



# Roto Frank Constructional Hardware

## German Window & Door Technology



Window & Door Solutions to uPVC Applications

(Asia - Pacific 2023)





Lieber Roto Partner,

Der vorliegende Katalog gibt Ihnen einen Überblick der Produkte der Roto Beschlagssysteme für PVC 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 PVC with focus on the applications prevalent in Asia-Pacific.

We sincerely hope that this technical manual for Roto PVC 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.



Roto Frank AG Leinfelden - Echterdingen



#### **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 specifications 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.

### Contents

#### Information

About Roto Frank .....	4
Certificates.....	5
Product liability guidelines.....	6
General product information.....	8

#### Hardware List

Single sash outward opening window (NTEQ) .....	10
French casement window .....	11
Top hung window.....	12
Hardwares for outward opening window.....	15
Friction hinge application .....	18
Sliding window.....	20
Tilt & Turn window .....	24
Turn window.....	26
2-sashed windows.....	28
Hardware details.....	31
Casement door lock.....	44
Entrance door H650 .....	46
Dummy mullion solutions.....	48
Door hinge solutions 50Tilt/ Parallel & slide door (Patio Alversa)	50
Lift & Slide door.....	56
Fold & Slide door (PATIO Fold) .....	62
Handle .....	66
Cylinder .....	79

#### Installation

Drilling and routing hole-pattern for espag.....	80
Drilling dimension for hinge P .....	84
Butt. hinge installation & adjustment .....	86
Drilling and Installation Patio Fold .....	87
NT Cropper & Abbreviation .....	95



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 75 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.: 228-7012530-1-16

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

**Produkt**  
max. Flügelgewicht  
max. casement weight  
**300 kg**

**Einsatzbereich**  
field of application  
**Systeme mit entsprechender Beschlagaufnahme**  
Systems with suitable hardware groove

**Hersteller**  
manufacturer  
**ROTO Frank AG**  
Wilhelm-Frank-Platz 1, D 70771 Leinfelden-Echterdingen

**Produktionsstandort**  
production site  
**ROTO Frank AG**  
Wilhelm-Frank-Platz 1, D 70771 Leinfelden-Echterdingen

Mit diesem Zertifikat wird bescheinigt, dass das benannte Bauprodukt den Anforderungen des zugrundeliegenden ift-Zertifizierungsprogramms in der aktuellen Fassung entspricht.

Die Erstellung von Produktfamilien des aufgeführten Bauproduktes und Ersetzung durch eine akkreditierte Profifamilie nach EN 1328-8:2017 unter Berücksichtigung der Anmerkungsdiagramme.

Einführung und Aufrechterhaltung einer werkseitigen Produktionskontrolle durch den Hersteller.

Ersetzung des Werkstoffes und der werkseitigen Produktionskontrolle durch ift-Q-Zert.

Kontinuierliche Fremdüberwachung des Werkstoffes und der werkseitigen Produktionskontrolle durch ift-Q-Zert.

Dieses Zertifikat wurde erstmals am 18. Juli 2008 ausgestellt und gilt 5 Jahre, wenn sich zwischenzeitlich die Festlegungen in der oben angeführten technischen Spezifikation oder die Herstellungsbedingungen im Werk oder in der werkseitigen Produktionskontrolle selbst nicht wesentlich verändert haben.

Das Zertifikat darf nur unverändert vervielfältigt werden. Alle Änderungen der Voraussetzungen für die Zertifizierung sind dem ift-Q-Zert mit den erforderlichen Nachweisen unverzüglich schriftlich anzugeben.

Das Unternehmen ist berechtigt, das benannte Bauprodukt gemäß der ift-Zeichnung mit dem „ift-zertifiziert“-Zeichen zu kennzeichnen.

Dieses Zertifikat enthält 2 Anlagen.

**Grundlage(n) / Basis**  
ift-Zertifizierungsprogramm für Beschläge  
ift-certification scheme for hardware  
(QM 328)  
Ausgabe/Issue 2018

EN 1191  
EN 12400  
Klasse 2

EN ISO 9227  
EN 1670  
Klasse 4

Daumenfunktion  
resistance to repeated opening and closing  
(if available)

Korrosionsschutz  
corrosion protection

ift  
ROSENHEIM  
ZERTIFIZIERT  
CERTIFIED

ift Rosenheim  
19. Juli 2018

Gültig bis / Valid until:  
18. Juli 2023

ift Rosenheim  
19. Juli 2018

Christian Kahner  
Leiter der ift-Zertifizierungs- und Überwachungsstelle  
Head of ift Certification and Supervision

Prof. Ulrich Sieberath  
Institutsleiter  
Director of Institute

228 7012530

www.ift-rosenheim.de

## ENVIRONMENTAL PRODUCT DECLARATION


as per ISO 14025 and EN 15804



Owner of the Declaration	ARGE, European Federation of Associations of Lock and Builders Hardware Manufacturers
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-ARG-20160194-IBG1-EN
ECO EPD Ref. No.	ECO-00000413
Issue date	14.09.2016
Valid to	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)

www.ibu-epd.com / https://epd-online.com



### Quality Certificate from ift Rosenheim for Roto NT series

### ISO 14025



### 10-Year Functional Warranty

- Multipoint locks (NT, AluVision, Patio, Casement)
- Hinge side for window (NT, AluVision, Casement)
- Door locks (C600, H600, E600<sup>1</sup>, P600)
- Door hinge and cylinder
- Rotoi profile<sup>2</sup> and accessories

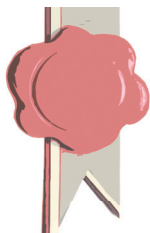
1. Electronic and magnetic components are covered by a 12-month liability for defects only.
2. Surface coating is excluded but to be specified according to the required coating material and process.

In the case of defects resulting from faulty of 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<sup>3</sup> under the following conditions:

3. The product only, delivery and installation are excluded.

1. The product was installed in accordance with Roto instructions, and proper operating in usual applications was observed.
2. Proof that necessary maintenance work has been carried out in accordance with our maintenance guideline was provided.
3. 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.
4. Natural wearing on components and surface, damage from extreme climate or aggressive ambient materials are excluded from the warranty.
5. Damage from mis-handling or accident are excluded from warranty.
6. Mixed usage with product from other parties without consent from Roto would result voidance of the warranty.

<sup>3</sup> The warranty was evaluated according to test result with European standards and experiences from of usual applications under common environment.  
<sup>\*\*</sup> The warranty is applicable on Roto provided products and components only, excludes the window and door products assembled by fabricators.



**Roto Frank AG**  
(Germany, headquarters)  
Wilhelm-Frank-Platz 1,  
D-70771 Leinfelden-Echterdingen  
Germany  
Telephone +49 711 7598-0  
Telefax +49 711 7598-253  
www.rotor-frank.com

**Roto Frank Asia-Pacific Pte. Ltd.**  
(Singapore)  
19, Joo Koon Road,  
Singapore 628978  
Telephone +65 6852 9240  
Telefax +65 6795 3738  
Email info@roto-frank.com.sg

### 10 Years Functional Warranty




## Deutsche Akkreditierungsstelle GmbH

Bellehene gemäß § 8 Absatz 1 AkkStelleG i.V.m. § 1 Absatz 1 AkkStelleGV  
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

Im Auftrag by Heike Marke  
Abteilungsleiterin

Die Urkunde samt Urkundenanlage gilt den Stand zum Zeitpunkt des Ausstellungsdatums 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/konten/datenbank-akkreditierter-stellen>

Stich Rosenheim auf der Rückseite

### 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 its 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 applied.
  - Gaskets and plastic accessories should be cleaned by water or mild cleaning agent only, and should keep 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 its in vicinity to 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 not locked or in the ventilation position, provide only a shielding function and do not meet any demands 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	RAL9016 / R07.2	RAL9016
Black	RAL9005 / R06.2	RAL9005
Brown (Black Brown*)	RAL8022 / R04.4	RAL8022
Silver*	FC9022	RAL9022

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



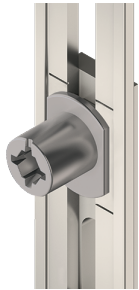
### **INFO**

Colour deviations between product and representation are possible.



### ■ 3 locking cam versions.

The Roto hardware system offers 3 different locking cam versions that differ in application and adjusting capabilities. For better orientation, the different cam versions are listed in the column "locking cam".



Locking cam E

Gasket-compression adjustable cam



Locking cam P

Gasket-compression-adjustable security cam



Locking cam V

Height and gasket-compression adjustable security cam

### ■ The security concept.

Roto is already equipped with basic security on the bottom horizontal sash-plane. Roto offers AhS tested hardware combinations for higher security requirements, meeting the requirements in accordance with RAL-RG 607/3.

Prefitting security components enables the possibility to upgrade windows fast with AhS tested hardware.

Highest burglary inhibition results are achieved with sample combinations for security windows in accordance with the new DIN V ENV 1627-1630. This norm includes an overall test of all singular window components.

### ■ The striker concept.

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

### ■ Cover caps.

Upon request, all visible hinge components can be equipped with cover caps from the extensive ROTO range.

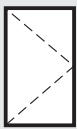
Correspondingly, numerous coloured versions are available.

### ■ The surface-finish.

RotoSil surface-finish has been approved by EN ISO 9227 / EN 1670 class 4.

RotoZin Surface-finish is used in Asia-Pacific Market, has better performance.

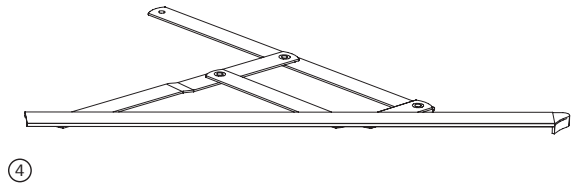
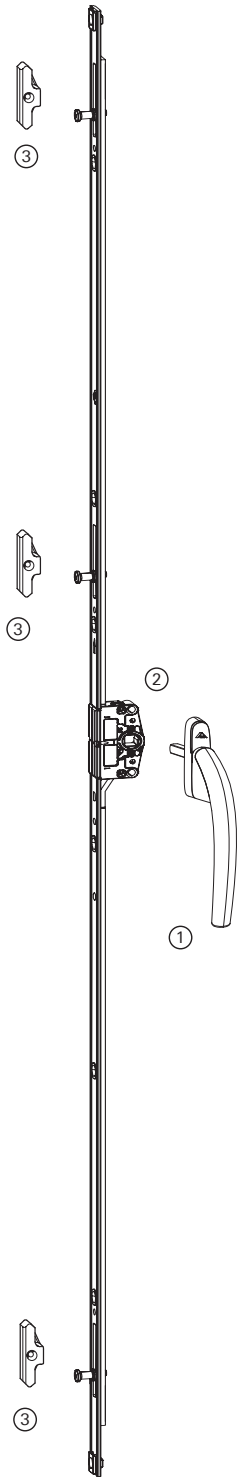




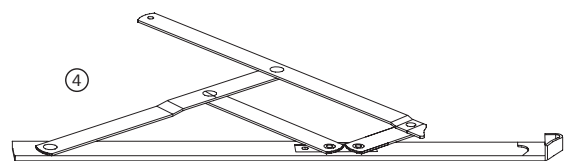
Single sash outward opening window (NT EQ)

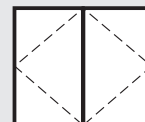
Sash weight max. 55kg (refer to friction hinge capacity)

Recommended sash width: 380-900mm; sash height: 400-1600mm

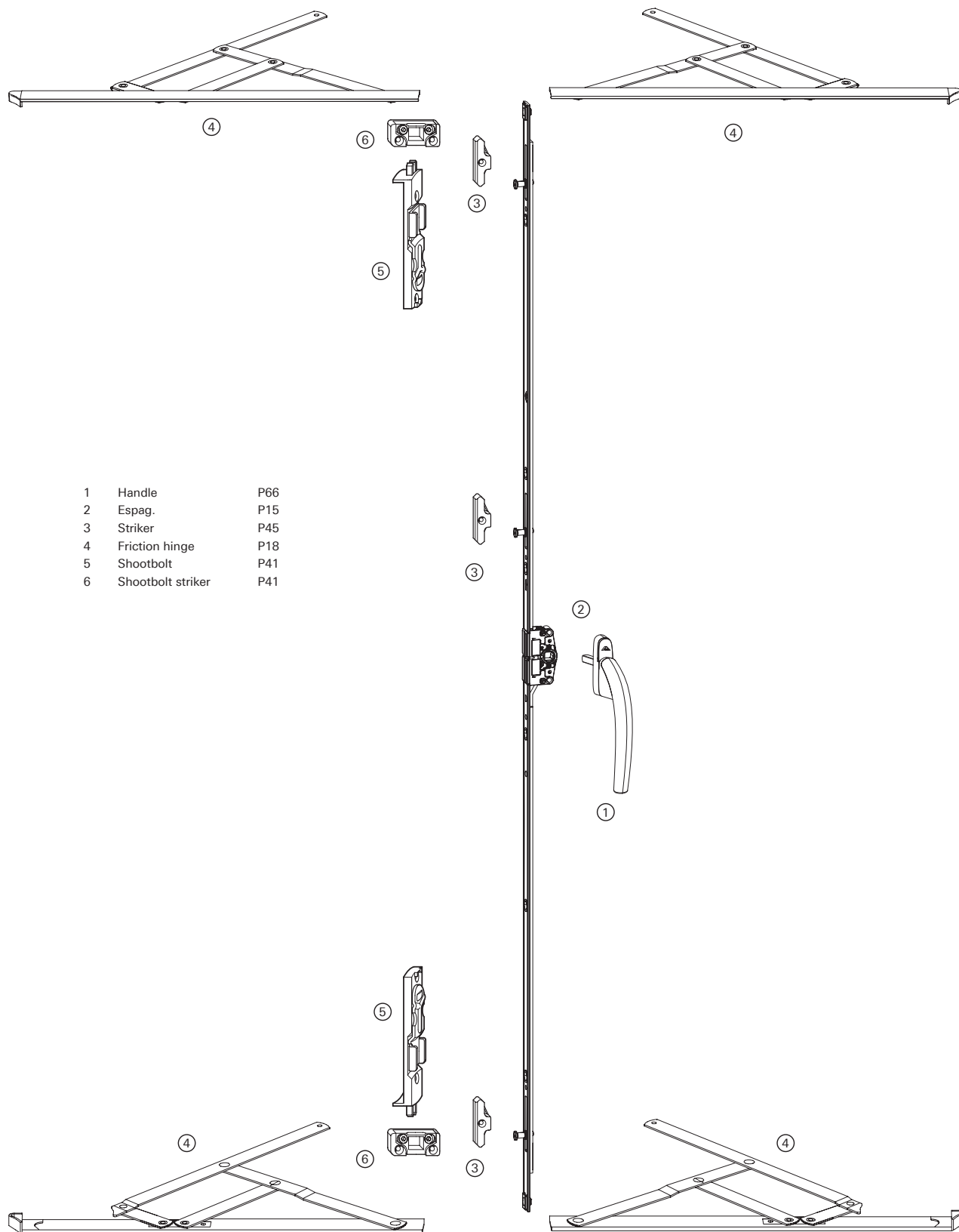


- |   |                |     |
|---|----------------|-----|
| 1 | Handle         | P66 |
| 2 | Espag.         | P15 |
| 3 | Striker        | P42 |
| 4 | Friction hinge | P18 |





French casement window (D.M. w or w/o U-groove)  
 Sash weight max. 55kg (refer to friction hinge capacity)  
 Recommended sash width: 380-900mm; sash height: 400-1600mm



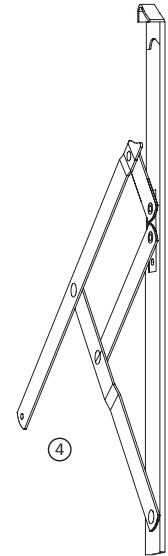
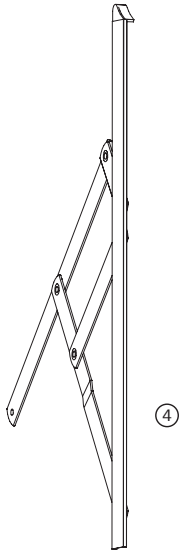
- |   |                   |     |
|---|-------------------|-----|
| 1 | Handle            | P66 |
| 2 | Espag.            | P15 |
| 3 | Striker           | P45 |
| 4 | Friction hinge    | P18 |
| 5 | Shootbolt         | P41 |
| 6 | Shootbolt striker | P41 |



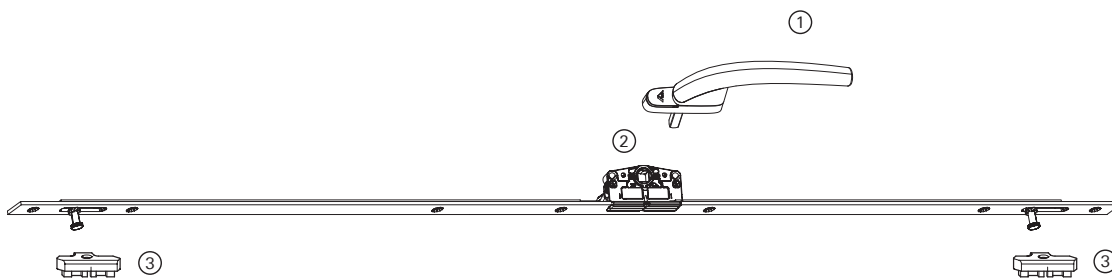
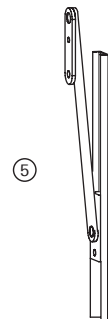
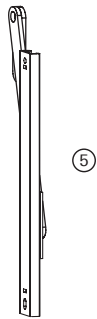
Top hung window

Sash weight max. 120kg (refer to friction hinge capacity)

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



- |   |                |     |
|---|----------------|-----|
| 1 | Handle         | P66 |
| 2 | Espag.         | P15 |
| 3 | Striker        | P42 |
| 4 | Friction hinge | P18 |
| 5 | Restrictor     | P19 |



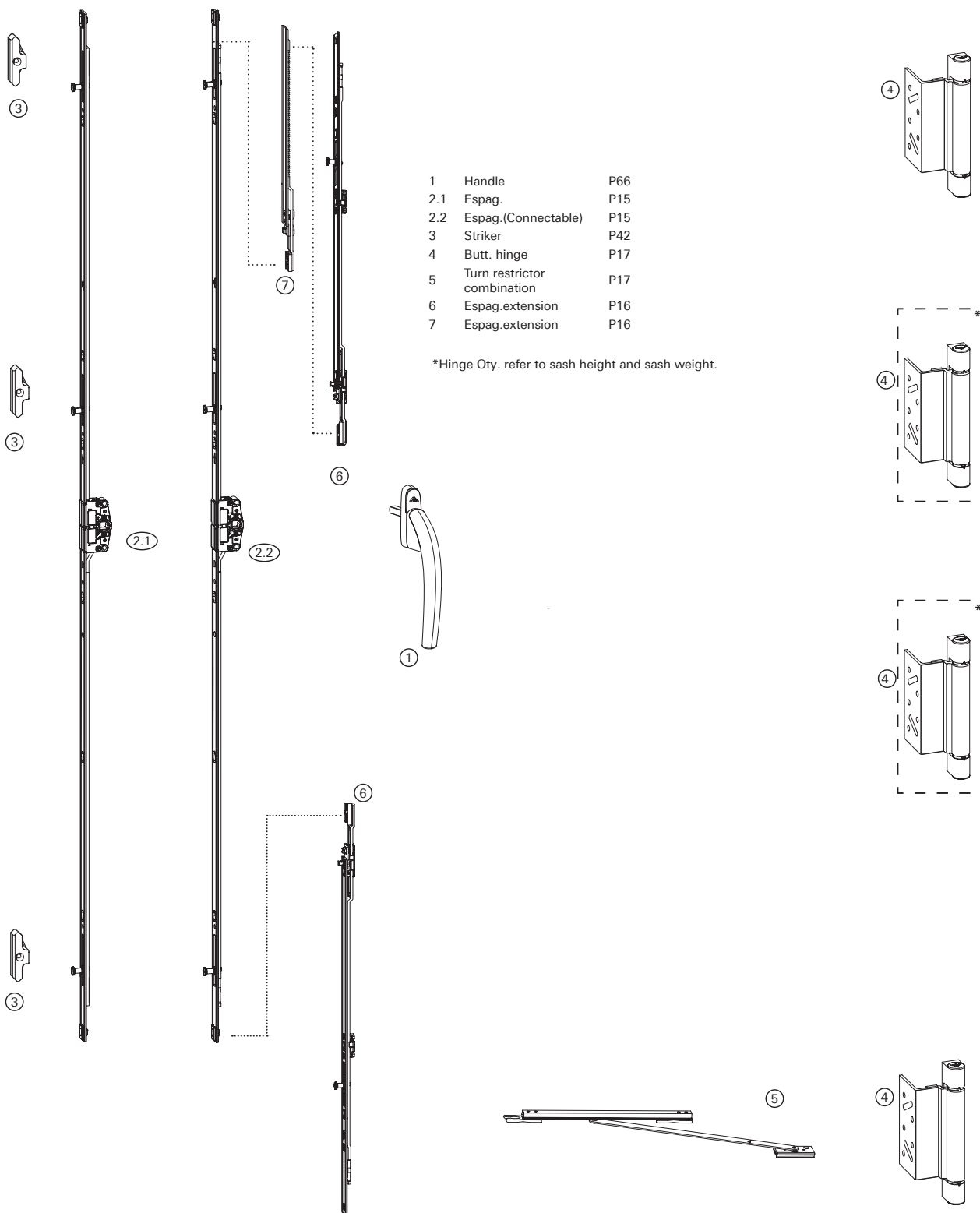


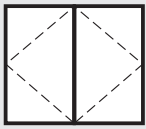


Single sash outward opening window (NT EQ)

Sash weight max. 80kg

Recommended sash width: 380-1000mm; sash height: 400-2200mm

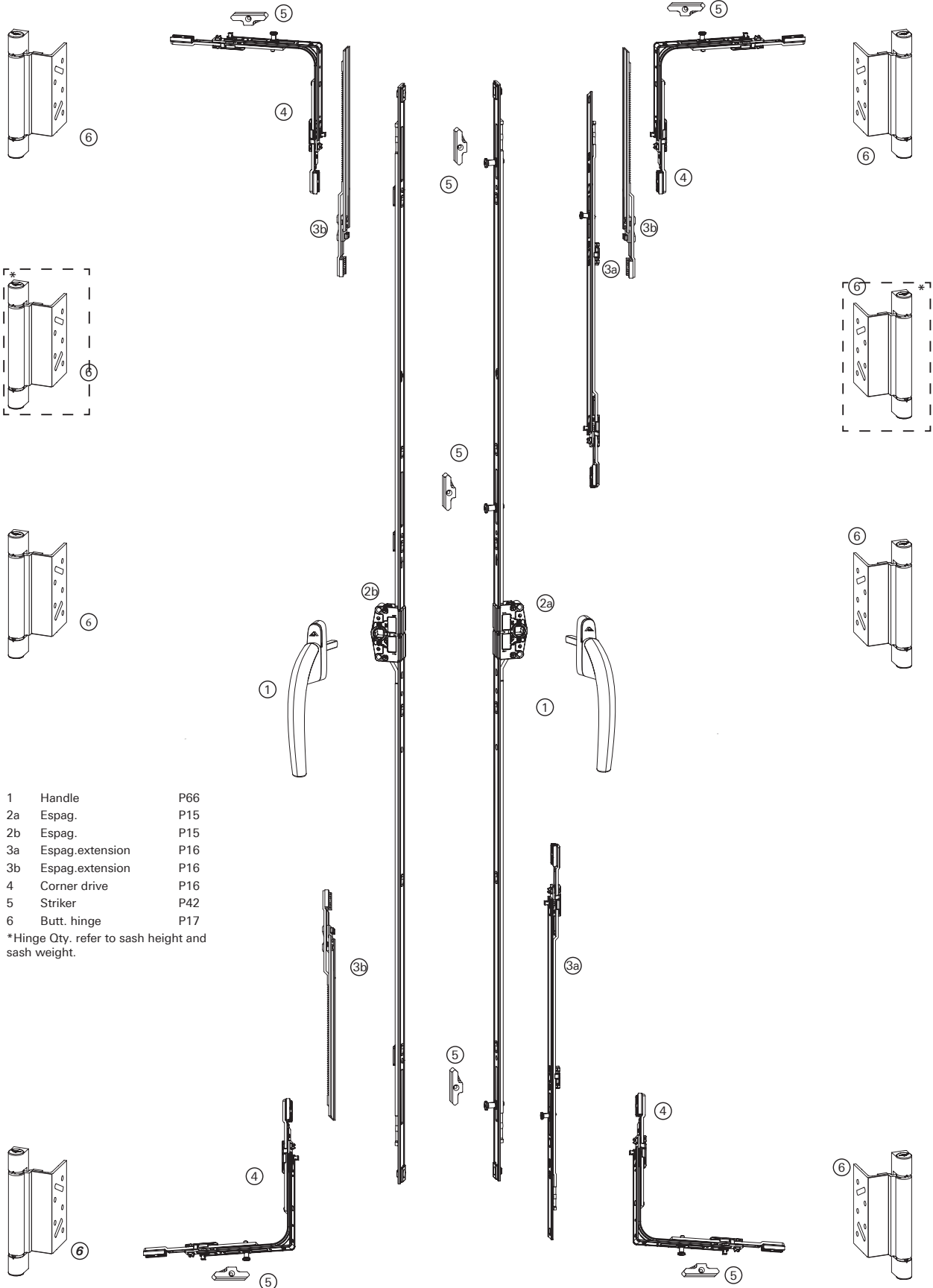




French casement window (NT EO connectable)

Sash weight max. 80kg

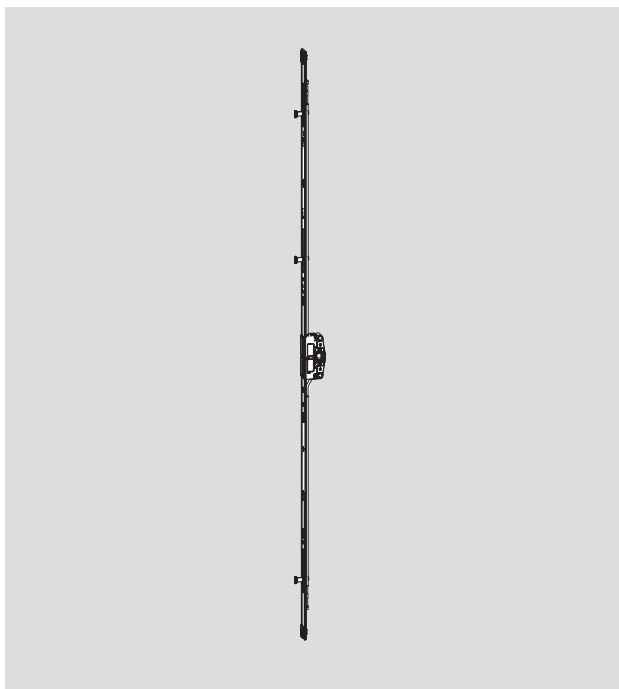
Recommended sash width: 380-1000mm; sash height: 1000-2200mm



- |    |                 |     |
|----|-----------------|-----|
| 1  | Handle          | P66 |
| 2a | Espag.          | P15 |
| 2b | Espag.          | P15 |
| 3a | Espag.extension | P16 |
| 3b | Espag.extension | P16 |
| 4  | Corner drive    | P16 |
| 5  | Striker         | P42 |
| 6  | Butt. hinge     | P17 |

\*Hinge Qty. refer to sash height and sash weight.

### Hardware for outward opening window



#### NT EQ espag.

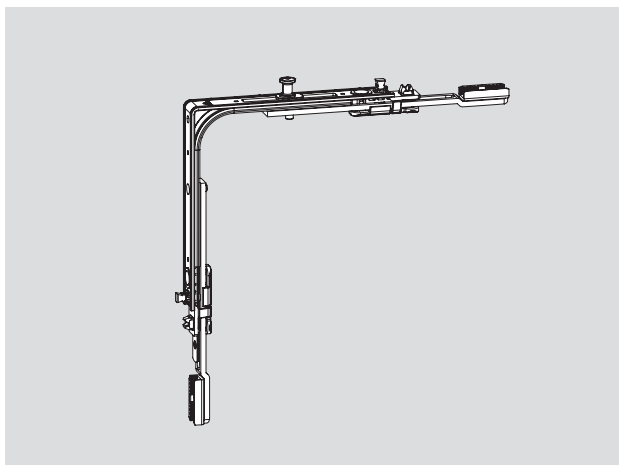
SAP No.	BS	HH	SRH	Cam Qty.
628790	20mm	120-200mm	240-400mm	2
628791	20mm	201-300mm	401-600mm	2
628792	20mm	301-400mm	601-800mm	2
628793	20mm	401-500mm	801-1000mm	2

628806	22mm	120-200mm	240-400mm	2
628807	22mm	201-300mm	401-600mm	2
628808	22mm	301-400mm	601-800mm	2
628809	22mm	401-500mm	801-1000mm	2

#### NT EQ connectable

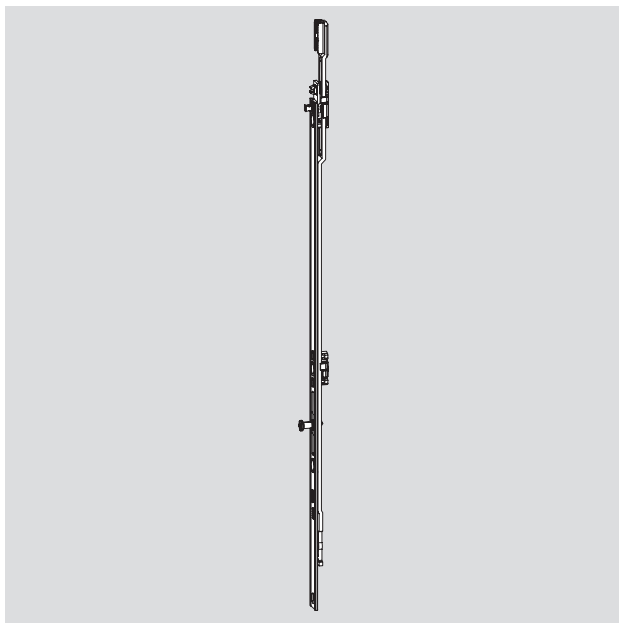
SAP No.	BS	Length	Cam Qty.
639933	20mm	1000	3
639955	20mm	1200	3
639934	20mm	1000	0
639956	20mm	1200	0
741012	22mm	1000	3
741014	22mm	1200	3
741013	22mm	1000	0
741025	22mm	1200	0

Hardware for outward opening window



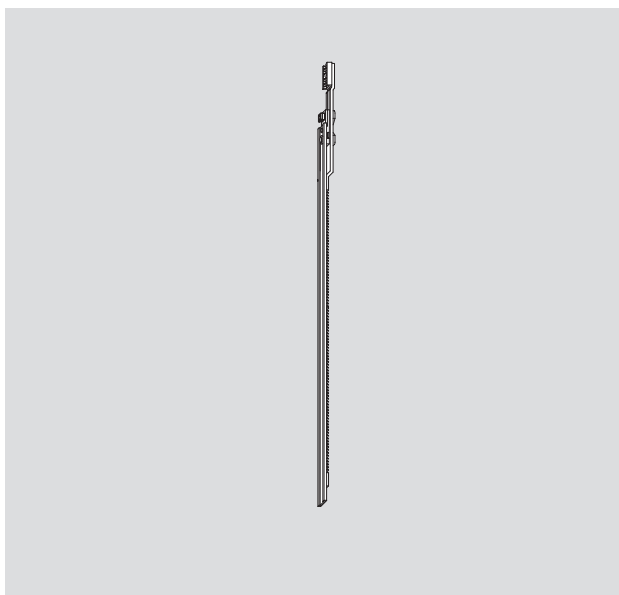
**Corner drive(outward opening)**

SAP No.	Specification
639958	1P cam for outward opening



**Espag. extension(outward opening)**

SAP No.	Specification
639957	1P cam for outward opening, 400mm



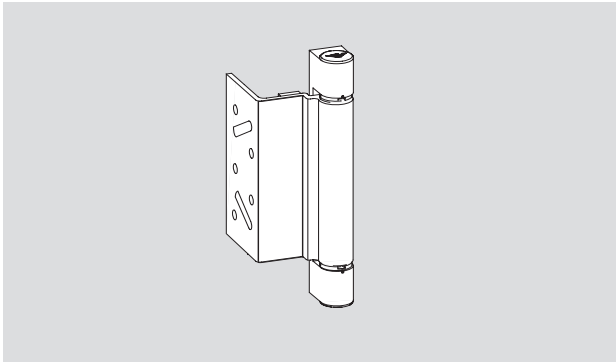
**Espag. extension**

Croppable without cam, length 330mm

SAP No.	Length	Specification
641810	330mm	0C, croppable

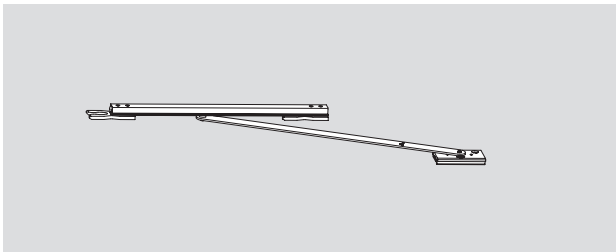


### Hardware for outward opening window



#### Butt.Hinge

SAP No.	Specification
770552	White/80kg
770554	Black/80kg
770725	Raw/80kg
613250	Jig for Butt. hinge



#### Turn restrictor for Butt.Hinge

SAP No.	Specification
613249	650mm<FB<1000mm

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°

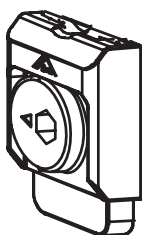
<sup>(1)</sup> Restrictor should be used as additional support.

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

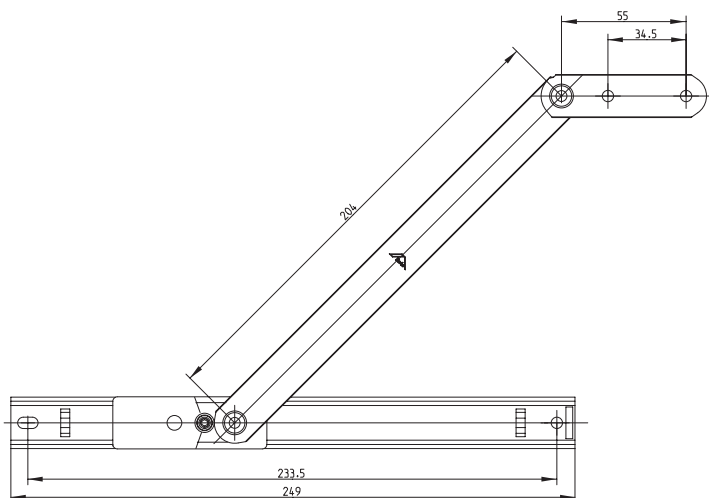
Optional accessories

SAP

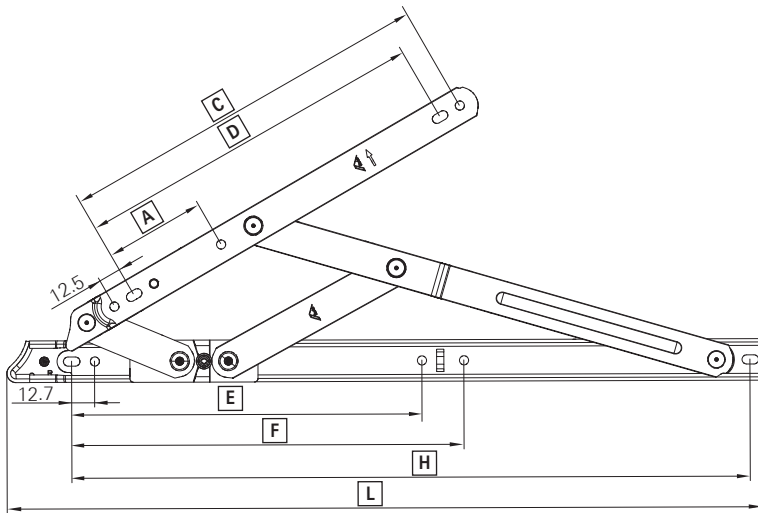
857579<sup>(2)</sup> Height adjustment blocks



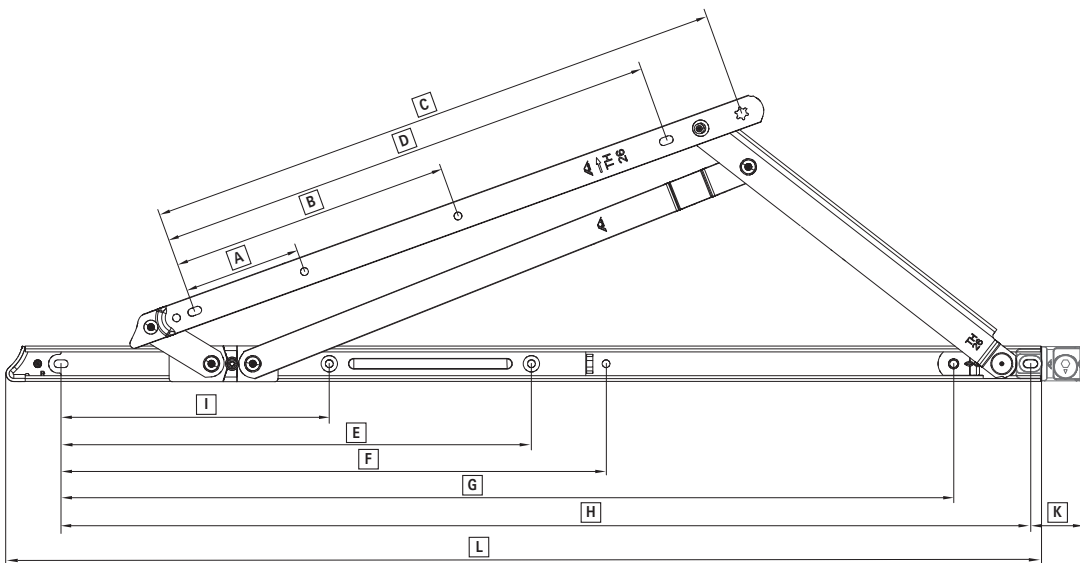
Restrictor		
SAP	Length	Stack Height
785746	10"	13mm



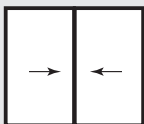
Friction hinge dimension in mm



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



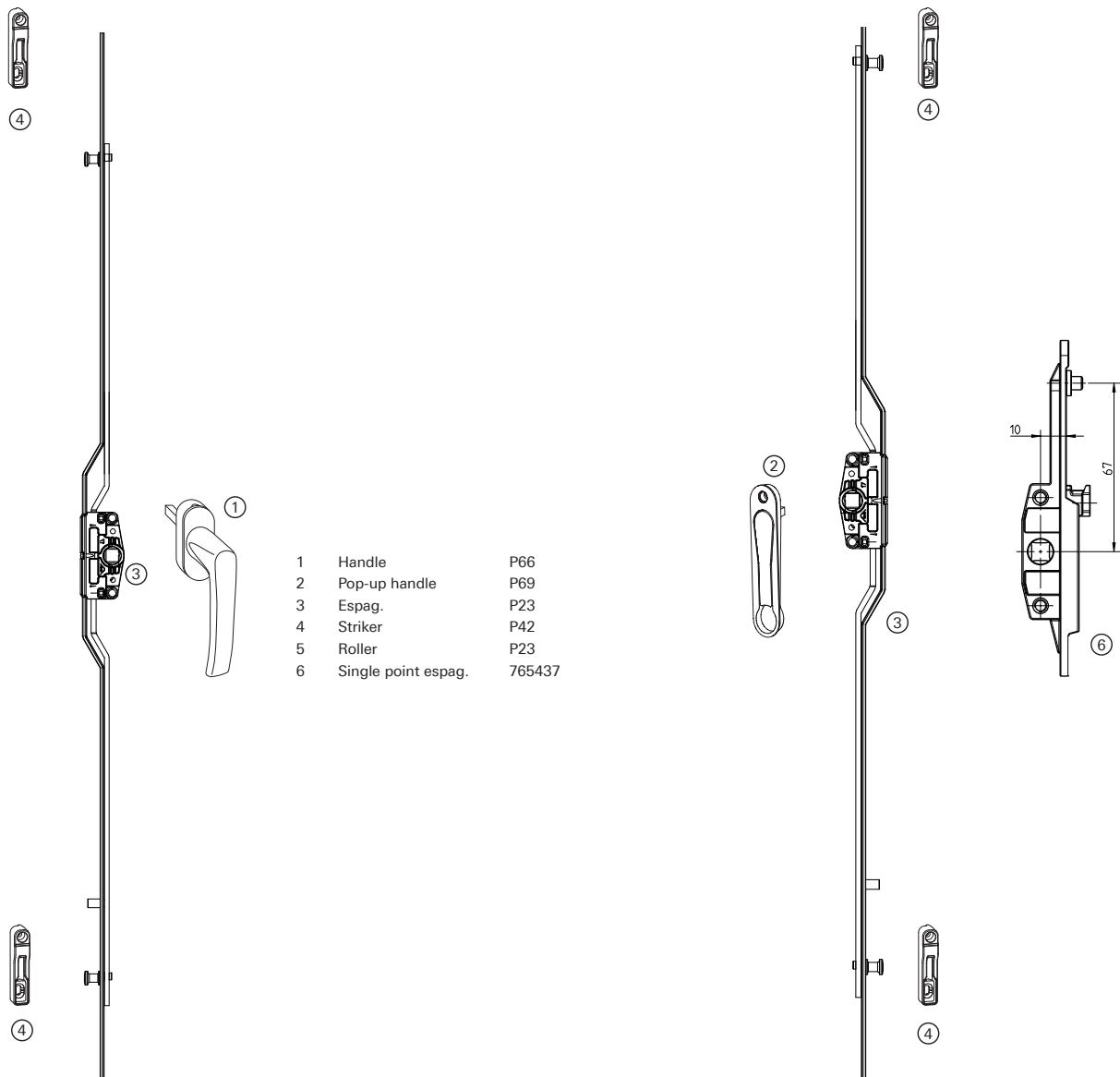
Tophung											
	L	A	B	C	D	I	E	F	G	H	K
8"	212	-	-	123.5	-	-	102.5	125.5	-	170	-
12"	312	37.5	-	189	174.5	-	191	214	-	269.5	-
16"	414	118	-	247.5	235	-	263.5	286.5	-	371	-
22"	565	90	-	248.5	197	160	280	323	473	523	36
26"	666	75	180	374	322.5	172.5	302.5	350.5	574	623.5	36



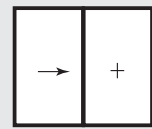
Sliding window

Sash weight (depending on roller capacity)

Recommended sash width: 600-1500mm; sash height: 440-2940mm



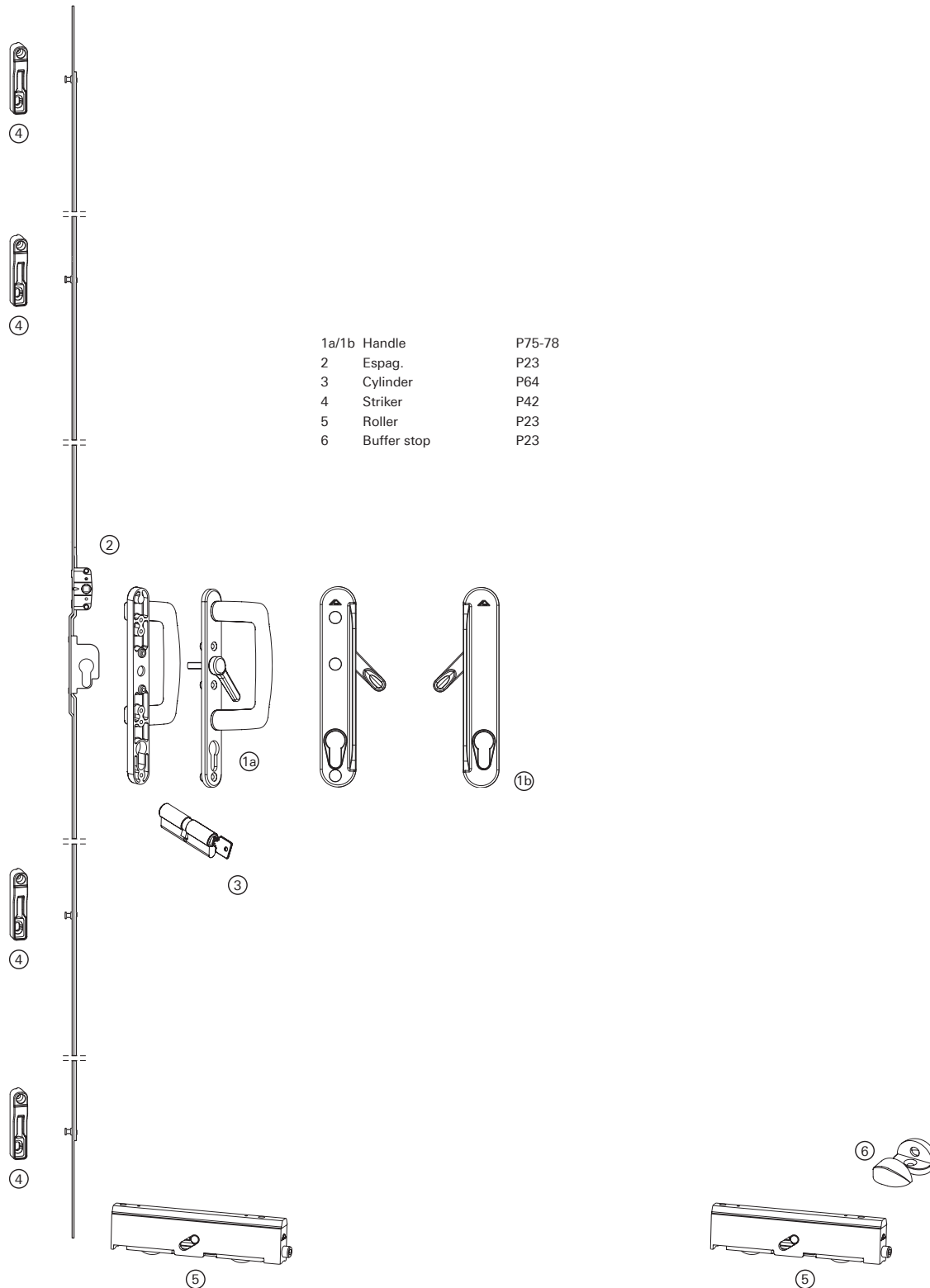


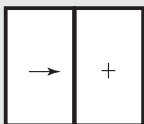


## Sliding door (E08S)

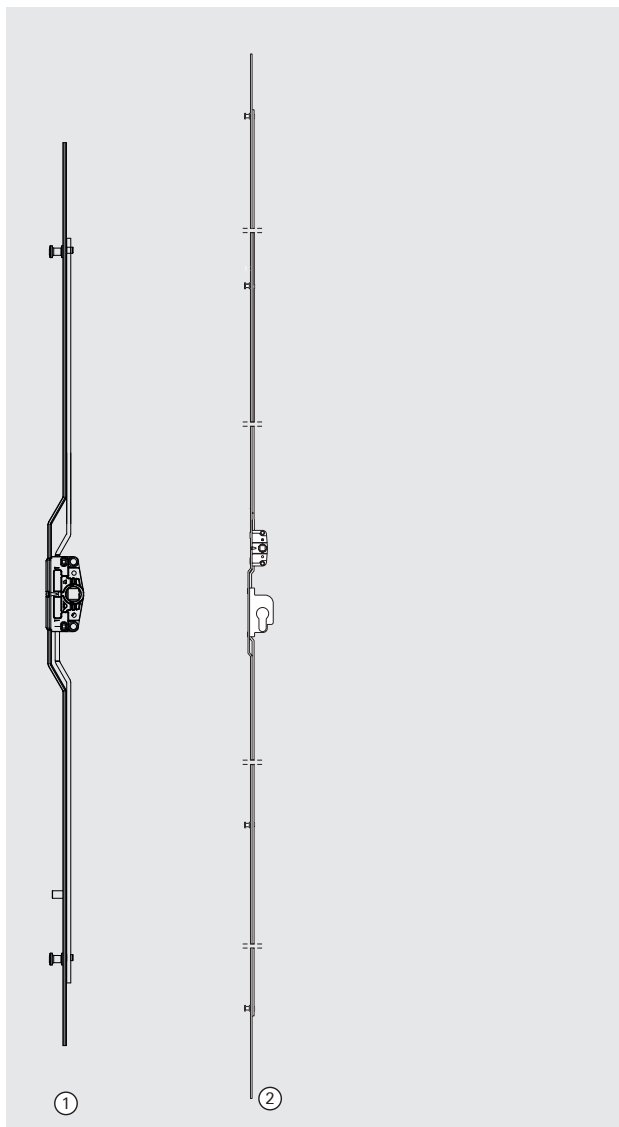
Sash weight max. 180kg (refer to roller capacity)

Recommended sash width: 600-1500mm; sash height: 1841-2940mm





Espag. for sliding window & door



**1. Sliding espag. without lock**

1.1 Sliding espag. without lock 7mm

SAP No.	BS	Length	SRH	Cam Qty.
774275	7	400mm	400-600mm	2
774276	7	600mm	601-800mm	2
774277	7	800mm	801-1000mm	2
774278	7	1000mm	1001-1200mm	3
774279	7	1200mm	1201-1800mm	3

1.2 Sliding espag. without lock 17mm

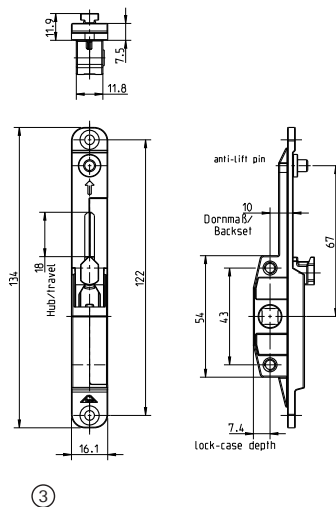
SAP No.	BS	Length	SRH	Cam Qty.
774282	17	400mm	401-600mm	2
774283	17	600mm	601-800mm	2
774284	17	800mm	801-1000mm	2
774285	17	1000mm	1001-1200mm	3
774286	17	1200mm	1201-1800mm	3
774287	17	1800mm	1801-2900mm	4

**2. Sliding espag. lockable**

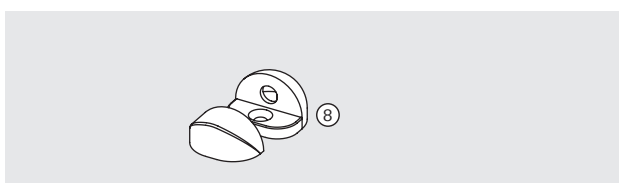
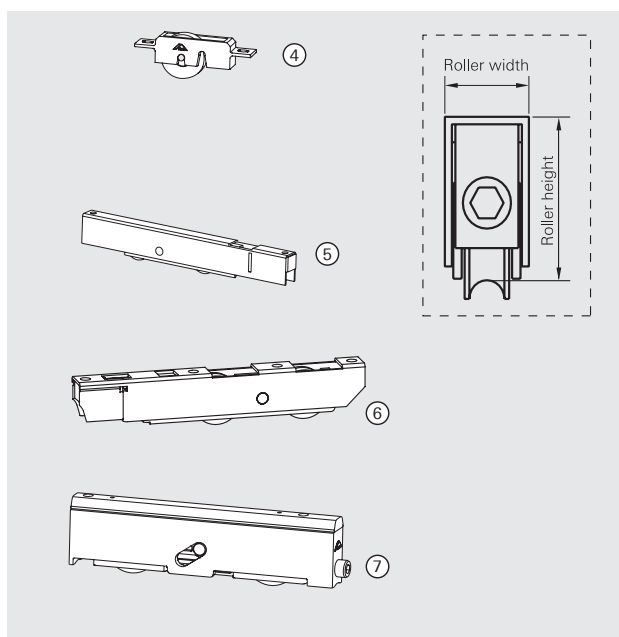
SAP No.	BS	HH	SRH	Cam Qty.
738152	17	901-1200mm	1801-2900mm	4

**3. Single point sliding espag.**

SAP No.	BS	Length	Cam Qty.
765437	10	134mm	1



### Roller for sliding window & door



#### 4,5,6,7, Roller; Roller packer

No.	SAP No.	Roller width	Roller height	Roller type	SW max.	Art-No.
4	616040	12mm	15-23mm	R	90kg	SR90
	616041	Packer for 616040, Height=2.5mm				
5	615951	12mm	19-26mm	R	120kg	TR120
6	2022218	16mm	23.5-28.5mm	R	150kg	TR150
	2022224	16mm	23.5-28.5mm	V	150kg	
7	609014*	16mm	35-47mm	R	180kg	TR186

\*With packer

#### 8. Buffer stopper

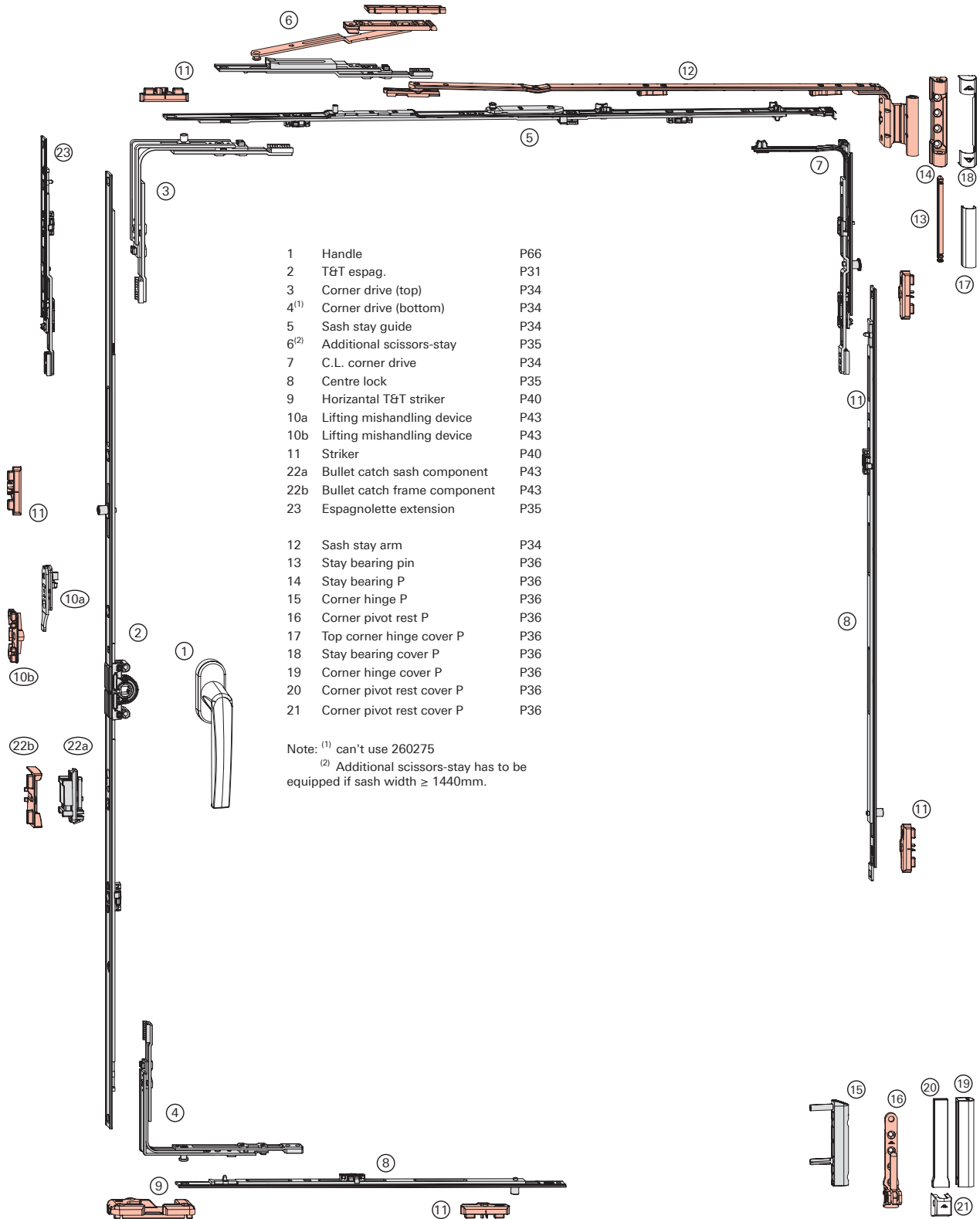
SAP No.	Colour
317250	White
335555	Black
449963	Silver



Single sash Tilt & Turn window (hinge type P)

P hinge sash weight max. 150kg;

Recommended sash width: 290-1600mm; sash height: 450-2800mm



- |                  |                              |     |
|------------------|------------------------------|-----|
| 1                | Handle                       | P66 |
| 2                | T&T espag.                   | P31 |
| 3                | Corner drive (top)           | P34 |
| 4 <sup>(1)</sup> | Corner drive (bottom)        | P34 |
| 5                | Sash stay guide              | P34 |
| 6 <sup>(2)</sup> | Additional scissors-stay     | P35 |
| 7                | C.L. corner drive            | P34 |
| 8                | Centre lock                  | P35 |
| 9                | Horizontal T&T striker       | P40 |
| 10a              | Lifting mishandling device   | P43 |
| 10b              | Lifting mishandling device   | P43 |
| 11               | Striker                      | P40 |
| 22a              | Bullet catch sash component  | P43 |
| 22b              | Bullet catch frame component | P43 |
| 23               | Espagnolette extension       | P35 |
| 12               | Sash stay arm                | P34 |
| 13               | Stay bearing pin             | P36 |
| 14               | Stay bearing P               | P36 |
| 15               | Corner hinge P               | P36 |
| 16               | Corner pivot rest P          | P36 |
| 17               | Top corner hinge cover P     | P36 |
| 18               | Stay bearing cover P         | P36 |
| 19               | Corner hinge cover P         | P36 |
| 20               | Corner pivot rest cover P    | P36 |
| 21               | Corner pivot rest cover P    | P36 |

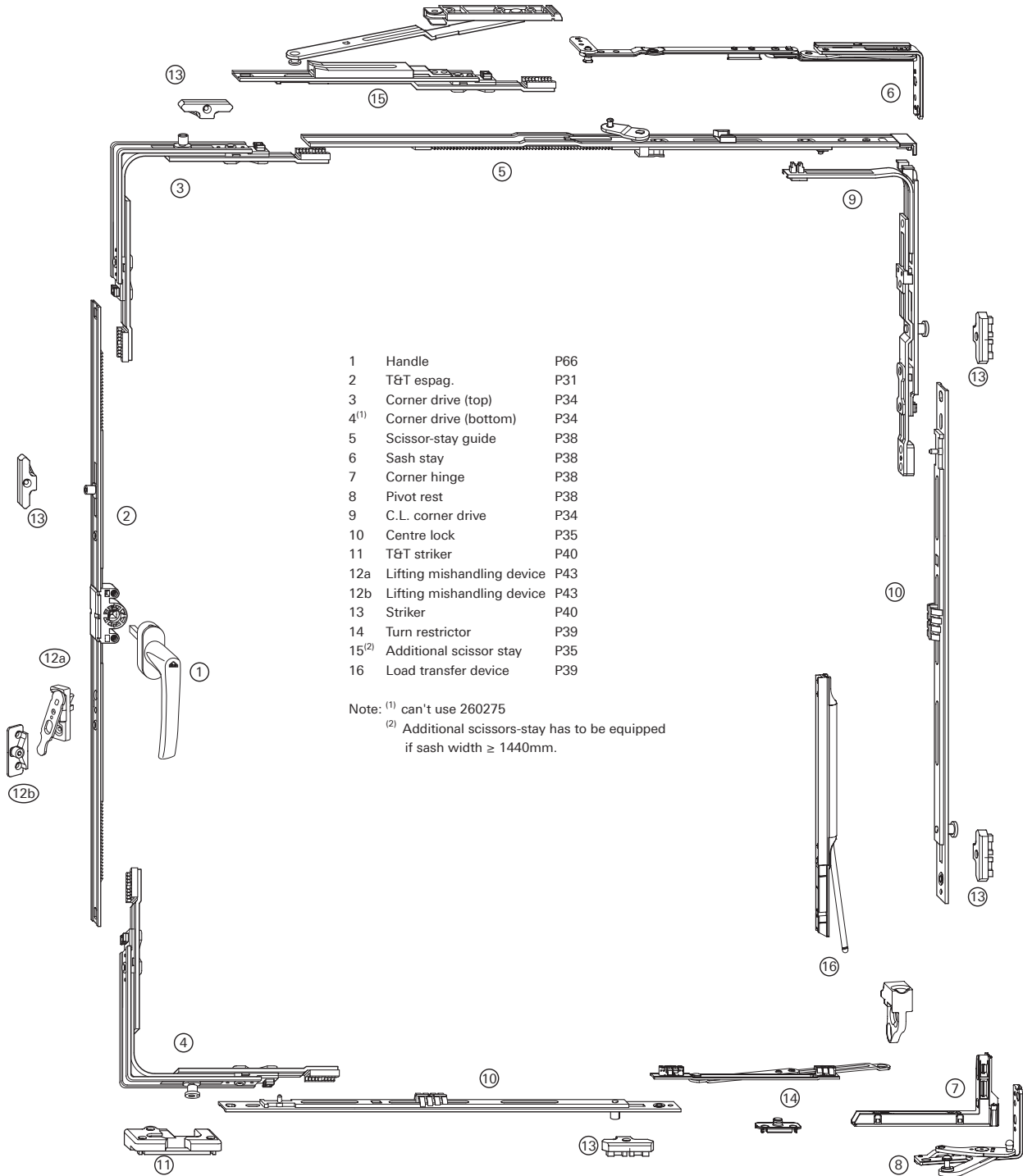
Note: <sup>(1)</sup> can't use 260275  
<sup>(2)</sup> Additional scissors-stay has to be equipped if sash width  $\geq$  1440mm.



Single sash Tilt & Turn window (concealed hinge: Designo II )

Sash weight max. 150kg

Recommended sash width: 370-1400mm; sash height: 490-2440mm





Single sash Turn-Only window (hinge type P)

P hinge sash weight max. 150kg;

Recommended sash width: 290-1600mm; sash height: 550-2800mm



- 1 Handle P66
- 2 Espag. P31
- 3 Corner drive P34
- 4 Centre lock P35
- 5 Striker P40
- 6 Turn restrictor P39
- 20a Lifting mishandling device P43
- 20b Lifting mishandling device P43
- 21a Bullet catch sash component P43
- 21b Bullet catch frame component P43
- 22 Espagnolette extension P35

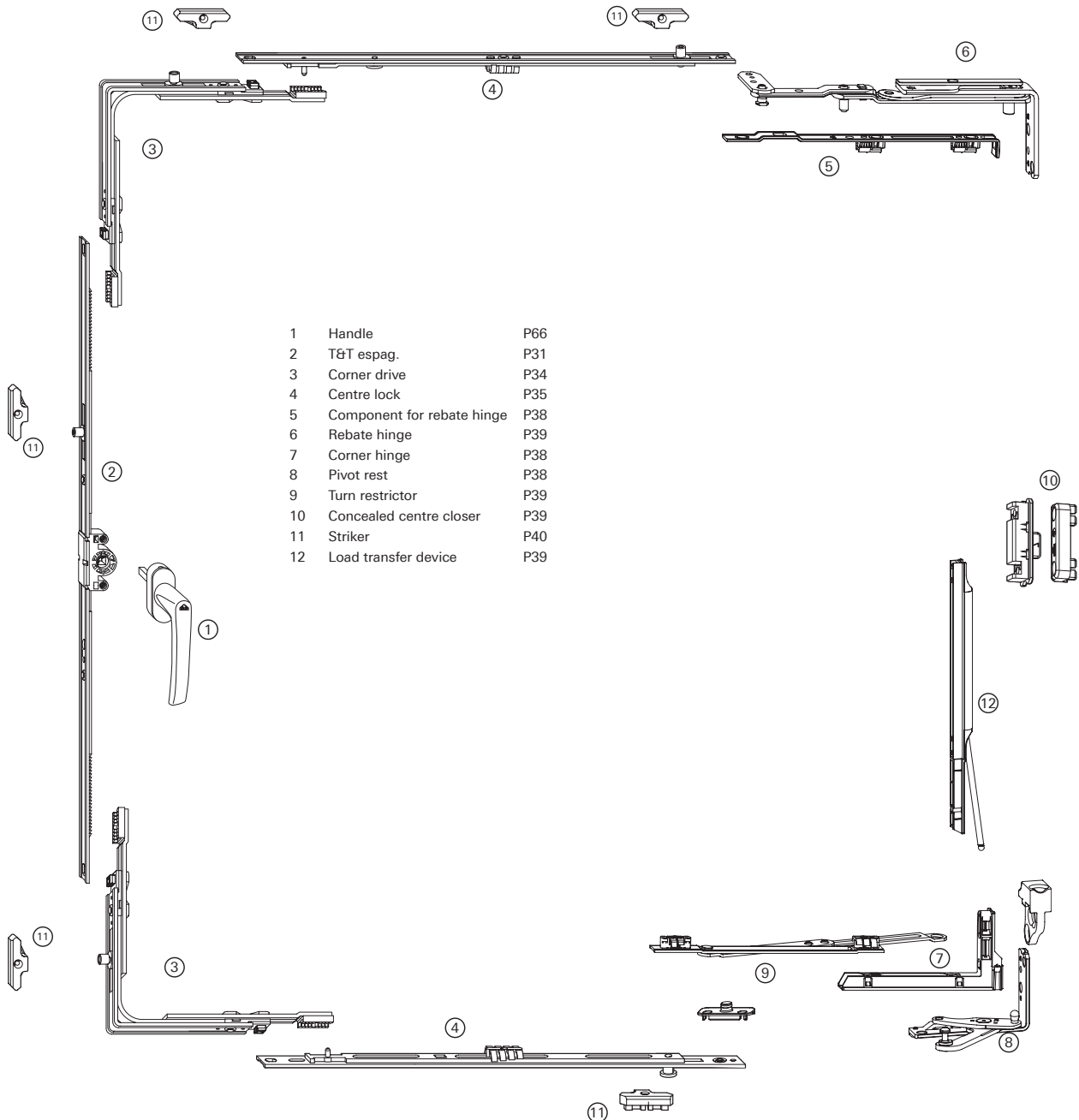
- Hinge P parts**
- 7 Stay bearing P P36
  - 8 Stay bearing pin P36
  - 9 Pivot rest P36
  - 10 Corner hinge P36
  - 12 Concealed centre closer P43
  - 13 Component for rebate hinge P36
  - 14 Top corner hinge cover for P P36
  - 15 Stay bearing cover for P P36
  - 16 Corner hinge cover for P P36
  - 17 Corner pivot rest cover for P P36
  - 18 Corner pivot rest cover for P P36
  - 19 Rebate hinge P36
  - 23 TurnOnly Rebate Hinge P36



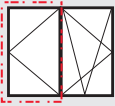
Single sash Turn-Only window (concealed hinge: Designo II )

Sash weight max. 150kg

Recommended sash width: 410-1440mm; sash height: 430-2440mm



- |    |                            |     |
|----|----------------------------|-----|
| 1  | Handle                     | P66 |
| 2  | T&T espag.                 | P31 |
| 3  | Corner drive               | P34 |
| 4  | Centre lock                | P35 |
| 5  | Component for rebate hinge | P38 |
| 6  | Rebate hinge               | P39 |
| 7  | Corner hinge               | P38 |
| 8  | Pivot rest                 | P38 |
| 9  | Turn restrictor            | P39 |
| 10 | Concealed centre closer    | P39 |
| 11 | Striker                    | P40 |
| 12 | Load transfer device       | P39 |

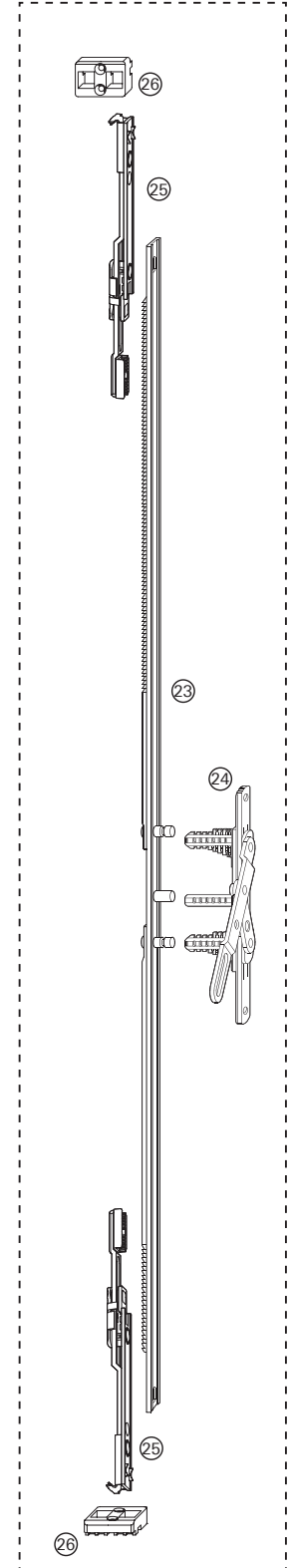
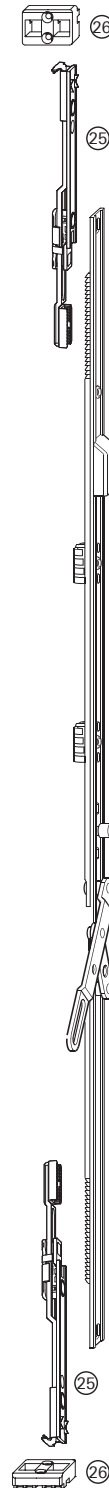


2-sashed windows (one Turn-Only sash, one Tilt & Turn sash)  
 Hinge sash weight max. 150kg;  
 Hinge P parts see page 26

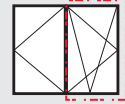
A: D.M. with U groove

B: D.M. without U groove

- |    |   |     |
|----|---|-----|
| 22 | Lever-operated espag.                       | P49 |
| 23 | Lever-operated espag.with<br>separate lever | P49 |
| 24 | Lever handle                                | P49 |
| 25 | Shootbolt                                   | P49 |
| 26 | Shootbolt striker                           | P41 |



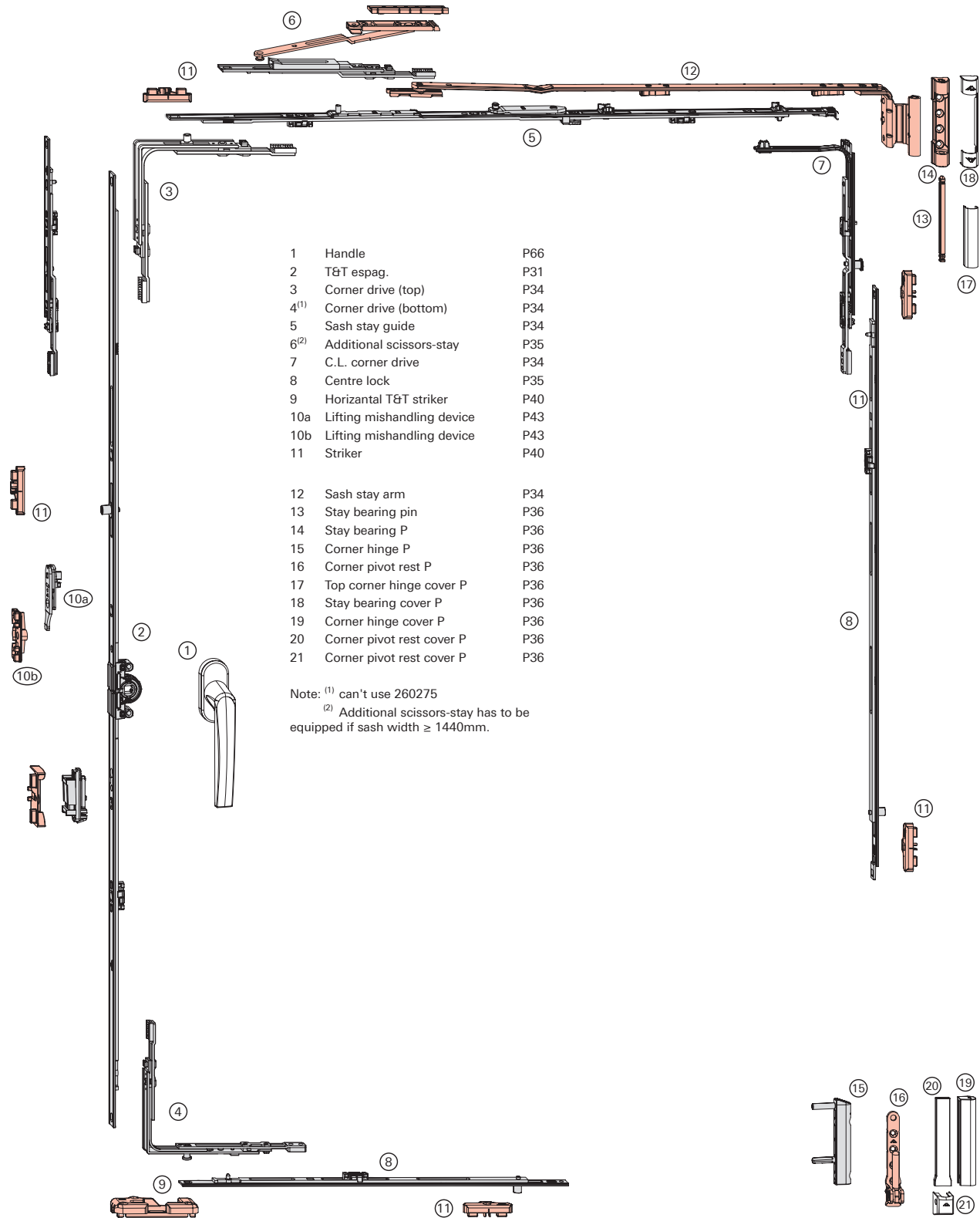




Single sash Tilt & Turn window (hinge type P)

P hinge sash weight max. 150kg;

Recommended sash width: 290-1600mm; sash height: 450-2800mm

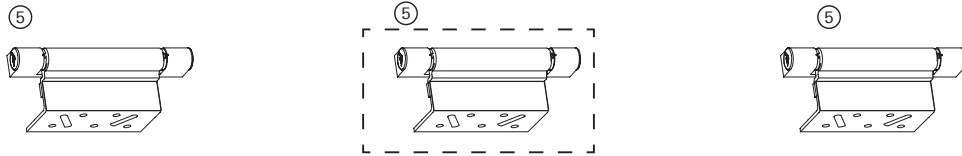




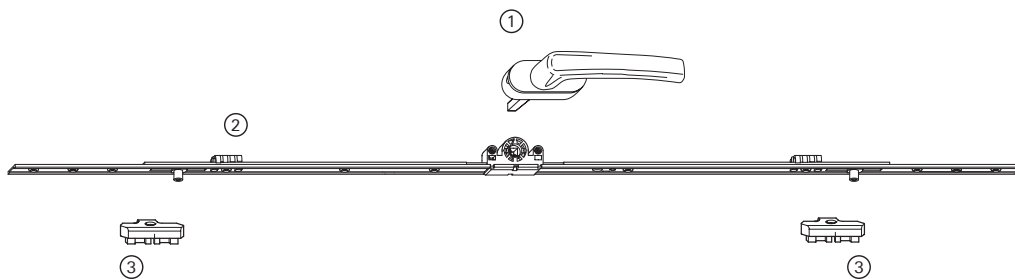
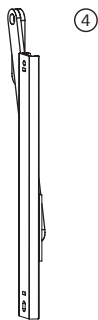
Single sash top hung window (inward opening)

Max sash weight: 80kg;

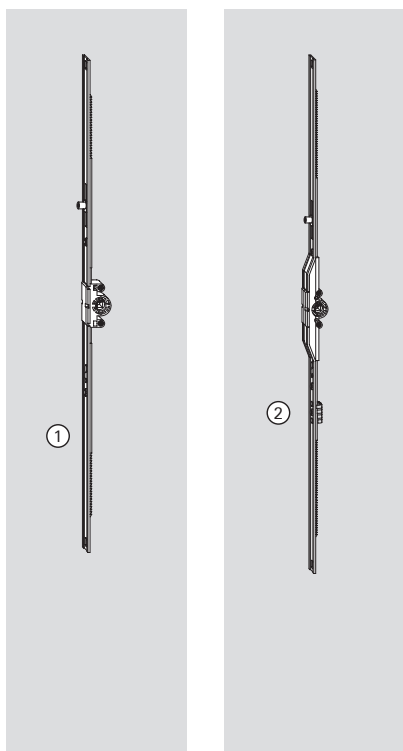
Recommended sash width: 500-1400mm; sash height: 370-1400mm



- |   |                 |        |
|---|-----------------|--------|
| 1 | Rotoline handle | P66    |
| 2 | Turn espag.     | P31    |
| 3 | Striker         | P40    |
| 4 | Restrictor      | 785746 |
| 5 | Butt.hinge      | P17    |



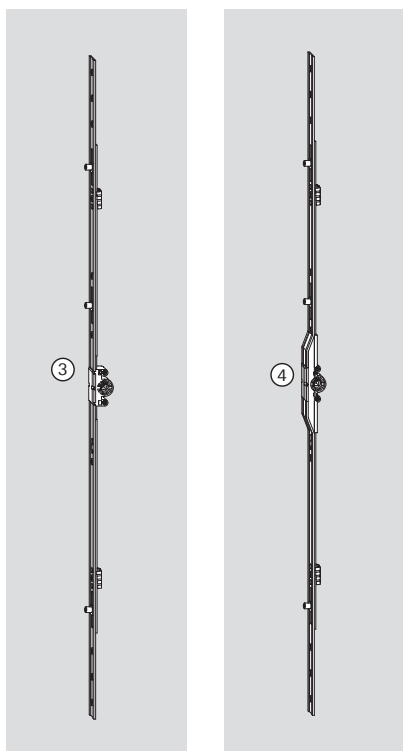
Espag. for inward opening window



### Tilt & Turn espag.

No.	SAP No.	BS	HH	SRH	Cam Qty.
1	642060 <sup>(1)</sup>	15mm	225-310mm	451-620mm	0
	642061	15mm	311-400mm	621-800mm	1E
	612942	15mm	401-600mm	801-1200mm	1E
	612943	15mm	601-800mm	1201-1600mm	2E
	795379	15mm	801-1000mm	1601-2000mm	2E
	795382	15mm	1001-1200mm	2001-2400mm	4E
2	642068 <sup>(1)</sup>	8mm	261-310mm	521-620mm	0
	840811	8mm	311-510mm	621-1020mm	1E
	642155	8mm	401-600mm	801-1200mm	1E
	642070	8mm	601-800mm	1201-1600mm	2E
	795368	8mm	801-1000mm	1601-2000mm	2E
	795370	8mm	1001-1200mm	2001-2400mm	4E

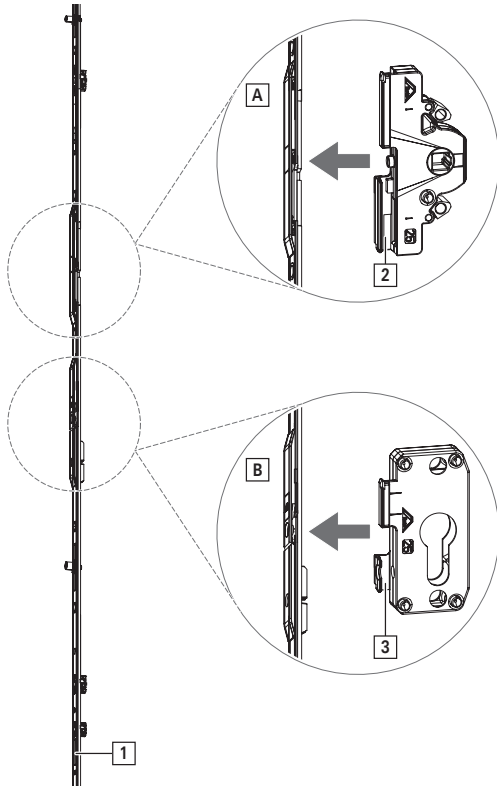
Note: <sup>(1)</sup>Not possible in combination with a lifting mishandling device



### Turn espag.

No.	SAP No.	BS	HH	SRH	Cam Qty.
3	642114	15mm	251-400mm	501-800mm	2E
	642115	15mm	401-550mm	801-1100mm	3E
	642116	15mm	551-700mm	1101-1400mm	3E
	795421	15mm	701-900mm	1401-1800mm	4E
	795423	15mm	901-1200mm	1801-2400mm	4E
4	642121	8mm	251-400mm	501-800mm	2E
	642122	8mm	401-550mm	801-1100mm	3E
	642123	8mm	551-700mm	1101-1400mm	3E
	795430	8mm	701-900mm	1401-1800mm	4E
	795434	8mm	901-1200mm	1801-2400mm	4E

Espagnolette BS from 25mm



Assignment	Meaning
[1]	Espagnolette faceplate
[2]	Gearbox
[3]	Lock casing – profile cylinder
[A]	Gearbox which can be installed in the espagnolette faceplate
[B]	Lock casing which can be installed in the espagnolette faceplate

Espag.



### Faceplate Tilt&Turn

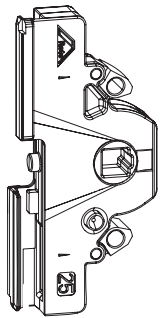
SAP No.	HH	SRH	Cam Qty.
795342 <sup>(1)</sup>	260-460mm	520-920mm	0
795346	401-600mm	801-1200mm	1V
795341	601-800mm	1201-1600mm	2V
795356 <sup>(2)</sup>	801-1200mm	1601-2000mm	2V
795357 <sup>(2)</sup>	1001-1200mm	2001-2400mm	4V

Note: <sup>(1)</sup>Not possible in combination with a lifting mishandling device  
<sup>(2)</sup>Can be installed the lock casing with distance to handle 195mm  
 All faceplate are connectable for both T&T and Turn-Only.

### Faceplate Turn Only

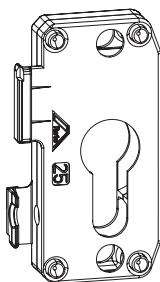
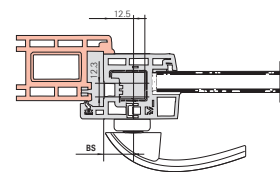
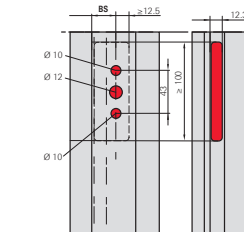
SAP No.	HH	SRH	Cam Qty.
795402	251-400mm	501-800mm	2E
795404	401-550mm	801-1100mm	3E
795406	551-700mm	1101-1400mm	3E
795356		1381-1780mm <sup>(3)</sup>	2V <sup>(4)</sup>
795357		1781-2400mm <sup>(3)</sup>	4V <sup>(4)</sup>

Note: <sup>(3)</sup>Can be installed the lock casing with distance to handle 195mm  
 All faceplate are connectable for both T&T and Turn-Only.  
<sup>(4)</sup>Can be combined with extension piece and corder drives



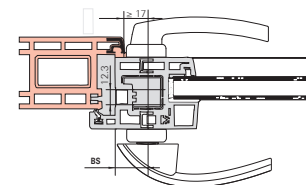
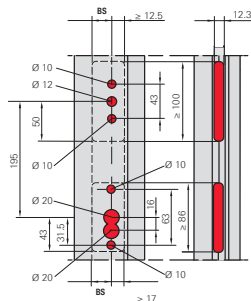
### Gearbox

SAP No.	BS
787675	25mm
787677	30mm
787678	35mm

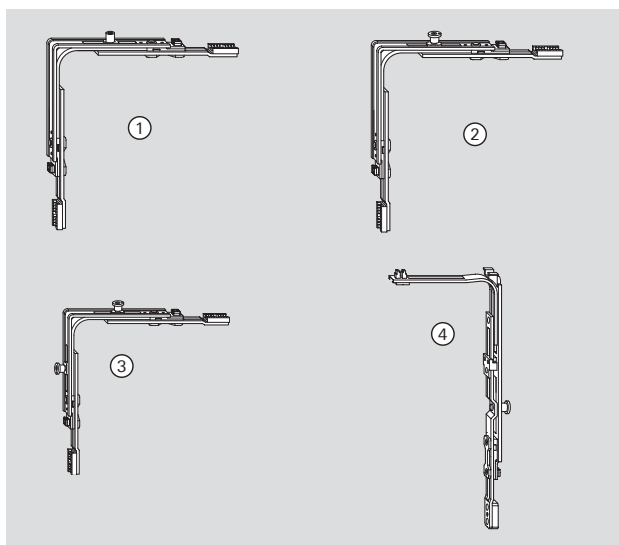


### Lock casing profile cylinder

SAP No.	BS
787656	25mm
787658	30mm
787659	35mm

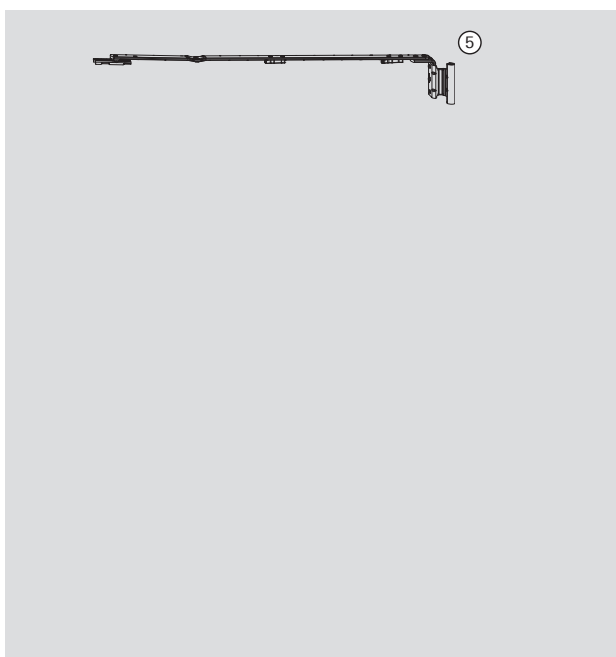


Note: Gears with larger Backset at 40mm,50mm etc. are also available.



### Corner drive

No.	SAP No.	Cam Qty.	Specification
1	640560	1E	
2	640700	1P	
3	640559	2V	
4	640701	1P	For centre lock only



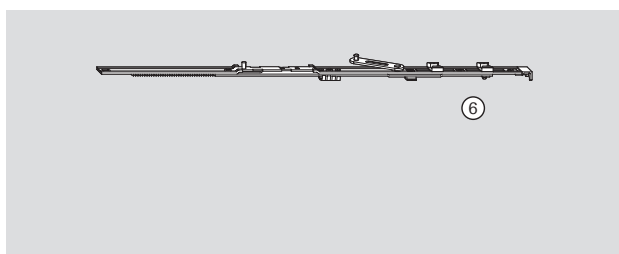
### 5. Stay arm

Axis 12/20-9 for hinge type P (RotoSil)

SAP No.	SRW	Left / Right
787225	290-410mm	L
787226	290-410mm	R
787227	411-600mm	L
787228	411-600mm	R
787229	601-800mm	L
787230	601-800mm	R
787231	801-1400mm	L
787232	801-1400mm	R

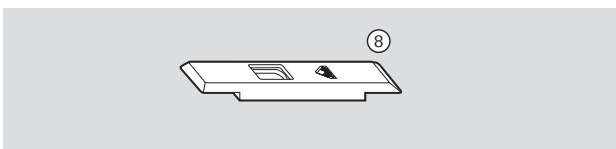
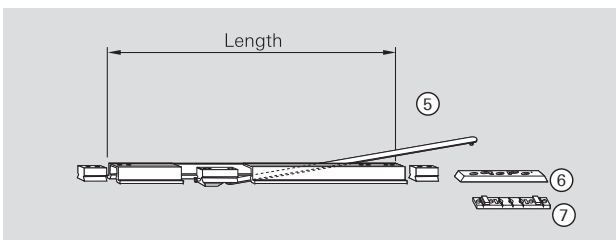
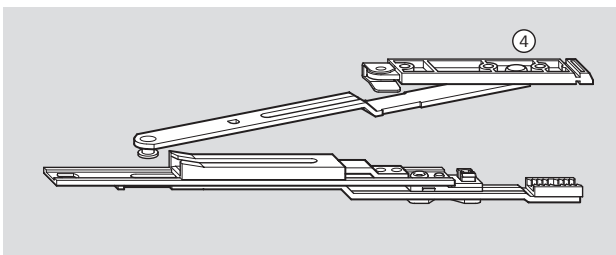
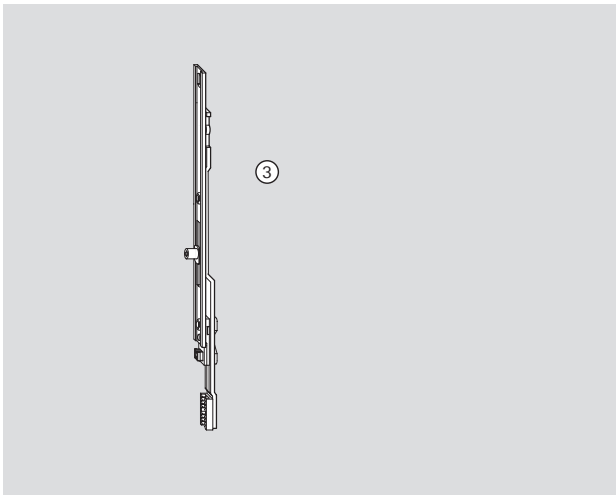
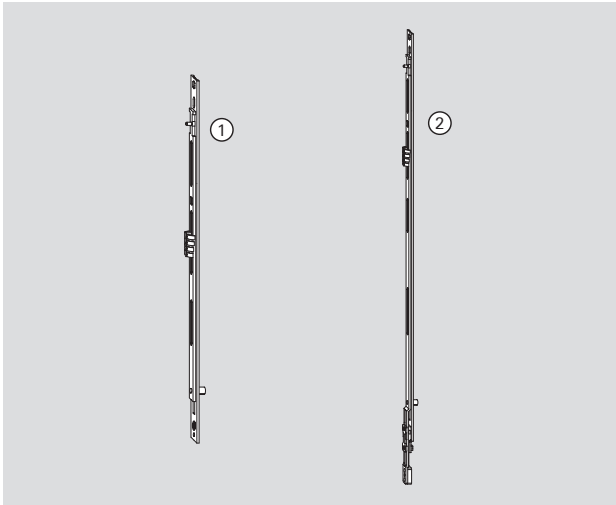
Axis 12/20-13 hinge type P

SAP No.	SRW	Left / Right
795124	290-410mm	L
795125	290-410mm	R
795126	411-600mm	L
795127	411-600mm	R
795128	601-800mm	L
795129	601-800mm	R
795130	801-1400mm	L
795131	801-1400mm	R



### 6. Stay guide

SAP No.	SRW	Cam Qty.
794958	290-410mm	0
794963	411-600mm	0
794967	601-800mm	0
794976	801-1000mm	1E
794987	1001-1200mm	1E
794921	1201-1400mm	1E



### Centre lock

No.	SAP No.	Length	Specification
1	641796	400mm	1E, unconnectable
	641797	600mm	1E, unconnectable
	770478	200mm	1V, unconnectable
2	765644	400mm	1E, connectable
	641798	600mm	1E, connectable

### Application in height

SAP No.	SRH(mm)					
	≤ 800	801-1200	1201-1400	1401-1800	1801-2000	2001-2400
640701	•	•	•	•	•	•
641796		•		•		•
641797			•		•	
641798				•	•	2x •

### Application in width

SAP No.	SRW(mm)		
	801-1200	1201-1400	1401-1600
641796	•		•
641797		•	
641798			•

### Espag. extension

Uncroppable with cam, length 155mm

No.	SAP No.	Length	Specification
3	567639	155mm	1E, uncroppable

### 4. Additional scissor stay

SAP No.	Art-No.
612903	N734A03006

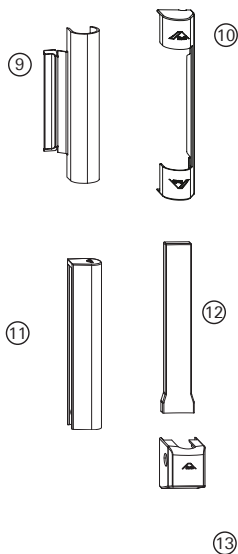
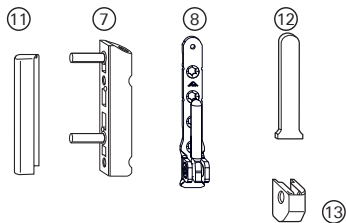
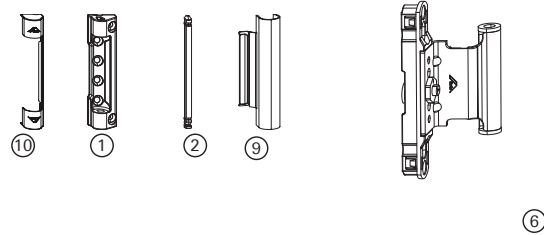
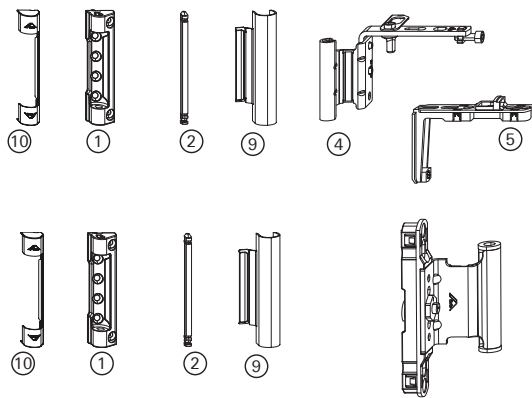
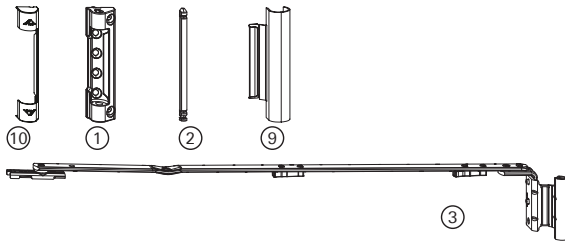
### Turn restrictor for inward window

No.	SAP No.	Description	Specification
5	260564	Turn restrictor	191mm
	260565	Turn restrictor	335mm
6	264625	Turn restrictor block	
7	294369	Packer for turn restrictor	Aluplast/Thyssen AD/MD13
	294464	Packer for turn restrictor	Koemmerling 3S/Energy
	294537	Packer for turn restrictor	Veka Softline AD/MD 9
	294469	Packer for turn restrictor	Rehau S921

### 8. NT faceplate flap

SAP No.	Art-No.
350401	N738A20006

Hinge-side P



Tilt and Turn window / Top parts

No.	SAP No.	Axis	Type
1.	Stay bearing*		
	859173	12/20-9/13	(Max. opening angle approx. 150°)
2.	Stay bearing pin		
	834705		
3.	Stay arm	refer to P34	

Turn window / Top and centre parts

No.	SAP No.	Axis	Type
4.	Rebate hinge		
	795206	12/20-9/L	
	795207	12/20-9/R	
	795214	12/20-13/L	
	795215	12/20-13/R	
5.	Sash-component for rebate hinge		
	331488		
6.	TurnOnly Rebate Hinge (Centre hinge)		
	787383 with compens. adj.	12/20-9	
	787387 with compens. adj.	12/20-13	

Tilt and Turn window / Bottom parts

No.	SAP No.	Axis	Type
7.	Corner hinge*		
	263858	12/20-9/13	
8.	Pivot rest*		
	787209	12/20-9/13	

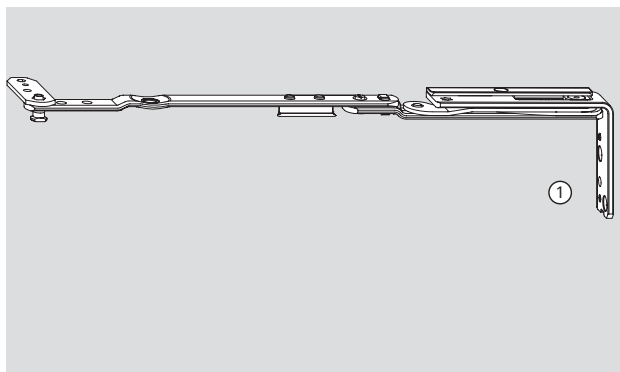
Cover caps

No.	SAP No.	Colour	Type
9.	Cover caps for stay arm		
	788410	White	
	788408	M.bronze	
	788403	Silver R01.1	
	788407	Black Brown	
10.	Stay bearing cover		
	861197	White	
	861178	M.bronze	
	861169	Silver R01.1	
	861177	Black Brown	
11.	Cover caps for corner hinge P6		
	788434	White	12/20-9/13
	788432	M.bronze	12/20-9/13
	788427	Silver R01.1	12/20-9/13
	788431	Black Brown	12/20-9/13
12.	Cover caps for pivot rest P		
	788418	White	12/20-9/13
	788416	M.bronze	12/20-9/13
	788411	Silver R01.1	12/20-9/13
	788415	Black Brown	12/20-9/13
13.	Cover caps for pivot rest P		
	788426	White	12/20-9/13
	788424	M.bronze	12/20-9/13
	788419	Silver R01.1	12/20-9/13
	788423	Black Brown	12/20-9/13
	*Refer to P74	Drilling jig	



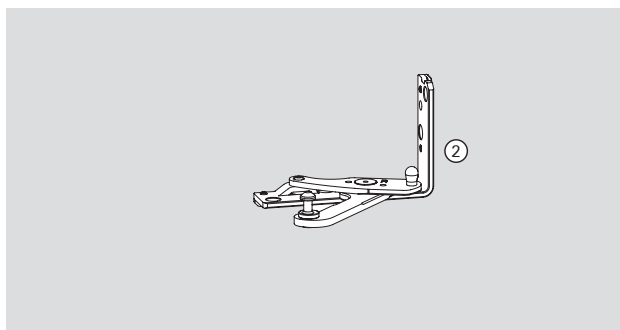


Designo II hinges



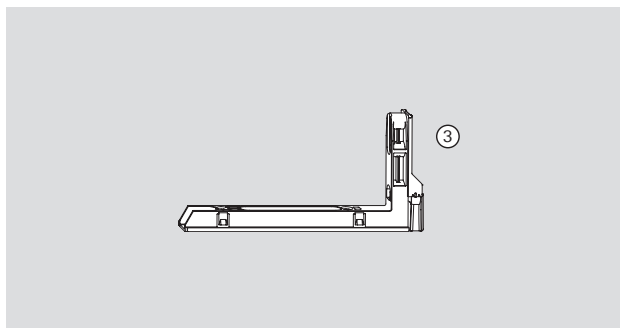
**1. Stay arm Designo**

Profile NO.	Type	Stay arm 250	Stay arm 350	Stay arm 500
		SAP No.	SAP No.	SAP No.
Koemmerling Eurofutur Classic	L	606347	606349	606353
	R	606346	606348	606352
Rehau S921/980	L	606364	606366	606369
	R	606363	606365	606367
Veka Softline	L	606391	606393	606395
	R	606390	606392	606394
Aluplast Ideal 2000/3000	L	623968	623970	623972
	R	623967	623969	623971
Aluplast Ideal 4000/6000/8000	L	628938	628941	628948
	R	628937	628939	628947
Deceuninck 3000(Zendow)	L	623948	623950	623952
	R	623947	623949	623951

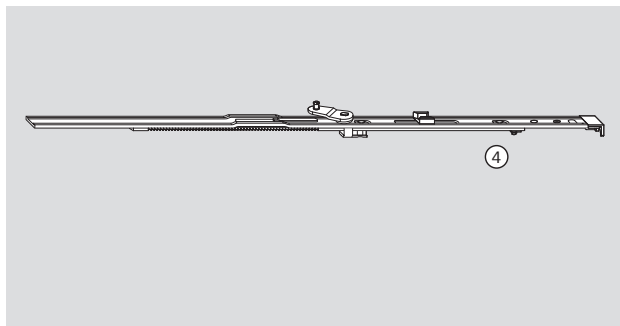


**2. Pivot rest**

Profile NO.	Type	SAP No.
Koemmerling Eurofutur Classic	L	606355
	R	606354
Rehau S921/980	L	606371
	R	606370
Veka Softline	L	606397
	R	606396
Aluplast Ideal 2000/3000	L	623974
	R	623973
Aluplast Ideal 4000/6000/8000	L	628950
	R	628949
Deceuninck 3000(Zendow)	L	623953
	R	623954



**3. Corner hinge** 634705

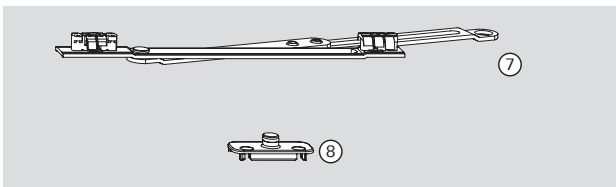
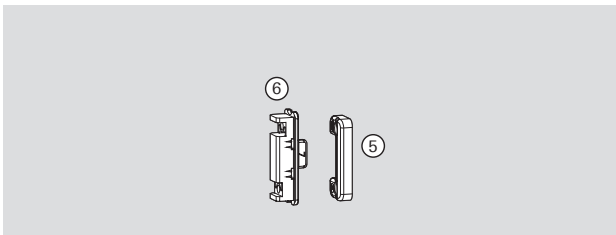
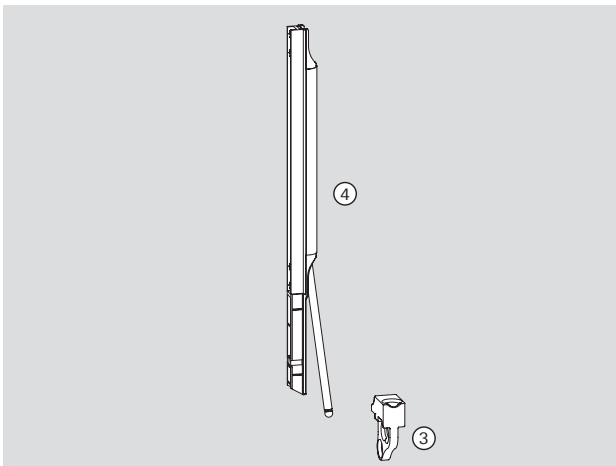
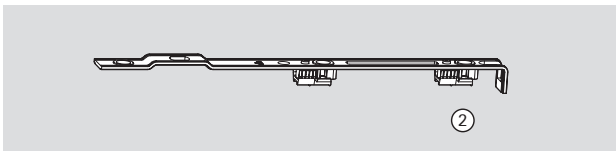
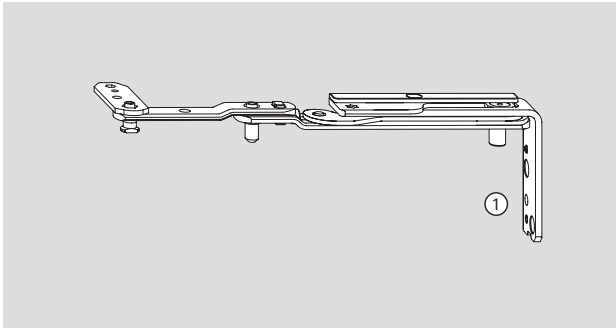


**4. Stay guide**

SAP No.	SRW	Cam Qty.	Description	Length
385393 <sup>(1)</sup>	330-410mm	0	250	490
385393	411-600mm	0	250	490
385394	601-800mm	0	350	690
385415	801-1000mm	1E	500	890
385416	1001-1200mm	1E	500	1090
385416 <sup>(2)</sup>	1201-1400mm	1E	500	1090

(1) With special corner-drive  
 (2) Use an additional scissor stay from SRW 1201mm

### Designo II hinges



#### 1. Rebate hinge

Profile NO.	Type	SAP No.
Koemmerling Eurofutur Classic	L	606345
	R	606344
Rehau S921/980	L	606362
	R	606361
Veka Softline	L	606388
	R	606387
Aluplast Ideal 2000/3000	L	623966
	R	623965
Aluplast Ideal 4000/6000/8000	L	628936
	R	628914
Deceuninck 3000(Zendow)	L	623946
	R	623945

#### 2. Sash-component for rebate hinge

477255

#### Load transfer device

3. Load transfer device (frame)	565254
4. Load transfer device (sash)	567972

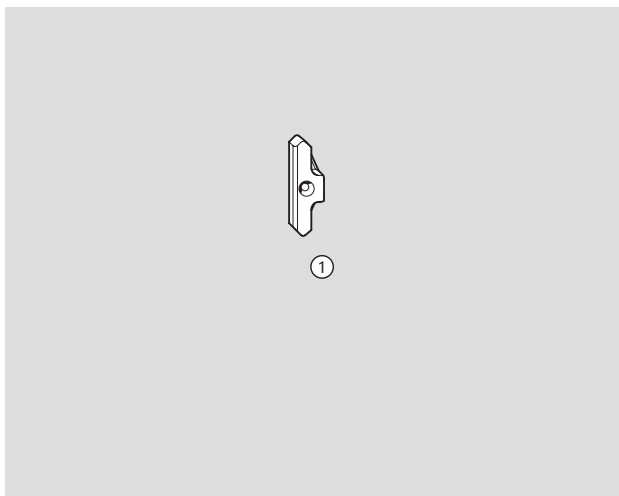
#### Concealed centre closer

5. Concealed centre closer ,frame component	
Profile NO.	SAP No.
Koemmerling Eurofutur Classic	606605
Rehau S921/980	606606
Veka Softline	606607
Aluplast Ideal	630577
2000/3000/4000/6000/8000	
6. Concealed centre closer ,sash component	450984

#### Turn restrictor\*

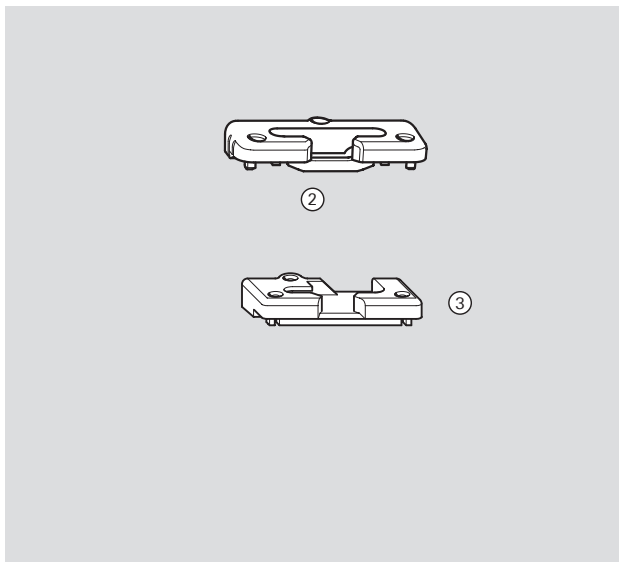
7. Turn restrictor ,sash component	
12/20-13	485591
8. Turn restrictor ,frame component	
	477848

\* from SRW 525, mandatory from SRW 1000mm and mandatory with load transfer device



### 1.Striker

Profile	SAP No.
Aluplast Ideal 2000	640526
Aluplast Ideal 4000/6000	350192
Deceuninck Zendow	370071
Koemmerling Eurodur 3S/Energy	260365
Koemmerling Gold/Gold Asea	332439
Koemmerling C-70	260365
Rehau S921/980	332439
ShiDe 104/106	332439
ShiDe 60/60A/66/68	260368
Thyssen Zendow	370071
Veka Softline AD58/MD58	260368
Veka Softline AD60	332438
Veka ToplineAD60/MD70	332438



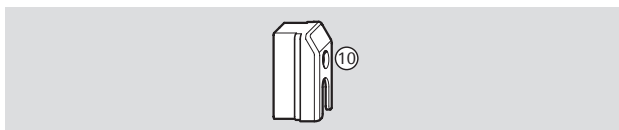
### T&T Striker

#### 2. T&T striker

Profile	SAP No.
Aluplast Ideal 2000	331487
Aluplast Ideal 4000/6000	350190
Conch 60(door)	331487
Koemmerling Gold/Gold Asea C-70	338021
Rehau S921/980	338021
ShiDe 104/106	331487

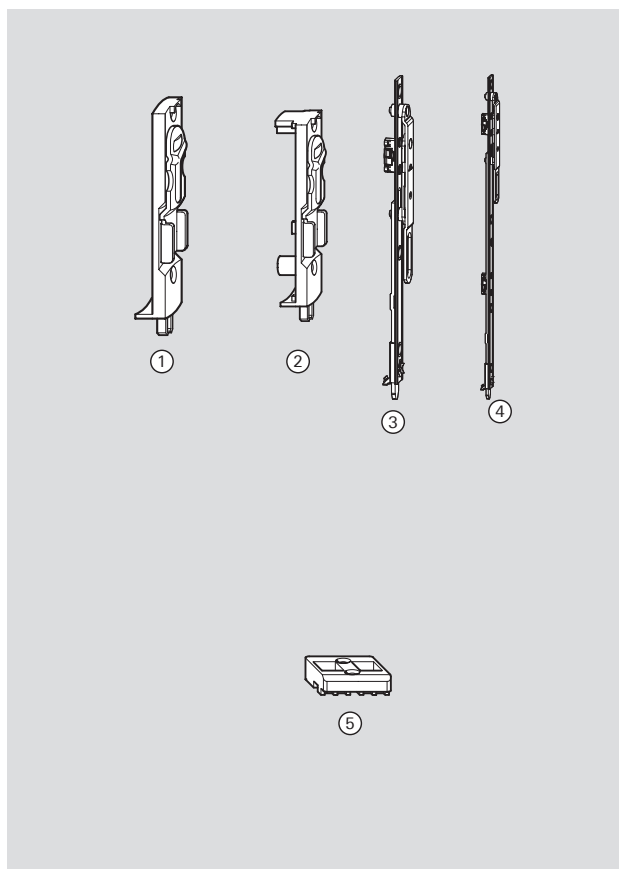
#### 3. T&T striker

Profile	Type	SAP No.
Koemmerling Eurodur 3S/Energy	L	260489
	R	260490
KBE 70AD	L	289973
	R	289974
Deceuninck	L	370074
	R	370073
Veka Softline AD/MD 9	L	260495
	R	260496
Veka Softline AD/MD 13	L/R	338019



### D.M. striker(D.M. with U groove)

No.	SAP No.
10	260359



### Shoot bolt & shoot bolt striker

#### Shoot bolt

No.	Specification	SAP No
1	100mm,dummy mullion w/o U groove	<b>260189</b>
2	100mm,dummy mullion w. U groove	<b>305638</b>
3	200mm,dummy mullion w. U groove	<b>633419</b>
4	390mm,dummy mullion w. U groove	<b>618666</b>

#### 5.Shoot bolt striker

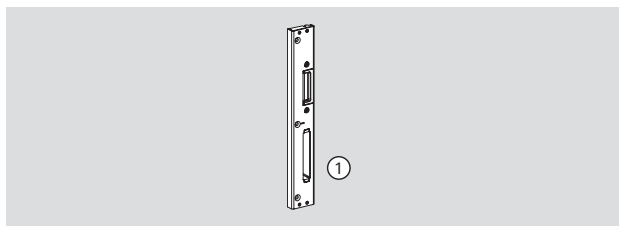
##### Shoot bolt striker(inward opening)

Profile	SAP No.
Aluplast Ideal 2000	<b>260439</b>
Aluplast Ideal 4000/6000	<b>257360</b>
Conch 60(door)	<b>260434</b>
Conch 60(window)	<b>260436</b>
Koemmerling Eurodur 3S/Energy	<b>260433</b>
Koemmerling Gold C-70	<b>260434</b>
Deceuninck Zendow	<b>370177</b>
Rehau S921/980	<b>260434</b>
ShiDe 104/106	<b>260434</b>
ShiDe 60/60A/66/68	<b>260436</b>
Veka Softline AD/MD 9	<b>260436</b>
Veka Softline AD/MD 13	<b>263783</b>
Veka Topline AD/MD 13	<b>260372</b>

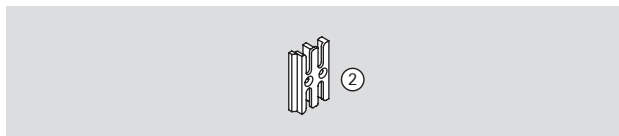
##### Shoot bolt striker(outward opening)

Aluplast	<b>260452</b>
Koemmerling Gold C-70	<b>260434</b>
Rehau S921	<b>260434</b>
Veka Softline AD58	<b>260452</b>

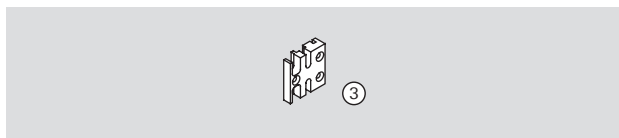
### Striker for window & door



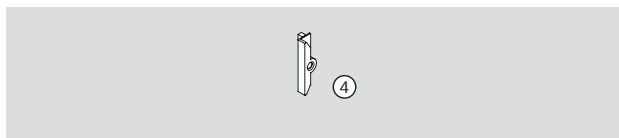
1. Main striker		
Profile		SAP No.
12/20-9	L	<b>390807</b>
	R	<b>390808</b>
Aluplast/Dimex/Rehau/Zendow	L	<b>390659</b>
	R	<b>390660</b>
Koemmerling Eurodur 3S/Energy	L	<b>390765</b>
	R	<b>390766</b>



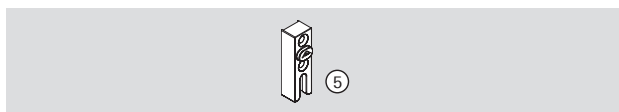
2.Striker for outward opening window	
SAP No.	Art-No.
<b>571277</b>	NT C10A
<b>820164</b>	



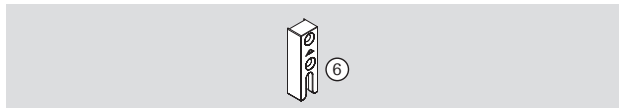
3.Striker for outward opening window	
SAP No.	Art-No.
<b>602128</b>	NT M89A



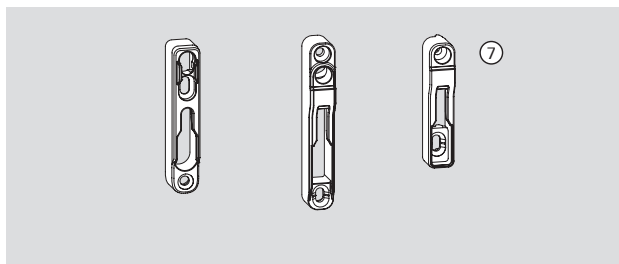
4.Striker for outward opening window	
SAP No.	Art-No.
<b>571276</b>	NT C00A



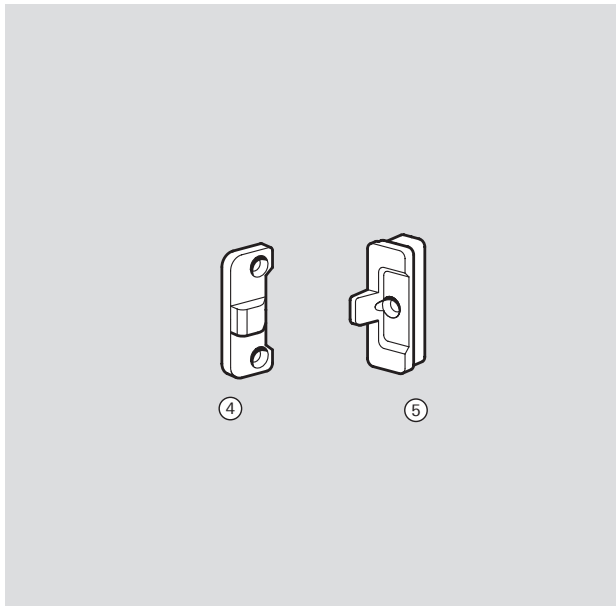
5.Striker for sliding window & door		
SAP No.	Specification	Art-No.
<b>606308</b>	Koemmerling Orta;Rehau S920; Thyssen SR/SF;Veka SL58	NT M43A



6.Striker for sliding window & door		
SAP No.	Specification	Art-No.
<b>571278</b>	Aluplast;Dimex	NT N00A



7. RAD2000 Striker	
SAP No.	Profile
629560	Veka
629554	Premiline L
629555	Premiline R
629559	Aluplast
629553	Conch,Dimex
629551	Rehau,Shide,Zhongcai
629557	For millings



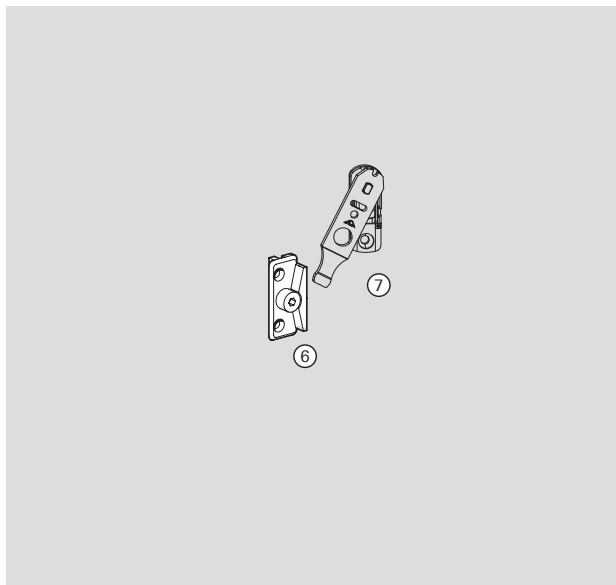
### Concealed centre closer

#### 4. Concealed centre closer(frame)

Profile	SAP No.
Aluplast Ideal 2000	264236
Conch 60(door)	250725
Conch 60(window)	250729
Dimex	250725
Koemmerling Eurodur 3S/Energy	250726
KBE 70AD	264254
Rehau S921	250725
ShiDe 104/106	250725
ShiDe 60/60A/66/68	250729
Thyssen AD/MD 13/Prestige AD/Prestige MD	264234
Thyssen Chamfered 2500	250725
Veka Softline AD 9(AD58)	250729
Veka Softline MD 9(MD58)	250730
Veka Softline AD 13(AD60)	250728
Veka Topline AD 13	250728
Veka Topline MD 13	284093

#### 5. Concealed centre closer(sash)

SAP No.  
331485



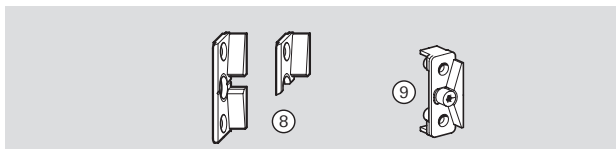
### Lifting & Mishandling device

#### 6. Mishandling device

Profile	SAP No.
Aluplast Ideal 2000	260551
Aluplast Ideal 4000/6000	260557
Conch 60(door)	260546
Conch 60(window)	260548
Koemmerling Eurodur 3S/Energy	260545
Koemmerling Gold/Gold Asea C-70	260546
Deceuninck Zendow	260554
Rehau S921/980	260546
ShiDe 104/106	260540
ShiDe 60/60A/66/68	260548
Veka Softline AD/MD 9	260548
Veka Softline MD 13	260552
Veka ToplineAD/MD 13	260552

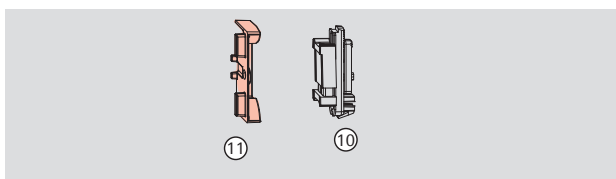
#### 7. Lifting device sash part

SAP No.  
820775



### Lifting device

No.	Specification	
8	For lever-operated espag.	257600
9	For opposing hardware groove	260539

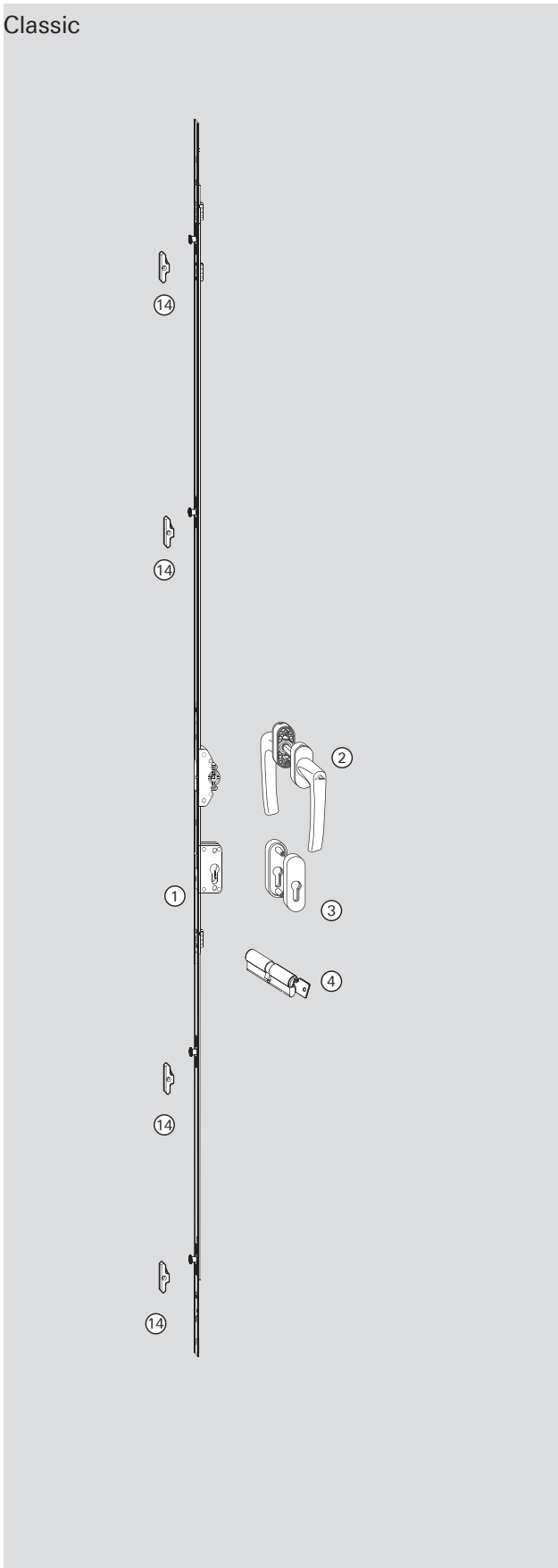


### Bullet Catch (optional SRH $\geq 1601$ mm) RotoSil

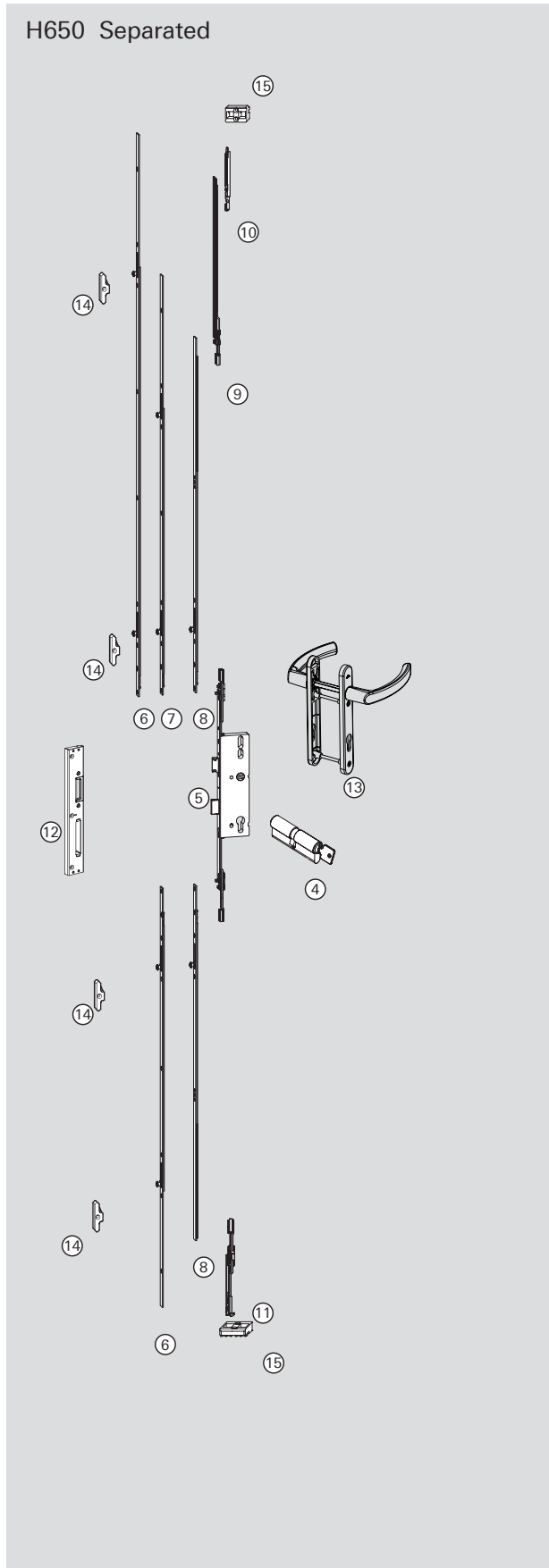
No.	Specification	SAP No.
10	Bullet catch sash component	788363
11	Bullet catch frame component	
Profile		SAP No.
Aluplast Ideal 4000/6000/8000, Rehau S 735 MD		788672
Kömmerring 76, Veka Topline MD 13, KBE 70 AD		788615
Gealan S7000/S8000		788574

Casement door lock

Classic



H650 Separated





Application range

Sash Width: .....600 mm – 1200 mm

Sash Height: .....Refer to espag.

Sash Weight max.: .....Related to the hinge side

1. T espag. with PZ. lock Refer to page 33

2. Handle Refer to page 66

3. Cylinder cover Refer to page 67

4. Cylinder Refer to page 78

5,6,7,8,9,10,11 H650 espag. Refer to page 46

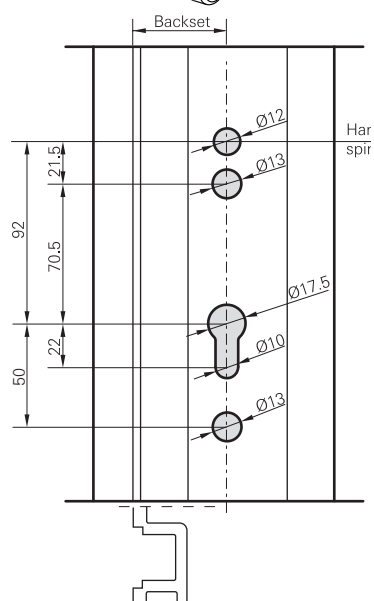
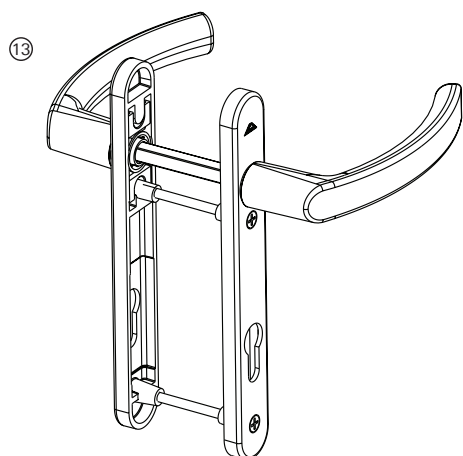
12. Main striker Refer to page 42

13. RotoStark handle

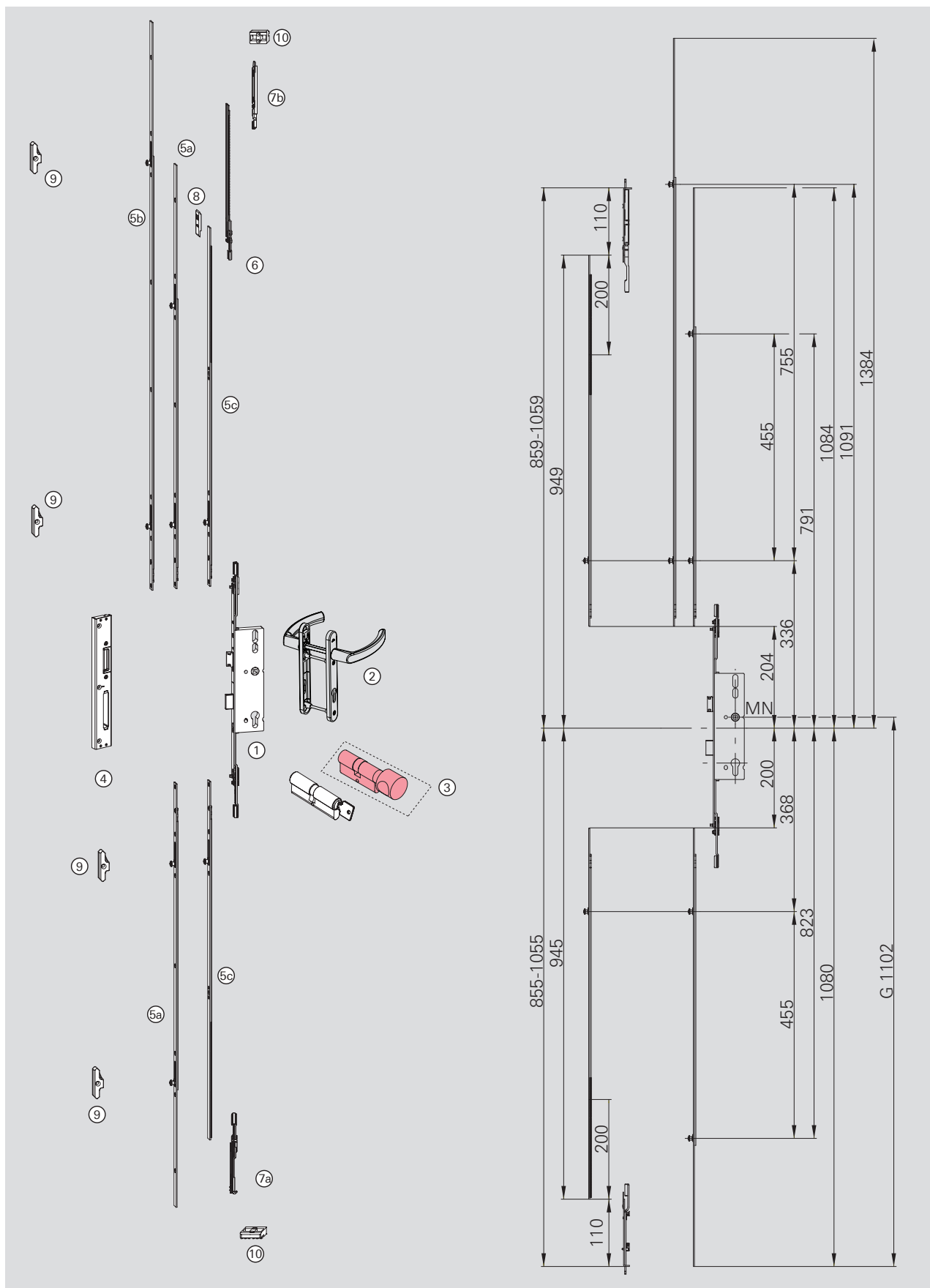
SAP No.	Colour	Sash Thickness
857086	White	55-75mm
857087	Black	55-75mm
857088	Silver	55-75mm
857089	Brown	55-75mm

14. Striker Profile related, Refer to page 40

15. Shootbolt striker Profile related, Refer to page 41



Entrance door H650



### Application range

Sash Width: .....600mm – 1200mm

Sash Height: .....Related to extension piece

Sash Weight max.: .....Related to the hinge side

### 1. Mortise lock H650 SL

SAP No.	BS
2003383	28mm
2003424	35mm
2003425	40mm
2003426	45mm

### 2 Handle Refer to page 73

### 3. Cylinder Refer to page 78

### 4. Main striker

SAP No.	Type	Profile
390807	L	12-20/9
390808	R	
390765	L	Koemmerling Eurodur 3S/Energy
390766	R	
390659	L	Dimex/Rehau/Thyssen Chamfered 2500
390660	R	
390699	L	Aluplast Ideal 2000/4000
390700	R	

### 5. Extension bar

No.	SAP No.	Length	Cam Qty.
5a	630955	879mm	2V
5b	630957	1179mm	2V
5c	630956	744mm (connectable)	1V

### 6. Espag extension

SAP No.	Length	Cam Qty.
641810	330mm	0C

### 7. Shootbolt

No.	SAP No.	Description
7a	349187	Shootbolt protrusion 110/2x16 without reverse-action travel
7b	312033	Shootbolt protrusion 110/2x16 reverse-action travel

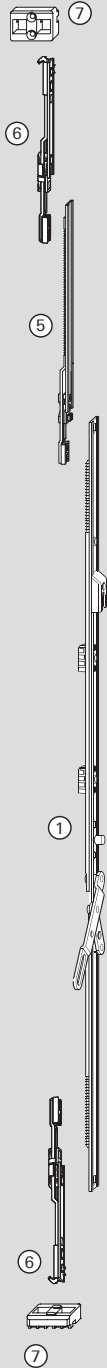
### 8. Faceplate flap 350401

### 9. Striker Refer to page 40

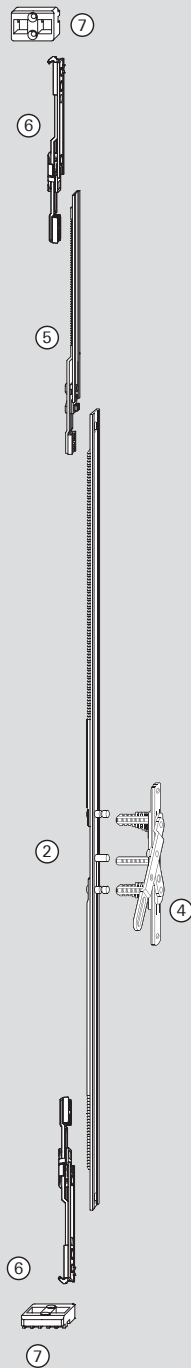
### 10. Shootbolt striker Refer to page 41

Dummy mullion solutions

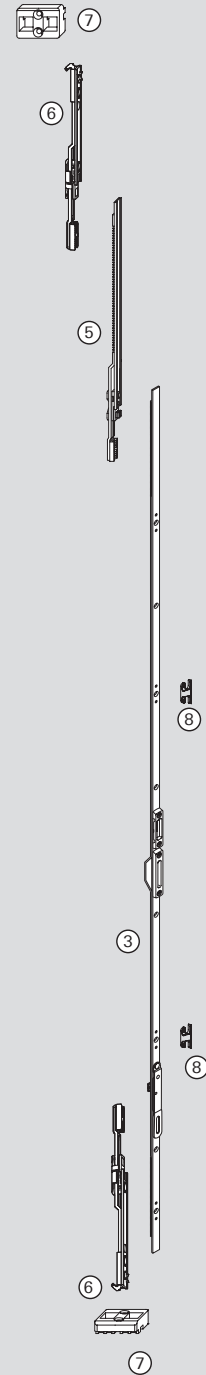
D.M. with U groove <sup>(1)</sup>



D.M. without U groove



H650



Note: <sup>(1)</sup> On the master sash, T/T espag. should be used. Please see details on page 43.

### 1. Lever-operated espag.\*

SAP No.	HH	SRH	Striker Qty.
792035	393-482mm	621-800mm	1
792036	482-682mm	801-1200mm	1
792037	448-658mm	1201-1600mm	2
2003113	680-890mm	1601-2000mm	2
2003119	880-1090mm	2000-2400mm	4

### 2. Lever-operated espag. with separate lever

SAP No.	HH	SRH	Striker Qty.
293629	225-350mm	370-625mm	0
293631	393-482mm	621-800mm	0
625209	482-682mm	801-1200mm	0
625210	448-658mm	1201-1600mm	0
625211	680-890mm	1601-2000mm	0
625212	880-1090mm	2000-2400mm	0

### 3. Lever-operated espag.

SAP No.	HH	Length
633302	1020mm	1925mm

### 4. Lever handle 625208

### 5. Espag extension

SAP No.	Length	Cam Qty.
612978	330mm	0C

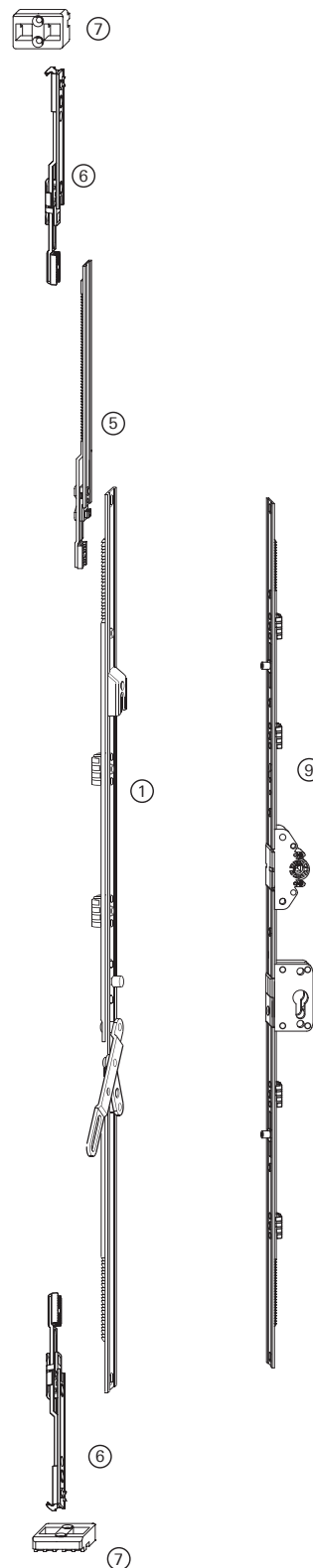
### 6. Shootbolt 14mm protrusion 349187

### 7. Shootbolt striker Refer to page 41

### 8. Striker 339395

### 9. Tilt & Turn espag. Refer to page 31

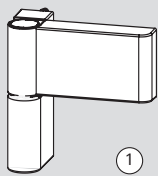
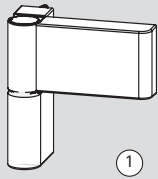
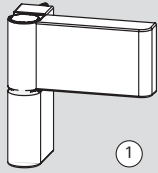
\* Not for opposing backset 8mm espag.  
Please ask Roto partner.



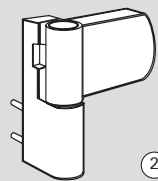
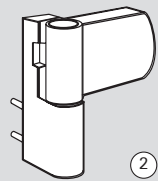
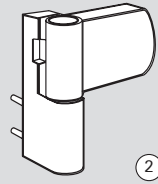
French door (NT espag.)

Door hinge solutions

Solid 150 P



PS23/ PS27 hinge



**Application**

Sash Width: .....600 mm – 1200 mm

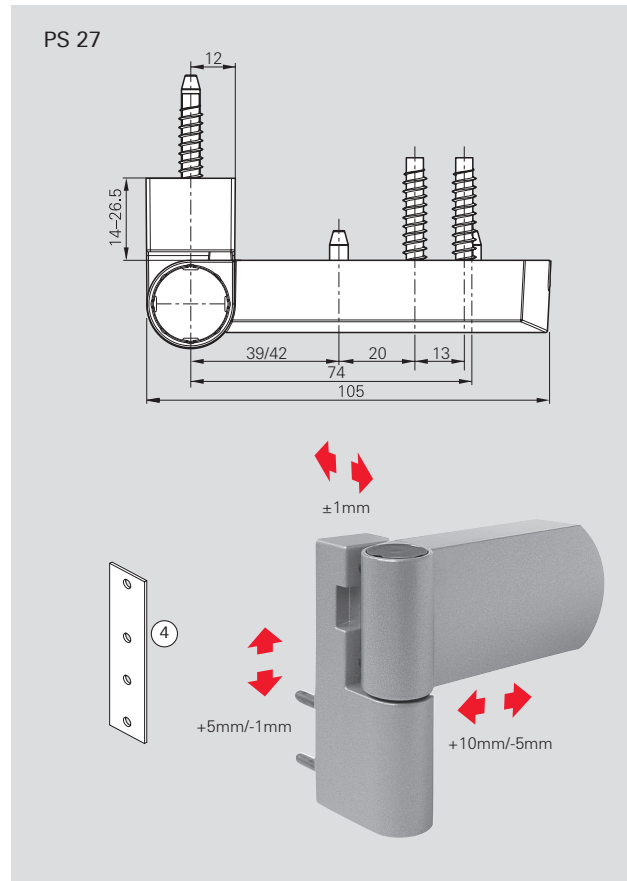
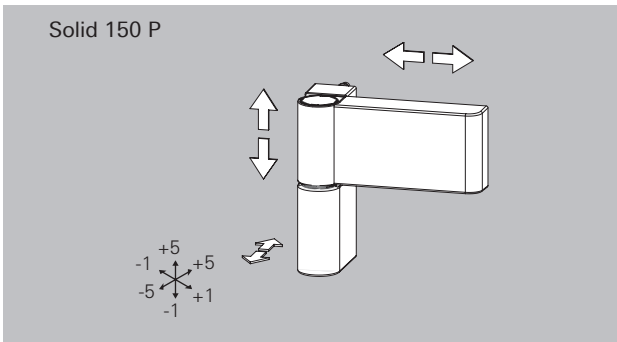
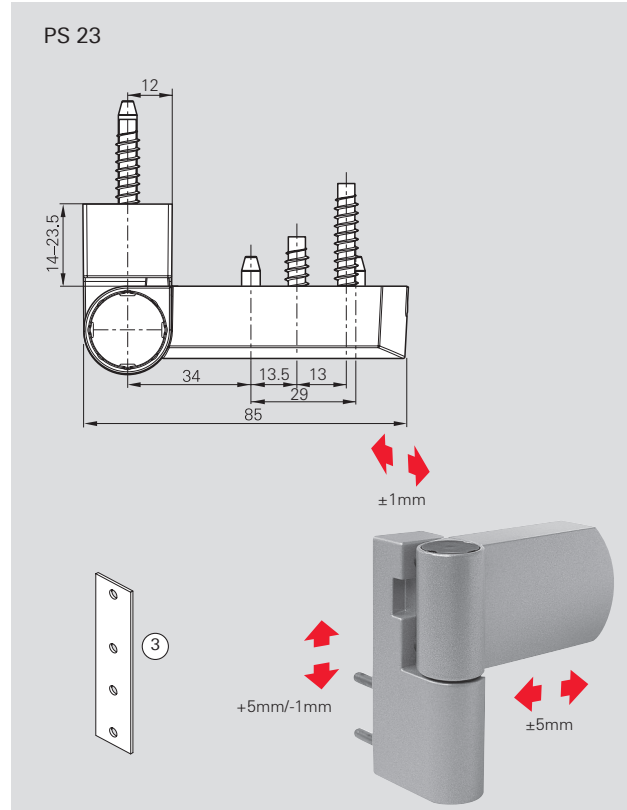
Sash Height: .....Refer to espag.

Sash Weight max.: .....Related to the hinge side

1.Solid 150 P			
Sash weight max 110kg			
SAP No.	Colour	Type	Specification
738083	White		14-17.5/39
738097	Brown RAL8077		14-17.5/39
799873	Black		14-17.5/39
894437	Silver		14-17.5/39
738084	White		17-20.5/39
738096	Brown RAL8077		17-20.5/39
861941	Black		17-20.5/39
894435	Silver		17-20.5/39
738095	White		20-23.5/39
738098	Brown RAL8077		20-23.5/39
861942	Black		20-23.5/39
894436	Silver		20-23.5/39

2.PS23/ PS27 hinge			
PS 23 weight max 80kg; PS 27 weight max 120kg			
SAP No.	Colour	Type	Specification
492522	White	P23	14-17.5/34
492521	Brown RAL8077	P23	14-17.5/34
492575	White	P27	14-17.5/39
492574	Brown RAL8077	P27	14-17.5/39
492596	White	P27	20-23.5/39
492594	Brown RAL8077	P27	20-23.5/39
492611	White	P27	23-26.5/42
492610	Brown RAL8077	P27	23-26.5/42

3.150P/ PS23/ PS27 packer			
SAP No.	Colour	Type	Specification
445213	White	P23	1.5mm
445214	Black	P23	1.5mm
445225	White	P27	1.5mm
445226	Black	P27	1.5mm



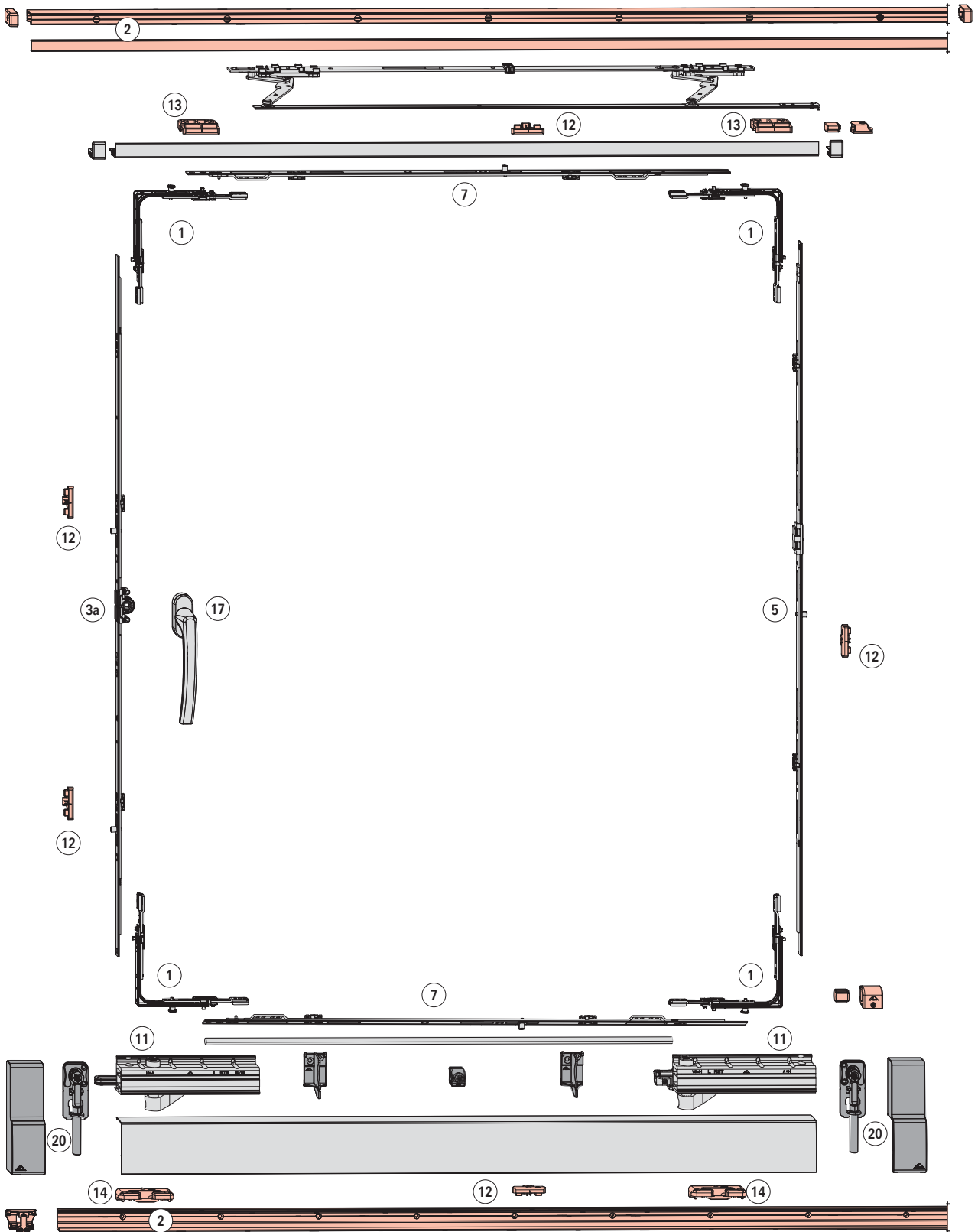


Tilt & Slide door

Patio Alversa KS-Diagram A

Sash weight max. 160kg

Recommended sash width: 600-1650mm; sash height: 600-2700mm





### Hardware list

#### 1. Corner drive

SAP No.	
640699	1V

#### 2. Track set

SAP No.	Colour	SRW	Frame external width
766792	White	600-900mm	1930mm
766793	White	901-1050mm	2230mm
766794	White	1051-1250mm	2630mm
766795	White	1251-1450mm	3030mm
766796	White	1451-1650mm	3430mm
766807	White	1651-2000mm	4130mm
766764	Silver	600-900mm	1930mm
766775	Silver	901-1050mm	2230mm
766777	Silver	1051-1250mm	2630mm
766779	Silver	1251-1450mm	3030mm
766780	Silver	1451-1650mm	3430mm
766793	Silver	1651-2000mm	4130mm

#### 3a. Espag. Refer to page 31

#### 5. Vertical link gear

SAP No.	Cam Qty.	SRW	Length
641806	2E	1600-2000mm	1780mm
641807	4E	2001-2400mm	2180mm

#### 7. Horizontal link gear

SAP No.	Cam Qty.	SRW	Length
765637	0	600-800mm	590mm
765638	1E	801-1000mm	790mm
765639	1E	1001-1200mm	990mm
765640	1E	1201-1400mm	1190mm
765641	1E	1401-1650mm	1440mm

#### 11. KS Bogie Set

SAP No.	Type	Weight
799830	L	160kg
799831	R	160kg

#### 15. Scissors-slider set, tilt&slide

SAP No.	SRW
810456	600-900mm
810457	901-1250mm
810458	1251-1650mm

#### 12. Standard striker Refer to page 40 or profile

#### 14. TF striker Refer to profile

Direction reverse as Bogie

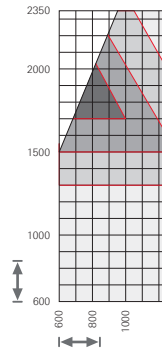
#### 20. Reinforcement bracket set (with cover caps) for sash weights > 100kg

SAP No.	colour
793508	silver
793513	white

#### 17. Handle Refer to Page 69

### Application diagram

Up to 100 kg sash weight



= Impermissible application range  
 ≤ 30 kg/m<sup>2</sup>  
 ≤ 40 kg/m<sup>2</sup>  
 ≤ 50 kg/m<sup>2</sup>  
 ≤ 60 kg/m<sup>2</sup>

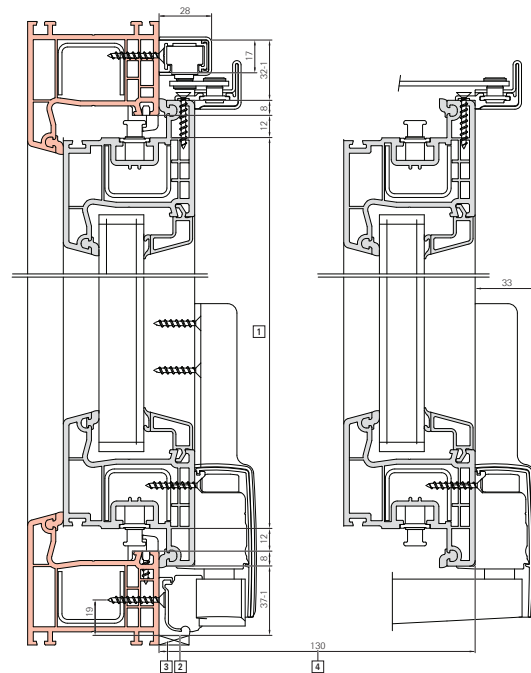
Up to 160 kg sash weight



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

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

SRH : SRW = max. 2.5 : 1



- [1] SRH
- [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

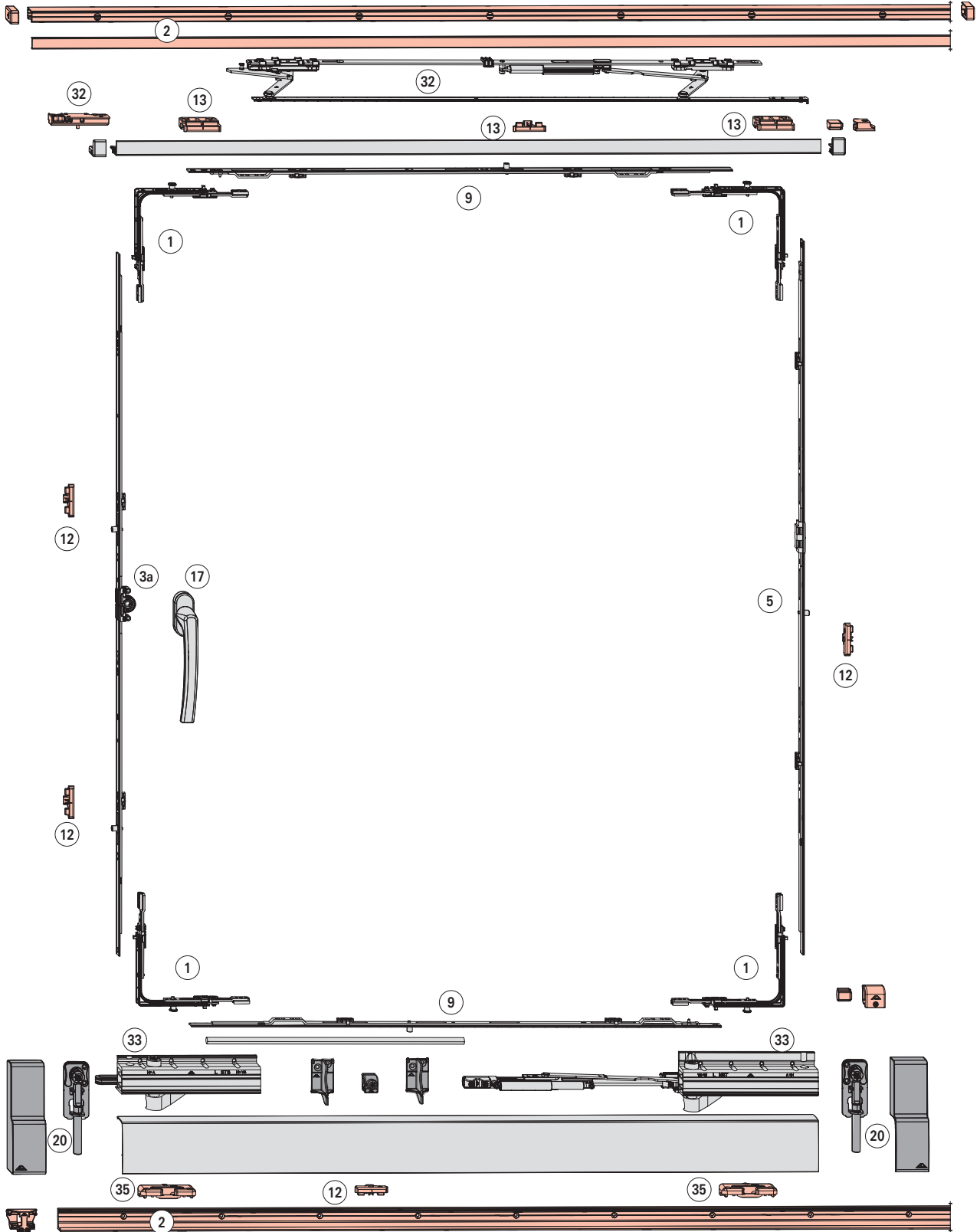


Parallel & Slide door with Ventilation

Patio Alversa PS Air Diagram A

Sash weight max. 160kg

Recommended sash width: 720-1650mm; sash height: 600-2700mm



### Hardware list

1. Corner drive	
SAP No.	1V
640699	1V

2. Track set			
SAP No.	Colour	SRW	Frame external width
766792	White	600-900mm	1930mm
766793	White	901-1050mm	2230mm
766794	White	1051-1250mm	2630mm
766795	White	1251-1450mm	3030mm
766796	White	1451-1650mm	3430mm
766807	White	1651-2000mm	4130mm
766764	Silver	600-900mm	1930mm
766775	Silver	901-1050mm	2230mm
766777	Silver	1051-1250mm	2630mm
766779	Silver	1251-1450mm	3030mm
766780	Silver	1451-1650mm	3430mm
766793	Silver	1651-2000mm	4130mm

3a. Espag. Refer to page 31

5. Vertical link gear			
SAP No.	Cam Qty.	SRW	Length
641806	2E	1600-2000mm	1780mm
641807	4E	2001-2400mm	2180mm

9. Horizontal link gear			
SAP No.	Cam Qty.	SRW	Length
765637	0	600-800mm	590mm
765638	1E	801-1000mm	790mm
765639	1E	1001-1200mm	990mm
765640	1E	1201-1400mm	1190mm
765641	1E	1401-1650mm	1440mm

33. PS Bogie Set with cylinder		
SAP No.	Type	Weight
799832	L	160kg
799833	R	160kg

32. Scissors-slider set, Parallel Sliding, tilt ventilation			
SAP No.	Type	Damping	SRW
808816	L	Yes	720-900mm
808827	R		
808824	L	Yes	901-1250mm
808828	R		
808825	L	Yes	1251-1650mm
808829	R		

12. Standard striker Refer to page 40 or profile

13. Security striker Refer to profile

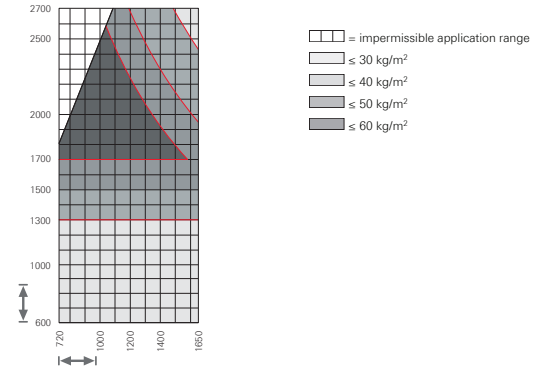
35. Tilt&turn striker Refer to page 40 or profile  
Direction reverse as Bogie

20. Reinforcement bracket set (with cover caps) Always be used for PS Air!	
SAP No.	colour
793508	silver
793513	white

17. Handle Refer to Page 69

### Application diagram

Up to 160 kg sash weight



The specifications in the application diagram give the glass weight in kg/m<sup>2</sup>.  
1 mm/m<sup>2</sup> glass thickness = 2.5 kg  
SRH:SRW = max. 2.5:1

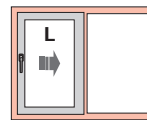
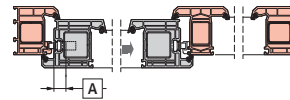


Diagram A  
1 sliding sash (L or R)  
1 fixed windowpane



[A] = Backset (standard 15 mm)

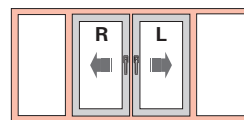
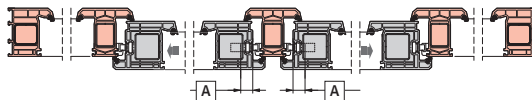


Diagram C  
2 sliding sashes (L and R) with centre post  
2 fixed windowpanes

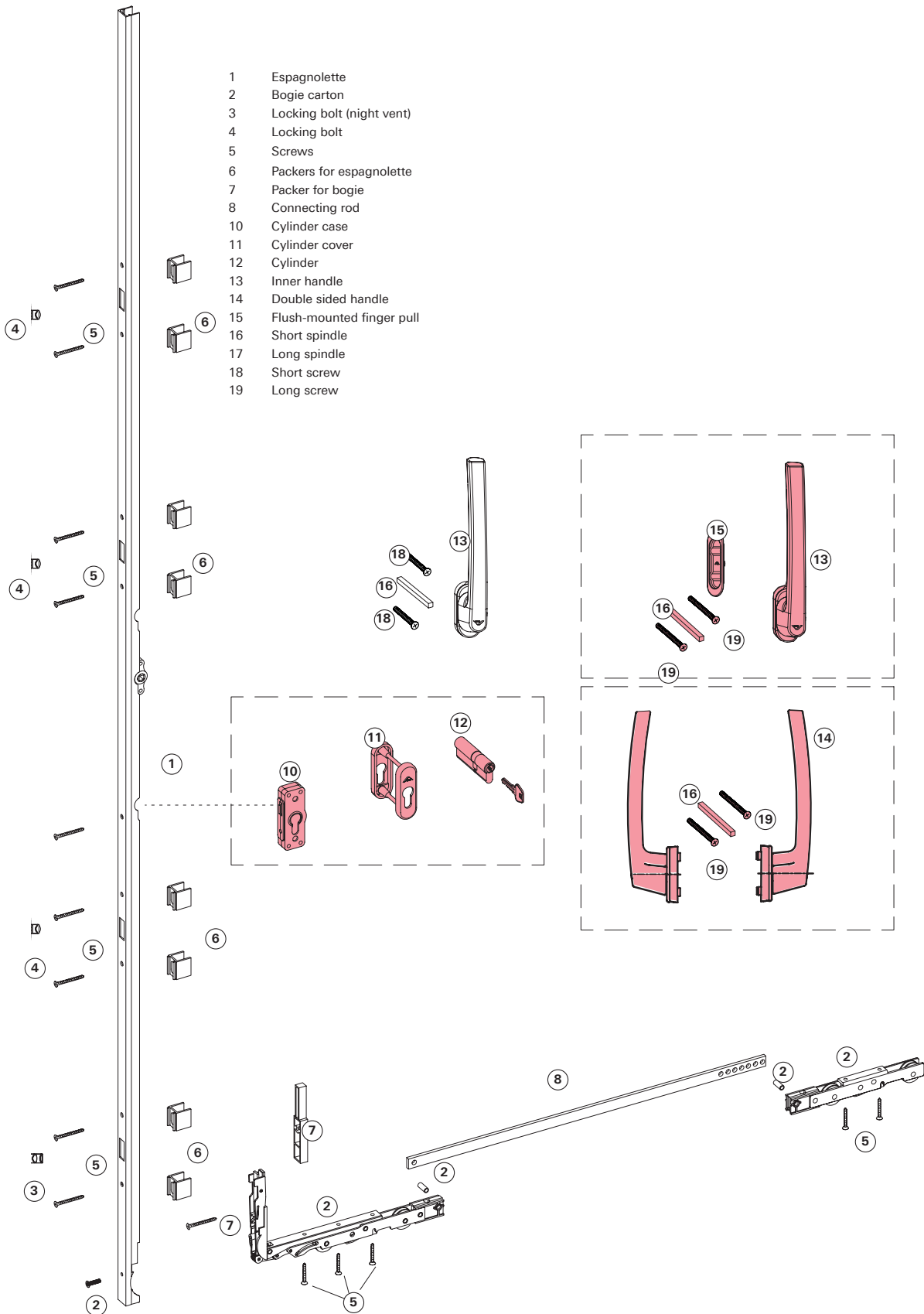


[A] = Backset (standard 15 mm)

For diagram C, please ask your Roto partner.



HS 150 Lift & Slide door

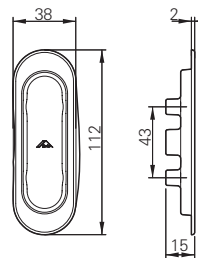
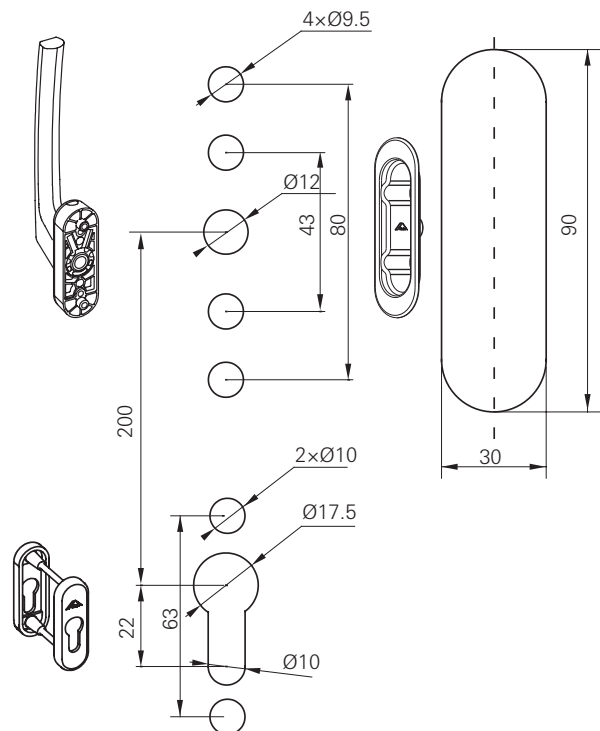
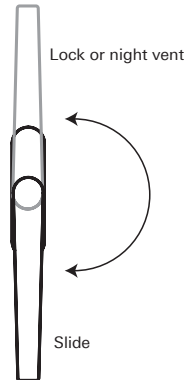


### HS 150 Application range

SRW - .....700mm – 2800mm  
 SRH - ..... 1800mm – 2600mm  
 Max. sash weight - .....150kg

### HS 150 Lift & Sliding door

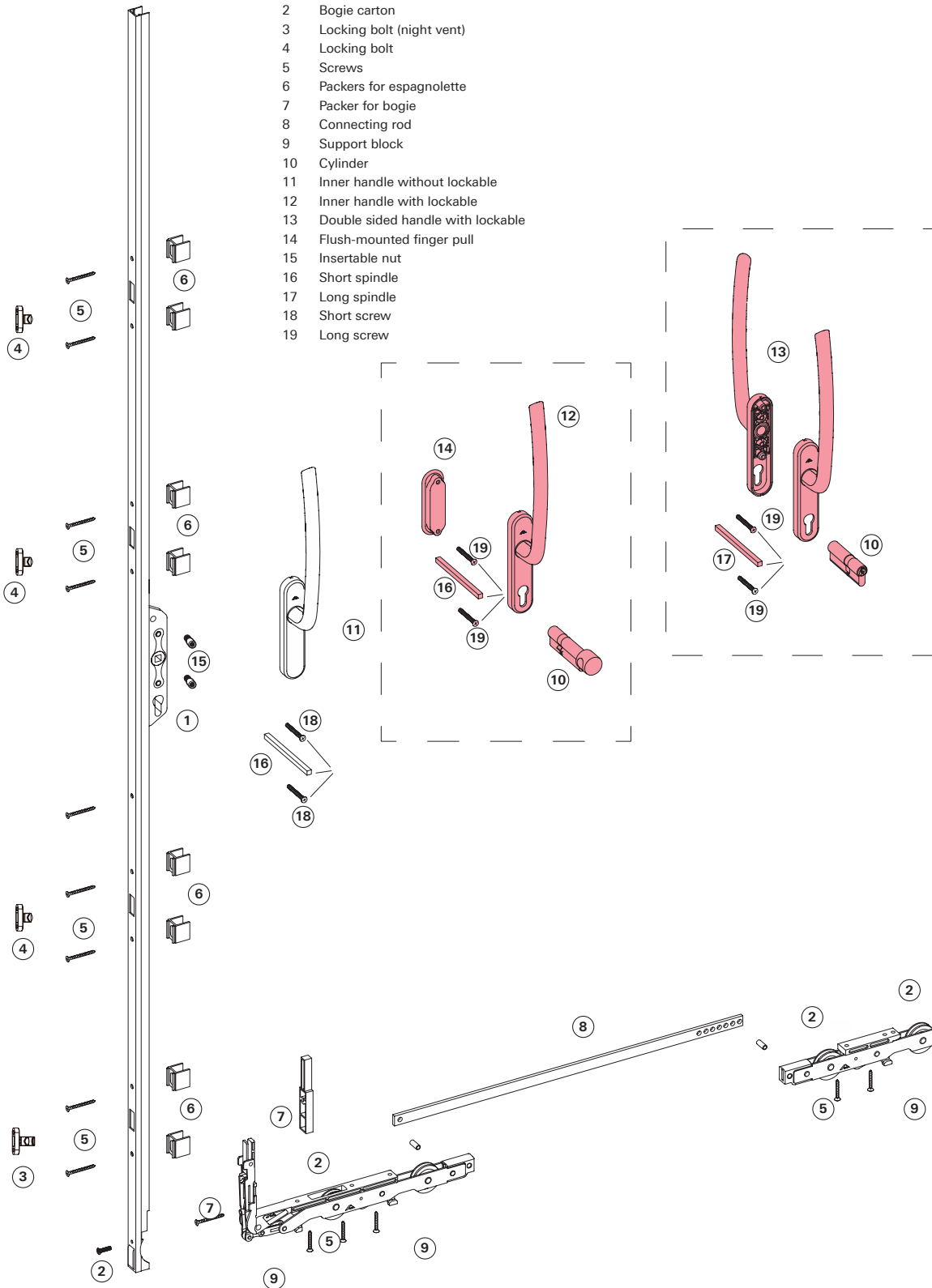
No.	SAP No.	Name	Specification
1	633426	Espagnolette	SRH:1801-2200mm
	633427	Espagnolette	SRH:2201-2600mm
2	734290	Bogie carton incl. 1pc screw M5x13 and 2pcs pin	22mm
3	595651	Locking bolt (night vent)	Height:15mm
4	595650	Locking bolt	Height:15mm
	613246	Locking bolt	Height:17.5mm
5	643122	Screws set(10*4.2*56+6*4.2*32)	
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	SRW:700-1500mm
	643639	Connecting rod	SRW:1501-1800mm
	634853	Connecting rod	SRW:1801-2100mm
	643643	Connecting rod	SRW:2101-2400mm
	634854	Connecting rod	SRW:2401-2800mm
10	631368	Cylinder case with 2 pins	
11		Cylinder Cover	Refer to P67
12		Cylinder	Refer to P78
13	642877	Inner handle	White
	642876	Inner handle	Black
	642878	Inner handle	Silver
14			refer to P70-71
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

- 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
- 9 Support block
- 10 Cylinder
- 11 Inner handle without lockable
- 12 Inner handle with lockable
- 13 Double sided handle with lockable
- 14 Flush-mounted finger pull
- 15 Insertable nut
- 16 Short spindle
- 17 Long spindle
- 18 Short screw
- 19 Long screw



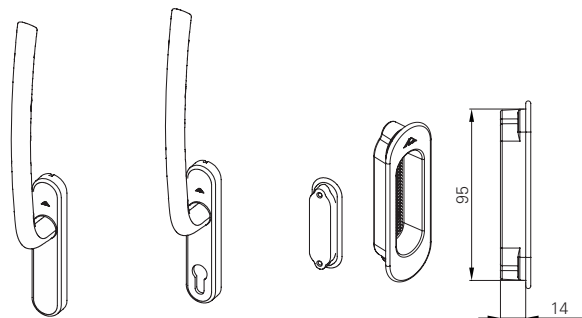
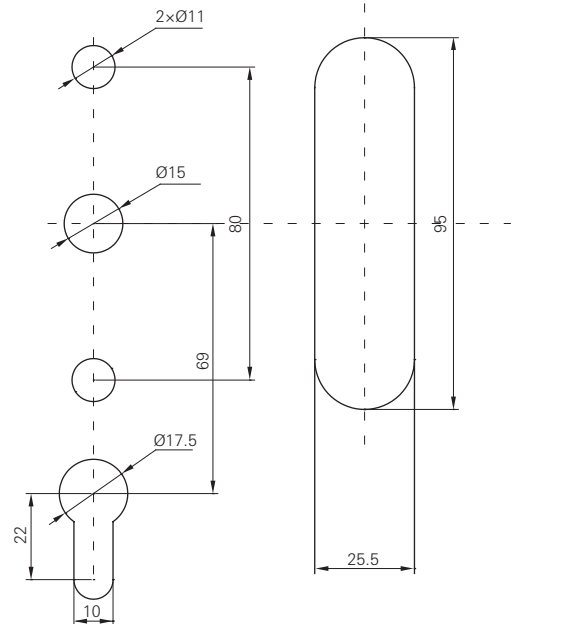
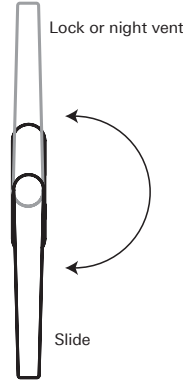
### HS 300 Application range

SRW - ..... 750mm – 3000mm  
 SRH - ..... 1800mm – 3100mm  
 Max. sash weight - .....300kg

### HS 300 Lift & Sliding door

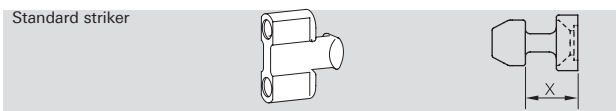
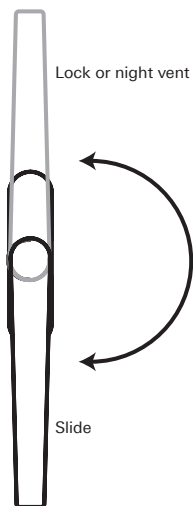
No.	SAP No.	Name	Specification
1	840378	Espagnolette BS=37.5mm	SRH:1801-2200mm
	840379	Espagnolette BS=37.5mm	SRH:2201-2600mm
	840382	Espagnolette BS=37.5mm	SRH:2601-3100mm
	896124*	Espag. with 3Cams BS=37.5mm inkl. dampf Cylinder	SRH:1801-2200mm
	896160*	Espag. with 3Cams BS=37.5mm inkl. dampf Cylinder	SRH:2201-2600mm
	896161*	Espag. with 4Cams BS=37.5mm inkl. dampf Cylinder	SRH:2601-3100mm
2	734288	Bogie carton incl. 1pc screw M5x13 and 2pcs pin	22mm
3	595651	Locking bolt (night vent)	Height:15mm
4	595650	Locking bolt	Height:15mm
	613246	Locking bolt	Height:17.5mm
5	896126	Screws 10pcs 4.2x63 5pcs 4.2x32	
	643123	Screws 10pcs 4.2x56 5pcs 4.2x38	
	643134	Screws 10pcs 4.2x70 5pcs 4.2x52	
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	SRW:750-1600mm
	643639	Connecting rod	SRW:1601-1900mm
	634853	Connecting rod	SRW:1901-2200mm
	643643	Connecting rod	SRW:2201-2500mm
	634854	Connecting rod	SRW:2501-3000mm
9	762901	Support block	300kg
10		Cylinder	P78
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.



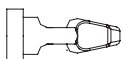
Striker for Lift & Slide door

Handle position



2-sashed open striker

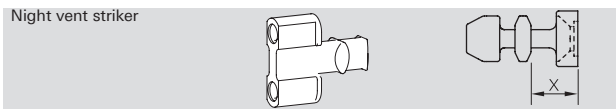
No.	SAP No.	Name	Specification
1	595652	Striker	Height:20mm



Note:

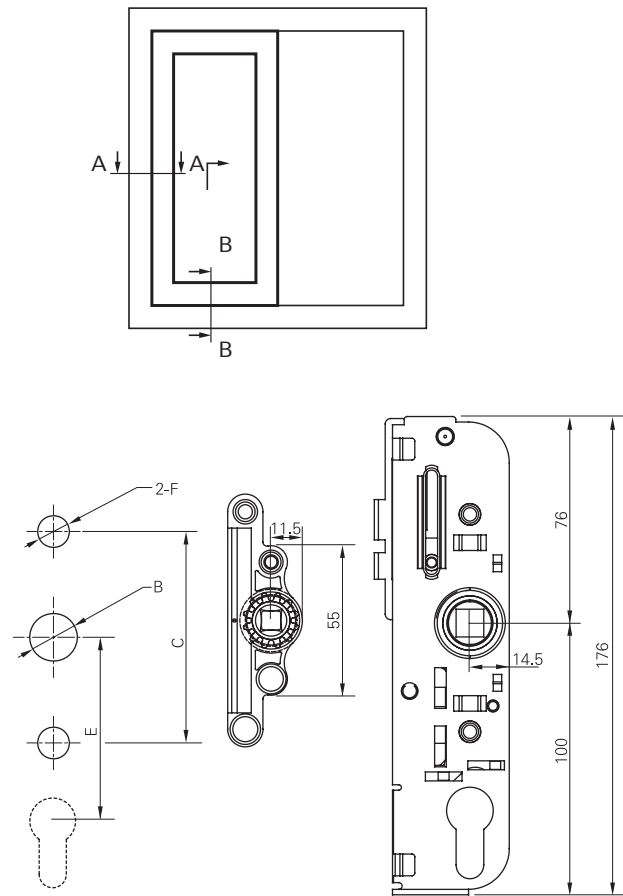
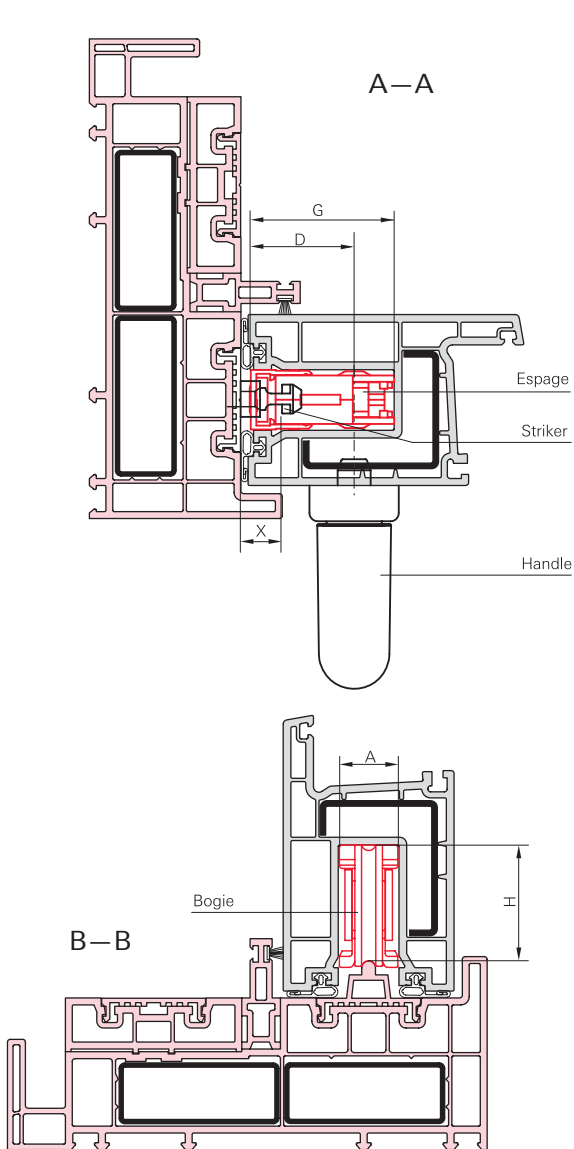
1. Both the bogie packer and the espag. packer thickness must be the same.

2. The bogie's lifting height is 7mm



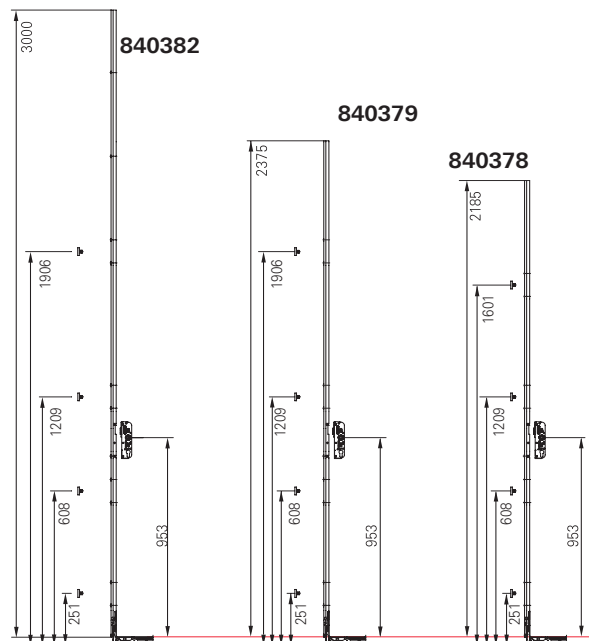
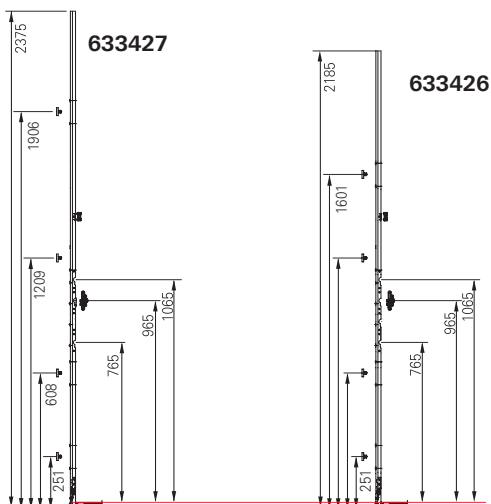


Profile suggestion on Lift & Slide door



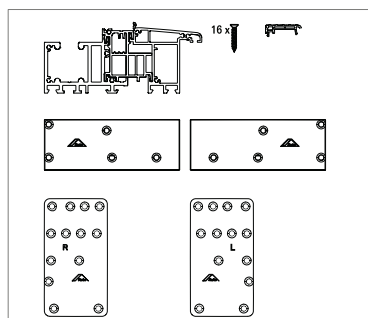
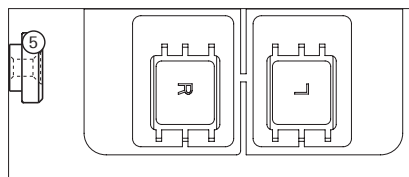
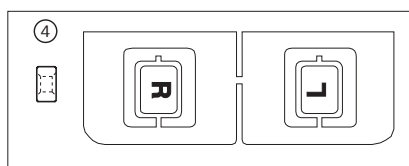
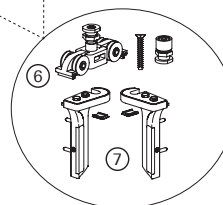
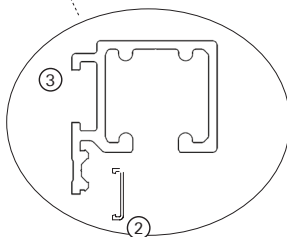
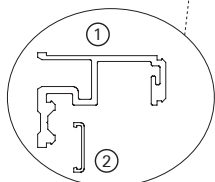
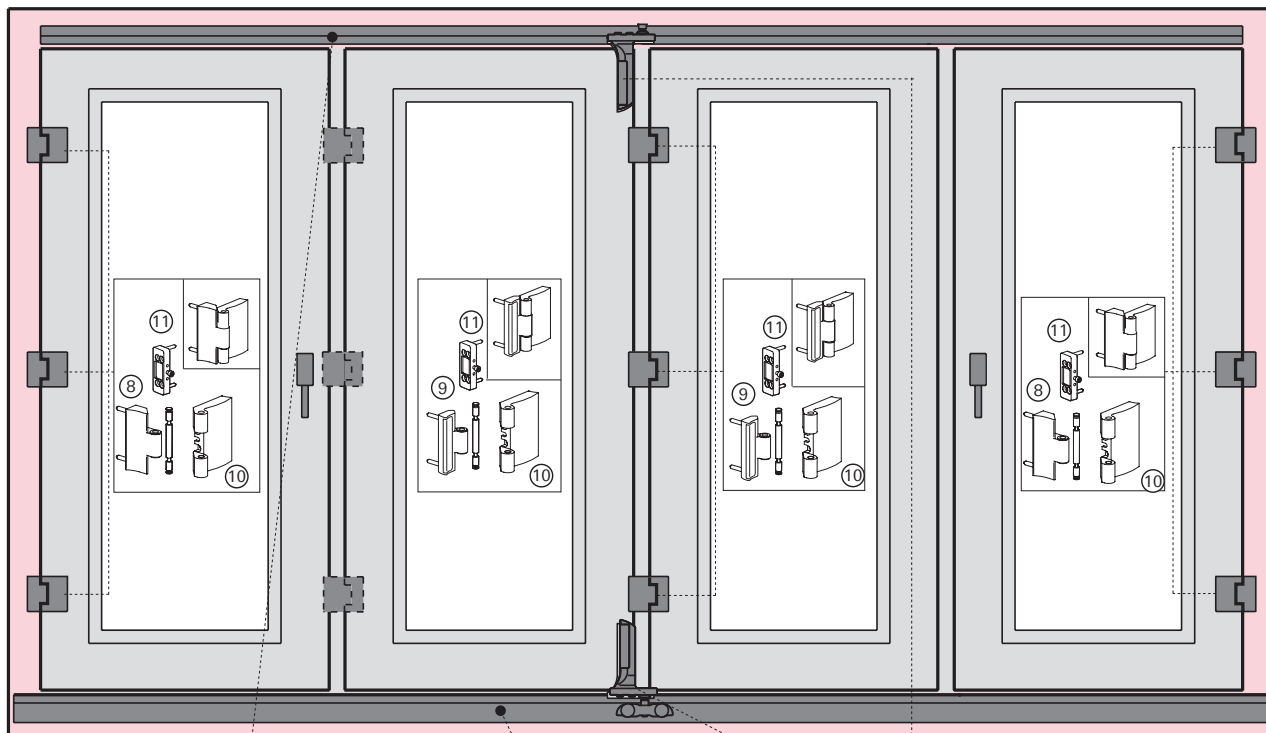
Installation parameters

	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)**

SRW - ..... 450 mm – 900 mm  
 SRH - ..... 600 mm – 2400 mm  
 Sash weight max. - ..... 100 kg  
 The door length max.- ..... 6000 mm



12 Enhanced threshold for barrier-free living need

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 No.	Colour	Length
571420	Silver	4500mm
614284	Silver	5800mm
859066	Black	4500mm
859068	Black	5800mm

#### 2. Guide track cover

SAP No.	Colour	Length	Specification
206898	White	6000mm	Narrow
491001	Brown	6000mm	Narrow
770352	Black	6000mm	Narrow

#### 3. Roller track bottom

SAP No.	Colour	Length
859069	Silver	4500mm
859080	Silver	5800mm
836929	Black	4500mm
836930	Black	5800mm

#### 4. Guide rail accessory

SAP No.	Colour
626452	White
626450	Brown
626449	Silver
770354	Black

#### 5. Track accessory

SAP No.	Colour
643863	White
738957	Brown
643865	Silver
770353	Black

#### 6. Bogie carton 642422

#### 7. Bogie bracket with pin 30mm

SAP No.	Colour
642423	White
738980	Brown
642435	Silver
768892	Black

#### 8. Frame hinge-bearing (packaged unit: 3 pcs.)

SAP No.	Colour	Specification
733375	White	16mm
738911	Brown	16mm
733377	Silver	16mm
768759	Black	16mm
733383	White	21mm
738906	Brown	21mm
733485	Silver	21mm
768761	Black	21mm

#### 9. Sash hinge-bearing (packaged unit: 3 pcs.)

SAP No.	Colour	Specification
734361	White	20mm
738915	Brown	20mm
734363	Silver	20mm
768885	Black	20mm
734365	White	30mm
738914	Brown	30mm
734367	Silver	30mm
768887	Black	30mm

#### 10. Hinge (packaged unit: 3 pcs.)

SAP No.	Colour	Specification
733369	White	50mm
738905	Brown	50mm
733371	Silver	50mm
768758	Black	50mm

#### 11. Hinge-fixing insert (packaged unit: 3 pcs.) 733492

#### 12. Enhanced threshold (incl. accessory)

SAP No.	Colour	Length
642451	Silver	5800mm

#### 13. Packers for frame hinge-bearing (packaged unit: 3 pcs.)

SAP No.	Colour	Type
312831	White	1mm
312833	Silver	1mm
768889	Black	1mm

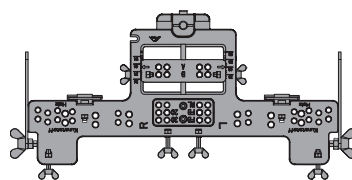
#### 14. Sash locking device

SAP No.	Colour
340208	White
375241	Silver
340211	Black

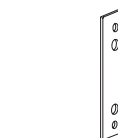
#### 15. Sash stoppers

SAP No.	Colour
444807	White
444809	Silver
768940	Black

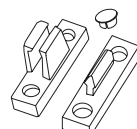
#### Drilling jig for hinges and support bracket 643365



Packers for frame hinge-bearing



Sash locking device

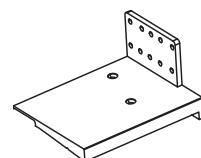


Sash stoppers



#### Universal bracket for enhanced threshold (without radius)

SAP No.	Colour	Unit	Surround frame depth
547017	White	Pair	70-80mm
547018	Black	Pair	70-80mm



Patio Fold variations and application of sash retaining devices

Diagram 330

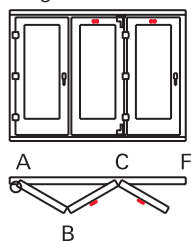


Diagram 321

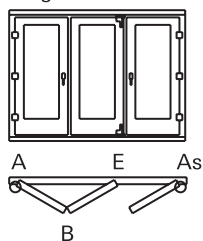


Diagram 431

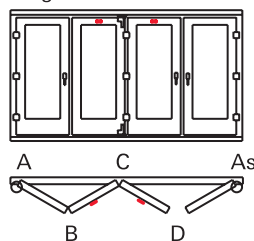


Diagram 532

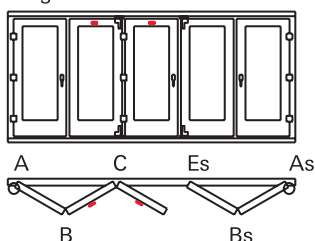


Diagram 541

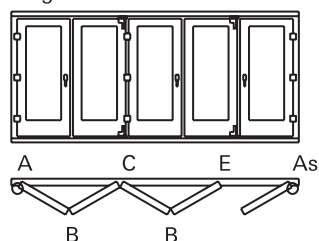


Diagram 550

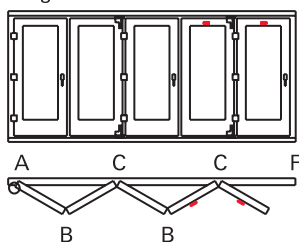


Diagram 633

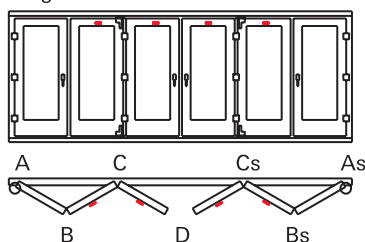


Diagram 651

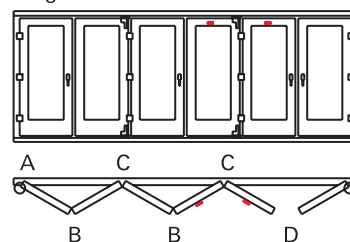


Diagram 743 \*only applicable on timber designs

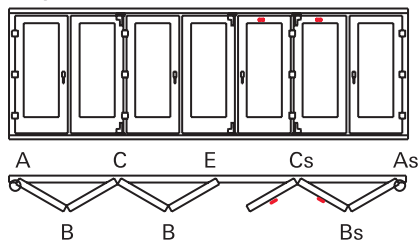


Diagram 761 \*only applicable on timber designs

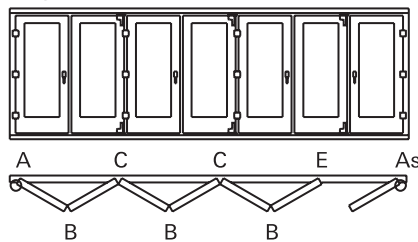


Diagram 770 \*only applicable on timber designs

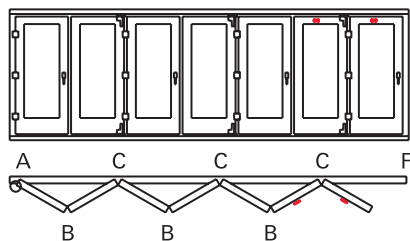
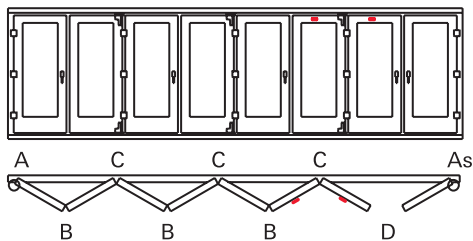


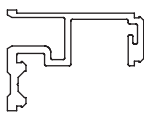

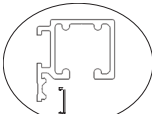






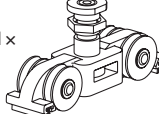



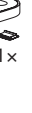
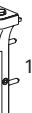

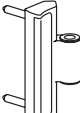
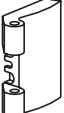




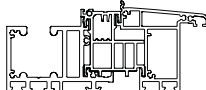



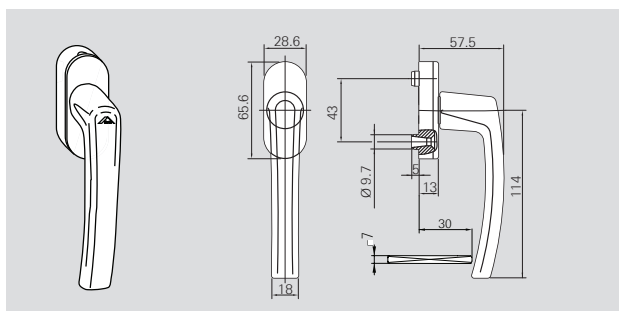
Diagram 871 \*only applicable on timber designs



Fold part hardware Qty.

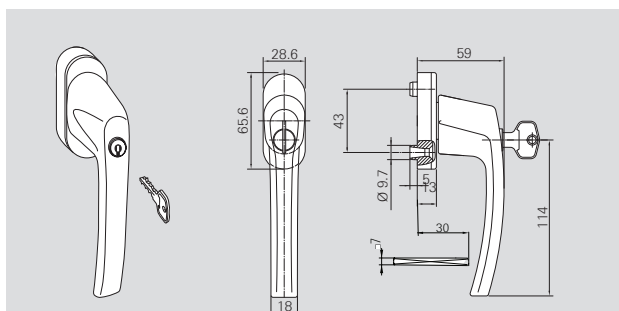
Note:  means standard roller track  
 means Enhanced threshold

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	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 accessory	
1	1	1	1	1	1	1	1	1	1	1	1	1		



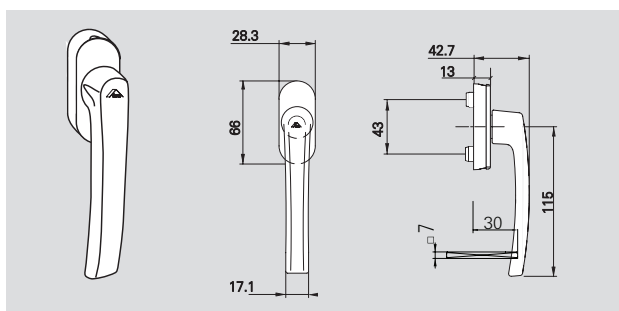
### Rotoline handle without Spindle

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



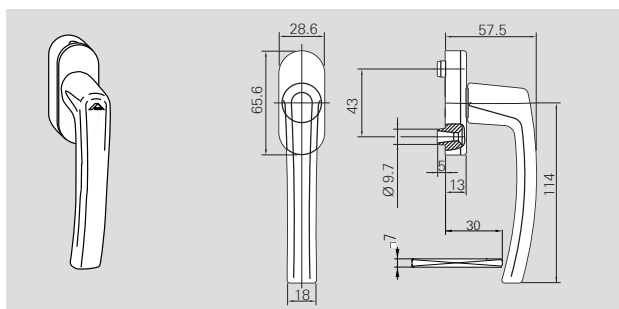
### Rotoline lockable handle

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



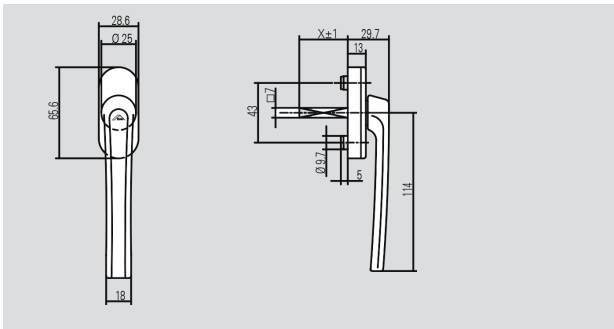
### Rotoline low-height handle without spindle

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



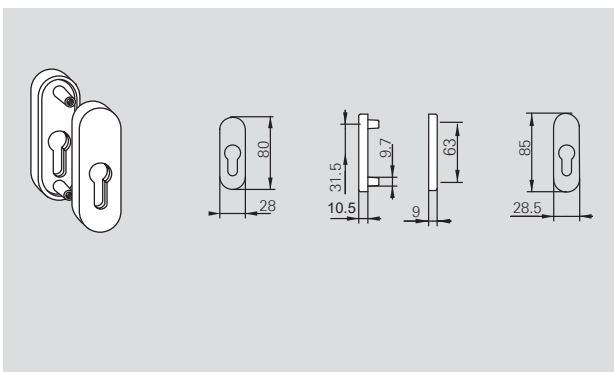
### Rotoline handle without spindle Outside

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



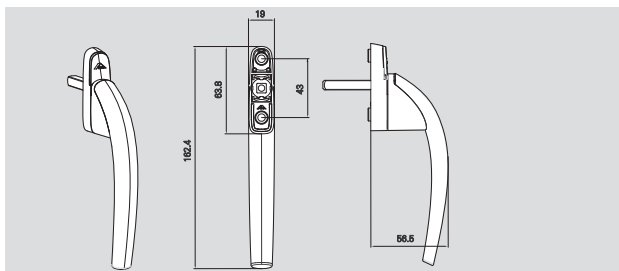
### Rotoline Flat Handle for Patio Fold

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



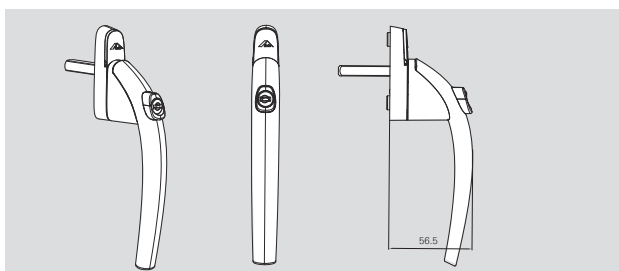
### Cylinder cover

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



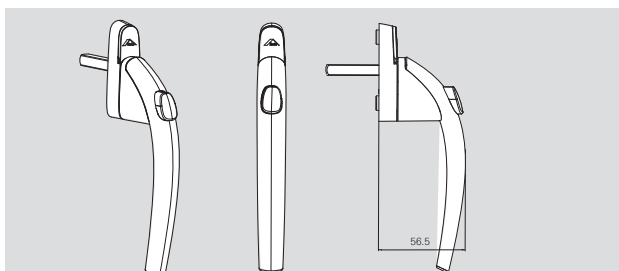
**RSW MK5 handle for outward opening window**

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



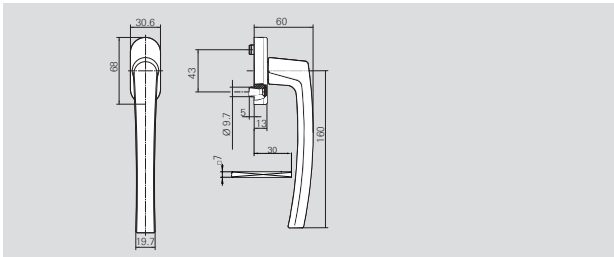
**RSW Pushbutton MK5 handle for outward opening w.**

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

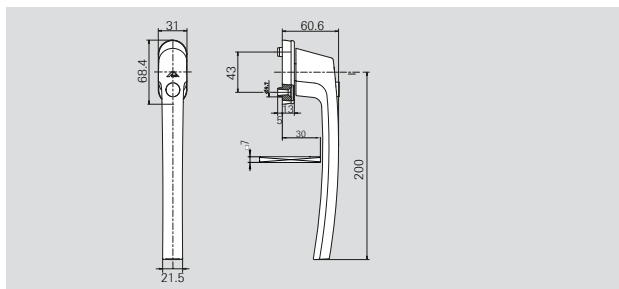
SAP No.	Colour	Spindle length
799566	White	without spindle
799567	Black	without spindle
799569	Silver	without spindle
2003411	Brown	without spindle

#### 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

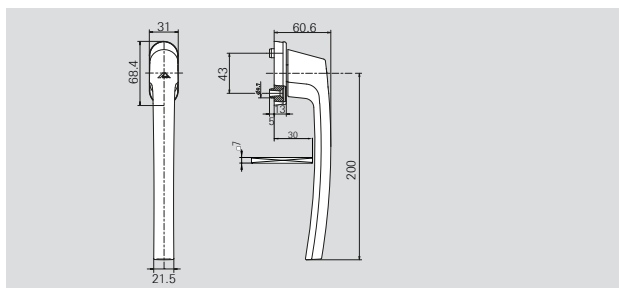
**Patio Handle 200mm**

(Spindle 7x7mm)



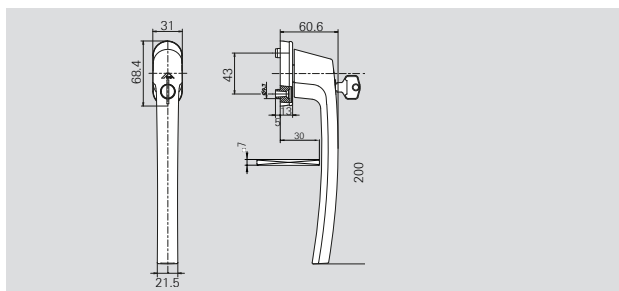
**Patio handle with push button 180° lock-in position**

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



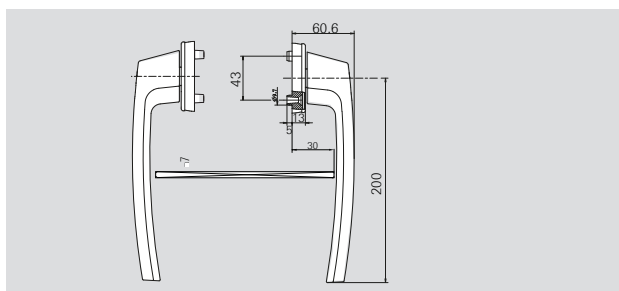
**Patio handle 180° lock-in position without spindle**

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



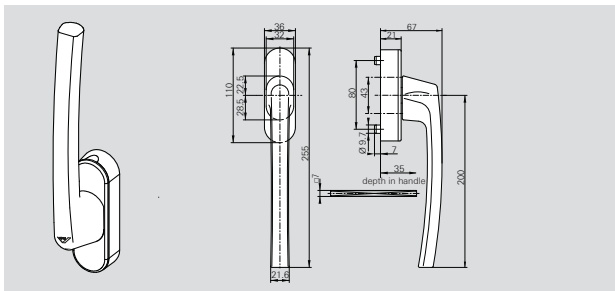
**Patio Inowa handle 180° lock-in position wo Spindle (Inside)**

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)**

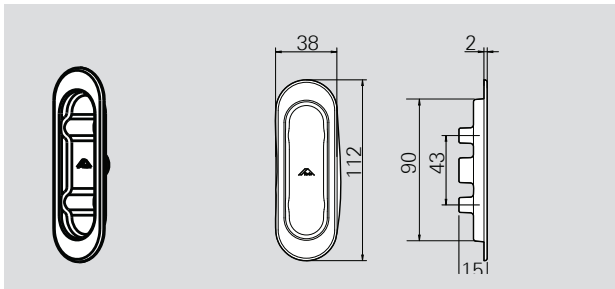
SAP	Colour	Spindle length
894782	White	without spindle
894783	Black	without spindle
894784	Silver	without spindle
894785	Brown	without spindle

### Patio Lift 150 (Spindle 7x7mm)



#### PatioLift 150 Handle (Inner side)

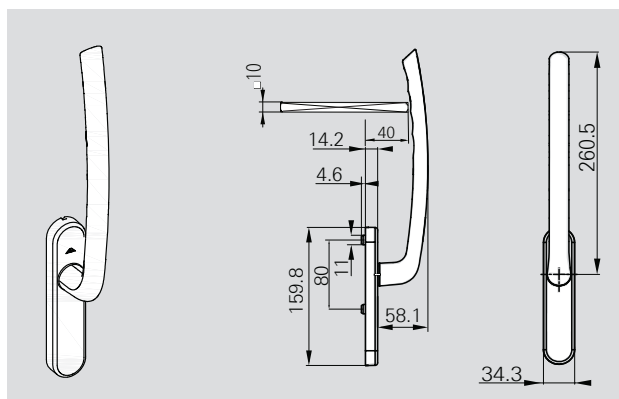
SAP No.	Colour	Spindle length
642877	White	without spindle
642876	Black	without spindle
642878	Silver	without spindle



#### Flush-mounted Finger Pull

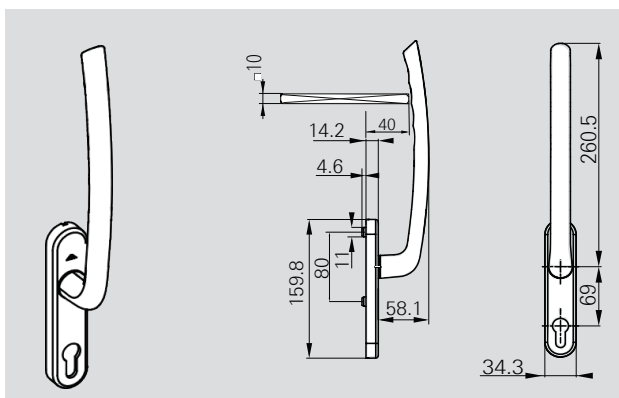
SAP	Colour
605543	White
605551	Black
643293	Silver
823764	Brown

### Patio Lift 300 (Spindle 10x10mm)



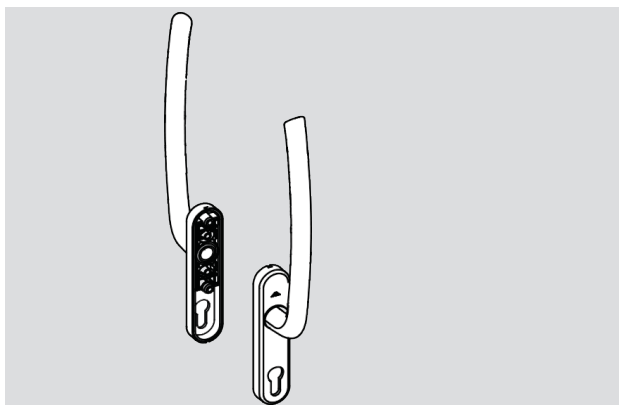
#### PatioLift 300 Handle without cylinder hole (Inner side)

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



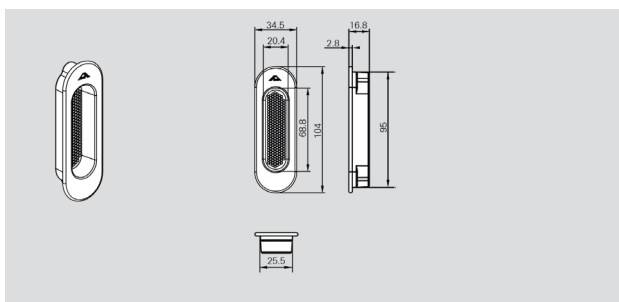
#### PatioLift 300 Handle with cylinder hole (Inner side)

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



#### PatioLift 300 Double Sided Handle

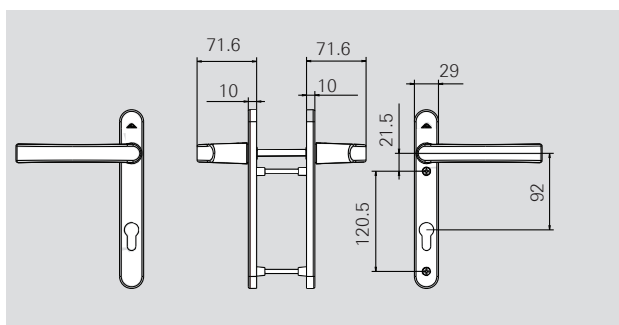
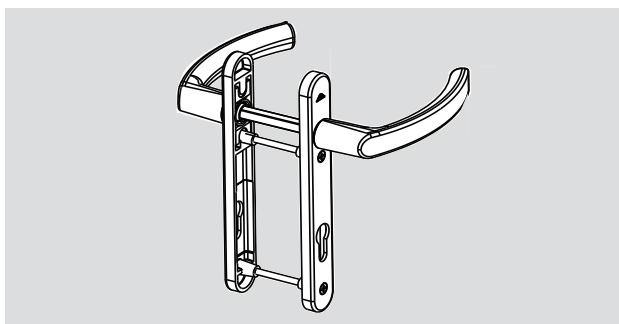
SAP	Colour	Spindle length
642903	White	without spindle
642902	Black	without spindle
642904	Silver	without spindle



#### PatioLift 300 Flush-mounted Finger Pull

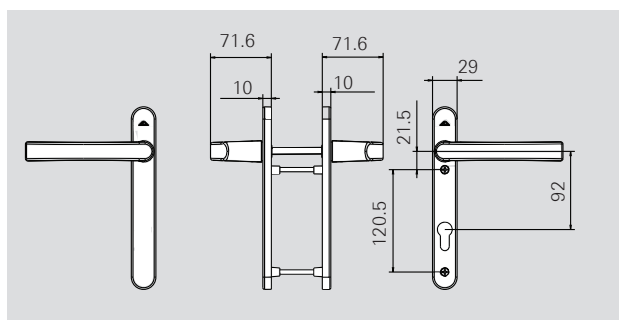
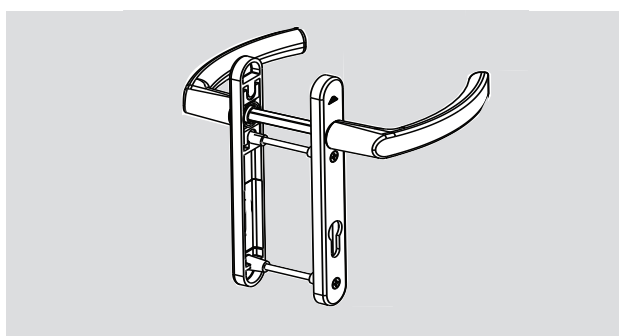
SAP	Colour	Spindle length
642881	White	without spindle
642880	Black	without spindle
642882	Silver	without spindle

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



#### Handle RotoStark

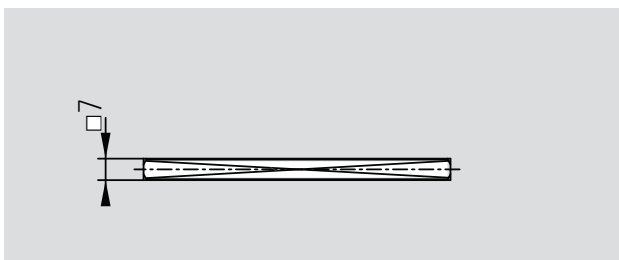
SAP	Colour	Sash Thickness
857086	White	58-75mm
857087	Black	58-75mm
857088	Silver	58-75mm
857089	Brown	58-75mm



#### 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

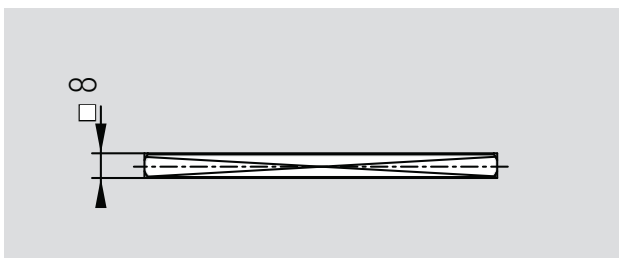
Spindle



**Spindle for Window/Sliding door**

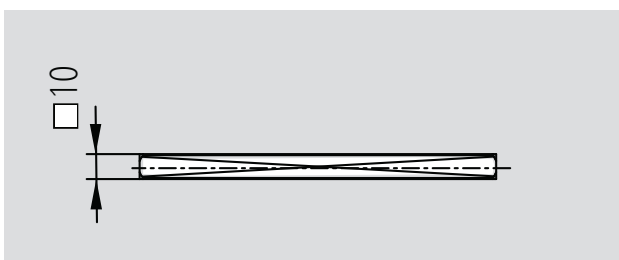
SAP	Length
2005221	7x7x35mm
2005222	7x7x45mm
2005223	7x7x50mm
2005234	7x7x55mm
2005235	7x7x60mm
619207	7x7x70mm
736495	7x7x75mm
737985	7x7x80mm
2005237	7x7x100mm
571391	7x7x126mm
737986	7x7x150mm

Other length please ask Roto partner



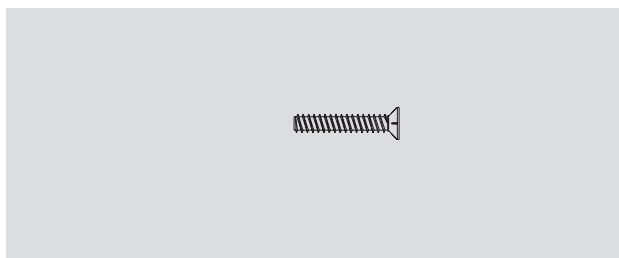
**Spindle for Door**

SAP	Length
837804	8x8x165mm



**Spindle for PatioLift 300**

SAP	Length
644120	10x10x80mm
644121	10x10x150mm







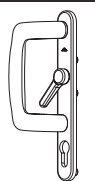


**Screw for handle**

SAP	Length	
2027712	M5x65mm	double side handle
2029651	M5x50mm	

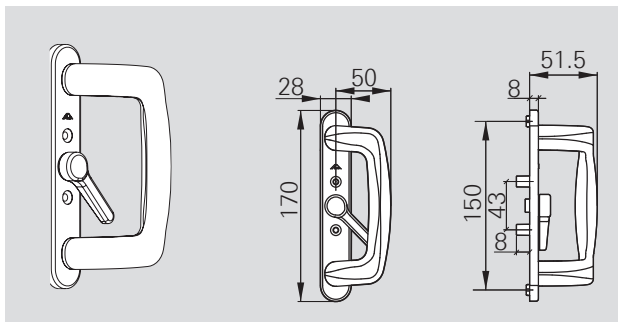
### Handle for sliding window & door

Possible combination

Inside / Outside	I1		I2		I3	
	A1		Combination1, with screw set Typ.1	Combination2, with screw set Typ.1	Combination3, with screw set Typ.1	
A2		Combination4, with screw set Typ.2	Combination5, with screw set Typ.2	Combination6, with screw set Typ.2		
A3		Combination7, with screw set Typ.2	Combination8, with screw set Typ.2	Combination9, with screw set Typ.2		
A4		X		Combination10, with screw set Typ.3		

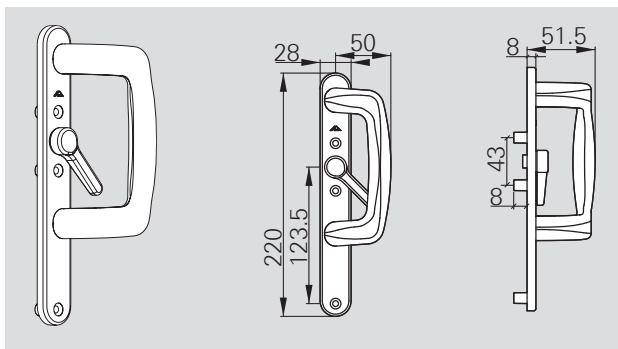
Screw set Typ.1(LH) 1 Spindle 2 Raised countersunk head screws 2 Countersunk screws 1 Pan-head tapping screw	793275	Sash thickness 46~50mm
	793254	Sash thickness 51~56mm
	793253	Sash thickness 57~61mm
Screw set Typ.2(LH) 1 Spindle 3 Raised countersunk head screws 4 Countersunk screws 1 Pan-head tapping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



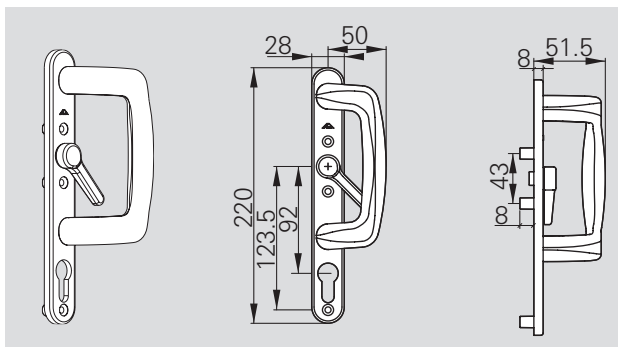
### Non-locking pull handle with lever (I1)

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



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

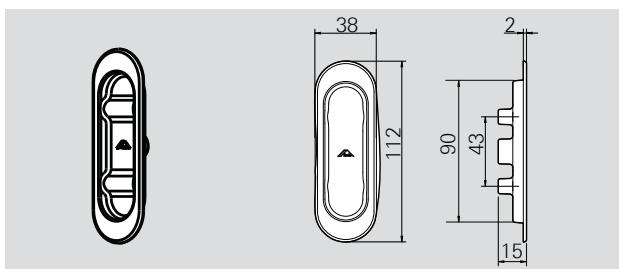
SAP No.	Colour
770009	White
770008	Black
770012	Silver
2003415	Brown



### Locking pull handle with lever (I3)

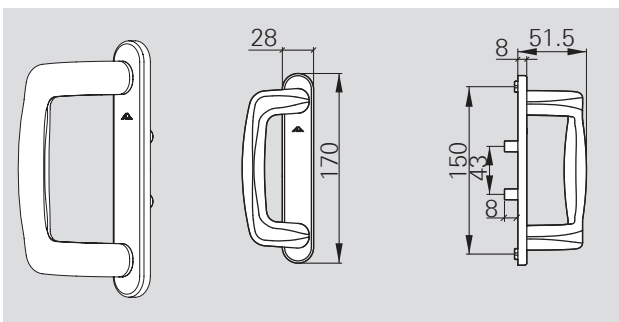
SAP No.	Colour	Specification
770011	White	
770010	Black	
770013	Silver	
833308	Brown	





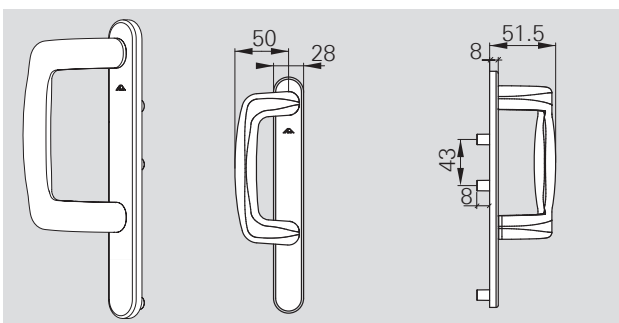
### Flush-mounted finger pull (A1)

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



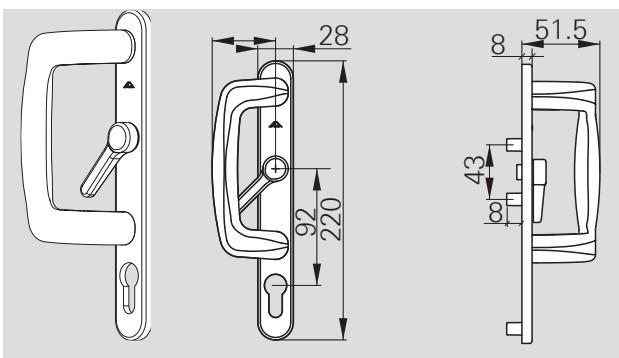
### Non-locking pull handle (A2)

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



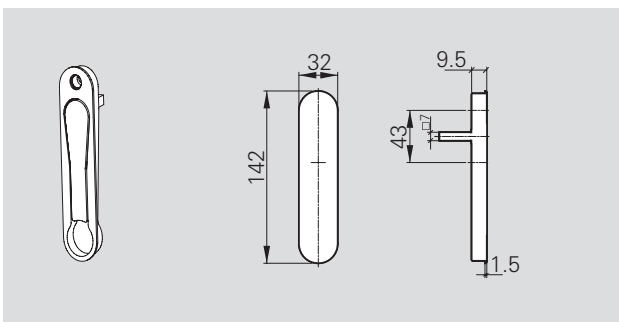
### Non-locking pull handle with long-plate (A3)

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



### Locking pull handle with lever (A4)

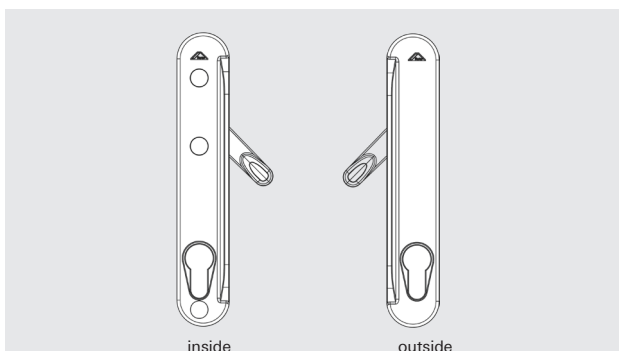
SAP No.	Colour
770007	White
770006	Black
770015	Silver
833309	Brown



### Pop-up handle

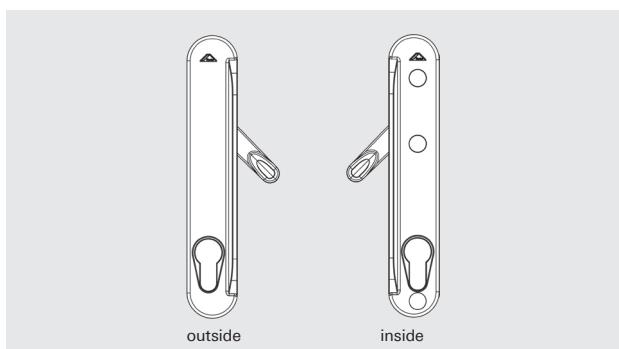
SAP No.	Colour
570810	White
614295	Black
643288	Silver
823334	Brown

### Roto Slim handle for Sliding Door



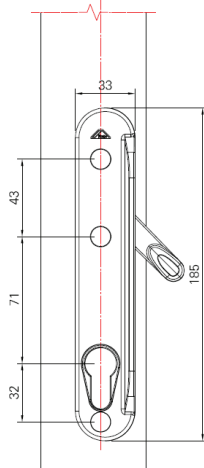
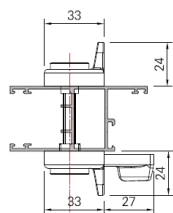
#### RotoSlim Inline Handle for DIN Left

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

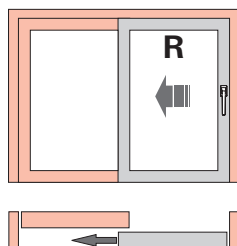
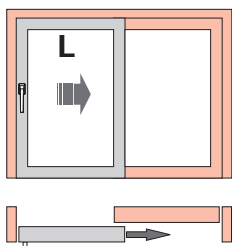


#### Kit RotoSlim Handle incl. 1x Spindle and 3x Screws

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

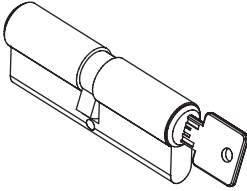
#### Cover Cap (Additional Order)

SAP	Colour	Package
839368	White	300pcs
839369	Black	300pcs

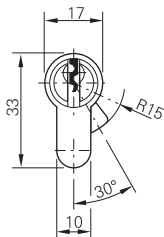
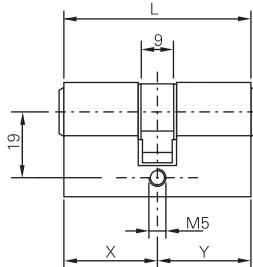


### Cylinder

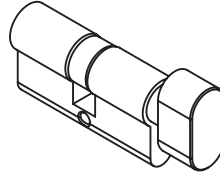
#### 1. Standard cylinder



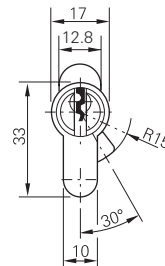
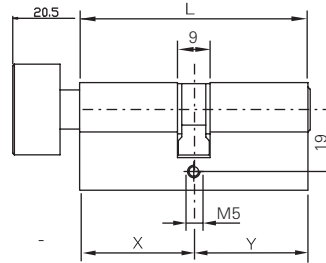
Standard cylinder  
both side key operated,  
min. length of each side 27.5mm



#### 2. Standard cylinder with flat knob



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

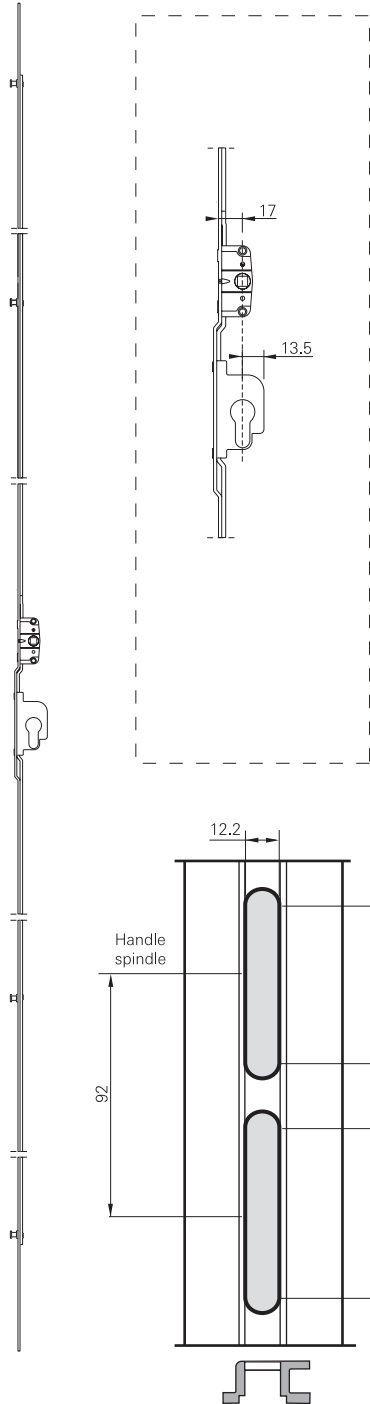


Standard Cylinder both side key operated		
SAP No.	X	Y
837779	27	27
799300	27	31
640068	31	31
632589	31	35
640074	31	40
640069	31	45
640070	31	50
642659	31	55
640080	31	60
729304	31	70
640071	35	35
640072	35	40
640073	35	45
640075	35	50
640076	35	55
632590	40	40
632591	40	45
632592	40	50
632593	40	55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

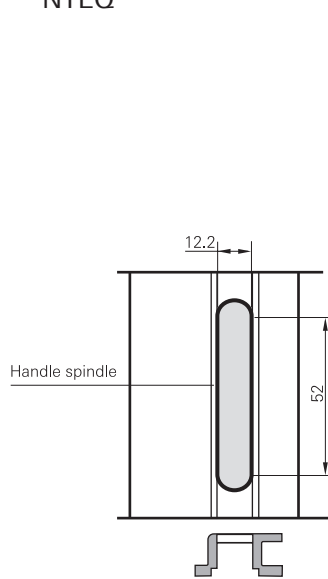
Standard Cylinder, room side with flat-knob		
SAP No.	X	Y
796379	31	10
796380	45	10
862142	55	10
821079	27	27
862138	31	31
862140	31	55
808689	35	35
808691	35	45
2005645	40	45
862139	41	41
808692	45	35
862141	45	40
2005646	45	45
808694	50	31
862146	55	31

Drilling and routing hole-pattern for E08S & NTEQ & Single point sliding espag.

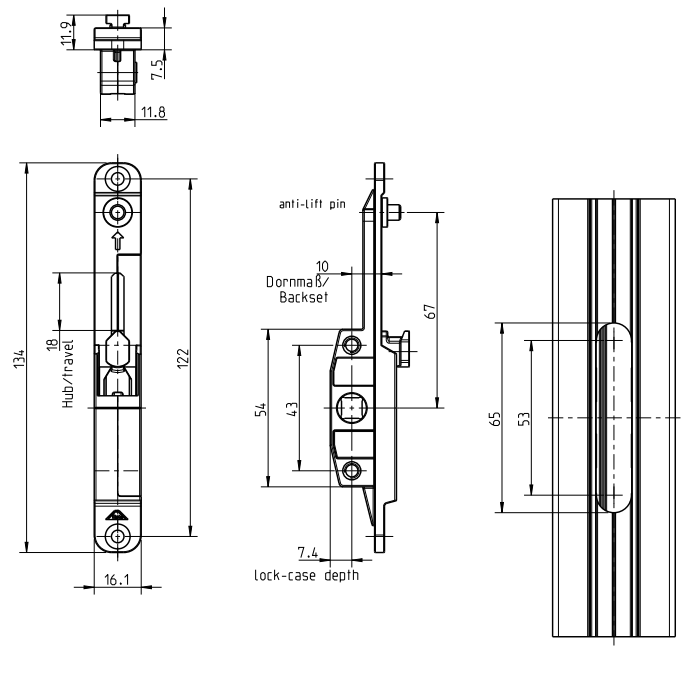
E08S



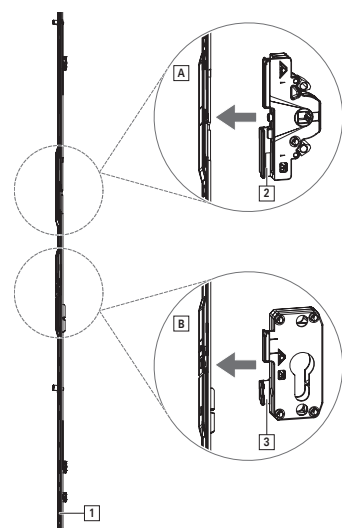
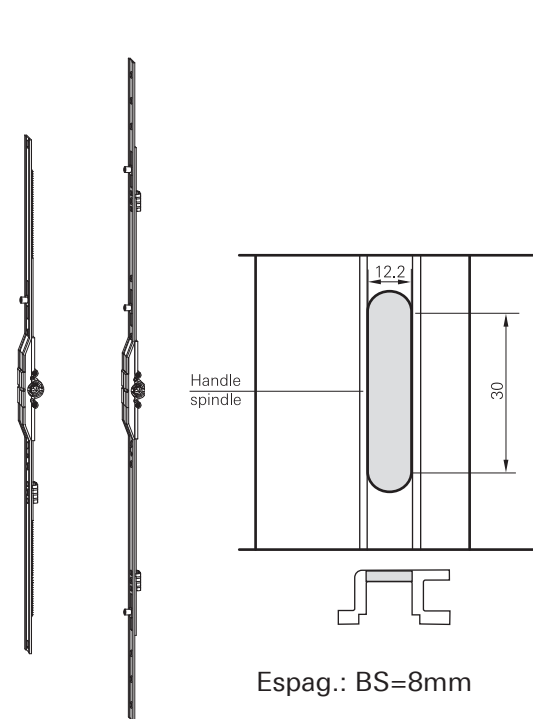
NTEQ



BS10 Single point sliding espag.

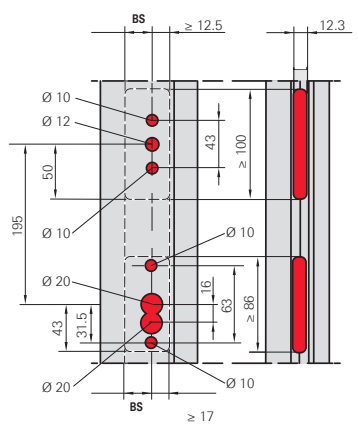
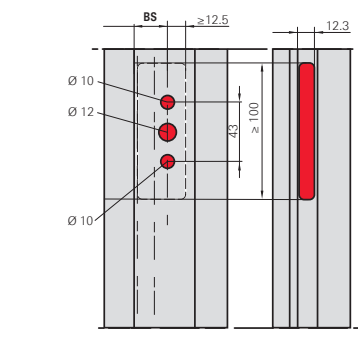
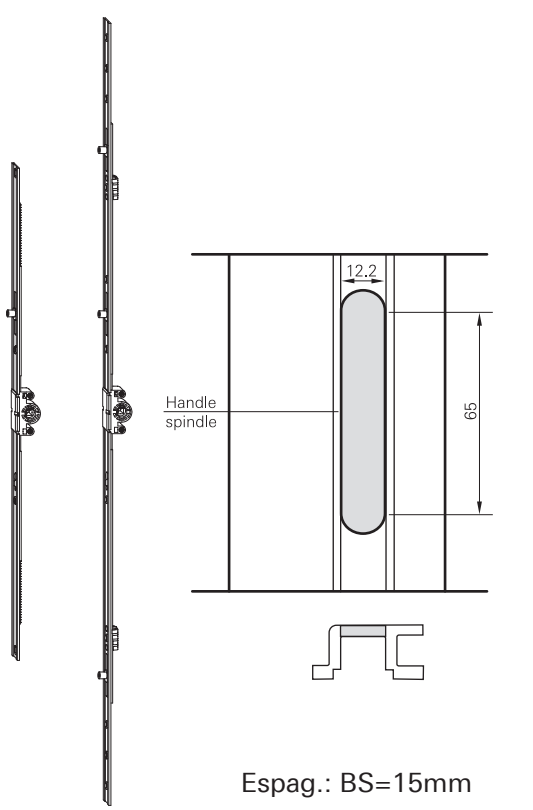


Drilling and routing hole-pattern for espag.



Assignment	Meaning
[1]	Espagnolette faceplate
[2]	Gearbox
[3]	Lock casing – profile cylinder
[A]	Gearbox which can be installed in the espagnolette faceplate
[B]	Lock casing which can be installed in the espagnolette faceplate

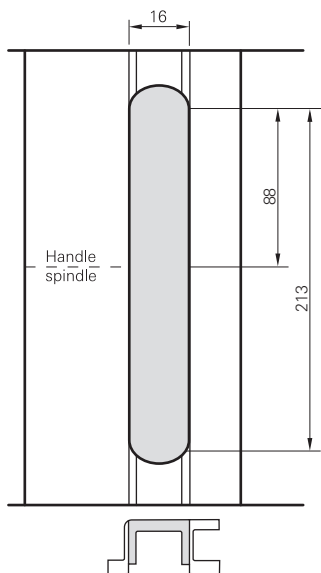
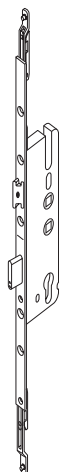
Espag.: BS ≥ 25mm



Drilling and routing hole - pattern for Casement door lock

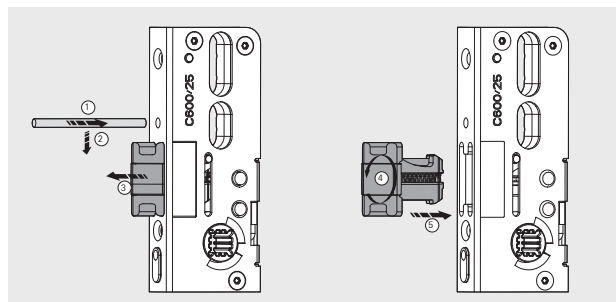
H650 espag.

H650 espag.

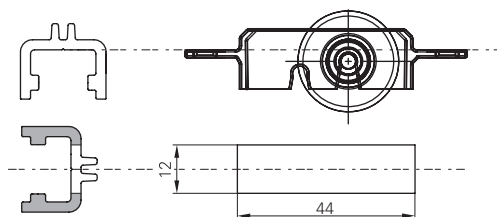


H650 espag.

Latch conversion H650

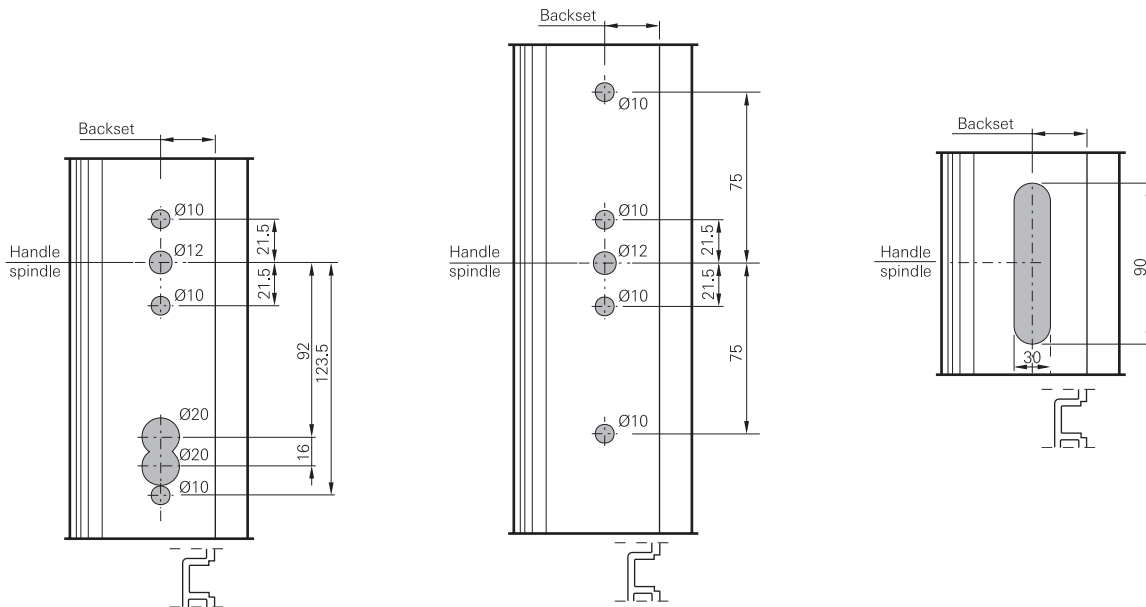
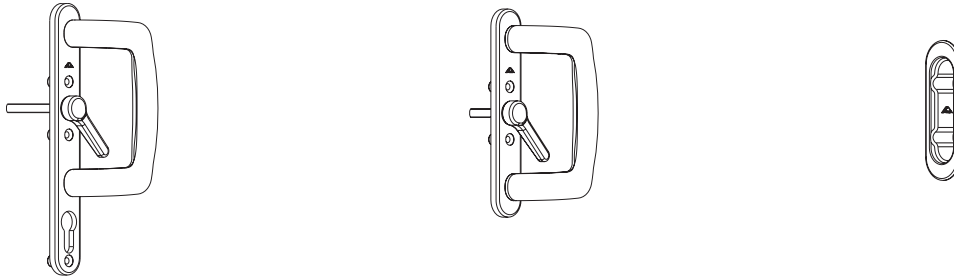


SR90 SAP:616040

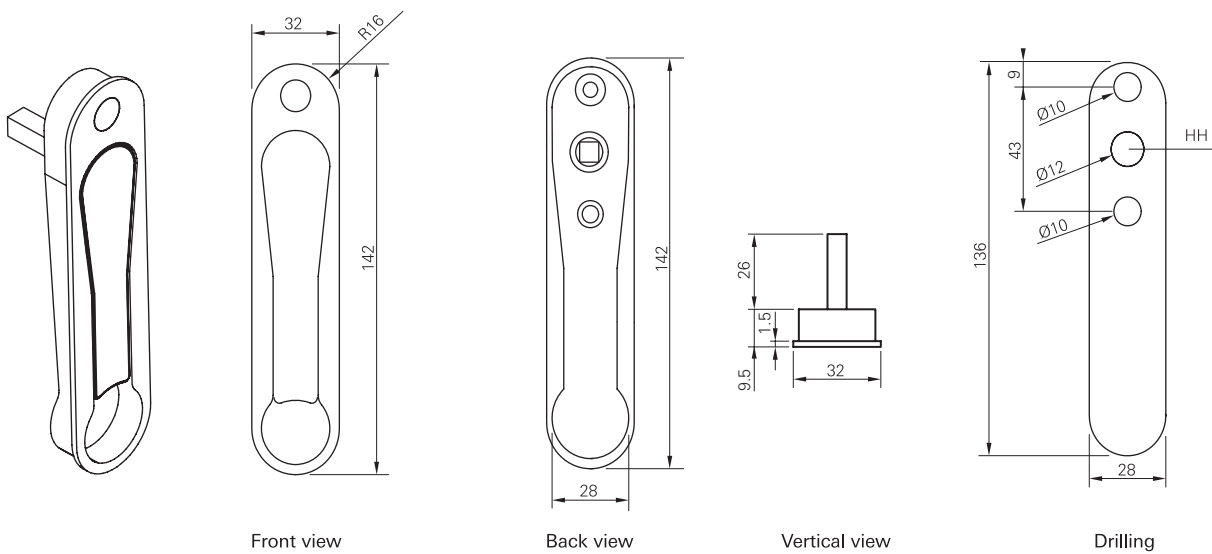


### Handles installation

### RAD2000 handles installation

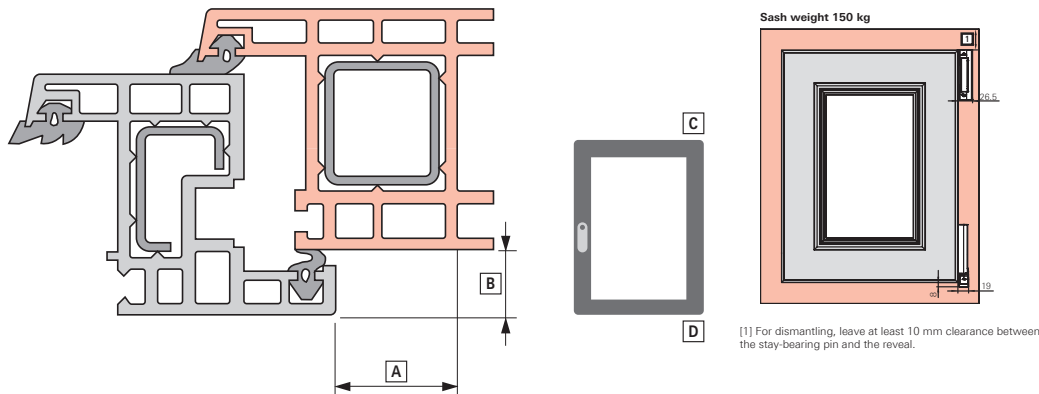


### Pop-up handle installation



## Drilling dimension for hinge P6 150

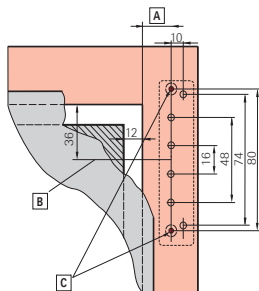
### 1. Frame clearance



Frame clearances with a 20 mm overlap width.

	Sash weight	Opening angle	Frame clearance [A]	Overlap height [B]	Top [C]	Bottom [D]
Hinge side P	150 kg	Approx. 150°	26.5 mm	Min. 16 mm	1.0 mm	8 mm

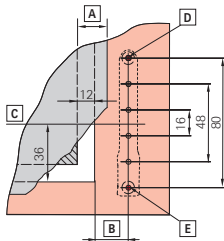
### 2. Stay bearing drilling dimension



Assignment	Meaning	System
[A]	16.5 mm	12/18-9, 12/18-13
	18.5 mm	12/20-9, 12/20-13
[B]	Stay bearing centre	-
[C]	P 6/150 stay bearing, drill hole Ø 6 mm, 9 mm deep	-

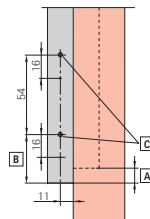
### 3. drilling dimension Bottom

#### P 6/150



Assig.	Meaning	System
[A]	Overlap width	
[B]	16.5mm	12 / 18-9, 12 / 18-13
	18.5mm	12 / 20-9, 12 / 20-13
[C]	Pivot rest centre	
[D]	P 6 /150 pivot rest, top hole Ø 6 mm, 3 mm deep	
[E]	P 6 /150 pivot rest, Ø 6 mm, 19 mm deep	

#### Corner Hinge P 6/150



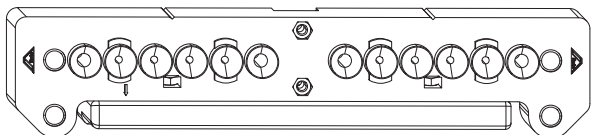
Height adjustable



Assig.	Meaning	System
[A]	Overlap width	
[B]	Height adjustable: 40.5 mm	12 / 18-9, 12 / 18-13
	Height adjustable: 42.5 mm	12 / 20-9, 12 / 20-13
[C]	P 6/150 corner hinge, drill hole Ø 6 mm, 23 mm deep	



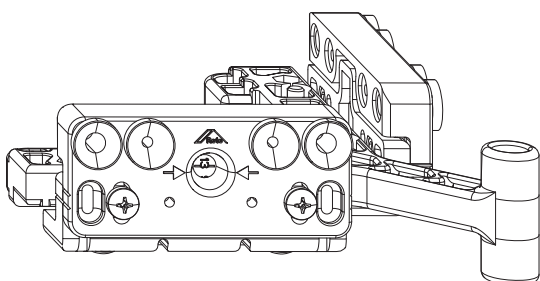
Drilling jig of NX P


## Stay bearing and pivot rest



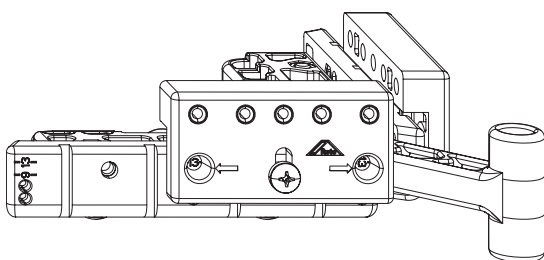
	<b>Nº</b>
P6 stay bearing and pivot rest	788436 


## Corner hinges



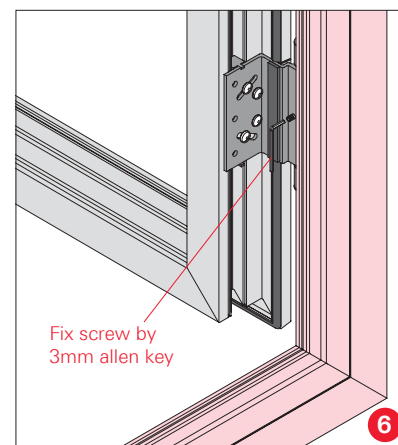
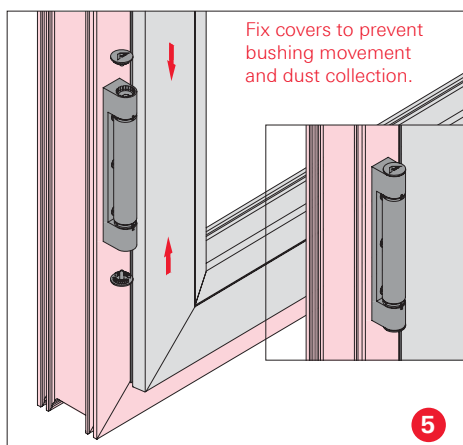
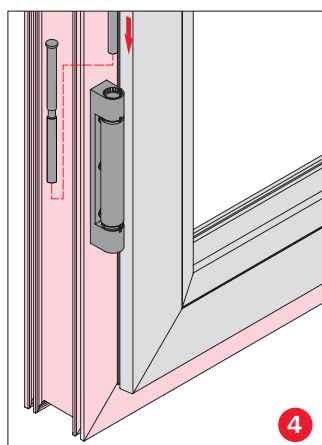
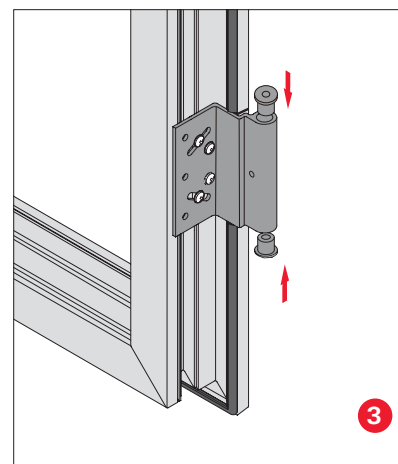
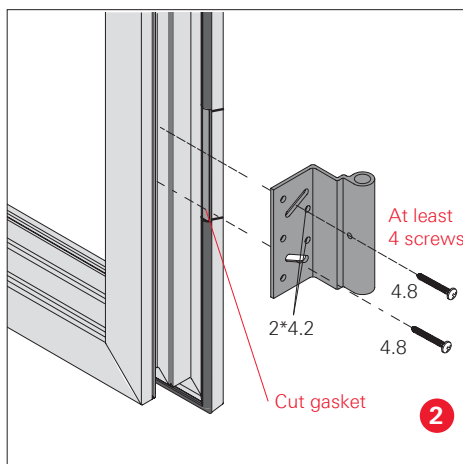
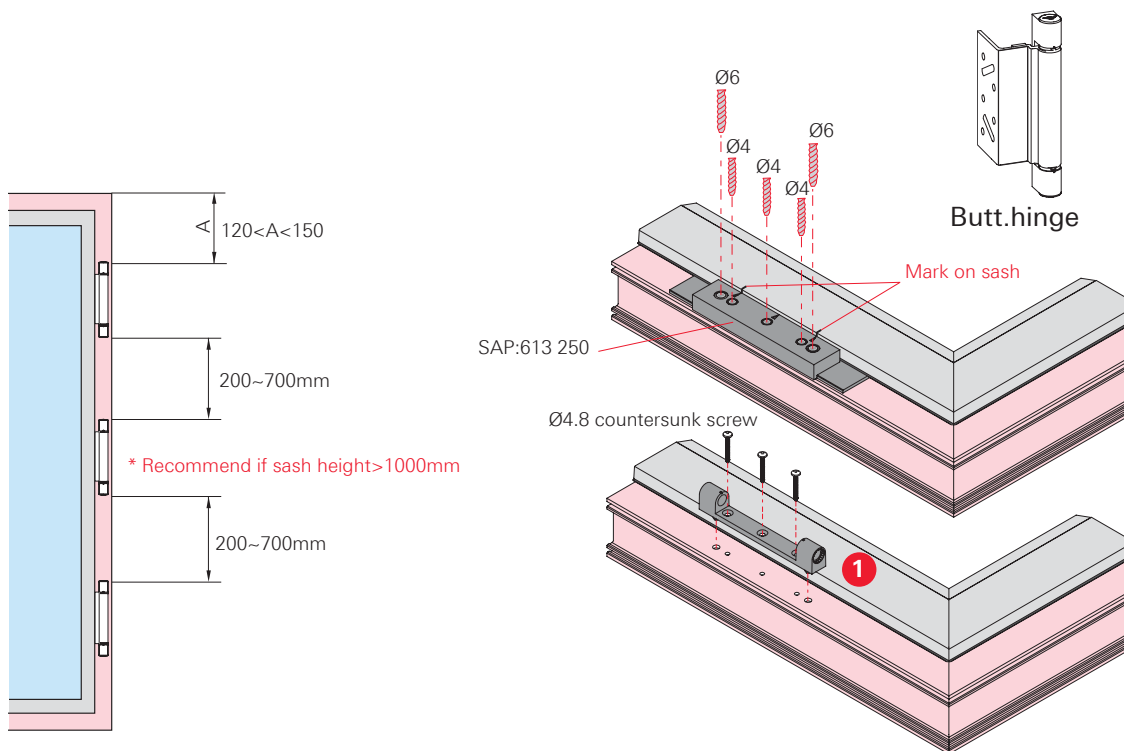
	<b>Nº</b>
P6 corner hinge, height adjustable	788438 

## Turn-Only / Tilt-Only overlap hinge

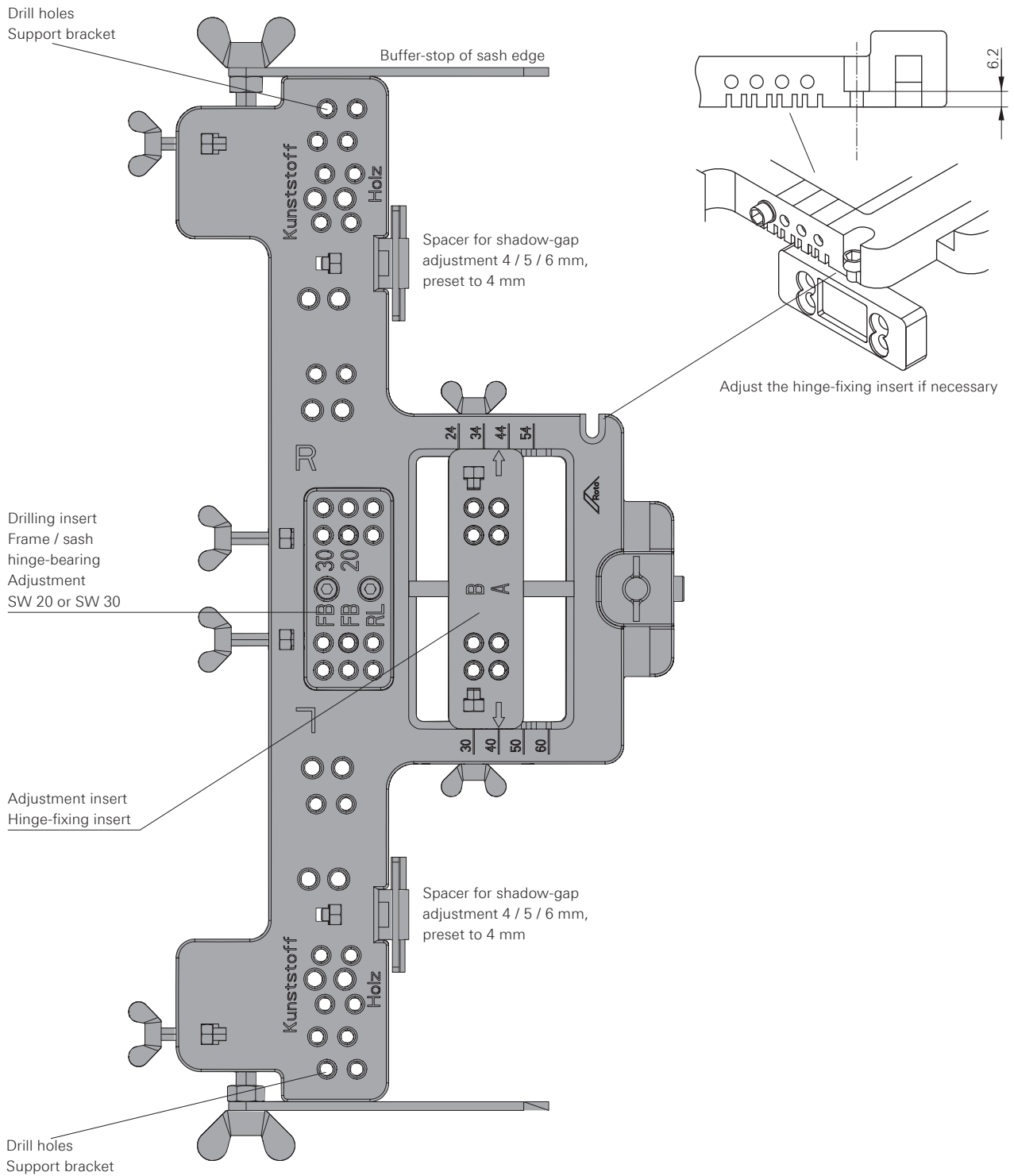


	<b>Nº</b>
Turn-Only / Tilt-Only overlap hinge	795268 

Butt.hinge installation & adjustment

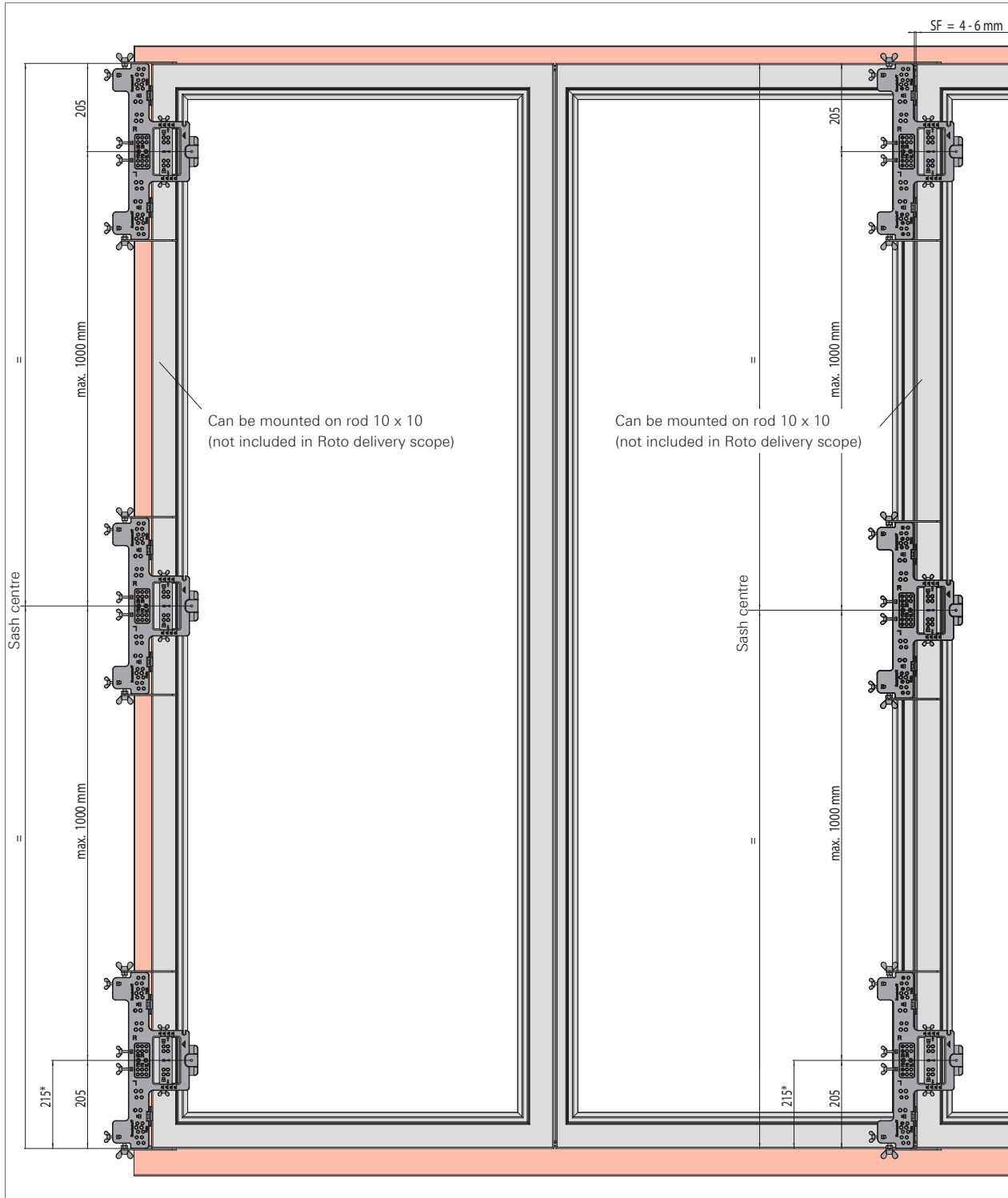


### Installation Patio Fold Inserting the drilling jig



**Position: Frame hinge-bearing**

**Position: Sash hinge-bearing**

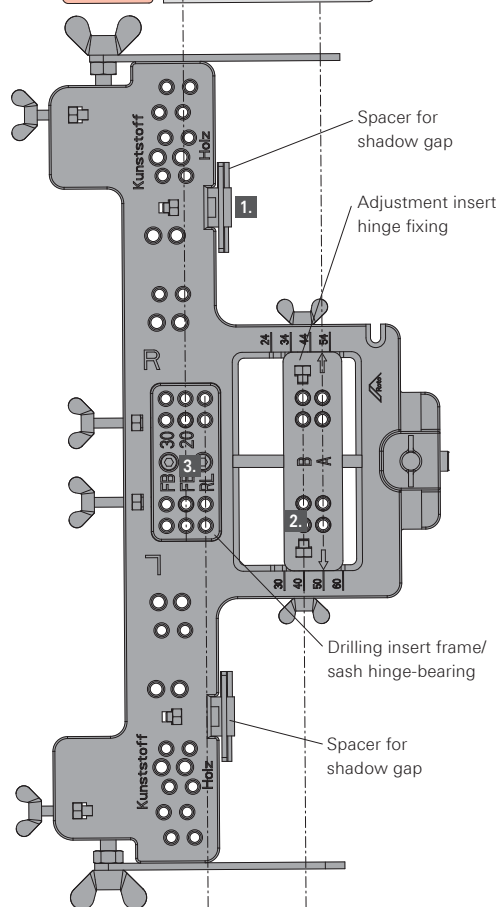
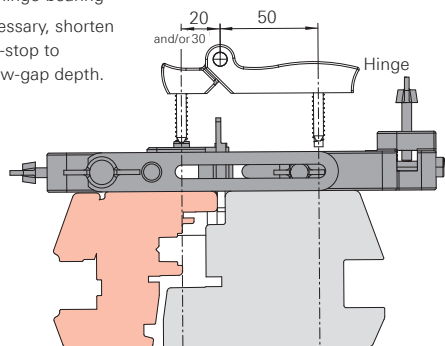


### Predrilling sash/frame hinges

Sash hinge 20 / 50

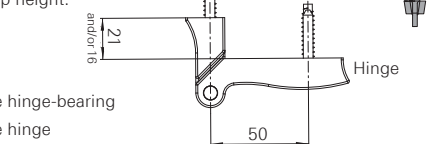
Sash hinge-bearing

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 / 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
  - in adjustment insert hinge fixing **A**
  - 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
  - in adjustment insert hinge fixing **B**
  - in drilling insert frame/sash hinge-bearing

**F.h-b**

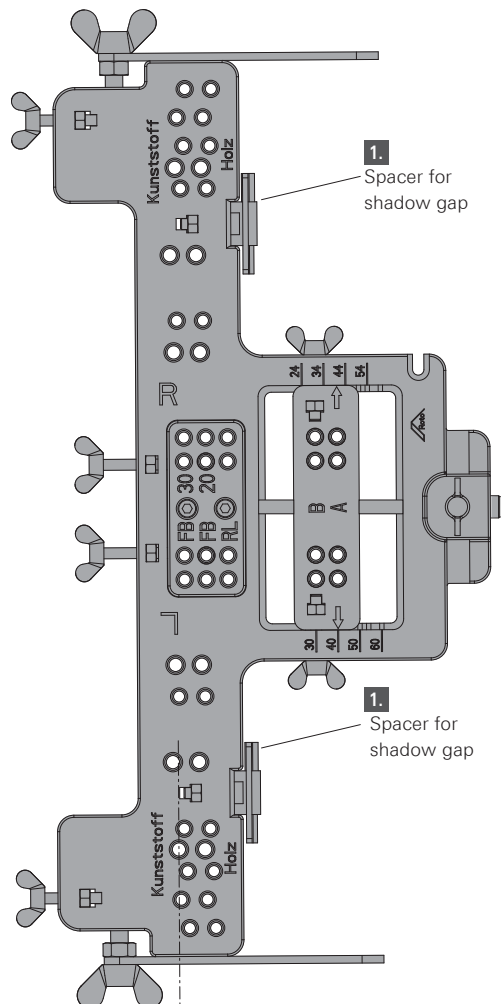


#### NOTE!

Drill sash hinges and frame hinges, same procedure with timber and PVC.

## Predrilling support bracket

### Centre of shadow gap



### Drilling of the support bracket

#### Drilling-jig adjustments

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

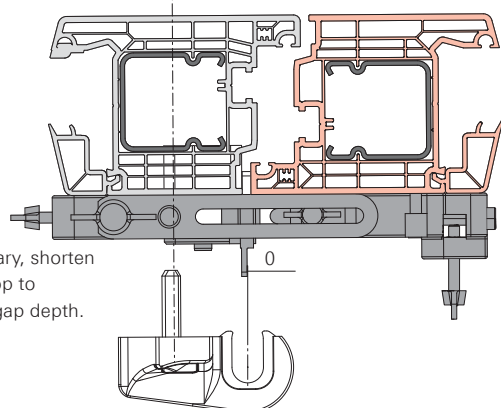
#### Drill:

2. Drilling of screws  $\varnothing 5$  mm, drilling of pins  $\varnothing 6$  mm, according to the drilling-jig inscription (PVC = centre of shadow gap).



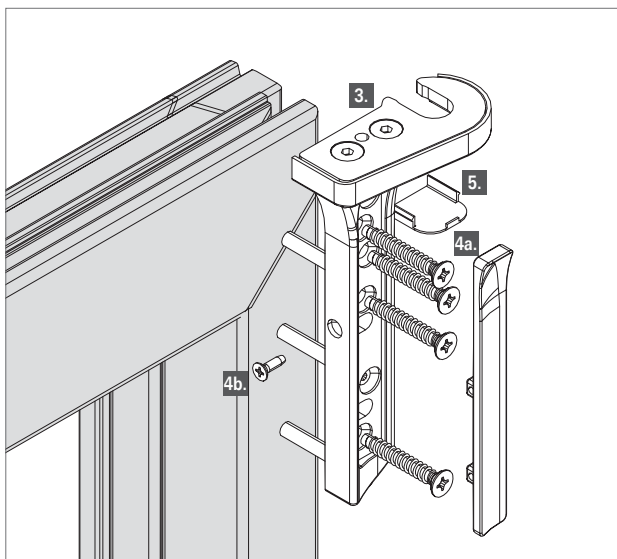
#### NOTE!

Observe the profile-specific installation instructions.



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

### Mounting top support bracket

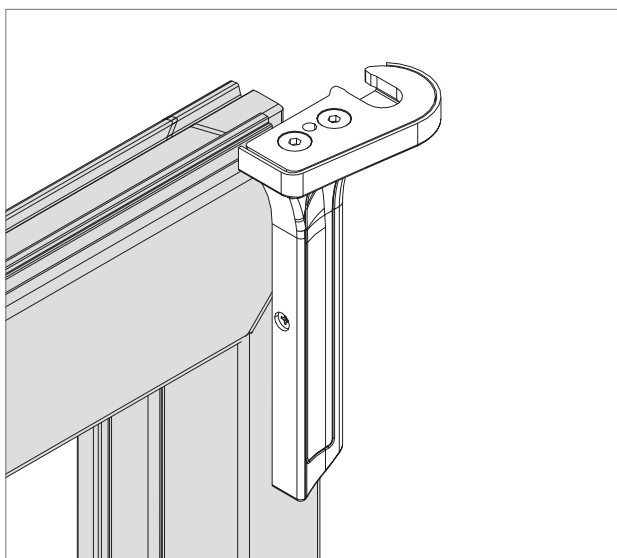


1. Move drilling jig with stop to initial position.
2. Carry out drillings with drilling jig (643365).
3. Mount the support bracket with Euro screws to the sash.
- 4a. Position the cover plate.
- 4b. Secure the cover plate with countersunk screw.
5. After installation of the bogies, clip on/insert the small cover cap.

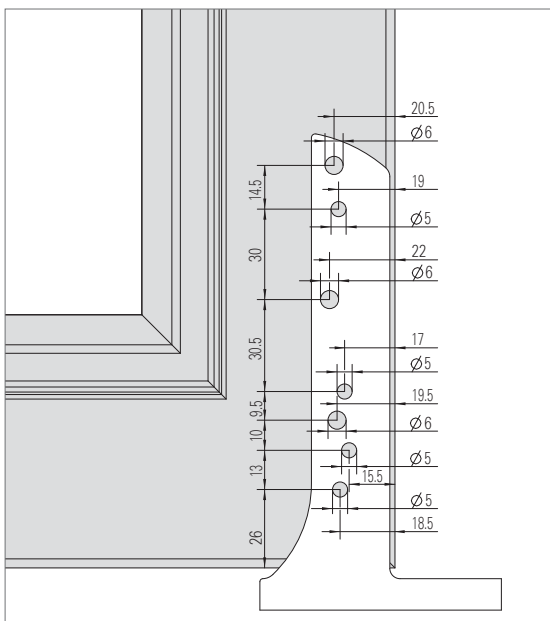
---

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

---



## Mounting support bracket for bottom roller track

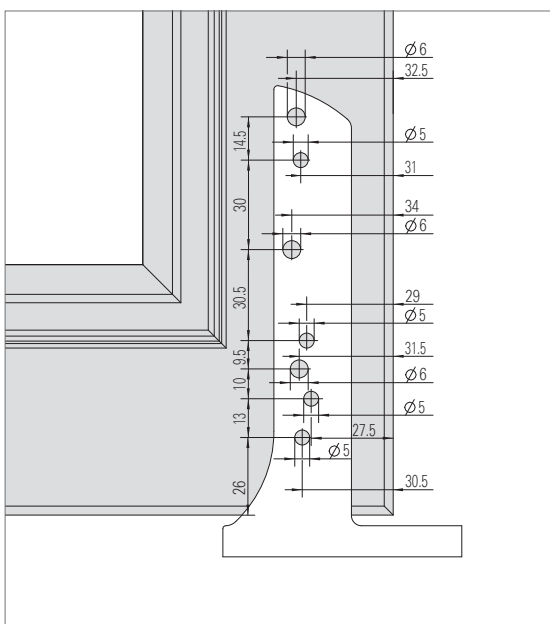


### NOTE!

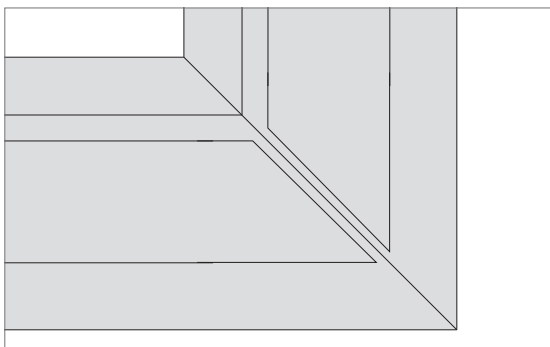
- Observe the profile-specific installation instructions, because some PVC profile systems must be drilled in timber position.
- Seal the holes for the outer support brackets with suitable sealing compound to prevent the ingress of water.



Timber  
Timber/Alu



uPVC



### NOTE!

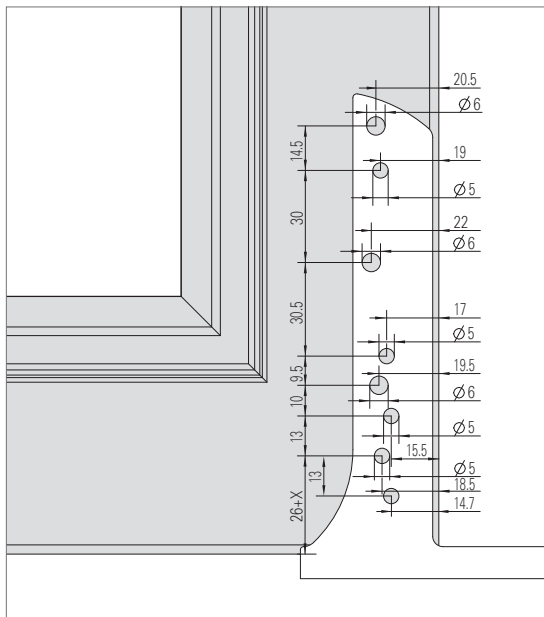
- In the area of the support brackets and/or the bogies, cut the reinforcements to mitre.



### Mounting support bracket for bottom enhanced threshold



Timber  
Timber/Alu

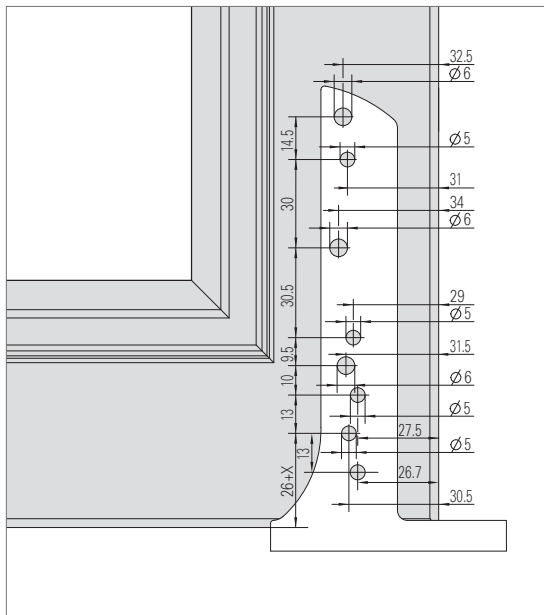


#### NOTE!

- Observe the profile-specific installation instructions, because some PVC profile systems must be drilled in timber position.
- Seal the holes for the outer support brackets with suitable sealing compound to prevent the ingress of water.
- Explanation of dimension "X", → next page.
- Shorten the additional screw for the Euro-groove if necessary, if hardware is used in this area.

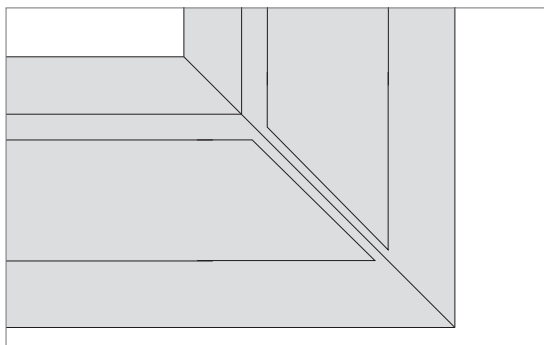


uPVC



#### NOTE!

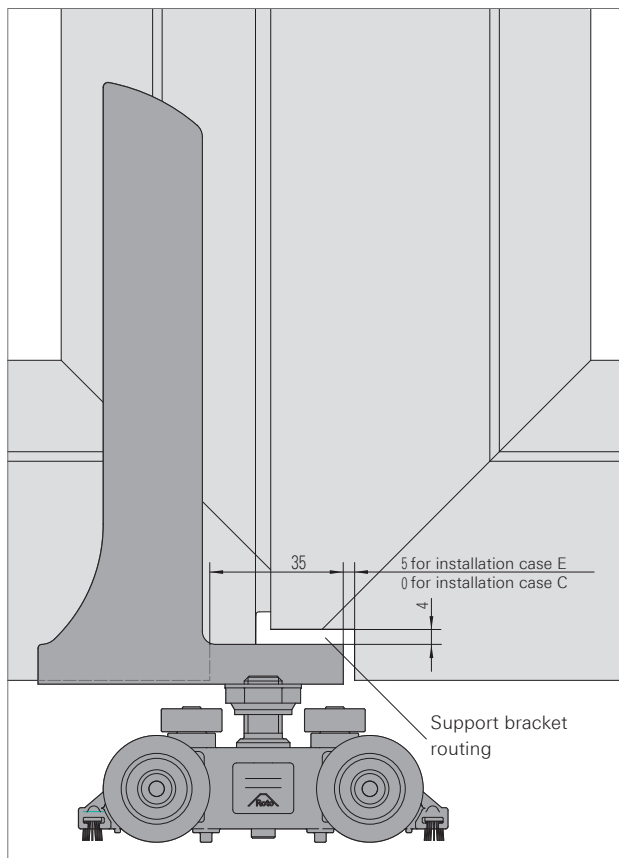
- Shorten the additional screw for the Euro-groove if necessary, if hardware is used in this area.



#### NOTE!

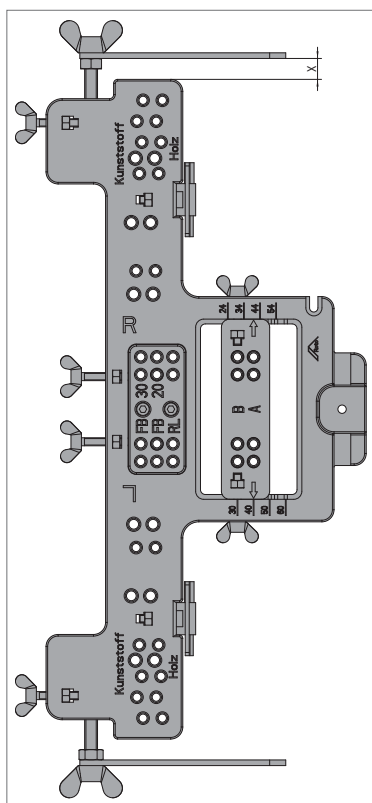
- In the area of the support brackets and/or the bogies, cut the reinforcements to mitre.

## Mounting support bracket for bottom enhanced threshold



### Punching on PVC profiles

Punching is normally necessary on both sashes.



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





Roto Frank Fenster- und Türtech-  
nologie GmbH  
Global Headquarter

Wilhelm-Frank-Platz 1  
70771 Leinfelden-Echterdingen  
Germany

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

[www.roto-frank.com](http://www.roto-frank.com)

Roto Frank  
Asia-Pacific Pte. Ltd.

19. Joo Koon Road.  
628978  
Singapore

Tel. +65 6662 9240  
Fax. +65 6795 3738  
info@roto-frank.com.sg

[www.roto-frank.com.sg](http://www.roto-frank.com.sg)

Roto Frank  
Asia-Pacific Pte. Ltd.  
Representative Office Vietnam  
C9, Mandarin Garden,  
Hoang Minh Giam,  
Trung Hoa, Gau Giay, Hanoi

Tel. +84 246 282 6500  
Fax. +84 246 282 6501

[www.roto-frank.com.vn](http://www.roto-frank.com.vn)



Roto®

are registered logo and trademark of Roto Frank Group. Unauthorized using of Roto logo and trademark is infringe to the intellegent property rights of Roto Frank that may result legal consequence.