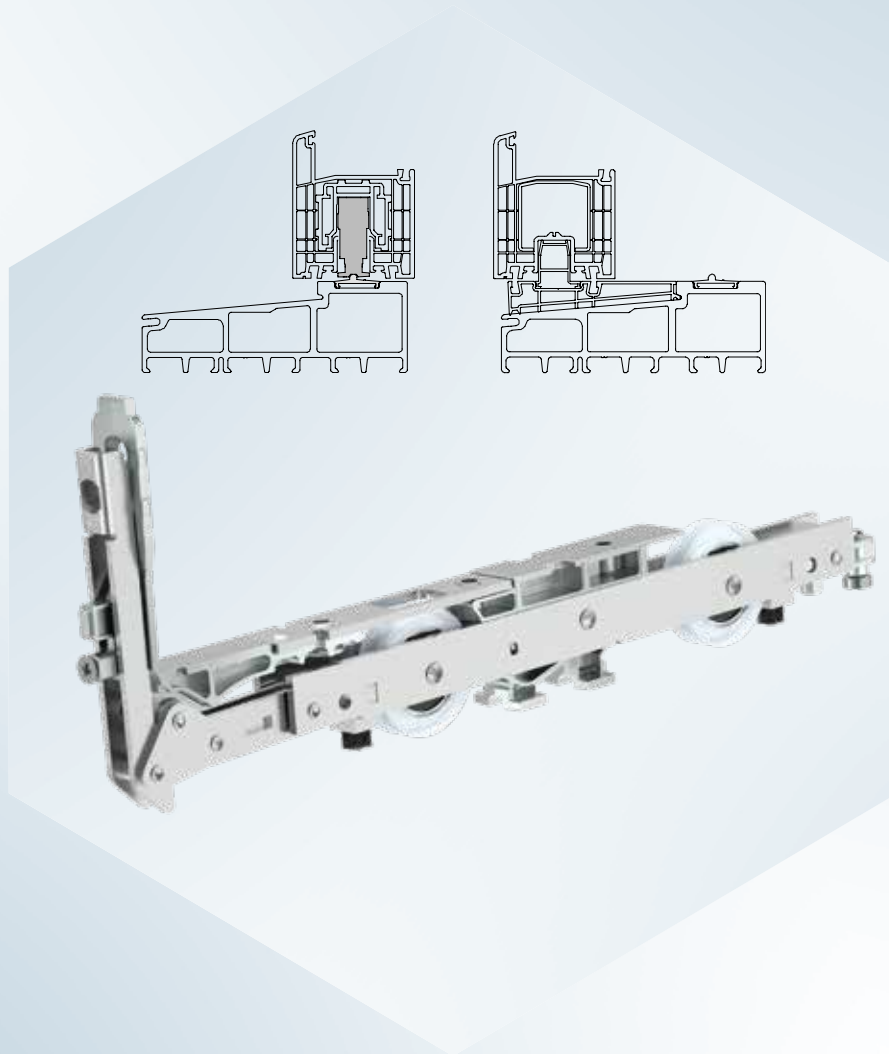


ASSEMBLY INSTRUCTIONS

HS Hardware

HS Gealan

S9000 PVC



Use
only for certified specialists!



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Important Information

Target group

This documentation is intended exclusively for specialist companies and certified specialists. The work described may only be carried out by specialist personnel.

Instructions for use and safety

Assemble all hardware parts professionally as described in this manual and observe all safety instructions.

Overloading or improper operation of the lift and slide hardware may cause the sash to jump out of its guide, fall out and cause serious injury. If overloading of the lift and slide hardware is expected under special circumstances, such as in Schools, Kindergartens etc., this must be prevented using the appropriate measures,

e.g.

- Adjustment of the buffer stop to reduce the opening width, or
- Installation of a profile cylinder to prevent improper use.

Please observe the terms of our functional warranty (<https://www.maco.eu/assets/757813>) as well as the conditions of our surface warranty for MACO TRICOAT-PLUS hardware (<https://www.maco.eu/assets/757713>).

Observe the “Guidelines and Instructions on Product and Liability (GIPL)” of the Quality Association of Locks and Hardware. This policy describes all safety-related issues for end-users for window and balcony door topics. (Download available on the website of the Quality Association of Locks and Hardware).

For MACO lift and slide hardware HS, the application ranges given on page 7 must not be exceeded. In addition, GEALAN's specifications for the lift and slide door hardware, in particular on possible restrictions on sash dimensions and sash weight, must be strictly adhered to.

Assemble the complete hardware only from MACO hardware parts and the required GEALAN accessories.

When using Accoya (registered trademark of Titan Wood Limited) and acid-treated woods (e.g. Oak, Teak, Larch), use only the TRICOAT-PLUS fittings.

Use the specified screw sizes as specified in this guide.

Turn the screws straight (unless otherwise stated) and do not over-tighten, otherwise smooth operation of the hardware may be impaired.

Fix the screws of the supporting components (e.g. rollers, running rail and guide rail) in the reinforcement profile.

Around the rollers, ensure a positive transfer of the compressive forces onto the reinforcement profile!

With the spacer-block setting, observe the technical guideline No. 3 of the glazier trade “Blocking of glazing units”.

Do not use acid-curing sealants, as these can lead to corrosion of the hardware parts.

Keep the runner of the roller track, the threshold and all folds free of deposits and dirt, and in



particular of cement or plaster residues. Avoid direct moisture on the hardware and contact of the hardware with acidic cleaning agents.

Attach the operating label in a clearly visible manner to the built-in lift and slide sash. The operating label can be found in the base carton.

Do not make any constructive changes to the hardware parts.

If you are not sure, please ask your MACO contact person for advice.

Certification

The MACO hardware mentioned in the assembly instructions are tested and regularly monitored in standardised tests in accordance with EN 13126. The achieved standards Class H3 does not refer to the individual element system. Due to a wide range of influencing factors, individual element systems may experience minor deviations from standardised testing, such as:

- the influence of processing tolerances
- the effect of assembly tolerances after the installation of the element in the building
- the use of accessories (e.g. weather seals, sealing rails, handles, etc.)
- the use of additional equipment (e.g. sliding damper, swing-check damper, operating force reduction, etc.) and/or attachments (e.g. Aluminium shells, sun protection on the sash, insect protection)
- External environmental influences (e.g. humidity, sunlight, high or low temperatures, temperature fluctuations, etc.) or
- room-side influences (moisture, aggressive cleaning agents, etc.)

Key



LS Lift and Slide element



FE Fixed element



SH Sash height



SW Sash width



FOW Frame outer width



FOH Frame outer height



Total length



HH Handle height



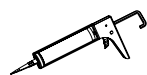
BS Backset drive gear



O Optional



Important Information

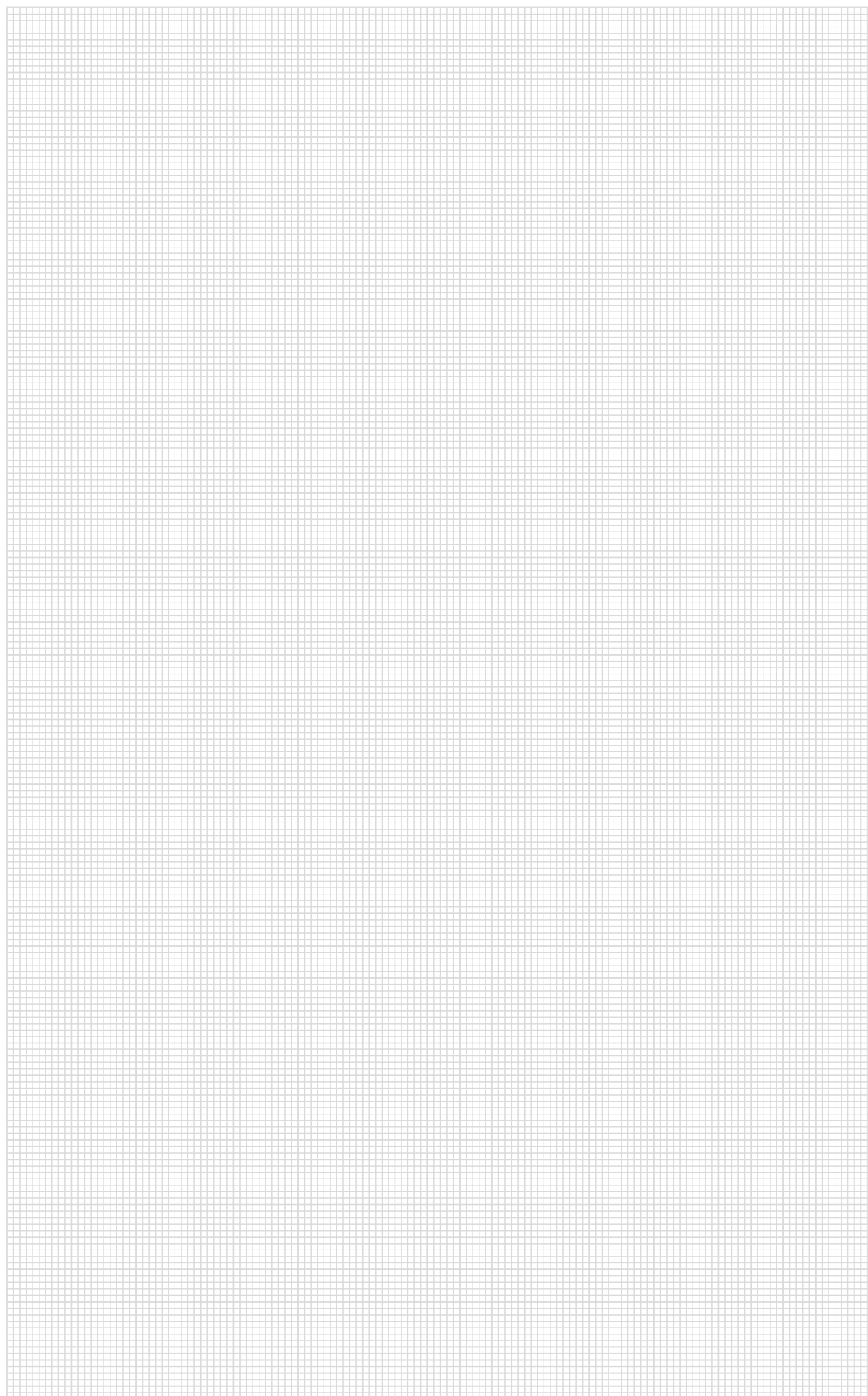


Permanently elastic sealant

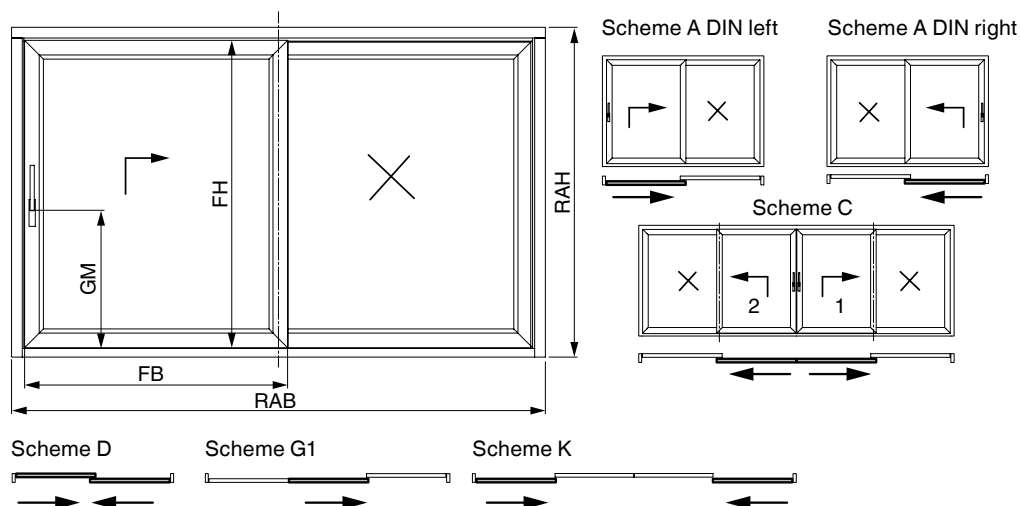
Dimensions in [mm]: All dimensions without a unit definition are given in mm



Notizen



Version and Application Areas



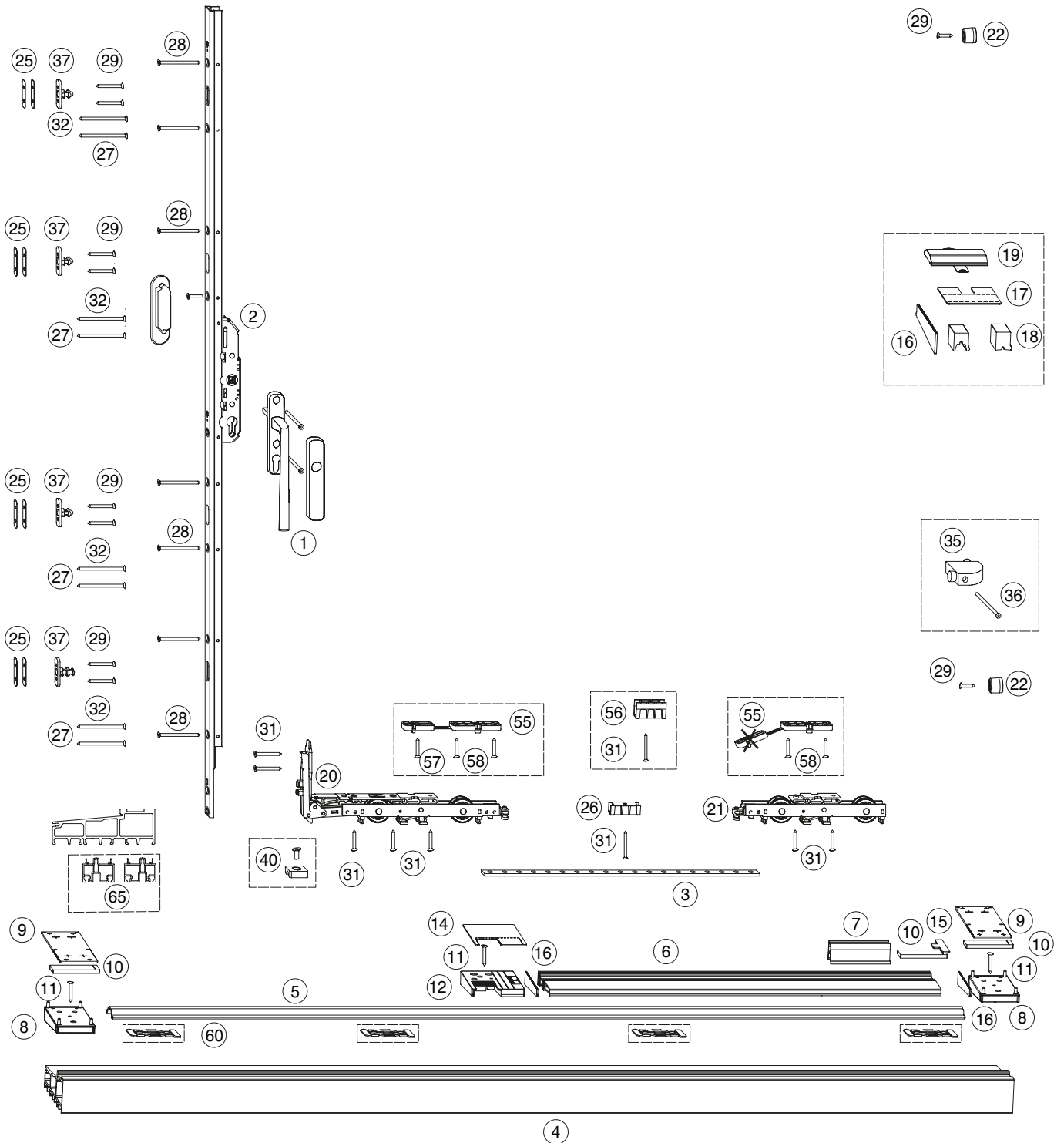
Area of application

According to the table, the above-mentioned application areas apply to MACO lift and slide hardware. For the processing of the profiles, the maximum areas of application and weights from the specifications of the profile manufacturer must be adhered to.

Item	unit	area	
		Roller track high	Roller track flat
SW	(mm)	730 - 3320	
SH	(mm)	755 - 2860	745 - 2850
Sash weight Sliding sash	(kg)	max. 400 *	
BS	(mm)	37,5	
GM Drive gear Size 1 - 2	(mm)	410	400
GM Drive gear Size 3 - 4	(mm)	1010	1000

**From a sash weight of 200 kg, the use of a drive gear damper is recommended.
(Ordering of drive gear dampers is possible via the Technical Online Catalogue (TOM) or via the short catalogue.)*

Hardware overview





Hardware overview

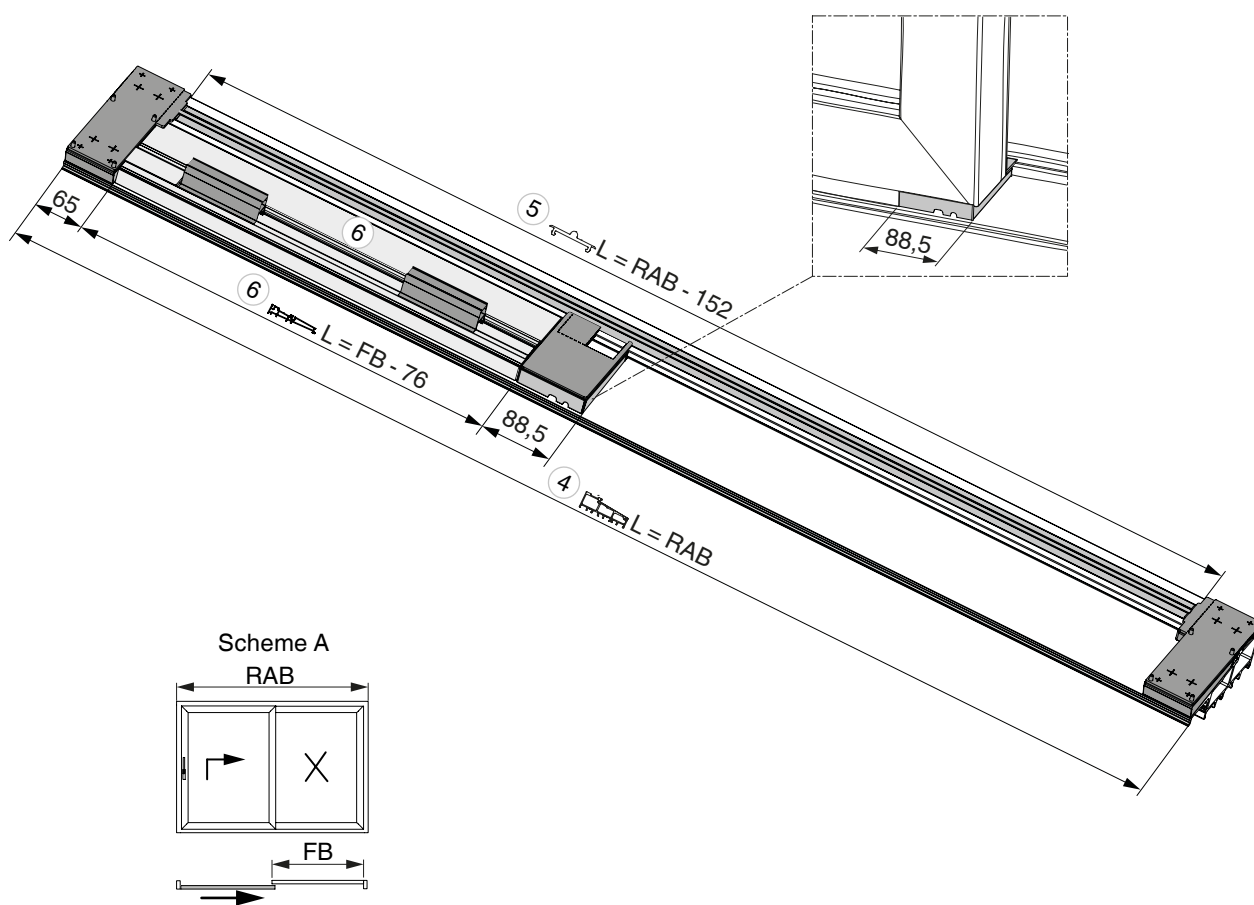
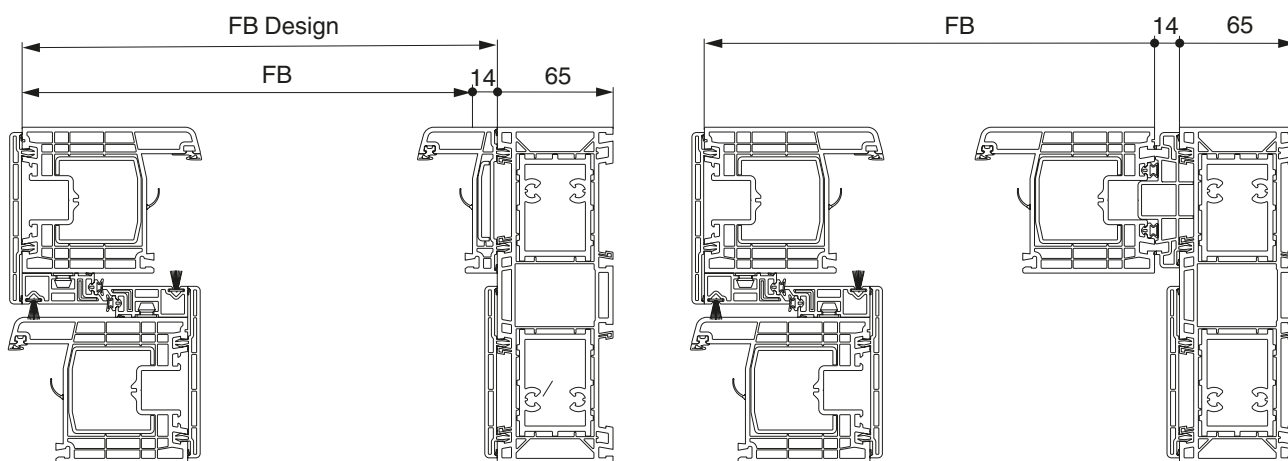
Pos.	Item name
1	HS handle
2	Lift drive gear locks DM 37.5 PZ
3	Connecting rod punched HS 16.4 x 4
4	MACO GRP threshold with hinging groove
5	MACO Fiber-Therm roller track, 2.5 mm asymmetrical
6	Maco PVC intermediate profile
7	Gealan attachment rail for fixed sash, length = 100 mm
8	Connection plate for Fibertherm Gealan S9000 silver
9	EPDM gasket for connection plate 2 mm
10	EPDM gasket for roller track groove 6 mm
11	Hardware screw Pozidrive 4 x 30 Silver
12	Sealing plate with drainage for intermediate profile left Silver
14	EPDM gasket for gasket plate 2 mm left + right Black
15	EPDM gasket for buffer stop bar fixed sash Gealan S9000
16	EPDM gasket for intermediate profile Gealan S9000
17	EPDM gasket for centre area 2 mm black
18	EPDM seal Black for roller track flat Gealan S9000 EPDM seal Black for roller track high Gealan S9000
19	Gasket bridge HS for 12 mm air
20	Front roller HS with brushes 300 kg silver
21	Rear roller HS with brushes 300 kg silver
22	Buffer stop Soft 20 mm high Grey
25	Packer for HS-PVC locking bolt, thickness = 0.5 + 1 mm silver
26	Rod guide for roller track high, groove 17 x 22
27	Countersunk screws B 4.8 x 80
28	Countersunk screws B 4.8 x 60
29	Countersunk screws B 4.8 x 38
31	Countersunk screws B 4.8 x 19
32	Countersunk screws B 4.8 x 90
37	Locking
40	HS locking block 300/400 kg

OPTIONAL

Pos.	Item name
35	Packung Anschlagpuffer 28 mm Abstand
36	Senkblechschrauben B 4,8 x 80
55	HS Laufwagenunterfütterung für vorderen und hinteren Laufwagen 10 mm stapelbar Silber
56	Stangenführung für Laufschiene flach Nut 27 x 22
57	Senkblechschrauben B 4,8 x 25
58	Spanplattenschraube PZ 5 x 30 Senkkopf
60	MACO Fibertherm Schnapper für Laufschiene flach
65	MACO Fibertherm Aufdopplungsprofil

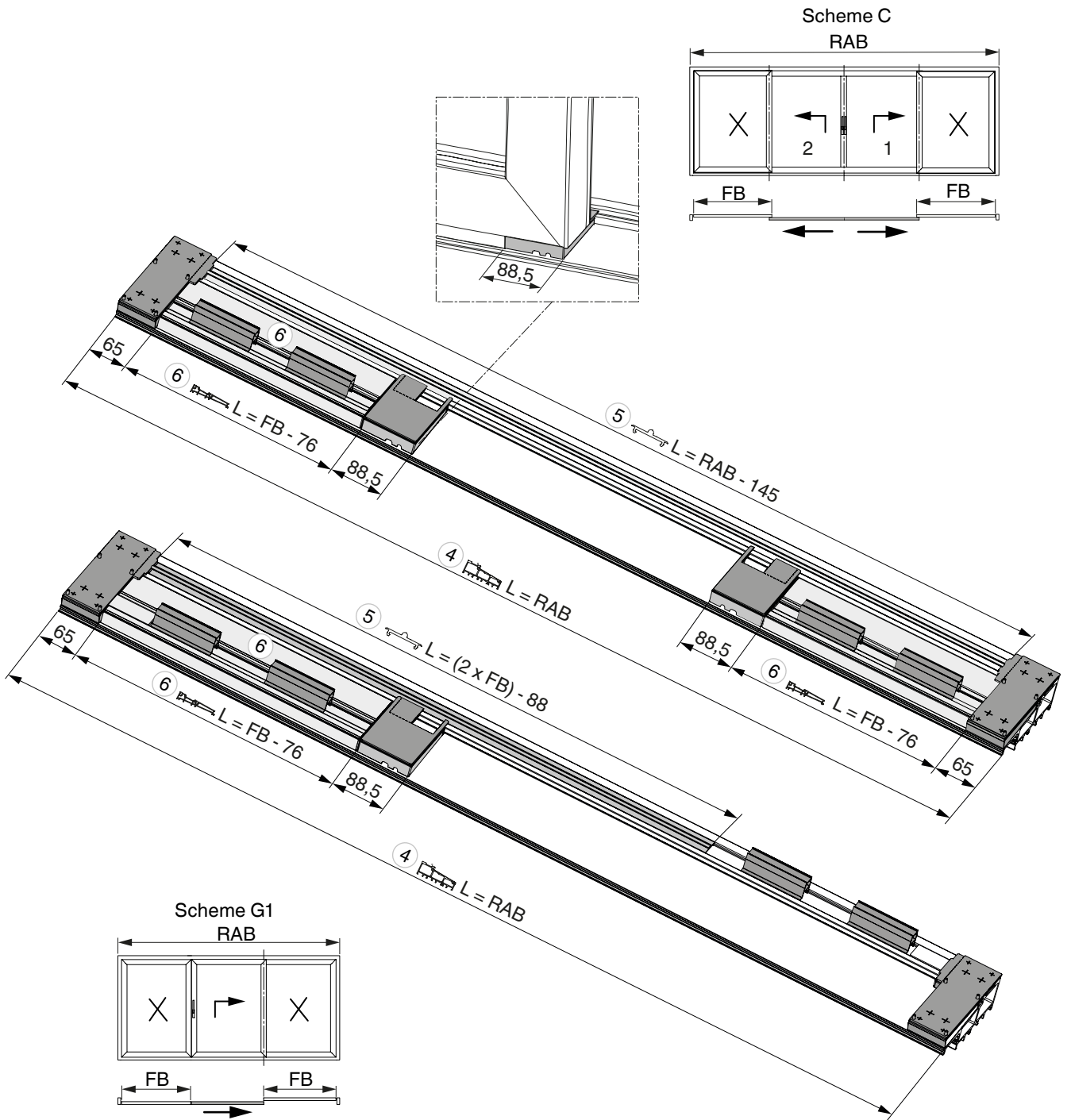
Assembly on the frame

Calculation formulas Scheme A



Assembly on the frame

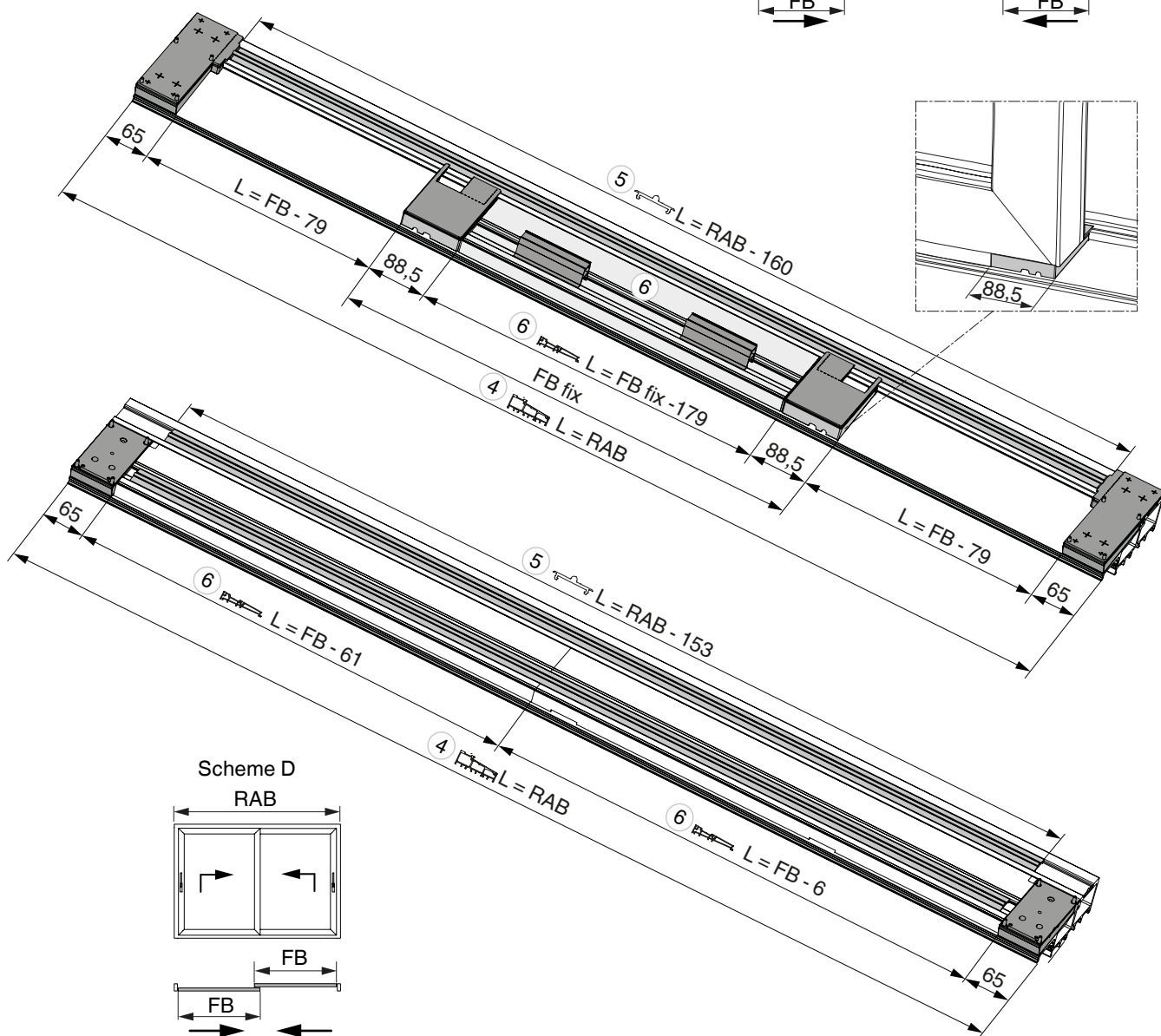
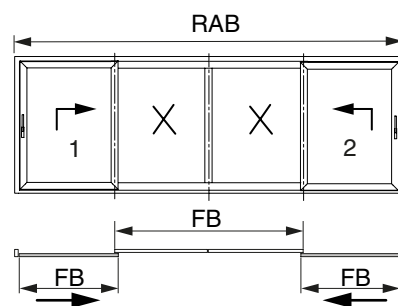
Calculation formulas Scheme C + G1



Assembly on the frame

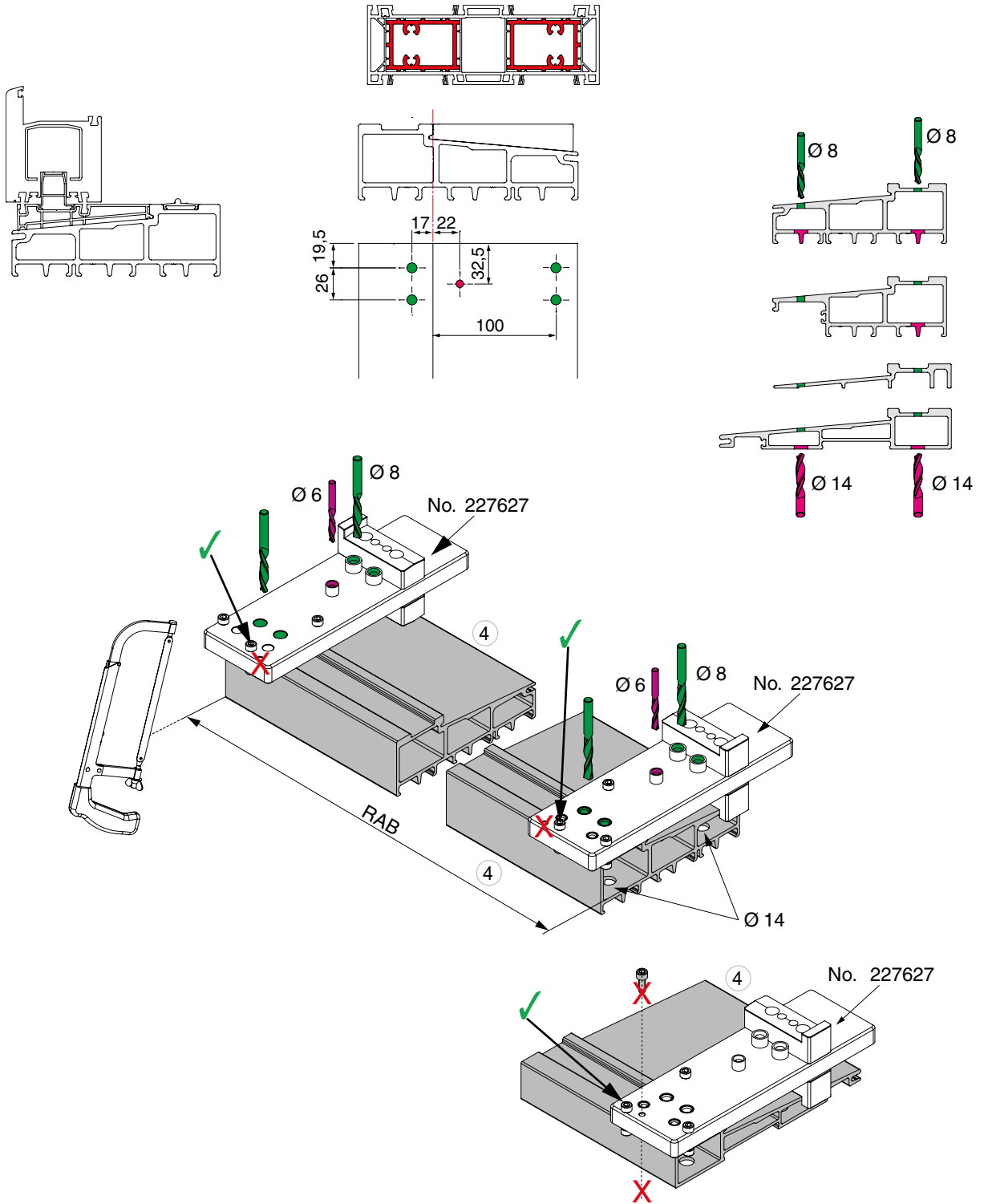
Calculation formulas Scheme K + D

Scheme K



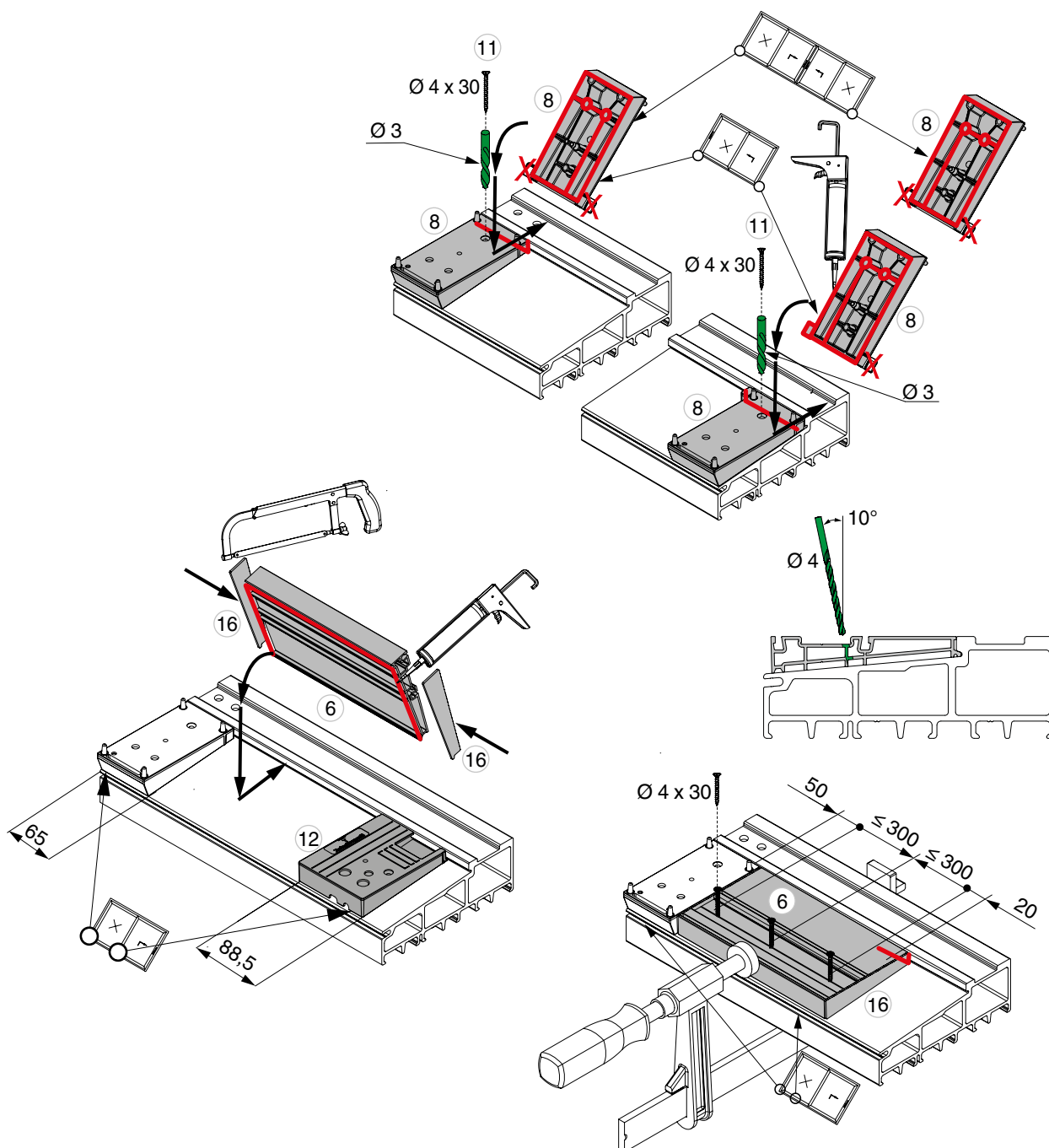
Assembly on the frame

Threshold Standard Scheme A, C, G1, K



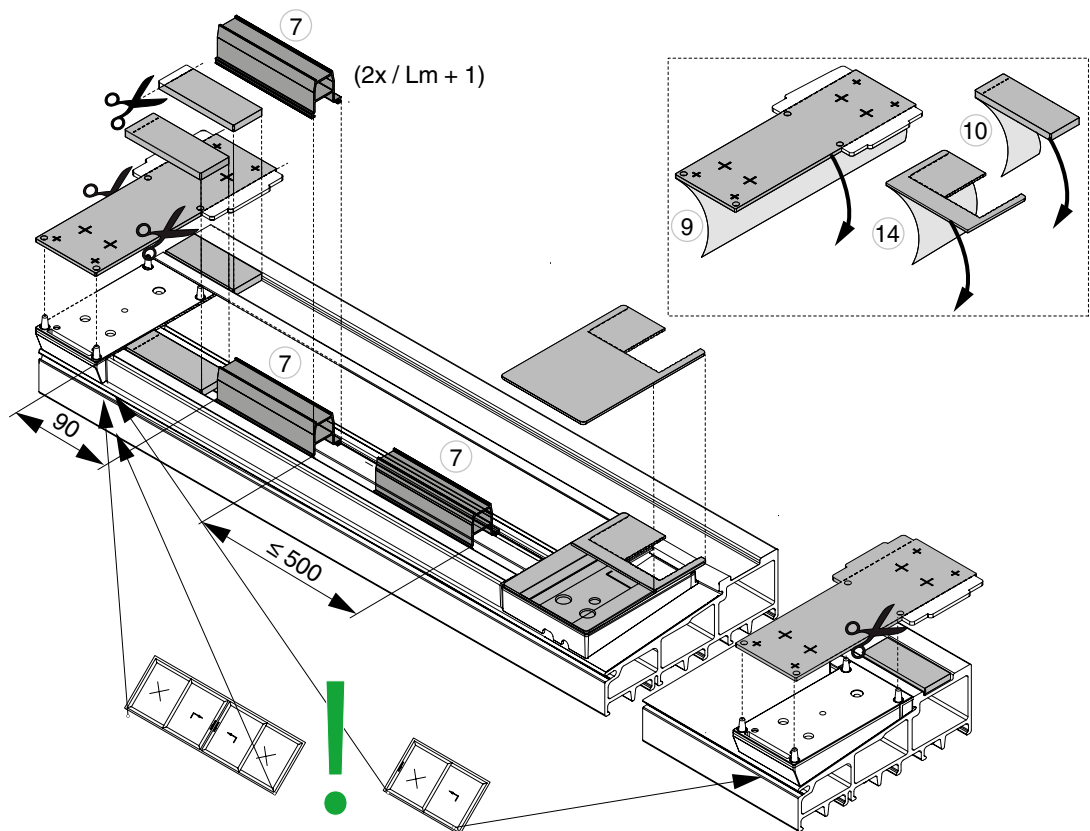
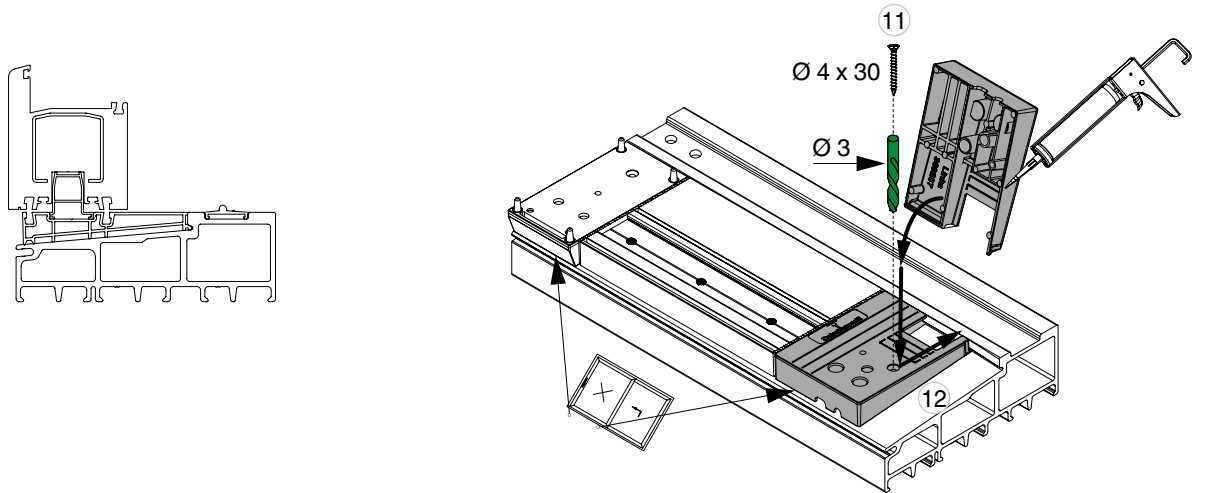
Assembly on the frame

Threshold Standard Scheme A, C, G1, K



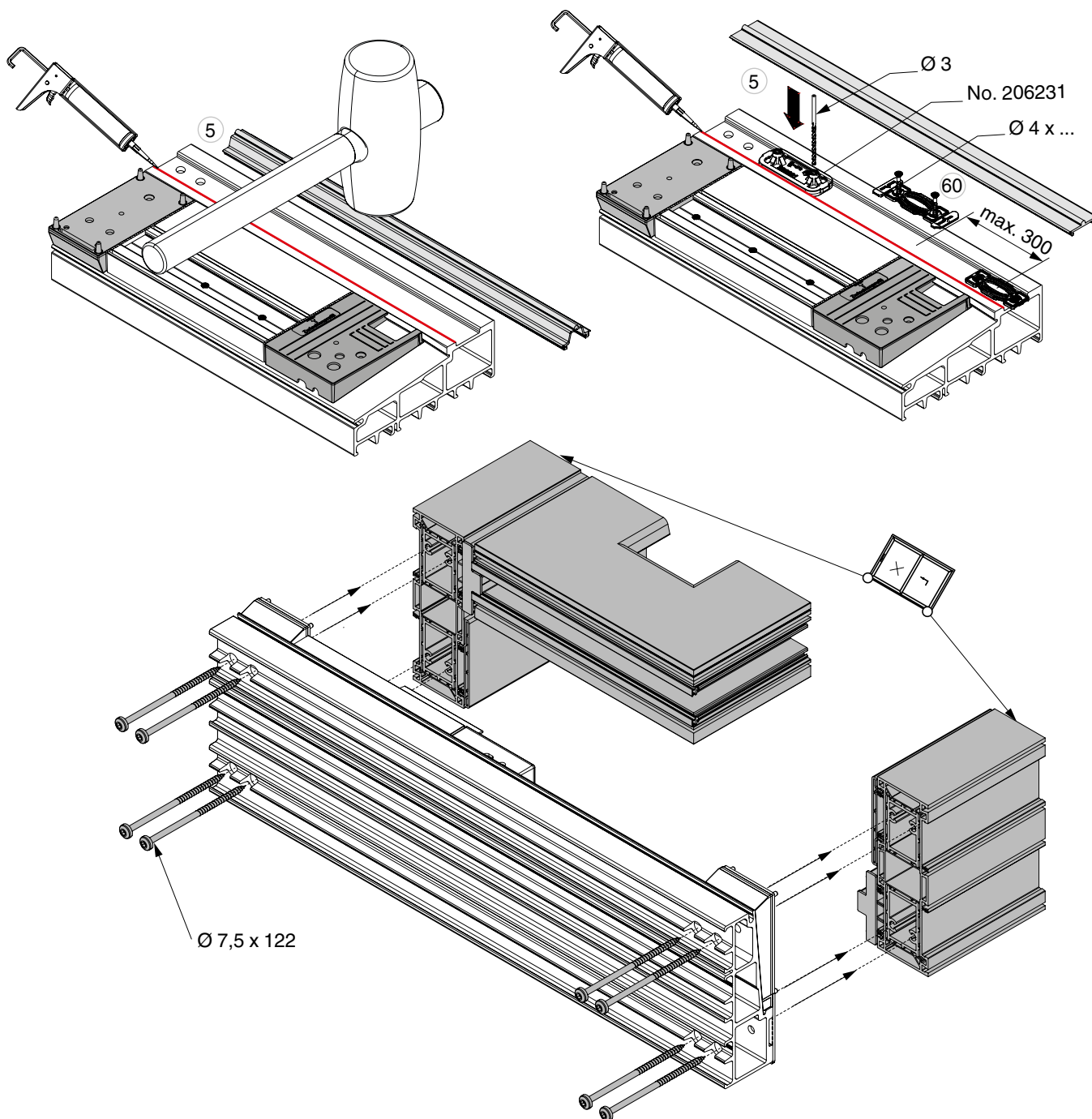
Assembly on the frame

Threshold Standard Scheme A, C, G1, K



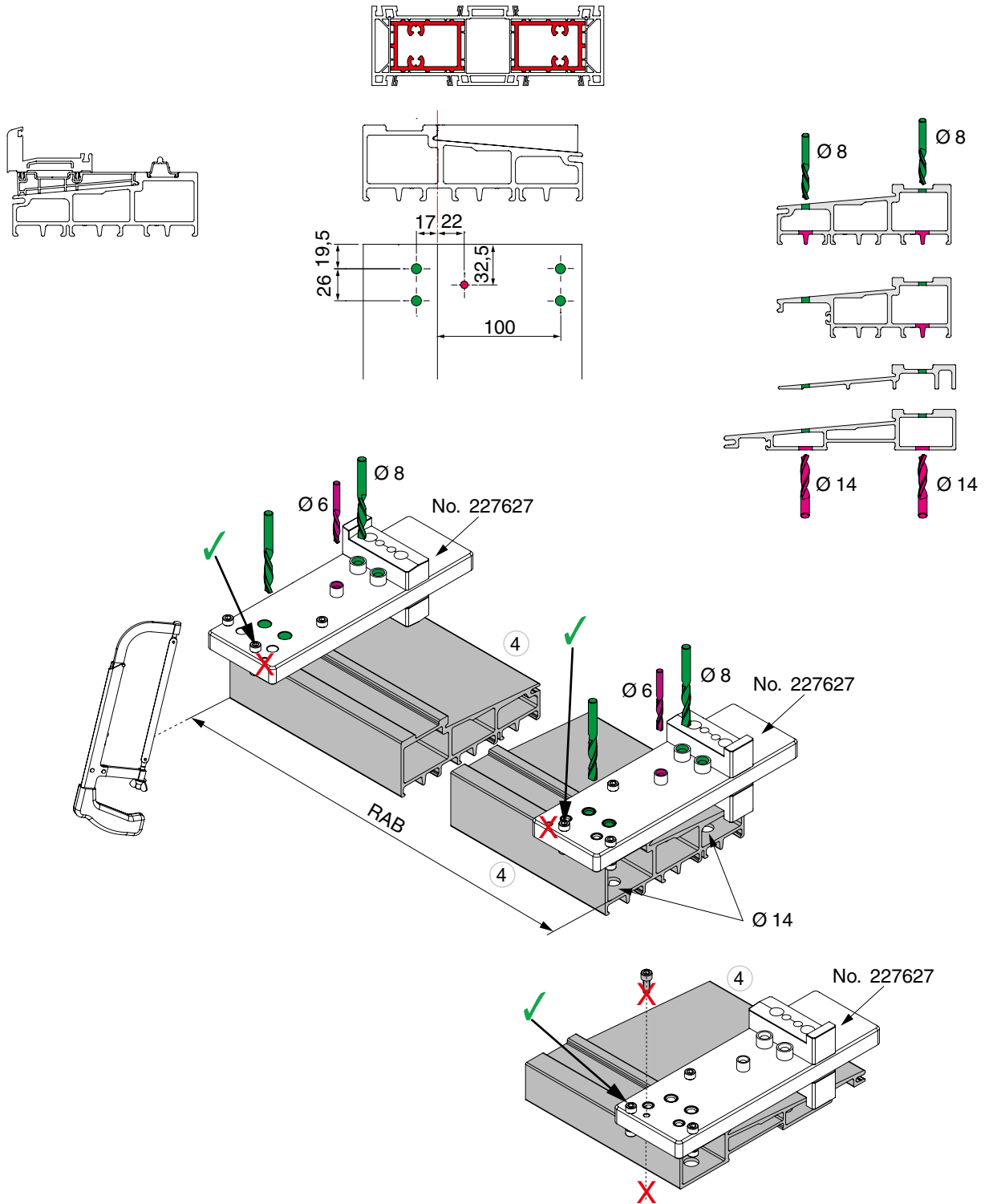
Assembly on the frame

Threshold Standard Scheme A, C, G1, K



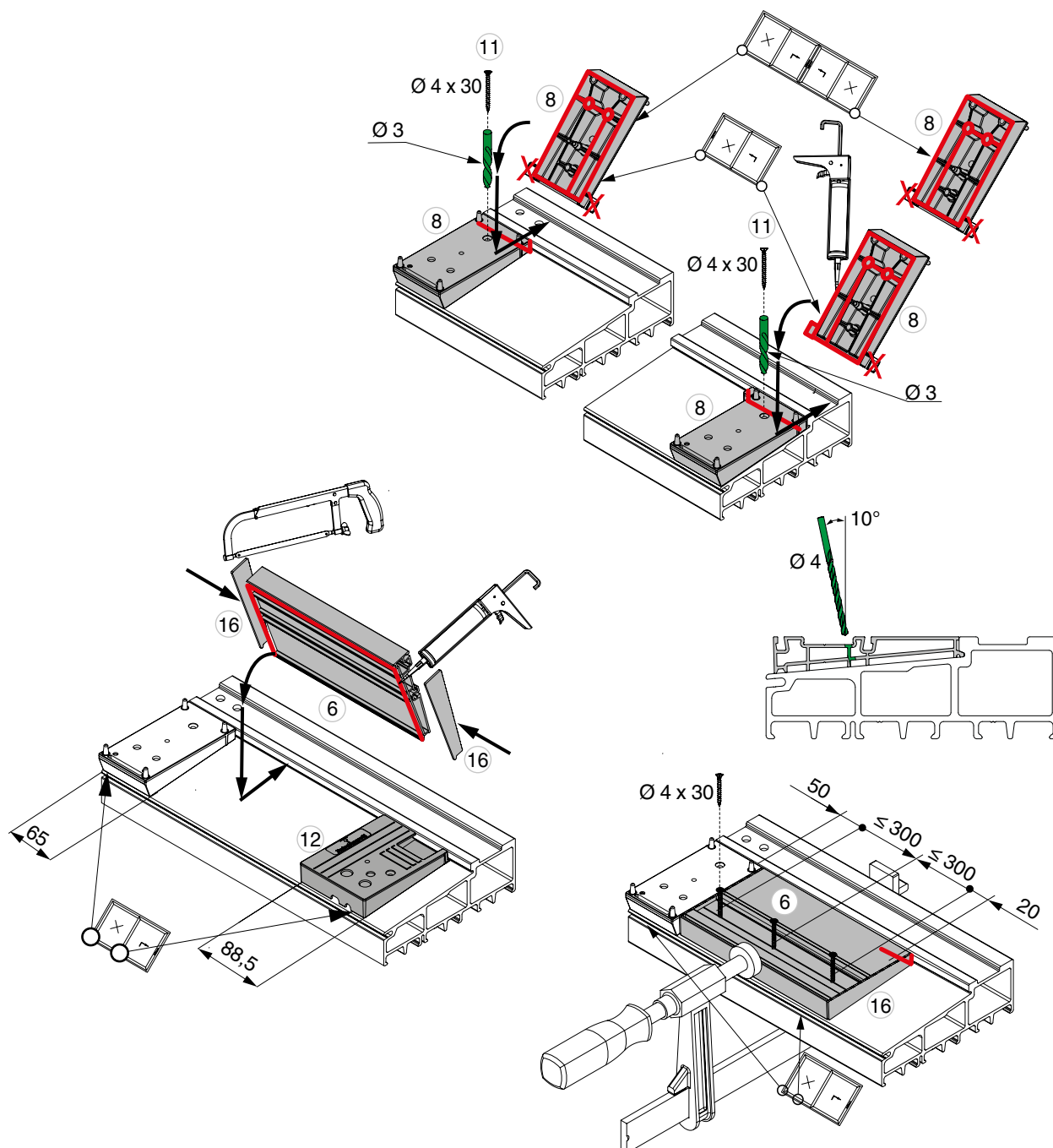
Assembly on the frame

Threshold Design Scheme A, C, G1, K



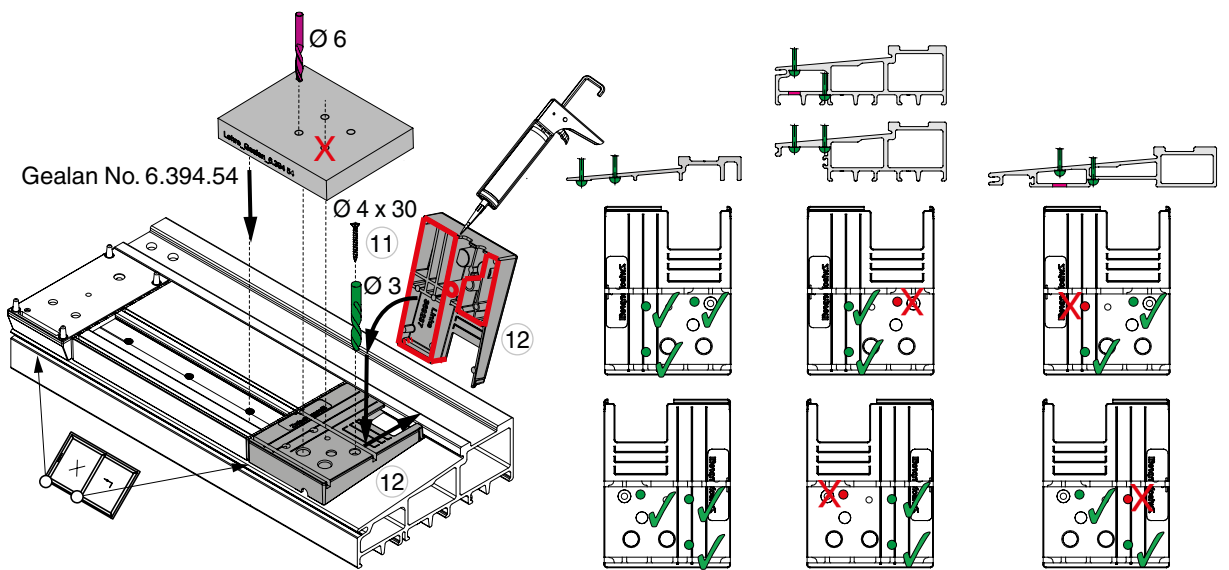
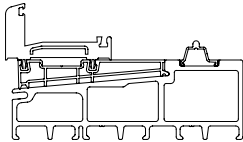
Assembly on the frame

Threshold Design Scheme A, C, G1, K



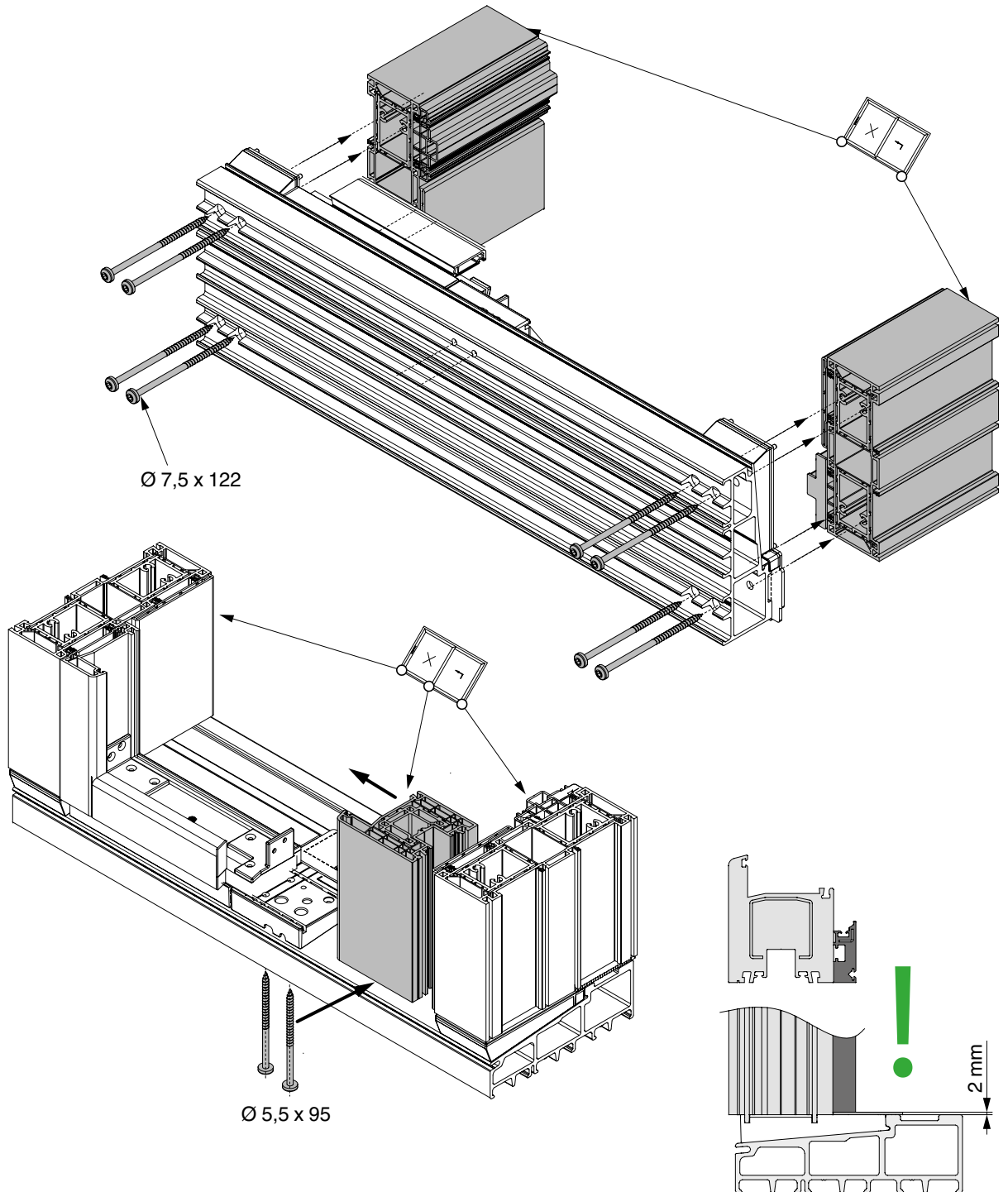
Assembly on the frame

Threshold Design Scheme A, C, G1, K



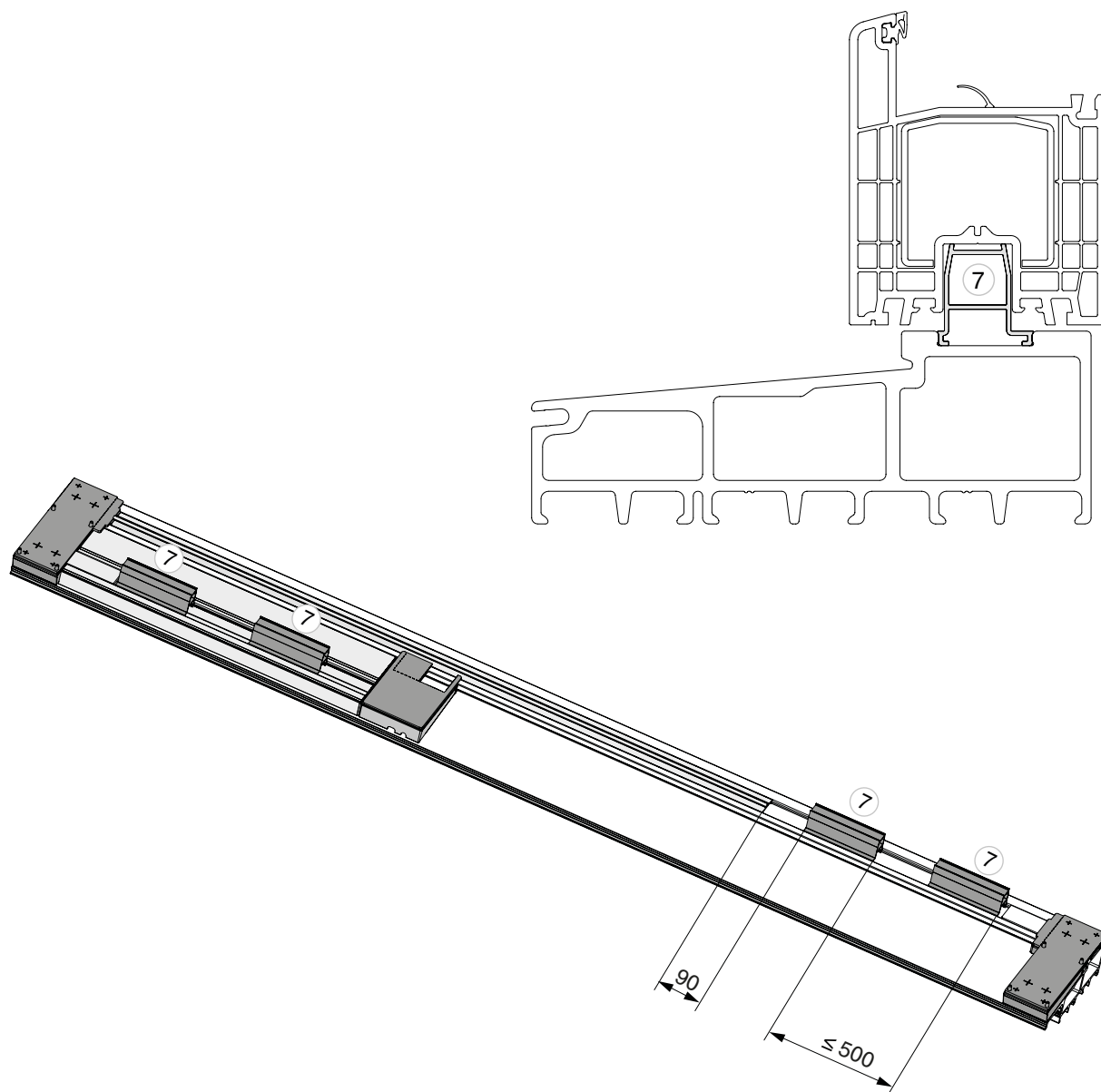
Assembly on the frame

Threshold Design Scheme A, C, G1, K



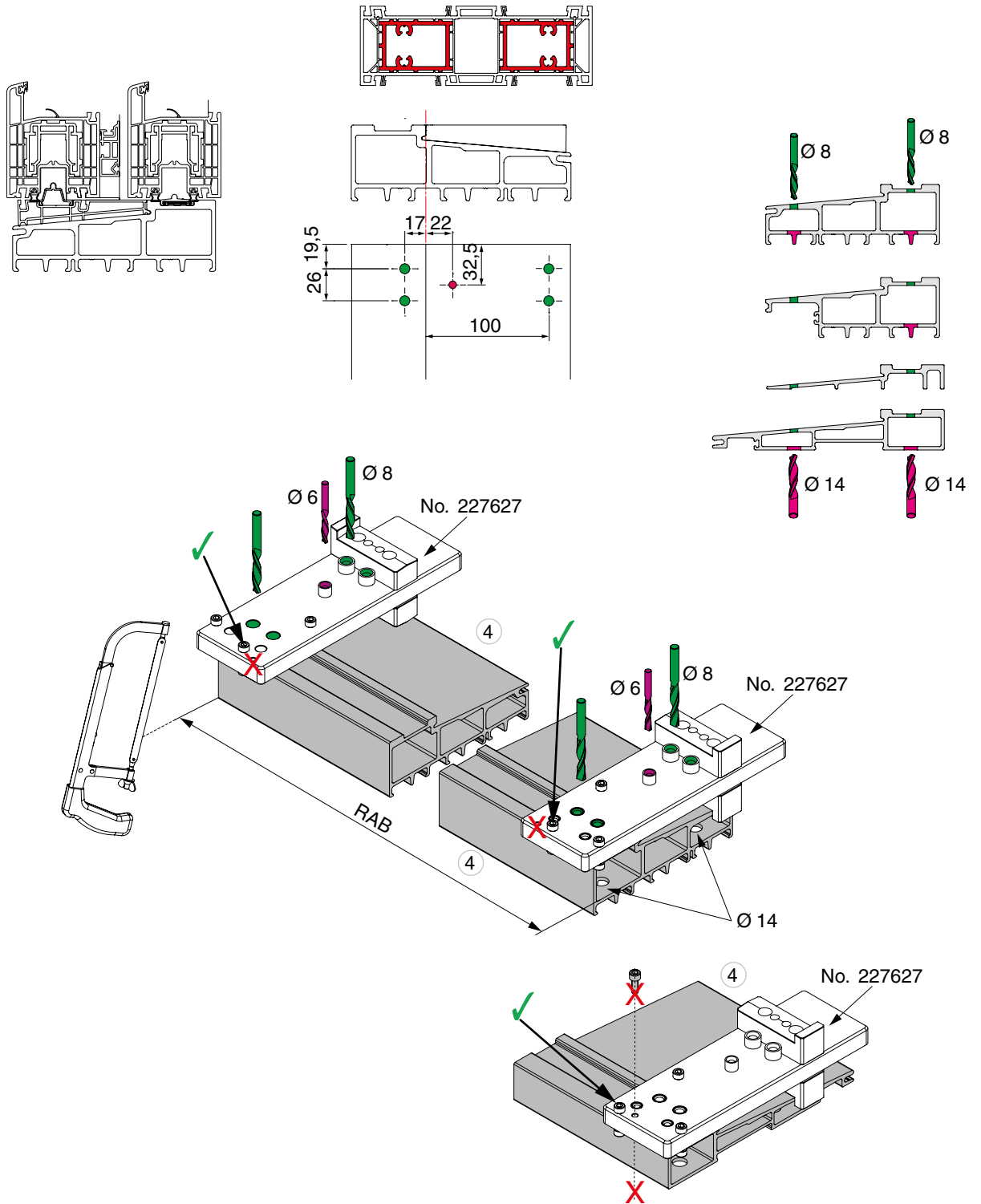
Assembly on the frame

Threshold Supplement Scheme G1



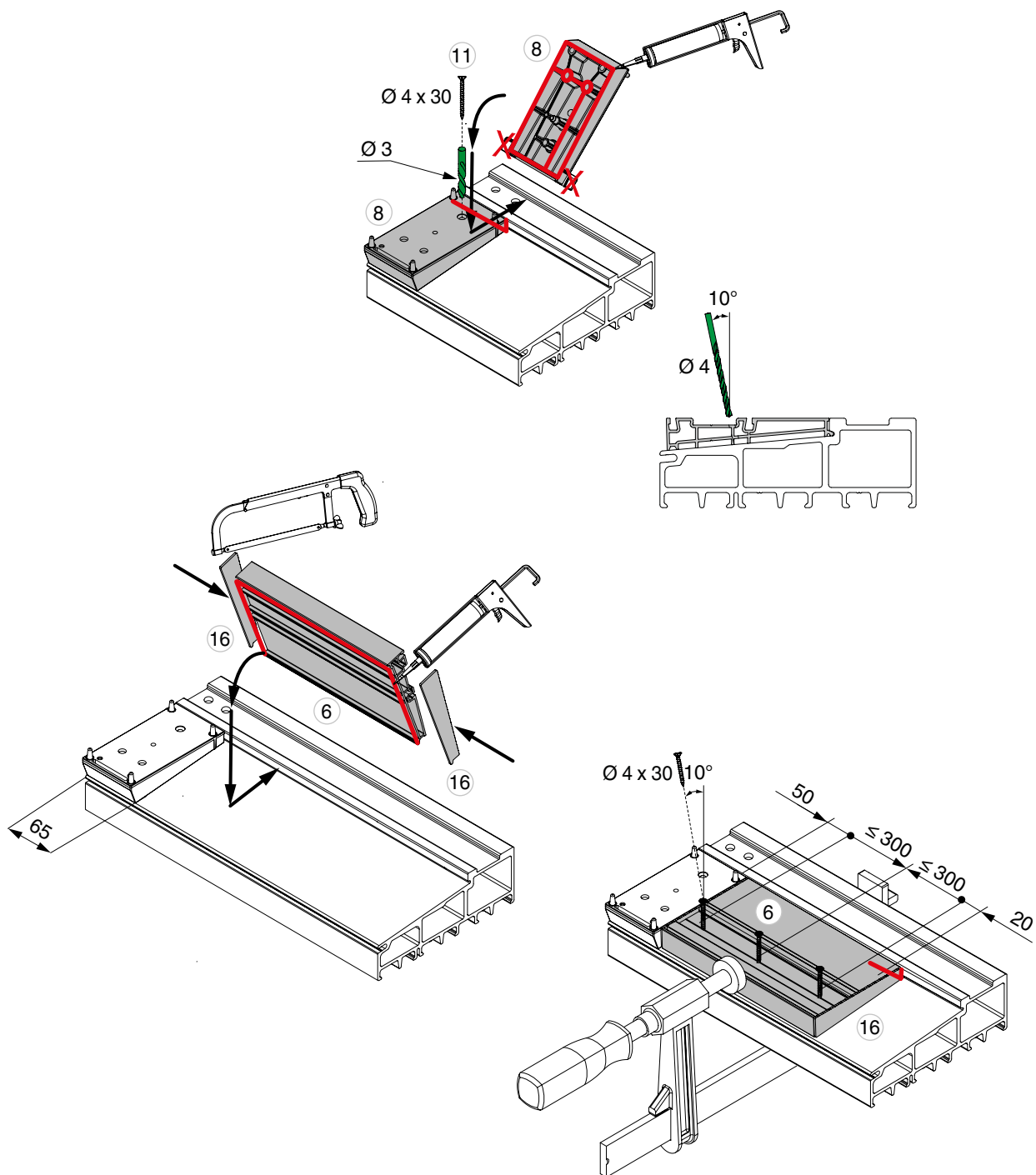
Assembly on the frame

Threshold Scheme D



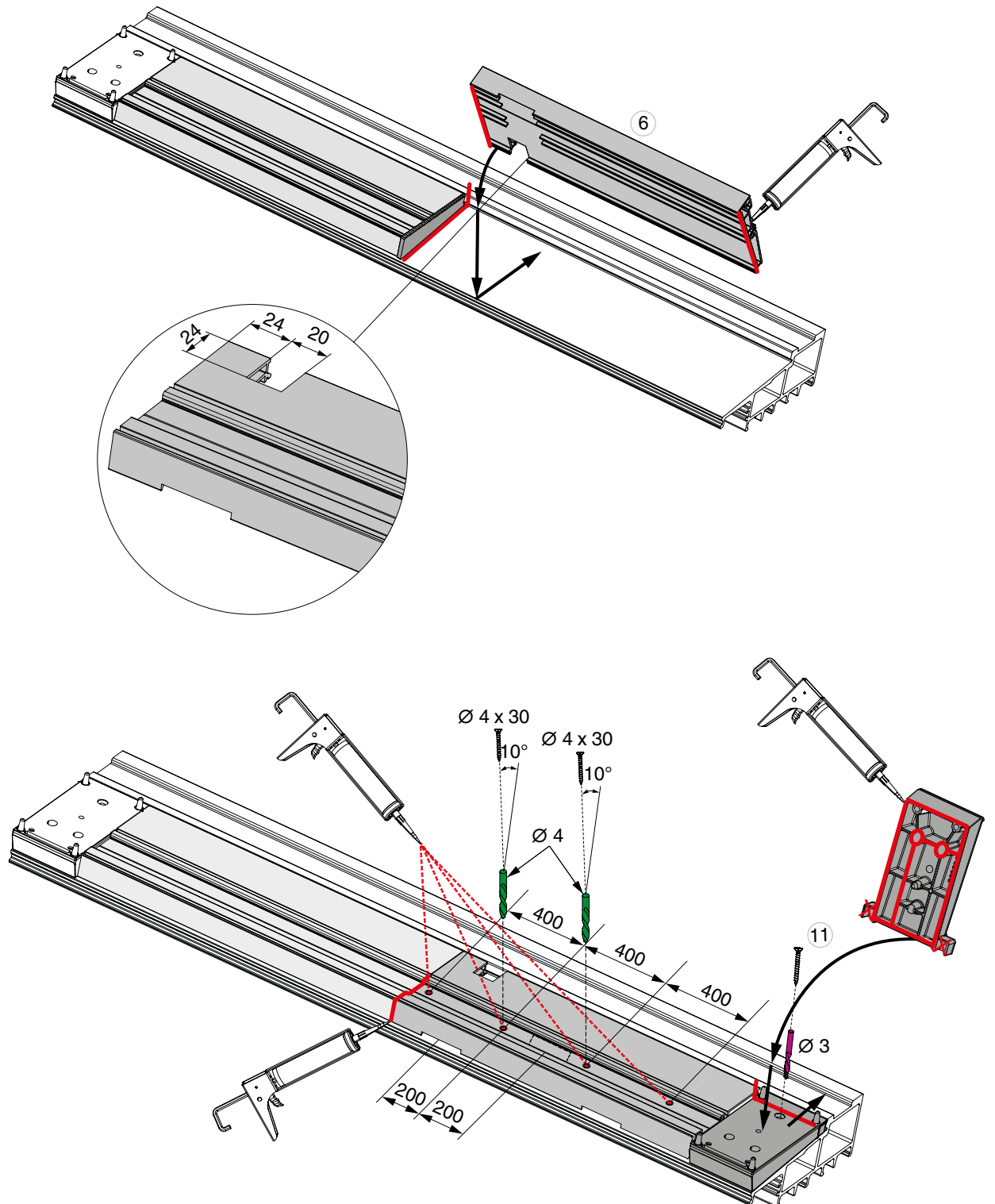
Assembly on the frame

Threshold Scheme D



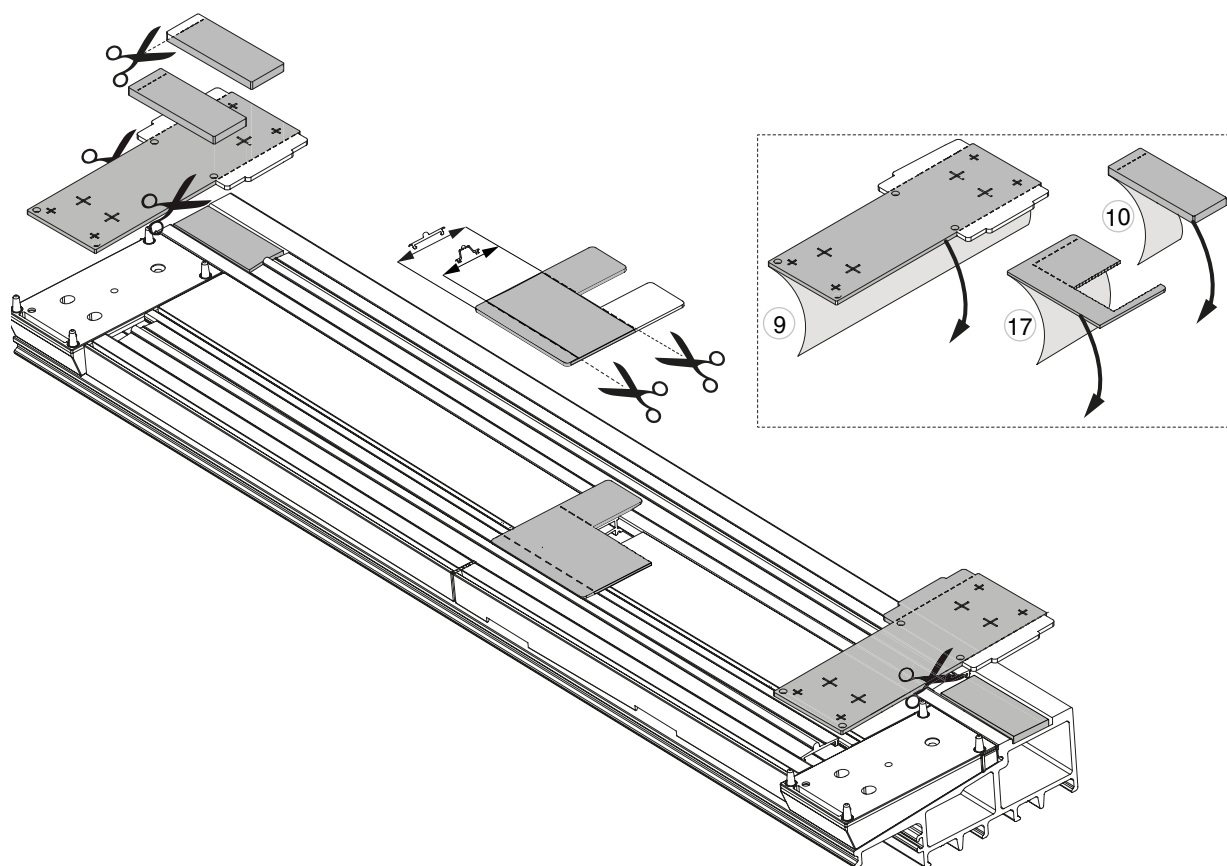
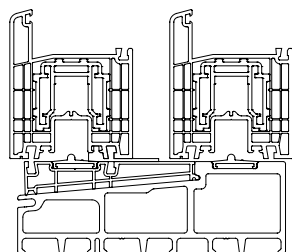
Assembly on the frame

Threshold Scheme D



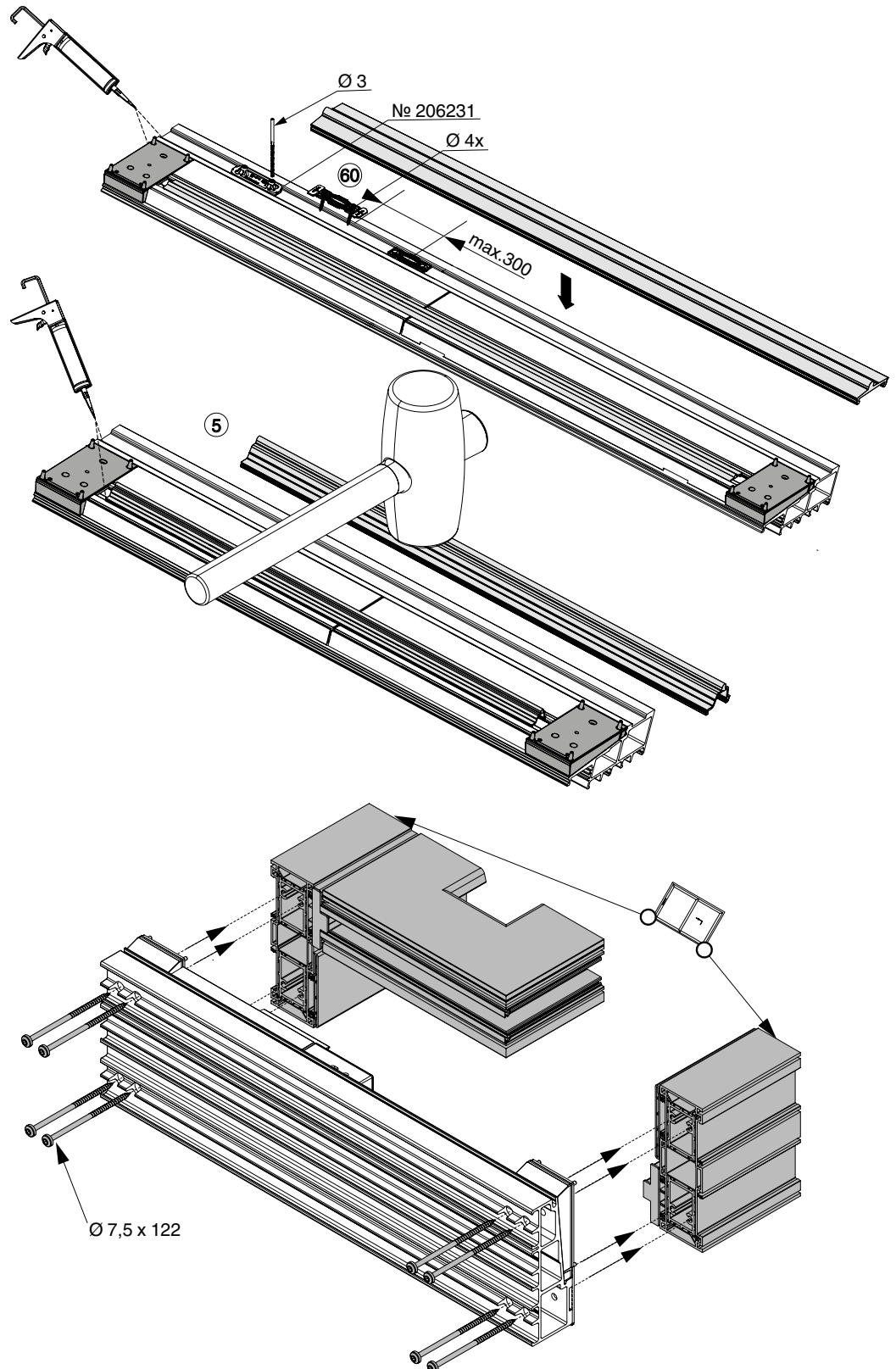
Assembly on the frame

Threshold Scheme D



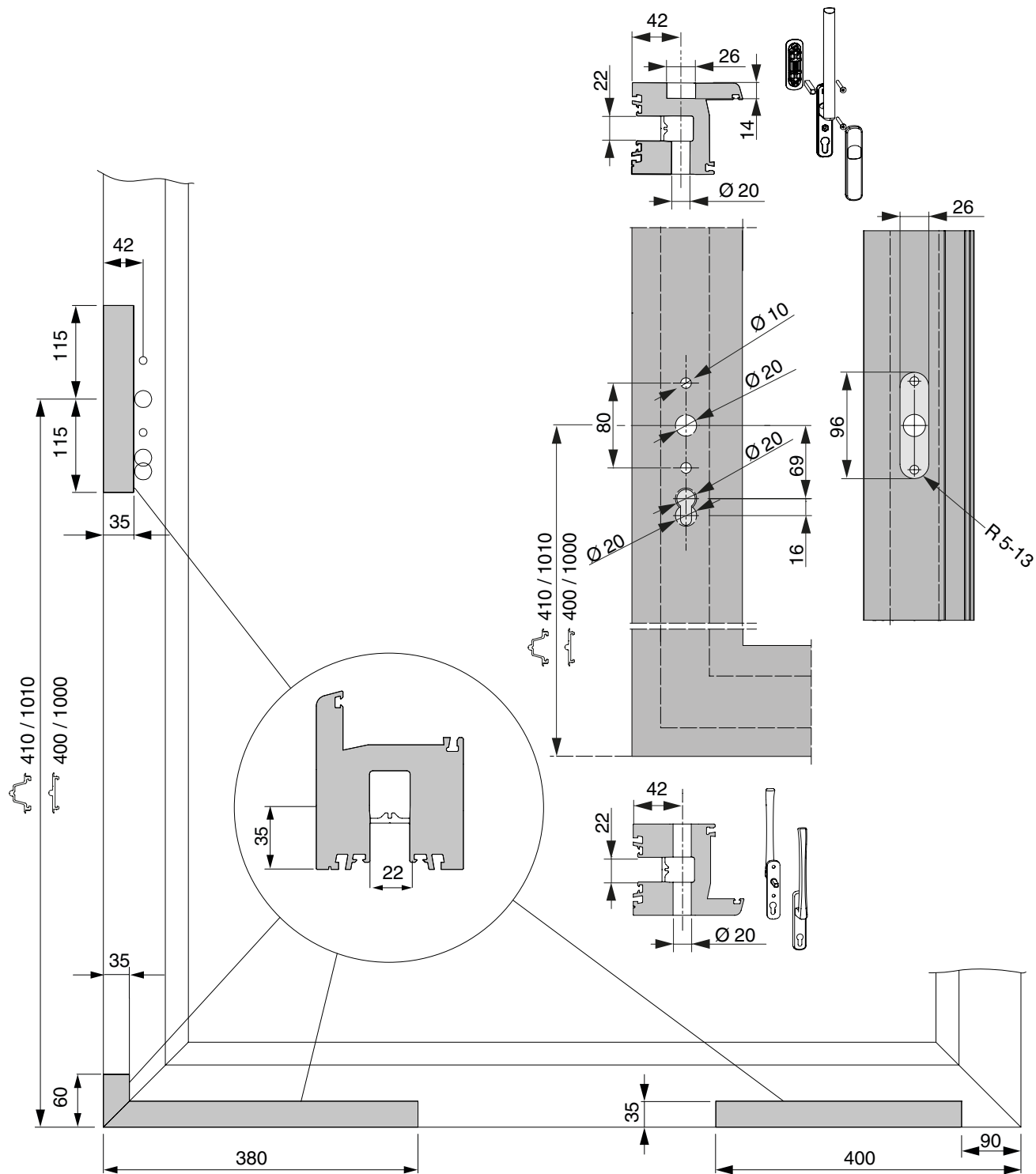
Assembly on the frame

Threshold Scheme D



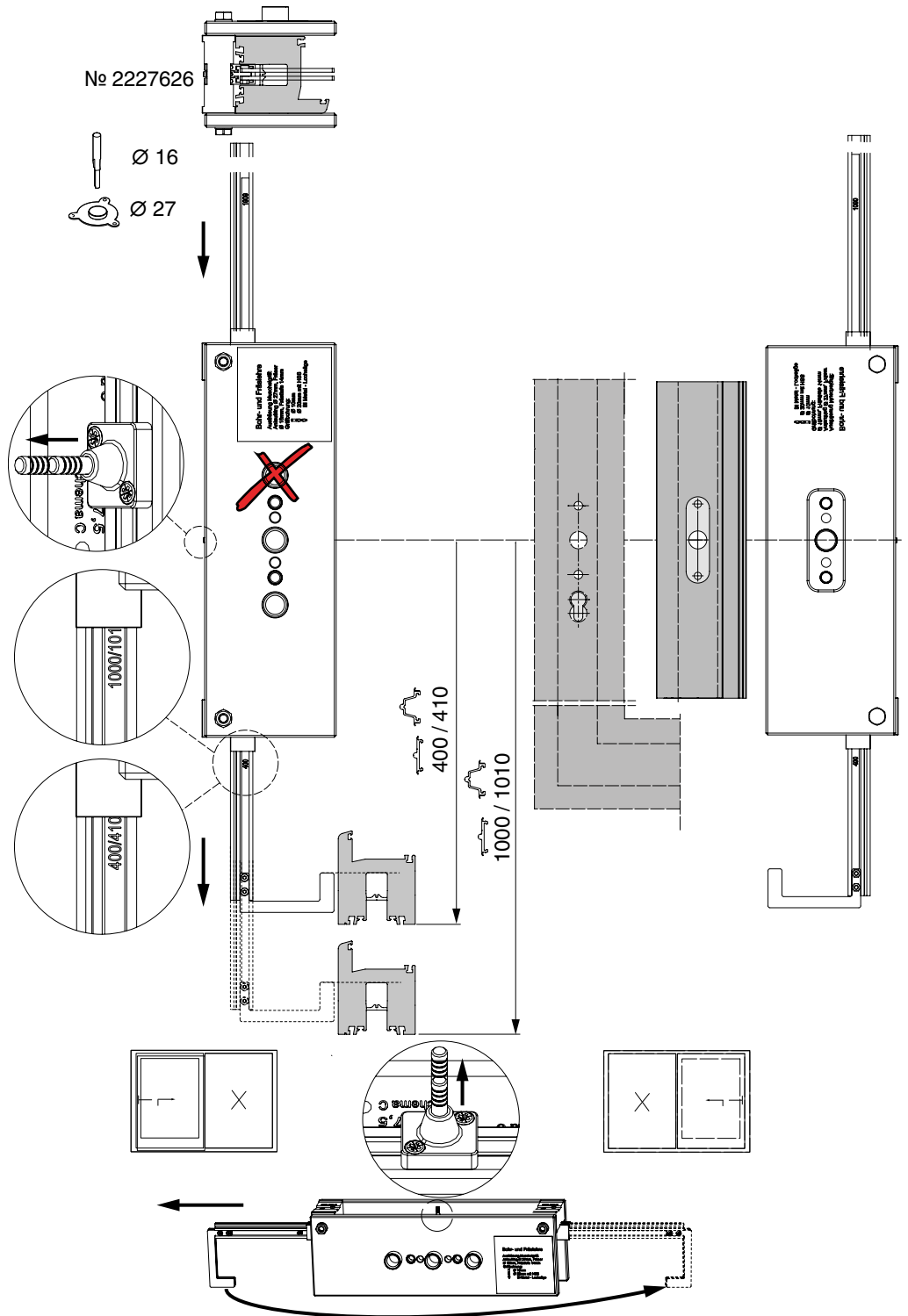
Assembly on the sash

Drilling and milling on the sash



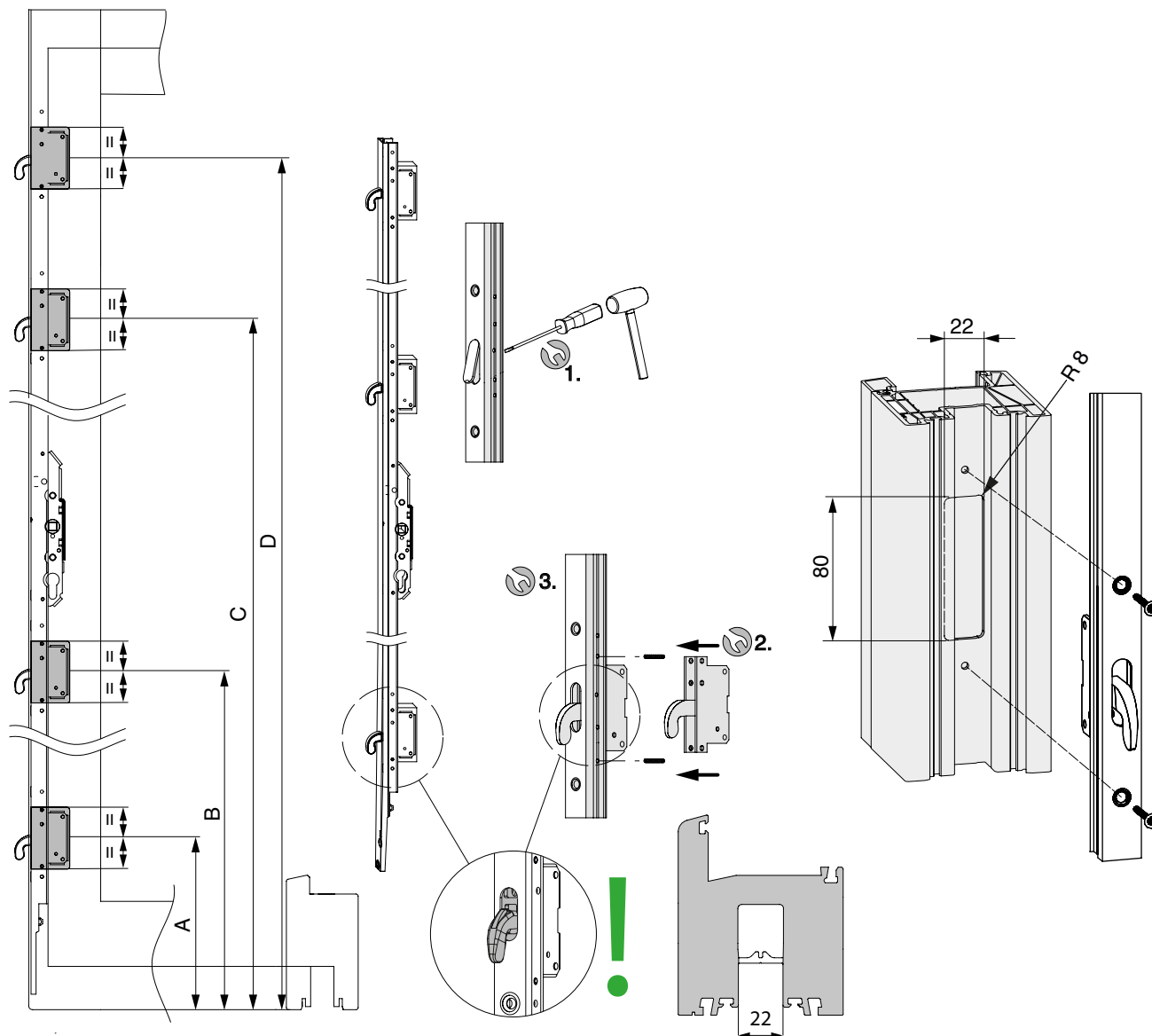
Assembly on the sash

Drilling and milling jig for HS handle



Assembly on the sash

Milling for hook drive gear



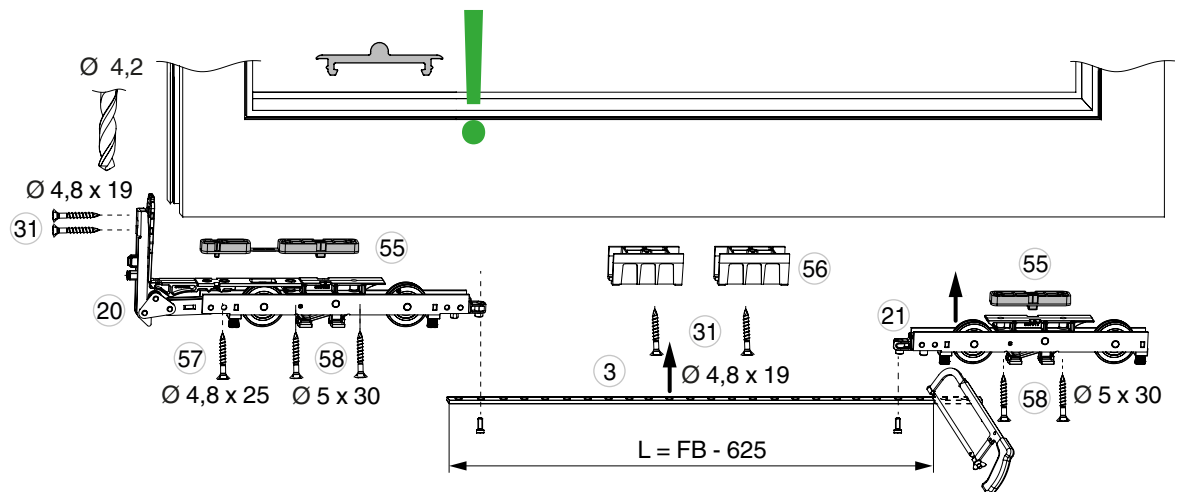
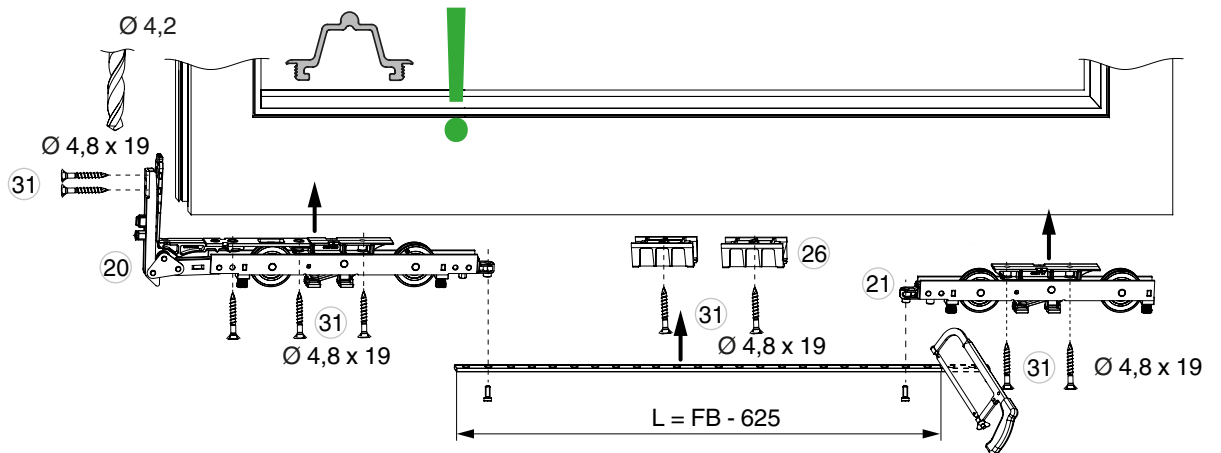
	A	B	C	D
Size 1	221	591	-	-
Size 2 - 3	221	1091	-	-
Size 4	221	809	1689	-
Size 5	221	809	1221	2121



	A	B	C	D
Size 1	211	581	-	-
Size 2 - 3	211	1081	-	-
Size 4	211	799	1679	-
Size 5	211	799	1211	1211

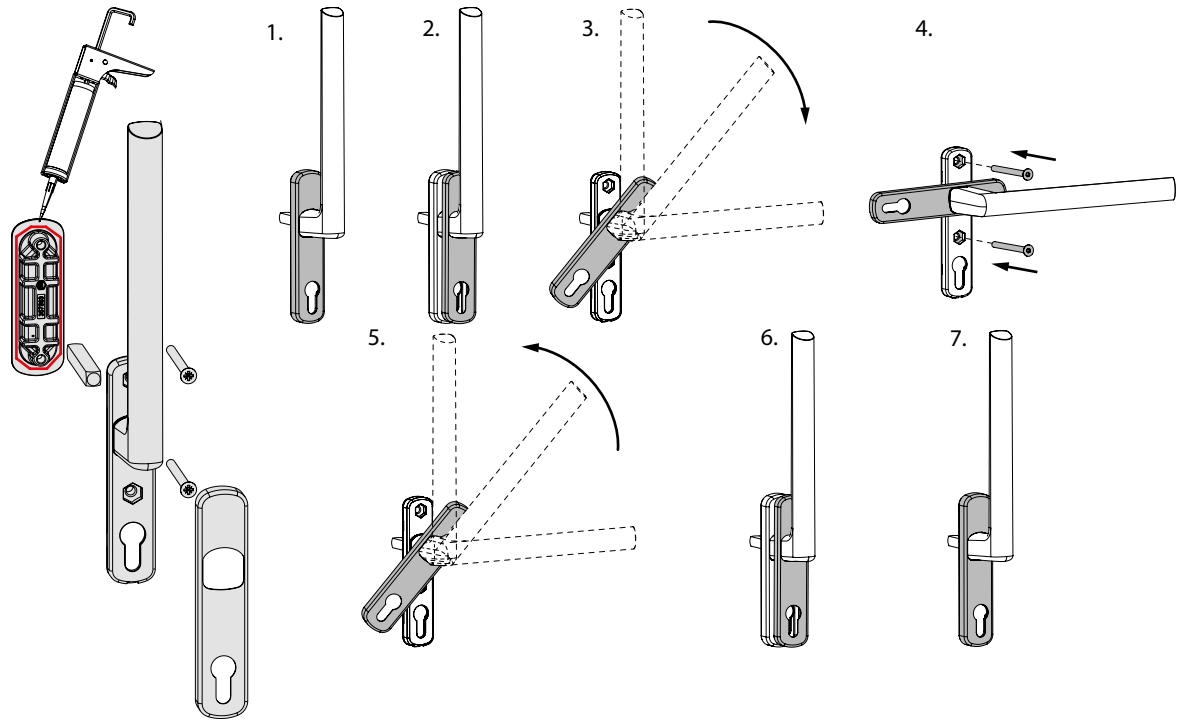
Assembly on the sash

Roller assembly



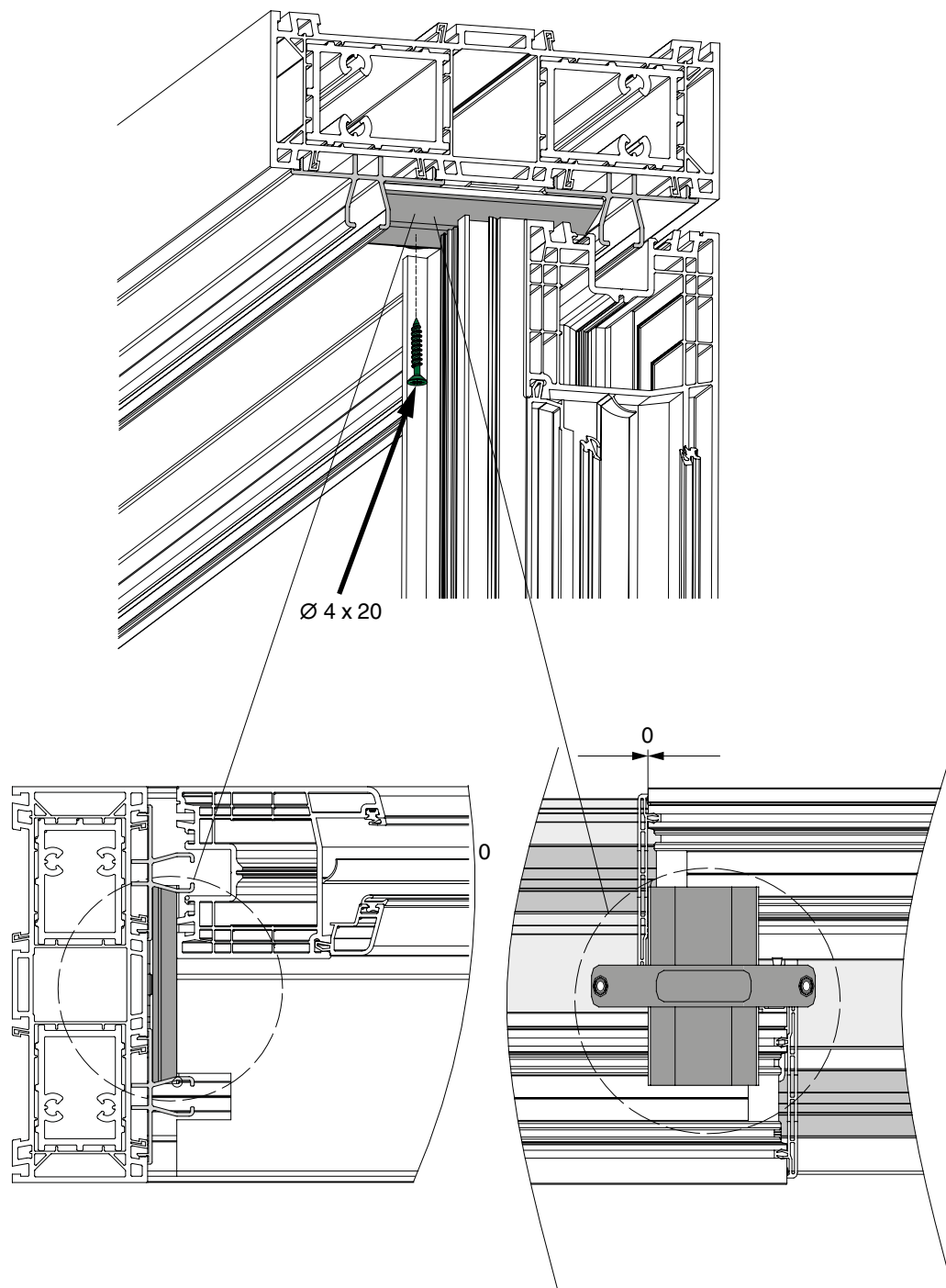
Assembly on the sash

Handle assembly



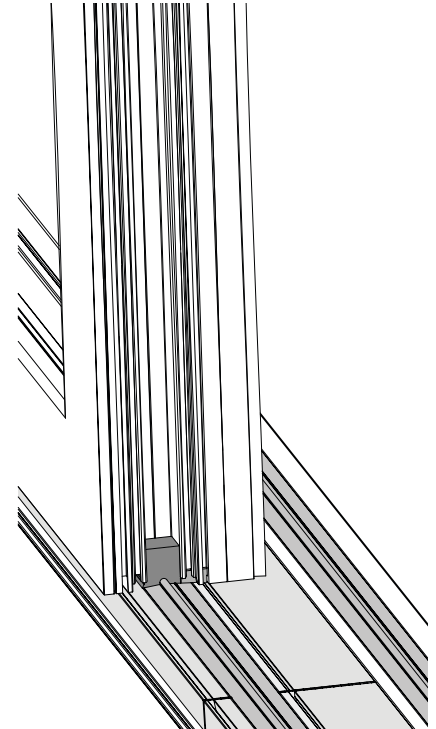
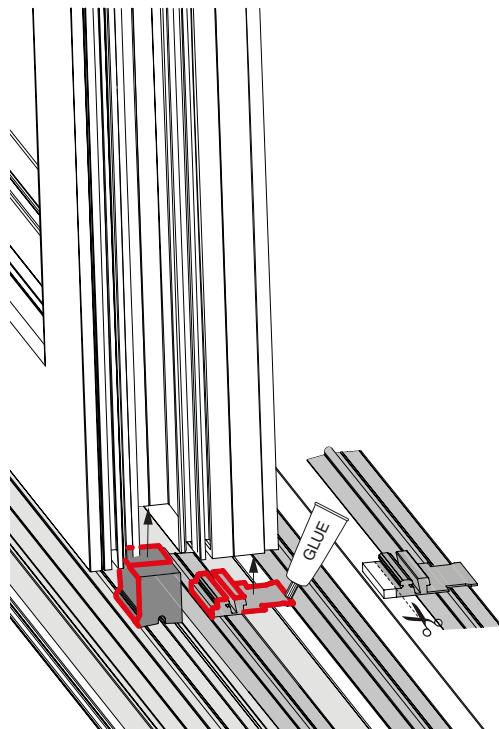
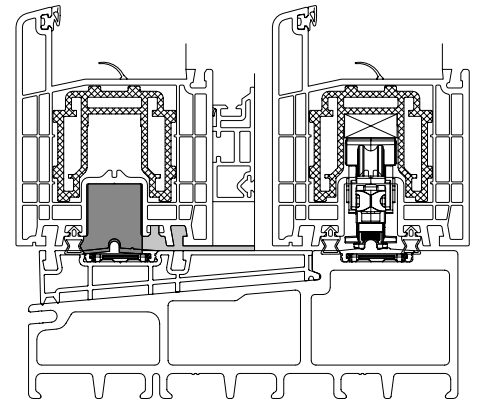
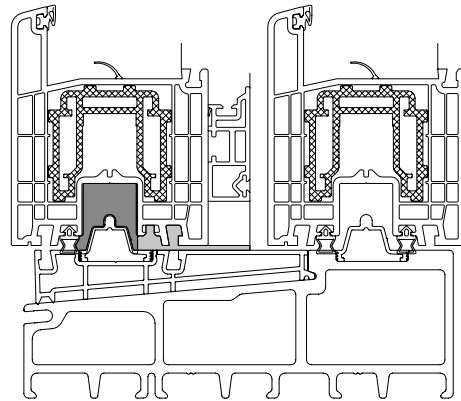
Assembly on the sash and frame

Gasket bridge Scheme D



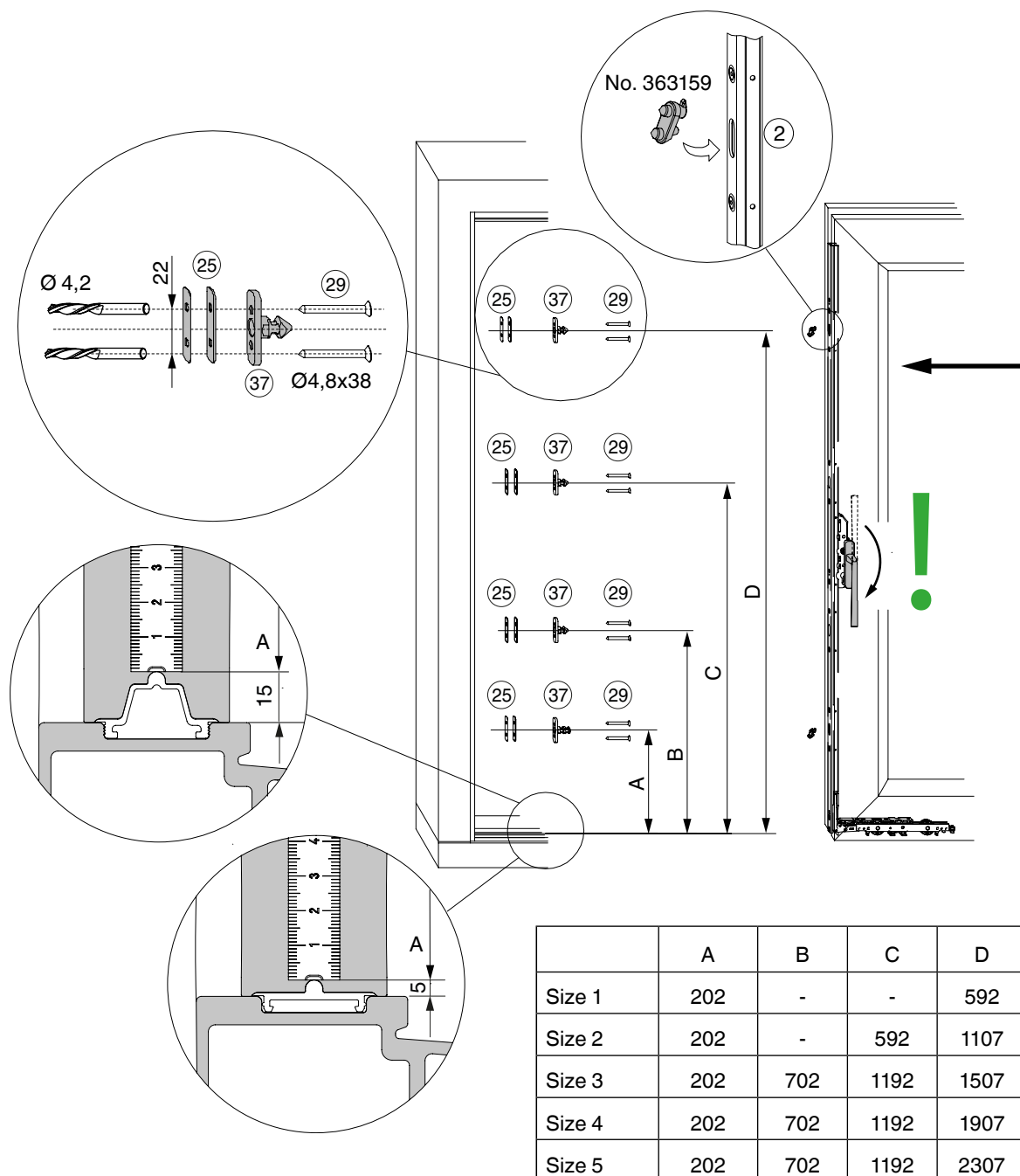
Assembly on the sash and frame

Gasket block Scheme D



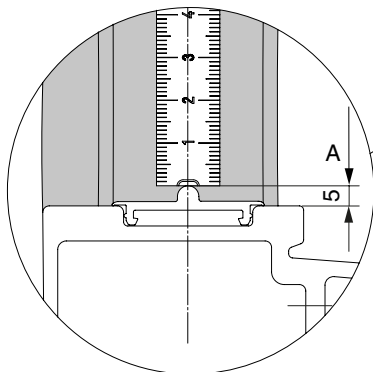
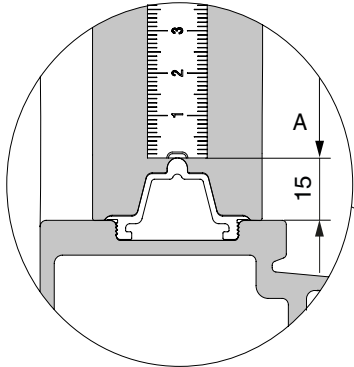
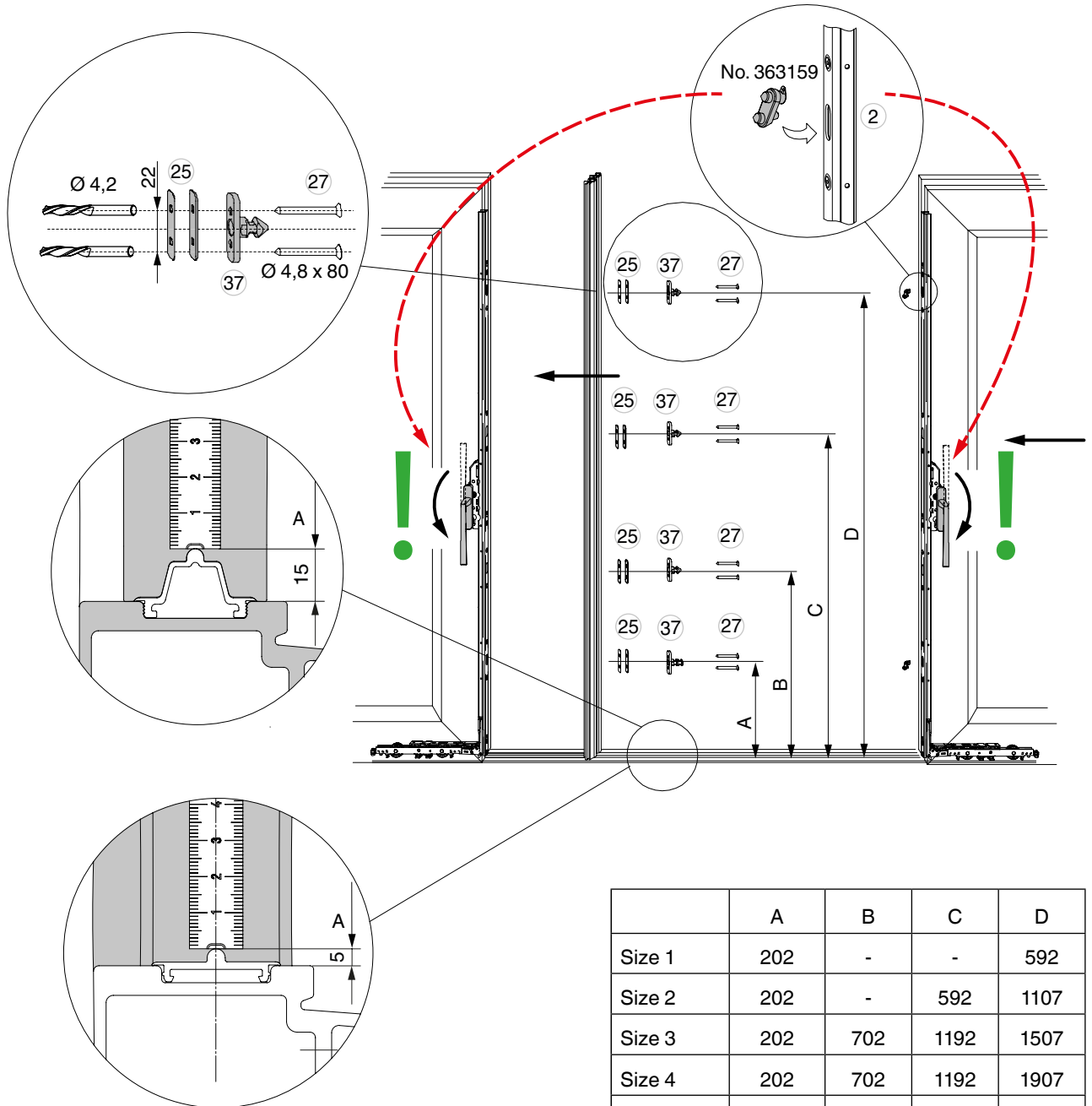
Assembly on the sash and frame

Locking bolts A, K, D



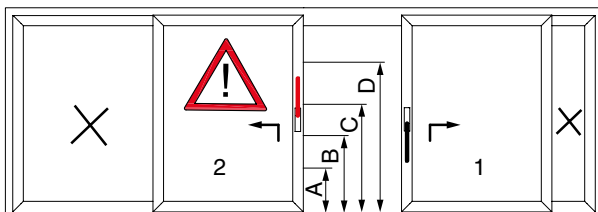
Assembly on the sash and frame

Locking bolt C, G 1



	A	B	C	D
Size 1	202	-	-	592
Size 2	202	-	592	1107
Size 3	202	702	1192	1507
Size 4	202	702	1192	1907
Size 5	202	702	1192	2307

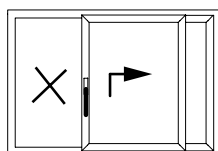
Scheme C



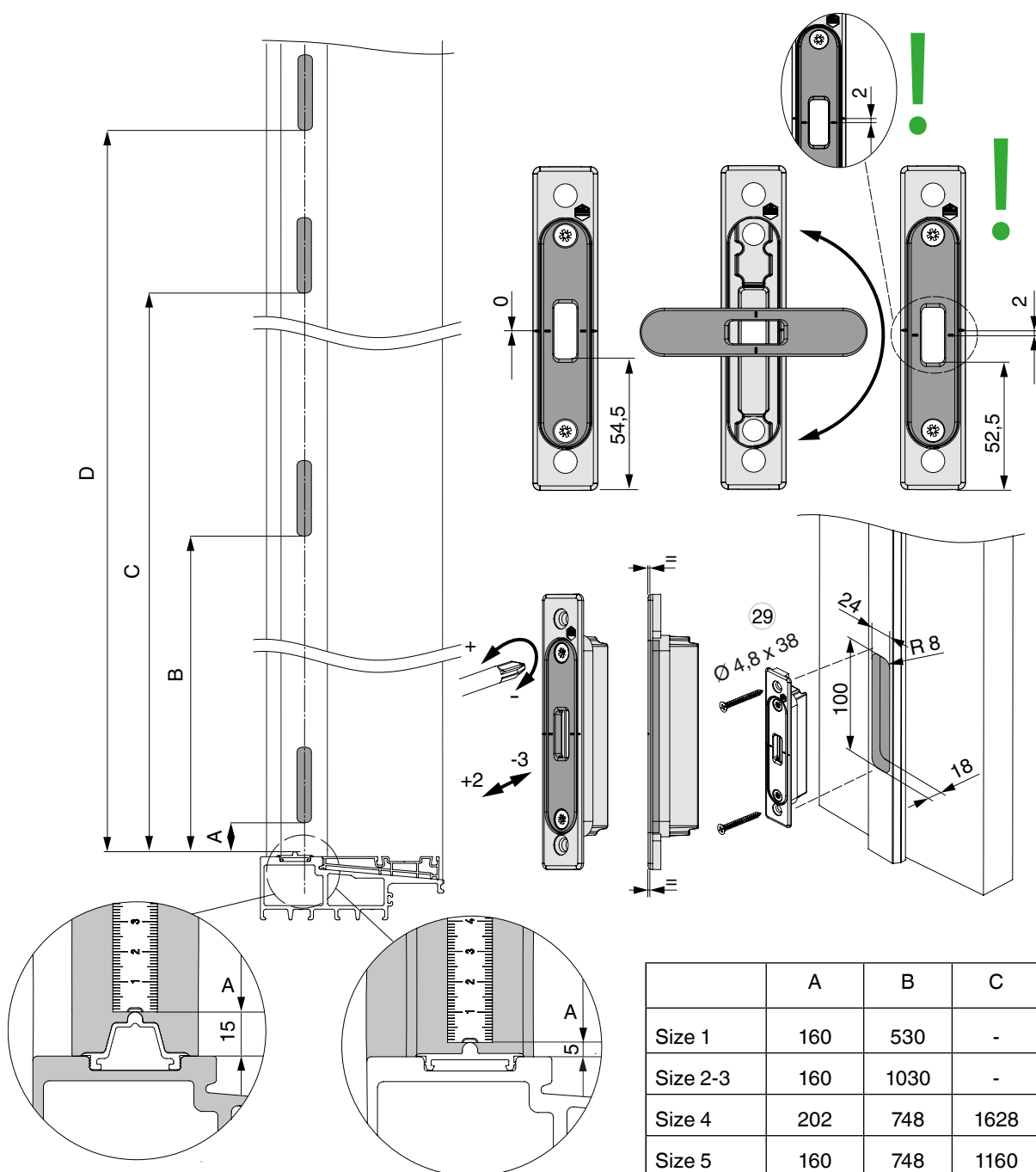
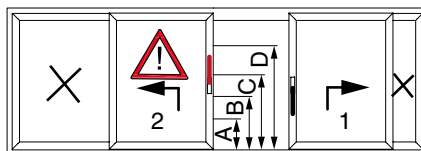
Assembly on the sash and frame

Striker plate for hook drive gear

Scheme A



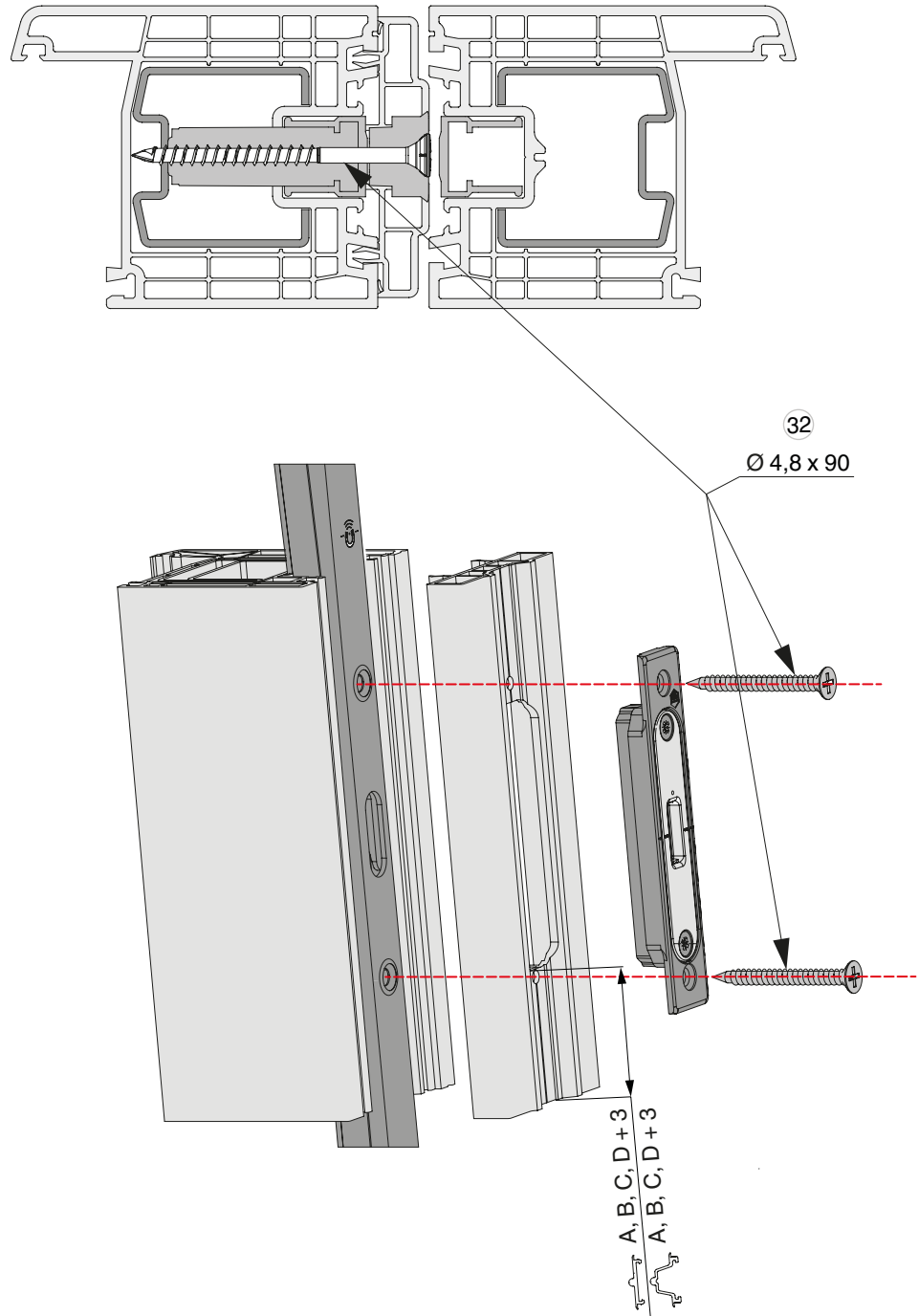
Scheme C



	A	B	C	D
Size 1	160	530	-	-
Size 2-3	160	1030	-	-
Size 4	202	748	1628	-
Size 5	160	748	1160	2060

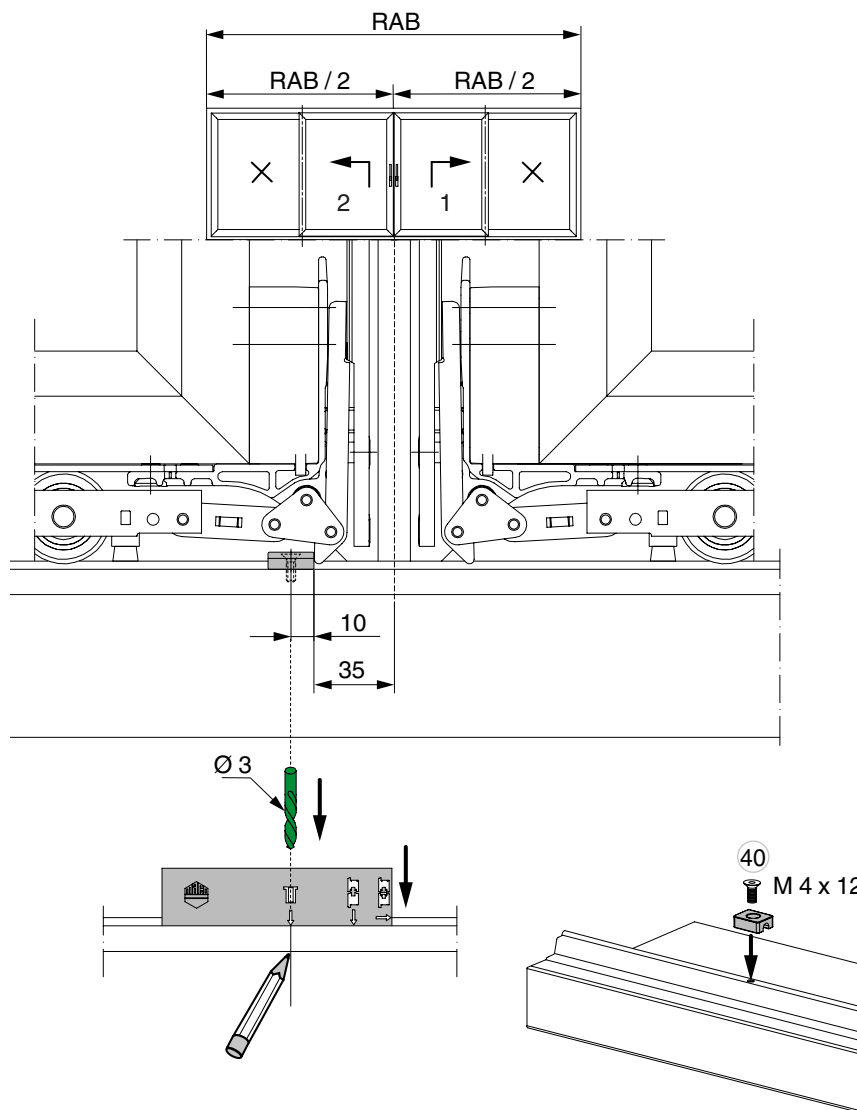
Assembly on the sash and frame

Striker plate for hook drive gear Scheme C, G 1



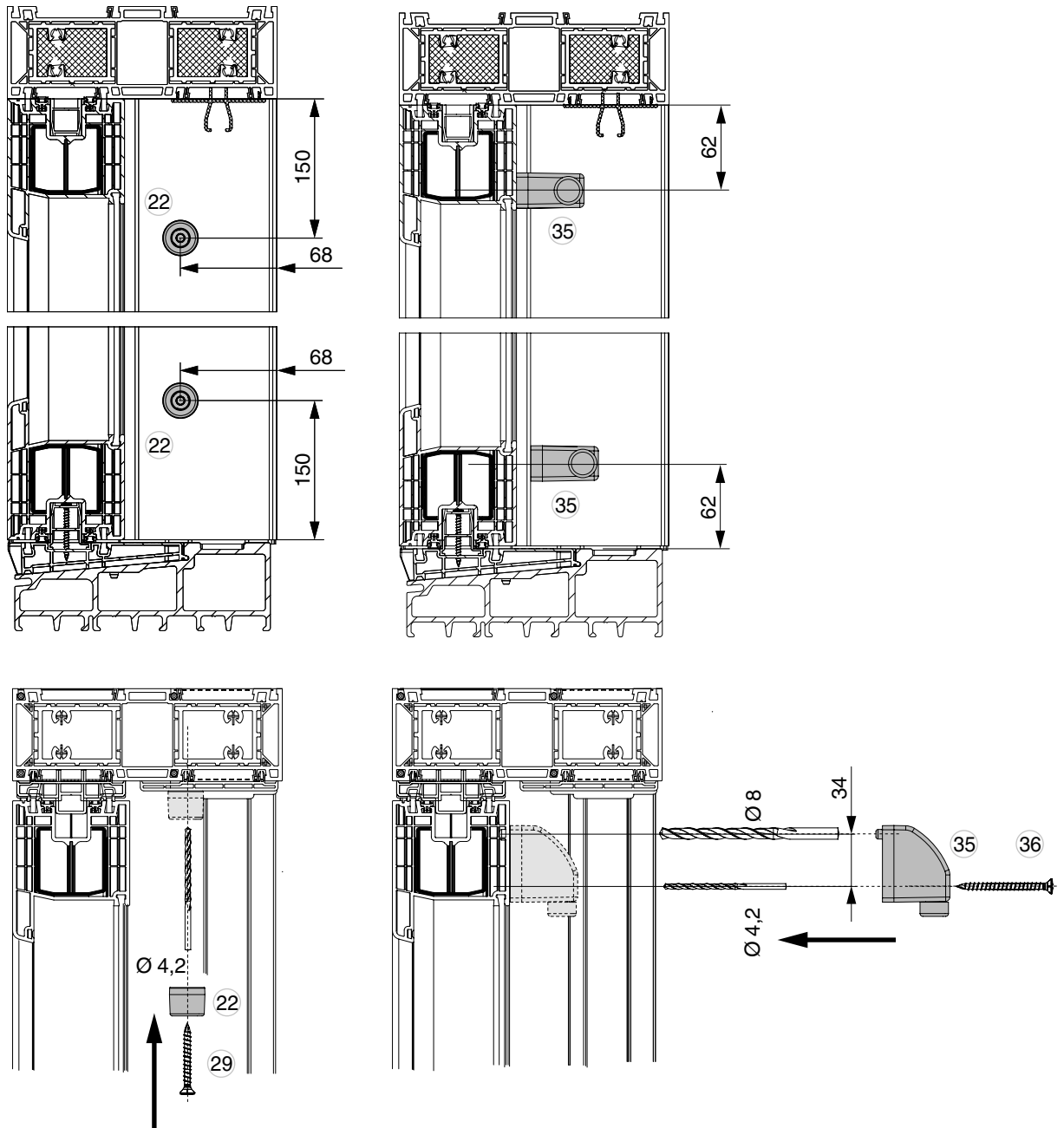
Assembly on the sash and frame

Locking block



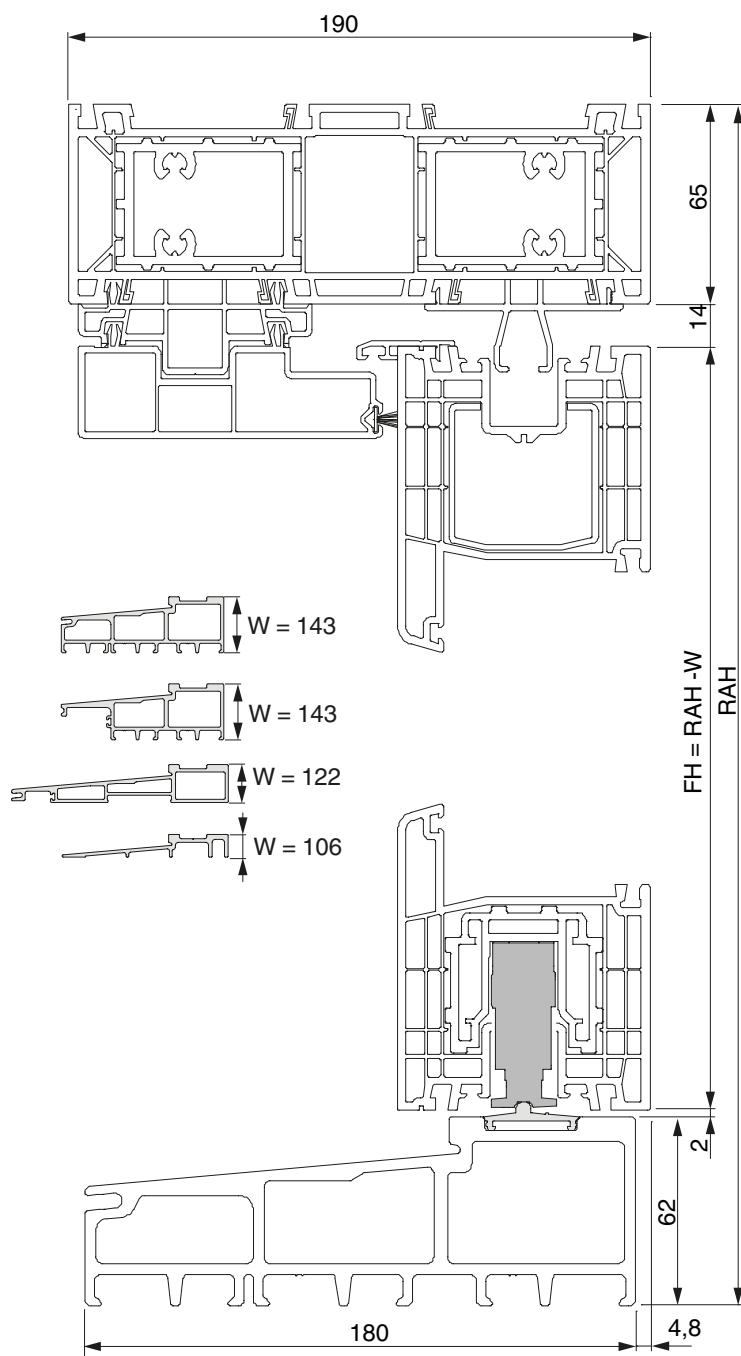
Assembly on the sash and frame

Buffer stop



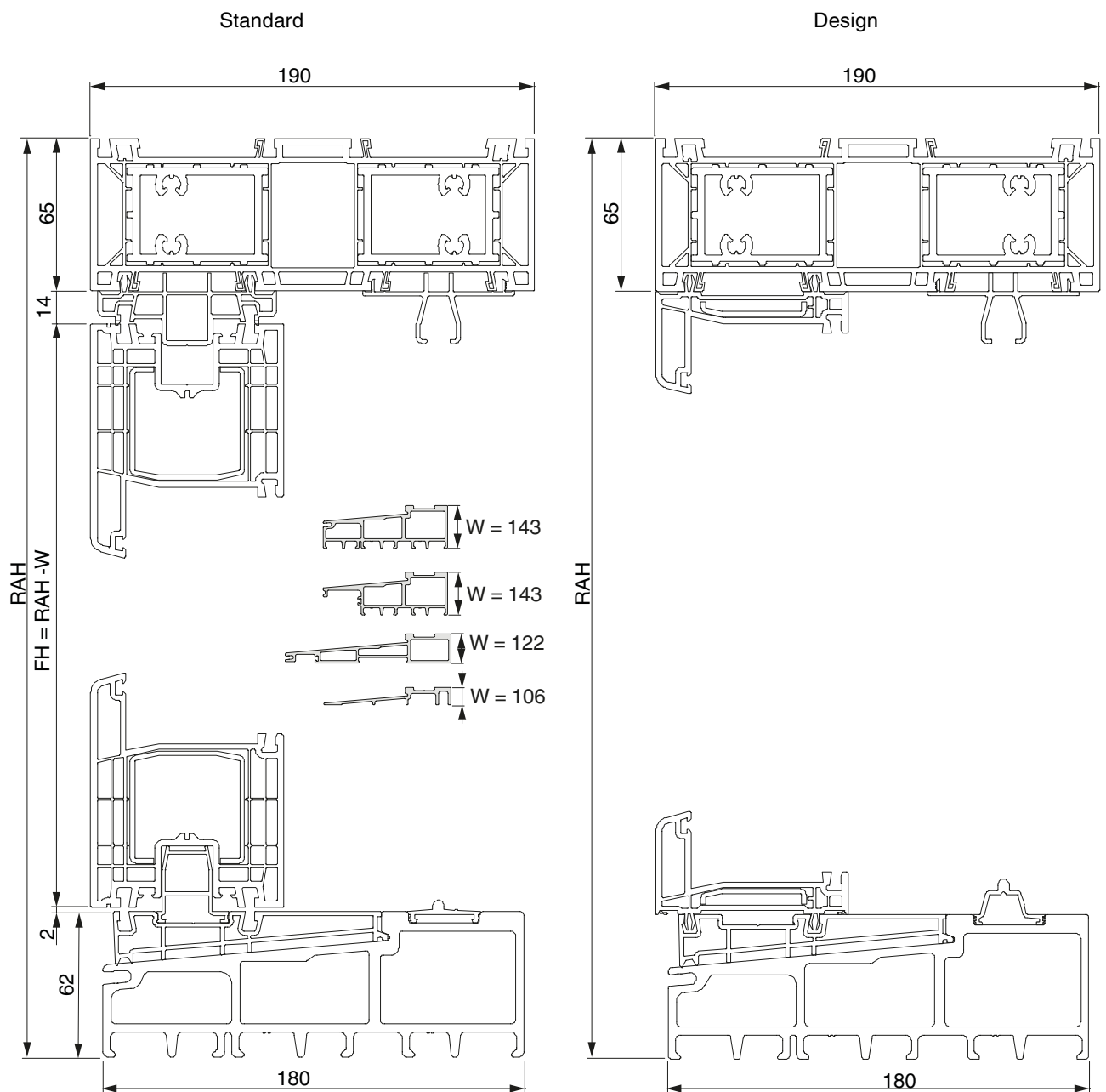
Vertical cross-section

Sliding sash



Vertical cross-section

Fixed sash Standard and fixed sash

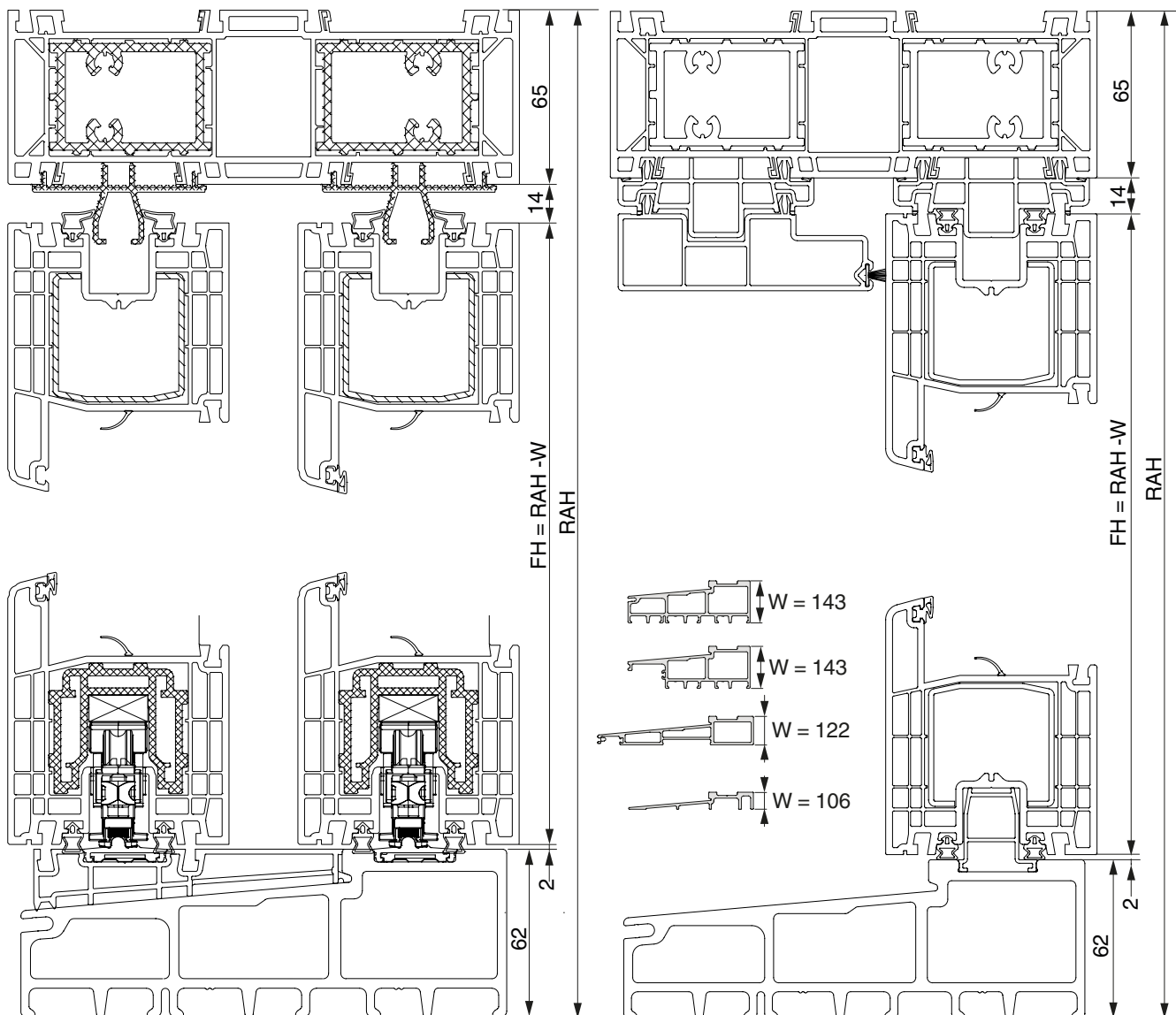


Vertical cross-section

Scheme D, G1

Schema D

Schema G1

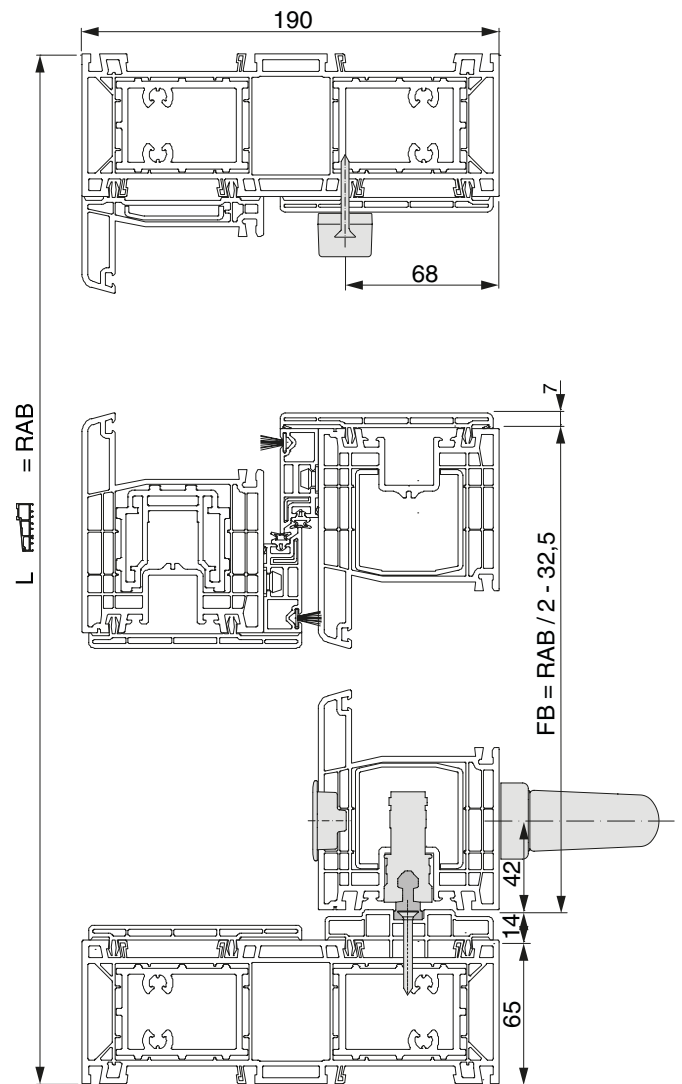
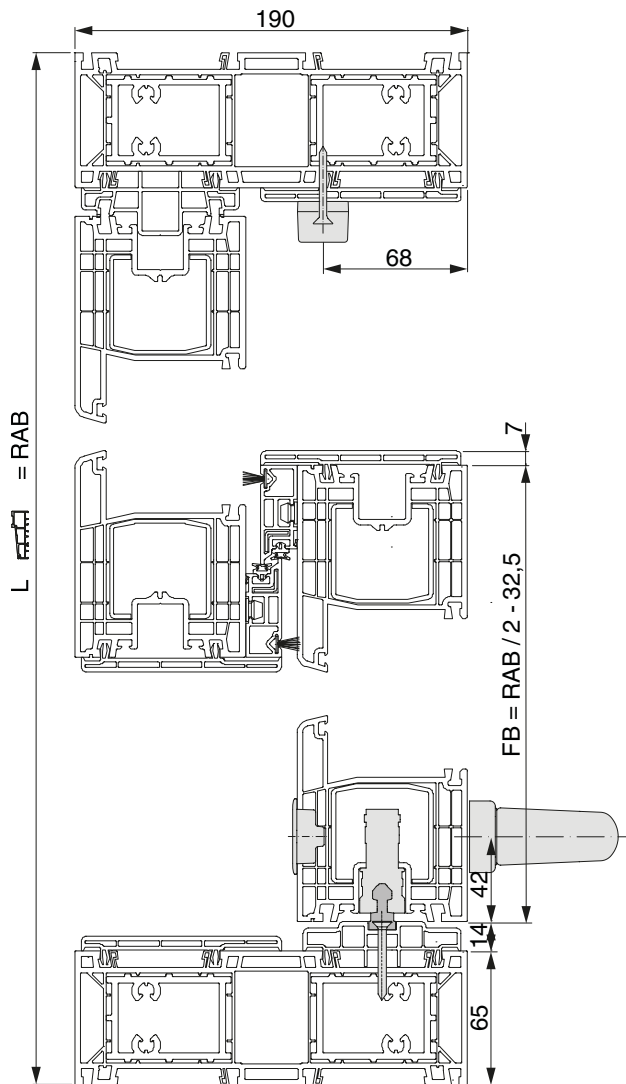


Horizontal cross-section

Scheme A

Standard

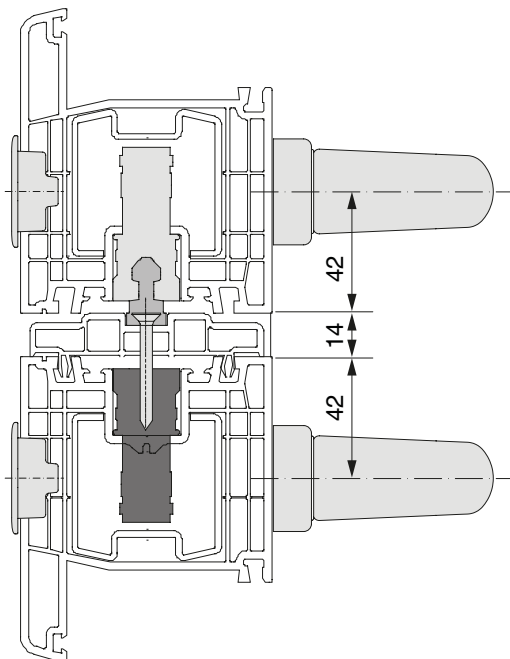
Design



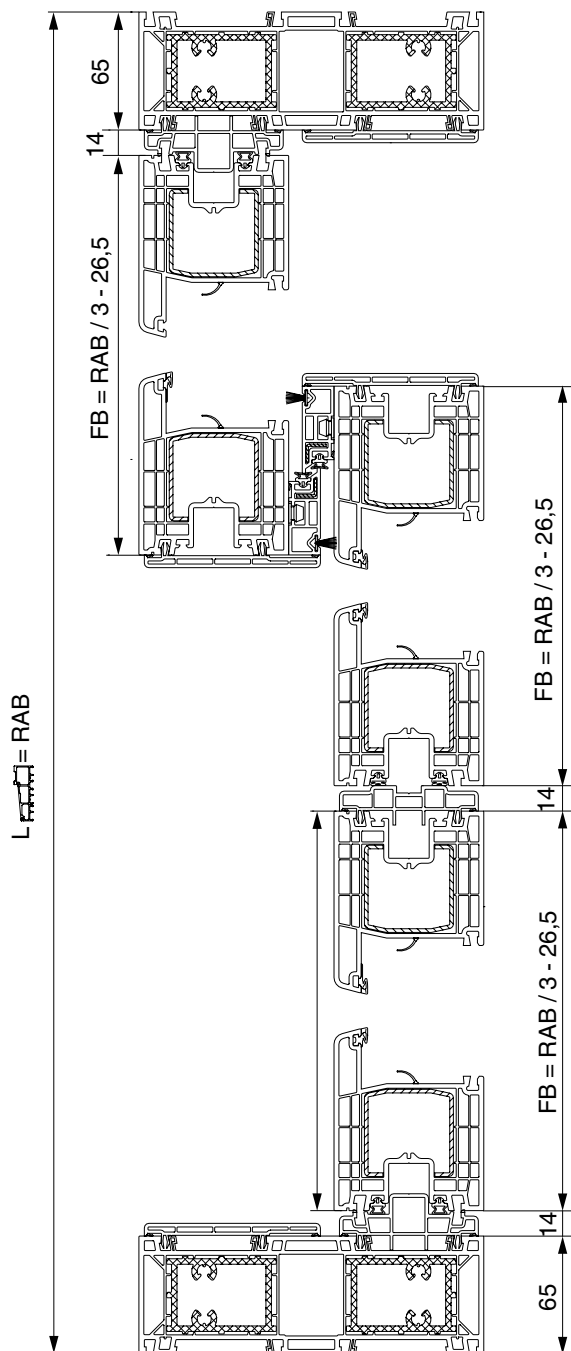
Horizontal cross-section

Scheme C, G1

Scheme C

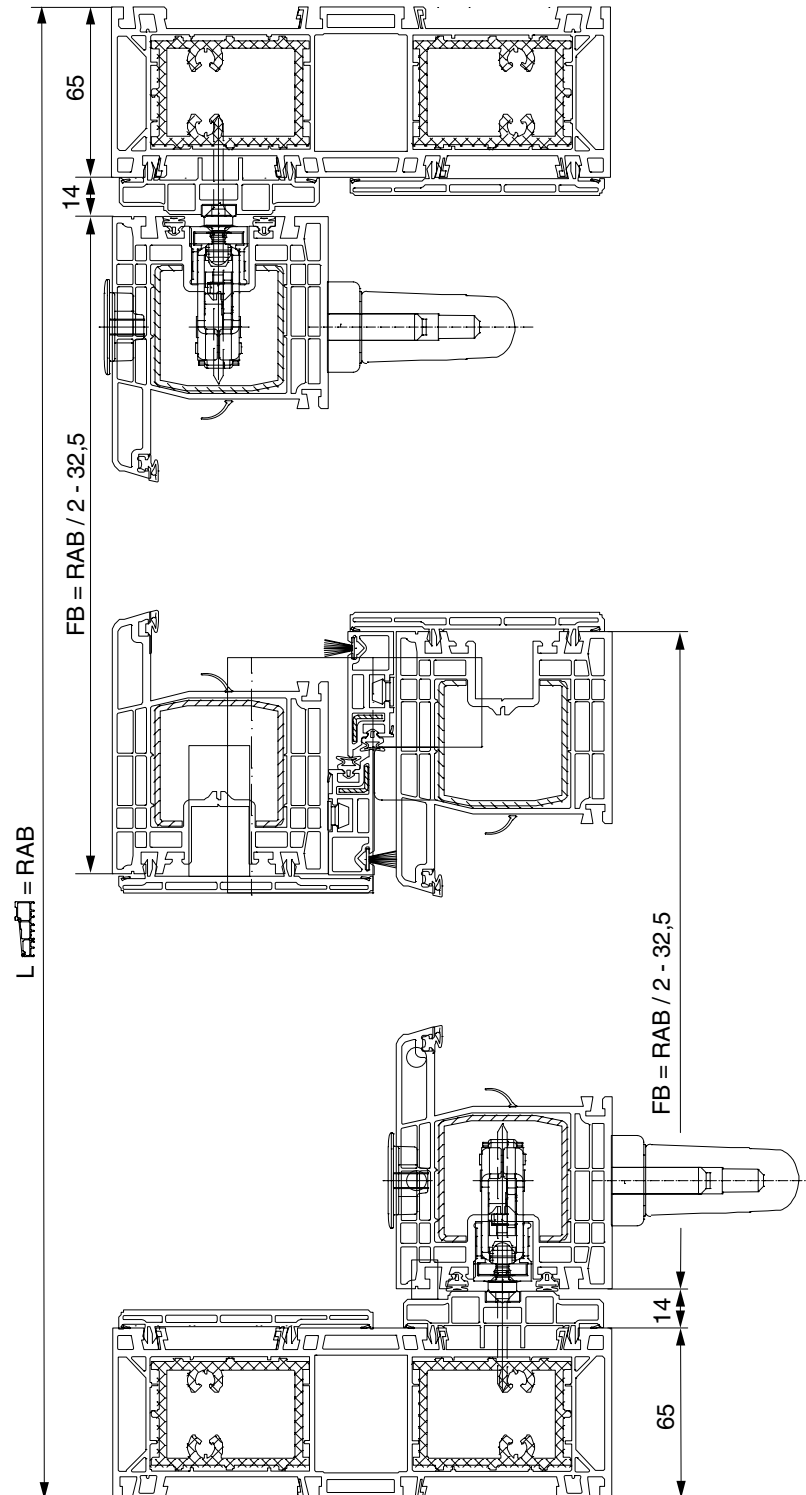


Scheme G1



Horizontal cross-section

Scheme D



**MACO
RAIL-SYSTEMS**



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Satisfied?

We look forward to your
feedback@maco.eu

Created: 08/2015 - Changed: 06.03.2020
Order No. 757964

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