

Product Catalogue

01/2022

PVC-U windows

## activPilot Concept

The turn-tilt fitting system according to DIN 13126-8: 2017.

NEW



1

The processing details regarding burglary-resistant window units can be gathered from the DIN EN 1627 - 1630 system documentation. The lists of fittings in this catalogue are merely intended to give application examples. Please get in touch with your Winkhaus contact partner.



The components specially developed for threshold solutions (sash and frame side) can be gathered from the catalogue "Complementary range activPilot threshold components..." .



The following information and illustrations reflect the current state of our development and manufacturing of these products. In order to achieve customer satisfaction and reliability of the hardware components we reserve the right to change the product.

Any information given in this document has been compiled and verified with the greatest care.

Some of the indicated dimensions are rounded measures!

Due to the constant technical progress, changes in legislation and other inevitable changes, we cannot accept any responsibility for the accuracy and completeness of the contents. We are always thankful for suggestions and comments.

Taking into account the information and facts given here with regard to windows (and doors), the fitting system can easily be installed.

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# Many windows, many formats, one single fitting system.

## activPilot: fascination of window fittings

Unusually few fitting parts – exceptionally many options. That's the modular activPilot principle. Windows and patio doors with various functions can be implemented, needing only a manageable number of components. Our engineers are always busy making rational extensions to the wide range of possibilities, seen from the view of manufacturers as well as that of users. In doing so, they manage to find intelligent solutions facilitating daily work routine and rendering the production more efficient. At the same time they ensure the proverbially high user convenience provided by Winkhaus technology. This constant drive towards precision has made Winkhaus one of the leading companies in the window and door technology sector. This is also demonstrated by the numerous industry standards Winkhaus has established in more than 160 years.

## The new activPilot standard

With activPilot you are prepared for tomorrow's requirements already today. Being an intelligent, clearly-structured and sleek modular system, the activPilot fitting system meets all demands set on a modern fitting range. It is suitable for any window format, window material and automation level – ranging from manual assembly to screwdriving automation and even fully-automatic serial production. Thanks to the high flexibility, the robust locking system with mushroom-head bolts, the powerful hinge side allowing up to 150 kg sash weight as well as the attractive additional functions and functional design, you are optimally ready for meeting your customers' future demands.

## Locking system with a mushroom-head octagonal locking bolt

activPilot augments convenience. Thanks to the sophisticated locking mechanism, the locking bolt enters into the frame part with high precision and ease of movement, at the same time offering optimum weather performance. This is due to the increased airgap tolerance and the mushroom head octagonal locking bolt enabling easy adjustment of the contact pressure. Balanced adjustment forces and form-closed system linkage of the components provide the fitting system with the necessary stability and functional security for many years.

## Modular design

activPilot optimises window production. Less components and their multifunctionality mean uncomplicated and fast processing, efficient logistics and rational assembly. Pre-mounted components and the unique mode of construction furthermore ensure that additional functions and safety classes can be achieved easily by retrofitting. activPilot thus sets the scene for sustainably cutting your production, warehousing, logistics and administration costs.

## Security / reliability / endurance – some new aspects of activPilot Concept

Winkhaus offers uncompromising quality and security. We think that the two are closely related. For high quality is the condition for a reliable, secure and durable function of our systems. This is also true of our innovative activPilot Concept hinge side. Thanks to the shear hinge made of steel, the reinforced corner hinge and the new sash hinge range you can nowadays build windows that live up to future challenges. The new activPilot Concept hinges allow sash weights of 130 kg for windows and 150 kg for patio doors. It goes without saying that the future-proof fitting system meets the requirements of test class H3 with 20,000 moving cycles.

## Effective security

Thanks to the unique modular system, any window can be modified to achieve the required security standard – easily, quickly and cost-efficiently. There is no need for custom parts. Various security levels up to DIN EN 1627 ff. (RC3) are achievable using the same platform. Depending on the number and type of keeps, the fitting system can also be retrofitted to higher security classes at a later date. This also includes solutions according to DIN 18102-2 (retrofit products invisibly inserted into the rebate). All mushroom-head locking bolts are made of high-strength steel offering an effective basic security even in the standard version of the fitting system. At our works, comprehensive and strict tests – along with ongoing functional monitoring – ensure maximum security for customers. Tests and certificates by independent test institutes confirm our outstanding results. You can therefore be sure that activPilot meets the requirements customers place on a stable and secure fitting system.

## Add-on functions

activPilot gives you the ability to react flexibly to customer requests. Modern multi-purpose components make it easy to retrofit additional features at any time. The use of a dual and/or tri-functional element makes it simple to add a fail-safe device with integrated limiter support and balcony door catch. Valuable convenience is also offered by the variable tilt device supporting different sash tilt angles and thus fast, easily adjustable ventilation settings.

## Design

activPilot offers you and your customers real added value. Convincing details, clear shapes, ergonomic design and comprehensive functions characterise the positive impression the fitting system leaves. In short, its attractive design will be a crucial factor when it comes to your customers making a purchase decision. activPilot also offers other strong arguments such as noticeably stable quality, easy-to-clean surfaces, minimum maintenance work required, intuitive operation and, last but not least, aesthetical and beautifully-shaped windows.

## Surface

activPilot fittings feature a surface refinement finish according to high environment and quality standards which is applied in our in-house electroplating facility. These processes confer them resistant surfaces standing out due to their very high resistance to all environmental influences. They are verified by strict quality controls consisting of alternate climate and salt spray testing according to DIN EN ISO 9227 achieving best results on a regular basis. Winkhaus also carries out surface tests in outside areas under extreme weather and real-life conditions and thus keeps seeing the major processing quality confirmed. This enables Winkhaus to offer a warranty for functions and surfaces.

## Endurance test

Winkhaus activPilot is certified in accordance with EN 13126-8:2017 (endurance test for turn-only and turn-tilt fittings) and EN 1191 (endurance test for windows and doors). The fitting system thus complies with the latest EN standards. Winkhaus' own permanent control in accordance with established production control guidelines as well as regular external monitoring by ift Rosenheim ensure outstanding product quality guaranteed on a long-term basis.

The activPilot Concept fitting series were tested for sash weights of up to 130/150 kg, for activPilot Select up to 150 kg. As a result they clearly exceeded the required load values. The fittings of both series may now bear the ift Q certification mark.

## Quality standard

The Winkhaus group successfully passed a group certification of production sites according to DIN EN ISO 9001:2015/ DIN EN ISO 50001:2011. In this way we can guarantee that the same criteria and processes are used Winkhaus-wide and that consistent high quality is achieved at any time.

Winkhaus' activPilot fittings are certified in accordance with QM 328 standards. The turn-only and turn-tilt fittings for windows and patio doors undergo a large number of tests in the stringent certification programme, which verifies aspects such as durability and quality control mechanisms. The certificate stands as a testament to Winkhaus' long tradition in high quality products and reliability.



## Your partner for service

Our services are solution-oriented, reliable and precisely geared to match your requirements – just as you would expect from your partner. We are always at your service. With application engineers on site, professional help from our product data service and innovative software solutions to help optimise your workflow we safeguard and extend your capacity to act. On top of this, our comprehensive product information system and sophisticated logistics service guarantee fast delivery at all times.

## Basic technical features of the activPilot fitting system

In the following section you will find the general features that apply to all activPilot fitting components in the sash area, unless otherwise described on the corresponding product pages.

- Face plate width of sash fitting parts: 16 mm
- Overlapping system linkage without connecting plates
- Delivery state of sash fitting parts: centre fixed in turn position
- Security mushroom-head locking pin as adjustable octagonal bolt
- Sash fitting parts can be used right/left, unless otherwise stated.

# Zertifikat / Certificate

Zertifikatsnr. / Certificate No.: 228-7019950-1-16



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

**Produkt**  
*product*

activPilot, proPilot

**max. Flügelgewicht**  
*max. casedment weight*

max 200 kg

**Einsatzbereich**  
*field of application*

**Systeme mit entsprechender Beschlagaufnahmenut**  
*Systems with suitable hardware groove*

**Hersteller**  
*manufacturer*

**Aug. Winkhaus GmbH & Co. KG**

August-Winkhaus-Str. 31, D 48291 Telgte



**Produktionsstandort**  
*production site*

**Aug. Winkhaus GmbH & Co. KG**

August-Winkhaus-Str. 31, D 48291 Telgte

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

- Erstellung von Produktfamilien des aufgeführten Bauproduktes und Erstprüfung durch eine akkreditierte Prüfstelle nach EN 13126-8:2017 unter Berücksichtigung der Anwendungsdiagramme
- Einführung und Aufrechterhaltung einer werkseigenen Produktionskontrolle durch den Hersteller
- Erstinspektion des Werkes und der werkseigenen Produktionskontrolle durch ift-Q-Zert
- kontinuierliche Fremdüberwachung des Werkes und der werkseigenen Produktionskontrolle durch ift-Q-Zert

Dieses Zertifikat wurde erstmals am 18. November 2008 ausgestellt und gilt 5 Jahre, wenn sich zwischenzeitlich die Festlegungen in der oben angeführten technischen Spezifikation oder die Herstellbedingungen im Werk oder in der werkseigenen 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-Zeichensetzung mit dem „ift-zertifiziert“-Zeichen zu kennzeichnen.

Dieses Zertifikat enthält 2 Anlage/n.

This certificate attests that the building product mentioned fulfills the requirements of the underlying ift-certification scheme in its current version.

- compilation of product families of the building product listed and initial type-testing by an accredited testing body as per EN 13126:8:2017 based on the application diagrams
- implementation and maintenance of a factory production control by the manufacturer
- initial inspection of the production site and the factory production control by ift-Q-Zert
- continuous third-party control of the production site and the factory production control by ift-Q-Zert

This certificate was first issued on 18. November 2008 and will remain valid for 5 years, as long as neither the conditions laid down in the technical specification listed above nor the manufacturing conditions in the production site nor the factory production control itself are modified significantly.

The reproduction of the certificate without any change from the original is permitted. Any changes to the prerequisites applicable to certification shall be immediately communicated in writing to ift-Q-Zert accompanied by the necessary evidence.

The company is authorized to affix the "ift-certified"-mark to the building product mentioned according to the ift-rules for use of the "ift-certified"-mark.

This certificate contains 2 annexes.

**ift Rosenheim**  
11. Oktober 2018



**Christian Kehler**  
Leiter der ift-Zertifizierungs- und Überwachungsstelle  
Head of ift Certification and Surveillance Institute

228 7019950

**Prof. Ulrich Sieberath**  
Institutsleiter  
Director of Institute

Gültig bis /  
Valid until:

10. Oktober 2023

2018-01 / 797

**Grundlage(n) /**  
**Basis:**

ift-Zertifizierungsprogramm  
für Beschläge  
ift-certification scheme  
for hardware  
(QM 328)

Ausgabe/Issue 2018

EN 1191

EN 12400

bis Klasse 3

up to class 3



Dauerkonzeption  
resistance to repeated opening  
and closing

EN ISO

9227

EN 1670

bis Klasse 5

up to class 5



Korrosionsschutz  
corrosion protection



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Prüfung und Kalibrierung – EN ISO/IEC 17025  
Inspektion – EN ISO/IEC 17020  
Zertifizierung Produkte – EN ISO/IEC 17065  
Zertifizierung Managementsysteme – EN ISO/IEC 17021

Notified Body 0757  
PÜZ-Stelle: BAY 18

**DAkkS**  
Deutsche  
Akreditierungsstelle  
D-2-E-11349-01-00

Anlage / annex 1  
Hersteller / manufacturer:  
Aug. Winkhaus GmbH & Co. KG  
Ausgabedatum / date of issue:  
11. Oktober 2018



### Zertifikatsnr. / Certificate No.: 228-7019950-1-16

#### In der Zertifizierung enthaltene Produktfamilien für Fenster- und Fenstertürsysteme mit geeigneter Beschlagaufnahmenut.

Product families for window and casement door systems with groove designed for accommodation of hardware, covered by certification.

lfd. Nr./ no.	Ausführung/ Bandselte/ type hinge/ side	Ausführung/ Flügelbeschlag/ type casement/ hardware	Beschreibung der Ausführung der blendrahmenseitigen Beschlagausführung detail description of frame member hardware type				Klassifizierung nach EN 13126-8:2017 classification as per EN 13126-8:2017			
			Winkelband/ top stay connecting part	Scherenlager/ stay arm support	Eckband/ corner hinge	Ecklager/ corner pivot	1	2	3	4
							Dauerfunktionsfähigkeit/ durability	Masse (in kg)/ mass	Korrosionsbeständigkeit/ corrosion resistance	Prüfgrößen (in mm)/ test sizes
1	activPilot K 100	activPilot K 100	SK2.20-13	SL.KS.3-6	FL.K. 20-6-20	EL.K. 6-3-16	H2	100	5	1300 mm x 1200 mm
2	activPilot K 100	activPilot K 100	SK2.20-13	SL.KS.3-6	FL.K. 20-6-20	EL.K. 6-3-16	H2	100	5	900 mm x 2300 mm
3	activPilot K 130 S	activPilot K 130 S	SK2.20-13	SL.K.3-6.130	FL.K. 20-6-28.130	ESV 6-3-16	H3	100	5	1300 mm x 1200 mm
4	activPilot Comfort PADK 100	activPilot Comfort PADK 100	SK2.PA.20-13	SL.KS.3-6	FL.E.FWPA 20-13	ESV 6-3-16	H2	100	5	1300 mm x 1200 mm
5	activPilot Comfort PADK 100	activPilot Comfort PADK 100	SK2.PA.20-13	SL.KS.3-6	FL.E.FWPA 20-13	ESV 6-3-16	H2	100	5	900 mm x 2300 mm
6	activPilot Comfort PADM 100	activPilot Comfort PADM 100	SK2.PAD. 20-13	SL.KS.3-6	FL.E.FPAD 20-13	ESV 6-3-16	H2	100	5	1300 mm x 1200 mm
7	activPilot Comfort PADM 100	activPilot Comfort PADM 100	SK2.PAD. 20-13	SL.KS.3-6	FL.E.FPAD 20-13	ESV 6-3-16	H2	100	5	900 mm x 2300 mm
8	activPilot C 130	activPilot C 130	SK2.20-13.P	SL.C.3-6	FL.C.W. 20-13	EL.CS. 6-3-22	H3	130	5	1400 mm x 1550 mm
9	activPilot K 130	activPilot K 130	SK2.20-13	SL.KB.3-6	FWV 20-13	ESVW 6-3-16	H2	130	5	1300 mm x 1200 mm

Anlage / annex 1  
Hersteller / manufacturer:  
Aug. Winkhaus GmbH & Co. KG  
Ausgabedatum / date of issue:  
11. Oktober 2018



### Zertifikatsnr. / Certificate No.: 228-7019950-1-16

10	activPilot K 130	activPilot K 130	SK2.20-13	SL.KB.3-6	FWV 20-13	ESVW 6-3-16	H2	130	5	900 mm x 2300 mm
11	activPilot ALU 130	activPilot ALU 130	SK2.20-13	SL.KB.3-6	FWV 20-13	ESVW 6-3-16	H2	130	5	1300 mm x 1200 mm
12	activPilot ALU 130	activPilot ALU 130	SK2.20-13	SL.KB.3-6	FWV 20-13	ESVW 6-3-16	H2	130	5	900 mm x 2300 mm
13	activPilot K 130 S	activPilot K 130 S	SK2.20-13	SL.K.3-6.130	FL.K. 20-6-28.130	ESV 6-3-16	H2	130	5	1300 mm x 1200 mm
14	activPilot K 130 S	activPilot K 130 S	SK2.20-13	SL.K.3-6.130	FL.K. 20-6-28.130	ESV 6-3-16	H2	130	5	900 mm x 2300 mm
15	activPilot H 130	activPilot H 130	SH2.T. 18-13-12	SL.HT.18-12	FL.HT. 18-13-12	EL.HT.Z. 18-12	H3	130	5	1300 mm x 1200 mm
16	activPilot H 150	activPilot H 150	SH2.T. 18-13-12	SL.HT.18-12	FL.HT. 18-13-12	EL.HT.Z. 18-12	H3	150	5	900 mm x 2300 mm
17	activPilot Giant	activPilot Giant	SXL.20-13	SL.XL	FL.XL	EL.XL	H3	200	5	1550 mm x 1400 mm
18	activPilot Giant	activPilot Giant	SXL.20-13	SL.XL	FL.XL	EL.XL	H2	200	5	900 mm x 2300 mm
19	activPilot Select K 100	activPilot Select K 100	SK.SE	ohne without	FL.SE	EL.K.SE	H2	100	5	1300 mm x 1200 mm
20	activPilot Select H 130	activPilot Select H 130	SH.SF. 20-9-Z.	ohne without	FL.SE	EL.H.SE. 20-9.Z. mit/with FLS.SE	H2	130	5	1300 mm x 1200 mm

Anlage / annex 1  
 Hersteller / manufacturer:  
 Aug. Winkhaus GmbH & Co. KG  
 Ausgabedatum / date of issue:  
 11. Oktober 2018



### Zertifikatsnr. / Certificate No.: 228-7019950-1-16

21	activPilot Topstar	activPilot Topstar	SH.IF.24-13	ohne without	FL.IF	EL.H.IF. 24-13		H2	130	5	1300 mm x 1200 mm
22	activPilot Topstar	activPilot Topstar	SH.IF.24-13	ohne without	FL.IF	EL.H.IF. 24-13		H2	130	5	900 mm x 2300 mm
23	activPilot Select K 150	activPilot Select K 150	SK.SE	ohne without	FL.SE	EL.K.SE mit/with FLS.SE		H2	150	5	1550 mm x 1400 mm
24	activPilot Select K 150	activPilot Select K 150	SK.SE	ohne without	FL.SE	EL.K.SE mit/with FLS.SE		H2	150	5	900 mm x 2300 mm
25	activPilot Select ALU 150	activPilot Select ALU 150	SK.SE	ohne without	FL.SE	EL.K.SE mit/with FLS.SE		H2	150	5	1550 mm x 1400 mm
26	activPilot Select H 150	activPilot Select H 150	SH.SE.29-13	ohne without	FL.SE	EL.H.SE 29-13 mit/with FLS.SE		H2	150	5	1550 mm x 1400 mm
27	proPilot	proPilot	SK.U.2.20-13	SL.K.U.3-3	FL.K.U.6	EL.K.U.3-3		H2	70	4	1300 mm x 1200 mm
28	proPilot	proPilot	SK.U.2.20-13	SL.K.U.3-3	FL.K.U.6. 100	EL.K.U.3-3		H2	100	4	1300 mm x 1200 mm

Die Ergebnisse sind auf folgende Ausführungsvarianten übertragbar: Beschlagausführung links/rechts, alle zulässigen Größen gemäß Anwendungsdiagramm sowie andere Falz- und Profilgeometrien. Die technische Dokumentation des Beschlagherstellers, insbesondere die entsprechenden Anwendungsdiagramme, ist zu beachten.

The results can be applied to the following design variants: hardware type left/right, all permissible sizes in accordance with the application diagram as well as other rebate and profile geometries. Observe technical documents of hardware manufacturer, in particular the relevant diagrams.

# Obligations regarding information and instructions

This document comprises important information and details regarding different fittings and their further processing. The information in this document is particularly intended for window and patio door manufacturers and fitting and structural component retailers. Accidents and physical damage can be avoided if you observe the information given here. For this reason, you must always make sure to pass on the relevant documents when submitting fittings over to somebody else. Information and documents should be handed over in printed form, on a CD ROM or online, for example.

## Guidelines for the use of locking systems and fittings

Gütegemeinschaft Schlosser und Beschläge e.V., Velbert issues guidelines offering assistance for the use of locking systems and fittings for windows, doors and patio doors. These guidelines are established in cooperation with the trade association of the locks and fittings industry in Velbert as well as the testing institute PIV which is also based in Velbert. If required, they are agreed with the VFF technical committee and ift Rosenheim. As a result the experience and test findings of several decades are considered.

The guidelines provide information about the intended use and maintenance of fittings for windows and patio doors. It is mandatory to observe these guidelines.

The current guidelines can be accessed in different languages at the following Internet address: <http://www.beschlagindustrie.de/ggsb/richtlinien.asp>



As an alternative to using the www address, you can also scan the QR Code with your smartphone!

Follow this link to find the applicable and binding guidelines on the following topics:

- VHBH - Fittings for windows and patio doors [with guidelines / instructions on the product and liability]
- VHBE - Fittings for windows and patio doors [with guidelines / instructions for end users]
- TBDK - Attachment of supporting fitting components of turn and turn-tilt fittings [with definitions of turn and turn-tilt fittings as well as their possible mounting positions]
- FPKF - Safety and cleaning shears for tilt sashes and tilting fanlights [use of safety and cleaning shears]
- FPDF - Sash limiters for variable turn position of sashes [sash limiters controlled by central locking system - definitions and tests]



The VHBH guideline among others contains the chapter "Obligation to give instructions". A schematic illustration shows the documents and information to be submitted to the different target groups. The builder is obliged to pass the documents listed in this chapter on to the end user.

**Gütegemeinschaft Schlosser und Beschläge e.V.**  
Richtlinie: TBDK  
Ausgabe: 2014-07-05

**Richtlinie**  
**Befestigung tragender Beschlagsteile von Dreh- und Drehkipp-Beschlägen**  
mit: Definitionen zu Dreh- und Drehkipp-Beschlägen sowie deren möglichen Einbaulagen

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**Hinweis**  
Technische Angaben und Empfehlungen dieser Richtlinie beruhen auf dem Kenntnisstand bei Drucklegung. Es gilt der Inhalt des „Disclaimer“ auf der o.g. Internet-Seite.

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Richtlinie TBDK

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# 1 Product liability guidelines

## Turn and turn-tilt fittings for windows and patio doors

According to the current product liability legislation dealing with a manufacturer's liability for his products please observe the following information on turn and turn-tilt fittings for window and patio door sashes. The manufacturer will not accept any liability for noncompliance with these specifications.

### 1. Product Information and intended use

Turn and turn-tilt fittings within the meaning of this definition are single handle turn-tilt fittings for windows and patio doors as used in building applications. These interact with a manually operated handle to bring windows and window sashes into a turn or a tilt position as defined by the design of the shears. Turn and turn-tilt fittings are used on vertical installation windows and patio doors made of wood, PVC-U, aluminium or steel and corresponding combinations of materials. Standard turn-tilt fittings within the meaning of this definition are used for securing window and patio door sashes and to position them in different ventilation positions. Normally it is necessary to overcome the counter force of a seal when closing. Any other type of usage is not in accordance with the intended application. Windows and patio doors for special applications (i.e. burglar-resistance or for installation in humid conditions / in environments with corrosive atmospheric substances) require special fittings with separately agreed performance criteria, designed for the particular application. Open window and patio door sashes only have a protective function and do not meet requirements in terms of joint sealing, watertightness under heavy rain, sound proofing, heat insulation or burglar resistance. When it is windy or draughty, windows and window sashes need to be closed and locked. Windy or draughty as used in this definition means conditions when window or patio door sashes open or close unexpectedly by themselves as a result of air pressure or suction. A fixed open position of the window or patio door sashes can only be achieved by means of supplementary locking fittings. Resistance to loads imposed by wind on closed and locked windows depends on the design and construction of the individual windows / patio doors concerned. If wind stresses to DIN EN 12210 (pressure level p3 in particular) have to be withstood, suitable combinations of fittings must be designed and agreed separately for the design of window and frame material concerned. In general, the turn and turn-tilt fittings are able to meet the requirements to DIN 18025 relating to low-threshold design of flats. However, in this case special combinations and assembly of fittings are needed which must be adjusted and approved separately.

### 2. Misuse

Misuse - i.e. the use of a product in a manner contrary to the manufacturer's instructions - of turn-tilt fittings for windows and patio doors occurs

- if obstacles are placed in the opening area preventing the intended use.
- if sashes of window / patio doors are pushed or hit against the window reveal, either contrary to the manufacturer's instructions or in an uncontrolled way (e.g. by wind), that the fittings, the frame materials or other individual parts of the window sash or the patio door sash are damaged or destructed or subsequent damage occurs.
- if additional loads act on the sashes of windows or patio doors (e. g. children swinging on them).
- if someone grasps in the gap between the frame and sash when closing the window (risk of injury).

### 3. Liability

All fittings must be selected from the original Winkhaus activPilot fitting component range. We accept no liability in case of use of third party or non-approved system components.

Attention: The screw / clamping connection of fitting components, such as corner, shear and sash hinges, must be designed according to the TBDK guidelines. Please adapt the fixing procedure to the load situation.

### 4. Product Capabilities - Application instructions of the manufacturer

The maximum sash weights for the individual types of fitting must not be exceeded. The component with the lowest permissible loading capacity determines the maximum weight of the sash. Please observe the diagrams and component installation instructions.

#### 4.1 Sash sizes and areas of application

The graphs in the application diagram show the permitted sash rebate height to width ratios, as determined by different weights of glass and/or overall glass thicknesses. The resulting sash rebate dimensions or sash formats (portrait / landscape) and the maximum sash weight must under no circumstances be exceeded.

#### 4.2 Application diagram for determination of the permissible sash sizes

The application diagrams for this fitting series for the determination of permissible sash sizes are described and explained separately on the following pages.

#### 4.3 Composition of fittings

You must comply with the manufacturer's specifications regarding the configuration of fittings (e.g. the use of additional shears, the layout of fittings for burglary-resistant windows and patio door sashes, etc.).

#### 5. Product maintenance

Security-relevant fitting parts are to be inspected at least once a year to check for wear and to ensure they are firmly secured in position. Fastening screws must be tightened and faulty components must be replaced as required. Maintenance work and cleaning must also be carried out at least once a year.

All mobile parts and locking points for fittings should be greased and tested for function.

Only oils and greases not affecting the materials of the fitting may be used.

The only cleaning and maintenance materials to be used are those which will not adversely affect the corrosion-resistant properties of the fittings components.



Adjustment work to the fittings – particularly in the area of the corner drive and the shears – as well as the replacement of parts and mounting and removal of opening sashes must be carried out by a trained specialist.

#### 5.1 Maintaining surface quality

- The fittings and rebate spaces must be adequately ventilated, particularly during the construction stage, so that they are not exposed to the direct effects of moisture or condensation. It must be ensured in any case by appropriate measures that there is no possibility for (permanently) humid room air to condense in the rebate area.
- The fittings must be kept free from deposits and soiling due to building materials (building dust, gypsum plaster, cement etc). Possible soiling from plaster, mortar etc. must be removed prior to bonding with water.
- Corrosive vapours (e.g. formic acid, acetic acid, ammonia, amine and ammonia compounds, aldehydes, phenols, chlorine, tannic acid etc.) in the rebate space combined with even a small amount of condensation can cause rapid corrosion of the fittings. Therefore, such exhalations in the area of the windows must be avoided.

- Furthermore no sealants that cure with acetic or other acids, or sealants containing any of the above-mentioned substances, must be used. Both direct contact with the sealant and vapours released from it can damage the surface.
- Only use a mild and pH neutral detergent to clean the fittings. Under no circumstances use aggressive acidic cleaners or scouring agents containing the substances listed above.

#### 6. Obligations to give information and instructions

For the implementation of information and instruction obligations as well as for the maintenance work the following documents are available. They must be submitted to (intermediate) dealers and manufacturers and to the end customer.

Planning documentation

Product catalogues

Mounting instructions

Maintenance and care instructions as well as operating instructions

#### 7. Use of type-related fittings

The variants for the individual fitting systems (e.g. tilt and top-hung sash fittings or parallel action fittings providing an additional ventilation position by means of a circumferential gap all around the sash) must be used considering the product information, intended use, misuse, product capabilities, product maintenance and the obligations regarding the information and instruction.

#### 8. Storage

Before the fitting components are assembled, they must be stored on a dry, protected and level surface.

# Further products

## activPilot Select

The fully concealed turn-tilt fitting system.

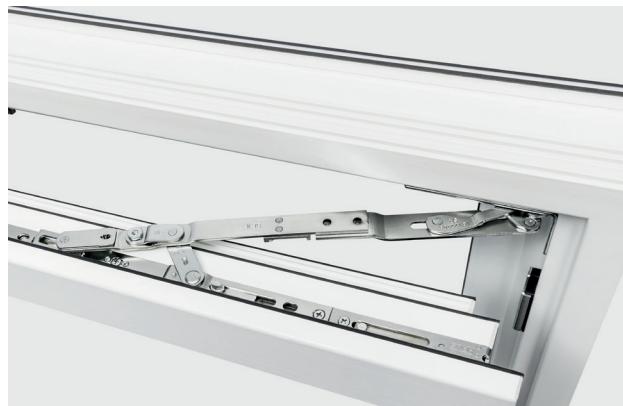
The fitting system features fully concealed shear, turn and corner hinges housed in the rebate. When installed as a standard model, this elegantly designed turn and tilt fitting is able to bear sashes weighing up to 100 kg. With just two additional components, it can easily support sashes weighing up to 150 kg.



## activPilot Topstar

Fully-concealed turn-tilt fittings for design windows.

The activPilot Topstar system enables you to build windows with particularly aesthetic demands and sash weights up to 130 kg. The optimised control curve of the hinge parts enables a narrow shadow joint for flush windows and a small free size of the frame for offset profiles.



## activPilot Comfort

The fitting system with parallel action

Allround security thanks to innovative technology. The convenient approach to a healthy indoor atmosphere and improved illegal entry protection in parallel position.



## duoPort SK

Slide-tilt fittings.

The slide-tilt doors delivered with the duoPort SK series support sash weights of up to 200 kg, with perfect functionality and elegant design. They can be operated conveniently by simply pressing the handle in combination with a pull-in shear device.



## activPilot Control

Locking sensors up to VdS Class C.

Unobtrusive closing sensors reliably report which windows and glazed doors are open or locked. At the same time heating and air-conditioning controls are supported.



## Winkhaus smartHome

Smart opening sensors with wireless technology

Smart home systems simplify everyday life, providing convenience for your own house. Thanks to the radio contacts from the Winkhaus smartHome product range it is possible to detect the locked and open state of windows. The signal is wirelessly conveyed to a smart home system for evaluation or control. As an option the signal can be conveyed to an intrusion detection system by means of a wireless switching relay. An integration of radio contacts offers the special advantage of foregoing time-consuming cable work and is hence ideally suited for retrofitting intrusion detection systems. Windows can now be entirely integrated into the smart home. It goes without saying that Winkhaus locking sensors have received the VdS Home approval and they are protected according to IP 67.



# Declaration of symbols

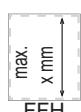
1



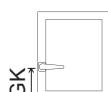
Sash weight max. x kg

Max. sash size: x m<sup>2</sup>

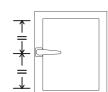
Max. sash rebate width (FFB): x mm



Max. sash rebate height (FFH): x mm



Constant handle height



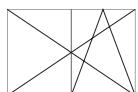
Central handle height



Turn sash (D)



Turn-tilt sash (DK)



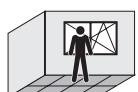
Turn/turn-tilt double sash (D/DK-Stulp)



Design of centre turn sash (D) (3-sash units)



Parallel action



Interior view



Exterior view



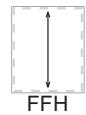
Basic set of fittings



Optional fittings



Size-dependent fittings depending on sash rebate width (FFB)



Size-dependent fittings depending on sash rebate height (FFH)



"TOP" marks the upper edge of the window.



Pot hinge version



Rebate hinge version



Item for use on PVC-U windows



Item for use on wooden windows with 12 mm airgap



Item for use in wooden windows with 4 mm frame-to-sash clearance and 15 mm overlap



Item for use in wooden windows with 4 mm frame-to-sash clearance and 18 mm overlap

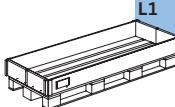
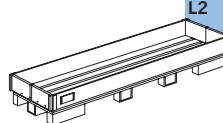
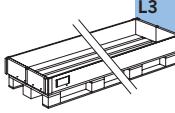
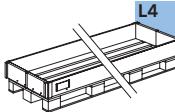
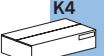
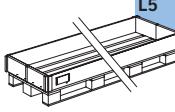
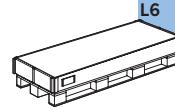
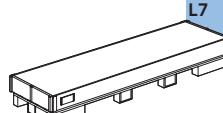


Item for use on aluminium windows

# Packing key in the Winkhaus logistics system

The shipping units were chosen in a way that our products can be handled without any problems at your works, ranging from cardboard packaging to complete pallet units. For instance, we provide KLTs (small load carriers) in different sizes which are eco-friendly and facilitate logistics. The reusable packaging units, which can be stacked on a europallet, have a bar code and enable optimal stock organisation and easy transport to the relevant workstations.

The packaging used for the products in question can be found on the corresponding product pages.

 BL	BL Goods packed in PE bags with bar code	 L1	L1 Reusable pallet for long goods with frame and bar code Pallet size 800 x 1,800 mm
 KT	KT Goods packed in cardboard boxes with bar code	 L2	L2 Reusable pallet II for long goods with frame and bar code Pallet size 800 x 2,400 mm
 BD	BD Tied goods with barcode	 L3	L3 Reusable pallet III for long goods with frame and bar code Pallet size 800 x 3,500 mm
 K3	K3 Small cardboard box with bar code Dim.: 395 x 295 x 205 mm	 L4	L4 Reusable pallet IV for long goods with frame and bar code Pallet size 800 x 4,200 mm
 K4	K4 Big cardboard box with bar code Dim: 595 x 395 x 205 mm	 L5	L5 Reusable pallet V for long goods with frame and bar code Pallet size 800 x 6,500 mm
 KK	KK Small KLT 4321 Dim: 400 x 300 x 214 mm with cover, bar code, sealed, stackable	 L6	L6 One-way pallet with cover box for long goods with bar code Pallet size 800 x 1,800 mm
 GK	GK Big KLT 6412 Dim: 600 x 400 x 214 mm with cover, bar code, sealed, stackable	 L7	L7 One-way pallet with cover box for long goods with bar code Pallet size 800 x 2,400 mm
 E1	E1 europallet with KLT Pallet size 800 x 1,200 mm		
 E3	E3 One-way pallet with cover box and bar code		
 EK	EK Europallet with KLT and fixing plate (avoids shifting of goods) Pallet size 800 x 1,200 mm		
 EA	EA Europallet with frame and bar code Pallet size 800 x 1,200 mm		
 EWK	EWK Disposable cardboard box E3, L6 or L7		

# Glossary

1

## Code

AB.G.D	Drilling protection	GASK	Double sash drive rod, constant handle position
ADS	Cover strip	GASM	Double sash drive rod, central handle position
ADP	Adapter	GAVM	Locking drive rod activPilot, central handle position
AKR	Automatic shootbolt	GG	Handle set
AL...	Support plate	GK	Constant handle position
ANS	Mounting element	GRT.RB	Round arch set
AP.HH	Fitting punch, lever	HC	Timber windows, rebate version
AP...SE	Adapter plate, activPilot Select	HFG	Window Handle Case HFG
AS.DSL	Mini ventilation unit (turn position)	HT	Timber windows, pot hinge version
AS.SBA	Mini vent keep		
ASP ER-A	End plate		
ASS AR	Corner drive	IF	activPilot Topstar
AWDR	Blocking plate		
BK	Balcony door catch	K.EL	Corner hinge cap
BK.KR	Catch bolt	K.FL	Sash hinge cover
BO	Catch bolt	K.SB	Shear hinge cap, timber
BS	Ground sill	K.SK	Shear band cap
BST AP/FS	Punch	K.SL	Shear hinge cover
D	Backset	KB	Tilt hinge
DB	Turn limiter	KBG	Tilt limiter
DBG	Turn limiter	KE	Coupling element
DFE	Dual function element	KLB	Tilt hinge
DL	Turn hinge insert	KR	Shootbolt
DL...ET	Turn hinge, 1 piece	KUE-T1	Cable transition, separable
DLW ERW	Turn hinge bracket		
DML	Turn middle hinge	LE.B	Drilling jig
DS	Window lock	LE.FR	Milling jig
E	Corner drive	LE.N	Jig
E1.A	Corner drive for studio windows	LIN AP/FS	Ruler of fittings press
E1.MSL	Corner drive with variable tilt device	LM-RG	Round handle
E1.SBS	Corner drive for double-sash window		
EL	Corner hinge	M	Interlocking rod
ELK	Corner hinge cap	MK	Interlocking rod, extendable
ESV/ESVW	Corner hinge	MS.SO	Interlocking rod, double sash, keep top
		MS.SU	Interlocking rod, double sash, keep bottom
		MSL.OS	Variable tilt device top rod
FBP	Window limiter	NML	Groove centre position
FH ...	Sash lifter		
FK-F	Sash hinge (with turn restriction)	OBV	Opening limiter
FL	Sash hinge	OS	Top rod
FL...PADS	Sash hinge, PADS	OS...PA...	Top rod, PADK
FL...PAD/	Sash hinge PAD/PADM	OS. ...E	Top rod (turn before tilt)
PADM		OS.A	Screw clip
FL...PADK	Sash hinge, PADK		
FLK	Sash hinge cover	PA	Parallel action
FLS.SE	Sash hinge rail, activPilot Select	PAD	Parallel action, turn
FSA	Fail safe device FSA	PADK	Parallel action, turn-tilt
FSF	Fail safe device FSF		
FSR	Rebate shear		
FT	Adapter		
FWV	Sash hinge, rebate hinge		
GAK	Drive rod, constant handle position	RA.DB.SE	Frame connection turn limiter
GAKA	Drive rod, constant handle position, lockable	RT.DFE-TFE	Frame part, dual/triple function element
GAM	Drive rod, central handle position	RT.DFE-TFE.S	Frame part, dual/triple function element, double-sash windows
GAMA	Drive rod, central handle position, lockable	RT.MSL	Frame part, variable tilt device

## Item description

S.FL	Sash hinge plug	...LS	Fitting direction left
SA	Run-up block	...RS	Fitting direction right
SA.IF	Shear Topstar aluminium	...AGR	anthracite grey (similar to RAL 7016)
SB SZV	Keep, pull-in device	...BR	brown (similar to RAL 8019)
SBA...	Keep, contact pressure	...BZ-AM	bronze - antique brass
SBA...T	Mini vent keep	...BZ-CU	bronze - coppery
SBK	Security tilt keep	...BZ-RB	bronze - red brown
SBK...E	Tilt keep (tilt before turn)	...CW	creme white (similar to RAL 9001)
SBK...PA	Tilt keep (with slider), PADK	...EV1	anodised silver
SBK...SP	Security tilt keep with gap locking device	...F1	silver coloured
SBS...	Security keep	...F1 anodised	(similar to F1) anodised silver
SBS...PA	Security keep, PADK	...F3	gold coloured
SBS...PAB	Security keep PAB, PADK	...F3-MG	gold mat
SBS...PAD	Security keep PAD/PADM	...F9	titanium coloured
SC/SK	Shears	...LBR	clay brown
SC...A/SK...A	Shear studio window	...PW	pearl white (similar to RAL 1013)
SC...E/SK...E	Shear (tilt before turn)	...SG	silver-grey (similar to RAL 7001)
SC...PA.../SK...	Shear, PADK	...SGB	grey (similar to RAL 9006)
PA...		...SGR	grey (similar to RAL 7037)
SC...PAD.../SK...	Shear PAD	...SL	silver look (zinc galvanised)
PAD...		...SW	jet black
SCO/SKK	Shear, without turn restriction	...WS	white (similar to RAL 9016)
SE	activPilot Select		
SH...T	Shear, pot hinge		
SH.IF	Shear Topstar wood		
SK.IF	Shear Topstar PVC-U		
SL	Shear hinge		
SL.HC	Shear hinge, timber rebate hinge		
SLK	Shear hinge cap, rebate hinge		
SNH	Faceplate fastener		
SP R	Faceplate		
SR	Control unit SR		
SZP	Geared cover plate		
TFE	Triple function element		
UEB	Overlap		
UF	Packer		
V	Distance between locking points		
VBST	Connection piece		
V.AK	Extension rod		
VK.AK	Extension rod, extendable		
VS R	Connection rod		
VS RB	Connection rod round-arch window		
XL	Components from activPilot Giant range		
ZSR	Additional shear		
ZSRE	Additional shear (tilt before turn)		
ZSS	Anti-slam device		
ZV...	Pull-in device		
ZVRT	Pull-in device, frame part		

# Guidelines for using application diagrams

- Prerequisites
  - When fixing load-bearing components, please consider the TDK guidelines. The tractive forces shown in the table have to be achieved. The suitable proof must be provided by the window manufacturer.
  - The values given here apply to the shear hinge. An extra test of the corner hinge is not necessary in case the fixing situation is identical to that of the shear hinge.

m [kg]	F [N]
50	1400
60	1650
70	1900
80	2200
90	2450
100	2710
110	3000
120	3250
130	3525
140	3900
150	4200

m [kg] = max. sash weight in kg

F [N] = tractive force on the shear hinge in N

- Please control:
  - Are window dimensions within the range highlighted in grey?
  - Is the intersection point to be determined located to the left of the limiting curve of the glass weight?

- Example:

Intended window dimensions:

- FFB = 1.100 mm
- FFH = 1.800 mm
- GG = 40 kg/m<sup>2</sup> (corresponds to the cyan curve)

The intersection point "S" is located in the area highlighted in grey and to the left of the limiting curve of the filling weight (GG = 40 kg/m<sup>2</sup>), i. e. in the permitted area.

- General notes:

On the establishment of application diagrams, the following values were considered:

- Glass weight GG ~ 2.5 kg/m<sup>2</sup> mm
- Profile weight ~ 3.25 kg/RM

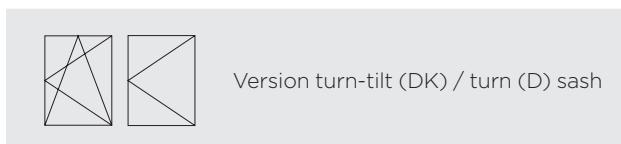
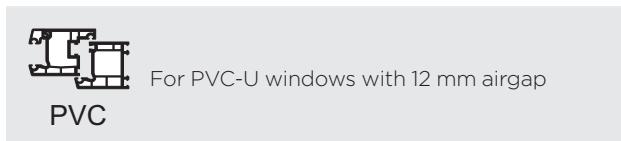
Please find more detailed information on the website <http://www.ift-service.de/awd/ift/start.faces> as well as on <http://www.fvbs.de/ggsb/richtlinien.asp>.



# activPilot Concept

Application diagram for ascertaining the admissible sash sizes

- Max. sash weight 100 kg



## Width-to-height ratio and additional load

Value calculated without additional load for a width-to-height ratio of 2:1.

The application diagrams have been established without considering additional loads. For ascertaining the max. sash sizes with additional loads, please ask your authorised contact partner for comprehensive advice!

## Advice for use

The permissible application range for using Winkhaus fittings is marked grey in the application diagrams. However, please do not take into account the complete grey surface, but only the part which is on the left side of the "filling weight GG" curve.

## Application range

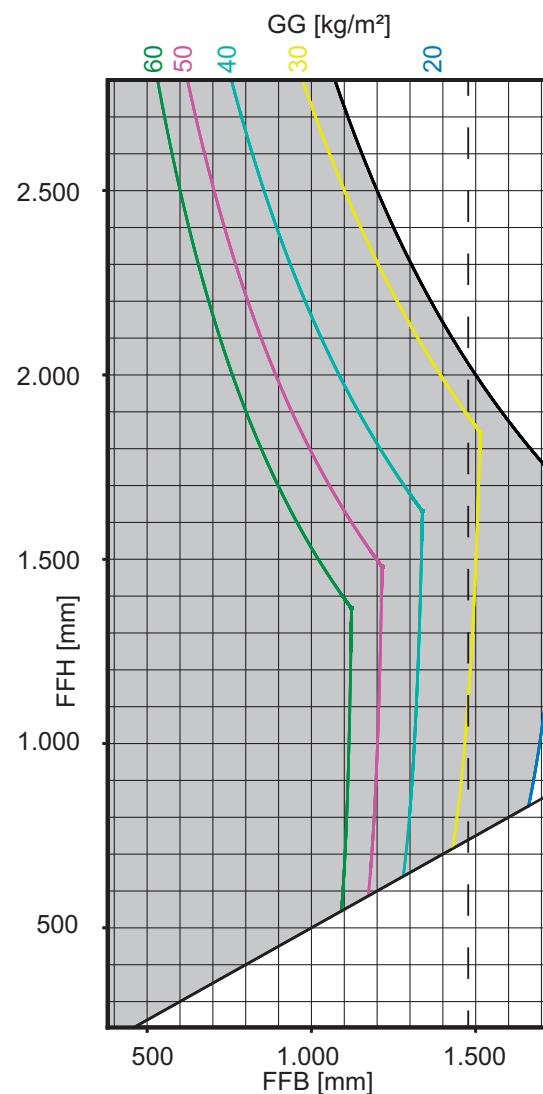
All fittings must be selected from the original Winkhaus activPilot fitting component range. We accept no liability in case of use of third party or non-approved system components.

- Min. sash rebate width 270 mm
- Max. sash rebate width 1725 mm
- From 1475 mm sash rebate width with additional shear ZSR
- Min. sash rebate height 230 mm
- Max. sash rebate height 2,800 mm
- Max. sash size 3 m<sup>2</sup>
- Max. sash weight 100 kg
- Ratio between sash rebate width : sash rebate height ≤ 2:1

## Conditions for using the application diagram

Proof of fixing the load-bearing components on the window system by the window manufacturer according to the TBDK guideline and with the following forces:

- For a max. sash weight of 100 kg
- On the shear hinge: 2710 N
- On the corner hinge: 2890 N



AWD\_01.50\_NR320\_DK\_100kg\_ohne\_Zusatzzlast\_2\_m

## Abbreviations

- FFB = Sash rebate width [mm]
- FFH = Sash rebate height [mm]
- GG = Glass weight per square metre [kg/m<sup>2</sup>]
- ZSR = Additional shear (section on right of interrupted line)

## Observe instructions on window profile

You must specifically take into account information provided by the profile manufacturer or system owner when determining the maximum sash sizes and sash weights!

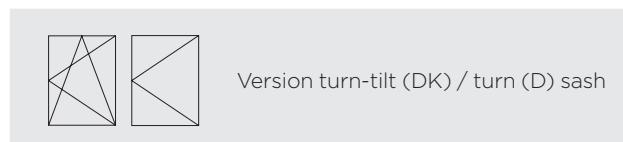
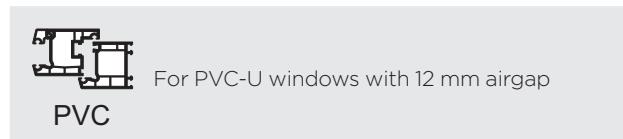


Important: The load-bearing fitting components, such as corner, shear and sash hinges, must be designed according to the TBDK guidelines. Please adapt the drill diameter of the fixing screws, the screw diameter and the screw length to the load situation.

# activPilot Concept

Application diagram for ascertaining the admissible sash sizes

- maximum sash weight 130 kg



## Width-to-height ratio and additional load

Value calculated without additional load for a width-to-height ratio of 2:1.

The application diagrams have been established without considering additional loads. For ascertaining the max. sash sizes with additional loads, please ask your authorised contact partner for comprehensive advice!

## Advice for use

The permissible application range for using Winkhaus fittings is marked grey in the application diagrams. However, please do not take into account the complete grey surface, but only the part which is on the left side of the "filling weight GG" curve.

## Application range

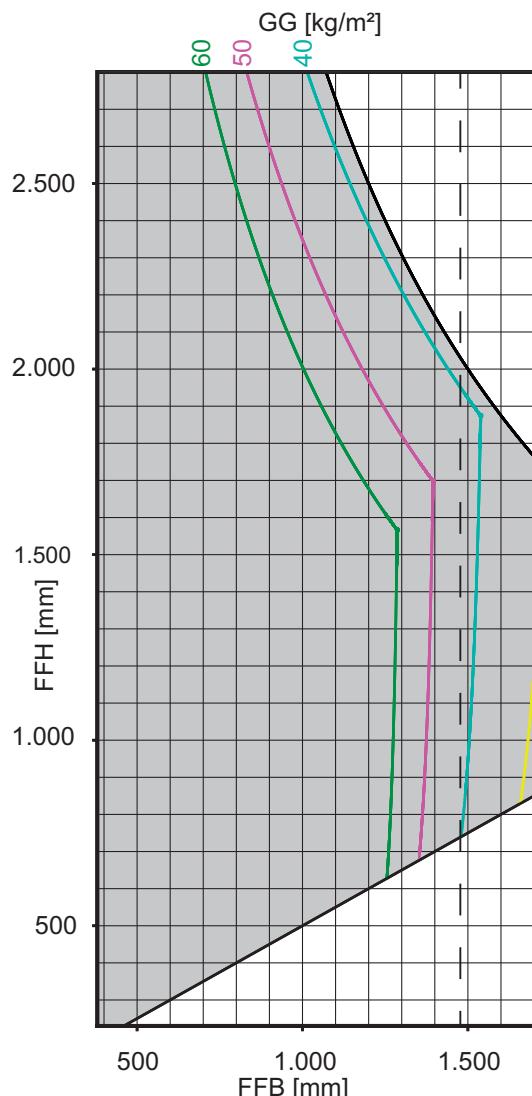
All fittings must be selected from the original Winkhaus activPilot fitting component range. We accept no liability in case of use of third party or non-approved system components.

- Min. sash rebate width 270 mm
- Max. sash rebate width 1725 mm
- From an FFB (sash rebate width) of 1475 mm with additional shears ZSR
- Min. sash rebate height 230 mm
- Max. sash rebate height 2,800 mm
- Max. sash size 3 m<sup>2</sup>
- Max. sash weight 130 kg
- Ratio between sash rebate width : sash rebate height  $\leq$  2:1

## Conditions for using the application diagram

Proof of fixing the load-bearing components on the window system by the window manufacturer according to the TBDK guideline and with the following forces:

- For a max. sash weight of 130 kg
- On the shear hinge: 3525 N
- On the corner hinge: 3760 N



AWD\_01.50\_NR290\_DK\_130 kg\_ohne\_Zusatzzlast\_2\_m

## Abbreviations

- FFB = Sash rebate width [mm]
- FFH = Sash rebate height [mm]
- GG = Glass weight per square metre [kg/m<sup>2</sup>]
- ZSR = Additional shear (section on right of interrupted line)

## Observe instructions on window profile

You must specifically take into account information provided by the profile manufacturer or system owner when determining the maximum sash sizes and sash weights!

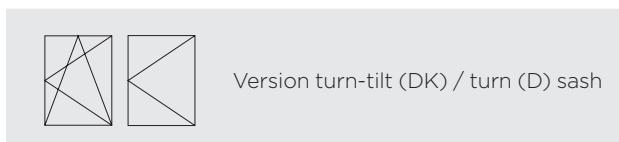
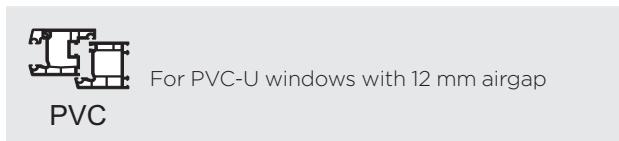


Important: The load-bearing fitting components, such as corner, shear and sash hinges, must be designed according to the TBDK guidelines. Please adapt the drill diameter of the fixing screws, the screw diameter and the screw length to the load situation.

# activPilot Concept

Application diagram for ascertaining the admissible sash sizes

- Max. sash weight: 150 kg



## Width-to-height ratio and additional load

Value calculated without additional load for a width-to-height ratio of 2:1.

The application diagrams have been established without considering additional loads. For ascertaining the max. sash sizes with additional loads, please ask your Winkhaus contact partners for comprehensive advice!

## Advice for use

The permissible application range for using Winkhaus fittings is marked grey in the application diagrams. However, please do not take into account the complete grey surface, but only the part which is on the left side of the "filling weight GG" curve.

## Application range

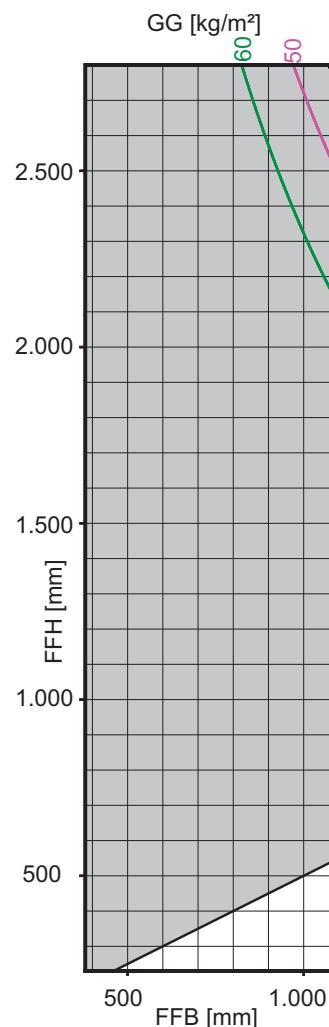
All fittings must be selected from the original Winkhaus activPilot fitting component range. We accept no liability in case of use of third party or non-approved system components.

- Min. sash rebate width 270 mm
- Max. sash rebate width 1,100 mm
- Min. sash rebate height 230 mm
- Max. sash rebate height 2,800 mm
- Max. sash size 3 m<sup>2</sup>
- Max. sash weight 150 kg
- Ratio between sash rebate width : sash rebate height  $\leq 2:1$

## Conditions for using the application diagram

Proof of fixing the load-bearing components on the window system by the window manufacturer according to the TBDK guideline and with the following forces:

- For a max. sash weight of 150 kg
- On the shear hinge: 4200 N
- On the corner hinge: 4340 N



AWD\_01.50\_NR350\_DK\_150 kg\_ohne\_Zusatzlast\_2\_m

## Abbreviations

- FFB = Sash rebate width [mm]
- FFH = Sash rebate height [mm]
- GG = Glass weight per square metre [kg/m<sup>2</sup>]

## Observe instructions on window profile

You must specifically take into account information provided by the profile manufacturer or system owner when determining the maximum sash sizes and sash weights!



Important: The load-bearing fitting components, such as corner, shear and sash hinges, must be designed according to the TBDK guidelines. Please adapt the drill diameter of the fixing screws, the screw diameter and the screw length to the load situation.



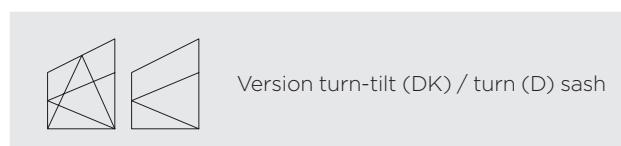
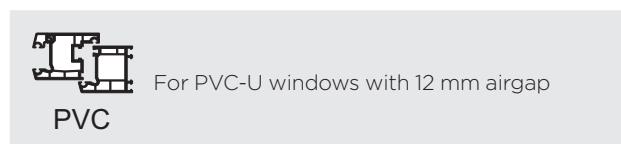
Attention: For sash weights over 130 kg, ALL 4 screws of corner and shear hinges must generally be fastened in the reinforcement.

# activPilot Concept

Application diagram for ascertaining the admissible sash sizes

- Max. sash weight 80 kg

Studio windows: endurance function according to DIN EN 13126-8:2017 class H2



## Width-to-height ratio and additional load

Value calculated without additional load for a width-to-height ratio of 1:1.

The application diagrams have been established without considering additional loads. For ascertaining the max. sash sizes with additional loads, please ask your Winkhaus contact partners for comprehensive advice!

## Advice for use

The permissible application range for using Winkhaus fittings is marked grey in the application diagrams. However, please do not take into account the complete grey surface, but only the part which is on the left side of the "filling weight GG" curve.

## Application range

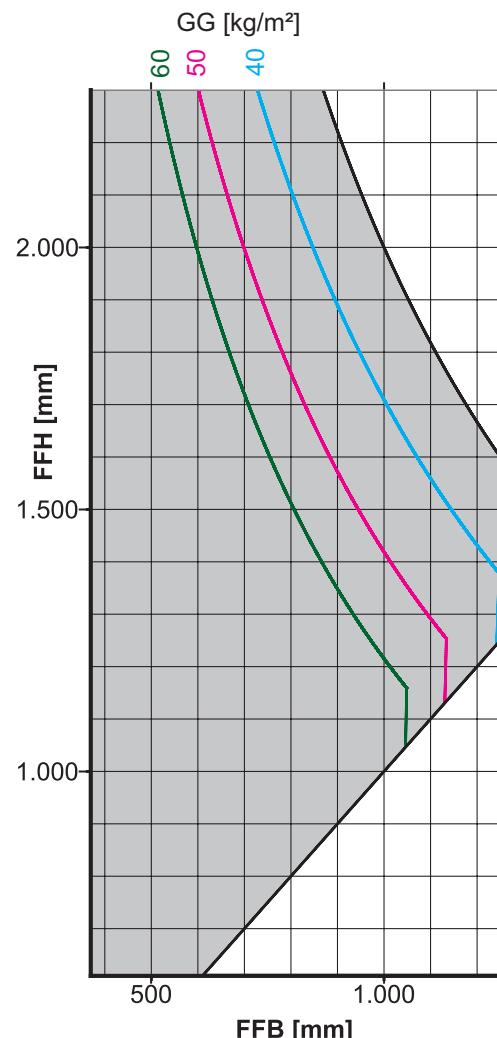
All fittings must be selected from the original Winkhaus activPilot fitting component range. We accept no liability in case of use of third party or non-approved system components.

- Min. sash rebate width 370 mm
- Max. sash rebate width 1250 mm
- Min. sash rebate height 230 mm (drive side)
- Max. sash rebate height 2300 mm
- Max. sash size 2 m<sup>2</sup>
- Max. sash weight: 80 kg
- Aspect ratio FFB : FFH ≤ 1:1
- Inside angle in shear area (see mounting instructions for studio windows)

## Conditions for using the application diagram

Proof of fixing the load-bearing components on the window system by the window manufacturer according to the TBDK guideline and with the following forces:

- For a max. sash weight of 80 kg
- On the shear hinge: 2200 N
- On the corner hinge: 2310 N



AWD\_01.50\_NR11\_AT\_80\_kg\_ohne\_Zusatzauslast\_2\_m

## Abbreviations

- FFB = Sash rebate width [mm]
- FFH = Sash rebate height [mm]
- GG = Glass weight per square metre [kg/m<sup>2</sup>]

## Observe instructions on window profile

You must specifically take into account information provided by the profile manufacturer or system owner when determining the maximum sash sizes and sash weights!



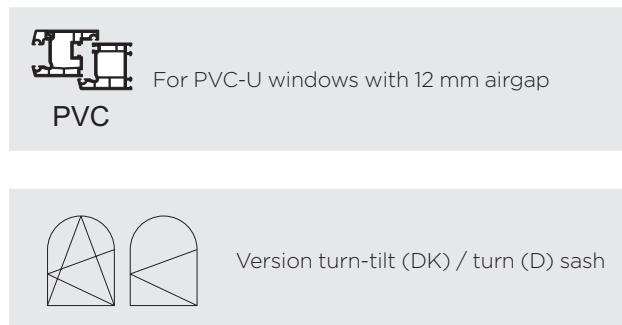
Important: The load-bearing fitting components, such as corner, shear and sash hinges, must be designed according to the TBDK guidelines. Please adapt the drill diameter of the fixing screws, the screw diameter and the screw length to the load situation.

# activPilot Concept

Application diagram for ascertaining the admissible sash sizes

- Max. sash weight 80 kg

Rundbogenfenster: Dauerfunktionsfähigkeit nach DIN EN 13126-8:2017 Klasse H2



## Width-to-height ratio and additional load

Value calculated without additional load for a width-to-height ratio of 1:1.

The application diagrams have been established without considering additional loads. For ascertaining the max. sash sizes with additional loads, please ask your Winkhaus contact partners for comprehensive advice!

## Advice for use

The permissible application range for using Winkhaus fittings is marked grey in the application diagrams. However, please do not take into account the complete grey surface, but only the part which is on the left side of the "filling weight GG" curve.

## Application range

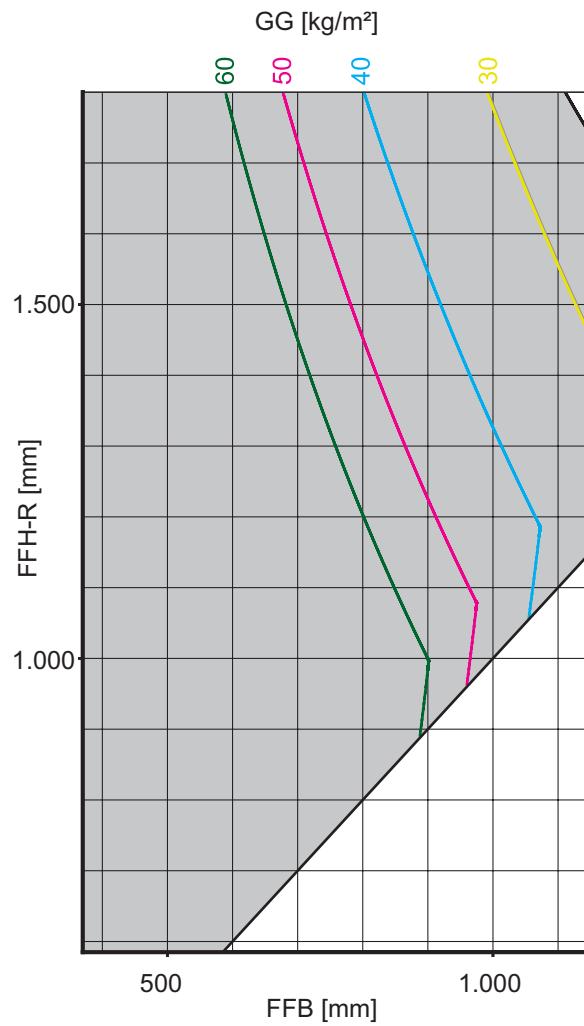
All fittings must be selected from the original Winkhaus activPilot fitting component range. We accept no liability in case of use of third party or non-approved system components.

- Min. sash rebate width 370 mm
- Max. sash rebate width 1150 mm
- Min. sash rebate height 440 mm (FFH-R)
- Max. sash rebate height 1800 mm (FFH-R)
- Max. sash size 2 m<sup>2</sup>
- Max. sash weight: 80 kg
- Aspect ratio FFB : FFH ≤ 1:1

## Conditions for using the application diagram

Proof of fixing the load-bearing components on the window system by the window manufacturer according to the TBDK guideline and with the following forces:

- For a max. sash weight of 80 kg
- On the shear hinge: 2200 N
- On the corner hinge: 2310 N



AWD\_01.50\_NR12\_RB\_80\_kg\_ohne\_Zusatzlast\_1\_m

## Abbreviations

- FFB = Sash rebate width [mm]
- FFH = Sash rebate height [mm]
- GG = Glass weight per square metre [kg/m<sup>2</sup>]

## Observe instructions on window profile

You must specifically take into account information provided by the profile manufacturer or system owner when determining the maximum sash sizes and sash weights!



Important: The load-bearing fitting components, such as corner, shear and sash hinges, must be designed according to the TBDK guidelines. Please adapt the drill diameter of the fixing screws, the screw diameter and the screw length to the load situation.

# activPilot Concept

Application diagram for ascertaining the admissible sash sizes

- Max. sash weight 80 kg

## Tilt windows



For PVC-U windows with 12 mm airgap

PVC



Tilt type (K) for fanlights

### Width-to-height ratio and additional load

Ascertainment of value without additional load

The application diagrams have been established without considering additional loads. For ascertaining the max. sash sizes with additional loads, please ask your authorised contact partner for comprehensive advice!

### Advice for use

The permissible application range for using Winkhaus fittings is marked grey in the application diagrams. However, please do not take into account the complete grey surface, but only the part which is on the left side of the "filling weight GG" curve.

### Application range

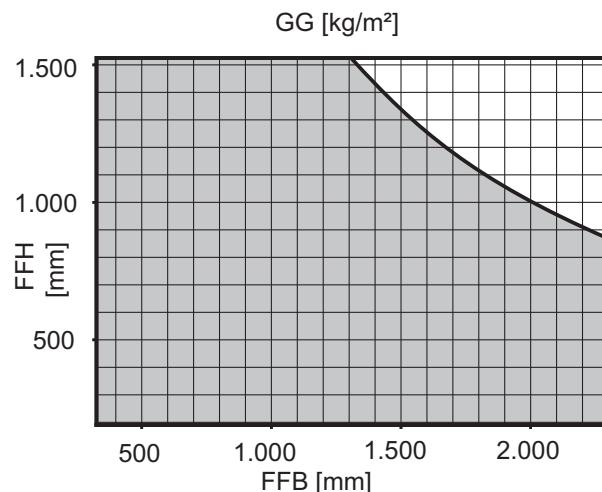
All fittings must be selected from the original Winkhaus activPilot fitting component range. We accept no liability in case of use of third party or non-approved system components.

- Min. sash rebate width 326 mm
- Max. sash rebate width 2300 mm
- Min. sash rebate height 191 mm
- Max. sash rebate height 1525 mm
- Max. sash size 2 m<sup>2</sup>
- Max. sash weight: 80 kg

### Conditions for using the application diagram

Proof of fixing the load-bearing components on the window system by the window manufacturer according to the TBDK guideline and with the following forces:

- For a max. sash weight of 80 kg
- On the shear hinge: 2200 N



AWD\_01.50\_NRXX\_K\_80 kg\_ohne\_Zusatzlast

### Abbreviations

- FFB = Sash rebate width [mm]
- FFH = Sash rebate height [mm]
- GG = Glass weight per square metre [kg/m<sup>2</sup>]

The explanations with regard to securing the tilt sash, which are given in the fittings lists, must be strictly observed.

### Observe instructions on window profile

You must specifically take into account information provided by the profile manufacturer or system owner when determining the maximum sash sizes and sash weights!



Important: The load-bearing fitting components, such as corner, shear and sash hinges, must be designed according to the TBDK guidelines. Please adapt the drill diameter of the fixing screws, the screw diameter and the screw length to the load situation.

# Classification according to DIN EN 13126-8:2017



The possible use of different hinge parts is determined by the sash weights and also by the stipulated endurance function which is described in the DIN EN 13126-8:2017 standard.

Below there is a tubular overview of the application areas of individual hinge designs, subject to sash weight and classification:

## Class H2

	SL.c...	SC	EL.C / EL.CS...	FL.C...
<b>≤ 80 kg</b> FFB:FFH ≤ 2:1 FFB max: 1725 mm FFH max: 2800 mm	SL.C.3-3 SL.C.3-6	SC1./SC2... SC1.E.../SC2.E...	EL.C..3-3-3 EL.C..6-3-3 EL.C..6-3-10 EL.C..6-3-22 EL.C..6.22-3	FL.C-W FL.C-W-A FL.C-W-E1 FL.C.20-6-28 FL.C-A.20-6-28 FL.C-F.20-6-28
<b>≤ 100 kg</b> FFB:FFH ≤ 2:1 FFB max: 1725 mm FFH max: 2800 mm	SL.C.3-6	SC1... / SC2... SC1.E... / SC2.E...	EL.C..6-3-3 EL.C..6-3-10 EL.C..6-3-22 EL.C..6.22-3	FL.C-W FL.C-W-A FL.C-W-E1 FL.C.20-6-28 FL.C-A.20-6-28 FL.C-F.20-6-28
<b>≤ 130 kg</b> FFB:FFH ≤ 2:1 FFB max: 1725 mm FFH max: 2800 mm	SL.C.3-6	SC1... / SC2... SC1.E... / SC2.E...	EL.C..6-3-22 EL.C..6-22-3	FL.C-W FL.C-W-A FL.C-W-E1 FL.C.20-6-28 FL.C-A.20-6-28 FL.C-F.20-6-28
<b>≤ 150 kg</b> FFB:FFH ≤ 1:1 FFB max: 1100 mm FFH max: 2800 mm	SL.C.3-6	SC1... / SC2... SC1.E... / SC2.E...	EL.C..6-3-22 EL.C..6-22-3	FL.C-W FL.C-W-A FL.C-W-E1 FL.C.20-6-28 FL.C-A.20-6-28 FL.C-F.20-6-28

T181106\_1

## Class H3

	SL.C...	SC	EL.C / EL.CS...	FL.C...
<b>≤ 80 kg</b> FFB:FFH ≤ 2:1 FFB max: 1725 mm FFH max: 2800 mm	SL.C.3-3 SL.C.3-6	SC1./SC2... SC1.E.../SC2.E...	EL.C..3-3-3 EL.C..6-3-3 EL.C..6-3-10 EL.C..6-3-22 EL.C..6.22-3	FL.C-W FL.C-W-A FL.C-W-E1 FL.C.20-6-28 FL.C-A.20-6-28 FL.C-F.20-6-28
<b>≤ 100 kg</b> FFB:FFH ≤ 2:1 FFB max: 1725 mm FFH max: 2800 mm	SL.C.3-6	SC1... / SC2... SC1.E... / SC2.E...	EL.C..6-3-10 EL.C..6-3-22 EL.C..6-22-3	FL.C-W FL.C-W-A FL.C-W-E1 FL.C.20-6-28 FL.C-A.20-6-28 FL.C-F.20-6-28
<b>≤ 130 kg</b> FFB:FFH ≤ 2:1 FFB max: 1725 mm FFH max: 2800 mm	SL.C.3-6	SC1... / SC2... SC1.E... / SC2.E...	EL.C..6-3-22 EL.C..6-22-3	FL.C-W FL.C-W-A FL.C-W-E1 FL.C.20-6-28 FL.C-A.20-6-28 FL.C-F.20-6-28
<b>≤ 150 kg</b> FFB:FFH ≤ 1:1 FFB max: 1100 mm FFH max: 2800 mm	SL.C.3-6	SC1... / SC2... SC1.E... / SC2.E...	EL.C..6-3-22 EL.C..6-22-3	FL.C-W FL.C-W-E1 FL.C.20-6-28

T181106\_2

# Overview of min. dimensions for drive rods D = 15.5 mm

The following overview shows the applications supported by corner drives. Use depends on the variant "turn-tilt" or "turn double sash", and the window size. Depending on the application, other elements can be used as alternatives to corner drives.

Turn-tilt type, constant, single sash

		270 - 370	371 - 600	601 - max
				
230 - 325				
326 - 420				
421 - max				

Turn/Turn-tilt double sash type, constant

		280 - max	371 - 600	601 - max	
					
230 - 450					230 - 450
451 - 545					451 - max
546 - max					

Turn-tilt type, central, single sash

		270 - 370	371 - 600	601 - max
				
230 - 325		GAK 465 G=114	GAK 465 G=114	
326 - 510				
511 - max				

E1 E2 E3 KR

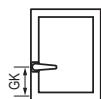
Turn/Turn-tilt double sash type, central

		280 - max	371 - 600	601 - max	
					
230 - 410		GAK 465 G=114	GAK 465 G=114		230 - 410
411 - 560					411 - 560
561 - 710					561 - max
711 - 980		GASM 1050			
981 - max					

## Overview of min. dimensions for drive rods D = 7.5 mm

The following overview shows the applications supported by corner drives. Use depends on the variant "turn-tilt" or "turn double sash", and the window size. Depending on the application, other elements can be used as alternatives to corner drives.

Turn-tilt type, constant, single sash



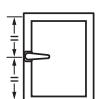
	270 - 370	371 - 600	601 - max	
338 - 433				
434 - 530				
531 - max				

Turn/Turn-tilt double sash type, constant

	280 - max	371 - 600	601 - max	
338 - 450				338 - 450
451 - 545				451 - 545
546 - max				546 - max

GASK 830

Turn-tilt type, central, single sash



	270 - 370	371 - 600	601 - max	
381 - 574				
575 - 710				
711 - max				

E1 E2 E3 KR

Turn/Turn-tilt double sash type, central

	280 - max	371 - 600	601 - max	
381 - 410				381 - 410
411 - 574				411 - 574
575 - 710				575 - 710
711 - 980				711 - 980
981 - max				981 - max

GASM 1050

# Overview of max. dimensions for drive rods D = 15.5 and 7.5 mm

This overview shows how the gear side is designed when tall windows up to 2,725/2,800 mm are involved. The maximum sash height depends on the position of the window handle, central or constant.

Turn-tilt type, constant, single sash



		min - max*
2226	MK.250-1	
- 2475	+ GAK.2225-...	

2476  
-  
2725

MK.500-1  
+  
GAK.2225-...

Turn/Tilt double sash type, constant

		min - max*		min - max*	
2226	MS.SO.250-1		MK.250-1	2226	
- 2475	+ GASK.2225-...		+ GAK.2225-...	- 2475	
2476	MS.SO.500-1		MK.500-1	2476	
- 2725	+ GASK.2225-...		+ GAK.2225-...	- 2725	

Turn-tilt type, central, single sash



		min - max*
2301	MK.250-1	
- 2800	+ GAM.2300-3 + MK.250-1	

2301  
-  
2800

MK.250-1  
+  
GAM.2300-3  
+  
MK.250-1

Turn/Tilt double sash type, central

		min - max*		min - max*	
2301	MS.SO.250-1		MK.250-1	2301	
- 2800	+ GASM.2300-3 + MS.SU.250-1		+ GAM.2300-3 + MK.250-1	- 2800	

\* Please observe the "Diagrams to determine permissible sash sizes"!



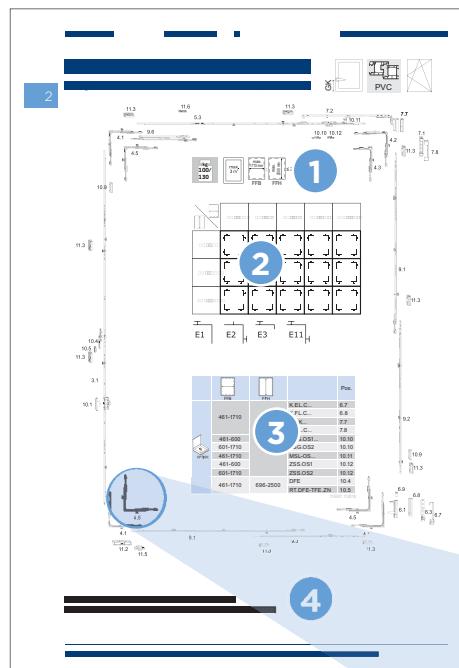
## Explanation of fitting lists

The fitting lists consist of two pages each. The first page shows the visual fitting composition whereas the second page includes a possible fitting configuration in the shape of a tabular list.

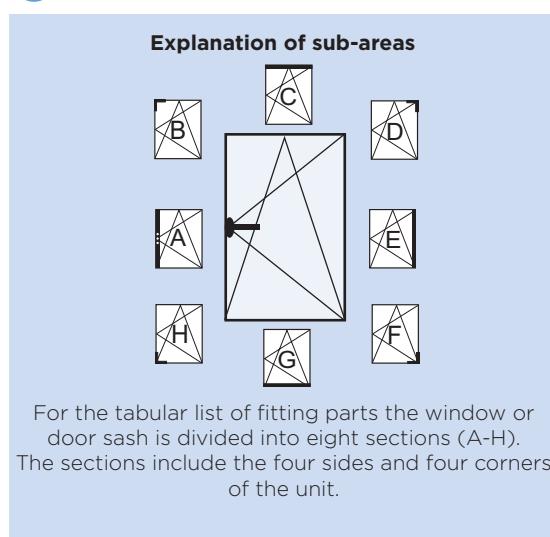


The processing details regarding burglary-resistant window units can be gathered from the DIN EN 1627 - 1630 system documentation. The lists of fittings in this catalogue are merely intended to give application examples. Please get in touch with your Winkhaus contact partner.

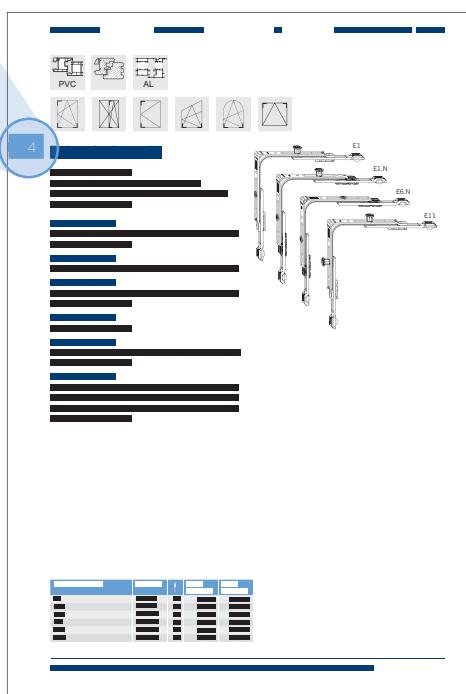
Our register system allows you to quickly allocate the listed component to the item in the fitting overview drawing.



- 1 Maximum application ranges
  - 2 Overview min./max. dimensions
  - 3 Optional components
  - 4 Applied distance between locking points

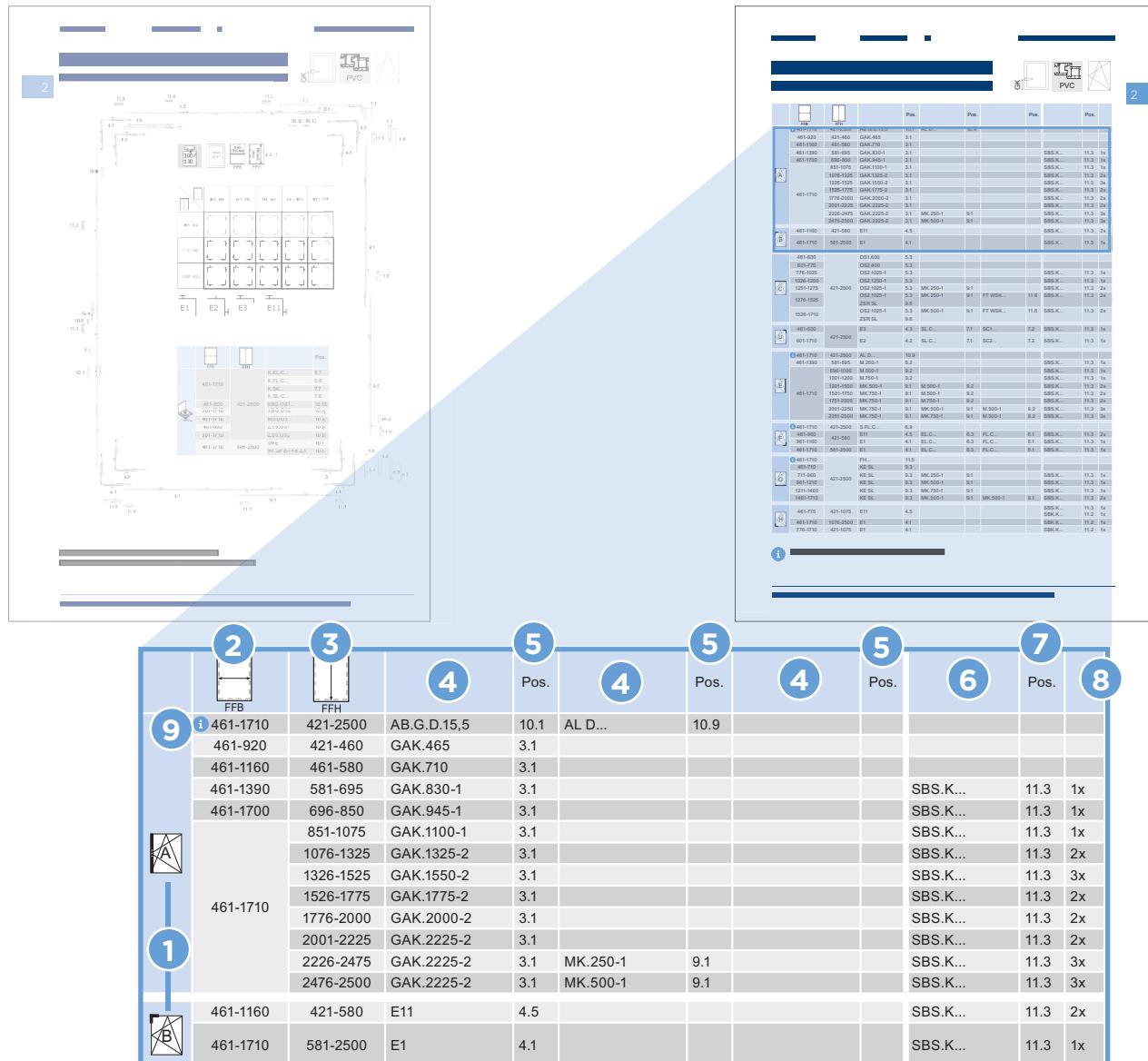


For the tabular list of fitting parts the window or door sash is divided into eight sections (A-H). The sections include the four sides and four corners of the unit.



The window or door unit is divided into 8 sections (4 corners, 4 sides). In order to determine a complete fitting set of a certain sash size, it is necessary to ascertain items from all the sections (1). In any section (1) it is possible to read the items to be used (4) and their position numbers (5), depending on the application ranges FFB (2) and FFH (3). Furthermore the types of frame parts (6) and their position numbers (7) and amounts (8) are added. The position numbers (5/7) refer to the location of the component within the fitting list on the first page.

2



- 1** Section (A-H)
- 2** Sash rebate width (FFB)  
(application ranges on items level)
- 3** Sash rebate height (FFH)  
(application ranges on items level)
- 4** Items to be used
- 5** Position number of items
- 6** Type of frame part
- 7** Position number of frame parts
- 8** Number of frame parts
- 9** **i** marks a line with items that are always used, regardless of size

# Lists of fittings

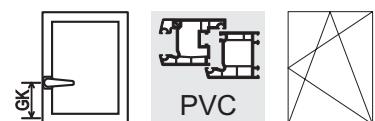
2

Turn-tilt fitting - constant handle position	34
Basic equipment	
Turn-tilt fitting - central handle position	36
Basic equipment	
Turn-tilt fitting - constant handle position	38
Burglar resistance to RC1 N	
Turn-tilt fitting - central handle position	40
Burglar resistance to RC1 N	
Turn-tilt fitting - constant handle position	42
Suitable for burglary-resistant windows RC2 / RC2 N	
Turn-tilt fitting - central handle position	44
Suitable for burglary-resistant windows RC2 / RC2 N	
Turn double sash fitting - constant handle position	46
Basic equipment	
Turn double-sash fitting - central handle position	48
Basic equipment	
Turn double sash fitting - constant handle position	50
Burglar resistance to RC1 N	
Turn double-sash fitting - central handle position	52
Burglar resistance to RC1 N	
Turn double sash fitting - constant handle position	54
Suitable for burglary-resistant windows RC2 / RC2 N	
Turn double-sash fitting - central handle position	56
Suitable for burglary-resistant windows RC2 / RC2 N	
Turn-tilt fitting - constant handle position	58
Basic equipment - Backset 7.5 mm	
Turn double sash fitting - constant handle position	60
Basic equipment - Backset 7.5 mm	
Turn-tilt fitting - central handle position	62
Basic equipment - Tilt before turn	
Tilt fanlight	64
Basic equipment	
Fitting for studio windows - constant handle position	66
Basic equipment	

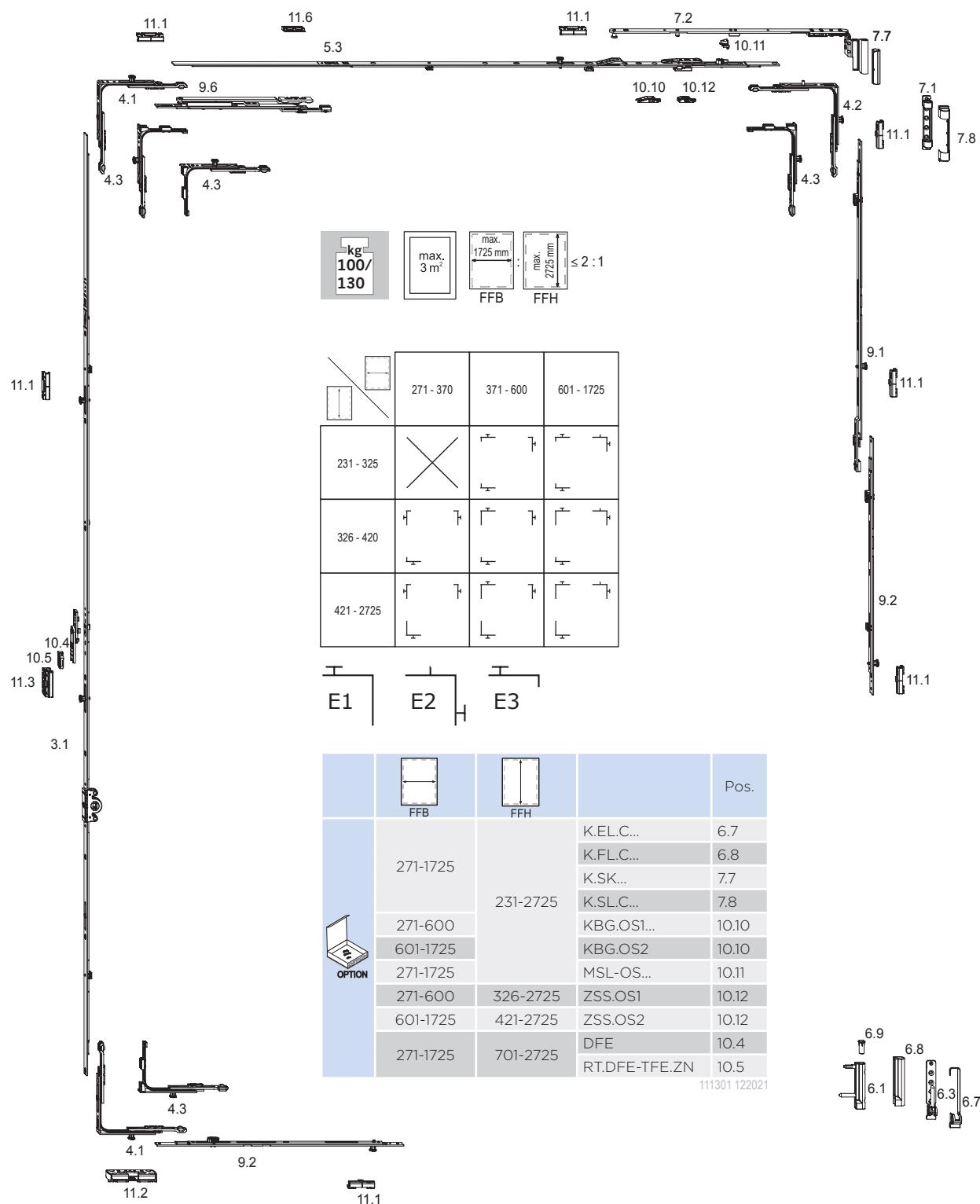
Fitting for studio windows – central handle position	68
Basic equipment	
Fitting for round arch windows – constant handle position	70
Basic equipment	
Fitting for round arch windows – central handle position	72
Basic equipment	
Turn fitting system - central handle position	74
Basic equipment	

## Turn-tilt fitting - constant handle position

### Basic equipment



2

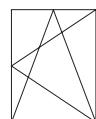
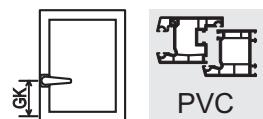


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Turn-tilt fitting - constant handle position

## Basic equipment



2

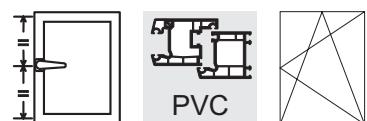
				Pos.		Pos.		Pos.		Pos.	
	371-650	231-325	GAK.465	3.1			GK = 114				
	271-840	326-420	GAK.465	3.1			GK = 114				
	271-920	421-460	GAK.465	3.1			GK = 210				
	271-1400	461-700	GAK.710	3.1			GK = 210				
	271-1700	701-850	GAK.945-1	3.1			GK = 260		SBS.K...	11.3	1x
	271-1725	851-1100	GAK.1100-1	3.1			GK = 375		SBS.K...	11.3	1x
		1101-1325	GAK.1325-1	3.1			GK = 550		SBS.K...	11.3	1x
		1326-1550	GAK.1550-1	3.1			GK = 550		SBS.K...	11.3	1x
		1551-1775	GAK.1775-2	3.1			GK = 550		SBS.K... SBA.K...	11.3	1x 11.1
		1776-2000	GAK.2000-2	3.1			GK = 1050		SBS.K... SBA.K...	11.3	1x 11.1
		2001-2225	GAK.2225-2	3.1			GK = 1050		SBS.K... SBA.K...	11.3	1x 11.1
		2226-2475	GAK.2225-2	3.1	MK.250-1	9.1	GK = 1050		SBS.K... SBA.K...	11.3	1x 11.1
		2476-2725	GAK.2225-2	3.1	MK.500-1	9.1	GK = 1050		SBS.K... SBA.K...	11.3	1x 11.1
	271-370	326-2725	E3	4.3					SBA.K...	11.1	1x
	371-650	231-325	E3	4.3					SBA.K...	11.1	1x
	371-1725	326-2725	E1	4.1					SBA.K...	11.1	1x
	271-600	326-2725	OS1.600	5.3							
	371-600	231-325	OS1.600	5.3							
	601-800		OS2.800	5.3							
	801-1025	231-2725	OS2.1025-1	5.3					SBA.K...	11.1	1x
	1026-1250		OS2.1250-1	5.3					SBA.K...	11.1	1x
	1251-1475		OS2.1475-1	5.3					SBA.K...	11.1	1x
	1476-1725		OS2.1475-1	5.3	FT WSK...	11.6	ZSR SL	9.6	SBA.K...	11.1	1x
	271-600	326-2725	E3	4.3	SL.C...	7.1	SC1...	7.2	SBA.K...	11.1	1x
	371-600	231-325	E3	4.3	SL.C...	7.1	SC1...	7.2	SBA.K...	11.1	1x
	601-1725	231-2725	E2	4.2	SL.C...	7.1	SC2...	7.2	SBA.K...	11.1	1x
	271-1725	861-1285	M.500-1	9.2					SBA.K...	11.1	1x
		1286-1535	M.750-1	9.2					SBA.K...	11.1	1x
		1536-1785	MK.500-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
		1786-2035	MK.750-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
		2036-2285	MK.750-1	9.1	M.750-1	9.2			SBA.K...	11.1	2x
		2286-2535	MK.750-1	9.1	MK.500-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
		2536-2725	MK.750-1	9.1	MK.750-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
	271-1725	231-2725	S.FL.C...	6.9							
	371-650	231-325	EL.C...	6.3	FL.C...	6.1					
	271-1725	326-2725	EL.C...	6.3	FL.C...	6.1					
	231-2725	841-1250	M.500-1	9.2					SBA.K...	11.1	1x
		1251-1500	M.750-1	9.2					SBA.K...	11.1	1x
		1501-1725	MK.500-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
	271-840	326-420	E3	4.3					SBK.K...	11.2	1x
	271-1725	421-2725	E1	4.1					SBK.K...	11.2	1x
	371-650	231-325	E3	4.3					SBK.K...	11.2	1x



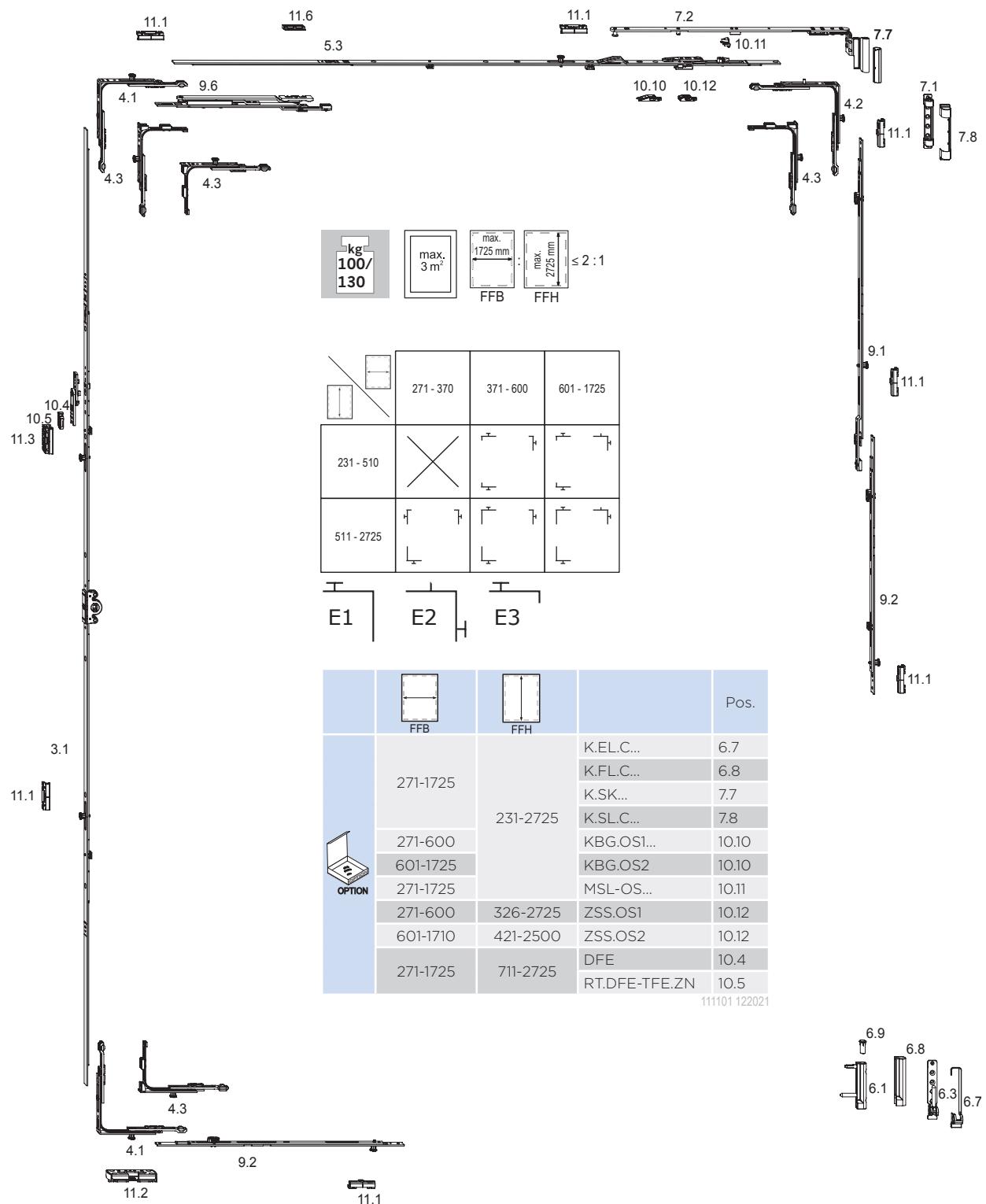
marks a line with items that are always used, regardless of size

# Turn-tilt fitting - central handle position

## Basic equipment



2

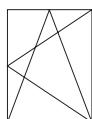
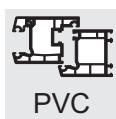
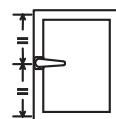


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Turn-tilt fitting - central handle position

## Basic equipment



2

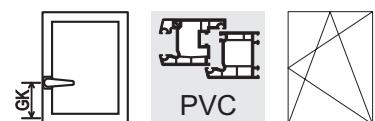
	FFB	FFH		Pos.		Pos.		Pos.		Pos.	
	371-650	231-325	GAK.465	3.1							
	371-1020	326-510	GAM.800	3.1							
	271-1420	511-710	GAM.800	3.1							
	271-1725	711-980	GAM.1050-1	3.1					SBS.K... SBA.K...	11.3 11.1	1x 1x
		981-1400	GAM.1400-1	3.1					SBS.K...	11.3	1x
		1401-1800	GAM.1800-2	3.1					SBS.K... SBA.K...	11.3 11.1	1x 1x
		1801-2300	GAM.2300-3	3.1					SBS.K... SBA.K...	11.3 11.1	1x 2x
		2301-2725	GAM.2300-3	3.1	MK.250-1	9.1	MK.250-1	9.1	SBS.K... SBA.K...	11.3 11.1	1x 4x
	271-370	511-2725	E3	4.3					SBA.K...	11.1	1x
	371-1020	231-510	E3	4.3					SBA.K...	11.1	1x
	371-1725	511-2725	E1	4.1					SBA.K...	11.1	1x
	271-600	511-2725	OS1.600	5.3							
	371-600	231-510	OS1.600	5.3							
	601-800		OS2.800	5.3							
	801-1025		OS2.1025-1	5.3					SBA.K...	11.1	1x
	1026-1250	231-2725	OS2.1250-1	5.3					SBA.K...	11.1	1x
	1251-1475		OS2.1475-1	5.3					SBA.K...	11.1	1x
	1476-1725		OS2.1475-1	5.3	FT WSK...	11.6	ZSR SL	9.6	SBA.K...	11.1	1x
	271-600	511-2725	E3	4.3	SL.C...	7.1	SC1...	7.2	SBA.K...	11.1	1x
	371-600	231-510	E3	4.3	SL.C...	7.1	SC1...	7.2	SBA.K...	11.1	1x
	601-1725	231-2725	E2	4.2	SL.C...	7.1	SC2...	7.2	SBA.K...	11.1	1x
	271-1725	861-1285	M.500-1	9.2					SBA.K...	11.1	1x
		1286-1535	M.750-1	9.2					SBA.K...	11.1	1x
		1536-1785	MK.500-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
		1786-2035	MK.750-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
		2036-2285	MK.750-1	9.1	M.750-1	9.2			SBA.K...	11.1	2x
		2286-2535	MK.750-1	9.1	MK.500-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
		2536-2725	MK.750-1	9.1	MK.750-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
	271-1725	231-2725	S.FL.C...	6.9							
	371-1020	231-510	EL.C...	6.3	FL.C...	6.1					
	271-1725	511-2725	EL.C...	6.3	FL.C...	6.1					
	841-1250	231-2725	M.500-1	9.2					SBA.K...	11.1	1x
	1251-1500		M.750-1	9.2					SBA.K...	11.1	1x
	1501-1725		MK.500-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
	271-1725	511-2725	E1	4.1					SBK.K...	11.2	1x
	371-1020	231-510	E3	4.3					SBK.K...	11.2	1x



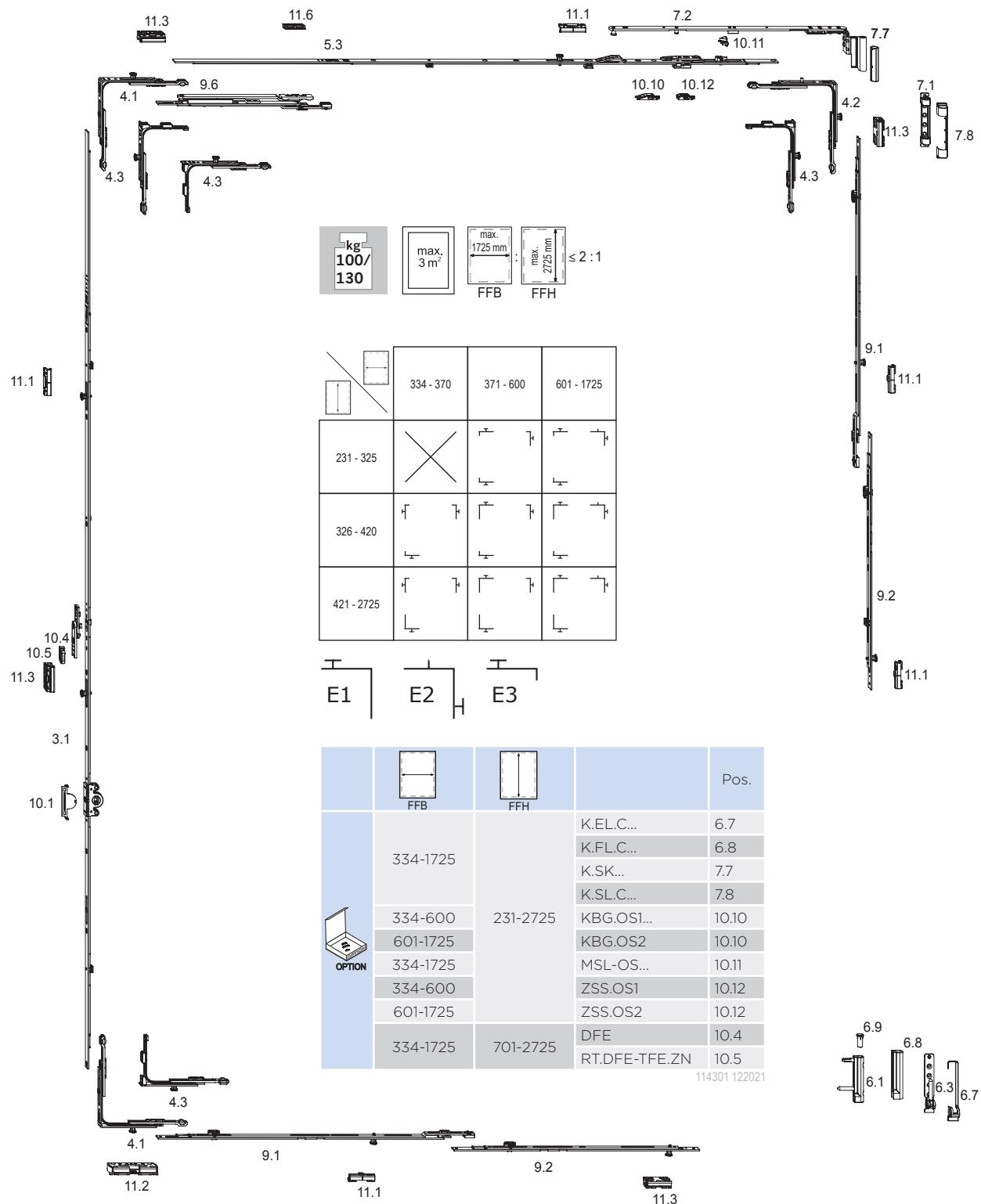
marks a line with items that are always used, regardless of size

## Turn-tilt fitting – constant handle position

Burglar resistance to RC1 N



2

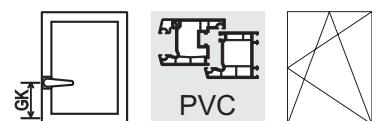


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Turn-tilt fitting - constant handle position

Burglar resistance to RC1 N



2

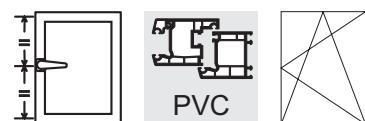
				Pos.		Pos.		Pos.		Pos.	
	i 334-1725	231-2725	AB.G.D.15.5	10.1							
	371-650	231-325	GAK.465	3.1			GK = 114				
	334-840	326-420	GAK.465	3.1			GK = 114				
	334-920	421-460	GAK.465	3.1			GK = 210				
	334-1400	461-700	GAK.710	3.1			GK = 210				
	334-1700	701-850	GAK.945-1	3.1			GK = 260		SBS.K...	11.3	1x
		851-1100	GAK.1100-1	3.1			GK = 375		SBS.K...	11.3	1x
		1101-1325	GAK.1325-1	3.1			GK = 550		SBS.K...	11.3	1x
		1326-1550	GAK.1550-1	3.1			GK = 550		SBS.K...	11.3	1x
		1551-1775	GAK.1775-2	3.1			GK = 550		SBA.K... SBS.K...	11.1 11.3	1x 1x
	334-1725	1776-2000	GAK.2000-2	3.1			GK = 1050		SBA.K... SBS.K...	11.1 11.3	1x 1x
		2001-2225	GAK.2225-2	3.1			GK = 1050		SBA.K... SBS.K...	11.1 11.3	1x 1x
		2226-2475	GAK.2225-2	3.1	MK.250-1	9.1	GK = 1050		SBA.K... SBS.K...	11.1 11.3	2x 1x
		2476-2725	GAK.2225-2	3.1	MK.500-1	9.1	GK = 1050		SBA.K... SBS.K...	11.1 11.3	2x 1x
	334-370	326-2725	E3	4.3					SBS.K...	11.3	1x
	371-650	231-325	E3	4.3					SBS.K...	11.3	1x
	371-1725	326-2725	E1	4.1					SBS.K...	11.3	1x
	334-600	326-2725	OS1.600	5.3							
	371-600	231-325	OS1.600	5.3							
	601-800		OS2.800	5.3							
	801-1025		OS2.1025-1	5.3					SBA.K...	11.1	1x
	1026-1250	231-2725	OS2.1250-1	5.3					SBA.K...	11.1	1x
	1251-1475		OS2.1475-1	5.3					SBA.K...	11.1	1x
	1476-1725		OS2.1475-1	5.3	ZSR SL	9.6			SBA.K...	11.1	1x
	334-600	326-2725	E3	4.3	SL.C...	7.1	SC1...	7.2	SBS.K...	11.3	1x
	371-600	231-325	E3	4.3	SL.C...	7.1	SC1...	7.2	SBS.K...	11.3	1x
	601-1725	231-2725	E2	4.2	SL.C...	7.1	SC2...	7.2	SBS.K...	11.3	1x
	334-1725	861-1285	M.500-1	9.2					SBA.K...	11.1	1x
		1286-1535	M.750-1	9.2					SBA.K...	11.1	1x
		1536-1785	MK.500-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
		1786-2035	MK.750-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
		2036-2285	MK.750-1	9.1	M.750-1	9.2			SBA.K...	11.1	2x
		2286-2535	MK.750-1	9.1	MK.500-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
		2536-2725	MK.750-1	9.1	MK.750-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
	i 334-1725	231-2725	S.FL.C...	6.9							
	371-650	231-325	EL.C...	6.3	FL.C...	6.1					
	334-1725	326-2725	EL.C...	6.3	FL.C...	6.1					
	334-540	326-2725	M.250-1	9.2					SBS.K...	11.3	1x
	371-540	231-325	M.250-1	9.2					SBS.K...	11.3	1x
	541-790		M.500-1	9.2					SBS.K...	11.3	1x
	791-1040		M.750-1	9.2					SBS.K...	11.3	1x
	1041-1290	231-2725	MK.500-1	9.1	M.500-1	9.2			SBS.K... SBA.K...	11.3 11.1	1x 1x
	1291-1540		MK.750-1	9.1	M.500-1	9.2			SBS.K... SBA.K...	11.3 11.1	1x 1x
	1541-1725		MK.750-1	9.1	M.750-1	9.2			SBS.K... SBA.K...	11.3 11.1	1x 1x
	334-840	326-420	E3	4.3					SBK.K...	11.2	1x
	334-1725	421-2725	E1	4.1					SBK.K...	11.2	1x
	371-650	231-325	E3	4.3					SBK.K...	11.2	1x



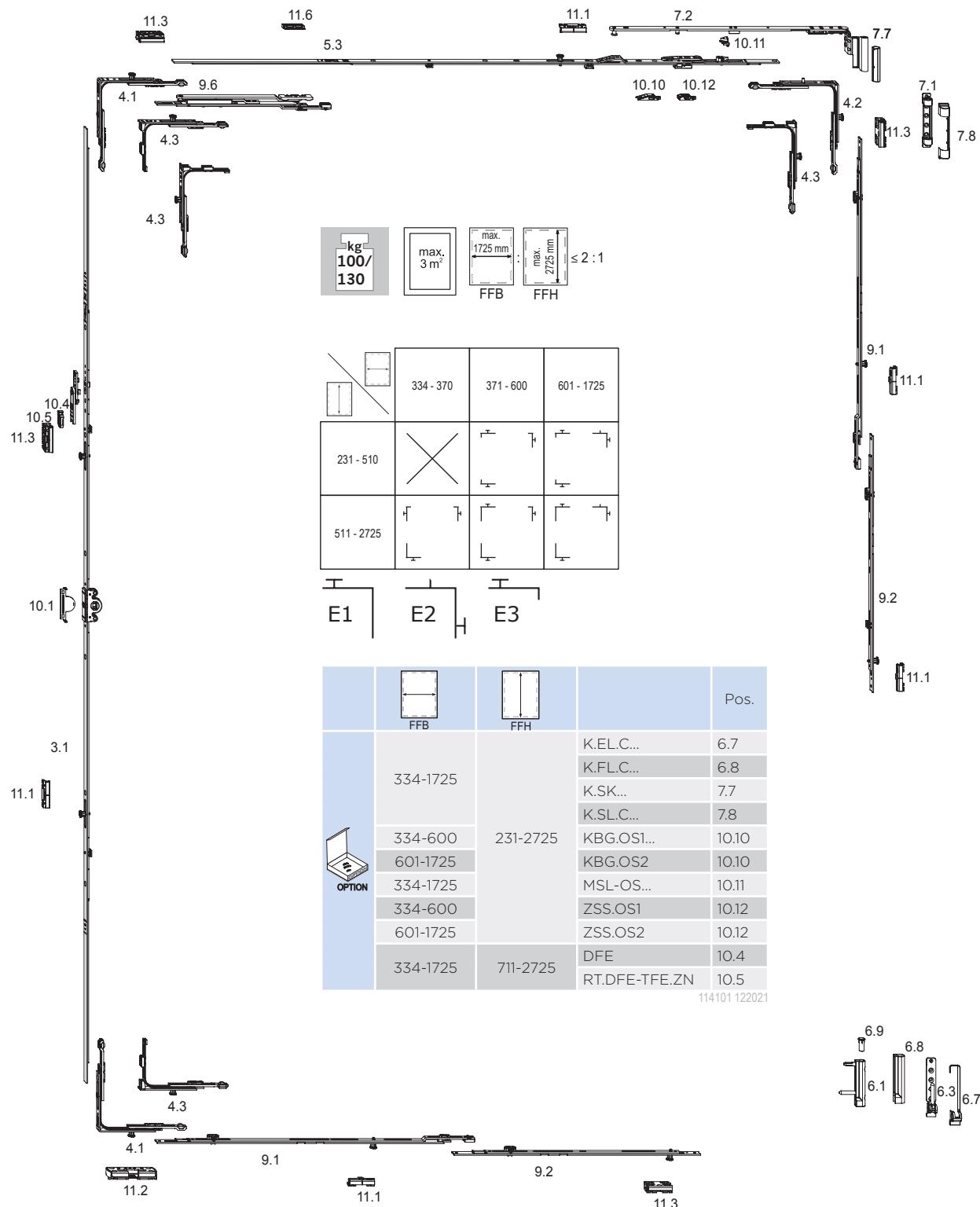
marks a line with items that are always used, regardless of size

## Turn-tilt fitting – central handle position

Burglar resistance to RC1 N



2

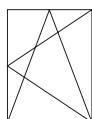
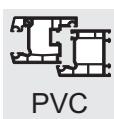
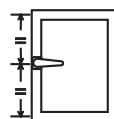


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Turn-tilt fitting - central handle position

Burglar resistance to RC1 N



2

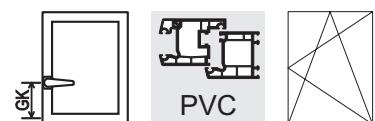
				Pos.		Pos.		Pos.		Pos.	
	i 334-1725	231-2725	AB.G.D.15.5	10.1							
	371-650	231-325	GAK.465	3.1							
	371-1020	326-510	GAM.800	3.1							
	334-1420	511-710	GAM.800	3.1							
		711-980	GAM.1050-1	3.1				SBS.K...	11.3	1x	
		981-1400	GAM.1400-1	3.1				SBA.K...	11.1	1x	
	334-1725	1401-1800	GAM.1800-2	3.1				SBS.K...	11.3	1x	
		1801-2300	GAM.2300-3	3.1				SBA.K...	11.1	2x	
		2301-2725	GAM.2300-3	3.1	MK.250-1	9.1	MK.250-1	9.1	SBS.K...	11.3	1x
								SBA.K...	11.1	4x	
	334-370	511-2725	E3	4.3				SBS.K...	11.3	1x	
	371-1020	231-510	E3	4.3				SBS.K...	11.3	1x	
	371-1725	511-2725	E1	4.1				SBS.K...	11.3	1x	
	334-600	511-2725	OS1.600	5.3							
	371-600	231-510	OS1.600	5.3							
	601-800		OS2.800	5.3							
	801-1025		OS2.1025-1	5.3				SBA.K...	11.1	1x	
	1026-1250	231-2725	OS2.1250-1	5.3				SBA.K...	11.1	1x	
	1251-1475		OS2.1475-1	5.3				SBA.K...	11.1	1x	
	1476-1725		OS2.1475-1	5.3	FT WSK...	11.6	ZSR SL	9.6	SBA.K...	11.1	1x
	334-600	511-2725	E3	4.3	SL.C...	7.1	SC1...	7.2	SBS.K...	11.3	1x
	371-600	231-510	E3	4.3	SL.C...	7.1	SC1...	7.2	SBS.K...	11.3	1x
	601-1725	231-2725	E2	4.2	SL.C...	7.1	SC2...	7.2	SBS.K...	11.3	1x
	334-1725	861-1285	M.500-1	9.2				SBA.K...	11.1	1x	
		1286-1535	M.750-1	9.2				SBA.K...	11.1	1x	
		1536-1785	MK.500-1	9.1	M.500-1	9.2		SBA.K...	11.1	2x	
		1786-2035	MK.750-1	9.1	M.500-1	9.2		SBA.K...	11.1	2x	
		2036-2285	MK.750-1	9.1	M.750-1	9.2		SBA.K...	11.1	2x	
		2286-2535	MK.750-1	9.1	MK.500-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
		2536-2725	MK.750-1	9.1	MK.750-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
	i 334-1725	231-2725	S.FL.C...	6.9							
	371-1020	231-510	EL.C...	6.3	FL.C...	6.1					
	334-1725	511-2725	EL.C...	6.3	FL.C...	6.1					
	334-540	511-2725	M.250-1	9.2				SBS.K...	11.3	1x	
	371-540	231-510	M.250-1	9.2				SBS.K...	11.3	1x	
	541-790		M.500-1	9.2				SBS.K...	11.3	1x	
	791-1040		M.750-1	9.2				SBS.K...	11.3	1x	
	1041-1290	231-2725	MK.500-1	9.1	M.500-1	9.2		SBS.K...	11.3	1x	
	1291-1540		MK.750-1	9.1	M.500-1	9.2		SBA.K...	11.1	1x	
	1541-1725		MK.750-1	9.1	M.750-1	9.2		SBS.K...	11.1	1x	
	334-1725	511-2725	E1	4.1				SBK.K...	11.2	1x	
	371-1020	231-510	E3	4.3				SBK.K...	11.2	1x	



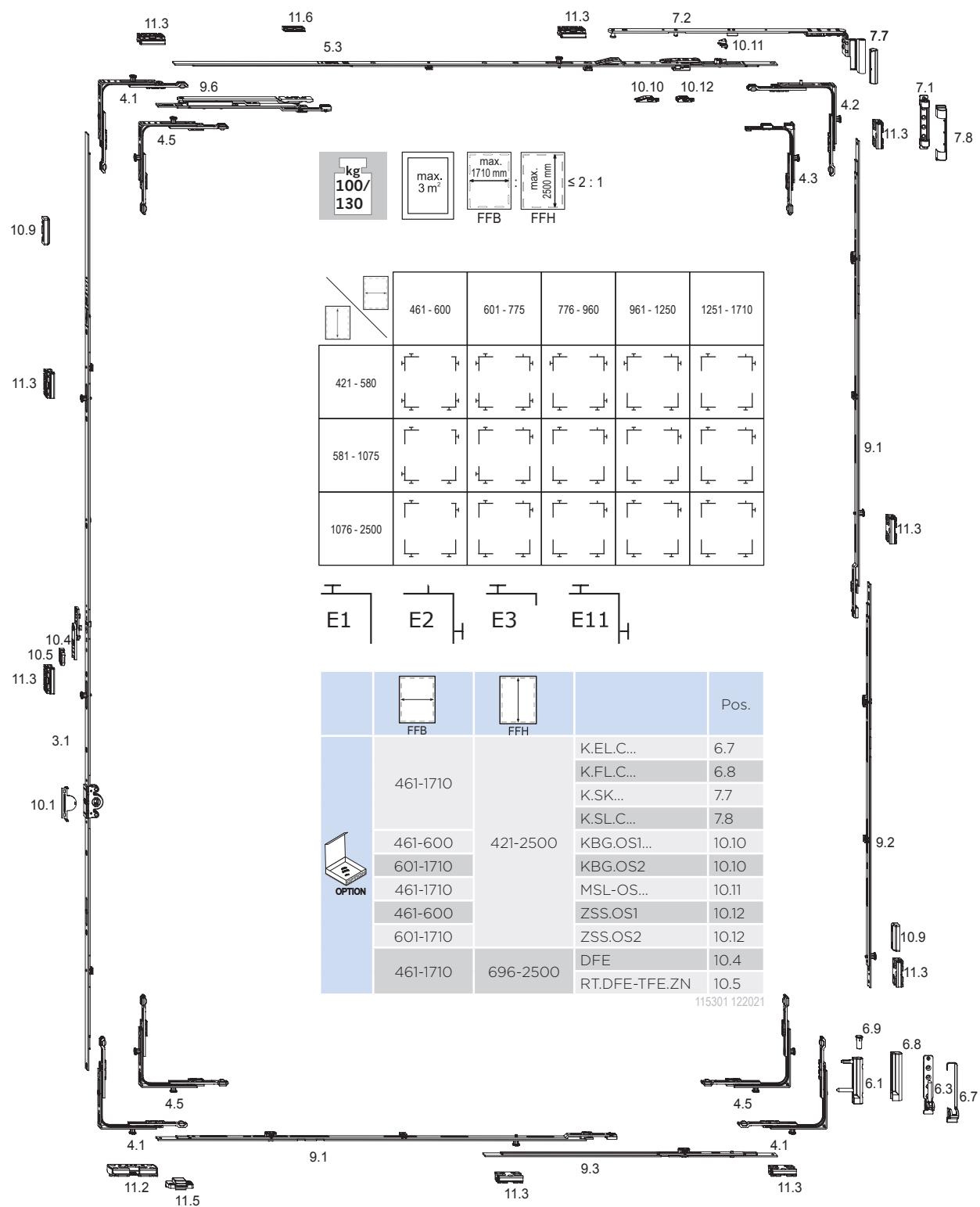
marks a line with items that are always used, regardless of size

## Turn-tilt fitting - constant handle position

Suitable for burglary-resistant windows RC2 / RC2 N



2

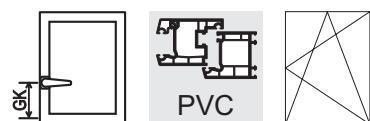


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Turn-tilt fitting - constant handle position

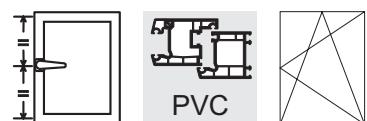
Suitable for burglary-resistant windows RC2 / RC2 N



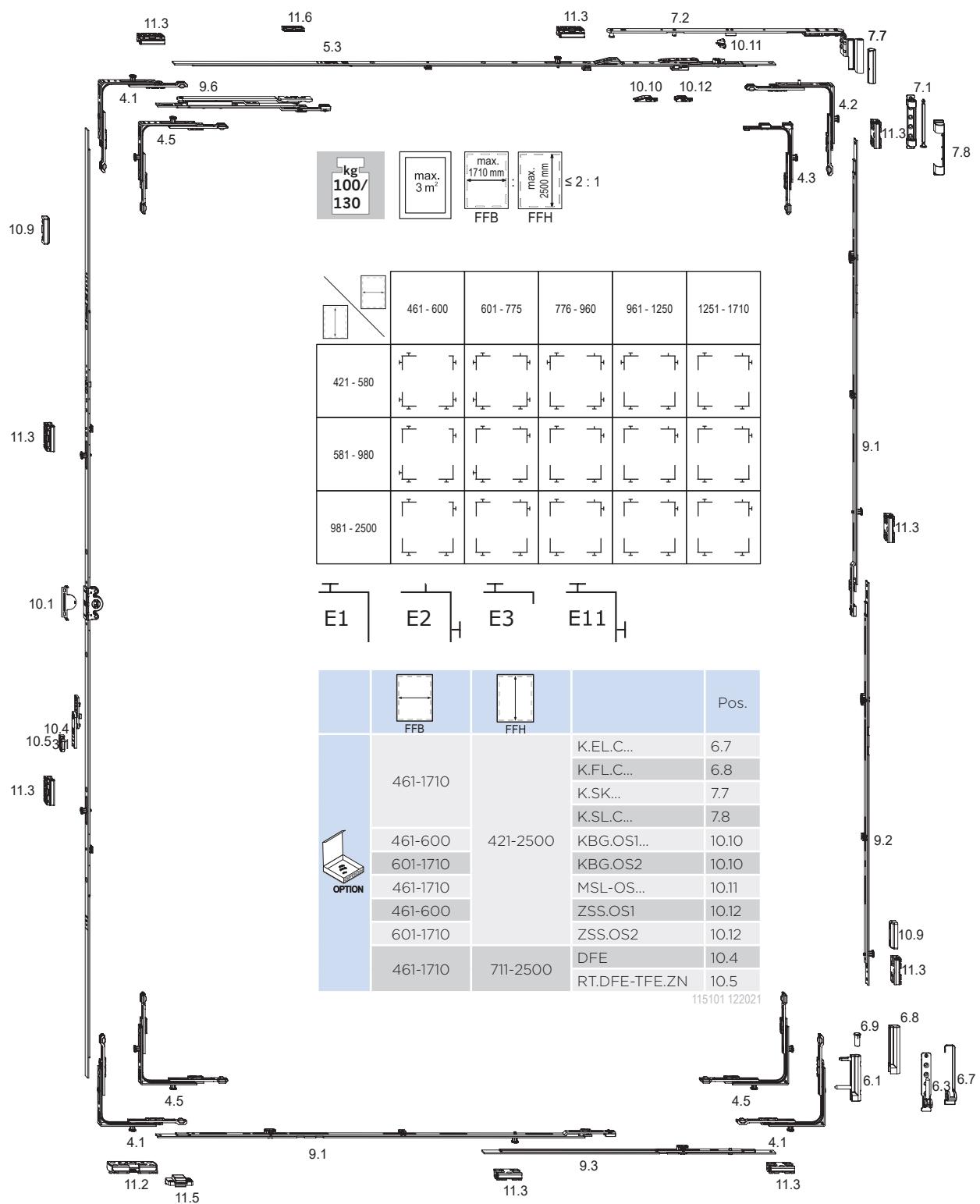
	FFB	FFH		Pos.		Pos.		Pos.		Pos.	
	461-1710	421-2500	AB.G.D.15,5	10.1	AL D...	10.9					
	461-920	421-460	GAK.465	3.1							
	461-1160	461-580	GAK.710	3.1							
	461-1390	581-695	GAK.830-1	3.1					SBS.K...	11.3	1x
	461-1700	696-850	GAK.945-1	3.1					SBS.K...	11.3	1x
	461-1710	851-1075	GAK.1100-1	3.1					SBS.K...	11.3	1x
		1076-1325	GAK.1325-2	3.1					SBS.K...	11.3	2x
		1326-1525	GAK.1550-2	3.1					SBS.K...	11.3	3x
		1526-1775	GAK.1775-2	3.1					SBS.K...	11.3	2x
		1776-2000	GAK.2000-2	3.1					SBS.K...	11.3	2x
		2001-2225	GAK.2225-2	3.1					SBS.K...	11.3	2x
		2226-2475	GAK.2225-2	3.1	MK.250-1	9.1			SBS.K...	11.3	3x
		2476-2500	GAK.2225-2	3.1	MK.500-1	9.1			SBS.K...	11.3	3x
	461-1160	421-580	E11	4.5					SBS.K...	11.3	2x
	461-1710	581-2500	E1	4.1					SBS.K...	11.3	1x
	461-600	421-2500	OS1.600	5.3							
	601-775		OS2.800	5.3							
	776-1025		OS2.1025-1	5.3					SBS.K...	11.3	1x
	1026-1250		OS2.1250-1	5.3					SBS.K...	11.3	1x
	1251-1275		OS2.1025-1	5.3	MK.250-1	9.1			SBS.K...	11.3	2x
	1276-1525		OS2.1025-1	5.3	MK.250-1	9.1	FT WSK...	11.6	SBS.K...	11.3	2x
	1526-1710		ZSR SL	9.6							
	461-600	421-2500	OS2.1025-1	5.3	MK.500-1	9.1	FT WSK...	11.6	SBS.K...	11.3	2x
	601-1710		ZSR SL	9.6							
	461-1710		E3	4.3	SL.C...	7.1	SC1...	7.2	SBS.K...	11.3	1x
	601-1710		E2	4.2	SL.C...	7.1	SC2...	7.2	SBS.K...	11.3	1x
	461-1710	421-2500	AL D...	10.9							
	461-1390	581-695	M.250-1	9.2					SBS.K...	11.3	1x
	461-1710	696-1000	M.500-1	9.2					SBS.K...	11.3	1x
		1001-1200	M.750-1	9.2					SBS.K...	11.3	1x
		1201-1500	MK.500-1	9.1	M.500-1	9.2			SBS.K...	11.3	2x
		1501-1750	MK.750-1	9.1	M.500-1	9.2			SBS.K...	11.3	2x
		1751-2000	MK.750-1	9.1	M.750-1	9.2			SBS.K...	11.3	2x
		2001-2250	MK.750-1	9.1	MK.500-1	9.1	M.500-1	9.2	SBS.K...	11.3	3x
		2251-2500	MK.750-1	9.1	MK.750-1	9.1	M.500-1	9.2	SBS.K...	11.3	3x
	461-1710	421-2500	S.FL.C...	6.9							
	461-960	421-580	E11	4.5	EL.C...	6.3	FL.C...	6.1	SBS.K...	11.3	2x
	961-1160	421-580	E1	4.1	EL.C...	6.3	FL.C...	6.1	SBS.K...	11.3	1x
	461-1710	581-2500	E1	4.1	EL.C...	6.3	FL.C...	6.1	SBS.K...	11.3	1x
	461-1710	421-2500	FH...	11.5							
	461-710		KE SL	9.3							
	711-960		KE SL	9.3	MK.250-1	9.1			SBS.K...	11.3	1x
	961-1210		KE SL	9.3	MK.500-1	9.1			SBS.K...	11.3	1x
	1211-1460		KE SL	9.3	MK.750-1	9.1			SBS.K...	11.3	1x
	1461-1710		KE SL	9.3	MK.500-1	9.1	MK.500-1	9.1	SBS.K...	11.3	2x
	461-775	421-1075	E11	4.5					SBS.K...	11.3	1x
	461-1710	1076-2500	E1	4.1					SBK.K...	11.2	1x
	776-1710	421-1075	E1	4.1					SBK.K...	11.2	1x

# Turn-tilt fitting – central handle position

Suitable for burglary-resistant windows RC2 / RC2 N



2

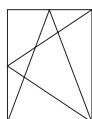
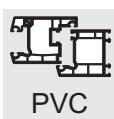
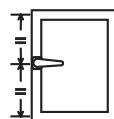


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Turn-tilt fitting - central handle position

Suitable for burglary-resistant windows RC2 / RC2 N

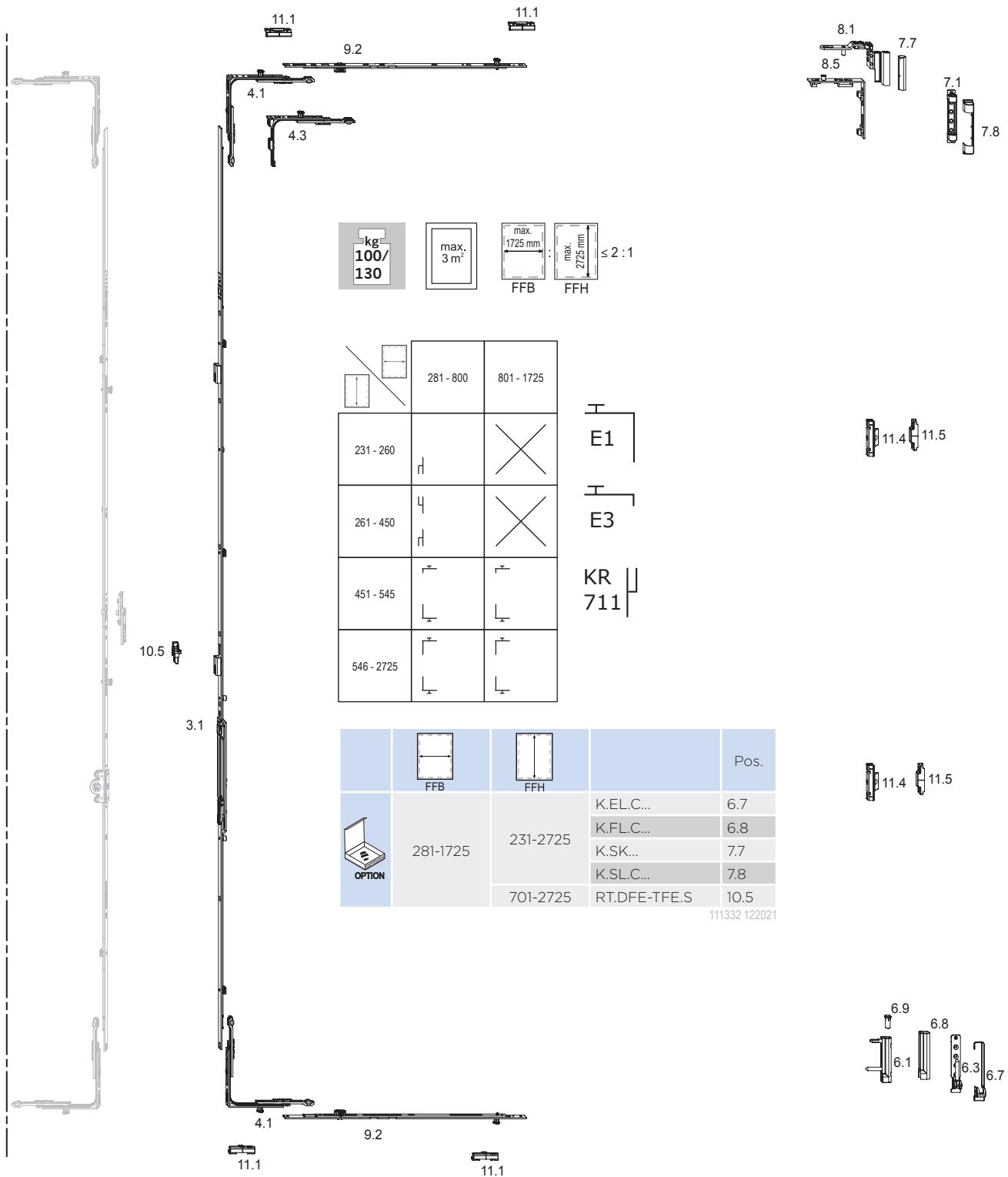


	FFB	FFH		Pos.		Pos.		Pos.		Pos.	
	461-1710	421-2500	AB.G.D.15,5	10.1	AL D...	10.9					
	461-920	421-460	GAK.465	3.1			GK = 210				
	461-1160	461-580	GAK.710	3.1			GK = 210				
	461-1420	581-710	GAK.830-1	3.1			GK = 260		SBS.K...	11.3	1x
		711-980	GAM.1050-1	3.1					SBS.K...	11.3	2x
		981-1400	GAM.1400-2	3.1					SBS.K...	11.3	2x
	461-1710	1401-1800	GAM.1800-2	3.1					SBS.K...	11.3	2x
		1801-2300	GAM.2300-3	3.1					SBS.K...	11.3	3x
		2301-2500	GAM.1800-2	3.1	MK.500-1	9.1	MK.500-1	9.1	SBS.K...	11.3	4x
	461-1160	421-580	E11	4.5					SBS.K...	11.3	2x
	461-1710	581-2500	E1	4.1					SBS.K...	11.3	1x
	461-600	421-2500	OS1.600	5.3							
	601-775		OS2.800	5.3							
	776-1025		OS2.1025-1	5.3					SBS.K...	11.3	1x
	1026-1250		OS2.1250-1	5.3					SBS.K...	11.3	1x
	1251-1275		OS2.1025-1	5.3	MK.250-1	9.1			SBS.K...	11.3	2x
	1276-1525		OS2.1025-1	5.3	MK.250-1	9.1	ZSR SL	9.6	FT WSK...	11.6	1x
	1526-1710		OS2.1025-1	5.3	MK.500-1	9.1	ZSR SL	9.6	SBS.K...	11.3	2x
	461-600	421-2500	E3	4.3	SL.C...	7.1	SC1...	7.2	SBS.K...	11.3	1x
	601-1710		E2	4.2	SL.C...	7.1	SC2...	7.2	SBS.K...	11.3	1x
	461-1710	421-2500	AL D...	10.9							
	461-1390	581-695	M.250-1	9.2					SBS.K...	11.3	1x
		696-1000	M.500-1	9.2					SBS.K...	11.3	1x
		1001-1200	M.750-1	9.2					SBS.K...	11.3	1x
	461-1710	1201-1500	MK.500-1	9.1	M.500-1	9.2			SBS.K...	11.3	2x
		1501-1750	MK.750-1	9.1	M.500-1	9.2			SBS.K...	11.3	2x
		1751-2000	MK.750-1	9.1	M.750-1	9.2			SBS.K...	11.3	2x
		2001-2250	MK.750-1	9.1	MK.500-1	9.1	M.500-1	9.2	SBS.K...	11.3	3x
	2251-2500	MK.750-1	9.1	MK.750-1	9.1	M.500-1	9.2	SBS.K...	11.3	3x	
	461-1710	421-2500	S.FL.C...	6.9							
	461-960	421-580	E11	4.5	EL.C...	6.3	FL.C...	6.1	SBS.K...	11.3	2x
	961-1160		E1	4.1	EL.C...	6.3	FL.C...	6.1	SBS.K...	11.3	1x
	461-1710	581-2500	E1	4.1	EL.C...	6.3	FL.C...	6.1	SBS.K...	11.3	1x
	461-1710	421-2500	FH...	11.5							
	461-710	421-710	KE SL	9.3							
		711-980	KE.500-1.RC-N	9.3					SBS.K...	11.3	1x
		981-2500	KE SL	9.3							
	711-960		KE SL	9.3	MK.250-1	9.1			SBS.K...	11.3	1x
	421-2500	961-1210	KE SL	9.3	MK.500-1	9.1			SBS.K...	11.3	1x
		1211-1460	KE SL	9.3	MK.750-1	9.1			SBS.K...	11.3	1x
		1461-1710	KE SL	9.3	MK.500-1	9.1	MK.500-1	9.1	SBS.K...	11.3	2x
	461-775	421-980	E11	4.5					SBK.K...	11.2	1x
	461-1710	981-2500	E1	4.1					SBS.K...	11.3	1x
	776-1710	421-980	E1	4.1					SBK.K...	11.2	1x
									SBK.K...	11.2	1x

# Turn double sash fitting - constant handle position

2

## Basic equipment

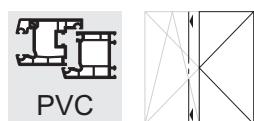


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Turn double sash fitting – constant handle position

## Basic equipment



2

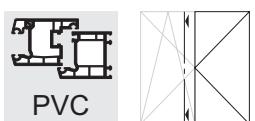
				Pos.		Pos.		Pos.		Pos.	
	281-1400	451-700	GASK.710	3.1			GK = 210				
	281-1700	701-850	GASK.945-1	3.1			GK = 260				
		851-1100	GASK.1100-1	3.1			GK = 375				
		1101-1325	GASK.1325-1	3.1			GK = 550				
		1326-1550	GASK.1550-1	3.1			GK = 550				
		1551-1775	GASK.1775-2	3.1			GK = 550				
		1776-2000	GASK.2000-2	3.1			GK = 1050				
		2001-2225	GASK.2225-2	3.1			GK = 1050				
		2226-2475	GASK.2225-2	3.1	MS.SO.250-1	9.3	GK = 1050				
		2476-2725	GASK.2225-2	3.1	MS.SO.500-1	9.3	GK = 1050				
	281-800	261-450	KR F 711.C...	10.10				SA...	11.6	1x	
	281-1090	451-545	E3	4.3				SBA.K...	11.1	1x	
	281-1725	546-2725	E1	4.1				SBA.K...	11.1	1x	
	841-1250		M.500-1	9.2				SBA.K...	11.1	1x	
	1251-1500	451-2725	M.750-1	9.2				SBA.K...	11.1	1x	
	1501-1725		MK.500-1	9.1	M.500-1	9.2		SBA.K...	11.1	2x	
	281-800	231-450	DLW ERW SL	8.5	DLC...	8.1	SL.C...	7.1			
	281-1725	451-2725	DLW ERW SL	8.5	DLC...	8.1	SL.C...	7.1			
	281-1725	801-1600	ZV-FT SL	11.4				ZV-RT...	11.5	1x	
		1601-2400	ZV-FT SL	11.4	ZV-FT SL	11.4		ZV-RT...	11.5	2x	
		2401-2725	ZV-FT SL	11.4	ZV-FT SL	11.4	ZV-FT SL	ZV-RT...	11.5	3x	
	281-1725	231-2725	S.FL.C...	6.9							
	281-800	231-450	EL.C...	6.3	FL.C...	6.1					
	281-1725	451-2725	EL.C...	6.3	FL.C...	6.1					
	451-2725	841-1250	M.500-1	9.2				SBA.K...	11.1	1x	
		1251-1500	M.750-1	9.2				SBA.K...	11.1	1x	
		1501-1725	MK.500-1	9.1	M.500-1	9.2		SBA.K...	11.1	2x	
	281-800	231-450	KR F 711.C...	10.10				SA...	11.6	1x	
	281-1725	451-2725	E1	4.1				SBA.K...	11.1	1x	



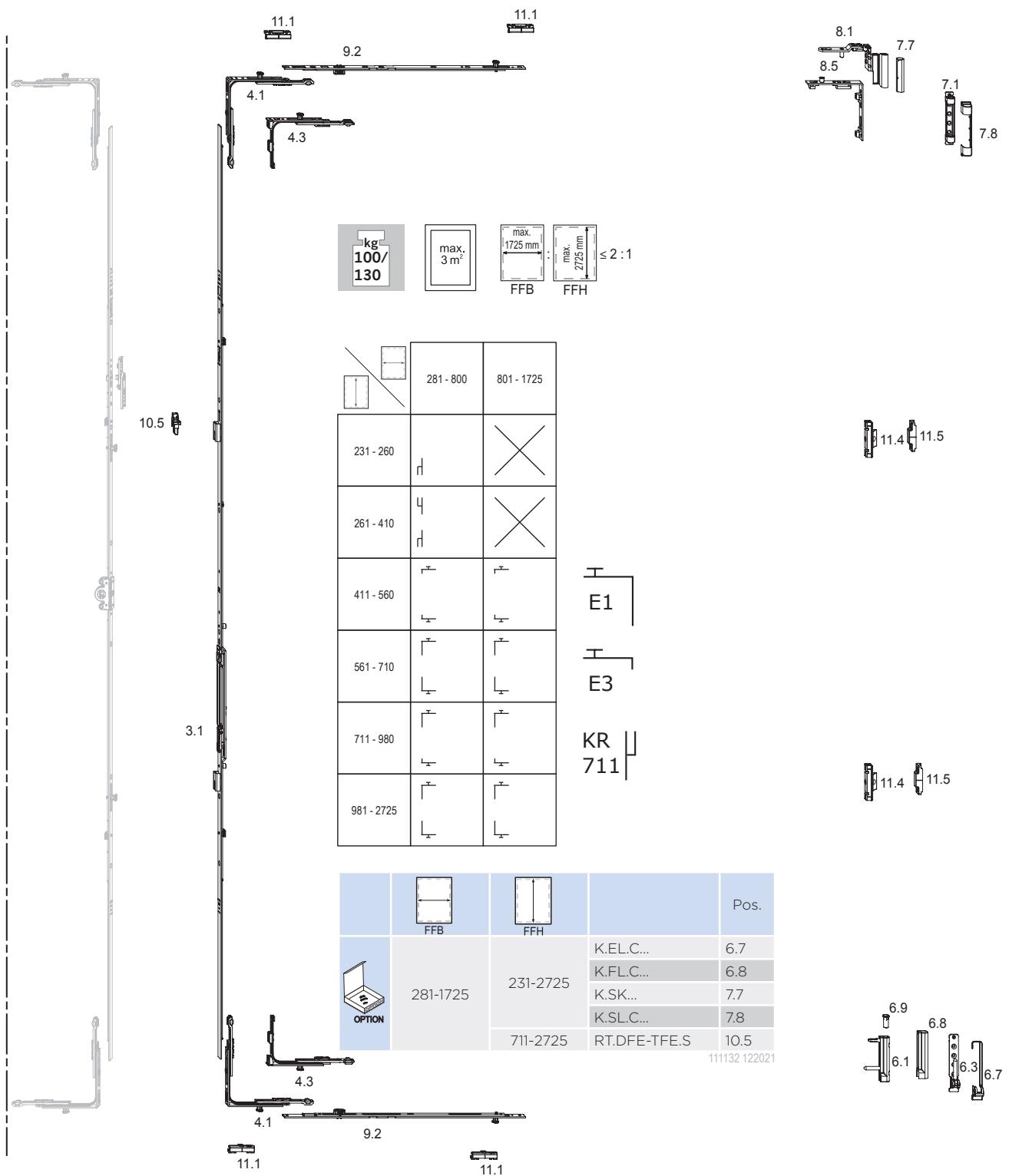
marks a line with items that are always used, regardless of size

Turn double-sash fitting – central handle position

## Basic equipment



2

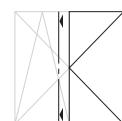
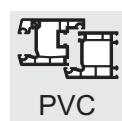


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Turn double-sash fitting – central handle position

## Basic equipment



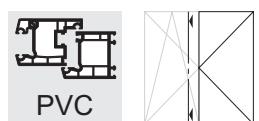
2

				Pos.		Pos.		Pos.		Pos.	
	281-1420	411-710	GASM.800	3.1							
		711-980	GASM.1050-1.E3	3.1							
		981-1400	GASM.1400-1	3.1							
	281-1725	1401-1800	GASM.1800-2	3.1							
		1801-2300	GASM.2300-3	3.1							
		2301-2725	GASM.2300-3	3.1	MS.SU.250-1	9.3	MS.SO.250-1	9.3			
	281-800	261-410	KR F 711.C...	10.10					SA...	11.6	1x
	281-1120	411-560	E3	4.3					SBA.K...	11.1	1x
	281-1725	561-2725	E1	4.1					SBA.K...	11.1	1x
	841-1250	M.500-1	9.2						SBA.K...	11.1	1x
	1251-1500	411-2725	M.750-1	9.2					SBA.K...	11.1	1x
	1501-1725	MK.500-1	9.1	M.500-1	9.2				SBA.K...	11.1	2x
	281-800	231-410	DLW ERW SL	8.5	DLC...	8.1	SL.C...	7.1			
	281-1725	411-2725	DLW ERW SL	8.5	DLC...	8.1	SL.C...	7.1			
	281-1725	801-1600	ZV-FT SL	11.4					ZV-RT...	11.5	1x
		1601-2400	ZV-FT SL	11.4	ZV-FT SL	11.4			ZV-RT...	11.5	2x
		2401-2725	ZV-FT SL	11.4	ZV-FT SL	11.4	ZV-FT SL	11.4	ZV-RT...	11.5	3x
	281-1725	231-2725	S.FLC...	6.9							
	281-800	231-410	EL.C...	6.3	FL.C...	6.1					
	281-1725	411-2725	EL.C...	6.3	FL.C...	6.1					
	841-1250	M.500-1	9.2						SBA.K...	11.1	1x
	1251-1500	411-2725	M.750-1	9.2					SBA.K...	11.1	1x
	1501-1725	MK.500-1	9.1	M.500-1	9.2				SBA.K...	11.1	2x
	281-800	231-410	KR F 711.C...	10.10					SA...	11.6	1x
	281-1120	411-560	E3	4.3					SBA.K...	11.1	1x
	281-1420	561-710	E1	4.1					SBA.K...	11.1	1x
	281-1725	711-980	E3	4.3					SBA.K...	11.1	1x
		981-2725	E1	4.1					SBA.K...	11.1	1x



marks a line with items that are always used, regardless of size

# Turn double sash fitting - constant handle position



Burglar resistance to RC1 N

2

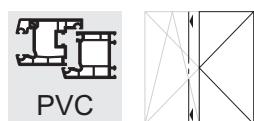


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Turn double sash fitting – constant handle position

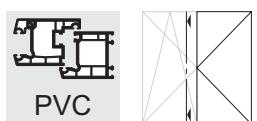
Burglar resistance to RC1 N



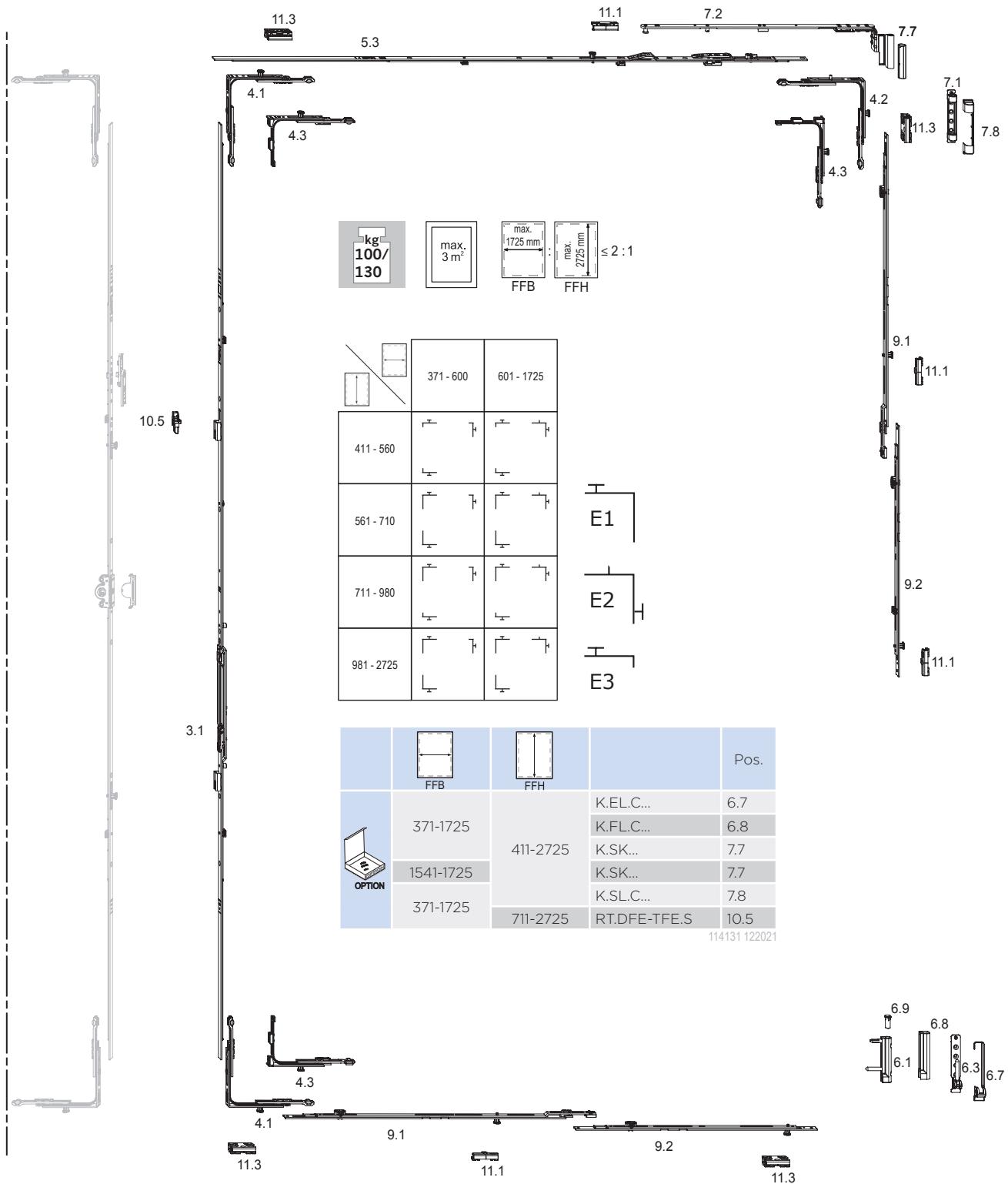
				Pos.		Pos.		Pos.		Pos.	
	371-1400	451-700	GASK.710	3.1			GK = 210				
	371-1700	701-850	GASK.945-1	3.1			GK = 260				
		851-1100	GASK.1100-1	3.1			GK = 375				
		1101-1325	GASK.1325-1	3.1			GK = 550				
		1326-1550	GASK.1550-1	3.1			GK = 550				
		1551-1775	GASK.1775-2	3.1			GK = 550				
		1776-2000	GASK.2000-2	3.1			GK = 1050				
		2001-2225	GASK.2225-2	3.1			GK = 1050				
		2226-2475	GASK.2225-2	3.1	MS.SO.250-1	9.3	GK = 1050				
		2476-2725	GASK.2225-2	3.1	MS.SO.500-1	9.3	GK = 1050				
	371-1090	451-545	E3	4.3				SBS.K...	11.3	1x	
	371-1725	546-2725	E1	4.1				SBS.K...	11.3	1x	
	371-600	451-2725	OS1.600	5.3							
	601-800		OS2.800	5.3							
	801-1025		OS2.1025-1	5.3				SBA.K...	11.1	1x	
	1026-1250		OS2.1250-1	5.3				SBA.K...	11.1	1x	
	1251-1475		OS2.1475-1	5.3				SBA.K...	11.1	1x	
	1476-1725		OS2.1475-1	5.3	MK.250-0	9.1		SBA.K...	11.1	1x	
	371-600	451-2725	E3	4.3	SL.C...	7.1	SC1...	7.2	SBS.K...	11.3	1x
	601-1725		E2	4.2	SL.C...	7.1	SC2...	7.2	SBS.K...	11.3	1x
	371-1725	861-1285	M.500-1	9.2				SBA.K...	11.1	1x	
		1286-1535	M.750-1	9.2				SBA.K...	11.1	1x	
		1536-1785	MK.500-1	9.1	M.500-1	9.2		SBA.K...	11.1	2x	
		1786-2035	MK.750-1	9.1	M.500-1	9.2		SBA.K...	11.1	2x	
		2036-2285	MK.750-1	9.1	M.750-1	9.2		SBA.K...	11.1	2x	
		2286-2535	MK.750-1	9.1	MK.500-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
		2536-2725	MK.750-1	9.1	MK.750-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
	371-1725	451-2725	S.FL.C...	6.9							
			EL.C...	6.3	FL.C...	6.1					
	451-2725	371-540	M.250-1	9.2				SBS.K...	11.3	1x	
		541-790	M.500-1	9.2				SBS.K...	11.3	1x	
		791-1040	M.750-1	9.2				SBS.K...	11.3	1x	
		1041-1290	MK.500-1	9.1	M.500-1	9.2		SBS.K... SBA.K...	11.3 11.1	1x 1x	
		1291-1540	MK.750-1	9.1	M.500-1	9.2		SBS.K... SBA.K...	11.3 11.1	1x 1x	
		1541-1725	MK.750-1	9.1	M.750-1	9.2		SBS.K... SBA.K...	11.3 11.1	1x 1x	
	371-1725	451-2725	E1	4.1				SBS.K...	11.3	1x	

# Turn double-sash fitting – central handle position

Burglar resistance to RC1 N



2

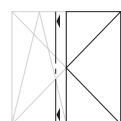
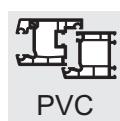


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

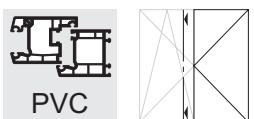
# Turn double-sash fitting – central handle position

Burglar resistance to RC1 N



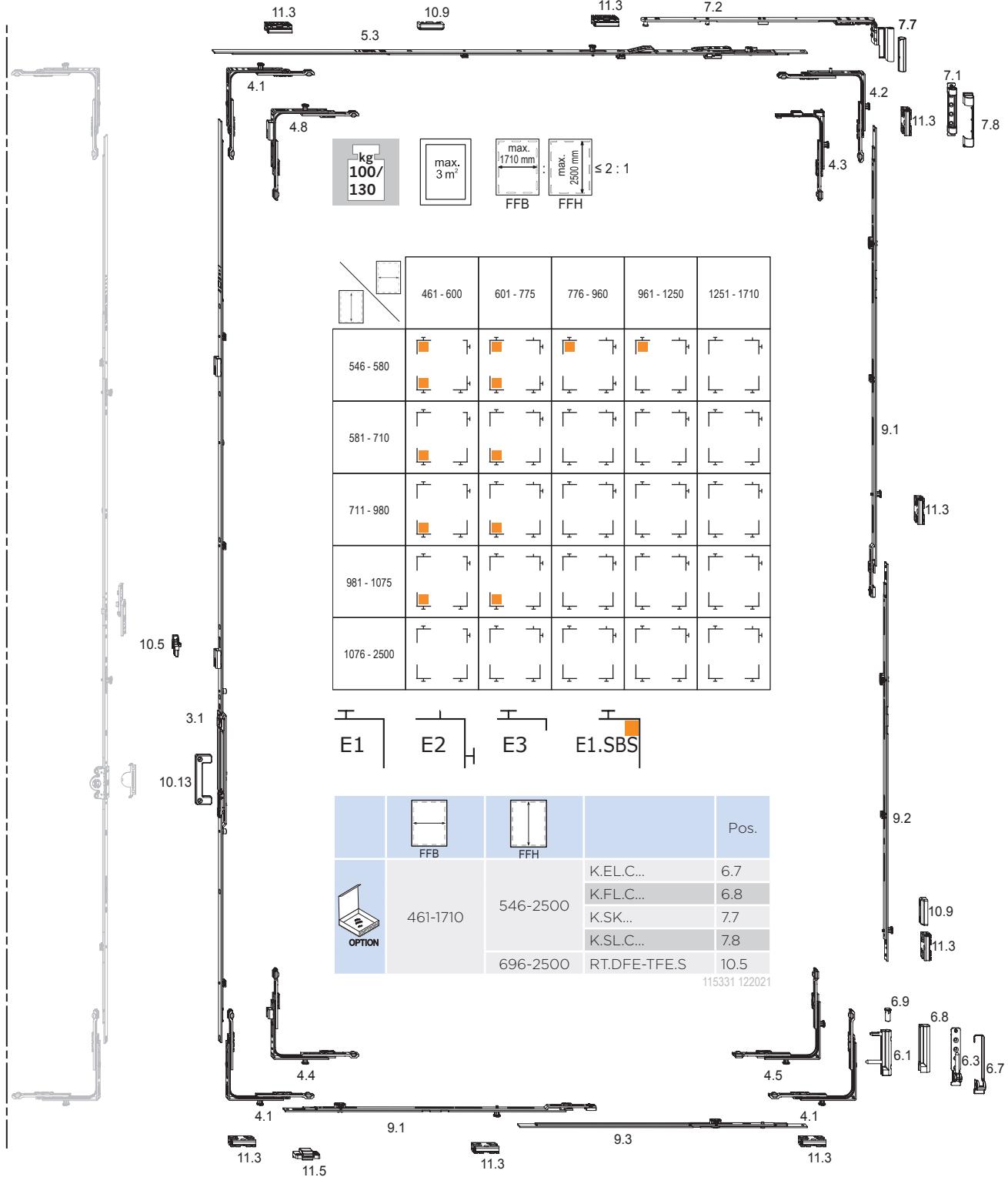
	FFB	FFH		Pos.		Pos.		Pos.		Pos.	
	371-1420	411-710	GASM.800	3.1							
		711-980	GASM.1050-1.E3	3.1							
		981-1400	GASM.1400-1	3.1							
	371-1725	1401-1800	GASM.1800-2	3.1							
		1801-2300	GASM.2300-3	3.1							
		2301-2725	GASM.2300-3	3.1	MS.SU.250-1	9.3	MS.SO.250-1	9.3			
	371-1120	411-560	E3	4.3					SBS.K...	11.3	1x
	371-1725	561-2725	E1	4.1					SBS.K...	11.3	1x
	371-600	411-2725	OS1.600	5.3							
	601-800		OS2.800	5.3							
	801-1025		OS2.1025-1	5.3					SBA.K...	11.1	1x
	1026-1250		OS2.1250-1	5.3					SBA.K...	11.1	1x
	1251-1475		OS2.1475-1	5.3					SBA.K...	11.1	1x
	1476-1725		OS2.1475-1	5.3	MK.250-0	9.1			SBA.K...	11.1	1x
	371-600	411-2725	E3	4.3	SL.C...	7.1	SC1...	7.2	SBS.K...	11.3	1x
	601-1725		E2	4.2	SL.C...	7.1	SC2...	7.2	SBS.K...	11.3	1x
	371-1725	861-1285	M.500-1	9.2					SBA.K...	11.1	1x
		1286-1535	M.750-1	9.2					SBA.K...	11.1	1x
		1536-1785	MK.500-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
		1786-2035	MK.750-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
		2036-2285	MK.750-1	9.1	M.750-1	9.2			SBA.K...	11.1	2x
		2286-2535	MK.750-1	9.1	MK.500-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
	371-1725	411-2725	S.FL.C...	6.9							
			EL.C...	6.3	FL.C...	6.1					
	371-540	411-2725	M.250-1	9.2					SBS.K...	11.3	1x
	541-790		M.500-1	9.2					SBS.K...	11.3	1x
	791-1040		M.750-1	9.2					SBS.K...	11.3	1x
	1041-1290		MK.500-1	9.1	M.500-1	9.2			SBS.K... SBA.K...	11.3 11.1	1x
	1291-1540		MK.750-1	9.1	M.500-1	9.2			SBS.K... SBA.K...	11.3 11.1	1x
	1541-1725		MK.750-1	9.1	M.750-1	9.2			SBS.K... SBA.K...	11.3 11.1	1x
	371-1120	411-560	E3	4.3					SBS.K...	11.3	1x
	371-1420	561-710	E1	4.1					SBS.K...	11.3	1x
	371-1725	711-980	E3	4.3					SBS.K...	11.3	1x
		981-2725	E1	4.1					SBS.K...	11.3	1x

Turn double sash fitting - constant handle position



Suitable for burglary-resistant windows RC2 / RC2 N

2

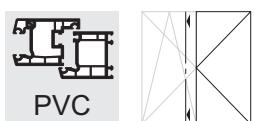


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Turn double sash fitting - constant handle position

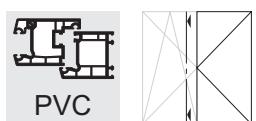
Suitable for burglary-resistant windows RC2 / RC2 N



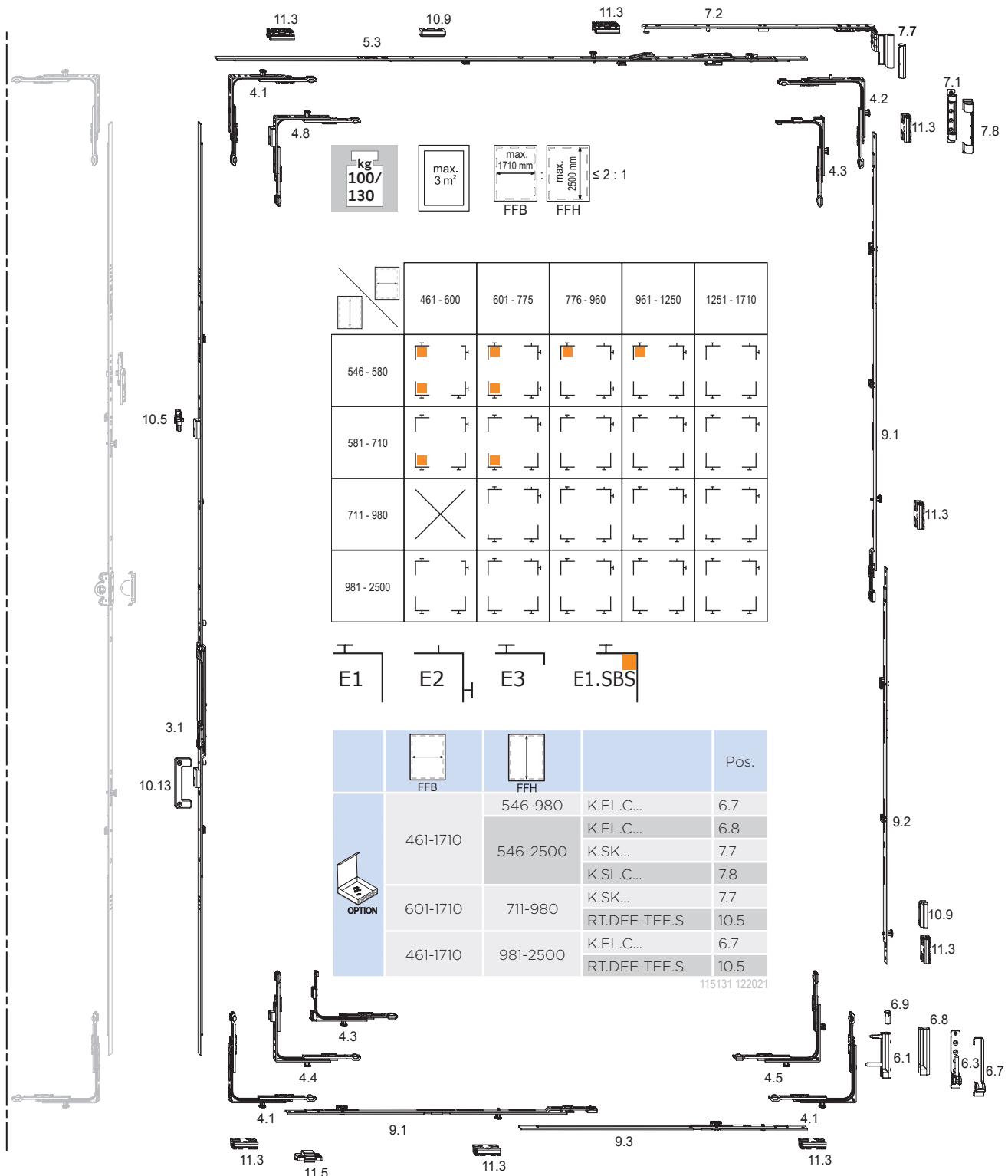
				Pos.		Pos.		Pos.		Pos.	
	461-1710	546-2500	SNH.AGR	10.13							
	461-1160	546-580	GASK.710	3.1							
	461-1390	581-695	GASK.830-1	3.1							
	461-1700	696-850	GASK.945-1	3.1							
		851-1075	GASK.1100-1	3.1							
		1076-1325	GASK.1325-2	3.1							
		1326-1525	GASK.1550-2	3.1							
		1526-1775	GASK.1775-2	3.1							
		1776-2000	GASK.2000-2	3.1							
		2001-2225	GASK.2225-2	3.1							
	461-1160	546-580	E1.SBS.O	4.8					SBS.K...	11.3	1x
	461-1710	581-2500	E1	4.1					SBS.K...	11.3	1x
	461-1710		AL D...	10.9							
	461-600		OS1.600	5.3							
	601-775		OS2.800	5.3							
	776-1025	546-2500	OS2.1025-1	5.3					SBS.K...	11.3	1x
	1026-1250		OS2.1250-1	5.3					SBS.K...	11.3	1x
	1251-1275		OS2.1025-1	5.3	MK.250-1	9.1			SBS.K...	11.3	2x
	1276-1525		OS2.1025-1	5.3	MK.250-0	9.1	MK.250-1	9.1	SBS.K...	11.3	2x
	1526-1710		OS2.1025-1	5.3	MK.250-0	9.1	MK.500-1	9.1	SBS.K...	11.3	2x
	461-600	546-2500	E3	4.3	SL.C...	7.1	SC1...	7.2	SBS.K...	11.3	1x
	601-1710		E2	4.2	SL.C...	7.1	SC2...	7.2	SBS.K...	11.3	1x
	461-1710	546-2500	AL D...	10.9							
	461-1390	581-695	M.250-1	9.2					SBS.K...	11.3	1x
		696-1000	M.500-1	9.2					SBS.K...	11.3	1x
		1001-1200	M.750-1	9.2					SBS.K...	11.3	1x
	461-1710	1201-1500	MK.500-1	9.1	M.500-1	9.2			SBS.K...	11.3	2x
		1501-1750	MK.750-1	9.1	M.500-1	9.2			SBS.K...	11.3	2x
		1751-2000	MK.750-1	9.1	M.750-1	9.2			SBS.K...	11.3	2x
		2001-2250	MK.750-1	9.1	MK.500-1	9.1	M.500-1	9.2	SBS.K...	11.3	3x
		2251-2500	MK.750-1	9.1	MK.750-1	9.1	M.500-1	9.2	SBS.K...	11.3	3x
	461-1710	546-2500	S.FL.C...	6.9							
	461-960	546-580	E11	4.5	EL.C...	6.3	FL.C...	6.1	SBS.K...	11.3	2x
	961-1160		E1	4.1	EL.C...	6.3	FL.C...	6.1	SBS.K...	11.3	1x
	461-1710	581-2500	E1	4.1	EL.C...	6.3	FL.C...	6.1	SBS.K...	11.3	1x
	461-1710	546-2500	FH...	11.5							
	461-710		KE SL	9.3							
	711-960		KE SL	9.3	MK.250-1	9.1			SBS.K...	11.3	1x
	961-1210		KE SL	9.3	MK.500-1	9.1			SBS.K...	11.3	1x
	1211-1460		KE SL	9.3	MK.750-1	9.1			SBS.K...	11.3	1x
	1461-1710		KE SL	9.3	MK.500-1	9.1	MK.500-1	9.1	SBS.K...	11.3	2x
	461-775	546-1075	E1.SBS.U	4.4					SBS.K...	11.3	1x
	461-1710	1076-2500	E1	4.1					SBS.K...	11.3	1x
	776-1710	546-1075	E1	4.1					SBS.K...	11.3	1x

# Turn double-sash fitting – central handle position

Suitable for burglary-resistant windows RC2 / RC2 N



2

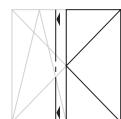
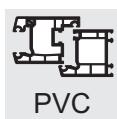


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Turn double-sash fitting – central handle position

Suitable for burglary-resistant windows RC2 / RC2 N



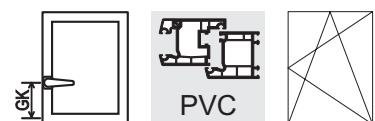
	FFB	FFH		Pos.		Pos.		Pos.		Pos.	
	i 461-1710	546-2500	SNH.AGR	10.13							
	461-1160	546-580	GASK.710	3.1							
	461-1420	581-710	GASK.830-1	3.1							
	601-1710	711-980	GASM.1050-1.E3	3.1							
		981-1400	GASM.1400-2	3.1							
	461-1710	1401-1800	GASM.1800-2	3.1							
		1801-2300	GASM.2300-3	3.1							
		2301-2500	GASM.1800-2	3.1	MS.SU.500-1	9.3	MS.SO.500-1	9.3			
	461-1160	546-580	E1.SBS.O	4.8					SBS.K...	11.3	1x
	461-1420	581-710	E1	4.1					SBS.K...	11.3	1x
	461-1710	981-2500	E1	4.1					SBS.K...	11.3	1x
	601-1710	711-980	E1	4.1					SBS.K...	11.3	1x
	i 461-1710	546-2500	AL D...	10.9							
	461-600	546-710	OS1.600	5.3							
	601-775	981-2500	OS1.600	5.3							
	776-1025		OS2.800	5.3							
	1026-1250		OS2.1025-1	5.3					SBS.K...	11.3	1x
	1251-1275		OS2.1250-1	5.3					SBS.K...	11.3	1x
	1276-1525		OS2.1025-1	5.3	MK.250-1	9.1			SBS.K...	11.3	2x
	1526-1710		OS2.1025-1	5.3	MK.250-0	9.1	MK.250-1	9.1	SBS.K...	11.3	2x
	461-600	546-710	E3	4.3	SL.C...	7.1	SC1...	7.2	SBS.K...	11.3	1x
		981-2500	E3	4.3	SL.C...	7.1	SC1...	7.2	SBS.K...	11.3	1x
	601-1710	546-2500	E2	4.2	SL.C...	7.1	SC2...	7.2	SBS.K...	11.3	1x
	i 461-1710	546-2500	AL D...	10.9							
	461-1390	581-695	M.250-1	9.2					SBS.K...	11.3	1x
	461-1420	696-710	M.500-1	9.2					SBS.K...	11.3	1x
	601-1710	711-980	M.500-1	9.2					SBS.K...	11.3	1x
		981-1000	M.500-1	9.2					SBS.K...	11.3	1x
		1001-1200	M.750-1	9.2					SBS.K...	11.3	1x
	461-1710	1201-1500	MK.500-1	9.1	M.500-1	9.2			SBS.K...	11.3	2x
		1501-1750	MK.750-1	9.1	M.500-1	9.2			SBS.K...	11.3	2x
		1751-2000	MK.750-1	9.1	M.750-1	9.2			SBS.K...	11.3	2x
		2001-2250	MK.750-1	9.1	MK.500-1	9.1	M.500-1	9.2	SBS.K...	11.3	3x
	461-1710	2251-2500	MK.750-1	9.1	MK.750-1	9.1	M.500-1	9.2	SBS.K...	11.3	3x
	i 461-1710	546-2500	S.FL.C...	6.9							
	461-960	546-580	E11	4.5	EL.C...	6.3	FL.C...	6.1	SBS.K...	11.3	2x
	961-1160		E1	4.1	EL.C...	6.3	FL.C...	6.1	SBS.K...	11.3	1x
	461-1420	581-710	E1	4.1	EL.C...	6.3	FL.C...	6.1	SBS.K...	11.3	1x
	601-1710	711-980	E1	4.1	EL.C...	6.3	FL.C...	6.1	SBS.K...	11.3	1x
	461-1710	711-980	KE SL	9.3					SBS.K...	11.3	1x
	711-960		KE SL	9.3	MK.250-1	9.1			SBS.K...	11.3	1x
	961-1210		KE SL	9.3	MK.500-1	9.1			SBS.K...	11.3	1x
	1211-1460		KE SL	9.3	MK.750-1	9.1			SBS.K...	11.3	1x
	1461-1710		KE SL	9.3	MK.500-1	9.1	MK.500-1	9.1	SBS.K...	11.3	2x
	461-775	546-710	E1.SBS.U	4.4					SBS.K...	11.3	1x
	461-1710	981-2500	E1	4.1					SBS.K...	11.3	1x
	601-1710	711-980	E3	4.3					SBS.K...	11.3	1x
	776-1420	546-710	E1	4.1					SBS.K...	11.3	1x



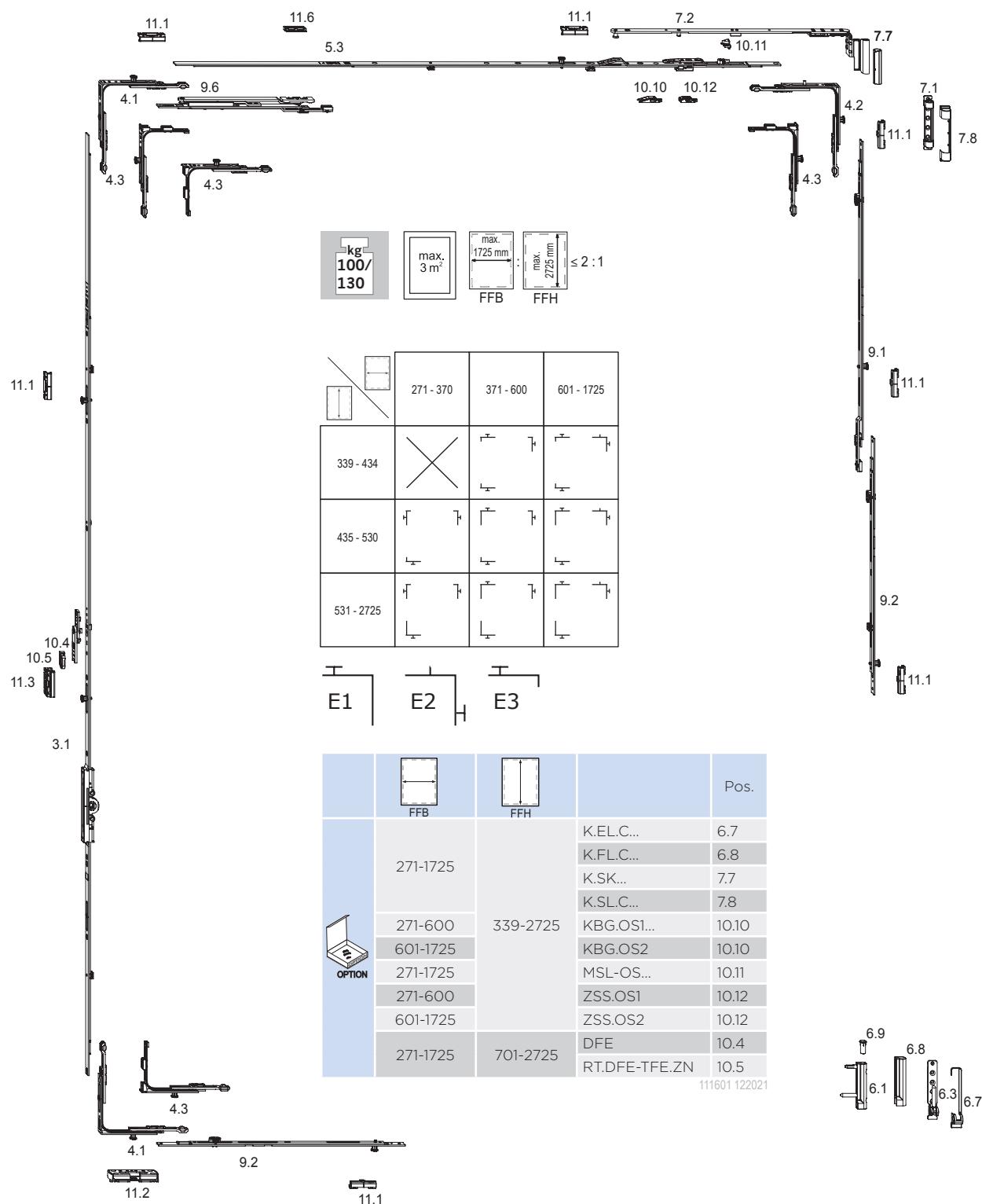
marks a line with items that are always used, regardless of size

## Turn-tilt fitting - constant handle position

Basic equipment - Backset 7.5 mm



2

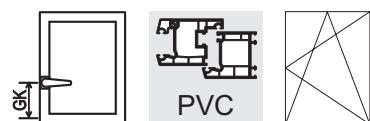


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Turn-tilt fitting - constant handle position

Basic equipment - Backset 7.5 mm



2

				Pos.		Pos.		Pos.		Pos.	
	371-868	339-434	GAK.700.D7,5	3.1			GK = 260				
	271-1400	435-700	GAK.700.D7,5	3.1			GK = 260				
	271-1700	701-850	GAK.945-1.D7,5	3.1			GK = 260		SBS.K...	11.3	1x
	271-1725	851-1100	GAK.1100-1.D7,5	3.1			GK = 375		SBS.K...	11.3	1x
		1101-1325	GAK.1325-1.D7,5	3.1			GK = 550		SBS.K...	11.3	1x
		1326-1550	GAK.1550-1.D7,5	3.1			GK = 550		SBS.K...	11.3	1x
		1551-1775	GAK.1775-2.D7,5	3.1			GK = 550		SBS.K... SBA.K...	11.3	1x 11.1 1x
		1776-2000	GAK.2000-2. D7,5	3.1			GK = 1050		SBS.K... SBA.K...	11.3	1x 11.1 1x
		2001-2225	GAK.2225-2.D7,5	3.1			GK = 1050		SBS.K... SBA.K...	11.3	1x 11.1 1x
		2226-2475	GAK.2225-2.D7,5	3.1	MK.250-1	9.1	GK = 1050		SBS.K... SBA.K...	11.3	1x 11.1 2x
		2476-2725	GAK.2225-2.D7,5	3.1	MK.500-1	9.1	GK = 1050		SBS.K... SBA.K...	11.3	1x 11.1 2x
	271-370	435-2725	E3	4.3					SBA.K...	11.1	1x
	371-868	339-434	E3	4.3					SBA.K...	11.1	1x
	371-1725	435-2725	E1	4.1					SBA.K...	11.1	1x
	271-600	435-2725	OS1.600	5.3							
	371-600	339-434	OS1.600	5.3							
	601-800		OS2.800	5.3							
	801-1025		OS2.1025-1	5.3					SBA.K...	11.1	1x
	1026-1250	339-2725	OS2.1250-1	5.3					SBA.K...	11.1	1x
	1251-1475		OS2.1475-1	5.3					SBA.K...	11.1	1x
	1476-1725		OS2.1475-1	5.3	FT WSK...	11.6	ZSR SL	9.6	SBA.K...	11.1	1x
	271-600	435-2725	E3	4.3	SL.C...	7.1	SC1...	7.2	SBA.K...	11.1	1x
	371-600	339-434	E3	4.3	SL.C...	7.1	SC1...	7.2	SBA.K...	11.1	1x
	601-1725	339-2725	E2	4.2	SL.C...	7.1	SC2...	7.2	SBA.K...	11.1	1x
	271-1725	861-1285	M.500-1	9.2					SBA.K...	11.1	1x
		1286-1535	M.750-1	9.2					SBA.K...	11.1	1x
		1536-1785	MK.500-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
		1786-2035	MK.750-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
		2036-2285	MK.750-1	9.1	M.750-1	9.2			SBA.K...	11.1	2x
		2286-2535	MK.750-1	9.1	MK.500-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
		2536-2725	MK.750-1	9.1	MK.750-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
	271-1725	339-2725	S.FL.C...	6.9							
	371-868	339-434	EL.C...	6.3	FL.C...	6.1					
	271-1725	435-2725	EL.C...	6.3	FL.C...	6.1					
	841-1250		M.500-1	9.2					SBA.K...	11.1	1x
	1251-1500	339-2725	M.750-1	9.2					SBA.K...	11.1	1x
	1501-1725		MK.500-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
	271-1060	435-530	E3	4.3					SBK.K...	11.2	1x
	271-1725	531-2725	E1	4.1					SBK.K...	11.2	1x
	371-868	339-434	E3	4.3					SBK.K...	11.2	1x

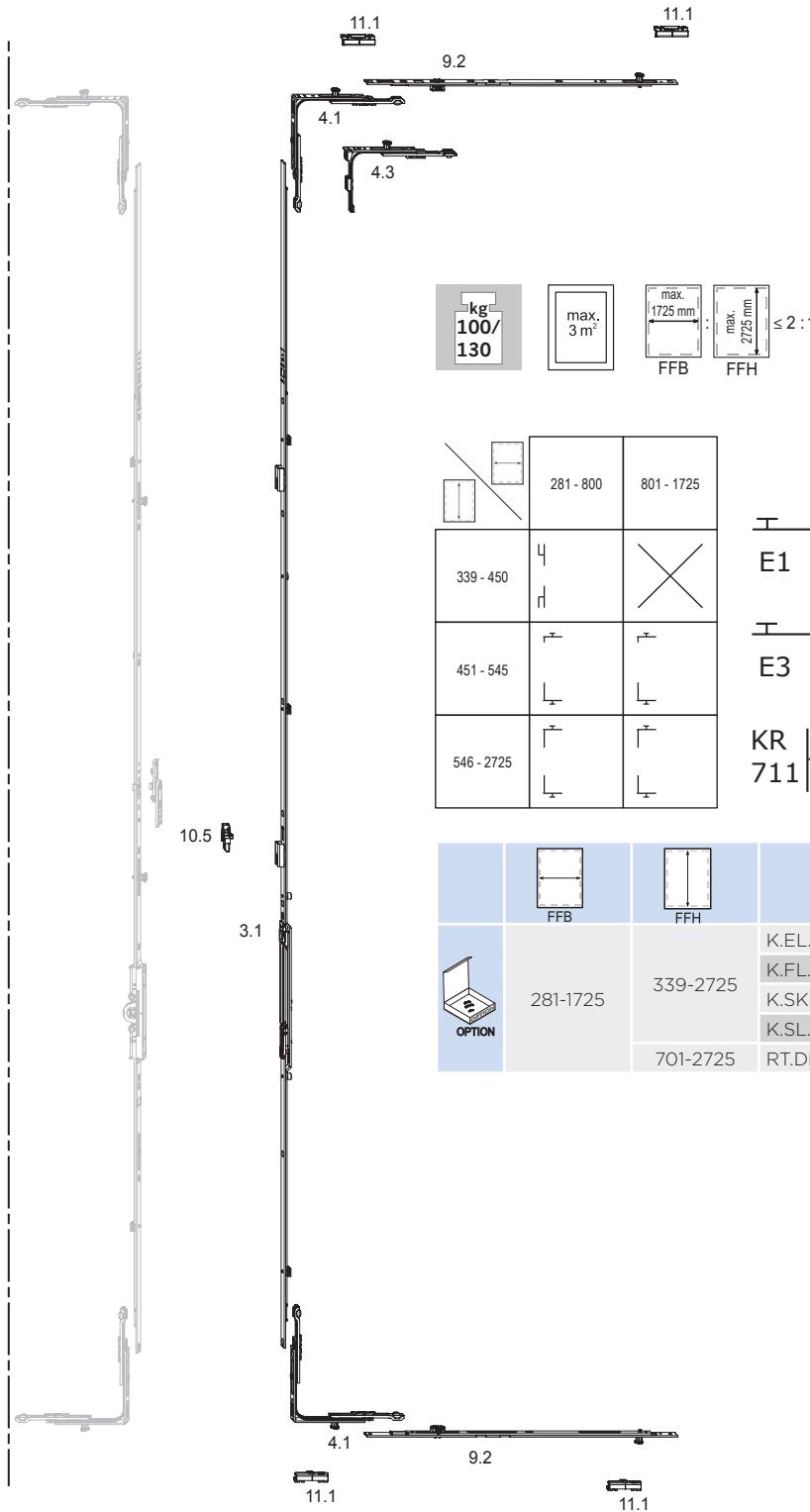
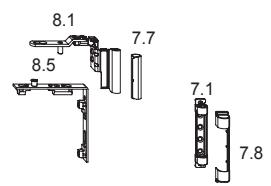
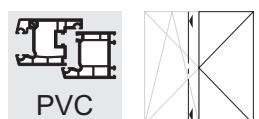


marks a line with items that are always used, regardless of size

## Turn double sash fitting - constant handle position

2

Basic equipment - Backset 7.5 mm

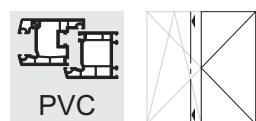


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Turn double sash fitting - constant handle position

Basic equipment - Backset 7.5 mm



2

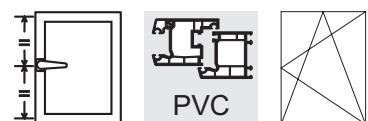
				Pos.		Pos.		Pos.		Pos.	
	281-1400	451-700	GASK.710	3.1			GK = 210				
	281-1700	701-850	GASK.945-1	3.1			GK = 260				
		851-1100	GASK.1100-1	3.1			GK = 375				
		1101-1325	GASK.1325-1	3.1			GK = 550				
		1326-1550	GASK.1550-1	3.1			GK = 550				
		1551-1775	GASK.1775-2	3.1			GK = 550				
		1776-2000	GASK.2000-2	3.1			GK = 1050				
		2001-2225	GASK.2225-2	3.1			GK = 1050				
		2226-2475	GASK.2225-2	3.1	MS.SO.250-1	9.3	GK = 1050				
		2476-2725	GASK.2225-2	3.1	MS.SO.500-1	9.3	GK = 1050				
	281-800	339-450	KR F 711.C...	10.10				SA...	11.6	1x	
	281-1090	451-545	E3	4.3				SBA.K...	11.1	1x	
	281-1725	546-2725	E1	4.1				SBA.K...	11.1	1x	
	841-1250		M.500-1	9.2				SBA.K...	11.1	1x	
	1251-1500	451-2725	M.750-1	9.2				SBA.K...	11.1	1x	
	1501-1725		MK.500-1	9.1	M.500-1	9.2		SBA.K...	11.1	2x	
	281-800	339-450	DLW ERW SL	8.5	DLC...	8.1	SL.C...	7.1			
	281-1725	451-2725	DLW ERW SL	8.5	DLC...	8.1	SL.C...	7.1			
	281-1725	801-1600	ZV-FT SL	11.4				ZV-RT...	11.5	1x	
		1601-2400	ZV-FT SL	11.4	ZV-FT SL	11.4		ZV-RT...	11.5	2x	
		2401-2725	ZV-FT SL	11.4	ZV-FT SL	11.4	ZV-FT SL	ZV-RT...	11.5	3x	
	281-1725	339-2725	S.FL.C...	6.9							
	281-800	339-450	EL.C...	6.3	FL.C...	6.1					
	281-1725	451-2725	EL.C...	6.3	FL.C...	6.1					
	451-2725	841-1250	M.500-1	9.2				SBA.K...	11.1	1x	
		1251-1500	M.750-1	9.2				SBA.K...	11.1	1x	
		1501-1725	MK.500-1	9.1	M.500-1	9.2		SBA.K...	11.1	2x	
	281-800	339-450	KR F 711.C...	10.10				SA...	11.6	1x	
	281-1725	451-2725	E1	4.1				SBA.K...	11.1	1x	



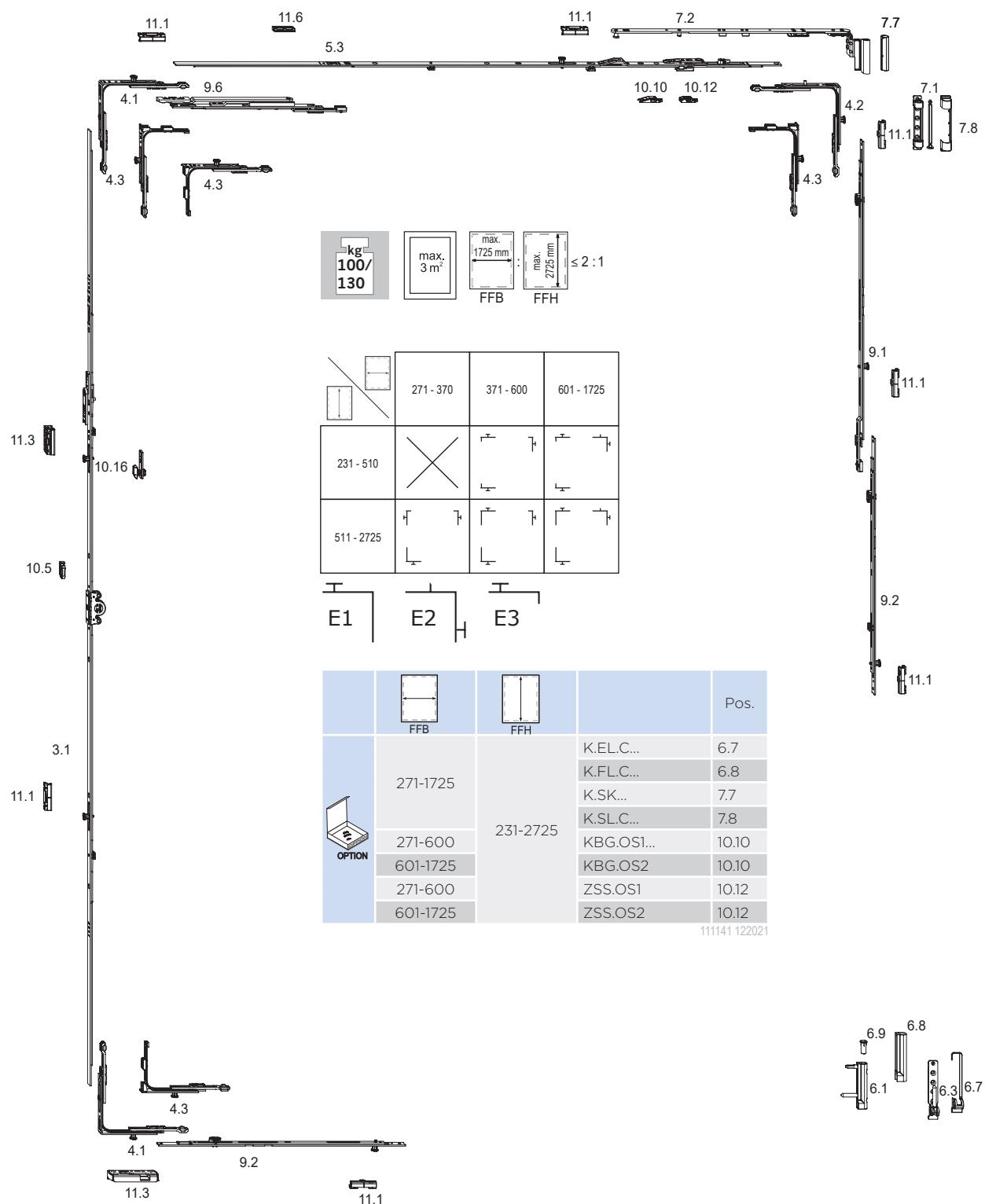
marks a line with items that are always used, regardless of size

## Turn-tilt fitting - central handle position

Basic equipment - Tilt before turn



2

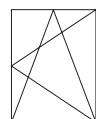
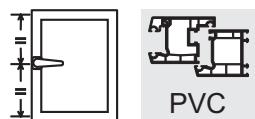


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Turn-tilt fitting - central handle position

Basic equipment - Tilt before turn



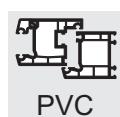
				Pos.		Pos.		Pos.		Pos.	
	371-650	231-325	GAK.465	3.1	FSF	10.16					
	371-1020	326-510	GAM.800	3.1	FSF	10.16					
	271-1420	511-710	GAM.800	3.1	FSF	10.16					
	271-1725	711-980	GAM.E.1050-1. DFE	3.1	RT.DFE-TFE.ZN	10.5			SBS.K... SBA.K...	11.3 11.1	1x
		981-1400	GAM.E.1400-1. DFE	3.1	RT.DFE-TFE.ZN	10.5			SBS.K...	11.3	1x
		1401-1800	GAM.E.1800-2. DFE	3.1	RT.DFE-TFE.ZN	10.5			SBS.K... SBA.K...	11.3 11.1	1x
		1801-2000	GAM.E.2300-3. DFE	3.1	RT.DFE-TFE.ZN	10.5			SBA.K... SBS.K...	11.1 11.3	2x
		2001-2300	GAM.E.2300-3. DFE	3.1	RT.DFE-TFE.ZN	10.5			SBS.K... SBA.K...	11.3 11.1	1x
		2301-2725	RT.DFE-TFE.ZN	10.5	GAM.E.2300-3. DFE	3.1	MK.250-1	9.1	SBS.K... SBA.K...	11.3 11.1	1x 4x
			MK.250-1	9.1							
	271-370	511-2725	E3	4.3					SBA.K...	11.1	1x
	371-1020	231-510	E3	4.3					SBA.K...	11.1	1x
	371-1725	511-2725	E1	4.1					SBA.K...	11.1	1x
	271-600	511-2725	OS1.600.E	5.3							
	371-600	231-510	OS1.600.E	5.3							
	601-800		OS2.800.E	5.3							
	801-1025		OS2.1025-1.E	5.3					SBA.K...	11.1	1x
	1026-1250	231-2725	OS2.1250-1.E	5.3					SBA.K...	11.1	1x
	1251-1475		OS2.1475-1.E	5.3					SBA.K...	11.1	1x
	1476-1725		OS2.1475-1.E	5.3	ZSRE SL	9.6			SBA.K...	11.1	1x
	271-600	511-2725	E3	4.3	SL.C...	7.1	SC1.E...	7.2	SBA.K...	11.1	1x
	371-600	231-510	E3	4.3	SL.C...	7.1	SC1.E...	7.2	SBA.K...	11.1	1x
	601-1725	231-2725	E2	4.2	SL.C...	7.1	SC2.E...	7.2	SBA.K...	11.1	1x
	271-1725	861-1285	M.500-1	9.2					SBA.K...	11.1	1x
		1286-1535	M.750-1	9.2					SBA.K...	11.1	1x
		1536-1785	MK.500-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
		1786-2035	MK.750-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
		2036-2285	MK.750-1	9.1	M.750-1	9.2			SBA.K...	11.1	2x
		2286-2535	MK.750-1	9.1	MK.500-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
		2536-2725	MK.750-1	9.1	MK.750-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
271-1725	231-2725	S.FLC...	6.9								
371-1020	231-510	EL.C...	6.3	FL.C...	6.1						
	231-2725	841-1250	M.500-1	9.2					SBA.K...	11.1	1x
		1251-1500	M.750-1	9.2					SBA.K...	11.1	1x
		1501-1725	MK.500-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
	271-1725	511-2725	E1	4.1					SBS.K.PAD...	11.3	1x
	371-1020	231-510	E3	4.3					SBS.K.PAD...	11.3	1x

In case of sash rebate heights (FFH) of < 711 mm it is not possible to install a fail-safe device directly onto the drive rod. The fail-safe device can be added by combining a short drive rod and an interlocking rod MK.250.FSF from a sash rebate height of > 475 mm.

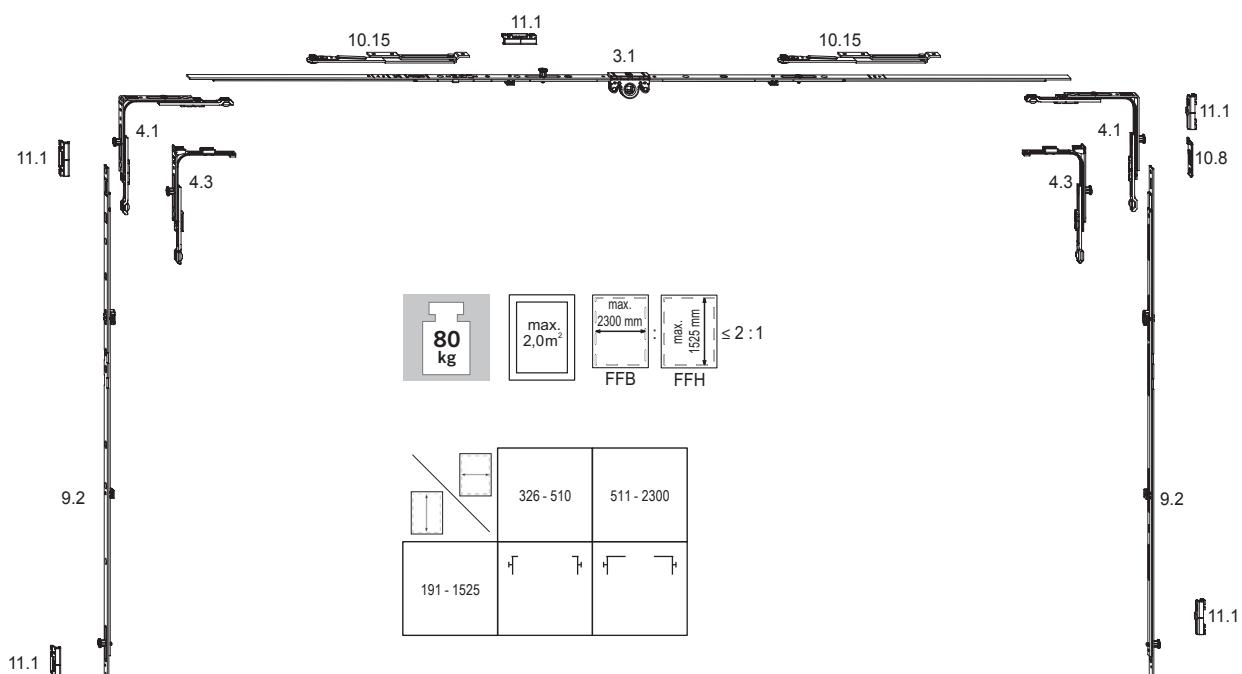


# Tilt fanlight

## Basic equipment



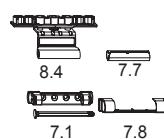
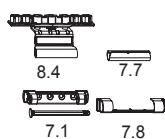
2



E1      E3

				Pos.
OPTION	FFB	FFH	K.SK...	7.7
	326-2300	191-1525	K.SL.C...	7.8

111151 122021

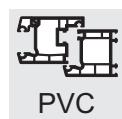


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Tilt fanlight

## Basic equipment



PVC

2

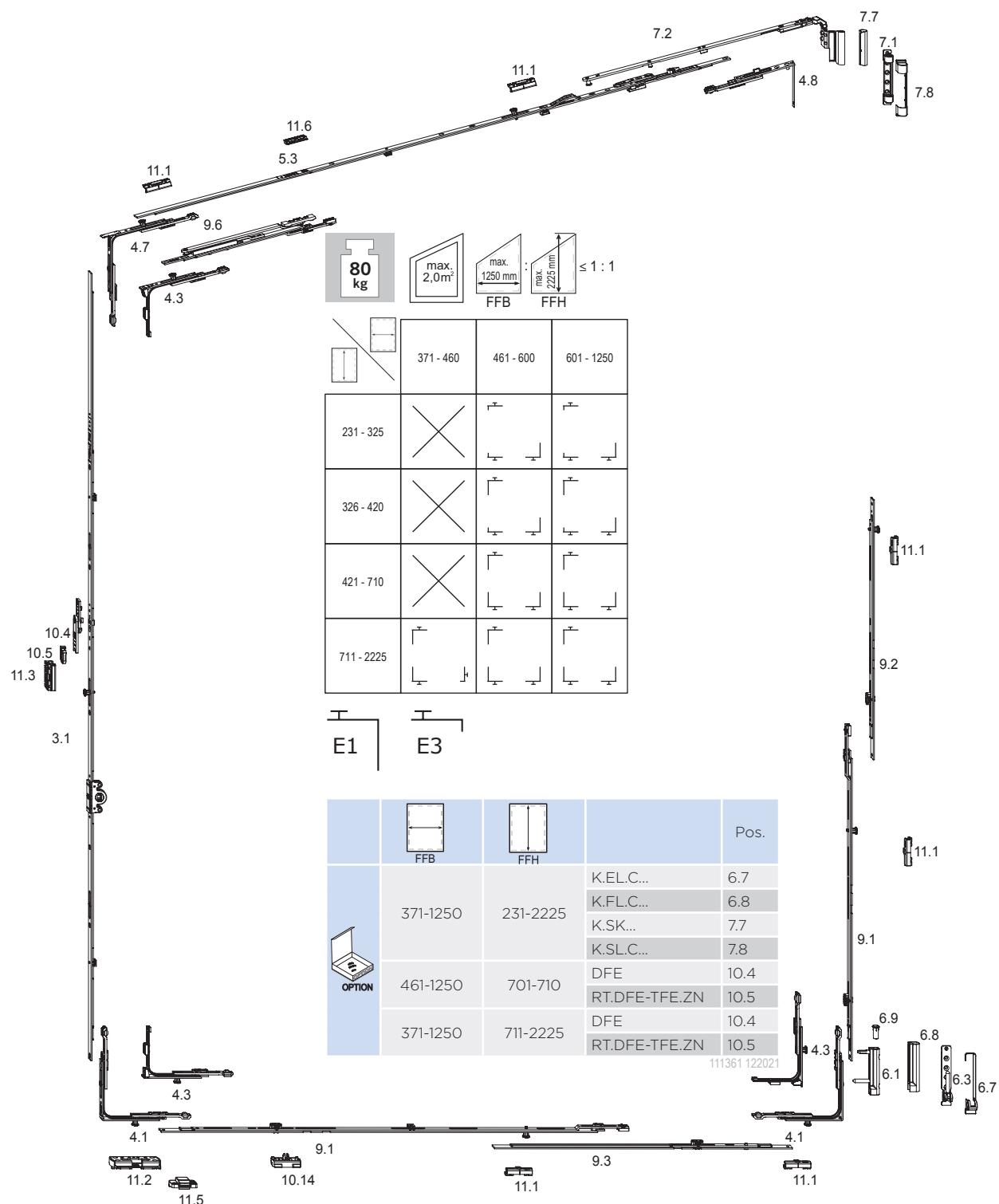
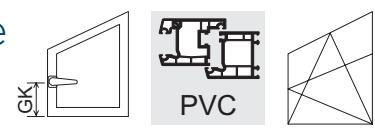
				Pos.		Pos.		Pos.		Pos.	
	326-710	191-1525	GRT FSR SL	10.15	GAM.800	3.1					
	711-1050		GRT FSR SL	10.15	GAM.1050-1	3.1			SBA.K...	11.1	1x
	1051-1400		GRT FSR SL	10.15	GRT FSR SL	10.15	GAM.1400-1	3.1	SBA.K...	11.1	1x
	1401-1800		GRT FSR SL	10.15	GRT FSR SL	10.15	GAM.1800-2	3.1	SBA.K...	11.1	2x
	1801-2300		GRT FSR SL	10.15	GRT FSR SL	10.15	GAM.2300-3	3.1	SBA.K...	11.1	3x
	326-510	191-1525	E3	4.3					SBA.K...	11.1	1x
	511-2300		E1	4.1					SBA.K...	11.1	1x
	861-1285	1286-1525	M.500-1	9.2					SBA.K...	11.1	1x
	326-2300		M.750-1	9.2					SBA.K...	11.1	1x
	326-990	191-1525	KB.C... SL.C...	8.4 7.1	KB.C...	8.4	SL.C...	7.1			
	991-1790		KB.C... SL.C...	8.4 7.1	KB.C... SL.C...	8.4 7.1	KB.C... SL.C...	8.4 7.1			
	1791-2300		KB.C... KB.C... SL.C...	8.4 8.4 7.1	KB.C... SL.C... SL.C...	8.4 7.1 7.1	KB.C... SL.C... SL.C...	8.4 7.1 7.1			
	861-1285	1286-1525	M.500-1	9.2					SBA.K...	11.1	1x
	326-2300		M.750-1	9.2					SBA.K...	11.1	1x
	326-2300	191-1525	AWDR SL	10.8							
	326-510		E3	4.3					SBA.K...	11.1	1x
	511-2300		E1	4.1					SBA.K...	11.1	1x

- To secure the tilting sash in 90° opening position, or during cleaning, the window must also be fitted with standard cleaning or supporting shears.
- The sashes must be secured in cleaning position to prevent excessive force acting on the hinges.
- After cleaning the window, the rebate shear must be reinserted and secured.
- Close windows in case of wind and draft. Move the fitting to locking position.

# Fitting for studio windows – constant handle position

## Basic equipment

2

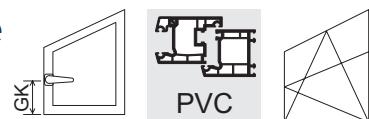


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Fitting for studio windows – constant handle position

## Basic equipment



2

				Pos.		Pos.		Pos.		Pos.	
	461-840	231-420	GAK.465	3.1			GK = 114				
	461-920	421-460	GAK.465	3.1			GK = 210				
	461-1250	461-700	GAK.710	3.1			GK = 210				
	461-1250	701-710	GAK.945-1	3.1			GK = 260		SBS.K...	11.3	1x
	371-1250	711-850	GAK.945-1	3.1			GK = 260		SBS.K...	11.3	1x
	371-1250	851-1100	GAK.1100-1	3.1			GK = 375		SBS.K...	11.3	1x
		1101-1325	GAK.1325-1	3.1			GK = 550		SBS.K...	11.3	1x
		1326-1550	GAK.1550-1	3.1			GK = 550		SBS.K...	11.3	1x
		1551-1775	GAK.1775-2	3.1			GK = 550		SBS.K... SBA.K...	11.3	1x 11.1
		1776-2000	GAK.2000-2	3.1			GK = 1050		SBS.K... SBA.K...	11.3	1x 11.1
		2001-2225	GAK.2225-2	3.1			GK = 1050		SBS.K... SBA.K...	11.3	1x 11.1
	371-1250	711-2225	E1.A	4.7					SBA.K...	11.1	1x
	461-650	231-325	E3	4.3					SBA.K...	11.1	1x
	461-1250	326-710	E1.A	4.7					SBA.K...	11.1	1x
	371-600	711-2225	OS.A	4.9	OS1.600	5.3					
	461-600	231-710	OS.A	4.9	OS1.600	5.3					
	601-800		OS2.800	5.3							
	801-1025		OS2.1025-1	5.3					SBA.K...	11.1	1x
	1026-1250		OS2.1250-1	5.3					SBA.K...	11.1	1x
	1251-1475		OS2.1475-1	5.3					SBA.K...	11.1	1x
	1476-1710		OS2.1475-1	5.3	FT WSK...	11.6	ZSR SL	9.6	SBA.K...	11.1	1x
	371-600	711-2225	SL.C...	7.1	SC1.A...	7.2					
	461-600	231-710	SL.C...	7.1	SC1.A...	7.2					
	601-1250	231-2225	ASS AR 7/OR-A SL	4.8	SL.C...	7.1	SC2.A...	7.2			
	371-1250	801-1285	M.500-1	9.2					SBA.K...	11.1	1x
		1286-1535	M.750-1	9.2					SBA.K...	11.1	1x
		1536-1785	MK.500-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
		1786-2035	MK.750-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
		2036-2225	MK.750-1	9.1	M.750-1	9.2			SBA.K...	11.1	2x
	371-1250	231-2225	S.FL.C...	6.9							
	461-1250	231-2225	E1	4.1	EL.C...	6.3	FL.C...	6.1	SBA.K...	11.1	1x
	371-460	711-2225	E3	4.3	EL.C...	6.3	FL.C...	6.1	SBA.K...	11.1	1x
	371-1250	231-2225	FH...	11.5							
	371-710	711-2225	KE SL	9.3	AL.M.F12.AGR	10.14					
	461-710	231-710	KE SL	9.3	AL.M.F12.AGR	10.14					
	711-960		KE SL	9.3	AL.M.F12.AGR	10.14	MK.250-1	9.1	SBA.K...	11.1	1x
	961-1210	231-2225	KE SL	9.3	AL.M.F12.AGR	10.14	MK.500-1	9.1	SBA.K...	11.1	1x
	1211-1250		KE SL	9.3	AL.M.F12.AGR	10.14	MK.750-1	9.1	SBA.K...	11.1	1x
	371-1250	711-2225	E1	4.1					SBK.K...	11.2	1x
	461-840	231-420	E3	4.3					SBK.K...	11.2	1x
	461-1250	421-710	E1	4.1					SBK.K...	11.2	1x

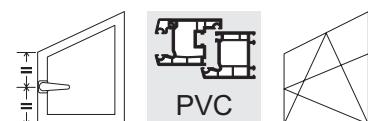


marks a line with items that are always used, regardless of size

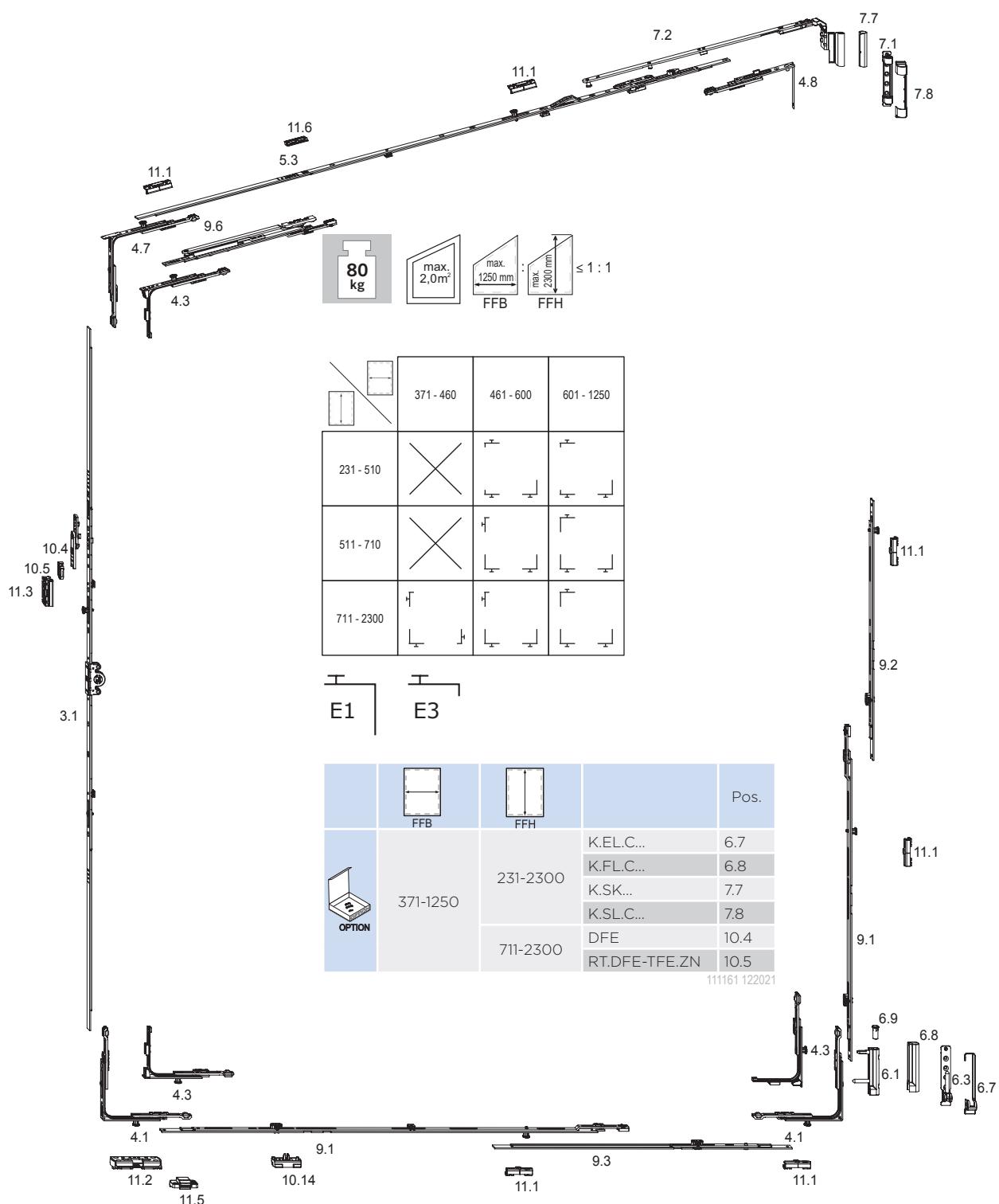
# Fitting for studio windows – central handle position

## Basic equipment

2



PVC

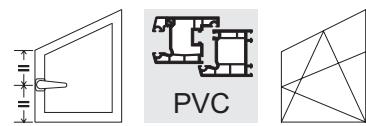


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Fitting for studio windows – central handle position

## Basic equipment



2

					Pos.		Pos.		Pos.		Pos.	
	461-650	231-325	GAK.465	3.1								
	461-1250	326-710	GAM.800	3.1								
	371-1250	711-980	GAM.1050-1	3.1					SBS.K...	11.3	1x	
		981-1400	GAM.1400-1	3.1					SBA.K...	11.1	1x	
		1401-1800	GAM.1800-2	3.1					SBS.K...	11.3	1x	
		1801-2300	GAM.2300-3	3.1					SBS.K...	11.3	1x	11.1 2x
	461-600	511-710	E3	4.3					SBA.K...	11.1	1x	
	371-600	711-2300	E3	4.3					SBA.K...	11.1	1x	
	461-1020	231-510	E3	4.3					SBA.K...	11.1	1x	
	601-1250	511-2300	E1.A	4.7					SBA.K...	11.1	1x	
	371-600	711-2300	OS.A	4.9	OS1.600	5.3						
	461-600	231-710	OS.A	4.9	OS1.600	5.3						
	601-800	231-2300	OS2.800	5.3								
	801-1025		OS2.1025-1	5.3					SBA.K...	11.1	1x	
	1026-1250		OS2.1250-1	5.3					SBA.K...	11.1	1x	
	1251-1475		OS2.1475-1	5.3					SBA.K...	11.1	1x	
	1476-1710		OS2.1475-1	5.3	FT WSK...	11.6	ZSR SL	9.6	SBA.K...	11.1	1x	
	371-600	711-2300	SL.C...	7.1	SC1.A...	7.2						
	461-600	231-710	SL.C...	7.1	SC1.A...	7.2						
	601-1250	231-2300	ASS AR 7/OR-A SL	4.8	SL.C...	7.1	SC2.A...	7.2				
	371-1250	801-1285	M.500-1	9.2					SBA.K...	11.1	1x	
		1286-1535	M.750-1	9.2					SBA.K...	11.1	1x	
		1536-1785	MK.500-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x	
		1786-2035	MK.750-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x	
		2036-2285	MK.750-1	9.1	M.750-1	9.2			SBA.K...	11.1	2x	
		2286-2300	MK.750-1	9.1	MK.500-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x	
	371-1250	231-2300	S.FL.C...	6.9								
	461-1250	E1	4.1	EL.C...	6.3	FL.C...	6.1	SBA.K...	11.1	1x		
	371-460	711-2300	E3	4.3	EL.C...	6.3	FL.C...	6.1	SBA.K...	11.1	1x	
	371-1250	231-2300	FH...	11.5								
	371-710	711-980	KE.500-1.RC-N	9.3	AL.M.F12.AGR	10.14			SBA.K...	11.1	1x	
	461-710	231-710	KE SL	9.3	AL.M.F12.AGR	10.14						
	711-960	231-2300	KE SL	9.3	AL.M.F12.AGR	10.14	MK.250-1	9.1	SBA.K...	11.1	1x	
	961-1210		KE SL	9.3	AL.M.F12.AGR	10.14	MK.500-1	9.1	SBA.K...	11.1	1x	
	1211-1250		KE SL	9.3	AL.M.F12.AGR	10.14	MK.750-1	9.1	SBA.K...	11.1	1x	
	371-1250	711-2300	E1	4.1					SBK.K...	11.2	1x	
	461-1020	231-510	E3	4.3					SBK.K...	11.2	1x	
	461-1250	511-710	E1	4.1					SBK.K...	11.2	1x	

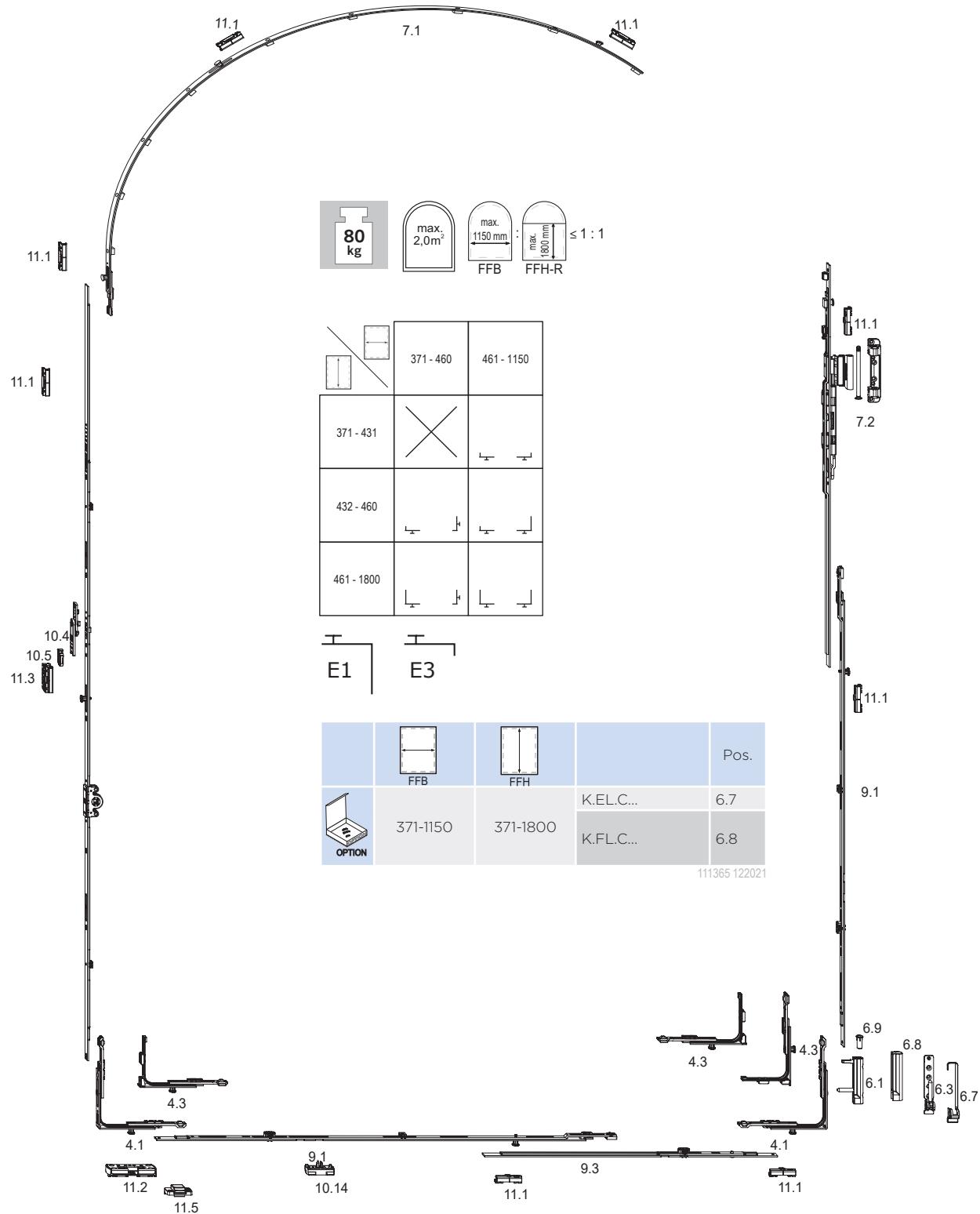
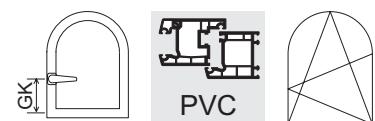


marks a line with items that are always used, regardless of size

# Fitting for round arch windows – constant handle position

2

## Basic equipment

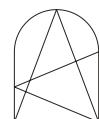
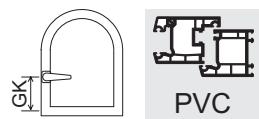


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Fitting for round arch windows – constant handle position

## Basic equipment



2

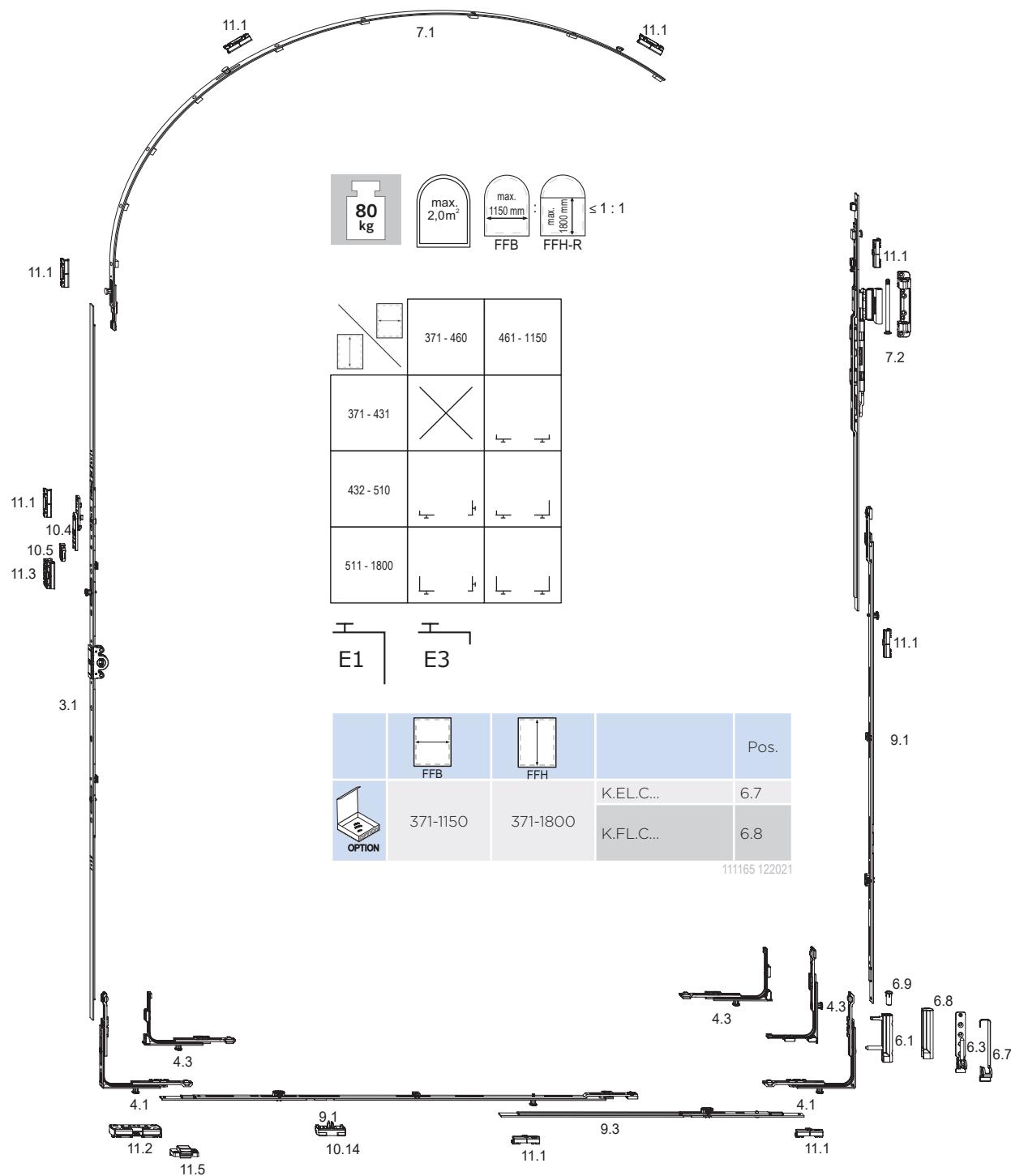
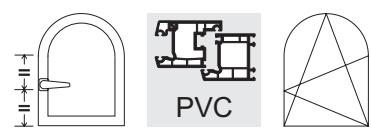
	FFB	FFH		Pos.		Pos.		Pos.		Pos.	
	461-840	371-420	GAK.465	3.1			GK = 114				
	461-862	421-431	GAK.465	3.1			GK = 210				
	371-920	432-460	GAK.465	3.1			GK = 210				
	371-1150	461-700	GAK.710	3.1			GK = 210				
		701-850	GAK.945-1 RT.DFE-TFE.ZN	3.1 10.5	DFE	10.4	GK = 260		SBS.K...	11.3	1x
		851-1100	GAK.1100-1 RT.DFE-TFE.ZN	3.1 10.5	DFE	10.4	GK = 375		SBS.K...	11.3	1x
		1101-1325	GAK.1325-1 RT.DFE-TFE.ZN	3.1 10.5	DFE	10.4	GK = 550		SBS.K...	11.3	1x
		1326-1550	GAK.1550-1 RT.DFE-TFE.ZN	3.1 10.5	DFE	10.4	GK = 550		SBS.K...	11.3	1x
		1551-1775	GAK.1775-2 RT.DFE-TFE.ZN	3.1 10.5	DFE	10.4	GK = 550		SBA.K... SBS.K...	11.1 11.3	1x
		1776-1800	GAK.2000-2 RT.DFE-TFE.ZN	3.1 10.5	DFE	10.4	GK = 1050		SBA.K... SBS.K...	11.1 11.3	1x
	461-862	371-431	AARB.1000-3	7.1					SBA.K...	11.1	3x
	371-1150	432-1800	AARB.1000-3	7.1					SBA.K...	11.1	3x
	371-1150	432-654	GRT.RB.K...	7.2					SBA.K...	11.1	1x
		655-680	GRT.RB.K...	7.2	MK.150-1	9.8			SBA.K...	11.1	2x
		681-904	GRT.RB.K...	7.2	MK.250-1	9.1			SBA.K...	11.1	2x
		905-930	GRT.RB.K...	7.2	MK.250-1	9.1	MK.150-1	9.8	SBA.K...	11.1	3x
		931-1154	GRT.RB.K...	7.2	MK.500-1	9.1			SBA.K...	11.1	2x
		1155-1180	GRT.RB.K...	7.2	MK.500-1	9.1	MK.150-1	9.8	SBA.K...	11.1	3x
		1181-1404	GRT.RB.K...	7.2	MK.750-1	9.1			SBA.K...	11.1	2x
		1405-1430	GRT.RB.K...	7.2	MK.750-1	9.1	MK.150-1	9.8	SBA.K...	11.1	3x
		1431-1654	GRT.RB.K...	7.2	MK.500-1	9.1	MK.500-1	9.1	SBA.K...	11.1	3x
		1655-1680	GRT.RB.K... MK.150-1	7.2 9.8	MK.500-1	9.1	MK.500-1	9.1	SBA.K...	11.1	4x
		1681-1800	GRT.RB.K...	7.2	MK.500-1	9.1	MK.750-1	9.1	SBA.K...	11.1	3x
	461-862	371-431	GRT.RB.K...	7.2					SBA.K...	11.1	1x
	371-1150	371-1800	S.FL.C...	6.9							
	461-862	371-431	E3	4.3	EL.C...	6.3	FL.C...	6.1	SBA.K...	11.1	1x
	371-460	432-1800	E3	4.3	EL.C...	6.3	FL.C...	6.1	SBA.K...	11.1	1x
	461-1150		E1	4.1	EL.C...	6.3	FL.C...	6.1	SBA.K...	11.1	1x
	371-710	432-1800	KE SL	9.3	AL.M.F12.AGR	10.14					
	461-710	371-431	KE SL	9.3	AL.M.F12.AGR	10.14					
	711-960	371-1800	KE SL	9.3	AL.M.F12.AGR	10.14	MK.250-1	9.1	SBA.K...	11.1	1x
	961-1150		KE SL	9.3	AL.M.F12.AGR	10.14	MK.500-1	9.1	SBA.K...	11.1	1x
	371-920	432-460	E3	4.3					SBK.K...	11.2	1x
	371-1150	461-1800	E1	4.1					SBK.K...	11.2	1x
	461-862	371-431	E3	4.3					SBK.K...	11.2	1x



marks a line with items that are always used, regardless of size

# Fitting for round arch windows – central handle position

## Basic equipment

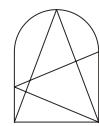
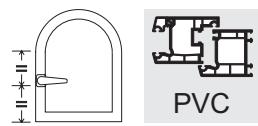


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Fitting for round arch windows – central handle position

## Basic equipment



2

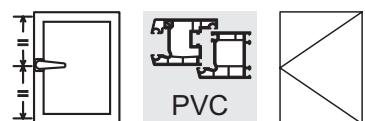
	FFB	FFH		Pos.		Pos.		Pos.		Pos.	
	461-862	371-431	GAM.800	3.1							
		432-710	GAM.800	3.1							
	371-1150	711-980	GAM.1050-1	3.1	DFE	10.4	RT.DFE-TFE.ZN	10.5	SBS.K... SBA.K...	11.3 11.1	1x 1x
		981-1400	GAM.1400-1	3.1	DFE	10.4	RT.DFE-TFE.ZN	10.5	SBS.K...	11.3	1x
		1401-1600	GAM.1800-2	3.1	DFE	10.4	RT.DFE-TFE.ZN	10.5	SBS.K... SBA.K...	11.3 11.1	1x 1x
		1601-1800	GAM.1800-2	3.1	DFE	10.4	RT.DFE-TFE.ZN	10.5	SBA.K... SBS.K...	11.1 11.3	1x 1x
	461-862	371-431	AARB.1000-3	7.1					SBA.K...	11.1	3x
	371-1150	432-1800	AARB.1000-3	7.1					SBA.K...	11.1	3x
	371-1150	432-654	GRT.RB.K...	7.2					SBA.K...	11.1	1x
		655-680	GRT.RB.K...	7.2	MK.150-1	9.8			SBA.K...	11.1	2x
		681-904	GRT.RB.K...	7.2	MK.250-1	9.1			SBA.K...	11.1	2x
		905-930	GRT.RB.K...	7.2	MK.250-1	9.1	MK.150-1	9.8	SBA.K...	11.1	3x
		931-1154	GRT.RB.K...	7.2	MK.500-1	9.1			SBA.K...	11.1	2x
		1155-1180	GRT.RB.K...	7.2	MK.500-1	9.1	MK.150-1	9.8	SBA.K...	11.1	3x
		1181-1404	GRT.RB.K...	7.2	MK.750-1	9.1			SBA.K...	11.1	2x
		1405-1430	GRT.RB.K...	7.2	MK.750-1	9.1	MK.150-1	9.8	SBA.K...	11.1	3x
		1431-1654	GRT.RB.K...	7.2	MK.500-1	9.1	MK.500-1	9.1	SBA.K...	11.1	3x
		1655-1680	GRT.RB.K...	7.2	MK.500-1	9.1	MK.500-1	9.1	SBA.K...	11.1	4x
		1681-1800	GRT.RB.K...	7.2	MK.500-1	9.1	MK.750-1	9.1	SBA.K...	11.1	3x
		461-862	371-431	GRT.RB.K...	7.2				SBA.K...	11.1	1x
	371-1150	371-1800	S.FLC...	6.9							
	461-862	371-431	E3	4.3	EL.C...	6.3	FLC...	6.1	SBA.K...	11.1	1x
	371-460	432-1800	E3	4.3	EL.C...	6.3	FLC...	6.1	SBA.K...	11.1	1x
	461-1150		E1	4.1	EL.C...	6.3	FLC...	6.1	SBA.K...	11.1	1x
	371-710	432-1800	KE SL	9.3	AL.M.F12.AGR	10.14					
	461-710	371-431	KE SL	9.3	AL.M.F12.AGR	10.14					
	711-960	371-1800	KE SL	9.3	AL.M.F12.AGR	10.14	MK.250-1	9.1	SBA.K...	11.1	1x
	961-1150		KE SL	9.3	AL.M.F12.AGR	10.14	MK.500-1	9.1	SBA.K...	11.1	1x
	371-1020	432-510	E3	4.3					SBK.K...	11.2	1x
	371-1150	511-1800	E1	4.1					SBK.K...	11.2	1x
	461-862	371-431	E3	4.3					SBK.K...	11.2	1x



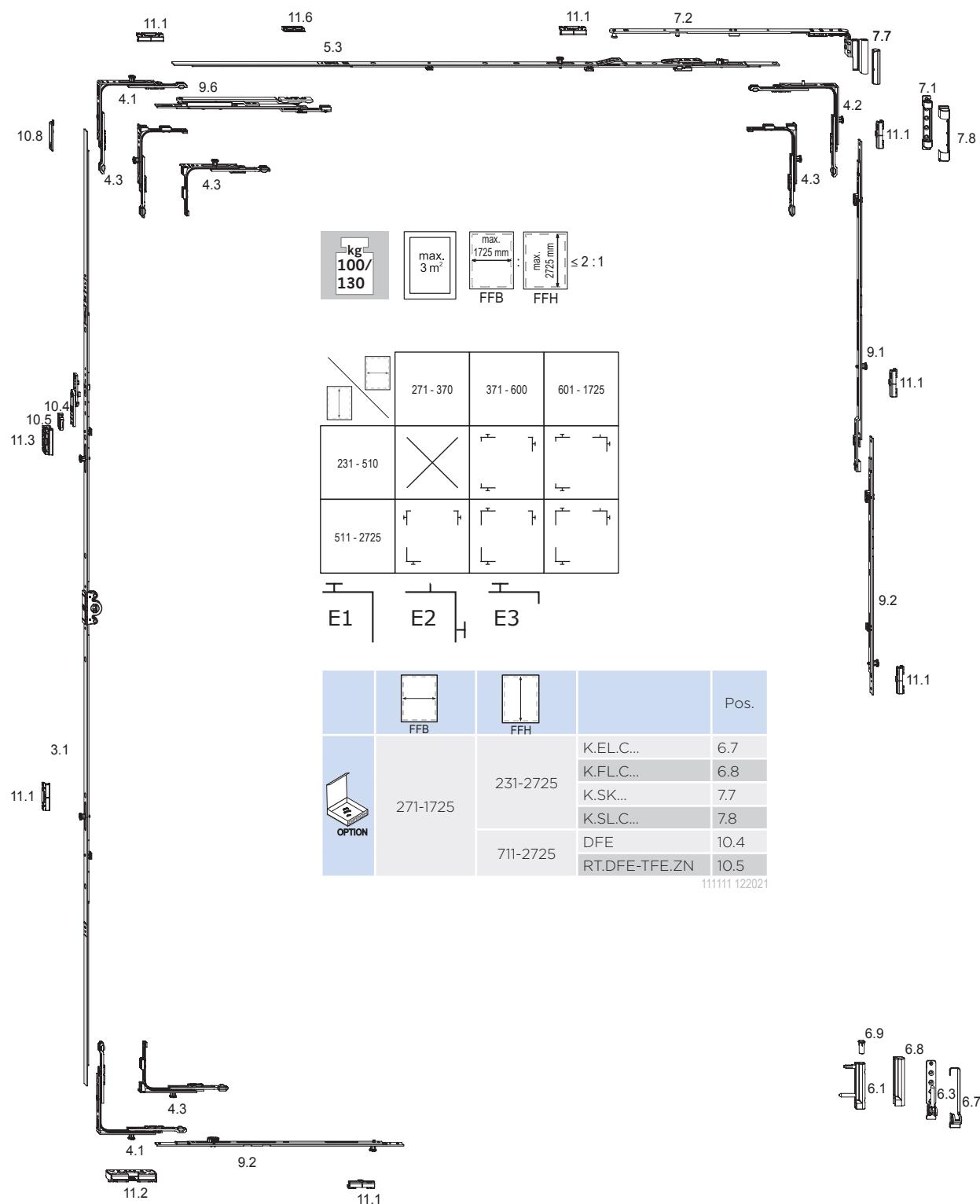
marks a line with items that are always used, regardless of size

## Turn fitting system - central handle position

### Basic equipment



2

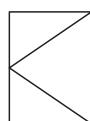
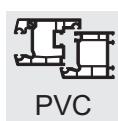
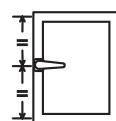


The illustrated distance between locking points is 800 mm.

The distances between locking points must be agreed with the system supplier.

# Turn fitting system - central handle position

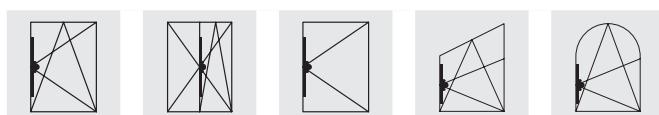
## Basic equipment



				Pos.		Pos.		Pos.		Pos.	
	371-650	231-325	GAK.465	3.1							
	371-1020	326-510	GAM.800	3.1							
	271-1420	511-710	GAM.800	3.1							
	271-1725	711-980	GAM.1050-1	3.1					SBS.K... SBA.K...	11.3 11.1	1x 1x
		981-1400	GAM.1400-1	3.1					SBS.K...	11.3	1x
		1401-1800	GAM.1800-2	3.1					SBS.K... SBA.K...	11.3 11.1	1x 1x
		1801-2300	GAM.2300-3	3.1					SBS.K... SBA.K...	11.3 11.1	1x 2x
		2301-2725	GAM.2300-3	3.1	MK.250-1	9.1	MK.250-1	9.1	SBS.K... SBA.K...	11.3 11.1	1x 4x
	271-1725	231-2725	AWDR SL	10.8							
	271-370	511-2725	E3	4.3					SBA.K...	11.1	1x
	371-1020	231-510	E3	4.3					SBA.K...	11.1	1x
	371-1725	511-2725	E1	4.1					SBA.K...	11.1	1x
	271-600	511-2725	OS1.600	5.3							
	371-600	231-510	OS1.600	5.3							
	601-800		OS2.800	5.3							
	801-1025		OS2.1025-1	5.3					SBA.K...	11.1	1x
	1026-1250	231-2725	OS2.1250-1	5.3					SBA.K...	11.1	1x
	1251-1475		OS2.1475-1	5.3					SBA.K...	11.1	1x
	1476-1725		OS2.1475-1	5.3	FT WSK...	11.6	ZSR SL	9.6	SBA.K...	11.1	1x
	271-600	511-2725	E3	4.3	SL.C...	7.1	SC1...	7.2	SBA.K...	11.1	1x
	371-600	231-510	E3	4.3	SL.C...	7.1	SC1...	7.2	SBA.K...	11.1	1x
	601-1725	231-2725	E2	4.2	SL.C...	7.1	SC2...	7.2	SBA.K...	11.1	1x
	271-1725	861-1285	M.500-1	9.2					SBA.K...	11.1	1x
		1286-1535	M.750-1	9.2					SBA.K...	11.1	1x
		1536-1785	MK.500-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
		1786-2035	MK.750-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
		2036-2285	MK.750-1	9.1	M.750-1	9.2			SBA.K...	11.1	2x
		2286-2535	MK.750-1	9.1	MK.500-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
		2536-2725	MK.750-1	9.1	MK.750-1	9.1	M.500-1	9.2	SBA.K...	11.1	3x
	271-1725	231-2725	S.FL.C...	6.9							
	371-1020	231-510	EL.C...	6.3	FL.C...	6.1					
	271-1725	511-2725	EL.C...	6.3	FL.C...	6.1					
	841-1250		M.500-1	9.2					SBA.K...	11.1	1x
	1251-1500	231-2725	M.750-1	9.2					SBA.K...	11.1	1x
	1501-1725		MK.500-1	9.1	M.500-1	9.2			SBA.K...	11.1	2x
	271-1725	511-2725	E1	4.1					SBK.K...	11.2	1x
	371-1020	231-510	E3	4.3					SBK.K...	11.2	1x



marks a line with items that are always used, regardless of size



3

## Drive rod GAK

- Constant handle position GK
- Backset 15.5 mm
- Clampable in fitting groove
- Functional parts such as DFE and TFE retrofittable (see table), does not apply to activPilot Comfort
- Handle position with reference to the sash rebate edge, in conformity with "dimension GK" (see table)
- For drilling and milling instructions see Group 15 installation drawings B-3-1
- Gear case for milling from rebate
- Gear case for mounting in drilled hole
- Fasten the window handle attachment with M5 x ..., DIN 965, 43 mm screw centres

### Drive rod GAK ... BK

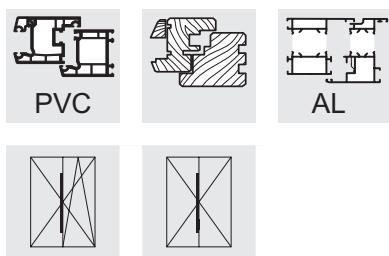
- With pre-assembled balcony door catch bolt
- Not suitable for activPilot Comfort / duoPort PAS

### Drive rod GAK ... C

- incl. reinforced clamping mechanism within the profile groove



Item description	Item No.	Scope of application		Dimension GK	DFE	TFE	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GAK.465	4926221	FFH 420 - 520	0	210			10 BD	100 KK	800 EK
GAK.465.C	4935841	FFH 420 - 520	0	210			10 BD	100 KK	800 EK
GAK.710	4926207	FFH 460 - 710	1	210			20 BD	600 EA	
GAK.710.C	4935843	FFH 460 - 710	1	210			20 BD	600 EA	
GAK.830	4926230	FFH 580 - 830	2	260			20 BD	600 EA	
GAK.830-1	4926231	FFH 580 - 830	2	260			20 BD	600 EA	
GAK.945	4926208	FFH 695 - 945	3	260	•	•	20 BD	400 EA	
GAK.945-1	4926209	FFH 695 - 945	3	260	•	•	20 BD	400 EA	
GAK.1100-1	4926234	FFH 850 - 1100	3	375	•	•	20 BD	360 EA	
GAK.1195-1	4926236	FFH 945 - 1195	4	470	•	•	20 BD	360 EA	
GAK.1195-2	4926237	FFH 945 - 1195	4	470	•	•	20 BD	360 EA	
GAK.1325-1	4978659	FFH 1075 - 1325	4	550	•	•	20 BD	360 EA	
GAK.1325-1.G500	4937485	FFH 1075 - 1325	5	500	•	•	20 BD	360 EA	
GAK.1325-2	4978670	FFH 1075 - 1325	4	550	•	•	20 BD	360 EA	
GAK.1550-1	4926224	FFH 1300 - 1550	5	550	•	•	10 BD	360 L1	
GAK.1550-2	4926225	FFH 1300 - 1550	5	550	•	•	10 BD	360 L1	
GAK.1775-2	4926228	FFH 1525 - 1775	7	550	•	•	10 BD	400 L1	
GAK.1775-3	4926229	FFH 1525 - 1775	7	550	•	•	10 BD	400 L1	
GAK.1850-2	5000529	FFH 1600 - 1850	7	715	•	•	10 BD	360 L1	
GAK.2000-2	4938089	FFH 1750 - 2000	8	1050	•	•	10 BD	360 L2	
GAK.2000-2.BK	4942670	FFH 1750 - 2000	8	1050	•		10 BD	360 L2	
GAK.2000-4	4938120	FFH 1750 - 2000	8	1050	•	•	10 BD	360 L2	800 EU2
GAK.2225-2	4938122	FFH 1975 - 2225	9	1050	•	•	10 BD	360 L2	
GAK.2225-2.BK	4942672	FFH 1975 - 2225	9	1050	•		10 BD	360 L2	
GAK.2225-4	4938123	FFH 1975 - 2225	9	1050	•	•	10 BD	360 L2	800 EU2
GAK.2225-4.BK	4942673	FFH 1975 - 2225	9	1050	•		10 BD	360 L2	
GAK.2450-4	5021551	FFH 2200 - 2450	10	1050	•	•	10 BD	360 L2	



## Drive rod GAK 0

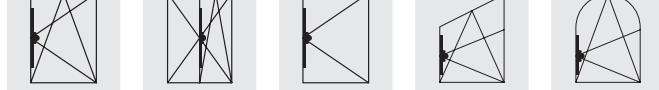
- Constant handle position GK
- Backset 15.5 mm
- No locking point
- Suitable for double-sash windows with a second handle, fitting concealed behind a front profile
- Clampable in fitting groove
- Handle position with reference to the sash rebate edge, in conformity with "dimension GK" (see table)
- For drilling and milling instructions see Group 15 installation drawings B-3-1
- Gear case for milling from rebate
- Gear case for mounting in drilled hole
- Fasten the window handle attachment with M5 x ..., DIN 965, 43 mm screw centres



Item description	Item No.	Scope of application		Dimension GK	DFE	TFE	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GAK.465	4926221	FFH 420 - 520	0	210			10 BD	100 KK	800 EK
GAK.710	4926207	FFH 460 - 710	1	210			20 BD	600 EA	
GAK.830	4926230	FFH 580 - 830	2	260			20 BD	600 EA	
GAK.945	4926208	FFH 695 - 945	3	260	•	•	20 BD	400 EA	
GAK.1100	4926233	FFH 850 - 1100	3	375	•	•	20 BD	360 EA	
GAK.1195	4926235	FFH 945 - 1195	4	470	•	•	20 BD	360 EA	
GAK.1325	4978658	FFH 1075 - 1325	4	550	•	•	20 BD	360 EA	
GAK.1550	4926223	FFH 1300 - 1550	5	550	•	•	10 BD	360 L1	
GAK.1775	4926227	FFH 1525 - 1775	7	550	•	•	10 BD	400 L1	
GAK.2000	4938088	FFH 1750 - 2000	8	1050	•	•	10 BD	360 L2	
GAK.2225	4938121	FFH 1975 - 2225	9	1050	•	•	10 BD	360 L2	



3

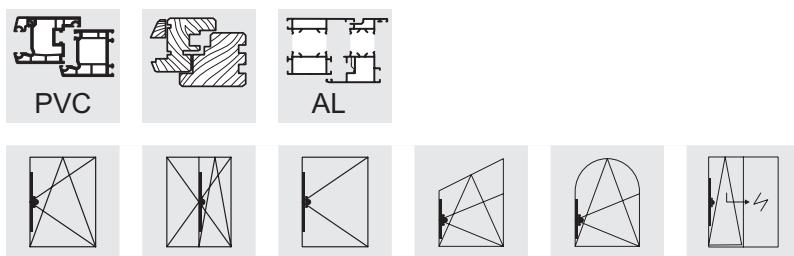


## Drive rod GAK ... D 7,5

- Constant handle position GK
- Backset 7.5 mm
- Clampable in fitting groove
- Functional parts such as DFE and TFE retrofittable (see table), does not apply to activPilot Comfort
- Handle position with reference to the sash rebate edge, in conformity with "dimension GK" (see table)
- For drilling and milling instructions see Group 15 installation drawings B-3-2
- Gear case for milling from rebate
- Gear case for mounting in drilled hole
- Fasten the window handle attachment with M5 x ..., DIN 965, 43 mm screw centres

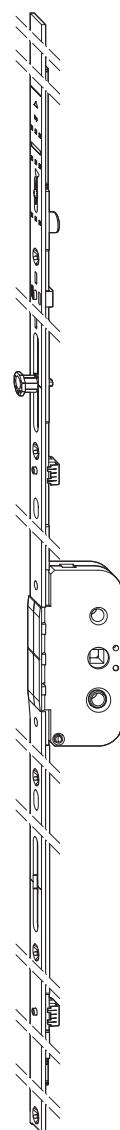


Item description	Item No.	Scope of application		Dimension GK	DFE	TFE	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GAK.700.D7,5	4983049	FFH 530 - 700	2	260			20 BD	400 EA	
GAK.830-I.D7,5	4969431	FFH 580 - 830	2	260			20 BD	400 EA	
GAK.945-O.D7,5	5027123	FFH 695 - 945	3	260	•	•	20 BD	400 EA	
GAK.945-I.D7,5	4969430	FFH 695 - 945	3	260	•	•	20 BD	400 EA	
GAK.1100-I.D7,5	4969429	FFH 850 - 1100	3	375	•	•	20 BD	360 EA	
GAK.1195-I.D7,5	4969428	FFH 945 - 1195	4	470	•	•	20 BD	360 EA	
GAK.1195-2.D7,5	4980490	FFH 945 - 1195	4	470	•	•	20 BD	360 EA	
GAK.1325-I.D7,5	4969427	FFH 1075 - 1325	4	550	•	•	20 BD	360 EA	
GAK.1325-2.D7,5	4969426	FFH 1075 - 1325	4	550	•	•	20 BD	360 EA	
GAK.1550-1.D7,5	4969425	FFH 1300 - 1550	5	550	•	•	10 BD	400 L1	
GAK.1550-2.D7,5	4969424	FFH 1300 - 1550	5	550	•	•	10 BD	400 L1	
GAK.1775-2.D7,5	4969423	FFH 1525 - 1775	7	550	•	•	10 BD	400 L1	
GAK.1775-3.D7,5	4969422	FFH 1525 - 1775	7	550	•	•	10 BD	400 L1	
GAK.1850-2.D7,5	4969416	FFH 1600 - 1850	7	715	•	•	10 BD	360 L1	
GAK.2000-2.D7,5	4969415	FFH 1750 - 2000	8	1050	•	•	10 BD	360 L2	900 EU2
GAK.2000-4.D7,5	4969412	FFH 1750 - 2000	8	1050	•	•	10 BD	360 L2	800 EU2
GAK.2225-2.D7,5	4969410	FFH 1975 - 2225	9	1050	•	•	10 BD	360 L2	900 EU2
GAK.2225-4.D7,5	4969407	FFH 1975 - 2225	9	1050	•	•	10 BD	360 L2	800 EU2

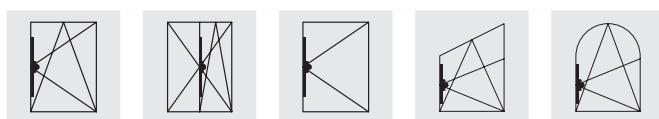


## Drive rod GAK ... D 25 - 50

- Constant handle position GK
- The backset is optionally 25, 30, 35, 40, 45 or 50 mm
- Clampable in fitting groove
- Functional parts such as DFE and TFE retrofittable (see table), does not apply to activPilot Comfort
- Extensible with extension rods
- Handle position with reference to the sash rebate edge, in conformity with "dimension GK" (see table)
- For drilling and milling instructions see group 15, installation drawings B-3-4
- Gear case for milling from rebate
- Fasten the window handle attachment with M5 x ..., DIN 965, 43 mm screw centres



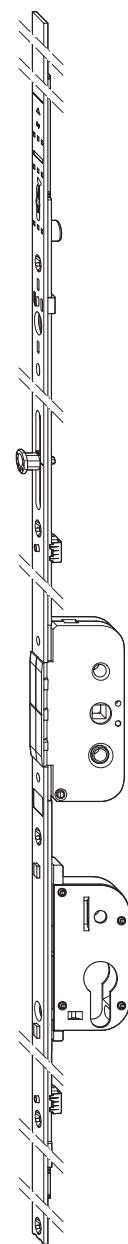
Item description	Item No.	Scope of application		Dimension GK	DFE	TFE	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GAK.1325-1.D25	4978671	FFH 1075 - 1325	4	550	•	•	10 BD	200 EA	
GAK.1325-1.D30	4978672	FFH 1075 - 1325	4	550	•	•	10 BD	200 EA	
GAK.1325-1.D35	4978673	FFH 1075 - 1325	4	550	•	•	10 BD	200 EA	
GAK.1325-1.D40	4978674	FFH 1075 - 1325	4	550	•	•	10 BD	200 EA	
GAK.1325-1.D45	4978675	FFH 1075 - 1325	4	550	•	•	10 BD	200 EA	
GAK.1325-1.D50	4978676	FFH 1075 - 1325	4	550	•	•	10 BD	200 EA	
GAK.2000-4.D25	4938143	FFH 1750 - 2000	8	1050	•	•	10 BD	200 L2	400 EU2
GAK.2000-4.D30	4938150	FFH 1750 - 2000	8	1050	•	•	10 BD	200 L2	400 EU2
GAK.2000-4.D35	4938151	FFH 1750 - 2000	8	1050	•	•	10 BD	200 L2	400 EU2
GAK.2000-4.D40	4938152	FFH 1750 - 2000	8	1050	•	•	10 BD	200 L2	400 EU2
GAK.2000-4.D45	4938153	FFH 1750 - 2000	8	1050	•	•	10 BD	200 L2	400 EU2
GAK.2000-4.D50	4938154	FFH 1750 - 2000	8	1050	•	•	10 BD	200 L2	400 EU2
GAK.2225-4.D25	4938145	FFH 1975 - 2225	9	1050	•	•	10 BD	200 L2	400 EU2
GAK.2225-4.D30	4938146	FFH 1975 - 2225	9	1050	•	•	10 BD	200 L2	400 EU2
GAK.2225-4.D35	4938147	FFH 1975 - 2225	9	1050	•	•	10 BD	200 L2	900 EU2
GAK.2225-4.D40	4938148	FFH 1975 - 2225	9	1050	•	•	10 BD	200 L2	400 EU2
GAK.2225-4.D45	4938149	FFH 1975 - 2225	9	1050	•	•	10 BD	200 L2	400 EU2
GAK.2225-4.D50	4938160	FFH 1975 - 2225	9	1050	•	•	10 BD	200 L2	400 EU2



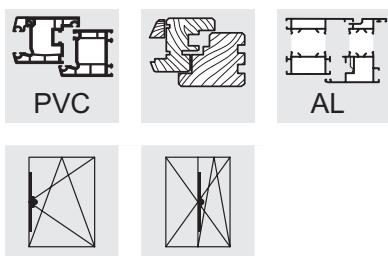
3

## Drive rod GAKA

- Constant handle position GK
- The backset is optionally 25, 30, 35, 40, 45 or 50 mm
- Lockable, suitable for turn-tilt patio doors
- Clampable in fitting groove
- Extensible with extension rods
- Functional parts such as DFE and TFE retrofittable (see table)
- Handle position with reference to the sash rebate edge, in conformity with "dimension GK" (see table)
- For drilling and milling instructions see Group 15 installation drawings B-3-3
- Handle set see Group 10, accessories
- Gear case for milling from rebate



Item description	Item No.	Scope of application		Dimension GK	DFE	TFE	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GAKA.1325-1.D25	4933449	FFH 1075 - 1325	4	550	•	•	10 BD	200 EA	
GAKA.1325-1.D30	4933473	FFH 1075 - 1325	4	550	•	•	10 BD	200 EA	
GAKA.1325-1.D35	4933474	FFH 1075 - 1325	4	550	•	•	10 BD	200 EA	
GAKA.1325-1.D40	4933475	FFH 1075 - 1325	4	550	•	•	10 BD	200 EA	
GAKA.1325-1.D45	4933479	FFH 1075 - 1325	4	550	•	•	10 BD	200 EA	
GAKA.2000-4.D25	4929007	FFH 1750 - 2000	8	1050	•	•	10 BD	200 L2	400 EU2
GAKA.2000-4.D30	4929008	FFH 1750 - 2000	8	1050	•	•	10 BD	200 L2	900 EU2
GAKA.2000-4.D35	4929009	FFH 1750 - 2000	8	1050	•	•	10 BD	200 L2	400 EU2
GAKA.2000-4.D40	4929010	FFH 1750 - 2000	8	1050	•	•	10 BD	200 L2	400 EU2
GAKA.2000-2.D45	5015014	FFH 1750 - 2000	8	1050	•	•	10 BD	200 L2	
GAKA.2000-4.D45	4929011	FFH 1750 - 2000	8	1050	•	•	10 BD	200 L2	400 EU2
GAKA.2000-2.D50	5015015	FFH 1750 - 2000	8	1050	•	•	10 BD	200 L2	
GAKA.2000-4.D50	4929012	FFH 1750 - 2000	8	1050	•	•	10 BD	200 L2	400 EU2
GAKA.2225-4.D25	4929013	FFH 1975 - 2225	9	1050	•	•	10 BD	200 L2	400 EU2
GAKA.2225-4.D30	4929014	FFH 1975 - 2225	9	1050	•	•	10 BD	200 L2	400 EU2
GAKA.2225-4.D35	4929015	FFH 1975 - 2225	9	1050	•	•	10 BD	200 L2	400 EU2
GAKA.2225-4.D40	4929016	FFH 1975 - 2225	9	1050	•	•	10 BD	200 L2	400 EU2
GAKA.2225-2.D45	5015012	FFH 1975 - 2225	9	1050	•	•	10 BD	200 L2	400 EU2
GAKA.2225-4.D45	4929017	FFH 1975 - 2225	9	1050	•	•	10 BD	200 L2	400 EU2
GAKA.2225-2.D50	5015013	FFH 1975 - 2225	9	1050	•	•	10 BD	200 L2	
GAKA.2225-4.D50	4929018	FFH 1975 - 2225	9	1050	•	•	10 BD	200 L2	400 EU2



3

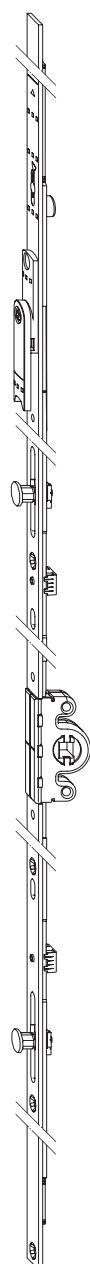
## Drive rod GAK.E...DFE

- Operating sequence "Tilt before Turn"
- Constant handle position GK
- Backset 15.5 mm
- With pre-assembled dual function element (limiter support and fail safe device)
- Clampable in fitting groove
- Handle position with reference to the sash rebate edge, in conformity with "dimension GK" (see table)
- For drilling and milling instructions see Group 15 installation drawings B-3-1
- Gear case for milling from rebate
- Gear case for mounting in drilled hole
- Fasten the window handle attachment with M5 x ..., DIN 965, 43 mm screw centres

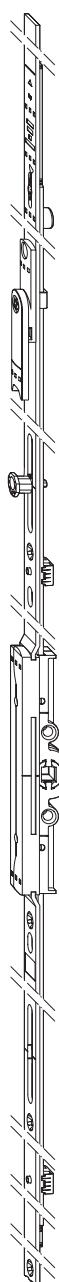
### Drive rod GAK.E...D7,5.DFE

- As described above
- Backset 7.5 mm

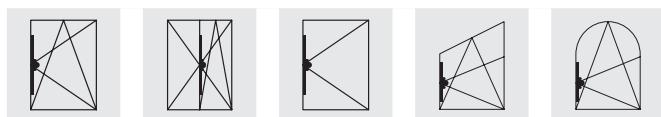
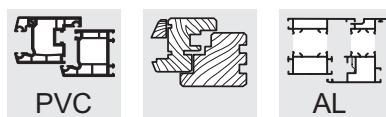
GAK.E...DFE



GAK.E...D7,5.DFE



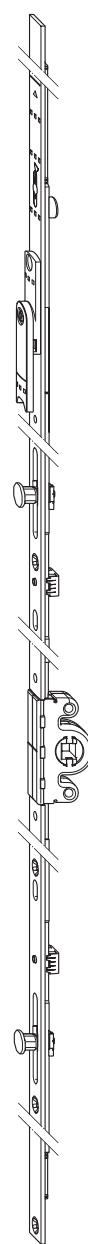
Item description	Item No.	Scope of application		Dimension GK	VPA1 Qty./Type	VPA2 Qty./Type
GAK.E. 945-1.D7,5.DFE	5046663	FFH 695 - 945	3	260	20 BD	400 EA
GAK.E. 945-1.DFE	5046544	FFH 695 - 945	3	260	20 BD	400 EA
GAK.E.1100-1.D7,5.DFE	5046664	FFH 850 - 1100	4	375	20 BD	360 EA
GAK.E.1100-1.DFE	5046654	FFH 850 - 1100	4	375	20 BD	360 EA
GAK.E.1195-1.D7,5.DFE	5046665	FFH 945 - 1195	4	470	20 BD	360 EA
GAK.E.1195-1.DFE	5046657	FFH 945 - 1195	4	470	20 BD	360 EA
GAK.E.1325-1.D7,5.DFE	5046666	FFH 1075 - 1325	4	550	20 BD	360 EA
GAK.E.1325-1.DFE	5046658	FFH 1075 - 1325	4	550	20 BD	360 EA
GAK.E.1550-1.D7,5.DFE	5046667	FFH 1300 - 1550	6	550	10 BD	360 L1
GAK.E.1550-1.DFE	5046662	FFx 1300 - 1550	6	550	10 BD	360 L1



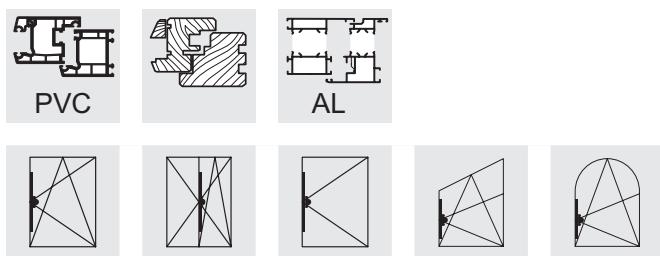
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## Drive rod GAK ... DFE

- Constant handle position GK
- Backset 15.5 mm
- With pre-assembled dual function element (limiter support and fail safe device)
- Clampable in fitting groove
- Handle position with reference to the sash rebate edge, in conformity with "dimension GK" (see table)
- For drilling and milling instructions see Group 15 installation drawings B-3-1
- Gear case for milling from rebate
- Gear case for mounting in drilled hole
- Fasten the window handle attachment with M5 x ..., DIN 965, 43 mm screw centres



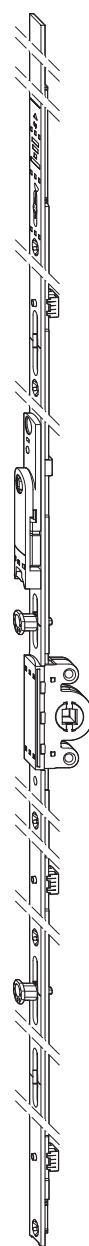
Item description	Item No.	Scope of application		Dimension GK	VPA1 Qty./Type	VPA2 Qty./Type
GAK.945-1.DFE	4927337	FFH 695 - 945	3	260	20 BD	400 EA
GAK.1100-1.DFE	4927338	FFH 850 - 1100	4	375	20 BD	360 EA
GAK.1195-1.DFE	4927339	FFH 945 - 1195	4	470	20 BD	360 EA
GAK.1195-2.DFE	4927340	FFH 945 - 1195	4	470	20 BD	360 EA
GAK.1325-1.DFE	4978677	FFH 1075 - 1325	4	550	20 BD	360 EA
GAK.1325-2.DFE	4978678	FFH 1075 - 1325	4	550	20 BD	360 EA
GAK.1550-1.DFE	4927343	FFH 1300 - 1550	6	550	10 BD	360 L1
GAK.1550-2.DFE	4927344	FFH 1300 - 1550	6	550	10 BD	360 L1
GAK.1775-2.DFE	4927345	FFH 1525 - 1775	8	550	10 BD	400 L1
GAK.1775-3.DFE	4927346	FFH 1525 - 1775	8	550	10 BD	400 L1
GAK.1850-2.DFE	5018304	FFH 1600 - 1850	7	715	10 BD	360 L1
GAK.2000-2.DFE	4938124	FFH 1750 - 2000	9	1050	10 BD	360 L2
GAK.2000-4.DFE	4938125	FFH 1750 - 2000	9	1050	10 BD	360 L2
GAK.2225-2.DFE	4938126	FFH 1975 - 2225	10	1050	10 BD	360 L2
GAK.2225-4.DFE	4938127	FFH 1975 - 2225	10	1050	10 BD	360 L2



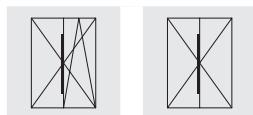
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## Drive rod GAK ... TFE

- Constant handle position GK
- Backset 15.5 mm
- With pre-assembled triple function element (limiter support, fail safe device and balcony door catch)
- Clampable in fitting groove
- Handle position with reference to the sash rebate edge, in conformity with "dimension GK" (see table)
- For drilling and milling instructions see Group 15 installation drawings B-3-1
- Gear case for milling from rebate
- Gear case for mounting in drilled hole
- Fasten the window handle attachment with M5 x ..., DIN 965, 43 mm screw centres
- Not suitable for activPilot Comfort / duoPort PAS



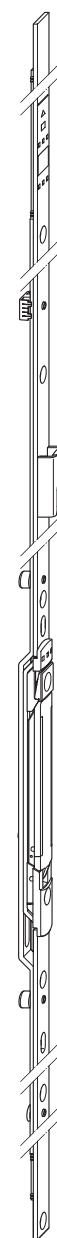
Item description	Item No.	Scope of application		Dimension GK	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GAK.1325-1.TFE	4978679	FFH 1075 - 1325	4	550	20 BD	360 EA	
GAK.2000-2.TFE	4938128	FFH 1750 - 2000	9	1050	10 BD	360 L2	
GAK.2000-4.TFE	4938129	FFH 1750 - 2000	9	1050	10 BD	360 L2	
GAK.2225-2.TFE	4938130	FFH 1975 - 2225	10	1050	10 BD	360 L2	900 EU2
GAK.2225-4.TFE	4938135	FFH 1975 - 2225	10	1050	10 BD	360 L2	



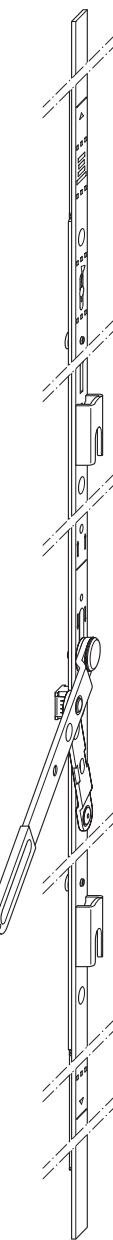
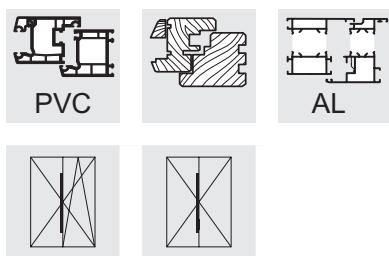
3

## Double-sash drive rod GASK

- For constant handle position, in case of opposite fitting groove
- 1 piece
- Clampable in fitting groove
- Concealed lever, easily accessible
- 1-piece locking stroke similar to drive rod GAK or GAM
- Safety keeps are generally pre-assembled
- Adapter for functional elements DFE and TFE for mounting in security keeps - from GASK.945-1 and up



Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GASK.710	4927021	FFH 550 - 710	2	10 BD	400 EA	
GASK.830-1	4927023	FFH 580 - 830	3	10 BD	400 EA	
GASK.945-1	4933702	FFH 695 - 945	3	10 BD	400 EA	
GASK.1100-1	4933703	FFH 850 - 1100	4	10 BD	400 EA	
GASK.1195-1	4998165	FFH 945 - 1195	4	10 BD	400 EA	
GASK.1325-1	4933705	FFH 1075 - 1325	5	10 BD	400 EA	
GASK.1325-2	4933706	FFH 1075 - 1325	5	10 BD	400 EA	
GASK.1550-1	4933707	FFH 1300 - 1550	6	10 BD	400 L1	900 EU2
GASK.1550-2	4933708	FFH 1300 - 1550	6	10 BD	400 L1	
GASK.1775-2	4933709	FFH 1525 - 1775	7	10 BD	400 L1	
GASK.1775-3	4933720	FFH 1525 - 1775	7	10 BD	400 L1	
GASK.2000-2	4933721	FFH 1750 - 2000	9	10 BD	400 L2	900 EU2
GASK.2000-4	4933722	FFH 1750 - 2000	9	10 BD	400 L2	800 EU2
GASK.2225-2	4933723	FFH 1975 - 2225	9	10 BD	400 L2	900 EU2
GASK.2225-4	4933724	FFH 1975 - 2225	9	10 BD	400 L2	800 EU2
GASK.2450-4	5068518	FFH 2200 - 2450	10	10 BD	400 L2	

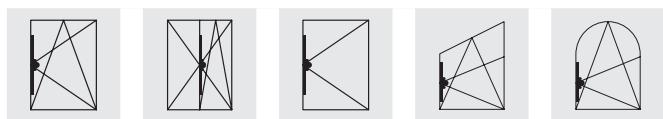


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## Double-sash drive rod GASK.GZ

- For constant handle position, in case of opposite fitting groove
- 1 piece
- 1-piece locking stroke similar to drive rod GAK or GAM
- Safety keeps are generally pre-assembled
- Adapter for functional elements DFE and TFE for mounting in security keeps (not possible for GASK.GZ.710 and GASK.GZ.830)
- Cutting is performed when open
- Functional elements DFE and TFE cannot be used in combination with GASK.GZ.710 and GASK.GZ.830!
- The models GASK.GZ.710, 830 and 945 always need to be fitted with E3 corner drive (bottom corner).
- Cannot be combined with backsets D7.5, D8.5 and D-6
- Not suitable for automatic screwing machines

Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GASK.GZ.710.E3	4974967	FFH 460 - 710	2	10 BD	400 EA	
GASK.GZ.830-1.E3	4974968	FFH 580 - 830	3	10 BD	400 EA	
GASK.GZ.945-1.E3	4974969	FFH 695 - 945	4	10 BD	400 EA	
GASK.GZ.1100-1	4965449	FFH 850 - 1100	4	10 BD	400 EA	
GASK.GZ.1195-2	4965451	FFH 945 - 1195	4	10 BD	400 EA	
GASK.GZ.1325-1	4965452	FFH 1075 - 1325	5	10 BD	400 EA	
GASK.GZ.1325-2	4965453	FFH 1075 - 1325	5	10 BD	400 EA	
GASK.GZ.1550-1	4965454	FFH 1300 - 1550	6	10 BD	400 L1	
GASK.GZ.1550-2	4965455	FFH 1300 - 1550	6	10 BD	400 L1	
GASK.GZ.1775-2	4965456	FFH 1525 - 1775	7	10 BD	400 L1	
GASK.GZ.1775-3	4965457	FFH 1525 - 1775	7	10 BD	400 L1	
GASK.GZ.2000-2	4965458	FFH 1750 - 2000	9	10 BD	400 L2	800 EU2
GASK.GZ.2000-4	4965459	FFH 1750 - 2000	9	10 BD	400 L2	800 EU2
GASK.GZ.2225-2	4965461	FFH 1975 - 2225	9	10 BD	400 L2	800 EU2
GASK.GZ.2225-4	4965462	FFH 1975 - 2225	9	10 BD	400 L2	800 EU2
GASK.GZ.2450-4	5021553	FFH 2200 - 2450	10	10 BD	400 L2	900 EU2



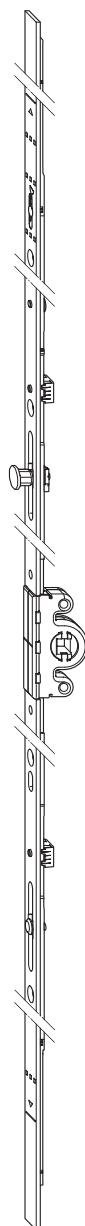
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## Drive rod GAM

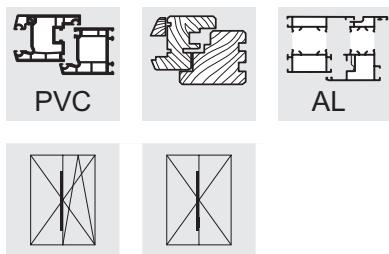
- Central handle position
- Backset 15.5 mm
- Clampable in fitting groove
- Functional parts such as DFE and TFE retrofittable (see table), does not apply to activPilot Comfort
- For drilling and milling instructions see Group 15 installation drawings B-3-1
- Gear case for milling from rebate
- Gear case for mounting in drilled hole
- Fasten the window handle attachment with M5 x ..., DIN 965, 43 mm screw centres

### Drive rod GAM ... BK

- With pre-assembled balcony door catch bolt
- Not suitable for activPilot Comfort / duoPort PAS



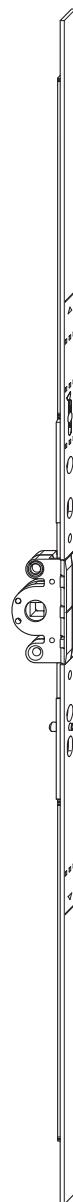
Item description	Item No.	Scope of application		DFE	TFE	VPA1 Qty./Type	VPA2 Qty./Type
GAM.800	4926267	FFH 510 - 800	2			20 BD	400 EA
GAM.1050	4926268	FFH 710 - 1050	2	•	•	20 BD	360 EA
GAM.1050-1	4926269	FFH 710 - 1050	2	•	•	20 BD	360 EA
GAM.1400	4926290	FFH 900 - 1400	4	•	•	20 BD	360 L1
GAM.1400-1	4926291	FFH 900 - 1400	4	•	•	20 BD	360 L1
GAM.1400-2	4926292	FFH 900 - 1400	4	•	•	20 BD	360 L1
GAM.1800	4926293	FFH 1300 - 1800	6	•	•	10 BD	360 L1
GAM.1800-2	4926295	FFH 1300 - 1800	6	•	•	10 BD	360 L1
GAM.2300	4938161	FFH 1800 - 2300	9	•	•	10 BD	360 L2
GAM.2300-3	4938163	FFH 1800 - 2300	9	•	•	10 BD	360 L2
GAM.2300-3.BK	4942674	FFH 1800 - 2300	9	•		10 BD	360 L2



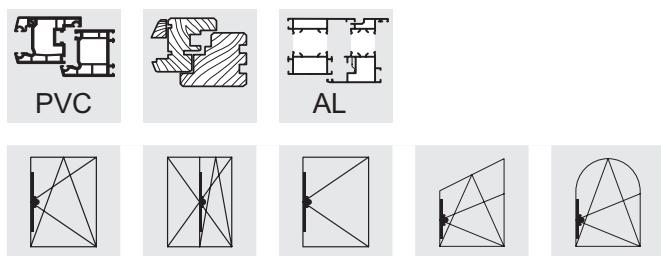
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## Drive rod GAM 0

- Central handle position
- Backset 15.5 mm
- No locking point
- Suitable for double-sash windows with a second handle, fitting concealed behind a front profile
- Clampable in fitting groove
- Functional parts such as DFE and TFE retrofittable (see table)
- For drilling and milling instructions see Group 15 installation drawings B-3-1
- Gear case for milling from rebate
- Gear case for mounting in drilled hole
- Fasten the window handle attachment with M5 x ..., DIN 965, 43 mm screw centres



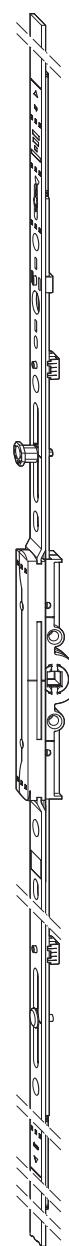
Item description	Item No.	Scope of application		DFE	TFE	VPA1 Qty./Type	VPA2 Qty./Type
GAM.800	4926267	FFH 510 - 800	2			20 BD	400 EA
GAM.1050	4926268	FFH 710 - 1050	2	•	•	20 BD	360 EA
GAM.1400	4926290	FFH 900 - 1400	4	•	•	20 BD	360 L1
GAM.1800	4926293	FFH 1300 - 1800	6	•	•	10 BD	360 L1
GAM.2300	4938161	FFH 1800 - 2300	9	•	•	10 BD	360 L2



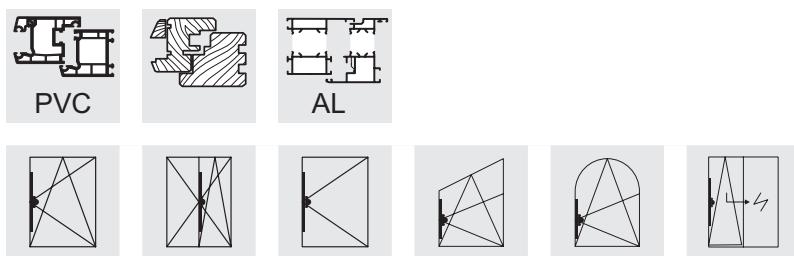
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## Drive rod GAM ... D 7,5

- Central handle position
- Backset 7.5 mm
- Clampable in fitting groove
- Functional parts such as DFE and TFE retrofittable (see table), does not apply to activPilot Comfort
- For drilling and milling instructions see Group 15 installation drawings B-3-2
- Gear case for milling from rebate
- Gear case for mounting in drilled hole
- Fasten the window handle attachment with M5 x ..., DIN 965, 43 mm screw centres



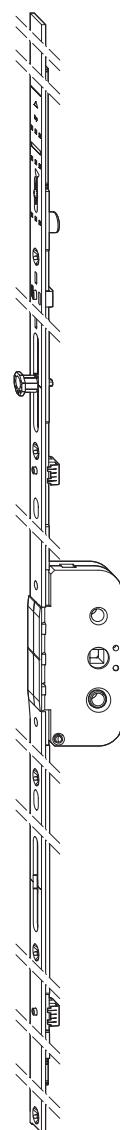
Item description	Item No.	Scope of application		DFE	TFE	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GAM.800.D7,5	4969404	FFH 575 - 800	2			20 BD	400 EA	
GAM.1050-1.D7,5	4969403	FFH 710 - 1050	2	•	•	20 BD	360 EA	
GAM.1400-1.D7,5	4969402	FFH 900 - 1400	4	•	•	20 BD	360 L1	
GAM.1400-2.D7,5	4969401	FFH 900 - 1400	4	•	•	20 BD	360 L1	
GAM.1800-2.D7,5	4969400	FFH 1300 - 1800	6	•	•	10 BD	360 L1	
GAM.2300-3.D7,5	4969289	FFH 1800 - 2300	9	•	•	10 BD	360 L2	900 EU2



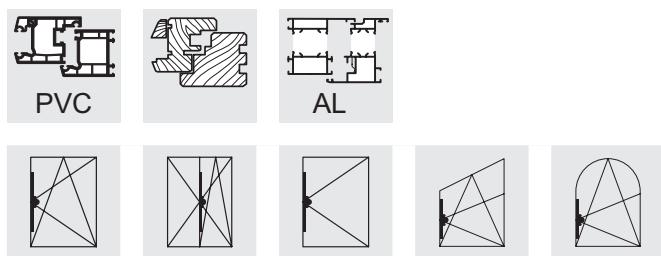
3

## Drive rod GAM ... D 25 - 50

- Central handle position
- The backset is optionally 25, 30, 35, 40, 45 or 50 mm
- Clampable in fitting groove
- Functional parts such as DFE and TFE retrofittable (see table), does not apply to activPilot Comfort
- For drilling and milling instructions see group 15, installation drawings B-3-4
- Extensible with extension rods
- Gear case for milling from rebate



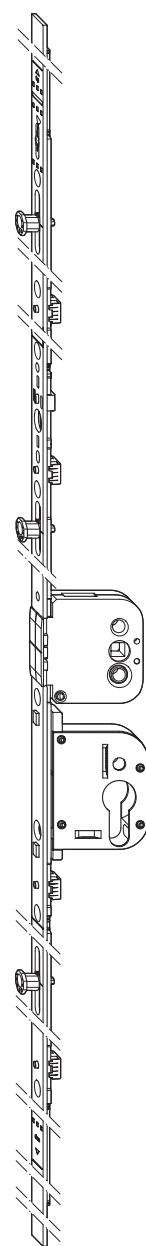
Item description	Item No.	Scope of application		DFE	TFE	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GAM.800.D25	4941067	FFH 510 - 800	2			10 BD	200 EA	
GAM.800.D30	4941069	FFH 510 - 800	2			10 BD	200 EA	
GAM.1050-I.D25	4941081	FFH 710 - 1050	2	•	•	10 BD	200 EA	
GAM.1050-I.D30	4941082	FFH 710 - 1050	2	•	•	10 BD	200 EA	
GAM.1400-I.D25	4927159	FFH 900 - 1400	4	•	•	10 BD	200 L1	
GAM.1400-I.D30	4927171	FFH 900 - 1400	4	•	•	10 BD	200 L1	
GAM.1400-I.D35	4927172	FFH 900 - 1400	4	•	•	10 BD	200 L1	
GAM.1400-I.D40	4927173	FFH 900 - 1400	4	•	•	10 BD	200 L1	
GAM.1400-I.D45	4927174	FFH 900 - 1400	4	•	•	10 BD	200 L1	
GAM.1400-I.D50	4927175	FFH 900 - 1400	4	•	•	10 BD	200 L1	
GAM.1400-2.D25	4933312	FFH 900 - 1400	4	•	•	10 BD	200 L1	
GAM.1400-2.D30	4933313	FFH 900 - 1400	4	•	•	10 BD	200 L1	
GAM.1400-2.D35	4933315	FFH 900 - 1400	4	•	•	10 BD	200 L1	
GAM.1400-2.D40	4933316	FFH 900 - 1400	4	•	•	10 BD	200 L1	
GAM.1400-2.D45	4933317	FFH 900 - 1400	4	•	•	10 BD	200 L1	
GAM.1800-2.D25	4933319	FFH 1300 - 1800	6	•	•	10 BD	200 L1	
GAM.1800-2.D30	4933340	FFH 1300 - 1800	6	•	•	10 BD	200 L1	
GAM.1800-2.D35	4933341	FFH 1300 - 1800	6	•	•	10 BD	200 L1	
GAM.1800-2.D40	4933342	FFH 1300 - 1800	6	•	•	10 BD	200 L1	
GAM.1800-2.D45	4933343	FFH 1300 - 1800	6	•	•	10 BD	200 L1	
GAM.2300-3.D25	4938167	FFH 1800 - 2300	9	•	•	10 BD	200 L2	900 EU2
GAM.2300-3.D30	4938168	FFH 1800 - 2300	9	•	•	10 BD	200 L2	400 EU2
GAM.2300-3.D35	4938169	FFH 1800 - 2300	9	•	•	10 BD	200 L2	400 EU2
GAM.2300-2.D40	4936028	FFH 1800 - 2300	9	•	•	10 BD	200 L2	
GAM.2300-3.D40	4938170	FFH 1800 - 2300	9	•	•	10 BD	200 L2	
GAM.2300-3.D45	4938427	FFH 1800 - 2300	9	•	•	10 BD	200 L2	400 EU2
GAM.2300-3.D50	4938428	FFH 1800 - 2300	9	•	•	10 BD	200 L2	900 EU2



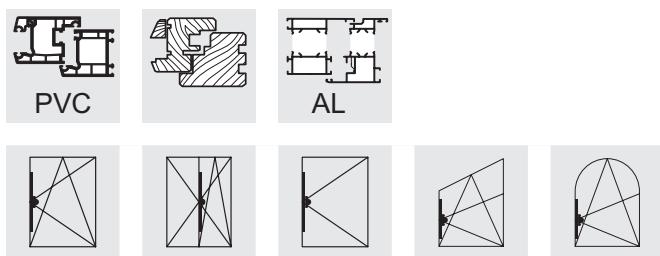
3

## Drive rod GAMA

- Central handle position
- The backset is optionally 25, 30, 35, 40, 45 or 50 mm
- Lockable, suitable for turn-tilt patio doors
- Extensible with extension rods
- Clampable in fitting groove
- Handle set see Group 10, accessories
- Functional parts such as DFE and TFE retrofittable (see table)
- For drilling and milling instructions see Group 15 installation drawings B-3-3
- Gear case for milling from rebate



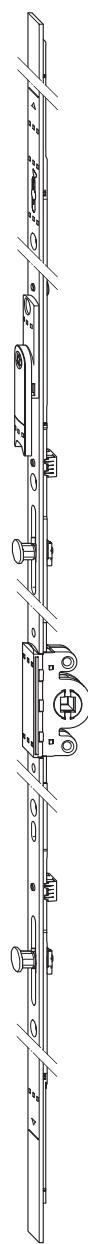
Item description	Item No.	Scope of application		DFE	TFE	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GAMA.2300-3.D25	4927099	FFH 1800 - 2300	8	•	•	10 BD	200 L2	900 EU2
GAMA.2300-3.D30	4927160	FFH 1800 - 2300	8	•	•	10 BD	200 L2	400 EU2
GAMA.2300-3.D35	4927161	FFH 1800 - 2300	8	•	•	10 BD	200 L2	400 EU2
GAMA.2300-3.D40	4927162	FFH 1800 - 2300	8	•	•	10 BD	200 L2	400 EU2
GAMA.2300-3.D45	4927164	FFH 1800 - 2300	8	•	•	10 BD	200 L2	400 EU2
GAMA.2300-3.D50	4927166	FFH 1800 - 2300	8	•	•	10 BD	200 L2	400 EU2



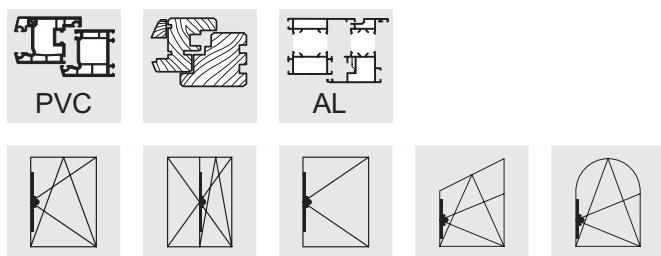
3

## Drive rod GAM ... DFE

- Central handle position
- Backset 15.5 mm
- With pre-assembled dual function element (limiter support and fail safe device)
- Clampable in fitting groove
- For drilling and milling instructions see Group 15 installation drawings B-3-1
- Gear case for milling from rebate
- Gear case for mounting in drilled hole
- Fasten the window handle attachment with M5 x ..., DIN 965, 43 mm screw centres
- Not suitable for activPilot Comfort / duoPort PAS



Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type
GAM.1050-1.DFE	4927354	FFH 710 - 1050	2	20 BD	360 EA
GAM.1400-1.DFE	4927355	FFH 900 - 1400	4	20 BD	360 L1
GAM.1400-2.DFE	4927356	FFH 900 - 1400	4	20 BD	360 L1
GAM.1800-2.DFE	4927357	FFH 1300 - 1800	7	10 BD	360 L1
GAM.2300-3.DFE	4938164	FFH 1800 - 2300	9	10 BD	360 L2



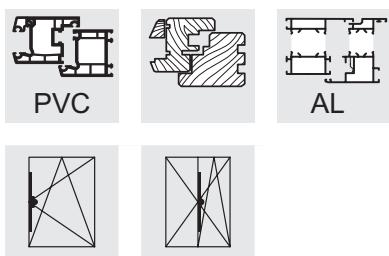
3

## Drive rod GAM ... TFE

- Central handle position
- Backset 15.5 mm
- With pre-assembled triple function element (limiter support, fail safe device and balcony door catch)
- Clampable in fitting groove
- For drilling and milling instructions see Group 15 installation drawings B-3-1
- Gear case for milling from rebate
- Gear case for mounting in drilled hole
- Fasten the window handle attachment with M5 x ..., DIN 965, 43 mm screw centres
- Not suitable for activPilot Comfort / duoPort PAS

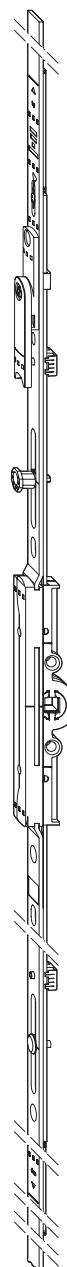
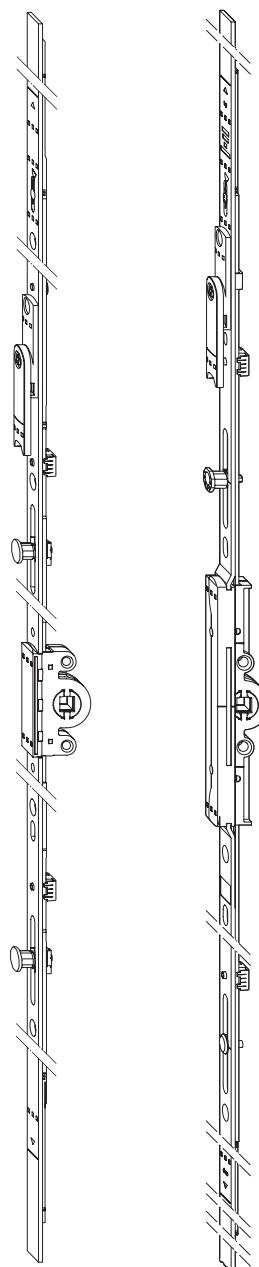


Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type
GAM.1800-2.TFE	4927363	FFH 1300 - 1800	7	10 BD	360 L1
GAM.2300-3.TFE	4938165	FFH 1800 - 2300	9	10 BD	360 L2



GAM.E...DFE

GAM.E...D7,5.DFE



3

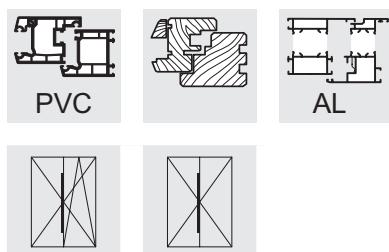
## Drive rod GAM.E...DFE

- Operating sequence "Tilt before Turn"
- Central handle position
- Backset 15.5 mm
- With pre-assembled dual function element (limiter support and fail safe device)
- Clampable in fitting groove
- For drilling and milling instructions see Group 15 installation drawings B-3-1
- Gear case for milling from rebate
- Gear case for mounting in drilled hole
- Fasten the window handle attachment with M5 x ..., DIN 965, 43 mm screw centres
- Not suitable for activPilot Comfort / duoPort PAS

### Drive rod GAM.E...D7,5.DFE

- As described above
- Backset 7.5 mm

Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type
GAM.E.1050-1.D7,5.DFE	5046669	FFH 710 - 1050	2	20 BD	360 EA
GAM.E.1050-1.DFE	5046685	FFH 710 - 1050	2	20 BD	360 EA
GAM.E.1400-1.D7,5.DFE	5046680	FFH 900 - 1400	4	20 BD	360 L1
GAM.E.1400-1.DFE	5046686	FFH 900 - 1400	4	20 BD	360 L1
GAM.E.1400-2.D7,5.DFE	5046681	FFH 900 - 1400	4	20 BD	360 L1
GAM.E.1400-2.DFE	5046687	FFH 900 - 1400	4	20 BD	360 L1
GAM.E.1800-2.D7,5.DFE	5046682	FFH 1300 - 1800	6	10 BD	360 L1
GAM.E.1800-2.DFE	5046688	FFH 1300 - 1800	7	10 BD	360 L1
GAM.E.2300-3.D7,5.DFE	5046683	FFH 1800 - 2300	9	10 BD	360 L2
GAM.E.2300-3.DFE	5046689	FFH 1800 - 2300	9	10 BD	360 L2



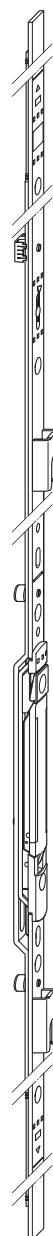
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## Double-sash drive rod GASM

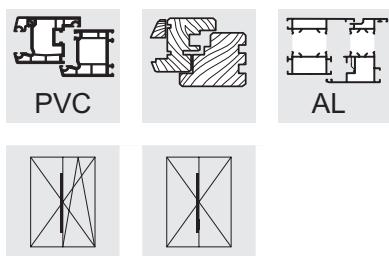
- Central handle position with opposing eurogroove
- 1 piece
- GASM.1050 is always used in combination with corner drive E3.
- Clampable in fitting groove
- Concealed lever, easily accessible
- 1-piece locking stroke similar to drive rod GAK or GAM
- Safety keeps are generally pre-assembled
- Adapters for functional parts DFE and TFE can be fitted to security keeps - from GASM.1050-1 onwards (not applicable to activPilot Comfort!)

### Double-sash drive rod GASM ... L

- As described above, but with long lever



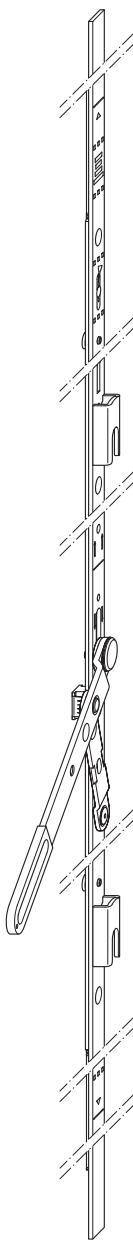
Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GASM.800	4927112	FFH 560 - 800	3	10 BD	400 EA	
GASM.1050-1.E3	4933666	FFH 710 - 1050	4	10 BD	400 EA	
GASM.1400-1	4933667	FFH 900 - 1400	5	10 BD	400 L1	
GASM.1400-2	4933668	FFH 900 - 1400	5	10 BD	400 L1	
GASM.1400-2.L	4936721	FFH 900 - 1400	5	10 BD	400 L1	
GASM.1800-2	4933700	FFH 1300 - 1800	7	10 BD	400 L1	
GASM.2300-3	4933701	FFH 1800 - 2300	9	10 BD	400 L2	900 EU2



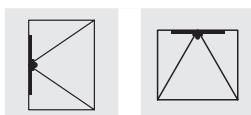
3

## Double-sash drive rod GASM.GZ

- Central handle position with opposing eurogroove
- 1 piece
- 1-piece locking stroke similar to drive rod GAK or GAM
- Safety keeps are generally pre-assembled
- Adapters for functional components DFE and TFE can be installed in security keeps – from GASM.GZ.1400-1 (and up)
- Cutting is performed when open
- The GASM.GZ.800 drive rod is always fitted with E3 corner drive (bottom corner).
- Cannot be combined with backsets D7.5, D8.5 and D-6
- Not suitable for automatic screwing machines



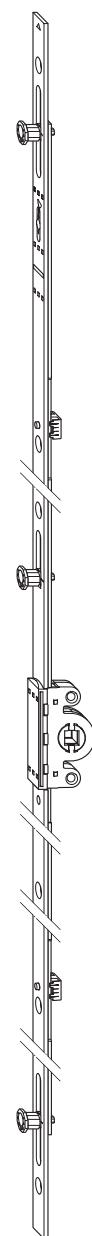
Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GASM.GZ.800.E3	4974991	FFH 530 - 800	3	10 BD	400 EA	
GASM.GZ.1050-1	4965127	FFH 710 - 1050	3	10 BD	400 EA	
GASM.GZ.1400-1	4965128	FFH 900 - 1400	4	10 BD	400 L1	
GASM.GZ.1400-2	4965129	FFH 900 - 1400	4	10 BD	400 L1	
GASM.GZ.1800-2	4965130	FFH 1300 - 1800	7	10 BD	400 L1	
GASM.GZ.2300-3	4965131	FFH 1800 - 2300	9	10 BD	400 L2	900 EU2



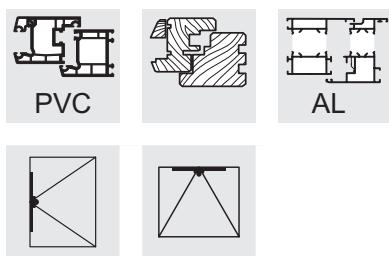
3

## Locking drive GAVM

- Cannot be coupled
- Central handle position
- Backset 15.5 mm
- 18.5 mm drive stroke when window handle is turned by 90°
- For drilling and milling instructions see Group 15 installation drawings B-3-1
- Gear case for milling from rebate
- Gear case for mounting in drilled hole
- Fasten the window handle attachment with M5 x ..., DIN 965, 43 mm screw centres



Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GAVM.175-1	4927927	FFH/FFB 175 - 299	2	20 BD	400 EA	
GAVM.300-2	4927928	FFH/FFB 300 - 419	3	20 BD	400 EA	
GAVM.420-2	4927929	FFH/FFB 420 - 619	4	20 BD	400 EA	
GAVM.620-2	4927940	FFH/FFB 620 - 919	4	20 BD	400 EA	
GAVM.920-3	4927941	FFH/FFB 920 - 1219	6	20 BD	400 EA	
GAVM.1220-3	4996829	FFH/FFB 1220 - 1319	8	10 BD	400 L1	
GAVM.1320-3	4927942	FFH/FFB 1320 - 1519	8	10 BD	400 L1	
GAVM.1520-3	4996828	FFH/FFB 1520 - 1819	8	10 BD	400 L1	
GAVM.1820-4	4927943	FFH/FFB 1820 - 2019	10	10 BD	300 L2	
GAVM.2020-4	4996827	FFH/FFB 2020 - 2350	12	10 BD	300 L2	900 EU2



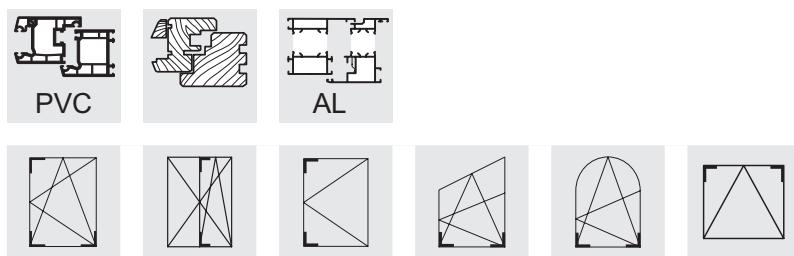
3

## Locking drive GAVM D7,5

- Cannot be coupled
- Central handle position
- Backset 7.5 mm
- 18.5 mm drive stroke when window handle is turned by 90°
- For drilling and milling instructions see group 15, installation drawings
- Gear case for milling from rebate
- Gear case for mounting in drilled hole
- Fasten the window handle attachment with M5 x ..., DIN 965, 43 mm screw centres



Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type
GAVM.420-2.D7,5	5015492	FFH/FFB 420 - 619	4	20 BD	1200 E3
GAVM.620-2.D7,5	5015493	FFH/FFB 620 - 919	4	20 BD	1200 E3
GAVM.920-3.D7,5	5015494	FFH/FFB 920 - 1219	6	20 BD	1200 E3
GAVM.1220-3.D7,5	5015495	FFH/FFB 1220 - 1319	8	10 BD	400 L6
GAVM.1320-3.D7,5	5015496	FFH/FFB 1320 - 1519	8	10 BD	400 L6
GAVM.1520-3.D7,5	5015497	FFH/FFB 1520 - 1819	8	10 BD	300 L6
GAVM.1820-4.D7,5	5015498	FFH/FFB 1820 - 2019	10	10 BD	300 L7
GAVM.2020-4.D7,5	5015499	FFH/FFB 2020 - 2350	12	10 BD	300 L7



4

## Corner drive E1

- Bracket length 98.5 mm
- Automatic and manual assembly possible
- Smooth operation, due to rust-free spring steel hinges inserted in C-rail

### Corner drive E1.N

- Same version as E1, including supporting element to fix to the fitting groove of the sash.

### Corner drive E6.N

- Designed as E1.N, but without octagonal locking bolt

### Corner drive E11

- Same construction as E1 with an additional octagonal bolt on the second arm

### Corner drive E11.F

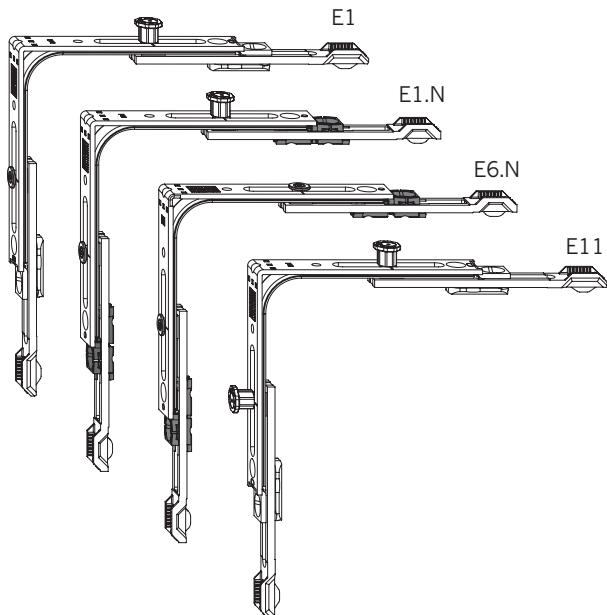
- Clampable design

### Corner drive E11.N

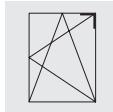
- Same version as E11, but including supporting element to fix to the fitting groove of the sash.

### Corner drive E1.BS

- The components specially developed for threshold solutions (sash and frame side) can be gathered from the catalogue "Complementary range activPilot threshold components...".



Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type
E1	2841823	4	100 KK	2400 EK
E1.N	5019146	4	100 KK	2400 EK
E6.N	5083381	4	100 KK	2400 EK
E11	4936017	4	100 KK	2400 EK
E11.F	4942960	4	100 KK	2400 EK
E11.N	5051287	4	100 KK	2400 EK

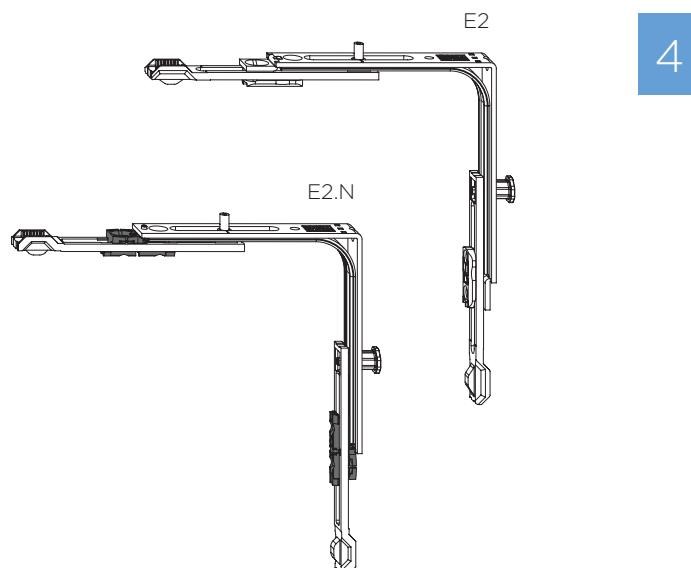


## Corner drive E2

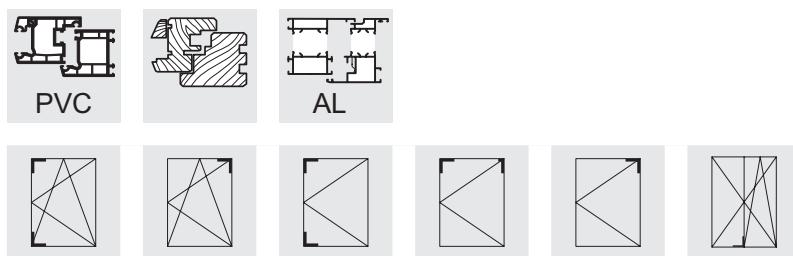
- Coupled with OS2 on the hinge side
- Bracket length 98.5 mm
- Automatic and manual assembly possible
- Smooth operation, due to rust-free spring steel hinges inserted in C-rail

### Corner drive E2.N

- Same version as E2, including supporting element to fix to the fitting groove of the sash.



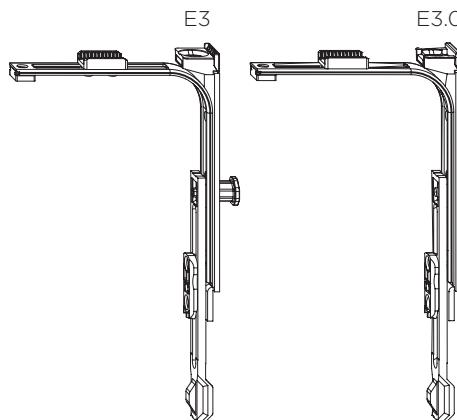
Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type
E2	2842017	4	100 KK	2400 EK
E2.N	5019147	4	100 KK	2400 EK



4

## Corner drive E3

- Bracket length 98.5 mm (on one side)
- With shortened bracket on one side
- Automatic and manual assembly possible
- Smooth operation, due to rust-free spring steel hinges inserted in C-rail
- The screw for fixing the adjoining faceplate (on the short piece) with the corner drive is included in the scope of delivery.



### Corner drive E3.F

- Same design as E3, but clampable in the fitting groove

### Corner drive E3.L

- Automatic mounting carried out by Lemuth
- Corner piece for diagonal screw connection

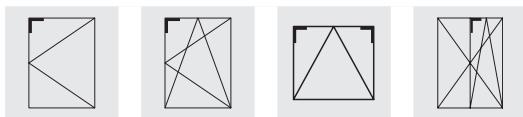
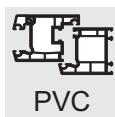
### Corner drive E3.FL

- Same design as E3.L, but clampable

### Corner drive E3.0

- Design identical to E3, but without locking pin

Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type
E3	2842244	3	100 KK	2400 EK
E3.F	4929791	3	100 KK	2400 EK
E3.L	4927430	3	100 KK	2400 EK
E3.FL	5009086	3	100 KK	2400 EK
E3.0.ZN	5034800	3	100 KK	2400 EK



## Corner drive E1.MSL

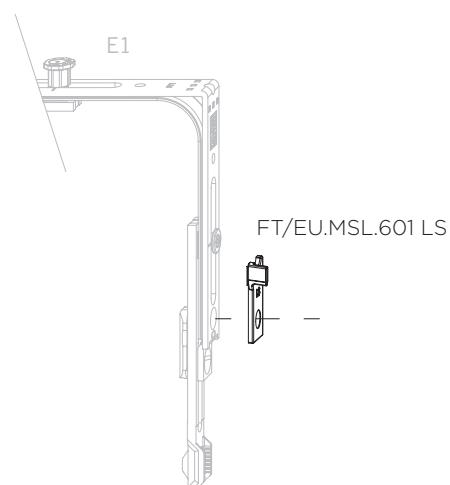
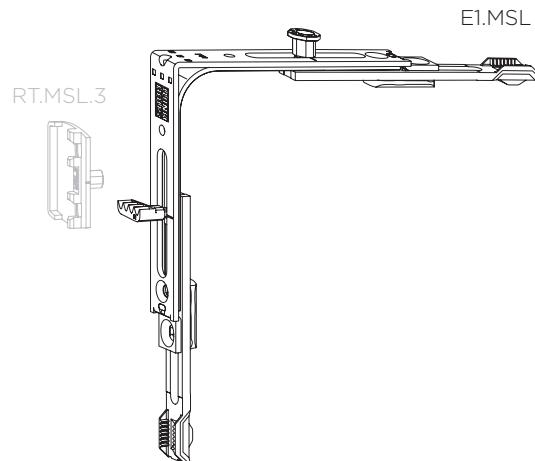
- Mini ventilation of approx. 7 to 20 mm is possible
- Engages into the frame part RT.MSL.3
- Bracket length 98.5 mm
- Smooth operation, due to rust-free spring steel hinges inserted in C-rail

### Frame part RT.MSL.3

- Counterpart to interlock with E1.MSL, located on the frame
- For profile allocation see Group 11, frame parts

### Sash part FT/EU.MSL.601

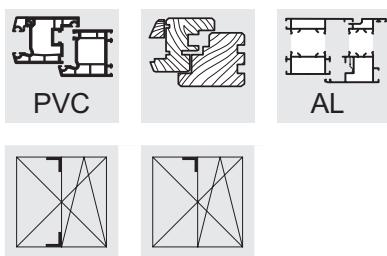
- Matching part on the sash for clicking in place the E1.MSL corner drive on double-sash windows
- To screw on the E1 corner drive of the inactive sash
- The indication of direction refers to the hinge side of the sash in question.
- For double-sash windows the E1.MSL.RS corner drive is combined with the sash part FT/EU.MSL.601 LS.



4

Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type
E1.MSL.LS	5007005	4	100 KK	2400 EK
E1.MSL.RS	5007004	4	100 KK	2400 EK
FT/EU.MSL.601 LS	5025834	1	800 KK	6400 EK
FT/EU.MSL.601 RS	5025832	1	800 KK	6400 EK

RS = right, LS = left



## 4

## Corner drive E1.SBS

- For installation into the inactive (second-opening) sash with opposing eurogroove when an E11 corner drive is used for the sash opened first.
- With security keep welded to the vertical arm
- Bracket length 98.5 mm
- Automatic and manual assembly possible
- Smooth operation, due to rust-free spring steel hinges inserted in C-rail

### Corner drive E1.SBS.O

- For installation into the inactive sash (top area)

### Corner drive E1.SBS.U

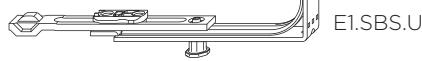
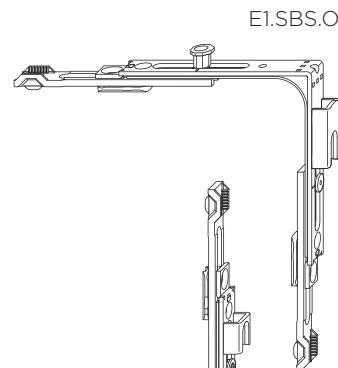
- For installation into the inactive sash (bottom area)

### Corner drive E1.SBS...F

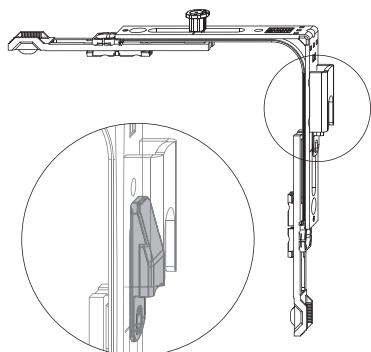
- Clampable design

### Corner drive E1.SBS.O.RC.F

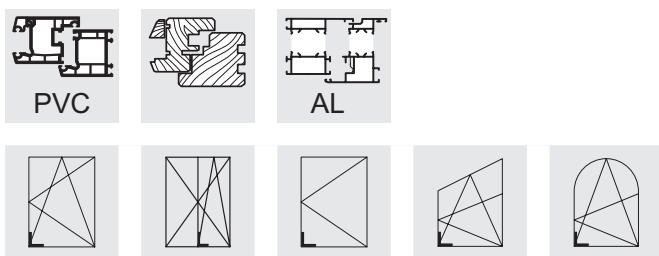
- See above
- With slide lock (beneath the welded keep) against manipulation when the turn-tilt sash is locked.
- Clampable design



E1.SBS.O.RC.F



Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type
E1.SBS.O	4964898	4	100 KK	2400 EK
E1.SBS.O.F	4964900	4	100 KK	2400 EK
E1.SBS.U	4964899	4	100 KK	2400 EK
E1.SBS.U.F	4964901	4	100 KK	2400 EK
E1.SBS.O.RC.F	5037101	4	100 KK	2400 EK



## Corner drive E1.SP.N

4

- Bracket length 98.5 mm
- Safety locking pin as an adjustable octagonal bolt
- Smooth operation, due to rust-free spring steel hinges inserted in C-rail
- With welded steel cage
- In combination with frame parts SBK...SP for improved (increased) burglary resistance

### Corner drive E11.SP.N

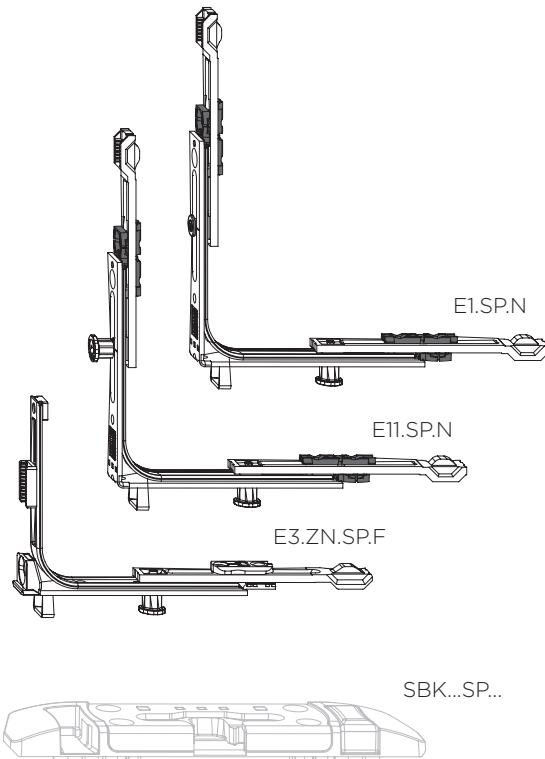
- Same construction as E1.SP.N with an additional octagonal bolt on the second arm

### Corner drive E3.ZN.SP.F

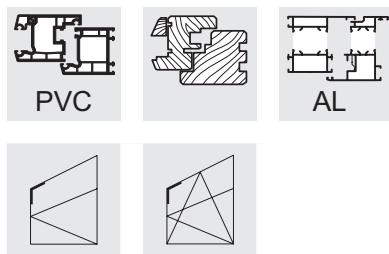
- Identical to corner drive E3.F.L
- With welded steel cage

### Security tilt keep SBK..SP...

- SP security tilt keep with safety bolt for active locking with corner drive E..SP.N
- Integrated support keep for easy closing of the window sash
- Can be used left and right hand
- Quick assembly thanks to direct positioning in the frame rebate corner
- Easy integration into the production process, because no jigs are needed for assembly
- For profile allocation see Group 11, frame parts



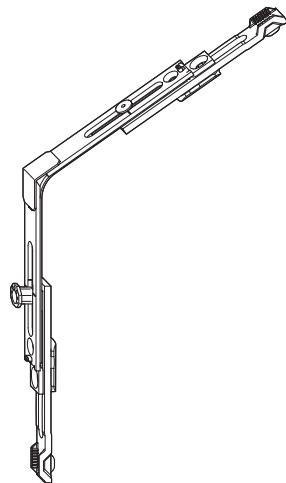
Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type
E1.SP.N	5051288	4	100 KK	2400 EK
E11.SP.N	5051289	4	100 KK	2400 EK
E3.ZN.SP.F	5010271	3	100 KK	2400 EK



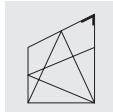
4

## Corner drive E1.A

- Used for non right-angled corners on sashes
- Adjustable angle setting
- Smooth operation, due to rust-free spring steel hinges inserted in C-rail



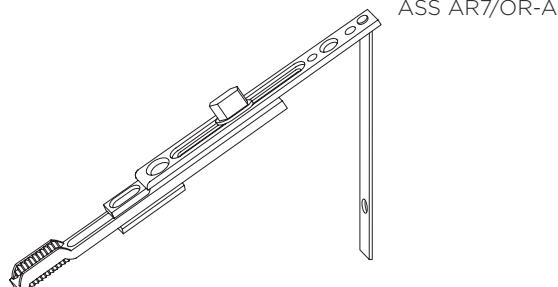
Item description	Item No.	VPA1 Qty./Type	VPA2 Qty./Type
E1.A	4926350	4	100 KK    2400 EK



## Connecting rail ASS AR 7/OR-A SL

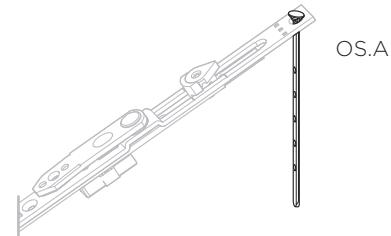
4

- In combination with OS2. ... for studio windows
- Airgap 12 mm
- For non square edges in the shear area



### Screw clip OS.A

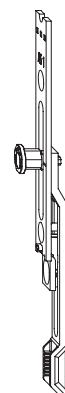
- Only in combination with OS1.600 for studio windows
- The screw clip is led through the last top rod screw hole and is screwed in the vertical fitting groove.



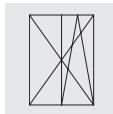
### Connecting rail ASS.AS.1

- For turn windows in combination with drive rod GAM or GAK
- Not suited for turn-tilt windows
- Use the stop piece ANS ACP or stroke limiter AWDR SL for stroke limitation.

ASS.AS.1



Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
ASS AR 7/OR-A SL	1811091	2	10 BD	150 KK	1200 EK
OS.A	5000283	1	50 BL	1000 KK	8000 EK
ASS.AS.1	4937603	2	150 KK	3600 EK	

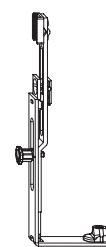


## 4

## Connecting rails

### Connecting rail ASS.SP - 1

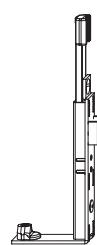
- Including rod design and shortened bracket for narrow patio doors
- To enable handicapped persons locking of low threshold doors with ground sleeves
- Without run-up block
- With security locking pin designed as adjustable octagonal locking bolt
- For turn-tilt doors at the bottom locking point (gear side)
- Connection of interlocking rod is not possible



ASS.SP - 1  
ASS.SP - 1.18



ASS.SP.GGL-SB  
ASS.SP.GGL-SB.18



ASS.SP



ASS.SP.GGL

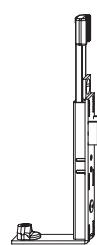


### Connecting rail ASS.SP - 1.18

- Same design as ASS.SP - 1, but with 18 mm rod extension

### Connecting rail ASS.SP.GGL.SB

- Same design as ASS.SP-1
- For turn double-sash doors, in combination with ASS.SP-1
- Installed security keep



ASS.SP.GGL-SB  
ASS.SP.GGL-SB.18

### Connecting rail ASS.SP.GGL.SB.18

- Same design as ASS.SP.GGL.SB, but with 18 mm rod extension
- For turn double-sash doors, in combination with ASS.SP-1



ASS.SP

### Connecting rail ASS.SP

- Including rod design and shortened bracket for narrow patio doors
- For turn-only doors (top locking point)
- Connection of interlocking rod is not possible



ASS.SP.GGL

### Connecting rail ASS.SP.GGL

- Same design as ASS.SP
- With return stroke if used on turn and turn-double sashes at the bottom locking point
- To enable handicapped persons locking of low threshold doors with ground sleeves

### Ground sleeve BH 17/20 SL

- Used to drill into low thresholds
- Diameter 17mm; length 20 mm



BH 17/20 SL

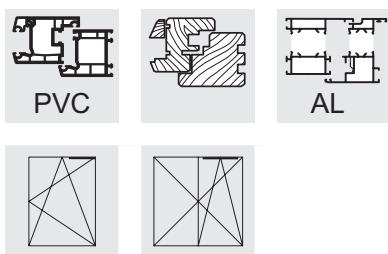


BH 17/30 SL

### Ground sleeve BH 17/30 SL

- As described above, but with dust seal
- Diameter 17 mm; length 30 mm

Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
ASS.SP-1	5019459	FFH > 420 mm	2	150 KK	1200 EK	
ASS.SP-1.18	5030253	FFH > 420 mm	2	150 KK	1200 EK	
ASS.SP.GGL.SB	5019457	FFH > 420 mm	2	150 KK	1200 EK	
ASS.SP.GGL.SB.18	5030252	FFH > 420 mm	2	150 KK	1200 EK	
ASS.SP	5019458	FFH > 420 mm	2	150 KK	1200 EK	
ASS.SP.GGL	5019455	FFH > 420 mm	2	150 KK	1200 EK	
BH 17/20 SL	2309087		0	20 BL	200 KK	1600 EK
BH 17/30 SL	1885242		0	20 BL	200 KK	1600 EK



## Top rod OS1.600



5

- In combination with shears SK1/SH1/SHW1/SC1
- OS1.600 is always combined with an E3 corner drive on the hinge side
- Integrated anti-slam block in tilt position as standard
- Progressive shear retraction: adjustable from 18 to 25 mm
- After assembly the top rod and the shear are firmly attached to one another
- Clampable in fitting groove
- Variable tilt device MSL.OS as retrofit option for window profiles with a frame rebate depth of 25 mm

### Top Rod OS ... MSL

- With pre-assembled variable tilt device
- Progressive shear retraction 18 mm
- (Frame rebate depth at least 25 mm)

### Top Rod OS ... ZSS

- With pre-assembled anti-slam device

### Variable tilt device MSL-OS

- See Group 10, accessories

### Tilt limiter KBG.OS1

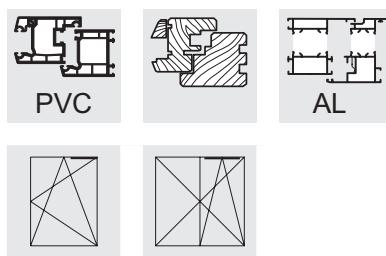
- See Group 10, accessories

### Anti slam device ZSS.OS1

- See Group 10, accessories

Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type
OS1.600	2847141	FFB 370 - 600	3	20 BD	800 EA
OS1.600.MSLLS	4926908	FFB 370 - 600	3	20 BD	800 EA
OS1.600.MSL.RS	4926906	FFB 370 - 600	3	20 BD	800 EA
OS1.600.ZSS	4938601	FFB 370 - 600	3	20 BD	800 EA

RS = right, LS = left



## 5

## Top rod OS2



- OS2 ... is used in combination with E2 on the hinge side
- In combination with shears SK2/SH2/SHW2/SC2
- After assembly the top rod and the shear are firmly attached to one another
- Clampable in fitting groove
- Progressive shear retraction: adjustable from 18 to 25 mm
- Integrated anti-slam block in tilt position as standard
- From 1475 mm sash rebate width with additional shear ZSR
- Variable tilt device MSL.OS as retrofit option for window profiles with a frame rebate depth of 25 mm and 9 mm eurogroove position

### Top Rod OS ... MSL

- With pre-assembled variable tilt device
- Progressive shear retraction 18 mm
- (Frame rebate depth at least 25 mm)

### Top Rod OS ... ZSS

- With pre-assembled anti-slam device

### Variable tilt device MSL-OS

- See Group 10, accessories

### Tilt limiter KBG.OS

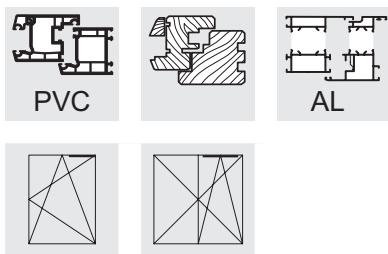
- See Group 10, accessories

### Anti-slam device ZSS.OS

- See Group 10, accessories

Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type
OS2.800	4928979	FFB 600 - 800	4	20 BD	800 EA
OS2.800.MSL.LS	4928986	FFB 600 - 800	4	20 BD	800 EA
OS2.800.MSL.RS	4928987	FFB 600 - 800	4	20 BD	800 EA
OS2.800.ZSS	4937413	FFB 600 - 800	4	20 BD	800 EA
OS2.1025	2849278	FFB 775 - 1025	5	20 BD	500 EA
OS2.1025-1	2848275	FFB 775 - 1025	5	20 BD	500 EA
OS2.1025-1.MSL.LS	4926913	FFB 775 - 1025	5	20 BD	500 EA
OS2.1025-1.MSL.RS	4926912	FFB 775 - 1025	5	20 BD	500 EA
OS2.1025-1.ZSS	4937450	FFB 775 - 1025	5	20 BD	500 EA
OS2.1250-1	2848291	FFB 1000 - 1250	6	20 BD	500 EA
OS2.1250-1.MSL.LS	4926915	FFB 1000 - 1250	6	20 BD	500 EA
OS2.1250-1.MSL.RS	4926914	FFB 1000 - 1250	6	20 BD	500 EA
OS2.1250-1.ZSS	4937451	FFB 1000 - 1250	6	20 BD	500 EA
OS2.1475-1	2848304	FFB 1225 - 1475	6	20 BD	500 L1
OS2.1475-1.ZSS	4937454	FFB 1225 - 1475	6	20 BD	500 L1

RS = right, LS = left



## Top rod OS ... E

5

- For the type of fitting "Tilt before turn"
- In combination with SK/SH/SC. ... .E shears
- From 1250 mm sash rebate width with additional shear ZSRE
- After assembly the top rod and the shear are firmly attached to one another
- Clampable in fitting groove
- Tilt position is the factory default

### Tilt limiter KBG.OS

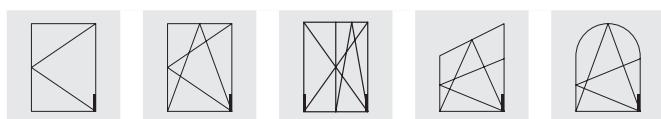
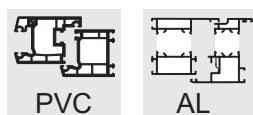
- See Group 10, accessories

### Anti-slam device ZSS.OS

- See Group 10, accessories



Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type
OS1.600.E	4926108	FFB 370 - 600	3	20 BD	800 EA
OS2.800.E	4928985	FFB 600 - 800	4	20 BD	800 EA
OS2.1025-1.E	4926177	FFB 775 - 1025	5	20 BD	500 EA
OS2.1250-1.E	4926178	FFB 1000 - 1250	6	20 BD	500 EA
OS2.1475-1.E	4926180	FFB 1225 - 1475	6	20 BD	500 L1

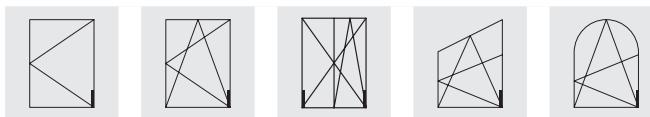
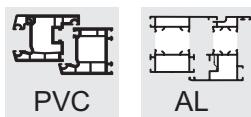


## Combination possibilities of corner and sash hinges

6

	EL.C	EL.CS / EL.CS-W
FL.C	✓	✓
FL.C-A	✓	✓
FL.C-F	✓	✓
FL.C-W	✗	✓
FL.C-W-A	✗	✓
FL.C-W-E1	✗	✓

T181009\_2



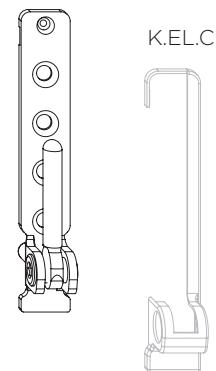
EL.C

## Corner hinge EL.C

- Used in combination with overlap sash hinges FL.C
- Large support area underneath the tilt axis
- Optimum support due to larger supporting surface
- For drilling instructions see group 15, installation drawings
- For sash weight see overview of articles
- Side adjustment  $\pm 2$  mm

### Corner hinge cover K.EL.C...RS/LS

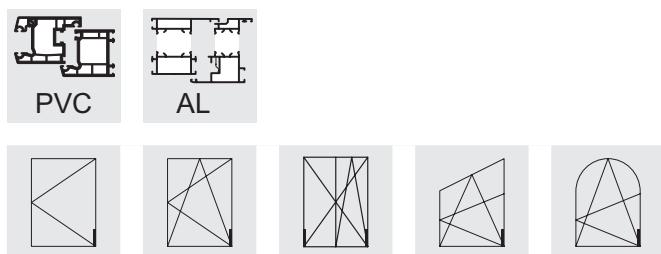
- See separate product page



6

Item description	Item No.		Max. sash weight (kg)	VPA1 Qty./Type	VPA2 Qty./Type
EL.C.3-3-3	5064200	4	80	300 KK	2400 EK
EL.C.3-3-3.BR	5064203	4	80	300 KK	2400 EK
EL.C.3-3-3.F9	5064202	4	80	300 KK	2400 EK
EL.C.3-3-3.WS	5064201	4	80	300 KK	2400 EK
EL.C.6-3-3	5064204	4	100	300 KK	2400 EK
EL.C.6-3-3.BR	5064207	4	100	300 KK	2400 EK
EL.C.6-3-3.F9	5064206	4	100	300 KK	2400 EK
EL.C.6-3-3.WS	5064205	4	100	300 KK	2400 EK
EL.C.6-3-10	5064208	4	100	300 KK	2400 EK
EL.C.6-3-10.BR	5064211	4	100	300 KK	2400 EK
EL.C.6-3-10.F9	5064210	4	100	300 KK	2400 EK
EL.C.6-3-10.WS	5064209	4	100	300 KK	2400 EK
EL.C.6-3-22	5064212	4	130/150	300 KK	2400 EK
EL.C.6-3-22.BR	5064215	4	130/150	300 KK	2400 EK
EL.C.6-3-22.CW	5087440	4	130/150	300 KK	2400 EK
EL.C.6-3-22.F9	5064214	4	130/150	300 KK	2400 EK
EL.C.6-3-22.WS	5064213	4	130/150	300 KK	2400 EK
EL.C.6-10-10.WS	5064216	4	100	300 KK	2400 EK
EL.C.6-22-3	5064217	4	130/150	300 KK	2400 EK
EL.C.6-22-3.BR	5064219	4	130/150	300 KK	2400 EK
EL.C.6-22-3.WS	5064218	4	130/150	300 KK	2400 EK

WS = white; BR = brown, F9 = titanium coloured

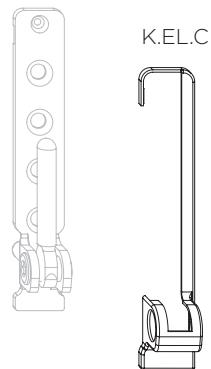


EL.C

## Corner hinge cap K.EL.C

6

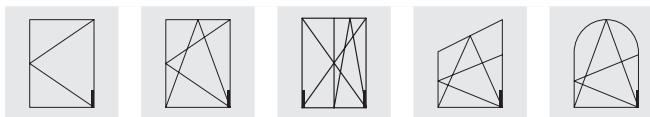
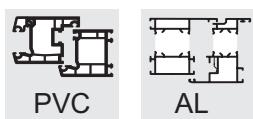
- Cover for corner hinge EL.C
- Non-handed
- Covers the external zone of the corner hinge plate all along the height
- Available in different colours



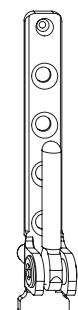
Item description	Item No.	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
K.EL.C.LS.BR	5065456	100 BL	500 KK	12000 EK
K.EL.C.RS.BR	5065452	100 BL	500 KK	12000 EK
K.EL.C.LS.BZ-CN	5065469	100 BL	500 KK	12000 EK
K.EL.C.RS.BZ-CN	5065468	100 BL	500 KK	12000 EK
K.EL.C.LS.BZ-RB	5065473	100 BL	500 KK	12000 EK
K.EL.C.RS.BZ-RB	5065472	100 BL	500 KK	12000 EK
K.EL.C.LS.CW	5065475	100 BL	500 KK	12000 EK
K.EL.C.RS.CW	5065474	100 BL	500 KK	12000 EK
K.EL.C.LS.F1	5065478	100 BL	500 KK	12000 EK
K.EL.C.RS.F1	5065476	100 BL	500 KK	12000 EK
K.EL.C.LS.F1-ELOX	5065481	100 BL	500 KK	12000 EK
K.EL.C.RS.F1-ELOX	5065480	100 BL	500 KK	12000 EK
K.EL.C.LS.F3	5065486	100 BL	500 KK	12000 EK
K.EL.C.RS.F3	5065485	100 BL	500 KK	12000 EK
K.EL.C.LS.F3-MG	5065488	100 BL	500 KK	12000 EK
K.EL.C.RS.F3-MG	5065487	100 BL	500 KK	12000 EK
K.EL.C.LS.F9	5065491	100 BL	500 KK	12000 EK
K.EL.C.RS.F9	5065489	100 BL	500 KK	12000 EK
K.EL.C.LS.LBR	5065493	100 BL	500 KK	12000 EK
K.EL.C.RS.LBR	5065492	100 BL	500 KK	12000 EK
K.EL.C.LS.LGR	5065495	100 BL	500 KK	12000 EK
K.EL.C.RS.LGR	5065494	100 BL	500 KK	12000 EK
K.EL.C.LS.PW	5065497	100 BL	500 KK	12000 EK
K.EL.C.RS.PW	5065496	100 BL	500 KK	12000 EK
K.EL.C.LS.SW	5065499	100 BL	500 KK	12000 EK
K.EL.C.RS.SW	5065498	100 BL	500 KK	12000 EK
K.EL.C.LS.UN77078	5065501	100 BL	500 KK	12000 EK
K.EL.C.RS.UN77078	5065500	100 BL	500 KK	12000 EK
K.EL.C.LS.WS	5065459	100 BL	500 KK	12000 EK
K.EL.C.RS.WS	5065457	100 BL	500 KK	12000 EK

RS = right, LS = left

WS = white, BR = brown, EV1 = anodised silver, CW = creme white, F9 = titanium coloured, BZ-CU = bronze copper, BZ-RB (F4) = bronze red brown, RAL9007 = colour according to RAL



EL.CS



6

## Corner hinge EL.CS

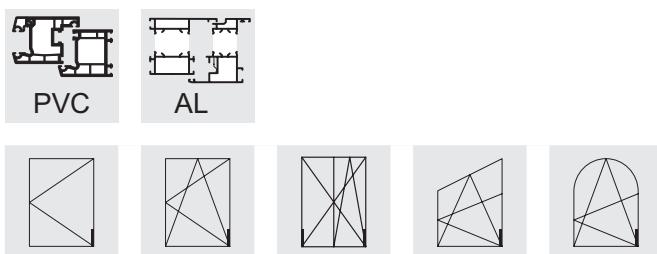
- Used in combination with overlap sash hinges FL.C or rebate sash hinges FL.C-W / FL.C.PA
- Large support area underneath the tilt axis
- For drilling instructions see group 15, installation drawings
- For sash weight see overview of articles
- Side adjustment  $\pm 2$  mm

### Corner hinge cover K.EL.CS

- See separate product page

Item description	Item No.		Max. sash weight (kg)	VPA1 Qty./Type	VPA2 Qty./Type
EL.CS.3-3-3	5064222	4	80	300 KK	2400 EK
EL.CS.3-3-3.BR	5064225	4	80	300 KK	2400 EK
EL.CS.3-3-3.F9	5064224	4	80	300 KK	2400 EK
EL.CS.3-3-3.WS	5064223	4	80	300 KK	2400 EK
EL.CS.6-3-3	5064226	4	100	300 KK	2400 EK
EL.CS.6-3-3.BR	5064229	4	100	300 KK	2400 EK
EL.CS.6-3-3.F9	5064228	4	100	300 KK	2400 EK
EL.CS.6-3-3.WS	5064227	4	100	300 KK	2400 EK
EL.CS.6-3-10	5064230	4	100	300 KK	2400 EK
EL.CS.6-3-10.BR	5064233	4	100	300 KK	2400 EK
EL.CS.6-3-10.F9	5064232	4	100	300 KK	2400 EK
EL.CS.6-3-10.WS	5064231	4	100	300 KK	2400 EK
EL.CS.6-3-22	5064234	4	130/150	300 KK	2400 EK
EL.CS.6-3-22.BR	5064237	4	130/150	300 KK	2400 EK
EL.CS.6-3-22.F9	5064236	4	130/150	300 KK	2400 EK
EL.CS.6-3-22.WS	5064235	4	130/150	300 KK	2400 EK
EL.CS.6-10-10.WS	5064238	4	100	300 KK	2400 EK
EL.CS.6-22-3	5064239	4	130/150	300 KK	2400 EK
EL.CS.6-22-3.BR	5064241	4	130/150	300 KK	2400 EK
EL.CS.6-22-3.WS	5064240	4	130/150	300 KK	2400 EK

WS = white; BR = brown, F9 = titanium coloured



EL.CS-W

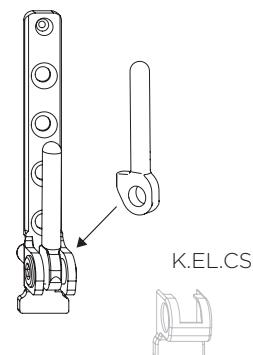
## Corner hinge EL.CS-W

6

- Used in combination with rebate sash hinges FL.C-W / FL.C.PA
- Large support area underneath the tilt axis
- For drilling instructions see group 15, installation drawings
- Sash weight see Table of articles
- Side adjustment  $\pm 2$  mm
- With bolt support (max. parallel position of the bolt towards the corner hinge plate) avoids unintentional contact of the sash hinge roll and the corner hinge plate
- Recommendation for use: unfavourable sash formats, e. g.
- FFB > 1000 mm
- FFB : FFH > 1:1

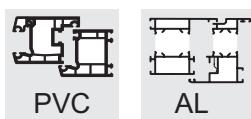
### Corner hinge cover K.EL.CS

- See separate product page



Item description	Item No.		Max. sash weight (kg)	VPA1 Qty./Type	VPA2 Qty./Type
EL.CS.W.6-3-3	5064244	4	100	300 KK	2400 EK
EL.CS.W.6-3-3.F9	5064246	4	100	300 KK	2400 EK
EL.CS.W.6-3-3.WS	5064245	4	100	300 KK	2400 EK
EL.CS.W.6-3-10	5064247	4	100	300 KK	2400 EK
EL.CS.W.6-3-10.F9	5064249	4	100	300 KK	2400 EK
EL.CS.W.6-3-10.WS	5064248	4	100	300 KK	2400 EK
EL.CS.W.6-3-22	5064250	4	130/150	300 KK	2400 EK
EL.CS.W.6-3-22.F9	5064252	4	130/150	300 KK	2400 EK
EL.CS.W.6-3-22.WS	5064251	4	130/150	300 KK	2400 EK
EL.CS.W.6-10-10.WS	5064253	4	100	300 KK	2400 EK
EL.CS.W.6-22-3	5064254	4	130/150	300 KK	2400 EK
EL.CS.W.6-22-3.WS	5064255	4	130/150	300 KK	2400 EK

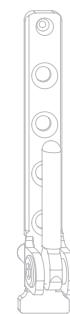
WS = white; BR = brown, F9 = titanium coloured



EL.CS

## Corner hinge cap K.EL.CS

- Cover for narrow corner hinges EL.CS...
- For visual cover of the bottom area of the corner hinge
- Can be used left and right hand
- Available in different colours



K.EL.CS



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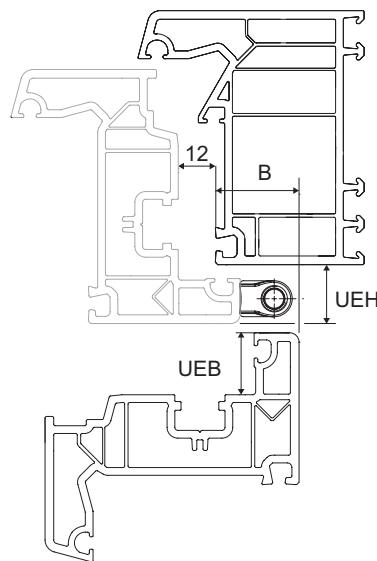
Item description	Item No.	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
K.EL.CS.BR	5065117	100 BL	1000 KK	8000 EK
K.EL.CS.BZ-CN	5065504	100 BL	1000 KK	8000 EK
K.EL.CS.BZ-RB	5065508	100 BL	1000 KK	8000 EK
K.EL.CS.CW	5065509	100 BL	1000 KK	8000 EK
K.EL.CS.F1	5065521	100 BL	1000 KK	8000 EK
K.EL.CS.F1-ELOX	5065522	100 BL	1000 KK	8000 EK
K.EL.CS.F3	5065524	100 BL	1000 KK	8000 EK
K.EL.CS.F3-MG	5065525	100 BL	1000 KK	8000 EK
K.EL.CS.F9	5065527	100 BL	1000 KK	8000 EK
K.EL.CS.LBR	5065529	100 BL	1000 KK	8000 EK
K.EL.CS.LGR	5065536	100 BL	1000 KK	8000 EK
K.EL.CS.PW	5065537	100 BL	1000 KK	8000 EK
K.EL.CS.SW	5065538	100 BL	1000 KK	8000 EK
K.EL.CS.UN77078	5065539	100 BL	1000 KK	8000 EK
K.EL.CS.WS	5065119	100 BL	1000 KK	8000 EK

AGR = anthracite grey, BR = brown, BZ-AM = bronze - antique brass, BZ-RB = bronze - red brown, BZ-CU = bronze coppery, CW = creme white, EV1 = anodised silver, F1 = silver colour, F1-elox = sim. to F1 anodised silver, F3 = gold colour, F3-MG = gold mat, F9 = titanium coloured, LBR = clay brown, PW = pearl white, SG = silver grey, SGB = grey, SGR = dusty grey, SL = silver look (zinc galvanised), SW = jet black, WS = white

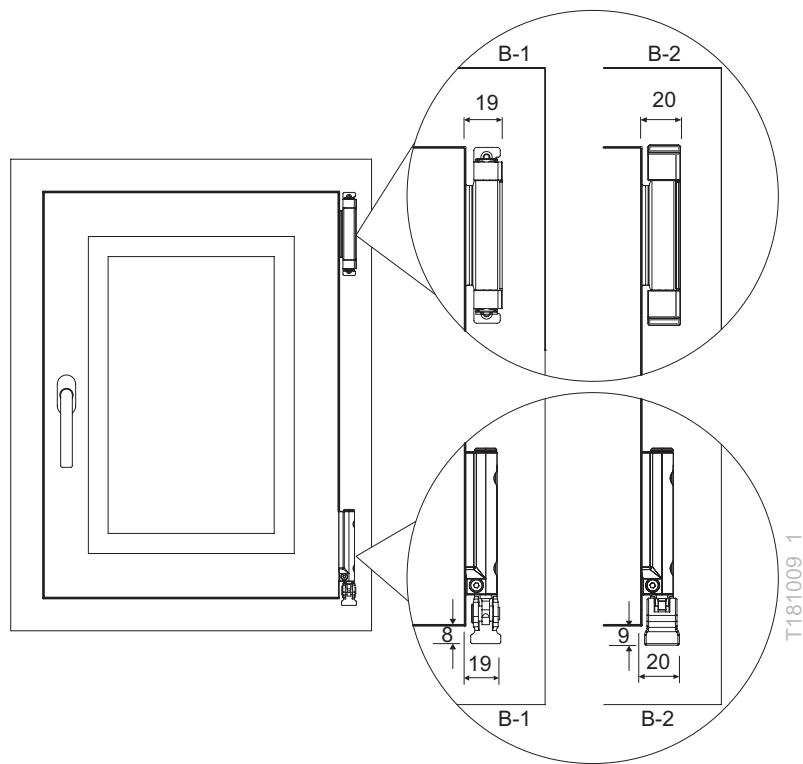
## Necessary frame width

This applies to all combinations of corner / sash hinges and shears / shear hinges.

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UEB [mm]	UEH [mm]	B* [mm]
20	17	28 (27)
20	18	28 (27)
20	19	28 (27)
20	20	28 (28)
20	21	29 (29)
20	22	30 (30)
21	17	29 (28)
21	18	29 (28)
21	19	29 (28)
21	20	29 (29)
21	21	30 (30)
21	22	31 (31)



T181009\_1

UEB = overlap

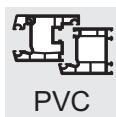
UEH = overlap height

\* The details in parenthesis refer to an application without cover.

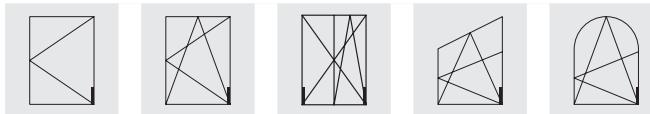
B - Necessary space in the hinge area (for turn opening of max. 90°)

B-1 = Sash without cover

B-2 = Hinge with cover



PVC



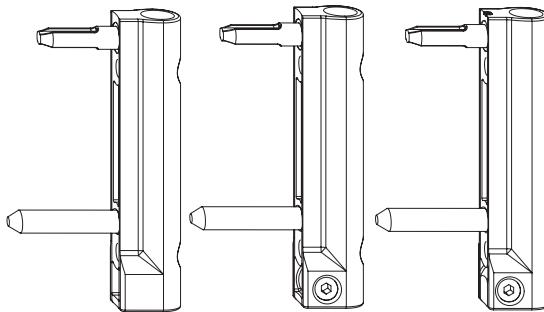
FLC

FLC-A

FLC-F

## Sash hinge FL.C

- Overlap sash hinge
- Used in combination with corner hinge ELC..(large version) or EL.CS (narrow version)
- Bottom positioning plug out of steel with a length of 28 mm for an optimum weight transfer
- For drilling instructions see group 15, installation drawings
- Sash weight see Table of articles
- Height adjustment ± 3 mm



6

### Sash hinge FLC-A

- Overlap sash hinge with pressure adjustment
- Pressure adjustment ± 0.8 mm

S.FL.C

K.FL.C-DS

### Sash hinge FLC-F

- Overlap sash hinge with adjustable turn restriction

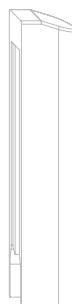


### Sash hinge cover K.FL.C-DS

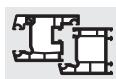
- See separate product page

### Sash hinge plug S.FL.C

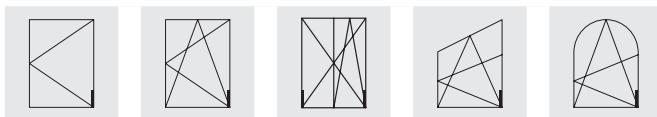
- See separate product page



Item description	Item No.		Max. sash weight (kg)	VPA1 Qty./Type	VPA2 Qty./Type
FL.C.20-6-28	5066484	2	130/150	250 KK	6000 EK
FL.C.20-6-28.BR	5066487	2	130/150	250 KK	6000 EK
FL.C.20-6-28.CW	5087441	2	130/150	250 KK	6000 EK
FL.C.20-6-28.F9	5066486	2	130/150	250 KK	6000 EK
FL.C.20-6-28.WS	5066485	2	130/150	250 KK	6000 EK
FL.C.A.20-6-11/28	5066498	2	130/150	250 KK	6000 EK
FL.C.A.20-6-28	5066488	2	130/150	250 KK	6000 EK
FL.C.A.20-6-28.BR	5066492	2	130/150	250 KK	6000 EK
FL.C.A.20-6-28.F9	5066491	2	130/150	250 KK	6000 EK
FL.C.A.20-6-28.WS	5066489	2	130/150	250 KK	6000 EK
FL.C-F.20-6-28	5081318	2	130/150	250 KK	6000 EK
FL.C-F.20-6-28.BR	5081321	2	130/150	250 KK	6000 EK
FL.C-F.20-6-28.F9	5081320	2	130/150	250 KK	6000 EK
FL.C-F.20-6-28.WS	5081319	2	130/150	250 KK	6000 EK



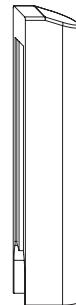
PVC



## Sash hinge cover K.FL.C-DS

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- Cover for overlap sash hinge FLC, FLC-A , FLC-F
- Can be used left and right hand
- Available in different colours



K.FL.C-DS

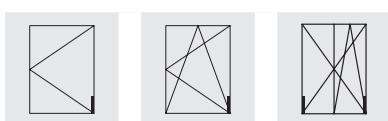
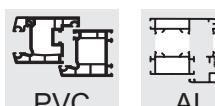
### Sash hinge plug S.FL.C

- Plug for overlap sash hinge FLC
- Can be used left and right hand
- Dirt protection for height adjustment device



S.FL.C

Item description	Item No.	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
K.FL.C-DS.BR	5081107	100 BL	300 KK	7200 EK
K.FL.C-DS.BZ-OPL	5081113	100 BL	300 KK	7200 EK
K.FL.C-DS.BZ-RB	5081112	100 BL	300 KK	7200 EK
K.FL.C-DS.CW	5081110	100 BL	300 KK	7200 EK
K.FL.C-DS.F1	5081114	100 BL	300 KK	7200 EK
K.FL.C-DS.F1-ELOX	5081115	100 BL	300 KK	7200 EK
K.FL.C-DS.F1-OPL	5081116	100 BL	300 KK	7200 EK
K.FL.C-DS.F3	5081117	100 BL	300 KK	7200 EK
K.FL.C-DS.F3-MG	5081118	100 BL	300 KK	7200 EK
K.FL.C-DS.F9	5081108	100 BL	300 KK	7200 EK
K.FL.C-DS.SW	5081111	100 BL	300 KK	7200 EK
K.FL.C-DS.UN77078	5081119	100 BL	300 KK	7200 EK
K.FL.C-DS.WS	5081106	100 BL	300 KK	7200 EK
S.FL.C.BR	5065609	500 BL	3000 KK	24000 EK
S.FL.C.CW	5065675	500 BL	3000 KK	24000 EK
S.FL.C.F1	5065610	500 BL	3000 KK	24000 EK
S.FL.C.F9	5065611	500 BL	3000 KK	24000 EK
S.FL.C.WS	5065612	500 BL	3000 KK	24000 EK



## Sash hinge FL.C-W

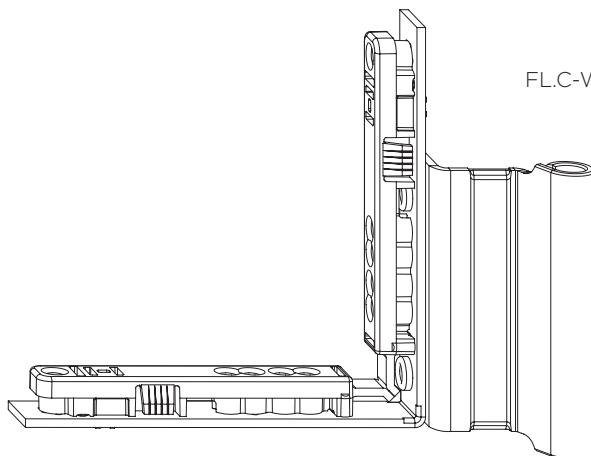
- Rebate shear hinge
- Used in combination with narrow corner hinges EL.CS...
- For sash weight see overview of articles
- Height adjustment ± 3 mm

### Sash hinge cover K.FL.C-W

- See separate product page

### Sash hinge plug S.FL.C-W

- See separate product page

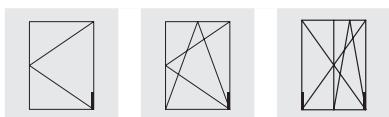
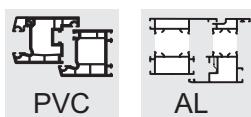


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Item description	Item No.		Max. sash weight (kg)	VPA1 Qty./Type	VPA2 Qty./Type
FL.C-W.18-9.LS.F9	5066349	4	130/150	60 KK	480 EK
FL.C-W.18-9.RS.F9	5066348	4	130/150	60 KK	480 EK
FL.C-W.18-9.LS.SL	5066345	4	130/150	60 KK	480 EK
FL.C-W.18-9.RS.SL	5066339	4	130/150	60 KK	480 EK
FL.C-W.18-9.LS.WS	5066347	4	130/150	60 KK	480 EK
FL.C-W.18-9.RS.WS	5066346	4	130/150	60 KK	480 EK
FL.C-W.18-13.LS.F9	5066355	4	130/150	60 KK	480 EK
FL.C-W.18-13.RS.F9	5066354	4	130/150	60 KK	480 EK
FL.C-W.18-13.LS.SL	5066351	4	130/150	60 KK	480 EK
FL.C-W.18-13.RS.SL	5066350	4	130/150	60 KK	480 EK
FL.C-W.18-13.LS.WS	5066353	4	130/150	60 KK	480 EK
FL.C-W.18-13.RS.WS	5066352	4	130/150	60 KK	480 EK
FL.C-W.20-9.LS.BR	5066364	4	130/150	60 KK	480 EK
FL.C-W.20-9.RS.BR	5066363	4	130/150	60 KK	480 EK
FL.C-W.20-9.LS.F9	5066362	4	130/150	60 KK	480 EK
FL.C-W.20-9.RS.F9	5066361	4	130/150	60 KK	480 EK
FL.C-W.20-9.LS.SL	5066357	4	130/150	60 KK	480 EK
FL.C-W.20-9.RS.SL	5066356	4	130/150	60 KK	480 EK
FL.C-W.20-9.LS.WS	5066360	4	130/150	60 KK	480 EK
FL.C-W.20-9.RS.WS	5066358	4	130/150	60 KK	480 EK
FL.C-W.20-13.LS.BR	5066373	4	130/150	60 KK	480 EK
FL.C-W.20-13.RS.BR	5066372	4	130/150	60 KK	480 EK
FL.C-W.20-13.LS.F9	5066371	4	130/150	60 KK	480 EK
FL.C-W.20-13.RS.F9	5066370	4	130/150	60 KK	480 EK
FL.C-W.20-13.LS.SL	5066367	4	130/150	60 KK	480 EK
FL.C-W.20-13.RS.SL	5066365	4	130/150	60 KK	480 EK
FL.C-W.20-13.LS.WS	5066369	4	130/150	60 KK	480 EK
FL.C-W.20-13.RS.WS	5066368	4	130/150	60 KK	480 EK

RS = right, LS = left

WS = white, BR = brown, SL = silver, F1 = silver coloured, F3 = gold coloured, F9 = titanium coloured



## Sash hinge FL.C-W-A

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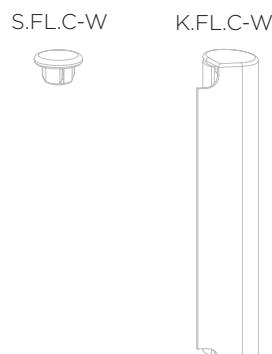
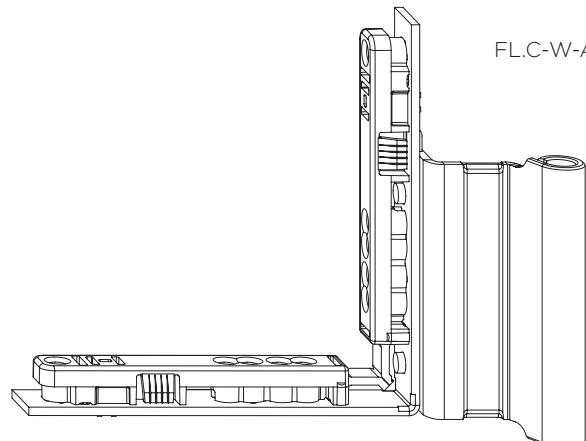
- Rebate sash hinge with pressure adjustment
- Used in combination with narrow corner hinges EL.CS...
- Sash weight see Table of articles
- Height adjustment  $\pm 3$  mm
- Pressure adjustment  $\pm 1$  mm
- See Group 14 for instructions on adjustment

### Sash hinge cover K.FL.C-W

- See separate product page

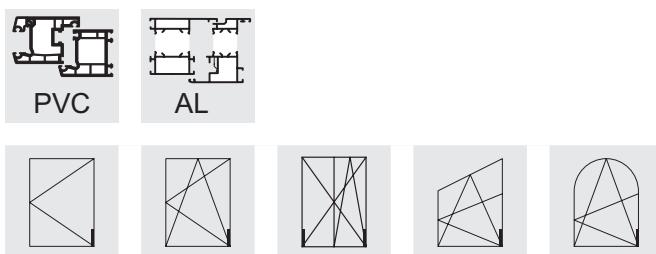
### Sash hinge plug S.FL.C-W

- See separate product page



Item description	Item No.		Max. sash weight (kg)	VPA1 Qty./Type	VPA2 Qty./Type
FL.C-W-A.18-9.LS	5066536	4	130/150	60 KK	480 EK
FL.C-W-A.18-9.RS	5066535	4	130/150	60 KK	480 EK
FL.C-W-A.18-13.LS	5066538	4	130/150	60 KK	480 EK
FL.C-W-A.18-13.RS	5066537	4	130/150	60 KK	480 EK
FL.C-W-A.20-9.LS	5066540	4	130/150	60 KK	480 EK
FL.C-W-A.20-9.RS	5066539	4	130/150	60 KK	480 EK
FL.C-W-A.20-13.LS	5066542	4	130/150	60 KK	480 EK
FL.C-W-A.20-13.RS	5066541	4	130/150	60 KK	480 EK

RS = right, LS = left



## Sash hinge FL.C-W-E1

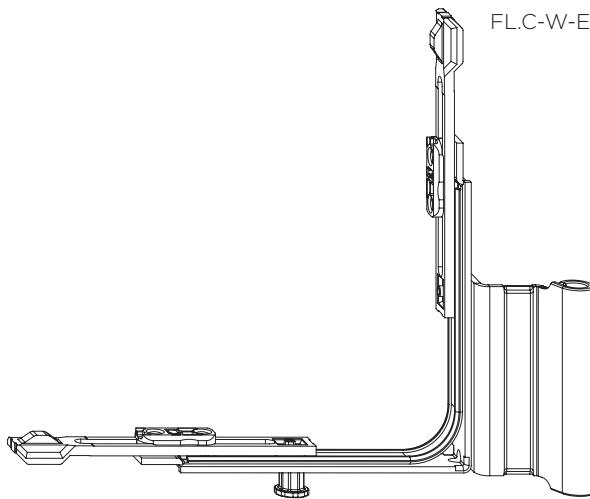
- Rebate sash hinge with corner drive
- Used in combination with narrow corner hinges EL.CS...
- For sash weight see overview of articles
- Height adjustment ± 3 mm

### Sash hinge cover K.FL.C-W

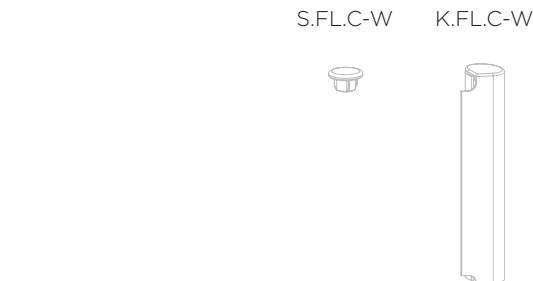
- See separate product page

### Sash hinge plug S.FL.C-W

- See separate product page



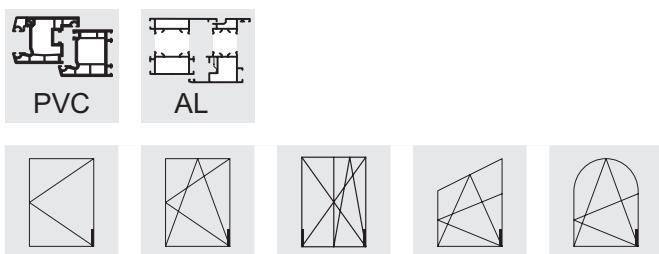
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Item description	Item No.		Max. sash weight (kg)	Overlap	Groove centre position	VPA1 Qty./Type	VPA2 Qty./Type
FL.C-W-E1.18-9.LS.F9	5066166	4	130/150	18	9	50 GK	200 EK
FL.C-W-E1.18-9.RS.F9	5066165	4	130/150	18	9	50 GK	200 EK
FL.C-W-E1.18-9.LS.SL	5066162	4	130/150	18	9	50 GK	200 EK
FL.C-W-E1.18-9.RS.SL	5066161	4	130/150	18	9	50 GK	200 EK
FL.C-W-E1.18-9.LS.WS	5066164	4	130/150	18	9	50 GK	200 EK
FL.C-W-E1.18-9.RS.WS	5066163	4	130/150	18	9	50 GK	200 EK
FL.C-W-E1.18-13.LS.SL	5066168	4	130/150	18	13	50 GK	200 EK
FL.C-W-E1.18-13.RS.SL	5066167	4	130/150	18	13	50 GK	200 EK
FL.C-W-E1.20-9.LS.F9	5066174	4	130/150	20	9	50 GK	200 EK
FL.C-W-E1.20-9.RS.F9	5066173	4	130/150	20	9	50 GK	200 EK
FL.C-W-E1.20-9.LS.SL	5066170	4	130/150	20	9	50 GK	200 EK
FL.C-W-E1.20-9.RS.SL	5066169	4	130/150	20	9	50 GK	200 EK
FL.C-W-E1.20-9.LS.WS	5066172	4	130/150	20	9	50 GK	200 EK
FL.C-W-E1.20-9.RS.WS	5066171	4	130/150	20	9	50 GK	200 EK
FL.C-W-E1.20-13.LS.F9	5066180	4	130/150	20	13	50 GK	200 EK
FL.C-W-E1.20-13.RS.F9	5066179	4	130/150	20	13	50 GK	200 EK
FL.C-W-E1.20-13.LS.SL	5066176	4	130/150	20	13	50 GK	200 EK
FL.C-W-E1.20-13.RS.SL	5066175	4	130/150	20	13	50 GK	200 EK
FL.C-W-E1.20-13.LS.WS	5066178	4	130/150	20	13	50 GK	200 EK
FL.C-W-E1.20-13.RS.WS	5066177	4	130/150	20	13	50 GK	200 EK

RS = right, LS = left

WS = white, BR = brown, SL = silver, F1 = silver coloured, F3 = gold coloured, F9 = titanium coloured



## Sash hinge cover K.FL.C-W

6

- Cover for rebate sash hinge
- Available in different colours



K.FL.C-W

### Sash hinge plug S.FL.C-W

- Plug for rebate sash hinge
- Can be used left and right hand
- Dirt protection for height adjustment device
- Available in different colours

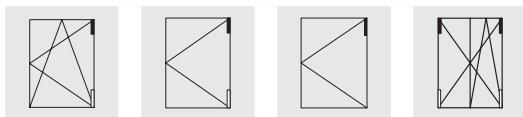
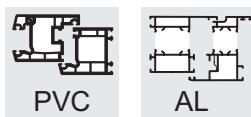


S.FL.C-W

Item description	Item No.	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
K.FL.C-W.LS.BR	5065127	100 BL	300 KK	2400 EK
K.FL.C-W.RS.BR	5065126	100 BL	300 KK	2400 EK
K.FL.C-W.LS.BZ-AM	5065575	100 BL	300 KK	2400 EK
K.FL.C-W.RS.BZ-AM	5065574	100 BL	300 KK	2400 EK
K.FL.C-W.LS.BZ-RB	5065577	100 BL	300 KK	2400 EK
K.FL.C-W.RS.BZ-RB	5065576	100 BL	300 KK	2400 EK
K.FL.C-W.LS.CW	5065579	100 BL	300 KK	2400 EK
K.FL.C-W.RS.CW	5065578	100 BL	300 KK	2400 EK
K.FL.C-W.LS.F1	5065581	100 BL	300 KK	2400 EK
K.FL.C-W.RS.F1	5065580	100 BL	300 KK	2400 EK
K.FL.C-W.LS.F1-ELOX	5065583	100 BL	300 KK	2400 EK
K.FL.C-W.RS.F1-ELOX	5065582	100 BL	300 KK	2400 EK
K.FL.C-W.LS.F3	5065603	100 BL	300 KK	2400 EK
K.FL.C-W.RS.F3	5065602	100 BL	300 KK	2400 EK
K.FL.C-W.LS.F9	5065605	100 BL	300 KK	2400 EK
K.FL.C-W.RS.F9	5065604	100 BL	300 KK	2400 EK
K.FL.C-W.LS.SW	5065607	100 BL	300 KK	2400 EK
K.FL.C-W.RS.SW	5065606	100 BL	300 KK	2400 EK
K.FL.C-W.LS.WS	5065129	100 BL	300 KK	2400 EK
K.FL.C-W.RS.WS	5065128	100 BL	300 KK	2400 EK
S.FL.C-W.BR	5065613	500 BL	3000 KK	24000 EK
S.FL.C-W.F1	5065614	500 BL	3000 KK	24000 EK
S.FL.C-W.F9	5065615	500 BL	3000 KK	24000 EK
S.FL.C-W.WS	5065616	500 BL	3000 KK	24000 EK

RS = right, LS = left

AGR = anthracite grey, BR = brown, BZ-AM = bronze - antique brass, BZ-RB = bronze - red brown, BZ-CU = bronze coppery, CW = creme white, EV1 = anodised silver, F1 = silver colour, F1-elox = sim. to F1 anodised silver, F3 = gold colour, F3-MG = gold mat, F9 = titanium coloured, LBR = clay brown, PW = pearl white, SG = silver grey, SGB = grey, SGR = dusty grey, SL = silver look (zinc galvanised), SW = jet black, WS = white



SL.C

## Shear hinge SL.C

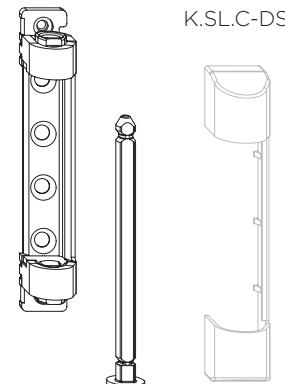
- Rolled steel hinge
- Fixing screws are covered by the shear hinge insert.
- Integrated pin-securing device
- Remove shear pin by means of special pulling device
- A small free size of the frame is required.
- For drilling instructions see group 15, installation drawings

### Shear hinge cover K.SL.C-DS

- See separate product page

### Additional plate ZSP.SL.C

- Positioning and screwing above the shear hinge SL.C
- Improves the load transfer of the shear hinge to the frame by increasing the number of screws
- Enables higher traction values according to TBDK (e. g. in case of steelless systems)
- Available in different colours
- Covers K.SL.C... cannot be used in this combination.

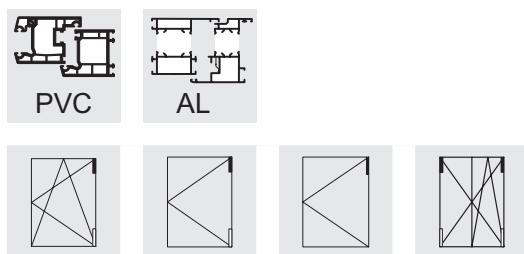


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Item description	Item No.		Max. sash weight (kg)	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
SL.C.3-3	5081484	4	80	200 KK	1600 EK	
SL.C.3-3.BR	5081487	4	80	200 KK	1600 EK	
SL.C.3-3.CW	5081488	4	80	200 KK	1600 EK	
SL.C.3-3.F9	5081486	4	80	200 KK	1600 EK	
SL.C.3-3.WS	5081485	4	80	200 KK	1600 EK	
SL.C.3-6	5081489	4	130/150	200 KK	1600 EK	
SL.C.3-6.BR	5081492	4	130/150	200 KK	1600 EK	
SL.C.3-6.CW	5081493	4	130/150	200 KK	1600 EK	
SL.C.3-6.F9	5081491	4	130/150	200 KK	1600 EK	
SL.C.3-6.WS	5081490	4	130/150	200 KK	1600 EK	
ZSP.SL.C.WS	5086827	1		100 BL	2000 KK	16000 EK
ZSP.SL.C.F9	5086828	1		100 BL	2000 KK	16000 EK
ZSP.SL.C.CW	5086829	1		100 BL	2000 KK	16000 EK

WS = white, BR = brown, SL = silver, EV1 = anodised silver, F1 = silver colour, F3 = gold colour, BZ-RB = bronze red brown, F9 = titanium coloured, CW = creme white

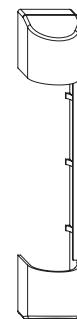


## Covers

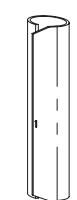
### Shear hinge cover K.SLC-DS

- Cover for shear hinge SLC
- Can be used left and right hand

7



K.SLC-DS



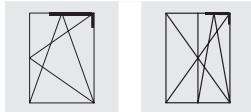
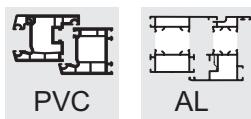
K.SK

### Shear hinge cap K.SK

- Can be used left and right hand
- Available in different colours

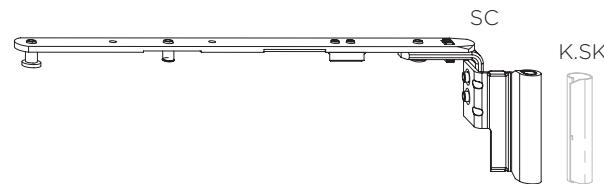
Item description	Item No.	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
K.SLC-DS.BR	5081091	100 BL	300 KK	7200 EK
K.SLC-DS.BZ-OPL	5081099	100 BL	300 KK	7200 EK
K.SLC-DS.BZ-RB	5081098	100 BL	300 KK	7200 EK
K.SLC-DS.CW	5081096	100 BL	300 KK	7200 EK
K.SLC-DS.F1	5081100	100 BL	300 KK	7200 EK
K.SLC-DS.F1-ELOX	5081101	100 BL	300 KK	7200 EK
K.SLC-DS.F1-OPL	5081102	100 BL	300 KK	7200 EK
K.SLC-DS.F3	5081103	100 BL	300 KK	7200 EK
K.SLC-DS.F3-MG	5081104	100 BL	300 KK	7200 EK
K.SLC-DS.F9	5081092	100 BL	300 KK	7200 EK
K.SLC-DS.SW	5081097	100 BL	300 KK	7200 EK
K.SLC-DS.UN77078	5081105	100 BL	300 KK	7200 EK
K.SLC-DS.WS	5081090	100 BL	300 KK	7200 EK
K.SK.BR	4927421	100 BL	600 KK	14400 EK
K.SK.BZ-CN	5031480	100 BL	300 KK	2400 EK
K.SK.BZ-RB	4933296	100 BL	600 KK	4800 EK
K.SK.CW	4927572	100 BL	600 KK	4800 EK
K.SK.F1	4928484	100 BL	600 KK	4800 EK
K.SK.F1-ELOX.	5021124	100 BL	600 K3	4800 E3
K.SK.F3	4995009	100 BL	600 KK	4800 EK
K.SK.F3 BA	5034998	100 BL	600 KK	4800 EK
K.SK.F3-MG	4987480	100 BL	600 KK	4800 EK
K.SK.F9	2845293	100 BL	600 KK	14400 EK
K.SK.LBR	4939036	100 BL	600 KK	4800 EK
K.SK.SL.UN77078	4993489	100 BL	600 KK	4800 EK
K.SK.SW	4939055	100 BL	600 KK	4800 EK
K.SK.WS	2845285	100 BL	600 KK	14400 EK

AGR = anthracite grey, BR = brown, BZ-AM = bronze - antique brass, BZ-RB = bronze - red brown, BZ-CU = bronze coppery, CW = creme white, EV1 = anodised silver, F1 = silver colour, F1-elox = sim. to F1 anodised silver, F3 = gold colour, F3-MG = gold mat, F9 = titanium coloured, LBR = clay brown, PW = pearl white, SG = silver grey, SGB = grey, SGR = dusty grey, SL = silver look (zinc galvanised), SW = jet black, WS = white



## Shears SC...18-9, 18-13, 20-9

- Used in combination with shear hinge SL.C
- Only 2 shear sizes
- Adjustment function to lift and lower the sash
- Tilt opening width approx. 135 to 140 mm (depending on profile)
- For sash rebate heights ≤ 600 mm please use tilt limiter!
- Shear with tandem action
- After assembly the top rod and the shear are firmly attached to one another
- Integrated turn restriction by means of plastic sleeve in the shear hinge
- Visible parts available in various colours
- Max. sash weight 130/150 kg



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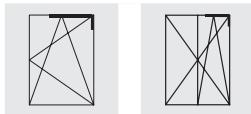
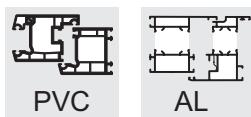
### Shear hinge cap K.SK

- See separate product page

Item description	Item No.	Groove centre position	Overlap	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
SC1.18-9.LS	5062059	9	18	10 BD	60 KK	480 EK
SC1.18-9.RS	5062058	9	18	10 BD	60 KK	480 EK
SC2.18-9.LS	5062107	9	18	10 BD	80 GK	960 EK
SC2.18-9.RS	5062101	9	18	10 BD	80 GK	960 EK
SC1.18-13.LS	5062061	13	18	10 BD	60 KK	480 EK
SC1.18-13.RS	5062060	13	18	10 BD	60 KK	480 EK
SC1.18-13.LS.F9	5062065	13	18	10 BD	60 KK	480 EK
SC1.18-13.RS.F9	5062064	13	18	10 BD	60 KK	480 EK
SC1.18-13.LS.WS	5062063	13	18	10 BD	60 KK	480 EK
SC1.18-13.RS.WS	5062062	13	18	10 BD	60 KK	480 EK
SC2.18-13.LS	5062120	13	18	10 BD	80 GK	960 EK
SC2.18-13.RS	5062113	13	18	10 BD	80 GK	960 EK
SC2.18-13.LS.F9	5062136	13	18	10 BD	80 GK	960 EK
SC2.18-13.RS.F9	5062130	13	18	10 BD	80 GK	960 EK
SC2.18-13.LS.WS	5062124	13	18	10 BD	80 GK	960 EK
SC2.18-13.RS.WS	5062123	13	18	10 BD	80 GK	960 EK
SC1.20-9.LS	5062067	9	20	10 BD	60 KK	480 EK
SC1.20-9.RS	5062066	9	20	10 BD	60 KK	480 EK
SC1.20-9.LS.F9	5062071	9	20	10 BD	60 KK	480 EK
SC1.20-9.RS.F9	5062070	9	20	10 BD	60 KK	480 EK
SC1.20-9.LS.WS	5062069	9	20	10 BD	60 KK	480 EK
SC1.20-9.RS.WS	5062068	9	20	10 BD	60 KK	480 EK
SC2.20-9.LS	5062140	9	20	10 BD	80 GK	960 EK
SC2.20-9.RS	5062139	9	20	10 BD	80 GK	960 EK
SC2.20-9.LS.F9	5062145	9	20	10 BD	80 GK	960 EK
SC2.20-9.RS.F9	5062144	9	20	10 BD	80 GK	960 EK
SC2.20-9.LS.WS	5062142	9	20	10 BD	80 GK	960 EK
SC2.20-9.RS.WS	5062141	9	20	10 BD	80 GK	960 EK

RS = right, LS = left

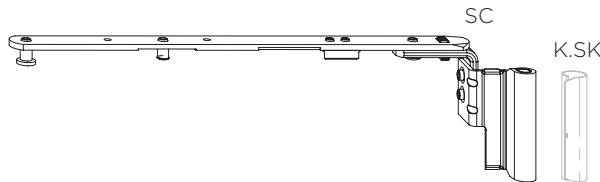
WS = white, BR = brown, SL = silver, EV1 = anodised silver, F1 = silver colour, F3 = gold colour, BZ-RB = bronze red brown, F9 = titanium coloured, CW = creme white



## Shears SC...20-13

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- Used in combination with shear hinge SL.C
- Only 2 shear sizes
- Adjustment function to lift and lower the sash
- Tilt opening width approx. 135 to 140 mm (depending on profile)
- For sash rebate heights ≤ 600 mm please use tilt limiter!
- Shear with tandem action
- After assembly the top rod and the shear are firmly attached to one another
- Integrated turn restriction by means of plastic sleeve in the shear hinge
- Visible parts available in various colours
- Max. sash weight 130/150 kg



### Shear SC...P

- As described above
- Contact pressure is increased by 1 mm

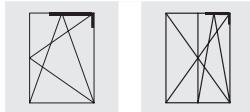
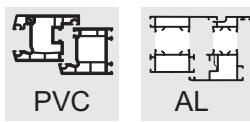
### Shear hinge cap K.SK

- See separate product page

Item description	Item No.	Max. sash weight (kg)	Overlap	Groove centre position	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
SC1.20-13.LS	5062073	100 (130/150)	20	13	10 BD	60 KK	480 EK
SC1.20-13.RS	5062072	100 (130/150)	20	13	10 BD	60 KK	480 EK
SC1.20-13.LS.BR	5062079	100 (130/150)	20	13	10 BD	60 KK	480 EK
SC1.20-13.RS.BR	5062078	100 (130/150)	20	13	10 BD	60 KK	480 EK
SC1.20-13.LS.CW	5062081	100 (130/150)	20	13	10 BD	60 KK	480 EK
SC1.20-13.RS.CW	5062080	100 (130/150)	20	13	10 BD	60 KK	480 EK
SC1.20-13.LS.F9	5062077	100 (130/150)	20	13	10 BD	60 KK	480 EK
SC1.20-13.RS.F9	5062076	100 (130/150)	20	13	10 BD	60 KK	480 EK
SC1.20-13.LS.WS	5062075	100 (130/150)	20	13	10 BD	60 KK	480 EK
SC1.20-13.RS.WS	5062074	100 (130/150)	20	13	10 BD	60 KK	480 EK
SC1.20-13.P.LS	5062083	100 (130/150)	20	13	10 BD	60 KK	480 EK
SC1.20-13.P.RS	5062082	100 (130/150)	20	13	10 BD	60 KK	480 EK
SC2.20-13.LS	5062147	100 (130/150)	20	13	10 BD	80 GK	960 EK
SC2.20-13.RS	5062146	100 (130/150)	20	13	10 BD	80 GK	960 EK
SC2.20-13.LS.BR	5062153	100 (130/150)	20	13	10 BD	80 GK	960 EK
SC2.20-13.RS.BR	5062152	100 (130/150)	20	13	10 BD	80 GK	960 EK
SC2.20-13.LS.CW	5062155	100 (130/150)	20	13	10 BD	80 GK	960 EK
SC2.20-13.RS.CW	5062154	100 (130/150)	20	13	10 BD	80 GK	960 EK
SC2.20-13.LS.F9	5062151	100 (130/150)	20	13	10 BD	80 GK	960 EK
SC2.20-13.RS.F9	5062150	100 (130/150)	20	13	10 BD	80 GK	960 EK
SC2.20-13.LS.WS	5062149	100 (130/150)	20	13	10 BD	80 GK	960 EK
SC2.20-13.RS.WS	5062148	100 (130/150)	20	13	10 BD	80 GK	960 EK
SC2.20-13.P.LS	5062158	100 (130/150)	20	13	10 BD	80 GK	960 EK
SC2.20-13.P.RS	5062157	100 (130/150)	20	13	10 BD	80 GK	960 EK

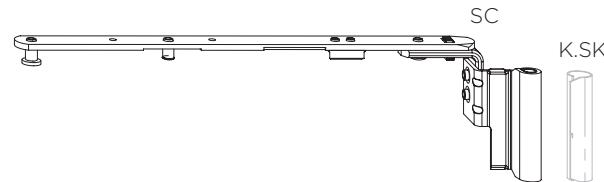
RS = right, LS = left

WS = white, BR = brown, SL = silver, EV1 = anodised silver, F1 = silver colour, F3 = gold colour, BZ-RB = bronze red brown, F9 = titanium coloured, CW = creme white



## Shears SC...21-13, 22-13

- Used in combination with shear hinge SL.C
- Only 2 shear sizes
- Adjustment function to lift and lower the sash
- Tilt opening width approx. 135 to 140 mm (depending on profile)
- For sash rebate heights ≤ 600 mm please use tilt limiter!
- Shear with tandem action
- After assembly the top rod and the shear are firmly attached to one another
- Integrated turn restriction by means of plastic sleeve in the shear hinge
- Visible parts available in various colours
- Max. sash weight 130/150 kg



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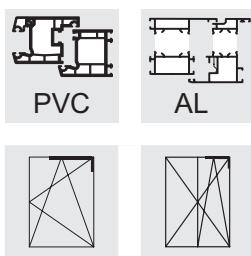
### Shear hinge cap K.SK

- See separate product page

Item description	Item No.	Groove centre position	Overlap	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
SC1.21-13.LS	5062085	13	21	10 BD	60 KK	480 EK
SC1.21-13.RS	5062084	13	21	10 BD	60 KK	480 EK
SC1.21-13.LS.F9	5062089	13	21	10 BD	60 KK	480 EK
SC1.21-13.RS.F9	5062088	13	21	10 BD	60 KK	480 EK
SC1.21-13.LS.WS	5062087	13	21	10 BD	60 KK	480 EK
SC1.21-13.RS.WS	5062086	13	21	10 BD	60 KK	480 EK
SC2.21-13.LS	5062160	13	21	10 BD	80 GK	960 EK
SC2.21-13.RS	5062159	13	21	10 BD	80 GK	960 EK
SC2.21-13.LS.BR	5062166	13	21	10 BD	80 GK	960 EK
SC2.21-13.RS.BR	5062165	13	21	10 BD	80 GK	960 EK
SC2.21-13.LS.CW	5062168	13	21	10 BD	80 GK	960 EK
SC2.21-13.RS.CW	5062167	13	21	10 BD	80 GK	960 EK
SC2.21-13.LS.F9	5062164	13	21	10 BD	80 GK	960 EK
SC2.21-13.RS.F9	5062163	13	21	10 BD	80 GK	960 EK
SC2.21-13.LS.WS	5062162	13	21	10 BD	80 GK	960 EK
SC2.21-13.RS.WS	5062161	13	21	10 BD	80 GK	960 EK
SC1.22-13.LS	5062091	13	21	10 BD	60 KK	480 EK
SC1.22-13.RS	5062090	13	21	10 BD	60 KK	480 EK
SC1.22-13.LS.WS	5062093	13	21	10 BD	60 KK	480 EK
SC1.22-13.RS.WS	5062092	13	21	10 BD	60 KK	480 EK
SC2.22-13.LS	5062170	13	22	10 BD	80 GK	960 EK
SC2.22-13.RS	5062169	13	22	10 BD	80 GK	960 EK
SC2.22-13.LS.WS	5062173	13	22	10 BD	80 GK	960 EK
SC2.22-13.RS.WS	5062171	13	22	10 BD	80 GK	960 EK

RS = right, LS = left

WS = white, BR = brown, SL = silver, EV1 = anodised silver, F1 = silver colour, F3 = gold colour, BZ-RB = bronze red brown, F9 = titanium coloured, CW = creme white



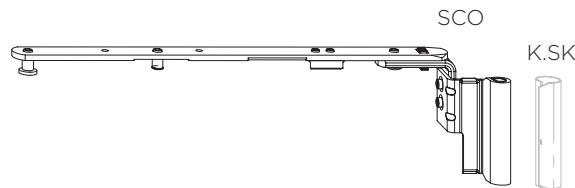
## Shear SCO

- Without turn restriction
- Used in combination with shear hinge SLC
- Only 2 shear sizes
- Adjustment function to lift and lower the sash
- Tilt opening width approx. 135 to 140 mm (depending on profile)
- For sash rebate heights ≤ 600 mm please use tilt limiter!
- Shear with tandem action
- After assembly the top rod and the shear are firmly attached to one another
- Visible parts available in various colours
- Max. sash weight 130/150 kg

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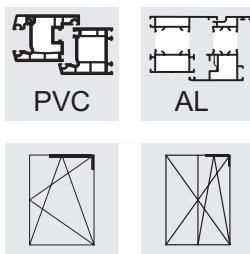
### Shear hinge cap K.SK

- See separate product page



Item description	Item No.	Groove centre position	Overlap	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
SCO1.20-9.LS	5062192	9	20	10 BD	60 KK	480 EK
SCO1.20-9.RS	5062191	9	20	10 BD	60 KK	480 EK
SCO1.20-9.LS.WS	5062194	9	20	10 BD	60 KK	480 EK
SCO1.20-9.RS.WS	5062193	9	20	10 BD	60 KK	480 EK
SCO2.20-9.LS	5062212	9	20	10 BD	80 GK	960 EK
SCO2.20-9.RS	5062211	9	20	10 BD	80 GK	960 EK
SCO2.20-9.LS.WS	5062214	9	20	10 BD	80 GK	960 EK
SCO2.20-9.RS.WS	5062213	9	20	10 BD	80 GK	960 EK
SCO1.20-13.LS	5062196	13	20	10 BD	60 KK	480 EK
SCO1.20-13.RS	5062195	13	20	10 BD	60 KK	480 EK
SCO1.20-13.LS.F9	5062200	13	20	10 BD	60 KK	480 EK
SCO1.20-13.RS.F9	5062199	13	20	10 BD	60 KK	480 EK
SCO1.20-13.LS.WS	5062198	13	20	10 BD	60 KK	480 EK
SCO1.20-13.RS.WS	5062197	13	20	10 BD	60 KK	480 EK
SCO2.20-13.LS	5062216	13	20	10 BD	80 GK	960 EK
SCO2.20-13.RS	5062215	13	20	10 BD	80 GK	960 EK
SCO2.20-13.LS.F9	5062220	13	20	10 BD	80 GK	960 EK
SCO2.20-13.RS.F9	5062219	13	20	10 BD	80 GK	960 EK
SCO2.20-13.LS.WS	5062218	13	20	10 BD	80 GK	960 EK
SCO2.20-13.RS.WS	5062217	13	20	10 BD	80 GK	960 EK
SCO1.21-13.LS	5062202	13	21	10 BD	60 KK	480 EK
SCO1.21-13.RS	5062201	13	21	10 BD	60 KK	480 EK
SCO1.21-13.LS.F9	5062206	13	21	10 BD	60 KK	480 EK
SCO1.21-13.RS.F9	5062205	13	21	10 BD	60 KK	480 EK
SCO1.21-13.LS.WS	5062204	13	21	10 BD	60 KK	480 EK
SCO1.21-13.RS.WS	5062203	13	21	10 BD	60 KK	480 EK
SCO2.21-13.LS	5062222	13	21	10 BD	80 GK	960 EK
SCO2.21-13.RS	5062221	13	21	10 BD	80 GK	960 EK
SCO2.21-13.LS.BR	5062228	13	21	10 BD	80 GK	960 EK
SCO2.21-13.RS.BR	5062227	13	21	10 BD	80 GK	960 EK
SCO2.21-13.LS.F9	5062226	13	21	10 BD	80 GK	960 EK
SCO2.21-13.RS.F9	5062225	13	21	10 BD	80 GK	960 EK
SCO2.21-13.LS.WS	5062224	13	21	10 BD	80 GK	960 EK
SCO2.21-13.RS.WS	5062223	13	21	10 BD	80 GK	960 EK
SCO1.22-13.LS	5062208	13	22	10 BD	60 KK	480 EK
SCO1.22-13.RS	5062207	13	22	10 BD	60 KK	480 EK
SCO1.22-13.LS.WS	5062210	13	22	10 BD	60 KK	480 EK
SCO1.22-13.RS.WS	5062209	13	22	10 BD	60 KK	480 EK
SCO2.22-13.LS	5062230	13	22	10 BD	80 GK	960 EK
SCO2.22-13.RS	5062229	13	22	10 BD	80 GK	960 EK
SCO2.22-13.LS.WS	5062232	13	22	10 BD	80 GK	960 EK
SCO2.22-13.RS.WS	5062231	13	22	10 BD	80 GK	960 EK

RS = right, LS = left, WS = white; BR = brown, F9 = titanium coloured

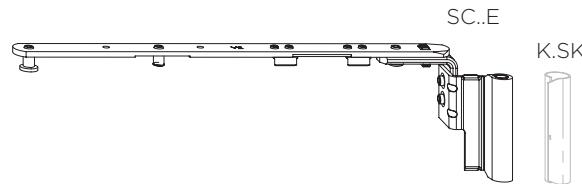


## Shears SC...E

- For the fitting variant "tilt before turn"
- Used in combination with shear hinge SL.C
- Only 2 shear sizes
- Adjustment function to lift and lower the sash
- Tilt opening width approx. 135 to 140 mm (depending on profile)
- For sash rebate heights ≤ 600 mm please use tilt limiter!
- Shear with tandem action
- After assembly the top rod and the shear are firmly attached to one another
- Integrated turn restriction by means of plastic sleeve in the shear hinge
- Visible parts available in various colours
- Max. sash weight 130/150 kg

### Shear hinge cap K.SK

- See separate product page

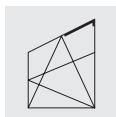
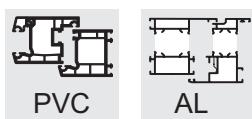


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Item description	Item No.	Groove centre position	Overlap	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
SC1.E.18-9.LS	5062284	9	18	10 BD	60 KK	480 EK
SC1.E.18-9.RS	5062283	9	18	10 BD	60 KK	480 EK
SC2.E.18-9.LS	5062301	9	18	10 BD	80 GK	960 EK
SC2.E.18-9.RS	5062300	9	18	10 BD	80 GK	960 EK
SC1.E.18-13.LS	5062288	13	18	10 BD	60 KK	480 EK
SC1.E.18-13.RS	5062285	13	18	10 BD	60 KK	480 EK
SC2.E.18-13.LS	5062303	13	18	10 BD	80 GK	960 EK
SC2.E.18-13.RS	5062302	13	18	10 BD	80 GK	960 EK
SC1.E.20-9.LS	5062291	9	20	10 BD	60 KK	480 EK
SC1.E.20-9.RS	5062290	9	20	10 BD	60 KK	480 EK
SC1.E.20-9.LS.WS	5062293	9	20	10 BD	60 KK	480 EK
SC1.E.20-9.RS.WS	5062292	9	20	10 BD	60 KK	480 EK
SC2.E.20-9.LS	5062305	9	20	10 BD	80 GK	960 EK
SC2.E.20-9.RS	5062304	9	20	10 BD	80 GK	960 EK
SC2.E.20-9.LS.WS	5062307	9	20	10 BD	80 GK	960 EK
SC2.E.20-9.RS.WS	5062306	9	20	10 BD	80 GK	960 EK
SC1.E.20-13.LS	5062295	13	20	10 BD	60 KK	480 EK
SC1.E.20-13.RS	5062294	13	20	10 BD	60 KK	480 EK
SC1.E.20-13.LS.WS	5062297	13	20	10 BD	60 KK	480 EK
SC1.E.20-13.RS.WS	5062296	13	20	10 BD	60 KK	480 EK
SC2.E.20-13.LS	5062311	13	20	10 BD	80 GK	960 EK
SC2.E.20-13.RS	5062309	13	20	10 BD	80 GK	960 EK
SC2.E.20-13.LS.WS	5062313	13	20	10 BD	80 GK	960 EK
SC2.E.20-13.RS.WS	5062312	13	20	10 BD	80 GK	960 EK
SC1.E.21-13.LS	5062299	13	21	10 BD	60 KK	480 EK
SC1.E.21-13.RS	5062298	13	21	10 BD	60 KK	480 EK
SC2.E.21-13.LS	5062315	13	21	10 BD	80 GK	960 EK
SC2.E.21-13.RS	5062314	13	21	10 BD	80 GK	960 EK

RS = right, LS = left

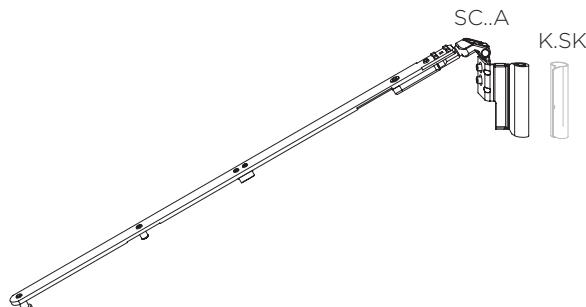
WS = white



## Shears SC...A

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- For non square edges in the shear area
- Adjustable angle setting
- Used in combination with shear hinge SLC
- Only 2 shear sizes
- Adjustment function to lift and lower the sash
- Tilt opening width approx. 135 to 140 mm (depending on profile)
- For sash rebate heights ≤ 600 mm please use tilt limiter!
- Shear with tandem action
- After assembly the top rod and the shear are firmly attached to one another
- Integrated turn restriction by means of plastic sleeve in the shear hinge
- Visible parts available in various colours
- Max. sash weight: 80 kg



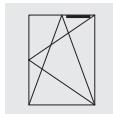
### Shear hinge cap K.SK

- See separate product page

Item description	Item No.	Groove centre position	Overlap	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
SC1.A.18-9.LS	5062259	9	18	10 BD	60 KK	480 EK
SC1.A.18-9.RS	5062258	9	18	10 BD	60 KK	480 EK
SC2.A.18-9.LS	5062271	9	18	10 BD	80 GK	960 EK
SC2.A.18-9.RS	5062270	9	18	10 BD	80 GK	960 EK
SC1.A.18-13.LS	5062261	13	18	10 BD	60 KK	480 EK
SC1.A.18-13.RS	5062260	13	18	10 BD	60 KK	480 EK
SC2.A.18-13.LS	5062273	13	18	10 BD	80 GK	960 EK
SC2.A.18-13.RS	5062272	13	18	10 BD	80 GK	960 EK
SC1.A.20-9.LS	5062263	9	20	10 BD	60 KK	480 EK
SC1.A.20-9.RS	5062262	9	20	10 BD	60 KK	480 EK
SC2.A.20-9.LS	5062275	9	20	10 BD	80 GK	960 EK
SC2.A.20-9.RS	5062274	9	20	10 BD	80 GK	960 EK
SC1.A.20-13.LS	5062265	13	20	10 BD	60 KK	480 EK
SC1.A.20-13.RS	5062264	13	20	10 BD	60 KK	480 EK
SC1.A.20-13.LS.WS	5062267	13	20	10 BD	60 KK	480 EK
SC1.A.20-13.RS.WS	5062266	13	20	10 BD	60 KK	480 EK
SC2.A.20-13.LS	5062278	13	20	10 BD	80 GK	960 EK
SC2.A.20-13.RS	5062277	13	20	10 BD	80 GK	960 EK
SC2.A.20-13.LS.WS	5062280	13	20	10 BD	80 GK	960 EK
SC2.A.20-13.RS.WS	5062279	13	20	10 BD	80 GK	960 EK
SC1.A.21-13.LS	5062269	13	21	10 BD	60 KK	480 EK
SC1.A.21-13.RS	5062268	13	21	10 BD	60 KK	480 EK
SC2.A.21-13.LS	5062282	13	21	10 BD	80 GK	960 EK
SC2.A.21-13.RS	5062281	13	21	10 BD	80 GK	960 EK

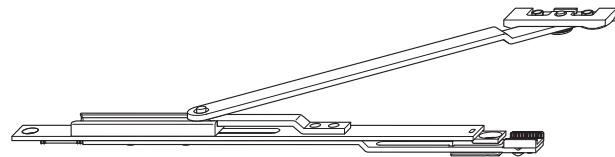
RS = right, LS = left

WS = white



## Additional shear ZSR SL

- Airgap 12 mm
- Overlap 18 to 22 mm
- For width FFB > 1475 mm
- Screw-connect-type frame plate preadjusted for insertion of WSK part (profile-dependent, see Group 11)
- Installation situation see Group 15, installation drawings B-7-4
- Profile adaption using adapters FT - WSK .... see group Frame Parts



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### Additional shear ZSR.13-3

- As described above
- Frame plate designed for 13 mm groove centre position and 3 mm chamfer behind the glazing bead with groove

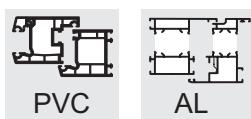
### Additional shear ZSRE SL

- Use in turn-tilt windows with operating sequence tilt before turn
- In all other respects construction is the same as additional shear ZSR
- Installation situation see group 15, installation drawings B-7-5

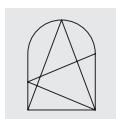
### Additional shear ZSRE.13-3

- As described above
- Frame plate designed for 13 mm groove centre position and 3 mm chamfer behind the glazing bead with groove

Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
ZSR SL	5048941	FFB > 1475	4	10 BD	80 KK	640 EK
ZSR.13-3	5054240	FFB > 1475	4	10 BD	80 KK	640 EK
ZSRE SL	5048946	FFB > 1475	4	10 BD	80 KK	640 EK
ZSRE.13-3	5054241	FFB > 1475	4	10 BD	80 KK	640 EK



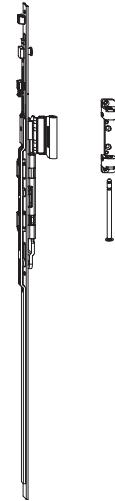
New  
version



## Round arch set GRT.RB.K...

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- For round-arch windows
- Rundbogenschere mit vormontiertem Scherenband
- For left and right hand operation
- Flügelgewicht maximal 80 kg
- Zusatzbauteile im Beipackbeutel zusammengefasst



### Beipackbeutel für Garnituren in verzinkter Oberfläche

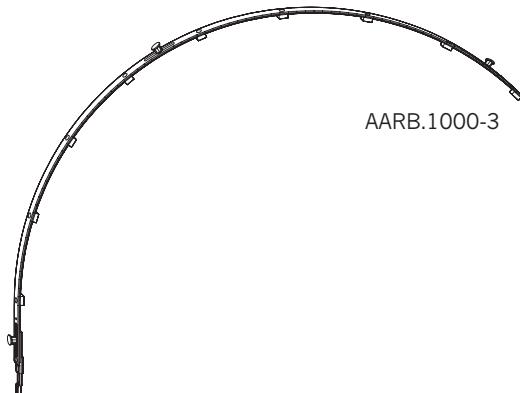
- Auflauf K-SEF zum Anheben des Flügels in Kippstellung
- Dual function element DFE
- Rahmenteil RT.DFE links & rechts
- Sicherungsblech
- Scherenlager verzinkt
- Scherenlagerkappe in F9 und WS
- Scherenbandkappe in F9 und WS

### Beipackbeutel für Garnituren F9 oder WS

- As described above
- Scherenlager und Scherenband in gepulverter Oberfläche
- Ohne Scherenlagerkappe
- Ohne Scherenbandkappe

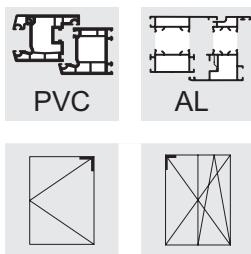
### Connecting rail AARB.1000-3

- Verriegelungsschiene für den Bogenbereich
- Maximal 3 Verriegelungszapfen



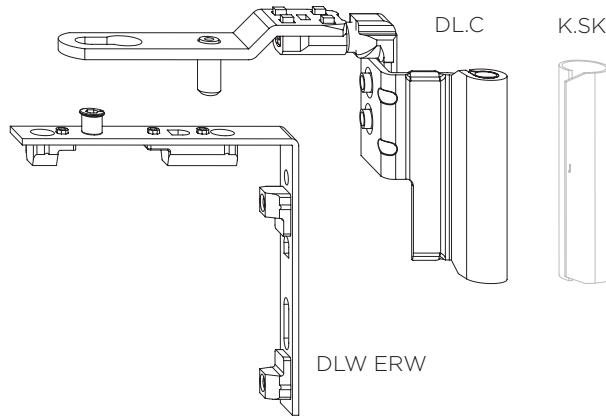
AARB.1000-3

Item description	Item No.	Overlap	Groove centre position	VPA1 Qty./Type	VPA2 Qty./Type
GRT.RB.K.18-9	5087570	18	9	1 KT	60 EA
GRT.RB.K.18-13	5087571	18	13	1 KT	60 EA
GRT.RB.K.18-13.F9	5087581	18	13	1 KT	60 EA
GRT.RB.K.18-13.WS	5087582	18	13	1 KT	60 EA
GRT.RB.K.20-9.F9	5087572	20	9	1 KT	60 EA
GRT.RB.K.20-13	5087573	20	13	1 KT	60 EA
GRT.RB.K.20-13.F9	5087574	20	13	1 KT	60 EA
GRT.RB.K.20-13.WS	5087575	20	13	1 KT	60 EA
GRT.RB.K.21-13	5087576	21	13	1 KT	60 EA
AARB.1000-3	4927284			10 BD	400 EA



## Turn hinge insert DL.C

- Used in combination with shear hinge S.L.C
- Available for mounting left and right hand
- Integrated turn restriction via plastic sleeve in shear hinge
- Visible parts available in various colours
- Adjustment for lifting and lowering the sash (+3/-2 mm)
- Pressure adjustment ±0.8 mm
- Used with turn hinge bracket DLW.ERW
- Max. sash weight 130/150 kg



### Turn hinge bracket DLW.ERW

- Used to hold the turn hinge insert
- Automatic and manual assembly possible
- Faceplate width 16 mm
- Can be used left and right hand

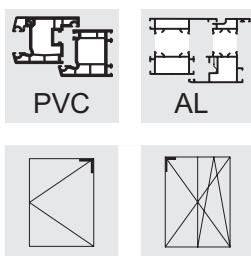
### Shear hinge cap K.SK

- See separate product page

Item description	Item No.		Groove centre position	Overlap	VPA1 Qty./Type	VPA2 Qty./Type
DLC.18-9.LS	5063141		9	18	100 KK	800 EK
DLC.18-9.RS	5063140		9	18	100 KK	800 EK
DLC.18-9.LS.F9	5063144		9	18	100 KK	800 EK
DLC.18-9.RS.F9	5063142		9	18	100 KK	800 EK
DLC.18-13.LS	5063146		13	18	100 KK	800 EK
DLC.18-13.RS	5063145		13	18	100 KK	800 EK
DLC.20-9.LS	5063148		9	20	100 KK	800 EK
DLC.20-9.RS	5063147		9	20	100 KK	800 EK
DLC.20-9.LS.F9	5063152		9	20	100 KK	800 EK
DLC.20-9.RS.F9	5063151		9	20	100 KK	800 EK
DLC.20-9.LS.WS	5063150		9	20	100 KK	800 EK
DLC.20-9.RS.WS	5063149		9	20	100 KK	800 EK
DLC.20-13.LS	5063154		13	20	100 KK	800 EK
DLC.20-13.RS	5063153		13	20	100 KK	800 EK
DLC.20-13.LS.BR	5063160		13	20	100 KK	800 EK
DLC.20-13.RS.BR	5063159		13	20	100 KK	800 EK
DLC.20-13.LS.F9	5063158		13	20	100 KK	800 EK
DLC.20-13.RS.F9	5063157		13	20	100 KK	800 EK
DLC.20-13.LS.WS	5063156		13	20	100 KK	800 EK
DLC.20-13.RS.WS	5063155		13	20	100 KK	800 EK
DLC.20-13.PLS	5063162		13	20	100 KK	800 EK
DLC.20-13.PRS	5063161		13	20	100 KK	800 EK
DLC.21-13.LS	5063164		13	21	100 KK	800 EK
DLC.21-13.RS	5063163		13	21	100 KK	800 EK
DLC.21-13.LS.F9	5063168		13	21	100 KK	800 EK
DLC.21-13.RS.F9	5063167		13	21	100 KK	800 EK
DLC.21-13.LS.WS	5063166		13	21	100 KK	800 EK
DLC.21-13.RS.WS	5063165		13	21	100 KK	800 EK
DLC.22-13.LS	5063170		13	22	100 KK	800 EK
DLC.22-13.RS	5063169		13	22	100 KK	800 EK
DLW ERW C SL	2852135	4			100 KK	800 EK
DLW ERW SL	2300023	4			100 KK	800 EK

RS = right, LS = left

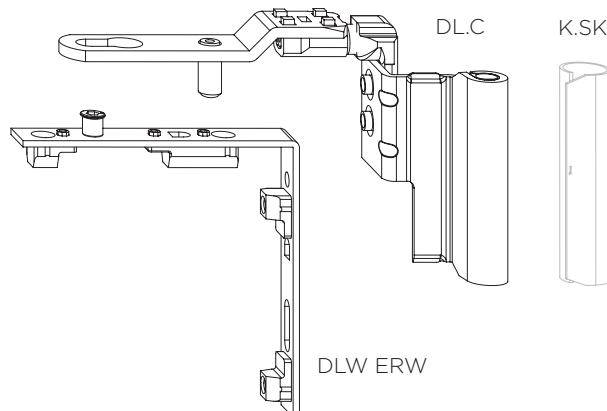
WS = white; BR = brown, F9 = titanium coloured



## Turn hinge insert DL.CO

- Identical to turn hinge insert DL.C, but without turn restriction
- Used in combination with shear hinge SL.C
- Available for mounting left and right hand
- Visible parts available in various colours
- Adjustment for lifting and lowering the sash (+3/-2 mm)
- Pressure adjustment ±0.8 mm
- Used with turn hinge bracket DLW.ERW
- Max. sash weight 130/150 kg

8



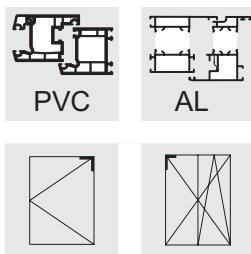
### Turn hinge bracket DLW.ERW

- Used to hold the turn hinge insert
- Automatic and manual assembly possible
- Faceplate width 16 mm
- Can be used left and right hand

### Shear hinge cap K.SK

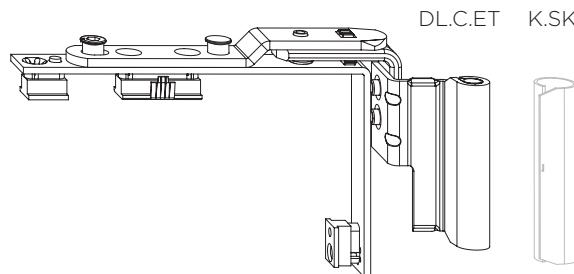
- See separate product page

Item description	Item No.		Overlap	Groove centre position	VPA1 Qty./Type	VPA2 Qty./Type
DL.CO.20-9.LS	5063172		20	9	100 KK	800 EK
DL.CO.20-9.RS	5063171		20	9	100 KK	800 EK
DL.CO.20-13.LS.F9	5063176		20	13	100 KK	800 EK
DL.CO.20-13.RS.F9	5063175		20	13	100 KK	800 EK
DL.CO.20-13.LS.WS	5063174		20	13	100 KK	800 EK
DL.CO.20-13.RS.WS	5063173		20	13	100 KK	800 EK
DL.CO.21-13.LS	5063178		21	13	100 KK	800 EK
DL.CO.21-13.RS	5063177		21	13	100 KK	800 EK
DLW ERW SL	2300023	4			100 KK	800 EK
DLW ERW C SL	2852135	4			100 KK	800 EK



## Turn hinges DL.C.ET

- Used in combination with shear hinge S.L.C
- Corner bracket and turn hinge insert are firmly connected to each other.
- Available for mounting left and right hand
- Integrated turn restriction via plastic sleeve in shear hinge
- Visible parts available in various colours
- Adjustment for lifting and lowering the sash (+3/-2 mm)
- Pressure adjustment ±0.8 mm
- Max. sash weight 130/150 kg



8

### Turn hinge DL.C.ET...P

- As described above
- Contact pressure is increased by 1 mm

### Turn hinge DL.CO.ET

- As described above
- Without turn restriction

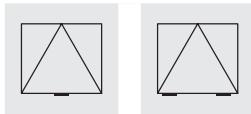
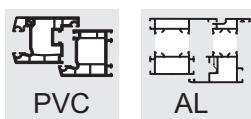
### Shear hinge cap K.SK

- See separate product page

Item description	Item No.		Groove centre position	Overlap	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
DLC.ET18-9.LS	5063106	4	9	18	10 BD	100 GK	400 EK
DLC.ET18-9.RS	5063104	4	9	18	10 BD	100 GK	400 EK
DLC.ET20-9.LS	5063109	4	9	20	10 BD	100 GK	400 EK
DLC.ET20-9.RS	5063107	4	9	20	10 BD	100 GK	400 EK
DLC.ET.20-9.LS.WS	5063111	4	9	20	10 BD	100 GK	400 EK
DLC.ET.20-9.RS.WS	5063110	4	9	20	10 BD	100 GK	400 EK
DLC.ET.20-10.LS	5063113	4	10	20	10 BD	100 GK	400 EK
DLC.ET.20-10.RS	5063112	4	10	20	10 BD	100 GK	400 EK
DLC.ET.20-13.LS	5063115	4	13	20	10 BD	100 GK	400 EK
DLC.ET.20-13.RS	5063114	4	13	20	10 BD	100 GK	400 EK
DLC.ET.20-13.LS.BR	5063122	4	13	20	10 BD	100 GK	400 EK
DLC.ET.20-13.RS.BR	5063121	4	13	20	10 BD	100 GK	400 EK
DLC.ET.20-13.LS.F9	5063120	4	13	20	10 BD	100 GK	400 EK
DLC.ET.20-13.RS.F9	5063119	4	13	20	10 BD	100 GK	400 EK
DLC.ET.20-13.LS.WS	5063118	4	13	20	10 BD	100 GK	400 EK
DLC.ET.20-13.RS.WS	5063117	4	13	20	10 BD	100 GK	400 EK
DLC.ET.20-13.PLS	5063125	4	13	20	10 BD	100 GK	400 EK
DLC.ET.20-13.P.RS	5063123	4	13	20	10 BD	100 GK	400 EK
DL.CO.ET.20-13.LS	5063127	4	13	20	10 BD	100 GK	400 EK
DL.CO.ET.20-13.RS	5063126	4	13	20	10 BD	100 GK	400 EK
DL.CO.ET.20-13.LS.WS	5063129	4	13	20	10 BD	100 GK	400 EK
DL.CO.ET.20-13.RS.WS	5063128	4	13	20	10 BD	100 GK	400 EK

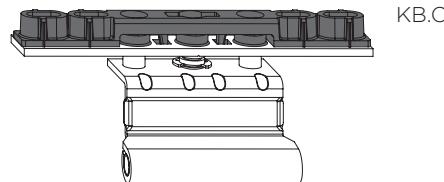
RS = right, LS = left

WS = white; BR = brown, F9 = titanium coloured



## Tilt hinge KB.C

- Used in combination with shear hinge SL.C
- Clampable in fitting groove
- Visible parts available in various colours
- Max. sash weight 80 kg



8

### Tilt hinge KB.C...P

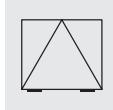
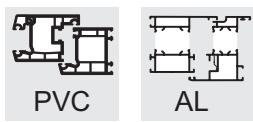
- As described above
- Contact pressure is increased by 1 mm

### Shear hinge cap K.SK

- See separate product page

Item description	Item No.		Groove centre position	Overlap	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
KB.C.18-9	5082093	4	9	18	10 BL	100 KK	800 EK
KB.C.18-9.F9	5082095	4	9	18	10 BL	100 KK	800 EK
KB.C.18-9.WS	5082094	4	9	18	10 BL	100 KK	800 EK
KB.C.18-13	5082096	4	13	18	10 BL	100 KK	800 EK
KB.C.18-13.F9	5082097	4	13	18	10 BL	100 KK	800 EK
KB.C.20-9	5082098	4	9	20	10 BL	100 KK	800 EK
KB.C.20-9.F9	5082100	4	9	20	10 BL	100 KK	800 EK
KB.C.20-9.WS	5082099	4	9	20	10 BL	100 KK	800 EK
KB.C.20-13	5082101	4	13	20	10 BL	100 KK	800 EK
KB.C.20-13.BR	5082104	4	13	20	10 BL	100 KK	800 EK
KB.C.20-13.CW	5082105	4	13	20	10 BL	100 KK	800 EK
KB.C.20-13.F9	5082103	4	13	20	10 BL	100 KK	800 EK
KB.C.20-13.P	5082106	4	13	20	10 BL	100 KK	800 EK
KB.C.20-13.WS	5082102	4	13	20	10 BL	100 KK	800 EK
KB.C.21-13	5082107	4	13	21	10 BL	100 KK	800 EK
KB.C.21-13.F9	5082109	4	13	21	10 BL	100 KK	800 EK
KB.C.21-13.WS	5082108	4	13	21	10 BL	100 KK	800 EK
KB.C.22-13	5082110	4	13	22	10 BL	100 KK	800 EK

WS = white, BR = brown, SL = silver, EV1 = anodised silver, F1 = silver colour, F3 = gold colour, BZ-RB = bronze red brown, F9 = titanium coloured, CW = creme white



## Tilt hinge KL.B.C

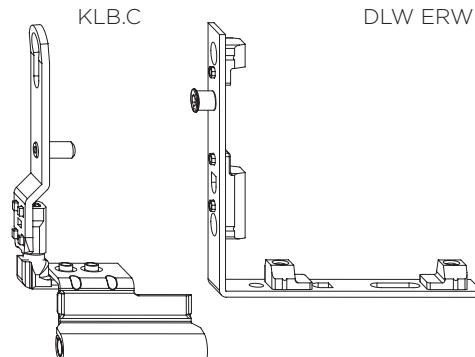
- Used in combination with shear hinge S.L.C
- Available for mounting left and right hand
- Visible parts available in various colours
- Adjustment for lifting and lowering the sash (+3/-2 mm)
- Pressure adjustment ±0.8 mm
- Used with turn hinge bracket DLW.ERW
- Max. sash weight 80 kg

### Turn hinge bracket DLW ERW

- Used to hold the turn hinge insert
- Automatic and manual assembly possible
- Faceplate width 16 mm
- Can be used left and right hand

### Shear hinge cap K.SK

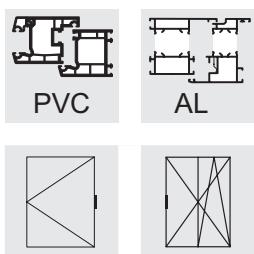
- See separate product page



Item description	Item No.		Overlap	Groove centre position	VPA1 Qty./Type	VPA2 Qty./Type
KL.B.C.20-9.LS	5062979		20	9	100 KK	800 EK
KL.B.C.20-9.RS	5062978		20	9	100 KK	800 EK
KL.B.C.20-9.LS.F9	5062983		20	9	100 KK	800 EK
KL.B.C.20-9.RS.F9	5062982		20	9	100 KK	800 EK
KL.B.C.20-9.LS.WS	5062981		20	9	100 KK	800 EK
KL.B.C.20-9.RS.WS	5062980		20	9	100 KK	800 EK
KL.B.C.20-13.LS	5062985		20	13	100 KK	800 EK
KL.B.C.20-13.RS	5062984		20	13	100 KK	800 EK
KL.B.C.20-13.LS.CW	5089423		20	13	100 KK	800 EK
KL.B.C.20-13.RS.CW	5089421		20	13	100 KK	800 EK
KL.B.C.20-13.LS.F9	5062989		20	13	100 KK	800 EK
KL.B.C.20-13.RS.F9	5062988		20	13	100 KK	800 EK
KL.B.C.20-13.LS.WS	5062987		20	13	100 KK	800 EK
KL.B.C.20-13.RS.WS	5062986		20	13	100 KK	800 EK
DLW ERW SL	2300023	4			100 KK	800 EK
DLW ERW C SL	2852135	4			100 KK	800 EK

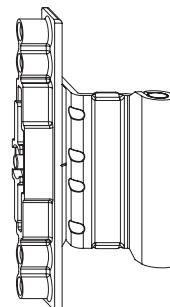
RS = right, LS = left

WS = white, F9 = titanium coloured



## Turn middle hinge DML.C

- Used in combination with shear hinge S.L.C
- Vertical and lateral float mounting
- Pressure adjustment  $\pm 0.8$  mm
- Can be used left and right hand



DML.C

### Turn middle hinge DML.C...P

- As described above
- Contact pressure is increased by 1 mm

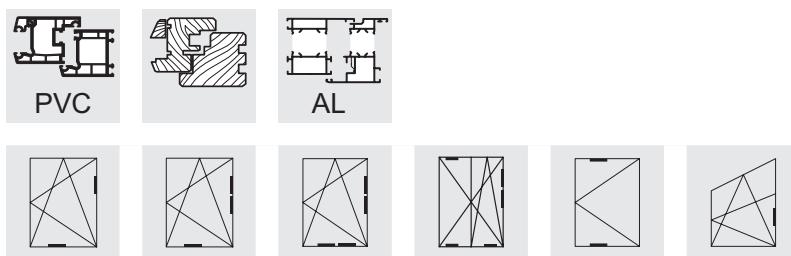
### Shear hinge cap K.SK

- See separate product page



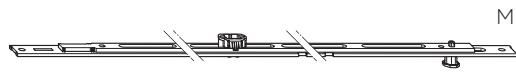
K.SK

Item description	Item No.	Groove centre position	Overlap	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
DML.C.20-9	5063179	9	20	10 BL	100 KK	800 EK
DML.C.20-13	5063180	13	20	10 BL	100 KK	800 EK
DML.C.20-13.P	5063181	13	20	10 BL	100 KK	800 EK



## Interlocking rod M

- Central fastening loosens automatically by tightening fitting screw
- Functional both vertically and horizontally
- Clampable in fitting groove



### Interlocking rod MK

- Extendable interlocking rod, can be combined with Winkhaus standard gearing
- Otherwise this design is identical to interlocking rod M

### Interlocking rod M/MK ... C

- Same construction as M/MK..., but with additional clamping piece

### Interlocking rod MB

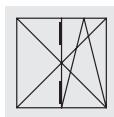
- Design is identical to interlocking rod M, but with increased lengths for the hinge side

### Interlocking rod MK ... BS

- The components specially developed for threshold solutions (sash and frame side) can be gathered from the catalogue "Complementary range activPilot threshold components...".

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Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
M.250-1	2822471	2	20 BD	100 KK	800 EK
M.350-1	5012660	2	20 BD	100 KK	2400 EK
M.500-1	4933994	3	20 BD	100 GK	1200 EK
M.500-I.C	4933999	3	20 BD	100 GK	1200 EK
M.750-1	4940652	5	20 BD	500 EA	
MK.150-1	5043228	2	20 BD	100 KK	800 EK
MK.250-0	4929185	2	20 BD	100 KK	800 EK
MK.250-1	2824919	2	20 BD	100 KK	800 EK
MK.500-0	4929187	3	20 BD	500 EA	
MK.500-0.C	4932315	3	20 BD	500 EA	
MK.500-1	2824986	3	20 BD	500 EA	
MK.500-I.C	4932287	3	20 BD	500 EA	
MK.750-1	4940653	5	20 BD	500 EA	
MK.750-2	5009140	5	20 BD	500 EA	
MB.1000-2	5018552	5	10 BD	400 EA	
MB.1250-2	4942625	7	10 BD	400 L1	
MB.1450-2	4942626	8	10 BD	400 L1	
MB.1750-3	4942627	10	10 BD	400 L1	



MS.SU.

MS.SO.

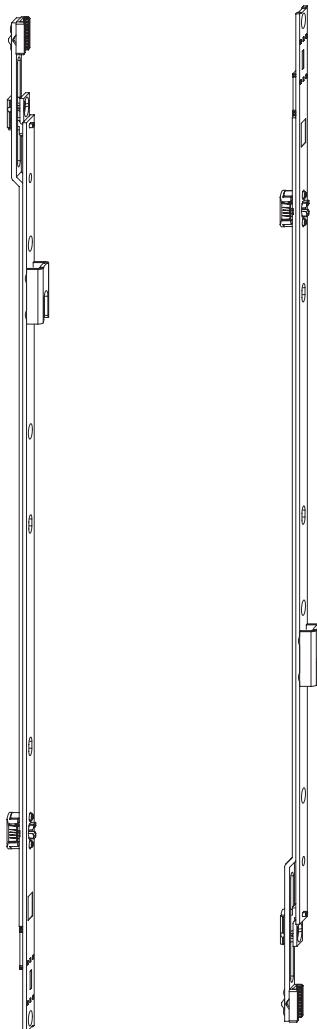
## Interlocking rod MS.SU

- For fitting vertically below the double-sash drive rod
- Safety keeps are generally pre-assembled
- Clampable in fitting groove
- Designed for 12 mm airgap
- Central fastening loosens automatically by tightening fitting screw

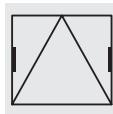
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### Interlocking rod MS.SO

- For fitting vertically above the double-sash drive rod
- Otherwise this type is identical to interlocking rod MS.SU



Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
MS.SO.250-1	4934014	2	20 BD	100 KK	800 EK
MS.SO.500-1	2838982	4	20 BD	2700 EA	
MS.SU.250-1	4933801	2	20 BD	100 KK	800 EK
MS.SU.500-1	2838464	4	20 BD	2700 EA	



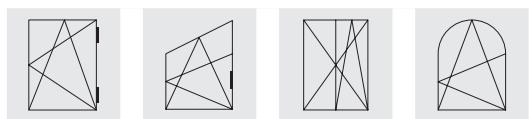
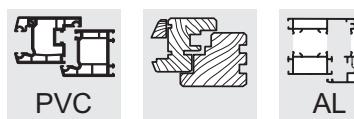
## Interlocking rod MK.250.0-HA

- For tilt windows
- In combination with safety shears (brand: Hautau)
- Designed for 12 mm airgap
- Central fastening loosens automatically by tightening fitting screw



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Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
MK.250.0-HA	5044624	2	20 BD	100 KK	800 EK



KE SL KE.500-1.SO.RC-N KE.500-1.RC-N VBST

## Coupling element KE

- Application area: connecting two gear ends (tooth shoes), e.g. corner drive E1 with an interlocking rod MK
- Clampable in fitting groove
- Functional both vertically and horizontally
- Central fastening loosens automatically by tightening fitting screw
- Cutting area 250 mm
- Component length 510 mm

9

### Coupling element KE.500-1.RC-N

- As described above
- Cutting area 250 mm
- Component length 500 mm
- Includes one locking point

### Coupling element KE.500-1.SO.RC-N

- As described above
- With a welded keep
- Matching part of KE.500-1.RC-N for face plate area

### Connection rod VS RB SL

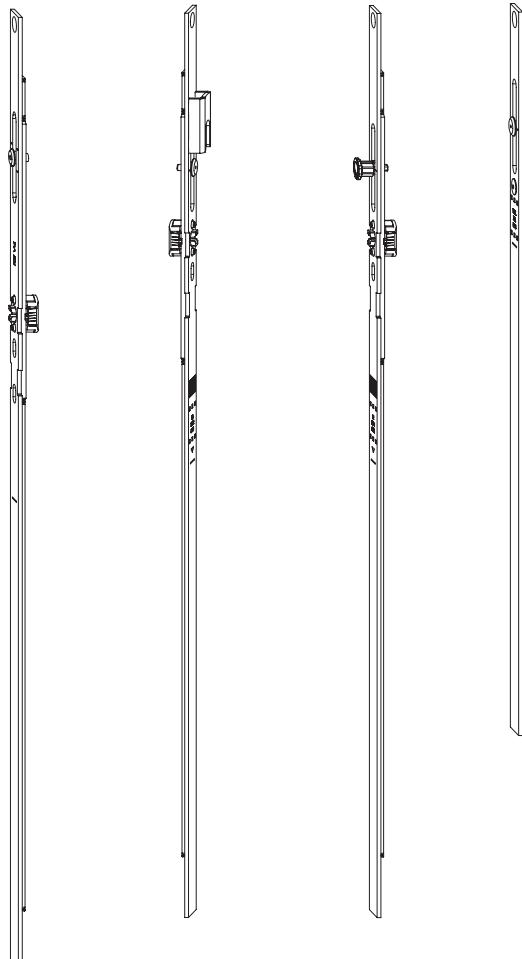
- Connection between round arch set (Chapter 7) and standard gearing

### Connection rod VS RB-K SL

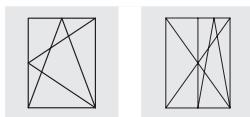
- Connection between round arch set (Chapter 7) and standard gearing
- For small window heights see Group 1, lists of fittings

### Connection piece VBST

- Application area: connecting two gear ends (tooth shoes), e.g. corner drive E1 with an interlocking rod MK
- Clampable in fitting groove
- Functional both vertically and horizontally
- Fixed in the centre
- Cutting area 250 mm
- Length of component 370 mm



Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
KE SL	4982891	1	10 BD	1000 EA	
KE.500-1.RC-N	5043229	1	10 BD	1000 EA	
KE.500-1.SO.RC-N	5043230	1	10 BD	1000 EA	
VS RB SL	1811411	0	10 BD	100 GK	400 EK
VS RB-K SL	1811420	1	10 BD	100 KK	800 EK
VBST.370.RC-N	5043231	1	10 BD	100 GK	400 EK



## Extension rod V.AK.450-1

- Used to position a locking point near the sash hinge (up to RC2 / RC2 N / SKG\*\*)
- Functional both vertically and horizontally
- Not extendable
- Clampable in fitting groove
- Component length 450 mm
- Cutting area 250 mm

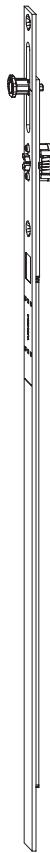
### Extension rod VK.AK.450-1

- Same construction as described above, but it can be connected to Winkhaus standard gearing

### Extension rod V.AK.450-1.BS16

- The components specially developed for threshold solutions (sash and frame side) can be gathered from the catalogue "Complementary range activPilot threshold components..." .

V.AK.450-1

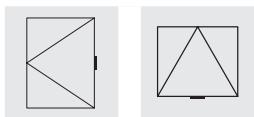
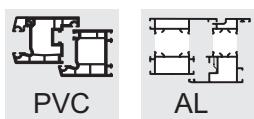


VK.AK.450-1



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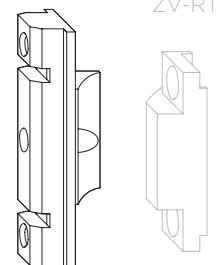
Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
V.AK.450-1	4942706	3	10 BD	1000 EA	
VK.AK.450-1	5071694	2	20 BD	100 GK	400 EK



ZV-FT

## Pull-in device ZV-FT SL

- Central locking device for turn-only windows
- Assembly on the sash
- Concealed in the rebate
- Adjustable for airgaps of 11 to 14 mm
- In combination with ZV-RT SL frame parts

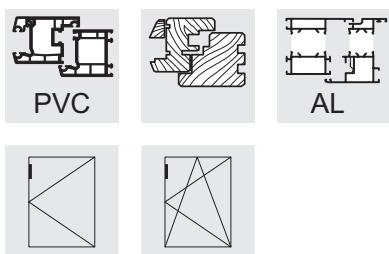


### Keep ZV-RT SL

- Central locking device for turn-only windows
- Installation on the frame
- Concealed in the rebate
- For rebate clearance of 11 to 14 mm
- Profile attribution see keep overview

9

Item description	Item No.		Groove centre position	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
ZV-FT SL	2359324	2	9/13	10 BL	100 KK	800 EK



## Extension rod MK.250.FSF

- Functional parts such as fail safe device FSF and dual function element DFE retrofittable
- Extension rod cannot be cut to length
- Face plate length 250 mm
- For tall windows with low handle position
- Installation position on the upper drive side

Please observe for dual function element DFE!

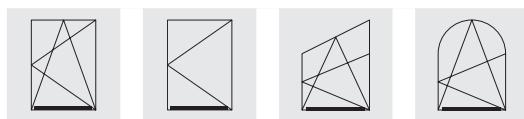
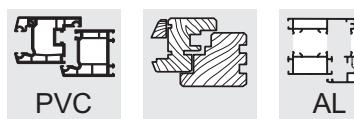
- The DFE dual function element for use with the MK.250. FSF as fail safe device can basically only be used for 1-sash window units. For 2-sash units it is only possible if the fitting groove of the stationary sash is free (for holding a keep with frame part DFE/TFE).

MK.250.FSF

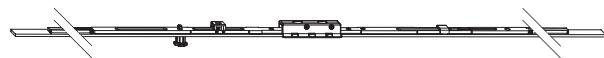


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Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
MK.250.FSF	5009920	3	20 BD	100 KK	800 EK



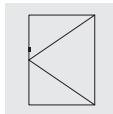
## Connection rod VSAM



- One-piece connection rod for linking two corner drives
- For radius head and studio windows
- Can be used left and right hand
- Mounted in centre
- Locking positions identical to GAM drive rod range

9

Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
VSAM.800	5014974	FFH/FFB 510 - 800	2	20 BD	400 EA	
VSAM.1050	5014975	FFH/FFB 710 - 1050	2	20 BD	400 EA	
VSAM.1050-1	5014976	FFH/FFB 710 - 1050	2	20 BD	400 EA	
VSAM.1400-1	5014977	FFH/FFB 900 - 1400	4	20 BD	400 L1	
VSAM.1800-2	5014979	FFH/FFB 1300 - 1800	6	10 BD	400 L1	
VSAM.2300-3	5015010	FFH/FFB 1800 - 2300	9	10 BD	400 L2	900 EU2



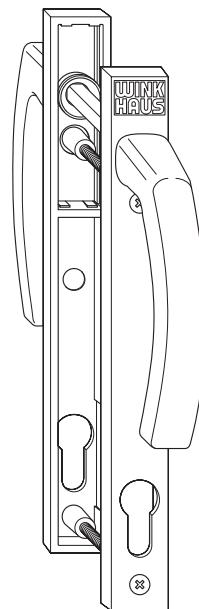
## Handle sets

### Handle set GG RN

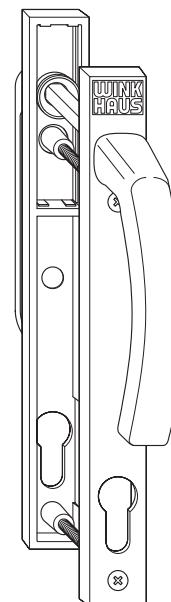
- For glazed doors without blinds
- Sash thickness up to max. 70 mm
- Gap between handle and profile cylinder to match drives GAMA/GAKA
- Available in different colours
- Screw into place from the interior side of the sash

### Handle set GG RR

- For glazed doors with blinds (exterior flat type)
- Sash thickness up to max. 70 mm
- Gap between handle and profile cylinder to match drives GAMA/GAKA
- Available in different colours
- Screw into place from the interior side of the sash



GG RN

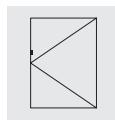


GG RR

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Item description	Item No.	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GG RN WS	2508641	1 KT	10 KK	80 EK
GG RN BR	2508633	1 KT	10 KK	80 EK
GG RN F1	2508561	1 KT	10 KK	80 EK
GG RN F9	2508650	1 KT	10 KK	80 EK
GG RR WS	2508684	1 KT	10 KK	80 EK
GG RR BR	2508676	1 KT	10 KK	80 EK
GG RR F9	2508692	1 KT	10 KK	80 EK

WS = white, BR = brown, SL = silver, F1 = silver coloured, F3 = gold coloured, F9 = titanium coloured



## Handle sets

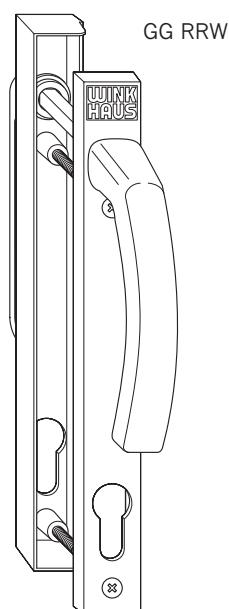
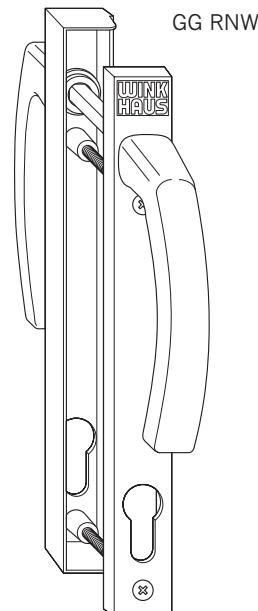
### Handle set GG RNW

- For glazed doors without blinds
- Sash thickness up to max. 70 mm
- Gap between handle and profile cylinder to match drives GAMA/GAKA
- Available in different colours
- To adapt to flush-mounted profiles
- Screw into place from the interior side of the sash

### Handle set GG RRW

- For glazed doors with blinds (exterior flat type)
- Sash thickness up to max. 70 mm
- Gap between handle and profile cylinder to match drives GAMA/GAKA
- Available in different colours
- To adapt to flush-mounted profiles
- Screw into place from the interior side of the sash

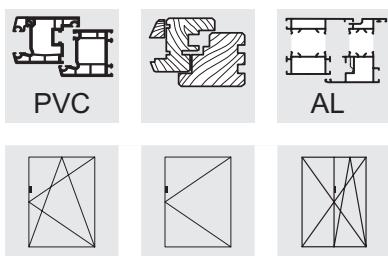
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Item description	Item No.	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GG RNW R74 LS WS	2508959	1 KT	10 KK	80 EK
GG RNW R74 RS WS	2508924	1 KT	10 KK	80 EK
GG RNW R74 LS F9	2508975	1 KT	10 KK	80 EK
GG RNW R74 RS F9	2508941	1 KT	10 KK	80 EK
GG RRW R74 LS WS	2508895	1 KT	10 KK	80 EK
GG RRW R74 RS WS	2508861	1 KT	10 KK	80 EK
GG RRW R74 LS F9	2508916	1 KT	10 KK	80 EK
GG RRW R74 RS F9	2508887	1 KT	10 KK	80 EK

RS = right, LS = left

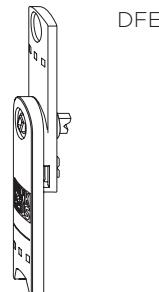
WS = white, BR = brown, SL = silver, F1 = silver coloured, F3 = gold coloured, F9 = titanium coloured



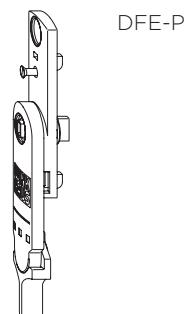
## Dual and triple function element

### Dual function element DFE

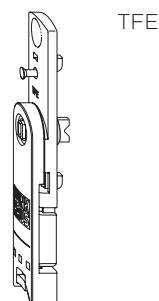
- For screwing onto the drive rod
- DFE includes the fail safe device and limiter support functions
- Centrally fixed when supplied and thus available for right and left-handed use
- Is activated on the sash after mounting
- See Group 14 for instructions on adjustment
- Max. sash weight 130 kg



DFE



DFE-P



TFE

### Dual function element DFE.OF

- As described above, but without fail-safe device
- Function: only as support keep
- (without figure)

### Dual function element DFE-P

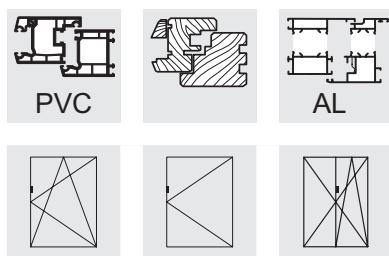
- as above, but as a pendulum variant

### Triple function element TFE

- For screwing onto the drive rod
- TFE includes the fail safe device, limiter support and balcony door catch
- Centrally fixed when supplied and thus available for right and left-handed use
- Is activated on the sash after mounting
- See Group 14 for instructions on adjustment
- Max. sash weight 130 kg

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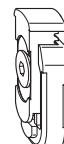
Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
DFE	4931451	1	50 BL	250 KK	2000 EK
DFE.OF	5001491	1	50 BL	250 KK	2000 EK
DFE-P	4932220	1	50 BL	250 KK	2000 EK
TFE	4931450	1	50 BL	250 KK	2000 EK



## Frame parts RT.DFE-TFE

### Frame part RT.DFE-TFE

- Serves as an adapter for dual or triple function element in standard security keeps SBS. ...
- Profile-independent as the adapter is fitted in the case of the security keeps
- Height adjustable (see Group 14)



RT.DFE-TFE

### Frame part RT.DFE-TFE LS/RS

- Serves as an adapter for dual or triple function element in standard security keeps SBS. ...
- Rear stop surface prevents the sash from overlapping
- Profile-independent as the adapter is fitted in the case of the security keeps
- Height adjustable (see Group 14)



RT.DFE-TFE.LS/RS

### Frame part RT.DFE-TFE.S

- Serves as an adapter for dual and triple function elements on double-sash drive rods
- Profile-independent as the adapter is fitted to the double-sash gear keeps
- Height adjustable (see Group 14)



RT.DFE-TFE.S

### Frame part RT.DFE-TFE.S LS/RS

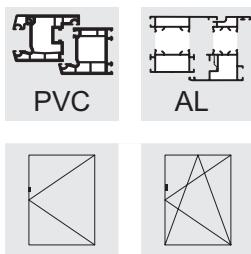
- Serves as an adapter for dual and triple function elements on double-sash drive rods
- Rear stop surface prevents the sash from overlapping
- Profile-independent as the adapter is fitted to the double-sash gear keeps
- Height adjustable (see Group 14)



RT.DFE-TFE.S.LS/RS

Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
RT.DFE-TFE.ZN	4937821	0	100 BL	500 KK	4000 EK
RT.DFE-TFE.LS	5073874	0	100 BL	500 KK	4000 EK
RT.DFE-TFE.RS	5073872	0	100 BL	500 KK	4000 EK
RT.DFE-TFE.S	4933544	0	100 BL	500 KK	4000 EK
RT.DFE-TFE.S.LS	4933547	0	100 BL	500 KK	4000 EK
RT.DFE-TFE.S.RS	4933545	0	100 BL	500 KK	4000 EK

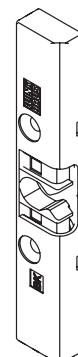
RS = right, LS = left



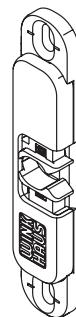
## Balcony door catch BK SL

- For glazed doors with 12 mm air gap
- Light latching force when closing the door
- Improved retaining force
- Profile dependent see Group 11, Frame Parts
- Catch bolt BO BH-BK E SL included in the scope of delivery

BK SL



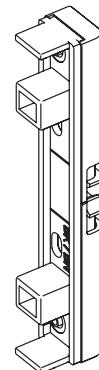
BK Z-8 SL



### Balcony door catch BK Z-8 SL

- Similar to BK balcony door catch, but with pins for positioning on the double-sash drive rod

BK BN SL



### Latch bolt BO BH-BK E SL

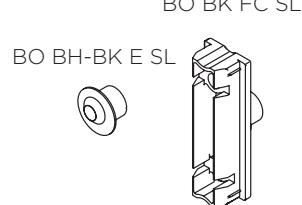
- Latch bolt for mounting on the drive rod

### Latch bolt BO BK FC SL

- Latch bolt to be installed in the sash's fitting groove, positionable with machine

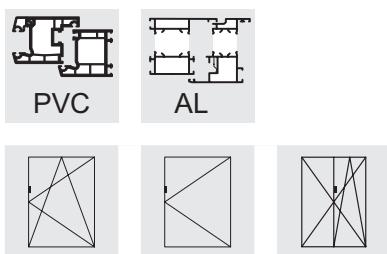
### Balcony door catch BK BN SL

- Mounted into the fitting groove



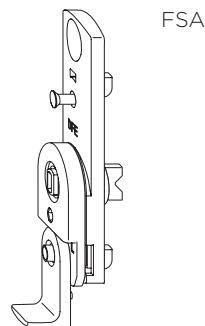
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Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
BK SL	1793250	2	100 KK	800 EK	
BK Z-8 SL	2446778	2	200 KK	1600 EK	
BO BK.SGR	5093001	1	100 BL	2000 KK	16000 EK
BO BK-FC	5087672	2	100 BL	800 KK	6400 EK
BK BN SL	1848353	2	100 KK	800 EK	



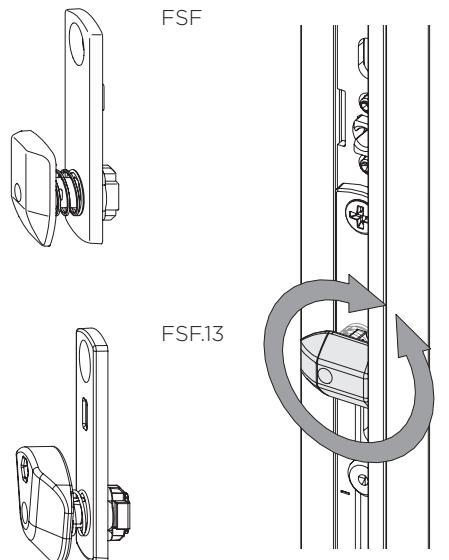
## Fail safe device FSA

- For screwing onto the drive rod
- Prevents an actuation of the handle when the sash is open
- Centrally fixed when supplied and thus available for right and left-handed use
- Is activated on the sash after mounting
- Separate frame part is not necessary (hits the frame)
- For groove position 9 mm or 13 mm



### Fail safe device FSF

- As described above
- With pressure piece for 9 mm and 13 mm groove centre position (separate frame part not necessary, pressure piece abuts to frame)



### Fail-safe device FSF.C

- As mentioned above, but clampable in the drive rod

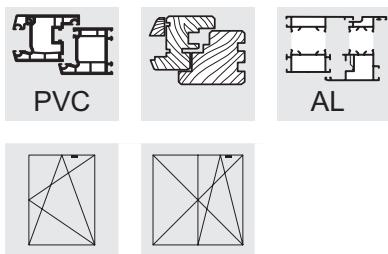
### Fail-safe device FSF.13

- Identical to FSF, but with reinforced pressure part for 13 mm groove centre position

### Fail safe device FSF.13.C

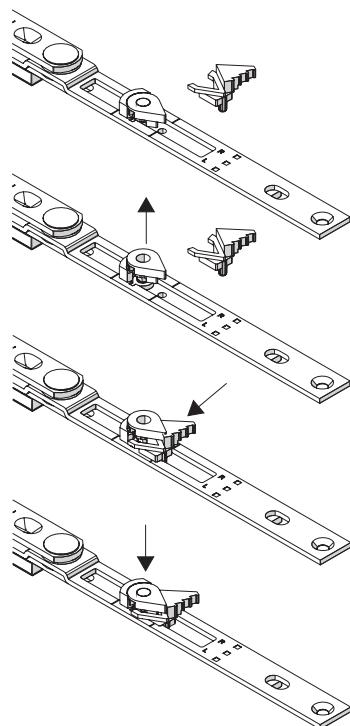
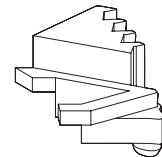
- As mentioned above, but clampable in the drive rod

Item description	Item No.		Groove centre position	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
FSA.9	4940796	1	9	100 BL	500 KK	4000 EK
FSA.13	5093580	1	13	100 BL	100 VE	500 KK
FSF	5031156	1	9/13	100 BL	500 KK	4000 EK
FSF.C	5034713	1	9/13	100 BL	500 KK	4000 EK
FSF.13	5055737	1	13	100 BL	500 KK	4000 EK
FSF.13.C	5066280	1	13	100 BL	500 KK	4000 EK



## Variable tilt device MSL-OS

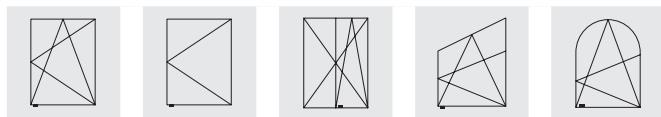
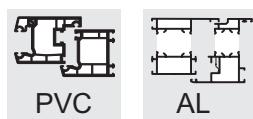
- Enables mini ventilation of approx. 20 – 45 mm in the tilt position
- Variable tilt device MSL.OS as retrofit option for window profiles with a frame rebate depth of 25 mm and 9 mm eurogroove position
- Simple mounting without tools
- MSL.OS can easily be retrofitted to the progressive shear retraction by pulling it up and inserting the MSL.OS device
- Can be retrofitted to all top rods OS ... with progressive shear retraction
- Right and left handed variants available



10

Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
MSL-OS.LS	4941704	0	50 BL	750 KK	6000 EK
MSL-OS.RS	4941703	0	50 BL	750 KK	6000 EK

RS = right, LS = left

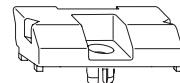


## Keep on sash side

- For lifting the sash during closing

### Support plate AL.M.F12

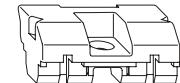
- For assembly in the suitable holes of the extension rod or for direct fitting in the sash-side fitting groove
- Installation height 11,5 mm
- Colour: anthracite grey or dusty grey



AL.M.F12

### Support plate AL FR BN 13/12 FC SL

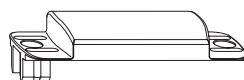
- Direct fitting in the eurogroove
- Installation height 11,5 mm
- Colour: silver

AL FR BN.../  
AL.BN.F12

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### Support plate AL.BN.F12

- Direct fitting in the eurogroove
- Suitable for use on screwdriving units
- Installation height 11,5 mm
- Colour: anthracite grey



AL.E.F

### Support plate AL.E.F

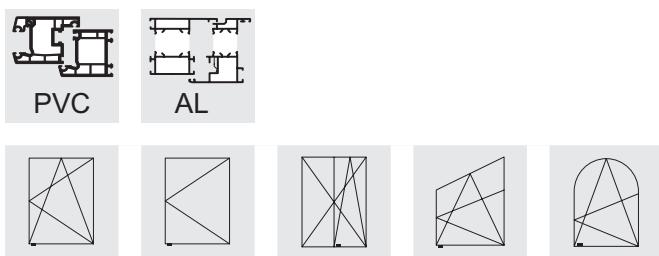
- Is fixed to the corner drive on the sash side if no interlocking rod is used
- Suitable for use on screwdriving units
- Installation height 11,5 mm
- Colour: anthracite grey
- Not suitable for activPilot Comfort / duoPort PAS

### Keep GRT.AL.F

- The components specially developed for threshold solutions (sash and frame side) can be gathered from the catalogue "Complementary range activPilot threshold components..." .

Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
AL.M.F12.AGR	4927494	1	100 BL	400 KK	9600 EK
AL.M.F12.SGR	5008456	1	100 BL	400 KK	9600 EK
AL FR BN 13/12 FC SL	2295640	1	100 BL	400 KK	3200 EK
AL.BN.F12	4927493	1	100 BL	400 KK	9600 EK
AL.E.F	4933076	1	200 KK	1600 EK	

AGR = anthracite grey, SGR = dust grey



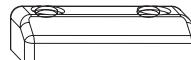
## Keep on the frame side

- For lifting the sash during closing

### Support plate AL D

- Installation in frame.
- Can be used for different profile systems thanks to adapter FT.WSK...
- Installation height 11 mm
- Colour: anthracite grey or white

AL D



### Support plate AL D 10 WS

- Installation in frame.
- Can be used for different profile systems thanks to adapter FT.WSK...
- Installation height 10 mm
- Colour white

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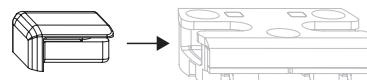
### Keep AL K.SBS.W

- Mounted into security keep SBS...
- Colour: dust grey similar to RAL 7037

### Threshold keep AL.SBK...BS

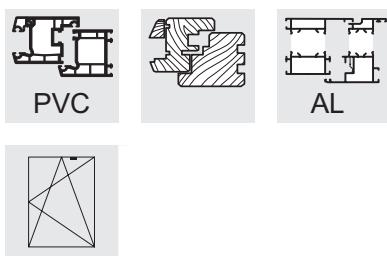
- The components specially developed for threshold solutions (sash and frame side) can be gathered from the catalogue "Complementary range activPilot threshold components...".

AL K.SBS.W      SBS...



Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
AL D AGR	4969481	2	100 BL	400 KK	3200 EK
AL D WS	1475542	2	100 BL	400 KK	3200 EK
AL D 10 WS	2091583	2	100 BL	400 KK	3200 EK
AL K.SBS.W	4978509	0	100 BL	1000 KK	8000 EK

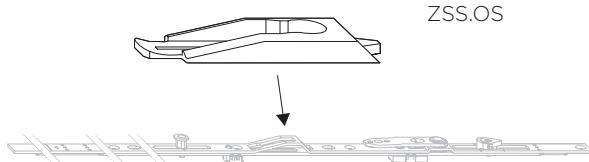
AGR = anthracite grey, WS = white



## Accessories Top Rod OS

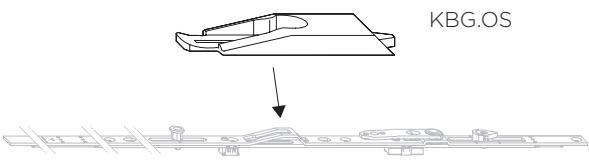
### Anti-slam device ZSS.OS

- Can be used left and right hand
- Prevents tilted windows slamming shut in case of light draughts and low window sashes
- ZSS.OS1 for top rod OS1. ...
- ZSS.OS2 for top rod OS2. ...

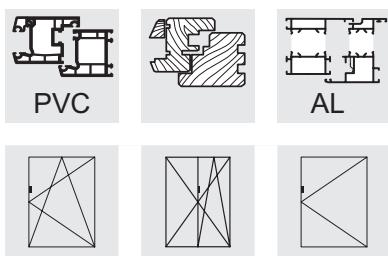


### Tilt limiter KBG.OS

- Can be used left and right hand
- Reduces tilt opening width by approx. 50 mm
- Recommended for use with sash heights below 600 mm
- KBG.OS1 for top rod OS1. ...
- KBG.OS2 for top rod OS2. ...



Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
ZSS.OS1	4936654	0	100 BL	1000 KK	8000 EK
ZSS.OS2	4936655	0	100 BL	1000 KK	8000 EK
KBG.OS1.SW	5053676	0	100 BL	1000 KK	8000 EK
KBG.OS2	5053677	0	100 BL	1000 KK	8000 EK



## Drilling protection AB.G.D

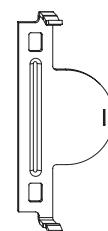
- Protects the housing of drive units against being drilled open from the outside in line with DIN EN 1627-1630
- Can be used left and right hand
- Material: steel 1 mm thick, hardened

### Drilling protection AB.G.D.15.5

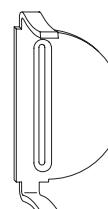
- Backset 15.5 mm

### Drilling protection AB.G.D.7.5

- Backset 7.5 mm



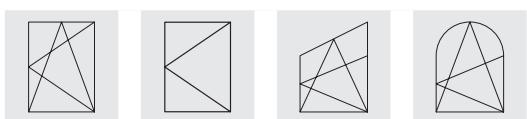
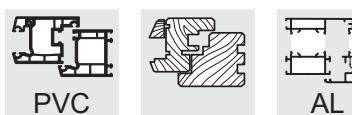
AB.G.D.15,5



AB.G.D.7,5

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Item description	Item No.	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
AB.G.D.15.5	4939745	100 BL	1000 KK	8000 EK
AB.G.D.7.5	4939747	50 BL	250 KK	2000 EK



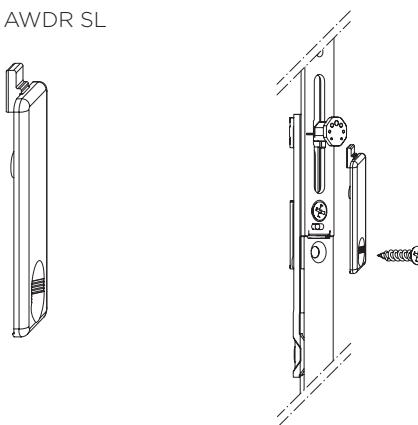
## Blocking plate AWDR SL

- To arrest tilt position for turn-tilt fittings
- Can be used left and right hand

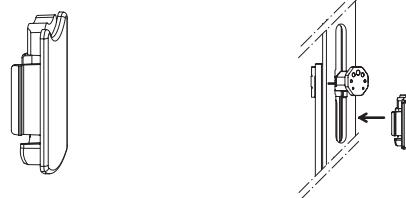
### Blocking plate ANS ACP

- To arrest tilt position for turn-tilt fittings
- Can be used left and right hand
- PVC-U component to click into the corner drive

AWDR SL

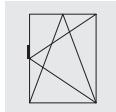
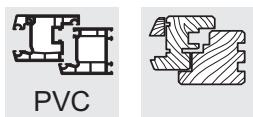


ANS ACP



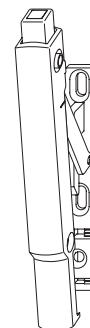
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Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
AWDR SL	2308084	1	100 BL	1000 KK	8000 EK
ANS ACP	5009363	0	1000 BL	5000 KK	40000 EK



## Opening limiter OBV

- For limiting the opening width independently of the control sequence
- Prevents the window from slamming shut
- Turn opening possible by two-hand control
- Protection against unintentional turn opening
- Automatic retainer: when the window is closed from the turn position, the opening limiter clicks back into place
- Limits opening width to approx. 50 mm when mounted on locking side; variable opening width possible if fitted horizontally
- Easy mounting due to height-adjustable frame parts
- Easy to maintain as the adjustment scope of the frame component is  $\pm 3$  mm
- For drilling and milling instructions see group 15, installation drawings B-10-2



OBV



OBVA

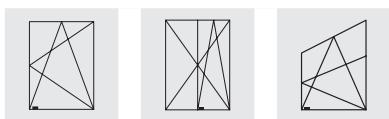
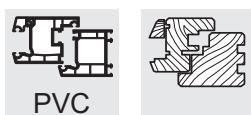
### Opening limiter OBVA

- Lockable version - Locking by means of Allen head screw
- Apart from that same construction as opening limiter OBV

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Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
OBV.WS	4929276	3	1 BL	100 KK	2400 EK
OBV.BR	4929277	3	1 BL	100 KK	800 EK
OBV.SGB	4929755	3	1 BL	100 KK	800 EK
OBVA.WS	4929278	3	1 BL	100 KK	2400 EK
OBVA.BR	4929279	3	1 BL	100 KK	800 EK
OBVA SGB	4929753	3	1 BL	100 KK	800 EK

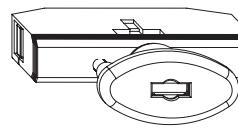
WS = white, BR = brown, SGB = grey (similar to RAL 9006)



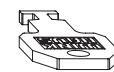
## Window lock DS.24

- Lockable with special key
- Protection against unintentional turn opening
- Suitable for retrofit installation, independent of arrangement of fittings
- Only usable with SBA... roller keep
- Required frame rebate depth >24 mm
- Can be used for sash overlap heights of 20 mm +2.5/-5 mm
- Consisting of:
  - 1 window lock
  - 2 screws DIN 965 M3 x 35
  - 4 packers FSV
- Rebate depth min. 22 mm in case of 9 mm groove centre position
- Rebate depth min. 26 mm in the case of 13 mm groove position
- For drilling and milling instructions see Group 15 installation drawings B-10-3
- The SLUE.DS.SL key must be ordered separately.
- We recommend you to order the jig for rotation stop device LE.DS.

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DS.24



SLUE.DS.SL

### Rotation stop device DS.29

- Required frame rebate depth >29 mm
- Suitable for sash overlap heights of 25 mm +2.5/-5 mm

### Key SLUE.DS.SL

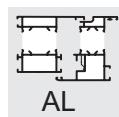
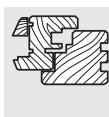
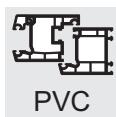
- For activating the window lock

### Jig for window lock FSV

- Drilling jig for pre-drilling the rotation stop device
- Passage drill hole on sash side

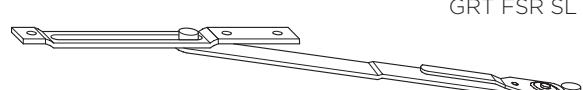
Item description	Item No.	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
DS.24.WS	5033454	10 BL	100 KK	800 EK
DS.24.BR	5033455	10 BL	100 KK	800 EK
DS.24.F9	5033456	10 BL	100 KK	800 EK
DS.29.WS	5033457	10 BL	100 KK	800 EK
DS.29.BR	5033458	10 BL	100 KK	800 EK
DS.29.F9	5033459	10 BL	100 KK	800 EK
SLUE FSV SL	2102246	10 BL	1000 KK	8000 EK
LE.FSV.ACTIVPILOT	4970409	10 KK	80 EK	

WS = white, BR = brown, SL = silver, F1 = silver coloured, F3 = gold coloured, F9 = titanium coloured



## Rebate shear GRT FSR SL

- For tilt windows
- Sash weight max. 80 kg taking product liability in chapter "General Product Information" into account



UF BK WS



### Accessory: Packer UF BK WS

- Used as a mounting adapter between the sash eurogroove and the shear arm of the rebate shear
- Shade: white

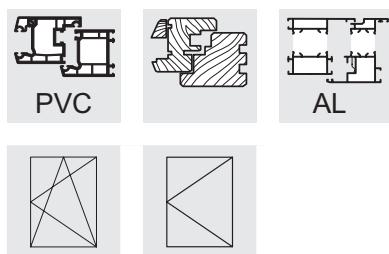
#### Important:

- To secure the tilting sash in 90° opening position, or during cleaning, the window must also be fitted with standard cleaning or supporting shears.
- The sashes must be secured in cleaning position to prevent excessive force acting on the hinges.
- After cleaning the window, the rebate shear must be reinserted and secured.
- Close windows in case of wind and draft. Move the fitting to locking position.

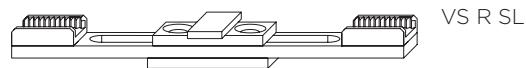
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Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GRT FSR SL	1811067	4	10 BD	150 KK	1200 EK
UF BK WS	1477943	2	100 BL	500 KK	4000 EK

WS = white, BR = brown, SL = silver



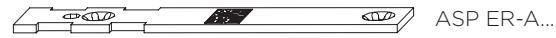
## Connection rod VS R SL



- Used to connect two long parts with interlocking action

### End plate ASP ER-A SL

- Serves as an end profile on corner drives or extensible interlocking rods to cover the connecting rod / the gearing



### End plate ASP ER-A.F

- Design as described above, but clampable

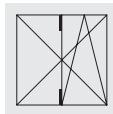


### Connecting plate SP.R SL

- For connecting a corner drive with a component that needs shortening, e.g. a drive rod or top rod
- Use only in case of repair, as a positive and non-positive fit is no longer guaranteed
- The element to be shortened can be cut straight



Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
VS R SL	1882172	2	20 BL	100 KK	800 EK
ASPE.A.125	5074503	2	500 KK	4000 EK	
ASPE.A.F.125	5074504	2	500 KK	4000 EK	
SP.R SL	1934201	1	100 BL	1000 KK	8000 EK



## Shootbolt KR F 711

- For double-sash windows without a mullion
- Airgap 12 mm
- Locks into shootbolt keeps SA on top / bottom

### Shootbolt KR 16/ ...

- Designed for 12 mm airgap
- Locks into shootbolt keeps SA on top / bottom
- Profile-dependent shootbolt keeps see chapter 11, Frame Parts
- Material: Steel

### Shootbolt keep SA

- For wooden windows
- To hold the shootbolt interlock
- Depending on the profile
- Application scope see below

### Shootbolt keep SA

- For PVC-U and aluminium windows
- To hold the shootbolt interlock
- Shootbolt keep SA see Group 11, Frame Parts

KR F 711



KR 16



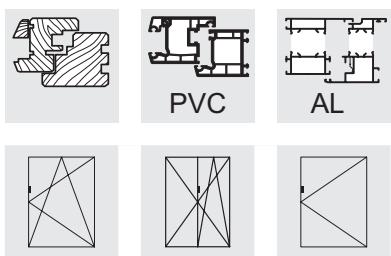
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SA

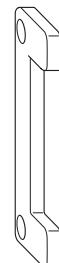
Item description	Item No.	Scope of application		Length	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
KR F 711.C AGR	5026320			2	100 KK	800 EK	
KR F 711.C SL	5026321			2	100 KK	800 EK	
KR F 711.C SL/WS	5026322			2	100 KK	800 EK	
KR 16/200 SL	5082583			3	200	200 KK	1600 EK
KR 16/500 SL	5082584			4	500	100 GK	400 EK
SA VV 7 SL	1846913	EF 18		2	100 BL	500 KK	4000 EK
SA VV 80 SL	2921241	EN 7/8		2	100 BL	500 KK	4000 EK
SA VV 81 SL	2049801	EN 6/8		2	100 BL	500 KK	4000 EK

EF = standard rebate  
EN = eurogroove



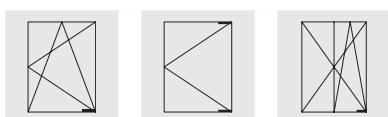
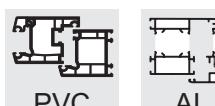
## Faceplate fastener SNH.AGR

- For additional securing of the faceplate
- When short drive rods are used and in combination with corner drive E3.
- To screw on and retain the drive
- Profile-independent due to sash-side mounting.



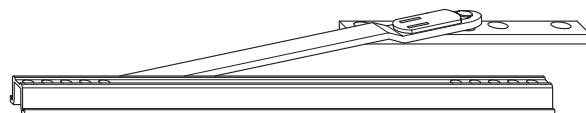
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Item description	Item No.	VPA1 Qty./Type	VPA2 Qty./Type
SNH.AGR	4938874	2	400 KK      9600 EK



## Turn limiter DB 11 SL

- Turn limiter to fit in existing fitting groove
- For additional sash hinge
- Friction adjustment with hexagonal span SW 4
- Screw-connect-type frame plate preadjusted for insertion of WSK part (profile-dependent, see Group 11)
- Also serves as an opening limiter
- The opening width of the sash can be adjusted on the turn limiter, according to the assembly position.
- Installation situation and adjustment of possible opening widths see group 15, installation drawings B-10-1



### Turn limiter DB 11/1 SL

- For rebate sash hinges (FWV/FWSB/FL.HT/FL.C-W)
- Installation situation see Group 15, installation drawings B-10-1

### Turn limiter DB11-350 SL

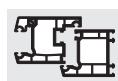
- For screw-on sash hinges
- For sash rebate widths from 350 mm and more

#### Important:

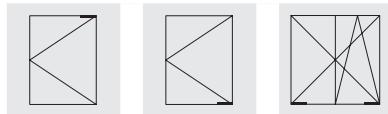
- The turn limiter and the window limiter are convenience components. They are neither approved for use as a securing device for floor-level windows / patio doors above ground level nor as a child safety device.

10

Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type
DB 11 SL	1848599	FFB > 460 mm	6	80 KK	640 EK
DB 11/1 SL	1848601	FFB > 640 mm	6	80 GK	320 EK
DB 11-350 SL	1848564	FFB > 350 mm	4	80 KK	640 EK

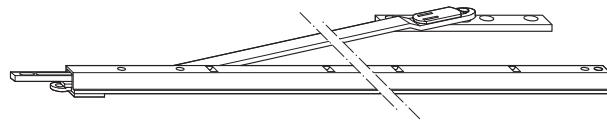


PVC



## Window limiter FBP-11 650 SL

- FBP-11 650 SL for small sizes as of FFB > 480 mm
- For insertion into existing fitting groove
- Airgap 12 mm
- Various opening positions are achieved via the handle (in closed position) while the window is open, which is controlled via a rod connecting the FBP to the mechanism.
- Cannot be used in combination with a rebate sash hinge
- Screw-on frame plate, preadjusted for insertion of the WSK part (depending on profile)
- For assembly see chapter Mounting of Accessories
- Cannot be used with hinge parts (rebate sash hinge) assembled in the fitting groove



10

### Cannot be used for:

- Threshold solutions
- Tilt before turn
- activPilot Select - The fully concealed turn-tilt fitting.
- Resistance classes RC1, RC2
- Timber or aluminium profiles

### Window Limiter FBP-11 SL

- See above
- FBP-11 SL only possible for sash rebate widths (FFB) > 630 mm

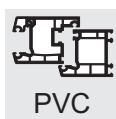
### Spacer FT WSK

- Profile adaption using adapters FT - WSK .... see group Frame Parts

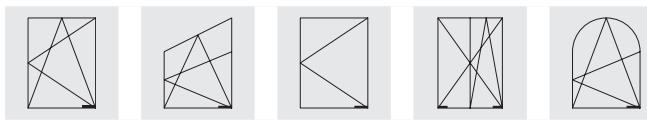
### Important:

- The turn limiter and the window limiter are convenience components. They are neither approved for use as a securing device for floor-level windows / patio doors above ground level nor as a child safety device.

Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
FBP-11 650 SL	1997367	ab FFB 480 - 730	4	1 BL	50 GK	200 EK
FBP-11 SL	1997148	ab FFB 630 - ...	4	1 BL	50 GK	200 EK



PVC



## Turn limiter DBG

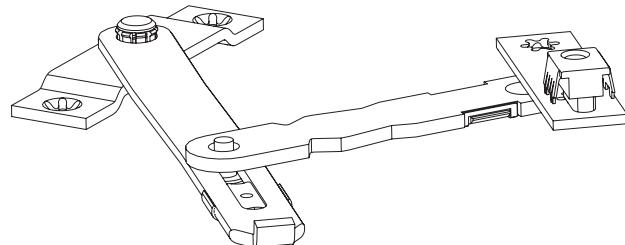
- Turn limiter for insertion into bottom horizontal area
- For the surface-mounted activPilot Concept hinge side
- For 12 mm airgap

Separate installation is possible – supplied in the following components groups:

- Frame part RT.DBG...
- Turn limiter linkage bars GST.DBG
- Sash components FT.DBG... (Available in two versions)

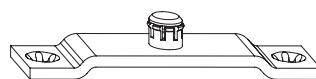
### Frame part RT.DBG...

- Metal plate to screw into the frame



RT.DBG

- Positioned behind the glazing bead with groove
- Designed for 5 mm chamfer behind the glazing bead with groove



GST.DBG

- For a maximum opening angle of the sash of approx. 100° (can be restricted to approx. 90° with blocking plate)
- Supplied with approx. 90° opening angle of the sash
- Can be used left and right hand
- Can be fitted separately in frame and sash respectively

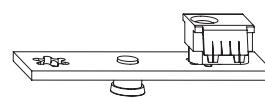


FT.DBG.BN

Selection of sash component depending on the horizontal fitting groove at the bottom:

### Sash component FT.DBG.BN

- Utilisation in case of "free/open" fitting groove

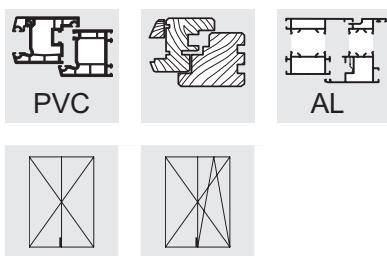


FT.DBG.OF

### Sash component FT.DBG.OF

- Utilisation in case of "permanently occupied/closed" fitting groove
- Positioning at the linkage point of the corner drive on the hinge side
- Installation situation see group 15, installation drawings B-10-4

Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
RT.DBG.13-5	5056282	2	100 KK	800 EK	
GST.DBG	5056283	0	100 KK	800 EK	
FT.DBG.BN	5056280	2	50 BL	400 KK	3200 EK
FT.DBG.OF	5056281	2	50 BL	400 KK	3200 EK



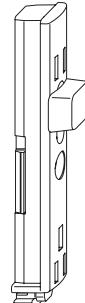
BK.KR

## Catch bolt BK.KR

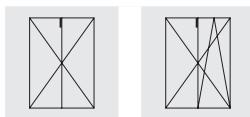
- 10
- Automatic catch bolt function with additional manual locking by means of a rod
  - Used in combination with keep SA OF...
  - Bolt can be locked and unlocked manually
  - Can be used right/left and top/bottom
  - Used on the inactive sash
  - Positioning flush with the sash rebate edge
  - Is activated when turn-tilt sash is opened
  - The catch bolt retains the sash in the frame with light engagement forces, even if the rod is not locked.
  - Length: 85 mm

### Keep SA OF...

- Profile dependent see Group 11, Frame Parts

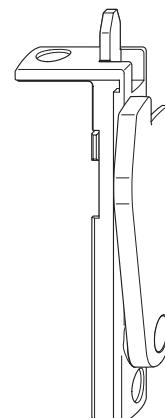


Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
BK.KR.SGR	5008300	1	20 BL	100 KK	800 EK
BK.KR.WS	5008301	1	20 BL	100 KK	800 EK



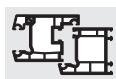
## Automatic shootbolt AKR

- Used in combination with keep SA OF...
- The rod is extended by closing the active sash.
- Installation position upper fitting groove
- Unlocking by means of spring action when first-opening sash is opened

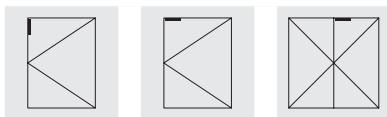


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Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
AKR LS.WS	5008299	2	20 BL	100 KK	800 EK
AKR RS.WS	5008298	2	20 BL	100 KK	800 EK
AKR LS.SGR	5008297	2	20 BL	100 KK	800 EK
AKR RS.SGR	5008295	2	20 BL	100 KK	800 EK

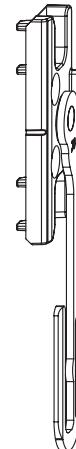


PVC

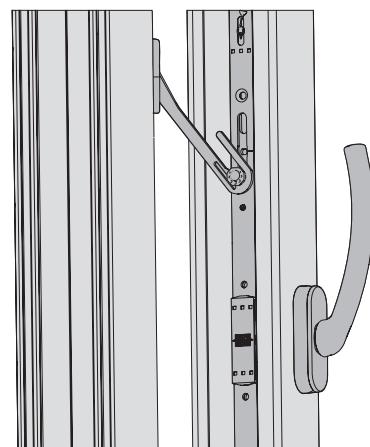


## Mini vent keep AS DSL...

- Mini ventilation for turn windows
- Mini ventilation position among others with standard activPilot corner drive
- Opening width approx. 70 mm, according to the profile
- Installation position on the drive side, horizontally at top or bottom
- Profile systems: currently suitable for Rehau Geneo and Brilliant Design; for use with other profile systems please contact your Winkhaus partner.



10



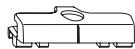
Item description	Item No.		VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
AS DSL.60.LS	5056893	1	20 BL	100 KK	800 EK
AS DSL.60.RS	5056892	1	20 BL	100 KK	800 EK

RS = right, LS = left

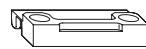
# Frame parts

## General type descriptions

Description / Code / Screws



Keep / SBA... / 1



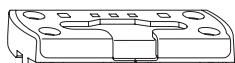
Adapter / FT WSK / 2



Security keep / SBS... / 3



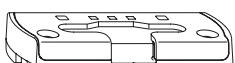
Pull-in device / ZV ... / 2



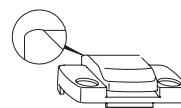
Security tilt keep / SBK... / 4



Sash lifter / FH ... / 2



Security tilt keep / SBK... V  
Screwed in the prechamber / 2



Sash lifter / FH.R ... / 2 (Radius  
at rear edge)



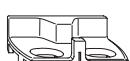
Security tilt keep / SBK... BS / 2  
Ground sill



Sash lifter / FH.L ... / 2 (Long  
version)



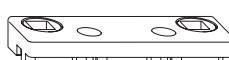
Keep for dual and triple function  
element / SBA .. DFE-TFE / 1



Mini vent keep / AS.SBA.K.T / 2



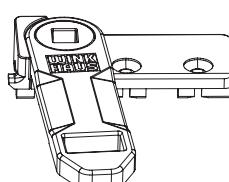
Tilt keep (tilt before turn) / SB-  
K..E / 1



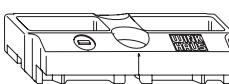
Run-up block / SA ... / 2



Security keep / SBS.K.PAD  
(Parallel action / Tilt before Turn)



Mini vent keep / AS OF / 2



Run-up block / SA OF / 2

**Aluplast****Ideal 2000 - 3000**
**NML 13 mm  
UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.61	2892209	SBS.K.61		2892129	SBA.K.61	2892073	AS SBA.K.T13-3 4937780
SBK.K.61.V	2892170						RT.MSL.3 5007006
							ZV-RT 60 RC SL 2312155
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.3	4935945	BK 60 SL	1919553	FH.152	4949428	SA 152 SL	2366946
		BK 61 RC SL	5026717	FH.R.152	4995853	SA OF 61 SL	4940007
		FT WSK 61	1497653				

**Aluplast****Ideal 4000 - 8000, Energeto, Energeto Neo**
**NML 13 mm  
UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.161	2861621	SBS.K.161	2861672	SBA.K.161	2824071	AS SBA.K.T13-5	4937782
SBK.K.161.I P5	5087903	SBS.K.161.I.P5	5087904	SBA.K.161.DFE-TFE.LLS	4934013	RT.MSL.3	5007006
SBK.K.161.LK.SC	4949425	SBS.K.161.M3	4927769	SBA.K.161.DFE-TFE.L.RS	4934010	ZV-RT 161 RC SL	1213945
SBK.K.161.M3	4927851			SBA.K.161.DFE-TFE.LS	4935788		
SBK.K.161.V	4927435			SBA.K.161.DFE-TFE.RS	4935789		
SBK.K.SP.161	5010275			SBA.K.161.S.40	5001559		
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.5	4935956	BK 61 RC SL	5026717	FH.161	4949431	SA 66 SL	2209887
SBS.K.PAD.161.LS	4995615	FT WSK 66	1530185	FH.R.161	4995855	SA OF 161 SL	5031823
SBS.K.PAD.161.RS	4995614						

11

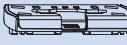
**Brügmann / Salamander****System AD**
**NML 13 mm  
UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.94.P7	4927718	SBS.K.94.P7	4927717	SBA.K.94.P7	4927716	AS SBA.K.T13-3	4937780
SBK.K.94.V.P7	4927719					RT.MSL.3	5007006
						ZV-RT 452/13 SL	2074732
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.3	4935945	BK 552 RC SL	2522321	FH.152	4949428	SA 152 SL	2366946
		FT WSK152	1787079	FH.R.152	4995853		

**Brügmann / Salamander****System MD**
**NML 13 mm  
UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.94.P7	4927718	SBS.K.94.P7	4927717	SBA.K.94.P7	4927716	AS SBA.K.T13-3	4937780
SBK.K.94.V.P7	4927719					ZV-RT 452/13 SL	2074732
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.3	4935945	BK 552 RC SL	2522321	FH.152	4949428	SA 152 SL	2366946
		FT WSK152	1787079	FH.R.152	4995853		

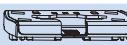
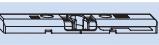
**Deceuninck****Arcade, Prestige, Deluxe, Elite, MD100, Eforte****NML 13 mm****UEB 21 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.192	4932276	SBS.K.192	4932275	SBA.K.192	5002139	AS SBA.K.T.13-5	4937782
SBK.K.192.S12.ZN	4937573	SBS.K.192.S12.ZN	4937572	SBA.K.192.RWS	4932786	ZV-RT 192 RC SL	1261395
SBK.K.192.V	4932277			SBA.K.192.S12	4939192		
SBK.K.SP.192	5010276						
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.192	4942838	BK192 S12 RC	4939193	FH.192	4949434	SA 192 SL	1919932
SBS.K.PAD.192.LS	4995623	FT WSK 192	1330722	FH.L.192	5008876	SA OF 192 SL	4932035
SBS.K.PAD.192.RS	4995622			FH.R.192	4995858		

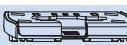
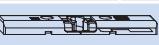
**Deceuninck****iCOR, Elegant****NML 13 mm****UEB 21 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.169	4926366	SBS.K.169	4926363	SBA.K.169	5073712	AS SBA.K.T.13-4	4937781
SBK.K.169.P7	4974642	SBS.K.169.P7	4974641	SBA.K.169+0,7	5073713	RT.MSL.9-13	5032095
SBK.K.169/21.P7	5042728					ZV-RT 169 RC SL	5033656
SBK.K.SP.169.P7	5065629						
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.4	4935954	BKS 169 RC-V SL	2356852	FH.205	4949429	SA 169 SL	2359447
SBS.K.PAD.169.LS	4995621	FT WSK169	2356596	FH.L.205	5002710	SA OF 169 SL	5019156
SBS.K.PAD.169.RS	4995620			FH.R.205	4995854		

**Deceuninck****Zendow, Neo****NML 13 mm****UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.169	4926366	SBS.K.169	4926363	SBA.K.169	5073712	AS SBA.K.T.13-4	4937781
SBK.K.169.P7	4974642	SBS.K.169.P7	4974641	SBA.K.169+0,7	5073713	RT.MSL.3	5007006
SBK.K.169/21.P7	5042728					ZV-RT 169 RC SL	5033656
SBK.K.SP.169.P7	5065629						
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.4	4935954	BKS 169 RC-V SL	2356852	FH.205	4949429	SA 169 SL	2359447
SBS.K.PAD.169.LS	4995621	FT WSK169	2356596	FH.L.205	5002710	SA OF 169 SL	5019156
SBS.K.PAD.169.RS	4995620			FH.R.205	4995854		

**Gealan****3000****NML 13 mm****UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.162	4929797	SBS.K.162	4929798	SBA.K.162	4929796	AS SBA.K.T.13-4	4937781
SBK.K.162.P7	4964887	SBS.K.162.M3	5040828	SBA.K.62	4926222	RT.MSL.3	5007006
SBK.K.162.S.P7	5056334	SBS.K.162.P7	4964886			ZV-RT 162 SL	2088350
SBK.K.162.V.P7	4964888	SBS.K.162.S.P7	5056333			ZV-RT 62 SL	2094258
SBK.K.62	4929831	SBS.K.169.P7	4974641				
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.4	4935954	BK 134 SL	2103935	FH.205	4949429	SA 62 SL6 SL	2749461
		BK 61 RC SL	5026717	FH.L.205	5002710		
		FT WSK 62	1348121	FH.R.205	4995854		

**Gealan****6000, 7000, 8000, 9000****NML 13 mm****UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.162	4929797	SBS.K.162	4929798	SBA.K.162	4929796	AS SBA.K.T13-4	4937781
SBK.K.162.P7	4964887	SBS.K.162.M3	5040828			RT.MSL.3	5007006
SBK.K.162.S.P7	5056334	SBS.K.162.P7	4964886			ZV-RT 162 SL	2088350
SBK.K.162.V	4929799	SBS.K.162.S	4988102			ZV-RT 62 SL	2094258
SBK.K.162.V.P7	4964888	SBS.K.162.S.P7	5056333				
SBK.K.SP.162	5030281						
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.4	4935954	BK 134 SL	2103935	FH.205	4949429	SA 62 SL6 SL	2749461
SBS.K.PAD.162.LS	4995617	FT WSK 62	1348121	FH.L.205	5002710		
SBS.K.PAD.162.RS	4995616			FH.R.205	4995854		

**Gealan****Kubus****NML 13 mm****UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.262.P7	5050623	SBS.K.262.P7	5050622	SBA.K.562.P7 KT	5004126	ZV-RT 162 SL	2088350
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
		BK 134 SL	2103935				
		FT WSK162	1719578				

**Internova****Internova 6000****NML 13 mm****UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.16	4936032	SBS.K.16	4936031	SBA.K.16	4936437	AS SBA.K.T13-3	4937780
						RT.MSL.3	5007006
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.3	4935945	BK SL	1793250	FH.152	4949428	SA SL	1895985
		FT WSK 76	1500787	FH.R.152	4995853		

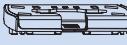
**KBE (Profine)****70 AD / 70 MD / 88+****NML 13 mm****UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.205.P5	4996028	SBS.K.205	5039488	SBA.K.205.P5	2922210	AS SBA.K.T13-4	4937781
SBK.K.205.S.P5	5046012	SBS.K.205.P5	4996029			RT.MSL.3	5007006
SBK.K.205.V.P5	4996027	SBS.K.205.S.P5	5046011			ZV-RT 169 RC SL	5033656
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.4	4935954	BKS 169 RC-V SL	2356852	FH.205	4949429	SA 169 SL	2359447
SBS.K.PAD.205.LS	4995625	FT WSK205	1809590	FH.L.205	5002710	SA OF 169 SL	5019156
SBS.K.PAD.205.RS	4995624			FH.R.205	4995854		

**KBE (Profine)****76 AD, 76 MD****NML 13 mm****UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.205.P5	4996028	SBS.K.205	5039488	SBA.K.205.P5	2922210	AS SBA.K.T13-4	4937781
SBK.K.205.S.P5	5046012	SBS.K.205.P5	4996029			RT.MSL.3	5007006
SBK.K.205.V.P5	4996027	SBS.K.205.S.P5	5046011			ZV-RT 169 RC SL	5033656
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.4	4935954	BKS 169 RC-V SL	2356852	FH.205	4949429	SA 169 SL	2359447
SBS.K.PAD.205.LS	4995625	FT WSK205	1809590	FH.L.205	5002710	SA OF 169 SL	5019156
SBS.K.PAD.205.RS	4995624			FH.R.205	4995854		

**Kömmerling (Profine)****76 AD, 76 MD**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.205.P5	4996028	SBS.K.205	5039488	SBA.K.205.P5	2922210	AS SBA.K.T.13-4	4937781
SBK.K.205.V.P5	4996027	SBS.K.205.P5	4996029			RT.MSL.3	5007006
		SBS.K.205.S.P5	5046011			ZV-RT 169 RC SL	5033656
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.4	4935954	BKS 169 RC-V SL	2356852	FH.205	4949429	SA 169 SL	2359447
SBS.K.PAD.205.LS	4995625	FT WSK205	1809590	FH.L.205	5002710	SA OF 169 SL	5019156
SBS.K.PAD.205.RS	4995624			FH.R.205	4995854		

**Kömmerling (Profine)****Classic, Elegance, Avantgarde, 88+**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.144	5049010	SBS.K.144	2920661	SBA.K.144	2920652	AS SBA.K.T.13-5	4937782
SBK.K.144.S	2920687	SBS.K.144.M3	5013386	SBA.K.144.DFE-TFE. LS	4935785	RT.MSL.3	5007006
SBK.K.144.V	4927432	SBS.K.144.S	4969911	SBA.K.144.DFE-TFE. RS	4935786	ZV-RT 144 SL14	2020081
SBK.K.SP.144	5010272			SBA.K.144.V	4927431		
				SBA.K.244	4931453		
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.144	4995421	BK 144 SL	1919570	FH.144	4949433	SA 144 SL	2366911
SBS.K.PAD.144.LS	4995609	FT WSK144	1326221	FH.R.144	4995856	SA OF 144 SL	2859530
SBS.K.PAD.144.RS	4995608						

**LB.Profile****PAD / PMD / PCD**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.12	4926374	SBS.K.12	4926373	SBA.K.12	4926372	AS SBA.K.T.13-3	4937780
SBK.K.12.V	4926375					RT.MSL.3	5007006
						ZV-RT 60 RC SL	2312155
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.3	4935945	BK 60 SL	1919553	FH.152	4949428	SA SL	1895985
		FT WSK 76	1500787	FH.R.152	4995853		

**Plustec****Plustec**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.76.M3	4926437	SBS.K.76.M3	4926436	SBA.K.76	4926432	AS SBA.K.T.13-4	4937781
SBK.K.76.V.M3	4926438					RT.MSL.3	5007006
						ZV-RT 169 RC SL	5033656
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
		BK 60 SL	1919553	FH.152	4949428	SA 60 SL	1929209
		BK 61 RC SL	5026717	FH.R.152	4995853		
		FT WSK 76	1500787				

**Rehau****Geneo, Synego****NML 13 mm****UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.160	4933118	SBS.K.160.S16.WK2	4941217	SBA.K.160	4933116	AS SBA.K.T13-4	4937781
SBK.K.SP.60/260	5030280	SBS.K.160.WK2	4933803			RT.MSL.3	5007006
		SBS.K.60.M3	4927768			ZV-RT 160	4933117
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.4	4935954	BK 60 SL	1919553	FH.205	4949429	SA 60 SL	1929209
SBS.K.PAD.160.LS	4995613	FT WSK 60	1345393	FH.L.205	5002710		
SBS.K.PAD.160.RS	4995612			FH.R.205	4995854		

**Rehau****S735, Brillant, Thermo-Design, Brilliant-Design, Basic-Design****NML 13 mm****UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.60	2861584	SBS.K.60	2861656	SBA.K.60	2824046	AS SBA.K.T13-3	4937780
SBK.K.60.M3	4927850	SBS.K.60.M3	4927768	SBA.K.60 -0,3	4931375	RT.MSL.3	5007006
SBK.K.60.V	4927433					ZV-RT 60 SL	1975336
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.60	4942833	BK 60 SL	1919553	FH.60	4949432	SA 60 SL	1929209
		BK 61 RC SL	5026717	FH.R.60	4995857	SA OF 60 SL	2859521
		FT WSK 60	1345393				

**Roplasto****7001 AD, 7001 MD****NML 13 mm****UEB 22 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.211	4931331	SBS.K.211	4931330	SBA.K.211	4931329	AS SBA.K.T13-4	4937781
						RT.MSL.3	5007006
						ZV-RT 169 RC SL	5033656
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.4	4935954	BK SL	1793250	FH.205	4949429	SA 169 SL	2359447
		FT WSK205	1809590	FH.L.205	5002710	SA OF 169 SL	5019156
				FH.R.205	4995854		

**Salamander****2D / 3D / MD / Streamline****NML 13 mm****UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.28	4926454	SBS.K.28	4926453	SBA.K.28	4926452	AS SBA.K.T13-4	4937781
SBK.K.28.P5	5059940	SBS.K.28.P5	5059939	SBA.K.28.DFE-TFE. LS	4935783	RT.MSL.3	5007006
SBK.K.28.V	4926455			SBA.K.28.DFE-TFE. RS	4935784	ZV-RT 134 SL	2864478
SBK.K.SP.28	5031710			SBA.K.28.P5	5059941		
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.28	4942832	BK 134 SL	2103935	FH.144	4949433	SA 134 SL	2367181
SBS.K.PAD.28.LS	4995601	FT WSK134	1537651	FH.R.144	4995856		
SBS.K.PAD.28.RS	4995600						

**Salamander****bluEvolution 82 / 92**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.94.P7	4927718	SBS.K.94.P7	4927717	SBA.K.152.DFE-TFE.LS	5050760	AS SBA.K.T.13-4	4937781
SBK.K.94.V.P7	4927719	SBS.K.94.P7.W	4978502	SBA.K.152.DFE-TFE.RS	5050729	RT.MSL.3	5007006
				SBA.K.152.P5.DFE-TFE.LS	4990374	ZV-RT 134 SL	2864478
				SBA.K.152.P5.DFE-TFE.RS	4990373		
				SBA.K.94.P7	4927716		
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
		BK 134 SL	2103935	FH.205	4949429	SA 134 SL	2367181
		FT WSK134	1537651	FH.L.205	5002710		
				FH.R.205	4995854		

**Schüco****Corona 60**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.66.P5	4936142	SBS.K.66.P5	4936140	SBA.K.166	4930272	AS SBA.K.T.13-5	4937782
SBK.K.66.P7	5027282			SBA.K.66	4932001	RT.MSL.3	5007006
SBK.K.66.V.P5	4936143					ZV-RT 60 SL	1975336
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
		BK 60 SL	1919553	FH.161	4949431	SA 66 SL	2209887
		BK 61 RC SL	5026717	FH.R.161	4995855	SA OF 60 SL	2859521
		FT WSK 61	1497653				
		FT WSK 66	1530185				

**Schüco****Corona 70 / Corana SI 82**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.166	4930269	SBS.K.166	4930271	SBA.K.166	4930272	AS SBA.K.T.13-3	4937780
SBK.K.166.V	4930270					RT.MSL.3	5007006
SBK.K.SP.166	5018520					ZV-RT 60 SL	1975336
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.3	4935945	BK 60 SL	1919553	FH.152	4949428	SA 60 SL	1929209
SBS.K.PAD.166.LS	4995619	FT WSK 61	1497653	FH.R.152	4995853		
SBS.K.PAD.166.RS	4995618						

**Schüco****Livng**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.166	4930269	SBS.K.166	4930271	SBA.K.166	4930272	AS SBA.K.T.13-3	4937780
SBK.K.166.V	4930270					RT.MSL.3	5007006
						ZV-RT 60 SL	1975336
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.3	4935945	BK 60 SL	1919553	FH.152	4949428	SA 60 SL	1929209
SBS.K.PAD.166.LS	4995619	FT WSK 61	1497653	FH.R.152	4995853		
SBS.K.PAD.166.RS	4995618						

**Trocal (Profine)**  
**76 AD, 76 MD**
**NML 13 mm**  
**UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.205.P5	4996028	SBS.K.205	5039488	SBA.K.205.P5	2922210	AS SBA.K.T13-4	4937781
SBK.K.205.S.P5	5046012	SBS.K.205.P5	4996029			RT.MSL.3	5007006
SBK.K.205.V.P5	4996027	SBS.K.205.S.P5	5046011			ZV-RT 169 RC SL	5033656
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.4	4935954	BKS 169 RC-V SL	2356852	FH.205	4949429	SA 169 SL	2359447
SBS.K.PAD.205.LS	4995625	FT WSK205	1809590	FH.L.205	5002710	SA OF 169 SL	5019156
SBS.K.PAD.205.RS	4995624			FH.R.205	4995854		

**Trocal (Profine)****InnoNova 2000 / 88+**
**NML 13 mm**  
**UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.126.V.P3	4998434	SBS.K.126.ZN	4926198	SBA.K.126	4926196	ZV-RT 226 RC SL	2389494
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
		FT WSK 42	1320680			SA SL	1895985

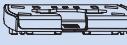
**Trocal (Profine)****InnoNova A5 / M5**
**NML 13 mm**  
**UEB 20 mm**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.226.P5	2921217	SBS.K.226.P5	2921137	SBA.K.226	2921090	AS SBA.K.T13-3	4937780
SBK.K.226.V.P5	2921233					RT.MSL.3	5007006
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.3	4935945	BK 226 RC SL	2393055	FH.152	4949428	SA SL	1895985
		FT WSK226	2304155	FH.R.152	4995853		

**Veka****Softline 70 AD/MD, Softline 82 AD/MD, Softline 76 AD/MD, Artline 82**
**NML 13 mm**  
**UEB 20 mm**

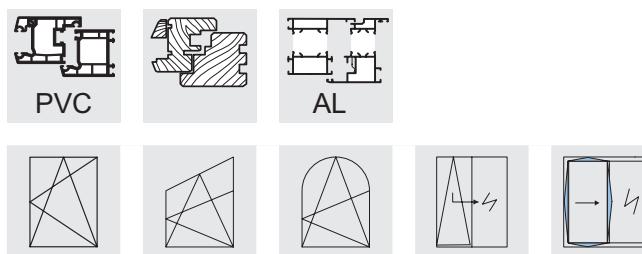
<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.152	4938546	SBS.K.152	4990061	SBA.K.152	5050727	AS SBA.K.T13-3	4937780
SBK.K.152.P5	4939133	SBS.K.152.M3	4984031	SBA.K.152.DFE-TFE.LS	5050760	RT.MSL.3	5007006
SBK.K.152.V	4938547	SBS.K.152.P5	4938954	SBA.K.152.DFE-TFE.RS	5050729	ZV-RT 452/13 SL	2074732
SBK.K.152.V.P5	4939137	SBS.K.152.S	4937038	SBA.K.152.P5.DFE-TFE.LS	4990374		
SBK.K.SP152	5055019			SBA.K.152.P5.DFE-TFE.RS	4990373		
SBK.K.SP152.P5	5055020			SBA.K.152+0,5	5050726		
				SBA.K.552+0,5	5050725		
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
SBK.K.E.3	4935945	BK 552 RC SL	2522321	FH.152	4949428	SA 152 SL	2366946
SBS.K.PAD.152.LS	4995611	FT WSK152	1787079	FH.R.152	4995853	SA OF 152 SL	2859505
SBS.K.PAD.152.RS	4995610						

**Wymar****2500**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.14	4936198	SBS.K.14	4936197	SBA.K.14	4936196	AS SBA.K.T.13-3	4937780
						RT.MSL.3	5007006
						ZV-RT 162 SL	2088350
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
		BK 552 RC SL	2522321	FH.152	4949428	SA 62 SL6 SL	2749461
		FT WSK 61	1497653	FH.R.152	4995853		

**Wymar****3000**

<b>SBK</b>		<b>SBS</b>		<b>SBA</b>		<b>AS SBA, ZV-RT, RT.MSL</b>	
SBK.K.114	4936246	SBS.K.114	4936244	SBA.K.114	4936243	AS SBA.K.T.13-5	4937782
						RT.MSL.3	5007006
						ZV-RT 162 SL	2088350
<b>SBK.K.E/PAD</b>		<b>BK, FT</b>		<b>FH</b>		<b>SA, SA OF</b>	
		FT WSK 66	1530185	FH.161	4949431	SA 62 SL6 SL	2749461
				FH.R.161	4995855		



## Punches for window fittings

### Punch BST AP/FS

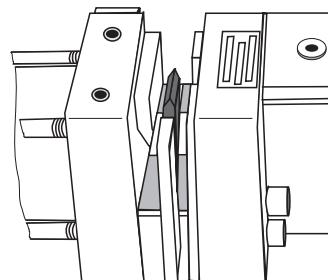
- Used to cut fitting elements
- Punch including footswitch
- Pedal operated
- Can be used together with fitting ruler
- Required operating pressure 6 bar

### Ruler LIN AP/FS

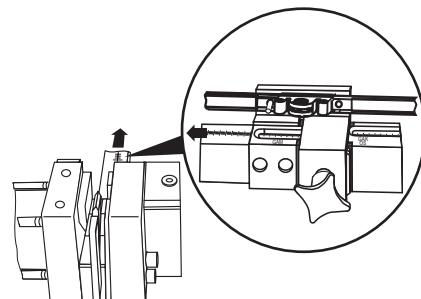
- Dimensional positioning of the fitting elements to be cut
- Cutting of both central and constant parts

### Fitting punch, lever AP.HH

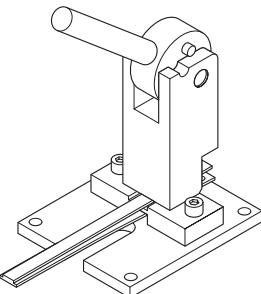
- Used to cut fitting elements
- Manual operation
- Serves as repair punch - not suitable for permanent use



BST AP/FS

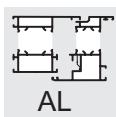
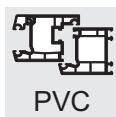


LIN AP/FS



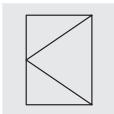
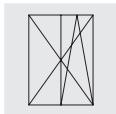
AP.HH

Item description	Item No.
BST AP/FS LS	1466339
LIN AP/FS LS	1466321
AP.HH	4970430

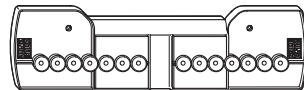


PVC

AL



## Drilling jig LE.B.EL-SL.K

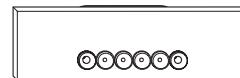
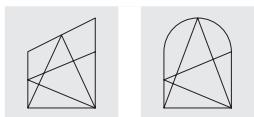
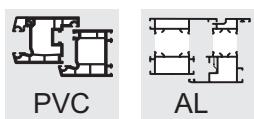


- Drilling jig to drill the pilot holes for corner and shear hinges
- Overlap dimension adjustable from 18 to 22 mm
- Preadjusted to a defined dimension
- For hinges with 6 mm pin

### LE.B.EL-SL.K.3-3

- For hinge with 3 mm pin

Item description	Item No.	Overlap
LE.B.EL-SL.K-18	4966329	18
LE.B.EL-SL.K-20	4966340	20
LE.B.EL-SL.K-21	4966341	21
LE.B.EL-SL.K-22	4966342	22
LE.B.EL.SL.K. 3-3-18	4966343	18
LE.B.EL.SL.K. 3-3-20	4966345	20
LE.B.EL.SL.K. 3-3-21	4966346	21
LE.B.EL.SL.K. 3-3-22	4966347	22



## Drilling jig studio shear LE.B.SW-A

### Drilling jig studio shear LE.B.SW-A

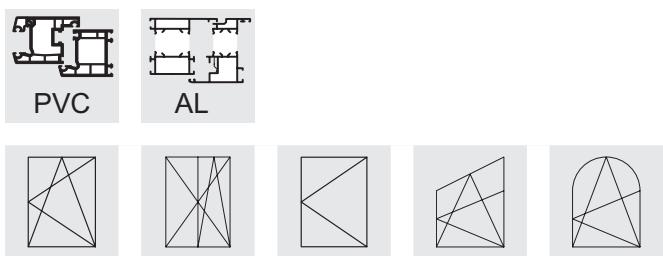
- For studio windows
- Drilling jig to make pilot holes
- Fixed overlap dimension

### Drilling jig round arch LE.B.SWR

- (without figure)

12

Item description	Item No.	Overlap
LE.B.SW-A 18.3-3	4978111	18
LE.B.SW-A 18.6-3	4978097	18
LE.B.SW-A 20.3-3	4978112	20
LE.B.SW-A 20.6-3	4978098	20
LE.B.SW-A 22.6-3	4978110	22
LE.B.SWR	1467446	-



## Jigs

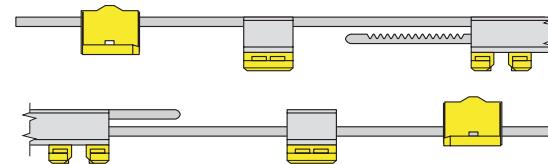
- Used to position keeps in frame rebate
- Can be used left and right hand
- How to use please see mounting instructions

### Different models:

- LE.N.K jig, constant handle position
- LE.N.T jig, central handle position (telescopic jig), locking drive GAM
- LE.N.T.ST jig, central handle position (telescopic jig), double-sash windows
- LE.N.T.GAVM jig, central handle position (telescopic jig) locking drive GAVM

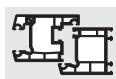
### Positioning aid LE.SB.N

- Serves the purpose of positioning the locking keeps within the frame rebate
- Can be used left and right hand
- Especially used for special window shapes (round or sloping head windows)
- How to use please see mounting instructions

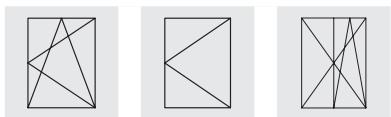


12

Item description	Item No.
LE.N.T.GAVM 300	4936773
LE.N.T.GAVM 420	4937047
LE.N.T.GAVM 620	4937061
LE.N.T.GAVM 920	4937063
LE.N.T.GAVM 1320	4937064
LE.N.T.GAVM 1850	4937065
LE.N.T.ST.0550-1200	4926548
LE.N.T.ST.1201-2170	4926549
LE.N.K.0290-0709	4926540
LE.N.K.0710-1100	4926541
LE.N.K.1101-1550	4926542
LE.N.K.1551-2225	4926543
LE.N.K.2225-4	4941065
LE.N.T.0710-1050	4926545
LE.N.T.1051-1800	4926546
LE.N.T.1801-2300	4926547
LE.SB.N	5039041



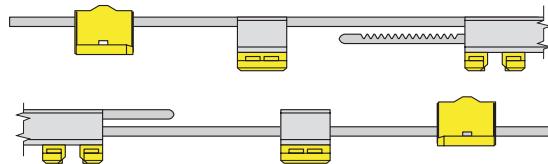
PVC



## Various jigs

### LE.N.T.SBS.K.160 WK2

- Jig for positioning SBS.K.160 WK2, central handle position (telescopic jig)

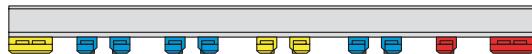


### LE.N.K.SBS.160 WK2

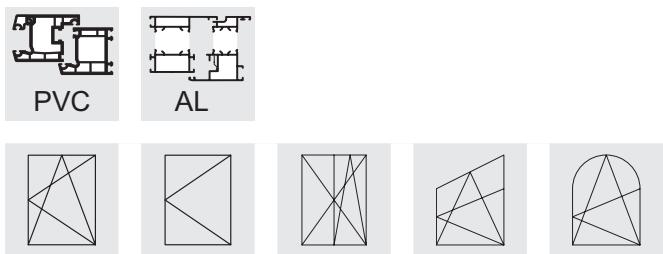
- Jig for positioning SBS.K.160 WK2, constant handle position

### LE.N.T.ST.SBS.K160WK2

- Jig for positioning SBS.K.160 WK2 on double-sash windows, central handle position



Item description	Item No.	Scope of application
LE.N.T.SBS.K.160 WK2 0710-1050	4952611	710 - 1050
LE.N.T.SBS.K.160 WK2 1051-1801	4952615	1051 - 1801
LE.N.T.SBS.K.160 WK2 1801-2300	4952617	1801 - 2300
LE.N.K.SBS.160 WK2 0209-0709	4952620	209 - 709
LE.N.K.SBS.160 WK2 0710-1100	4952622	710 - 1100
LE.N.K.SBS.160 WK2 1101-1550	4952623	1101 - 1550
LE.N.K.SBS.160 WK2 1551-2225	4952624	1551 - 2225
LE.N.K.SBS.160 WK2 2225-4	4952625	1975 - 2225
LE.N.T.ST.SBS.160WK2 550-1200	4952626	550 - 1200
LE.N.T.ST.SBS.160WK2 1201-2170	4952627	1201 - 2170

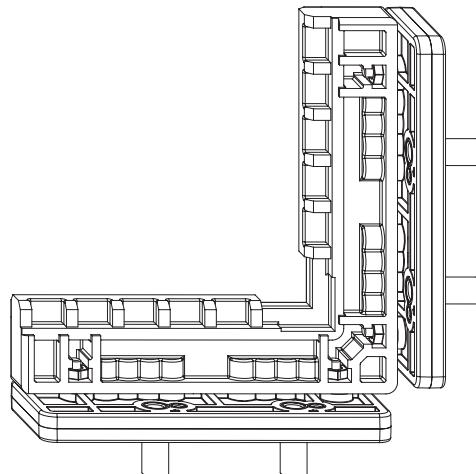


## Drilling jig sash hinge LE.B.FL.C

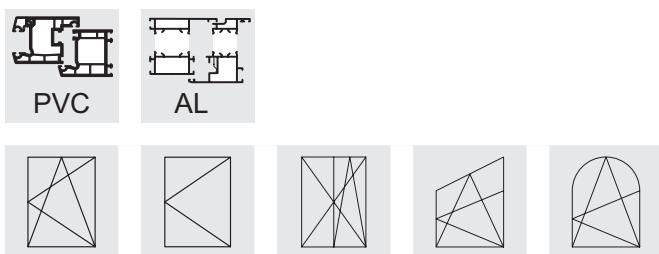
- For sash hinge FL.C
- Drilling jig to pre-drill holes for sash hinge
- Fixed overlap dimension
- Fixed groove central position

**Important:**

- The drill positions are not identical to those of sash hinge FL.K... and FK...



Item description	Item No.	Groove centre position	Overlap
LE.B.FL.C.20-9	5066579	9	20
LE.B.FL.C.20-13	5066575	13	20
LE.B.FL.C.21-9	5066580	9	21
LE.B.FL.C.21-13	5066577	13	21
LE.B.FL.C.22-13	5066578	13	22

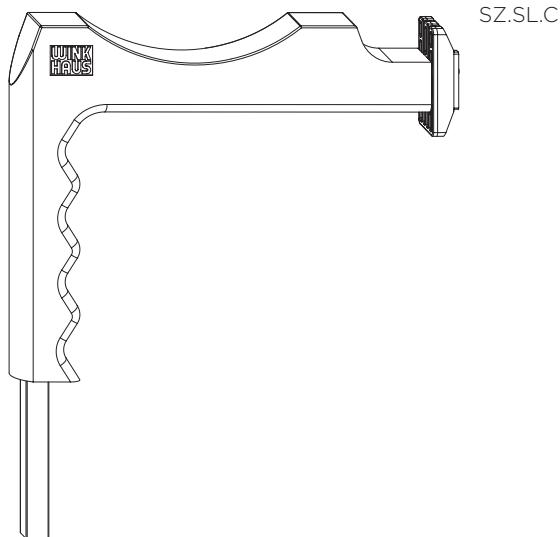


## Pulling device for pin SZ.SL.C

- Assembly handle with multiple functions
- Square pin (assembly handle for operating the sash)
- Adapter plate for pushing / pulling out the shear hinge pin for shear hinge SLC (with clamping spring for holding the pin) or for shear hinge SLK

### Adapter for pulling device SZ-AD.SL.C

- Adapter plate for independent replacement of the "gripper" on the existing assembly handles



12



Item description	Item No.	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
SZ.SL.C	5069912	100 KK	800 EK	
SZ-AD.SL.C	5071395	10 BL	500 KK	4000 EK

<b>13</b>	<b>Mounting Instructions</b>	<b>13</b>
13.1	Notes on these assembly instructions	188-189
13.2	Shortening the fittings	190-193
13.3	Mounting of turn-tilt fittings	194-212
13.4	Mounting of studio fittings	213-222
13.5	Mounting of round-arch fittings	223-232
13.6	Function test / Operation	233-234
13.7	Mounting of accessories	235

# Notes on these assembly instructions

## Prerequisites

The mounting instructions are designed for mounting Winkhaus activPilot fittings for windows and glazed doors only. Fittings are designed for the following sash rebate sizes and sash weights:

- Min. sash rebate height 270 mm (see also Group 1)
- Max. sash rebate width 1725 mm
- From 1475 mm sash rebate width with additional shear ZSR
- Min. sash rebate height 230 mm
- Max. sash rebate height 2,800 mm
- Max. sash size 3 m<sup>2</sup>
- Max. sash weight 130/150 kg
- Ratio between sash rebate width : sash rebate height ≤ 2:1



Note: In order to ascertain the permissible sash sizes and sash weights, please refer to the diagrams in the chapter "General Product Information".

## Observe instructions on window profile

You must specifically take into account information provided by the profile manufacturer or system owner when determining the maximum sash sizes and sash weights!

13.1

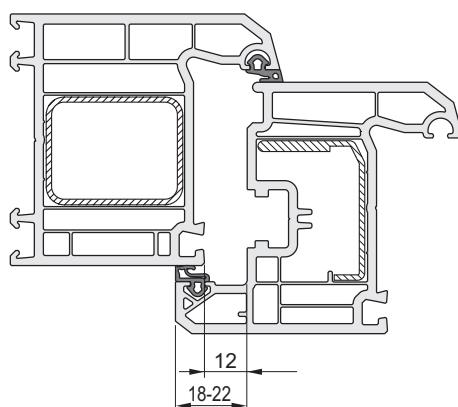
Persons involved in mounting fittings must have read and understood this fitting guide. For all work with fittings, always follow Winkhaus' Product Liability Information. The manufacturer will accept no liability in case of failure to comply with this guide, deployment of insufficiently qualified staff and unauthorised alterations.

The respective fitting may only consist of the original Winkhaus proPilot fitting parts. We do not assume any liability in case third-party or non-approved system components are used.

### Standard profile dimensions

See figure: Profile cross-section

The fitting is suitable for all PVC-U windows with standard fitting groove (eurogroove position 9 or 13 mm) and designed for an airgap of 12 mm and overlaps of 18 to 22 mm.



Profile cross-section

### Please observe screwing advice!



Important: The load-bearing fitting components, such as corner, shear and sash hinges, must be designed according to the TBDK guidelines. Please adapt the drill diameter of the fixing screws, the screw diameter and the screw length to the load situation.



Important: frame and sash components in water-bearing profile levels must be screwed in a way to avoid water entering into profile levels that cannot be drained afterwards. Please observe the information given by your system supplier.



Attention! Winkhaus does not provide fastening screws for fittings assembly. Always use fastening screws suitable for the window type and window dimensions.



Attention: For sash weights over 130 kg, ALL 4 screws of corner and shear hinges must generally be fastened in the reinforcement.

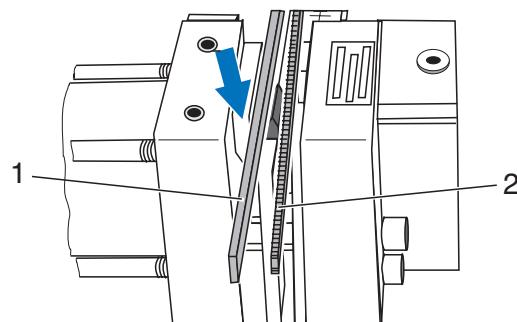
113.1

## Shortening the fittings

A detailed description on shortening of fittings is available here. This description will be referred to in these assembly instructions.

See figure: Fittings prior to punching

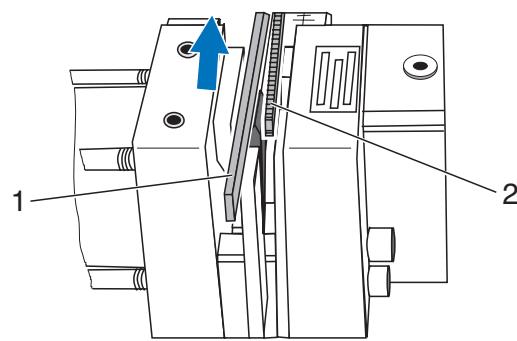
- Always insert the face plate (1) and drive rod (2) perpendicularly from the top with the face plate (1) pointing to the pressure cylinder.



Fittings prior to punching

See figure: Fittings after punching

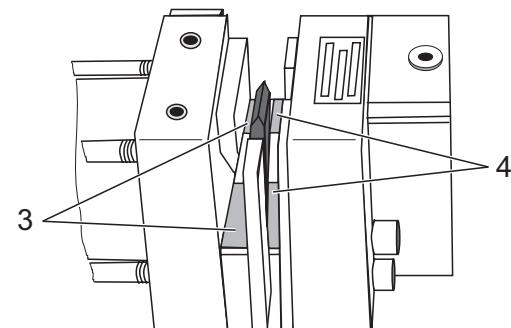
- After punching, always remove the face plate (1) and drive rod (2) perpendicularly in an upwards direction.



Fittings after punching

See figure: Cleaning the supporting surfaces

- Keep the supporting surfaces (3 and 4) clean.



Cleaning the supporting surfaces

13.2

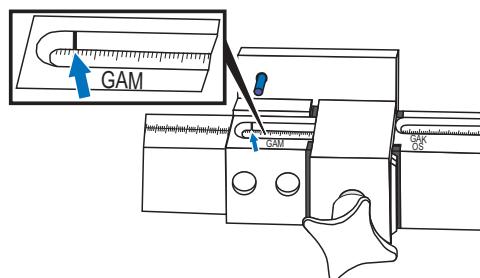
## Shorten the drive rod GAM (central handle position)

See figure: Marking GAM

- Set measuring value FFH on the measuring device to the GAM mark.



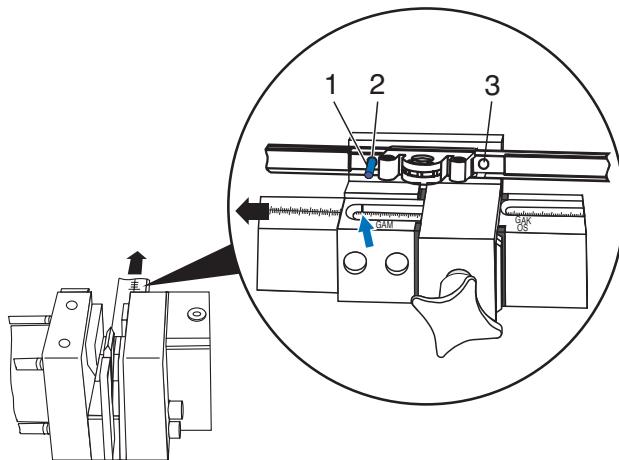
Attention! If the GAM scale is displaced by one submarking, this corresponds to a longitudinal shift of 2 mm.



Marking GAM

See figure: Position for shortening drive rod

- Position the GAM drive rod at the scale; slot drill hole (2) onto bolt (1).
- Turn the GAM drive rod around, and slot the drill hole (3) onto the bolt (1), then trim the other side.
- Shorten the drive rod using the fitting punch.



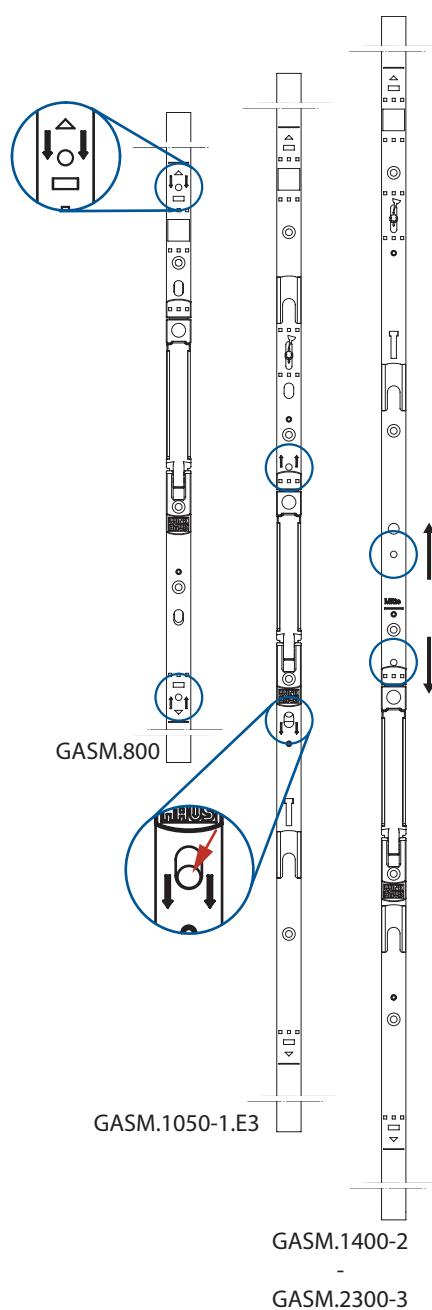
Position for shortening drive rod

## Cutting of double sash drive rods GASM

### GASM.800

See figure: Cutting instructions GASM

- Adjust the ruler to FFH + 400 mm (example: measured FFH = 567; adjust ruler to 567mm + 400 mm = 967 mm).
- Connect the drive to the marked hole on the ruler (arrows pointing to cutter).
- Cut off the element.



13.2

### GASM.1050 – GASM.2300

### Cutting instructions GASM

- See figure: Cutting instructions GASM
- Adjust the ruler to FFH (sash rebate height).
  - Connect the drive to the marked hole on the ruler (arrows pointing to cutter).
  - In case of GASM.1050 please make sure that the bolt in the elongated hole is positioned as indicated (red arrow).
  - Cut off the element.
  - GASM.1050 is always used in combination with corner drive E3.



Note: The double-sash drive rod must be trimmed before delivery.

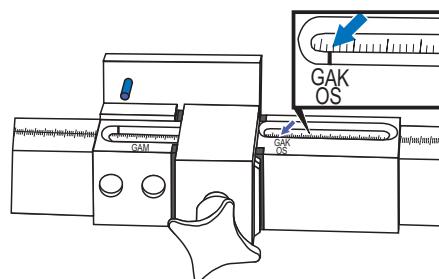
## Shorten the GAK / GASK drive rod (constant handle position) and top rod OS



Note: The double-sash drive rod must be trimmed before delivery.

See figure: Markings GAK and OS

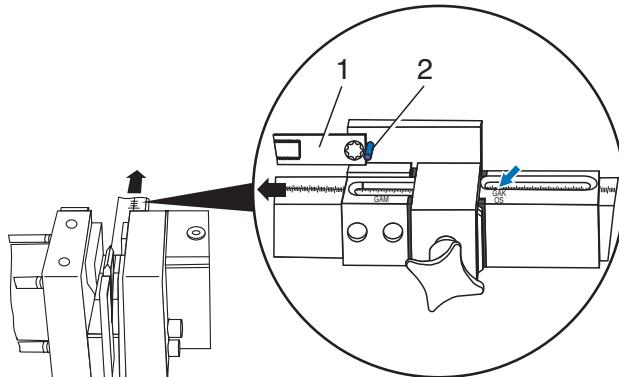
- Set the measuring value FFH (GAK/GASK) or FFB (OS) on the measuring device to the GAK/OS mark.



Markings GAK and OS

See figure: Position for shortening drive rod and/or top rod

- Cutting the top rod OS...
- Position the drive rod GAK/GASK (fixed handle position) (1) or the top rod OS (1) at the bolt (2).
- Shorten the drive rod (1) or the top rod (1).

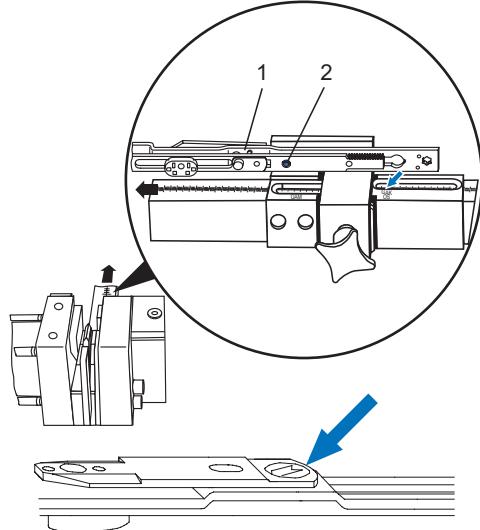


Position for shortening drive rod and/or top rod

Only applies to top rod OS1.600 (OS1.PA.600/OS.XL):

See figure: Position for shortening top rod

- Position the top rod (1) with square holes at bolt (2). Press the offset (see arrow) against the bolt (2).
- Shorten the top rod (1).



Position for shortening top rod

13.2

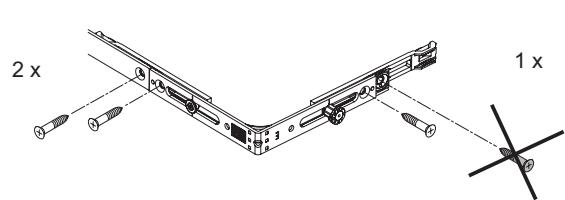
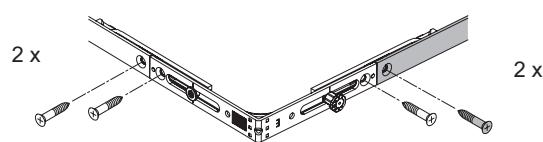
## Mounting of fittings on sash

Utilisation of the clampable "E...N" corner drive with black clamping piece

In case the "E...N" corner hinge (with black clamping piece) is used, please keep in mind that the second (external) screw may only be applied if another component is connected (see illustration below).



If a second screw is fixed to the clamping piece and tightened without joining an additional component, the fitting system might be difficult to operate.



### Turn-tilt type – Rectangular window

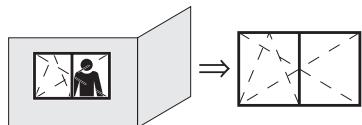
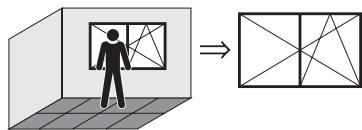
Prepare the window for fitting. Then proceed as follows:



Please note: The following figures refer to a window for right-hand use. When fitting a window for left-hand use, the figures will be mirror-inverted.

The following also applies:

- When viewing the window from the inside, the symbol is depicted as a full line.
- When viewing the window from the outside, the symbol is depicted as a dotted line.

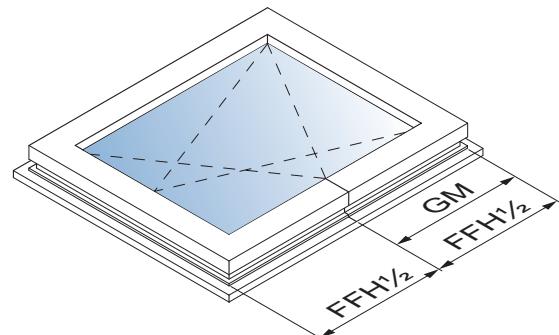


### Determine the handle height:

#### Handle height for drive rod GAM

See figure: Sash rebate height FFH with central handle height GM

If you use a GAM drive rod ... (central handle position), the dimension GM is half the sash rebate height FFH.

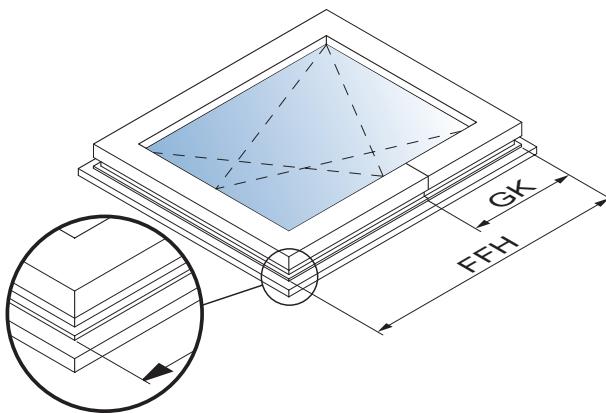


Sash rebate height FFH with central handle height GM

### Handle height for drive rod GAK

See figure: Sash rebate height FFH with constant handle position GK

If you use a GAK drive rod ... (constant handle position), dimension GK changes to reflect the sash rebate height FFH. The exact dimensions are specified in the following table.



Sash rebate height FFH with constant handle position GK

See figure: Synoptical table: sash rebate height (FFH) / handle position (GK)

The table on the right gives a survey on the handle height (GK) of GAK with regard to the sash rebate height (FFH).

FFH	GK
230 – 324	GK = 114 *
325 – 420	GK = 114 *
421 – 460	GK = 210
461 – 700	GK = 210
701 – 850	GK = 260
851 – 1100	GK = 375
1101 – 1325	GK = 550
1326 – 1525	GK = 550
1526 – 1775	GK = 550
1776 – 2000	GK = 1050
2001 – 2225	GK = 1050

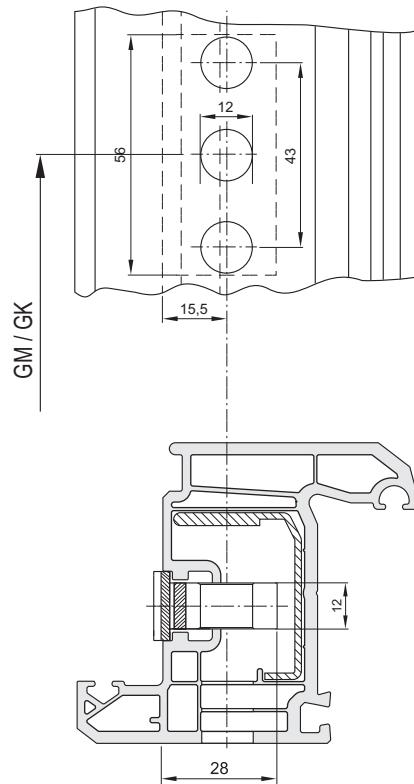
Synoptical table: sash rebate height (FFH) / handle position (GK)

\* Requires the use of E3 corner drive

See figure: Scale drawing "Gear lock"

- Drill holes for gear case ( $\varnothing$  12 mm) as per scale drawing.

Mill the gear housing from the rebate side.

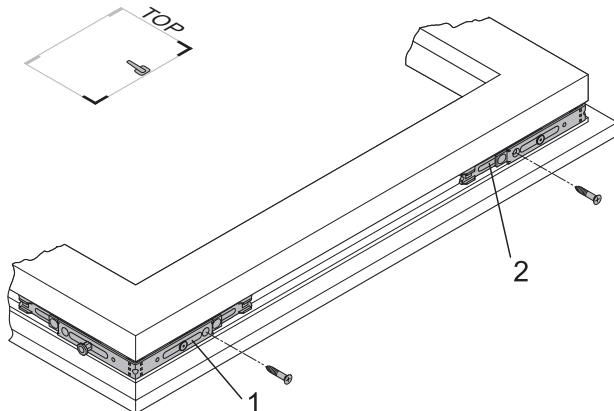


13.3

Scale drawing "Gear lock"

See figure: Corner drive E1

- Mounting of interlocking rods:
- Fit the corner drive (2) into the fitting groove at the top of the sash so that the octagonal bolt is on the top side.
- Fit the corner drive (1) into the fitting groove at the bottom of the sash so that the octagonal bolt is on the underside.
- Fix both corner drives (1, 2) on the drive side with a single screw each.
- Measure the sash rebate height (FFH).



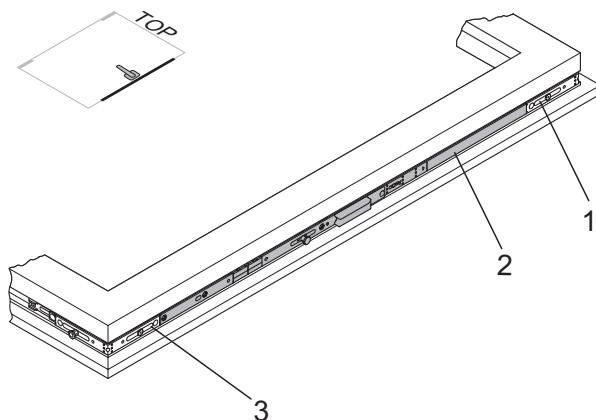
Corner drive E1

See figure: Drive rod GAM/GAK

- Cut the drive rod according to the instructions.
- Mount the drive rod:
- Abut the drive rod (2) flush against the corner drive (3).
- Allow the teeth on the drive rod to click into position on the gear rack on the corner drive.
- Clip the drive rod into the corner drive (1) in the same way.
- Press the drive rod into the eurogroove.
- Screw the drive rod from the bottom up.



Remark: Please make sure that the installation position of the drive rod is correct!



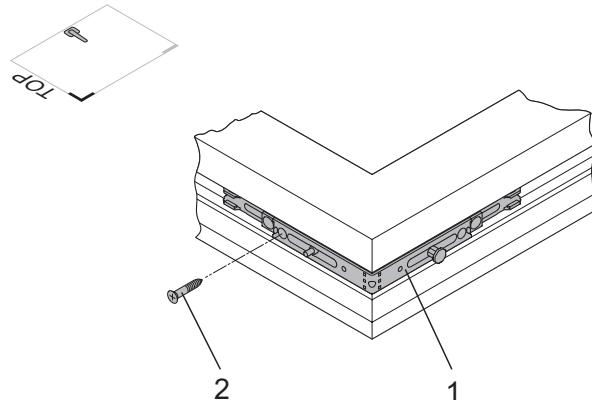
Drive rod GAM/GAK

See figure: Corner drive E2

- Mounting of E2 corner drive:
- Fit the corner drive (1) into the fitting groove at the top of the sash so that the octagonal bolt is on the hinge side.
- Fasten the corner drive on the sash using a screw (2).
- Measure the sash rebate width (FFB).



Please note: If you use an OS1.600 top rod, replace corner drive E2 with corner drive E3.



Corner drive E2

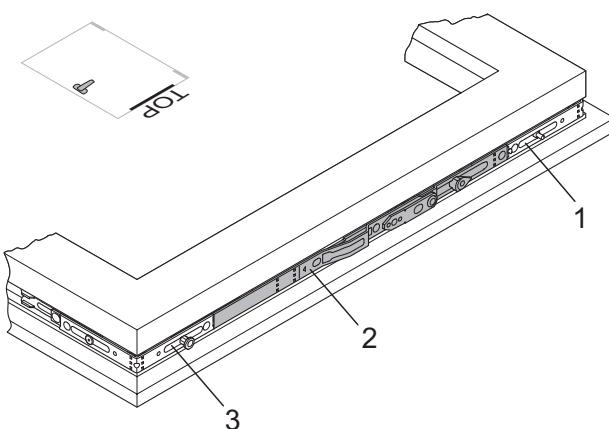
- Cut the top rod (see chapter 'Shortening the fittings').



Please note: For FFB < approx. 600 mm (depending on profile), place tilt limiter on top rod OS... (2).

See figure: Top rod OS

- Insert the top rod and screw into position.
- Fit the top rod flush against the corner drive (1).
- Allow the gear teeth to click into place on the rack in the corner drive.
- Clip the top rod into the corner drive (3) in the same way.
- Press the top rod into the fitting groove.
- Screw the top rod from the hinge side to the drive side.



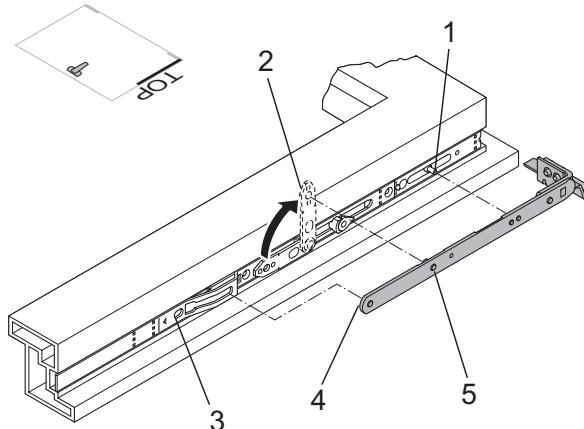
Top rod OS

See figure: Shears

- Mounting the shear:
- Swivel out the hold-up shore (2) (see arrow).
- Clip shear into the top rod (3) using mushroom bolt (4).
- Press the shear bolt (5) into the spring on the hold-up shore.
- Swivel the hold-up shore and shear to home position.
- Press the shear onto the bolt (1).



Warning! Risk of Injury. The sash can fall out and cause injuries if the shear and top rod are not securely fastened.



Shears

See figure: Interlocking rod M/MK (hinge side)

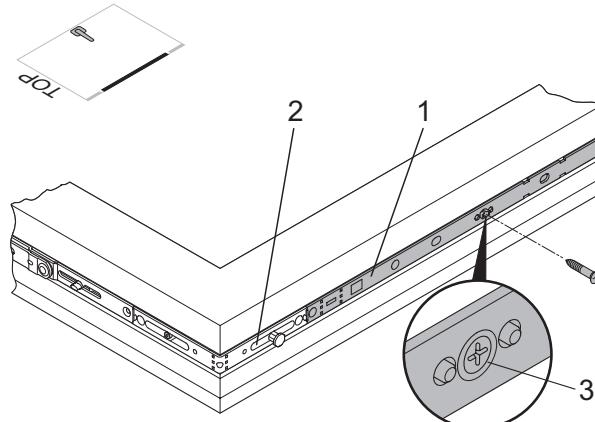
- Install Interlocking Rod on the hinge side.
- Fit the interlocking rod (1) flush against the corner drive (2).
- Click the interlocking rod gears into the teeth of the corner drive.
- Press the interlocking rod into the fitting groove.
- Screw the interlocking rod from the top down.
- Tighten the screw (3) fully to release the central fastening.



Please note: For a sash rebate height (FFH) and/or sash rebate width (FFB) of approx 800 mm (depending on the profile) an interlocking rod should also be fitted hinge-side and/or horizontally at the bottom / top.



Attention! Damage to fittings. If the central fastening is not released, the gearing cannot be actuated. Use of force will lead to torsion of the fittings. Always insert the screw fully up to the stop.

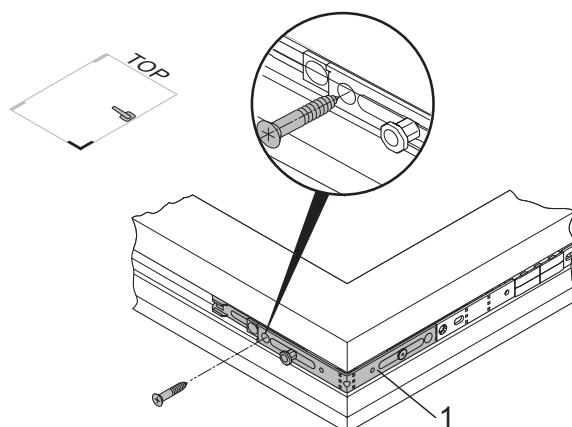


Interlocking rod M/MK (hinge side)

13.3

See figure: Corner drive E1

- Screw the corner drive (1) in place.



Corner drive E1



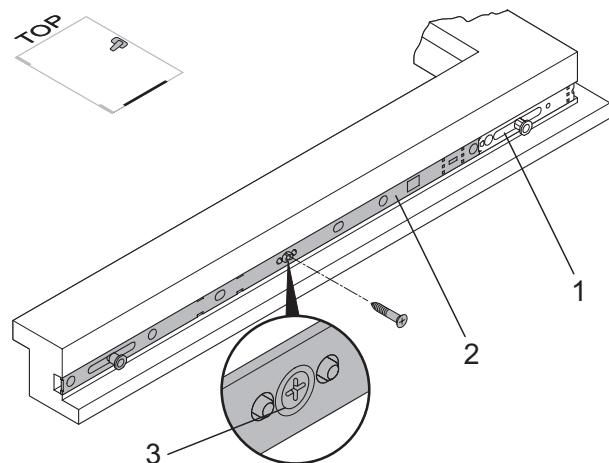
Please note: The following step is not needed, if you do not fit an interlocking rod to the corner drive.

See figure: Interlocking rod M/MK (horizontal)

- Mount interlocking rod on the underside:
- Abut the interlocking rod (2) flush against the corner drive (1).
- Click the interlocking rod gears into the teeth of the corner drive.
- Press the interlocking rod into the fitting groove.
- Screw the interlocking rod from the corner drive to the centre of the window.
- Tighten the screw (3) fully to release the central fastening.



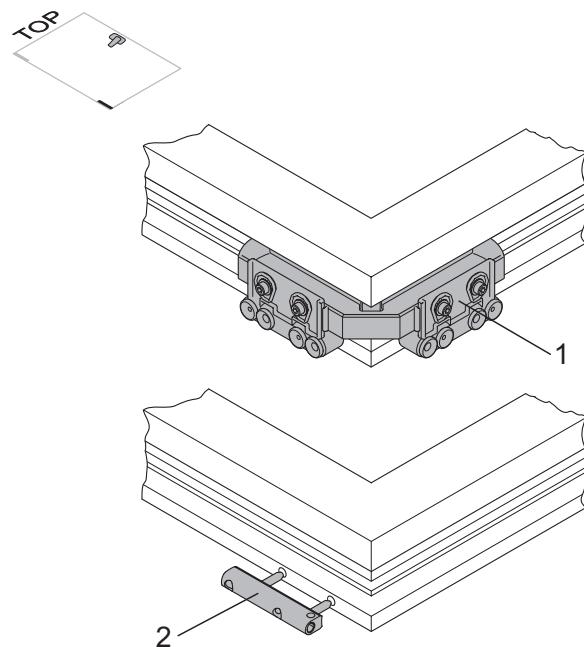
Attention! Damage to fittings. If the central fastening is not released, the gearing cannot be actuated. Use of force will lead to torsion of the fittings. Always insert the screw fully up to the stop.



Interlocking rod M/MK (horizontal)

See figure: Sash hinge FL... / Mounting jig LE.B.FL...

- Fitting the sash hinge:
  - Position the mounting jig (1), clamp into the fitting groove and drill ø 6 mm holes for the hinge plugs.
  - Pre-drill the screw holes through the first wall.
  - Insert the sash hinge (2) and fix it in place.
  - Make sure the sash hinge is fitted correctly into position.



Sash hinge FL... / Mounting jig LE.B.FL...



Attention! Check if all screws are fixed into place on the fitting parts.

13.3

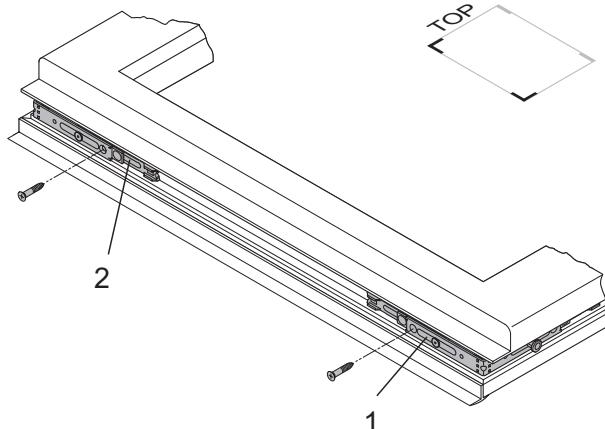
## Turn double sash type - Rectangular window



Please note: The following figures refer to a window for left-hand use. When fitting a window for right hand use, the figures will be mirror-inverted.

See figure: Corner drive E1

- Mounting of interlocking rods:
- Fit the corner drive (2) into the fitting groove at the top of the sash so that the octagonal bolt is on the top side.
- Fit the corner drive (1) into the fitting groove at the bottom of the sash so that the octagonal bolt is on the underside.
- Fix both corner drives (1, 2) on the drive side with a single screw each.
- Measure the sash rebate height (FFH).



Corner drives E1

- Shorten the drive rod:
- Shorten drive rod GASM or drive rod GASK in line with description "Shortening the fittings".



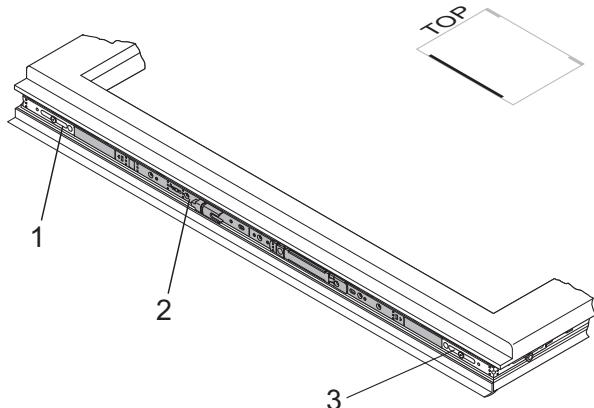
Please note: Make sure you shorten the drive rod in closed state (as delivered).

See figure: Drive rod GASM/GASK

- 13.3
- Mount the drive rod:
  - Abut the drive rod (2) flush against the corner drive (3).
  - Allow the teeth on the drive rod to click into position on the gear rack on the corner drive.
  - Clip the drive rod into the corner drive (1) in the same way.
  - Press the drive rod into the eurogroove.
  - Screw the drive rod from the bottom up.



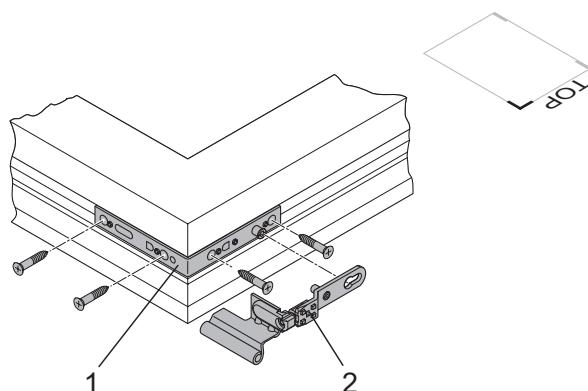
Please note: To keep a neutral position, do not perform a function test until all fittings are in place.



Drive rod GASM/GASK

See figure: Turn hinge bracket ERW/Turn hinge insert DL

- Mount the turn hinge bracket and turn hinge insert:
- Fit the turn hinge bracket (1) into the eurogroove at the top of the sash so that the connecting bolt is on the top side.
- Make sure the turn hinge bracket is flush.
- Screw the turn hinge bracket onto the sash.
- Insert the turn hinge insert (2) into the turn hinge bracket (1).



Turn hinge bracket ERW/Turn hinge insert DL



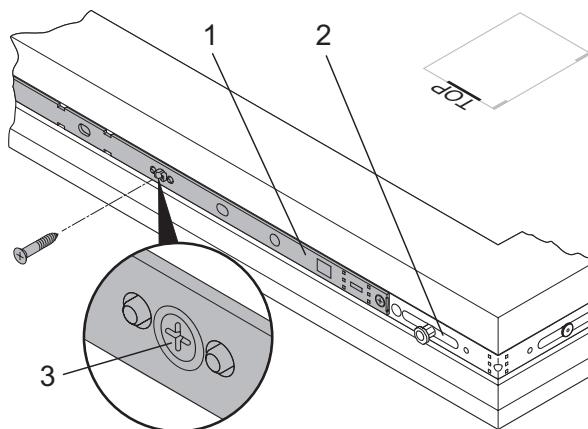
Please note: For a sash rebate height (FFH) and/or sash rebate width (FFB) of approx 800 mm (depending on the profile) an interlocking rod should also be fitted hinge-side and/or horizontally at the bottom / top. Observe the profile system supplier's processing guidelines in this respect.

See figure: Interlocking rod M (top)

- Mount the interlocking rod on the top side:
- Fit the interlocking rod (1) flush against the corner drive (2).
- Click the interlocking rod gears into the teeth of the corner drive.
- Press the interlocking rod into the fitting groove.
- Screw the interlocking rod tight from the hinge side to the gear side.
- Tighten the screw (3) fully to release the central fastening.



Attention! Damage to fittings. If the central fastening is not released, the gearing cannot be actuated. Use of force will lead to torsion of the fittings. Always insert the screw fully up to the stop.

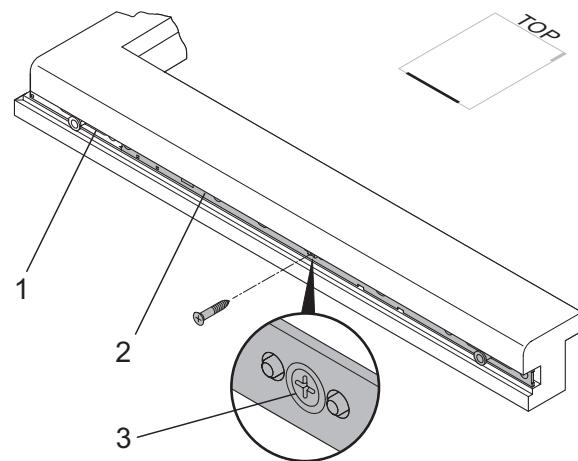


Interlocking rod M (top)

13.3

See figure: Interlocking rod M (bottom)

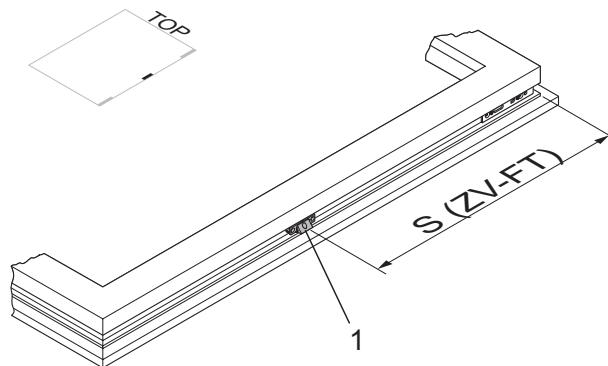
- Mount interlocking rod on the underside:
- See above



Interlocking rod M (bottom)

See figure: Pull-in device ZV-FT (hinge side)

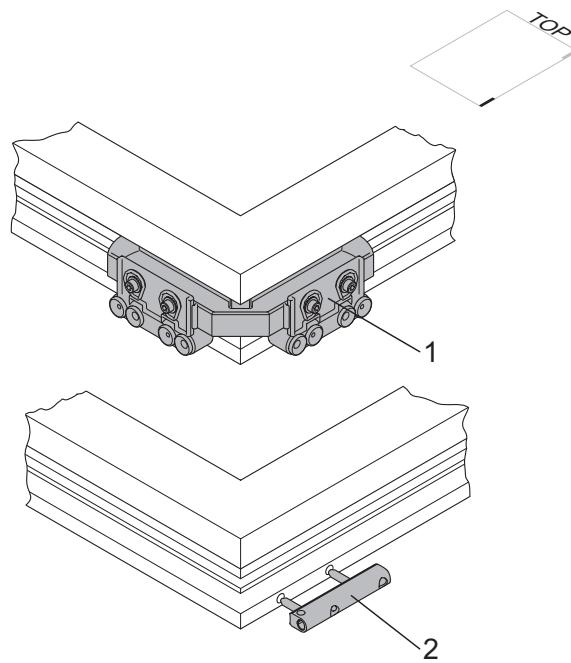
- Position the pull-in device (1):
- S (ZV-FT) = sash rebate edge to centre of keep ZV-FT
- Press the pull-in device into the eurogroove and screw in place.



Pull-in device ZV-FT (hinge side)

See figure: Sash hinge FL... / Mounting jig LE.B.FL...

- 13.3
- Fitting the sash hinge:
  - Position the mounting jig (1), clamp into the fitting groove and drill ø 6 mm holes for the hinge plugs.
  - Pre-drill the screw holes through the first wall.
  - Insert the sash hinge (2) and fix it in place.
  - Make sure the sash hinge is fitted correctly into position.



Sash hinge FL... / Mounting jig LE.B.FL...

# Mounting of fittings on the window frame

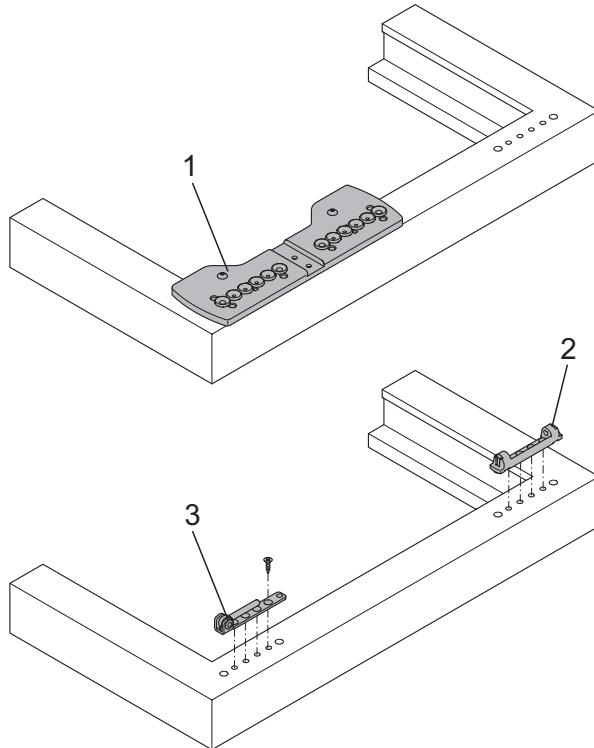
## Turn-tilt type – Rectangular window

See figure: Holes for corner and shear hinges

- Pre-drill the holes for shear and corner hinges and pre-drill the pin positions with  $\varnothing$  6 mm.
- Use the template (1) to drill holes for corner hinge (3) and shear hinge (2). Distance between drill holes for shear and corner hinges is the same.



Note: Fit the shear and corner hinges after fitting the keeps!



Holes for corner and shear hinges



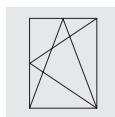
Important: The load-bearing fitting components, such as corner, shear and sash hinges, must be designed according to the TBDK guidelines. Please adapt the drill diameter of the fixing screws, the screw diameter and the screw length to the load situation.

13.3

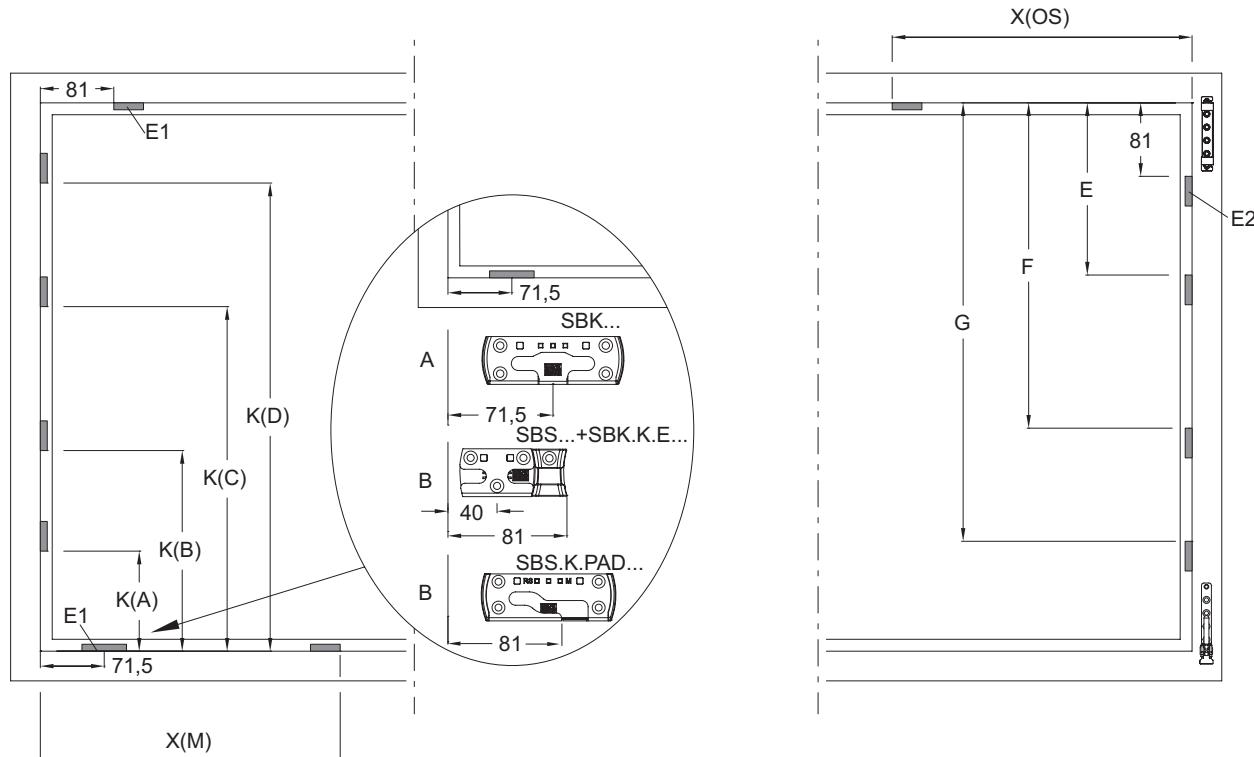


Note: A detailed depiction of drill and screw positions can be found in chapter 15, installation drawings.

## Turn-tilt window



## GAK



GAK...	K(A) [mm]	K(B) [mm]	K(C) [mm]	K(D) [mm]
GAK.830-1	385	-	-	-
GAK.945-1	385	-	-	-
GAK.1100-1	500	-	-	-
GAK.1195-1	750	-	-	-
GAK.1195-2	250	750	-	-
GAK.1325-1	750	-	-	-
GAK.1325-2	385	750	-	-
GAK.1550-1	750	-	-	-
GAK.1550-2	385	1000	-	-
GAK.1775-2	750	1250	-	-
GAK.1775-3	385	750	1250	-
GAK.2000-2	750	1250	-	-
GAK.2000-4	385	750	1250	1500

M...	X(M) [mm]
M.250-1	230
M.500-1	480
M.750-1	730

The illustration GAM.../GAK... shows the keep positions for backsets D15.5, D7.5 and D25-50. They also apply to GAMA/GAKA drive rods.

A = standard operating sequence turn-tilt (OS.2...)  
B = operating sequence tilt-before-turn (OS.2...E)

OS2...	X(OS) [mm]
OS2.1025-1 / OS2.1025-1.E	480
OS2.1250-1 / OS2.1250-1.E	480
OS2.1475-1 / OS2.1475-1.E	730

M...	E [mm]	F [mm]	G [mm]
M.250-1	250	-	-
M.500-1	500	-	-
M.750-1	750	-	-
MK.250-1 + M.250-1	250	500	-
MK.500-1 + M.500-1	500	1000	-
MK.750-1 + M.500-1	750	1250	-
MK.750-1 + M.750-1	750	1500	-
MB.1000-2	500	1000	-
MB.1250-2	750	1250	-
MB.1450-2	750	1450	-
MB.1750-3	750	1250	1750

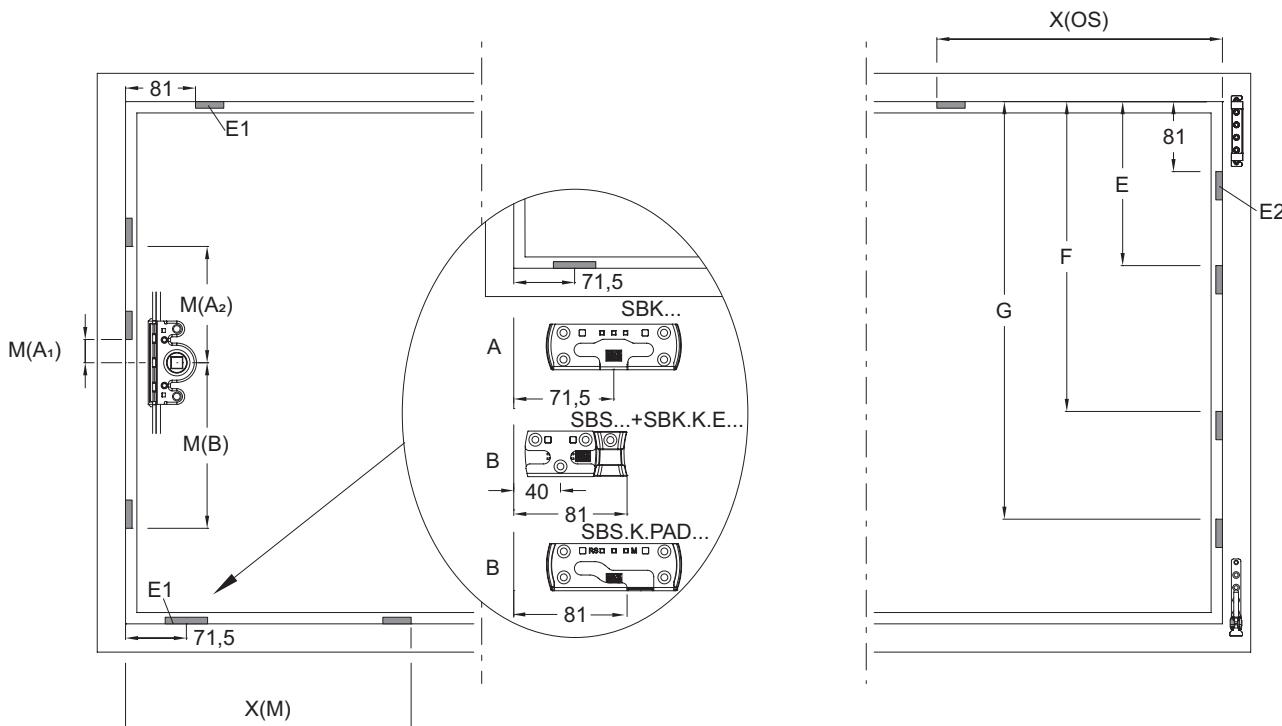
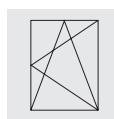
Tab\_180913\_2



In case of heavy sash weights and / or unfavourable shapes of the sash (FFB > FFH) we recommend you to use support keeps.

## Turn-tilt window

GAM



GAM...	M(A <sub>1</sub> ) [mm]	M(A <sub>2</sub> ) [mm]	M(B) [mm]
GAM.1050-1	127	-	-
GAM.1400-1	127	-	-
GAM.1400-2	127	-	223
GAM.1800-2	-	260	340
GAM.2300-3	127	692	520

M...	X(M) [mm]
M.250-1	230
M.500-1	480
M.750-1	730

OS2...	X(OS) [mm]
OS2.1025-1 / OS2.1025-1.E	480
OS2.1250-1 / OS2.1250-1.E	480
OS2.1475-1 / OS2.1475-1.E	730

M...	E [mm]	F [mm]	G [mm]
M.250-1	250	-	-
M.500-1	500	-	-
M.750-1	750	-	-
MK.250-1 + M.250-1	250	500	-
MK.500-1 + M.500-1	500	1000	-
MK.750-1 + M.500-1	750	1250	-
MK.750-1 + M.750-1	750	1500	-
MB.1000-2	500	1000	-
MB.1250-2	750	1250	-
MB.1450-2	750	1450	-
MB.1750-3	750	1250	1750

Tab\_180913\_1

13.3

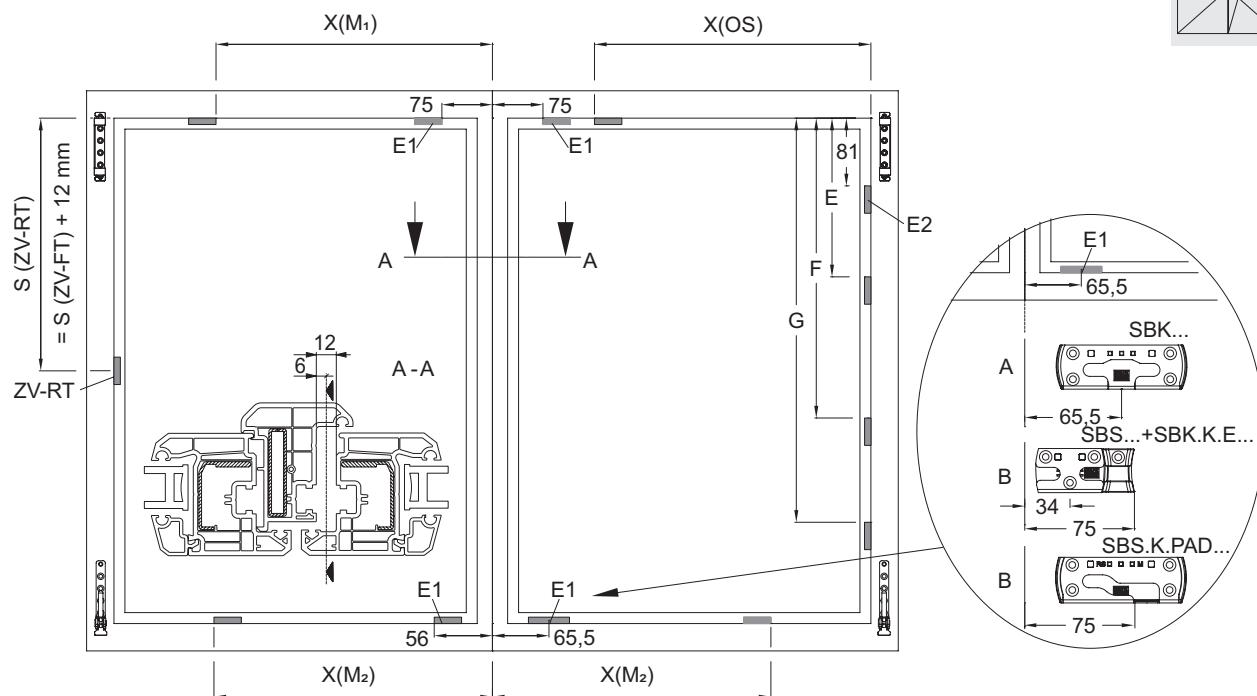
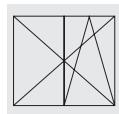
The illustration GAM.../GAK... shows the keep positions for backsets D15.5, D7.5 and D25.50. They also apply to GAMA/GAKA drive rods.

A = standard operating sequence turn-tilt (OS.2...)  
B = operating sequence tilt-before-turn (OS.2...E)



In case of heavy sash weights and / or unfavourable shapes of the sash (FFB > FFH) we recommend you to use support keeps.

## Double-sash windows turn/turn-tilt



M...	X(M <sub>1</sub> ) [mm]
M.250-1	244
M.500-1	494
M.750-1	744

OS2...	X(OS) [mm]
OS2.1025-1 / OS2.1025-1.E	480
OS2.1250-1 / OS2.1250-1.E	480
OS2.1475-1 / OS2.1475-1.E	730

M...	X(M <sub>2</sub> ) [mm]
M.250-1	224
M.500-1	474
M.750-1	724

M...	E [mm]	F [mm]	G [mm]
M.250-1	250	-	-
M.500-1	500	-	-
M.750-1	750	-	-
MK.250-1 + M.250-1	250	500	-
MK.500-1 + M.500-1	500	1000	-
MK.750-1 + M.500-1	750	1250	-
MK.750-1 + M.750-1	750	1500	-
MB.1000-2	500	1000	-
MB.1250-2	750	1250	-
MB.1450-2	750	1450	-
MB.1750-3	750	1250	1750

Tab\_180913\_8

A = standard operating sequence turn-tilt (OS.2...)  
B = operating sequence tilt-before-turn (OS.2...E)

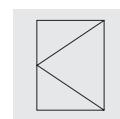
S (ZV-FT) = sash rebate edge to centre of keep ZV-FT

S (ZV-RT) = frame rebate edge to centre of pull-in device ZV-FT

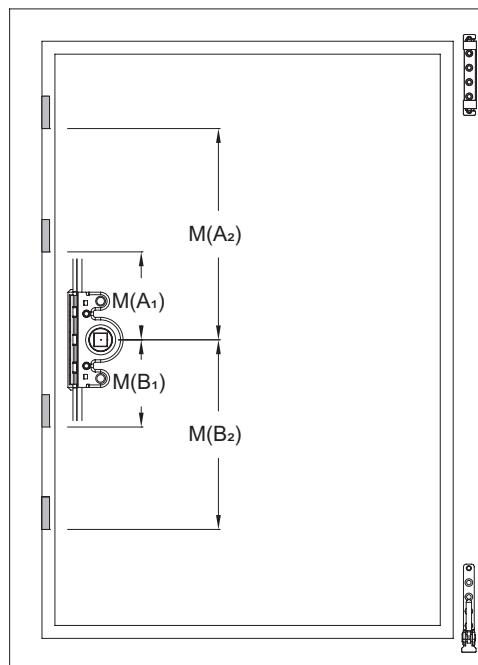


In case of heavy sash weights and / or unfavourable shapes of the sash (FFB > FFH) we recommend you to use support keeps.

## Turn windows



## GAVM



GAVM...	M(A <sub>1</sub> ) [mm]	M(A <sub>2</sub> ) [mm]	M(B <sub>1</sub> ) [mm]	M(B <sub>2</sub> ) [mm]
GAVM.175-1	46	-	-	-
GAVM.300-2	104	-	86	-
GAVM.420-2	159	-	141	-
GAVM.620-2	259	-	241	-
GAVM.920-3	92	409	391	-
GAVM.1220-3	92	559	541	-
GAVM.1320-3	92	609	591	-
GAVM.1520-3	92	709	691	-
GAVM.1820-4	259	859	241	841

Tab 180913\_3

13.3

The GAVM pictures / tables show the keep positions for backsets D15.5 and D7.5.

## Fitting the keeps

Handling of mounting jigs is explained by reference to the LE.N.K. 710-1100 mounting jig in the following. Other mounting jigs are handled in the same way. To position keeps, place the mounting jig on the frame rebate edge.

### Labelling of mounting jigs



Horizontal attachment = red element (for top rod and interlocking rod)



Vertical attachment = yellow element (for drive rods and interlocking rods)



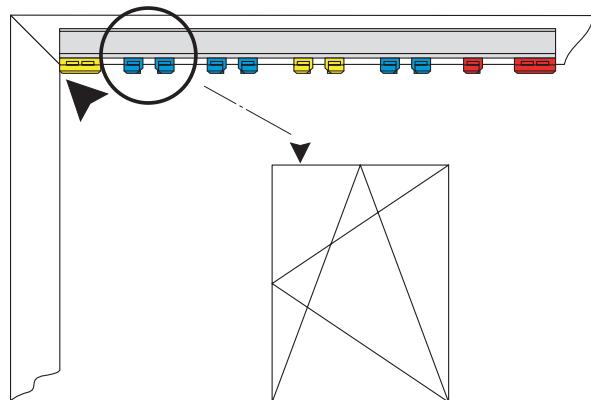
Vertical / horizontal attachment = blue element (for corner drives)



= Keep run-in

### Keep top horizontal

- Align the mounting jig with the yellow element in the top corner.
- Place the SBA keep on the blue element labelled "E1" and "E2".

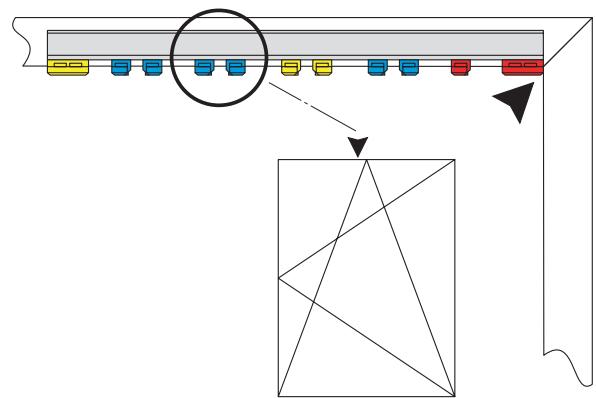


Keep top horizontal

13.3

### Keep for top rod OS...

- Align the mounting jig with the red element in the top corner.
- Place the keep SBA on the blue element labelled "OS. ...".



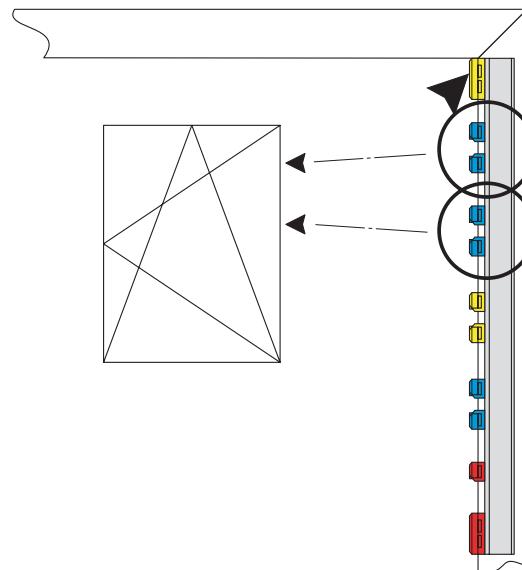
Keep for top rod OS...

## Keeps hinge side

- Align the mounting jig with the yellow element in the top corner.
- Position the keep for the corner drive on the blue element.
- Position the keep for interlocking rod on the yellow element.



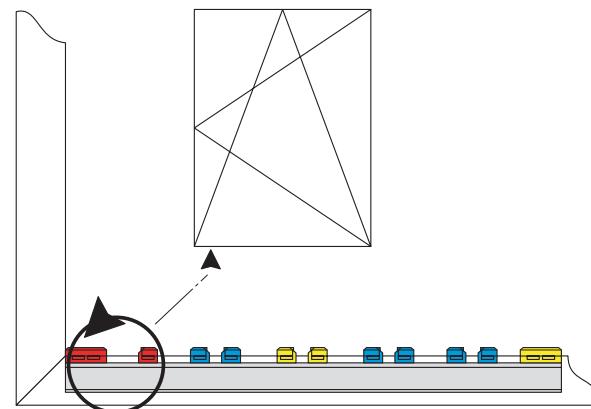
Note: The markings on the interlocking rod must match the marking on the yellow element.



Keeps hinge side

## Tilt keep SBK... bottom horizontal

- Align the mounting jig with the red element in the lower corner.
- Place the SBK... keep on the red element marked "Kipblech SBK".



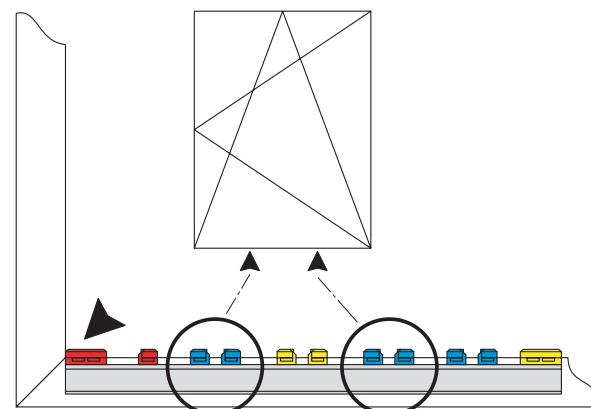
Tilt keep SBK... bottom horizontal

## Interlocking Rod M..., bottom, horizontal

See figure: M bottom horizontal

- Align the mounting jig with the red element in the lower corner.
- Position the keep on the blue element marked "M" or "MK".

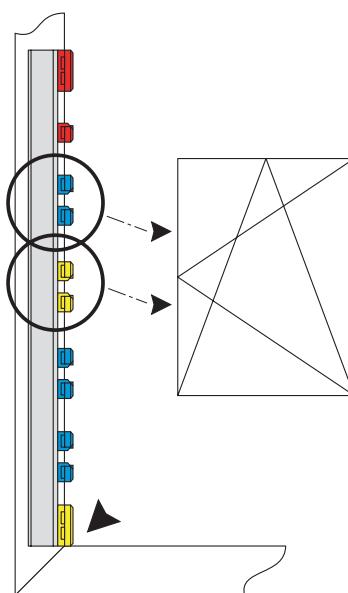
13.3



M bottom horizontal

## Keeps SBA... for vertical GAK

- Align the mounting jig with the yellow element in the bottom corner.
- Place the SBA. ... keeps on the yellow and blue elements marked "GAK. ....".



SBA... for vertical GAK

## Keeps for GAM

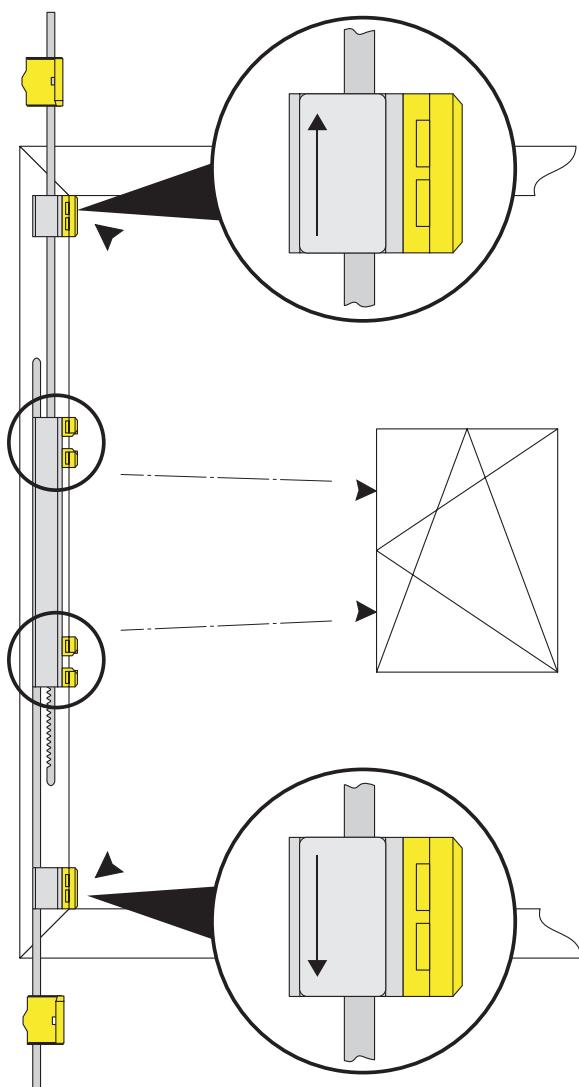
- Attach the corresponding mounting jig labelled "top" or "bottom".
- Fit keeps in line with the labelling on the mounting template.

There are three telescopic jigs depending on the window height:

- LE.N.T. 0710-1050 for drive rod GAM 1050-1
- LE.N.T. 1051-1800 for drive rod GAM 1400-1/2 / 1800-2
- LE.N.T. 1801-2300 for drive rod GAM 2300-3



Please note: The labelling on the drive rod must match the labelling on the yellow templates.



Keeps for GAM

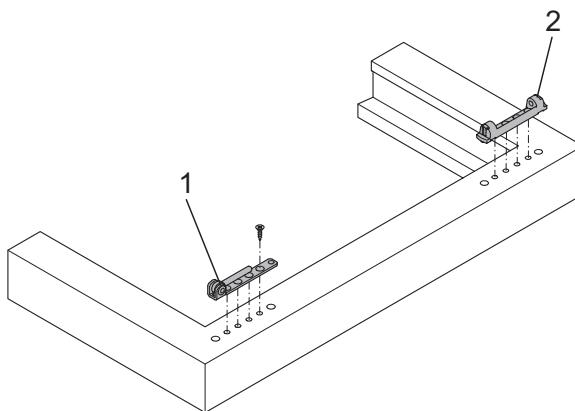
## Mounting shear and corner hinges

See figure: Shear and corner hinges

- Fix the shear hinge (2) and corner hinge (1) with screws.



Please note: Window builders must ensure that hinges and their anchorings are designed to support the expected loads and are professionally mounted.



Shear and corner hinges



Important: The load-bearing fitting components, such as corner, shear and sash hinges, must be designed according to the TBDK guidelines. Please adapt the drill diameter of the fixing screws, the screw diameter and the screw length to the load situation.



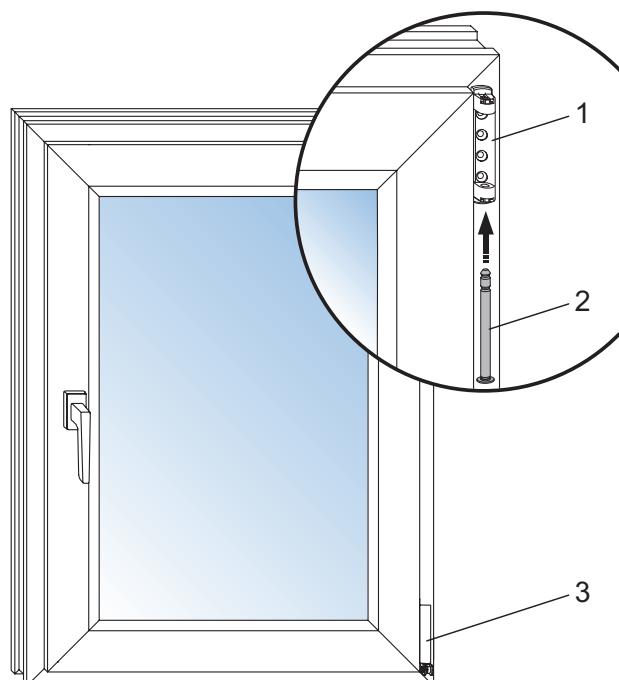
Note: A detailed depiction of drill and screw positions can be found in chapter 15, installation drawings.

### Fitting the sash

- Mount the sash, adjust for a good seal and fit the pin to secure against the shear hinge.
- Push all end caps and sealing caps onto the shear and corner hinges.



Note: Insert pin from bottom (see arrow).



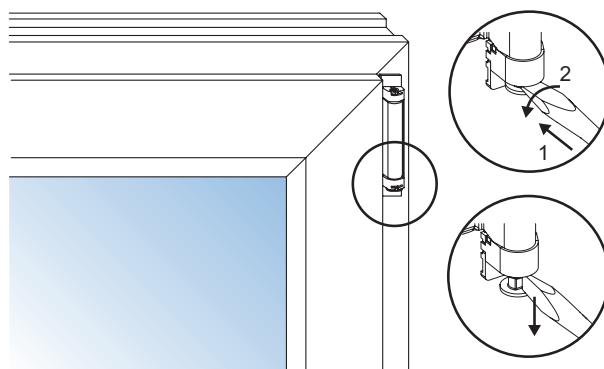
Shear and corner hinge

### Removal of the sash

- Close the sash.
- Release the pin from the shear hinge.
- Remove the sash.



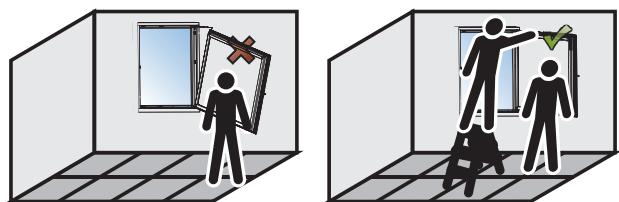
Attention! Damage to shear hinge. In case of improper use and if you attempt to drive out the pin forcibly, the shear hinge will be damaged. Use only a screwdriver as shown in the figure or a pulling device to remove the pin.



### Support the sash!



In order to save the sash hinge and corner hinge from damage, sagging of the sash during assembly must be prevented (give horizontal support)!



Caution: Secure the window sash against falling. Take the heavy sash weight into account!

# Mounting of fittings on sash

## Turn-tilt type – studio window

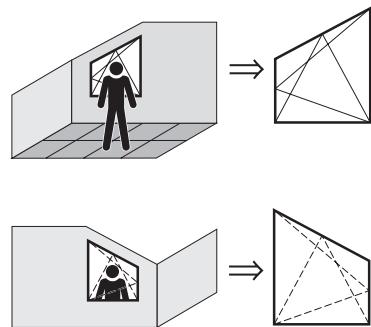
Prepare the window for fitting. Then proceed as follows:



Please note: The following figures refer to a window for right-hand use. When fitting a window for left-hand use, the figures will be mirror-inverted.

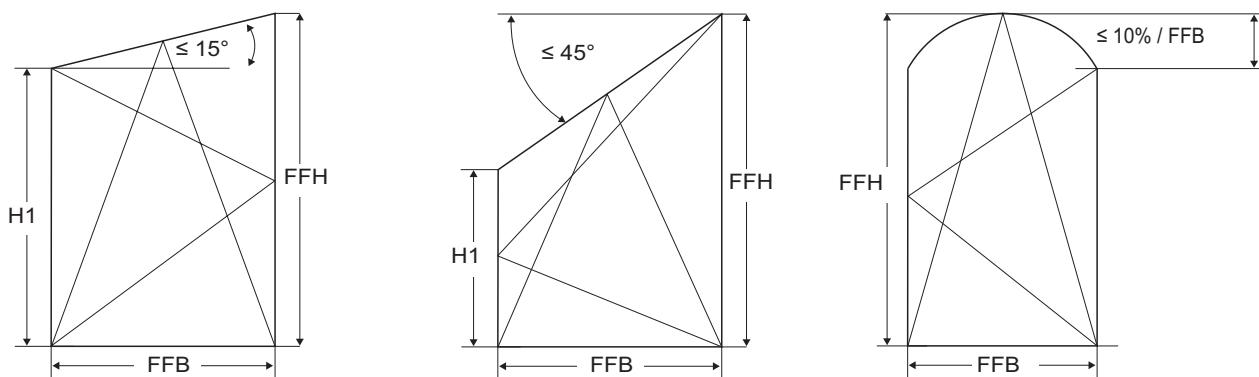
The following also applies:

- When viewing the window from the inside, the symbol is depicted as a full line.
- When viewing the window from the outside, the symbol is depicted as a dotted line.



## Studio variants

Studio components can be used for window elements with the following frame geometry.



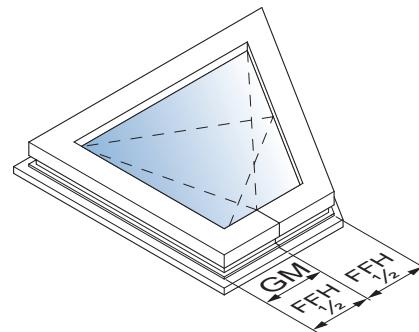
13.4

## Determine the handle height:

### Handle height for drive rod GAM

See figure: Sash rebate height FFH with central handle height GM

If you use a GAM drive rod ... (central handle position), the dimension GM is half the sash rebate height FFH.



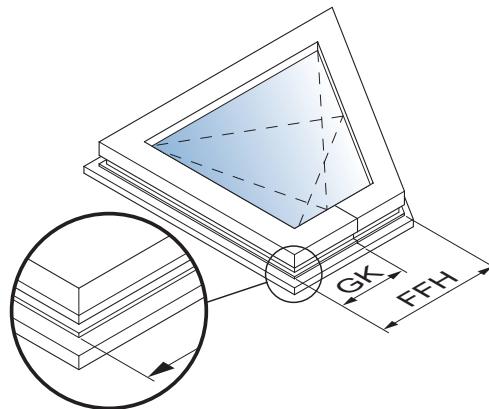
Sash rebate height FFH with central handle height GM

### Handle height for drive rod GAK

If you use a GAK drive rod ... (constant handle position), di-

mension GK changes to reflect the sash rebate height FFH.

The exact dimensions are specified in the following table.



Sash rebate height FFH with constant handle position GK

See figure: Synoptical table: sash rebate height (FFH) / han-

dle position (GK)

The table on the right gives a survey on the handle height (GK) of GAK with regard to the sash rebate height (FFH).

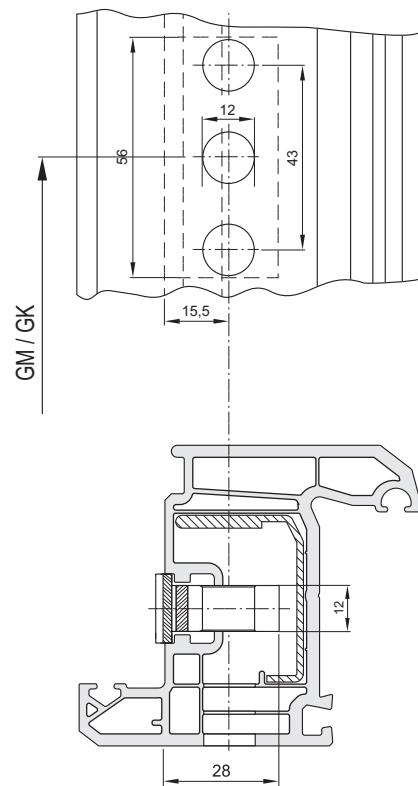
FFH	GK
230 – 324	GK = 114 *
325 – 420	GK = 114 *
421 – 460	GK = 210
461 – 700	GK = 210
701 – 850	GK = 260
851 – 1100	GK = 375
1101 – 1325	GK = 550
1326 – 1525	GK = 550
1526 – 1775	GK = 550
1776 – 2000	GK = 1050
2001 – 2225	GK = 1050

Synoptical table: sash rebate height (FFH) / handle position (GK)

\* Requires the use of E3 corner drive

See figure: Scale drawing "Gear lock"

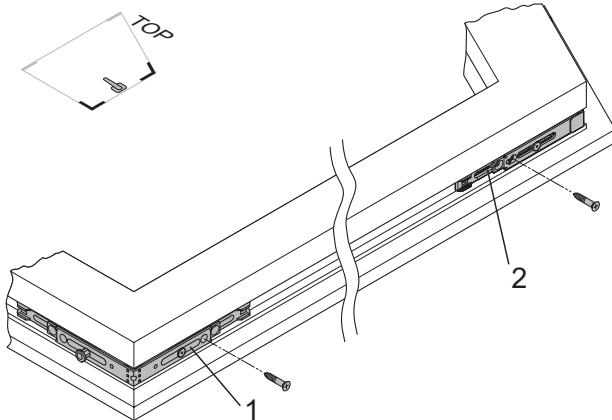
- Mill the gear housing from the rebate side.
- Drill holes for gear case ( $\varnothing$  12 mm) as per scale drawing.



Scale drawing "Gear lock"

See figure: Corner drives E1 (1), E1.A (2)

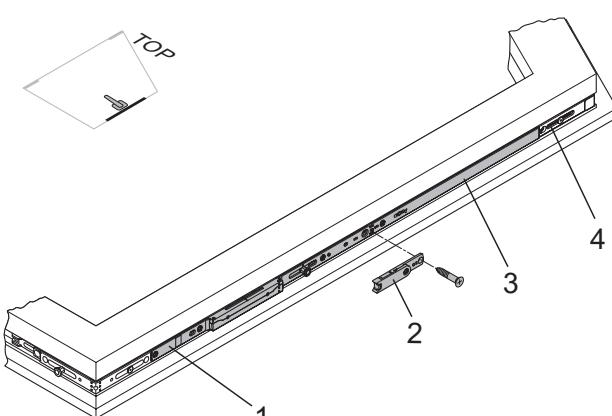
- Mounting of interlocking rods:
  - Fit the corner drive (2) into the fitting groove at the top of the sash so that the octagonal bolt is on the top side.
  - Prior to insertion, bend the corner drive E1.A to rectangular shape.
  - Fit the corner drive (1) into the fitting groove at the bottom of the sash so that the octagonal bolt is on the underside.
  - Fix both corner drives (1, 2) on the drive side with a single screw each.



13.4

See figure: Drive rod GAM/GAK

- Mount the drive rod:
  - Press the drive rod into the eurogroove.
  - Fit the handle to position the drive rod.
  - Mark the length of the drive rod on the flush edges of the corner drives.
  - Remove the handle and take the drive rod out of the fitting groove.
  - Mark and trim the drive rod using a punching press.
  - Mount the drive rod:
    - Abut the drive rod (3) flush against the corner drive (1).
    - Allow the teeth on the drive rod to click into position on the gear rack on the corner drive.
    - Clip the drive rod into the corner drive (4) in the same



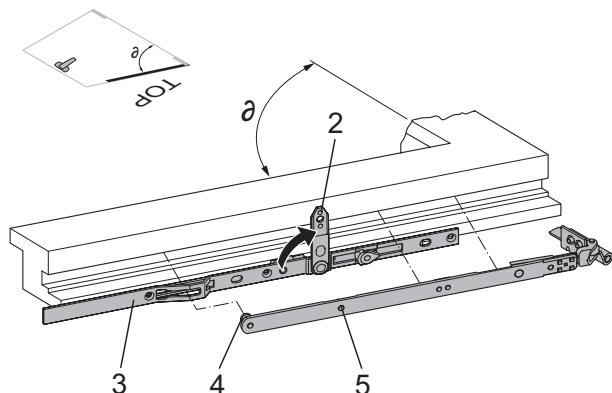
Drive rod GAM/GAK

way.

- Screw the drive rod from the bottom up.
- Insert the optional dual function element (2) and screw into place.

See figure: Top rod OS..., shear S...-A

- Connect shear and top rod:
- Swivel out the hold-up shore (2) (see arrow).
- Clip shear into the top rod (3) using mushroom bolt (4).
- Press the shear bolt (5) into the spring on the hold-up shore.
- Swivel the hold-up shore and shear to home position.



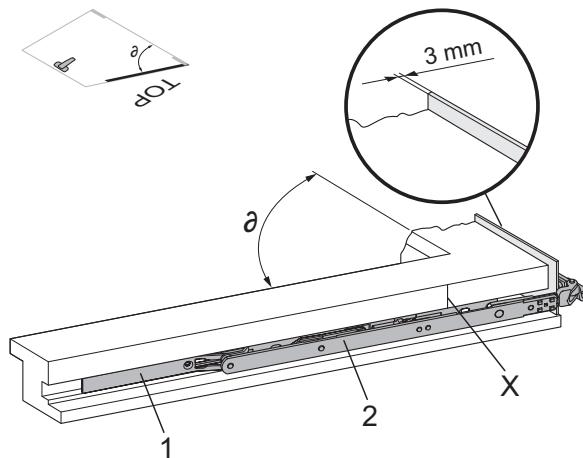
Top rod OS..., shear S...-A

See figure: Top rod OS..., shear S...-A

- Insert top rod OS... (1) and shear S...-A into the eurogroove:
- Insert a glazing block ( $d = 3 \text{ mm}$ ) between the shear hinge and sash to position the top rod.
- Mark the length of the connecting rod at the joint edge of the corner drive.
- Remove the top rod from the eurogroove.
- Mark and trim the top rod using a punching press.



Note: The mark "X" determines the position of the connecting rail ASS AR7/OR-A (for top rod OS.2).



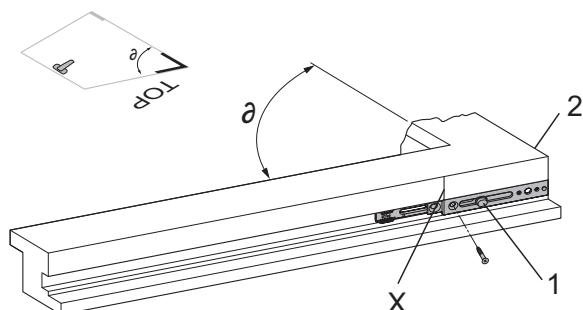
Top rod OS..., shear S...-A

See figure: Connecting rail ASS AR7/OR-A

- ### 13.4
- Mounting of the connecting rail:
  - Fit the connecting rail (1) into the fitting groove at the joint edge (X).
  - Screw-tight the corner drive at the top side.
  - Bend over the metal lug (2) and screw on.



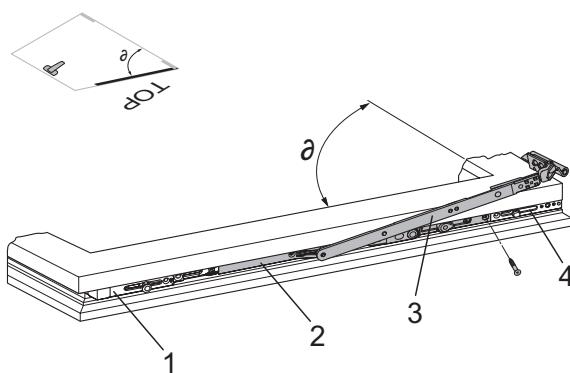
Attention! Damage to sash frame. If you set the outer screw at too sharp an angle " $\delta$ ", there is a danger of the screw protruding hinge side and damaging the profile. You may need to fix the connecting rod at the top with just one screw.



Connecting rail ASS AR7/OR-A

See figure: Top rod OS..., shear S...-A

- Screw on the top rod OS:
- Swivel out the shear (3).
- Fit the top rod (2) into the eurogroove and press flush against the connecting rail (4).
- Click the top rod gears into the teeth in the connecting rail.
- Clip the top rod (2) into the corner drive (1) in the same way.
- Screw the top rod towards the drive side.
- Swivel the shear (3) back into home position.



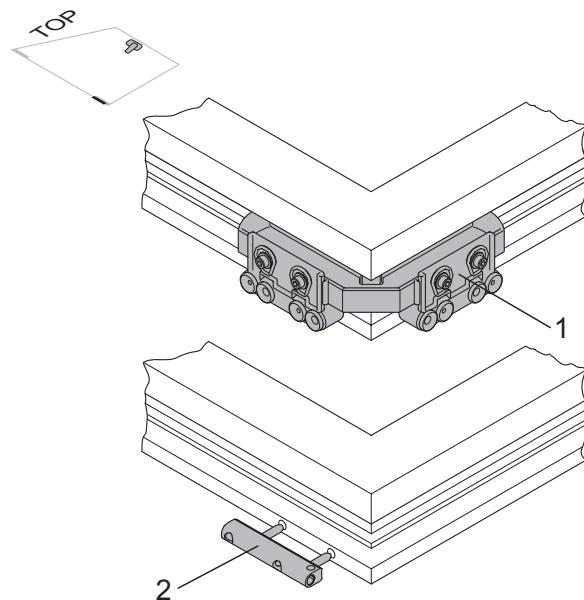
Top rod OS..., shear S...-A



Please note: When using the top rod OS1.600 please also insert an OS.A screw clip.

See figure: Sash hinge FL... / Mounting jig LE.B.FL...

- Fitting the sash hinge:
- Position the mounting jig (1), clamp into the fitting groove and drill Ø 6 mm holes for the hinge plugs.
- Pre-drill the screw holes through the first wall.
- Insert the sash hinge (2) and fix it in place.
- Make sure the sash hinge is fitted correctly into position.

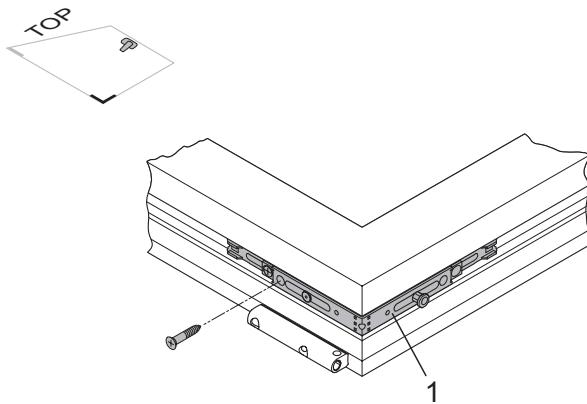


Sash hinge FL... / Mounting jig LE.B.FL...

See figure: Corner drive E1

- Fix the corner drive into place on the bottom side.
- Fit the corner drive (1) into the fitting groove at the bottom of the sash so that the octagonal bolt is on the underside.
- Fasten the corner drive into place with a screw.
- Measure the sash rebate width (FFB).

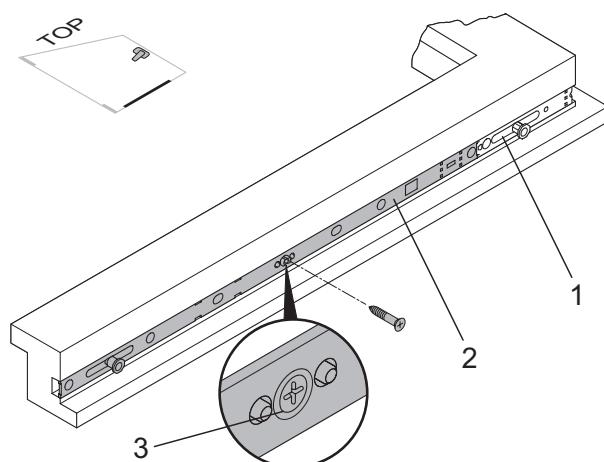
13.4



Corner drive E1

See figure: Interlocking rod MK (horizontal)

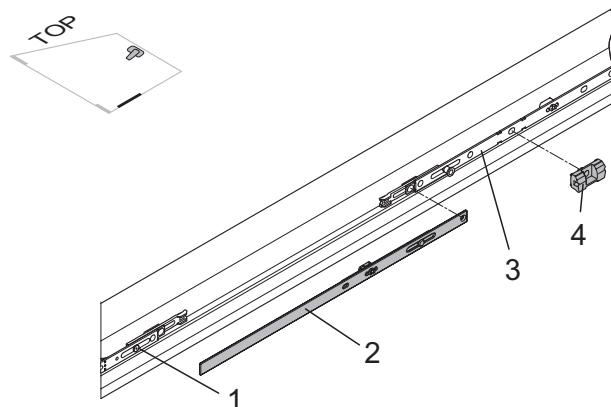
- Fit the interlocking rod at the bottom:
- Abut the interlocking rod (2) flush against the corner drive (1).
- Click the interlocking rod gears into the teeth of the corner drive.
- Press the interlocking rod into the fitting groove.
- Screw the interlocking rod in place.
- Tighten the screw (3) fully to release the central fastening.



Interlocking rod MK (horizontal)

See figure: Coupling element KE (horizontal)

- Mount coupling element on the underside:
- Abut the coupling element (2) flush against the corner drive (1) and slot into eurogroove.
- Mark the length of the coupling element at the joint edge of the interlocking rod (3).
- Remove the coupling element from the eurogroove.
- Mark and trim the coupling element using a punching press.
- Abut the coupling element (2) flush against the corner drive (1).
- Click the coupling element into the teeth in the corner drive.
- Slot the coupling element into the gearing of the interlocking rod (3) in the same way.
- Press the coupling element into the eurogroove.
- Screw the coupling element in place.



Coupling element KE (horizontal)

See figure: Interlocking rod M/MK (hinge side)

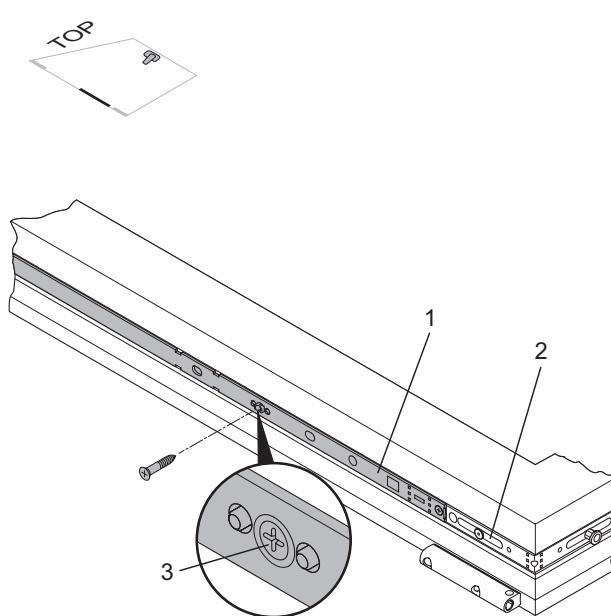
- Install Interlocking Rod on the hinge side.
- Fit the interlocking rod (1) flush against the corner drive (2).
- Click the interlocking rod gears into the teeth of the corner drive.
- Press the interlocking rod into the fitting groove.
- Screw the interlocking rod from the bottom up.
- Tighten the screw (3) fully to release the central fastening.



Attention! Damage to fittings. If the central fastening is not released, the gearing cannot be actuated. Use of force will lead to torsion of the fittings. Always insert the screw fully up to the stop.



Please note: The last locking point should be as close to the top as possible. You may need to fit multiple interlocking rods on hinge side for this reason.



Interlocking rod M/MK (hinge side)

# Mounting of fittings on the window frame

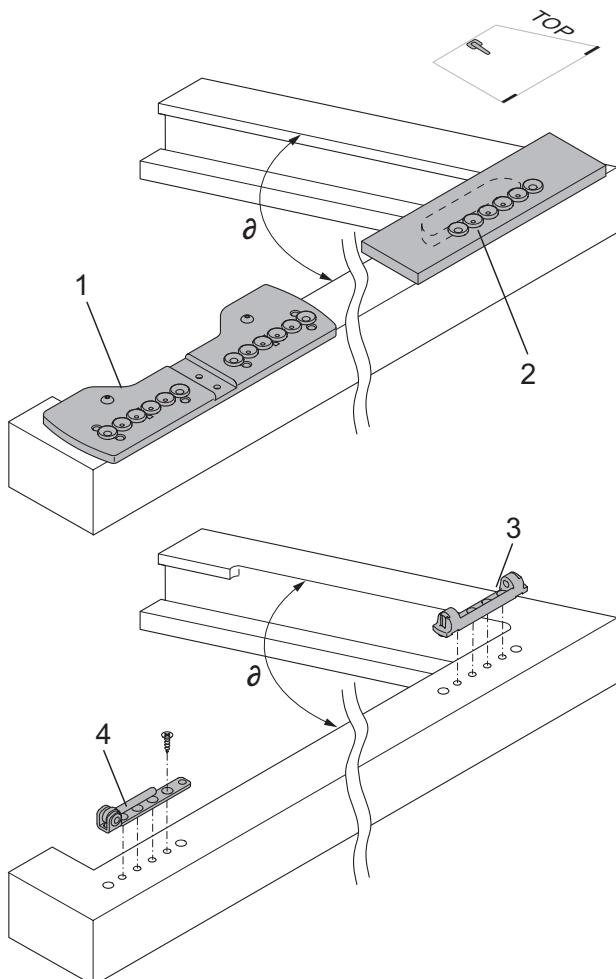
## Turn-tilt type – studio window

See figure: Holes for corner and shear hinges

- Pre-drill the holes for the corner hinge as well as the pin positions ( $\varnothing$  6 mm).
- Drill holes for the corner hinge (4) using the mounting jig LE.B.EL-SL.K (1) and for the shear hinge (3) using mounting jig SW-A (2). Distance between drill holes for shear and corner hinges is the same.



Please note: Do not fit shear hinges and corner hinges until after milling off the frame rebate edge and fitting the keeps.



Holes for corner and shear hinges

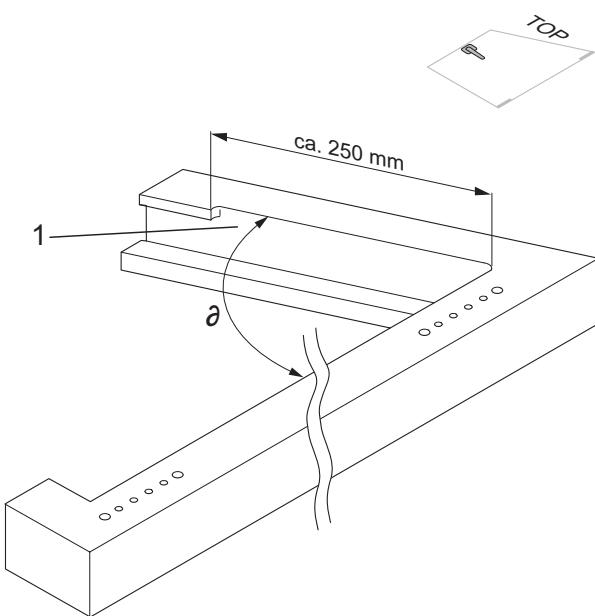
See figure: Cut-out for shear arm

- Mill off the frame rebate edge to a length of approx. 250 mm using a router.



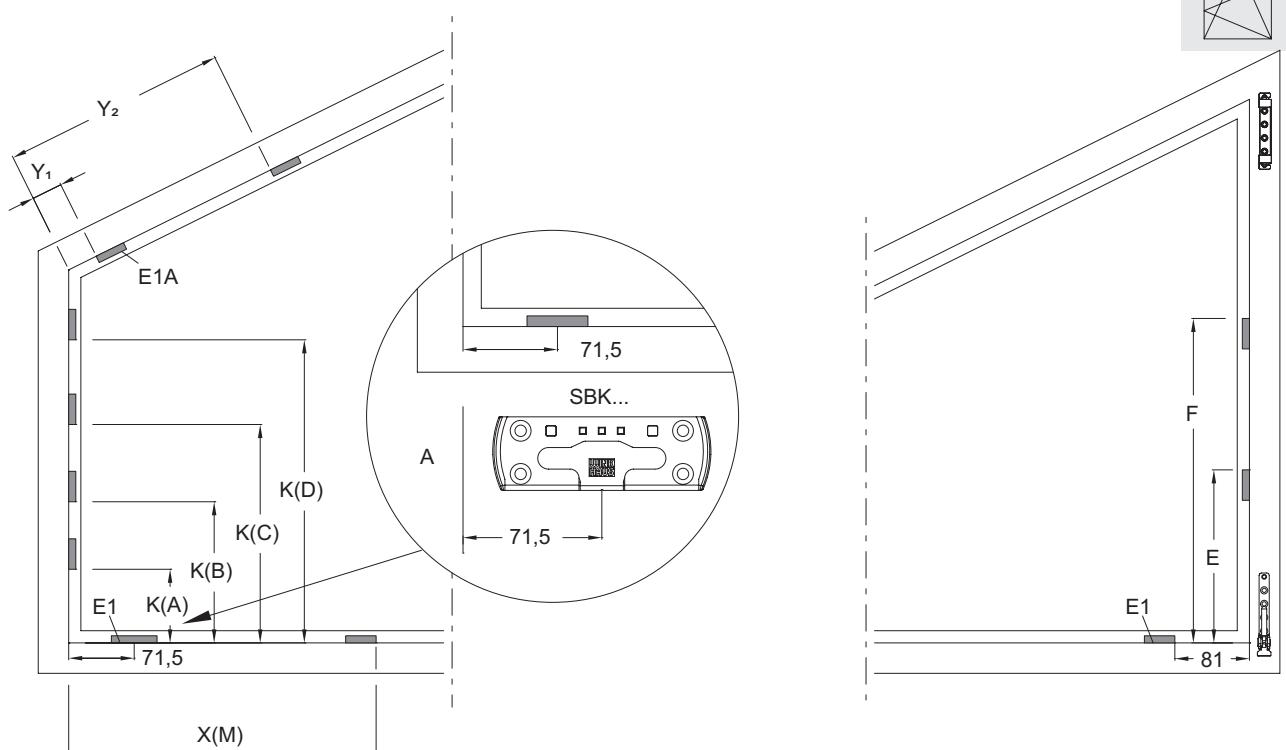
Attention! Damage to frame. To avoid the shear arm touching the frame when opening / closing the window, the frame rebate edge in the upper acute-angled area (1) of the profile must be bevelled or milled down. The length and slope of the routing depend on the angle of the upper corner.

13.4



Cut-out for shear arm

## Turn-tilt type of window GAK



GAK...	K(A) [mm]	K(B) [mm]	K(C) [mm]	K(D) [mm]
GAK.830-1	385	-	-	-
GAK.945-1	385	-	-	-
GAK.1100-1	500	-	-	-
GAK.1195-1	750	-	-	-
GAK.1195-2	250	750	-	-
GAK.1325-1	750	-	-	-
GAK.1325-2	385	750	-	-
GAK.1550-1	750	-	-	-
GAK.1550-2	385	1000	-	-
GAK.1775-2	750	1250	-	-
GAK.1775-3	385	750	1250	-
GAK.2000-2	750	1250	-	-
GAK.2000-4	385	750	1250	1500

M...	E [mm]	F [mm]
M.250-1	230	-
M.500-1	480	-
M.750-1	730	-
MK.250-1 + M.250-1	230	480
MK.500-1 + M.500-1	480	980
MK.750-1 + M.500-1	730	1230
MK.750-1 + M.750-1	730	1480
MB.1000-2	480	980
MB.1250-2	730	1230
MB.1450-2	730	1430

Tab\_180913\_5

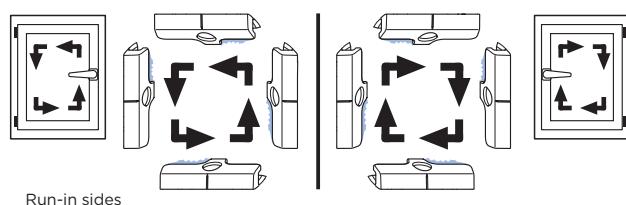
M...	X(M) [mm]
M.250-1	230
M.500-1	480
M.750-1	730

$Y_1/Y_2$  = Determine dimension by means of positioning aid LE.SB.N!

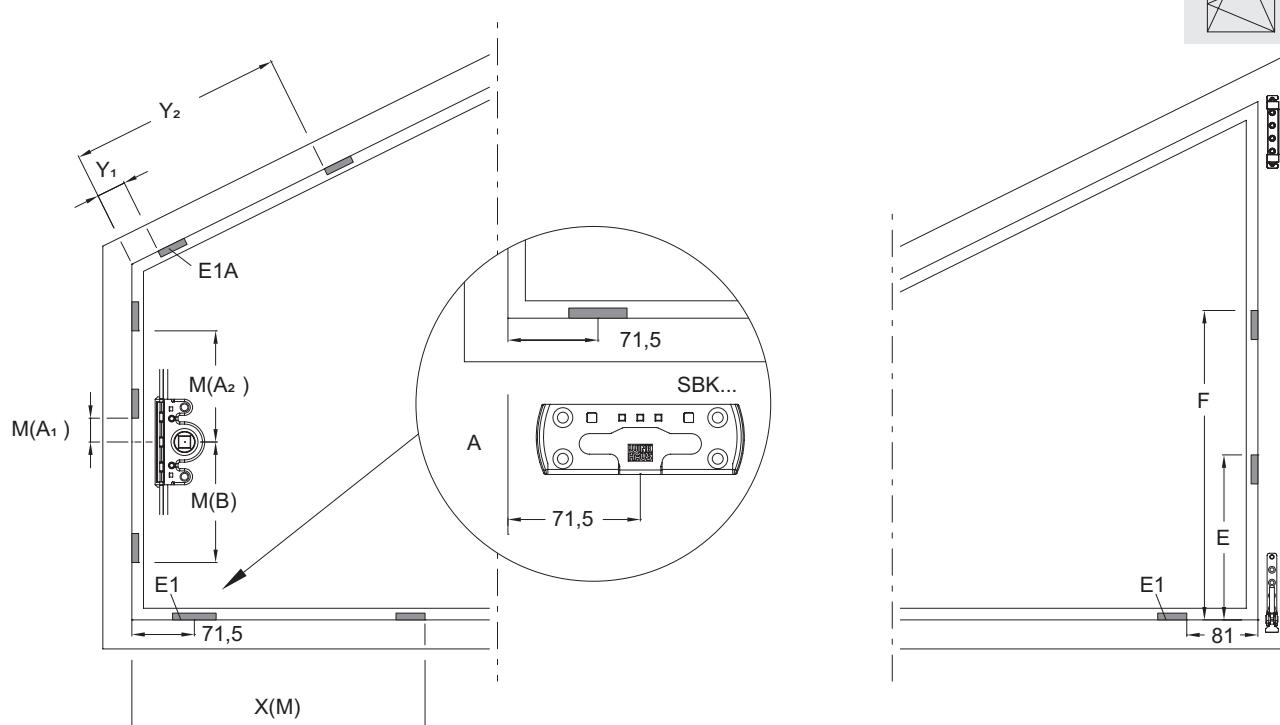
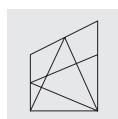
Please note: The dimensions in the figures are from frame rebate edge to keep profile edge! Due to the top part of the frame not being right-angled for studio windows, it is impossible to use a mounting template to fit the keeps. This is why you need to mark the keep positions manually on the frame. (see description)



Please note: When marking, note the run-in sides of the keeps.



## Turn-tilt type of window GAM



GAM...	M(A <sub>1</sub> ) [mm]	M(A <sub>2</sub> ) [mm]	M(B) [mm]
GAM.1050-1	127	-	-
GAM.1400-1	127	-	-
GAM.1400-2	127	-	223
GAM.1800-2	-	260	340
GAM.2300-3	127	692	520

M...	X(M) [mm]
M.250-1	230
M.500-1	480
M.750-1	730

M...	E [mm]	F [mm]
M.250-1	230	-
M.500-1	480	-
M.750-1	730	-
MK.250-1 + M.250-1	230	480
MK.500-1 + M.500-1	480	980
MK.750-1 + M.500-1	730	1230
MK.750-1 + M.750-1	730	1480
MB.1000-2	480	980
MB.1250-2	730	1230
MB.1450-2	730	1430

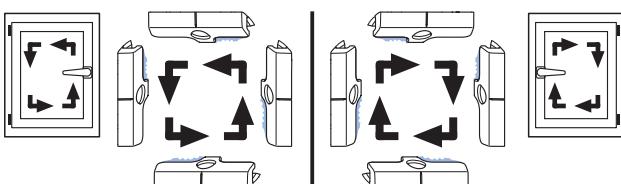
Tab\_180913\_4

Y<sub>1</sub>/Y<sub>2</sub> = Determine dimension by means of positioning aid LE.SB.N!

Please note: The dimensions in the figures are from frame rebate edge to keep profile edge! Due to the top part of the frame not being right-angled for studio windows, it is impossible to use a mounting template to fit the keeps. This is why you need to mark the keep positions manually on the frame. (see description)

13.5

**i** Please note: When marking, note the run-in sides of the keeps.



Run-in sides

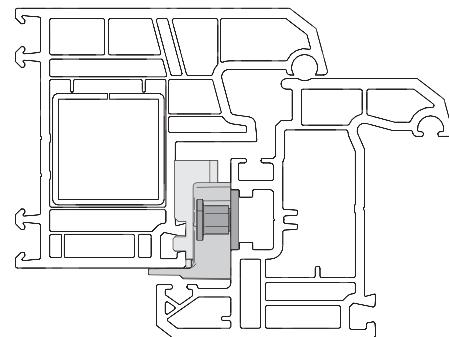
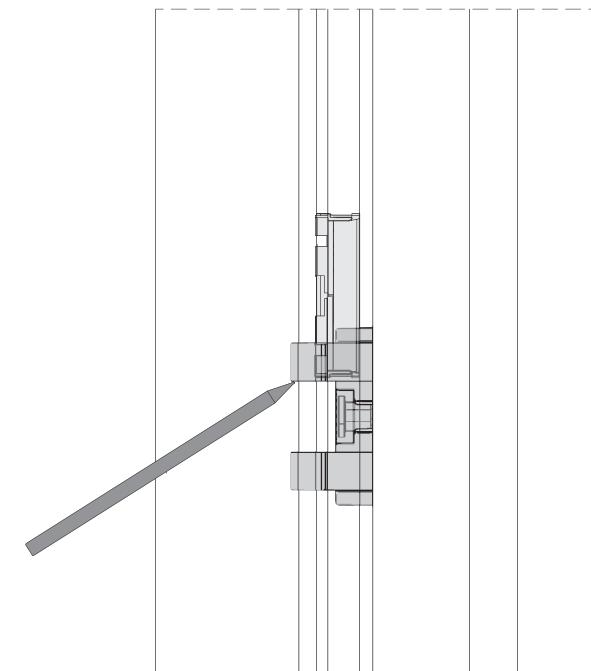
## Positioning of frame parts on the frame in case of non-rectangular window units.

Tool: positioning aid LE.SB.N



### Placing the frame parts

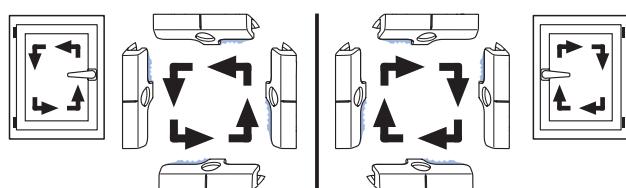
- Move the window into the turn position.
- Push the positioning aid on the locking point. Depending on the number of locking points it is also possible to use several positioning aids on one window at the same time.
- Keep the window handle in the turn position and turn the sash in the frame until the sash gasket is attached closely to the frame.
- Mark the frame with a pencil. (To this effect use the inner side of the positioning aid in the locking direction of the frame parts).
- Position and screw the locking part. (Pencil mark is flush with the outer edge of the locking part!)
- Repeat this process several times, depending on the number of locking points.



13.4



Please note: When marking, note the run-in sides of the keeps.



Run-in sides

# Mounting of fittings on sash

## Turn-tilt type – Round-arch window

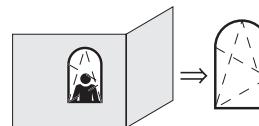
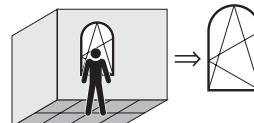
Prepare the window for fitting. Then proceed as follows:



Please note: The following figures refer to a window for right-hand use. When fitting a window for left-hand use, the figures will be mirror-inverted.

The following also applies:

- When viewing the window from the inside, the symbol is depicted as a full line.
- When viewing the window from the outside, the symbol is depicted as a dotted line.

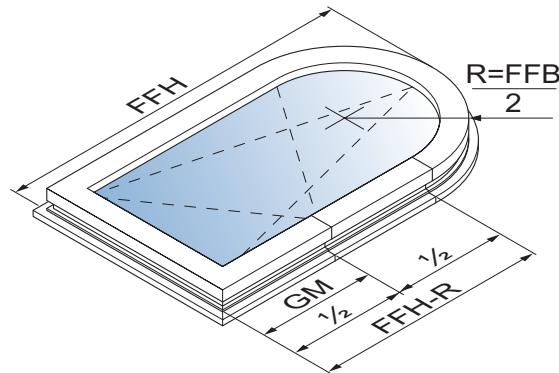


### Determine the handle height:

#### Handle height for drive rod GAM

See figure: Sash rebate height FFH-R with central handle position GM

If you use a GAM drive rod (central handle position), dimension GM is half the sash rebate height FFH-R.

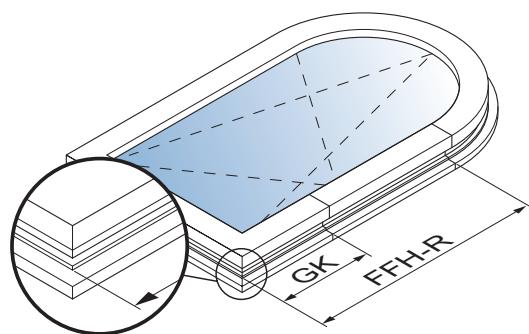


Sash rebate height FFH-R with central handle position GM

#### Handle height for drive rod GAK

See figure: Sash rebate height FFH-R with constant handle height GK

If you use a GAK drive rod ... (constant handle position), dimension GK changes to reflect the sash rebate height FFH-R. The exact dimensions are specified in the following table.



13.5

Sash rebate height FFH-R with constant handle height GK



See figure: Synoptical table sash rebate height (FFH-R) / handle position

The table on the right gives a survey on the handle height (GK) of GAK with regard to the sash rebate height (FFH).

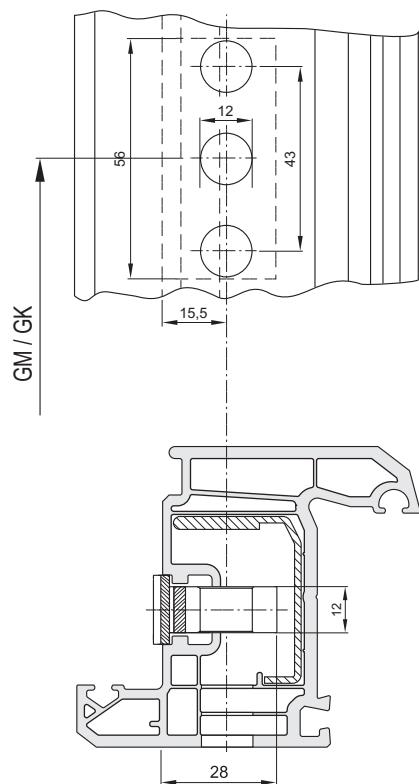
FFH	
230 – 324	GK = 114 *
325 – 420	GK = 114 *
421 – 460	GK = 210
461 – 700	GK = 210
701 – 850	GK = 260
851 – 1100	GK = 375
1101 – 1325	GK = 550
1326 – 1525	GK = 550
1526 – 1775	GK = 550
1776 – 2000	GK = 1050
2001 – 2225	GK = 1050

Synoptical table sash rebate height (FFH-R) / handle position

\* Requires the use of E3 corner drive

See figure: Scale drawing "Gear lock"

- Drill holes for gear case ( $\varnothing$  12 mm) as per scale drawing.
- Mill the gear housing from the rebate side.



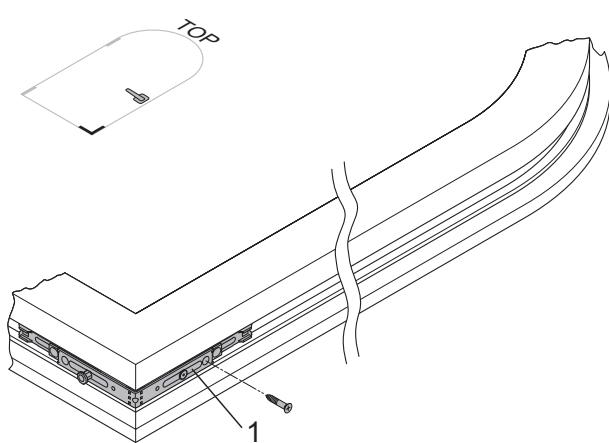
Scale drawing "Gear lock"

See figure: Corner drive E1

- Fix the bottom corner drive into place.
- Fit the corner drive (1) into the fitting groove at the bottom of the sash so that the octagonal bolt is on the underside.
- Attach the corner drive (1) hinge side with a single screw.



Please note: If sash rebate width FFB < 750 mm, the connecting rail AARB (1) must be shortened behind the drill hole for the second locking bolt.

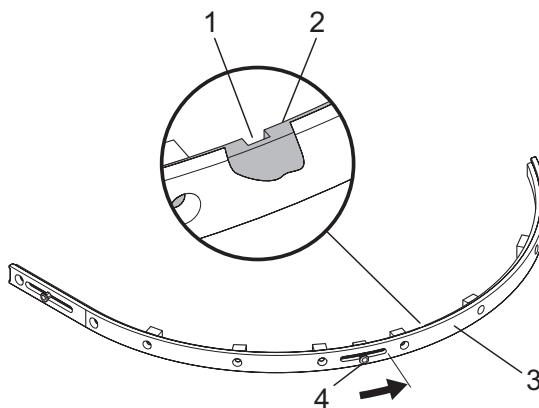


Corner drive E1

Only for sash rebate width FFB < 750 mm:

See figure: Connecting rail AARB for FFB < 750 mm

- Before shortening, push the locking bolt (4) into locking position (see arrow) to make sure the spring (2) is cut at the right position.
- Saw through the connecting rail (3) at the notch (1).



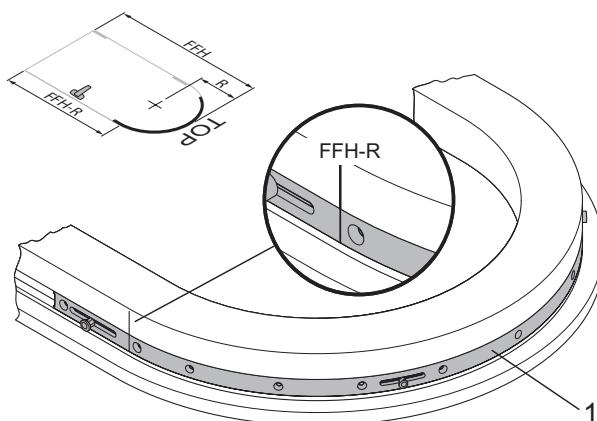
Connecting rail AARB for FFB < 750 mm

See figure: Connecting rail AARB

- Mounting of the connecting rail:
- Make mark "FFH-R" on the sash.
- Place the connecting rail (1) into the eurogroove, aligning the notch mark with the "FFH-R" mark.
- Screw the connecting rail from the "FFH-R" mark in the direction of the bend.



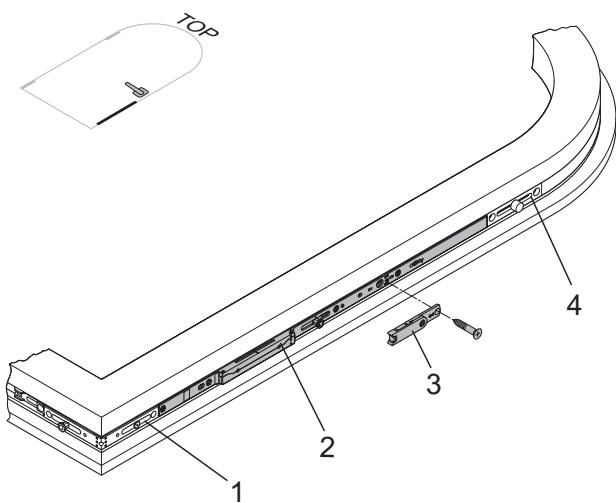
Attention! Damage to connecting rail. You must not bend out the connecting rail (1) as it may otherwise buckle at drill hole positions. The connecting rail would not perfectly match the contour of the arch when screwed into place.



Connecting rail AARB

See figure: Drive rod GAM/GAK

- Mount the drive rod:
- Press the drive rod into the eurogroove.
- Fit the handle to position the drive rod.
- Mark the length of the drive rod on the butt joint with the corner drive (1) and on the butt joint with the connecting rail (4).
- Remove the handle and take the drive rod out of the fitting groove.
- Mark and trim the drive rod using a punching press.
- Mount the drive rod:
- Abut the drive rod (2) flush against the corner drive (1).
- Allow the teeth on the drive rod to click into position on the gear rack on the corner drive.
- Clip the drive rod into the connecting rail (4) in the same way.
- Screw the drive rod from the bottom up.
- Insert the optional dual function element (3) and screw into place.

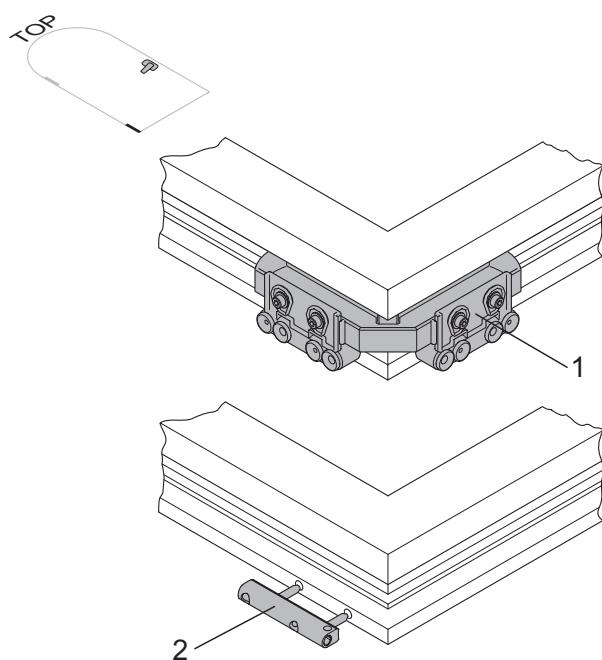


Drive rod GAM/GAK

13.5

See figure: Sash hinge FL... / Mounting jig LE.B.FL...

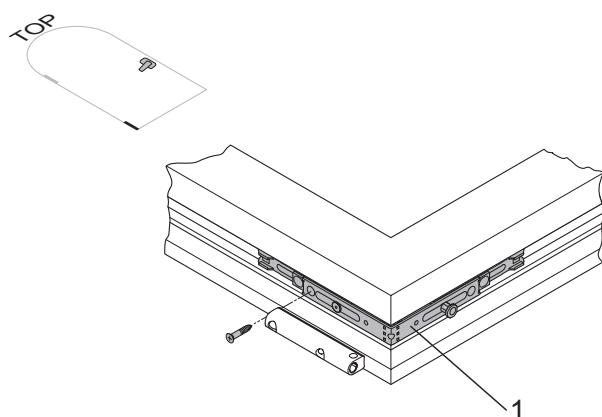
- Fitting the sash hinge:
  - Position the mounting jig LE.B.FL (1) and drill ø 6 mm holes hinge side for the hinge plugs. Drilling depth min. 20 mm.
  - Pre-drill the screw holes through the first wall.
  - Insert the sash hinge (2) and fix it in place.
  - Make sure the sash hinge is fitted correctly into position.



Sash hinge FL... / Mounting jig LE.B.FL...

See figure: Corner drive E1

- Fix the bottom corner drive into place.
  - Fit the corner drive (1) into the fitting groove at the bottom of the sash so that the octagonal bolt is on the underside.
  - Fix the corner drive in place with a single screw hinge side.
  - Measure the sash rebate width (FFB).



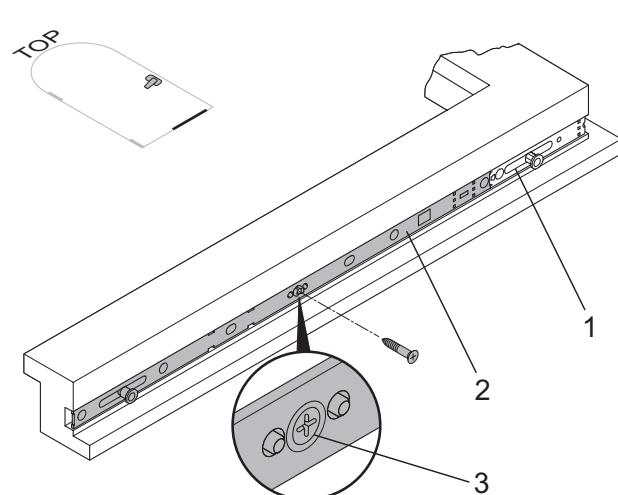
Corner drive E1

See figure: Interlocking rod MK (horizontal)

- Mount interlocking rod on the underside:
  - Abut the interlocking rod (2) flush against the corner drive (1).
  - Click the interlocking rod gears into the teeth of the corner drive.
  - Press the interlocking rod into the fitting groove.
  - Screw the interlocking rod in place.
  - Tighten the screw (3) fully to release the central fastening.



Attention! Damage to fittings. If the central fastening is not released, the gearing cannot be actuated. Use of force will lead to torsion of the fittings. Always insert the screw fully up to the stop.



Interlocking rod MK (horizontal)

See figure: Coupling element KE (horizontal)

- Mount coupling element on the underside:
- Abut the coupling element (2) flush against the corner drive (1) and slot into eurogroove.
- Mark the length of the coupling element at the joint edge of the interlocking rod (3).
- Remove the coupling element from the eurogroove.
- Mark and trim the coupling element using a punching press.
- Abut the coupling element (2) flush against the corner drive (1).
- Click the coupling element into the teeth in the corner drive.
- Slot the coupling element into the gearing of the interlocking rod (3) in the same way.
- Press the coupling element into the eurogroove.
- Screw the coupling element in place.



Attention! Check if all screws are fixed into place on the fitting parts.

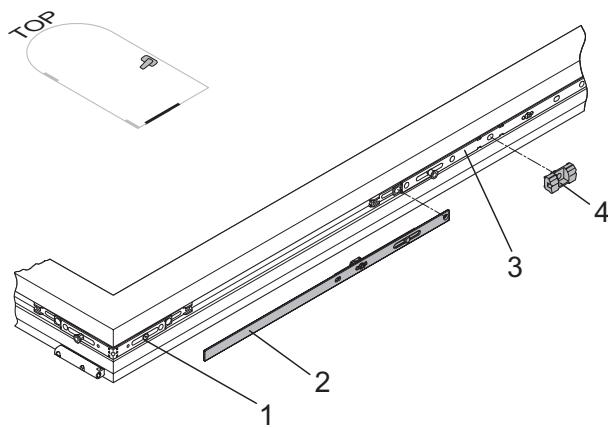
See figure: Interlocking rod MK

- Mittenverriegelung MK je nach Höhe FFH-R (siehe Beschlagübersicht) bandseitig montieren:
- Mittenverriegelung entsprechend der Flügelfalzhöhe FFH-R auswählen.
- Fit the interlocking rod (1) flush against the corner drive (3).
- Click the interlocking rod gears into the teeth of the corner drive.
- Press the interlocking rod into the fitting groove.
- Screw the interlocking rod from the bottom up.
- Nach dem Montieren der (letzten) koppelbaren Mittenverriegelung ist das Maß für das Ablängen der Schere zu ermitteln.
- Schere zum Markieren der Länge in die Beschlagschraube eindrücken.
- Markierung auf der Stulpe muss mit dem Übergang zur Rundung übereinstimmen (Ausschnitt A). Die Mitte des Scherenbandes befindet sich 55 mm unterhalb der Übergänge in die Rundung.
- Stanzlänge markieren.
- Schere ablängen (versetzte Winkhaus-Stanzung) - max. Ablängbereich 223 mm.



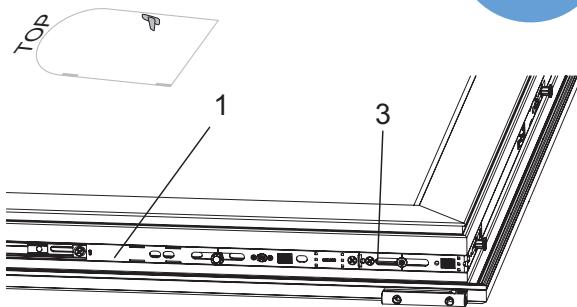
Hinweis: Die Schere ist im Auslieferungszustand mittenfixiert - wenn die Mittenfixierung vorab schon gelöst wurde, ist darauf zu achten, dass sich die Verschlußpunkte beim Ablängen und beim späteren Einsetzen in die Beschlagschraube in Drehstellung befinden.

- Scherenband (3) gemäß der Drehrichtung ausrichten.
- Schere in die Beschlagschraube einsetzen, dabei muss die Markierung auf der Stulpe mit dem Übergang zur Rundung übereinstimmen (Ausschnitt A).



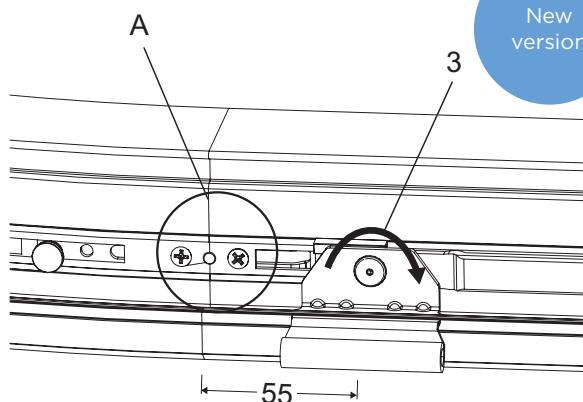
Coupling element KE (horizontal)

New version



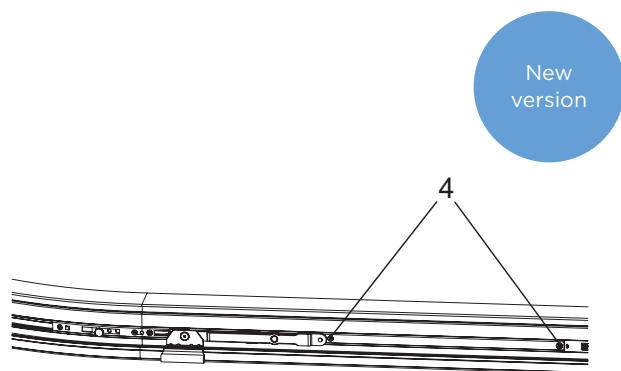
Interlocking rod MK

New version

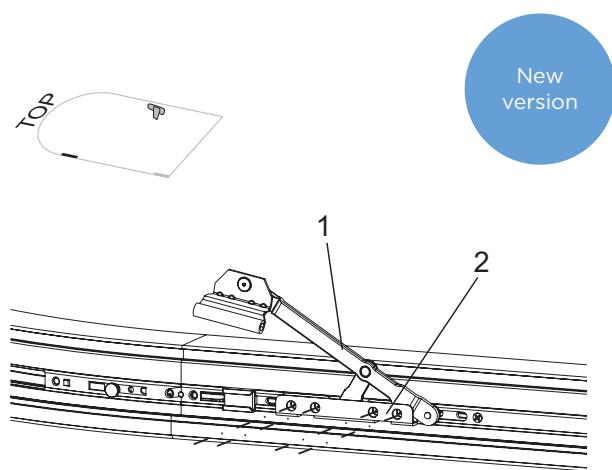


13.5

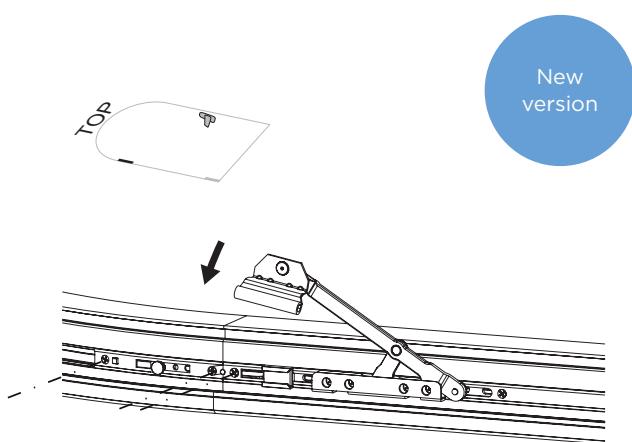
- Schere (mit angelegtem Scherenarm) die zwei unteren Schrauben (4) anschrauben.



- Mittenfixierung lösen durch Fenstergriffbetätigung und Schalten in Kippstellung:
- Scherenarm (1) ausklappen.
- Sicherungsblech (2) (aus dem Beipackbeutel der Rundbogengarnitur) auf die Scherenstulpe anlegen und mit 4 Schrauben befestigen (Schraublöcher in der Stulpe mitverwenden).



- Weitere Schrauben (von unten nach oben) eindrehen.
- Scherenarm mit ausgerichtetem Scherenband wieder einklappen.
- Beschlag durch Griffbetätigung wieder in Drehstellung bringen.
- Abstandsmaß (Beginn Rundbogen bis Mitte Scherenband = 55 mm) überprüfen, ggf. die Position des Scherenbandes nachjustieren.

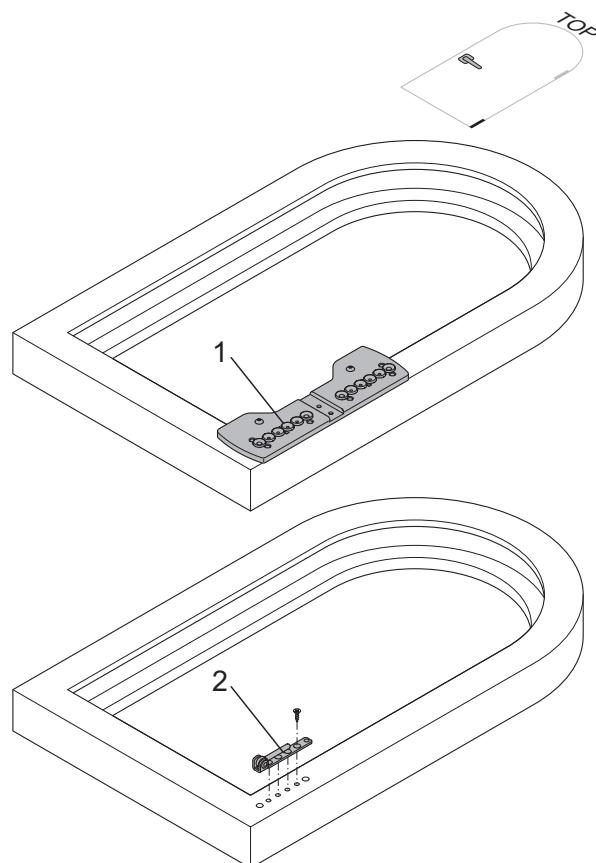


# Mounting of fittings on the window frame

## Turn-tilt type – Round-arch window

See figure: Corner hinge EL.../ drilling jig LE.B.EL...

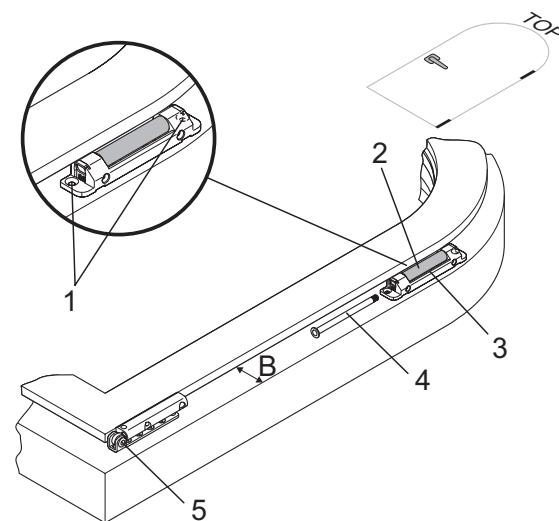
- Mounting the corner hinge
  - Pre-drill the holes for the corner hinge as well as the pin positions ( $\varnothing$  6 mm).
  - Drill holes for corner hinge (2) in line with mounting jig (1).
  - Fit the corner hinge (2) and use screws to fasten in place in line with product instructions.



Corner hinge / drilling jig

See figure: Shear hinge SWR ... for round arch

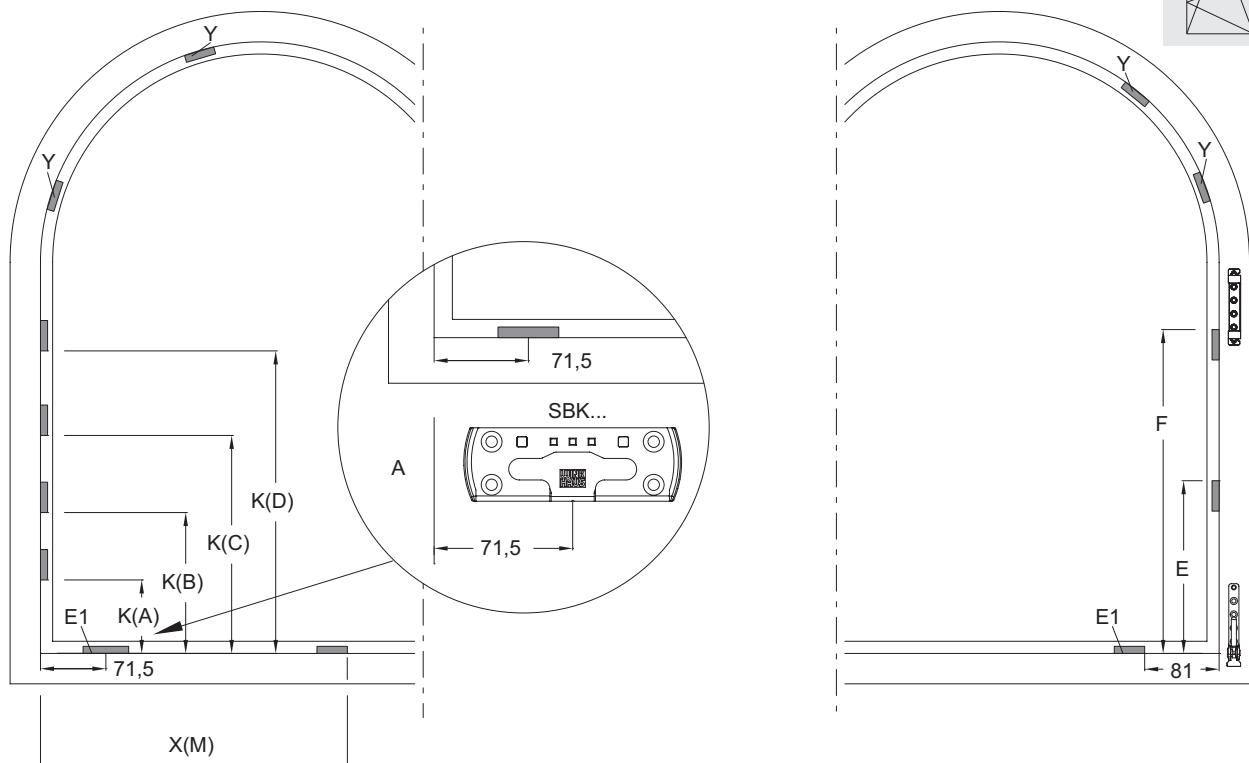
- Mount the shear hinge.
  - Mount the shear hinge (3) on the shear band (2) using the pin (4).
  - Mount the sash.
  - Place the sash on the corner hinge (5).
  - Place the sash on the frame.
  - Pre-drill the screw positions (4x) through the shear hinge holes (1).
  - Screw the shear hinge into place (screws in line with details in Product Liability Information).
  - Flügel mit Scherenlager so ausrichten, dass das Maß "B" im Scherenlagerbereich seitlich um ca. 1 mm kleiner ist als im unteren Ecklagerbereich (Maß "B" = Abstand Flügelüberschlag bis Außenkante Blendrahmen).



13.5

Shear hinge SWR ... for round arch

## Turn-tilt type of window GAK



GAK...	K(A) [mm]	K(B) [mm]	K(C) [mm]	K(D) [mm]
GAK.830-1	385	-	-	-
GAK.945-1	385	-	-	-
GAK.1100-1	500	-	-	-
GAK.1195-1	750	-	-	-
GAK.1195-2	250	750	-	-
GAK.1325-1	750	-	-	-
GAK.1325-2	385	750	-	-
GAK.1550-1	750	-	-	-
GAK.1550-2	385	1000	-	-
GAK.1775-2	750	1250	-	-
GAK.1775-3	385	750	1250	-
GAK.2000-2	750	1250	-	-
GAK.2000-4	385	750	1250	1500

M...	E [mm]	F [mm]
M.250-1	230	-
M.500-1	480	-
M.750-1	730	-
MK.250-1 + M.250-1	230	480
MK.500-1 + M.500-1	480	980
MK.750-1 + M.500-1	730	1230
MK.750-1 + M.750-1	730	1480
MB.1000-2	480	980
MB.1250-2	730	1230
MB.1450-2	730	1430

Tab\_180913\_7

M...	X(M) [mm]
M.250-1	230
M.500-1	480
M.750-1	730

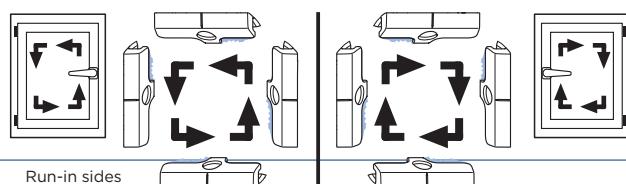
A = standard operating sequence turn-tilt (OS.2...)

Y = Determine dimension by means of positioning aid LE.SB.N

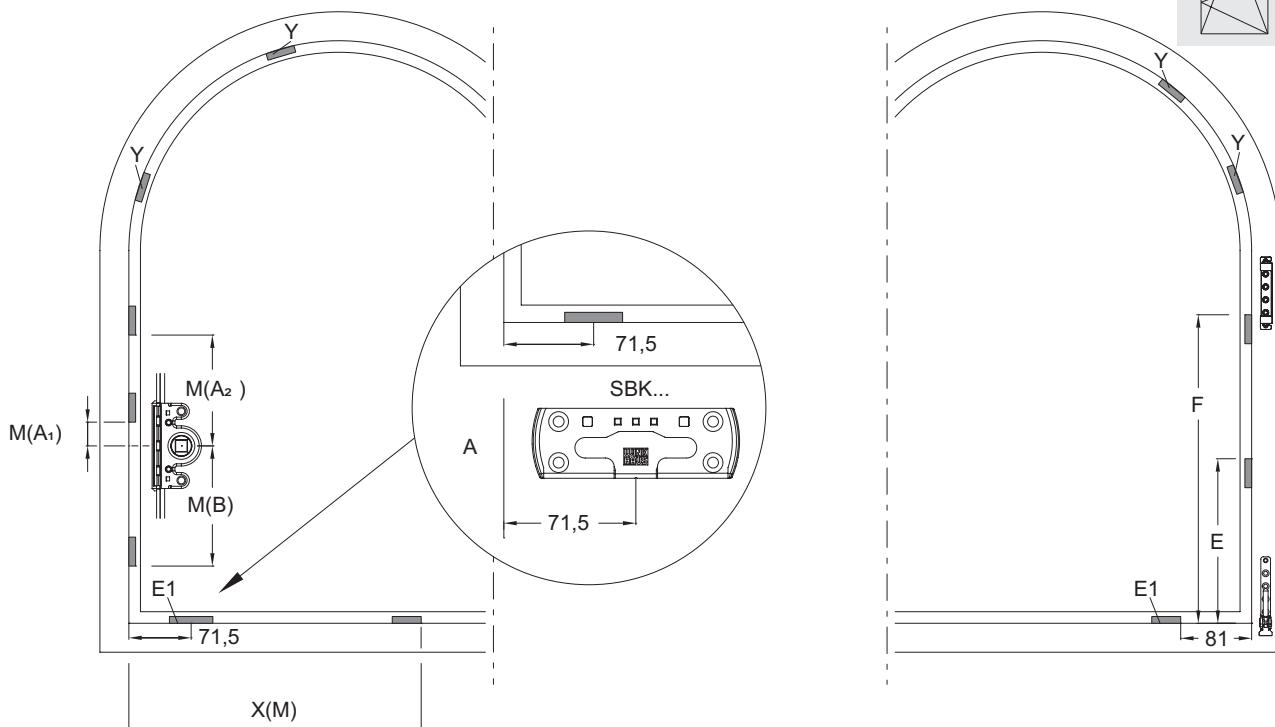
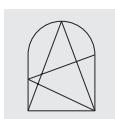
Please note: The dimensions in the figures are for frame rebate edge to keep profile edge! Due to the top part of the frame not being right-angled in round-arch windows, it is impossible to use a mounting template to fit the keeps. This is why you need to mark the keep positions manually on the frame. (see description)



Please note: When marking, note the run-in sides of the keeps.



## Turn-tilt type of window GAM



GAM...	M(A <sub>1</sub> ) [mm]	M(A <sub>2</sub> ) [mm]	M(B) [mm]
GAM.1050-1	127	-	-
GAM.1400-1	127	-	-
GAM.1400-2	127	-	223
GAM.1800-2	-	260	340
GAM.2300-3	127	692	520

M...	X(M) [mm]
M.250-1	230
M.500-1	480
M.750-1	730

M...	E [mm]	F [mm]
M.250-1	230	-
M.500-1	480	-
M.750-1	730	-
MK.250-1 + M.250-1	230	480
MK.500-1 + M.500-1	480	980
MK.750-1 + M.500-1	730	1230
MK.750-1 + M.750-1	730	1480
MB.1000-2	480	980
MB.1250-2	730	1230
MB.1450-2	730	1430

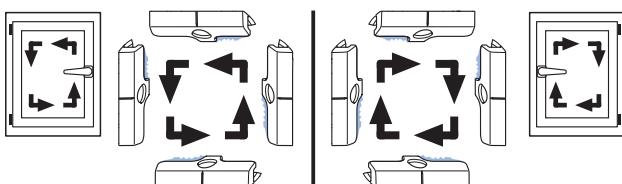
Tab\_180913\_6

A = standard operating sequence turn-tilt (OS.2...)

Y = Determine dimension by means of positioning aid LE.SB.N

Please note: The dimensions in the figures are for frame rebate edge to keep profile edge! Due to the top part of the frame not being right-angled in round-arch windows, it is impossible to use a mounting template to fit the keeps. This is why you need to mark the keep positions manually on the frame. (see description)

**i** Please note: When marking, note the run-in sides of the keeps.



Run-in sides

### Fitting the sash

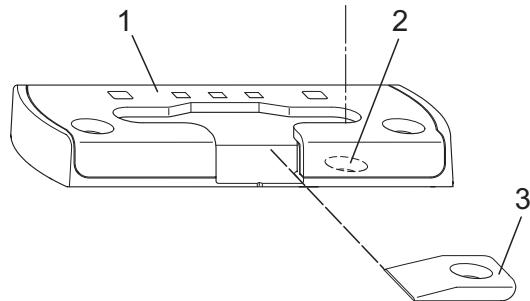
- Set the shear arm parallel to the shear casing.
- Mount the sash, move it into the sealing plane and secure in the shear hinge using the pin.

### Security tilt keep SBK... and limiter K-SEF-1

See figure: Position of limiter K-SEF

For round-arch windows you need a security tilt keep SBK... and additionally a "Limiter K-SEF".

- Position the limiter (3) on the profile edge of the keep (1).
- Label the screw hole (2).
- Drill pilot holes into the tilt keep (1).
- Screw the shootbolt keep into the tilt keep.



Position of limiter K-SEF

# Function test / Operation

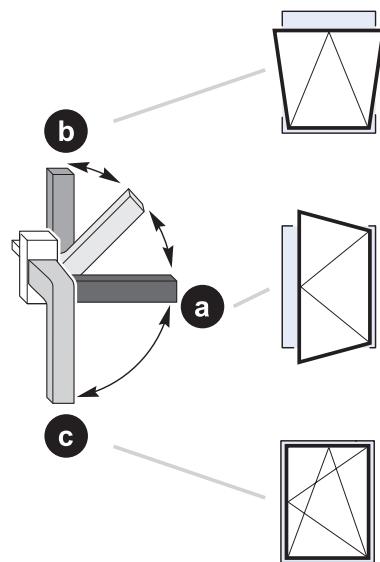
## Turn-tilt type

See figure: Function test turn-tilt window

- Place the handle and operate once as follows to release the central fastening.
- Push the handle down (c). The window is closed.
- Move the handle to the central position (a). The window is unlocked; the sash can now be opened fully.
- Close sash. Push the handle up (b). The window is unlocked; the sash can now be tilted.



Please note: Initial actuation is not as easy as actuation in normal operations. A clicking noise will be heard during actuation. Keep the window closed during actuation.



Function test turn-tilt window

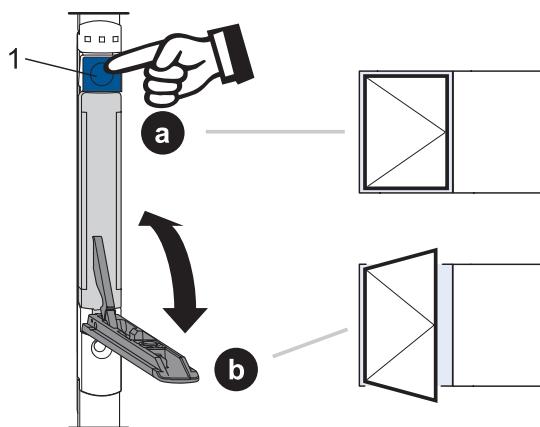
## Turn double sash type

See figure: Function test turn double sash window

- Actuate the handle as follows to release the central fastening.
- Press the unlocking button (1) and press the lever down to its limit position.
- The window is unlocked; the sash can now be opened fully.



Please note: When you lift the lever for the first time, the gearing is "unblocked" and coupling to the connected fittings is established. Thus, the initial actuation is not as smooth as in normal operations. A clicking noise will be heard during initial actuation. Keep the window closed during actuation.



Function test turn double sash window

## Notes on professional fitting and removing of sashes

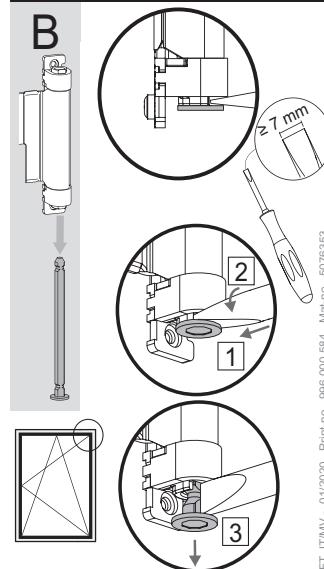
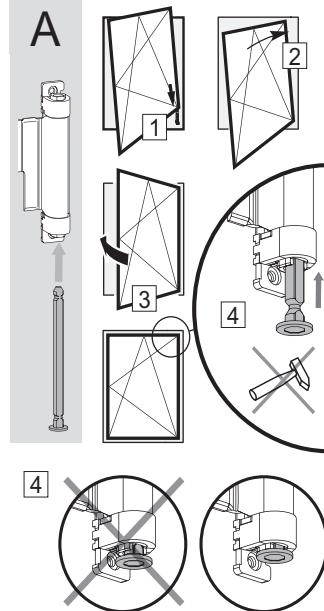
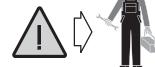
For professional mounting and removal of the window sash please refer to our mounting advice. We recommend to place this mounting advice on the window sash.



For withdrawing the shear hinge pin we recommend you to use the pulling device (see product page). If a screwdriver is used, please make sure that the powder coating of the hinge is not damaged.



NEW



FT JT/NV - 01/2020 Print-no. 996 000 584 Matno. 5076353

# Mounting of accessories

## Window Limiter FBP-11 SL

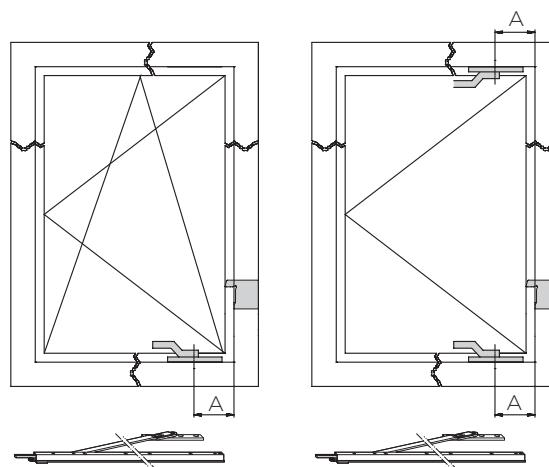
## Window Limiter FBP-11-650 SL

### Installation on the frame

The frame plate must be positioned according to the drawing and it must be screwed flush with the inner edge of the frame.

In case of profiled frames it is important to use spacers FT WSK ... for adaption.

Number of spacers FT WSK: 2 pcs per frame plate



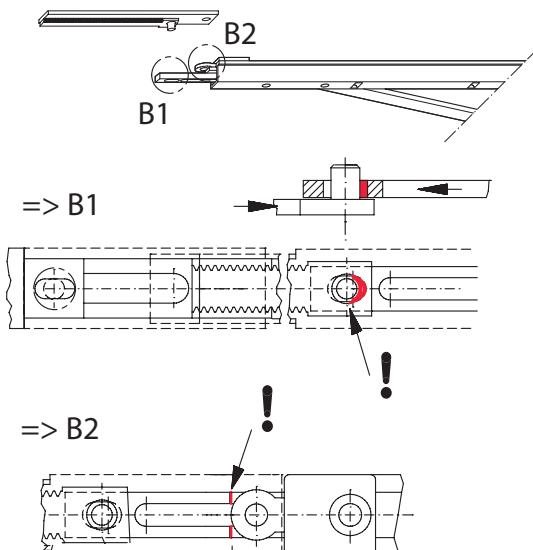
FBP-11 A = 113 mm  
FBP-11-650 A = 50 mm

### Assembly on the upper sash

#### Turn sash (D)

- Insert the window limiter into the eurogroove, then screw into place flush with the sash rebate edge on the hinge side.
- Handle position "open"
- When installing the window limiter "top" please make sure that the connection rod is compression mounted.
- Observe the marks on the control rail.
- Mark and trim the connection rod using a punching press.
- Screw the connection rod into position.

**i** Note: The braking force can be adjusted by inserting the connection rod gears into the toothing system in an offset manner.

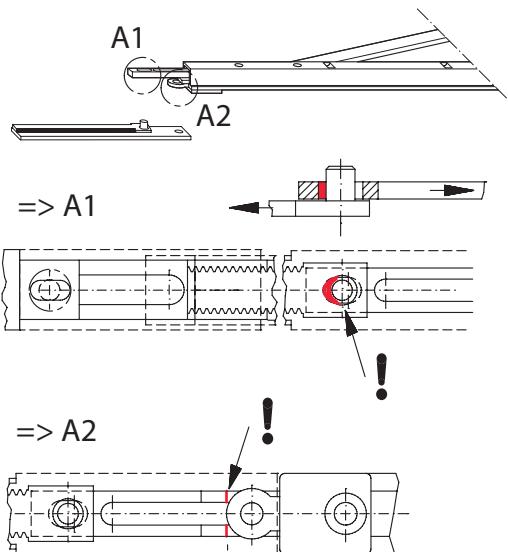


### Assembly on the bottom sash

#### Turn-tilt sash (DK)

- Insert the window limiter into the eurogroove, then screw into place flush with the sash rebate edge on the hinge side.
- Handle position "open"
- When mounting the window limiter "bottom" please make sure that the connection rod is installed "to tension".
- Observe the marks on the control rail.
- Mark and trim the connection rod using a punching press.
- Screw the connection rod into position.

**i** Note: The braking force can be adjusted by inserting the connection rod gears into the toothing system in an offset manner.

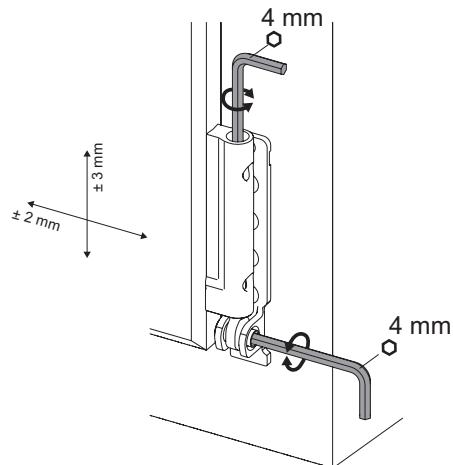


## Adjustment options

Combination of corner hinge / sash hinge EL.C... and FL.C

Sash hinge without additional function

Sash hinge height adjustment ( $\pm 3$  mm) and corner hinge side adjustment ( $\pm 2$  mm) with 4 mm Allen key



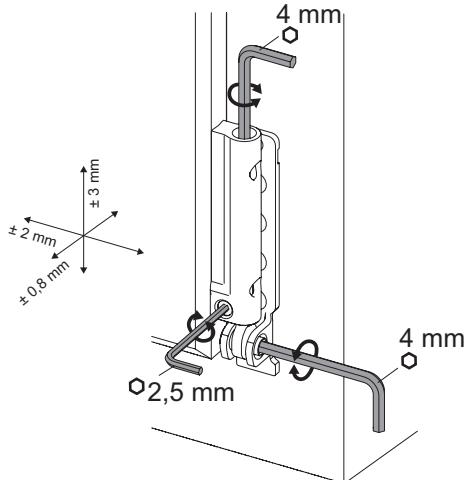
Sash hinge without additional function

Combination of corner hinge / sash hinge EL.C... and FL.C-A

Sash hinge with pressure adjustment

Sash hinge height adjustment ( $\pm 3$  mm) and corner hinge side adjustment ( $\pm 2$  mm) with 4 mm Allen key

For sash hinge adjustment of the contact pressure between sash and frame ( $\pm 0.8$  mm) using a 2.5 mm Allen key



Sash hinge FL.C-A with pressure adjustment

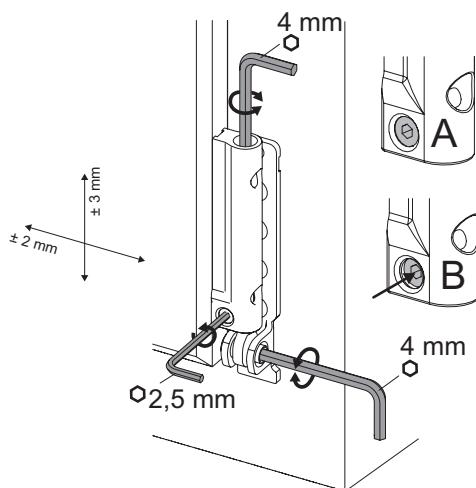
Combination of corner hinge / sash hinge EL.C... and FL.C-F

Sash hinge with turn restriction

Sash hinge height adjustment ( $\pm 3$  mm) and corner hinge side adjustment ( $\pm 2$  mm) with 4 mm Allen key

Enhancement of turn restriction on the sash hinge with 2.5 mm Allen key by turning the adjustment screw in (to the left), see B

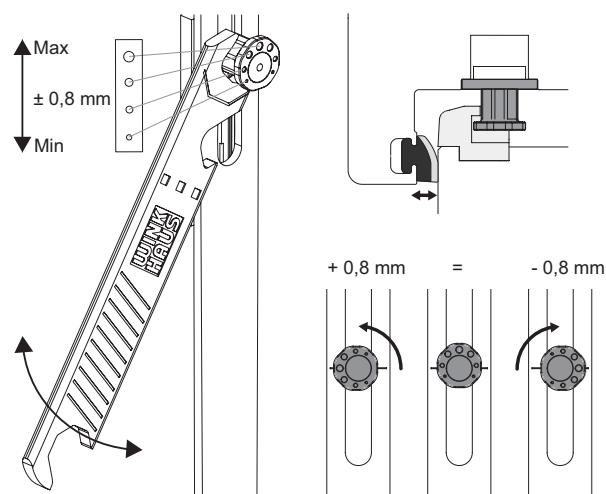
For reducing the turn restriction or prior to removal of the sash, the adjustment screw must be turned back to the zero position (to the right, see A). (In the zero position the adjustment screw is positioned approx. 1 mm from the front edge of the sash hinge.)



Sash hinge FL.C-F with turn restriction

### Octagonal bolt

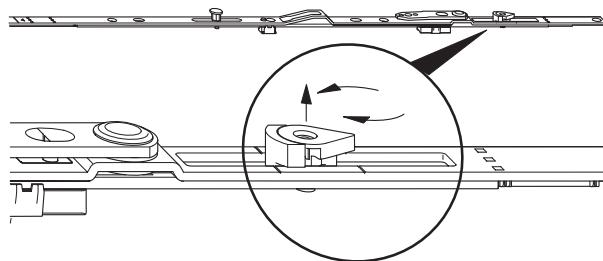
Regulate the contact pressure between the sash and the frame ( $\pm 0.8$  mm) by turning the octagonal bolt. The adjustment can be carried out by means of the Winkhaus adjustment key (V.ST.SCH.HV-11).



Octagonal bolt

### Shear retraction

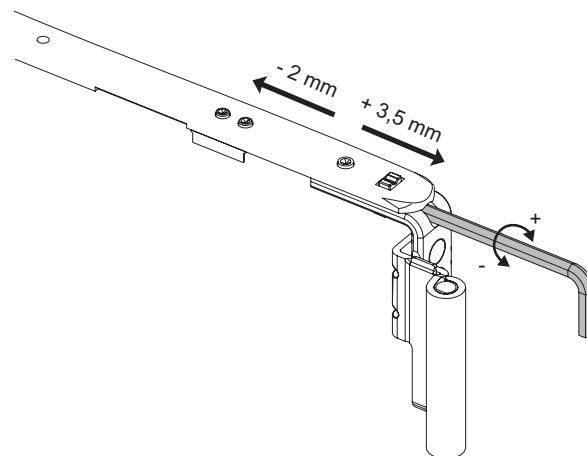
The progressive shear pull-in is adjustable from 18 to 28 mm. Release the catch by pulling up on the adjustment latch then pivot the adjustment latch away from the overlap. A variable tilt device, MSL.OS, can be used as an alternative to the progressive shear pull-in.



Shear retraction

### Shear - rectangular window

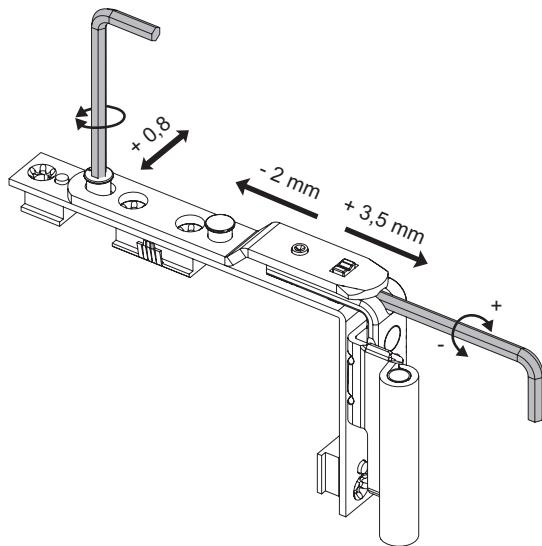
Lifting and lowering the sash by means of a 4 mm Allen key.



Shear - rectangular window

### Turn hinges

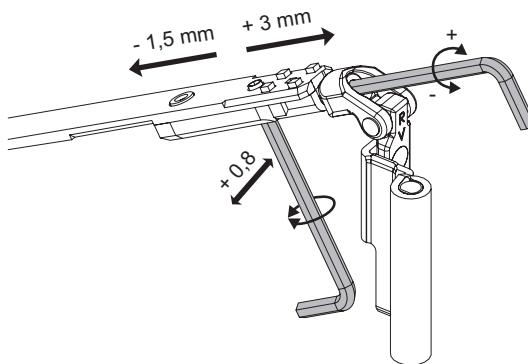
Lifting and lowering the sash and adjustment of contact pressure by means of a 4 mm Allen key.



Turn hinges

### Shear – studio window

Lifting and lowering the sash and adjustment of contact pressure by means of a 4 mm Allen key.

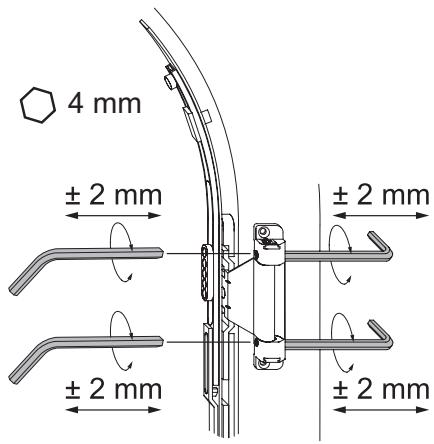


Shear – studio window

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### Shear – round-arch window

Lifting and lowering the sash by means of a 4 mm Allen key.

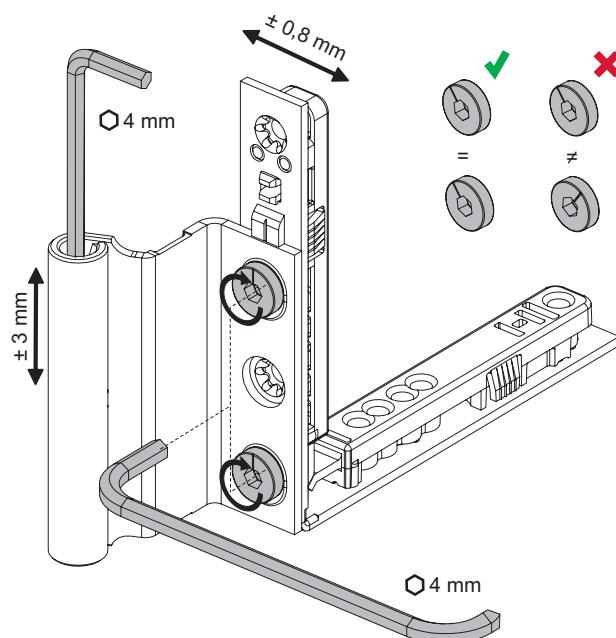


Shear – round-arch window

### Rebate shear hinge

Height adjustment ( $\pm 3$  mm) by means of 4 mm hexagonal key

In case of rebate sash hinges with pressure adjustment there is the option of additional adjustment by means of a 4 mm hexagonal key.

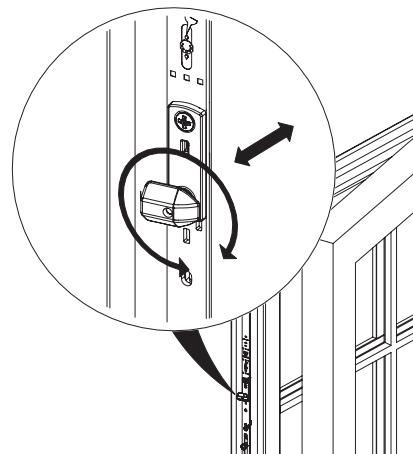


Rebate shear hinge

### Fail safe device FSF

After installation the tip of the pressure piece must be directed towards the frame!

For airgaps smaller or larger than 12 mm an adjustment is possible by turning the plastic part to the left or to the right!



Fail safe device FSF

# Adjustment and maintenance

## Dual/triple function element

### DFE/TFE activation

The DFE/TFE element is supplied in the neutral position.

Please proceed as follows:

Drive in the protruding pin to fix in place (1).

Can be used left/right by swivelling out the lever once only.

Dribble a few drops of oil (free of resin and acid) onto lubrication points.

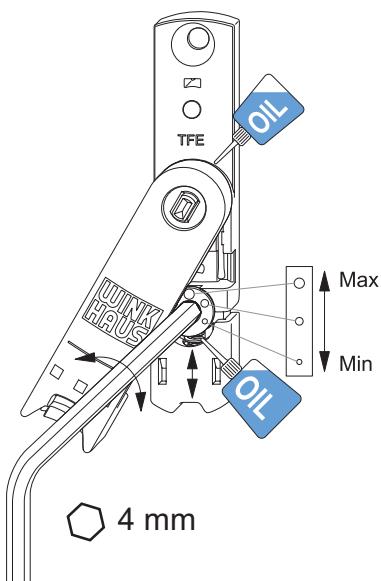


DFE/TFE activation

### TFE - Retaining force of balcony door catch

Adjusting the holding force by re-setting the eccentric cam with a 4 mm Allen key.

Dribble a few drops of oil (free of resin and acid) onto lubrication points.

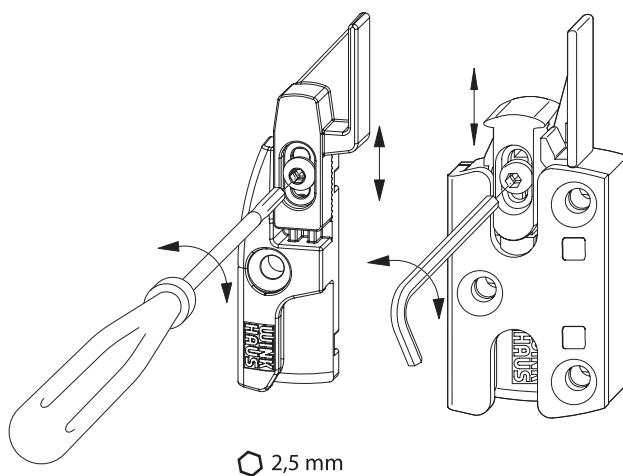


TFE - Retaining force of balcony door catch

### Frame part DFE/TFE

Height adjustment (+/- 3 mm) for sash support plate.

Each time fittings are adjusted, the DFE/TFE height setting should also be checked using a 2.5 mm Allen key.



Frame part DFE/TFE

# Maintenance

## Lubrication points

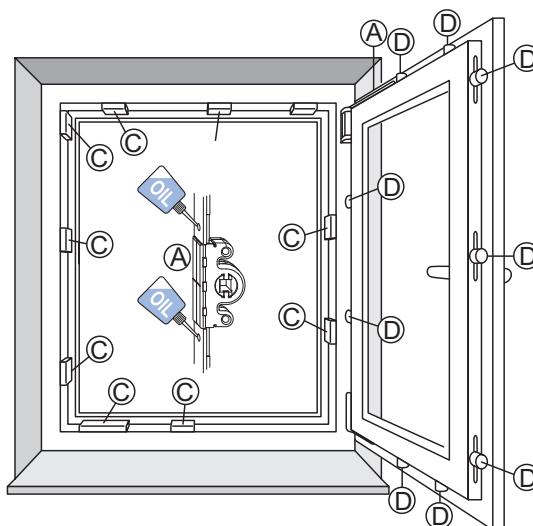
See figure: Overview of lubrication points

The figure shows the location of possible lubrication points which should be lubricated at least once a year (every six months for school and hotel buildings).

Positions A, C, D = lubrication points relevant to function.



Please note: The fitting schematic shown adjacent does not necessarily match the existing fitting. The number of locking positions will vary depending on size and type of the window sash.



Overview of lubrication points



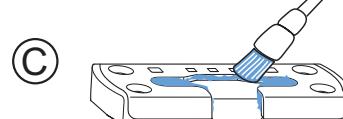
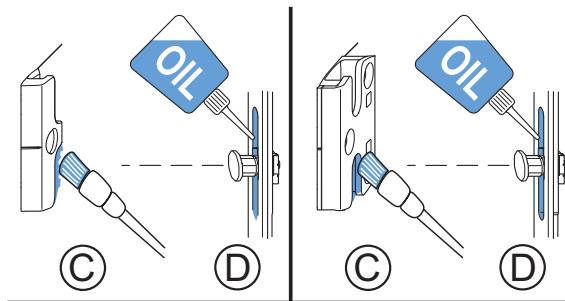
Attention! Risk of injury. The window could fall on removal and thus injure persons. Do not remove the window for maintenance.

## Keeps

See figure: Lubrication points

To keep fittings running smoothly, you must lubricate the keeps at least once a year.

- Lubricate the keeps (C) at the run-in side with technical Vaseline or any other suitable grease.
- Coat the running surfaces of the locking bolts (D) with an oil that is free of resins and acids.

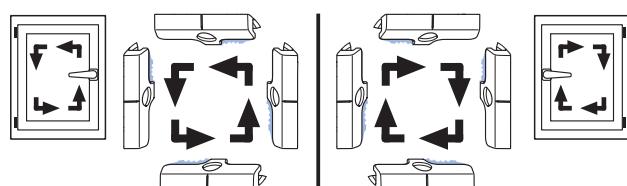


Lubrication points

## Ascertaining the run-in sides

See figure: Run-in sides

- Left-handed window; handle right
- Right-handed window; handle left



Run-in sides

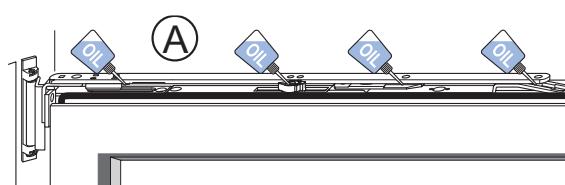
## Shears

See figure: Shears

All of the shear's contact points with the top rod should be oiled at least once annually.



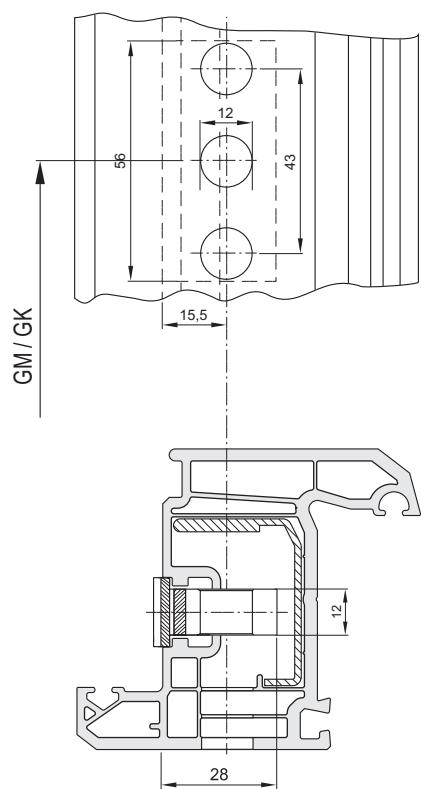
Note: The shear hinge must not be oiled or greased.



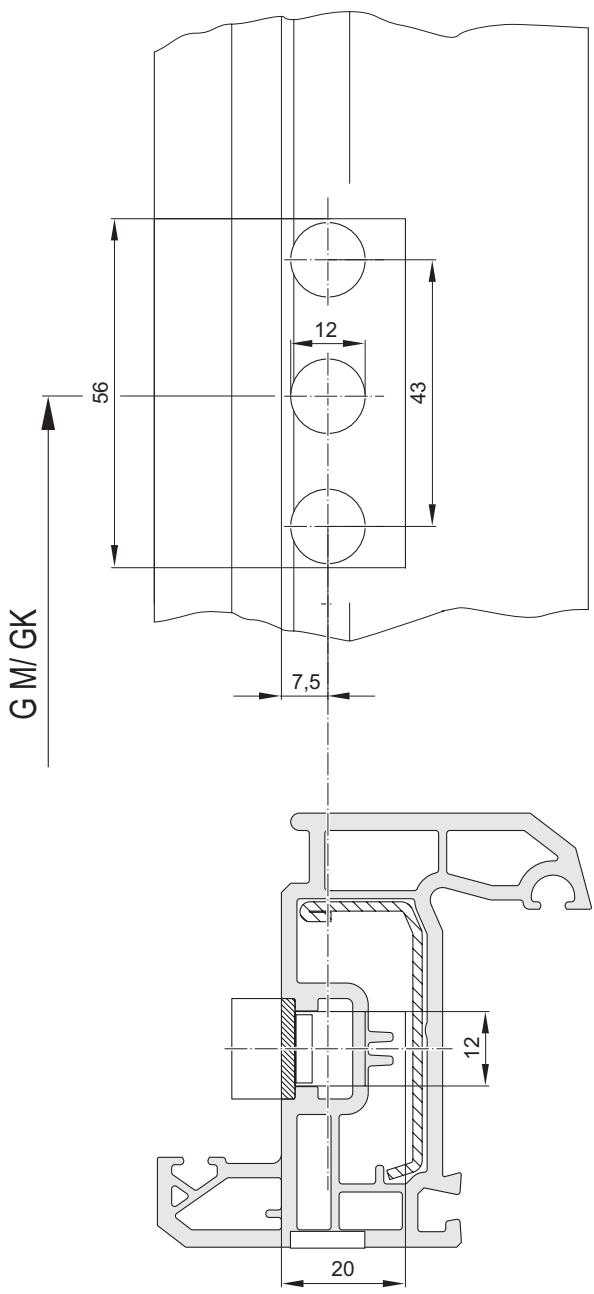
Shears

# Installation drawings

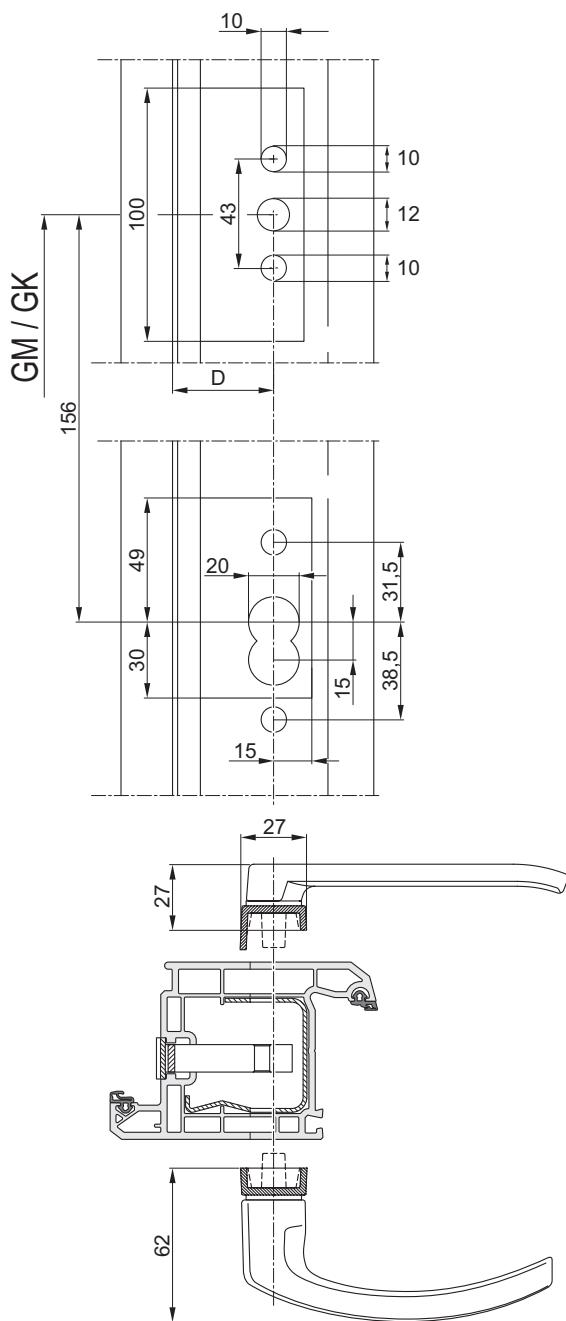
Drive rods



B-3-1: Drilling and milling instructions GAK/GAM ... D = 15.5 mm

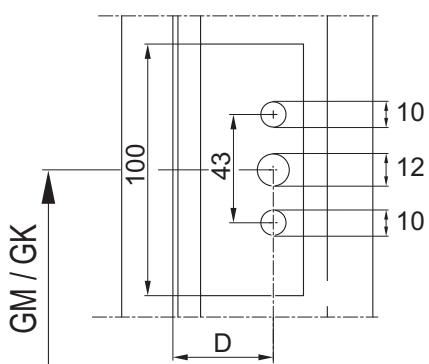


B-3-2: Drilling and milling instructions GAK/GAM ... D = 7.5 mm



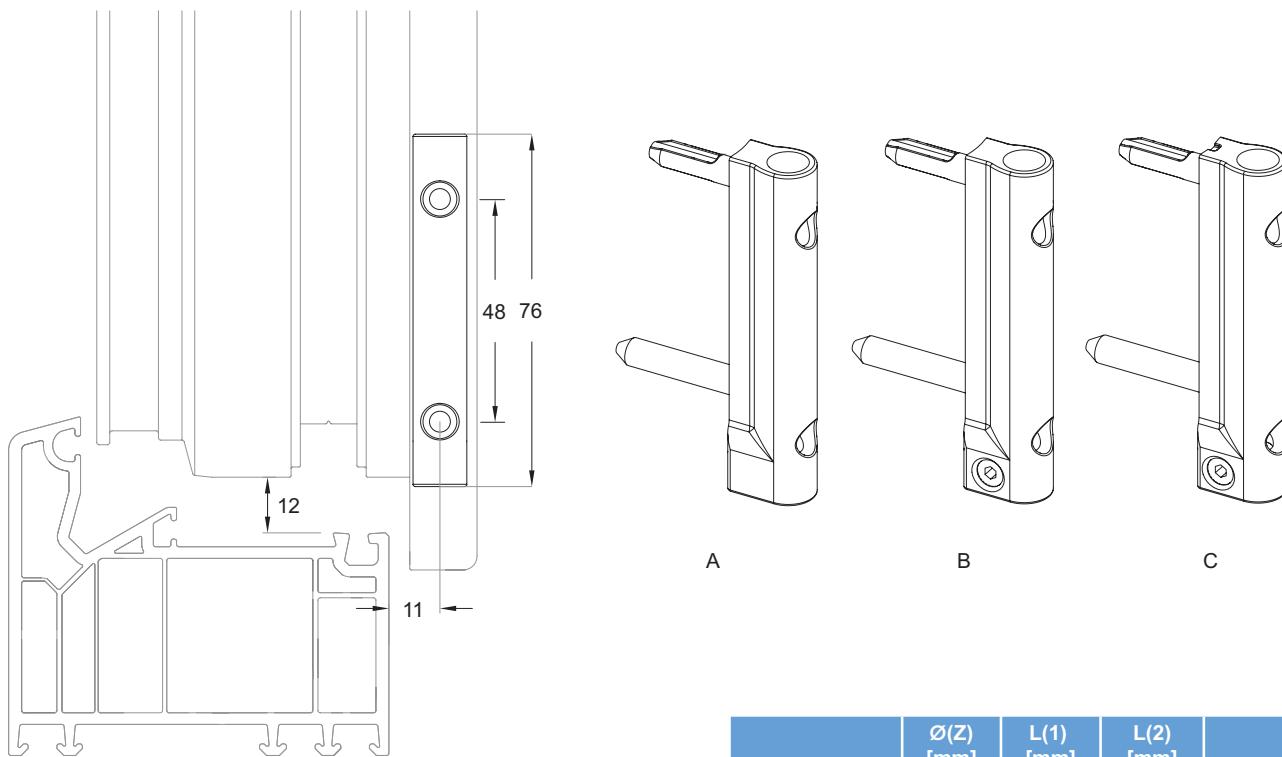
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B-3-3: Drilling and milling instructions GAKA/GAMA D ...  
D = Backset

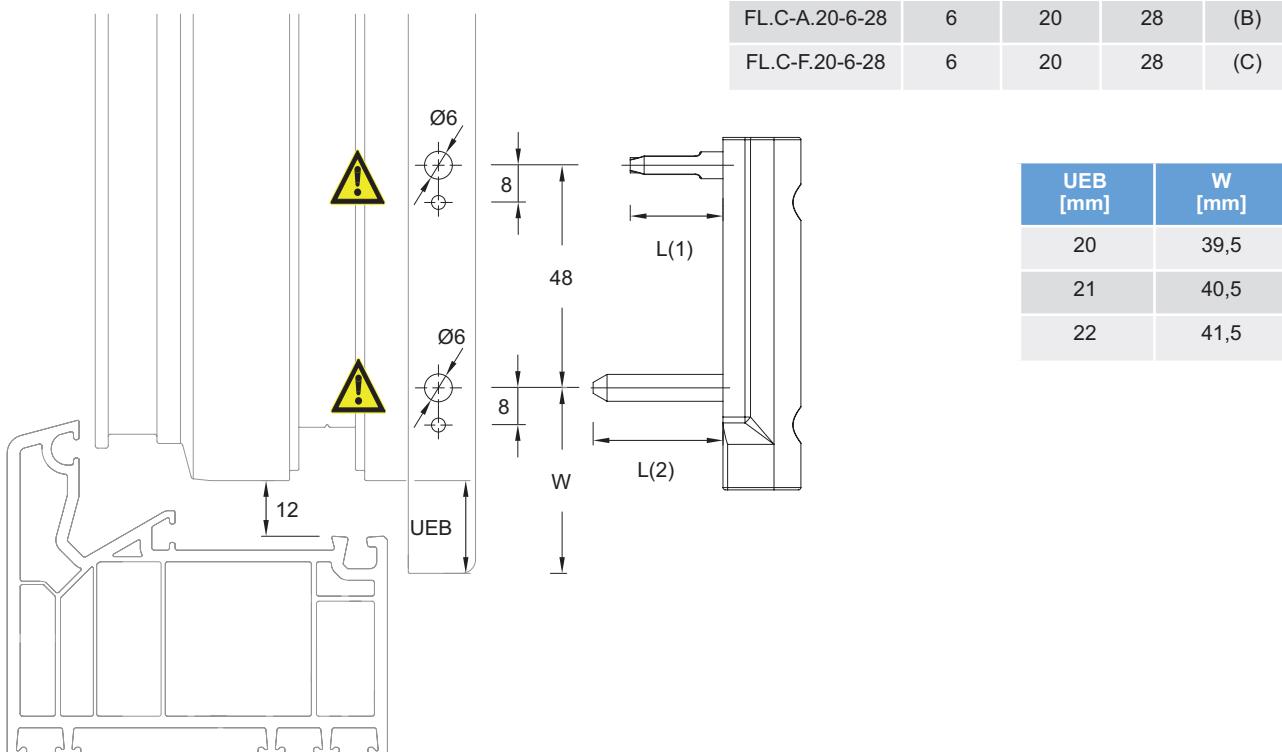


B-3-4: Drilling and milling instructions GAK/GAM ... D 25 ... 50  
D = Backset

## Sash hinge FLC



	$\varnothing(Z)$ [mm]	L(1) [mm]	L(2) [mm]	
FL.C.20-6-28	6	20	28	(A)
FL.C-A.20-6-28	6	20	28	(B)
FL.C-F.20-6-28	6	20	28	(C)

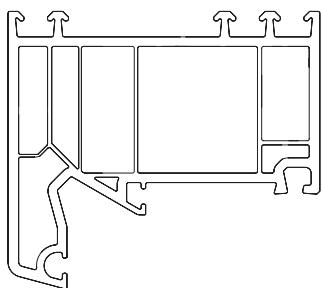


B-6-1: Drilling and milling template FLC  
 UEB = overlap  
 A - Sash hinge FLC  
 B - Sash hinge FLC-A (with pressure adjustment)  
 C - Sash hinge FLC-F (with turn restriction)

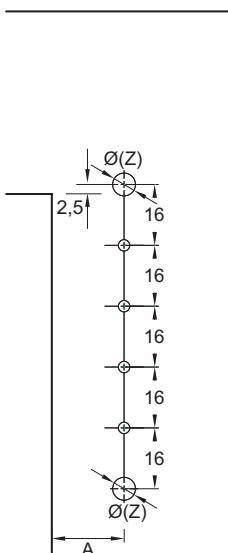
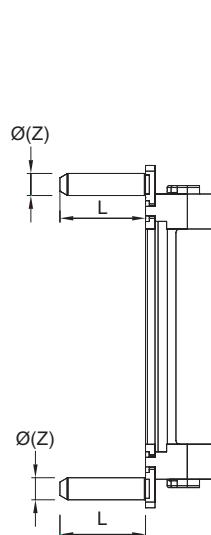
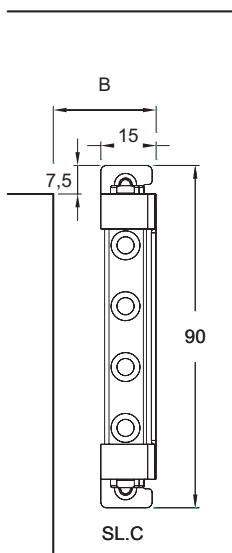


Drilling position adapted to sash hinge FLC!

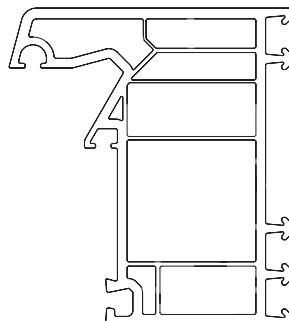
## Corner hinge EL.CS and shear hinge SLC



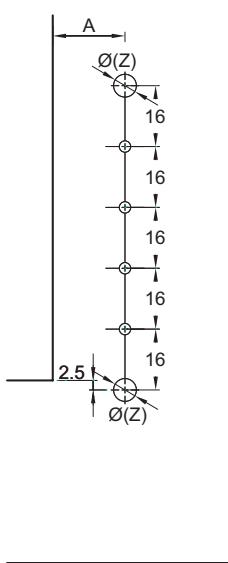
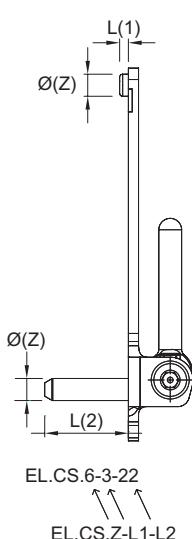
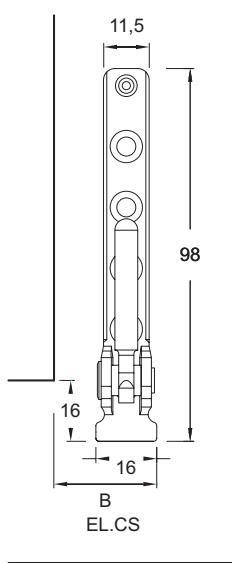
	$\emptyset$ (Z) [mm]	L [mm]
SL.C.3-3	3	3
SL.C.3-6	6	3
SL.C.22-6	6	22



UEB [mm]	A [mm]	B [mm]
20	19	27
21	20	28
22	21	29

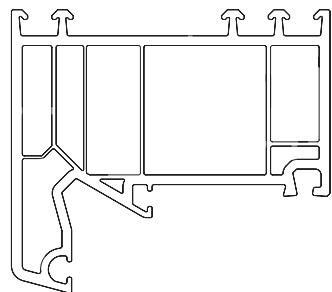


	$\emptyset(Z)$ [mm]	L(1) [mm]	L(2) [mm]
EL.CS.3-3-3	3	3	3
EL.CS.6-3-3	6	3	3
EL.CS.6-3-10	6	3	10
EL.CS.6-3-22	6	3	22
EL.CS.6-10-10	6	10	10
EL.CS.6-22-3	6	22	3

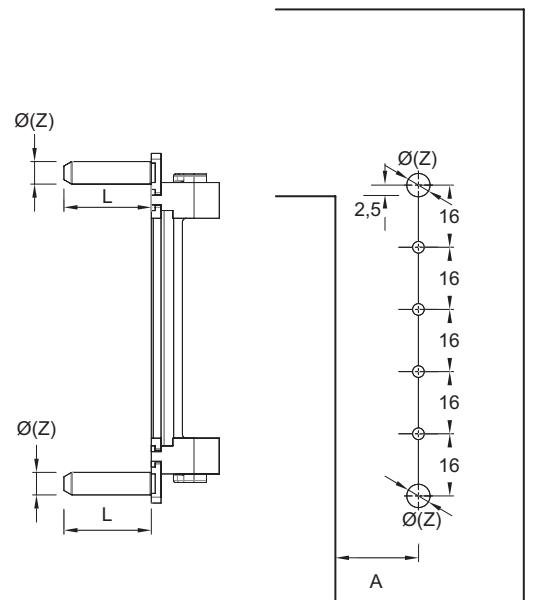
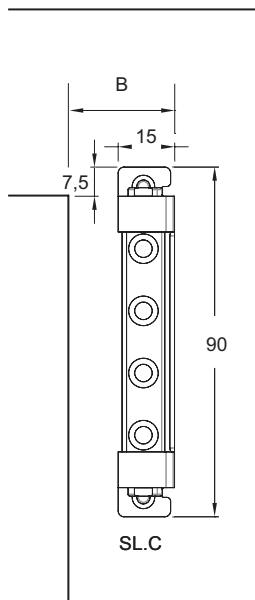


B-6-2: Drilling template shear hinge SL.C (top) corner hinge EL.CS (bottom)  
UEB = overlap

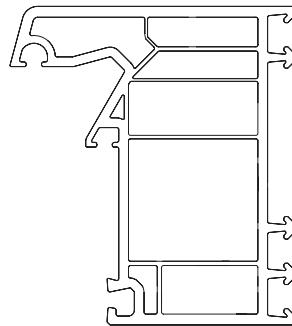
## Corner hinge EL.C and shear hinge SLC



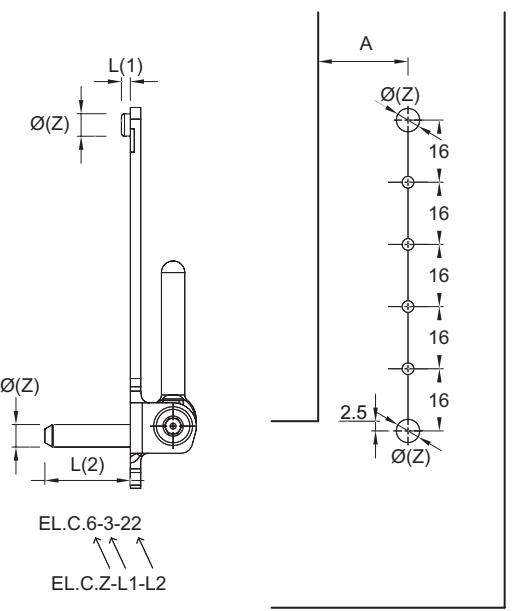
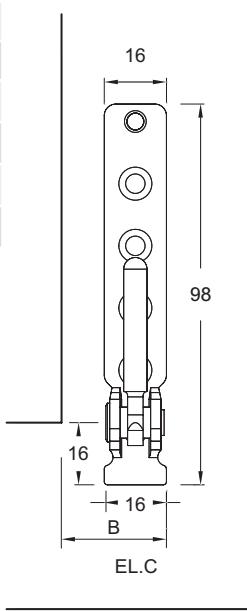
	$\varnothing(Z)$ [mm]	L [mm]
SL.C.3-3	3	3
SL.C.3-6	6	3
SL.C.22-6	6	22



	A [mm]	B [mm]
20	19	27
21	20	28
22	21	29

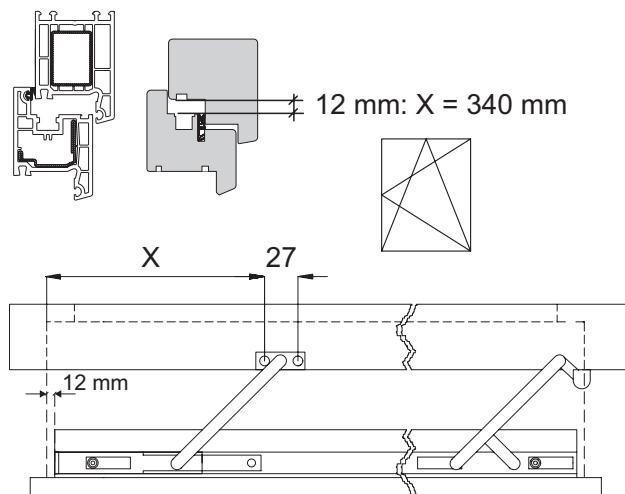


	$\varnothing(Z)$ [mm]	L(1) [mm]	L(2) [mm]
EL.C.3-3-3	3	3	3
EL.C.6-3-3	6	3	3
EL.C.6-3-10	6	3	10
EL.C.6-3-22	6	3	22
EL.C.6-10-10	6	10	10
EL.C.6-22-3	6	22	3

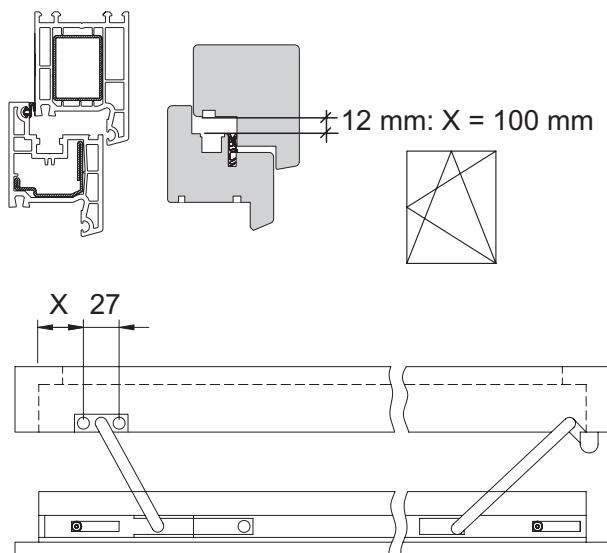


B-6-3: Drilling template shear hinge SLC (top) / corner hinge EL.C (bottom)  
UEB = overlap

## Additional shear



B-7-4: Installation drawing additional shear ZSR  
(X with regard to frame rebate edge)



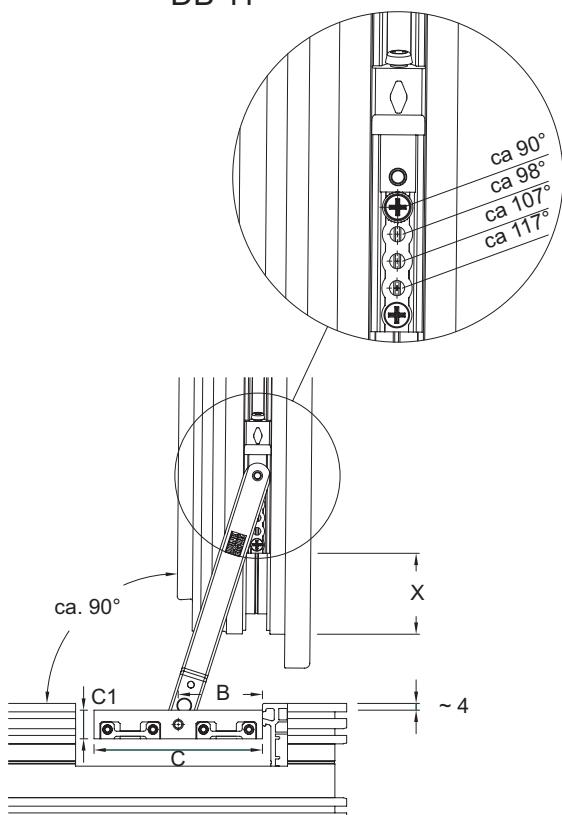
B-7-5: Installation drawing additional shear ZSRE (for fitting type "Tilt before turn")

## Turn limiter

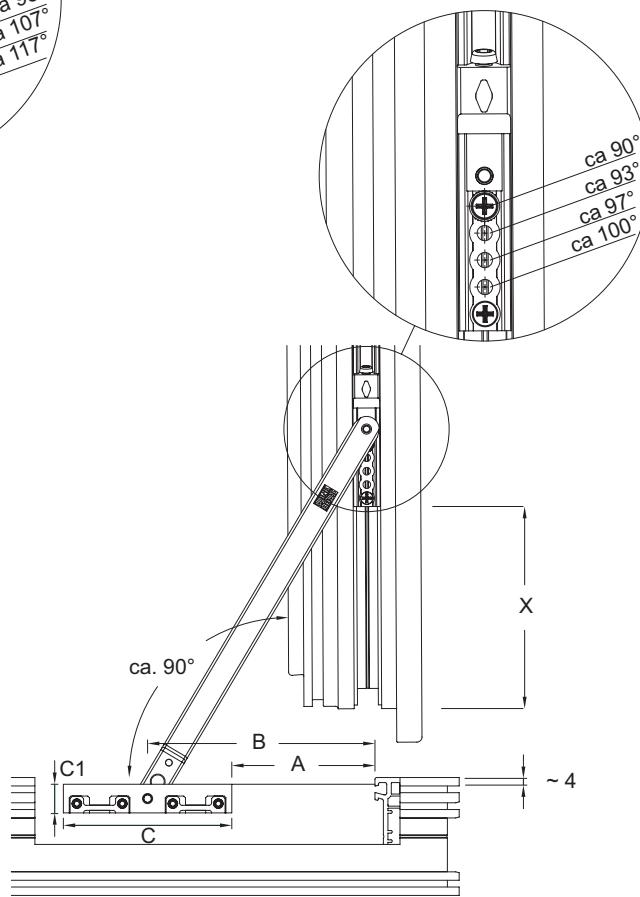
	PVC	HT	AL	FT	S [mm]	A [mm]	B [mm]	C/C1 [mm]	X* [mm]
DB 11 SL	x			x	223	0	50	100/17	~ 48
DB 11 / 1 SL	x	x	x	x	338	85	135	100/17	~ 120
DB 11 / 1 H		x			338	75	135	120/20	~ 120
DB 11 - 350 SL	x	x	x		97	0	8	59/16	~ 80

Tab\_DB11\_BSS\_TAB

DB 11



DB 11-1



15

B-10-1: Drilling pattern turn limiter DB11

PVC = plastic

HT = wood

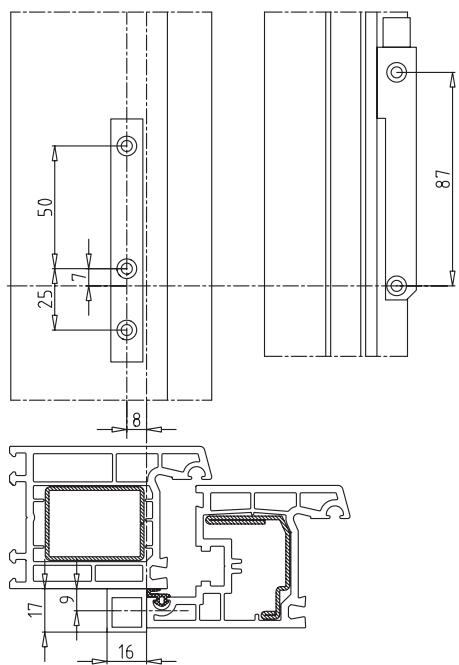
AL = aluminium

FT = spacer

S = Rod length (sash component)

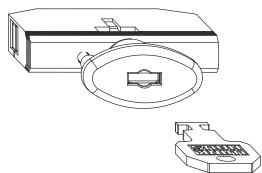
\* The installation situation on the frame side might be different due to profile reasons. Especially the distance "X" is an approximate value and it may vary depending on the frame profile, the overlap and the groove centre position. For this reason the opening width to be achieved should be controlled on installation.

## Opening limiter

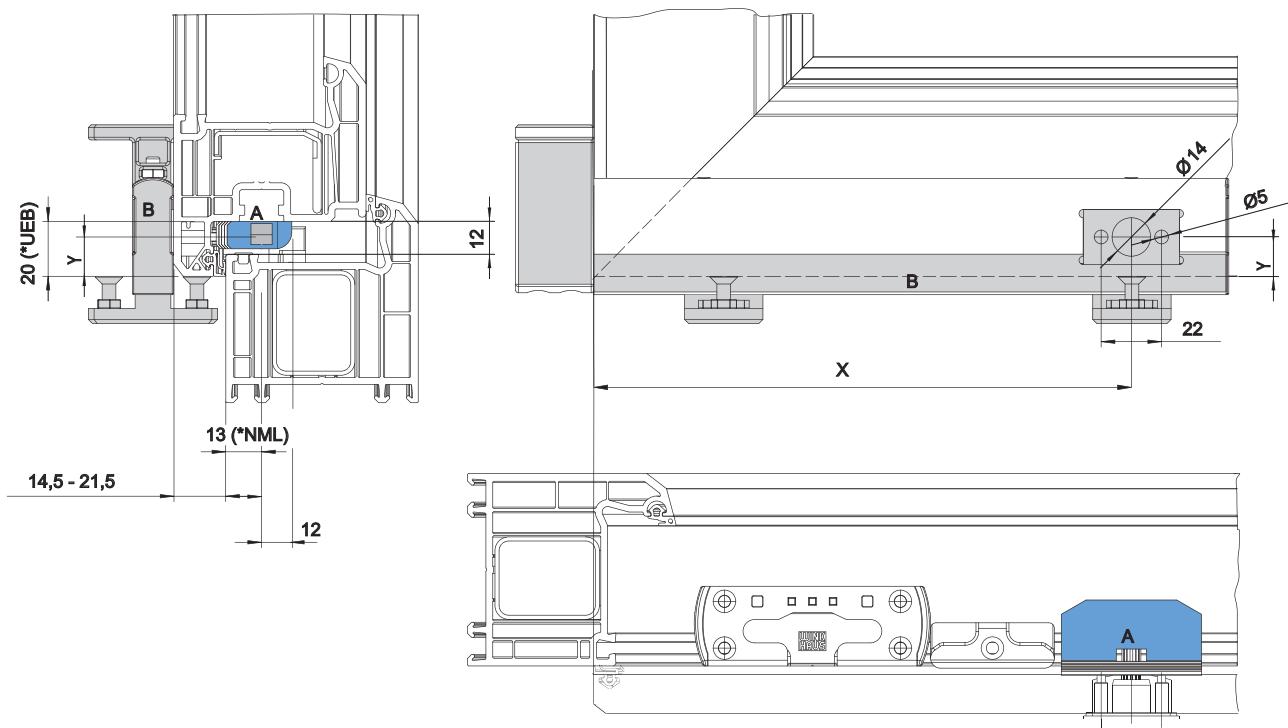


B-10-2: Drilling template opening limiter OBV

## Rotation stop device DS



UEB* [mm]	X [mm]	Y [mm]
18	194	12
20	196	14
21	197	15
22	198	16



B-10-3: Drilling template window lock DS

A = component of window lock DS

B = Jig for window lock LE.DS

UEB = overlap

NML = groove centre position

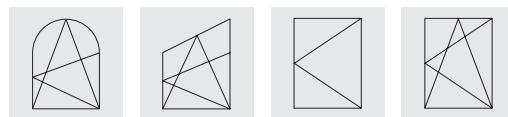
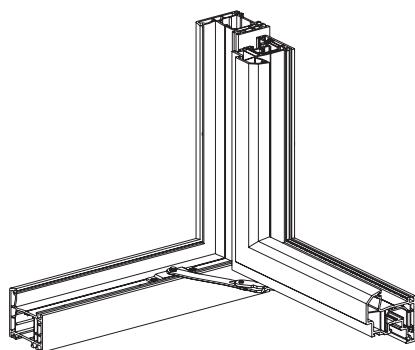
\* = Example dimension

15

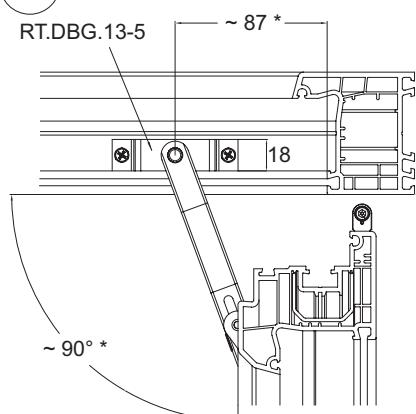


Fill the difference between inner edge of window lock and sash overlap (screw level) using packers DS.

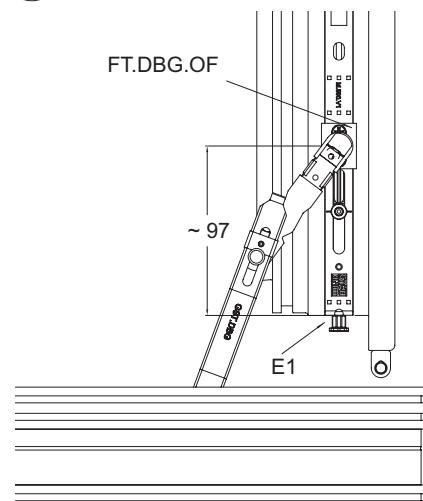
## Turn limiter DBG



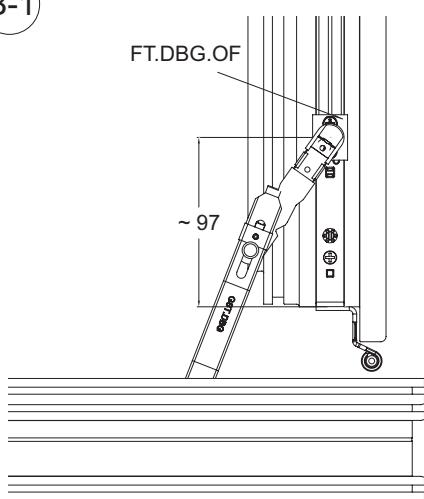
A



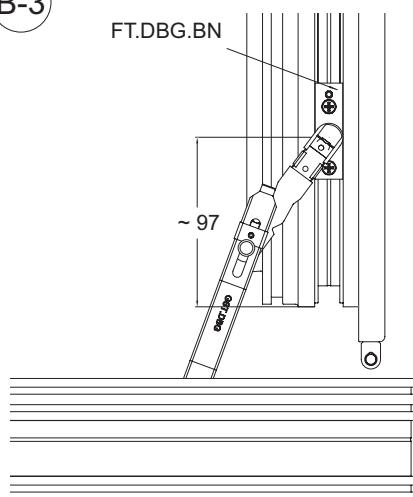
B-2



B-1



B-3



15

B-10-4: Turn limiter DBG

- A = View from top / Assembly position on the frame
- B = View from bottom
- B-1 = Assembly for rebate sash hinge
- B-2 = Assembly at corner drive (continuous fitting)
- B-3 = Assembly in case of open fitting groove

\* The dimensions must be controlled!

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