

activPilot Comfort

The fitting system with parallel action



Product Catalogue 03/2015

activPilot Comfort PADK, PADM, PADS, PAD

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Declaration of symbols

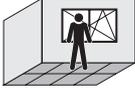
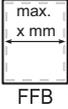
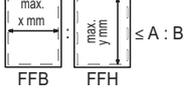
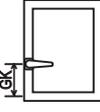
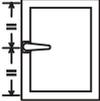
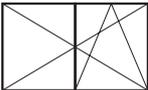
	Sash weight max. x kg		Interior view
	Max. sash size: x m ²		Exterior view
	Max. sash rebate width (FFB): x mm		Basic set of fittings
	Max. sash rebate height (FFH): x mm		Optional fittings
	Ratio between sash rebate width (FFB) and sash rebate height (FFH) is less than or equal to A : B		Size-dependent fittings depending on sash rebate width (FFB)
	Constant handle height		Size-dependent fittings depending on sash rebate height (FFH)
	Central handle height		Direction of view
	Turn sash (D)		Pot hinge version
	Turn-tilt sash (DK)		Rebate hinge version
	Turn/Turn-tilt double sash (D/DK-Stulp)		Item for use on PVC-U windows
	Turn or turn-tilt sash with parallel opening		Item for use on wooden windows with 12 mm airgap
	Parallel action		Item for use on aluminium windows
	Slide-tilt window		

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activPilot Comfort PADK

- Turn, tilt, open to parallel position and close
- Possible up to resistance class RC 2, according to DIN EN 1627 – 1630



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activPilot Comfort PADM

- Motorised parallel action and turn fitting system
- Suitable for user-independent room ventilation according to DIN 1946-6:2009-05
- Possible up to resistance class RC 2, according to DIN EN 1627 – 1630
- Automatic and time-adjusted ventilation integrated
- Flexible window operation via radio remote control unit or touch surface



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activPilot Comfort PADS

- Fitting system with parallel action, turn and close functions
- For radius head and studio windows and other special types of windows



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activPilot Comfort PAD

- Fitting system with parallel action, turn and close functions
- Handle opposite to hinge side, but bottom horizontal position is also possible
- Possible up to resistance class RC 2, according to DIN EN 1627 – 1630



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

activPilot: The new standard of turn-tilt fittings

Developing a new system of fittings from the initial drafts to market maturity is a time-consuming process. It is not just a question of creative ideas, precise calculations and countless series of tests, but also of intensive monitoring of people and markets, evaluating current trends and ongoing analysis of general technical developments. We even question tried and trusted approaches to be able to leverage all this information, and apply our years of experience to create targeted, premium solutions that offer fitters and users a whole new range of opportunities. Both from an economical and functional point of view. It is this constant drive towards precision that has made Winkhaus one of the leading enterprises in the field of window and door technology. This is evident by the large number of industry standards that Winkhaus has established in over 160 years.

From established standards to the next generation standard

In designing activPilot we created all the solutions needed for the next-generation window fitting standard within a single system. An intelligent, clearly-structured modular system with far less components than was previously typical, activPilot meets all your requirements from a modern range of fittings. activPilot is suitable for any shape of window, any window material and any level of automation, from manual mounting to fully automated serial production. The high level of flexibility, the attractive auxiliary functions, the new locking system and the functional design all ensure that your business is perfectly geared today to meet your customers' needs and future requirements.

Modular design

activPilot optimises window construction. For the window builder, less components and multifunctionality mean uncomplicated and fast processing and rational mounting. Premounted components and the unique design 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.

The locking system with octagonal locking bolts

activPilot enhances comfort. The functionally perfect locking mechanism not only guarantees precise entry of the locking bolt into the frame keep, but also a perfect seal. This is ensured by the excellent air gap tolerance of 9.8 to 14 mm and the octagonal locking bolt which allows easy adjustment of the contact pressure. Even adjusting forces and the non-positive and positive system fit of the components give this fitting the required stability and long-term functionality.

Design

activPilot offers you and your customers real added value. Surprising details, discreet accents, ergonomic design and comprehensive functions characterise the overall concept of the fitting system. In short, its attractive design will be a crucial factor when it comes to your customers making a purchase decision. activPilot also offers other convincing arguments such as outstanding durability, easy-to-clean surfaces, intuitive operation and, last but not least, aesthetically pleasing windows.

Surface

activPilot fittings feature a surface refinement finish based on nanotechnology, which is applied in our in-house electroplating facility. This surface stands out due to its very high resistance to all environmental influences. This is verified by quality controls consisting of alternate climate and salt spray testing according to DIN EN ISO 9227:2006-10 and is certified on a regular basis by tests. Winkhaus also carries out tests in outside areas, thus testing component behaviour under realistic conditions. This enables Winkhaus to offer a ten-year warranty for functions and surfaces.

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. Depending on the number and type of keeps, various security levels are achievable using the same platform.

At our works, comprehensive and strict tests – along with ongoing functional monitoring – ensure maximum security for customers. Approval marks and certificates by independent test authorities confirm our results. You can therefore be sure that activPilot meets the requirements customers place on a secure fitting system. Locking bolts are made of high-strength steel; even standard types guarantee effective basic security. Depending on the number and type of keeps, the fitting system can be enhanced for compliance with stricter security classes – including burglar protection to DIN EN 1627-1630, resistance class 2 (RC2).

Quality standard

The Winkhaus group successfully passed a group certification of production sites according to DIN ISO 9001:2008. The group certification ensures that we use the same criteria and procedures in all Winkhaus subsidiaries and thus we can always offer consistent quality for our customers.



Winkhaus has successfully passed the demanding QM 328 certification.

Winkhaus' activPilot fittings are certified in accordance with QM 328. The turn-only and turn-tilt fittings for windows and French 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.

Endurance test

Winkhaus activPilot is certified in accordance with EN 13126-8 (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 was tested for sash weights of up to 130kg, for activPilot Select up to 150 kg and for activPilot Comfort up to 100 kg. As a result they clearly exceeded the required load values. The fittings may now bear the ift quality certification mark.

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.

Proper screw fixing in terms of load of security-relevant fitting components

In order to ensure the endurance and operating safety of windows and balcony doors over their expected service life, major importance must be attached to the installation of security-relevant fitting components!

Manufacturers of windows and balcony doors are responsible for fixing the fitting elements on the sash and the frame in a professional way and they must make sure that the specifications are adhered to.

Important: Please observe these guidelines! Use only screws that are long enough to bear the loads. We recommend you to fix the corner and shear hinge screws in the steel reinforcement of the PVC-U window.

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ift-KONFORMITÄTSZERTIFIKAT

ift-CERTIFICATE OF CONFORMITY



Beschläge / Hardware

Produktfamilien
product families

Dreh- und Drehkippschläge für Fenster und Fenstertüren
turn and tilt-turn hardware for windows and casement doors

Produkt
product

autoPilot, activPilot, proPilot

Einsatzbereich
field of application

Systeme mit entsprechender Beschlagaufnahme
systems with suitable hardware groove

max. Flügelgewicht
max. casement weight

200 kg

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 die benannten Beschläge den Anforderungen des ift-Zertifizierungsprogramms für Beschläge (QM328:2014-5) entsprechen. Grundlagen sind durch das Prüflabor erstellte Produktfamilien der aufgeführten Beschläge, Prüfung durch das Prüflabor nach EN 13126:2006 und EN 1191:2012 unter Berücksichtigung der Anwendungsdiagramme, eine werkseigene Produktionskontrolle des Herstellers und eine Fremdüberwachung der Fertigung durch die Überwachungsstelle in den benannten Standorten. Das Zertifikat ist nur in Verbindung mit dem dazugehörigen Überwachungsvertrag gültig.

Die Gültigkeitsdauer des Zertifikates beträgt 5 Jahre. Mit der Erteilung des Zertifikates ist eine regelmäßige Fremdüberwachung des Herstellers verbunden.

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 anzuzeigen.

Das Unternehmen ist berechtigt, die Beschläge gemäß der ift-Zeichensatzung mit dem „ift-zertifiziert“-Zeichen zu kennzeichnen.

Dieses Zertifikat enthält 2 Anlagen:

- Übersicht der Produktfamilien
- Austauschbarkeit nach EN 14351-1

The present certificate attests that the hardware mentioned fulfils the requirements of the ift-certification scheme for hardware (QM328:2014-5).

Basis of the certificate are the product families of the hardware listed that have been compiled by the test laboratory, tests performed by the test laboratory as per EN 13126-8:2006 and EN 1191:2012 based on the application diagrams, factory production control by the manufacturer and third-party surveillance audits of the production by the surveillance bodies at the sites mentioned. The certificate is valid only in conjunction with the corresponding surveillance contract.

The certificate is valid for a period of 5 years. Award of the certificate is subject to regular third-party surveillance of the manufacturer.

The reproduction of the certificate without any change whatsoever 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 authorised to affix the "ift-certified"-mark to the hardware according to the "ift Rules for use of the "ift-certified"-mark.

This Certificate contains 2 Annexes:

- List of product families
- Interchangeability as per EN 14351-1



EN 1191
EN 12400

Klasse 2

Dauerfunktion

resistance to repeated opening and closing



EN 12046-1
EN 13115

Klasse 2

Bedienungskräfte

operating forces



EN ISO 9227
EN 1670

Klasse 4

Korrosionsschutz

corrosion protection

Rosenheim
27. Mai 2015

Christian Kehrler
Leiter ift Zertifizierungs- und Überwachungsstelle
Head of ift Certification and Surveillance Body

Ulrich Siebath
Institutsleiter
Director of Institute

Vertrag-Nr. / Contract No.: 228 7019950

Zertifikat-Nr. / Certificate No.: 228 7019950-1-11

Gültig bis / Valid:

17. November 2018

2013-11/797

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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



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 Hersteller/manufacturer: Aug. Winkhaus GmbH & Co. KG
 Ausgabedatum/date of issue: 27. Mai 2015



In der Zertifizierung enthaltene Produktfamilien für Fenster- und Fenstertürsysteme mit geeigneter Beschlagsaufnahme.
product families for window and casement door systems with groove designed for accommodation of hardware, covered by certification.

Ifd. Nr. / no.	Ausführung Bandselle/ type hinge side	Ausführung Flügelbeschlag/ type casement hardware	Beschreibung der Ausführung der blendrahmenseitigen Beschlagsausführung <i>detail description of frame member hardware type</i>				Flügelgewicht/ casement weight	Klassifizierung entsprechend der Nachweise nach EN 13126-8 <i>classification in accordance with evidence as per EN 13126-8</i>								
			Winkelband/ top stay connecting part	Scherenlager/ stay arm support	Eckband/ corner hinge	Ecklager/ corner pivot		1	2	3	4	5	6	7	8	Prüfgrößen (in mm)/ test sizes
								Gebrauchskategorie/ category of use	Dauerfunktions-tüchtigkeit/ durability	Masse (in kg)/ mass	Feuerbeständigkeit/ fire resistance	Gebrauchssicherheit/ safety in use	Korrosionsbeständigkeit/ corrosion resistance	Schutzwirkung/ security	angew. Teil/ appl. part	
1	autoPilot H 100	autoPilot H 100	SWTF 40-18/9-12	SWTF 18-12	FWTA 18/9-12	EWTA 18-12	100 kg	-	4	100	0	1	4	-	8	900/2300
2	autoPilot K 100	autoPilot K 100	SW 20/13	SWS 3-6	FK 20-6-20	ESV 6-3-16	100 kg	-	4	100	0	1	4	-	8	1300/1200
3	activPilot K 130	activPilot K 130	SK2.20-13	SL.KB.3-6	FWV 20-13	ESVW 6-3-16	130 kg	-	4	130	0	1	4	-	8	1300/1200
4	activPilot K 100	activPilot K 100	SK2.20.13	SL.KS.3-6	FL.KA. 20-6-20	EL.K. 6-3-16	100 kg	-	4	100	0	1	4	-	8	1300/1200
5	autoPilot K 130	autoPilot K 130	SW 20-13	SWB 3-6	FWV 20-13	ESVW 6-3-16	130 kg	-	4	130	0	1	4	-	8	900/2300
6	autopilot VV K	autopilot VV K	SVV	ohne	FVV	EVV	90 kg	-	4	100	0	1	4	-	8	1300/1200
7	proPilot	proPilot	SK.U.2.20-13	SL.K.U.3-3	FL.K.U.6	EL.K.U.3-3	70 kg	-	4	70	0	1	4	-	8	1300/1200
8	proPilot	proPilot	SK.U.2.20-13	SL.K.U.3-3	FL.K.U.6.100	EL.K.U.3-3	100 kg	-	4	100	0	1	4	-	8	1300/1200
9	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	130 kg	-	4	130	0	1	4	-	8	1300/1200
10	activPilot Select H 150	activPilot Select H 150	SH.SE.29-13	ohne	FL.SE	EL.H.SE. 29-13 mit FLS.SE	150 kg	-	4	150	0	1	4	8	8	1550/1400
11	activPilot Select K 150	activPilot Select K 150	SK.SE	ohne	FL.SE	EL.K.SE mit FLS.SE	150 kg	-	4	150	0	1	4	8	8	900/2300

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Ifd. Nr. / no.	Ausführung Bandselle/ type hinge side	Ausführung Flügelbeschlag/ type casement hardware	Beschreibung der Ausführung der blendrahmenseitigen Beschlagsausführung <i>detail description of frame member hardware type</i>				Flügelgewicht/ casement weight	Klassifizierung entsprechend der Nachweise nach EN 13126-8 <i>classification in accordance with evidence as per EN 13126-8</i>								
			Winkelband/ top stay connecting part	Scherenlager/ stay arm support	Eckband/ corner hinge	Ecklager/ corner pivot		1	2	3	4	5	6	7	8	Prüfgrößen (in mm)/ test sizes
								Gebrauchskategorie/ category of use	Dauerfunktions-tüchtigkeit/ durability	Masse (in kg)/ mass	Feuerbeständigkeit/ fire resistance	Gebrauchssicherheit/ safety in use	Korrosionsbeständigkeit/ corrosion resistance	Schutzwirkung/ security	angew. Teil/ appl. part	
12	activPilot Comfort PADK 100	activPilot Comfort PADK 100	SK2.PA.20-13	SL.KS.3-6	FLE.FWPA 20-13	ESV 6-3-16	100 kg	-	4	100	0	1	4	-	8	1300/1200
13	activPilot ALU 130	activPilot ALU 130	SK2.20-13	SL.KB.3-6	FWV 20-13	ESVW 6-3-16	130 kg	-	4	130	0	1	4	-	8	1300/1200
14	activPilot Select ALU 150	activPilot Select ALU 150	SK.SE	ohne	FL.SE	EL.K.SE mit FLS.SE	150 kg	-	4	150	0	1	4	8	8	1550/1400
15	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	150 kg	-	4	150	0	1	4	8	8	900/2300
16	activPilot Select K 100	activPilot Select K 100	SK.SE	ohne	FL.SE	EL.K.SE	100 kg	-	4	100	0	1	4	-	8	1300/1200
17	activPilot Select H 130	activPilot Select H 130	SH.SE.20-9.Z.	ohne	FL.SE	EL.H.SE. 20-9.Z.	130 kg	-	4	130	0	1	4	-	8	1300/1200
18	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	130 kg	-	4	130	0	1	4	-	8	900/2300
19	activPilot Comfort PADM 100	activPilot Comfort PADM 100	SK2.PAD. 20-13	SL.KS.3-6	FLE.EFPA 20-13	ESV 6-3-16	100 kg	-	4	100	0	1	4	-	8	1300/1200
20	activPilot Giant	activPilot Giant	SXL 20-13	SL.XL	FL.XL	EL.XL	200 kg	-	4	200	0	1	4	-	8	1550/1400
21	activPilot Topstar	activPilot Topstar	SH.IF.24-13	ohne	FL.IF	EL.H.IF. 24-13	130 kg	-	4	130	0	1	4	-	8	900/2300

Die Ergebnisse sind auf folgende Ausführungsvarianten übertragbar: Beschlagsausführung links/rechts, alle zulässigen Größen gemäß Anwendungsdiagramm sowie andere Falz- und Profillemetrien. 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.

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1 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 contained in this document. 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.

4 Guidelines for the use of locking systems and fittings

Gütegemeinschaft Schlösser 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 by / to the different target groups. The builder is obliged to pass the documents listed in this chapter on to the end user.

Gütegemeinschaft Schlösser und Beschläge e.V.	
ORIGINAL FASSUNG	
Richtlinie TBDK	
Ausgabe: 2014-05-08	
Richtlinie	
Befestigung freierhandiger Beschlagteile von Dreh- und Drehkipp-Beschlägen mit Definitionen zu Dreh- und Drehkipp-Beschlägen sowie deren möglichen Einbaulagen	
Inhalt:	
1 Vorwort	3
2 Anwendungsbereich	3
3 Begriffe	4
4 BeschreibungsEigenschaft - Grenzen der Richtlinie	7
5 Empfehlungen für die Befestigung	9
6 Durchführung der Prüfungen	15
7 Vorgaben zu den Kräften	15
8 Literaturverzeichnis	22
Herausgeber:	
Gütegemeinschaft Schlösser und Beschläge e.V. Offenstraße 12 42551 Velbert Phone: +49 (0)2051 / 95 06 - 0 Fax: +49 (0)2051 / 95 06 - 20 www: www.beschlagindustrie.de www.beschlagindustrie.de/ggsb/richtlinien.asp	
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.	
Richtlinie TBDK	11/23

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 TDBK 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.

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4.2.2 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. The following servicing work 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.

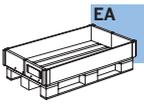
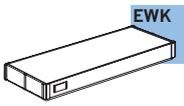
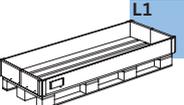
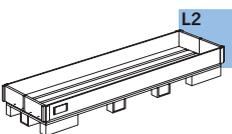
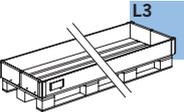
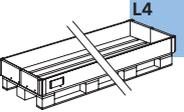
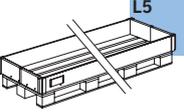
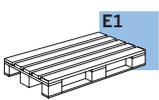
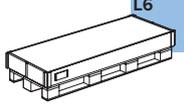
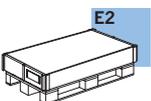
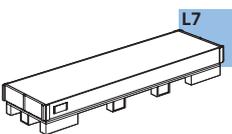
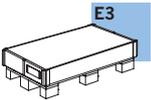
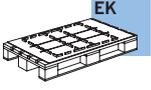
8. Storage

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

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 Goods packed in PE bags with bar code		EA Europallet with frame and bar code Pallet size 800 x 1,200 mm
	KT Goods packed in cardboard boxes with bar code		EWK Disposable cardboard box E3, L6 or L7
	BD Tied goods with barcode		L1 Reusable pallet for long goods with frame and bar code Pallet size 800 x 1,800 mm
	K3 Small cardboard box with bar code Dim.: 395 x 295 x 205 mm		L2 Reusable pallet II for long goods with frame and bar code Pallet size 800 x 2,400 mm
	K4 Big cardboard box with bar code Dim: 595 x 395 x 205 mm		L3 Reusable pallet III for long goods with frame and bar code Pallet size 800 x 3,500 mm
	KK Small KLT 4321 Dim: 400 x 300 x 214 mm with cover, bar code, sealed, stackable		L4 Reusable pallet IV for long goods with frame and bar code Pallet size 800 x 4,200 mm
	GK Big KLT 6412 Dim: 600 x 400 x 214 mm with cover, bar code, sealed, stackable		L5 Reusable pallet V for long goods with frame and bar code Pallet size 800 x 6,500 mm
	E1 europallet with KLT Pallet size 800 x 1,200 mm		L6 One-way pallet with cover box for long goods with bar code Pallet size 800 x 1,800 mm
	E2 europallet with cover box and bar code Pallet size 800 x 1,200 mm		L7 One-way pallet with cover box for long goods with bar code Pallet size 800 x 2,400 mm
	E3 One-way pallet with cover box and bar code		
	EK Europallet with KLT and fixing plate (avoids shifting of goods) Pallet size 800 x 1,200 mm		

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1 Glossary

Code

AB.G.D	Drilling protection	HFG	Window Handle Case HFG
ADP	Adapter	HT	Timber windows, pot hinge version
AKR	Automatic shootbolt	HW	Timber windows, rebate version
AL...	Support plate		
AP...SE	Adapter plate, activPilot Select	IF	activPilot Topstar
AS.DSL	Mini ventilation unit (turn position)		
AS.SBA	Mini vent keep		
ASP ER-A	End plate	K.EL	Corner hinge cap
ASS AR	Corner drive	K.FL	Sash hinge cover
AWDR	Blocking plate	K.SB	Shear hinge cap, timber
		K.SK	Shear band cap
BDT	Motor drive of the fitting system (D+H)	K.SL	Shear hinge cover
BK	Balcony door catch	KB	Tilt hinge
BK.KR	Catch bolt	KBG	Tilt limiter
BO	Catch bolt	KE	Coupling element
BS	Ground sill	KLB	Tilt hinge
BST AP/FSPunch		KR	Shootbolt
		KUE-T1	Cable transition, separable
D	Backset		
DB	Turn limiter	LE.B	Drilling jig
DFE	Dual function element	LE.N	Jig
DL	Turn hinges	LIN AP/FS	Ruler of fittings press
DL...ET	Turn hinge, 1 piece	LM-RG	Round handle
DLW ERW	Top hinge bracket		
DML	Turn middle hinge		
		M	Interlocking rod
E	Corner drive	MK	Interlocking rod, extendable
E1.A	Corner drive for studio windows	MS.SO	Interlocking rod, double sash, keep top
E1.MSL	Corner drive with variable tilt device	MS.SU	Interlocking rod, double sash, keep bottom
E1.SBS	Corner drive for double-sash window	MSL.OS	Variable tilt device top rod
EL	Corner hinge		
EL.KB	Corner hinge up to 130 kg	OBV	Opening limiter
ESV	Corner hinge ESV	OS	Top rod
ESVW	Corner hinge (up to 130 kg)	OS...PA...	Top rod, PADK
		OS. ...E	Top rod (turn before tilt)
		OS.A	Screw clip
FBP	Window limiter		
FH ...	Sash lifter	PA	Parallel action
FL	Sash hinge	PAD	Parallel action, turn
FLEFKPADS	Sash hinge, PADS	PADK	Parallel action, turn-tilt
FL.E.FPAD	Sash hinge PAD		
FL.E.FWPA	Sash hinge, PADK		
FLS.SE	Sash hinge rail, activPilot Select	RADB...SE	Frame connection turn limiter, activPilot Select
FSA	Fail safe device FSA	RT.DFE-TFE	Frame part, dual/triple function element
FSF	Fail safe device FSF	RT.DFE-TFES	Frame part, dual/triple function element, double-sash windows
FSR	Rebate shear		
FSV	Window lock FSV	RT.MSL	Frame part, variable tilt device
FT	Adapter		
FWV	Sash hinge, rebate hinge		
GAK	Drive rod, constant handle position		
GAKA	Drive rod, constant handle position, lockable		
GAM	Drive rod, central handle position		
GAMA	Drive rod, central handle position, lockable		
GASK	Double sash drive rod, constant handle position		
GASM	Double sash drive rod, central handle position		
GAVM	Locking drive rod activPilot, central handle position		
GG	Handle set		
GK	Constant handle position		
GRT.RB	Round arch set		

S.FL	Sash hinge plug
SA	Run-up block
SB SZV	Keep, pull-in device
SBA...	Keep, contact pressure
SBA...T	Mini vent keep
SBK	Security tilt keep
SBK...E	Tilt keep (tilt before turn)
SBK...PA	Tilt keep (with slider), PADK
SBS...	Security keep
SBS...PA	Security keep, PADK
SBS...PAB	Security keep PAB, PADK
SBS...PAD	Security keep PAD
SE	activPilot Select
SH...T	Shear, pot hinge
SK	Shear, rebate hinge
SK...PA	Shear, PADK
SK...PAD	Shear PAD
SK ... A	Shear studio window
SK ... E	Shear (tilt before turn)
SKK	Shear, without turn restriction
SL	Shear hinge
SL.HW	Shear hinge, rebate hinge
SLK	Shear hinge cap, rebate hinge
SNH	Faceplate fastener
SP R	Faceplate
SR	Control unit
SZP	Geared cover plate
TFE	Triple function element
V	Locking gap
V.AK	Extension rod
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.OS	Anti-slam device, top rod
ZV.FT	Pull-in device, sash part
ZV.RT	Pull-in device, frame part

Item description

...LS	Fitting direction left
...RS	Fitting direction right
...AGR	anthracite grey (similar to RAL 7016)
...BR	brown (similar to RAL 8019)
...BZ-AM	bronze – antique brass
...BZ-CU	bronze – coppery
...BZ-RB	bronze – red brown
...CW	creme white (similar to RAL 9001)
...EV1	anodised silver
...F1	silver coloured
...F1-elox	(similar to F1) anodised silver
...F3	gold coloured
...F3-MG	gold mat
...F9	titanium coloured
...LBR	clay brown
...PW	pearl white (similar to RAL 1013)
...SG	silver-grey (similar to RAL 7001)
...SGB	grey (similar to RAL 9006)
...SGR	grey (similar to RAL 7037)
...SL	silver look (zinc galvanised)
...SW	jet black
...WS	white (similar to RAL 9016)

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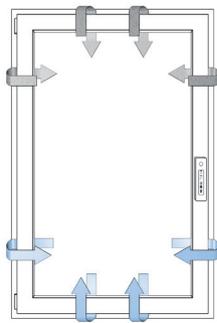
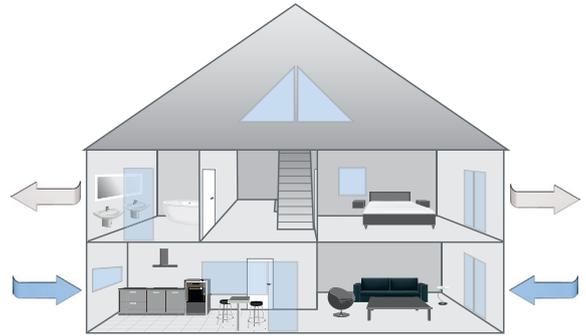
activPilot
Comfort PAD **18**

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

activPilot Comfort, the fitting system for healthy and energy-efficient ventilation.

In order to meet the increased demands put on standards and energy-efficient indoor ventilation, Winkhaus has developed an innovative and unique fitting system, activPilot Comfort.

Parallel action means a circumferential ventilation gap up to 6 mm between the sash and the frame is created, thus enabling a natural exchange of air.



Rooms must be ventilated

We create moisture in our houses and apartments every day – for example caused by cooking, taking showers, breathing or flower watering. Approx. 2 – 3 litres a day evaporate per capita. If this humidity stays inside the house, construction damages, mold growth and a poor indoor climate may develop.

The reason is that indoor air can only absorb a limited amount of moisture, which depends on the ambient temperature. The warmer the air, the more humidity is absorbed. As it cools down the air releases the moisture and this is why condensation water is formed on cold surfaces, such as window panes or cool outside walls. Especially the corners of a room are prone to mold growth.

Apart from the moisture, harmful substances evaporating from wallpapers, carpets, wall paint and furniture may accumulate in the air. Humidity and harmful substances can only be discharged from the rooms if these are correctly ventilated.

Modern living space presents new challenges

While energy efficiency of living spaces is rising, the requirements set on the tenants' ventilation behaviour is too. In former times houses were far less "tight" than today. Stale air was able to escape continuously through the outer shell, outside doors and windows. Tiny cracks and gaps allowed fresh outdoor air to enter without requiring action on part of the people. Condensation water temporarily formed on single-glazed windows and disappeared quickly thanks to the steady exchange of air.

Nowadays buildings are constructed or refurbished according to the new energy saving regulations (EnEV). Buildings are almost completely air-tight. For this reason it is the tenants themselves who must take care to ventilate their homes in the right way. However, due to insufficient time or due to the high loss of energy caused by open windows, the task is often neglected.

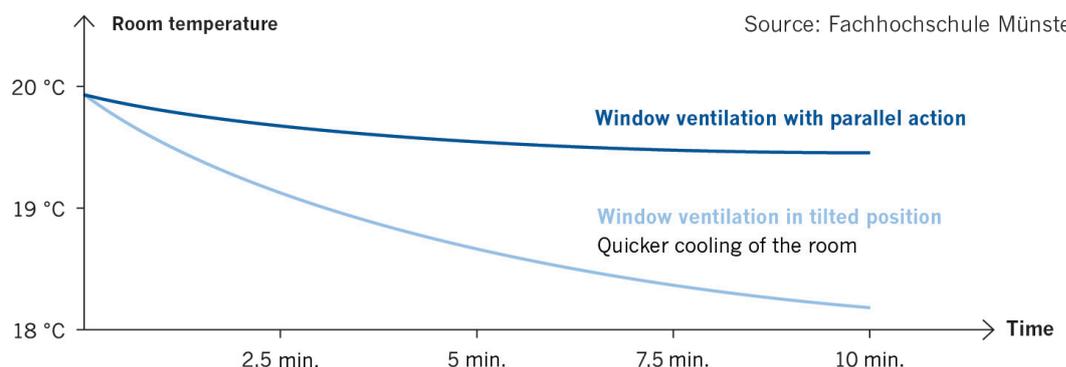
Burglar-resistant ventilation.

activPilot octagonal locking bolts in combination with steel mini vent keeps offer an increased basic security, even in the standard version.

The unique feature in this connection: The parallel opening position (rectangular windows) enables the same burglar resistance as the closed position of the window, burglar resistance to DIN EN 1627-1630 up to resistance class RC 2. The innovation: ventilate your home without letting burglars in!

Energy-efficient ventilation.

In the case of windows in parallel position fresh outside air enters into the room more slowly and equally. It is quickly heated to room temperature. Loss of energy is substantially lower (see illustration).



In order to ascertain the amount of air that can be exchanged against the pressure difference, you can use the chart to determine the volume flow per running metre (sash rebate sizes).

Example:

With a pressure difference of 2 Pa there is an exchange of air of approx. 10.7 m³/h per running metre. This means that the air that is exchanged through a window 1 x 1 m amounts to 42.5 m³.

Wind load zones in Germany

Dark blue areas: areas of strong wind

Light blue areas: areas of low wind

Further information on the subject of wind loads in Germany can be found here:

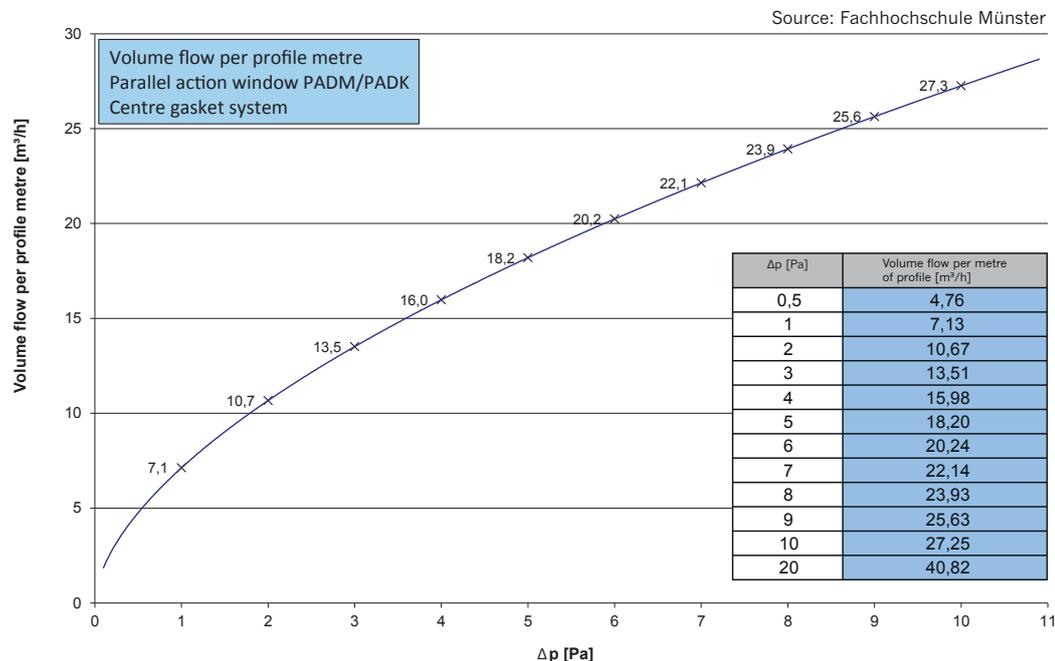
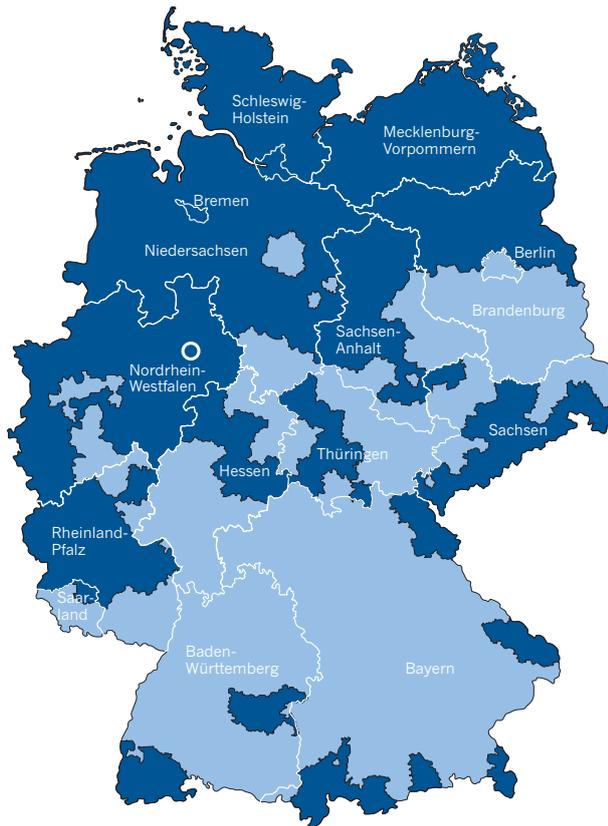
ift Rosenheim, <http://www.ift-rosenheim.de/rechentools.php> or DIN 1946-6 ventilation of apartments or Winkhaus ventilation tool



The information given refers to a ventilation gap of approx. 6 mm.

Wind velocities

Pa	m/sec	km/h	Wind strength in bft
2	1,8	6,6	2
3	2,2	8,1	
4	2,6	9,3	
5	2,9	10,4	
8	3,5	12,7	3
10	4,1	14,7	
15	5,0	18,0	
20	5,8	20,8	4
50	9,1	32,9	5
100	12,9	46,5	6
300	22,4	80,5	9
600	31,6	113,8	11



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1 activPilot Comfort PADK

2 Turn-tilt fittings with parallel action.

3 Compared to conventional turn-tilt windows offering “turn” and “tilt” settings, the activPilot Comfort PADK fitting system provides another opening dimension: “parallel action”. It is child’s play to open the window to this position. You simply need to turn the handle by 180° – that’s all. The sash is opened just a tiny bit in parallel to the frame. Earlier still, Winkhaus had successfully introduced the parallel action system for turn-tilt fittings in the autoPilot system. The technology was then adopted and further developed for the activPilot Comfort PADK product range.

4 The window sash is placed in parallel position to the frame, as in autoPilot Comfort. This leaves a 6 mm airgap ensuring natural and secure ventilation in all weathers. The natural exchange of air allows for a healthy indoor climate. Of course the window can also be tilted or opened fully: familiar window functions can be maintained with activPilot Comfort PADK.

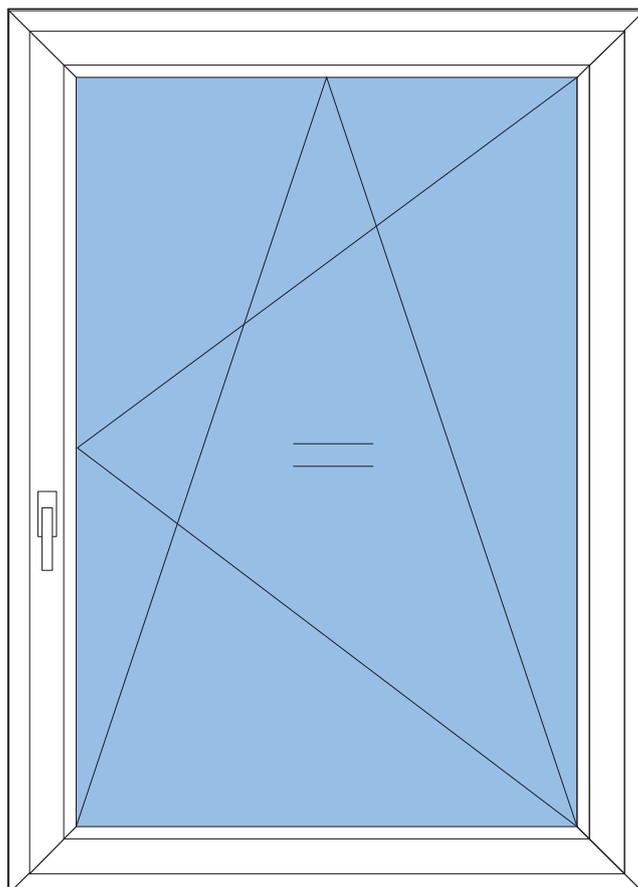
5 The special feature of the system: this setting offers the same burglar protection as the window in the closed position – burglar resistance to DIN 1627-1630 up to resistance class RC2. The innovation: secure ventilation!

6 We have deliberately adopted new approaches in developing activPilot Comfort PADK fittings. The tilt-first (Tilt Before Turn) operating sequence offers the advantage of convenient operation while accepting high manufacturing tolerances. This operating sequence offers added safety and it is often used in kindergartens, single and multiple family houses or nursing homes.

7 The special aspect here is the double function of the diagonal handle position:

8 If the handle is turned to the diagonal position from the bottom, the fitting is in the tilt position. Parallel action is enabled by further turning the handle by 90° into the 180° position. When the handle is moved back into the 90° position, the window sash can be opened fully (turn position). In order to close the window, the handle must be turned back down into the initial position.

9 Another benefit of activPilot Comfort PADK fittings is that you can use the modular system of activPilot Concept.



activPilot Comfort PADK

Application diagram for ascertaining the admissible sash sizes

- Max. sash weight 100 kg



For PVC-U windows with 12 mm airgap



Turn or turn-tilt sash with parallel opening

Width-to-height ratio and additional load

Value calculated without additional load for a width-to-height ratio of 1.5:1.

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!

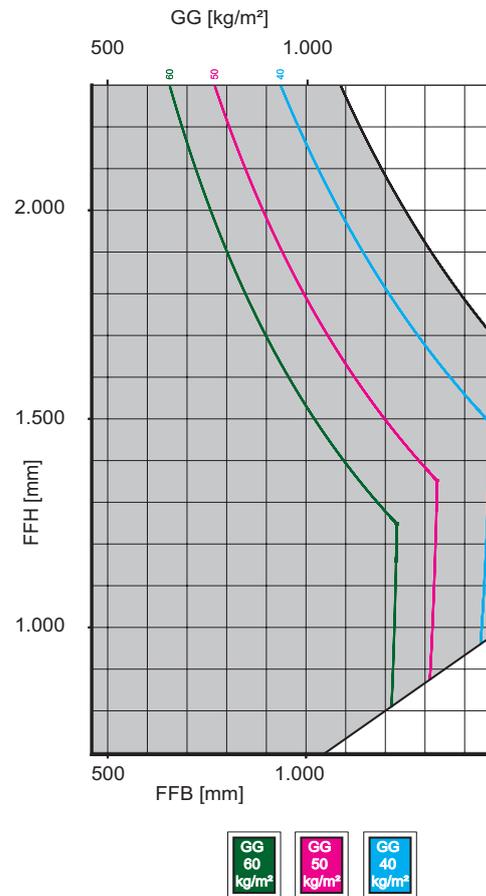
Advice for use

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 460 mm
- Max. sash rebate width 1,475 mm
- Min. sash rebate height 695 mm
- Max. sash rebate height 2300 mm
- Max. sash size 2.5 m²
- Max. sash weight 100 kg
- Aspect FFB/FFH ≤ 1.5:1
- Airgap 12 mm
- Groove centre position 13 mm
- Frame rebate depth min. 29 mm
- Approved for centre gasket systems and rebate sealing systems with rain guard.



AWD_01.50_NR15_DK_100_ohne_Zusatzlast_1,5_1475_m

Abbreviations

- FFB = Sash rebate width [mm]
- FFH = Sash rebate height [mm]
- GG = Glass weight per square metre [kg/m²]

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.

System Testing RC 2 (Resistance Class 2)

The processing details RC 2 can be gathered from the RC 2 system tests. The RC 2 fitting lists in this catalogue are only application examples. Please turn to your Winkhaus contact person.



Important: activPilot Comfort fittings are not suitable for use in panic doors! They are not recommended for passage doors.

General product information **1**

Lists of Fittings **2**

Drive rods **3**

Corner drives **4**

Top rods **5**

Sash hinges/ Corner hinges **6**

Shears/ Shear hinges **7**

Turn hinges/ Tilt hinges **8**

Extension rods **9**

Accessories **10**

Frame parts **11**

Mounting accessories **12**

Mounting Instructions **13**

Adjustment/ maintenance **14**

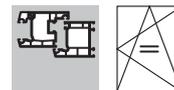
Installation drawings **15**

activPilot Comfort PADM **16**

activPilot Comfort PADS **17**

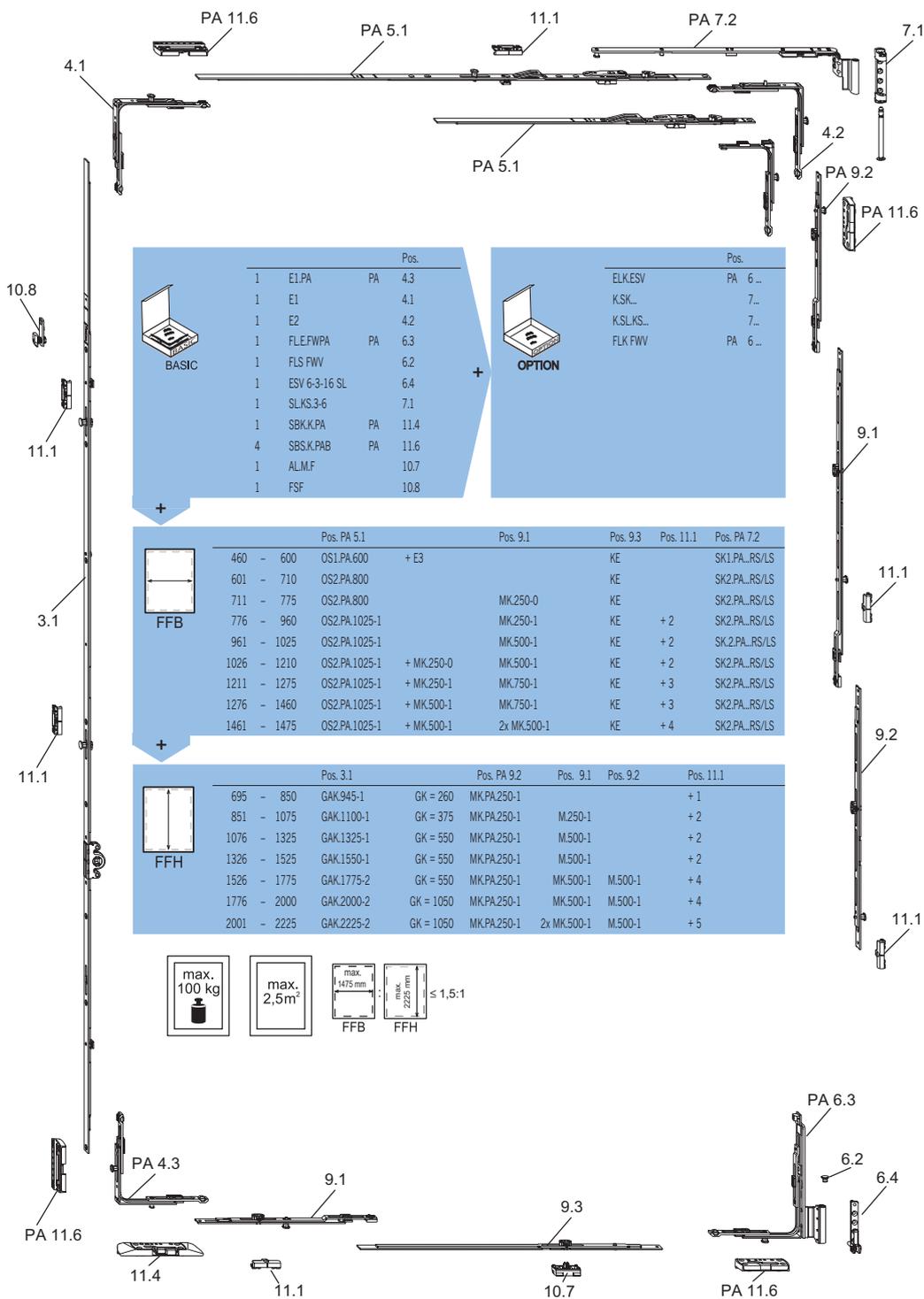
activPilot Comfort PAD **18**

Turn-tilt fitting – constant handle position



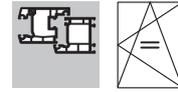
Basic equipment

activPilot Comfort PADK

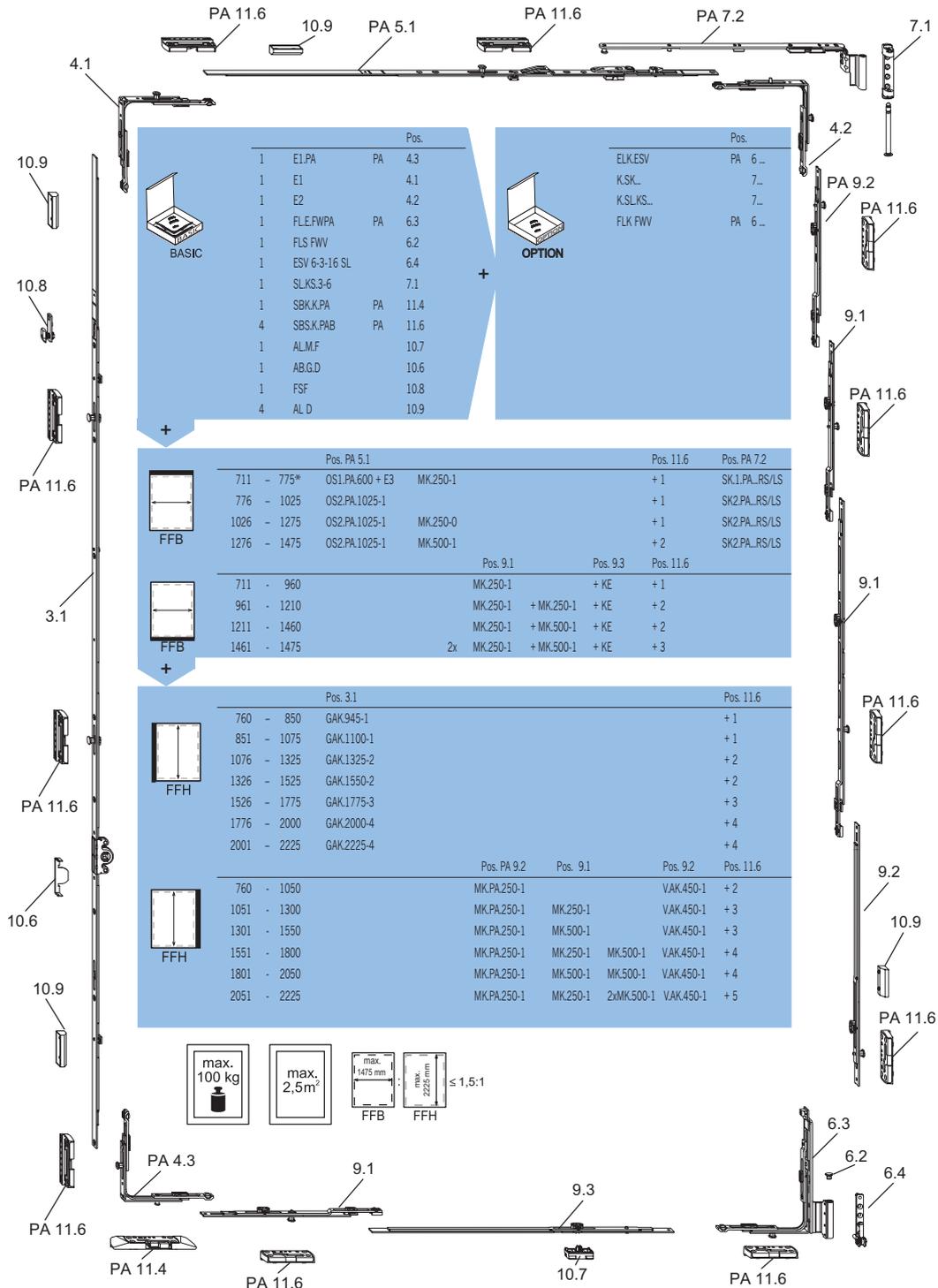


The components marked PA are intended for activPilot Comfort PADK fittings.

Turn-tilt fitting – constant handle position



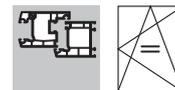
Suitable for RC 2 burglary-resistant windows
 activPilot Comfort PADK



The components marked PA are intended for activPilot Comfort PADK fittings.
 * Only suitable for FFH (sash rebate height) of at least 1076 mm
 For RC 2 please observe the profile-related fitting configuration of the system tests.

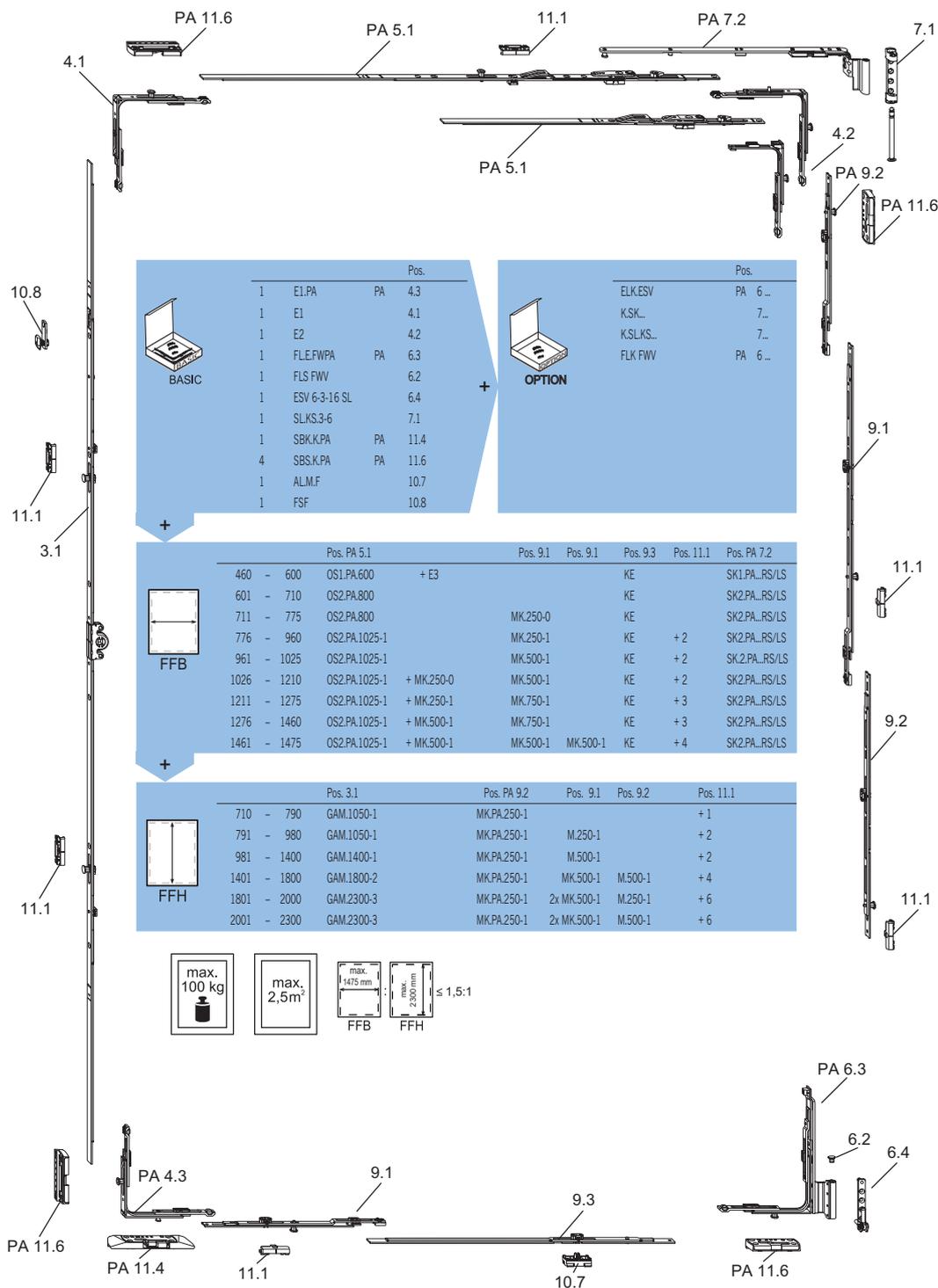
- 1 General product information
- 2 Lists of Fittings
- 3 Drive rods
- 4 Corner drives
- 5 Top rods
- 6 Sash hinges/ Corner hinges
- 7 Shears/ Shear hinges
- 8 Turn hinges/ Tilt hinges
- 9 Extension rods
- 10 Accessories
- 11 Frame parts
- 12 Mounting accessories
- 13 Mounting Instructions
- 14 Adjustment/ maintenance
- 15 Installation drawings
- 16 activPilot Comfort PADM
- 17 activPilot Comfort PADS
- 18 activPilot Comfort PAD

Turn-tilt fitting – central handle position



Basic equipment

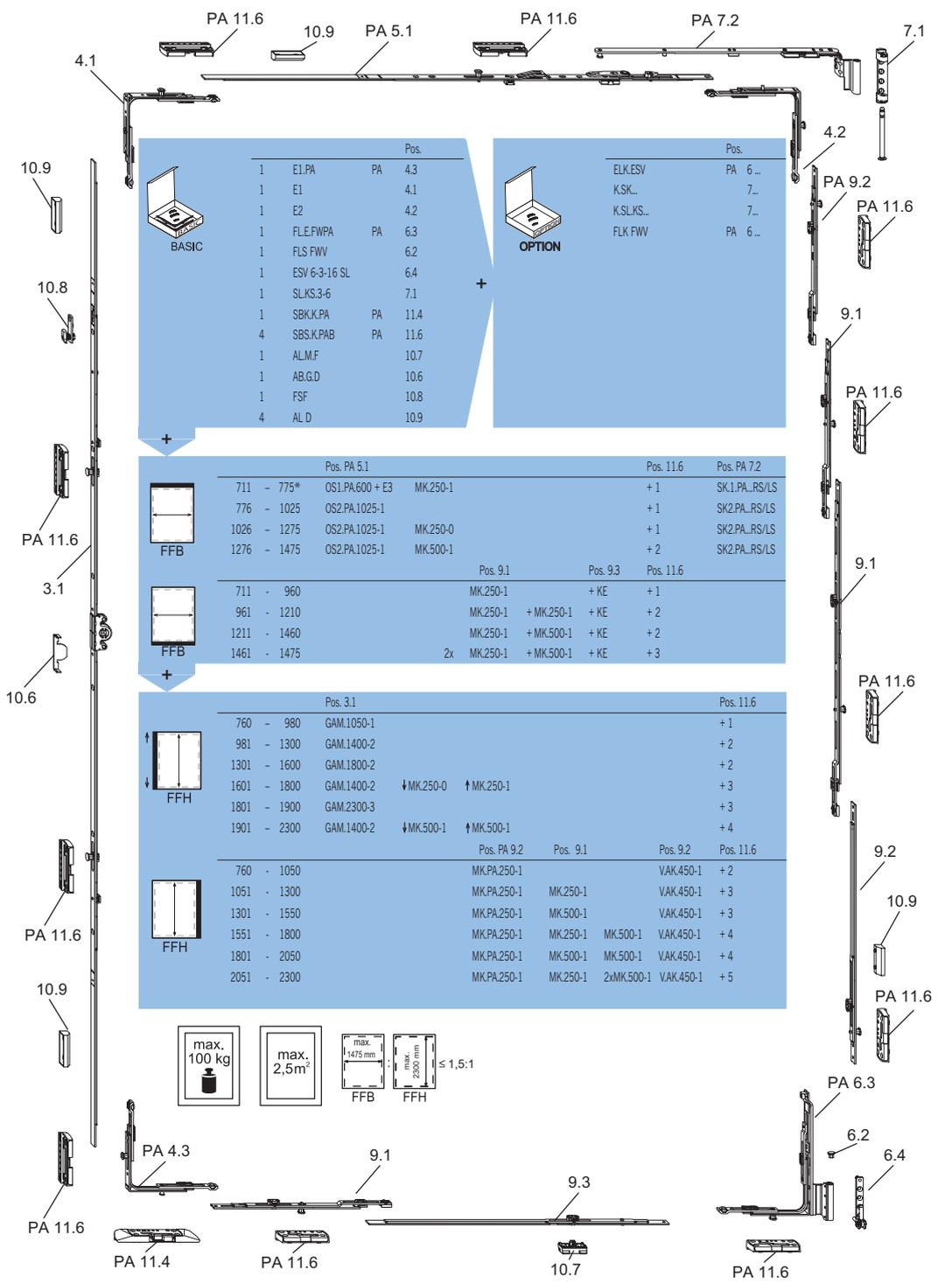
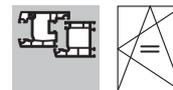
activPilot Comfort PADK



The components marked PA are intended for activPilot Comfort PADK fittings.

Turn-tilt fitting – central handle position

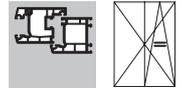
Suitable for RC 2 burglary-resistant windows
 activPilot Comfort PADK



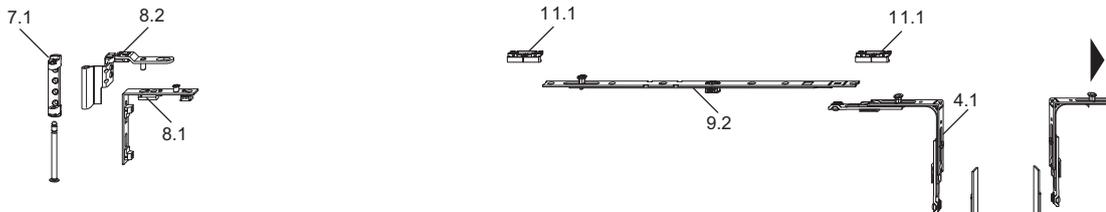
The components marked PA are intended for activPilot Comfort PADK fittings.
 * Only suitable for FFH (sash rebate height) of at least 1076 mm
 For RC 2 please observe the profile-related fitting configuration of the system tests.

General product information	1
Lists of Fittings	2
Drive rods	3
Corner drives	4
Top rods	5
Sash hinges/ Corner hinges	6
Shears/ Shear hinges	7
Turn hinges/ Tilt hinges	8
Extension rods	9
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activPilot Comfort PADS	17
activPilot Comfort PAD	18

Turn double sash fitting – constant handle position



Basic equipment for PADK windows with parallel action activPilot Comfort PADK

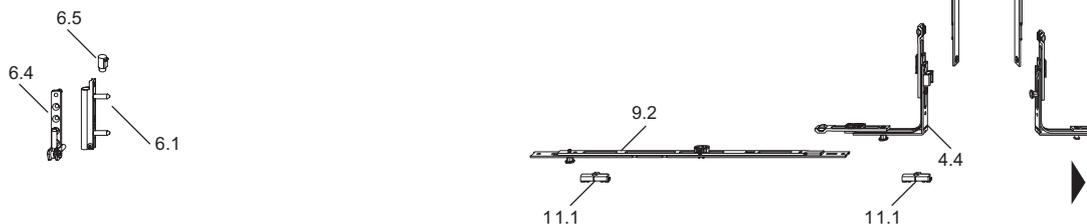
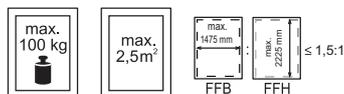


BASIC			OPTION		
		Pos.			Pos.
1	EI	4.1	K.SK ...		7 ...
1	E1.SBS.U	4.4	K.SL.KS ...		7 ...
1	FK ...	6.1	ELK ESV		6 ...
1	S.FK	6.5	K.FK		6 ...
1	ESV 6-3-16	6.4			
1	SL/KS.3-6	7.1			
1	DLW ERW	8.1			
1	DLK	8.2			
2	SBAK.L	11.1			



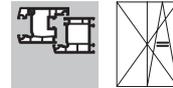
		Pos. 9.1	Pos. 9.2	Pos. 11.1
FFB	280 - 700			
	701 - 1200	2 x	M.500-1	+ 2
	1201 - 1450	2 x	M.750-1	+ 2
	1451 - 1725	2 x	MK.750-1	2x M.500-1 + 4

		Pos. 3.1	Pos. 9.3	Pos. 11.4
FFH	695 - 850	GASK.945-1	1 x ZV-FT	+ ZV-RT.
	851 - 1075	GASK.1100-1	1 x ZV-FT	+ ZV-RT.
	1076 - 1325	GASK.1325-1	1 x ZV-FT	+ ZV-RT.
	1326 - 1525	GASK.1550-1	1 x ZV-FT	+ ZV-RT.
	1526 - 1775	GASK.1775-2	2 x ZV-FT	+ ZV-RT.
	1776 - 2000	GASK.2000-2	2 x ZV-FT	+ ZV-RT.
	2001 - 2225	GASK.2225-2	2 x ZV-FT	+ ZV-RT.

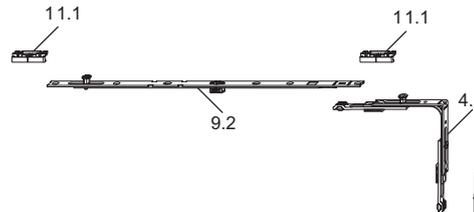
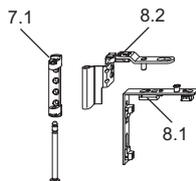


The components marked PA are intended for activPilot Comfort PADK fittings.
This fitting equipment is not able to satisfy RC2 requirements.

Turn double-sash fitting – central handle position



Basic equipment for PADK windows with parallel action activPilot Comfort PADK

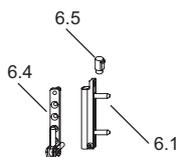
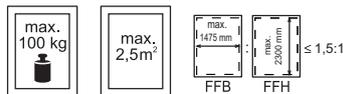


BASIC			OPTION		
		Pos.			Pos.
1	E1	4.1	KSK...		7...
1	E1.SBS.U	4.4	K.SL.K.S...		7...
1	FK...	6.1	ELK.E.S.V		6...
1	S.F.K	6.5	K.F.K		6...
1	ESV 6-3-16	6.4			
1	SL.K.S.3-6	7.1			
1	DLW.ER.W	8.1			
1	DL.K	8.2			
2	S.B.A.K...	11.1			



		Pos. 9.1	Pos. 9.2	Pos. 11.1
280 - 700				
701 - 1200	2 x		M.500-1	+ 2
1201 - 1450	2 x		M.750-1	+ 2
1451 - 1725	2 x	MK.750-1	2x M.500-1	+ 4

	Pos. 3.1	Pos. 9.3	Pos. 11.4
710 - 980	GASM.1050.E3		
981 - 1400	GASM.1400-1	1 x ZV-FT	+ ZV-RT...
1401 - 1800	GASM.1800-2	2 x ZV-FT	+ ZV-RT...
1801 - 2300	GASM.2300-3	2 x ZV-FT	+ ZV-RT...



The components marked PA are intended for activPilot Comfort PADK fittings. This fitting equipment is not able to satisfy RC2 requirements.

1 General product information

2 Lists of Fittings

3 Drive rods

4 Corner drives

5 Top rods

6 Sash hinges/ Corner hinges

7 Shears/ Shear hinges

8 Turn hinges/ Tilt hinges

9 Extension rods

10 Accessories

11 Frame parts

12 Mounting accessories

13 Mounting Instructions

14 Adjustment/ maintenance

15 Installation drawings

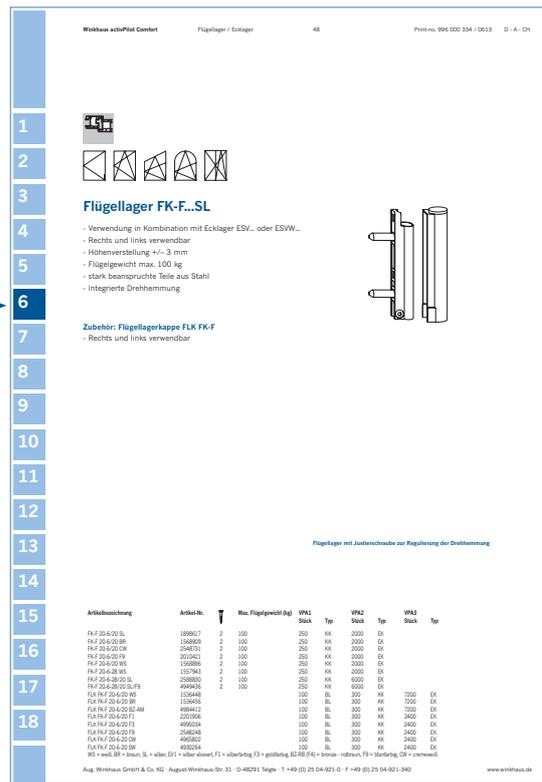
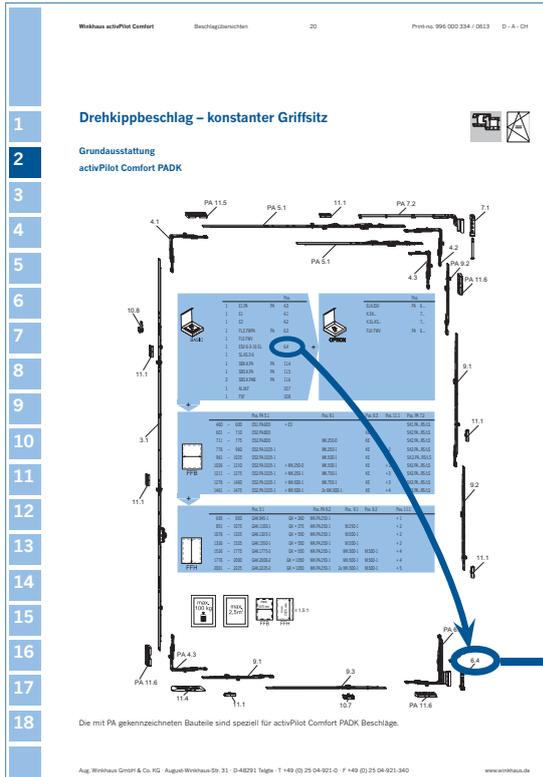
16 activPilot Comfort PADM

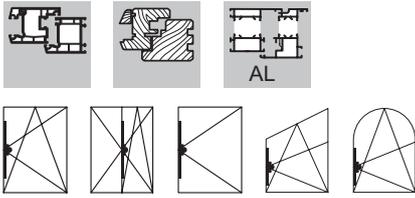
17 activPilot Comfort PADK

18 activPilot Comfort PAD

Quick orientation

Our register system allows you to quickly allocate the listed component to the item in the fitting overview drawing. The item number specifies the chapter number in which the component can be found.





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
- Useable left and right hand
- Safety locking pin as an adjustable octagonal bolt
- 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
- Central fastening as standard
- Turn position is the factory default
- Drive stroke approx. 37 mm with window handle rotation by 180°
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates

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	4	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		
GAK.2000-4.BK	4942671	FFH 1750 - 2000	8	1050	.	.	10	BD	360	L2		
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		
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		

General product
information 1

Lists of Fittings 2

Drive rods 3

Corner drives 4

Top rods 5

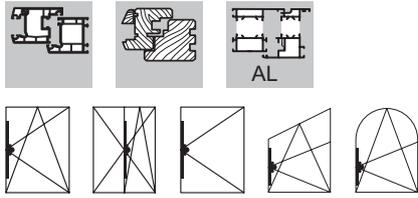
Sash hinges/
Corner hinges 6Shears/
Shear hinges 7Turn hinges/
Tilt hinges 8

Extension rods 9

Accessories 10

Frame parts 11

Mounting
accessories 12Mounting
Instructions 13Adjustment/
maintenance 14Installation
drawings 15activPilot
Comfort PADM 16activPilot
Comfort PADS 17activPilot
Comfort PAD 18



Drive rod GAK V < 700

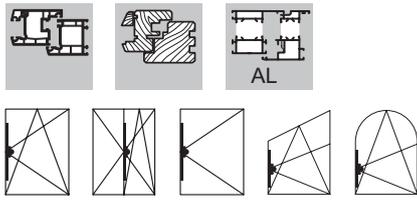
- Constant handle position GK
- Backset 15.5 mm
- Locking gap less than 700 mm (V < 700)
- Clampable in fitting groove
- Functional parts such as DFE and TFE retrofittable (see table), does not apply to activPilot Comfort
- Handle position with reference to the sash rebate edge, in conformity with "dimension GK" (see table)
- For drilling and milling instructions see Group 15 installation drawings B-3-1
- Useable left and right hand
- Safety locking pin as an adjustable octagonal bolt
- 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
- Central fastening as standard
- Turn position is the factory default
- Drive stroke approx. 37 mm with window handle rotation by 180°
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates

Drive rod GAK ... BK

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



Item description	Item No.	Scope of application		Dimension GK	DFE	TFE	VPA1 Qty.	Type	VPA2 Qty.	Type
GAK.830-1	4926231	FFH 580 - 830	2	260			20	BD	600	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.1195-2	4926237	FFH 945 - 1195	4	470	•	•	20	BD	360	EA
GAK.1325-2	4978670	FFH 1075 - 1325	4	550	•	•	20	BD	360	EA
GAK.1550-2	4926225	FFH 1300 - 1550	5	550	•	•	10	BD	360	L1
GAK.1775-3	4926229	FFH 1525 - 1775	7	550	•	•	10	BD	400	L1
GAK.2000-4	4938120	FFH 1750 - 2000	8	1050	•	•	10	BD	360	L2
GAK.2000-4.BK	4942671	FFH 1750 - 2000	8	1050	•	•	10	BD	360	L2
GAK.2225-4	4938123	FFH 1975 - 2225	9	1050	•	•	10	BD	360	L2
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

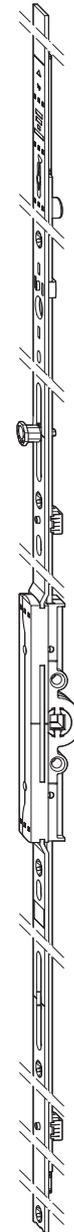


Drive rod GAK... D 7.5

- 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
- Useable left and right hand
- Safety locking pin as an adjustable octagonal bolt
- 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
- Central fastening as standard
- Turn position is the factory default
- Drive stroke approx. 37 mm with window handle rotation by 180°
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates

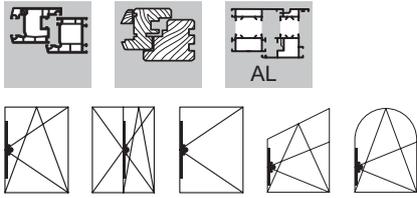
Drive rod GAK ... BK

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



Item description	Item No.	Scope of application	TFE	Dimension GK	DFE	VPA1 Qty.	Type	VPA2 Qty.	Type	VPA3 Qty.	Type
GAK.700.D7,5	4983049	FFH 530 - 700	2	260		20	BD	400	EA		
GAK.830-1.D7,5	4969431	FFH 580 - 830	2	260		20	BD	400	EA		
GAK.945-1.D7,5	4969430	FFH 695 - 945	3	260	•	20	BD	400	EA		
GAK.1100-1.D7,5	4969429	FFH 850 - 1100	3	375	•	20	BD	360	EA		
GAK.1195-1.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.1325-1.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	8	715	•	10	BD	360	L1		
GAK.2000-2.D7,5	4969415	FFH 1750 - 2000	8	1050	•	10	BD	360	L2	900	EU2
GAK.2000-2.D7,5.BK	4969413	FFH 1750 - 2000	8	1050	•	10	BD	360	L2		
GAK.2000-4.D7,5	4969412	FFH 1750 - 2000	8	1050	•	10	BD	360	L2		
GAK.2000-4.D7,5.BK	4969411	FFH 1750 - 2000	8	1050	•	10	BD	360	L2		
GAK.2225-2.D7,5	4969410	FFH 1975 - 2225	9	1050	•	10	BD	360	L2	900	EU2
GAK.2225-2.D7,5.BK	4969409	FFH 1975 - 2225	9	1050	•	10	BD	360	L2		
GAK.2225-4.D7,5	4969407	FFH 1975 - 2225	9	1050	•	10	BD	360	L2		
GAK.2225-4.D7,5.BK	4969406	FFH 1975 - 2225	9	1050	•	10	BD	360	L2		

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Drive rod

GAK ... D 7,5 V < 700

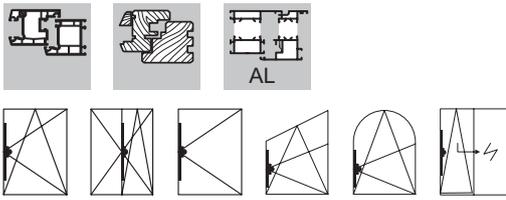
- Constant handle position GK
- Locking gap less than 700 mm ($V < 700$)
- Backset 7.5 mm
- Clampable in fitting groove
- Functional parts such as DFE and TFE retrofittable (see table), does not apply to activPilot Comfort
- Handle position with reference to the sash rebate edge, in conformity with "dimension GK" (see table)
- For drilling and milling instructions see Group 15 installation drawings B-3-2
- Useable left and right hand
- Safety locking pin as an adjustable octagonal bolt
- 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
- Central fastening as standard
- Turn position is the factory default
- Drive stroke approx. 37 mm with window handle rotation by 180°
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates

Drive rod GAK ... BK

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

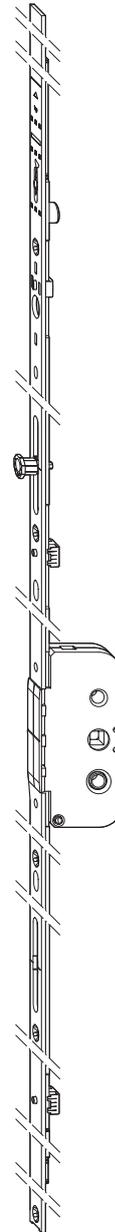


Item description	Item No.	Scope of application		TFE	Dimension GK	DFE	VPA1 Qty.	Type	VPA2 Qty.	Type
GAK.830-1.D7,5	4969431	FFH 580 - 830	2		260		20	BD	400	EA
GAK.945-1.D7,5	4969430	FFH 695 - 945	3	•	260	•	20	BD	400	EA
GAK.1100-1.D7,5	4969429	FFH 850 - 1100	3	•	375	•	20	BD	360	EA
GAK.1195-2.D7,5	4980490	FFH 945 - 1195	4	•	470	•	20	BD	360	EA
GAK.1325-2.D7,5	4969426	FFH 1075 - 1325	4	•	550	•	20	BD	360	EA
GAK.1550-2.D7,5	4969424	FFH 1300 - 1550	5	•	550	•	10	BD	400	L1
GAK.1775-3.D7,5	4969422	FFH 1525 - 1775	7	•	550	•	10	BD	400	L1
GAK.2000-4.D7,5	4969412	FFH 1750 - 2000	8	•	1050	•	10	BD	360	L2
GAK.2000-4.D7,5.BK	4969411	FFH 1750 - 2000	8	•	1050	•	10	BD	360	L2
GAK.2225-4.D7,5	4969407	FFH 1975 - 2225	9	•	1050	•	10	BD	360	L2
GAK.2225-4.D7,5.BK	4969406	FFH 1975 - 2225	9	•	1050	•	10	BD	360	L2



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
- Useable left and right hand
- Safety locking pin as an adjustable octagonal bolt
- Gear case for milling from rebate
- Fasten the window handle attachment with M5 x ..., DIN 965, 43 mm screw centres
- Central fastening as standard
- Turn position is the factory default
- Drive stroke approx. 37 mm with window handle rotation by 180°
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates



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		
GAK.2000-4.D30	4938150	FFH 1750 - 2000	8	1050	•	•	10	BD	200	L2		
GAK.2000-4.D35	4938151	FFH 1750 - 2000	8	1050	•	•	10	BD	200	L2		
GAK.2000-4.D40	4938152	FFH 1750 - 2000	8	1050	•	•	10	BD	200	L2		
GAK.2000-4.D45	4938153	FFH 1750 - 2000	8	1050	•	•	10	BD	200	L2		
GAK.2000-4.D50	4938154	FFH 1750 - 2000	8	1050	•	•	10	BD	200	L2		
GAK.2225-4.D25	4938145	FFH 1975 - 2225	9	1050	•	•	10	BD	200	L2		
GAK.2225-4.D30	4938146	FFH 1975 - 2225	9	1050	•	•	10	BD	200	L2		
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		
GAK.2225-4.D45	4938149	FFH 1975 - 2225	9	1050	•	•	10	BD	200	L2		
GAK.2225-4.D50	4938160	FFH 1975 - 2225	9	1050	•	•	10	BD	200	L2		

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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
- Central fastening as standard
- Useable left and right hand
- Turn position is the factory default
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates



Item description	Item No.	Scope of application		VPA1 Qty.	Type	VPA2 Qty.	Type	VPA3 Qty.	Type
GASK.710	4927021	FFH 550 - 710	1	10	BD	400	EA		
GASK.830-1	4927023	FFH 580 - 830	2	10	BD	400	EA		
GASK.945-1	4933702	FFH 695 - 945	2	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	8	10	BD	400	L2	900	EU2
GASK.2000-4	4933722	FFH 1750 - 2000	8	10	BD	400	L2		
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		



Double sash drive rod GASK V < 700

- For constant handle position, in case of opposite fitting groove
- Locking gap less than 700 mm ($V < 700$)
- 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
- Central fastening as standard
- Useable left and right hand
- Turn position is the factory default
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates



Item description	Item No.	Scope of application		VPA1 Qty.	Type	VPA2 Qty.	Type
GASK.830-1	4927023	FFH 580 - 830	2	10	BD	400	EA
GASK.945-1	4933702	FFH 695 - 945	2	10	BD	400	EA
GASK.1100-1	4933703	FFH 850 - 1100	4	10	BD	400	EA
GASK.1325-2	4933706	FFH 1075 - 1325	5	10	BD	400	EA
GASK.1550-2	4933708	FFH 1300 - 1550	6	10	BD	400	L1
GASK.1775-3	4933720	FFH 1525 - 1775	7	10	BD	400	L1
GASK.2000-4	4933722	FFH 1750 - 2000	8	10	BD	400	L2
GASK.2225-4	4933724	FFH 1975 - 2225	9	10	BD	400	L2

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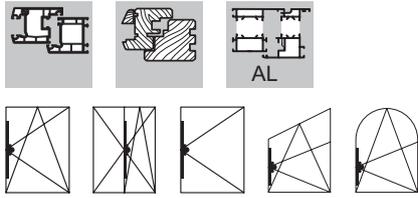
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Drive rod GAM

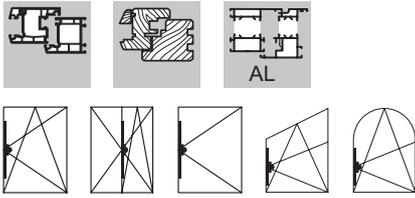
- Central handle position
- Backset 15.5 mm
- Clampable in fitting groove
- Functional parts such as DFE and TFE retrofittable (see table), does not apply to activPilot Comfort
- For drilling and milling instructions see Group 15 installation drawings B-3-1
- Useable left and right hand
- Safety locking pin as an adjustable octagonal bolt
- 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
- Central fastening as standard
- Turn position is the factory default
- Drive stroke approx. 37 mm with window handle rotation by 180°
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates

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		TFE	DFE	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	8	•	•	10	BD	360	L2
GAM.2300-3	4938163	FFH 1800 - 2300	8	•	•	10	BD	360	L2
GAM.2300-3.BK	4942674	FFH 1800 - 2300	8		•	10	BD	360	L2

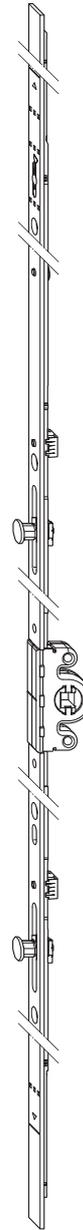


Drive rod GAM V < 700

- Central handle position
- Backset 15,5 mm
- Locking gap less than 700 mm ($V < 700$)
- 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
- Useable left and right hand
- Safety locking pin as an adjustable octagonal bolt
- 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
- Central fastening as standard
- Turn position is the factory default
- Drive stroke approx. 37 mm with window handle rotation by 180°
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates

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		TFE	DFE	VPA1		VPA2	
						Qty.	Type	Qty.	Type
GAM.1400-2	4926292	FFH 900 - 1400	4	•	•	20	BD	360	L1
GAM.1800-2	4926295	FFH 1300 - 1800	6	•	•	10	BD	360	L1
GAM.2300-3	4938163	FFH 1800 - 2300	8	•	•	10	BD	360	L2
GAM.2300-3.BK	4942674	FFH 1800 - 2300	8		•	10	BD	360	L2

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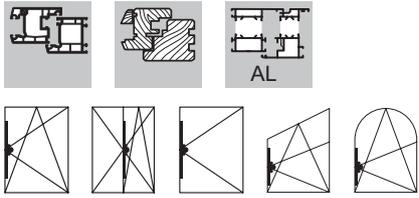
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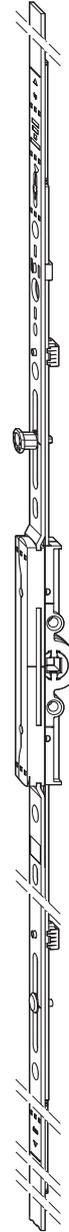
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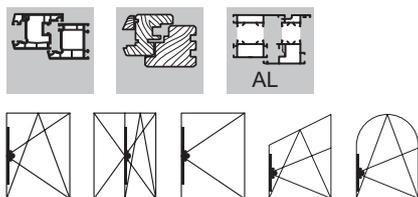


Drive rod GAM ... D 7.5

- 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
- Useable left and right hand
- Safety locking pin as an adjustable octagonal bolt
- 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
- Central fastening as standard
- Turn position is the factory default
- Drive stroke approx. 37 mm with window handle rotation by 180°
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates



Item description	Item No.	Scope of application	🔩	DFE	TFE	VPA1		VPA2		VPA3	
						Qty.	Type	Qty.	Type	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	8	•	•	10	BD	360	L2	900	EU2



Drive rod

GAM ... D 7,5 V < 700

- Central handle position
- Backset 7.5 mm
- Locking gap less than 700 mm ($V < 700$)
- 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
- Useable left and right hand
- Safety locking pin as an adjustable octagonal bolt
- 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
- Central fastening as standard
- Turn position is the factory default
- Drive stroke approx. 37 mm with window handle rotation by 180°
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates



Item description	Item No.	Scope of application		DFE	TFE	VPA1 Qty.	Type	VPA2 Qty.	Type	VPA3 Qty.	Type
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	8	•	•	10	BD	360	L2	900	EU2

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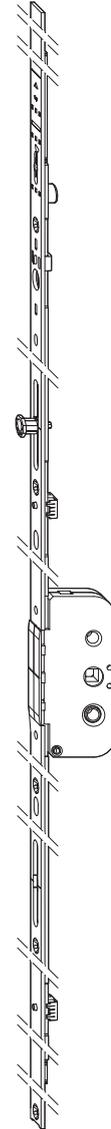
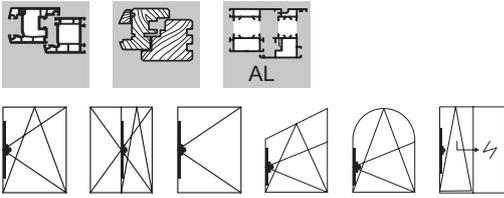
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Drive rod GAM ... D25 - 50

- 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
- Useable left and right hand
- Safety locking pin as an adjustable octagonal bolt
- Gear case for milling from rebate
- Central fastening as standard
- Turn position is the factory default
- Drive stroke approx. 37 mm with window handle rotation by 180°
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates

Item description	Item No.	Scope of application	🔩	DFE	TFE	VPA1		VPA2		VPA3	
						Qty.	Type	Qty.	Type	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.1050-1.D25	4941081	FFH 710 - 1050	2	.	.	10	BD	200	EA		
GAM.1050-1.D30	4941082	FFH 710 - 1050	2	.	.	10	BD	200	EA		
GAM.1400-1.D25	4927159	FFH 900 - 1400	4	.	.	10	BD	200	L1		
GAM.1400-1.D30	4927171	FFH 900 - 1400	4	.	.	10	BD	200	L1		
GAM.1400-1.D35	4927172	FFH 900 - 1400	4	.	.	10	BD	200	L1		
GAM.1400-1.D40	4927173	FFH 900 - 1400	4	.	.	10	BD	200	L1		
GAM.1400-1.D45	4927174	FFH 900 - 1400	4	.	.	10	BD	200	L1		
GAM.1400-1.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.1400-2.D50	4933318	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.1800-2.D50	4933344	FFH 1300 - 1800	6	.	.	10	BD	200	L1		
GAM.2300-3.D25	4938167	FFH 1800 - 2300	8	.	.	10	BD	200	L2	900	EU2
GAM.2300-3.D30	4938168	FFH 1800 - 2300	8	.	.	10	BD	200	L2		
GAM.2300-3.D35	4938169	FFH 1800 - 2300	8	.	.	10	BD	200	L2		
GAM.2300-3.D40	4936028	FFH 1800 - 2300	8	.	.	10	BD	200	L2		
GAM.2300-3.D45	4938170	FFH 1800 - 2300	8	.	.	10	BD	200	L2		
GAM.2300-3.D45	4938427	FFH 1800 - 2300	8	.	.	10	BD	200	L2		
GAM.2300-3.D50	4938428	FFH 1800 - 2300	8	.	.	10	BD	200	L2	900	EU2

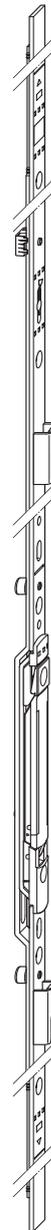


Double sash drive rod GASM

- 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!)
- Central fastening as standard
- Useable left and right hand
- Turn position is the factory default
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates

Double-sash drive rod GASM ... L

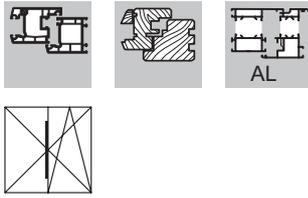
- As described above, but with long lever



Item description	Item No.	Scope of application		VPA1 Qty.	Type	VPA2 Qty.	Type	VPA3 Qty.	Type
GASM.800	4927112	FFH 560 - 800	2	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.1400-1.L	4933669	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	6	10	BD	400	L1		
GASM.2300-3	4933701	FFH 1800 - 2300	8	10	BD	400	L2	900	EU2

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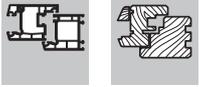


Double sash drive rod GASM V < 700

- Central handle position with opposing eurogroove
- Locking gap less than 700 mm (V < 700)
- 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
- Adapters for functional parts DFE and TFE can be fitted to security keeps – from GASM.1050-1 onwards (not applicable to activPilot Comfort!)
- Central fastening as standard
- Useable left and right hand
- Turn position is the factory default
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates



Item description	Item No.	Scope of application		VPA1 Qty.	Type	VPA2 Qty.	Type	VPA3 Qty.	Type
GASM.1400-2	4933668	FFH 900 - 1400	5	10	BD	400	L1		
GASM.1800-2	4933700	FFH 1300 - 1800	6	10	BD	400	L1		
GASM.2300-3	4933701	FFH 1800 - 2300	8	10	BD	400	L2	900	EU2



Corner drive E1

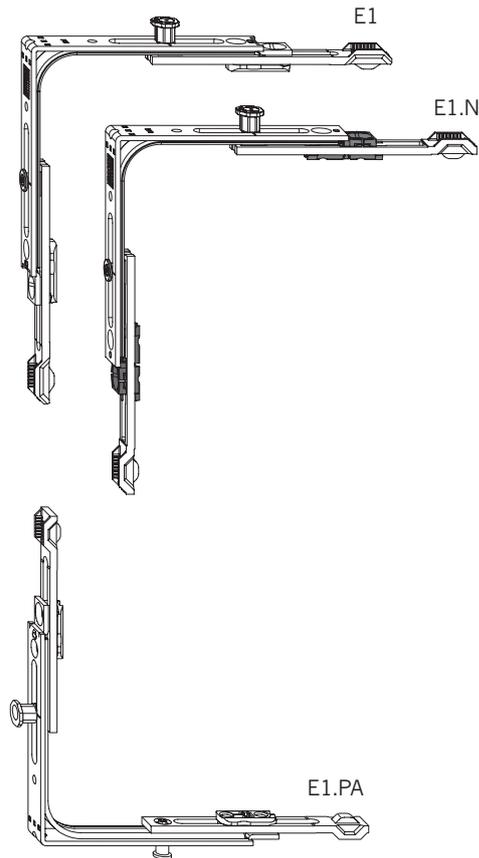
- Useable left and right hand
- Bracket length 98.5 mm
- Safety locking pin as an adjustable octagonal bolt
- Automatic and manual assembly possible
- Smooth operation, due to rust-free spring steel hinges inserted in C-rail
- Central fastening as standard
- Turn position is the factory default
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates

Corner drive E1.PA

- See above
- Separate positioning plug for adjusting the SBK...PA tilt keep

Corner drive E1.N

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



Item description	Item No.	 Qty.	VPA1 Qty.	Type	VPA2 Qty.	Type
E1	2841823	4	100	KK	2400	EK
E1.PA	4966485	4	100	KK	2400	EK
E1.N	5019146	4	100	KK	2400	EK

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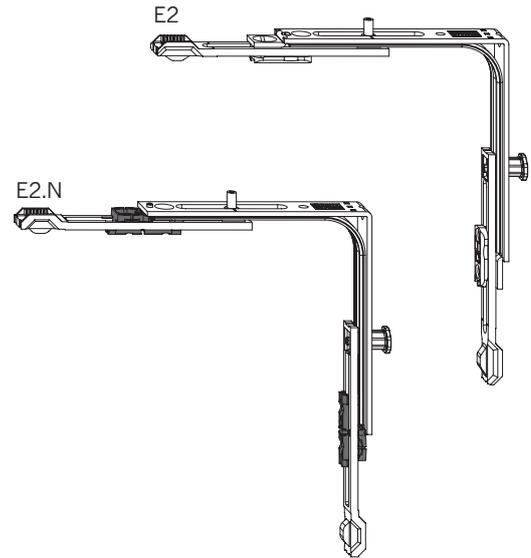
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Corner drive E2

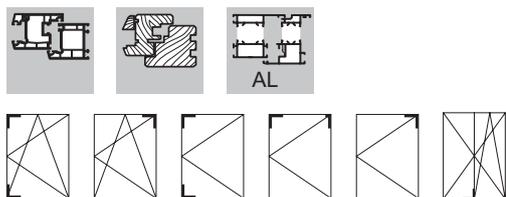
- Coupled with OS2 on the hinge side
- Useable left and right hand
- Bracket length 98.5 mm
- Safety locking pin as an adjustable octagonal bolt
- Automatic and manual assembly possible
- Smooth operation, due to rust-free spring steel hinges inserted in C-rail
- Central fastening as standard
- Turn position is the factory default
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates



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



Corner drive E3

- Useable left and right hand
- Bracket length 98.5 mm (on one side)
- With shortened bracket on one side
- Safety locking pin as an adjustable octagonal bolt
- Automatic and manual assembly possible
- Smooth operation, due to rust-free spring steel hinges inserted in C-rail
- Central fastening as standard
- Turn position is the factory default
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates
- 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

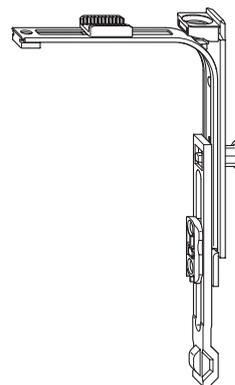
- Same design as E3, but clampable in the fitting groove

Corner drive E3.L

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

Corner drive E3.F.L

- Same design as E3.L, but clampable



Item description	Item No.		VPA1		VPA2	
			Qty.	Type	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.F.L	5009086	3	100	KK	2400	EK

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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
- Useable left and right hand
- Bracket length 98.5 mm
- Safety locking pin as an adjustable octagonal bolt
- Automatic and manual assembly possible
- Smooth operation, due to rust-free spring steel hinges inserted in C-rail
- Central fastening as standard
- Turn position is the factory default
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates

Corner drive E1.SBS.O

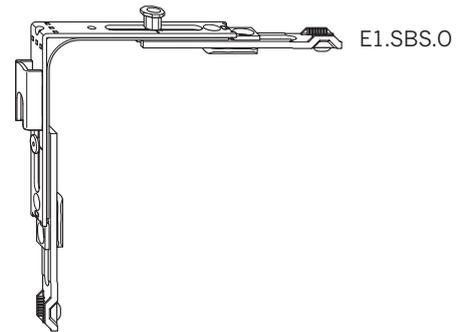
- For installation into the inactive sash (top area)

Corner drive E1.SBS.U

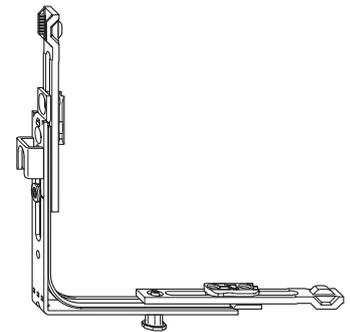
- For installation into the inactive sash (bottom area)

Corner drive E1.SBS...F

- Clampable design

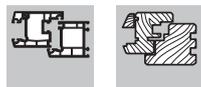


E1.SBS.O



E1.SBS.U

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



Top rod OS1.PA.600

- In combination with shears SK1.PA...
- After assembly the top rod and the shear are firmly attached to one another
- Clampable in fitting groove
- Useable left and right hand
- Central fastening as standard
- Turn position is the factory default
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates
- Integrated anti-slam block in tilt position as standard
- OS1.PA.600 is always combined with an E3 corner drive on the hinge side



Top rod OS2.PA...

- In combination with shears SK2.PA
- OS2 ... is used in combination with E2 on the hinge side
- Progressive shear retraction: adjustable from 18 to 25 mm



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.PA.600	4965080	FFB 460 - 600	1	20	BD	800	EA
OS2.PA.800	4965081	FFB 601 - 800	2	20	BD	800	EA
OS2.PA.1025-1	4965082	FFB 801 - 1025	3	20	BD	500	EA

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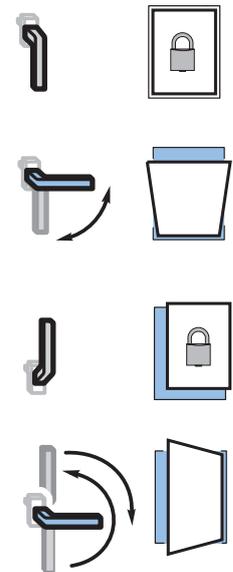
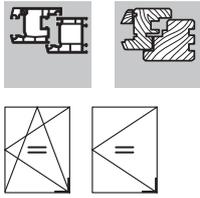
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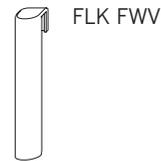
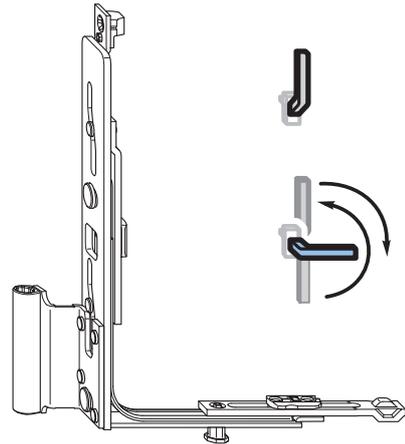


Sash hinge FL.E.FWPA.20...

- Height adjustment +/- 3 mm
- Sash weight max. 100 kg
- Central fastening as standard
- Turn position is the factory default
- Overlapping system linkage without connecting plates
- In combination with corner hinge ESV / EL.HW.PA
- Parallel action possible via the control curve

Sash hinge cover FLK FWW

Sash hinge plug FLS FWW



Item description	Item No.		Max. sash weight (kg)	Overlap	Groove centre position	VPA1 Qty.	Type	VPA2 Qty.	Type	VPA3 Qty.	Type
FL.E.FWPA.20-13.LS	5007300	4	100	20	13	50	GK	200	EK		
FL.E.FWPA.20-13.RS	5007306	4	100	20	13	50	GK	200	EK		
FL.E.FWPA.20-13.LS.F9	5007303	4	100	20	13	50	GK	200	EK		
FL.E.FWPA.20-13.RS.F9	5007308	4	100	20	13	50	GK	200	EK		
FL.E.FWPA.20-13.LS.WS	5007305	4	100	20	13	50	GK	200	EK		
FL.E.FWPA.20-13.RS.WS	5007309	4	100	20	13	50	GK	200	EK		
FLK FWW LS WS	2301624					100	BL	300	KK	2400	EK
FLK FWW RS WS	2301616					100	BL	300	KK	2400	EK
FLK FWW LS BR	2301608					100	BL	300	KK	2400	EK
FLK FWW RS BR	2301595					100	BL	300	KK	2400	EK
FLK FWW LS BZ-AM	4984413					100	BL	300	KK	2400	EK
FLK FWW RS BZ-AM	4984414					100	BL	300	KK	2400	EK
FLK FWW LS F1	2394154					100	BL	300	KK	2400	EK
FLK FWW RS F1	2394162					100	BL	300	KK	2400	EK
FLK FWW LS F3	4995003					100	BL	300	KK	2400	EK
FLK FWW RS F3	4995001					100	BL	300	KK	2400	EK
FLK FWW LS F9	2854798					100	BL	300	KK	2400	EK
FLK FWW RS F9	2854801					100	BL	300	KK	2400	EK
FLK FWW LS CW	4997445					100	BL	300	KK	2400	EK
FLK FWW RS CW	4997441					100	BL	300	KK	2400	EK
FLK FWW LS SW	1260457					100	BL	300	KK	2400	EK
FLK FWW RS SW	1260458					100	BL	300	KK	2400	EK
FLS FWW WS	1521617					500	BL	5000	KK	40000	EK
FLS FWW SL	1993420					500	BL	5000	KK	40000	EK
FLS FWW F9	2854819					500	BL	5000	KK	40000	EK
FLS FWW BR	1521625					500	BL	5000	KK	40000	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



Sash hinge FK...SL

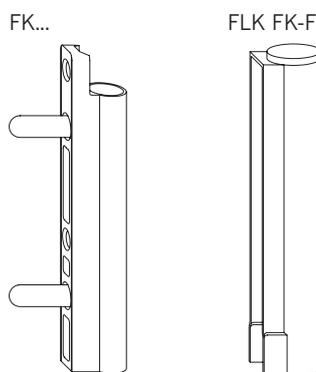
- Useable left and right hand
- Height adjustment +/- 3 mm
- Load bearing parts are made of steel
- Sash weight max. 100 kg

Accessories: Sash hinge covers FLK FK-F

- Useable left and right hand

Accessory: sash hinge plug FLS FK

- Useable left and right hand



Item description	Item No.		Max. sash weight (kg)	Overlap	VPA1		VPA2		VPA3	
					Qty.	Type	Qty.	Type	Qty.	Type
FK 20-6/20 SL	1901214	2	100	20	250	KK	6000	EK		
FK 20-6/20 BR	1557302	2	100	20	250	KK	6000	EK		
FK 20-6/20 WS	1557290	2	100	20	250	KK	6000	EK		
FLK FK-F 20-6/20 WS	1536448				100	BL	300	KK	7200	EK
FLK FK-F 20-6/20 BR	1536456				100	BL	300	KK	7200	EK
FLS FK BR	1507111				500	BL	3000	KK	72000	EK
FLS FK F9	2010632				500	BL	3000	KK	24000	EK
FLS FK WS	1507102				500	BL	3000	KK	72000	EK

Shear hinge caps also available in F1 and F2 colour tones
WS = white, BR = brown, SL = silver

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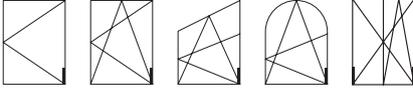
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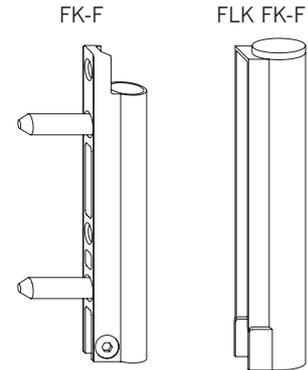


Sash hinge FK-F

- Used in combination with corner hinges ESV... or ESVW...
- Useable left and right hand
- Height adjustment +/- 3 mm
- Sash weight max. 100 kg
- Load bearing parts are made of steel
- Integrated friction turn control

Accessories: Sash hinge covers FLK FK-F

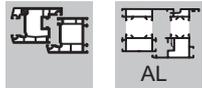
- Useable left and right hand



Sash hinge with adjustment screw for regulating the friction turn control

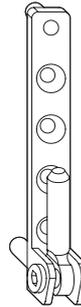
Item description	Item No.		Max. sash weight (kg)	VPA1 Qty.	Type	VPA2 Qty.	Type	VPA3 Qty.	Type
FK-F 20-6/20 SL	1898617	2	100	250	KK	2000	EK		
FK-F 20-6/20 BR	1568909	2	100	250	KK	2000	EK		
FK-F 20-6/20 CW	2548731	2	100	250	KK	2000	EK		
FK-F 20-6/20 F9	2010421	2	100	250	KK	2000	EK		
FK-F 20-6/20 WS	1568896	2	100	250	KK	2000	EK		
FK-F 20-6-28 WS	1557943	2	100	250	KK	2000	EK		
FK-F 20-6-28/20 SL	2588830	2	100	250	KK	6000	EK		
FK-F 20-6-28/20 SL/F9	4949436	2	100	250	KK	6000	EK		
FLK FK-F 20-6/20 WS	1536448			100	BL	300	KK	7200	EK
FLK FK-F 20-6/20 BR	1536456			100	BL	300	KK	7200	EK
FLK FK-F 20-6/20 BZ-AM	4984412			100	BL	300	KK	7200	EK
FLK FK-F 20-6/20 F1	2201906			100	BL	300	KK	2400	EK
FLK FK-F 20-6/20 F3	4995034			100	BL	300	KK	2400	EK
FLK FK-F 20-6/20 F9	2548248			100	BL	300	KK	2400	EK
FLK FK-F 20-6-20 CW	4965802			100	BL	300	KK	2400	EK
FLK FK-F 20-6-20 SW	4930264			100	BL	300	KK	2400	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



Corner hinge ESV

- Used in combination with sash hinges FL.K.20-6-28.130, FWV..., FL.E...PA.. or FK-F...
- Useable left and right hand
- ESV corner hinge with symmetrical drilling pattern, according to shear hinge SL.KS.3-6
- Corner hinge/shear hinge drilling possible on loose pieces
- Side adjustment ± 2 mm
- Max. sash weight 100 kg; 130 kg on request (ESV 6-3-16)
- In case of sash overlap of 20 mm: corner hinge and cap flush with the lower edge of the sash
- For drill and screw templates see group 15, installation drawings B-6-3



Corner hinge cap ELK ESV

- Useable left and right hand

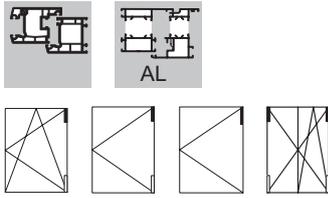


Important for PVC-U windows:

- For sashes weighing more than 100 kg all 4 fixing screws of corner and shear hinges must be screwed into place in the steel reinforcement.

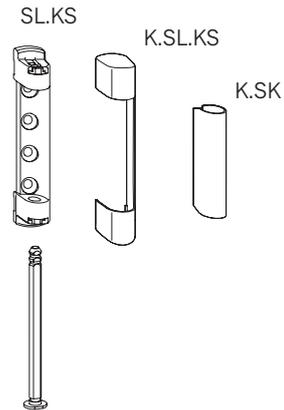
Item description	Item No.		Max. sash weight (kg)	VPA1 Qty.	VPA2		VPA3	
					Type	Qty.	Type	Qty.
ESV 3-3-3 SL	1939503	4	100	400	KK	3200	EK	
ESV 3-3-3 SL/BR	1934711	4	100	400	KK	3200	EK	
ESV 3-3-3 SL/WS	2067604	4	100	400	KK	3200	EK	
ESV 6-3-3 SL	1846551	4	100	400	KK	3200	EK	
ESV 6-3-3 SL/BR	2071267	4	100	400	KK	3200	EK	
ESV 6-3-3 SL/F9	4983321	4	100	400	KK	3200	EK	
ESV 6-3-3 SL/WS	2071283	4	100	400	KK	3200	EK	
ESV 6-3-10 SL	2595571	4	100	400	KK	9600	EK	
ESV 6-3-10 SL/BR	2595562	4	100	400	KK	3200	EK	
ESV 6-3-10 SL/F9	4949435	4	100	400	KK	9600	EK	
ESV 6-3-10 SL/WS	2583975	4	100	400	KK	3200	EK	
ESV 6-3-16 SL	1898609	4	100/130	400	KK	9600	EK	
ESV 6-3-16 SL/BR	1930488	4	100/130	400	KK	9600	EK	
ESV 6-3-16 SL/CW	2548707	4	100/130	400	KK	3200	EK	
ESV 6-3-16 SL/F9	2010481	4	100/130	400	KK	9600	EK	
ESV 6-3-16 SL/WS	1930470	4	100/130	400	KK	9600	EK	
ESV 6-16-16 SL/BR	2051346	4	100/130	400	KK	3200	EK	
ESV 6-16-16 SL/WS	2051274	4	100/130	400	KK	3200	EK	
ELK ESV WS	4990509			200	BL	2000	KK	48000 EK
ELK ESV BR	4990531			200	BL	2000	KK	16000 EK
ELK ESV BZ-AM	4990539			100	BL	1000	KK	8000 EK
ELK ESV BZ-RB	4990590			100	BL	1000	KK	8000 EK
ELK ESV CW	4990533			100	BL	1000	KK	8000 EK
ELK ESV F1	4990535			100	BL	1000	KK	8000 EK
ELK ESV F3	4995111			100	BL	1000	KK	8000 EK
ELK ESV F3-MG	4990537			100	BL	1000	KK	8000 EK
ELK ESV F9	4990530			100	BL	1000	KK	8000 EK
ELK ESV SW	4990538			200	BL	2000	KK	16000 EK
ELK ESV LBR	4990532			100	BL	1000	KK	8000 EK
ELK ESV PW	5002833			100	BL	300	KK	2400 EK
ELK ESV LGR	5002840			100	BL	300	KK	2400 EK
ELK ESV F1-ELOX.	5021122			100	BL	1000	K3	8000 E3

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Shear hinge SL.KS

- Shear hinge SL.KS with symmetrical drill holes, corresponding to corner hinge EL.K / ESV
- Patented shear hinge pin protection
- Shear hinge and cover flush with upper edge of sash (for 20 mm sash overlap)
- With anti-twist protection of shear hinge pin
- Shear hinge/corner hinge drilling possible on unwelded profile pieces
- SL.KS shear hinge for sash weights up to 100 kg
- For drill and screw templates, see Group 15, installation drawings B-7-1



Shear hinge cap K.SL.KS

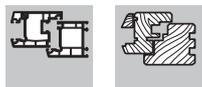
- Useable left and right hand

Shear hinge cap K.SK

- Useable left and right hand

Item description	Item No.		Max. sash weight (kg)	VPA1 Qty.	Type	VPA2 Qty.	Type	VPA3 Qty.	Type
SL.KS.3-3	4926253	4	100	200	KK	1600	EK		
SL.KS.3-3.BR	4938869	4	100	200	KK	1600	EK		
SL.KS.3-3.CW	4938883	4	100	200	KK	1600	EK		
SL.KS.3-3.F9	4938885	4	100	200	KK	1600	EK		
SL.KS.3-3.WS	4928400	4	100	200	KK	4800	EK		
SL.KS.3-6	2844434	4	100	200	KK	1600	EK		
SL.KS.3-6.BR	4927491	4	100	200	KK	1600	EK		
SL.KS.3-6.BZ-CU	5007558	4	100	200	KK	1600	EK		
SL.KS.3-6.CW	4928060	4	100	200	KK	1600	EK		
SL.KS.3-6.F9	2844531	4	100	200	KK	1600	EK		
SL.KS.3-6.WS	2844506	4	100	200	KK	1600	EK		
K.SL.KS.WS	2844928			100	BL	300	KK	7200	EK
K.SL.KS.BR	4927420			100	BL	300	KK	7200	EK
K.SL.KS.BZ-RB	4933295			100	BL	300	KK	2400	EK
K.SL.KS.CW	4927558			100	BL	300	KK	2400	EK
K.SL.KS.F1	4928483			100	BL	300	KK	2400	EK
K.SL.KS.F3	4995008			100	BL	300	KK	2400	EK
K.SL.KS.F3-MG	4987448			100	BL	300	KK	2400	EK
K.SL.KS.F9	2845277			100	BL	300	KK	7200	EK
K.SL.KS.LBR	4939020			100	BL	300	KK	2400	EK
K.SL.KS.LGR	5002873			100	BL	300	KK	2400	EK
K.SL.KS.PW	5002872			100	BL	300	KK	2400	EK
K.SL.KS.SW	4939052			100	BL	300	KK	2400	EK
K.SL.KS.F1-ELOX.	5021123			100	BL	300	K3	2400	E3
K.SK.WS	2845285			100	BL	600	KK	14400	EK
K.SK.BR	4927421			100	BL	600	KK	14400	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.F3	4995009			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.SW	4939055			100	BL	600	KK	4800	EK
K.SK.F1-ELOX.	5021124			100	BL	600	K3	4800	E3

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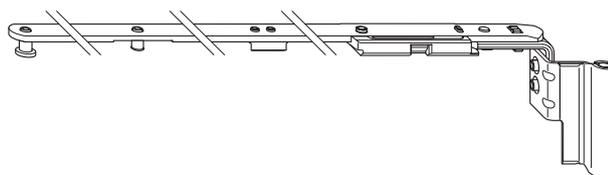


Shear SK ... PA.20-13

- Suitable for top rods OS1.PA / OS2.PA
- For 20 mm overlap and 13 mm groove centre position
- Adjustment for lifting and lowering the sash (+3.5/-2.0 mm)
- Tilt opening width approx. 135 to 140 mm (depending on profile)
- After assembly the top rod and the shear are firmly attached to one another
- Integrated turn restriction via plastic sleeve in shear hinge
- Sash weight max. 100 kg
- With integrated control curve

Shear hinge cap K.SK

- Useable left and right hand
- See shear hinge SL.KS, SL.KB, SL.HW



Item description	Item No.	Overlap	VPA1		VPA2		VPA3	
			Qty.	Type	Qty.	Type	Qty.	Type
SK1.PA.20-13 LS	4966424	20	10	BD	60	KK	1440	EK
SK1.PA.20-13 RS	4966423	20	10	BD	60	KK	1440	EK
SK1.PA.20-13.LS.F9	4990083	20	10	BD	60	KK	1440	EK
SK1.PA.20-13.RS.F9	4990082	20	10	BD	60	KK	1440	EK
SK1.PA.20-13.LS.WS	4990081	20	10	BD	60	KK	1440	EK
SK1.PA.20-13.RS.WS	4990080	20	10	BD	60	KK	1440	EK
SK2.PA.20-13 LS	4966426	20	10	BD	80	GK	960	EK
SK2.PA.20-13 RS	4966425	20	10	BD	80	GK	960	EK
SK2.PA.20-13.LS.F9	4990087	20	10	BD	80	GK	960	EK
SK2.PA.20-13.RS.F9	4990086	20	10	BD	80	GK	960	EK
SK2.PA.20-13.LS.WS	4990085	20	10	BD	80	GK	960	EK
SK2.PA.20-13.RS.WS	4990084	20	10	BD	80	GK	960	EK

RS = right, LS = left

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

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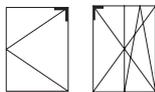
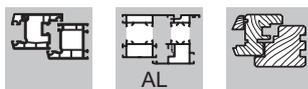
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Top hinge DL.K ... 13

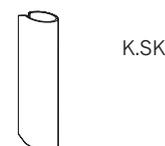
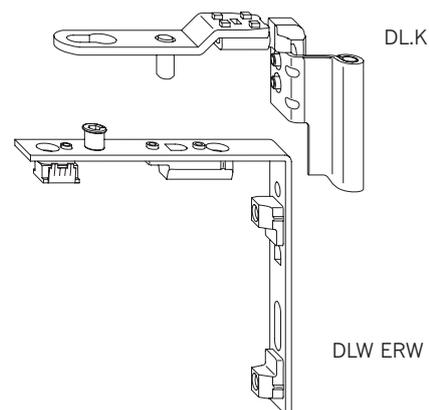
- Used in combination with shear hinges SL.KS, SL.KB or SL.HW
- Available for mounting left and right hand
- Integrated turn restriction via plastic sleeve in shear hinge
- Adjustment for lifting and lowering the sash (+3/-2 mm)
- Pressure adjustment: +/- 0.8 mm
- Groove centre position 13 mm
- Max. sash weight 130 kg

Top hinge bracket DLW ERW

- Useable left and right hand
- Faceplate width 16 mm
- Automatic and manual assembly possible
- Used to hold the turn hinge DLB
- Clampable in fitting groove

Shear hinge cap K.SK

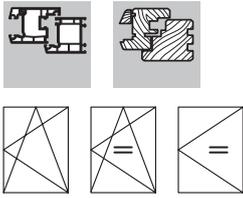
- Useable left and right hand
- See shear hinge SL.KS, SL.KB, SL.HW
- Available in different colours



Item description	Item No.		Overlap	Groove centre position	VPA1 Qty.	Type	VPA2 Qty.	Type
DLW ERW SL	2300023	4			100	KK	800	EK
DL.K.18-13.LS	4998760	0	18	13	100	KK	800	EK
DL.K.18-13.RS	4998759	0	18	13	100	KK	800	EK
DL.K.18-13.LS.WS	4998762	0	18	13	100	KK	800	EK
DL.K.18-13.RS.WS	4998761	0	18	13	100	KK	800	EK
DL.K.18-13.LS.F9	4998764	0	18	13	100	KK	800	EK
DL.K.18-13.RS.F9	4998763	0	18	13	100	KK	800	EK
DL.K.20-13.LS	4926931	0	20	13	100	KK	800	EK
DL.K.20-13.RS	4926930	0	20	13	100	KK	800	EK
DL.K.20-13.LS.WS	2903203	0	20	13	100	KK	800	EK
DL.K.20-13.RS.WS	2903191	0	20	13	100	KK	800	EK
DL.K.20-13.LS.F9	2903238	0	20	13	100	KK	800	EK
DL.K.20-13.RS.F9	2903211	0	20	13	100	KK	800	EK
DL.K.20-13.LS.BR	4926808	0	20	13	100	KK	800	EK
DL.K.20-13.RS.BR	4926807	0	20	13	100	KK	800	EK
DL.K.20-13.LS.CW	4928069	0	20	13	100	KK	800	EK
DL.K.20-13.RS.CW	4928068	0	20	13	100	KK	800	EK
DL.K.20-13.LS.BZ-CU	5007554	0	20	13	100	KK	800	EK
DL.K.20-13.RS.BZ-CU	5007553	0	20	13	100	KK	800	EK
DL.K.21-13.LS	4926283	0	21	13	100	KK	800	EK
DL.K.21-13.RS	4926282	0	21	13	100	KK	800	EK
DL.K.21-13.LS.WS	4926285	0	21	13	100	KK	800	EK
DL.K.21-13.RS.WS	4926284	0	21	13	100	KK	800	EK
DL.K.21-13.LS.F9	4926287	0	21	13	100	KK	800	EK
DL.K.21-13.RS.F9	4926286	0	21	13	100	KK	800	EK
DL.K.21-13.LS.BR	4926289	0	21	13	100	KK	800	EK
DL.K.21-13.RS.BR	4926288	0	21	13	100	KK	800	EK
DL.K.22-13.LS	4935775	0	22	13	100	KK	800	EK
DL.K.22-13.RS	4935774	0	22	13	100	KK	800	EK
DL.K.22-13.LS.WS	4935777	0	22	13	100	KK	800	EK
DL.K.22-13.RS.WS	4935776	0	22	13	100	KK	800	EK

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Interlocking rod MK.PA

- Useable left and right hand
- Clampable in fitting groove
- Faceplate width 16 mm
- Central fastening as standard
- Overlapping system linkage without connecting plates

Coupling element KE

- Application area: combination of two geared elements, such as an FLE.FWPA sash hinge and an MK interlocking rod
- Cutting area 250 mm
- Component length 510 mm

Interlocking rod M

- Useable left and right hand
- Safety locking pin as an adjustable octagonal bolt
- Faceplate width 16 mm
- Central fastening loosens automatically by tightening fitting screw
- Functional both vertically and horizontally
- Overlapping system linkage without connecting plates

Interlocking rod MK

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

MK.PA...



KE



M...



MK...



Item description	Item No.		VPA1		VPA2		VPA3	
			Qty.	Type	Qty.	Type	Qty.	Type
MK.PA.250-1	4965415	3	20	BD	100	KK	800	EK
KE SL	4982891	2	10	BD	1000	EA		
M.250-1	2822471	2	20	BD	100	KK	800	EK
M.500-1	4933994	3	20	BD	100	GK	1200	EK
M.500-1.C	4933999	3	20	BD	100	GK	1200	EK
M.750-1	4940652	5	20	BD	500	EA		
MK.250-0	4929185	1	20	BD	100	KK	800	EK
MK.250-1	2824919	1	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.500-1.C	4932287	3	20	BD	500	EA		
MK.750-1	4940653	5	20	BD	500	EA		

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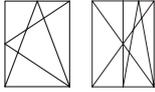
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Extension rod V.AK.450-1

- Used to position a locking point near the sash hinge (up to WK2/RC 2/RC 2N)
- Functional both vertically and horizontally
- Not extendable
- Clampable in fitting groove
- Useable left and right hand
- Component length 450 mm
- Cutting area 250 mm
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates

V.AK.450-1



VK.AK.450-1



V.AK.450-1.BS16



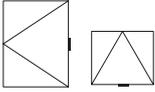
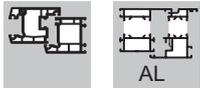
Extension rod VK.AK.450-1

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

Extension rod V.AK.450-1.BS16

- With extended bolt for patio doors with low threshold
- V.AK.450-1.BS16 for airgaps 10 – 12 mm from upper edge of ground sill clip rail
- Cannot be used for activPilot Comfort / duoPort PAS

Item description	Item No.		VPA1		VPA2		VPA3	
			Qty.	Type	Qty.	Type	Qty.	Type
VAK.450-1	4942706	3	10	BD	1000	EA		
VKAK.450-1	5002559	3	20	BD	100	GK	400	EK
VAK.450-1.BS16	5022129	3	10	BD	1000	EA		

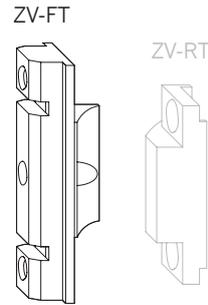


Pull-in device ZV-FT SL

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

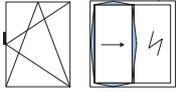
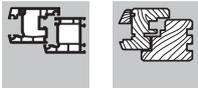
Keep ZV-RT SL

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



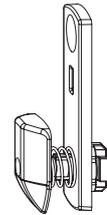
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Item description	Item No.		Groove centre position	VPA1		VPA2		VPA3	
				Qty.	Type	Qty.	Type	Qty.	Type
ZV-FT SL	2359324	2	9/13	10	BL	100	KK	800	EK



Fail safe device FSF

- Prevents the operation of the handle while the window is open
- An actuation of the fitting system is only possible as soon as the fail-safe device integrated in the sash touches the frame.
- No separate frame part required
- Suitable for groove positions from 9 to 13 mm
- Suitable for retrofit installation into drive rods GAK and GAM
- Useable left and right hand
- Pressure piece adjustment ± 2 mm

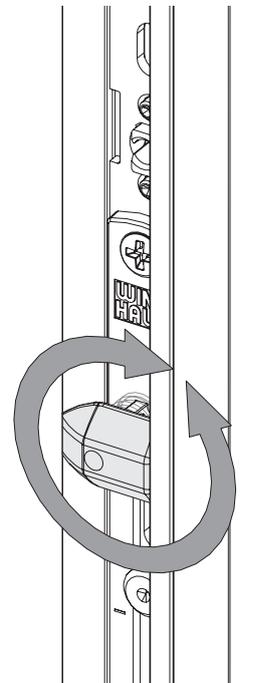


Fehlschaltsicherung FSF.C

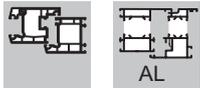
- Ausführung wie oben, jedoch als clipsbare Ausführung zur Fixierung in der Stulpe

Important to know:

- The component's delivery state is neutral with regard to the DIN direction!
- After installation the tip of the plastic part 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!



Item description	Item No.		Groove centre position	VPA1 Qty.	Type	VPA2 Qty.	Type	VPA3 Qty.	Type
FSF	5031156	1	9/13	100	BL	500	KK	4000	EK
FSFC	5034713	1	9/13	100	BL	500	KK	4000	EK

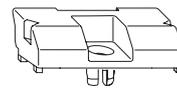


Support plate

- For lifting the sash during closing

Support plate AL.M.F12

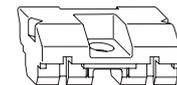
- For assembly in the suitable holes of the extension rod or for direct fitting in the sash-side fitting groove
- Installation height 11,5 mm
- Colour: anthracite grey or dusty grey



AL.M.F12

Support plate AL FR BN 13/12 FC SL

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

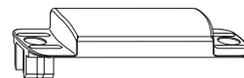
AL FR BN.../
AL.BN.F12

Support plate AL.BN.F12

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

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



AL.E.F

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	3200	EK
AL.E.F	4933076	1	200	KK	1600	EK		

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Drive rods 3

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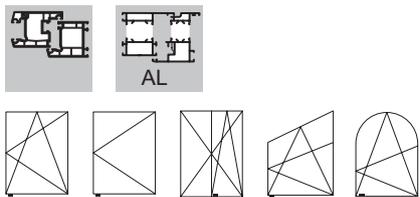
Sash hinges/
Corner hinges 6Shears/
Shear hinges 7Turn hinges/
Tilt hinges 8

Extension rods 9

Accessories 10

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Mounting
accessories 12Mounting
Instructions 13Adjustment/
maintenance 14Installation
drawings 15activPilot
Comfort PADM 16activPilot
Comfort PADS 17activPilot
Comfort PAD 18

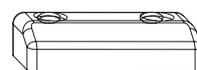


Support plate

- 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



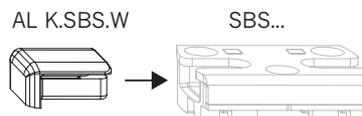
AL D

Support plate AL D 10 WS

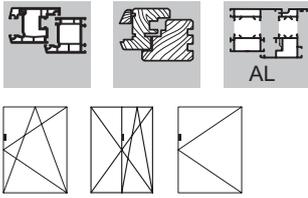
- Installation in frame.
- Can be used for different profile systems thanks to adapter FT.WSK...
- Installation height 10 mm
- Colour white

AL K.SBS.W

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



Item description	Item No.	🔩	VPA1		VPA2		VPA3	
			Qty.	Type	Qty.	Type	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



Drilling protection AB.G.D

- Protects drive rods against drilling open from the outside in line with DIN EN 1627-1630
- Useable left and right hand
- Material: steel 1 mm thick, hardened

Drilling protection AB.G.D.15.5

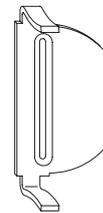
- Backset 15.5 mm

Drilling protection AB.G.D.7.5

- Backset 7.5 mm



AB.G.D.15,5



AB.G.D.7,5

Item description	Item No.	VPA1		VPA2		VPA3	
		Qty.	Type	Qty.	Type	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

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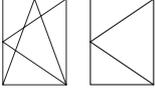
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Comfort PADM

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activPilot
Comfort PADS

18
activPilot
Comfort PAD



Connection rod VS R SL

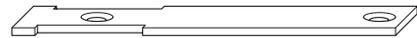
- Used to connect two long parts with interlocking action



VS R SL

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



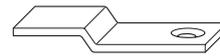
ASP ER-A...

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



SP R SL

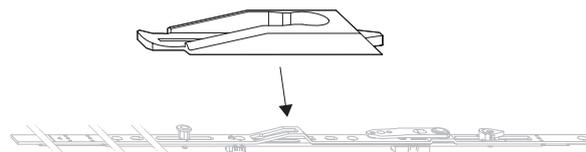
Item description	Item No.	🔩	VPA1		VPA2		VPA3	
			Qty.	Type	Qty.	Type	Qty.	Type
VS R SL	1882172	2	20	BL	100	KK	800	EK
ASP ER-A SL	1793209	2	500	KK	4000	EK		
ASP ER-A.F	4991062	2	500	KK	4000	EK		
SP.R SL	1934201	1	100	BL	1000	KK	8000	EK



Anti-slam device ZSS.OS

- Useable 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. ...



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

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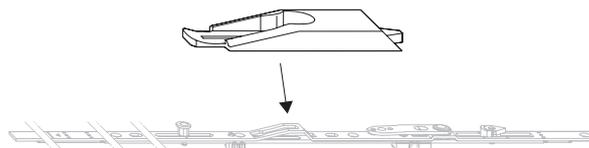
activPilot Comfort PADS **17**

activPilot Comfort PAD **18**



Tilt limiter KBG.OS

- Useable 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		VPA2		VPA3	
			Qty.	Type	Qty.	Type	Qty.	Type
KBG.OS1	5026065	0	100	BL	1000	KK	8000	EK
KBG.OS2	4936659	0	100	BL	1000	KK	8000	EK



Neutral frame parts (milled version)

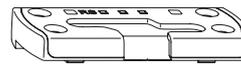
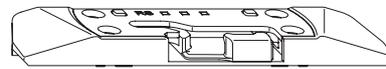
- Serves as routing variant for order-specific profile adjustment: without adjustment it cannot be used.

Tilt Keep SBK....PA

- Installation position at the bottom right or left towards the drive side
- With tilt/turn control slider
- For holding the adjusting/tilt bolt
- The SBK.K. keep can be positioned without needing a jig.
- Number of screws: 4

Security Keep SBS....PAB

- Number of screws: 4



Item description	Item No.		VPA1		VPA2	
			Qty.	Type	Qty.	Type
SBK.K.PA.1.RS	4968647	4	50	KK	400	EK
SBK.K.PA.1.LS	4968648	4	50	KK	400	EK
SBS.K.PAB.1.RS	4966472	4	50	KK	400	EK
SBS.K.PAB.1.LS	4966473	4	50	KK	400	EK

RS = right, LS = left

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activPilot Comfort PADS **17**

activPilot Comfort PAD **18**

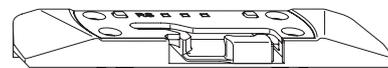


Frame parts

- Profile dependent see Group 11, Frame Parts

Tilt Keep SBK....PA

- Installation position at the bottom right or left towards the drive side
- With tilt/turn control slider
- For holding the adjusting/tilt bolt
- The SBK.K. keep can be positioned without needing a jig.
- Number of screws: 4

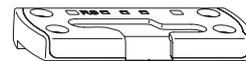


Security Keep SBS....PAB

- Number of screws: 4

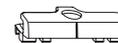
Keep SBAK

- Profile dependent
- Useable left and right hand



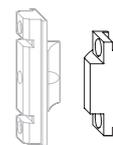
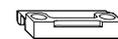
Spacer FT WSK

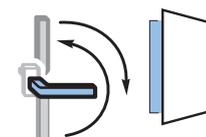
- Profile dependent
- Useable left and right hand



Keep ZV-RT SL

- Central locking device for turn-only windows
- Installation in frame
- Concealed in the rebate
- For rebate clearance of 11 to 14 mm
- Profile dependent





activPilot Comfort

Picture: 996 000 251 1/2/D

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Aluplast	
Ideal 4000 - 8000	
FT WSK 66	1530185
SBA.K.161	2824071
SBK.K.PA.161.RS	4989276
SBK.K.PA.161.LS	4989277
SBS.K.PAB.161.RS	4989274
SBS.K.PAB.161.LS	4989275
ZV-RT 161 RC SL	1213945

KBE	
70 AD / 70 MD	
FT WSK 205	1809590
SBA.K.205	2922210
SBK.K.PA.205.RS	4989306
SBK.K.PA.205.LS	4989307
SBS.K.PAB.205.RS	4989304
SBS.K.PAB.205.LS	4989305
ZV-RT 169 RC SL	2398147

Salamander	
blue Evolution	
FT WSK 134	1537651
SBA.K.28	4926452
SBK.K.PA.128.W.RS	4984407
SBK.K.PA.128.W.LS	4984408
SBS.K.PAB.128.W.RS	4984405
SBS.K.PAB.128.W.LS	4984406
ZV-RT 134	2864478

Brüggmann	
System AD, MD	
FT WSK 152	1787079
SBA.K.94	4927716
SBK.K.PA.94.LS	5005495
SBK.K.PA.94.RS	5005496
SBS.K.PAB.94.LS	5005499
SBS.K.PAB.94.RS	5005940
ZV-RT 452/13 SL	2074732

Kömmerling	
Classic, Elegance, Avantgarde	
FT WSK144	1326221
SBA.K.144	2920652
SBA.K.144.V	4927431
SBK.K.PA.144.RS	4989264
SBK.K.PA.144.LS	4989265
SBS.K.PAB.144.RS	4989262
SBS.K.PAB.144.LS	4989263
ZV-RT 144 SL 14	2020081

Schüco	
Corona 70 / Corana SI 82	
FT WSK 61	1497653
SBA.K.166	4930272
SBK.K.PA.166.RS	4978143
SBK.K.PA.166.LS	4978144
SBS.K.PAB.166.RS	4978119
SBS.K.PAB.166.LS	4978140
ZV-RT 60 RC	2312155

Deceuninck	
Zendow	
FT WSK 169	2356596
SBA.K.169	4926362
SBK.K.PA.169.RS	4989300
SBK.K.PA.169.LS	4989301
SBS.K.PAB.169.RS	4989288
SBS.K.PAB.169.LS	4989289
ZV-RT 169 RC	2398147

Rehau	
Geneo	
FT WSK 60	1345393
SBA.K.160	4933116
SBK.K.PA.160.RS	4968641
SBK.K.PA.160.LS	4968642
SBS.K.PAB.160.RS	4966466
SBS.K.PAB.160.LS	4966467
ZV-RT 160	4933117

Trocal	
InnoNova 2000 / 88+	
FT WSK 226	2304155
SBA.K.126	4926196
SBK.K.PA.126.RS	4989258
SBK.K.PA.126.LS	4989259
SBS.K.PAB.126.RS	4989256
SBS.K.PAB.126.LS	4989257
ZV-RT 26/9/13 RC SL	2047769

Gealan	
6000, 7000, 8000	
FT WSK 62	1348121
SBA.K.162	4929796
SBK.K.PA.162.RS	4989282
SBK.K.PA.162.LS	4989283
SBS.K.PAB.162.RS	4989280
SBS.K.PAB.162.LS	4989281
ZV-RT 162 SL	2088350

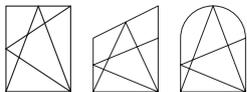
S735, Brillant, Thermo-Design, Brilliant-Design, Basic-Design	
FT WSK 60	1345393
SBA.K.60	2824046
SBK.K.PA.60.RS	4989252
SBK.K.PA.60.LS	4989253
SBS.K.PAB.60.RS	4989250
SBS.K.PAB.60.LS	4989251
ZV-RT 60 RC SL	2312155

InnoNova A5 / M5	
FT WSK 226	2304155
SBA.K.226	2921090
SBK.K.PA.226.RS	4968643
SBK.K.PA.226.LS	4968644
SBS.K.PAB.226.RS	4966468
SBS.K.PAB.226.LS	4966469
ZV-RT 226 RC	2389494

Inoutic	
Arcade, Prestige, Deluxe, Elite, MD100, Eforte	
FT WSK 192	1330722
SBA.K.192	4932272
SBK.K.PA.192.LS	4984402
SBK.K.PA.192.RS	4984401
SBS.K.PAB.192.RS	4984289
SBS.K.PAB.192.LS	4984400
ZV-RT 192 RC SL	4935038

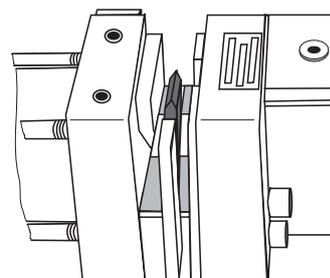
Salamander	
2D / 3D / MD / Streamline	
FT WSK 134	1537651
SBA.K.28	4926452
SBK.K.PA.28.RS	4968645
SBK.K.PA.28.LS	4968646
SBS.K.PAB.28.RS	4966470
SBS.K.PAB.28.LS	4966471
ZV-RT 134	2864478

VEKA	
Softline 70 AD/MD, Topline AD, Swingline, Alpalhine	
FT WSK 152	1787079
SBA.K.152	2824062
SBK.K.PA.152.RS	4989270
SBK.K.PA.152.LS	4989271
SBS.K.PAB.152.RS	4989268
SBS.K.PAB.152.LS	4989269
ZV-RT 452/13 SL	2074732



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

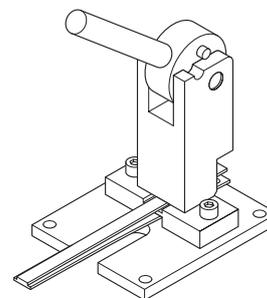
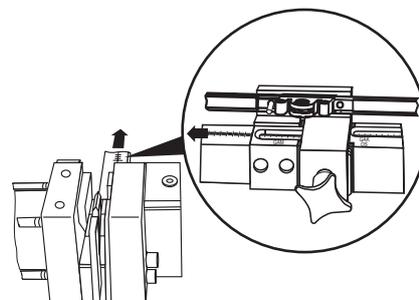


Ruler LIN AP/FS

- 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

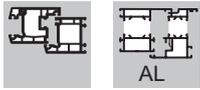


Item description

BST AP/FS
LIN AP/FS
AP.HH

Item No.

1466339
1466321
4970430



Drilling jig LE.B.EL-SL.K

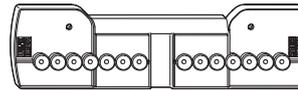
- Drilling jig to drill the pilot holes for corner and shear hinges
- Overlap dimension adjustable from 18 to 22 mm
- Preadjusted to a defined dimension

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

- For hinge with 3 mm pin

LE.B.EL-SL.K.BR

- For 130 kg hinge



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
LE.B.EL.SL.K. BR-18	4966348	18
LE.B.EL.SL.K. BR-20	4966350	20
LE.B.EL.SL.K. BR-21	4966351	21
LE.B.EL.SL.K. BR-22	4966352	22

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activPilot
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Jig PADK

- Jig for positioning security keeps SBS.K.PAB

Jig LE.N.PADK

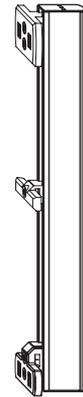
- Used for positioning SBS.K.PAB keeps in the frame rebate of the corner area
- Useable left and right hand

Jig LE.N.SBS.K

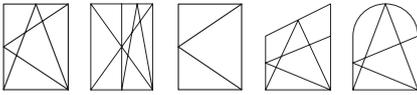
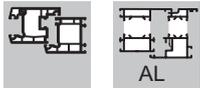
- Used for positioning SBS.K.PAB keeps in the frame rebate (except the corner areas)
- Useable left and right hand

LE.N.PADK

LE.N.K.SBS.K



Item description	Item No.	VPA1 Qty.	Type	VPA2 Qty.	Type
LE.N.PADK	4969653	25	KK	200	EK
LE.N.K.SBS.K.PAD.RC2.BD	5004340	25	EA		
LE.N.K.SBS.K.PAD.RC2.OB.UN	5004341	25	EA		
LE.N.K.SBS.K.PAD.RC2.UN	5004342	25	EA		
LE.N.K.SBS.K.PAD.RC2.GTR.BD.1	5004343	25	EA		
LE.N.K.SBS.K.PAD.RC2.GTR.BD.2	5004344	25	EA		
LE.N.K.SBS.K.PAD.RC2.GTR.BD.3	5004345	25	EA		
LE.N.K.SBS.K.PAD.RC2.GTR.BD.4	5004346	25	L1		
LE.N.K.SBS.K.PAD.RC2.GTR.BD.5	5004347	25	L1		
LE.N.K.SBS.K.PAD.RC2.GTR.BD.6	5004348	25	L2		

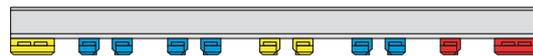
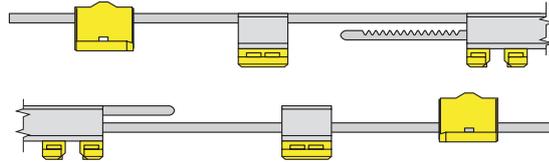


Jigs

- Used to position keeps in frame rebate
- Useable 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



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

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Mounting instructions

activPilot Comfort PADK

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Shortening the fittings
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Mounting of turn-tilt fittings
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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 width 460 mm
- Max. sash rebate width 1,475 mm
- Min. sash rebate height 695 mm
- Max. sash rebate height 2300 mm
- Max. sash size 2.5 m²
- Max. sash weight 100 kg
- Aspect FFB/FFH \leq 1.5:1
- Airgap 12 mm
- Groove centre position 13 mm
- Frame rebate depth min. 29 mm
- Approved for centre gasket systems and rebate sealing systems with rain guard.



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

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.

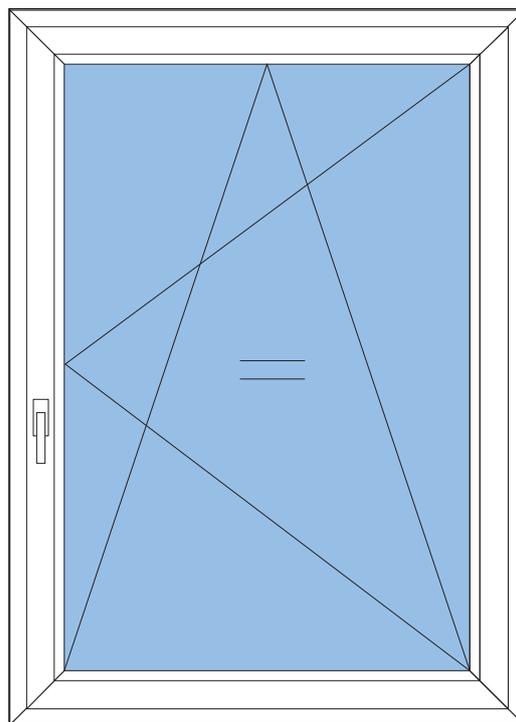
All fittings must be selected from the original Winkhaus activPilot fitting component range. We accept no liability in case of use of third party or non-approved system components.



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



Important: activPilot Comfort fittings are not suitable for use in panic doors! They are not recommended for passage doors.



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Standard profile dimensions

See figure: Profile cross-section

The fitting can be used on PVC-U windows with a standard euro-groove.

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activPilot Comfort fittings are suitable for centre gasket systems or rebate sealing systems in combination with rain guards.

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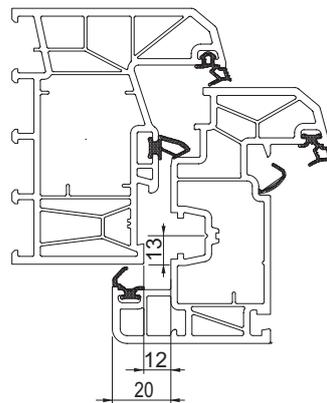
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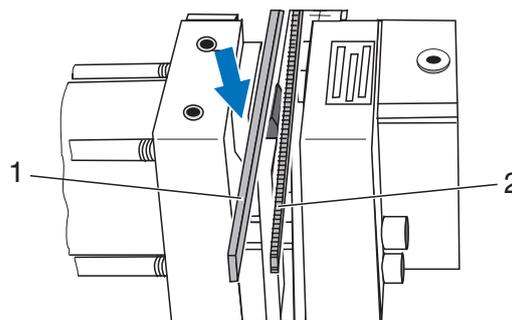
Profile cross-section

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

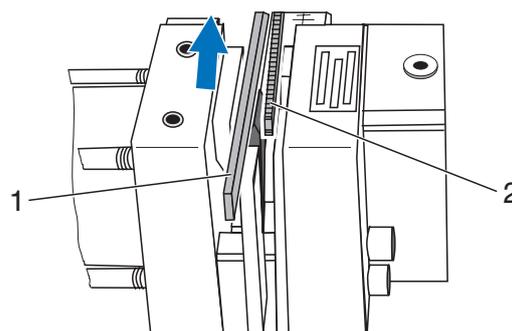
- Always insert the face plate (1) and drive rod (2) perpendicularly from the top with the face plate (1) pointing to the pressure cylinder.



Fittings prior to punching

See figure: Fittings after punching

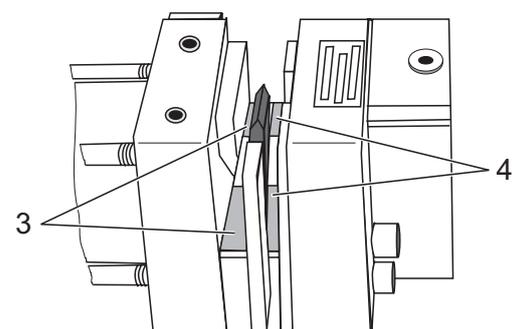
- After punching, always remove the face plate (1) and drive rod (2) perpendicularly in an upwards direction.



Fittings after punching

See figure: Cleaning the supporting surfaces

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



Cleaning the supporting surfaces

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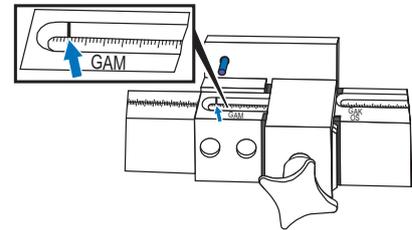
Shorten the drive rod GAM (central handle position)

See figure: Marking GAM

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



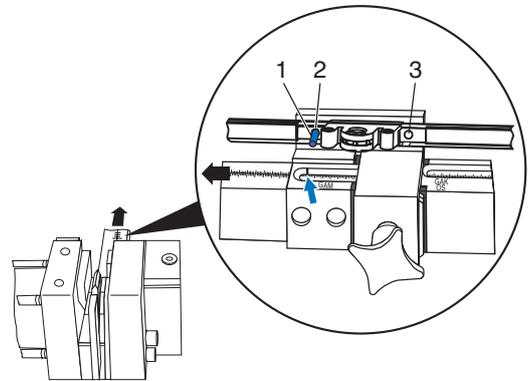
Attention! If the GAM scale is displaced by one sub-marking, this corresponds to a longitudinal shift of 2 mm.



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.



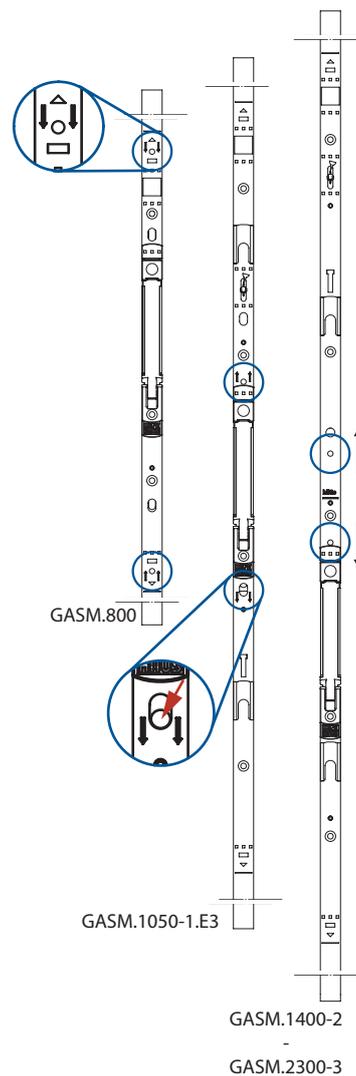
Position for shortening drive rod

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.



GASM.1050 – GASM.2300

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.

Cutting instructions GASM

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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

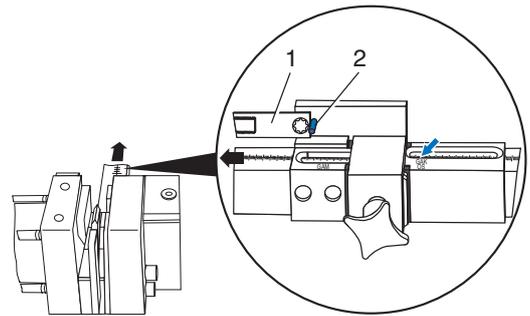
- Set the measuring value FFH (GAK/GASK) or FFB (OS) on the measuring device to the GAK/OS mark.



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).

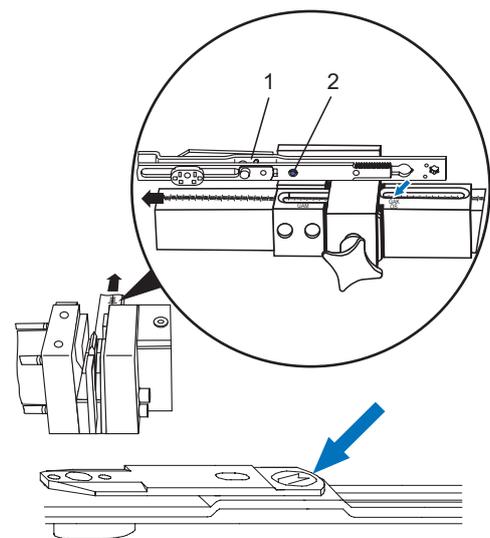


Position for shortening drive rod and/or top rod

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

Mounting of fittings on sash

Turn-tilt type – Rectangular window

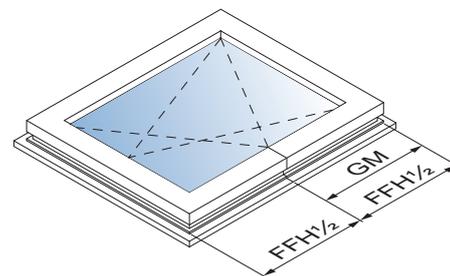
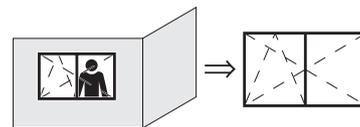
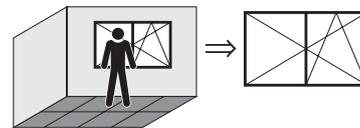
Prepare the window for fitting. Then proceed as follows:



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.



Sash rebate height FFH with central handle height GM

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.

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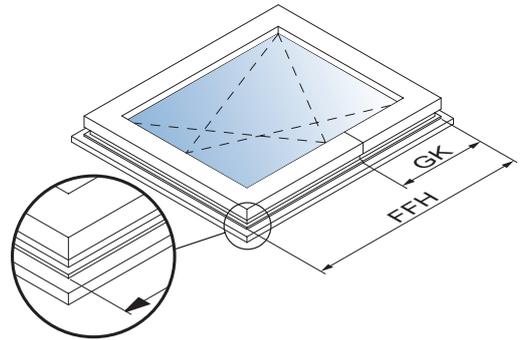
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1 Handle height for drive rod GAK

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).

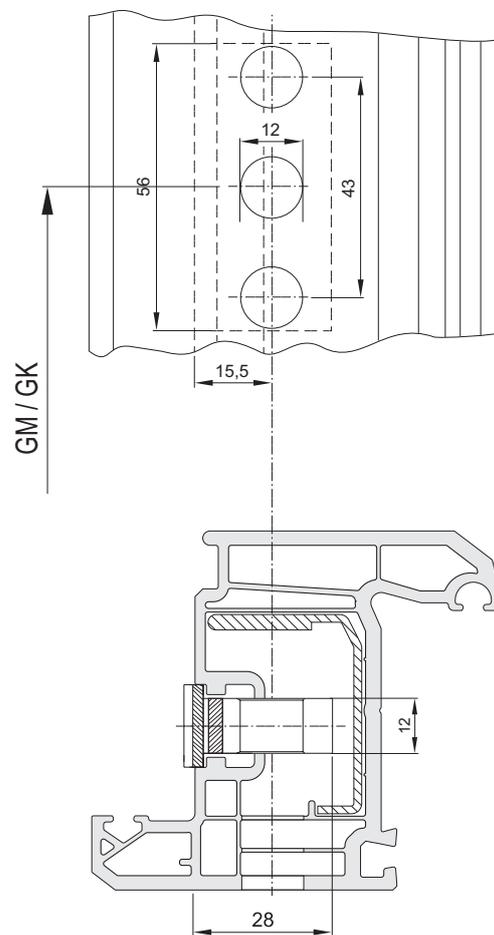
230 – 324	GK = 114 *
325 – 420	GK = 114 *
421 – 460	GK = 210
461 – 700	GK = 210
701 – 850	GK = 260
851 – 1100	GK = 375
1101 – 1325	GK = 550
1326 – 1525	GK = 550
1526 – 1775	GK = 550
1776 – 2000	GK = 1050
2001 – 2225	GK = 1050

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

* Requires the use of E3 corner drive

See figure: Scale drawing "Gear lock"

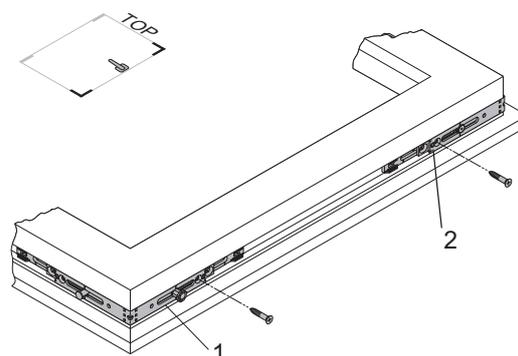
- Drill holes for gear case (\varnothing 12 mm) as per scale drawing.
- Mill the gear housing from the rebate side.



Scale drawing "Gear lock"

See figure: Corner drive E1 / E1.PA

- 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 E1.PA (1) into the fitting groove at the bottom of the sash so that the octagonal bolt is on the drive side.
- Fix both corner drives (1, 2) on the drive side with a single screw each.
- Measure the sash rebate height (FFH).



Corner drive E1 / E1.PA

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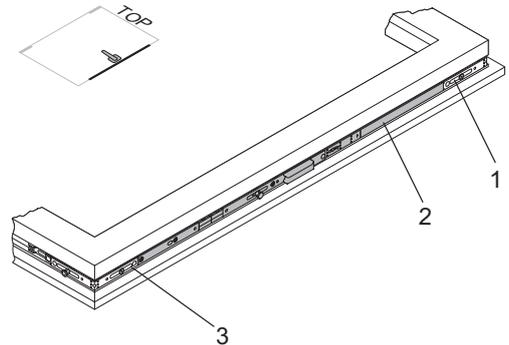
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See figure: Drive rod GAM/GAK

- 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.



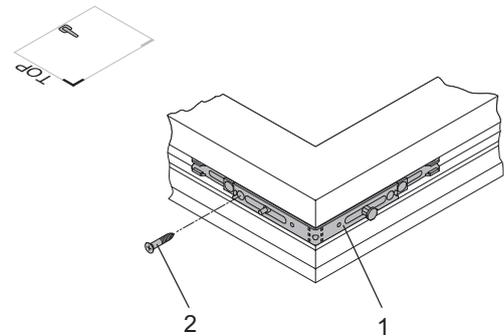
Drive rod GAM/GAK

See figure: Corner drive E2

- 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).



Note: When the top rod OS1.PA.600 is used, replace the E2 corner drive by E3 corner drive.



Corner drive E2

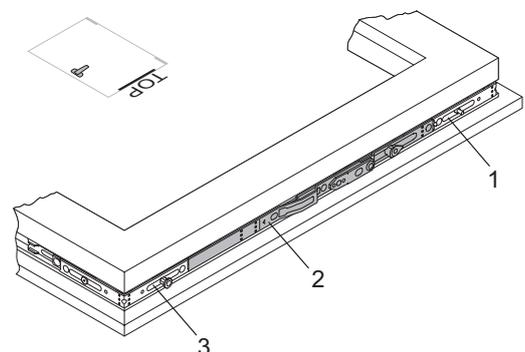
- Cut the top rod (see chapter 'Shortening the fittings').



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

See figure: Top rod OS2.PA...

- 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 OS2.PA...

See figure: Shear SK

- 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.



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.

See figure: Interlocking rod MK.PA

- 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.



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.

See figure: Sash hinge FL.E.FWPA

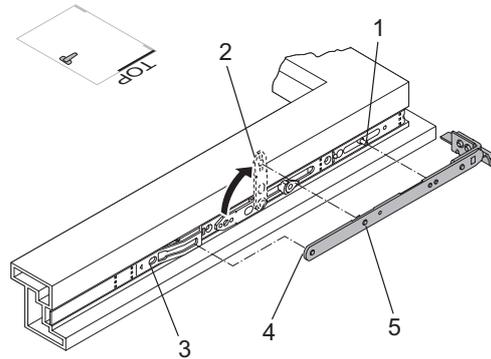
- Fitting the sash hinge:
 - Fit the sash hinge into the eurogroove at the bottom of the sash so that the octagonal bolt is on the underside.
 - Fix the sash hinge on the hinge side with 2 screws and on the underside using 1 screw.
 - Measure the sash rebate width (FFB).



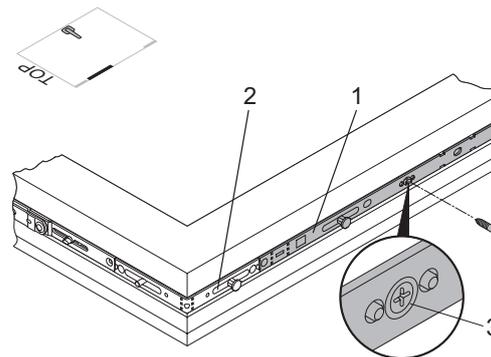
Please note: Screw on the sash hinge tightly and make sure that the sash hinge is flush within the eurogroove.



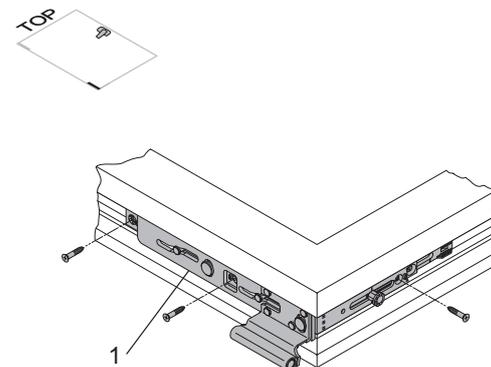
Important to observe for Trocal 88+ profile system! For Trocal 88+ please remove the centre bar at the frame (bottom hinge side, at level of sash hinge). From frame rebate edge approx. 70 mm to the top!



Shear SK



Interlocking rod MK.PA

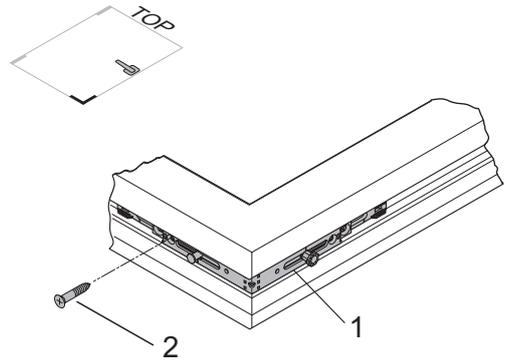


Sash hinge FL.E.FWPA

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See figure: Corner drive E1.PA

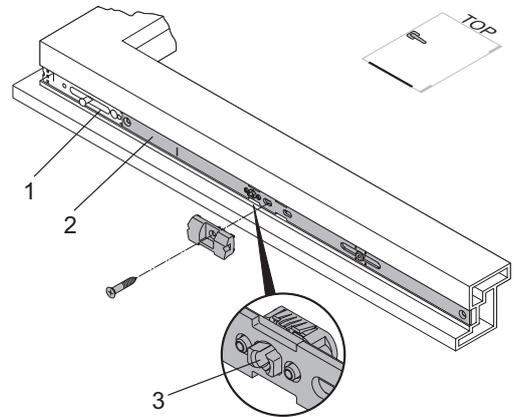
- Corner drive E1.PA
 - Screw the corner drive (1) in place.



Corner drive E1.PA

See figure: Support plate AL.M.F12

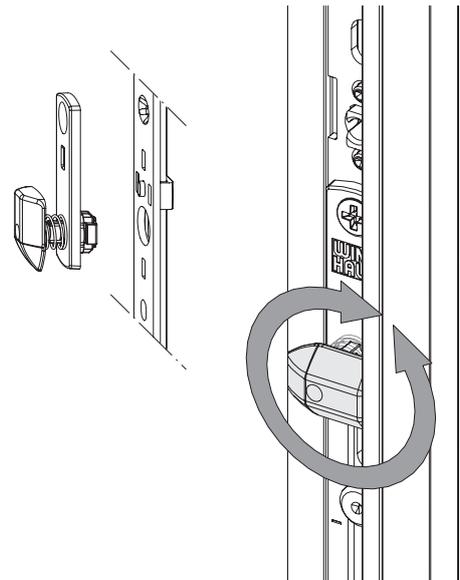
- Mount the coupling element, the interlocking rod and the support plate on the underside:
 - Fit the interlocking rod to the corner hinge E1.PA taking the sash rebate width into account.
 - Cut the coupling element to the required dimension.
 - Abut the coupling element against the sash hinge with the side to be cut pointing towards the drive side.
 - Click the coupling element gears into the teeth of the sash hinge.
 - Tighten the screw (3) fully to release the central fastening.
 - Fix the support plate on the coupling element with a screw.
 - Optional: assembly of sash lifter GRT.FH.H (with lifter and counter plate to protect the frame)



Support plate AL.M.F12

See figure: Fail safe device FSF

- Mount the fail safe device:
 - Insert the fail safe device on the hole pattern of the drive rod and fix with a screw.
 - If required, turn the head by 90° (depends on profile).
 - Mounting a frame part is not necessary.



Fail safe device FSF

Important to know:

- The component's delivery state is neutral with regard to the DIN direction!
- After installation the tip of the plastic part 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!



Attention! Check if all screws are fixed into place on the fitting parts.

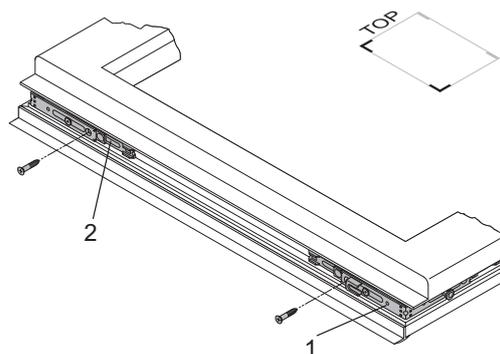
Turn double sash type – Rectangular window



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 (1) / E1.SBS.U (2)

- 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.



Corner drive E1 (1) / E1.SBS.U (2)

- Shorten the drive rod:

- Shorten drive rod GASM or drive rod GASK in line with description "Shortening the fittings".

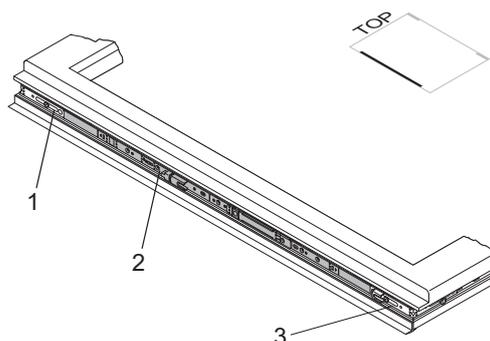


Please note: Make sure you shorten the drive rod in closed state (as delivered).

See figure: Drive rod GASM/GASK

- 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.



Drive rod GASM/GASK



Please note: To keep a neutral position, do not perform a function test until all fittings are in place.

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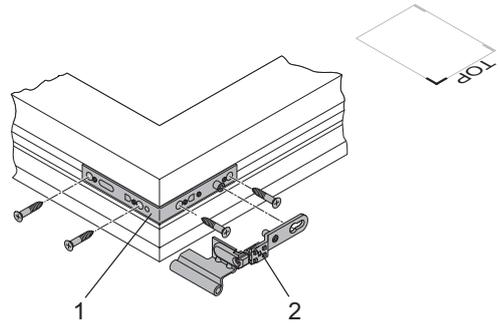
activPilot Comfort PADM 16

activPilot Comfort PADS 17

activPilot Comfort PAD 18

See figure: Turn hinge bracket ERW/Turn hinge DL.K

- Mount the top hinge bracket and top hinge:
 - 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 (2) into the turn hinge bracket (1).



Turn hinge bracket ERW/Turn hinge DL.K



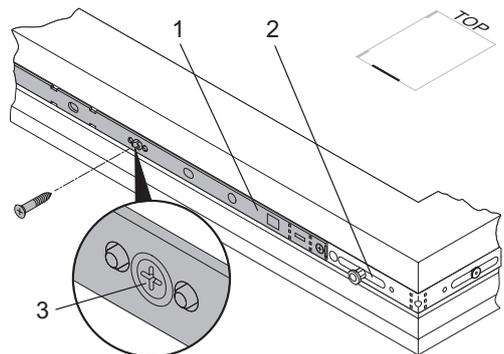
Please note: For a sash rebate height (FFH) and/or sash rebate width (FFB) of approx 800 mm (depending on the profile) an interlocking rod should also be fitted hinge-side and/or horizontally at the bottom / top. Observe the profile system supplier's processing guidelines in this respect.

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.



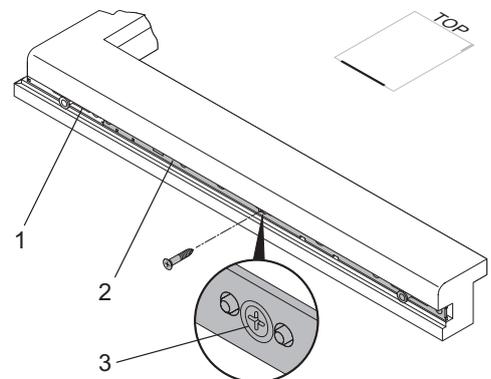
Attention! Damage to fittings. If the central fastening is not released, the gearing cannot be actuated. Use of force will lead to torsion of the fittings. Always insert the screw fully up to the stop.



Interlocking rod M (top)

See figure: Interlocking rod M (bottom)

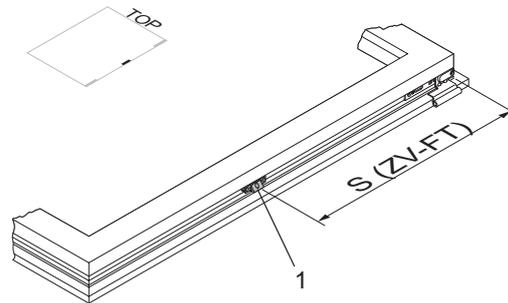
- Mount interlocking rod on the underside:
 - See above



Interlocking rod M (bottom)

See figure: Pull-in device ZV-FT (hinge side)

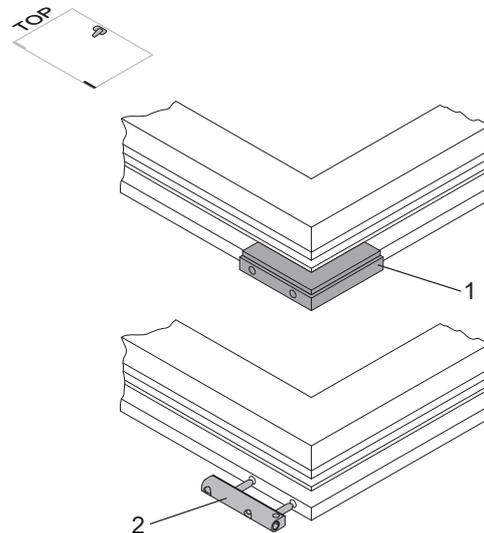
- Position the pull-in device (1):
 - S (ZV-FT) = sash rebate edge to centre of keep ZV-FT
 - Press the pull-in device into the eurogroove and screw in place.



Pull-in device ZV-FT (hinge side)

See figure: Sash hinge FK

- Fitting the sash hinge:
 - Position the mounting jig (1), clamp into the fitting groove and drill \varnothing 6 mm holes for the hinge plugs.
 - Drill \varnothing 3 mm holes for screws through the first wall.
 - Fit the sash hinges (2) and fix in place with \varnothing 3.9 to 4.2 mm screws. Min. screw length 35 mm.
 - Make sure the sash hinge is fitted correctly into position.



Sash hinge FK

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1 Mounting of fittings on the window frame

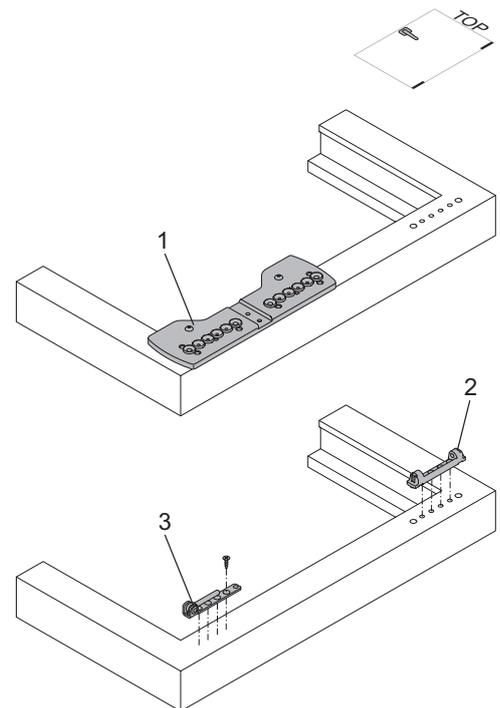
3 Turn-tilt sash and turn double sash – Rectangular window

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

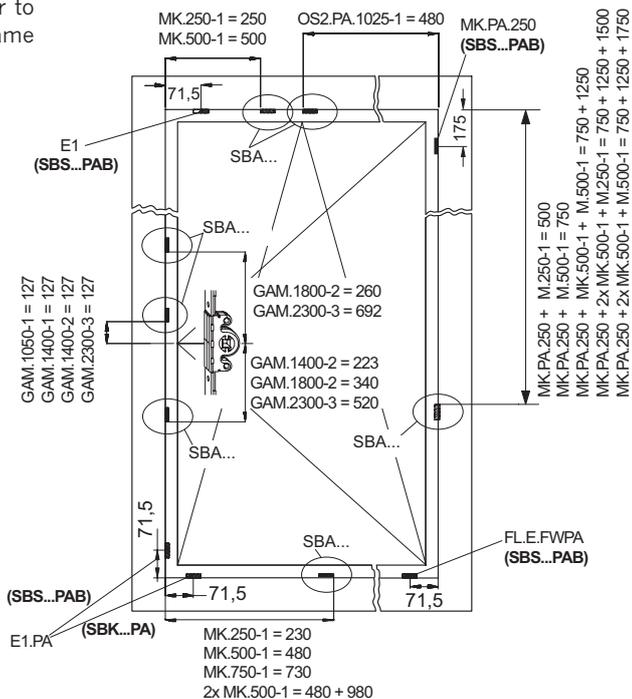
Positions of keeps (basic equipment)

Turn-tilt type

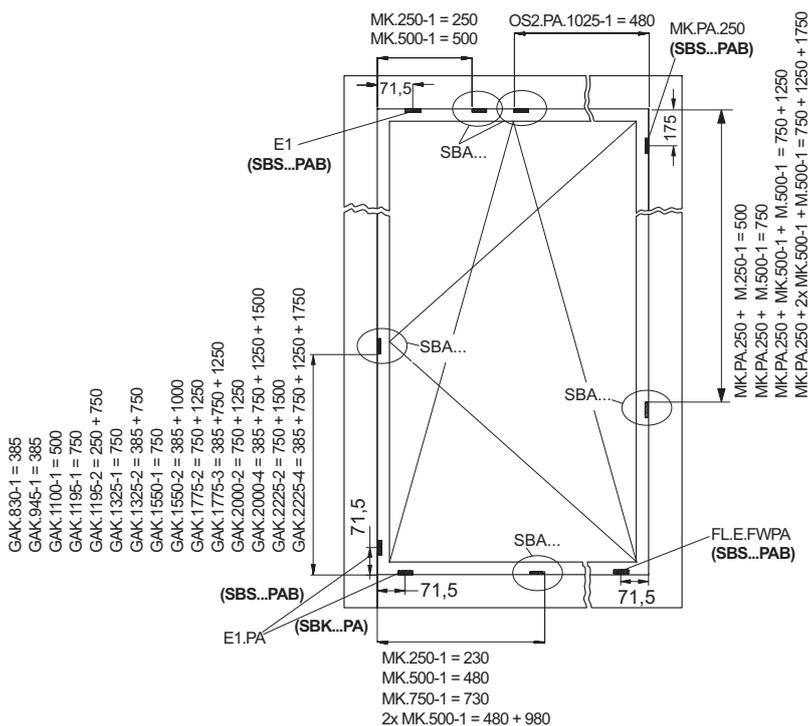
The figures show the keep position options. The number of keeps depends on the size of the window.



Note: The dimensions shown in the figures refer to the frame rebate edge to keep profile edge or frame centre to the keep!



Keep positions DK "central handle position"



Keep positions DK "constant handle position"

- 1 General product information
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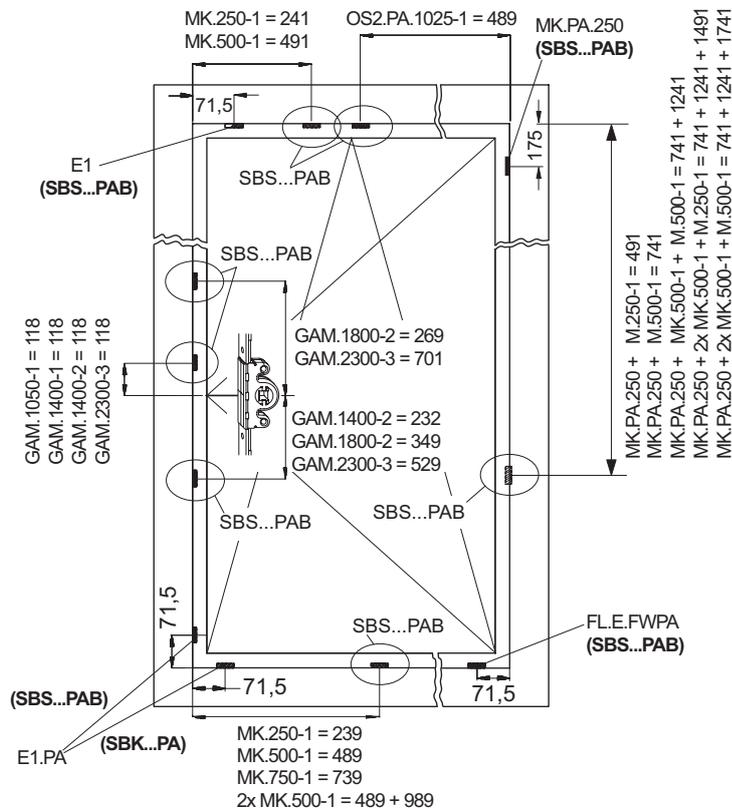
Positions of keeps (RC2)

Turn-tilt type

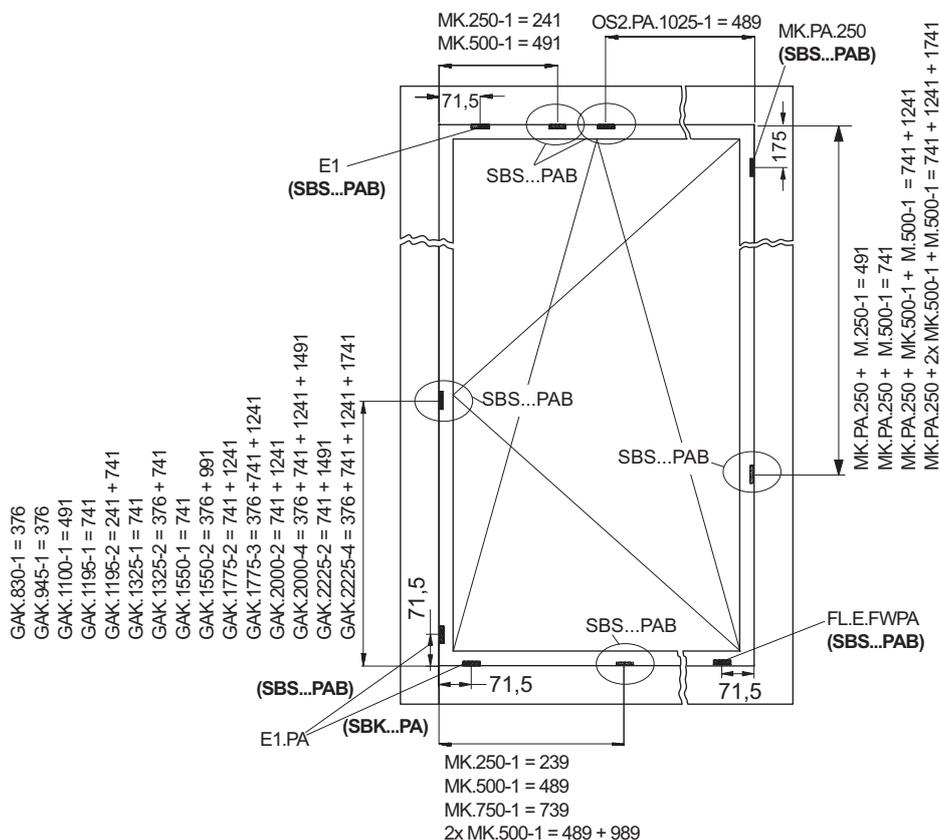
The figures show the keep position options. The number of keeps depends on the size of the window.



Please note: The keeps marked here are security keeps SBS...PAB. Unlike SBA... keeps, the measurements refer to the "centre" of the keep.

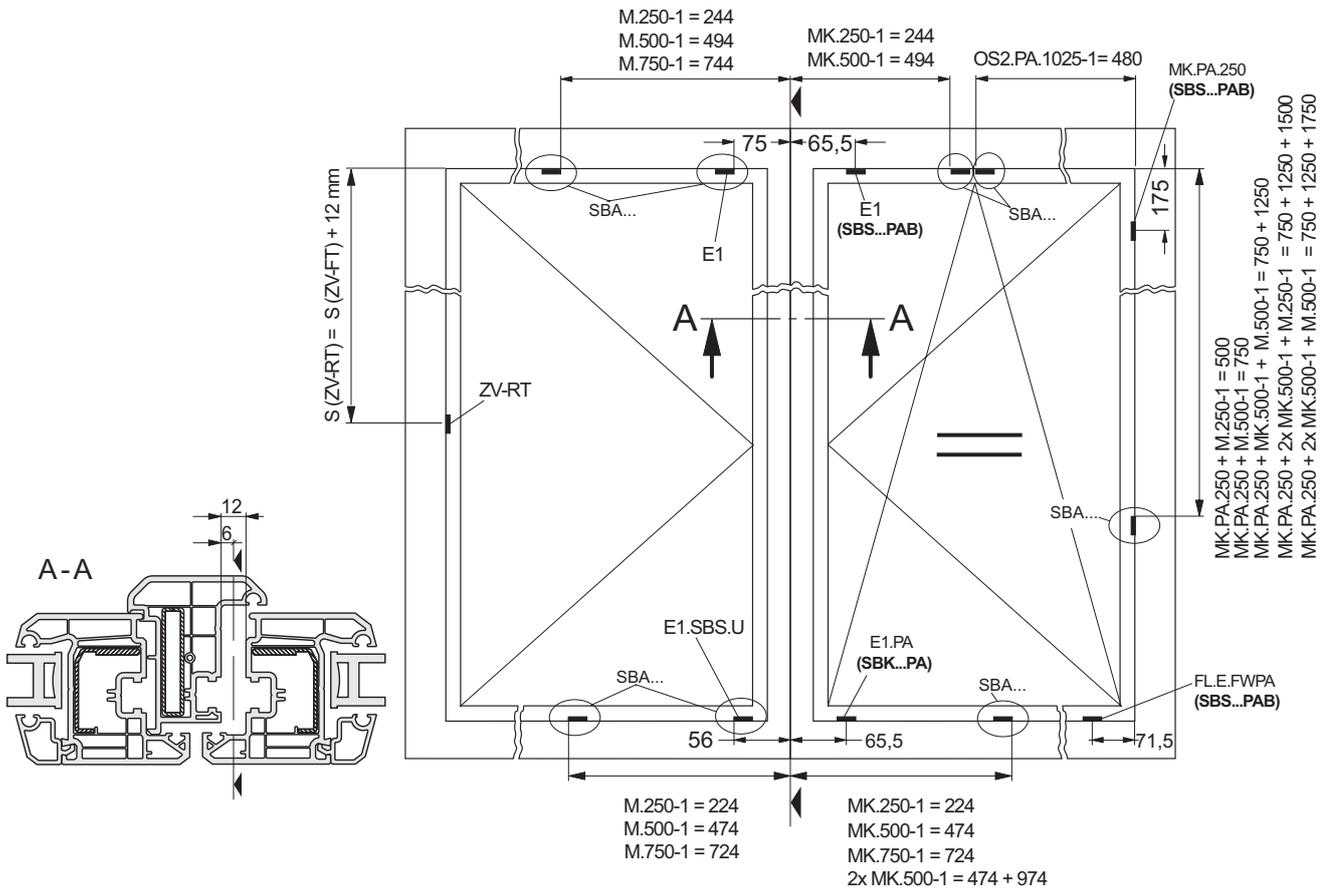


Keep positions DK "central handle position"



Keep positions DK "constant handle position"

Turn double sash type



Keep positions, double sash window D/DK

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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)

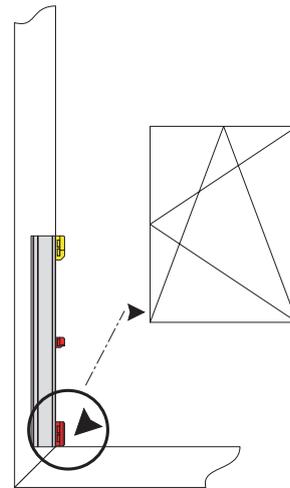
↕↔ Vertical / horizontal attachment = blue element (for corner drives)

→ = Keep run-in

Keep SBS...PAB drive side bottom corner drive for E1.PA

See figure: SBS...PAB

- Use a PADK jig for the keeps needed for the parallel position activPilot Comfort.
 - Position the mounting jig with the red element in the corner.
 - Position the SBS...PAB keep on the red element marked E1.PA, FL.FWPA, E1.

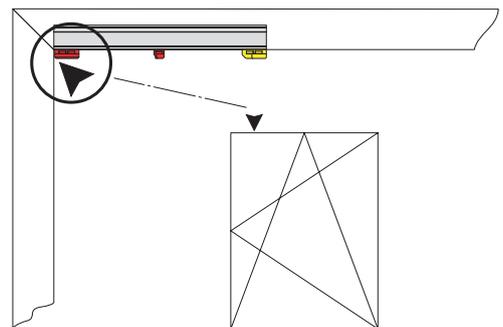


SBS...PAB

Keep SBS...PA drive side, top corner drive for E1

See figure: Keep SBS...PA

- Use a PADK jig for the keeps needed for the parallel position activPilot Comfort.
 - Align the mounting jig with the red element in the corner.
 - Position the SBS...PA keep on the red element marked E1.PA, FL.E.FWPA, E1.

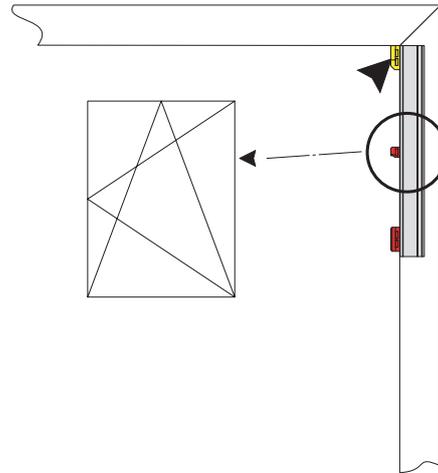


Keep SBS...PA

Keep SBS...PAB top hinge side for MK.PA.250

See figure: SBS...PAB top, horizontal

- Use a PADK jig for the keeps needed for the parallel position activPilot Comfort.
 - Position the mounting jig with the yellow element in the upper corner.
 - Position the keep SBS...PA.. on the red element marked MK.PA.250.

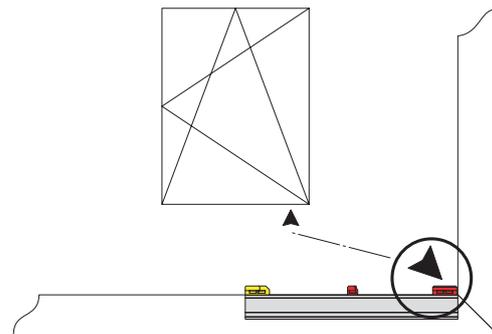


SBS...PAB top, horizontal

Keep SBS...PAB for sash hinge FL.E.FWPA bottom hinge side

See figure: Keep SBS...PAB

- Use a PADK jig for the keeps needed for the parallel position activPilot Comfort.
 - Position the mounting jig with the red element in the corner.
 - Position the SBS...PAB keep on the red element marked E1.PA, FL.FWPA, E1.

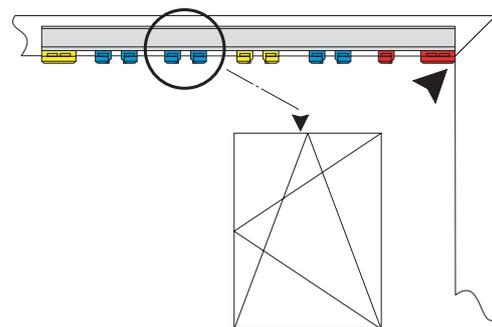


Keep SBS...PAB

Keep for top rod OS...

See figure: 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...

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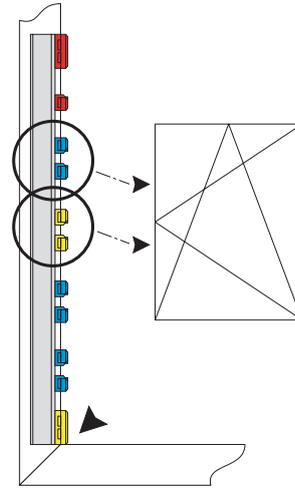
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activPilot
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Keeps SBA... for vertical GAK

See figure: 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. ...".

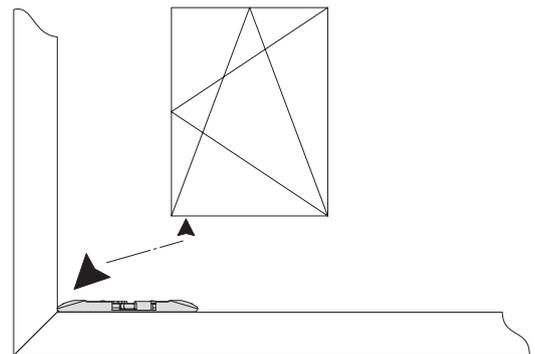


SBA... for vertical GAK

Keep SBK...PA horizontally at the bottom for E1.PA

See figure: Keep SBK...PA

- The keep can be placed without using a jig.
- Position the keep in the bottom corner.



Keep SBK...PA

Keeps for GAM

See figure: Keeps for GAM

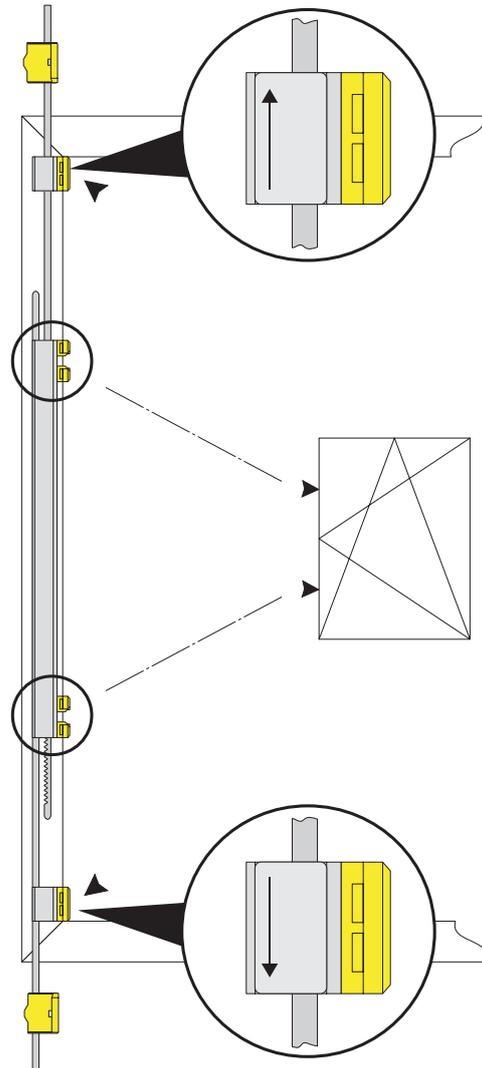
- Attach the corresponding mounting jig labelled “top” or “bottom”.
- Fit keeps in line with the labelling on the mounting template.

There are three telescopic jigs depending on the window height:

- L.E.N.T. 0710-1050 for drive rod GAM 1050-1
- L.E.N.T. 1051-1800 for drive rod GAM 1400-1/2 / 1800-2
- L.E.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

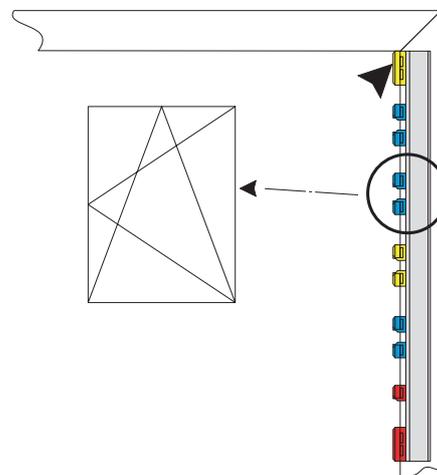
Keep for interlocking rod M or MK hinge side in shear hinge area

See figure: Keeps hinge side

- Align the mounting jig with the yellow element in the top corner.
- Position the keep for interlocking rod on the yellow element.



Please note: The labelling on the interlocking rod must match the labelling on the yellow templates. The interlocking rod MK is labelled e.g. “MK.750-1”.



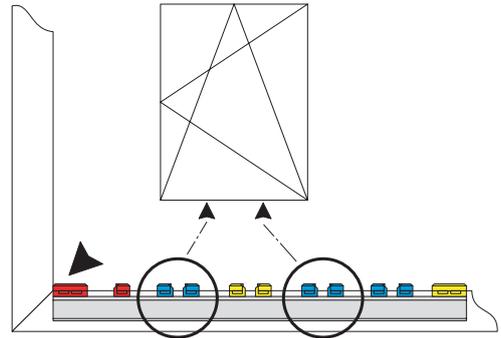
Keeps hinge side

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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".



M bottom horizontal

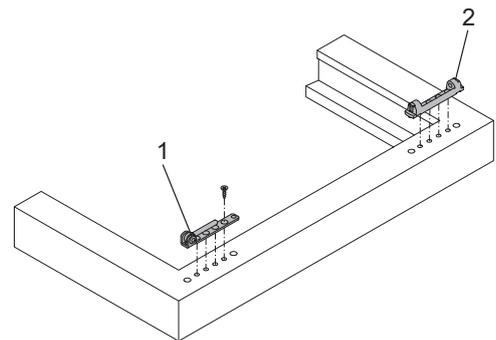
Mounting shear and corner hinges

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



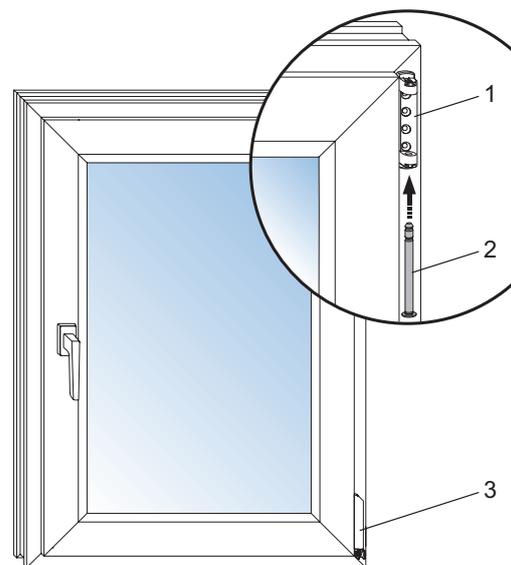
Important: The load-bearing fitting components, such as corner, shear and sash hinges, must be designed according to the TBDK guidelines. Please adapt the drill diameter of the fixing screws, the screw diameter and the screw length to the load situation.

Fitting the sash

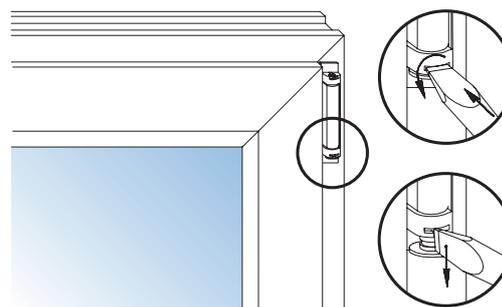
- Mount the sash, adjust for a good seal and fit the pin to secure against the shear hinge.
- Push all end caps and sealing caps onto the shear and corner hinges.



Note: Insert pin from bottom (see arrow).



Shear and corner hinge



Release the pin in the shear 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 to release the pin as shown in the figure.

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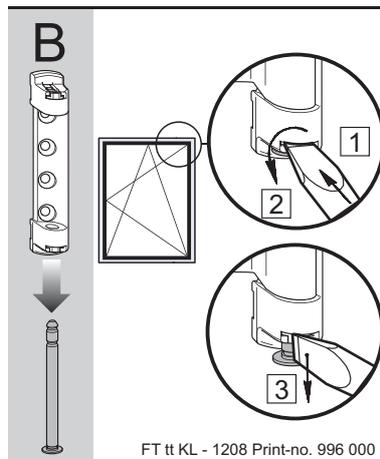
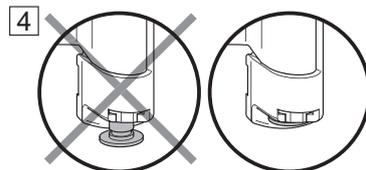
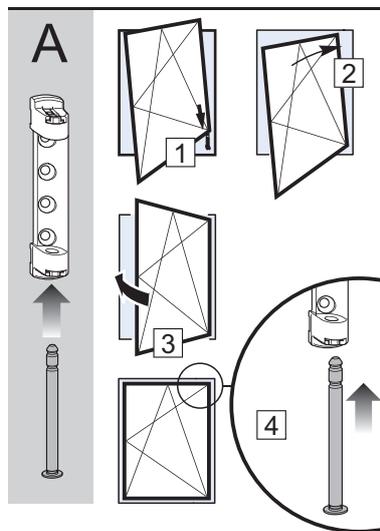
activPilot Comfort PADM **16**

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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.



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Function test

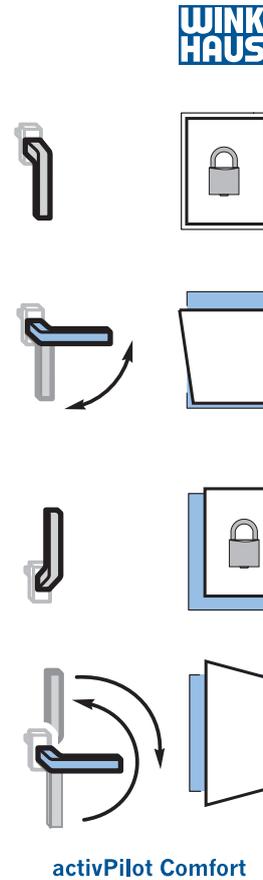
Turn-tilt window

Place the handle and operate once as follows to release the central fastening.

- If the handle is turned to the diagonal position from the bottom, the fitting is in the tilt position. Parallel action is enabled by further turning the handle by 90° into the 180° position. When the handle is moved back into the 90° position, the window sash can be opened fully (turn position). In order to close the window, the handle must be turned back down into the initial position.



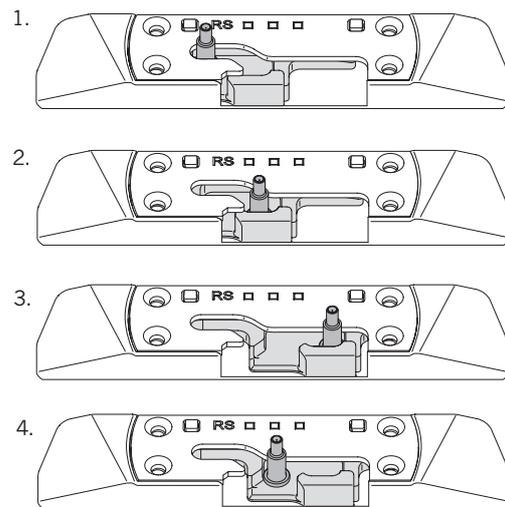
Please note: Initial actuation is not as easy as actuation in normal operations. A clicking noise will be heard during actuation. Keep the window closed during actuation.



See figure: Function SBK.K.PA

- The window is closed (1) when the corner drive bolt as well as the slider are located on the exterior side of the tilt keep.
- Turning the handle by 90° you will reach the tilt position with the corner drive bolt and the slider being in the centre position (2).
- When the handle is moved into the 180° position the window is in the parallel opening position with the corner drive bolt and the slider being on the outer face of the tilt keep (3).
- When the handle is turned back to the 90° position, the corner drive bolt moves back to the centre position while the slider remains at the exterior side. The window can be opened fully (turn position, 4).

Label



Function SBK.K.PA

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1 Adjustment and maintenance in-

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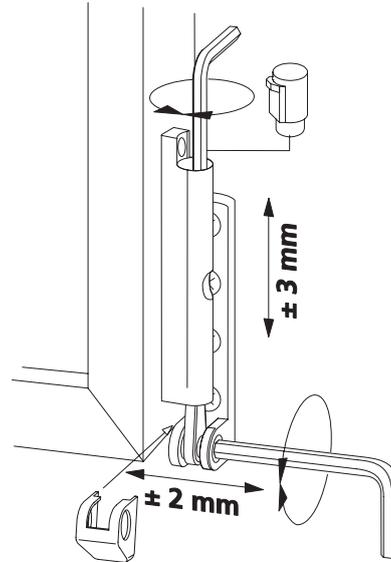
6 These instructions are intended for the specialist window company. They describe essential adjustment and maintenance work for the activPilot fittings. Please observe the following notices: Fitting parts are to be tested regularly to ensure they are seated firmly and checked for wear. Fastening screws are to be retightened and parts replaced as necessary. Their functionality is to be retested afterwards. Fittings may only be cleaned with mild, ph-neutral cleaning agents in diluted form. Use only cleaning agents which do not degrade the corrosion protection on fitting parts. Never use aggressive, acidic or caustic cleaners, scouring agents or sharp objects to clean fitting parts. Always also observe the guideline for product specifications/notices and liability (VHBH) when making adjustments or performing maintenance.

7 This information can be obtained at the following Internet address: <http://www.beschlagindustrie.de/ggsb/richtlinien.asp>

Adjustment options

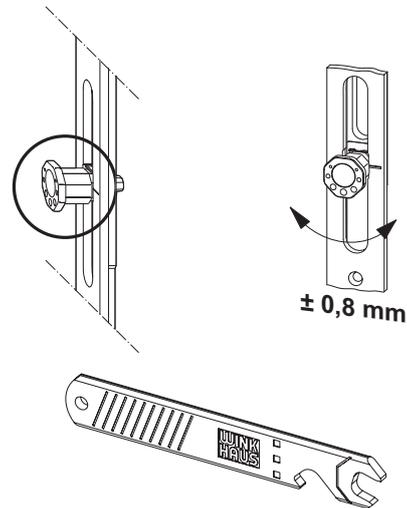
Corner hinge/sash hinge

Sash hinge height adjustment (± 3 mm) and corner hinge side adjustment (± 2 mm).

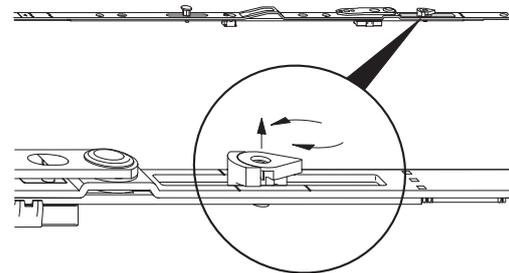


Octagonal bolt

Regulate the contact pressure between the sash and the frame (± 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

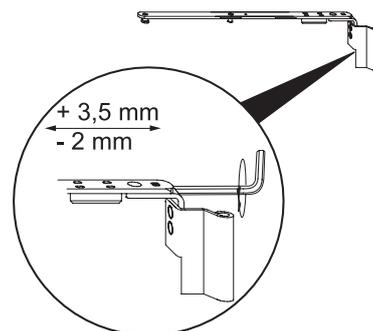


Shear retraction

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.

Shear – Rectangular window

Lifting and lowering the sash (from -2 to +3.5 mm) by means of a 4 mm Allen key.



Shear – Rectangular window

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Maintenance

Lubrication points

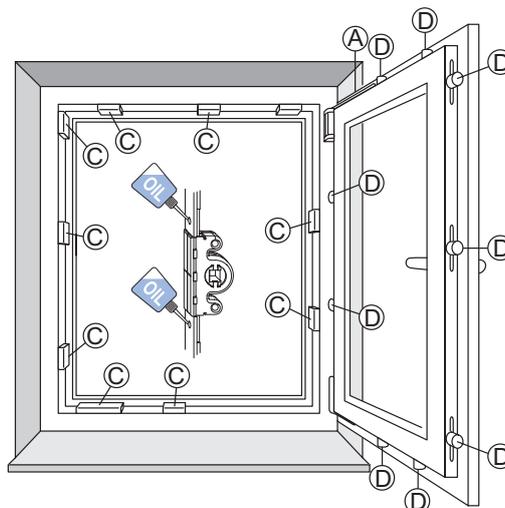
See figure: Overview of lubrication points

The figure shows the location of possible lubrication points which should be lubricated at least once a year.

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.

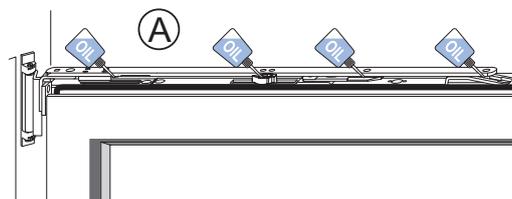
Shears

See figure: Shears

All of the shear's contact points with the top rod should be oiled once annually.



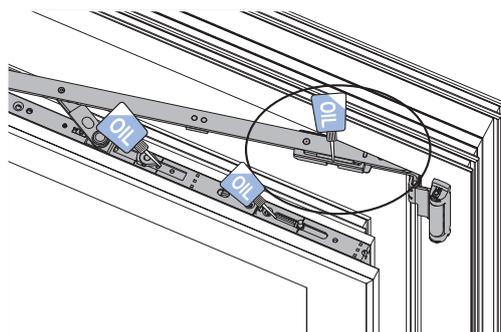
Note: The shear hinge must not be oiled or greased.



Shears



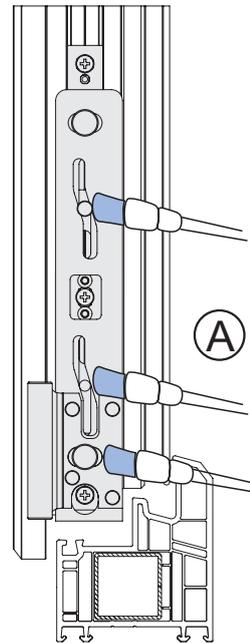
Note: Please make sure the shear is clean in the upper area.



Sash hinge

See figure: Sash hinge FL.E...PA.

All moving contact points on the sash hinge should be greased with a suitable lubricant once annually. Coat lubricating points with non-resinous, non-corroding grease.



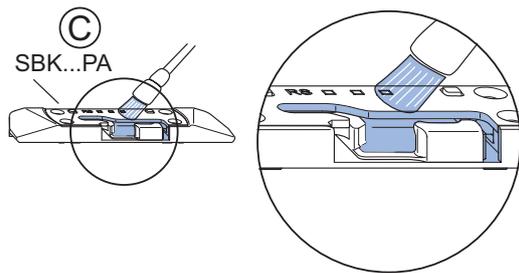
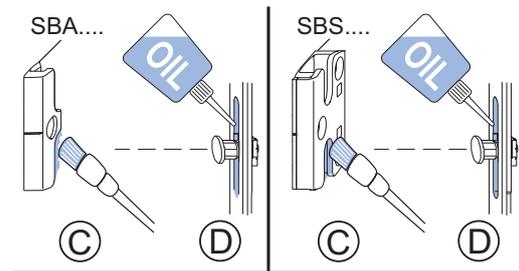
Sash hinge FL.E...PA.

Keeps

See figure: Keeps

To keep fittings running smoothly, you must lubricate the keeps 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.
- The tilt keep must be clean!



Keeps



Note: The interior adjustment mechanism of the keep must not be moved.

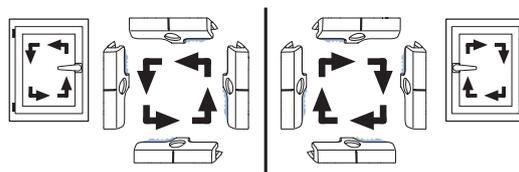


Note: The running surfaces of the adjustment mechanism of the keep must be kept clean.

Ascertaining the run-in sides

See figure: Run-in sides

- Left-handed window; handle right
- Right-handed window; handle left

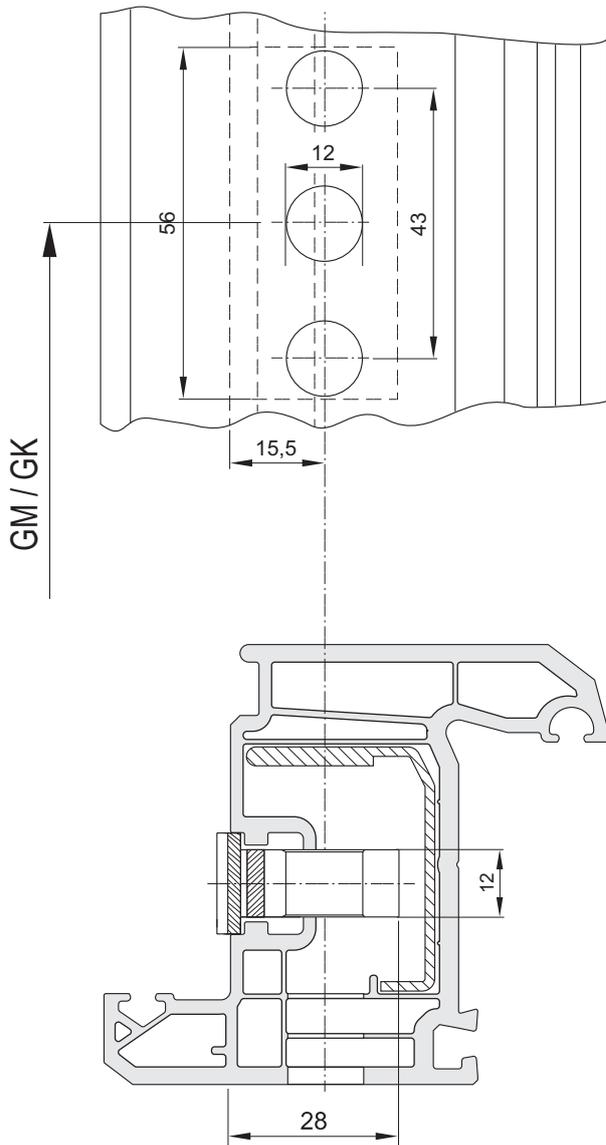


Run-in sides

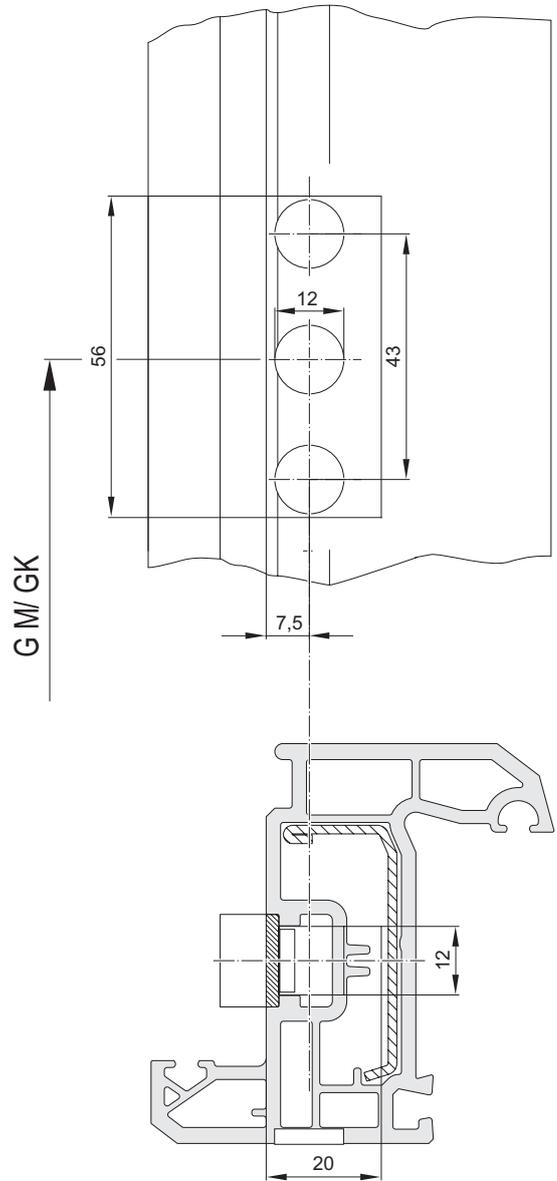
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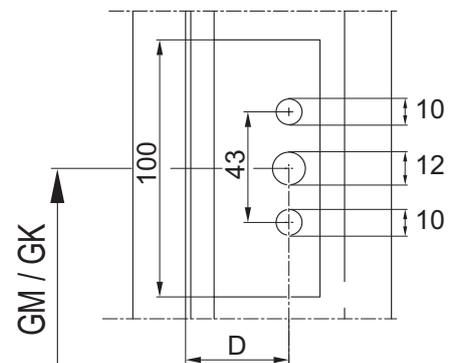
Drive rods



B-3-1: Drilling and milling instructions GAK/GAM ... D = 15.5 mm

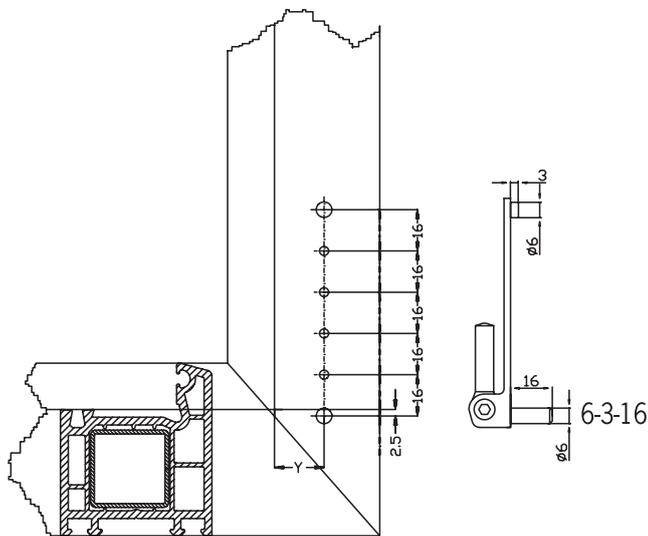


B-3-2: Drilling and milling instructions GAK/GAM ... D = 7.5 mm



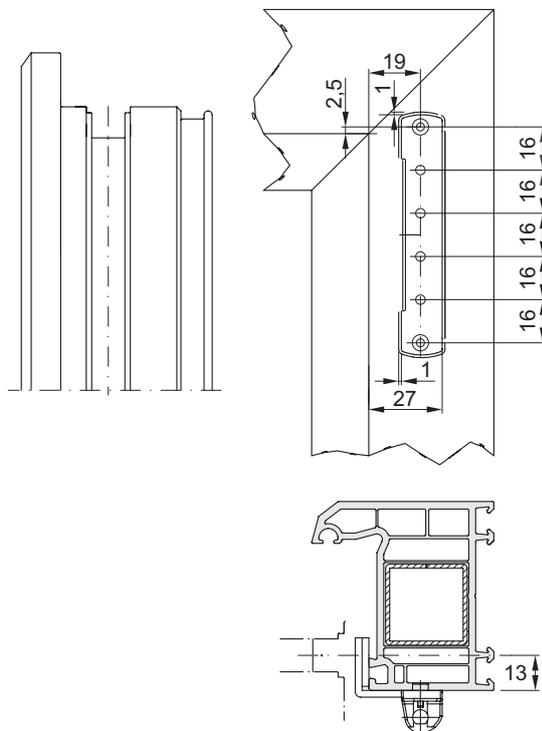
B-3-4: Drilling and milling instructions GAK/GAM ... D 25 ... 50
D = Backset

Corner hinge ESV



B-6-3: Drilling template corner hinge ESV
Y = 19 mm

Shears / shear hinges



B-7-1: Drilling template shear hinge SL.KS. ...

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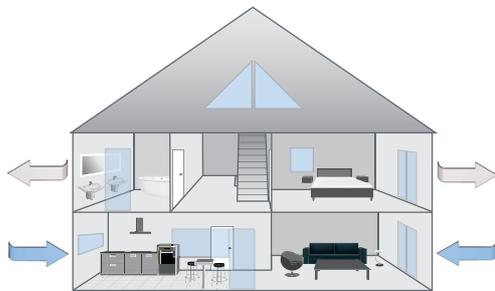
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activPilot Comfort PADM

The parallel action turn fitting system for motorised drives.

activPilot Comfort PADM can perform many tasks at the same time.

For this reason Winkhaus has developed the unique and multifunctional activPilot Comfort PADM fitting system. The fitting in combination with the BDT drive from D+H Mechatronic AG enables rooms to be ventilated naturally with burglar resistance remaining at a high level. Hence it provides for healthy ambient air and a positive energy efficiency. In this way people can ventilate their homes while they are absent. Intruders must stay outside and the entry of driving rain and traffic noise is substantially reduced.



Standards and instructions

ENEV 2014

The energy saving regulations stipulate that buildings be tight when they are built or refurbished. This legal provision even applies to the restoration of old buildings when 1/3 of the entire building is replaced or rebuilt. The regulations must also be observed in case a building is enlarged by at least 30 m² or by a room of the same size (besides there are building regulations for fire and noise protection and for listed buildings). The building to be constructed must be matched with a reference building (according to EnEV2014). No deviations from the reference buildings are tolerated.

DIN 1946-6:2009-05

§6 of the EnEV 2009 regulations stipulates the tightness of a building as well as a sufficient minimum exchange of air. DIN 1946-6:2009-5 can be used to provide evidence. A ventilation concept must be established in order to meet this standard's requirements. The result of such a ventilation concept can either be that a building is sufficiently ventilated or that additional action is required to observe the minimum exchange of air. If adequate ventilation is provided, no ventilation measures need to be taken. If, on the other hand, measures are necessary, the standard states that energetic exhaust systems must be operable without action required on part of users or that they have to include a heat pump.

Ventilation measures

Ventilation measures required – refurbishment

				Implementation to DIN1946-6 (2009-05) Building unit	
				Single-storey *1	Multi-storey *2
Heat protection level	low	Wind area	weak	yes	yes (up to 80 m²)
			strong	yes	no
	high		weak	yes	no
			strong	yes (up to 140 m²)	no

Ventilation measures required – new building

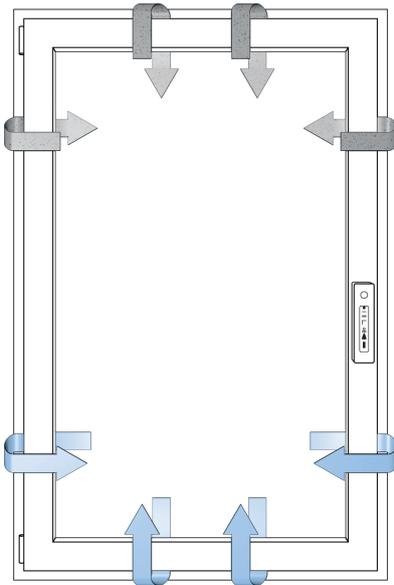
				Implementation to DIN 1946-6 (2009-05) Building unit	
				Single-storey *1	Multi-storey *1
Heat protection level	high	Wind area	weak	yes	yes (up to 80 m²)
			strong	yes (up to 140 m²)	no

*1 n50 = 1,5h-1
*2 n50 = 2,0h-1

Effective ventilation with activPilot Comfort PADM

Compared to conventional turn-tilt windows, the activPilot Comfort PADM fitting system provides three functions: locked – parallel action – turn position. Winkhaus has consistently pursued its strategy as market leader of the parallel action system and has developed a motorised version. Apart from the turn opening, the fitting system allows the sash to be opened in the parallel position, thus providing a motorised control of window positions for user-independent indoor ventilation. In the parallel position a small gap of approx. 6 mm is created between the window frame and the sash enabling a healthy and gentle ventilation in all weathers. The natural exchange of air ensures a healthy indoor climate. As with traditional systems, you can also open the window fully to let in fresh air.

The unique feature in this connection: The parallel opening position (rectangular windows) enables the same burglar resistance as the closed position of the window, burglar resistance to DIN EN 1627-1630 up to resistance class RC 2. The innovation: ventilate your home without letting burglars in!



Operation and manufacturer-friendly system

activPilot Comfort PADM in combination with the BDT fitting drive from D+H enables a natural exchange of air in accordance with DIN1946-6. Since ventilation functions such as pre-set ventilation intervals can be adjusted as required, fresh air is supplied to interiors with no action needed on the part of users. In order to open the window fully, simply press the button that enables the bracket drive to release the sash for the turn position. Then the window can be opened manually.

The remote control unit facilitates the operation of windows that are difficult to access. Low power consumption, a backlit touch panel with self-explanatory button symbols as well as the low-noise mode round off the functions of this modern ventilation system. Like all Winkhaus fittings the activPilot Comfort PADM system is highly manufacturer-friendly and can be easily implemented with just a few additional components from the

activPilot Concept range. The fittings are ordered with Winkhaus by window producers, as usual, and the bracket drive can be obtained from authorised D+H partners.

The innovative activPilot Comfort PADM window system is a real alternative to conventional ventilation systems.

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In order to ascertain the amount of air that can be exchanged against the pressure difference, you can use the chart to determine the volume flow per running metre (sash rebate sizes).

Example:

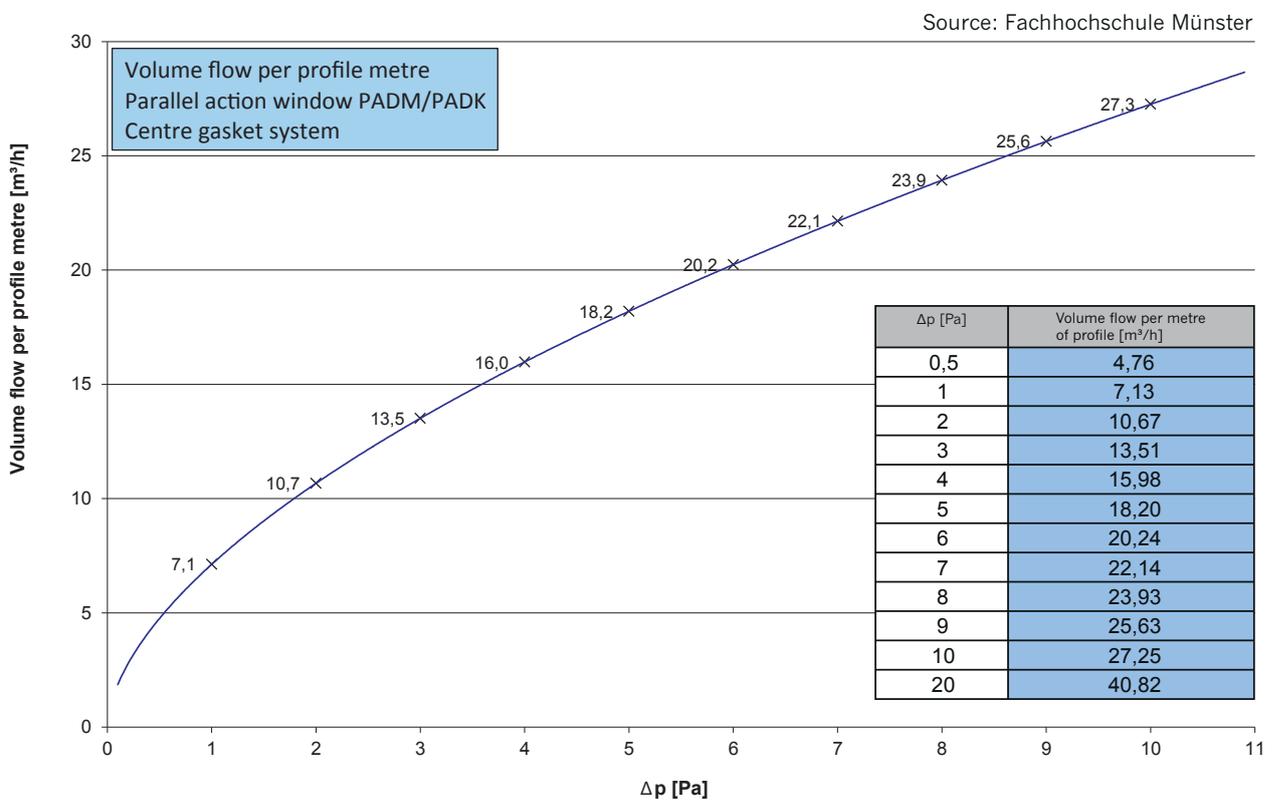
With a pressure difference of 2 Pa there is an exchange of air of approx. 10.7 m³/h per running metre. This means that the air that is exchanged through a window 1 x 1 m amounts to 42.5 m³.



The information given refers to a ventilation gap of approx. 6 mm.

Wind velocities

Pa	m/sec	km/h	Wind strength in bft
2	1,8	6,6	2
3	2,2	8,1	
4	2,6	9,3	
5	2,9	10,4	
8	3,5	12,7	3
10	4,1	14,7	
15	5,0	18,0	
20	5,8	20,8	4
50	9,1	32,9	5
100	12,9	46,5	6
300	22,4	80,5	9
600	31,6	113,8	11



activPilot Comfort PADM

Application diagram for ascertaining the admissible sash sizes

– Max. sash weight 100 kg



For PVC-U windows with 12 mm airgap



For parallel action rectangular turn window

Width-to-height ratio and additional load

Value calculated without additional load for a width-to-height ratio of 1.5:1.

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!

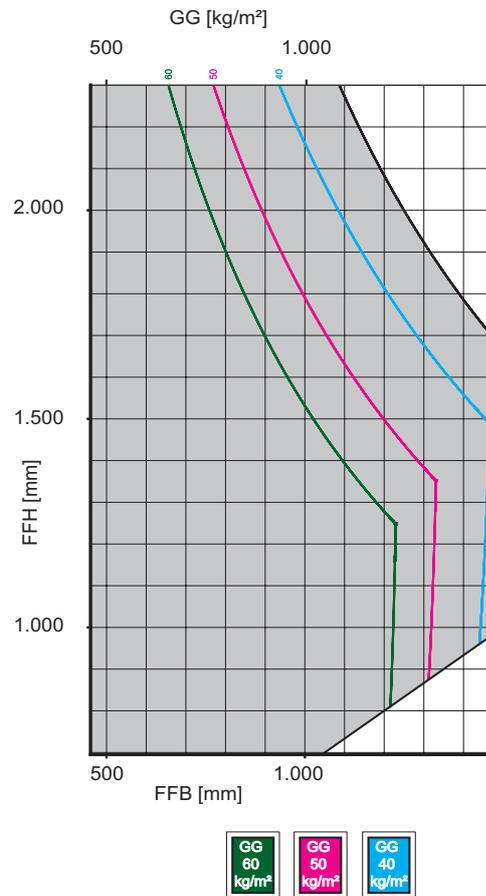
Advice for use

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 460 mm
- Max. sash rebate width 1,475 mm
- Min. sash rebate height 695 mm (surface-mounted cable transition)
- Min. sash rebate height 820 mm (concealed cable transition)
- Max. sash rebate height 2,800 mm
- Max. sash size 2.5 m²
- Max. sash weight 100 kg
- Width-height ratio $FFB:FFH \leq 1.5$
- Airgap 12 mm
- Overlap 20 mm
- Groove centre position 13 mm
- Frame rebate depth min. 29 mm
- Approved for centre gasket systems and rebate sealing systems with rain guard.



AWD_01.50_NR15_DK_100 kg_ohne_Zusatzlast_1,5_1475_m

Abbreviations

- FFB = Sash rebate width [mm]
- FFH = Sash rebate height [mm]
- GG = Glass weight per square metre [kg/m²]

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.

System Testing RC 2 (Resistance Class 2)

The processing details RC 2 can be gathered from the RC 2 system tests. The RC 2 fitting lists in this catalogue are only application examples. Please turn to your Winkhaus contact person.



Important: activPilot Comfort fittings are not suitable for use in panic doors! They are not recommended for passage doors.

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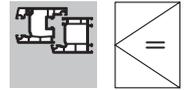
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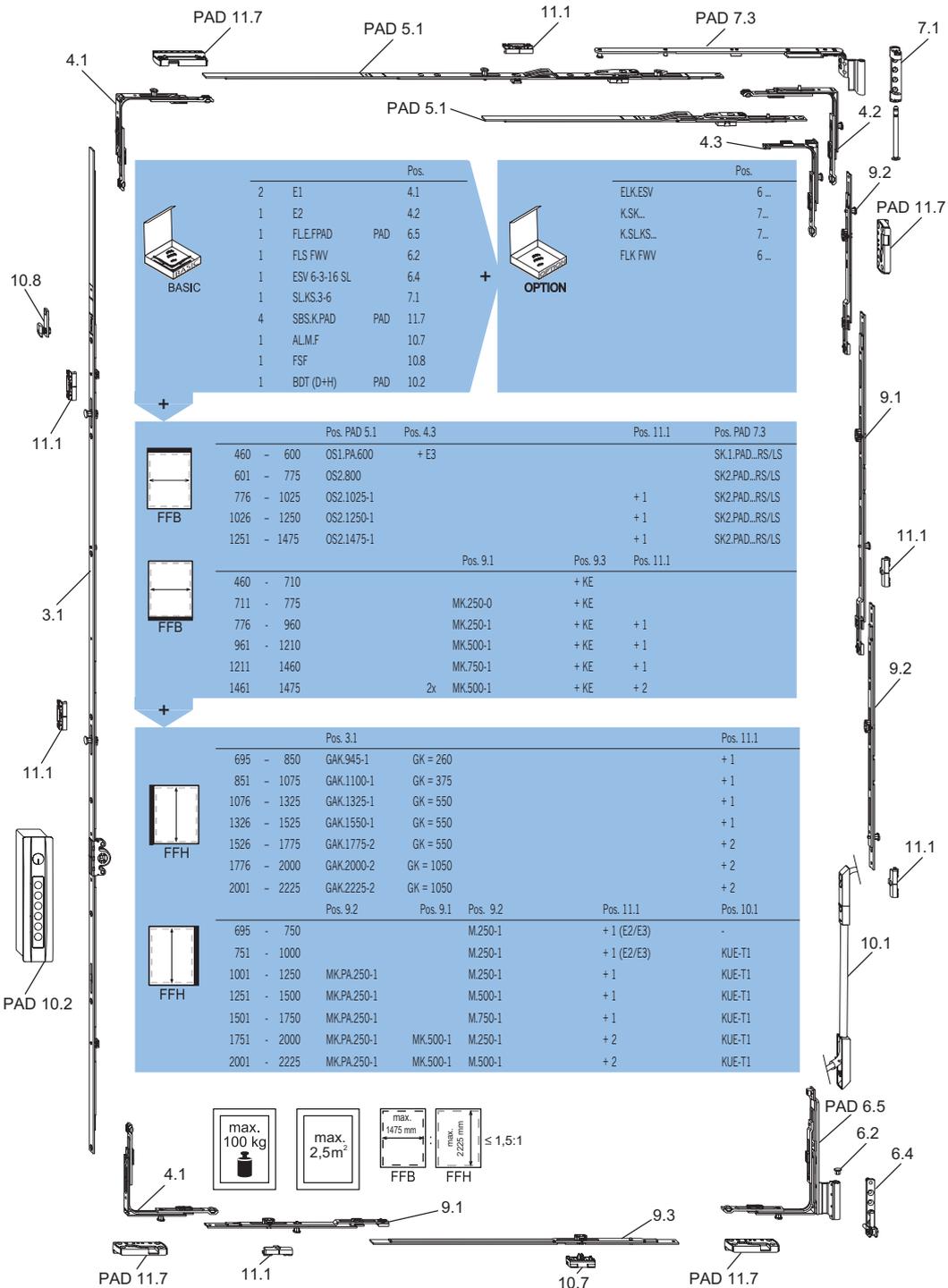
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Turn fittings with parallel action – fixed handle position



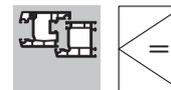
Basic equipment

activPilot Comfort PADM



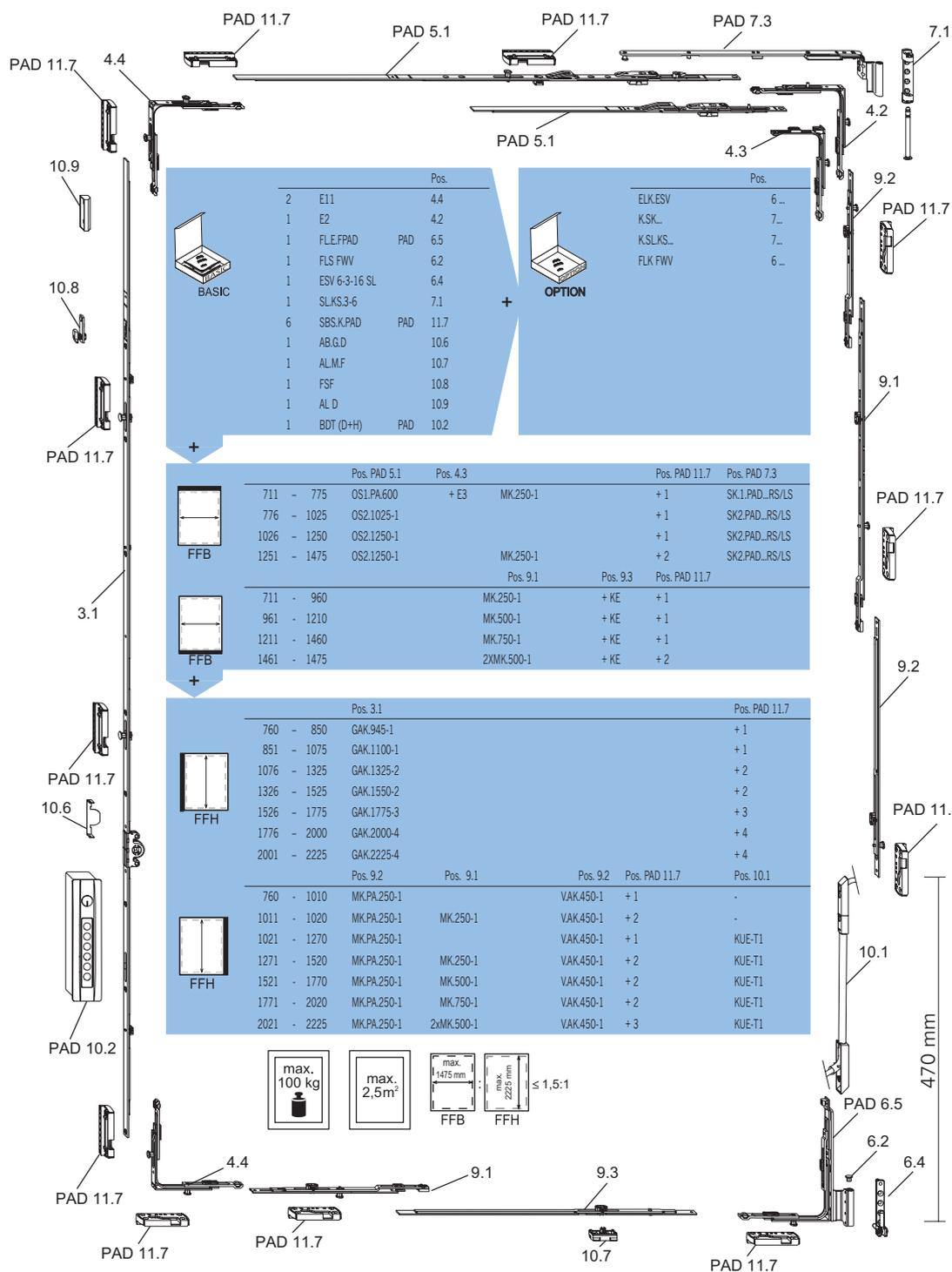
The elements marked "PAD" are specifically intended for use with activPilot Comfort PADM fittings.
 Note: For control of the motor please contact D+H Mechatronic.
 For small sash heights it is important to use a surface-mounted cable transition!

Turn fittings with parallel action – fixed handle position



Suitable for RC 2 burglary-resistant windows

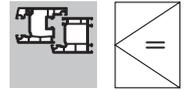
activPilot Comfort PADM



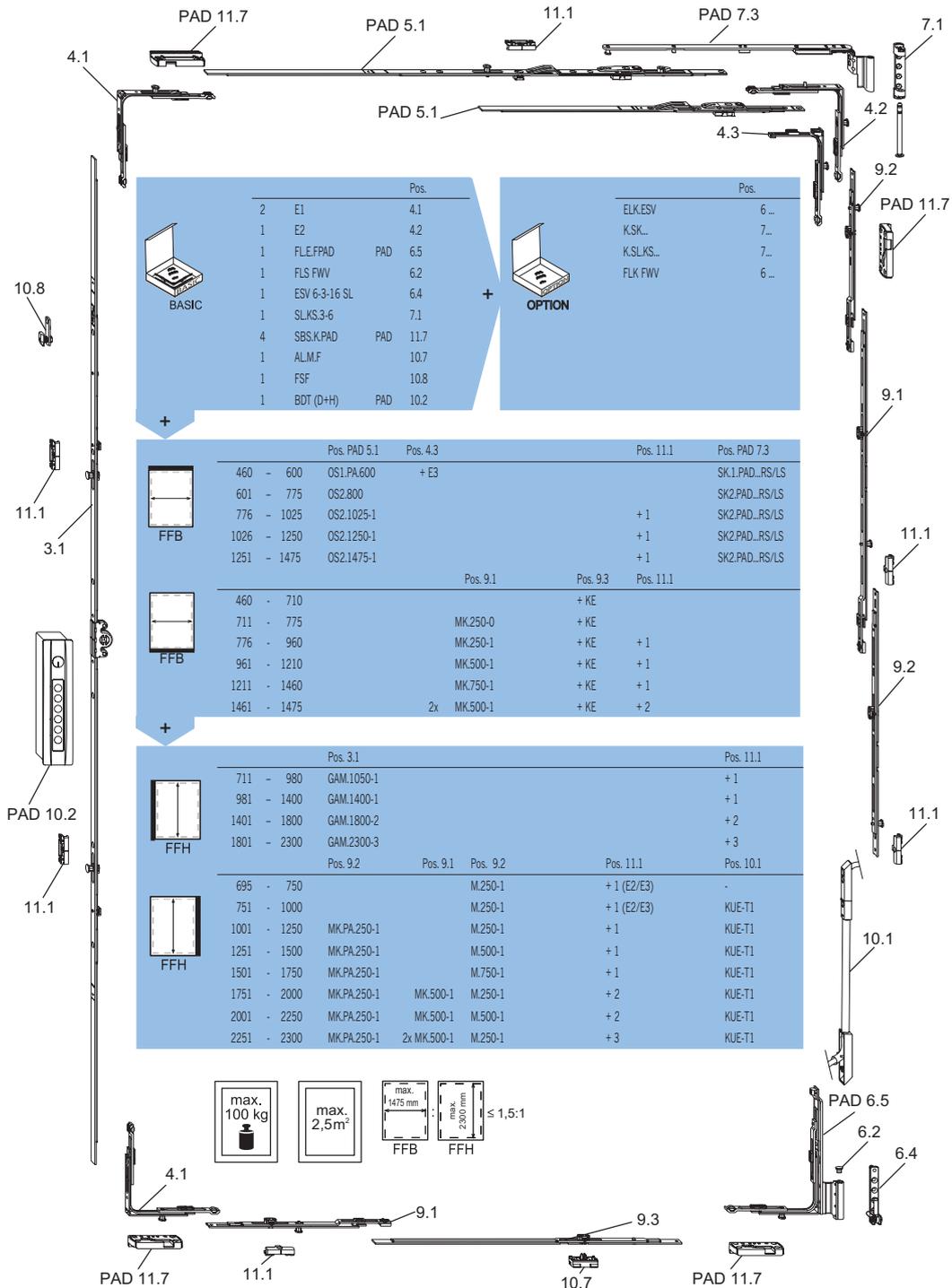
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 For RC 2 please observe the profile-related fitting configuration of the system tests.

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Turn fittings with parallel action – central handle position

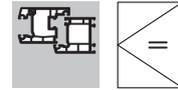


Basic equipment activPilot Comfort PADM

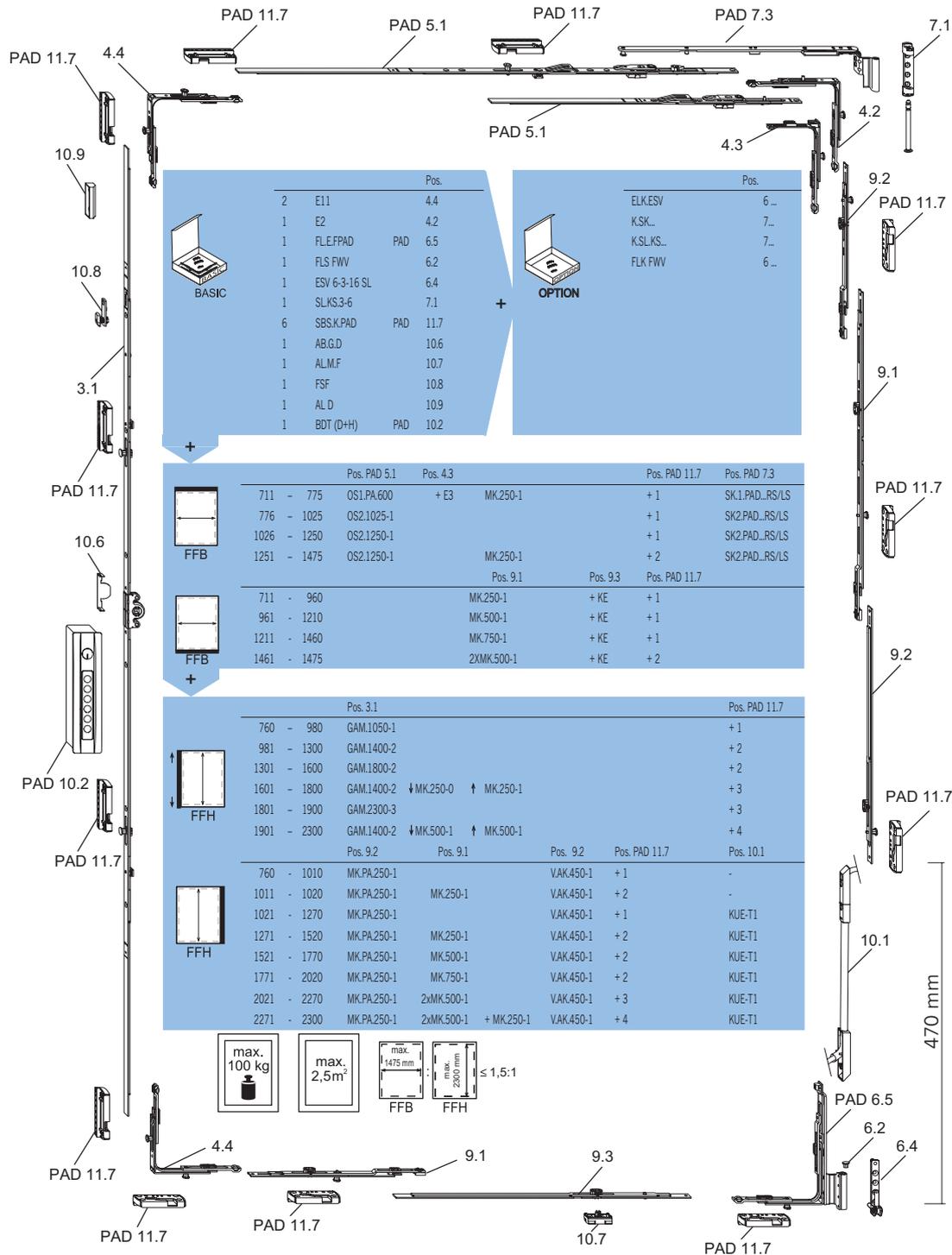


The elements marked "PAD" are specifically intended for use with activPilot Comfort PADM fittings.
 Note: For control of the motor please contact D+H Mechatronic.
 For small sash heights it is important to use a surface-mounted cable transition!

Turn fittings with parallel action – central handle position



Suitable for RC 2 burglary-resistant windows
 activPilot Comfort PADM



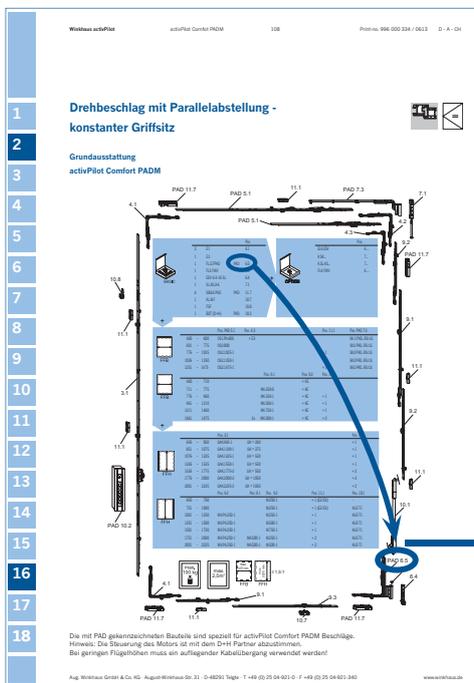
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Quick orientation

Our register system allows you to quickly allocate the listed component to the item in the fitting overview drawing. The item number specifies the chapter number in which the component can be found.

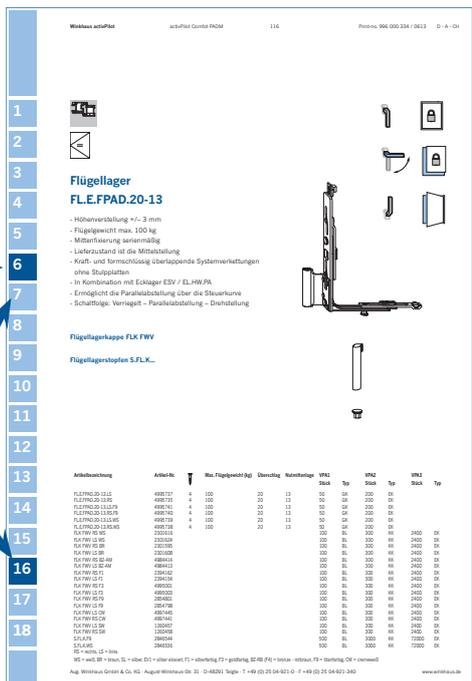
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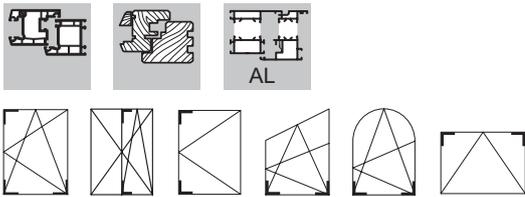


activPilot Comfort PADM

PAD

activPilot Comfort PADM





Corner drive E1

- Useable left and right hand
- Bracket length 98.5 mm
- Safety locking pin as an adjustable octagonal bolt
- Automatic and manual assembly possible
- Smooth operation, due to rust-free spring steel hinges inserted in C-rail
- Central fastening as standard
- Turn position is the factory default
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates

Corner drive E1.N

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

Corner drive E11

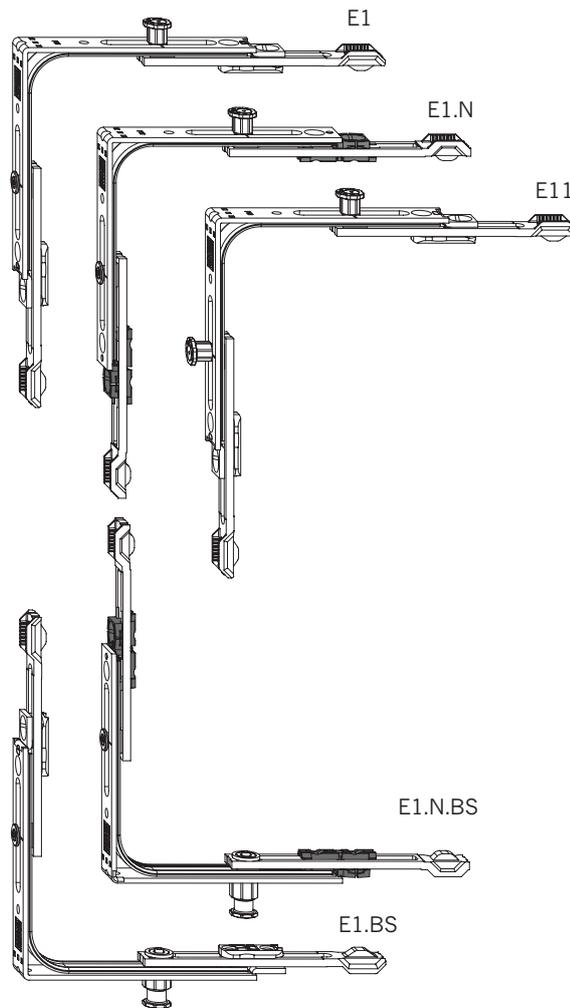
- Same construction as E1 with an additional octagonal bolt on the second arm

Corner drive E11.F

- Clampable design

Corner drive E1.BS

- Bottom corner drive with extended bolt for balcony doors with low threshold
- ...BS13 for airgaps 7 – 9 mm from upper edge of ground sill clip rail
- ...BS16 for airgaps 10 – 12 mm from upper edge of ground sill clip rail
- Not suitable for activPilot Comfort / duoPort PAS



Item description	Item No.		VPA1		VPA2	
			Qty.	Type	Qty.	Type
E1	2841823	4	100	KK	2400	EK
E1.N	5019146	4	100	KK	2400	EK
E11	4936017	4	100	KK	2400	EK
E11.F	4942960	4	100	KK	2400	EK
E1.BS13	4941425	4	100	KK	800	EK
E1.BS16	4926330	4	100	KK	800	EK
E1.N.BS16	5026983	4	100	KK	800	EK

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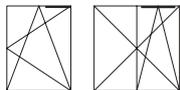
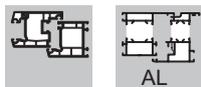
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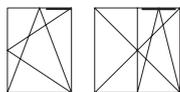
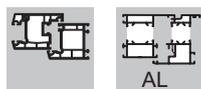


Top rod OS1.PA.600



- In combination with shears SK1.PA...
- OS1.PA.600 is always combined with an E3 corner drive on the hinge side
- Integrated anti-slam block in tilt position as standard
- After assembly the top rod and the shear are firmly attached to one another
- Clampable in fitting groove
- Useable left and right hand
- Central fastening as standard
- Turn position is the factory default
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates

Item description	Item No.	Scope of application		VPA1 Qty.	Type	VPA2 Qty.	Type
OS1.PA.600	4965080	FFB 460 - 600	1	20	BD	800	EA



Top rod OS2

- OS2 ... is used in combination with E2 on the hinge side
- In combination with shears SK2/SH2/SHW2
- 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
- Safety locking pin as an adjustable octagonal bolt
- Useable left and right hand
- Central fastening as standard
- Turn position is the factory default
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates



Item description	Item No.	Scope of application		VPA1 Qty.	Type	VPA2 Qty.	Type
OS2.800	4928979	FFB 600 - 800	4	20	BD	800	EA
OS2.1025	2849278	FFB 775 - 1025	5	20	BD	500	EA
OS2.1025-1	2848275	FFB 775 - 1025	5	20	BD	500	EA
OS2.1250-1	2848291	FFB 1000 - 1250	6	20	BD	500	EA
OS2.1475-1	2848304	FFB 1225 - 1475	6	20	BD	500	L1

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activPilot Comfort PADM **16**

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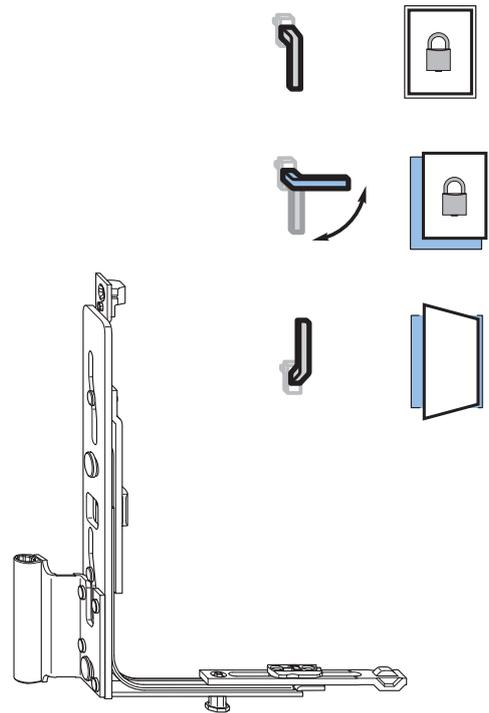
activPilot Comfort PAD **18**



Sash hinge

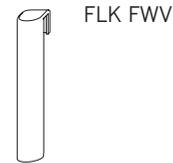
FL.E.FPAD.20-13

- Height adjustment +/- 3 mm
- Sash weight max. 100 kg
- Central fastening as standard
- Central position is the factory default
- Overlapping system linkage without connecting plates
- In combination with corner hinge ESV / EL.HW.PA
- Parallel action possible via the control curve
- Switch sequence: locked position – parallel action – turn position



Sash hinge cover FLK FWV

Sash hinge plug FLS FWV



FLK FWV



FLS FWV

Item description	Item No.		Max. sash weight (kg)	Overlap	Groove centre position	VPA1 Qty.	Type	VPA2 Qty.	Type	VPA3 Qty.	Type
FL.E.FPAD.20-13.LS	4995737	4	100	20	13	50	GK	200	EK		
FL.E.FPAD.20-13.RS	4995735	4	100	20	13	50	GK	200	EK		
FL.E.FPAD.20-13.LS.F9	4995741	4	100	20	13	50	GK	200	EK		
FL.E.FPAD.20-13.RS.F9	4995740	4	100	20	13	50	GK	200	EK		
FL.E.FPAD.20-13.LS.WS	4995739	4	100	20	13	50	GK	200	EK		
FL.E.FPAD.20-13.RS.WS	4995738	4	100	20	13	50	GK	200	EK		
FLK FWV RS WS	2301616					100	BL	300	KK	2400	EK
FLK FWV LS WS	2301624					100	BL	300	KK	2400	EK
FLK FWV RS BR	2301595					100	BL	300	KK	2400	EK
FLK FWV LS BR	2301608					100	BL	300	KK	2400	EK
FLK FWV RS BZ-AM	4984414					100	BL	300	KK	2400	EK
FLK FWV LS BZ-AM	4984413					100	BL	300	KK	2400	EK
FLK FWV RS F1	2394162					100	BL	300	KK	2400	EK
FLK FWV LS F1	2394154					100	BL	300	KK	2400	EK
FLK FWV RS F3	4995001					100	BL	300	KK	2400	EK
FLK FWV LS F3	4995003					100	BL	300	KK	2400	EK
FLK FWV RS F9	2854801					100	BL	300	KK	2400	EK
FLK FWV LS F9	2854798					100	BL	300	KK	2400	EK
FLK FWV LS CW	4997445					100	BL	300	KK	2400	EK
FLK FWV RS CW	4997441					100	BL	300	KK	2400	EK
FLK FWV LS SW	1260457					100	BL	300	KK	2400	EK
FLK FWV RS SW	1260458					100	BL	300	KK	2400	EK
FLS FWV BR	1521625					500	BL	5000	KK	40000	EK
FLS FWV F9	2854819					500	BL	5000	KK	40000	EK
FLS FWV SL	1993420					500	BL	5000	KK	40000	EK
FLS FWV WS	1521617					500	BL	5000	KK	40000	EK

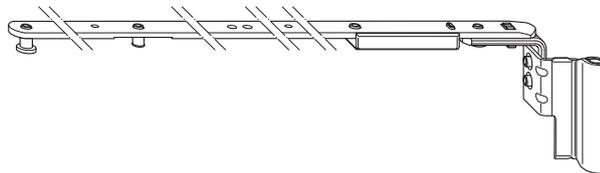
RS = right, LS = left

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



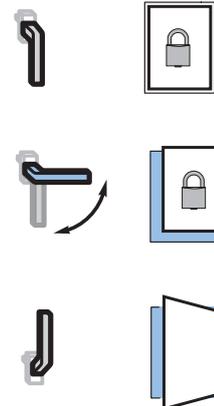
Shears SK ... PAD.20-13

- Suitable for top rods OS1/OS2
- For 20 mm overlap and 13 mm groove centre position
- Adjustment for lifting and lowering the sash (+3.5/-2.0 mm)
- Parallel opening approx. 6 mm
- After assembly the top rod and the shear are firmly attached to one another
- Integrated turn restriction via plastic sleeve in shear hinge
- Sash weight max. 100 kg
- With integrated control curve
- Switch sequence: locked position – parallel action – turn position
- Switch sequence matched with sash hinge FLE.FPAD.20-13



Shear hinge cap K.SK

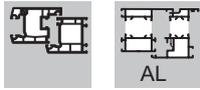
- Useable left and right hand
- See shear hinge SL.KS, SL.KB, SL.HW



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Item description	Item No.	VPA1		VPA2		VPA3	
		Qty.	Type	Qty.	Type	Qty.	Type
SK1.PAD.20-13.LS	4993973	10	BD	60	KK	1440	EK
SK1.PAD.20-13.RS	4993972	10	BD	60	KK	1440	EK
SK1.PAD.20-13.LS.F9	4993977	10	BD	60	KK	1440	EK
SK1.PAD.20-13.RS.F9	4993976	10	BD	60	KK	1440	EK
SK1.PAD.20-13.LS.WS	4993975	10	BD	60	KK	1440	EK
SK1.PAD.20-13.RS.WS	4993974	10	BD	60	KK	1440	EK
SK2.PAD.20-13.LS	4993979	10	BD	80	GK	960	EK
SK2.PAD.20-13.RS	4993978	10	BD	80	GK	960	EK
SK2.PAD.20-13.LS.F9	4993983	10	BD	80	GK	960	EK
SK2.PAD.20-13.RS.F9	4993982	10	BD	80	GK	960	EK
SK2.PAD.20-13.LS.WS	4993981	10	BD	80	GK	960	EK
SK2.PAD.20-13.RS.WS	4993980	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



Cable transition

KUE-T1

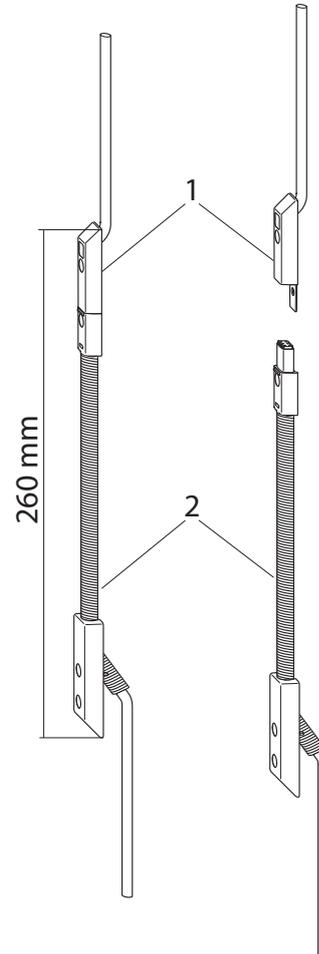
- Cable transition covered in the airgap, e. g. for motor-controlled windows
- Separable sash part and frame part which can be secured with a screw
- Serves as electric interface between the window sash and the frame
- Sash element with spring jacket and plug socket to screw into the 16 mm fitting groove
- Frame element with coupling point
- Installation drawing and laying of cables see group 15 drawing B-11-12
- Max. opening angle of the sash: 90°

Technical data

- Total length: approx. 260 mm
- Cable length of sash element: approx. 5 m
- Cable length of frame part: approx. 5 m
- Max. transmission voltage 48 Volt DC
- Max. switch current: 2 amperes per connection cable
- Wire cross section 6 x 0.25 mm²
- Conductor resistance: 0.25 mm², max. 78 ohm/km
- Cable length: 4.9 mm
- IP 54 rating (protected against dust and splash water)
- Cable: without CFC and halogen

Scope of delivery:

- Sash part
- Frame part
- 3 screws 3 x 20 mm
- 1 piece of screw 2.9 x 32 mm
- Mounting Instructions



1. Frame part

2. Sash part

Wire colours: brown, white, rose, grey, green, yellow

Item description	Item No.	VPA1		VPA2		VPA3	
		Qty.	Type	Qty.	Type	Qty.	Type
KUE-T1	4992274	1	BL	20	GK	240	EK



Drilling protection AB.G.D

- Protects drive rods against drilling open from the outside in line with DIN EN 1627-1630
- Useable left and right hand
- Material: steel 1 mm thick, hardened

Drilling protection AB.G.D.15.5

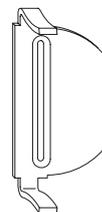
- Backset 15.5 mm

Drilling protection AB.G.D.7.5

- Backset 7.5 mm



AB.G.D.15,5



AB.G.D.7,5

Item description	Item No.	VPA1		VPA2		VPA3	
		Qty.	Type	Qty.	Type	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

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Bracket drive BDT



BDT Series

Convenience in parallel action

The BDT bracket drive automatically controls ventilation in rooms at set times, for a healthy interior climate throughout the building.

The high-end bracket drive combines appealing looks and user-friendly operation. Its timeless, high-end design comes in several choices of colours, to harmonise with any interior. The backlit touch panel with self-explanatory button symbols is child's play to use. For even more convenience, the BDT can also be operated by remote control.

— CLOSE

Briefly press to close the drive.

⌋ OPEN to the turning position

Push for 1 s and the drive moves the window to the turning position for normal, manual opening.

🕒 Timer-controlled ventilation

Briefly push once to move the drive to the parallel opening position. After a ventilation time of 10 minutes, it moves back to the closed position. Pushing the key again extends the ventilation time by 10 minutes each time:

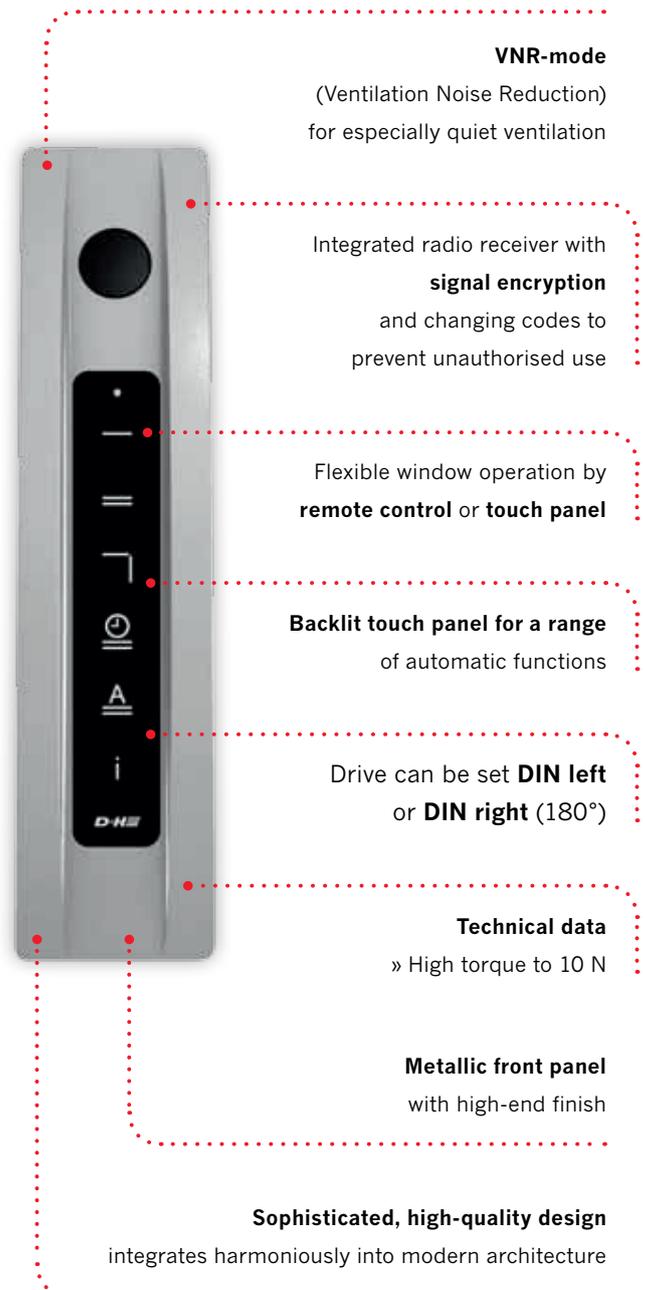
Pushed once: ventilate for 10 min.

Pushed twice: ventilate for 20 min.

Pushed three times: ventilate for 30 min.

A Automatic/interval ventilation

Briefly pushing the automatic key activates automatic or interval ventilation. If this is activated, the drive will move to the parallel opening position and ventilate the room for 10 minutes every hour.



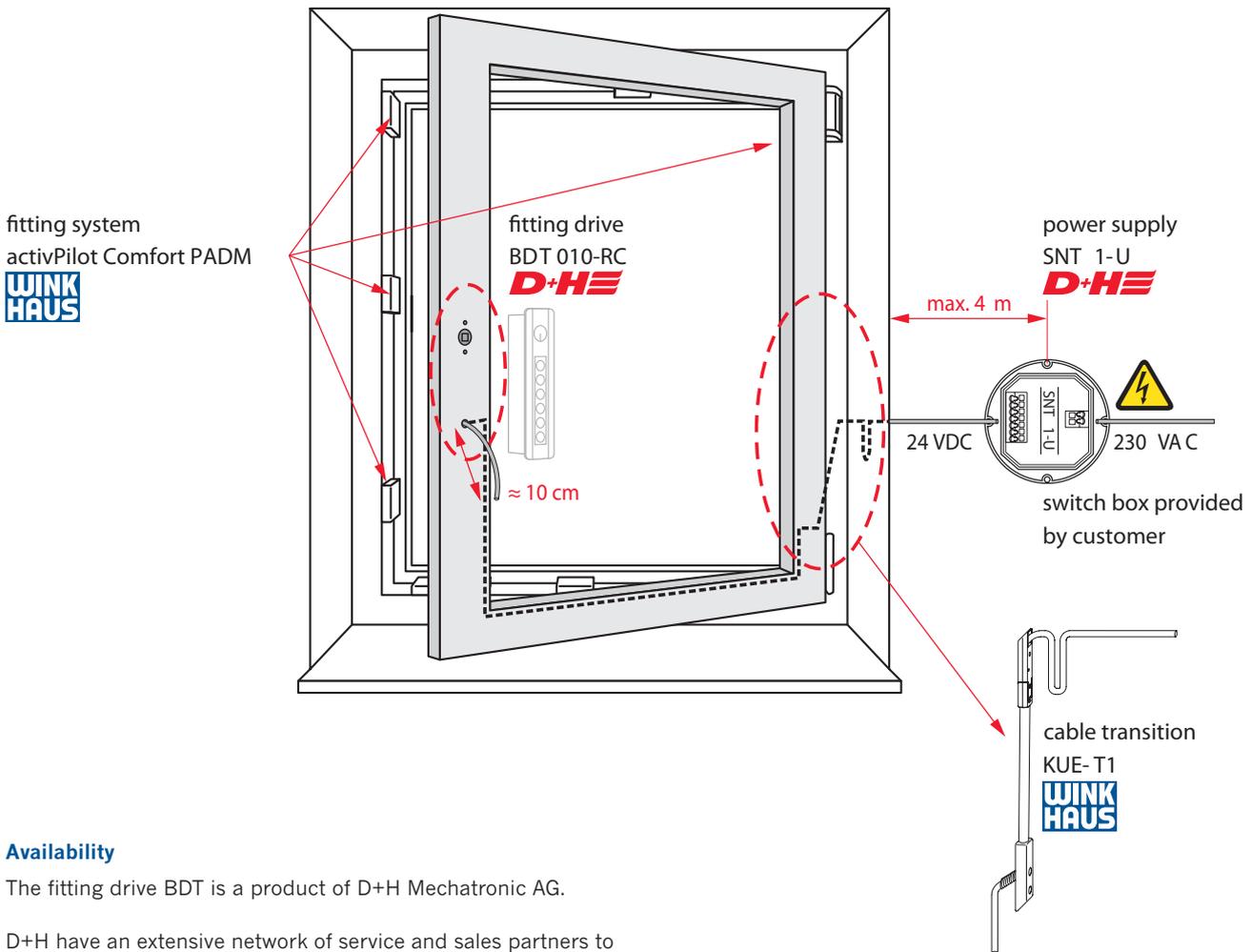
activPilot Comfort PADM with BDT 010-RC bracket

drive

Attached please find the product catalogue of the BDT series of D+H Mechatronic AG. For information on the BDT fitting drive you can also visit the website www.dh-partner.com.



Please note: Winkhaus does not deliver the motor drive for activPilot Comfort PADM fittings. The drive is supplied by D+H Mechatronic AG.



Availability

The fitting drive BDT is a product of D+H Mechatronic AG.

D+H have an extensive network of service and sales partners to distribute their products.

Here are the contact details:

D+H Mechatronic AG
Georg-Sasse-Str. 28 - 32
D-22949 Ammersbek

T +49 40 60565-0 / F +49 40 60565-222

www.dh-partner.com, info@dh-partner.com

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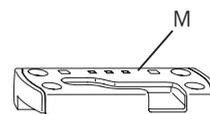
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activPilot
Comfort PAD



Security keep

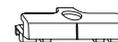
SBS.K.PAD

- Profile dependent see Group 11, Frame Parts
- Circumferential installation situation
- Available for mounting left and right hand
- Number of screws: 4
- The keep is marked "M" on the web for identification.
- Switch sequence: locked position – parallel action – turn position



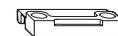
Keep SBAK

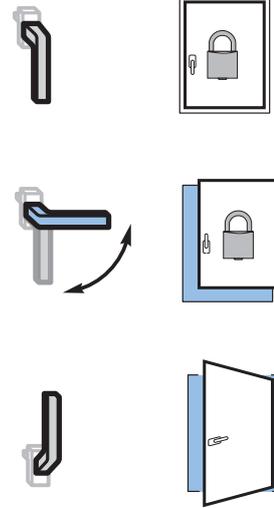
- Profile dependent see Group 11, Frame Parts
- Useable left and right hand



Spacer FT WSK

- Profile dependent see Group 11, Frame Parts
- Useable left and right hand





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Aluplast	
Ideal 4000 - 8000	
FT WSK 66	1530185
SBA.K.161	2824071
SBS.K.PAD.161.RS	4995614
SBS.K.PAD.161.LS	4995615

Kömmerling	
Classic, Elegance, Avantgarde	
FT WSK144	1326221
SBA.K.144	2920652
SBS.K.PAD.144.RS	4995608
SBS.K.PAD.144.LS	4995609

Schüco	
Corona 70 / Corana SI 82	
FT WSK 61	1497653
SBA.K.166	4930272
SBS.K.PAD.166.RS	4995618
SBS.K.PAD.166.LS	4995619

Deceuninck	
Zendow	
FT WSK 169	2356596
SBA.K.169	4926362
SBS.K.PAD.169.RS	4995620
SBS.K.PAD.169.LS	4995621

Rehau	
Geneo	
FT WSK 60	1345393
SBA.K.160	4933116
SBS.K.PAD.160.RS	4995612
SBS.K.PAD.160.LS	4995613

Trocal	
InnoNova 2000 / 88+	
FT WSK 226	2304155
SBA.K.126	4926196
SBS.K.PAD.126.RS	4995604
SBS.K.PAD.126.LS	4995605

Gealan	
6000, 7000, 8000	
FT WSK 62	1348121
SBA.K.162	4929796
SBS.K.PAD.162.RS	4995616
SBS.K.PAD.162.LS	4995617

S735, Brilliant, Thermo-Design, Brilliant-Design, Basic-Design	
FT WSK 60	1345393
SBA.K.60	2824046
SBS.K.PAD.60.RS	4995602
SBS.K.PAD.60.LS	4995603

InnoNova A5 / M5	
FT WSK 226	2304155
SBA.K.226	2921090
SBS.K.PAD.226.RS	4995626
SBS.K.PAD.226.LS	4995627

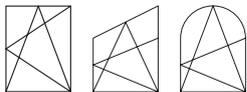
Inoutic	
Arcade, Prestige, Deluxe, Elite, MD100, Eforte	
FT WSK 192	1330722
SBA.K.192	4932272
SBS.K.PAD.192.RS	4995622
SBS.K.PAD.192.LS	4995623

Salamander	
blueEvolution	
FT WSK 134	1537651
SBA.K.28	4926452
SBS.K.PAD.128.RS	4995606
SBS.K.PAD.128.LS	4995607

VEKA	
Softline 70 AD/MD, Topline AD, Swingline, Alphaline	
FT WSK 152	1787079
SBA.K.152	2824062
SBS.K.PAD.152.RS	4995610
SBS.K.PAD.152.LS	4995611

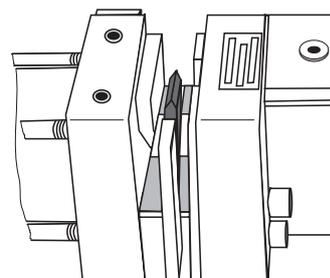
KBE	
70 AD / 70 MD	
FT WSK 205	1809590
SBA.K.205	2922210
SBS.K.PAD.205.RS	4995624
SBS.K.PAD.205.LS	4995625

Salamander	
2D / 3D / MD / Streamline	
FT WSK 134	1537651
SBA.K.28	4926452
SBS.K.PAD.28.RS	4995600
SBS.K.PAD.28.LS	4995601



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

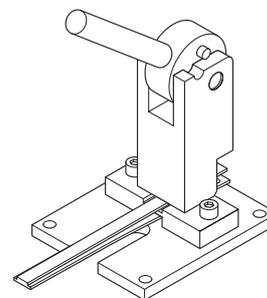
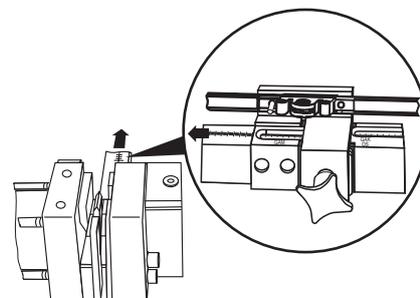


Ruler LIN AP/FS

- 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

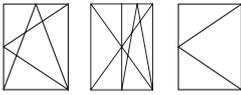
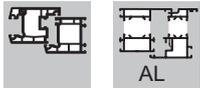


Item description

BST AP/FS
LIN AP/FS
AP.HH

Item No.

1466339
1466321
4970430



Drilling jig LE.B.EL-SL.K

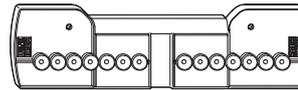
- Drilling jig to drill the pilot holes for corner and shear hinges
- Overlap dimension adjustable from 18 to 22 mm
- Preadjusted to a defined dimension

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

- For hinge with 3 mm pin

LE.B.EL-SL.K.BR

- For 130 kg hinge



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
LE.B.EL.SL.K. BR-18	4966348	18
LE.B.EL.SL.K. BR-20	4966350	20
LE.B.EL.SL.K. BR-21	4966351	21
LE.B.EL.SL.K. BR-22	4966352	22

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Jig PADK

- Jig for positioning security keeps SBS.K.PAB

Jig LE.N.PADK

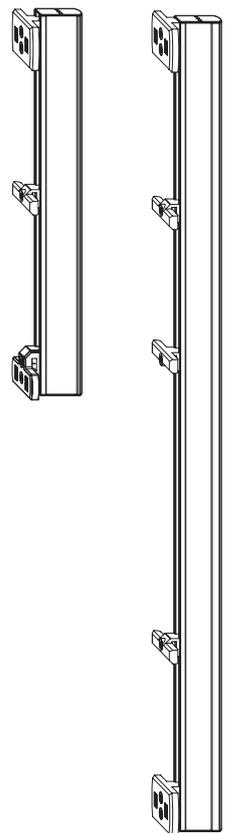
- Used for positioning SBS.K.PAB keeps in the frame rebate of the corner area
- Useable left and right hand

Jig LE.N.SBS.K

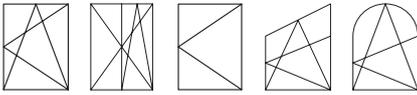
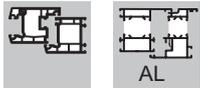
- Used for positioning SBS.K.PAB keeps in the frame rebate (except the corner areas)
- Useable left and right hand

LE.N.PADK

LE.N.K.SBS.K



Item description	Item No.	VPA1 Qty.	Type	VPA2 Qty.	Type
LE.N.PADK	4969653	25	KK	200	EK
LE.N.K.SBS.K.PAD.RC2.BD	5004340	25	EA		
LE.N.K.SBS.K.PAD.RC2.OB.UN	5004341	25	EA		
LE.N.K.SBS.K.PAD.RC2.UN	5004342	25	EA		
LE.N.K.SBS.K.PAD.RC2.GTR.BD.1	5004343	25	EA		
LE.N.K.SBS.K.PAD.RC2.GTR.BD.2	5004344	25	EA		
LE.N.K.SBS.K.PAD.RC2.GTR.BD.3	5004345	25	EA		
LE.N.K.SBS.K.PAD.RC2.GTR.BD.4	5004346	25	L1		
LE.N.K.SBS.K.PAD.RC2.GTR.BD.5	5004347	25	L1		
LE.N.K.SBS.K.PAD.RC2.GTR.BD.6	5004348	25	L2		

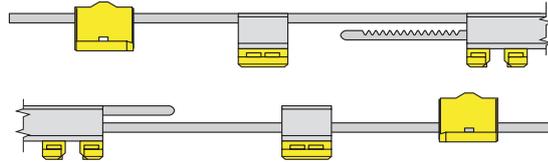


Jigs

- Used to position keeps in frame rebate
- Useable 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



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

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Mounting Instructions

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Notes on these assembly instructions
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Shortening the fittings
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Assembly of the turn fitting system
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7

Function test
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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 width 460 mm
- Max. sash rebate width 1,475 mm
- Max. sash rebate height 2,800 mm
- Max. sash size 2.5 m²
- Min. sash rebate height 695 mm (surface-mounted cable transition)
- Min. sash rebate height 820 mm (concealed cable transition)
- Max. sash weight 100 kg
- (1 mm glass thickness = 2.5 kg/m²)
- Width-height ratio FFB:FFH ≤ 1.5
- Airgap 12 mm
- Overlap 20 mm
- Groove centre position 13 mm
- Frame rebate depth min. 29 mm
- Approved for centre gasket systems and rebate sealing systems with rain guard.



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

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.

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.



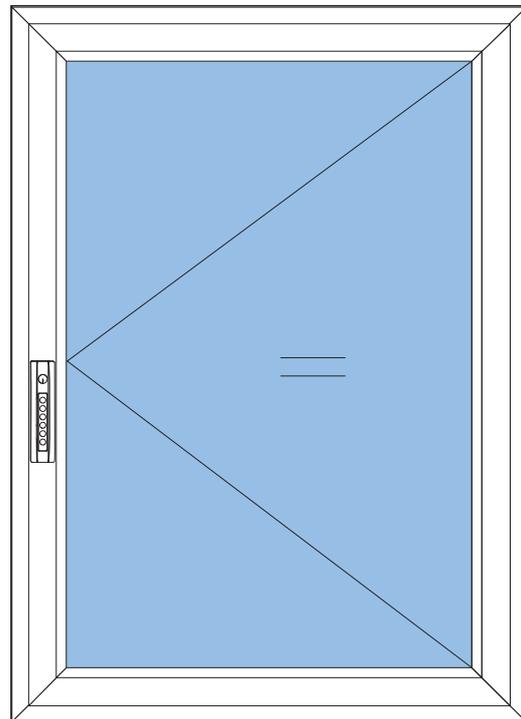
Attention! Winkhaus does not provide fastening screws for fittings assembly. Always use fastening screws suitable for the window type and window dimensions.



Important: activPilot Comfort fittings are not suitable for use in panic doors!



Please note: Winkhaus does not deliver the motor drive for activPilot Comfort PADM fittings. The drive is supplied by D+H Mechatronic AG.



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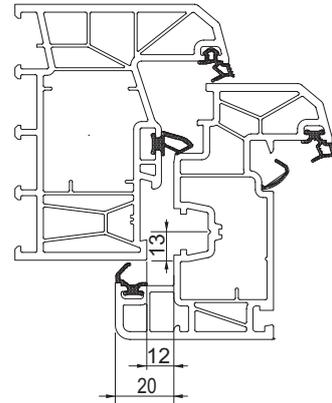
Standard profile dimensions

See figure: Profile cross-section

The fitting can be used on PVC-U windows with a standard euro-groove.



activPilot Comfort fittings are suitable for centre gasket systems or rebate sealing systems in combination with rain guards.



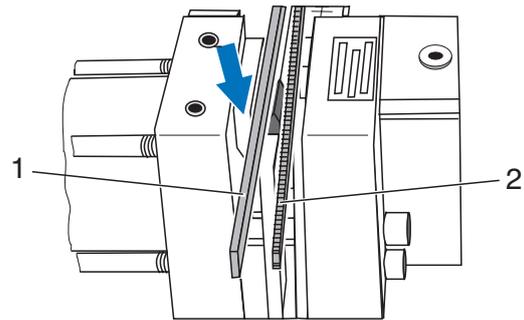
Profile cross-section

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

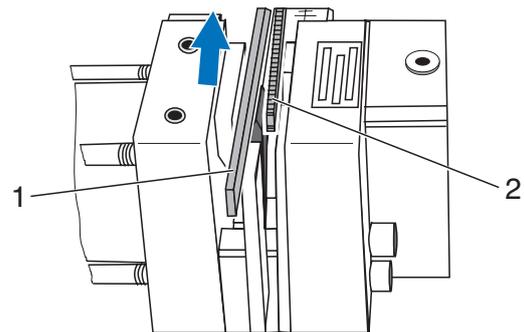
- Always insert the face plate (1) and drive rod (2) perpendicularly from the top with the face plate (1) pointing to the pressure cylinder.



Fittings prior to punching

See figure: Fittings after punching

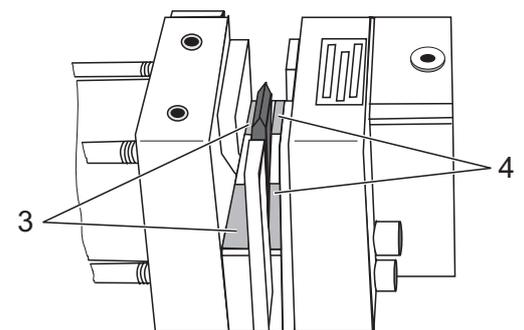
- After punching, always remove the face plate (1) and drive rod (2) perpendicularly in an upwards direction.



Fittings after punching

See figure: Cleaning the supporting surfaces

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



Cleaning the supporting surfaces

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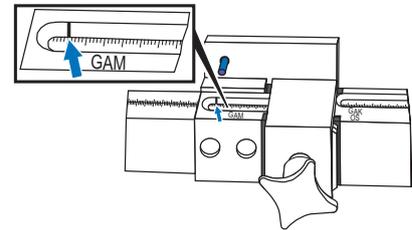
Shorten the drive rod GAM (central handle position)

See figure: Marking GAM

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



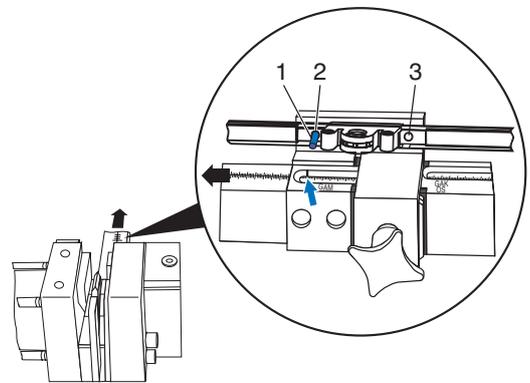
Attention! If the GAM scale is displaced by one sub-marking, this corresponds to a longitudinal shift of 2 mm.



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

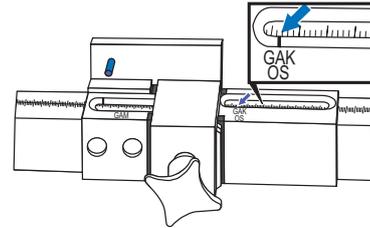
Shorten the GAK / GASK drive rod (constant handle position) and top rod OS



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

See figure: Markings GAK and OS

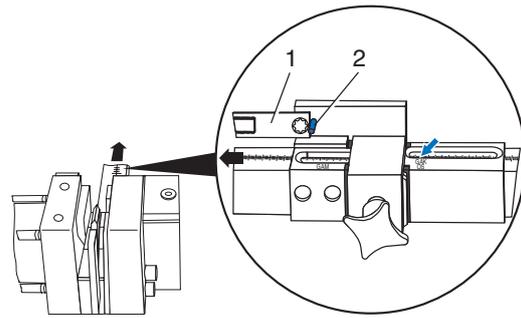
- Set the measuring value FFH (GAK/GASK) or FFB (OS) on the measuring device to the GAK/OS mark.



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).

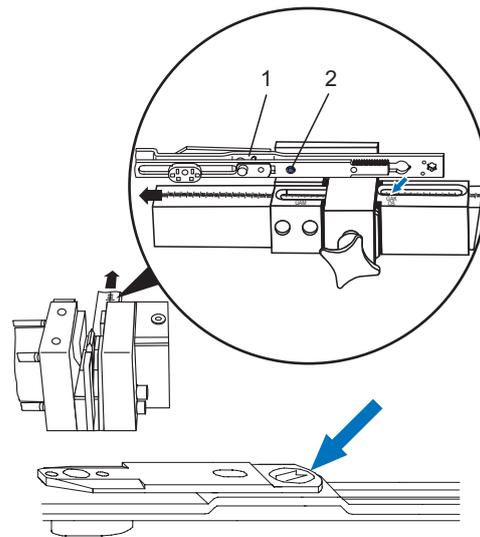


Position for shortening drive rod and/or top rod

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

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1 Mounting of fittings on sash

2 Rectangular turn window

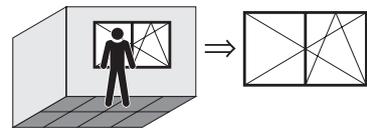
Prepare the window for fitting. Then proceed as follows:



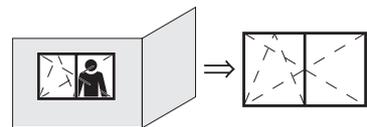
Please note: The following figures refer to a window for right-hand use. When fitting a window for left-hand use, the figures will be mirror-inverted.

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.

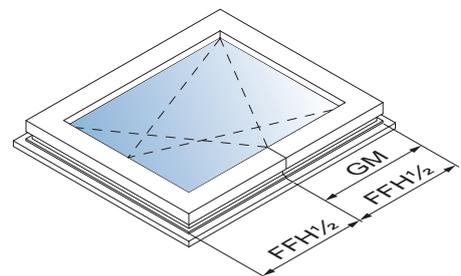


3 Determine the handle height:

4 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.

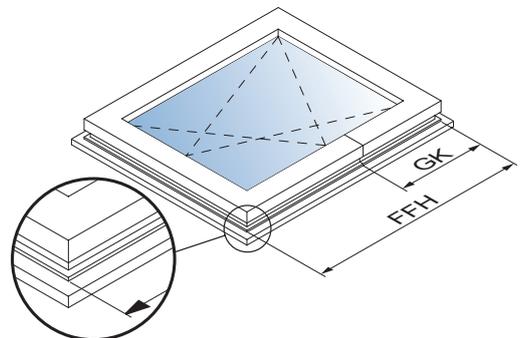


Sash rebate height FFH with central handle height GM

5 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)

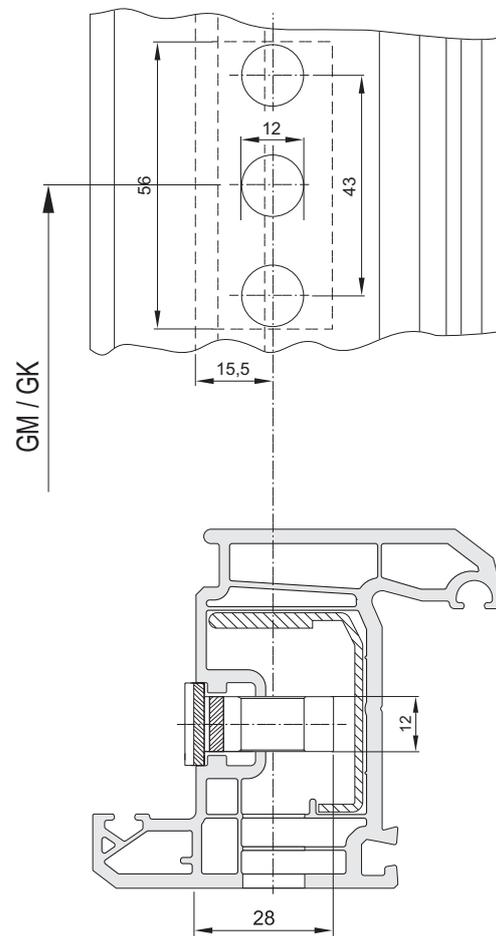
The table on the right gives a survey on the handle height (GK) of GAK with regard to the sash rebate height (FFH).

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 (ø 12 mm) as per scale drawing. Mill the gear housing from the rebate side.

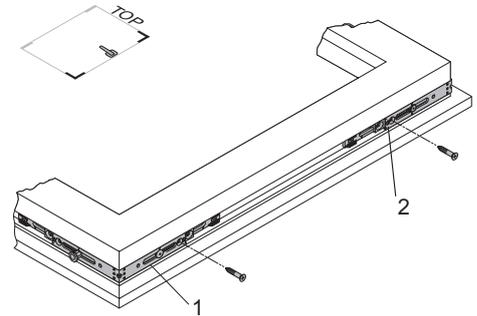


Scale drawing “Gear lock”

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See figure: Corner drive E1

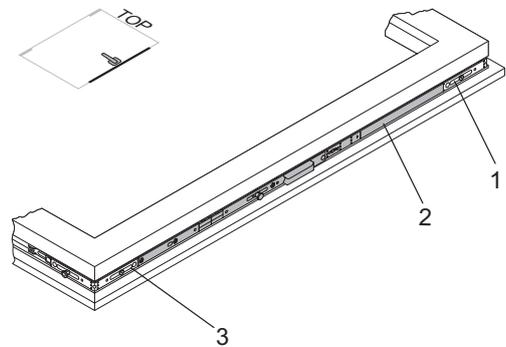
- Fit the corner drive (2) into the fitting groove at the top of the sash so that the octagonal bolt is on the top side.
- Fit the corner drive E1 (1) into the fitting groove at the bottom of the sash so that the octagonal bolt is on the drive side.
- Fix both corner drives (1, 2) on the drive side with 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.



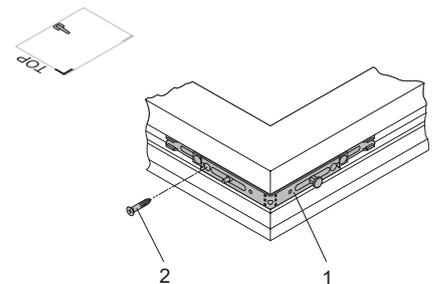
Drive rod GAM/GAK

See figure: Corner drive E2

- 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).



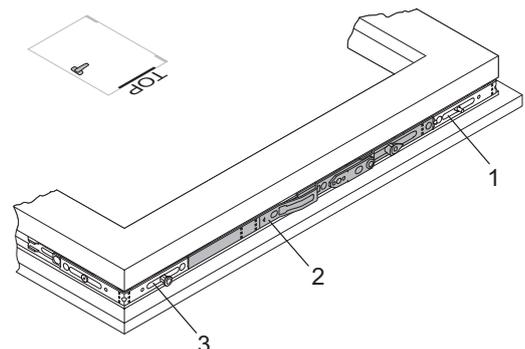
Please note: If you use an OS1.600 top rod, replace corner drive E2 with corner drive E3.



Corner drive E2

See figure: Top rod OS

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



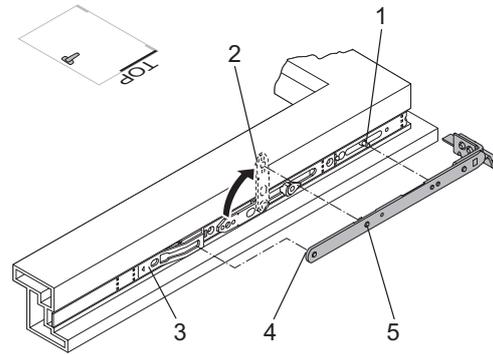
Top rod OS

See figure: Shear SK... PAD

- 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).



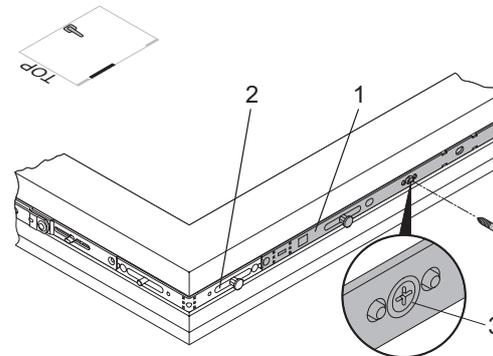
The sash can fall out and cause injuries if the shear and top rod are not securely fastened.



Shear SK... PAD

See figure: Interlocking rod MK.PA

- 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.
 - If necessary, use further interlocking rods / extension rods.



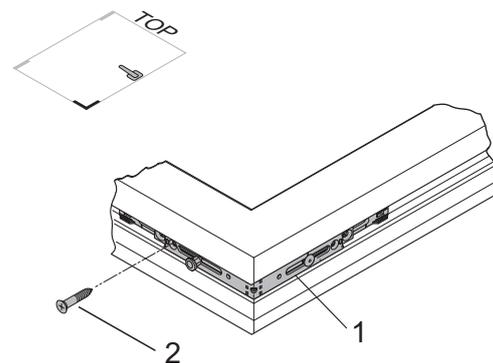
Interlocking rod MK.PA



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.

See figure: Corner drive E1

- Corner drive E1
 - Fix the screws necessary for the corner drive (1).



Corner drive E1

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See figure: Sash hinge FL.E.FPAD

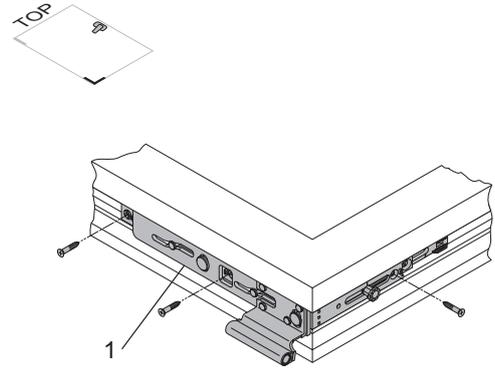
- Fitting the sash hinge:
 - Fit the sash hinge into the eurogroove at the bottom of the sash so that the octagonal bolt is on the underside.
 - Fix the sash hinge on the hinge side with 2 screws and on the underside using 1 screw.
 - Measure the sash rebate width (FFB).



Note: Use screws \varnothing 3.9 to 4.2 mm to fix the sash hinge. Screw length must be at least 25 mm. Make sure the sash hinge is flush within the eurogroove.



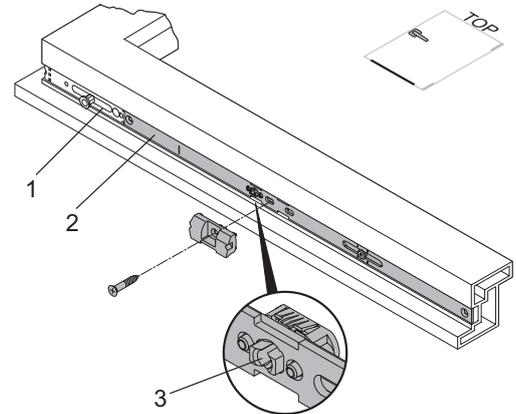
Important to observe for Trocal 88+ profile system!
For Trocal 88+ please remove the centre bar at the frame (bottom hinge side, at level of sash hinge).
From frame rebate edge approx. 70 mm to the top!



Sash hinge FL.E.FPAD

See figure: Support plate AL.M.F12

- Mount the coupling element, the interlocking rod and the support plate on the underside:
 - Fix the interlocking rod to the corner drive, depending on the sash rebate width.
 - Cut the coupling element to the required dimension.
 - Abut the coupling element against the sash hinge with the side to be cut pointing towards the drive side.
 - Click the coupling element gears into the teeth of the sash hinge.
 - Tighten the screw (3) fully to release the central fastening.
 - Fix the support plate on the coupling element with a screw.



Support plate AL.M.F12

See figure: Fail safe device FSF

- Mount the fail safe device:
 - Insert the fail safe device on the hole pattern of the drive rod and fix with a screw.
 - If required, turn the head by 90° (depends on profile).
 - Mounting a frame part is not necessary.

Important to know:

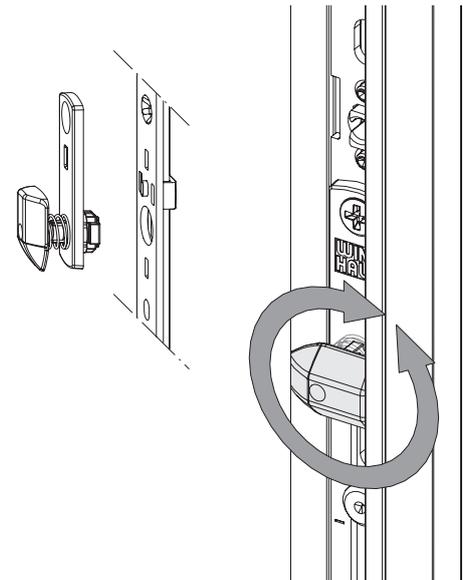
- The component's delivery state is neutral with regard to the DIN direction!
- After installation the tip of the plastic part must be directed towards the frame!
- For airgaps smaller or larger than 12 mm an adjustment is possible by turning the plastic part to the left or to the right!



Attention! Check if all screws are fixed into place on the fitting parts.



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.

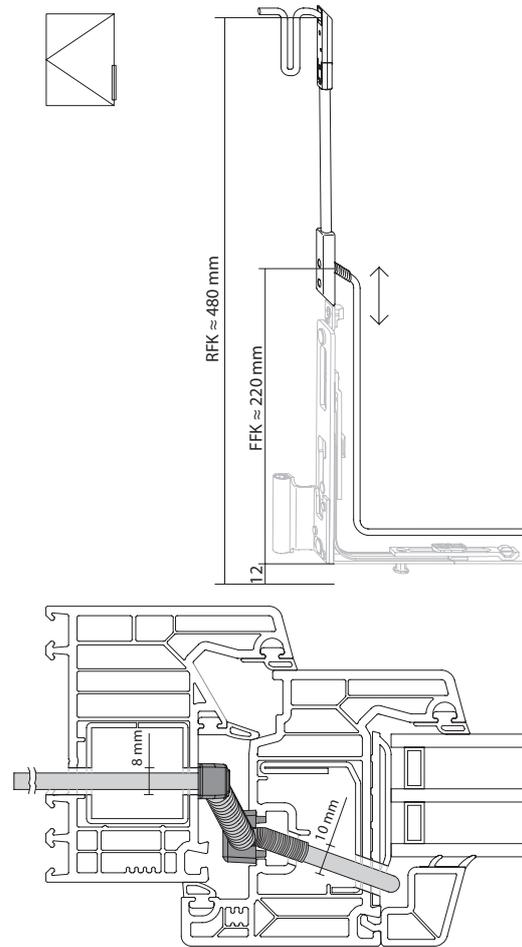


Fail safe device FSF

Installation of cable transition

See figure: Installation drawing cable transition

- Installation of the frame part with coupling point on the hinge side (frame)
 - Provide for a $\varnothing 8$ mm passage hole for the cable to go through the frame at a height of RFK 480 mm (frame rebate edge). The cable should be led out laterally in order to avoid that it is damaged when the window is opened.
 - Run the cable through the frame. Provide cable loop in the frame.
 - Use a screw $\varnothing 3 \times 20$ mm to fix the frame part (included in the scope of delivery).
 - Attach the cable reserve to the frame from the outside (transport securing device).



Installation drawing cable transition

FFK = sash rebate edge

RFK = frame rebate edge

See figure: Installation drawing cable transition

- Installation of the sash element with spring jacket and plug socket (sash/fitting groove)
 - Provide for a $\varnothing 10$ mm passage hole for the cable at a height of FFK 240 mm (sash rebate edge). The hole must be drilled from the fitting groove to the glass area.
 - The drill hole must be free of burrs. The spring must be lightly preloaded (10 mm), even if the window is closed.



Note: Run the cable only after inserting the window pane and observe the installation position.

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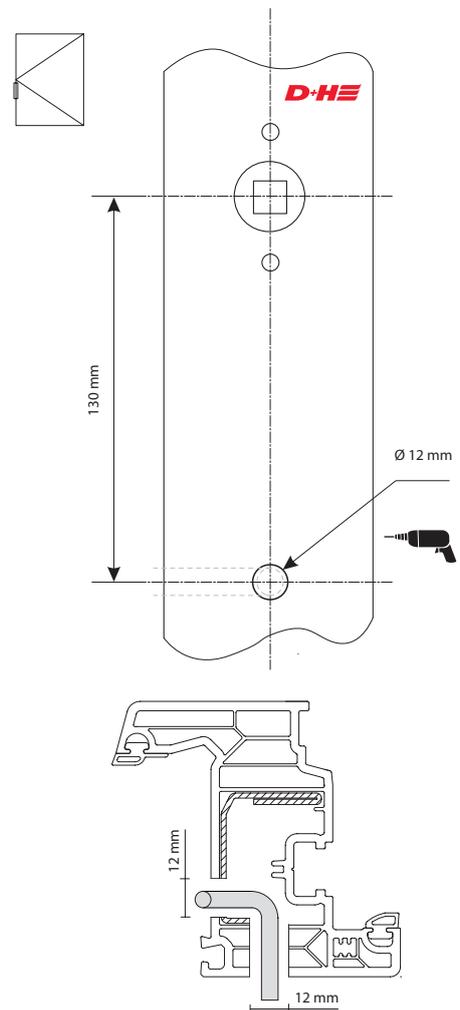
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See figure: Cable duct of the motor

- Drilling the cable outlet hole for the fitting drive (sash/drive side)
- Prepare a \varnothing 12 mm passage hole approx. 130 mm below the drive hole (see picture) to be drilled into the first chamber of the sash (e.g. the glass rebate). In addition, provide for another \varnothing 12 mm hole from the glass area into the first chamber.



Note: The drill hole must be burr-free.



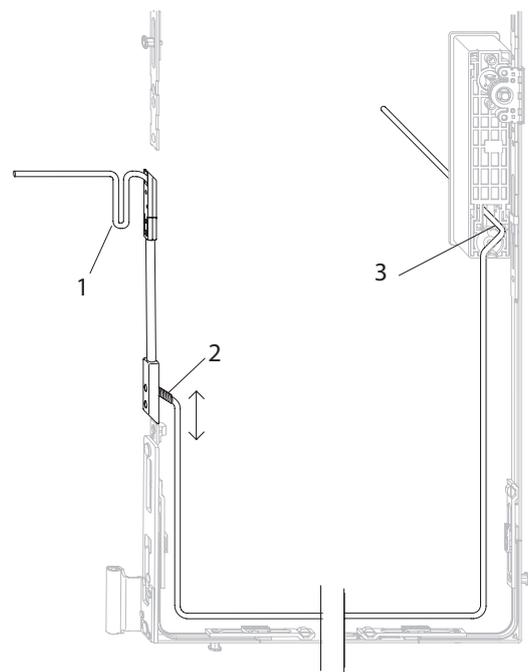
Cable duct of the motor

See figure: Cable installation on the sash

- Cable installation on the sash
- Insert the pane first.
- Lay the cable of the sash element for the motor through the window sash (e. g. glass rebate).
- On the drive side the cable must be fed out of the hole (approx. 10 cm). Provide an additional cable loop in the profile.
- Fix the sash part of the cable transition in the fitting groove at the hinge side using a screw \varnothing 2.9 x 32 mm (included in the scope of delivery).
- In case the cable was laid within the glazing bead, insert the glazing beads.



Note: Please provide for a 3 – 5 cm cable reserve for the spring extension behind the sash component (hinge side)!



Cable installation on the sash

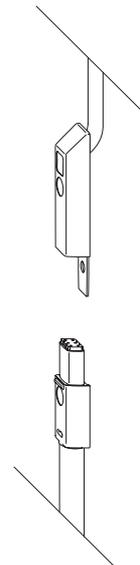
See figure: Connect cable transition

- Connecting the frame and sash parts

- Establish the plug-in connection after mounting the sash.
- Fasten the female connector to the frame part with screws $\varnothing 3 \times 20$ mm (included in the scope of delivery).



Important: When removing the sash (e. g. when the frame is installed into the wall reveal) please completely remove the screw used to secure the socket. Insulate open wires of the cable!



Connect cable transition

(top: frame part; bottom: socket of the sash part)

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Shear hinges **7**

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activPilot Comfort PADM **16**

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activPilot Comfort PAD **18**

1 Mounting of fittings on the window frame

3 For parallel action rectangular turn window



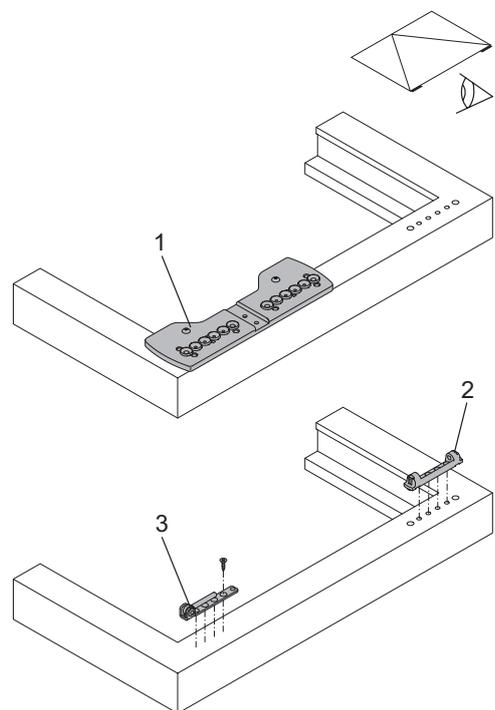
Note: Fit the shear and corner hinges after fitting the keeps!

See figure: Holes for corner and shear hinges

- Drill \varnothing 2.5 to 3 mm pilot holes for shear and corner hinges and drill \varnothing 6 mm pilot holes for spindle plug positions.
- 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

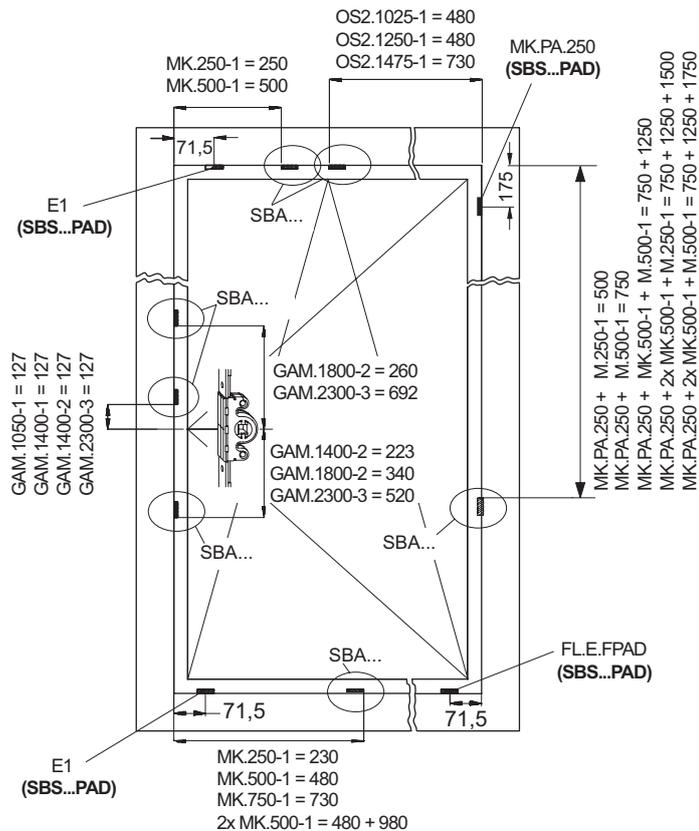
Positions of keeps (basic equipment)

For parallel action rectangular turn window

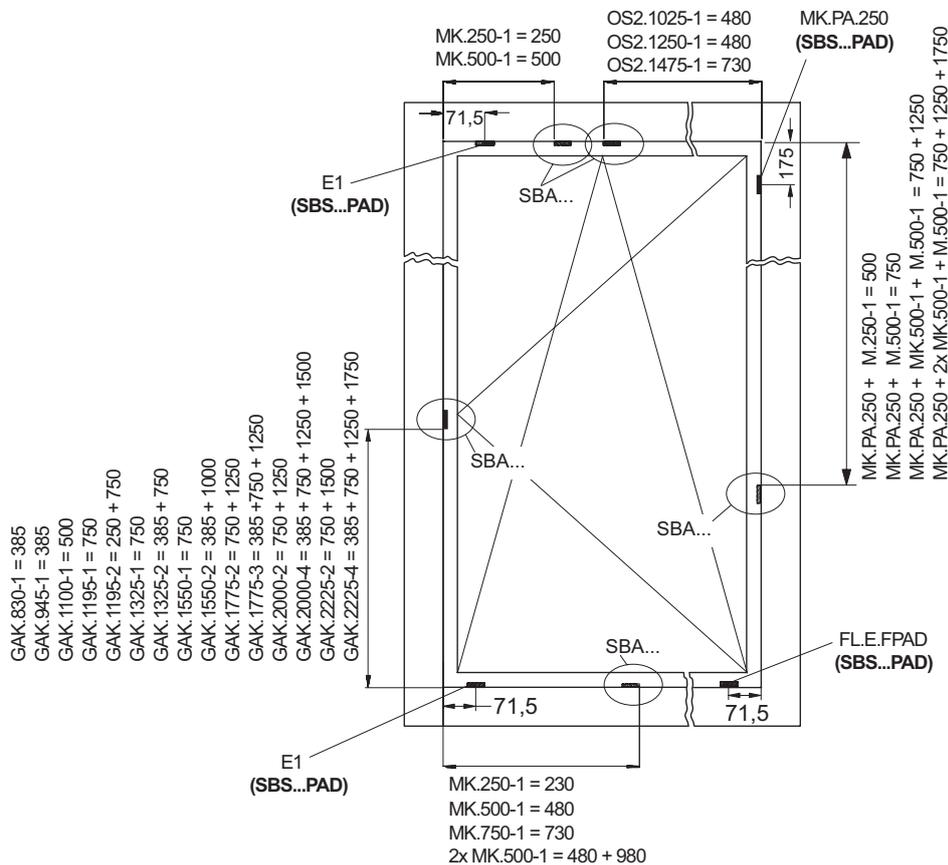
The figures show the keep position options. The number of keeps depends on the size of the window.



Note: The dimensions shown in the figures refer to the frame rebate edge to keep profile edge or frame centre to the keep!



Keep positions DK "central handle position"



Keep positions DK "constant handle position"

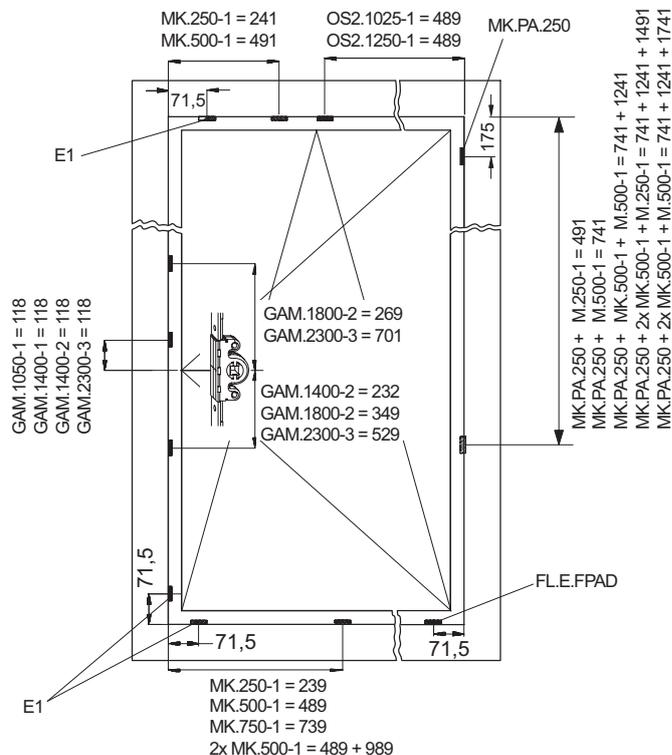
- 1 General product information
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Positions of keeps (RC2)

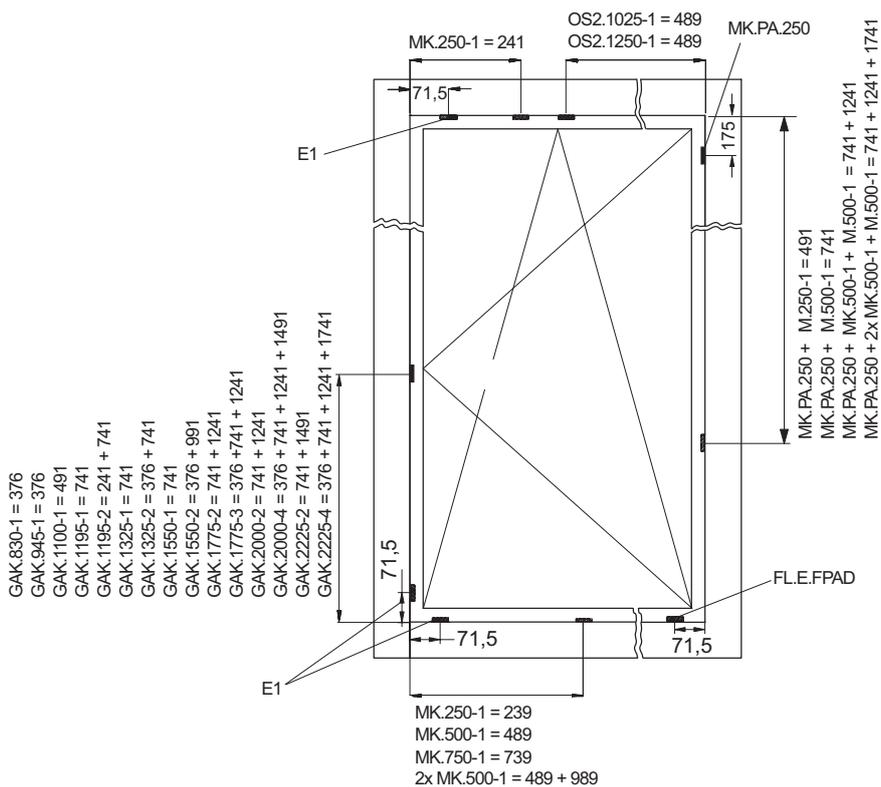
The figures show the keep position options. The number of keeps depends on the size of the window.



Please note: The keeps marked here are security keeps SBS...PAD. The measurements refer to the "centre" of the keep.



Keep positions DK "central handle position"



Keep positions DK "constant handle position"

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)

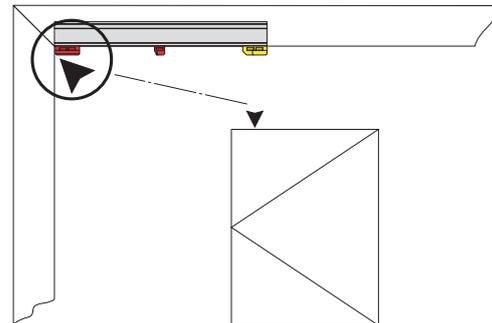
↕↔ Vertical / horizontal attachment = blue element (for corner drives)

→ = Keep run-in

Keep SBS...PAD drive side, top corner drive for E1

See figure: SBS...PAD

- Use a PADK jig for the keeps needed for the parallel position activPilot Comfort.
 - Align the mounting jig with the red element in the corner.
 - Attach the SBS... keep to the red element marked E1.PA, FLE.FWPA, E1.

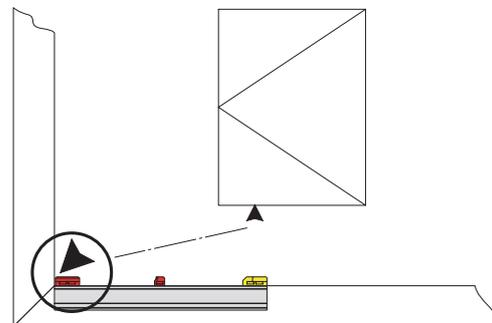


SBS...PAD

Keep SBS...PAD drive side bottom corner drive for E1

See figure: SBS...PAD bottom

- Use a PADK jig for the keeps needed for the parallel position activPilot Comfort.
 - Align the mounting jig with the red element in the corner.
 - Attach the SBS... keep to the red element marked E1.PA, FLE.FWPA, E1.



SBS...PAD bottom

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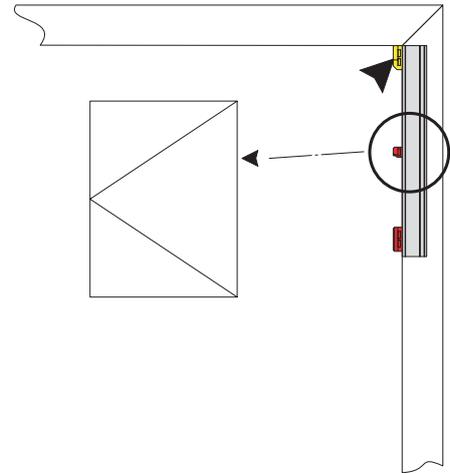
17
activPilot
Comfort PADS

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activPilot
Comfort PAD

Keep SBS...PAD top hinge side for MK.PA.250

See figure: SBS...PAD

- Use a PADK jig for the keeps needed for the parallel position activPilot Comfort.
 - Position the mounting jig with the yellow element in the upper corner.
 - Position the keep SBS...PA.. on the red element marked MK.PA.250.

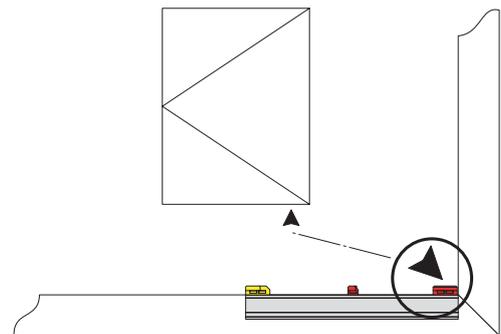


SBS...PAD

Keep SBS...PAD for sash hinge FL.E.FPAD bottom hinge side

See figure: SBS...PAD

- Use a PADK jig for the keeps needed for the parallel position activPilot Comfort.
 - Position the mounting jig with the red element in the corner.
 - Position the SBS...PAD keep on the red element marked E1.PA, FL.FWPA, E1.



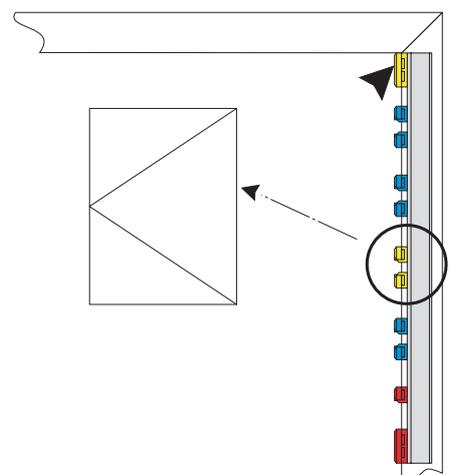
SBS...PAD

See figure: Keeps hinge side

- Keeps for interlocking rods, hinge side
 - Align the mounting jig with the yellow element in the top corner.
 - Position the keep for interlocking rod on the yellow element.



Please note: The labelling on the interlocking rod must match the labelling on the yellow templates. The interlocking rod MK is labelled e.g. "MK.750-1".

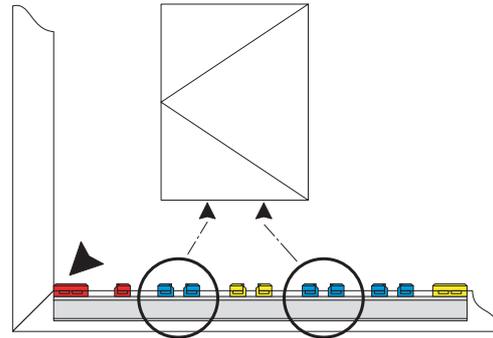


Keeps hinge side

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".

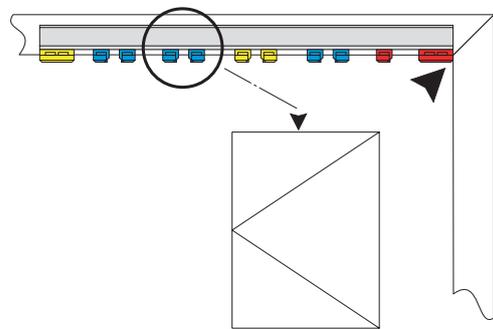


M bottom horizontal

Keep for top rod OS...

See figure: 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. ...".

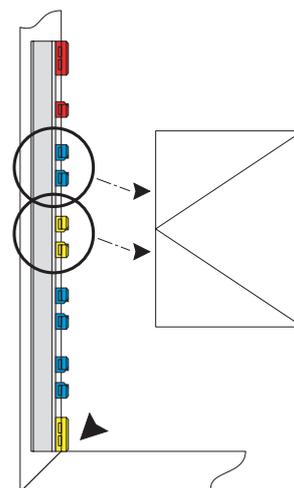


Keep for top rod OS...

Keeps for vertical GAK drive rod

See figure: 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

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Keeps for GAM

See figure: Keeps for GAM

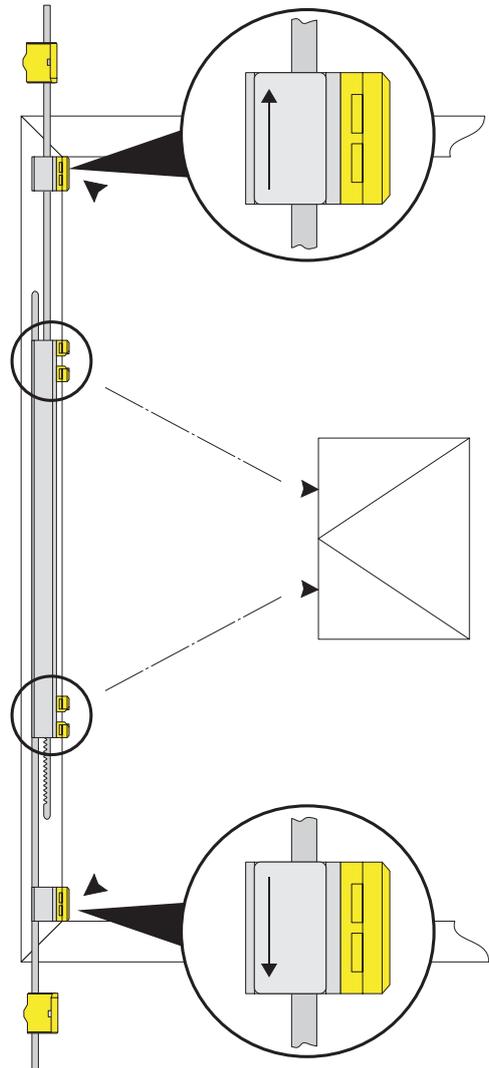
- Attach the corresponding mounting jig labelled “top” or “bottom”.
- Fit keeps in line with the labelling on the mounting template.

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

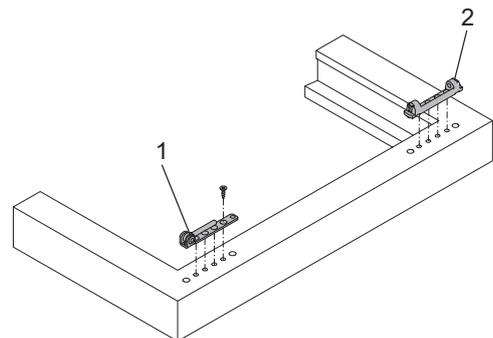
Mounting shear and corner hinges

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



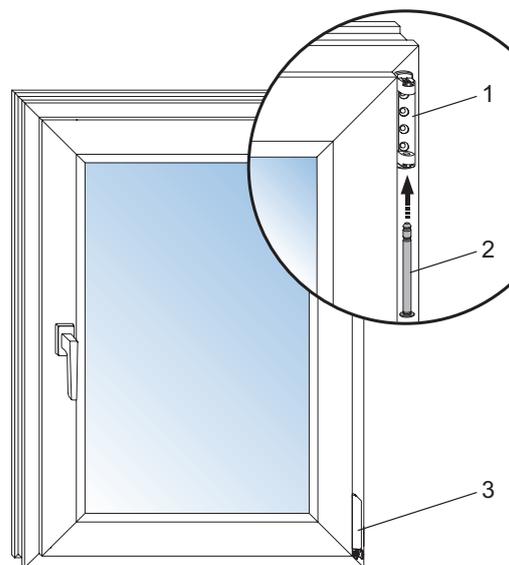
Important: The load-bearing fitting components, such as corner, shear and sash hinges, must be designed according to the TBDK guidelines. Please adapt the drill diameter of the fixing screws, the screw diameter and the screw length to the load situation.

Fitting the sash

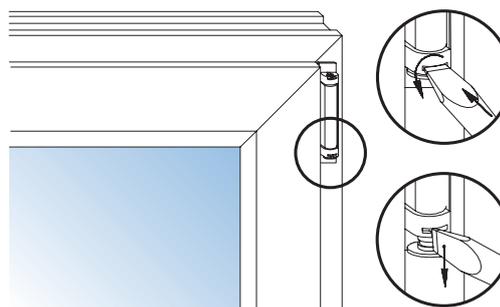
- Use the handle to move the sash from the 90° position (horizontal handle) into the 180° position (handle vertically upwards).
- Mount the sash, adjust for a good seal and fit the pin to secure against the shear hinge.
- Push all end caps and sealing caps onto the shear and corner hinges.



Note: Insert pin from bottom (see arrow). 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.



Shear and corner hinge



Release the pin in the shear 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 to release the pin as shown in the figure.

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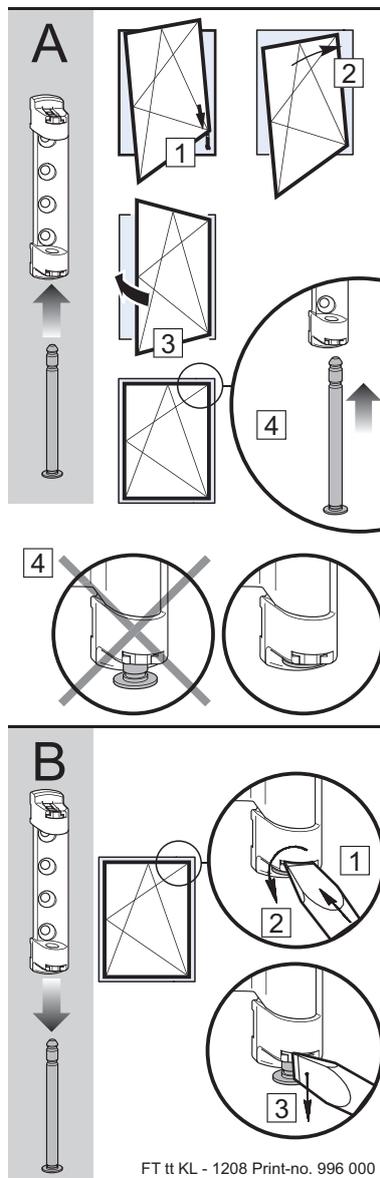
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activPilot Comfort PADS **17**

activPilot Comfort PAD **18**

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.



Function test

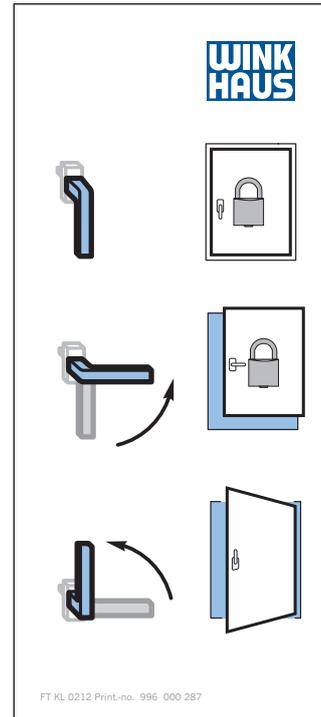
For parallel action rectangular turn window

Place the handle and operate once as follows to release the central fastening.

- If the handle is moved into the horizontal position from the bottom, the fitting is in the parallel action position. By further turning the handle by 90° the handle reaches the turn position (180°). In order to close the window the handle must be moved back down to the initial position.

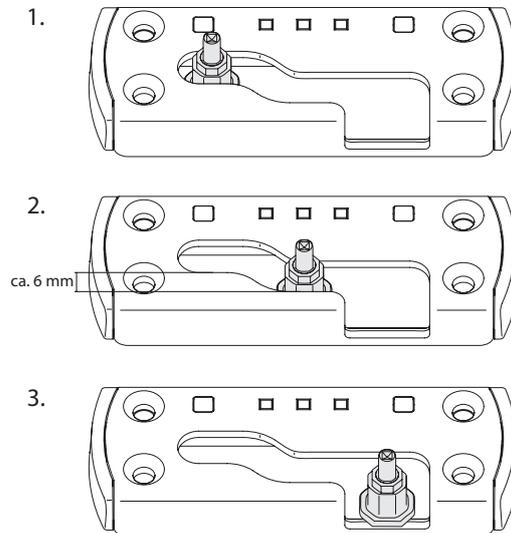


Please note: Initial actuation is not as easy as actuation in normal operations. A clicking noise will be heard during actuation. Keep the window closed during actuation.



See figure: Function SBS.K.PAD

- If the octagonal locking bolt is in position 1 the window is locked.
- If the octagonal locking bolt is located in the centre (pos. 2) the window is opened 6 mm in the parallel position.
- If the octagonal bolt is in position 3, the window is wide open (turn position).



Function SBS.K.PAD

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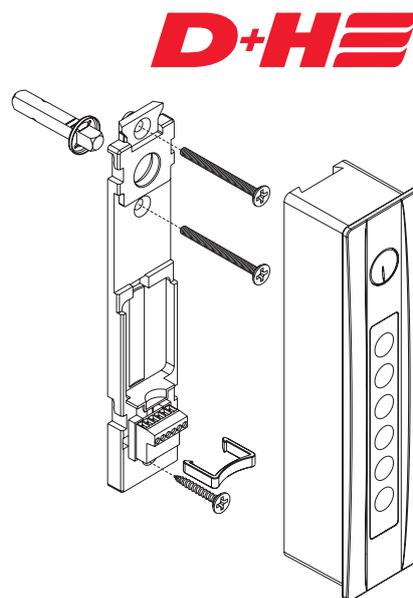
18

Installation of motor and base plate

The installation of the fitting drive as well as the electrical connection is described in the documentation of D+H Mechatronic AG.



Please note: Winkhaus does not deliver the motor drive for activPilot Comfort PADM fittings. The drive is supplied by D+H Mechatronic AG.



Adjustment and maintenance instructions for the specialist window company

General notes and safety advices

activPilot

These instructions are intended for the specialist window company. They describe essential adjustment and maintenance work for the activPilot fittings. Please observe the following notices: Fitting parts are to be tested regularly to ensure they are seated firmly and checked for wear. Fastening screws are to be retightened and parts replaced as necessary. Their functionality is to be retested afterwards. Fittings may only be cleaned with mild, ph-neutral cleaning agents in diluted form. Use only cleaning agents which do not degrade the corrosion protection on fitting parts. Never use aggressive, acidic or caustic cleaners, scouring agents or sharp objects to clean fitting parts. Always also observe the guideline for product specifications/notices and liability (VHBH) when making adjustments or performing maintenance.

This information can be obtained at the following Internet address: <http://www.beschlagindustrie.de/ggsb/richtlinien.asp>

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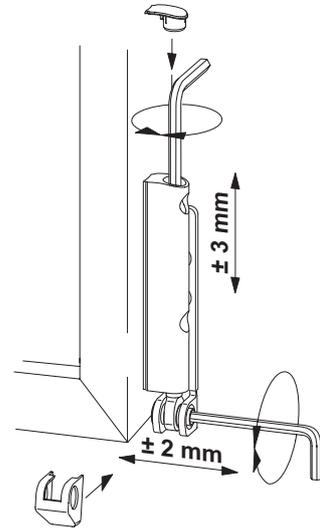
activPilot
Comfort PADS **17**

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1 Adjustment options

2 Corner hinge/sash hinge

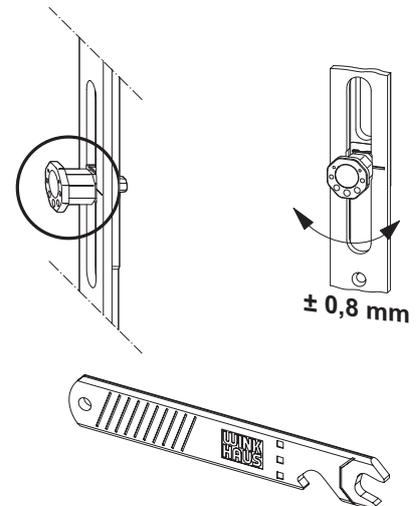
Sash hinge height adjustment (± 3 mm) and corner hinge side adjustment (± 2 mm).



8 Octagonal bolt

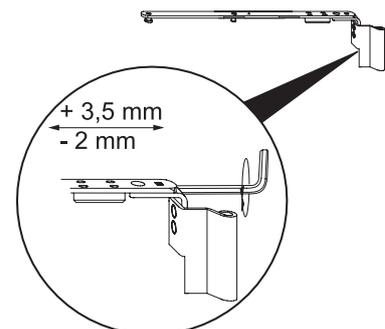
Regulate the contact pressure between the sash and the frame (± 0.8 mm) by turning the octagonal bolt. The adjustment can be carried out by means of the Winkhaus adjustment key (V.ST.SCH.HV-11).

When the fitting is moved from the open position to the parallel position, the fail safe device must be pressed.



14 Shear – Rectangular window

Lifting and lowering the sash (from -2 to $+3.5$ mm) by means of a 4 mm Allen key.



Shear – Rectangular window

Maintenance

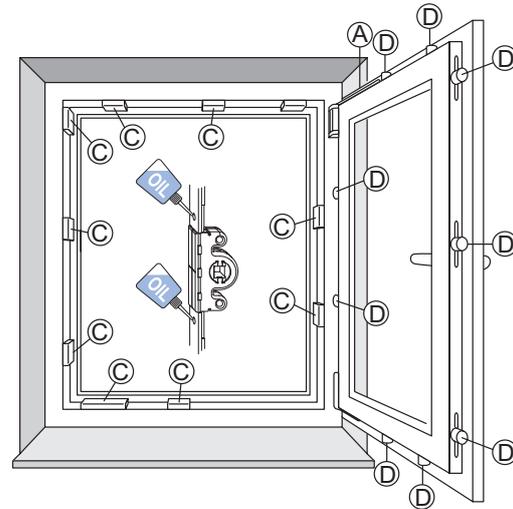
Lubrication points

See figure: Overview of lubrication points

The figure shows the location of possible lubrication points which should be lubricated at least once a year. 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

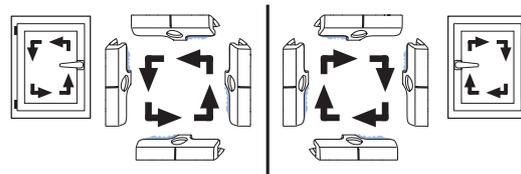


Attention! Risk of injury. The window could fall on removal and thus injure persons. Do not remove the window for maintenance.

Ascertaining the run-in sides

See figure: Run-in sides

- Left-handed window; handle right
- Right-handed window; handle left



Run-in sides

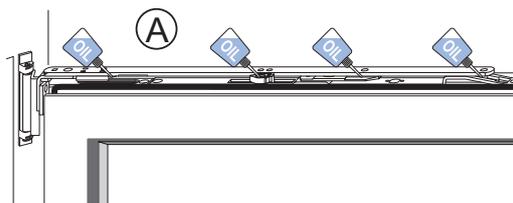
Shears

See figure: Shears

All of the shear's contact points with the top rod should be oiled once annually.



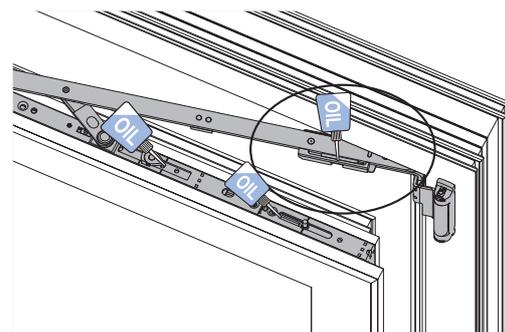
Note: The shear hinge must not be oiled or greased.



Shears



Note: Please make sure the shear is clean in the upper area.



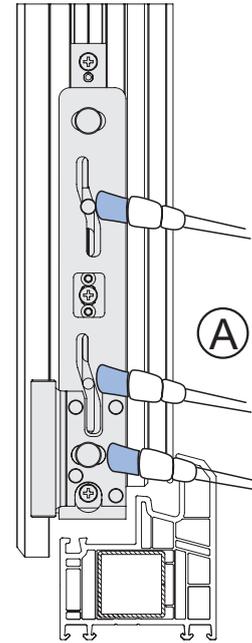
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Sash hinge

See figure: Sash hinge FL.E.FPAD

All moving contact points on the sash hinge should be greased with a suitable lubricant once annually.

Coat lubricating points with non-resinous, non-corroding grease.



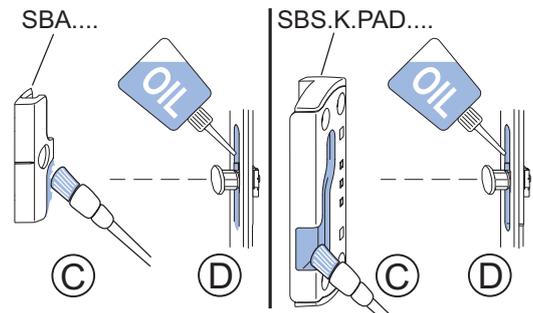
Sash hinge FL.E.FPAD

Keeps

See figure: Keeps

To keep fittings running smoothly, you must lubricate the keeps once a year.

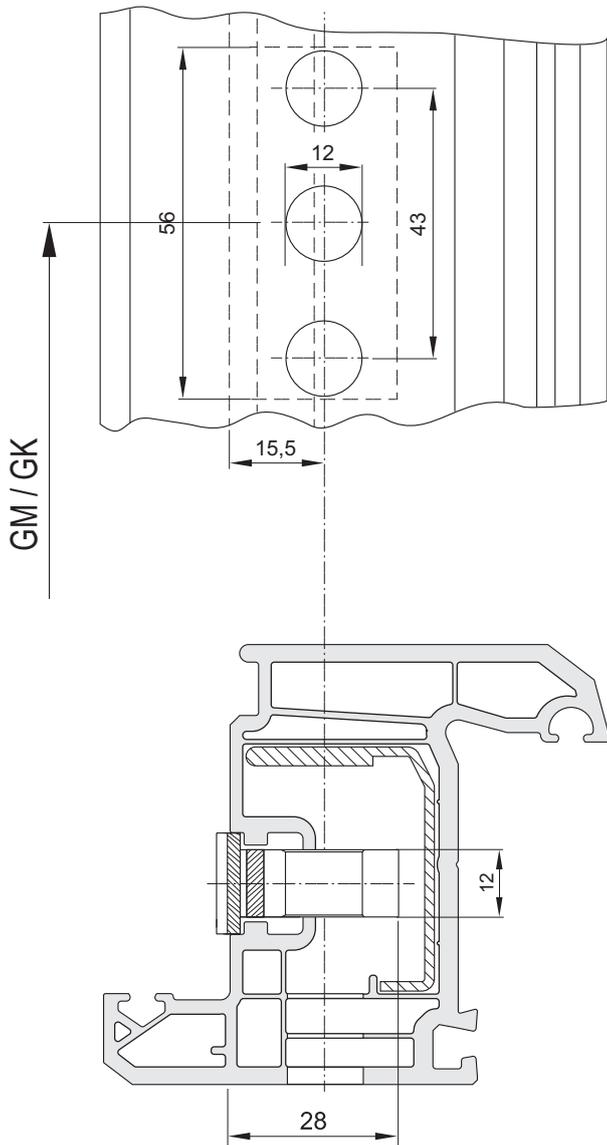
- Lubricate the keeps (C) at the run-in side with technical Vaseline or any other suitable grease.
- Coat the running surfaces of the locking bolts (D) with an oil that is free of resins and acids.
- Frame parts must be kept clean.



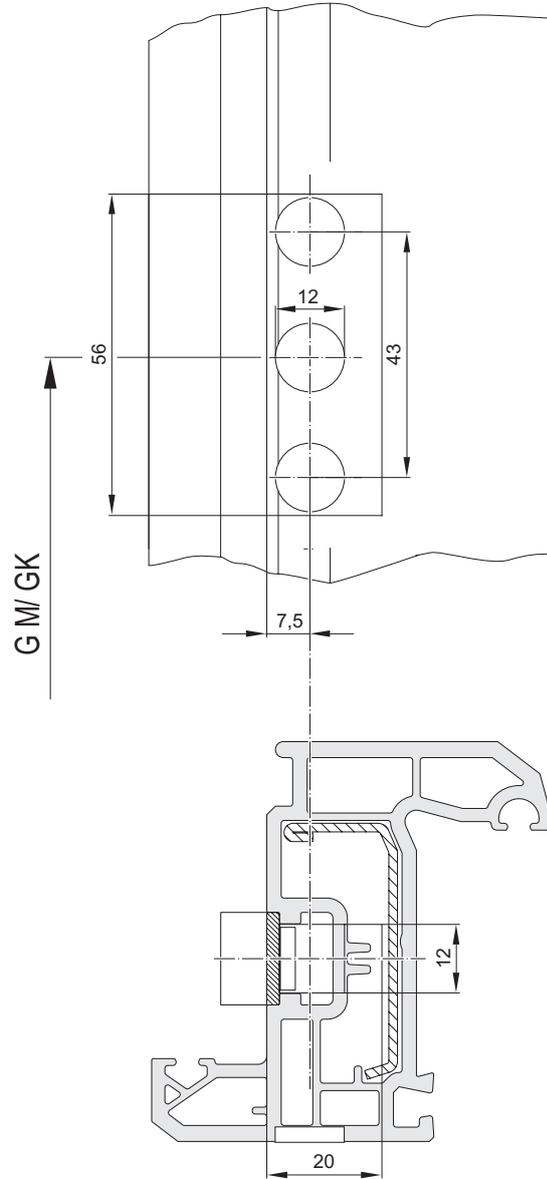
Keeps

Installation drawings

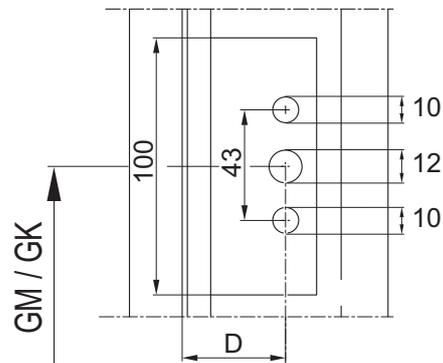
Drive rods



B-3-1: Drilling and milling instructions GAK/GAM ... D = 15.5 mm



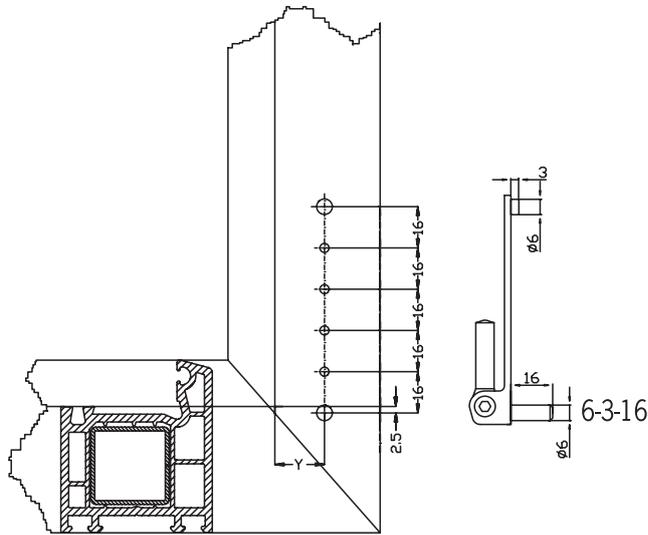
B-3-2: Drilling and milling instructions GAK/GAM ... D = 7.5 mm



B-3-4: Drilling and milling instructions GAK/GAM ... D 25 ... 50
D = Backset

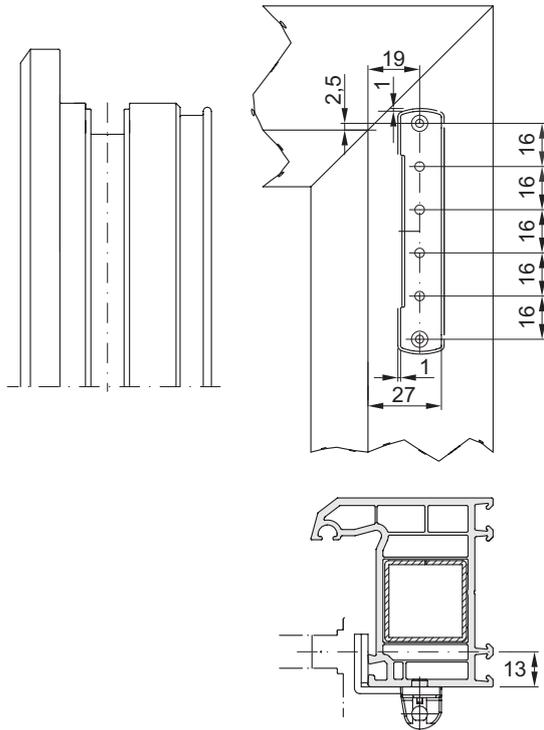
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Corner hinge ESV



B-6-3: Drilling template corner hinge ESV
Y = 19 mm

Shears / shear hinges

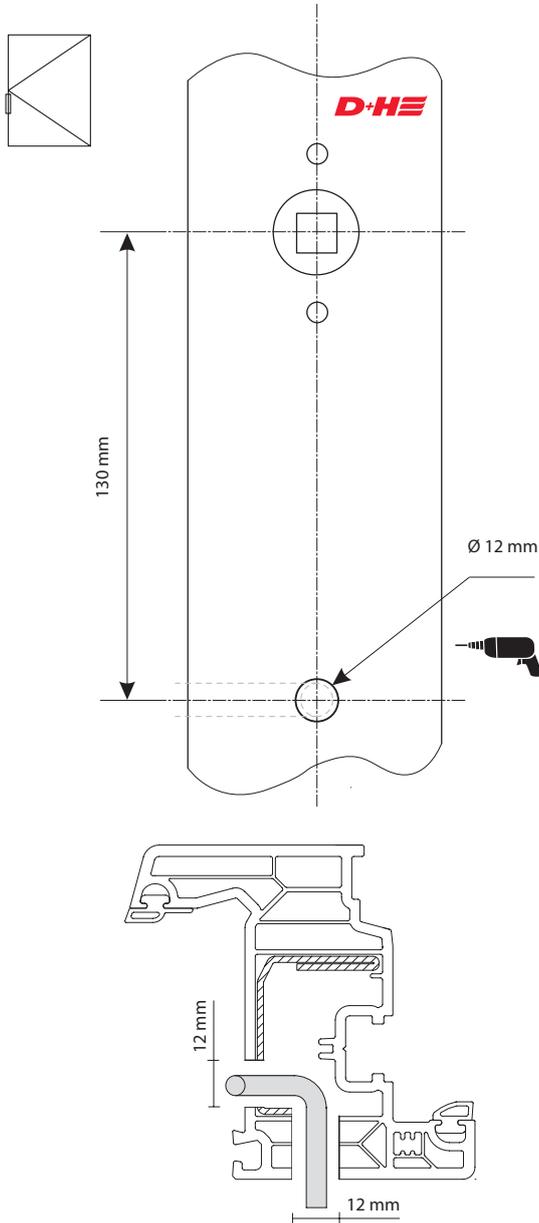


B-7-1: Drilling template shear hinge SL.KS. ...

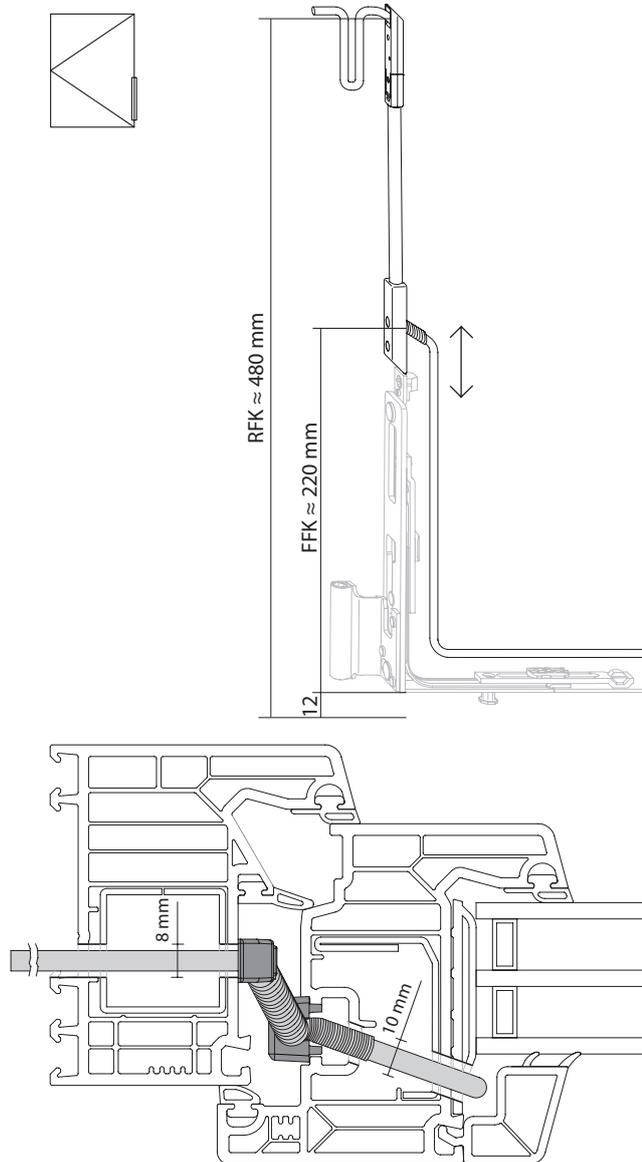
D+H motor – base plate/cable outlet/cable installation



The installation of the fitting drive as well as the electrical connection is described in the documentation of D+H Mechatronic AG.



Cable transition KUE-T1



B-11-12: Installation drawing and cable laying Cable transition

FFK = sash rebate edge

RFK = frame rebate edge

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1 activPilot Comfort PADS

2 The turn fitting system for special window types

3 Round-arch windows as well as studio and triangle windows have the identical fitting parts for the hinge and bottom sides. For these types of windows the shear is positioned vertically.

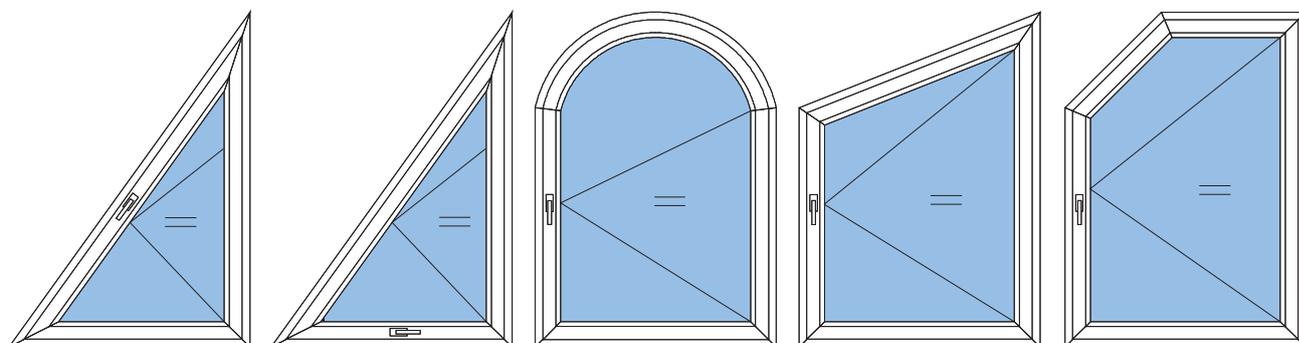
4 Benefit for the window manufacturer: less items for the production of special windows are needed.

5 The extensive range of fittings with parallel action is complemented by the PADS fitting system. The fitting components are standard activPilot Concept items, except for few special parts. As regards the frame parts, largely activPilot Comfort PADK parts are used. Thus PADS fittings comply with the overall principle of the activPilot fitting system: few individual parts with multiple use.

6 With regard to the production process, fittings offering parallel action for sloping windows do not require time-consuming finishing work of the frame rebate which is a substantial advantage for the window manufacturer. It is often the case that rebates of sash and frame touch when the window is in the tilt position which only can be rectified by manual reworking of the frame rebate edge. Parallel opening is an elegant way of avoiding this profile-related necessity. Without any additional work at all. This is proof of the activPilot fitting's ease of assembly.

7 The operation and ventilation benefits of parallel action, which are known from the PADK and PADM fitting ranges, also apply to the PADS fitting system. The circumferential ventilation gap of approx. 6 mm allows for a draught-free exchange of air improving the indoor ambiance and at the same time preventing humidity damage, such as mould growth, that may be caused by insufficient ventilation. Also due to the slow exchange of air, the room temperature is only slightly reduced, thus heating energy can be saved and quality of living conditions increased when compared to ventilation with conventional windows.

8 Also from the point of view of monument protection a window enabling parallel opening must be preferred to a traditional turn-tilt window. By contrast to a sash in the tilt position the visual appeal of a historical façade does not interfere with its historical appearance because the opening gap is not perceived from outside.



activPilot Comfort PADS

Application diagram for ascertaining the admissible sash sizes

- Max. sash weight 100 kg



For PVC-U windows with 12 mm airgap



Parallel opening / turn studio window

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 460 mm
- Max. sash rebate width 1250 mm
- Min. sash rebate height 610 mm
- Max. sash rebate height 2300 mm
- Max. sash size 2.0 m²
- Max. sash weight 100 kg
- 1 mm Glass ≈ 2.5 kg/m²
- Aspect ratio FFB : FFH ≤ 1 : 1



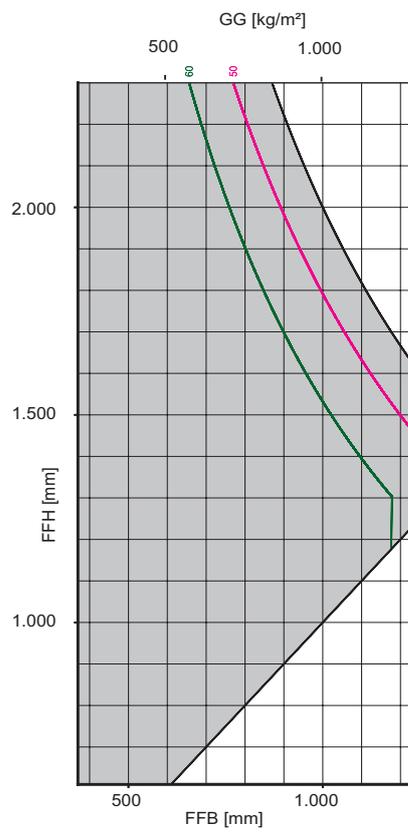
Note: From sash weights of 40 kg the filling must be bonded to the sash all around the window.



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: activPilot Comfort fittings are not suitable for use in panic doors! They are not recommended for passage doors.



AWD_01.50_NR110_DK_100 kg_ohne_Zusatzlast_1,5_m_AT

Abbreviations

- FFB = Sash rebate width [mm]
- FFH = Sash rebate height [mm]
- GG = Glass weight per square metre [kg/m²]

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!

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activPilot Comfort PADS

Application diagram for ascertaining the admissible sash sizes

- Max. sash weight 100 kg



For PVC-U windows with 12 mm airgap



Parallel opening / turn radius-head window

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.

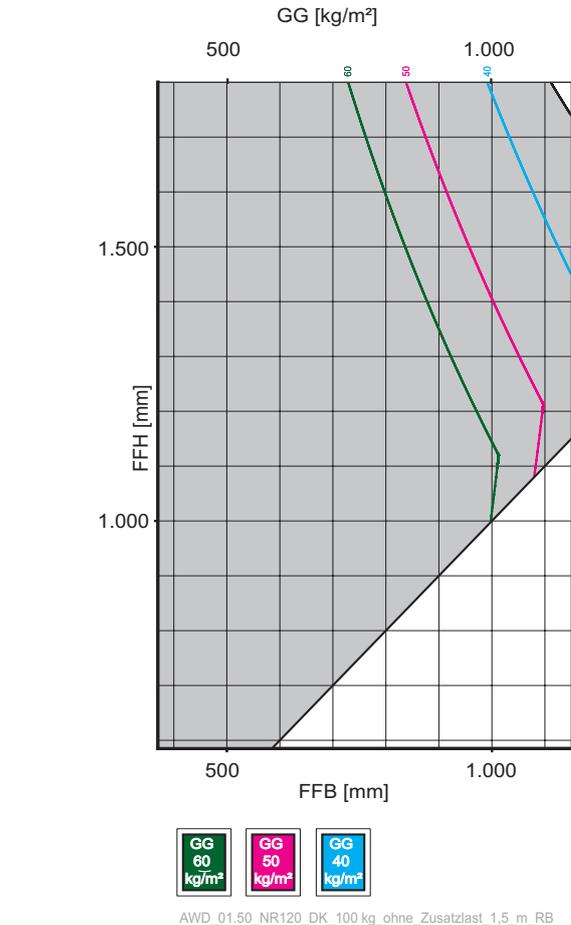
Application range

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 460 mm
- Max. sash rebate width 1250 mm
- Min. sash rebate height 610 mm
- Max. sash rebate height 1800 mm (FFH-R)
- Max. sash size 2.0 m²
- Max. sash weight 100 kg
- 1 mm Glass ≈ 2.5 kg/m²
- Aspect ratio FFB : FFH ≤ 1 : 1



Note: From sash weights of 40 kg the filling must be bonded to the sash all around the window.



Abbreviations

- FFB = Sash rebate width [mm]
- FFH = Sash rebate height [mm]
- GG = Glass weight per square metre [kg/m²]

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!

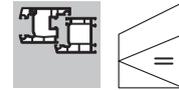


Important: The load-bearing fitting components, such as corner, shear and sash hinges, must be designed according to the TBDK guidelines. Please adapt the drill diameter of the fixing screws, the screw diameter and the screw length to the load situation.

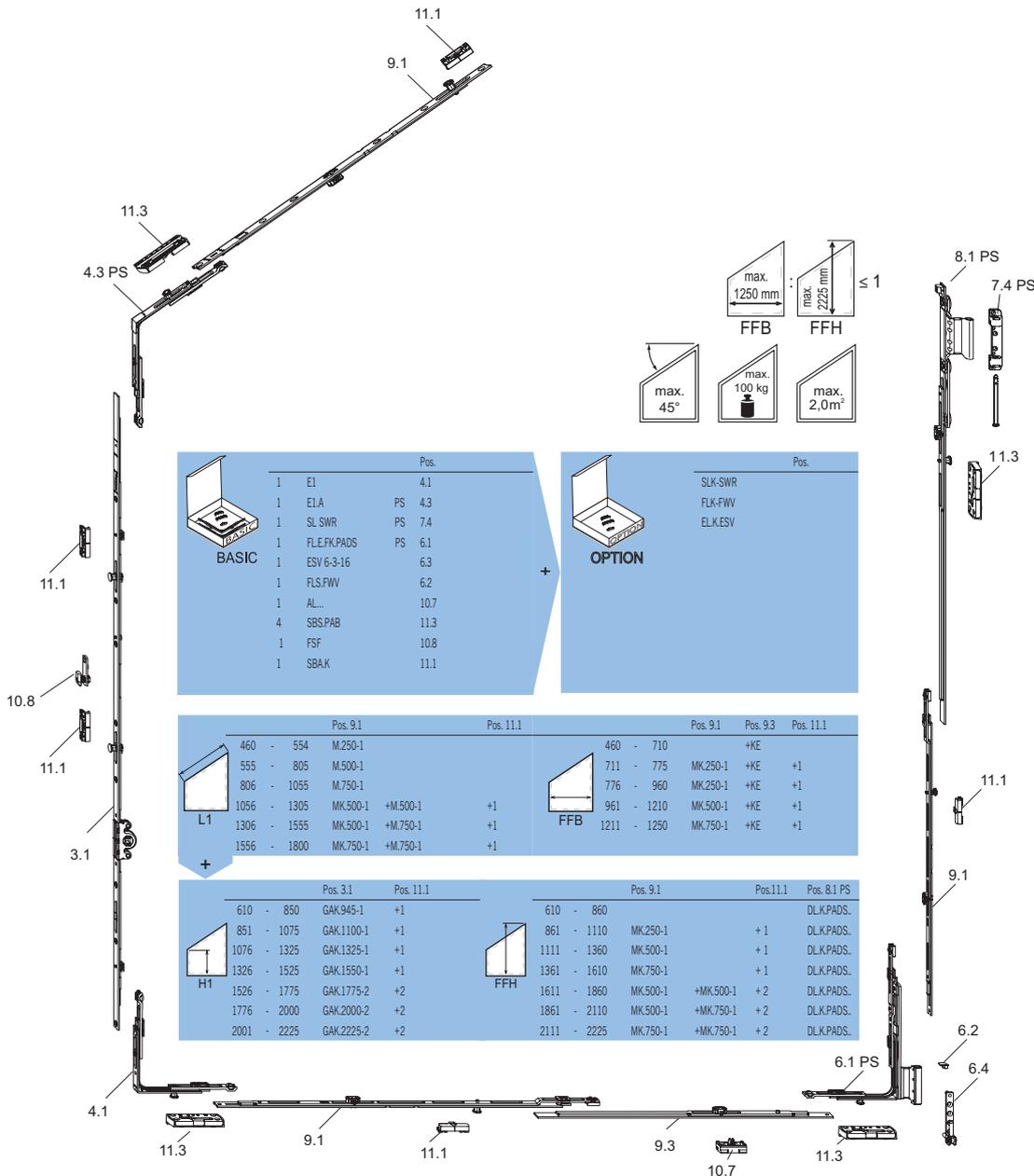


Important: activPilot Comfort fittings are not suitable for use in panic doors! They are not recommended for passage doors.

Turn fittings with parallel action – fixed handle position



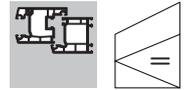
Basic equipment for studio windows activPilot Comfort PADS



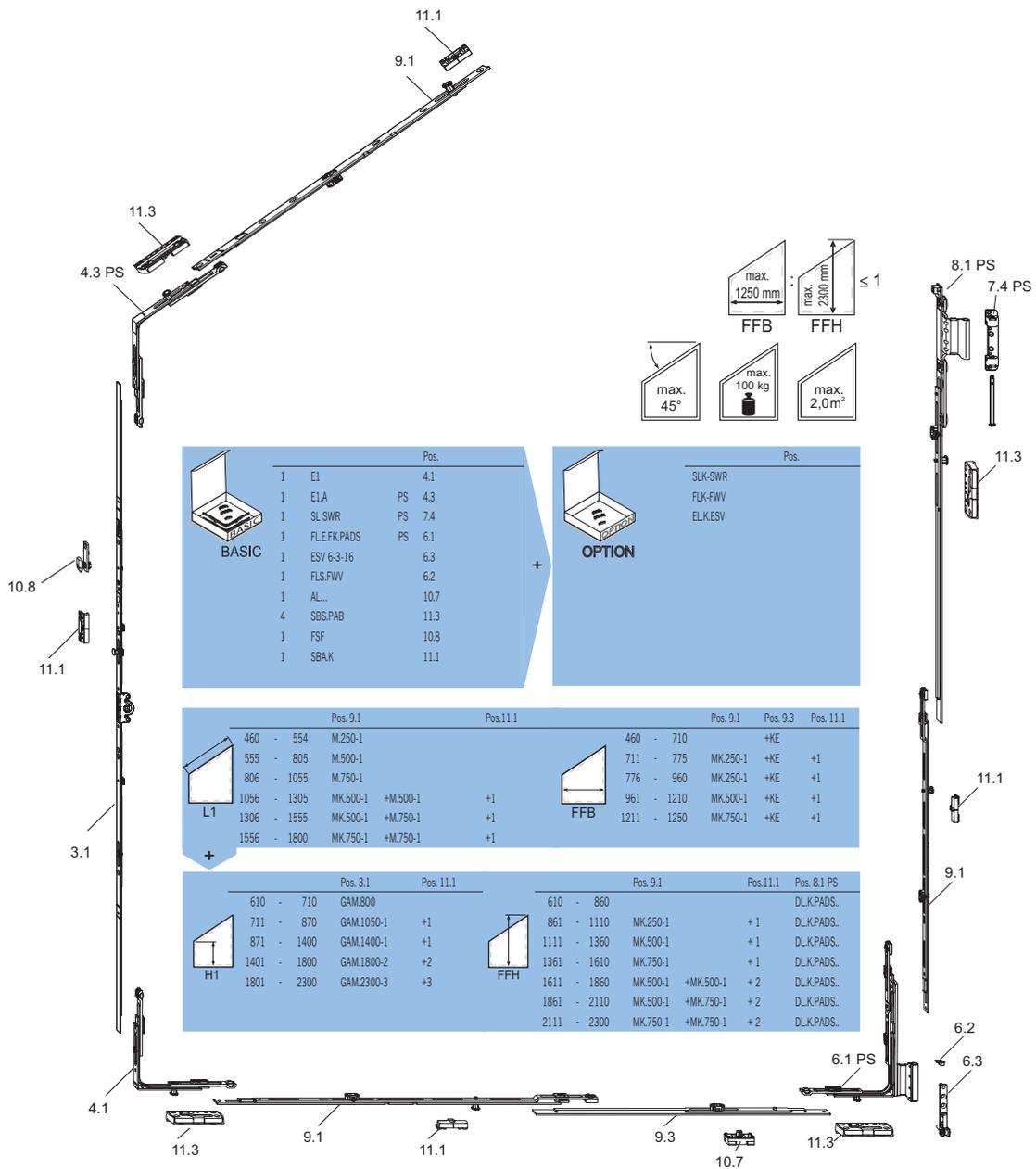
1	General product information
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You will find the components marked PS on the following pages. All other parts can be found in the activPilot Comfort PADK section.

Turn fittings with parallel action – central handle position



Basic equipment for studio windows activPilot Comfort PADS

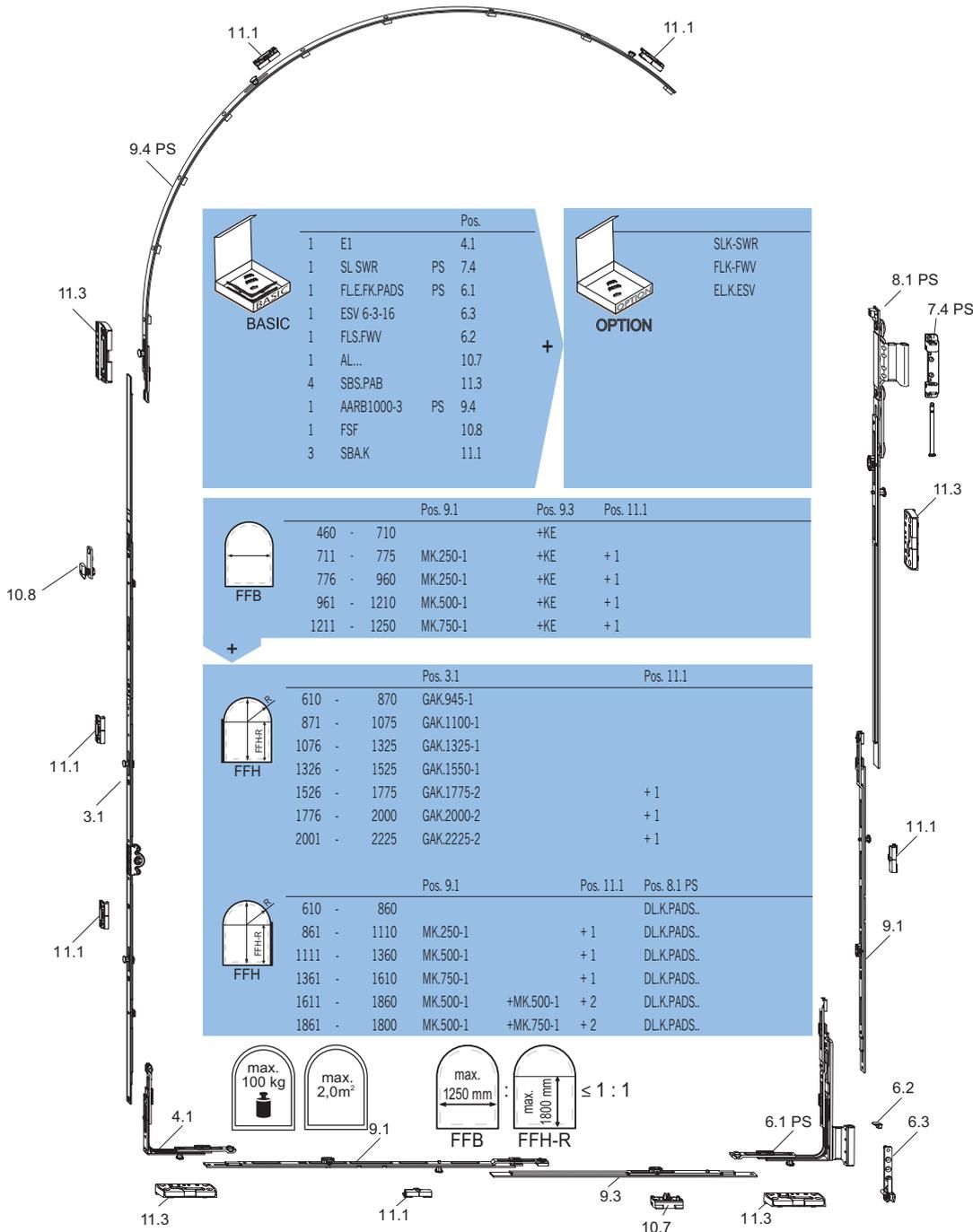


You will find the components marked PS on the following pages. All other parts can be found in the activPilot Comfort PADK section.

Turn fittings with parallel action – fixed handle position



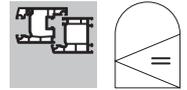
Basic equipment for radius-head windows activPilot Comfort PADS



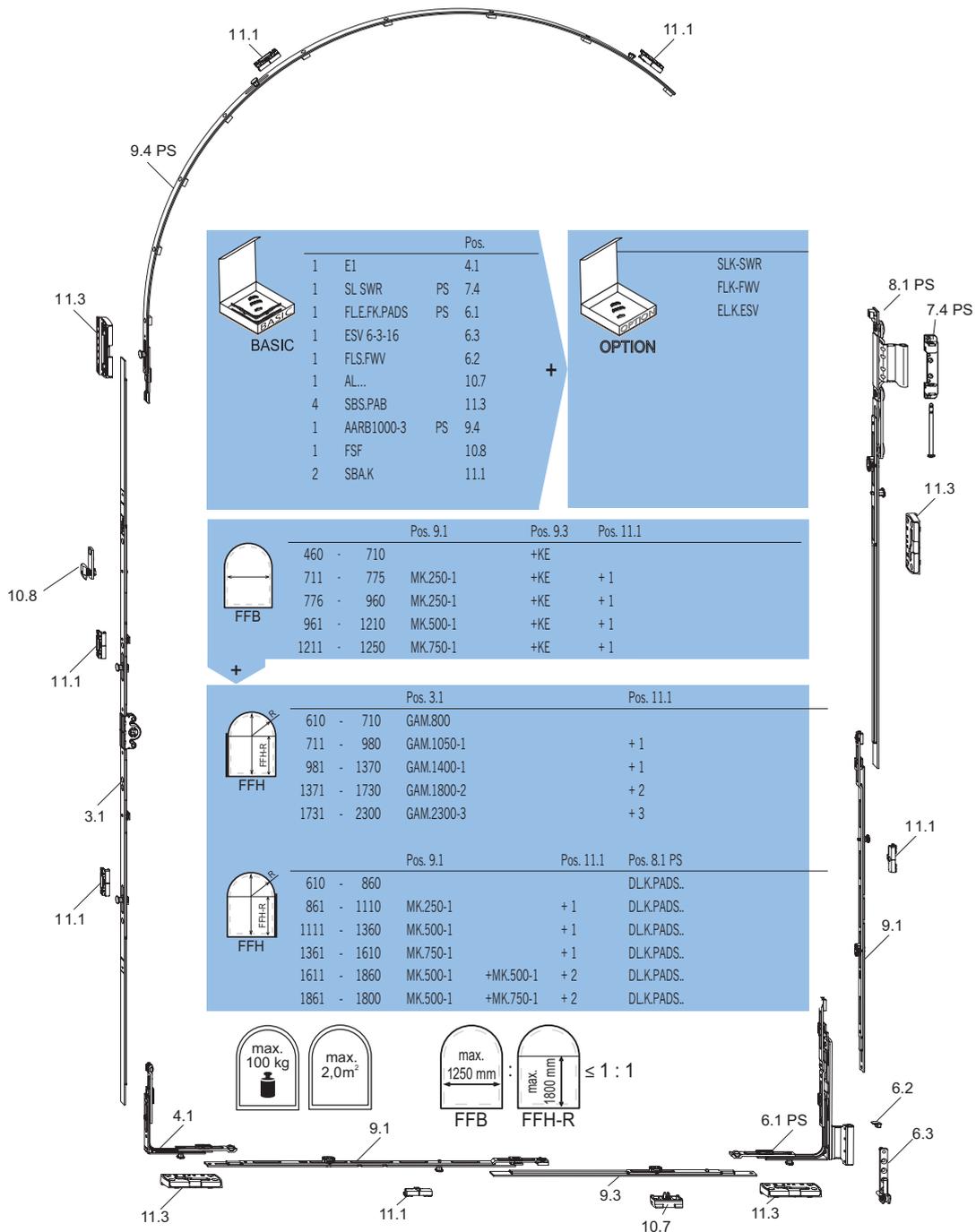
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You will find the components marked PS on the following pages. All other parts can be found in the activPilot Comfort PADK section.

Turn fittings with parallel action – central handle position

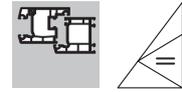


Basic equipment for radius-head windows
activPilot Comfort PADS



You will find the components marked PS on the following pages. All other parts can be found in the activPilot Comfort PADK section.

Turn fitting system with parallel action



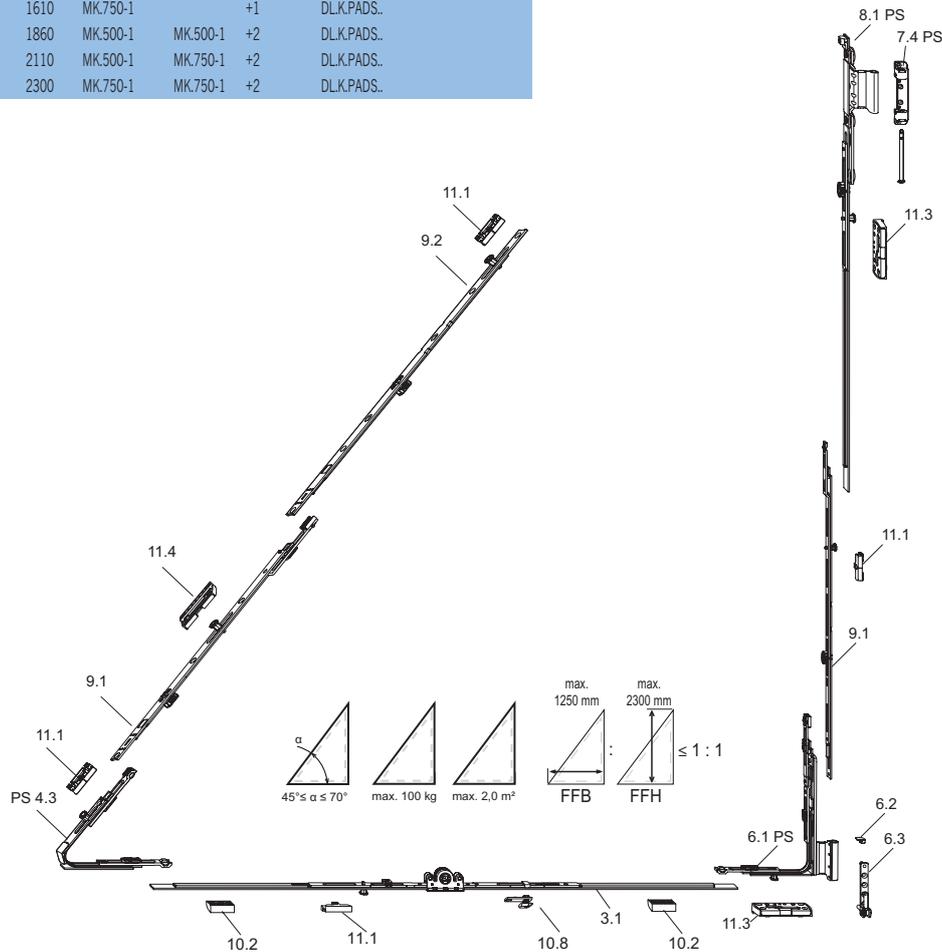
Basic equipment for triangle windows – bottom handle position activPilot Comfort PADS

	Pos. 9.1	Pos. 9.2	Pos. 11.1
L1	460	554	M.250-1
	555	805	M.500-1
	806	1055	M.750-1
	1056	1305	MK.500-1
	1306	1555	M.750-1
	1556	1800	MK.750-1

	Pos. 3.1	Pos. 11.1
FFB	610	710
	711	870
	871	1400

	Pos. 9.1	Pos. 9.2	Pos. 11.1	Pos. 8.1 PS
FFH	610	860		DLK.PADS.
	861	1110		DLK.PADS.
	1111	1360		DLK.PADS.
	1361	1610		DLK.PADS.
	1611	1860		DLK.PADS.
	1861	2110		DLK.PADS.
	2111	2300		DLK.PADS.

		Pos.	
BASIC	1	E1.A	PS 4.3
	1	SLSWR	7.4
	1	FLE.FK.PADS	PS 6.1
	1	ESV 6-3-16	6.3
	1	FLS.FWV	6.2
	2	AL...	10.2
	2	SBS.PAB	11.3
	1	SBS.PA	11.4
	1	FSF	10.8
	1	SBAK	11.1



You will find the components marked PS on the following pages. All other parts can be found in the activPilot Comfort PADK section.

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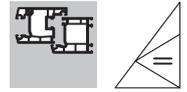
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Turn fitting system with parallel action



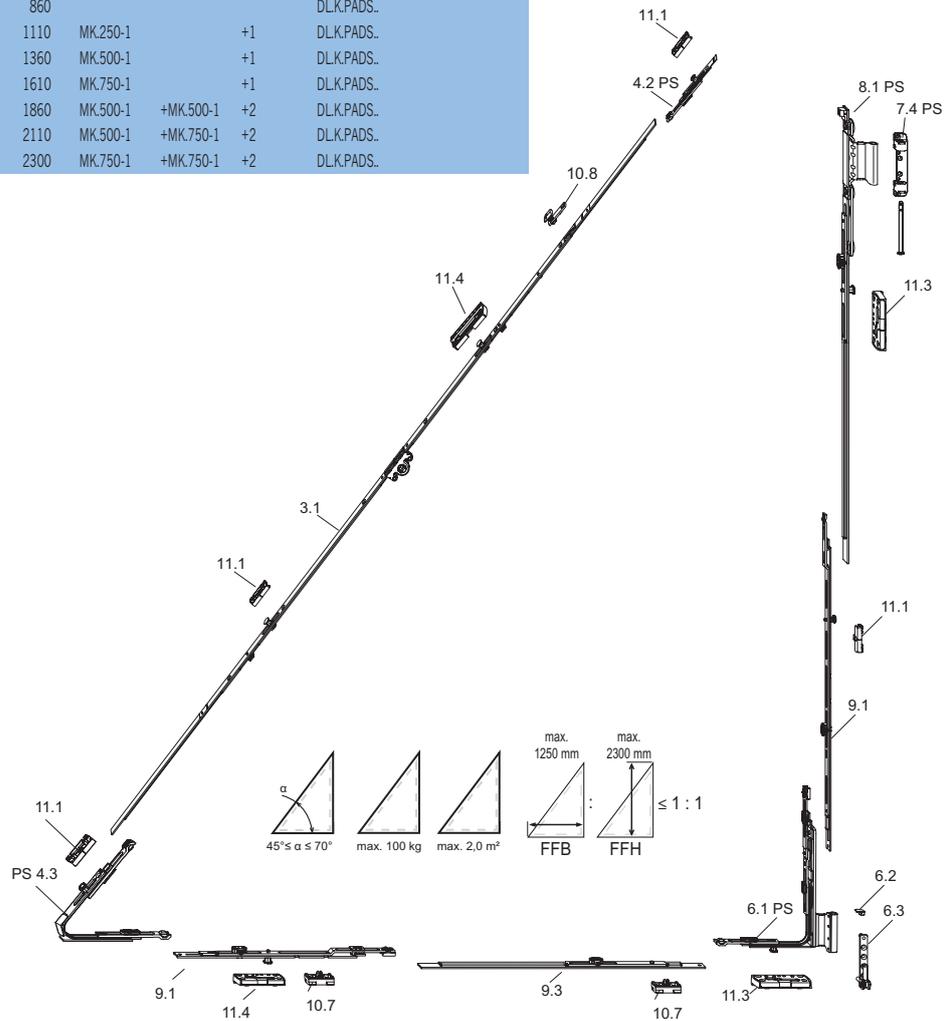
Basic equipment for triangle windows – slanted handle position activPilot Comfort PADS

		Pos. 3.1	Pos. 11.1	Pos. 11.4
 L1	510	710	GAM.800	
	711	980	GAM.1050-1	+1
	981	1400	GAM.1400-1	+1
	1401	1800	GAM.1800-2	+1
	1801	2300	GAM.2300-3	+2

		Pos. 9.1	Pos. 9.3	Pos. 11.4
 FFB	460	710	+KE	
	711	775	MK.250-1	+1
	776	960	MK.250-1	+1
	961	1210	MK.500-1	+1
	1211	1250	MK.750-1	+1

		Pos. 9.1	Pos. 11.1	Pos. 8.1 PS
 FFH	610	860		DL.K.PADS.
	861	1110	MK.250-1	+1
	1111	1360	MK.500-1	+1
	1361	1610	MK.750-1	+1
	1611	1860	MK.500-1	+2
	1861	2110	MK.500-1	+2
	2111	2300	MK.750-1	+2

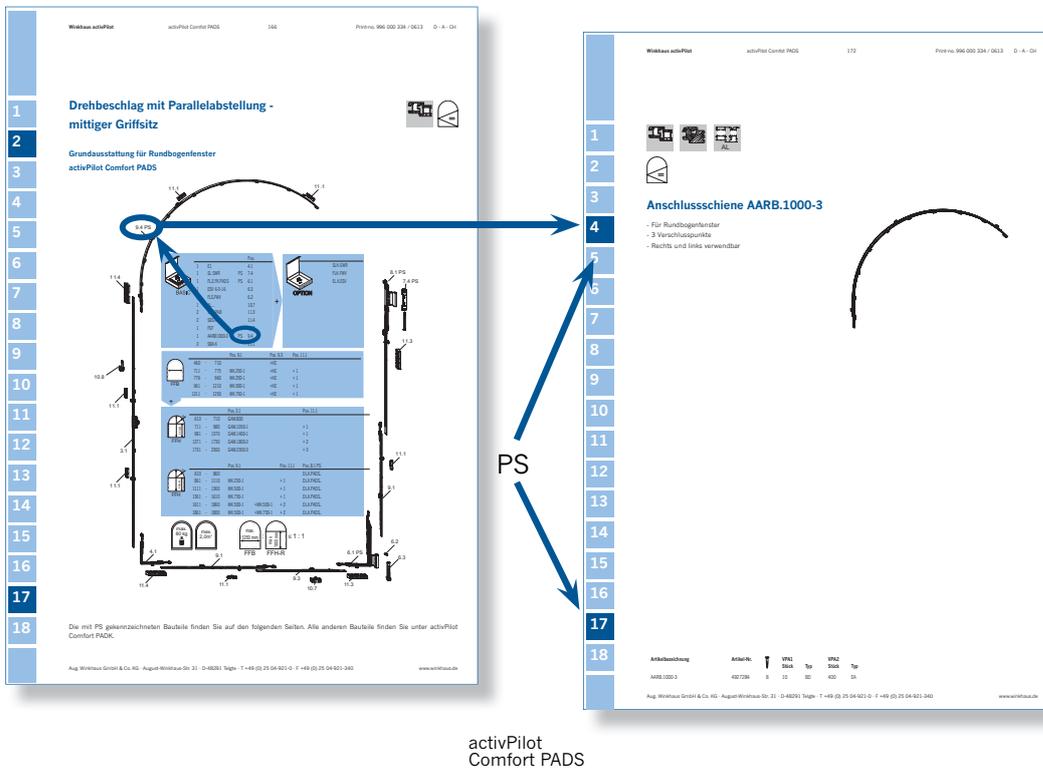
		Pos.	
 BASIC	1	E1.A	PS 4.3
	1	ASS.AS.1	PS 4.2
	1	SL.SWR	PS 7.4
	1	FLE.FK.PADS	PS 6.1
	1	ESV 6-3-16	6.3
	1	FLS.FWV	6.2
	2	AL...	10.7
	2	SBS.PAB	11.3
	1	SBS.PA	11.4
	1	FSF	10.8
	2	SBA.K	11.1



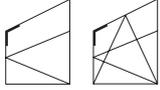
You will find the components marked PS on the following pages. All other parts can be found in the activPilot Comfort PADK section.

Quick orientation

Our register system allows you to quickly allocate the listed component to the item in the fitting overview drawing. The item number specifies the chapter number in which the component can be found.

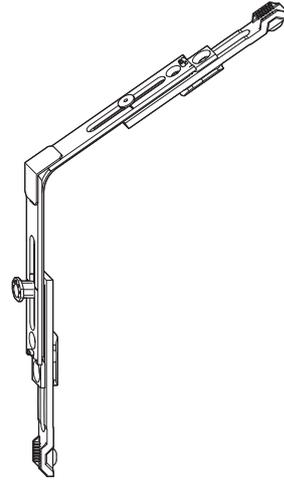


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Corner drive E1.A

- Useable left and right hand
- Safety locking pin as an adjustable octagonal bolt
- Used for non right-angled corners on sashes
- Adjustable angle setting
- Smooth operation, due to rust-free spring steel hinges inserted in C-rail
- Central fastening as standard
- Turn position is the factory default
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates

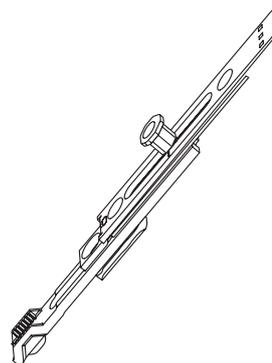


Item description	Item No.		VPA1		VPA2	
			Qty.	Type	Qty.	Type
E1.A	4926350	4	100	KK	2400	EK



Connecting rail ASS.AS.1

- Useable left and right hand
- Safety locking pin as an adjustable octagonal bolt
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates



Item description	Item No.	VPA1		VPA2	
		Qty.	Type	Qty.	Type
ASS.AS.1	4937603	150	KK	3600	EK

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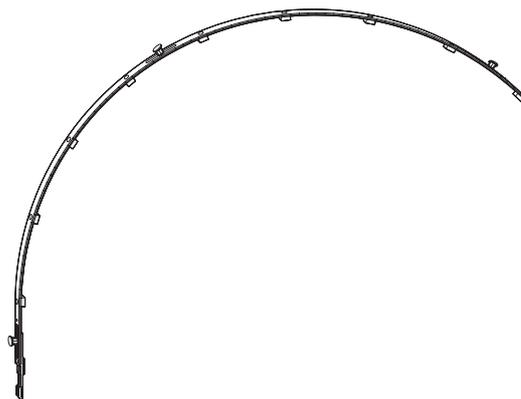
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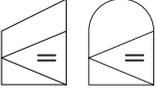


Connecting rail AARB.1000-3

- For round-arch windows
- 3 locking points
- Useable left and right hand



Item description	Item No.		VPA1 Qty.	Type	VPA2 Qty.	Type
AARB.1000-3	4927284	8	10	BD	400	EA

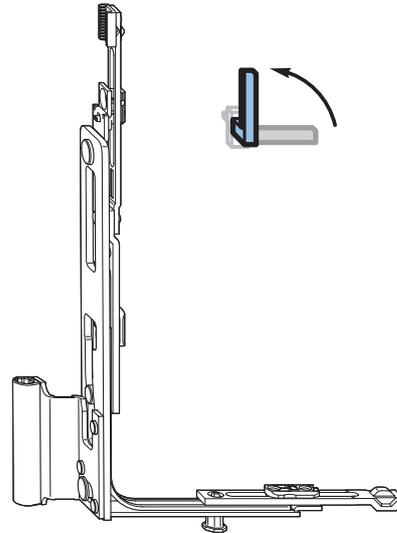
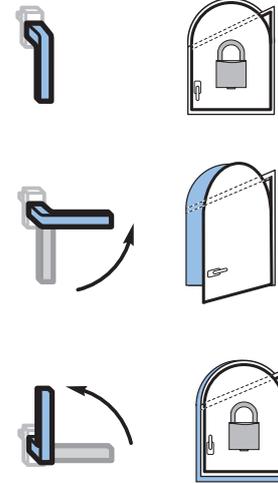


Sash hinge F.L.E.FK.PADS

- Parallel action possible via the control curve
- Switch sequence: locked position – turn position – parallel action
- Height adjustment +/- 3 mm
- Sash weight max. 100 kg
- Central fastening as standard
- Central position is the factory default
- Overlapping system linkage without connecting plates
- In combination with corner hinge ESV / EL.HW.PA

Sash hinge cover FLK FWV

Sash hinge plug FLS FWV



Item description	Item No.		Max. sash weight (kg)	Overlap	Groove centre position	VPA1 Qty.	Type	VPA2 Qty.	Type	VPA3 Qty.	Type
F.L.E.FK.PADS.20-13.LS	5001113	4	100	20	13	50	GK	200	EK		
F.L.E.FK.PADS.20-13.RS	5001112	4	100	20	13	50	GK	200	EK		
F.L.E.FK.PADS.20-13.LS.WS	5001115	4	100	20	13	50	GK	200	EK		
F.L.E.FK.PADS.20-13.RS.WS	5001114	4	100	20	13	50	GK	200	EK		
F.L.E.FK.PADS.20-13.LS.F9	5001117	4	100	20	13	50	GK	200	EK		
F.L.E.FK.PADS.20-13.RS.F9	5001116	4	100	20	13	50	GK	200	EK		
FLK FWV LS WS	2301624					100	BL	300	KK	2400	EK
FLK FWV RS WS	2301616					100	BL	300	KK	2400	EK
FLK FWV LS BR	2301608					100	BL	300	KK	2400	EK
FLK FWV RS BR	2301595					100	BL	300	KK	2400	EK
FLK FWV LS F1	2394154					100	BL	300	KK	2400	EK
FLK FWV RS F1	2394162					100	BL	300	KK	2400	EK
FLK FWV LS F9	2854798					100	BL	300	KK	2400	EK
FLK FWV RS F9	2854801					100	BL	300	KK	2400	EK
FLS FWV BR	1521625					500	BL	5000	KK	40000	EK
FLS FWV F9	2854819					500	BL	5000	KK	40000	EK
FLS FWV SL	1993420					500	BL	5000	KK	40000	EK
FLS FWV WS	1521617					500	BL	5000	KK	40000	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

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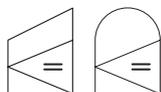
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Turn hinges DL.K.PADS

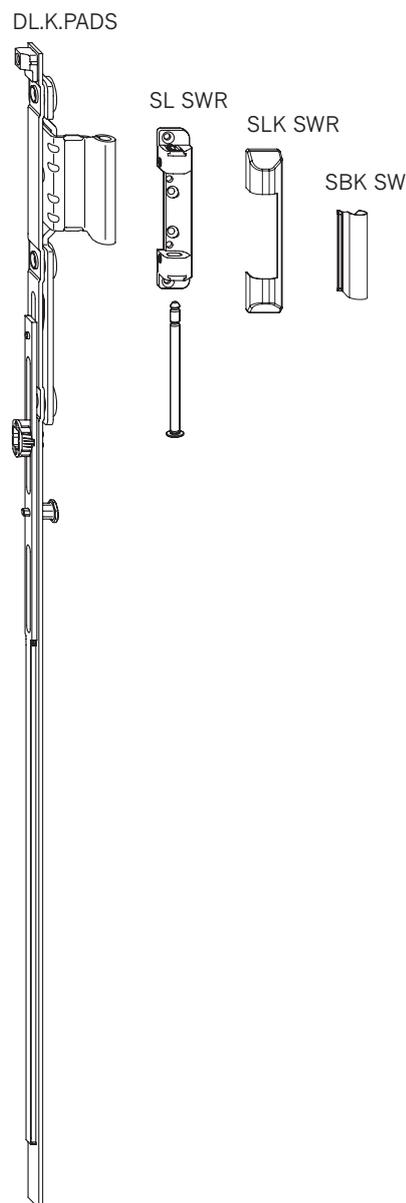
- For radius head windows, studio and triangle windows
- Only one size of turn hinge
- Sash weight max. 100 kg
- Side adjustment ± 2 mm
- Overlapping system linkage without connecting plates
- Turn position is the factory default
- Used in combination with shear hinge SL SWR
- Central fastening as standard
- Parallel action possible via the control curve

Shear hinge SL SWR

- For radius head windows, studio and triangle windows

Shear hinge cap SLK SWR

Shear hinge cap SBK SW



Item description	Item No.		Max. sash weight (kg)	Overlap	Groove centre position	VPA1 Qty.	Type	VPA2 Qty.	Type	VPA3 Qty.	Type
DL.K.PADS.20-13.LS	5001586	6	100	20	13	10	BD	200	EA		
DL.K.PADS.20-13.RS	5001585	6	100	20	13	10	BD	200	EA		
DL.K.PADS.20-13.LS.WS	5001588	6	100	20	13	10	BD	200	EA		
DL.K.PADS.20-13.RS.WS	5001587	6	100	20	13	10	BD	200	EA		
DL.K.PADS.20-13.LS.F9	5001610	6	100	20	13	10	BD	200	EA		
DL.K.PADS.20-13.RS.F9	5001589	6	100	20	13	10	BD	200	EA		
SL SWR SL	1888216	4	100			1	BL	200	KK	1600	EK
SL SWR WS	5004211	4	100			1	BL	200	KK	1600	EK
SL SWR F9	5004212	4	100			1	BL	200	KK	1600	EK
SLK SWR WS	1539729					50	BL	300	KK	2400	EK
SLK SWR F9	1220106					50	BL	300	KK	2400	EK
SLK SWR F1	2201922					10	BL	250	KK	2000	EK
SLK SWR BR	1539796					50	BL	300	KK	2400	EK
SBK SW WS	1505705					100	BL	500	KK	12000	EK
SBK SW BR	1505801					100	BL	500	KK	12000	EK
SBK SW F9	2364713					100	BL	400	KK	3200	EK
SBK SW F1	2201869					10	BL	400	KK	3200	EK

Mounting instructions activPilot Comfort PADS for studio windows

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Shortening the fittings
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Mounting instructions activPilot Comfort PADS for radius-head windows

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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:

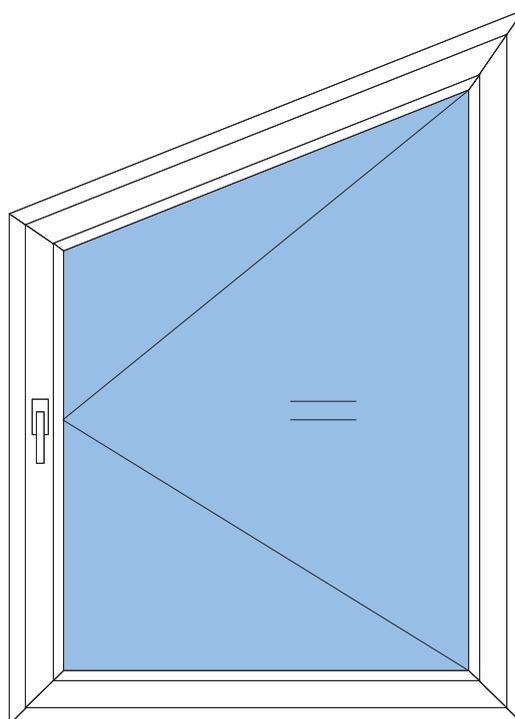
- Min. sash rebate width 460 mm
- Max. sash rebate width 1250 mm
- Min. sash rebate height 610 mm
- Max. sash rebate height 2300 mm
- Max. sash size 2.0 m²
- Max. sash weight 100 kg
- 1 mm glass \approx 2.5 kg/m²
- Aspect ratio FFB : FFH \leq 1 : 1
- Airgap 12 mm
- Overlap 20 mm
- Groove centre position 13 mm
- Frame rebate depth min. 29 mm
- Approved for centre gasket systems and rebate sealing systems with rain guard.



Note: From sash weights of 40 kg the filling must be bonded to the sash all around the window.



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



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.

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



Important: activPilot Comfort fittings are not suitable for use in panic doors! They are not recommended for passage doors.

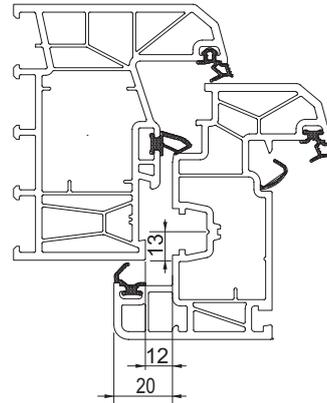
Standard profile dimensions

See figure: Profile cross-section

The fitting can be used on PVC-U windows with a standard eu-rogroove.



activPilot Comfort fittings are suitable for centre gasket systems or rebate sealing systems in combination with rain guards.



Profile cross-section

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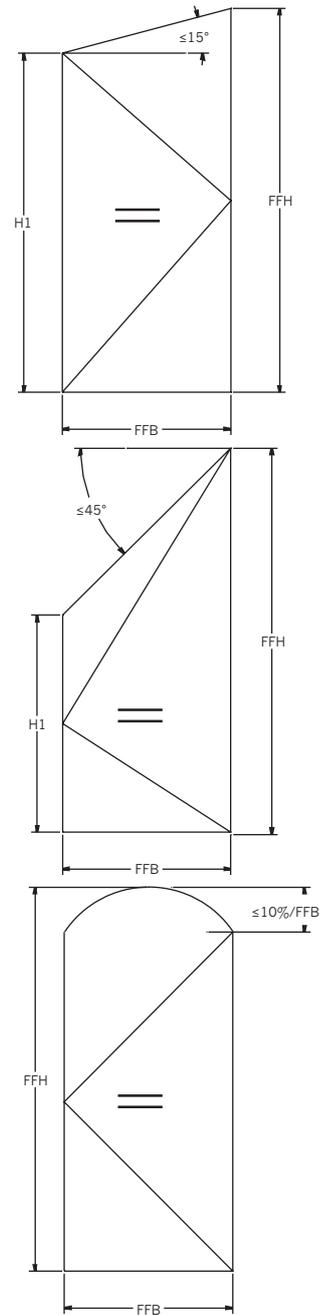
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activPilot Comfort PAD **18**

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Studio variants

Studio components can be used for window elements with the following frame geometry.



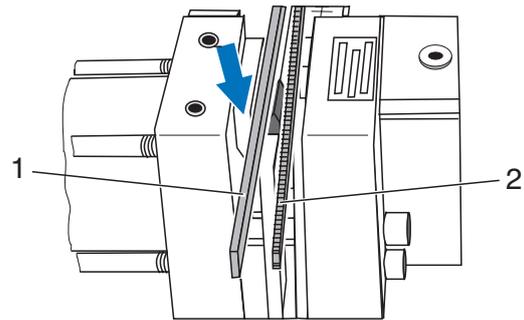
Possible frame variants

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

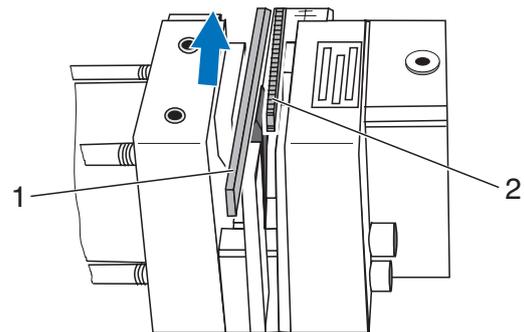
- Always insert the face plate (1) and drive rod (2) perpendicularly from the top with the face plate (1) pointing to the pressure cylinder.



Fittings prior to punching

See figure: Fittings after punching

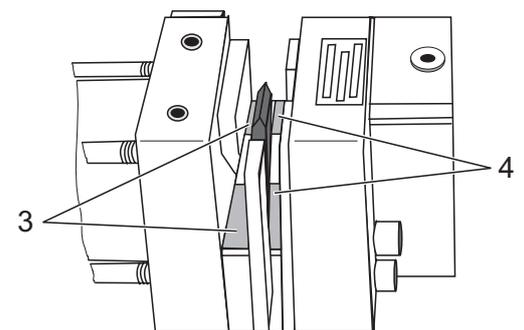
- After punching, always remove the face plate (1) and drive rod (2) perpendicularly in an upwards direction.



Fittings after punching

See figure: Cleaning the supporting surfaces

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



Cleaning the supporting surfaces

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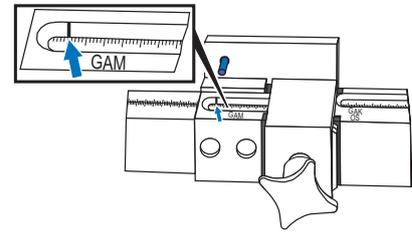
Shorten the drive rod GAM (central handle position)

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 sub-marking, this corresponds to a longitudinal shift of 2 mm.



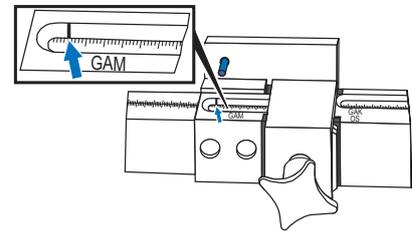
Marking GAM

See figure: Marking GAM

- Adjust the measured value FFB to the GAM mark on the measuring device.



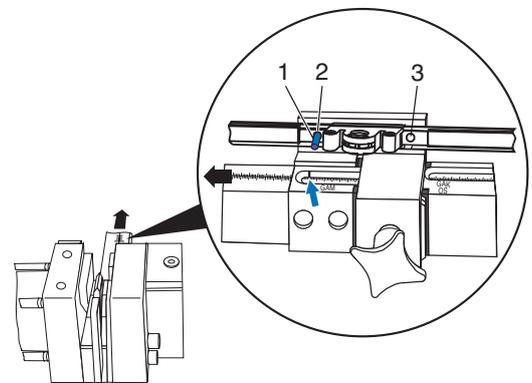
Attention! If the GAM scale is displaced by one sub-marking, this corresponds to a longitudinal shift of 2 mm.



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

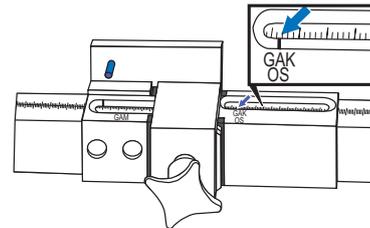
Shorten the GAK / GASK drive rod (constant handle position) and top rod OS



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

See figure: Markings GAK and OS

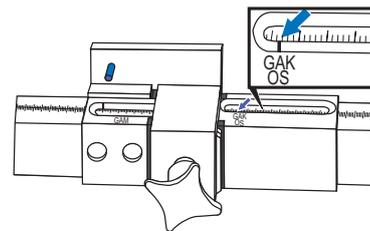
- Set the measuring value FFH (GAK/GASK) or FFB (OS) on the measuring device to the GAK/OS mark.



Markings GAK and OS

See figure: Markings GAK and OS

- Adjust the measured value FFB (GAK) to the GAK/OS mark on the measuring device.



Markings GAK and OS

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1 Mounting of fittings on sash

2 Parallel opening / turn studio window

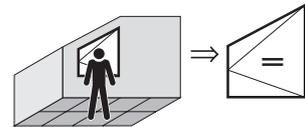
Prepare the window for fitting. Then proceed as follows:



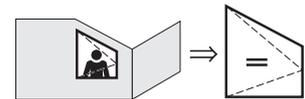
Please note: The following figures refer to a window for right-hand use. When fitting a window for left-hand use, the figures will be mirror-inverted.

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.

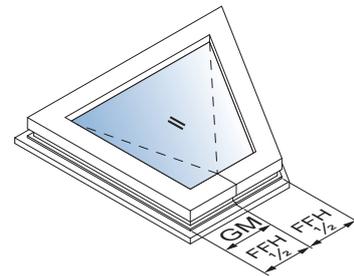


3 Determine the handle height:

4 Handle height for drive rod GAM

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

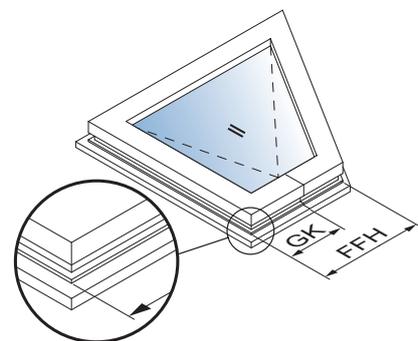
If you use a GAM drive rod ... (central handle position), the dimension GM is half the sash rebate height FFH.



Sash rebate height FFH with central handle height GM

5 Handle height for drive rod GAK

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)

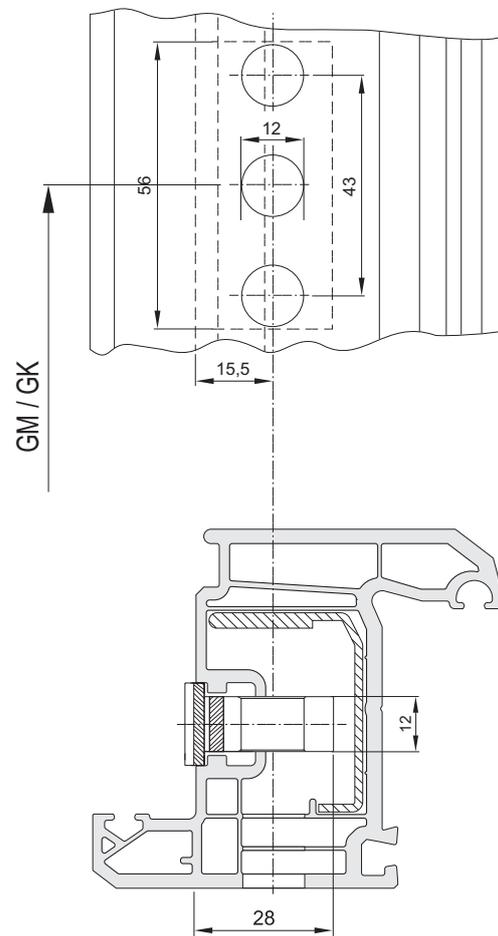
The table on the right gives a survey on the handle height (GK) of GAK with regard to the sash rebate height (FFH).

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 (ø 12 mm) as per scale drawing.

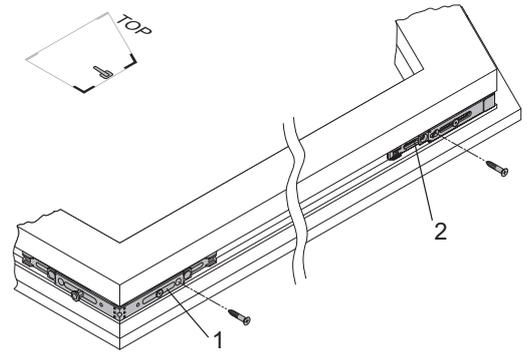


Scale drawing “Gear lock”

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See figure: Corner drives E1 (1), E1.A (2)

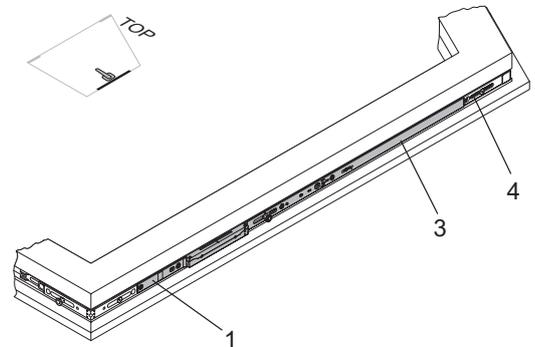
- Mounting of interlocking rods:
 - Prior to insertion, bend the corner drive E1.A to rectangular shape.
 - Fit the corner drive (2) into the fitting groove at the top of the sash so that the octagonal bolt is on the top side.
 - Fit the corner drive (1) into the fitting groove at the bottom of the sash so that the octagonal bolt is on the underside.
 - Fix both corner drives (1, 2) on the drive side with a single screw each.



Corner drives E1 (1), E1.A (2)

See figure: Drive rod GAM/GAK

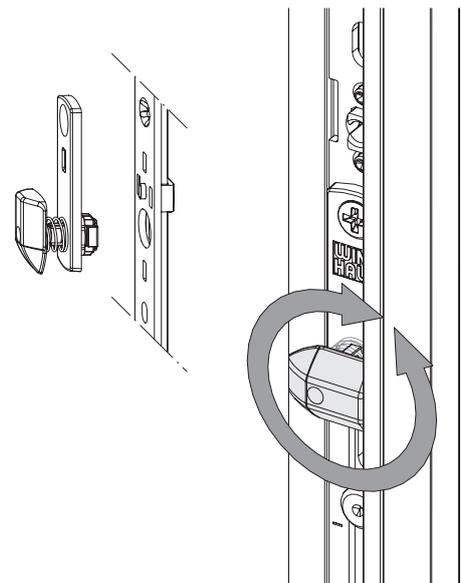
- Mount the drive rod:
 - Press the drive rod into the eurogroove.
 - Fit the handle to position the drive rod.
 - Mark the length of the drive rod on the flush edges of the corner drives.
 - Remove the handle and take the drive rod out of the fitting groove.
 - Mark and trim the drive rod using a punching 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 way.
 - Screw the drive rod from the bottom up.



Drive rod GAM/GAK

See figure: Fail safe device FSF

- Mount the fail safe device:
 - Insert the fail safe device on the hole pattern of the drive rod and fix with a screw.
 - If required, turn the head by 90° (depends on profile).
 - Mounting a frame part is not necessary.



Fail safe device FSF

Important to know:

- The component's delivery state is neutral with regard to the DIN direction!
- After installation the tip of the plastic part 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!

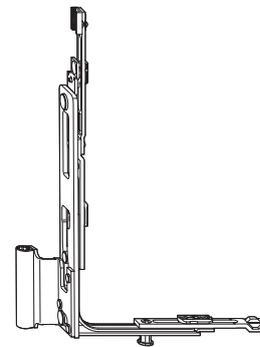
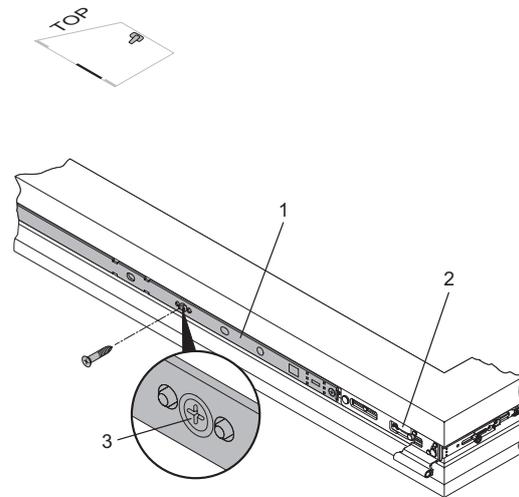
See figure: Sash hinge FL.E.FK.PADS

• Fitting the sash hinge:

- Fit the sash hinge into the eurogroove at the bottom of the sash so that the octagonal bolt is on the underside.
- Fix the sash hinge on the hinge side with 2 screws and on the underside using 1 screw.
- Measure the sash rebate width (FFB).



Note: Use screws \varnothing 3.9 to 4.2 mm to fix the sash hinge. Screw length must be at least 25 mm. Make sure the sash hinge is flush within the eurogroove.

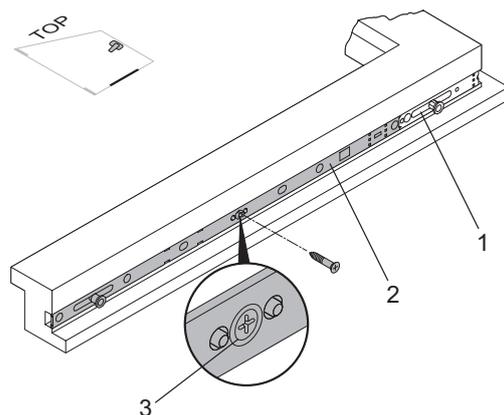


Sash hinge FL.E.FK.PADS

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)

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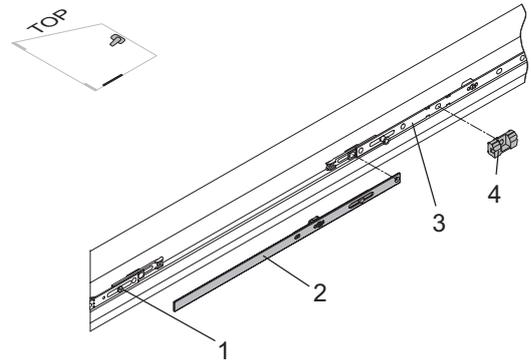
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See figure: Coupling element KE (horizontal)

- 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.



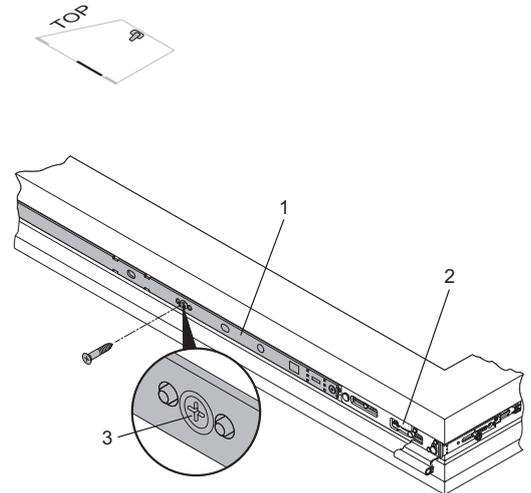
Coupling element KE (horizontal)

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

- Install Interlocking Rod on the hinge side.
 - Abut the interlocking rod (1) against the sash hinge (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.



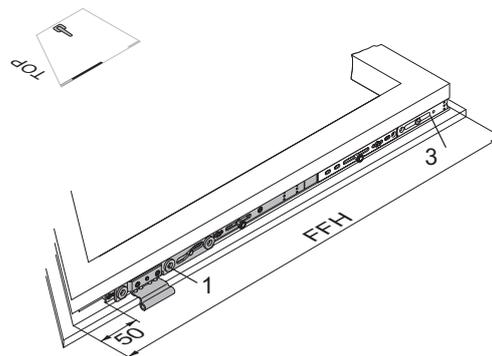
Interlocking rod M/MK (hinge side)



Important to observe for Trocal 88+ profile system! For Trocal 88+ please remove the centre bar at the frame (bottom hinge side, at level of sash hinge). From frame rebate edge approx. 70 mm to the top!

See figure: Turn hinge DL.PADS

- Fit the turn hinge
 - Mark frame rebate height 50 mm on the sash frame.
 - Position the turn hinge (2) with the cover plate upper edge being on the "FFH-50 mm" mark.
 - Mark the length of the turn hinge.
 - Remove the turn hinge from the fitting groove.
 - Mark and trim the turn hinge using a punching press.
 - Fit the turn hinge
 - Insert the turn hinge at the FFH-50 mm mark. Click the gears end into the teeth of the interlocking rod or sash hinge.
 - Screw the turn hinge from top down.
 - Important: Use only screws with a minimum length of 30 mm.



Turn hinge DL.PADS



Important: The upper edge of the cover plate must end at a min. sash rebate height FFH-50.



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.

- Mount the interlocking rod M/MK on the diagonal.
 - Abut the interlocking rod against the corner drive E1.A.
 - 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.

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1 Mounting of fittings on the window frame

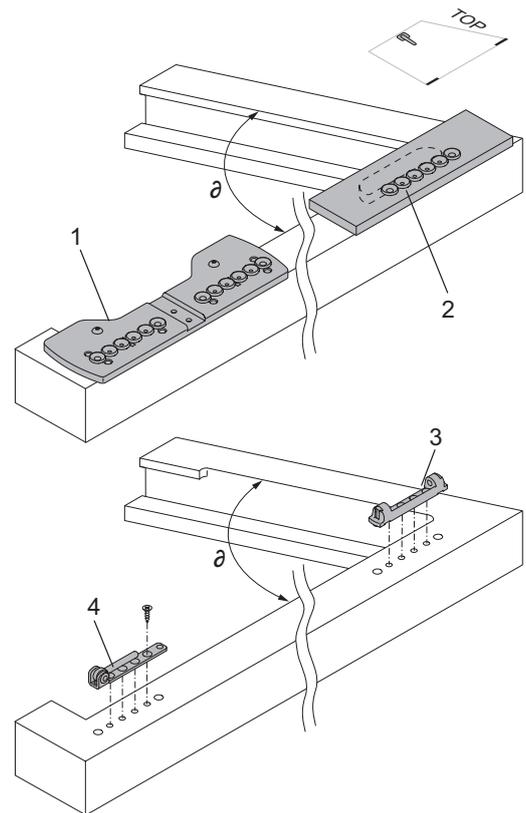
3 Parallel opening / turn studio window

See figure: Mounting jig LE.B.EL-SL.K Corner hinge

- Mounting the corner hinge.
 - Drill \varnothing 2.5 to 3 mm pilot holes for corner hinges and drill \varnothing 6 mm pilot holes for spindle plug positions.
 - 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.



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.



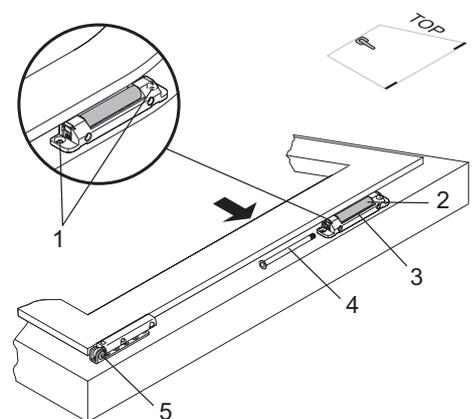
Mounting jig LE.B.EL-SL.K
Corner hinge

See figure: Shear hinge SWR ... for studio windows

- 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.
 - Press the sash and shear hinge as far out as possible (see arrow) against the frame edge.
 - Pre-drill the screw positions through the shear hinge drill holes (1) with \varnothing 2.5 to 3 mm drill.
 - Screw the shear hinge into place (screws in line with details in Product Liability Information).



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



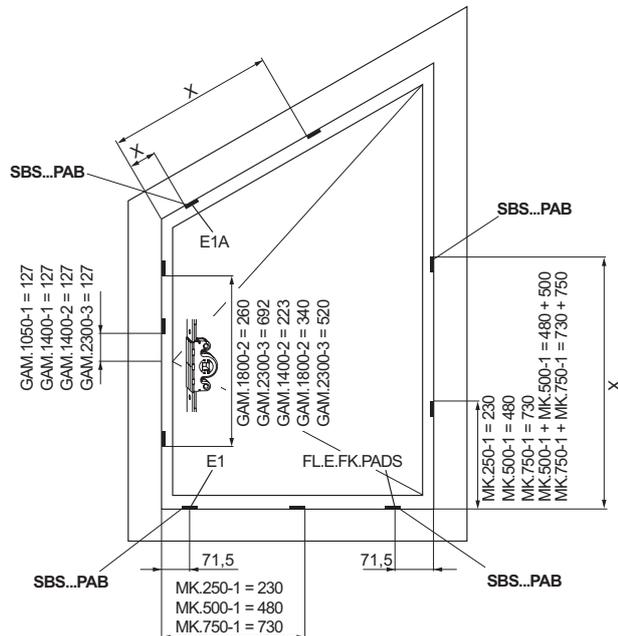
Shear hinge SWR ... for studio windows

Keep positions

The figures show the keep position options. The number of keeps depends on the size of the window.



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.

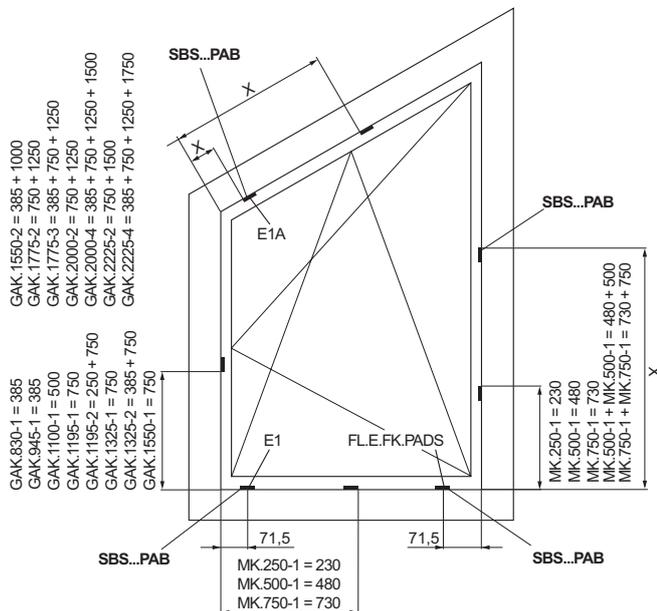


Keep positions "central handle position"

X = Dimension in elevation

See figure: Keep positions "constant handle position"

- Keep position X on slopes:
 - Mount the sash.
 - The handle is in horizontal position; the window is unlocked so that the mushroom heads are in a central position.
 - Abut the sash so that you can mark the outer edge of the mushroom bolt on the frame.
 - Position the keep:
 - The gap between the outer edge of the mushroom bolt and the profile edge of the keep is 3 to 4 mm.

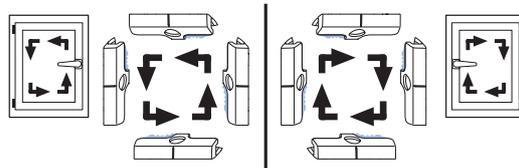


Keep positions "constant handle position"

X = Dimension in elevation



Please note: When marking, note the run-in sides of the keeps.



Run-in sides

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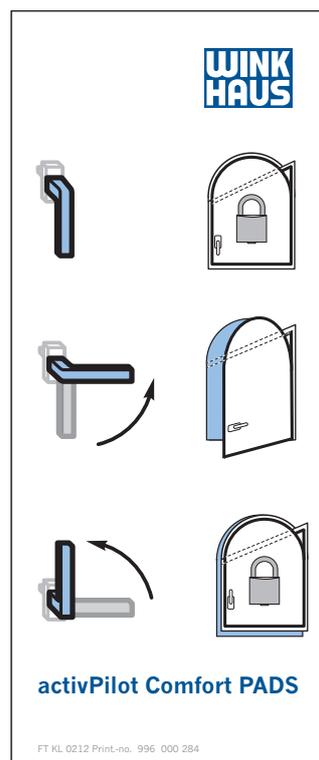
Function test

Studio and radius-head windows with parallel / turn opening

Place the handle and operate once as follows to release the central fastening.



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.



Adjustment options

Corner hinge/sash hinge

Sash hinge height adjustment (± 3 mm) and corner hinge side adjustment (± 2 mm).

Octagonal bolt

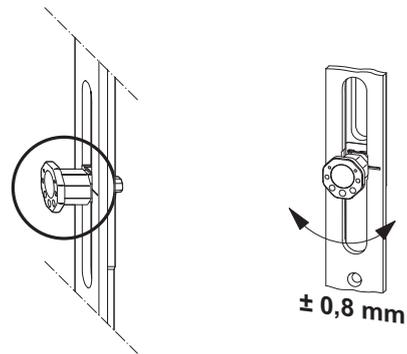
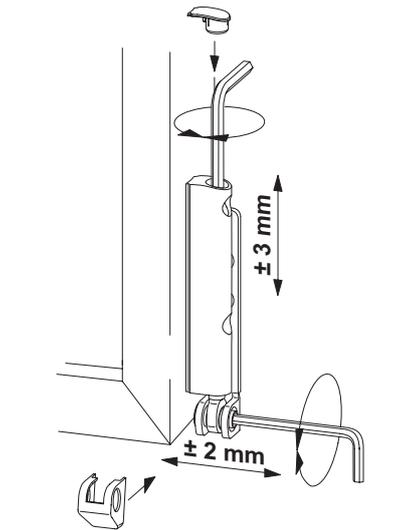
Regulate the contact pressure between the sash and the frame (± 0.8 mm) by turning the octagonal bolt. The adjustment can be carried out by means of the Winkhaus adjustment key (V.ST.SCH.HV-11).

Adjustment in the turn hinge

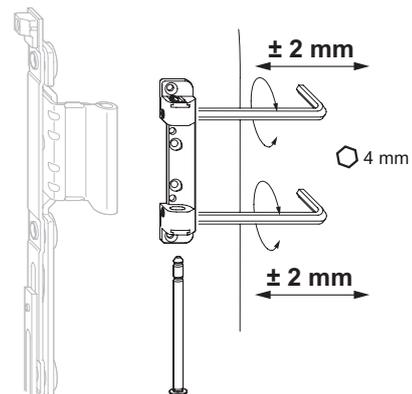
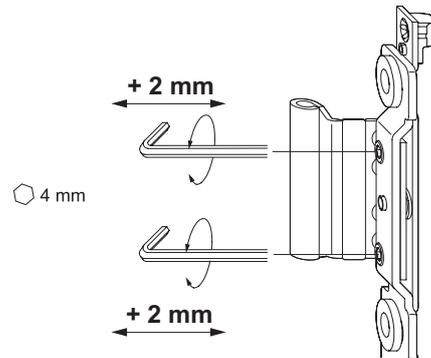
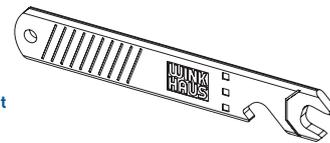
The adjustment screws may be fitted until they are flush with the cover plate (at most!). This corresponds to a 2 mm adjustment.

Shear hinge adjustment

Lifting and lowering the sash by means of a 4 mm Allen key.



Octagonal bolt



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1 Maintenance

Lubrication points

See figure: Overview of lubrication points

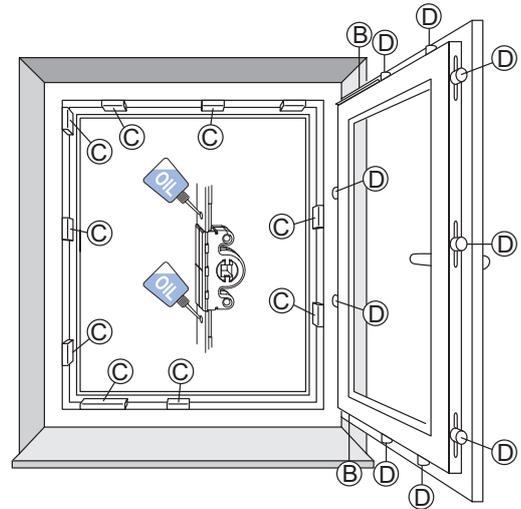
The figure shows the location of possible lubrication points which should be lubricated at least once a year.

Positions A, C, D = lubrication points relevant to function.

Position B = safety-relevant lubrication point



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

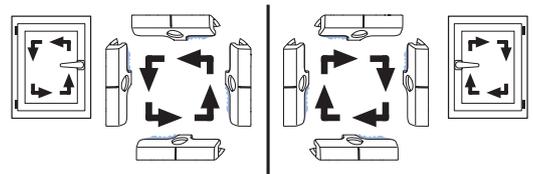


Attention! Risk of injury. The window could fall on removal and thus injure persons. Do not remove the window for maintenance.

Ascertaining the run-in sides

See figure: Run-in sides

- Left-handed window; handle right
- Right-handed window; handle left



Run-in sides

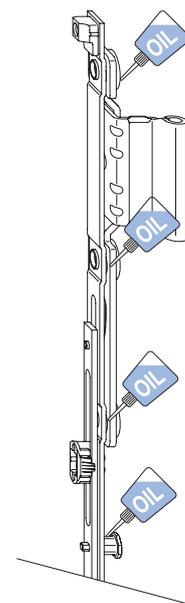
Turn hinges

See figure: Turn hinges

The turn hinge's contact points should be oiled once annually.



Please note: The turn hinge must always be clean!



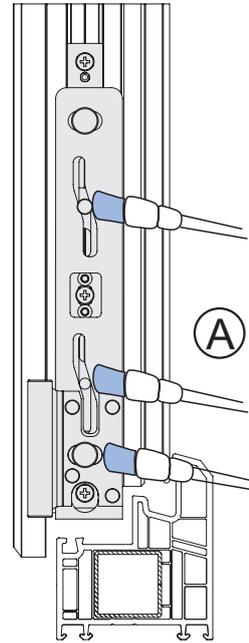
Turn hinges

Sash hinge

See figure: Sash hinge FL.E...PA.

All moving contact points on the sash hinge should be greased with a suitable lubricant once annually.

Coat lubricating points with non-resinous, non-corroding grease.



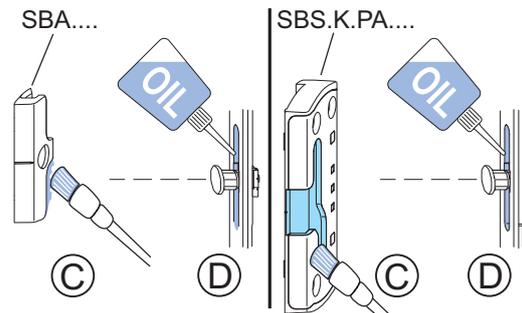
Sash hinge FL.E...PA.

Keeps

See figure: Keeps

To keep fittings running smoothly, you must lubricate the keeps 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.
- Frame parts must be kept clean.



Keeps

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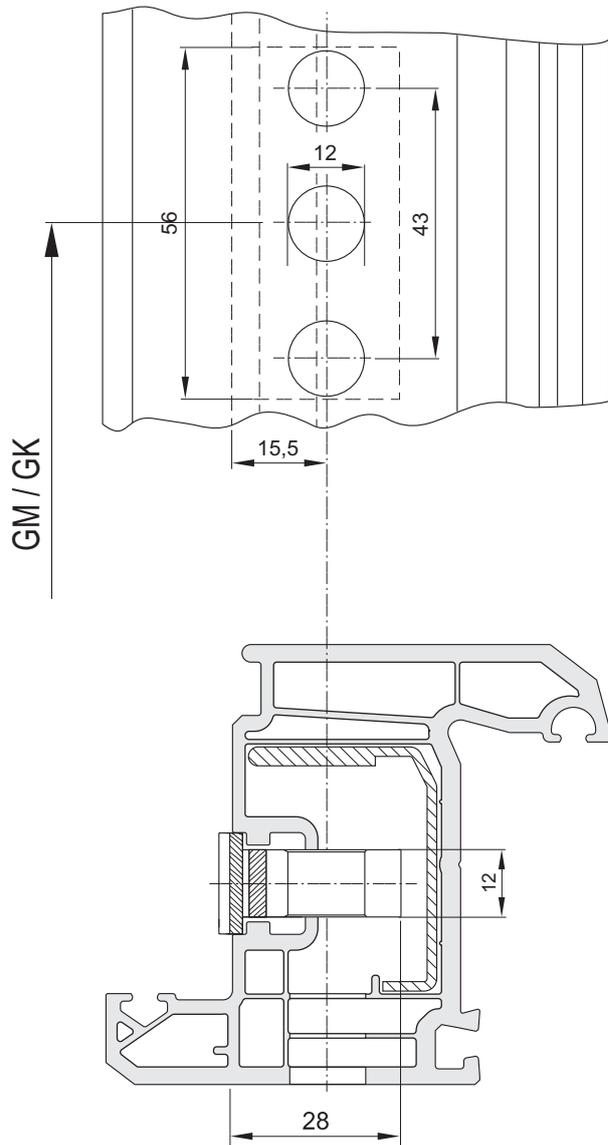
activPilot Comfort PADM **16**

activPilot Comfort PADS **17**

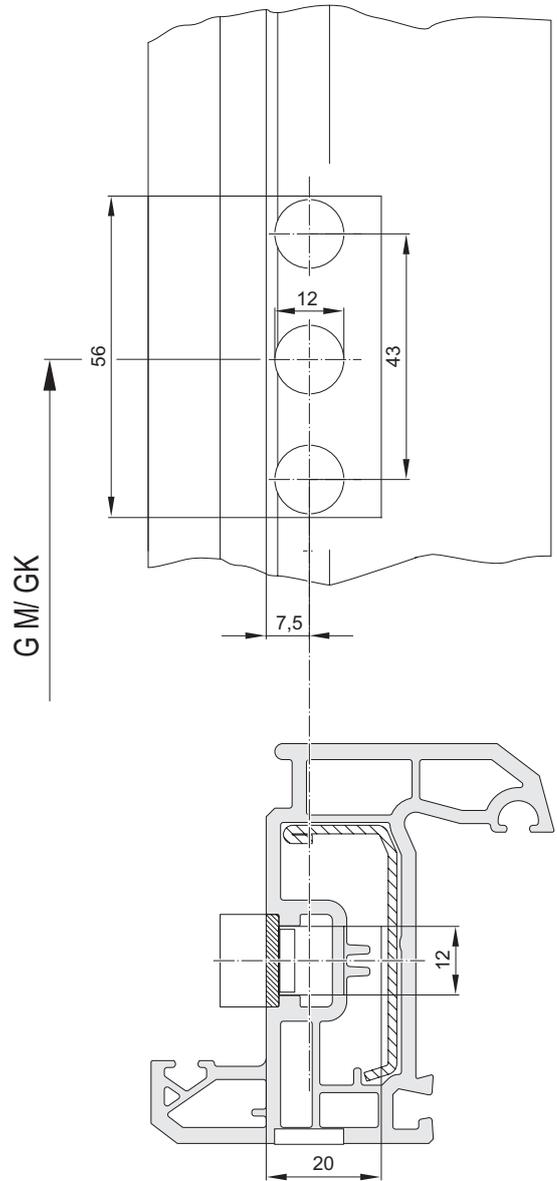
activPilot Comfort PAD **18**

Installation drawings

Drive rods

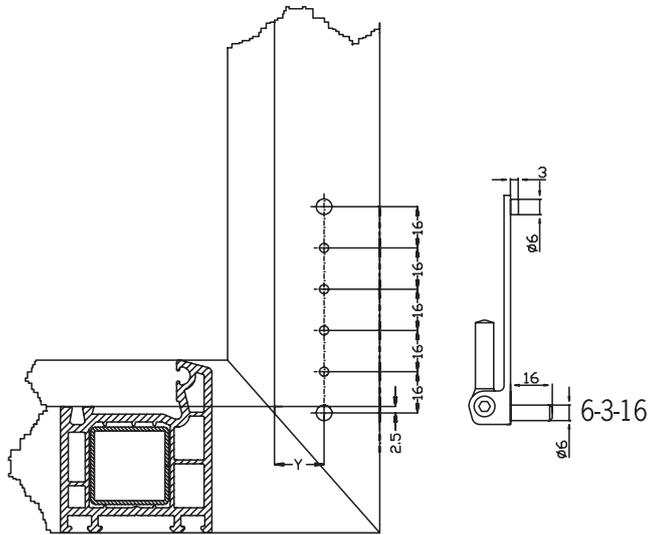


B-3-1: Drilling and milling instructions GAK/GAM ... D = 15.5 mm



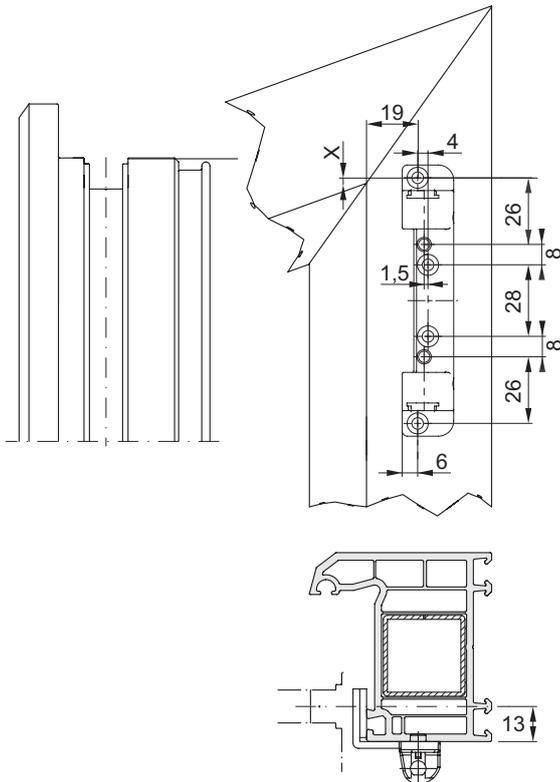
B-3-2: Drilling and milling instructions GAK/GAM ... D = 7.5 mm

Corner hinge ESV



B-6-3: Drilling template corner hinge ESV
Y = 19 mm

Shears / shear hinges



Drilling template shear hinge SWR
X = Positioning via the turn hinge

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1 Mounting instructions

2 activPilot Comfort PADS for radius-head windows

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Notes on these assembly instructions
Page 201 - 202

Shortening the fittings
See Mounting instructions for studio windows

Mounting of round-arch fittings
Page 203 - 213



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 width 460 mm
- Max. sash rebate width 1250 mm
- Min. sash rebate height 610 mm
- Max. sash rebate height 1800 mm
- Max. sash size 2.0 m²
- Max. sash weight 100 kg
- 1 mm glass \approx 2.5 kg/m²
- Aspect ratio FFB : FFH \leq 1 : 1



Note: From sash weights of 40 kg the filling must be bonded to the sash all around the window.



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

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.

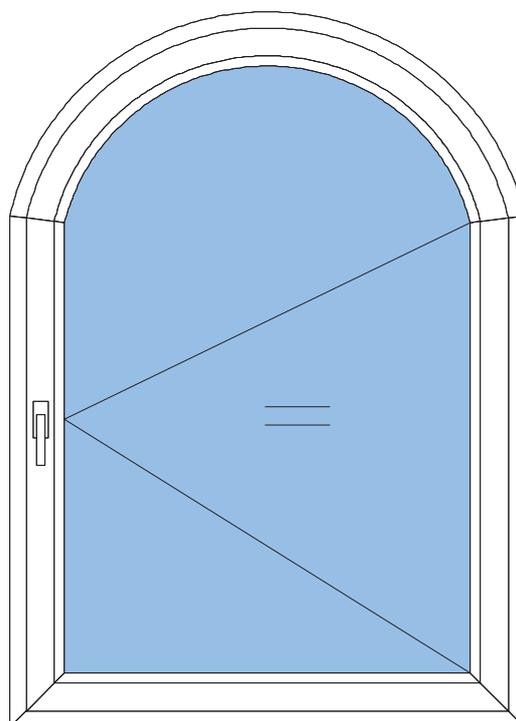
All fittings must be selected from the original Winkhaus activPilot fitting component range. We accept no liability in case of use of third party or non-approved system components.



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



Important: activPilot Comfort fittings are not suitable for use in panic doors! They are not recommended for passage doors.



General product information **1**

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Drive rods **3**

Corner drives **4**

Top rods **5**

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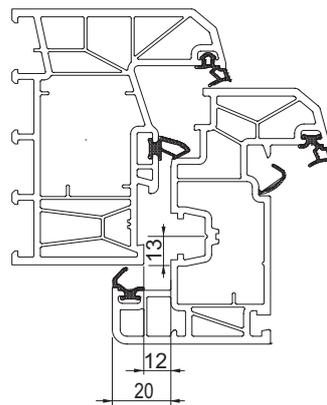
Standard profile dimensions

See figure: Profile cross-section

The fitting can be used on PVC-U windows with a standard eu-rogroove.



activPilot Comfort fittings are suitable for centre gasket systems or rebate sealing systems in combination with rain guards.



Profile cross-section

Shortening the fittings

See chapter Studio Windows

Mounting of fittings on sash

Parallel opening / turn radius-head window

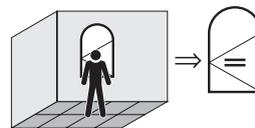
Prepare the window for fitting. Then proceed as follows:



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.

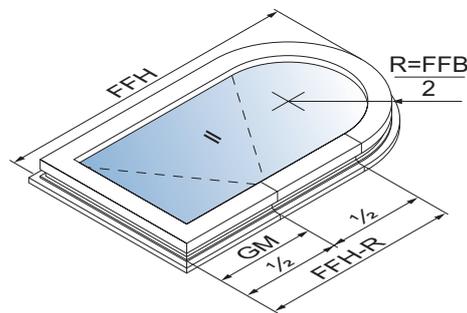


Determine the handle height:

Handle height for drive rod GAM

See figure: Sash rebate height FFH-R with central handle position GM

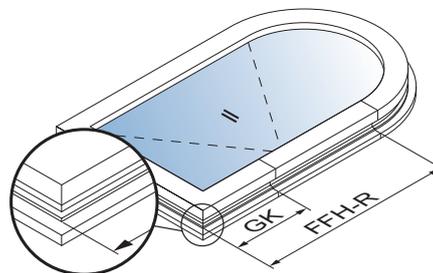
If you use a GAM drive rod (central handle position), dimension GM is half the sash rebate height FFH-R.



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.



Sash rebate height FFH-R with constant handle height GK

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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).

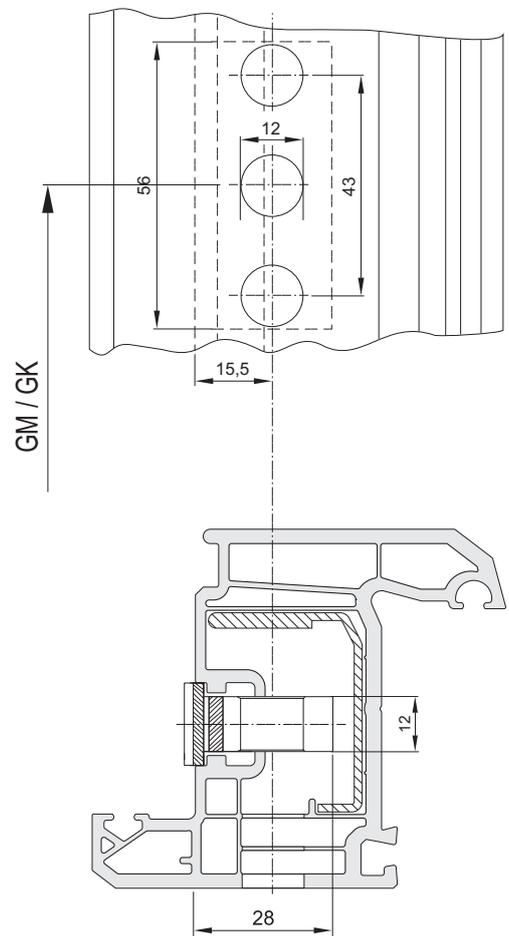
230 – 324	GK = 114 *
325 – 420	GK = 114 *
421 – 460	GK = 210
461 – 700	GK = 210
701 – 850	GK = 260
851 – 1100	GK = 375
1101 – 1325	GK = 550
1326 – 1525	GK = 550
1526 – 1775	GK = 550
1776 – 2000	GK = 1050
2001 – 2225	GK = 1050

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.



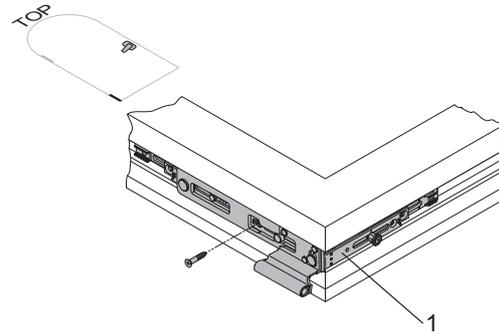
Scale drawing "Gear lock"

See figure: Sash hinge FL.E...PA.

- Fitting the sash hinge:
 - Fit the sash hinge into the eurogroove at the bottom of the sash so that the octagonal bolt is on the underside.
 - Fix the sash hinge on the hinge side with 2 screws and on the underside using 1 screw.
 - Measure the sash rebate width (FFB).



Note: Use screws \varnothing 3.9 to 4.2 mm to fix the sash hinge. Screw length must be at least 25 mm. Make sure the sash hinge is flush within the eurogroove.



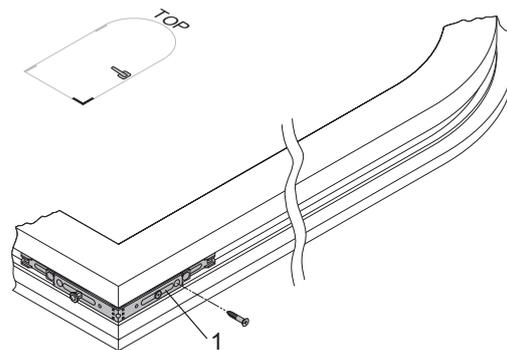
Sash hinge FL.E...PA.



Important to observe for Trocal 88+ profile system!
For Trocal 88+ please remove the centre bar at the frame (bottom hinge side, at level of sash hinge).
From frame rebate edge approx. 70 mm to the top!

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.



Corner drive E1

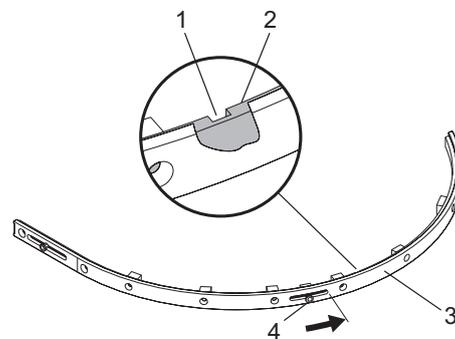


Please note: If sash rebate width FFB < 750 mm, the connecting rail AARB (1) must be shortened behind the drill hole for the second locking bolt.

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

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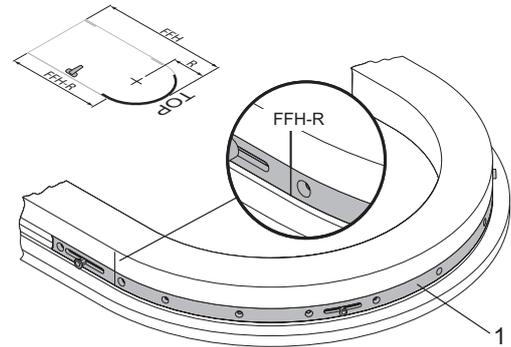
activPilot Comfort PAD 18

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.



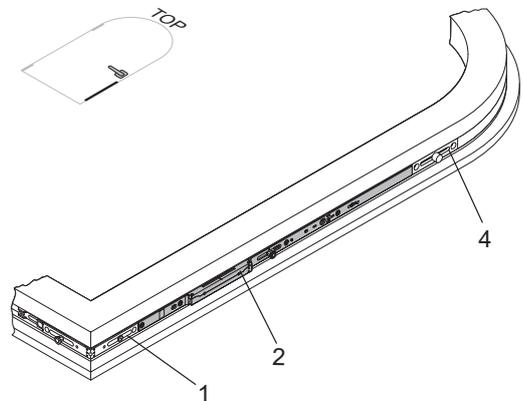
Attention! Damage to connecting rail. You must not bend out the connecting rail (1) as it may otherwise buckle at drill hole positions. The connecting rail would not perfectly match the contour of the arch when screwed into place.



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.



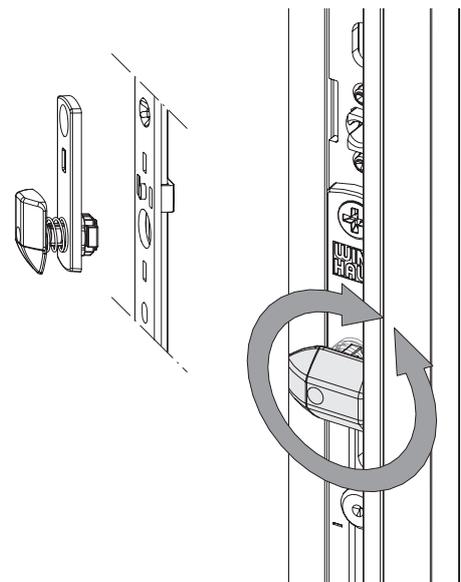
Drive rod GAM/GAK

See figure: Fail safe device FSF

- Mount the fail safe device:
 - Insert the fail safe device on the hole pattern of the drive rod and fix with a screw.
 - If required, turn the head by 90° (depends on profile).
 - Mounting a frame part is not necessary.

Important to know:

- The component's delivery state is neutral with regard to the DIN direction!
- After installation the tip of the plastic part 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!



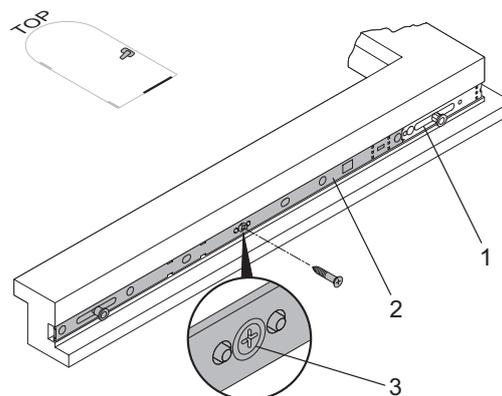
Fail safe device FSF

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.



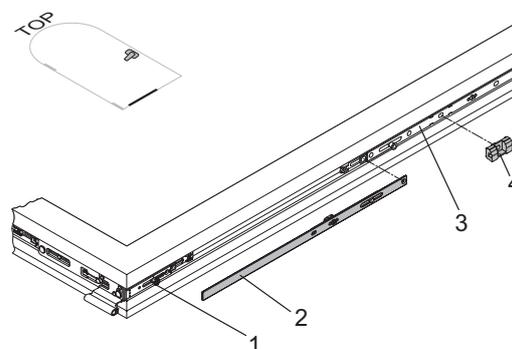
Attention! Damage to fittings. If the central fastening is not released, the gearing cannot be actuated. Use of force will lead to torsion of the fittings. Always insert the screw fully up to the stop.



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.



Coupling element KE (horizontal)



Attention! Check if all screws are fixed into place on the fitting parts.

- Clip the run-up block (4) into the interlocking rod (3) and screw into place.

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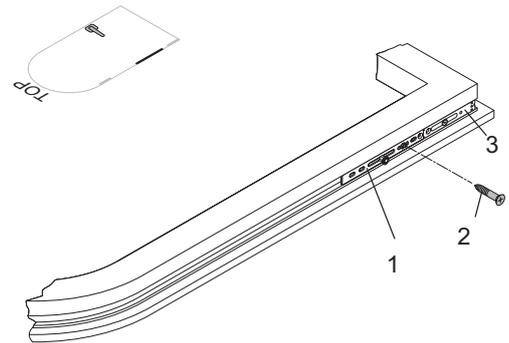
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Comfort PAD

See figure: Interlocking rod MK

- Mount the interlocking rod MK hinge side depending on the height of FFH-R:
 - Select an interlocking rod to match the sash rebate height FFH-R and the length of connecting rod RB.
 - 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.
 - Tighten the screw (2) 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.



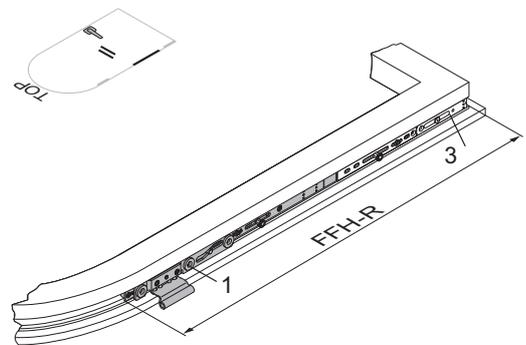
Interlocking rod MK

See figure: Turn hinge DL.PADS

- Fit the turn hinge
 - Mark "FFH-R" on the sash frame.
 - Position the turn hinge (1) with the cover plate upper edge being on the "FFH-R" mark.
 - Mark the length of the turn hinge.
 - Remove the turn hinge from the fitting groove.
 - Mark and trim the turn hinge using a punching press.
 - Fit the turn hinge
 - Insert the turn hinge at the FFH-R mark. Click the gears end into the teeth of the interlocking rod or sash hinge.
 - Screw the turn hinge from top down.
 - Important: Use only screws with a minimum length of 30 mm.



Important: The cover plate must not exceed over the beginning of the radius!



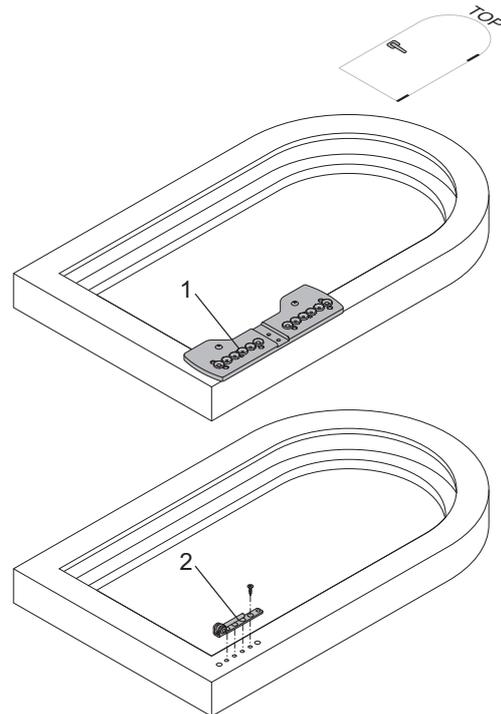
Turn hinge DL.PADS

Mounting of fittings on the window frame

Parallel opening / turn radius-head window

See figure: Mounting jig LE.B.EL-SL.K Corner hinge

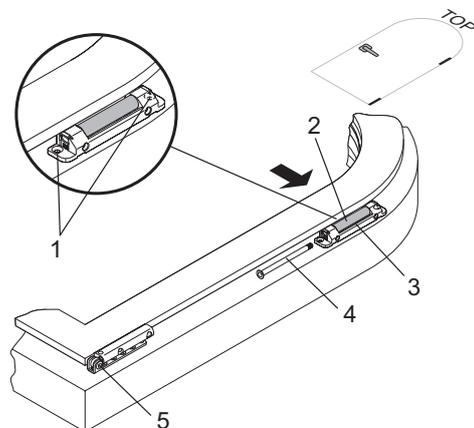
- Mounting the corner hinge.
- Drill \varnothing 2.5 to 3 mm pilot holes for corner hinges and drill \varnothing 6 mm pilot holes for spindle plug positions.
- Drill holes for corner hinge (2) in line with mounting jig (1).
- Fit the corner hinge (2) and use screws to fasten in place in line with product instructions.



Mounting jig LE.B.EL-SL.K
Corner hinge

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.
 - Press the sash and shear hinge as far out as possible (see arrow) against the frame edge.
 - Pre-drill the screw positions through the shear hinge drill holes (1) with \varnothing 2.5 to 3 mm drill.
 - Screw the shear hinge into place (screws in line with details in Product Liability Information).



Shear hinge
Shear hinge SWR ... for round arch

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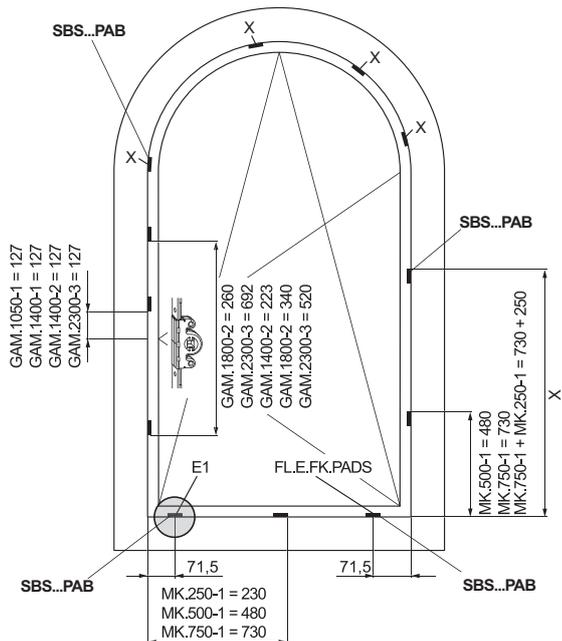
activPilot
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Keep positions

The figures show the keep position options. The number of keeps depends on the size of the window.



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.

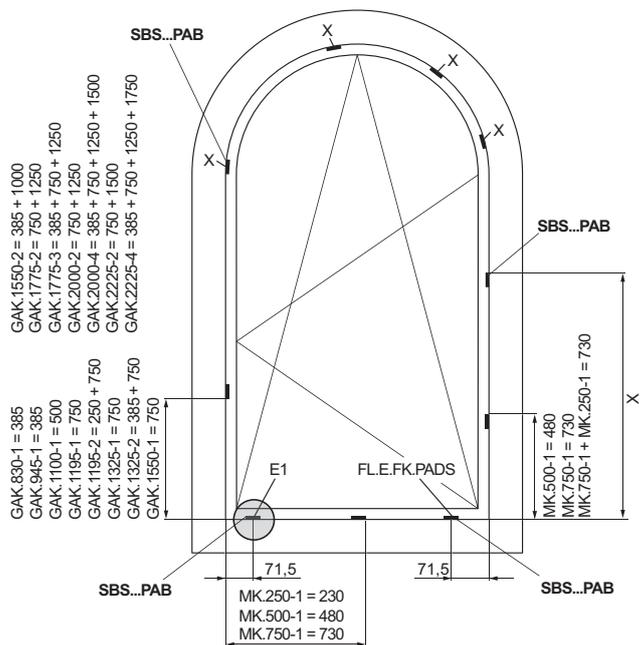


Keep positions "central handle position"
X = Dimension in elevation

- Keep position x on the round arch:

Initial situation:

- Mount the sash.
- The handle is in horizontal position; the window is unlocked so that the mushroom heads are in a central position.
- Abut the sash so that you can mark the outer edge of the mushroom bolt on the frame.

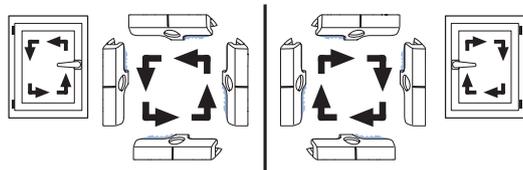


Keep position "constant handle position"
X = Dimension in elevation



Please note: When marking, note the run-in sides of the keeps.

Position the keep:



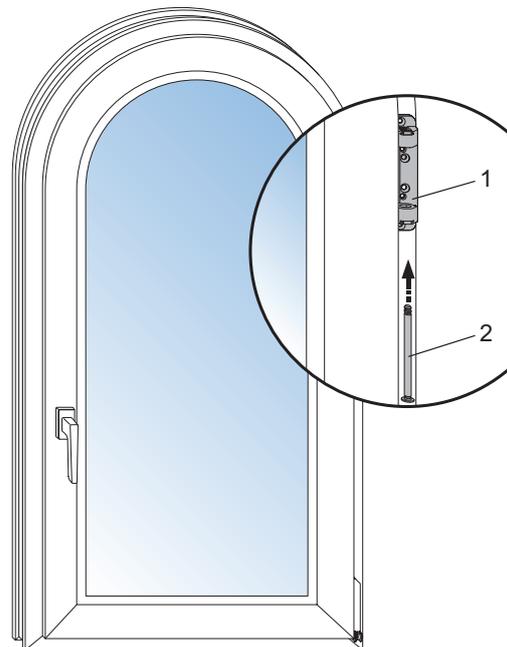
Run-in sides

Fitting the sash

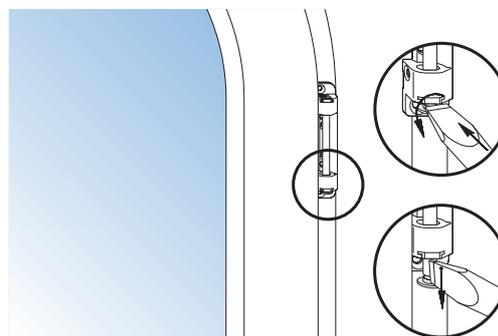
- Mount the sash, move it into the sealing plane and secure in the shear hinge using the pin.
- Push all end caps and sealing caps onto the shear and corner hinges.



Note: Insert pin from bottom (see arrow).



Shear and corner hinge



Release the pin in the shear hinge

Removal of the sash

- Close the sash.
- Release the pin from the shear hinge.
- Remove the sash.



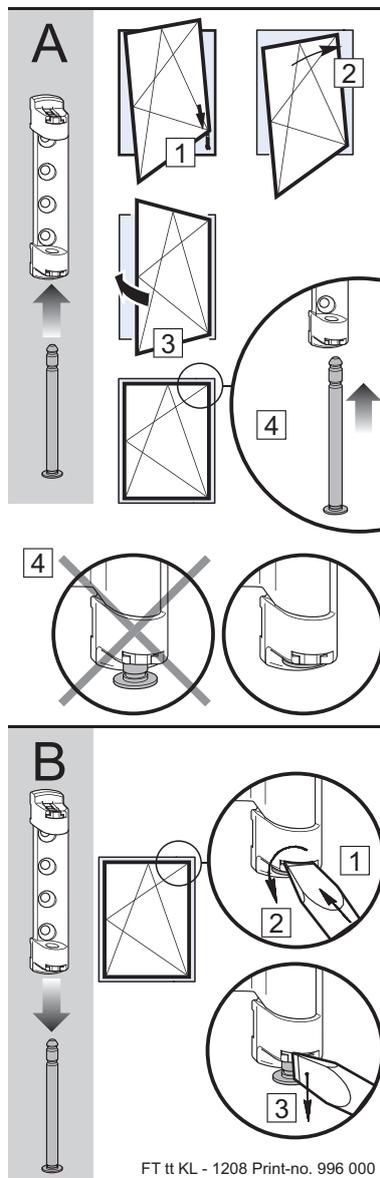
Attention! Damage to shear hinge. In case of improper use and if you attempt to drive out the pin forcibly, the shear hinge will be damaged. Use only a screwdriver to release the pin as shown in the figure.

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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.



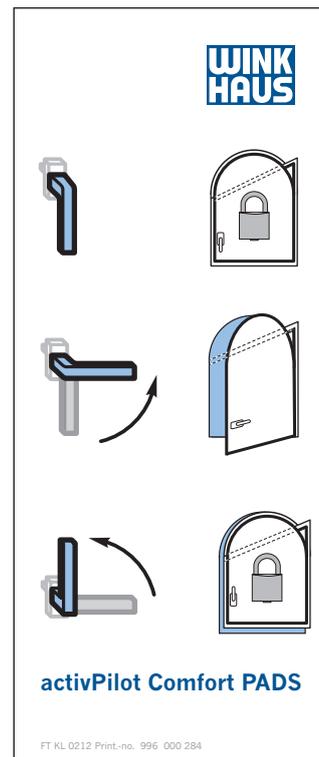
Function test

Studio and radius-head windows with parallel / turn opening

Place the handle and operate once as follows to release the central fastening.



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.



Adjustment and maintenance

See adjustment and maintenance studio windows

Installation drawings

See installation drawings studio windows

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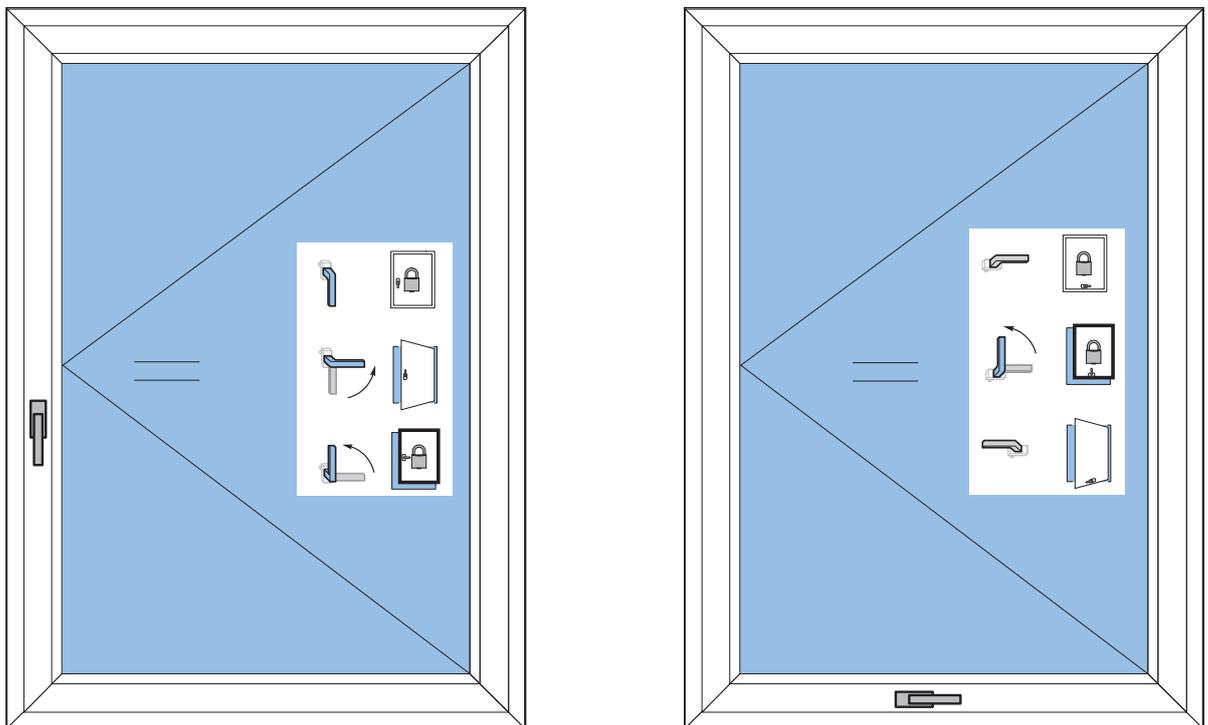
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1 activPilot Comfort PAD

The turn fitting system with parallel action

activPilot Comfort fittings satisfy a variety of requirements: Apart from the turn position they enable the window to open up to 6 mm into the parallel position in order to guarantee a draught-free and natural room ventilation. Even in this ventilation mode PAD fittings meet an increased burglary resistance. As users need considerably less force to close a window in the turn or parallel position than a window in the tilt position, the handle of an activPilot Comfort PAD window can be placed at low height. So it can also be easily reached from a seated position and thus the fittings are ideally suited for homes adapted to the needs of elderly people. In addition, the user-friendly fitting system is recommended for windows that are difficult to access, e. g. in stairwells, bathrooms and kitchens. Just like all Winkhaus fittings, activPilot Comfort PAD is particularly manufacturer-friendly.



activPilot Comfort PAD

Application diagram for ascertaining the admissible sash sizes

- Max. sash weight 100 kg



For PVC-U windows with 12 mm airgap



For parallel action rectangular turn window

Width-to-height ratio and additional load

Value calculated without additional load for a width-to-height ratio of 1.5:1.

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!

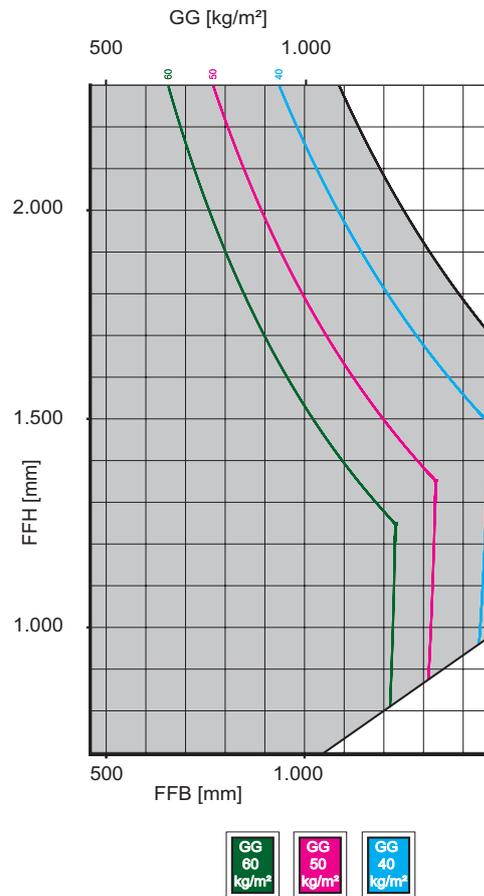
Advice for use

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 460 mm
- Max. sash rebate width 1,475 mm
- Min. sash rebate height 695 mm
- Max. sash rebate height 2300 mm
- Max. sash size 2.5 m²
- Max. sash weight 100 kg
- Aspect FFB/FFH ≤ 1.5:1
- Airgap 12 mm
- Groove centre position 13 mm
- Frame rebate depth min. 29 mm
- Approved for centre gasket systems and rebate sealing systems with rain guard.



AWD_01.50_NR15_DK_100 kg_ohne_Zusatzlast_1,5_1475_m

Abbreviations

- FFB = Sash rebate width [mm]
- FFH = Sash rebate height [mm]
- GG = Glass weight per square metre [kg/m²]

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.

System Testing RC 2 (Resistance Class 2)

The processing details RC 2 can be gathered from the RC 2 system tests. The RC 2 fitting lists in this catalogue are only application examples. Please turn to your Winkhaus contact person.



Important: activPilot Comfort fittings are not suitable for use in panic doors! They are not recommended for passage doors.

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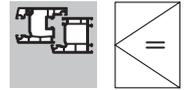
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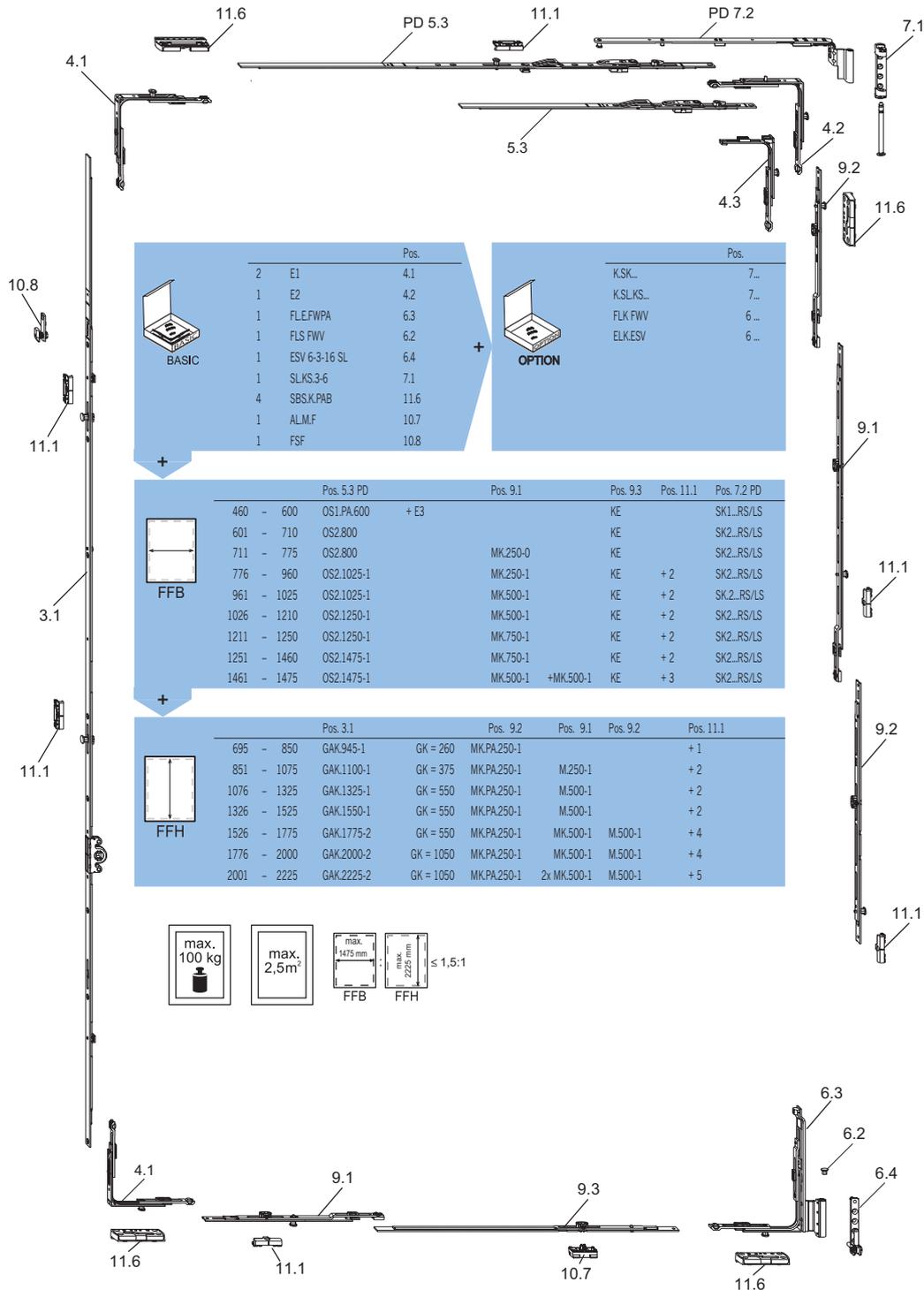
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Turn fittings with parallel action – fixed handle position



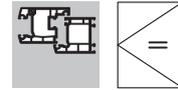
Basic equipment

activPilot Comfort PAD

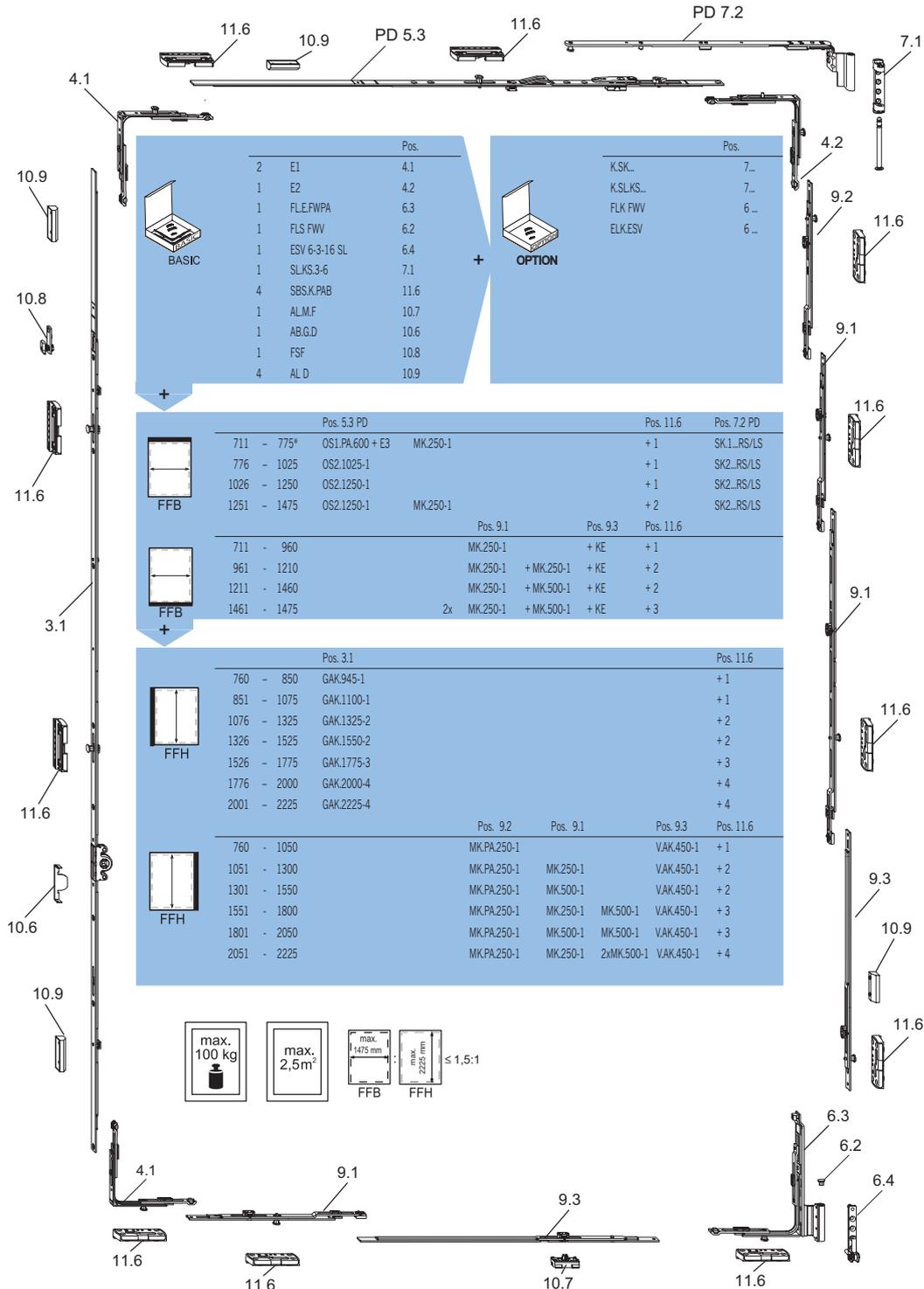


You will find the components marked PD on the following pages. All other parts can be found in the activPilot Comfort PADK section.

Turn fittings with parallel action – fixed handle position



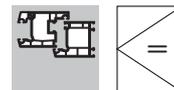
Suitable for RC 2 burglary-resistant windows activPilot Comfort PAD



You will find the components marked PD on the following pages. All other parts can be found in the activPilot Comfort PADK section.
For RC 2 please observe the profile-related fitting configuration of the system tests.

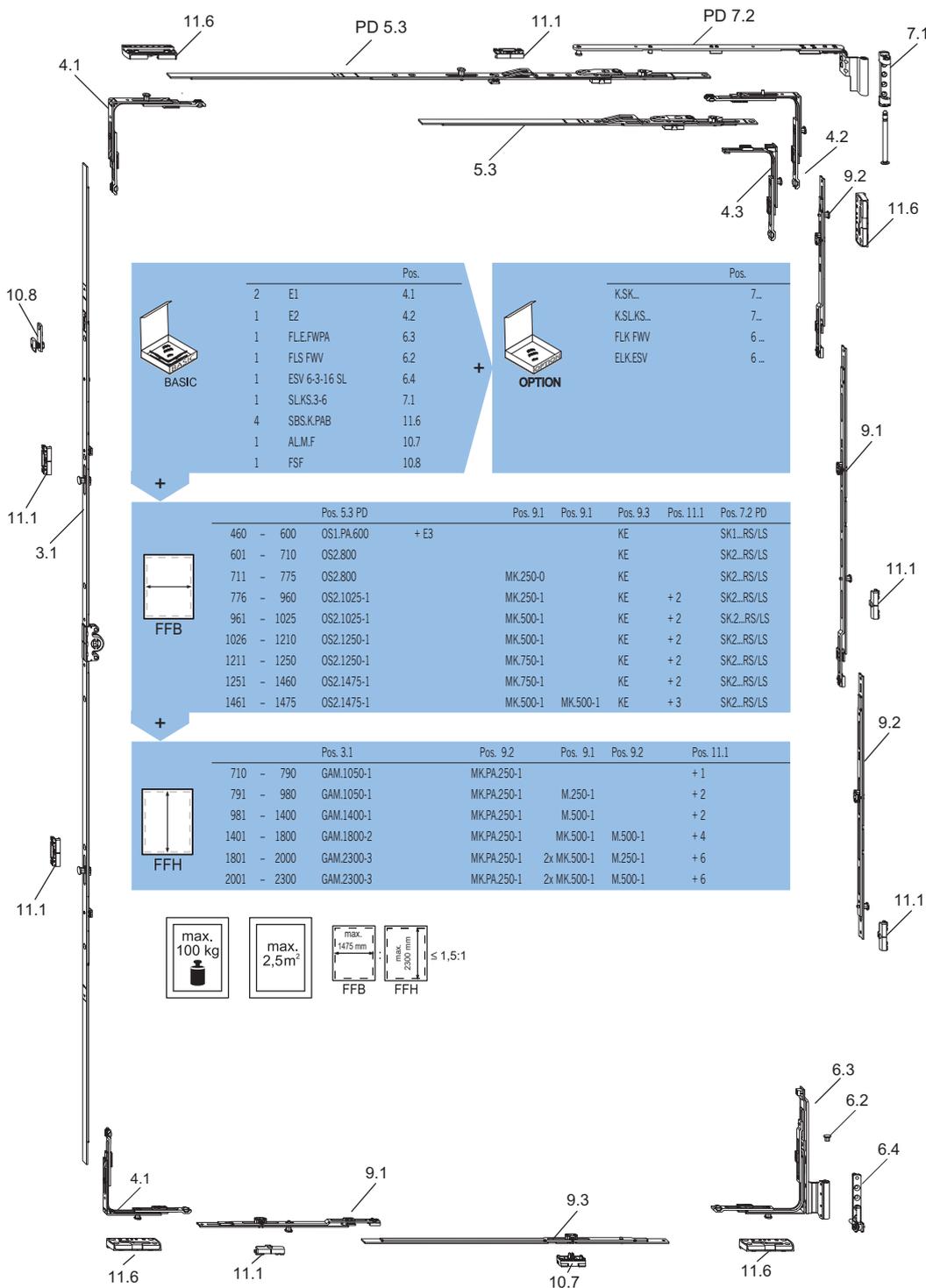
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Turn fittings with parallel action – central handle position



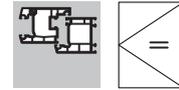
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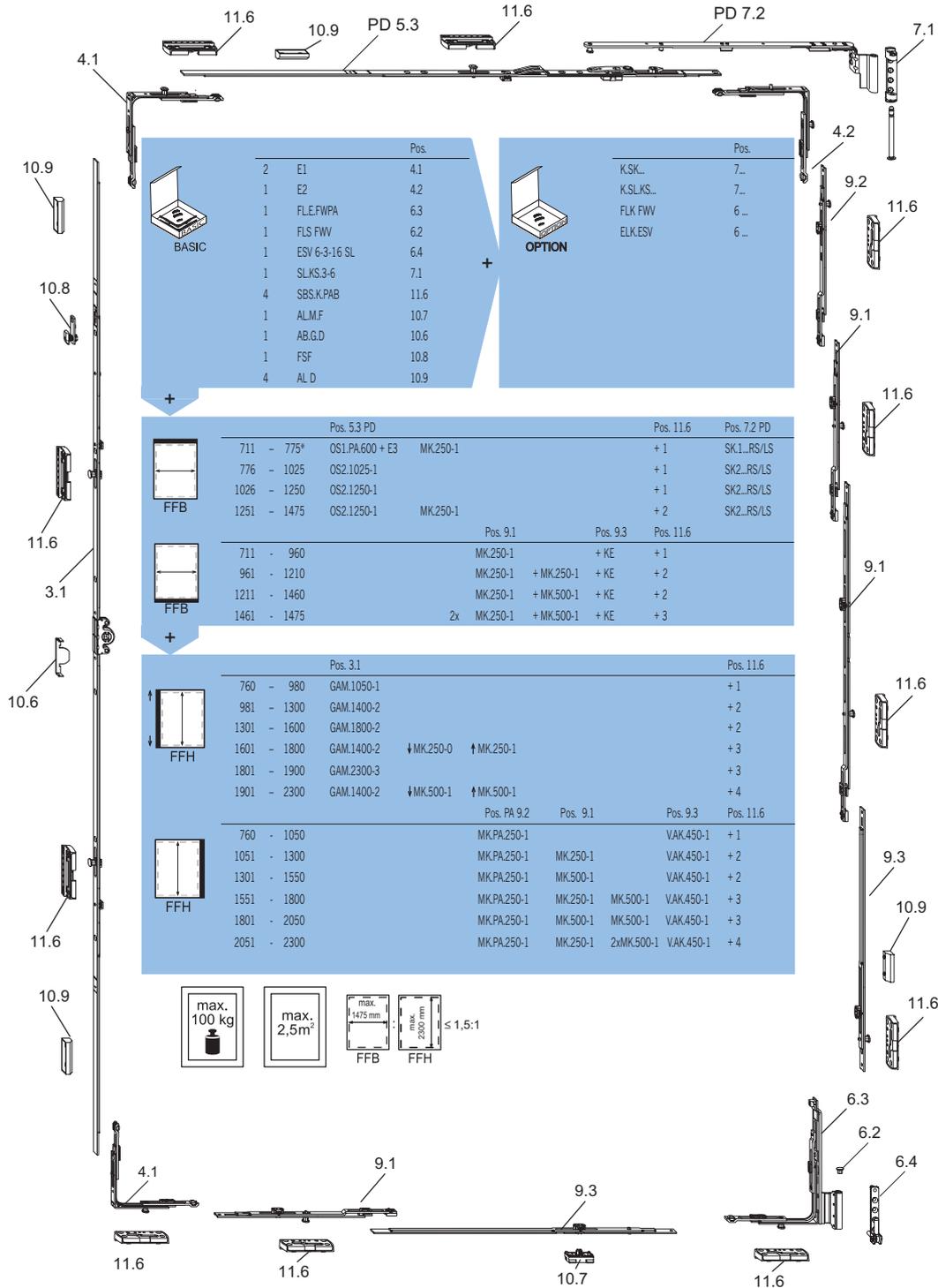


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Turn fittings with parallel action – central handle position



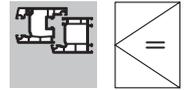
Suitable for RC 2 burglary-resistant windows
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For RC 2 please observe the profile-related fitting configuration of the system tests.

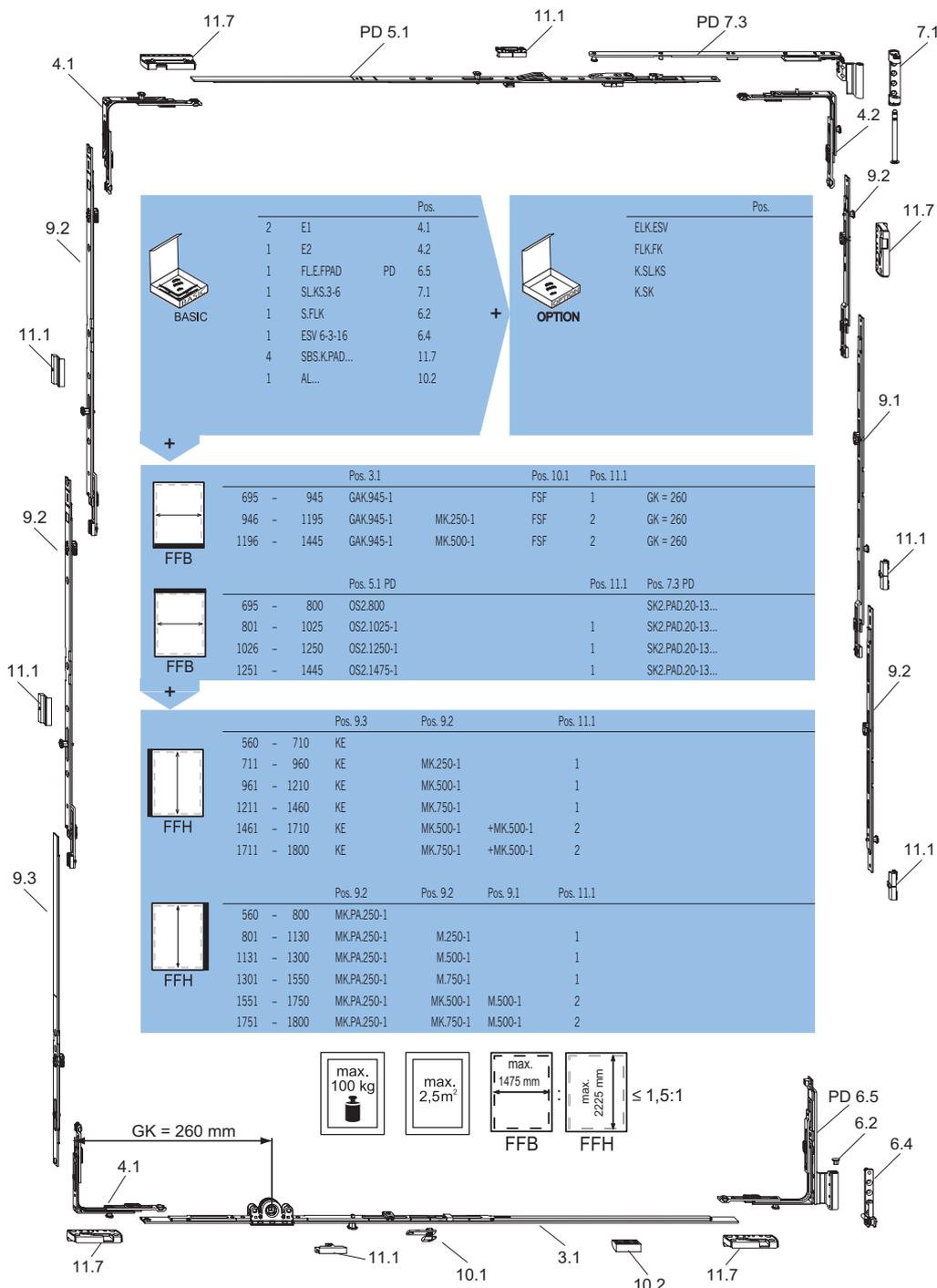
Turn fittings with parallel action – fixed handle position



Basic equipment

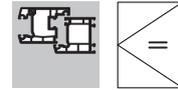
Bottom window handle

activPilot Comfort PAD (operating sequence PADM)



You will find the components marked PD on the following pages. All other parts can be found in the activPilot Comfort PADK section.

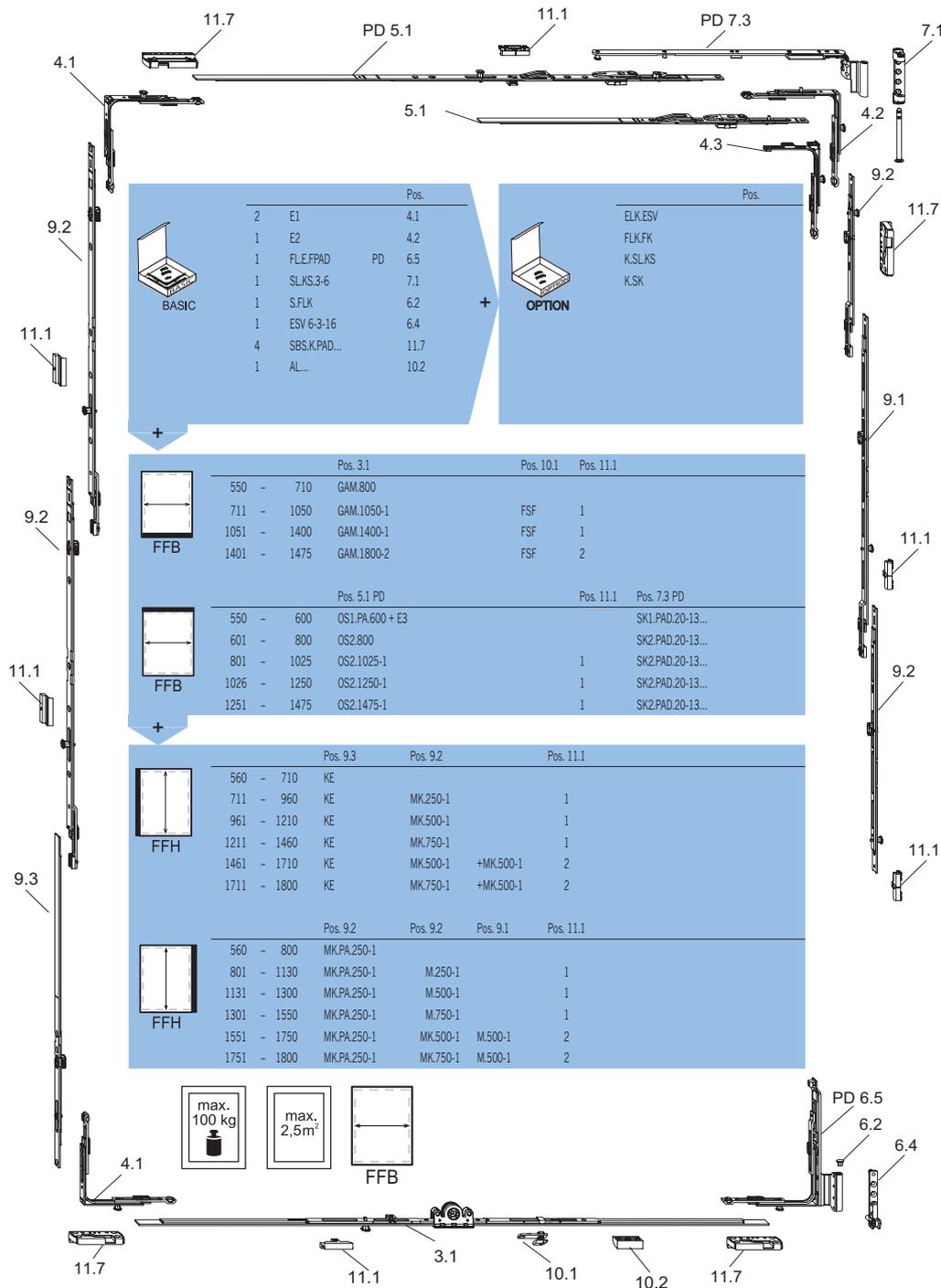
Turn fittings with parallel action – central handle position



Basic equipment

Bottom window handle

activPilot Comfort PAD (operating sequence PADM)



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Quick orientation

Our register system allows you to quickly allocate the listed component to the item in the fitting overview drawing. The item number specifies the chapter number in which the component can be found.

Drehbeschlag mit Parallelabstimmung - konstanter Griffsitz

Grundausstattung
 Fenstergriff unten
 activPilot Comfort PAD

Hinweis: Die mit PD gekennzeichneten Bauteile finden Sie auf den folgenden Seiten. Alle anderen Bauteile finden Sie im Kapitel activPilot Comfort PADK.

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Flügelager
FLE.FPAD.20-13

- Höhenverstellung +/- 3 mm
- Flügelgewicht max. 100 kg
- Mittelenkung serienmäßig
- Lieferzustand ist die Mittelenkung
- Kraft- und formschlüssig überlappende Systemverankerungen ohne Stulpplatten
- In Kombination mit Ecklager ESW / ELK100PA
- Ermöglicht die Parallelabstimmung über die Steuerkerne
- Schallschlüge: Verriegeln - Parallelabstimmung - Drehstellung

Flügelagerkappe FLK.FWV
Flügelagerstopfen S.FLK...

Arbeitsbezeichnung	Artikel-Nr.	Flügelgewicht (kg)	Übersicht	Reinhaltegröße	WHL	WHL	WHL	WHL
					Stück	Stück	Stück	Stück
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FLE.FPAD-1115	4893702	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893703	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893704	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893705	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893706	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893707	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893708	4	100	20	13	00	00	DA
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FLE.FPAD-1115/19	4893764	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893765	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893766	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893767	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893768	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893769	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893770	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893771	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893772	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893773	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893774	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893775	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893776	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893777	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893778	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893779	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893780	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893781	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893782	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893783	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893784	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893785	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893786	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893787	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893788	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893789	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893790	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893791	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893792	4	100	20	13	00	00	DA
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FLE.FPAD-1115/19	4893795	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893796	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893797	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893798	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893799	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893800	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893801	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893802	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893803	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893804	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893805	4	100	20	13	00	00	DA
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FLE.FPAD-1115/19	4893808	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893809	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893810	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893811	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893812	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893813	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893814	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893815	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893816	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893817	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893818	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893819	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893820	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893821	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893822	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893823	4	100	20	13	00	00	DA
FLE.FPAD-1115/19	4893824	4	100	20	13	00		

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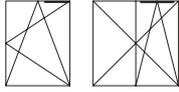
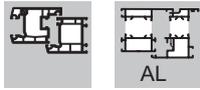
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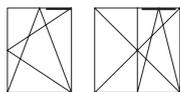
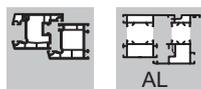


Top rod OS1.PA.600



- In combination with shears SK1.PA...
- OS1.PA.600 is always combined with an E3 corner drive on the hinge side
- Integrated anti-slam block in tilt position as standard
- After assembly the top rod and the shear are firmly attached to one another
- Clampable in fitting groove
- Useable left and right hand
- Central fastening as standard
- Turn position is the factory default
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates

Item description	Item No.	Scope of application		VPA1 Qty.	Type	VPA2 Qty.	Type
OS1.PA.600	4965080	FFB 460 - 600	1	20	BD	800	EA



Top rod OS2

- OS2 ... is used in combination with E2 on the hinge side
- In combination with shears SK2/SH2/SHW2
- 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
- Safety locking pin as an adjustable octagonal bolt
- Useable left and right hand
- Central fastening as standard
- Turn position is the factory default
- Faceplate width 16 mm
- Overlapping system linkage without connecting plates



Item description	Item No.	Scope of application		VPA1		VPA2	
				Qty.	Type	Qty.	Type
OS2.800	4928979	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
OS2.1250-1	2848291	FFB 1000 - 1250	6	20	BD	500	EA
OS2.1475-1	2848304	FFB 1225 - 1475	6	20	BD	500	L1

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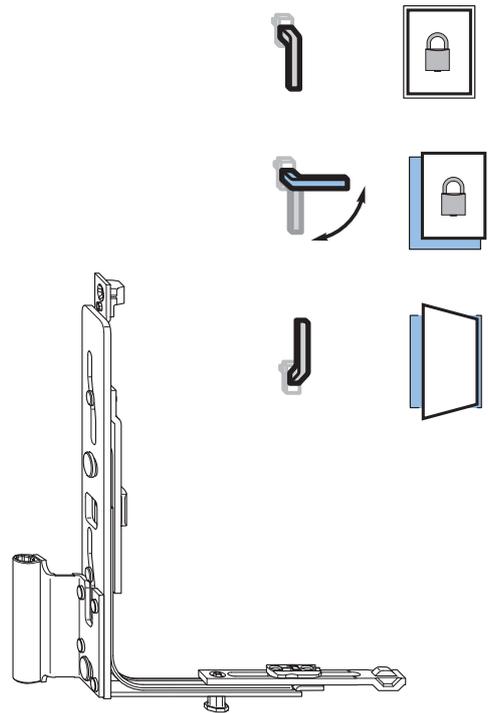
activPilot Comfort PAD **18**



Sash hinge

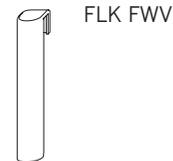
FL.E.FPAD.20-13

- Height adjustment +/- 3 mm
- Sash weight max. 100 kg
- Central fastening as standard
- Central position is the factory default
- Overlapping system linkage without connecting plates
- In combination with corner hinge ESV / EL.HW.PA
- Parallel action possible via the control curve
- Switch sequence: locked position – parallel action – turn position



Sash hinge cover FLK FWV

Sash hinge plug FLS FWV



FLK FWV

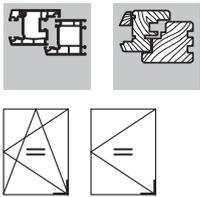


FLS FWV

Item description	Item No.		Max. sash weight (kg)	Overlap	Groove centre position	VPA1 Qty.	Type	VPA2 Qty.	Type	VPA3 Qty.	Type
FL.E.FPAD.20-13.LS	4995737	4	100	20	13	50	GK	200	EK		
FL.E.FPAD.20-13.RS	4995735	4	100	20	13	50	GK	200	EK		
FL.E.FPAD.20-13.LS.F9	4995741	4	100	20	13	50	GK	200	EK		
FL.E.FPAD.20-13.RS.F9	4995740	4	100	20	13	50	GK	200	EK		
FL.E.FPAD.20-13.LS.WS	4995739	4	100	20	13	50	GK	200	EK		
FL.E.FPAD.20-13.RS.WS	4995738	4	100	20	13	50	GK	200	EK		
FLK FWV RS WS	2301616					100	BL	300	KK	2400	EK
FLK FWV LS WS	2301624					100	BL	300	KK	2400	EK
FLK FWV RS BR	2301595					100	BL	300	KK	2400	EK
FLK FWV LS BR	2301608					100	BL	300	KK	2400	EK
FLK FWV RS BZ-AM	4984414					100	BL	300	KK	2400	EK
FLK FWV LS BZ-AM	4984413					100	BL	300	KK	2400	EK
FLK FWV RS F1	2394162					100	BL	300	KK	2400	EK
FLK FWV LS F1	2394154					100	BL	300	KK	2400	EK
FLK FWV RS F3	4995001					100	BL	300	KK	2400	EK
FLK FWV LS F3	4995003					100	BL	300	KK	2400	EK
FLK FWV RS F9	2854801					100	BL	300	KK	2400	EK
FLK FWV LS F9	2854798					100	BL	300	KK	2400	EK
FLK FWV LS CW	4997445					100	BL	300	KK	2400	EK
FLK FWV RS CW	4997441					100	BL	300	KK	2400	EK
FLK FWV LS SW	1260457					100	BL	300	KK	2400	EK
FLK FWV RS SW	1260458					100	BL	300	KK	2400	EK
FLS FWV BR	1521625					500	BL	5000	KK	40000	EK
FLS FWV F9	2854819					500	BL	5000	KK	40000	EK
FLS FWV SL	1993420					500	BL	5000	KK	40000	EK
FLS FWV WS	1521617					500	BL	5000	KK	40000	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

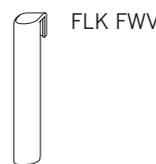
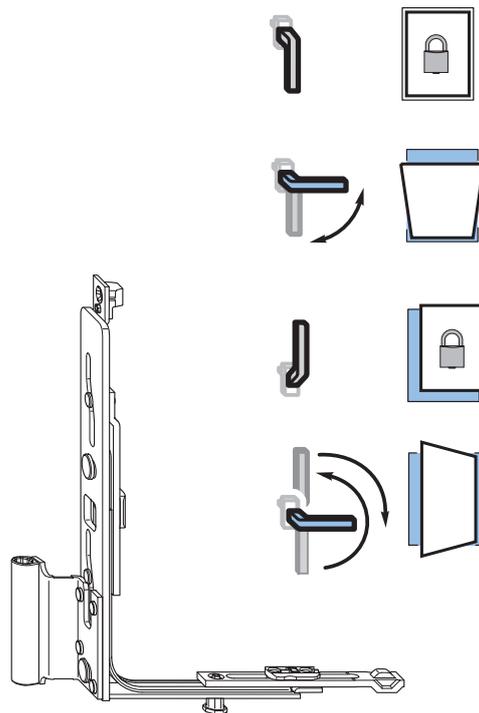


Sash hinge FL.E.FWPA.20...

- Height adjustment +/- 3 mm
- Sash weight max. 100 kg
- Central fastening as standard
- Turn position is the factory default
- Overlapping system linkage without connecting plates
- In combination with corner hinge ESV / EL.HW.PA
- Parallel action possible via the control curve

Sash hinge cover FLK FWV

Sash hinge plug FLS FWV



FLK FWV



FLS FWV

Item description	Item No.		Max. sash weight (kg)	Overlap	Groove centre position	VPA1 Qty.	Type	VPA2 Qty.	Type	VPA3 Qty.	Type
FL.E.FWPA.20-13.LS	5007300	4	100	20	13	50	GK	200	EK		
FL.E.FWPA.20-13.RS	5007306	4	100	20	13	50	GK	200	EK		
FL.E.FWPA.20-13.LS.F9	5007303	4	100	20	13	50	GK	200	EK		
FL.E.FWPA.20-13.RS.F9	5007308	4	100	20	13	50	GK	200	EK		
FL.E.FWPA.20-13.LS.WS	5007305	4	100	20	13	50	GK	200	EK		
FL.E.FWPA.20-13.RS.WS	5007309	4	100	20	13	50	GK	200	EK		
FLK FWV LS WS	2301624					100	BL	300	KK	2400	EK
FLK FWV RS WS	2301616					100	BL	300	KK	2400	EK
FLK FWV LS BR	2301608					100	BL	300	KK	2400	EK
FLK FWV RS BR	2301595					100	BL	300	KK	2400	EK
FLK FWV LS BZ-AM	4984413					100	BL	300	KK	2400	EK
FLK FWV RS BZ-AM	4984414					100	BL	300	KK	2400	EK
FLK FWV LS F1	2394154					100	BL	300	KK	2400	EK
FLK FWV RS F1	2394162					100	BL	300	KK	2400	EK
FLK FWV LS F3	4995003					100	BL	300	KK	2400	EK
FLK FWV RS F3	4995001					100	BL	300	KK	2400	EK
FLK FWV LS F9	2854798					100	BL	300	KK	2400	EK
FLK FWV RS F9	2854801					100	BL	300	KK	2400	EK
FLK FWV LS CW	4997445					100	BL	300	KK	2400	EK
FLK FWV RS CW	4997441					100	BL	300	KK	2400	EK
FLK FWV LS SW	1260457					100	BL	300	KK	2400	EK
FLK FWV RS SW	1260458					100	BL	300	KK	2400	EK
FLS FWV WS	1521617					500	BL	5000	KK	40000	EK
FLS FWV SL	1993420					500	BL	5000	KK	40000	EK
FLS FWV F9	2854819					500	BL	5000	KK	40000	EK
FLS FWV BR	1521625					500	BL	5000	KK	40000	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

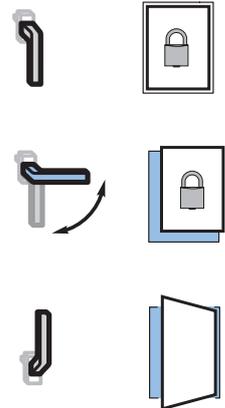
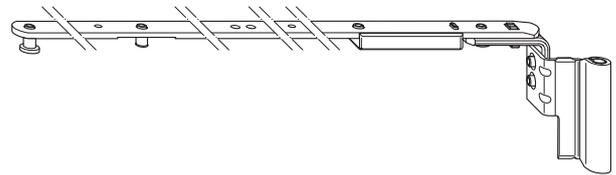
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Shears

SK ... PAD.20-13

- Suitable for top rods OS1/OS2
- For 20 mm overlap and 13 mm groove centre position
- Adjustment for lifting and lowering the sash (+3.5/-2.0 mm)
- Parallel opening approx. 6 mm
- After assembly the top rod and the shear are firmly attached to one another
- Integrated turn restriction via plastic sleeve in shear hinge
- Sash weight max. 100 kg
- With integrated control curve
- Switch sequence: locked position – parallel action – turn position
- Switch sequence matched with sash hinge FL.E.FPAD.20-13



Shear hinge cap K.SK

- Useable left and right hand
- See shear hinge SL.KS, SL.KB, SL.HW



Item description	Item No.	VPA1		VPA2		VPA3	
		Qty.	Type	Qty.	Type	Qty.	Type
SK1.PAD.20-13.LS	4993973	10	BD	60	KK	1440	EK
SK1.PAD.20-13.RS	4993972	10	BD	60	KK	1440	EK
SK1.PAD.20-13.LS.F9	4993977	10	BD	60	KK	1440	EK
SK1.PAD.20-13.RS.F9	4993976	10	BD	60	KK	1440	EK
SK1.PAD.20-13.LS.WS	4993975	10	BD	60	KK	1440	EK
SK1.PAD.20-13.RS.WS	4993974	10	BD	60	KK	1440	EK
SK2.PAD.20-13.LS	4993979	10	BD	80	GK	960	EK
SK2.PAD.20-13.RS	4993978	10	BD	80	GK	960	EK
SK2.PAD.20-13.LS.F9	4993983	10	BD	80	GK	960	EK
SK2.PAD.20-13.RS.F9	4993982	10	BD	80	GK	960	EK
SK2.PAD.20-13.LS.WS	4993981	10	BD	80	GK	960	EK
SK2.PAD.20-13.RS.WS	4993980	10	BD	80	GK	960	EK

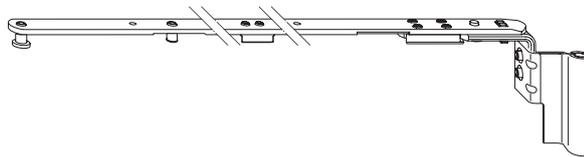
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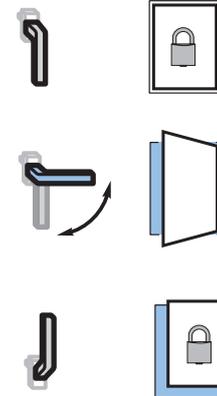
Shear SK ... 20-13

- Used in combination with shear hinges SL.KS, SL.KB or SL.HW
- Only two shear sizes
- Adjustment for lifting and lowering the sash (+3.5/-2.0 mm)
- Tilt opening width approx. 135 to 140 mm (depending on profile)
- Use tilt limiter KBG.OS for sash rebate heights ≤ 600 mm
- Sash weight max. 130 kg
- Shear with tandem action
- After assembly the top rod and the shear are firmly attached to one another
- Integrated turn restriction via plastic sleeve in shear hinge
- Visible parts available in various colours



Shear hinge cap K.SK

- Plastic cover for the shear hinge
- Useable left and right hand
- See shear hinge SL.KS, SL.KB, SL.HW



Item description	Item No.	Overlap	Groove centre position	VPA1		VPA2		VPA3	
				Qty.	Type	Qty.	Type	Qty.	Type
SK1.20-13.LS	2844101	20	13	10	BD	60	KK	480	EK
SK1.20-13.RS	2842578	20	13	10	BD	60	KK	480	EK
SK1.20-13.RS.WS	2858289	20	13	10	BD	60	KK	480	EK
SK1.20-13.LS.WS	2858406	20	13	10	BD	60	KK	480	EK
SK1.20-13.RS.F9	2858449	20	13	10	BD	60	KK	480	EK
SK1.20-13.LS.F9	2858481	20	13	10	BD	60	KK	480	EK
SK1.20-13.LS.BR	4926392	20	13	10	BD	60	KK	480	EK
SK1.20-13.RS.BR	4926391	20	13	10	BD	60	KK	480	EK
SK1.20-13.LS.CW	4928072	20	13	10	BD	60	KK	480	EK
SK1.20-13.RS.CW	4928071	20	13	10	BD	60	KK	480	EK
SK2.20-13.RS	2842586	20	13	10	BD	80	GK	960	EK
SK2.20-13.LS	2844143	20	13	10	BD	80	GK	960	EK
SK2.20-13.RS.WS	2858684	20	13	10	BD	80	GK	960	EK
SK2.20-13.LS.WS	2858730	20	13	10	BD	80	GK	960	EK
SK2.20-13.RS.F9	2858781	20	13	10	BD	80	GK	960	EK
SK2.20-13.LS.F9	2858810	20	13	10	BD	80	GK	960	EK
SK2.20-13.LS.BR	4926394	20	13	10	BD	80	GK	960	EK
SK2.20-13.RS.BR	4926393	20	13	10	BD	80	GK	960	EK
SK2.20-13.LS.CW	4928074	20	13	10	BD	80	GK	960	EK
SK2.20-13.RS.CW	4928073	20	13	10	BD	80	GK	960	EK

RS = right, LS = left

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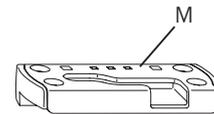
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Security keep

SBS.K.PAD

- Profile dependent see Group 11, Frame Parts
- Circumferential installation situation
- Available for mounting left and right hand
- Number of screws: 4
- The keep is marked "M" on the web for identification.
- Switch sequence: locked position – parallel action – turn position



Keep SBAK

- Profile dependent see Group 11, Frame Parts
- Useable left and right hand

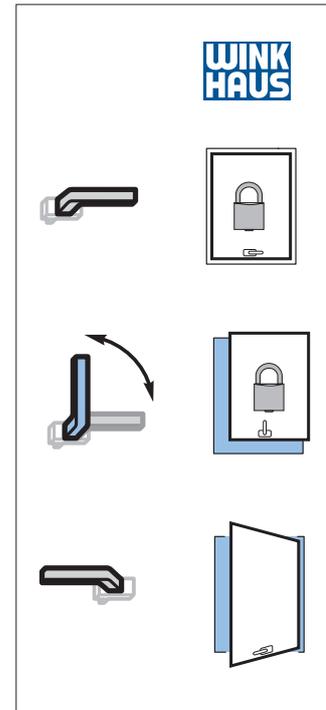


Spacer FT WSK

- Profile dependent see Group 11, Frame Parts
- Useable left and right hand



Frame parts for bottom handle position



Aluplast

Ideal 4000 - 8000

FT WSK 66	1530185
SBA.K.161	2824071
SBS.K.PAD.161.RS	4995614
SBS.K.PAD.161.LS	4995615

Deceuninck

Zendow

FT WSK 169	2356596
SBA.K.169	4926362
SBS.K.PAD.169.RS	4995620
SBS.K.PAD.169.LS	4995621

Gealan

6000, 7000, 8000

FT WSK 62	1348121
SBA.K.162	4929796
SBS.K.PAD.162.RS	4995616
SBS.K.PAD.162.LS	4995617

Inoutic

Arcade, Prestige, Deluxe, Elite, MD100, Eforte

FT WSK 192	1330722
SBA.K.192	4932272
SBS.K.PAD.192.RS	4995622
SBS.K.PAD.192.LS	4995623

KBE

70 AD / 70 MD

FT WSK 205	1809590
SBA.K.205	2922210
SBS.K.PAD.205.RS	4995624
SBS.K.PAD.205.LS	4995625

Kömmerring

Classic, Elegance, Avantgarde

FT WSK144	1326221
SBA.K.144	2920652
SBS.K.PAD.144.RS	4995608
SBS.K.PAD.144.LS	4995609

Rehau

Geneo

FT WSK 60	1345393
SBA.K.160	4933116
SBS.K.PAD.160.RS	4995612
SBS.K.PAD.160.LS	4995613

S735, Brilliant, Thermo-Design, Brillant-Design, Basic-Design

FT WSK 60	1345393
SBA.K.60	2824046
SBS.K.PAD.60.RS	4995602
SBS.K.PAD.60.LS	4995603

Salamander

blueEvolution

FT WSK 134	1537651
SBA.K.28	4926452
SBS.K.PAD.128.RS	4995606
SBS.K.PAD.128.LS	4995607

Salamander

2D / 3D / MD / Streamline

FT WSK 134	1537651
SBA.K.28	4926452
SBS.K.PAD.28.RS	4995600
SBS.K.PAD.28.LS	4995601

Schüco

Corona 70 / Corana SI 82

FT WSK 61	1497653
SBA.K.166	4930272
SBS.K.PAD.166.RS	4995618
SBS.K.PAD.166.LS	4995619

Trocal

InnoNova 2000 / 88+

FT WSK 226	2304155
SBA.K.126	4926196
SBS.K.PAD.126.RS	4995604
SBS.K.PAD.126.LS	4995605

InnoNova A5 / M5

FT WSK 226	2304155
SBA.K.226	2921090
SBS.K.PAD.226.RS	4995626
SBS.K.PAD.226.LS	4995627

VEKA

Softline 70 AD/MD, Topline AD, Swingline, Alphaline

FT WSK 152	1787079
SBA.K.152	2824062
SBS.K.PAD.152.RS	4995610
SBS.K.PAD.152.LS	4995611

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activPilot Comfort PAD 18

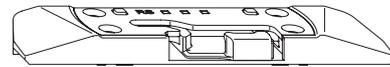


Frame parts

- Profile dependent see Group 11, Frame Parts

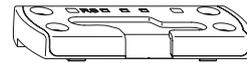
Tilt Keep SBK....PA

- Installation position at the bottom right or left towards the drive side
- With tilt/turn control slider
- For holding the adjusting/tilt bolt
- The SBK.K. keep can be positioned without needing a jig.
- Number of screws: 4



Security Keep SBS....PAB

- Number of screws: 4

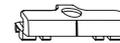


Keep SBAK

- Profile dependent
- Useable left and right hand

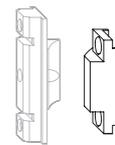
Spacer FT WSK

- Profile dependent
- Useable left and right hand

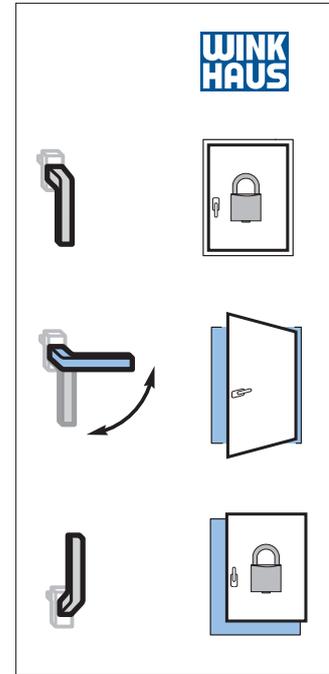


Keep ZV-RT SL

- Central locking device for turn-only windows
- Installation in frame
- Concealed in the rebate
- For rebate clearance of 11 to 14 mm
- Profile dependent



Frame parts for drive side handle position



Aluplast	
Ideal 4000 - 8000	
FT WSK 66	1530185
SBA.K.161	2824071
SBS.K.PAB.161.RS	4989274
SBS.K.PAB.161.LS	4989275

KBE	
70 AD / 70 MD	
FT WSK 205	1809590
SBA.K.205	2922210
SBS.K.PAB.205.RS	4989304
SBS.K.PAB.205.LS	4989305

Schüco	
Corona 70 / Corana SI 82	
FT WSK 61	1497653
SBA.K.166	4930272
SBS.K.PAB.166.RS	4978119
SBS.K.PAB.166.LS	4978140
SBS.K.PA.166.RS	4978141
SBS.K.PA.166.LS	4978142

Brüggmann	
System AD, MD	
FT WSK 152	1787079
SBA.K.94	4927716
SBS.K.PAB.94.LS	5005499
SBS.K.PAB.94.RS	5005940

Kömmerling	
Classic, Elegance, Avantgarde	
FT WSK144	1326221
SBA.K.144	2920652
SBA.K.144.V	4927431
SBS.K.PAB.144.RS	4989262
SBS.K.PAB.144.LS	4989263

Trocal	
InnoNova 2000 / 88+	
FT WSK 226	2304155
SBA.K.126	4926196
SBS.K.PAB.126.RS	4989256
SBS.K.PAB.126.LS	4989257

Deceuninck	
Zendow	
FT WSK 169	2356596
SBA.K.169	4926362
SBS.K.PAB.169.RS	4989288
SBS.K.PAB.169.LS	4989289

Rehau	
Geneo	
FT WSK 60	1345393
SBA.K.160	4933116
SBS.K.PAB.160.RS	4966466
SBS.K.PAB.160.LS	4966467

InnoNova A5 / M5	
FT WSK 226	2304155
SBA.K.226	2921090
SBS.K.PAB.226.RS	4966468
SBS.K.PAB.226.LS	4966469

Gealan	
6000, 7000, 8000	
FT WSK 62	1348121
SBA.K.162	4929796
SBS.K.PAB.162.RS	4989280
SBS.K.PAB.162.LS	4989281

S735, Brilliant, Thermo-Design, Brilliant-Design, Basic-Design	
FT WSK 60	1345393
SBA.K.60	2824046
SBS.K.PAB.60.RS	4989250
SBS.K.PAB.60.LS	4989251

VEKA	
Softline 70 AD/MD, Topline AD, Swingline, Alphaline	
FT WSK 152	1787079
SBA.K.152	2824062
SBS.K.PAB.152.RS	4989268
SBS.K.PAB.152.LS	4989269

Inoutic	
Arcade, Prestige, Deluxe, Elite, MD100, Eforte	
FT WSK 192	1330722
SBA.K.192	4932272
SBS.K.PAB.192.RS	4984289
SBS.K.PAB.192.LS	4984400

Salamander	
2D / 3D / MD / Streamline	
FT WSK 134	1537651
SBA.K.28	4926452
SBS.K.PAB.28.RS	4966470
SBS.K.PAB.28.LS	4966471

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Mounting instructions activPilot Comfort PAD

3 Handle position at the drive rod side

4 Notes on these assembly instructions
Page 237 - 238

5 Shortening the fittings
Page 239 - 241

6 Assembly of the turn fitting system
Page 242 - 255



8 Function test
Page 256



9 Note: For the version with bottom handle it is important to know that some parts must be mounted in a different way than explained in the following mounting instructions. Please observe the activPilot Comfort PADM mounting instructions.

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 width 460 mm
- Max. sash rebate width 1,475 mm
- Min. sash rebate height 695 mm
- Max. sash rebate height 2300 mm
- Max. sash size 2.5 m²
- Max. sash weight 100 kg
- Aspect FFB/FFH \leq 1.5:1
- Airgap 12 mm
- Groove centre position 13 mm
- Frame rebate depth min. 29 mm
- Approved for centre gasket systems and rebate sealing systems with rain guard.



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

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.

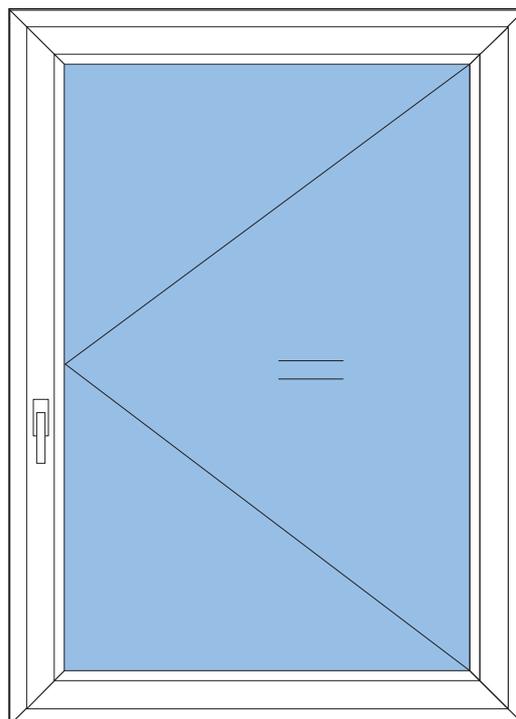
All fittings must be selected from the original Winkhaus activPilot fitting component range. We accept no liability in case of use of third party or non-approved system components.



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



Important: activPilot Comfort fittings are not suitable for use in panic doors! They are not recommended for passage doors.



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Corner hinges

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8
Turn hinges/
Tilt hinges

9
Extension rods

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activPilot
Comfort PADS

18
activPilot
Comfort PAD

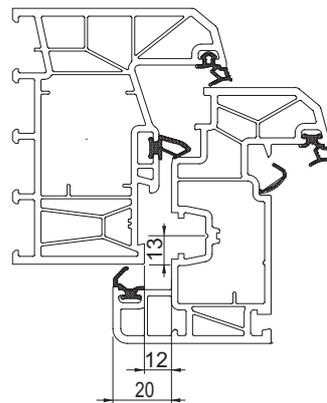
Standard profile dimensions

See figure: Profile cross-section

The fitting can be used on PVC-U windows with a standard eu-rogroove.



activPilot Comfort fittings are suitable for centre gas-ket systems or rebate sealing systems in combination with rain guards.



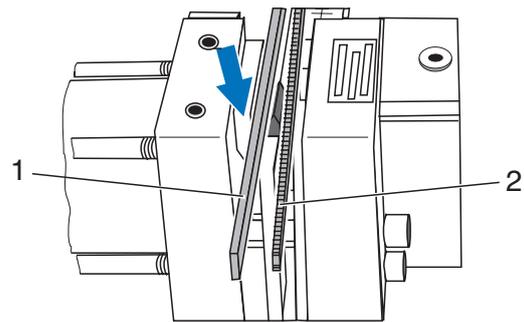
Profile cross-section

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

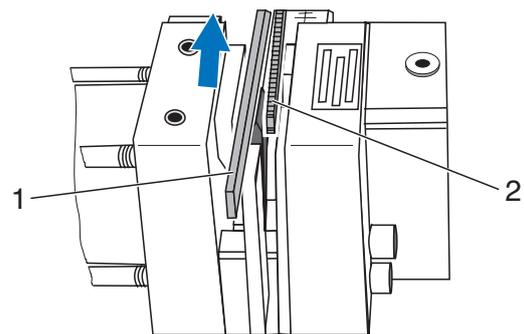
- Always insert the face plate (1) and drive rod (2) perpendicularly from the top with the face plate (1) pointing to the pressure cylinder.



Fittings prior to punching

See figure: Fittings after punching

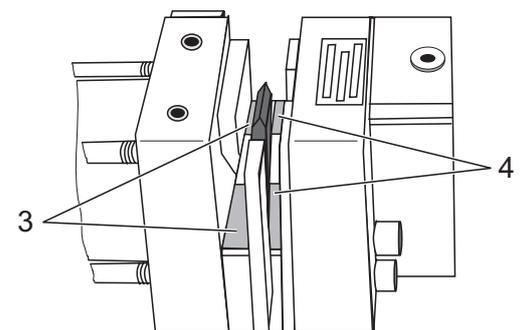
- After punching, always remove the face plate (1) and drive rod (2) perpendicularly in an upwards direction.



Fittings after punching

See figure: Cleaning the supporting surfaces

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



Cleaning the supporting surfaces

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activPilot
Comfort PADS

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activPilot
Comfort PAD

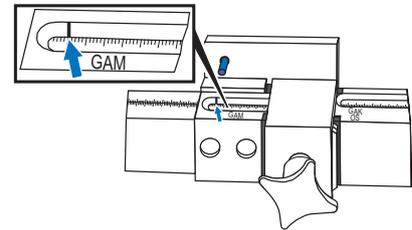
Shorten the drive rod GAM (central handle position)

See figure: Marking GAM

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



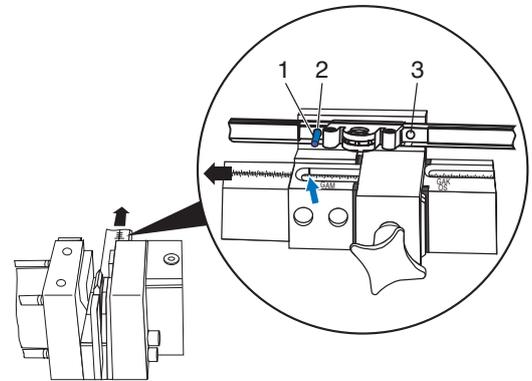
Attention! If the GAM scale is displaced by one sub-marking, this corresponds to a longitudinal shift of 2 mm.



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

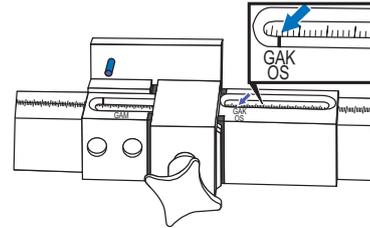
Shorten the GAK / GASK drive rod (constant handle position) and top rod OS



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

See figure: Markings GAK and OS

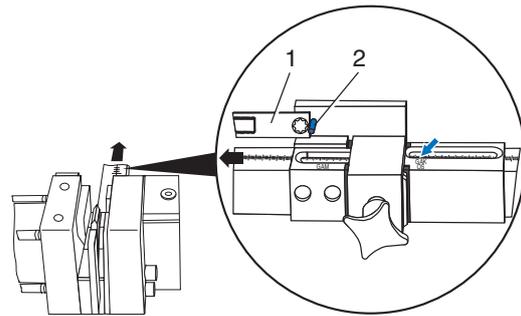
- Set the measuring value FFH (GAK/GASK) or FFB (OS) on the measuring device to the GAK/OS mark.



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).

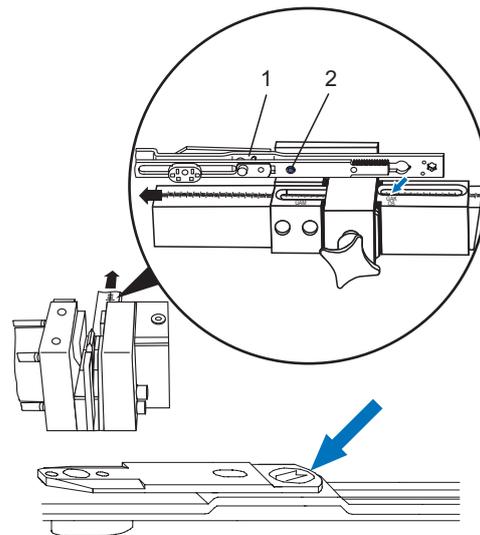


Position for shortening drive rod and/or top rod

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

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1 Mounting of fittings on sash

2 Rectangular turn window

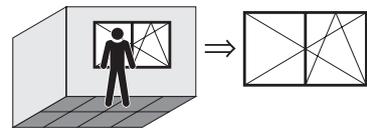
Prepare the window for fitting. Then proceed as follows:



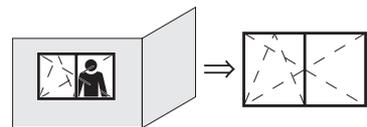
Please note: The following figures refer to a window for right-hand use. When fitting a window for left-hand use, the figures will be mirror-inverted.

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.

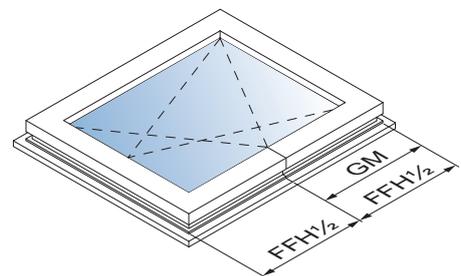


3 Determine the handle height:

4 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.

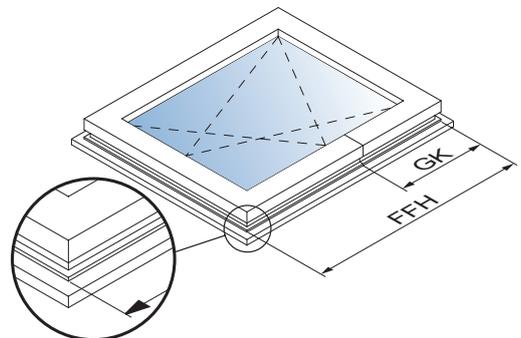


Sash rebate height FFH with central handle height GM

5 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)

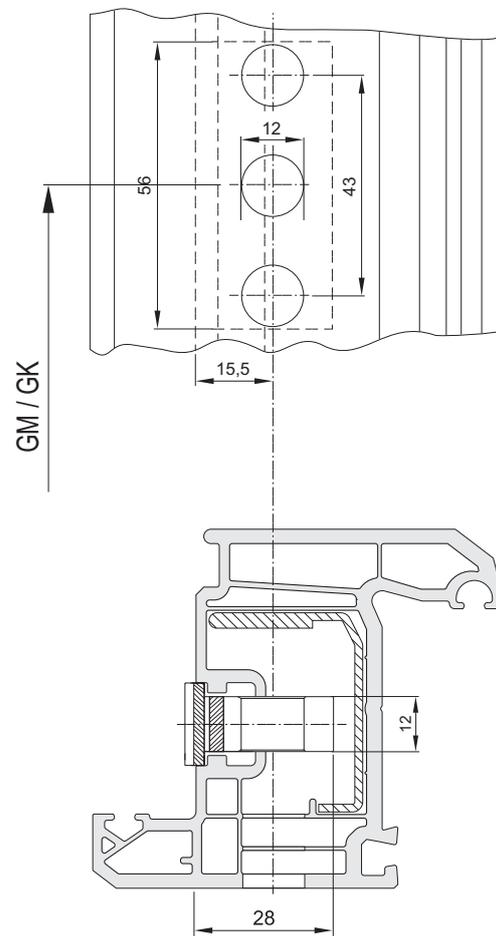
The table on the right gives a survey on the handle height (GK) of GAK with regard to the sash rebate height (FFH).

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 (ø 12 mm) as per scale drawing.
- Mill the gear housing from the rebate side.

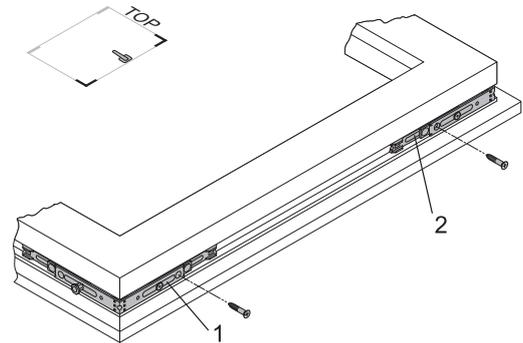


Scale drawing “Gear lock”

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See figure: Corner drive E1

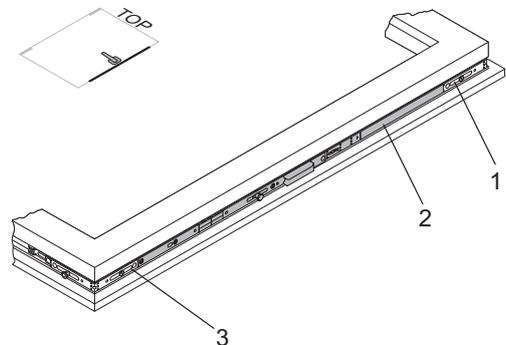
- Mounting of interlocking rods:
 - Fit the corner drive (2) into the fitting groove at the top of the sash so that the octagonal bolt is on the top side.
 - Fit the corner drive (1) into the fitting groove at the bottom of the sash so that the octagonal bolt is on the underside.
 - Fix both corner drives (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.



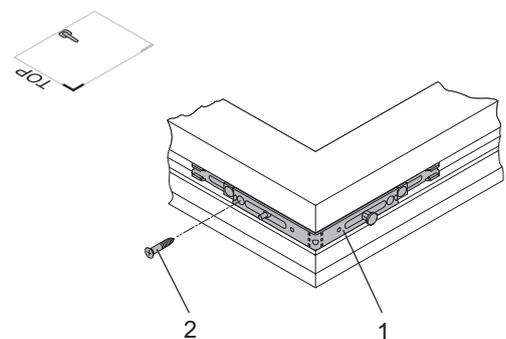
Drive rod GAM/GAK

See figure: Corner drive E2

- 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).



Note: When the top rod OS1.PA.600 is used, replace the E2 corner drive by E3 corner drive.



Corner drive E2

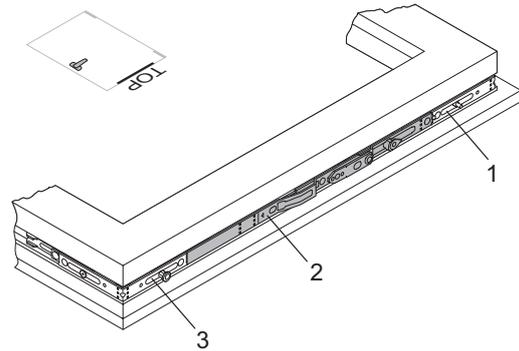
- Cut the top rod (see chapter 'Shortening the fittings').



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

See figure: Top rod OS

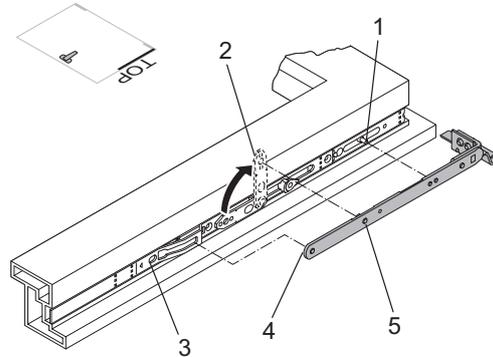
- Cut the top rod (see chapter 'Shortening the fittings').
- Insert the top rod and screw into position.
 - Fit the top rod flush against the corner drive (1).
 - Allow the gear teeth to click into place on the rack in the corner drive.
 - Clip the top rod into the corner drive (3) in the same way.
 - 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: Shear SK

- 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).



Shear SK



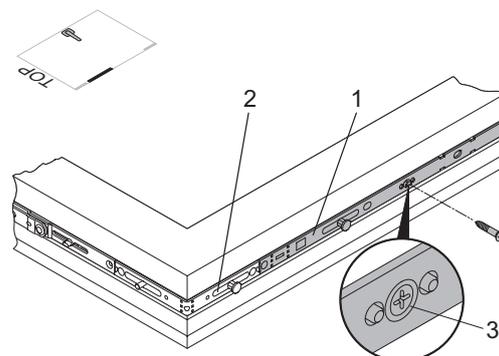
Warning! Risk of Injury. The sash can fall out and cause injuries if the shear and top rod are not securely fastened.



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.

See figure: Interlocking rod MK.PA

- 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.



Interlocking rod MK.PA



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.

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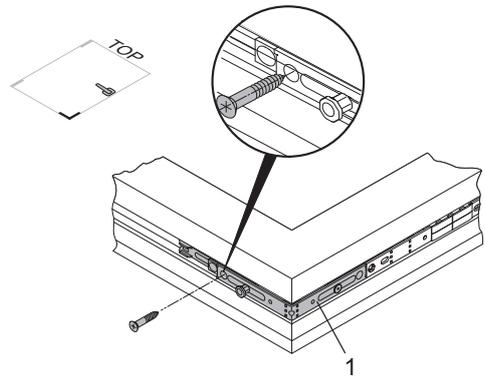
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See figure: Corner drive E1

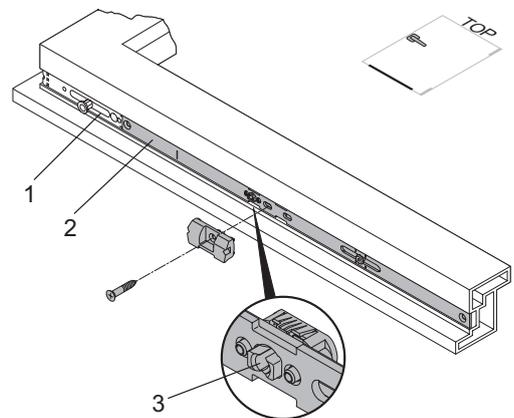
- Screw the corner drive (1) in place.



Corner drive E1

See figure: Support plate ALM.F12

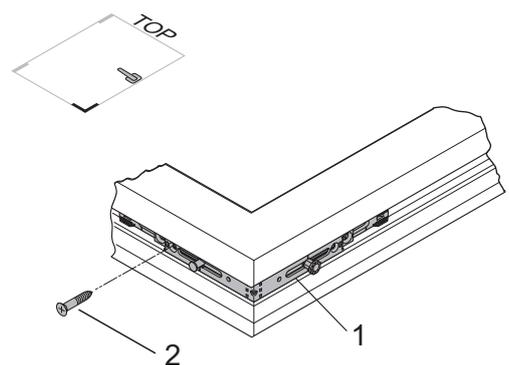
- Mount the coupling element, the interlocking rod and the support plate on the underside:
 - Fix the interlocking rod to the corner drive, depending on the sash rebate width.
 - Cut the coupling element to the required dimension.
 - Abut the coupling element against the sash hinge with the side to be cut pointing towards the drive side.
 - Click the coupling element gears into the teeth of the sash hinge.
 - Tighten the screw (3) fully to release the central fastening.
 - Fix the support plate on the coupling element with a screw.



Support plate ALM.F12

See figure: Corner drive E1.PA

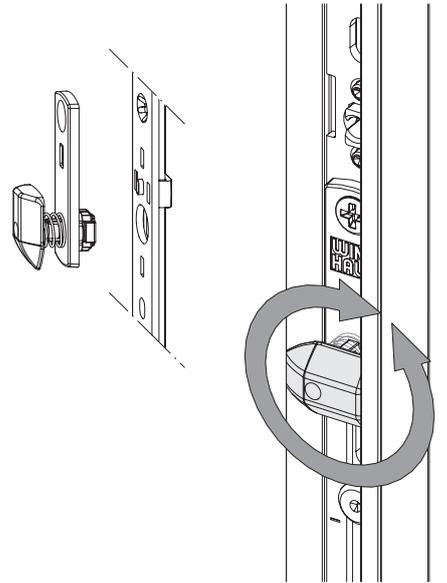
- Corner drive E1.PA
 - Screw the corner drive (1) in place.



Corner drive E1.PA

See figure: Fail safe device FSF

- Mount the fail safe device:
 - Insert the fail safe device on the hole pattern of the drive rod and fix with a screw.
 - If required, turn the head by 90° (depends on profile).
 - Mounting a frame part is not necessary.



Fail safe device FSF

Important to know:

- The component's delivery state is neutral with regard to the DIN direction!
- After installation the tip of the plastic part 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!



Attention! Check if all screws are fixed into place on the fitting parts.

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Mounting of fittings on the window frame

For parallel action rectangular turn window



Note: Fit the shear and corner hinges after fitting the keeps!

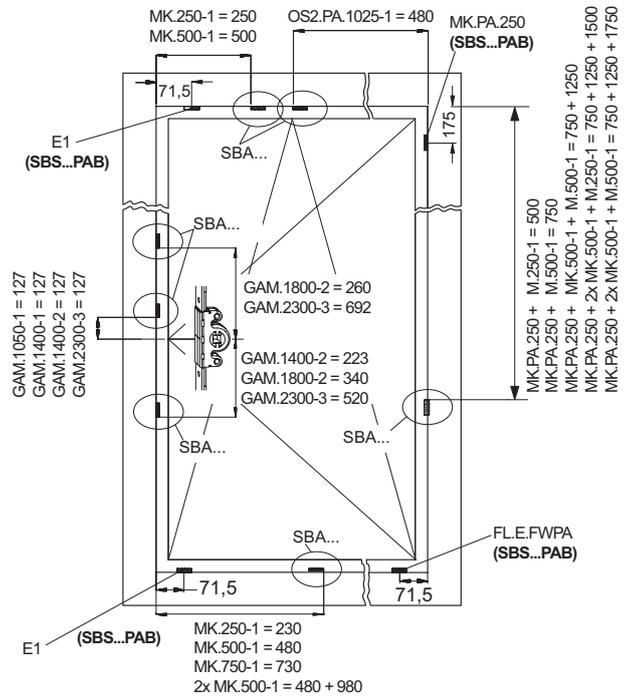
Positions of keeps (basic equipment)

For parallel action rectangular turn window

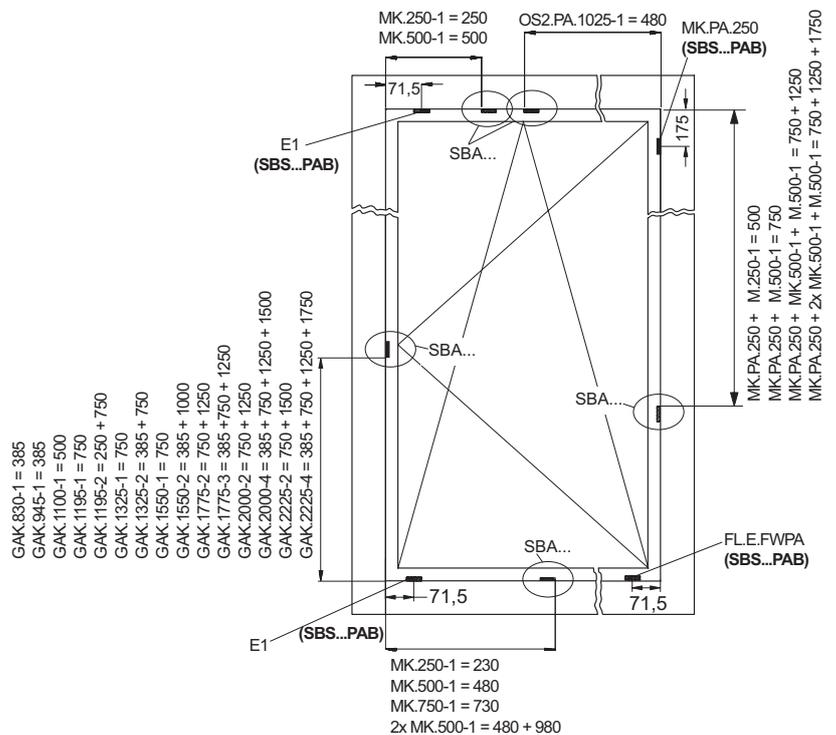
The figures show the keep position options. The number of keeps depends on the size of the window.



Note: The dimensions shown in the figures refer to the frame rebate edge to keep profile edge or frame centre to the keep!



Keep positions DK "central handle position"



Keep positions DK "constant handle position"

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)

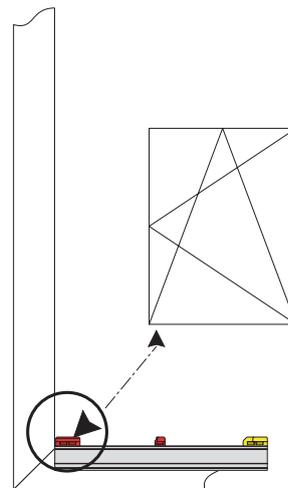
↕↔ Vertical / horizontal attachment = blue element (for corner drives)

→ = Keep run-in

Keep SBS...PA, drive side bottom corner drive for E1

See figure: SBS..PA

- Use a PADK jig for the keeps needed for the parallel position activPilot Comfort.
 - Position the mounting jig with the red element in the corner.
 - Place keep SBS...PA on the red element labelled ,E1.PA, FL.FWPA, E1'.

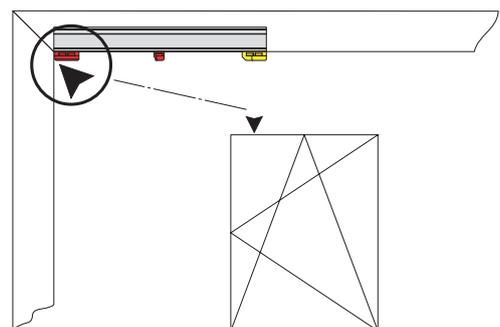


SBS..PA

Keep SBS...PA drive side, top corner drive for E1

See figure: Keep SBS...PA

- Use a PADK jig for the keeps needed for the parallel position activPilot Comfort.
 - Align the mounting jig with the red element in the corner.
 - Position the SBS...PA keep on the red element marked E1.PA, FL.E.FWPA, E1.

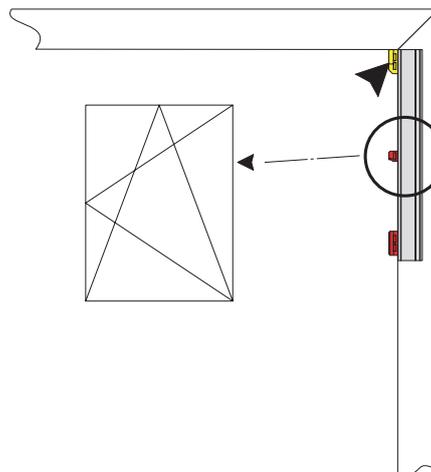


Keep SBS...PA

Keep SBS...PAB top hinge side for MK.PA.250

See figure: SBS...PAB top, horizontal

- Use a PADK jig for the keeps needed for the parallel position activPilot Comfort.
 - Position the mounting jig with the yellow element in the upper corner.
 - Position the keep SBS...PA.. on the red element marked MK.PA.250.

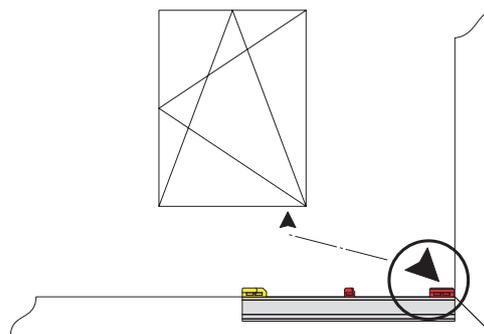


SBS...PAB top, horizontal

Keep SBS...PAB for sash hinge FL.E.FWPA bottom hinge side

See figure: Keep SBS...PAB

- Use a PADK jig for the keeps needed for the parallel position activPilot Comfort.
 - Position the mounting jig with the red element in the corner.
 - Position the SBS...PAB keep on the red element marked E1.PA, FL.FWPA, E1.

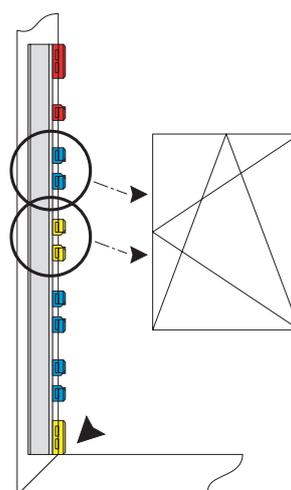


Keep SBS...PAB

Keeps SBA... for vertical GAK

See figure: 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

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Keeps for GAM

See figure: Keeps for GAM

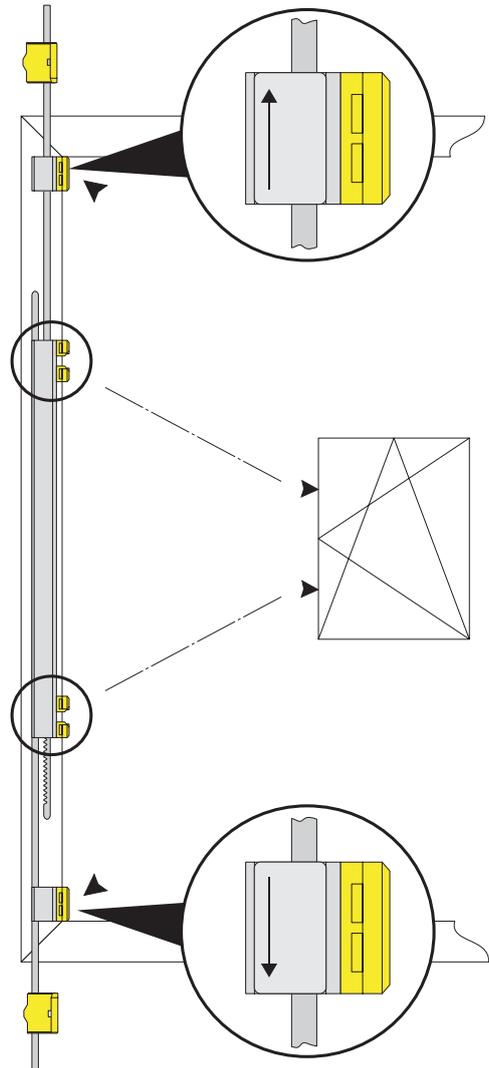
- Attach the corresponding mounting jig labelled “top” or “bottom”.
- Fit keeps in line with the labelling on the mounting template.

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

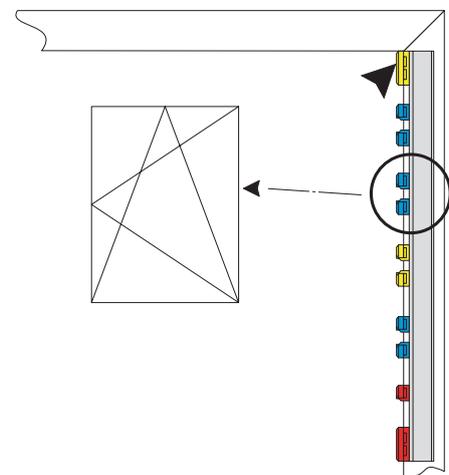
Keep for interlocking rod M or MK hinge side in shear hinge area

See figure: Keeps hinge side

- Align the mounting jig with the yellow element in the top corner.
- Position the keep for interlocking rod on the yellow element.



Please note: The labelling on the interlocking rod must match the labelling on the yellow templates. The interlocking rod MK is labelled e.g. “MK.750-1”.

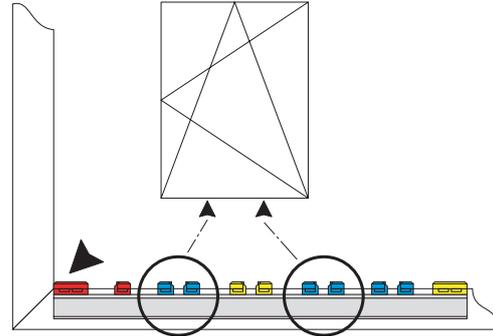


Keeps hinge side

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".



M bottom horizontal

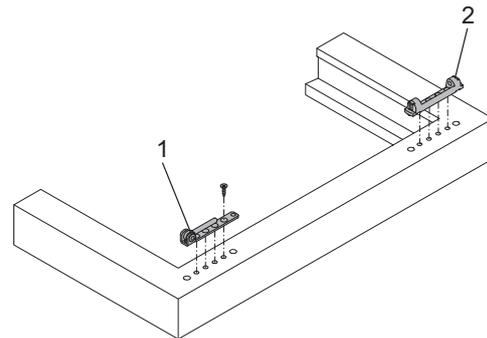
Mounting shear and corner hinges

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.

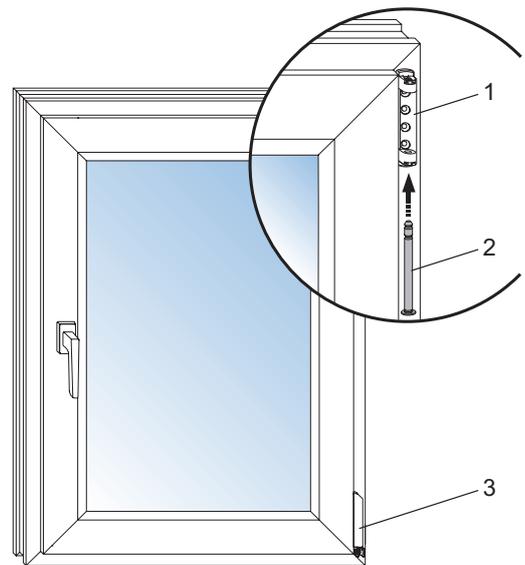
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Fitting the sash

- 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).



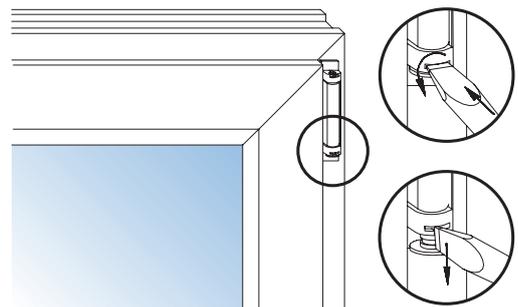
Shear and corner hinge

Removal of the sash

- Close the sash.
- Release the pin from the shear hinge.
- Remove the sash.



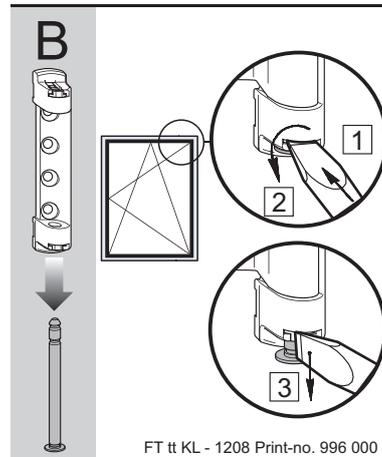
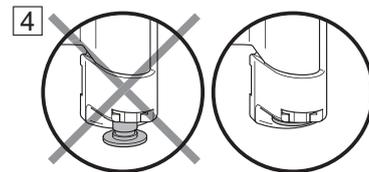
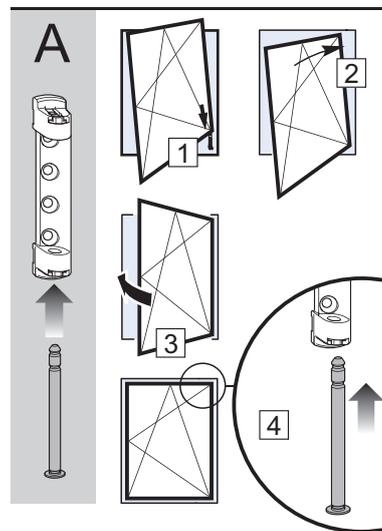
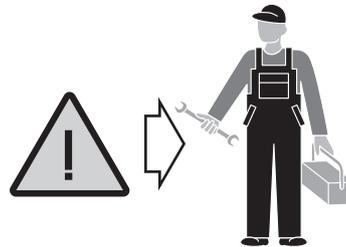
Attention! Damage to shear hinge. In case of improper use and if you attempt to drive out the pin forcibly, the shear hinge will be damaged. Use only a screwdriver to release the pin as shown in the figure.



Release the pin in the shear hinge

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.



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Function test

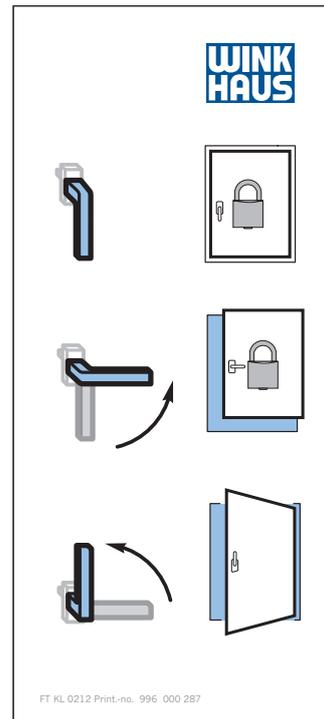
For parallel action rectangular turn window

Place the handle and operate once as follows to release the central fastening.

- If the handle is moved into the horizontal position from the bottom, the fitting is in the parallel action position. By further turning the handle by 90° the handle reaches the turn position (180°). In order to close the window the handle must be moved back down to the initial position.



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

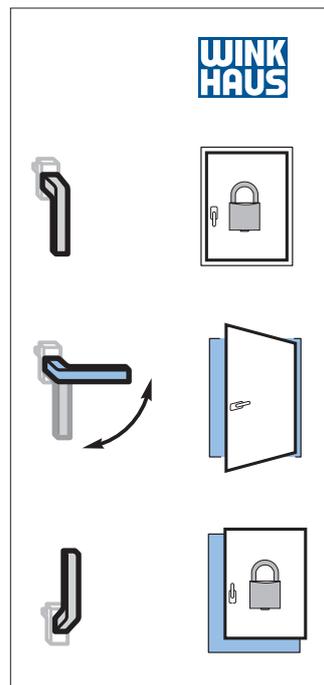
For parallel action rectangular turn window

Place the handle and operate once as follows to release the central fastening.

- If the handle is turned to the diagonal position from the bottom, the fitting is in the turn position. Parallel action is enabled by further turning the handle by 90° into the 180° position. In order to close the window, the handle must be turned back down into its initial position.



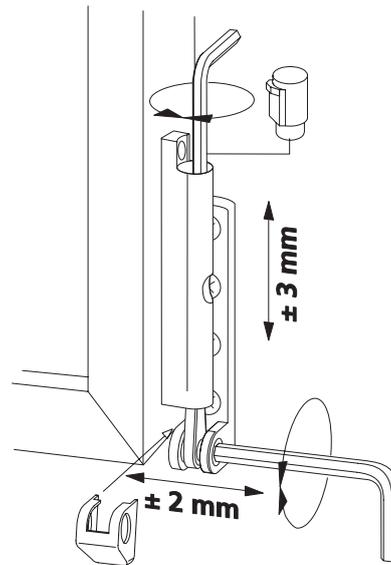
Please note: Initial actuation is not as easy as actuation in normal operations. A clicking noise will be heard during actuation. Keep the window closed during actuation.



Adjustment options

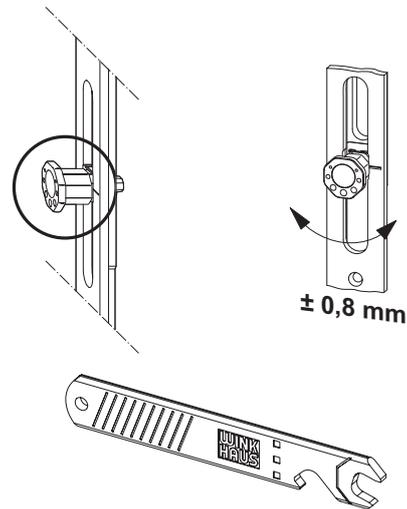
Corner hinge/sash hinge

Sash hinge height adjustment (± 3 mm) and corner hinge side adjustment (± 2 mm).



Octagonal bolt

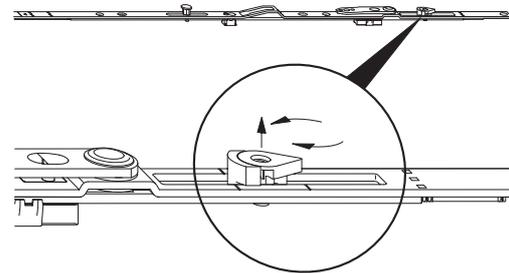
Regulate the contact pressure between the sash and the frame (± 0.8 mm) by turning the octagonal bolt. The adjustment can be carried out by means of the Winkhaus adjustment key (V.ST. SCH.HV-11) .



Octagonal bolt

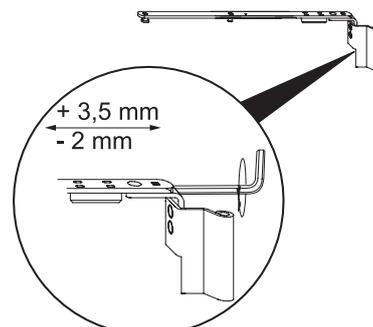
Shear retraction

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.



Shear – Rectangular window

Lifting and lowering the sash (from -2 to +3.5 mm) by means of a 4 mm Allen key.



Shear – Rectangular window

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Maintenance

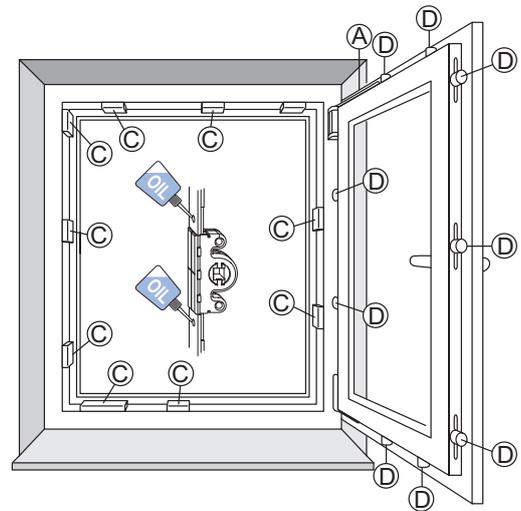
Lubrication points

See figure: Overview of lubrication points

The figure shows the location of possible lubrication points which should be lubricated at least once a year. 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



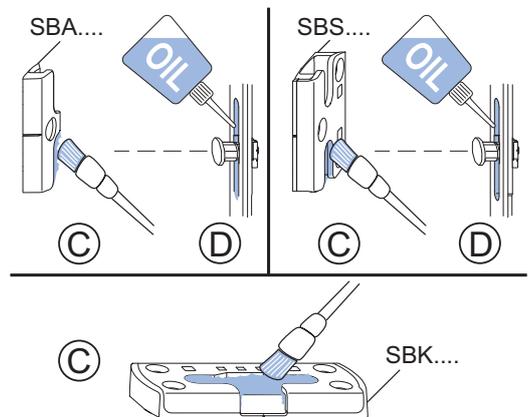
Attention! Risk of injury. The window could fall on removal and thus injure persons. Do not remove the window for maintenance.

Keeps

See figure: Lubrication points

To keep fittings running smoothly, you must lubricate the keeps 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.

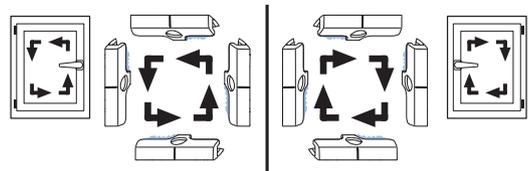


Lubrication points

Ascertaining the run-in sides

See figure: Run-in sides

- Left-handed window; handle right
- Right-handed window; handle left



Run-in sides

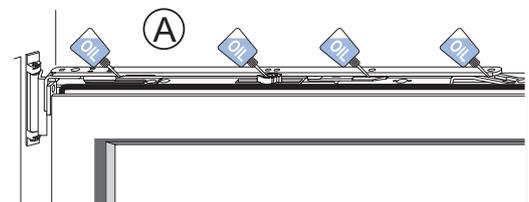
Shears

See figure: Shears

All of the shear's contact points with the top rod should be oiled once annually.



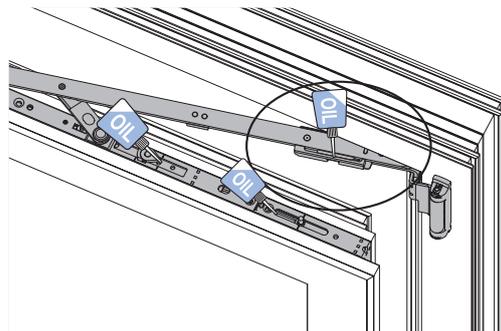
Note: The shear hinge must not be oiled or greased.



Shears



Note: Please make sure the shear is clean in the upper area.

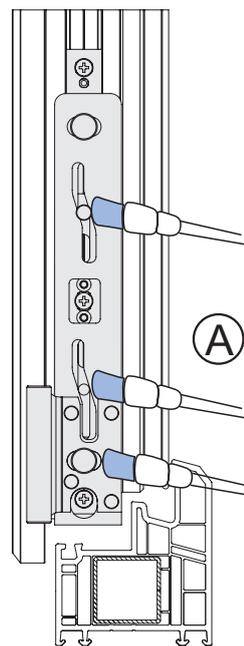


Sash hinge

See figure: Sash hinge FL.E...PA.

All moving contact points on the sash hinge should be greased with a suitable lubricant once annually.

Coat lubricating points with non-resinous, non-corroding grease.



Sash hinge FL.E...PA.



Note: The running surfaces of the adjustment mechanism of the keep must be kept clean.

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The BDT product catalogue of D+H Mechatronic AG is missing here. You will find more information on the BDT fitting drive on the Internet at www.dh-partner.com.

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