

Product Catalogue
10/2019

For windows made of wood,
PVC-U and aluminium

activPilot Giant

The turn-tilt fitting system for heavy windows.



1

Complementary range activPilot Giant

In this catalogue we would like to provide you with detailed information on our activPilot Giant product range for heavy turn-tilt windows and doors. The activPilot Giant turn-tilt fitting range is a complement to our extensive activPilot portfolio. You can find the standard activPilot components in our activPilot Concept product catalogue. In case you do not have it available, please ask us for our catalogue. We are always glad to help you.

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activPilot Giant

Modern windows are gaining in size, as their tasks concerning the face of a building are increasing: Equipped with large glass surfaces they let a lot of light penetrate into the building, offering protection from burglary, noise and loss of energy. The increasing number of functions also brings about a rise in weight. This is why Winkhaus has developed a sturdy solution for windows and patio doors made of all customary materials: the activPilot Giant turn-tilt fitting. activPilot Giant is suitable for timber and aluminium windows up to a sash weight of 200 kg. The new turn-tilt fittings can also bear PVC-U windows up to a sash weight of 180 kg. However, for the latter it is very important to observe the weight specifications of the profile suppliers. They must by no means be exceeded. The heavy-duty system also excels with regard to the window size: the maximum sash rebate width is allowed to be 1600 mm and the sash rebate height 3000 mm. Independent of the profile system, window sashes including activPilot Giant fittings can be opened in an angle of up to 180°. The tilt opening width is approx. 100 mm. What is more, an integrated 'soft opening' device (tilt position) underpins the optimum operating convenience. activPilot Giant has been developed for rectangular windows and patio doors. The product range is not suitable for tilt-before-turn solutions as well as special window types, such as sloping head and round-arch windows.

Modular design

activPilot optimises window construction. For the window builder, less components and multifunctionality mean uncomplicated and fast processing and rational mounting. Pre-mounted 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 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.

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 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.

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.

Product liability

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>

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.

Basic technical features of the activPilot fitting system

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

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

activPilot Giant

Application diagram for ascertaining the admissible sash sizes

– Max. sash weight 180 kg



PVC

For PVC-U windows with 12 mm airgap
(depending on the profile, approval of the
profile supplier is necessary!)



Turn sash (D)



Turn-tilt sash (DK)

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.

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.

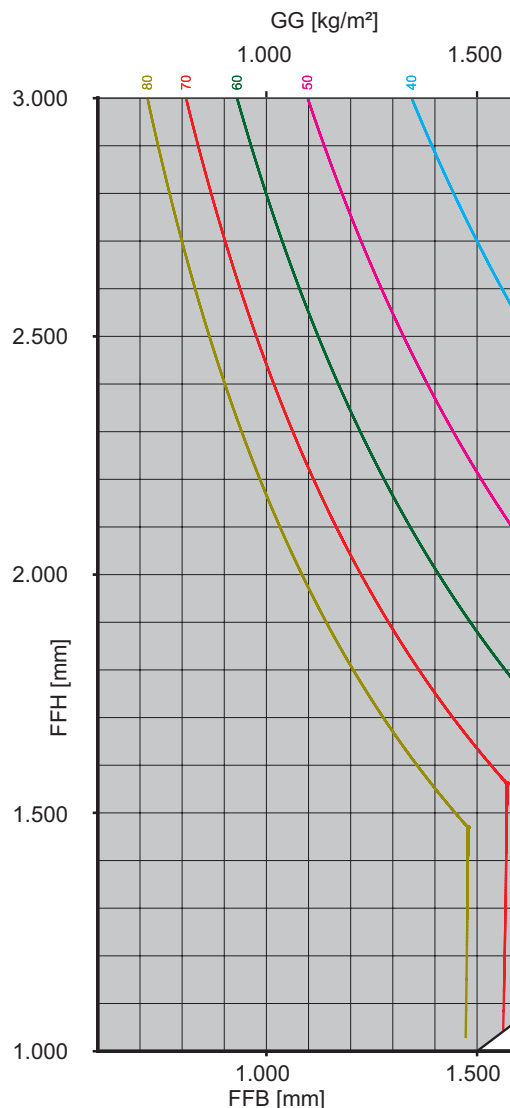
- Min. sash rebate width 510 mm
- Max. sash rebate width 1600 mm
- Min. sash rebate height 1000 mm
- Max. sash rebate height 3000 mm
- Max. sash weight 180 kg
- Width-height ratio FFB : FFH ≤ 1,5:1



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

Please observe the directives for window assembly!

When installing a window it is mandatory to observe all the relevant directives for window assembly.



AWD_01.50_NR55_DK_180 kg_ohne_Zusatzlast_1,5_m

Abbreviations

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

Recommendation

Please use a turn limiter for sash rebate widths from 1200 mm or sash weights from 150 kg!

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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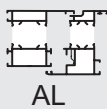
Application diagram for ascertaining the admissible sash sizes

– Max. sash weight 200 kg

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For timber windows with 12 mm airgap Bulk density at least 600 kg/m³



For aluminium windows with 12 mm airgap and 16 mm eurogroove (depending on the profile, approval of the profile supplier is necessary!)



Turn sash (D)



Turn-tilt sash (DK)

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.

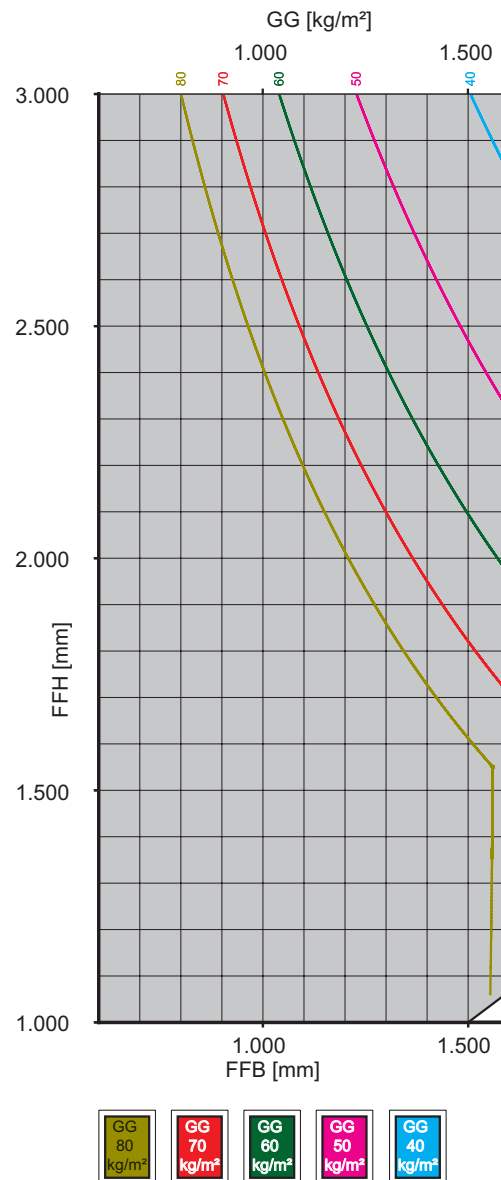
Application range

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 510 mm
- Max. sash rebate width 1600 mm
- Min. sash rebate height 1000 mm
- Max. sash rebate height 3000 mm
- Max. sash weight 200 kg
- Width-height ratio FFB : FFH ≤ 1,5:1



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.



AWD_01.50_NR60_DK_200 kg_ohne_Zusatzlast_1,5_m

Abbreviations

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

Recommendation

Please use a turn limiter for sash rebate widths from 1200 mm or sash weights from 150 kg!

Observe instructions on window profile

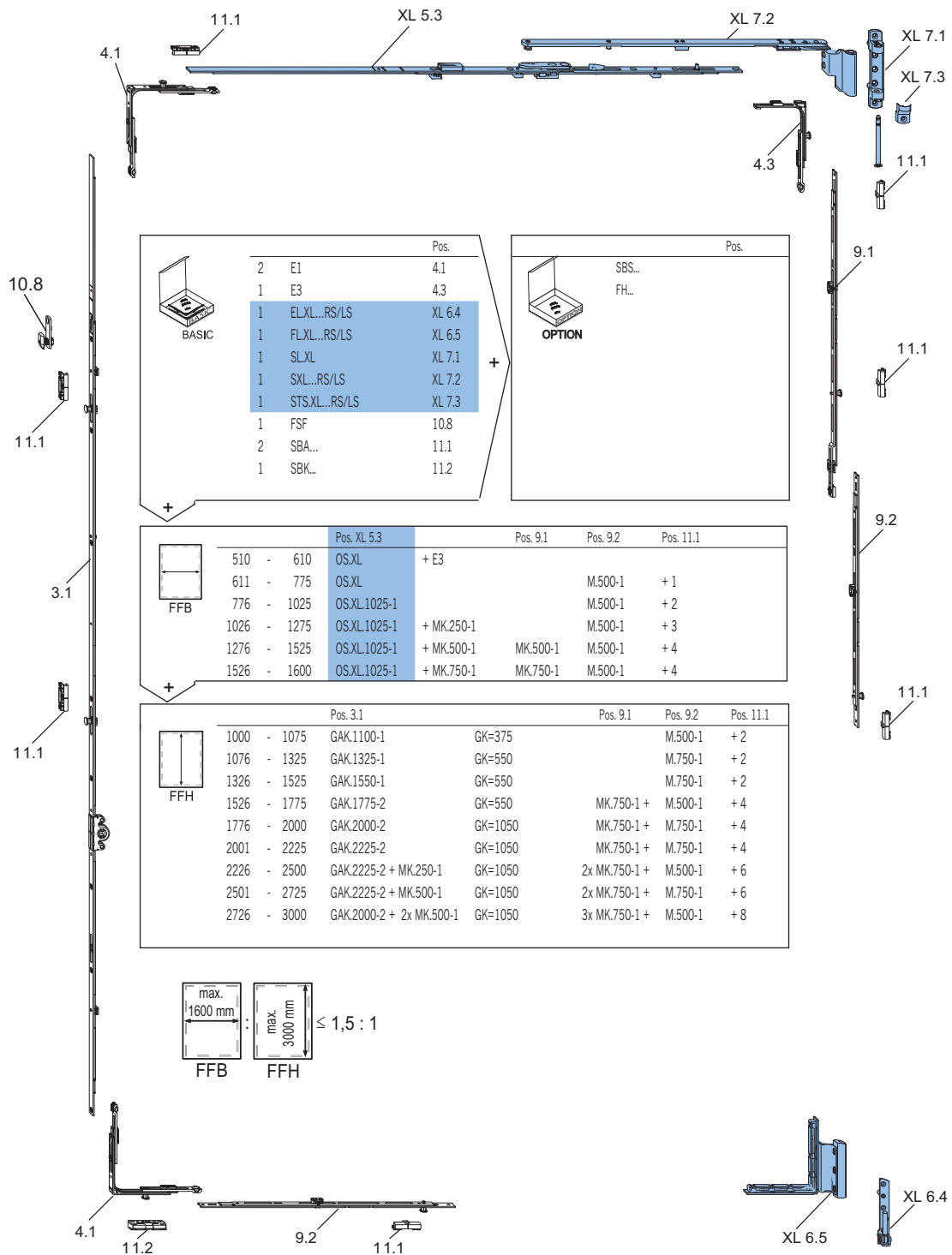
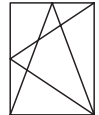
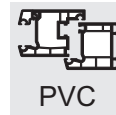
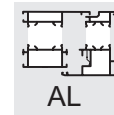
You must specifically take into account information provided by the profile manufacturer or system owner when determining the maximum sash sizes and sash weights!

Please observe the directives for window assembly!

When installing a window it is mandatory to observe all the relevant directives for window assembly.

Turn-tilt fitting – constant handle position

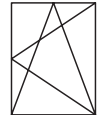
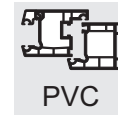
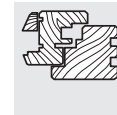
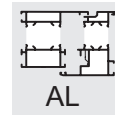
Basic equipment



Please pay attention to the application diagrams!

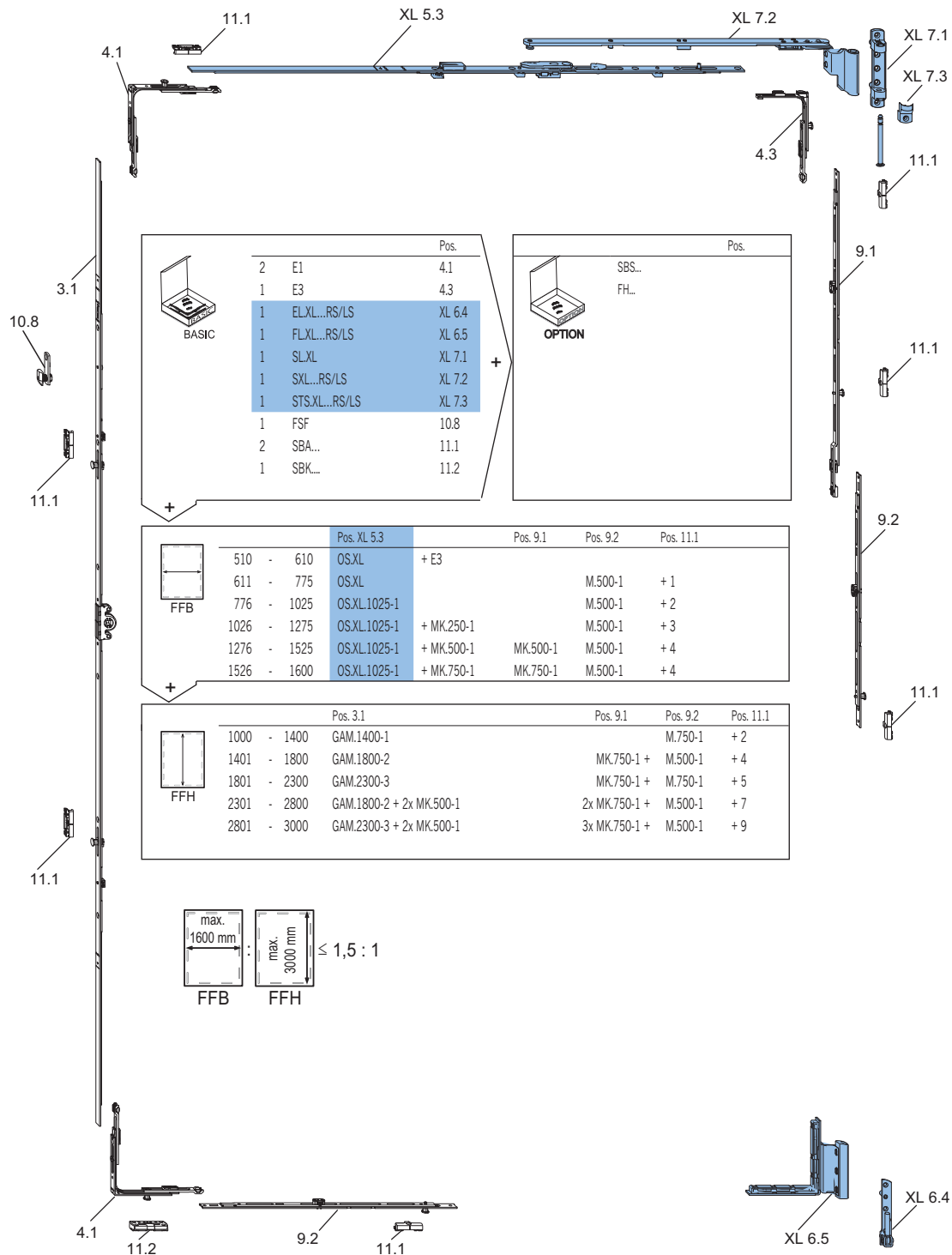
Standard components can be found in the activPilot Concept product catalogue.

Turn-tilt fitting - central handle position



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Basic equipment



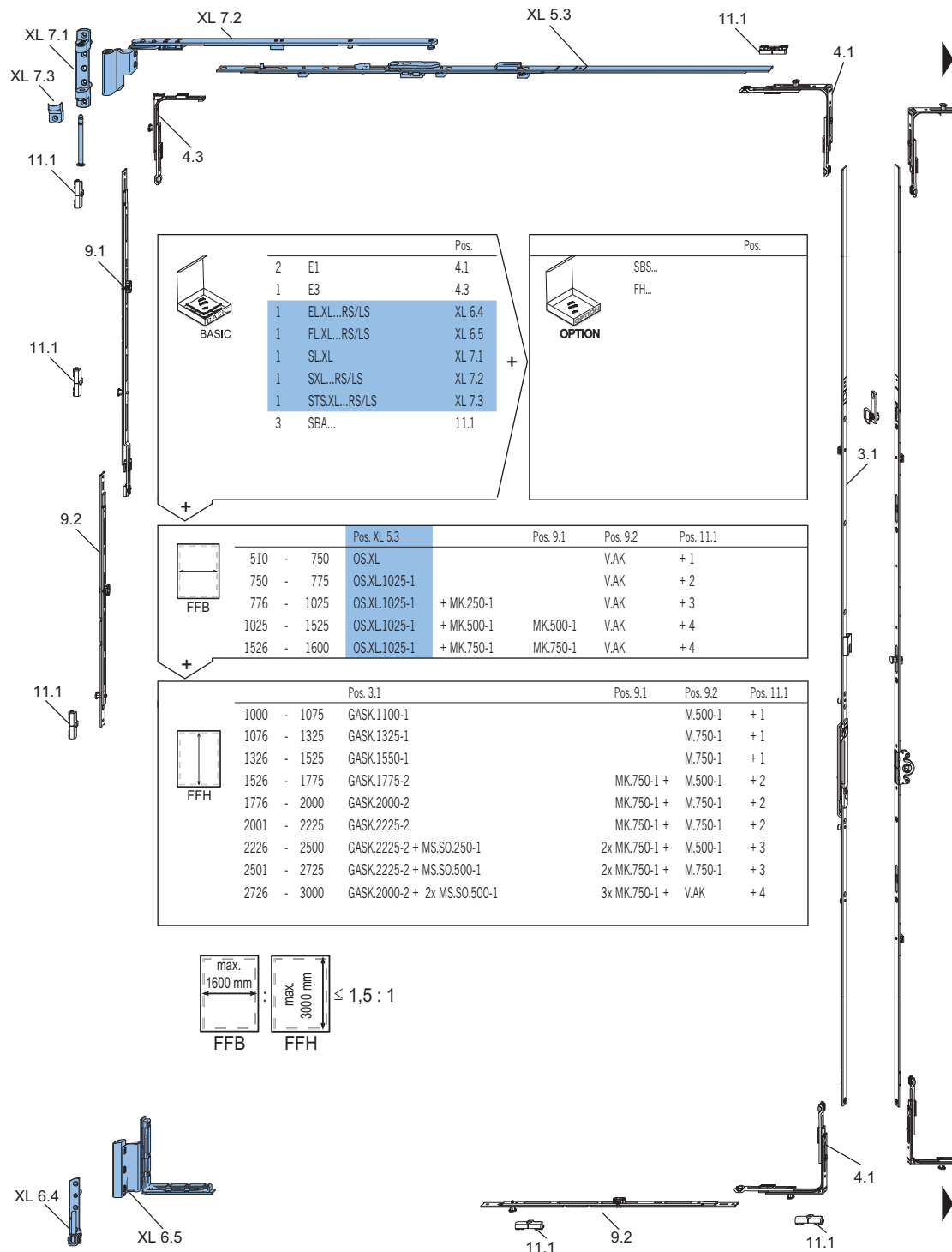
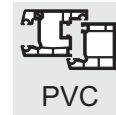
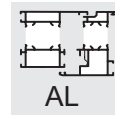
Please pay attention to the application diagrams!

Standard components can be found in the activPilot Concept product catalogue.

Turn double sash fitting - constant handle position

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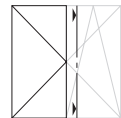
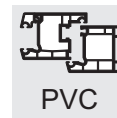
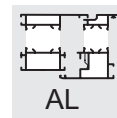
Basic equipment



Please pay attention to the application diagrams!

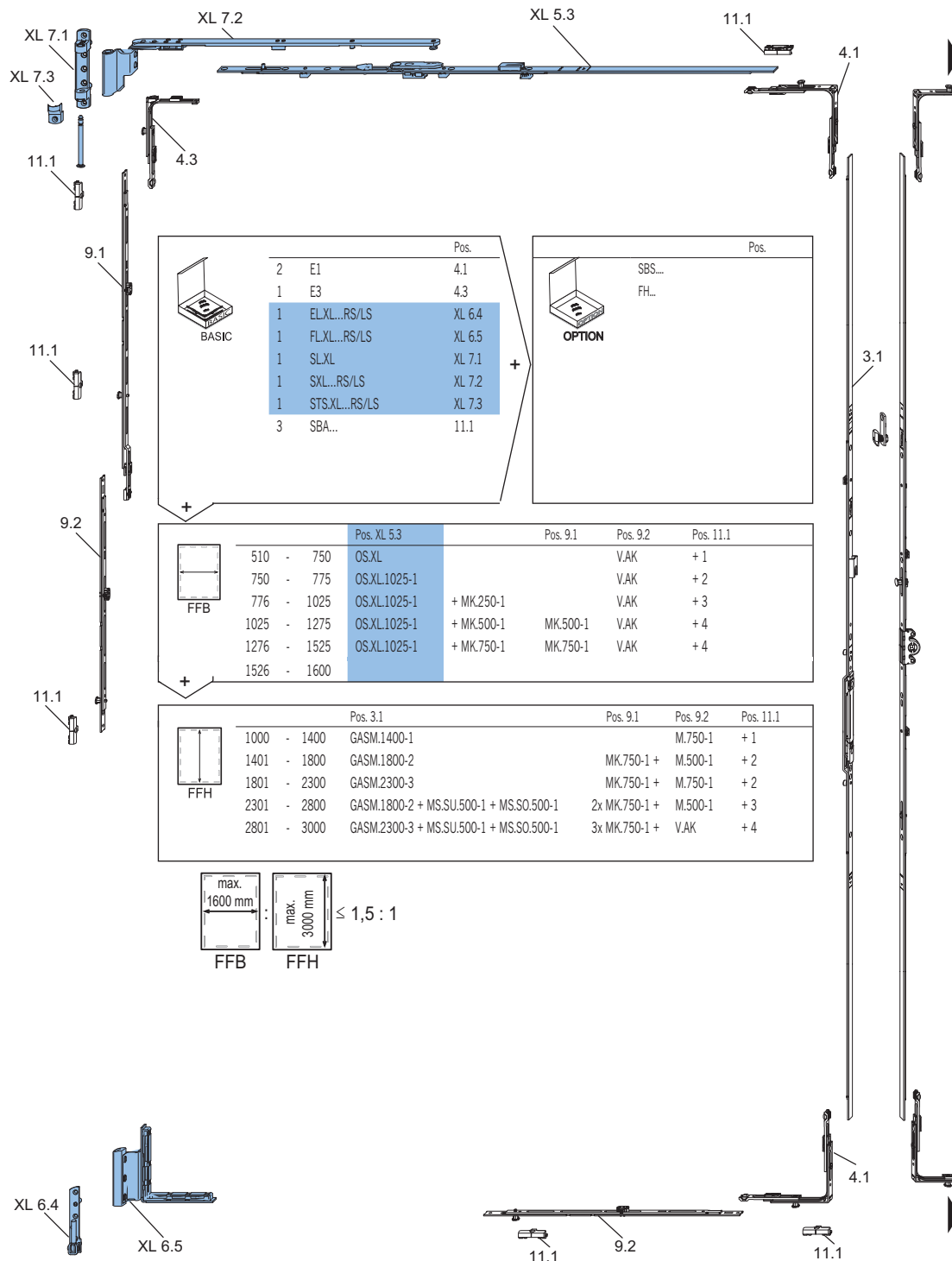
Standard components can be found in the activPilot Concept product catalogue.

Turn double-sash fitting – central handle position



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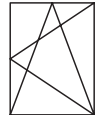
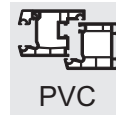
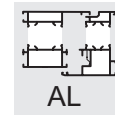
Basic equipment



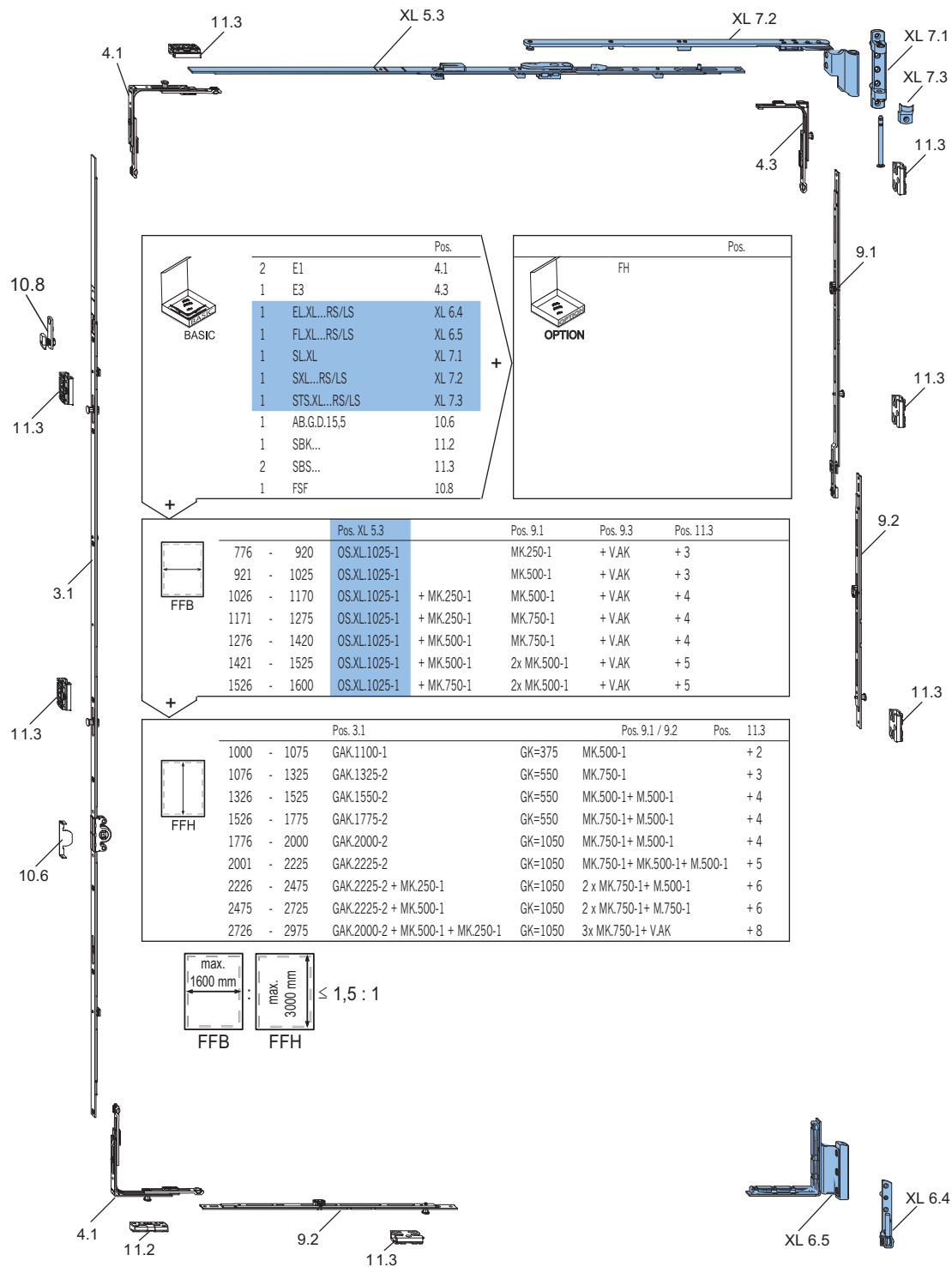
Please pay attention to the application diagrams!

Standard components can be found in the activPilot Concept product catalogue.

Turn-tilt fitting – constant handle position



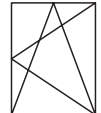
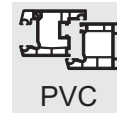
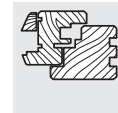
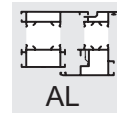
Suitable for burglary-resistant windows RC2 / RC2 N



Please pay attention to the application diagrams!

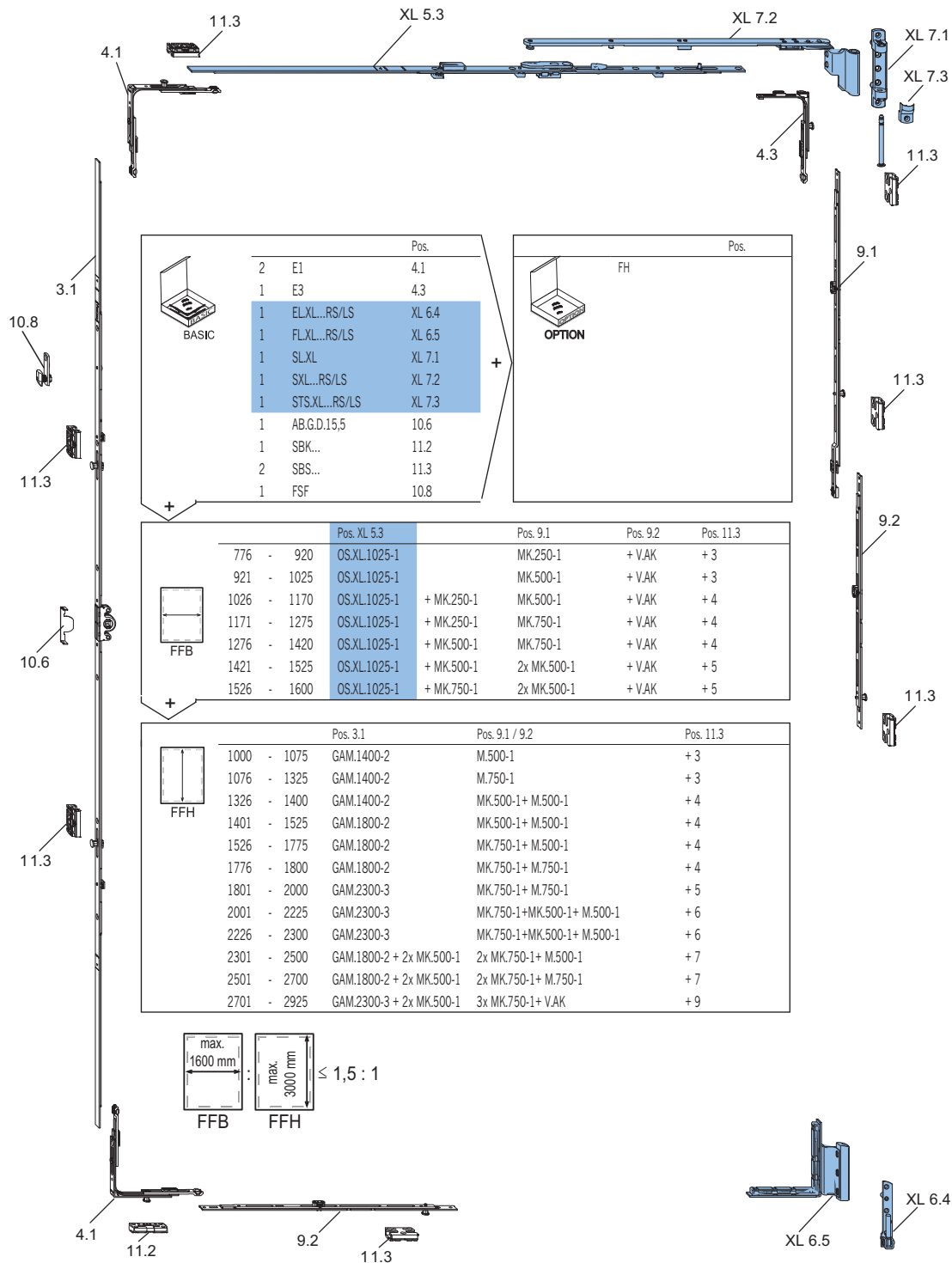
For system-relevant manufacturing details please contact your Winkhaus partner.

Turn-tilt fitting - central handle position



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Suitable for burglary-resistant windows RC2 / RC2 N

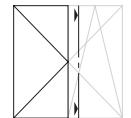
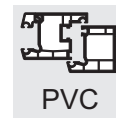
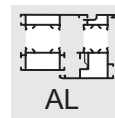


Please pay attention to the application diagrams!

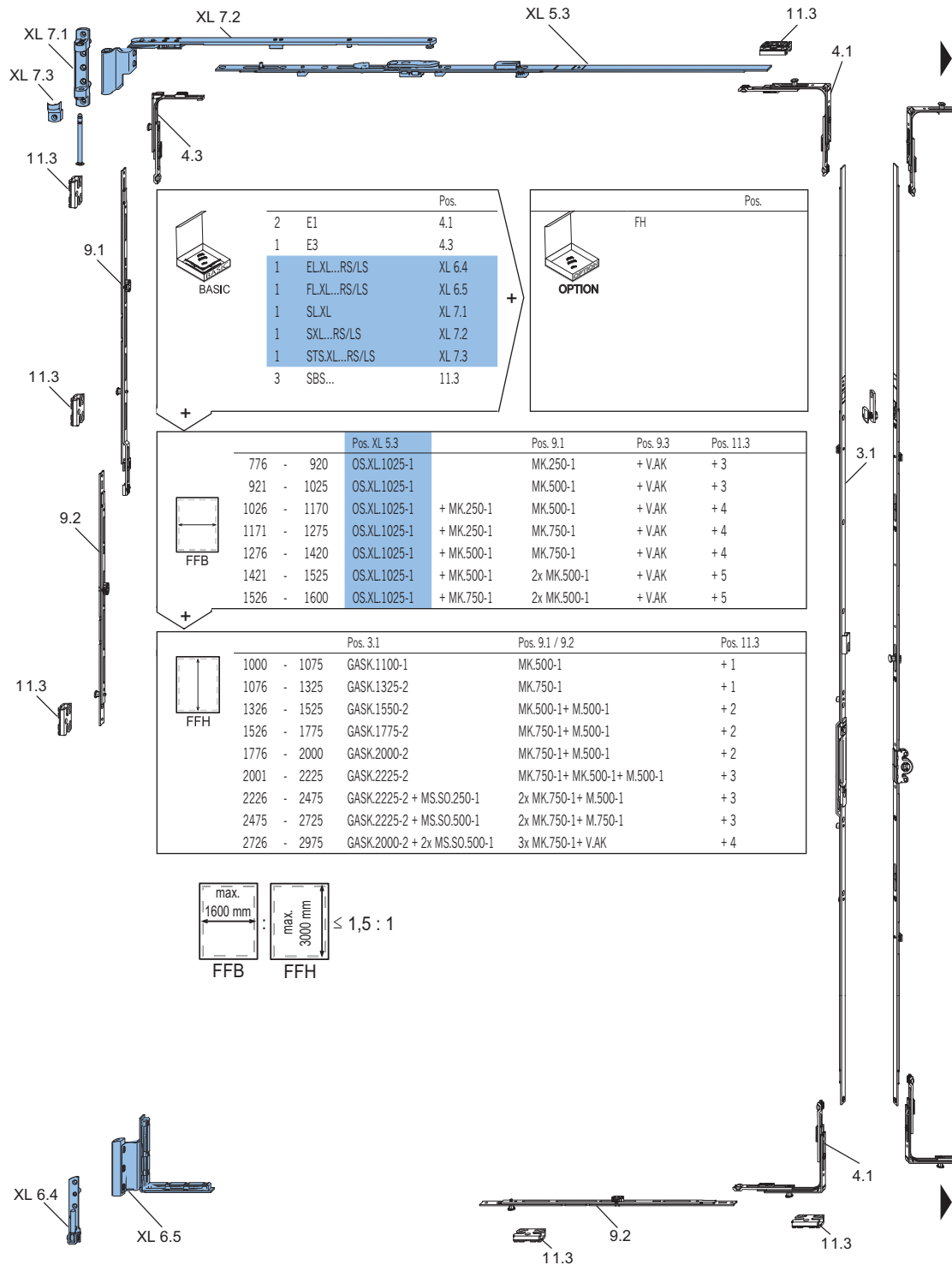
For system-relevant manufacturing details please contact your Winkhaus partner.

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Turn double sash fitting – constant handle position



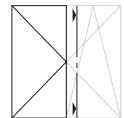
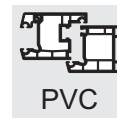
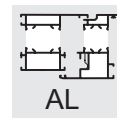
Suitable for burglary-resistant windows RC2 / RC2 N



Please pay attention to the application diagrams!

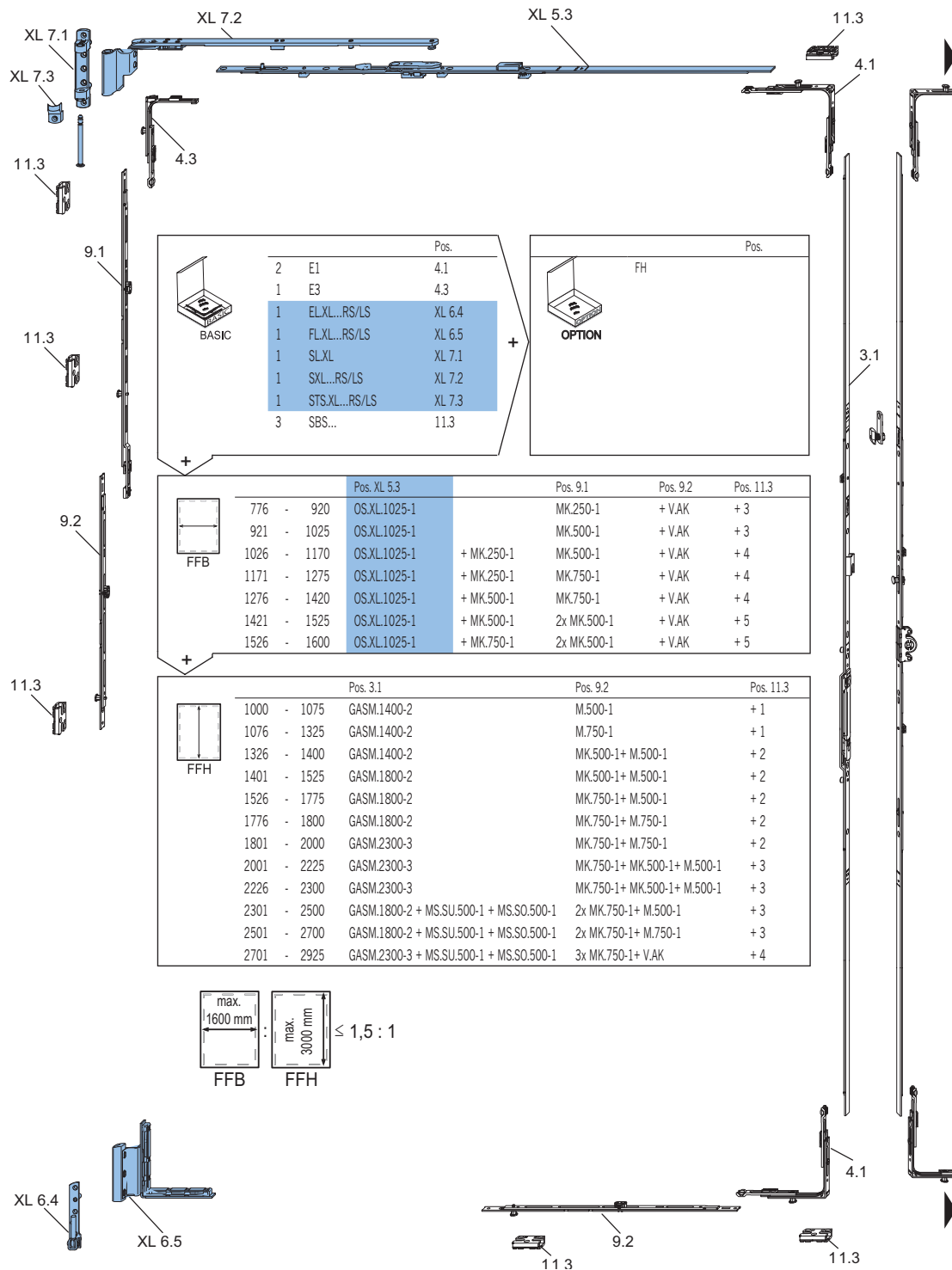
For system-relevant manufacturing details please contact your Winkhaus partner.

Turn double-sash fitting – central handle position



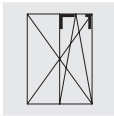
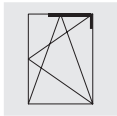
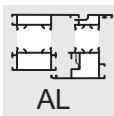
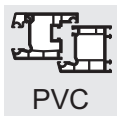
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Suitable for burglary-resistant windows RC2 / RC2 N



Please pay attention to the application diagrams!


For system-relevant manufacturing details please contact your Winkhaus partner.

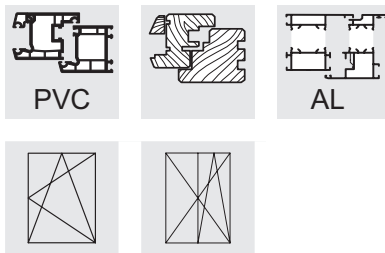


5

Top rod OS.XL

- In combination with shear SXL
- Top rod OS.XL is always used with a corner drive E3 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
- With integrated 'soft opening' device (tilt position)

Item description	Item No.	Scope of application		VPA1 Qty./Type	VPA2 Qty./Type
OS.XL	5001927	FFB 510 - 775	5	10 BD	500 EA
OS.XL.1025-1	5008130	FFB 776 - 1600	6	10 BD	500 EA



Set FXL...

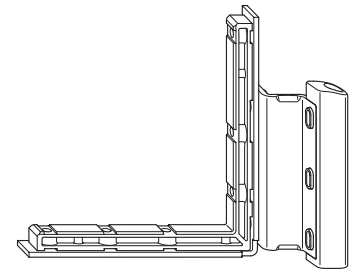
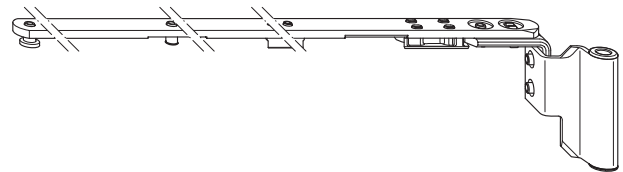
- Consisting of the geometry-specific components (sash side): shear SXL...RS/LS and sash hinge FL.XL...RS/LS

Shear SXL...RS/LS

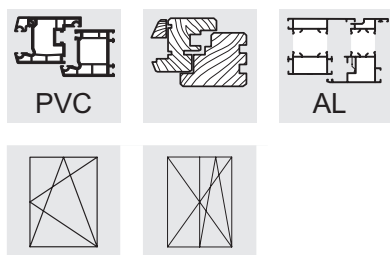
- Used in combination with shear hinge SL.XL
- Only one shear size
- Adjustment for lifting and lowering the sash (+3/-2 mm)
- Opening width approx. 100 mm (depending on profile)
- After assembly the top rod and the shear are firmly attached to one another

Sash hinge FL.XL...RS/LS

- Is used with corner hinge EL.XL
- Height adjustment +4.5/-2 mm
- Contact pressure adjustment via eccentric cam ± 1 mm
- Is fixed within the fitting groove – no overlap screw fixing necessary
- Number of screws: 6



Item description	Item No.	Overlap	Groove centre position	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GRT.FXL18-9.LS.F9	5001949	18	9	1 BD	25 GK	100 EK
GRT.FXL18-9.RS.F9	5001948	18	9	1 BD	25 GK	100 EK
GRT.FXL18-9.LS.WS	5001941	18	9	1 BD	25 GK	100 EK
GRT.FXL18-9.RS.WS	5001940	18	9	1 BD	25 GK	100 EK
GRT.FXL18-13.LS.F9	5001951	18	13	1 BD	25 GK	100 EK
GRT.FXL18-13.RS.F9	5001950	18	13	1 BD	25 GK	100 EK
GRT.FXL18-13.LS.WS	5001943	18	13	1 BD	25 GK	100 EK
GRT.FXL18-13.RS.WS	5001942	18	13	1 BD	25 GK	100 EK
GRT.FXL20-9.LS.F9	5001953	20	9	1 BD	25 GK	100 EK
GRT.FXL20-9.RS.F9	5001952	20	9	1 BD	25 GK	100 EK
GRT.FXL20-9.LS.WS	5001945	20	9	1 BD	25 GK	100 EK
GRT.FXL20-9.RS.WS	5001944	20	9	1 BD	25 GK	100 EK
GRT.FXL20-13.LS.F9	5001955	20	13	1 BD	25 GK	100 EK
GRT.FXL20-13.RS.F9	5001954	20	13	1 BD	25 GK	100 EK
GRT.FXL20-13.LS.WS	5001947	20	13	1 BD	25 GK	100 EK
GRT.FXL20-13.RS.WS	5001946	20	13	1 BD	25 GK	100 EK



Set RXL...

- Consisting of the geometry-independent components (frame side): shear SL.XL..., pin securing device STS.XL... RS/LS and corner hinge EL.XL...RS/LS

Shear hinge SL.XL

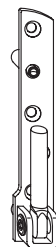
- With positioning plugs
- Used in combination with shear SXL...RS/LS
- For drill and screw templates see group 15, installation drawings
- Can be used left and right hand
- Number of screws: 5

Pin securing device STS.XL...RS/LS

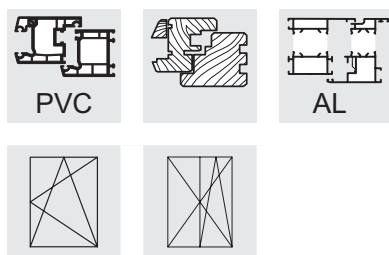
- Used in combination with shear hinge SL.XL
- Additional protection of the shear hinge pin against manipulation (without dismounting the pin securing device it is not possible to remove the pin).
- For drill and screw templates see group 15, installation drawings
- Number of screws: 1

Corner hinge EL.XL...RS/LS

- With positioning plugs
- Used with sash hinge FL.XL
- Side adjustment ± 2 mm
- For drill and screw templates see group 15, installation drawings
- Number of screws: 4



Item description	Item No.	VPA1 Qty./Type	VPA2 Qty./Type	VPA3 Qty./Type
GRT.RXL.LS.F9	5001959	1 BL	25 KK	200 EK
GRT.RXL.RS.F9	5001958	1 BL	25 KK	200 EK
GRT.RXL.LS.WS	5001957	1 BL	25 KK	200 EK
GRT.RXL.RS.WS	5001956	1 BL	25 KK	200 EK



Set RXL.BS

- Consisting of the geometry-independent components (frame side): shear SL.XL..., pin securing device STS.XL... RS/LS and corner hinge EL.XL...BS...
- For low-threshold units

Shear hinge SL.XL

- With positioning pins, see installation drawings
- Used in combination with shear SXL...RS/LS
- For drill and screw templates see group 15, installation drawings
- Can be used left and right hand
- Number of screws: 5

Pin securing device STS.XL...RS/LS

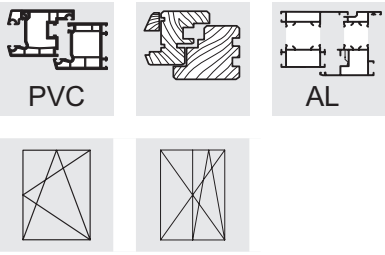
- Used in combination with shear hinge SL.XL
- Additional protection of the shear hinge pin against manipulation (without dismounting the pin securing device it is not possible to remove the pin).
- For drill and screw templates see group 15, installation drawings
- Number of screws: 1

Corner hinge EL.XL...BS.RS/LS

- With positioning plugs
- Changed pin position as compared to EL.XL corner hinge
- Used with sash hinge FL.XL
- Side adjustment ± 2 mm
- For drill and screw templates see group 15, installation drawings
- Number of screws: 3

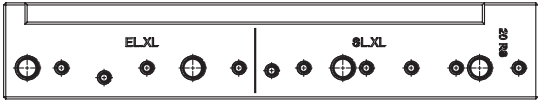


Item description	Item No.	VPA1 Qty./Type	VPA2 Qty./Type
GRT.RXL.BS.RS.WS	5013754	25 KK	200 EK
GRT.RXL.BS.LS.WS	5013755	25 KK	200 EK
GRT.RXL.BS.RS.F9	5013756	25 KK	200 EK
GRT.RXL.BS.LS.F9	5013757	25 KK	200 EK



Drilling jig LE.B...XL...

- For corner and shear hinges
- Can be used left and right hand
- Easy positioning by simply attaching it to the frame corner
- Drill diameter of positioning pin: 8 mm



Item description	Item No.	Overlap	VPA1 Qty./Type	VPA2 Qty./Type
LE.B.EL-SL.XL.18	5002206	18	25 KK	200 EK
LE.B.EL-SL.XL.20	5002207	20	25 KK	200 EK

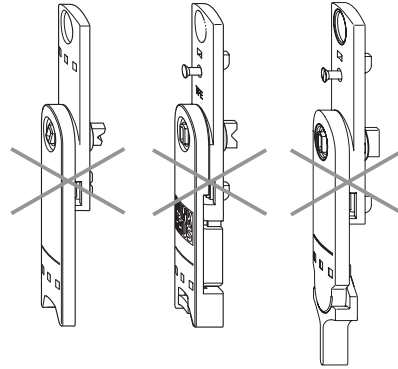
Please note!

activPilot Giant has been developed for rectangular windows and patio doors. The product range is not suitable for tilt-before-turn solutions as well as special window types, such as sloping head and round-arch windows.

The following items from the activPilot Concept fitting range are not used for activPilot Giant:

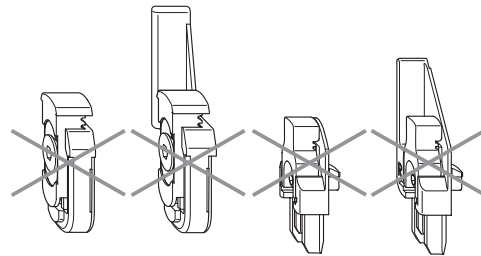
Dual / triple function elements

- Dual function element DFE / DFE-OF
- Dual function element DFE-P
- Triple function element TFE

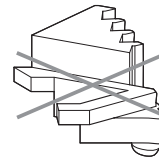


Frame parts for dual function elements

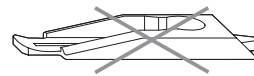
- Frame part RT.DFE-TFE
- Frame part RT.DFE-TFE...RS/LS
- Frame part RT.DFE-TFE.S
- Frame part RT.DFE-TFE.S...RS.LS



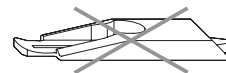
Variable tilt device MSL-OS



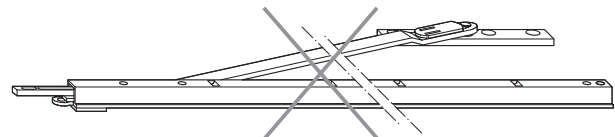
Anti-slam device ZSS.OS 1/2



Tilt limiter KBG.OS 1/2



Window limiter FBP



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 510 mm
- Max. sash rebate width 1600 mm
- Min. sash rebate height 1000 mm
- Max. sash rebate height 3000 mm
- Max. sash weight wooden windows 200 kg
(bulk density $\geq 600 \text{ kg/m}^3$)
- Max. sash weight for aluminium windows 200 kg
(Please observe specifications of profile supplier!)
- Max. sash weight PVC-U windows 180 kg
(Observe instructions of profile manufacturer!)
- Aspect FFB/FFH $\leq 1.5:1$
- Recommendation: Please use a turn limiter for sash rebate widths from 1200 mm or sash weights from 150 kg!



Important: All existing screw holes in the load-bearing components must be used!

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



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.

Intended use

Winkhaus activPilot fittings are suited for installation into stationary buildings. They are used to open and close windows and patio doors. All windows and doors must be installed perpendicularly and NOT slantwise.

Please observe screwing advice!



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



Attention, heavy sash weight! Also when selecting the screws for the sash overlap it is important to take into account the results of the function endurance test acc. to DIN EN 1191!



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



Important: In case of windows with rebate seal system, the frame and hinge parts in water-bearing profile levels must be screwed in a way to avoid water entering into profile levels that cannot be drained afterwards. Please observe the information given by your system supplier.

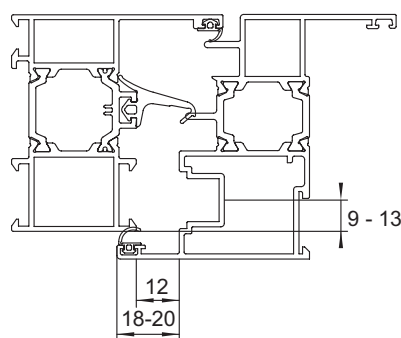
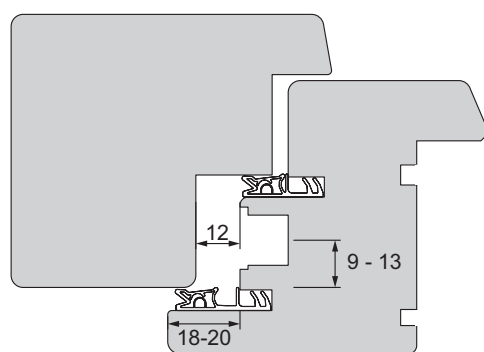
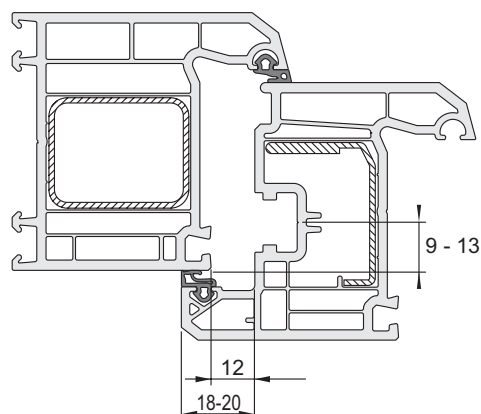
User information and obligations to provide instructions

- In line with the specifications/notices on the product and liability, you can find out under "Obligation to give instructions" which documents and information regarding compliance with the obligation to give instructions must be passed on to/by the respective target groups.
- You must keep the installation instructions in a safe place.

Kind of profile – windows made of PVC-U, wood and aluminium

See figure: Profile cross-section

The fittings are suitable for windows with a standard fitting groove (9 mm or 13 mm groove centre position) and designed for an airgap of 12 mm and an overlap of 18 and 20 mm. The hinge passage is located in the cross sectional area of the sash. For this reason it is necessary to use a large interior overlap gasket.



Profile cross-section

Shortening the fittings



Please refer to the activPilot Concept mounting instructions for shortening the fittings.

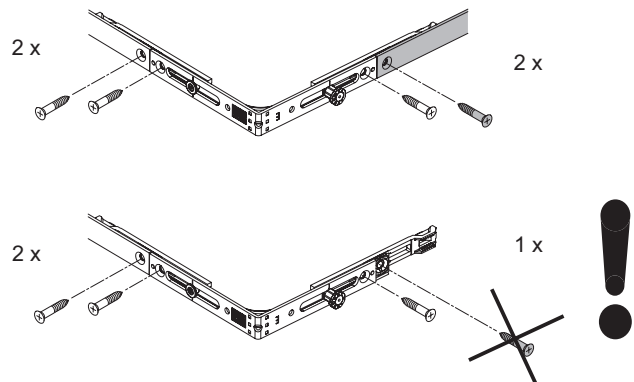
Mounting of fittings on sash

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

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



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



Turn-tilt type – Rectangular window

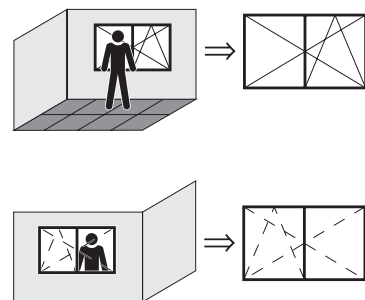
Prepare the window for fitting. Then proceed as follows:



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

The following also applies:

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

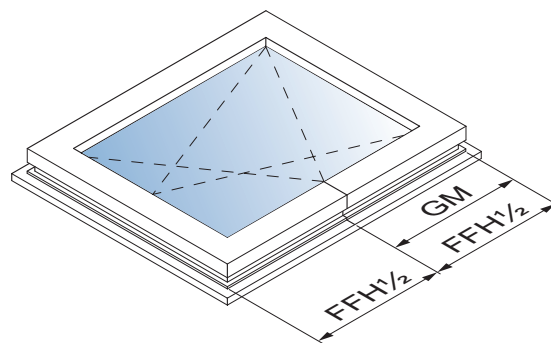


Determine the handle height:

Handle height for drive rod GAM

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

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

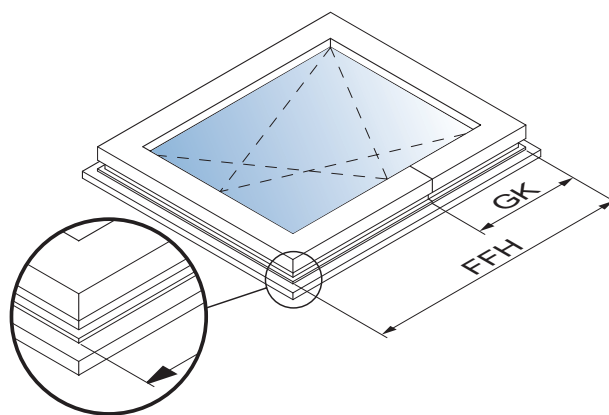


Sash rebate height FFH with central handle height GM

Handle height for drive rod GAK

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

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



Sash rebate height FFH with constant handle position GK

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

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

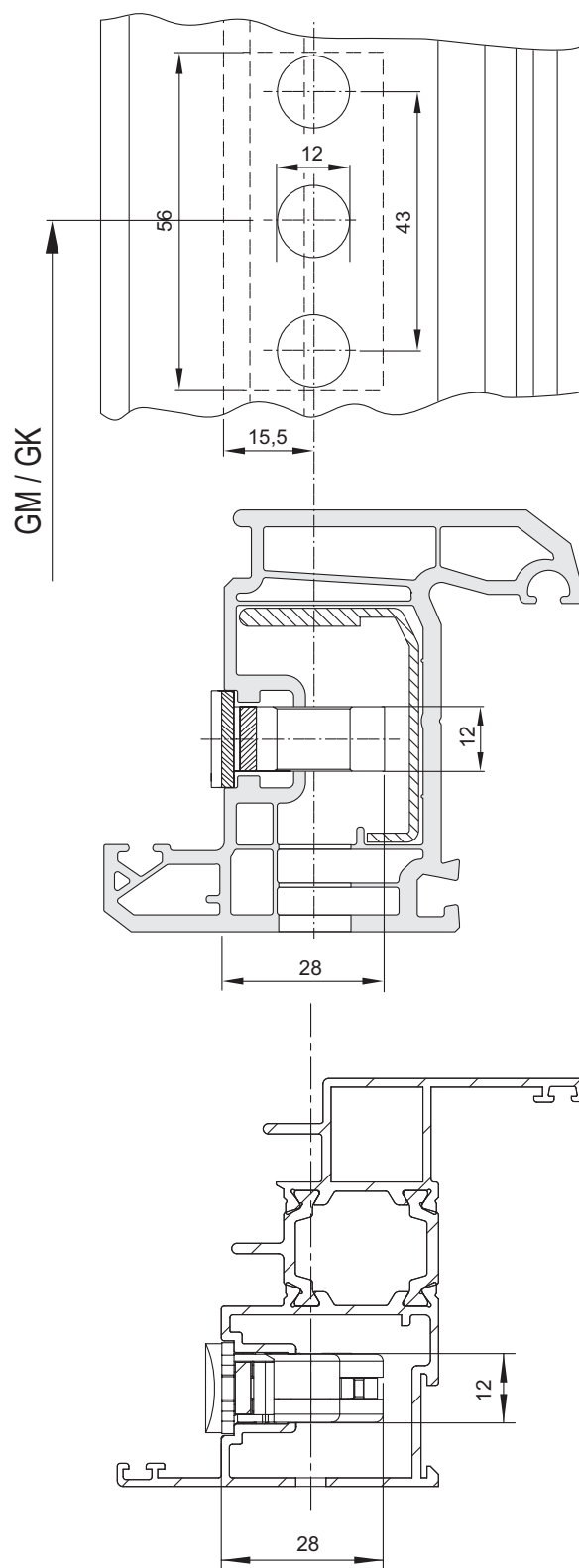
FFH	
230 – 324	GK = 114 *
325 – 420	GK = 114 *
421 – 460	GK = 210
461 – 700	GK = 210
701 – 850	GK = 260
851 – 1100	GK = 375
1101 – 1325	GK = 550
1326 – 1525	GK = 550
1526 – 1775	GK = 550
1776 – 2000	GK = 1050
2001 – 2225	GK = 1050

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

* Requires the use of E3 corner drive

See figure: Scale drawing "Gear lock"

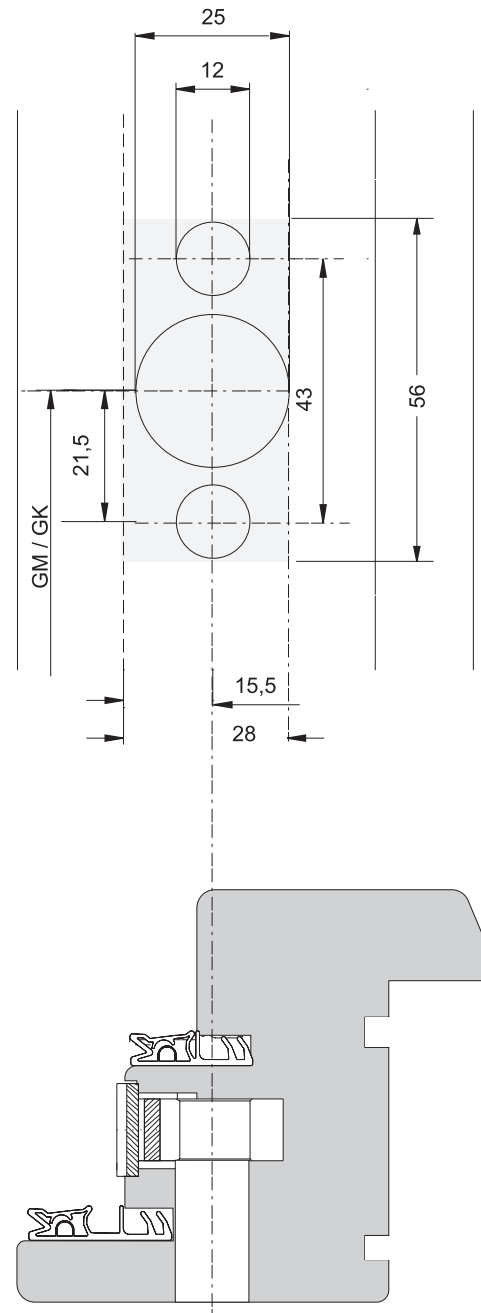
- For PVC-U and aluminium windows
- Drill holes for gear case (ø 12 mm) as per scale drawing.
- Mill the gear housing from the rebate side.



Scale drawing "Gear lock"

See figure: Scale drawing "Gear lock" for backset = 15.5 mm

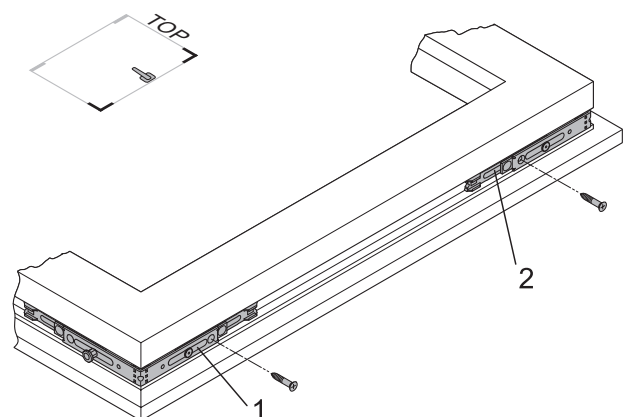
- For wooden windows
- Drill holes for gear case (ø 12 and ø 25 mm) as per scale drawing.
- Mill the gear housing from the rebate side.
- The hinge passage is located in the cross sectional area of the sash. For this reason it is necessary to use a large interior overlap gasket.



Scale drawing "Gear lock" for backset = 15.5 mm

See figure: Corner drive E1

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



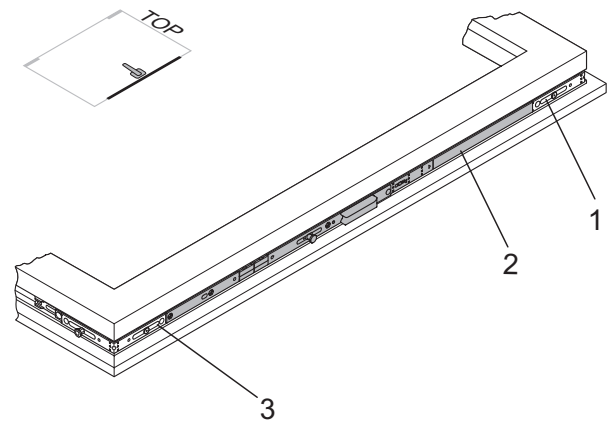
Corner drive E1

See figure: Drive rod GAM/GAK

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



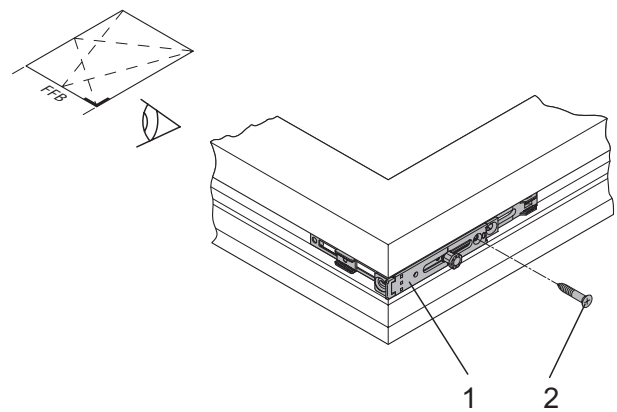
Remark: Please make sure that the installation position of the drive rod is correct!



Drive rod GAM/GAK

See figure: Mount corner hinge E3:

- Mount corner hinge E3:
 - 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.
 - Fix the corner drive vertically on the sash on the hinge side using a screw (2).
 - Measure the sash rebate width (FFB).



Mount corner hinge E3:



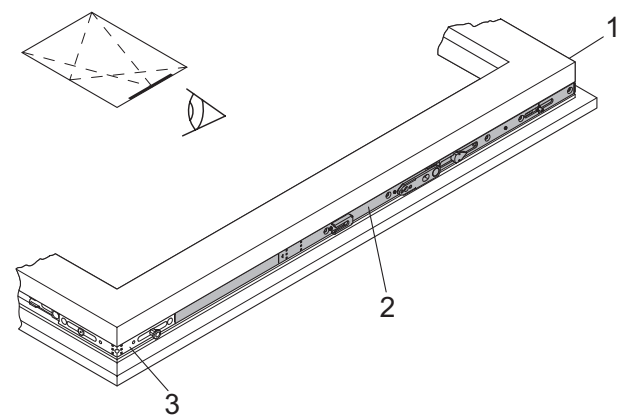
Cut the top rod (see chapter 'Shortening the fittings').

See figure: Top rod OS

- Insert the top rod and screw into position.
 - Fit the top rod flush against the corner drive (1).
 - Allow the gear teeth to click into place on the rack in the corner drive.
 - Clip the top rod into the corner drive (3) in the same way.
 - Press the top rod into the fitting groove.
 - Screw the top rod from the hinge side to the drive side.
 - Connect the top rod (2) to the corner drive (1) on the hinge side using the supplied screw.



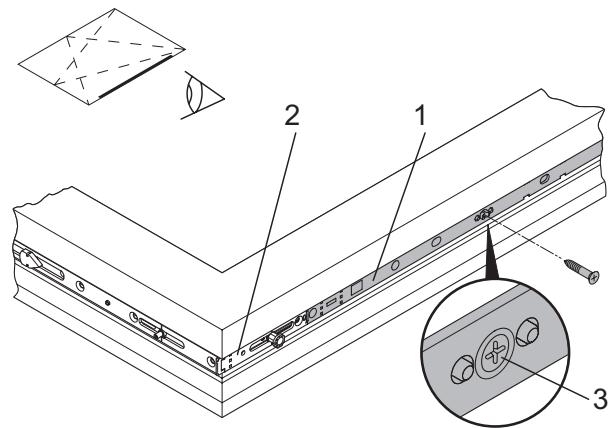
Please note: For a sash rebate height (FFH) and/or sash rebate width (FFB) of approx 1,000 mm and more, an interlocking rod should also be fitted hinge-side and/or horizontally at the base. (Observe distance between locking points according to CE certification)



Top rod OS

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

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



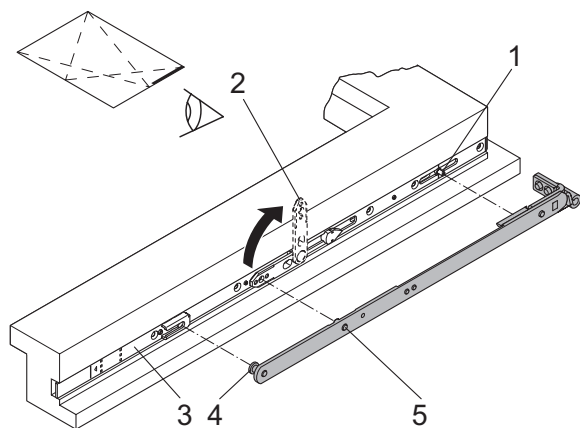
Interlocking rod M/MK (hinge side)

See figure: Shear SXL

- 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.



Shear SXL



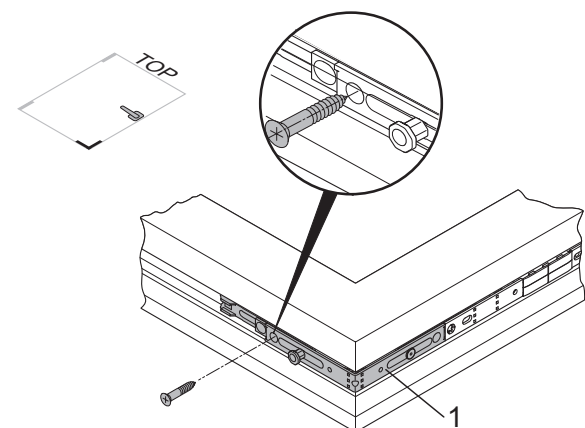
Attention! Damage to fittings. If the central fastening is not released, the gearing cannot be actuated. Use of force will lead to torsion of the fittings. Always insert the screw fully up to the stop.

See figure: Corner drive E1

- Screw the corner drive (1) in place.



Please note: The following step is not needed, if you do not fit an interlocking rod to the corner drive.



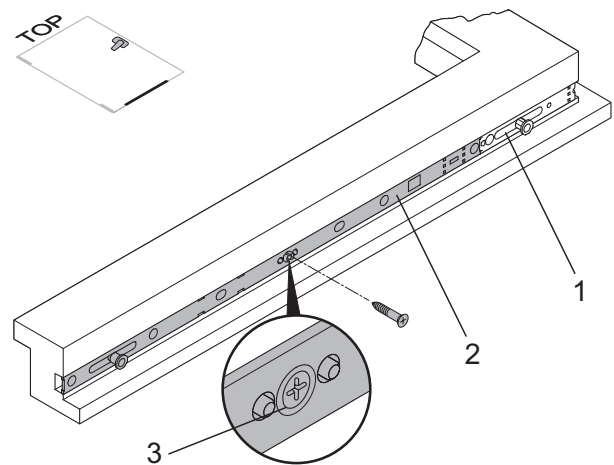
Corner drive E1

See figure: Interlocking rod M/MK (horizontal)

- Mount interlocking rod on the underside:
- Abut the interlocking rod (2) flush against the corner drive (1).
- Click the interlocking rod gears into the teeth of the corner drive.
- Press the interlocking rod into the fitting groove.
- Screw the interlocking rod from the corner drive to the centre of the window.
- Tighten the screw (3) fully to release the central fastening.



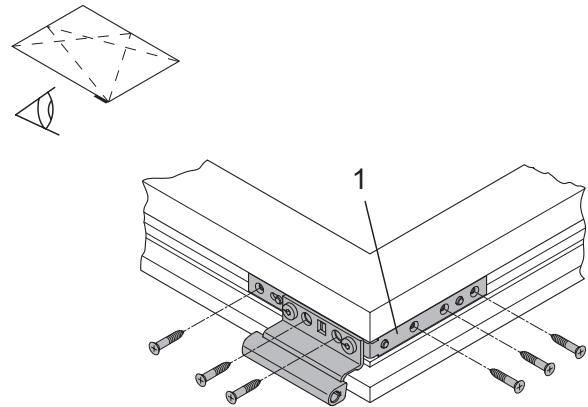
Attention! Damage to fittings. If the central fastening is not released, the gearing cannot be actuated. Use of force will lead to torsion of the fittings. Always insert the screw fully up to the stop.



Interlocking rod M/MK (horizontal)

See figure: Sash hinge FL.XL

- Insert the sash hinge (1) into the eurogroove.
- Make sure the sash hinge is fitted correctly into position.
- Fix the sash hinge on the hinge side first.
- Afterwards screw the sash hinge tight from the bottom.



Sash hinge FL.XL

See figure: Fail safe device FSF

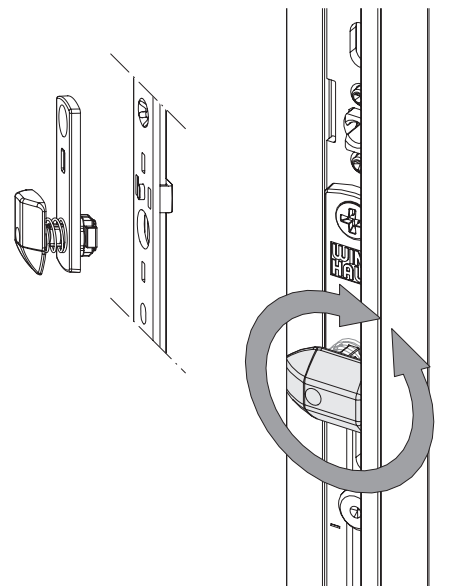
- Mount the fail safe device:
- Insert the fail safe device on the hole pattern of the drive rod and fix with a screw.
- If required, turn the head by 90° (depends on profile).
- Mounting a frame part is not necessary.

Important to know:

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



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



Fail safe device FSF

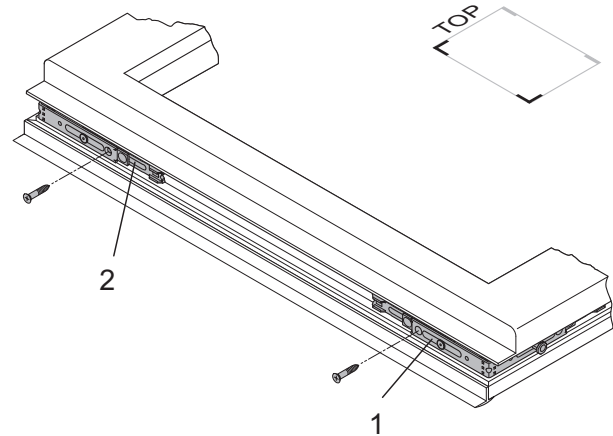
Turn double sash type – Rectangular window



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

See figure: Corner drive E1

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



Corner drives E1

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



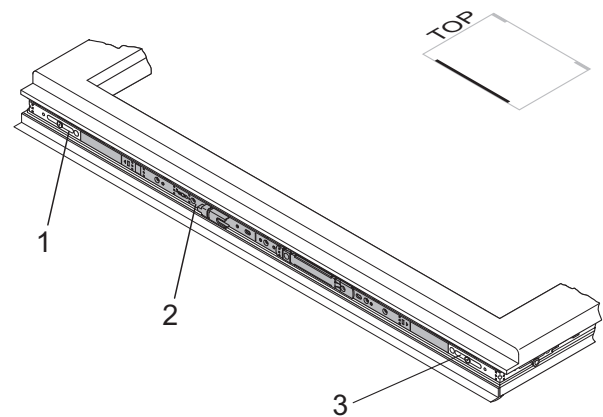
Please note: Make sure you shorten the drive rod in closed state (as delivered).

See figure: Drive rod GASM/GASK

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



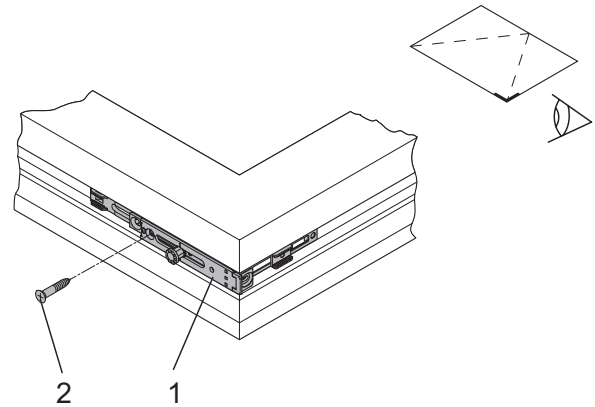
Please note: To keep a neutral position, do not perform a function test until all fittings are in place.



Drive rod GASM/GASK

See figure: Mount corner hinge E3:

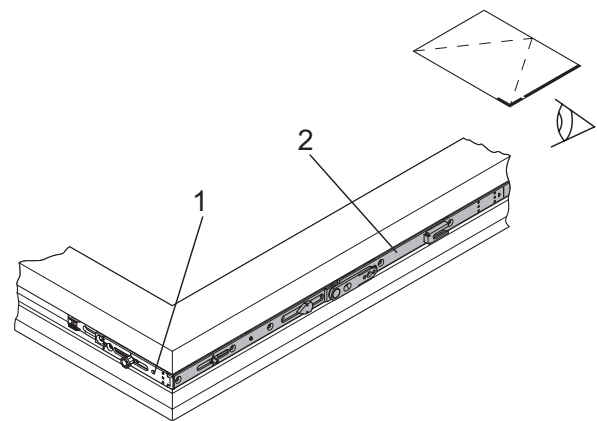
- Fit the corner drive (1) into the fitting groove at the top of the sash so that the octagonal bolt is on the hinge side.
- Fix the corner drive vertically on the sash on the hinge side using a screw (2).
- Measure the sash rebate width (FFB).



Mount corner hinge E3:

See figure: Top rod OS

- Insert the top rod and screw into position.
- Fit the top rod flush against the corner drive (1).
- Allow the gear teeth to click into place on the rack in the corner drive.
- Clip the top rod into the corner drive in the same way.
- Press the top rod into the fitting groove.
- Screw the top rod from the hinge side to the drive side.
- Connect the top rod (2) to the corner drive (1) on the hinge side using the supplied screw.



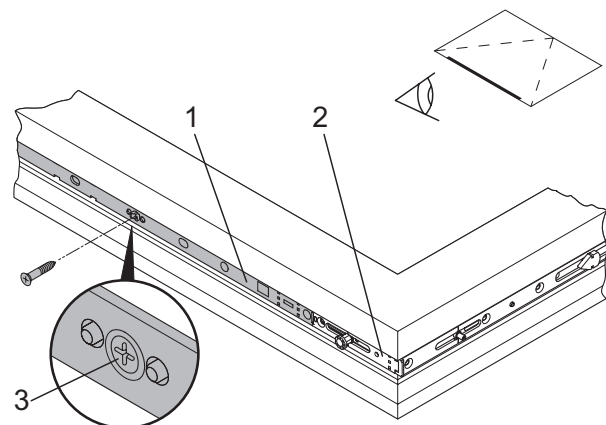
Top rod OS

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

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



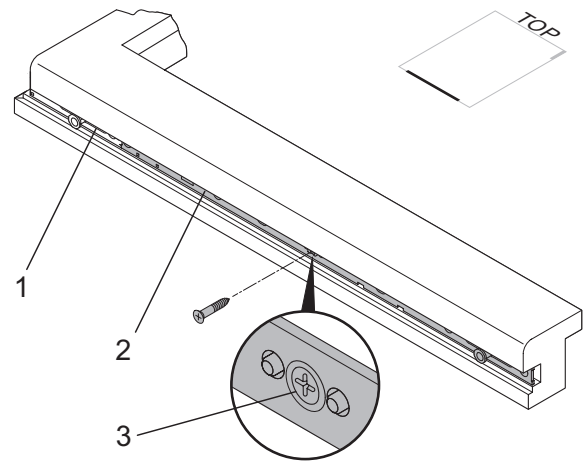
Please note: For a sash rebate height (FFH) and/or sash rebate width (FFB) of approx 1,000 mm and more, an interlocking rod should also be fitted hinge-side and/or horizontally at the base. (Observe distance between locking points according to CE certification)



Interlocking rod M/MK (hinge side)

See figure: Interlocking rod M (bottom)

- Mount interlocking rod on the underside:
- See above



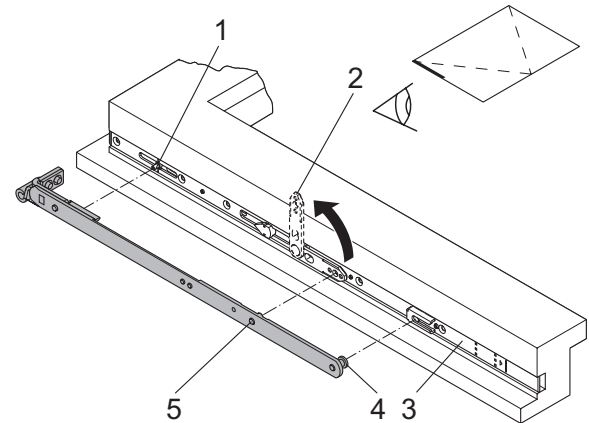
Interlocking rod M (bottom)

See figure: Shear SXL

- 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.



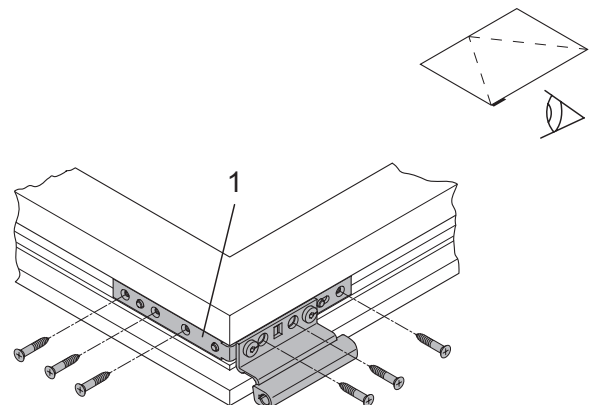
Shear SXL



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.XL

- Fitting the sash hinge:
 - Insert the sash hinge (1) into the eurogroove.
 - Make sure the sash hinge is fitted correctly into position.
 - Fix the sash hinge on the hinge side first.
 - Afterwards screw the sash hinge tight from the bottom.



Sash hinge FL.XL

Mounting of fittings on the window frame

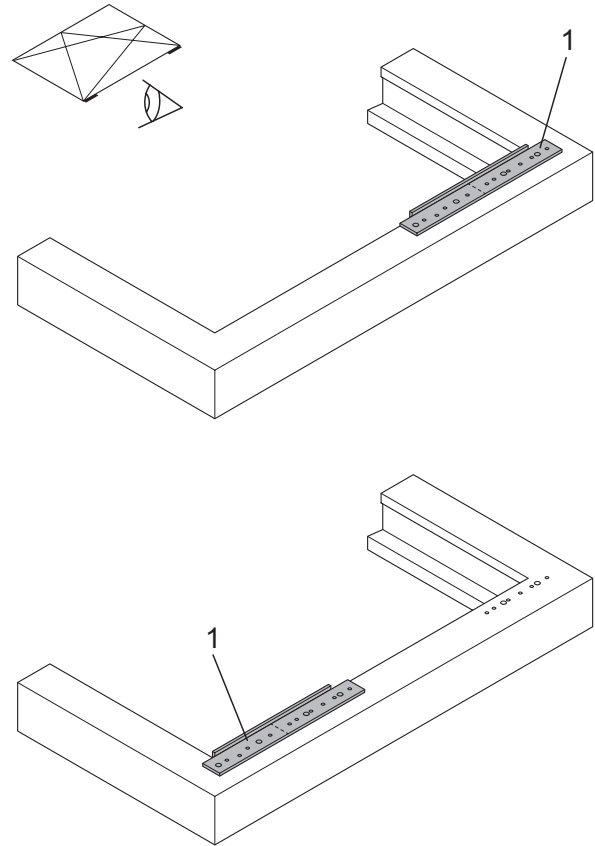
Turn-tilt sash and turn double sash – Rectangular window

See figure: Holes for corner and shear hinges

- Position the drilling jig LE.B...XL (1) in the frame corner, so that it is flush with the lateral and the top / bottom part.
- Pre-drill the holes for the shear and corner hinges as well as the positioning pins (positioning pins Ø 8 mm).
- The bottom hole in the shear hinge area is intended for fixing the pin-securing device STS.



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.



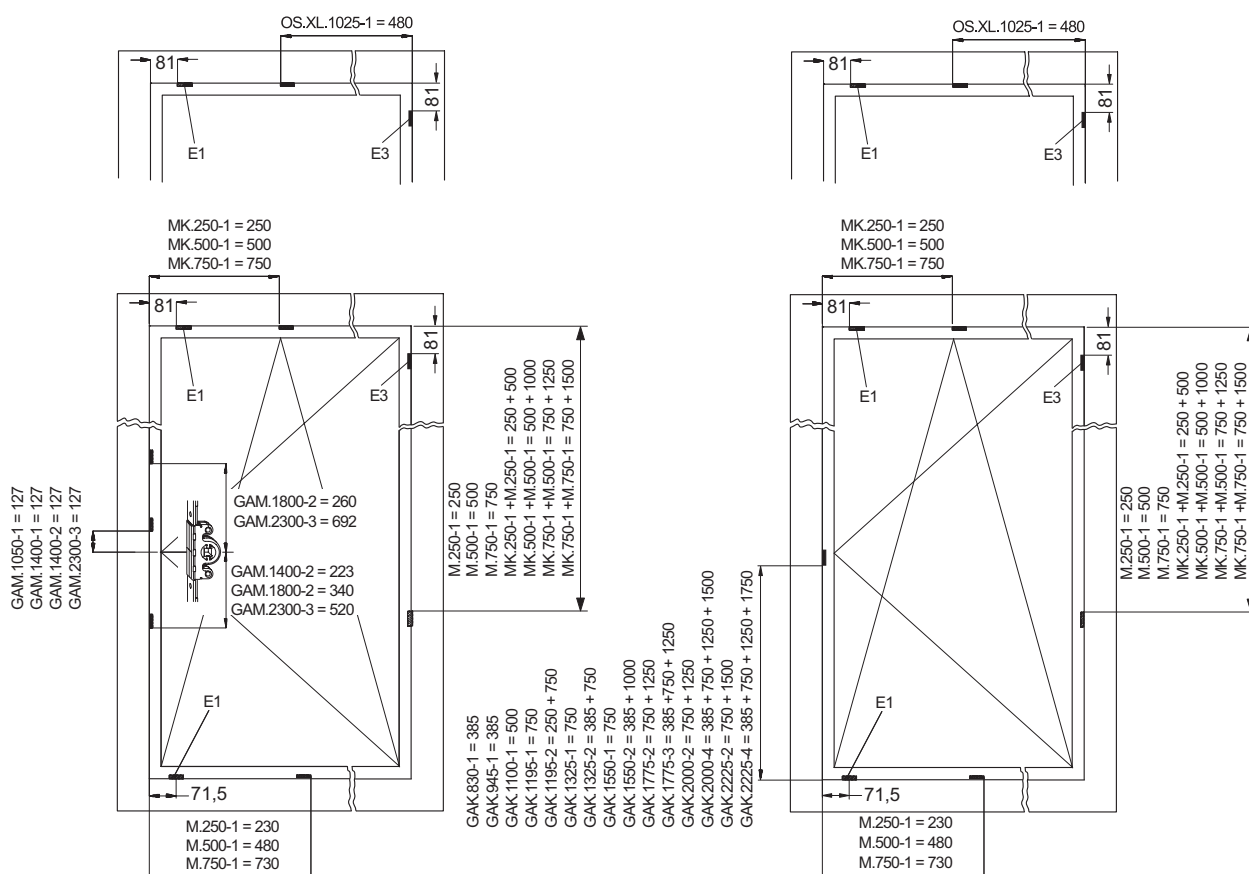
Note: The dimensions shown in the figures refer to the frame rebate edge to keep profile edge or frame centre to the keep!

Only frame parts which are suitable for the profile concerned and which have been approved by Winkhaus may be used. The use of frame parts not developed especially for the frame profile concerned is not permitted and excludes us from any liability. Please read the notes on the maximum sash weight in Group 1 (General Product Information).

Turn-tilt window

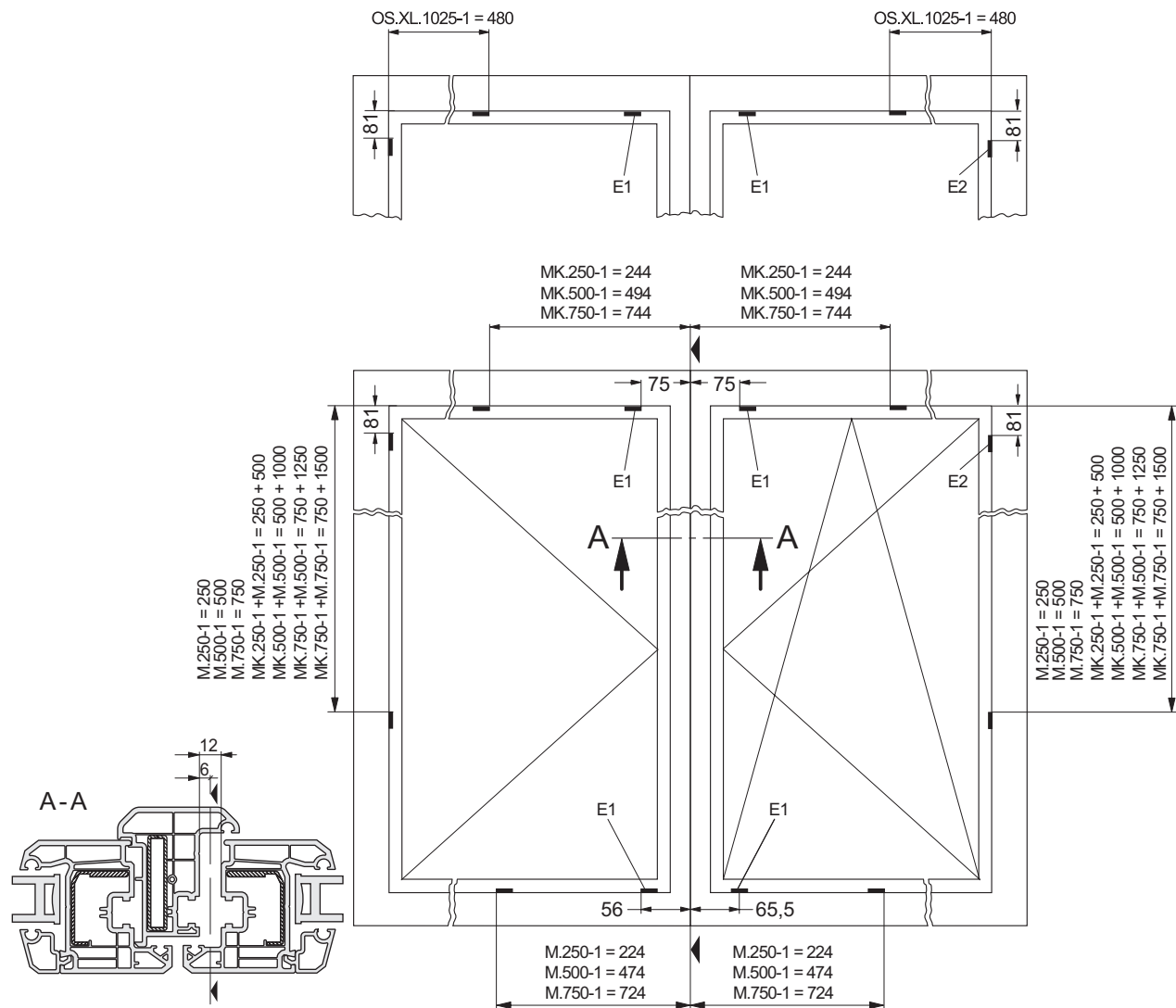
GAM...

GAK...



The illustration GAM.../GAK... shows the keep positions for backsets D15.5, D7.5 and D25-50. They also apply to GAMA/GAKA drive rods.

Turn double sash type



Keep positions, double sash window D/DK

Fitting the keeps



For positioning the keeps, please refer to the activPilot Concept product catalogue!

Mounting shear and corner hinges

See figure: Shear and corner hinges

- Insert the shear hinge (2) and the corner hinge (3) into the suitable pin holes and screw in place.



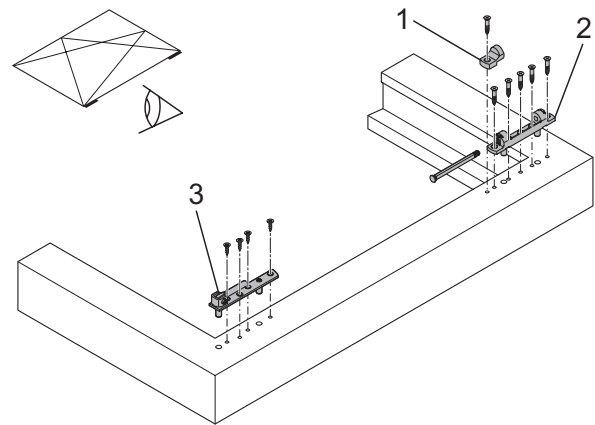
Please note: Window builders must ensure that hinges and their anchorings are designed to support the expected loads and are professionally mounted.



Please note: The pin securing device STS (1) must only be installed after fitting the sash.



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.



Shear and corner hinges

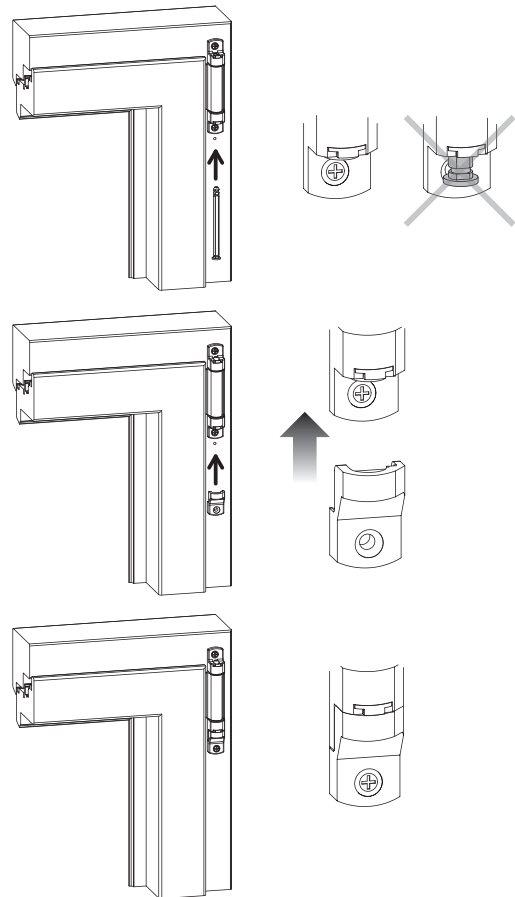
Fitting the sash

Engaging the sash at the top

- Mount the sash, adjust for a good seal and fit the pin to secure against the shear hinge.
- Screw on pin securing device STS



Fitting and removal of the sash may only be performed by trained specialists. Due to the heavy sash weight this procedure requires at least 2 persons!



Secure the pin and screw on the pin securing device.

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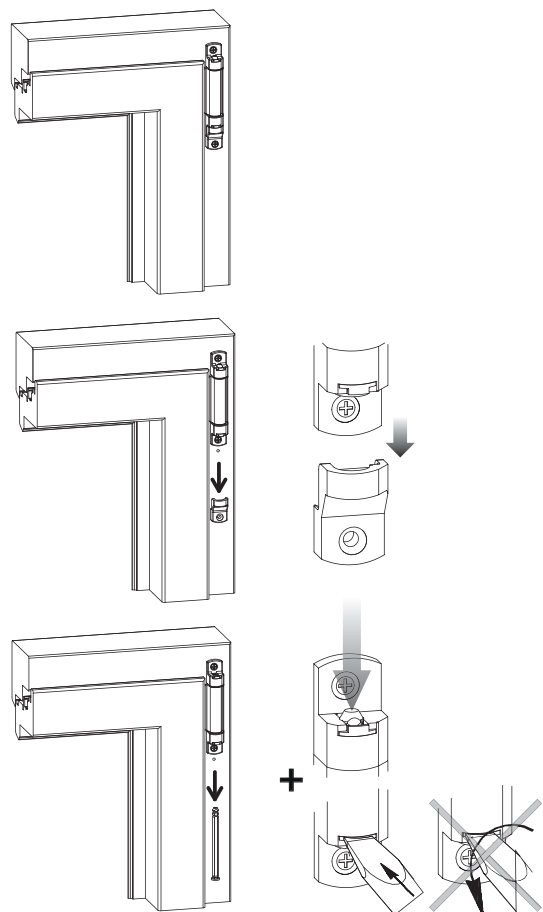
Removal of the sash

Disengaging the sash at the top

- Close the sash.
- Remove pin securing device STS.
- Unblock the bottom blocking plate by pressing it with a screwdriver, at the same time press out the the shear hinge pin from top down.
- 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

Function test / Operation

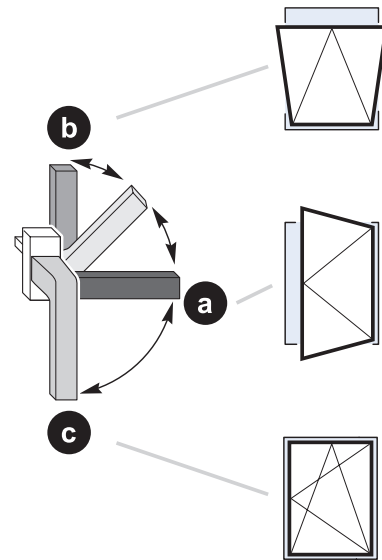
Turn-tilt type

See figure: Function test turn-tilt window

- Place the handle and operate once as follows to release the central fastening.
- Push the handle down (c). The window is closed.
- Move the handle to the central position (a). The window is unlocked; the sash can now be opened fully.
- Close sash. Push the handle up (b). The window is unlocked; the sash can now be tilted.



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



Function test turn-tilt window

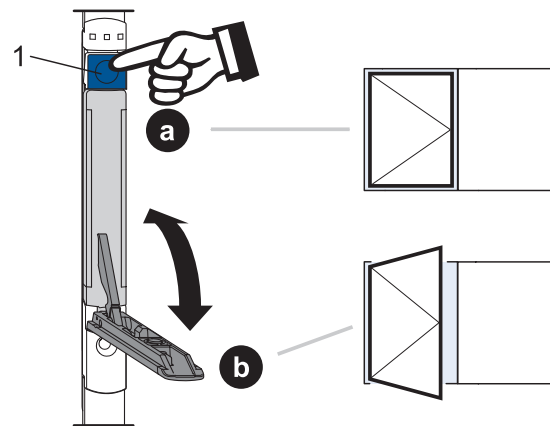
Turn double sash type

See figure: Function test turn double sash window

- Actuate the handle as follows to release the central fastening.
- Press the unlocking button (1) and press the lever down to its limit position.
- The window is unlocked; the sash can now be opened fully.



Please note: When you lift the lever for the first time, the gearing is "unblocked" and coupling to the connected fittings is established. Thus, the initial actuation is not as smooth as in normal operations. A clicking noise will be heard during initial actuation. Keep the window closed during actuation.

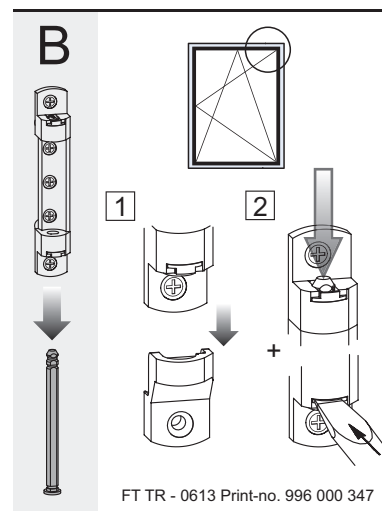
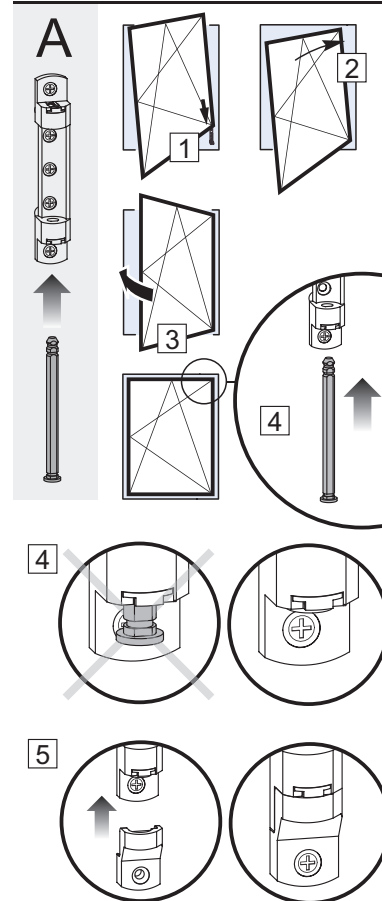


Function test turn double sash window

Notes on professional fitting and removing of sashes

See figure: Mounting advice

- 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.
- Fitting and removal of the sash may only be performed by trained specialists. Due to the heavy sash weight this procedure requires at least 2 persons!



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Mounting advice

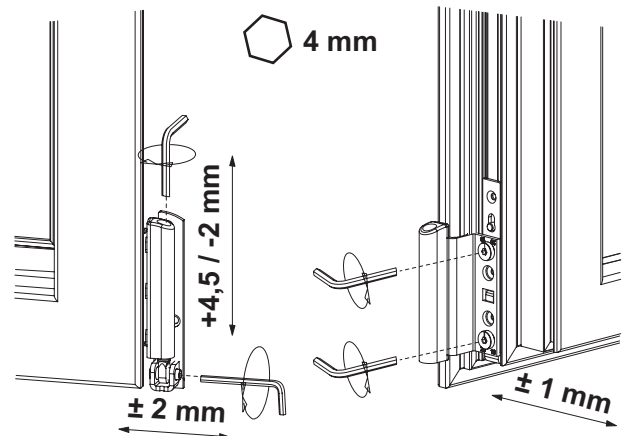
Adjustment options

Corner hinge/sash hinge

Height adjustment (+4.5/-2 mm) of the sash hinge and side adjustment (± 2 mm) of the corner hinge. In case of heavy loads and unfavourable width-to-height ratios we recommend you to open the sash 90° to the turn position in order to perform the lateral adjustment from the internal side. Regulating the contact pressure between sash and frame (± 1 mm) on the sash hinge. All adjustments are carried out by means of a 4 mm Allen key.

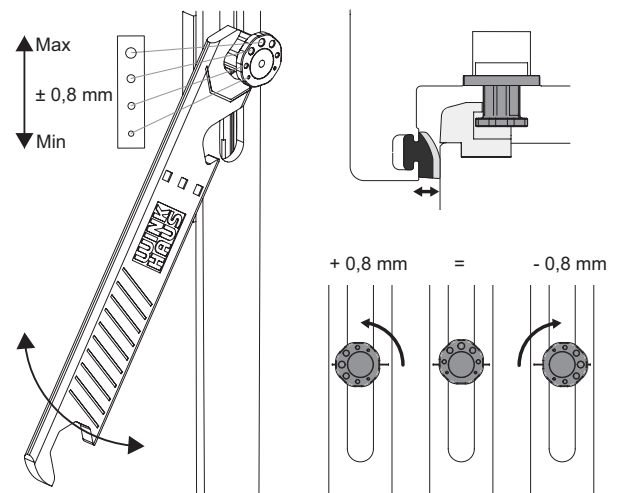


Important: After adjustment of the pressure the eccentric marks must be parallel to each other!



Octagonal bolt

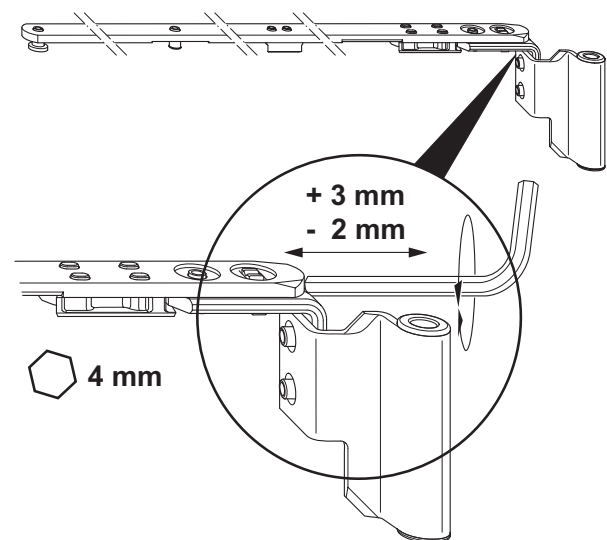
Regulate the contact pressure between the sash and the frame (± 0.8 mm) by turning the octagonal bolt. The adjustment can be carried out by means of the Winkhaus adjustment key (V.ST.SCH.HV-11).



Octagonal bolt

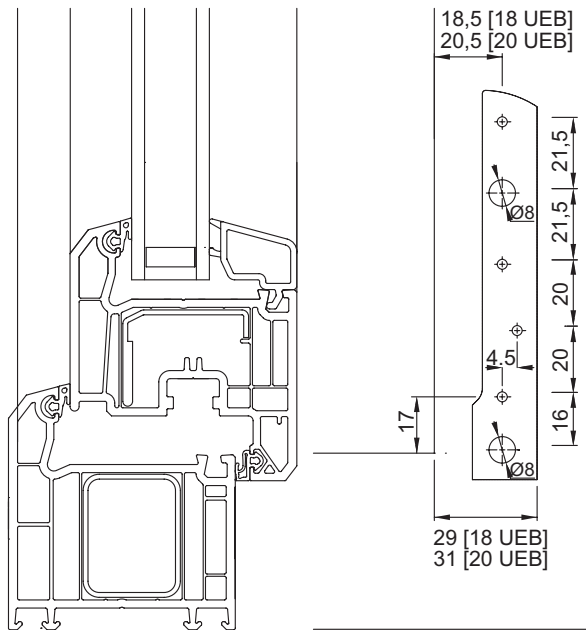
Shear - Rectangular window

Lifting and lowering the sash (from +3 mm to -2 mm) by means of a 4 mm Allen key

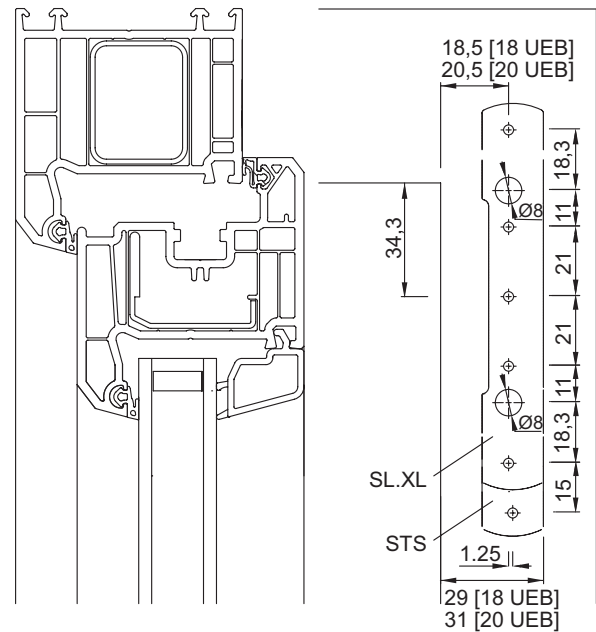


PVC-U window

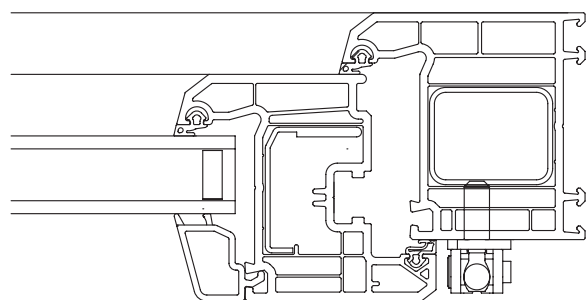
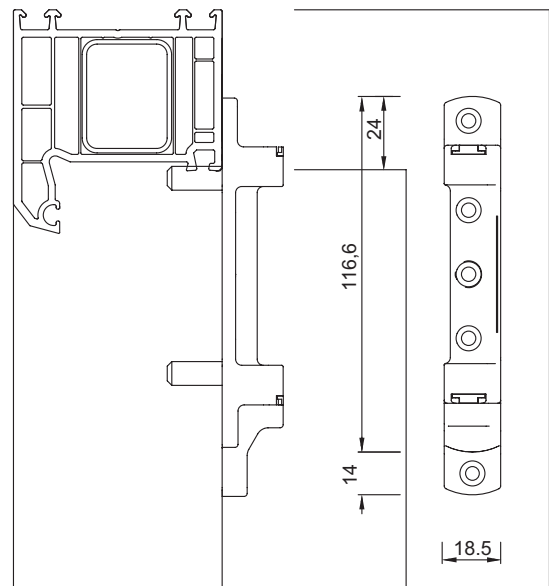
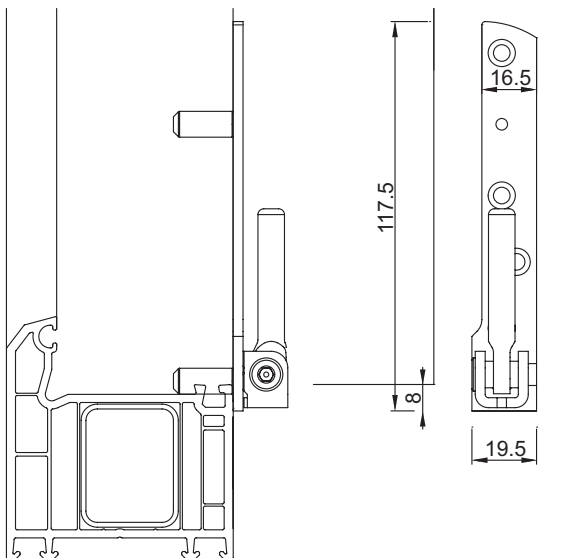
Corner hinge



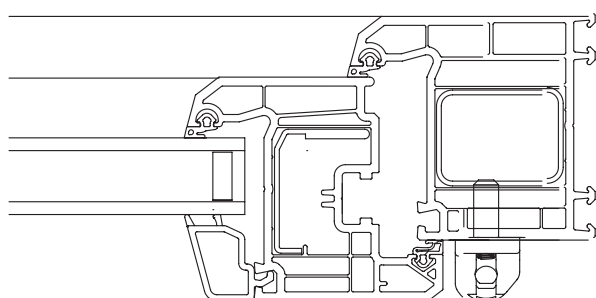
Shear hinge



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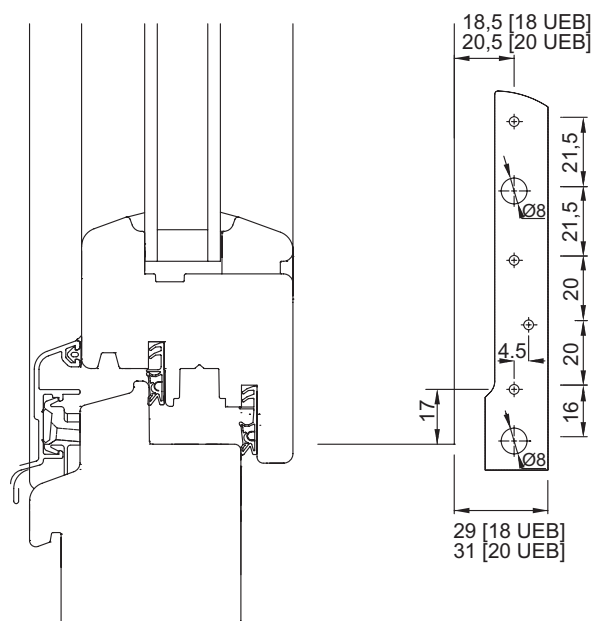
Drilling template corner hinge EL.XL
UEB = overlap



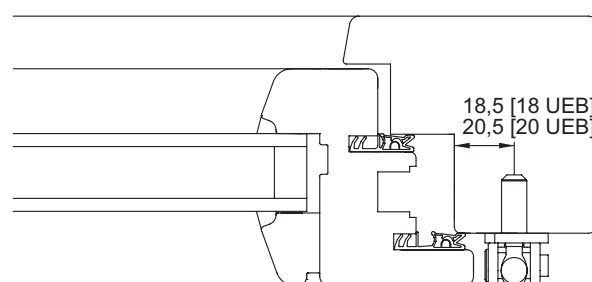
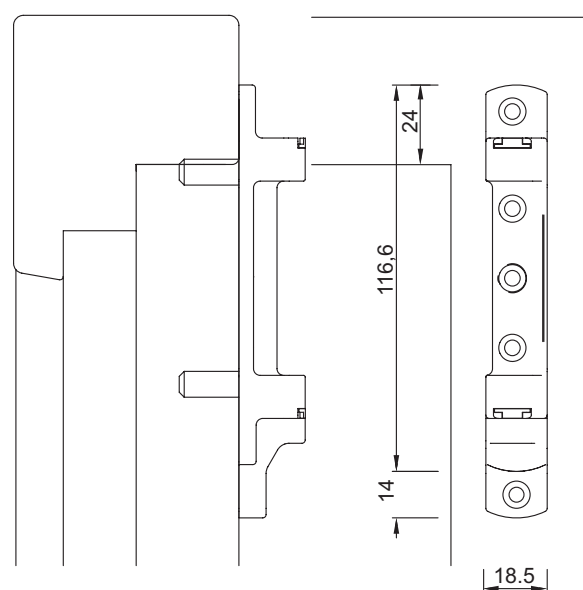
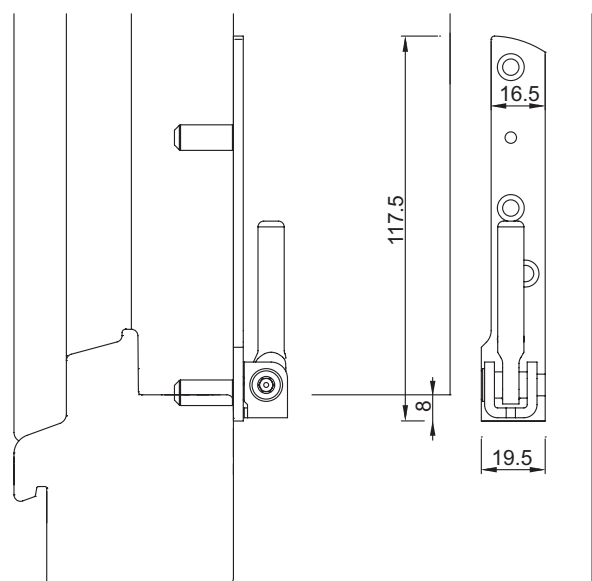
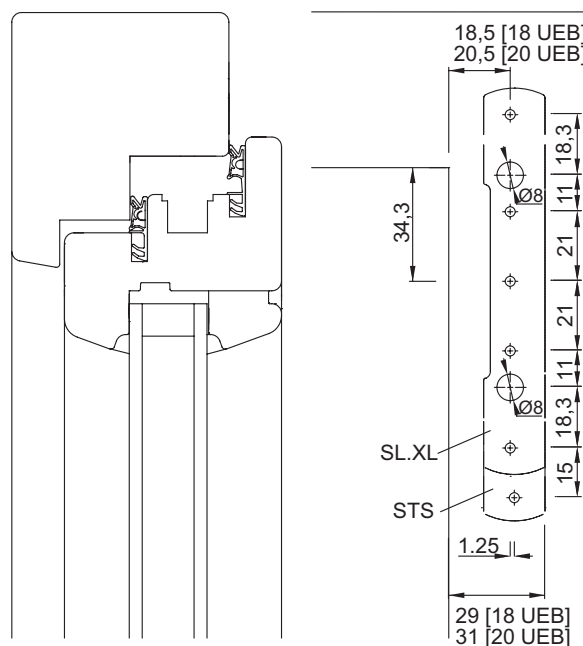
Drilling template shear hinge SL.XL
UEB = overlap

Wooden window

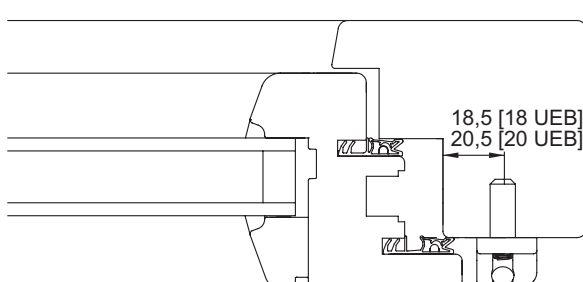
Corner hinge



Shear hinge



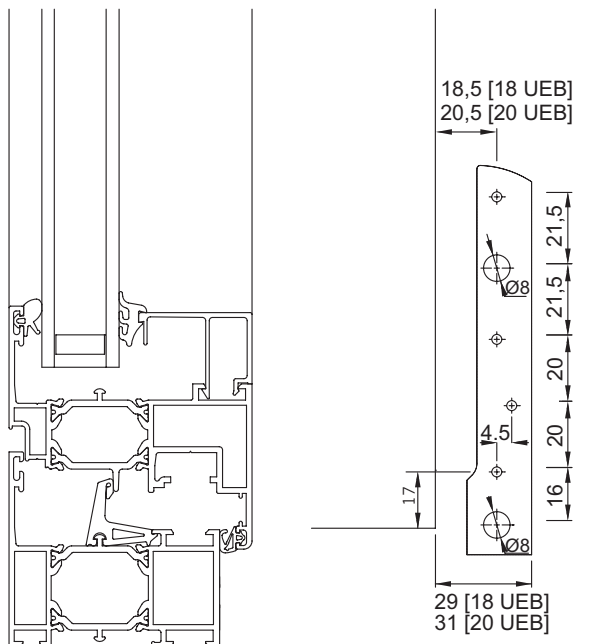
Drilling template corner hinge EL.XL
UEB = overlap



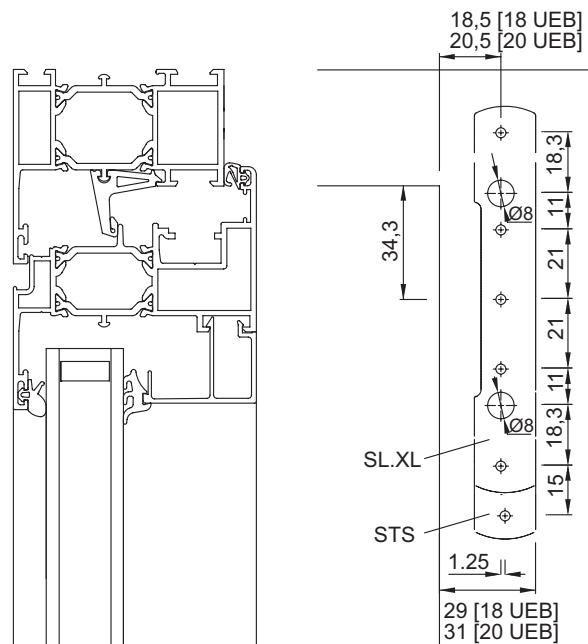
Drilling template shear hinge SL.XL
UEB = overlap

Aluminium windows

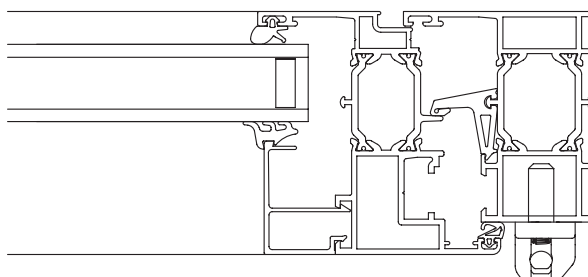
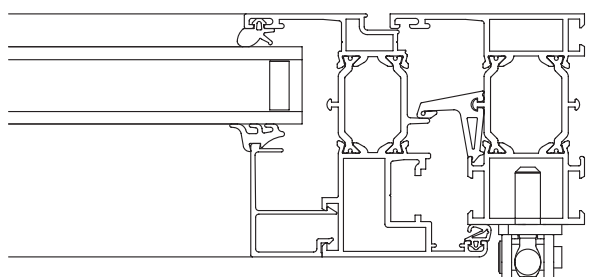
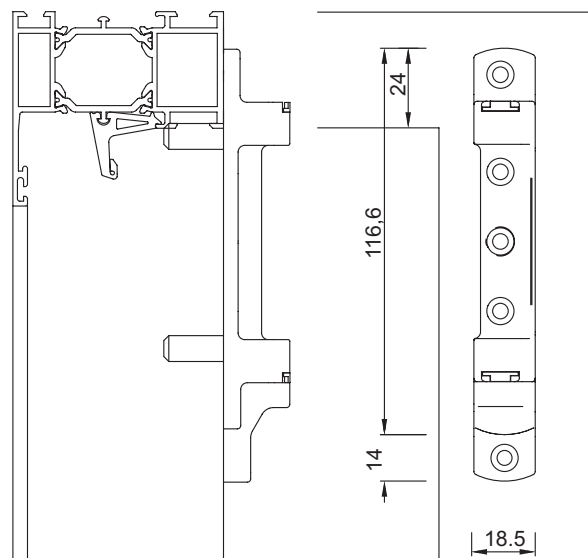
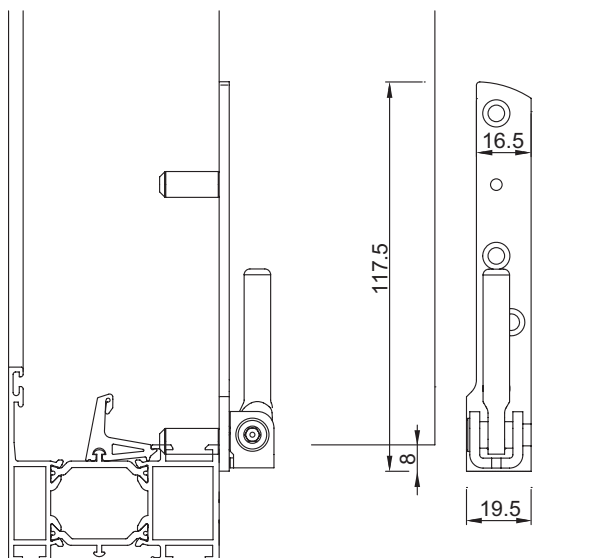
Corner hinge



Shear hinge



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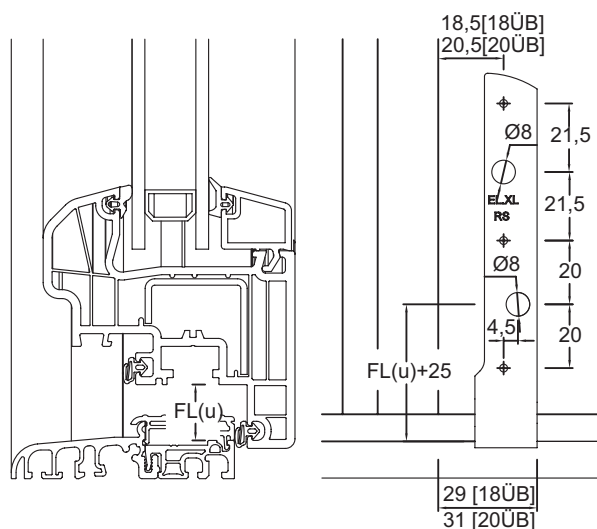


Drilling template corner hinge EL.XL
UEB = overlap

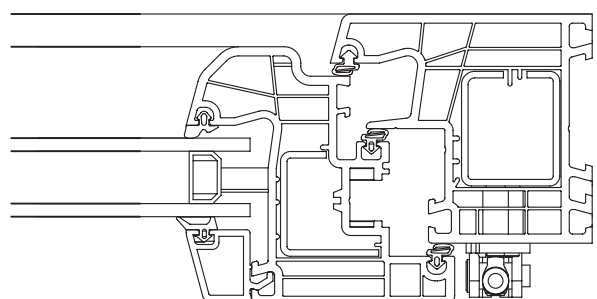
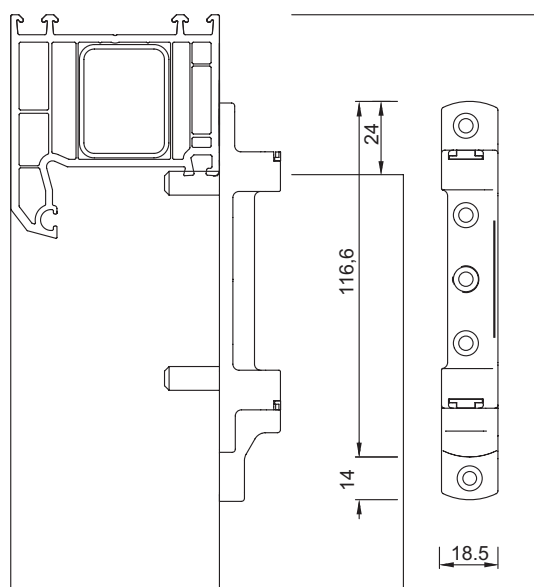
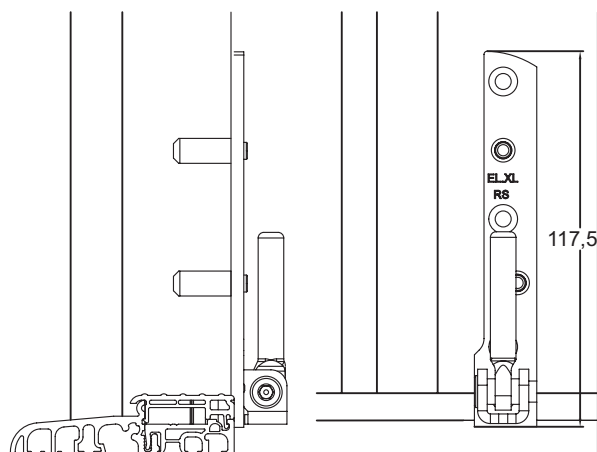
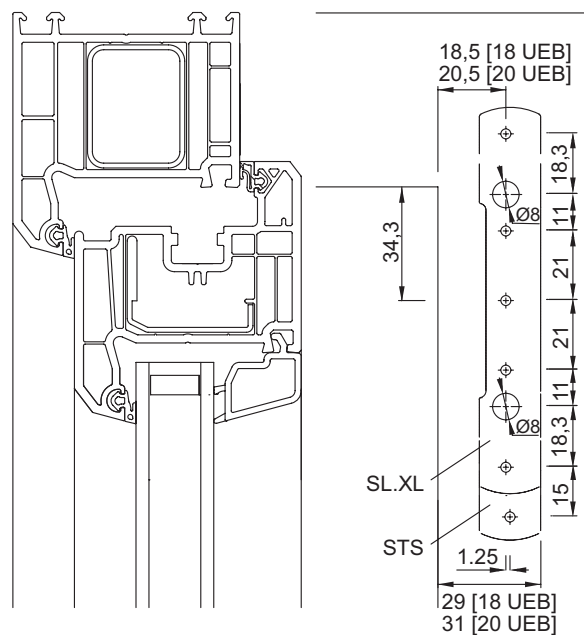
Drilling template shear hinge SL.XL
UEB = overlap

Low threshold PVC-U doors

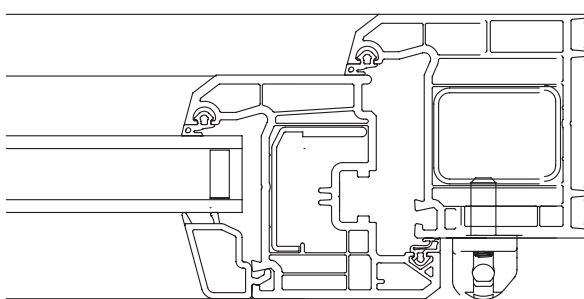
Corner hinge



Shear hinge



Drilling template corner hinge EL.XL...BS
 UEB = overlap
 FL(u) = Airgap bottom



Drilling template shear hinge SL.XL
 UEB = overlap

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