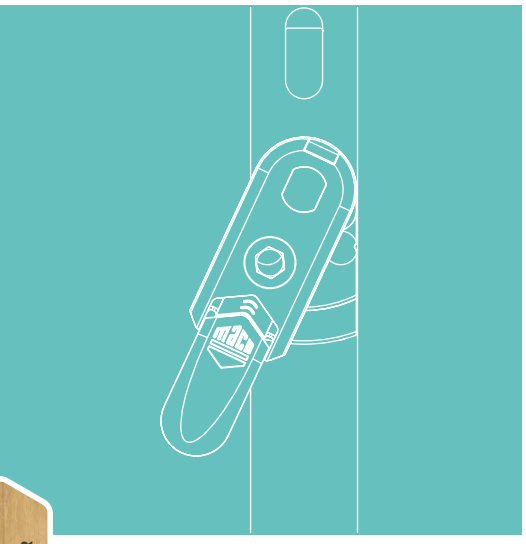
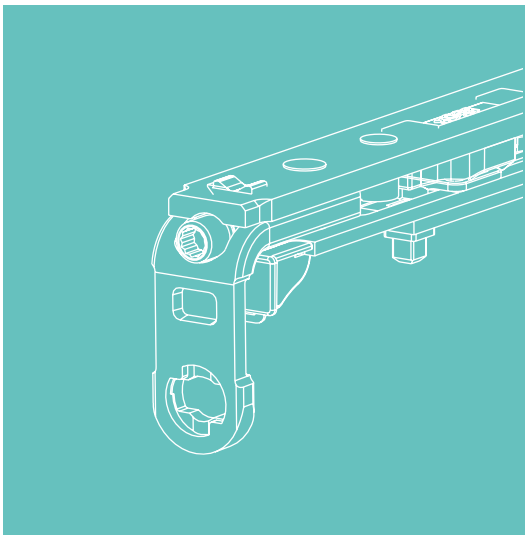
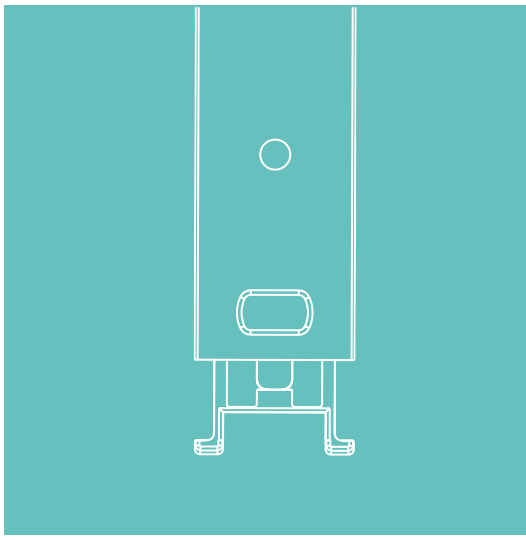
TECHNOLOGY IN MOTION

MACO MULTI-MATIC

TURN AND TILT&TURN HARDWARE







TIMBER

ASSEMBLY INSTRUCTIONS

DT160 - dual-drill holes 160 kg

Use only for certified specialists!

Key and abbreviations

Sash rebate width and height SRW/SRH

Sash rebate width SRW (with standard corner element)

Sash rebate width with short corner element

Sash rebate height SRH (with standard corner element)

Sash rebate height SRH with short corner element

Backset (DM)

Handle height HH

Maximum permissible sash weight

SRW = sash rebate width
SRH = sash rebate height
DT = dual-drill holes
Ü = rebate leg
V = offset (hardware axis)
L = air (= air gap)
TT = turn&tilt unit
T = turn-only unit

Contents

Important Information

Target audience
This documentation is intended exclusively for specialist companies and certified specialists. The work-steps described herein may only be carried out by certified specialists.

Instructions for use

› Unless otherwise indicated, measurements are made in millimetres.

› Assemble all hardware parts professionally as described in these instructions and observe all safety instructions.

› All diagrams are only symbolic.

› Further technical documents can be found in our online catalogue (TOM) at extranet.maco.eu

› This print document is constantly being revised and is available for download in the current version under www.maco.eu.

› Printing errors, mistakes and changes are reserved.

› Please send feedback or suggestions and ideas for improvements on our instructions by email to: feedback@maco.eu.

Material Notes

› The hardware parts described in this guide are made of stainless steel or galvanised passivated steel and sealed in accordance with DIN EN 12329. They must not be used in environments with aggressive, corrosive air content.

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

› The window and casement door elements may only be surface-treated before the hardware is installed. Any subsequent surface treatment may restrict the functionality of the hardware. In this case, no warranty claims can be made against the hardware manufacturer.

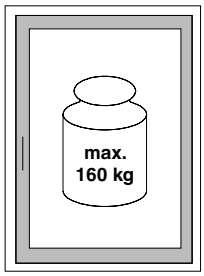
Systembezeichnungen

› DT > Doppeltopf-Ausführung

Processing information

These assembly instructions for the hinge-side dual-drill holes 160 kg can only be used for processing timber. The application ranges, sash weights and processing guidelines of the profile manufacturer are binding and must be observed.
The centre of gravity and the position of the glass pane can affect the application range and max. weight and must be requested where required.

① Maximum sash weight



② Minimum and maximum application ranges

≤ 1,650 x 2,600 mm

≥ 320 mm

≥ 260 mm

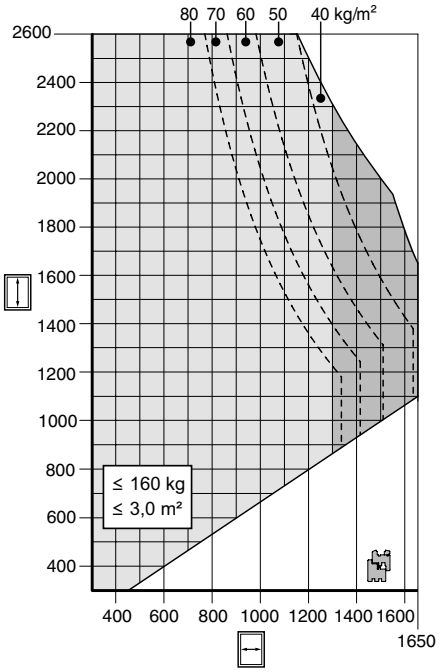
≥ 360 mm (15)
≥ 455 mm (6.5)

≥ 470 mm (15)
≥ 530 mm (6.5)

≥ 270 mm (15)
≥ 365 mm (6.5)

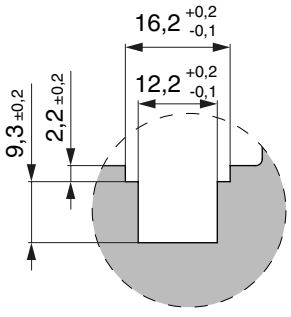
≥ 380 mm (15)
≥ 450 mm (6.5)

③ Application diagram

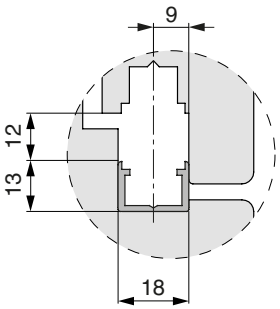


④ Eurogroove

The Eurogroove must conform to these specifications.



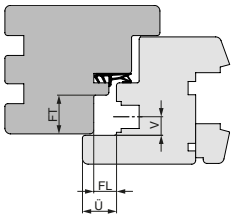
French window sash with aluminium groove



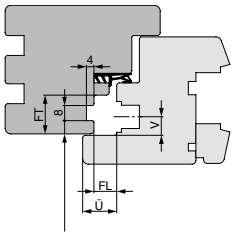
⑤ Recommendations for timber profiles

Single sash

Euro-rebate system

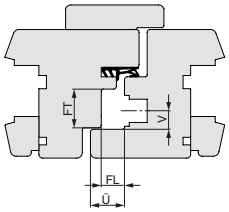


Hardware groove system

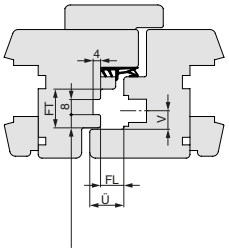


Double sash (French window sash)

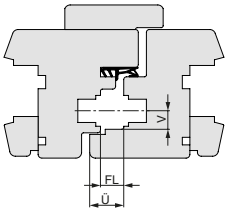
with Euro-rebate



with hardware groove



with Eurogroove

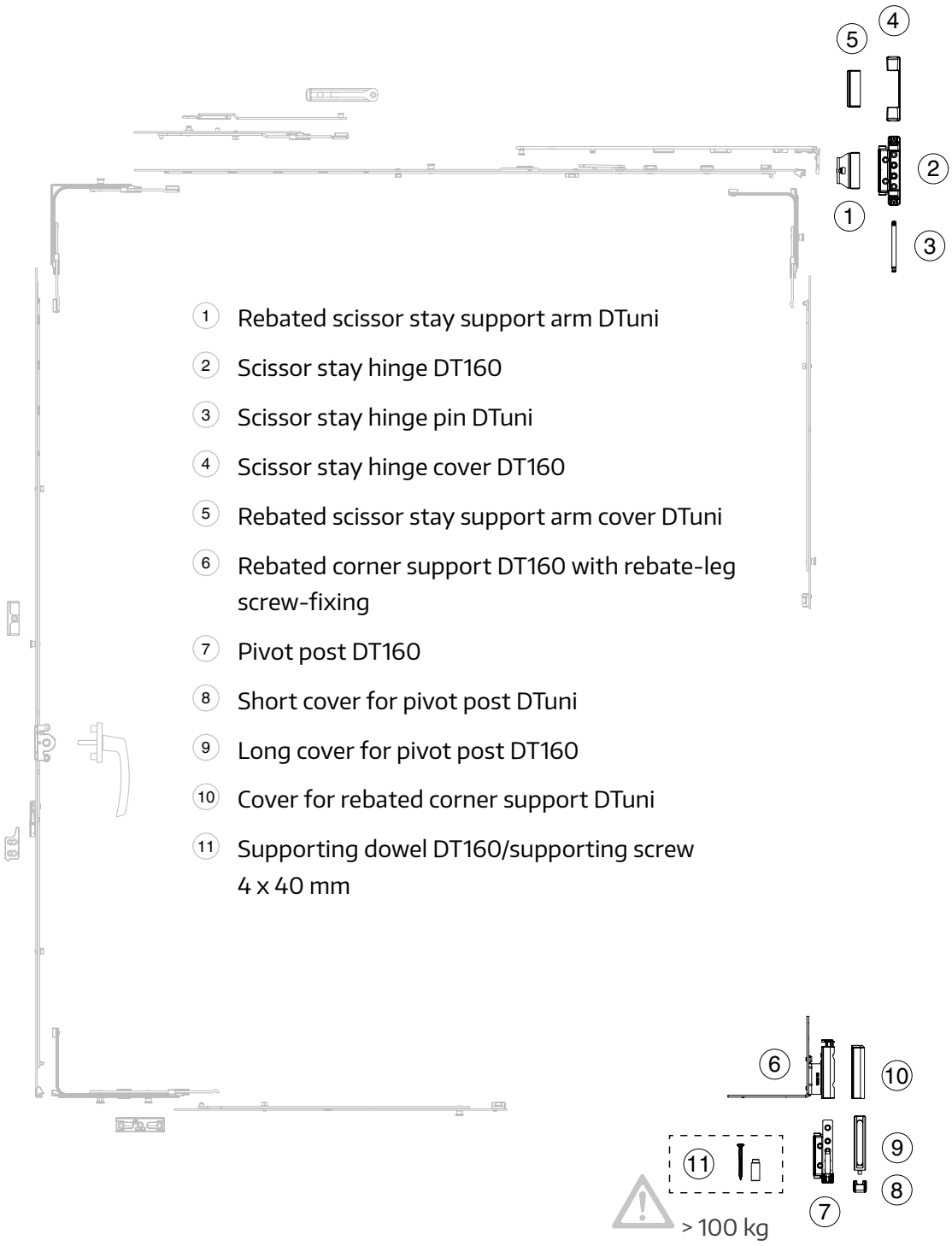


Possible values for air gap, rebate depth, offset and rebate leg:

FL = air gap: 4 or 12 mm
Ü = rebate leg: 15 or 18 mm (4L) / 18 or 20 mm (12L)
V = offset: 9 or 13 mm
FT = rebate depth: 18 or 20 mm (9V) / 22, 24 or 30 mm (13V)

Hardware overview

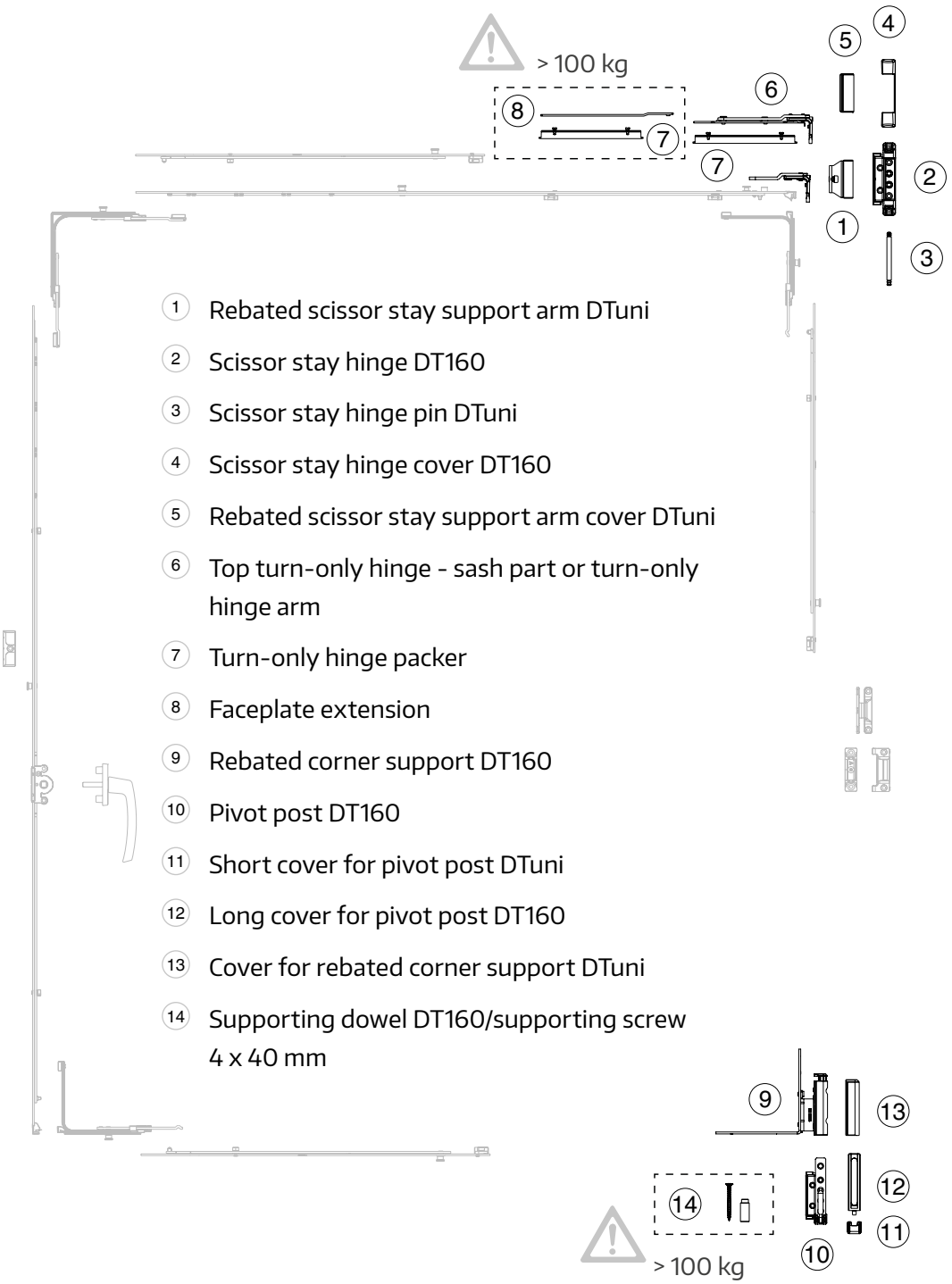
Overview single sash rectangular, turn&tilt window



1. Rebated scissor stay support arm DTuni
2. Scissor stay hinge DT160
3. Scissor stay hinge pin DTuni
4. Scissor stay hinge cover DT160
5. Rebated scissor stay support arm cover DTuni
6. Rebated corner support DT160 with rebate-leg screw-fixing
7. Pivot post DT160
8. Short cover for pivot post DTuni
9. Long cover for pivot post DT160
10. Cover for rebated corner support DTuni
11. Supporting dowel DT160/supporting screw 4 x 40 mm

Hardware overview

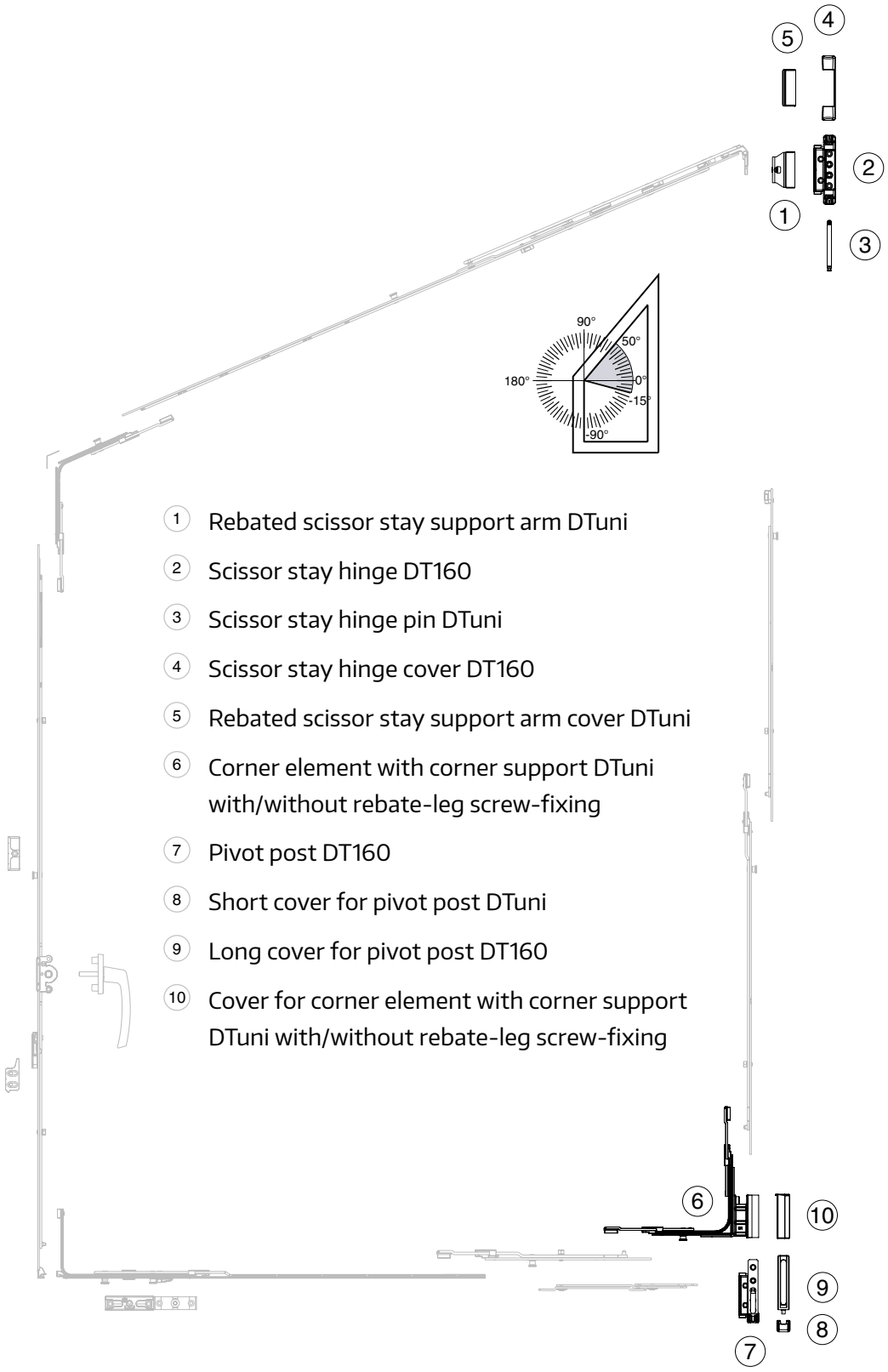
Overview single sash rectangular, turn-only window



1. Rebated scissor stay support arm DTuni
2. Scissor stay hinge DT160
3. Scissor stay hinge pin DTuni
4. Scissor stay hinge cover DT160
5. Rebated scissor stay support arm cover DTuni
6. Top turn-only hinge - sash part or turn-only hinge arm
7. Turn-only hinge packer
8. Faceplate extension
9. Rebated corner support DT160
10. Pivot post DT160
11. Short cover for pivot post DTuni
12. Long cover for pivot post DT160
13. Cover for rebated corner support DTuni
14. Supporting dowel DT160/supporting screw 4 x 40 mm

Hardware overview

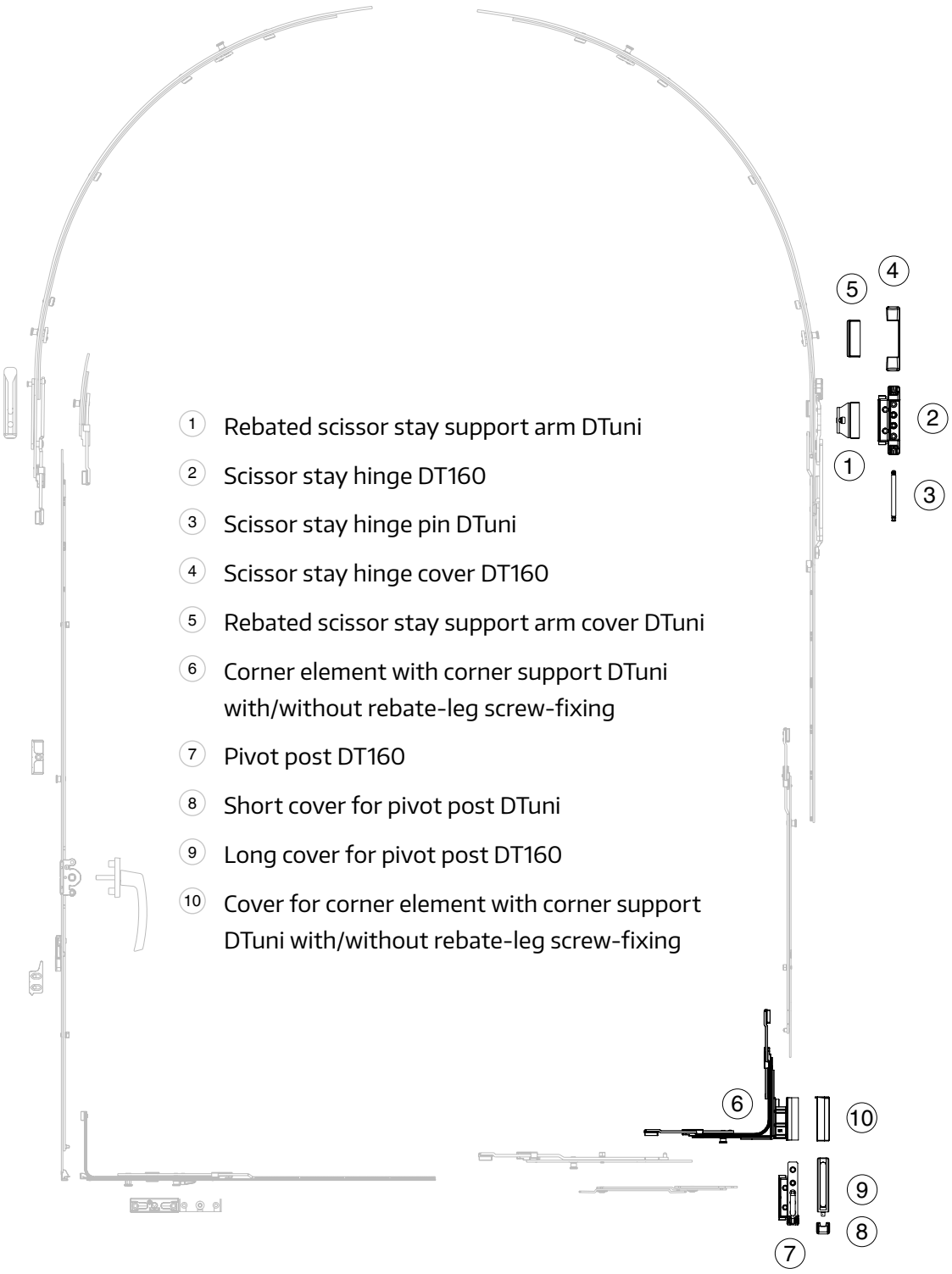
Overview single sash pitched window, turn&tilt window



1. Rebated scissor stay support arm DTuni
2. Scissor stay hinge DT160
3. Scissor stay hinge pin DTuni
4. Scissor stay hinge cover DT160
5. Rebated scissor stay support arm cover DTuni
6. Corner element with corner support DTuni with/without rebate-leg screw-fixing
7. Pivot post DT160
8. Short cover for pivot post DTuni
9. Long cover for pivot post DT160
10. Cover for corner element with corner support DTuni with/without rebate-leg screw-fixing

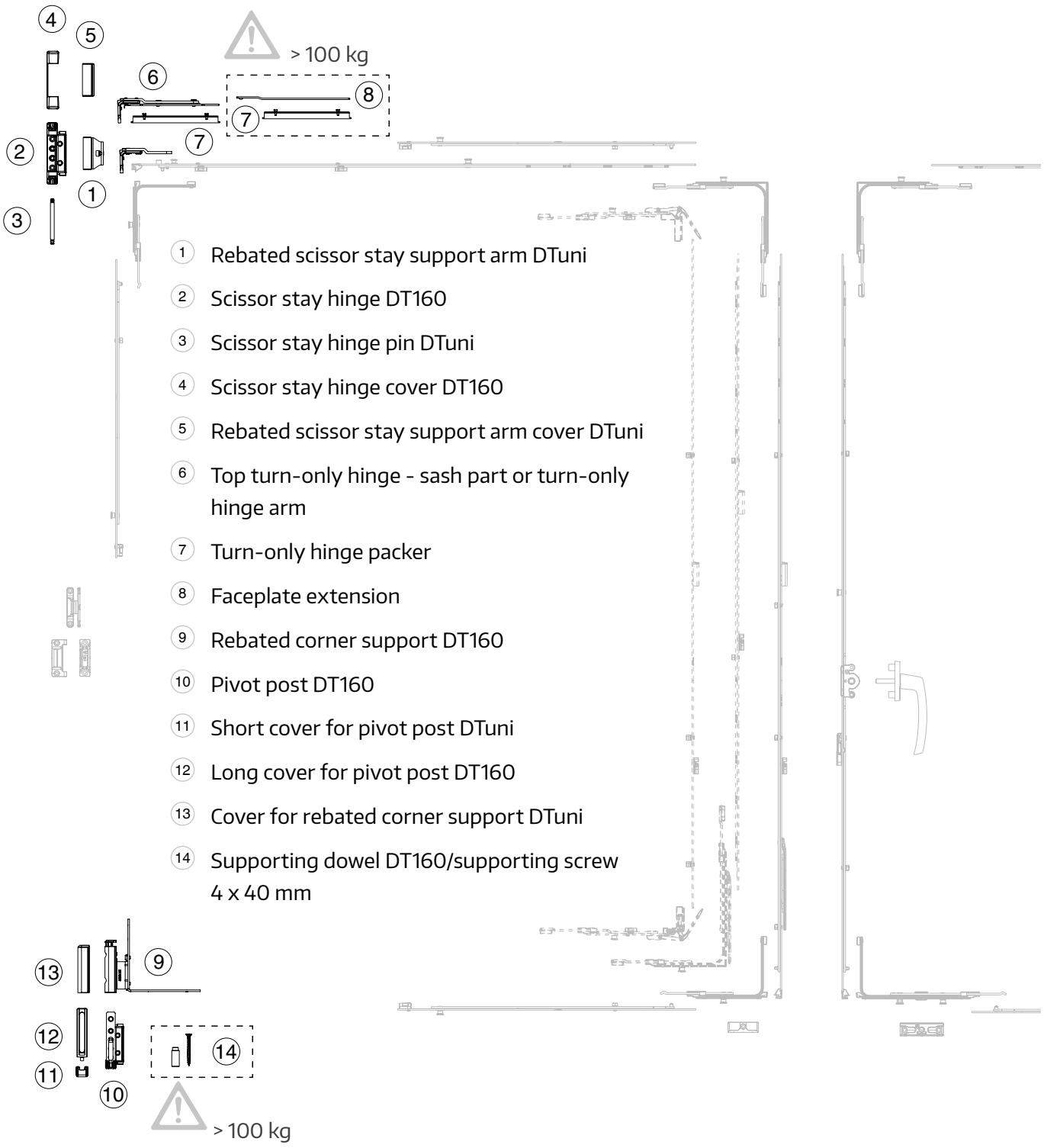
Hardware overview

Overview single sash half round window, turn&tilt window



Hardware overview

Overview double sash rectangular, turn-only/turn&tilt window

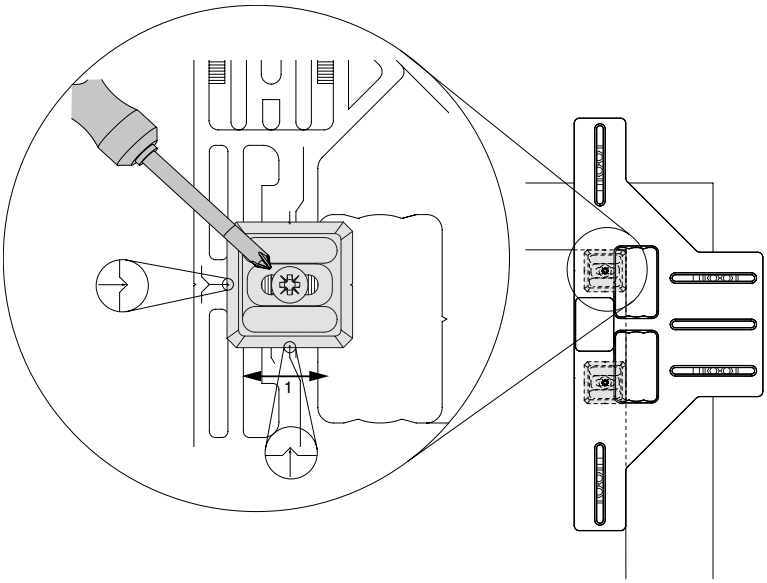


1. Rebated scissor stay support arm DTuni
2. Scissor stay hinge DT160
3. Scissor stay hinge pin DTuni
4. Scissor stay hinge cover DT160
5. Rebated scissor stay support arm cover DTuni
6. Top turn-only hinge - sash part or turn-only hinge arm
7. Turn-only hinge packer
8. Faceplate extension
9. Rebated corner support DT160
10. Pivot post DT160
11. Short cover for pivot post DTuni
12. Long cover for pivot post DT160
13. Cover for rebated corner support DTuni
14. Supporting dowel DT160/supporting screw 4 x 40 mm

Installation of the frame hardware components

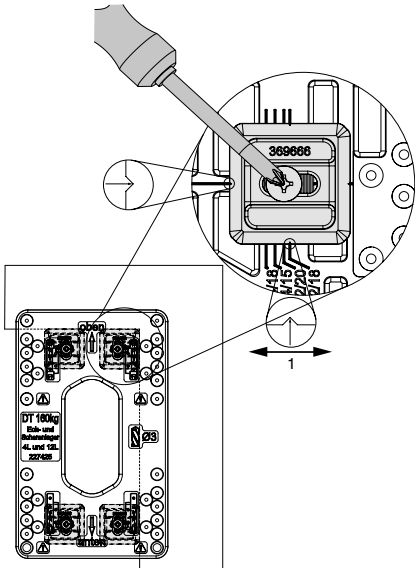
Setting the jigs

Drilling jig Art No. 20890 for dual-drill holes with stop piece DT 160 (Art. No. 370313)



Remove the DT130 pre-mounted stop pieces (Art. No. 41862) and fit the DT160 stop pieces (Art. No. 370313). Adjust the notches (1) to the profile used. Fix the stop pieces in place.

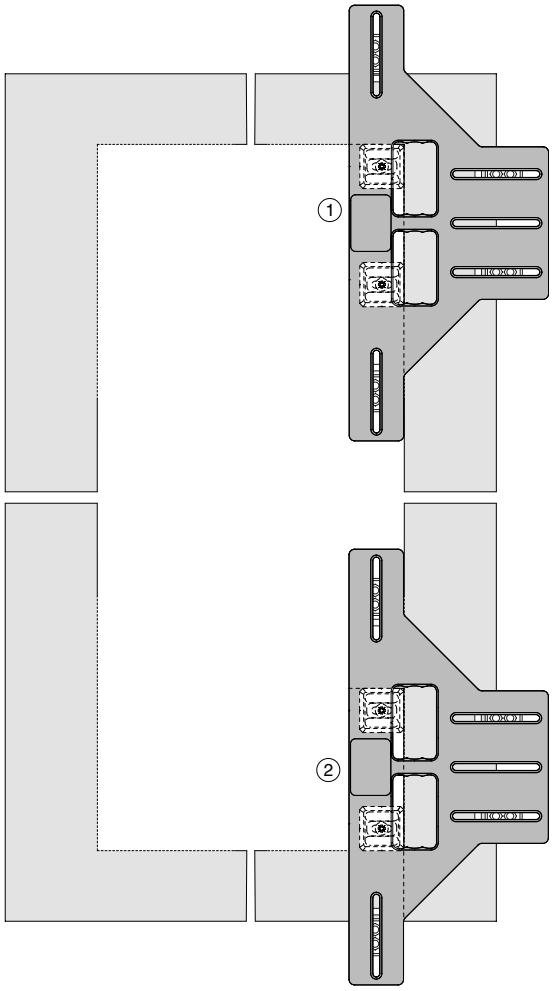
Drilling jig Art. No. 227425 for screw pattern



Unscrew the screws of the stop pieces.
Adjust the notches (1) to the profile used.
Fix the stop pieces in place.

Installation of the frame hardware components

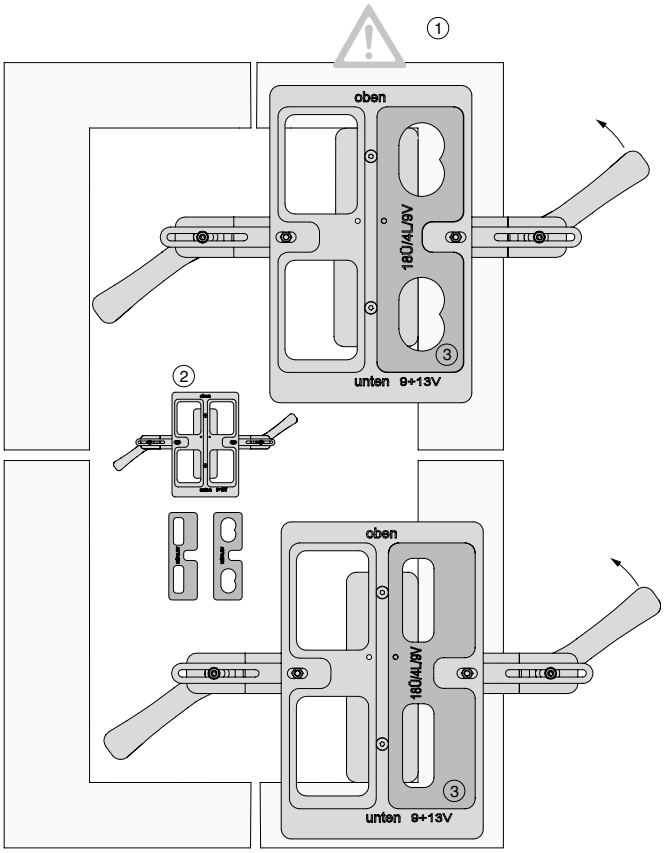
Drill holes for dual-drill holes pattern 12-gap with jig



1. Place milling jig Art. No. 20890 in the frame rebate corner and drill the dual-drill holes for the pivot post/ scissor stay hinge using a Ø 34 mm milling cutter and Ø 40 mm guide-ring.
   Depth of the drill hole 8 mm.
2. The pivot post and scissor stay hinge can be drilled on the right or left using the same jig setting.

Installation of the frame hardware components

Routing for 4-gap with jig



1 Mill the scissor stay area to 12 mm air gap.

2 Clamp the routing jig in the frame rebate.

The pivot post and scissor stay hinge can be milled on the right or left using the same jig setting.

3 Insert routing jig insert for dual-drill holes or 4-gap routing according to profile and route with Ø 16 mm milling cutter and Ø 27 mm guide ring.

4L/15Ü-9V = Item no. 101551 + 101550

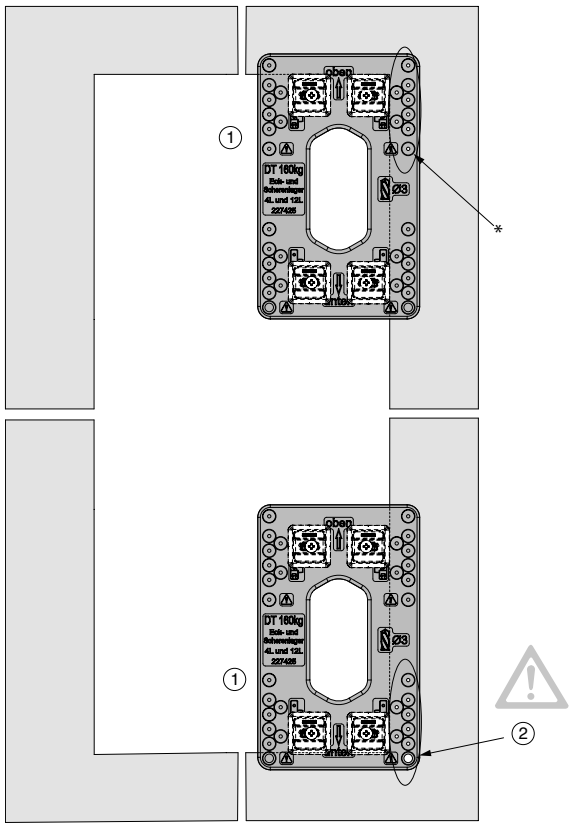
4L/18Ü-9V = Item no. 101550

4L/18Ü-13V = Item no. 102890

4L/15Ü-9V = For 4-gap routing, use 4L routing jig insert from package item no. 101550. For dual-drill holes routing, use DT routing jig insert from package item no. 101551.

Installation of the frame hardware components

Drill holes for screw pattern 4-gap and 12-gap with jig



1 Place drilling jig Art. No. 227425 in the correct position (top/bottom) in the frame rebate corner. Use a Ø 3 mm drill to pre-drill the drill holes.

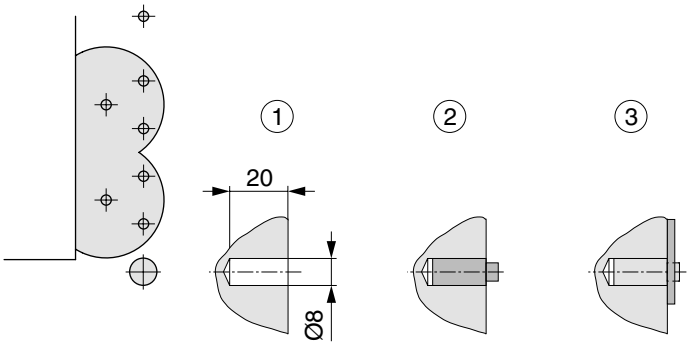
* Lower drill hole not necessary

2 See following page.

Installation of the frame hardware components

Drill holes for screw pattern with jig

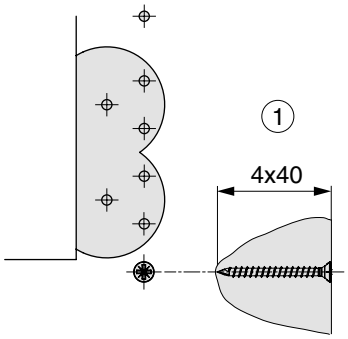
Windows and casement doors
Use supporting dowel Art. No. 369535 for a sash weight greater than 100 kg.



1. Drill the lowest drill hole with an Ø 8 mm drill. Depth of the drill hole 20 mm.
2. Insert the supporting dowel so it is flush, the upper section must protrude.
3. This section must engage in the drill hole of the pivot post.

In the case of thresholds, the threshold must be able to support the load, otherwise position the pivot post upwards by 16 mm and use a supporting dowel.

Alternatives for casement doors
A supporting screw (screw in flush) can be used for casement doors for a sash weight greater of 100 to 130 kg.



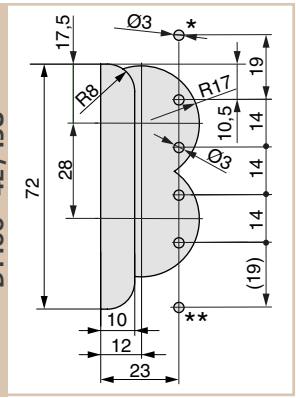
1. Use a Ø 8 mm drill to mark the lowest drill hole and pre-drill and countersink with Ø 3 mm.

   Screw in the screw so it is flush with the surface of the frame.

Installation of the frame hardware components

Drill, routing and screw patterns - scissor stay hinge DT160

DT160 - 4L / 15Ü

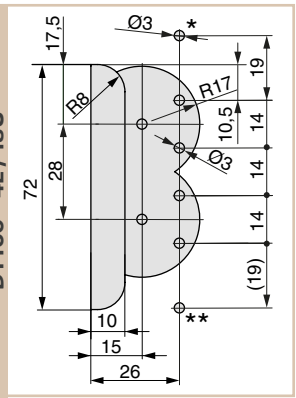


Drilling depth of the DT drill hole 8 mm.

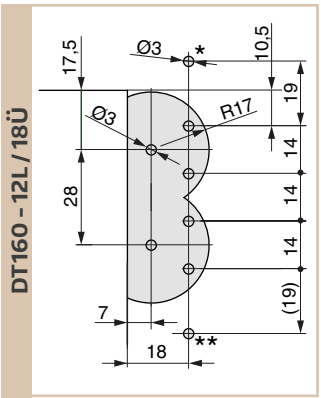
Depth of the 4-gap routing:
9V = 20 mm
13V = 24 mm

* always required
** Not required

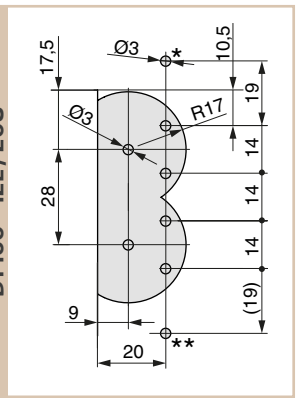
DT160 - 4L / 18Ü



DT160 - 12L / 18Ü



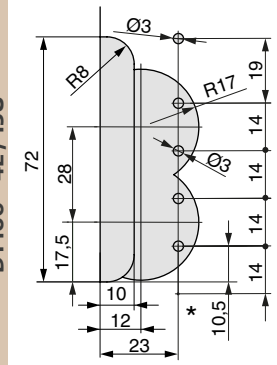
DT160 - 12L / 20Ü



Installation of the frame hardware components

Drill, routing and screw patterns - pivot post DT160

DT160 - 4L / 15Ü

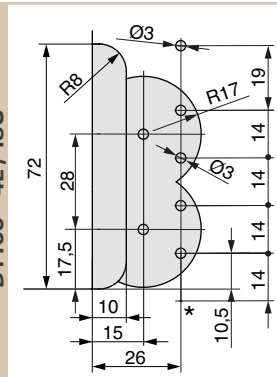


Drilling depth of the DT drill hole 8 mm

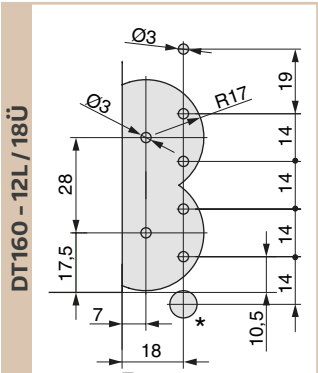
Depth of the 4-gap routing:
9V = 20 mm
13V = 24 mm

* Supporting dowel/supporting screw

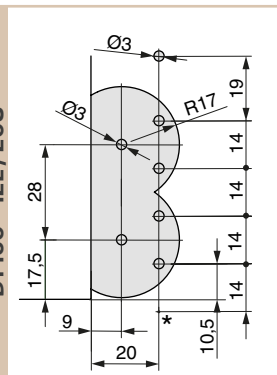
DT160 - 4L / 18Ü



DT160 - 12L / 18Ü



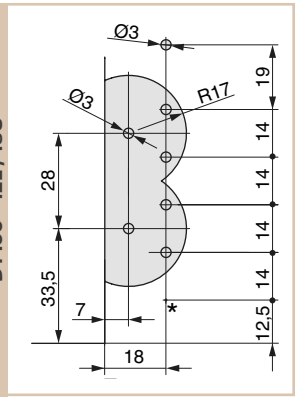
DT160 - 12L / 20Ü



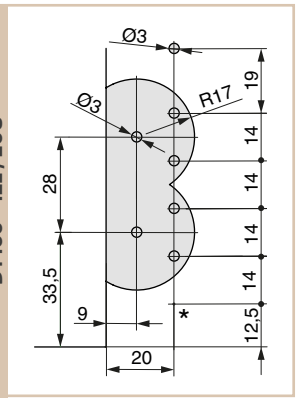
Installation of the frame hardware components

Drill, routing and screw patterns - pivot post DT160 - Casement doors

DT160 - 12L / 18Ü



DT160 - 12L / 20Ü

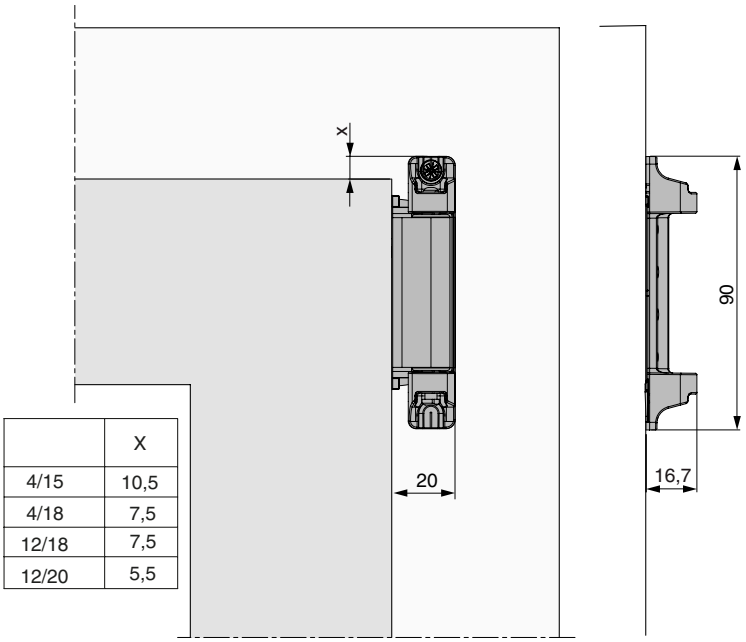


Drilling depth of the DT drill hole 8 mm

* Supporting dowel/supporting screw

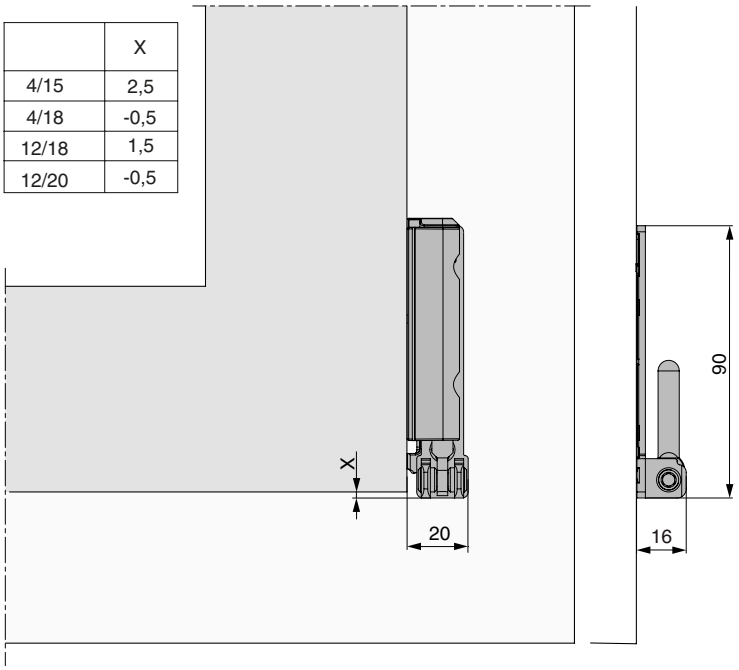
Installation of the frame hardware components

Clearance - scissor stay hinge DT160



	X
4/15	10,5
4/18	7,5
12/18	7,5
12/20	5,5

Clearance - pivot post DT160

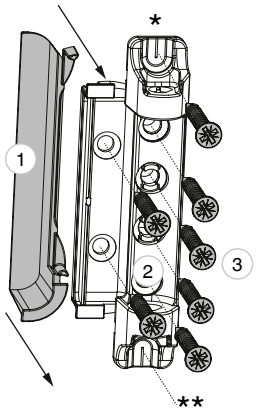


	X
4/15	2,5
4/18	-0,5
12/18	1,5
12/20	-0,5

Installation of the frame hardware components

Installation - scissor stay hinge DT160

DANGER!
The fixing of the bearing parts must meet the requirements of the TBDK guidelines (quality association for locks and hardware - www.schlossindustrie.de) or comply with EN 13126-8!

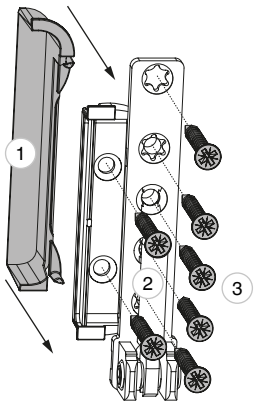


* Screw through the Zamak skin
** Screw fixing not required

1. Clip on the recess cover cap (only for 4-gap systems) and insert the scissor stay hinge.
2. First screw the PVC basic profile with two screws (except for 4/15-9).
3. Then screw the scissor stay hinge with five screws.

Installation - pivot post DT160

DANGER!
The fixing of the bearing parts must meet the requirements of the TBDK guidelines (quality association for locks and hardware - www.schlossindustrie.de) or comply with EN 13126-8!

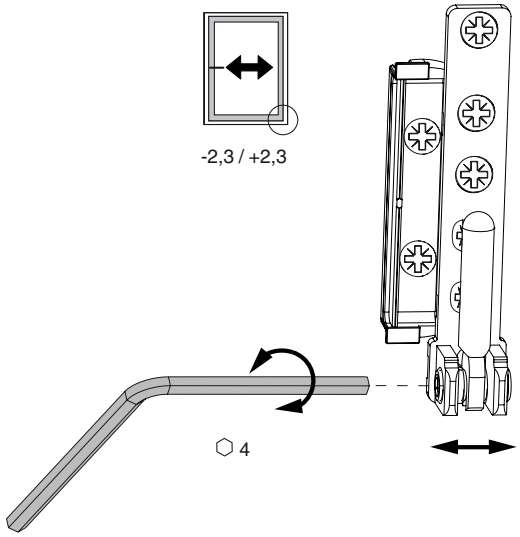


1. Clip on the recess cover cap (only for 4-gap systems) and insert the pivot post.
2. First screw the PVC basic profile with two screws (except for 4/15-9).
3. Then screw the pivot post with five screws.

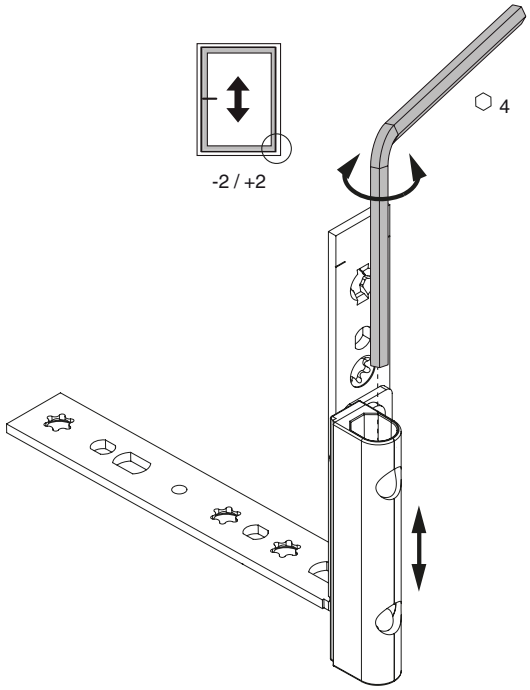
The hinge components must be screwed in place in accordance with the requirements of the TBDK guideline (Gütegemeinschaft Schlösser und Beschläge [quality community for locks and hardware] - www.schlossindustrie.de).

Settings

Pivot post DT160

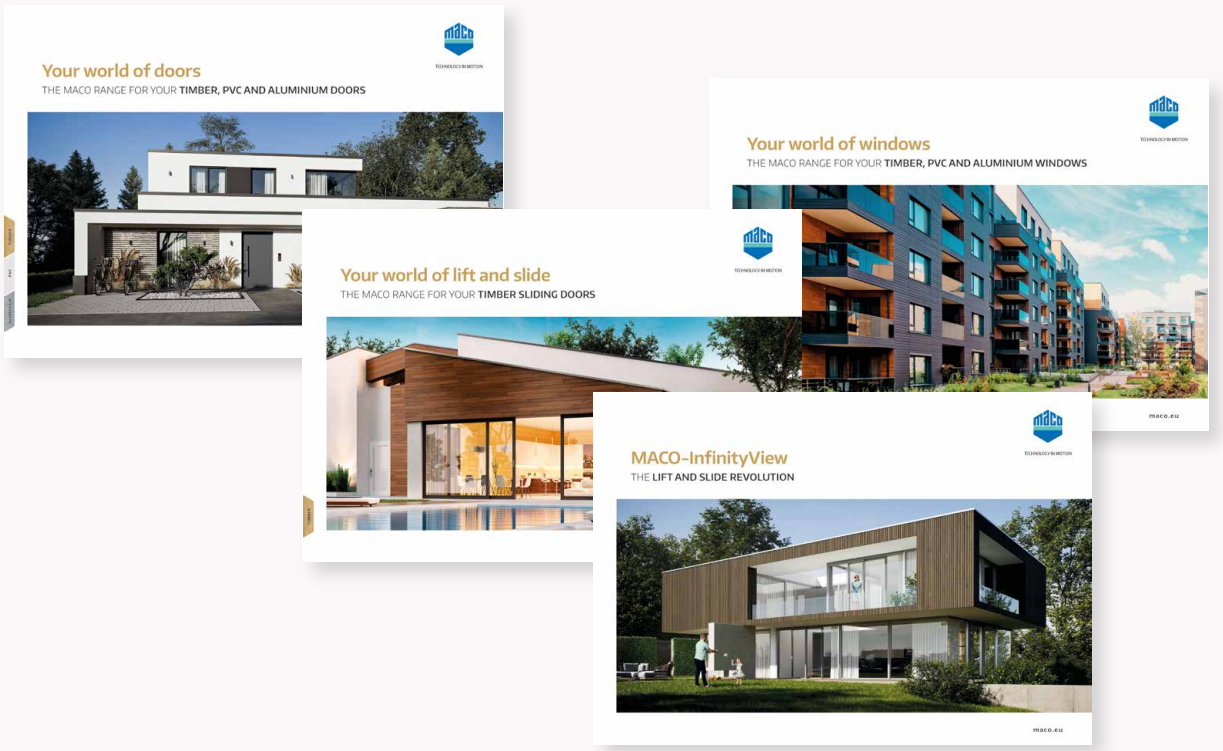


Corner support DT160



You want everything from a single source

We provide you with complete solutions for sliding doors, windows and doors - for timber, PVC and aluminium. Experience our versatile system offer, comprehensive service included. Discover more of this on our website **www.maco.eu** or contact your MACO representative.



MACO near you:
www.maco.eu/contact

TECHNOLOGY IN MOTION

This print document is revised regularly.
The latest version is available at https://www.maco.eu/assets/759824
or scan the QR code.

Date: 09/2015 - Changed: 23.03.2023
Order No. 759824