Window and Door Technology

Roto NT Designo

Concealed hinge solution
for windows and balcony doors with high sash weights

Installation, maintenance and operation instructions
for aluminium profiles with 16 mm hardware groove

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Roto Frank AG
Window and Door Technology

Wilhelm-Frank-Platz 1
70771 Leinfelden-Echterdingen
Germany

Phone +49 711 7598 0
Fax +49 711 7598 253
info@roto-frank.com

www.roto-frank.com

General information

Security

Information on the product

Hardware overview

Installation

Adjustment

Operation

Maintenance

Dismantling

Transport

Disposal

This manual contains important information, instructions and application diagrams (maximum sash sizes and sash weights) as well as installation instructions regarding the further work of the hardware.

Also, this manual contains binding guidelines to ensure the duty to instruct through to the end-user.

The information and instructions in this manual refer to the products of the Roto NT hardware system.

Apart from these installation, maintenance and operation instructions, the following documents apply:

- Catalogue
- Directives of the Quality Assurance Association: Locks and Hardware (Richtlinie der Gütegemeinschaft Schlösser und Beschläge e. V.)
- Directives VHBE of the Quality Assurance Association: Locks and Hardware (Richtlinie VHBE der Gütegemeinschaft Schlösser und Beschläge e. V.)

This manual should be stored in such a manner that it can be quickly used, if needed.

Additional markings

To highlight handling directives, results, lists, references and other elements, the following signs are used in this manual:

Marking	Explanation
	Sash
	Frame
	Drill holes
①	Hardware components
[A]	Action sequence
1.	Action steps
■	First level of the hierarchy in a list
–	Unordered list (second level of hierarchy)
→ p. 12	(Cross) reference in tables
Refer to page 12	(Cross) reference in the text

Abbreviation	Explanation
B	Backset
TU-ON	Turn-Only sash
T&T	Tilt&Turn sash
SRW	Sash rebate width
SRH	Sash rebate height
S.kg	Sash weight
SE	Striker espagnolette
HH	Handle height
TI-ON	Tilt-Only sash
CLH	Centre lock, horizontal
CLV	Centre lock, vertical

Marking	Explanation
LMD	Lifting mishandling device
BC	Bullet catch
RC1N	Resistance Class 1
RC2 / RC2N	Resistance Class 2
TF	Tilt-First

All dimensions stated in mm.

Protection of copyright

The information in this document is intended for the following target groups:

Hardware dealers
The "hardware dealers" target group includes all companies/persons who purchase hardware from the hardware manufacturer to resell it without the hardware being modified or subject to further work.

Manufacturers of windows and balcony doors
The "manufacturers of windows and balcony doors" target group includes all companies/persons who purchase hardware from the hardware manufacturer or the hardware dealer and build it into windows and balcony doors.

Building element dealers/Installation company
The "building element dealers" target group includes all companies/persons who purchase windows and balcony doors from the manufacturer of windows and balcony doors in order to sell these on and to install them into a building project, without the windows or balcony doors being modified.

The "installation company" target group includes all companies/persons who purchase windows and balcony doors from the manufacturer of windows and balcony doors, or from a building element dealer, in order to sell these and to install them into a building project, without the windows or balcony doors being modified.

Builder
The "builder" target group includes all companies/persons who order windows and/or balcony doors for installation into their building project.

End-users
The "end-users" target group includes all persons who operate the installed windows and/or balcony doors.

NOTE!
Every target group must fully comply with its instruction obligation.
Unless defined otherwise in the following, the documents and information may be transmitted e.g. as printed documents, CD-ROM, or via Internet access.

Responsibility of the hardware dealer
The hardware dealer must transmit the following documents to the manufacturer of windows and balcony doors:
- Catalogue
- Installation, maintenance and operation instructions
- Directive for fixing load-bearing Turn-Only and Tilt&Turn hardware components (TBDK)
- Guidelines/advice on the product and on liability (VHBH)
- Specifications/information for end-users (VHBE)

Responsibility of the manufacturer of windows and balcony doors
The manufacturer of windows and balcony doors must transmit the following documents to the building element dealer or to the builder, even when a subcontractor (installation company) is acting as an intermediary:
- Installation, maintenance and operation instructions
- Directive for fixing load-bearing Turn-Only and Tilt&Turn hardware components (TBDK)
- Guidelines/advice on the product and on liability (VHBH)
- Specifications/information for end-users (VHBE)

He must ensure that the end-user is provided with the documents and information intended for him, in printed format.

Responsibility of the building element dealer/installation company
The building element dealer must transmit the following documents to the builder, even when a subcontractor (installation company) is acting as an intermediary:
- Maintenance and operating instructions (with the focus on hardware)
- Guidelines/advice on the product and on liability (VHBH)
- Specifications/information for end-users (VHBE)

Responsibility of the builder
The builder must transmit the following documents to the end-user:
- Maintenance and operating instructions (with the focus on hardware)
- Specifications/information for end-users (VHBE)

In this instructions, safety information is indicated by a symbol. The safety information is introduced by a key word that indicates the severity of the danger.

DANGER!
This symbol in conjunction with the signal word indicates an imminently hazardous situation, which could result in death or serious damage to health if it is not avoided.

WARNING!
This symbol in conjunction with the signal word indicates a potentially dangerous situation, which could result in death or serious damage to health if it is not avoided.

CAUTION!
This symbol in conjunction with the signal word indicates a potentially dangerous situation, which may lead to minor or light injuries if it is not avoided.

NOTE!
This symbol in conjunction with the signal word indicates a potentially dangerous situation, which may lead to property or environmental damage if it is not avoided.

All details and instructions in this document were compiled taking into account the relevant standards and regulations, the state of the art, and also many years of knowledge and experience.

The hardware manufacturer accepts no liability for damages resulting from:

- Failure to comply with this document and all product-specific documents and related applicable directives (refer to the chapters Security and Stipulated use).
- Non-stipulated use/misuse (refer to the chapters Security and Stipulated use).
- Insufficient invitation to tender, failure to adhere to the installation instructions or application drawings.
- Increased soiling.

Claims by third parties against the hardware manufacturer on the ground of damages resulting from misuse or failure to follow the instruction obligation on the part of the hardware dealer, the manufacturer of windows and balcony doors, and of the building element dealer or the builder are transferred accordingly.

The undertakings agreed in the delivery contract, the general conditions of business and the delivery conditions of the hardware manufacturer, and the legal regulations applicable at the time of concluding a contract are effective.

The warranty covers only original Roto components.

The right to technical modifications for the improvement of performance characteristics and for further development is reserved.

Turn-Only and Tilt&Turn hardware is one-hand operation Turn-Only and Tilt&Turn hardware for windows and balcony doors in building construction. This is used to enable windows and balcony-door sashes into a turning position by operating a 'hand-lever' (handle) or into a limited tilting position in the case of the scissors (sash-stay) version. Turn-Only and Tilt&Turn hardware is used on vertically installed windows and balcony-doors made of timber, PVC, aluminium or steel and their corresponding material combinations. Turn-Only and Tilt&Turn hardware as covered by this definition, locks window and balcony door sashes or enables various ventilating positions. When closing, the gasket counter force must be overcome as a rule.

Correct use also includes adhering to all the specifications in the product-specific documents, such as:

- These installation, maintenance and operation instructions
- Product catalogues
- Information and specifications of the profile manufacturer (e.g. PVC or light metal profiles etc.)
- The relevant directives TBDK and VHBE of the Quality Assurance Association: Locks and Hardware (Gütegemeinschaft Schlösser und Beschläge e. V.)
- The valid national laws and directives

Any type of use that goes beyond or differs from the defined correct use shall be regarded as misuse.

WARNING!
Danger from misuse!
Misuse and incorrect installation of hardware can result in hazardous situations.
- Never use hardware combinations that have not been approved by the hardware manufacturer.
- Never use accessories that are not original products or that have not been approved by the hardware manufacturer.

For windows and balcony doors with Turn-Only and Tilt&Turn hardware, window and balcony door sashes can be brought into a turn position or into a limited tilting position by means of the scissor stay.
When a sash is closed and the hardware is locked, the resistance of a gasket usually needs to be overcome.

WARNING!
Danger of injury and material damage from incorrect closing and opening the sash!
Incorrect closing and opening of sashes can result in serious injuries and significant material damage.
Therefore:

- Ensure that when closing the sash, it does not collide with the frame or with another sash.
- Ensure that the sash is guided slowly by hand throughout the entire range of movement as far as the fully closed position, and that it is brought very slowly towards the frame.
- Ensure that the sash never slams closed or swings open in an uncontrolled manner.

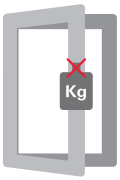
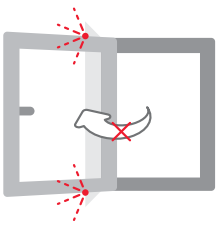
Any use beyond or other than the stipulated application and installation of the products is deemed to be misuse and can result in dangerous circumstances.

WARNING!
Danger from misuse!
Misuse of windows and balcony doors can result in dangerous circumstances.
In particular, avoid the following applications:

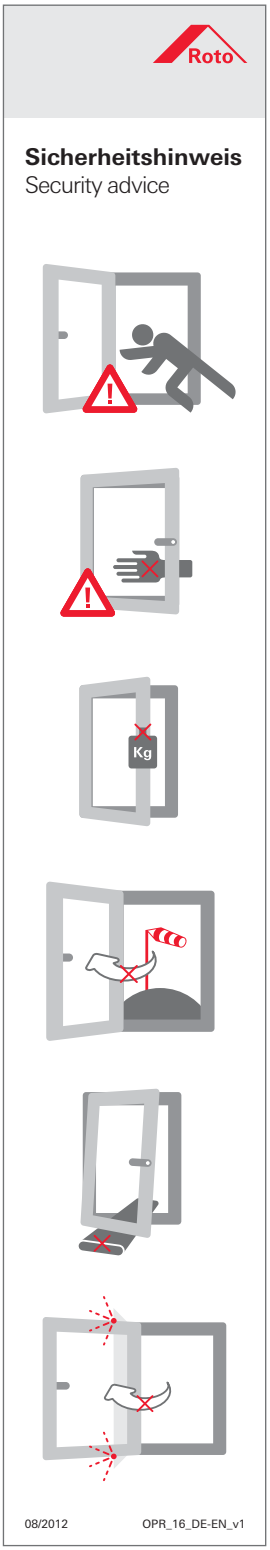
- insertion of obstacles in the opening area between the frame and the window and balcony door sashes,
- the deliberate or negligent application of excessive loads on windows and balcony doors,
- deliberate or uncontrolled slamming or pushing of windows and balcony doors against the window reveal. This can destroy the hardware, frame materials, or other individual components of the windows or balcony doors.

Claims for damages of any type whatsoever resulting of operation other than that stipulated are excluded.

Comply with the following symbols and their meanings in order to avoid accidents, injuries and material damage.

Symbol	Meaning
	**DANGER!** **Danger of injury from falling through open windows and balcony doors** – Behave with care near to open windows and balcony doors. – Keep children and people who cannot estimate the dangers away from the point of danger.
	**WARNING!** **Danger of injury through trapping of body parts in the opening gap between sash and frame** – When closing windows and balcony doors, never reach between sash and frame, and always act with care. – Keep children and people who cannot estimate the dangers away from the point of danger.
	**WARNING!** **Danger of injury and material damage from overloading the sash** – Do not overload the sash.
	**CAUTION!** **Danger of injury from the effect of wind** – Prevent wind from acting on the open sash. – During wind and draughts, close and lock windows and balcony door sashes.
	**CAUTION!** **Danger of injury and material damage from insertion of obstructions into the opening gap between sash and frame** – Do not insert obstructions into the opening gap between sash and frame.
	**CAUTION!** **Danger of injury and material damage from pressing the sash against the opening edge (reveal)** – Do not press the sash against the opening edge (reveal).

The following symbols can be used on windows and balcony doors to protect the end-user. Always keep these symbols in a clearly legible state. Please order stickers separately (OPR_16_DE-EN).



Maximum sash sizes and weights

The technical data, application diagrams, and component classifications in the product-specific documentation of the hardware manufacturer give instructions on the maximum permitted sash sizes and weights. Here, the component with the smallest permitted load bearing capacity decides the maximum permitted sash weight.

- Check compliance of the technical data, application diagrams, and component classifications before the use of electronic data sets, and especially their use in fenestration programmes.
- The maximum permitted sash sizes and weights must never be exceeded. In the case of uncertainty contact the hardware manufacturer.

System specifications

The manufacturer of windows and balcony doors must comply with all specified system-related dimensions (e.g. gasket gap dimensions or locking-point distances). And he must self-responsibly comply with all specifications of the profile manufacturers and system owners, in particular the maximum permissible sash sizes and sash weights must not be exceeded. Furthermore, he must check these regularly and make certain of them, especially on the first use of new hardware components, during manufacture, in an ongoing manner up to and including the window installation.

NOTE!
The hardware components should in principle be designed in such a manner, that the system-related dimensions can be adjusted to the extent that they are affected by the hardware. If a deviation from these dimensions is noticed only after the installation of the windows, the hardware manufacturer is not responsible for any possible additional work arising.

Composition of hardware

Burglary inhibiting windows and balcony doors require hardware which fulfils particular requirements.
Windows and balcony doors for damp rooms, and those for use in environments with aggressive and corrosive air components require hardware which fulfils particular requirements.

The resistance of windows and balcony doors to wind loads when closed and locked depends on the actual designs of the windows and balcony doors. Wind loads prescribed by law and standards (e.g. as per EN 12210 – especially test pressure P3) can be dissipated by the hardware system.
In general, the Turn-Only and Tilt&Turn hardware defined in this document is able to fulfil legal and standard requirements for barrier-free habitations.

The hardware combinations and installations appropriate for windows and balcony doors in the previously mentioned areas should be specifically selected and agreed with the hardware manufacturer and the profile manufacturer.

NOTE!
The guidelines of the hardware manufacturer relating to the combination of the hardware (e.g. the use of additional stay arms, the design of hardware for burglary-inhibiting sashes for windows and balcony doors, etc.) are binding.

DANGER!
Danger to life from incorrectly installed and threaded hardware components!
Incorrect installation and threading of hardware components can result in dangerous circumstances and cause severe accidents, even including death.
Therefore:
– For installation and especially for threaded components, observe the product-specific documentation of the hardware manufacturer, the information from the profile manufacturer, and all contents of the TBDK directive of the Gütegemeinschaft Schlösser und Beschläge.

Roto recommends the use of fenestration screws (stainless steel or zinc flake coated) for installing the hardware components in the aluminium profiles with 16 mm hardware groove. Contact corrosion can occur if other screws are used.

When making burglar-resistant windows, it is recommended to use partially-threaded screws (cylindrical shaft).
The window fabricator must ensure adequate fixing of the hardware components, consulting the screw manufacturer if necessary.
When fixing **security relevant**, supportive hardware components such as **stay bearings** and **pivot rests** the tearing-forces vertical to the sash plane surface must be reached in accordance with the following table (the tractive-force values depend on the sash weights from the TBDK).

Sash weight in kg	Tractive force in N
50	1400
60	1650
70	1900
80	2200
90	2450
100	2710
110	3000
120	3250
130	3525
140	3900
150	4200

The stated values refer to the stay bearing. These are also valid for the pivot rest if the fixing is carried out in the same manner as with the stay bearing.

If Tilt&Turn windows are requested according to DIN 18360 – VOB part C for metal construction work – lifting mishandling devices have to be installed.

Do not use any acid cross-linked sealing compounds that could lead to corrosion of the hardware components. The glazing spacer-block regulations for the glazing method are to be adhered to.

General hardware characteristics

– Suitable for aluminium profiles with 16 mm hardware groove
– Hardware axis: 9 mm, 13 mm
– Profiled faceplate
– Effortless operation with low abrasion due to guided adjustable locking cams
– Easy adjustment of the locking cams with standard tools
  – E cam: gasket-compression adjustable eccentric cam and/or
  – P cam: gasket-compression adjustable eccentric security cam and/or
  – V cam: height and gasket-compression adjustable eccentric security cam
– Available as Tilt-First variant (“tilt before turn”)
– Strong interlocking “Clip&Fit” connection without loss of cam travel
– Hinge side clampable in the frame groove by means of preassembled clamp-strips with clamping-blocks
– Integrated piercing screw protects against horizontal slipping
– Link-slider guided stay arm, as standard with
  – Integrated anti-slam device (only T&T / Tilt-First version)
  – Variable tilt restrictor (80–140 mm) (only T&T / Tilt-First version)
  – Turn restriction
  – Mishandling device in tilted position (only T&T / Tilt-First version)
– Stay bearing and pivot rest completely concealed in the sash rebate
– High-quality Roto Sil Nano surface-finish (matt-silvery) for maximum corrosion resistance (DIN EN 13126 / 8 Class 4) using Nano particles (free from Chromium VI compounds)
– 10-year guarantee on the operativeness of the hardware
– 3D adjustment in stay arm / corner hinge / pivot rest
– Low-maintenance thanks to patented lubrication depots
– Tested according to EN 13126-8:2006-02 and EN 1191:2000-08 and certified according to QM 328
– Handles are available in different RAL colours
– With burglar-inhibiting anti-jemmy device in the tilt striker as standard
– For sash weights from 80 kg up to 150 kg thanks to load-transfer component:
  – Long-term relieving of the pivot rest is ensured
  – No jigs necessary for installation

Application ranges

Turn-Only / Tilt&Turn / Tilt-First sash
– Sash rebate width: 330 – 1400 mm
– Sash rebate height: 280 – 2600 mm
– Sash weight: up to 150 kg*)
– Security levels: acc. to DIN EN 1627-1630

*) The application ranges are to be adhered according to the application diagrams

Locking cam E
Gasket-compression adjustable cam

Locking cam P
Gasket-compression adjustable security cam

Locking cam V
Height and gasket-compression adjustable security cam

The surface-finish

Roto Sil Nano surface-finish for elegant matt silvery aesthetics. Unmistakable consistent silver look.
Optimal protection by means of galvanising, chromating, and additional sealing.
Increased corrosion protection.

The NT security concept

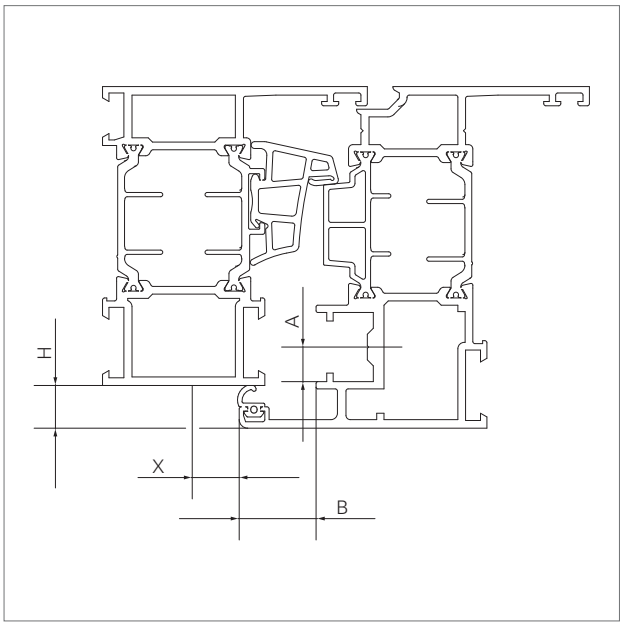
The basic version of Roto NT is already equipped with basic security on the bottom horizontal sash-plane.
Highest burglary inhibition results are achieved with exemplary hardware combinations for security windows in accordance with DIN EN 1627–1630. This standard includes an overall test of all individual window components.

The NT striker concept

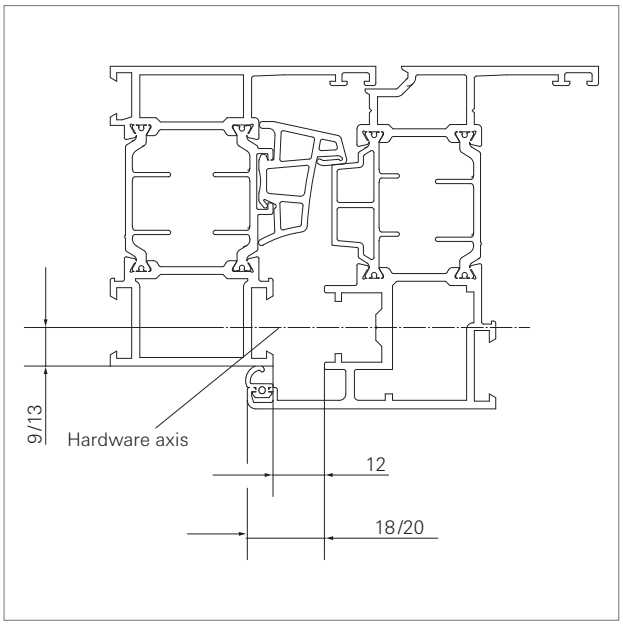
All strikers in the Roto NT hardware system have identical screwing axes.
This concept renders prefitting the sash with security cams possible, and a later frame retrofitting with security strikers (zinc or steel). All locking cam versions are combinable with all strikers.

Three locking cam versions

The Roto NT hardware system offers 3 different locking cam versions that differ in application and adjusting capabilities.
The detailed adjusting dimensions can be found in these installation instructions.

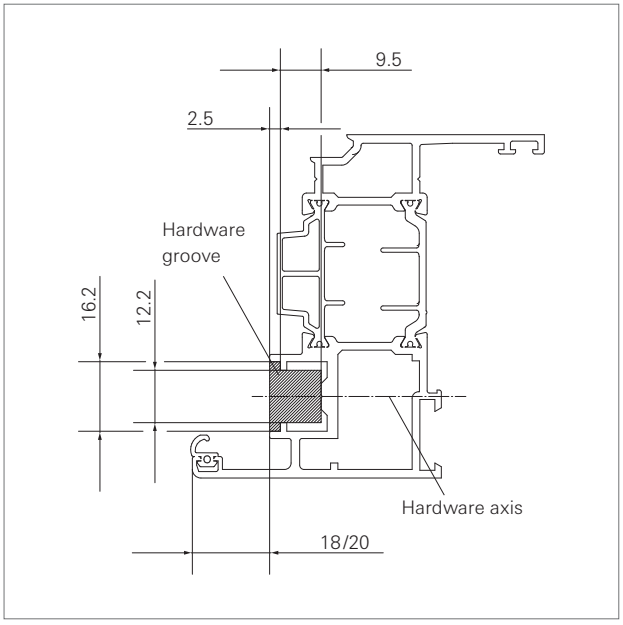


Frame clearance dimension at a 90° opening angle (OA 90°)			
Axis dimension **A**	Overlap height **H**	Overlap width **B**	Frame clearance (OA 90°) **X**
9	8	18	**9.0**
9	10	18	**10.5**
9	9	18	**9.5**
9	8	20	**7.0**
13	9	18	**10.0**
13	10	18	**11.5**
13	8	22	**8.0**



Profile dimensions

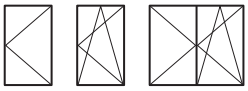
System Euro-rebate 12/18(20/22)-9/13
Rebate depth 24/30
Clearance, bottom horizontal: 11 – 14 mm
Clearance on the sides: 10 – 14 mm
Clearance, top 11 – 14 mm



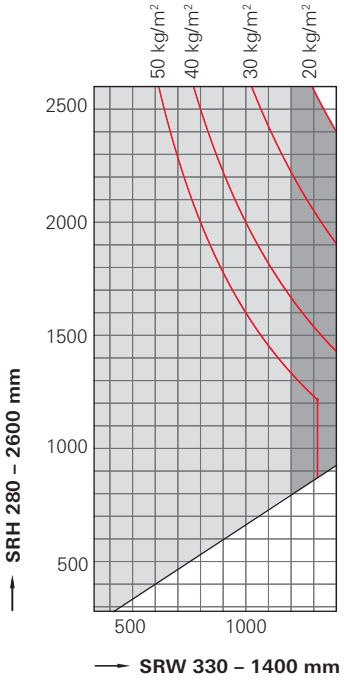
Dimensions for hardware

Application diagram

Roto NT Designo for aluminium profiles with 16 mm hardware groove
Turn-Only/Tilt&Turn hardware for rectangular windows up to 80 kg
without load transfer device



Limitation of sash formats depending on the glass thickness



Application range

Sash rebate width **SRW** ..... 330 – 1400 mm
Sash rebate height **SRH** ..... 280 – 2600 mm
Sash weight **S.kg** ..... max. 80 kg

The information in the application diagram refers to the glass weight in kg/m².

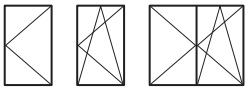
1 mm / m² glass thickness = 2.5 kg

= Impermissible application range

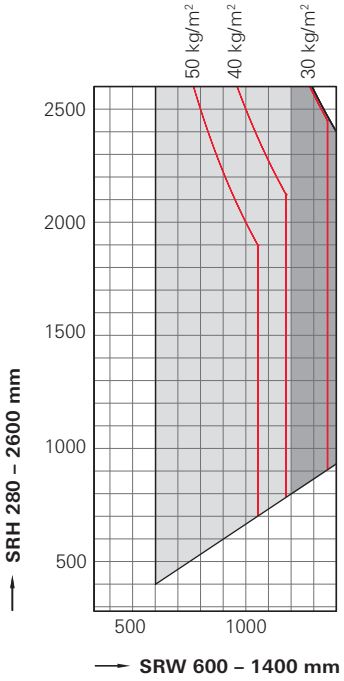
= Additional scissor stay required

Application diagram

Roto NT Designo for aluminium profiles with 16 mm hardware groove
Turn-Only/Tilt&Turn hardware for rectangular windows up to 100 kg
without load transfer device



Limitation of sash formats depending on the glass thickness



Application range

Sash rebate width **SRW** ..... 600 – 1400 mm
Sash rebate height **SRH** ..... 280 – 2600 mm
Sash weight **S.kg** ..... max. 100 kg

The information in the application diagram refers to the glass weight in kg/m².

1 mm / m² glass thickness = 2.5 kg

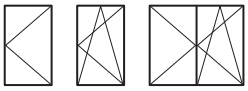
= Impermissible application range

= Additional scissor stay required

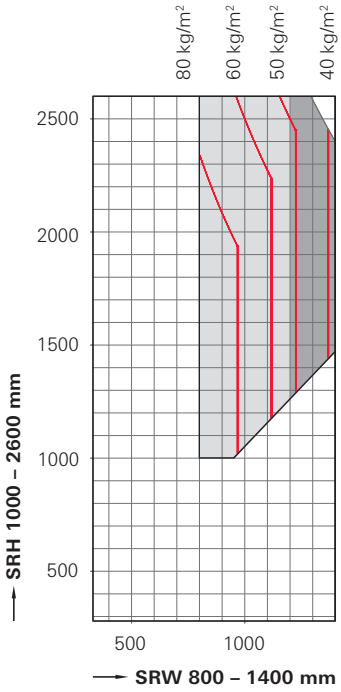
NOTE!
When using the stay arm 350 and the sash weight is > 80 kg, set the stay arm's tilt restrictor to 80 mm.

Application diagram

Hinge side NT Designo for aluminium profiles with 16 mm hardware groove
Turn-Only/Tilt&Turn hardware for rectangular windows up to 150 kg with load transfer device



Limitation of sash formats depending on the glass thickness



Application range

Sash rebate width **SRW** ..... 800 – 1400 mm
Sash rebate height **SRH** ..... 1000 – 2600 mm
Sash weight **S.kg** ..... 80 – 150 kg

The information in the application diagram refers to the glass weight in kg / m².

1 mm / m² glass thickness = 2.5 kg

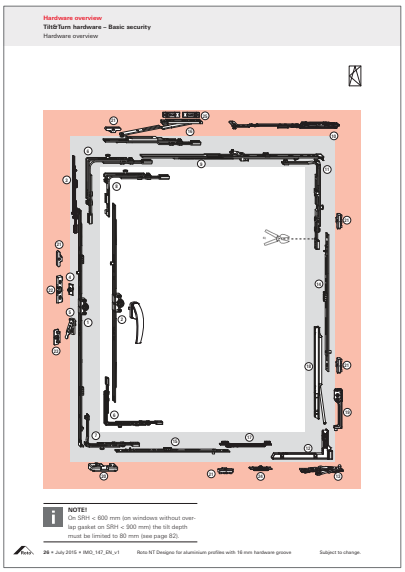
= Impermissible application range

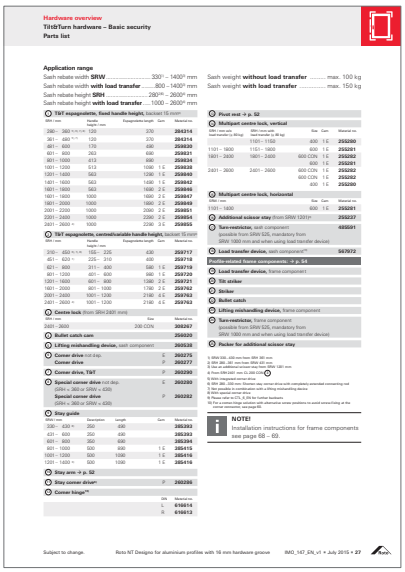
= Additional scissor stay required

NOTE!
Set the stay arm's tilt restrictor to 80 mm:
- if the sash weight is > 80 kg when using stay arm 350
- if the sash weight is > 130 kg

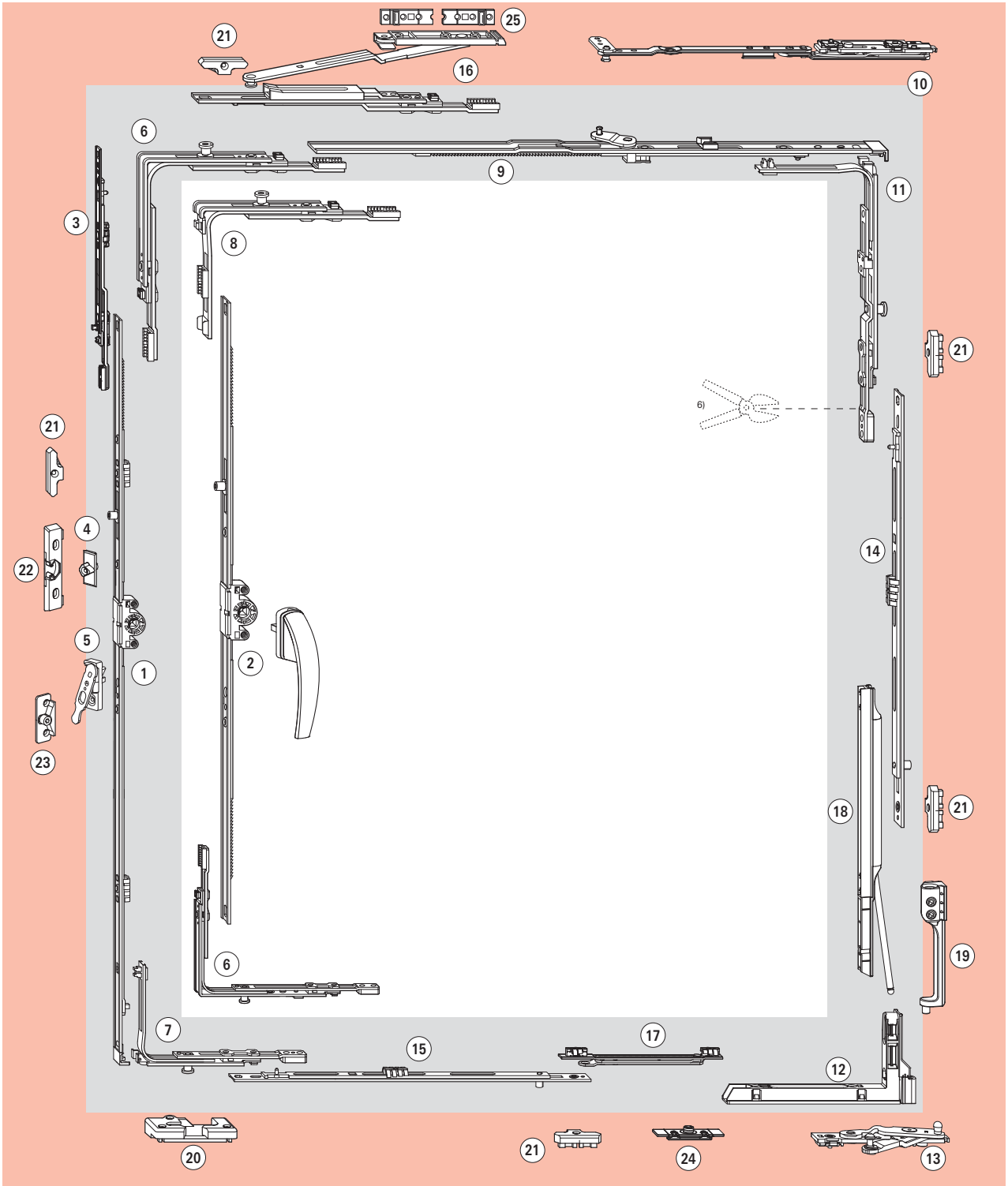
The hardware overviews on the following pages are recommendations of Roto Frank AG.

The hardware overview chapter shows on the left page the single hardware components in the hardware overview and on the right page the respective parts list.
Position numbers in surrounding circles allow the allocation between hardware overview and parts list.





The actual scope of delivery depends on the ordered hardware configuration (height and width of the window).



NOTE!
On SRH < 600 mm (on windows without overlap gasket on SRH < 900 mm) the tilt depth must be limited to 80 mm (see page 82).

Application range

Sash rebate width **SRW** ..... 330[1] – 1400[3] mm
Sash rebate width **with load transfer** .....800 – 1400[3] mm
Sash rebate height **SRH** ..... 280[2][6] – 2600[4] mm
Sash rebate height **with load transfer** ..... 1000 – 2600[4] mm

Sash weight **without load transfer** ..... max. 100 kg
Sash weight **with load transfer** ..... max. 150 kg

(1) T&T espagnolette, fixed handle height, backset 15 mm[9]

SRH / mm	Handle height / mm	Espagnolette length	Cam	Material no.
280 – 360 [5], [6], [7], [8]	120	370		**284314**
361 – 480 [5], [7]	120	370		**284314**
481 – 600	170	490		**259830**
601 – 800	263	690		**259831**
801 – 1000	413	890		**259834**
1001 – 1200	513	1090	1 E	**259838**
1201 – 1400	563	1290	1 E	**259840**
1401 – 1600	563	1490	1 E	**259842**
1601 – 1800	563	1690	2 E	**259846**
1601 – 1800	1000	1690	2 E	**259847**
1801 – 2000	1000	1890	2 E	**259849**
2001 – 2200	1000	2090	2 E	**259851**
2201 – 2400	1000	2290	2 E	**259854**
2401 – 2600 [4]	1000	2290	3 E	**259855**

(2) T&T espagnolette, centred/variable handle height, backset 15 mm[9]

SRH / mm	Handle height / mm	Espagnolette length	Cam	Material no.
310 – 450 [6], [7], [8]	155 – 225	430		**259717**
451 – 620 [7]	225 – 310	400		**259718**
621 – 800	311 – 400	580	1 E	**259719**
801 – 1200	401 – 600	980	1 E	**259720**
1201 – 1600	601 – 800	1380	2 E	**259721**
1601 – 2000	801 – 1000	1780	2 E	**259762**
2001 – 2400	1001 – 1200	2180	4 E	**259763**
2401 – 2600 [4]	1001 – 1200	2180	4 E	**259763**

(3) Centre lock (from SRH 2401 mm)

SRH / mm	Size	Material no.
2401 – 2600	200 CON	**308267**

(4) Bullet catch cam — **256020**

(5) Lifting mishandling device, sash component — **260538**

(6) Corner drive

		Material no.
not dep.	E	**260275**
	P	**260277**

(7) Corner drive, T&T — P — **260290**

(8) Special corner drive

		Material no.
not dep. (SRH < 360 or SRW < 430)	E	**260280**
(SRH < 360 or SRW < 430)	P	**260282**

(9) Stay guide

SRW / mm	Description	Length	Cam	Material no.
330 – 430 [8]	250	490		**385393**
431 – 600	250	490		**385393**
601 – 800	350	690		**385394**
801 – 1000	500	890	1 E	**385415**
1001 – 1200	500	1090	1 E	**385416**
1201 – 1400 [3]	500	1090	1 E	**385416**

(10) Stay arm → p. 52

(11) Stay corner drive[6] — P — **260286**

(12) Corner hinge[10]

DIN	Material no.
L	**616614**
R	**616613**

(13) Pivot rest → p. 52

(14) Multipart centre lock, vertical

SRH / mm w/o load transfer (≤ 80 kg)	SRH / mm with load transfer (≥ 80 kg)	Size	Cam	Material no.
	1101 – 1150	400	1 E	**255280**
1101 – 1800	1151 – 1800	600	1 E	**255281**
1801 – 2400	1801 – 2400	600 CON	1 E	**255282**
		600	1 E	**255281**
2401 – 2600	2401 – 2600	600 CON	1 E	**255282**
		600 CON	1 E	**255282**
		400	1 E	**255280**

(15) Multipart centre lock, horizontal

SRW / mm	Size	Cam	Material no.
1101 – 1400	600	1 E	**255281**

(16) Additional scissor stay (from SRW 1201)[3] — **255237**

(17) Turn-restrictor, sash component — **485591**
(possible from SRW 525, mandatory from SRW 1000 mm and when using load transfer device)

(18) Load transfer device, sash component[10] — **567972**

Profile-related frame components: → p. 54

(19) Load transfer device, frame component

(20) Tilt striker

(21) Striker

(22) Bullet catch

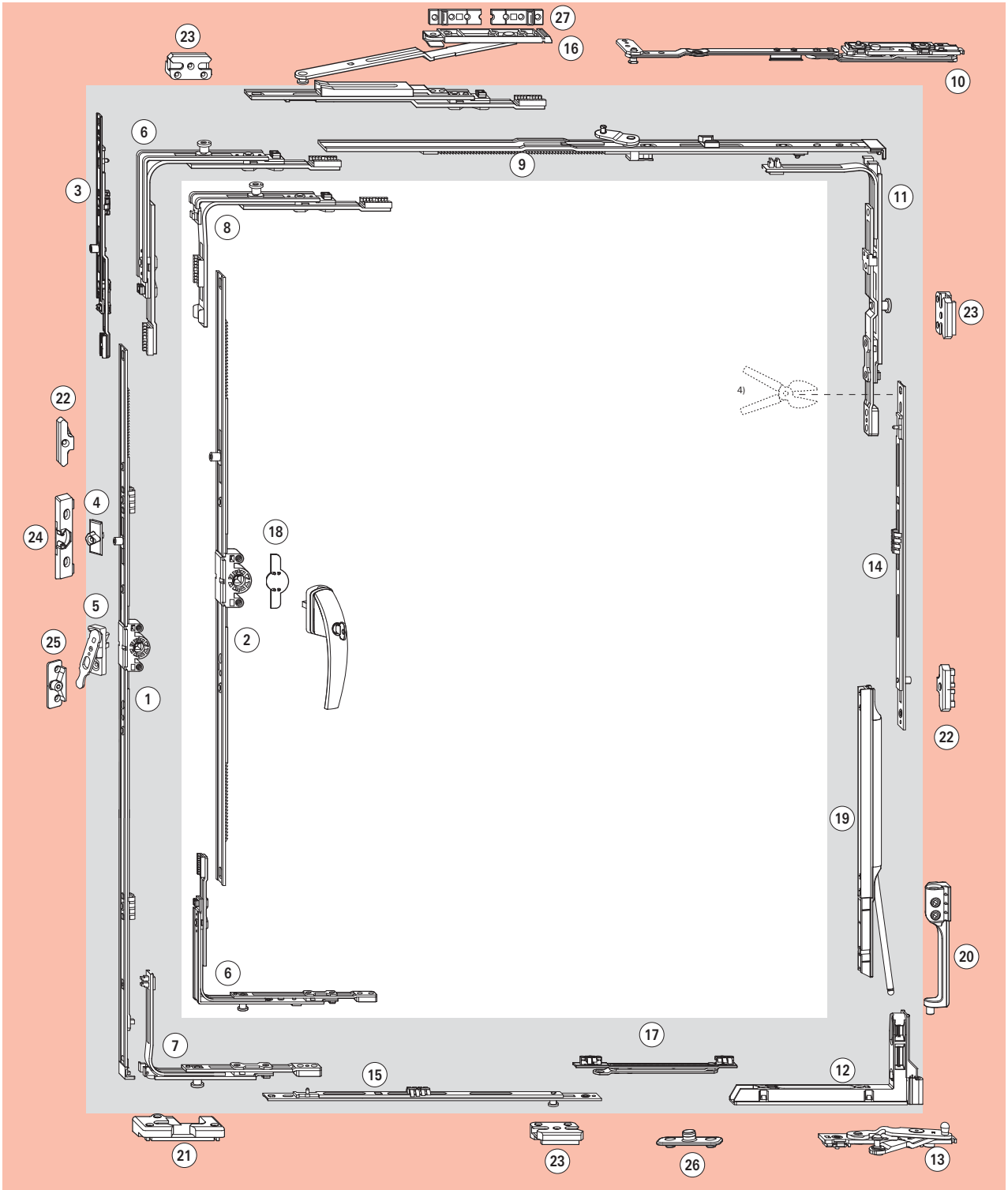
(23) Lifting mishandling device, frame component

(24) Turn-restrictor, frame component
(possible from SRW 525, mandatory from SRW 1000 mm and when using load transfer device)

(25) Packer for additional scissor stay

1) SRW 330 – 430 mm from SRH 361 mm
2) SRH 280 – 361 mm from SRW 431 mm
3) Use an additional scissor stay from SRW 1201 mm
4) From SRH 2401 mm CL 200 CON (3)
5) With integrated corner drive
6) SRH 280 – 330 mm: Shorten stay corner drive with completely extended connecting rod
7) Not possible in combination with a lifting mishandling device
8) With special corner drive
9) Please refer to CTL_6_EN for further backsets
10) For a corner-hinge solution with alternative screw positions to avoid screw-fixing at the corner connector, see page 60.

NOTE!
Installation instructions for frame components see page 68 – 69.



NOTE!
On SRH < 600 mm, the tilt depth must be limited to 80 mm (cf. page 82).

Application range

Sash rebate width **SRW** ..... 450 – 1400[1] mm
Sash rebate width **with load transfer** ..... 800 – 1400[1] mm
Sash rebate height **SRH** ..... 280[4] – 2600[2] mm
Sash rebate height **with load transfer** ..... 1000 – 2600[2] mm

Sash weight **without load transfer** ..... max. 100 kg
Sash weight **with load transfer** ..... max. 150 kg

(1) T&T espagnolette, fixed handle height, backset 15 mm[7]

SRH / mm	Handle height / mm	Espagnolette length	Cam	Material no.
280 – 360 [3), 4), 5), 6)]	120	370		**284314**
361 – 480 [3), 6)]	120	370		**284314**
481 – 600	170	490		**259830**
601 – 800	263	690		**259831**
801 – 1000	413	890		**259834**
1001 – 1200	513	1090	1 E	**259838**
1201 – 1400	563	1290	1 E	**259840**
1401 – 1600	563	1490	1 E	**259842**
1601 – 1800	563	1690	2 E	**259846**
1601 – 1800	1000	1690	2 E	**259847**
1801 – 2000	1000	1890	2 E	**259849**
2001 – 2200	1000	2090	2 E	**259851**
2201 – 2400	1000	2290	2 E	**259854**
2401 – 2600 [2)]	1000	2290	3 E	**259855**

(2) T&T espagnolette, centred/variable handle height, backset 15 mm[7]

SRH / mm	Handle height / mm	Espagnolette length	Cam	Material no.
310 – 450 [4), 5), 6)]	155 – 225	430		**259717**
451 – 620 [5)]	225 – 310	400		**259718**
621 – 800	311 – 400	580	1 E	**259719**
801 – 1200	401 – 600	980	1 E	**259720**
1201 – 1600	601 – 800	1380	2 E	**259721**
1601 – 2000	801 – 1000	1780	2 E	**259762**
2001 – 2400	1001 – 1200	2180	4 E	**259763**
2401 – 2600 [2)]	1001 – 1200	2180	4 E	**259763**

(3) Centre lock (from SRH 2401 mm)

SRH / mm	Size	Material no.
2401 – 2600	200 CON	**308267**

(4) Bullet catch cam — **256020**

(5) Lifting mishandling device, sash component — **260538**

(6) Corner drive — P — **260277**

(7) Corner drive, T&T — P — **260290**

(8) Special corner drive (SRH < 360) — P — **260282**

(9) Stay guide

SRW / mm	Description	Length	Cam	Material no.
450 – 600	250	490		**385393**
601 – 800	350	690		**385394**
801 – 1000	500	890	1 E	**385415**
1001 – 1200	500	1090	1 E	**385416**
1201 – 1400 [1)]	500	1090	1 E	**385416**

(10) Stay arm → p. 52

(11) Stay corner drive[4] — P — **260286**

(12) Corner hinge[8]

DIN	Material no.
L	**616614**
R	**616613**

(13) Pivot rest → p. 52

(14) Multipart centre lock, vertical

SRH / mm w/o load transfer (≤ 80 kg)	SRH / mm with load transfer (≥ 80 kg)	Size	Cam	Material no.
	1101 – 1150	400	1 E	**255280**
1101 – 1800	1151 – 1800	600	1 E	**255281**
1801 – 2400	1801 – 2400	600 CON	1 E	**255282**
		600	1 E	**255281**
2401 – 2600	2401 – 2600	600 CON	1 E	**255282**
		600 CON	1 E	**255282**
		400	1 E	**255284**

(15) Multipart centre lock, horizontal

SRW / mm w/o turn-restrictor	SRW / mm with turn-restrictor	Size	Cam	Material no.
450 – 650	650 – 850	200	1 P	**255284**
651 – 850	851 – 1050	400	1 P	**255285**
851 – 1000	1051 – 1250	600	1 P	**255286**
	1251 – 1400	600 CON	1 E	**255282**
		200	1 P	**255284**

(16) Additional scissor stay (from SRW 1201)[1] — **255237**

(17) Turn-restrictor, sash component — **485591**
(possible from SRW 650, mandatory from SRW 1000 mm and when using load transfer device)

(18) Drilling protection — **627343**

(19) Load transfer device, sash component[8] — **567972**

Profile-related frame components: → p. 54

(20) Load transfer device, frame component

(21) Tilt striker

(22) Striker

(23) Security striker

(24) Bullet catch

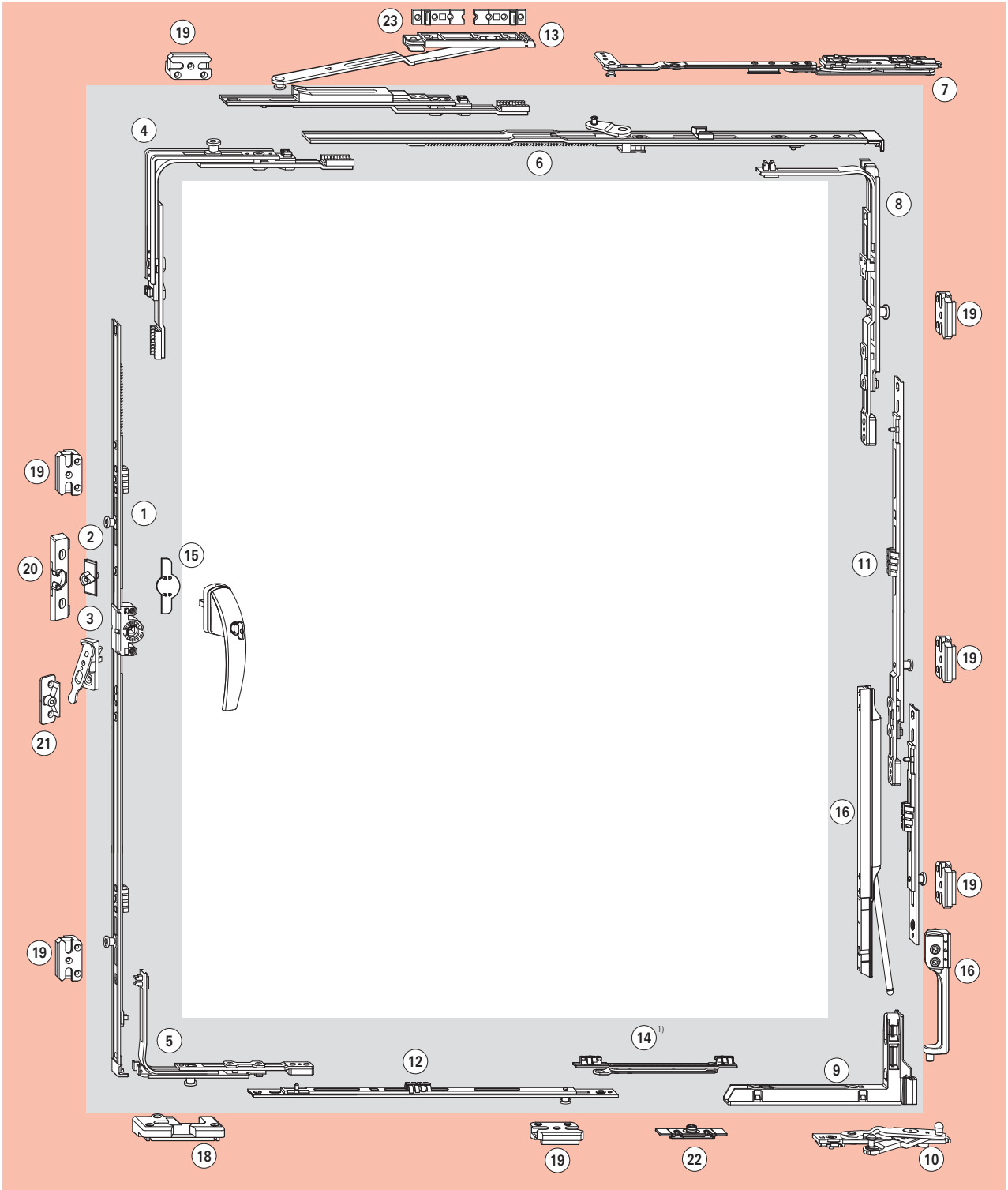
(25) Lifting mishandling device, frame component

(26) Turn-restrictor, frame component
(possible from SRW 650, mandatory from SRW 1000 mm and when using load transfer device)

(27) Packer for additional scissor stay

1) Use an additional scissor stay from SRW 1201 mm
2) From SRH 2401 mm CL 200 CON (3)
3) With integrated corner drive
4) SRH 280 – 330 mm: Shorten stay corner drive with completely extended connecting rod
5) Not possible in combination with a lifting mishandling device
6) With special corner drive
7) Please refer to CTL_6_EN for further backsets
8) For a corner-hinge solution with alternative screw positions to avoid screw-fixing at the corner connector, see page 60

NOTE!
Installation instructions for frame components see page 70 – 71.



NOTE!
On SRH < 600 mm, the tilt depth must be limited to 80 mm (cf. page 82).

Application range

Sash rebate width **SRW** ..... 450 – 1400[1] mm
Sash rebate width **with load transfer** ..... 800 – 1400[1] mm
Sash rebate height **SRH** ..... 490 – 2400 mm
Sash rebate height **with load transfer** ..... 1000 – 2400 mm

Sash weight **without load transfer** ..... max. 100 kg
Sash weight **with load transfer** ..... max. 150 kg

(1) T&T espagnolette, fixed handle height, backset 15 mm[2]

SRH / mm	Handle height / mm	Espagnolette length	Cam	Material no.
490 – 600	170	490		**259830**
601 – 800	263	690	1 V	**259832**
801 – 1000	413	890	2 V	**259835**
1001 – 1200	513	1090	2 V	**259837**
1201 – 1400	563	1290	2 V	**259839**
1401 – 1600	563	1490	3 V	**259841**
1601 – 1800	563	1690	3 V	**259844**
1601 – 1800	1000	1690	3 V	**259845**
1801 – 2000	1000	1890	3 V	**259848**
2001 – 2200	1000	2090	4 V	**259850**
2201 – 2400	1000	2290	4 V	**259853**

(2) Bullet catch cam — **256020**

(3) Lifting mishandling device, sash component — **260538**

(4) Corner drive — V — **260272**

(5) Corner drive, T&T — V — **260288**

(6) Security stay guide

SRW / mm	Description	Length	Cam	Material no.
450 – 600	250	490		**385393**
601 – 800	350	690		**385394**
801 – 1000	500	890	1 V	**450373**
1001 – 1200	500	1090	1 V	**450374**
1201 – 1400 [1]	500	1090	1 V	**450374**

(7) Stay arm → p. 52

(8) Stay corner drive — V — **260284**

(9) Corner hinge[3]

DIN	Material no.
L	**616614**
R	**616613**

(10) Pivot rest → p. 52

(11) Multipart centre lock, vertical

SRH / mm w/o load transfer (≤ 80 kg)	SRH / mm with load transfer (≥ 80 kg)	Size	Cam	Material no.
490 – 650		200	1 V	**296853**
651 – 850	1000 – 1150	400	1 V	**296854**
851 – 1050	1151 – 1350	600	1 V	**296855**
1051 – 1250	1351 – 1550	600 CON	1 V	**337711**
		200	1 V	**296853**
1251 – 1450	1551 – 1750	600 CON	1 V	**337711**
		400	1 V	**296854**
1451 – 1650	1751 – 1950	600 CON	1 V	**337711**
		600	1 V	**296855**
1651 – 1850	1951 – 2150	600 CON	1 V	**337711**
		600 CON	1 V	**337711**
		200	1 V	**296853**
1851 – 2050	2151 – 2350	600 CON	1 V	**337711**
		600 CON	1 V	**337711**
		400	1 V	**296854**
2051 – 2250	2351 – 2400	600 CON	1 V	**337711**
		600 CON	1 V	**337711**
		600	1 V	**296855**
2251 – 2400		600 CON	1 V	**337711**
		600 CON	1 V	**337711**
		600 CON	1 V	**337711**
		200	1 V	**296853**

(12) Multipart centre lock, horizontal

SRW / mm w/o turn-restrictor	SRW / mm with turn-restrictor	Size	Cam	Material no.
450 – 650	650 – 850	200	1 V	**296853**
651 – 850	851 – 1050	400	1 V	**296854**
851 – 1000	1051 – 1250	600	1 V	**296855**
	1251 – 1400	600 CON	1 V	**337711**
		200	1 V	**296853**

(13) Additional scissor stay (from SRW 1201)[1] — **255237**

(14) Turn-restrictor, sash component — **485591**
(possible from SRW 650, mandatory from SRW 1000 mm and when using load transfer device)

(15) Drilling protection — **627343**

(16) Load transfer device, sash component[3] — **567972**

Profile-related frame components: → p. 54

(17) Load transfer device, frame component

(18) Tilt striker

(19) Security striker

(20) Bullet catch

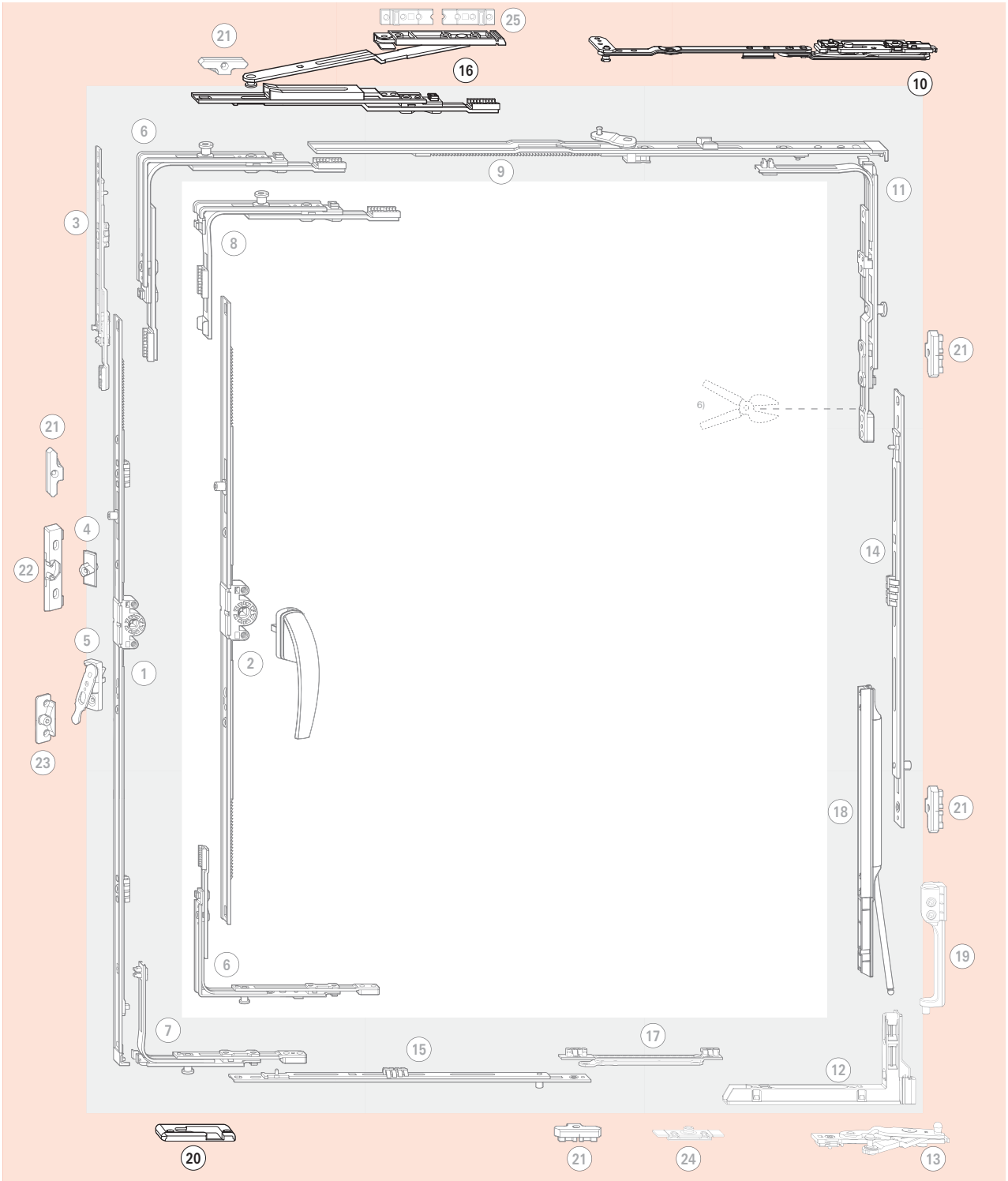
(21) Lifting mishandling device, frame component

(22) Turn-restrictor, frame component
(possible from SRW 650, mandatory from SRW 1000 mm and when using load transfer device)

(23) Packer for additional scissor stay

1) Use an additional scissor stay from SRW 1201 mm
2) Please refer to CTL_6_EN for further backsets
3) For a corner-hinge solution with alternative screw positions to avoid screw-fixing at the corner connector, see page 60

NOTE!
Installation instructions for frame components see page 72.



NOTE!
On SRH < 600 mm (on windows without overlap gasket on SRH < 900 mm) the tilt depth must be limited to 80 mm (see page 82).

Application range

Sash rebate width **SRW** ..... 330 – 1400[1] mm
Sash rebate width **with load transfer** ..... 800 – 1400 mm
Sash rebate height **SRH** ..... 280 – 2600 mm
Sash rebate height **with load transfer** ..... 1000 – 2600 mm

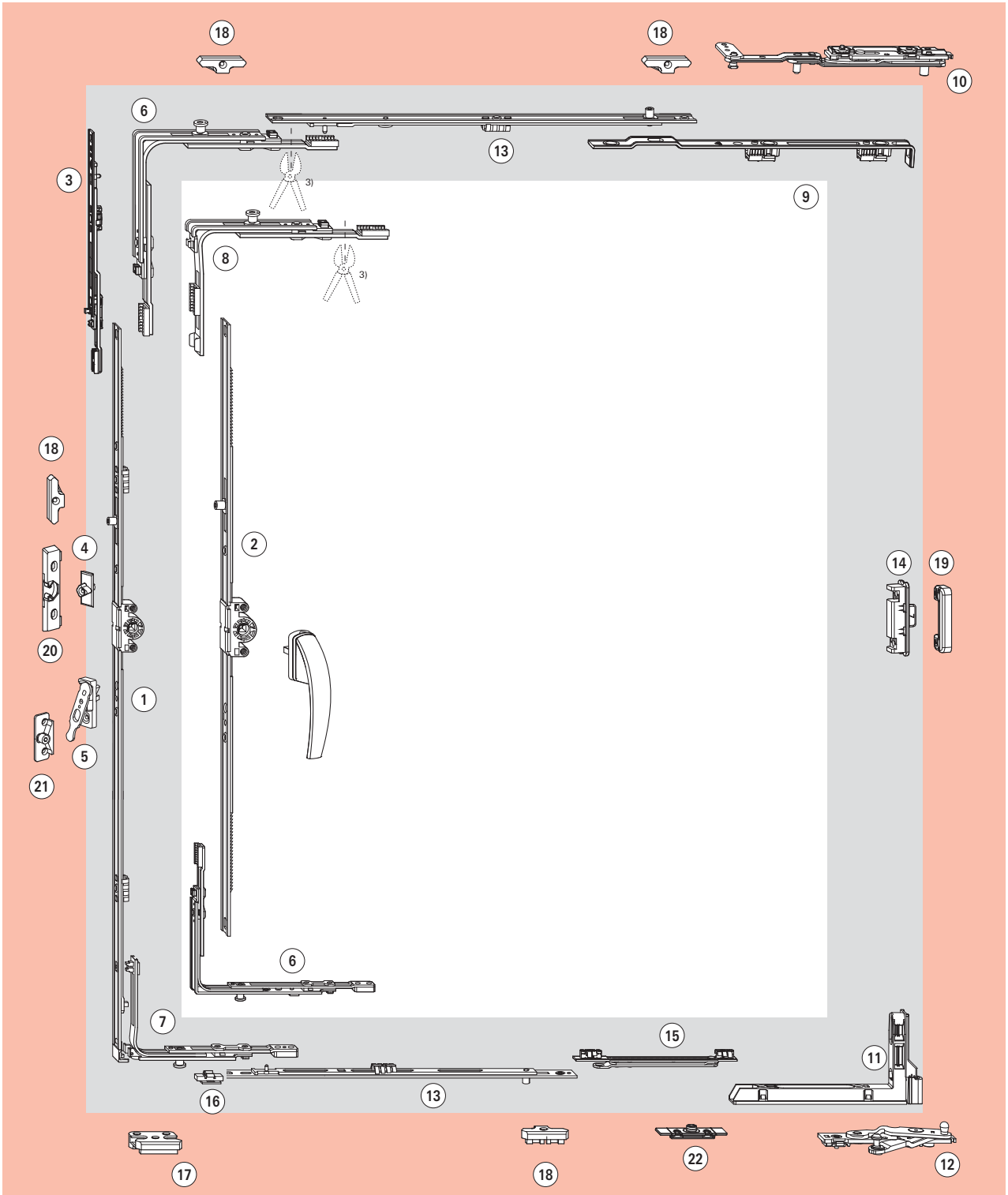
Sash weight **without load transfer** ..... max. 100 kg
Sash weight **with load transfer** ..... max. 150 kg

⑩	**Stay arm Tilt-First** → p. 52	
⑯	**Additional scissor stay Tilt-First** (from SRW 1201)[1]	**292022**
	Profile-related frame components: → p. 54	
⑳	**Tilt striker Tilt-First**	

1) Use an additional scissor stay from SRW 1201 mm

NOTE!
For hardware components shown greyed out, please refer to the Basic security chapter Tilt&Turn hardware, page 29.

NOTE!
Installation instructions for frame components see page 68 – 69.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Application range

Sash rebate width **SRW** ..... 370[3] – 1400 mm
Sash rebate height **SRH** ..... 280 – 2600[1] mm
Sash weight ..... max. 100 kg

(1) T&T espagnolette, fixed handle height, backset 15 mm[6]

SRH / mm	Handle height / mm	Espagnolette length	Cam	Material no.
280 – 360 [2], [4], [5]	120	370		**284314**
361 – 480 [2], [4]	120	370		**284314**
481 – 600	170	490		**259830**
601 – 800	263	690		**259831**
801 – 1000	413	890		**259834**
1001 – 1200	513	1090	1 E	**259838**
1201 – 1400	563	1290	1 E	**259840**
1401 – 1600	563	1490	2 E	**259842**
1601 – 1800	563	1690	2 E	**259846**
1601 – 1800	1000	1690	2 E	**259847**
1801 – 2000	1000	1890	2 E	**259849**
2001 – 2200	1000	2090	2 E	**259851**
2201 – 2400	1000	2290	2 E	**259854**
2401 – 2600 [1]	1000	2290	3 E	**259855**

(2) T&T espagnolette, centred/variable handle height, backset 15 mm[6]

SRH / mm	Handle height / mm	Espagnolette length	Cam	Material no.
310 – 450 [4], [5]	155 – 225	430		**259717**
451 – 620 [4]	225 – 310	400		**259718**
621 – 800	311 – 400	580	1 E	**259719**
801 – 1200	401 – 600	980	1 E	**259720**
1201 – 1600	601 – 800	1380	2 E	**259721**
1601 – 2000	801 – 1000	1780	2 E	**259762**
2001 – 2400	1001 – 1200	2180	4 E	**259763**
2401 – 2600 [1]	1001 – 1200	2180	4 E	**259763**

(3) Centre lock (from SRH 2401 mm)

SRH / mm	Size	Material no.
2401 – 2600	200 CON	**308267**

(4) Bullet catch cam — **256020**

(5) Lifting mishandling device, sash component — **260538**

(6) Corner drive[3] not dep. — E — **260275**
Corner drive[3] — P — **260277**

(7) Corner drive, T&T — P — **260290**

(8) Special corner drive (SRH < 360 / 450) — E — **260280**
Special corner drive (SRH < 360 / 450) — P — **260282**

(9) Sash-component for rebate hinge — **477255**

(10) Rebate-hinge arm → p. 52

(11) Corner hinge[8]

DIN	Material no.
L	**616614**
R	**616613**

(12) Pivot rest → p. 52

(13) Multipart centre lock, horizontal

SRW / mm	Size	Cam	Material no.
1101 – 1400	600	1 E	**255281**

(14) Centre-closer, concealed, sash component — **450984**

(15) Turn-restrictor, sash component (possible from SRW 525, mandatory from SRW 1000 mm and when using load transfer device) — **485591**

(16) 90° travel restrictor — **264603**

Profile-related frame components: → p. 54

(17) Security striker

(18) Striker

(19) Centre-closer, concealed, frame component[7]

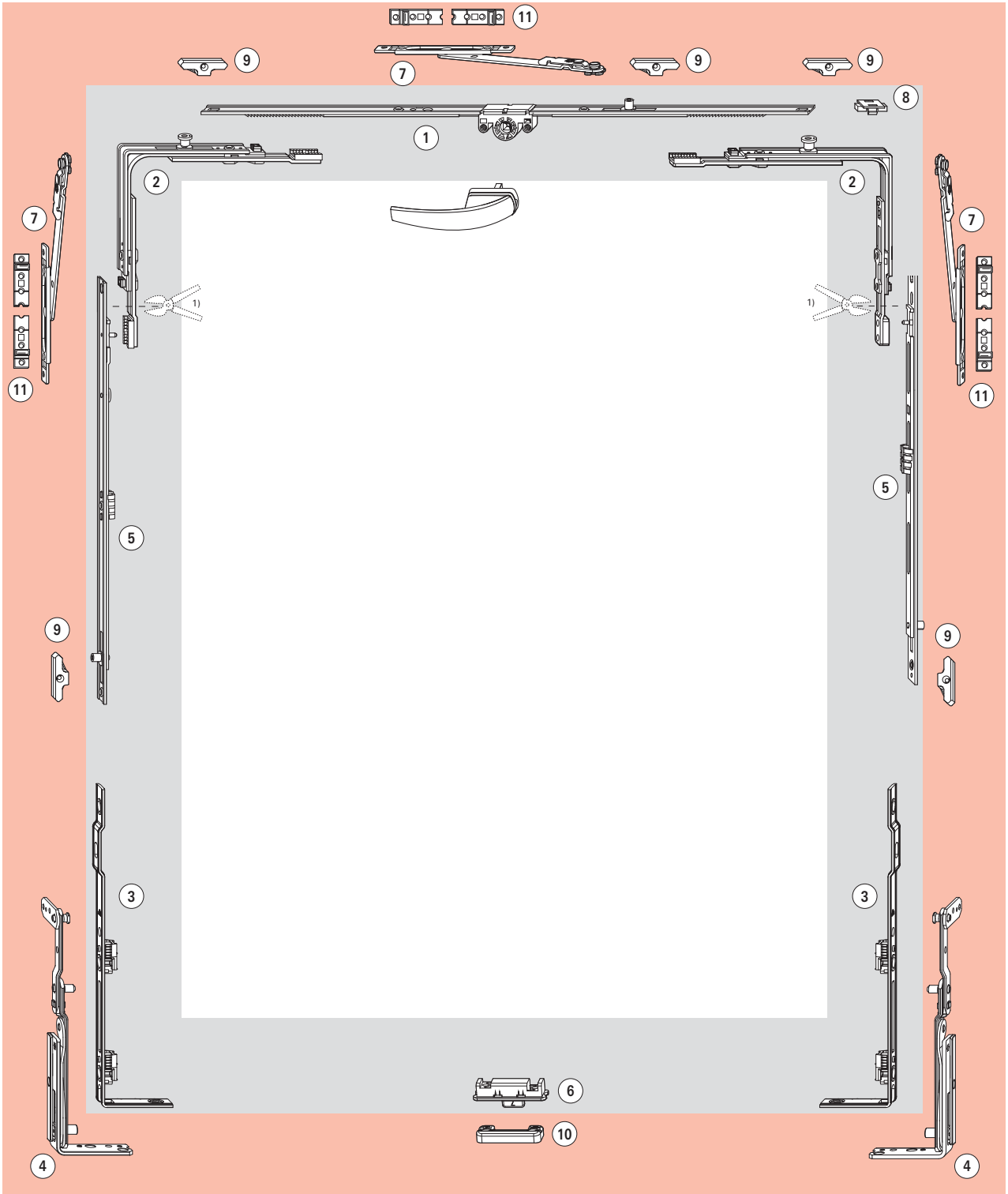
(20) Bullet catch

(21) Lifting mishandling device, frame component

(22) Turn-restrictor, frame component (possible from SRW 525, mandatory from SRW 1000)

1) From SRH 2401 mm CL 200 CON (3)
2) With integrated corner drive
3) SRW 370 – 410 mm: Shorten corner drive on top
4) Not possible in combination with a lifting mishandling device
5) With special corner drive
6) Please refer to CTL_6_EN for further backsets
7) Put pressure-resistant packers between glass and frame in the area of the centre-closers.
8) For a corner-hinge solution with alternative screw positions to avoid screw-fixing at the corner connector, see page 60

NOTE!
Installation instructions for frame components see page 74 – 75.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Application range

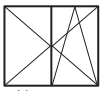
Sash rebate width **SRW** ..... 450[2] – 1400 mm
Sash rebate height **SRH** ..... 370[1, 3] – 1200 mm
Sash weight ..... max. 80 kg

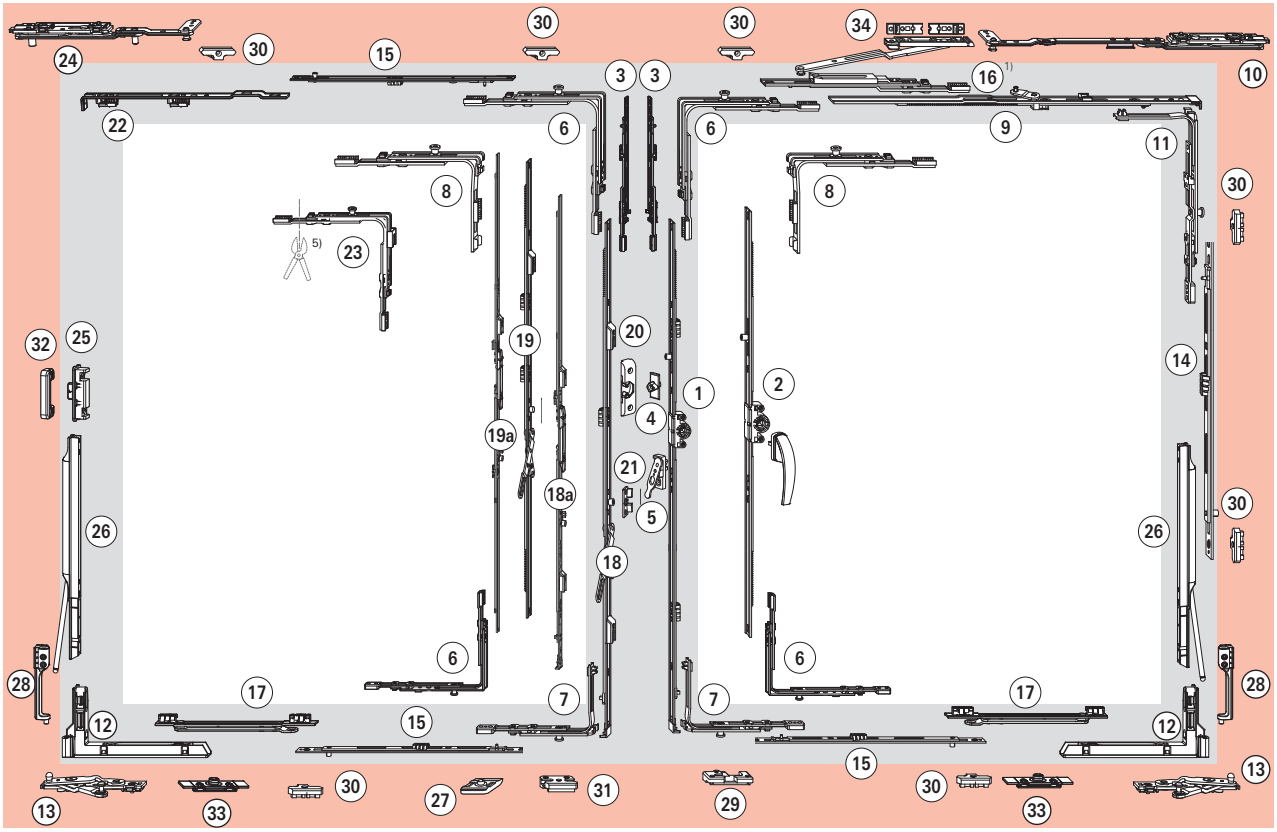
①	**T&T espagnolette, centred/variable handle height,** backset 15 mm[4]		
SRW / mm	Espagnolette length	Cam	Material no.
451 – 620	400		**259718**
621 – 800	580	1 E	**259719**
801 – 1200	980	1 E	**259720**
1201 – 1400	1380	2 E	**259721**
②	**Corner drive**[1] not dep.	E	**260275**
	Corner drive[1]	P	**260277**
③	**Sash-component for rebate hinge**		**640563**
④	**Rebate-hinge arm → p. 52**		
⑤	**Multipart centre lock, vertical**		
SRH / mm	Size	Cam	Material no.
801 – 1200	400	1 E	**255280**
⑥	**Centre-closer, concealed,** sash component		**450984**
⑦	**Tilt-stay set for dummy mullion mounting**		**482823**
	Screw for mounting on corner drive		**567995**
⑧	**90° travel restrictor**		**264603**
Profile-related frame components: → p. 54			
⑨	**Striker**		
⑩	**Centre-closer, concealed,** frame component		
⑪	**Packer for tilt-stay**		

1) SRH 370 – 410 mm: Shorten corner drive
2) SRW 450 – 620 mm only from SRH 500 mm
3) SRH 370 – 500 mm only from SRW 621 mm
4) Please refer to CTL_6_EN for further backsets

NOTE!
Installation of tilt-stay, cf. IMO_111_EN (AB 576 GB).

NOTE!
Installation instructions for frame components see page 76.





INSTALLATION ADVICE
Hinge in the passive sash with lever-operated espagnolette in open position.

ADVICE!
- Please refer to page 41 for possible combinations of corner drives in the case of low and narrow sashes.
- On SRH < 600 mm, the tilt depth must be limited to 80 mm (cf. page 82).

Application range

Sash rebate width **SRW** ..... 370 – 1400[1)] mm
Sash rebate width **with load transfer** ..... 525 – 1400[1)] mm
Sash rebate height **SRH** ..... 370 – 2600[2)] mm
Sash rebate height **with load transfer** ..... 1000 – 2600[2)] mm

Sash weight **without load transfer** ..... max. 100 kg
Sash weight **with load transfer** ..... max. 150 kg

(1) T&T espagnolette, fixed handle height, backset 15 mm[7)]

SRH / mm	Handle height / mm	Handle length / mm	Cam	Material no.
430 – 480 [3), 4)]	120	370		**284314**
481 – 600	170	490		**259830**
601 – 800	263	690		**259831**
801 – 1000	413	890		**259834**
1001 – 1200	513	1090	1 E	**259838**
1201 – 1400	563	1290	1 E	**259840**
1401 – 1600	563	1490	1 E	**259842**
1601 – 1800	563	1690	2 E	**259846**
1601 – 1800	1000	1690	2 E	**259847**
1801 – 2000	1000	1890	2 E	**259849**
2001 – 2200	1000	2090	2 E	**259852**
2201 – 2400	1000	2290	2 E	**259854**
2401 – 2600 [2)]	1000	2290	3 E	**259855**

(2) T&T espagnolette, centred/variable handle height, backset 15 mm[7)]

SRH / mm	Handle height / mm	Handle length / mm	Cam	Material no.
370 – 450 [4)]	155 – 225	430		**259717**
451 – 620 [4)]	225 – 310	400		**259718**
621 – 800	311 – 400	580	1 E	**259719**
801 – 1200	401 – 600	980	1 E	**259720**
1201 – 1600	601 – 800	1380	2 E	**259721**
1601 – 2000	801 – 1000	1780	2 E	**259762**
2001 – 2400	1001 – 1200	2180	4 E	**259763**
2401 – 2600 [2)]	1001 – 1200	2180	4 E	**259763**

(3) Centre lock (from SRH 2401 mm)

SRH / mm	Size	Material no.
2401 – 2600	200 CON	**308267**

(4) Bullet catch cam — **256020**

(5) Lifting mishandling device, sash component — **260538**

(6) Corner drive not dep. — E — **260275**
Corner drive — P — **260277**

(7) Corner drive, T&T — P — **260290**

(8) Special corner drive (SRW < 430 mm) — E — **260280**
Special corner drive (SRW < 430 mm) — P — **260282**

(9) Stay guide

SRW / mm	Description	Length	Cam	Material no.
370 – 430	250	490		**385393**
431 – 600	250	490		**385393**
601 – 800	350	690		**385394**
801 – 1000	500	890	1 E	**385415**
1001 – 1200	500	1090	1 E	**385416**
1201 – 1400 [1)]	500	1090	1 E	**385416**

(10) Stay arm → p. 52

(11) Stay corner drive — P — **260286**

(12) Corner hinge[16)]

DIN	Material no.
L	**616614**
R	**616613**

(13) Pivot rest → p. 52

(14) Multipart centre lock, vertical

SRH / mm w/o load transfer (≤ 80 kg)	SRH / mm with load transfer (≥ 80 kg)	Size	Cam	Material no.
	1101 – 1150	400	1 E	**255280**
1101 – 1800	1151 – 1800	600	1 E	**255281**
1801 – 2400	1801 – 2400	600 CON	1 E	**255282**
		600	1 E	**255281**
2401 – 2600	2401 – 2600	600 CON	1 E	**255282**
		600 CON	1 E	**255282**
		400	1 E	**255280**

(15) Multipart centre lock, horizontal

SRW / mm	Size	Cam	Material no.
1100 – 1400	600	1 E	**255281**

(16) Additional scissor stay (from SRW 1201) — **255237**

(17) Turn-restrictor, sash component — **485591**
(possible from SRW 525, mandatory from SRW 1000 mm and when using load transfer device)

(18) Lever-operated espagnolette, fixed lever-height[6)]

SRH / mm	Lever position	Length	Material no.
430 – 500 501 – 600	195	490	**233408**
601 – 800	335	690	**233409**
801 – 1000	490	890	**233410**
1001 – 1200	335	1090	**233411**
1201 – 1400	335	1290	**233412**
1401 – 1600	335	1490	**233413**
1601 – 1800	335	1690	**296145**
1801 – 2000	640	1890	**296074**
2001 – 2200	640	2090	**296075**
2201 – 2400	640	2290	**296076**
2401 – 2600 [2)]	640	2290	**296076**

(18a) Lever-operated espagnolette Plus, fixed lever-height[11)]

SRH / mm	Lever position	Length / mm	Material no.
431 – 500 [8)] 501 – 600 [9)]	195	490	**623365**
431 – 600	233	490	**623366**[10)]
601 – 800	195	690	**623368**[11)]
601 – 800	195	690	**623367**[11)]
601 – 800	335	690	**623369**
801 – 1000	490	890	**623371**
801 – 1000	195	890	**623370**[7)]
1001 – 1200	335	1090	**623372**
1201 – 1400	335	1290	**623373**
1401 – 1600	335	1490	**623374**
1601 – 1800 [12)]	335	1690	**623375**
1801 2000	640	1890	**623376**
2001 2200	640	2090	**623377**
2201 2400	640	2290	**623378**

(19) Lever-operated espagnolette, centred/variable lever-height[6]			
SRH / mm	Lever position	Length	Material no.
370 – 520	225 – 300	400	**233418**
521 – 620	301 – 350	400	**233418**
621 – 650	393 – 407	680	**233419**
651 – 800	408 – 482	680	**233419**
801 – 1200	482 – 682	980	**233420**
1201 – 1600	448 – 648	1380	**290912**
1601 – 2000	680 – 880	1780	**296146**
2001 – 2400	880 – 1080	2180	**296147**
2401 – 2600 [2]	1080	2180	**296147**

(19a) Lever-operated espagnolette Plus, centred/variable lever-height[15]			
SRH / mm	Lever position	Length / mm	Material no.
370 – 620	225 – 350	400	**623379**[14]
621 – 800	393 – 482	680	**623380**
621 – 900		680	**623381**[11]
801 – 1200	482 – 682	980	**623382**
901 – 1200		980	**623383**[11]
1201 – 1600	448 – 658	1380	**623384**
1601 – 2000	680 – 890	1780	**623385**
2001 – 2400	880 – 1090	2180	**623386**

(20)	**Bullet catch for lever-operated espagnolette**	**385031**
(21)	**Lifting mishandling device** Stop for lever-operated espagnolette	**257600**
(22)	**Sash-component for rebate hinge**	**477255**
(23)	**Corner drive with security striker**[5]	**313538**
(24)	**Rebate-hinge arm → p. 56**	
(25)	**Centre-closer, concealed,** sash component	**450984**
(26)	**Load transfer device,** sash component[16]	**567972**
(27)	**Run-up block**	**350402**

Profile-related frame components: → p. 54

(28)	**Load transfer device,** frame component
(29)	**Tilt striker**
(30)	**Striker**
(31)	**Security striker**
(32)	**Centre-closer, concealed,** frame component[12]
(33)	**Turn-restrictor,** frame component (possible from SRW 525, mandatory from SRW 1000 mm and when using load transfer device)
(34)	**Packer for additional scissor stay**

1) Use an additional scissor stay (16) from SRW 1201 mm
2) From SRH 2401 mm CL 200 CON (3)
3) With integrated corner drive (1)
4) Not possible in combination with a lifting mishandling device
5) SRW 370 – 400 mm: Shorten corner drive on top
6) When using the lever-operated espagnolette on the right hand side, turn the eccentric cam 180°
7) Please refer to CTL_6_EN for further backsets
8) With special corner drive (7)
9) With corner drive (5)
10) No striker possible
11) For T&T espagnolette, 8 mm backset
12) From SRH 2401 mm: Centre lock CL 200 CON (3)
13) Put pressure-resistant packers between glass and frame in the area of the centre-closers.
14) Without lifting mishandling device (stop for lever-operated espagnolette)
15) Lifting mishandling device (stop for lever-operated espagnolette), preassembled as standard
16) For a corner-hinge solution with alternative screw positions to avoid screw-fixing at the corner connector, see page 60

NOTE!
Installation instructions for frame components see page 77.

Fixed handle height, for low sashes
SRH 430 – 500 mm from SRW 430 mm

		Material no.		Material no.	
SRH 430 – 500	8	**260280** **260282**	6	**260275**	Top
	7	**260290**	7	**260290**	Bottom

Centred handle height, for low sashes
SRH 370 – 650 mm from SRW 430 mm

		Material no.		Material no.	
SRH 370 – 450	8	**260280** **260282**	8	**260280** **260282**	Top
	8	**260280** **260282**	8	**260280** **260282**	Bottom
SRH 451 – 520	8	**260280** **260282**	6	**260275**	Top
	8	**260280** **260282**	6	**260275**	Bottom
SRH 521 – 620	6	**260275**	6	**260275**	Top
	6	**260275**	6	**260275**	Bottom
SRH 621 – 650	6	**260280** **260282**	6	**260275**	Top
	8	**260280** **260282**	6	**260275**	Bottom

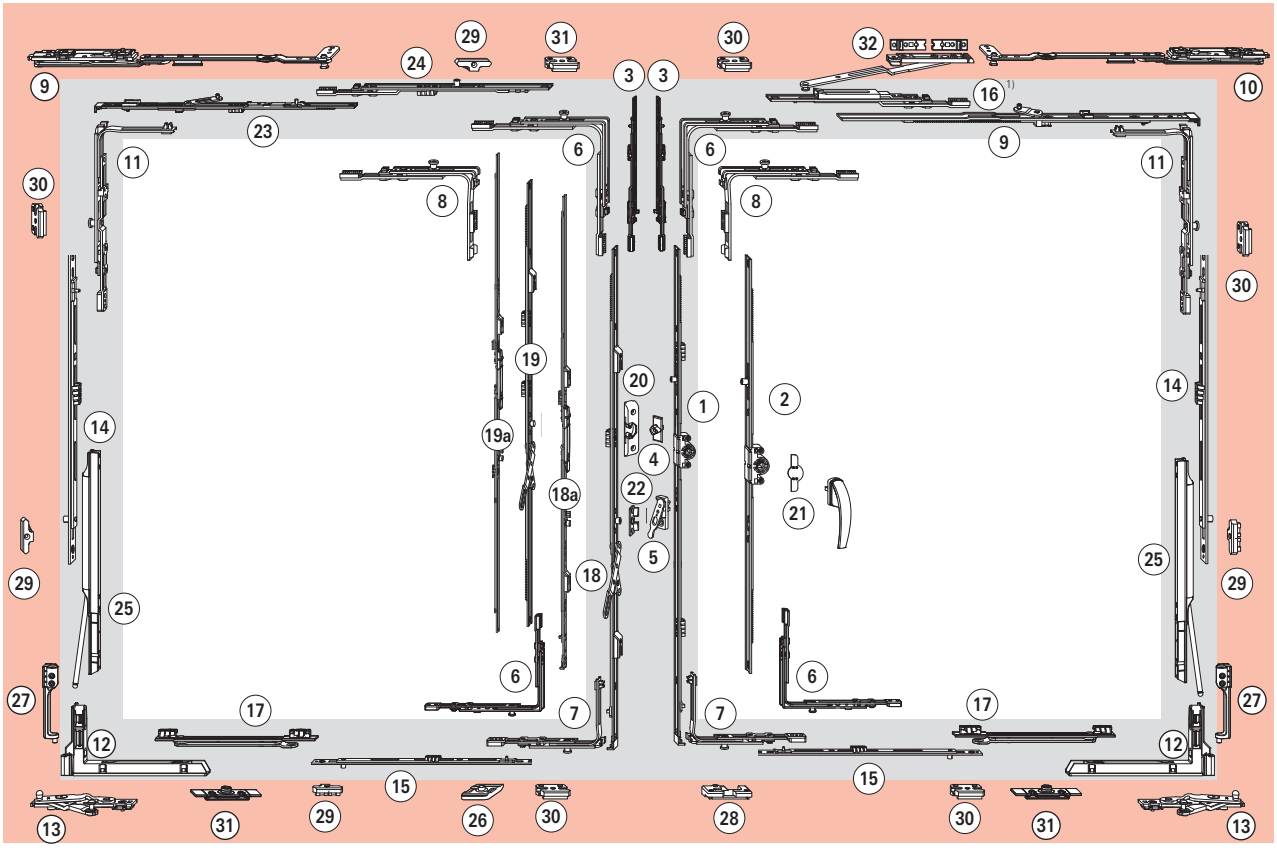
Fixed handle height, for narrow sashes
SRW 370 – 430 mm from SRH 501 mm

		Material no.		Material no.	
SRW 370 – 400	23	**313538**	8	**260280** **260282**	Top
	7	**260290**	7	**260290**	Bottom
SRW 401 – 430	23	**313538**	8	**260280** **260282**	Top
	7	**260290**	7	**260290**	Bottom

Centred handle height, for narrow sashes
SRW 370 – 430 mm from SRH 651 mm

		Material no.		Material no.	
SRW 370 – 400	23	**313538**	8	**260280** **260282**	Top
	6	**260275**	6	**260275**	Bottom
SRW 401 – 430	23	**313538**	8	**260280** **260282**	Top
	6	**260275**	6	**260275**	Bottom

without centre post



INSTALLATION ADVICE
Hinge in the passive sash with lever-operated espagnolette in open position.

NOTE!
On SRH < 600 mm, the tilt depth must be limited to 80 mm (cf. page 82).

Application range

Sash rebate width **SRW** ..... 450 – 1400[1] mm
Sash rebate width **with load transfer** ..... 650 – 1400[1] mm
Sash rebate height **SRH** ..... 370 – 2600[2] mm
Sash rebate height **with load transfer** ..... 1000 – 2600[2] mm

Sash weight **without load transfer** ..... max. 100 kg
Sash weight **with load transfer** ..... max. 150 kg

(1) T&T espagnolette, fixed handle height, backset 15 mm[7]

SRH / mm	Handle height / mm	Handle length / mm	Cam	Material no.
430 – 480 [3), 4)]	120	370		**284314**
481 – 600	170	490		**259830**
601 – 800	263	690		**259831**
801 – 1000	413	890		**259834**
1001 – 1200	513	1090	1 E	**259838**
1201 – 1400	563	1290	1 E	**259840**
1401 – 1600	563	1490	1 E	**259842**
1601 – 1800	563	1690	2 E	**259846**
1601 – 1800	1000	1690	2 E	**259847**
1801 – 2000	1000	1890	2 E	**259849**
2001 – 2200	1000	2090	2 E	**259851**
2201 – 2400	1000	2290	2 E	**259854**
2401 – 2600 [2)]	1000	2290	3 E	**259855**

(2) T&T espagnolette, centred/variable handle height, backset 15 mm[7]

SRH / mm	Handle height / mm	Handle length / mm	Cam	Material no.
370 – 450 [4)]	155 – 225	430		**259717**
451 – 620 [4)]	225 – 310	400		**259718**
621 – 800	311 – 400	580	1 E	**259719**
801 – 1200	401 – 600	980	1 E	**259720**
1201 – 1600	601 – 800	1380	2 E	**259721**
1601 – 2000	801 – 1000	1780	2 E	**259762**
2001 – 2400	1001 – 1200	2180	4 E	**259763**
2401 – 2600 [2)]	1001 – 1200	2180	4 E	**259763**

(3) Centre lock (from SRH 2401 mm)

SRH / mm	Size	Material no.
2401 – 2600	200 CON	**308267**

(4) Bullet catch cam — **256020**

(5) Lifting mishandling device, sash component — **260538**

(6) Corner drive — P — **260277**

(7) Corner drive, T&T — P — **260290**

(8) Special corner drive — P — **260282**
(SRH < 480 mm) (not dep.)

(9) Stay guide

SRW / mm	Description	Length	Cam	Material no.
450 – 600	250	490		**385393**
601 – 800	350	690		**385394**
801 – 1000	500	890	1 E	**385415**
1001 – 1200	500	1090	1 E	**385416**
1201 – 1400 [1)]	500	1090	1 E	**385416**

(10) Stay arm → p. 52

(11) Stay corner drive (SRH 370 – 2600 mm) — P — **260286**

(12) Corner hinge[13]

DIN	Material no.
L	**616614**
R	**616613**

(13) Pivot rest → p. 52

(14) Multipart centre lock, vertical

SRH / mm w/o load transfer (≤ 80 kg)	SRH / mm with load transfer (≥ 80 kg)	Size	Cam	Material no.
	1001 – 1150	400	1 E	**255280**
1101 – 1800	1151 – 1800	600	1 E	**255281**
1801 – 2400	1801 – 2400	600 CON	1 E	**255282**
		600	1 E	**255281**
2401 – 2600	2401 – 2600	600 CON	1 E	**255282**
		600 CON	1 E	**255282**
		400	1 E	**255280**

(15) Multipart centre lock, horizontal

SRW / mm w/o turn-restrictor	SRW / mm with turn-restrictor	Size	Cam	Material no.
450 – 650	650 – 850	200	1 P	**255284**
651 – 850	851 – 1050	400	1 P	**255285**
851 – 1000	1051 – 1250	600	1 P	**255286**
	1251 – 1400	600 CON	1 E	**255282**
	1251 – 1400	200	1 P	**255284**

(16) Additional scissor stay (from SRW 1201) — **255237**

(17) Turn-restrictor, sash component — **485591**
(possible from SRW 650, mandatory from SRW 1000 mm and when using load transfer device)

(18) Lever-operated espagnolette, fixed lever-height[5]

SRH / mm	Lever position	Length	Material no.
430 – 500 [5)]	195	490	**233408**
501 – 600			
601 – 800	335	690	**233409**
801 – 1000	490	890	**233410**
1001 – 1200	335	1090	**233411**
1201 – 1400	335	1290	**233412**
1401 – 1600	335	1490	**233413**
1601 – 1800	335	1690	**296145**
1801 – 2000	640	1890	**296074**
2001 – 2200	640	2090	**296075**
2201 – 2400	640	2290	**296076**
2401 – 2600 [2)]	640	2290	**296076**

(18a) Lever-operated espagnolette Plus, fixed lever-height[13]

SRH / mm	Lever position	Length / mm	Material no.
431 – 500 [5)]	195	490	**623365**
501 – 600 [8)]			
431 – 600	233	490	**623366**[9)]
601 – 800	195	690	**623368**[10)]
601 – 800	195	690	**623367**[10)]
601 – 800	335	690	**623369**
801 – 1000	490	890	**623371**
801 – 1000	195	890	**623370**[10)]
1001 – 1200	335	1090	**623372**
1201 – 1400	335	1290	**623373**
1401 – 1600	335	1490	**623374**
1601 – 1800	335	1690	**623375**
1801 2000	640	1890	**623376**
2001 2200	640	2090	**623377**
2201 2400	640	2290	**623378**

(19) Lever-operated espagnolette, centred/variable lever-height[4]

SRH / mm	Lever position	Length	Material no.
370 – 520 [5]	225 – 300	400	**233418**[2]
521 – 620	301 – 350	400	**233418**[2]
621 – 650 [5]	393 – 407	680	**233419**
651 – 800	408 – 482	680	**233419**
801 – 1200	482 – 682	980	**233420**
1201 – 1600	448 – 648	1380	**290912**
1601 – 2000	680 – 880	1780	**296146**
2001 – 2400	880 – 1080	2180	**296147**
2401 – 2600 [2]	880 – 1080	2180	**296147**

(19a) Lever-operated espagnolette Plus, centred/variable lever-height[12]

SRH / mm	Lever position	Length / mm	Material no.
370 – 620	225 – 350	400	**623379**[9]
621 – 800	393 – 482	680	**623380**
621 – 900		680	**623381**[10]
801 – 1200	482 – 682	980	**623382**
901 – 1200		980	**623383**[10]
1201 – 1600	448 – 658	1380	**623384**
1601 – 2000	680 – 890	1780	**623385**
2001 – 2400	880 – 1090	2180	**623386**

(20) Bullet catch for lever-operated espagnolette — 385031

(21) Drilling protection — 627343

(22) Lifting mishandling device — 257600
Stop for lever-operated espagnolette

(23) Turn-Only stay guide

SRW / mm	Description	Length	Material no.
450 – 510	250	490	**482571**
511 – 1400 [11]	250	600	**473381**

(24) Centre lock, connectable, horizontal, top, TU-ON

SRW / mm	Size	Cam	Material no.
711 – 910	200 CON		**308267**
911 – 1110	400 CON	1 E	**280346**
1111 – 1310	600 CON	1 E	**255282**
1311 – 1400	600 CON	1 E	**255282**
	200 CON		**308267**

(25) Load transfer device, sash component[13] — 567972

(26) Run-up block — 350402

Profile-related frame components: → p. 54

(27) Load transfer device, frame component

(28) Tilt striker

(29) Striker

(30) Security striker

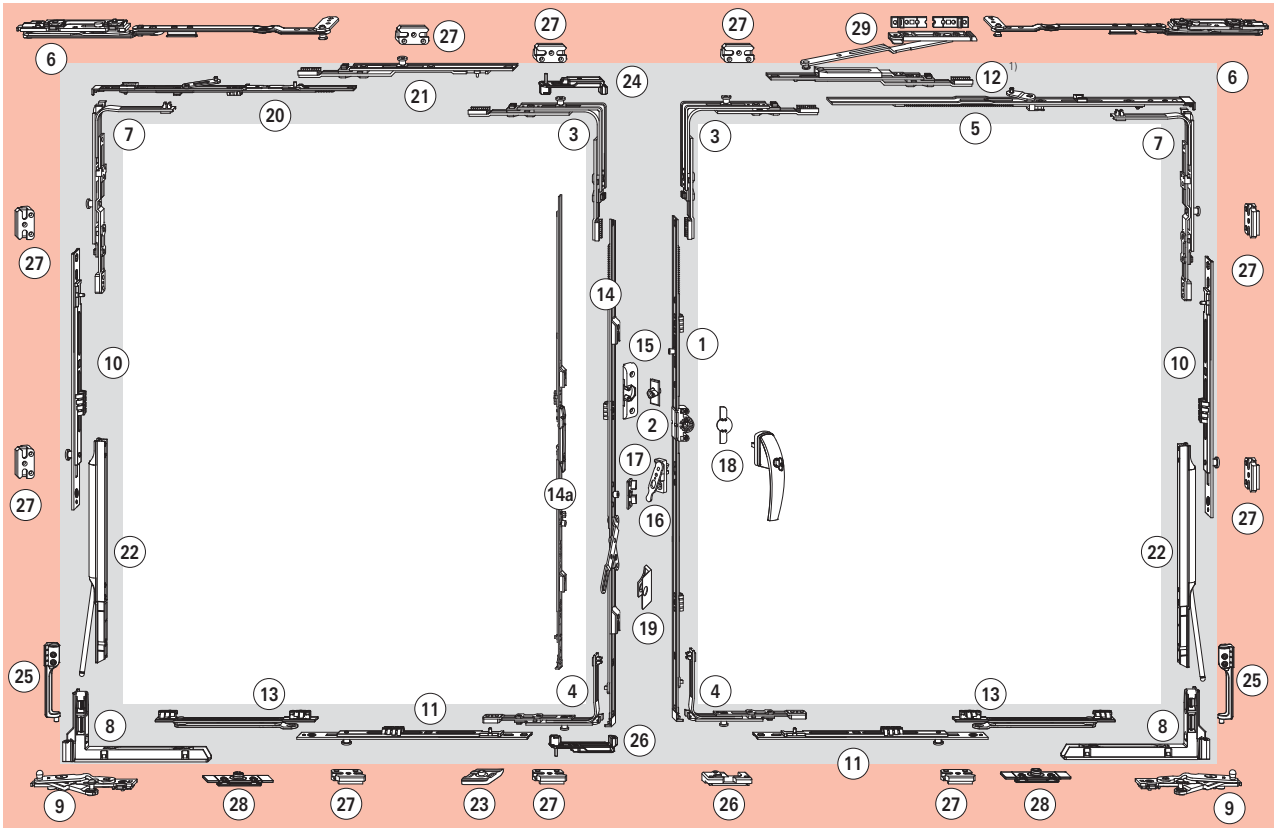
(31) Turn-restrictor, frame component
(possible from SRW 650, mandatory from SRW 1000 mm and when using load transfer device)

(32) Packer for additional scissor stay

1) Use an additional scissor stay (16) from SRW 1201 mm
2) From SRH 2401 mm CL 200 CON (3)
3) With integrated corner drive
4) Not possible in combination with a lifting mishandling device
5) With special corner drive (7)
6) When using the lever-operated espagnolette on the right hand side, turn the eccentric cam 180°
7) Please refer to CTL_6_EN for further backsets
8) With corner drive (5)
9) Without lifting mishandling device (stop for lever-operated espagnolette)
10) For T&T espagnolette, 8 mm backset
11) From SRW 711 mm: Centre lock, connectable (24)
12) Lifting mishandling device (stop for lever-operated espagnolette), preassembled as standard
13) For a corner-hinge solution with alternative screw positions to avoid screw-fixing at the corner connector, see page 60

NOTE!
Installation instructions for frame components see page 78.

without centre post



INSTALLATION ADVICE
Hinge in the passive sash with lever-operated espagnolette in open position.

NOTE!
On SRH < 600 mm, the tilt depth must be limited to 80 mm (cf. page 82).

Application range

Sash rebate width **SRW** ..... 450 – 1400[1)] mm
Sash rebate width **with load transfer** . 650 – 1400[1)] mm
Sash rebate height **SRH** ..... 490 – 2400 mm
Sash rebate height **with load transfer** 1000 – 2400 mm

Sash weight **without load transfer** ..... max. 100 kg
Sash weight **with load transfer** ..... max. 150 kg

① T&T espagnolette, fixed handle height, backset 15 mm[3)]

SRH / mm	Handle height / mm	Espagnolette length	Cam	Material no.
490 – 900	170	490		**259830**
601 – 800	263	690	1 V	**259832**
801 – 1000	413	890	2 V	**259835**
1001 – 1200	513	1090	2 V	**259837**
1201 – 1400	563	1290	2 V	**259839**
1401 – 1600	563	1490	3 V	**259841**
1601 – 1800	563	1690	3 V	**259844**
1601 – 1800	1000	1690	3 V	**259845**
1801 – 2000	1000	1890	3 V	**259848**
2001 – 2200	1000	2090	4 V	**259850**
2201 – 2400	1000	2290	4 V	**259853**

② Bullet catch cam — 256020

③ Corner drive — V — 260272

④ Corner drive, T&T — V — 260288

⑤ Stay guide

SRW / mm	Description	Length	Cam	Material no.
450 – 600	250	490		**385393**
601 – 800	350	690		**385394**
801 – 1000	500	890	1 V	**450373**
1001 – 1200	500	1090	1 V	**450374**
1201 – 1400 [1)]	500	1090	1 V	**450374**

⑥ Stay arm → p. 52

⑦ Stay corner drive (SRH 490 – 2400 mm) — V — 260286

⑧ Corner hinge[9)]

DIN	Material no.
L	**616614**
R	**616613**

⑨ Pivot rest → p. 52

⑩ Multipart centre lock, vertical

SRH / mm w/o load transfer (≤ 80 kg)	SRH / mm with load transfer (≥ 80 kg)	Size	Cam	Material no.
490 – 650		200	1 V	**296853**
651 – 850	1000 – 1150	400	1 V	**296854**
851 – 1050	1151 – 1350	600	1 V	**296855**
1051 – 1250	1351 – 1550	600 CON	1 V	**337711**
		200	1 V	**296853**
1251 – 1450	1551 – 1750	600 CON	1 V	**337711**
		400	1 V	**296854**
1451 – 1650	1751 – 1950	600 CON	1 V	**337711**
		600	1 V	**296855**
1651 – 1850	1951 – 2150	600 CON	1 V	**337711**
		600 CON	1 V	**337711**
		200	1 V	**296853**
1851 – 2050	2151 – 2350	600 CON	1 V	**337711**
		600 CON	1 V	**337711**
		400	1 V	**296854**
2050 – 2250	2351 – 2400	600 CON	1 V	**337711**
		600 CON	1 V	**337711**
		600	1 V	**296855**
2251 – 2400		600 CON	1 V	**337711**
		600 CON	1 V	**337711**
		600 CON	1 V	**337711**
		200	1 V	**296853**

⑪ Multipart centre lock, horizontal

SRW / mm w/o turn-restrictor	SRW / mm with turn-restrictor	Size	Cam	Material no.
450 – 650	650 – 850	200	1 V	**296853**
651 – 850	851 – 1050	400	1 V	**296854**
851 – 1000	1051 – 1250	600	1 V	**296855**
	1251 – 1400	600 CON	1 V	**337711**
		200	1 V	**296853**

⑫ Additional scissor stay (from SRW 1201) — 255237

⑬ Turn-restrictor, sash component — 485591
(possible from SRW 650, mandatory from SRW 1000 mm and when using load transfer device)

⑭ Lever-operated espagnolette, fixed lever-height[2)]

SRH / mm	Lever position	Length	Material no.
601 – 800	335	690	**233409**
801 – 1000	490	890	**233410**
1001 – 1200	335	1090	**233411**
1201 – 1400	335	1290	**233412**
1401 – 1600	335	1490	**233413**
1601 – 1800	335	1690	**296145**
1801 – 2000	640	1890	**296074**
2001 – 2200	640	2090	**296075**
2201 – 2400	640	2090	**296076**

⑭a Lever-operated espagnolette Plus, fixed lever-height[4)]

SRH / mm	Lever position	Length / mm	Material no.
600 – 800	195	690	**623368**[5)6)]
600 – 800	195	690	**623367**[6)]
600 – 800	335	690	**623369**
801 – 1000	490	890	**623371**
801 – 1000	195	890	**623370**[6)]
1001 – 1200	335	1090	**623372**
1201 – 1400	335	1290	**623373**
1401 – 1600	335	1490	**623374**
1601 – 1800	335	1690	**623375**
1801 2000	640	1890	**623376**
2001 2200	640	2090	**623377**
2201 2400	640	2290	**623378**

⑮ Bullet catch for lever-operated espagnolette — 385031

⑯ Lifting mishandling device, sash component — 260538

⑰ Lifting mishandling device — 257600
Stop for lever-operated espagnolette

⑱ Drilling protection — 627343

⑲ Retainer-clasp[7)] — 314203

⑳ Turn-Only stay guide

SRW / mm	Description	Length	Material no.
450 – 510	250	490	**482571**
511 – 1400 [7)]	250	600	**473381**

㉑ Centre lock, connectable, horizontal, top, Turn-Only sash

SRW / mm	Size	Cam	Material no.
711 – 910	200 CON	1 V	**337708**
911 – 1110	400 CON	1 V	**337710**
1111 – 1310	600 CON	1 V	**337711**
1311 – 1400	600 CON	1 V	**337711**
	200 CON	1 V	**337708**

㉒ Load transfer device, sash component[9)] — 567972

(23)	**Run-up block**	**350402**
(24)	**Safety device**[10]	**552431**

Profile-related frame components: → p. 54

(25)	**Load transfer device,** frame component
(26)	**Tilt striker**
(27)	**Security striker**
(28)	**Turn-restrictor,** frame component (possible from SRW 650, mandatory from SRW 1000 mm and when using load transfer device)
(29)	**Packer for additional scissor stay**

1) Use an additional scissor stay from SRW 1201 mm
2) When using the lever-operated espagnolette on the right hand side, turn the eccentric cam 180°
3) Please refer to CTL_6_EN for further backsets
4) Lifting mishandling device (stop for lever-operated espagnolette), preassembled as standard
5) No striker possible
6) For T&T espagnolette, 8 mm backset
7) Not for lever-operated espagnolette Plus
8) From SRW 711 mm: Centre lock, connectable (21)
9) For a corner-hinge solution with alternative screw positions to avoid screw-fixing at the corner connector, see page 60
10) Only in connection with (14). Striker length ≤ 50 mm.

NOTE!
Installation instructions for frame components see page 79.

Lever-operated espagnolette / T&T espagnolette, fixed handle height, 15 mm backset

Lever-operated espagnolette, fixed lever-height			
SRH / mm	Lever position / mm	Length / mm	Material no.
430 – 480	195	490	**233408**[1]
481 – 500	195	490	**233408**[1]
501 – 600	195	490	**233408**
601 – 800	335	690	**233409**
801 – 1000	490	890	**233410**
1001 – 1200	335	1090	**233411**
1201 – 1400	335	1290	**233412**
1401 – 1600	335	1490	**233413**
1601 – 1800	335	1690	**296145**
1601 – 1800	335	1690	**296145**
1801 – 2000	640	1890	**296074**
2001 – 2200	640	2090	**296075**
2201 – 2400	640	2290	**296076**
2401 – 2600	640	2290	**296076**
		(CL 200)	**308267**

T&T espagnolette, fixed handle height			
Lifting mish. device possible	Handle height	Length / mm	Material no.
	120	370	**284314**[2]
X	170	490	**259830**
X	170	490	**259830**
X	263	690	**259831**
X	413	890	**259834**
X	513	1090	**259838**
X	563	1290	**259840**
X	563	1490	**259842**
X	563	1690	**259846**
X	1000	1690	**259847**
X	1000	1890	**259849**
X	1000	2090	**259851**
X	1000	2290	**259854**
X	1000	2290	**259855**
		(CL 200)	**308267**

Lever-operated espagnolette / T&T espagnolette, centred/variable handle height, backset 15 mm

Lever-operated espagnolette, centred/variable lever-height			
SRH / mm	Lever position / mm	Length / mm	Material no.
430 – 450	225 – 265	400	**233418**[1]
451 – 520	266 – 300	400	**233418**[1]
521 – 620	301 – 350	400	**233418**
621 – 650	393 – 407	680	**233419**[1]
651 – 800	408 – 482	680	**233419**
801 – 1200	482 – 682	980	**233420**
1201 – 1600	448 – 648	1380	**290912**
1601 – 2000	680 – 880	1780	**296146**
2001 – 2400	880 – 1080	2180	**296147**
2401 – 2600	1080	2180	**296147**
		(CL 200)	**308267**

T&T espagnolette, centred/variable handle height			
Lifting mish. device possible	Handle height	Length / mm	Material no.
	155 – 225	430	**259717**[1]
	226 – 310	400	**259718**
	226 – 310	400	**259718**
X	311 – 400	580	**259719**
X	311 – 400	580	**259719**
X	401 – 600	980	**259720**
X	601 – 800	1380	**259721**
X	801 – 1000	1780	**259762**
X	1001 – 1200	2180	**259763**
X	1200	2180	**259763**
		(CL 200)	**308267**

Lever-operated espagnolette / T&T espagnolette, fixed handle height, 8 mm backset

Lever-operated espagnolette, fixed lever-height			
SRH / mm	Lever position / mm	Length / mm	Material no.
430 – 510	233	490	**317047**[1]
511 – 600	233	490	**317047**
601 – 800	195	690	**242730**
801 – 1000	490	890	**242732**
1001 – 1200	335	1090	**233411**
1201 – 1400	335	1290	**233412**
1401 – 1600	335	1490	**233413**
1601 – 1800	335	1690	**296145**
1601 – 1800	335	1690	**296145**
1801 – 2000	640	1890	**296074**
2001 – 2200	640	2090	**296075**
2201 – 2400	640	2290	**296076**
2401 – 2600	640	2290	**296076**
		(CL 200)	**308267**

T&T espagnolette, fixed handle height			
Lifting mish. device possible	Handle height	Length / mm	Material no.
	170	490	**259856**[2]
	170	490	**259856**[2]
X	263	690	**259858**
X	413	890	**259861**
X	513	1090	**259865**
X	563	1290	**259867**
X	563	1490	**259869**
X	563	1690	**259873**
X	1000	1690	**259874**
X	1000	1890	**259876**
X	1000	2090	**259878**
X	1000	2290	**259881**
X	1000	2290	**259881**
		(CL 200)	**308267**

Lever-operated espagnolette / T&T espagnolette, centred/variable handle height, 8 mm backset

Lever-operated espagnolette, centred/variable lever-height			
SRH / mm	Lever position / mm	Length / mm	Material no.
370 – 620	No lever-operated espagnolettes possible in this range		
621 – 800	236 – 325	680	**242726**[1]
801 – 900	325 – 375	680	**242726**
901 – 1200	298 – 448	980	**242728**
1201 – 1600	448 – 658	1380	**290912**
1601 – 2000	680 – 880	1780	**296146**
2001 – 2400	880 – 1080	2180	**296147**
2401 – 2600	1080	2180	**296147**
		(CL 200)	**308267**

T&T espagnolette, centred/variable handle height			
Lifting mish. device possible	Handle height	Length / mm	Material no.
	311 – 400	580	**259766**
	401 – 450	980	**623646**
X	451 – 600	980	**623646**
X	601 – 800	1380	**259768**
X	801 – 1000	1780	**259769**
X	1001 – 1200	2180	**259770**
X	1200	2180	**259770**
		(CL 200)	**308267**

Lever-operated espagnolette Plus / T&T espagnolette, fixed handle height, 15 mm backset

Lever-operated espagnolette, fixed lever-height

SRH / mm	Length / mm	Lever position / mm	Material no.
431 – 480	490	195	**623365** 1)
481 – 500	490	195	**623365** 1)
501 – 600	490	195	**623365**
601 – 800	690	335	**623369**
801 – 1000	890	490	**623371**
1001 – 1200	1090	335	**623372**
1201 – 1400	1290	335	**623373**
1401 – 1600	1490	335	**623374**
1601 – 1800	1690	335	**623375**
1601 – 1800	1690	335	**623375**
1801 – 2000	1890	640	**623376**
2001 – 2200	2090	640	**623377**
2201 – 2400	2290	640	**623378**
2401 – 2600	2290	640	**623378**
		(CL 200)	**450822**

T&T espagnolette, fixed handle height

Lifting mish. device possible	Length / mm	Handle height	Material no.
	370	120	**284314** 2)
X	490	170	**259830**
X	490	170	**259830**
X	690	263	**259833**
X	890	413	**259836**
X	1090	513	**259838**
X	1290	563	**259840**
X	1490	563	**259843**
X	1690	563	**259846**
X	1690	1000	**259847**
X	1890	1000	**259849**
X	2090	1000	**259852**
X	2290	1000	**259855**
X	2290	1000	**259855**
		(CL 200)	**450821**

Lever-operated espagnolette Plus / T&T espagnolette, centred/variable handle height, 15 mm backset

Lever-operated espagnolette, centred/variable lever-height

SRH / mm	Length / mm	Lever position / mm	Material no.
370 – 450	400	225 – 265	**623379** 1)3)
451 – 520	400	266 – 300	**623379** 1)3)
521 – 620	400	301 – 350	**623379** 3)
621 – 650	680	393 – 407	**623380** 1)
651 – 800	680	408 – 482	**623380**
801 – 1200	980	482 – 682	**623382**
1201 – 1600	1380	448 – 648	**623384**
1601 – 2000	1780	680 – 880	**623385**
2001 – 2400	2180	880 – 1080	**623386**
2401 – 2600	2180	1080 – 1280	**623386**
		(CL 200)	**308267**

T&T espagnolette, centred/variable handle height

Lifting mish. device possible	Length / mm	Handle height	Material no.
	430	155 – 225	**259717** 1)
	400	226 – 310	**259718**
	400	226 – 310	**259718**
X	580	311 – 400	**259719**
X	580	311 – 400	**259719**
X	980	401 – 600	**259720**
X	1380	601 – 800	**259721**
X	1780	801 – 1000	**259762**
X	2180	1001 – 1200	**259763**
X	2180	1001 – 1200	**259763**
		(CL 200)	**308267**

Lever-operated espagnolette Plus / T&T espagnolette, fixed handle height, 8 mm backset

Lever-operated espagnolette, fixed lever-height

SRH / mm	Length / mm	Lever position / mm	Material no.
431 – 510	490	233	**623366** 1)
511 – 600	490	233	**623366**
601 – 800	690	195	**623367** 3)
801 – 1000	890	490	**623370** 3)
1001 – 1200	1090	335	**623372**
1201 – 1400	1290	335	**623373**
1401 – 1600	1490	335	**623374**
1601 – 1800	1690	335	**623375**
1601 – 1800	1690	335	**623375**
1801 – 2000	1890	640	**623376**
2001 – 2200	2090	640	**623377**
2201 – 2400	2290	640	**623378**
2401 – 2600	2290	640	**623378**
		(CL 200)	**450822**

T&T espagnolette, fixed handle height

Lifting mish. device possible	Length / mm	Handle height	Material no.
	490	170	**259856** 2)
	490	170	**259856** 2)
	690	263	**259860**
X	890	413	**259863**
X	1090	513	**259865**
X	1290	563	**259867**
X	1490	563	**259870**
X	1690	563	**259873**
X	1690	1000	**259874**
X	1890	1000	**259876**
X	2090	1000	**259879**
X	2290	1000	**259882**
X	2290	1000	**259882**
		(CL 200)	**450821**

Lever-operated espagnolette Plus / T&T espagnolette, centred/variable handle height, 8 mm backset

Lever-operated espagnolette, centred/variable lever-height

SRH / mm	Length / mm	Lever position / mm	Material no.
621 – 800	680	236 – 325	**623381** 1)3)
801 – 900	680	325 – 375	**623381** 3)
901 – 1200	980	298 – 448	**623383** 3)
1201 – 1600	1380	448 – 658	**623384**
1601 – 2000	1780	680 – 880	**623385**
2001 – 2400	2180	880 – 1080	**623386**
2401 – 2600	2180	1080 – 1280	**623386**
		(CL 200)	**308267**

T&T espagnolette, centred/variable handle height

Lifting mish. device possible	Length / mm	Handle height	Material no.
	580	311 – 400	**259766**
	980	401 – 450	**623646**
X	980	451 – 600	**623646**
X	1380	601 – 800	**259768**
X	1780	801 – 1000	**259769**
X	2180	1001 – 1200	**259770**
X	2180	1001 – 1200	**259770**
		(CL 200)	**308267**

1) With special corner drive
2) With integrated T&T corner drive with P cam
3) Screwing position under the lever

The hardware components listed in the following tables depend on the specific profile and represent a selection of the Roto NT product range with 16 mm hardware groove. Further hardware component solutions (e.g. for other groove widths) available upon request.
Roto assists the customer in checking the profiles. Please contact your local Roto sales representative.

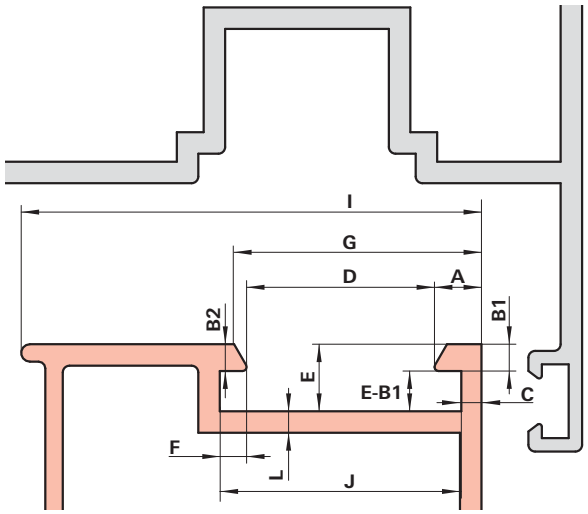
Profile-related hardware components, 9 mm / 10 mm hardware groove

Basic requirements

Parameter		min.	max.
A	Flange width, front	3.50	4.30
B1	Flange thickness, front	1.50	2.00
B2	Flange thickness, rear	1.50	2.00
C	Leg thickness, front	1.50	2.00
D	Groove width	10.00	14.00
E	Groove depth	4.50	5.20
F	Flange overlap, rear	1.70	2.50
G	Pivot rest contact surface	13.20	18.50
L*	Groove-base thickness	1.50	2.00
I	Installation space (frame)	21.00	

* Drilling jig (material no. 628534) for groove-base thickness > 2 mm

Profile section / hardware components



Hinge-side components

					DIN	Rebate hinge	Sash stay 250	Sash stay 350	Sash stay 500	Pivot rest	Corner hinge	TF sash stay 250	TF sash stay 350	TF sash stay 500
				Hardware axis 9 / 10 mm - V.01 - clamp-strip 4										
C+J	Clamp-strip dimension	19.30	20.50		L	**624505**	**624507**	**624509**	**624511**	**624513**	**616614**	**630781**	**630783**	**630795**
					R	**624504**	**624506**	**624508**	**624510**	**624512**	**616613**	**630780**	**630782**	**630784**
				Hardware axis 9 / 10 mm - V.02 - clamp-strip 1										
C+J	Clamp-strip dimension	16.00	17.10		L	**628298**	**628272**	**628274**	**628296**	**628300**	**616614**	**735554**	**735556**	**735558**
					R	**628297**	**628271**	**628273**	**628295**	**628299**	**616613**	**735553**	**735555**	**735557**

NOTE!
The hinge-side components are designed for 9 mm hardware axis. If you use components for 10 mm hardware axis, a separate profile assessment is recommended.

Clampable frame parts

					DIN	Tilt striker	Striker	2-ported striker	LMD stop	Night-vent	Bullet catch	Load transfer	Turn restrictor
				9 mm hardware axis									
D	Groove width	12.00	14.00		L	**627150**	**627148**	**627149**	**339436**	**339437**	Upon request	**625015**	**623852**
					R	**627150**	**627148**	**627149**	**339436**	**339437**	Upon request	**624924**	**623852**
				9 mm hardware axis									
D	Groove width	10.00	11.50		L	**629914**	**629913**	Upon request	**629925**	Upon request	Upon request	**623851**	**625020**
					R	**629914**	**629913**	Upon request	**629925**	Upon request	Upon request	**623850**	**625020**
				10 mm hardware axis									
D	Groove width	12.00	14.00		L	**339432**	**339434**	**339438**	**339436**	**339437**	Upon request	**625015**	**623852**
					R	**339433**	**339434**	**339438**	**339436**	**339437**	Upon request	**624924**	**623852**
				10 mm hardware axis									
D	Groove width	10.00	11.50		L	Upon request	Upon request	Upon request	Upon request	Upon request	Upon request	**623851**	**625020**
					R	Upon request	Upon request	Upon request	Upon request	Upon request	Upon request	**623850**	**625020**

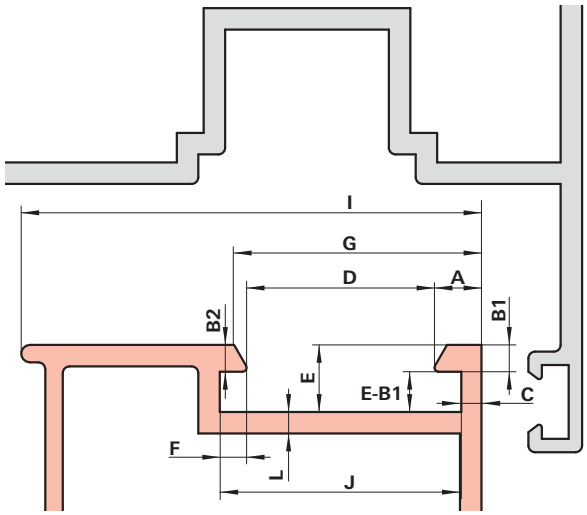
Profile-related hardware components, 13 mm hardware groove

Basic requirements

Parameter		min.	max.
A	Flange width, front	3.50	4.30
B1	Flange thickness, front	1.50	2.00
B2	Flange thickness, rear	1.50	2.00
C	Leg thickness, front	1.50	2.00
D	Groove width	10.00	14.00
E	Groove depth	4.50	5.20
F	Flange overlap, rear	1.70	2.50
SE	Pivot rest contact surface	13.20	18.50
L*	Groove-base thickness	1.50	2.00
I	Installation space (frame)	21.00	
J	Inner groove width	14.40	18.60

* Drilling jig (material no. 628534) for groove-base thickness > 2 mm

Profile section / hardware components



Hinge-side components

					Hardware axis 13 mm - V.01 - clamp-strip 4								
				DIN	Rebate hinge	Sash stay 250	Sash stay 350	Sash stay 500	Pivot rest	Corner hinge	TF sash stay 250	TF sash stay 350	TF sash stay 500
C+J	Clamp-strip dimension	19.30	20.50	L	**624515**	**624517**	**624519**	**624521**	**624523**	**616614**	**736910**	**736912**	**736914**
				R	**624514**	**624516**	**624518**	**624520**	**624522**	**616613**	**736909**	**736911**	**736913**

Clampable frame parts

				13 mm hardware axis								
				DIN	Tilt striker	Striker	2-ported striker	LMD stop	Night-vent	Bullet catch	Load transfer	Turn restrictor
D	Groove width	12.00	14.00	L	**494938**	**494937**	**494940**	**494942**	Upon request	Upon request	**625015**	**623852**
				R	**494938**	**494937**	**494940**	**494942**	Upon request	Upon request	**624924**	**623852**

				13 mm hardware axis								
				DIN	Tilt striker	Striker	2-ported striker	LMD stop	Night-vent	Bullet catch	Load transfer	Turn restrictor
D	Groove width	10.00	11.50	L	Upon request	Upon request	Upon request	Upon request	Upon request	Upon request	**623851**	**625020**
				R	Upon request	Upon request	Upon request	Upon request	Upon request	Upon request	**623850**	**625020**

Manufacturer	Profile description	Axis	Tilt striker, zinc	Striker	SEC striker, zinc	Striker 2-sash
Aalco	RA2093e1 FL2094e1	13.0mm	262927R 261943L with packer 599215	451008	262930R 261935L with packer 599215	Upon request
Aluman	IFU65	9.0mm	260524 R 260523 L	346971	346972	346976
Alumil	Ecoflex	9.0mm	Upon request	346971	Upon request	346976
Aluminco	450	9.0mm	260524 R 260523 L	346971	Upon request	346976
Aluminco	570 DYNAMIC	13.0mm	451007R 451092L	451008	451009	491062
Aluminios Brisa	-	9.0mm	260524 R 260523 L	346971	Upon request	346976
Aluprof	MB60, MB 70	9.0mm	260524 R 260523 L	346971	Upon request	346976
Aluprof	MB86	9.0mm	260524 R 260523 L	346971	Upon request	346976
Aluron	-	9.0mm	260524 R 260523 L	346971	346972	346976
Aluset	T680	9.0mm	Upon request	346971	Upon request	346976
Beliworks	A85 - 2	13.0mm	262927R 261943L with packer 599215	451008	262930R 261935L with packer 599215	491062
Brökelmann	BLK AH 275	9.0mm	284236 R 284235 L	284233	284234	Upon request
Centro-Alum	60-1126	13.0mm	262927R 261943L with packer 599215	451008	262930R 261935L with packer 599215	Upon request
Centro-Alum	69-1126	13.0mm	262927R 261943L with packer 599215	451008	262930R 261935L with packer 599215	491062
Elvial	-	9.0mm	260524 R 260523 L	346971	346972	346976
Emiliano Madrid	-	13.0mm	451007R 451092L	451008	451009	491062
Europa	5000	9.0mm	260524 R 260523 L	346971	Upon request	346976
Exlabesa	RS 65	13.0mm	262927R 261943L with packer 599215	451008	262930R 261935L with packer 599215	491062
Extruidos de Toledo	Canal 16/50 SIN Rotura	13.0mm	262927R 261943L with packer 599215	451008	262930R 261935L with packer 599215	491062
Heroal	W72 (110ES)	9.0mm	284236 R 284235 L	284233	284234	Upon request
Kawneer	Kalory	9.0mm	284236 R 284235 L	284233	284234	Upon request
Metal Tech	-	9.0mm	260524 R 260523 L	346971	Upon request	346976
Metales Extruidos	Macroter 57D	13.0mm	262927R 261943L with packer 599215	451008	262930R 261935L with packer 599215	Upon request

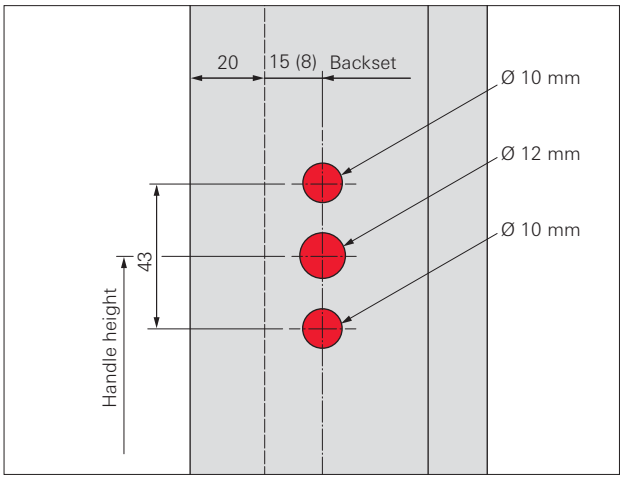
Manufacturer	Profile description	Axis	LMD stop	Centre-closer, frame Designo/Alu NT	Centre-closer, sash Designo/Alu NT	Night-vent	Bullet catch, mechanically	Packer tilt-stay	Tilt striker TF
Aalco	RA2093e1 FL2094e1	13.0	451006	Upon request	Upon request	Upon request	491063	491064	Upon request
Aluman	IFU65	9.0	260561	632885	450984	259255[1)]	260459 with packer 348148	348148	473189R 473190L
Alumil	Ecoflex	9.0	260561	632885	450984	Upon request	260459 with packer 348148	348148	473189R 473190L
Aluminco	450	9.0	260561	632885	450984	259255[1)]	260459 with packer 348148	348148	473189R 473190L
Aluminco	570 DYNAMIC	13.0	451006	632824	450984	Upon request	491063	491064	Upon request
Aluminios Brisa	-	9.0	260561	632885	450984	259255[1)]	260459 with packer 348148	348148	473189R 473190L
Aluprof	MB60, MB 70	9.0	260561	Upon request	Upon request	Upon request	260459 with packer 348148	348148	473189R 473190L
Aluprof	MB86	9.0	260561	Upon request	Upon request	259255[1)]	260459 with packer 348148	348148	473189R 473190L
Aluron	-	9.0	260561	Upon request	Upon request	259255[1)]	260459 with packer 348148	348148	473189R 473190L
Aluset	T680	9.0	260561	632885	450984	Upon request	260459 with packer 348148	348148	473189R 473190L
Beliworks	A85 - 2	13.0	451006	632824	450984	Upon request	491063	491064	Upon request
Brökelmann	BLK AH 275	9.0	284237	Upon request	Upon request	348365	290214	294541	Upon request
Centro-Alum	60-1126	13.0	451006	632824	450984	Upon request	491063	491064	Upon request
Centro-Alum	69-1126	13.0	451006	632824	450984	Upon request	491063	491064	Upon request
Elvial	-	9.0	260561	Upon request	Upon request	259255[1)]	260459 with packer 348148	348148	473189R 473190L
Emiliano Madrid	-	13.0	451006	632824	450984	Upon request	491063	491064	Upon request
Europa	5000	9.0	260561	632885		259255[1)]	260459 with packer 348148	348148	473189R 473190L
Exlabesa	RS 65	13.0	451006	632824	450984	Upon request	491063	491064	Upon request
Extruidos de Toledo	Canal 16/50 SIN Rotura	13.0	451006	632824	450984	Upon request	491063	491064	Upon request
Heroal	W72 (110ES)	9.0	284237	Upon request	Upon request	348365	290214	294541	Upon request
Kawneer	Kalory	9.0	284237	Upon request	Upon request	348365	290214	294541	Upon request
Metal Tech	-	9.0	260561	Upon request	Upon request	259255[1)]	260459 with packer 348148	348148	473189R 473190L
Metales Extruidos	Macroter 57D	13.0	451006	Upon request	Upon request	Upon request	491063	491064	Upon request

Manufacturer	Profile description	Axis	Tilt striker, zinc	Striker	SEC striker, zinc	Striker 2-sash
Ponzio	PE78	9.0mm	260524 R 260523 L	346971	346972	346976
Sapa	70 FPI	9.0mm	260524 R 260523 L	346971	Upon request	346976
Sapa	Avantis70	13.0mm	262927R 261943L with packer 599215	451008	262930R 261935L with packer 599215	Upon request
Sapa	4150 HV, BA9	9.0mm	260524 R 260523 L	346971	346972	346976
Saray	-	9.0mm	260524 R 260523 L	346971	346972	346976
SwissStar	Bluwil	13.0mm	262927R 261943L with packer 599215	451008	262930R 261935L with packer 599215	491062

1) Push to profile edge.

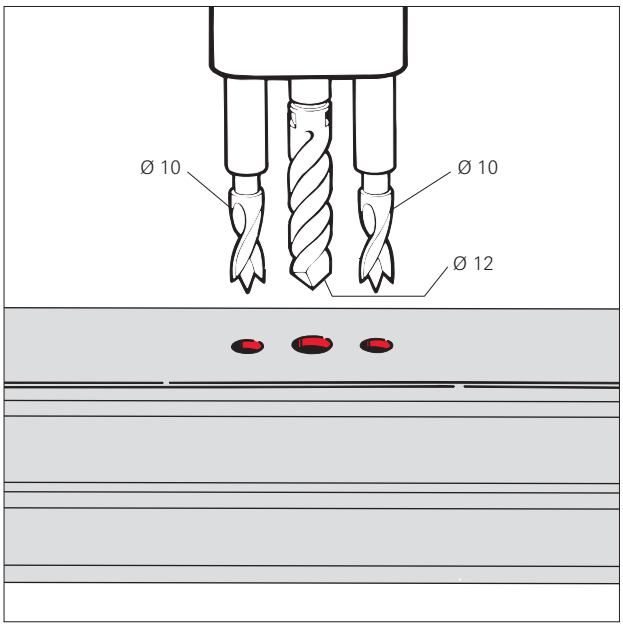
Manufacturer	Profile description	Axis	LMD stop	Centre-closer, frame Designo/Alu NT	Centre-closer, sash Designo/Alu NT	Night-vent	Bullet catch, mechanically	Packer tilt-stay	Tilt striker TF
Ponzio	PE78	9.0	260561	Upon request	Upon request	259255[1)]	260459 with packer 348148	348148	473189R 473190L
Sapa	70 FPI	9.0	260561	Upon request	Upon request	259255[1)]	260459 with packer 348148	348148	473189R 473190L
Sapa	Avantis70	13.0	451006	632824	450984	Upon request	491063	491064	Upon request
Sapa	4150 HV, BA9	9.0	260561	Upon request	Upon request	259255[1)]	260459 with packer 348148	348148	473189R 473190L
Saray	-	9.0	260561	Upon request	Upon request	259255[1)]	260459 with packer 348148	348148	473189R 473190L
SwissStar	Bluwil	13.0	451006	632824	450984	Upon request	491063	491064	Upon request

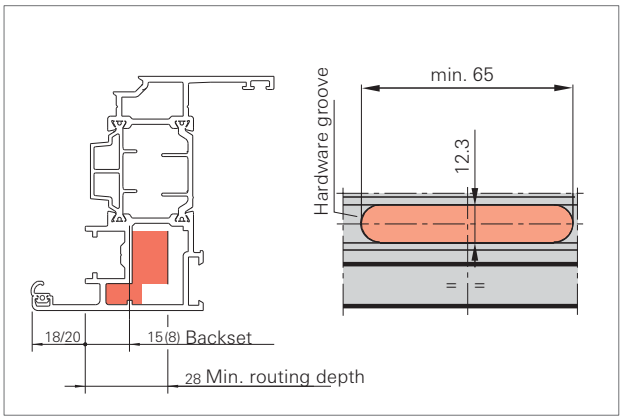
NOTE!
The information in the tables on the pages 54 to 57 are based on a theoretical review of design drawings, in which the geometric conformity of strikers to the mentioned profiles was determined.
Since it is the responsibility of the window fabricator to define the window properties, no statement regarding the properties of a window can be derived from it.



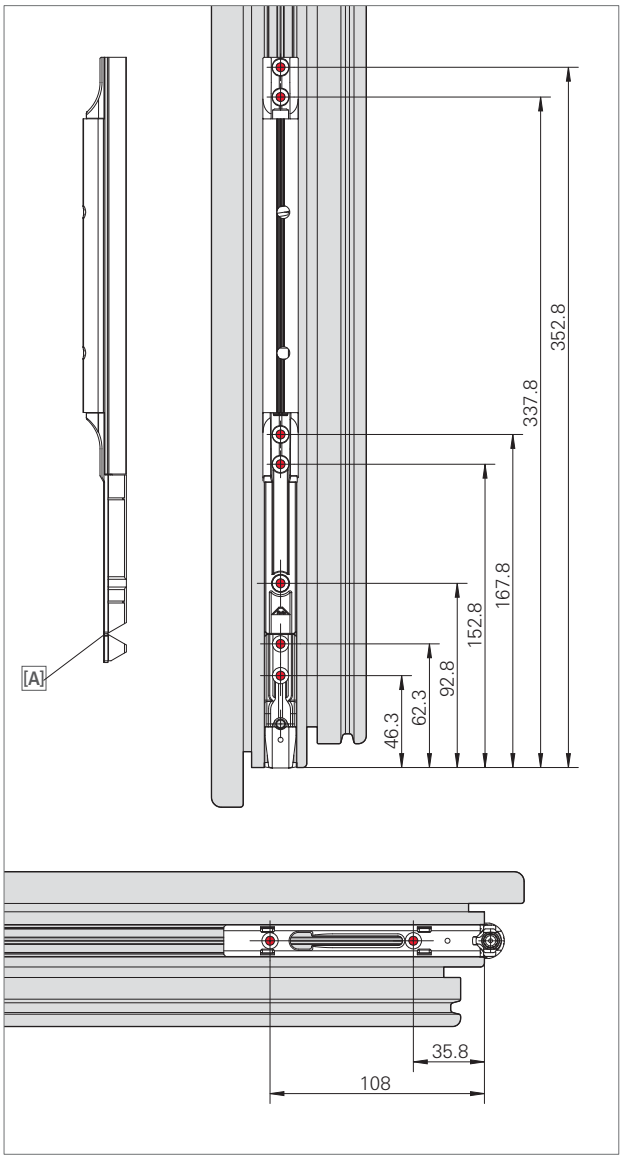
Carry out the drillings for the window handle's sprocket and lugs.

- Drill-hole Ø 10 mm:
  Overlap height (16–22) +16 mm for countersunk screws (DIN 965 M5 x ...)
- Drill-hole Ø 12 mm:
  Drilling depth: Overlap height + 16 mm



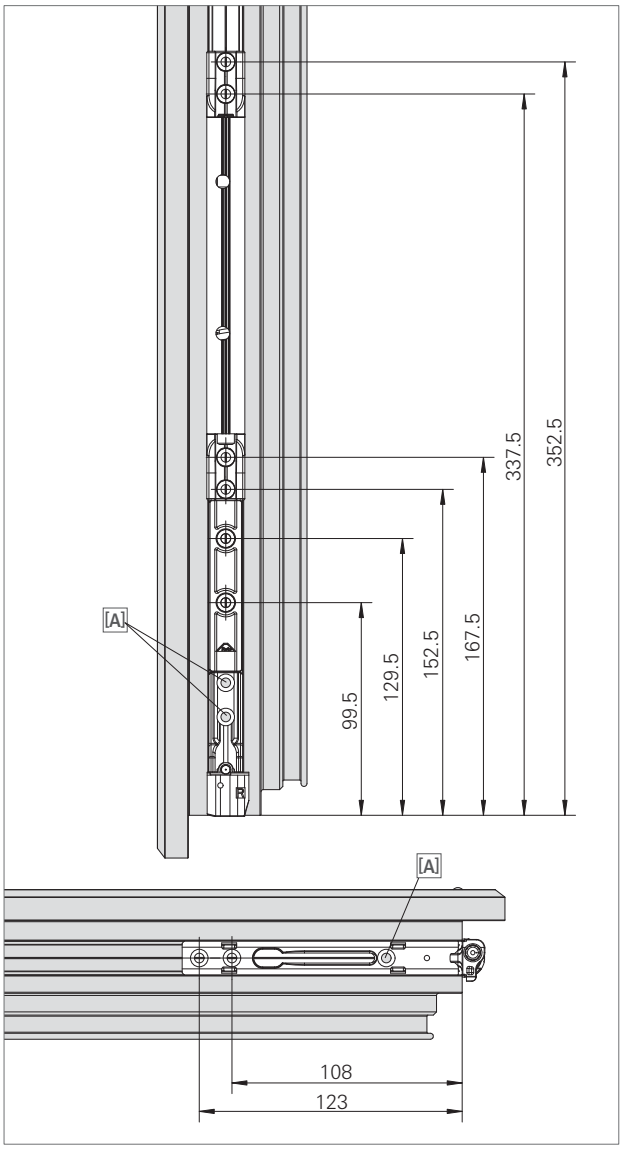


Route out for espagnolette gear-casing.



Drill corner hinge and load transfer device.

[A] Break off here.



Alternative drill-hole pattern for difficult screw-fixing situation of corner hinge and load transfer device

[A] No screw-fixing required.

Functionality

The spring in the load transfer device disburdens the pivot rest permanently by approx. 60 to 80 kg.
In order to do so, the spring must be pre-stretched to a certain length. This applies regardless of the adjustment height of the sash.
The relieving of the pivot rest is carried out over the entire lifespan of the hardware, also in consideration of sagging and wear and tear.

Installation advice

The load transfer device's spring can already be pre-stretched in the workshop, this however only makes sense if the sash is installed with the full glass load.

Transport possibility #1

Transport the sash and frame separately.

Transport possibility #2

Transport the sash in the frame.

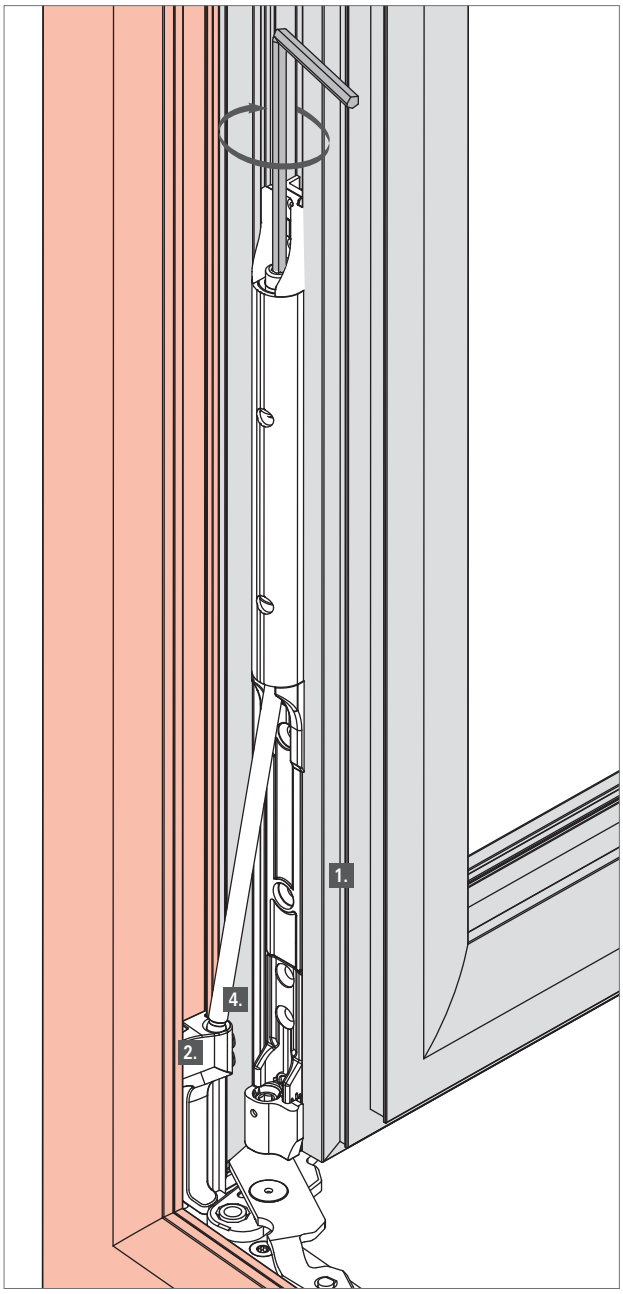
CAUTION!
The bearing can buckle!
Pre-stretch the load transfer device's spring and support the frame with spacers in the bottom rebate!

Unhinging

Screw out the screw of the load transfer device until the spring tension is released completely (support rod is loosened). If the tension in the spring is not completely released, the sash cannot be hinged into the frame again.

Application restrictions

Do not equip sashes with a sash weight < 80 kg with a load transfer device, because this can result in malfunctions.



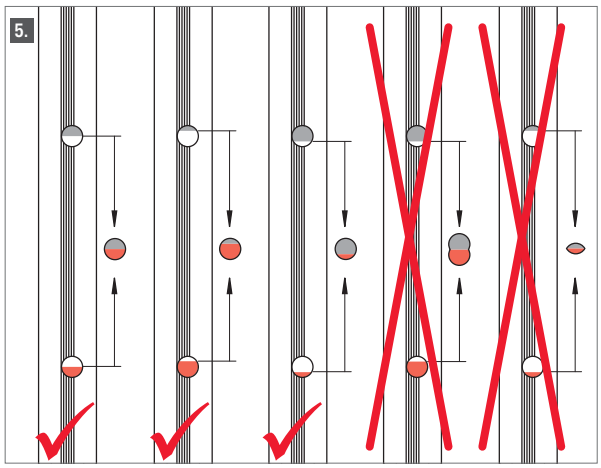
Installing the load transfer device

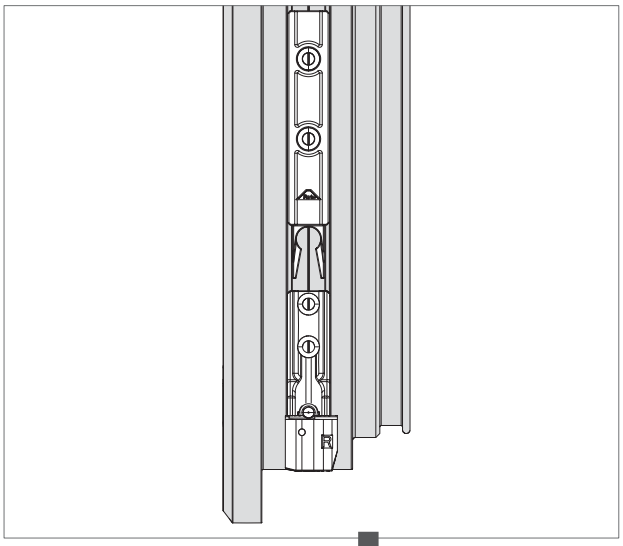
1. Insert the load transfer device's sash component up against the corner hinge and screw-fix.
2. Place the load transfer device's frame component on top of the pivot rest and screw-fix.
3. Hinge the sash (see page 81).
4. Connect the support rod with the sash component and insert into the cavity of the frame component.

NOTE!
Do not equip sashes with a sash weight < 80 kg with a load transfer device, because this can result in malfunctions.
It is compulsory to use a turn-restrictor.
If the sash is already hinged in the frame prior to transportation, the spring of the load transfer can be clamped in the workshop. However, this is only sensible if the sash is assembled with the full glass load.

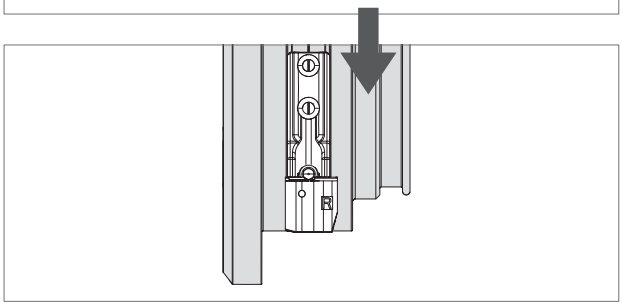
Adjusting the load transfer device

5. Adjust the load transfer device with a 4 mm Allen key in a (90°) opened sash position:
Adjust the adjusting screw in the silver divided circle in such a manner that the sum of the red and silver divided circles result in one complete circle.
Checking at the viewing panels (refer to below).

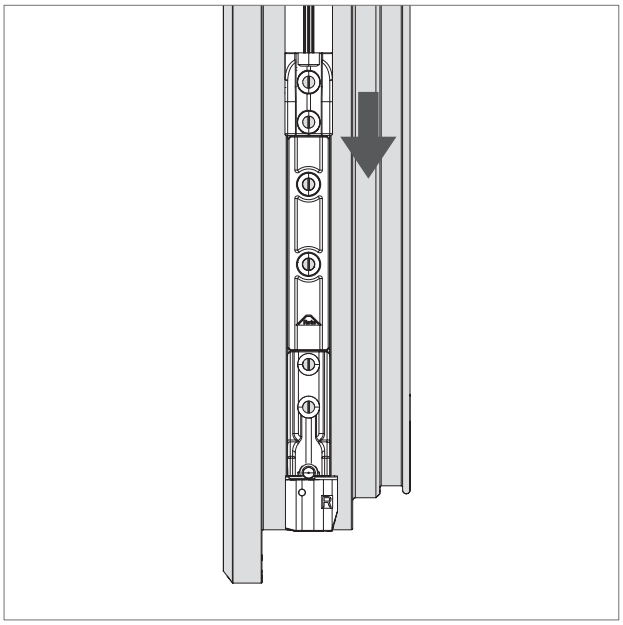




1. Clip on the extension.

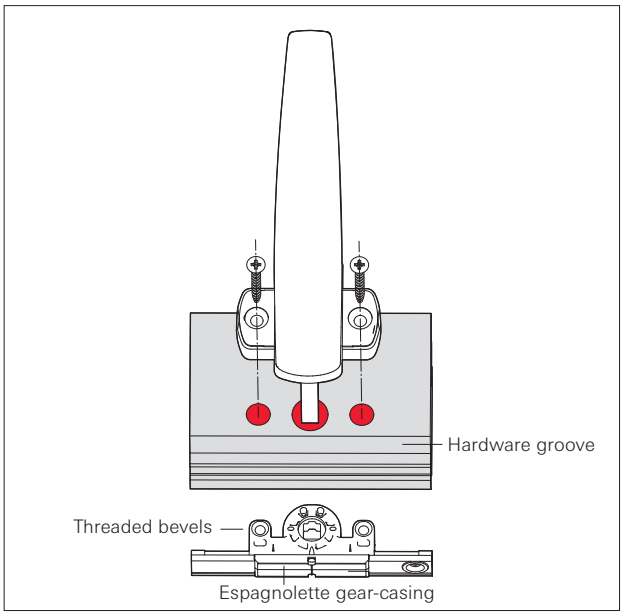


2. Insert and install the corner hinge.

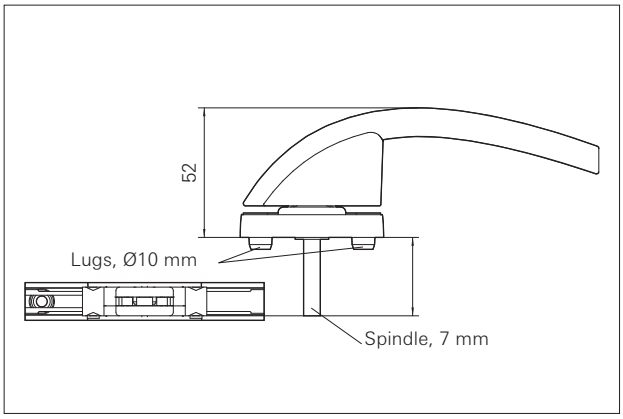


3. Place the (short) load transfer device on the extension and screw-fix.

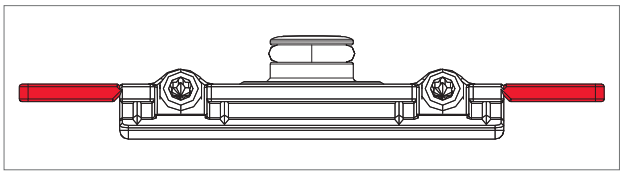
Hardware components		
Description		Material no.
Corner hinge	DIN L	**740072**
	DIN R	**740073**
Extension		**740074**
Load transfer device (short), sash component		**740125**



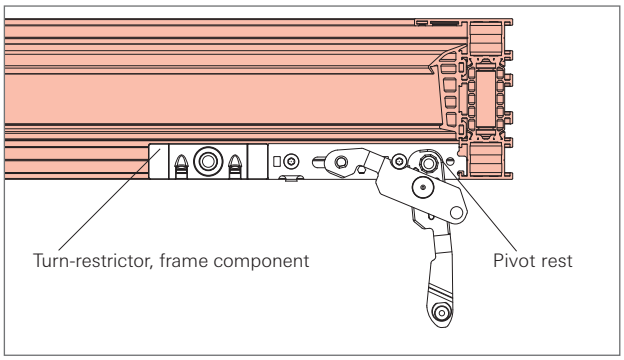
Screw-fix the window handles in the main-lock casing with DIN 965 M5 x … countersunk screws



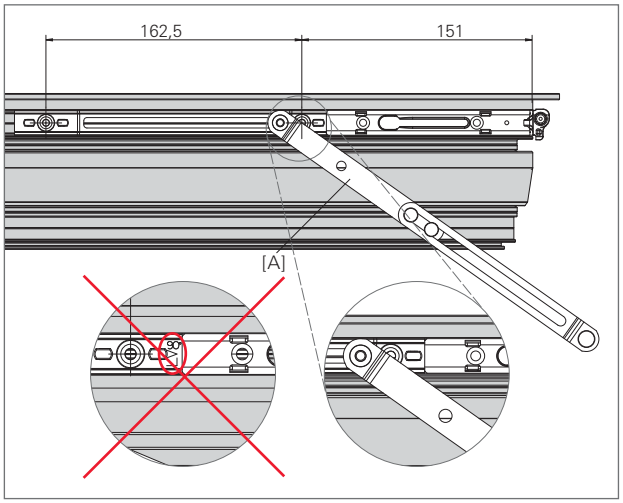
Roto Swing window handle
with lugs, spindle 7 mm



1. For an opening width of 94°, break off the right or left side of the turn-restrictor frame component before installation.



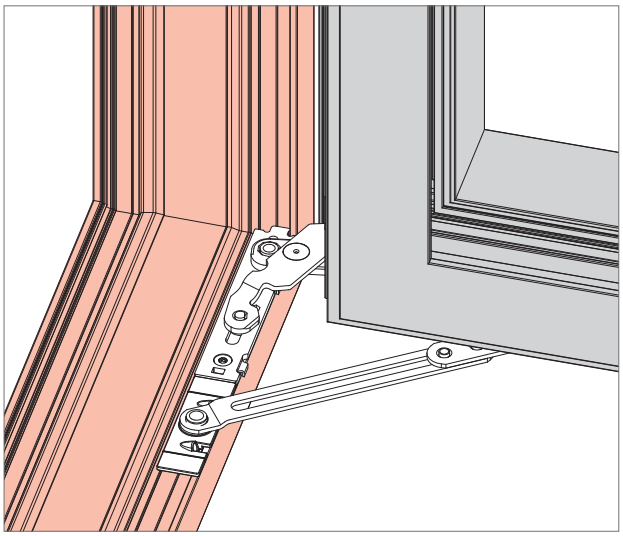
2. Install the turn-restrictor frame component next to the pivot rest.



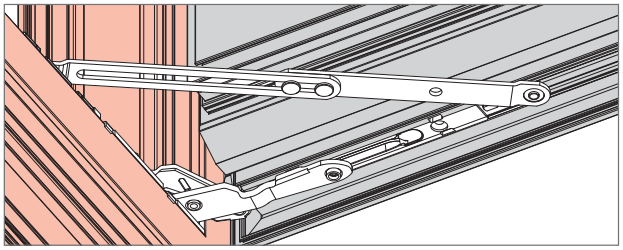
3. **Install the sash component.**

[A] Turn-restrictor sash component

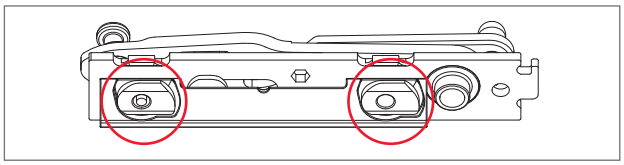
WARNING!
Danger due to incorrect installation!
Incorrect installation of the turn-restrictor destroys the pivot rest and can lead to a dropping sash and thus to serious injuries. The 90° embossing must **not** point towards the corner hinge.



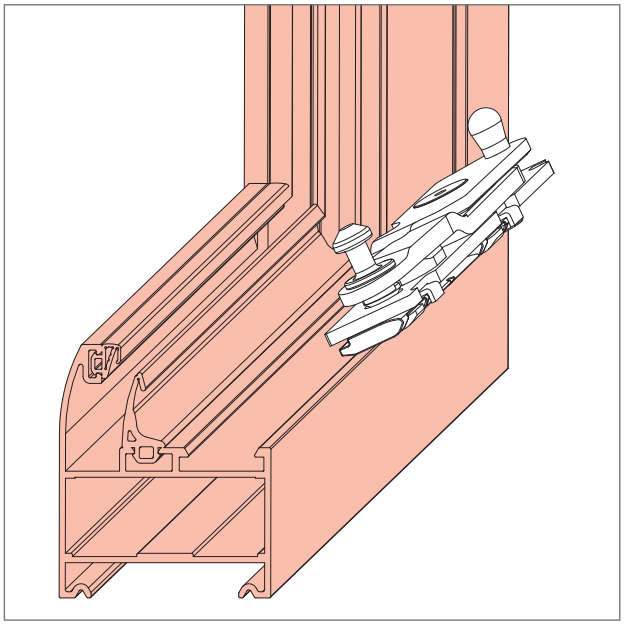
4. Press the hole at the end of the sash component on the rubber ring of the frame component's bolt.



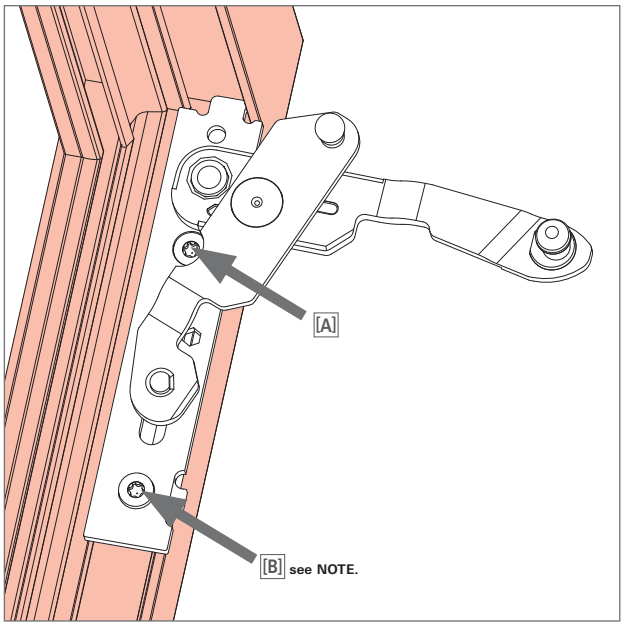
Presentation of the turn-restrictor function



1. Align the clamping blocks (refer to figure).



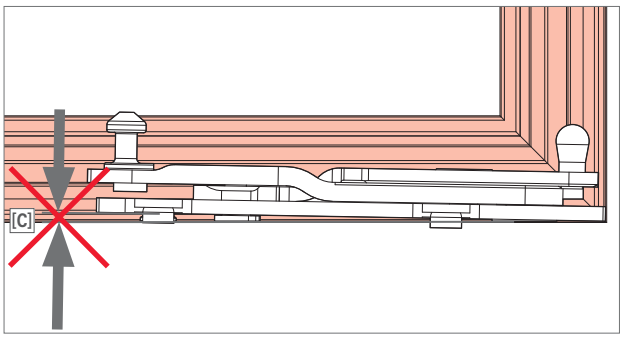
2. Swivel the bearing into the profile that the clamp-strip engages behind the aluminium profile and the base plate engages behind the aluminium profile.



3. Press the base plate flat against the aluminium profile and tighten the screw [A] (max. torque 5.5 Nm).

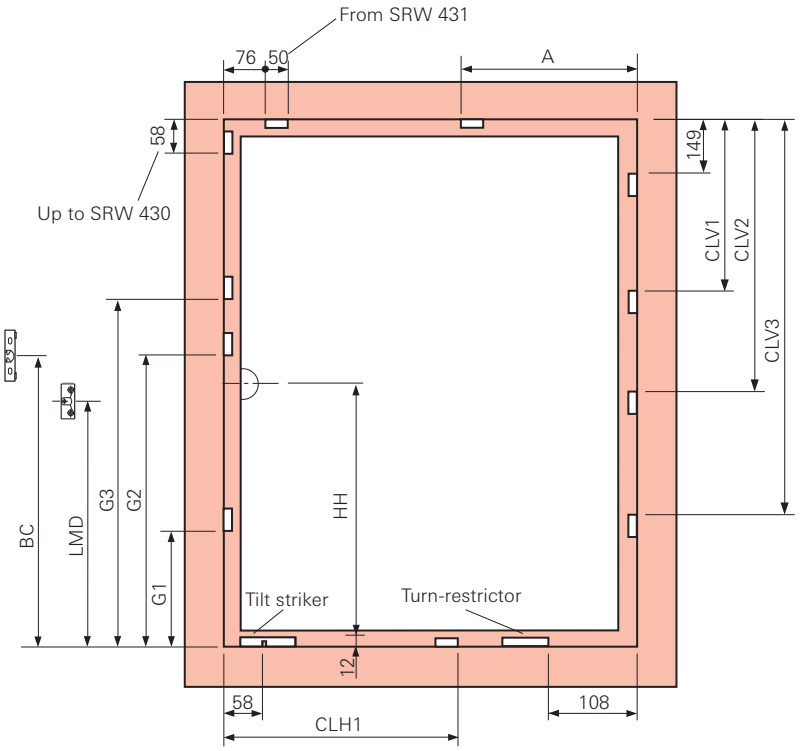
4. Examine the bearing for stability after tightening the screw.
5. Tighten the screw [B] (max. torque 5.5 Nm).
Tool: Torx key T20

NOTE!
Drilling jig (material no. 628534) for groove-base thickness > 2 mm



NOTE!
Do not leave a gap [C] between bearing and profile. The pivot rest must be fixed gap-free and secure on the profile. Observe the screw sequence! Install and remove a bearing for max. 2 times.
Carry out the stay-bearing installation in the same way as the pivot-rest installation described above.

Striker dimensions (mm)
T&T espagnolette, fixed handle height
Basic security



T&T espagnolette B15

SRH / mm	HH	G1	G2	G3	LMD	BC
280 – 480	120	–	–	–	–	–
481 – 600	170	–	–	–	223	–
601 – 800	263	–	–	–	138	–
801 – 1000	413	–	–	–	288	–
1001 – 1200	513	700	–	–	388	–
1201 – 1400	563	700	–	–	388	–
1401 – 1600	563	700	–	–	388	–
1601 – 1800	563	700	1370	–	388	–
1601 – 1800	1000	700	1370	–	1121	1244
1801 – 2000	1000	700	1370	–	1121	1244
2001 – 2200	1000	700	1370	–	1121	1244
2201 – 2400	1000	700	1370	–	1121	1244
2401 – 2600	1000	700	1370	1770	1121	1244

Stay guide

SRW / mm	A	Size
801 – 1000	600	500 / 890
1001 – 1200	750	500 / 1090
1201 – 1400	750	500 / 1090

Centre lock, vertical, without load transfer

SRH / mm	CLV1	CLV2	CLV3	
1101 – 1800	746	–	–	CL 600 E
1801 – 2400	746	1346	–	CL 600 E CON + CL 600 E
2401 – 2600	746	1346	1750	2x CL 600 E CON + CL 400 E

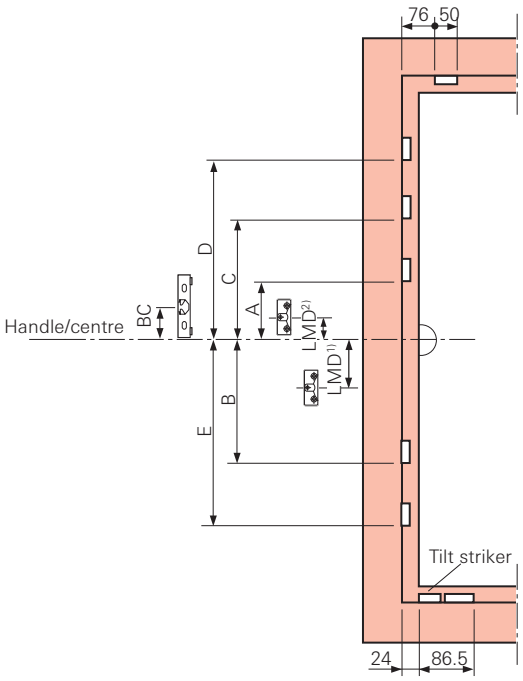
Centre lock, vertical, with load transfer

SRH / mm	CLV1	CLV2	CLV3	
1101 – 1150	550	–	–	– CL 400 E
1151 – 1800	746	–	–	CL 600 E
1801 – 2400	746	1346	–	CL 600 E CON + CL 600 E
2401 – 2600	746	1346	1750	2x CL 600 E CON + CL 400 E

Centre lock, horizontal

SRW / mm	CLH1	
1101 – 1400	658	CL 600 E

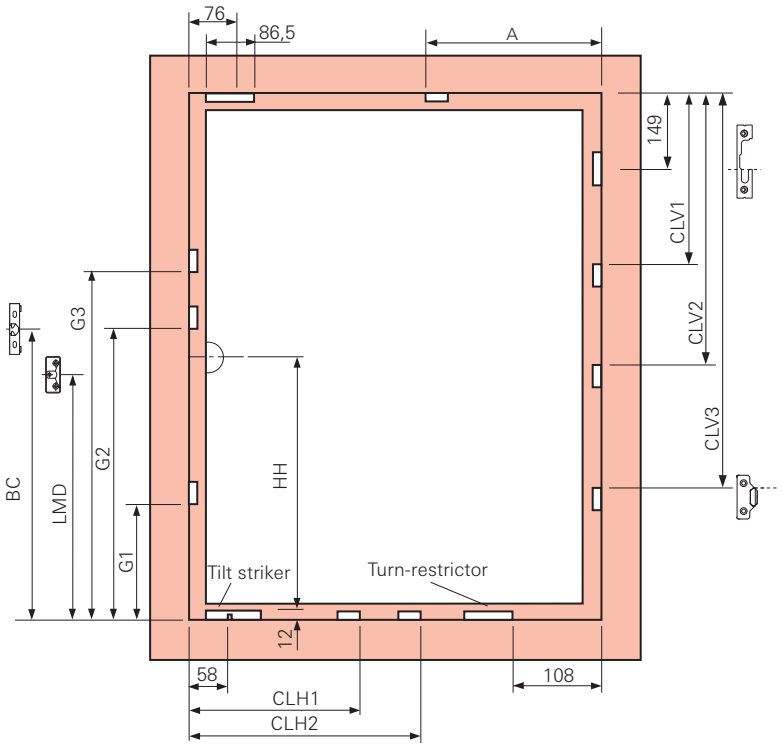
Striker dimensions (mm)
T&T espagnolette, centred/variable handle height
Basic security



T&T espagnolette, centred/variable handle height, backset 15

SRH / mm	A	B	C	D	E	LMD	BC
310 – 450	–	–	–	–	–	–	–
451 – 620	–	–	–	–	–		–
621 – 800	125	–	–	–	–	137	–
801 – 1200	125	–	–	–	–	137	–
1201 – 1600	125	340	–	–	–	137	–
1601 – 2000	–	312	358	–	–	109	232
2001 – 2400	–	312	358	758	740	109	232
2401 – 2600	–	312	358	758	740	109	232

Striker dimensions (mm)
T&T espagnolette, fixed handle height
RC1 N



T&T espagnolette B15

SRH / mm	HH	G1	G2	G3	LMD	BC
280 – 480	120	–	–	–	–	–
481 – 600	170	–	–	–	223	–
601 – 800	263	–	–	–	138	–
801 – 1000	413	–	–	–	288	–
1001 – 1200	513	700	–	–	388	–
1201 – 1400	563	700	–	–	388	–
1401 – 1600	563	700	–	–	388	–
1601 – 1800	563	700	1370	–	388	–
1601 – 1800	1000	700	1370	–	1121	1244
1801 – 2000	1000	700	1370	–	1121	1244
2001 – 2200	1000	700	1370	–	1121	1244
2201 – 2400	1000	700	1370	–	1121	1244
2401 – 2600	1000	700	1370	1770	1121	1244

Stay guide

SRW / mm	A	Size
801 – 1000	600	500 / 890
1001 – 1200	750	500 / 1090
1201 – 1400	750	500 / 1090

Centre lock, vertical, without load transfer

SRH / mm	CLV1	CLV2	CLV3	
1101 – 1800	746	–	–	CL 600 E
1801 – 2400	746	1346	–	CL 600 E CON + CL 600 E
2401 – 2600	746	1346	1750	2x CL 600 E CON + CL 400 E

Centre lock, vertical, with load transfer

SRH / mm	CLV1	CLV2	CLV3	
1101 – 1150	550	–	–	CL 400 E
1151 – 1800	746	–	–	CL 600 E
1801 – 2400	746	1346	–	CL 600 E CON + CL 600 E
2401 – 2600	746	1346	1750	2x CL 600 E CON + CL 400 E

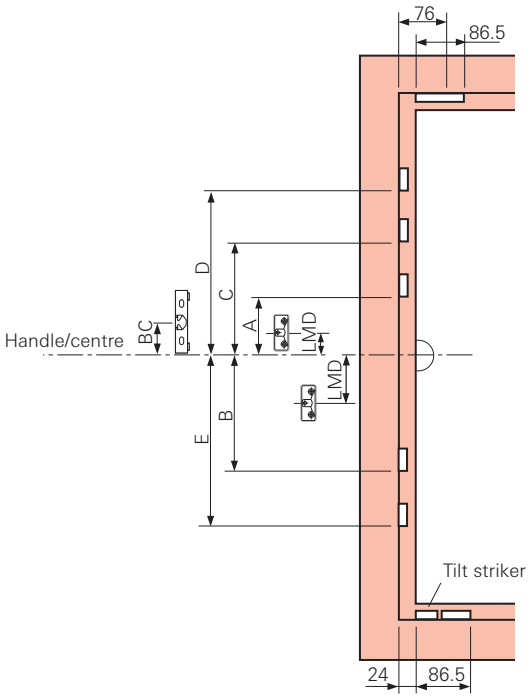
Centre lock, horizontal, without turn-restrictor

SRW / mm	CLH1	CLH2	
450 – 650	258	–	CL 200 P
651 – 850	462	–	CL 400 P
851 – 1000	658	–	CL 600 P

Centre lock, horizontal, with turn-restrictor

SRW / mm	CLH1	CLH2	
650 – 850	258	–	CL 200 P
851 – 1050	462	–	CL 400 P
1051 – 1250	658	–	CL 600 P
1251 – 1400	658	858	CL 600 E CON + CL 200 P

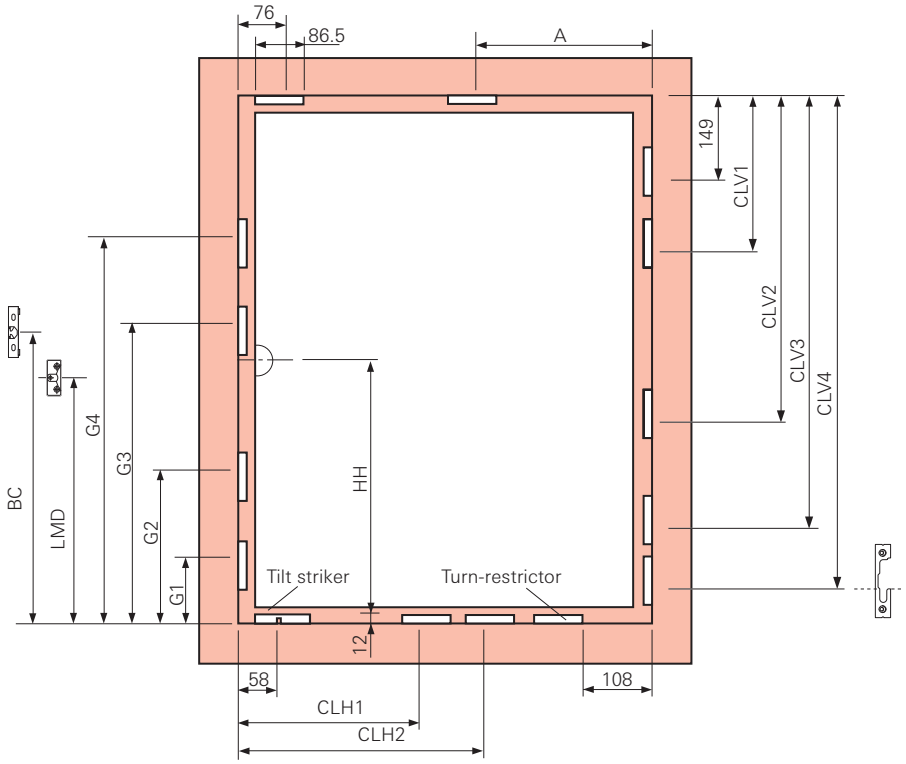
Striker dimensions (mm)
T&T espagnolette, centred/variable handle height
RC1 N



T&T espagnolette, centred/variable handle height, backset 15

SRH / mm	A	B	C	D	E	LMD	BC
310 – 450	–	–	–	–	–	–	–
451 – 620	–	–	–	–	–	–	–
621 – 800	125	–	–	–	–	137	–
801 – 1200	125	–	–	–	–	137	–
1201 – 1600	125	340	–	–	–	137	–
1601 – 2000	–	312	358	–	–	109	232
2001 – 2400	–	312	358	758	740	109	232
2401 – 2600	–	318	358	758	740	109	232

Striker dimensions (mm)
T&T espagnolette, fixed handle height
RC2 / RC2 N



T&T espagnolette B15

SRH / mm	HH	G1	G2	G3	G4	LMD	BC
490 – 600	170	–	–	–	–	223	–
601 – 800	263	–	383	–	–	138	–
801 – 1000	413	160	550	–	–	288	–
1001 – 1200	513	160	700	–	–	388	–
1201 – 1400	563	160	700	–	–	388	–
1401 – 1600	563	160	700	1170	–	388	–
1601 – 1800	563	160	700	1370	–	388	–
1601 – 1800	1000	160	700	1370	–	1121	1244
1801 – 2000	1000	160	700	1370	–	1121	1244
2001 – 2200	1000	160	700	1370	1770	1121	1244
2201 – 2400	1000	160	700	1370	1770	1121	1244

Stay guide

SRW / mm	A	Size
801 – 1000	600	500 / 890
1001 – 1200	600	500 / 1090
1201 – 1400	600	500 / 1090

Centre lock, horizontal, without turn-restrictor

SRW / mm	CLH1	CLH2	
450 – 650	258	–	CL 200 V
651 – 850	462	–	CL 400 V
851 – 1000	658	–	CL 600 V

Centre lock, horizontal, with turn-restrictor

SRW / mm	CLH1	CLH2	
650 – 850	258	–	CL 200 V
851 – 1050	462	–	CL 400 V
1051 – 1250	658	–	CL 600 V
1251 – 1400	658	858	CL 600 V CON + CL 200 V

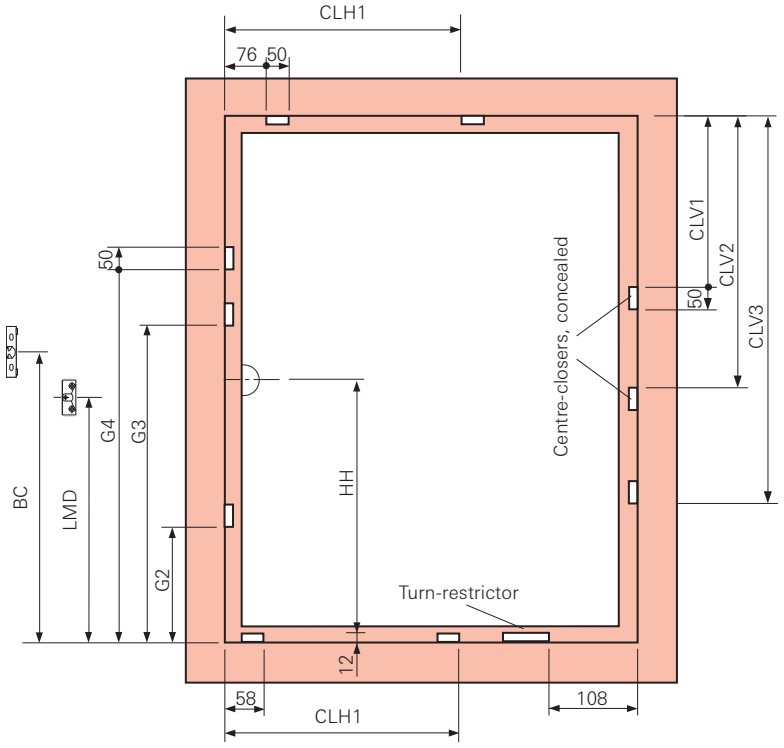
Centre lock, vertical, without load transfer

SRH / mm	CLV1	CLV2	CLV3	CLV4	
490 – 650	346	–	–	–	CL 200 V
651 – 850	550	–	–	–	CL 400 V
851 – 1050	746	–	–	–	CL 600 V
1051 – 1250	746	946	–	–	CL 600 V CON + CL 200 V
1251 – 1450	746	1150	–	–	CL 600 V CON + CL 400 V
1451 – 1650	746	1346	–	–	CL 600 V CON + CL 600 V
1651 – 1850	746	1346	1546	–	2x CL 600 V CON + CL 200 V
1851 – 2050	746	1346	1750	–	2x CL 600 V CON + CL 400 V
2050 – 2250	746	1346	1946	–	2x CL 600 V CON + CL 600 V
2251 – 2400	746	1346	1946	2146	3x CL 600 V CON + CL 200 V

Centre lock, vertical, with load transfer

SRH / mm	CLV1	CLV2	CLV3	
1000 – 1150	550	–	–	CL 400 V
1151 – 1350	746	–	–	CL 600 V
1351 – 1550	746	946	–	CL 600 V CON + CL 200 V
1551 – 1750	746	1150	–	CL 600 V CON + CL 400 V
1751 – 1950	746	1346	–	CL 600 V CON + CL 600 V
1951 – 2150	746	1346	1546	2x CL 600 V CON + CL 200 V
2151 – 2350	746	1346	1750	2x CL 600 V CON + CL 400 V
2351 – 2400	746	1346	1946	2x CL 600 V CON + CL 600 V

Striker dimensions (mm)
T&T espagnolette, fixed handle height
Basic security



T&T espagnolette B15

SRH / mm	HH	G1	G2	G3	G4	LMD	BC
280 – 480	120	–	–	–	–	–	–
481 – 600	170	–	–	–	–	223	–
601 – 800	263	–	–	–	–	138	–
801 – 1000	413	–	–	–	–	288	–
1001 – 1200	513	–	700	–	–	388	–
1201 – 1400	563	–	700	–	–	388	–
1401 – 1600	563	–	700	–	–	388	–
1601 – 1800	563	–	700	1370	–	388	–
1601 – 1800	1000	–	700	1370	–	1121	1244
1801 – 2000	1000	–	700	1370	–	1121	1244
2001 – 2200	1000	–	700	1370	–	1121	1244
2201 – 2400	1000	–	700	1370	–	1121	1244
2401 – 2600	1000	–	700	1370	1770	1121	1244

Centre-closer, concealed

SRH / mm	CLV1	CLV2	CLV3
1000 – 1200	550	–	–
1201 – 1800	746	–	–
1801 – 2400	746	1346	–
2401 – 2600	746	1346	1946

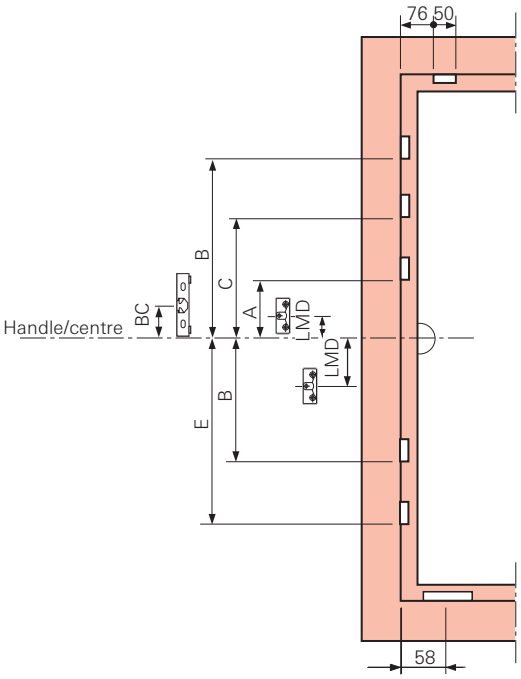
Centre lock, horizontal, top

SRW / mm	CLH1	Top
1101 – 1400	676	600 E

Centre lock, horizontal, bottom

SRW / mm	CLH1	Bottom
1101 – 1400	658	600 E

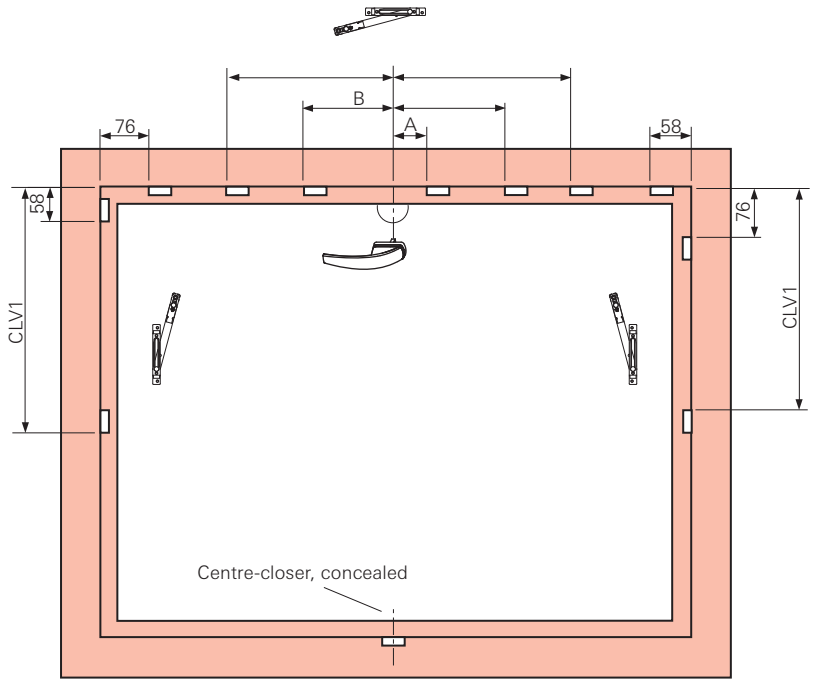
Striker dimensions (mm)
T&T espagnolette, centred/variable handle height
Basic security



T&T espagnolette, centred/variable handle height, backset 15

SRH / mm	A	B	C	D	E	LMD	BC
310 – 450	–	–	–	–	–	–	–
451 – 620	–	–	–	–	–		–
621 – 800	125	–	–	–	–	137	–
801 – 1200	125	–	–	–	–	137	–
1201 – 1600	125	340	–	–	–	137	–
1601 – 2000	–	312	358	–	–	109	232
2001 – 2400	–	312	358	758	740	109	232
2401 – 2600	–	312	358	758	740	109	232

Striker dimensions (mm)
T&T espagnolette, centred/variable handle height
Basic security



T&T espagnolette, centred/variable handle height, backset 15

SRW / mm	A	B
451 – 620	–	–
621 – 800	125	–
801 – 1200	125	–
1201 – 1400	125	340

Centre lock, vertical

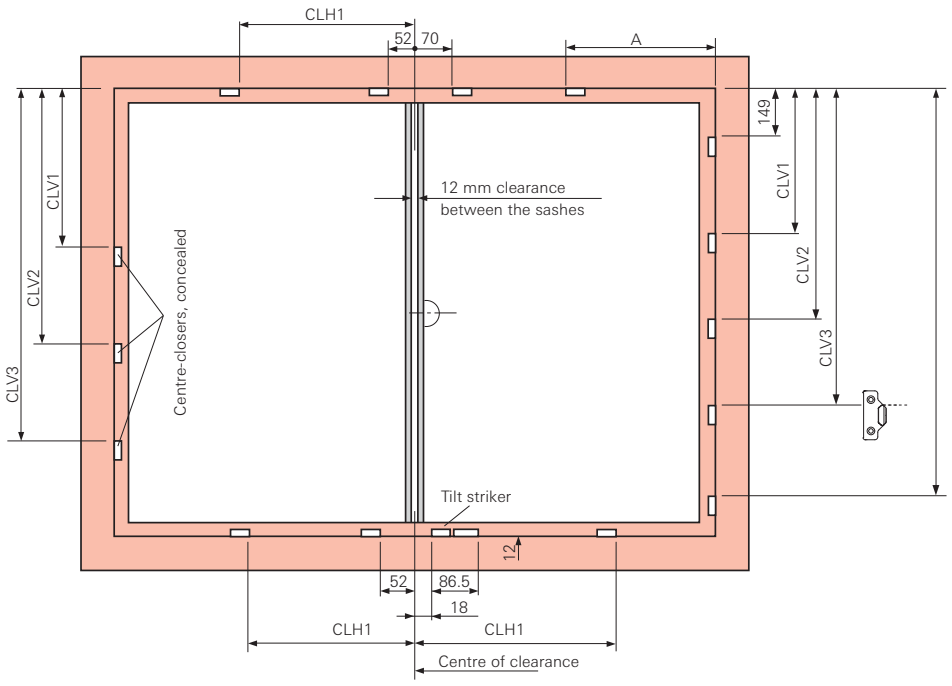
SRH / mm	CLV1			Right
801 – 1200	480	–	–	400 E

Centre lock, vertical

SRH / mm	CLV1			Left
801 – 1200	462	–	–	400 E

Striker dimensions (mm)
T&T espagnolette, fixed handle height
Basic security

without centre post



Centre-closer, concealed

SRH / mm	CLV1	CLV2	CLV3
1000 – 1200	550	–	–
1201 – 1800	746	–	–
1801 – 2400	746	1346	–
2401 – 2600	746	1346	1946

Centre lock, horizontal, top

SRW / mm	CLH1	Top
1100 – 1400	652	CL 600 E

Centre lock, horizontal, bottom

SRW / mm	CLH1	Bottom
1100 – 1400	652	CL 600 E

Centre lock, vertical, without load transfer

SRH / mm	CLV1	CLV2	CLV3	
1101 – 1800	746	–	–	CL 600 E
1801 – 2400	746	1346	–	CL 600 E CON + CL 600 E
2401 – 2600	746	1346	1750	2x CL 600 E CON + CL 400 E

Centre lock, vertical, with load transfer

SRH / mm	CLV1	CLV2	CLV3	
1101 – 1150	550	–	–	CL 400 E
1151 – 1800	746	–	–	CL 600 E
1801 – 2400	746	1346	–	CL 600 E CON + CL 600 E
2401 – 2600	746	1346	1750	2x CL 600 E CON + CL 400 E

Centre lock, horizontal

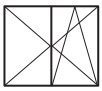
SRW / mm	CLH1	
1101 – 1400	652	CL 600 E

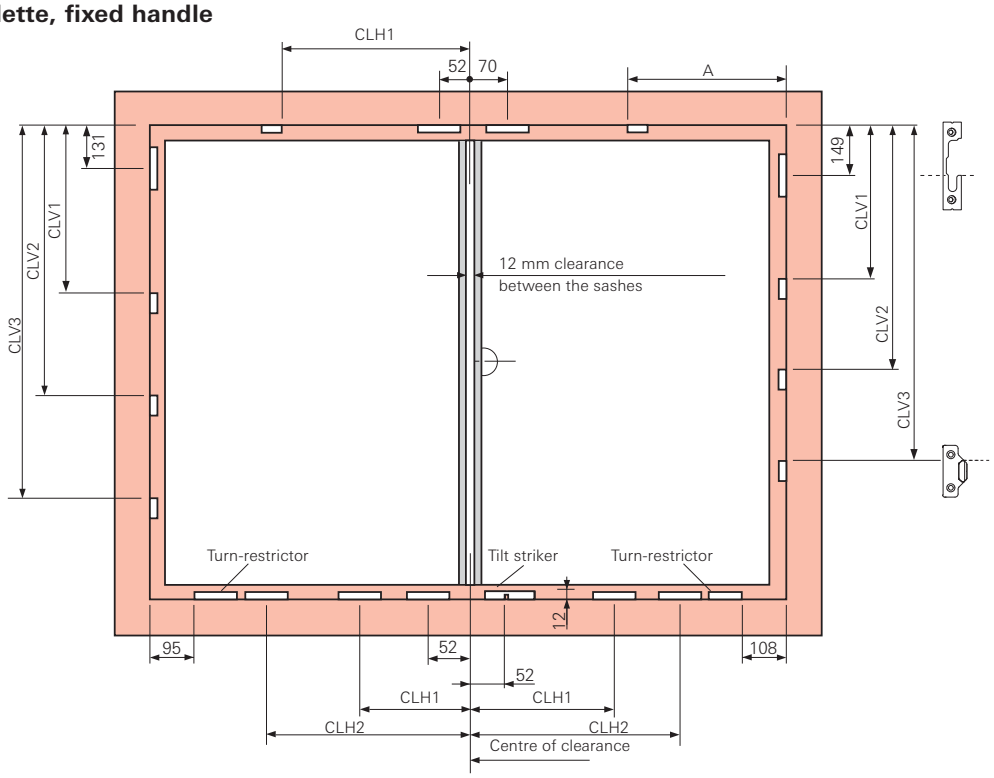
Stay guide

SRW / mm	A	Size
801 – 1000	600	500 / 890
1001 – 1200	750	500 / 1090
1201 – 1400	750	500 / 1090

INSTALLATION ADVICE
Hinge in the passive sash with lever-operated espagnolette in open position.

Striker dimensions (mm)
T&T espagnolette, fixed handle height RC1 N





Centre lock, vertical, without load transfer

SRH / mm	CLV1	CLV2	CLV3	
1101 – 1800	728	–	–	CL 600 E
2001 – 2400	728	1328	–	CL 600 E CON + CL 600 E
2401 – 2600	728	1328	1732	2x CL 600 E CON + CL 400 E

Centre lock, vertical, with load transfer

SRH / mm	CLV1	CLV2	CLV3	
1101 – 1150	532	–	–	CL 400 E
1151 – 1800	728	–	–	CL 600 E
1801 – 2400	728	1328	–	CL 600 E CON + CL 600 E
2401 – 2600	728	1328	1732	2x CL 600 E CON + CL 400 E

Centre lock, horizontal, without turn-restrictor, bottom

SRW / mm	CLH1	
450 – 650	252	CL 200 P
651 – 850	456	CL 400 P
851 – 1000	652	CL 600 P

Centre lock, horizontal, with turn-restrictor, bottom

SRW / mm	CLH1	CLH2	
650 – 850	252	–	CL 200 P
851 – 1050	456	–	CL 400 P
1051 – 1250	652	–	CL 600 P
1251 – 1400	652	852	CL 600 E CON + CL 200 P

Centre lock, horizontal, top

SRW / mm	CLH1	
911 – 1110	452	CL 400 E CON
1111 – 1310	652	CL 600 E CON
1311 – 1400	652	CL 600 E CON + CL 200 CON

Centre lock, vertical, without load transfer

SRH / mm	CLV1	CLV2	CLV3	
1101 – 1800	746	–	–	CL 600 E
1801 – 2400	746	1346	–	CL 600 E CON + CL 600 E
2401 – 2600	746	1346	1750	2x CL 600 E CON + CL 400 E

Centre lock, vertical, with load transfer

SRH / mm	CLV1	CLV2	CLV3	
1101 – 1150	550	–	–	CL 400 E
1151 – 1800	746	–	–	CL 600 E
1801 – 2400	746	1346	–	CL 600 E CON + CL 600 E
2401 – 2600	746	1346	1750	2x CL 600 E CON + CL 400 E

Centre lock, horizontal, without turn-restrictor

SRW / mm	CLH1	
450 – 650	252	CL 200 P
651 – 850	456	CL 400 P
851 – 1000	652	CL 600 P

Centre lock, horizontal, with turn-restrictor

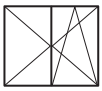
SRW / mm	CLH1	CLH2	
650 – 850	252	–	CL 200 P
851 – 1050	456	–	CL 400 P
1051 – 1250	652	–	CL 600 P
1251 – 1400	652	852	CL 600 E CON + CL 200 P

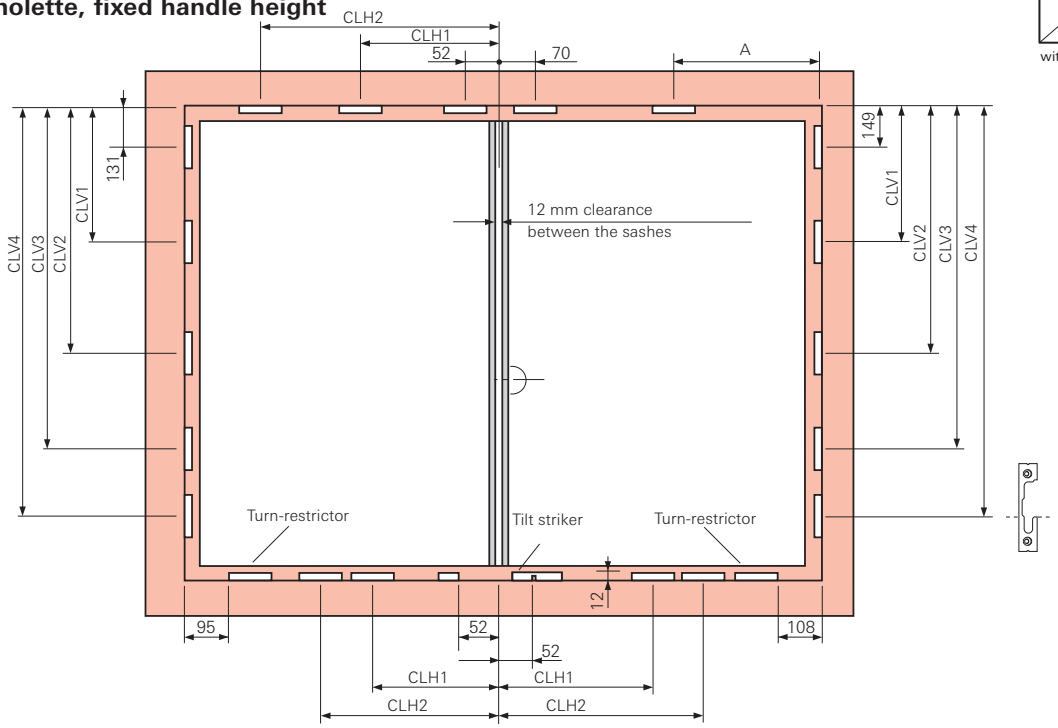
Stay guide

SRW / mm	A	Size
801 – 1000	600	500 / 890
1001 – 1200	750	500 / 1090
1201 – 1400	750	500 / 1090

INSTALLATION ADVICE
Hinge in the passive sash with lever-operated espagnolette in open position.

Striker dimensions (mm)
T&T espagnolette, fixed handle height
RC2 / RC2 N





Centre lock, vertical, without load transfer

SRH / mm	CLV1	CLV2	CLV3	CLV4	
490 – 650	328	–	–	–	CL 200 V
651 – 850	532	–	–	–	CL 400 V
851 – 1050	728	–	–	–	CL 600 V
1051 – 1250	728	928	–	–	CL 600 V CON + CL 200 V
1251 – 1450	728	1132	–	–	CL 600 V CON + CL 400 V
1451 – 1650	728	1328	–	–	CL 600 V CON + CL 600 V
1651 – 1850	728	1328	1528	–	2x CL 600 V CON + CL 200 V
1851 – 2050	728	1328	1732	–	2x CL 600 V CON + CL 400 V
2051 – 2250	728	1328	1928	–	2x CL 600 V CON + CL 600 V
2251 – 2400	728	1328	1928	2128	3x CL 600 V CON + CL 200 V

Centre lock, vertical, with load transfer

SRH / mm	CLV1	CLV2	CLV3	
1000 – 1150	532	–	–	CL 400 V
1151 – 1350	728	–	–	CL 600 V
1351 – 1550	728	928	–	CL 600 V CON + CL 200 V
1551 – 1750	728	1132	–	CL 600 V CON + CL 400 V
1751 – 1950	728	1328	–	CL 600 V CON + CL 600 V
1951 – 2150	728	1328	1528	2x CL 600 V CON + CL 200 V
2151 – 2350	728	1328	1732	2x CL 600 V CON + CL 400 V
2351 – 2400	728	1328	1928	2x CL 600 V CON + CL 600 V

Centre lock, horizontal, without turn-restrictor

SRW / mm	CLH1	
450 – 650	252	CL 200 V
651 – 850	456	CL 400 V
851 – 1000	652	CL 600 V

Centre lock, horizontal, with turn-restrictor

SRW / mm	CLH1	CLH2	
650 – 850	252	–	CL 200 V
851 – 1050	456	–	CL 400 V
1051 – 1250	652	–	CL 600 V
1251 – 1400	652	852	CL 600 V CON + CL 200 V

Centre lock, horizontal, top

SRW / mm	CLH1	CLH2	
711 – 910	252	–	CL 200 CON
911 – 1110	452	–	CL 400 V CON
1111 – 1310	652	–	CL 600 V CON
1311 – 1400	652	852	CL 600 V CON + CL 200 CON

Centre lock, vertical, without load transfer

SRH / mm	CLV1	CLV2	CLV3	CLV4	
490 – 650	346	–	–	–	CL 200 V
651 – 850	550	–	–	–	CL 400 V
851 – 1050	746	–	–	–	CL 600 V
1051 – 1250	746	946	–	–	CL 600 V CON + CL 200 V
1251 – 1450	746	1150	–	–	CL 600 V CON + CL 400 V
1451 – 1650	746	1346	–	–	CL 600 V CON + CL 600 V
1651 – 1850	746	1346	1546	–	2x CL 600 V CON + CL 200 V
1851 – 2050	746	1346	1750	–	2x CL 600 V CON + CL 400 V
2051 – 2250	746	1346	1946	–	2x CL 600 V CON + CL 600 V
2251 – 2400	746	1346	1946	2146	3x CL 600 V CON + CL 200 V

Centre lock, vertical, with load transfer

SRH / mm	CLV1	CLV2	CLV3	
1000 – 1150	550	–	–	CL 400 V
1151 – 1350	746	–	–	CL 600 V
1351 – 1550	746	946	–	CL 600 V CON + CL 200 V
1551 – 1750	746	1150	–	CL 600 V CON + CL 400 V
1751 – 1950	746	1346	–	CL 600 V CON + CL 600 V
1951 – 2150	746	1346	1546	2x CL 600 V CON + CL 200 V
2151 – 2350	746	1346	1750	2x CL 600 V CON + CL 400 V
2351 – 2400	746	1346	1946	2x CL 600 V CON + CL 600 V

Centre lock, horizontal, without turn-restrictor

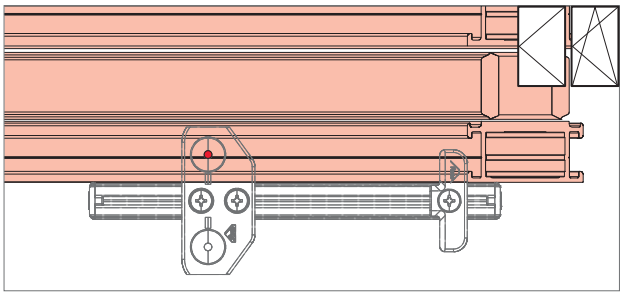
SRW / mm	CLH1	
450 – 650	252	CL 200 V
651 – 850	456	CL 400 V
851 – 1000	652	CL 600 V

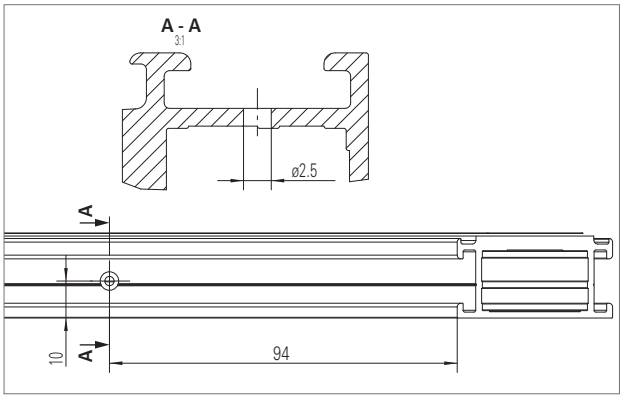
Centre lock, horizontal, with turn-restrictor

SRW / mm	CLH1	CLH2	
650 – 850	252	–	CL 200 V
851 – 1050	456	–	CL 400 V
1051 – 1250	652	–	CL 600 V
1251 – 1400	652	852	CL 600 V CON + CL 200 V

Stay guide

SRW / mm	A	Size
801 – 1000	600	500 / 890
1001 – 1200	600	500 / 1090
1201 – 1400	600	500 / 1090





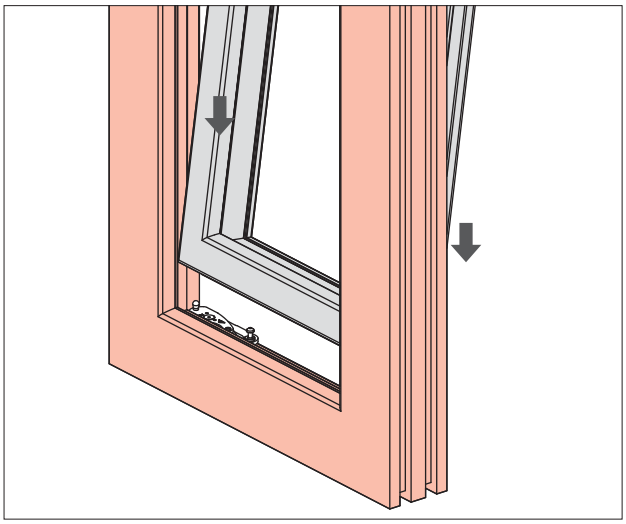
Drilling for pivot rest and stay bearing

Jig for pivot rest and stay bearing	628534

1. Position the drilling jig at the frame in line with the drawing.
2. Drill the holes:
   1 x Ø 2.5 mm, depth min. 14 mm.

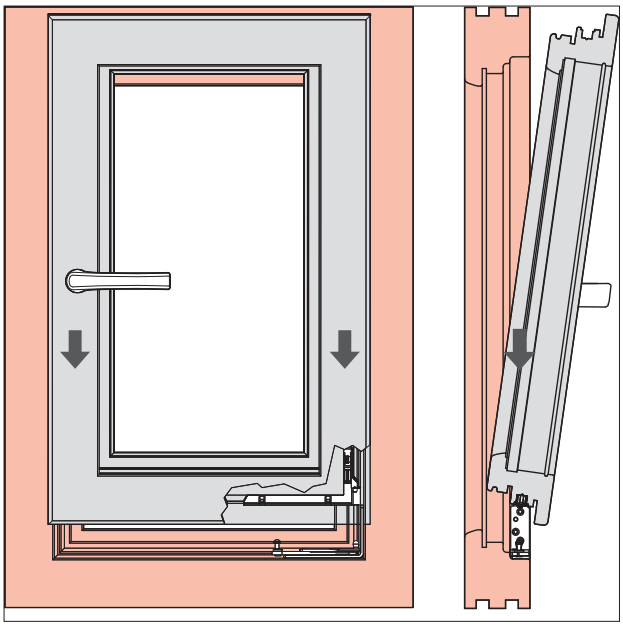
Alternatively (for automatic production)

1. Carry out the drilling according to the drawing.

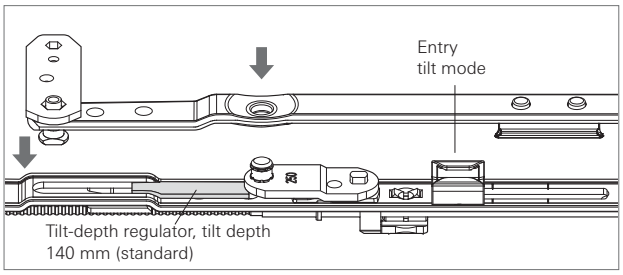


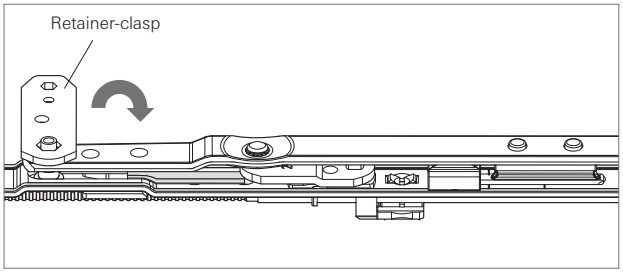
Hinging the sash

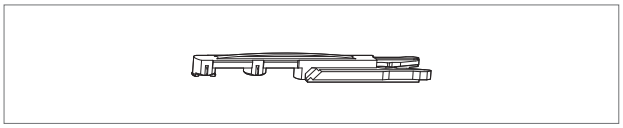
1. Put the pivot rest into its original position (= closed sash position).
2. Bring the handle into the turn mode.
3. Run down the sash slightly tilted along the frame, until the corner hinge meets the pivot rest.



4. Secure the sash from falling out and bring the handle into the turn mode.
5. Press down the lifting mishandling device (if mounted).
6. Bring the handle into the tilt mode.
   This is a conscious – and in this case necessary – hardware mishandling operation!







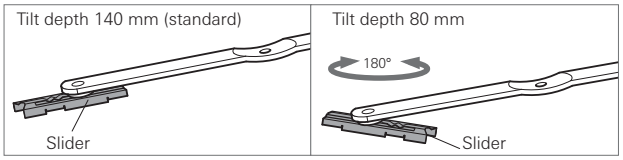
Hinging the sash with sash stay 250:

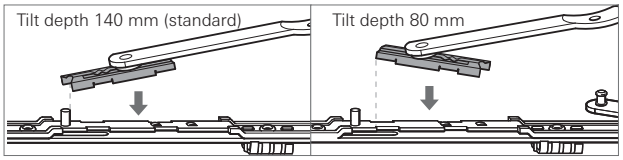
7. Press down the stay arm on the stay guide and supporting arm.

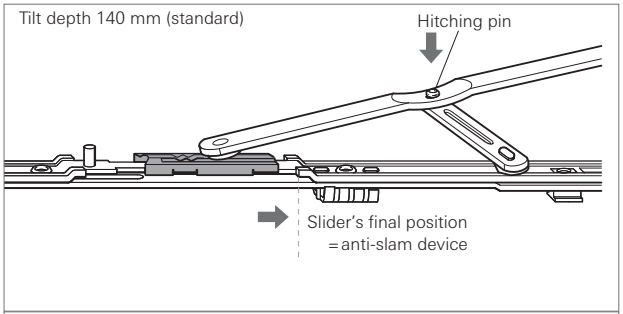
8. Close the retainer-clasp.

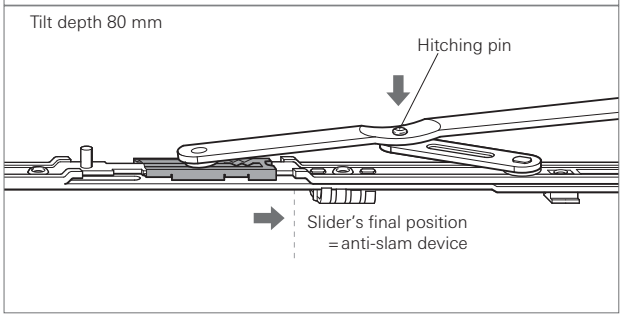
9. Operate again the lifting mishandling device and bring the handle into the turn mode.

NOTE!
Use the anti-slam device (487206) for 80 mm tilt depth.









Hinging the sash with sash stay 350 and 500:

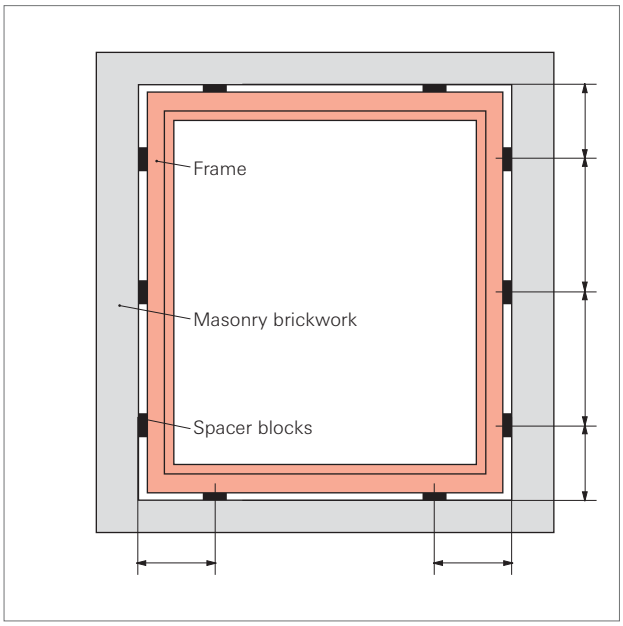
7. Adjust the desired tilt depth
(Standard tilt depth = 140 mm)

8. Connect the slider of the sash stay with the stay guide.

9 Lift the sash stay arm and let the drilling-hole of the sash stay arm snap on the hitching pin of the supporting arm.

10. Operate again the lifting mishandling device and bring the handle into the turn mode.

NOTE!
The slider's final position (anti-slam device) is reached automatically by means of tilting the sash.

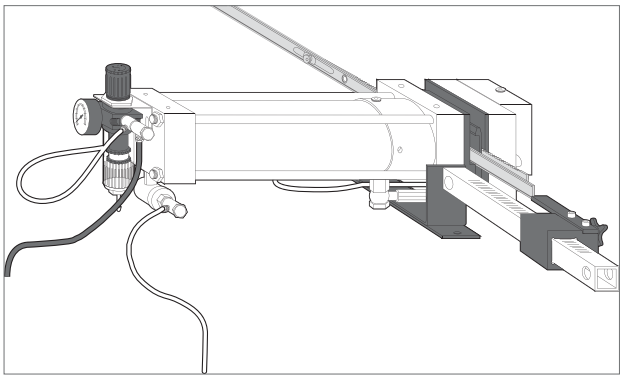


installation guideline

1. Burglar-resistant windows in accordance with DIN EN 1627–1630 may only be named so, if the installation has been carried out in all points in accordance with the specified standards.

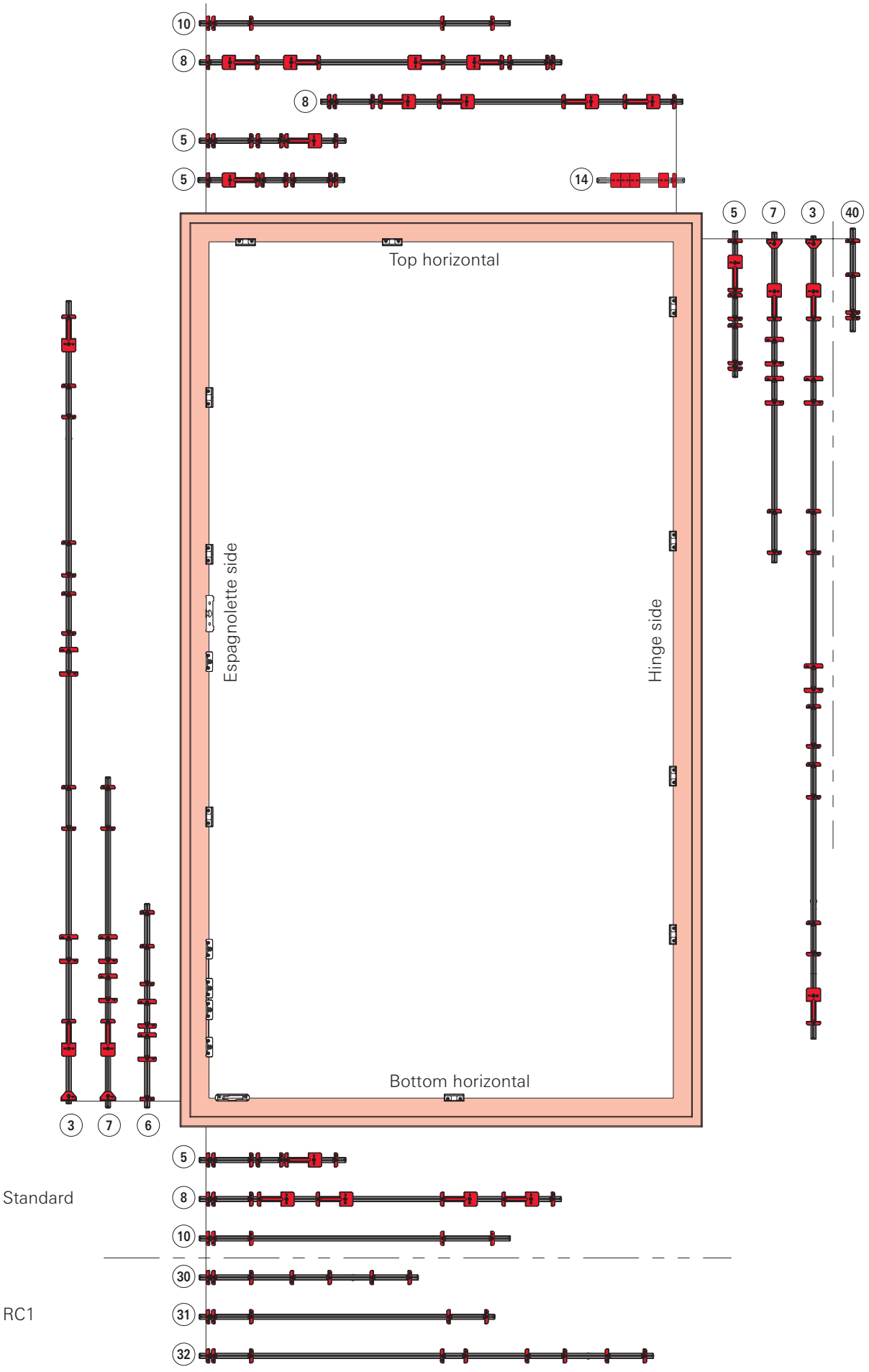
NOTE!

Attach spacer blocks in the vicinity of the screw-fixings of the security strikers and the concealed centre-closers.



Crop with pneumatic cropper (punched hole)

Hole punch		
Description		Material no.
Pneumatic cropper PS 100 (not dep.)	DIN L	**553992**
	DIN R	**553993**
Cropper with tool	DIN L	**262153**
	DIN R	**262156**


10
8
8
5
5
14
5
7
3
40
Top horizontal
Espagnolette side
Hinge side
Bottom horizontal
3
7
6
5
Standard
8
10
30
RC1
31
32

(3) – (8) Single positioning jigs timber, T&T standard

Description		Material no.
(3) Single positioning jig espagnolette/hinge side doors		**290050**
espagnolette side	SRH 1601 – 2600	
hinge side	SRH 1801 – 2600	
(5) Single positioning jig for tilt striker / corner drive		**290072**
bottom	SRW 330 – 1100	
hinge side	SRH 280 – 1100	
top horizontal	SRW 431 – 800	
(6) Single positioning jig for lifting mish. device / corner drive		**290073**
espagnolette side	SRH 481 – 800	
(7) Single positioning jig		**290074**
espagnolette side	SRH 801 – 1600	
hinge side	SRH 1101 – 1800	
(8) Single positioning jig centre lock		**290075**
bottom horizontal	SRW 1101 – 1400	
top horizontal	SRW 801 – 1400	

(3) – (10) Single positioning jigs timber, TU-ON standard

Description		Material no.
(3) Single positioning jig espagnolette/hinge side doors		**290050**
espagnolette side	SRH 1601 – 2600	
hinge side	SRH 1801 – 2600	
(5) Single positioning jig for tilt striker / corner drive		**290072**
bottom / hinge side	SRW / SRH 315 – 1100	
top horizontal	SRW 315 – 1200	
(6) Single positioning jig for lifting mishandling device / corner drive		**290073**
espagnolette side	SRH 481 – 800	
(7) Single positioning jig		**290074**
espagnolette side	SRH 801 – 1600	
(10) Single positioning jig TU-ON sash tilt striker		**290081**
top / bottom horizontal	SRH 1101 – 1600	

(3) – (32) Single positioning jigs timber, T&T RC1

Description		Material no.
(3) Single positioning jig espagnolette/hinge side doors		**290050**
espagnolette side	SRH 1601 – 2600	
hinge side	SRH 1801 – 2600	
(5) Single positioning jig for tilt striker / corner drive		**290072**
top horizontal	SRW 450 – 800	
(6) Single positioning jig for lifting mish. device / corner drive		**290073**
espagnolette side	SRH 481 – 800	
(7) Single positioning jig		**290074**
espagnolette side	SRH 801 – 1600	
hinge side	SRH 1101 – 1800	
(8) Single positioning jig centre lock		**290075**
top horizontal	SRW 801 – 1400	
(30) Positioning jig for centre lock		**268931**
bottom horizontal	SRW 450 – 800	
	SRW 1001 – 1050	
(31) Positioning jig for centre lock		**268932**
bottom horizontal	SRW 851 – 1000	
	SRW 1051 – 1250	
(32) Positioning jig for centre lock		**268933**
bottom horizontal	SRW 1251 – 1400	
(40) Positioning jig		**640450**
hinge side	SRH 280 – 2600	
(14) Positioning jig, pivot rest and stay bearing	**24 mm rebate depth**	**602577**
	30 mm rebate depth	**602597**

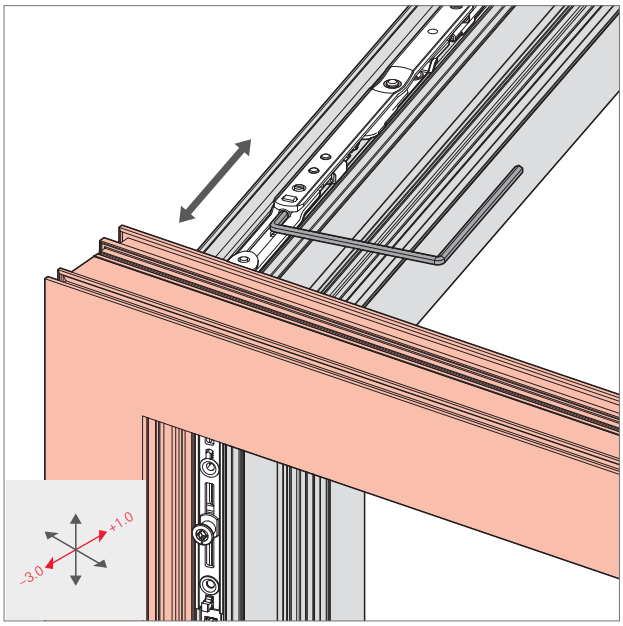
Symbols for the sash adjustment when installed
These symbols facilitate the orientation while adjusting the window sashes after installation with the following steps. Use a 4 mm Allen key as tool.

Height adjustment

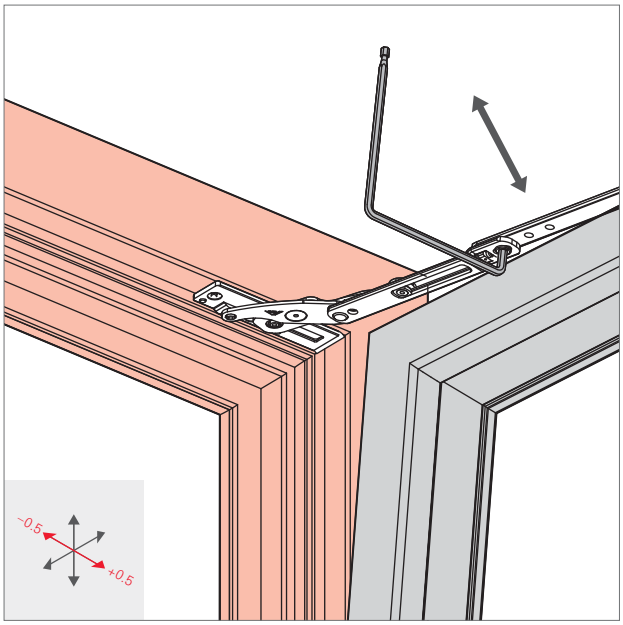
Lateral adjustment

Gasket-compression adjustment

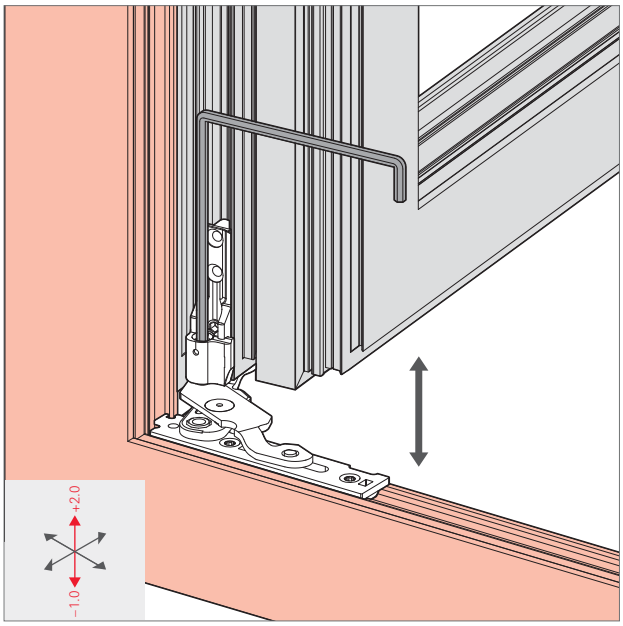
NOTE!
Adjusting Roto hardware components may only be carried out by authorised and qualified personnel.



Lateral adjustment

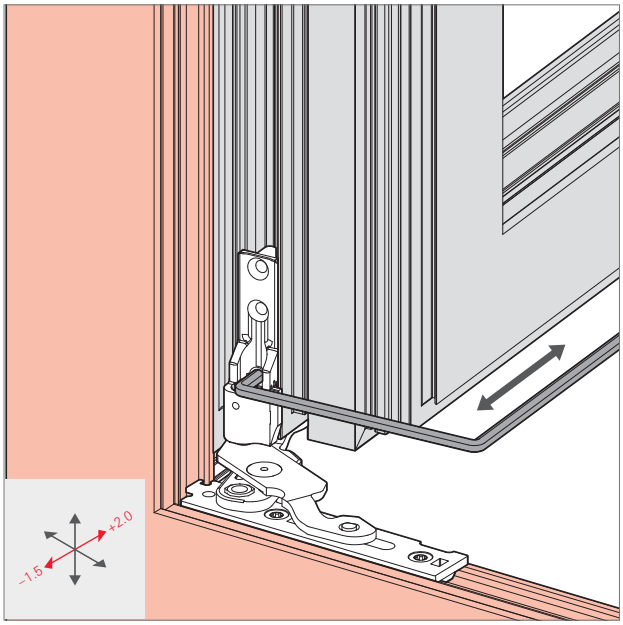


Gasket-compression adjustment

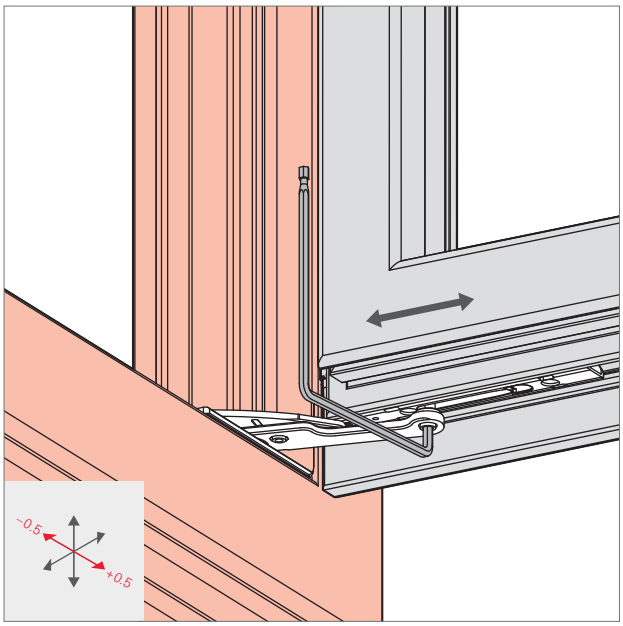


Height adjustment

After the height adjustment, the load transfer device has to be readjusted (refer to page 63).

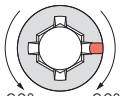
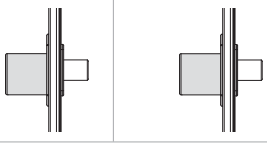
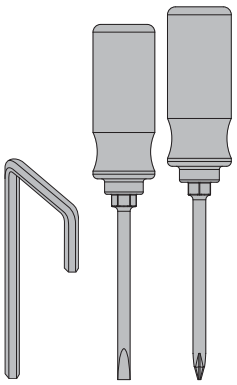
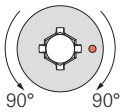
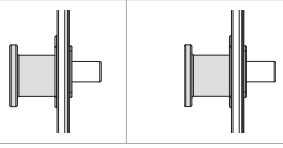
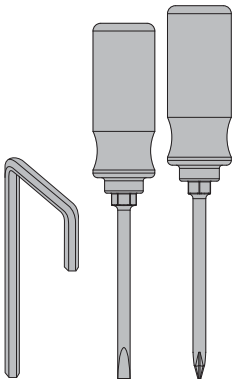
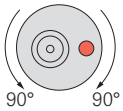
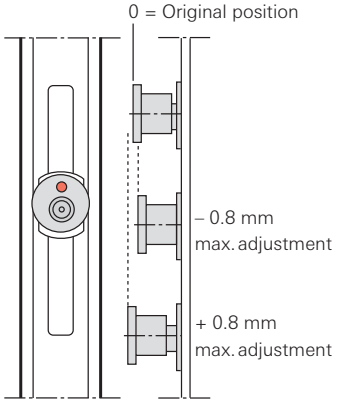
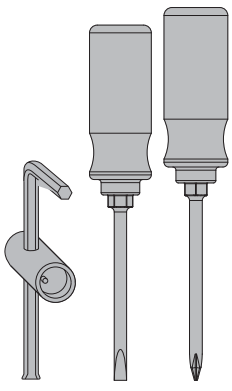
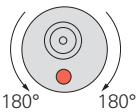
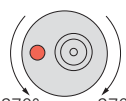
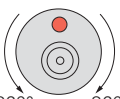


Lateral adjustment

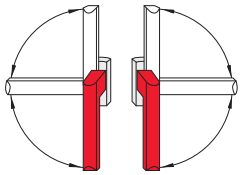
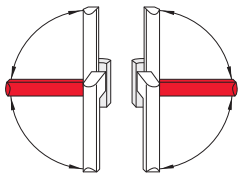
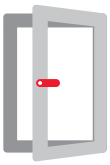
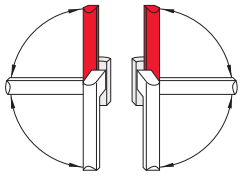
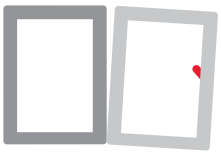


Gasket-compression adjustment

Locking cam adjustment instructions

Cam type	Adjustment range	Gasket-compression adjustment / in mm	Height adjustment / mm	Side view / top view	Tools
E cam					
					
	 90° 90°	**+ / – 0.8 mm**			
P cam					
					
	 90° 90°	**+ / – 0.8 mm**			
V cam					
					
	 90° 90°	+ / – 0.8 mm	+ / – 0.2 mm	 0 = Original position – 0.8 mm max. adjustment + 0.8 mm max. adjustment	
	 180° 180°	–	+ / – 0.4 mm		
	 270° 270°	+ / – 0.8 mm	+ / – 0.6 mm		
	 360° 360°	–	+ / – 0.8 mm		

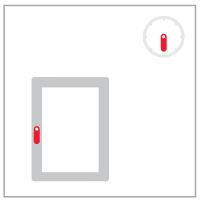
The following symbols show the different handle positions and the resulting sash positions of windows and balcony doors.

Handle position	Sash position	Symbol	Meaning
			Closed position of the sash
			Opened turn position of the sash
			Opened tilt position of the sash
			Malpositioning of the sash

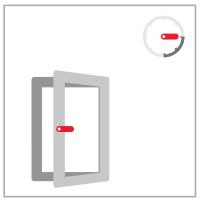
The following symbols and signs can be used on windows and balcony doors to protect the end-user.
Please order stickers separately (OPR_14_DE-EN, OPR_15_DE-EN).

Drehkipp-Beschlag
Tilt&Turn hardware

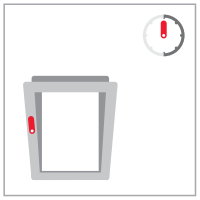
geschlossen
closed



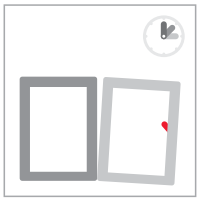
öffnen
open



kippen
tilt



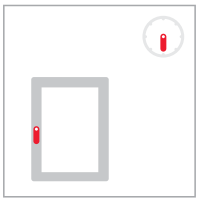
Fehlschaltungen vermeiden
Avoid mishandling mode!



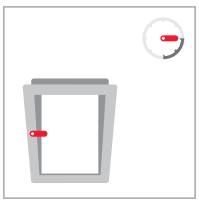
08/2012 OPR_14_DE-EN_v1

TiltFirst-Beschlag
Tilt-First hardware

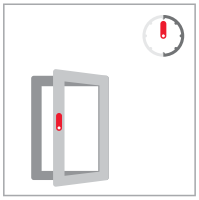
geschlossen
closed



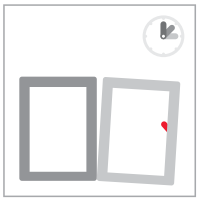
kippen
tilt



öffnen
open



Fehlschaltungen vermeiden
Avoid mishandling mode!



08/2012 OPR_15_DE-EN_v1

Troubleshooting

Problem	Cause	Corrective action	Specialist company	End-users
Handle is difficult to rotate.	– Frame parts are not properly greased.	– Grease frame parts.		
	– Faulty handle.	– Replace the handle.	■	–
	– Handle screws are screwed in too strong.	– Slightly loosen the screws.	■	–
	– Oblique screws in the sash parts.	– Straight screw-fixing of the sash parts.	■	–
	– Faulty sash parts.	– Replace the sash parts.	■	–
	– Incorrect strikers.	– Replace strikers.	■	–
	– Sash stay gasket compression too strong (accumulation of gaskets).	– Adjust or reduce the sash stay gasket compression.	■	–
Handle can not rotate 180°.	– Faulty hinging or installation of sash parts.	– Check adjustment in turn position (if necessary, rehinge the sash proceeding from T&T espagnolette).	■	–
	– Faulty striker locations.	– Adjust the striker locations.		
In turn mode, the sash falls into tilted position.	– Too much clearance on top.	– Check corner hinge location.	■	–
		– Check pivot rest location.	■	–
		– Raise the corner hinge. (Attention: tilt striker)	■	–
In tilt mode, the sash falls into turning position.	– Faulty tilting component.	– Replace tilting component.	■	–
Sash is rubbing in tilt mode.	– Insufficient clearance on top.	– Lower the corner hinge. (Attention: tilt striker!)	■	–
Locking cams rubber at striker.	– Faulty hinging of the sash.	– Hinge the sash once again.	■	–
	– Faulty striker locations.	– Adjust the striker locations.	■	–

■ = To be carried out **only** by a specialist company.
– = **Not** to be carried out by the end-user; the end-user may not carry out installation work!
□ = To be carried out either by a specialist company or by the end-user.

WARNING!
Danger of injury through incorrectly conducted maintenance work!
Incorrect maintenance can result in serious personal injury or material damage.

- Before starting work, ensure that there is sufficient installation room.
- Maintain order and cleanliness at the installation location.
- Ensure that the window or balcony door is prevented from suddenly slamming during maintenance work.
- Get a specialist company to carry out adjustment work on hardware – especially in the area of pivot rests or bogies and of hinges – as well as replacement of parts and hinging, and unhinging of sashes.
- Do not unhinge the sash for maintenance work.

At least annually, every six months for school and hotel buildings:	**Specialist company**	**End-users**
If necessary, tighten fixing screws.	■	–
Replace damaged screws.	■	–
If necessary, replace components.	■	–
Lubricate all moving components with acid free and non resinous oil from a specialised dealer.	□	□
Lubricate steel strikers with acid free and non resinous grease from a specialised dealer.	□	□

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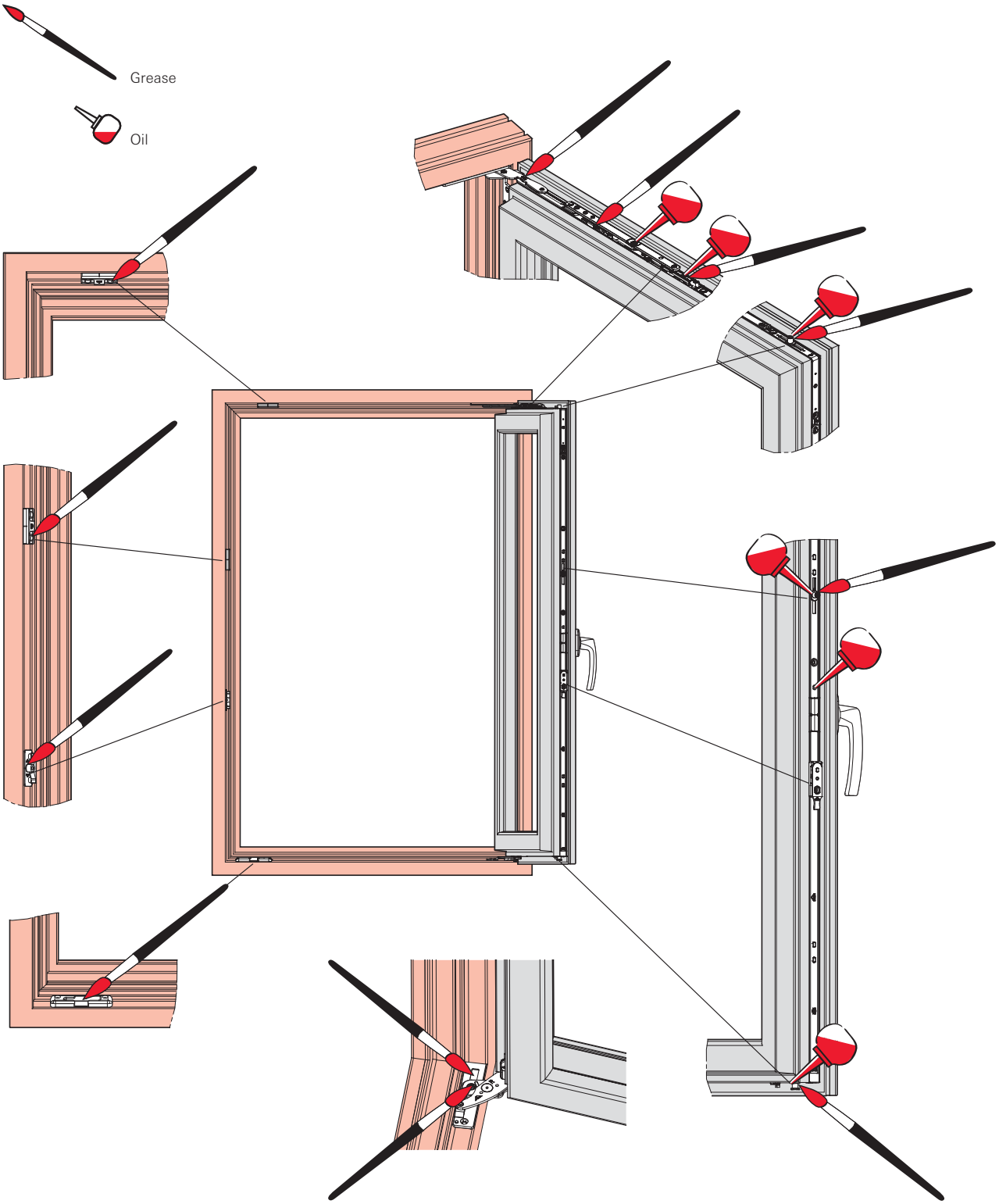
NOTE!
Observe the following environmental protection notes during maintenance work:

- Remove emerging or residual grease at the lubricating points and dispose of in accordance with the valid local regulations.
- Collect exchanged oil in suitable containers and dispose of in accordance with the environmental regulations.

The hardware overview shows the arrangement of the lubrication points. The illustrated overview does not necessarily correspond to the installed hardware. The number of lubrication points depends on the size and design of the window.


Grease
Oil

Inspection

At least annually, every six months for school and hotel buildings:

	Specialist company	End-users
Check that safety-relevant hardware components are mounted securely.	☐	☐
Examine safety-relevant hardware components for wear and tear.	☐	☐
All movable parts are to be operation-tested.	☐	☐
All locking points are to be operation-tested.	☐	☐
The hardware's smooth operation can be checked by means of moving the window handle.		
– In accordance with DIN 18055, the locking and unlocking moment is max. 10 Nm.	■	–
– It can be checked using a torque wrench.	■	–
– The smooth operation can be improved by greasing/oiling or adjusting the hardware.	■	–

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Care

	Specialist company	End-users
Keep the hardware free from deposits and soiling.	☐	☐
Never use aggressive, acidiferous cleaners or abrasive cleaning agents.	☐	☐
Only use mild, pH-neutral cleaning agents in diluted form.	☐	☐
Only use a soft cloth for cleaning.	☐	☐

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No legal claims can be derived from these recommendations, the application is to be conveyed for each concrete individual case. The window and balcony door manufacturer must draw builders and end-user's particular attention to these maintenance instructions. Roto Frank AG recommends window fabricators to make maintenance agreements with their end-users.

Protection against corrosion

	Specialist company	End-users
Aggressive vapours (e.g. by means of formic acid or acetic acid, ammonia, amine or ammonia compounds, aldehydes, phenols, chlorine, tannic acid etc.) in the vicinity of the windows must be absolutely avoided.	■	–
Never use acetic-acid or cross-linked acidic sealing compounds or those with the above mentioned contents, since both the direct contact with the sealing compound and its vaporisation can attack the hardware's surface.	■	–
Only electrogalvanised zinc plated and passivated screws may be used for fixing the hardware components.	■	–
Do not use any stainless-steel screws!	■	–

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Protection against dirt

	Specialist company	End-users
Remove deposits and dirt from building materials (building dust, plaster, cement, etc.) or similar materials with water before it cures.	□	□
Keep the hardware free from deposits and soiling.	□	□
Never use aggressive, acidiferous cleaners or abrasive cleaning agents.	□	□
Only use mild, pH-neutral cleaning agents in diluted form.	□	□
Only use a soft cloth for cleaning.	□	□

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Protection against (permanent) moist interior air

	Specialist company	End-users
Ventilate the hardware and the rebate areas – especially in the construction phase – so that they are neither exposed to direct contact with water nor to formation of condensation water.	☐	☐
Ensure that (permanently) damp spatial air cannot condense in the hinge and rebate areas: – Force ventilate several times each day (open all windows for approx. 15 minutes). – Also ventilate during holidays and absences. – For more complex construction projects, develop a ventilation plan if necessary. If described systematic ventilation is not possible, e.g. because fresh screed must not be traversed, or it cannot take draughts, put the windows into the tilted position and make them airtight by taping on the indoor side. Divert the moisture present in the room air to the outside by means of condensation dryers.	☐	☐

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Protection against damages due to renovation work

	Specialist company	End-users
When applying surface treatments of the windows, exclude all hardware components from this treatment, and thus protect against contamination.	☐	☐
Use only adhesive tapes which do not damage the varnish layers. In the case of doubt, ask the window fabricator.	☐	☐

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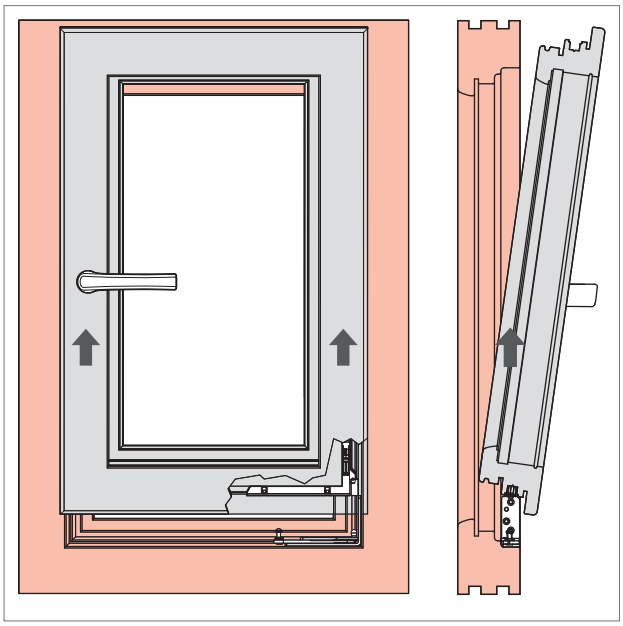
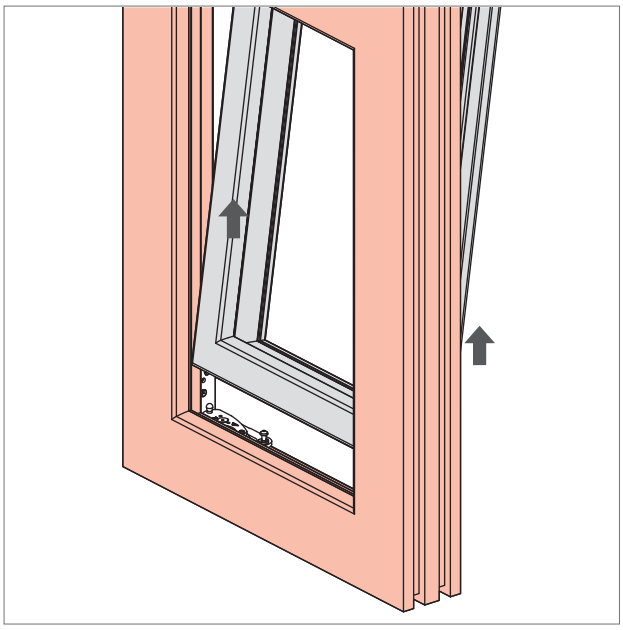
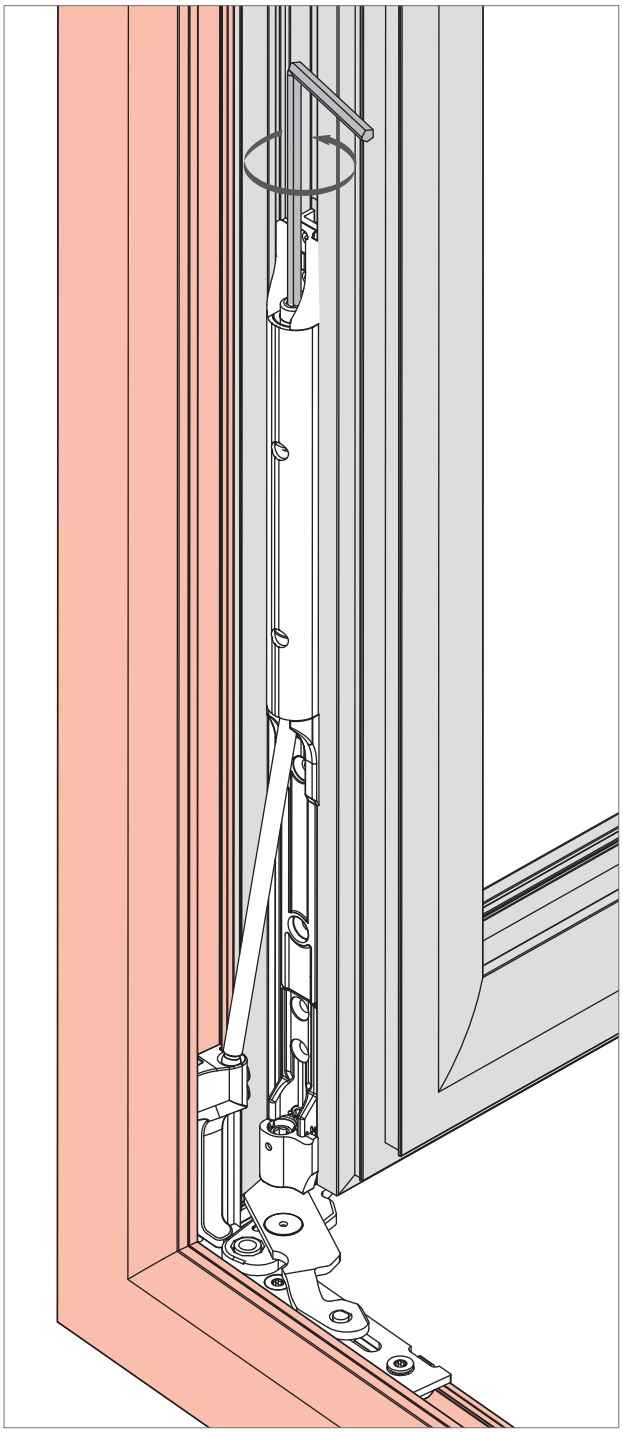


Unhinging the sash

1. Bring the handle into the turn mode (= open sash position).
2. Press down the lifting mishandling device (if mounted) and bring the handle into the tilt position.
3. Unhinge the sash stay and secure the sash from falling out.



4. Press down the lifting mishandling device and bring the handle into the turn mode.
5. Turn the sash closed.
6. Lift the sash slightly tilted out of the pivot rest.



1. Bring the handle into the turn mode, open the sash 90° and release the load transfer device.
2. Press down the lifting mishandling device (if mounted) and bring the handle into the tilt position.
3. Unhinge the sash stay and secure the sash from falling out.
4. Press down the lifting mishandling device and bring the handle into the turn mode.
5. Turn the sash closed.
6. Lift the sash slightly tilted out of the pivot rest.

NOTE!
Screw out the screw of the load transfer device until the spring tension is released completely (support rod is loosened). If the tension in the spring is not completely released, the sash cannot be hinged into the frame again.

DANGER!
Danger to life from incorrect handling and transport!
Incorrect handling and unsuitable transport of window elements can result in dangerous circumstances and cause severe accidents, even including death.

Therefore:
- During loading and unloading, select force application points which exclusively create reaction forces appropriate to the designed layout of the hardware components for the intended installation location.
- During handling and transport, ensure that hardware is in the locked position, so as to prevent an uncontrolled opening of the sash. Use suitable means of securing for this.
- Use only transport fastenings designed for the respective clearance.
- Wherever possible, undertake transport in the intended installation position. If transport in the intended installation position is not possible, unhinge the sash, and transport it separately from the frame to which it belongs.

During transport, loading, and unloading, especially when auxiliaries such as suckers, transport nets, forklifts, or cranes are used for support, reaction forces may arise which result in damage or overloading to the installed hardware. Therefore observe the following during all transport, loading, and unloading:
- The type and the force application points when transporting, loading, and unloading have a significant effect on the reaction forces which arise.
  - Always choose the force application points so that the resulting reaction forces are dissipated appropriate to the designed layout of the hardware components for the intended installation location. This applies particularly for the hinge positions.

Check the delivery on receipt immediately for completeness and transport damage.

NOTE!
Claim any damage as soon as it is detected. Claims for damage can only be invoked within the statutory reclamation period.

Separate the hardware components from the window and dispose of as metal scrap.

Roto
Creates inner values

Roto Frank AG
Window and Door Technology

Wilhelm-Frank-Platz 1
70771 Leinfelden-Echterdingen
Germany

Phone +49 711 7598 0
Fax +49 711 7598 253
info@roto-frank.com

www.roto-frank.com

Dated: July 2015 Subject to change. IMO_147_EN_v1

From a single source: Optimum hardware systems to meet all challenges

Roto Tilt&Turn | The Tilt&Turn hardware system for windows and balcony doors
Roto Door | Matching hardware technology “everything about doors”
Roto Equipment | Additional technology for windows and doors
Roto Sliding | Hardware systems for large sliding windows and doors