

DE

Anleitung für Montage, Betrieb und Wartung

Garagen-Rolltor

EN

Instructions for fitting, operating and maintenance

Roller garage door

FR

Instructions de montage, d'utilisation et maintenance

Porte de garage enroulable

ES

Instrucciones de montaje, funcionamiento y mantenimiento

Puerta de garaje enrollable

RU

Руководство по монтажу, эксплуатации и техническому обслуживанию

Гаражные рулонные ворота

NL	PL	SL	FI	TR	LV	EL
IT	HU	NO	DA	LT	HR	RO
PT	CS	SV	SK	ET	SR	BG

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1 About these instructions

Make sure that these instructions remain with the door operator!

Read and follow these instructions carefully!

They provide you with important information on the safe fitting and operation, as well as proper care and maintenance, of your roller garage door.

Keep these instructions and the warranty booklet in a safe place for later reference.

Enter the serial number (see the data label) here.

Serial no.:

1.1 Warnings and symbols used

Special safety information is provided at respective important points in these instructions. They are identified by the following symbols and signal words.

	The general warning symbol indicates a danger that can lead to injury or death .
	⚠ WARNING Indicates a danger that can lead to death or serious injuries.
	⚠ CAUTION Indicates a danger that can lead to minor or moderate injuries.
	ATTENTION Indicates a danger that can lead to damage or destruction of the product .
	Internal roller garage door Fitting in or behind the opening
	External roller garage door Fitting in front of the opening
	Important note for avoiding damage to property
	Permissible arrangement or activity
	Non-permissible arrangement or activity
	See text section (e.g. section 2.2.1)
	See illustrated section (e.g. Figure 2.1)
	See separate fitting instructions for the control or for the additional electrical control elements
	Risk of impact
	Operator locked
	Operator unlocked
	Optional components

	Check
	Tighten the screws by hand
	Tighten the screws firmly
	Audible engagement
	Compress slightly
	Remove / recycle the component / packaging

2 Safety instructions

The manufacturer is not liable for damage resulting from non-compliance with these instructions including the safety instructions.

2.1 Qualified persons

Have a qualified person (competent persons in acc. with EN 12635) fit, start-up and maintain the door following these instructions. While doing so, observe the requirements in the standards EN 12604 and EN 12635.

2.2 Intended use

- The roller garage door is only intended for private use. If you would like to use the door in a commercial application, first check whether the currently valid national and international regulations permit such use.
- The roller garage door is suitable for use outside; it opens and closes vertically.
- The roller garage door is intended to be used with an operator. The roller garage door operators are designed for operation in dry areas. Also observe the separate instructions for the control.

2.3 General safety instructions

- Always keep the door's area of travel free from obstructions. When operating the door, make sure that neither persons, children in particular, nor objects are located within the door's area of travel.
- Never use the door to lift objects and / or persons.
- Do not alter or remove any components! You could otherwise risk putting important safety components out of action. Only use original parts intended for use with this particular roller garage door.
- Protect the door from caustic, aggressive substances, e.g. nitrous reactions from stones or mortar, acids, alkali solutions, de-icing salt, aggressive paints or sealants.

- Make sure that there is sufficient water run-off and ventilation (drying) in the lower section of the side guides.
- Operating the door under windy conditions may be dangerous.

3 Fitting and initial start-up

3.1 Safety instructions

WARNING

Danger of injury

There is a danger of injury during fitting. Observe the following instructions:



- Wear safety glasses and protective gloves.



- Secure the door from falling.

ATTENTION

Damage to the product

Observe the following instructions:

- Throughout fitting, protect the door's components, especially the door curtain, from dirt and damage.
- Check that the fixing materials supplied are suitable for the given structural conditions. Only use suitable fixing material.
- Fasten the bracket holder to the building structure with 2 screws on each side!
- Fasten the side guides with 6 or 8 screws on each side. Otherwise the wind load indicated on the data label is not ensured.

3.2 Fitting

Internal roller garage door (IR)

The roller garage door can be fitted from the inside behind the opening or in the opening. (Figure 1 to Figure 12)

External roller garage door (AR)

The roller garage door is fitted from the outside in front of the opening. (Figure 20 to Figure 30)

All dimensions in the illustrated section are in mm.

3.2.1 Removing the screw

- Remove the screw from the bearing insert to adjust the length of the octagonal shaft.

To ensure simple and safe fitting, carefully go through the work steps!

3.3 Initial start-up

3.3.1 Checking the door spring tension

- Open the door and then close it to any height. The door must remain in the respective position. (Figure 9.5 / 28.5)

⚠ CAUTION
Door spring tension
Improper adjustment of the door spring tension may result in injuries.
► Only have a specialist adjust the door spring tension. (Figure 9.6 / 28.6)
► After adjusting the door spring tension, secure the spring holders with the spring securing pins.

If the door moves substantially downwards:

- Increase the spring tension.

If the door moves substantially upwards:

- Decrease the spring tension.

Perform a test run and check the door in accordance with section *Inspection and maintenance*.

When properly fitted and inspected, the roller garage door can be easily moved, is functionally safe and easy to operate.

4 Inspection and maintenance

4.1 Safety instructions

- Have a specialist perform inspection and maintenance work on the door at least once per year in accordance with these instructions.

⚠ WARNING
Door travel
There is a danger of injury in the door's area of travel.
► When operating the door, make sure that neither persons, children in particular, nor objects are located within the door's area of travel.
► Disconnect the operator and control from the power supply.
► Functional parts, particularly safety components, may only be exchanged by a specialist.
► Quick release — Visually inspect the door springs and cables for breaks or damage before uncoupling the quick release.

4.2 Checking the condition of the door

- Visually inspect the general condition of the door, all components and safety devices for completeness, proper condition and effectiveness.
- Check that all of the fixing points are tight. Tighten the screws if necessary.

4.3 Checking the door spring tension

See section *Fitting and initial start-up*.

4.4 Replacing the door springs

- Have the door springs replaced by a specialist after approx. 20,000 door cycles.

This is required at the following approximate time:

Door cycles per day	duration
Up to 5	Every 12 years
6 – 10	Every 7 years
11 – 15	Every 4 years

Door cycles per day	duration
16 – 35	Every 2 years
Over 35	Yearly

4.5 Checking the pressure roller, return pulley and lifting cables

- Clean the pressure rollers, return pulley and bolt.
- Check the rollers for wear. Have the rollers replaced by a specialist if they are greatly worn or damaged.
- Lubricate the bolt on the return pulley with a drop of commercially available lubricating oil.
- Check the lifting cables for breaks or damage. Have a specialist replace any damaged lifting cables.

4.6 Checking the chain tension

- Check the chain tension. (**Figure 4.2 / 11.4 / 23.1**)
- If necessary, set the chain tension by adjusting the chain housing.

4.7 Accessories

- To ensure a high level of quality, safety, reliability, as well as a long service life, only use original parts intended for this particular roller garage door.
- You can optionally receive the fitting compensation set.
- We recommend using the DuraBelt winder to minimise the wear on the door curtain owing to the style.

5 Cleaning and care

The design of the roller garage door represents state-of-the-art technology. Pressure marks and abrasive wear, particularly on the top profiles, are design-related and cannot be avoided. They are not considered a reason for complaint.

- In order to avoid excessive friction, remove any soiling from the door curtain at regular intervals.

5.1 Door curtain

- Clean the door surfaces with clear water, a soft sponge and a neutral, non-abrasive cleaning agent. We recommend care set art. no.: 4 020 356 for regular door curtain care.

5.2 Data label

- Clean the data label.
It must always be easy to read.

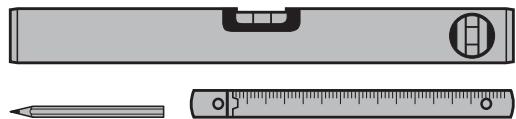
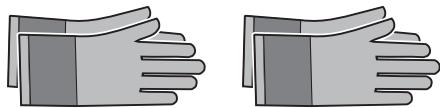
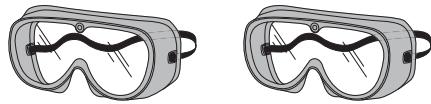
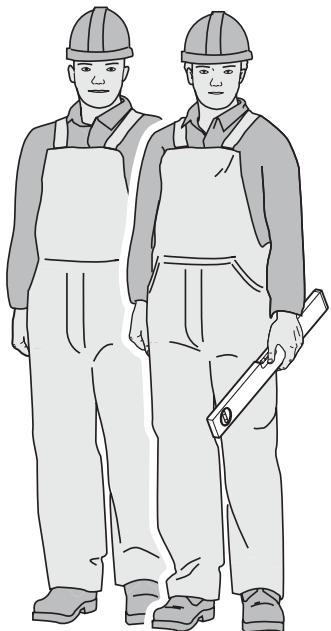
6 Assistance with malfunctions

If the door is difficult to move or exhibits other malfunctions:

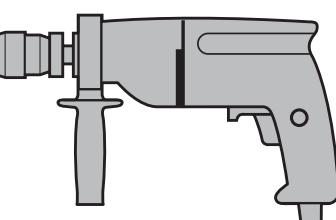
- Check all the functional parts. To do this, please follow the instructions in section *Inspection and maintenance*.
- In the case of uncertainty, please contact a specialist for assistance.

7 Dismantling

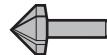
Have the door dismantled and disposed of by a specialist.



\varnothing 8.5; \varnothing 12; \varnothing 22;



\varnothing 4; \varnothing 6; \varnothing 8; \varnothing 20;



T 9; T10; T25; T30;



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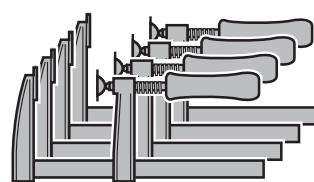
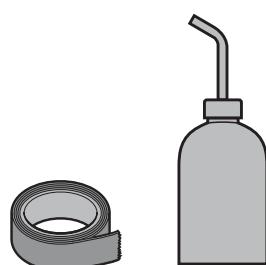
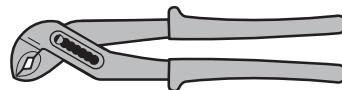
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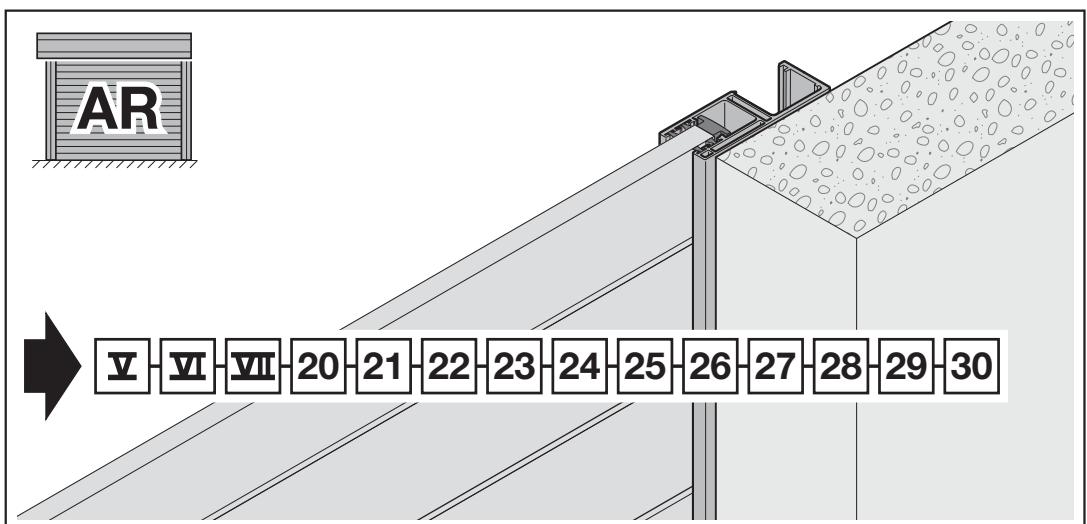
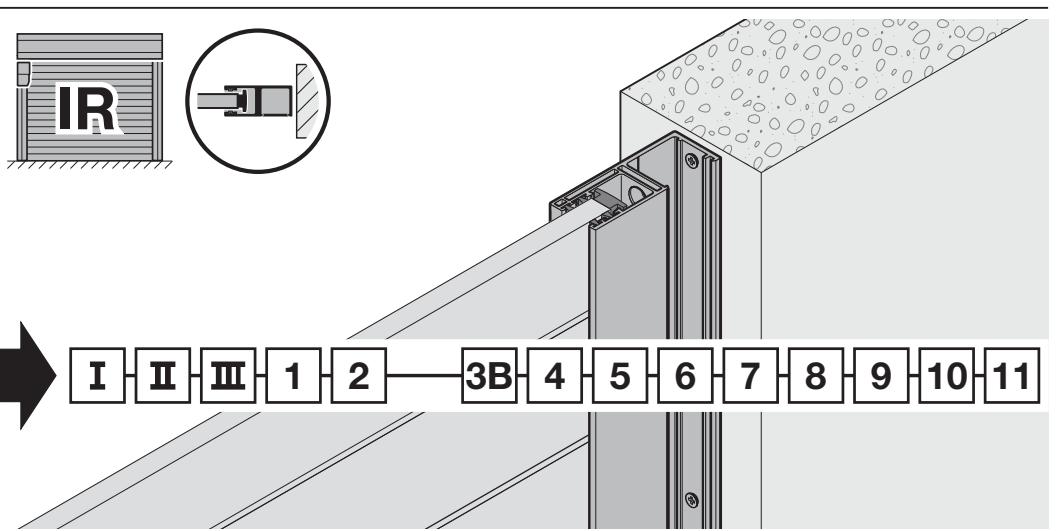
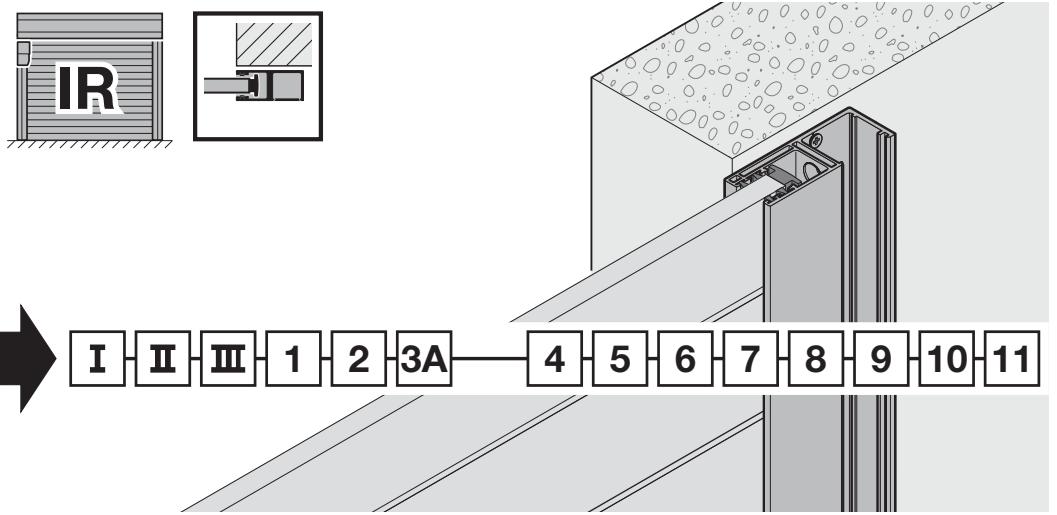


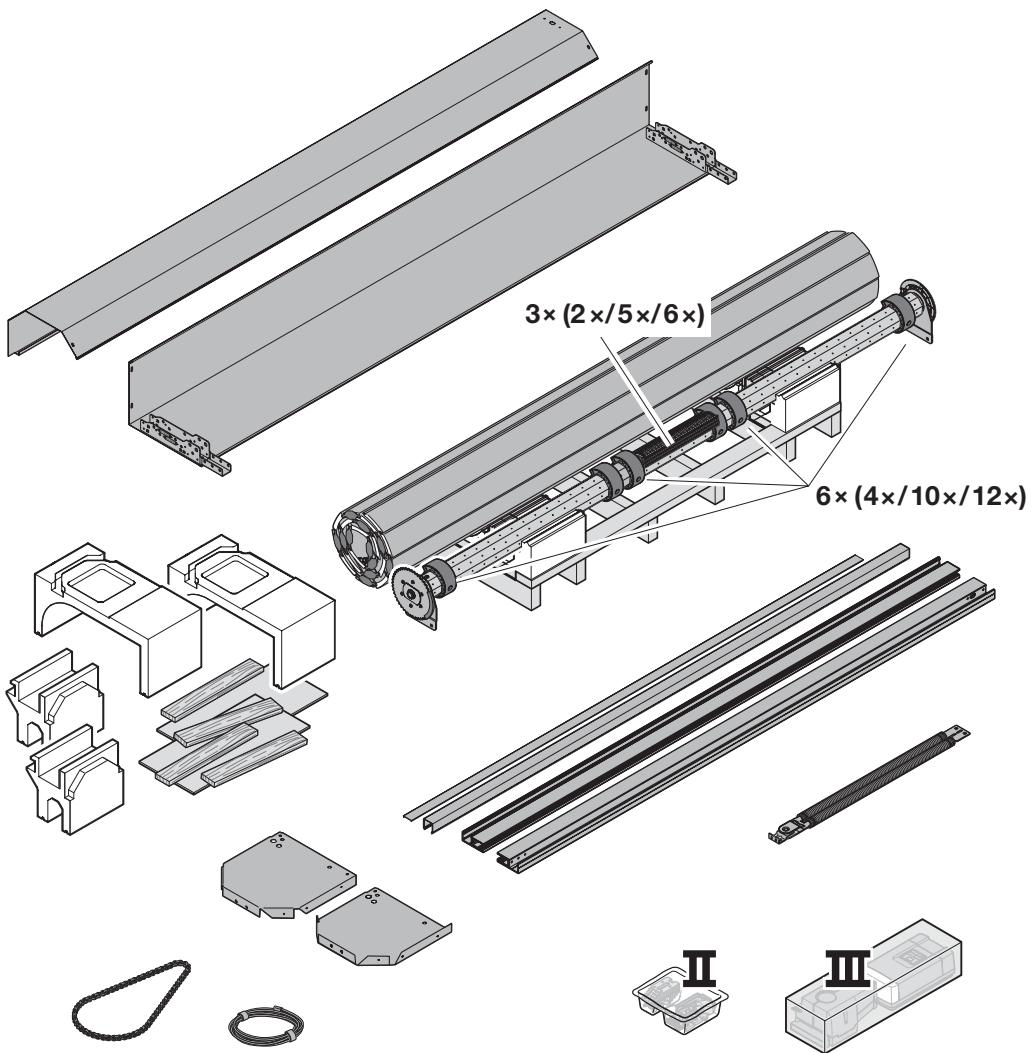
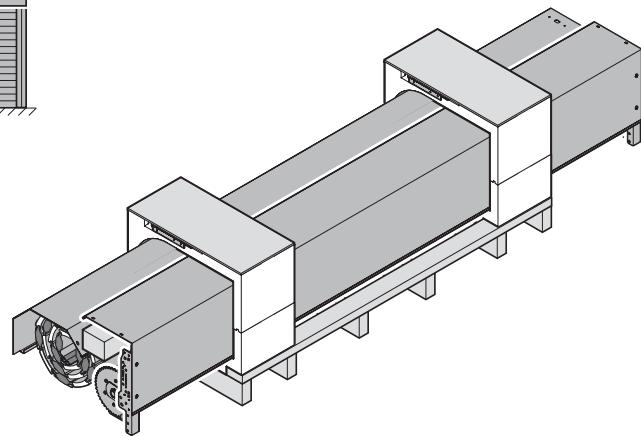
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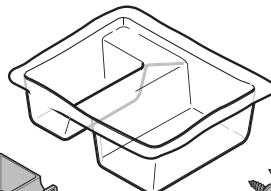


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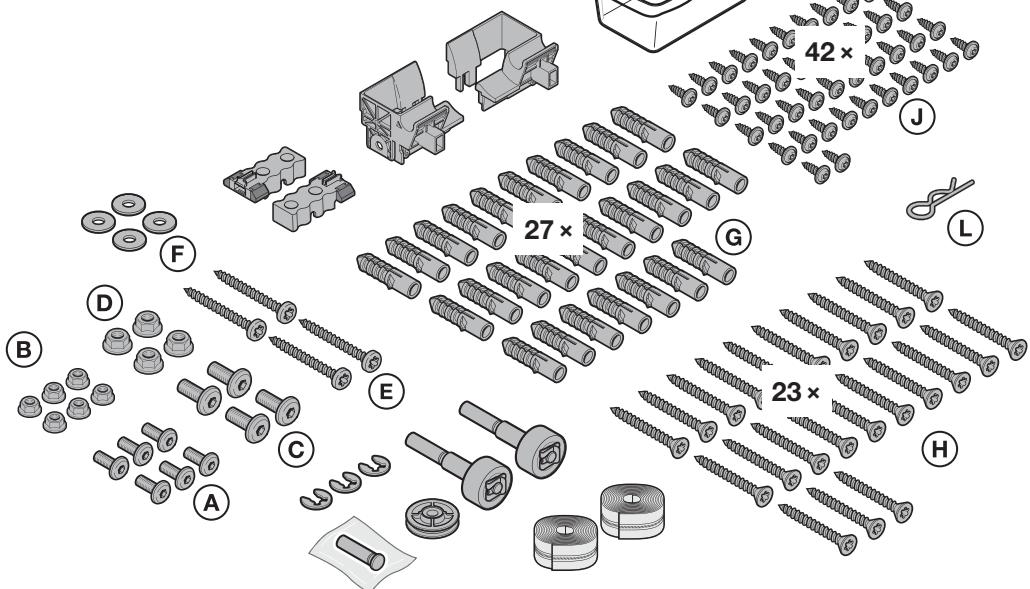
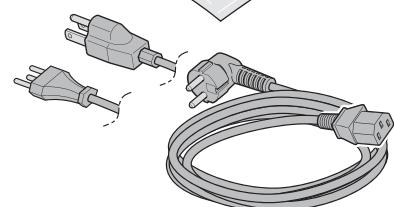
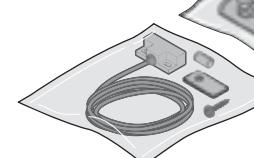
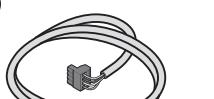
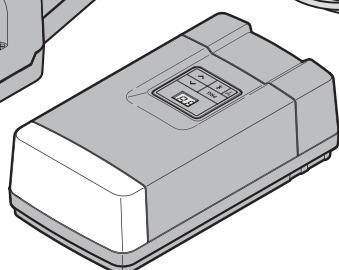
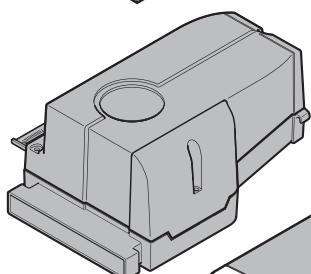
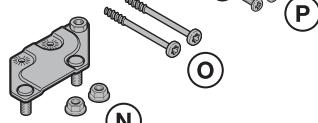
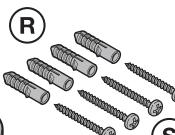
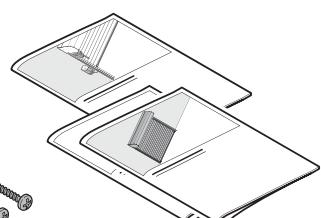
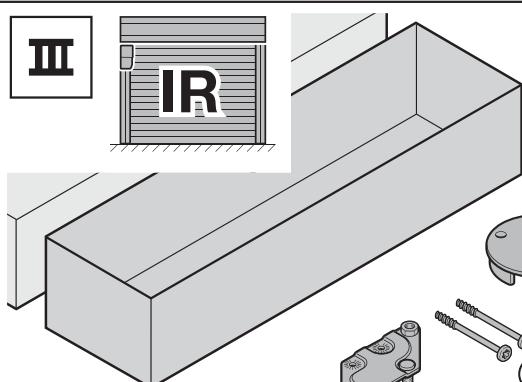


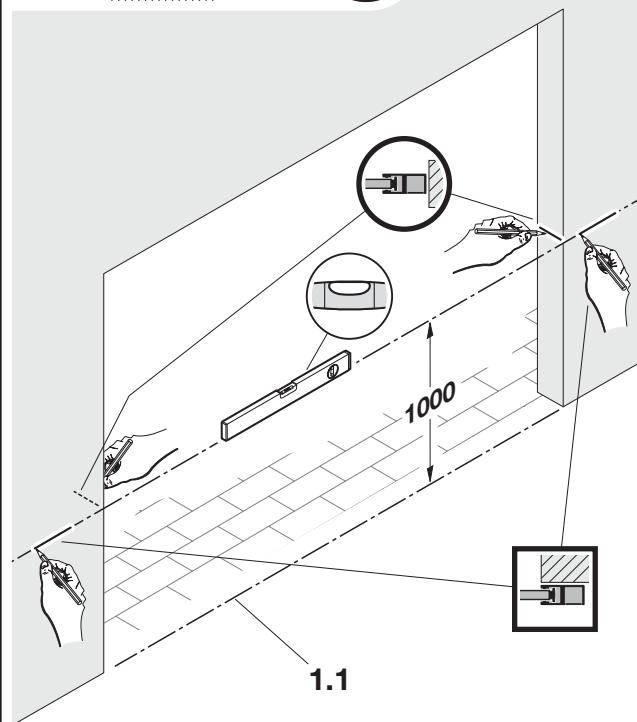
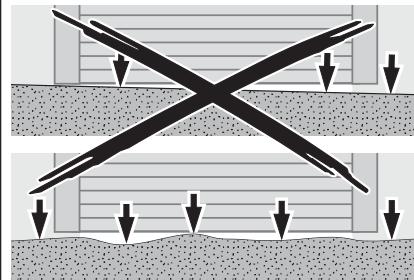
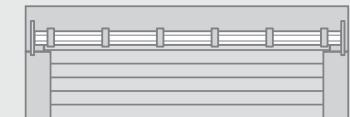
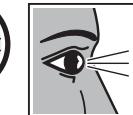
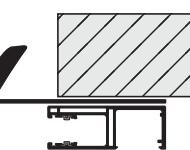
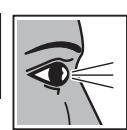
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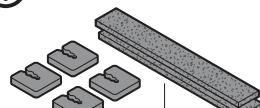
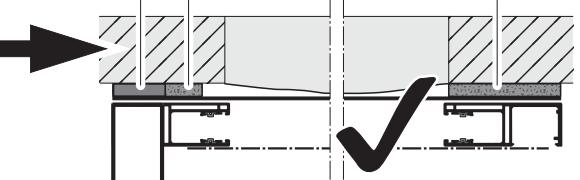
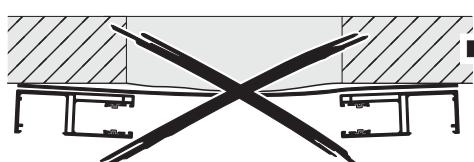
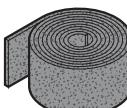
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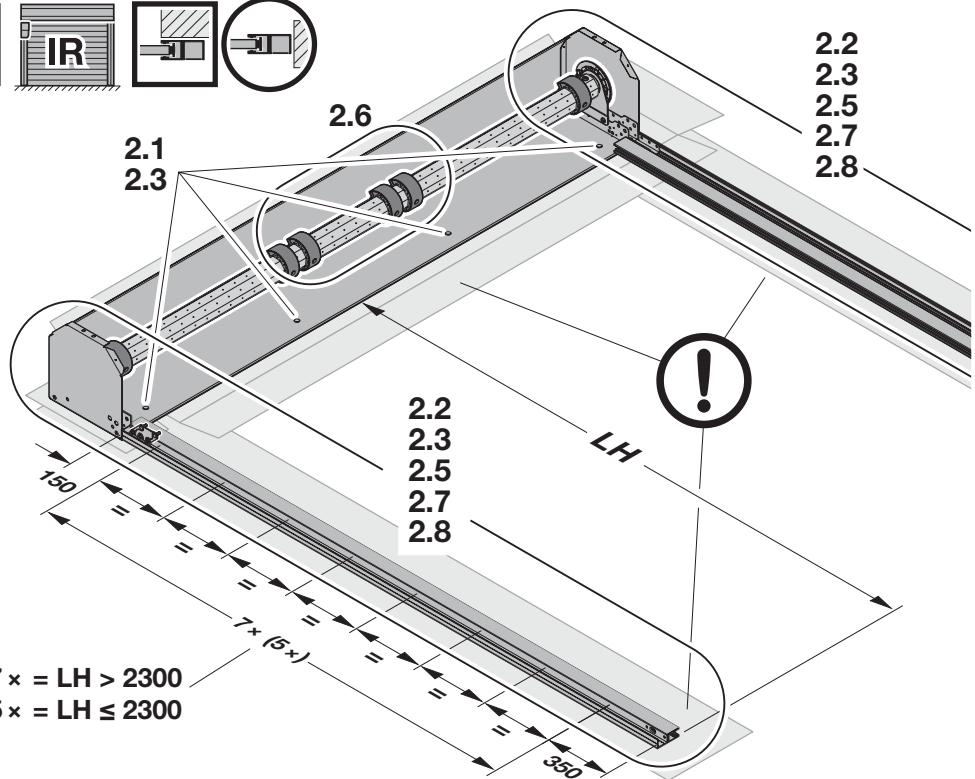
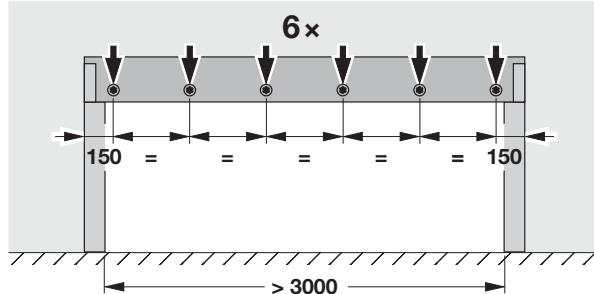
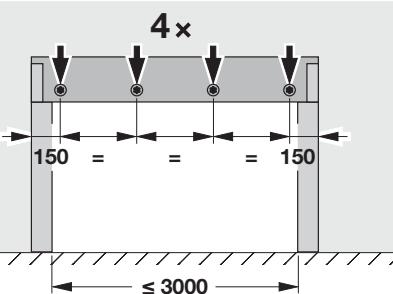
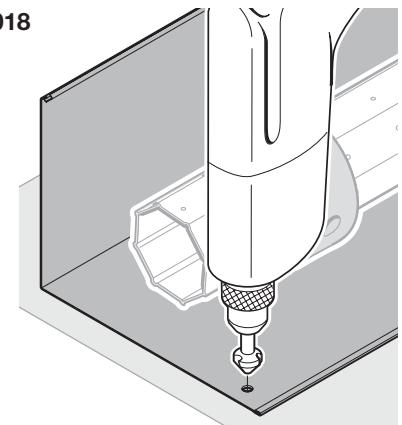
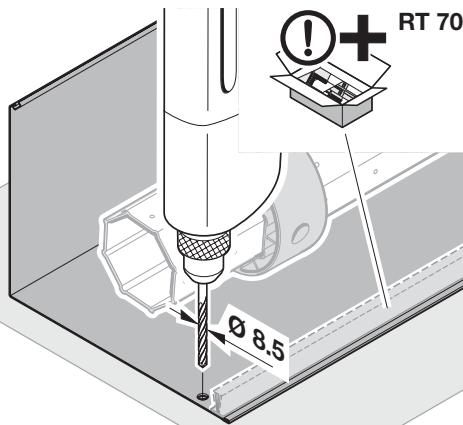
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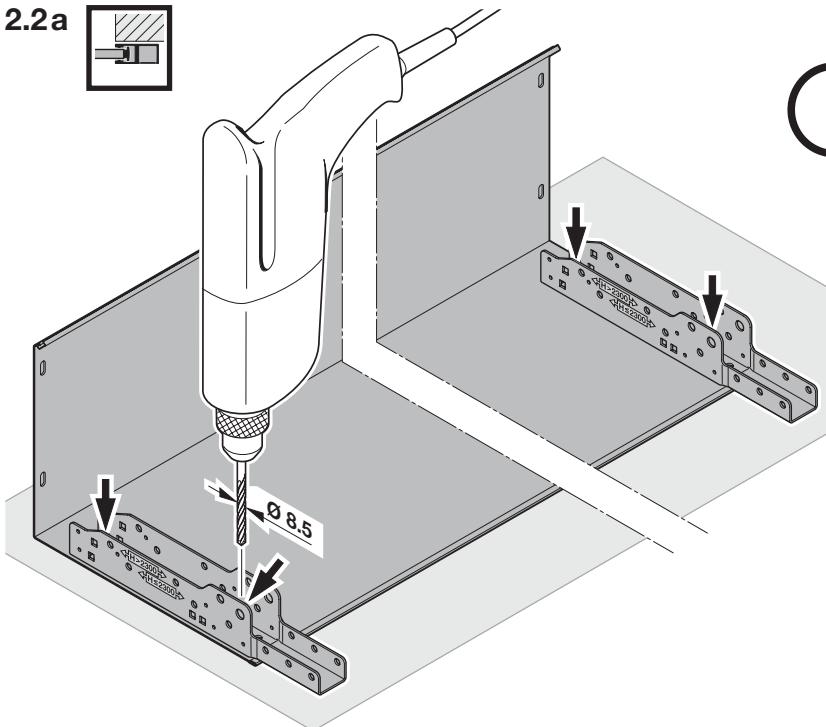


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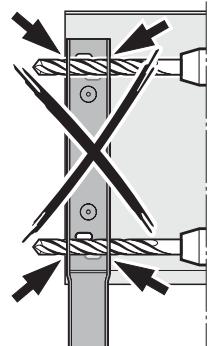
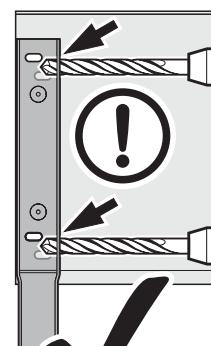
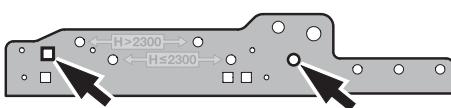
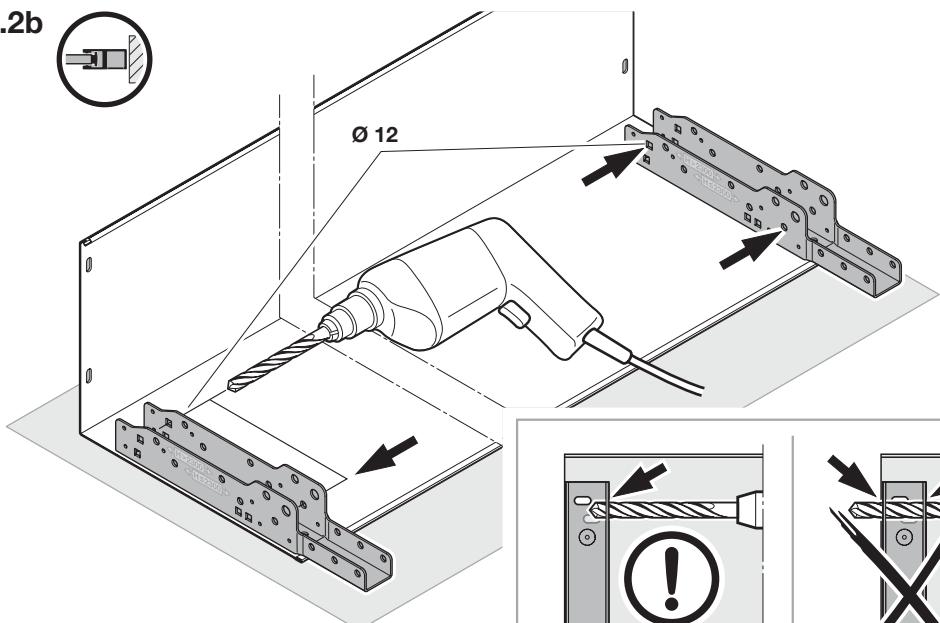
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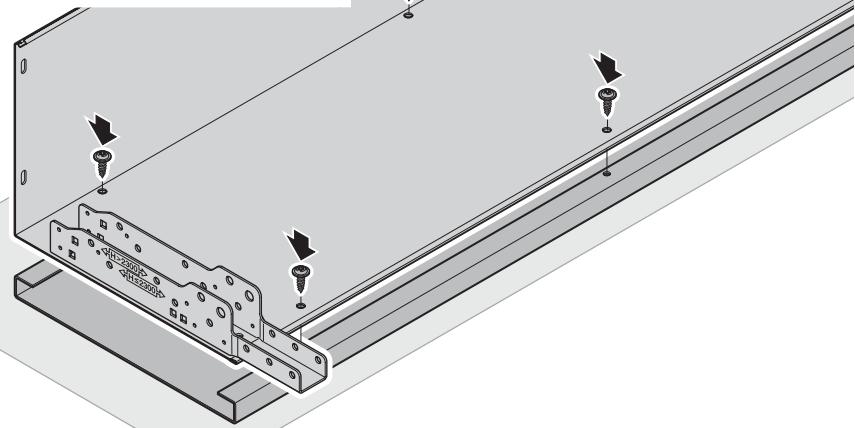
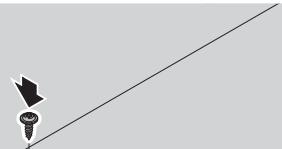
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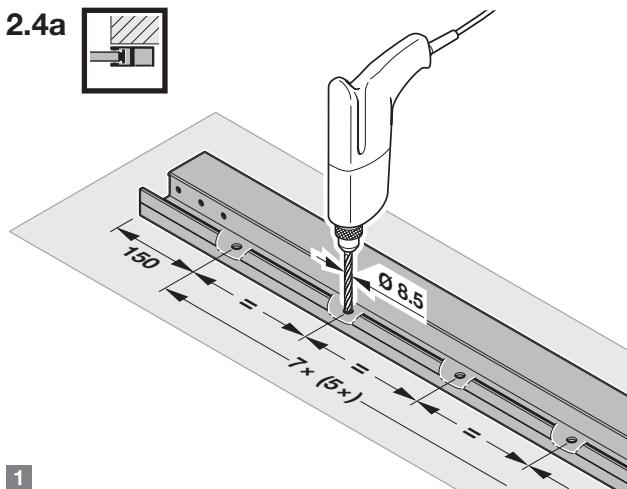
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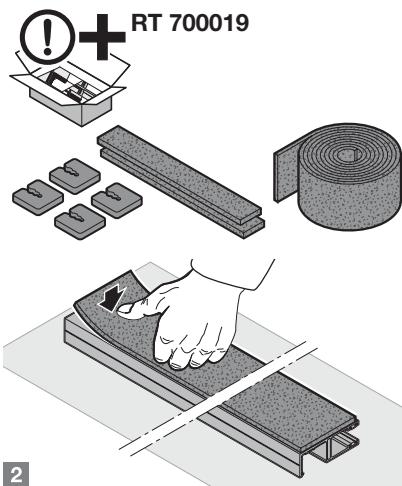
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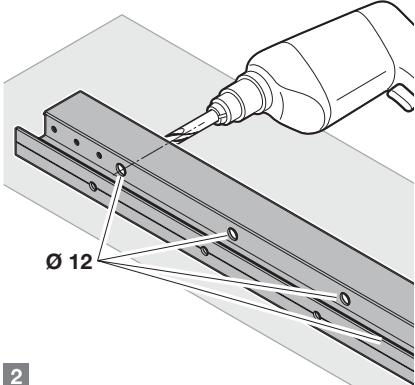
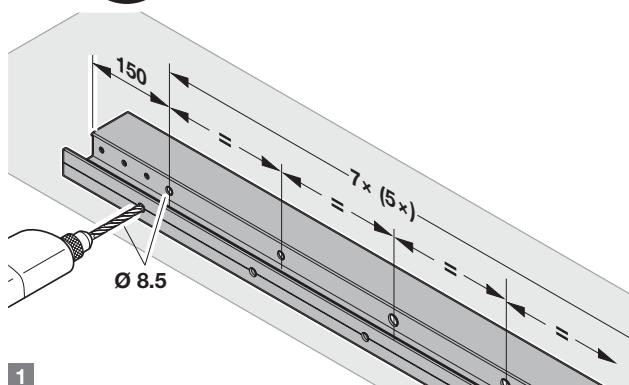
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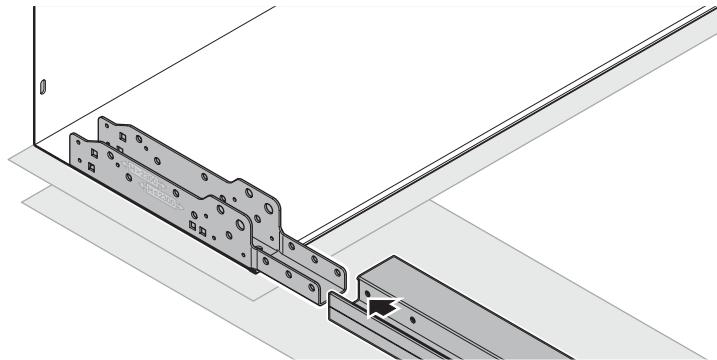
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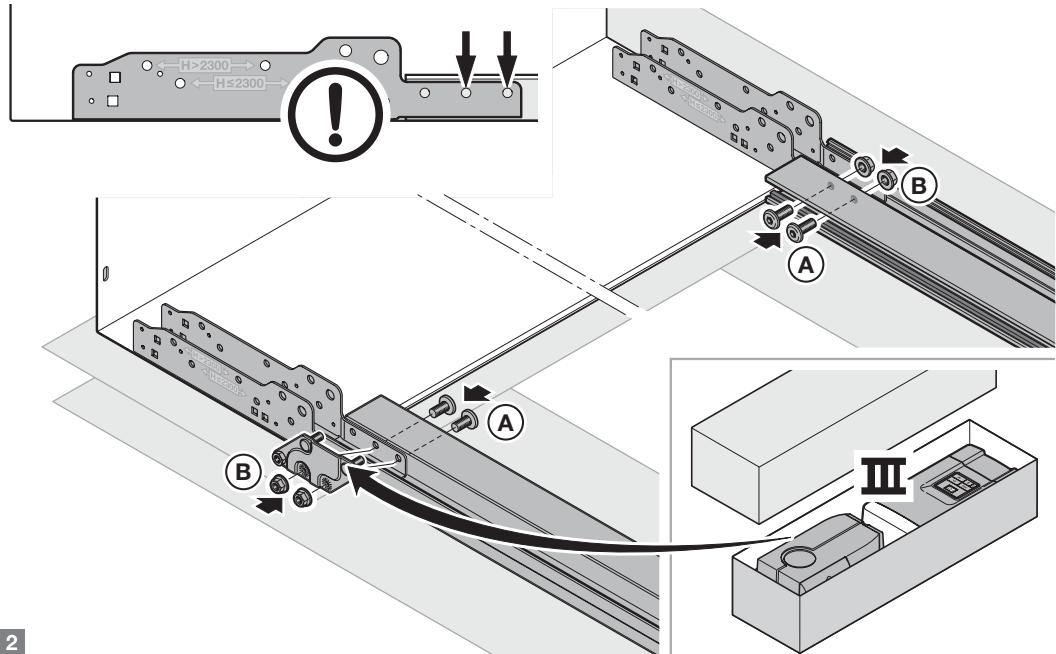
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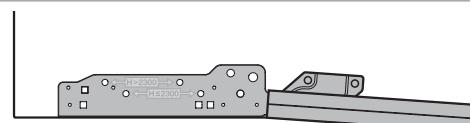
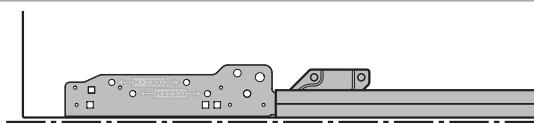
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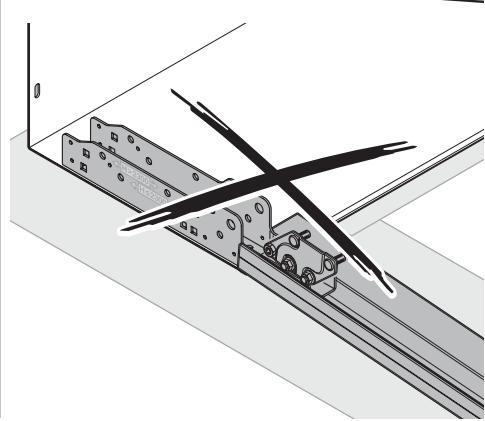
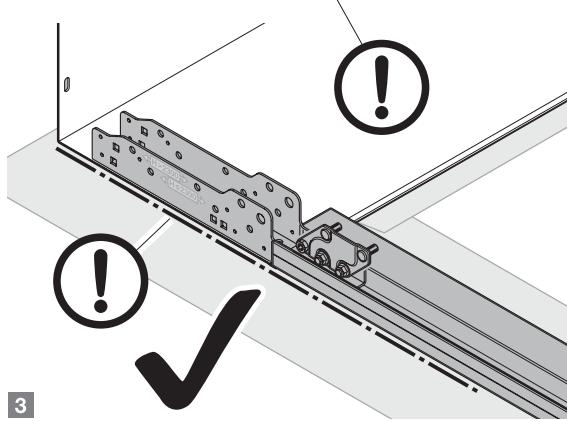
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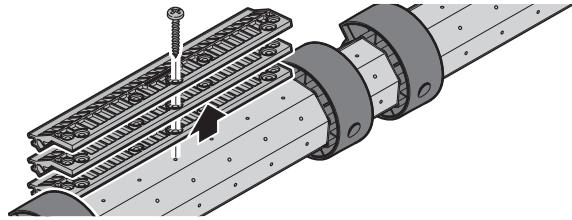
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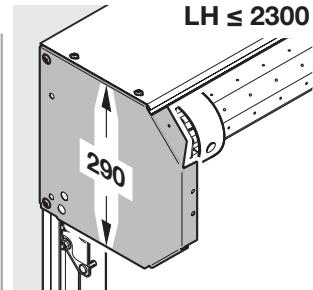
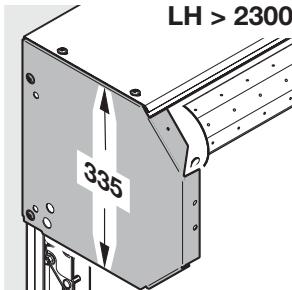
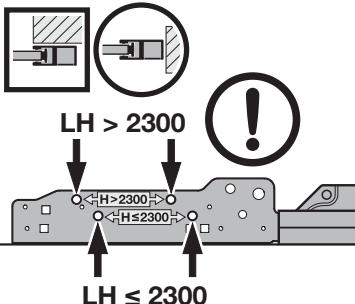
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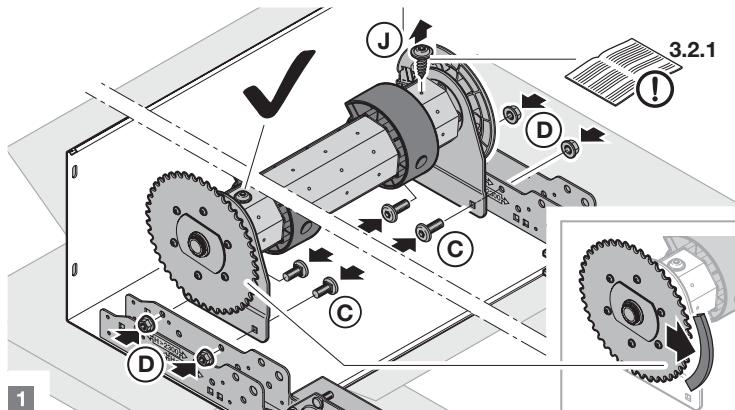
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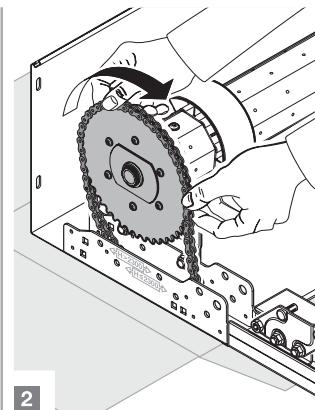
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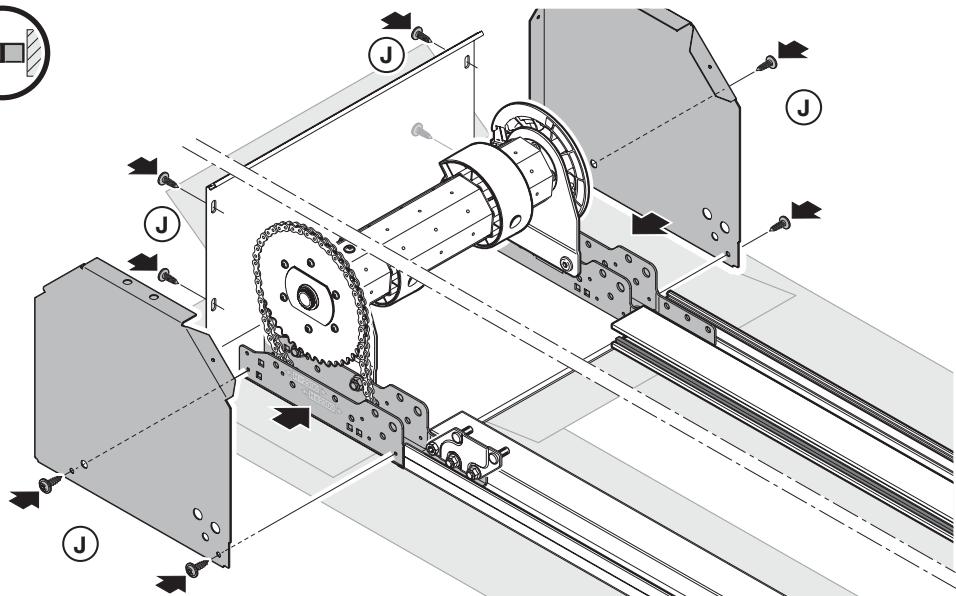
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2



2.8

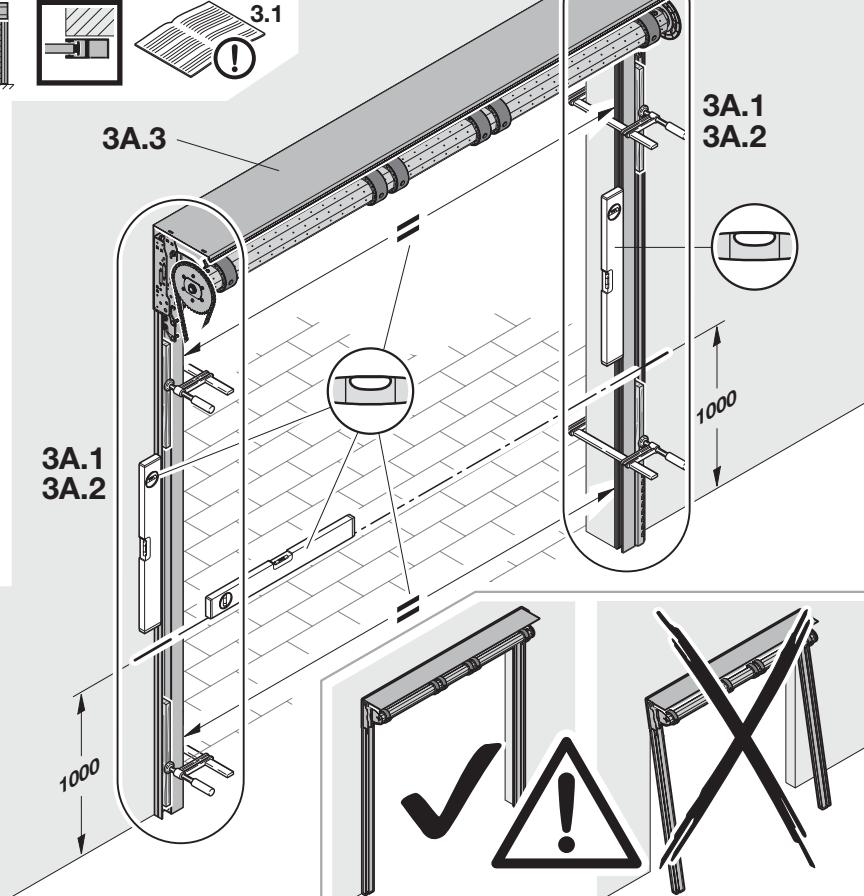


3A

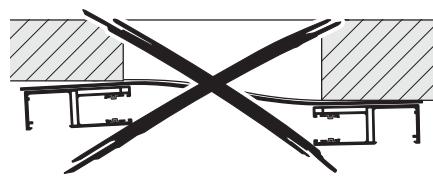
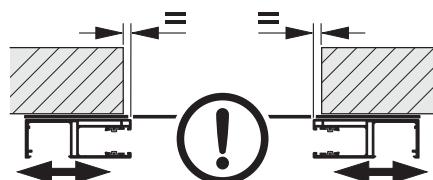
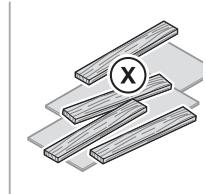
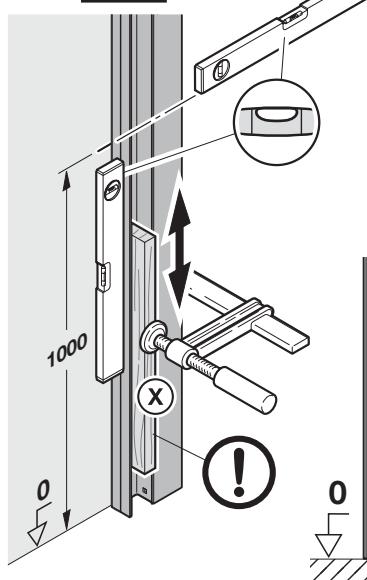
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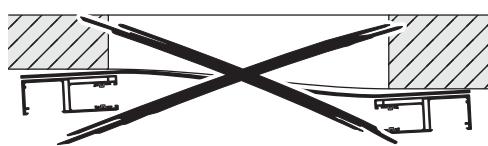
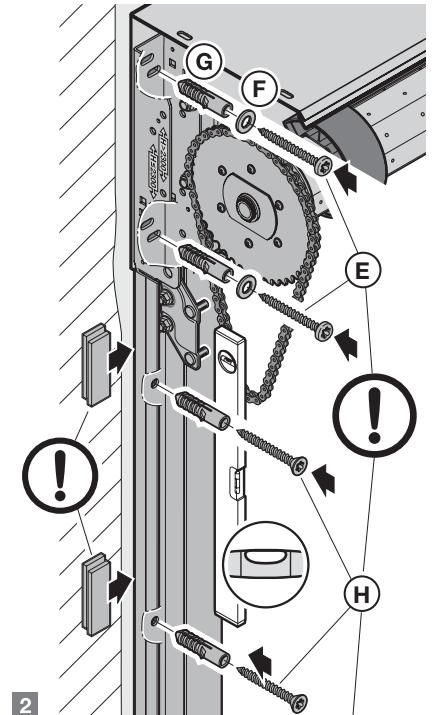
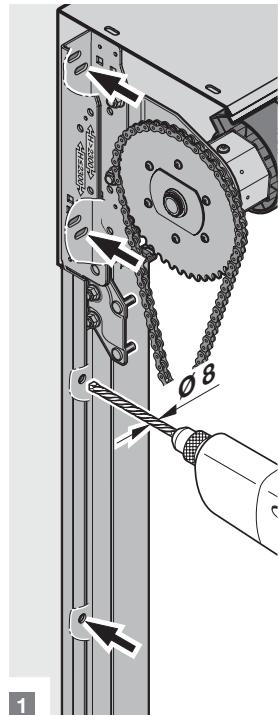
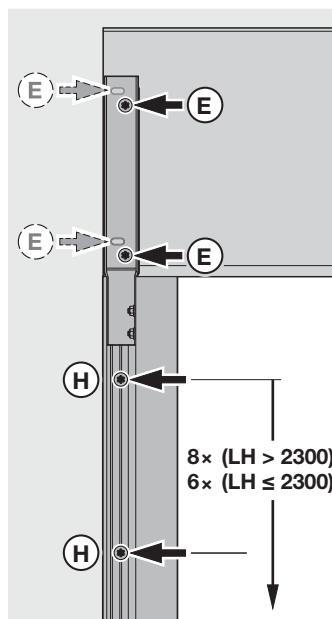
3A.3

3A.1
3A.2

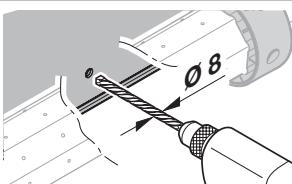
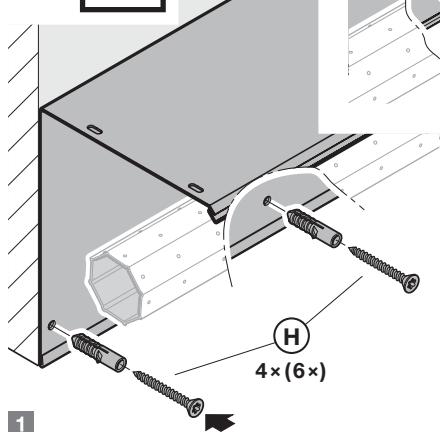
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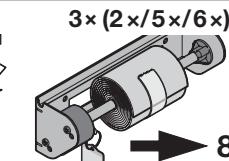
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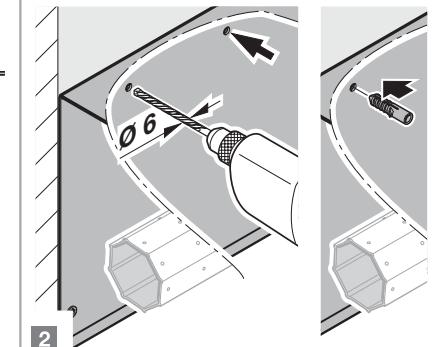
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8995381



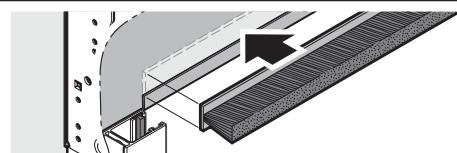
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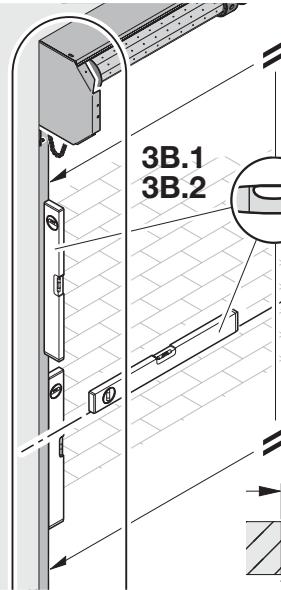


3A.4

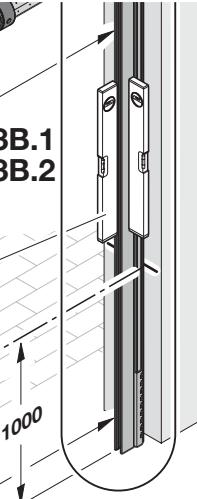


RT 700018



3B**3B.1
3B.2**

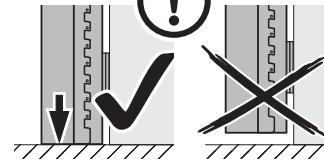
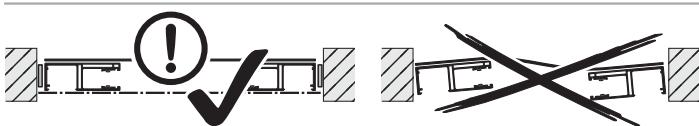
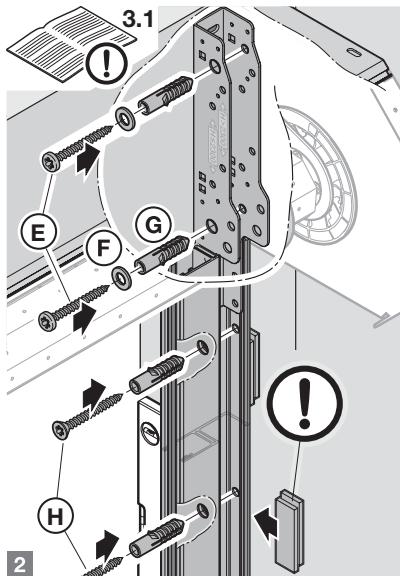
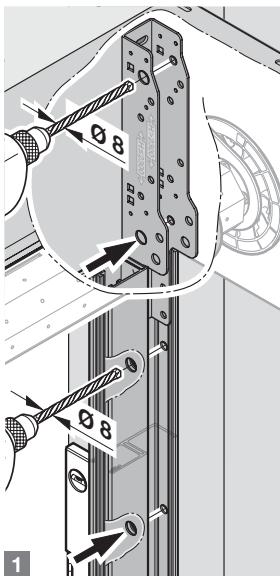
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**3B.1
3B.2****3B.1**

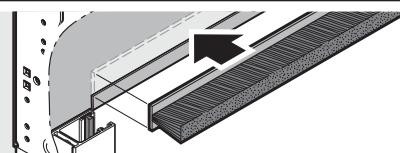
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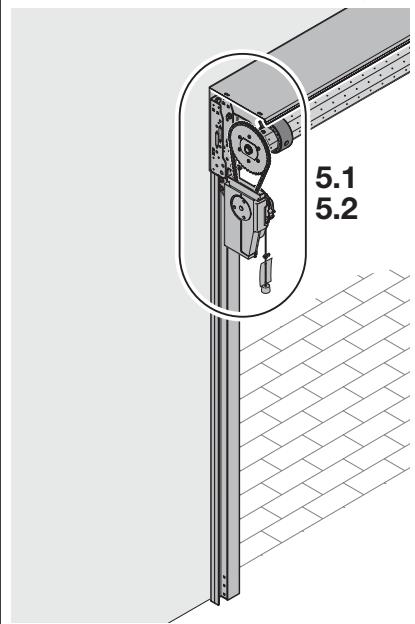
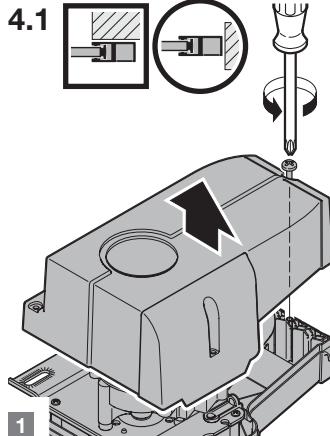
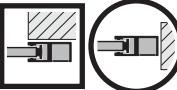
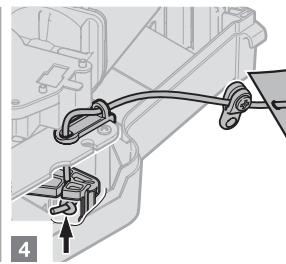
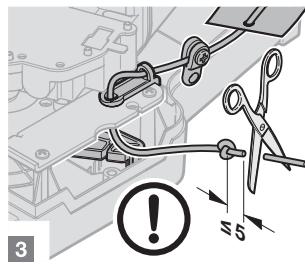
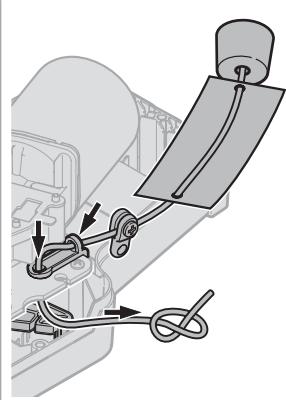
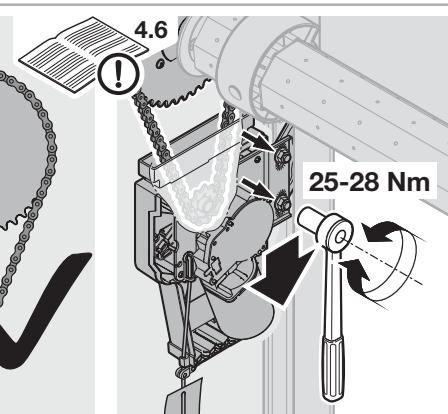
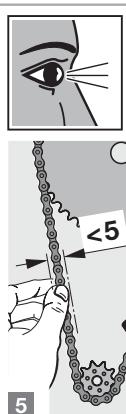
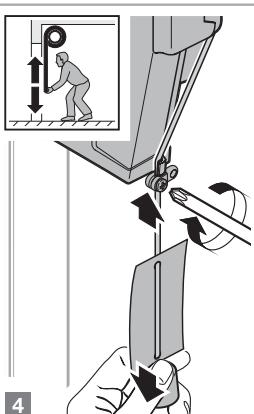
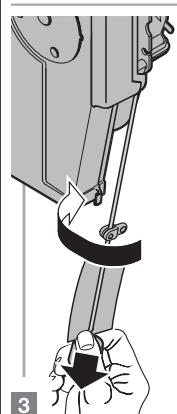
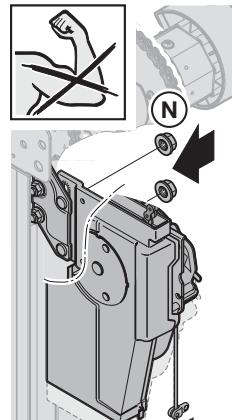
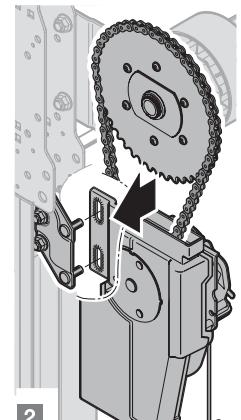
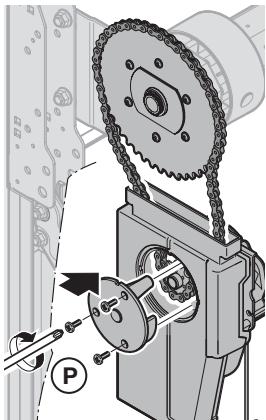
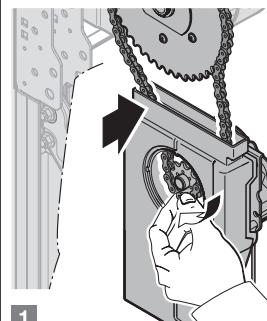
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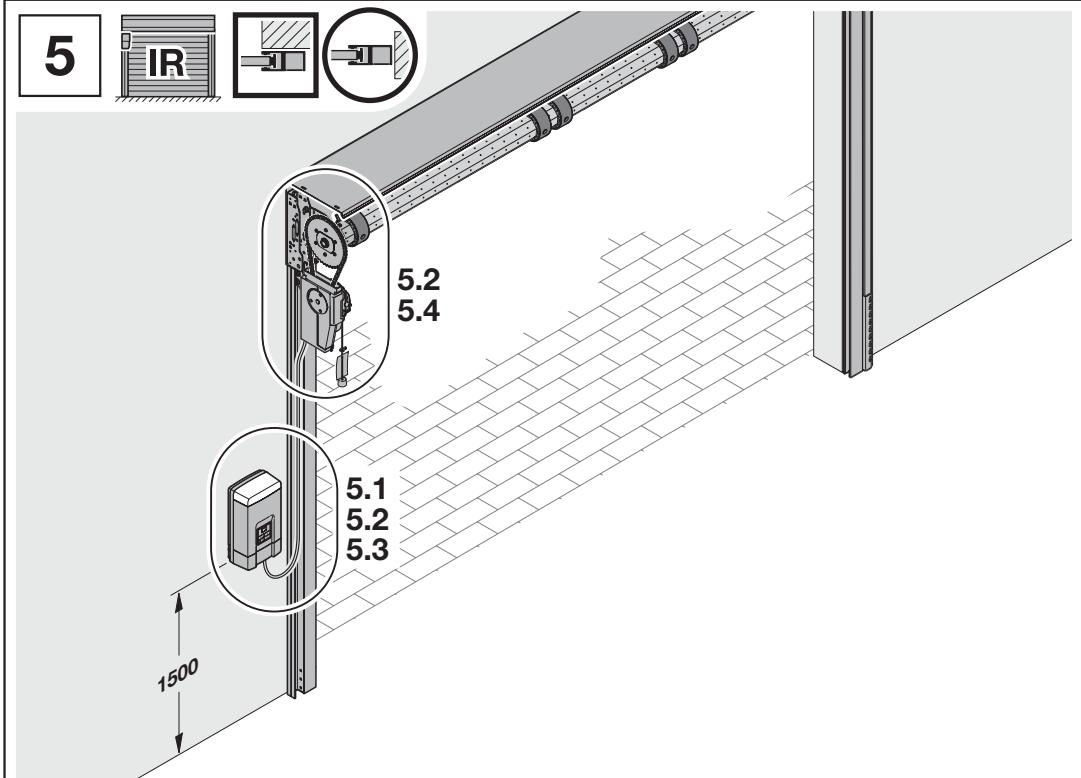
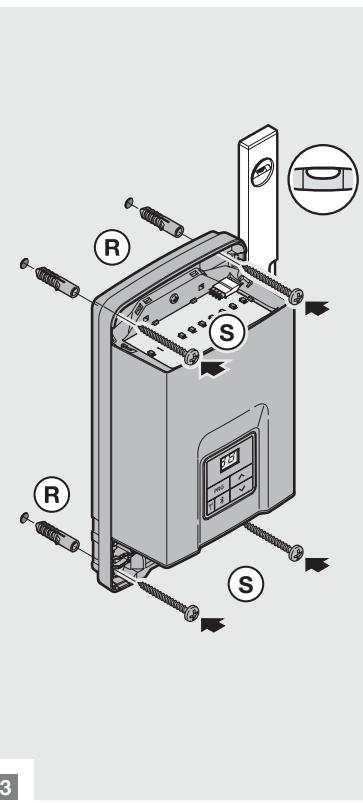
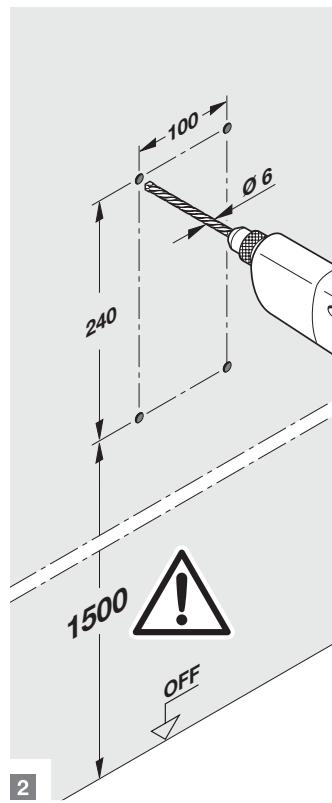
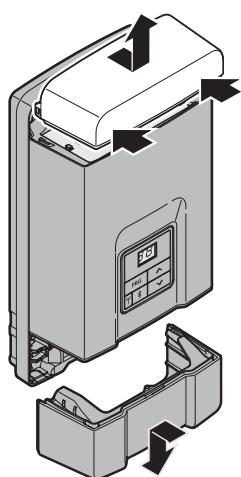
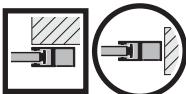
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**3B.2****E****E****H**8x (LH > 2300)
6x (LH ≤ 2300)**3B.3**

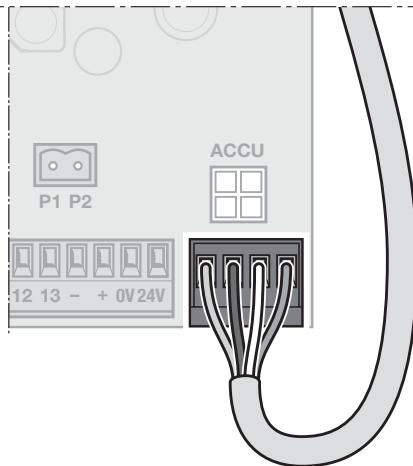
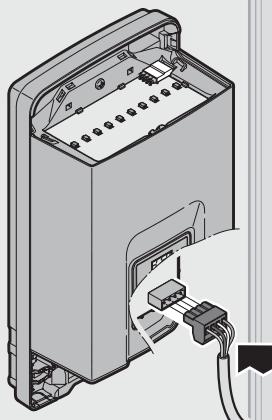
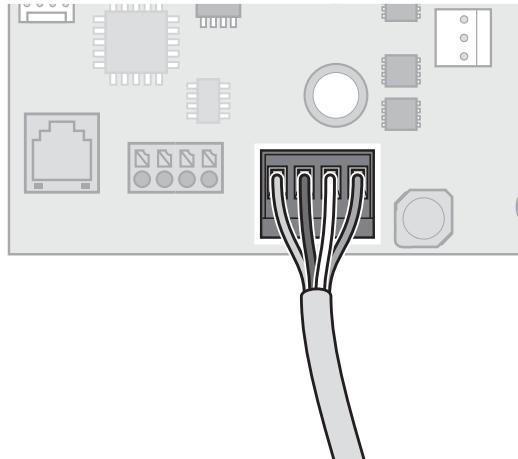
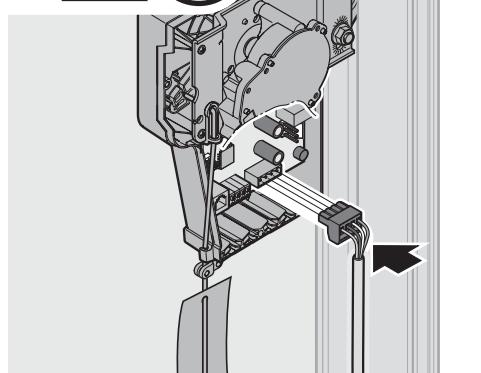
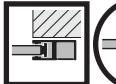
RT 700018



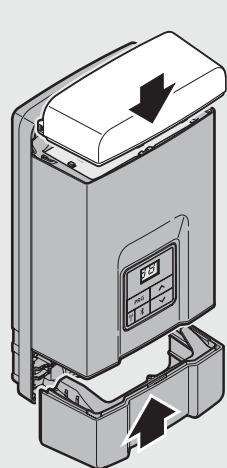
4**4.1****2****4.2**

5**5.1****1****2****3**

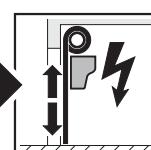
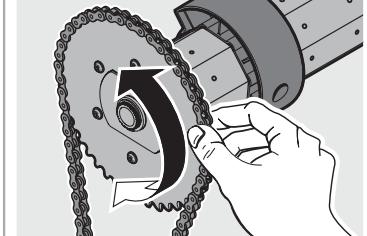
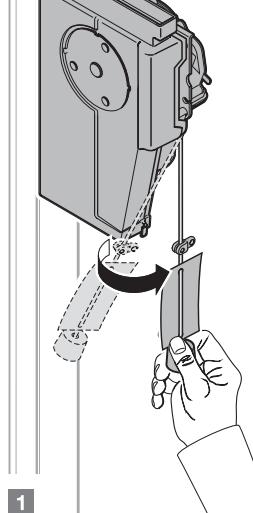
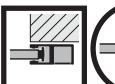
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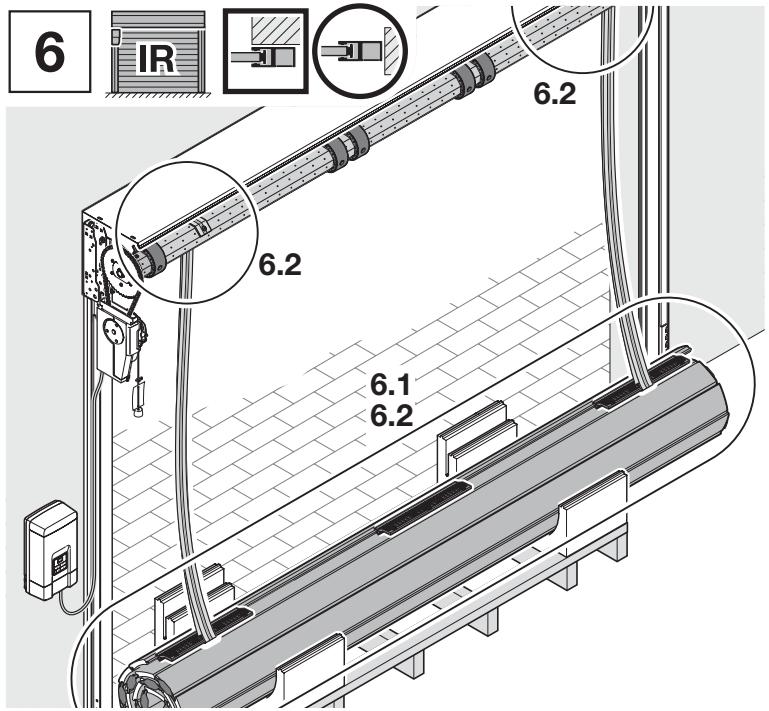
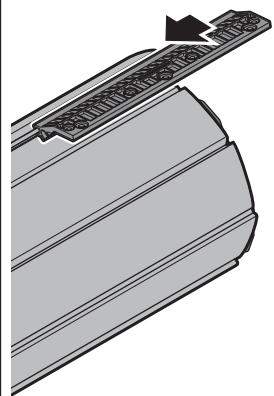
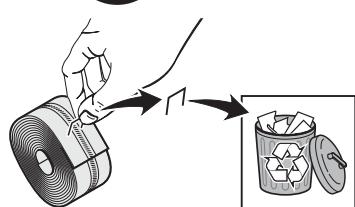
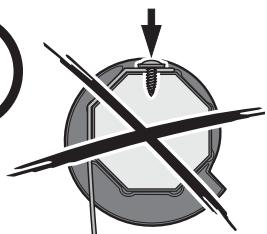
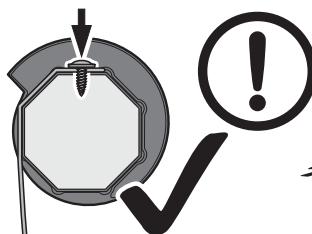


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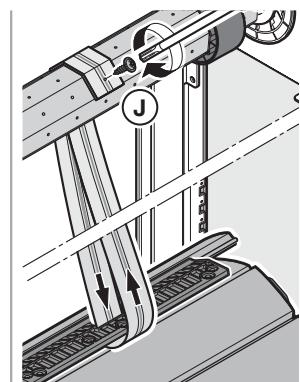
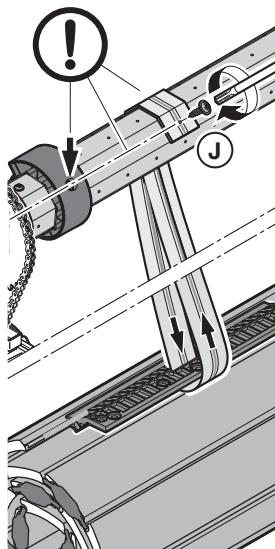
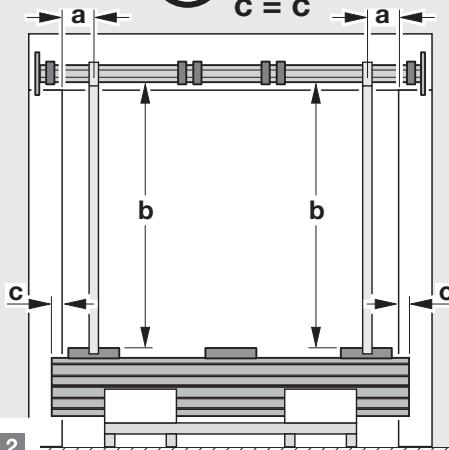
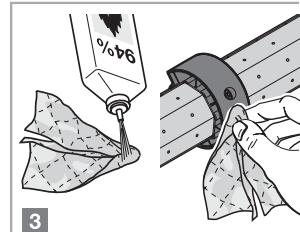


5.4



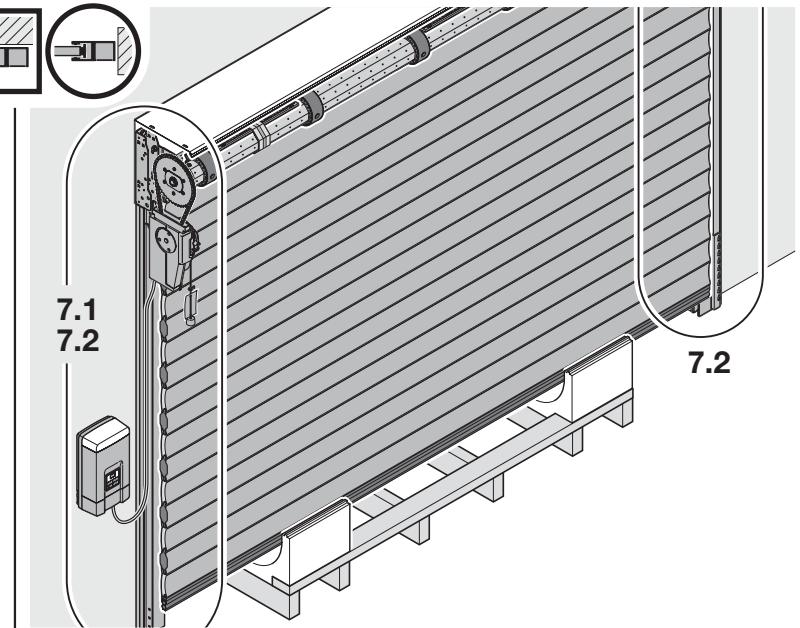
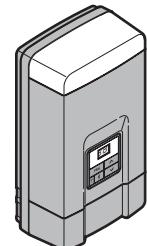
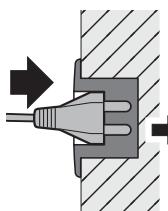
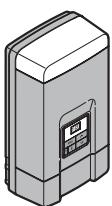
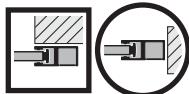
6**6.1** **$3 \times (2 \times / 5 \times / 6 \times)$** **6.2****1****2**

a = a
b = b
c = c

**3**

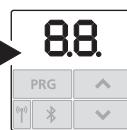
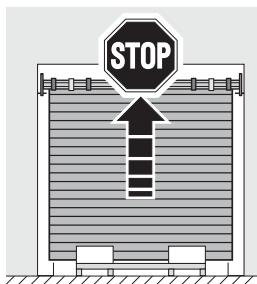
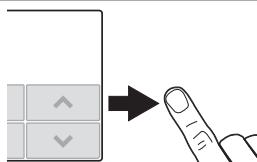
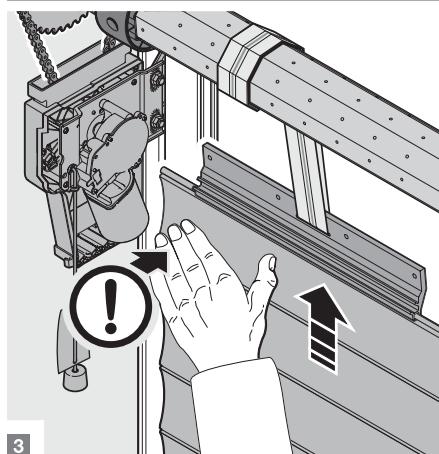
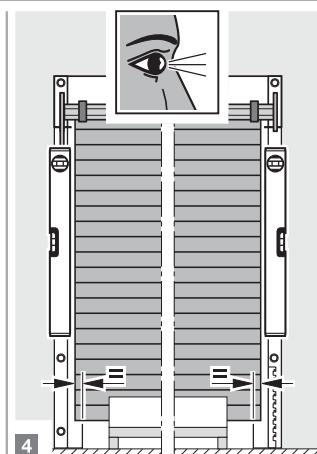
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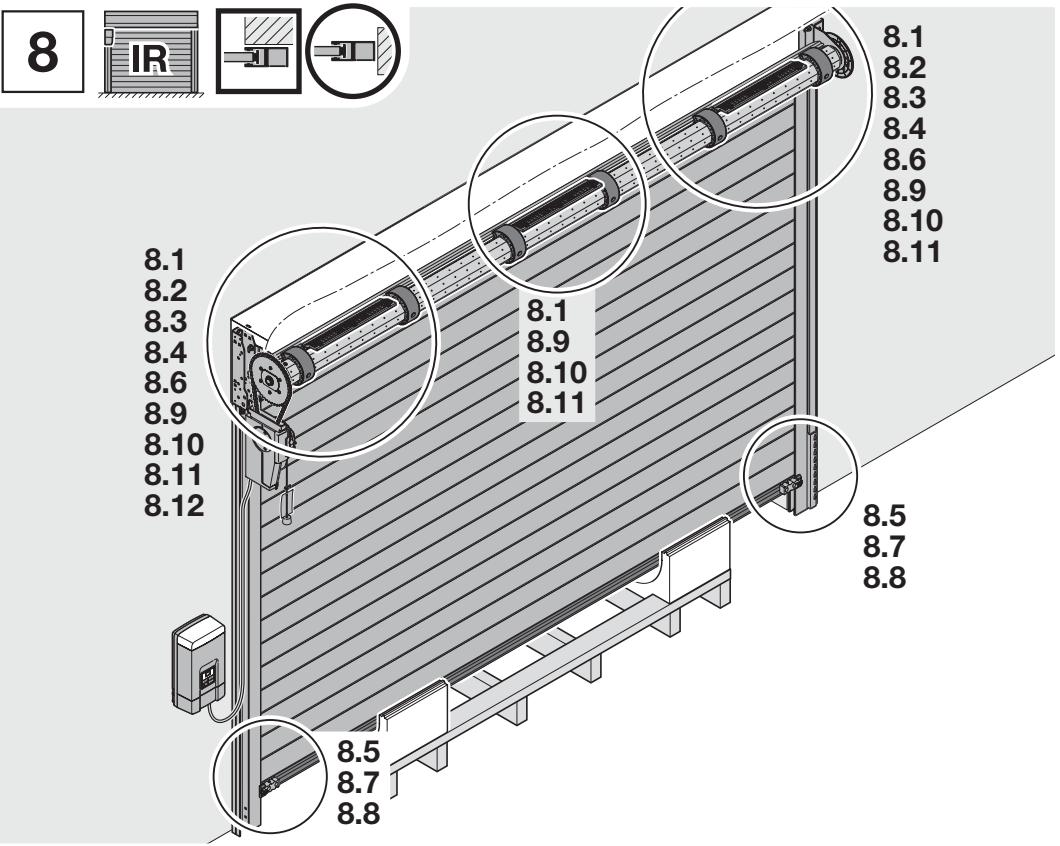
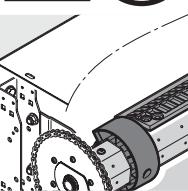
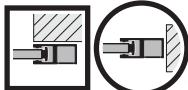
4510873

**7.2****7.2**

120s

1s

**1****2****3****4**

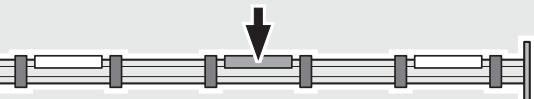
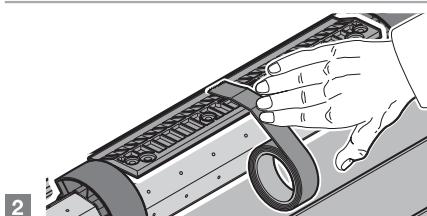
8**8.1**

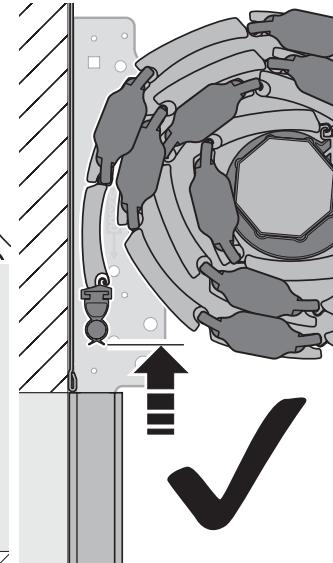
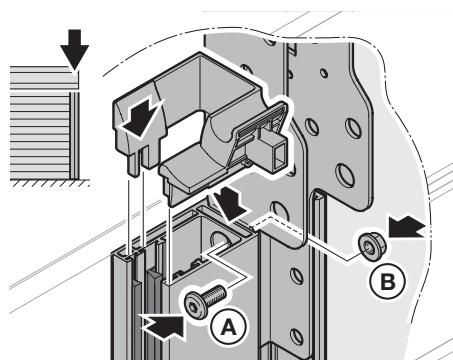
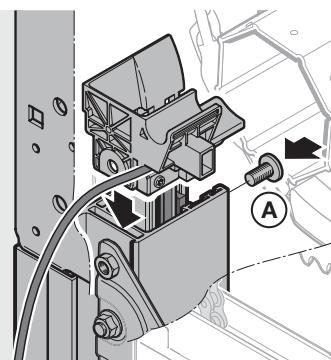
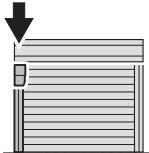
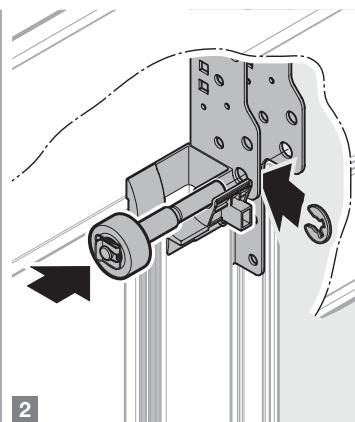
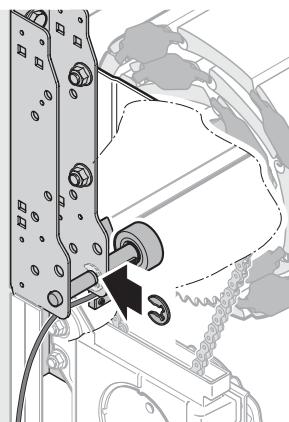
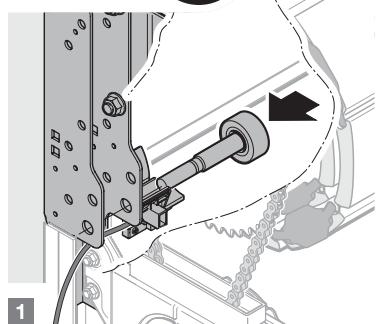
LB 1001 - LB 1600

LB 1601 - LB 3000

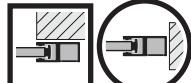
LB 3001 - LB 5000

LB 5001 - LB 6000

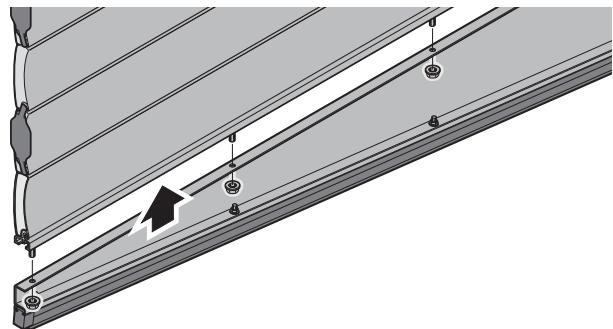
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8.2**8.3****8.4**

8.5



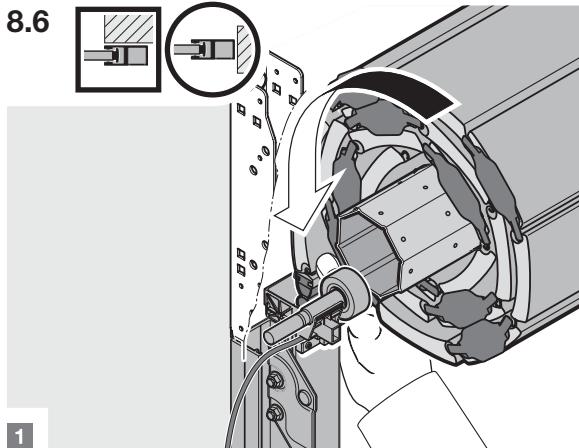
RT 700015



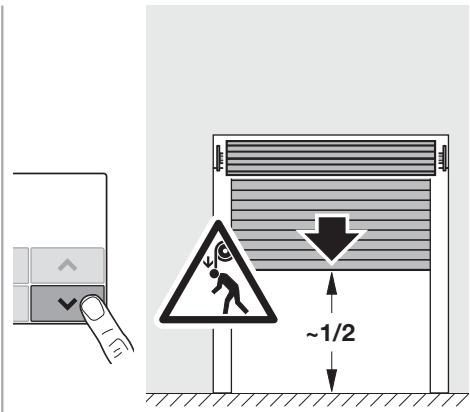
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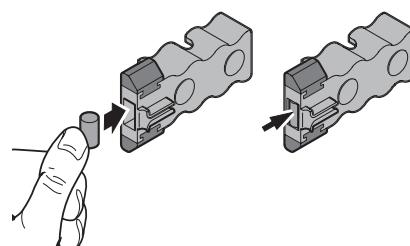
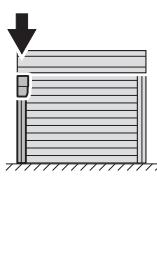
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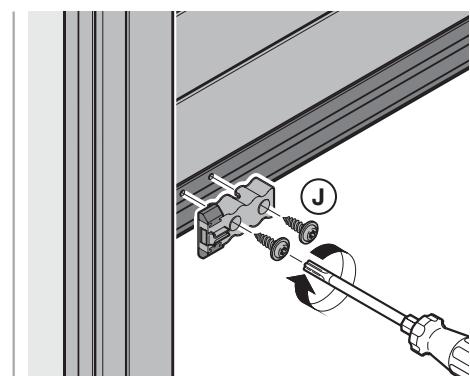
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8.7



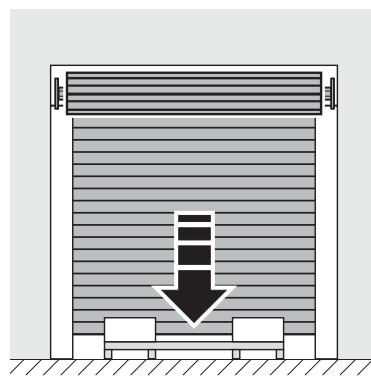
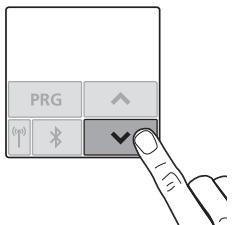
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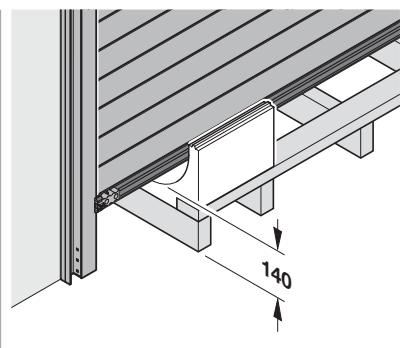
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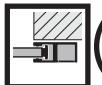
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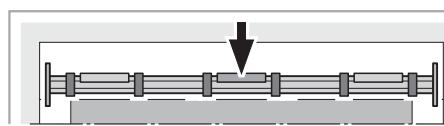
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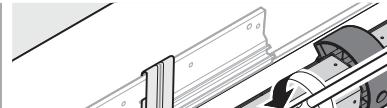
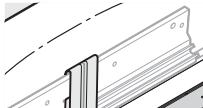
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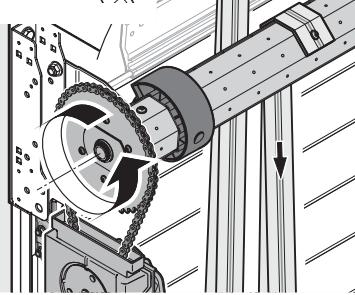
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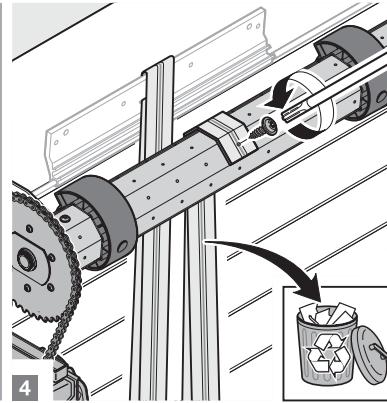
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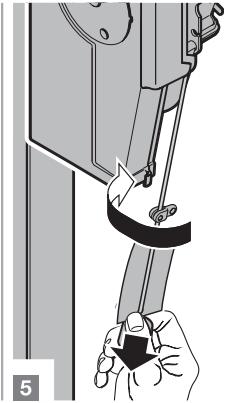
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4



5

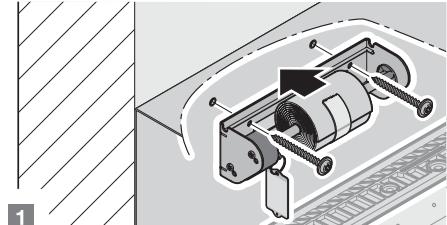


8.10 ! + 8995381

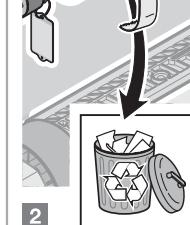
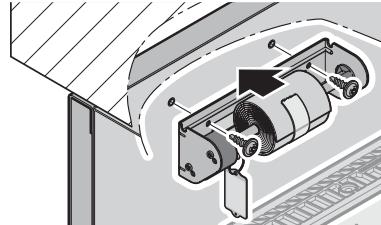


3x (2x/5x/6x)

1



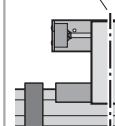
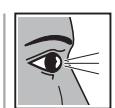
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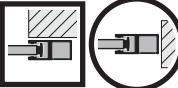
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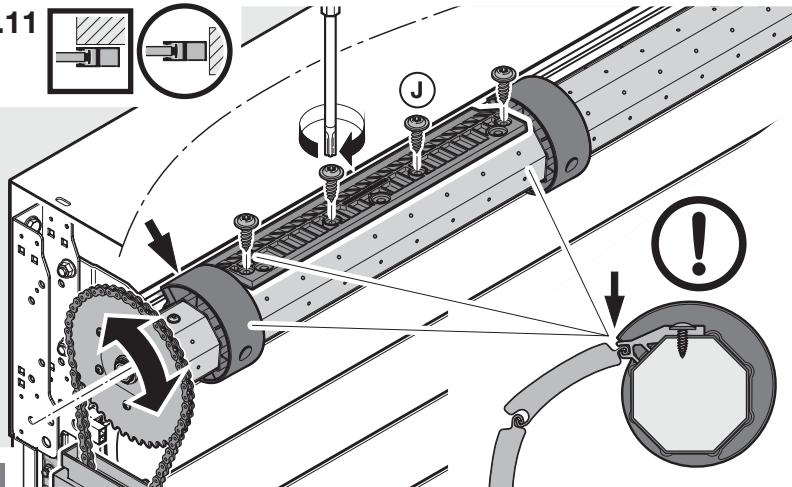
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8.11

8.11



1

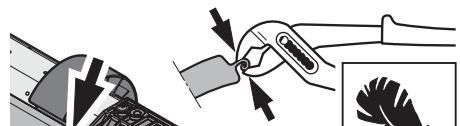
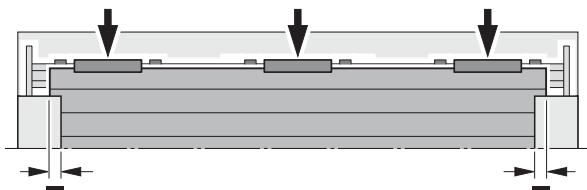


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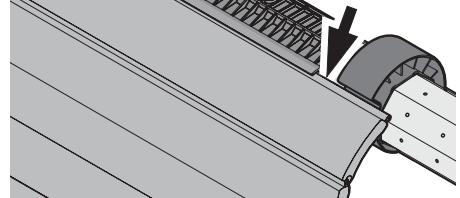
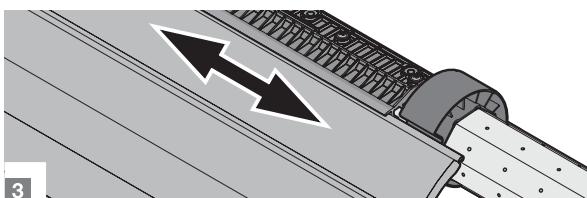


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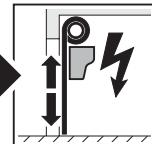
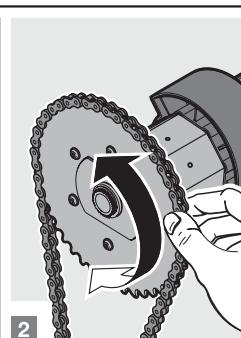
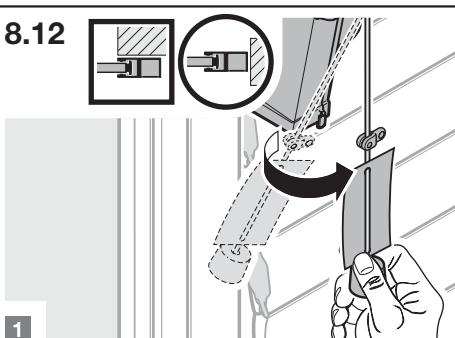
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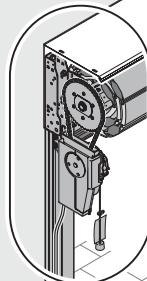
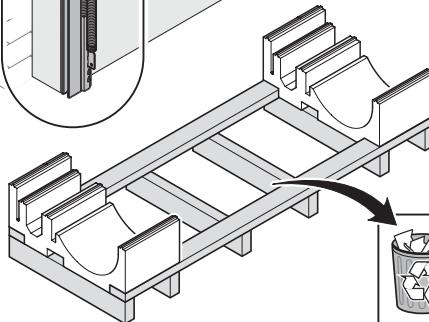
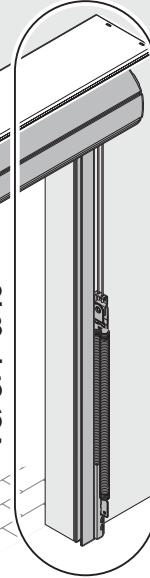
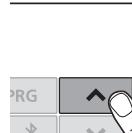
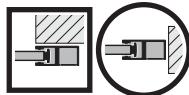
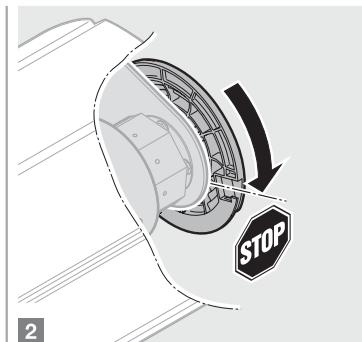
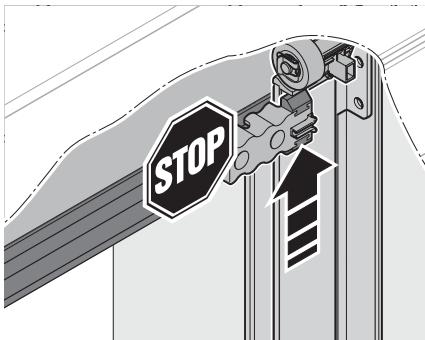
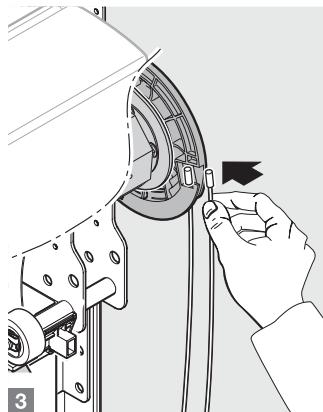
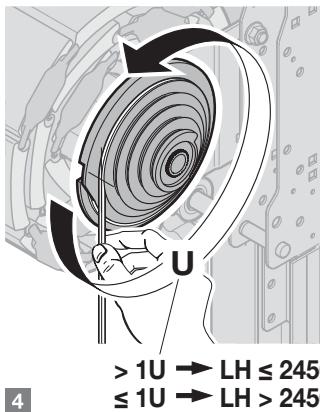
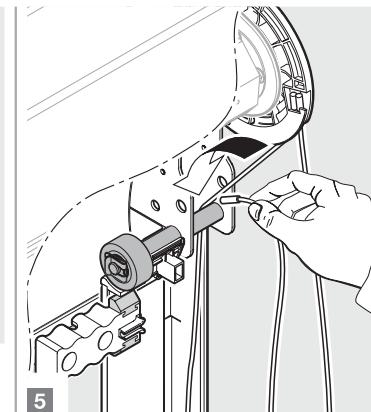


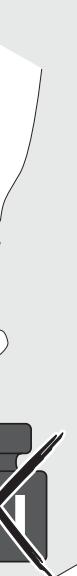
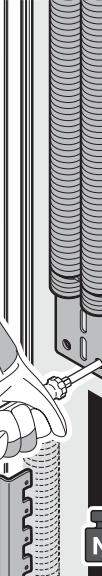
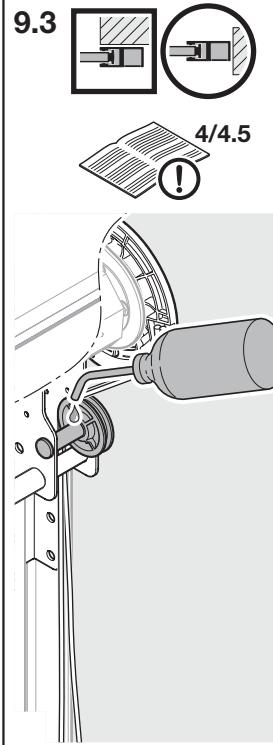
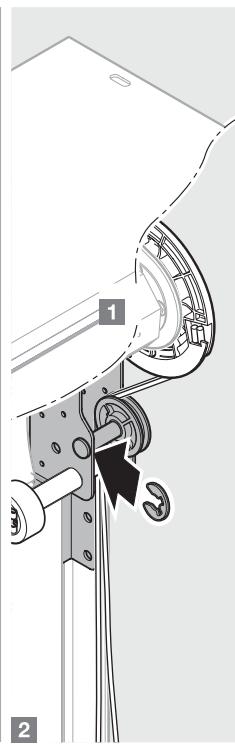
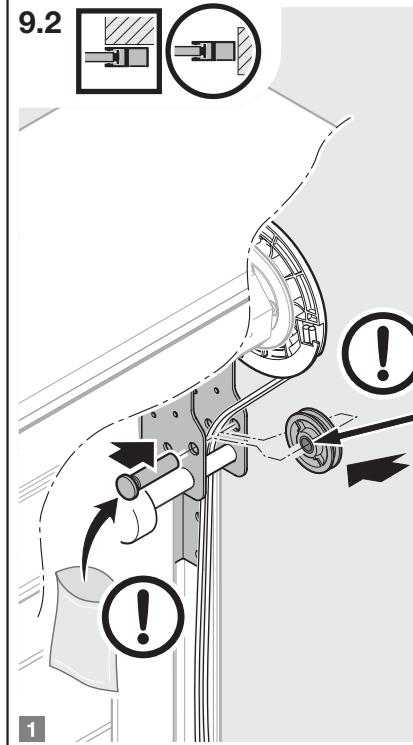
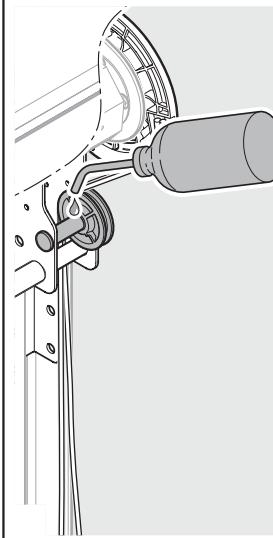
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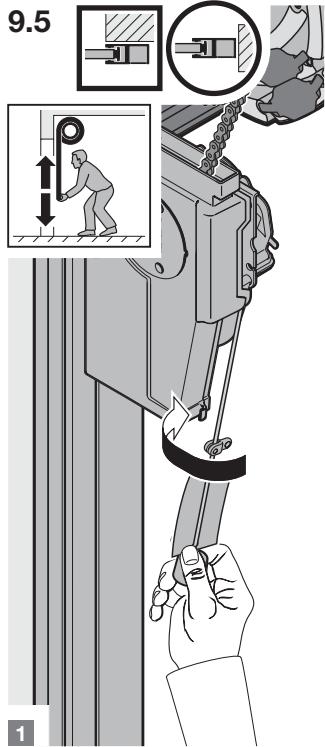
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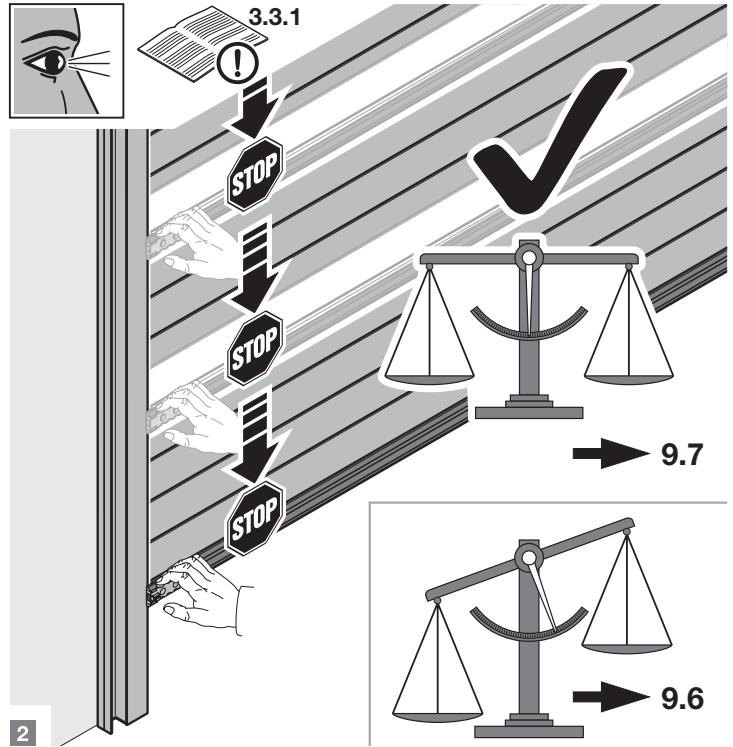
99.5
9.79.1
9.2
9.3
9.4
9.5
9.6
9.7**9.1****1****2****3** $> 1U \rightarrow LH \leq 2450$
 $\leq 1U \rightarrow LH > 2450$ **4****5**

9.2**1****9.4****1****2****9.3****4/4.5****2****9.4****1****2**

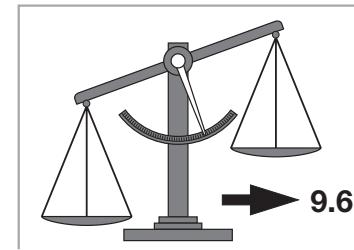
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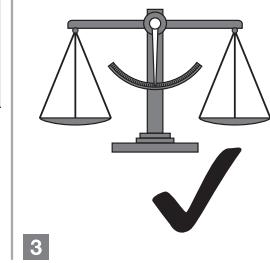
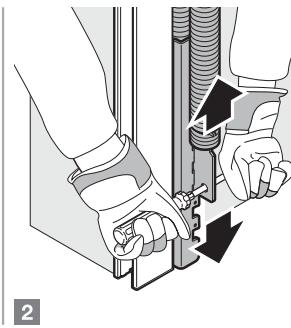
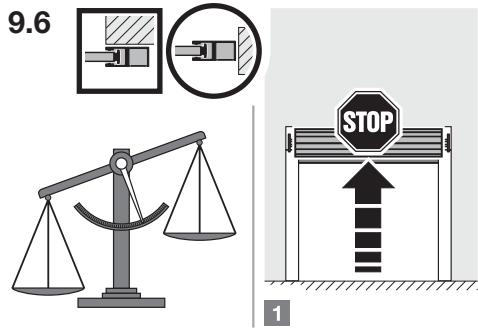
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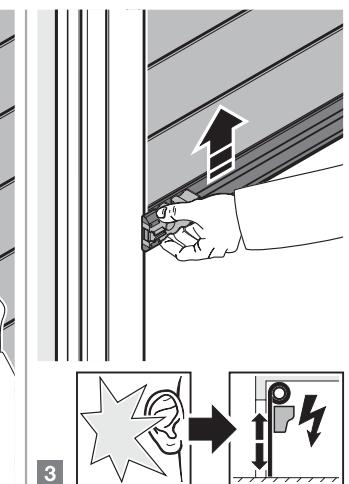
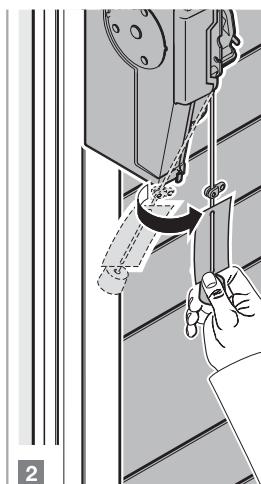
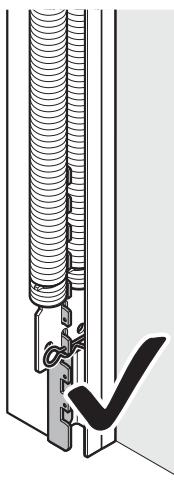
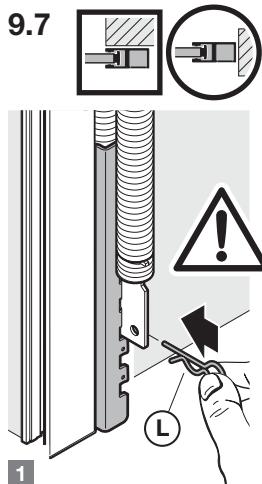
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9.6

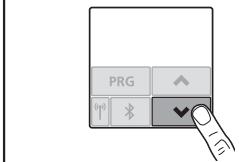
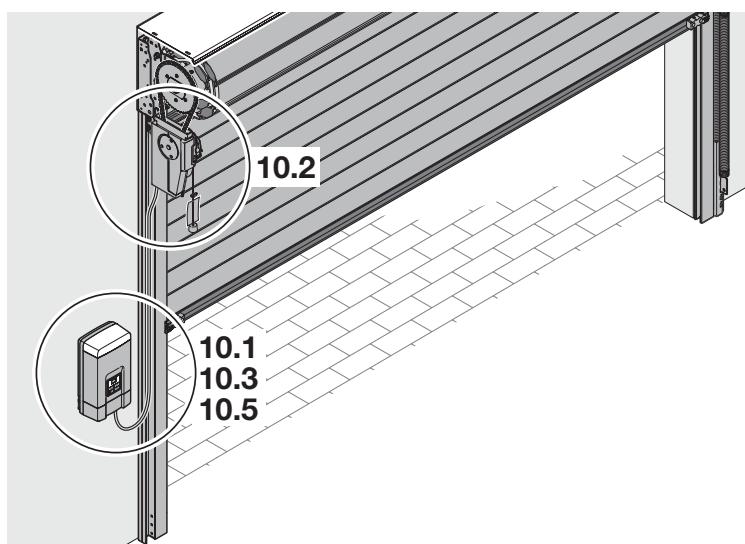
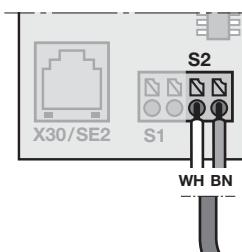
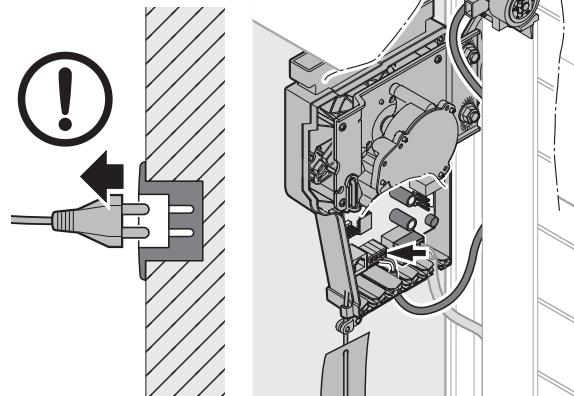


9.7

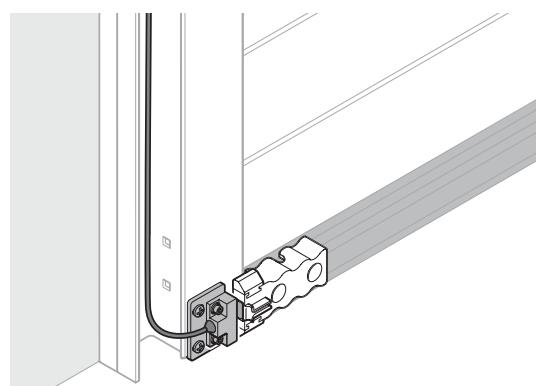


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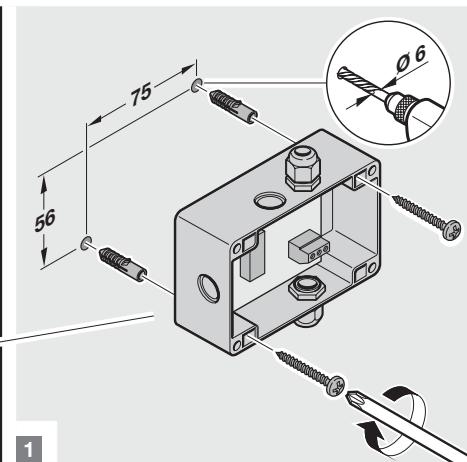
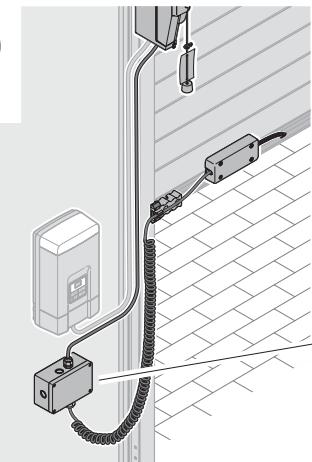
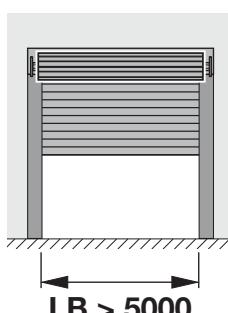
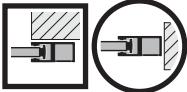
4510873

10.1**10.2****10.3**

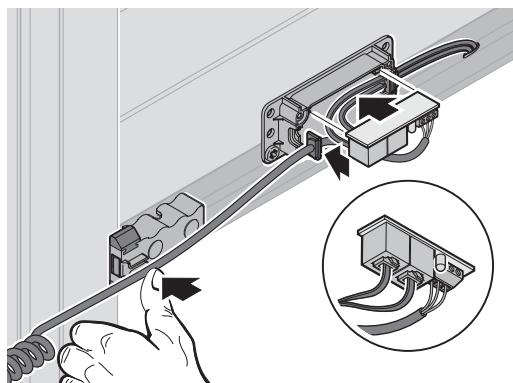
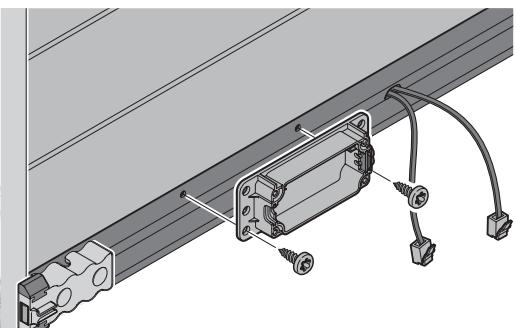
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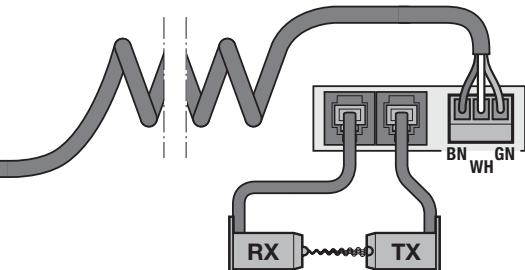
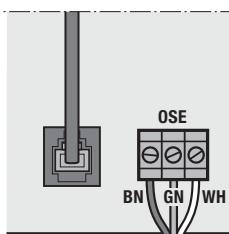
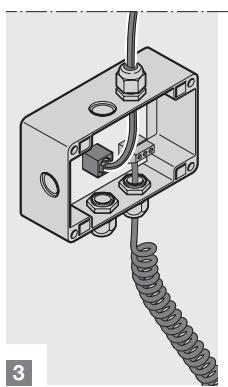
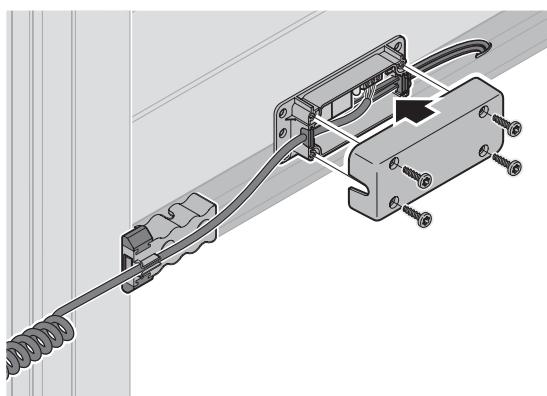
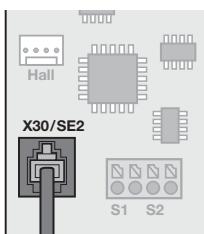
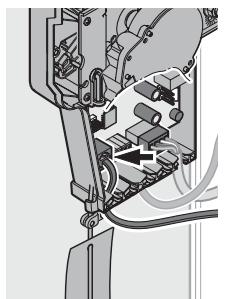
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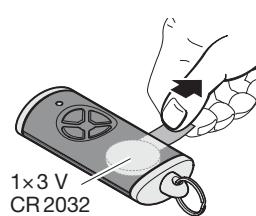


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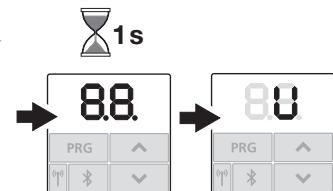
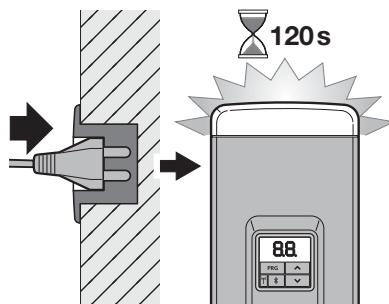


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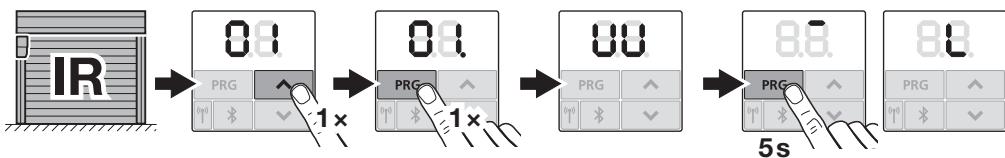
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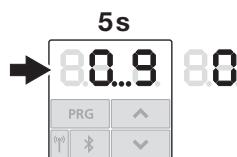
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2



3



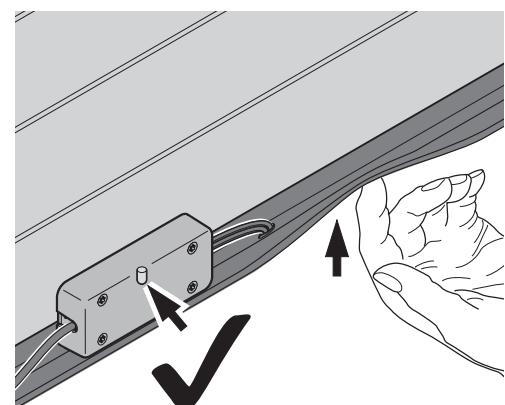
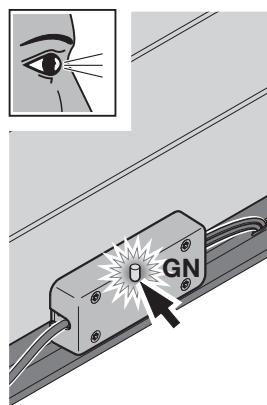
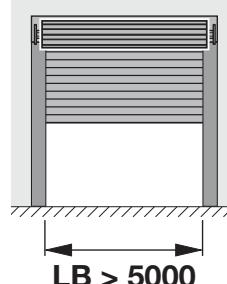
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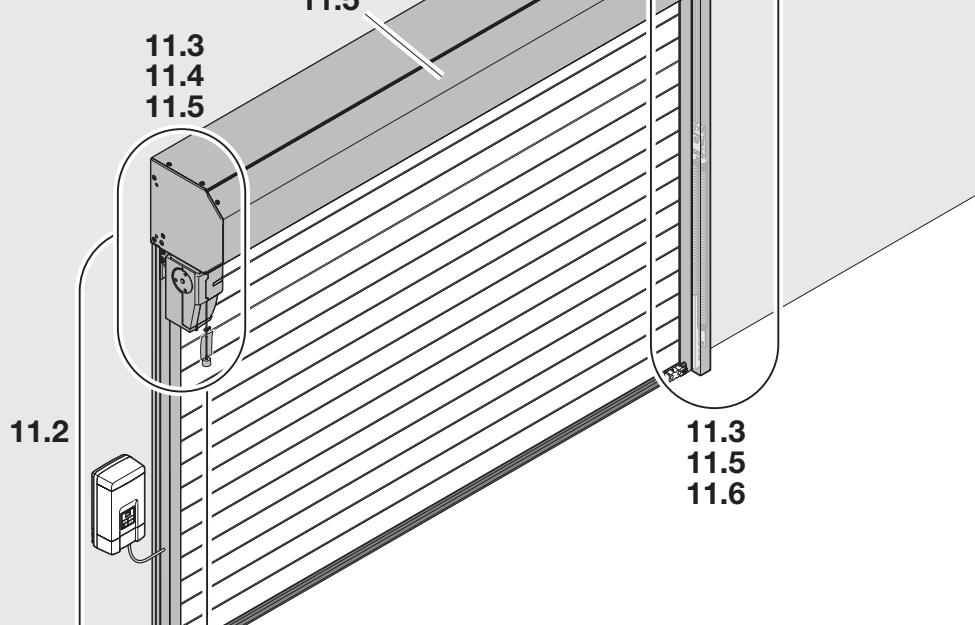
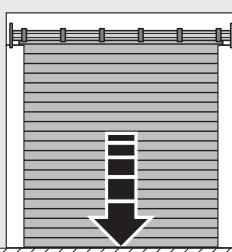
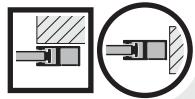
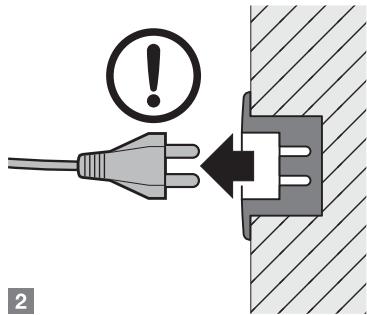
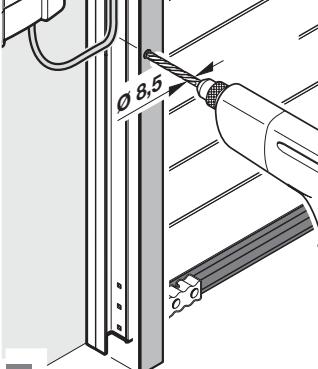
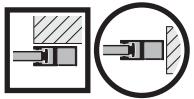
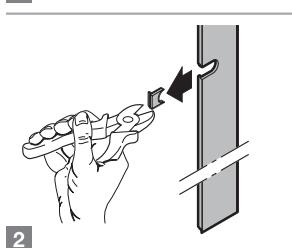
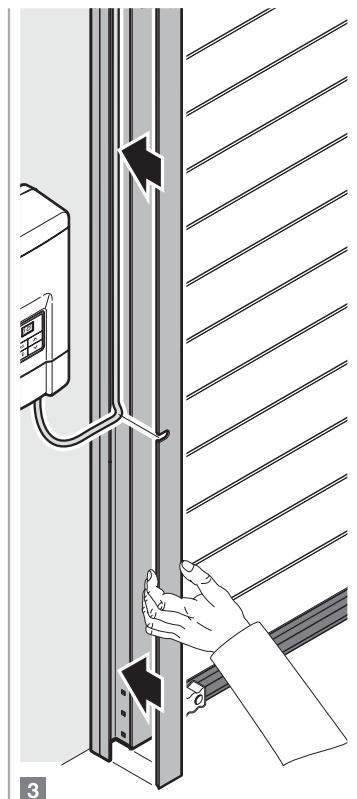


→ 9.5 - 9.7 / 10.5

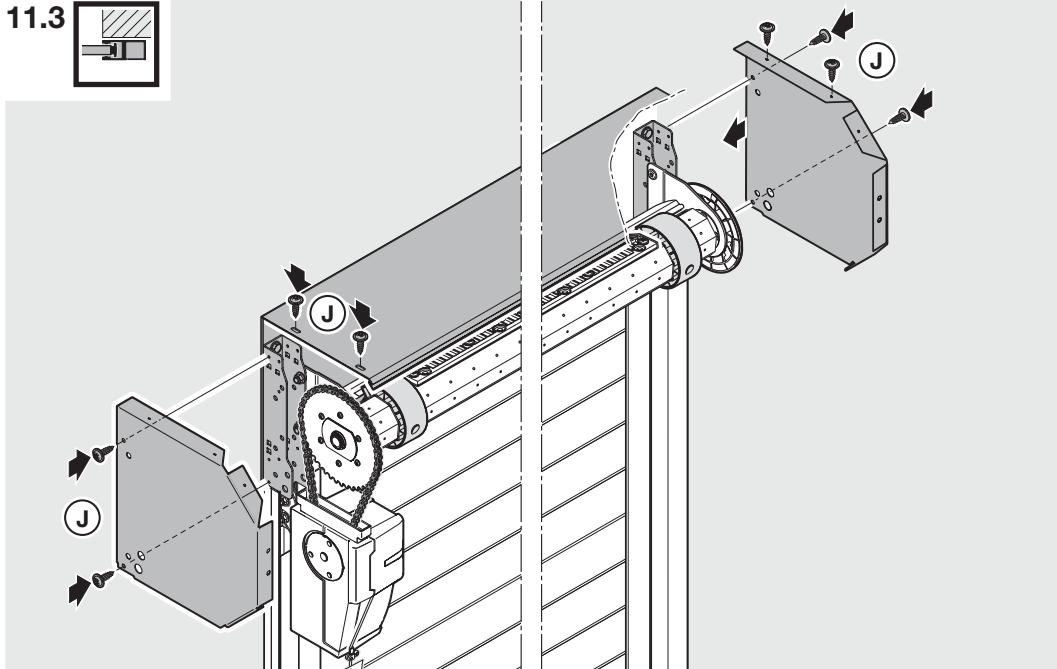
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10.6

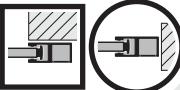


11**11.1****1****2****11.2****1****2****3**

11.3



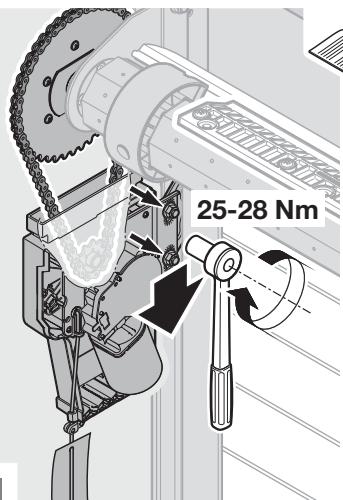
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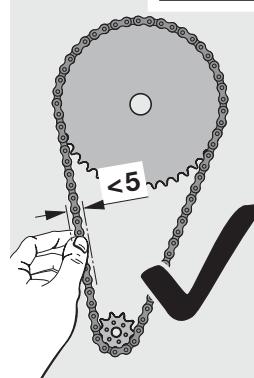
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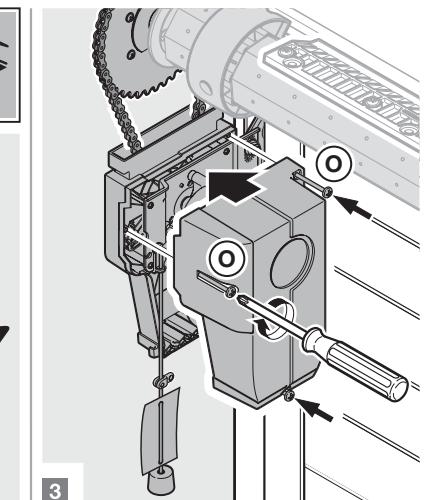
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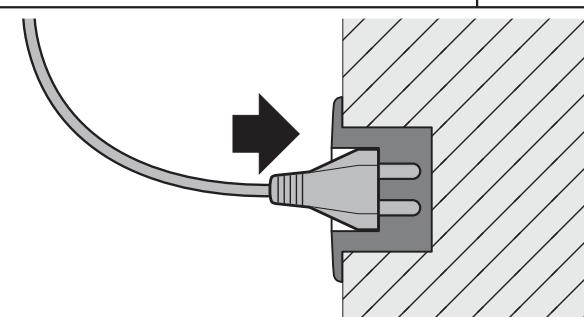
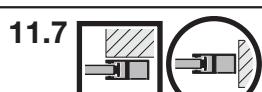
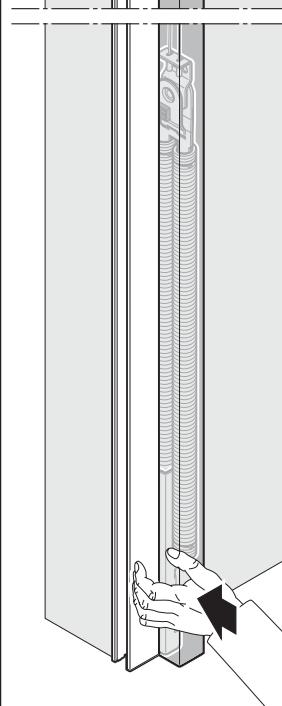
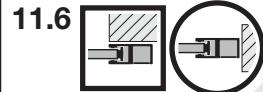
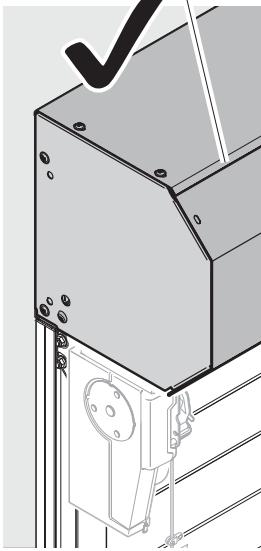
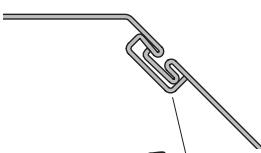
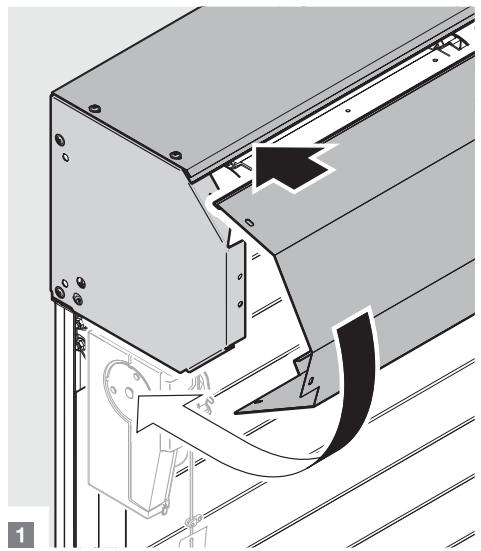
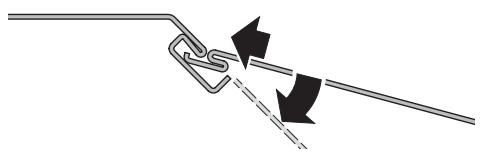
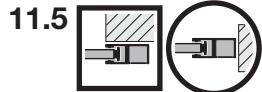


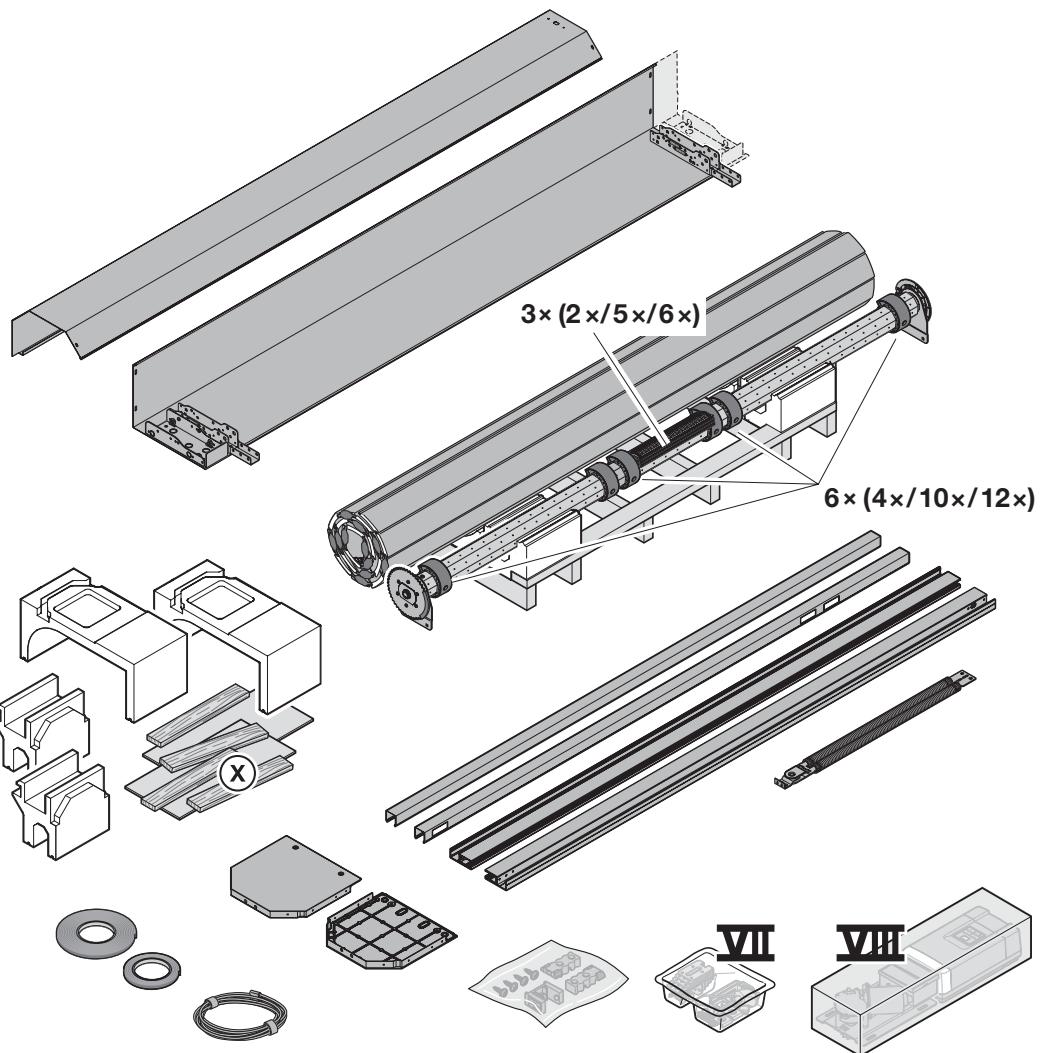
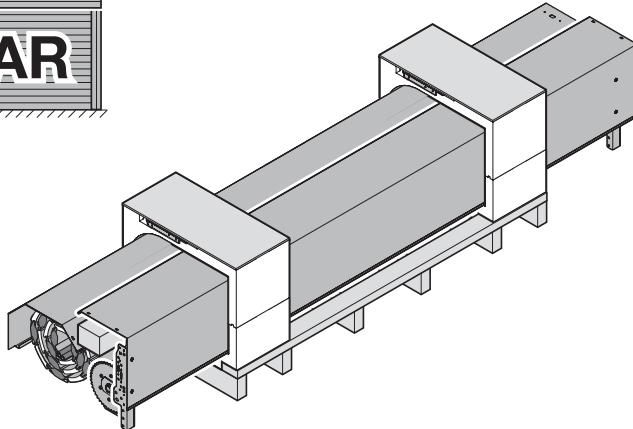
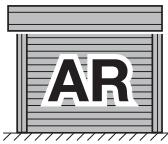
25-28 Nm

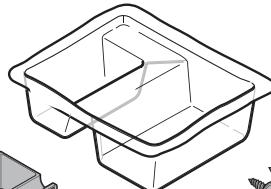


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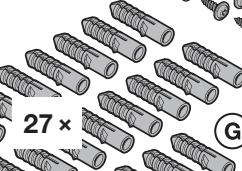
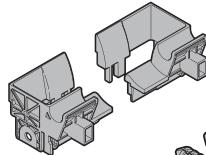


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42 ×

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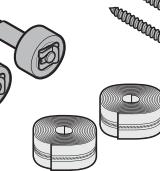


27 ×

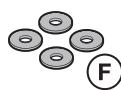


23 ×

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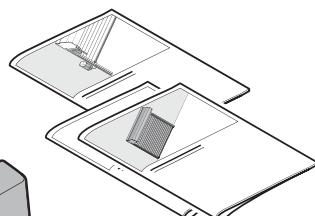
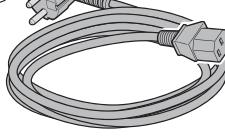
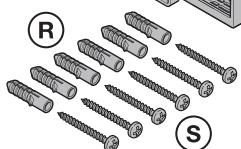
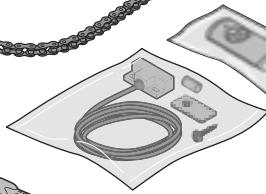
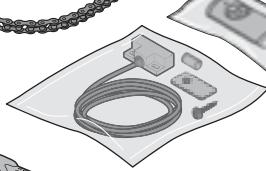
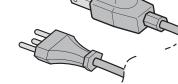
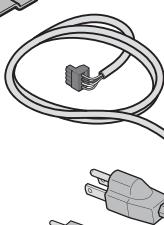
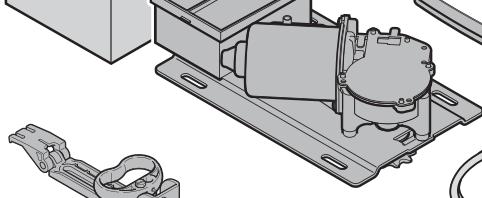
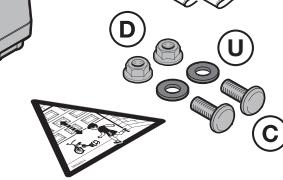
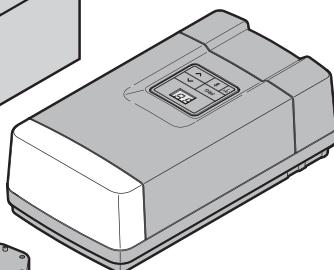
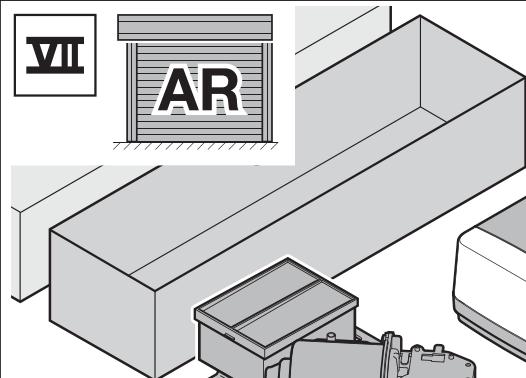
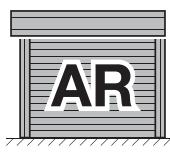
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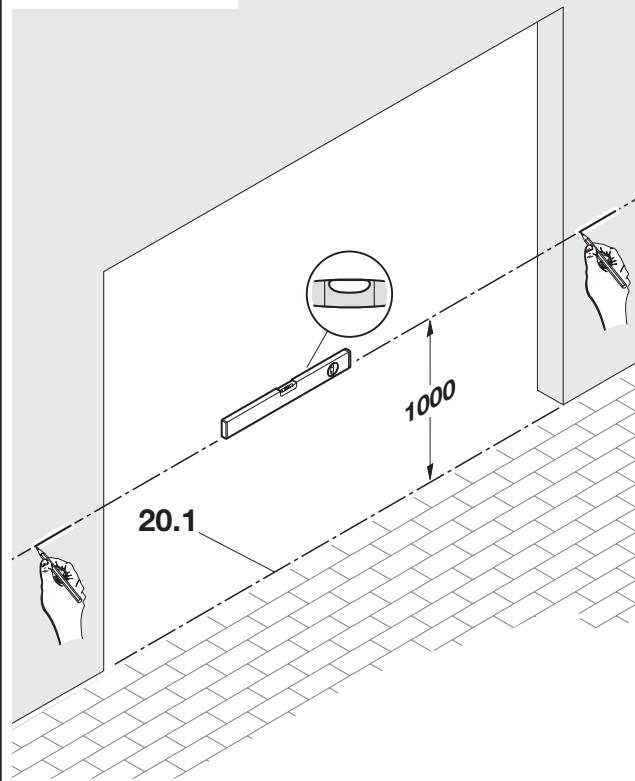
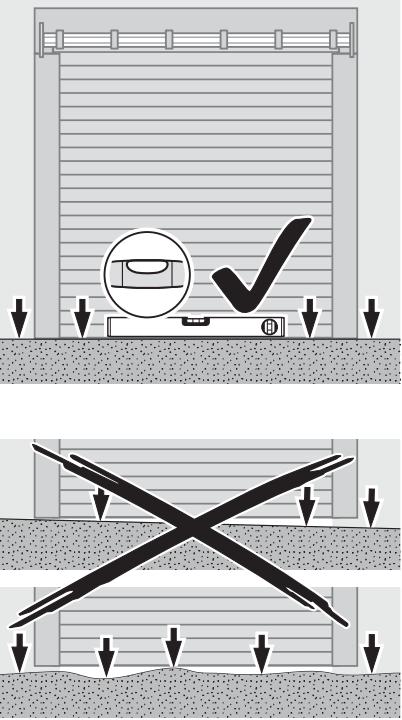
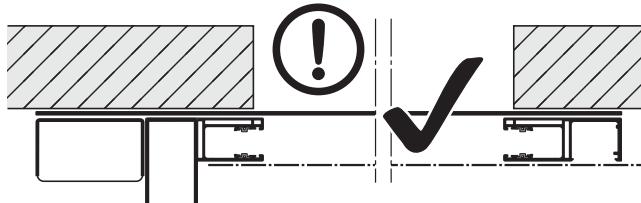
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Z

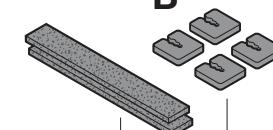
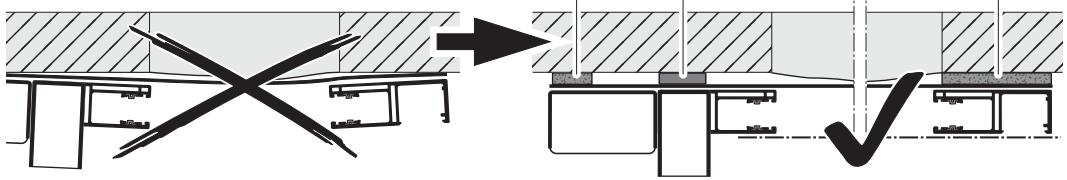
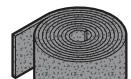
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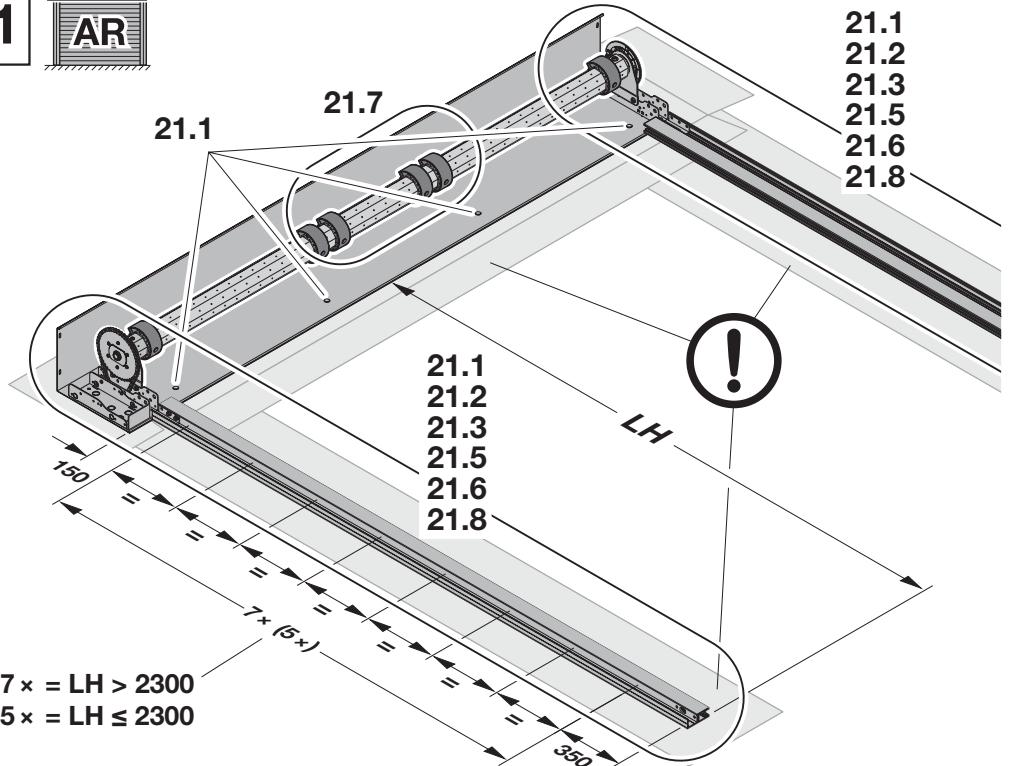
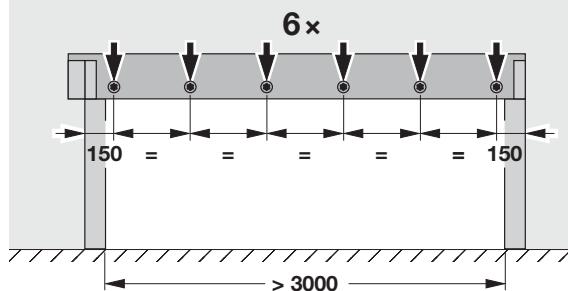
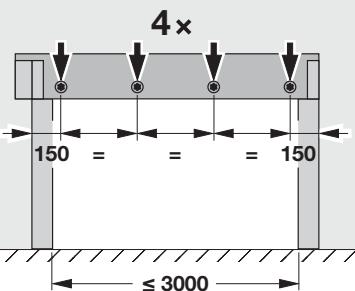
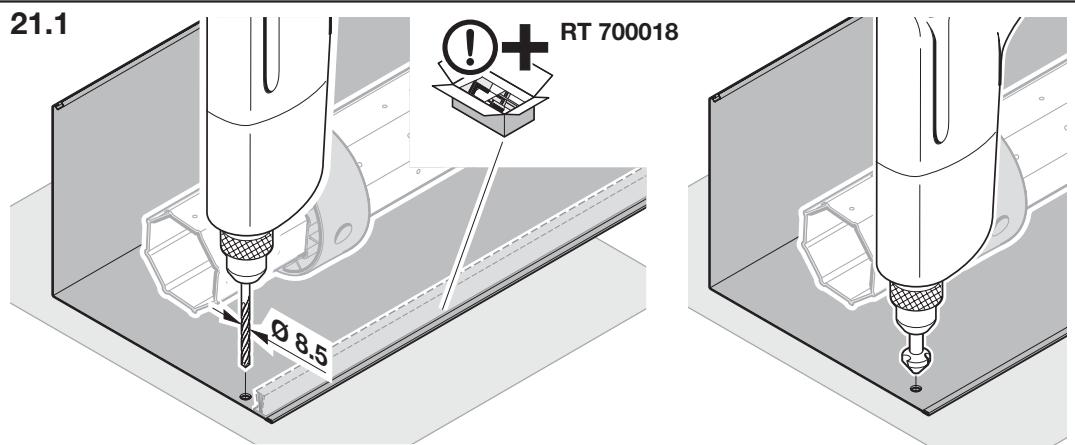
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RT 700019

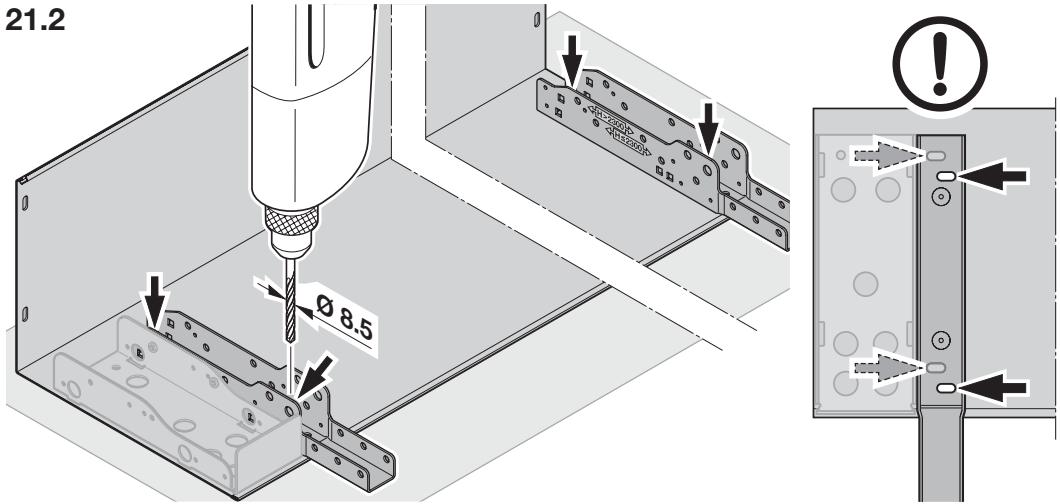


21.5

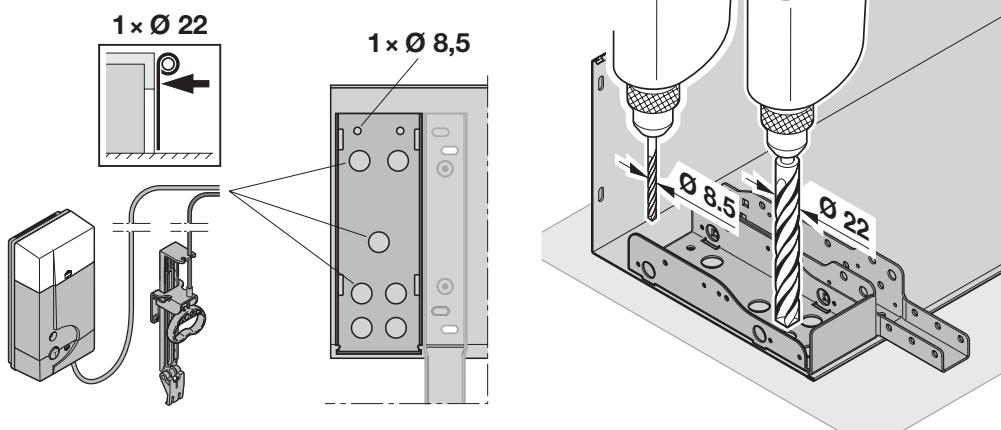
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21**21.1**

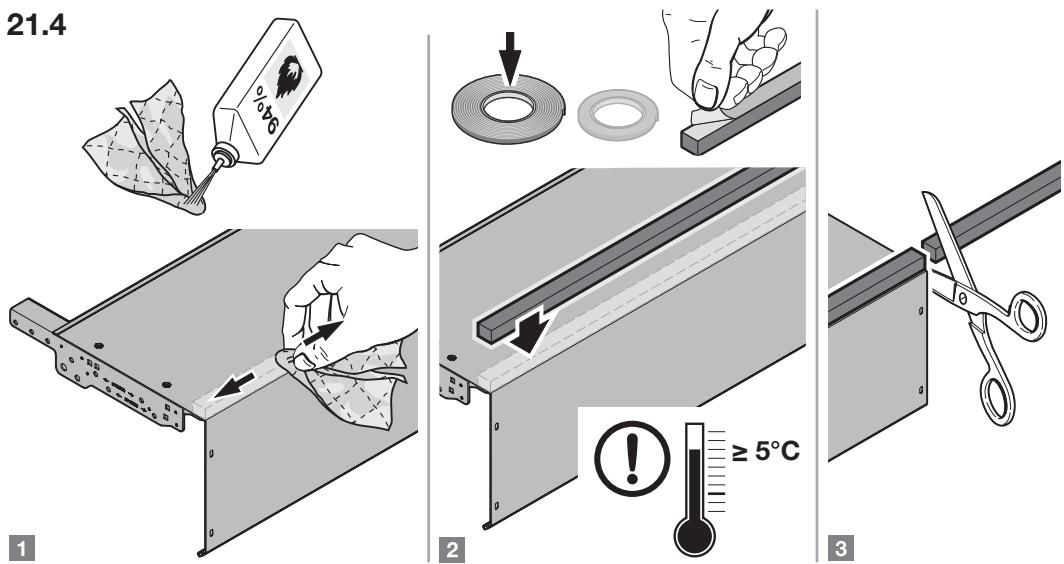
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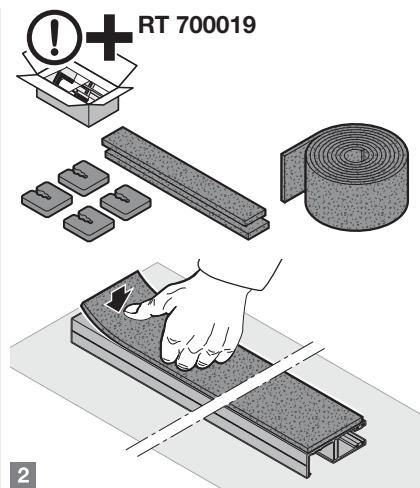
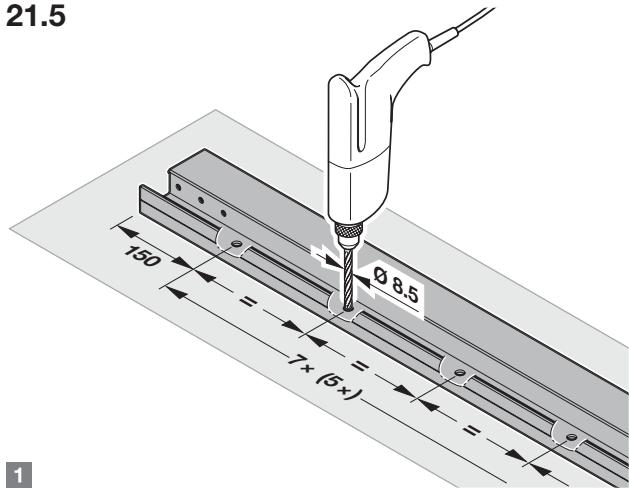
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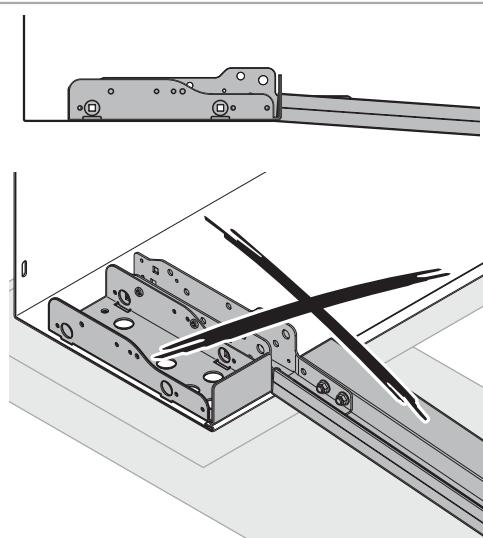
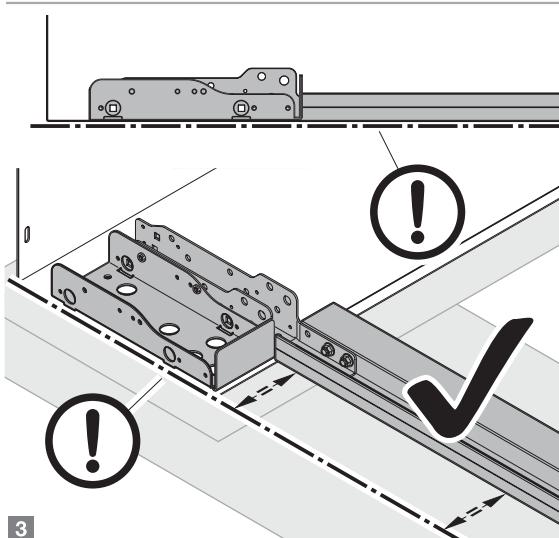
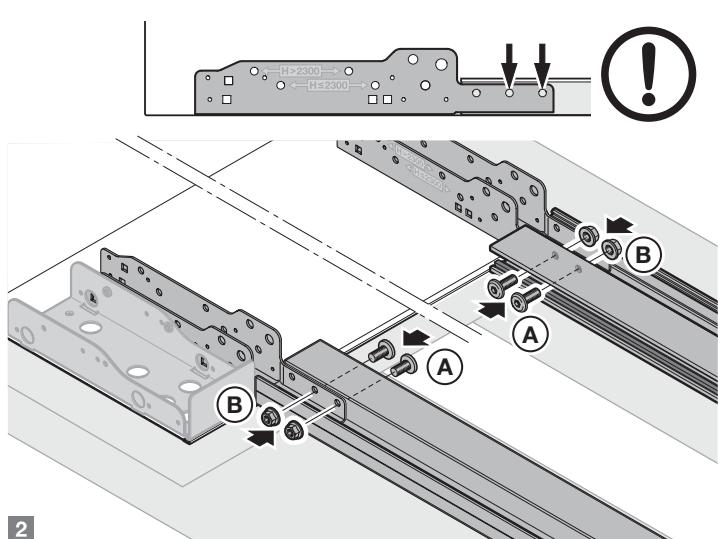
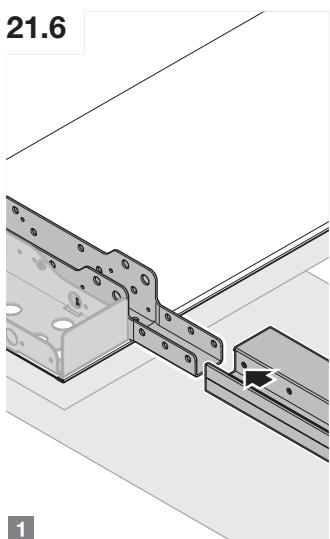
21.4



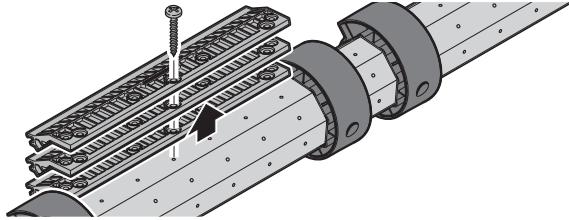
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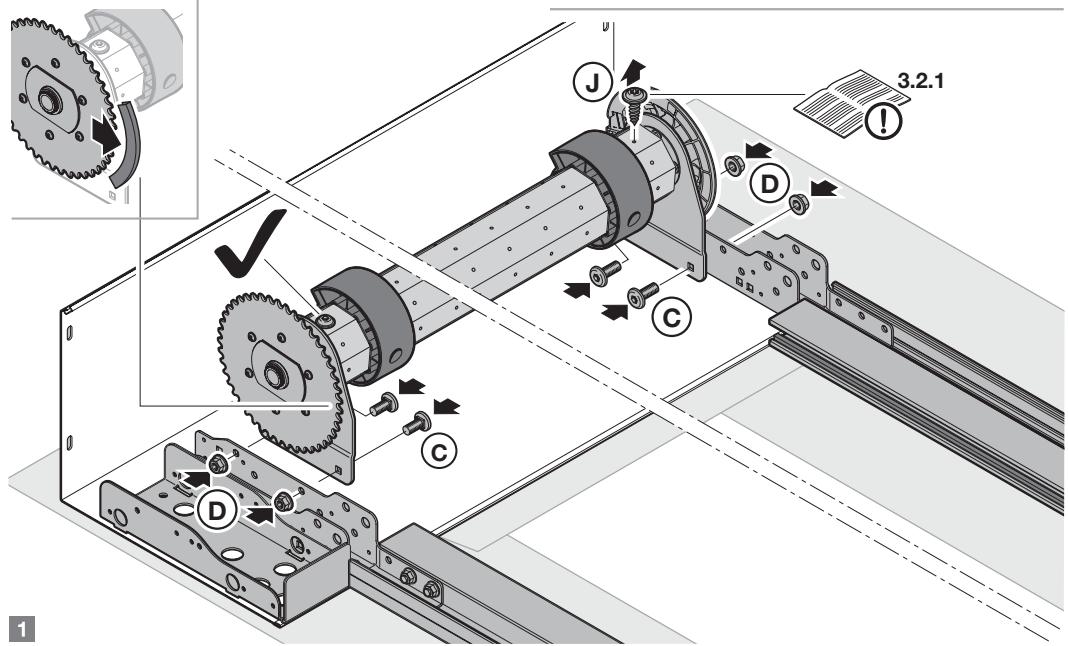
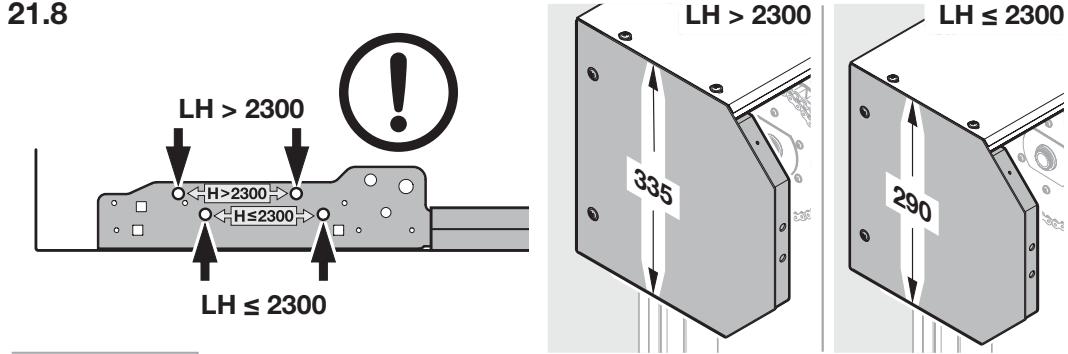
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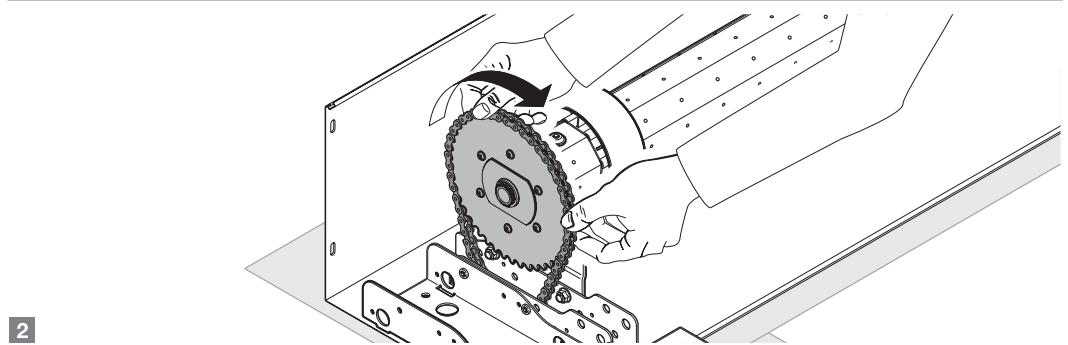
21.7



21.8



1

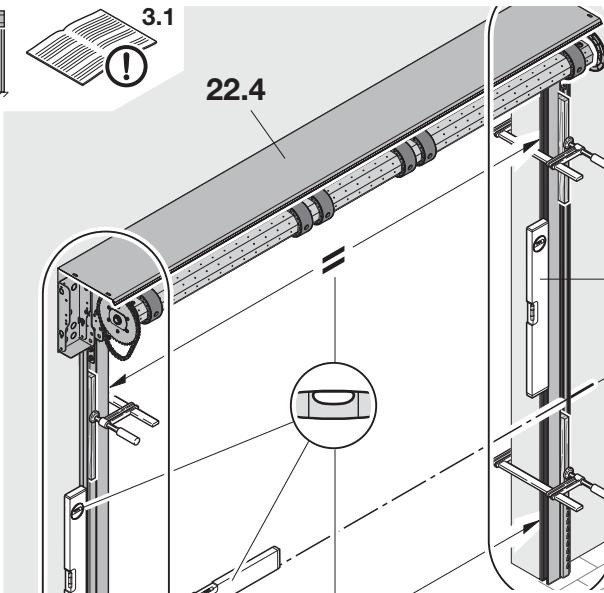
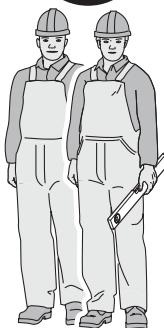


2

22

AR

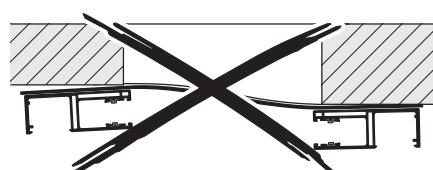
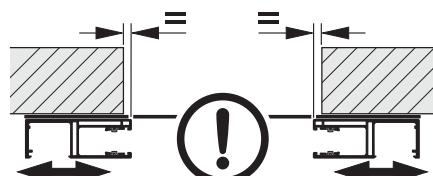
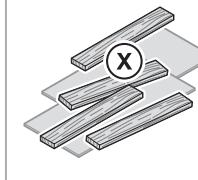
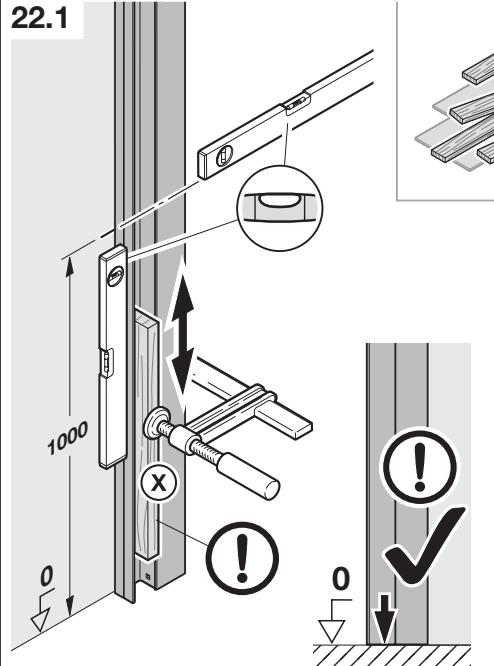
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**22.1
22.2**

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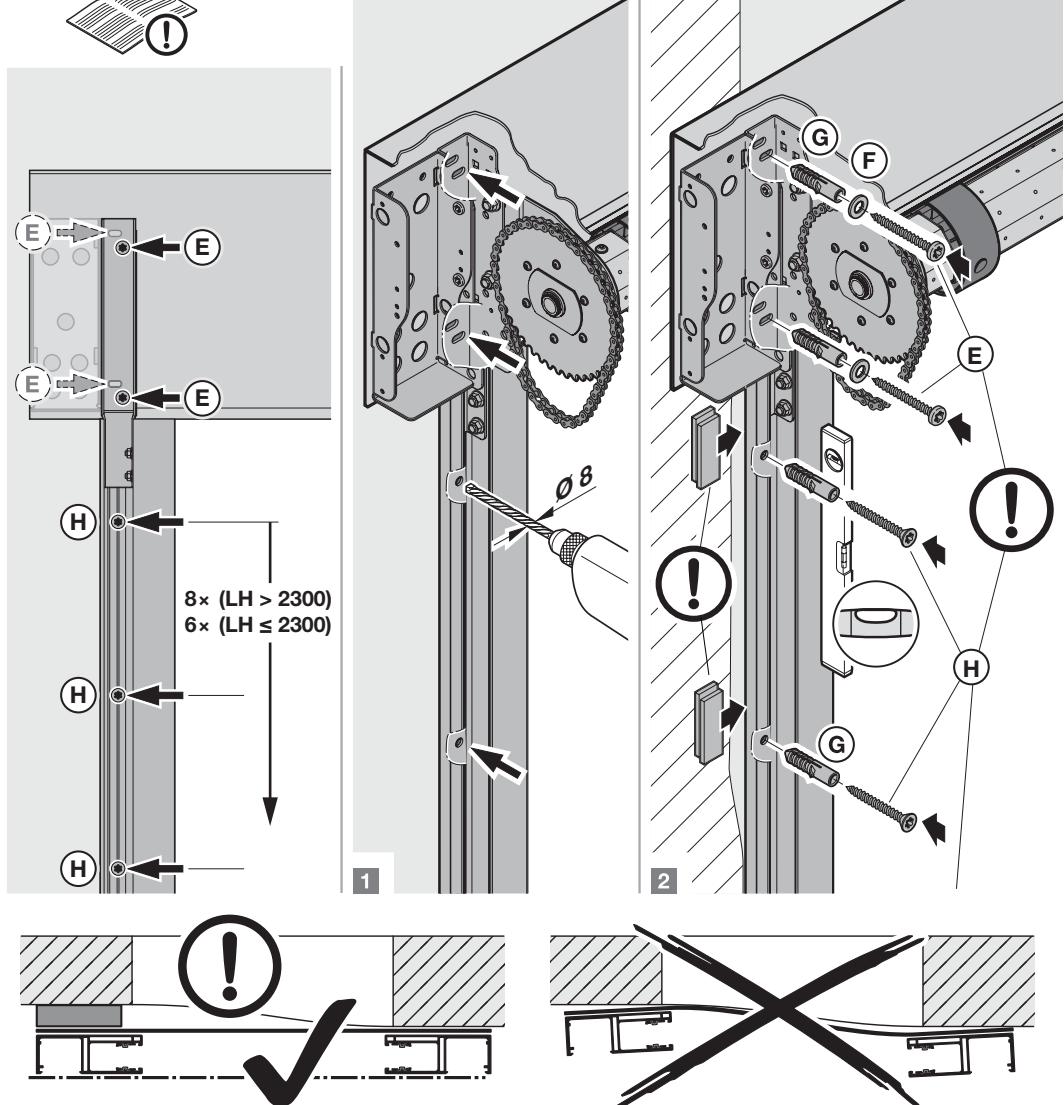
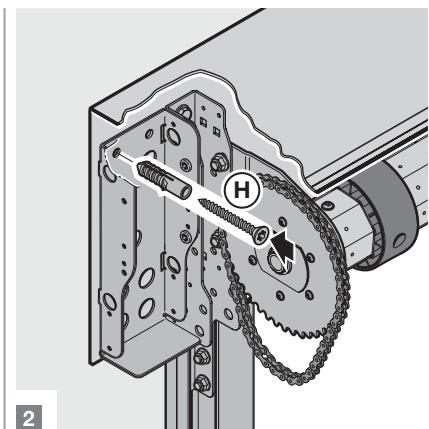
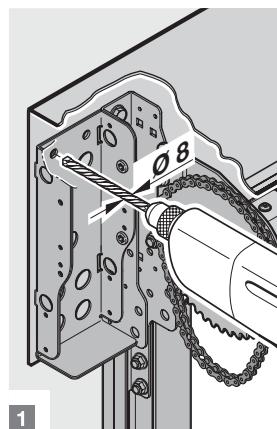
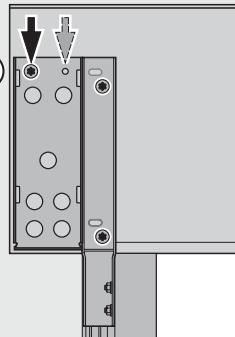
**22.1
22.2
22.3
22.5**

1000

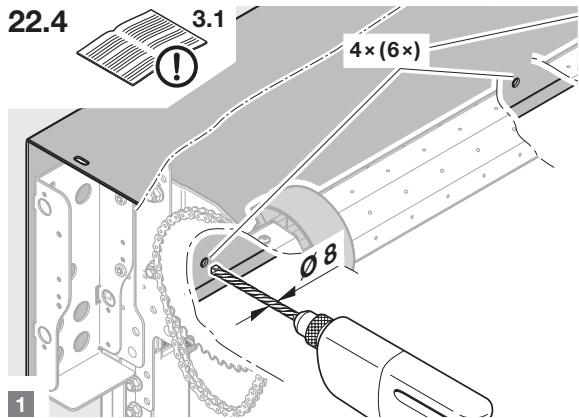
22.1

22.2

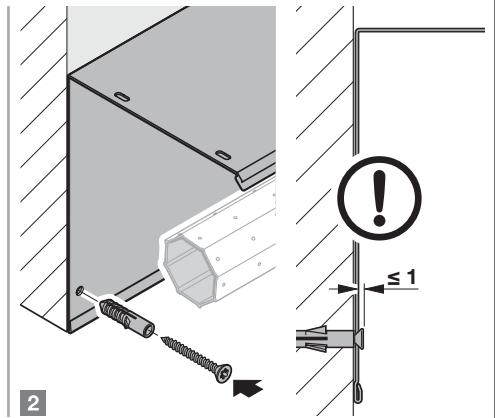
3.1

**22.3****1x H**

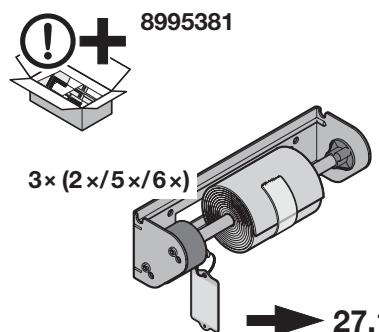
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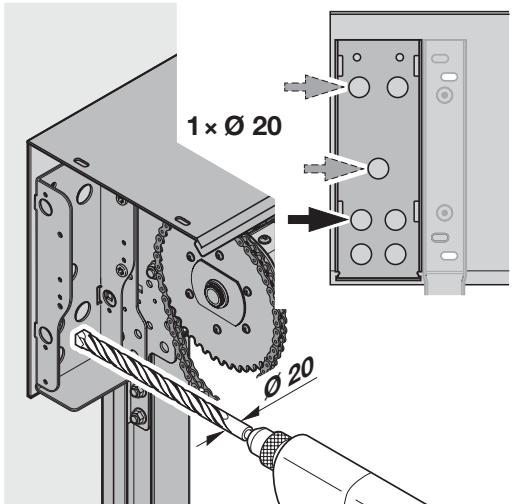
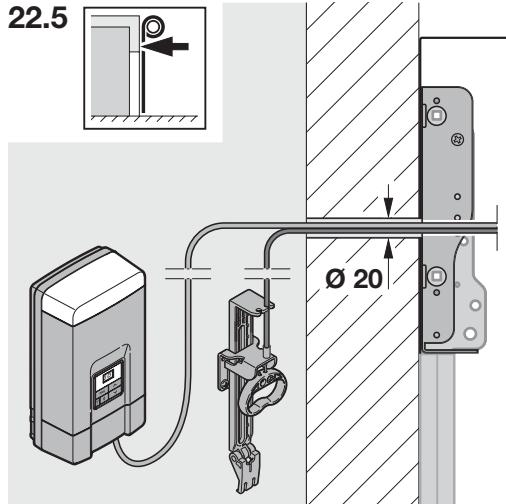
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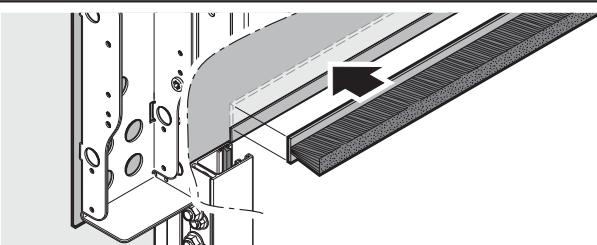
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22.5

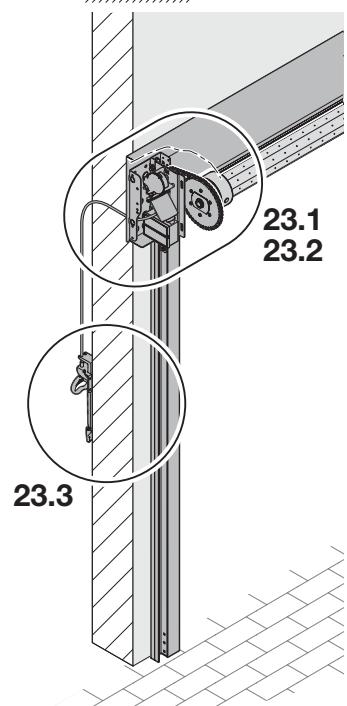
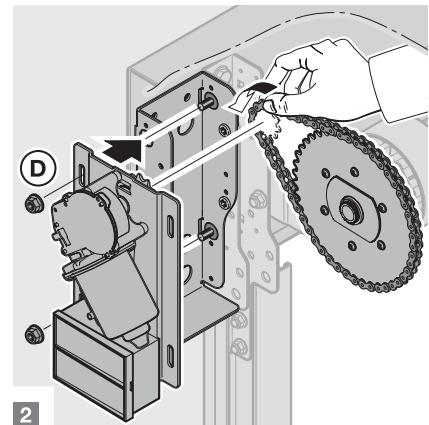
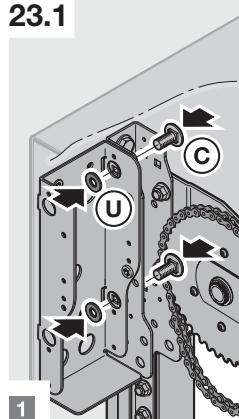


22.6



23

AR

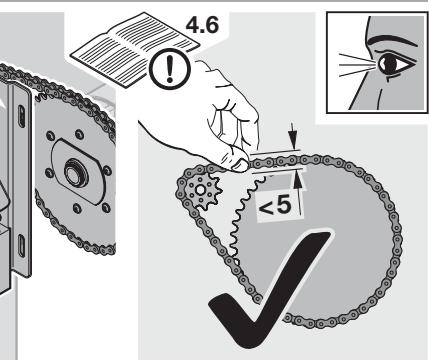
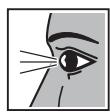
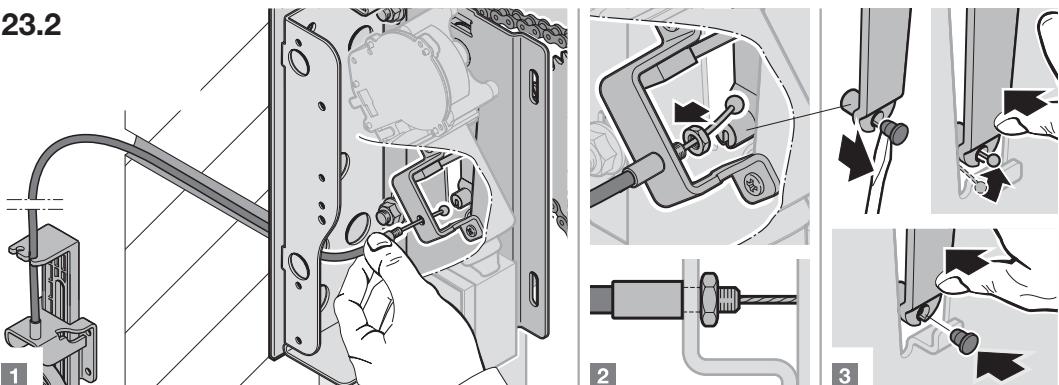
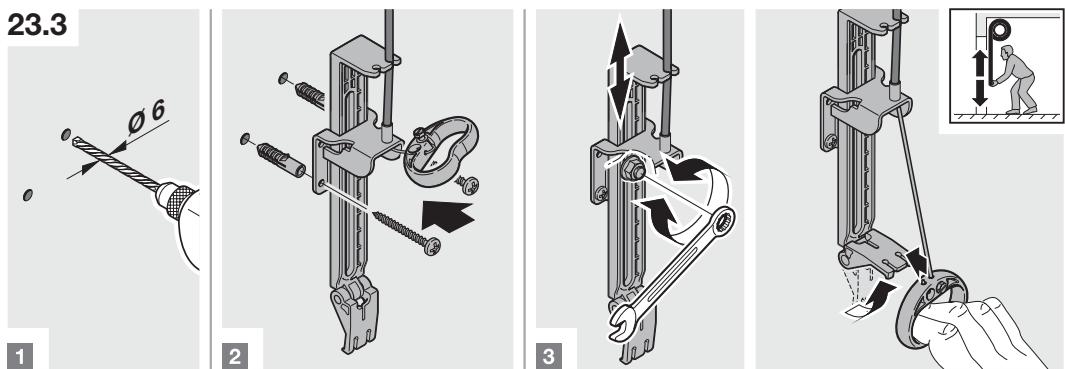
**23.1**

1

2

3

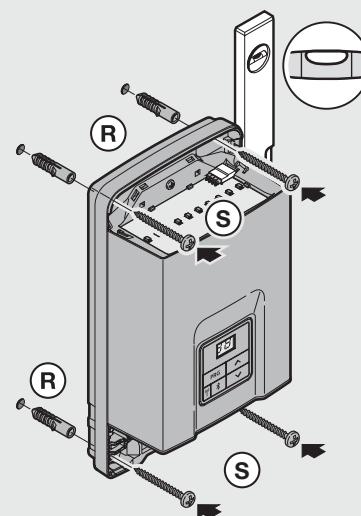
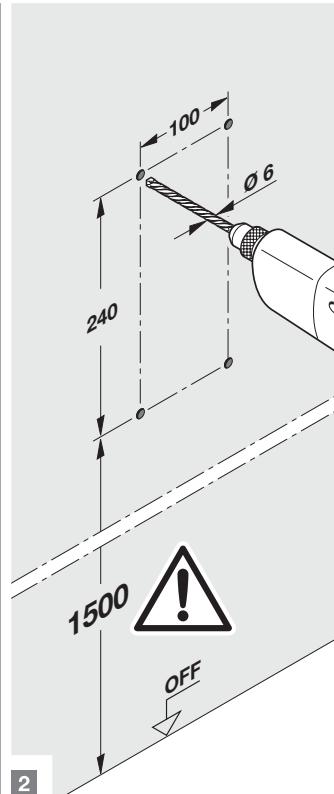
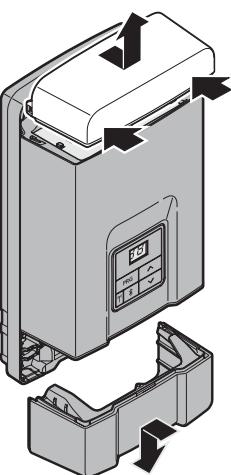
4.6

**23.2****23.3**

24

24.1
24.2
24.3
24.4

24.2
24.4

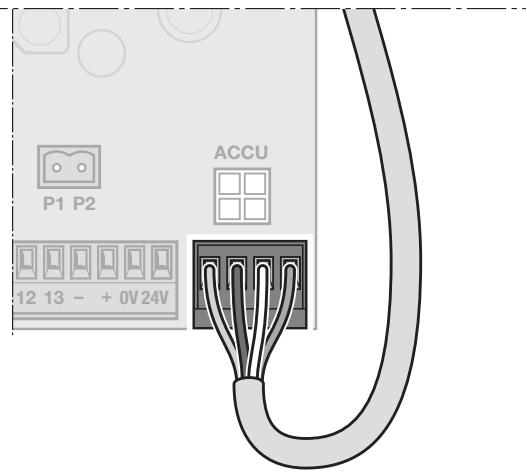
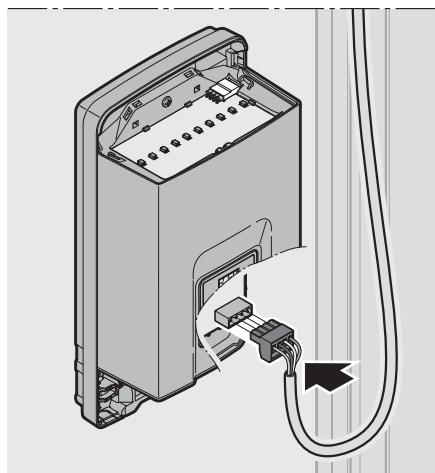
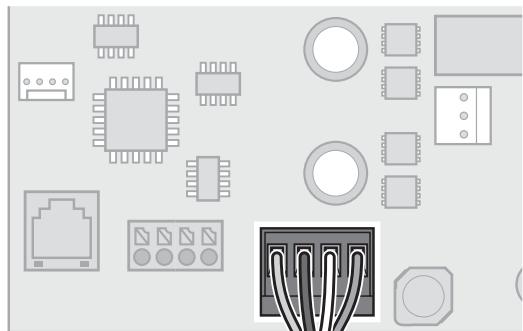
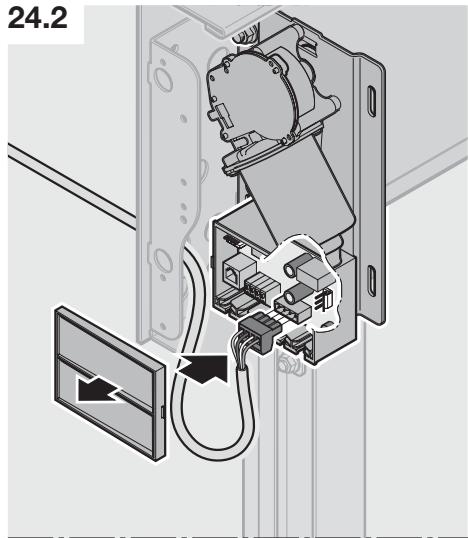


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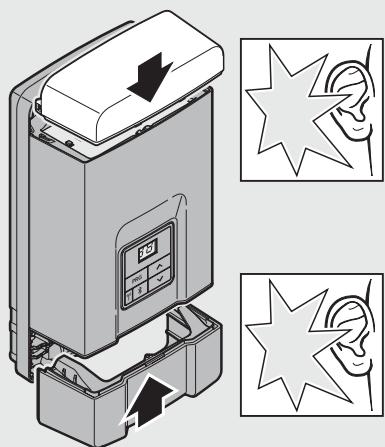
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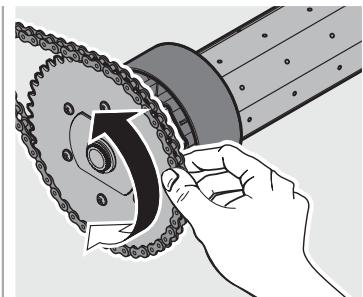
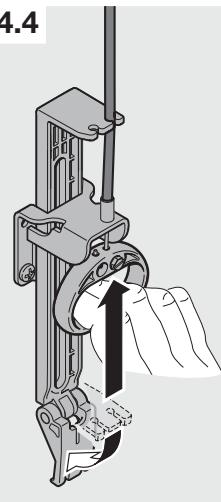
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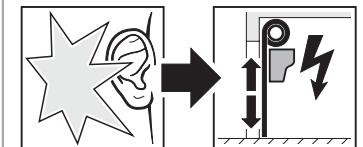
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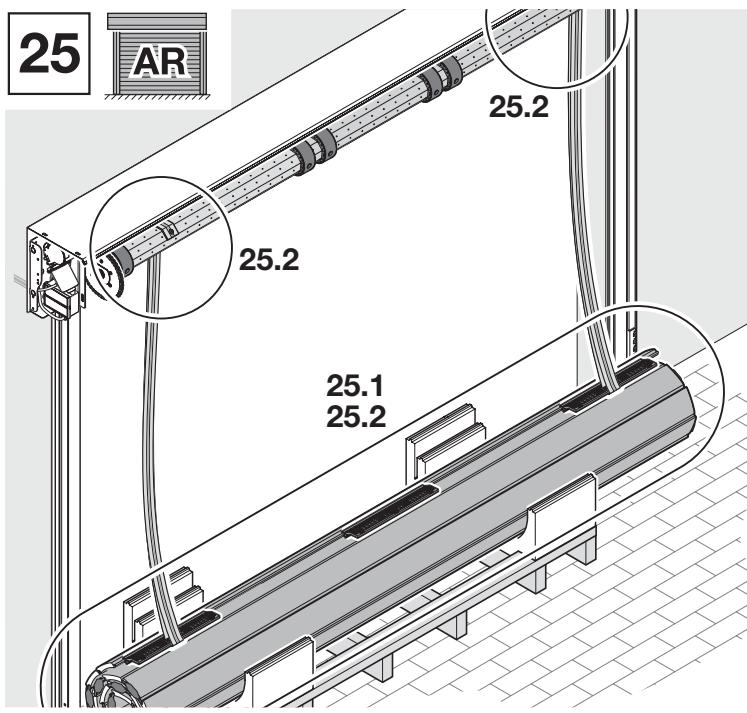
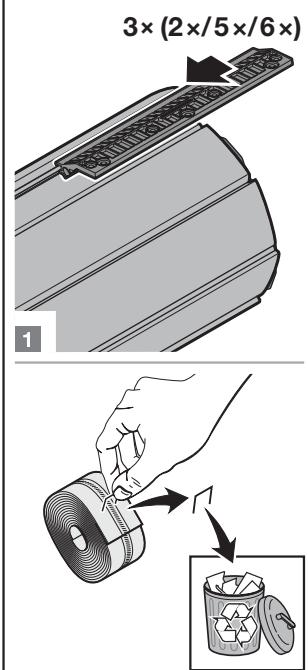
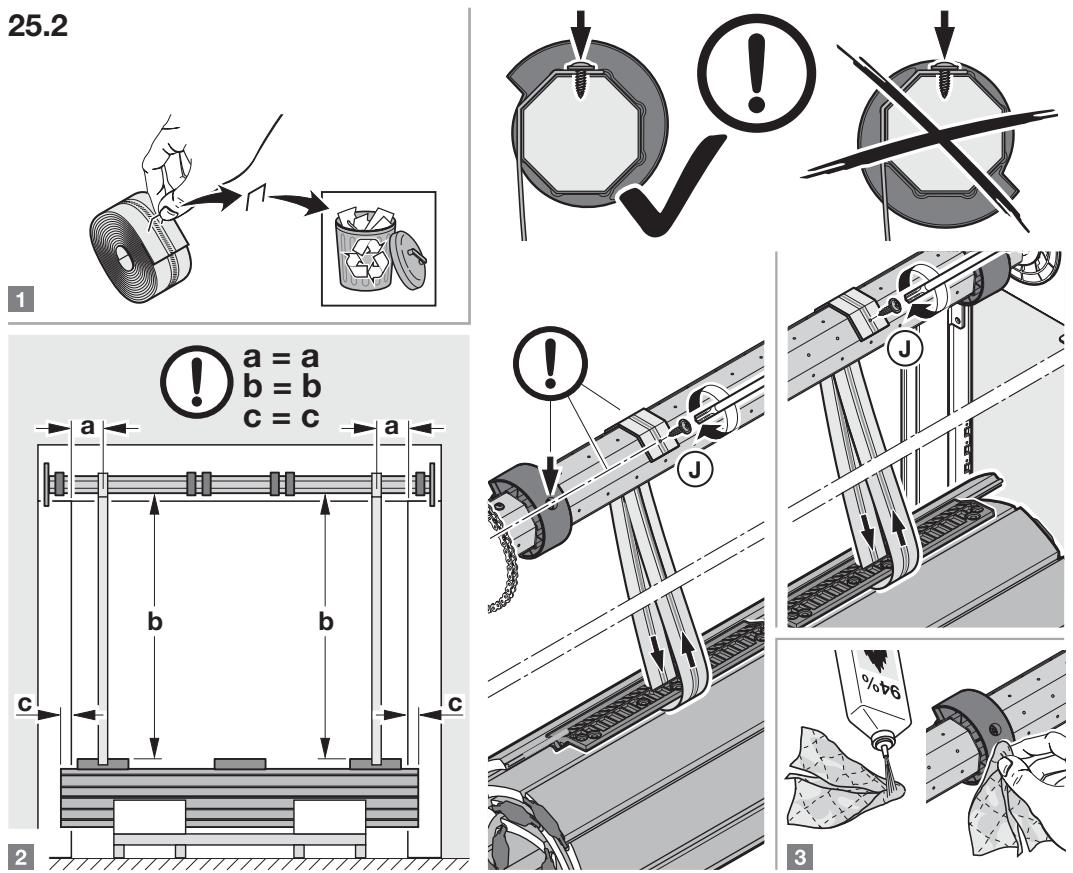
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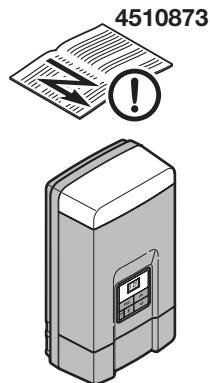
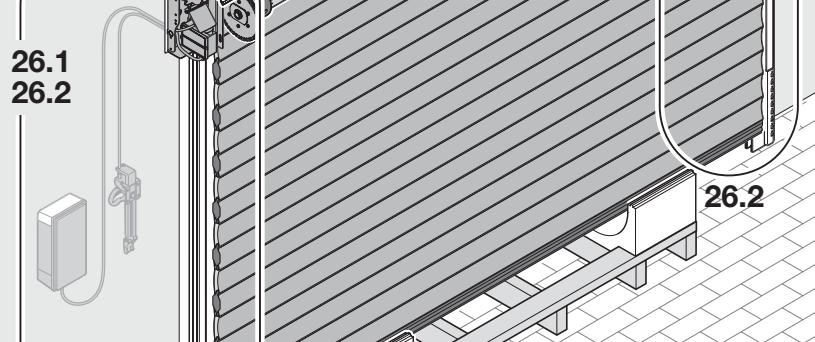
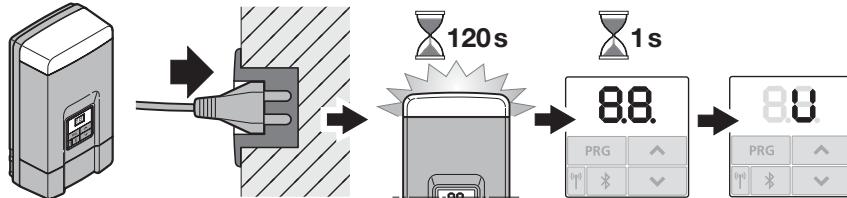
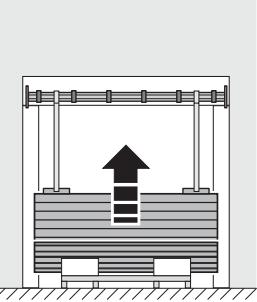
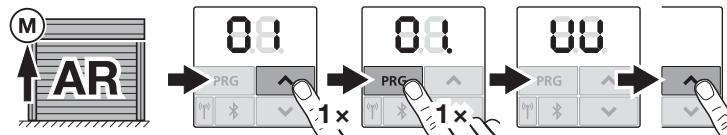
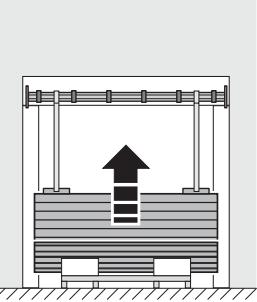
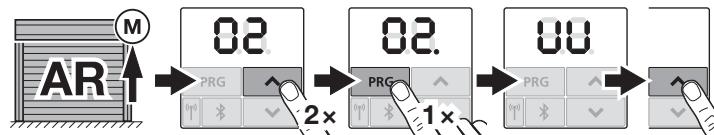
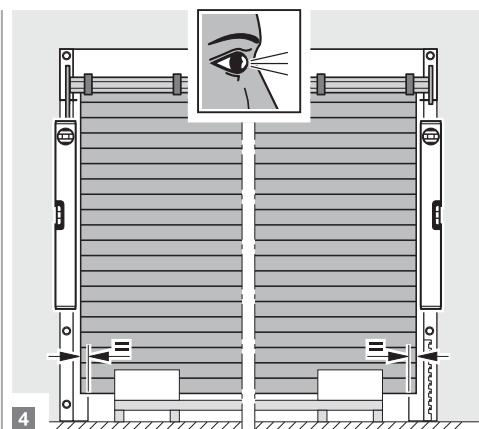
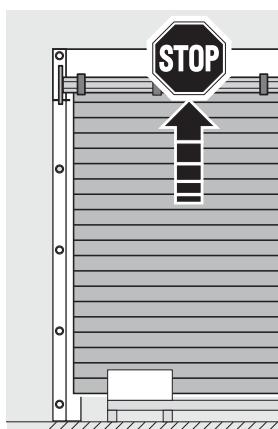
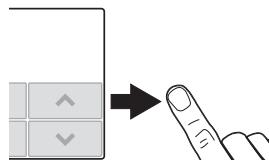


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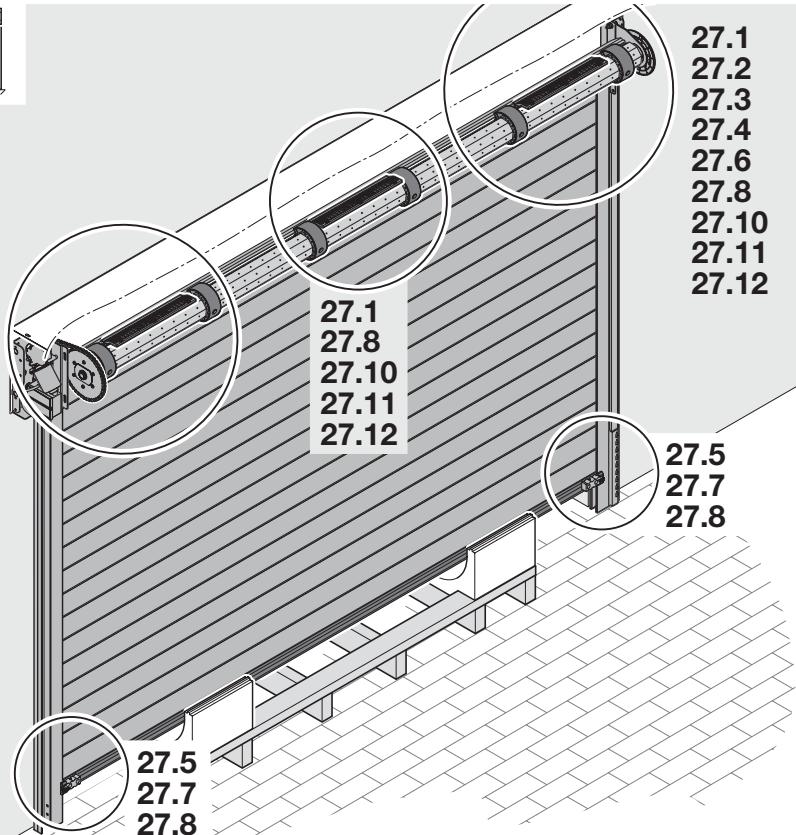
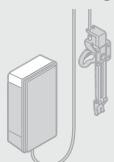
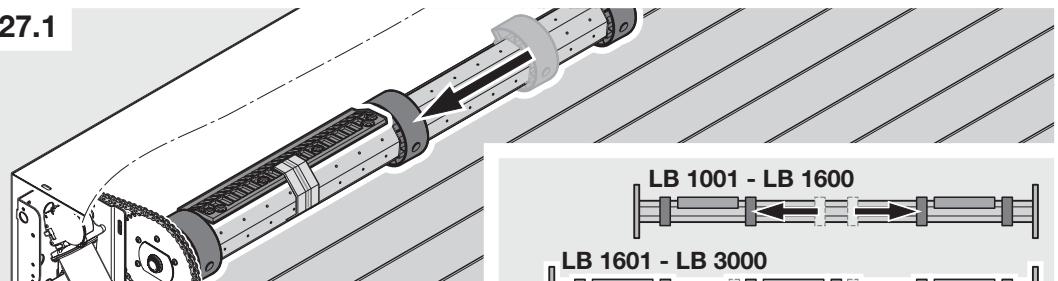
2

25**25.1****25.2**

26**26.1****26.1
26.2****26.2****26.2****1****2a****2b****3**

27

27.1
27.2
27.3
27.4
27.6
27.7
27.8
27.9
27.10
27.11
27.12
27.13

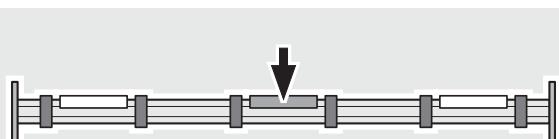
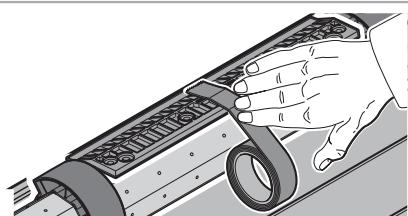
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LB 1001 - LB 1600

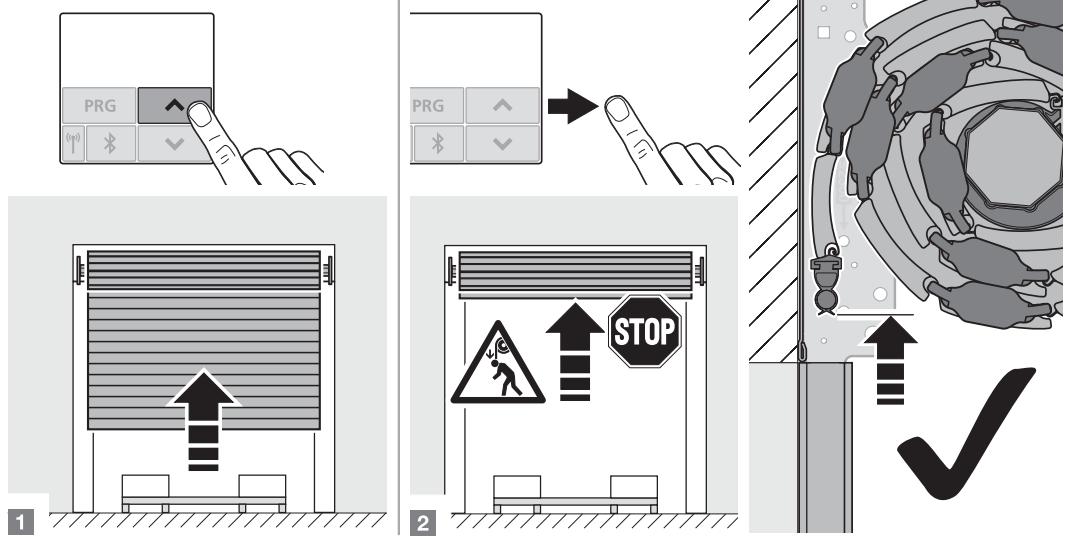
LB 1601 - LB 3000

LB 3001 - LB 5000

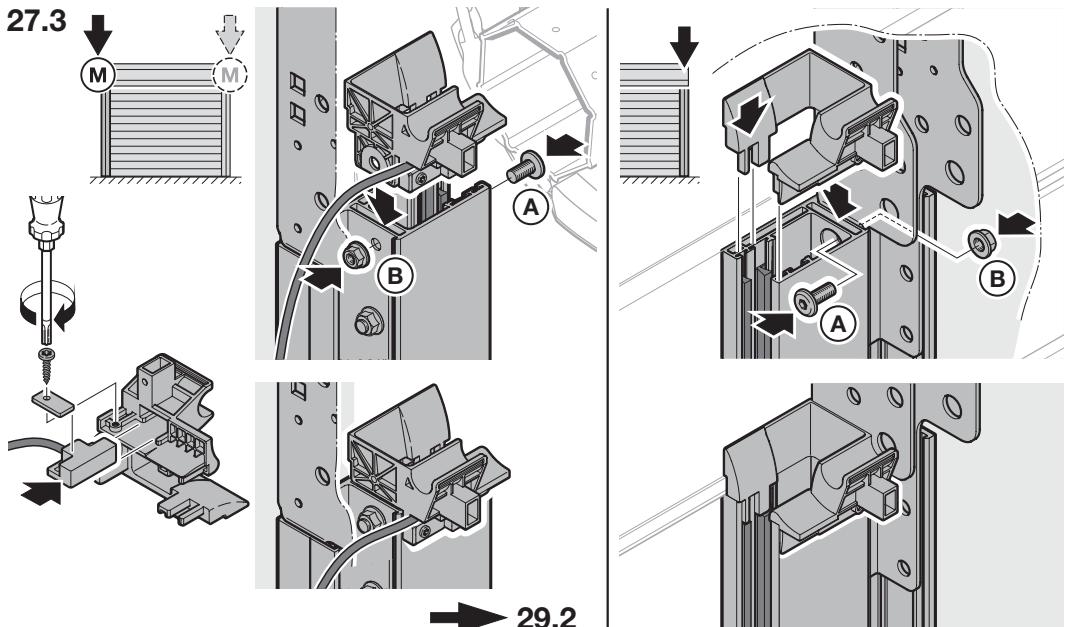
LB 5001 - LB 6000



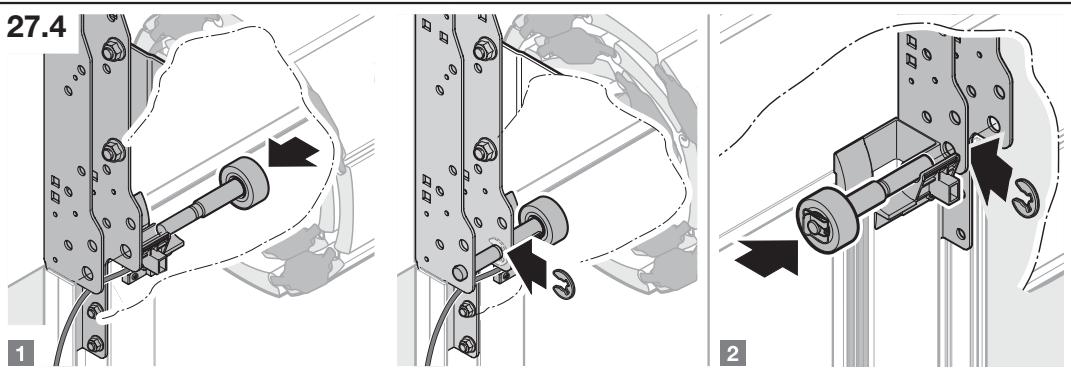
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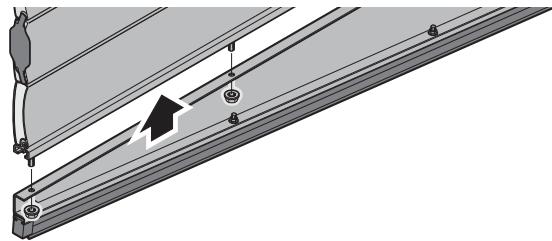
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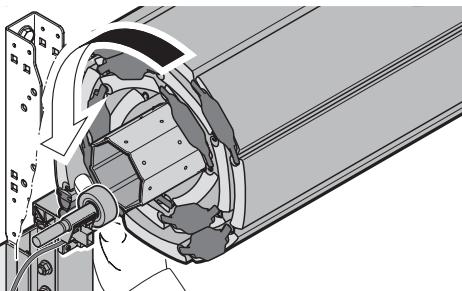
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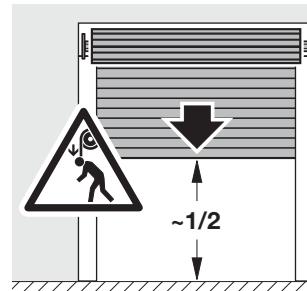
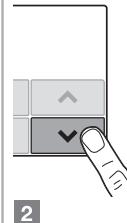
27.5 ! + RT 700015



27.6

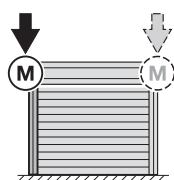
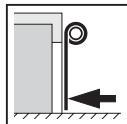


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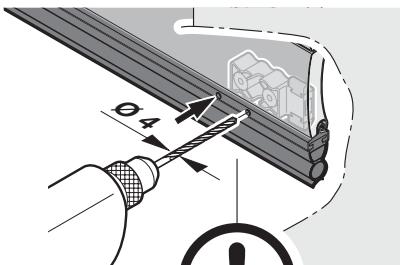
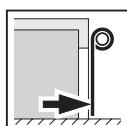
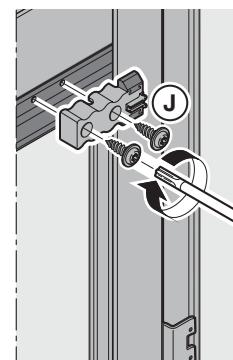
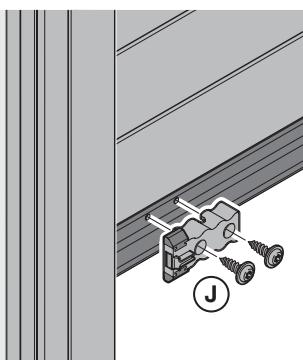


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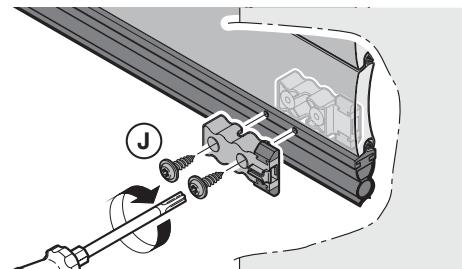
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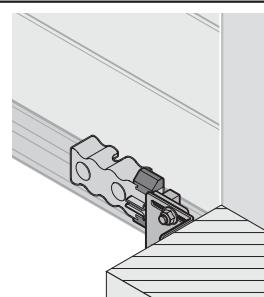
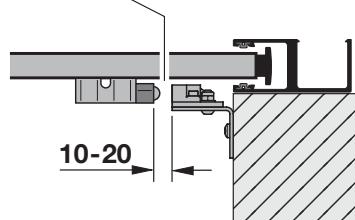
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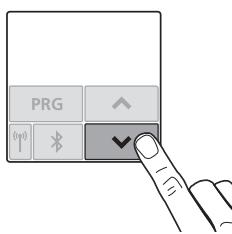


! + 4552520

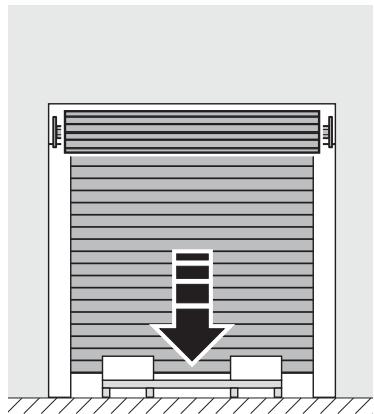


→ 29.3

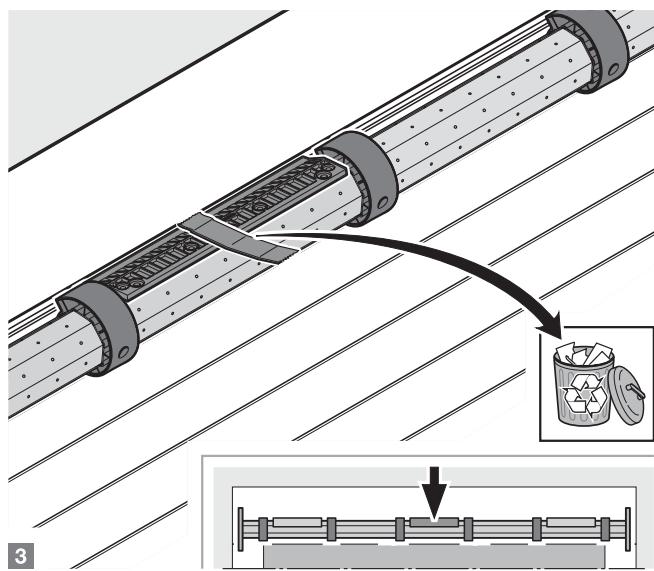
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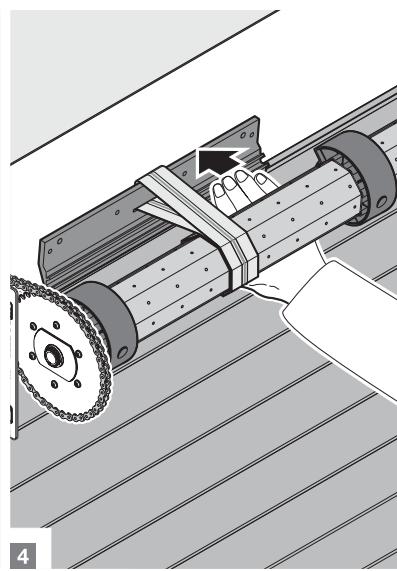
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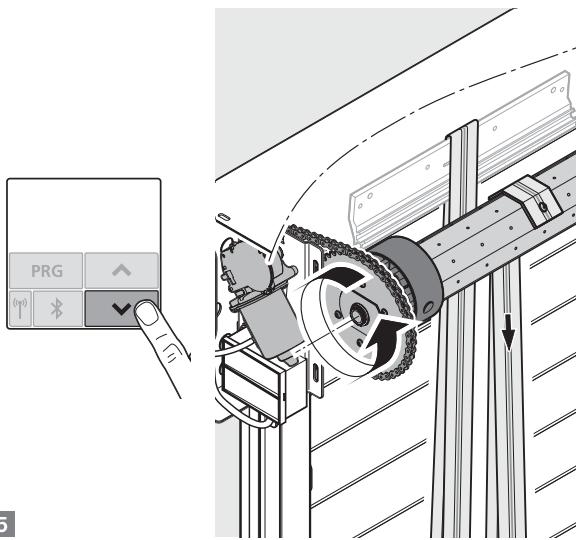
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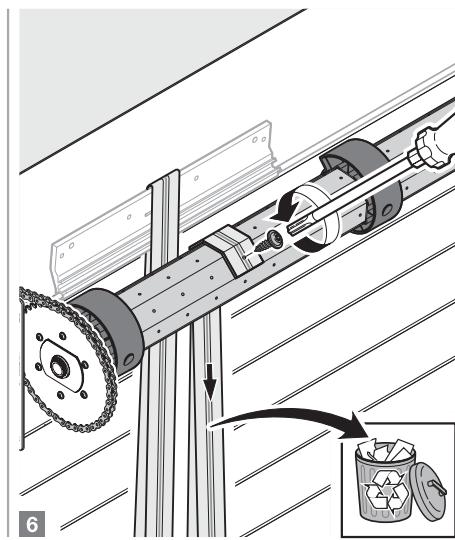
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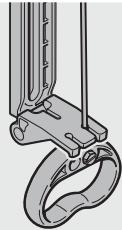
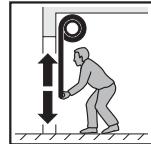
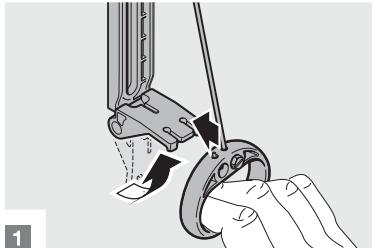


5



6

27.9



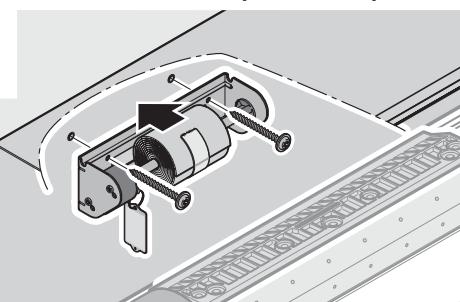
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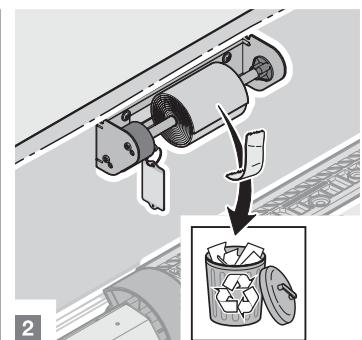
8995381

3 × (2 × / 5 × / 6 ×)

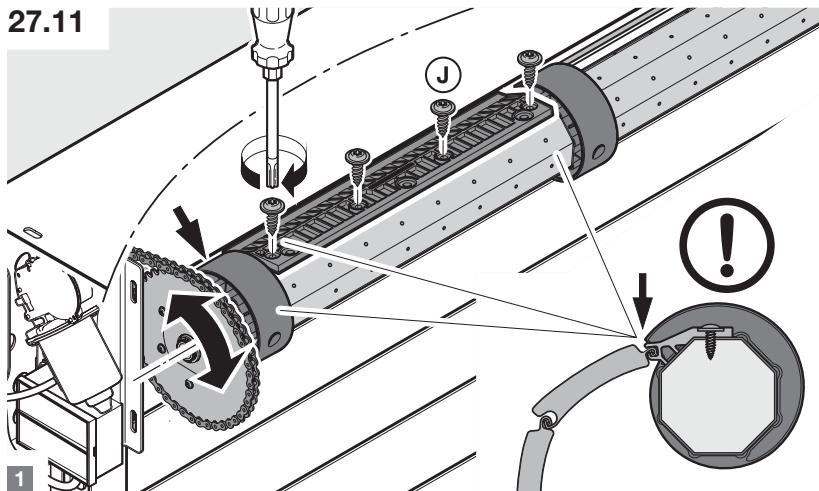
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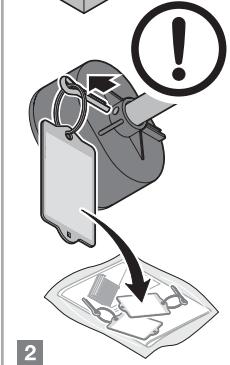
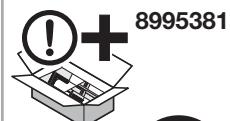
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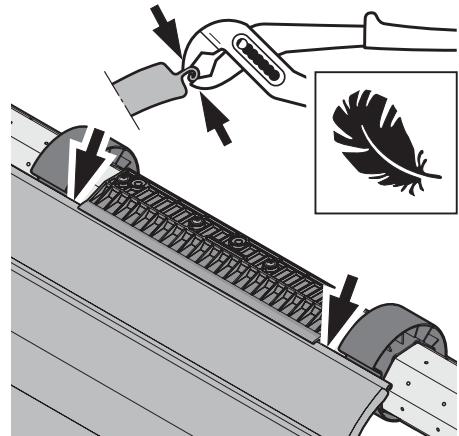
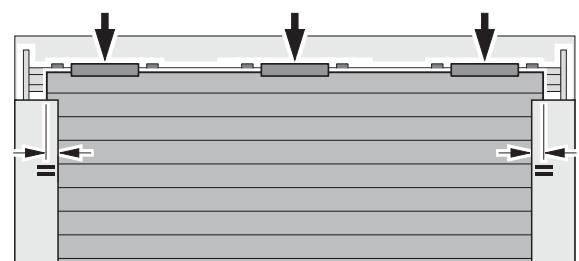
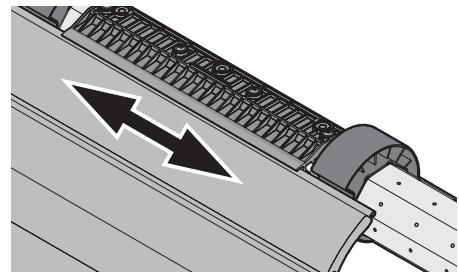
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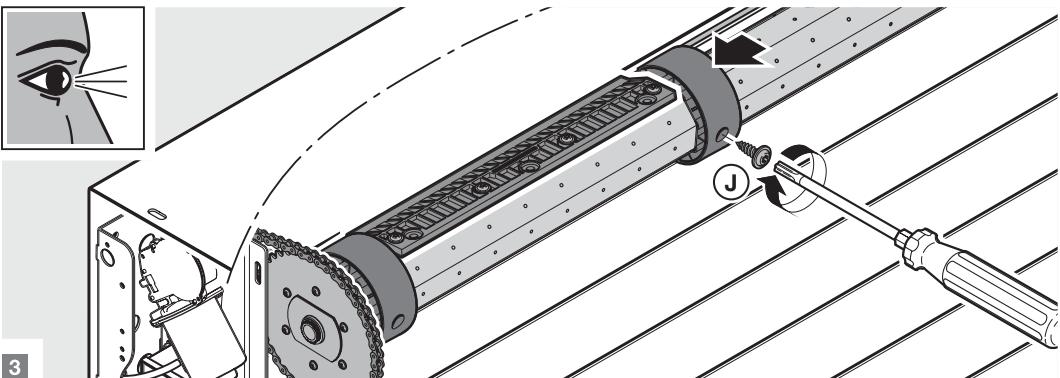
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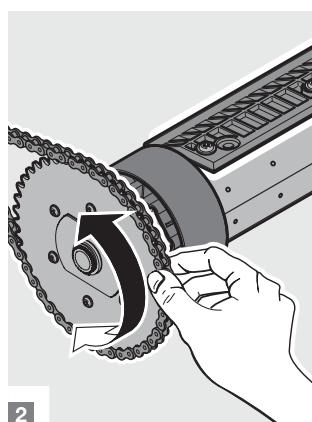
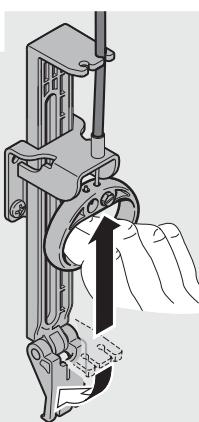
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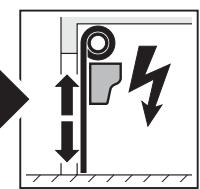
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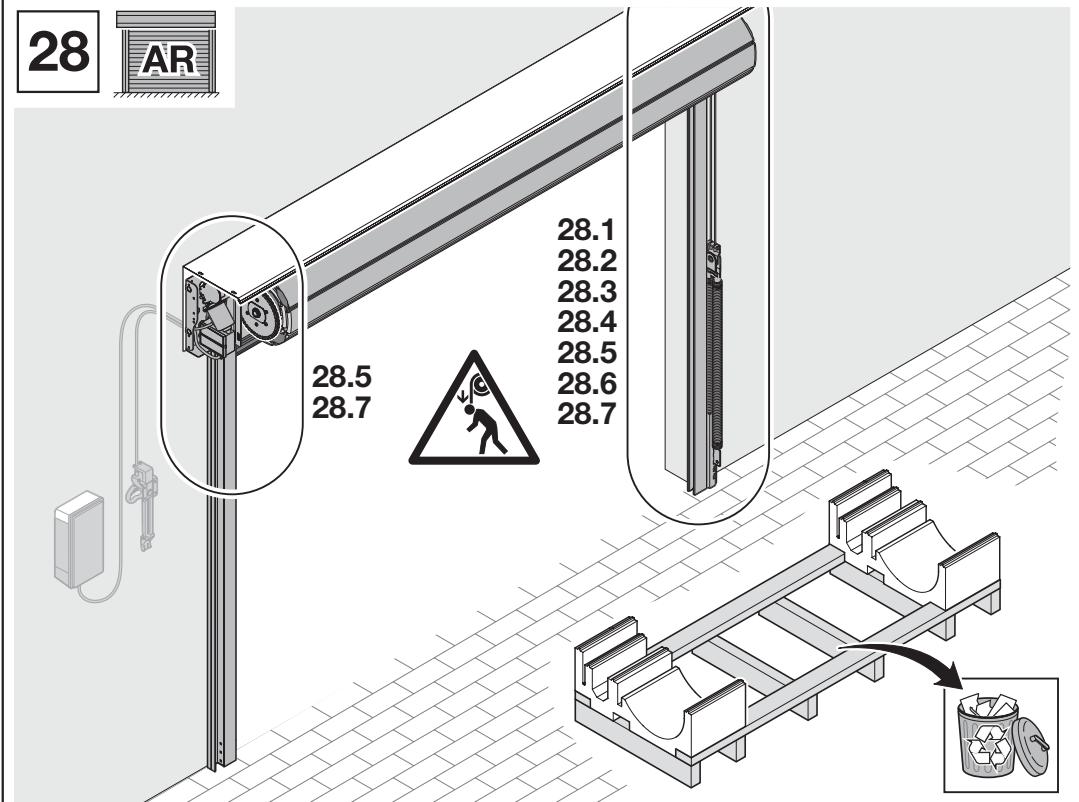
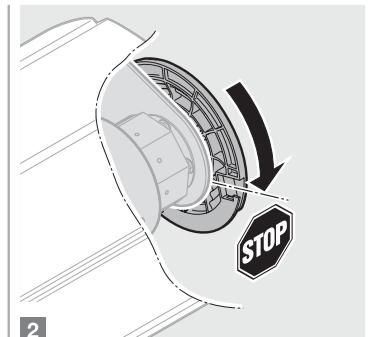
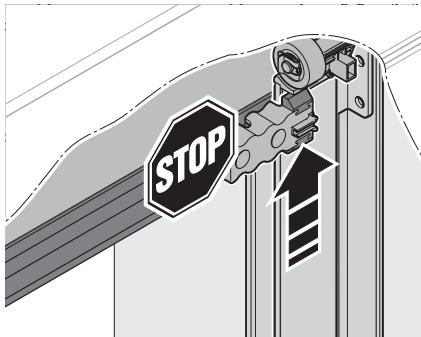
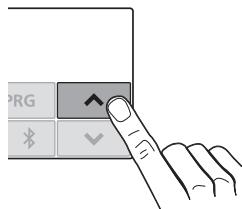
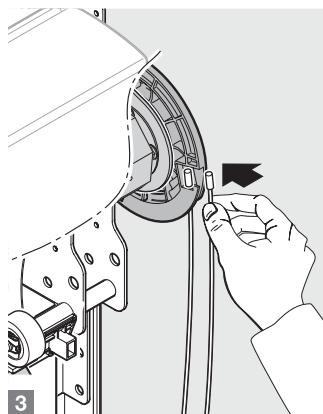
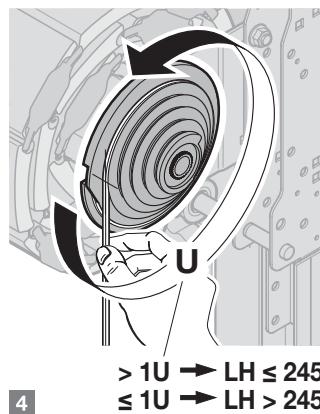
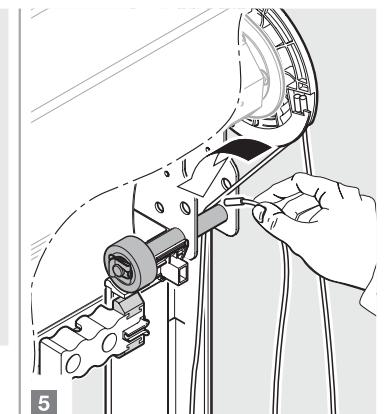


27.13

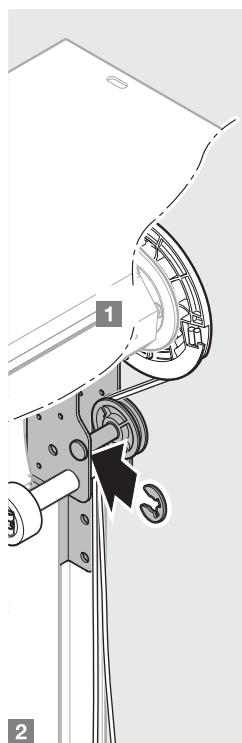
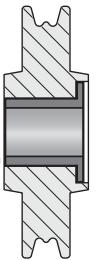
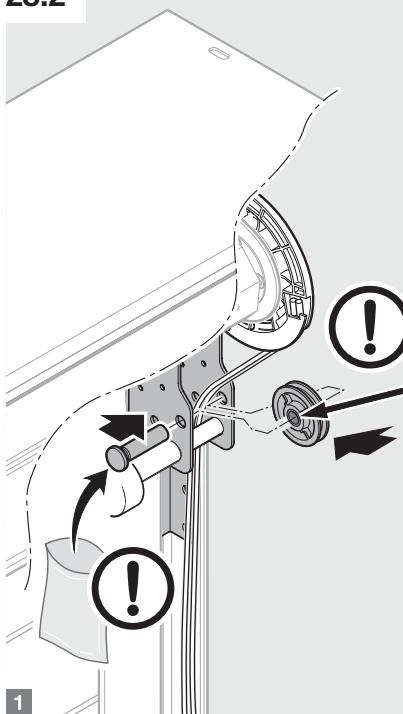


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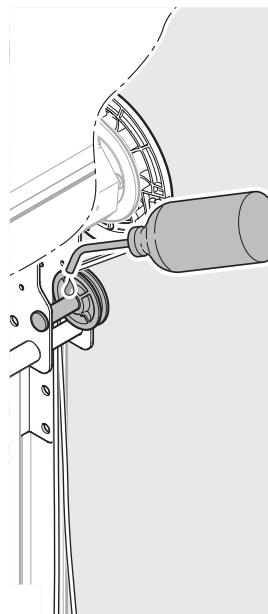
28**28.1****1****2****3****4****5**

28.2

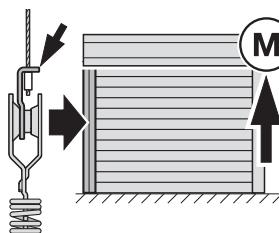
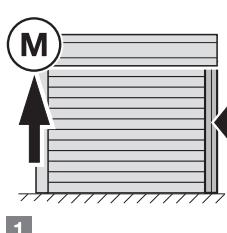
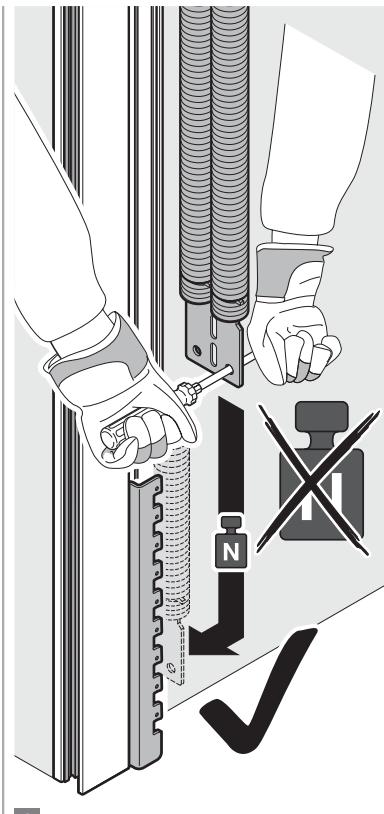
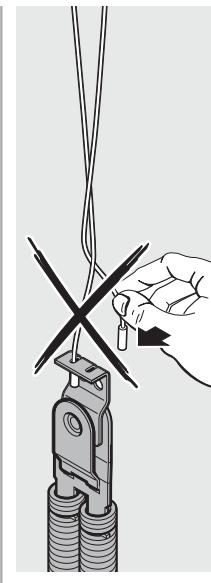
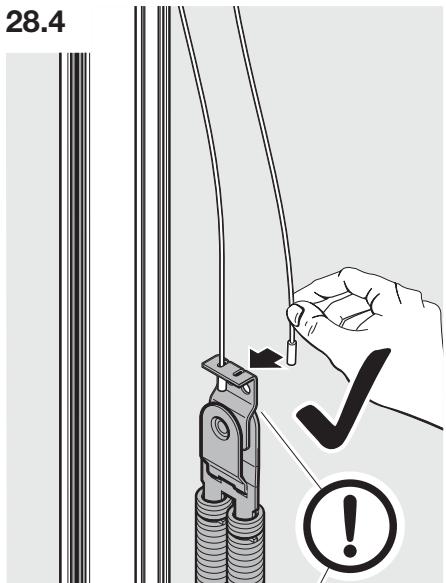


28.3

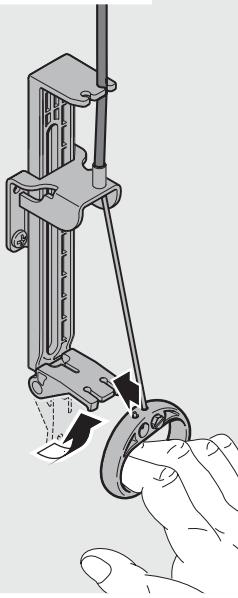
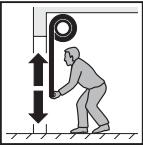
4/4.5



28.4



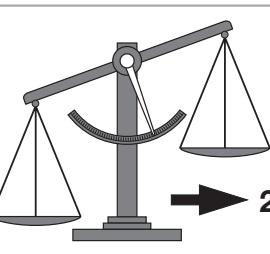
28.5



3.3.1

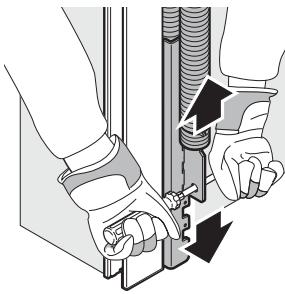
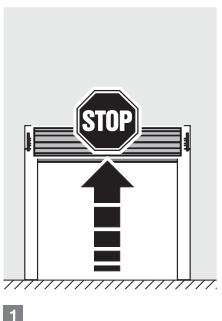


→ **28.7**

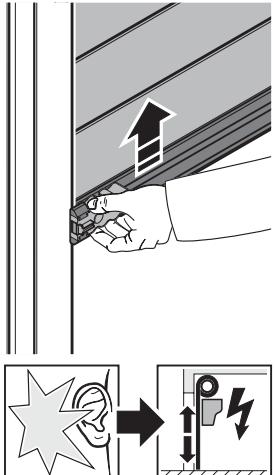
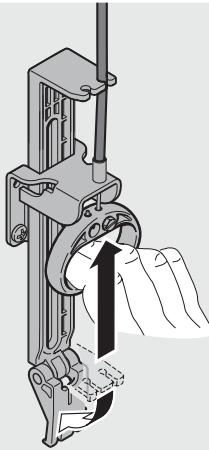
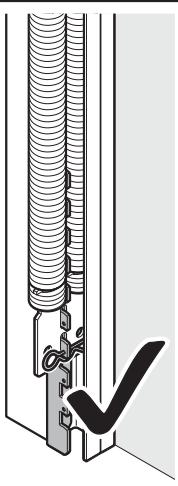
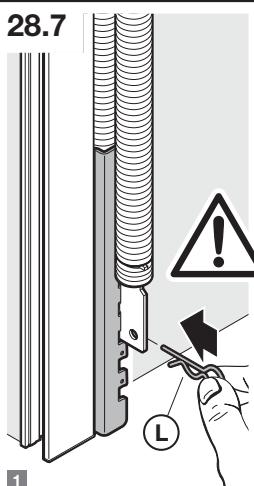


→ **28.6**

28.6

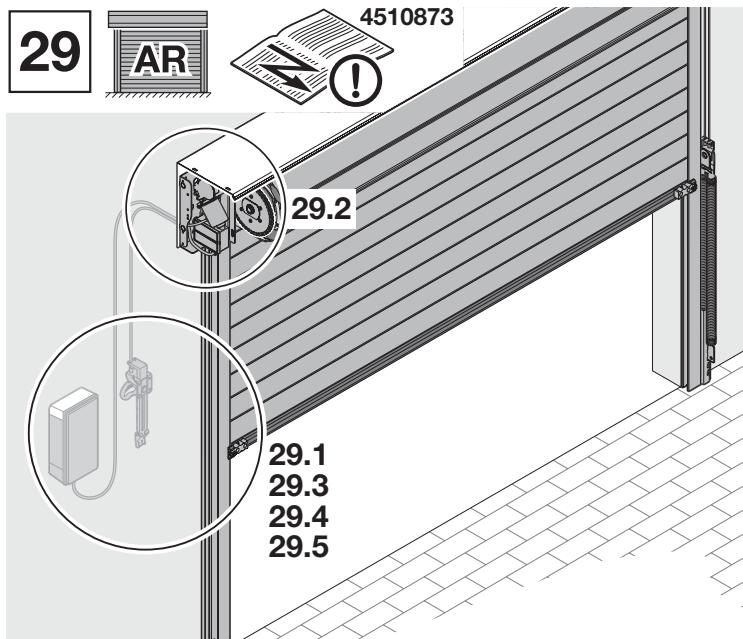
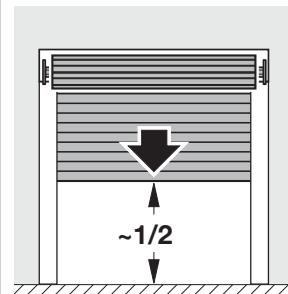
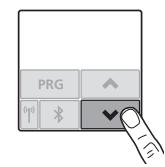
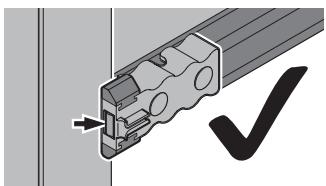
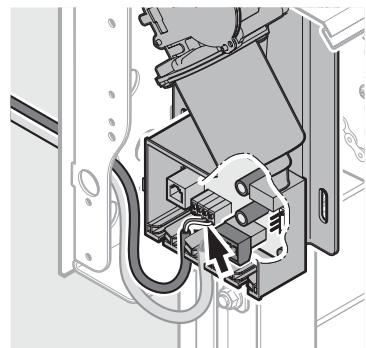
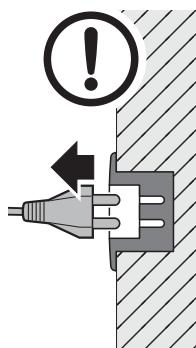
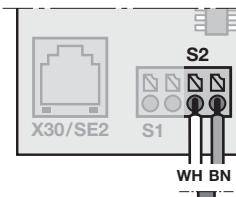
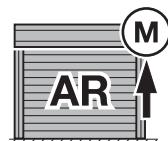
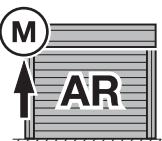


28.7

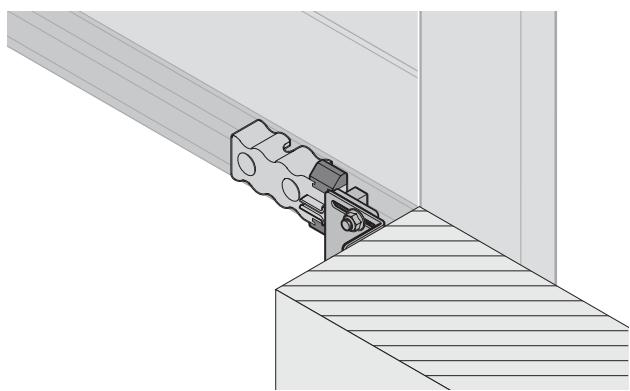
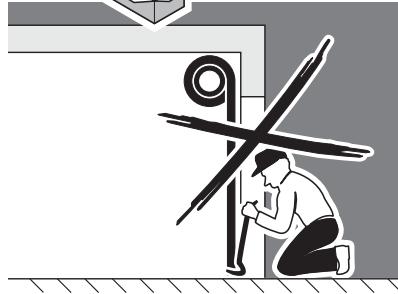


29

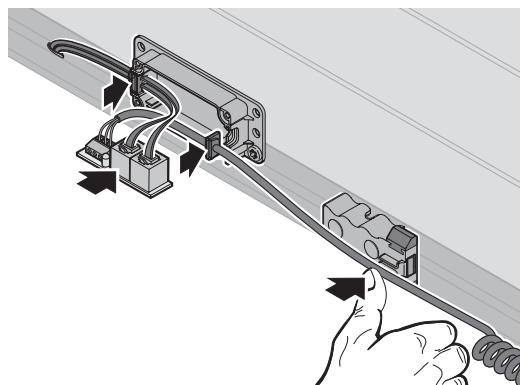
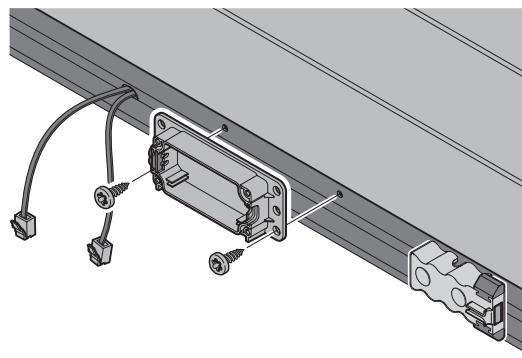
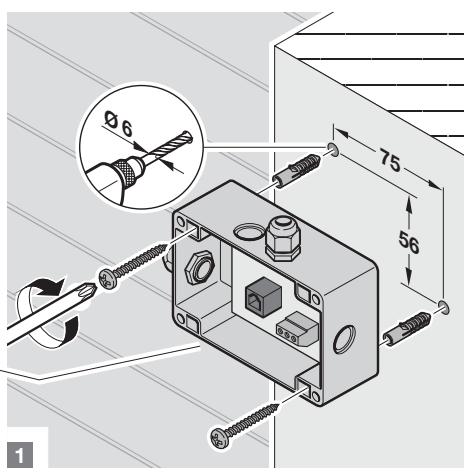
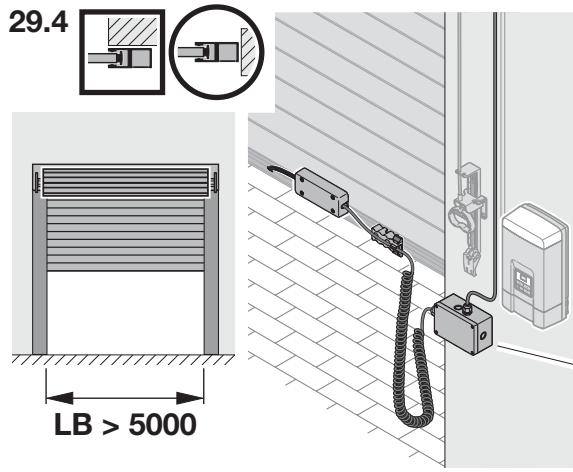
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**29.1****29.2****29.3**

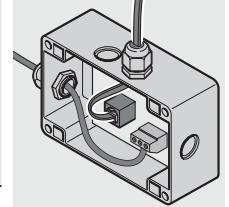
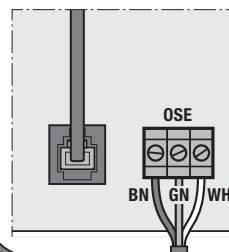
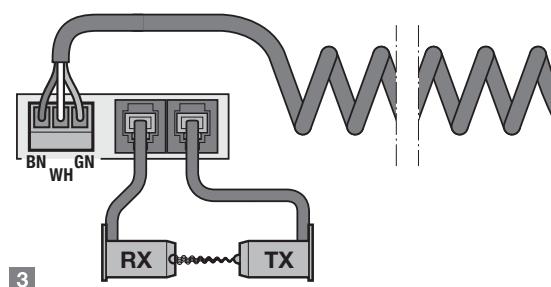
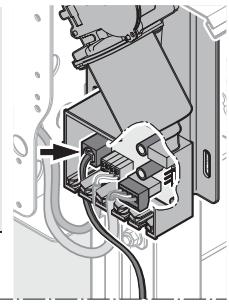
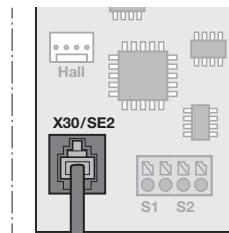
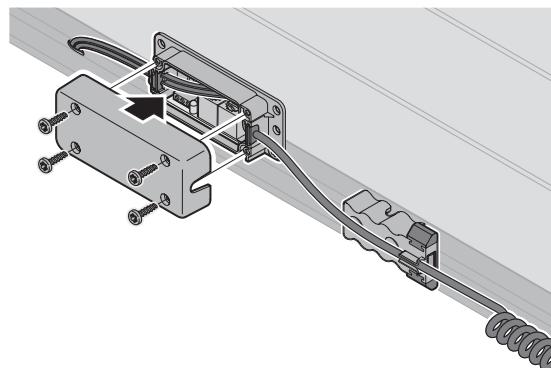
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29.4

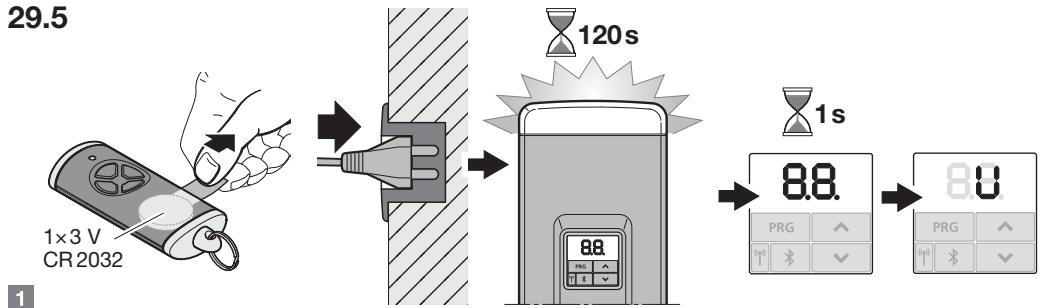


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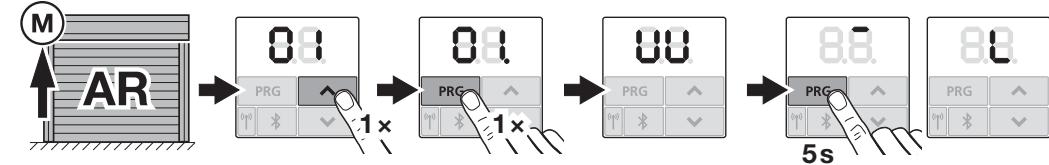


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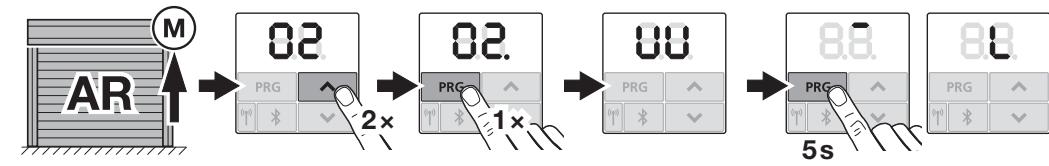
29.5



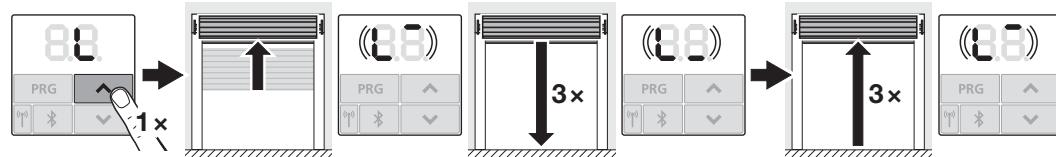
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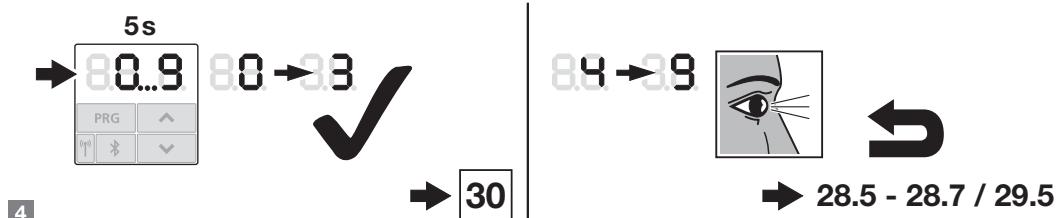
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2b

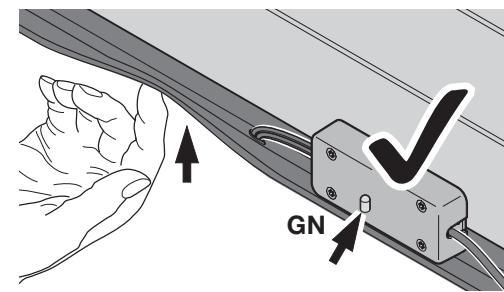
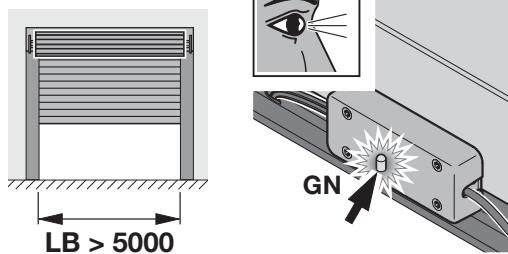


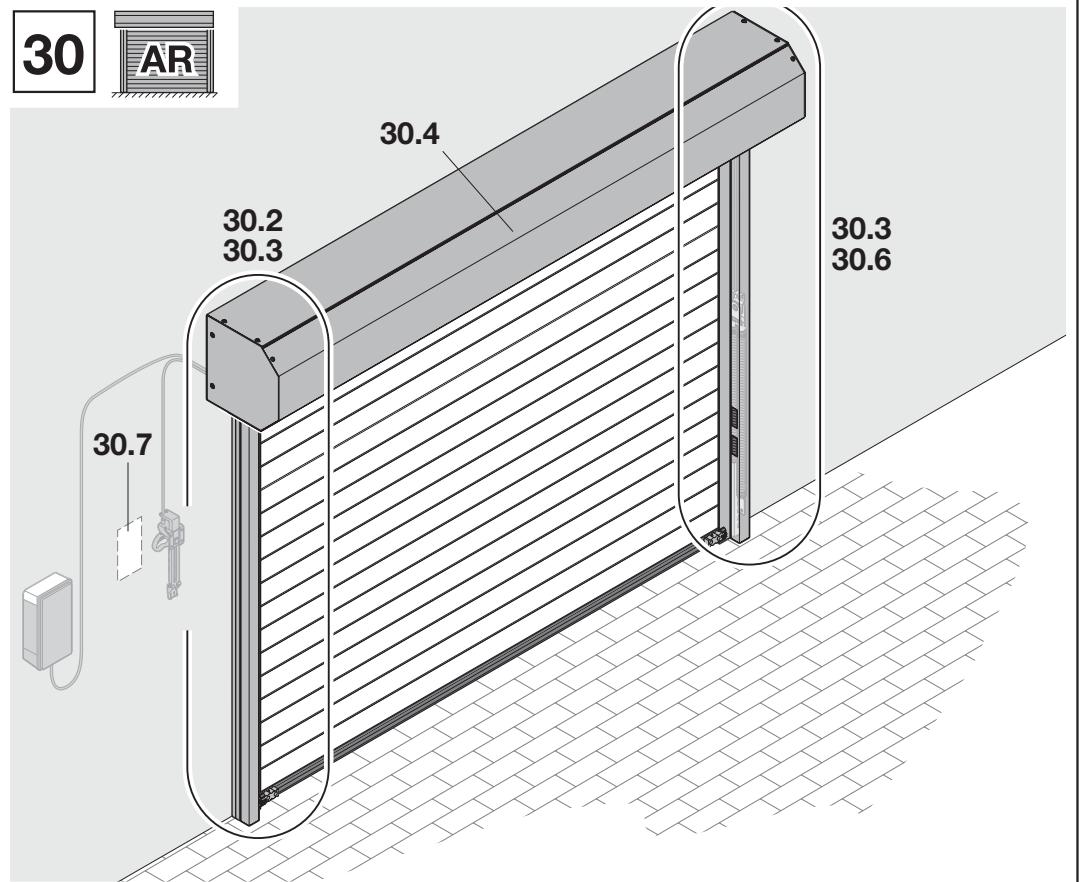
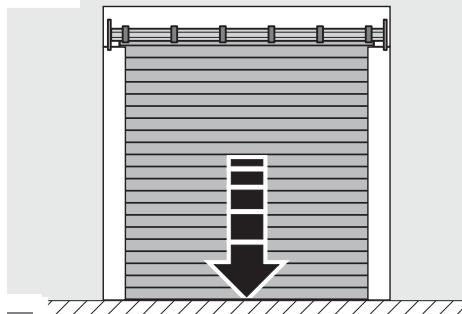
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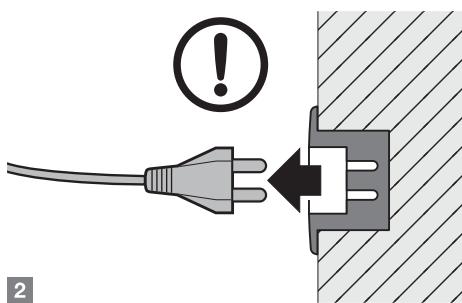
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29.6

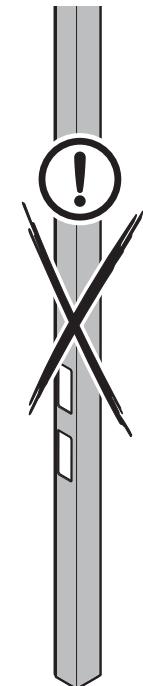
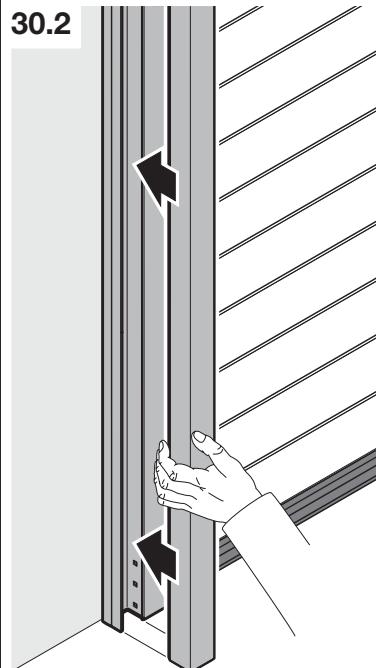


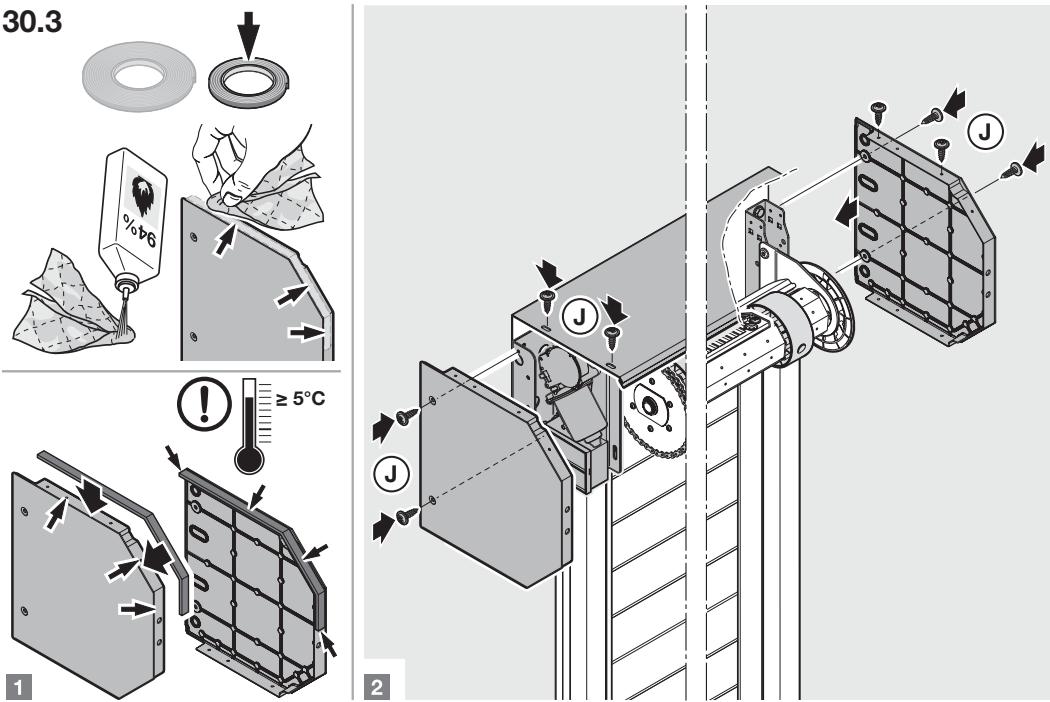
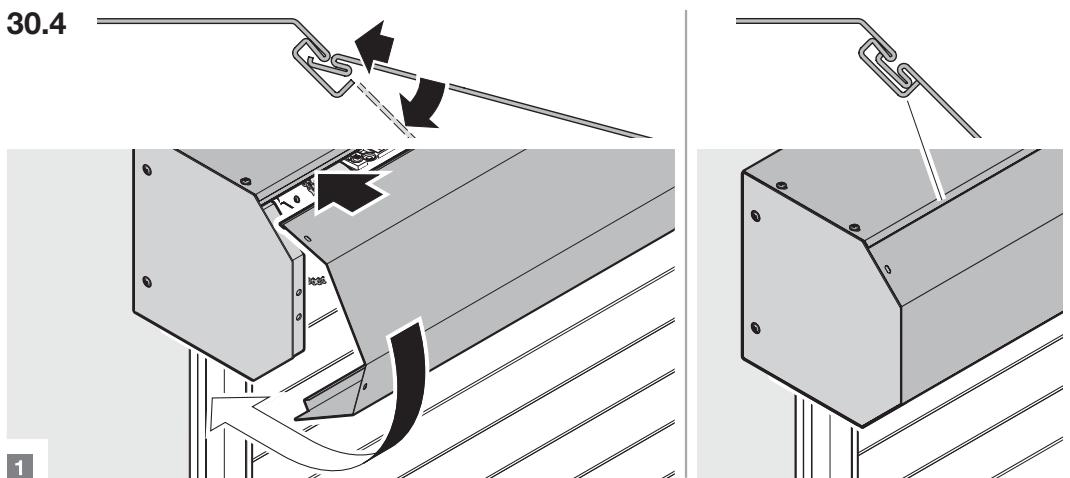
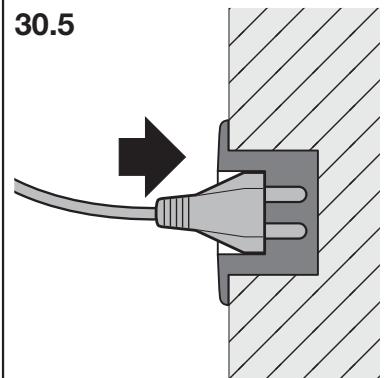
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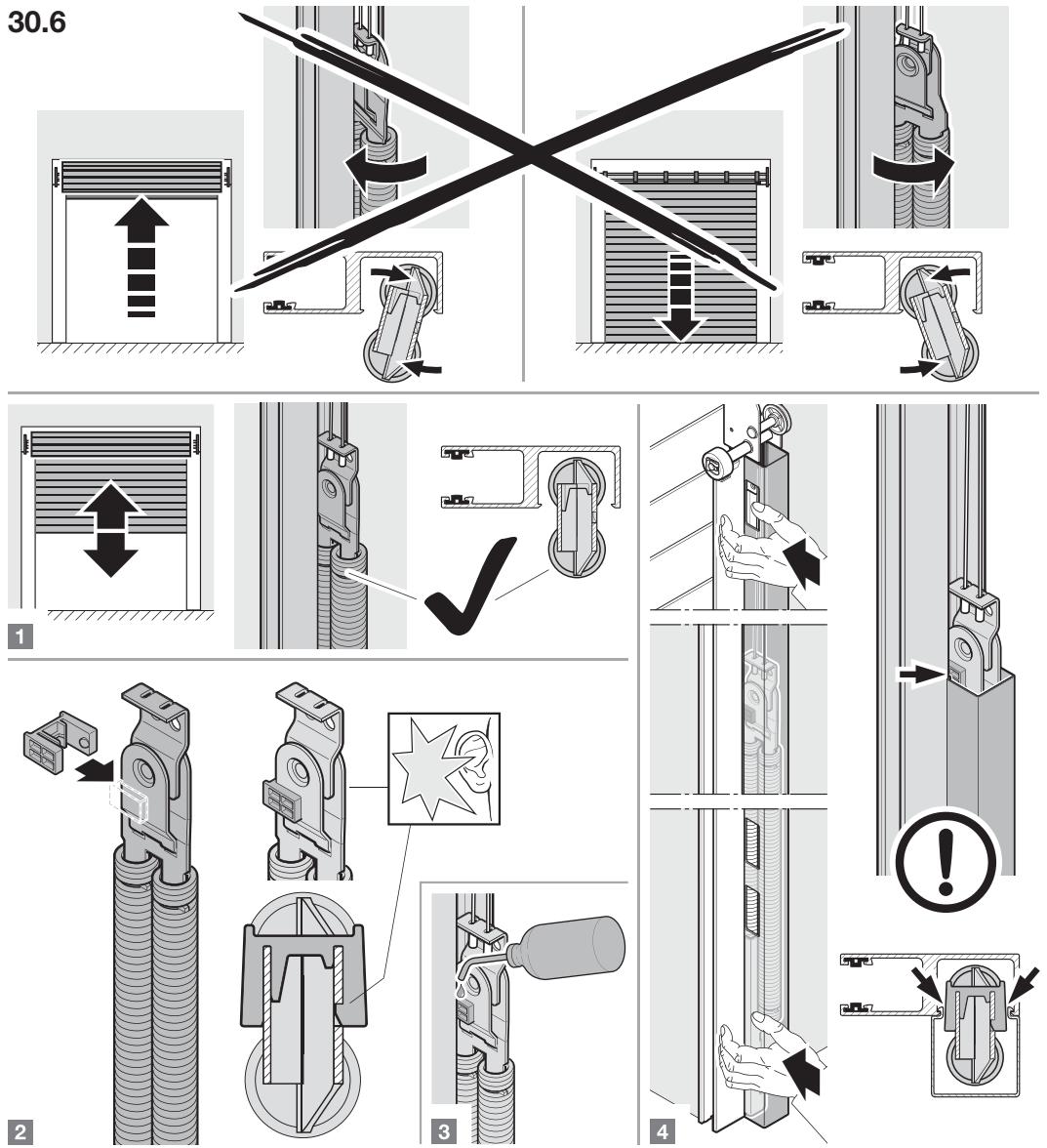


2

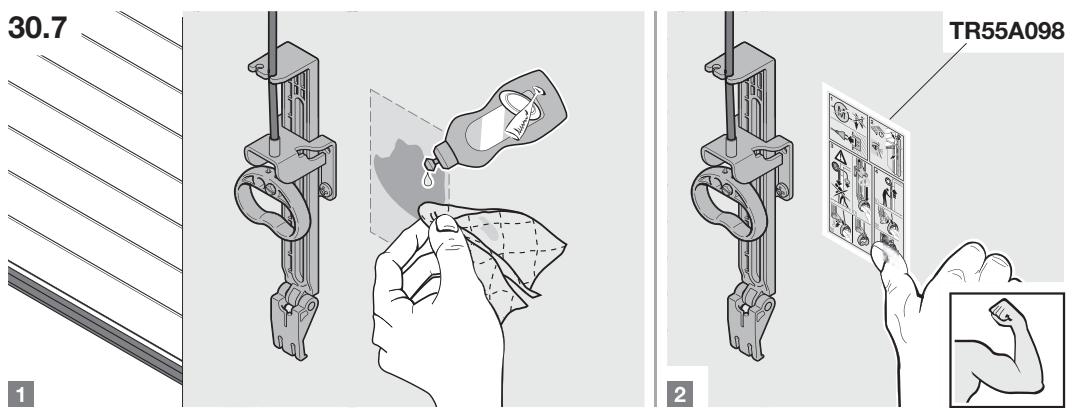
30.2

30.3**30.4****2****30.5**

30.6



30.7





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