



# Roto Frank Constructional Hardware

## German Window & Door Technology



Roto Frank Fenster- und Türtechnologie GmbH  
Leinfelden - Echterdingen



Lieber Roto Partner,  
Der vorliegende Katalog gibt Ihnen einen Überblick der Produkte der Roto Beschlagssysteme für ALU mit Fokus auf die in Asien-Pazifik gängige Anwendungen.

Für Anregungen, die der weiteren inhaltlichen Verbesserung dienen, sind wir sehr dankbar.

Wir wünschen Ihnen ein erfolgreiches Arbeiten mit der Roto Baubeschlagtechnik.

Dear Roto Partner  
This catalogue will give you an overview of the product of the Roto hardware-systems for ALU with focus on the applications prevalent in Asia-Pacific.

We sincerely hope that this technical manual for Roto ALU hardware-systems will provide you proper application instruction.

Your suggestions and advice would be valuable for us to improve the technical documentation in the future and are highly appreciated.

We wish you great success with the hardware technology from Roto Frank.



#### Haftungsausschluss

Alle Angaben in dieser Broschüre wurden sorgfältig zusammengetragen und geprüft. Durch den technischen Fortschritt, Veränderungen der Gesetzgebung sowie durch Zeitablauf ergeben sich zwangsläufig Veränderungen. Bitte haben Sie deshalb Verständnis, dass wir für die Richtigkeit und Vollständigkeit des Inhaltes keine Gewähr übernehmen. Alle Rechte, insbesondere das Recht der Vervielfältigung und Verbreitung bleiben vorbehalten.

#### Liability exclusion

All descriptions in this catalogue were compiled carefully and reviewed. Because of technical progress, whether by means of legislation modification or by lapse of time, the results automatically lead to changes. We therefore hope you shall understand that we cannot be held liable for the correctness and completeness of the contents.

All rights, in particular the right to copy and circulate, reserved.

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Roto Frank was founded in 1935 by Mr. Wilhelm Frank, a German inventor and entrepreneur who registered more than 1200 patents in his life.

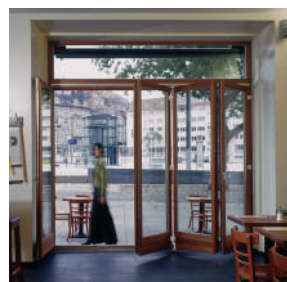
Roto invented the world first Tilt & Turn window hardware in 1935 and developed the hardware system for Aluminum window application in 1957.

Innovative hardware technology and systems for modern windows and doors have been a key factor for the success of Roto over the past 80 years. Our products represent the latest state-of-the-art advances in design, functionality, technology and durability and reassure our position as innovation leader in the global market.

10-year functional warranty on Roto brand products give our customers the confidence in our reliability as a long-term partner.

Today Roto Frank is one of the leading suppliers for window and door hardware, which sustains 12 production sites in Europe and America, and over 30 sales representative offices around the world.

Roto Frank Asia-Pacific Ptc.Ltd was established in Singapore in 2008, to extend our service to South-East Asia, South Asia, East Asia (except China) and Oceania.





**Zertifikat / Certificate**

Zertifikatsnr. / Certificate No.: 228-9004105-4-4

**Dreh- und Drehkippbeschläge für Fenster und Fenstertüren**  
*Turn and tilt-turn hardware for windows and casement doors*

**Produkt**  
Roto AL, Roto AL Designo

**max. Fallgewicht**  
300 kg

**Einsatzbereich**  
Systeme mit entsprechender Beschlagaufnahme

**Hersteller**  
Roto Frank Fenster- und Türtechnologie GmbH

**Produktionsstandort**  
ROTO Frank AG

**ifft**  
ROSENHEIM

**EN 1191**  
**EN 12400**  
Klasse 2

**EN ISO 9001**  
**EN 1810**  
Klassifizierung

**ifft**  
ZERTIFIKAT

**ifft**  
ROSENHEIM

**ifft**  
ZERTIFIKAT

**ifft**  
ROSENHEIM

Quality Certificate from ift Rosenheim for Roto ALU series

**Roto**

**10-Year Functional Warranty**

Multipoint locks (NT, AluVision, Patio, Casement)  
Hinge side for window (NT, AluVision, Casement)  
Door locks (C600, H600, E600\*, P600)  
Door hinge and cylinder  
Rotoi profile\* and accessories

1. Electronic and magnetic components are covered by a 12-month liability for defects only.  
2. Surface coating is excluded but to be specified according to the required coating material and process.

In the case of defects resulting from faulty materials or production errors which are reported within 10 years from the date of purchase, replacement with the same or equivalent components will be provided free of charge\*\* under the following conditions:

- The product was installed in accordance with Roto instructions, and proper operating in usual applications was observed.
- Proof that necessary maintenance work has been carried out in accordance with our maintenance guideline was provided.
- The warranty is applicable to residential applications only. Products which are installed in public or commercial areas are excluded from this warranty and to be assessed case by case.
- Natural wearing on components and surface, damage from extreme climate or aggressive ambient materials are excluded from the warranty.
- Damage from mis-handling or accident are excluded from warranty.
- Mixed usage with product from other parties without consent from Roto would result voidance of the warranty.

\* The warranty was evaluated according to test result with European standards and experiences from of usual applications under common environment.  
\*\* The warranty is applicable on Roto provided products and components only, excludes the window and door products assembled by fabricators.

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10 Years Functional Warranty

**ENVIRONMENTAL PRODUCT DECLARATION**  
as per ISO 14025 and EN 15804

|                                 |   |
|---------------------------------|---|
| <b>Owner of the Declaration</b> | ARGE; European Federation of Associations of Lock and Builders Hardware Manufacturers |
| <b>Programme holder</b>         | Institut Bauen und Umwelt e.V. (IBU)  |
| <b>Publisher</b>                | Institut Bauen und Umwelt e.V. (IBU)  |
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| <b>Issue date</b>               | 14.09.2016  |
| <b>Valid to</b>                 | 13.09.2022  |

**Window fittings**  
ARGE; European Federation of Associations of Lock and Builders Hardware Manufacturers

*(This EPD is valid only for products supplied by an ARGE EPD licence holder)*

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ISO 14025

**DAKKS**  
Deutsche Akkreditierungsstelle

**Deutsche Akkreditierungsstelle GmbH**

Befähigung gemäß § 8 Absatz 1 AkkStelleG i.V.m. § 1 Absatz 1 AkkStelleG  
Unterzeichnerin der Multilateralen Abkommen von EA, ILAC und IAF zur gegenseitigen Anerkennung

**Akkreditierung**

Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Prüflaboratorium **Roto Frank Fenster- und Türtechnologie GmbH Internationales Technologie Center (ITC)** an den Standorten **Wilhelm-Frank-Platz 1, 70771 Leinfelden-Echterdingen Lapp-Finze-Straße 21, A-8401 Kalsdorf, Österreich** die Kompetenz nach DIN EN ISO/IEC 17025:2018 besitzt, Prüfungen in folgenden Bereichen durchzuführen:

**mechanisch-technologische Prüfungen von Fassadenelementen wie Fenster, Türen und Beschläge; mechanisch-technologische Prüfungen von metallischen Werkstoffen sowie Korrosionsprüfungen**

Die Akkreditierungsurkunde gilt nur in Verbindung mit dem Bescheid vom 19.05.2020 mit der Akkreditierungsnummer D-PL-21397-01. Sie besteht aus diesem Deckblatt, der Rückseite des Deckblatts und der folgenden Anlage mit insgesamt 3 Seiten.

Registrierungsnummer der Urkunde: **D-PL-21397-01-00**

Berlin, 19.05.2020

In Auftrag der Rote Marke Akkreditierungsstelle

Die Akkreditierungsurkunde gibt über Stand zum Zeitpunkt des Ausfertigungsdatums wieder. Der jeweils aktuelle Stand des Geltungsbereiches der Akkreditierung ist der Datenbank akkreditierter Stellen der Deutschen Akkreditierungsstelle GmbH (DAKKS) zu entnehmen. <https://www.dakks.de/Content/Standenbuhl-akkreditierter-stellen>

Certified Laboratory



## Conditions of Limited Warranty & Maintenance Guideline

Products<sup>(1)</sup> supplied by Roto Frank Asia-Pacific Pte. Ltd. (hereinafter "Roto") are warranted against material defects and/or workmanship for a limited period of **10YEARS**<sup>(2&3)</sup> for its designed function from the date of purchase under **normal** use and **maintenance** subject to the condition and limitations set forth herein.

This Limited Warranty is expressly limited to window and door manufacturers and authorized distributors that purchase the products directly from Roto for use in the ordinary course of business (hereinafter "customer") within assigned territory, and may not be assigned or transferred.

This Limited Warranty is applicable exclusively if connected hardware may only consist of components from Roto's respective systems. In the case of non-Roto-approved combinations, and/or inappropriately assembled hardware, and/or the use of non-original components, and/or product obtained from unauthorized channel, no warranty is applied.

This Limited Warranty does not cover normal wear and tear or discoloration<sup>(4)</sup> on finishes, accidentally damaged or damaged during shipping, disaster or any force majeure, tampered or altered, and/or has been improperly installed, abused, misused, worn out, used for a purpose other than that for which it was intended, or in a manner inconsistent with any instructions regarding use of such product, or exceeding the maximum sash weight, nor does it cover corrosion<sup>(4)</sup> related damage.

This limited warranty does not exempt or substitute the liability of the customer and end-user, if any.

Roto's obligation under this Limited Warranty shall be exclusively limited to repairing or replacing any product which Roto finds to be materially defective in its sole judgment and discretion after a good faith investigation into a warranty claim made in accordance with this Limited Warranty. If the product should become materially defective during the warranty period, Roto will, at its option, repair or replace it with a substantially similar product or part. Roto's liability is limited only to the replacement value of the materially defective product, which shall be the customer's exclusive remedy and Roto's sole liability for a warranty claim under this Limited Warranty.

This exclusive remedy shall not have failed of its essential purpose as long as Roto remains willing or able to repair or replace the defective product within a commercially reasonable time after being notified of customer's warranty claim.

Roto may, at its option, replace a materially defective product that has been discontinued with a substantially similar product.

Roto is NOT responsible for the cost of labor which may be required for the replacement of said product, and/or the cost of shipping replacement material and defective material between Roto's direct customer and any third party's location, and/or the cost of any interruptions in business occasioned by an inability to use any reason whatsoever. Any oral or written description of the product is for the sole purpose of identifying the product and shall not be construed as an express warranty.

THIS LIMITED WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED OR STATUARY. ROTO SHALL NOT, IN ANY EVENT, BE LIABLE TO A CUSTOMER FOR CONSEQUENTIAL, SPECIAL, EXEMPLARY, INCIDENTAL OR PUNITIVE DAMAGES OF ANY KIND OR LOSS OF ANTICIPATED BENEFITS OR PROFITS WHETHER IN CONTRACT OR TORT FOR BREACH OF WARRANTY, NEGLIGENCE, ON THE BASIS OF STRICT LIABILITY OR FOR ANY OTHER REASON, RESULTING FROM THE PURCHASE OR USE OF ANY PRODUCT OR ARISING FROM THE BREACH OF THIS LIMITED WARRANTY EVEN IF ROTO KNEW OF THE LIKELIHOOD OF SUCH DAMAGES.

If any provision of this Limited Warranty is held to be invalid, illegal, or unenforceable under any statute, regulation, ordinance, executive order, or other applicable rule of law, that provision will be deemed severed to the extent necessary to comply with such statute, regulation, ordinance, order, or rule. In the event such provision is deemed severed, Roto and its customer or other party having right under this Limited Warranty by law will negotiate in good faith to arrive at an alternative arrangement approximating the original intentions of this Limited Warranty. The remaining terms and conditions of this Limited Warranty will remain in effect.

**No agent, employee or representative of Roto has any authority to bind Roto to any affirmation, representation, or warranty concerning Roto's products or parts, except as stated herein.**

In order to make a quality claim under this Limited Warranty, a customer shall notify Roto with necessary evidence (i.e. picture and sample) and information (location, qty., condition, etc) as soon as the defect found, and cooperate with Roto and/or its representative to investigate the cause. The customer should assist to ship the defective product(s) to a location directed by Roto if required.

Roto shall inspect and determine whether such products are eligible to this Limited Warranty within a commercially reasonable time after receiving the claim with required information and evidence.

Roto may, at its opinion, to provide replacement for the claimed product(s) to the customer within a commercially reasonable time in good faith, before determining the eligibility of the claim.

**Any Products that Roto determines are not eligible under this Limited Warranty, the sent replacement materials shall be invoiced to the customer for payment collection.**

The following Maintenance Guideline is indispensable condition this Limited Warranty. Proper handling and maintenance shall be out by all direct and indirect customers during building phase including interior decoration and daily use

- The window and door should be kept free from deposits and soiling from building materials (building dust, plaster, cement etc.) at all time. Soiling from plaster, mortar or similar materials is to be removed gently before it cures.
  - Scratches on coated surface or electroplated surface may damage the protection layer and create potential risk of damage on coating layer or corrosion on metal material, which should be avoided and observed.
  - Aggressive vapors (e.g by means of formic acid or acetic acid, ammonia, amine or ammonia compounds, aldehydes, phenols, chlorine, tannic acid, etc.) in connection with even small formations of condensation can lead to fast corrosion of the metal components. No acetic-acid or cross linked acidic sealing compounds or those with the above mentioned contents may be used, since both the direct contact with the sealing compound and it's vaporization can attack the metal surface.
  - If the property could not be handed over to end user to carry out routine cleaning and maintenance after installation of the windows and doors, the metal surface of hardware components should be cleaned with water-wet towel then apply corrosion prevention lubricant (e.g CRC3-36, RP7, WD-40,etc), and the coated surface of handle and profile, the gasket should be cleaned with water gently and stay free from possible damage (e.g scratch, contact with hard and sharp objects, high temperature, etc) and pollution(chemicals, oil, pigment, etc)
  - The hardware and/or rebate areas shall be ventilated sufficiently so that they are not exposed either to direct wetness or to condensation, in particularly at the coastal area or industrial zone. Galvanized surface is not affected in a normal room climate if no long-lasting contact with water. Occasionally formed condensation water can dry rapidly if proper ventilation is applied.
  - Gaskets and plastic accessories should be cleaned by water or mild cleaning agent only, and should be kept free from contact with oil, paint, solvent and/or chemicals.
  - Certain types of timber (e.g oak) may contain a high concentration of (tannic-) acid, ensure that by means of a suitable surface treatment, these content substances cannot evaporate out of the timber if it's in vicinity of the window and door product. The hardware should not come in direct contact with untreated timber surfaces.
  - Hardware components are to be examined at least once a year for stability and wear and tear, and all movable parts and all locking points on the hardware are to be lubricated and tested. The hardware may only be cleaned with mild, PH-neutral cleaning agent in diluted form. Under no circumstances may aggressive, acidiferous cleaners or abrasive cleaning agents be used.
  - Opened balcony-doors and window sashes, as well as window and balcony-door sashes when not locked or in the ventilation position, provide only a shielding function and do not meet any demand on joint impermeability, water tightness, sound reduction, heat-insulation and burglary-resistance.
  - Below mis-use of products is not covered by warranty and should be avoided all the time:
    - o If obstacles are inserted on the opening vicinity between frame and sash, thus preventing or interfering with its stipulated use, and/or additional loads are applied to the windows or door sashes;
    - o When window and door sashes are pressed adversatively or uncontrolled (by wind), consequential damage on hardware or the frame material or other individual window or door components can arise.
    - o If while closing or opening (regardless swing or sliding), someone or part of the body reaches between the sash and frame, and/or are in the vicinity or sash moving path can cause serious bodily harm or be lethal.
- (1) The Products refer to Roto hardware system, Rotoi profile and accessories.
  - (2) The 10-Year warranty is applicable to:
    - (A) the function of hardware system from Roto, including multi-point locking mechanism, hinge side and handles.
    - (B) the physical property of Rotoi profile, and the weathering resistance of original coating or anodization on Rotoi profile, plastic accessories and gaskets. Roto does not warrant the surface quality if it was done by customers on mill finished profile.
  - (3) Rollers and die-casted strikers are warranted for 2 years. Electronic and magnetic devices are warranted for 1 year only.
  - (4) Coated and electroplated surface may perform differently in different climate or environment. Scratches during installation and using may also affect the performance then cause different result from lab test evaluation, hence could not be covered by the limited warranty.

## General Product Information Colour

| Colour in Catalogue | in Roto SAP   | referent RAL Code |
|---------------------|---------------|-------------------|
| White               | R07.2         | RAL9016           |
| Black               | R06.2         | RAL9005           |
| Brown*              | (Black) Brown | RAL8022           |
| Silver*             | (FC)9022      | RAL9022           |

Some items with special description have different brown and silver colour.



### **INFO**

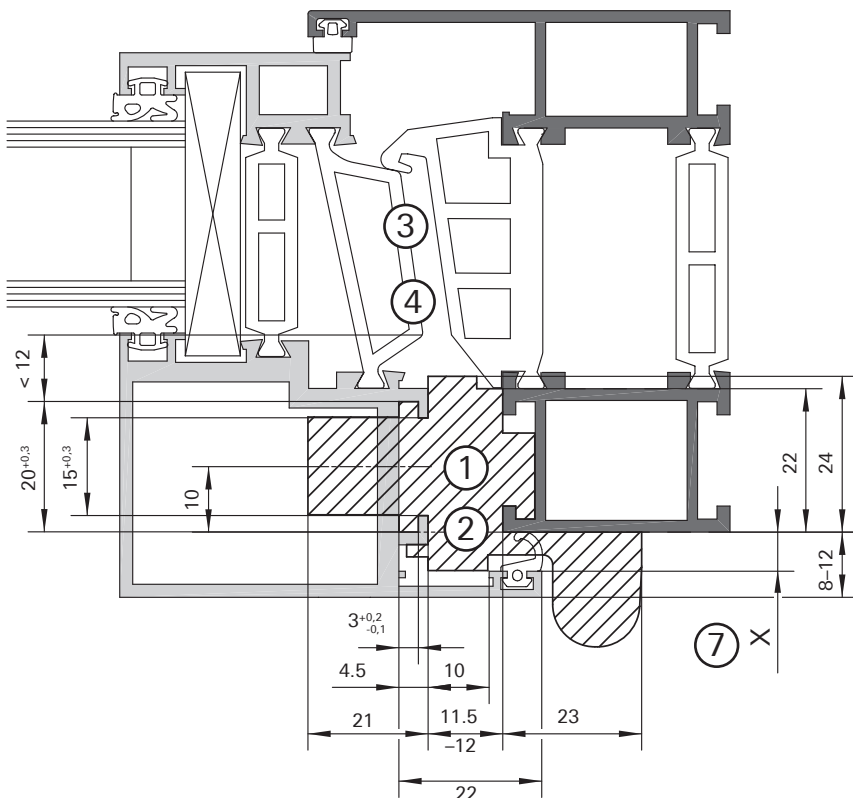
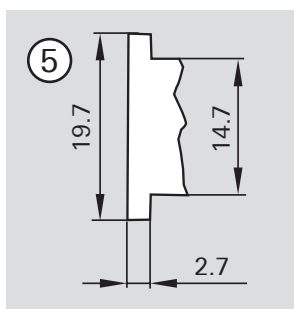
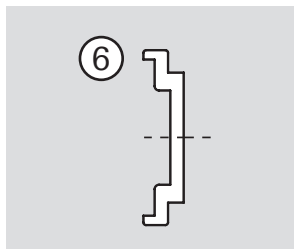
Colour deviations between product and representation are possible.

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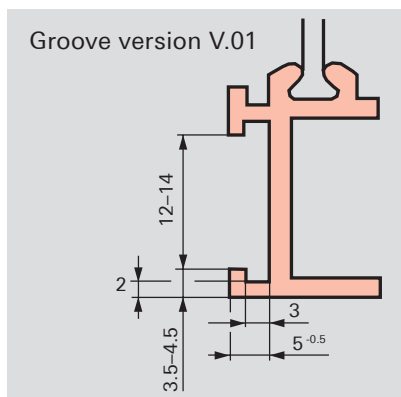


## Required space AluVision T300 & AluVision T540

### Suitable connecting-rod



### Frame groove



 Space requirements for AluVision T540-10 (standard hardware)

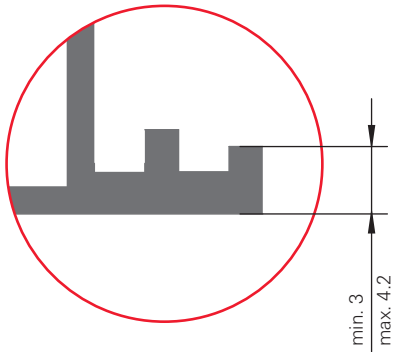
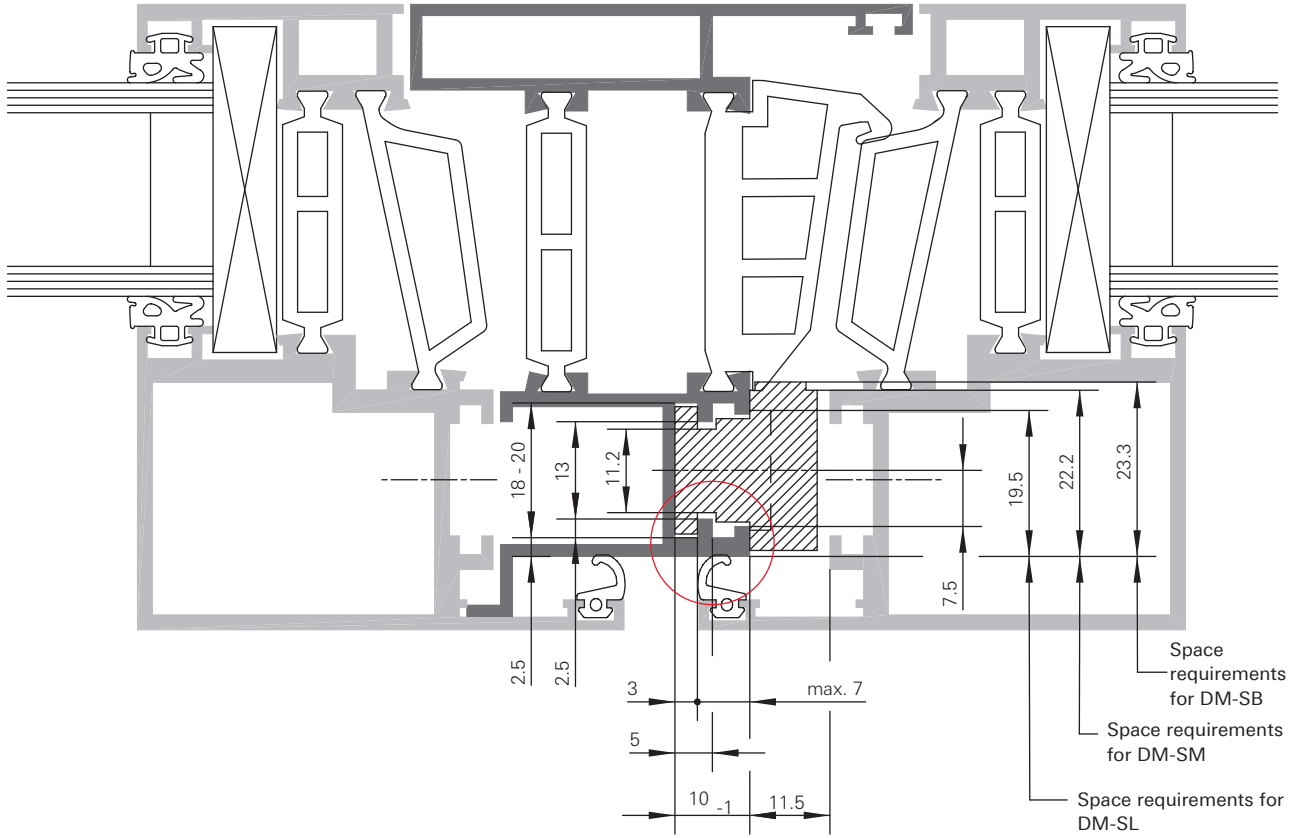
- ① Space requirements. The thick outlines are important contact areas for the Roto AluVision hardware system.
- ② It is imperative to adhere to the sash-frame alignment!
- ③ 12° for a sash width of 370 mm, 9° for a sash width of 500 mm with a profile thickness of maximum 100 mm.
- ④ No contact lip from the central gasket etc. may extend beyond the connecting-rod C-groove plane.
- ⑤ Minimal dimensions of the connecting-rod C-groove, in which the hardware components must slide easily, even after colour coating.
- ⑥ Specific connecting-rod profile for AluVision T540-10 (refer to the chapter "Connecting-rod coupling technology" for dimensions).
- ⑦ Recommended hinge passage.

|            | Min. | Max. |
|------------|------|------|
| T300       | 3.5  | ---  |
| T540-130Kg | 4    | ---  |
| T540-160Kg | 5    | ---  |

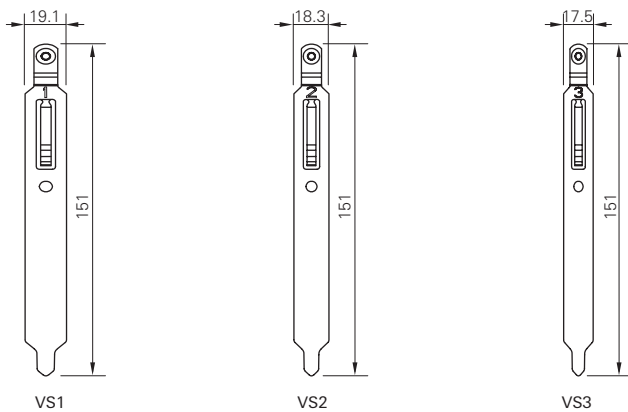
Upon deviating dimensions, please consult with Roto!  
All dimensions in mm.

## 2-sashed window without fixed centre-post profile (dummy mullion)

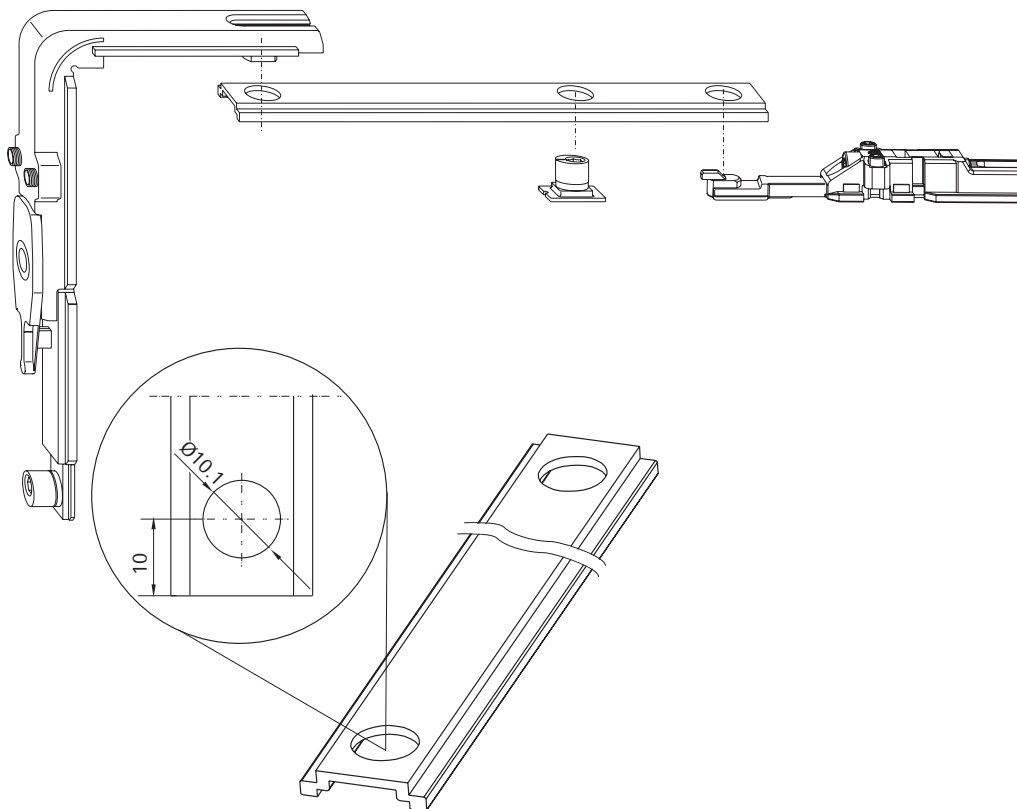
DM-SM/DM-SL/DM-SB



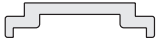
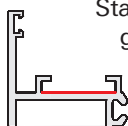
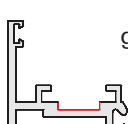
### Shootbolt rod

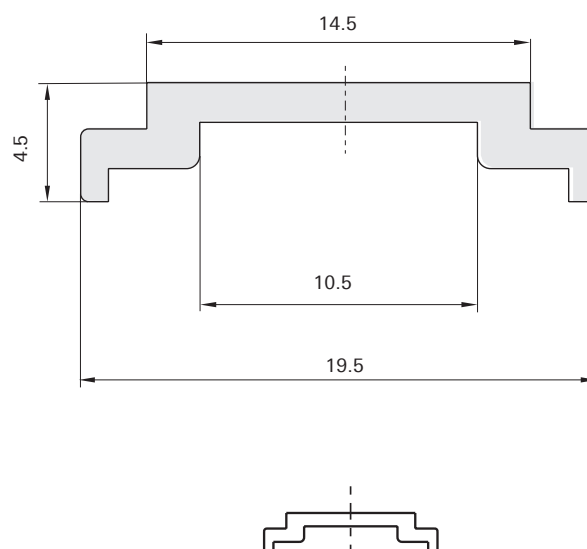


### Connecting-rod coupling technology



### Connecting-rod application

|  |  |
|--|--|
|  | ①<br> |
| <br>Standard groove | <input checked="" type="checkbox"/>  |
| <br>ECC groove      | <input checked="" type="checkbox"/>  |



- ① Connecting-rod geometry applicable for sash profiles with and without extended connecting-rod C-groove (ECC groove).

**Turn-Only hardware (EU hinge) – 80 kg**

TU-ON



Limitation of sash formats depending on the glass thickness

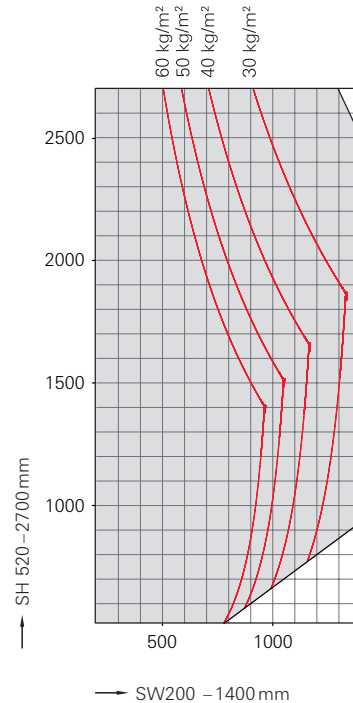
**Application range**

Sash width **SW**..... 200-1400mm  
 Sash height **SH**..... 520-2700mm  
 Sash weight **S.kg** ..... max. 80 kg

The information in the application diagram refers to the glass weight in kg/m<sup>2</sup>.

1 mm/m<sup>2</sup> glass thickness = 2.5 kg

= Impermissible application range



**Tilt-Only hardware, handle on top (EU hinge) – 70 kg**

TI-ON



Limitation of sash formats depending on the glass thickness

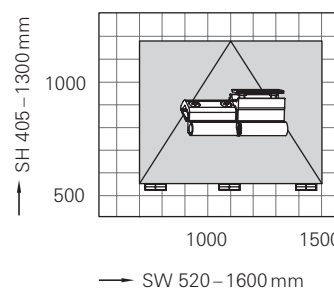
**Application range**

Sash width **SW**..... 520 – 1600 mm  
 Sash height **SH**..... 405 – 1300 mm  
 Sash weight **S.kg** ..... max. 70 kg

The information in the application diagram refers to the glass weight in kg/m<sup>2</sup>.

1 mm/m<sup>2</sup> glass thickness = 2.5 kg

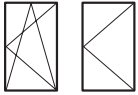
= Impermissible application range





## Tilt&Turn and Turn-Only hardware 80 kg (T300)

T&T, TU-ON-adj



Limitation of sash formats depending on the glass thickness

### Application range T&T


Sash width **SW** ..... 390 – 1600 mm  
 Sash height **SH** ..... 580 – 2400 mm  
 Sash weight **S.kg** ..... max. 80 kg

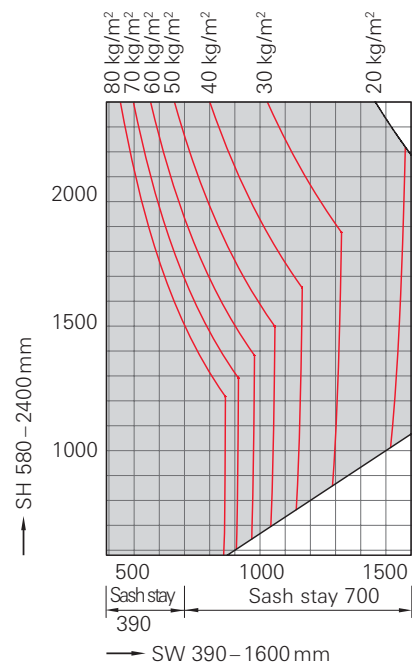
### Application range TU-ON-adj

Sash width **SW** ..... 370 – 1600 mm  
 Sash height **SH** ..... 500 – 2400 mm  
 Sash weight **S.kg** ..... max. 80 kg

The information in the application diagram refers to the glass weight in kg/m<sup>2</sup>.

1 mm/m<sup>2</sup> glass thickness = 2.5 kg

 = Impermissible application range



### Tilt&Turn / Turn-Only hardware 130 kg (T540-130Kg)

T&T, TU-ON



Limitation of sash formats depending on the glass thickness

#### Application range

Sash width **SW** ..... 405 – 1600 mm

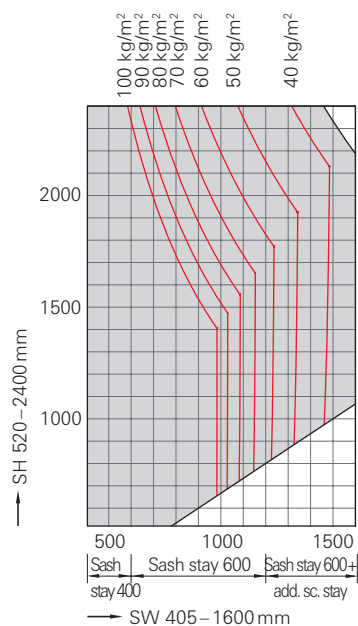
Sash height **SH** ..... 520 – 2400 mm

Sash weight **S.kg** ..... max. 130 kg

The information in the application diagram refers to the glass weight in kg/m<sup>2</sup>.

1 mm/m<sup>2</sup> glass thickness = 2.5 kg

 = Impermissible application range



### Tilt-Only hardware, handle on top, 130kg (T540-130Kg)

TI-ON



Limitation of sash formats depending on the glass thickness

#### Application range

Sash width **SW** ..... 520 – 1600 mm

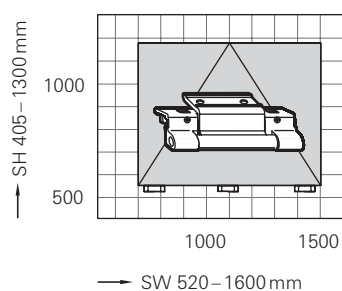
Sash height **SH** ..... 405 – 1300 mm

Sash weight **S.kg** ..... max. 130 kg

The information in the application diagram refers to the glass weight in kg/m<sup>2</sup>.

1 mm/m<sup>2</sup> glass thickness = 2.5 kg

 = Impermissible application range



**Application diagram up to 160kg (T540-160Kg)**

T&T



Limitation of sash formats depending on the glass thickness

**Application range**

Sash width **SW** ..... 620–1600 mm

Sash height **SH** ..... 1000–2700 mm

Sash weight **S.kg** ..... max. 160 kg

The information in the application diagram refers to the glass weight in kg/m<sup>2</sup>.

1 mm/m<sup>2</sup> glass thickness = 2.5 kg



= Impermissible application range

Calculation basis for application diagram:

(IFT Tool – Dated February 2013)

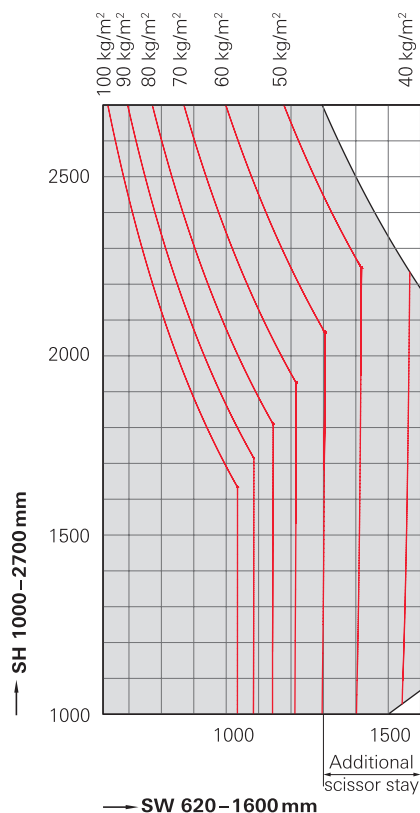
Deductible glass dimension **DGD** ..... 20 mm

(Sash) profile weight **PW** ..... 2 kg/m<sup>2</sup>



**NOTE!**

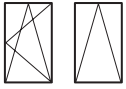
Lower deductible glass dimensions or higher profile weights must be checked separately.





## Application diagram up to 100 kg without load transfer device (Designo Alu version)

T&T, TF, TI-ONs



Limitation of sash formats depending on the glass thickness

### Application range

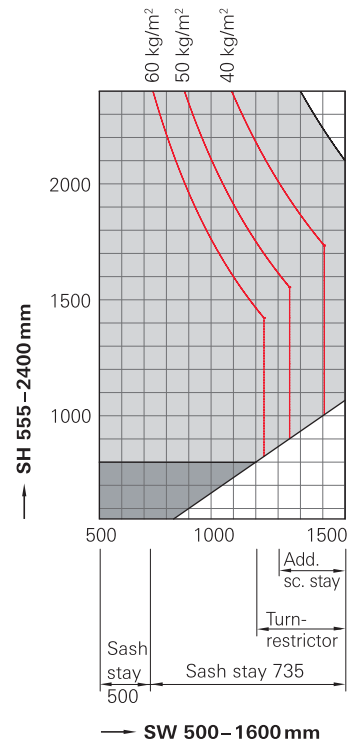
Sash width **SW** ..... 500–1600 mm  
 Sash height **SH** ..... 555–2400 mm  
 Sash weight **S.kg** ..... max. 100 kg

The information in the application diagram refers to the glass weight in kg/m<sup>2</sup>.

1 mm/m<sup>2</sup> glass thickness = 2.5 kg

 = Impermissible application range

 = Tilt-depth regulator



**Application diagram from 80 up to 150kg with load transfer device (Designo Alu version)**

T&T, TF, TI-ONs, TU-ON



Limitation of sash formats depending on the glass thickness

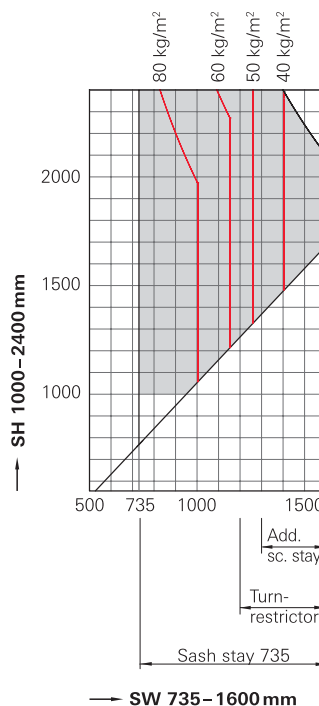
**Application range**

Sash width **SW** ..... 735–1600 mm  
 Sash height **SH** ..... 1000–2400 mm  
 Sash weight **S.kg** ..... 80 – 150 kg  
 (with load transfer device set 150 kg)

The information in the application diagram refers to the glass weight in kg/m<sup>2</sup>.

1 mm/m<sup>2</sup> glass thickness = 2.5 kg

 = Impermissible application range



## Turn-Only hardware 200 kg

TU-ON



Limitation of sash formats depending on the glass thickness

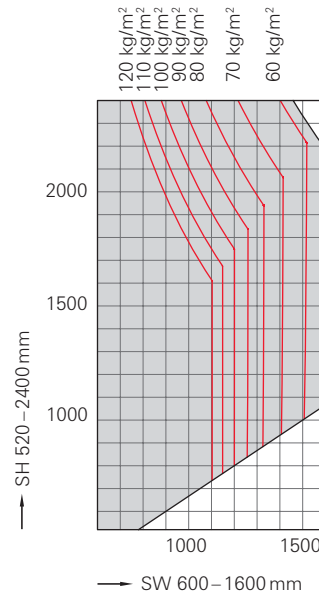
### Application range

Sash width **SW** ..... 600 – 1600 mm  
 Sash height **SH** ..... 520 – 2400 mm  
 Sash weight **S.kg** ..... max. 200 kg

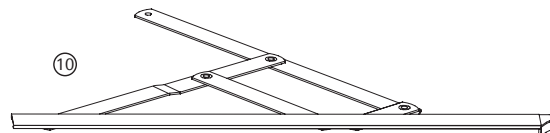
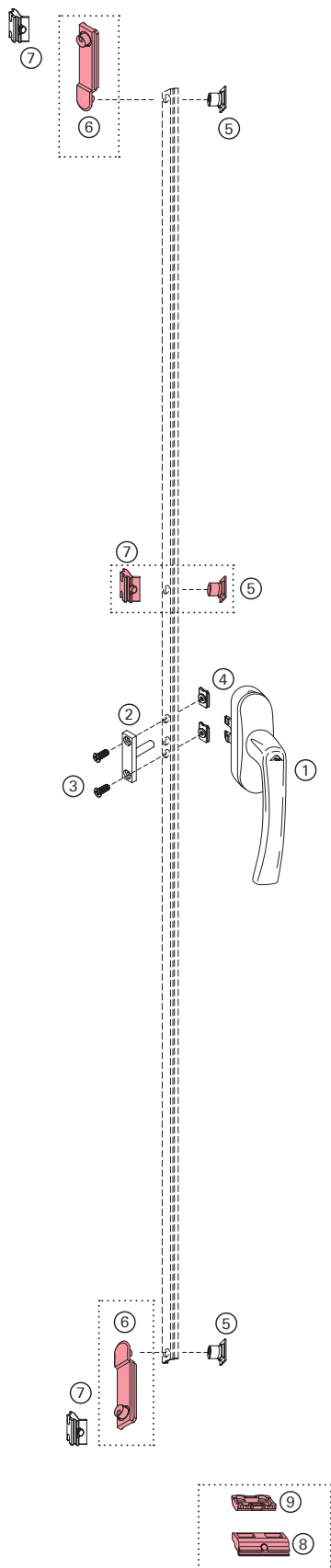
The information in the application diagram refers to the glass weight in kg/m<sup>2</sup>.

1 mm/m<sup>2</sup> glass thickness = 2.5 kg

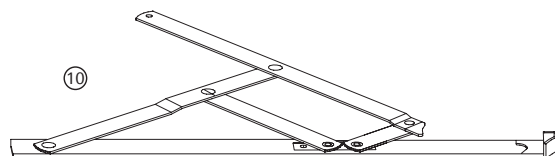
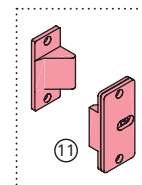
 = Impermissible application range



Single sash outward opening window - geared handle  
 Sash weight max. 45kg (refer to friction hinge capacity)  
 Recommended sash width:380-700mm;Sash height:400-1600mm

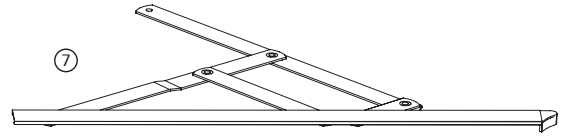


- |    |                          |        |
|----|--------------------------|--------|
| 1  | Rotoline casement handle | P82    |
| 2  | T connector              | P27    |
| 3  | Countersunk screw M5x8   | 728929 |
| 4  | Security connector       | P27    |
| 5  | Insertable cam           | P25    |
| 6  | Locking Pin 67           | 858811 |
| 7  | Striker                  | P26    |
| 8  | Hor. T&T striker         | 728860 |
| 9  | Run-up block             | 212008 |
| 10 | Friction hinge           | P30    |
| 11 | Centre-closers           | 771867 |

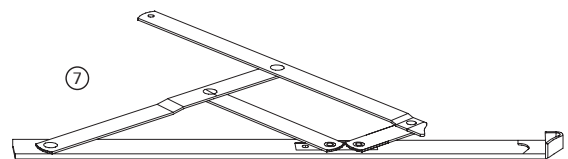
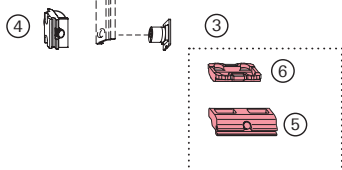
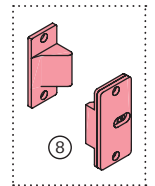
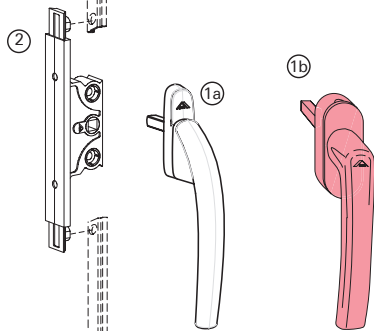
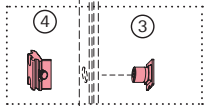




Single sash outward opening window - spindle handle  
 Sash weight max. 45kg (refer to friction hinge capacity)  
 Recommended sash width:380-700mm;Sash height:400-1600mm



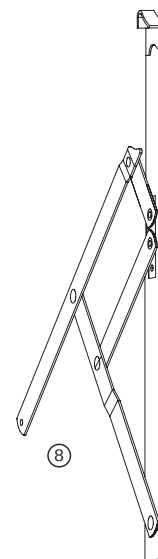
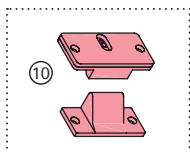
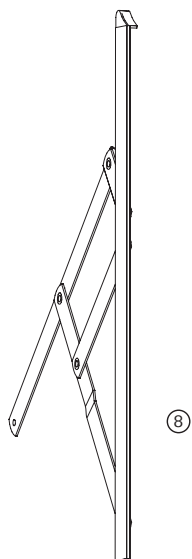
- |    |  |        |
|----|--|--------|
| 1a | Rotoline handle for outward opening window | P86    |
| 1b | Rotoline handle                            | P84    |
| 2  | Flush encased gearbox BS=25mm              | P27    |
| 3  | Insertable cam                             | P25    |
| 4  | Striker                                    | P25    |
| 5  | Hor. T&T striker                           | 728860 |
| 6  | Run-up block                               | 212008 |
| 7  | Friction hinge                             | P30    |
| 8  | Centre-closers                             | 771867 |



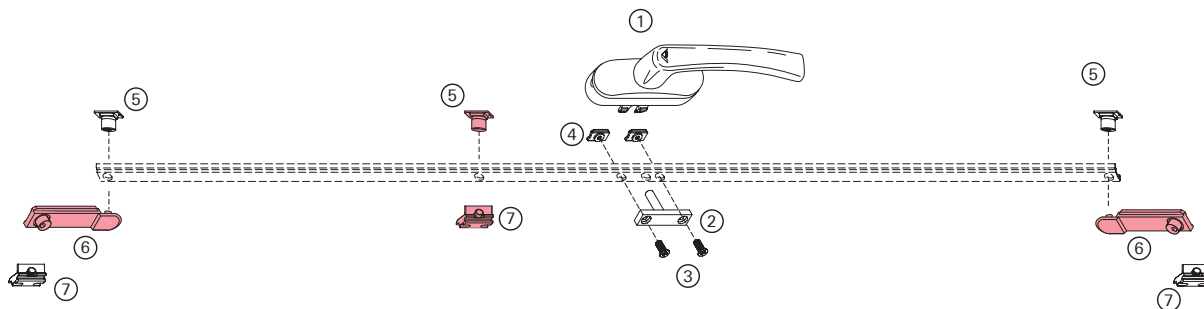
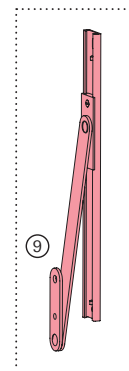
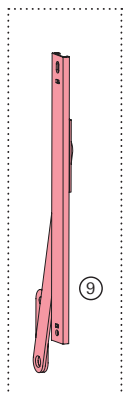
### Top hung window - frontal operation

Sash weight max. 180kg (refer to friction hinge capacity)

Recommended sash width:300-1200mm;Sash height:300-2500mm



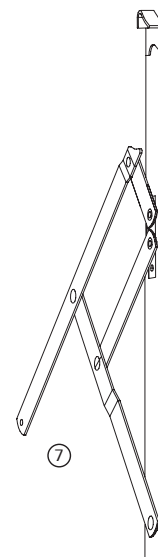
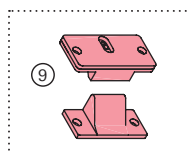
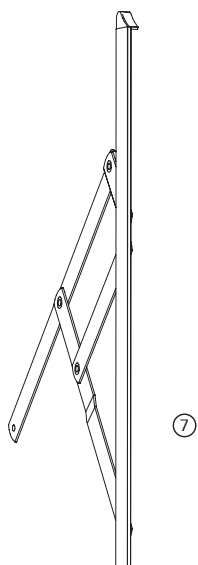
- |    |                          |        |
|----|--------------------------|--------|
| 1  | Rotoline casement handle | P82    |
| 2  | T connector              | P27    |
| 3  | Countersunk screw M5x8   | 728929 |
| 4  | Security connector       | P27    |
| 5  | Insertable cam           | P25    |
| 6  | Locking Pin 67           | 858811 |
| 7  | Striker                  | P26    |
| 8  | Friction hinge           | P30    |
| 9  | Restrictor               | P30    |
| 10 | Centre-closers           | 771867 |



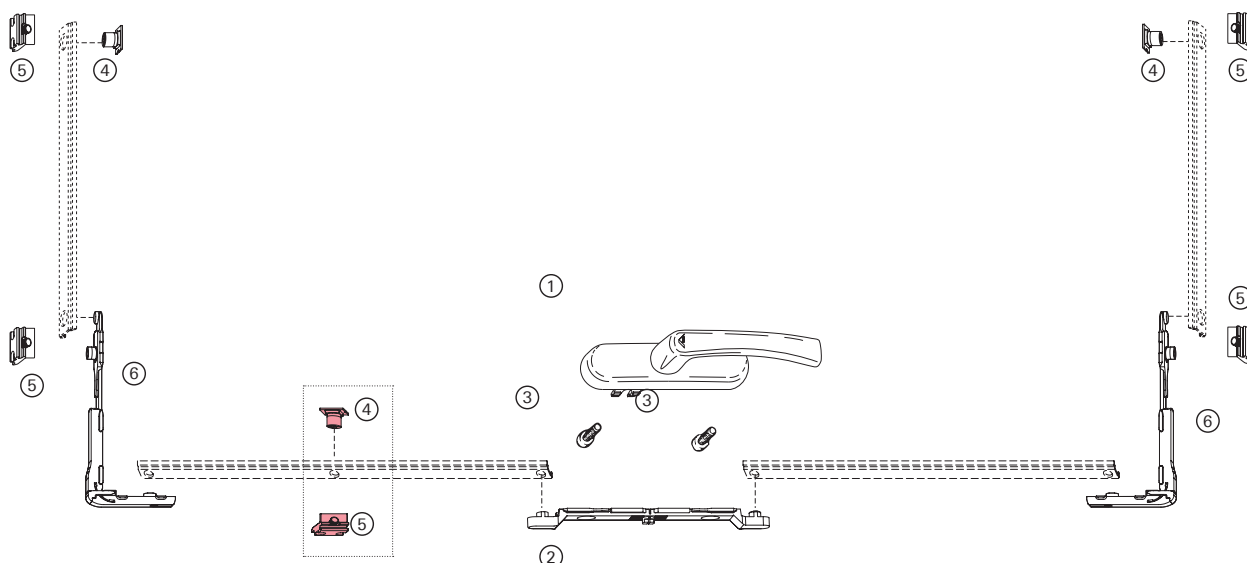
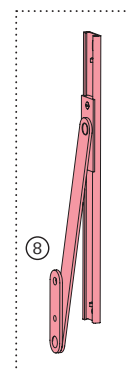
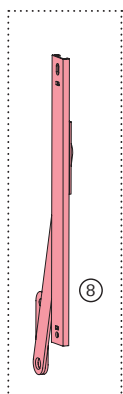
Top hung window - frontal operation

Sash weight max. 180kg (refer to friction hinge capacity)

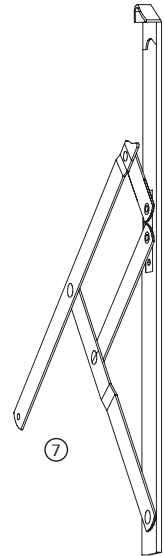
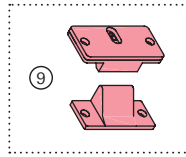
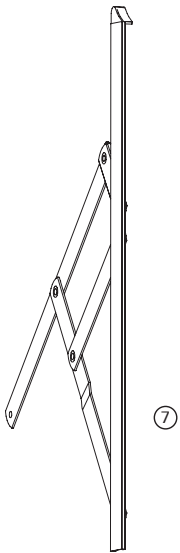
Recommended sash width:300-1200mm;Sash height:300-2500mm



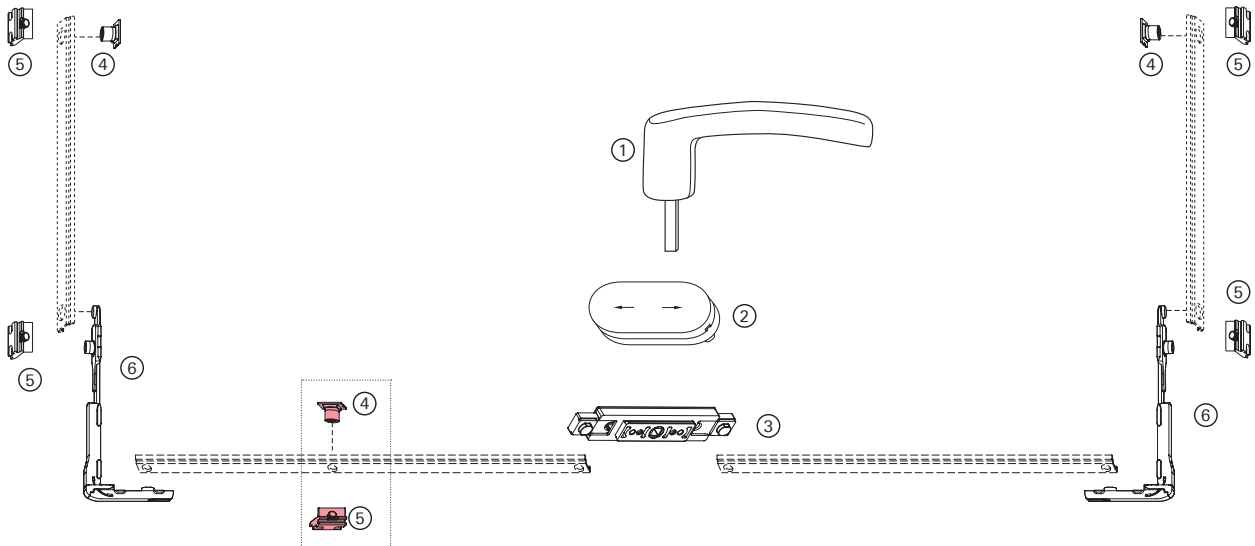
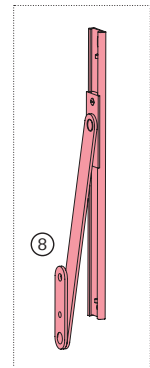
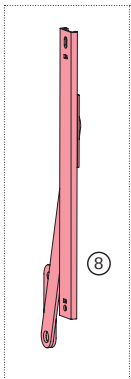
|   |                         |        |
|---|-------------------------|--------|
| 1 | RotoLine geared handle  | P82    |
| 2 | Center gear connector   | 482264 |
| 3 | Flat-headed screw M5×12 | 728925 |
| 4 | Insertable cam          | P25    |
| 5 | Striker                 | P26    |
| 6 | Corner drive            | 858806 |
| 7 | Friction hinge          | P30    |
| 8 | Restrictor              | P30    |
| 9 | Centre-closers          | 771867 |



Top hung window - operation from above  
 Sash weight max. 180kg (refer to friction hinge capacity)  
 Recommended sash width:300-1200mm;Sash height:300-2500mm

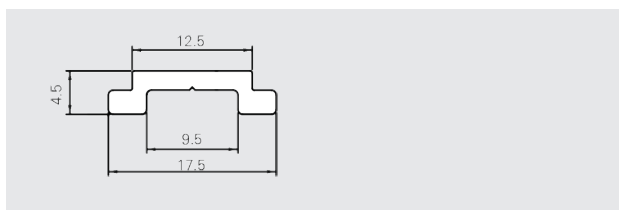


- |   |                           |        |
|---|---------------------------|--------|
| 1 | RotoLine service handle   | P83    |
| 2 | RotoLine escutcheon plate | P83    |
| 3 | Top hung centre gear      | 858815 |
| 4 | Insertable cam            | P25    |
| 5 | Striker                   | P26    |
| 6 | Corner drive              | 858806 |
| 7 | Friction hinge            | P30    |
| 8 | Restrictor                | P30    |
| 9 | Centre-closers            | 771867 |



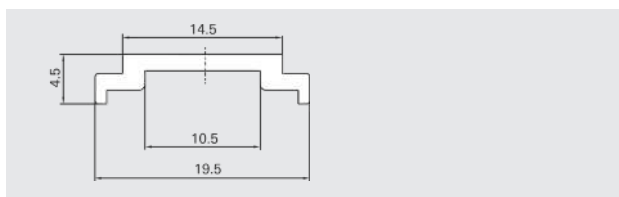
### Connecting rod & Cam

(More cams, strikers are not listed below, we would check according your system drawing.)



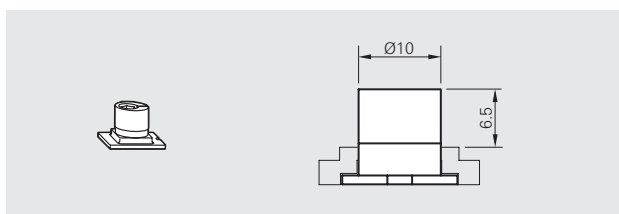
#### Connecting rod standard

| Material  | Description   | SAP    |
|-----------|---------------|--------|
| Aluminium | Silver 1pc=3m | 741149 |



#### Connecting rod ECC groove

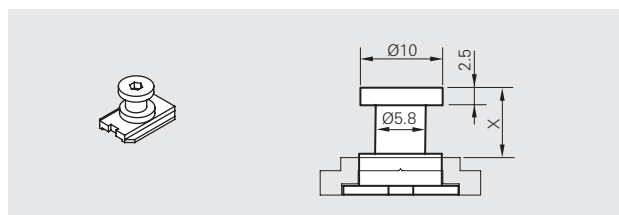
| Material  | Description   | SAP    |
|-----------|---------------|--------|
| Aluminium | Silver 1pc=3m | 333826 |
| Aluminium | Black 1pc=3m  | 815319 |
| PA66      | 1pc=3m        | 763768 |



#### Cam

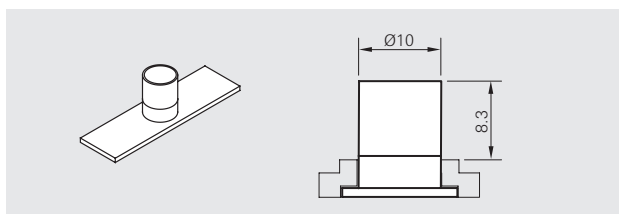
| Name           | Description | SAP    |
|----------------|-------------|--------|
| Insertable cam |             | 334671 |

available for ECC groove



#### Cam

| Name         | Description | SAP    |
|--------------|-------------|--------|
| Mushroom cam | X=8.3       | 328732 |
|              | X=10        | 767006 |

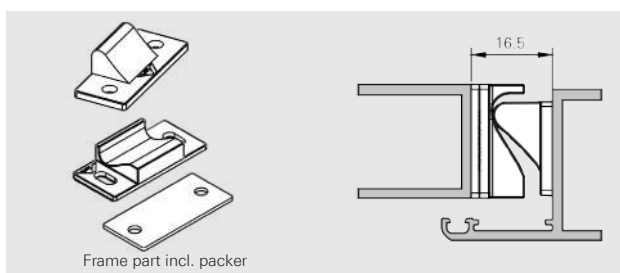
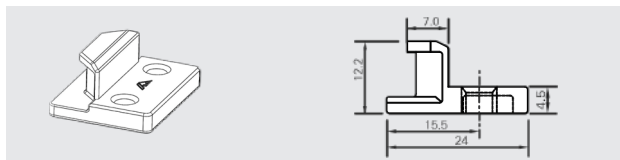
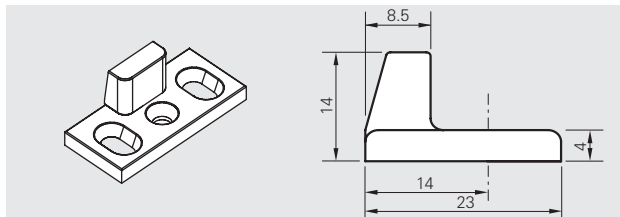
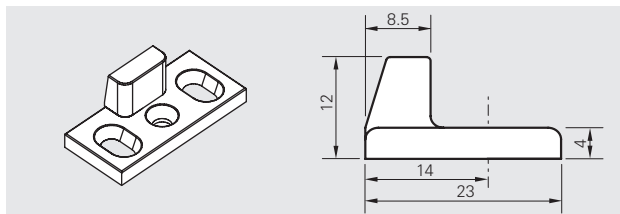
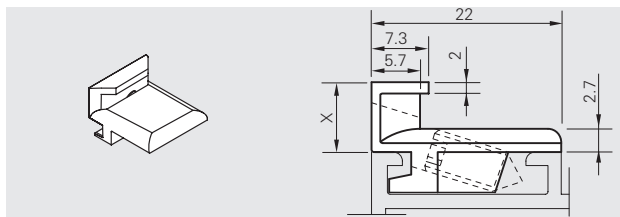
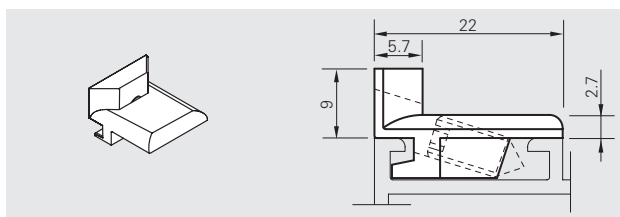


#### Cam

| Name | Description                       | SAP    |
|------|-----------------------------------|--------|
| Cam  | X=8.3                             | 570955 |
|      | X=12.8 (available for ECC groove) | 382690 |

### Striker

(More cams, strikers are not listed below, we would check according your system drawing.)



| Striker |  |         |
|---------|--|---------|
| Name    |  | SAP     |
| Striker |  | 2007008 |

| Striker for mushroom cams |             |        |
|---------------------------|-------------|--------|
| Name                      | Description | SAP    |
| Striker                   | X=9mm       | 861274 |
|                           | X=12mm      | 861273 |

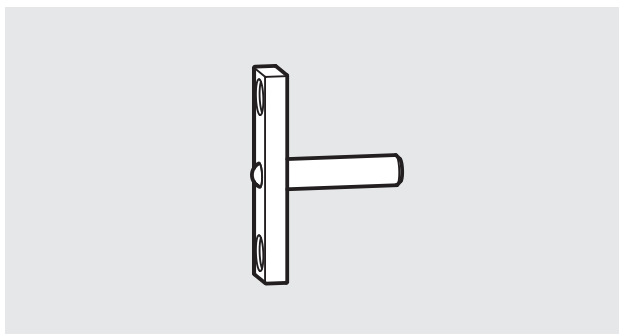
| Striker |                   |        |
|---------|-------------------|--------|
| Name    | Description       | SAP    |
| Striker | Clearance 14-16mm | 482261 |

| Striker |                   |        |
|---------|-------------------|--------|
| Name    | Description       | SAP    |
| Striker | Clearance 16-17mm | 482262 |

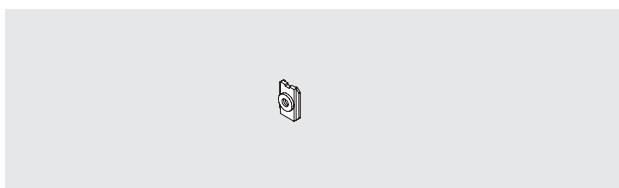
| Striker |             |        |
|---------|-------------|--------|
| Name    | Description | SAP    |
| Striker |             | 779965 |

| Center Closer for Outwards Opening |             |        |
|------------------------------------|-------------|--------|
| Name                               | Description | SAP    |
| Center Closer in set               |             | 771867 |

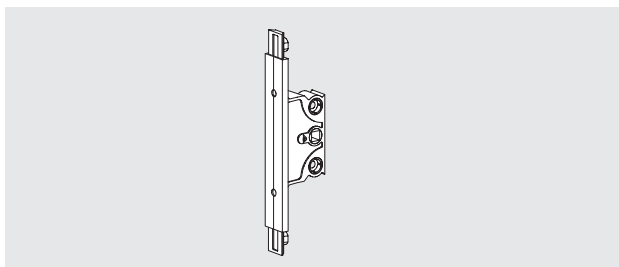
### Hardware for outward opening window



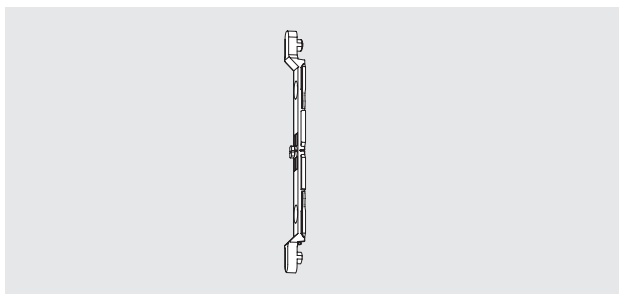
| T connector |             |
|-------------|-------------|
| SAP         | Description |
| 739482      | 17mm        |
| 739483      | 23mm        |
| 739481      | 25mm        |
| 739484      | 26mm        |
| 739485      | 30mm        |
| 739478      | 32mm        |
| 739486      | 35mm        |
| 739479      | 37mm        |
| 739480      | 47mm        |



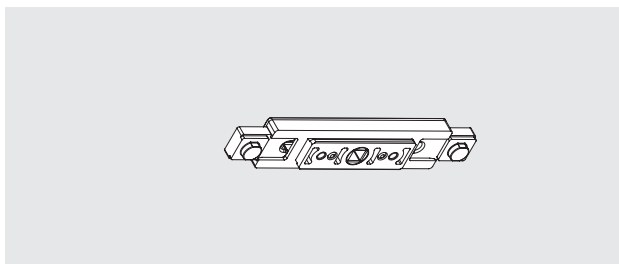
| Security connector |             |
|--------------------|-------------|
| SAP                | Description |
| 447113             | ECC         |



| Flush encased gearbox |             |
|-----------------------|-------------|
| SAP                   | Description |
| 894381                | BS=25       |



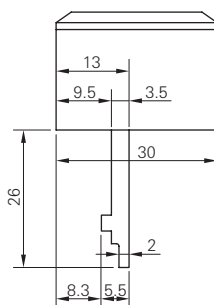
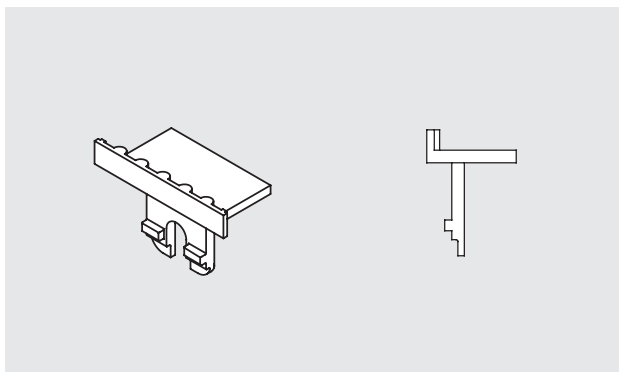
| Center gear connector |             |
|-----------------------|-------------|
| SAP                   | Description |
| 482264                |             |



| Top hung centre gear |             |
|----------------------|-------------|
| SAP                  | Description |
| 858815               |             |

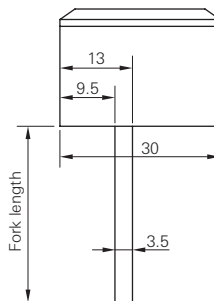
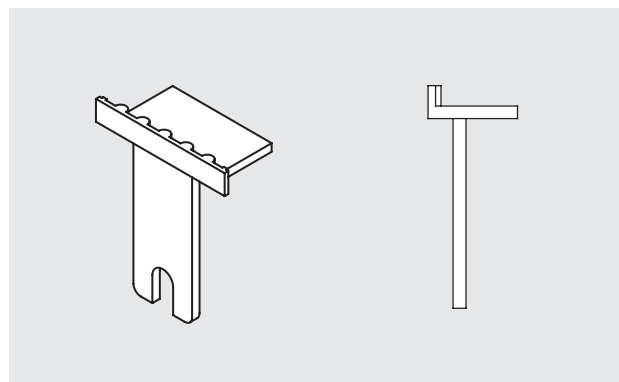


### ALU geared-handle fork



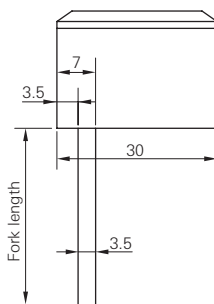
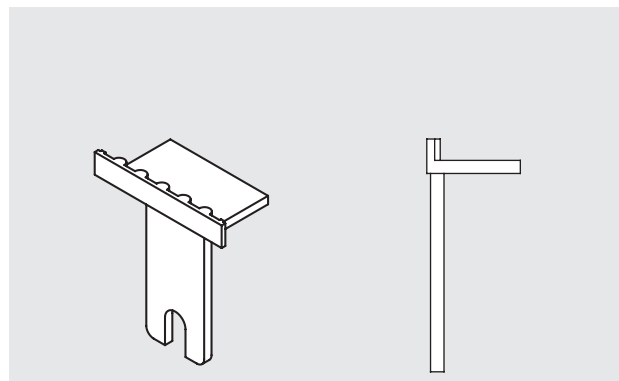
Fork (Can be combined with mishandling device)

| SAP    | Description |
|--------|-------------|
| 242817 | 26mm        |



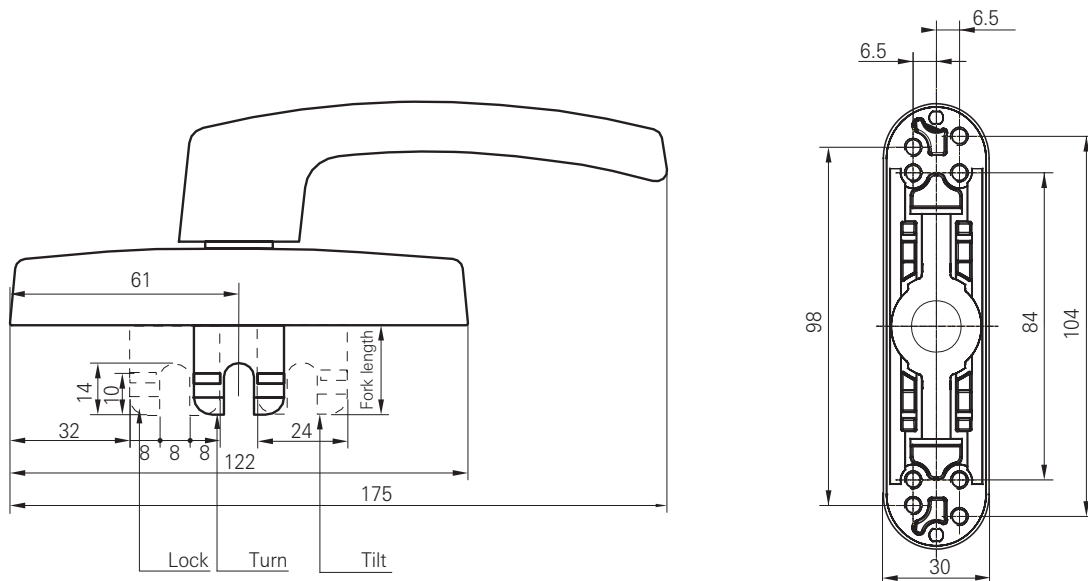
Fork

| SAP    | Description |
|--------|-------------|
| 482309 | 32mm        |
| 482310 | 37mm        |
| 482315 | 53mm        |
| 482312 | 46mm        |
| 482314 | 50mm        |
| 482317 | 55mm        |
| 482318 | 60mm        |



Fork: eccentric fork

| SAP    | Description |
|--------|-------------|
| 637952 | 19mm        |
| 570787 | 26mm        |
| 570788 | 32mm        |
| 482311 | 37mm        |
| 482313 | 46mm        |
| 482316 | 53mm        |



Friction hinge application

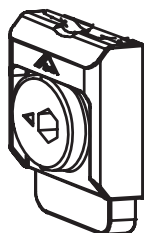
| Sidehung window |        |              |                   |                 |                 |                 |                   |
|-----------------|--------|--------------|-------------------|-----------------|-----------------|-----------------|-------------------|
| SAP             | Length | Stack height | Guide track width | Min. sash width | Max. sash width | Max.sash weight | Max.opening angle |
| 823188          | 10"    | 16           | 23                | 350mm           | 450mm           | 40kg            | 87°               |
| 823189          | 12"    | 16           | 23                | 380mm           | 570mm           | 40kg            | 87°               |
| 823191          | 16"    | 16           | 23                | 550mm           | 750mm           | 45kg            | 87°               |
| 769389          | 20"    | 16           | 23                | 600mm           | 800mm           | 48kg            | 87°               |

| Tophung window        |        |              |                   |                 |                       |                 |                   |
|-----------------------|--------|--------------|-------------------|-----------------|-----------------------|-----------------|-------------------|
| SAP                   | Length | Stack height | Guide track width | Min.sash height | Max. sash height      | Max.sash weight | Max.opening angle |
| 785740                | 8"     | 16           | 23                | 300mm           | 450mm                 | 35kg            | 50°               |
| 823189                | 12"    | 16           | 23                | 450mm           | 800mm                 | 45kg            | 50°               |
| 823195                | 16"    | 16           | 23                | 750mm           | 1250mm <sup>(1)</sup> | 60kg            | 50°               |
| 823196 <sup>(2)</sup> | 22"    | 16           | 23                | 1100mm          | 1500mm <sup>(1)</sup> | 100kg           | 20°               |
| 823198 <sup>(2)</sup> | 26"    | 16           | 23                | 1450mm          | 2500mm <sup>(1)</sup> | 180kg           | 20°               |

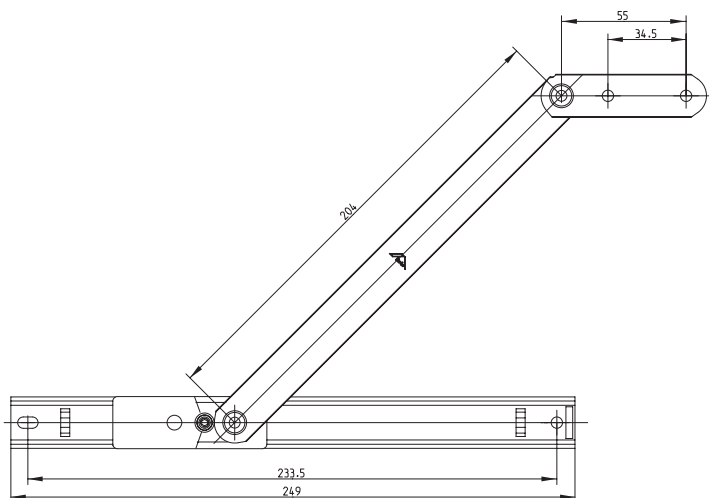
<sup>(1)</sup> Restrictor should be used as additional support.

<sup>(2)</sup> Sashes of 100kg must be fitted with 857579 cam adjust devices which are optional on lighter sashes.

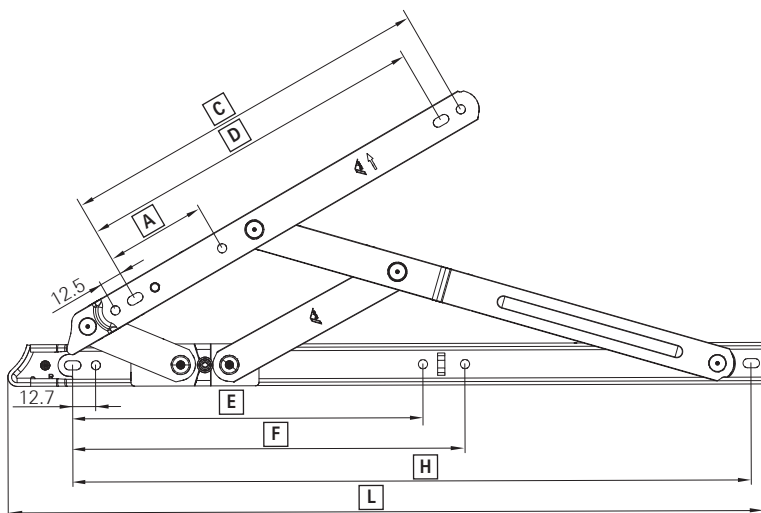
| Optional accessories  |                          |
|-----------------------|--------------------------|
| SAP                   |                          |
| 857579 <sup>(2)</sup> | Height adjustment blocks |



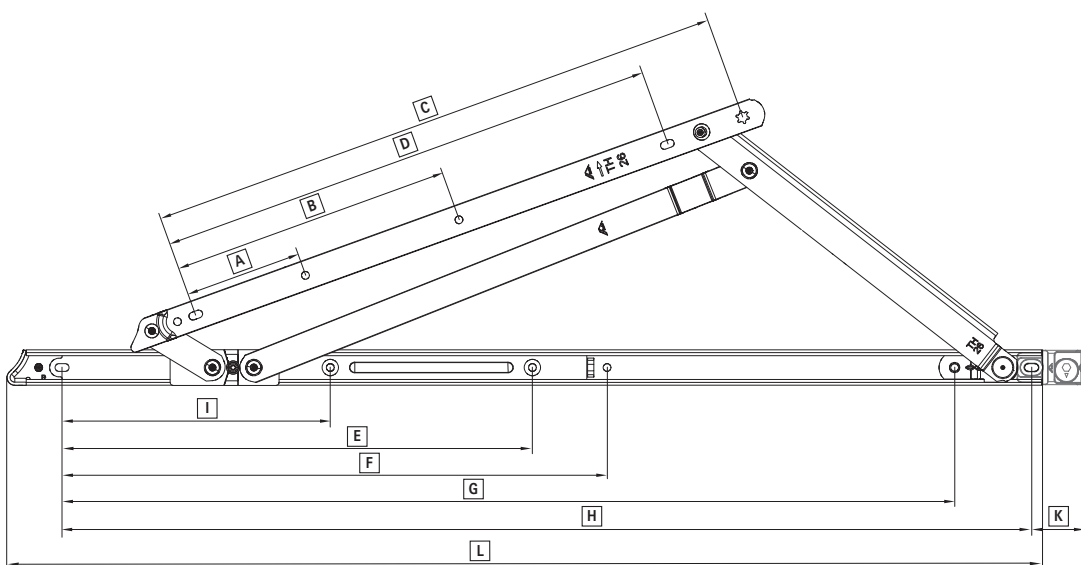
| Restrictor |        |              |
|------------|--------|--------------|
| SAP        | Length | Stack Height |
| 785746     | 10"    | 16mm         |



Friction hinge dimension in mm



| Sidehung |     |      |       |       |       |       |       |
|----------|-----|------|-------|-------|-------|-------|-------|
|          | L   | A    | C     | D     | E     | F     | H     |
| 10"      | 261 | -    | 163.5 | 151   | 153.5 | 176.5 | 218.5 |
| 12"      | 312 | 37.5 | 189   | 174.5 | 191   | 214   | 269.5 |
| 16"      | 413 | 55   | 206   | 193.5 | 191.5 | 214.5 | 371   |
| 20"      | 517 | 130  | 288   | 275.5 | 209.5 | 356.5 | 473.5 |

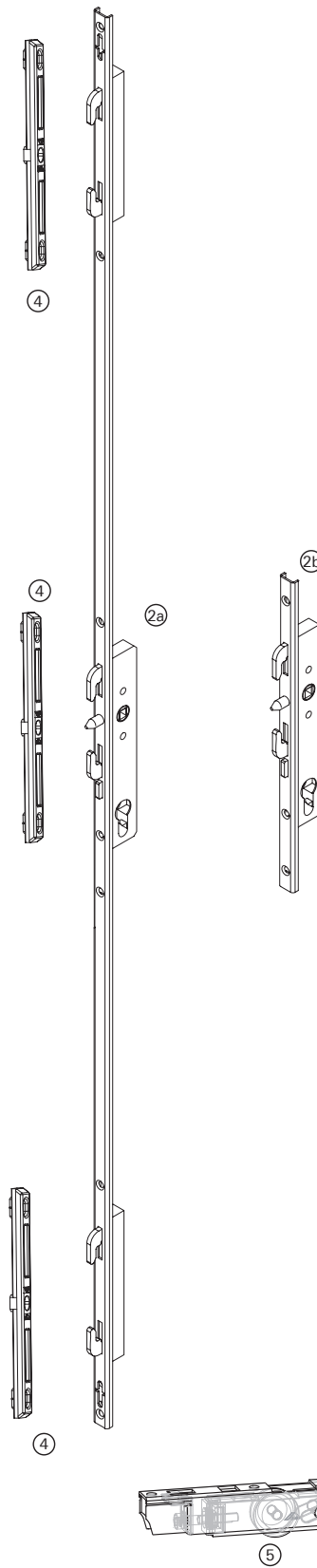


| Tophung |     |      |     |       |       |       |       |       |     |       |    |
|---------|-----|------|-----|-------|-------|-------|-------|-------|-----|-------|----|
|         | L   | A    | B   | C     | D     | I     | E     | F     | G   | H     | K  |
| 8"      | 212 | -    | -   | 123.5 | -     | -     | 102.5 | 125.5 | -   | 170   | -  |
| 12"     | 312 | 37.5 | -   | 189   | 174.5 | -     | 191   | 214   | -   | 269.5 | -  |
| 16"     | 414 | 118  | -   | 247.5 | 235   | -     | 263.5 | 286.5 | -   | 371   | -  |
| 22"     | 565 | 90   | -   | 248.5 | 197   | 160   | 280   | 323   | 473 | 523   | 36 |
| 26"     | 666 | 75   | 180 | 374   | 322.5 | 172.5 | 302.5 | 350.5 | 574 | 623.5 | 36 |

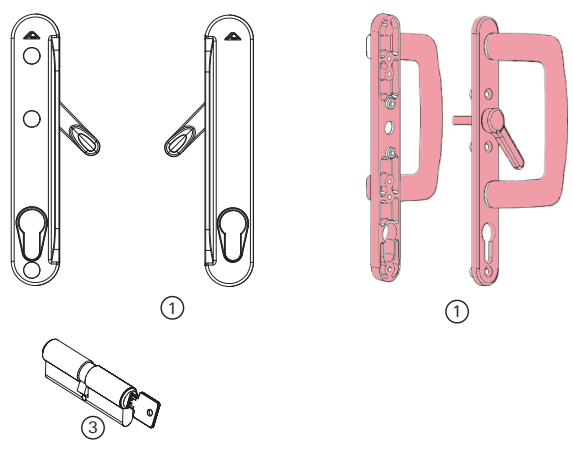
Sliding door

Sash weight max. 180kg (refer to roller capacity)

Recommended sash width: 600-1500mm; sash height: 2000-2700mm



| Sliding espag. BS 20 |                       |           |
|----------------------|-----------------------|-----------|
| Item                 | Description           | SAP       |
| 1                    | Inline Sliding handle | Page93-96 |
| 2a                   | Espag. BS=20 2000mm   | 833357    |
| 2b                   | Espag. BS=20 280mm    | 765558    |
| 3                    | Cylinder              | Page97    |
| 4                    | Striker               | 808400    |
| 5                    | Roller                | Page34    |
| 6                    | Buffer stop           | Page35    |

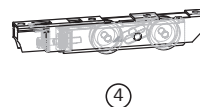
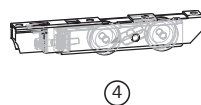
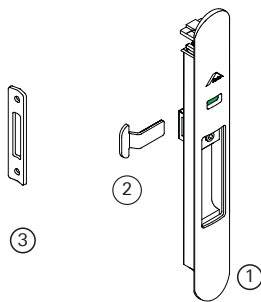


### Sliding Window

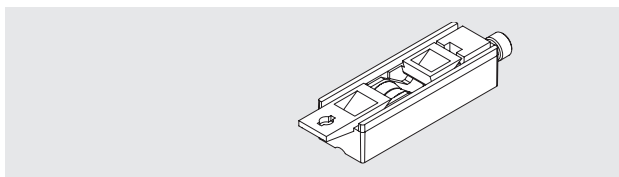
Sash weight max. refer to roller capacity

Recommended sash width: 600-1500mm; sash height: 500-2000mm

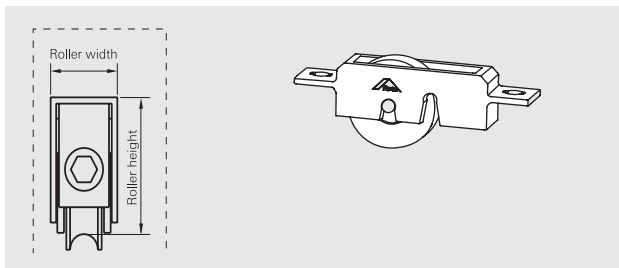
| Sliding Window |                     |           |        |
|----------------|---------------------|-----------|--------|
| Item           | Description         |           | SAP    |
| 1              | Single point handle | White     | 762608 |
|                |                     | Black     | 762609 |
|                |                     | Silver    | 762611 |
| 2              | Hook                | 7mm       | 757681 |
|                |                     | 6.5mm     | 772319 |
| 3              | Striker             | 13.5x64mm | 757680 |
|                |                     | 17.4x64mm | 776273 |
| 4              | Roller              |           | Page34 |



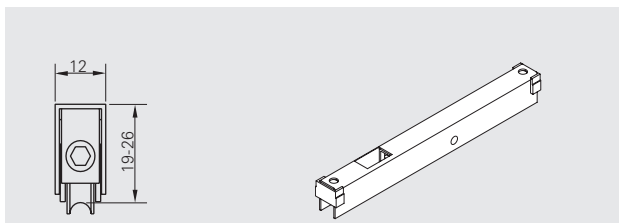
### Roller



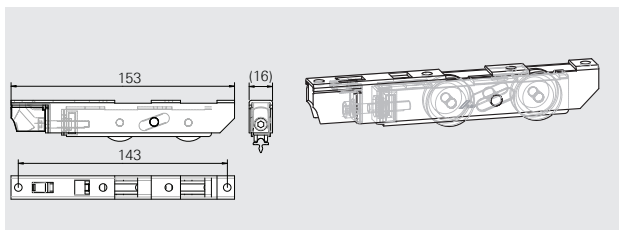
| Single roller |       |             |                 |       |
|---------------|-------|-------------|-----------------|-------|
| SAP           | Width | Height      | Max Sash Weight | Track |
| 798251        | 20mm  | 15.5-20.5mm | 60kg            | R     |
| 798252        | 20mm  | 15.5-20.5mm | 60kg            | V     |



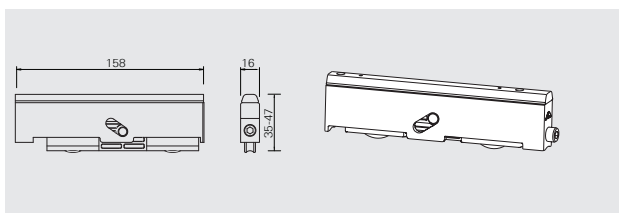
| Single roller |       |         |                    |       |
|---------------|-------|---------|--------------------|-------|
| SAP           | Width | Height  | Max Sash Weight    | Track |
| 616040        | 12mm  | 15&23mm | 90kg               | R     |
| 616041        |       |         | Packers for bogies |       |



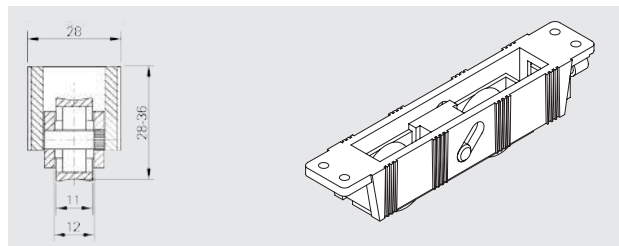
| Tandem roller |       |         |                 |       |
|---------------|-------|---------|-----------------|-------|
| SAP           | Width | Height  | Max Sash Weight | Track |
| 615951        | 12mm  | 19-26mm | 120kg           | R     |



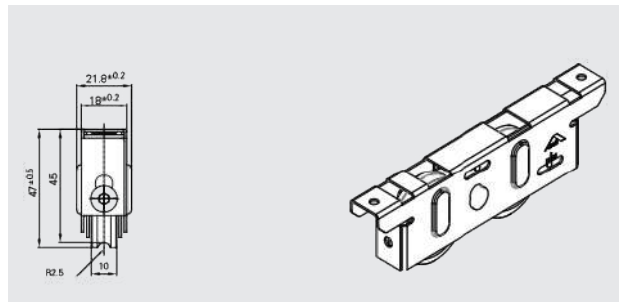
| Tandem roller |        |             |                 |       |
|---------------|--------|-------------|-----------------|-------|
| SAP           | Width  | Height      | Max Sash Weight | Track |
| 2022218       | 16mm   | 23.5-28.5mm | 150kg           | R     |
| 2022224       | 16mm   | 23.5-28.5mm | 150kg           | V     |
| 794819        | packer |             |                 |       |



| Tandem roller |       |         |                 |       |
|---------------|-------|---------|-----------------|-------|
| SAP           | Width | Height  | Max Sash Weight | Track |
| 609014        | 16mm  | 35-47mm | 180kg           | R     |

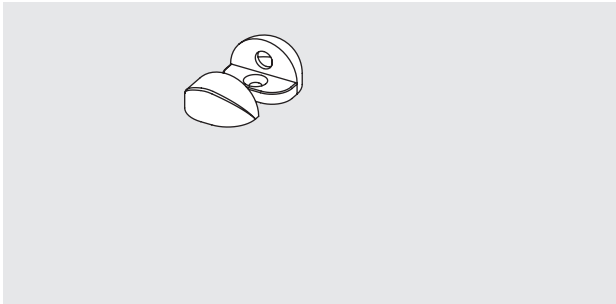


| Tandem roller |       |         |                 |       |
|---------------|-------|---------|-----------------|-------|
| SAP           | Width | Height  | Max Sash Weight | Track |
| 603940        | 28mm  | 28-36mm | 180kg           | V     |



| Tandem Roller |       |        |                 |       |
|---------------|-------|--------|-----------------|-------|
| SAP           | Width | Height | Max Sash Weight | Track |
| 603939        | 22mm  | 45mm   | 300kg           | R     |

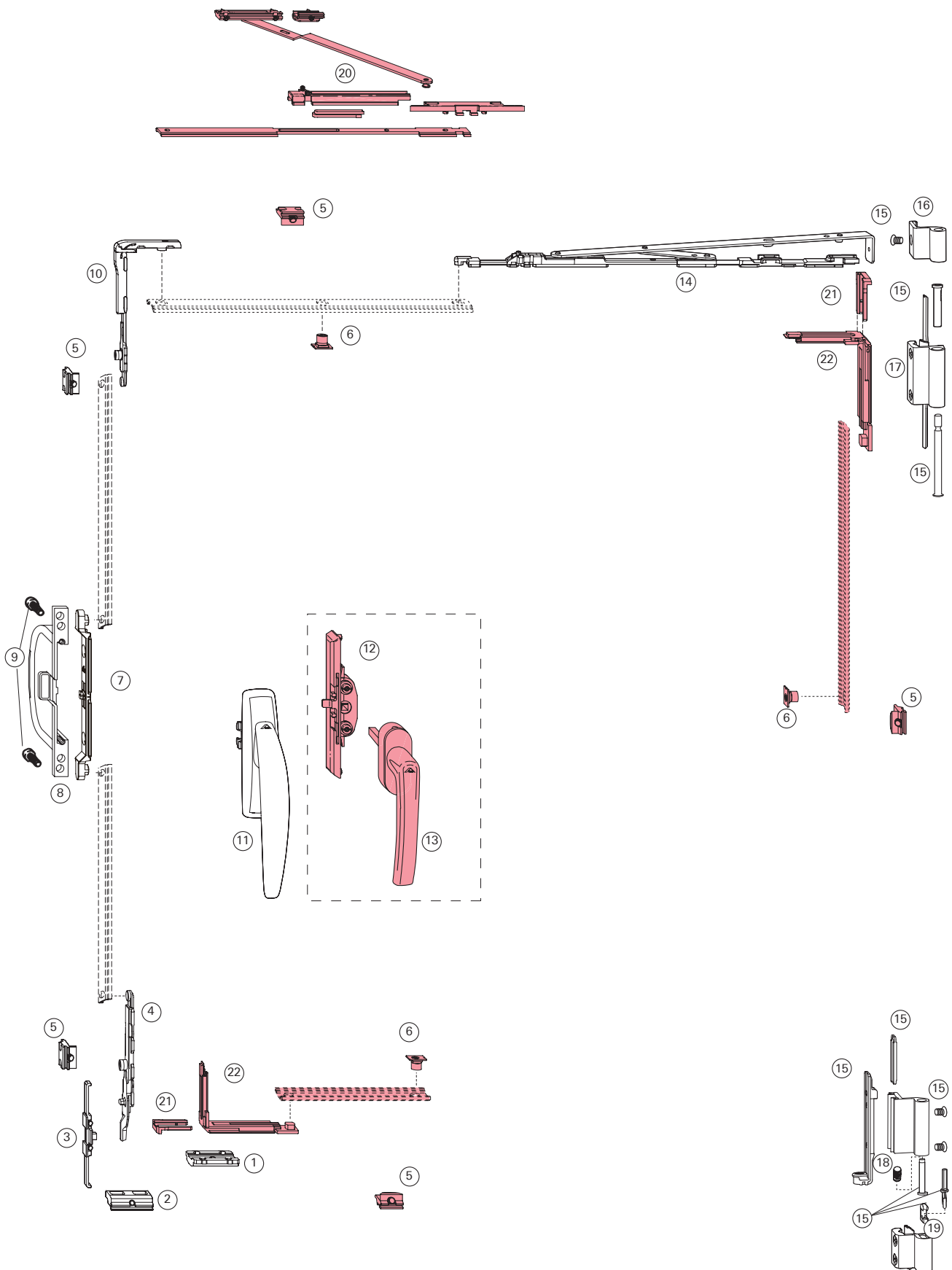
## Buffer Stop



| Buffer stop |        |
|-------------|--------|
| SAP         | Colour |
| 317250      | White  |
| 317251      | Brown  |
| 335555      | Black  |
| 449963      | Silver |



## Tilt & Turn T300DK





Application  
 Sash Width: .....390mm – 1600mm  
 Sash Height: .....580mm – 2700mm  
 Sash Weight max.: .....80kg

### Basic sets

#### Sash Stays

| Item | Name          | SAP    | Description     |
|------|---------------|--------|-----------------|
| 14   | Sash stay 390 | 486462 | FB $\geq$ 390mm |
|      | Sash stay 700 | 486461 | FB $\geq$ 700mm |

#### Hinge-Side T&T

| Item | Name                   | SAP    | Description   |
|------|------------------------|--------|---------------|
| 16   | Stay-arm hinge         | 486473 | White(R07.2)  |
|      | Stay-arm hinge         | 486472 | Black(R06.2)  |
|      | Stay-arm hinge         | 486471 | Silver(R01.5) |
| 17   | Stay bearing           | 486477 | White(R07.2)  |
|      | Stay bearing           | 486476 | Black(R06.2)  |
|      | Stay bearing           | 486475 | Silver(R01.5) |
| 18   | Corner hinge           | 486465 | White(R07.2)  |
|      | Corner hinge           | 486464 | Black(R06.2)  |
|      | Corner hinge           | 486463 | Silver(R01.5) |
| 19   | Pivot rest             | 486469 | White(R07.2)  |
|      | Pivot rest             | 486468 | Black(R06.2)  |
|      | Pivot rest             | 486467 | Silver(R01.5) |
| 15   | T300 hinge accessories | 486454 |               |

#### Locking components

| Item | Name              | SAP     | Description |
|------|-------------------|---------|-------------|
| 1    | Run-up block      | 212008  |             |
| 4    | Tilt lock bolt    | 858807  |             |
| 2    | Hor. T&T striker  | 2005532 |             |
| 3    | Anti-jemmy device | 858808  | V.01        |
| 5    | Striker           | 2007008 | V.01        |
| 10   | Corner drive      | 858806  |             |

#### Size-related additional components

| Item  | Name               | SAP     | Description |
|-------|--------------------|---------|-------------|
| 6     | Insertable cam     | 213700  |             |
| 5     | Striker            | 2007008 | V.01        |
| 21,22 | Corner drive C.L.  | 858800  |             |
| 20    | Add. scissors-stay | 728806  | V.01        |

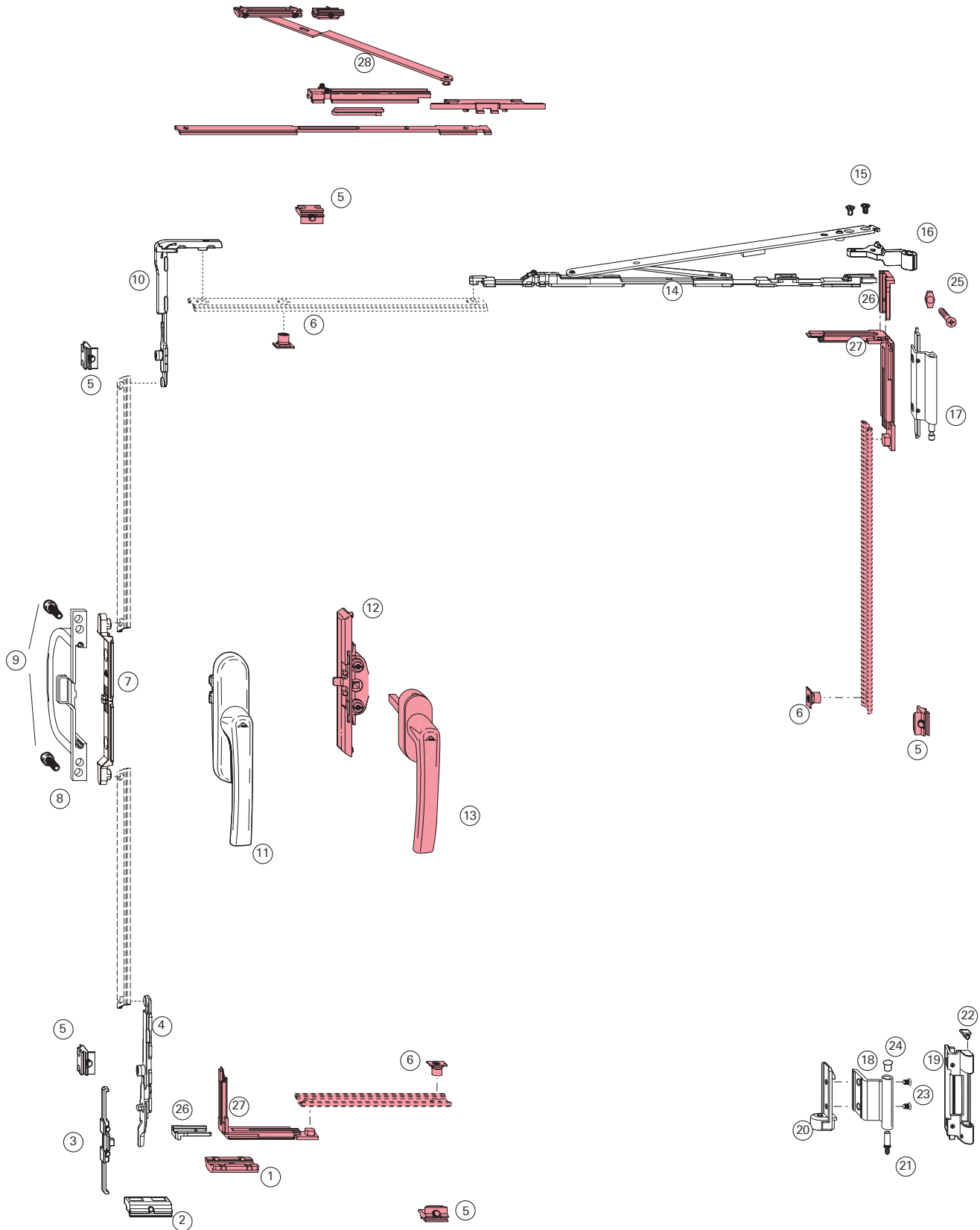
#### Espagnolettes and connectors

| Item | Name                      | SAP    | Description      |
|------|---------------------------|--------|------------------|
| 11   | T300 handle               |        | Refer to page 82 |
| 7    | Center gear connector     | 482264 |                  |
| 8    | Mishandling device        | 858803 |                  |
| 9    | Flat-headed screw M5 x 16 | 212678 |                  |

#### Replaceable components

| Item | Name                  | SAP    | Description      |
|------|-----------------------|--------|------------------|
| 12   | Flush encased gearbox | 858804 |                  |
| 13   | Rotoline handle       |        | Refer to page 84 |

Tilt & Turn T540DK-130kg



### Application

Sash Width: .....405mm – 1600mm  
 Sash Height: .....520mm – 3000mm  
 Sash Weight max.: .....130kg



### Basic sets

#### Sash Stays

| Item | Name          | SAP    | Description |
|------|---------------|--------|-------------|
| 14   | Sash stay 390 | 604937 | FB<700mm    |
|      | Sash stay 700 | 604938 | FB≥700mm    |

#### Hinge-Side T&T

| Item | Name                    | SAP    | Description   |
|------|-------------------------|--------|---------------|
| 16   | Stay-arm hinge          | 728701 | White(R07.2)  |
|      | Stay-arm hinge          | 728700 | Black(R06.2)  |
|      | Stay-arm hinge          | 728698 | Silver(R01.5) |
| 17   | Stay bearing            | 728706 | White(R07.2)  |
|      | Stay bearing            | 728705 | Black(R06.2)  |
|      | Stay bearing            | 728703 | Silver(R01.5) |
| 18   | Corner hinge            | 377501 | White(R07.2)  |
|      | Corner hinge            | 377499 | Black(R06.2)  |
|      | Corner hinge            | 377498 | Silver(R01.5) |
| 19   | Pivot rest              | 728829 | White(R07.2)  |
|      | Pivot rest              | 728828 | Black(R06.2)  |
|      | Pivot rest              | 728826 | Silver(R01.5) |
| 20   | Clamping corner bracket | 377444 |               |
| 21   | Pivot-rest pin          | 377443 |               |
| 22   | End cap pivot rest,     | 377887 | Black         |
| 23   | Countersunk screw       | 728930 | M5x9          |
| 24   | End cap corner hinge,   | 377885 | Black         |
| 15   | Countersunk screw       | 728929 | M5x8          |

#### 130 kg upgrade-kit

| Item | Name               | SAP    | Description |
|------|--------------------|--------|-------------|
| 25   | 130 kg upgrade-kit | 382885 |             |

#### Locking components

| Item | Name              | SAP     | Description |
|------|-------------------|---------|-------------|
| 1    | Run-up block      | 212008  |             |
| 4    | Tilt lock bolt    | 858807  |             |
| 2    | Hor. T&T striker  | 2005532 |             |
| 3    | Anti-jemmy device | 858808  | V.01        |
| 5    | Striker           | 2007008 | V.01        |
| 10   | Corner drive      | 858806  |             |

#### Size-related additional components

| Item  | Name               | SAP     | Description |
|-------|--------------------|---------|-------------|
| 6     | Insertable cam     | 213700  |             |
| 5     | Striker            | 2007008 | V.01        |
| 26,27 | Corner drive C.L.  | 858800  |             |
| 28    | Add. scissors-stay | 728806  | V.01        |

#### Replaceable components (1)

| Item | Name                   | SAP    | Description      |
|------|------------------------|--------|------------------|
| 11   | RotoLine geared handle |        | Refer to page 82 |
| 7    | Centre gear connector  | 482264 |                  |
| 8    | Mishandling device     | 858803 |                  |

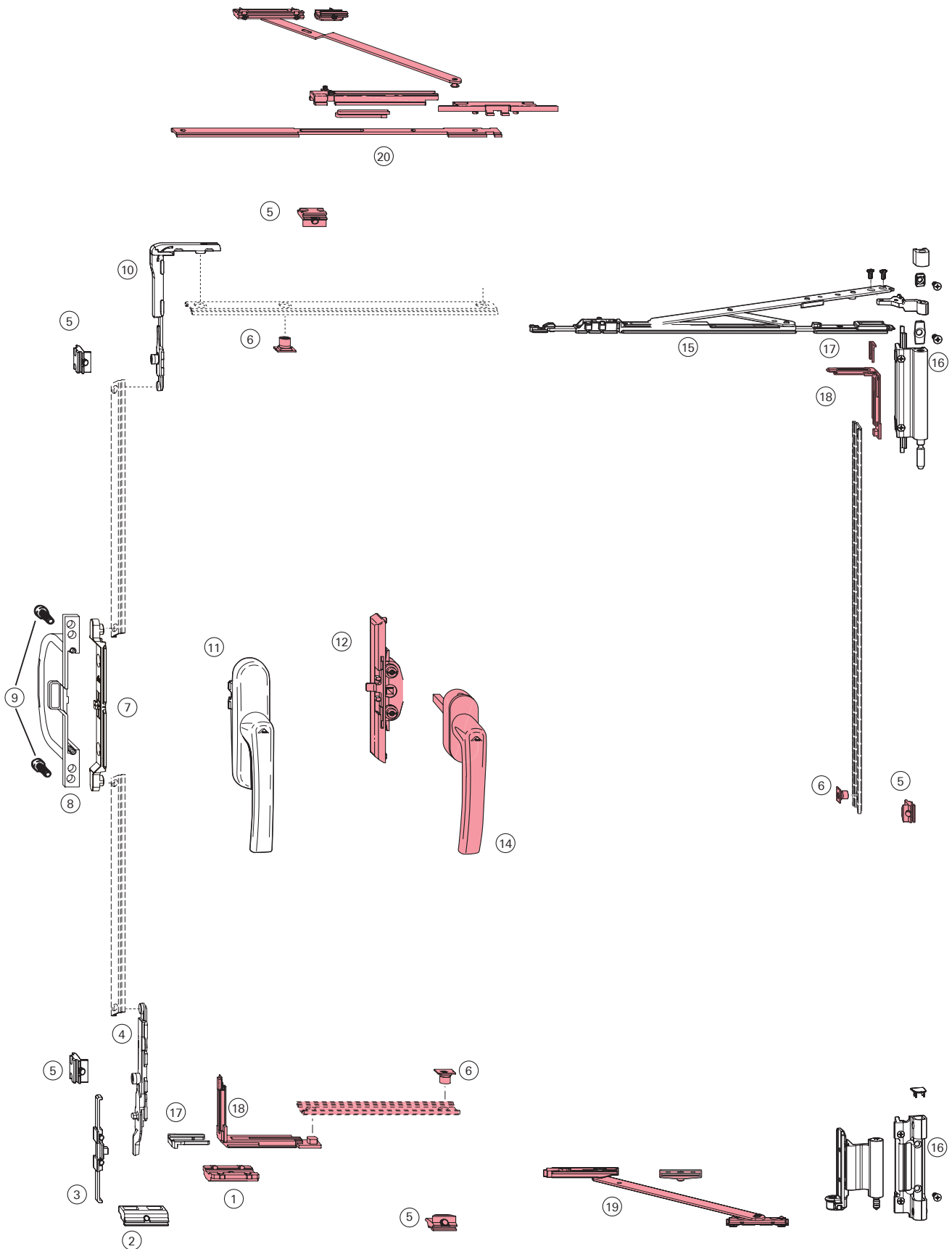
#### Replaceable components (1)

| Item | Name                      | SAP    | Description |
|------|---------------------------|--------|-------------|
| 9    | Flat-headed screw M5 x 16 | 212678 |             |

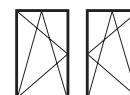
#### Replaceable components (2)

| Item | Name                  | SAP    | Description      |
|------|-----------------------|--------|------------------|
| 12   | Flush encased gearbox | 858804 |                  |
| 13   | Rotoline handle       |        | Refer to page 84 |

### Tilt & Turn T540DK-160kg



Application  
 Sash Width: .....620 mm – 1600 mm  
 Sash Height: .....1000 mm – 3000 mm  
 Sash Weight max.: .....160kg



### Basic sets

#### Locking components

| Item | Name              | SAP            | Description |
|------|-------------------|----------------|-------------|
| 1    | Run-up block      | <b>212008</b>  |             |
| 4    | Tilt lock bolt    | <b>858807</b>  |             |
| 2    | Hor. T&T striker  | <b>2005532</b> |             |
| 3    | Anti-jemmy device | <b>858808</b>  | V.01        |
| 5    | Striker           | <b>2007008</b> | V.01        |
| 10   | Corner drive      | <b>858806</b>  |             |

#### T&T Hinge side

| Item | Name                         | SAP           | Description     |
|------|------------------------------|---------------|-----------------|
| 15   | Sash stay 620                | <b>793404</b> |                 |
| 16   | T&T hinge set(Clamp strip 2) | <b>793429</b> | L/White(R07.2)  |
|      |                              | <b>793428</b> | R/White(R07.2)  |
|      |                              | <b>793427</b> | L/Black(R06.2)  |
|      |                              | <b>793426</b> | R/Black(R06.2)  |
|      |                              | <b>793425</b> | L/Silver(R01.5) |
|      |                              | <b>793424</b> | R/Silver(R01.5) |

#### Espagnolettes and handle

| Item | Name                      | SAP           | Description      |
|------|---------------------------|---------------|------------------|
| 11   | RotoLine geared handle    |               | Refer to page 82 |
| 7    | Center gear connector     | <b>482264</b> |                  |
| 8    | Mishandling device        | <b>858803</b> |                  |
| 9    | Flat-headed screw M5 x 16 | <b>212678</b> |                  |

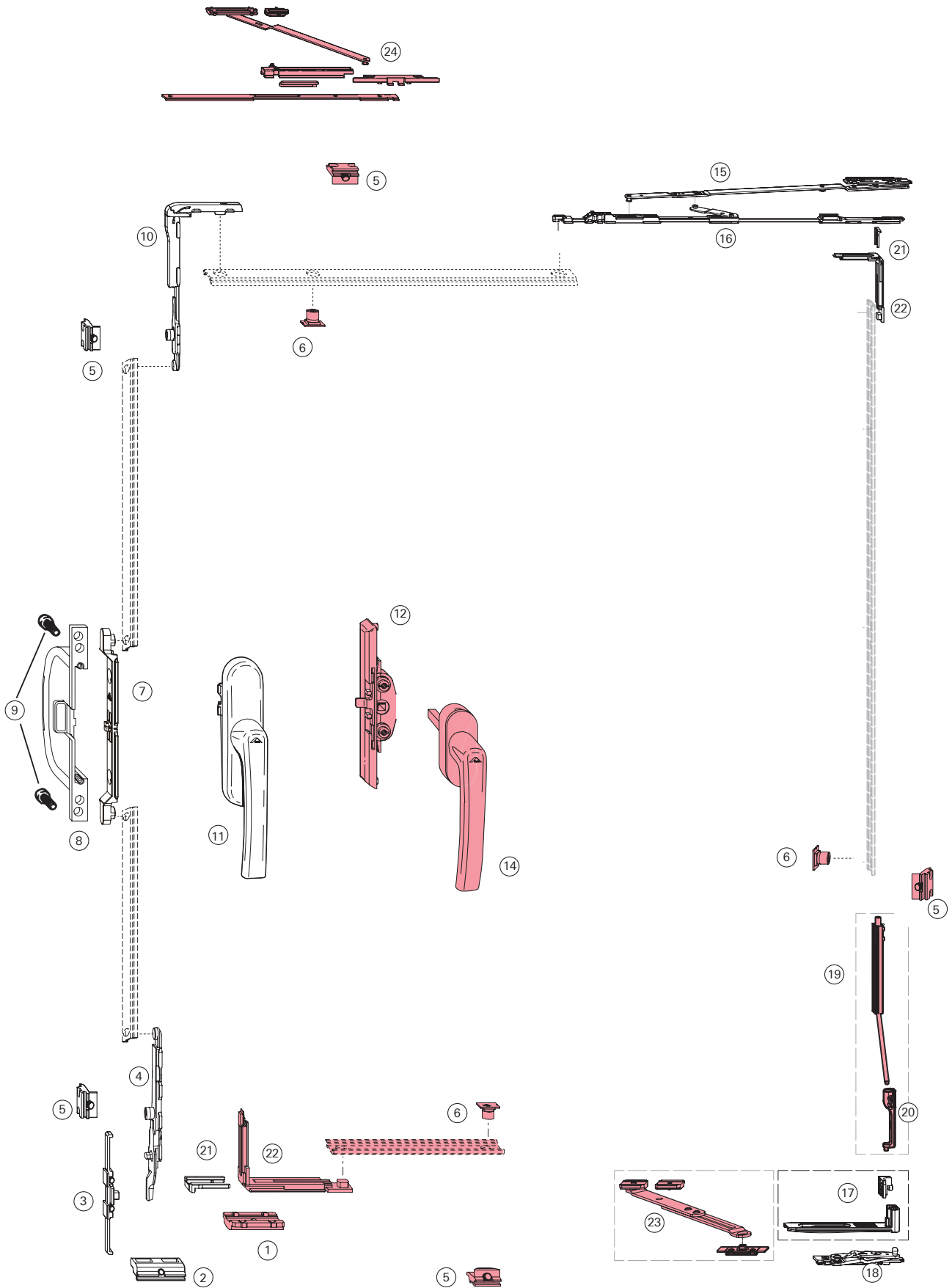
#### Espagnolettes and handle

| Item | Name                  | SAP           | Description      |
|------|-----------------------|---------------|------------------|
| 12   | Flush encased gearbox | <b>858804</b> |                  |
| 14   | Rotoline handle       |               | Refer to page 84 |

#### Size-related additional components

| Item | Name               | SAP            | Description |
|------|--------------------|----------------|-------------|
| 6    | Insertable cam     | <b>213700</b>  |             |
| 5    | Striker            | <b>2007008</b> | V.01        |
| 18   | Corner drive CL    | <b>858800</b>  |             |
| 19   | Turn restrictor    | <b>728809</b>  |             |
| 20   | Add. scissors-stay | <b>728806</b>  | V.01        |

### Tilt & Turn AL Designo

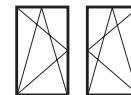


Application

Sash Width: .....500 mm – 1600 mm

Sash Height: .....555mm – 3000 mm

Sash Weight max.: .....150kg



### Basic sets

#### Locking components

| Item | Name              | SAP            | Description |
|------|-------------------|----------------|-------------|
| 1    | Run-up block      | <b>212008</b>  |             |
| 4    | Tilt lock bolt    | <b>858807</b>  |             |
| 2    | Hor. T&T striker  | <b>2005532</b> |             |
| 3    | Anti-jemmy device | <b>858808</b>  | V.01        |
| 5    | Striker           | <b>2007008</b> | V.01        |
| 10   | Corner drive      | <b>858806</b>  |             |

#### T&T Hinge side

| Item | Name                   | SAP           | Description             |
|------|------------------------|---------------|-------------------------|
| 15   | Sash stay 500          | <b>624957</b> | L,No.4                  |
|      |                        | <b>624956</b> | R,No.4                  |
|      | Sash stay 735          | <b>624959</b> | L,No.4                  |
|      |                        | <b>624958</b> | R,No.4                  |
| 16   | Scissor-stay guide 500 | <b>740836</b> | 500<SW<735              |
|      | Scissor-stay guide 735 | <b>740838</b> | SW>735                  |
| 17   | Corner hinge           | <b>739700</b> | L,Incl. adjusting piece |
|      |                        | <b>739699</b> | R,Incl. adjusting piece |
| 18   | Pivot rest             | <b>624974</b> | L,No.4                  |
|      |                        | <b>624973</b> | R,No.4                  |

#### Espagnolettes and handle

| Item | Name                      | SAP           | Description      |
|------|---------------------------|---------------|------------------|
| 11   | RotoLine geared handle    |               | Refer to page 82 |
| 7    | Center gear connector     | <b>482264</b> |                  |
| 8    | Mishandling device        | <b>858803</b> |                  |
| 9    | Flat-headed screw M5 x 16 | <b>212678</b> |                  |

#### Espagnolettes and handle

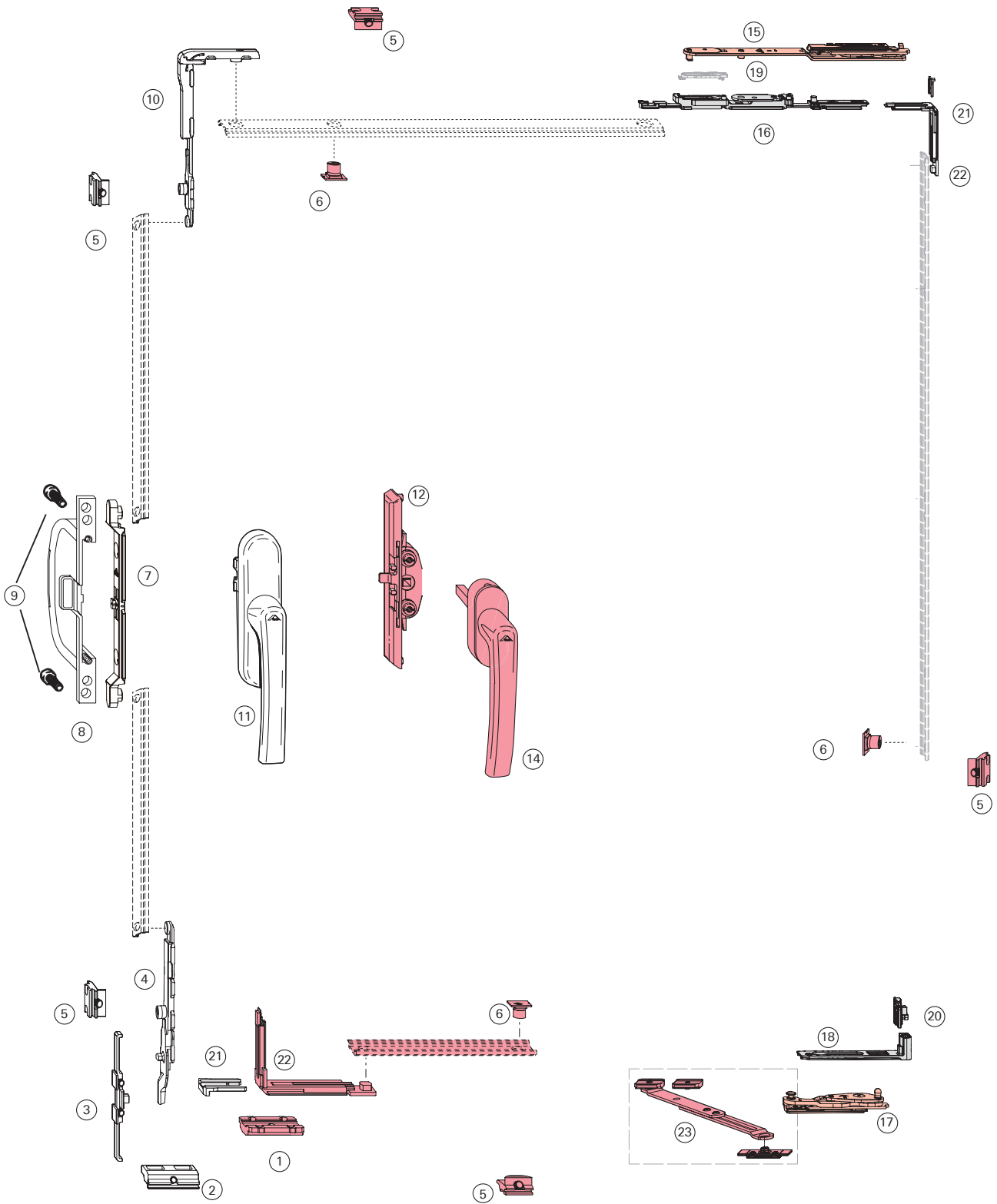
| Item | Name                  | SAP           | Description      |
|------|-----------------------|---------------|------------------|
| 12   | Flush encased gearbox | <b>858804</b> |                  |
| 14   | Rotoline handle       |               | Refer to page 84 |

#### Size-related additional components

| Item  | Name                 | SAP            | Description |
|-------|----------------------|----------------|-------------|
| 6     | Insertable cam       | <b>213700</b>  |             |
| 5     | Striker              | <b>2007008</b> | V.01        |
| 21,22 | Corner drive CL      | <b>858800</b>  |             |
| 23    | Turn restrictor      | <b>740814</b>  |             |
| 24    | Add. scissors-stay   | <b>728806</b>  | V.01        |
| 19,20 | Load transfer device | <b>739694</b>  | L/V.01      |
|       |                      | <b>739693</b>  | R/V.01      |



Tilt & Turn AL Designo STS 80kg



### Application

Sash Width: .....370 mm – 1300 mm

Sash Height: .....530mm – 2700 mm

Sash Weight max.: .....80kg



### Basic sets

#### Locking components

| Item | Name              | SAP            | Description |
|------|-------------------|----------------|-------------|
| 1    | Run-up block      | <b>212008</b>  |             |
| 4    | Tilt lock bolt    | <b>858807</b>  |             |
| 2    | Hor. T&T striker  | <b>2005532</b> |             |
| 3    | Anti-jemmy device | <b>858808</b>  | V.01        |
| 5    | Striker           | <b>2007008</b> | V.01        |
| 10   | Corner drive      | <b>858806</b>  |             |

#### T&T Hinge side

| Item  | Name                          | SAP           | Description |
|-------|-------------------------------|---------------|-------------|
| 15    | Sash stay 370-900mm           | <b>835333</b> | L           |
|       |                               | <b>835332</b> | R           |
|       | Sash stay >900mm              | <b>837394</b> | L           |
|       |                               | <b>837393</b> | R           |
| 16    | Scissor-stay guide 370-900mm  | <b>835337</b> | L           |
|       | Scissor-stay guide 370-900mm  | <b>835336</b> | R           |
|       | Scissor-stay guide >900mm     | <b>740859</b> |             |
| 19    | Tilt distance restrictor      | <b>837506</b> | 370-900mm   |
|       | SH<800mm reduce tilt distance | <b>502834</b> | >900mm      |
| 18+20 | Corner hinge set              | <b>740847</b> | L           |
|       |                               | <b>740846</b> | R           |
| 17    | Pivot rest                    | <b>835326</b> | L           |
|       |                               | <b>835325</b> | R           |

#### Espagnolettes and handle

| Item | Name                      | SAP           | Description      |
|------|---------------------------|---------------|------------------|
| 11   | RotoLine geared handle    |               | Refer to page 82 |
| 7    | Center gear connector     | <b>482264</b> |                  |
| 8    | Mishandling device        | <b>858803</b> |                  |
| 9    | Flat-headed screw M5 x 16 | <b>212678</b> |                  |

#### Espagnolettes and handle

| Item | Name                  | SAP           | Description      |
|------|-----------------------|---------------|------------------|
| 12   | Flush encased gearbox | <b>858804</b> |                  |
| 14   | Rotoline handle       |               | Refer to page 84 |

#### Size-related additional components

| Item  | Name            | SAP            | Description |
|-------|-----------------|----------------|-------------|
| 6     | Insertable cam  | <b>213700</b>  |             |
| 5     | Striker         | <b>2007008</b> | V.01        |
| 21,22 | Corner drive CL | <b>858800</b>  |             |
| 23    | Turn restrictor | <b>740814</b>  |             |



Application  
 Sash Width: .....680 mm – 1600 mm  
 Sash Height: .....520 mm – 3000 mm  
 Sash Weight max.: .....200kg



### Basic sets

#### Sash Stays

| Item | Name             | SAP    | Description      |
|------|------------------|--------|------------------|
| 19   | 200Kg hinge sets | 380008 | Special colour/R |
|      | 200Kg hinge sets | 380009 | Special colour/L |

Note: Specified profile design is required!

#### Locking components

| Item | Name              | SAP     | Description |
|------|-------------------|---------|-------------|
| 1    | Run-up block      | 212008  |             |
| 4    | Tilt lock bolt    | 858807  |             |
| 2    | Hor. T&T striker  | 2005532 |             |
| 3    | Anti-jemmy device | 858808  |             |
| 5    | Striker           | 2007008 | V.01        |
| 17   | Corner drive      | 858806  |             |

#### Size-related additional components

| Item  | Name               | SAP     | Description |
|-------|--------------------|---------|-------------|
| 6     | Insertable cam     | 213700  |             |
| 5     | Striker            | 2007008 | V.01        |
| 26,27 | Corner drive CL    | 858800  |             |
| 22    | Add. scissors-stay | 728806  |             |

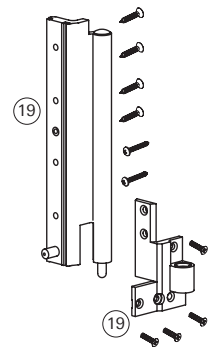
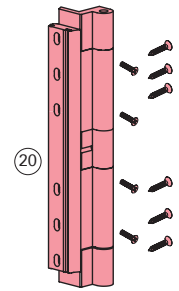
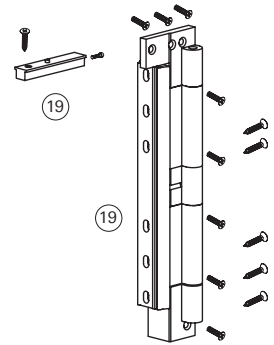
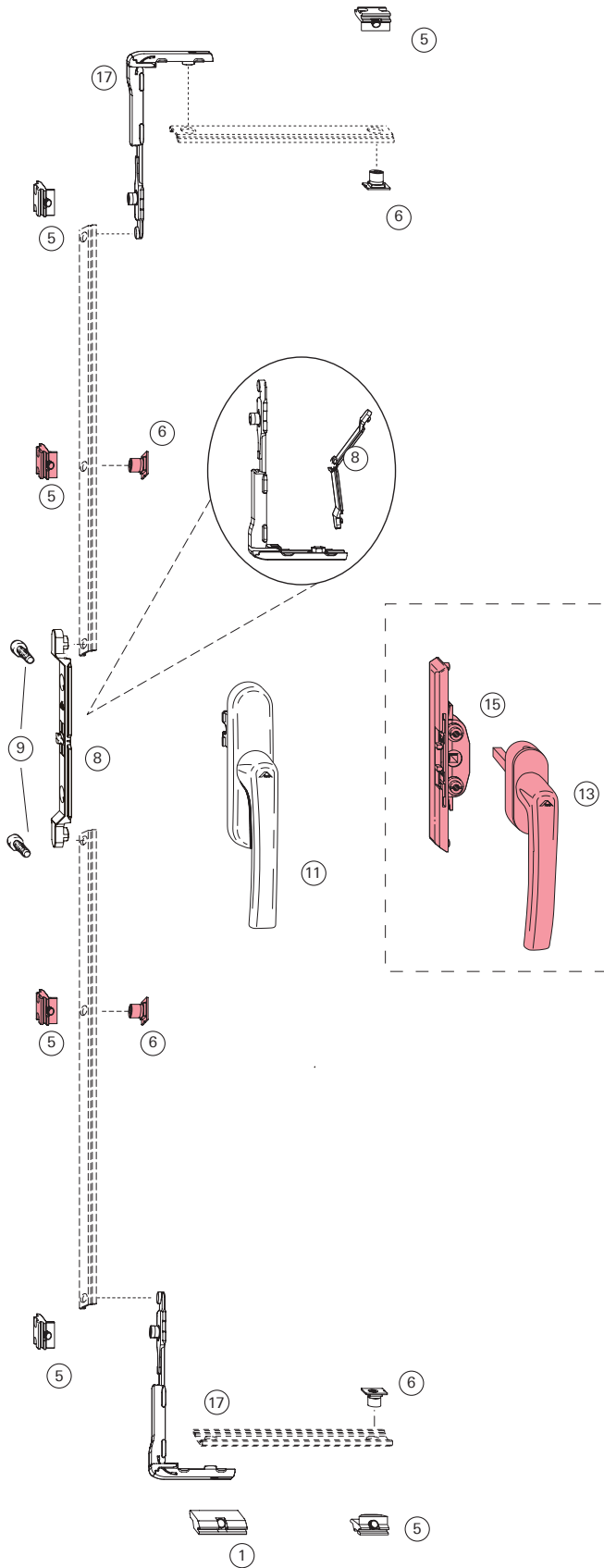
#### Espagnolettes and handle

| Item | Name                      | SAP    | Description      |
|------|---------------------------|--------|------------------|
| 10   | RotoLine geared handle    |        | Refer to page 82 |
| 7    | Centre gear connector     | 482264 |                  |
| 8    | Mishandling device        | 858803 |                  |
| 9    | Flat-headed screw M5 x 16 | 212678 |                  |

#### Replaceable components

| Item | Name                  | SAP    | Description      |
|------|-----------------------|--------|------------------|
| 15   | Flush encased gearbox | 858804 |                  |
| 13   | Rotoline handle       |        | Refer to page 84 |

### Turn only OverViews ALU 300kg



Application  
 Sash Width: .....690 mm – 1600 mm  
 Sash Height: .....520 mm – 3000 mm  
 Sash Weight max.: .....300kg



### Basic sets

#### Hinge-Side

| Item | Name              | SAP    | Description |
|------|-------------------|--------|-------------|
| 19   | 300Kg hinge set R | 570868 | White       |
|      | 300Kg hinge set L | 570869 | White       |

Note: Specified profile design is required!

#### Hinge-Side additional components

| Item | Name                      | SAP    | Description |
|------|---------------------------|--------|-------------|
| 20   | TU-ON central hinge 300kg | 572913 | Silver      |
|      | TU-ON central hinge 300kg | 570870 | White       |

#### Locking components

| Item | Name           | SAP     | Description |
|------|----------------|---------|-------------|
| 1    | Run-up wedge   | 684282  |             |
| 5    | Striker        | 2007008 | V.01        |
| 17   | Corner drive   | 858806  |             |
| 6    | Insertable cam | 213700  |             |

#### Size-related additional components

| Item | Name           | SAP     | Description |
|------|----------------|---------|-------------|
| 6    | Insertable cam | 213700  |             |
| 5    | Striker        | 2007008 | V.01        |

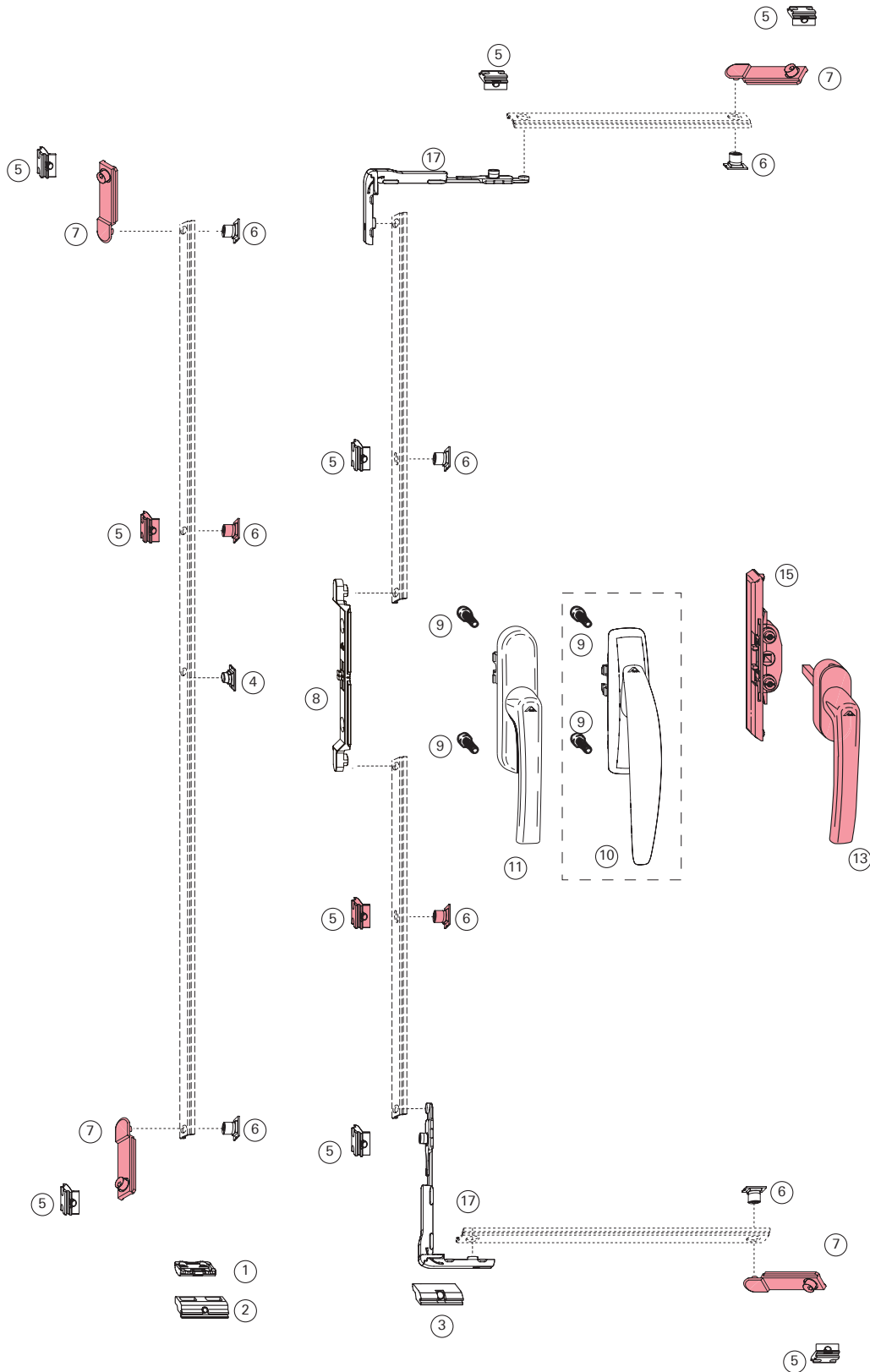
#### Espagnolettes and handle (1)

| Item | Name                    | SAP    | Description      |
|------|-------------------------|--------|------------------|
| 8    | Centre gear connector   | 482264 |                  |
| 9    | Flat-headed screw M5x12 | 728925 |                  |
| 11   | RotoLine geared handle  |        | Refer to page 82 |

#### Espagnolettes and handle (2)

| Item | Name                  | SAP    | Description      |
|------|-----------------------|--------|------------------|
| 15   | Flush encased gearbox | 858804 |                  |
| 13   | Rotoline handle       |        | Refer to page 84 |

Locking components for Turn-Only

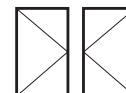


Application

Sash Width: .....refer to hinge

Sash Height: .....refer to hinge

Sash Weight max.: .....refer to hinge



Locking components

Espagnolettes and connectors (1)

| Item | Name                    | SAP    | Description      |
|------|-------------------------|--------|------------------|
| 8    | Centre gear connector   | 482264 |                  |
| 9    | Flat-headed screw M5x12 | 728925 |                  |
| 11   | RotoLine geared handle  |        | Refer to page 82 |
| 10   | T300 handle             |        | Refer to page 82 |

Espagnolettes and connectors (2)

| Item | Name                      | SAP    | Description      |
|------|---------------------------|--------|------------------|
| 4    | Insertable connector-bolt | 334672 |                  |
| 9    | Flat-headed screw M5x12   | 728925 |                  |
| 11   | RotoLine geared handle    |        | Refer to page 82 |
| 10   | T300 handle               |        | Refer to page 82 |

Espagnolettes and connectors (3)

| Item | Name                  | SAP    | Description      |
|------|-----------------------|--------|------------------|
| 15   | Flush encased gearbox | 858805 |                  |
| 13   | Rotoline handle       |        | Refer to page 84 |

Locking components (1)

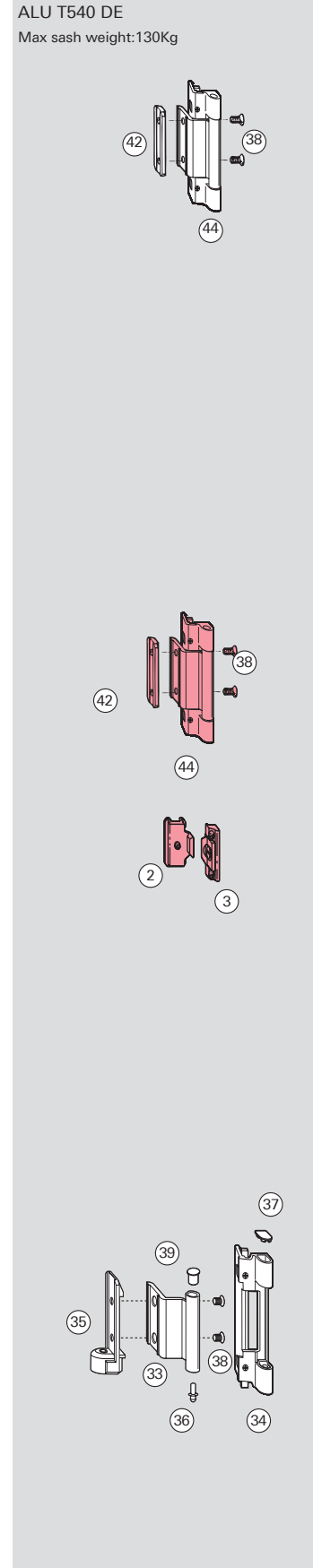
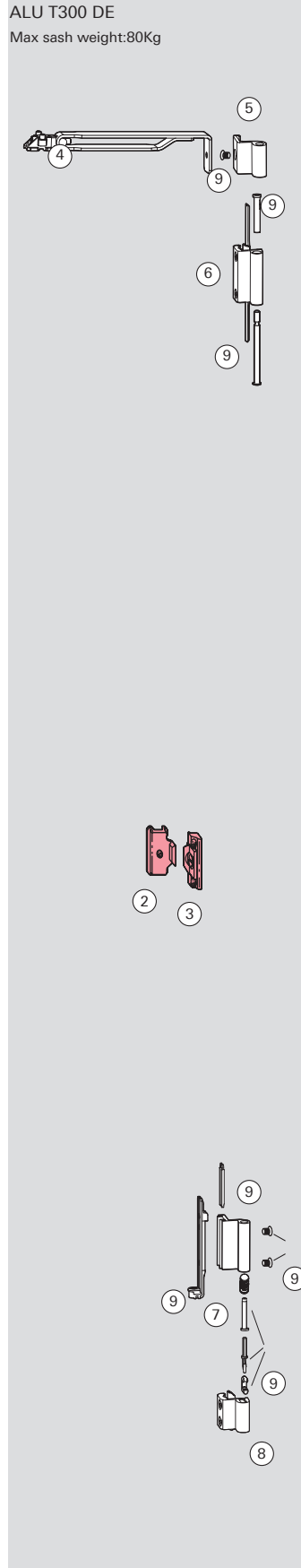
| Item | Name             | SAP     | Description                   |
|------|------------------|---------|-------------------------------|
| 1    | Run-up block     | 212008  |                               |
| 2    | Hor. T&T striker | 2005532 |                               |
| 5    | Striker          | 2007008 | V.01                          |
| 6    | Insertable cam   | 213700  |                               |
| 7    | Locking pin 76.5 | 858811  | Can only be used on both ends |

Locking components (2)

| Item | Name             | SAP     | Description                   |
|------|------------------|---------|-------------------------------|
| 17   | Corner drive     | 858806  |                               |
| 5    | Striker          | 2007008 | V.01                          |
| 6    | Insertable cam   | 213700  |                               |
| 7    | Locking pin 76.5 | 858811  | Can only be used on both ends |
| 3    | Run-up wedge     | 684282  |                               |



## Hinge solutions for Turn-Only



### Application range

Sash Width: .....refer to page 12-19

Sash Height: .....refer to page 12-19

Sash Weight max.: .....refer to page 12-19

### Hinge-Side

#### ALU EU with additional hole

| Item | Name                         | SAP    | Description     |
|------|------------------------------|--------|-----------------|
| 1    | ALU EU                       | 817168 | Silver(R01.5)/L |
|      | ALU EU                       | 817167 | Silver(R01.5)/R |
|      | ALU EU                       | 817198 | Black(R06.2)/L  |
|      | ALU EU                       | 817173 | Black(R06.2)/R  |
|      | ALU EU                       | 817195 | White(R07.2)/L  |
|      | ALU EU                       | 817174 | White(R07.2)/R  |
|      | Self-Drilling screw-ST4.8x28 | 823001 |                 |

#### Concealed centre closer

| Item | Name                         | SAP    | Description |
|------|------------------------------|--------|-------------|
| 2    | MVT concealed striker-closer | 728884 |             |
| 3    | Concealed striker-closer     | 728885 | V.01        |

#### ALU T300 DE

| Item | Name                 | SAP    | Description   |
|------|----------------------|--------|---------------|
| 4    | T300 Rebate hinge    | 486537 |               |
| 5    | Stay-arm hinge       | 486473 | White(R07.2)  |
|      | Stay-arm hinge       | 486472 | Black(R06.2)  |
|      | Stay-arm hinge       | 486471 | Silver(R01.5) |
| 6    | Stay bearing         | 486477 | White(R07.2)  |
|      | Stay bearing         | 486476 | Black(R06.2)  |
|      | Stay bearing         | 486475 | Silver(R01.5) |
| 7    | Corner hinge         | 486465 | White(R07.2)  |
|      | Corner hinge         | 486464 | Black(R06.2)  |
|      | Corner hinge         | 486463 | Silver(R01.5) |
| 8    | Pivot rest           | 486469 | White(R07.2)  |
|      | Pivot rest           | 486468 | Black(R06.2)  |
|      | Pivot rest           | 486467 | Silver(R01.5) |
| 9    | T300 hinge accessory | 486454 |               |

#### Concealed centre closer

| Item | Name                         | SAP    | Description |
|------|------------------------------|--------|-------------|
| 2    | MVT concealed striker-closer | 728884 |             |
| 3    | Concealed striker-closer     | 728885 | V.01        |

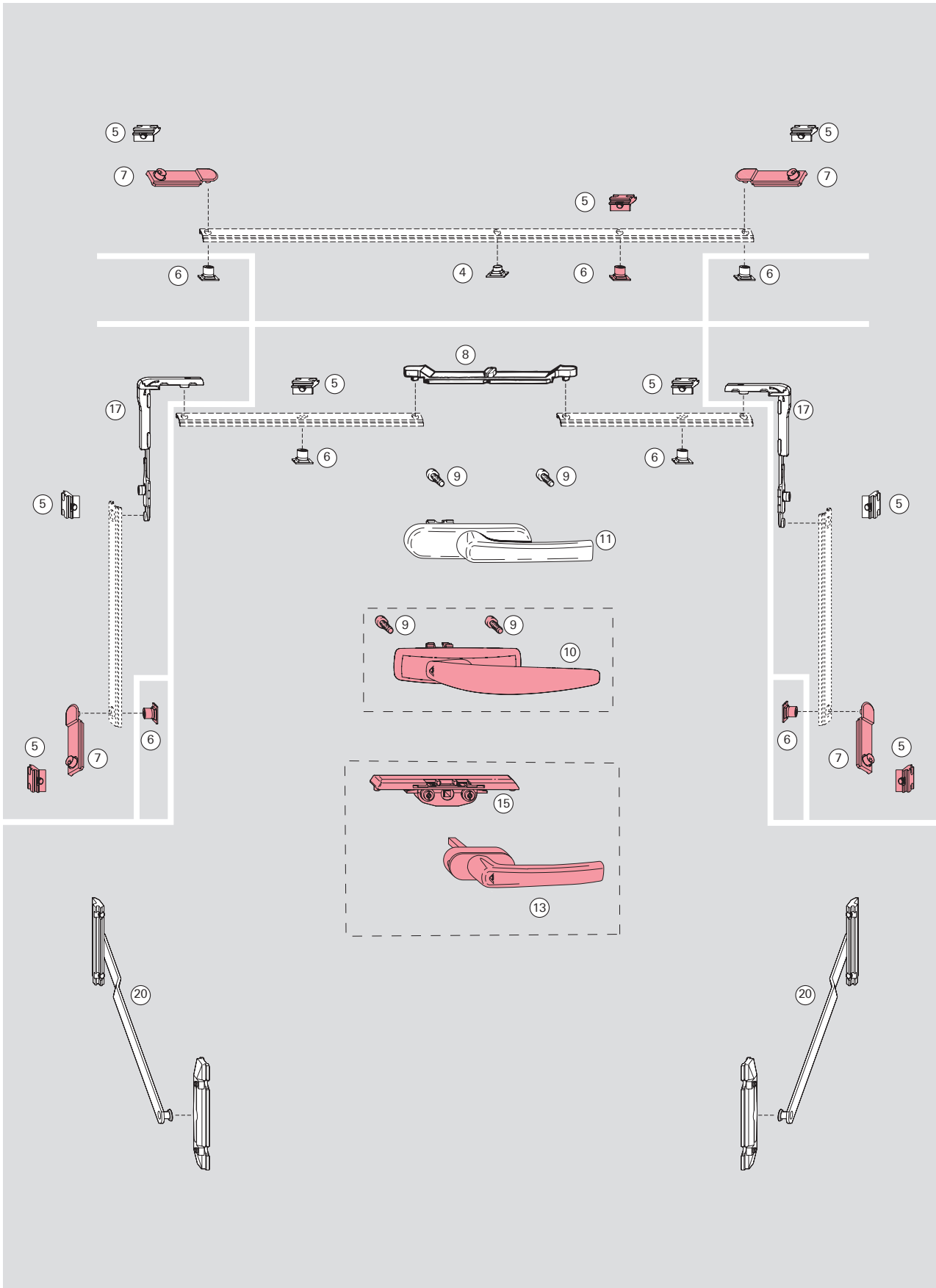
#### ALU T540 DE

| Item | Name                         | SAP    | Description   |
|------|------------------------------|--------|---------------|
| 44   | Turn-only hinge              | 728771 | White(R07.2)  |
|      | Turn-only hinge              | 728770 | Black(R06.2)  |
|      | Turn-only hinge              | 728768 | Silver(R01.5) |
| 42   | Clamping support-strip TU-ON | 212055 |               |
| 38   | Countersunk screw            | 728930 |               |
| 33   | Corner hinge                 | 377501 | White(R07.2)  |
|      |                              | 377499 | Black(R06.2)  |
|      |                              | 377498 | Silver(R01.5) |
| 34   | Pivot rest                   | 728829 | White(R07.2)  |
|      |                              | 728828 | Black(R06.2)  |
|      |                              | 728826 | Silver(R01.5) |
| 35   | Clamping corner bracket      | 377444 |               |
| 36   | Pivot-rest pin               | 377443 |               |
| 37   | End cap pivot rest           | 377887 |               |
| 38   | Countersunk screw            | 728930 |               |
| 39   | End cap corner hinge         | 377885 |               |

#### Concealed centre closer

| Item | Name                         | SAP    | Description |
|------|------------------------------|--------|-------------|
| 2    | MVT concealed striker-closer | 728884 |             |
| 3    | Concealed striker-closer     | 728885 | V.01        |

Locking components for Tilt-Only



### Application

Sash Width: .....refer to page 12-19

Sash Height: .....refer to page 12-19

Sash Weight max.: .....refer to page 12-19



### Locking components

#### Espagnolettes and connectors (1)

| Item | Name                    | SAP    | Description      |
|------|-------------------------|--------|------------------|
| 8    | Centre gear connector   | 482264 |                  |
| 9    | Flat-headed screw M5x12 | 728925 |                  |
| 11   | RotoLine geared handle  |        | Refer to page 82 |
| 10   | T300 handle             |        | Refer to page 82 |

#### Espagnolettes and connectors (2)

| Item | Name                      | SAP    | Description      |
|------|---------------------------|--------|------------------|
| 4    | Insertable connector-bolt | 334672 |                  |
| 9    | Flat-headed screw M5x12   | 728925 |                  |
| 11   | RotoLine geared-handle    |        | Refer to page 82 |
| 10   | T300 handle               |        | Refer to page 82 |

#### Espagnolettes and connectors (3)

| Item | Name                  | SAP    | Description      |
|------|-----------------------|--------|------------------|
| 15   | Flush encased gearbox | 858805 |                  |
| 13   | Rotoline handle       |        | Refer to page 84 |

### Locking components (1)

| Item | Name             | SAP     | Description                   |
|------|------------------|---------|-------------------------------|
| 5    | Striker          | 2007008 | V.01                          |
| 6    | Insertable cam   | 213700  |                               |
| 7    | Locking pin 76.5 | 858811  | Can only be used on both ends |

### Locking components (2)

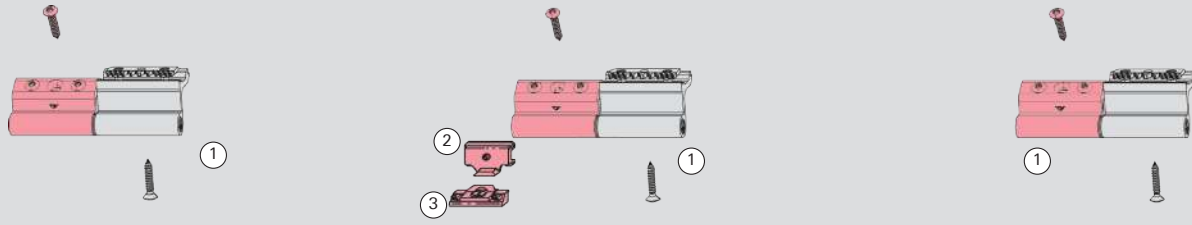
| Item | Name             | SAP     | Description                   |
|------|------------------|---------|-------------------------------|
| 17   | Corner drive     | 858806  |                               |
| 5    | Striker          | 2007008 | V.01                          |
| 6    | Insertable cam   | 213700  |                               |
| 7    | Locking pin 76.5 | 858811  | Can only be used on both ends |

### Stay-arm

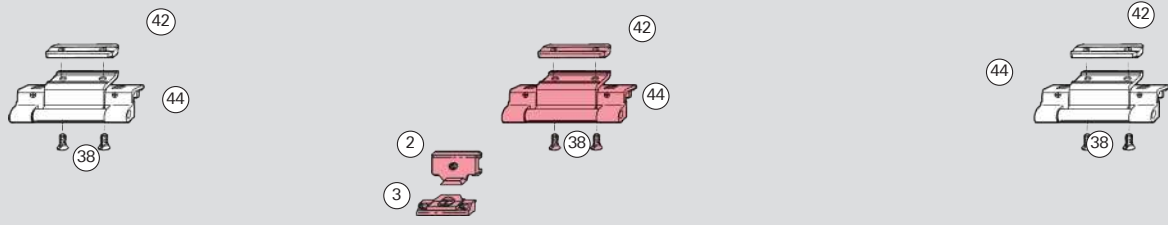
| Item | Name               | SAP    | Description |
|------|--------------------|--------|-------------|
| 20   | Tilt-only stay-arm | 728862 |             |

Hinge solutions for Tilt-Only

ALU EU



ALU T540 DD



Application

Sash Width: .....refer to page 12-19

Sash Heigh: .....refer to page 12-19

Sash Weight max.: .....refer to page 12-19



### Hinge-Side

#### ALU EU Hinge

| Item | Name                         | SAP    | Description     |
|------|------------------------------|--------|-----------------|
| 1    | ALU EU                       | 817168 | Silver(R01.5)/L |
|      | ALU EU                       | 817167 | Silver(R01.5)/R |
|      | ALU EU                       | 817198 | Black(R06.2)/L  |
|      | ALU EU                       | 817173 | Black(R06.2)/R  |
|      | ALU EU                       | 817195 | White(R07.2)/L  |
|      | ALU EU                       | 817174 | White(R07.2)/R  |
|      | Self-Drilling screw-ST4.8x28 | 823001 |                 |

#### Concealed centre closer

| Item | Name                         | SAP    | Description |
|------|------------------------------|--------|-------------|
| 2    | MVT concealed striker-closer | 728884 |             |
| 3    | Concealed striker-closer     | 728885 |             |

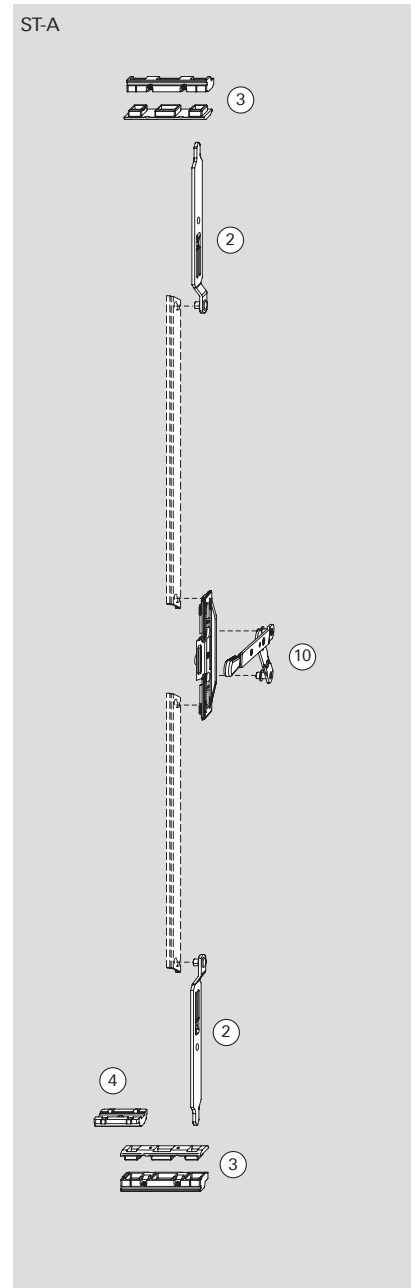
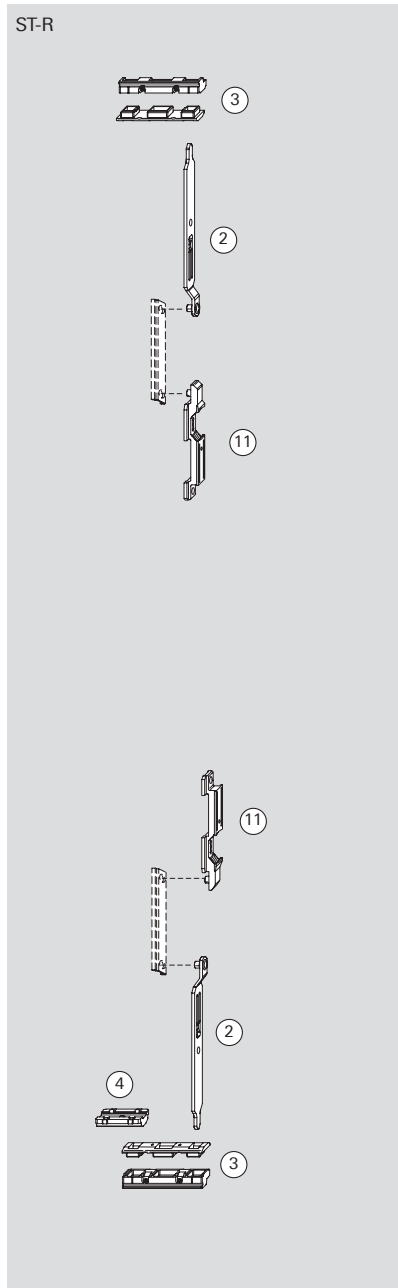
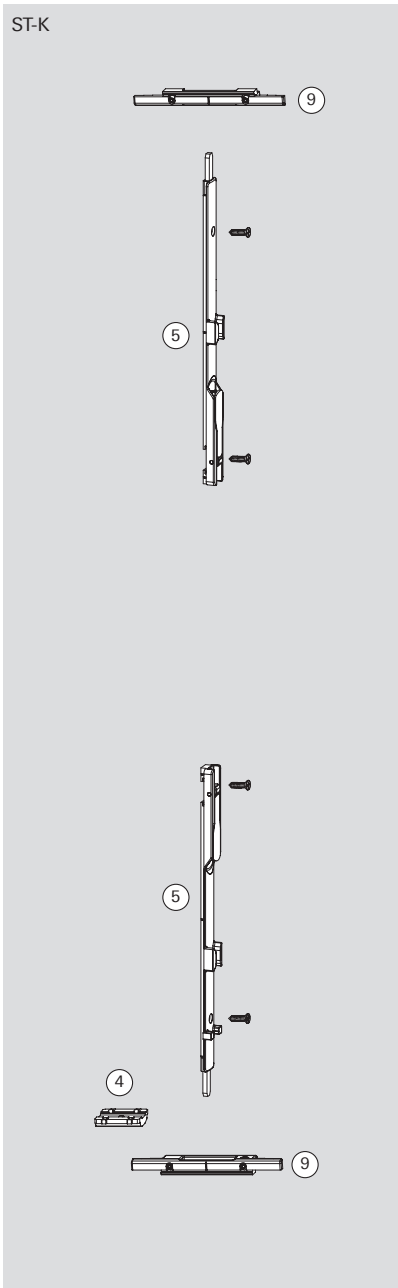
#### ALU T540

| Item | Name                         | SAP    | Description   |
|------|------------------------------|--------|---------------|
| 44   | Turn-only hinge              | 728771 | White(R07.2)  |
|      | Turn-only hinge              | 728770 | Black(R06.2)  |
|      | Turn-only hinge              | 728768 | Silver(R01.5) |
| 42   | Clamping support-strip TU-ON | 212055 |               |
| 38   | Countersunk screw            | 728930 |               |

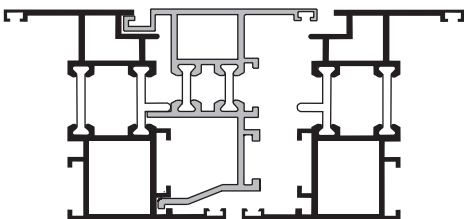
#### Concealed centre closer

| Item | Name                         | SAP    | Description |
|------|------------------------------|--------|-------------|
| 2    | MVT concealed striker-closer | 728884 |             |
| 3    | Concealed striker-closer     | 728885 |             |

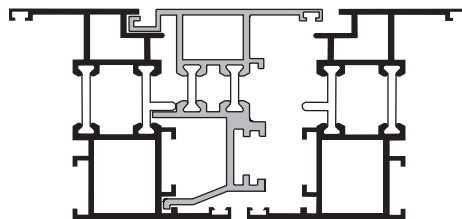
Dummy mullion slider

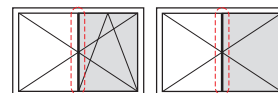


Space requirement for ST-K



Space requirement for ST-K/ST-R/ST-A





### Lever-operated espagnolette, concealed. (DM)

#### ST-K

| Item | Name                 | SAP    | Description |
|------|----------------------|--------|-------------|
| 5    | Finger shoot bolt    | 858810 |             |
| 9    | Multi-ported striker | 858809 |             |
| 4    | Run-up block         | 212008 |             |

#### ST-R

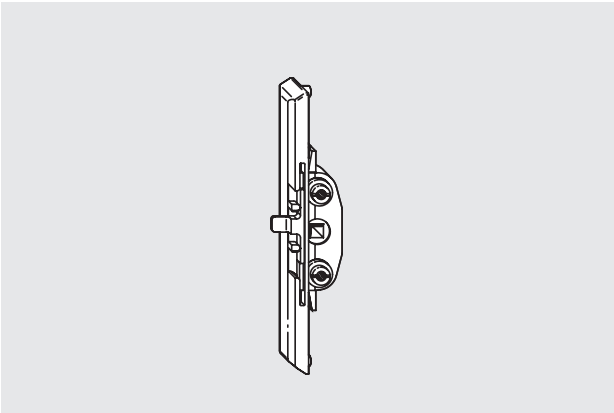
| Item | Name                 | SAP    | Description |
|------|----------------------|--------|-------------|
| 11   | Slider               | 212141 | VS1         |
|      | Slider               | 212142 | VS2         |
|      | Slider               | 212143 | VS3         |
| 2    | Shootbolt rod        | 212144 | VS1         |
|      | Shootbolt rod        | 212145 | VS2         |
|      | Shootbolt rod        | 212146 | VS3         |
| 3    | Multi-ported striker | 728912 | VB1/2       |
|      | Multi-ported striker | 728913 | VB3/4       |
|      | Multi-ported striker | 728914 | VB5/6       |
| 4    | Run-up block         | 212008 |             |

#### ST-A

| Item | Name                 | SAP    | Description |
|------|----------------------|--------|-------------|
| 10   | DM-SM espagnolette   | 728964 |             |
| 2    | Shootbolt rod        | 212144 | VS1         |
|      | Shootbolt rod        | 212145 | VS2         |
|      | Shootbolt rod        | 212146 | VS3         |
| 3    | Multi-ported striker | 728912 | VB1/2       |
|      | Multi-ported striker | 728913 | VB3/4       |
|      | Multi-ported striker | 728914 | VB5/6       |
| 4    | Run-up block         | 212008 |             |

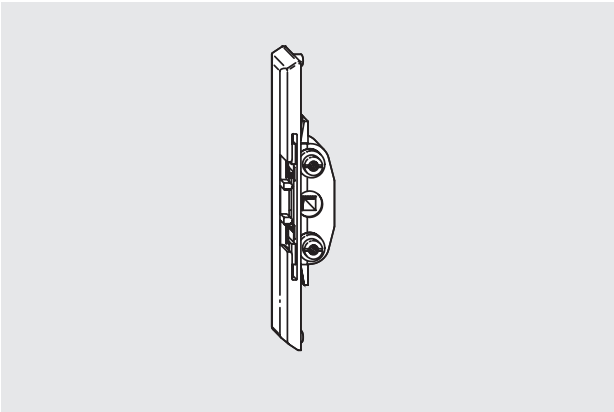


### Flush encased gearbox



Flush encased gearbox with integrated mishandling device for windows handles

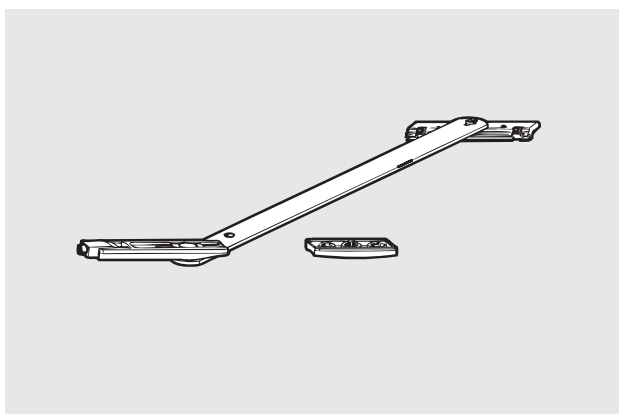
858804



Flush encased gearbox without mishandling device for windows handles

893747

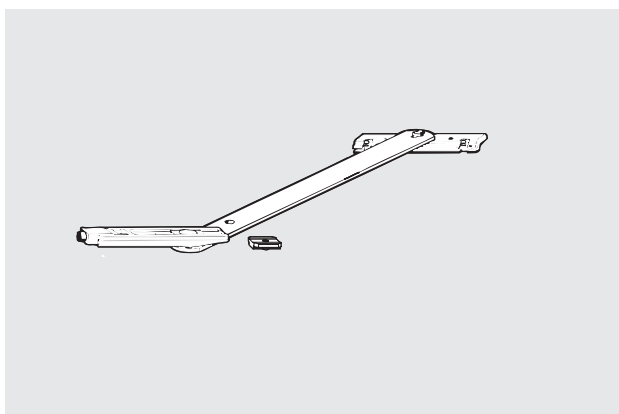
### Accessories



Turn-restrictor

728809

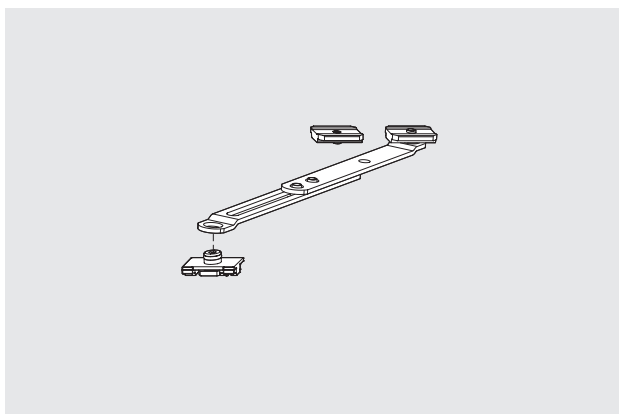
Note: In the turn-modus, the opening angle of the window sash is limited by the turn-restrictor.



Turn-restrictor

896913

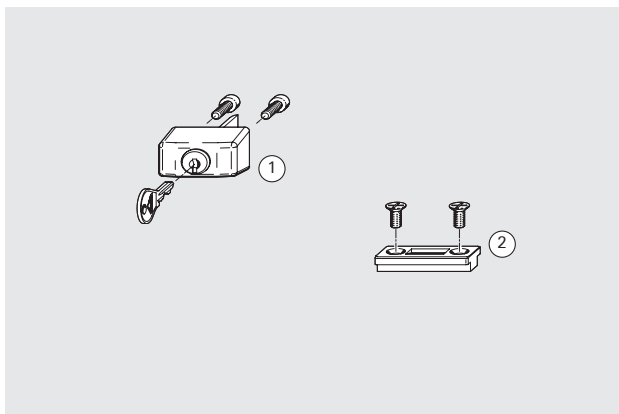
Note: For FB<500mm



Turn-restrictor set

740814

Note: For Designo Alu



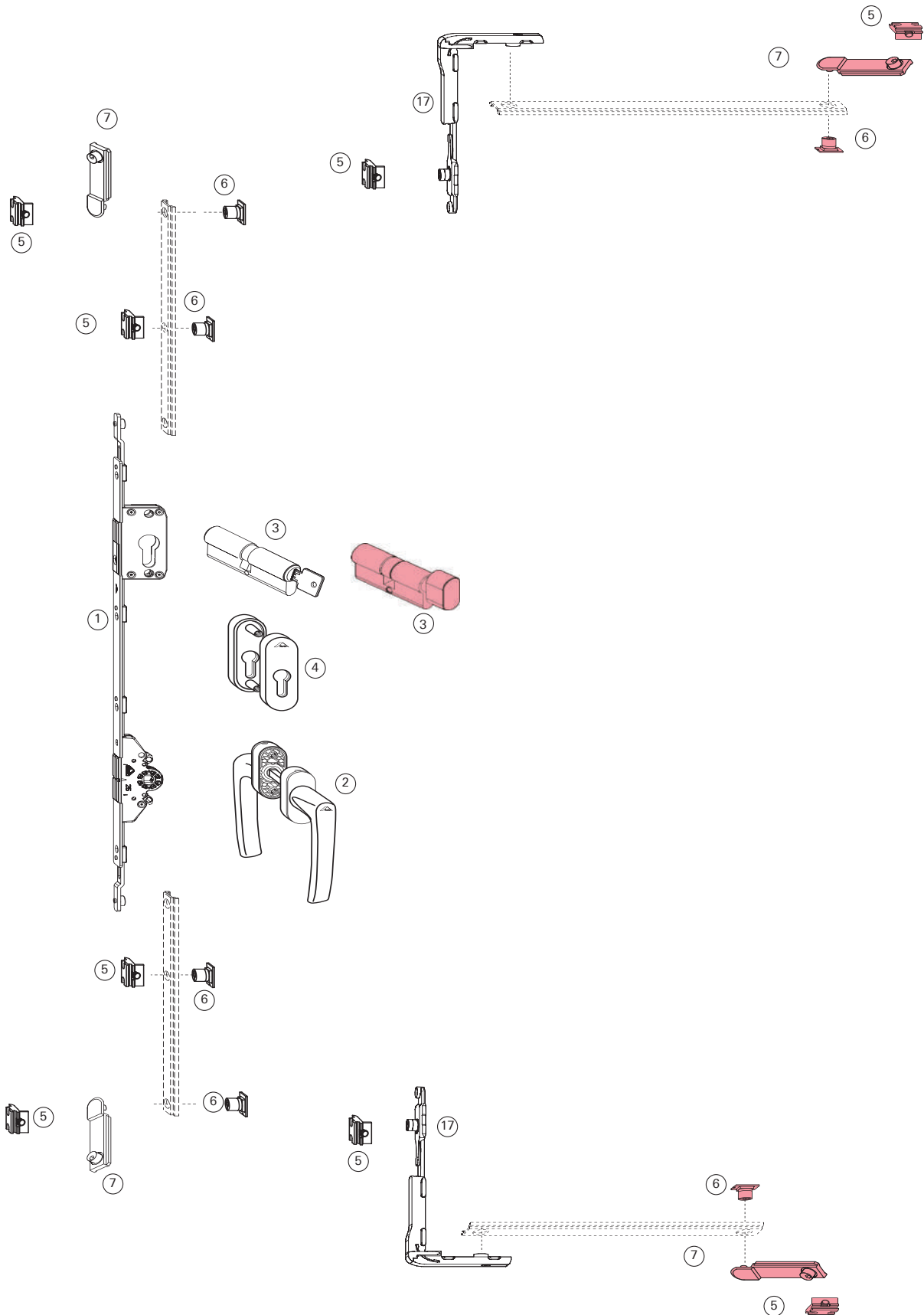
Child safety lock

| Item | Name                | Description | SAP    |
|------|---------------------|-------------|--------|
| 1    | Child safety lock   | White       | 728819 |
|      | Child safety lock   | Silver      | 728815 |
| 2    | Locking plate+screw |             | 728916 |

Note: Child safety lock with cylinder locking 1 key 2 Flat-headed screws

Locking plate with 2 countersunk screws M5 x 16

Locking components for balcony door



Application

Sash Width: .....refer to hinge

Sash Height: .....refer to hinge

Sash Weight max.: .....refer to hinge



Balcony door with cylinder lock

Lockable component

| Item | Name  | SAP     | Description      |
|------|---|---------|------------------|
| 1    | Balcony door with cylinder lock             | 811483* | 25mm             |
|      | Balcony door with cylinder lock             | 811484* | 30mm             |
|      | Balcony door with cylinder lock             | 811495* | 35mm             |
|      | Balcony door with cylinder lock             | 811496* | 40mm             |
|      | *Distance 250mm between cylinder and handle |         |                  |
| 2    | Rotoline double sided handle                |         | Refer to page 85 |
| 3    | Cylinder                                    |         | Refer to page 97 |
| 4    | Cylinder cover                              |         | Refer to page 87 |

Locking components (1)

| Item | Name           | SAP     | Description |
|------|----------------|---------|-------------|
| 5    | Striker        | 2007008 | V.01        |
| 6    | Insertable cam | 334671  |             |

Locking components (2)

| Item | Name           | SAP     | Description                   |
|------|----------------|---------|-------------------------------|
| 5    | Striker        | 2007008 | V.01                          |
| 6    | Insertable cam | 334671  |                               |
| 7    | Locking pin 67 | 858811  | Can only be used on both ends |

Locking components (3)

| Item | Name           | SAP     | Description |
|------|----------------|---------|-------------|
| 5    | Striker        | 2007008 | V.01        |
| 6    | Insertable cam | 334671  |             |
| 17   | Corner drive   | 858806  |             |



**Application**

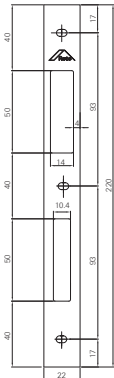
Sash Width: .....refer to hinge  
 Sash Height: .....refer to hinge  
 Sash Weight max.: .....refer to hinge

**Main lock for entrance door**

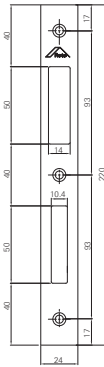
**Locking components**

| Item | Name                       | SAP                   | Description      |             |
|------|----------------------------|-----------------------|------------------|-------------|
| 1    | H650 Main lock U 4.5x20    | 2003563               | BS29mm           |             |
|      |                            | 2003564               | BS34mm           |             |
|      |                            | 2003565               | BS39mm           |             |
| 2    | Striker plate and dust box |                       | Refer to below   |             |
| 3    | End cap                    | 640885                | U 4.5x20         |             |
| 4    | Insertable cam             | 334671                |                  |             |
| 5    | Striker                    | 2007008               | V.01             |             |
| 6    | Shootbolt                  |                       | Refer to page 58 |             |
| 7    | Cylinder                   |                       | Refer to page 97 |             |
| 8    | RotoStark handle           | 857086                | White            |             |
|      |                            | SashThickness 58-75mm | 857087           | Black       |
|      |                            |                       | 857088           | Silver      |
|      |                            |                       | 857089           | Black Brown |
| 9    | Mortice Lock BS=30mm       | 891322                | BS30mm           |             |

**Striker plate**



896163

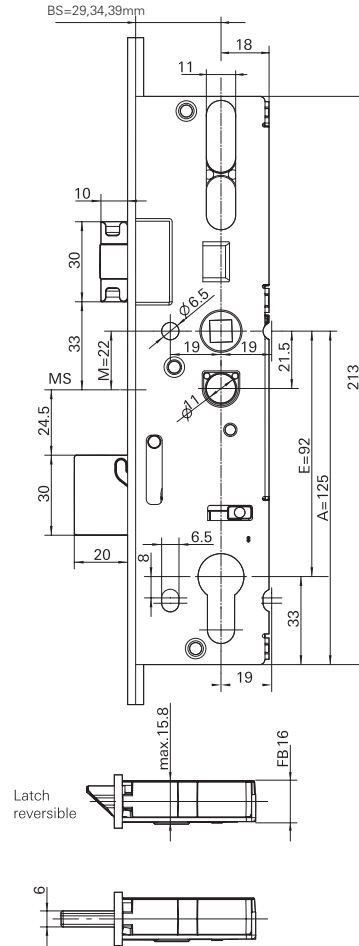


891323

571190 Endcap&Packer in black

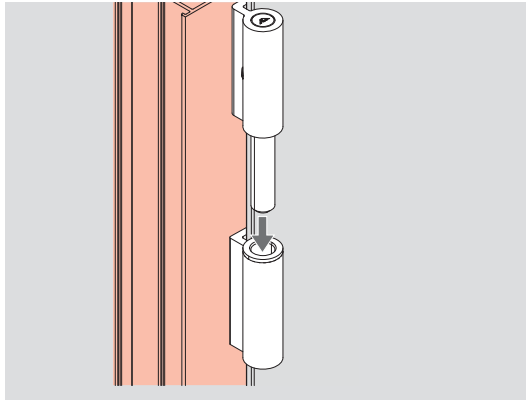


862143

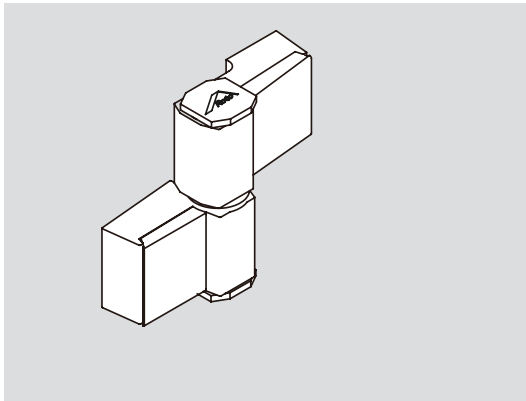


Door hinge solutions

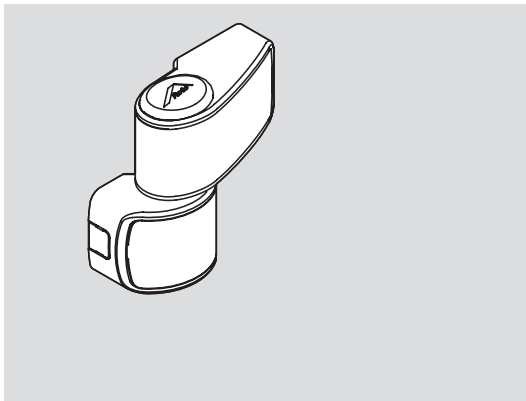
Solid B 130R



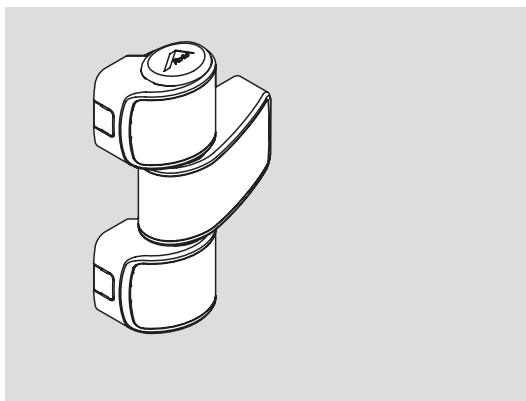
Quo

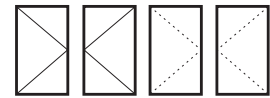


ATB 80

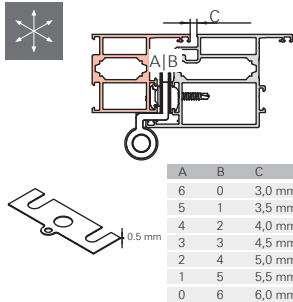


ATB120



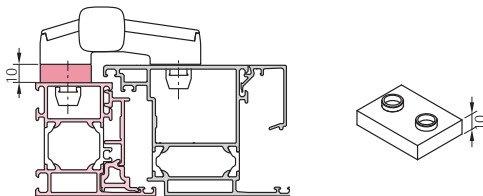


| Solid B hinge |                | Sash Weight max.120kg |
|---------------|----------------|-----------------------|
| SAP           | Colour         | Description           |
| 816000        | White(RAL9016) |                       |
| 816568        | Black(RAL9005) |                       |
| 834669        | Silver         |                       |



| Surface mounted hinge Quo (w screws M8x40) |                | Sash Weight max.90kg         |
|--|----------------|------------------------------|
| SAP  | Colour         | Description                  |
| 487444                                     | White(RAL9016) | 20.5*42mm incl. fitting, L/R |
| 487497                                     | Black(RAL9005) | 20.5*42mm incl. fitting, L/R |
| 487495                                     | Silver R01.1   | 20.5*42mm incl. fitting, L/R |
| 570874                                     | Special color  | 20.5*42mm incl. fitting, L/R |

| Spacer element for Quo hinge on stepped profiles |                |        |
|--|----------------|--------|
| Description                                      | Colour         | SAP    |
| 10mm   | White(RAL9016) | 570975 |
| 10mm   | Silver(R01.1)  | 570973 |
| 10mm   | Black(RAL9005) | 570976 |
| 10mm   | special color  | 570977 |

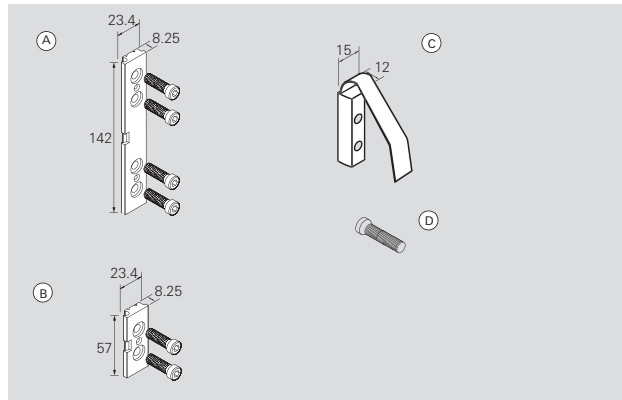


| Surface mounted hinge 80 ATB |                     | Sash Weight max.100kg |         |           |
|------------------------------|---------------------|-----------------------|---------|-----------|
| Description                  | Colour              | SAP                   | Version | Direction |
| 80 ATB                       | White(RAL9016)      | 548290                | I       | Left      |
| 80 ATB                       | White(RAL9016)      | 548294                | I       | Right     |
| 80 ATB                       | Black(RAL9005)      | 565485                | I       | Left      |
| 80 ATB                       | Black(RAL9005)      | 565493                | I       | Right     |
| 80 ATB                       | Dark brown(RAL8077) | 548292                | I       | Left      |
| 80 ATB                       | Dark brown(RAL8077) | 548296                | I       | Right     |
| 80 ATB                       | Delta silver        | 548293                | I       | Left      |
| 80 ATB                       | Delta silver        | 548297                | I       | Right     |

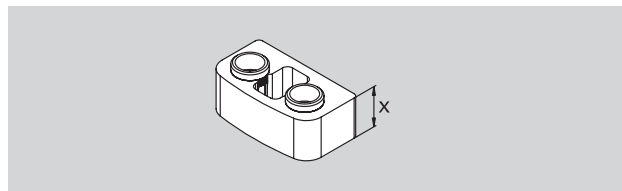
\*l=20.5mm\*42mm

| Surface mounted hinge 120 ATB |                     | Sash Weight max.160kg |         |           |
|-------------------------------|---------------------|-----------------------|---------|-----------|
| Description                   | Colour              | SAP                   | Version | Direction |
| 120 ATB                       | White(RAL9016)      | 548386                | I       | Left      |
| 120 ATB                       | White(RAL9016)      | 548390                | I       | Right     |
| 120 ATB                       | Dark brown(RAL8077) | 548388                | I       | Left      |
| 120 ATB                       | Dark brown(RAL8077) | 548392                | I       | Right     |
| 120 ATB                       | Black(RAL9005)      | 568358                | I       | Left      |
| 120 ATB                       | Black(RAL9005)      | 568359                | I       | Right     |
| 120 ATB                       | Delta silver        | 548389                | I       | Left      |
| 120 ATB                       | Delta silver        | 548393                | I       | Right     |

| Rearward spacer elements and screws |                                |         |
|-------------------------------------|--------------------------------|---------|
| Item                                | Name                           | SAP     |
| A+B                                 | For ATB 120 (Spacers+Screws)   | 548946  |
| C                                   | For ATB 80 Spacer+Spring Plate | 2002999 |
| D                                   | For ATB 80 Screw M8x40         | 2028770 |



| Spacer element on stepped profiles |                     |        |
|------------------------------------|---------------------|--------|
| Description                        | Colour              | SAP    |
| 40x22x10mm                         | White(RAL9016)      | 548492 |
| 40x22x10mm                         | Dark brown(RAL8077) | 548494 |
| 40x22x10mm                         | Black(RAL9005)      | 568361 |
| 40x22x10mm                         | Delta silver        | 548495 |

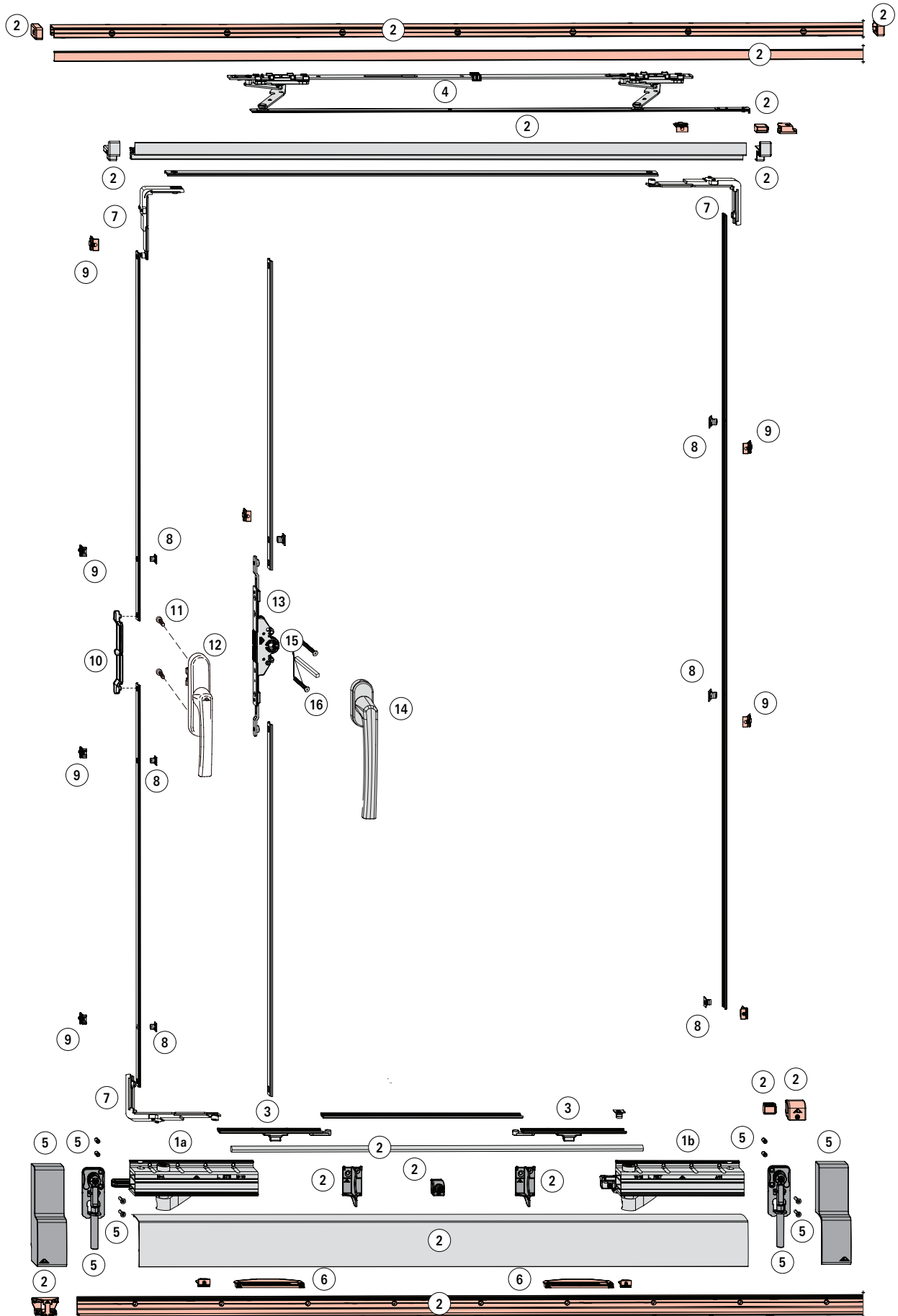


| Stainless-steel spring |  |
|------------------------|--|
| SAP                    |  |
| 548487                 |  |

| Metal adjustment key for gasket compression |  |
|---|--|
| SAP   |  |
| 547206                                      |  |



Tilt & Slide door (Roto Alversa KS)  
Diagram A



### Application

Sash Width **SW**: .....670-1680mm  
 Sash Height **SH**: .....930-2380mm  
 Sash Weight **S.kg**: .....max. 160kg

#### 1. Title Slide bogie set

| pos.   | Weight      | DIN   | Qty | SAP    |
|--|-------------|-------|-----|--------|
| Bogies                                       | up to 160kg | Left  | 1   | 799896 |
| including: 1a+1b                             |             | Right | 1   | 799897 |
| not dep. countersunk tapping-screws ST4.8x50 |             |       | 8   |        |

#### 2. Track set

| SR/mm       | FW/mm | color        | SAP    |
|-------------|-------|--------------|--------|
| 670 - 930   | 1930  | White R07.2  | 767086 |
| 931 - 1280  | 2630  | White R07.2  | 767088 |
| 1281 - 1680 | 3430  | White R07.2  | 767090 |
| 1681 - 2000 | 4130  | White R07.2  | 769844 |
| 670 - 930   | 1930  | Black R06.2  | 767081 |
| 931 - 1280  | 2630  | Black R06.2  | 767083 |
| 1281 - 1680 | 3430  | Black R06.2  | 767085 |
| 1681 - 2000 | 4130  | Black R06.2  | 769843 |
| 670 - 930   | 1930  | Silver R01.5 | 767051 |
| 931 - 1280  | 2630  | Silver R01.5 | 767053 |
| 1281 - 1680 | 3430  | Silver R01.5 | 767075 |
| 1681 - 2000 | 4130  | Silver R01.5 | 769841 |

#### 3. Bullet catch track set

Left+Right **774107**

#### 4. Scissors-slider

| SW/mm       | SAP    |
|-------------|--------|
| 600 - 900   | 810456 |
| 901 - 1250  | 810457 |
| 1251 - 1650 | 810458 |

#### 5. Reinforcement bracket sets 100-160 kg

| Color        | SAP    |
|--------------|--------|
| White R07.2  | 793518 |
| Black R06.2  | 793517 |
| Silver R01.5 | 793515 |

#### 6. Guide striker set (2 Pieces) V.01

**776013**

#### 7. Corner drive

**858806**

#### 8. Insertable cam

**334671**

#### 9. Striker V.01

**2007008**

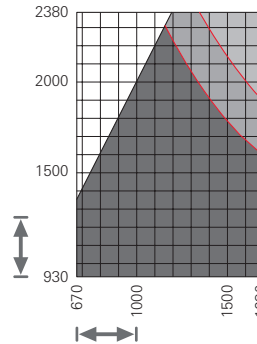
#### Espagnolettes and connectors (1)

| Item | Name                   | Description | SAP              |
|------|------------------------|-------------|------------------|
| 10   | Centre gear connector  |             | 482264           |
| 11   | Flat-headed screw      | M5x12       | 728925           |
| 12   | RotoLine geared handle |             | Refer to page 82 |

#### Espagnolettes and connectors (2)

| Item | Name                  | Description | SAP              |
|------|-----------------------|-------------|------------------|
| 14   | RotoLine handle       |             | Refer to page 84 |
| 15   | Short screw           | M5*80       | 735124           |
| 16   | Short spindle         | 7x7x80      | 737985           |
| 13   | Flush-encased gearbox |             |                  |
|      | BS=25                 |             | 625430           |
|      | BS=30                 |             | 625431           |
|      | BS=35                 |             | 625432           |
|      | BS=40                 |             | 625433           |

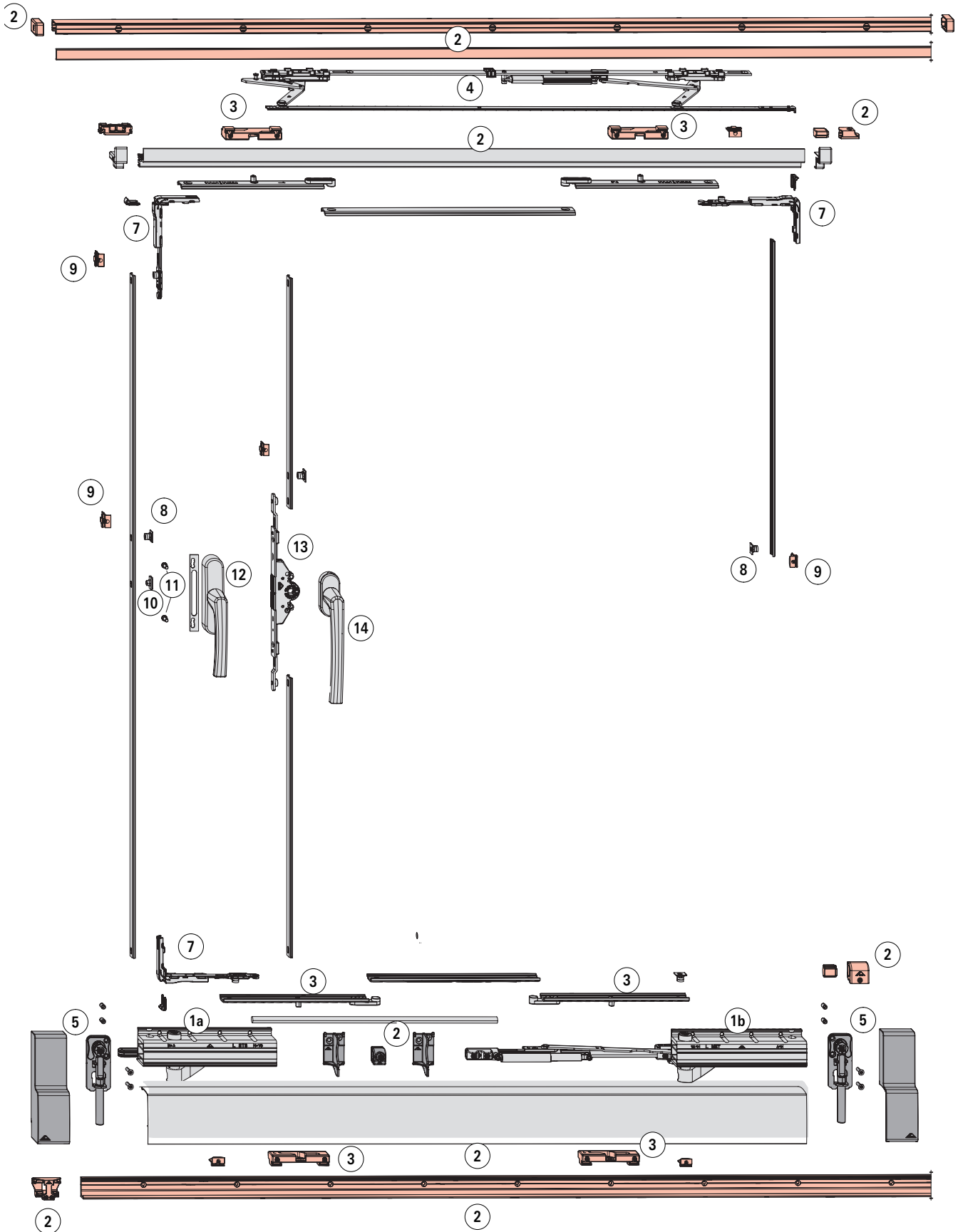
Application Diagram



= Impermissible application range  
 ≤ 40 kg/m<sup>2</sup>  
 ≤ 50 kg/m<sup>2</sup>  
 ≤ 60 kg/m<sup>2</sup>

The glass weight in kg/m<sup>2</sup>  
 1 mm/m<sup>2</sup> glass thickness = 2.5 kg  
 SH:SW = max. 2:1  
 M dimension = max. 62 mm

Parallel & Slide with night ventilation (Roto Alversa PS)  
Diagram A



### Application

Sash Width **SW**: .....760-2000mm  
 Sash Height **SH**: .....930-2700mm  
 Sash Weight **S.kg**: .....max. 200kg

### 1.Parallel&Slide bogie set

| pos.   | Weight      | DIN   | Qty | SAP    |
|--|-------------|-------|-----|--------|
| Bogies                                       | up to 160kg | Left  | 1   | 799898 |
|  |             | Right | 1   | 799900 |
| not dep. countersunk tapping-screws ST4.8x50 |             |       | 8   |        |
| Bogies(not dep.)                             | 160-200kg   | Left  | 1   | 799901 |
|  |             | Right | 1   | 799902 |
| not dep. countersunk tapping-screws ST4.8x50 |             |       | 16  |        |

### 2.Track set

| SR/mm       | FW/mm | color        | SAP    |
|-------------|-------|--------------|--------|
| 670 - 930   | 1930  | White R07.2  | 767086 |
| 931 - 1280  | 2630  | White R07.2  | 767088 |
| 1281 - 1680 | 3430  | White R07.2  | 767090 |
| 670 - 930   | 1930  | Black R06.2  | 767081 |
| 931 - 1280  | 2630  | Black R06.2  | 767083 |
| 1281 - 1680 | 3430  | Black R06.2  | 767085 |
| 670 - 930   | 1930  | Silver R01.5 | 767051 |
| 931 - 1280  | 2630  | Silver R01.5 | 767053 |
| 1281 - 1680 | 3430  | Silver R01.5 | 767075 |

### 3.Night vent set

|                                    |        |
|------------------------------------|--------|
| V.01 Left                          | 782305 |
| V.01 Right                         | 782306 |
| incl. 4x ins.cams, 4xV.01 strikers |        |

### 4.Scissors-slider

| SW/mm       |       | SAP    |
|-------------|-------|--------|
| 720 - 900   | Left  | 772220 |
|             | Right | 772225 |
| 901 - 1250  | Left  | 772221 |
|             | Right | 772226 |
| 1251 - 1650 | Left  | 772222 |
|             | Right | 772227 |
| 1651 - 2000 | Left  | 772223 |
|             | Right | 772228 |

### 5. Reinforcement bracket sets (must always used)

| Color        | SAP    |
|--------------|--------|
| White R07.2  | 793518 |
| Black R06.2  | 793517 |
| Silver R01.5 | 793515 |

### 7.Corner drive

858806

### 8.Insertable cam

334671

### 9.Striker V.01

2007008

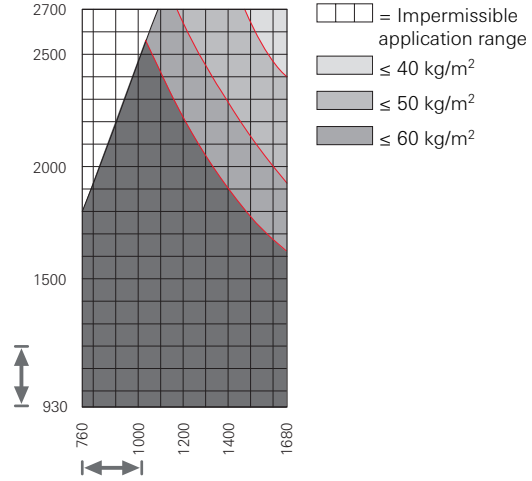
### Espagnolettes and connectors (1)

| Item | Name                   | Description | SAP              |
|------|------------------------|-------------|------------------|
| 10   | Centre gear connector  |             | 482264           |
| 11   | Flat-headed screw      | M5x12       | 728925           |
| 12   | RotoLine geared handle |             | Refer to page 82 |

### Espagnolettes and connectors (2)

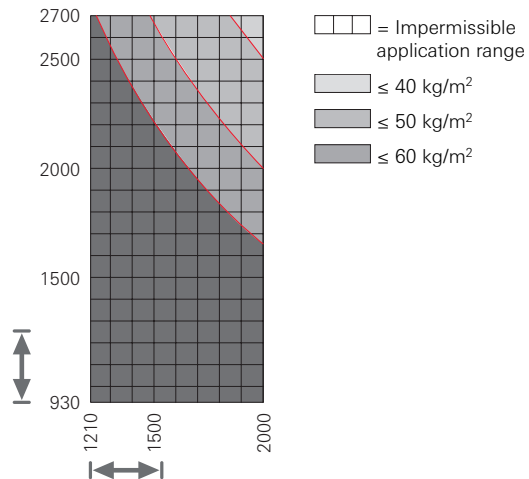
| Item | Name                  | Description | SAP              |
|------|-----------------------|-------------|------------------|
| 14   | RotoLine handle       |             | Refer to page 84 |
| 13   | Flush-encased gearbox |             |                  |
|      | BS=25                 |             | 625430           |
|      | BS=30                 |             | 625431           |
|      | BS=35                 |             | 625432           |
|      | BS=40                 |             | 625433           |

Diagram 160kg



The glass weight in kg/m  
 1 mm/m<sup>2</sup> glass thickness = 2.5 kg  
 SH:SW = max. 2:1  
 M dimension = max. 68 mm

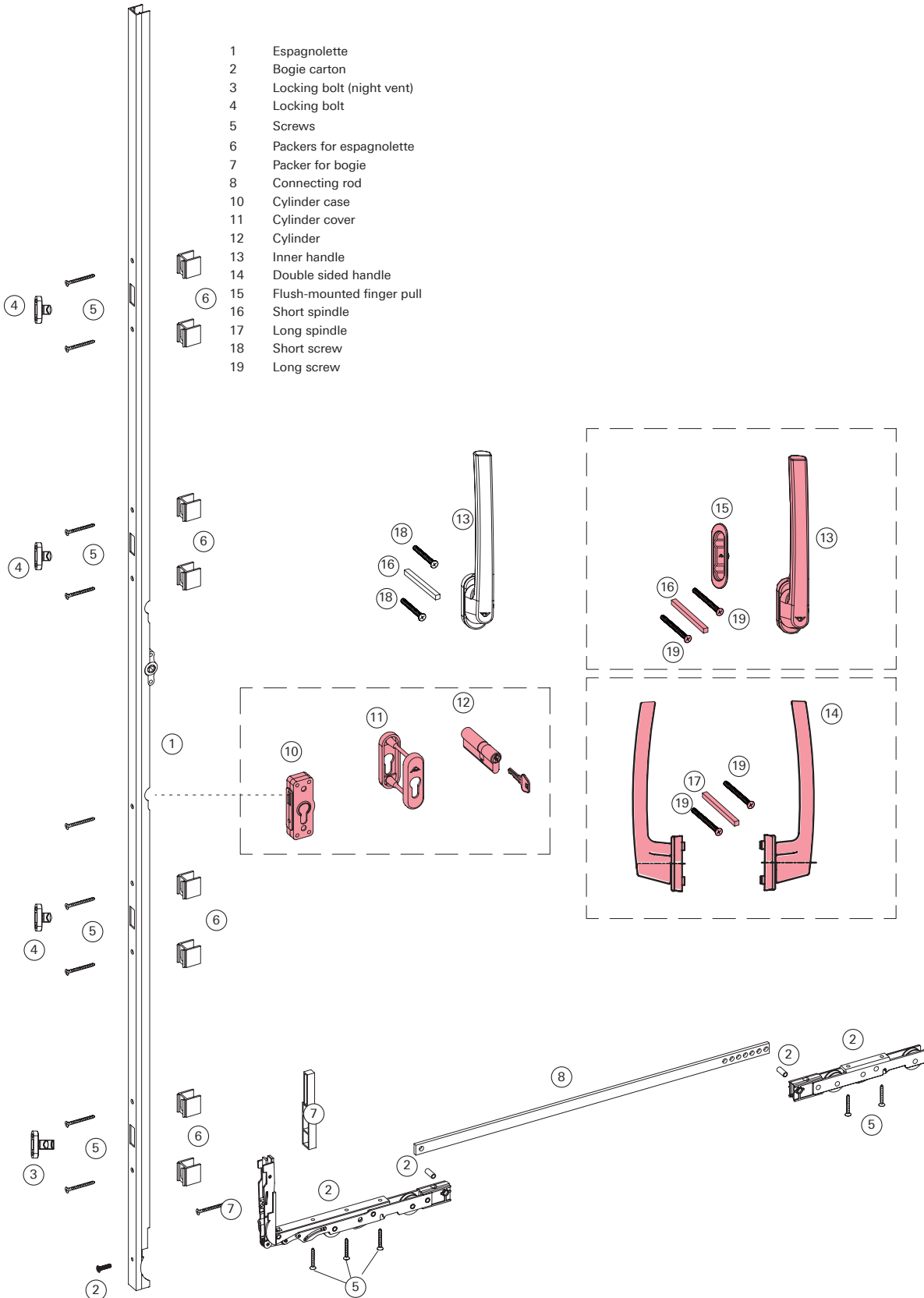
Diagram 200kg



The glass weight in kg/m  
 1 mm/m<sup>2</sup> glass thickness = 2.5 kg  
 SH:SW = max. 2:1  
 M dimension = max. 68 mm

For other Alversa PS with/without night ventilation, PS Air, PS Air Com and Diagram C, please ask your Roto partner.

HS 150 Lift & Slide door



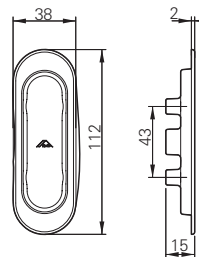
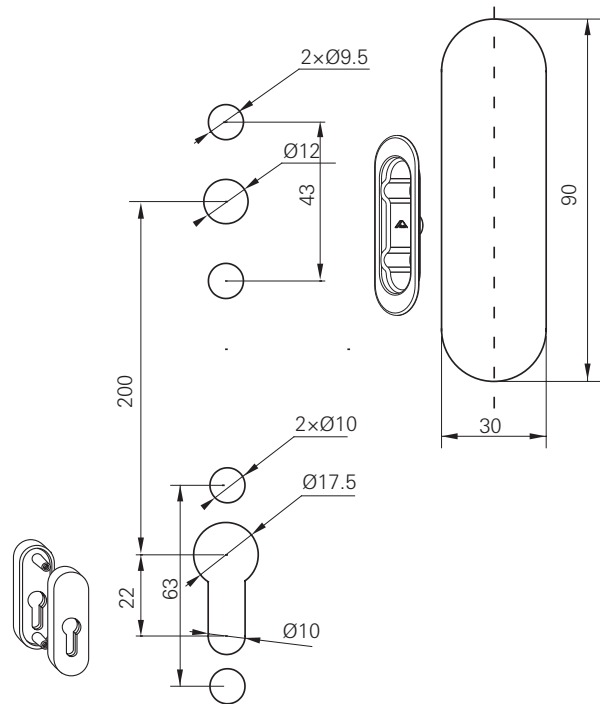
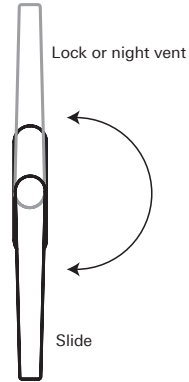
- 1 Espagnolette
- 2 Bogie carton
- 3 Locking bolt (night vent)
- 4 Locking bolt
- 5 Screws
- 6 Packers for espagnolette
- 7 Packer for bogie
- 8 Connecting rod
- 10 Cylinder case
- 11 Cylinder cover
- 12 Cylinder
- 13 Inner handle
- 14 Double sided handle
- 15 Flush-mounted finger pull
- 16 Short spindle
- 17 Long spindle
- 18 Short screw
- 19 Long screw

### HS 150 Application range

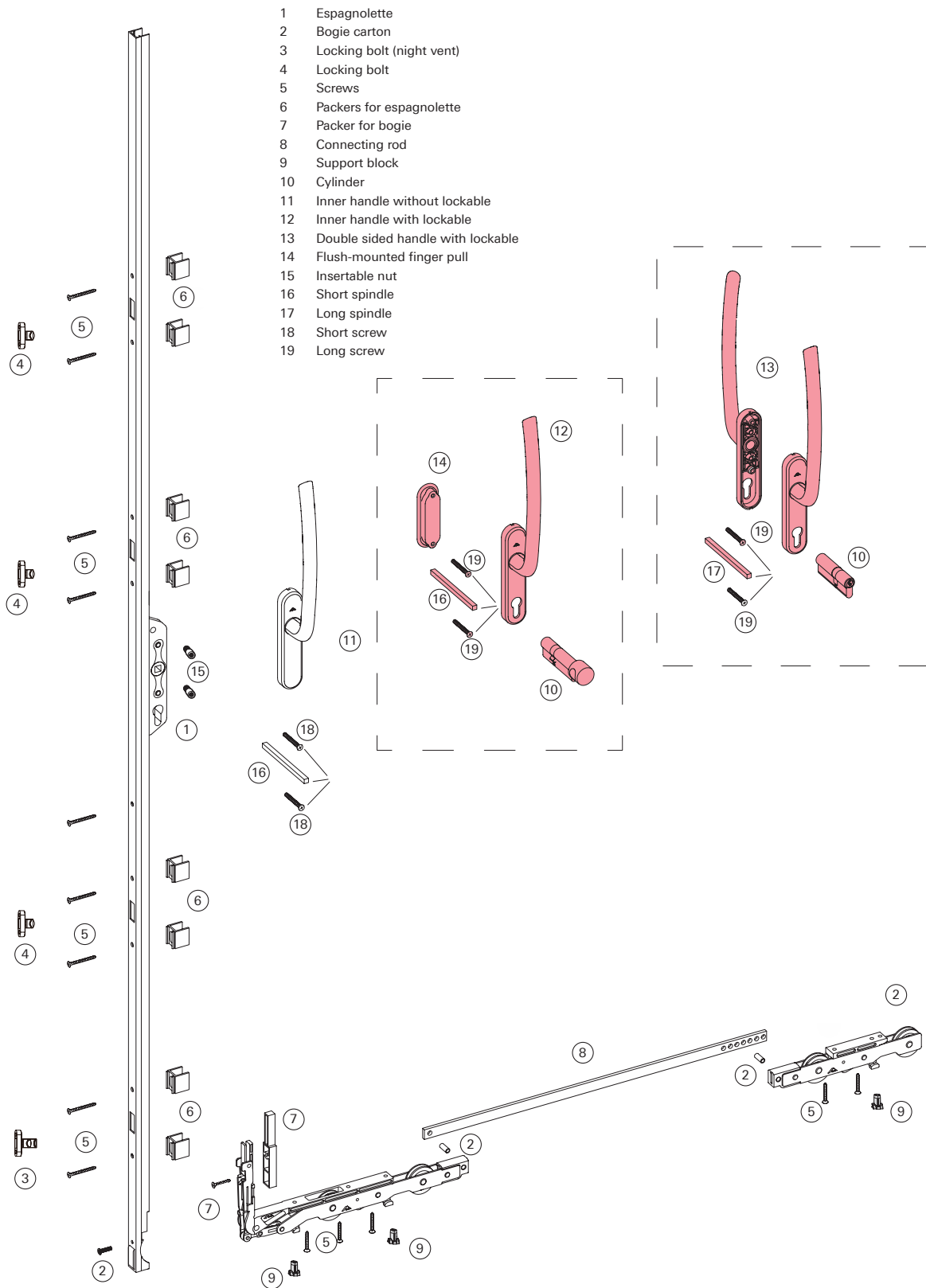
SW - ..... 700mm – 2800mm  
 SH - ..... 1800mm – 2600mm  
 Max. sash weight - ..... 150kg

### HS 150 Lift & Sliding door

| No. | SAP No. | Name  | Specification  |
|-----|---------|---|----------------|
| 1   | 633426  | Espagnolette                                    | SH:1801-2200mm |
|     | 633427  | Espagnolette                                    | SH:2201-2600mm |
| 2   | 734290  | Bogie carton incl. 1pc screw M5x13 and 2pcs pin | 22mm           |
| 3   | 595651  | Locking bolt (night vent)                       | Height:15mm    |
|     | 634418  | Locking bolt (night vent)                       | Height:17mm    |
| 4   | 595650  | Locking bolt                                    | Height:15mm    |
|     | 613246  | Locking bolt                                    | Height:17.5mm  |
| 5   | 643122  | Screws set(10*4.2*56+6*4.2*32)                  |                |
| 6   | 595654  | Packers(8pcs) for espag.                        | Thickness:16mm |
|     | 600513  | Packers(8pcs) for espag.                        | Thickness:19mm |
|     | 601952  | Packers(8pcs) for espag.                        | Thickness:23mm |
|     | 606766  | Packers(8pcs) for espag.                        | Thickness:30mm |
| 7   | 840774  | Packer for bogie +1pc screw 4.8x20              | Thickness:16mm |
|     | 840775  | Packer for bogie +1pc screw 4.8x20              | Thickness:19mm |
|     | 840777  | Packer for bogie +1pc screw 4.8x20              | Thickness:23mm |
|     | 840779  | Packer for bogie +1pc screw 4.8x20              | Thickness:30mm |
| 8   | 634852  | Connecting rod                                  | SW:700-1500mm  |
|     | 643639  | Connecting rod                                  | SW:1501-1800mm |
|     | 634853  | Connecting rod                                  | SW:1801-2100mm |
|     | 643643  | Connecting rod                                  | SW:2101-2400mm |
|     | 634854  | Connecting rod                                  | SW:2401-2800mm |
| 10  | 631368  | Cylinder case with 2 pins                       |                |
| 11  |         | Cylinder Cover                                  | Refer to P85   |
| 12  |         | Cylinder  | Refer to P97   |
| 13  |         | Inner handle                                    | Refer to P88   |
| 14  |         | Double side handle                              | Refer to P88   |
| 15  | 605543  | Flush-mounted finger pull White                 |                |
|     | 605551  | Flush-mounted finger pull Black                 |                |
|     | 643293  | Flush-mounted finger pull Silver                |                |
| 16  | 737985  | Short spindle                                   | 7x7x80         |
| 17  | 737986  | Long spindle                                    | 7x7x150        |
| 18  | 735124  | Short screw                                     | M5x80          |
| 19  | 735145  | Long screw                                      | M5x150         |



### HS 300 Lift & Slide door



### HS 300 Application range

SW - ..... 750 mm – 3000 mm

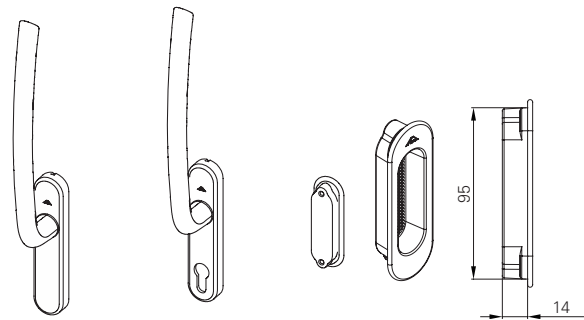
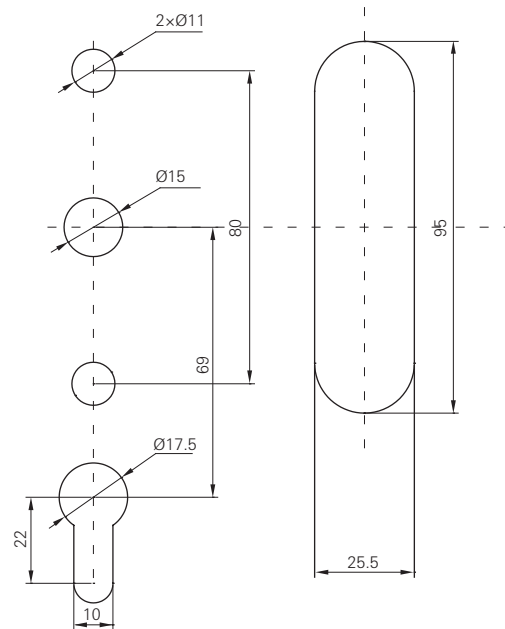
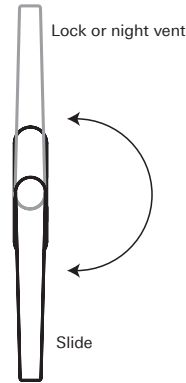
SH - ..... 1800 mm – 3100 mm

Max. sash weight - ..... 300kg/400kg

### HS 300 Lift & Sliding door

| No. | SAP No. | Name  | Specification  |
|-----|---------|---|----------------|
| 1   | 840378  | Espagnolette BS=37.5mm  | SH:1801-2200mm |
|     | 840379  | Espagnolette BS=37.5mm  | SH:2201-2600mm |
|     | 840382  | Espagnolette BS=37.5mm  | SH:2601-3100mm |
|     | 896124* | Espag. with 3Cams BS=37.5mm inkl. dampf Cylinder                                | SH:1801-2200mm |
|     | 896160* | Espag. with 3Cams BS=37.5mm inkl. dampf Cylinder                                | SH:2201-2600mm |
|     | 896161* | Espag. with 4Cams BS=37.5mm inkl. dampf Cylinder                                | SH:2601-3100mm |
| 2   | 734288  | Bogie carton incl. 1pc screw M5x13 and 2pcs pin                                 | 22mm           |
| 3   | 595651  | Locking bolt (night vent)   | Height:15mm    |
|     | 634418  | Locking bolt (night vent)   | Height:17mm    |
| 4   | 595650  | Locking bolt  | Height:15mm    |
|     | 613246  | Locking bolt  | Height:17.5mm  |
| 5   | 896162  | Screws 10pcs 4.2x63 6pcs 4.2x32   | 300kg          |
| 6   | 600513  | Packers(8pcs) for espag.  | Thickness:19mm |
|     | 601952  | Packers(8pcs) for espag.  | Thickness:23mm |
|     | 606766  | Packers(8pcs) for espag.  | Thickness:30mm |
| 7   | 840775  | Packer for bogie +1pc screw 4.8x20  | Thickness:19mm |
|     | 840777  | Packer for bogie +1pc screw 4.8x20  | Thickness:23mm |
|     | 840779  | Packer for bogie +1pc screw 4.8x20  | Thickness:30mm |
| 8   | 634852  | Connecting rod  | SW:750-1600mm  |
|     | 643639  | Connecting rod  | SW:1601-1900mm |
|     | 634853  | Connecting rod  | SW:1901-2200mm |
|     | 643643  | Connecting rod  | SW:2201-2500mm |
|     | 634854  | Connecting rod  | SW:2501-3000mm |
| 9   | 762901  | Support block   | 300kg          |
| 10  |         | Cylinder  | P97            |
| 11  | 642895  | Inner handle without lockable   | White          |
|     | 642884  | Inner handle without lockable   | Black          |
|     | 642896  | Inner handle without lockable   | Silver         |
| 12  | 642899  | Inner handle with lockable  | White          |
|     | 642898  | Inner handle with lockable  | Black          |
|     | 642900  | Inner handle with lockable  | Silver         |
| 13  | 642903  | Double sided handle with lockable   | White          |
|     | 642902  | Double sided handle with lockable   | Black          |
|     | 642904  | Double sided handle with lockable   | Silver         |
| 14  | 642881  | Flush-mounted finger pull   | White          |
|     | 642880  | Flush-mounted finger pull   | Black          |
|     | 642882  | Flush-mounted finger pull   | Silver         |
| 15  | 635152  | Insertable nut  |                |
| 16  | 644120  | Short spindle   | 10x10x80       |
| 17  | 644121  | Long spindle  | 10x10x150      |
| 18  | 735124  | Short screw   | M5x80          |
| 19  | 735145  | Long screw  | M5x150         |
| 20  | 626567  | upgrade set 400kg (incl. bogie set, 2pcs connecting plate, 4pcs connecting pin) |                |
| 21  |         | Need to cut the connecting rod to suitable length.                              |                |

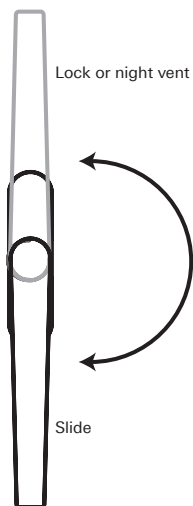
\* no pictures. need to special striker. Please ask your Roto partner.



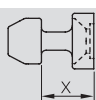
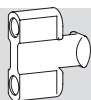


Striker for Lift & Slide door

Handle position

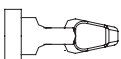


Standard striker



2-sashed open striker

| No. | SAP No. | Name    | Specification |
|-----|---------|---------|---------------|
| 1   | 595652  | Striker | Height:20mm   |

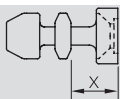
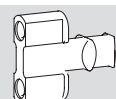


Note:

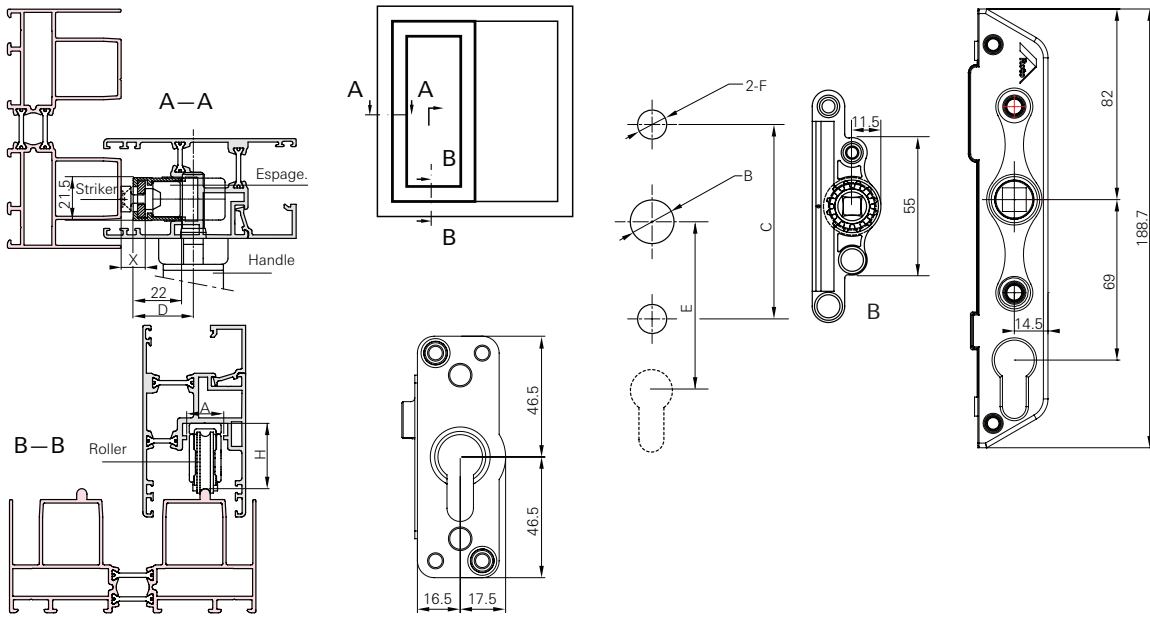
1. Both the bogie packer and the espag. packer thickness must be the same.

2. The bogie's lifting height is 7mm

Night vent striker

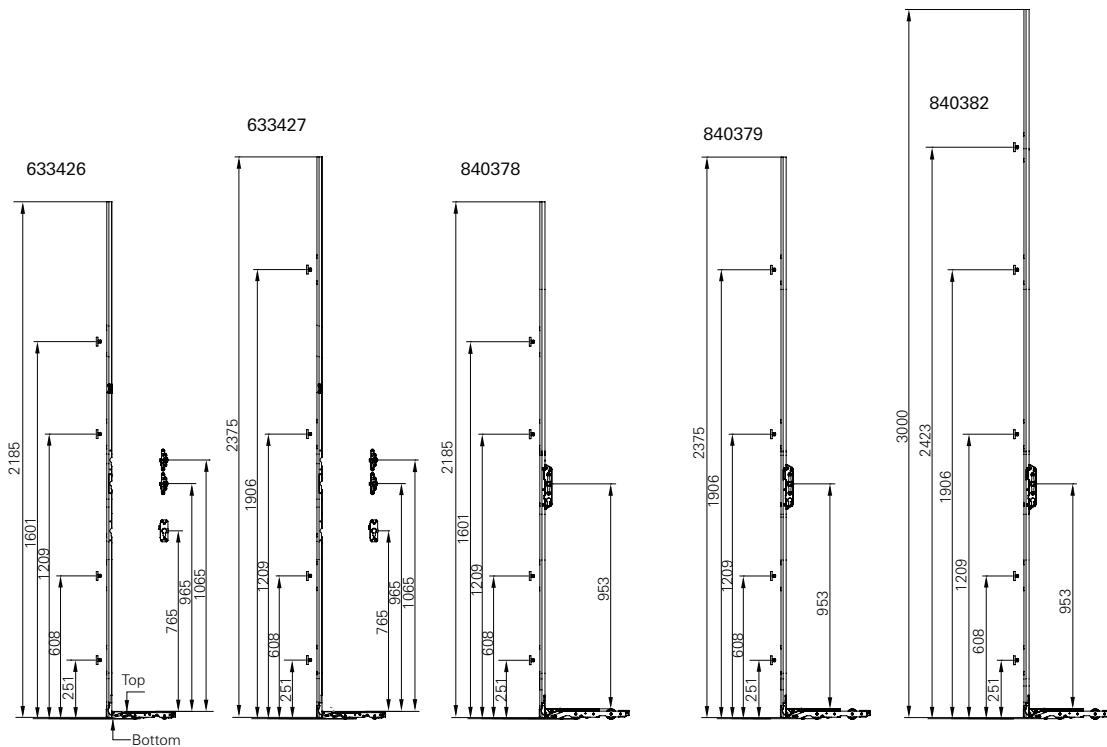


### Profile suggestion on Lift & Slide door



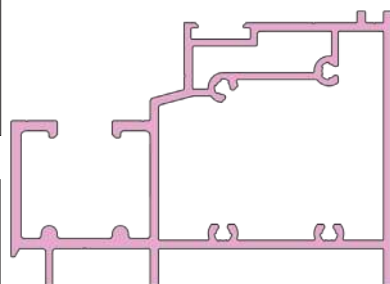
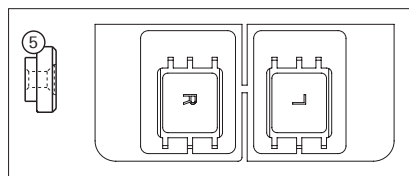
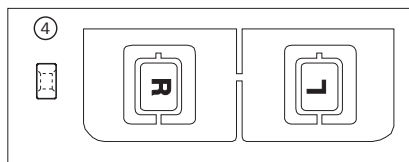
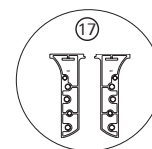
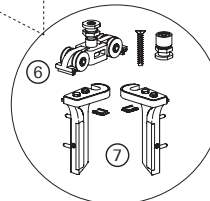
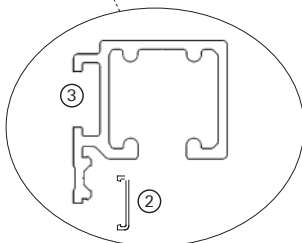
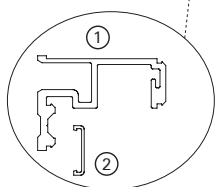
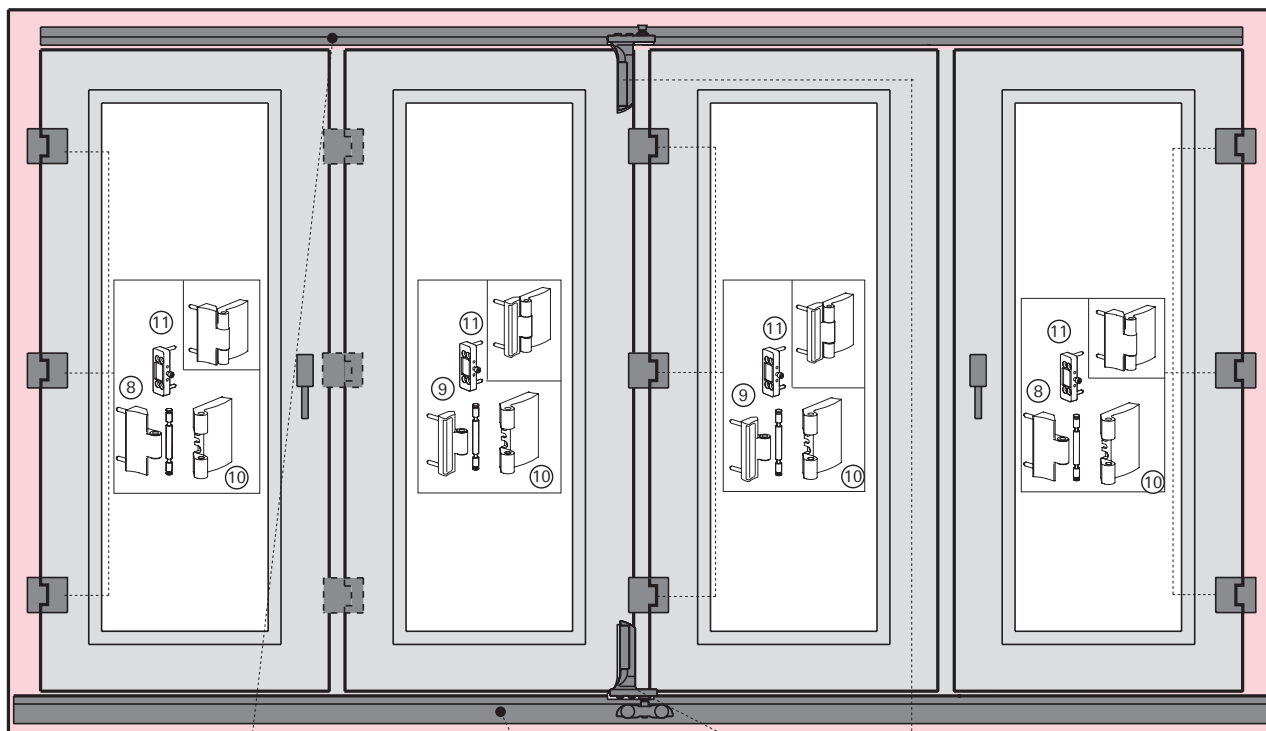
Installation parameters

|       | Bogie width A | B    | C    | D      | E    | F    | G      | H    |
|-------|---------------|------|------|--------|------|------|--------|------|
| HS150 | 22mm          | 12mm | 43mm | 25mm   | /    | 10mm | 39.5mm | 31mm |
| HS300 | 22mm          | 18mm | 80mm | 37.5mm | 69mm | 10mm | 52mm   | 42mm |



**Fold & Slide door (PATIO Fold)**

SW - ..... 450 mm – 900 mm  
 SH - ..... 600 mm – 2800 mm  
 Sash weight max. - ..... 100 kg  
 The door length max.- .....6000 mm



12 Enhanced threshold for barrier-free living.

Patio Fold & Slide door hardware formed by two parts:

1. Folding part:

The folding part is not installed in the hardware groove, so there is no difference between "C-groove" profile and "U-groove" profile. It's only related to the folding modes and the folding sash's quantity

2. Locking part:

The locking part is installed in the hardware groove, so pls refer to the Turn-ony door's application.

### Hardware list

| 1. Guide rail top |               |        |
|-------------------|---------------|--------|
| SAP               | Colour        | Length |
| 571420            | Silver(Anod.) | 4500mm |
| 614284            | Silver(Anod.) | 5800mm |
| 859066            | Black(Anod.)  | 4500mm |
| 859068            | Black(Anod.)  | 5800mm |

| 2. Guide track cover |        |        |             |
|----------------------|--------|--------|-------------|
| SAP                  | Colour | Length | Description |
| 206898               | White  | 6000mm | Narrow      |
| 491001               | Brown  | 6000mm | Narrow      |
| 770352               | Black  | 6000mm | Narrow      |

| 3. Roller track bottom |               |        |
|------------------------|---------------|--------|
| SAP                    | Colour        | Length |
| 859069                 | Silver(Anod.) | 4500mm |
| 859080                 | Silver(Anod.) | 5800mm |
| 836929                 | Black(Anod.)  | 4500mm |
| 836930                 | Black(Anod.)  | 5800mm |

| 4. Guide rail accessory |        |
|-------------------------|--------|
| SAP                     | Colour |
| 626452                  | White  |
| 626450                  | Brown  |
| 626449                  | Silver |
| 770354                  | Black  |

| 5. Track accessory |        |
|--------------------|--------|
| SAP                | Colour |
| 643863             | White  |
| 738957             | Brown  |
| 643865             | Silver |
| 770353             | Black  |

|                 |        |
|-----------------|--------|
| 6. Bogie carton | 642422 |
|-----------------|--------|

| 7. Bogie bracket with pin 30mm |        |
|--------------------------------|--------|
| SAP                            | Colour |
| 642423                         | White  |
| 738980                         | Brown  |
| 642435                         | Silver |
| 768892                         | Black  |

| 8. Frame hinge-bearing (packaged unit: 3 pcs.) |        |             |
|--|--------|-------------|
| SAP  | Colour | Description |
| 734525   | White  | 10mm        |
| 739900   | Brown  | 10mm        |
| 734527   | Silver | 10mm        |
| 768764   | Black  | 10mm        |

| 9. Sash hinge-bearing (packaged unit: 3 pcs.) |        |             |
|---|--------|-------------|
| SAP   | Colour | Description |
| 734365  | White  | 30mm        |
| 738914  | Brown  | 30mm        |
| 734367  | Silver | 30mm        |
| 768887  | Black  | 30mm        |

| 10. Hinge (packaged unit: 3 pcs.) |        |             |
|-----------------------------------|--------|-------------|
| SAP                               | Colour | Description |
| 733366                            | White  | 40mm        |
| 738894                            | Brown  | 40mm        |
| 733368                            | Silver | 40mm        |
| 768757                            | Black  | 40mm        |

|   |        |
|---|--------|
| 11. Hinge-fixing insert for Aluminium (packaged unit: 3 pcs.) | 734492 |
|---|--------|

| 12. Enhanced threshold (for barrier-free living, profile related) |               |        |
|---|---------------|--------|
| SAP   | Colour        | Length |
| 859081  | Silver(Anod.) | 4500mm |
| 859082  | Silver(Anod.) | 5800mm |
| 836925  | Black(Anod.)  | 4500mm |
| 836926  | Black(Anod.)  | 5800mm |

| 13. Packers for frame hinge-bearing (packaged unit: 3 pcs.) |        |      |
|---|--------|------|
| SAP   | Colour | Type |
| 312831  | White  | 1mm  |
| 312833  | Silver | 1mm  |
| 768889  | Black  | 1mm  |

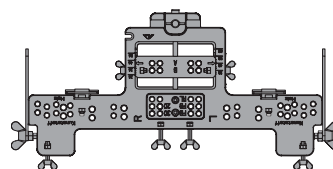
| 14. Sash locking device |        |
|-------------------------|--------|
| SAP                     | Colour |
| 340208                  | White  |
| 375241                  | Silver |
| 340211                  | Black  |

| 15. Sash stoppers |        |
|-------------------|--------|
| SAP               | Colour |
| 444807            | White  |
| 444809            | Silver |
| 768940            | Black  |

|                                  |        |
|----------------------------------|--------|
| 16. Enhanced threshold accessory | 858296 |
|----------------------------------|--------|

| 17. Bogie packer 6mm |        |
|----------------------|--------|
| SAP                  | Colour |
| 737260               | White  |
| 739898               | Brown  |
| 737262               | Silver |
| 768895               | Black  |

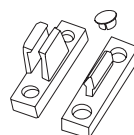
|                                     |        |
|-------------------------------------|--------|
| Drilling jig for hinges and bracket | 643365 |
|-------------------------------------|--------|



13. Packers for frame hinge-bearing



14. Sash locking device



15. Sash stoppers



Patio Fold variations and application of sash retaining devices

Diagram 330

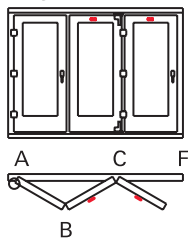


Diagram 321

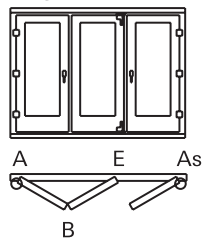


Diagram 431

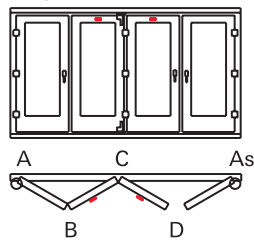


Diagram 532

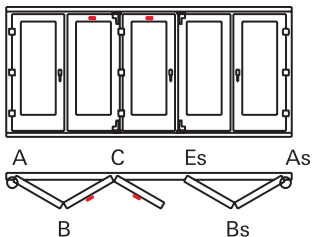


Diagram 541

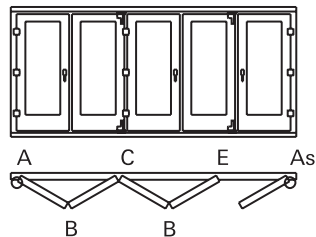


Diagram 550

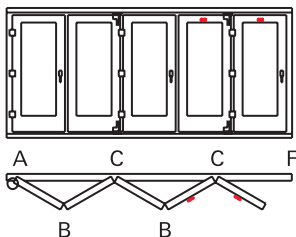


Diagram 633

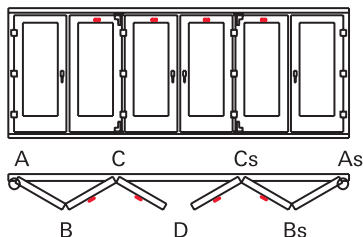


Diagram 651

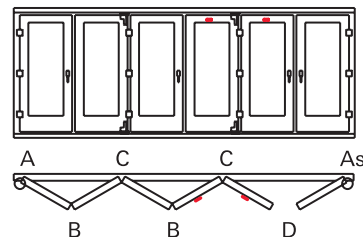


Diagram 743

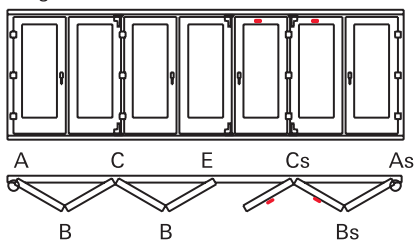


Diagram 761

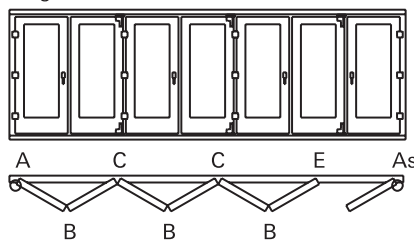


Diagram 770

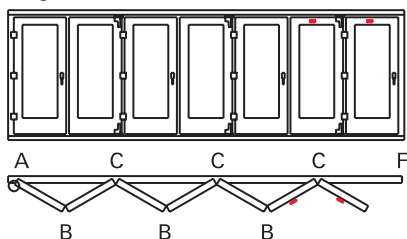
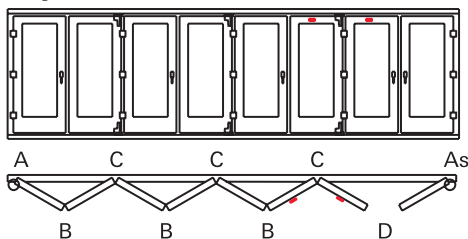


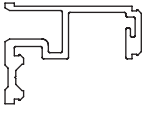

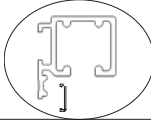




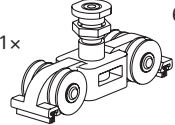


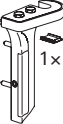

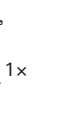

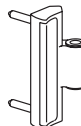
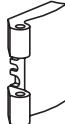
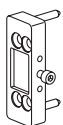
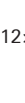
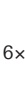

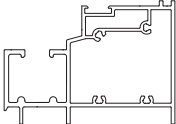



Diagram 871

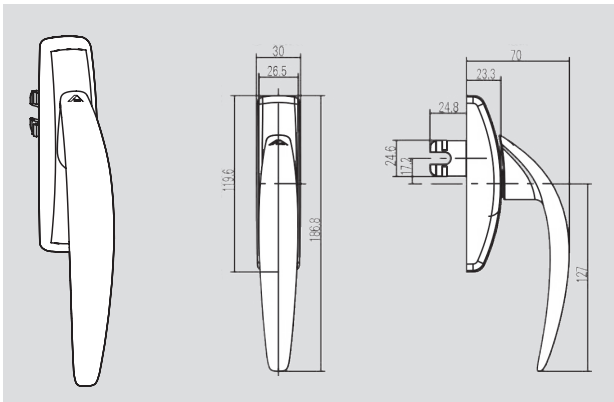


### Fold part hardware Qty.

Note:  means standard roller track  
 means Enhanced threshold

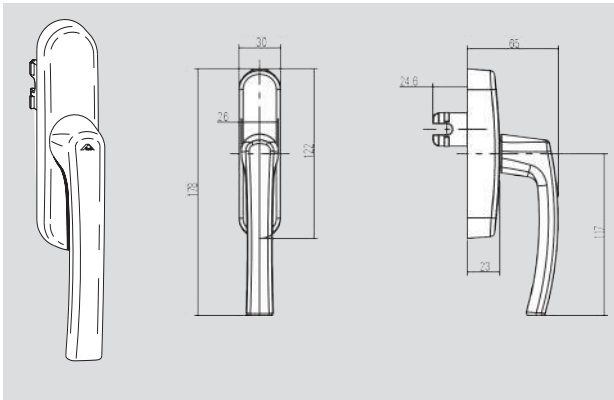
| 330 | 321 | 431 | 532 | 541 | 550 | 633 | 651 | 743 | 761 | 770 | 871 | 853 | Name                            | Illustration   |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------------------------------|--|
| 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | Guide track top                 |   |
| 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   |                                 |  |
| 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | Guide track cover               |   |
| 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   |                                 |  |
| 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | Roller track                    |   |
| 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |                                 |  |
| 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | Guide track accessory           | 6x  1x  1x   |
| 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   |                                 |  |
| 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | Roller track accessory          | 6x  1x  1x   |
| 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |                                 |  |
| 1   | 1   | 1   | 2   | 2   | 2   | 2   | 2   | 3   | 3   | 3   | 3   | 3   | Bogie carton                    | 1x  6x  1x    |
| 1   | 1   | 1   | 2   | 2   | 2   | 2   | 2   | 3   | 3   | 3   | 3   | 3   |                                 |  |
| 1   | 1   | 1   | 2   | 2   | 2   | 2   | 2   | 3   | 3   | 3   | 3   | 3   | Bogie bracket<br>Bogie packer   | 1x  1x  1x    |
| 1   | 1   | 1   | 2   | 2   | 2   | 2   | 2   | 3   | 3   | 3   | 3   | 3   |                                 |  |
| 1   | 2   | 2   | 2   | 2   | 1   | 2   | 2   | 2   | 2   | 1   | 2   | 2   | Frame hinge-bearing             | 3x    |
| 1   | 2   | 2   | 2   | 2   | 1   | 2   | 2   | 2   | 2   | 1   | 2   | 2   |                                 |  |
| 2   | 1   | 2   | 3   | 3   | 4   | 4   | 4   | 5   | 5   | 6   | 6   | 6   | Sash bearing                    | 3x    |
| 2   | 1   | 2   | 3   | 3   | 4   | 4   | 4   | 5   | 5   | 6   | 6   | 6   |                                 |  |
| 3   | 3   | 4   | 5   | 5   | 5   | 6   | 6   | 7   | 7   | 7   | 8   | 8   | Hinge                           | 3x    |
| 3   | 3   | 4   | 5   | 5   | 5   | 6   | 6   | 7   | 7   | 7   | 8   | 8   |                                 |  |
| 3   | 3   | 4   | 5   | 5   | 5   | 6   | 6   | 7   | 7   | 7   | 8   | 8   | Hinge-fixing insert             | 3x  12x  6x  3x  |
| 3   | 3   | 4   | 5   | 5   | 5   | 6   | 6   | 7   | 7   | 7   | 8   | 8   |                                 |  |
| 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | Enhanced threshold              |   |
| 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   |                                 |  |
| 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | Enhanced threshold<br>accessory |   |
| 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1   |                                 |  |

Rotoline handle (geared)



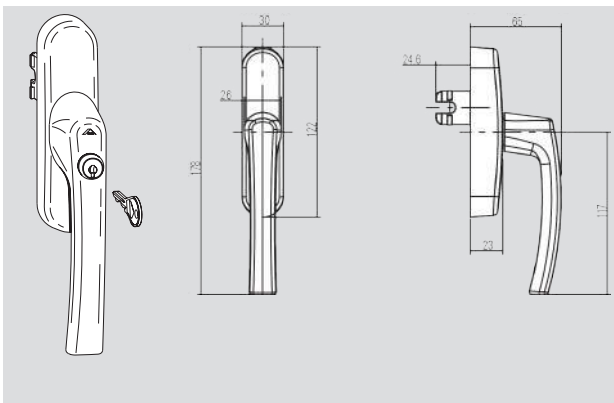
**T300 handle**

| SAP    | Description       |
|--------|-------------------|
| 489717 | Silver,26mm       |
| 486163 | White(R07.2),26mm |
| 486162 | Black(R06.2),26mm |



**Rotoline geared handle**

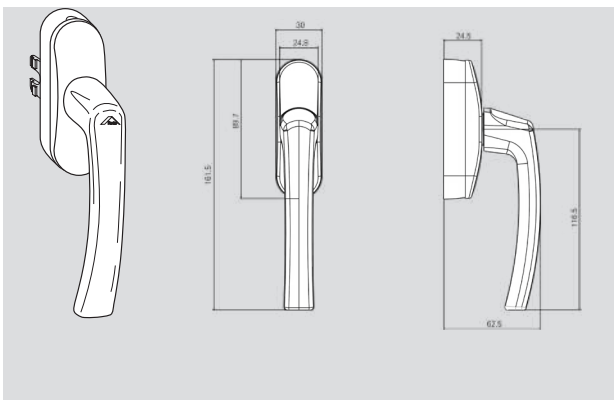
| SAP    | Description       |
|--------|-------------------|
| 328366 | Silver,26mm       |
| 328207 | White(R07.2),26mm |
| 328208 | Black(R06.2),26mm |



**Rotoline lockable geared handle \***

| SAP    | Description       |
|--------|-------------------|
| 214172 | Silver,26mm       |
| 214177 | White(R07.2),26mm |

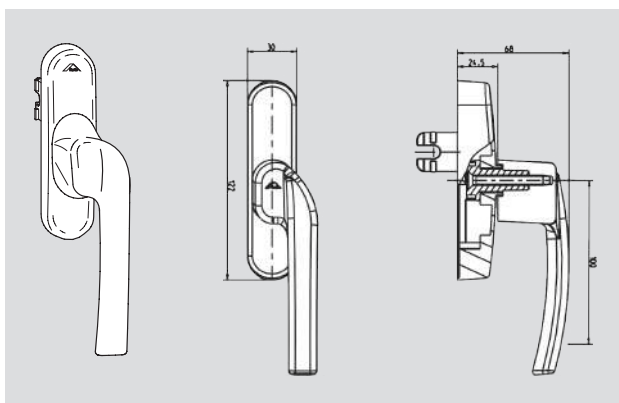
\* Duplicate key



**Rotoline casement handle**

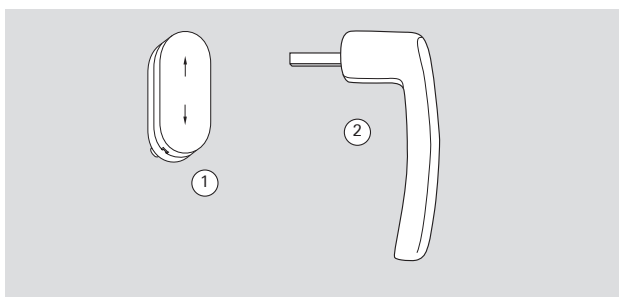
| SAP    | Description               |
|--------|---------------------------|
| 736988 | Silver,without fork       |
| 736989 | White(R07.2),without fork |
| 736990 | Black(R06.2),without fork |

### Rotoline handle (geared)



#### RotoLine cranked geared-handle with logo(Fork:26mm)

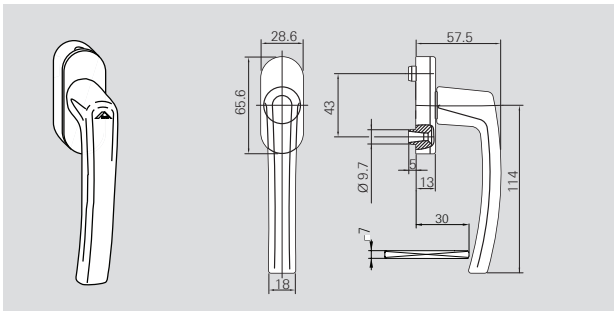
| SAP    | Description         |
|--------|---------------------|
| 477543 | White R07.2/26mm L  |
| 477544 | White R07.2//26mm R |
| 477855 | Silver R01.5/26mm L |
| 477856 | Silver R01.5/26mm R |
| 477857 | Black R06.2/26mm L  |
| 477858 | Black R06.2/26mm R  |



#### Removable handle

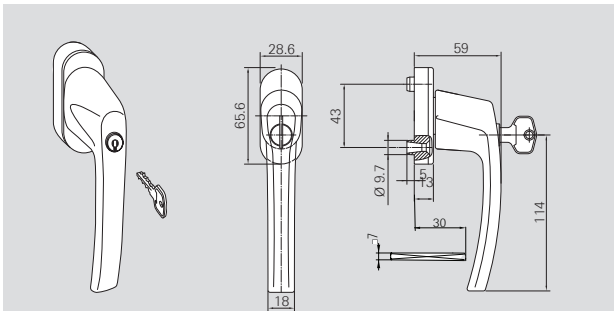
| Item | Name                      | Description  | SAP    |
|------|---------------------------|--------------|--------|
| 1    | RotoLine escutcheon plate | R07.2 White  | 571050 |
|      | RotoLine escutcheon plate | Silver       | 571064 |
|      | RotoLine escutcheon plate | R05.3 Bronze | 571065 |
| 2    | RotoLine service handle   | R07.2 White  | 571034 |
|      | RotoLine service handle   | Silver       | 642369 |
|      | RotoLine service handle   | R05.3 Bronze | 571035 |





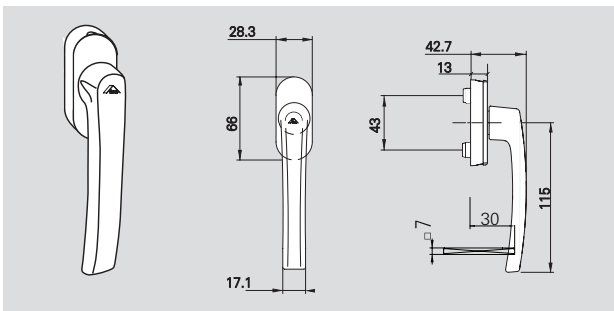
### Rotoline handle without Spindle

| SAP No. | Colour | Spindle length  |
|---------|--------|-----------------|
| 2003357 | White  | without spindle |
| 2003358 | Black  | without spindle |
| 2003389 | Silver | without spindle |
| 2003390 | Brown  | without spindle |



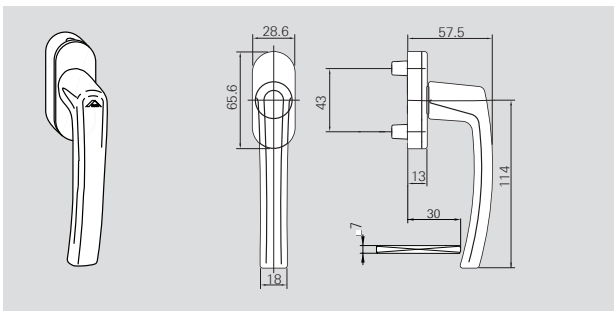
### Rotoline lockable handle

| SAP No. | Colour | Spindle length  |
|---------|--------|-----------------|
| 2003391 | White  | without spindle |
| 2003392 | Black  | without spindle |
| 2003393 | Silver | without spindle |
| 2003394 | Brown  | without spindle |



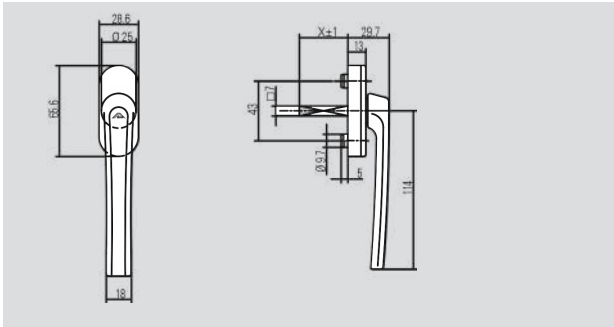
### Rotoline low-height handle without spindle

| SAP No. | Colour | Spindle length  |
|---------|--------|-----------------|
| 899771  | White  | without spindle |
| 899772  | Black  | without spindle |
| 899774  | Silver | without spindle |
| 899773  | Brown  | without spindle |



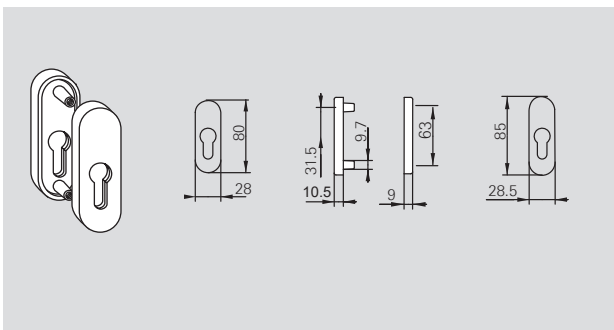
### Rotoline handle without spindle Outside

| SAP No. | Colour | Spindle length  |
|---------|--------|-----------------|
| 2006213 | White  | without spindle |
| 2006239 | Black  | without spindle |
| 2006240 | Silver | without spindle |
| 2006241 | Brown  | without spindle |



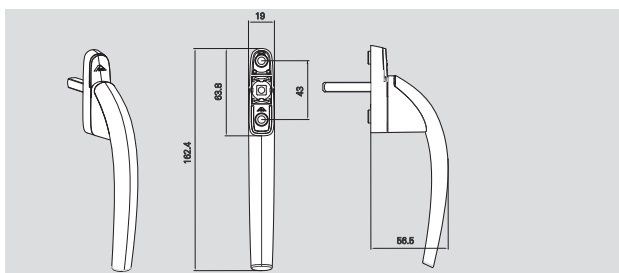
### Rotoline Flat Handle for Patio Fold

| SAP No. | Colour | Spindle length |
|---------|--------|----------------|
| 2022005 | White  | 55mm           |
| 2022006 | Black  | 55mm           |
| 2022008 | Silver | 55mm           |
| 2022007 | Brown  | 55mm           |



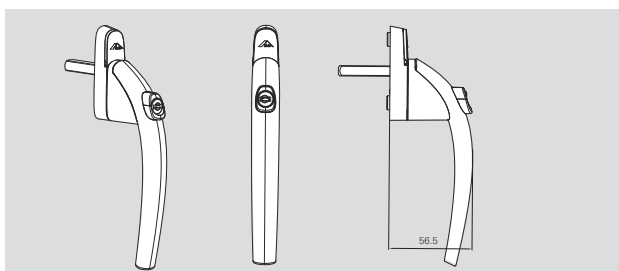
### Cylinder cover

| SAP No. | Colour |
|---------|--------|
| 570992  | White  |
| 614441  | Black  |
| 570990  | Silver |
| 823332  | Brown  |



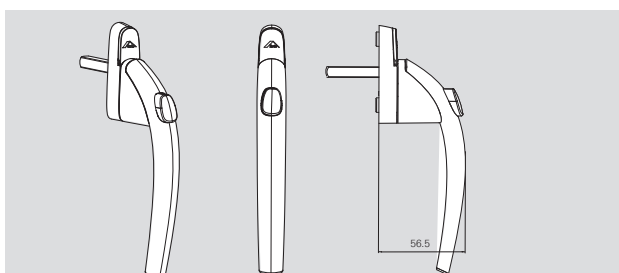
### RSW MK5 handle for outward opening window

| SAP No. | Colour | Spindle length |
|---------|--------|----------------|
| 773381  | White  | 43mm           |
| 773382  | Black  | 43mm           |
| 773384  | Silver | 43mm           |
| 2007527 | Brown  | 43mm           |
| 2007554 | White  | 55mm           |
| 2007528 | Black  | 55mm           |
| 2007555 | Silver | 55mm           |
| 2007556 | Brown  | 55mm           |



### RSW lockable MK5 handle for outward opening window

| SAP No. | Colour | Spindle length |
|---------|--------|----------------|
| 773451  | White  | 43mm           |
| 773452  | Black  | 43mm           |
| 773454  | Silver | 43mm           |
| 833307  | Brown  | 43mm           |
| 2007562 | White  | 55mm           |
| 2007557 | Black  | 55mm           |
| 2007563 | Silver | 55mm           |
| 2007564 | Brown  | 55mm           |

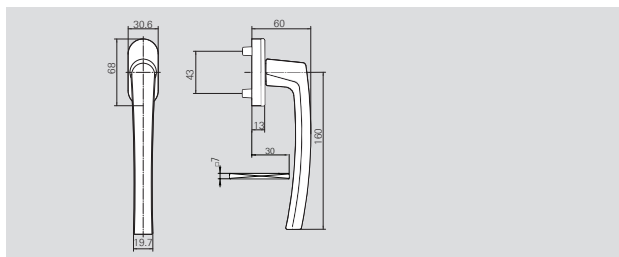
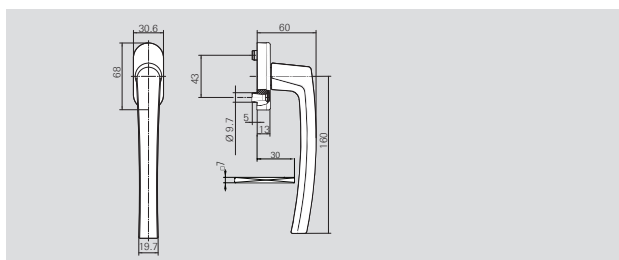


### RSW Pushbutton MK5 handle for outward opening w.

| SAP No. | Colour | Spindle length |
|---------|--------|----------------|
| 773436  | White  | 43mm           |
| 773437  | Black  | 43mm           |
| 773439  | Silver | 43mm           |
| 2007565 | Brown  | 43mm           |
| 2007567 | White  | 55mm           |
| 2007566 | Black  | 55mm           |
| 2007568 | Silver | 55mm           |
| 2007569 | Brown  | 55mm           |

### Patio S 160mm

(Spindle 7x7mm)



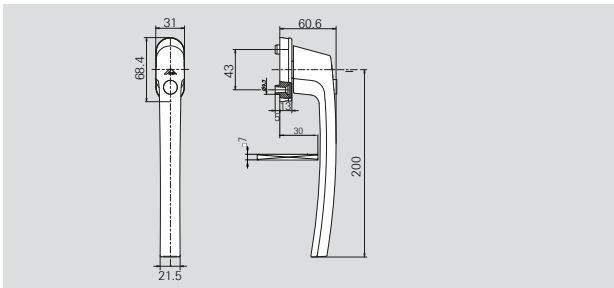
#### Rotoline Patio S handle 160mm

| SAP No. | Colour | Spindle length  |
|---------|--------|-----------------|
| 799566  | White  | without spindle |
| 799567  | Black  | without spindle |
| 799569  | Silver | without spindle |
| 2003411 | Brown  | without spindle |

#### Rotoline Patio S handle 160mm Outside for door

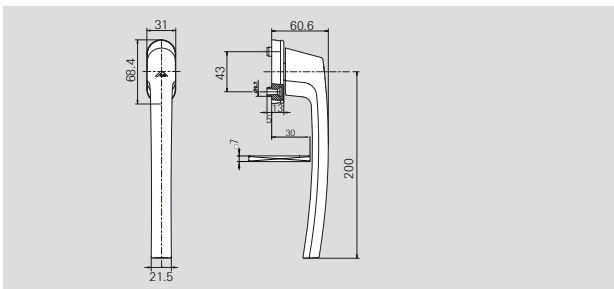
| SAP No. | Colour | Spindle length  |
|---------|--------|-----------------|
| 899775  | White  | without spindle |
| 899776  | Black  | without spindle |
| 899778  | Silver | without spindle |
| 2003412 | Brown  | without spindle |

**Patio Handle 200mm**  
(Spindle 7x7mm)



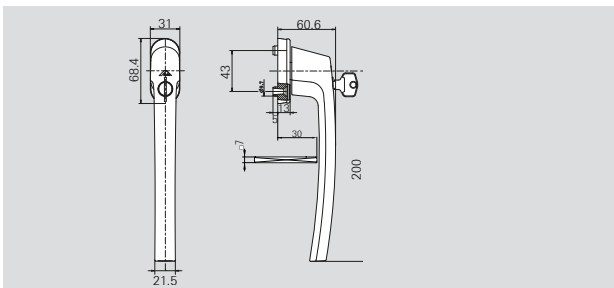
**Patio handle with push button 180° lock-in position**

| SAP     | Colour | Spindle length  |
|---------|--------|-----------------|
| 2005069 | White  | without spindle |
| 2005056 | Black  | without spindle |
| 2005057 | Silver | without spindle |
| 2005058 | Brown  | without spindle |



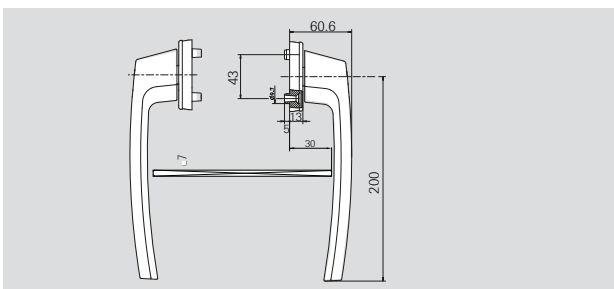
**Patio handle 180° lock-in position without spindle**

| SAP    | Colour | Spindle length  |
|--------|--------|-----------------|
| 894767 | White  | without spindle |
| 894768 | Black  | without spindle |
| 894769 | Silver | without spindle |
| 894780 | Brown  | without spindle |



**Patio handle lockable 180° lock-in position**

| SAP     | Colour | Spindle length  |
|---------|--------|-----------------|
| 2005094 | White  | without spindle |
| 2005095 | Black  | without spindle |
| 2005096 | Silver | without spindle |
| 2005097 | Brown  | without spindle |



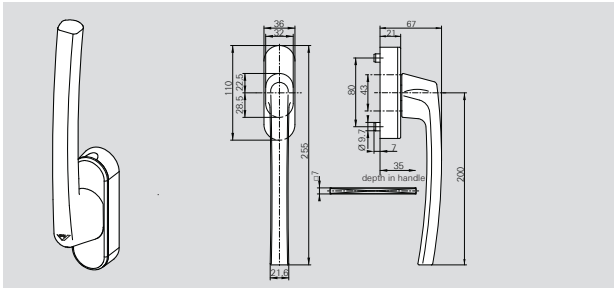
**Patio Inowa handle 180° lock-in position wo Spindle (Inside)**

| SAP    | Colour | Spindle length  |
|--------|--------|-----------------|
| 894767 | White  | without spindle |
| 894768 | Black  | without spindle |
| 894769 | Silver | without spindle |
| 894780 | Brown  | without spindle |

**Patio Inowa handle 180° lock-in position wo Spindle (Outside)**

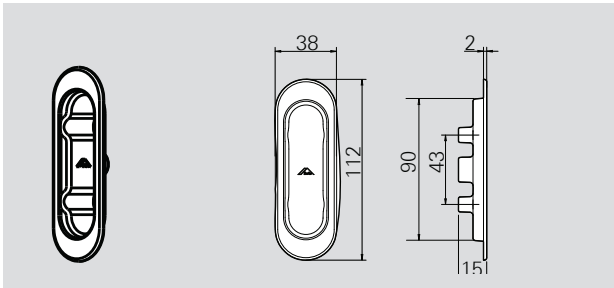
| SAP    | Colour | Spindle length  |
|--------|--------|-----------------|
| 894782 | White  | without spindle |
| 894783 | Black  | without spindle |
| 894784 | Silver | without spindle |
| 894785 | Brown  | without spindle |

### Patio Lift 150 (Spindle 7x7mm)



#### PatioLift 150 Handle (Inner side)

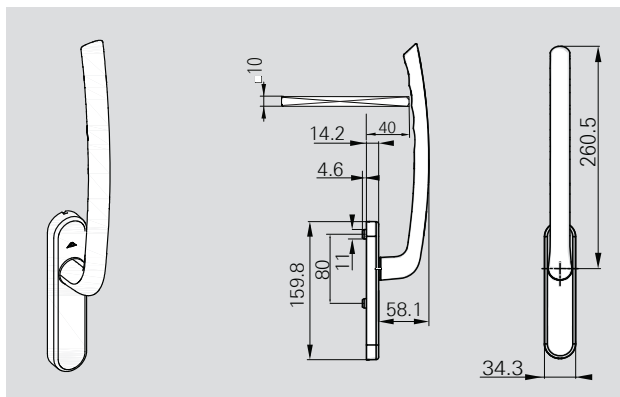
| SAP No. | Colour | Spindle length  |
|---------|--------|-----------------|
| 642877  | White  | without spindle |
| 642876  | Black  | without spindle |
| 642878  | Silver | without spindle |



#### Flush-mounted Finger Pull

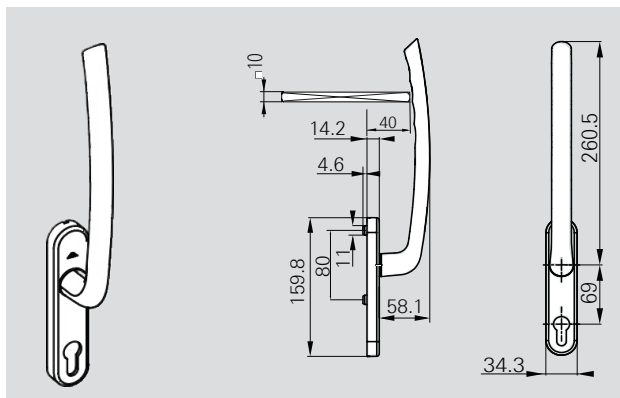
| SAP    | Colour |
|--------|--------|
| 605543 | White  |
| 605551 | Black  |
| 643293 | Silver |
| 823764 | Brown  |

**Patio Lift 300**  
(Spindle 10x10mm)



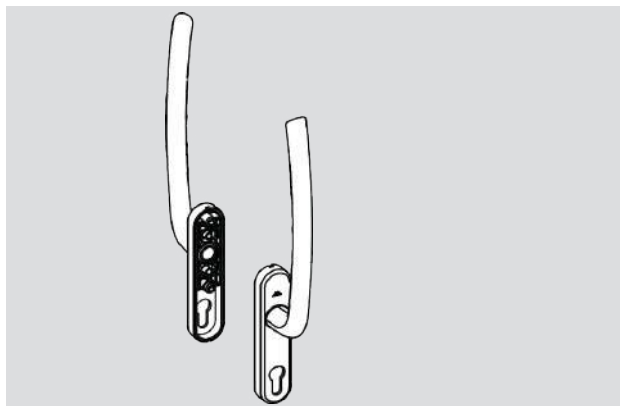
**PatioLift 300 Handle without cylinder hole (Inner side)**

| SAP    | Colour | Spindle length  |
|--------|--------|-----------------|
| 642895 | White  | without spindle |
| 642884 | Black  | without spindle |
| 642896 | Silver | without spindle |



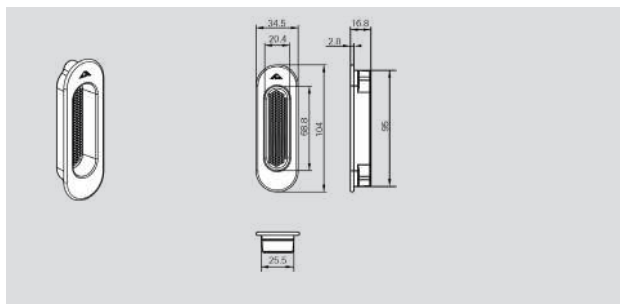
**PatioLift 300 Handle with cylinder hole (Inner side)**

| SAP    | Colour | Spindle length  |
|--------|--------|-----------------|
| 642899 | White  | without spindle |
| 642898 | Black  | without spindle |
| 642900 | Silver | without spindle |



**PatioLift 300 Double Sided Handle**

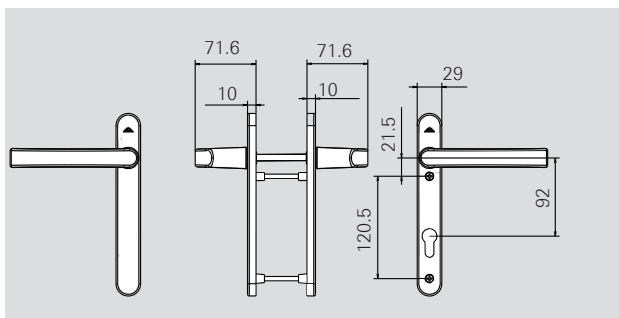
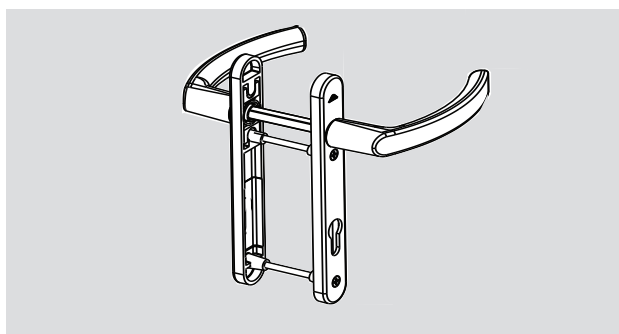
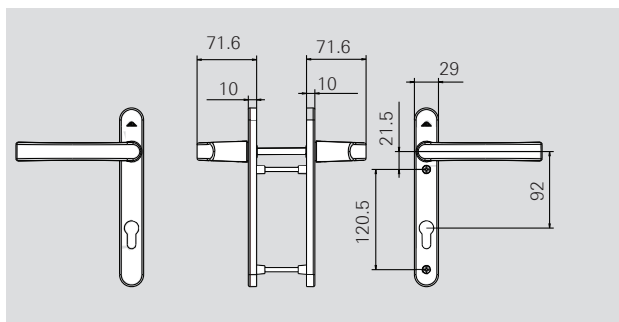
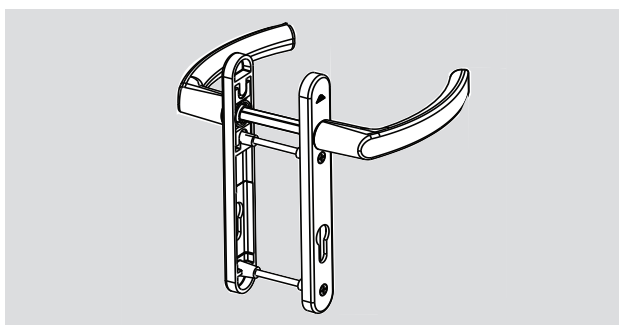
| SAP    | Colour | Spindle length  |
|--------|--------|-----------------|
| 642903 | White  | without spindle |
| 642902 | Black  | without spindle |
| 642904 | Silver | without spindle |



**PatioLift 300 Flush-mounted Finger Pull**

| SAP    | Colour | Spindle length  |
|--------|--------|-----------------|
| 642881 | White  | without spindle |
| 642880 | Black  | without spindle |
| 642882 | Silver | without spindle |

### Door handle Roto Stark (Spindle 8x8mm)



#### Handle RotoStark

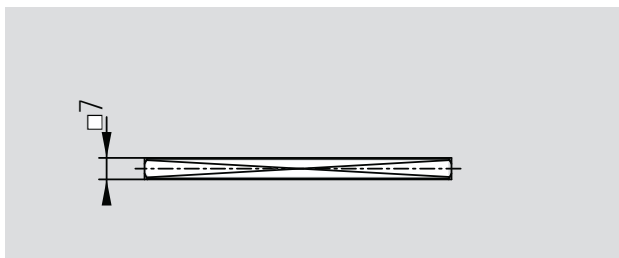
| SAP    | Colour | Sash Thickness |
|--------|--------|----------------|
| 857086 | White  | 58-75mm        |
| 857087 | Black  | 58-75mm        |
| 857088 | Silver | 58-75mm        |
| 857089 | Brown  | 58-75mm        |

#### Handle RotoStark for halfcylinder(outside blind)

| SAP     | Colour | Sash Thickness |
|---------|--------|----------------|
| 2003000 | White  | 58-75mm        |
| 2003001 | Black  | 58-75mm        |
| 2003003 | Silver | 58-75mm        |
| 2003002 | Brown  | 58-75mm        |



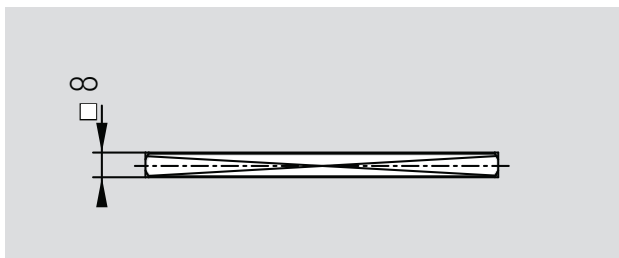
Spindle



**Spindle for Window/Sliding door**

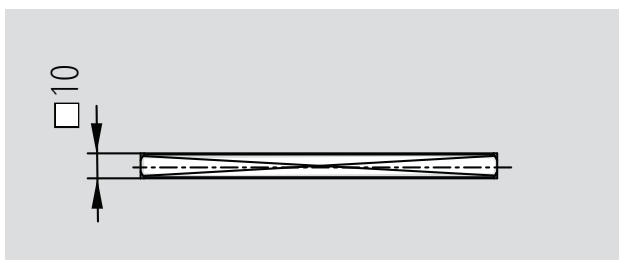
| SAP     | Length    |
|---------|-----------|
| 2005221 | 7x7x35mm  |
| 2005222 | 7x7x45mm  |
| 2005223 | 7x7x50mm  |
| 2005234 | 7x7x55mm  |
| 2005235 | 7x7x60mm  |
| 619207  | 7x7x70mm  |
| 736495  | 7x7x75mm  |
| 737985  | 7x7x80mm  |
| 2005237 | 7x7x100mm |
| 571391  | 7x7x126mm |
| 737986  | 7x7x150mm |

Other length please ask Roto partner



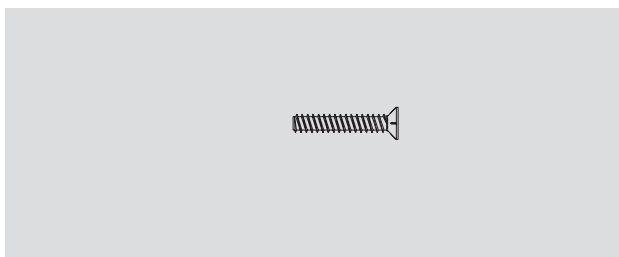
**Spindle for Door**

| SAP    | Length    |
|--------|-----------|
| 837804 | 8x8x165mm |



**Spindle for PatioLift 300**

| SAP    | Length      |
|--------|-------------|
| 644120 | 10x10x80mm  |
| 644121 | 10x10x150mm |








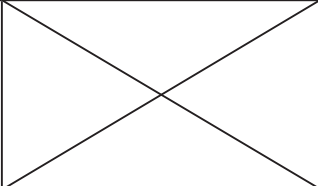


**Screw for handle**

| SAP     | Length  |                    |
|---------|---------|--------------------|
| 2027712 | M5x65mm | double side handle |
| 2029651 | M5x50mm |                    |

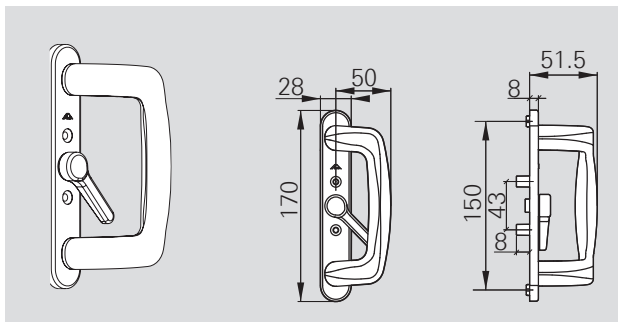
### Handle for sliding window & door

#### Possible combination

|  |  |  |  |
|--|--|--|--|
| Inside / Outside   | I1  | I2  | I3  |
|  | A1  | Combination1,<br>with screw set Typ.1  | Combination2,<br>with screw set Typ.1  |
| A2    | Combination4,<br>with screw set Typ.2  | Combination5,<br>with screw set Typ.2  | Combination6,<br>with screw set Typ.2  |
| A3   | Combination7,<br>with screw set Typ.2  | Combination8,<br>with screw set Typ.2  | Combination9,<br>with screw set Typ.2  |
| A4  |   |  | Combination10,<br>with screw set Typ.3   |

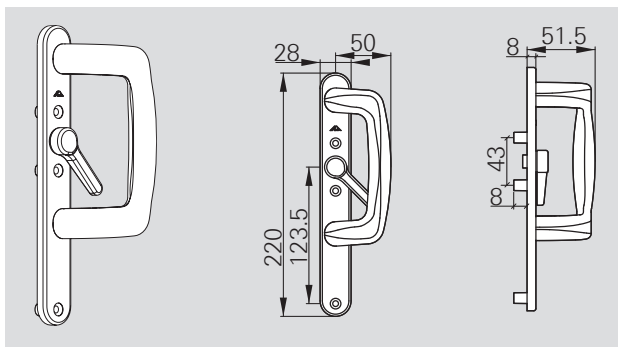
|  |        |                        |
|--|--------|------------------------|
| Screw set Typ.1(LH)<br>1 Spindle<br>2 Raised countersunk head screws<br>2 Countersunk screws<br>1 Pan-head tapping screw | 793275 | Sash thickness 46~50mm |
|  | 793254 | Sash thickness 51~56mm |
|  | 793253 | Sash thickness 57~61mm |
| Screw set Typ.2(LH)<br>1 Spindle<br>3 Raised countersunk head screws<br>4 Countersunk screws<br>1 Pan-head tapping screw | 793278 | Sash thickness 38~47mm |
|  | 793277 | Sash thickness 48~57mm |
|  | 793276 | Sash thickness 58~67mm |
| Screw set Typ.3(LH)<br>1 Spindle<br>3 Raised countersunk head screws<br>4 Countersunk screws                             | 793281 | Sash thickness 38~47mm |
|  | 793280 | Sash thickness 48~57mm |
|  | 793279 | Sash thickness 58~67mm |

\* screw need to be cut 3~5mm shorter to fit the profile.



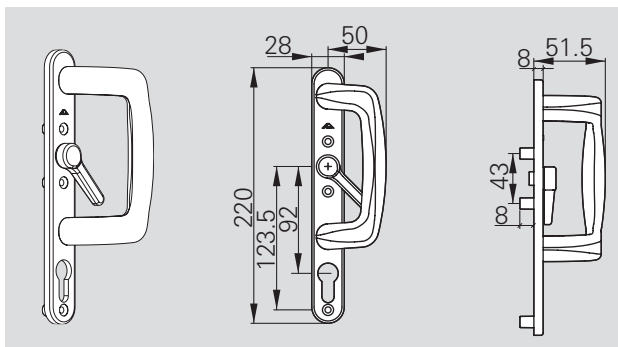
### Non-locking pull handle with lever (I1)

| SAP No. | Colour |
|---------|--------|
| 774436  | White  |
| 774438  | Black  |
| 774439  | Silver |
| 823763  | Brown  |



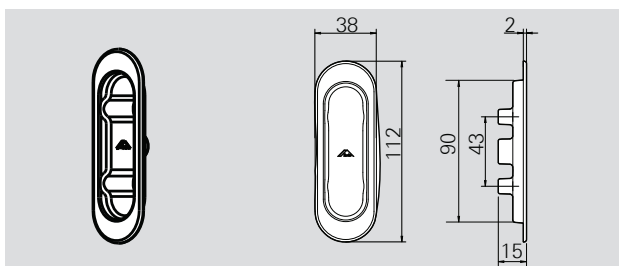
### Non-locking pull handle with long-plate and lever (I2)

| SAP No. | Colour |
|---------|--------|
| 770009  | White  |
| 770008  | Black  |
| 770012  | Silver |
| 2003415 | Brown  |



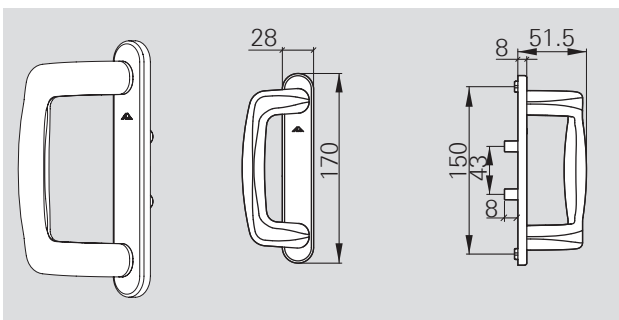
### Locking pull handle with lever (I3)

| SAP No. | Colour | Specification |
|---------|--------|---------------|
| 770011  | White  |               |
| 770010  | Black  |               |
| 770013  | Silver |               |
| 833308  | Brown  |               |



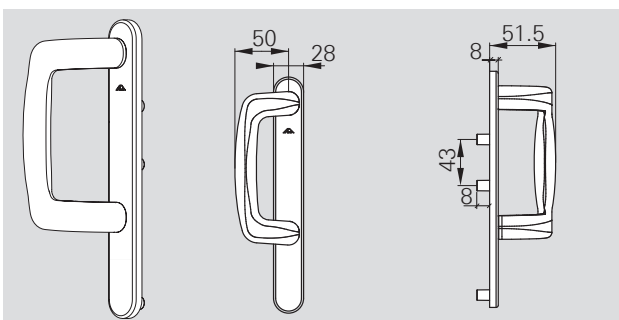
### Flush-mounted finger pull (A1)

| SAP No. | Colour |
|---------|--------|
| 605543  | White  |
| 605551  | Black  |
| 643293  | Silver |
| 823764  | Brown  |



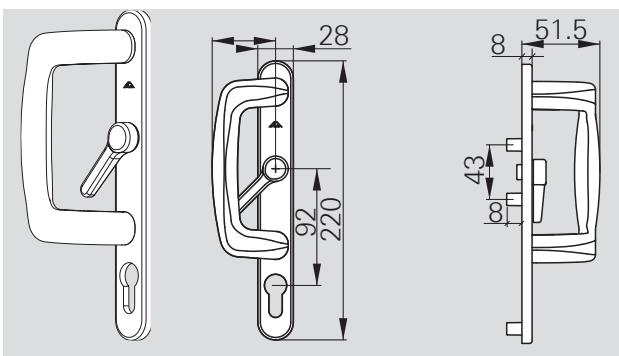
### Non-locking pull handle (A2)

| SAP No. | Colour |
|---------|--------|
| 774442  | White  |
| 774444  | Black  |
| 774445  | Silver |
| 833310  | Brown  |



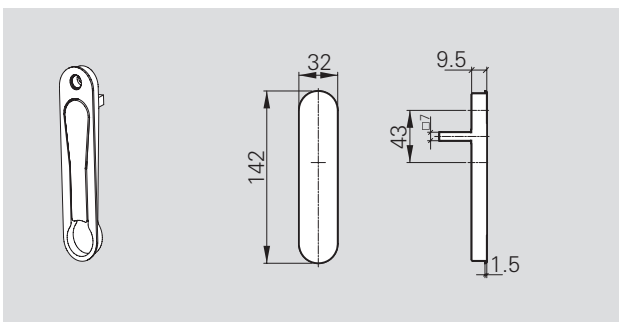
### Non-locking pull handle with long-plate (A3)

| SAP No. | Colour |
|---------|--------|
| 770005  | White  |
| 769984  | Black  |
| 770014  | Silver |
| 2003418 | Brown  |



### Locking pull handle with lever (A4)

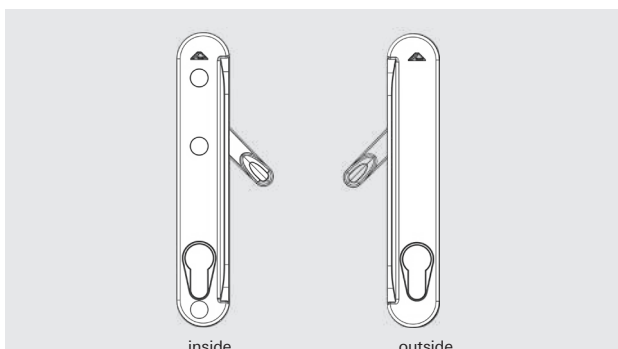
| SAP No. | Colour |
|---------|--------|
| 770007  | White  |
| 770006  | Black  |
| 770015  | Silver |
| 833309  | Brown  |



### Pop-up handle (Spindle length 26mm)

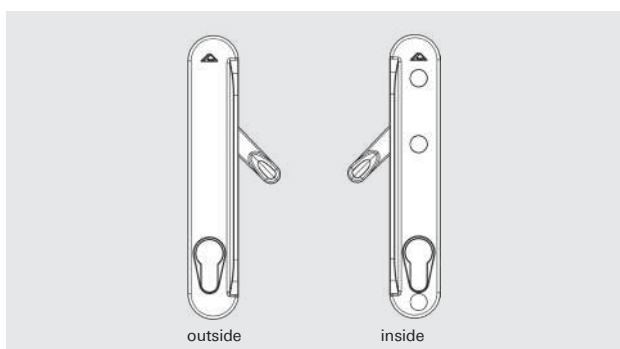
| SAP No. | Colour                         |
|---------|--------------------------------|
| 570810  | White                          |
| 614295  | Black                          |
| 643288  | Silver (Spindle length 21.5mm) |
| 823334  | Brown                          |

### Roto Slim handle for Sliding Door



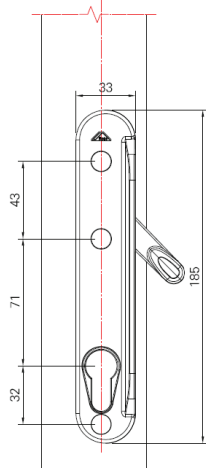
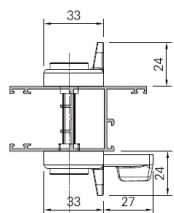
#### RotoSlim Inline Handle for DIN Left

| SAP No. | Colour |                              |
|---------|--------|------------------------------|
| 834116  | White  | incl. the cover cap in white |
| 834118  | Black  | incl. the cover cap in black |
| 834132  | Silver | incl. the cover cap in black |
| 834130  | Brown  | incl. the cover cap in black |



#### RotoSlim Inline Handle for DIN Right

| SAP No. | Colour |                              |
|---------|--------|------------------------------|
| 834117  | White  | incl. the cover cap in white |
| 834119  | Black  | incl. the cover cap in black |
| 834133  | Silver | incl. the cover cap in black |
| 834131  | Brown  | incl. the cover cap in black |

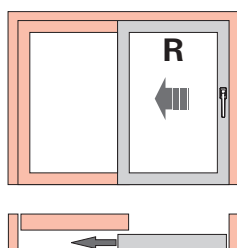
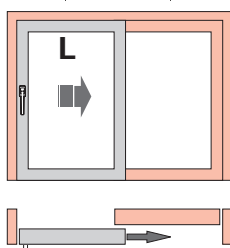


#### Kit RotoSlim Handle incl. 1x Spindle and 3x Screws

| SAP    | Sash Thickness | Spindle Length | Screw Length |
|--------|----------------|----------------|--------------|
| 839364 | 25-28mm        | 35mm           | 30mm         |
| 839365 | 35-38mm        | 45mm           | 40mm         |
| 839366 | 48-52mm        | 58mm           | 55mm         |
| 839367 | 58-62mm        | 65mm           | 65mm         |

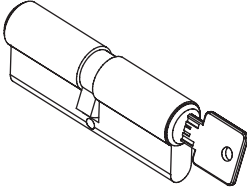
#### Cover Cap (Additional Order)

| SAP    | Colour | Package |
|--------|--------|---------|
| 839368 | White  | 300pcs  |
| 839369 | Black  | 300pcs  |

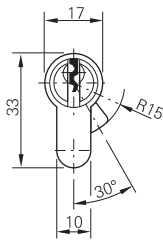
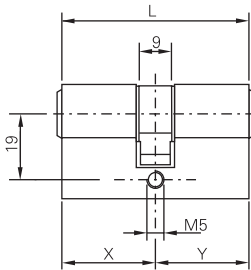


### Cylinder

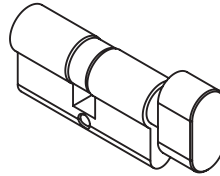
#### 1. Standard cylinder



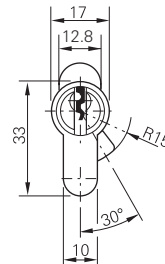
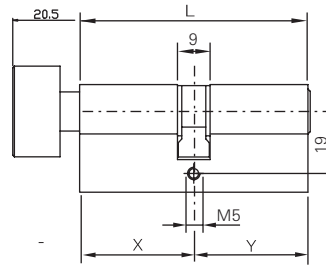
Standard cylinder  
both side key operated,  
min. length of each side 27.5mm



#### 2. Standard cylinder with flat knob



With flat-knob on room side  
min. length of each side 27.5mm



| Standard Cylinder both side key operated |    |    |
|--|----|----|
| SAP No.                                  | X  | Y  |
| 837779                                   | 27 | 27 |
| 799300                                   | 27 | 31 |
| 640068                                   | 31 | 31 |
| 632589                                   | 31 | 35 |
| 640074                                   | 31 | 40 |
| 640069                                   | 31 | 45 |
| 640070                                   | 31 | 50 |
| 642659                                   | 31 | 55 |
| 640080                                   | 31 | 60 |
| 729304                                   | 31 | 70 |
| 640071                                   | 35 | 35 |
| 640072                                   | 35 | 40 |
| 640073                                   | 35 | 45 |
| 640075                                   | 35 | 50 |
| 640076                                   | 35 | 55 |
| 632590                                   | 40 | 40 |
| 632591                                   | 40 | 45 |
| 632592                                   | 40 | 50 |
| 632593                                   | 40 | 55 |
| 640081                                   | 40 | 60 |
| 642660                                   | 40 | 70 |
| 632594                                   | 45 | 45 |
| 632605                                   | 45 | 50 |
| 640077                                   | 45 | 55 |
| 729303                                   | 45 | 60 |
| 640078                                   | 50 | 50 |
| 729315                                   | 50 | 70 |

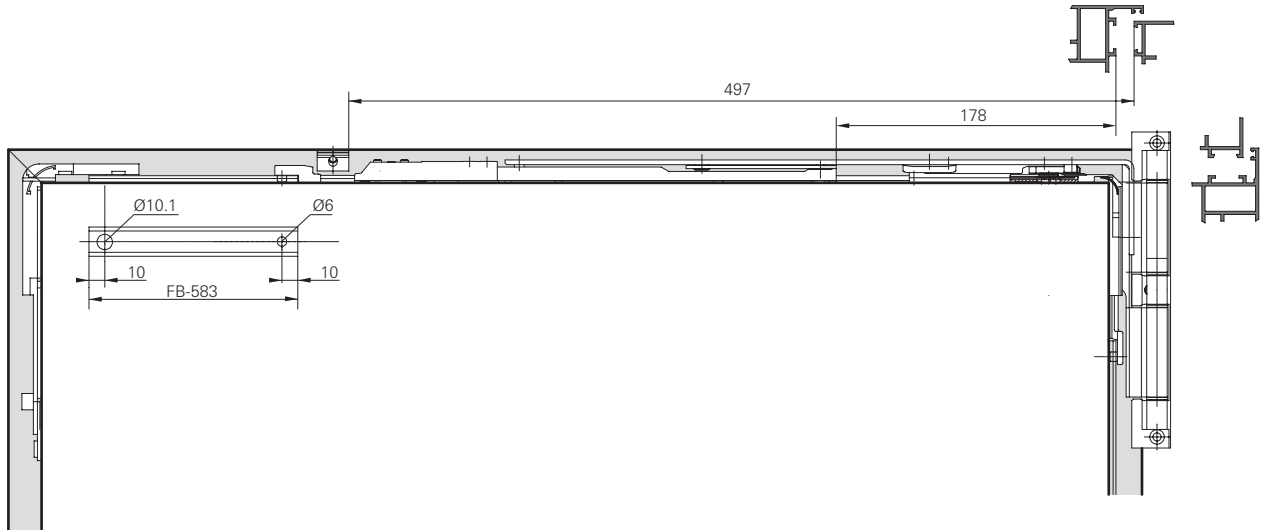
| Standard Cylinder, room side with flat-knob |    |    |
|---|----|----|
| SAP No.                                     | X  | Y  |
| 796379                                      | 31 | 10 |
| 796380                                      | 45 | 10 |
| 862142                                      | 55 | 10 |
| 821079                                      | 27 | 27 |
| 862138                                      | 31 | 31 |
| 862140                                      | 31 | 55 |
| 808689                                      | 35 | 35 |
| 808691                                      | 35 | 45 |
| 2005645                                     | 40 | 45 |
| 862139                                      | 41 | 41 |
| 808692                                      | 45 | 35 |
| 862141                                      | 45 | 40 |
| 2005646                                     | 45 | 45 |
| 808694                                      | 50 | 31 |
| 862146                                      | 55 | 31 |



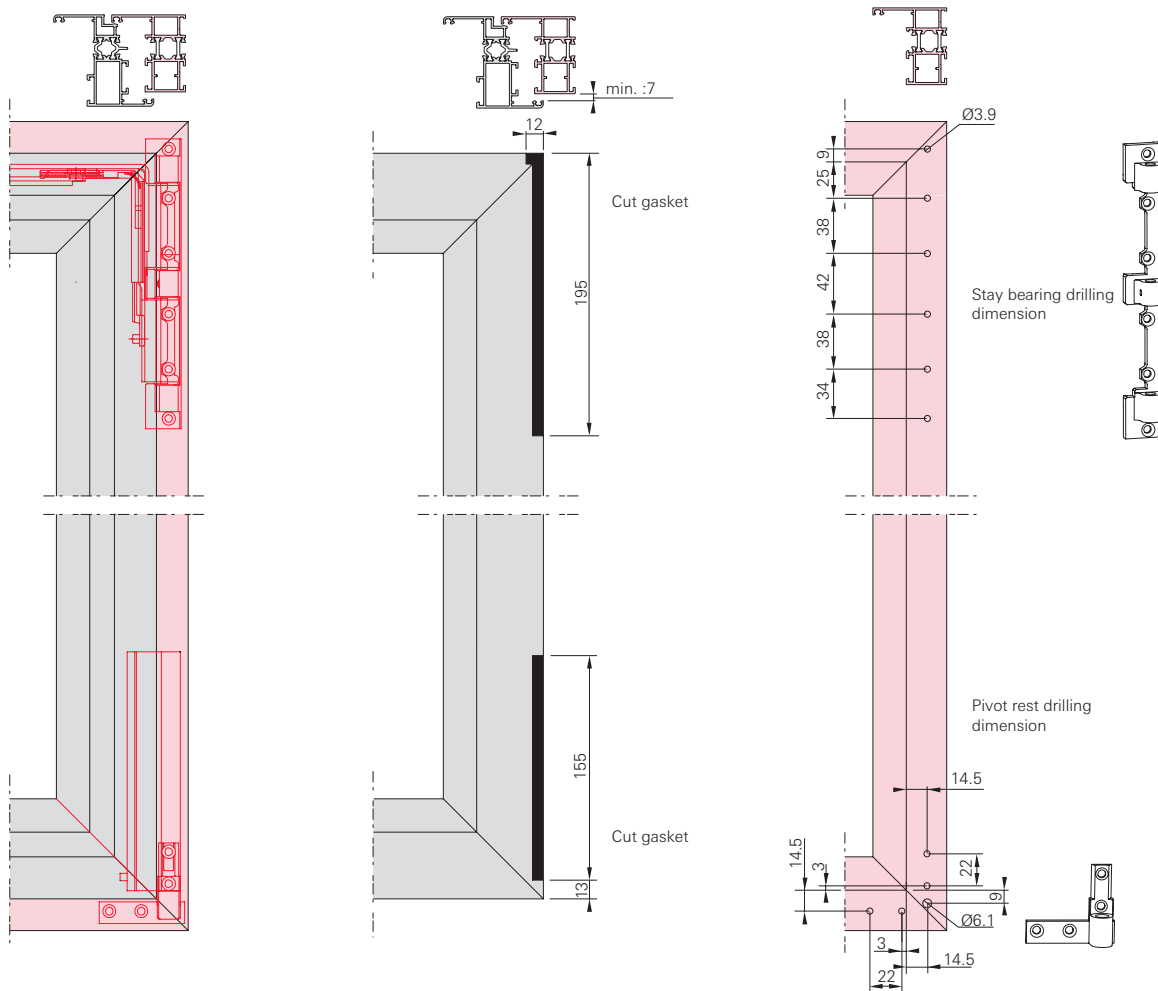


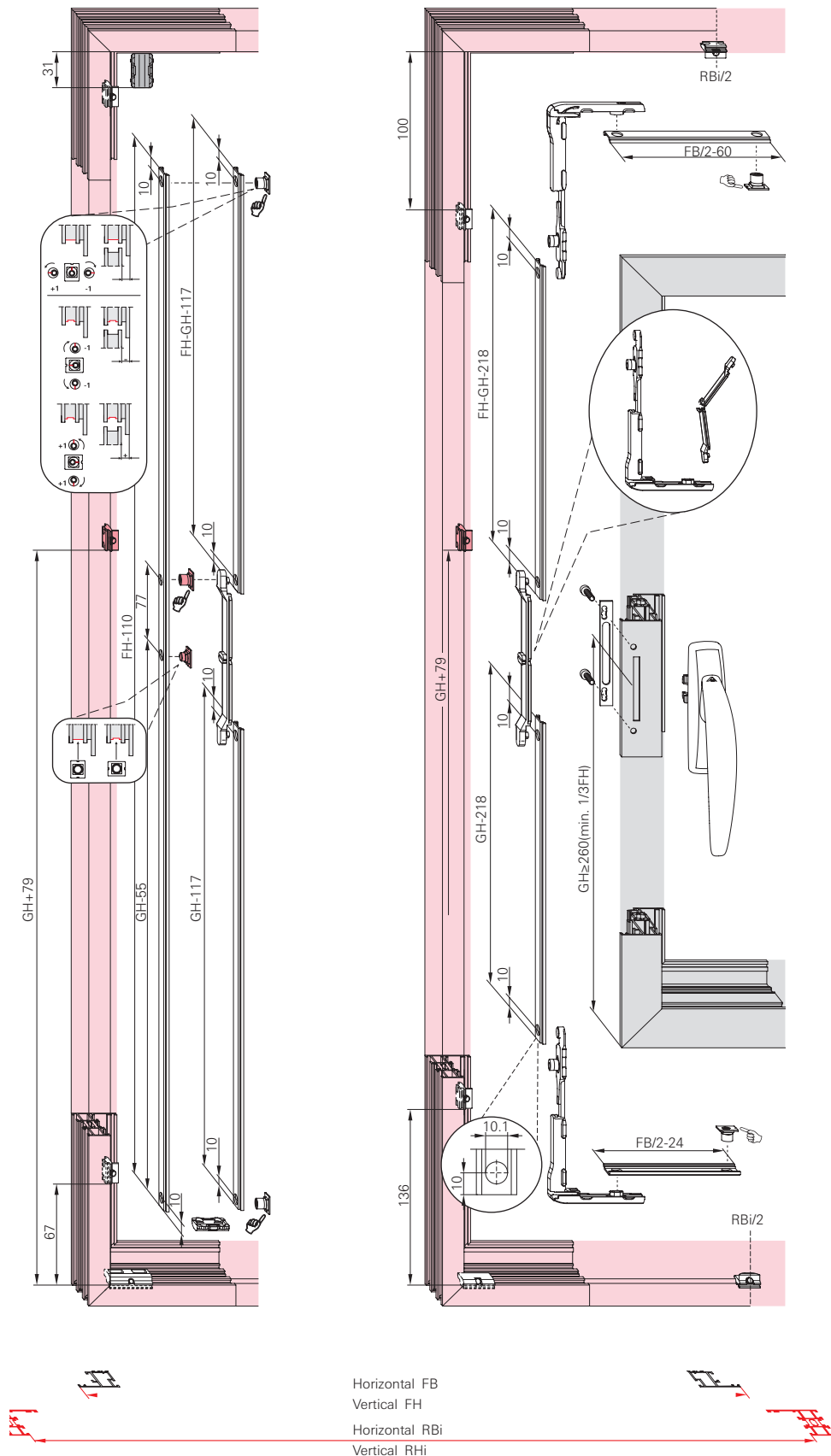
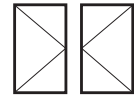


### ALU 200kg DK installation

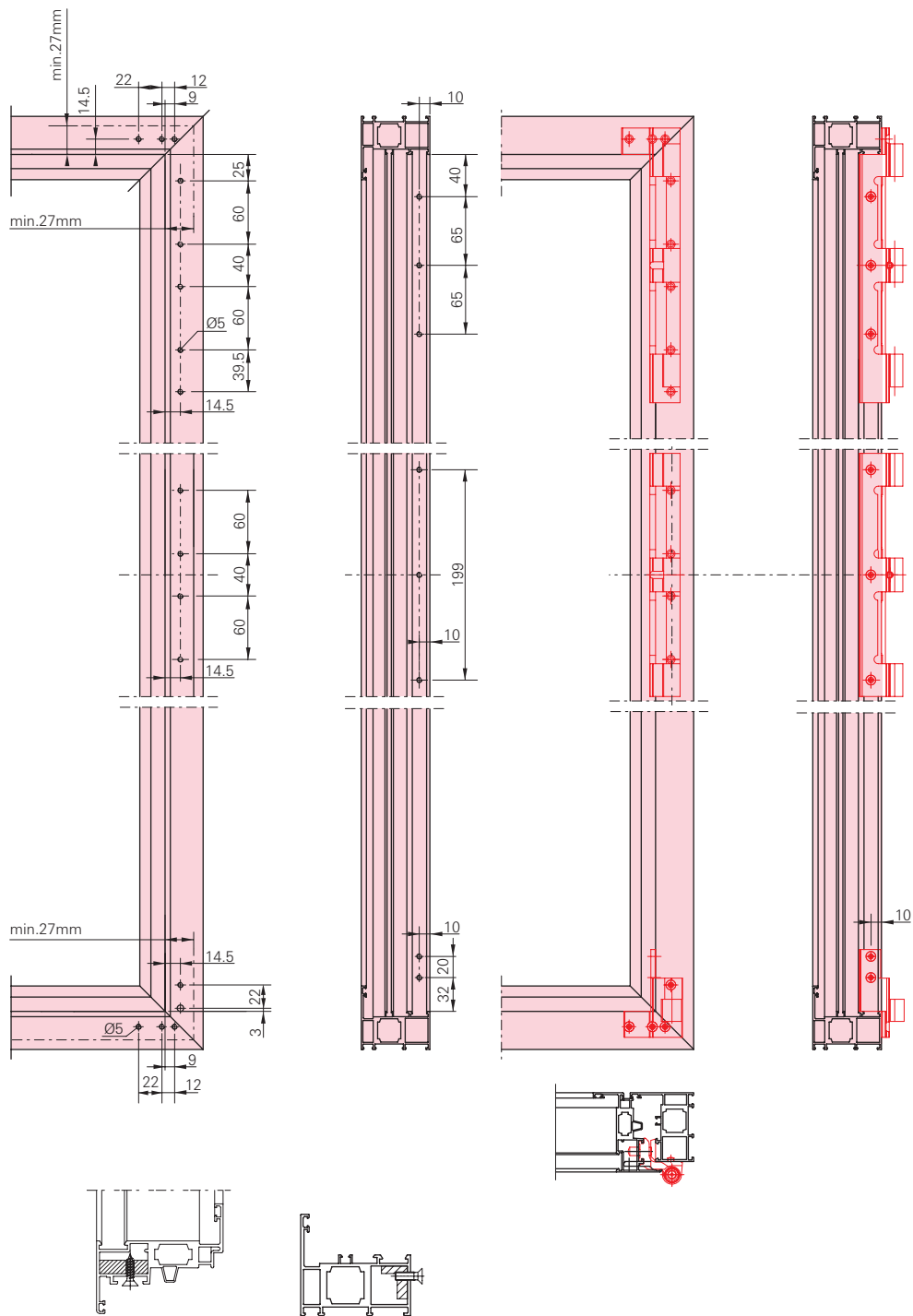


### Stay bearing drilling dimension



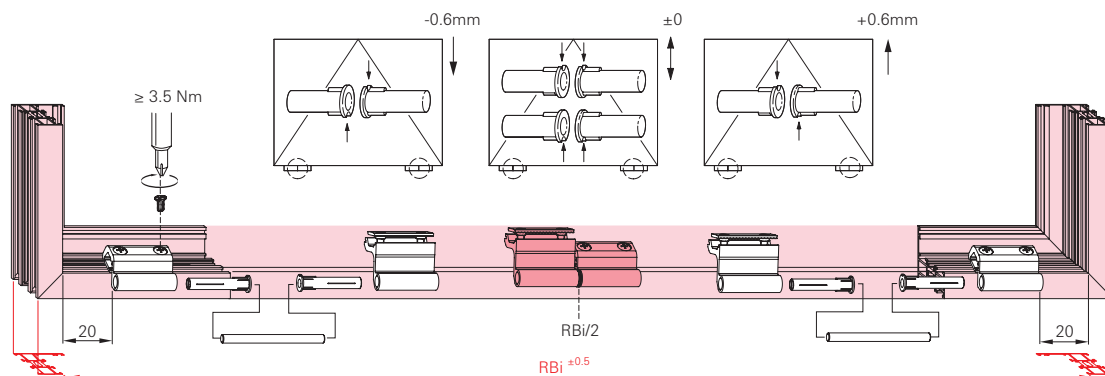
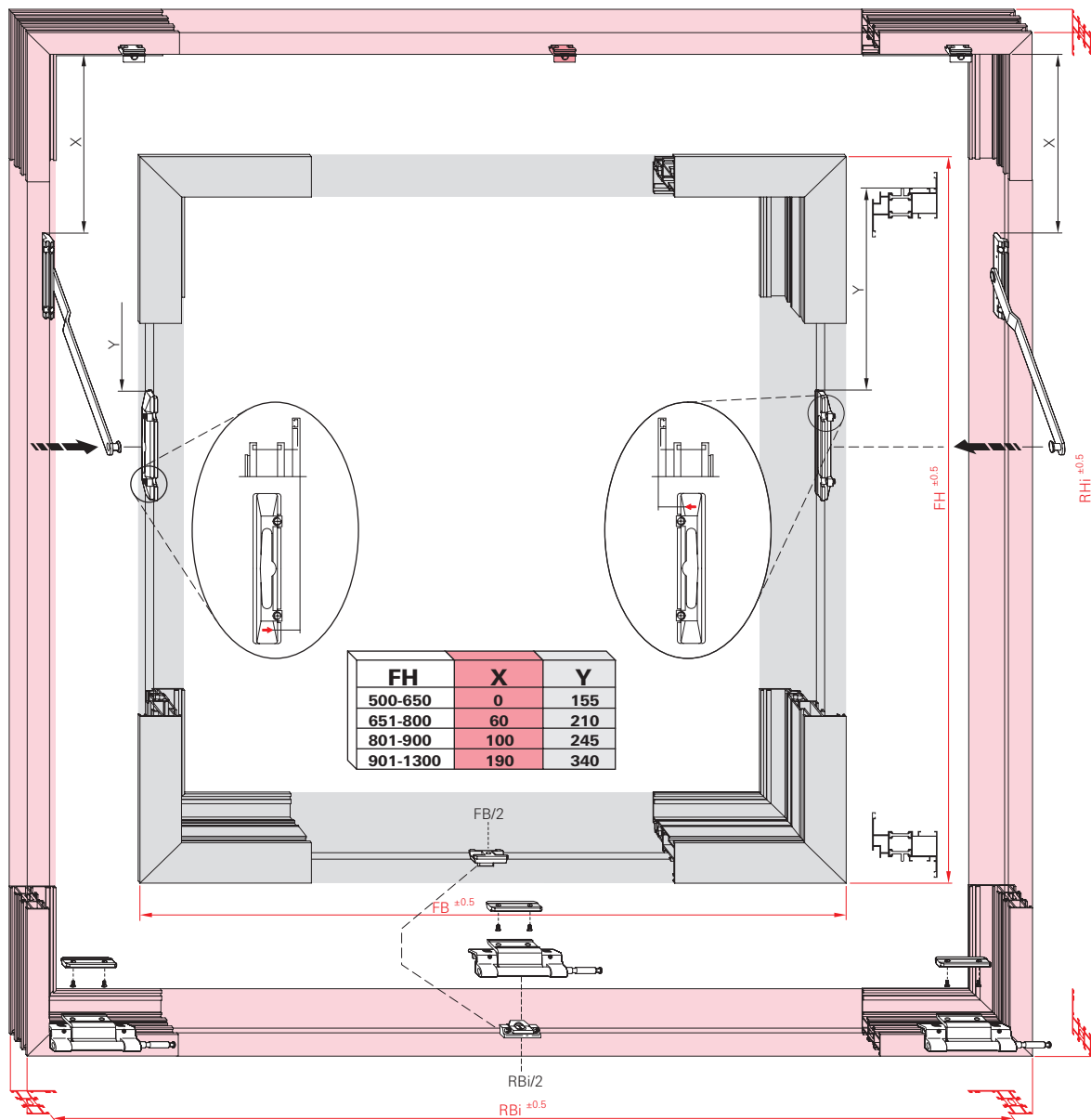


ALU 300kg installation

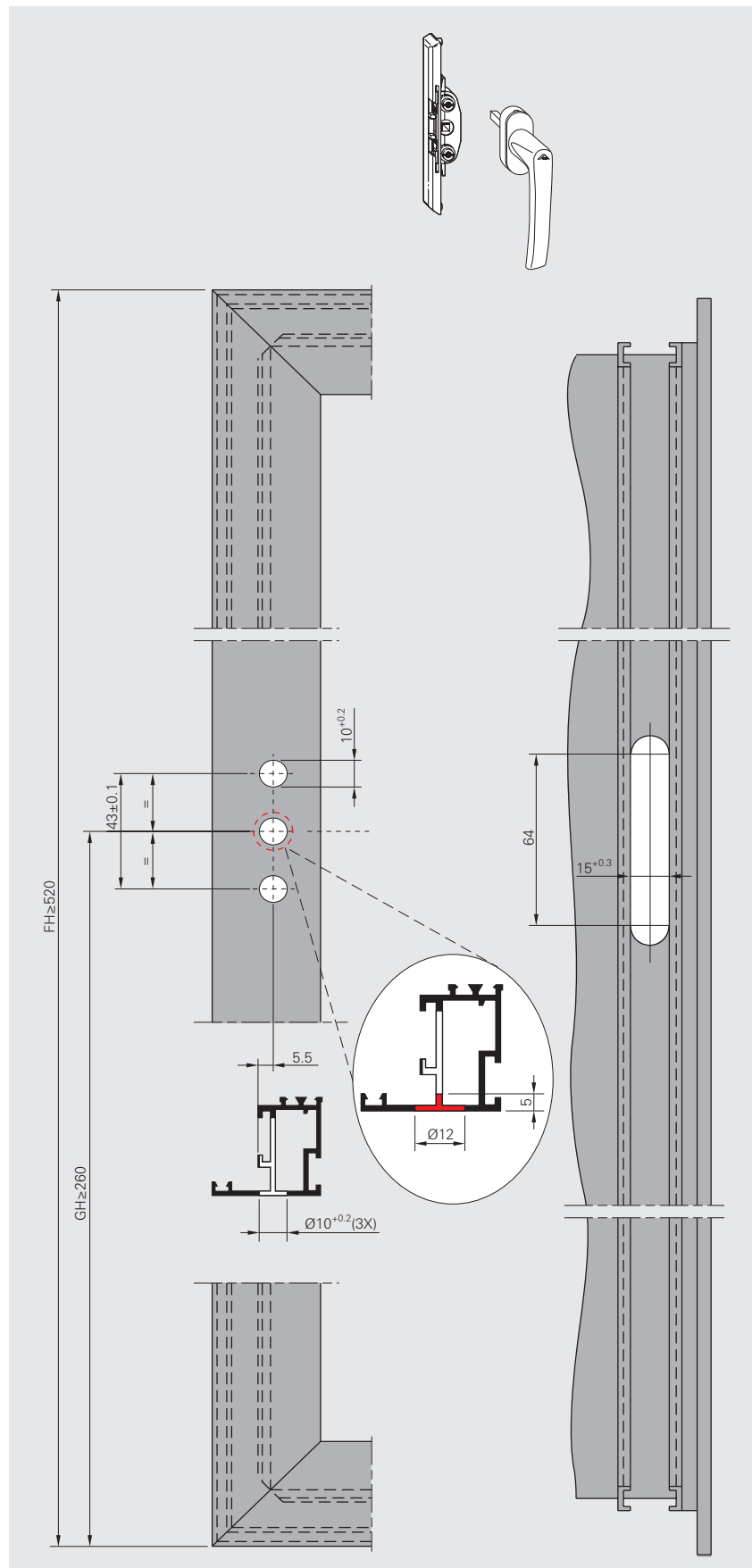
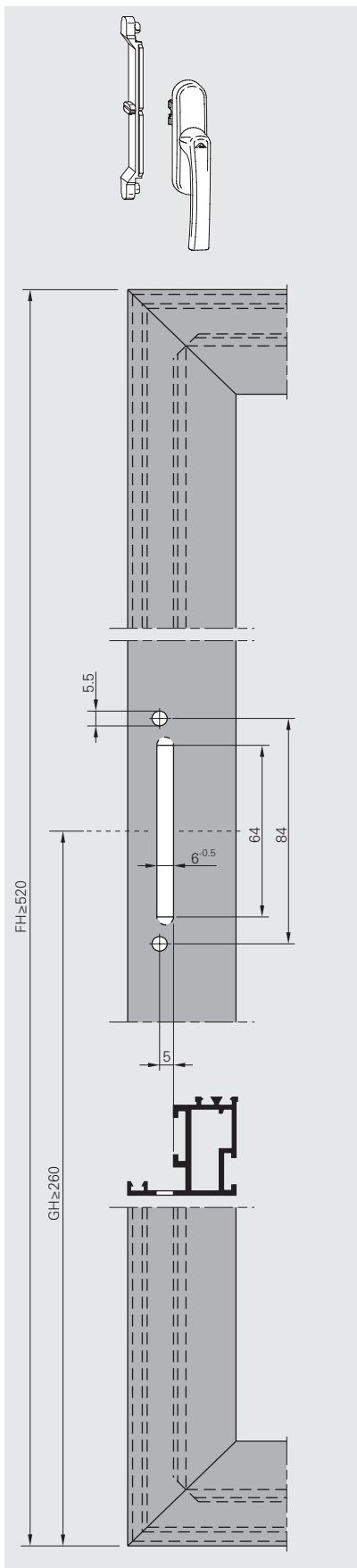




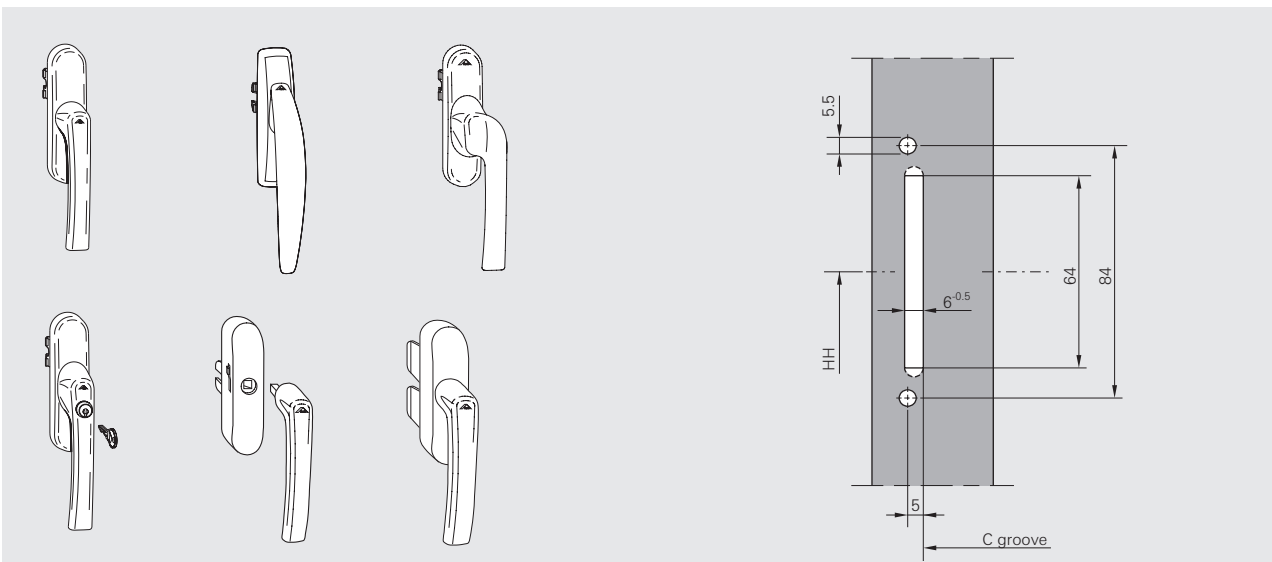
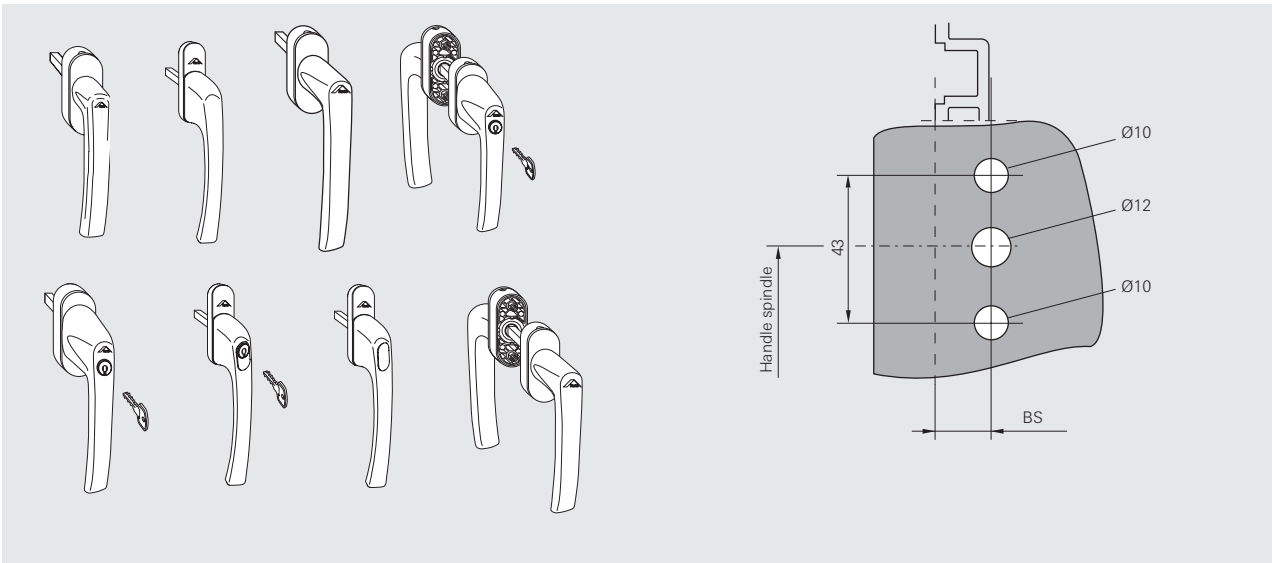
### ALU T500 EU/ALU T540 tilt-only installation



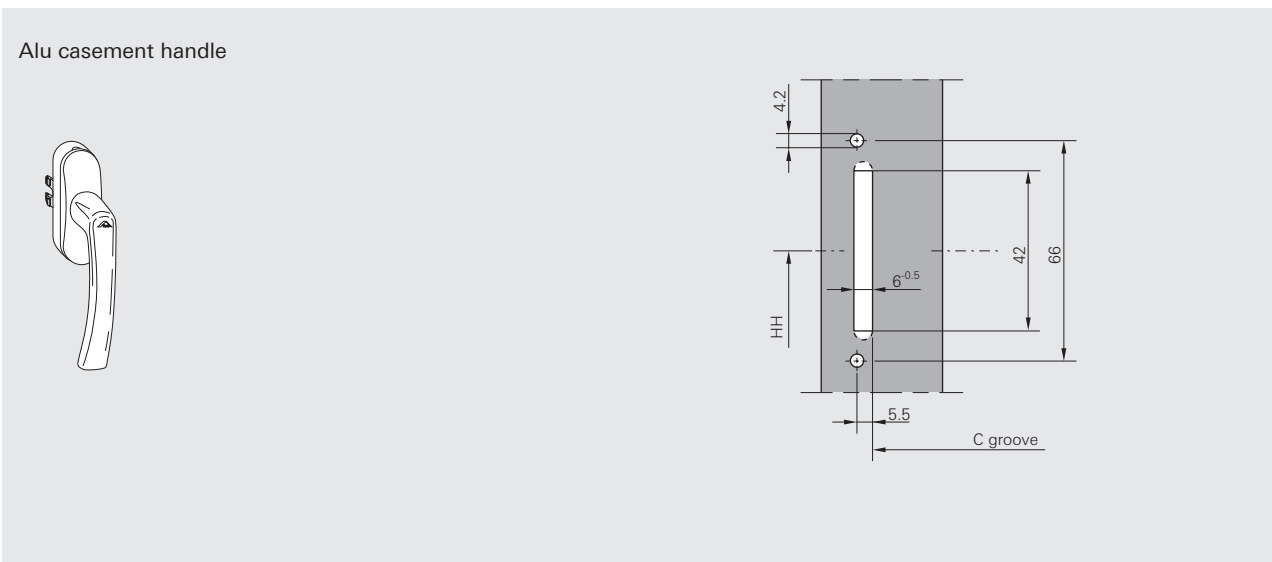
### Machining diagram for gear box and handle



Handle installation

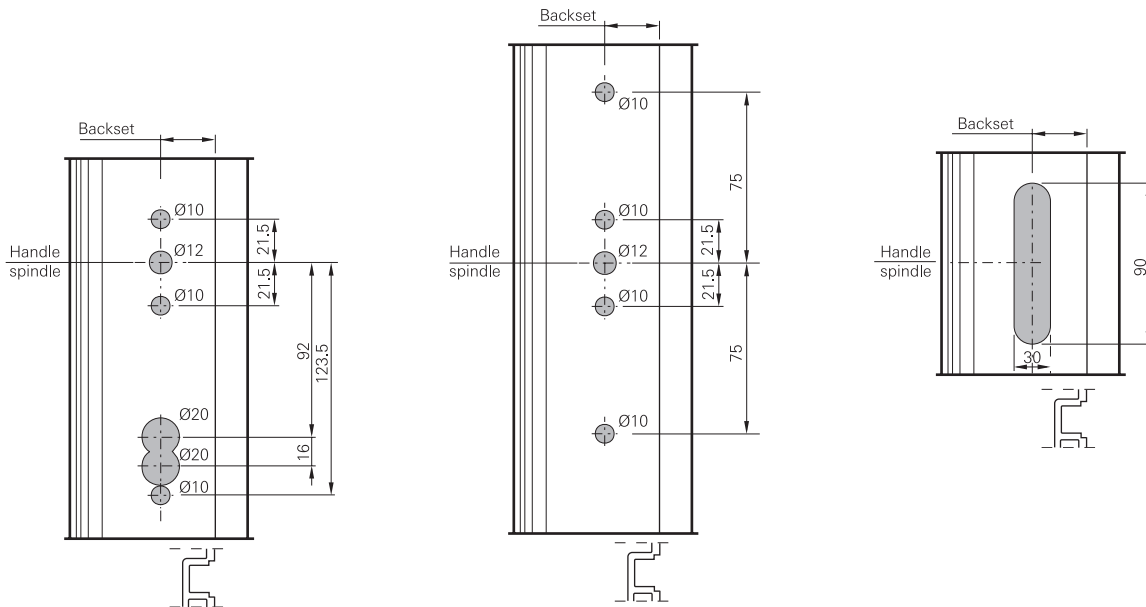
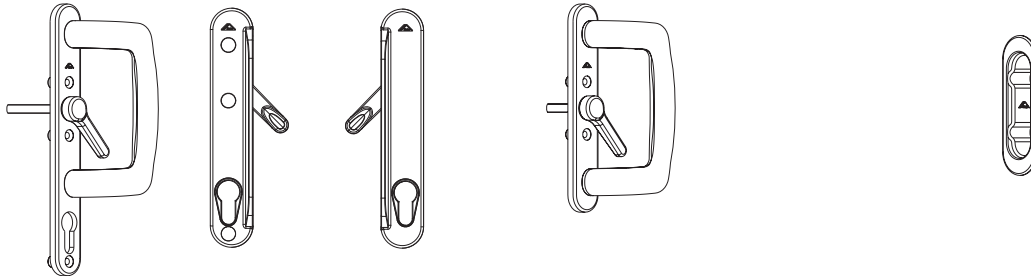


Alu casement handle

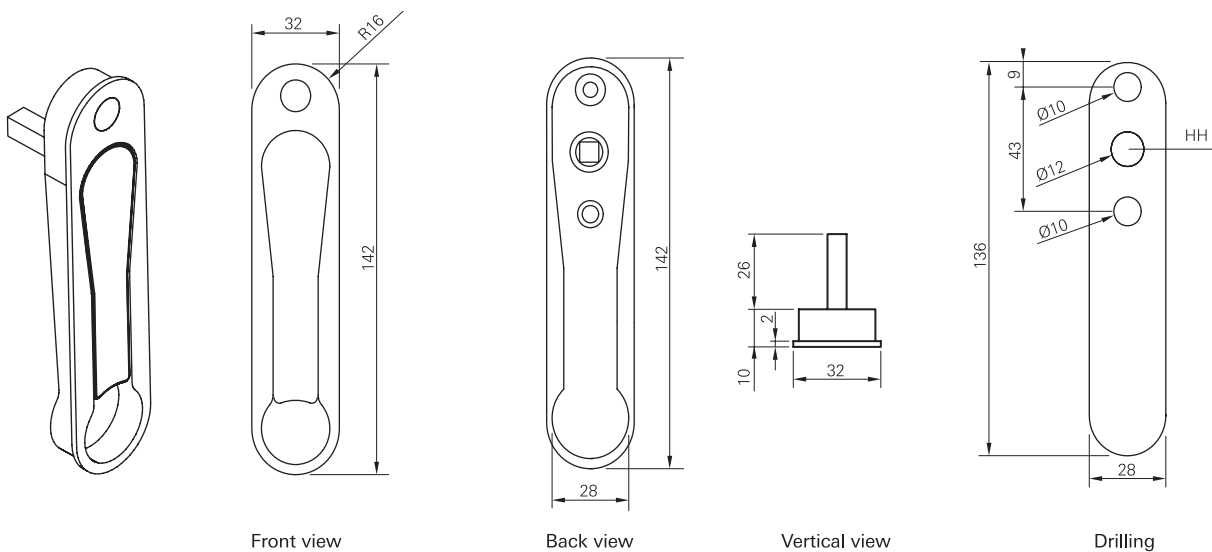


### Handle installation

### Inline Sliding handle installation

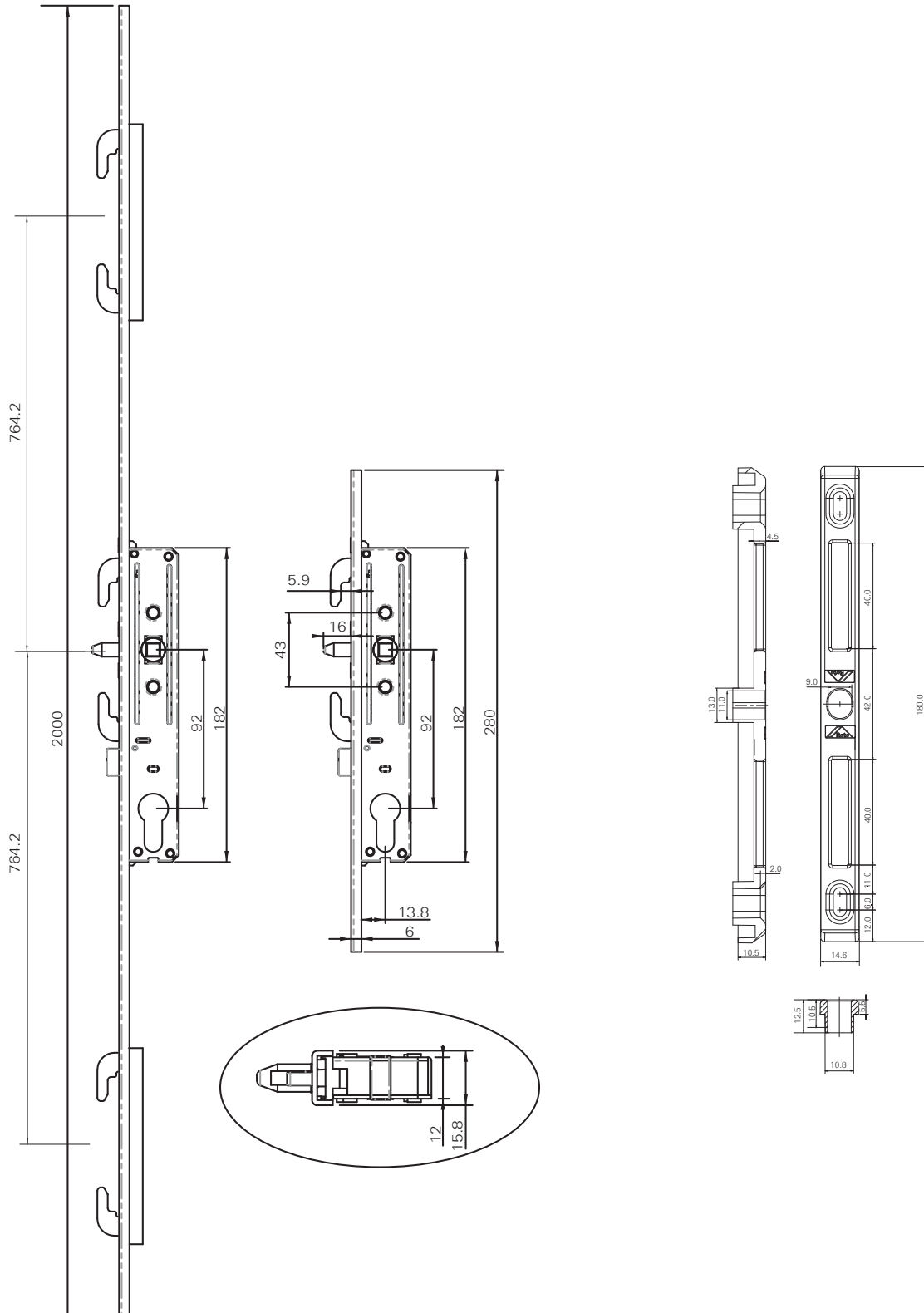


### Pop-up handle installation

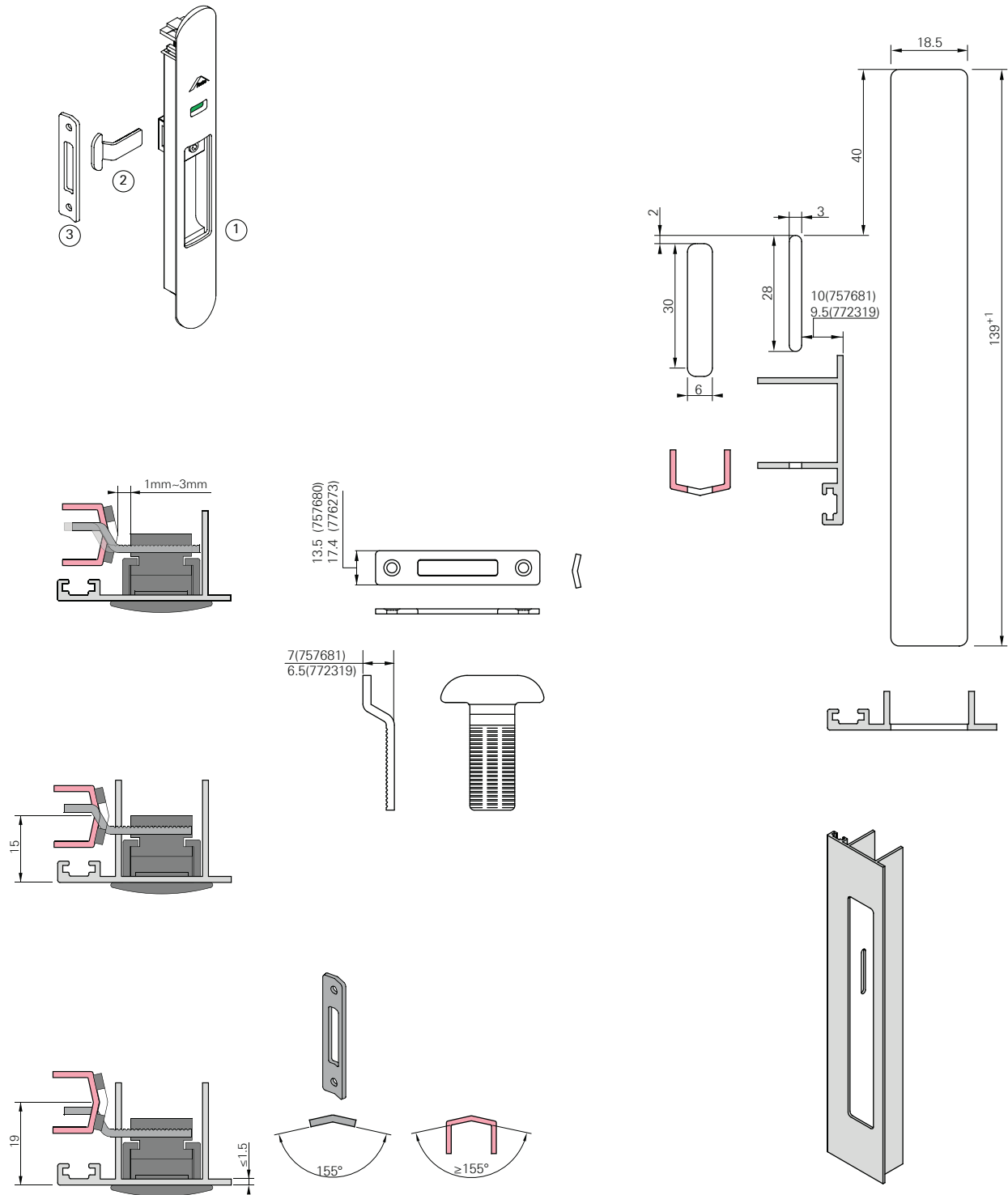




Installation Sliding Door

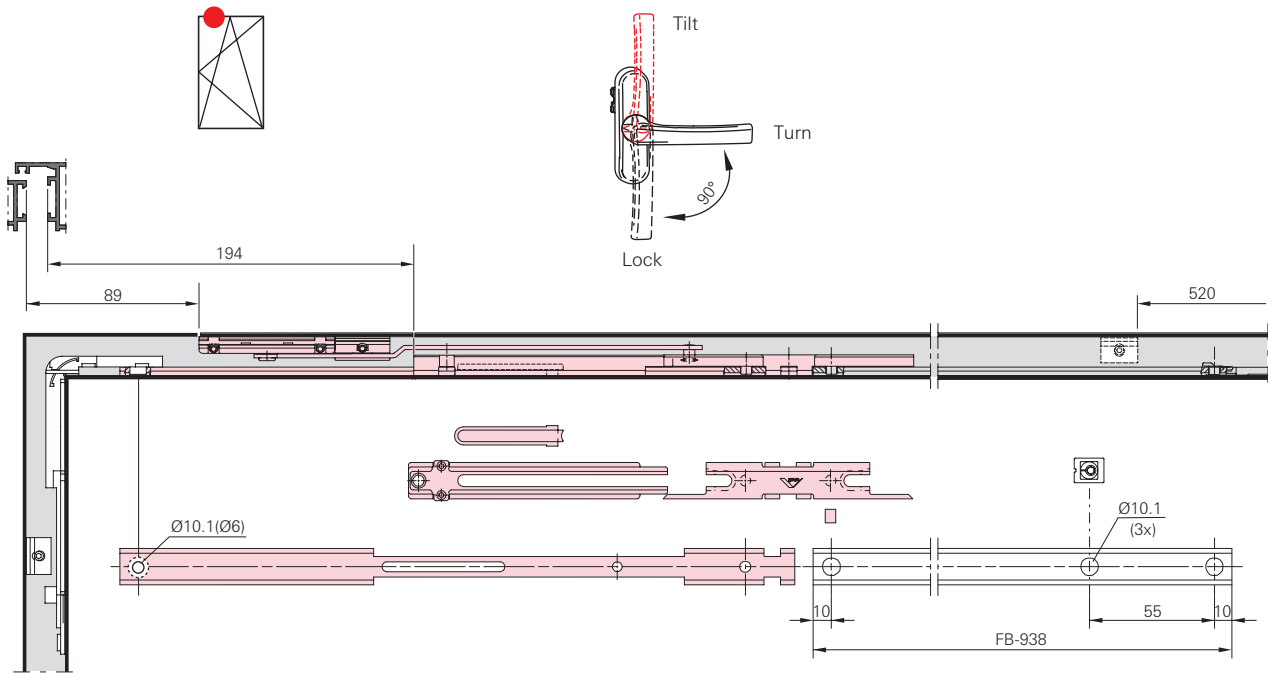


## Installation Single Point Sliding Window



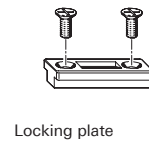
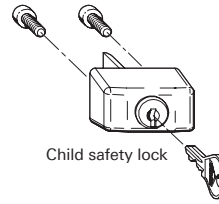
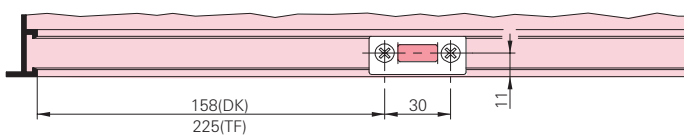
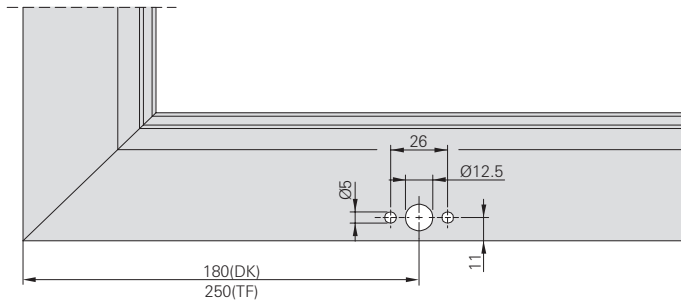
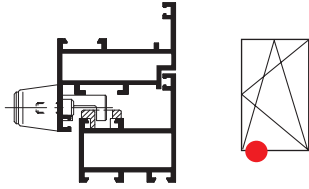
Additional Scissors-stay Installation

Tilt & turn window Additional Scissors-stay 331 024



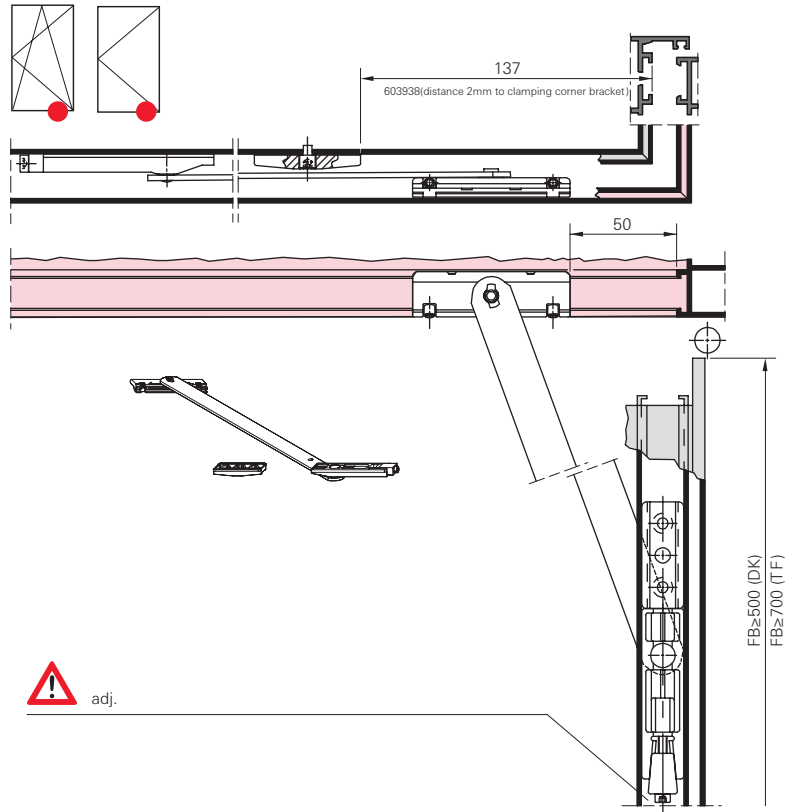
### Child safety lock

#### Child safety lock

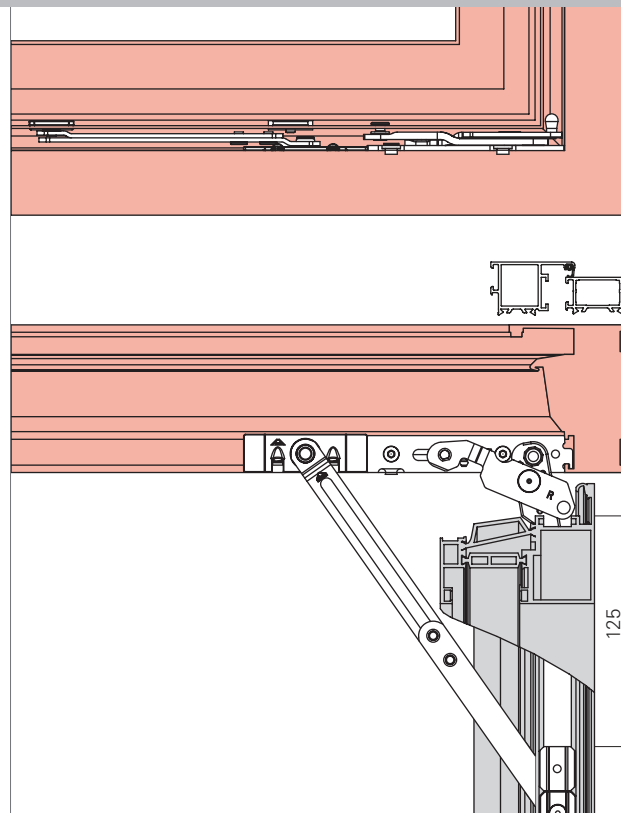


Turn restrictor

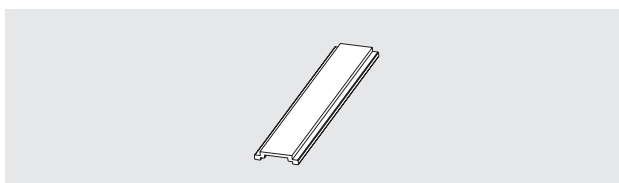
Turn restrictor 896913 (For T300DK and T540DK)



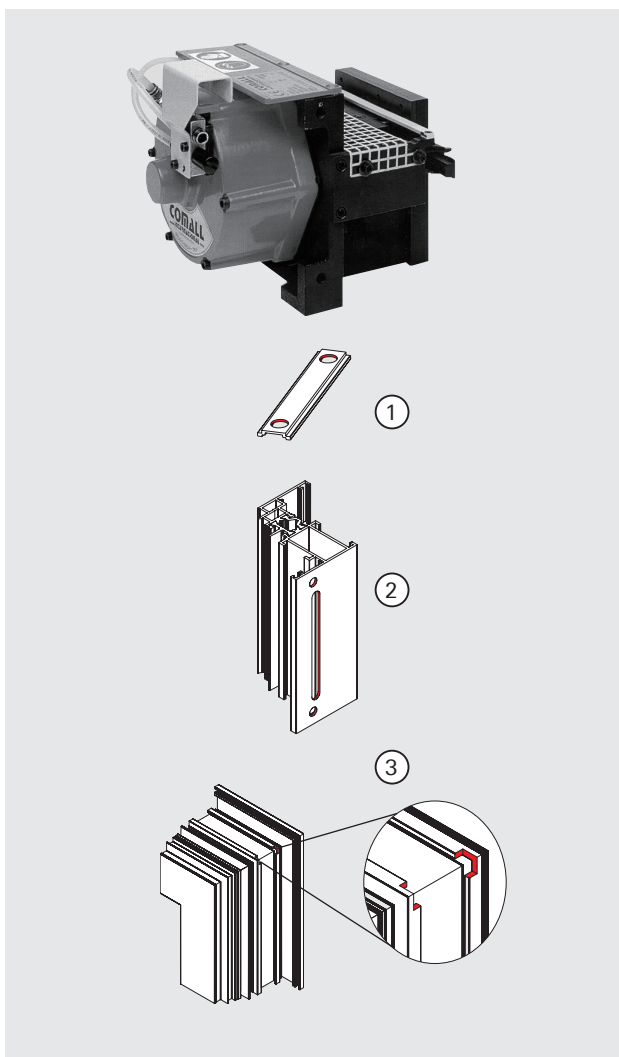
Turn restrictor 740814 (For Designo Alu Version)



### Connecting-rod and Croppers

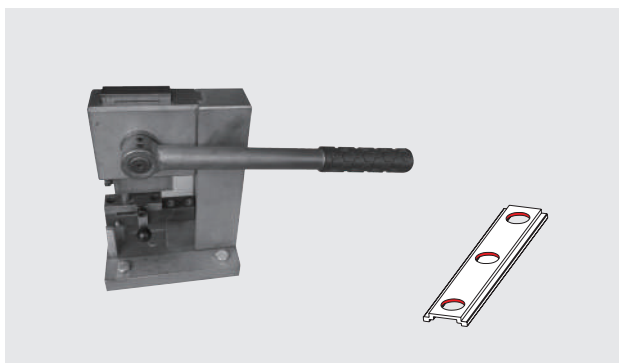


| Connecting rod ECC groove |               |        |
|---------------------------|---------------|--------|
| Material                  | Description   | SAP    |
| Aluminium                 | Silver 1pc=3m | 333826 |
| Aluminium                 | Black 1pc=3m  | 815319 |
| PA66                      | 1pc=3m        | 763768 |



| Pneumatic cropper | 595067 |
|-------------------|--------|
|-------------------|--------|

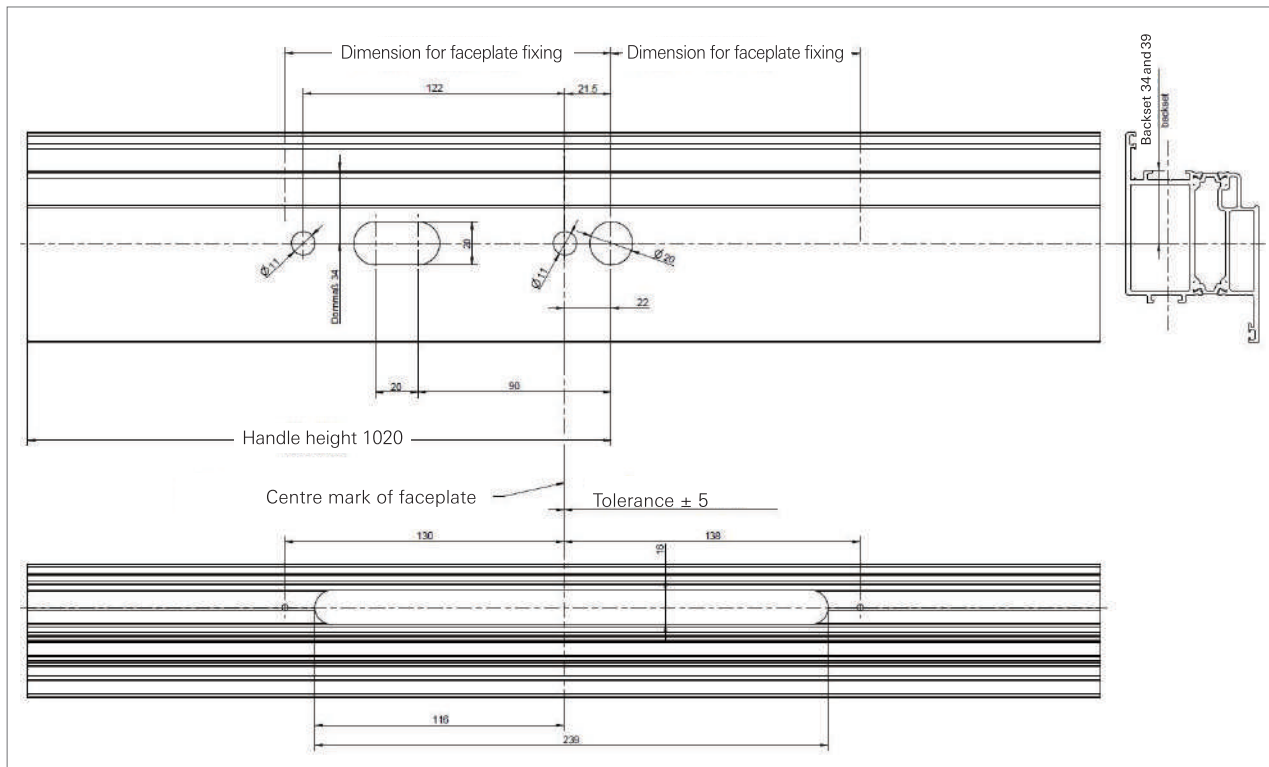
1. Crop and hole-stamping the connecting-rod on both ends.
2. Stamping handle hole.
3. Clean corner.



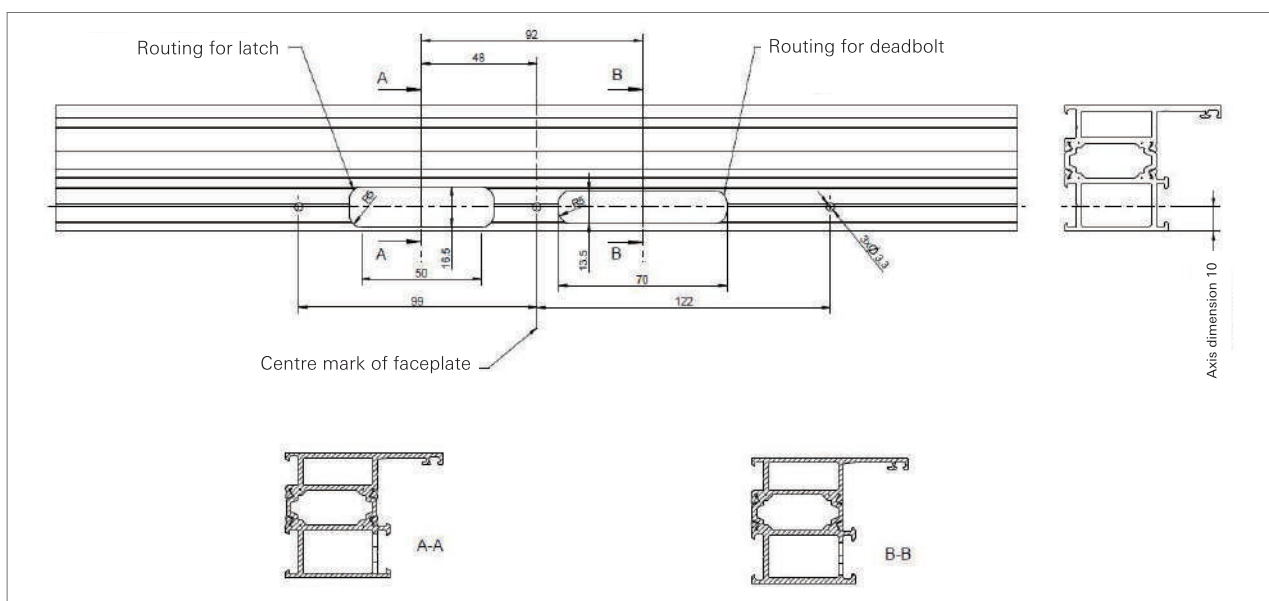
| Manual cropper | 571294 |
|----------------|--------|
|----------------|--------|

## Routing dimensions for the main lock

### Drilling for routings of lever-handle set and basic lock

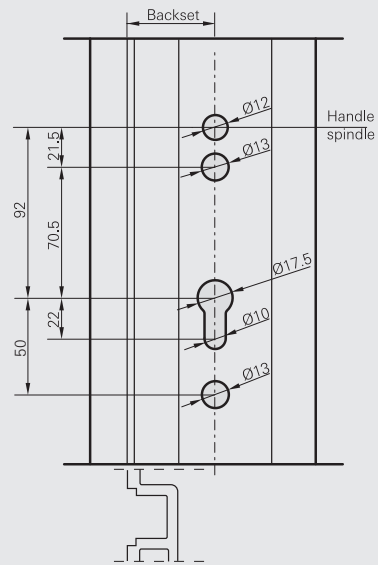
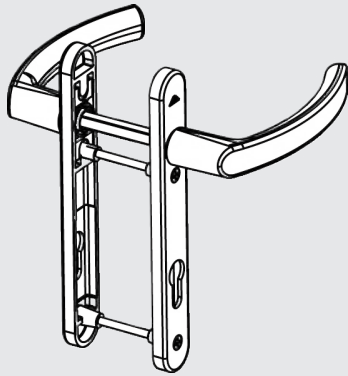


### Frame routing for latch/deadbolt striker plate

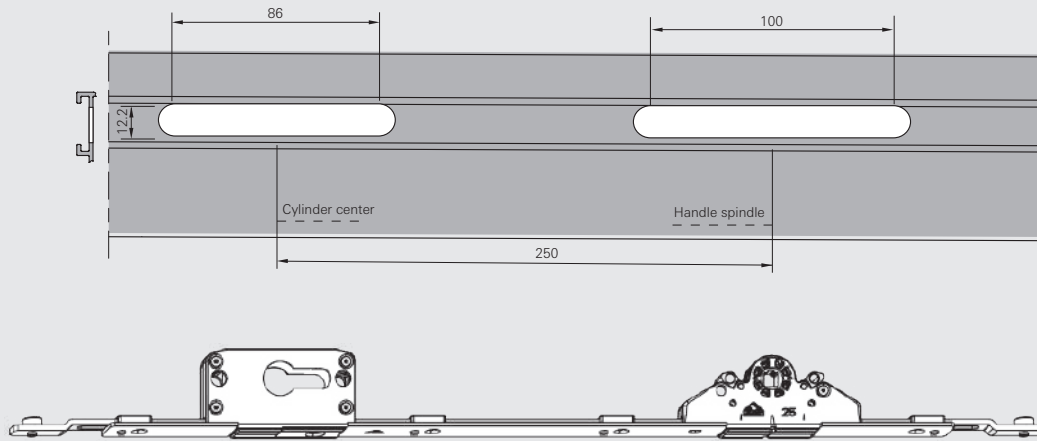


### Handle & Espag installation

Handle RotoStark

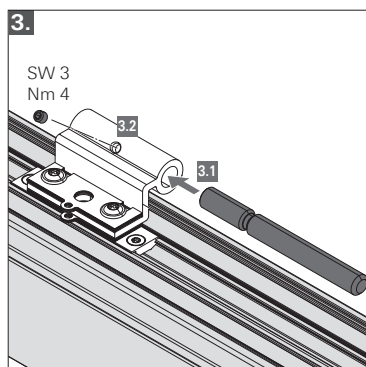
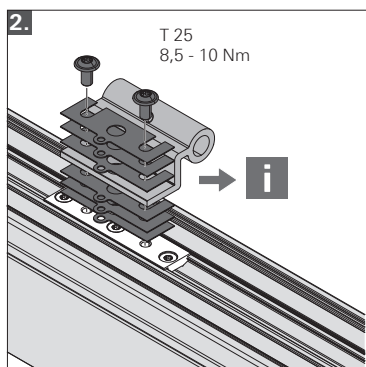
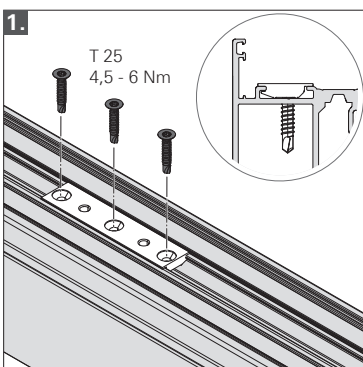
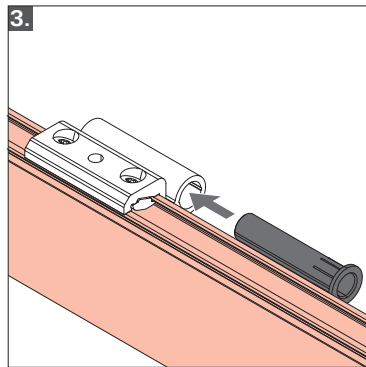
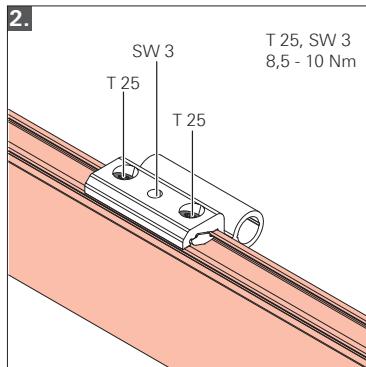
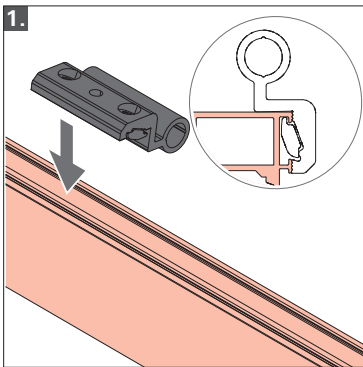
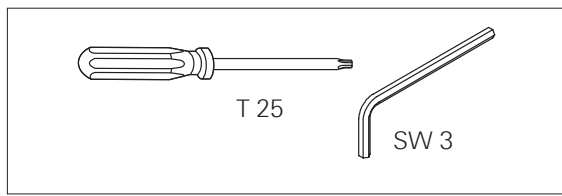
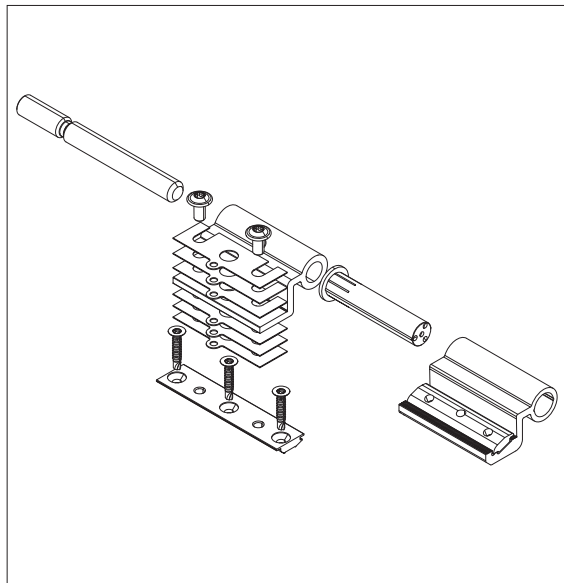
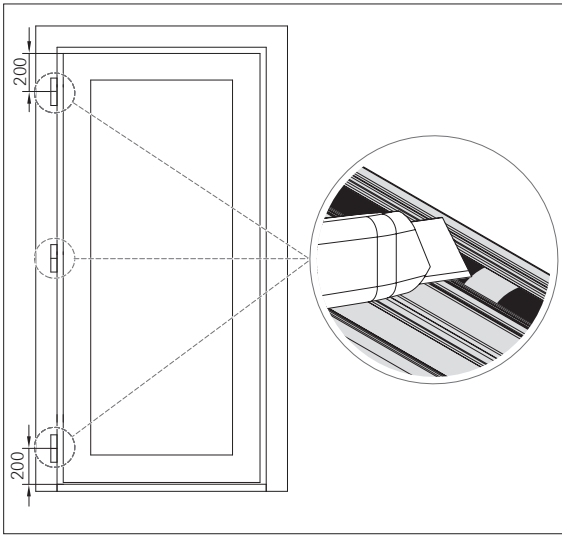


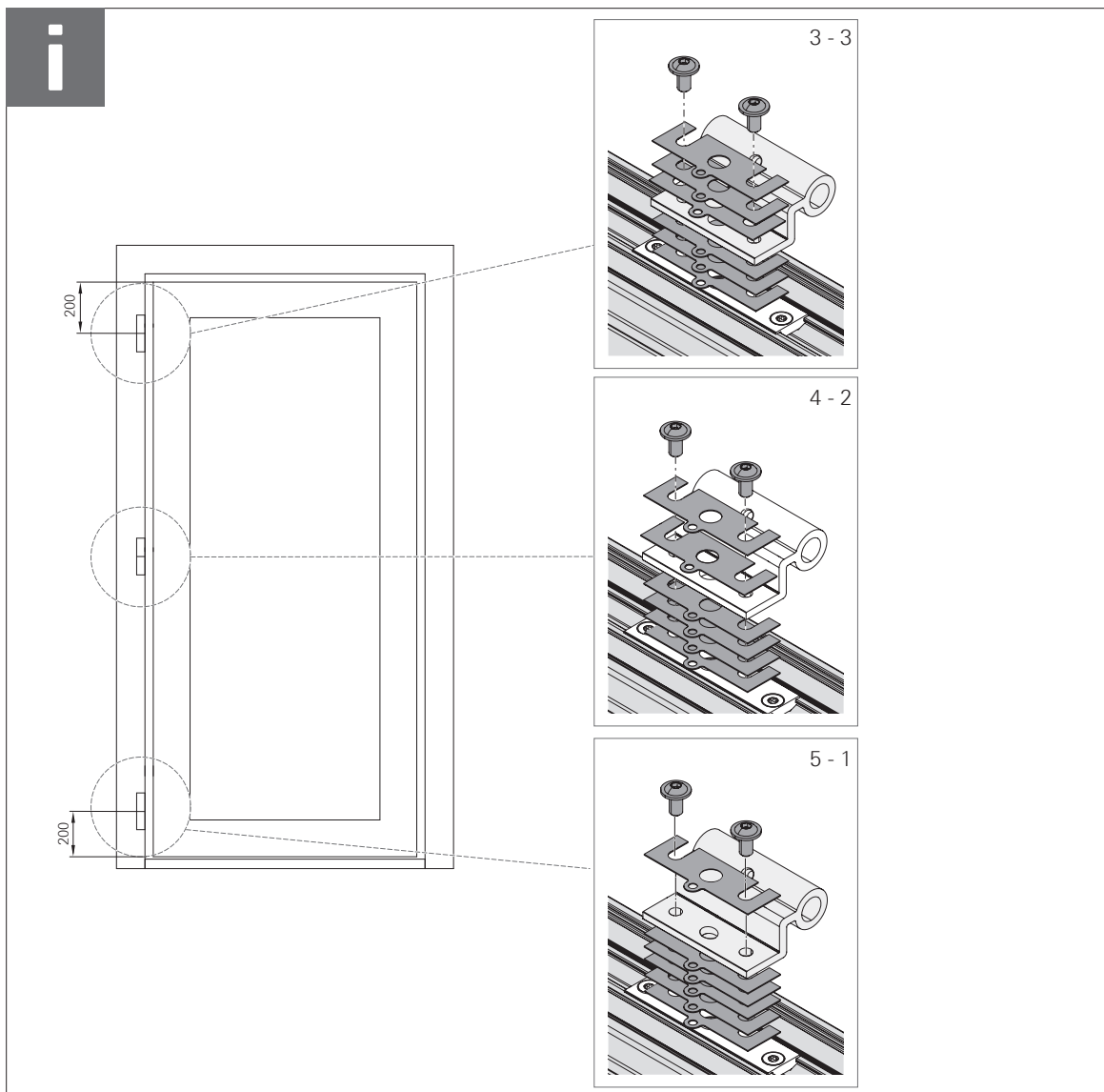
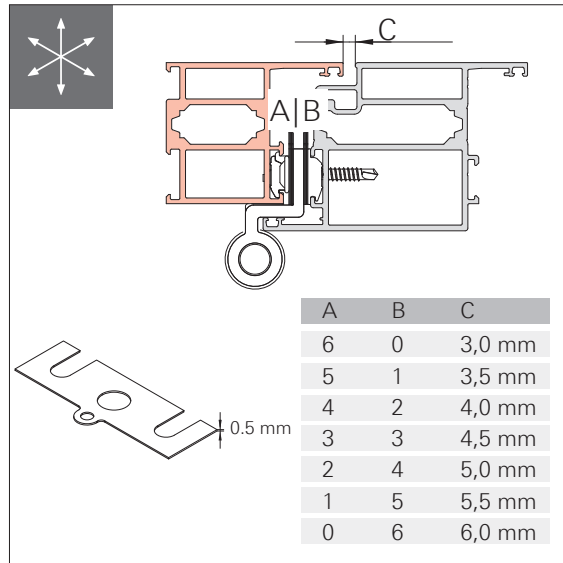
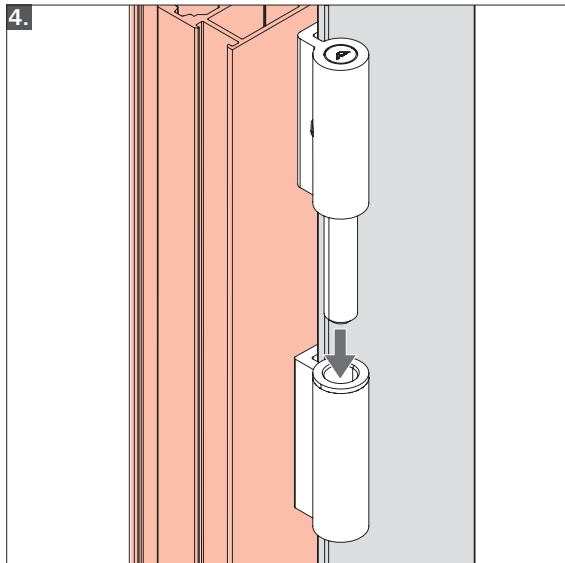
Balcony door with cylinder lock installation





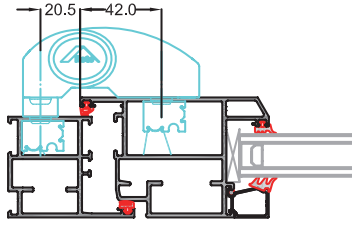
Installation Solid B Hinge



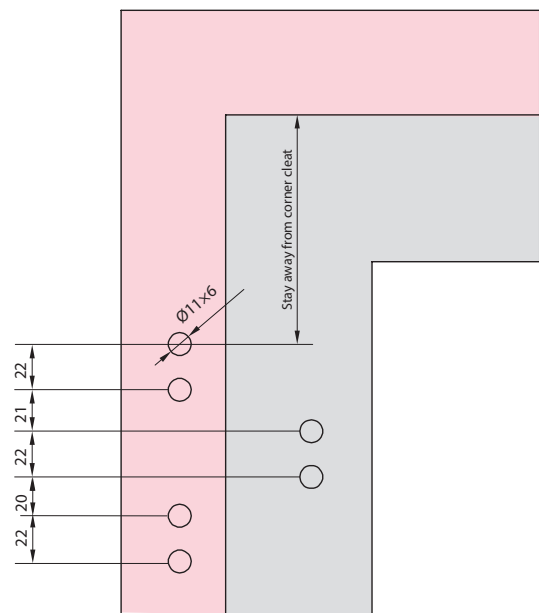
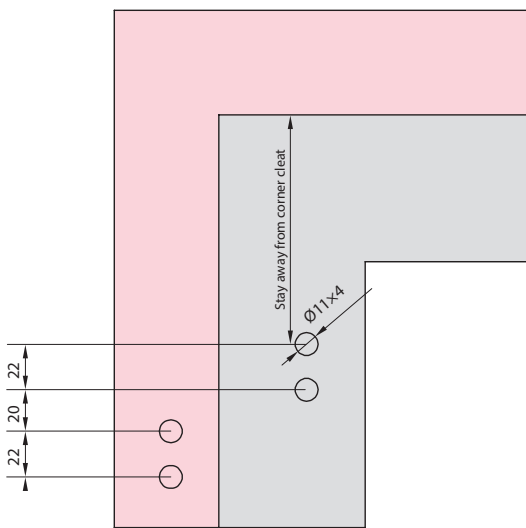
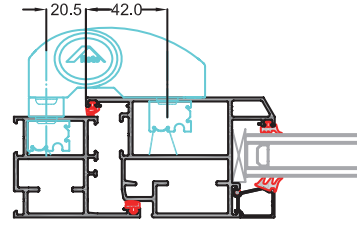


Hinge installation

ATB 80 hinge installation (2 parts)

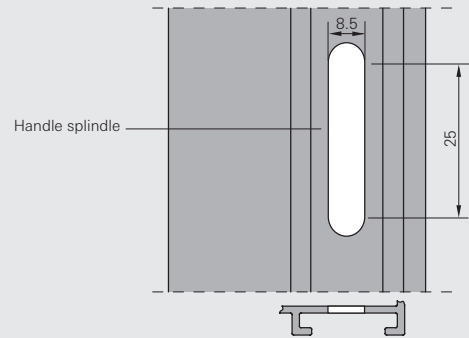
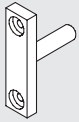


ATB 120 hinge installation (3 parts)

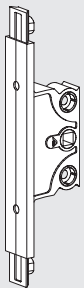


### Casement Espag.i nstallation

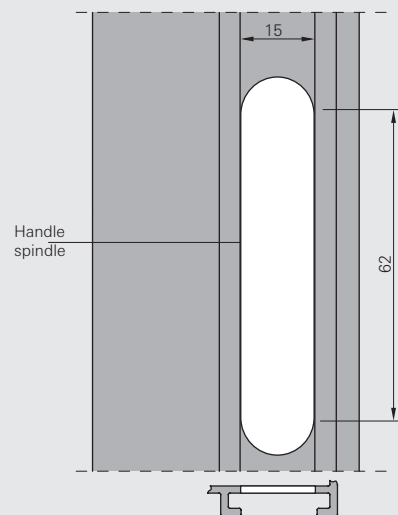
T connector routing



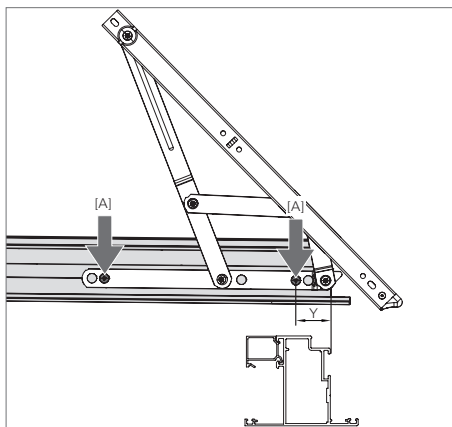
Flush encased gearbox routing(EQ espag.)



BS=25mm  
894381



Friction hinge installation



**Fastening the friction stay to the sash**

1. Determine dimension Y:  $49.5 \text{ mm} - X + Z$   
(X = clearance, Z = distance between rail and edge of frame, see below)

**Example:** X = 16.5 mm, Z = 2 mm: Y = 35 mm

**i INFO**

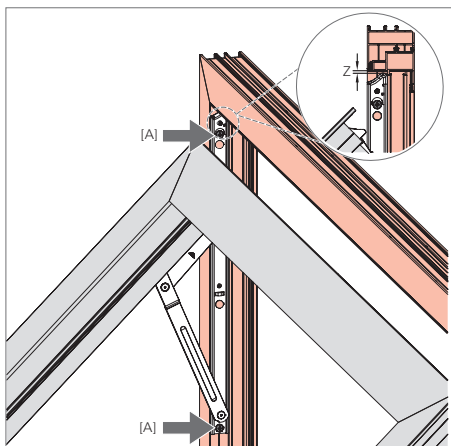
Dimension Z should be selected to be as small as possible for an optimum turning curve and good adjustment options.

2. Mark the positions of the slots on the basis of dimension Y on the sash profile and pre-drill the slots.

3. Fasten the friction stay to the sash profile using the stay arm with screws [A].

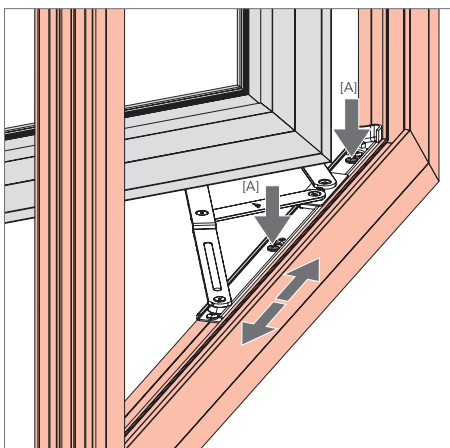
**Fastening the friction stay to the frame**

1. Position the friction stay in the open position, with distance Z, on the frame profile.
2. Mark the positions of the slots in the guide track on the frame profile and pre-drill the slots.
3. Fasten the friction stay to the frame profile using the guide track with screws [A].

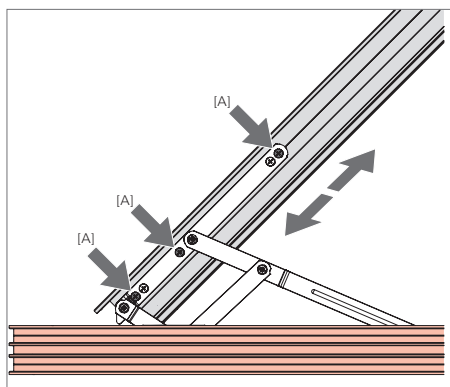


**Adjusting the friction stay and securing it in place**

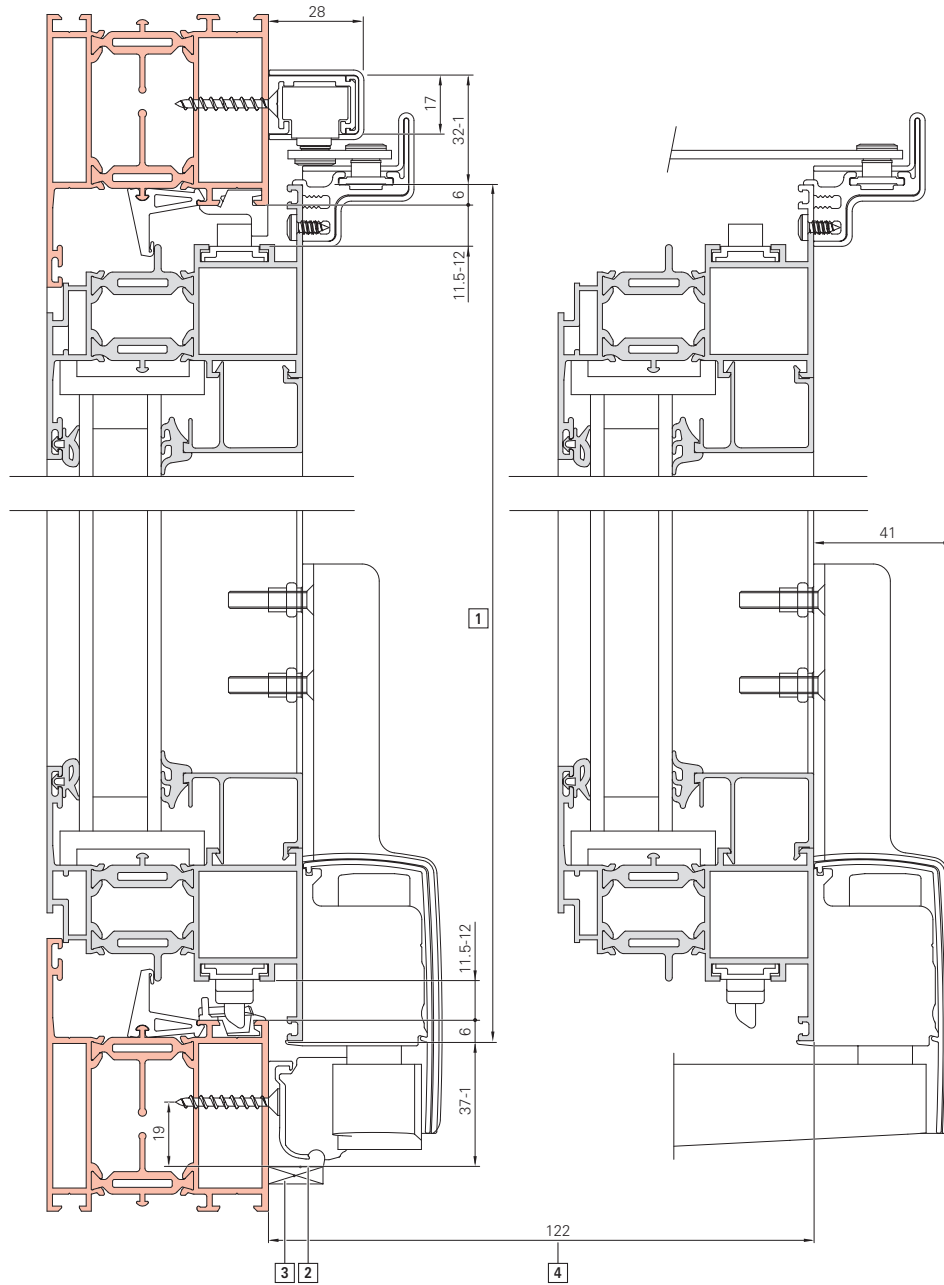
1. If required, adjust the position of the sash in relation to the frame using the slots [A] on the frame and/or on the sash.



2. Pre-drill fixing holes on the sash and frame and secure the friction stay in place with screws [A].



### Profile Section for Roto Alversa

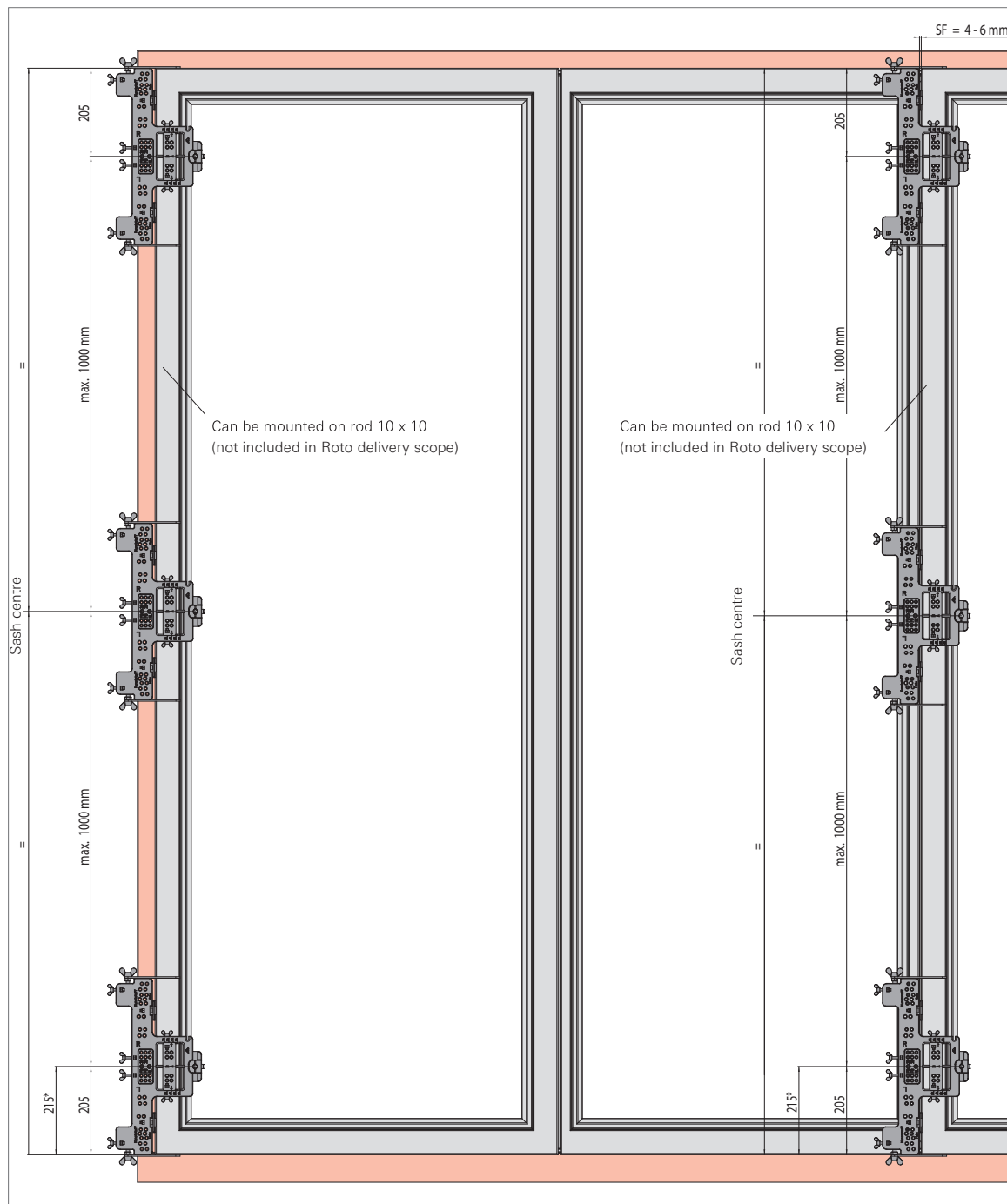


| Assignment | Meaning   |
|------------|---|
| [1]        | SH  |
| [2]        | Max. top edge of finished floor   |
| [3]        | Underlay the roller track over the entire length on site in order to transfer the load. |
| [4]        | Retracting distance   |

### Patio Fold

**Position: Frame hinge-bearing**

**Position: Sash hinge-bearing**



**NOTE!**

SH ≤ 2400 mm: Install 3 hinges for each sash evenly distributed over the whole sash height.  
 SH ≥ 2401 mm: Install 4 hinges for each sash evenly distributed over the whole sash height.

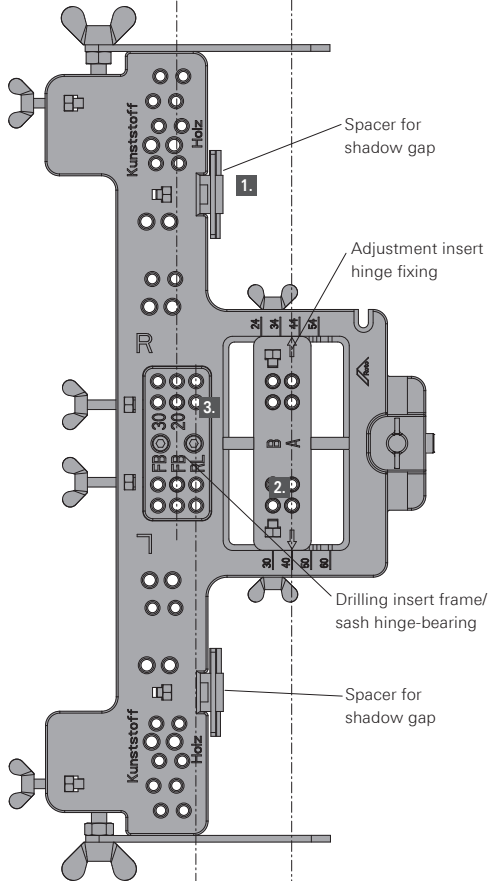
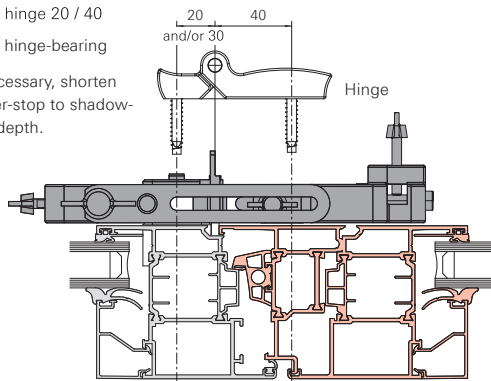
\* with enhanced threshold

### Predrilling sash/frame hinges

Sash hinge 20 / 40

Sash hinge-bearing

If necessary, shorten buffer-stop to shadow-gap depth.

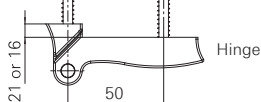


If necessary, use second run-up block for fitting on the frame.

Shorten buffer-stop to overlap height.

Frame hinge-bearing

Frame hinge 16 / 50 and/or 21 / 50



### Installation of sash hinge 20 / 40 and/or 30 / 40

#### Drilling-jig adjustments

1. Spacers for shadow gap
2. Adjustment insert hinge fixing

3. Drilling insert frame/sash hinge-bearing

If necessary, use second run-up block for fitting on the frame.

#### Drill

4. Fold together the folding sash according to the diagram.
5. Drill with  $\varnothing$  5 mm drill
  - in adjustment insert hinge fixing **A**
  - Drilling insert frame/sash hinge-bearing **SW 20 and/or SW 30**

**profile related**  
**Arrow points to 40**  
**SW 20 and/or SW 30**

### Installation of frame hinge 16 / 50 and/or 21 / 50

#### Drilling-jig adjustments

1. Spacers for shadow gap
2. Adjustment insert hinge fixing

3. Drilling insert frame/sash hinge-bearing

If necessary, use second run-up block for fitting on the frame.

#### Drill

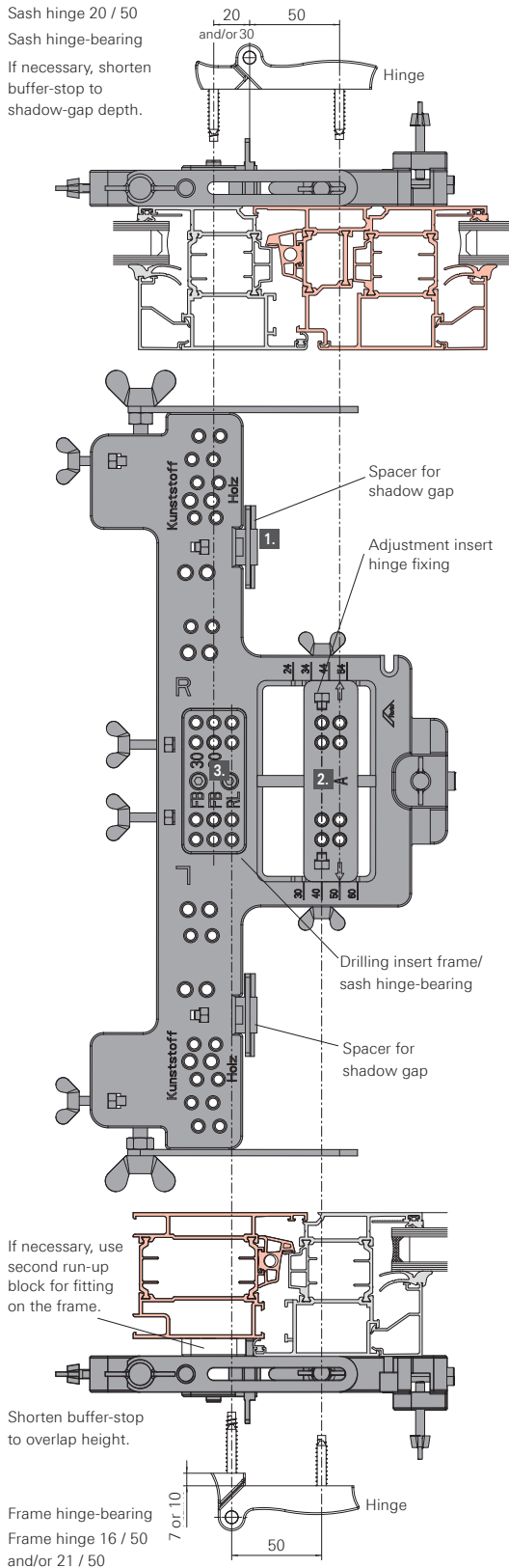
4. Place the frame side of the folding sash on the frame and align (observe the chamber dimension).
5. Drill with  $\varnothing$  5 mm drill
  - in adjustment insert hinge fixing **A**
  - in drilling insert frame/sash hinge-bearing **F.h-b**

**4 mm**  
**Arrow points to 40**  
**F.h-b**



### Drilling and routing dimensions

#### Predrilling sash/frame hinges



#### Installation of sash hinge 20 / 50 or 30 / 50

##### Drilling-jig adjustments

1. Spacers for shadow gap
2. Adjustment insert hinge fixing
3. Drilling insert frame/sash hinge-bearing  
If necessary, use second run-up block for fitting on the frame.

**profile related**  
**Arrow points**  
**to 50**  
**SW 20**  
**or SW 30**

##### Drill

4. Fold together the folding sash according to the diagram.
5. Drill with  $\varnothing 5$  mm drill
  - ③ in adjustment insert hinge fixing **A**
  - ③ in drilling insert frame/sash hinge-bearing **SW 20 and/or SW 30**

#### Installation of frame hinge 16 / 50 and/or 21 / 50

##### Drilling-jig adjustments

1. Spacers for shadow gap
2. Adjustment insert hinge fixing
3. Drilling insert frame/sash hinge-bearing  
If necessary, use second run-up block for fitting on the frame.

**4 mm**  
**Arrow points**  
**to 50**  
**F.h-b**

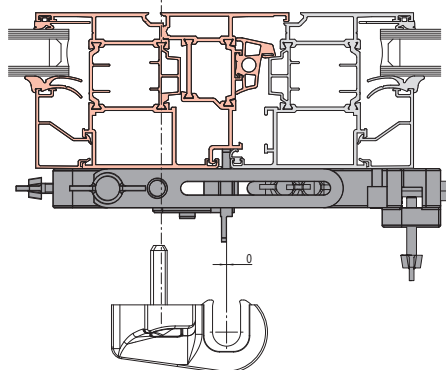
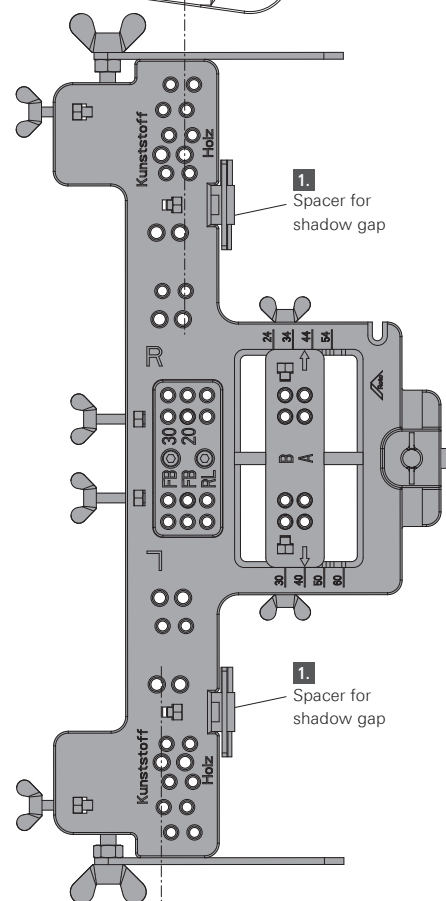
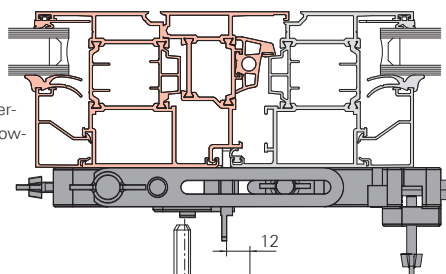
##### Drill

4. Place the frame side of the folding sash on the frame and align (observe the chamber dimension).
5. Drill with  $\varnothing 5$  mm drill
  - ③ in adjustment insert hinge fixing **B**
  - ③ in drilling insert frame/sash hinge-bearing **F.h-b**

### Predrilling support bracket

#### 12 mm offset to shadow gap

If necessary, shorten buffer-stop to shadow-gap depth.



### Predrilling of the support bracket

#### Drilling-jig adjustments

- 1 Adjust the spacers for shadow gap, shorten to shadow gap depth if necessary.

#### Drill:

- 2 Predrilling of screws  $\varnothing 5$  mm, predrilling of pins  $\varnothing 6$  mm, according to the drilling-jig inscription (timber = 12 mm offset).

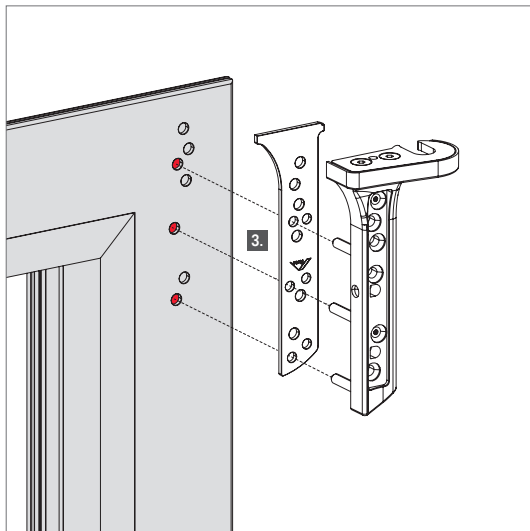
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**i NOTE!**  
Observe the profile-specific installation instructions.

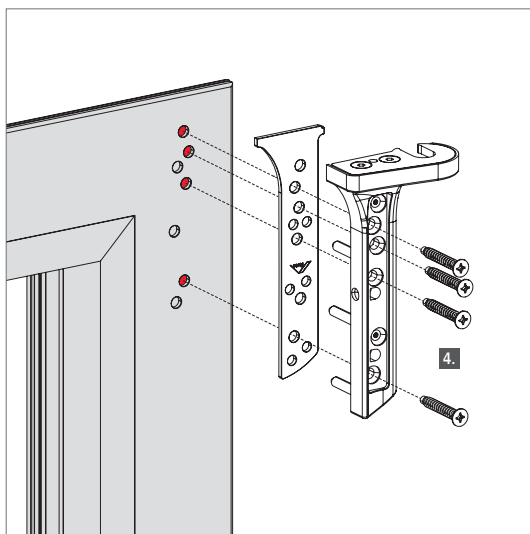
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### Sash

#### Mounting top support bracket



1. Move drilling jig with stop to initial position (see last pages).
2. Carry out drillings with drilling jig (643365) (see last pages).
3. Bring together support bracket and packer accurately and slide 3 cams of the support bracket into suitable drilling channels.

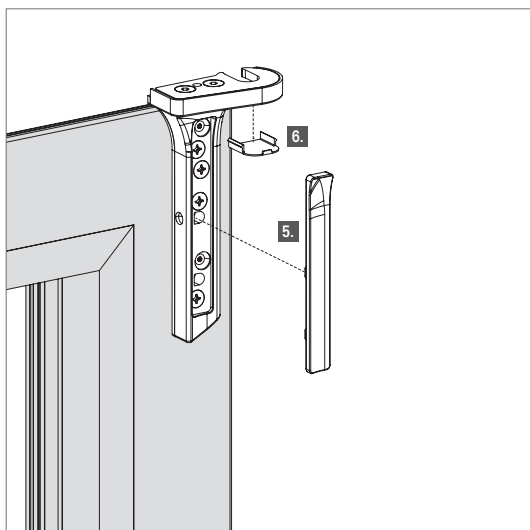


4. Fasten support bracket and packer with 4 screws.



#### NOTE!

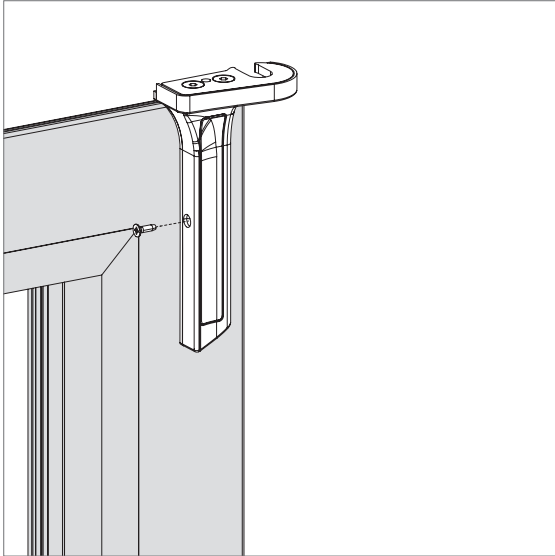
Seal the holes for the outer support brackets with suitable sealing compound to prevent the ingress of water.



5. Position the cover plate.
6. After installation of the bogies, clip on/insert the small cover cap.

## Sash

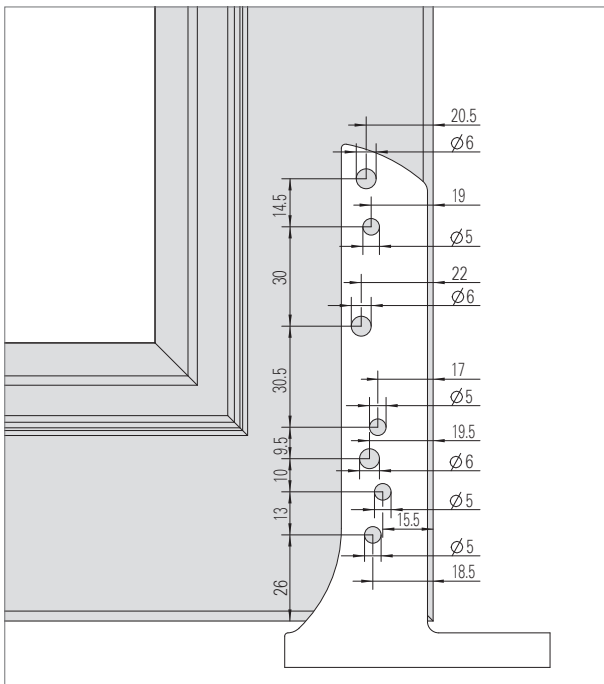
Mounting top support bracket



7. Secure the cover plate with countersunk screw.

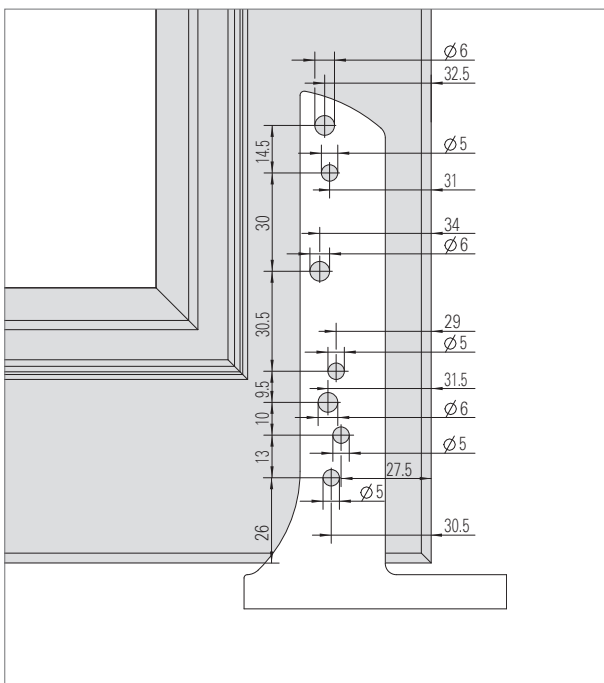
**Sash**

Mounting support bracket for bottom roller track



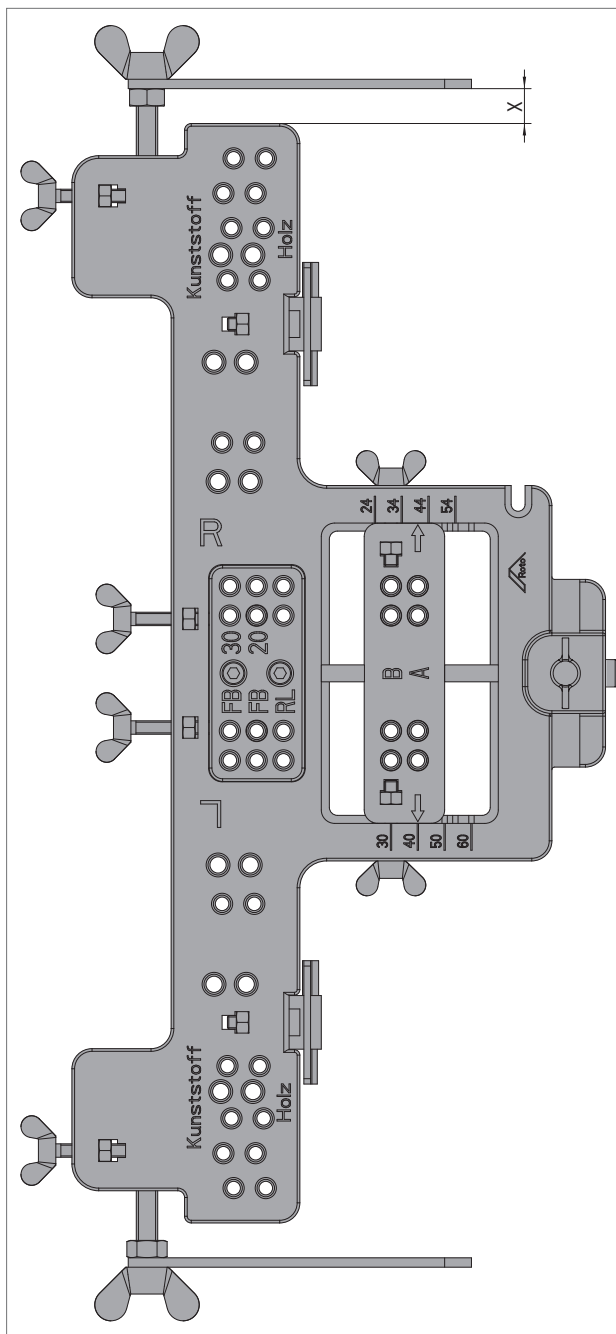
**NOTE!**

- ③ Observe the profile-specific installation instructions, because some aluminium profile systems must be drilled in timber position.
- ③ Seal the holes for the outer support brackets with suitable sealing compound to prevent the ingress of water.



### Sash

Mounting support bracket for bottom enhanced threshold



1. Determine the profile's overlap width.
2. Determine the reference dimension X (= overlap width - 7 mm)
3. Set the reference dimension X (e.g. with metre rule or slide gauge)
4. Place the drilling jig on the profile and push the stop to the sash edge. Fix the drilling jig.
5. Drills the holes.

#### Examples for dimension X with ...

| Overlap width |   | Dimension X |
|---------------|---|-------------|
| 15            | = | 8           |
| 20            | = | 13          |
| 25            | = | 18          |

### Maintenance instructions for functional and security relevant components

#### ■ For durability:

■ The windows you have produced have high-quality Roto hardware. This means: ease of operation, perfect function, and high durability. The conditions for the function and smooth operation of the hardware is the compliance with our regulations concerning sash size and sash weight, as well as our product liability guidelines. Function and condition of the hardware is to be checked in accordance with the following criteria:

- Smooth operation
- Hardware fixing
- Hardware wear and tear
- Hardware damage

#### ■ Smooth operation

The hardware's smooth operation can be checked via the window handle. The locking and unlocking torque of the window handle is specified in accordance with DIN 18055 (German Industrial Norm) with a maximum value of 10 Newton metres. The inspection can be carried out with a torque wrench. The smooth operation can be improved by means of **grease/oil** or by adjusting the hardware. Roto Tilt&Turn hardware is designed with 2D/3D adjusting possibilities. Incorrect and/ or inappropriate retro-adjustments to the hardware can result in the windows not fulfilling their function anymore.

#### ■ Hardware fixing

The window's function and its operational safety depend on the solid fixing of the hardware. Stability and location of the individual screws in the aluminium are to be checked. Should it be revealed, that for example screws are loose or that screw heads have broken off, tighten or replace these immediately.

#### ■ Hardware wear and tear

In order to avoid wear and tear, all operation-relevant hardware components are to be **lubricated/oiled** in accordance with our information.

#### ■ Hardware damage

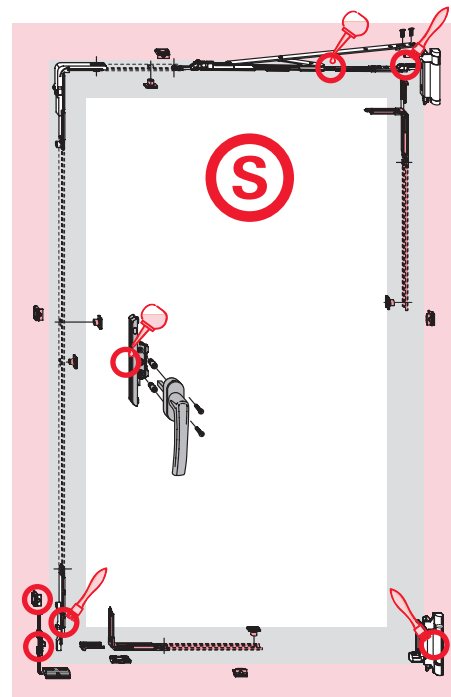
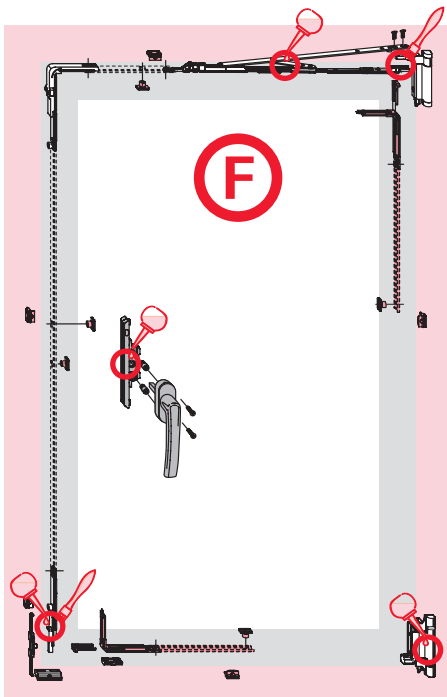
Damaged hardware components are to be replaced, especially if it concerns supporting hardware components. No legal claims can be derived from these recommendations, the application is to be conveyed for each concrete individual case. Roto Frank AG recommends window-fabricators to make **maintenance agreements with their end users**.

#### ■ Maintenance and care intervals

By means of regular greasing and oiling\* (at least once a year) all operation-relevant components **(F)** in the sash and frame, you maintain the smooth operation of your Roto hardware and you protect against premature wear and tear.

The **(S)** components are subject to particular care and attention for security reasons. These are to be examined at least once a year for stability and wear & tear, and to be greased/oiled\* annually! In addition the individual screws are to be checked. Possible loosened screws or broken off screw heads are to be tightened or replaced immediately.

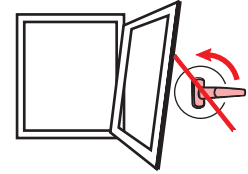
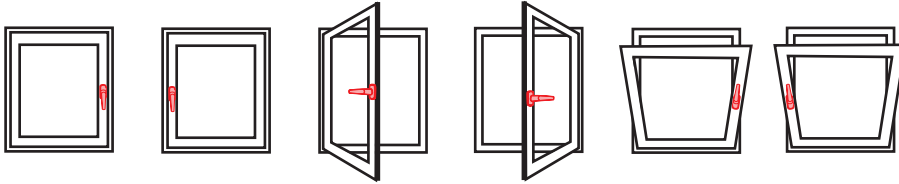
\* Please use acid free and non resinous grease and/or oil from a specialised dealer.



### Operating and safety instructions

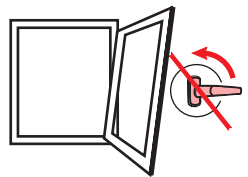
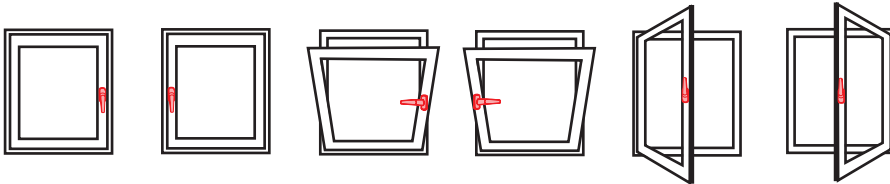
for aluminium windows and balcony doors

#### Tilt&Turn operation (Turn before Tilt)



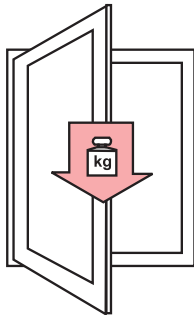
Avoid mishandling

#### Tilt-First operation (Tilt before Turn)

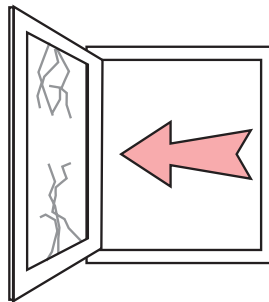


Avoid mishandling

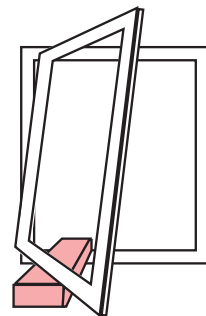
In order to preserve the long **operativeness** of your window and to guarantee **security**, it is imperative to observe the directives listed below.



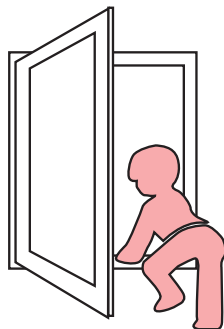
The window sash may not be burdened with additional weight.



Do not allow the sash to hit or press up against the window reveal.



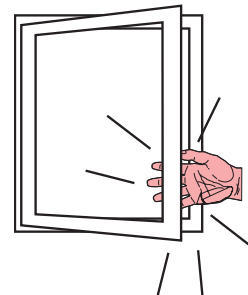
Do not place any objects between the sash and frame.



Where small children or mentally handicapped persons have access to the window, the sash is to be safeguarded against turning, for example with a child-safety lock (inhibits turn-modus, permits tiltmodus) or key-lockable handle.



Do not leave sashes open in the turn-modus during strong winds.



Caution! A slamming sash can lead to injuries. While closing, do not grasp between the sash and frame.





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