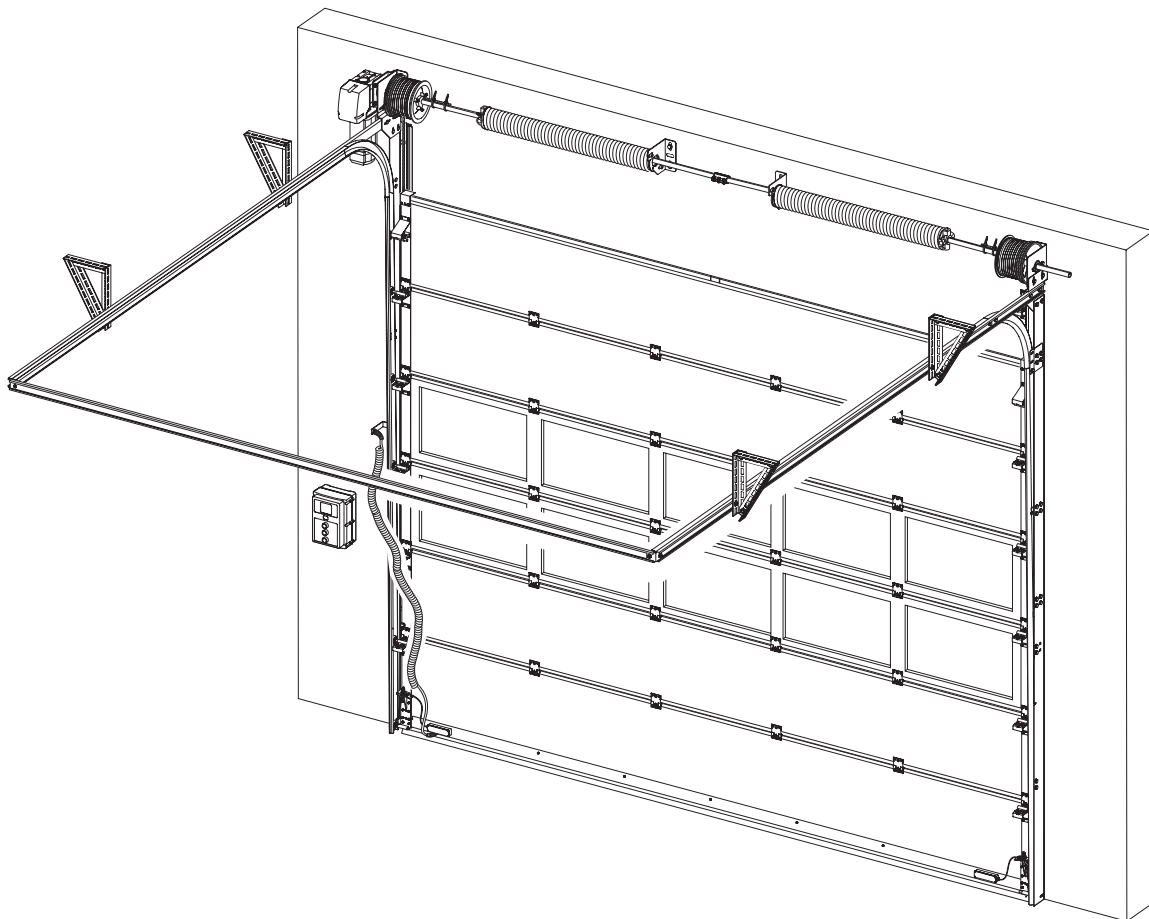


INDUSTRIAL SECTIONAL DOOR

Installation, Operating, and Maintenance Manual



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2. Symbol Explanation



Caution! Risk of personal injuries!

Attention! Risk of material damages!

Note

Function check

Reference

The procedure has to be carried out at the opposite side or more than once.

3. Warranty

Due to their frequent use wear parts have, a limited service life and are therefore excluded from warranty!

The following are classed as wear parts:

- Springs
- Cables
- Rollers
- Seals
- Cable rollers
- Drive system
- Locks / Locking mechanism
- Bowden cables
- Hinges

Warranty relating to terms of function and safety can only be provided if

- the safety and warning instructions are adhered to,
- the installation has been carried out properly and the steps were carried out in the order indicated in the instructions,
- only original Teckentrup parts and accessories are used
- no additional objects have been attached to the door,
- the components of the delivery specification have not been changed or modified
- the door has been regularly serviced,
- the operator is aware of all the relevant operating instructions (door, drive systems and safety equipment).

Warranty shall not apply if these installation and operating instructions are not completely observed.

4. General safety instructions



Note:

Please keep these instructions for future reference!

Please read and always observe these instructions! It provides you with important information about the safe installation and operation of the industrial sectional door. The instructions also describe the correct care and maintenance of your door to ensure satisfaction with this product for many years to come.



Caution!

- The danger area is to be generously cordoned off before the installation takes place.
- People who are not involved in installing the door must not be permitted to enter the danger area.
- Installation may only be carried out by qualified experts in accordance with EN 12635.
- The installation must be carried out by at least two people.
- For reasons of safety, only carry out the installation steps in the sequence specified in these instructions.
- The door may only be installed on appropriate structures having the static integrity to support the installation.
- Installation on supporting building components must have been approved by a structural engineer.
- Pull-out testing for fixings must be performed prior to installation if the foundation is complex.
- Fixings must be tested for their suitability for the prevailing structural conditions (this also applies for the supplied fixings).
- The installation must take place from a safe place (e. g. scaffolding).
- The diagrams included have priority.

Target groups

- Assembly, connection, commissioning and disassembly:
By qualified, trained specialist personnel. See below
- Operation, testing, and maintenance:
By the Owner of the door system. See below

Requirements for qualified and trained specialist personnel:

- Knowledge of the general and special safety and accident prevention regulations.
- Knowledge of the applicable electrical engineering regulations.
- Training in the use and upkeep of appropriate safety equipment.
- Adequate instruction and supervision by electricians.
- Capability of recognising dangers which can be caused by electricity.
- Skill in the application of the following standards
 - EN 12635 ('Industrial, commercial and garage doors and gates. Installation and use'),
 - EN 12453 ('Industrial, commercial and garage doors and gates. Safety in use of power operated doors. Requirements'),
 - EN 12445 ('Industrial, commercial and garage doors and gates. Safety in use of power operated doors. Test methods'),

Requirements for the owner of the door system:

- Familiarity with and safekeeping of the operating manual.
- Knowledge of the general safety and accident prevention regulations.

Special requirements apply for the following users:

- Children ages 8 and older.
- Persons with reduced physical, sensory, or mental capabilities.
- Persons lacking in experience and knowledge.

These users may only be involved in the operation of doors.

Special requirements:

- Users are supervised.
- Users have been instructed with regard to the safe use of the equipment.
- Users understand the dangers involved with the equipment.
- Children MUST not play with the equipment.

4. General safety instructions

Site requirements for installation / operation:

At the construction site please ensure that:

- the floor is at its finished height,
- the finished floor is even and level,
- the walls must be flush on the opening side,
- the door is installed on the inside.

To eliminate the risk of corrosion:

- Provide sufficient drainage outside the garage in front of the floor seal and frame parts!
If necessary, plan a sloping run-off surface!
- Make sure that the building is dry and has sufficient ventilation!
- Protect the door against corrosive and caustic agents, e.g. saltpetre reactions from bricks or mortar, acids, alkalis, road salt, corrosive paints or sealing compounds!
- Always cover the door before plastering or painting, since spots of mortar, cement, plaster or paint can damage the surface.

5. General product information

5.1 Scope of delivery

- Door leaf pack
- Frame pack with accessories pack
- Drive system (optional)
- Accessories pack

Refer to the enclosed pack list for details.

5.2 Required tools (not included)

- Two wooden trestles or other support
- Drill
- Drill bits
- Socket wrench size 13
- Screw wrench size 7/10/13/15
- Allen key wrench 3/4/5/8/10 mm
- Screwdriver
- Hacksaw
- Pliers
- Protective goggles
- Screw clamps
- Ladder and scaffolding
- Spirit level
- Tube level for the metre level
- Tape measure
- Protective gloves
- Tensioning bars

5.3 Dimension check

Reference:

Please refer to the order confirmation for the order dimensions of the door.

- Compare the order dimensions of the door and the structural conditions.

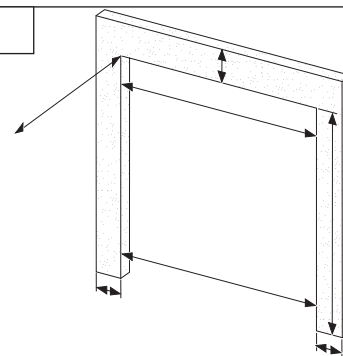
Note:

In order to install the door, the following conditions have to be fulfilled.

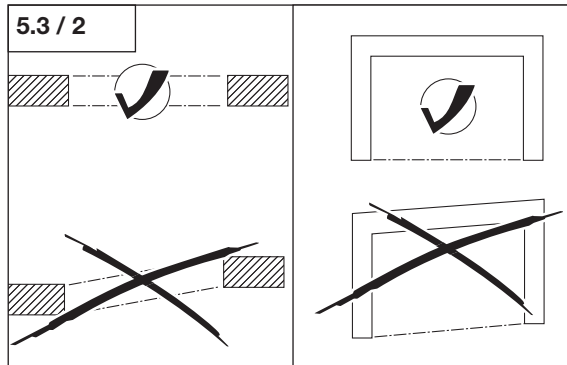
- The finished floor should be level and horizontal.
- The walls at the opening side have to be aligned.

- Check the subsurface.

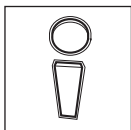
5.3 / 1



5.3 / 2



5. General product information



5.4 Types of fitting

Reference:

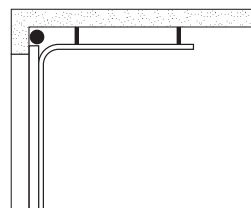
Please refer to the order confirmation for the type of headroom installation arrangement of the door.

The installation and operating instructions describe installation of the following industrial doors:



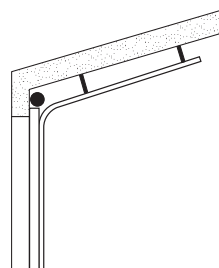
Standard headroom arrangement

5.4 / 1



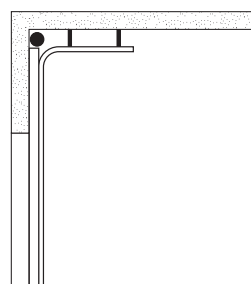
Standard headroom arrangement with follow the roof inclined rails

5.4 / 2



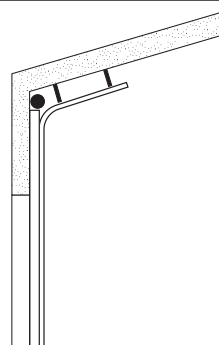
High lift headroom arrangement

5.4 / 3



High lift headroom arrangement with follow the roof inclined rails

5.4 / 4

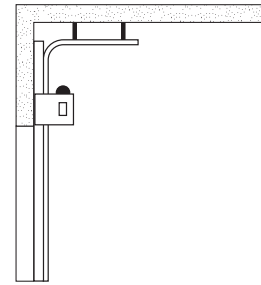


5. General product information



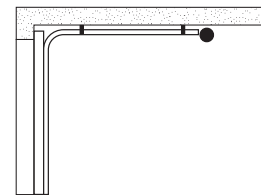
High lift headroom arrangement with lower level spring shaft installation position

5.4 / 5



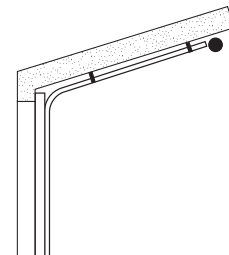
Low headroom arrangement with rear spring shaft installation position

5.4 / 6



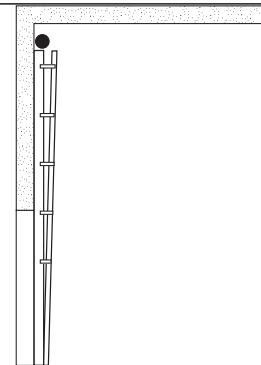
Low headroom arrangement with follow the roof inclined rails

5.4 / 7



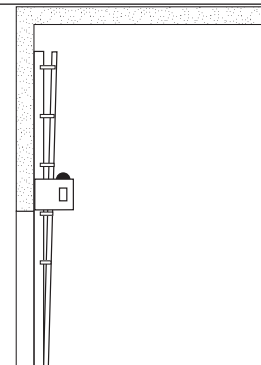
Full Vertical headroom arrangement with upper level spring shaft installation position

5.4 / 8



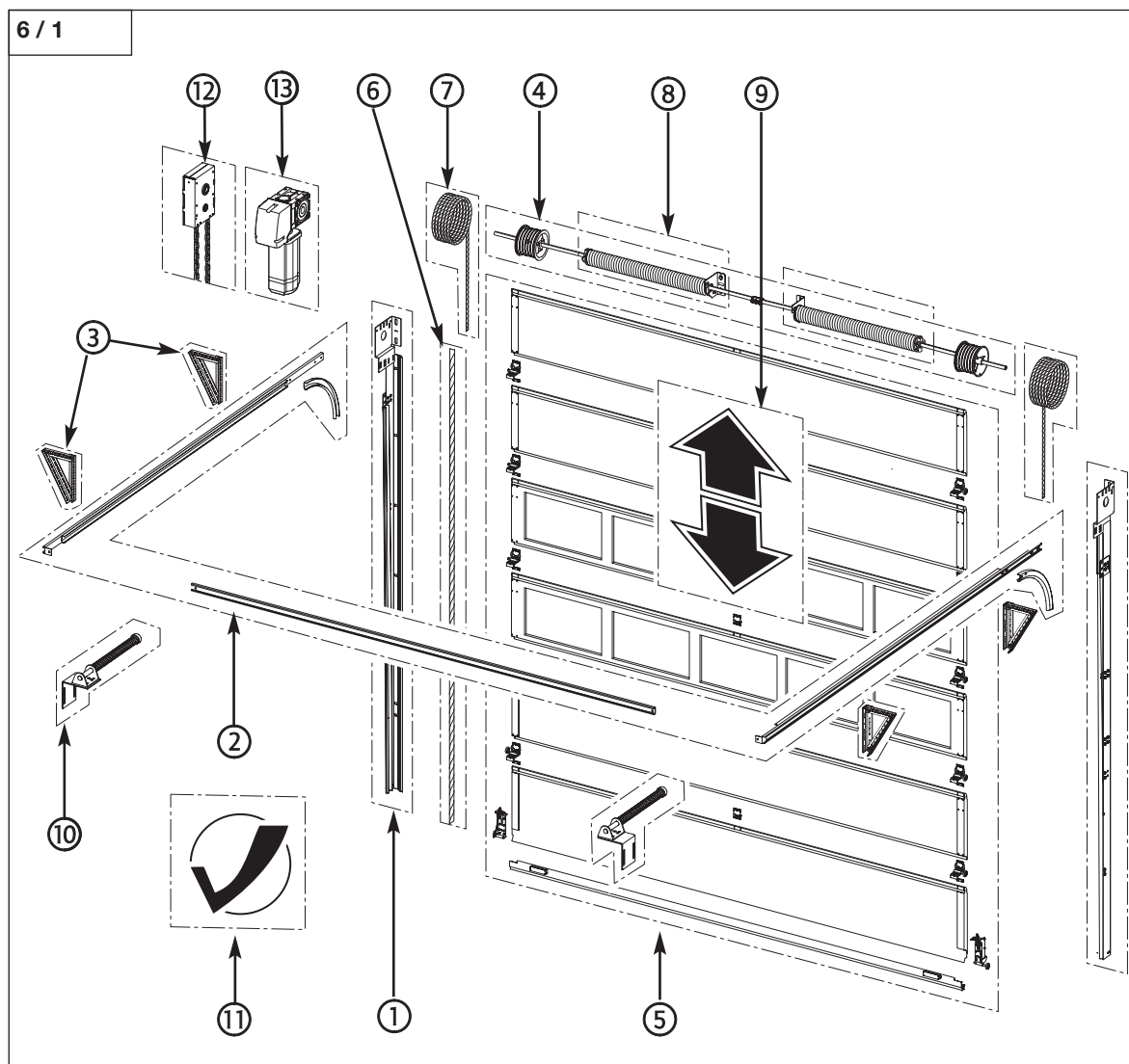
Full Vertical headroom arrangement with lower level spring shaft installation position

5.4 / 9



6. Installation Process

The diagram displays the order in which the parts have to be installed.



Order	Process
①	Install frames
②	Install lateral rails
③	Install suspension angle
④	Install spring shaft
⑤	Install sections
⑥	Install Bowden cables
⑦	Wind up Bowden cables
⑧	Tension springs
⑨	Test door travel
⑩	Install rear spring bumper
⑪	Final work
⑫	Install geared chain hoist (optional)
⑬	Install direct mount drive (optional)

6. Installation Process

The table displays the sections in which the installation step for the respective fitting type is described.

Fitting	Order												
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬
	Section												
N	7.1	7.2 7.2.1	7.3 7.3.1	7.4 7.4.1	7.5.1 7.5.2 7.5.4	7.6 7.6.1	7.7	7.8	7.9	7.10 7.10.1	7.11	7.12	7.13
ND	7.1	7.2 7.2.2	7.3 7.3.1	7.4 7.4.1	7.5.1 7.5.2 7.5.4	7.6 7.6.1	7.7	7.8	7.9	7.10 7.10.1	7.11	7.12	7.13
HL	7.1	7.2 7.2.1	7.3 7.3.1	7.4 7.4.1	7.5.1 7.5.2 7.5.5	7.6 7.6.1	7.7	7.8	7.9	7.10 7.10.1	7.11	7.12	7.13
HLD	7.1	7.2 7.2.2	7.3 7.3.1	7.4 7.4.1	7.5.1 7.5.2 7.5.5	7.6 7.6.1	7.7	7.8	7.9	7.10 7.10.1	7.11	7.12	7.13
HLU	7.1	7.2 7.2.3	7.3 7.3.1	7.4 7.4.2	7.5.1 7.5.3 7.5.5	7.6 7.6.2	7.7	7.8	7.9	7.10 7.10.1	7.11	7.12	7.13
NSH	7.1	7.2 7.2.3	7.3 7.3.2	7.4 7.4.3	7.5.1 7.5.2 7.5.6	7.6 7.6.3	7.7	7.8	7.9	7.10 7.10.2	7.11	7.12	7.13
NSD	7.1	7.2 7.2.3	7.3 7.3.2	7.4 7.4.3	7.5.1 7.5.2 7.5.6	7.6 7.6.3	7.7	7.8	7.9	7.10 7.10.2	7.11	7.12	7.13
VL	7.1	----	----	7.4 7.4.1	7.5.1 7.5.2 7.5.5	7.6 7.6.1	7.7	7.8	7.9	7.10 7.10.3	7.11	7.12	7.13
VLU	7.1	----	----	7.4 7.4.2	7.5.1 7.5.3 7.5.5	7.6 7.6.2	7.7	7.8	7.9	7.10 7.10.3	7.11	7.12	7.13

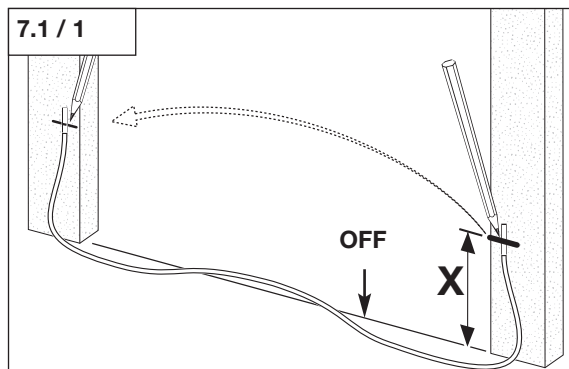
7. Installation

7.1 Install frames

- Draw a mark on one of the opening sides: **One metre (X)** from the **upper edge of the finished floor (OFF)**.
- Transfer the mark to the other side with the aid of a tube level.
- Measure the height of the transferred mark.

It has to be **at least 1 m** high.

N	ND	HL	HLD	HLU	NSH	NSD	VL	VLU
---	----	----	-----	-----	-----	-----	----	-----



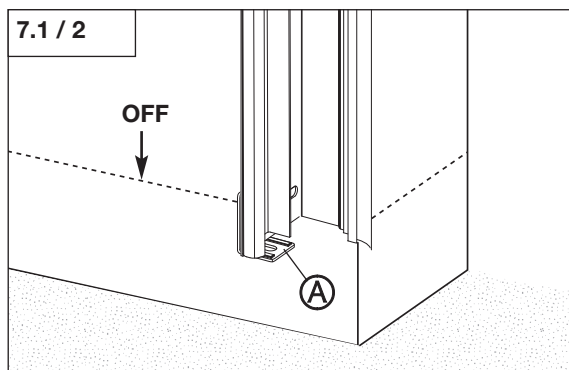
Note:

If the distance from the upper edge of the finished floor (OFF) to the transferred mark is less than 1 m, the metre level has to be measured from this side of the door!

Install frames without the finished floor installed (OFF)

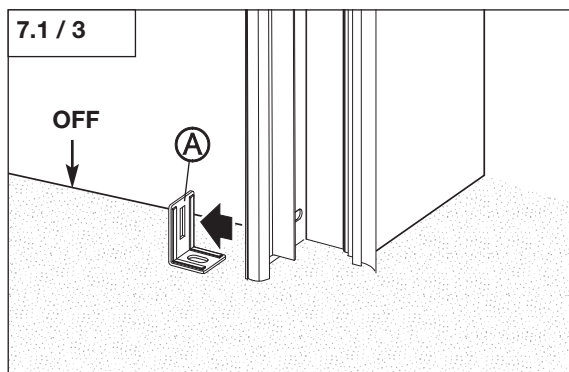
Caution!

To prevent the bottom section from moving, the pre-assembled stop bracket (A) has to remain mounted to the underside of the frames.



Install frames with the finished floor installed (OFF)

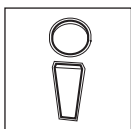
- Remove the pre-assembled stop bracket (A).



Reference:

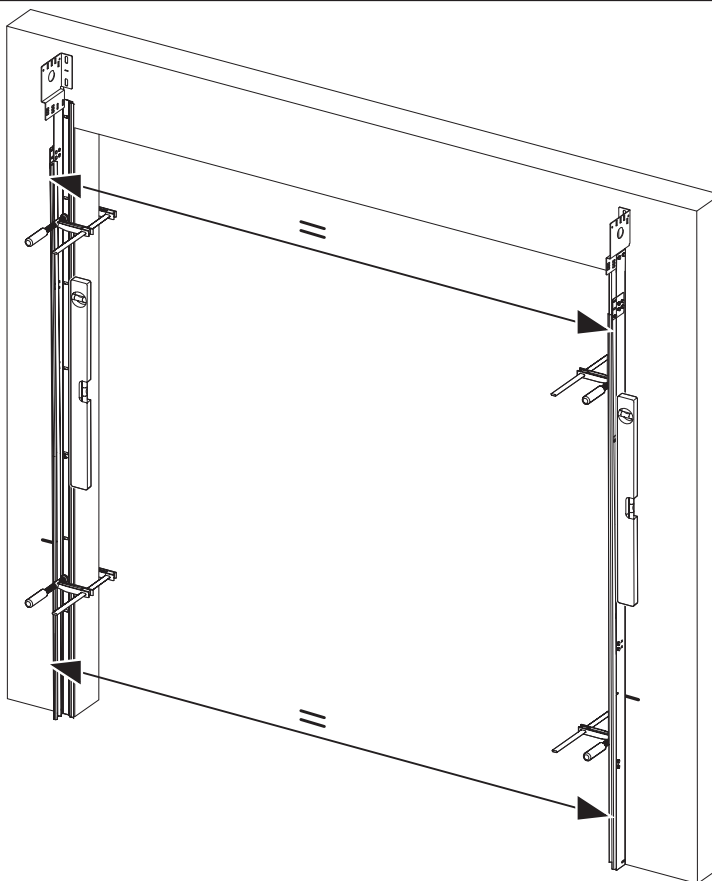
When installing a leading light barrier, the separate installation instructions for light barriers must be observed.

Part of the installation of the light barrier must be carried out together with the frame mounting.



7. Installation

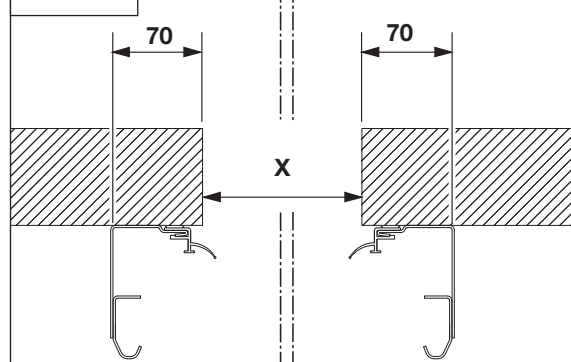
7.1 / 4



Door width = Order dimension width (X) + 140 mm

The distance for standard door widths from the outer edge of the frame to the door clearance width is 70 mm on both sides.

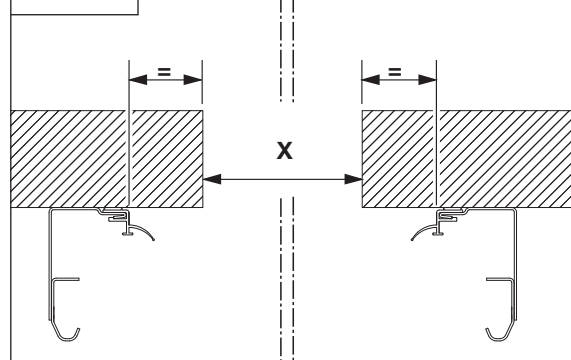
7.1 / 5



Door width > Order dimension width (X) + 140 mm

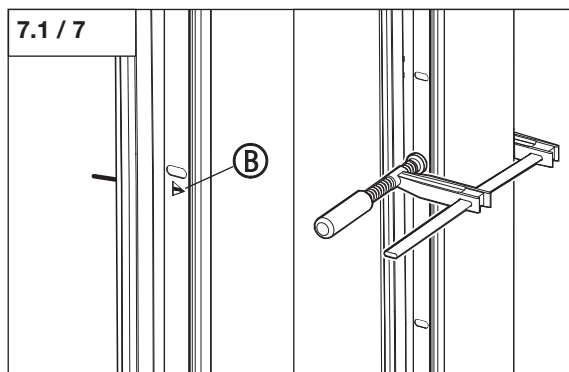
For doors which are larger than the standard door width, the door has to be aligned to the door clearance width.

7.1 / 6



7. Installation

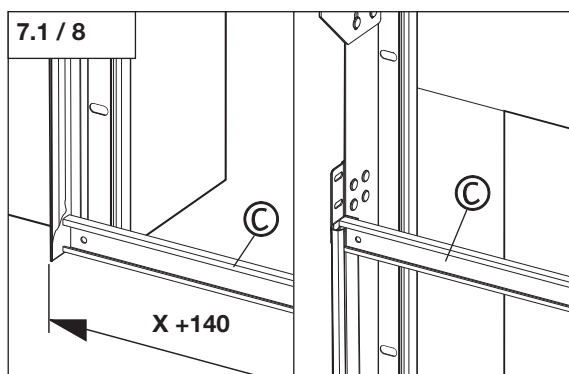
- Position the frame vertically behind the reveal.
- Align the punched mark (B) on the frame with the mark on the wall.
- Use a screw clamp to fix this position.



- Position the other frame on the opposite side.

To align the frames in parallel, it is possible to insert the rear cross strut (C) at the top and bottom between the frames.

With the low headroom arrangement with rear spring shaft installation position (NSH) and the low headroom arrangement with follow the roof inclined rails (NSD), parallel alignment of the frames has to be measured. This measurement has to occur from the outer edge of the frames (order dimension width (X) + 140 mm).

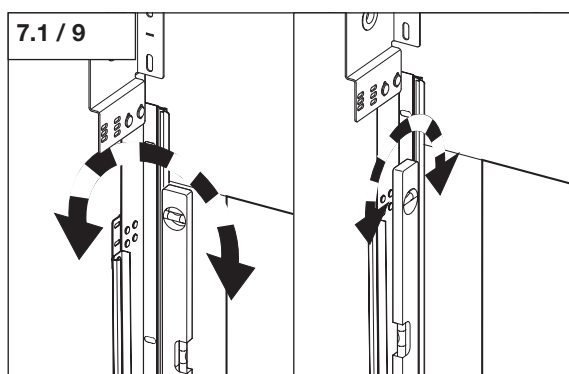


- Align the frames in parallel.

- Align the frames vertically.

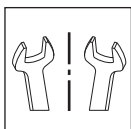
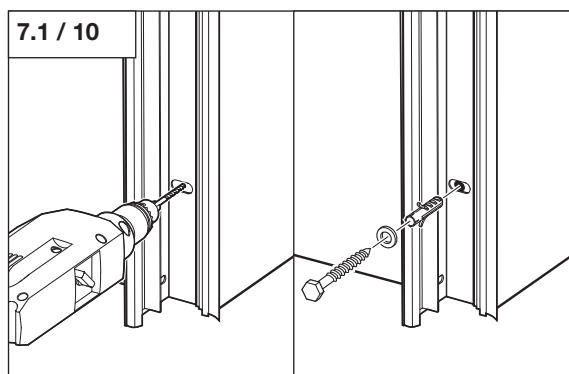
Note:

If the frame is not plumb to the wall, the frame has to be shimmed.



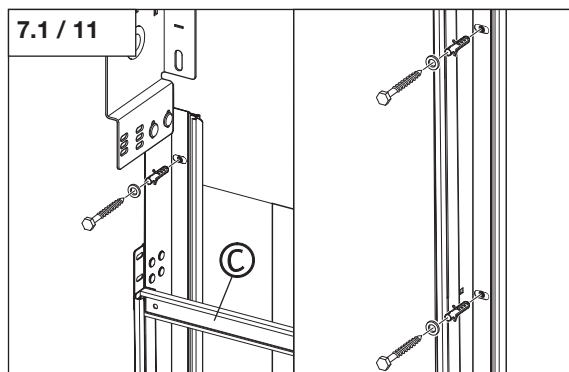
To enable fixing, the frame is screwed tight at the bottom position.

- Drill through the frame into the wall.
- Screw the frame to the wall.

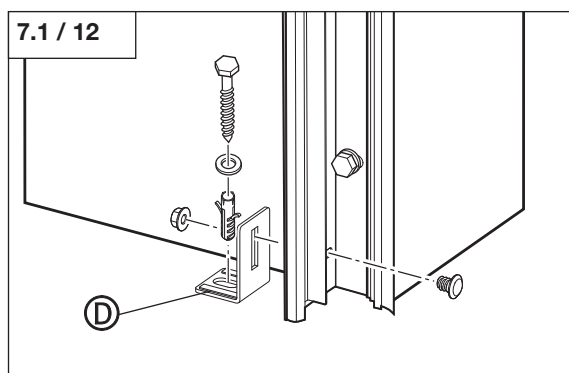


7. Installation

- In order to check the distance, place the rear cross strut (C) between the frames at the top.
- Screw the frame to the wall at the upper screw fitting first.
- Subsequently screw the frame to the wall at all the other screw fittings.



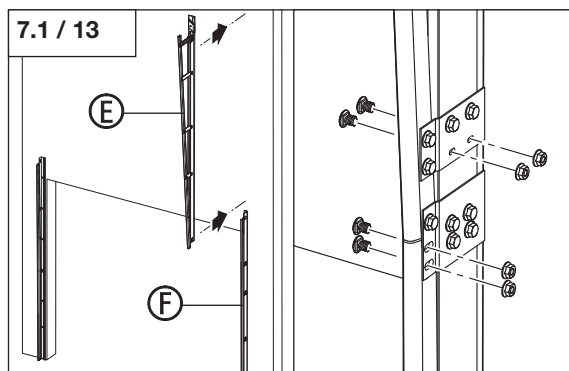
- Screw the bracket (D) to the frame.
- Screw the bracket (D) to the floor.



- Carry out the same frame attachments on the opposite side.

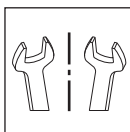
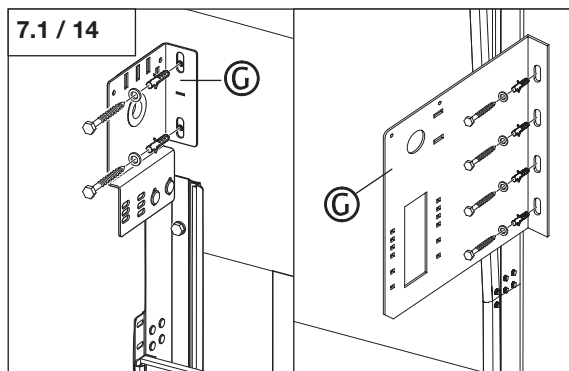
For door versions with a sectioned frame, an additional frame element has to be assembled.

- Place the upper frame element (E) on the lower frame element (F).
- Screw the frame elements together.
- Align the frame element vertically.
- Screw the frame element to the wall.



Depending on the door version, it is possible to attach various consoles (G) to the frame.

- Screw all the consoles (G) to the wall.



7. Installation

7.2 Install lateral rails

N	ND	HL	HLD	HLU	NSH	NSD		
---	----	----	-----	-----	-----	-----	--	--



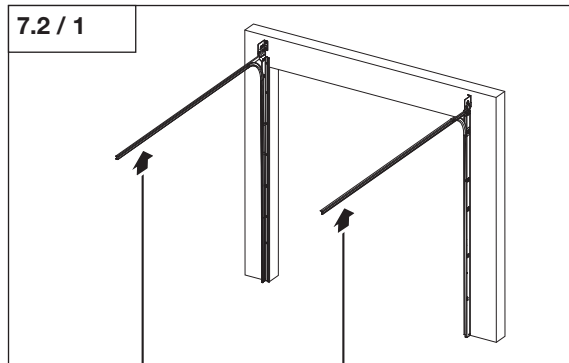
Caution!

To prevent the lateral rails falling down, they have to be supported until they are eventually screwed to the roof.



Note:

To ensure correct door travel, there should not be rough edges where the curved rail and the rails meet.



7.2.1 Install lateral rails

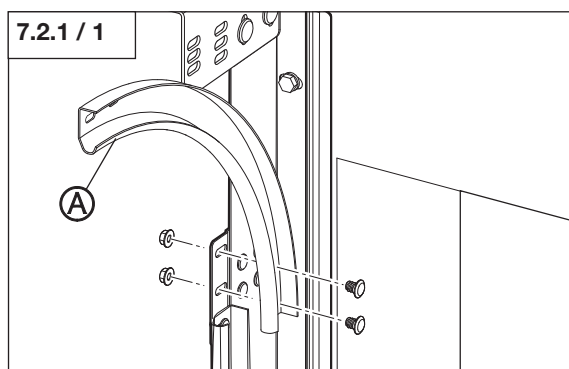
N		HL		HLU				
---	--	----	--	-----	--	--	--	--

Note:

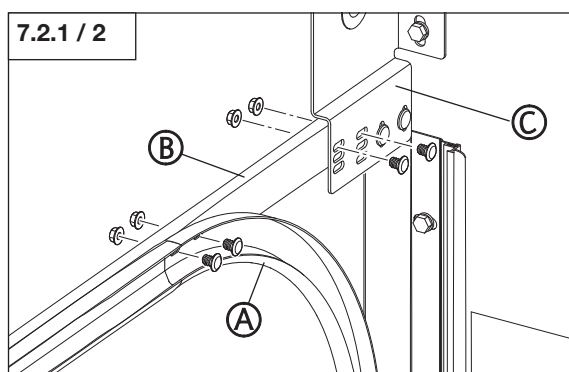
To ensure correct door travel, the lateral rails and the cross strut have to be horizontal.



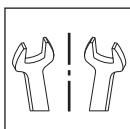
- Screw the curved rail (A) to the frame.



- Screw the lateral rail (B) to the curved rail (A) and the intermediate console (C).



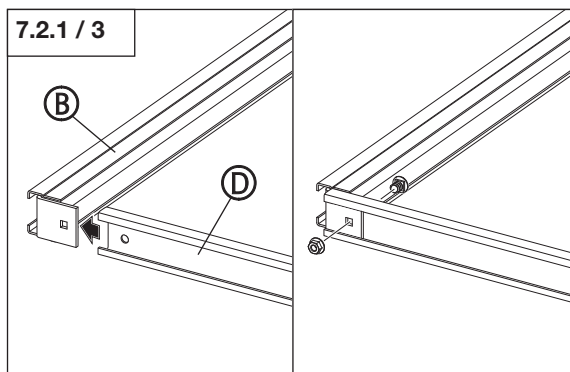
- Install the curved rail and the rail on the opposite side.



7. Installation

- Screw the cross strut (D) to the rail (B) on the right and left-hand side.

7.2.1 / 3



7.2.2 Install lateral rails

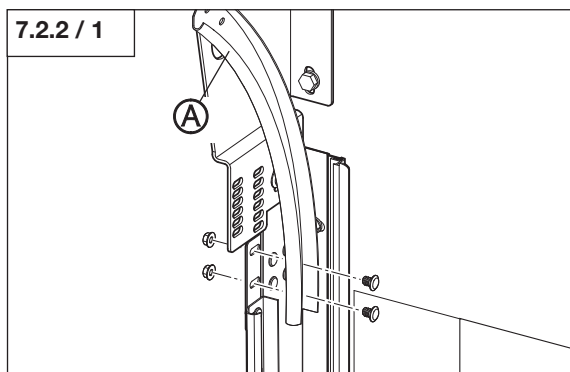


Note:

To ensure correct door travel, the lateral rails have to follow the angle (X) of the roof incline.

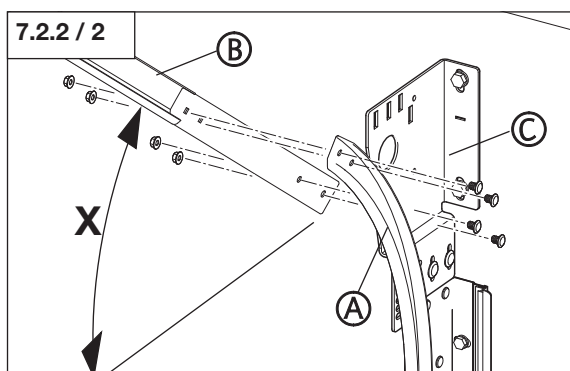
- Screw the curved rail (A) to the frame.

7.2.2 / 1

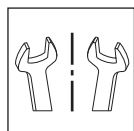


- Determine angle (X) of the roof incline.
- Screw the lateral rail (B) to the curved rail (A) and the intermediate console (C).

7.2.2 / 2

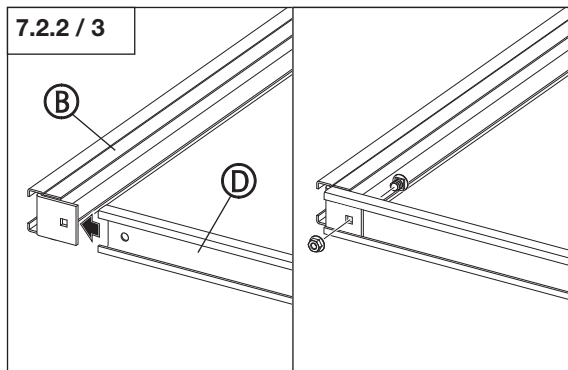


- Install the curved rail and the rail on the opposite side.



7. Installation

- Screw the cross strut (D) to the rail (B) on the right and left-hand side.



7.2.3 Install lateral rails

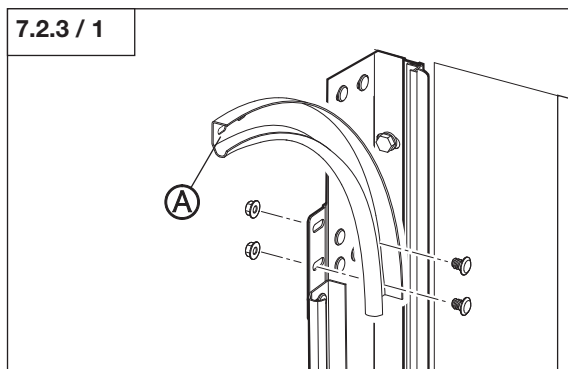


Note:

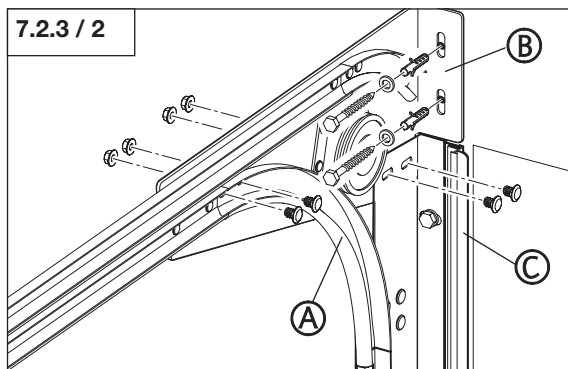
To ensure correct door travel,

- the lateral rails have to be horizontal for the low headroom arrangement with rear spring shaft installation position (NSH),
- the lateral rails have to follow the roof incline for the low headroom arrangement with follow the roof inclined rails (NSD).

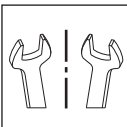
- Screw the curved rail (A) to the frame.



- Screw the curved rail (A) to the console (B).
- Screw the console (B) to the frame (C).
- Screw the console (B) to the wall.



- Install the curved rail and the rail on the opposite side.



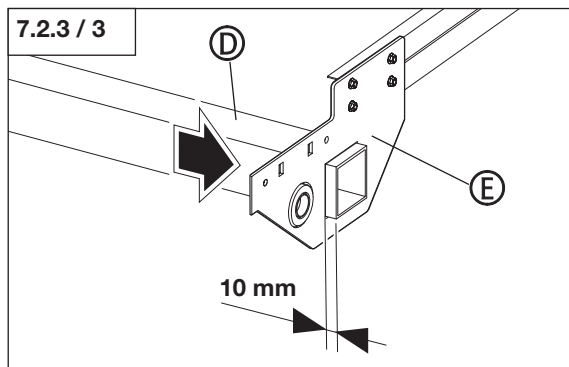
7. Installation



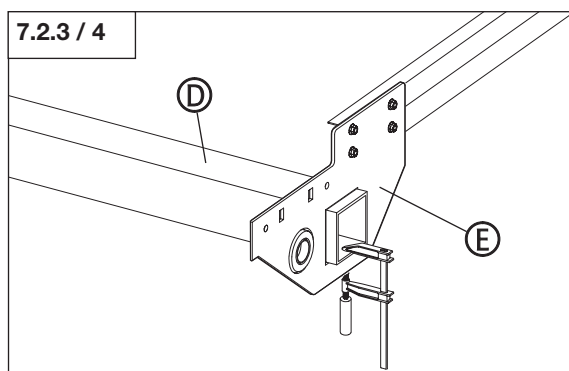
Caution!

To prevent personal injuries, the hollow profile (A) has to be secured against falling down unit it is eventually screwed to the side consoles with bearings (B).

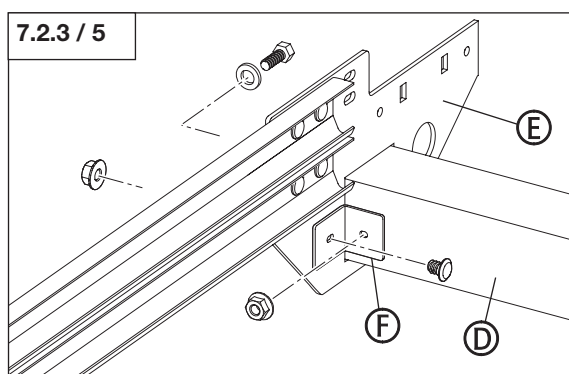
- Insert the hollow profile (D) into the side consoles with bearings (E) on the right and left-hand side.
- Align the hollow profile (D) in the side consoles with bearings (E) on both sides equally.



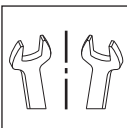
- Secure the hollow profile (D) at both sides of the side console with bearings (E).



- If necessary, drill holes in the hollow profile (D) to attach the bracket (F).
- Screw the bracket (F) to the hollow profile (D).
- Screw the brackets (F) to the side console with bearing (E).



- Install the hollow profile on the opposite side.
- Remove the clamp securing the hollow profile.



7. Installation

7.3 Install suspension angle

N	ND	HL	HLD	HLU	NSH	NSD		
---	----	----	-----	-----	-----	-----	--	--

7.3.1 Install suspension angle

N	ND	HL	HLD	HLU				
---	----	----	-----	-----	--	--	--	--

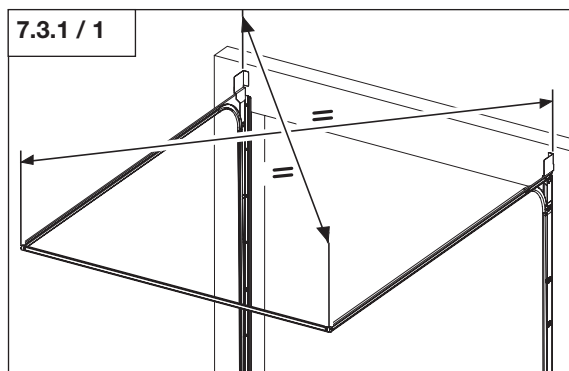


Caution!

To ensure that the door does not fall down, the following conditions have to be fulfilled.

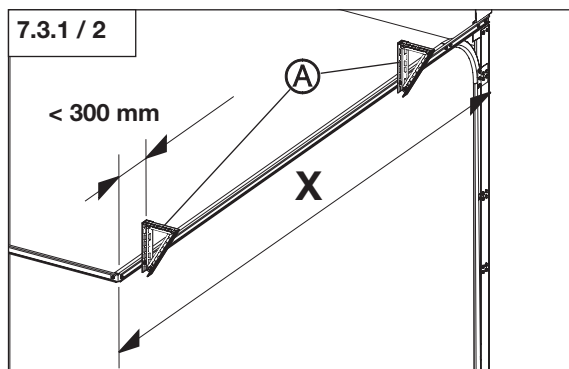
- The suspension angles have to be screwed to the triangular consoles.
- The triangular consoles have to rest on the rails at the correct height.
- The clamping bolts have to be inserted with the correct orientation.

- Align the lateral rails in parallel.
- Fix the lateral rails in the aligned position.



The number of required suspensions (A) depends on the length (X) of the lateral rails.

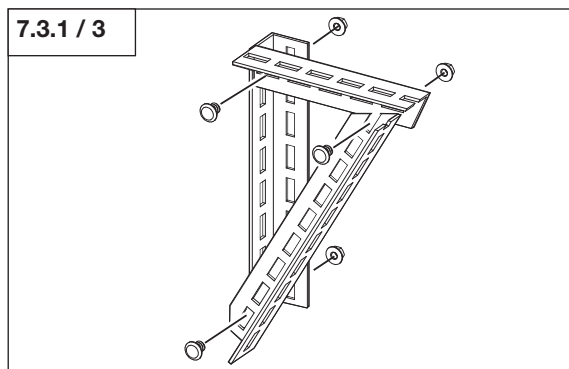
$X < 3500 \text{ mm}$	= 2 suspensions (A) per side
$X = 3500 - 4500 \text{ mm}$	= 3 suspensions (A) per side
$X = 4501 - 5500 \text{ mm}$	= 4 suspensions (A) per side
$X > 5500 \text{ mm}$	= 5 suspensions (A) per side



Note:

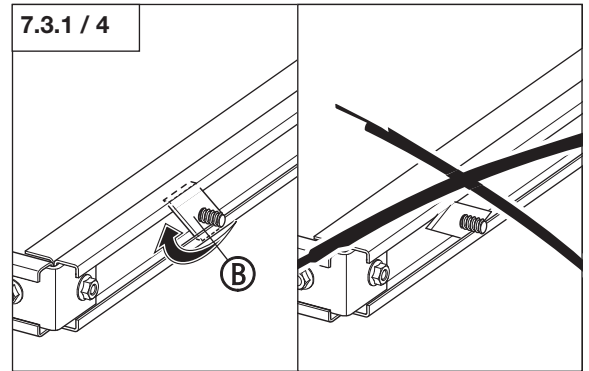
The suspensions (A) should be distributed equally along the entire length (X).

- Assemble and screw the suspension angles as triangular consoles.

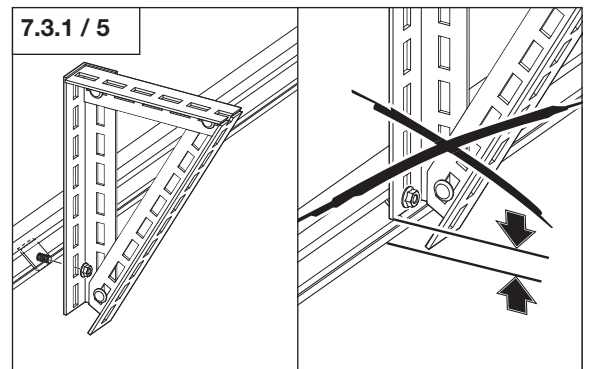


7. Installation

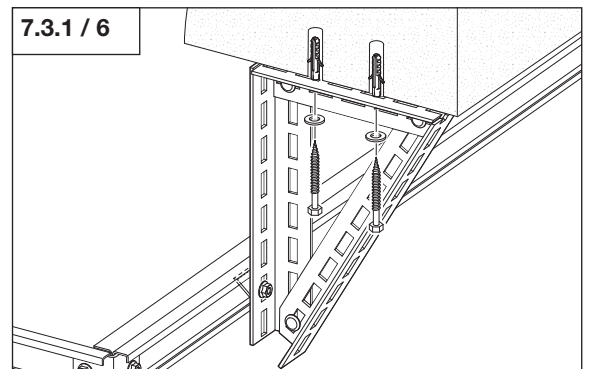
- Screw the clamping bolt (B) into the C-shaped profile of the lateral rail with the correct orientation.



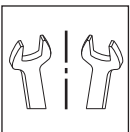
- Screw the triangular console to the lateral rail.



- Screw the suspension to the roof.



- Attach all the required suspensions.



7.3.2 Install suspension angle



To prevent the door from collapsing, the following points must be fulfilled.

- The suspension brackets must be screwed to triangular consoles (B).
- The triangular consoles (B) must fit closely on the entire length of the guide rail.
- The bearing consoles (C) must be screwed to the ceiling with triangular consoles (B).

The assembly and number of triangular consoles required are explained in chapter 7.3.1.

- Align the lateral guide rails (A) parallel to each other.
- Fix the lateral guide rails (A) in the aligned position.

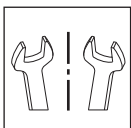
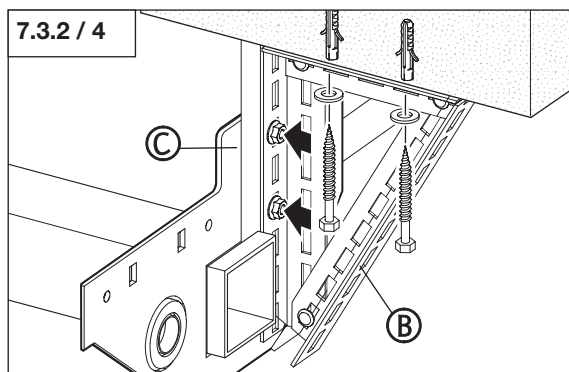
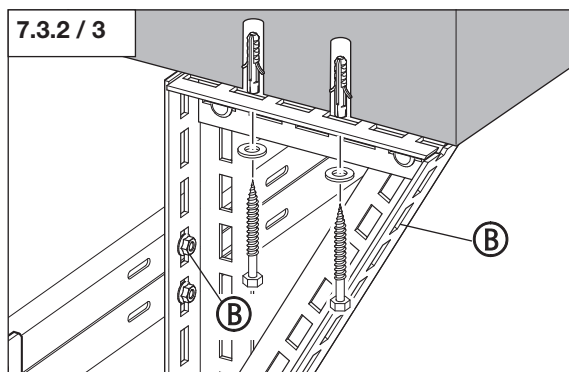
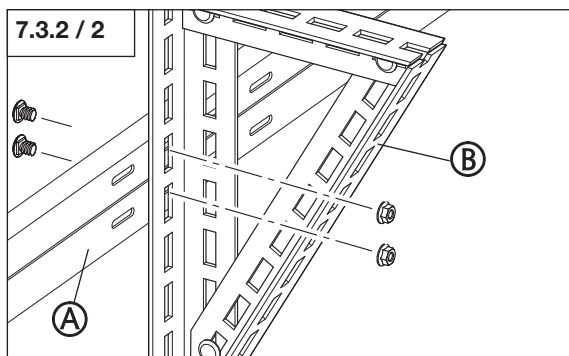
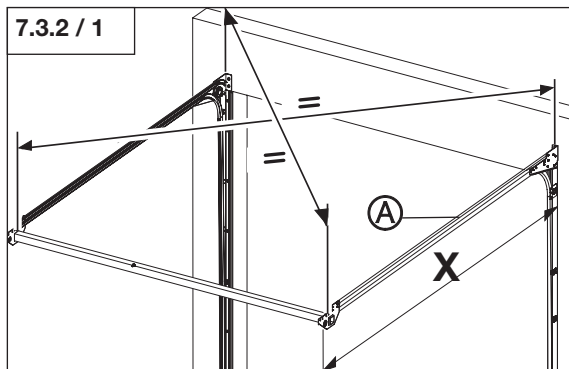
The number of suspensions (B) required is dependent on the length (X) of the lateral guide rails (A).

X < 3500 mm	= 3 suspensions (B) per side
X = 3500 - 4,500 mm	= 4 suspensions (B) per side
X = 4501 - 5500 mm	= 5 suspensions (B) per side

- Screw the triangular consoles (B) to the lateral guide rails (A).
- Screw the triangular consoles (B) to the ceiling.

- Screw the triangular console (B) to the bearing console (C).
- Screw the triangular console (B) to the ceiling.

- Attach all the required suspensions.



7. Installation

7.4 Install spring shaft

N	ND	HL	HLD	HLU	NSH	NSD	VL	VLU
---	----	----	-----	-----	-----	-----	----	-----

GB



Caution!

To prevent personal injuries, the cable drum, the spring assembly and the central consoles have to be secured on the spring shaft prior to erection. The cable drum, the spring assembly and the central consoles are only loosely attached to the spring shaft and could slip.

Note:

If the space between the wall and the side console with bearing does not permit connection of the drive system after successful door installation, the drive system has to be installed together with the spring shaft. If the provided space is sufficient to connect the drive system after successful door installation, install the drive system after door installation.

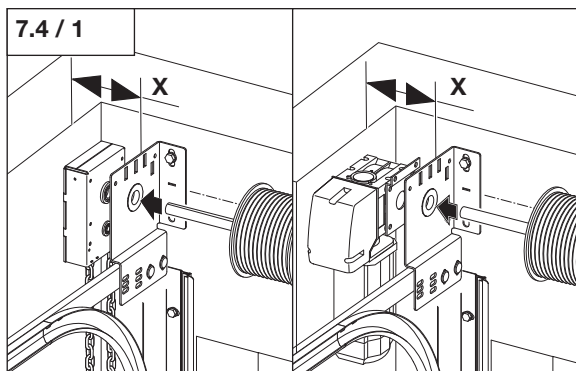
- Determine the dimension (X) between the side console with bearing and the wall.

Geared chain hoist

If the measurement (X) between the wall and bearing console is too small, the hand chain hoist must be installed together with the spring shaft.

Direct mount drive

If the measurement (X) between the wall and bearing console is too small, the direct mount drive must be installed together with the spring shaft.



Reference:

Installation of the geared chain hoist is described in section 7.12.
Installation of the direct mount drive is described in section 7.13.

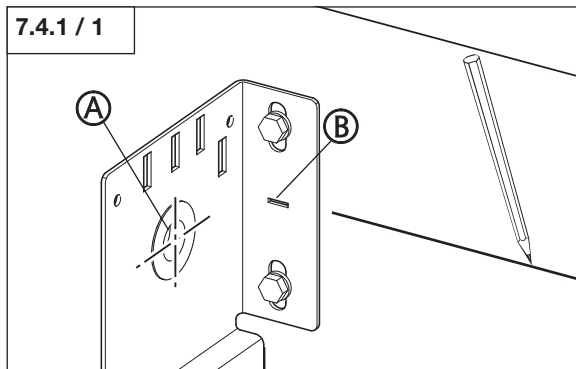


7.4.1 Install spring shaft

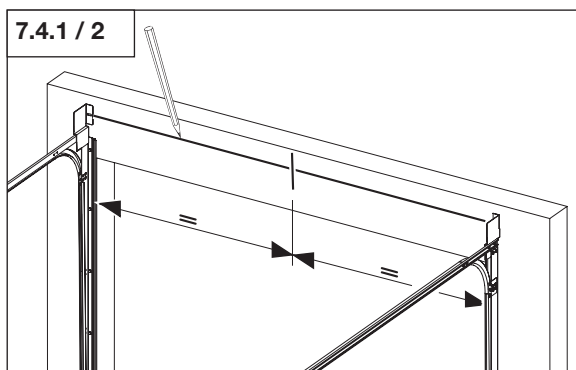
N	ND	HL	HLD				VL	
---	----	----	-----	--	--	--	----	--

Note:

The middle of the bearing (A) at the frame console and the punching (B) correspond to the middle of the spring shaft.



- Mark the middle of the spring shaft along the entire door width.
- Mark the middle between the frames at the header.



7. Installation



Note:

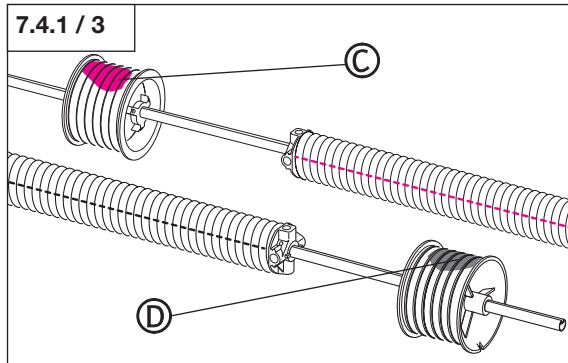
To ensure that the cables are wound up correctly, the cable drums have to be assembled at the specified door side. The cable drums and springs are colour coded.

Inner left installation:

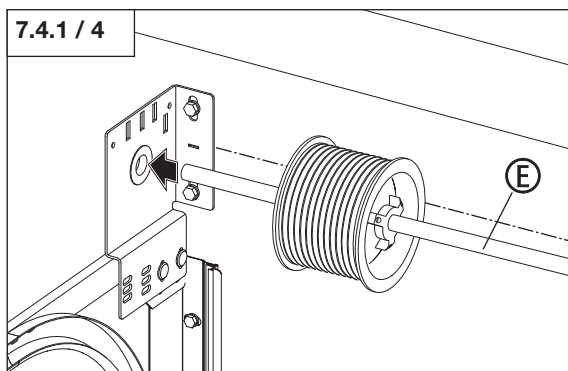
Red cable drum (C) with red spring.

Inner right installation:

Black cable drum (D) with blue spring.



- Insert the spring shaft (E) into the side console with bearing.

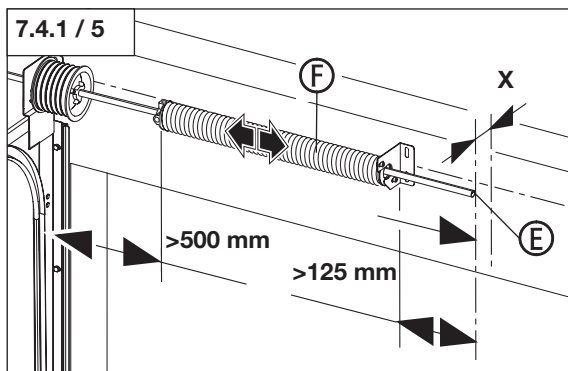


Note:

To ensure correct installation, the following conditions have to be fulfilled.

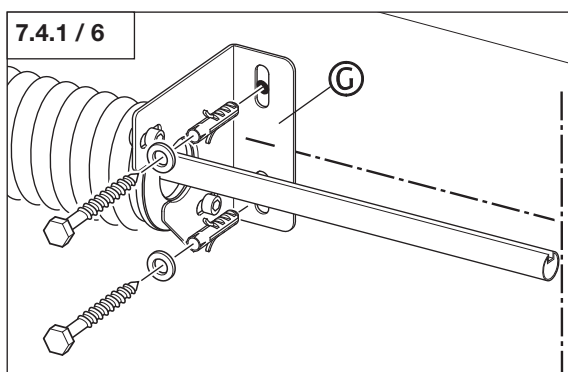
- The spring shaft (E) has to run parallel to the marked middle line.
- The distance (X) between the spring shaft (E) and the wall has to be the same along the entire length.

- Align the spring shaft (E).
- Align the end of the spring shaft (E) flush with the middle between the frames.
- Align the spring assembly (F) on the spring shaft.



Standard central console

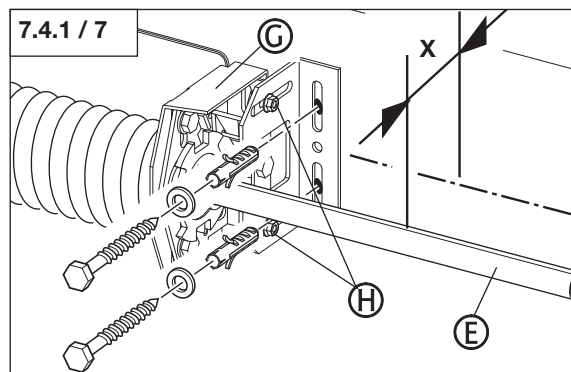
- Screw the central console (G) to the header.



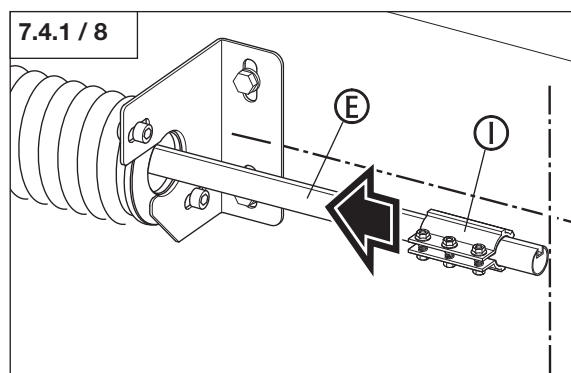
7. Installation

Central console spring break protection

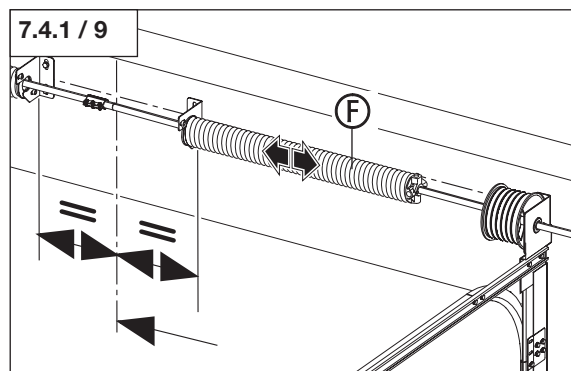
- Use the screws (H) to set the distance (X) between the wall and the spring shaft (E).
- Screw the central console (G) to the header.



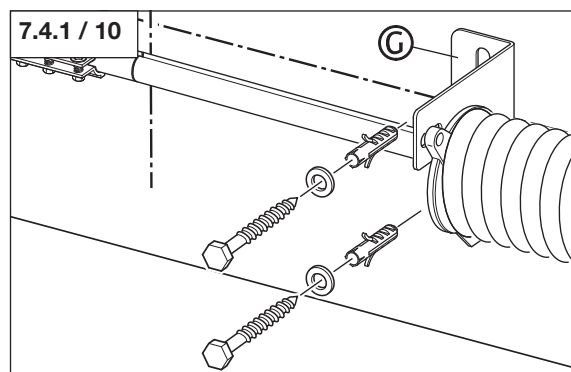
- Push the shaft coupling (I) onto the spring shaft (E).



- Insert the spring assembly (F) on the other side into the side console with bearing.
- Align the spring assembly (F).



- Screw the central console (G) to the header.



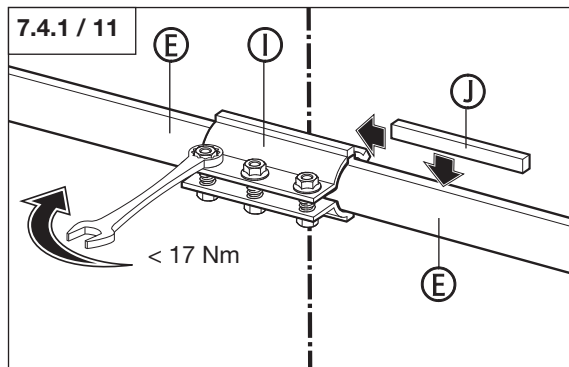
7. Installation



Note:

- To ensure that the spring shaft remains permanently connected, the following points must be fulfilled:
- When screwing, the maximum permissible torque of 17 Nm must not be exceeded.
 - The spring shafts must be firmly connected to one another.

- Push the shaft coupling (I) over the ends of both spring shafts (E) in the middle.
- Insert the parallel key (J).
Parallel key for solid shaft: 6.35 x 6.35
Parallel key for hollow shaft: 6.35 x 9.5
- Tighten the shaft coupling (I).



Function check:

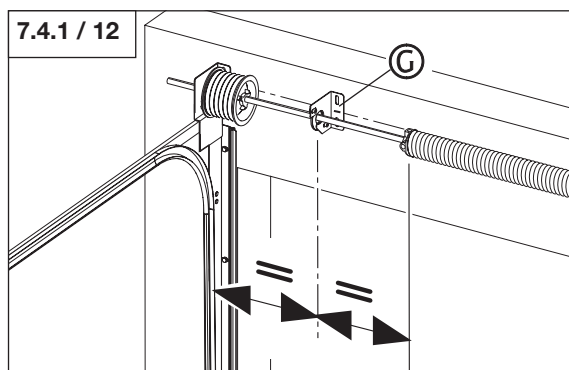
The parallel key (J) must be tightly secured in the shaft coupling (I).



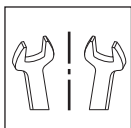
Note:

Wider doors may have an additional central console between the spring assembly and the cable drum.

- Align the central console (G).
- Screw the central console (G) to the header.



- Install the central console on the opposite side.



7. Installation



7.4.2 Install spring shaft



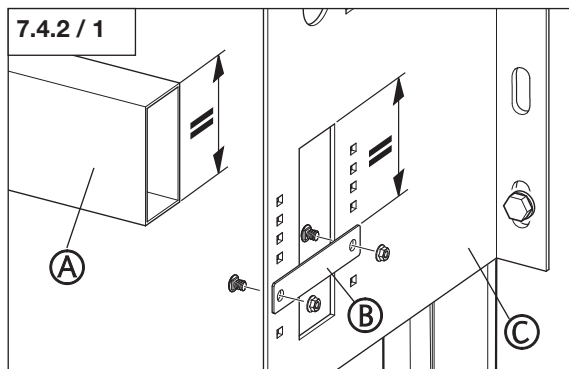
GB

Caution!

To prevent personal injuries, the hollow profile (A) has to be secured against falling down until it is eventually screwed to the consoles.

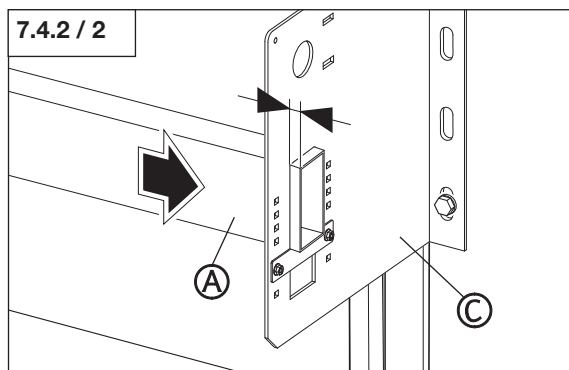
The fixing bracket (B) has to be screwed to the side consoles with bearings (C) in a way which ensures that the hollow profile (A) rests at the top of the cut-out.

- Screw the fixing bracket (B) on both sides to the side consoles with brackets (C).

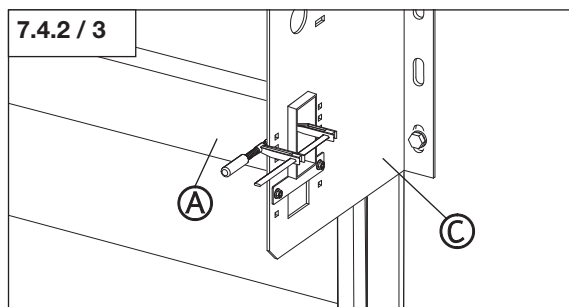


- Insert the hollow profile (A) into the side console with bearing (C) on the right and left-hand side.

- Align the hollow profile (A) in the side consoles with bearings (C) equally on both sides.



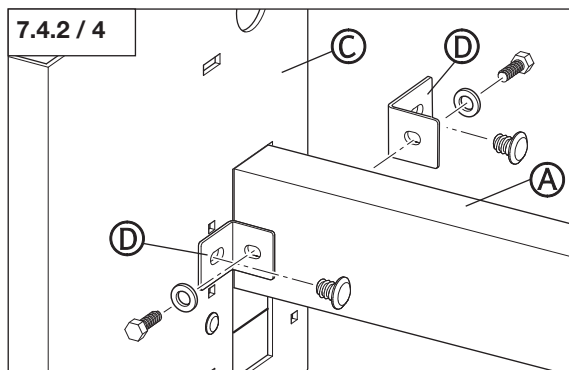
- Secure the hollow profile (A) on both sides to the side consoles with bearings (C).



- If necessary, drill holes in the hollow profile (A) to attach the brackets (D).

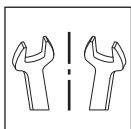
- Screw the brackets (D) to the hollow profile (A).

- Screw the brackets (D) to the side console with bearing (C).



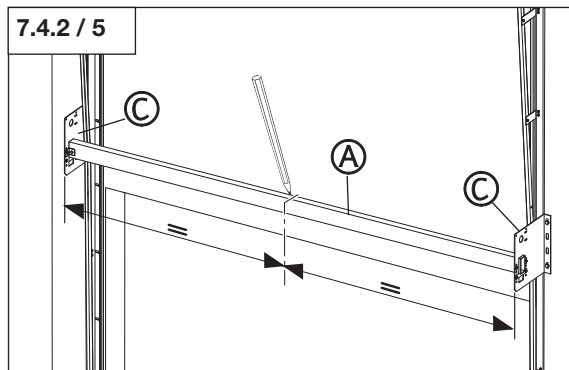
- Attach the hollow profile (A) on the opposite side.

- Remove the clamp securing the hollow profile.



7. Installation

- Mark the middle between the side consoles with bearings (C) on the hollow profile (A).

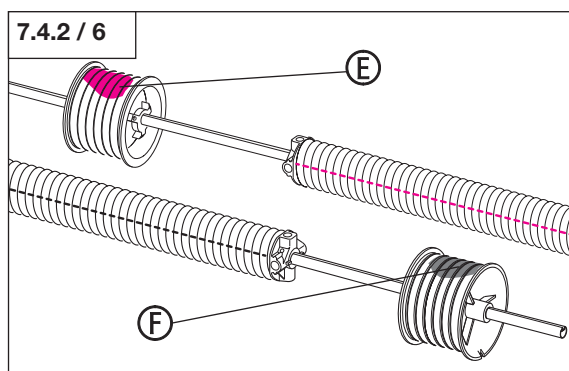


Note:

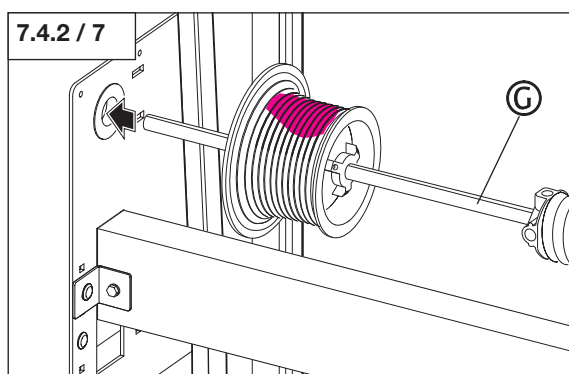
To ensure that the cables are wound up correctly, the cable drums have to be assembled at the specified door side. The cable drums and springs are colour coded.

Inner left installation:
Red cable drum (C) with red spring.

Inner right installation:
Black cable drum (D) with blue spring.



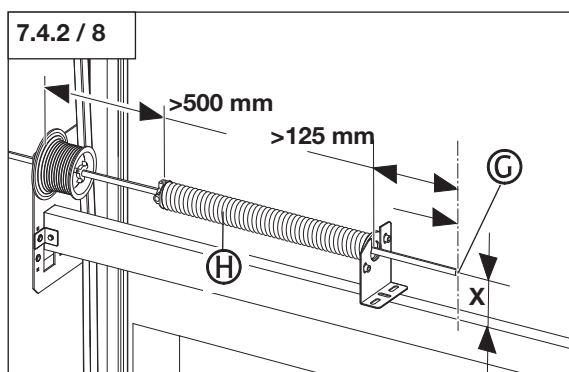
- Insert the spring shaft (G) into the bearing console.



Note:

To ensure correct installation, the distance (X) between the spring shaft (G) and the hollow profile (A) has to be the same along the entire length.

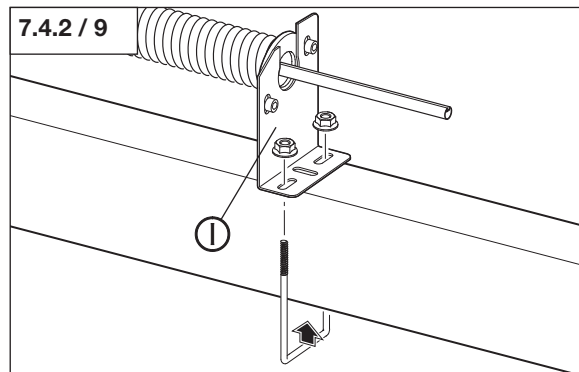
- Align the end of the spring shaft (G) flush with the middle between the consoles.
- Align the spring assembly (H) on the spring shaft.



7. Installation

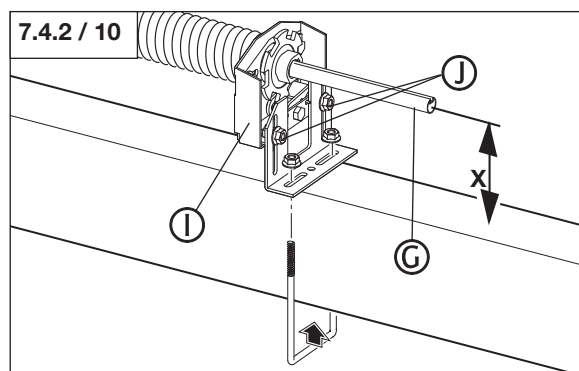
Standard central console

- Screw the central console (I) to the hollow profile.

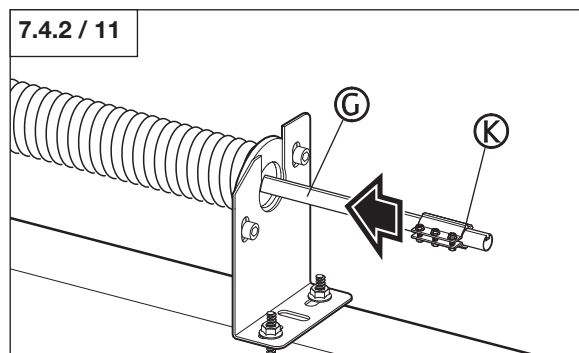


Central console spring break protection

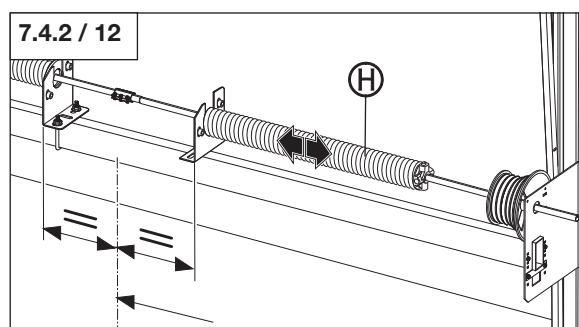
- Use the screws (J) to set the distance (X) between the hollow profile and the spring shaft (G).
- Screw the central console (I) to the hollow profile.



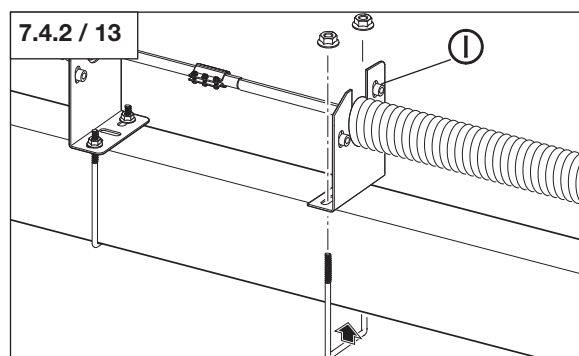
- Push the shaft coupling (K) onto the spring shaft (G).



- Insert the spring assembly on the other side into the side console with bearing.
- Align the spring assembly (H).



- Screw the central console (I) to the header.



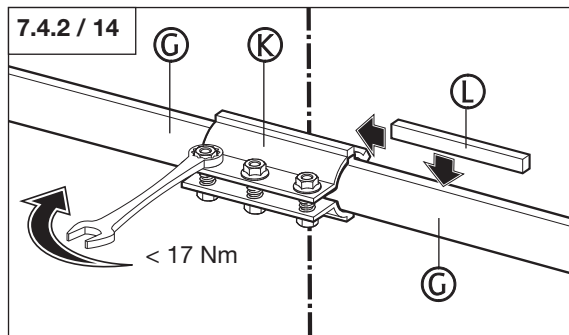
7. Installation



Note:

- To ensure that the spring shaft remains permanently connected, the following points must be fulfilled:
- When screwing, the maximum permissible torque of 17 Nm must not be exceeded.
 - The spring shafts must be firmly connected to one another.

- Push the shaft coupling (K) over the ends of both spring shafts (G) in the middle.
- Insert the parallel key (L).
Parallel key for solid shaft: 6.35 x 6.35
Parallel key for hollow shaft: 6.35 x 9.5
- Tighten the shaft coupling (K).



Function check:

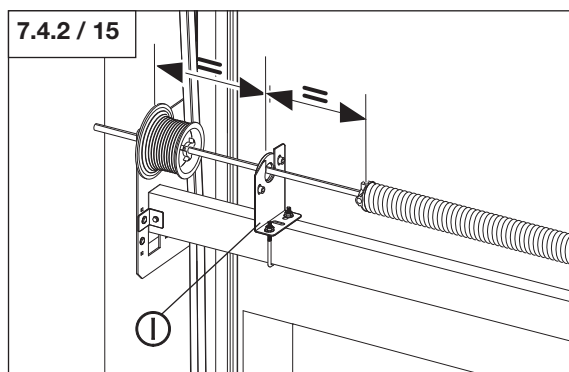
The parallel key (L) must be tightly secured in the shaft coupling (K).



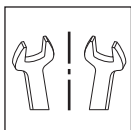
Note:

Larger doors may have an additional central console between the spring assembly and the cable drum.

- Align the central console (I).
- Screw the central console (I) to the hollow profile.



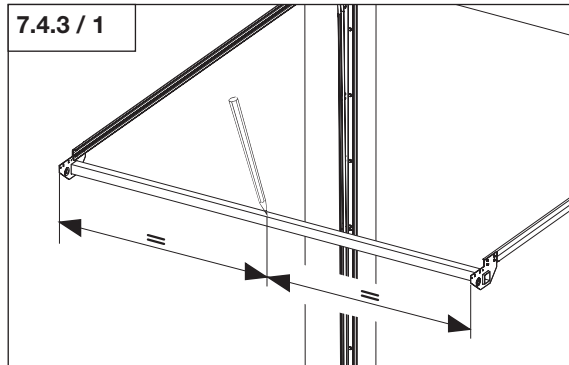
- Install the central console on the opposite side.



7. Installation

7.4.3 Install spring shaft

- Mark the middle between the side consoles with bearings on the hollow profile.

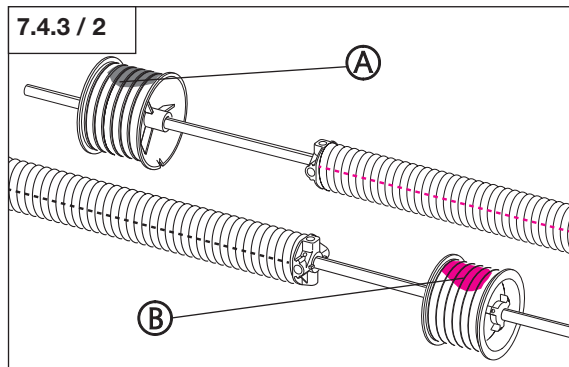


Note:

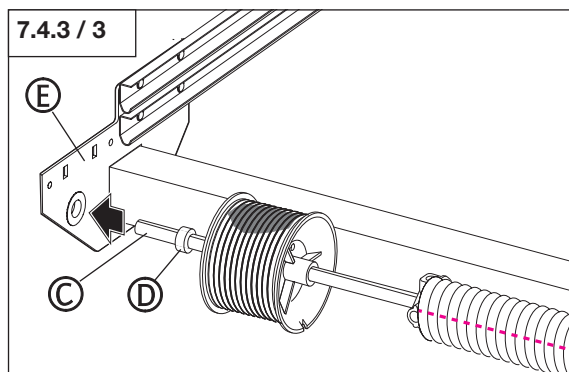
To ensure that the cables are wound up correctly, the cable drums have to be assembled at the specified door side. The cable drums and springs are colour coded.

Inner left installation:
Black cable drum (A) with red spring.

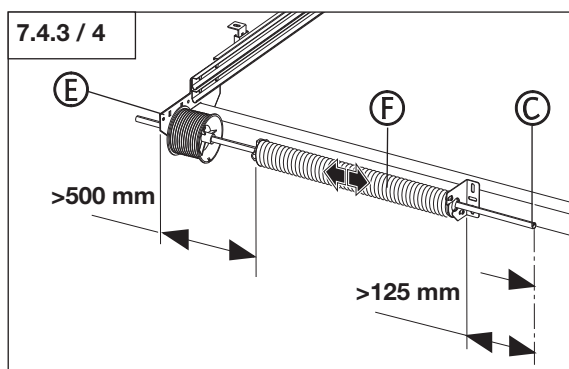
Inner right installation:
Red cable drum (B) with blue spring.



- Insert the spring shaft (C) with the spacer ring (D) into the side console with bearing (E).



- Align the end of the spring shaft (C) flush with the middle between the side consoles with bearings (E).
- Align the spring assembly (F) on the spring shaft (C).

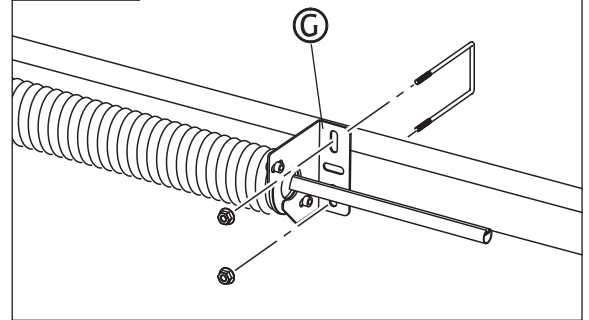


7. Installation

Standard central console

- Screw the central console (G) to the hollow profile.

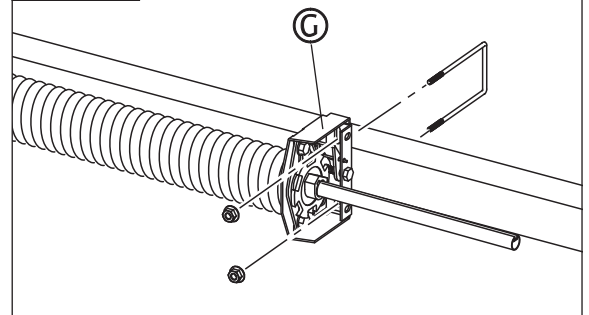
7.4.3 / 5



Central console spring break protection

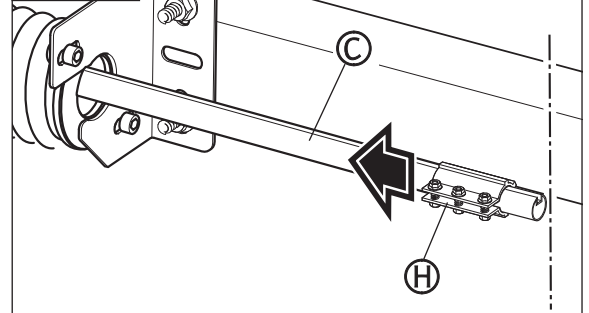
- Screw the central console (G) to the hollow profile.

7.4.3 / 6



- Push the shaft coupling (H) onto the spring shaft (C).

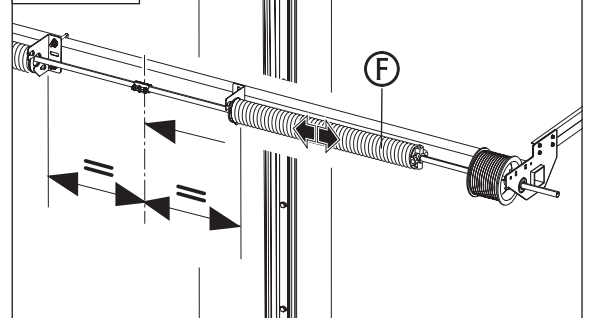
7.4.3 / 7



- Insert the spring assembly (F) on the other side into the side console with bearing.

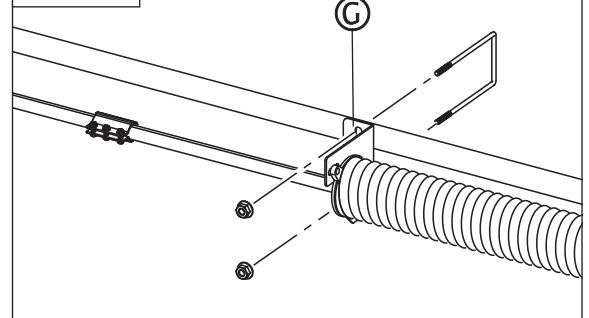
- Align the spring assembly (F).

7.4.3 / 8



- Screw the central console (G) to the header.

7.4.3 / 9



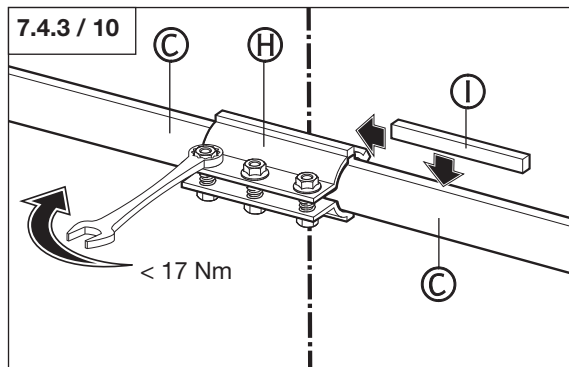
7. Installation



Note:

- To ensure that the spring shaft remains permanently connected, the following points must be fulfilled:
- When screwing, the maximum permissible torque of 17 Nm must not be exceeded.
 - The spring shafts must be firmly connected to one another.

- Push the shaft coupling (H) over the ends of both spring shafts (C) in the middle.
- Insert the parallel key (I).
Parallel key for solid shaft: 6.35 x 6.35
Parallel key for hollow shaft: 6.35 x 9.5
- Tighten the shaft coupling (H).



Function check:

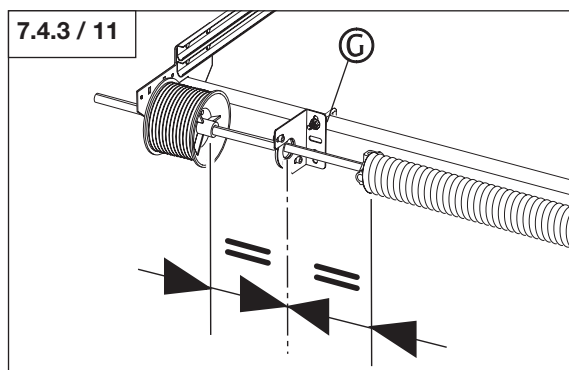
The parallel key (I) must be tightly secured in the shaft coupling (H).



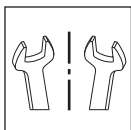
Note:

Larger doors may have an additional central console between the spring assembly and the cable drum.

- Align the central console (G).
- Screw the central console (G) to the hollow profile.



- Install the central console on the opposite side.

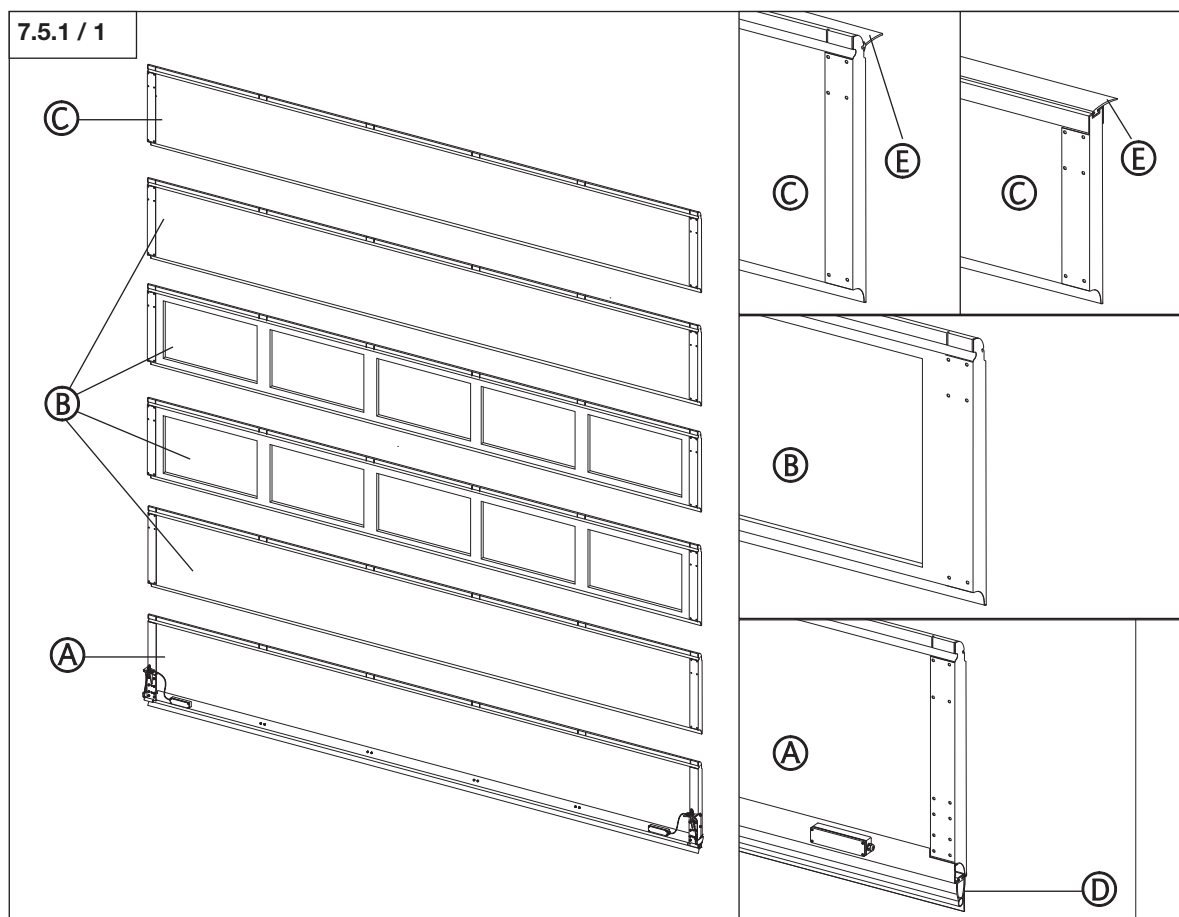


7. Installation

7.5 Install sections

N	ND	HL	HLD	HLU	NSH	NSD	VL	VLU
---	----	----	-----	-----	-----	-----	----	-----

7.5.1 Install bottom section



There are three section types:

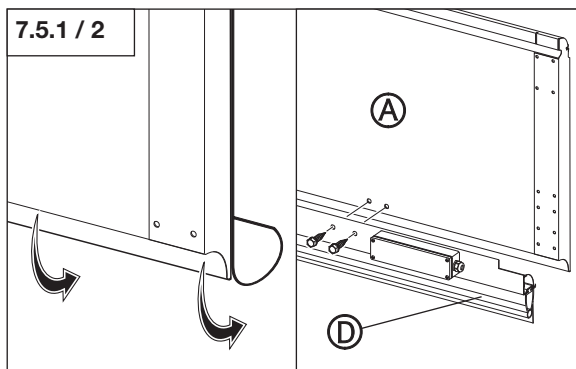
- A Bottom section with bottom profile (D).
 - B Section without seal profile. The type and appearance of the sections vary.
 - C Top section with header seal (E).
- Depending on the door type, the top section is also available as a short version.

Note:

To ensure correct installation, the following conditions have to be fulfilled.

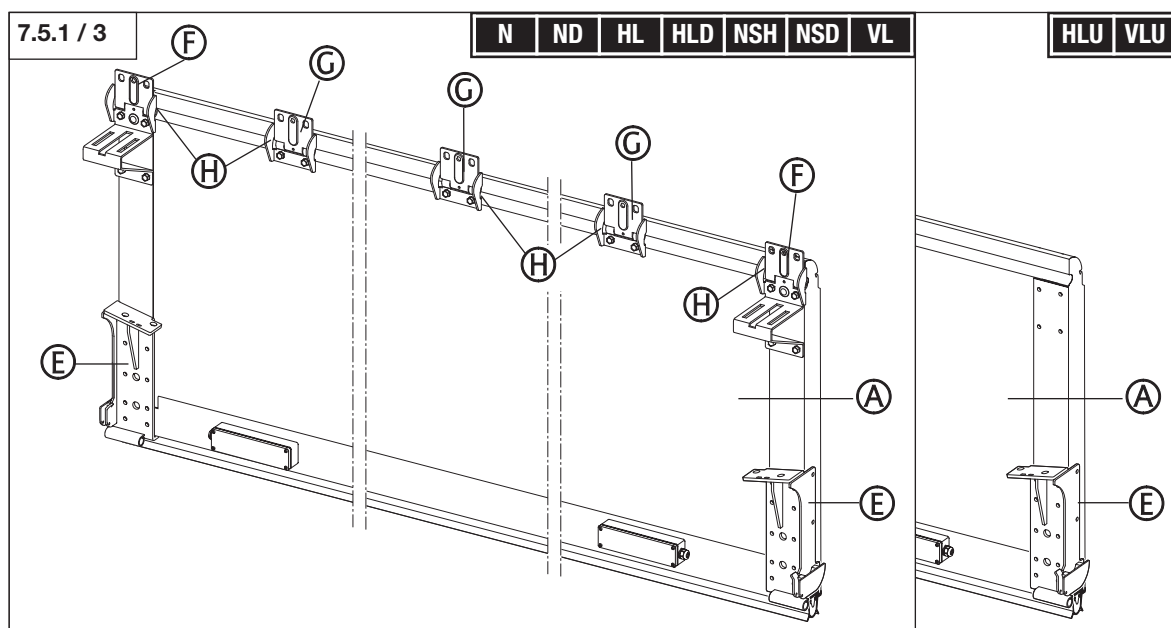
- The sections have to be installed in the specified order.
- The protective film has to be removed from the curves of the sections.
- The hinges have to fold and unfold smoothly after installation.

- Remove the protective film from the curves of the sections.
- Screw the bottom profile (D) to the bottom section (A).



7. Installation

Overview of bottom section



A Bottom section
E Bottom console
F Side hinge

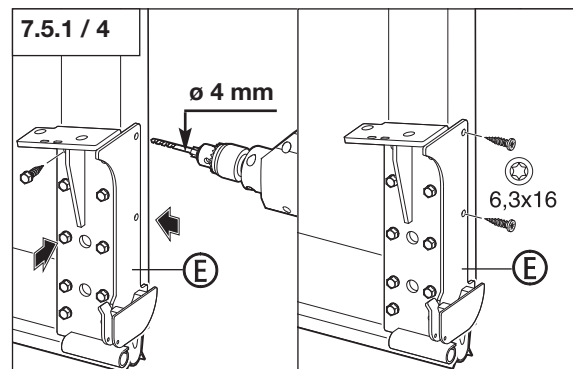
G Central hinge
H Finger pinch protector



Attention!

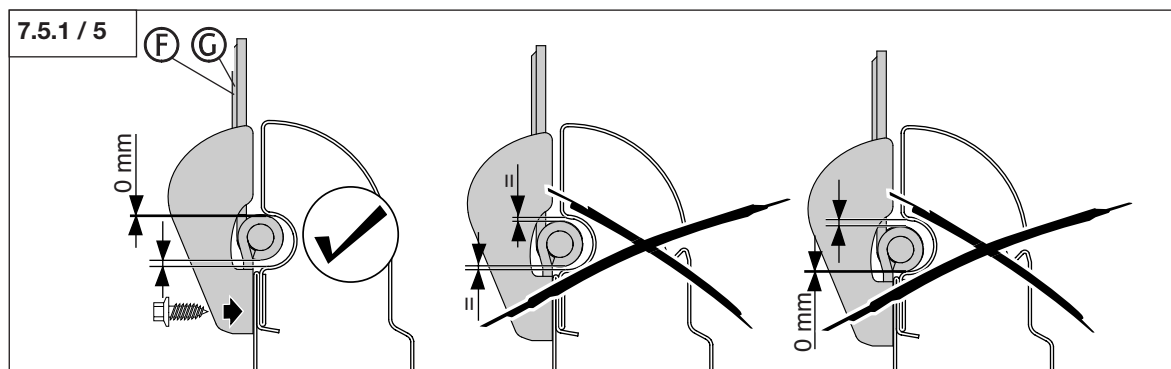
To ensure that the floor console remains permanently fixed, the floor console must be screwed using all 9 holes on the front and both holes on the side.

- Screw the floor console (E) to the floor section using all 9 holes on the front.
- Drill through the side holes of the bottom console (E) into the bottom section.
- Screw the bottom console (E) to the bottom section via the two side holes.



Attention!

To guarantee correct functioning of the hinges (F) + (G), they must be screwed to the upper edge of the curves.



7. Installation



Note:

With door variants HLU and VLU, the side hinges are only installed in the frame once the floor section has been adjusted.



Reference:

The installation of the side hinges for door variants HLU and VLU is described in chapter 7.5.3.

- Screw the side hinge (F) onto the bottom section.

- Screw all the required central hinges (G) onto the bottom section.

- All side and central hinges must be lubricated after installation.

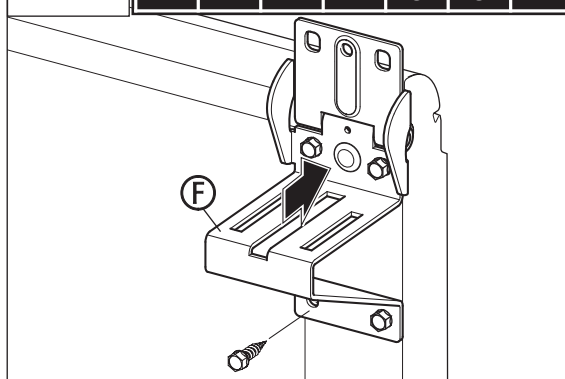
- Carry out installation of the bottom console and the side hinge on the opposite side.

Function check:

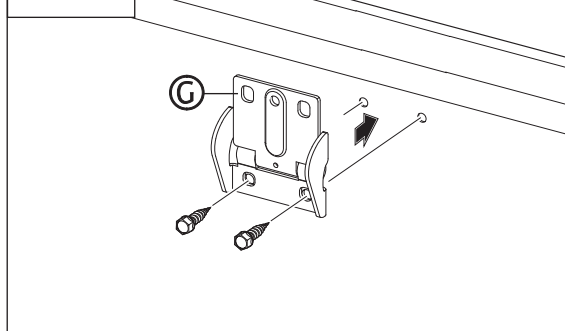
The side and central hinges must fold and unfold smoothly. Do not use stiff hinges.

7.5.1 / 6

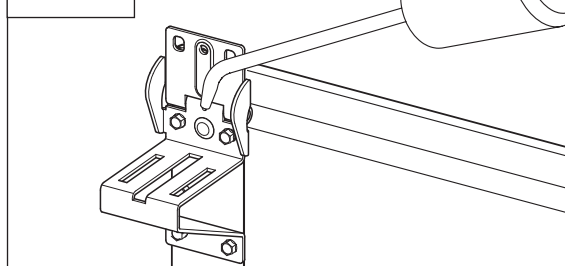
N ND HL HLD NSH NSD VL



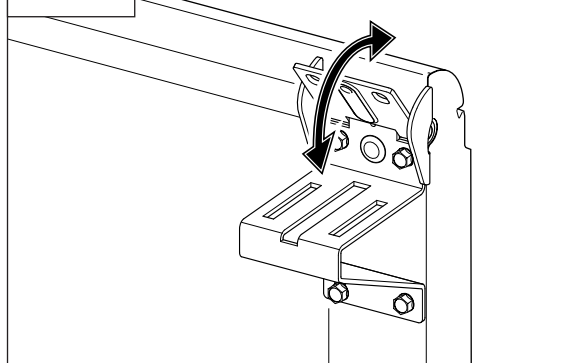
7.5.1 / 7



7.5.1 / 8



7.5.1 / 9



7. Installation

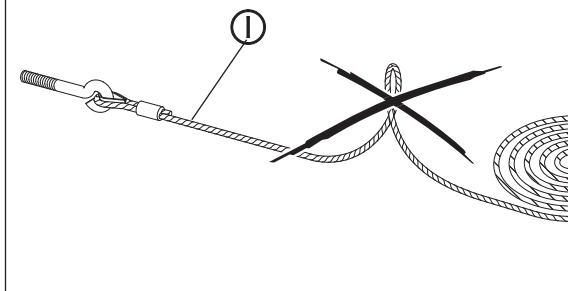


Attention!

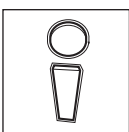
To prevent permanent damage to the cables, ensure that the cables (I) are not bent or twisted.

- Unwind the cables (I).

7.5.1 / 10



The cables may be longer than required upon delivery. To facilitate cable installation, mark the correct length on the cables in advance.



Reference:

Refer to the enclosed pack list for details of the required cable length (X). The packing list can be found in the accessories pack.

The picture shows an example packing list.

The required cable length must be taken from the packing list for the specific door.

Kunde: Musterbau
SAP-Nr.: xxxxxx - xx
Torbreite: 3000 mm
Torhöhe: 4000 mm
Sektionen: 7 Stück
Beschluss: Normalbeschluss

RAL :
Bedienung: E - Antrieb
Panel oben geschnitten: Nein
Schlupftür: Nein
Anz.Felder: 2 Stück
Sturzhöhe: 450 mm

Teile-Nr.	Bezeichnung	Menge	erledigt
120986	Laufrollen d=45 mm (Industrie)	16	
118405	Toprollenhalter Industrie	2	
109550	Laufrollenhalter	14	
109555	Seitenscharnier ohne Fingerschutz	12	
109554	Mittelscharnier ohne Fingerschutz	6	
114971	Bodenkonsole verz. rechts	1	
114970	Bodenkonsole verz. links	1	
102808	Blebschrauben 6,3x16 mit Hohlflansch verz.	84	
102016	Schloßschrauben 6x16 mit Sperrzahnmutter	38	
121163	Endpuffer mit Befestigungswinkel verz. Stahl	2 Stück gross	
	Seil d = 4 mm	2	
	gelieferte Seil-Länge = 7000 mm		
	benötigte Seil-Länge = 5121 mm		
154150	Vorpack Laufrollen-Distanzrinne	1	
154160	Vorpack Seil-Distanzrinne	1	
154153	Vorpack Bef-Mat Bodenkonsole	1	
119063	Vorpack Schlaufeisenschalter Seil 3,4,5	1	
120042	Befriebsanleitung Federbruchsicherung	1	
120042	Winkel für Federpufferanschlag	2	
118469	Montageanleitung Sectionaltore deutsch - (D)	1	
156619	Montage-Distanzstück inkl. Montagezettel	5	
	Arbeitsblatt	1	

Sonder -
ausstattung

Anzahl Packstücke : 1 2 3 4 5 6
gepackt von: Datum:

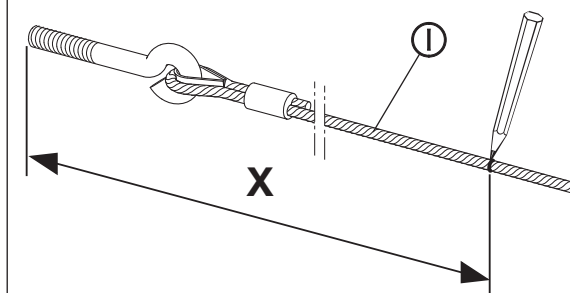
Fertigungsunterlagen_5

Sachbearbeiter: M. Mustermann
20.11.2012 Seite 1

7. Installation

- Mark the length (X) on the cables (I).

7.5.1 / 11



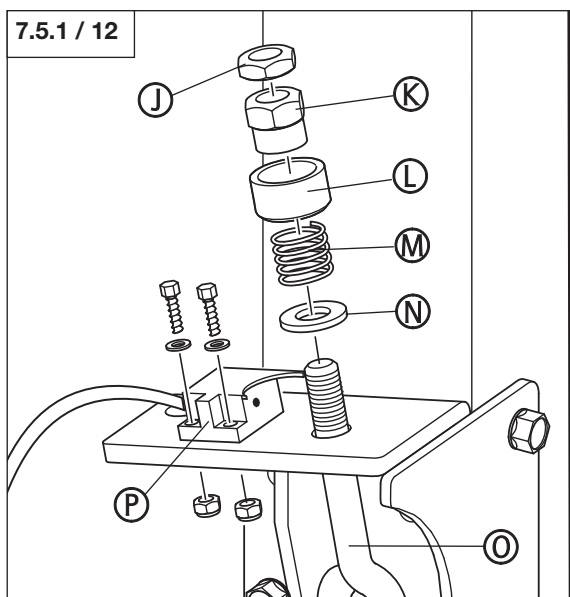
Attention!

To prevent damages to the cable slack protection, the micro switch (P) should not rest on the switch cam (L) during subsequent door installation.

- Screw the cable slack protection to the bottom console.

- J Hexagon nut DIN 439-M10
- K Tension nut
- L Switch cam
- M Compression spring
- N Washer
- O Eyebolt
- P Micro switch

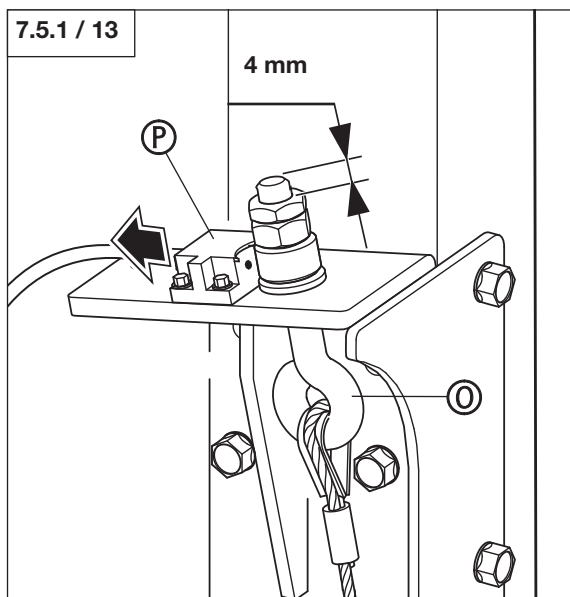
7.5.1 / 12



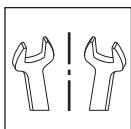
- Remove the micro switch (P) in the elongated holes from the switch cam.

- Adjust the eyebolt (O).

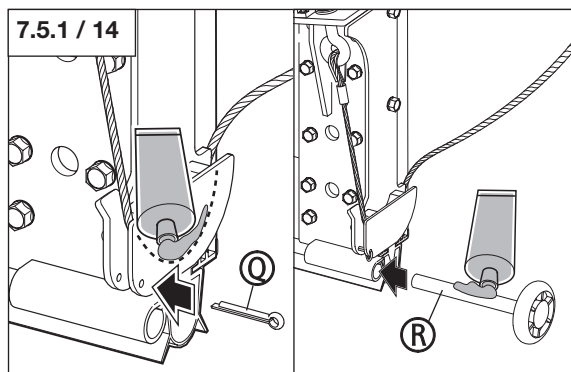
7.5.1 / 13



7. Installation

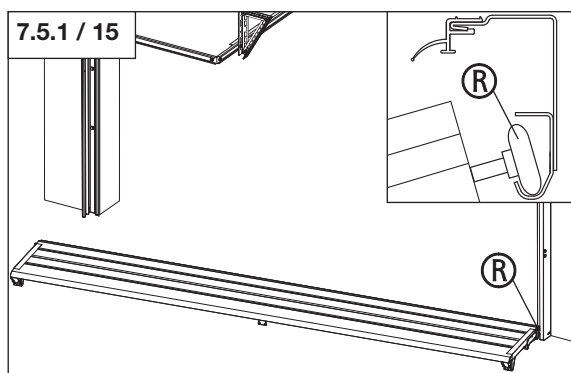


- Lubricate the cable pulley at the bottom console.
- Pull the cable around the pulley.
- Secure the cable with a split pin (Q).
- Lubricate the shank of the roller (R).
- Insert the roller (R) into the bottom console.

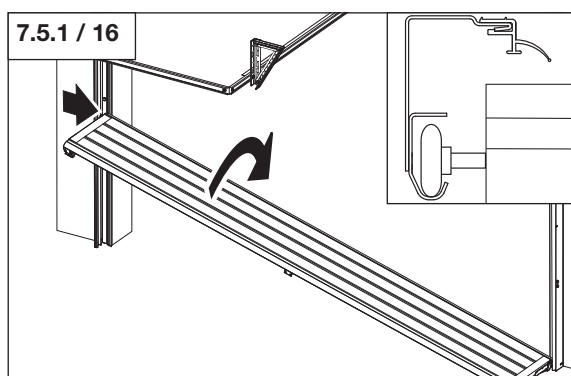


- Install the cable slack protection on the opposite side.

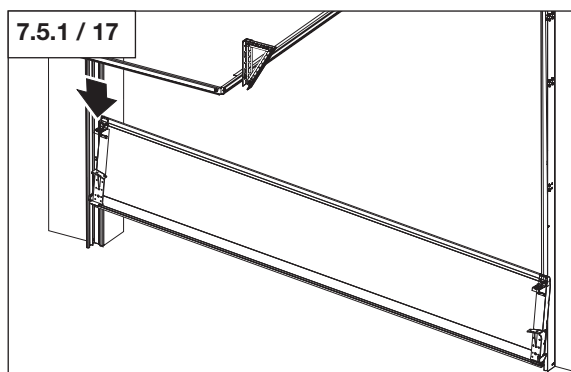
- Insert the roller (R) on one side into the rail.



- Insert the other roller into the opposite rail.
- Turn the floor section into the upright position before lowering it.



- Lower the floor section.



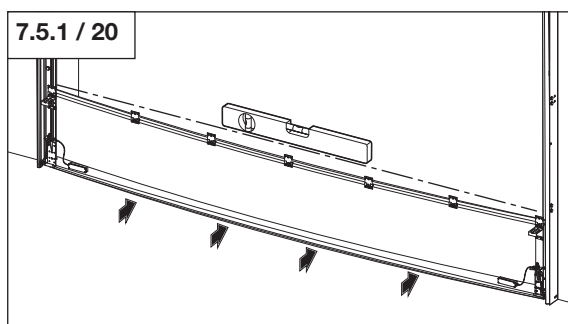
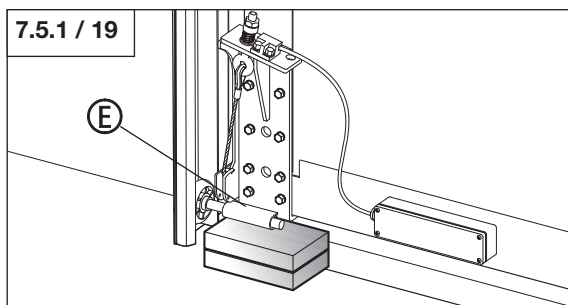
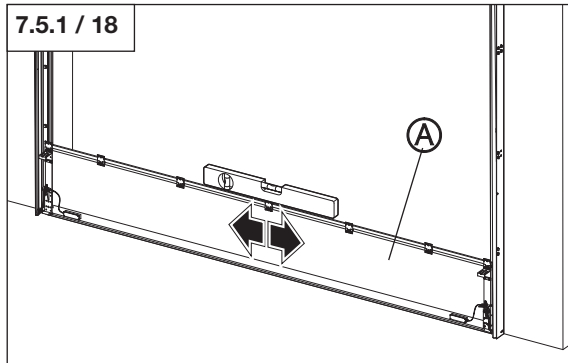
7. Installation



Attention!

To prevent damage to the bottom door profile, the bottom section has to be shimmed at the bottom consoles. For wider doors, the bottom section has to be additionally shimmed in the middle. For doors with a wicket door, the bottom section has to be additionally shimmed in the wicket door area.

- Erect the bottom section (A).
- Align the bottom section (A) in the middle between the frames.
- Align the bottom section (A) horizontally.
- Shim the bottom console (E) on both sides.



Function check:

The sections should not sag.
Additional shimming can counterbalance any sagging of the sections.



7.5.2 Installing other sections

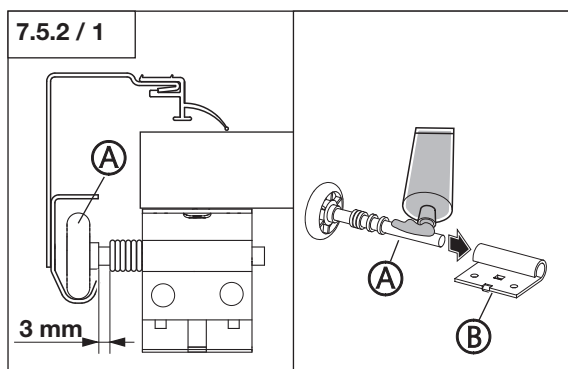
N	ND	HL	HLD	NSH	NSD	VL
---	----	----	-----	-----	-----	----

Note:

To ensure correct door travel, the following conditions have to be fulfilled.

- The door sections have to be at least 0.8 mm apart.
- For the fittings NSH and NSD, the plastic spacers may **only** be attached to the track roller at the top roller bracket.

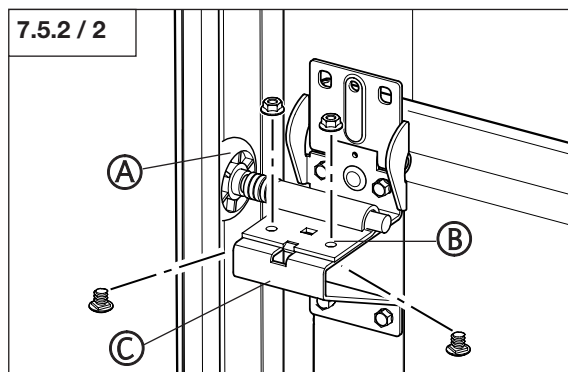
- Fit the plastic spacers onto the roller (A).
- Lubricate the shank of the roller (A).
- Insert the roller (A) into the roller retainer (B).



7. Installation

- Insert the roller (A) into the rail.
- Screw the roller retainer (B) to the side hinge (C).

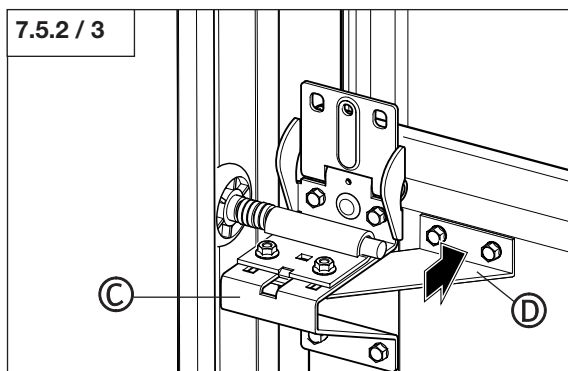
7.5.2 / 2



Note:

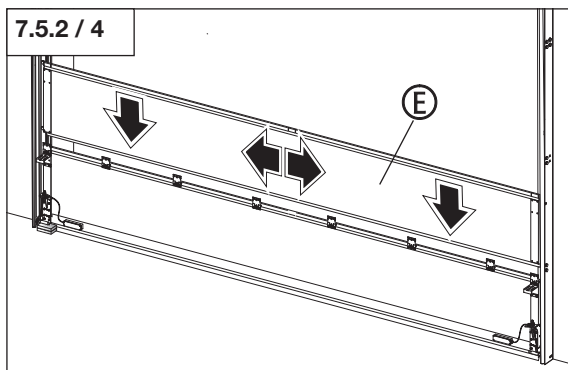
For doors which are wider than 5500 mm, additional reinforcements (D) have to be assembled to all the side hinges (C).

7.5.2 / 3



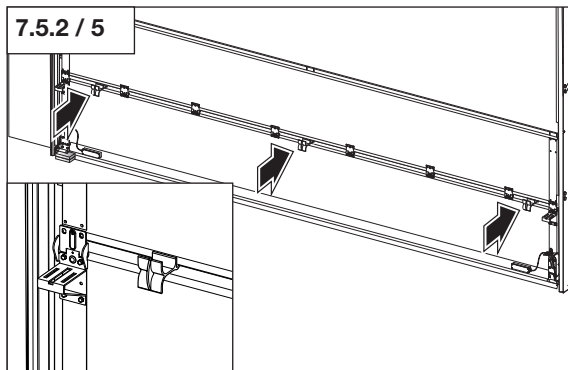
- Install the roller retainer on the opposite side.
- Place another door section (E) on the bottom section.
- Align the door section (E) to the bottom section.

7.5.2 / 4



- Insert the spacers between the sections

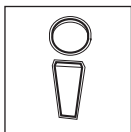
7.5.2 / 5



Note:

The spacers must be removed after screwing the sections together. The spacers must be re-inserted between the sections before unscrewing the sections.

7. Installation



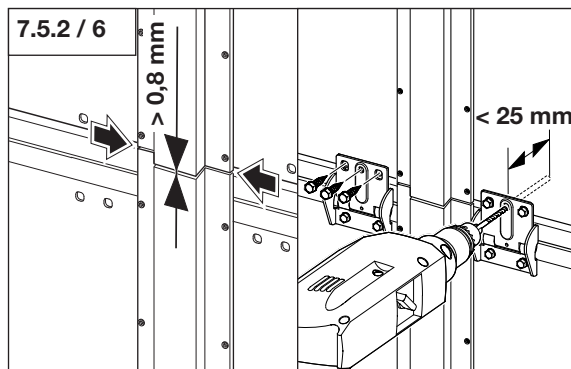
Wicket door (optional)

Reference:

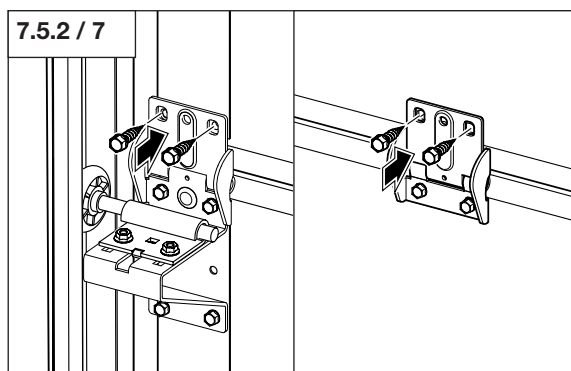
For installation of the wicket door, the separate installation instructions for wicket doors must be observed.

For doors with a wicket door, the door sections around the wicket door have to be aligned to each other.

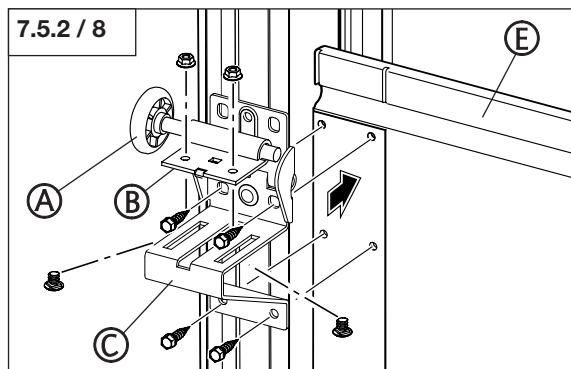
- Align the door sections.
- Screw on the central hinges in the wicket door area.



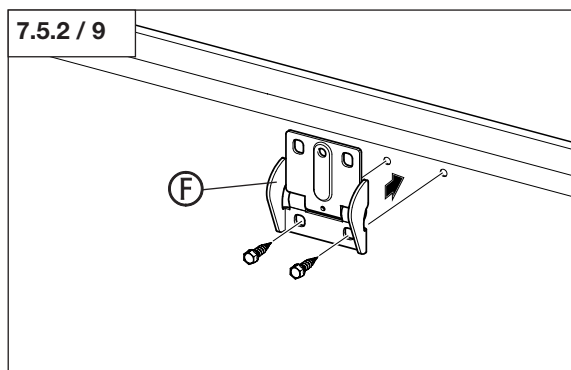
- Screw all the hinges of the bottom section to the other door section.



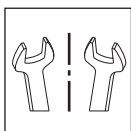
- Screw the side hinge (C) onto the door section (E).
- Lubricate the shank of the roller (A).
- Insert the roller (A) into the roller retainer (B).
- Screw the roller retainer (B) to the side hinge (C).



- Screw all the required central hinges (F) onto the door section.



- Assemble all the other door sections, side hinges, rollers and central hinges.

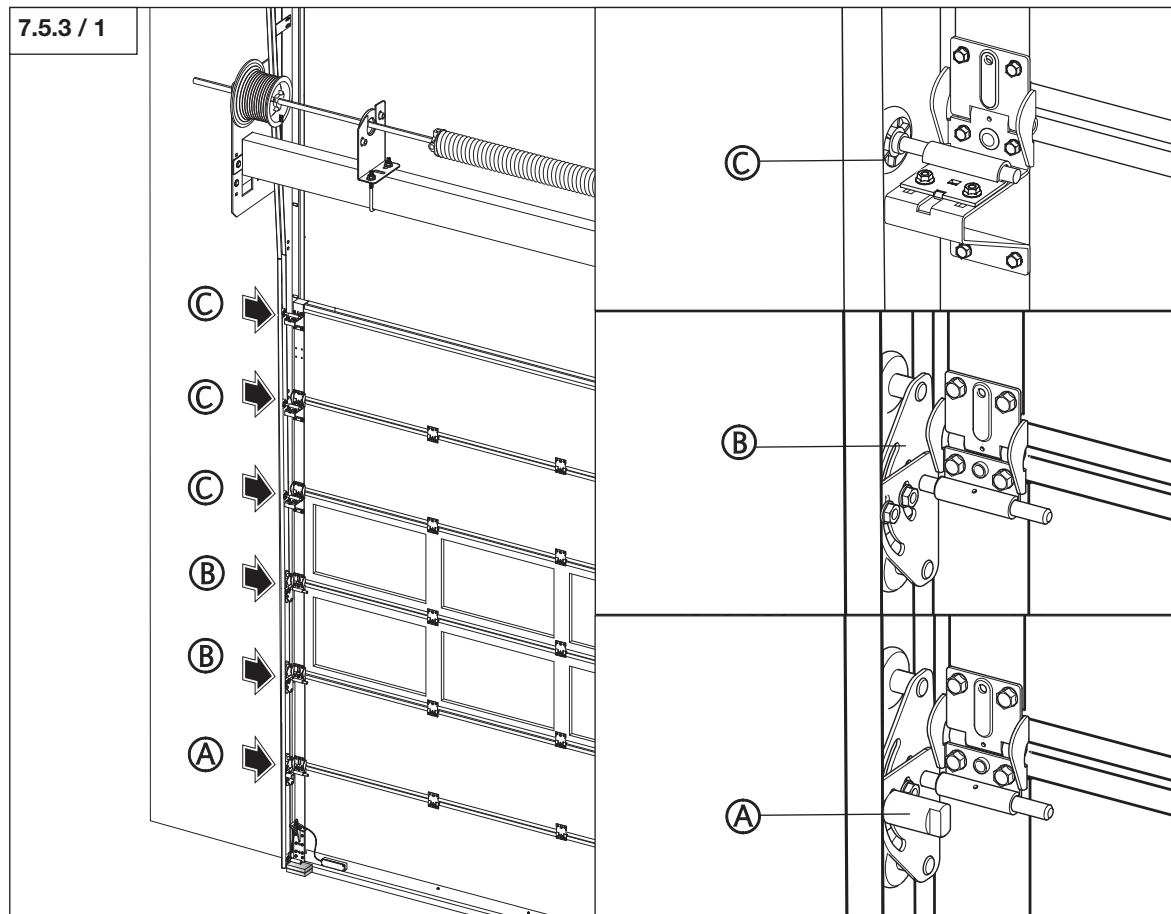


7. Installation

7.5.3 Installing other sections



GB

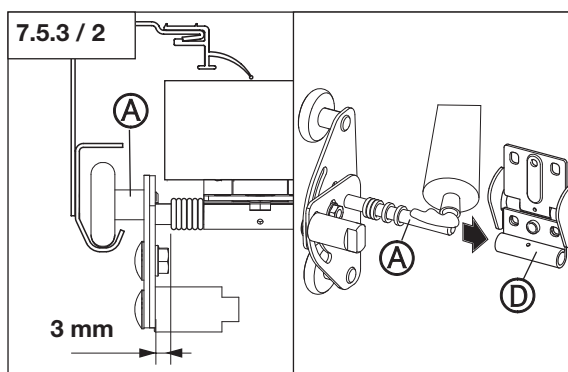


- A Tandem roller with guide cylinder
- B Tandem roller
- C Standard track roller

Note:

- To ensure correct door travel, the following conditions have to be fulfilled.
- The door sections have to be at least 0.8 mm apart.
 - The various track rollers must be assembled at the corresponding position.

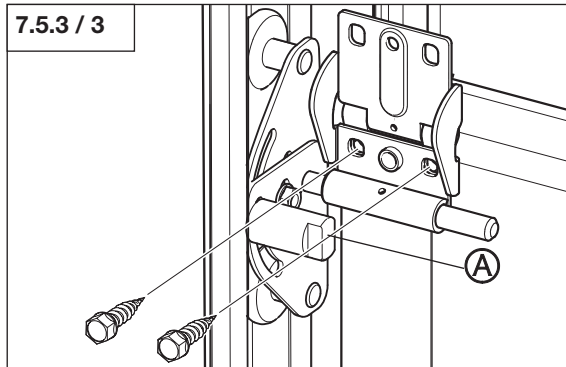
- Fit the plastic spacers onto the roller (A).
- Lubricate the shank of the roller (A).
- Insert the roller (A) into the roller retainer (D).



3 mm

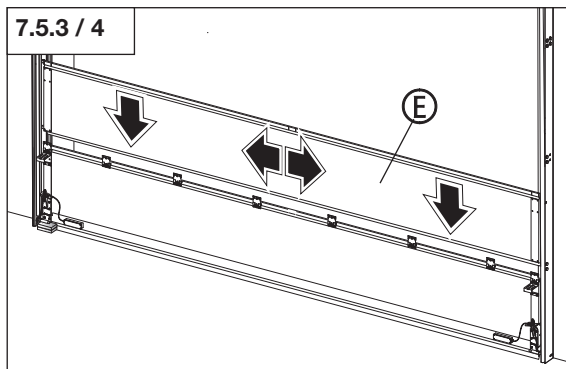
7. Installation

- Screw the tandem roller with guide cylinder (A) to the floor section.



- Carry out the installation of the tandem roller with guide cylinder (A) on the opposite side.

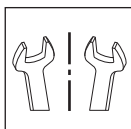
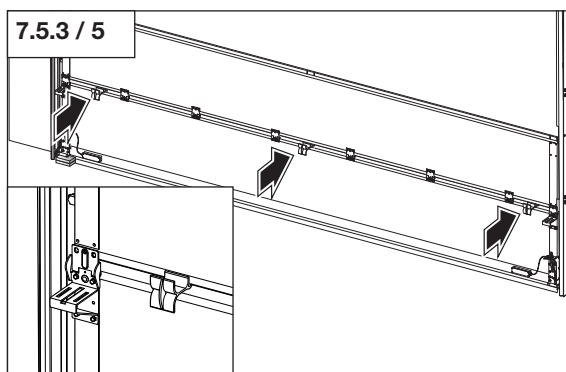
- Place another door section (E) on the bottom section.
- Align the door section (E) to the bottom section.



- Insert the spacers between the sections.

Note:

The spacers must be removed after screwing the sections together. The spacers must be re-inserted between the sections before unscrewing the sections.

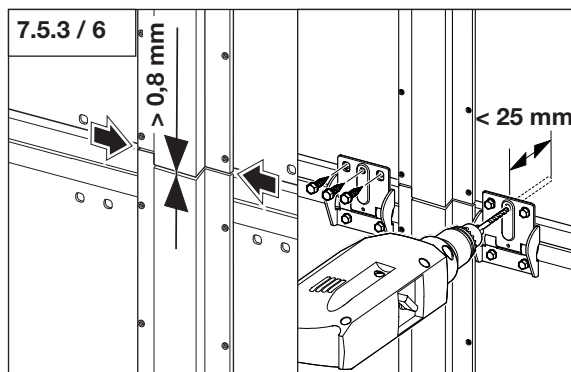


7. Installation

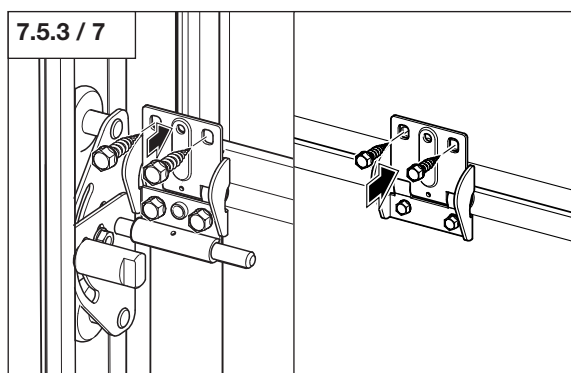
Wicket door (optional)

For doors with a wicket door, the door sections around the wicket door have to be aligned to each other.

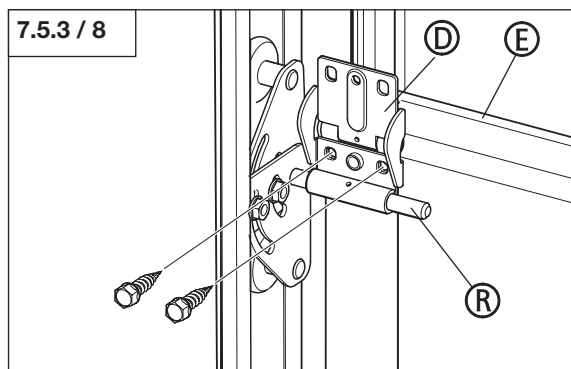
- Align the door sections.
- Screw on the central hinges in the wicket door area.



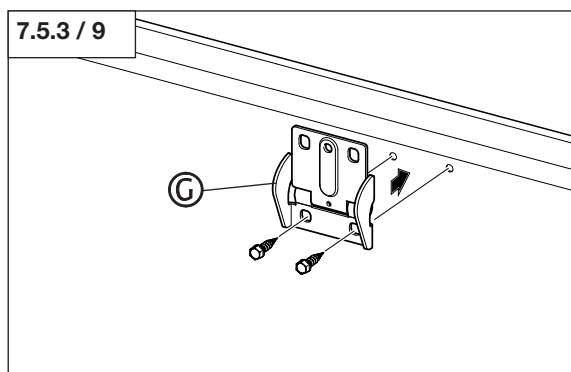
- Screw all the hinges of the bottom section to the other door section.



- Lubricate the shaft of the tandem roller (R).
- Insert the roller (R) into the roller retainer (D).
- Screw the tandem roller (R) to the door section (E).



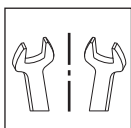
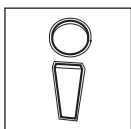
- Screw all the required central hinges (G) onto the door section.



Reference:

The installation of the track rollers from the fourth door section onwards is described in chapter 7.5.2.

- Assemble all the other door sections, side hinges, rollers and central hinges.



7.5.4 Install top roller retainer

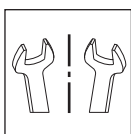


- Screw the top roller retainer (B) to the top section.
- Lubricate the shank of the roller.
- Insert the roller (C) into the roller retainer (D).
- Insert the roller (C) into the rail.
- Screw the roller retainer (D) to the top roller retainer (B).
- Screw the stop bracket (A) to the top section.



GB

- 7.5.5 / 2**
-
- Diagram 7.5.5 / 2 illustrates the final step of the hinge installation. It shows the hinge plate (A) being secured to the door frame with screws (D). The hinge pin (C) is shown being inserted into the hinge mechanism (B). Arrows indicate the direction of movement for the door.



- ### 7.5.6 Install top roller retainer

- 7.5.6 / 1

3 mm

The diagram illustrates the connection of the water supply line to the water inlet valve. It includes a side view of the valve assembly with a 3 mm gap indicated, and an exploded view of the components labeled A, B, and C.

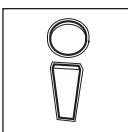
- 7.5.6 / 2**
-
- Diagram 7.5.6 / 2 shows a detail view of the lower hinge assembly. It illustrates the lower hinge bracket (D) being attached to the door frame with screws. The hinge pin (E) is shown being inserted into the lower hinge bracket. The upper hinge bracket (A) is also visible, secured with screws (B).

-

7. Installation

7.6 Install Bowden cables

N	ND	HL	HLD	HLU	NSH	NSD	VL	VLU
---	----	----	-----	-----	-----	-----	----	-----



Attention!

To prevent damage to the Bowden cables and to ensure correct door travel, the cables have to be installed correctly.

Note:

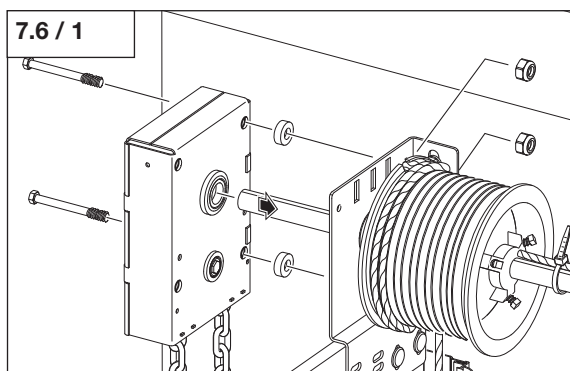
Due to their size the cable drums may obscure the screw fittings for the drive system. After installing the cables, the cable drum is permanently attached and cannot be moved away from the screw fittings. If installation of the drive system is not possible after cable drum attachment, the drive system has to be installed prior to the cables.

Reference:

Installation of the geared chain hoist is described in section 7.12.
Installation of the direct mount drive is described in section 7.13.

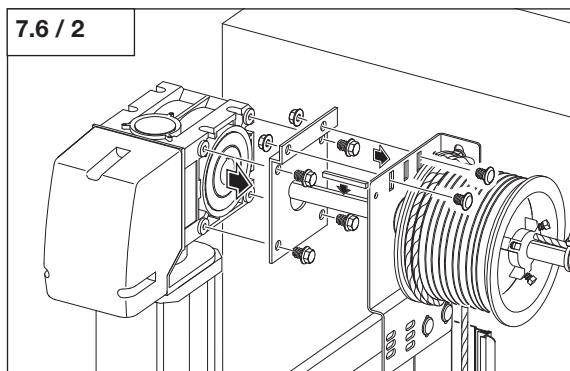
Geared chain hoist (optional)

- Check whether installation of the geared chain is possible after cable installation.



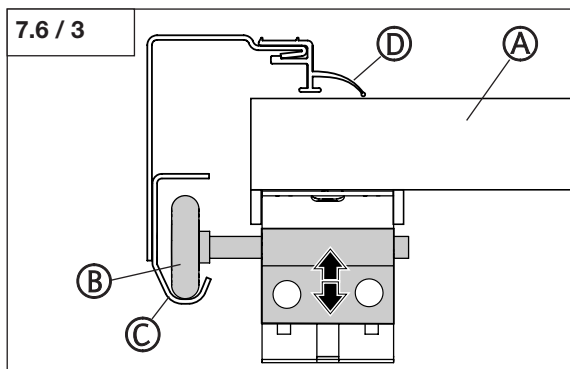
Direct mount drive (optional)

- Check whether installation of the direct mount drive is possible after cable installation.



All the door sections (A) have to be correctly adjusted before installing the Bowden cables.

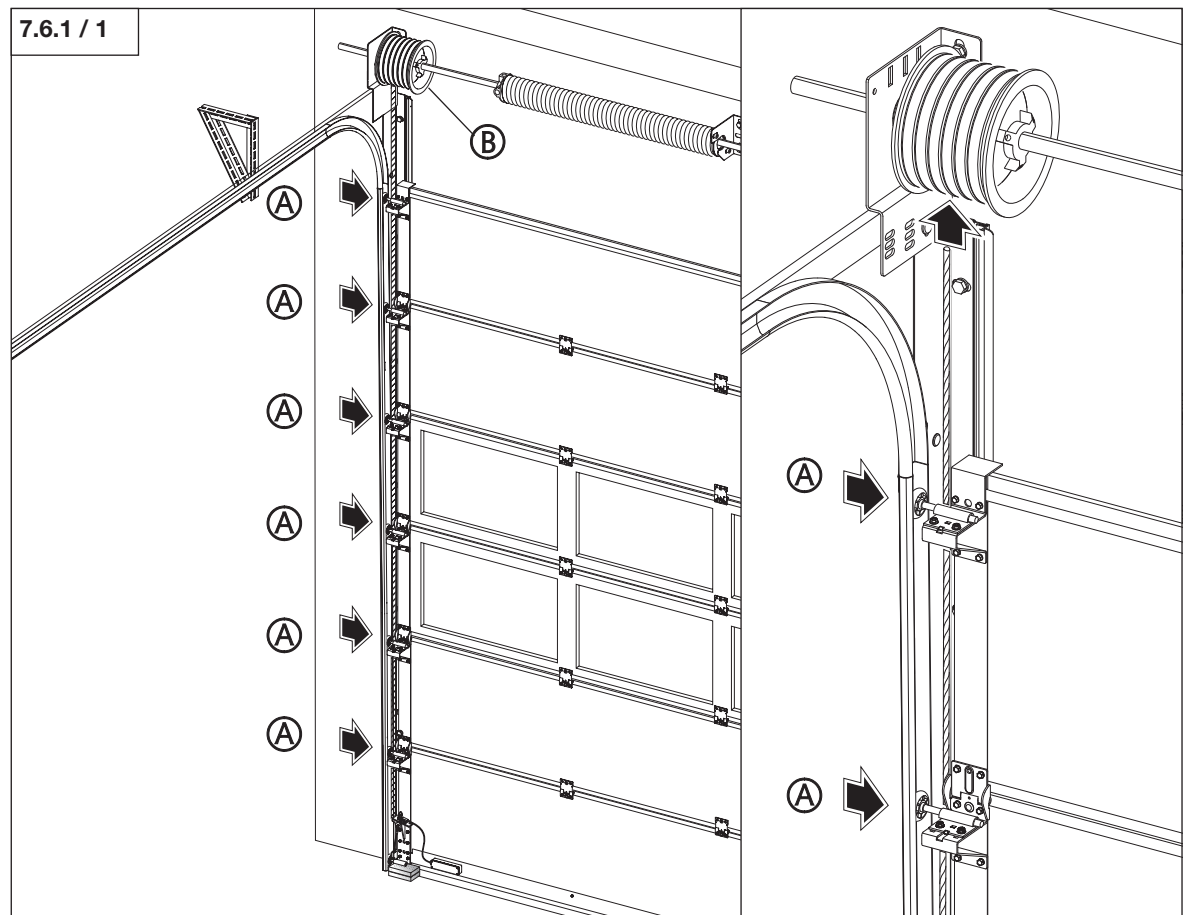
- Adjust the door sections (A) to ensure that
 - all the rollers (B) are in the curve of the rail (C),
 - all the rollers (B) rotate easily,
 - all the door sections (A) are resting on the seal profile (D).



7. Installation

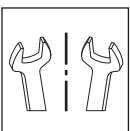
7.6.1 Install Bowden cables

N	ND	HL	HLD				VL
---	----	----	-----	--	--	--	----



A Course of the cable **behind** the roller

- Install the Bowden cable up to the cable drum (B).
- Install the Bowden cable on the opposite side.



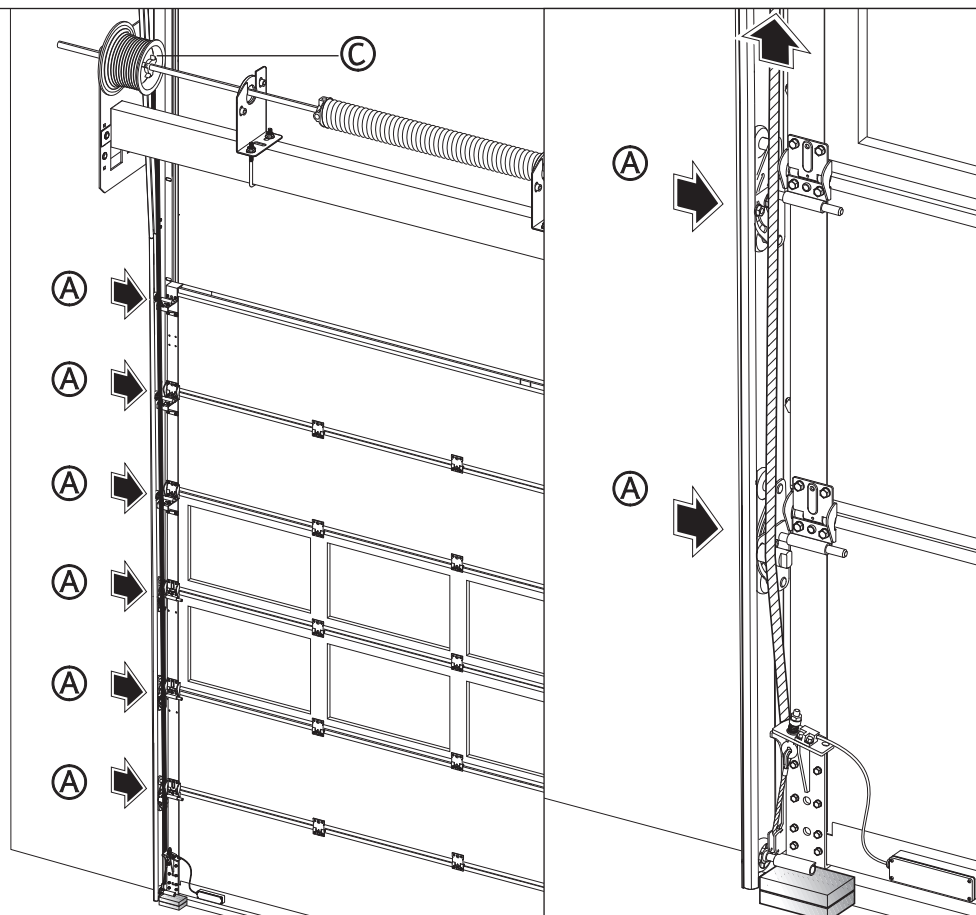
7. Installation

7.6.2 Install Bowden cables

HLU

VLU

7.6.2 / 1



A Course of the cable **in front** of the roller



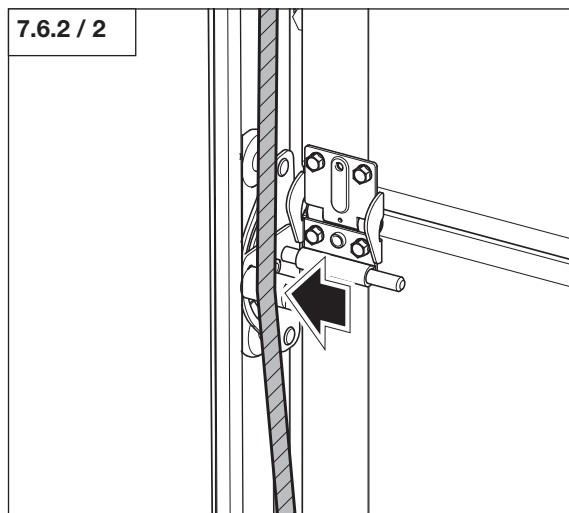
Note:

To ensure that the door opens and closes smoothly, all conditions must be met:

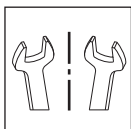
- The cables and the cable drums must be assembled as close to the frame as possible when the door is closed.
- The cables may not touch the frame when opening and closing the door.

- Install the Bowden cable up to the cable drum (C).
- Align the cable drums.

7.6.2 / 2



- Install the Bowden cable on the opposite side.

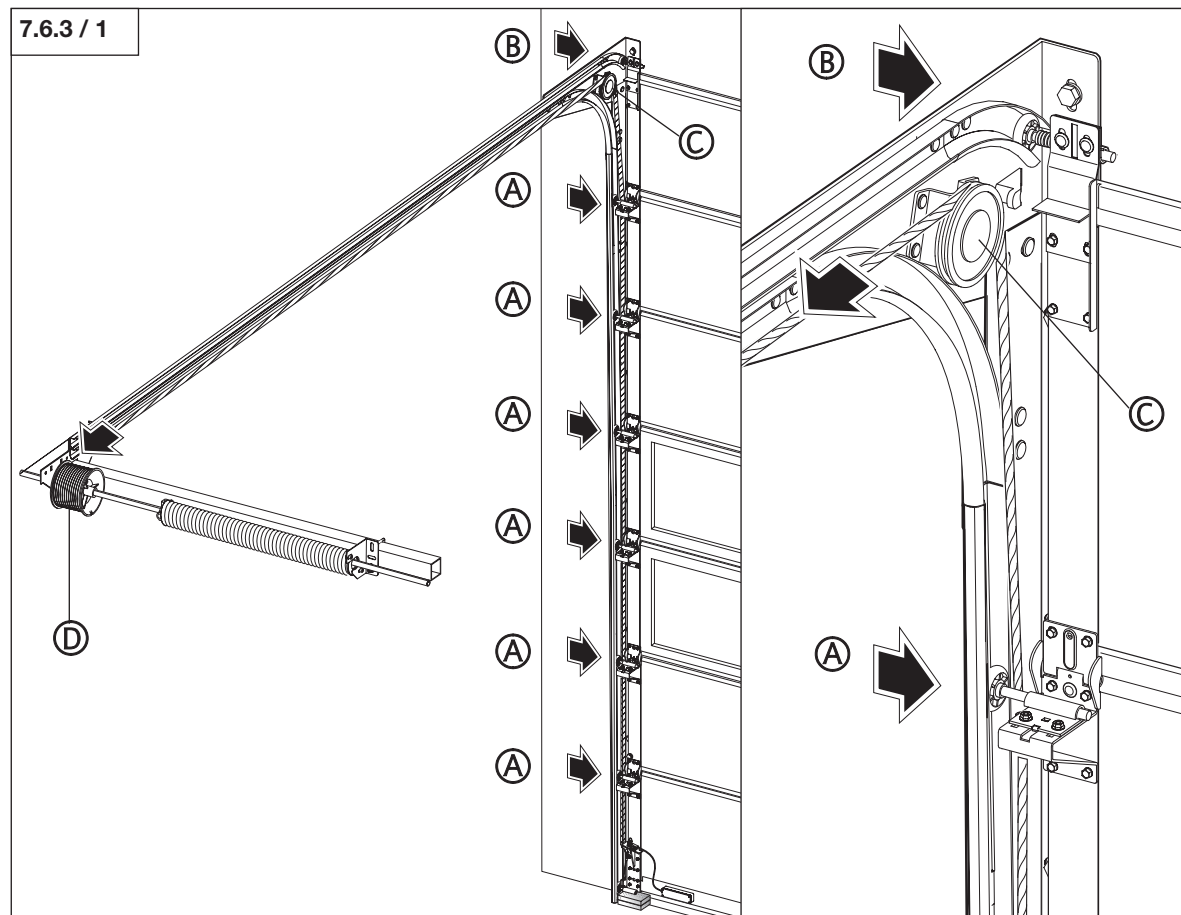


7. Installation

7.6.3 Install Bowden cables

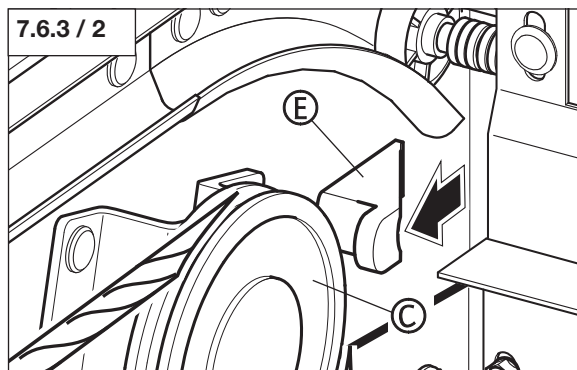


GB

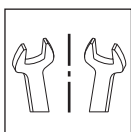


- A Course of the cable **behind** the roller
- B Course of the cable **in front** of the roller
- C Course of the cable **via** the pulley

- Install the Bowden cable up to the cable drum (D).
- Push the cable lock (E) onto the pulley (C).
- Screw and fasten the cable lock (E) into position.



- Install the Bowden cable on the opposite side.



7. Installation

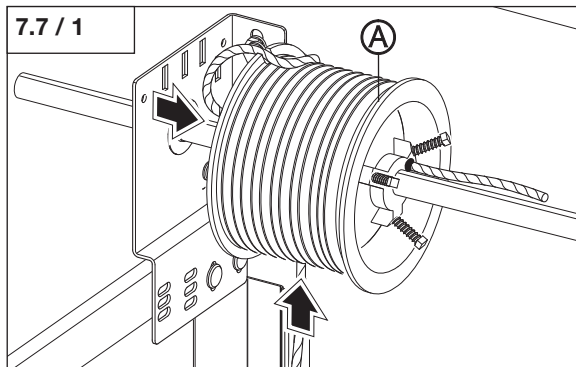
7.7 Wind up Bowden cables

N	ND	HL	HLD	HLU	NSH	NSD	VL	VLU
---	----	----	-----	-----	-----	-----	----	-----

Note:

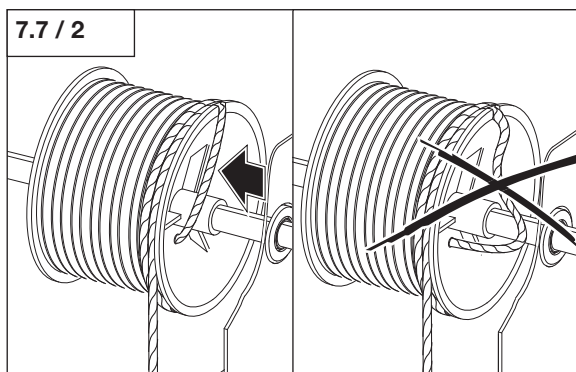
For the low headroom arrangement with rear spring shaft installation position (NSH) and the low headroom arrangement with follow the roof inclined rails (NSD), the cable drums are rotated on the spring shaft.

- Place the cable from the rear over the cable drum (A).
- Insert the cable through the cable drum (A).



Note:

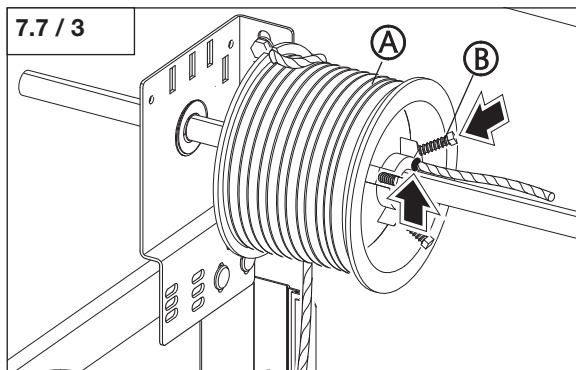
To ensure correct door travel, the cables have to be taut.



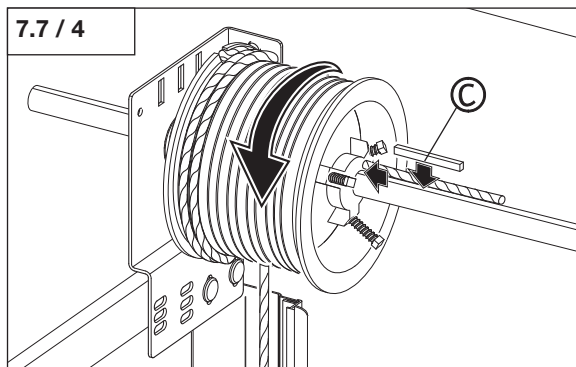
Attention!

To ensure the cable remains permanently intact, the cable attachment screw (B) must be tightened with a torque of 13 Nm.

- Pull the cable out of the cable drum (A) until the mark is flush with the inside surface of the drum.
- Clamp the cable using the cable attachment screw (B) (13 Nm).



- Rotate the cable drum to wind up the cable.
- Insert the parallel key (C).
Parallel key for solid shaft: 6.35 x 6.35
Parallel key for hollow shaft: 6.35 x 9.5



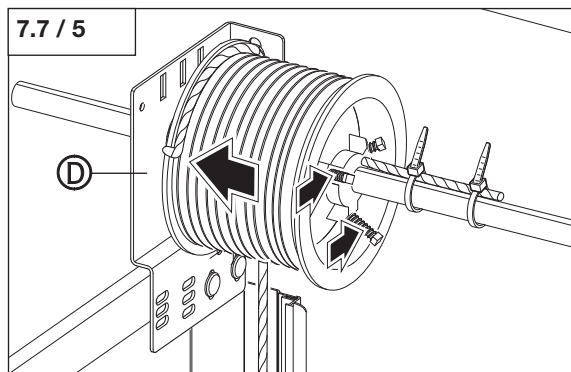
7. Installation



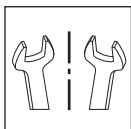
Note:

To prevent the door being blocked, secure or cut off any excess cable.
Depending on structural conditions, it may be that only half a safety coil remains on the cable drum when the door is closed - this is permissible.
The specified cable length on the packing slip must be adhered to.

- Push the cable drum up to the limit stop at the frame console (D).
- Tighten the cable drum screws.
- Secure or cut off any excess cable.



- Carry out cable wind-up on the opposite side.



7.8 Tension springs

N	ND	HL	HLD	HLU	NSH	NSD	VL	VLU
---	----	----	-----	-----	-----	-----	----	-----

Caution!

To prevent personal injuries, the following conditions have to be fulfilled.

- The door has to be secured against sudden upward movement.
- The tensioning bars (A) have to be suitable for the clamping cone and the spring tension.
- The tensioning bars (A) have to be inserted into the clamping cone correctly, otherwise they might fly out with considerable force.
- At least one tensioning bar has to be inserted and held tight in the clamping cone. Otherwise the spring tension will be released abruptly.



Attention!

To prevent damage to the door, the tensioning bars (A) should not be pressed (A) against the section. To ensure continuous functioning of the spring, the spring windings should not be too close together.

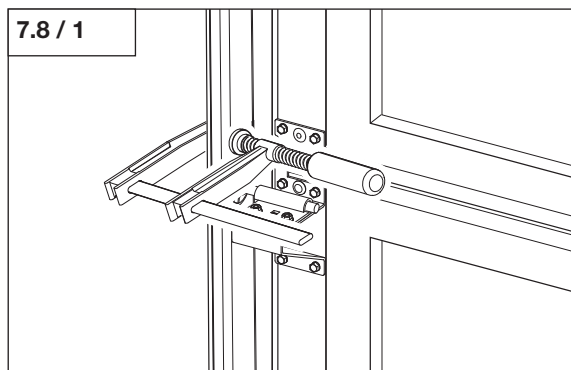


Note:

One turn equals a full 360° rotation. A stroke is not a full rotation.



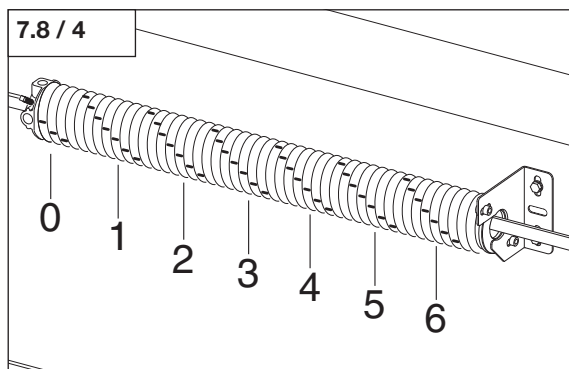
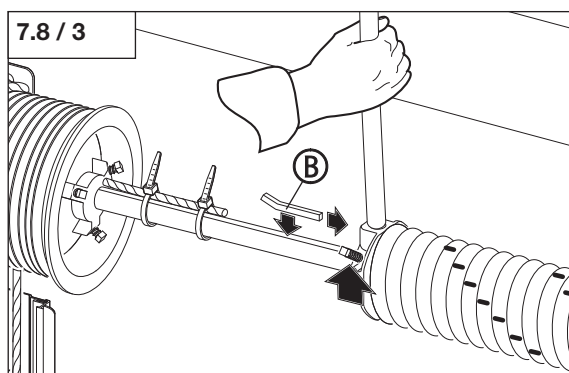
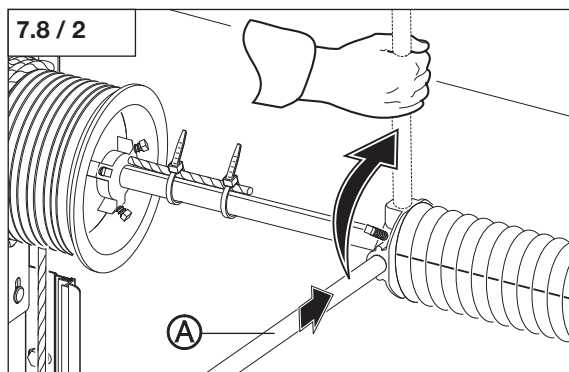
- Secure the door to ensure that it cannot move in the door OPEN direction.



7. Installation

The correct spring tension depends on the size and weight of the door.
The type plate displays the number of turns for correct spring tension.
The type plate is located on the inner right-hand side of the second door section.

- Turn the spring 360° as often as specified on the type plate.
- Insert the parallel key (B).
Parallel key for solid shaft: 6.35 x 6.35
Parallel key for hollow shaft: 6.35 x 9.5
- Pull the spring slightly apart.
- Tighten the screws (18 Nm – 20 Nm).
- Remove the tensioning bars.



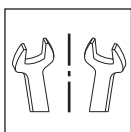
Function check:

The correct number of turns can be read via the elongated line on the spring. The example here shows a door whose spring has been turned 6 times.

- Tension the springs correctly on the opposite side.

Note:

The spring tension decreases during the course of initial door usage (depending on the door leaf weight and the type of fitting). Check the springs approx. 8 - 12 weeks after initial start-up and, if necessary, re-tension them.

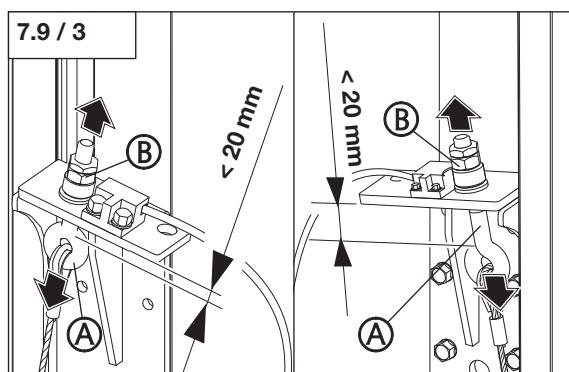
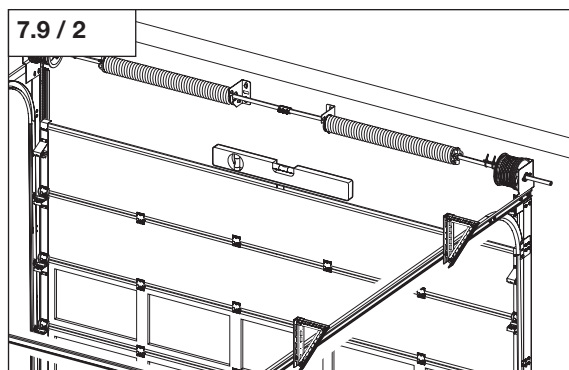
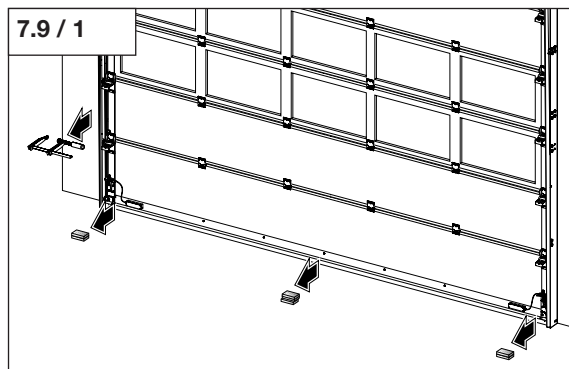


7. Installation

7.9 Test door travel

- Remove the shims and clamps from the door.

N	ND	HL	HLD	HLU	NSH	NSD	VL	VLU
---	----	----	-----	-----	-----	-----	----	-----



Function check:

When closed, the door leaf must be in a horizontal position.

If the door leaf is not in a horizontal position, it can be adjusted via the eyebolt (A) at the bottom console. The eyebolt is adjusted via the respective nut (B).

- Level the door leaf by adjusting the eyebolt (A).
- Lock the eyebolt via the nut (B).

Caution!

To prevent personal injuries, the following conditions have to be fulfilled prior to a test run.

- Have all the installation steps been carried out as specified?
- Are the rails secured to roof at all the fixing points?
- Have the springs on both sides been tensioned as specified?
- Have the door sections been screwed tight at all the specified positions?
- Has the specified distance of 0.8 mm between each door section been adhered to?

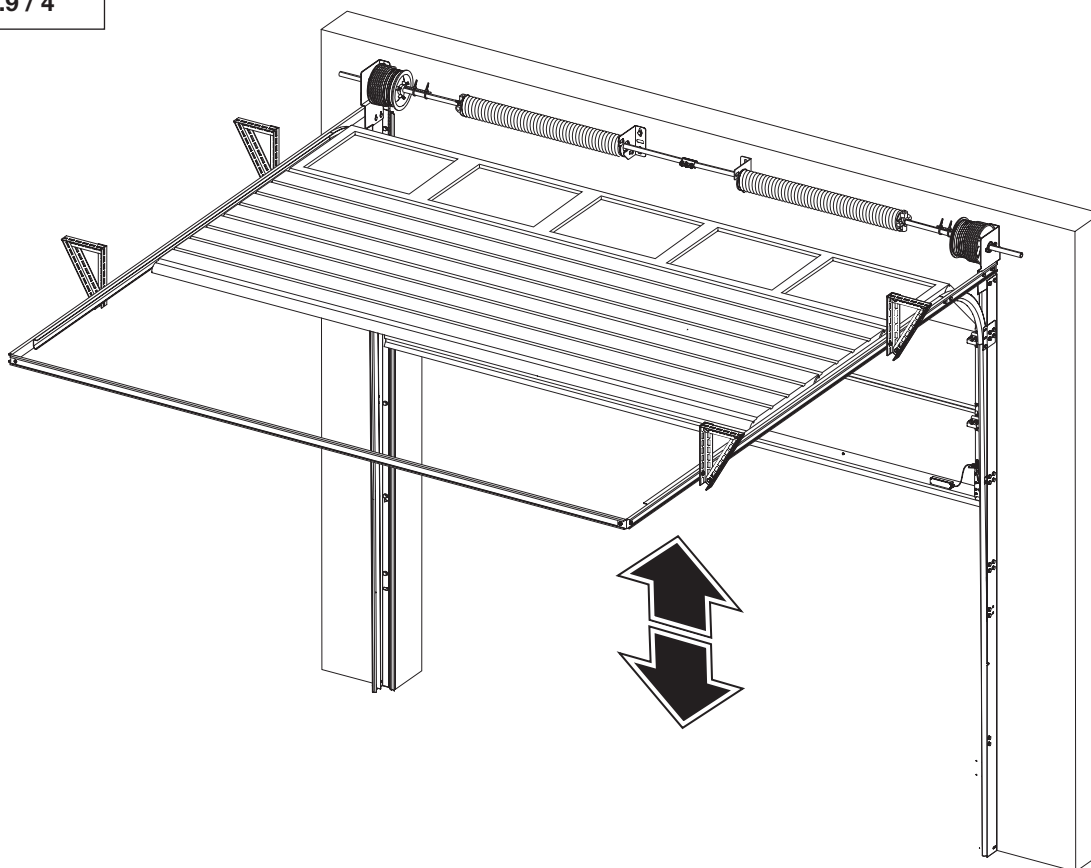
Attention!

To prevent damage to the door, open the door carefully and slowly.
The door limit stops (spring bumpers) have not yet been installed.



7. Installation

7.9 / 4



- Open and close the door manually.

Door travel is only successful if the following conditions are fulfilled:

1. The door travels smoothly.

- If the door does not travel smoothly, check the following points:
 - Have the frames been aligned correctly?
 - Have the cables become twisted on the cable drum?
 - Have the lateral rails been aligned horizontally?
 - Has the door leaf been aligned to the middle of the door opening?
 - Are there too many or insufficient plastic spacers on the roller?
 - Do the rollers run smoothly and correctly?

2. The door travels to the end positions “door open” and “door closed”.

- If the door does not travel to the end position “door open”, check the following points:
 - Is an obstacle blocking door travel? Carefully check the rails.
 - Is the cable wound correctly on the cable drums on both sides?
 - Is the spring tension correct? It is probable that spring tension is too high or too low.

3. The door automatically stops between the end positions.

- If the door does not stop between the end positions, check the following points:
 - If the door continues to open, reduce the spring tension.
 - If the door continues to close, increase the spring tension.

Note:

If the correct spring tension has been exceeded to counterbalance the drop in tension during the initial 8 - 12 weeks, the door will not stop between the end positions.



7. Installation



7.10 Install rear spring bumper

N	ND	HL	HLD	HLU	NSH	NSD	VL	VLU
---	----	----	-----	-----	-----	-----	----	-----

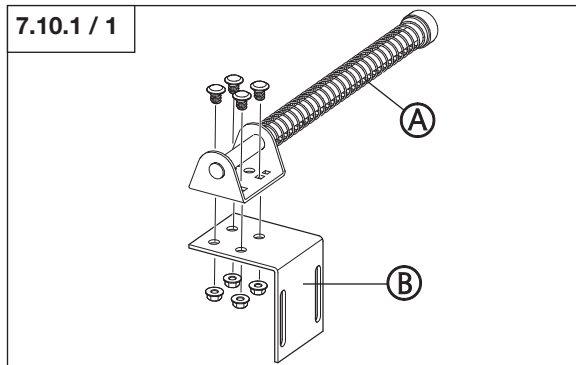
Attention!

To prevent damage to the door, open the door carefully and slowly.

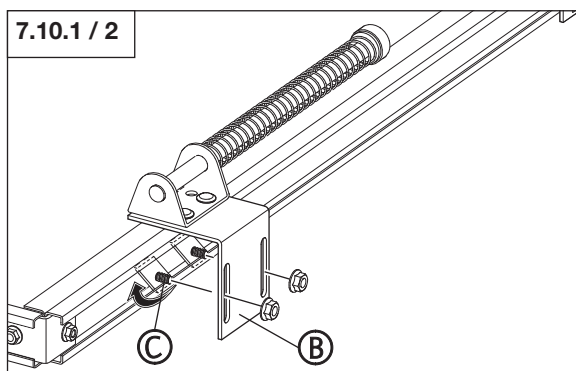
7.10.1 Install rear spring bumper

N	ND	HL	HLD	HLU				
---	----	----	-----	-----	--	--	--	--

- Screw the spring bumper (A) to the bracket (B).



- Screw two clamping bolts (C) into the C-shaped profile of the lateral rail with the correct orientation.
- Hand screw the bracket (B) to the lateral rail.

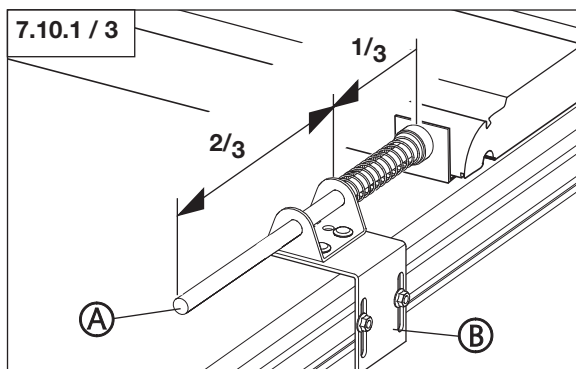


Attention!

To ensure smooth operation of the door, the spring buffers must be adjusted in such a way that the control cables are tight (no slacking) even when the door is open.

With geared chain hoist / direct mount drive

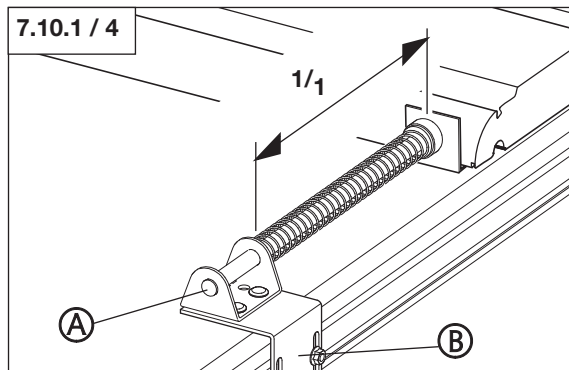
- Travel the door to the end position OPEN.
- Adjust the spring bumper (A).
- Screw the bracket (B) to the lateral rail.



7. Installation

Without geared chain hoist / direct mount drive

- Travel the door to the end position OPEN.
- Adjust the spring bumper (A).
- Screw the bracket (B) to the lateral rail.



- Install the rear spring bumper on the opposite side.

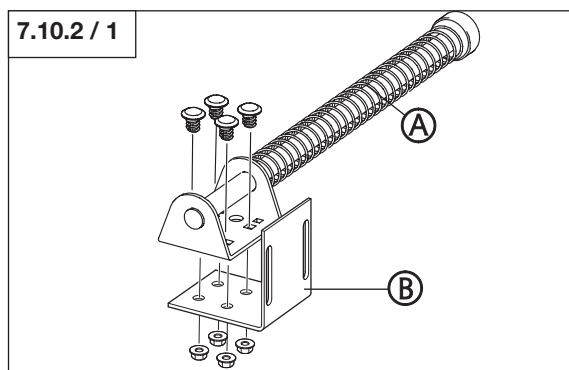
7.10.2 Install rear spring bumper



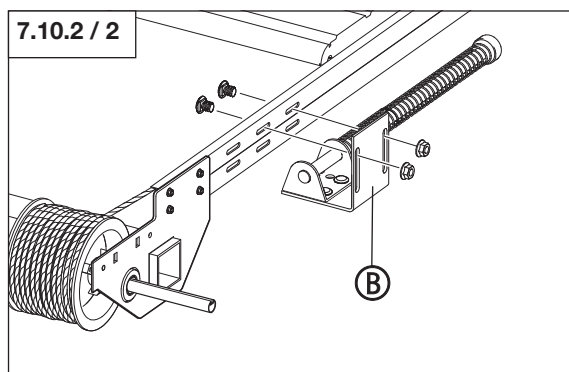
Note:

Doors without a geared chain hoist and direct mount drive do not require a rear spring bumper.

- Screw the spring bumper (A) to the bracket (B).



- Screw the bracket (B) hand-tight to the lateral guide rail.



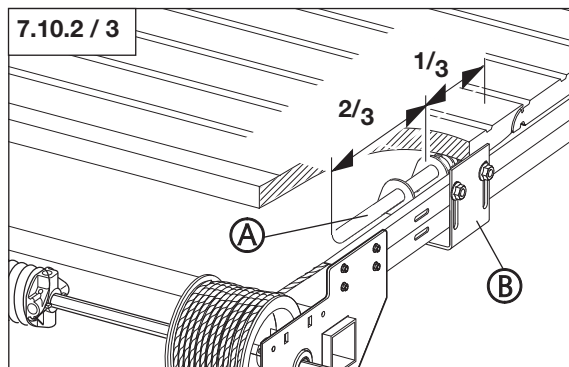
7. Installation



Attention!

To ensure smooth operation of the door, the spring buffers must be adjusted in such a way that the control cables are tight (no slacking) even when the door is open.

- Travel the door to the end position OPEN.
- Adjust the spring bumper (A).
- Screw the bracket (B) to the lateral rail.



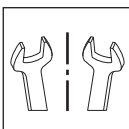
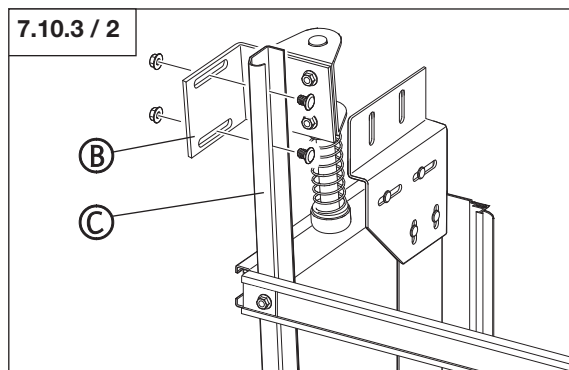
- Install the rear spring bumper on the opposite side.

7.10.3 Install rear spring bumper

- Screw the spring bumper (A) to the bracket (B).

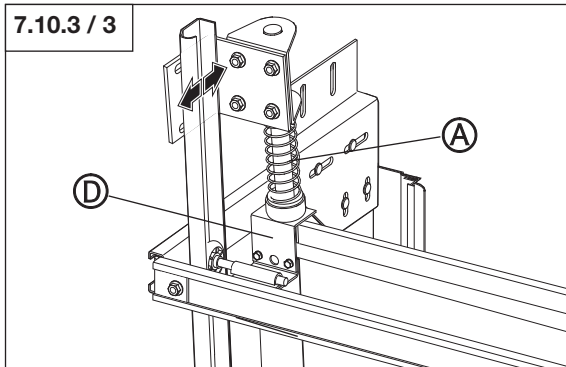


- Screw the bracket (B) to the upper end of the lateral rail (C).



7. Installation

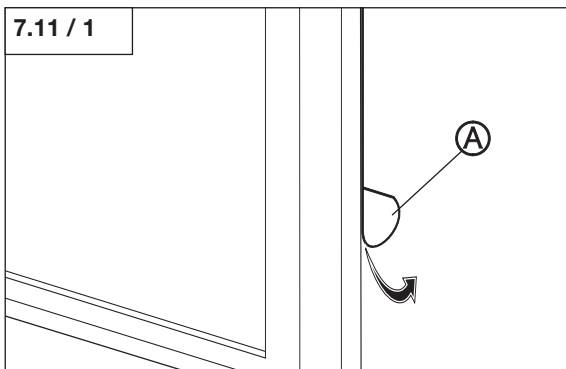
- Travel the door to the end position OPEN.
- Align the spring bumper (A) to the stop bracket (D).



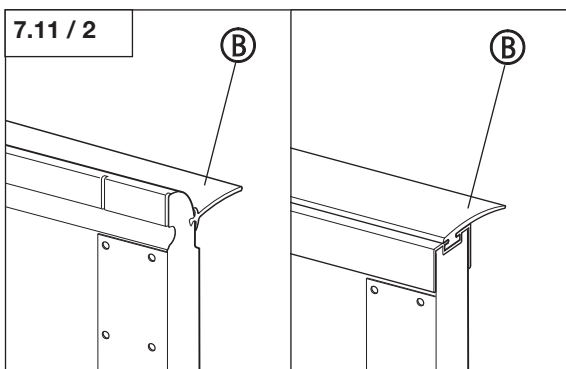
- Install the spring bumper on the opposite side.

7.11 Final work

- Remove the protective film (A) from the sections.

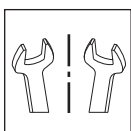


- Shorten the header seal (B) to ensure that
 - the header seal does not rub on the header,
 - the door closes tightly.



Function check:

Check that all hinges are sufficiently lubricated.



7. Installation

7.12 Install geared chain hoist (optional)

N	ND	HL	HLD	HLU	NSH	NSD	VL	VLU
---	----	----	-----	-----	-----	-----	----	-----

GB



Note:

The parallel key in the geared chain hoist is pre-assembled for solid shaft installation.

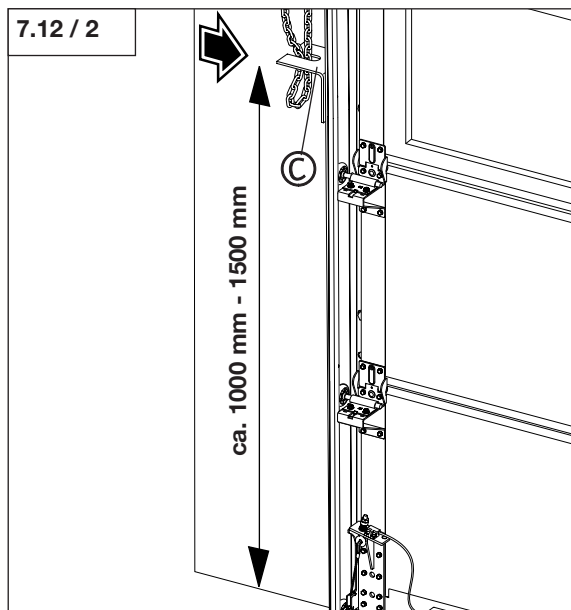
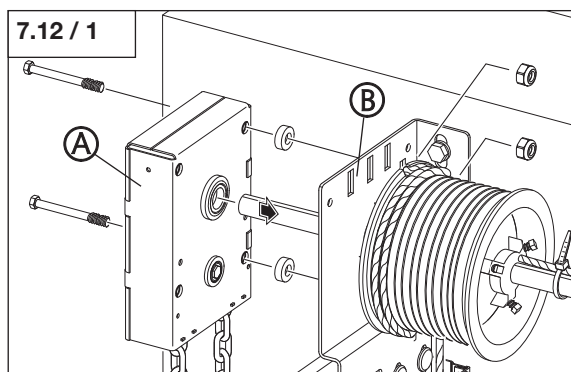
The parallel key has to be swapped for hollow shaft installation.

Parallel key for solid shaft: 6.35 x 6.35

Parallel key for hollow shaft: 6.35 x 9.5

With the fitting types NSH and NSD, it cannot be ensured that the complete opening height will be attained with the hand chain hoist.

- Push the door to the CLOSED position.
- Place the geared chain hoist (A) onto the spring shaft.
- Screw the geared chain hoist (A) to the side console with bearing (B).
- Screw the geared chain retainer (C) to the frame.



7. Installation

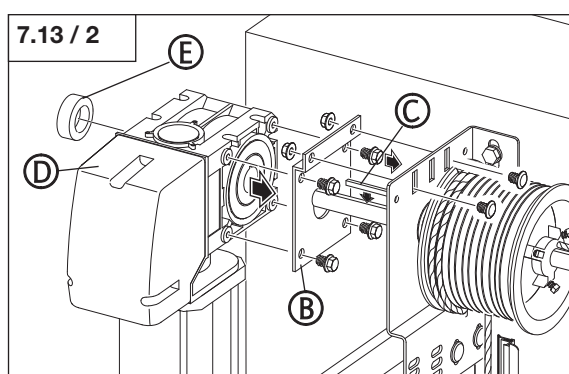
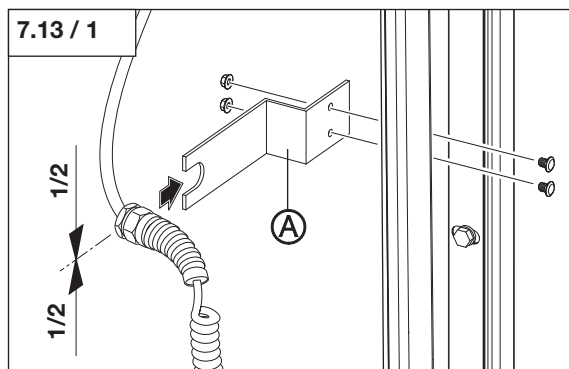
7.13 Install direct mount drive (optional)

- Push the door to the OPEN position.
- Screw the strain relief (A) to the frame.

Note:

The holes for the screw connection are pre-punched into the frame at the central opening height position.

N	ND	HL	HLD	HLU	NSH	NSD	VL	VLU
---	----	----	-----	-----	-----	-----	----	-----

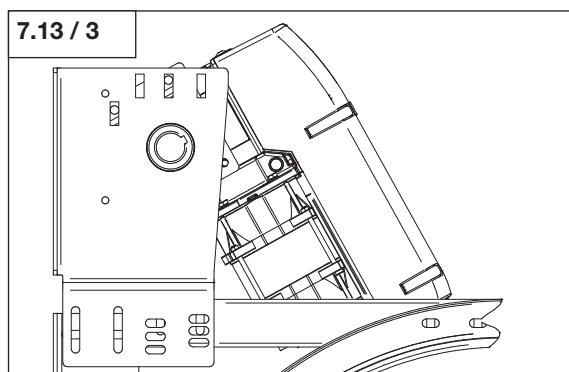


- Push the door to the CLOSED position.
- Screw the direct mount drive (D) to the torque supporting plate (B).
- Insert the parallel key (C) in the shaft.
Parallel key for solid shaft: 6.35 x 6.35
Parallel key for hollow shaft: 6.35 x 9.5
- Place the direct mount drive (D) onto the shaft.
- Screw the direct mount drive (D) with the torque supporting plate (B) to the frame console.
- Secure the parallel key with a spacer ring (E) (only HLU and VLU).

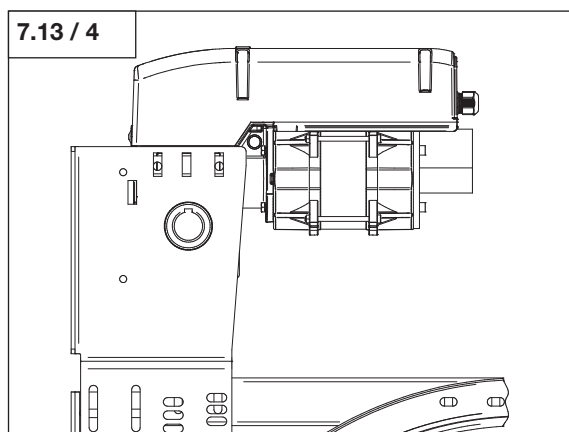
Note:

To ensure access for emergency operation, the position of the direct mount drive (D) can be adapted to the local conditions by turning the torque bracket (B).

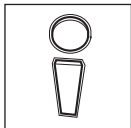
Drive installation 40°



Drive installation 90°



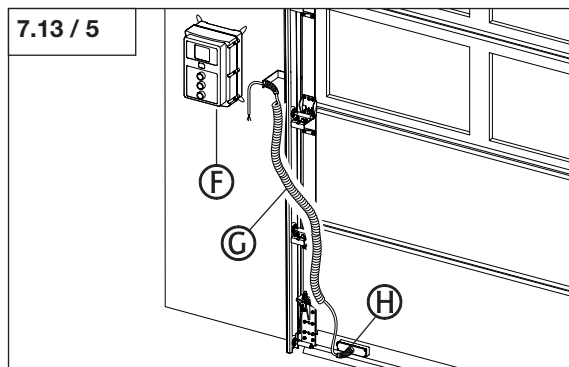
7. Installation



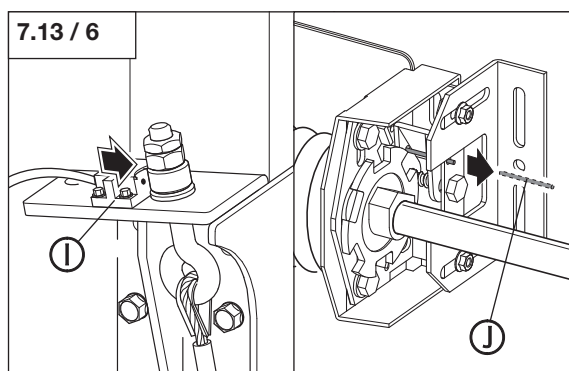
Reference:

Please refer to the supplied instructions when installing, connecting and programming controls and safety equipment.

- Screw the control (F) to the wall.
- Lay the empty conduit between the control and the direct mount drive.
- Lay the connection cable between the control and the direct mount drive through the empty conduit.
- Connect the control (F) to the direct mount drive.
- Connect the helix cable (G) to the control (F).
- Connect the helix cable (G) to the connection box (H).
- Attach and wire all the optional parts provided for the door (e.g. traffic lights, spring break protection).



- Push the cable slack switch (I) up to the switch cam.
- Remove the split pin (J) from the spring break protection.



Note:

The end position (limit switches) door CLOSED has to be set in a way which ensures that the bottom profile has slight contact with the floor.

- Adjust the end positions (limit switches) door OPEN and door CLOSED.



8. Operation



Caution!

In order to avoid personal injury due to uncontrolled door movements:

- Only open or close the door when the door opening is clear of obstruction.
- Do not operate the door under heavy winds in order to ensure that control over the door is maintained.

8.1 Operation with the geared chain hoist

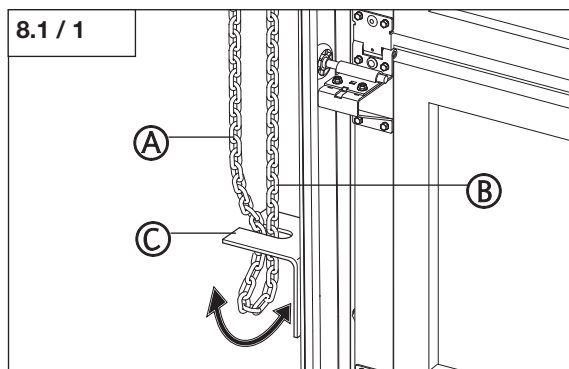


Attention!

To prevent damages to the geared chain hoist and the door, the geared chain should never be pulled abruptly. Opening and closing via the geared chain has to be carried out slowly and smoothly.

- A Geared chain door CLOSED
B Geared chain door OPEN
C Retainer

- Remove the geared chain from the retainer (C).
- Pull the geared chain (A) to open the door.
- Pull the geared chain (B) to close the door.



Note:

In the OPEN end position the spring tension forces the door to close slightly.

To achieve the full door clearance height, the geared chain has to be placed in the retainer (C) when the door is in the OPEN end position.



8.2 Operation with direct mount drive



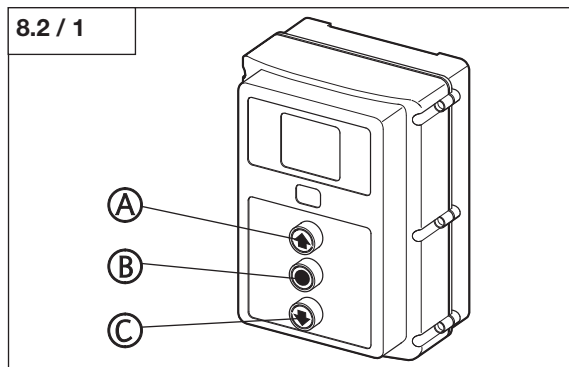
Caution!

In order to avoid personal injury due to uncontrolled door movements:

- Ensure that the control unit and handheld transmitter are not used by children or unauthorised persons.
- Ensure that the handheld transmitter is not inadvertently actuated (e.g. in the pocket of your trousers).

- A Door OPEN
B STOP
C Door CLOSED

- Press the button (A) to open the door.
- Press the button (B) to stop the door in the desired position.
- Press the button (C) to close the door.



Note:

The door stops at the end positions when opening and closing.



9. Maintenance



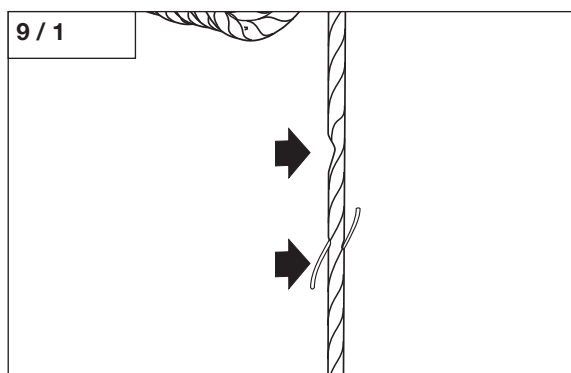
Caution!

To prevent personal injuries and damage to the door, the following conditions have to be fulfilled.

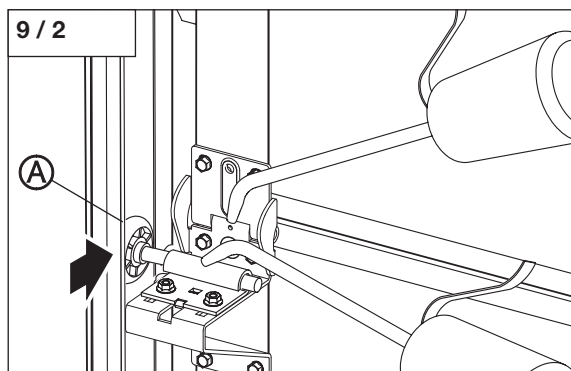
- The door and the drive system have to be serviced at least every 12 months.
Shorter maintenance intervals are required if the door is subject to frequent use.
- All defective parts have to be replaced with original spare parts.
- Maintenance has to be carried out by qualified specialists.
- These instructions have to be adhered to during maintenance tasks.
- Always pay particular attention the warnings and safety instructions.
- Door maintenance has to be documented.

Maintenance steps

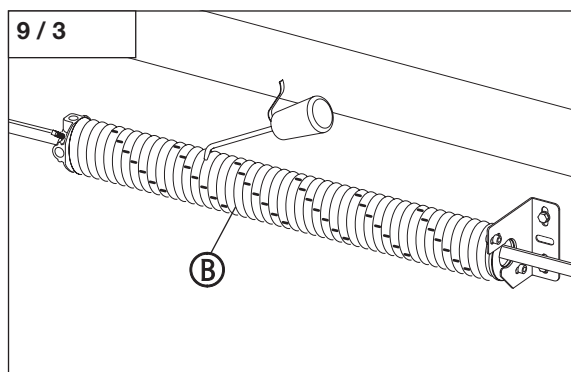
- Check the Bowden cables for cracks, split ends or damages.



- Check all the rollers (A).
- Lubricate the shank of the rollers (A).
- Oil the lateral hinges.
- Oil the central hinges.

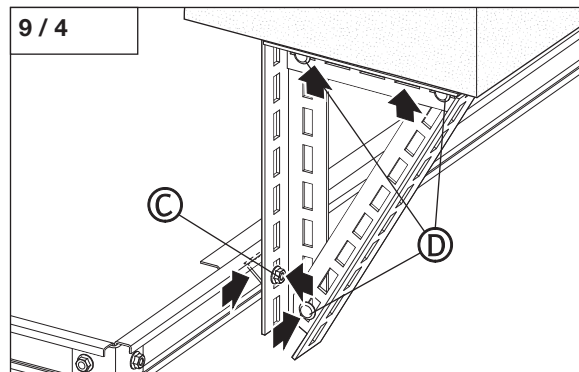


- Check the springs (B) for damages.
- Oil the spring (B).



9. Maintenance

- Check the screw connections to the roof.
- Check the position and orientation of the clamping bolts (C) into the C-shaped profile.
- Check the screw connections (D) of the triangular consoles.



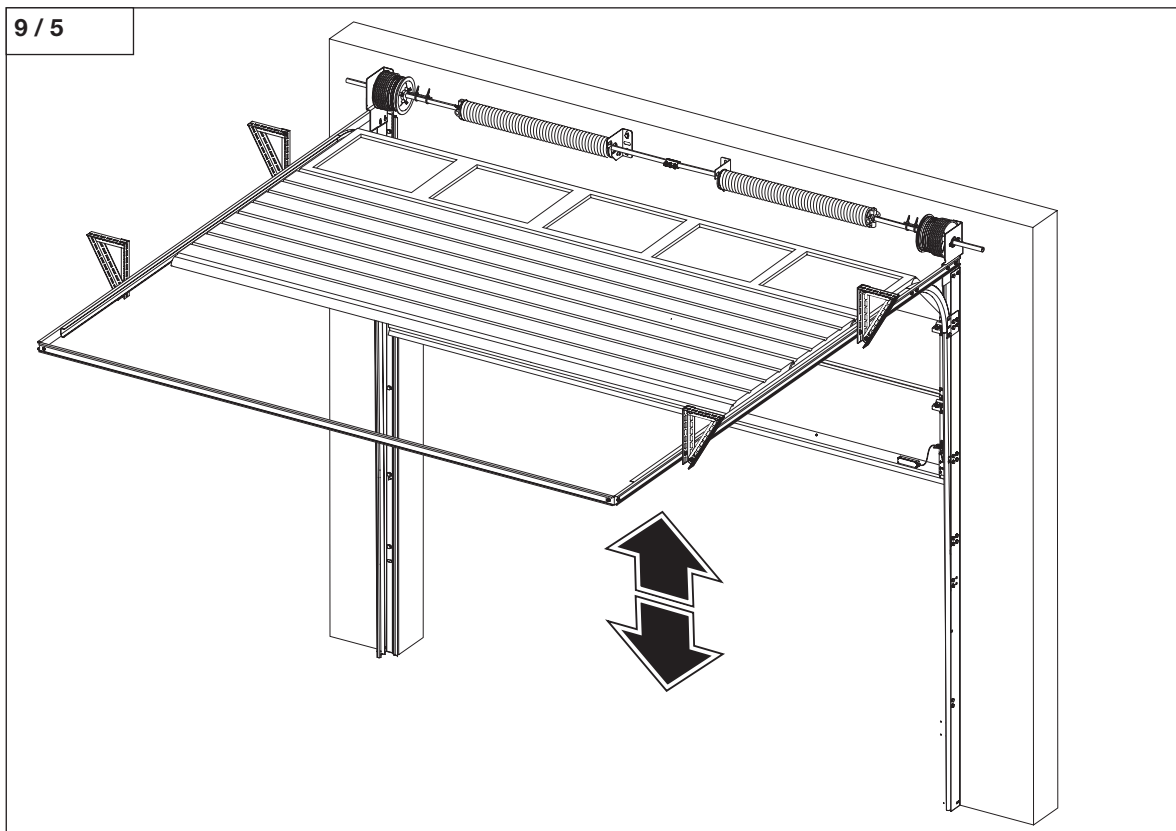
- Check the tightness and correctness of all the screw connections at the door.
- Check all the parts for cracks and damages.

Reference:

Refer to the operating instructions of the drive system when checking the drive system and the safety equipment at the door.

- Check the drive system and all the safety equipment at the door.

Test door travel



Reference:

Refer to the operating instructions of the drive system when releasing the drive system.



9. Maintenance

- Release the drive system.
- Open and close the door manually.

Door travel is only successful if the following conditions are fulfilled:

1. The door travels smoothly.

- If the door does not move smoothly, check the following points:
 - Have the frames been aligned correctly?
 - Have the cables become twisted?
 - Have the lateral rails been aligned horizontally?
 - Has the door leaf been aligned to the middle of the door opening?

2. The door travels to the end positions “door open” and “door closed”.

- If the door does not travel to the end position “door open”, check the following points:
 - Is an obstacle blocking door travel? Carefully check the rails.
 - Is the cable wound correctly on the cable drums on both sides?
 - Is the spring tension correct? It is probable that the spring is too high or too low.

3. The door automatically stops between the end positions.

- If the door does not stop between the end positions, check the following points:
 - If the door continues to open, reduce the spring tension.
 - If the door continues to close, increase the spring tension.

Re-adjust spring tension

Caution!

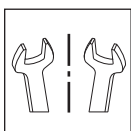
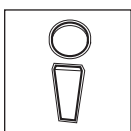
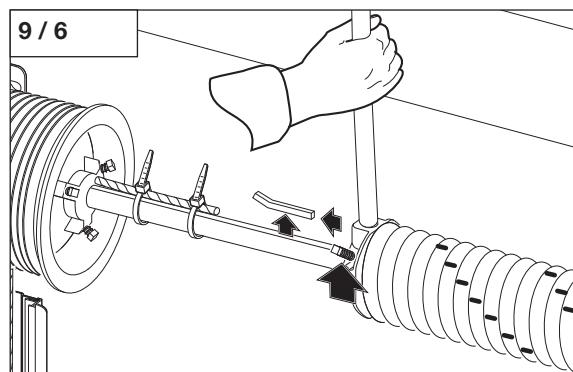
To prevent personal injuries, the tensioning bar has to be inserted into the clamping cone correctly and held tight prior to removing the parallel key.

The spring tension is transferred to the tensioning bar after removing the parallel key and loosening the screw.

Reference:

Refer to section 7.8 when tensioning the springs.

- Insert the tensioning bar into the clamping cone.
- Grip the tensioning bar firmly.
- Loosen the screw.
- Remove the parallel key.
- Increase the spring tension.
- Re-insert the parallel key.
- Tighten the screw.
- Re-adjust the spring tension on the opposite side.



10. Disassembly



Caution!

Life-threatening danger due to electric shock in door systems with a drive system!

- Prior to disassembly, disconnect the drive system and control unit from the power supply.
- Ensure that the power supply is disconnected during disassembly.

Caution!

Severe injury possible due to falling parts!

- Secure the door system to prevent falling prior to disassembly.
- Observe all applicable occupational safety regulations.

Disassembly must be carried out by qualified, trained personnel in the reverse order of the assembly described in this manual..

11. Disposal



The door system must not be disposed of with the household waste!

- Dispose of used equipment of the drive system in a collection centre for electronic scrap or with your specialist dealer.
- Dispose of the door system with the local waste disposal in accordance with locally applicable waste disposal regulations.

