Carpet is not permissible.
- The frame seals must be mitred and glued together using an instant adhesive.



#### Security doors

- The burglar resistance of the door is only guaranteed when all the lock bolts are fully closed.
- The attack side must be determined prior to installation.
- With anti-panic doors, intrusion with a wire must be hindered, e.g., by a small bottom air gap or using a half-round threshold.
- The door must be equipped with hardware, glazing and cylinders according to the following table (cylinders are not necessarily included).
- Mounting in installation walls is not permitted.
- Use the supplied seal profiles.
- The following table displays the minimum wall thicknesses.

### 3. General Information

**Table 6: Security door parameters**

Parameter WK	WK 2	WK 3	WK 4
Masonry	115	115	240
Concrete	100	120	140
Autoclaved aerated concrete blocks or high precision units	175	175	-
Reinforced autoclaved aerated concrete slabs	150	150 *	-
Profile cylinder according to DIN 18252 **	P2 BS/BZ	P2 BS/BZ	P3 BS/BZ
Security hardware according to DIN 18257	ES1	ES2	ES3
Glasses EN 356	P4A	P6B	P6B

\* DW 42-2: 175

\*\* BS = anti-drilling protection

BZ = anti-drilling and extraction protection

(extraction protection is not required if it is integrated in the security plate, i.e. security plate with cylinder cover)



#### Multi-purpose doors

- There are no further specifications for multi-purpose doors.

### 3.6 Installation at steel girders or steel supports

The quality of the construction must be F60 for T30 doors and F90 for T60 and T90 doors.

The cladding should be modified as little as possible during installation.

Concreting, plastering with mortar or bricking up the intermediate flange spaces is permissible (but not required for fire protection).

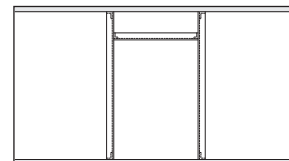
**Table 7: Concealed steel supports**

Pos.	Manufacturer	Type	Proof of use
1			DIN 4102-4 Table 90-95
2	Promat	Promatect L	P-3698/6989-MPA BS
3	Promat	Promatect H	P-3186/4559-MPA BS
4	Promat	Promatect H	P-3193/4629-MPA BS
5	Promat	Promatect L	P-3185/4549-MPA BS
6	Promat	Promatect L	P-3738/7388-MPA BS
7	Promat	Promatect H	P-3802/8029-MPA BS
8	Rigips	Ridurit	P-3175/4649-MPA BS
9	Rigips	Ridurit	P-3176/4659-MPA BS

## 3. General Information

### 3.7 Mounting at installation walls

- The profiles must be arranged as an H system, i.e. the vertical profiles should run continuously from the ceiling to the floor.
- The profiles must be screwed together at the floor and at the ceiling.
- Use reinforcement profiles (min. 50x40x2) or rectangular hollow sections (50x30x2) in the door opening area (at the sides and top).
- It is permissible that smaller cut-outs in the upright profile are statically compensated by welding or screwing on sheet metal strips of at least the same material thickness and a suitable length.
- Cladding is not permitted at the soffit on the face side.
- Irrespective of the maximum permissible wall heights (according to the test certificate), never exceed the wall heights specified in the following table.



**Table 8: Installation walls**

Pos.	Manufacturer	Type	Proof of use	Min. wall thickness	Max. wall height
1			DIN 4102-4 Table 48	100	4000
2	Knauf	W353	P-3202/2028-MPA BS	100	3000
3	Knauf	W112	P-3310/563/07 MPA BS	100	4000
4	Rigips	3.40.04	P-3956/1013-MPA BS	100	4000
5	Rigips	3.40.04-06 3.41.01-04	P-3956/1013-MPA BS	100	5000
6	Rigips	3.40.09	P-3213/2038-MPA BS	150	5000
7	Rigips	3.60.20	P-3700/7008-MPA BS	100	4000
8	Rigips	3.90.10	P-3696/6968-MPA BS	125	4000
9	Fels	1 S 31	P-3854/1372-MPA BS	95	4000
10	Fels	1 S 31	P-3854/1372-MPA BS	100	4000
11	Promat	450.70	P-MPA-E-98-099	84	3000
12	Promat	450.81	P-MPA-E-99-047 P-MPA-E-99-044	150	4000
13	Promat	150.70	P-3912/6000-MPA BS	80	5000
14	Lafarge		P-3515/0519-MPA BS	150	5000
15	Lafarge	L12/L13/L14	P-MPA-E-99-020	100	5000
16	Lafarge		P-MPA-E-99-021	100	5000
17	Lafarge		P-MPA-E-98-005	100	5000
18	Knauf	W115/116	P-3157/4012-MPA BS	100	5000

**Table 9: Installation fire walls**

Pos.	Manufacturer	Type	Proof of use	Min. wall thickness	Max. wall height
1	Promat	450.90	P-3255/1459-MPA BS	130	4000
2	Promat	450.95	P-3796/7968-MPA BS	142	5000
3	Knauf	W131	P-3073/0639-MPA BS	116	5000
4	Knauf	W131	P-3073/0639-MPA BS	126	5000
5	Knauf	W131	P-3073/0639-MPA BS	141	5000
6	Knauf	W131	P-3073/0639-MPA BS	151	5000
7	Knauf	W131	P-3073/0639-MPA BS	166	5000
8	Knauf	W131	P-3073/0639-MPA BS	176	5000
9	Knauf	W132	P-3074/0649-MPA BS	161	5000
10	Rigips	TB 6.50.00	P-3021/0119-MPA BS	130	5000
11	Rigips	SB 6.70.10	P-3020/0109-MPA BS	166	5000
12	Lafarge		P-3391/0890-MPA BS	161	5000

## 3. General Information



### 3.8 Locks and hardware

#### Reference:

Always follow the installation instructions in the accessory packs!

#### Hold-open devices

Only use hold-open devices approved by a general building authority.

Installation, commissioning and maintenance are based on DIBt guidelines for hold-open devices and the manufacturer's approval information and installation instructions.

An acceptance test (executed by an authorized specialist) must be carried out after the installation of a hold-open device in order to determine correct functioning and installation. The owner is responsible for this test. The owner is also responsible for the perfect condition of the hold-open device; maintenance must be carried out at least once a month.

Furthermore, the owner must ensure that an annual inspection is carried out by an authorized specialist or an appropriately trained and qualified person.

The results of the annual inspection must be documented in an inspection log book.

This document must be kept in a safe place by the owner.

#### Hinges

If necessary, re-adjust the hinges.

#### Locks

Locks must comply with DIN 18250-1.

The locks can be replaced with locks with an anti-panic function in accordance with EN 179 or EN 1125.

#### Glazing

Glazing should only be replaced by an appropriately trained and qualified person.

#### Automatic closing at fire and smoke protection doors

- Only use door closers in accordance with EN 1154 / EN 1155.
- When using integrated door closers, the upper gap between the door leaf and the frame must be 10 mm (+1/-1).
- A door closer can be retrofitted at doors which close automatically via a spring hinge if the closing function of the spring hinge is deactivated (the hinge bolt must be replaced with a corresponding replacement part without a spring). Door closers can be simply retrofitted on the hinge side
- A spring hinge in accordance with DIN 18272 should not be combined with the following features / equipment:
  - Smoke protection (except: hatches < modular dimension 1000x1000)
  - Retractable bottom seal
  - Sliding threshold seal
  - Glazing
  - Leaf weight > 80kg
  - Double leaves
  - Electric door opener
  - Self-locking anti-panic locks
  - Mounting in installation walls and autoclaved aerated concrete (except: hatches < modular dimension 1000x1000)
  - Hold-open devices

## 3. General Information

### 3.9 General manual information

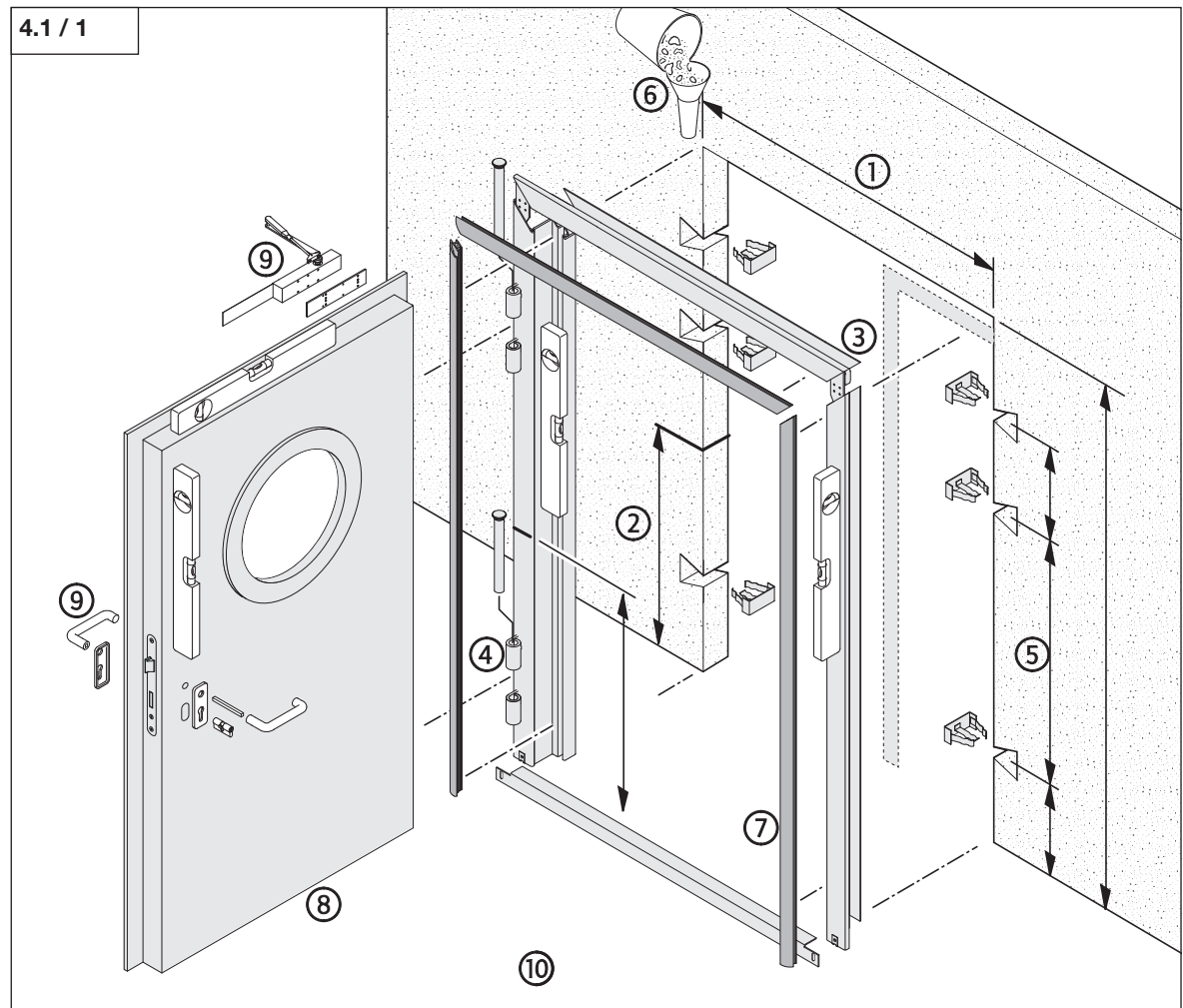
All dimensions in millimetres (mm).  
Technical details subject to change.

## 4. Installation Process

### 4.1 Installation sequence single-leaf doors

The standard installation sequence is described below.

Any alternative installation methods are described in the individual installation steps.



Order	Process	Reference
①	Installation preparations	Section 5.1
②	Marking the one metre level	Section 5.2
③	Screwing together the frame	Section 5.3
④	Connecting the door and the frame	Section 5.4
⑤	Installing the frame	Section 5.5
⑥	Backfilling the frame	Section 5.6
⑦	Inserting the seals	Section 5.7
⑧	Installing and adjusting the floor connection / bottom seal	Section 5.8
⑨	Installing hardware	Section 5.9
⑩	Final work	Section 5.10

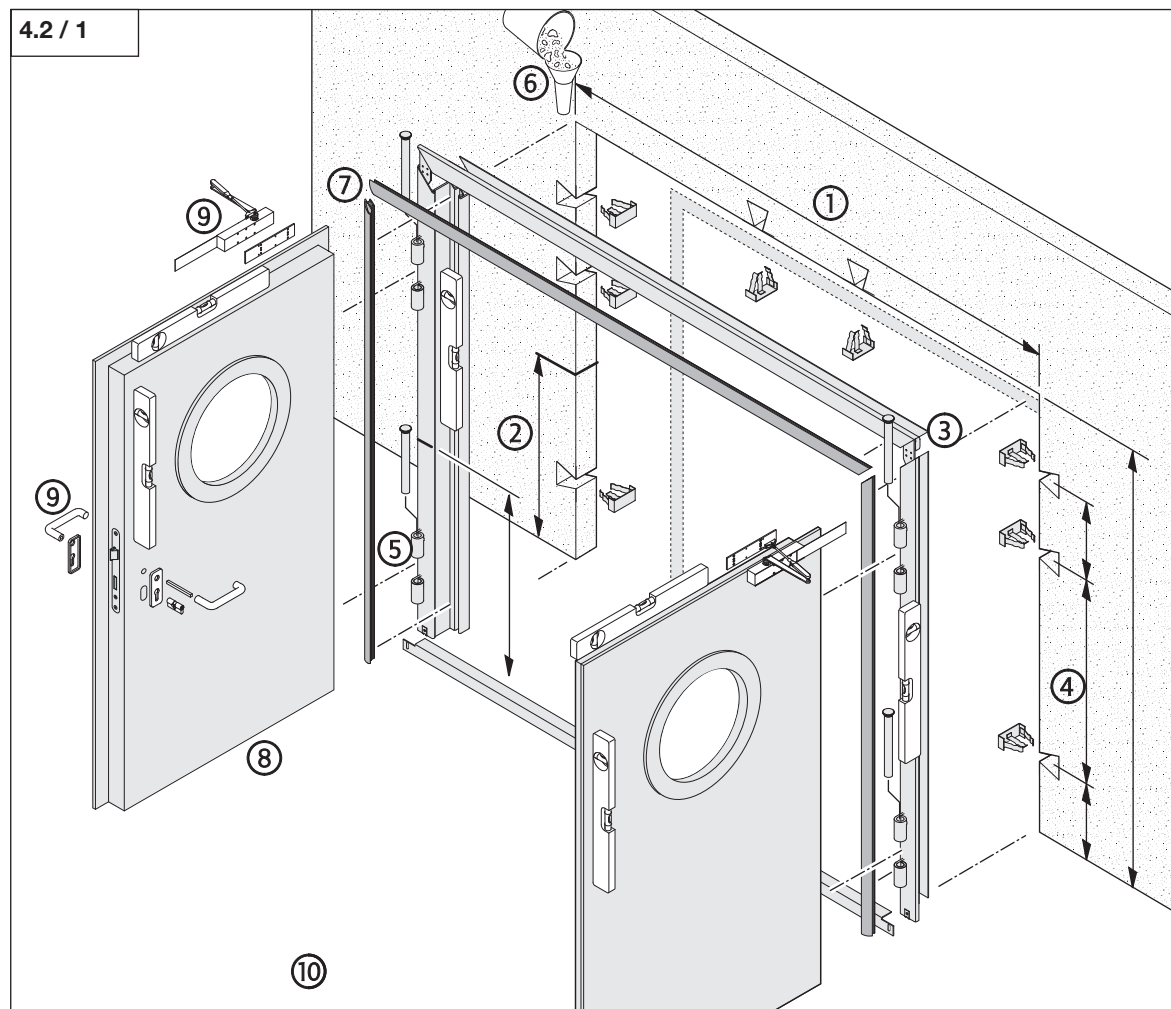




## 4. Installation Process

### 4.2 Installation sequence double-leaf doors

The standard installation sequence is described below.

Any alternative installation methods are described in the individual installation steps.



Order	Process	Reference
①	Installation preparations	Section 5.1
②	Marking the one metre level	Section 5.2
③	Screwing together the frame	Section 5.3
④	Installing the frame	 <b>Section 5.5</b>
⑤	Connecting the door and the frame	 <b>Section 5.4</b>
⑥	Backfilling the frame	Section 5.6
⑦	Inserting the seals	Section 5.7
⑧	Installing and adjusting the floor connection / bottom seal	Section 5.8
⑨	Installing hardware	Section 5.9
⑩	Final work	Section 5.10

## 5. Installation

### 5.1 Installation preparations

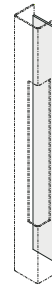
The following points must be clarified prior to installation:

- Which protection classes should be achieved?
- Do you know and understand the existing building regulations?
- On which substructure is the door going to be installed?
- Is the door suitable for the wall type?
- Do you know the height of the finished floor?
- Is the wall opening large enough for the protective boxes of the frame?
- Which anchor types will be used?
- Which floor connection will be used?
- Which accessory parts should be used?
- In which direction should the door open?

If necessary, respective recesses should be cut into the wall for the protective boxes.

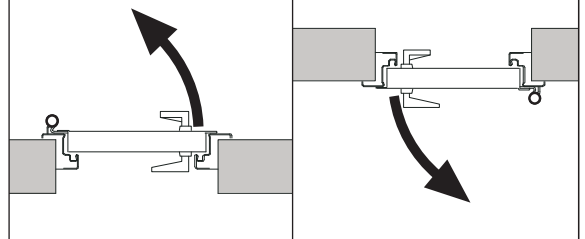
When mounting the door in installation walls, the reinforcement profiles in the wall can be cut as required. The cut-outs must be additionally reinforced with welded on sheet metal strips (> 2 mm).

5.1 / 1



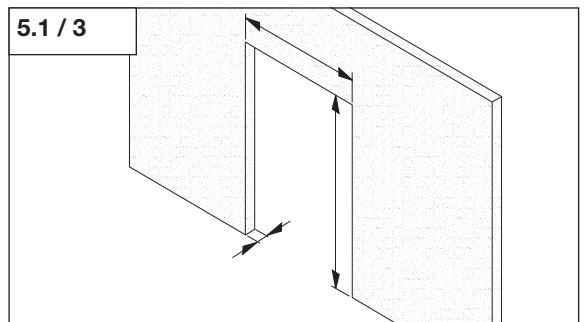
- Determine the opening side.

5.1 / 2



- Check the opening dimensions.

5.1 / 3

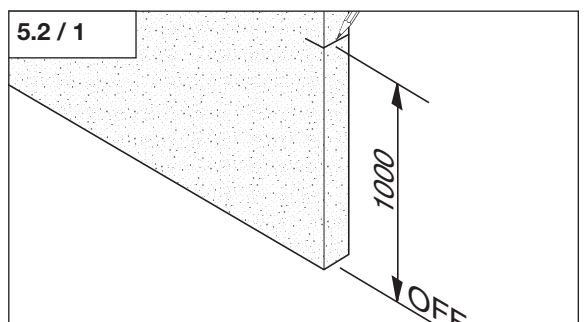


### 5.2 Marking the one metre level

The metre level specified by the customer must be transferred to the wall opening.

- Mark the one metre level in the opening.

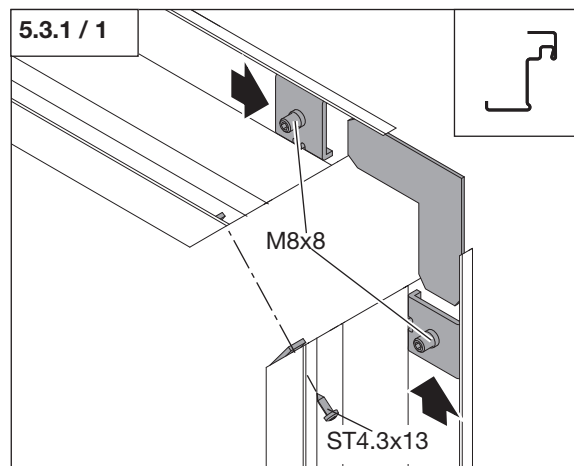
5.2 / 1



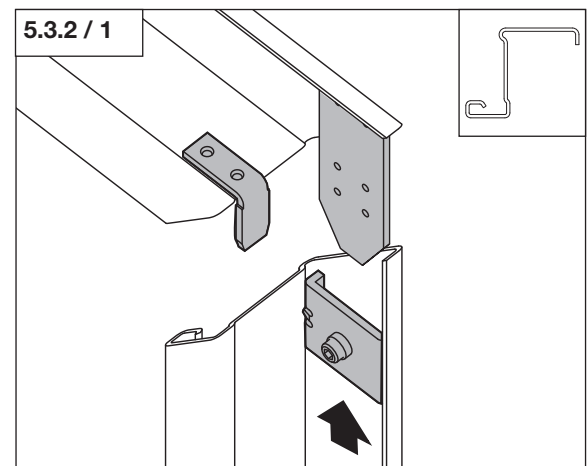
## 5. Installation

### 5.3 Screwing together the frame

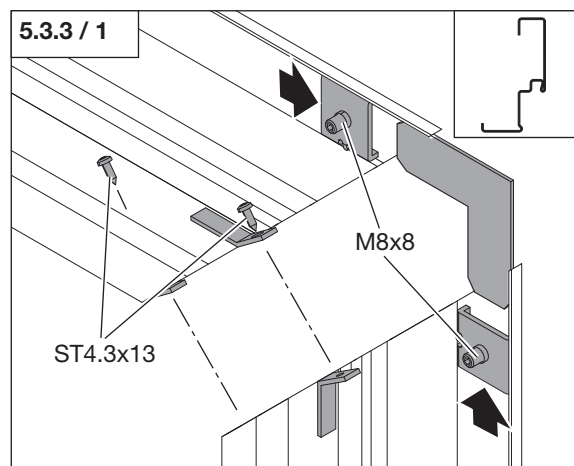
#### 5.3.1 Corner frame version 1



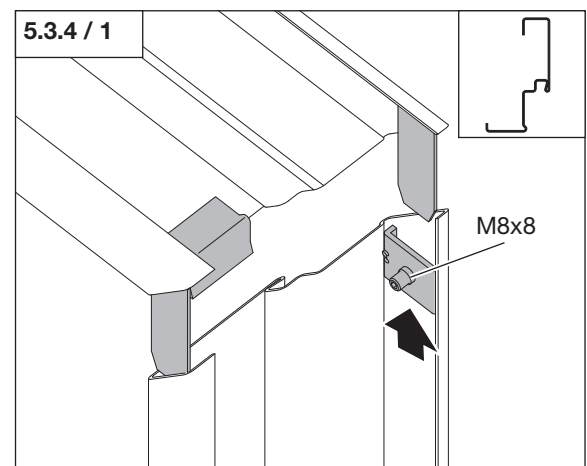
#### 5.3.2 Corner frame version 2



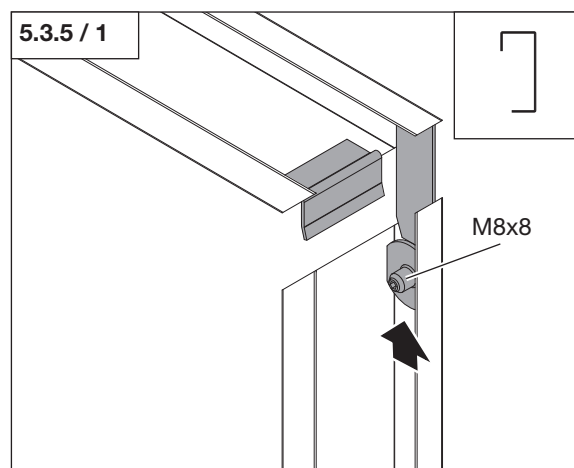
#### 5.3.3 Closed frame version 1



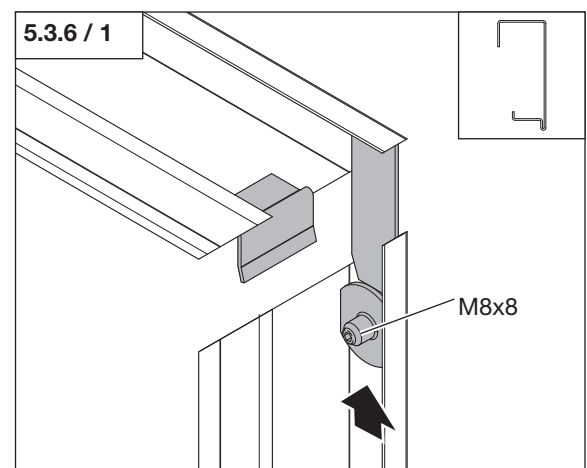
#### 5.3.4 Closed frame version 2



#### 5.3.5 Counter frame version 1



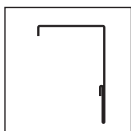
#### 5.3.6 Counter frame version 2



#### 5.3.1 – 5.3.6:

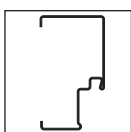
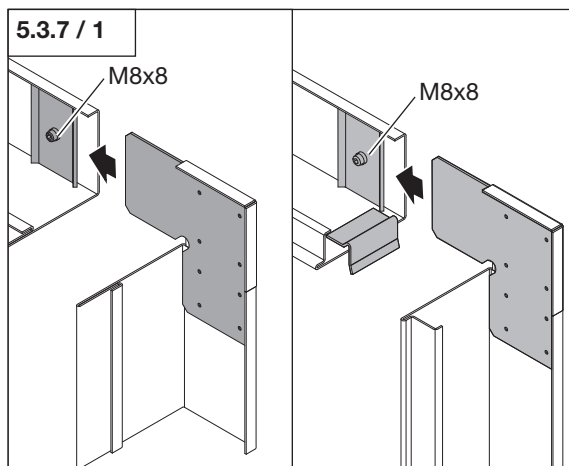
- Screw the frames together.
- Interconnect the frames.

## 5. Installation



### 5.3.7 Clasping counter frame

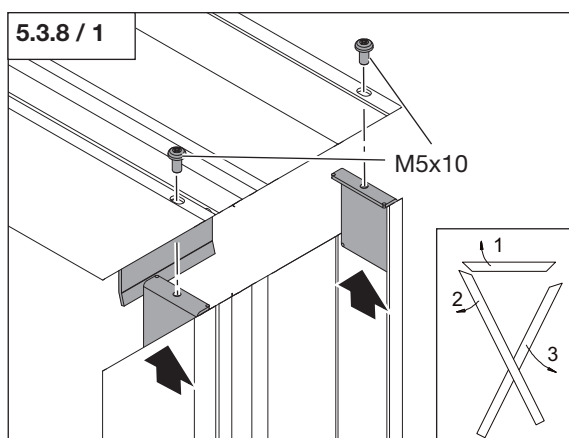
- Interconnect the frames.
- Screw the frames together.



### 5.3.8 Closed frame

The frame type “clasping closed frame” must be assembled **in the opening**.

- Place the upper frame part in the wall opening.
- Insert the frame side parts into the upper frame part.
- Screw the frames together.



### 5.3.9 Floor bracket

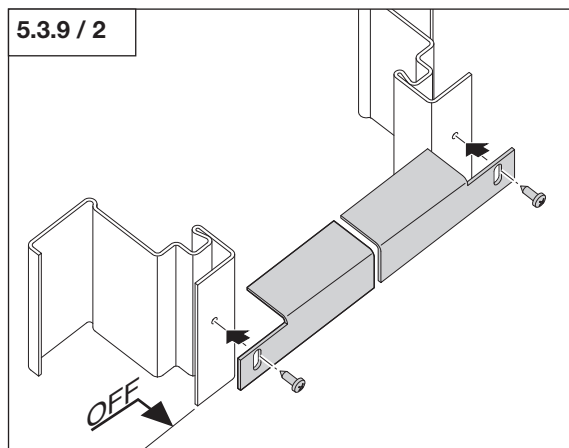
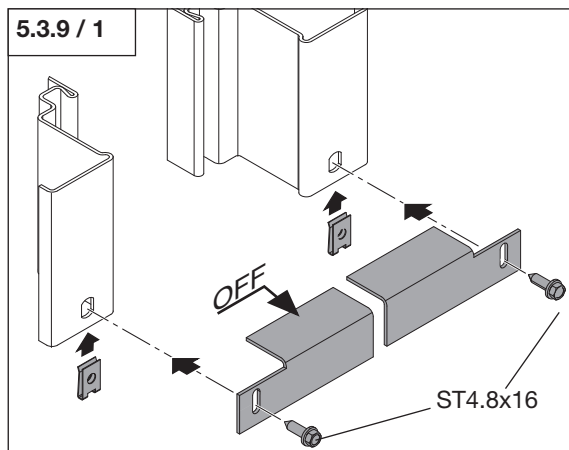
- Place the floor bracket between the frame.
- Screw the floor bracket to the frame.

There are two floor bracket types:

- With floor recess (5.3.9 / 1)
- Without floor recess (5.3.9 / 2)

#### **Note:**

The floor bracket is an installation aid and must be removed after door installation.



## 5. Installation



### 5.4 Connecting the door and the frame

#### Attention!

Always make sure that pre-assembled bottom seals in the doors are not damaged.

#### Note:

- Lubricate the hinge bolts slightly prior to insertion.
- Depending on the design, each door leaf can be fitted with (A):
  - a ball bearing,
  - a ball bearing and a plastic ring or
  - a factory pre-assembled bearing ring combination.
- Some doors are supplied with spacers in order to adjust the height of the door leaf. When using these spacers, adhere to the gap dimensions specified in Table 2.
- With double-leaf doors, the door and the frame are screwed together after the frame has been screwed to the wall.

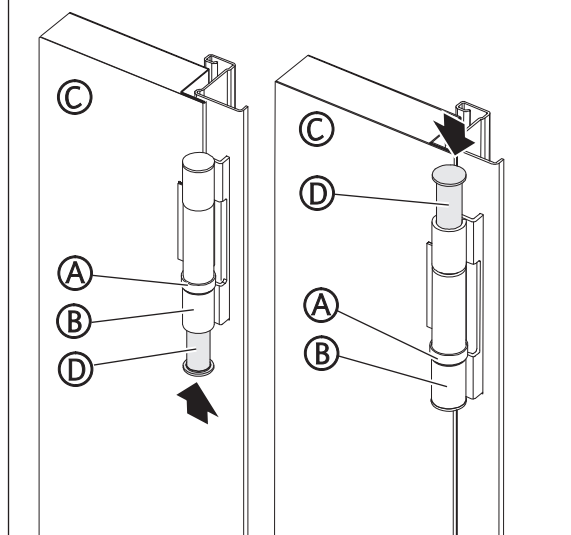
#### Hinge bolts (hollow)

- Place the ball bearings (A) on the frame hinges (B).
- Position the door leaf (C) on the ball bearings (A).
- Insert the hinge bolts (D) into the frame hinges (B).

#### Note:

- The ball bearing is not required when using the bearing rings.
- The insertion direction of the hinge bolts is factory set.

5.4 / 1



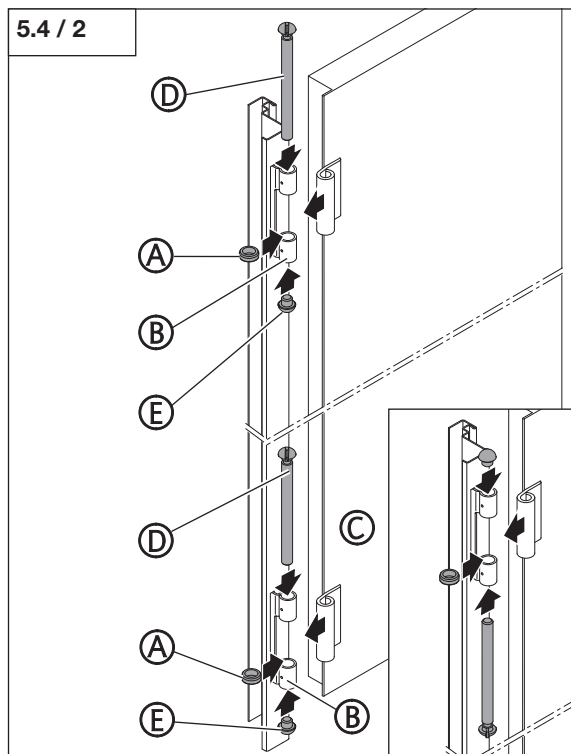
#### Hinge bolts (solid)

- Place the ball bearings (A) on the frame hinges (B).
- Position the door leaf (C) on the ball bearings (A).
- Insert the hinge bolts (D) into the frame hinges (B) from the top.
- Insert the counterpiece (E) into the hinge.

#### Note:

Depending on the available space, the hinge bolt can also be inserted into the frame hinge from the bottom.

5.4 / 2



## 5. Installation



### Note (for hinge bolts with notch):

The hinge bolt (D) must be inserted so that the notch is positioned away from the frame in the frame hinge (B).

### Securing the hinge bolt

- Use a set screw (F) to secure the hinge bolts (D).

### Note:

Hollow hinge bolts are self-locking and do not have to be secured separately.



**Security door hinge bolts do not have to be additionally secured.**

### Construction hinge

- Insert the set screw (F) until it engages in the hinge bolt (D).

### Spring hinge

- Insert the set screw (F) so that it fixes the spring (G) in position.

**It must be ensured that the set screw cannot be removed from security door hinges.**

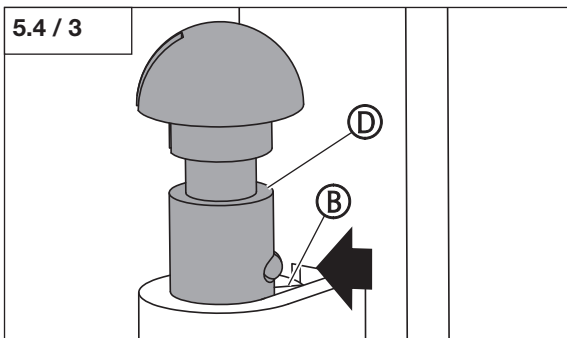
### Note:

Secure the set screw against removal by tapping a brass pin / steel ball into the set screw or by applying a weld spot.

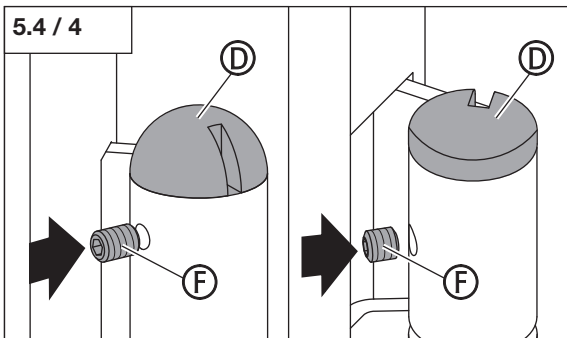
- Secure the set screw.



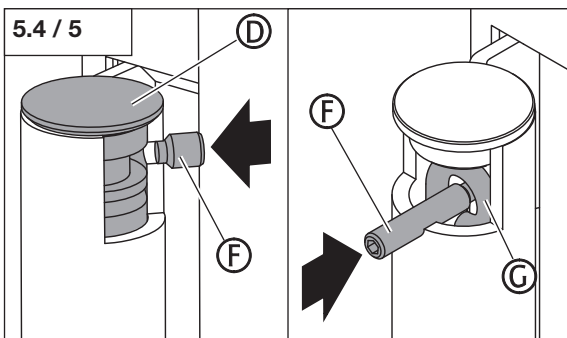
5.4 / 3



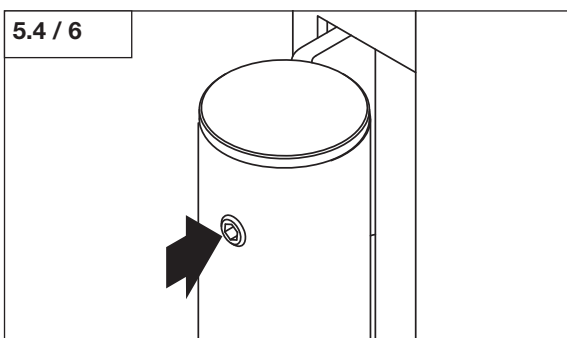
5.4 / 4



5.4 / 5



5.4 / 6



## 5. Installation

### 5.5 Installing the frame

**Note:**

When installing double-leaf doors, the frame is placed in the opening without the door leaves.

- Position the frame in the opening.
- Align the frame to the one metre level.

**Reference:**

Refer to Section 3.4 for correct alignment of the door.

- Align the frame to all sides.
- Use wedges to secure the correct position.
- Check the required clearances.

**Reference:**

The required clearances are described in Section 3.4.

The connection between the frame and the wall must be carried out in the specified sequence.

Place the door leaf against the frame.

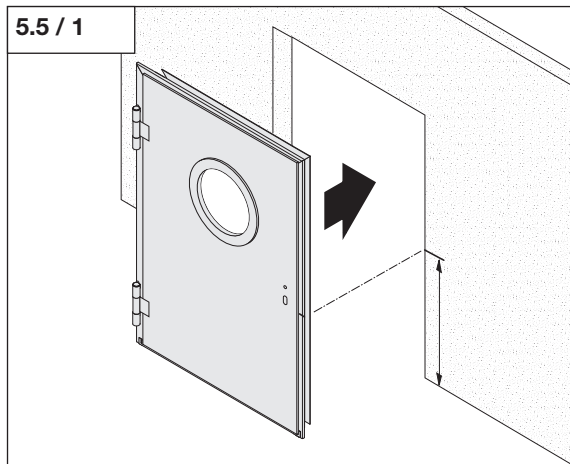
**Reference:**

Refer to Section 3.4 for wall plug installation.

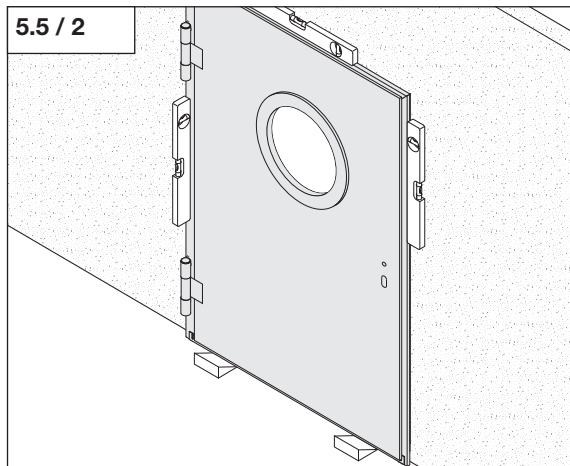
**Note:**

- The wall plug must expand parallel to the opening edge.
- Please note for single-leaf doors:  
A Hinge side  
W Lock side

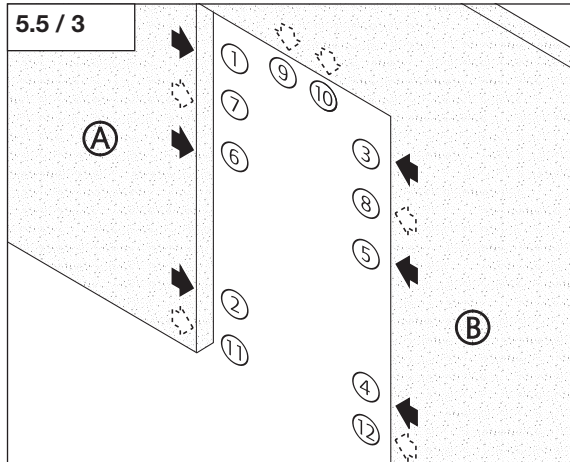
5.5 / 1



5.5 / 2






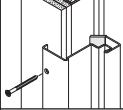

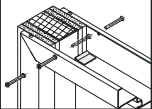


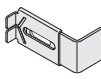
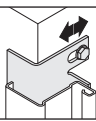
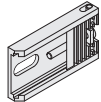
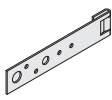


5.5 / 3



## 5. Installation

### Frame fixing overview

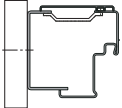
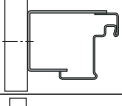
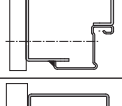
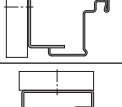
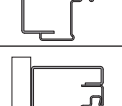
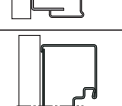
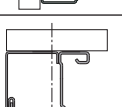
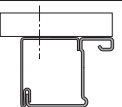
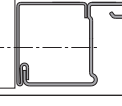

Anchors	Designation	Masonry / Concrete	Autoclaved aerated concrete	Installation wall	Steel construction
		5.5.1	5.5.2	5.5.3	5.5.4
	SMW diagonal	5.5.1.1	5.5.2.1	-	-
	SMW parallel	5.5.1.2	5.5.2.2	5.5.3.1	5.5.4.1
	Wall anchor with wall plugs	5.5.1.3	-	-	-
	Wall anchor with mortar	5.5.1.4	-	-	-
	LBW mounting plates	-	-	5.5.3.2	-
	LBW welded GZ	-	-	5.5.3.3	-
	LBW screwed GZ	-	-	5.5.3.4	-
	LBW screwed UZ	-	-	5.5.3.5	-
	Anchor bracket with wall plugs	-	5.5.2.3	-	-
	Anchor bracket with mortar	-	5.5.2.4	-	-
	SMW sliding anchor	5.5.1.5	-	-	5.5.4.2
	SMW buffer bracket	5.5.1.6	-	-	5.5.4.3
	SMW fold anchor UZ/GZ	5.5.6.1	-	-	5.5.6.1
	Push anchor UZ/GZ	5.5.6.2	-	-	5.5.6.2

#### Legend:

SMW = exposed masonry / exposed concrete  
 LBW = installation wall  
 GZ = counter frame  
 UZ = closed frame



## 5. Installation

	Block frame		Masonry / Concrete	Autoclaved aerated concrete	Installation wall	Steel construction
	<b>Type 1.1</b>	Disassembled	5.5.7.1	5.5.7.1	5.5.7.1	5.5.7.1
	<b>Type 1.2</b>	Disassembled	5.5.7.2	5.5.7.2	5.5.7.2	5.5.7.2
	<b>Type 1.3</b>	Pre-assembled	5.5.7.3	5.5.7.3	5.5.7.3	5.5.7.3
	<b>Type 2.1</b>	Disassembled	5.5.7.4	5.5.7.4	5.5.7.4	5.5.7.4
	<b>Type 2.2</b>	Disassembled	5.5.7.5	5.5.7.5	5.5.7.5	5.5.7.5
	<b>Type 3.1</b>	Pre-assembled	5.5.7.6	5.5.7.6	5.5.7.6	5.5.7.6
	<b>Type 4.1</b>	Pre-assembled	5.5.7.7	5.5.7.7	5.5.7.7	5.5.7.7
	<b>Type 5.A</b>	Pre-assembled	5.5.7.8	5.5.7.8	5.5.7.8	5.5.7.8
	<b>Type 5.B</b>	Pre-assembled	5.5.7.8	5.5.7.8	5.5.7.8	5.5.7.8
	<b>Type 5.C</b>	Pre-assembled	5.5.7.8	5.5.7.8	5.5.7.8	5.5.7.8

## 5. Installation

### 5.5.1 Corner and closed frame at masonry and concrete

#### Reference:

The rear attachment of the closed frame is described in Section 5.5.6.

#### 5.5.1.1 SMW diagonal

- Use adjusting screws (A) to fix the frame.

#### Note:

Always observe the factory set anchor positions.

- Screw the frame to the wall in the correct sequence at the specified fixing points.

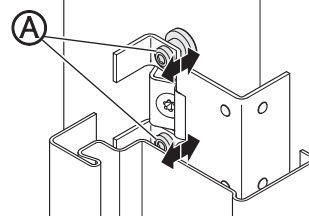
Minimum wall plug length: 160 mm

- Place the cover (B) over the frame holes.

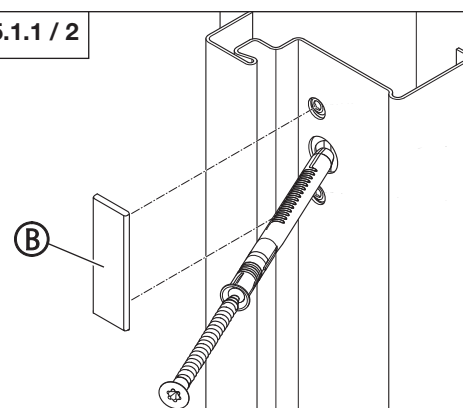
#### Reference:

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.
- The recommended wall plugs are described in Section 3.4.

#### 5.5.1.1 / 1



#### 5.5.1.1 / 2



#### 5.5.1.2 SMW parallel

- Use adjusting screws (A) to fix the frame.

#### Note:

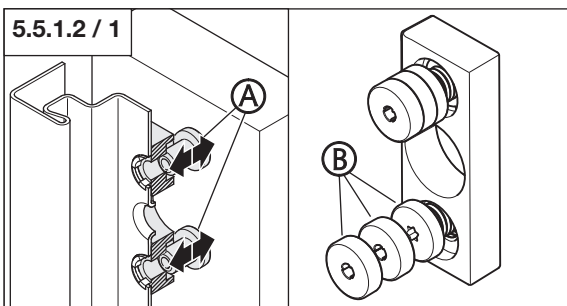
- If necessary, use the adjusting screw extensions (B).
- Always observe the factory set anchor positions.

- Screw the frame to the wall in the correct sequence at the specified fixing points.

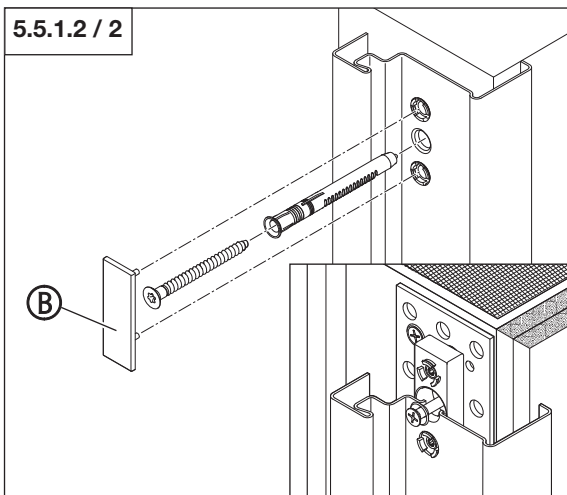
Minimum wall plug length: 100 mm

- Place the cover (B) over the frame holes.

#### 5.5.1.2 / 1



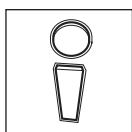
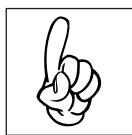
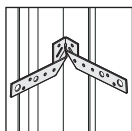
#### 5.5.1.2 / 2



#### Reference:

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.
- The recommended wall plugs are described in Section 3.4.

## 5. Installation



### 5.5.1.3 Wall anchor with wall plugs

- Bend the wall anchors.

#### Note:

- Always observe the factory set anchor positions.
- When installing extremely heavy doors, secure the frame against twisting by welding on spacers (C).

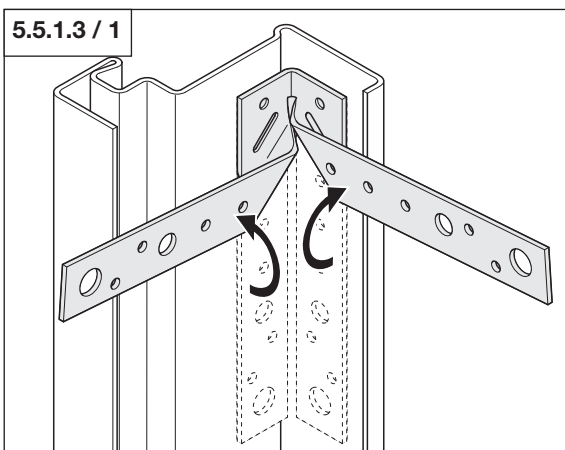
- Screw the frame to the wall in the correct sequence at the specified fixing points.

Minimum wall plug length: 100 mm

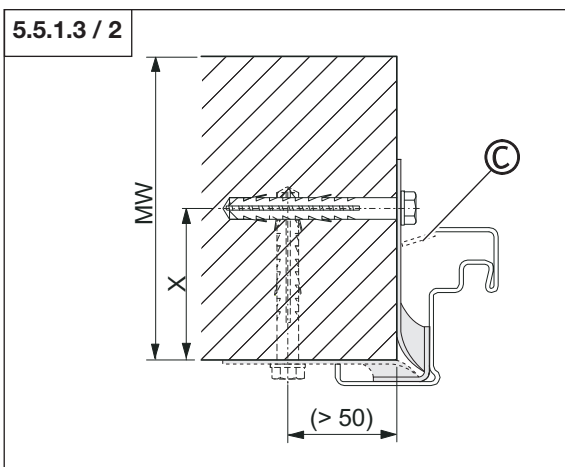
#### Reference:

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.
- The recommended wall plugs are described in Section 3.4.

#### 5.5.1.3 / 1



#### 5.5.1.3 / 2



### 5.5.1.4 Wall anchor with mortar

#### Note:

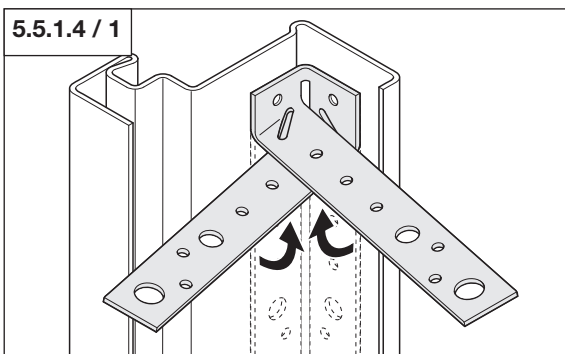
Always observe the factory set anchor positions.

- Bend the wall anchors.
- Embed the wall anchors in mortar.

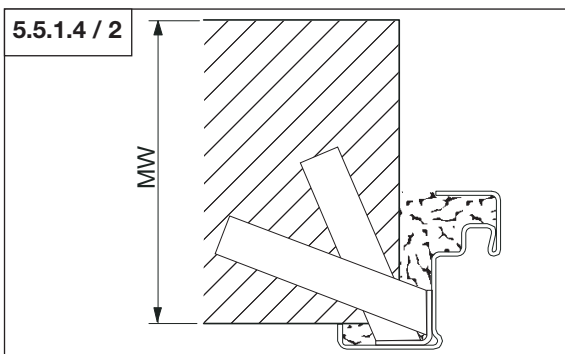
#### Note:

Allow the mortar to cure before proceeding.

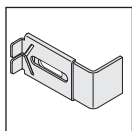
#### 5.5.1.4 / 1



#### 5.5.1.4 / 2



## 5. Installation



### 5.5.1.5 SMW sliding anchors

- Screw the anchors to the wall at the specified fixing points.

Minimum wall plug length: 100 mm

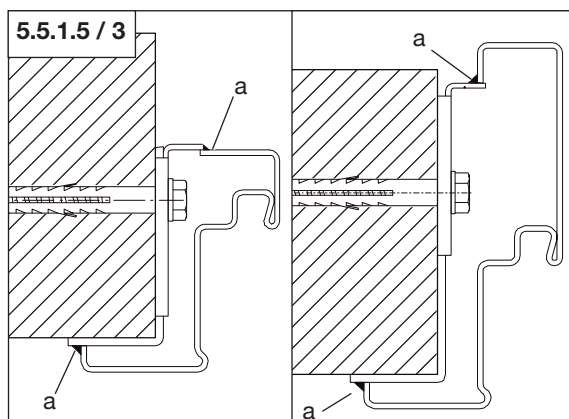
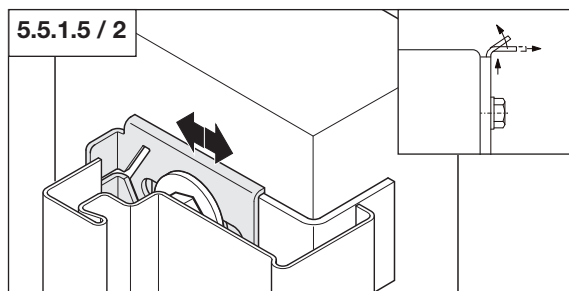
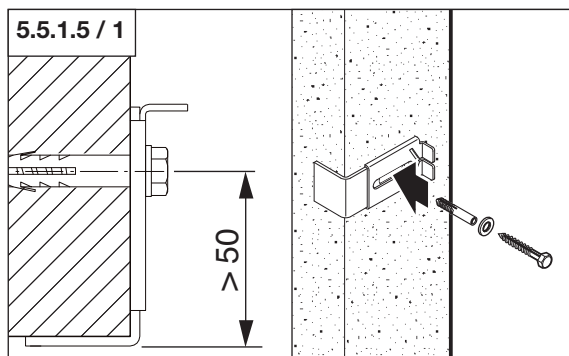
- Set the anchors according to the frame depth.

- Weld the frame to the anchors in the specified sequence.

Weld seam length (a) > 20 mm

#### Reference:

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.
- The recommended wall plugs are described in Section 3.4.



### 5.5.1.6 SMW buffer anchors

- Screw the anchors to the wall at the specified fixing points.

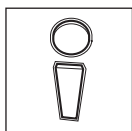
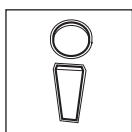
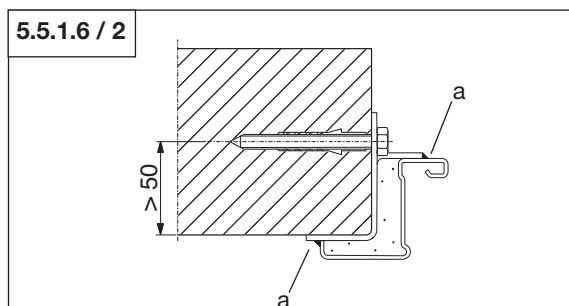
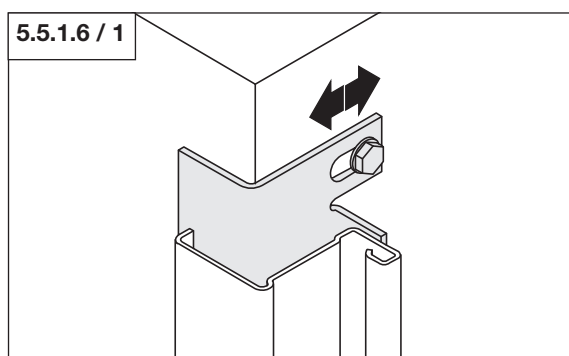
Minimum wall plug length: 100 mm

- Weld the frame to the anchors in the specified sequence.

Weld seam length (a) > 20 mm

#### Reference:

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.
- The recommended wall plugs are described in Section 3.4.



## 5. Installation

### 5.5.2 Corner and closed frame at autoclaved aerated concrete

#### Reference:

The rear attachment of the closed frame is described in Section 5.5.6.

#### 5.5.2.1 SMW diagonal

#### Reference:

The principle of "SMW diagonal" installation is described in Section 5.5.1.1.

#### 5.5.2.2 SMW parallel

Minimum wall plug length: 160 mm

#### Reference:

- The principle of "SMW parallel" installation is described in Section 5.5.1.2.
- The wall plug must be inserted at an angle, similar to "SMW diagonal" (Section 5.5.1.1).

#### 5.5.2.3 Anchor bracket with wall plugs

Anchor brackets must be used for a counter or closed frame.

#### Reference:

Exceptions are described in Table 1.

- Attach the anchor brackets to the wall at the specified fixing points.
- Drill through the anchor bracket into the wall.
- Screw the anchor bracket to the wall.

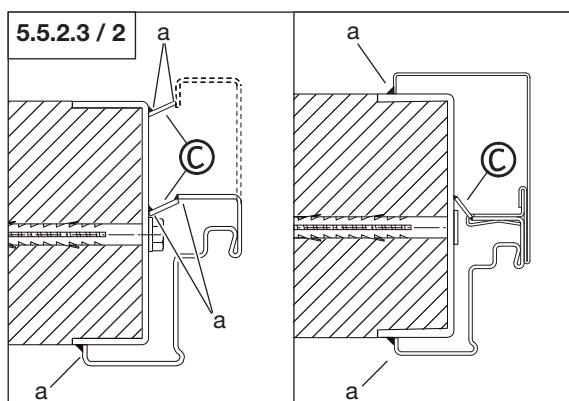
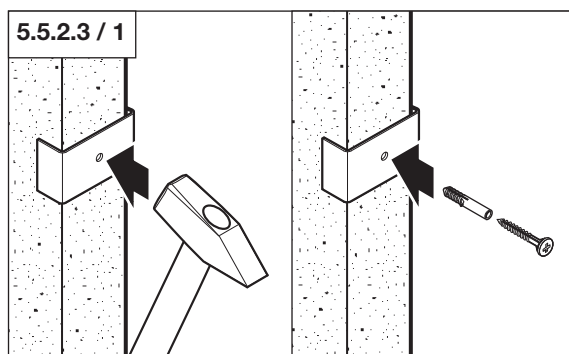
Minimum wall plug length: 100 mm

- Weld the frame with a spacer (C) onto the anchor bracket in the correct sequence.

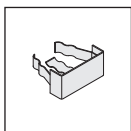
Weld seam length (a) > 20 mm

#### Reference:

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.
- The recommended wall plugs are described in Section 3.4.



## 5. Installation



### 5.5.2.4 Anchor bracket with mortar

- Mark the specified fixing points.
- Cut required recesses into the wall.

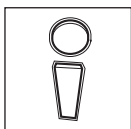
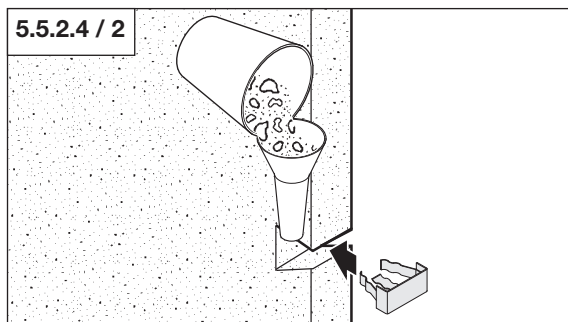
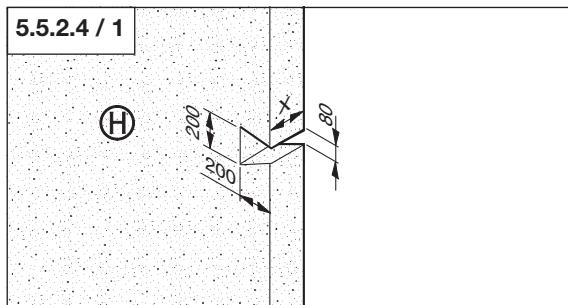
H      Cut-out  
X      Wall thickness

- Insert the anchor bracket.
- Embed the anchor bracket in mortar.
- Allow the mortar to cure.
- Weld the frame with a spacer (C) onto the anchor bracket in the correct sequence.

Weld seam length (a) > 20 mm

#### Reference:

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.
- Frame installation is described in Fig. 5.5.2.3 / 2.
- The recommended wall plugs are described in Section 3.4.



### 5.5.3 Corner and closed frame at installation wall

#### 5.5.3.1 SMW parallel

- Use adjusting screws (A) to fix the frame.

#### Note:

Always observe the factory set anchor positions.

- Screw the frame to the wall in the correct sequence at the specified fixing points.

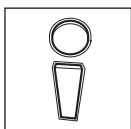
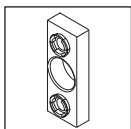
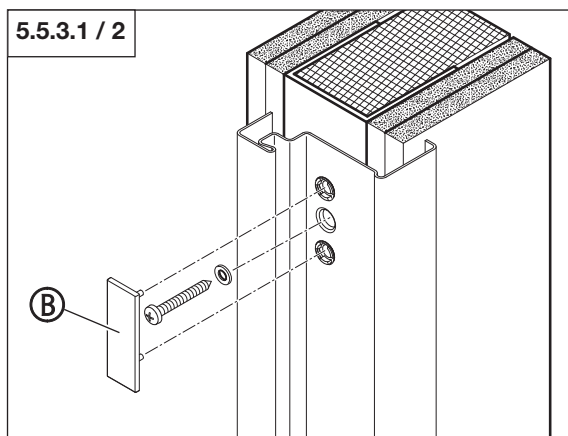
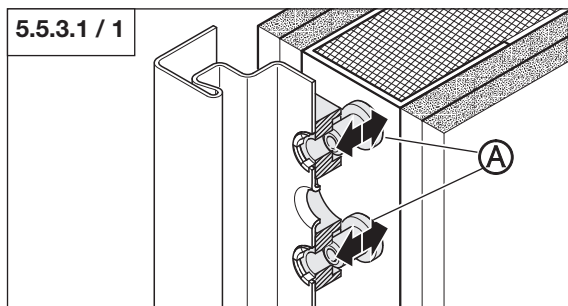
#### Fastening material

5.5 x 38 sheet metal screws with washer  
(special Teckentrup screws)

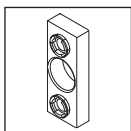
- Place the cover (B) over the frame holes.

#### Reference:

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.



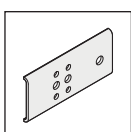
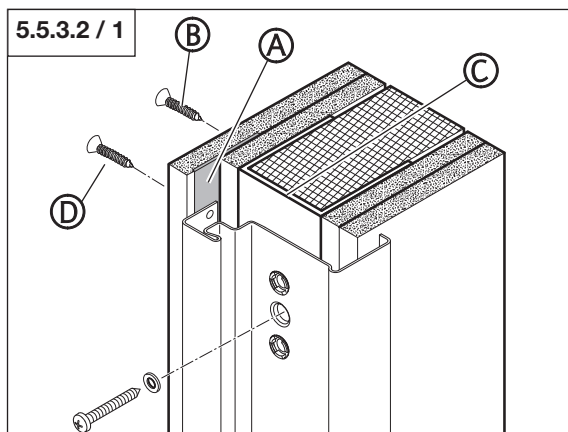
## 5. Installation



### 5.5.3.2 SMW parallel without counter frame

- Install the corner frame as described above.
- Push the 70 x 0.4 sheet metal strip (A) between the gypsum board.
- Fix the gypsum board to the reinforcement profile (C) using dry wall screws (B).
- Fix the reinforcement profile and the gypsum board to the frame using dry wall screws (D).

5.5.3.2 / 1



### 5.5.3.3 LBW mounting plates

- Screw the installation plates to the frame.

**Note:**

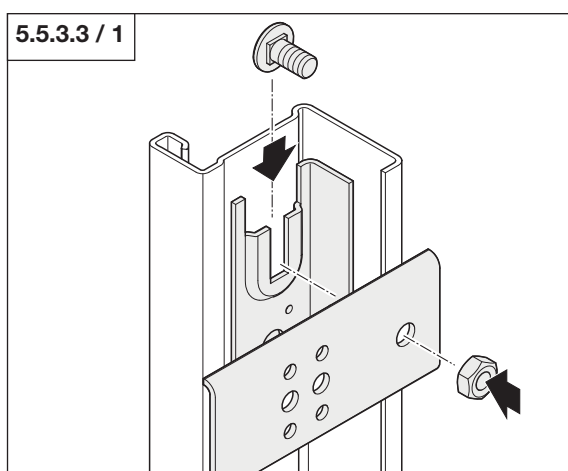
Always observe the factory set anchor positions.

- Weld the frame to the wall profiles in the specified sequence.

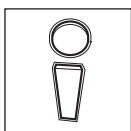
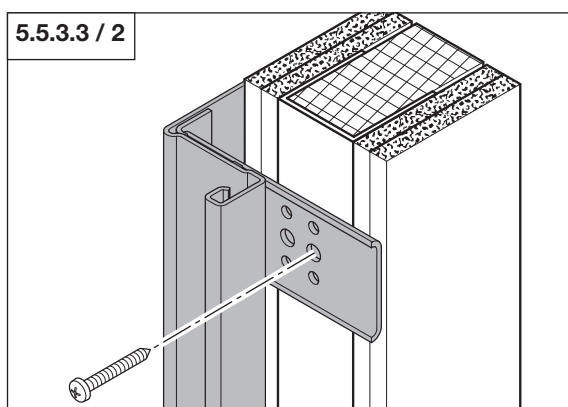
**Fastening material**

4.8 x ...sheet metal screws

5.5.3.3 / 1

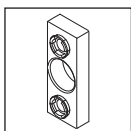


5.5.3.3 / 2



**Reference:**

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.



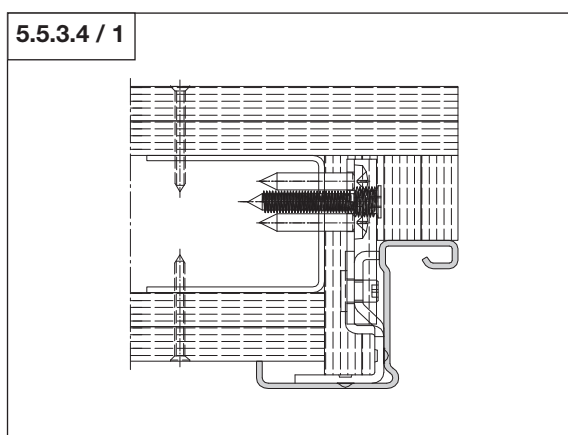
### 5.5.3.4 SMW without counter frame

- Install the corner frame as described above.
- Fill the soffit side with the supplied GRP strips.

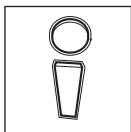
**Note:**

A respective offset of the GRP cladding must be provided on the wall.

5.5.3.4 / 1



## 5. Installation



### 5.5.3.5 LBW welded GZ

#### Reference:

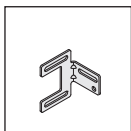
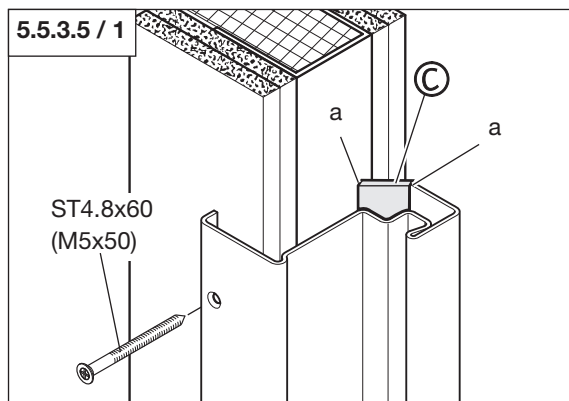
- Refer to Section 3.4 for spacer (C) distances.
- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.

- Screw the frame to the wall profile through the frame face in the specified sequence.
- Weld the frame to the wall profile with a spacer (C).

Weld seam length (a) > 20 mm

#### Fastening material

4.8 x 60 sheet metal screws  
(M5 x 50 for profile thicknesses > 3 mm)



### 5.5.3.6 LBW screw assembly GZ

- Mark the fixing points.
- Align the installation bracket according to the frame depth and screw it to the wall profile.

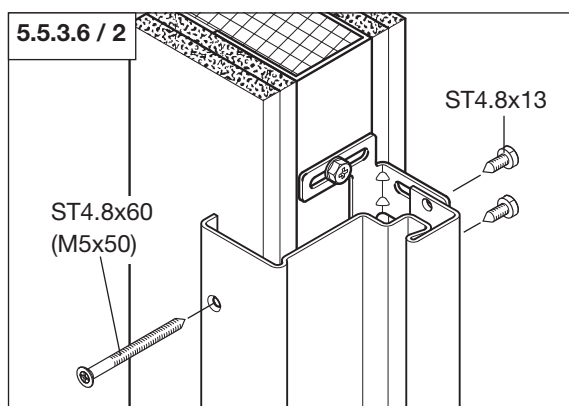
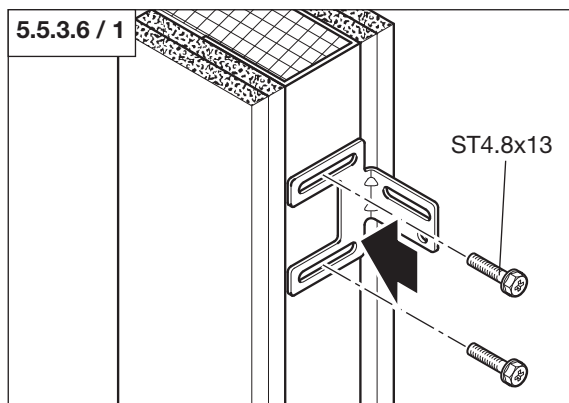
#### Note:

Always observe the factory set anchor positions.

- Screw the frame to the installation bracket in the specified sequence.
- Screw the frame to the wall profile through the frame face.

#### Fastening material

- 4.8 x 13 sheet metal screws (installation bracket)
- 4.8 x 60 sheet metal screws for screwing through the frame face (M5 x 50 for profile thicknesses > 3 mm)



#### Reference:

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.
- Installation of the counter frame is described in Section 5.5.5.2.



## 5. Installation

### 5.5.3.7 LBW screw assembly UZ

- Insert the frame backfill into the frame profiles.
- Place the upper frame part in the opening.
- Insert the side parts of the frame into the upper part of the frame.
- Screw the frame corners together.

#### Note:

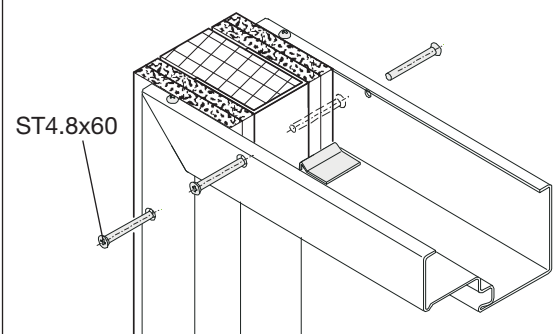
Always observe the factory set anchor positions.

- Screw the front and rear frame piece to the wall profile.

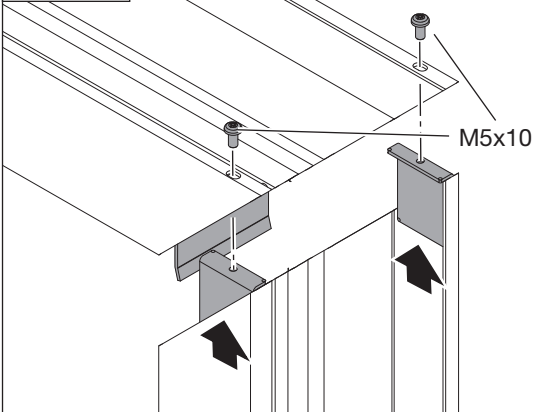
#### Fastening material

4.8 x 60 sheet metal screws  
(M5 x 50 for profile thicknesses > 3 mm)

#### 5.5.3.7 / 1



#### 5.5.3.7 / 2



### 5.5.4 Concealed steel girders

#### Reference:

Refer to Section 3.6 when installing the frame at concealed steel girders.

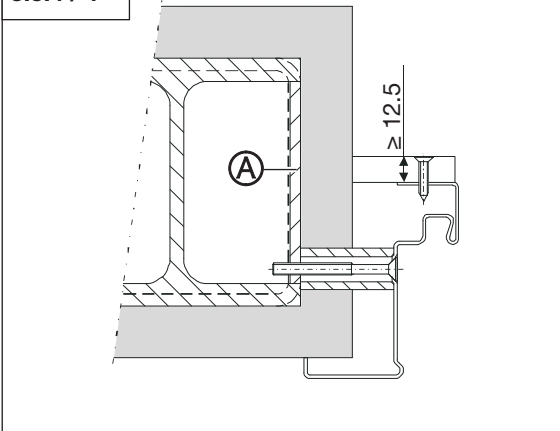
The described installation methods are used to illustrate the principle.

There must be a flange area of the girder available at the fixing points; otherwise junction plates min. 40 x 5 (A) must be welded on by the customer. Spacer sleeves must be inserted between the frame and the steel girder. This involves drilling through the cladding.

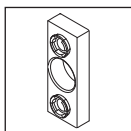
#### Note:

When using corner frames, the supplied gypsum board strip must be screwed to the rear.

#### 5.5.4 / 1



## 5. Installation



### 5.5.4.1 SMW parallel

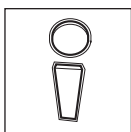
**Note:**

Always observe the factory set anchor positions.

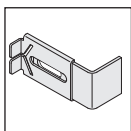
- Screw the frame to the wall in the correct sequence at the specified fixing points.

**Fastening material**

M6 x ... countersunk screws (the length depends on the cladding thickness of the support)

**Reference:**

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.
- The recommended wall plugs are described in Section 3.4.



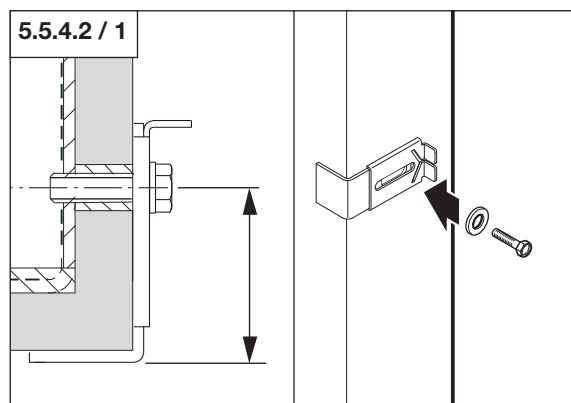
### 5.5.4.2 SMW sliding anchors

- Screw the sliders to the wall.
- Set all sliders appropriately.
- Weld the frame to the sliders.

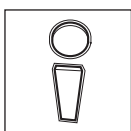
**Fastening material**

M6 x ... countersunk screws  
(the length depends on the cladding thickness of the support)

Weld seam length (a) > 20 mm

**Reference:**

The principle of “SMW sliding anchor” installation is described in Section 5.5.1.5.



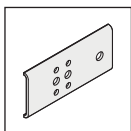
### 5.5.4.3 SMW buffer anchors

**Reference:**

The principle of “SMW buffer anchor” installation is described in Section 5.5.1.6.



## 5. Installation



### 5.5.5 Counter frame and corner frame assembly

#### 5.5.5.1 Screwed / Welded counter frame

**Note:**

When using mineral wool or gypsum board, it must be inserted prior to connection.  
When using mortar, it is applied after screwing parts together.

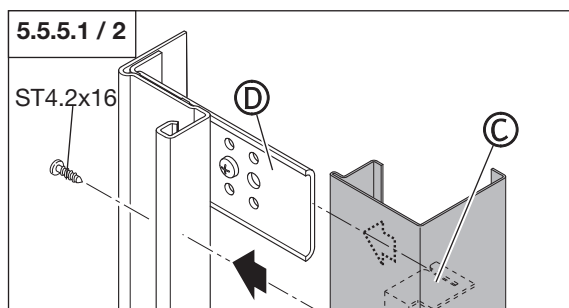
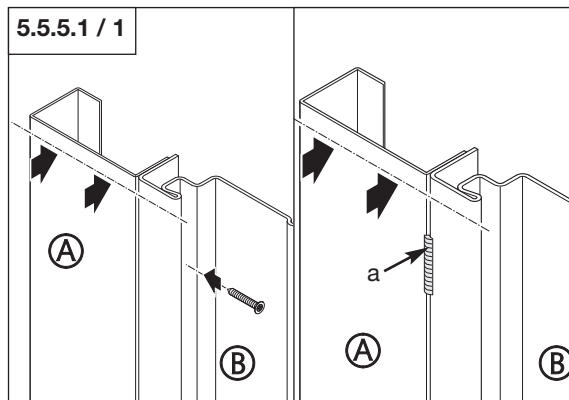
- Position the counter frame (A) in the opening.
- Align the counter frame (A) to the corner frame (B).
- Connect the counter frame (A) to the corner frame (B).

**Fastening material**

4.8 x 38 sheet metal screws

*alternatively*

Weld seam length (a)  $\geq 20$  mm (max. every 500 mm)

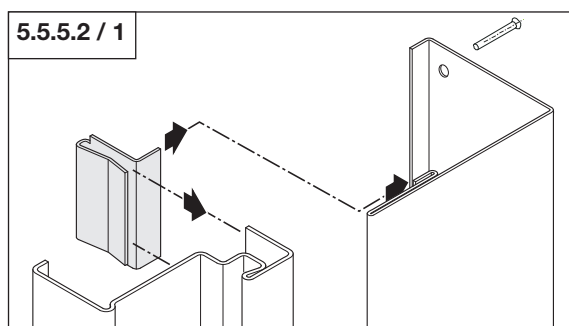


**Note:**

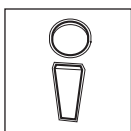
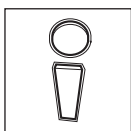
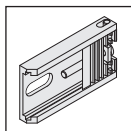
- Always observe the distances specified by the manufacturer.
- The connectors (C) and (D) are special components and only required for attachment to installation walls.

#### 5.5.5.2 Clamped counter frame

- The number of clamps depends on the door size (3-5 clamps per side, 2-4 clamps at the top).
- Position the clamps at equal distances on the corner frame.
- Place the counter frame on the clamps.



## 5. Installation



### 5.5.6 Counter frame and closed frame installation

#### Note:

The section describes the installation of the rear frame piece.

#### 5.5.6.1 Fold anchor

##### Installation in masonry / concrete / autoclaved aerated concrete

- Determine the wall distance.
- Screw the fold anchor to the wall.

##### Fastening material

6 mm plastic wall plug with corresponding screw

- X Adjustable range  
Y Wall distance

#### Reference:

The anchor positions are described in Table 3.

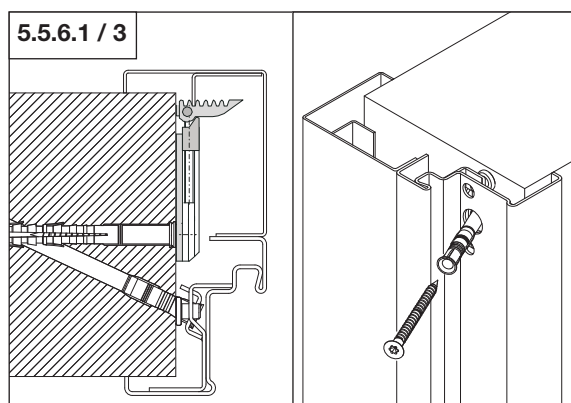
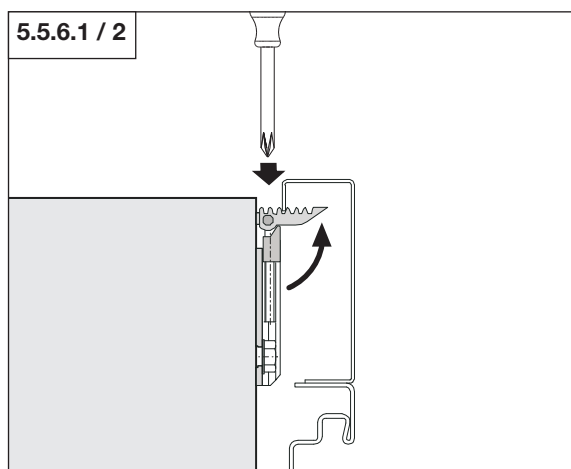
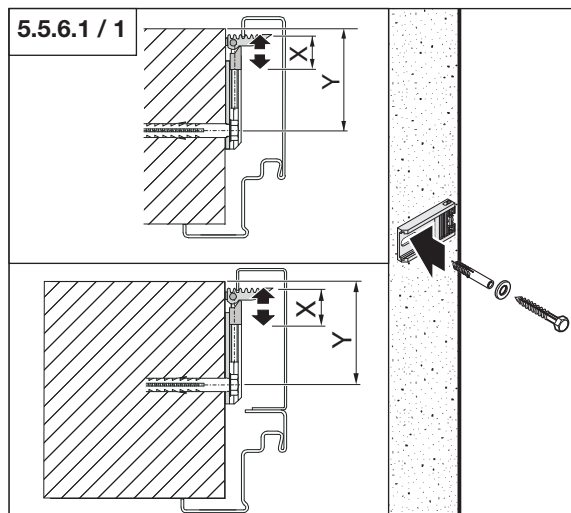
- Install the closed frame (only if closed frame is available).
- Open the fold anchors.
- Position the counter frame on the corner frame and connect them (only if counter frame is available).
- Adjust the fold anchor so that it snaps into place in the plaster angle.

#### Reference:

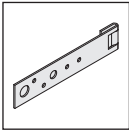
The counter frame and corner frame connection is described in Section 5.5.5.1.

##### Installation at widened counter frame

- Determine the wall distance.
- Screw the fold anchor to the wall.
- Open the fold anchors.
- Adjust the fold anchor.
- Position the counter frame on the corner frame and connect them.



## 5. Installation



### 5.5.6.2 Push anchor

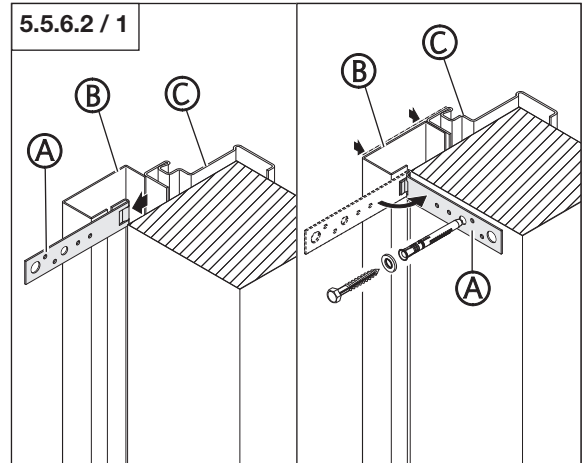
- Connect the counter frame (B) to the corner frame (C).
- Position the push anchor (A) on the counter or closed frame (B).
- Bend the push anchor (A).
- Screw the push anchor (A) into position.

#### Fastening material

6 mm plastic wall plug with corresponding screw

#### Reference:

The anchor positions are described in Table 3.



## 5. Installation

### 5.5.7 Block frame

#### 5.5.7.1 Preparatory measures for disassembled version

##### Attention!

To guarantee secure attachment, the gaps (X) should not be larger than 15 mm.

Use pressure resistant plates to compensate for any unevenness prior to screwing parts together. All gaps (X) must be sealed.

##### $X < 6 \text{ mm}$

- Seal the gaps with B1 sealant.

##### $6 \text{ mm} < X < 15 \text{ mm}$

- Fill the gaps with A1 mineral wool or mortar.

- Seal the wall sealing joint with B1 sealant.

##### Note:

Observe the minimum distances (Y) on the wall side for T30 and T90 fire doors.

Table 10: Minimum distances wall side

	Masonry/Concrete	Autoclaved aerated concrete
<b>T30</b>	$Y \geq 50 \text{ mm}$	$Y \geq 75 \text{ mm}$
<b>T90</b>	$Y \geq 70 \text{ mm}$	$Y \geq 100 \text{ mm}$
<b>T30/T60-1/2-62</b>	$Y \geq 50 \text{ mm}$	$Y \geq 62.5 \text{ mm}$
<b>T30-1-K; T30-1/2-D</b>	$Y \geq 50 \text{ mm}$	$Y \geq 75 \text{ mm}$

##### Reference:

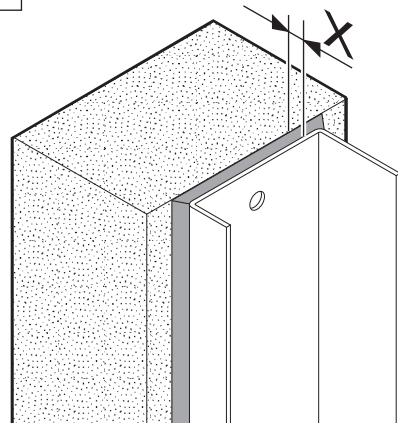
Refer to Section 3.4 when selecting wall plugs.

- Place the upper block frame basic profile in the wall opening.
- Align the upper block frame basic profile vertically and horizontally.
- Screw the upper block frame basic profile to the header.

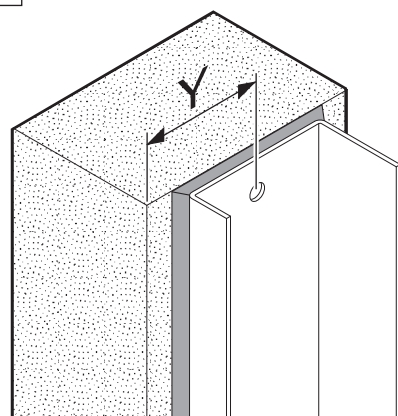
##### Note:

Always observe the factory set anchor positions.

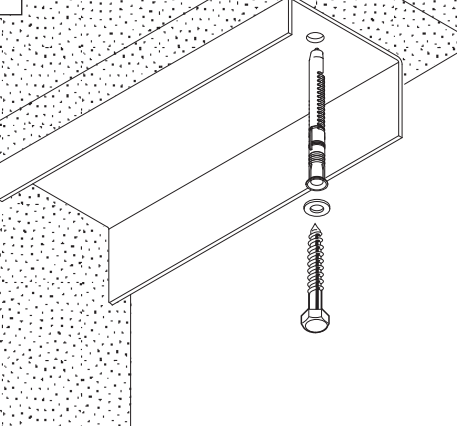
#### 5.5.7.1 / 1



#### 5.5.7.1 / 2



#### 5.5.7.1 / 3



## 5. Installation

- Position the lateral block frame profile in the opening.
- Align the lateral block frame profile vertically and horizontally.
- Depending on the design, weld or screw the block frame profiles to the projections.
- Screw the lateral block frame profile to the wall.

### Fastening material

#### Masonry / Concrete / Autoclaved aerated concrete

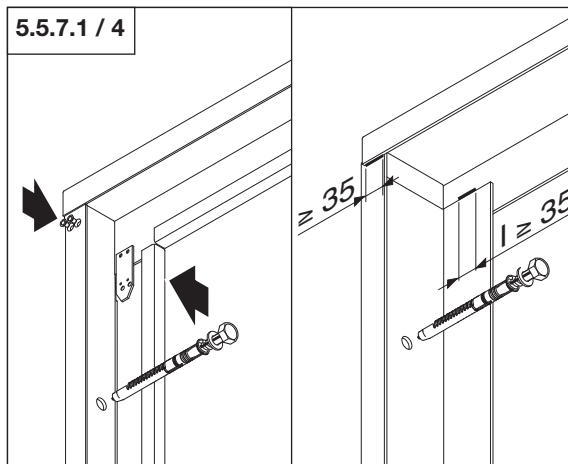
Minimum wall plug length: 100 mm

#### Concealed steel girder:

M6 screw and spacer sleeve

(the length depends on the cladding thickness of the support)

5.5.7.1 / 4



### 5.5.7.2 Block frame type 1.1

The bridges (E) must be installed **next to** all screw connections (D).

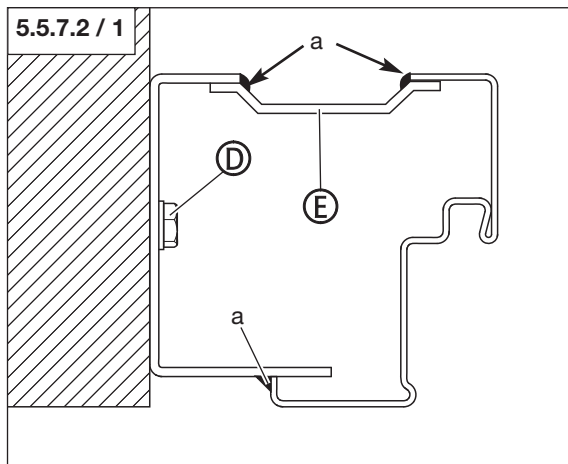
- Weld the frame to the bridge (E) on the block frame basic profile.

Weld seam length (a) > 20 mm

#### Reference:

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.

5.5.7.2 / 1



- Insert a clip (F) into all the holes in the corner frame.
- Plaster the frame with mortar.
- Press the aluminium cover (G) onto the frame.

### Fastening material

#### Masonry / Concrete / Autoclaved aerated concrete

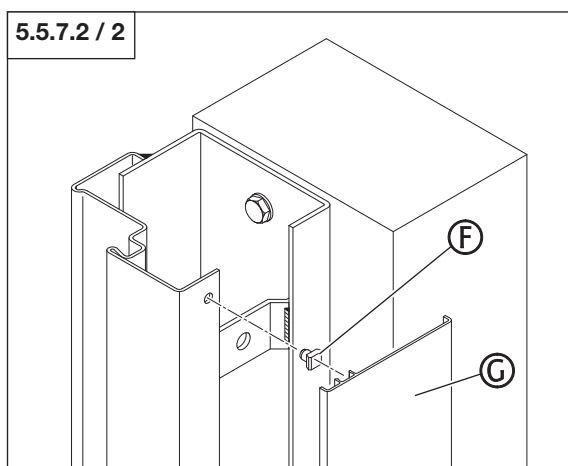
Minimum wall plug length: 100 mm

#### Concealed steel girder:

M6 screw and spacer sleeve

(the length depends on the cladding thickness of the support)

5.5.7.2 / 2



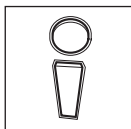
### Security doors

The aluminium cover (G) must be replaced with a steel cover for security doors.

The cover can be welded or riveted into position.

Rivet dia. 4 x 10 mm (every 300 mm)

Weld seam length (a) > 20 mm (every 500 mm)



## 5. Installation



### 5.5.7.3 Block frame type 1.2

#### Note:

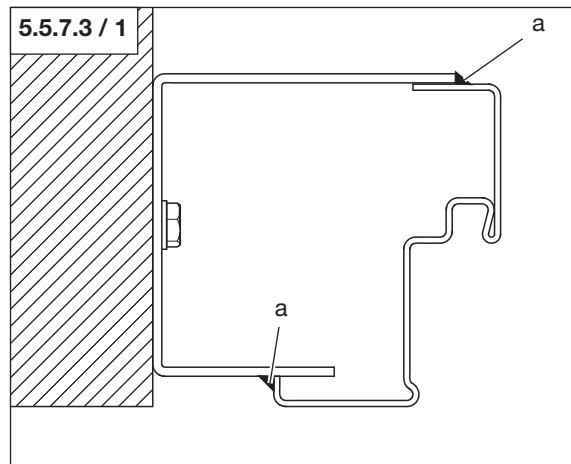
When using mineral wool or gypsum board, it must be inserted **prior** to welding.  
When using mortar, it is applied **after** welding.

- Weld the frame to the block frame basic profile every 500 mm.

Weld seam length (a) > 20 mm

#### Reference:

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.



#### Fastening material

#### Masonry / Concrete / Autoclaved aerated concrete

Minimum wall plug length: 100 mm

#### Concealed steel girder:

M6 screw and spacer sleeve

(the length depends on the cladding thickness of the support)

### 5.5.7.4 Block frame type 1.3

- Screw the frame to the wall in the specified sequence.

#### Note:

- Always observe the factory set anchor positions.
- When installing a security door, the backfill must be sealed with the screw casing (M) after filling.

#### Fastening material

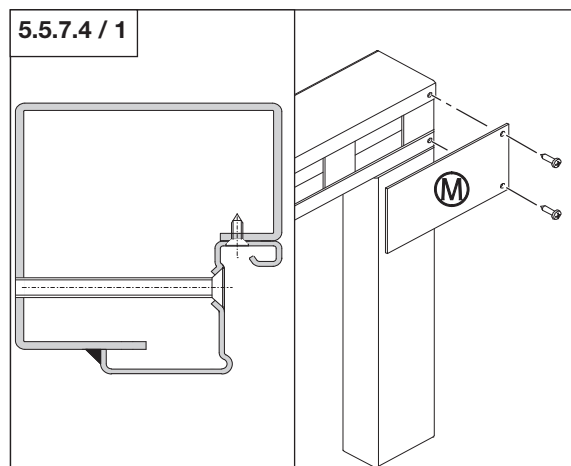
#### Masonry / Concrete / Autoclaved aerated concrete

Minimum wall plug length: 160 mm

#### Concealed steel girder:

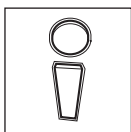
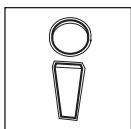
M6 screw and spacer sleeve

(the length depends on the cladding thickness of the support)



#### Reference:

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.
- The recommended wall plugs are described in Section 3.4.





## 5. Installation

### 5.5.7.5 Block frame type 2.1

#### Reference:

Refer to Section 3.6 when installing the frame at concealed steel girders.

#### Note:

When using mineral wool or gypsum board, it must be inserted **prior** to connection.

When using mortar, it is applied **after** screwing parts together.

The frame can be screwed or welded into position.

- Connect the frame to the profile.

#### Fastening material (J)

##### Masonry / Concrete / Autoclaved aerated concrete

Minimum wall plug length: 100 mm

##### Concealed steel girder:

M6 screw and spacer sleeve

(the length depends on the cladding thickness of the support)

#### Fastening material (K+ L)

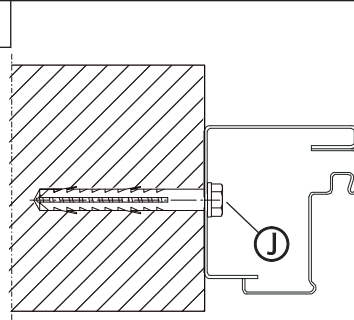
Sheet metal screws 4.2x38 mm (L)

Frame piece screw connection: 4.2x22 mm (K)

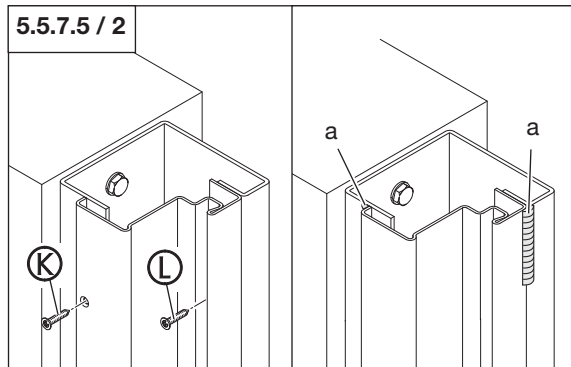
(distance as specified by the manufacturer)

Weld seam length (a) > 20 mm (every 500 mm)

5.5.7.5 / 1



5.5.7.5 / 2



### 5.5.7.6 Block frame type 2.2

#### Reference:

Refer to Section 3.6 when installing the frame at concealed steel girders.

#### Note:

When using mineral wool or gypsum board, it must be inserted **prior** to connection.

When using mortar, it is applied **after** screwing parts together.

## 5. Installation

The frame can be screwed or welded into position.

- Connect the frame to the profile.

### Fastening material (J)

#### Masonry / Concrete / Autoclaved aerated concrete

Minimum wall plug length: 100 mm

#### Concealed steel girder:

M6 screw and spacer sleeve

(the length depends on the cladding thickness of the support)

### Fastening material (K+ L)

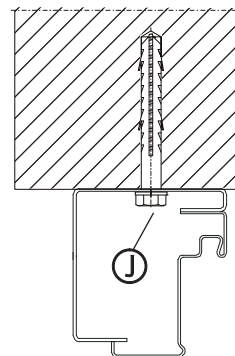
4.2x38 mm sheet metal screws (L)

Frame piece screw connection: 4.2x22 mm (K)

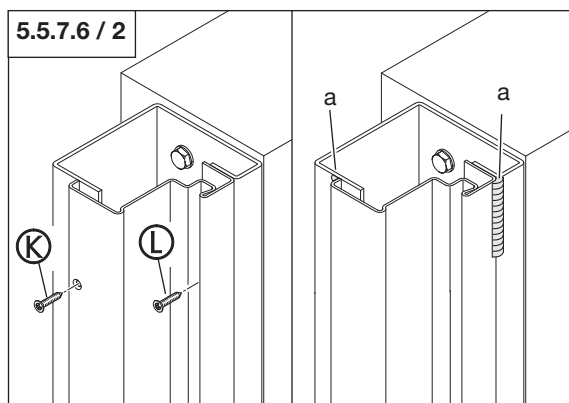
(distance as specified by the manufacturer)

Weld seam length (a) > 20 mm (every 500 mm)

5.5.7.6 / 1



5.5.7.6 / 2



### 5.5.7.7 Block frame type 3.1

- Screw the frame to the wall in the specified sequence.

#### Note:

Always observe the factory set anchor positions.

### Fastening material

#### Masonry / Concrete / Autoclaved aerated concrete

Minimum wall plug length: 160 mm

#### Concealed steel girder:

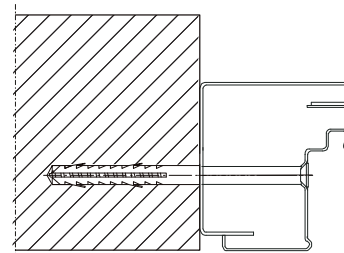
M6 screw and spacer sleeve

(the length depends on the cladding thickness of the support)

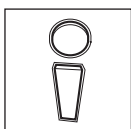
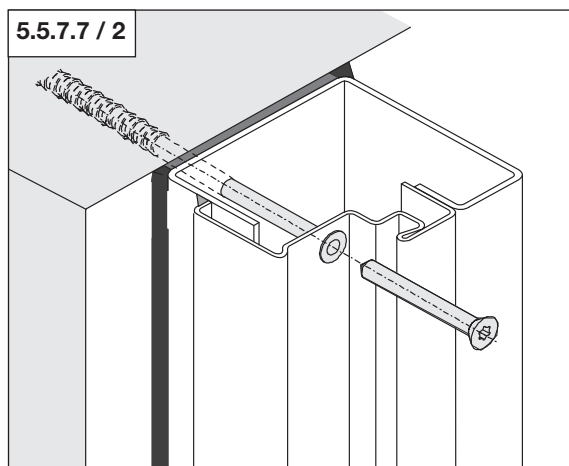
#### Reference:

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.
- The recommended wall plugs are described in Section 3.4.

5.5.7.7 / 1



5.5.7.7 / 2



## 5. Installation

### 5.5.7.8 Block frame type 4.1

#### Reference:

Refer to Section 3.6 when installing the frame at concealed steel girders.

#### Note:

- When using mineral wool or gypsum board, it must be inserted **prior** to assembling the block frame.
- When using mortar, it is applied **after** screwing parts together.
- When using top door closers or handle sets, the frame must be flush with the wall.
- Always observe the factory set anchor positions.

- Screw the frame to the wall in the specified sequence.

#### Note:

Observe the minimum distances (Y) on the wall side for the T30 and T90 fire doors.

Table 11: Minimum distances wall side

	Masonry/Concrete	Autoclaved aerated concrete
<b>T30</b>	$Y \geq 50 \text{ mm}$	$Y \geq 75 \text{ mm}$
<b>T90</b>	$Y \geq 70 \text{ mm}$	$Y \geq 100 \text{ mm}$
<b>T30/T60-1/2-62</b>	$Y \geq 50 \text{ mm}$	$Y \geq 62.5 \text{ mm}$
<b>T30-1-K; T30-1/2-D</b>	$Y \geq 50 \text{ mm}$	$Y \geq 75 \text{ mm}$

#### Fastening material

##### Masonry / Concrete / Autoclaved aerated concrete

Minimum wall plug length: 160 mm

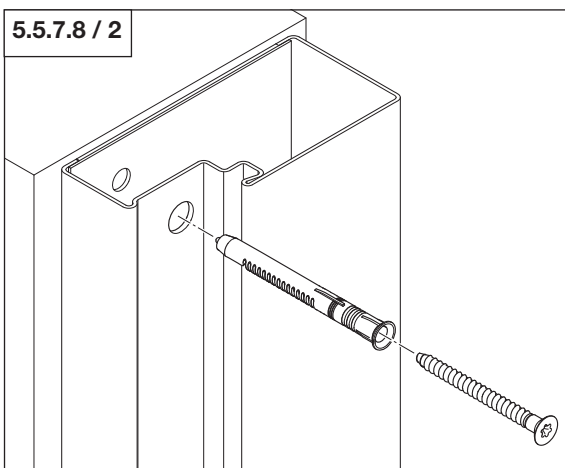
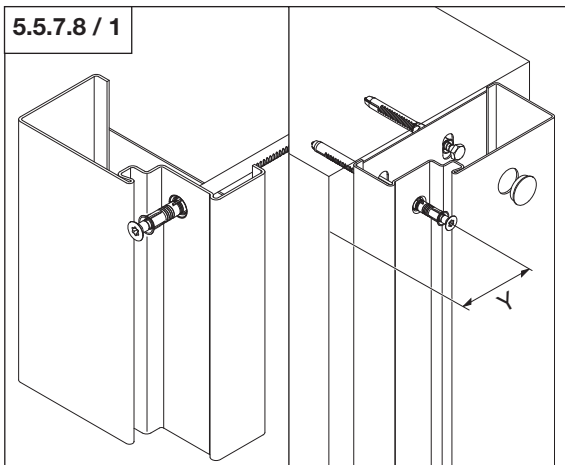
##### Concealed steel girder:

M6 screw and spacer sleeve

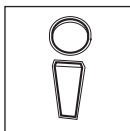
(the length depends on the cladding thickness of the support)

#### Reference:

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.
- The recommended wall plugs are described in Section 3.4.



## 5. Installation



### 5.5.7.9 Block frames type 5.A, 5.B, 5.C

#### Note:

Always observe the factory set anchor positions.

#### Reference:

- The anchor positions are described in Table 3.
- The sequence is described in Figure 5.5 / 3.
- The recommended wall plugs are described in Section 3.4.

There are 3 ways to screw the block frame type 5 to the wall.

#### Version A

- Screw the frame to the wall in the specified sequence.

#### Fastening material

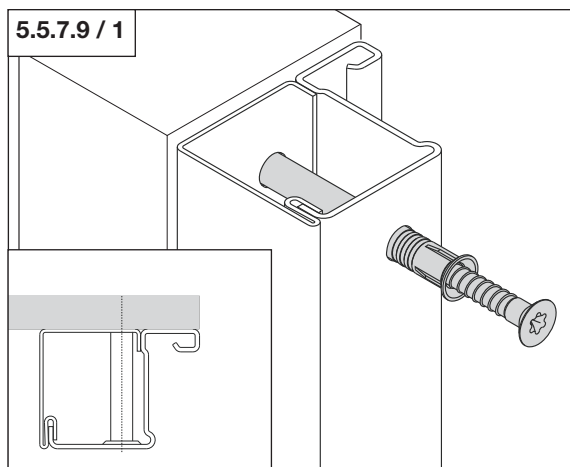
**Masonry / Concrete / Autoclaved aerated concrete**

Minimum wall plug length: 160 mm

**Steel girder:**

M6 screw

5.5.7.9 / 1



#### Version B

- Screw the frame to the wall in the specified sequence.

- Attach the caps.

#### Fastening material

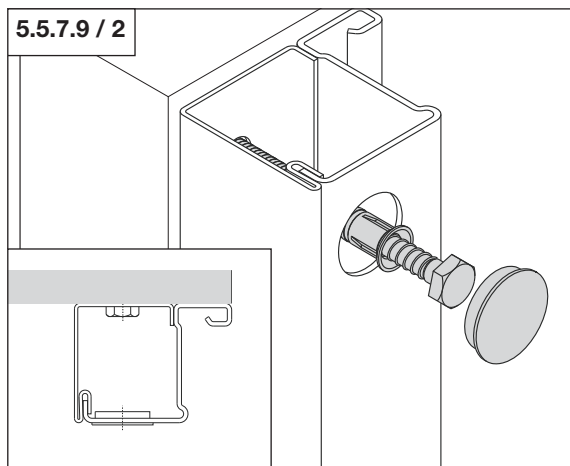
**Masonry / Concrete / Autoclaved aerated concrete**

Minimum wall plug length: 100 mm

**Steel girder:**

M6 screw

5.5.7.9 / 2



#### Version C

- Screw the frame to the wall in the specified sequence.

#### Fastening material

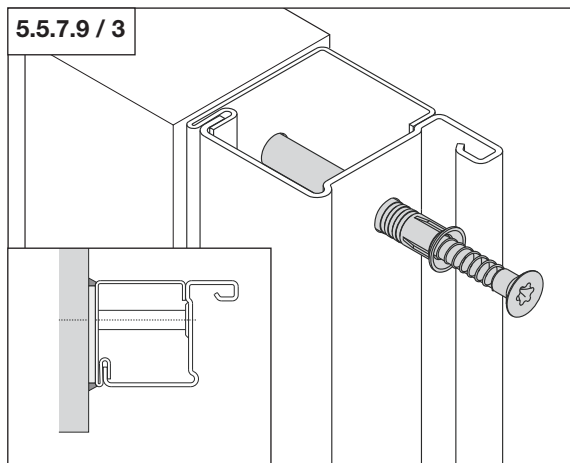
**Masonry / Concrete / Autoclaved aerated concrete**

Minimum wall plug length: 160 mm

**Steel girder:**

M6 screw

5.5.7.9 / 3



## 5. Installation

### 5.6 Backfilling the frame

#### General information on frame backfilling

- The specified materials for filling the frame have to be replaced according to the specified numerical sequence (Table 13) in ascending order, i.e. a higher order category can be alternatively used (e.g. specification 30 (gypsum board) should only be replaced with 40 (mortar), but not with 20 (mineral wool)). Restriction: Mortar should not be used with installation walls.
- Prior to backfilling the frames with mortar, spread them sufficiently to ensure stability.
- After curing, complete backfilling cannot be tested simply by tapping the frame and listening, since there is not necessarily shear resistance between the frame profile and the filling mortar!
- Backfillings with gypsum boards can display small bubbles or gaps at the joints of the strips, since they are compensated by the fire protection effect of the gypsum board material.
- Frame backfilling with mortar must be carried out as described in the illustrations (i.e. plastering in the soffit is not required).
- Dowel brackets can be visible after installation and do not have to be plastered over.



#### Attention!

The door should not be opened until the mortar has cured.

Table 12: Filling

Backfilling		Masonry / Concrete / Autoclaved aerated concrete			Concealed steel girder			Installation walls			
		Corner frame Closed frame	Counter frame	Block frame	Corner frame Closed frame	Counter frame	Block frame	Corner frame Closed frame	Counter frame	Block frame	
Fire doors	T30	Mortar	Miwo	Miwo <sup>1)</sup>	Miwo	Miwo <sup>1)</sup>	Miwo <sup>2/3)</sup>	Miwo <sup>3)</sup>	Miwo <sup>1)</sup>		
	T60/T90			GK							
Smoke protection doors				Miwo							
Burglar-resistant doors				Mortar							
Sound insulated doors											
Multi-purpose doors		PUR									

<sup>1)</sup> Block frame width (BZB) > 100mm: Mortar (BZB see Fig. 3.4 / 3)

<sup>2)</sup> Corner frame without counter frame: Gypsum board

<sup>3)</sup> Promat wall 450.81 and 450.90: Gypsum board

Table 13: Category

Category	Abbr.	Explanation
10	PUR	Installation foam
20	Miwo	Mineral wool DIN 4102-A1
30	Gypsum board	Gypsum board DIN 18180
40	Mortar	Mortar at least mortar group II acc. to DIN 1053

## 5. Installation



### Attention!

Prior to backfilling the frame, carefully check correct functioning of the door. Spread the frame slightly to prevent it being bent and twisted.

### Smoke protection doors

Wall sealing joints (A) must be sealed on one side using a permanently elastic sealing compound (e.g. acrylic).

### Sound insulated doors

Sound insulated doors should always be backfilled. Use a sealant or plaster to seal the connection between the wall and the frame.

### Security doors

Security door frames must be backfilled in a pressure-resistant manner.

The screws must be plastered on the danger side (B or C).

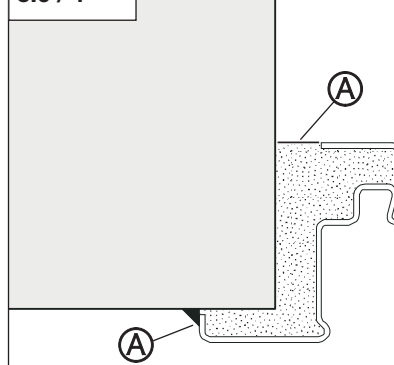
B Danger side - hinge side

C Danger side - opposite hinge side

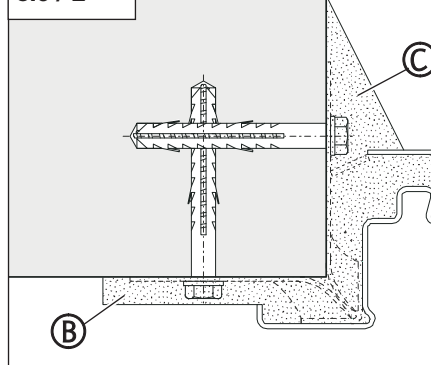
- Backfill the frame.

When installing block frames, seal the filling holes with the supplied stoppers / cover plate after backfilling.

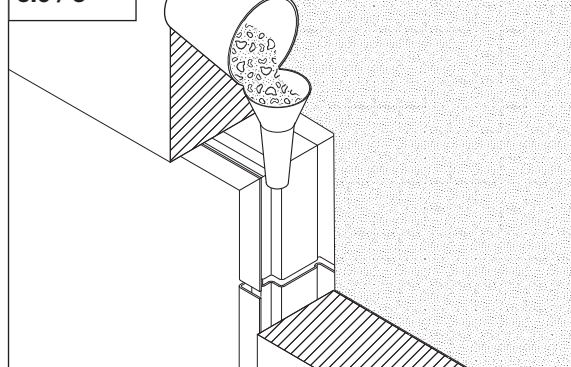
5.6 / 1



5.6 / 2



5.6 / 3



### Note:

The filling level can be determined by tapping the frame and listening. Once the mortar has cured, the filling level can no longer be determined.

## 5. Installation



### 5.7 Inserting seals

#### Attention!

To ensure correct functioning of the seals, do not paint over them.  
Remove seals prior to painting and only reinsert them once the paint is fully dry.  
Only use original seals.

#### 5.7.1 Frame seals

##### Smoke protection

The seals must be mitred and pushed close together.

##### Sound insulation

The seals must be mitred and glued together using an instant adhesive.

- Remove the strip (A).

- Cut the seals to the correct length:

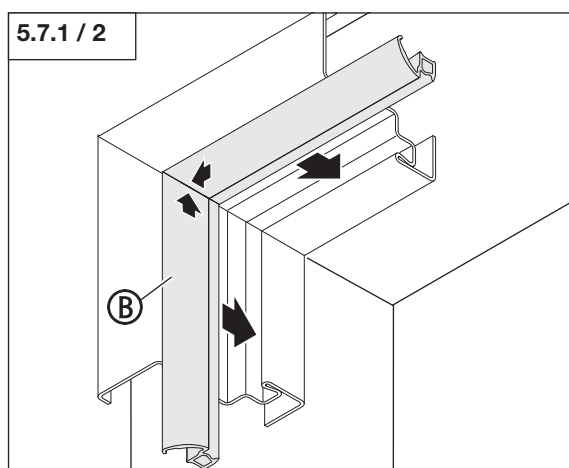
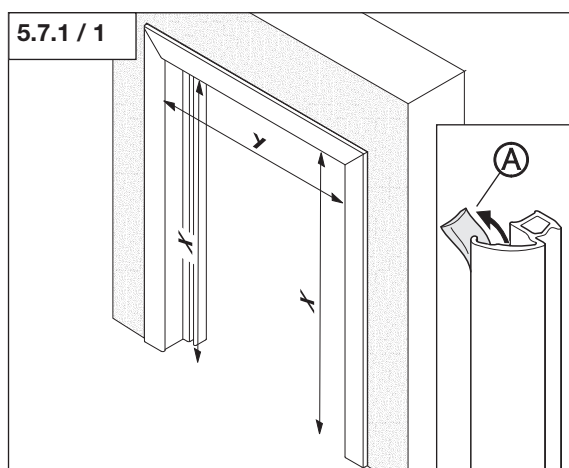
$X + 1\%$

$Y + 1\%$

X      Length of the frame sealing channel

Y      Length of the frame sealing channel

- Press the seals (B) into the grooves.



## 5. Installation

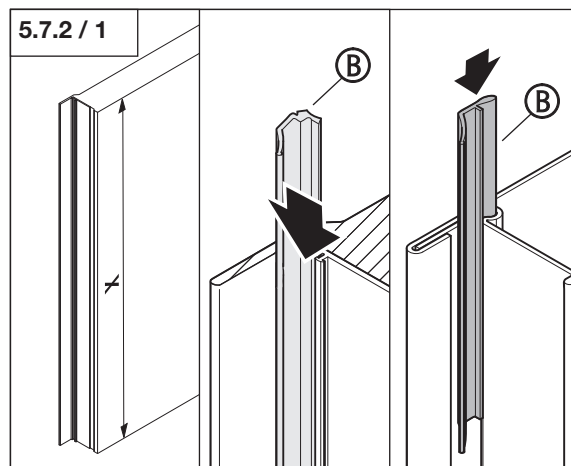
### 5.7.2 Rebate seal

- Cut the seal to the correct length ( $X + 1\%$ ).
- Press the seal (B) into the grooves.

X      Length of the frame sealing channel

**Note:**

- The rebate seal must
- cover the frame seal at the top and
  - rest on the floor at the bottom.



### 5.8 Installing and adjusting the floor connection / bottom seal

**Attention!**

To ensure correct functioning of the seals, do not paint over them.

#### 5.8.1 Retractable bottom seal

**Note:**

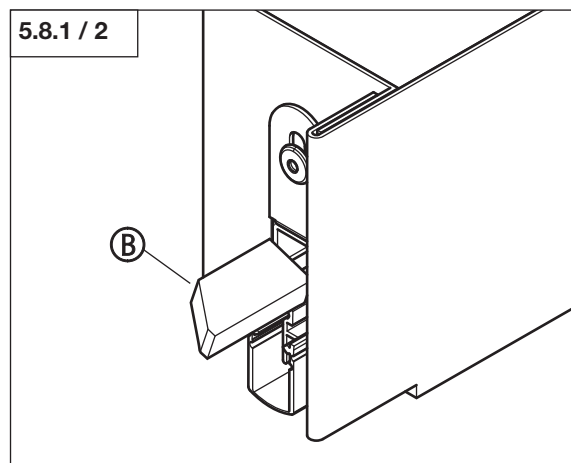
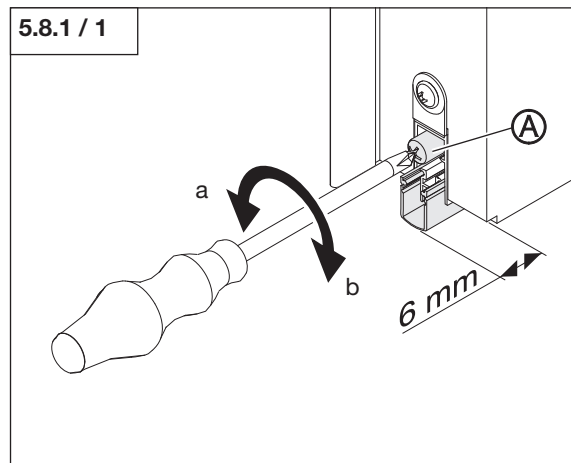
In order to ensure correct functioning of the bottom seal, the floor has to be straight, even, smooth and firm. If the substructure does not meet the requirements, a threshold must be used.

The setting of the bottom seal travel must ensure that the seal fulfils the following requirements when the door is closed:

- The seal has contact with the floor across the entire width of the door.
- The seal has slight contact with the floor.

- Use the adjusting screw (A) to set the travel.

- A      Adjusting screw (on the hinge side)  
 B      Adjusting latch (on the lock side – setting like lock latch)  
 a      Increase seal travel  
 b      Reduce seal travel





## 5. Installation

### 5.8.2 Sliding threshold seal

- Use the screw (D) to set the height of the sliding threshold seal (C).

Door type	Dimension X
52 thin rebate	25
52 thick rebate	25
62 thin rebate	30
62 / 64 thick rebate	35
42 thin rebate	25

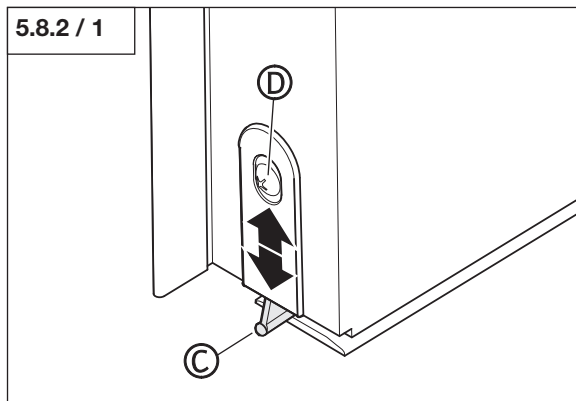
#### Version with floor recess

The contact threshold has been pre-assembled on the floor bracket.

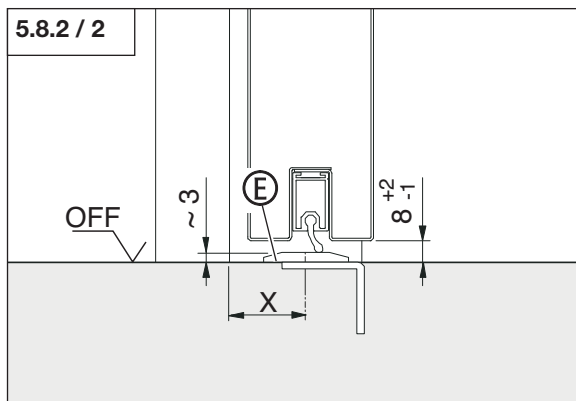
#### Version without floor recess

- Insert the contact threshold (E).
- Use a permanently elastic sealing compound to seal the gap between the floor and the contact threshold (E).

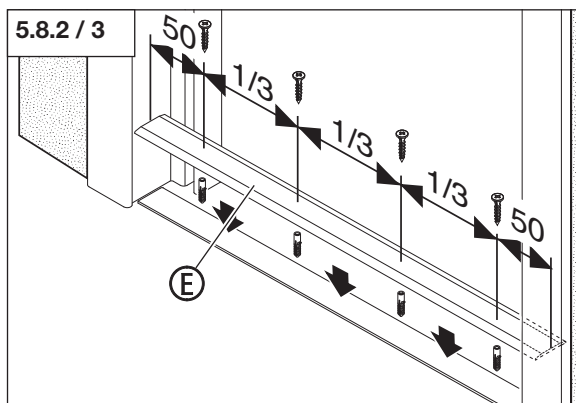
5.8.2 / 1



5.8.2 / 2



5.8.2 / 3

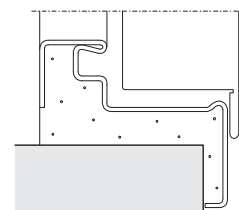
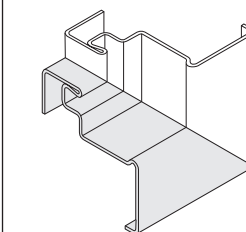


## 5. Installation

### 5.8.3 Floor connection with 4-sided frame and 4-sided rebate for hatches and doors

Installation according to 3-sided frame

5.8.3 / 1

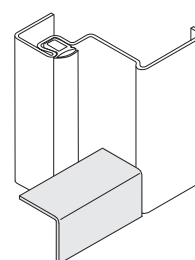


### 5.8.4 Floor connection with floor bracket and 4-sided rebate for hatches and doors

**Note:**

The door must be installed together with the floor bracket.

5.8.4 / 1

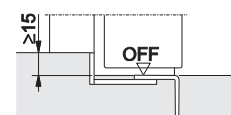
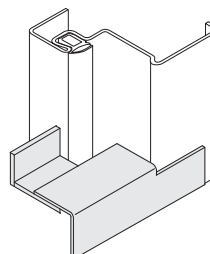


### 5.8.5 Floor connection with buffer

- Set the bracket in the floor.

The difference between the floor height inside and outside is approx. 15 mm.

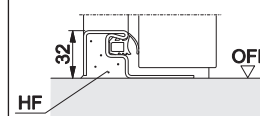
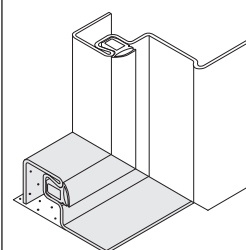
5.8.5 / 1



### 5.8.6 Floor connection with bottom buffer seal

- Place the door element in the opening.
- Align the door element.
- Ensure the buffer is also embedded when plastering the frame with mortar.
- Use wall plugs (dia. 6) to fix the bottom buffer strip into position.

5.8.6 / 1



HF Backfilling



## 5. Installation

### 5.8.7 Trigger plates of the retractable bottom seal

#### Smoke protection

In order to ensure correct functioning of the retractable bottom seal, trigger plates must be installed in the trigger range of the seal.

- Fix the trigger plates to the frame.

#### Fastening material

Supplied countersunk screws

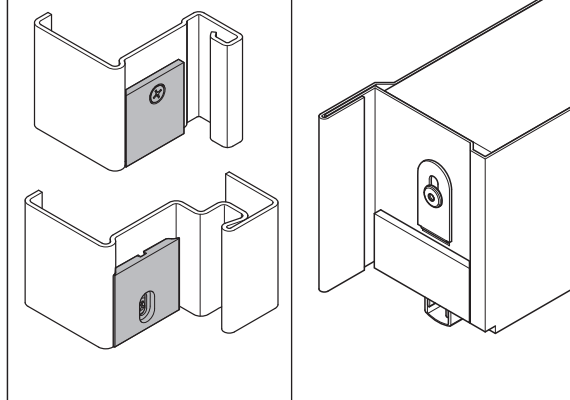
*alternatively*

Rivet dia. 4

#### Note:

A trigger plate must be additionally installed in the trigger range when installing double-leaf doors.

5.8.7 / 1



### 5.9 Installing hardware

#### Reference:

The conditions described in Section 3 must be considered when using the various handle sets.

#### Sound insulation

Sound insulated doors must be equipped with profile cylinders.

#### Smoke protection

Smoke protection doors must be equipped with profile cylinders.

#### Security doors

Security doors must be equipped with special security fittings.

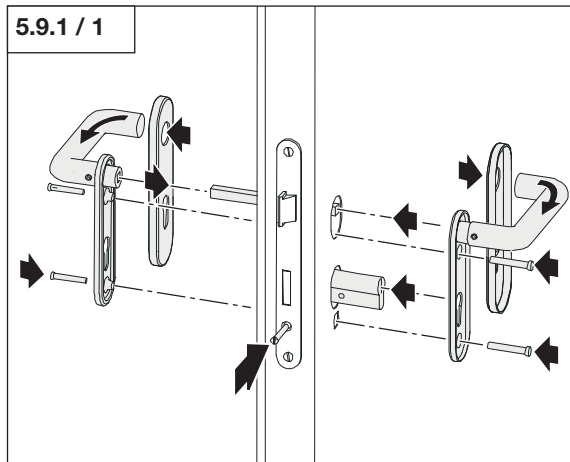
### 5.9.1 Handle set with profile cylinder

#### Reference:

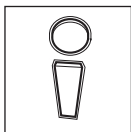
Please observe the respective instructions during installation and setup.

- Install the handle set.

5.9.1 / 1



## 5. Installation



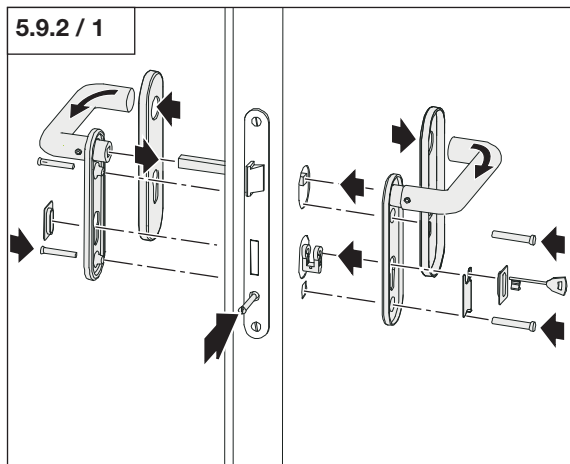
### 5.9.2 Handle set with tumbler insert

#### Reference:

Please observe the respective instructions during installation and setup.

- Install the handle set.

5.9.2 / 1



### 5.9.3 Setting the strike clearance for single-leaf doors

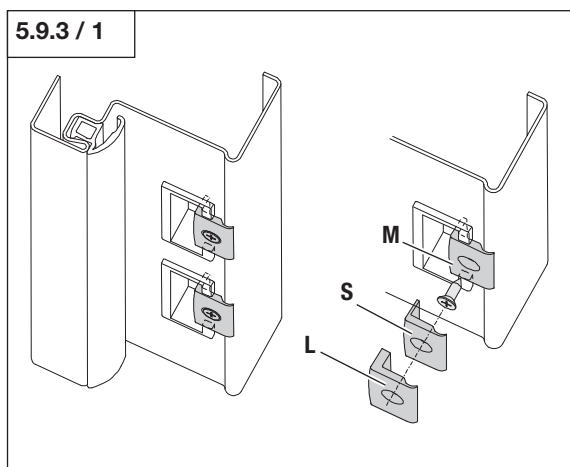
- Check whether the door can be closed.

#### Note:

Adaptor **M** has been pre-assembled by the manufacturer.

- If the door can only be closed with difficulty, adaptor **S** has to be used instead.
- If the door has too much play, adaptor **L** has to be used instead.

5.9.3 / 1



### 5.9.4 Height adjustment of the door

With some doors, the door height can be adjusted using spacer rings.

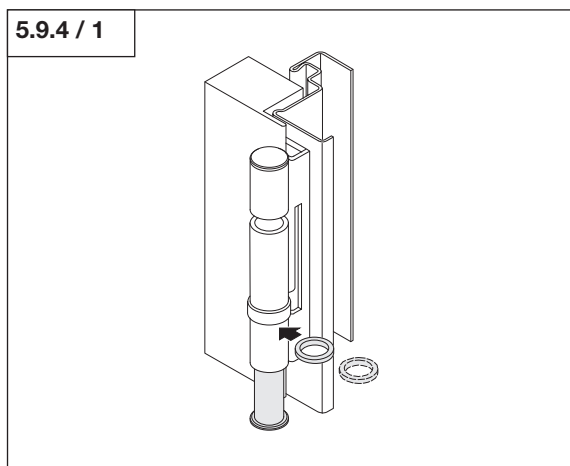
#### Note:

- A maximum of 2 spacer rings (each 2 mm thick) should be used.
- The permissible clearances must be observed.

#### Reference:

The required clearances are described in Section 3.4.

5.9.4 / 1



## 5. Installation



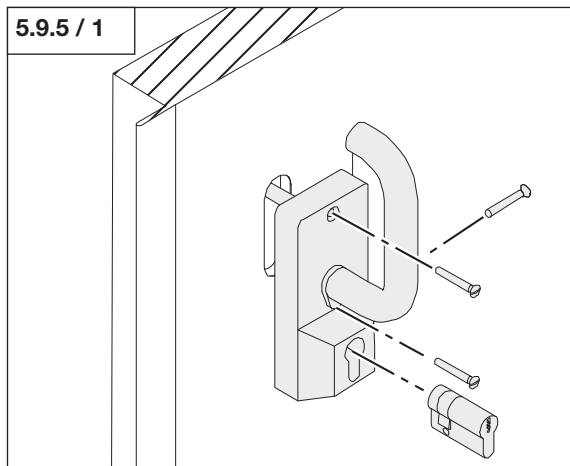
### 5.9.5 Geared handle

**Reference:**

Please observe the respective instructions during installation and setup.

- Install the geared handle.

5.9.5 / 1



GB

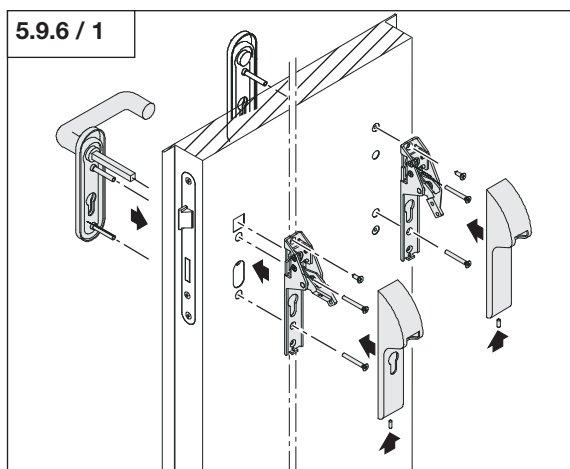
### 5.9.6 Bar handle with blind plate

- Install the handle set.

**Reference:**

Please observe the bar handle instructions for further assembly.

5.9.6 / 1



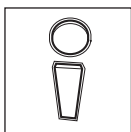
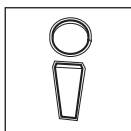
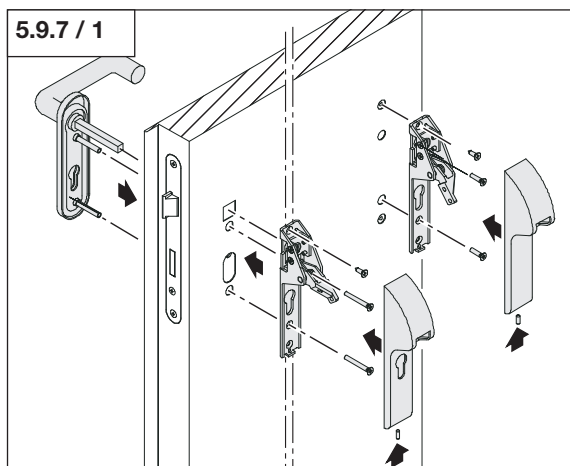
### 5.9.7 Bar handle without blind plate

- Install the handle set.

**Reference:**

Please observe the bar handle instructions for further assembly.

5.9.7 / 1



## 5. Installation



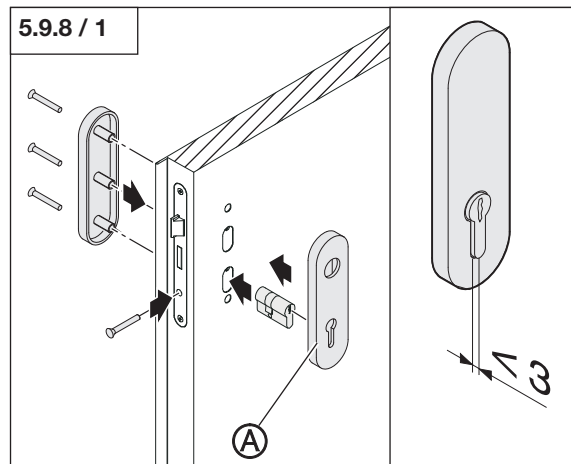
### 5.9.8 Security hardware

#### Security doors

The following conditions must be fulfilled in order to achieve the desired protection class:

- The plate with anti drilling protection (A) must be attached on the danger side.
- Security hardware and profile cylinders must comply to the requirements in Table 6.
- The profile cylinder should not protrude more than 3 mm from the outer plate.

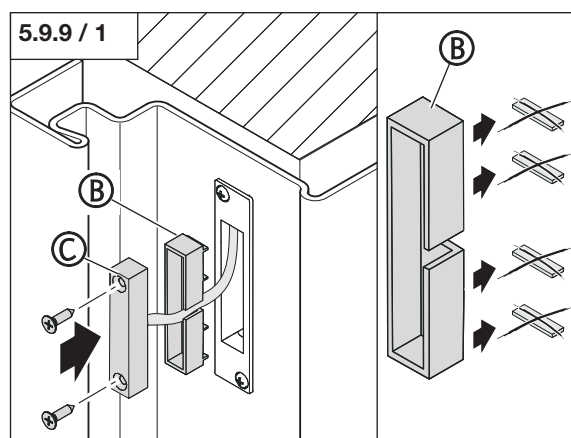
- Install the security hardware.



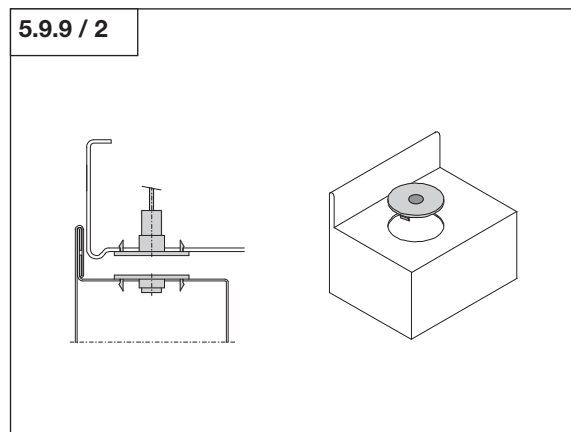
### 5.9.9 Reed contact

The plastic receiver (B) is only required for smaller sizes. Depending on the height of the contacts, the spacer feet at the plastic receiver (B) must be removed.

- Check whether the reed contact (C) has been pre-assembled.
- If the reed contact (C) has not been pre-assembled, insert the reed contact (C).



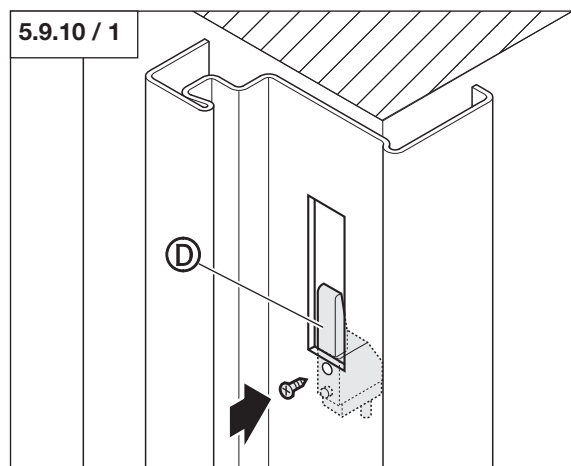
Alternatively, use the round type.



### 5.9.10 Bolt contact

#### Main lock

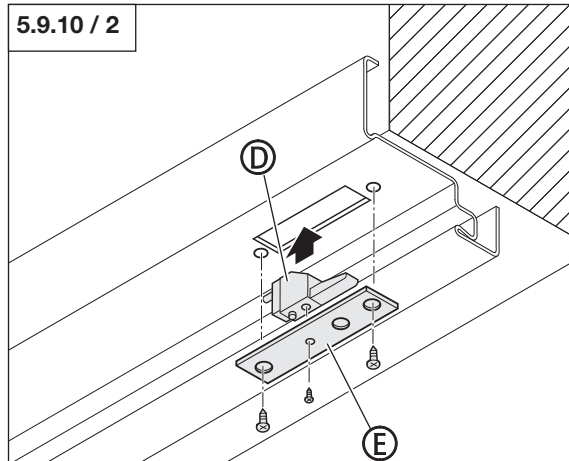
- Push the cable through the empty cable duct.
- Screw the bolt contact (D) to the frame, the inactive door leaf or the lock plate.



## 5. Installation

### Inactive door leaf lock

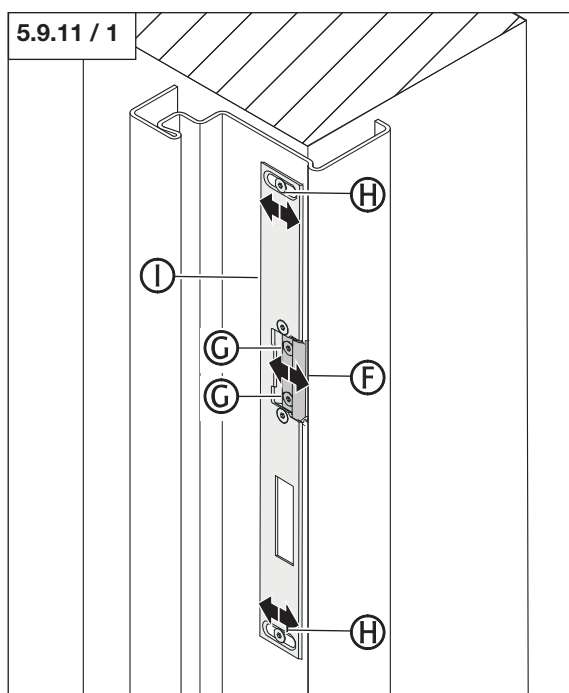
- Screw the bolt contact (D) to the lock plate (E).
- Push the cable through the empty cable duct.
- Screw the lock plate (E) to the frame at the header.



### 5.9.11 Electric door opener

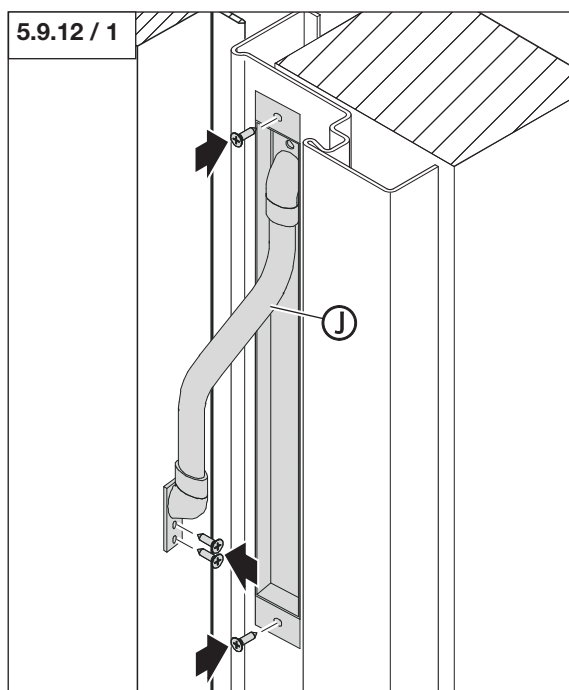
- Connect the electric door opener (F).
- Screw on the door opener (F) including the lock plate.

The door opener (F) and the door opener lock plate (I) can be adjusted by loosening the screws (G) and (H).



### 5.9.12 Cable duct

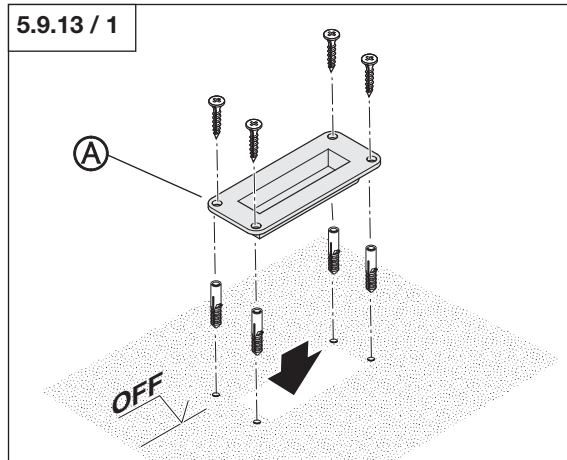
- Screw the cable duct (J) to the door.
- Screw the cable duct (J) to the frame.



## 5. Installation

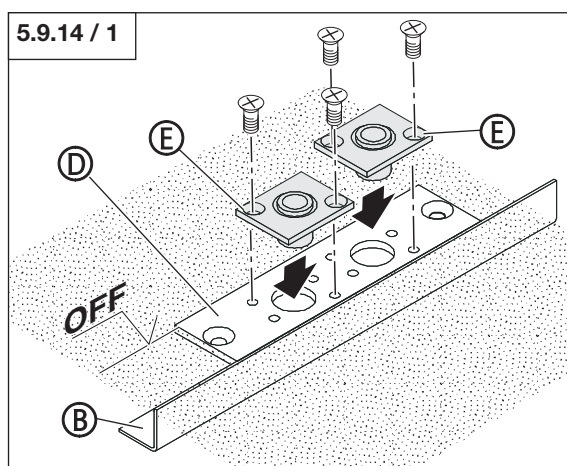
### 5.9.13 Floor recess with finished floor

- Use wall plugs to attach the floor recess (A) to the floor without an additional construction.



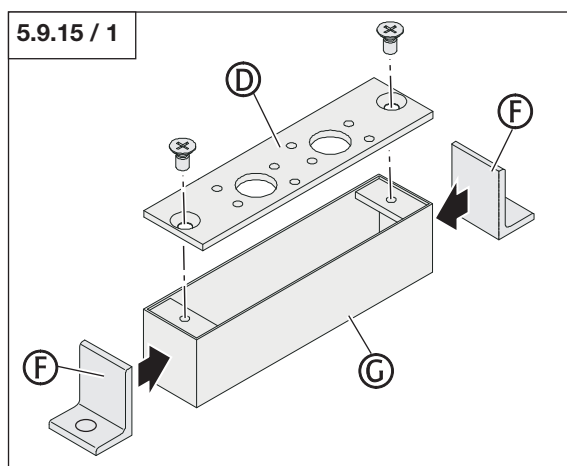
### 5.9.14 Floor sleeve with floor bracket

- Weld the holding plate (D) to the floor bracket (B).
- Screw the floor sleeves (E) to the holding plate (D).



### 5.9.15 Floor sleeve without floor bracket

- Weld the brackets (F) to the mortar box (G).
- Weld the holding plate (D) onto the mortar box (G).

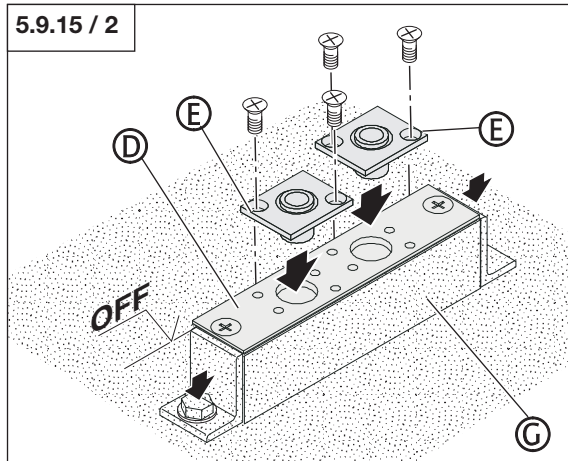




## 5. Installation

The upper edge of the holding plate (D) must be flush with the upper edge of the finished floor.

- Screw the mortar box (G) to the floor.
- Screw the floor sleeves (E) to the holding plate (D).
- When setting the closing function, please ensure that the bars easily enter the floor sleeves.



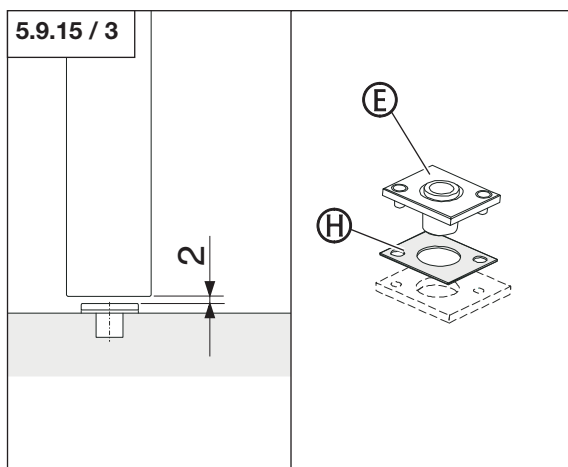
### Security doors

The maximum clearance between the door leaf and the upper edge of the floor sleeve (E) is 2 mm.

Use the supplied spacer plates (H) to adjust the height of the floor sleeves.

### Setting the floor sleeve

- Slightly loosen the countersunk screws.
- Close the door.
- Extract the locking bar.  
The sleeve is subsequently centred on the bar.
- Carefully open the door.
- Tighten the countersunk screws.
- Check whether the door closes properly.  
The bars should enter the sleeves easily.

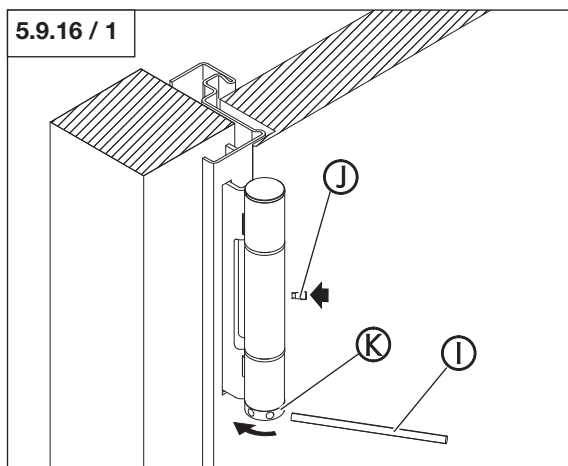


### 5.9.16 Setting the spring hinge

The door must be tensioned to ensure that it closes automatically from an opening angle of  $> 30^\circ$ .

The tensioning tool (I) and the lock pin (J) are supplied with the handle set.

- Tension the spring by turning (approx.  $270^\circ$ ) the tensioning wheel (K) in the opening direction.
- Insert the lock pin (J).



## 5. Installation

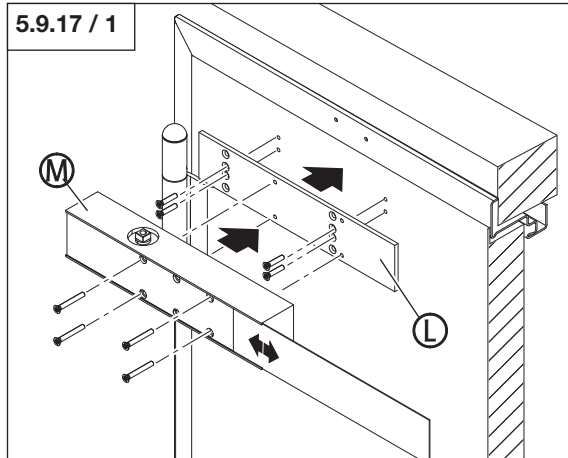


### 5.9.17 Door closer hinge side

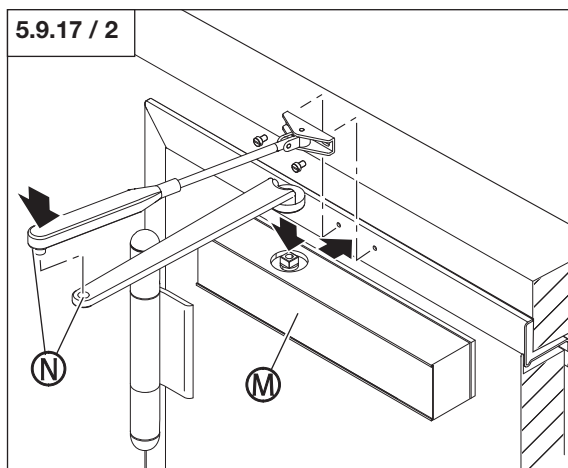
**Reference:**

Please observe the respective instructions during installation and setup.

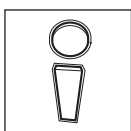
- Screw the installation plate (L) to the door leaf.
- Screw the door closer (M) to the installation plate (L).



- Screw the lever arm (N) to the door closer (M) and the frame.



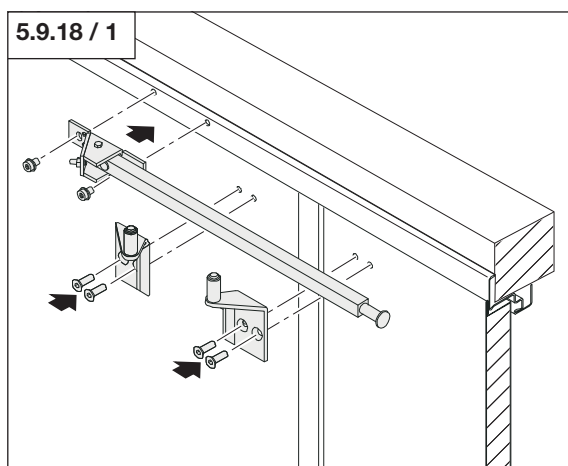
### 5.9.18 Door selector



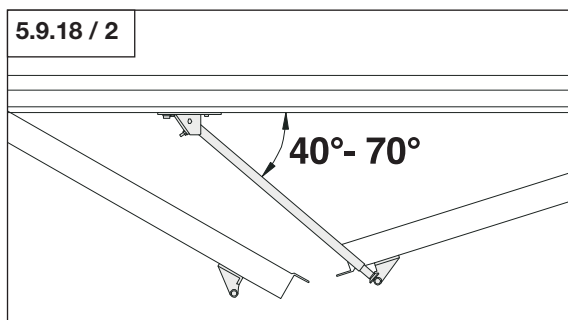
**Reference:**

Please observe the respective instructions during installation and setup.

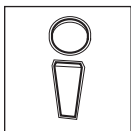
- Screw the door selector to the door leaf.



- Set the door selector.



## 5. Installation



### 5.9.19 Driver flap

#### Panic doors

Double-leaf door systems with panic lock must be equipped with a driver flap.

#### Reference:

Please observe the respective instructions during installation and setup.

- Screw the driver flap to the door leaf.

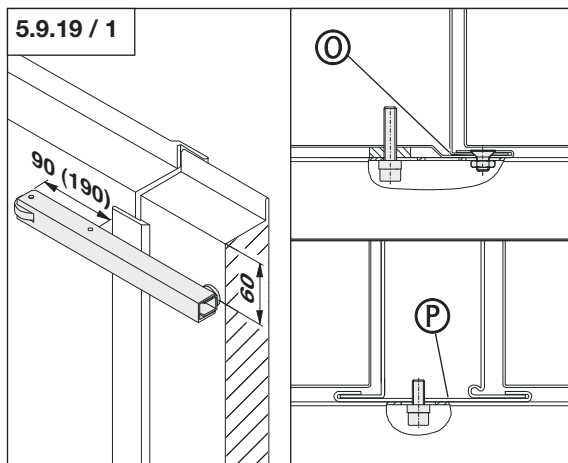
#### Doors with rebate buffer (O)

- M6x35 cheese head screws
- M6x10 countersunk screws

#### Doors with central rebate profile (P)

- M6x16 cheese head screws

5.9.19 / 1



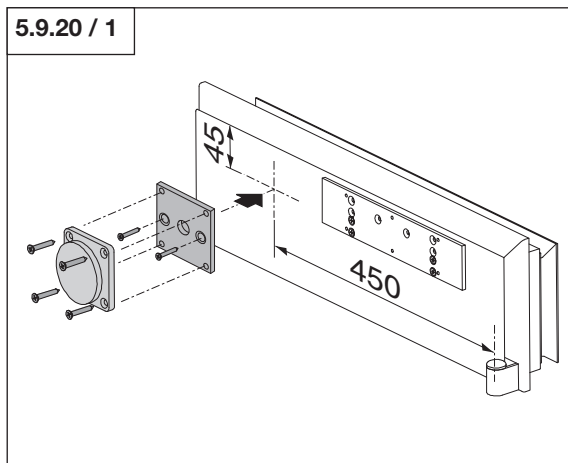
### 5.9.20 Magnetic clamp

#### Reference:

Please observe the respective instructions during installation and setup.

- Screw the anchor plate including adaptor plate to the door.
- Attach the magnetic clamp console including the magnetic clamp to the wall.

5.9.20 / 1



## 5. Installation



### 5.9.21 Upper casing / Top light

#### Attention!

The specified clearance between the door leaf and the upper part must be observed.

#### Note:

If the door and the upper part are delivered separately, the upper part must be screwed to the frame at the side and the top.

#### Fire and smoke protection doors

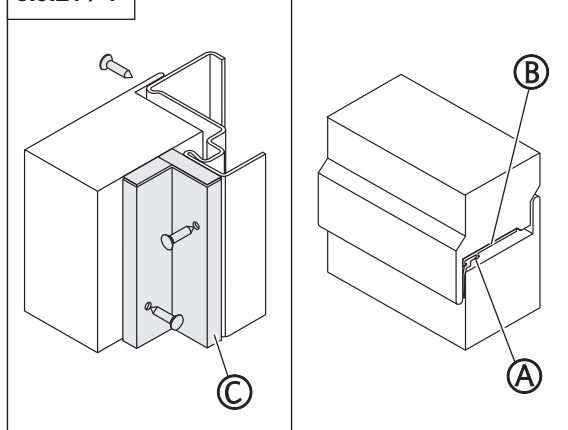
##### Thin rebate doors

- Insert the seal (A) into the seal receiver at the upper part (B).
- Screw on the upper casing / top light
  - from the front through the rebate,
  - from the rear with the cover strips (C).

##### Fastening material

Screws St 4.2 / e = 250

5.9.21 / 1



##### Thick rebate doors

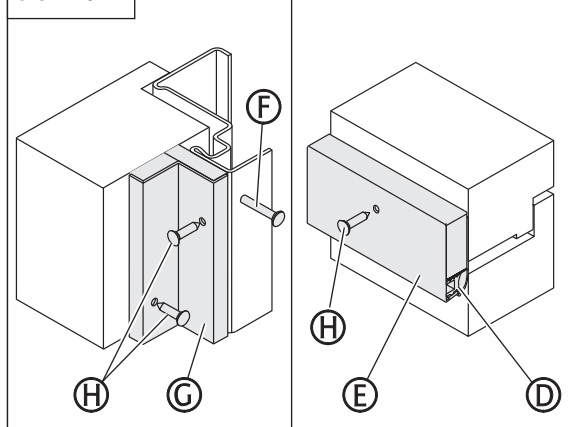
- Insert the seal (D) into the seal receiver at the upper part (E).
- Screw on the upper casing / top light
  - from the rear frame piece with screws (F),
  - from the rear with the cover strips (G) and screws (H).
- Fix the rear buffer (E) using the screws (F).

##### Fastening material

M5 screws (F) / e = 250

Screws St 4.2 (H) / e = 250

5.9.21 / 2



#### Multi-purpose doors

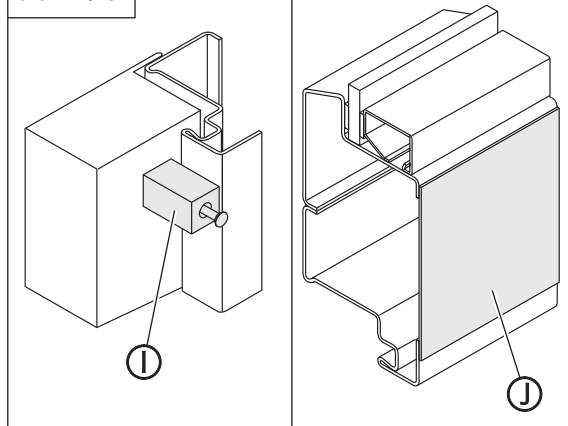
##### Doors with installed upper part

- Fix the upper part to the rectangular profiles using M8 screws (I).

##### Doors with mounted frame profile

- Place the upper part onto the frame and weld it on (l = 20, e = 300).
- Place the cover plate (J) over the frame profile.

5.9.21 / 3



## 5. Installation

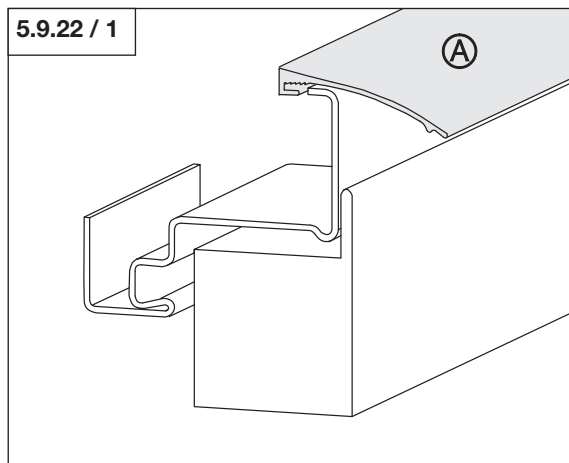
### 5.9.22 Rain guard

External doors must be equipped with a rain guard.

#### Doors without top door closer

- Clamp the aluminium rain guard (A) onto the upper frame part prior to installing the door.

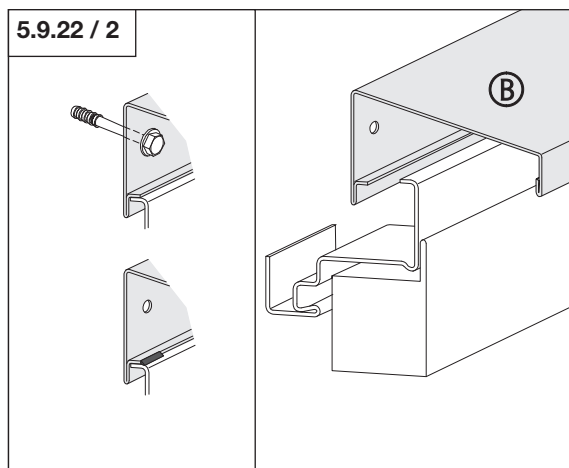
5.9.22 / 1



#### Doors with top door closer

- Attach the sheet steel rain guard (B) to the header (screw assembly) or to the upper frame part (welding).

5.9.22 / 2



#### Fastening material

S6 wall plugs with corresponding screws

*alternatively*

$l > 20$ ,  $e > 750$

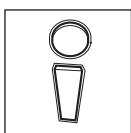
### 5.10 Final work

#### Reference:

The specifications for surface treatment in Section 3 must be observed.

#### Function check:

- Check correct door functioning.
- Check whether all the installed components function correctly.
- Check whether all requirements of the desired protection class have been observed.



## 6. Maintenance Instructions

### 6.1 General

- Maintenance is in accordance with §3 of the Building Laws and Regulations of the German State of North Rhine-Westphalia (BauO NW) and is the responsibility of the property owner. The property owner can carry out the required maintenance tasks or employ a specialist company to do it.
- To ensure correct functioning of the fire, smoke protection, security, sound insulated and multi-purpose doors, professional maintenance should be carried out every 12 months (more often for frequently used doors).

### 6.2 Maintenance tasks



#### Attention!

Detected faults must be eliminated immediately to guarantee safe operation.

Only suitable cleaning agents should be used for cleaning. Not suitable are:

- Cleaning agents with corrosion promoting or harmful contents.
- Scouring agents, abrasive cleaning agents, wire wool or similar products.
- Petrol, benzene, turpentine or similar products.

Use acid-free graphite, grease or resin-free oil for lubrication purposes.

- Clean seal profiles with a clean cloth, warm water and a rinsing agent.

Door components	Required maintenance tasks					
	Function check	Clean	Lubricate / Oil	Tighten fastening screws	Rectify	Comment
<b>Door design</b>						
Frame		X		X	X	Repair surface defects (cracks)
Wall connection				X	X	Repair defects (loose masonry, cracks)
Door leaf	X				X	Repair surface defects (cracks)
Infill (glass, ventilation)	X			X	X	Repair sealing defects (silicone), clean ventilation slots
Upper part (fixed)		X		X	X	Repair surface defects (cracks) Check and lubricate locking system (e.g. catches and hinges)
Upper part (fixed glazing)		X		X	X	
Upper part (opening glazing)	X	X	X	X	X	
Bottom threshold	X	X		X	X	Repair surface defects (cracks) (to ensure correct sealing)
<b>Hardware</b>						
Seals	X		X		X	Replace brittle or damaged seals
Hinges	X	X	X	X	X	Replace defective parts
Handle, knob		X		X		
Mortice lock (latch, bolt)	X	X	X	X	X	Check the double-rotating connection of the bolt, replace defective locks, if necessary
Lock plate	X	X	X	X		Check the adjustable latch parts, if available, re-adjust, if necessary
Additional locking without profile cylinder	X	X	X	X		
Additional locking with profile cylinder	X	X	X	X		
Top door closer (OTS)	X	X	X	X	X	Check the closing speed (approx. 6 sec from 90°) and the limit stop
Retractable bottom seal	X	X		X	X	Ensure sealing along the entire width (regulate via wedges), replace brittle or damaged seals
Spyhole		X				

## 7. Appendix

### Declaration of conformity

(in compliance with the EC Construction Products Directive 89/106/EEC)

#### Manufacturer:

Teckentrup GmbH & Co. KG Industriestrasse 50 . D-33415 Verl-Sürenheide

**When intended for use as external doors, the steel multi-purpose doors** have been developed, designed and manufactured in accordance with the EC Construction Products Directive 89/106/EEC.

Applied standards:

EN 14351-1:2006 Windows and doors – Product standard, performance characteristics – Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics.

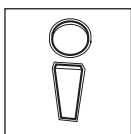
The door should not be used until it has been asserted that the door has been installed according to our specifications and its operability has been checked. If the product is modified without our approval, this declaration is no longer valid.

#### Note:

The declaration of conformity only applies for doors with CE mark. The allocation to the declaration of conformity takes place via the ID no. printed next to the CE conformity mark on the door leaf.

#### Reference:

The declarations of conformity can also be downloaded at [www.teckentrup.biz](http://www.teckentrup.biz).



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