# KAPTAIN

ARCHITECTURAL KEY FRAMES

# Technical catalogue

# Product drawings

# Installation guidelines

# Hardware adjustments

FEBRUARY 2024

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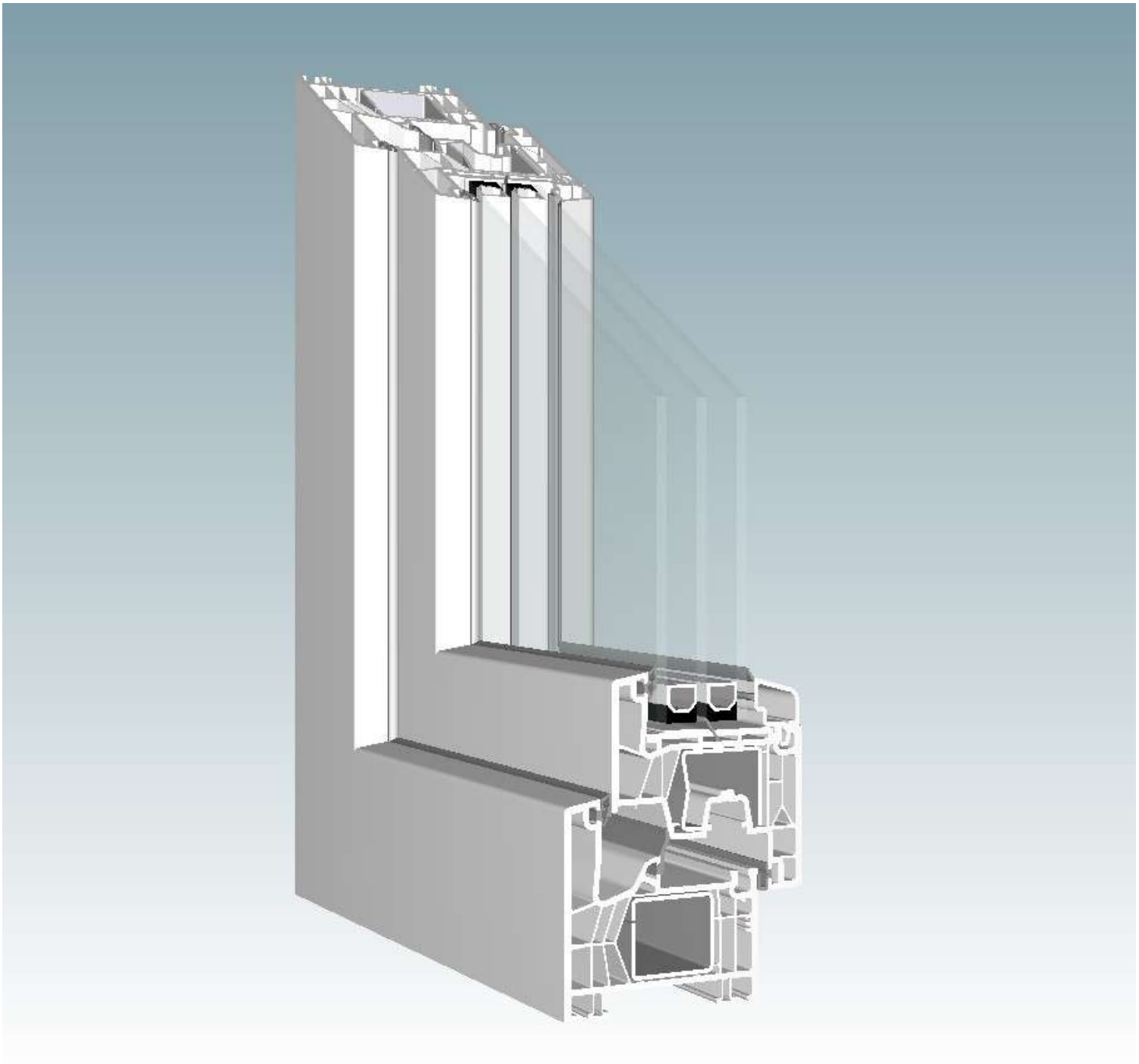
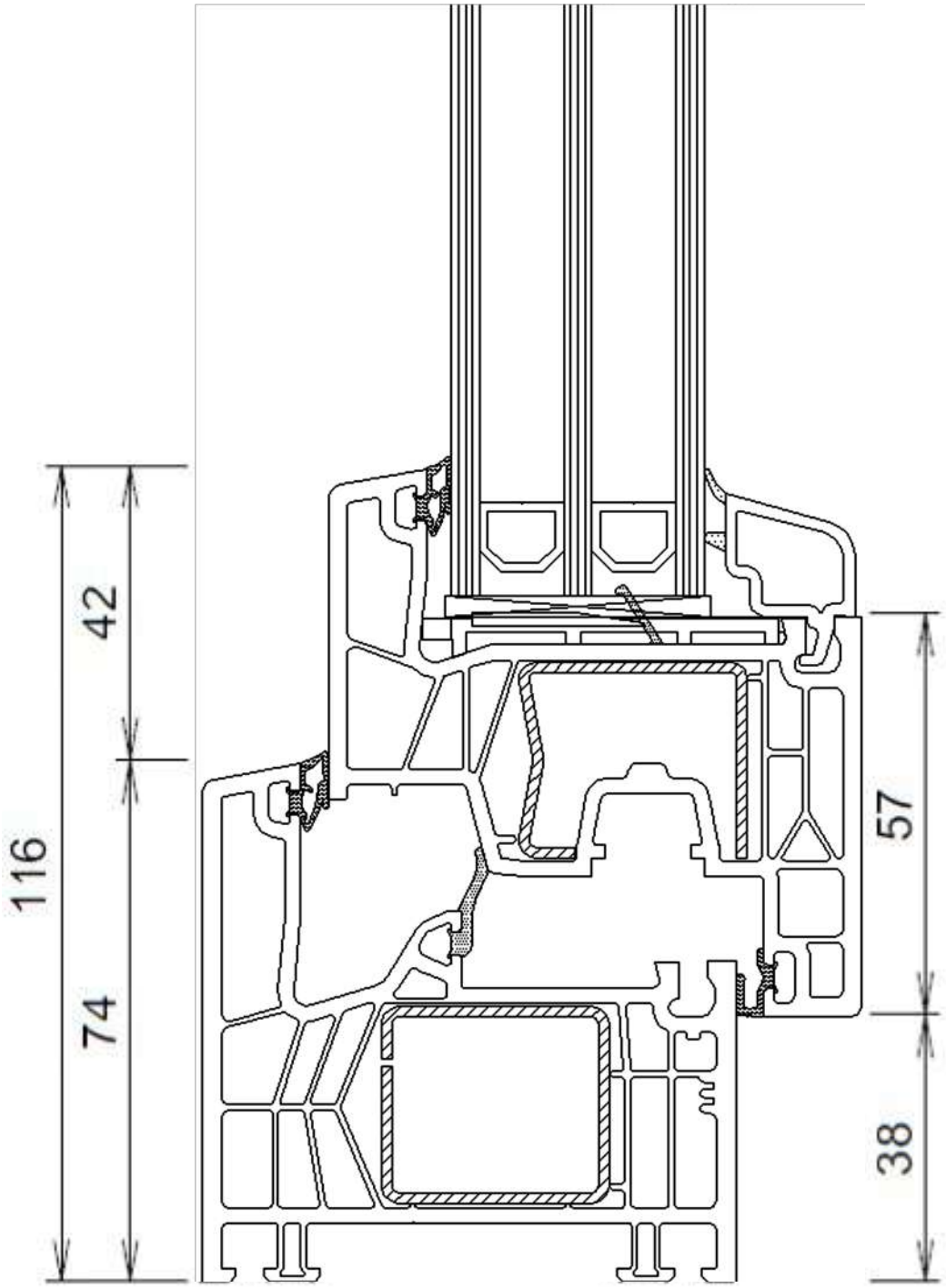


Premium KN76 Series with standard frame
for new constructions 3D

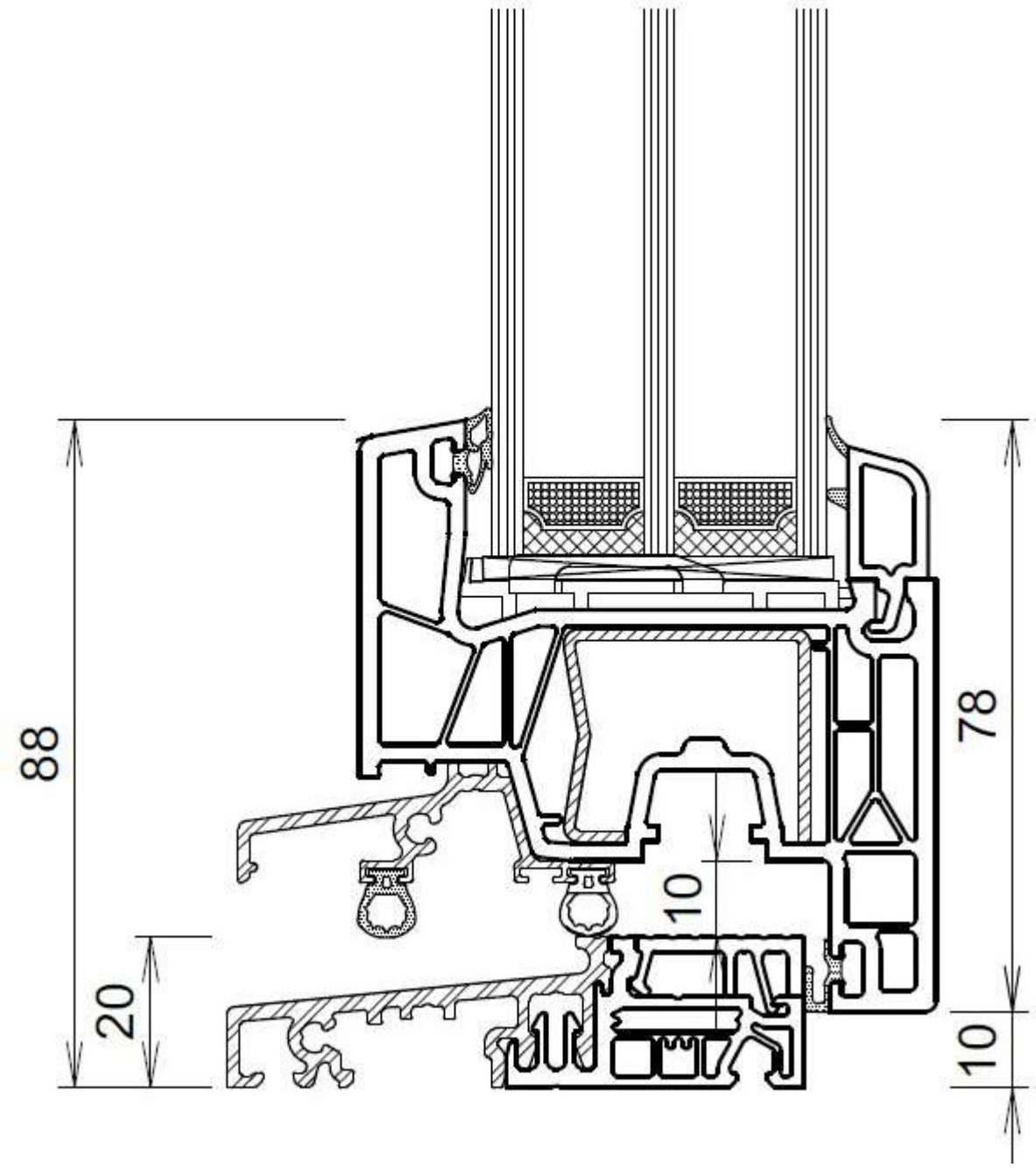
# Tilt and turn and constructions with fixed elements

## Premium KN76



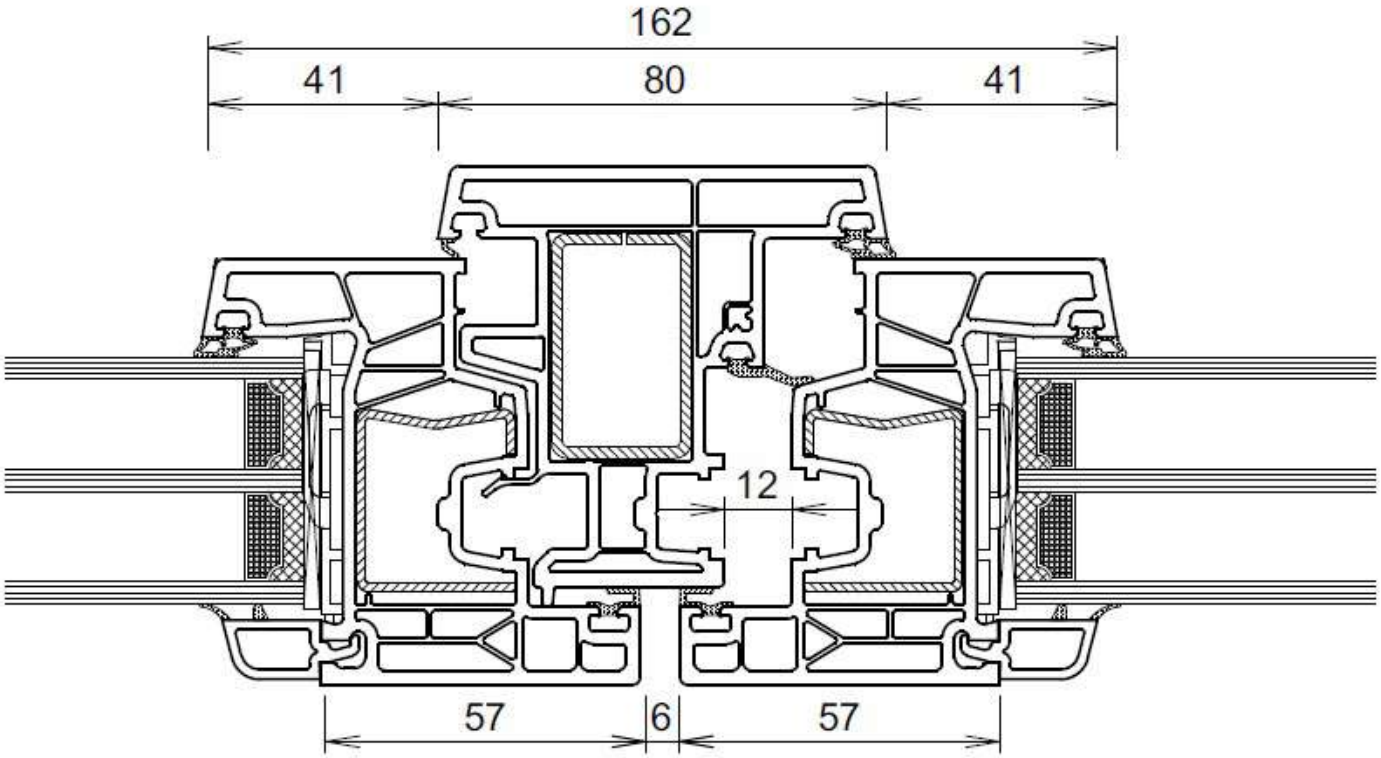

Construction depth is 76mm

Min 10mm clearance from FFL



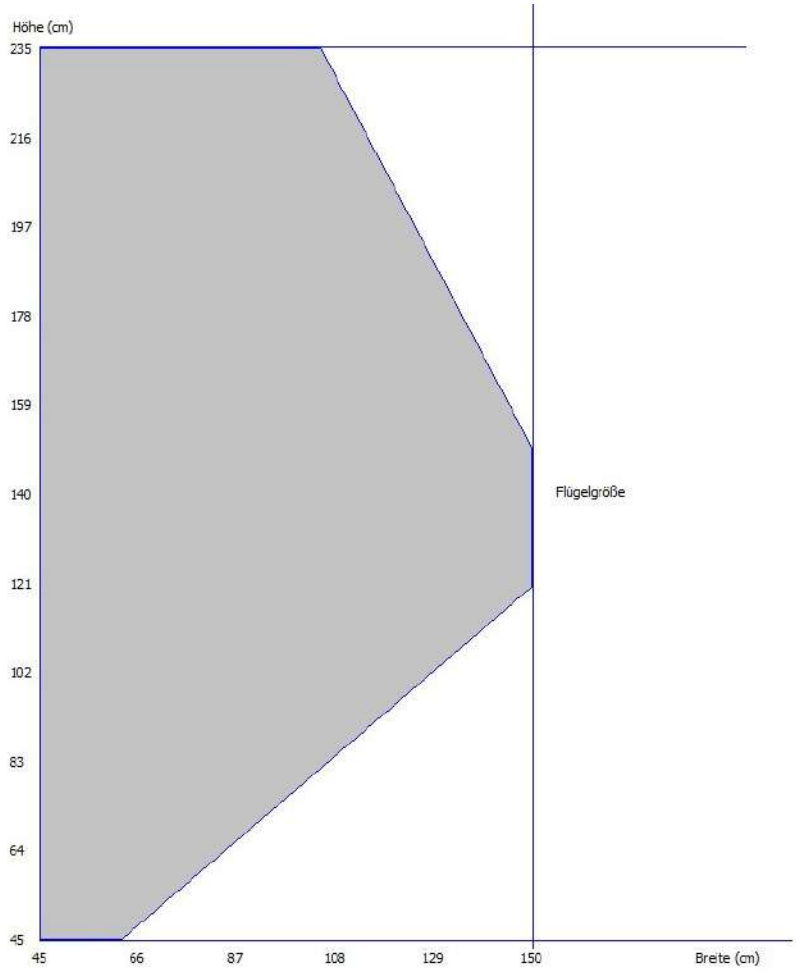

Premium KN76 low sill section cut.

Sill cannot be buried!!

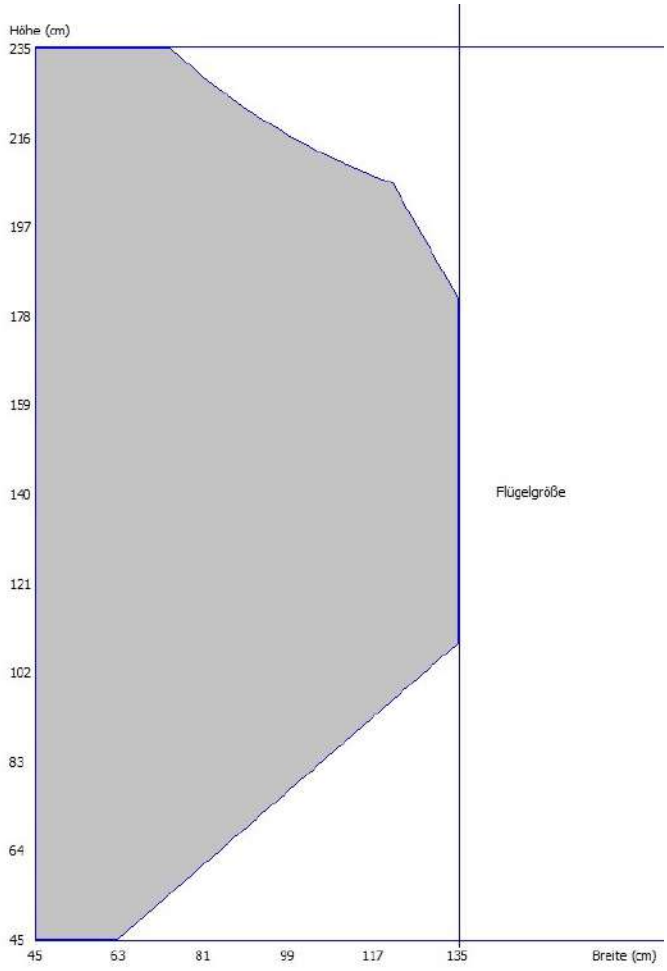



# Premium KN76 floating mullion.

# Possible with one or two handles

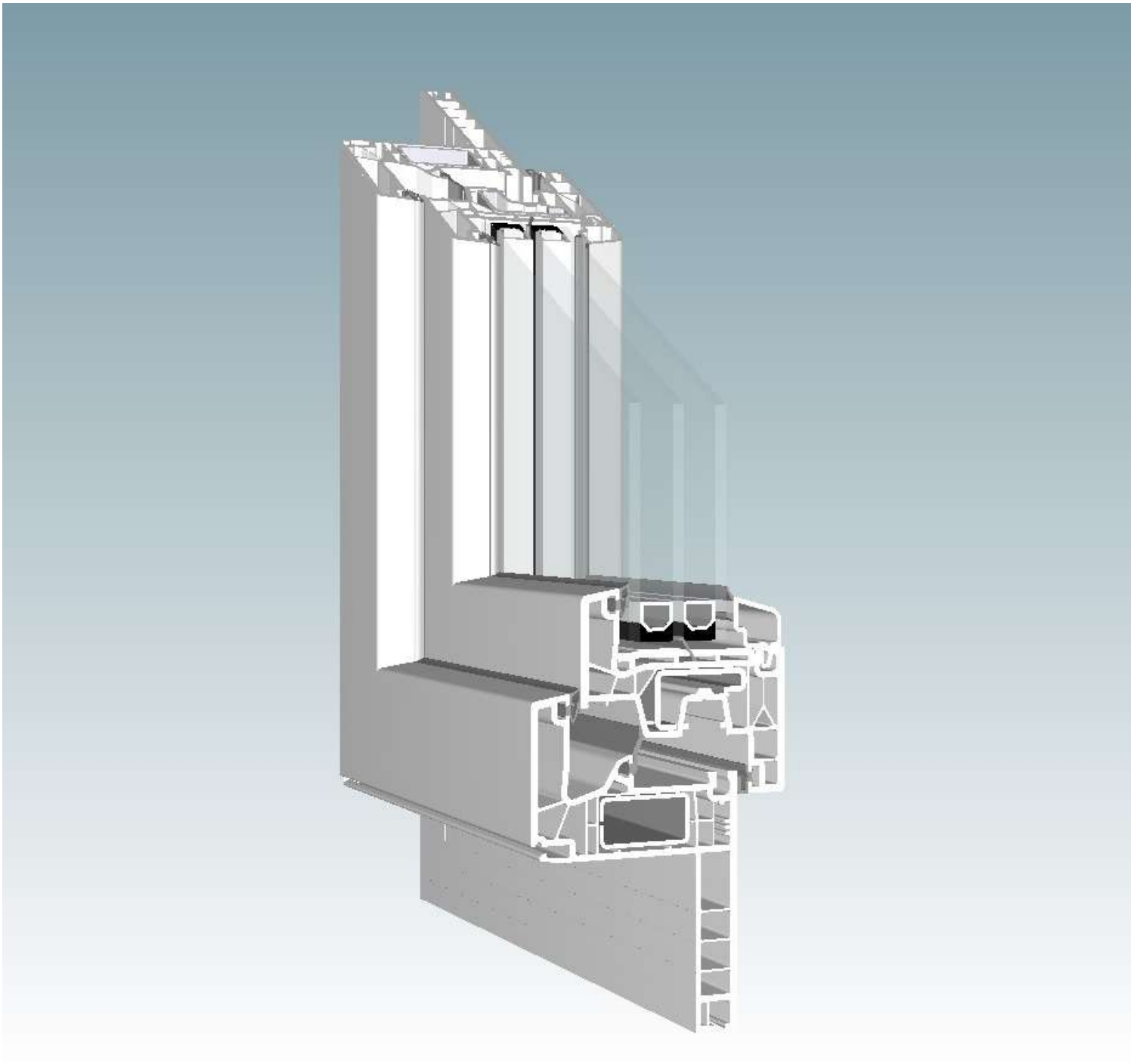



Single sash element restrictions




Double sash element restrictions

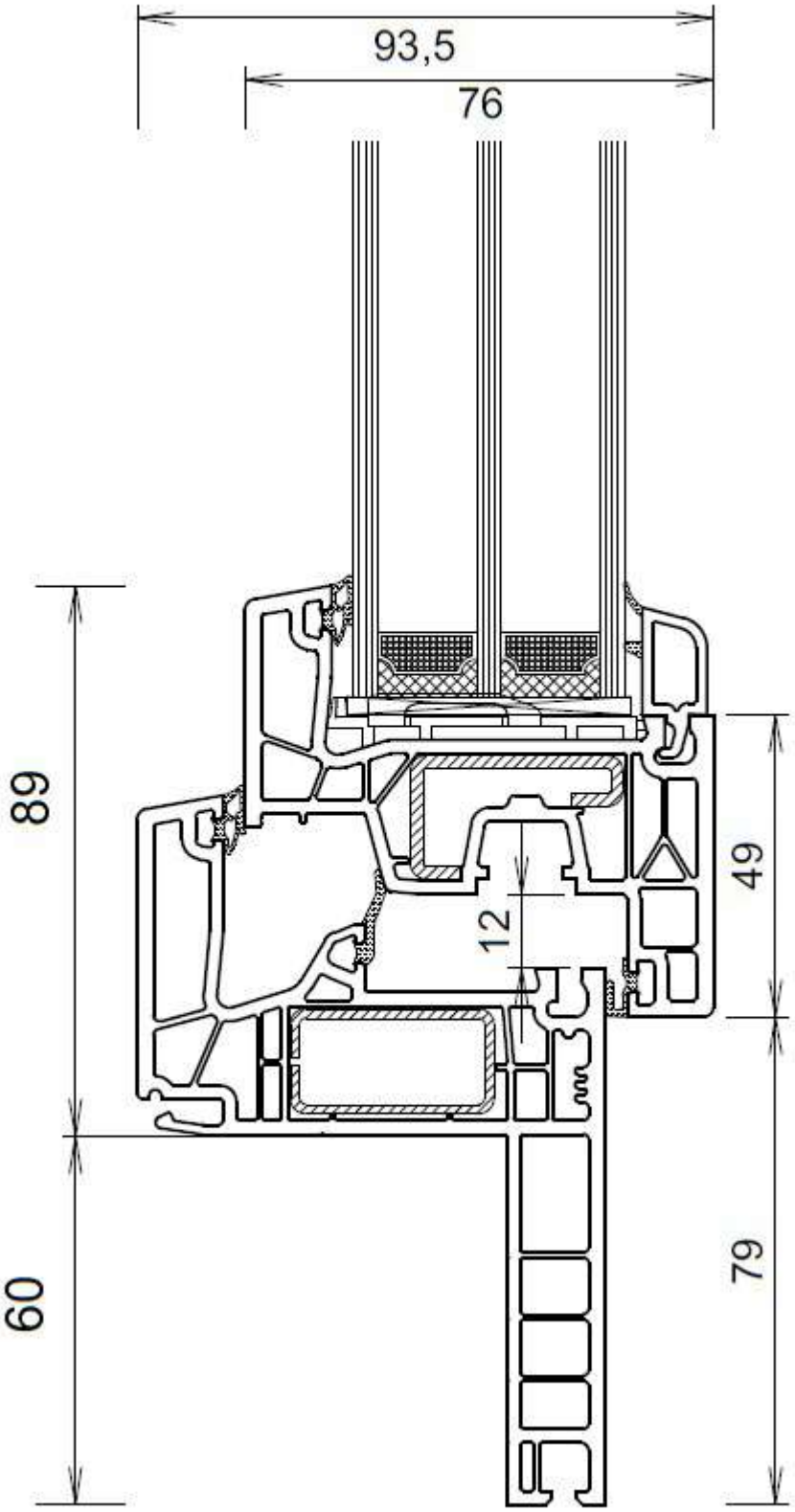
Attention!! Glass weight, wind load capacity or other factors are taken into account when sizing elements. Advise our team before finalizing .



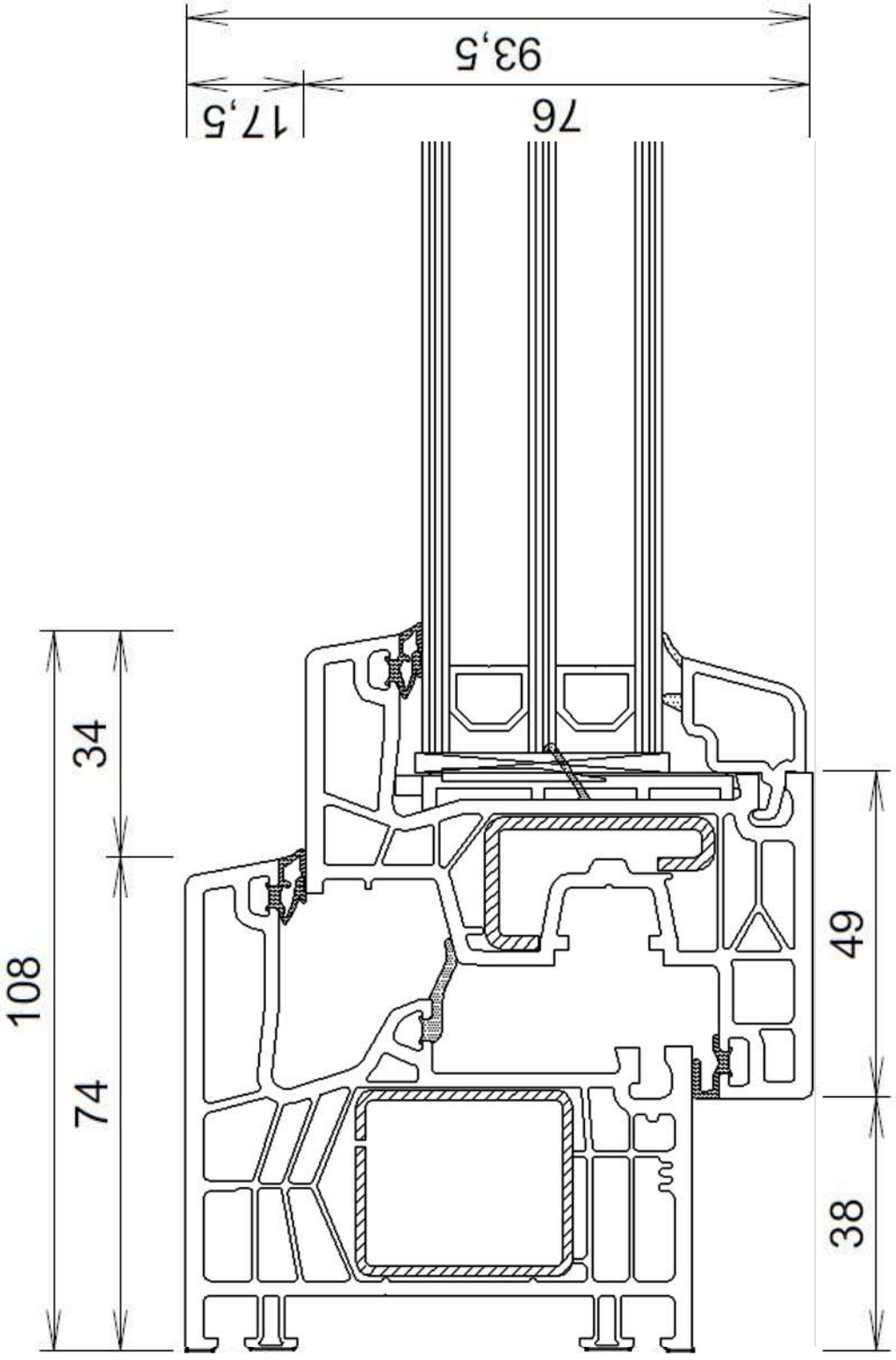
Advanced KR76 Series with renovation frame 3D

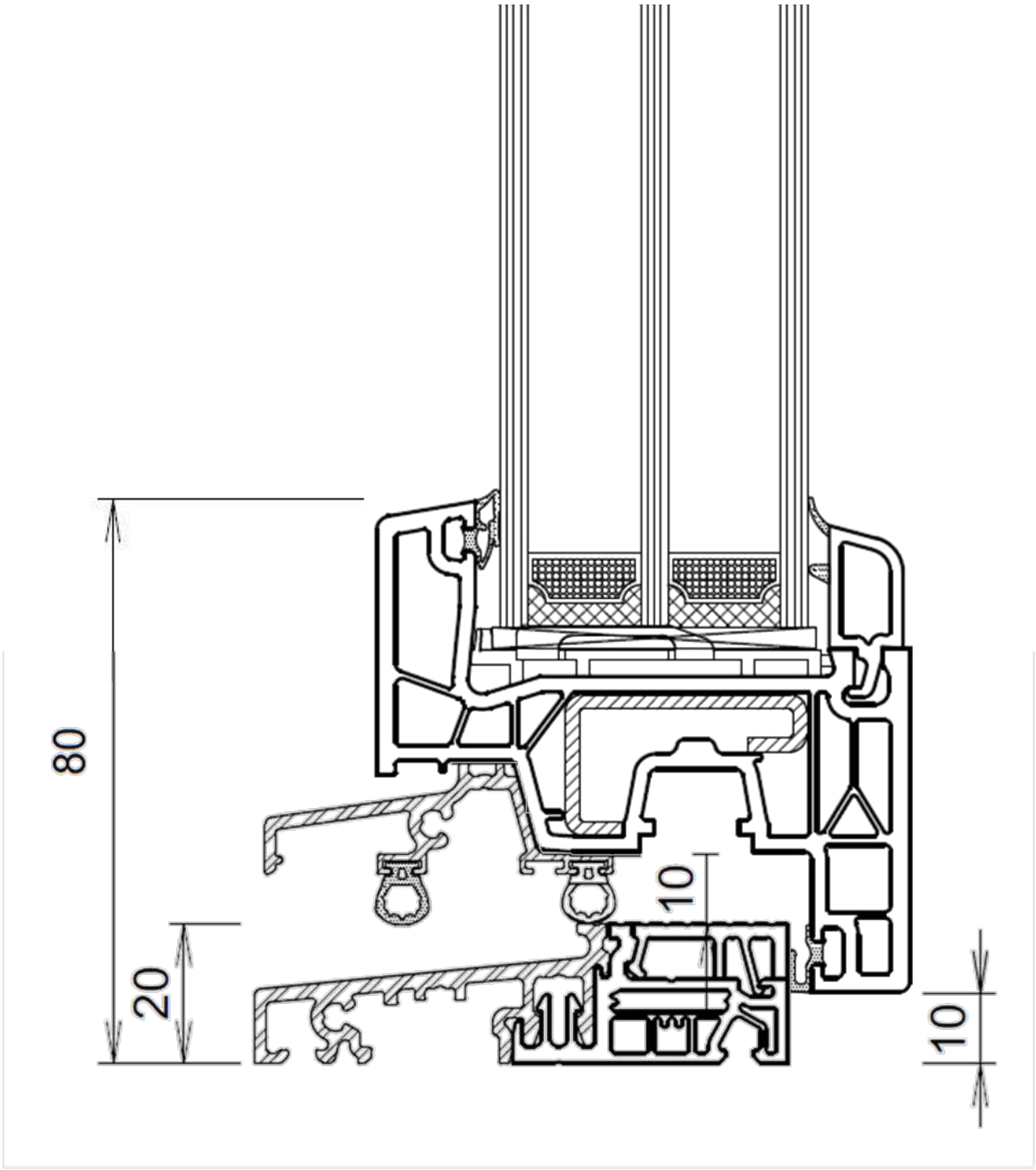
# Tilt and turn and constructions with fixed elements

## Advanced KR76 with renovation frame



# Advanced KR76 with standard frame

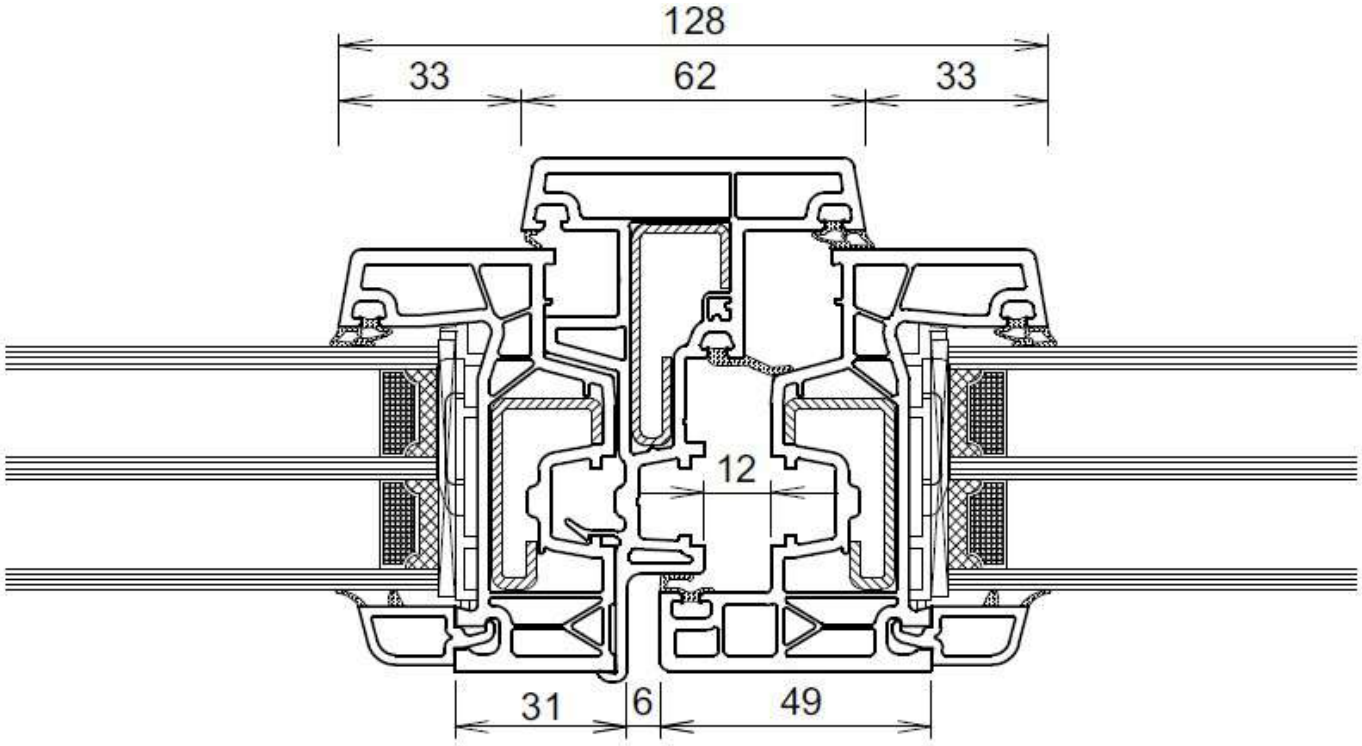





Advanced KR76 low sill section cut

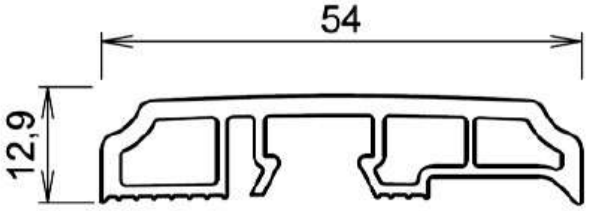
(alu with thermal break).

Sill cannot be buried!!

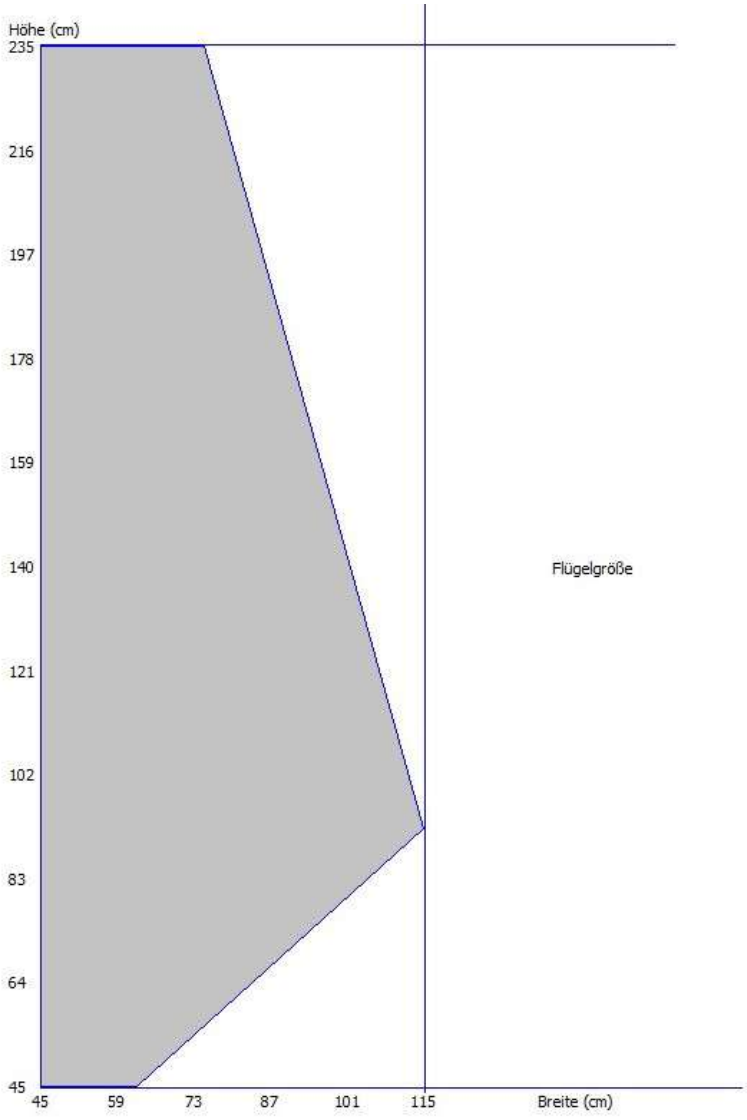



Advanced KR76 floating mullion.

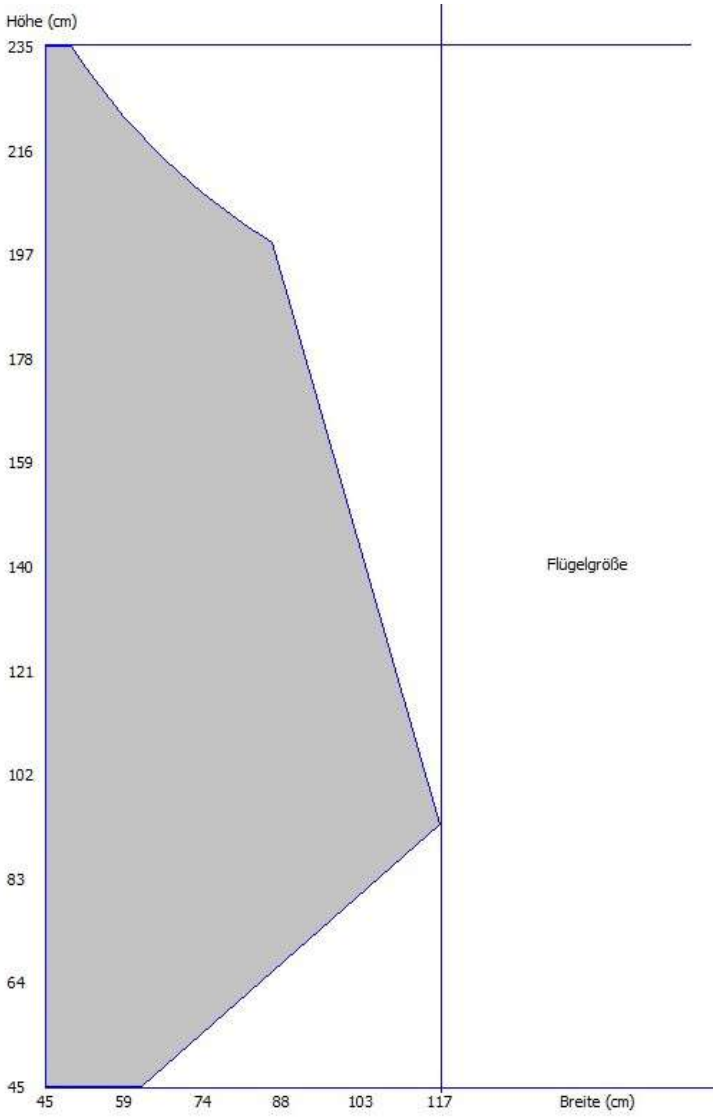
Possible with one handle only




Optional: **Internal floating mullion with central handle hardware**

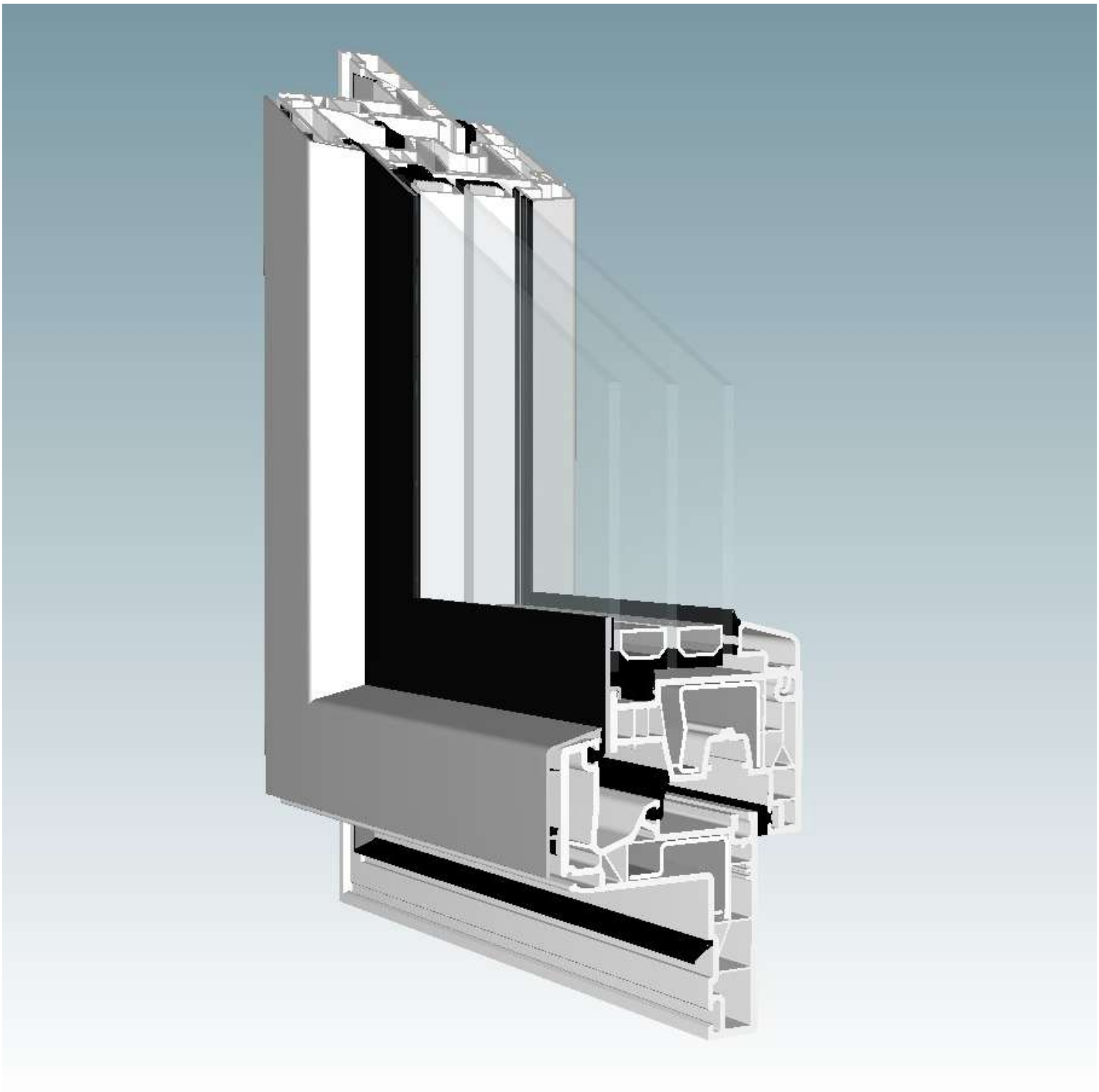



Single sash element restrictions




Double sash element restrictions

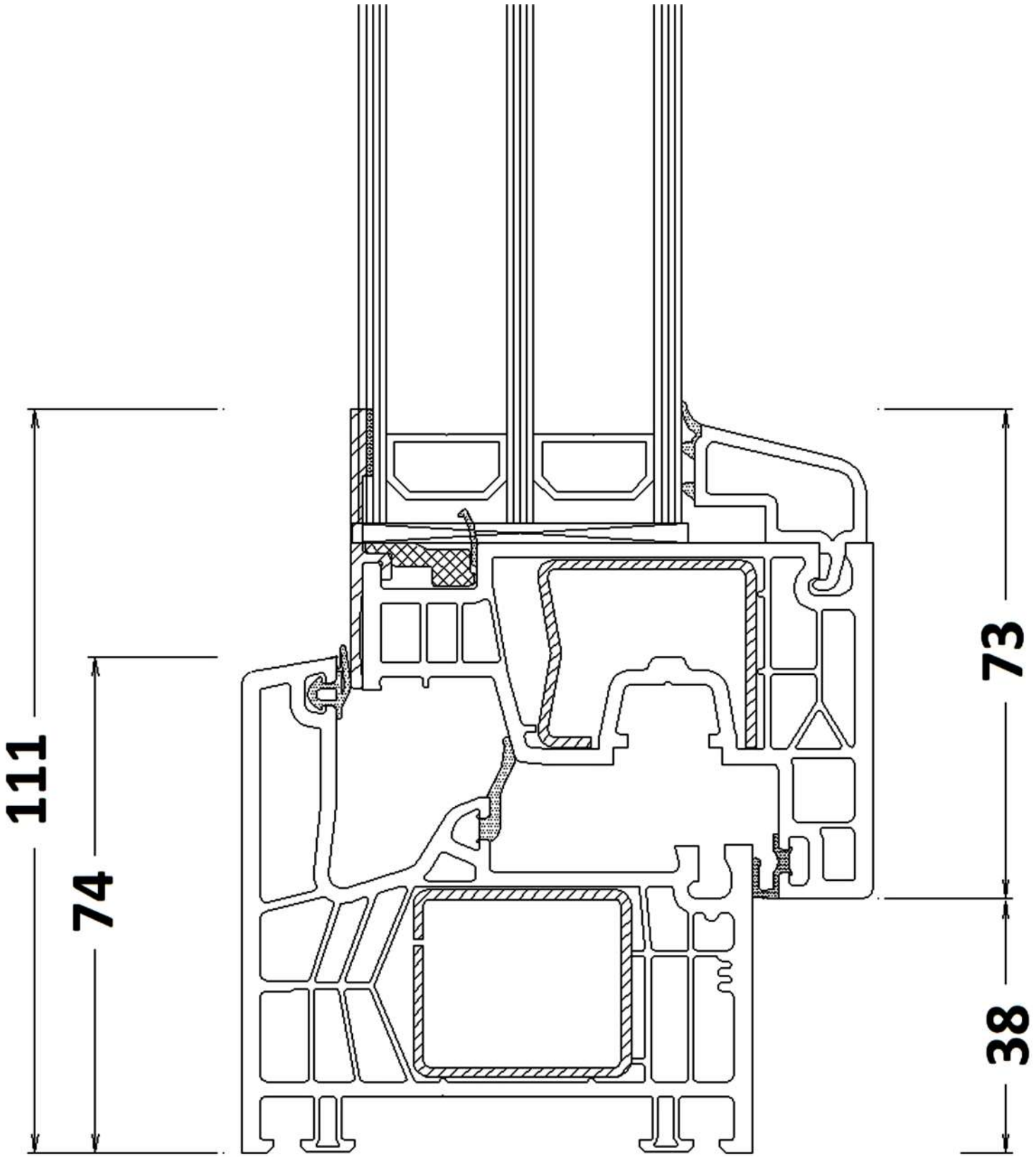
Attention!! Glass weight, wind load capacity or other factors are taken into account when sizing elements. Advise our team before finalizing .

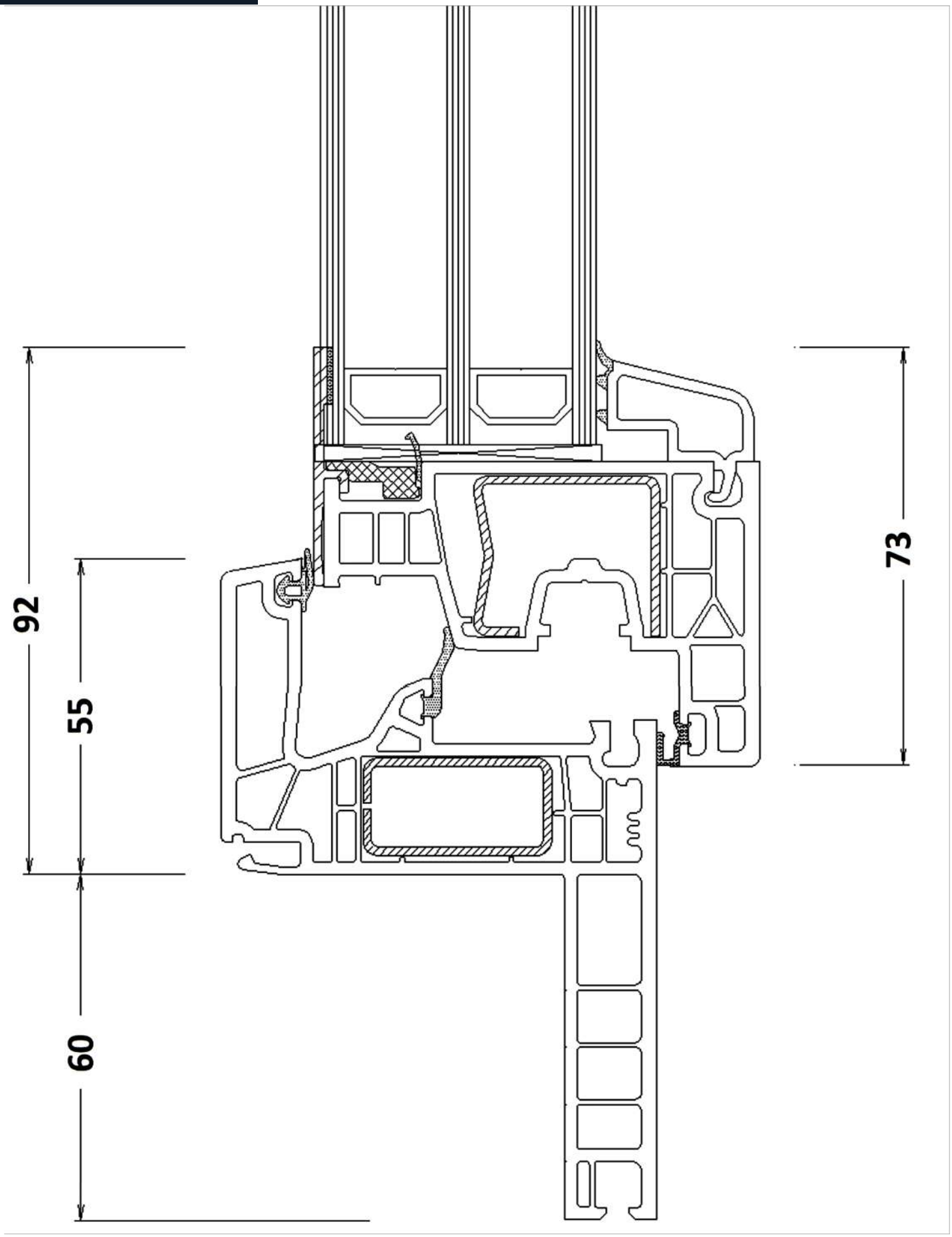


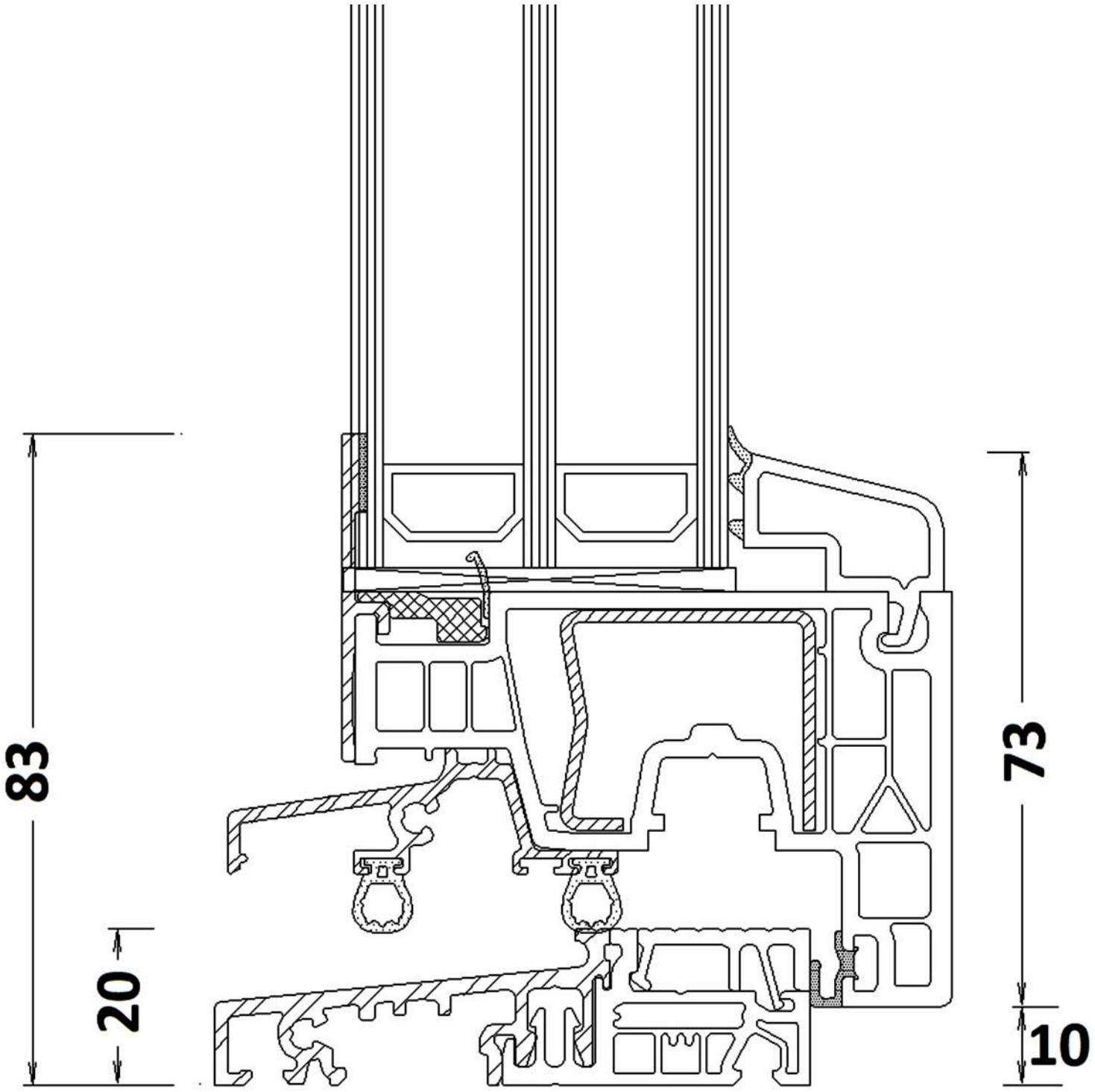
Super Slim KS76 Series with alu-cladding
renovation frame 3D

# Tilt and turn and constructions with fixed elements

## Super Slim KS76



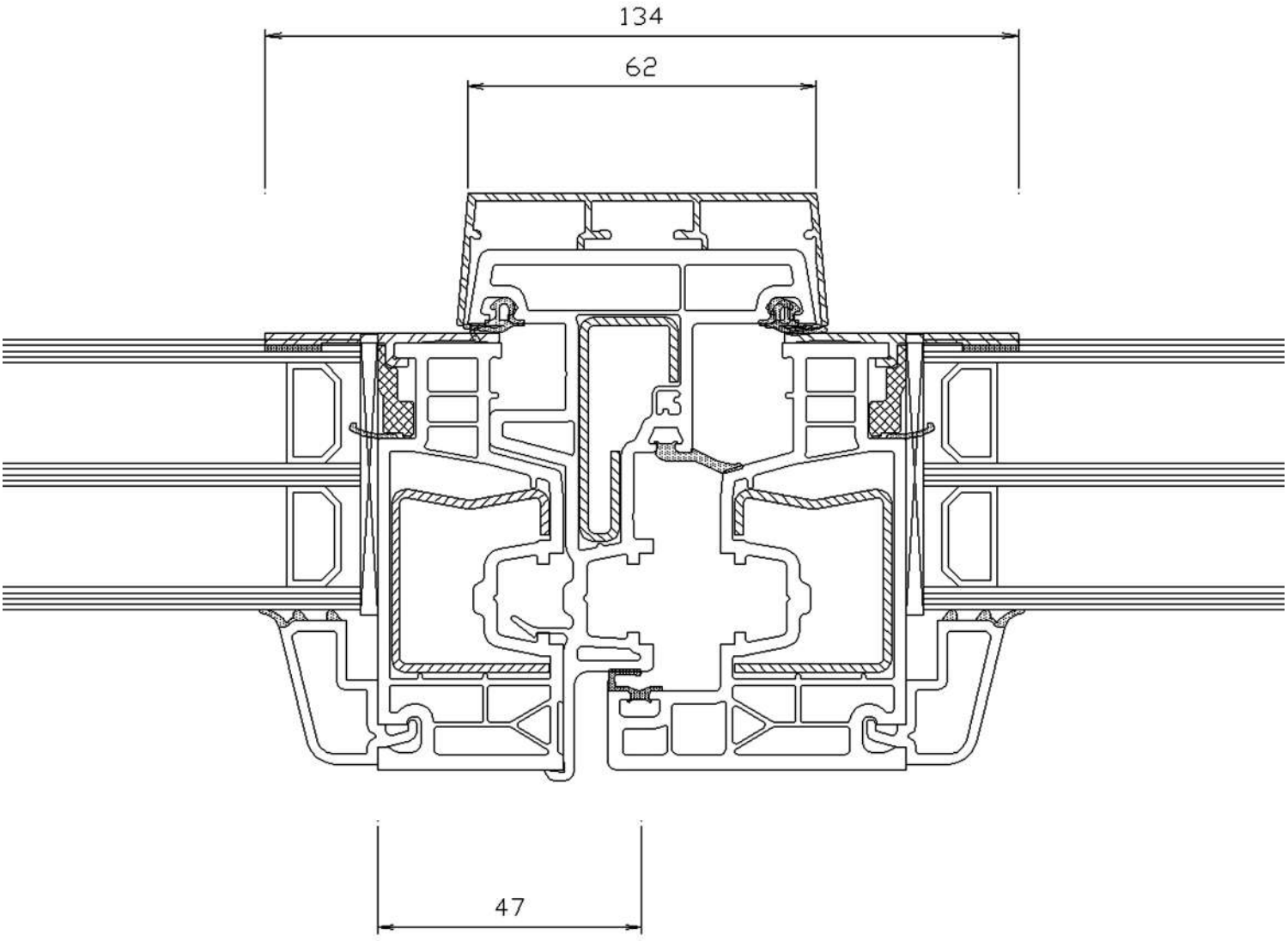

92
55
60
73




Super Slim KS76 low sill section cut

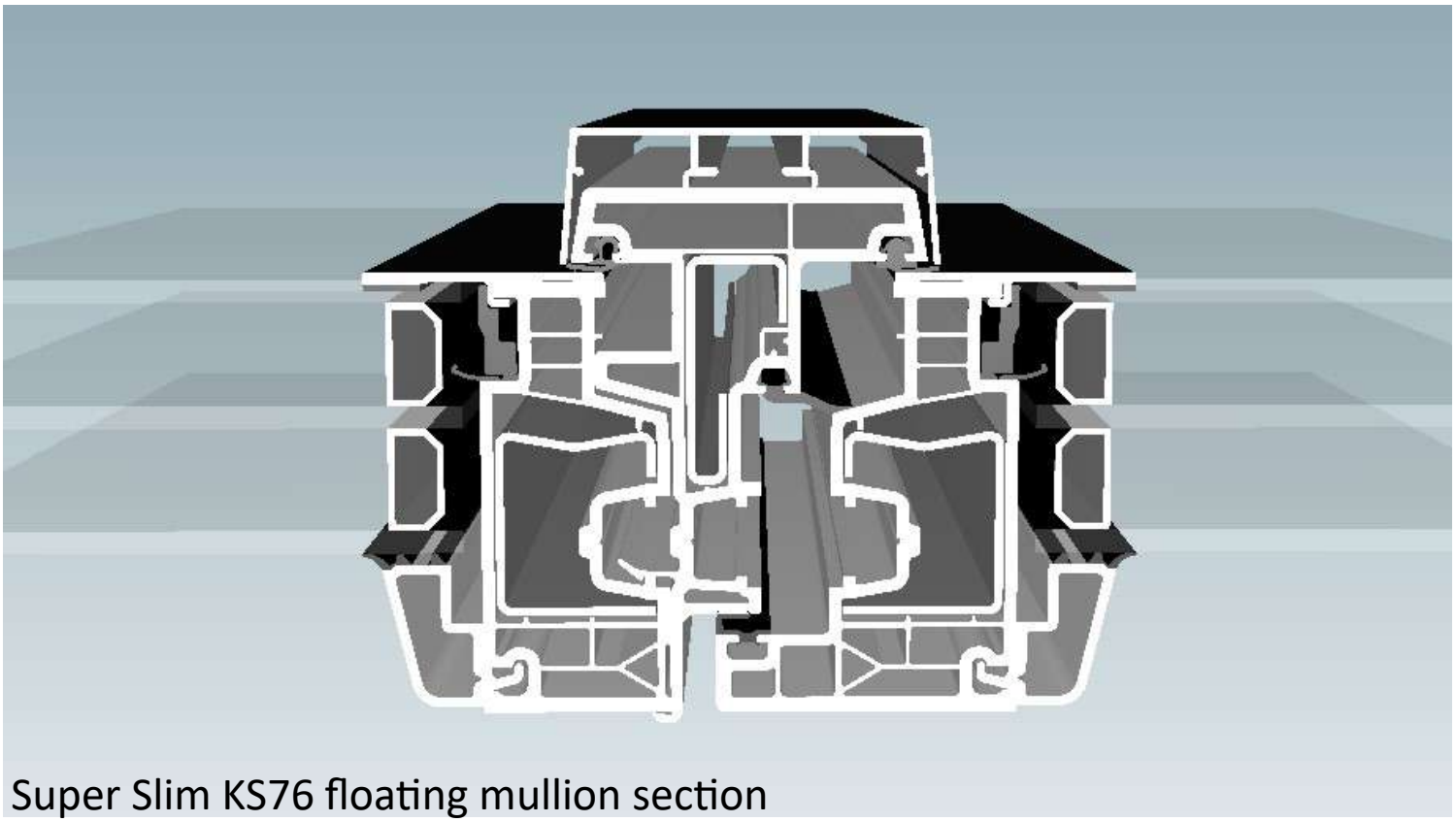
(alu with thermal break).

Sill cannot be buried!!

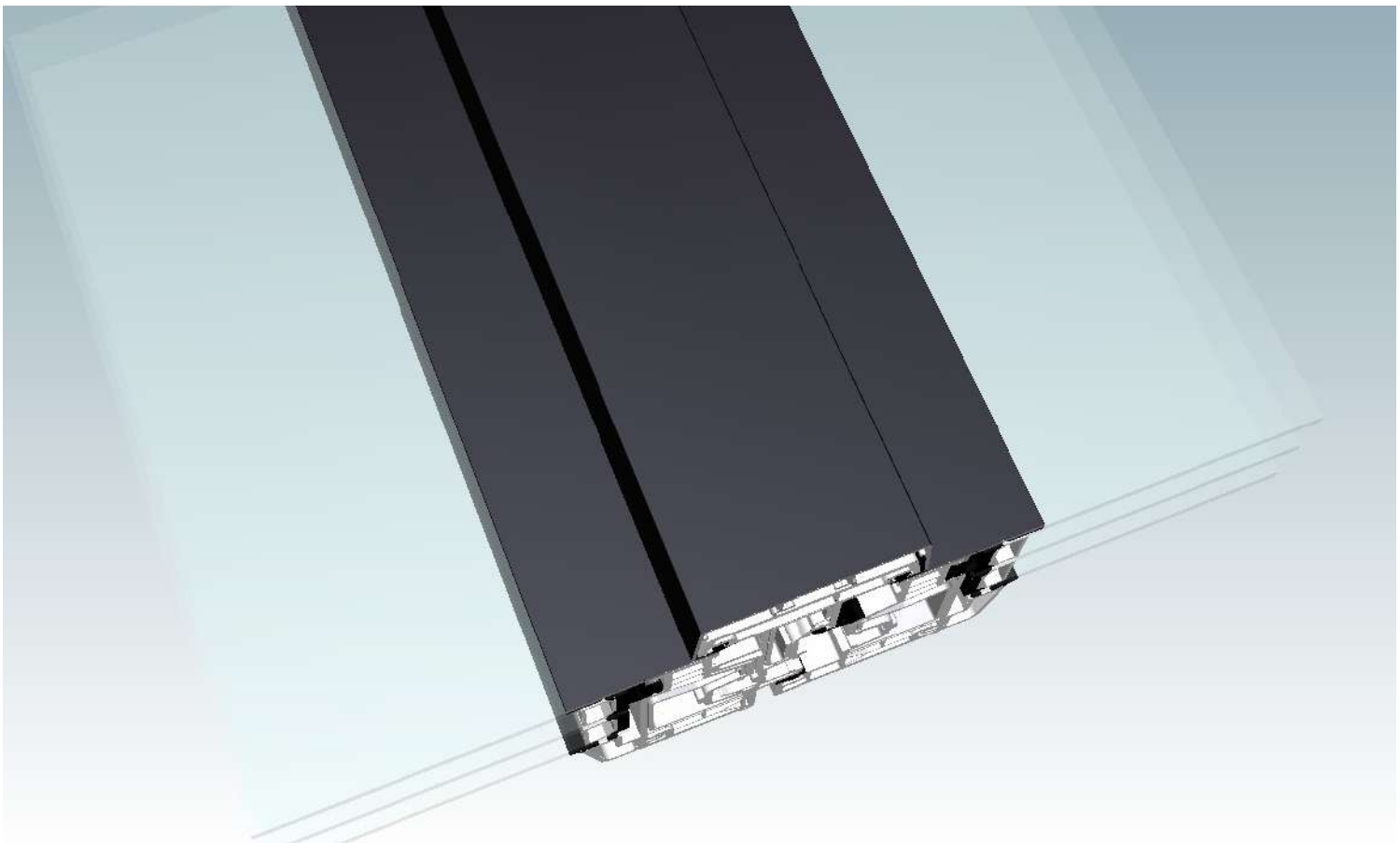



# Super Slim KS76 floating mullion.

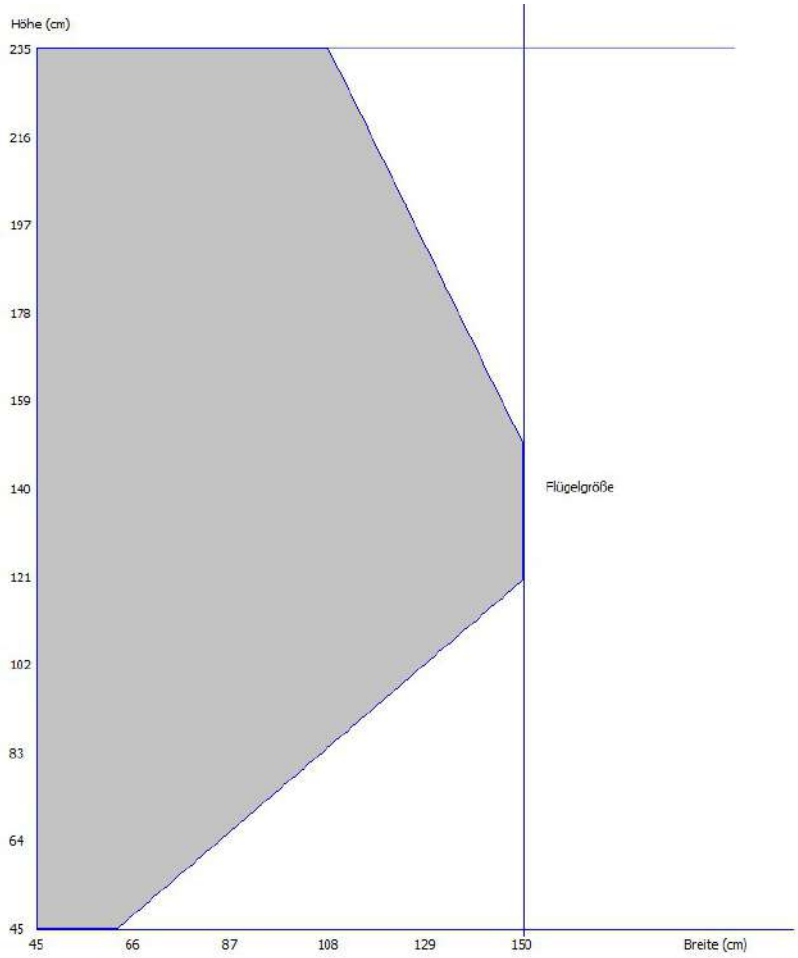
# Possible with one handle only

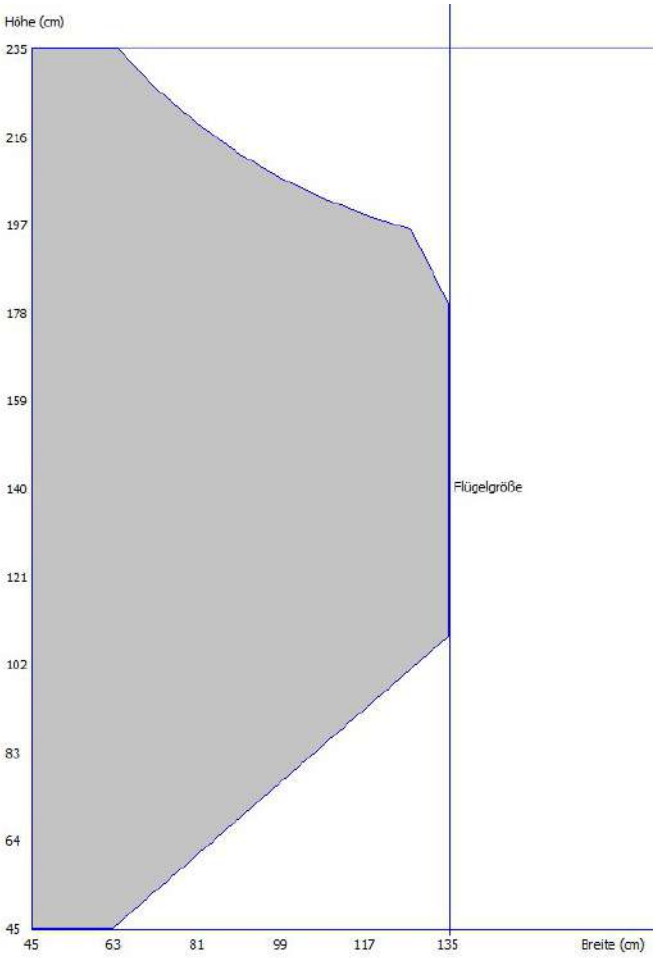


Super Slim KS76 floating mullion section



Super Slim KS76 floating mullion front view

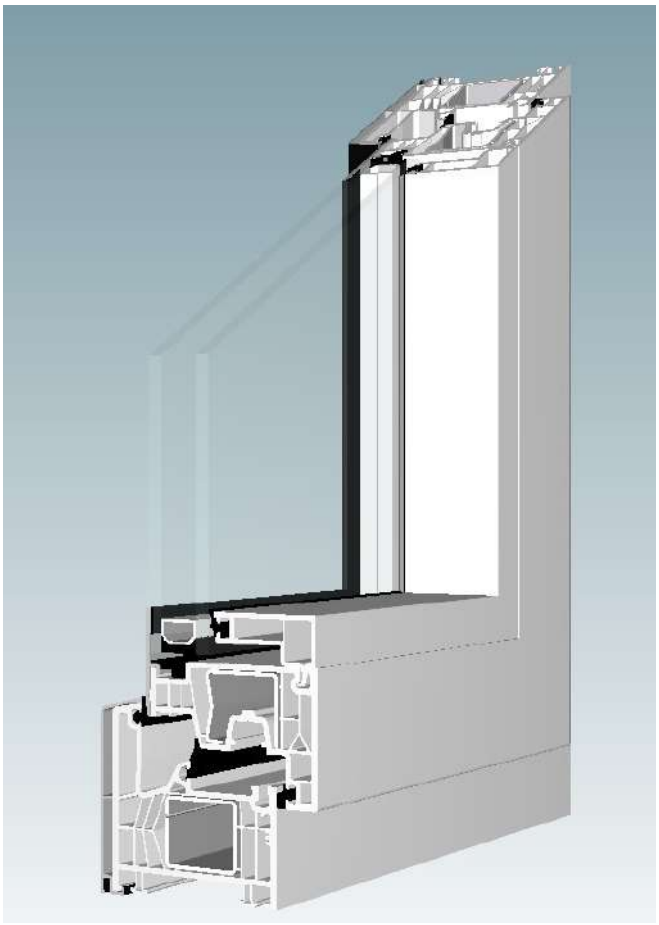


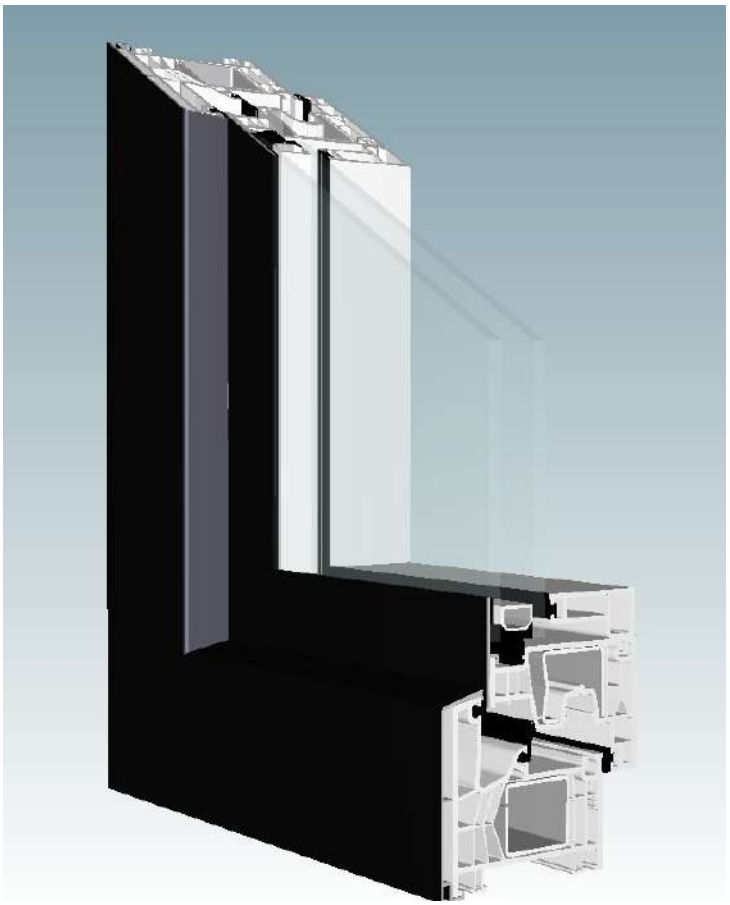




## Single sash element restrictions

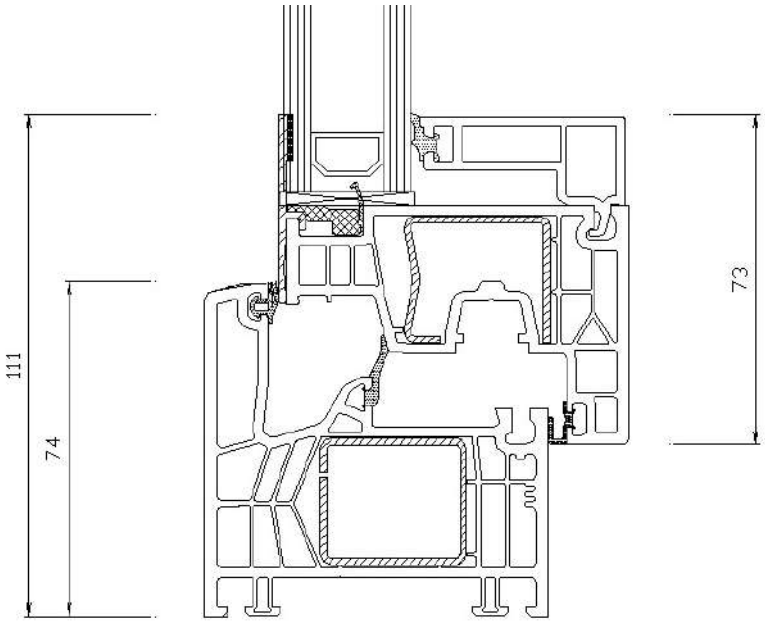
## Double sash element restrictions

Attention!! Glass weight, wind load capacity or other factors are taken into account when sizing elements. Advise our team before finalizing .



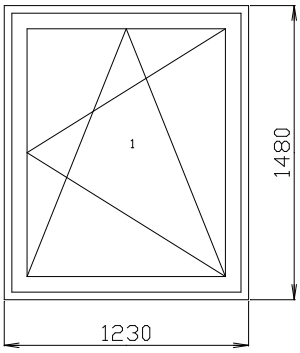


# Inside and outside view of Super slim series—double glazed



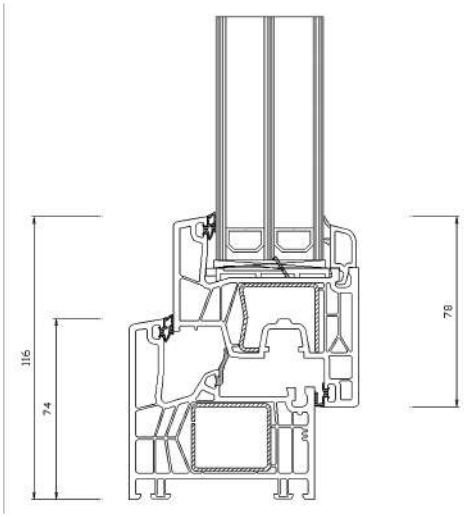
| Product features | Premium KN76 | Advanced KR76 | Super Slim KS76 |
|---|---|---|---|
| Peripheral locking hardware | Yes | Yes | Yes |
| Tilt function with steel locking plates hardware | Yes anchored | Yes anchored | Yes anchored |
| Triple sealing co-extruded gaskets with middle uPVC channel | Yes | Yes | Yes, plus glass adhesion |
| Insulation chambers for sash & frame | 6 | 6 | 6 |
| Handles with integrated security function | Main & secondary sash | Main plus lever for secondary sash | Main plus lever for secondary sash |
| 3D adjustable steel hinges with replaceable capping covers | Yes anchored | Yes anchored | Yes anchored |
| Visible corner welding | 1mm | 1mm | 0.5-1mm |
| Thermal break Alu-uPVC 20mm sill with flush locking plates | Optional | Optional | Optional |
| Custom Galvanized steel core with Geometries at 1,5—2,5 mm | Yes | Yes | Yes |
| Anti theft glazing bead hook with co-extruded gasket | Round | Round | Angled for double glazing |
| Easy glass replacement | Yes | Yes | Adherent glass |
| New tech soft gasket welding | Yes | Yes | Yes |

# Comparison Results of the U-value calculation sheet

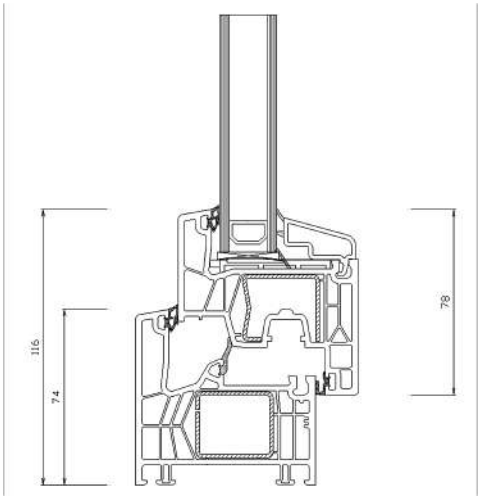



System: Premium KN76 / Advanced KR76
**Double / Triple glazed element**
Window / door, rectangular window, one-leaf
**Width: 1230 mm, Height: 1480 mm**
Feld: 1 Tilt and turn right
Triple Glazing: 44 mm glass, 4/16/4/16/4 Ar (Ug=0.7)
Double Glazing: 24 mm glass, 4/16/4 (Ug=1.1)

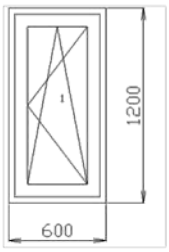
| Uw-value | |
|---|---|
| **Triple glazed window** | 0.87 W/m²K |
| Profile surface Af: | 0.57 m² |
| U- Value profile Uf: | 1.0 W/m²K |
| Glass surface Ag: | 1.25 m² |
| U- Value glass Ug DIN 673: | 0.70 W/m²K |
| Long glass edge Lg: | 4.49 m |
| Psi-Value Glass edge Psig: | 0.030 W/mK |
| Length of wall connection Le: | 5.42 m |



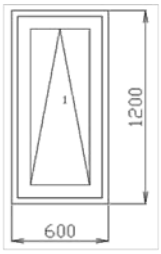

| Uw-value | |
|---|---|
| **Double glazed window** | 1.2 W/m²K |
| Profile surface Af: | 0.57 m² |
| U- Value profile Uf: | 1.0 W/m²K |
| Glass surface Ag: | 1.25 m² |
| U- Value glass Ug DIN 673: | 1.1 W/m²K |
| Long glass edge Lg: | 4.49 m |
| Psi-Value Glass edge Psig: | 0.060 W/mK |
| Length of wall connection Le: | 5.42 m |



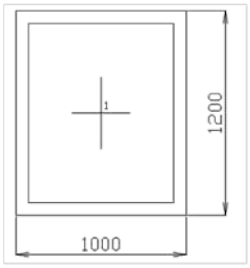
# Types of tilt and turn windows or terrace doors



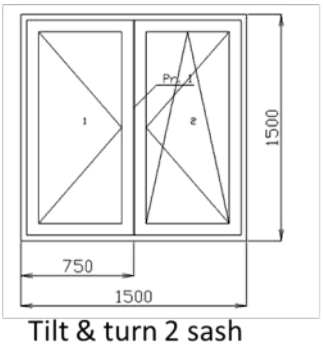

Tilt & turn



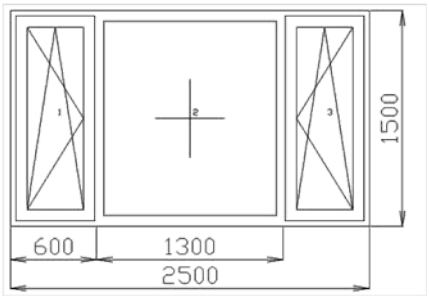

Tilt only



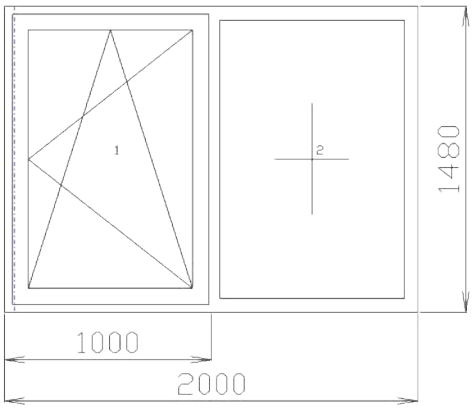

Fixed



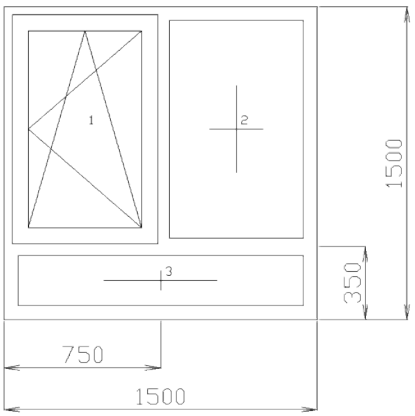

Tilt & turn 2 sash



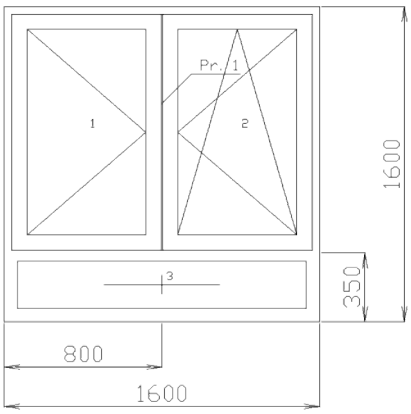

Tilt & turn sides with center fix



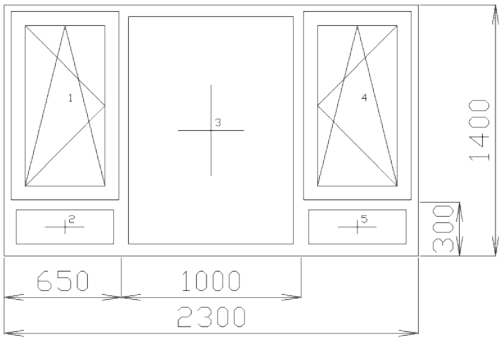

1 sash open over side fixed



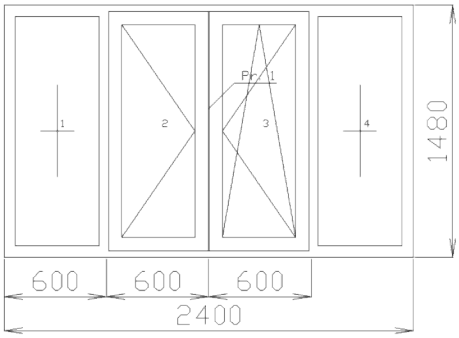

1 sash open over side fix + bot fixed



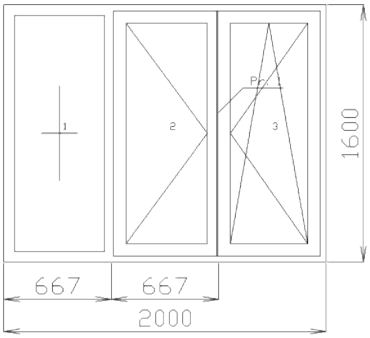

2 sash with bot fixed




2 sash with center fixed and bot fixed under sash



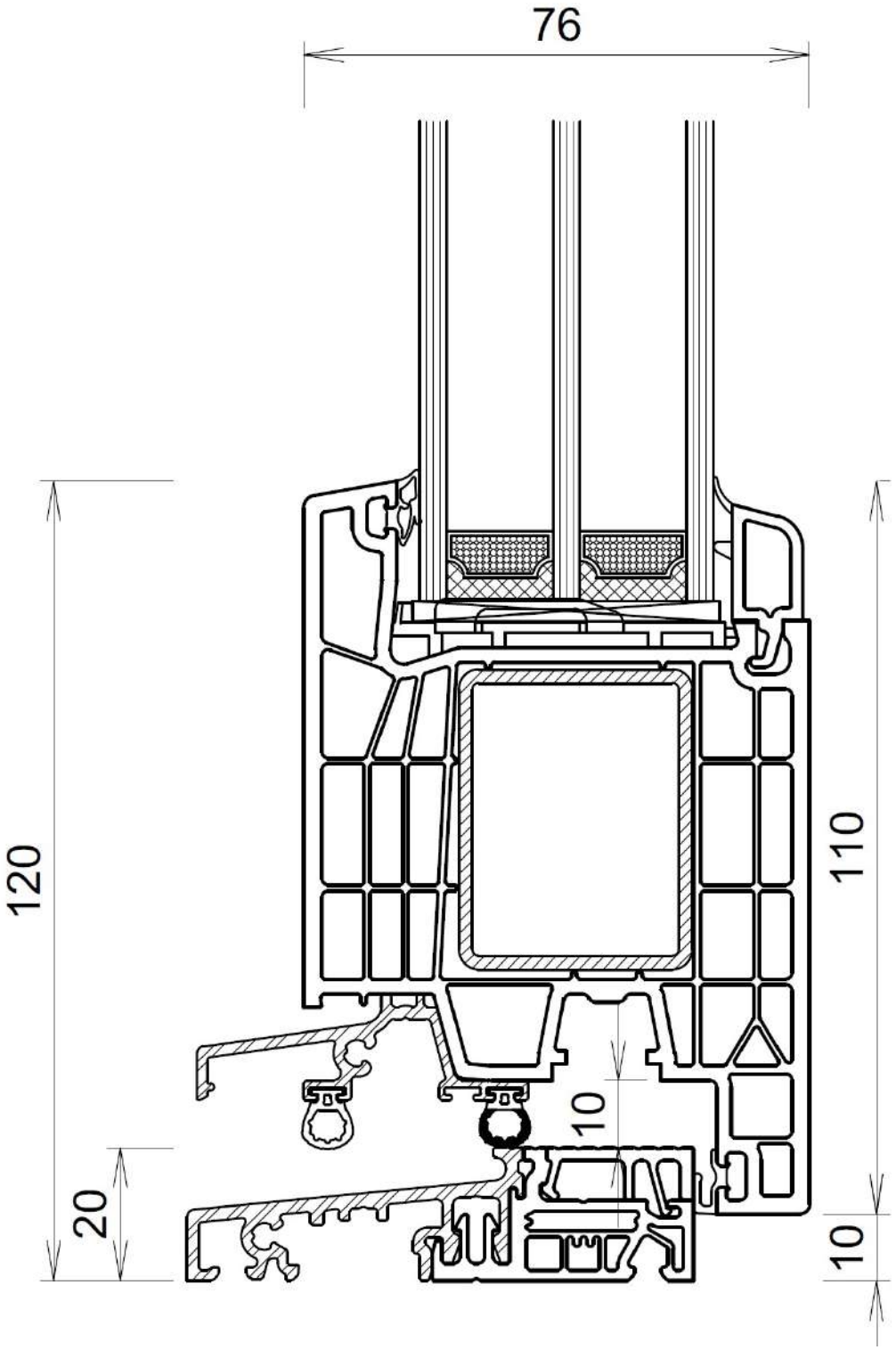

2 sash opening over 2 side fixed




2 sash opening over 1 side fixed

Outward opening elements are also produced in similar types with separate frames (when combined with fixed) or in single frame structures with fixed sashes. Some opening restrictions may occur

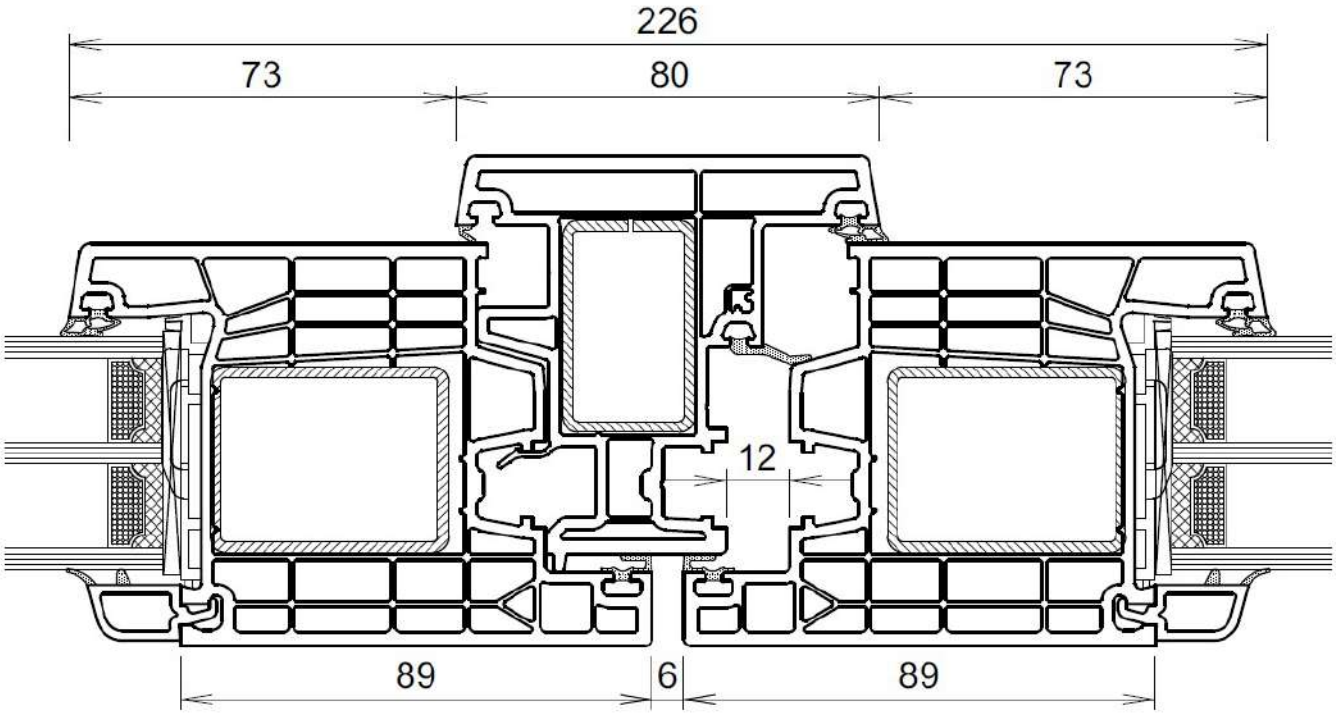
# Secondary entrance doors Gossip K76 & Hotel K76




Low sill (alu with thermal break)

Sill cannot be buried!!

Can be made without sill and dropping gasket

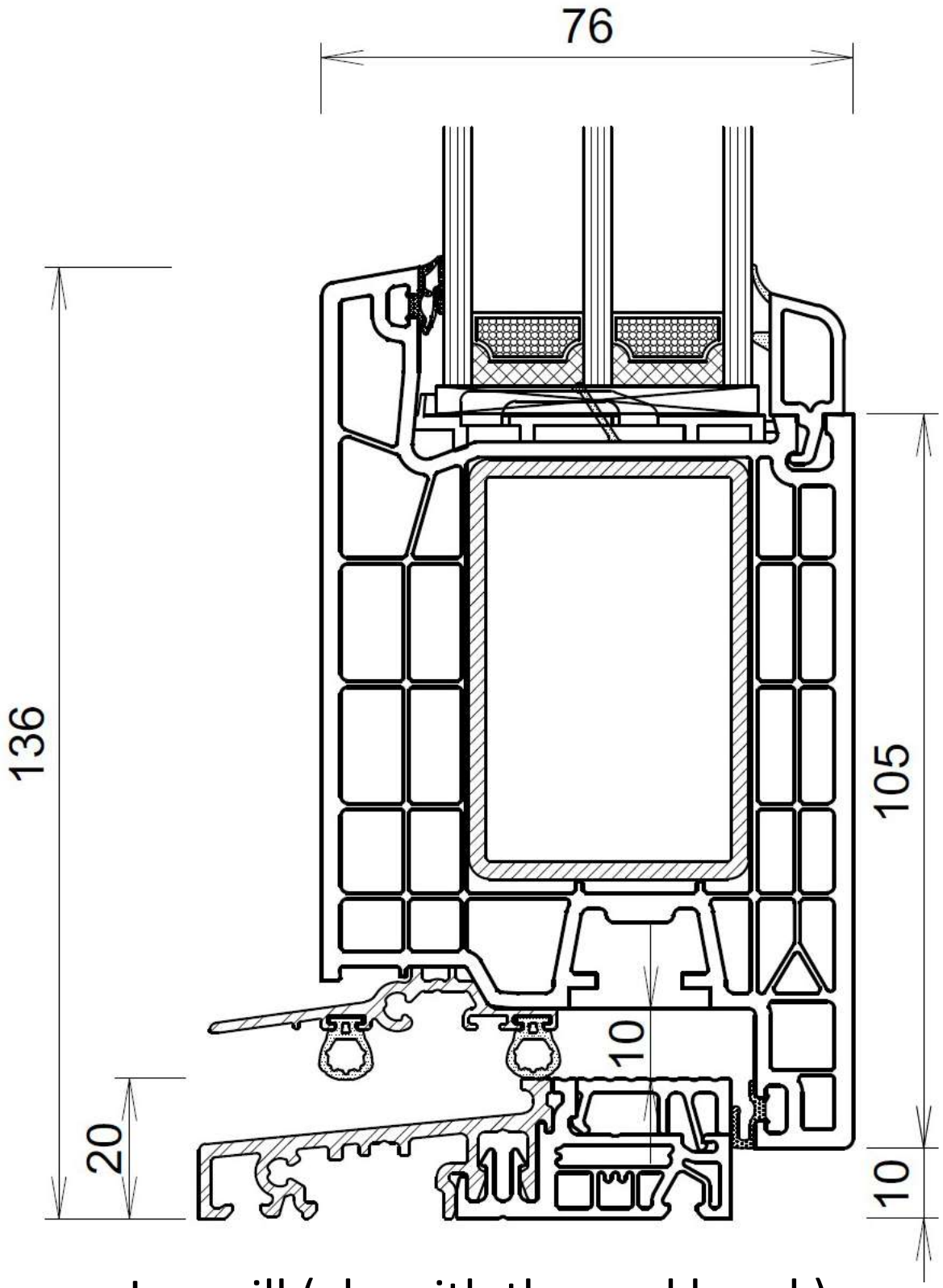



# Side doors floating mullion.

# Section for double sash or asymmetric  doors.

KAPTAIN
ARCHITECTURAL KEY FRAMES

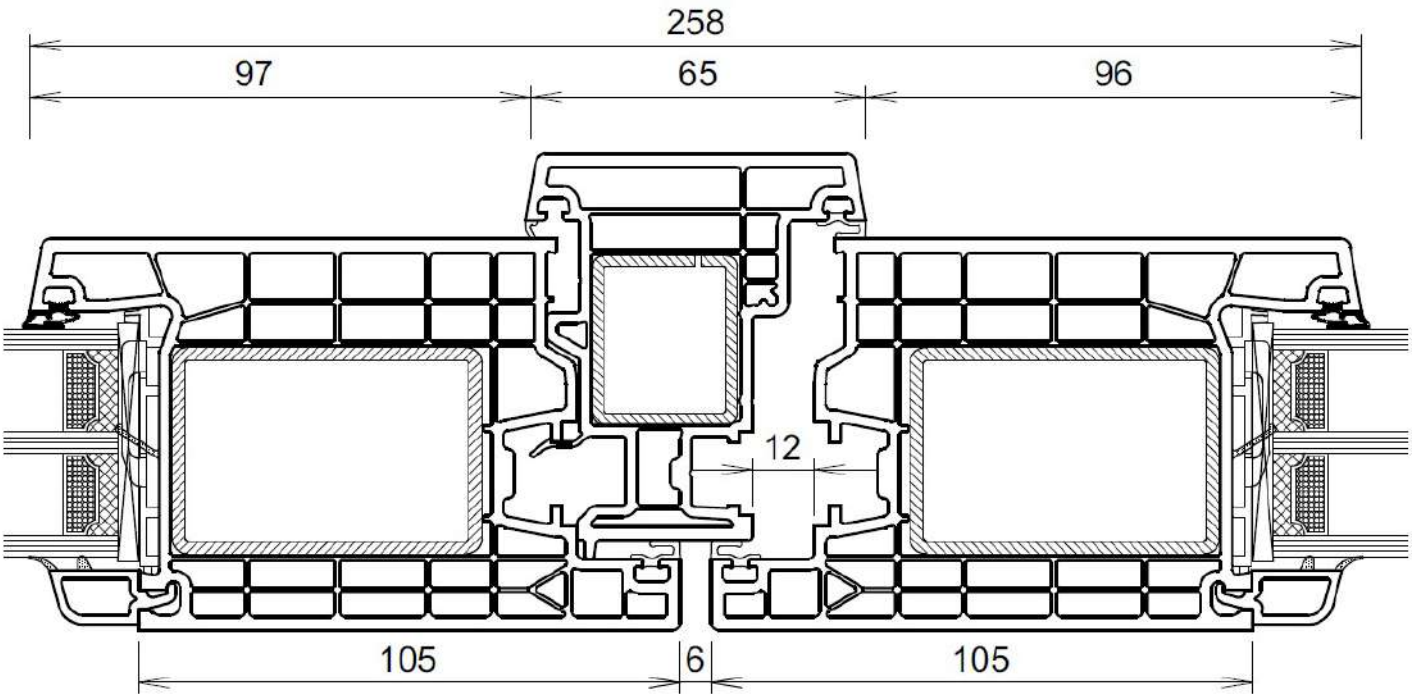
## Primary entrance doors <u>Executive K76</u>




Low sill (alu with thermal break)

Sill cannot be buried!!

Can be made without sill and dropping gasket




# Main doors floating mullion.

# Section for double sash or asymmetric  doors.

| Product features | Gossip K76 | Executive K76 |
|---|---|---|
| Type of security lock | Geared 5 point lock with 2 steel + 2 zamak locking plates | Automatic 2+1 latch with 3 steel locking plates |
| Geometries and steel inertia | Sash 110mm Steel core | Sash 126mm with Steel core +112% inertia |
| Sealing co-extruded gaskets | Triple | Double |
| Anti-bump cylinder with protection against manipulation | Yes | Yes |
| Emergency double sided usability function | Yes | Yes |
| Filling (usual) | Glass / Panel variations | Composite panel 24mm / 44mm |
| Heavy duty adjustable 3D hinges | 100kg capacity | 120kg capacity |
| Thermal break Alu-uPVC sill | 20mm high | 20mm high |
| Exterior weather bar | Anodized alu | Anodized alu |
| Standard accessories inside | Handle with cylinder protection | Handle with cylinder protection |
| Standard accessories outside | Handle with cylinder protection | Grip with cylinder protection |

# Door's extra accessories

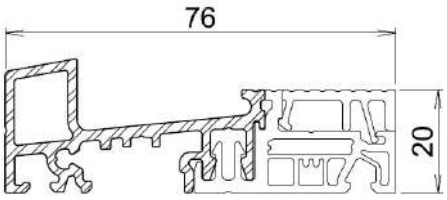
Knob cylinder

Magnetic stopper


Top security steel cylinder

Door closer

Door viewer / or camera viewer

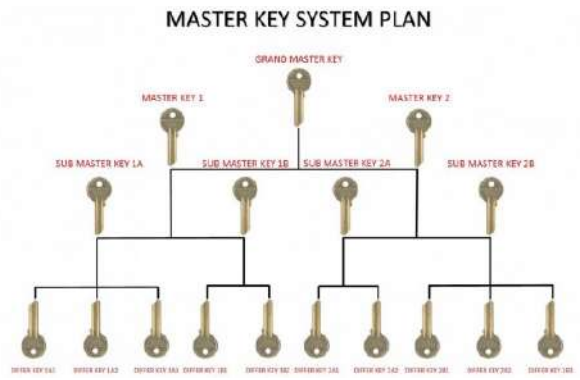



Type 2 Low sill

Round 3D hinges

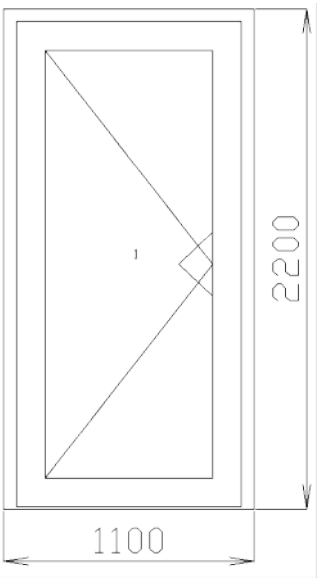
Hotel operating system via RFID

Energy saver wall switches

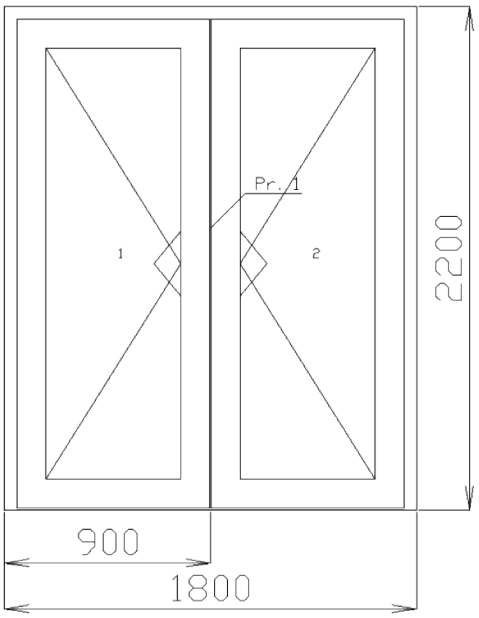



Extra copies of keys — Master key system planning with multiple keys for the same cylinder (grouped or otherwise)

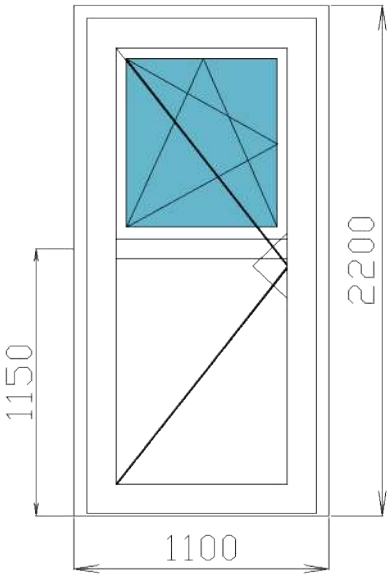
# Main or side door types



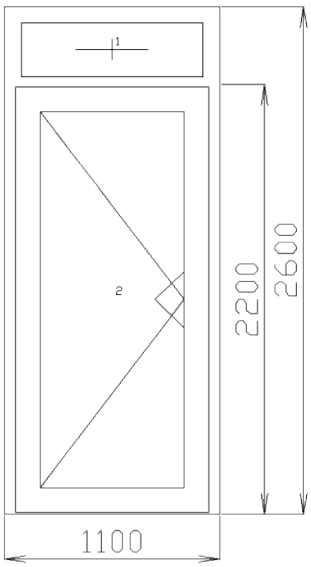

Single sash door



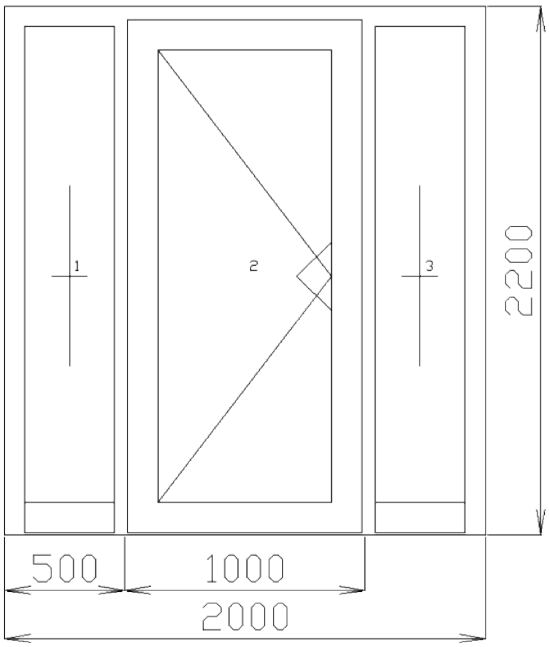

Double sash door



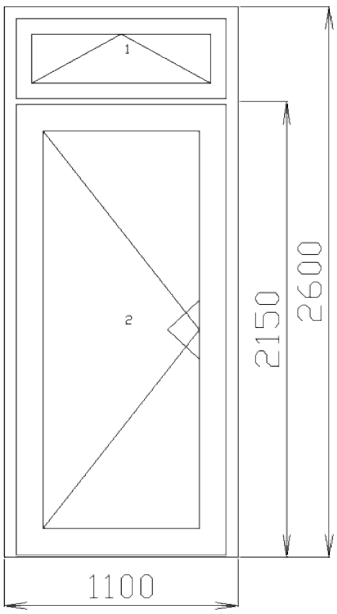

Single sash door with window in sash




Single sash door with top fixed



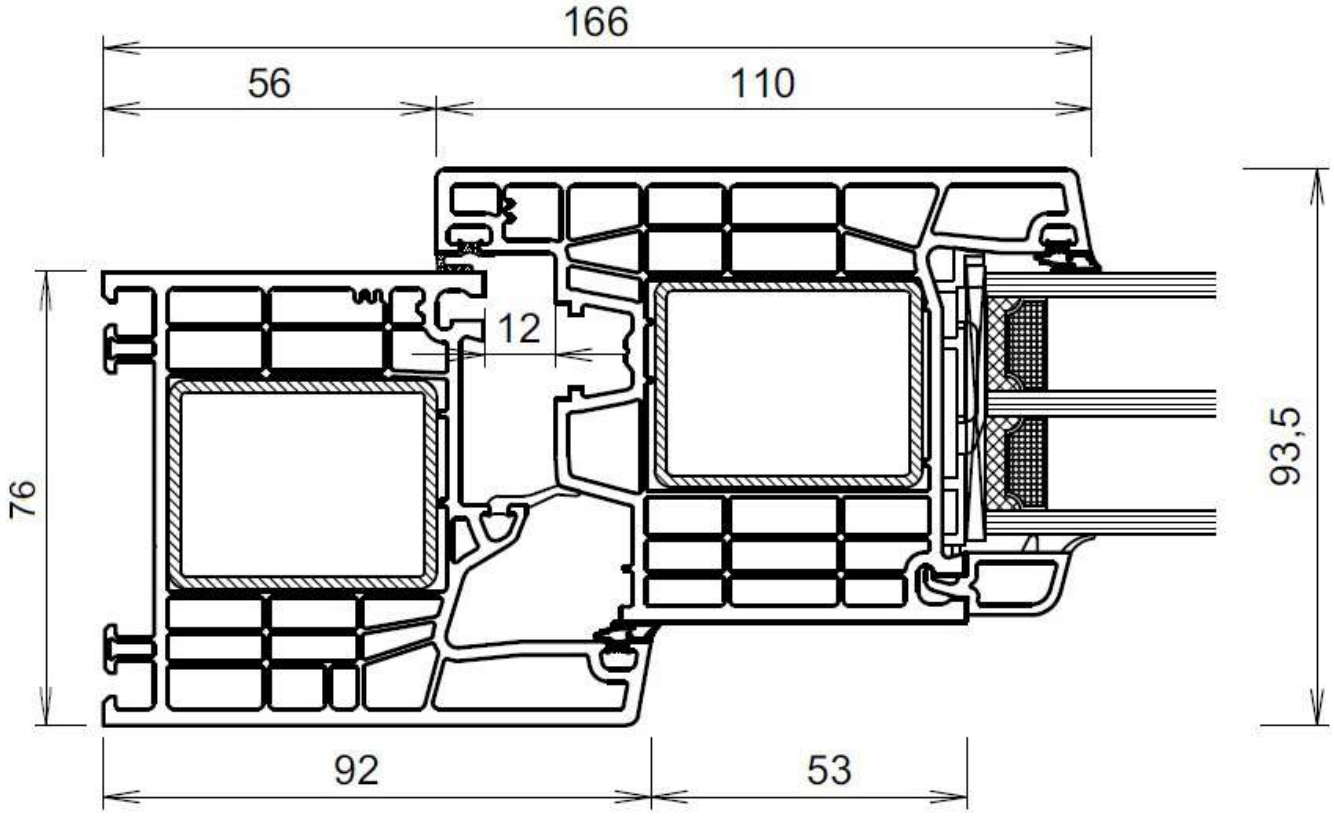

Single sash door with side fixed (left and right)



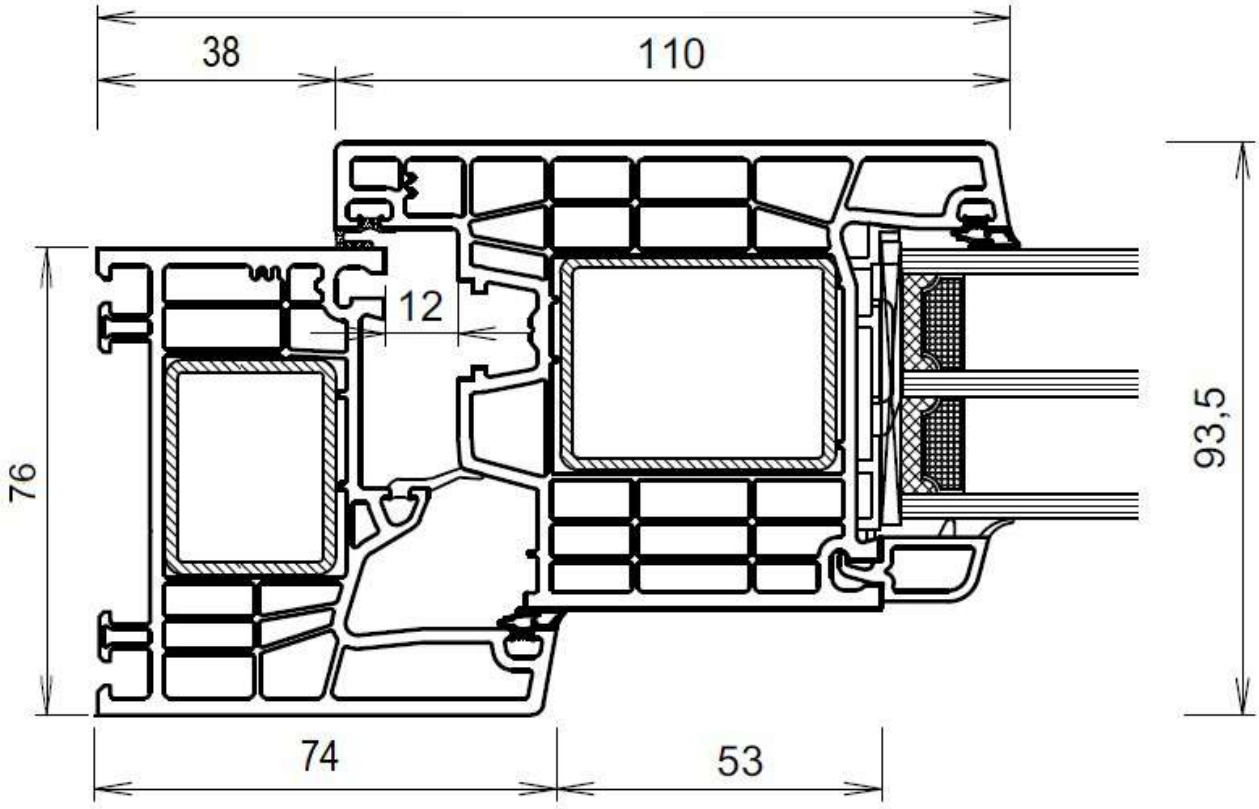

Single sash door with top tilt

# Outward opening systems (Premium KN76/Gossip K76)

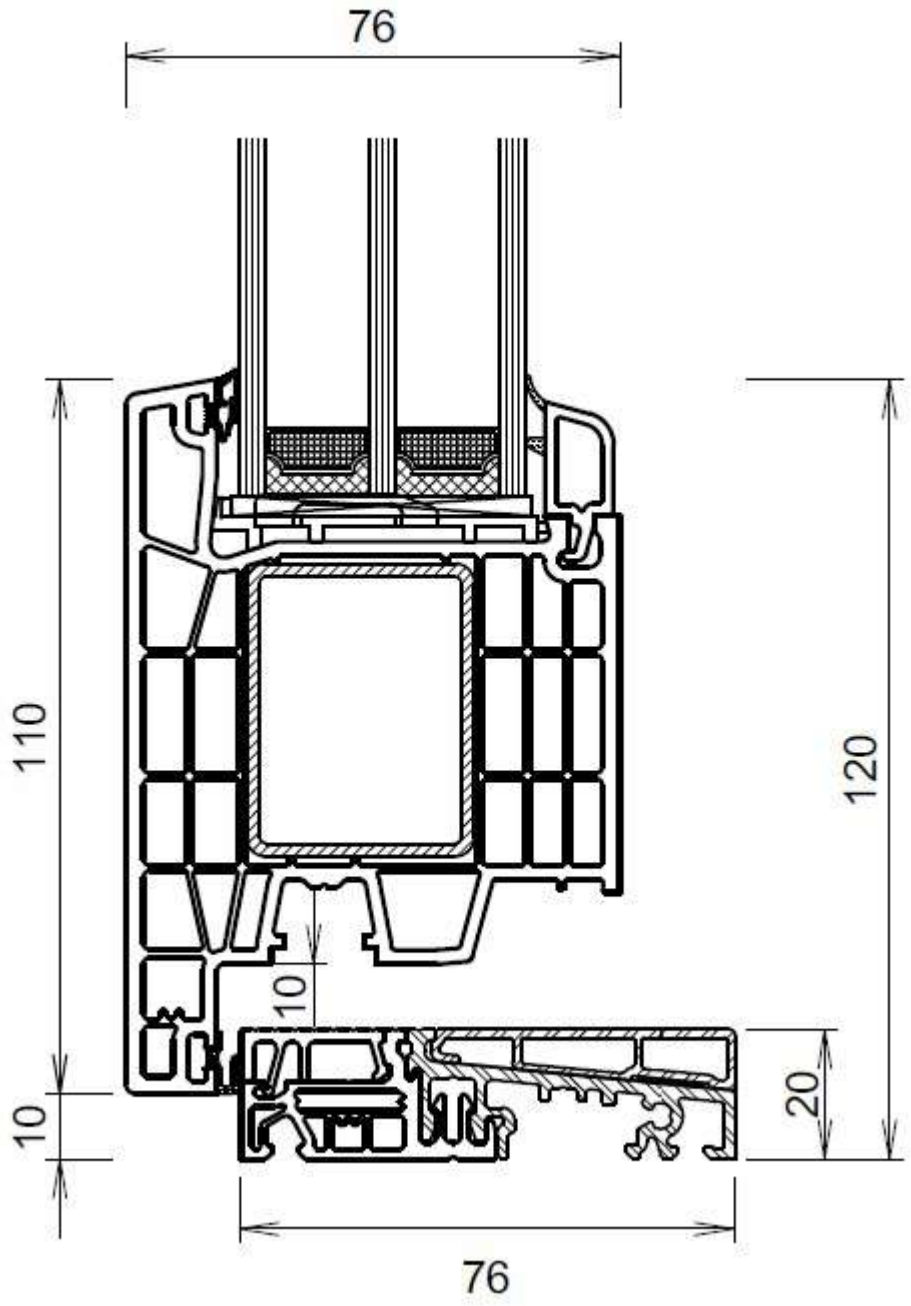
## Sash—frame connection for outward opening




148

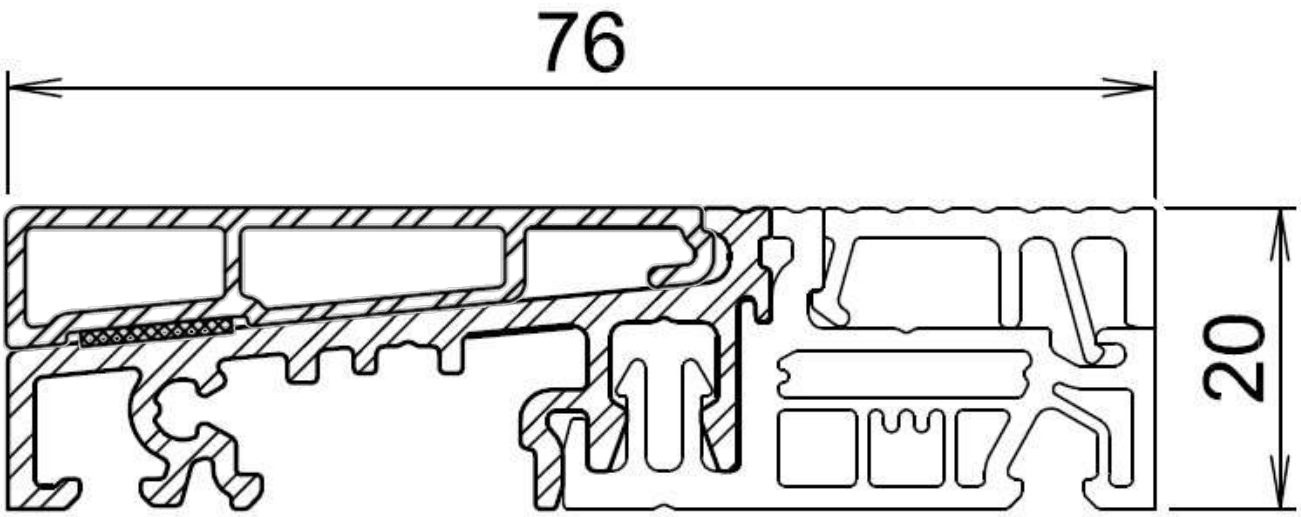


# Outward opening systems (Premium KN76/Gossip K76)

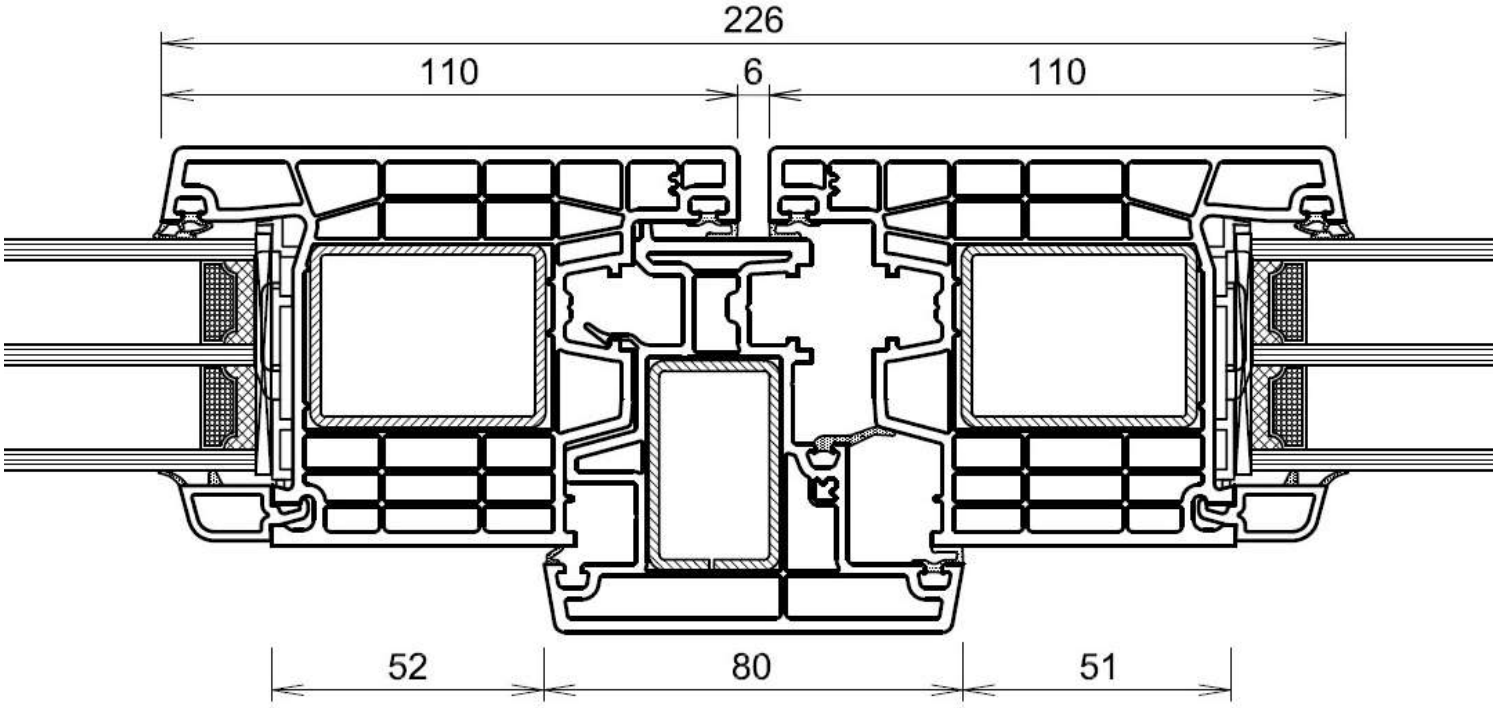



Low sill (alu with thermal break)

Sill can be buried max 20mm inside



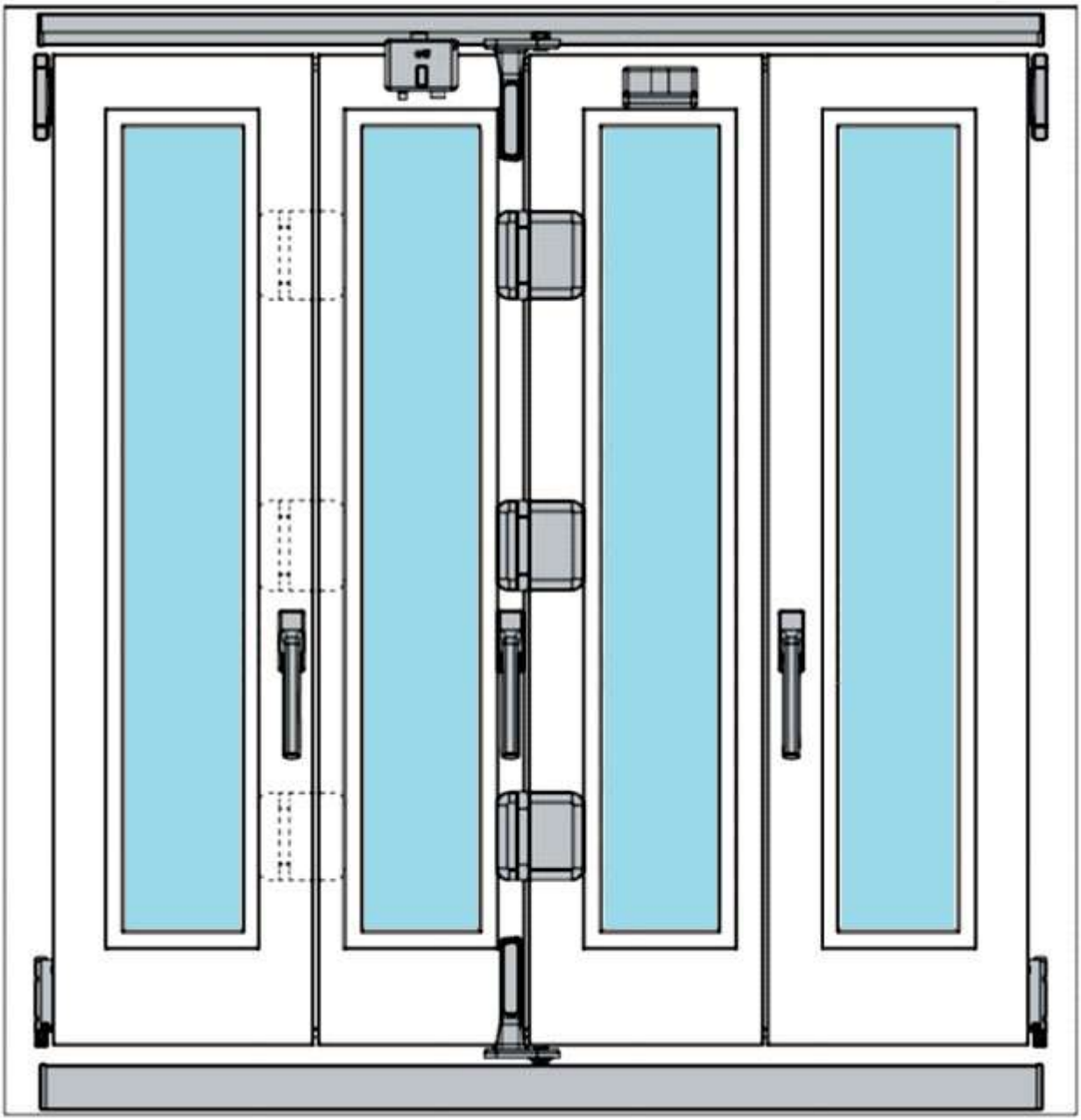

Outward opening door’s sill 76mm




# Sash—mullion connection for outward opening

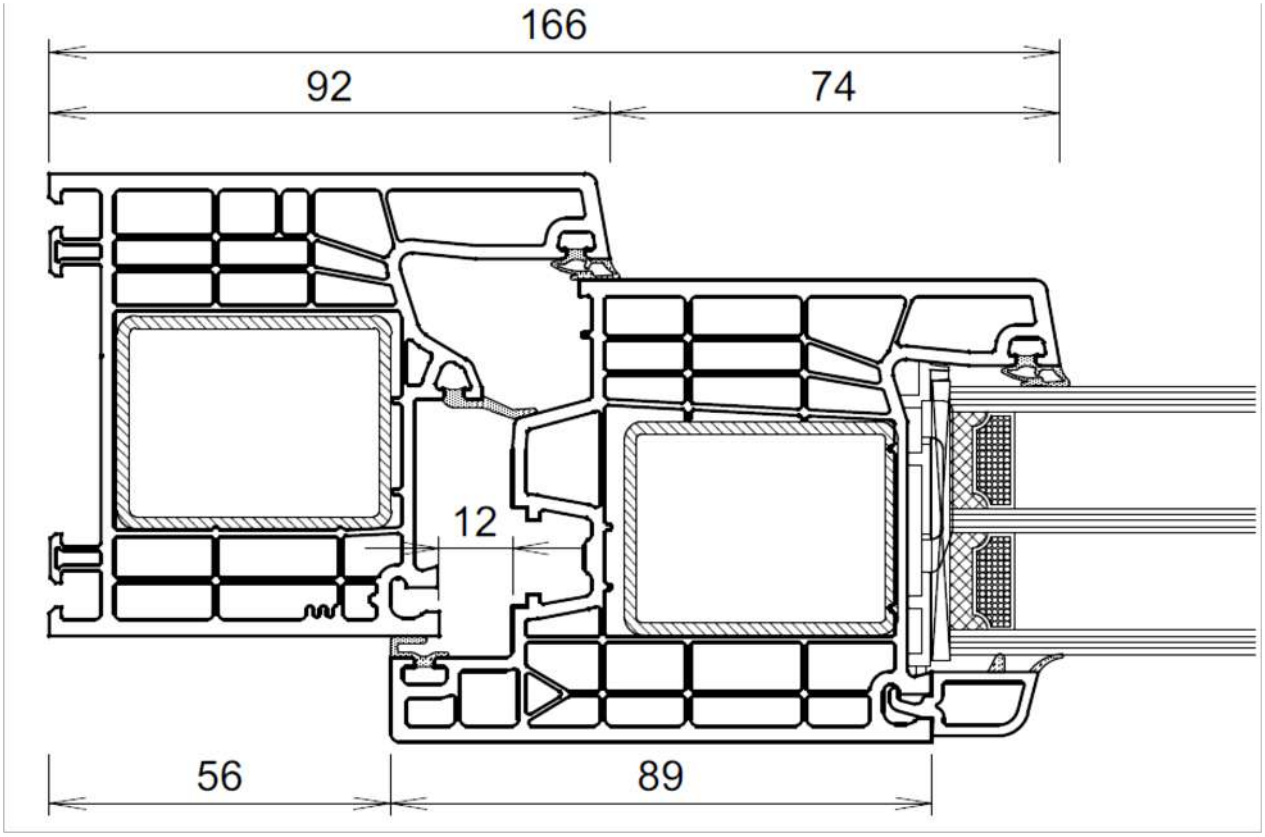
# Stacking door with floating mullions Premium KN76

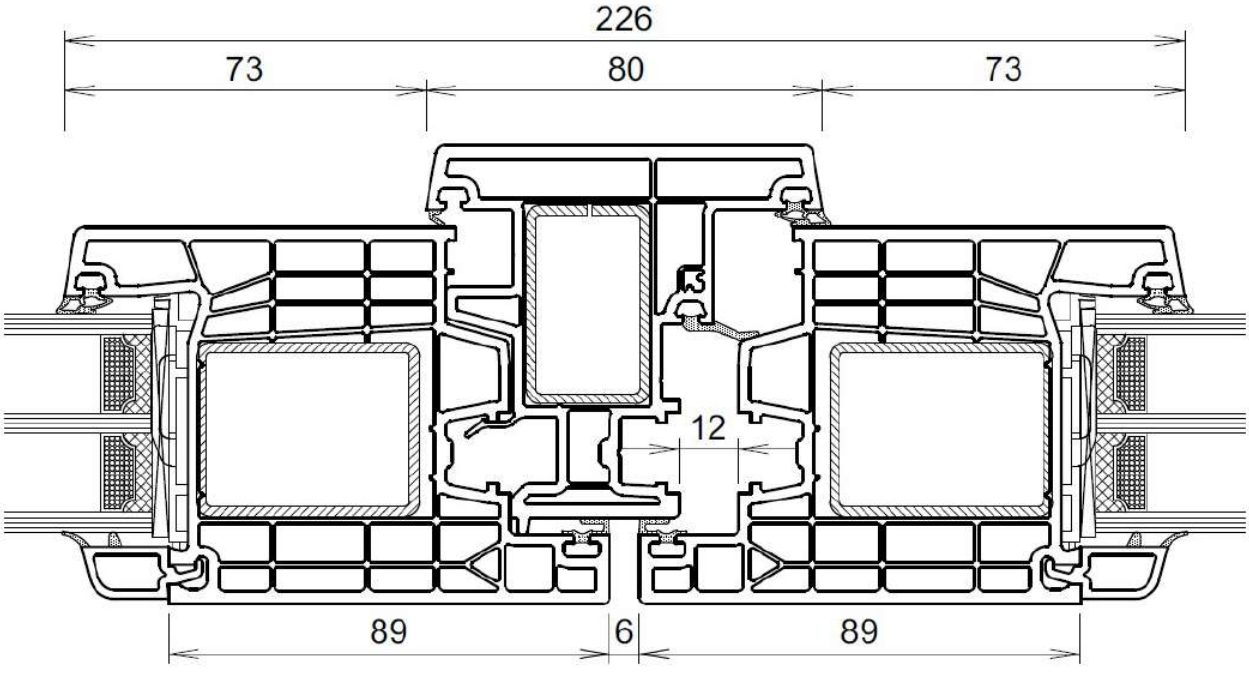
## VARIABLES FROM 3 TO 6 SASH COMBINATIONS

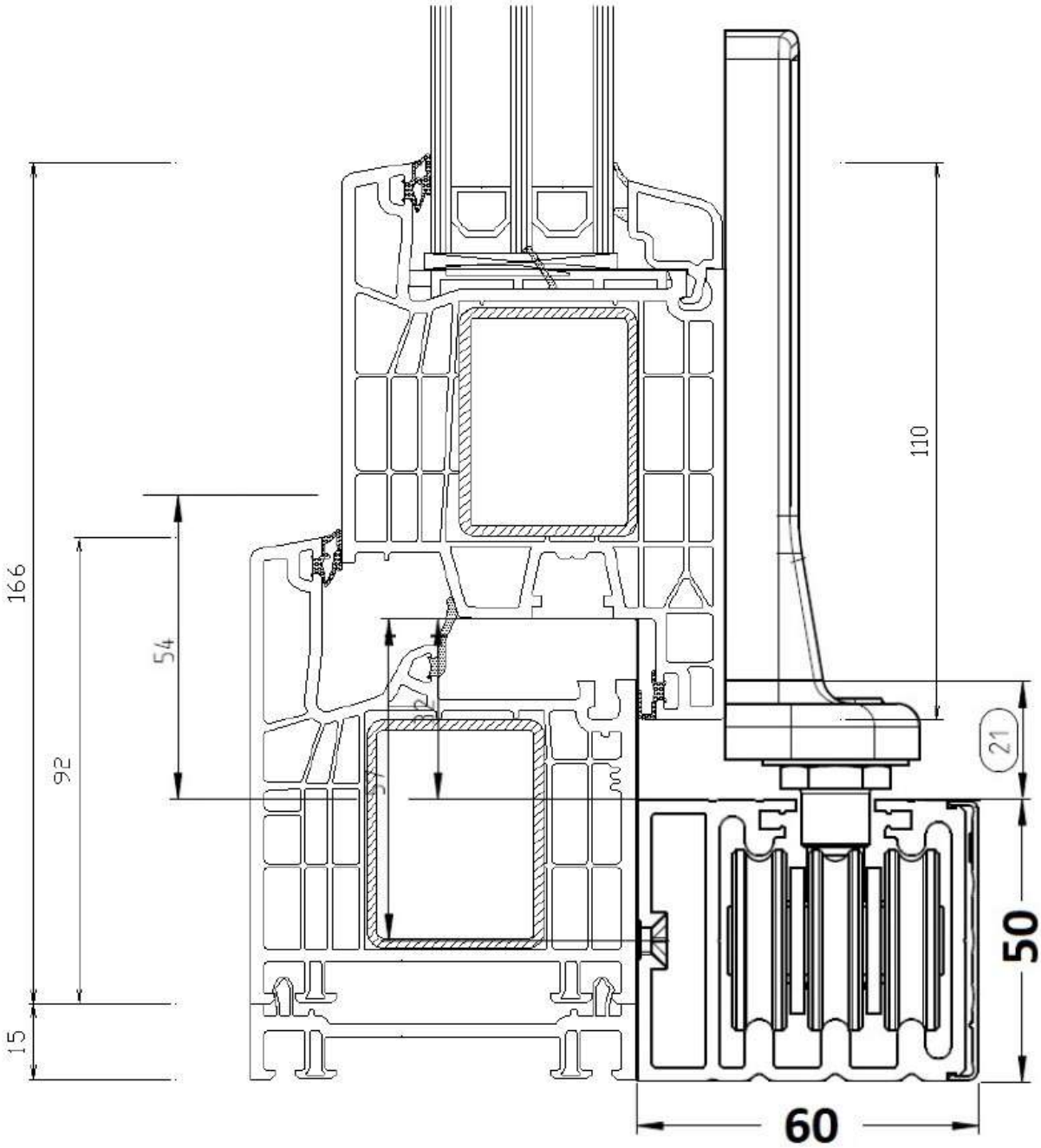


# Stacking door floating mullion and frame

# Inward opening function

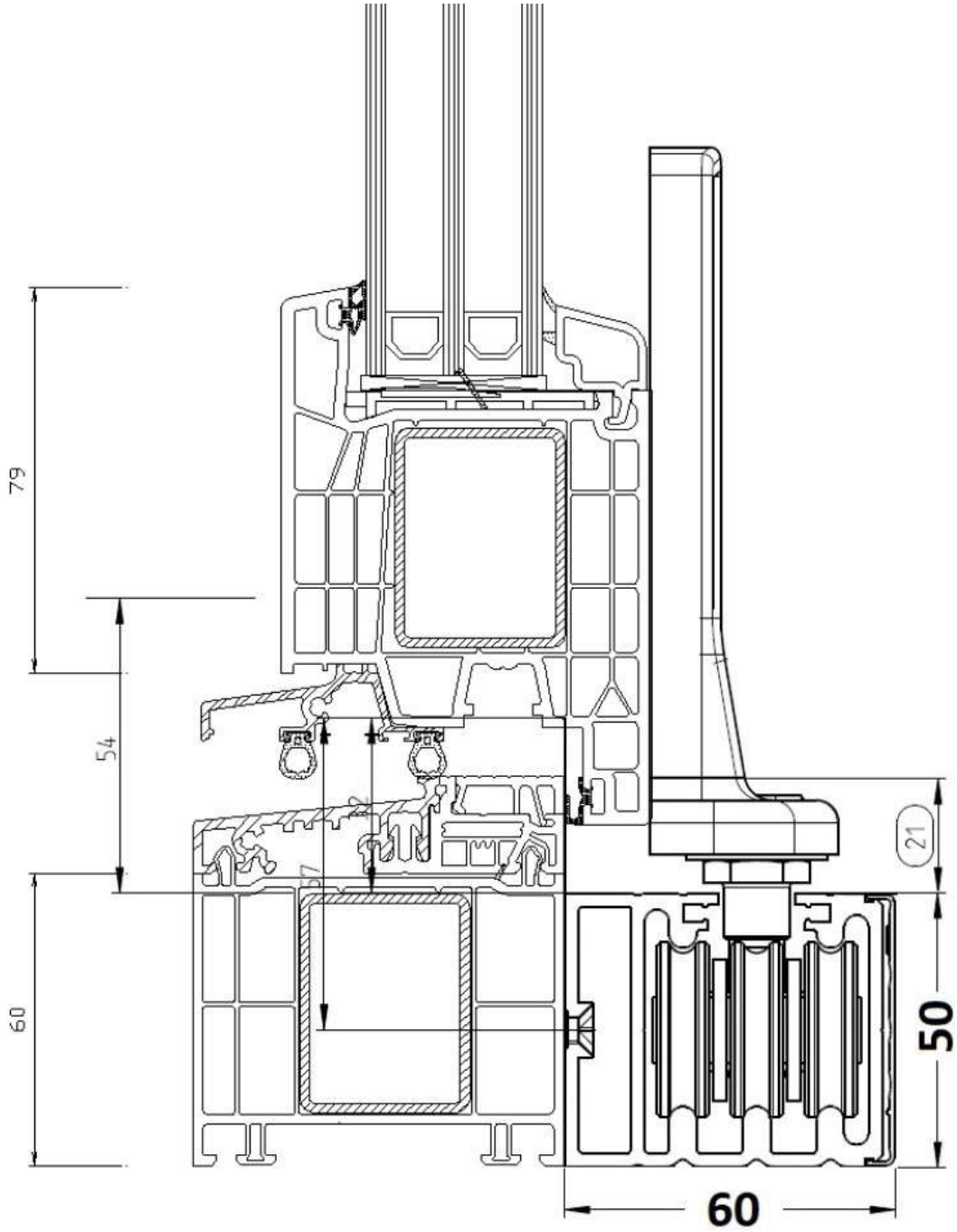





# Standard frame—buried under the finished floor

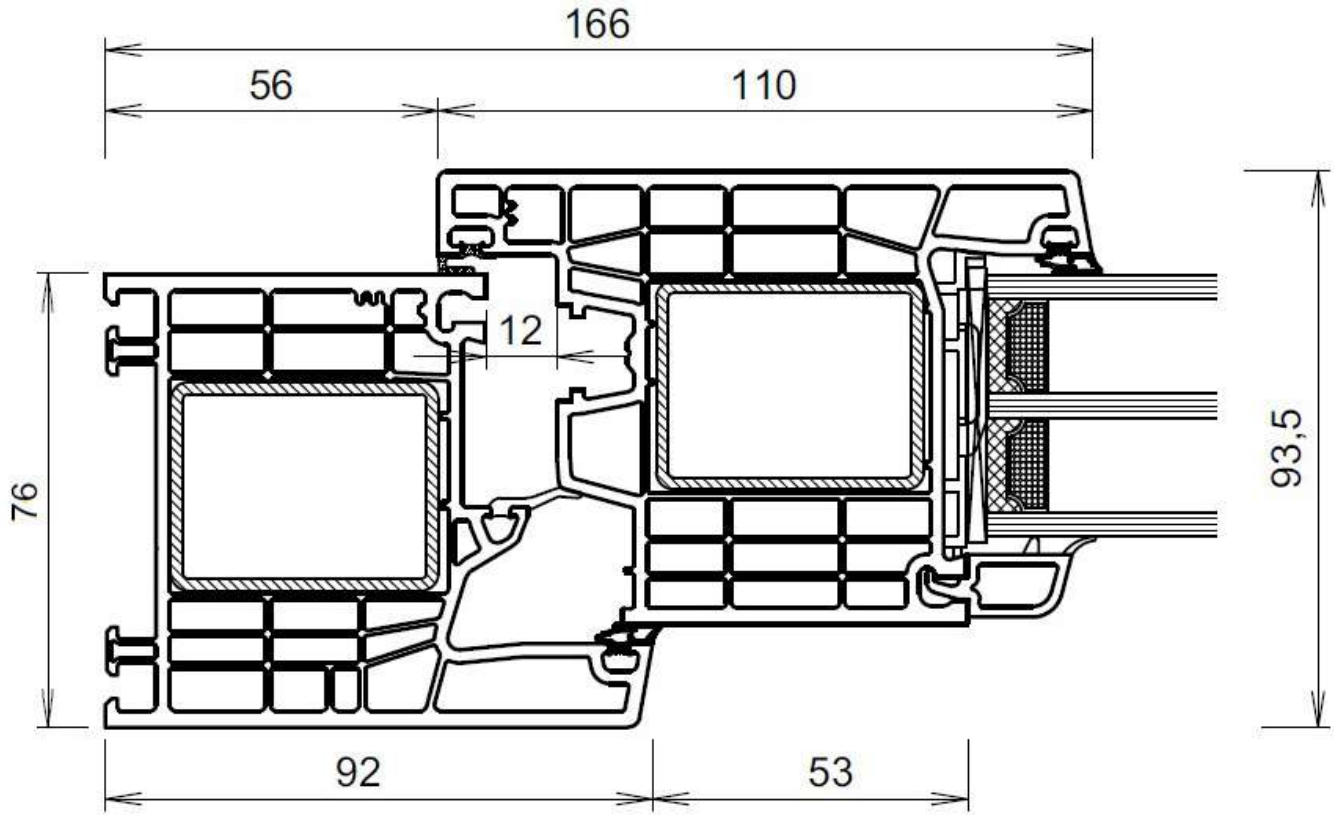
# Max 50mm

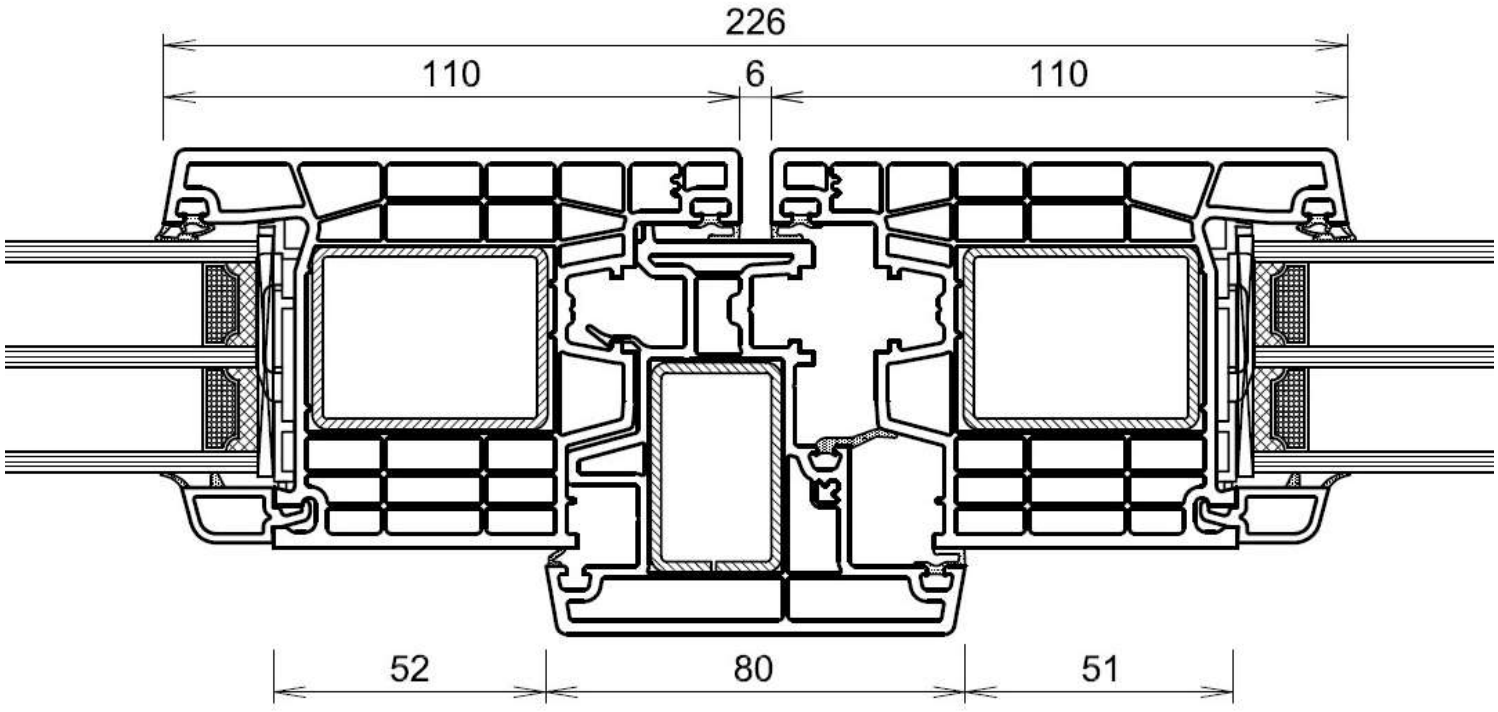


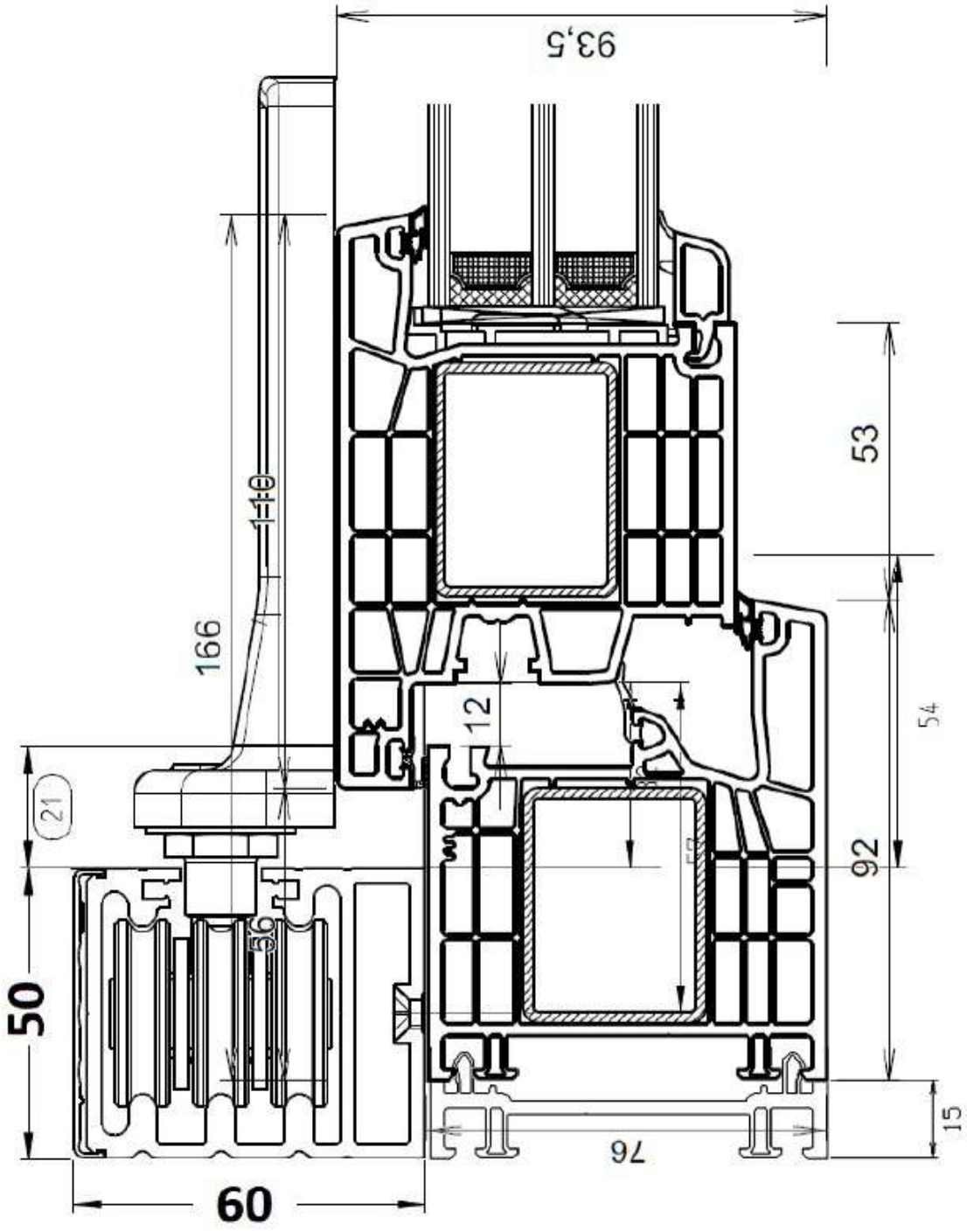

Low sill—buried under the finished floor Max 50mm

# Stacking door floating mullion and frame

## Outward opening function

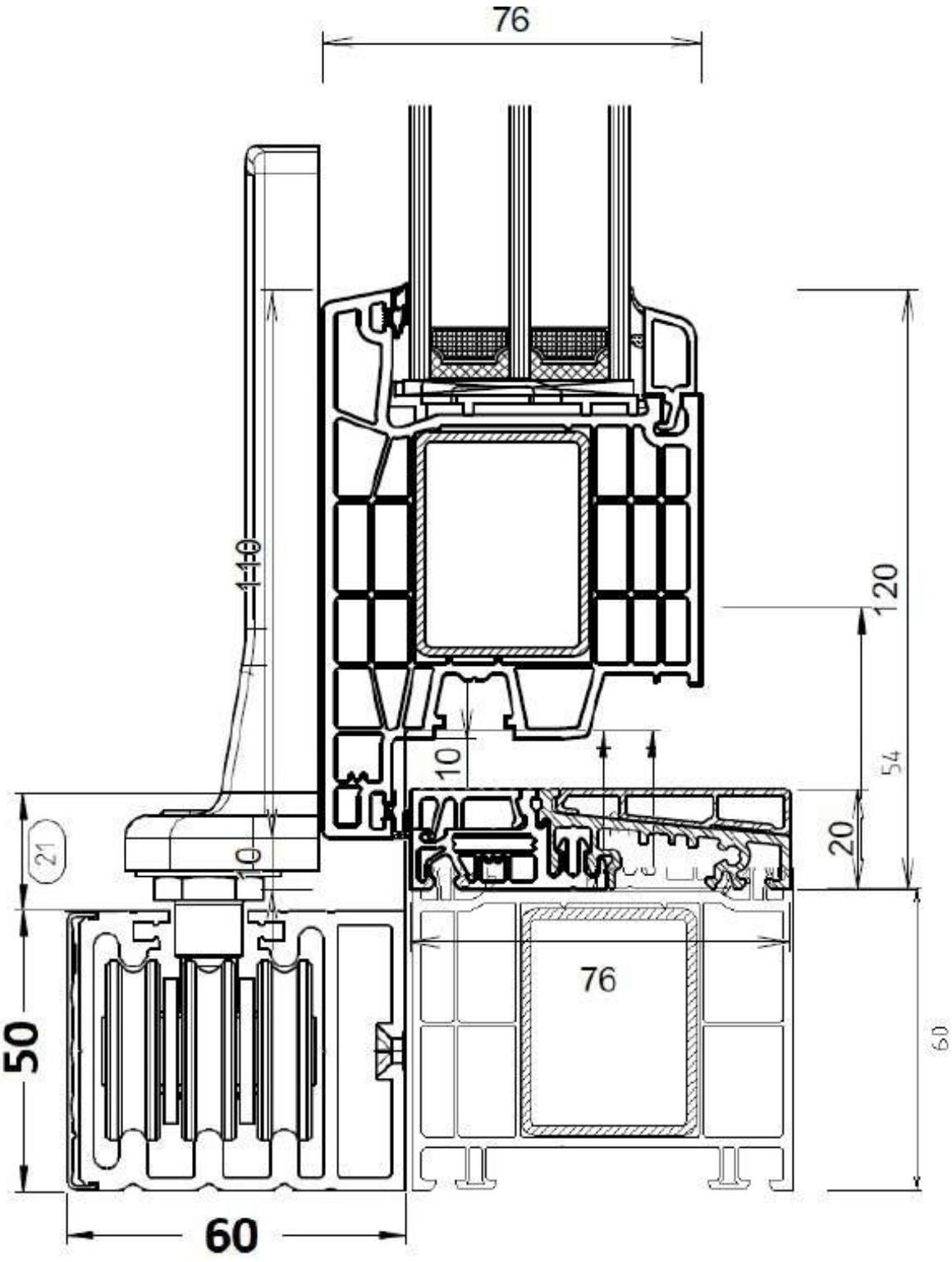





# Standard frame—buried under the finished floor

# Max 100mm

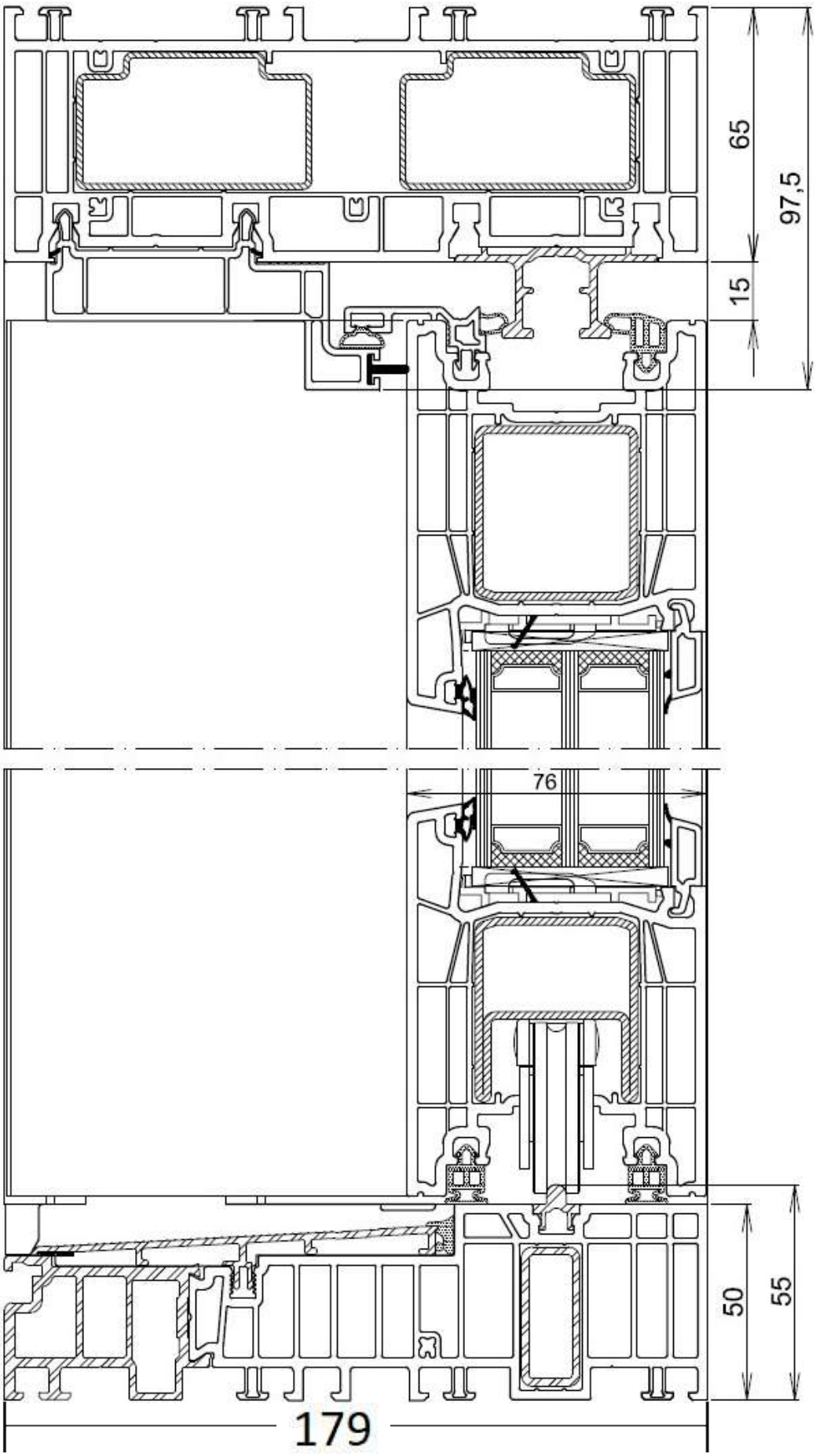



# Standard frame—buried under the finished floor

# Max 80mm

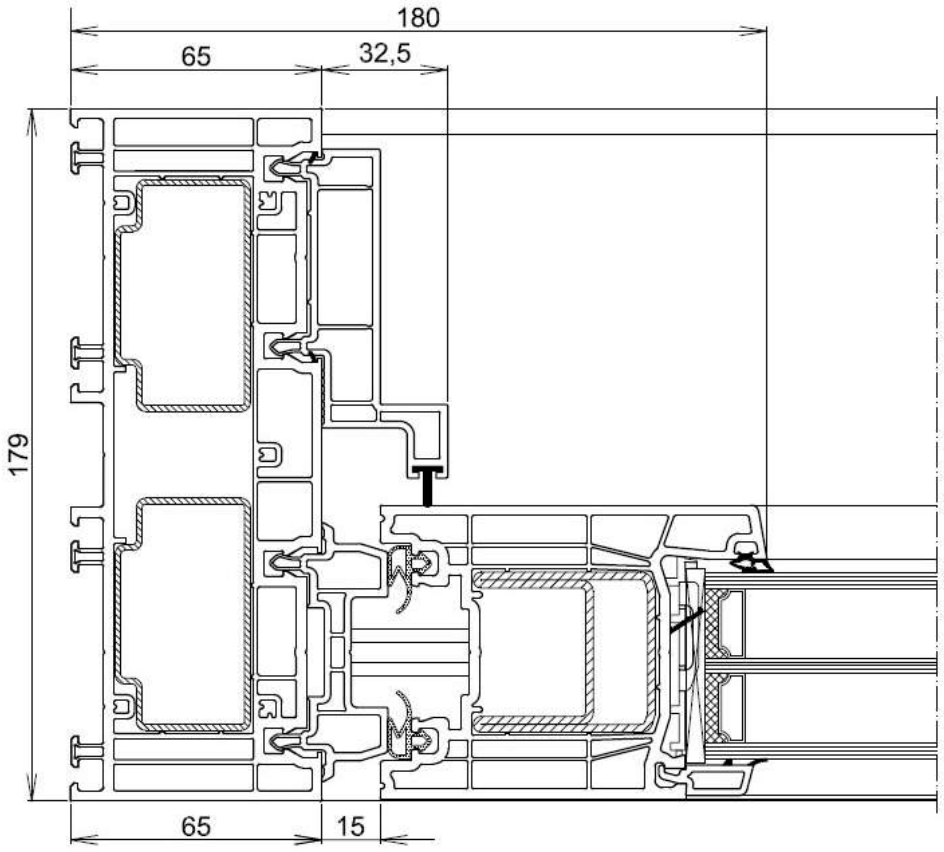
# Lift & slide Premium HST K76

**Max height 2600mm**



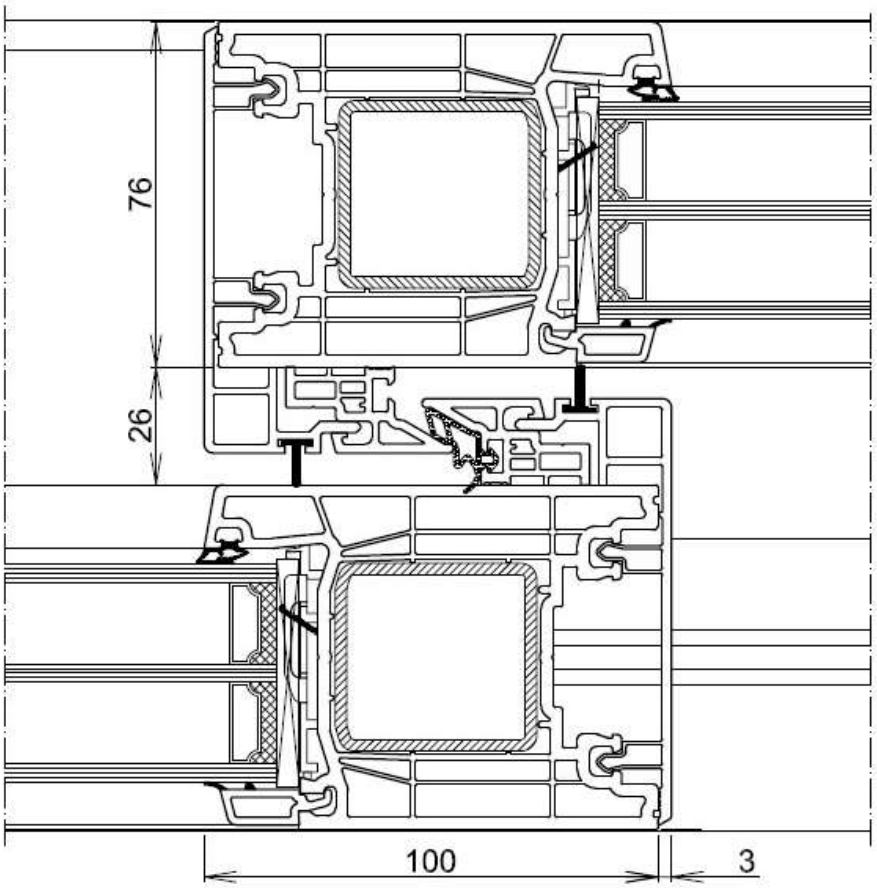
# Premium HST K76

## Side frame

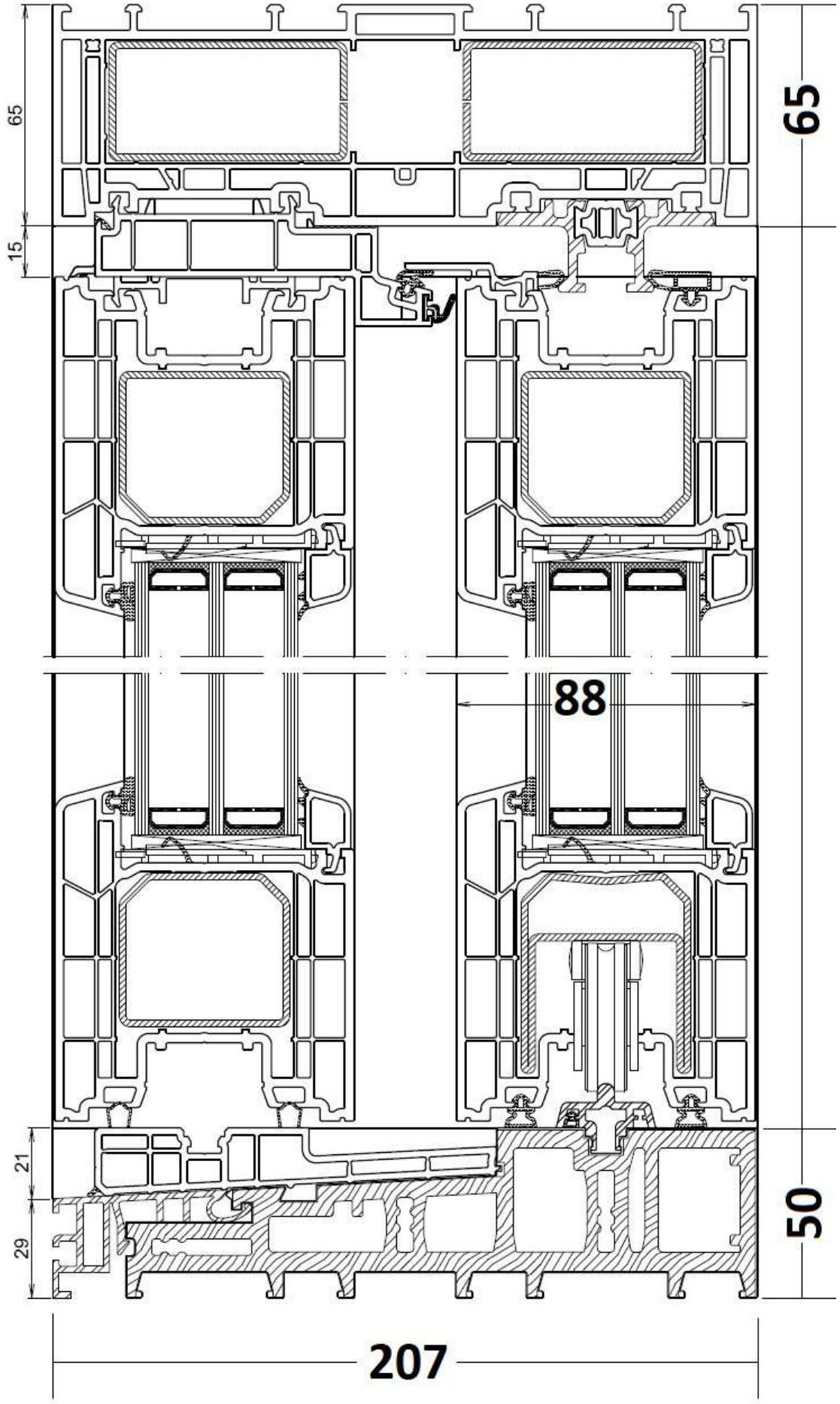



# Premium HST K76

## Central sash



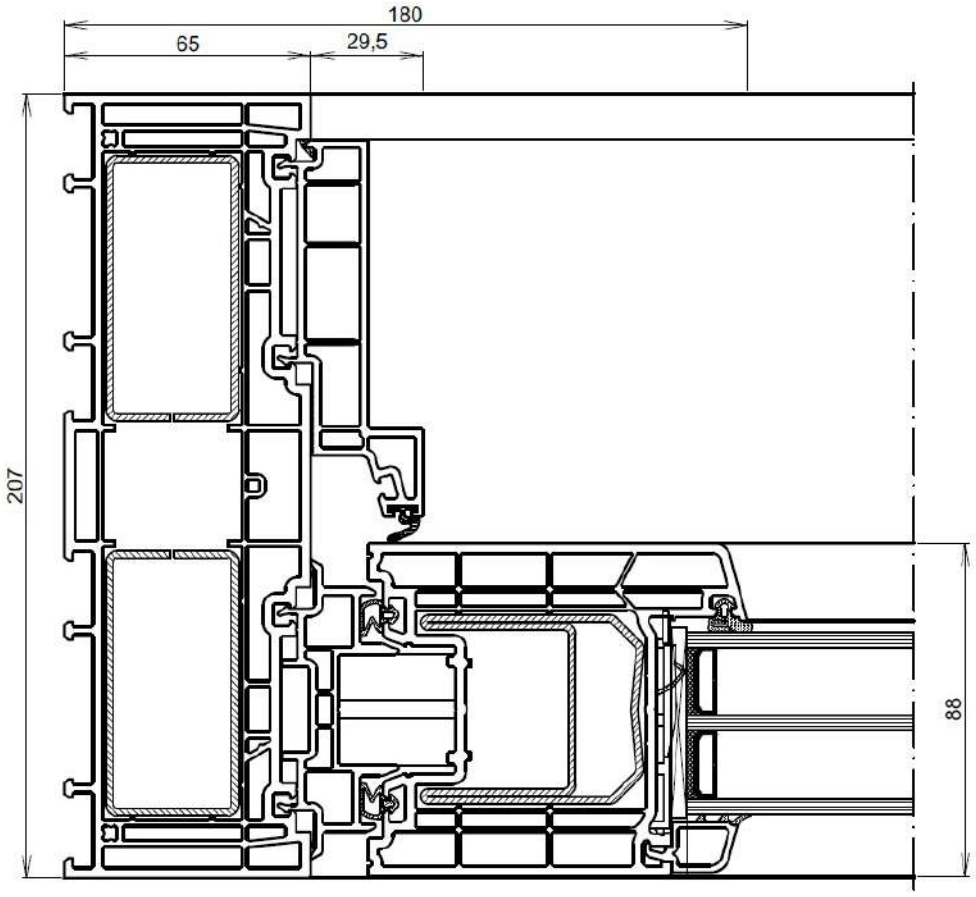
# Lift & slide Premium HST K88




**Max height 2900mm**

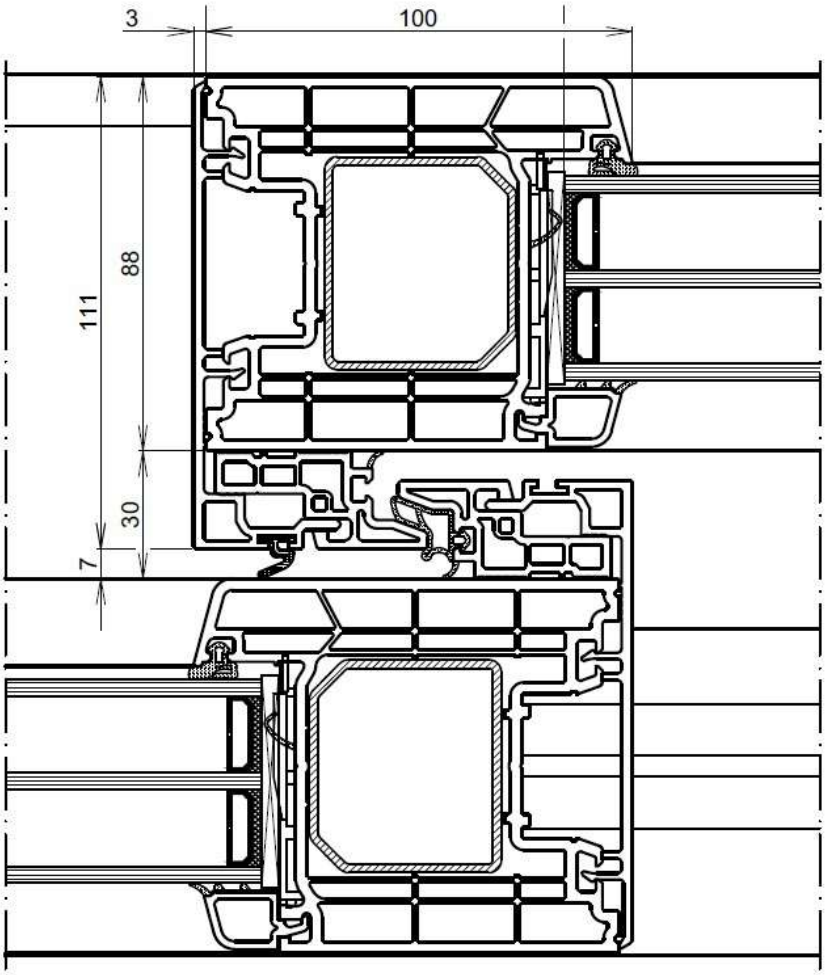
# Premium HST 88

## Side frame

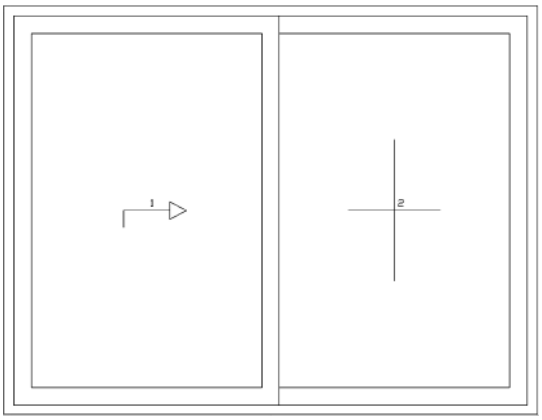



# Premium HST K88

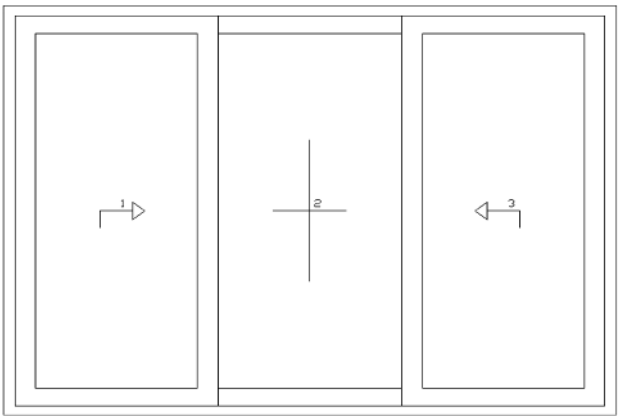
## Central sash



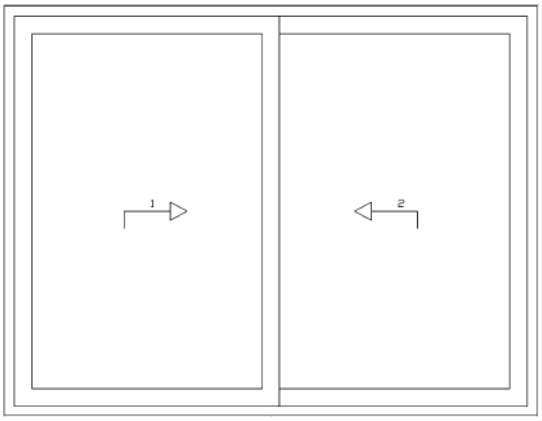
# Types of operation HST K76 and K88



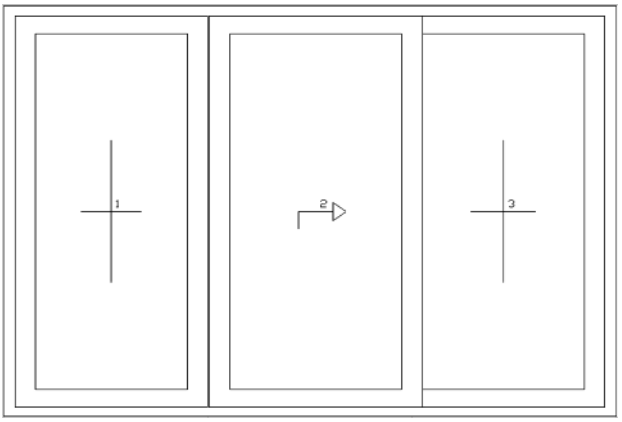

2 sash— One fixed one sliding



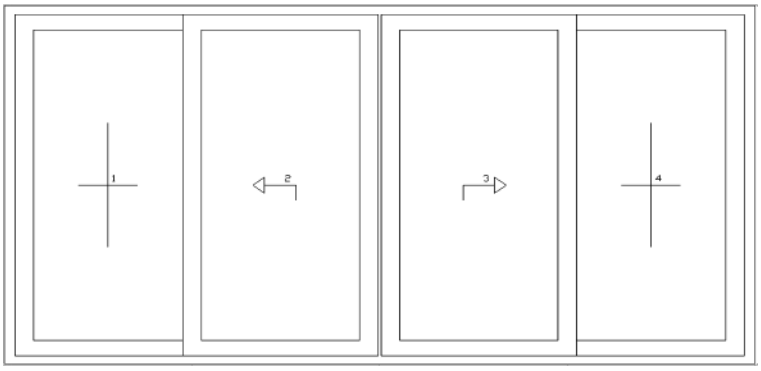

3 sash— two sliding & center fixed



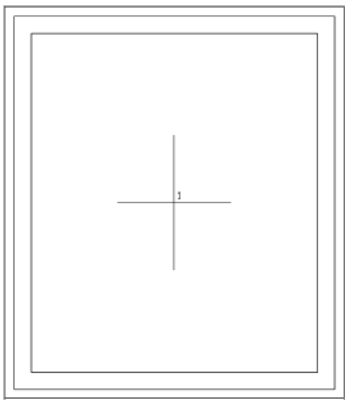

2 sash— both sliding (**only K76**)




3 sash— two fixed & center sliding

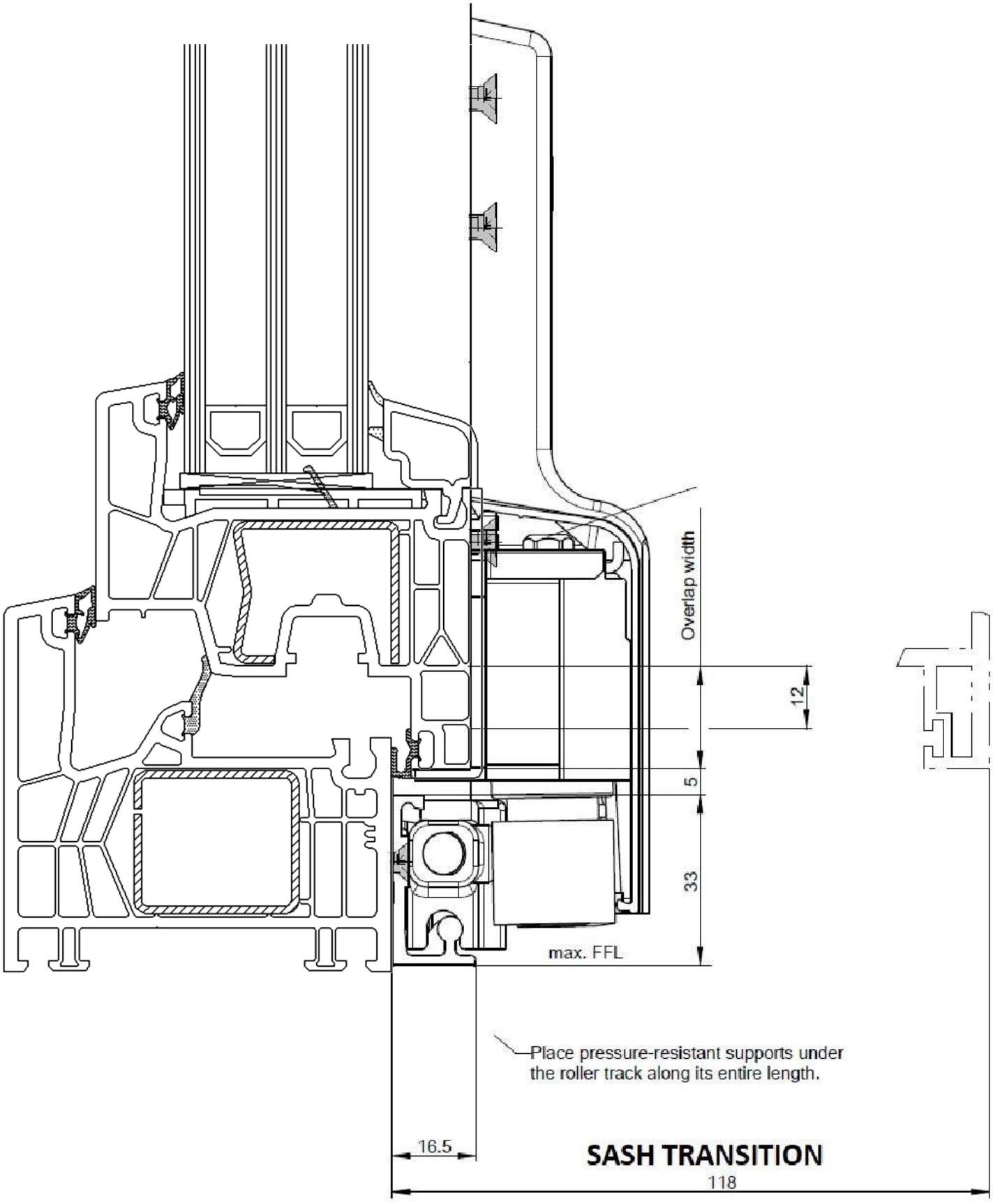


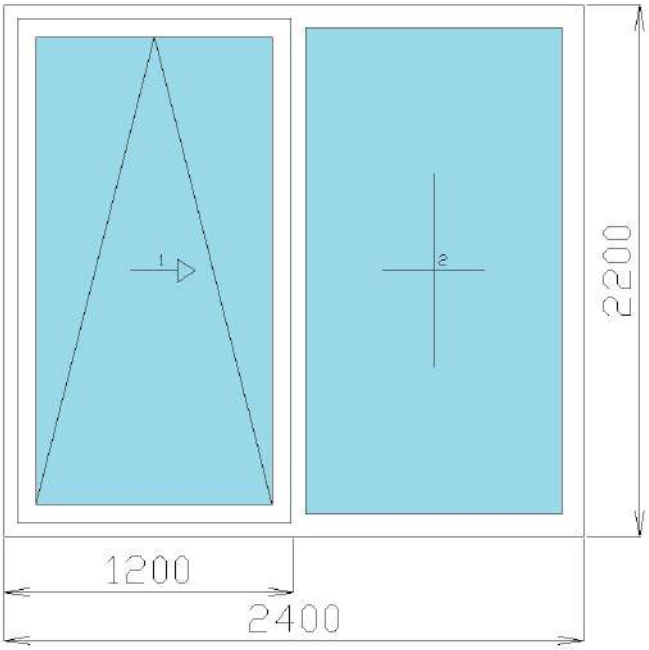

4 sash— Two center sliding over fixed sides

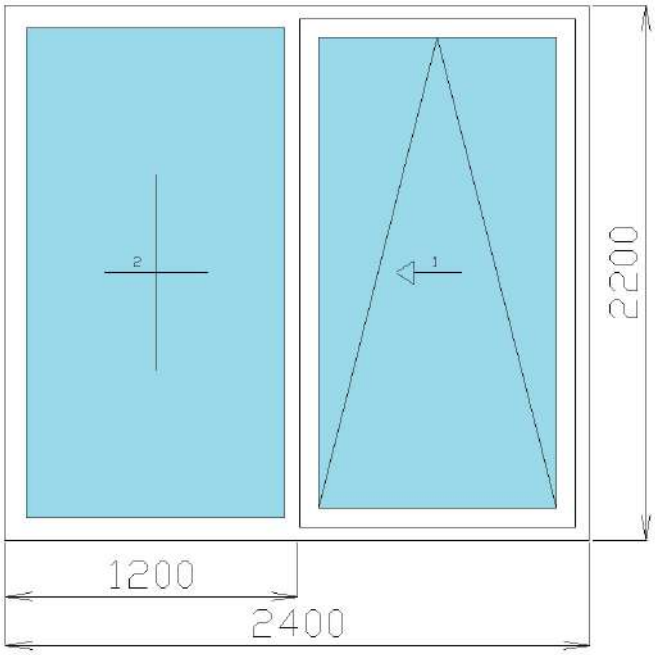


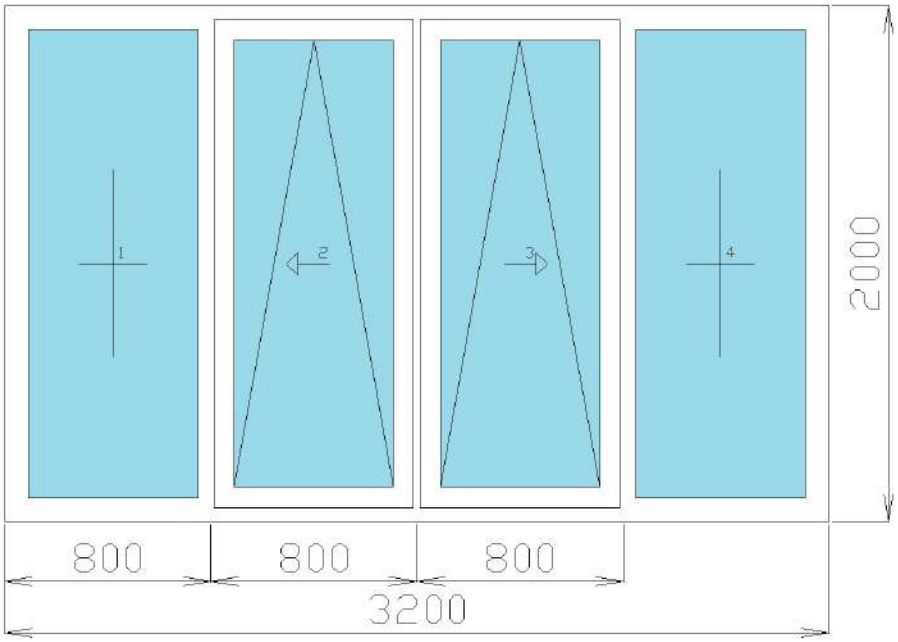

1 sash— fixed

# Tilt & slide Premium KN76

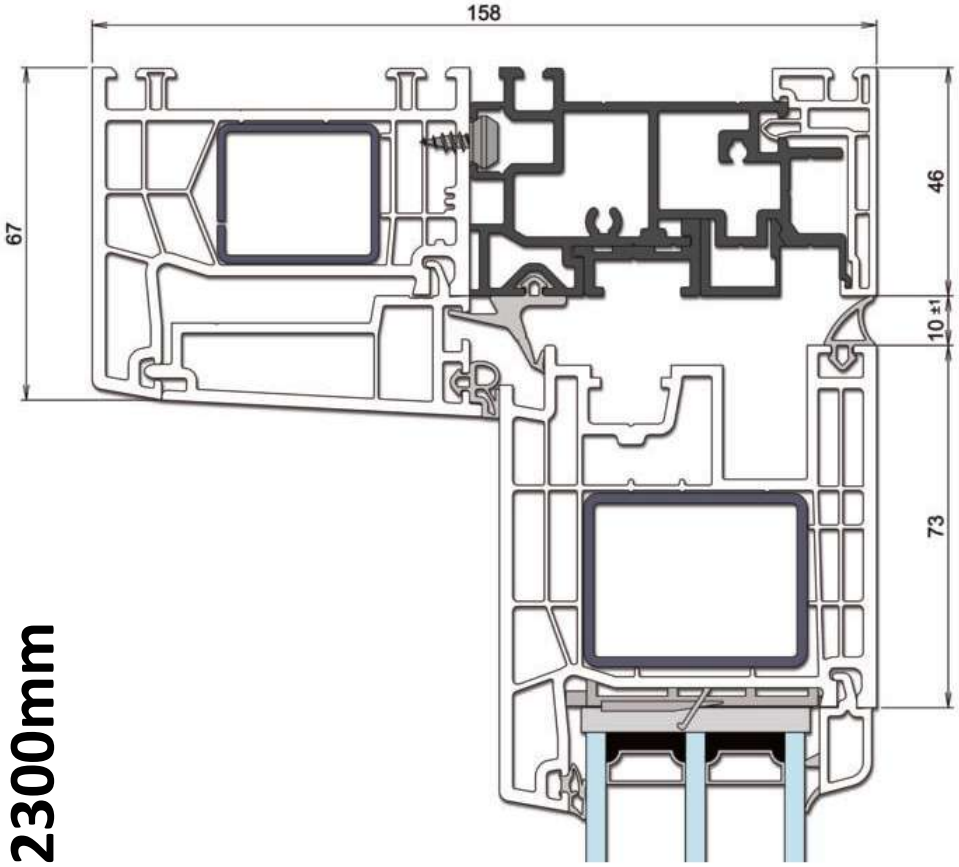



1
2
2200
1200
2400

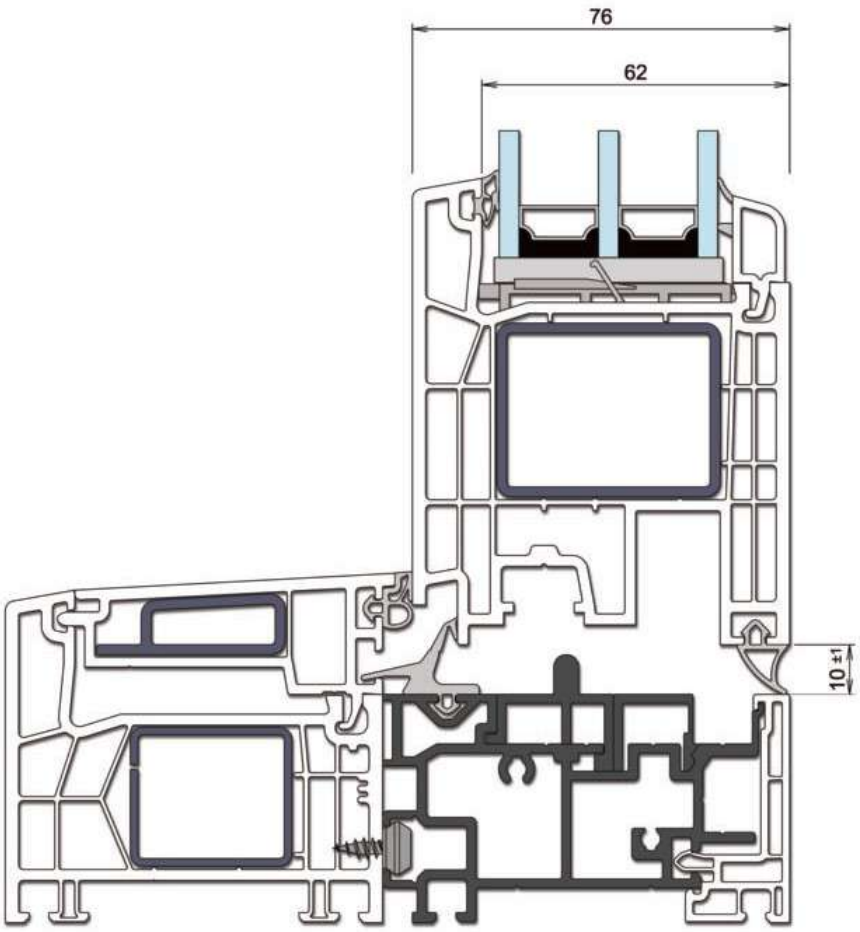

2
1
2200
1200
2400


1
2
3
4
2000
800
800
800
3200

# Slim & slide K76

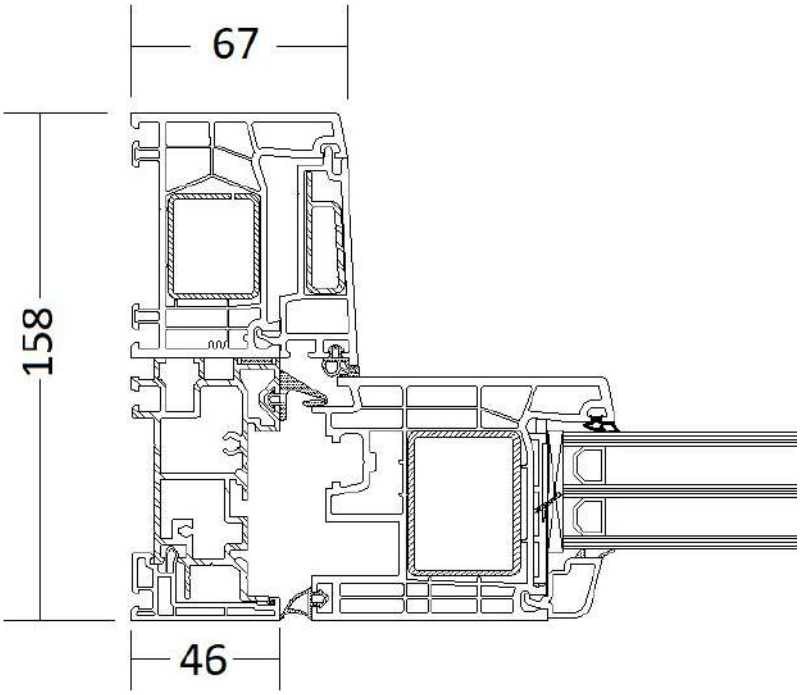



**Max height 2300mm**



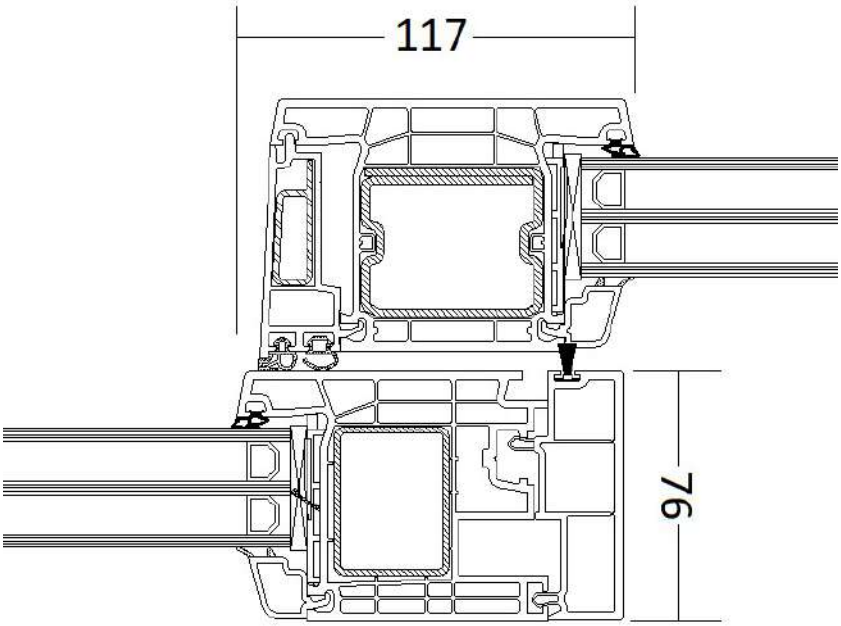
# Slim & slide K76

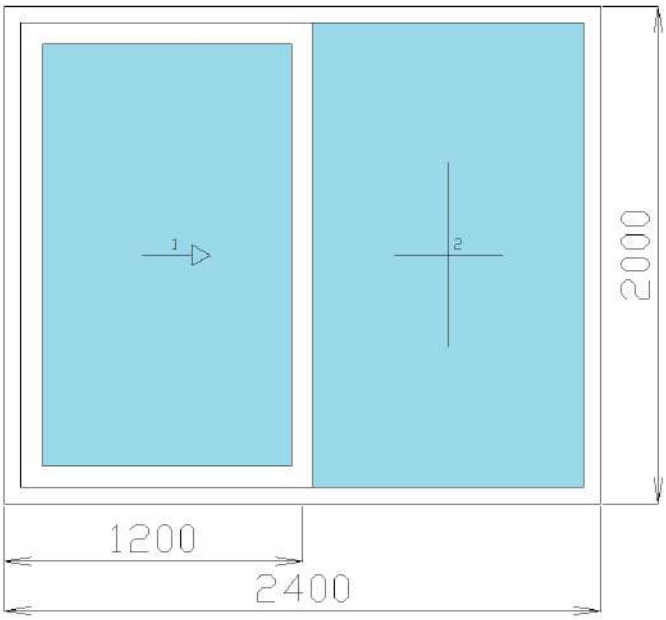
## Side frame

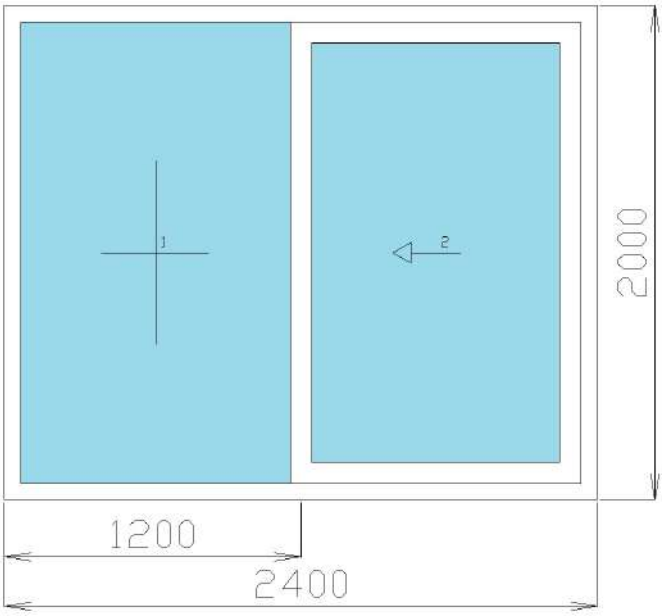


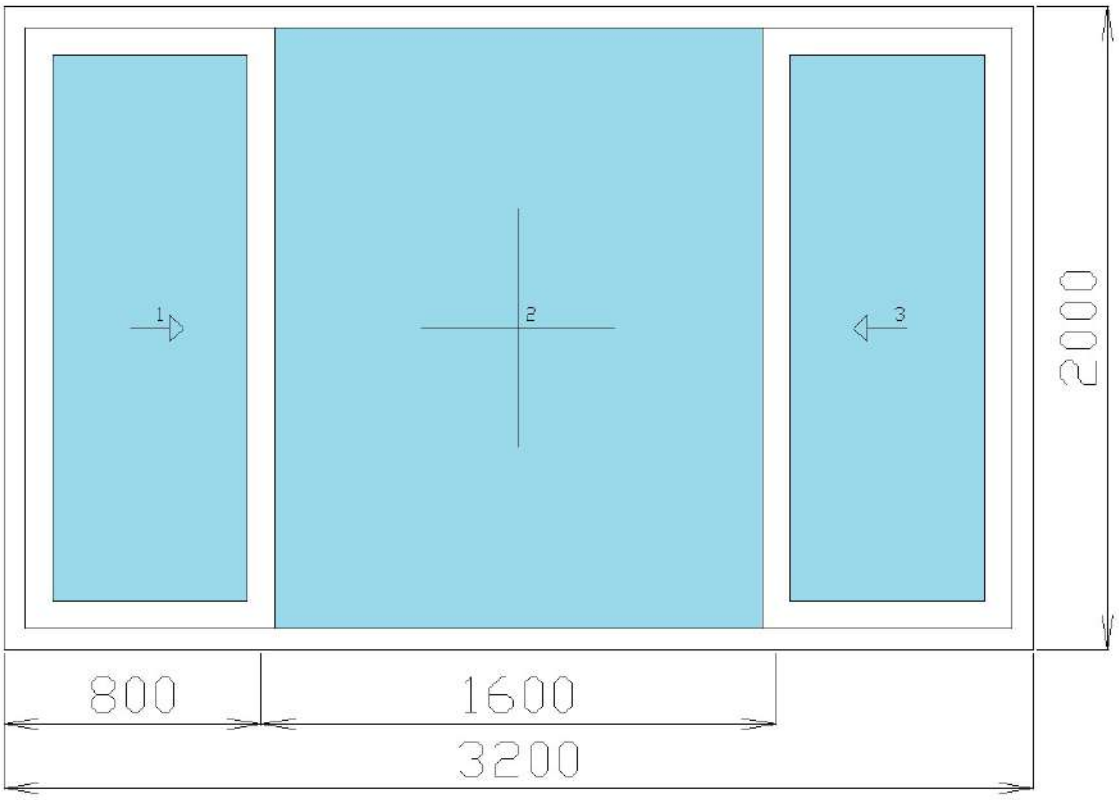

# Slim & slide K76

## Side frame

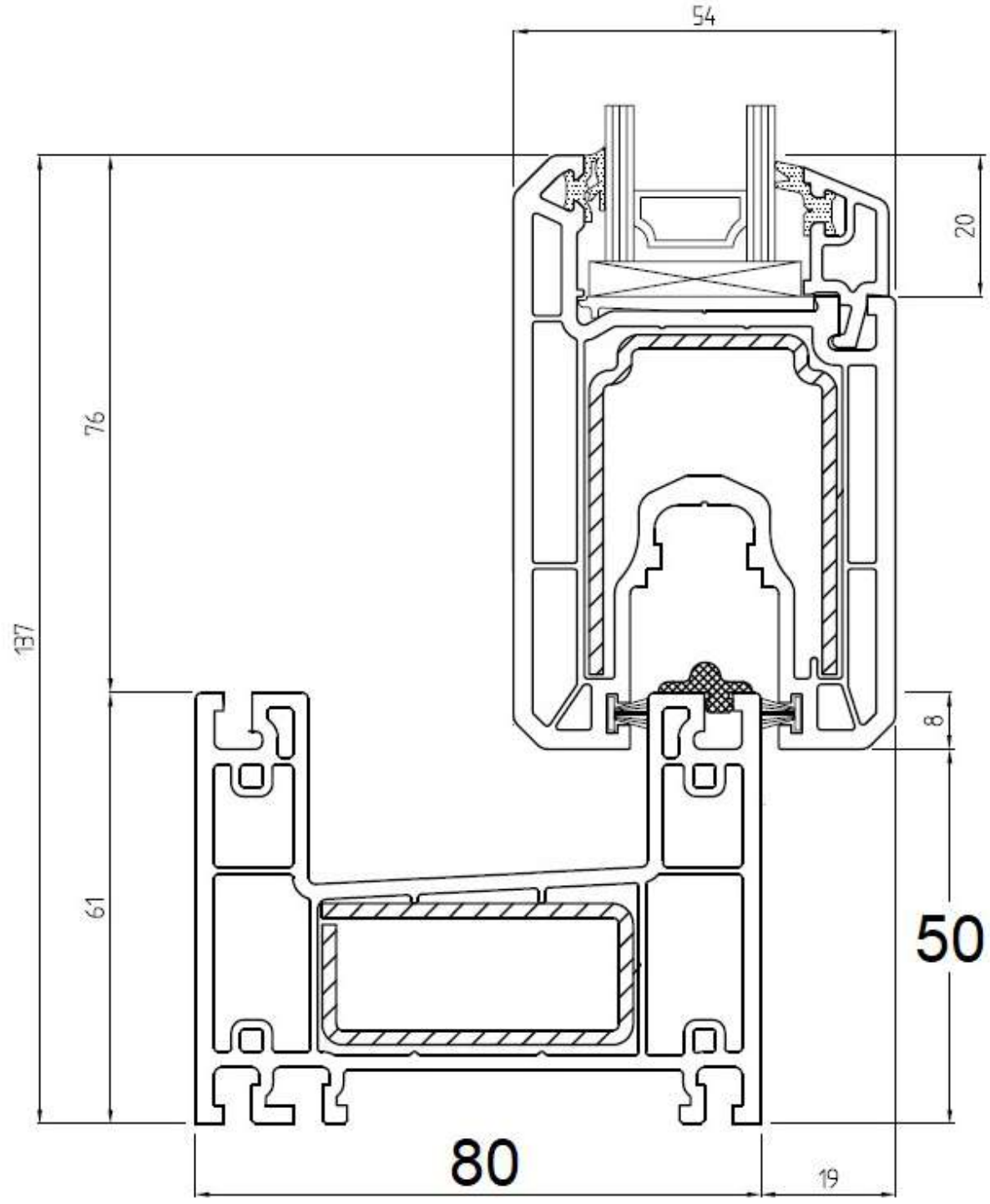



1
2
2000
1200
2400


1
2
2000
1200
2400

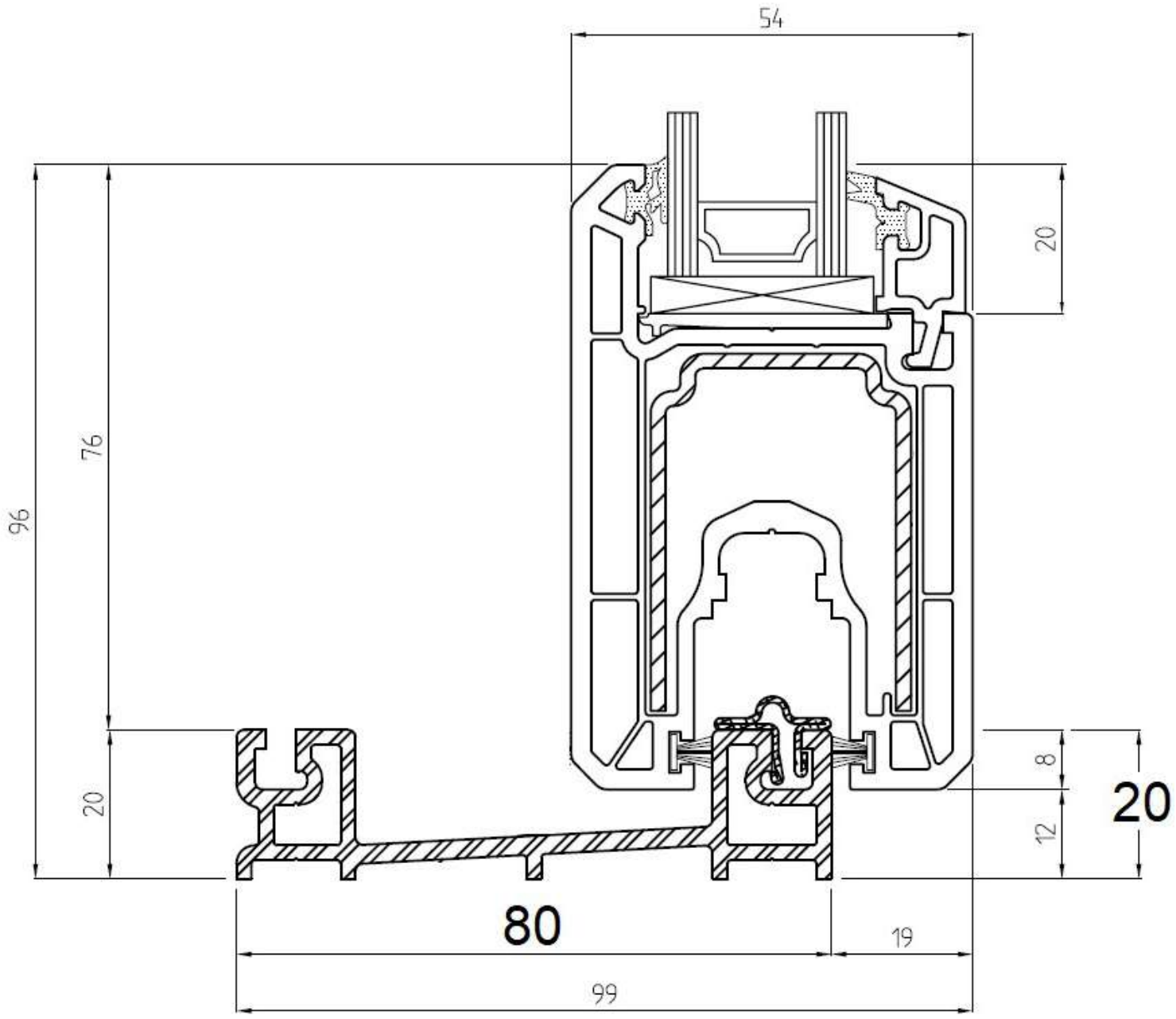

1
2
3
2000
800
1600
3200

# Standard Slider K54




Possible to be buried below FFL with flushing profile.

Otherwise min 12mm clearance from FFL required

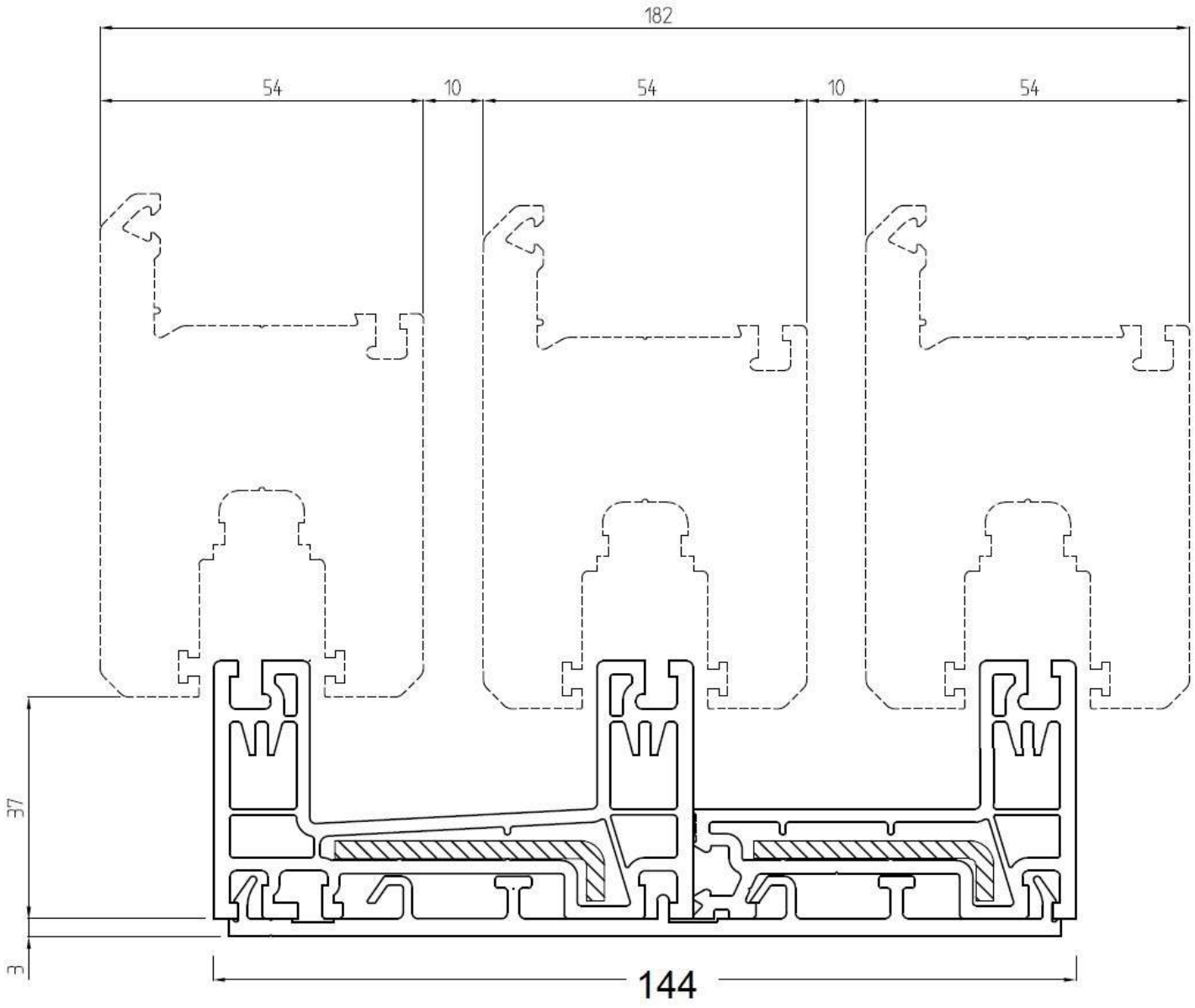


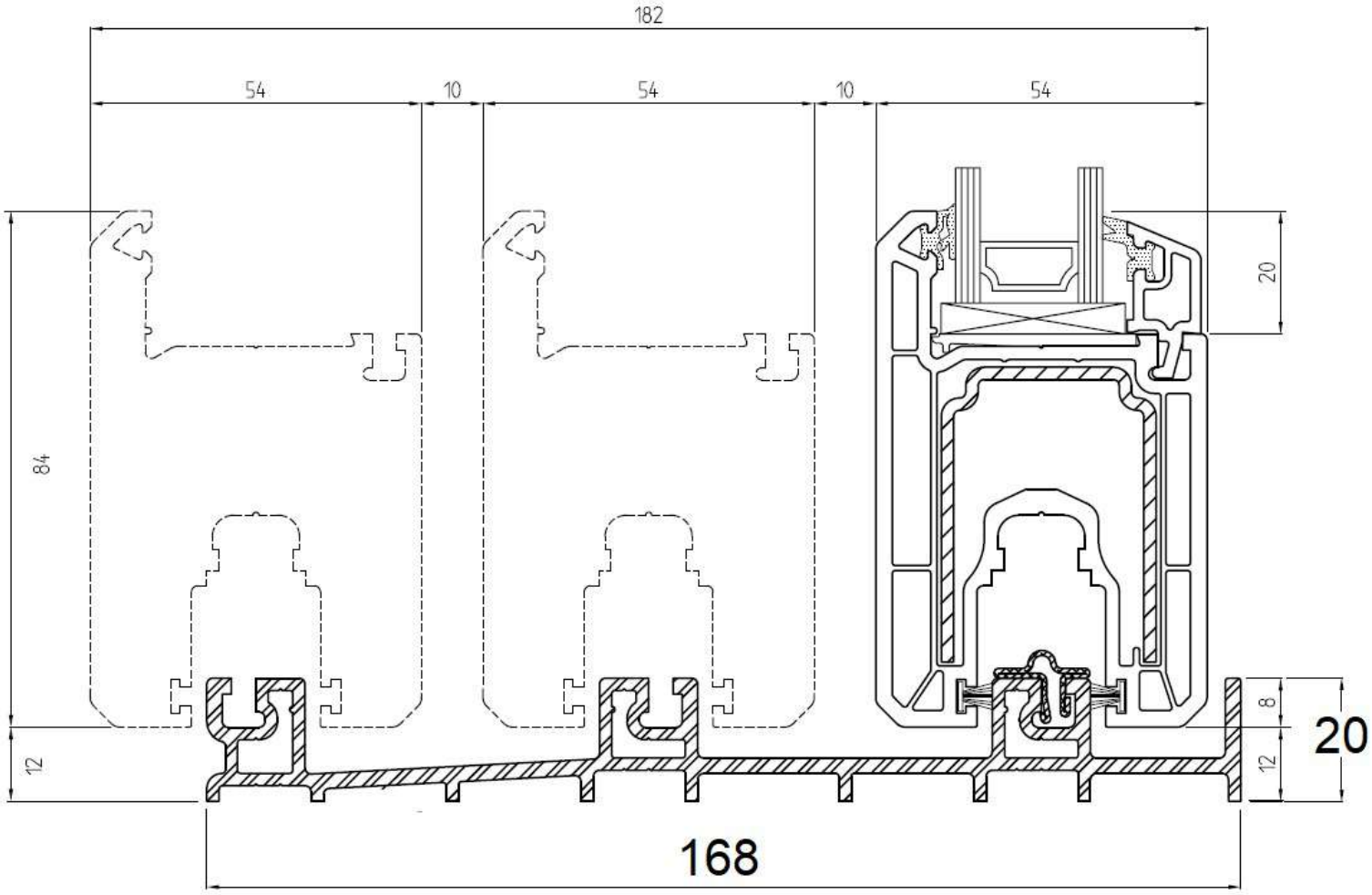

Slider K54 low sill section cut.

Possible to be buried below FFL with flushing profile.

Otherwise min 12mm clearance from FFL required

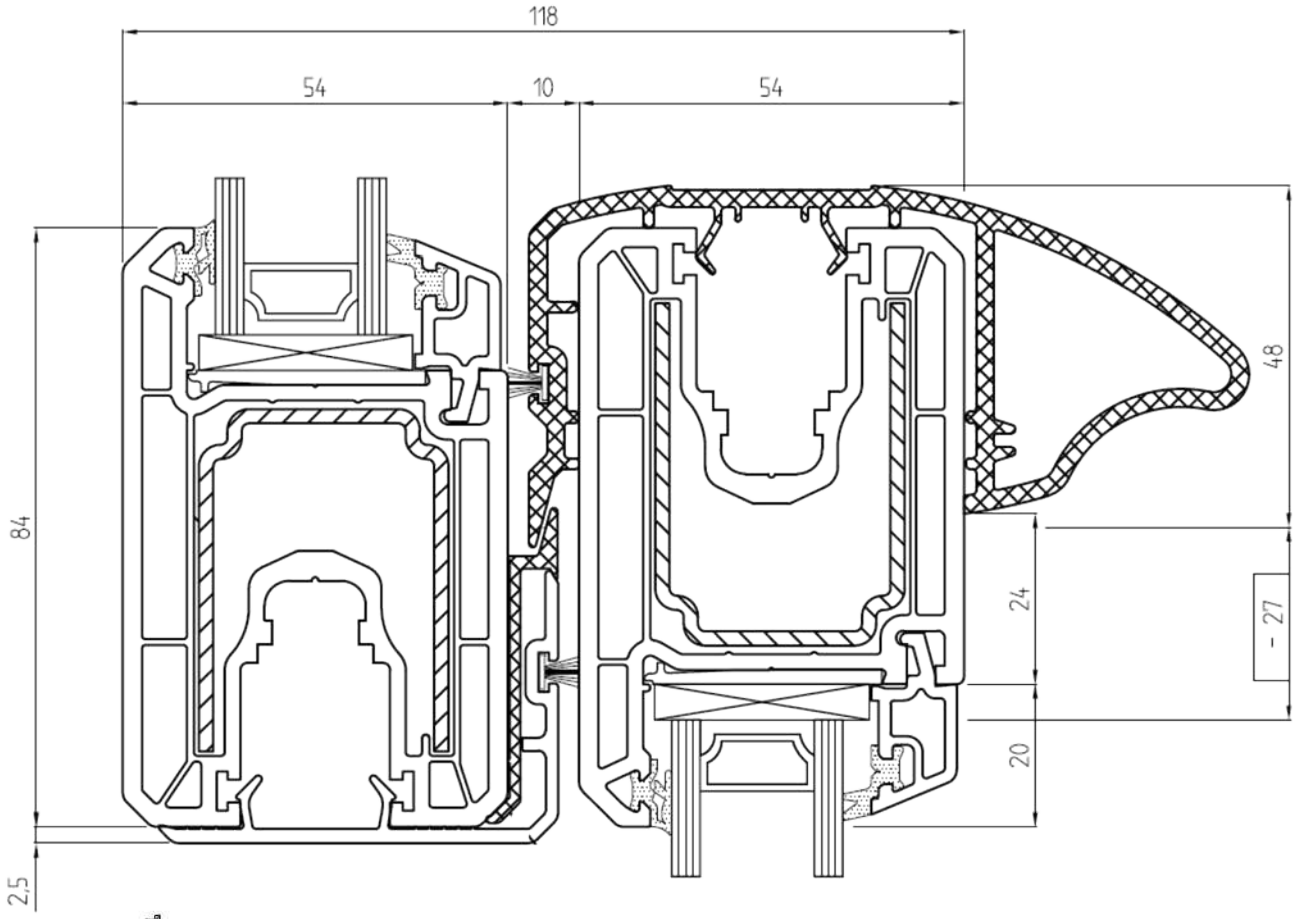
# Slider K54 with 3 sliding panels

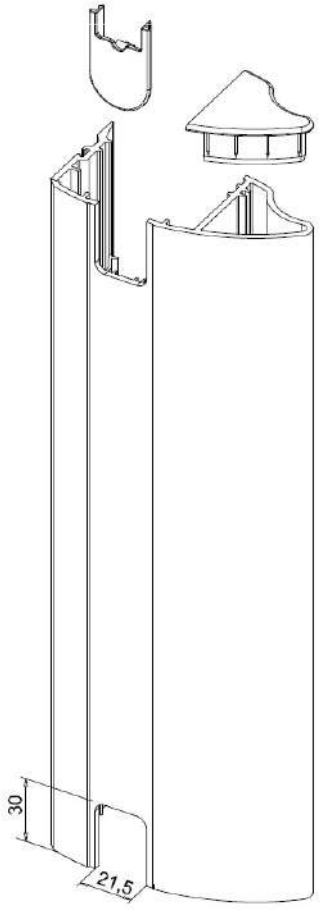





Slider K54 low sill section cut.

Possible to be buried below FFL



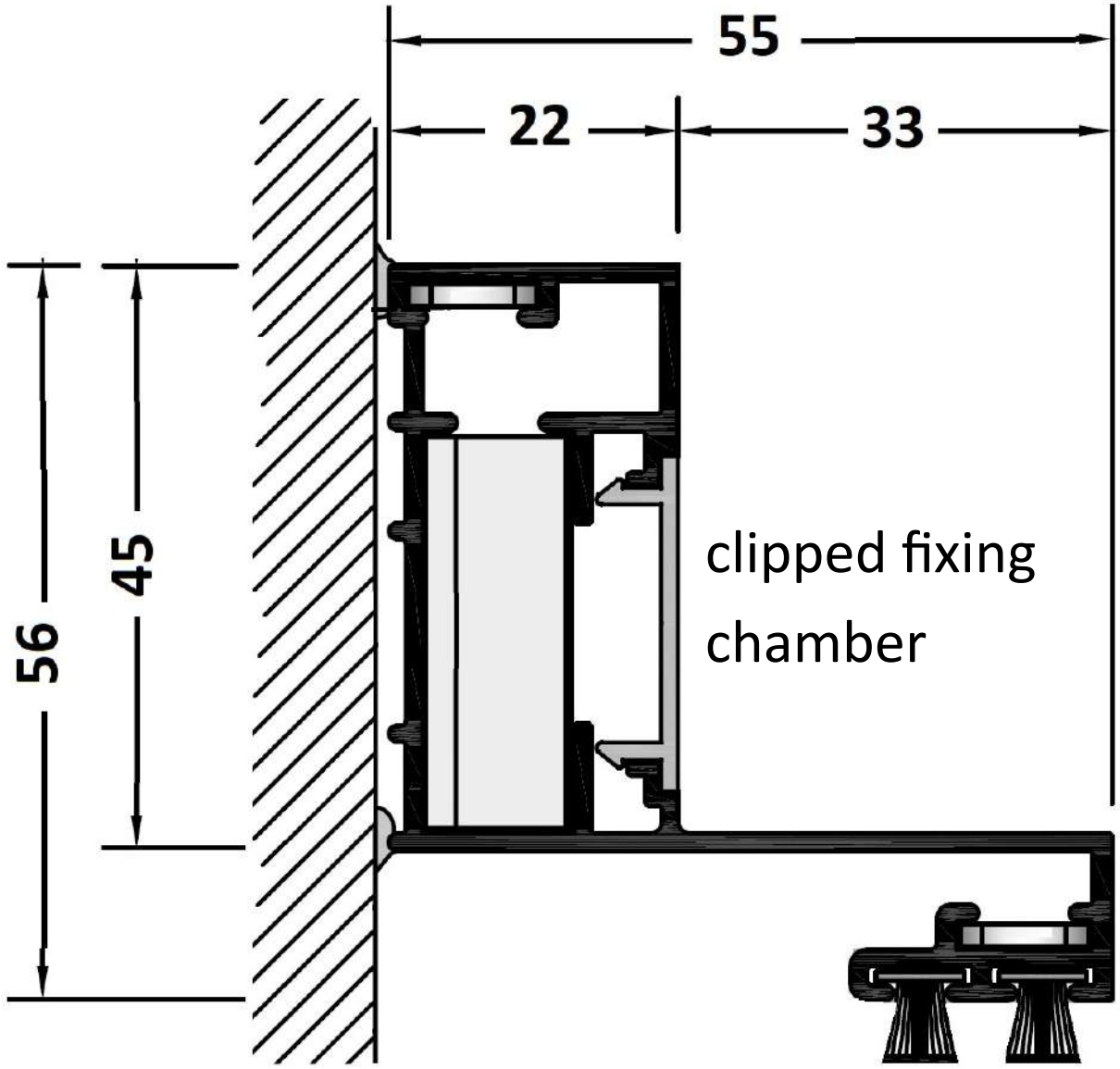

Optional interlock & handle

Available only in white,

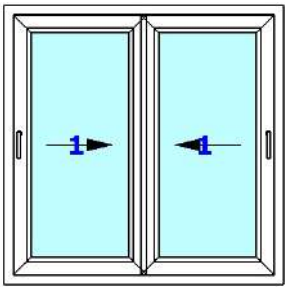
black brown or anodized

alu-extrusion

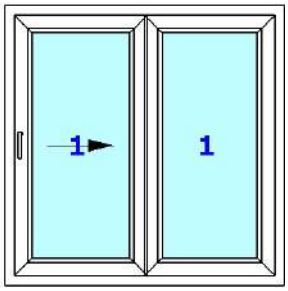
# Alu lining profile with wall fixing chamber for cavity windows and doors



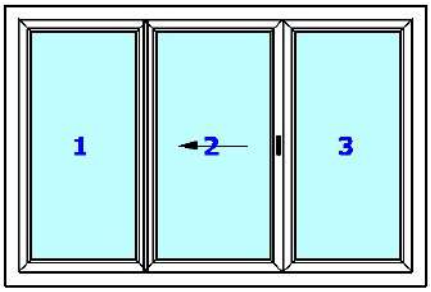
# Various shapes of standard sliders



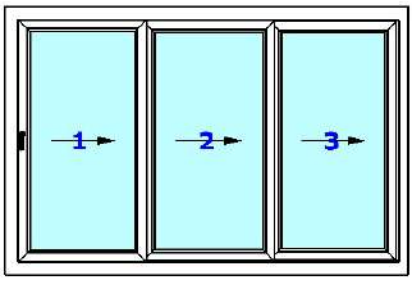

Double sashed slider



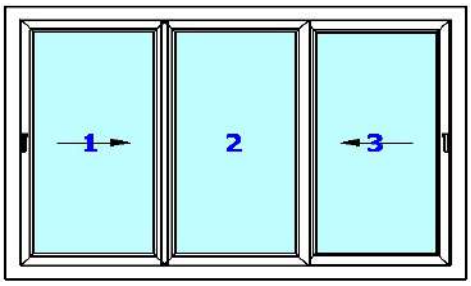

Double sashed slider with one sash fixed



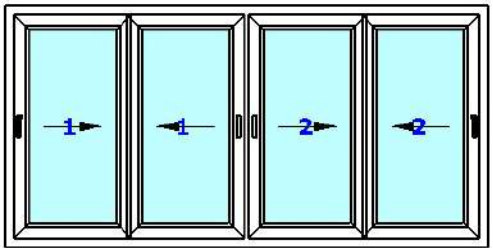

Triple sashed slider with fixed sashes left and right (2 rails)



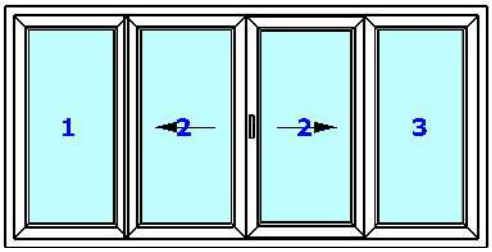

Triple sashed slider (3 rails)



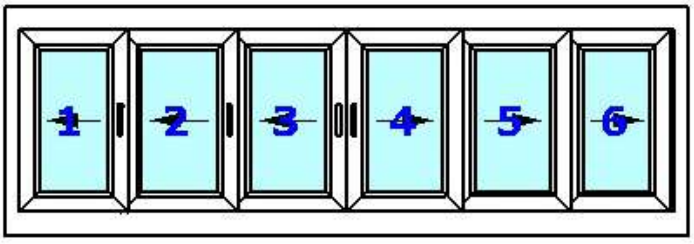

Triple sashed slider with one fixed sash in the middle ( 2 rails) / (3 rails)




Quadruple slider (2 rails)




Quadruple slider with fixed sashes (Left & Right) (2 rails)



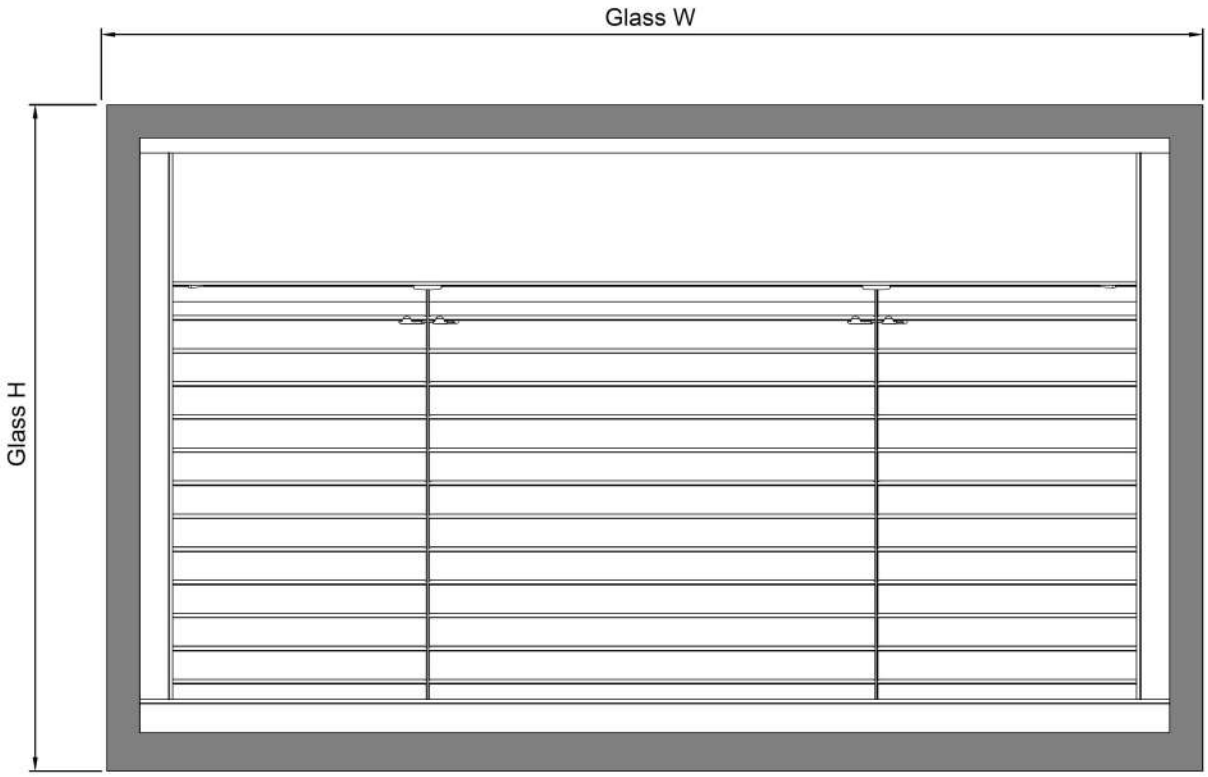

Sliding 6 sashed - (3 rails)

**Max construction width 3500mm**

**Max sash width 1200mm**

Be advised! Standard sliders are not to be used in windy locations

# Privacy Blinds BL22 and BL28

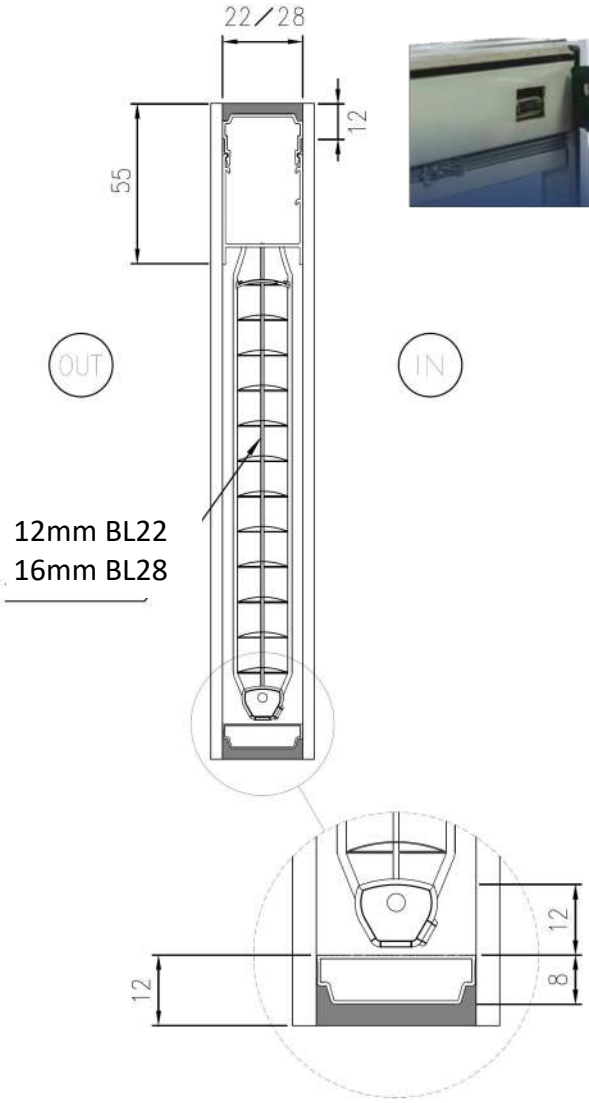



Both types are designed to fit between the cavity of double or triple glazing units in an airtight seal. They can be installed in any glass bearing element. Size and glass specifications to be calculated per project.

BL22 comes with manual operation

BL28 comes with motorized operation

BL22 type is coming with an exterior magnet and chain that operates the blinds without penetrating the sealing or the glazing unit



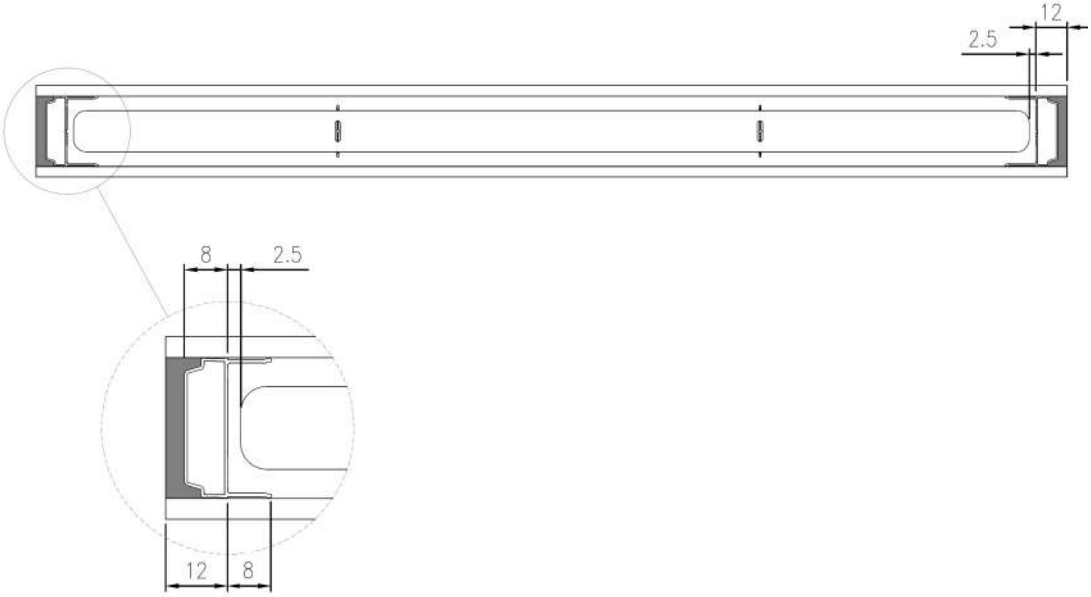

<u>Max surface per glass for BL22 is 3.5 m²</u>

BL28 type comes with a 12V motor and has to be operated by specified transformer / switch / receiver (for RC operation)

<u>Max surface per glass for BL28 is 6.0 m²</u>

Touch wall switch

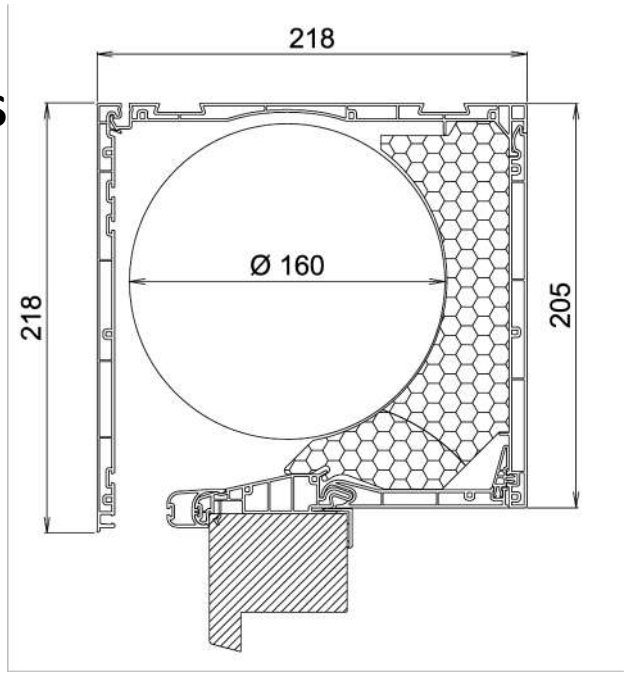
Remote controller



# OVER FRAME ROLLING SHUTTER BOXES

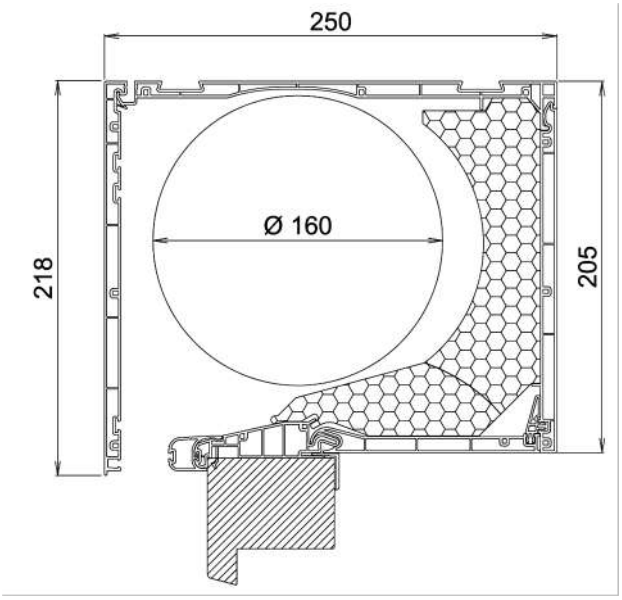
## K1 BOX

205*218 Rolling shutter box with insulation (optional).



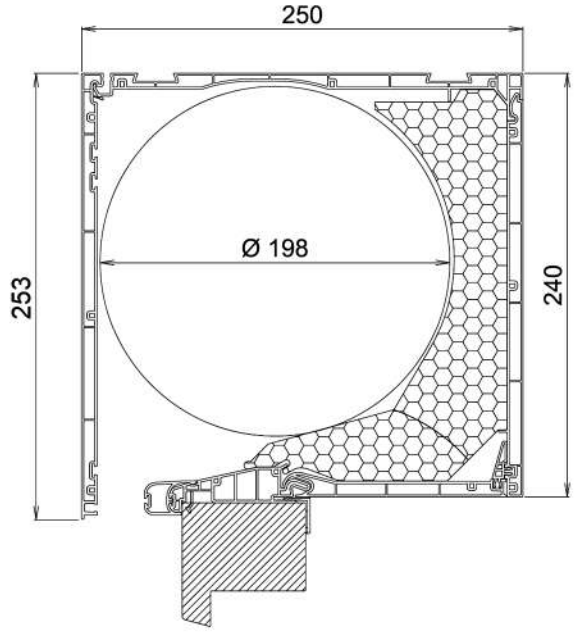

## K2 BOX

250*218 Rolling shutter box with insulation (optional).




## K3 BOX

250*240 Rolling shutter box with insulation (optional).



# Exterior or overframe alu (cold) rolling shutters

## OVERFRAME BOX

**Alu K4 155*185**

**Alu K4 185*185**

**Alu K4 210*210**

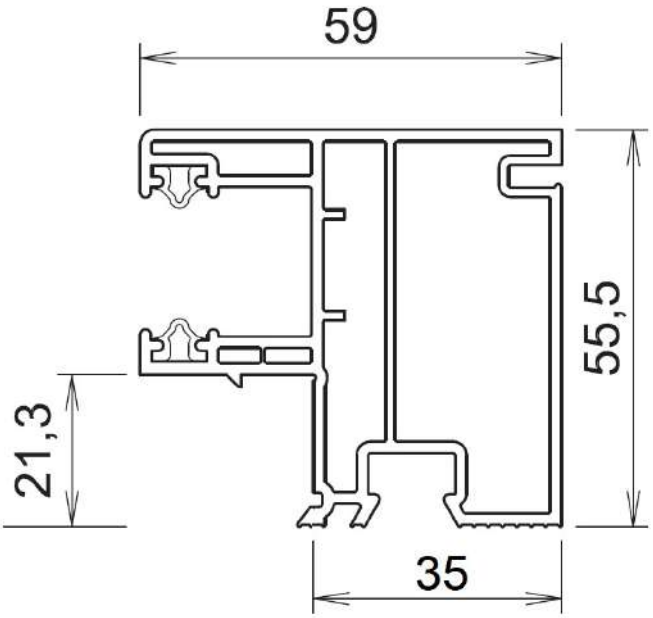
## EXTERIOR BOX

**Alu K5 145*145**

**Alu K5 170*170**

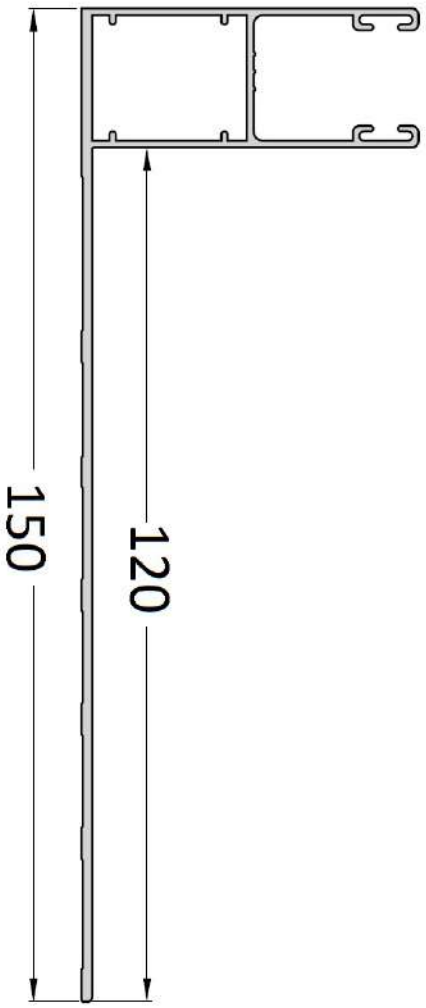
Standard profile side rails

Middle track is also possible for dividing the shutter in 2.

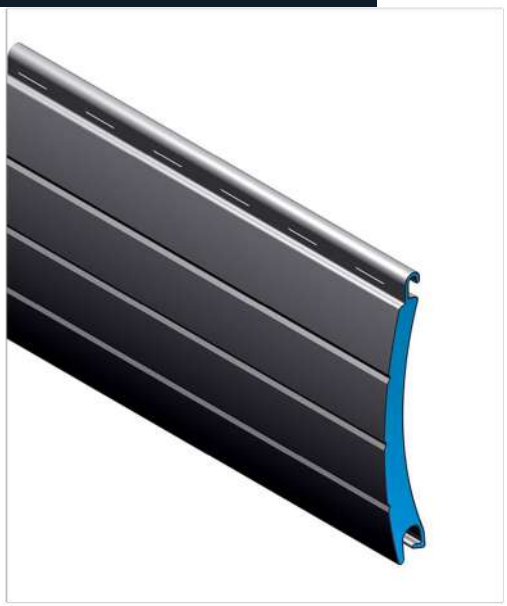



Aluminum side rails with wing extension for

adjustable construction depth.

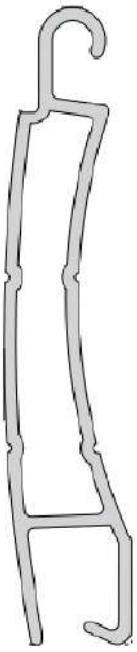



Be advised, color may have different texture or shade once you combine aluminum and upvc elements together



Standard
alu-polyurethane
slats 9 * 45

Extruded aluminum
slats 9 * 43



Extruded aluminum
ventilation slats
curved profile at 9*42

Sizes may vary +/- 2mm

## MAXIMUM HIGHT LIMIT FOR uPVC BOXES INCLUDING INSULATION

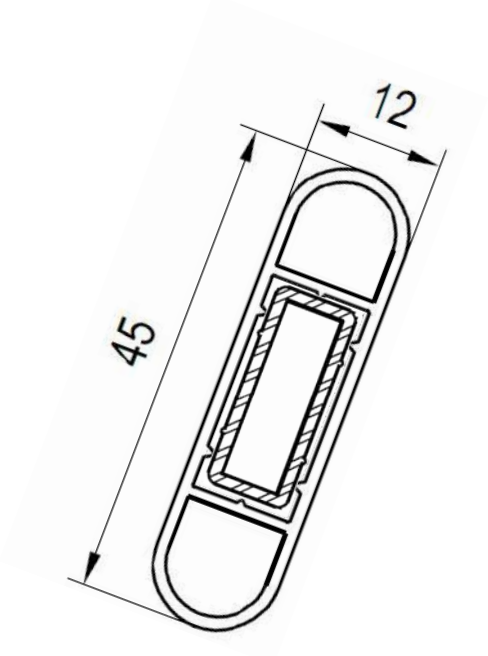
| | Alu Polyurethane slats | Alu extrusion slats | Alu extrusion ventilation slats | Alu Polyurethane slats | Alu extrusion slats | Alu extrusion ventilation slats |
|---|---|---|---|---|---|---|
| **BOX TYPE** | **40mm axes (manual)** | | | **60mm axes (motorized)** | | |
| **K1 205*218** | 2600 mm | 2400 mm | 2300 mm | 2450 mm | 2200 mm | 2100 mm |
| **K2 205*250** | 2600 mm | 2400 mm | 2300 mm | 2450 mm | 2200 mm | 2100 mm |
| **K3 240*250** | 3800 mm | 3100 mm | 3000 mm | 3550 mm | 2850 mm | 2750 mm |

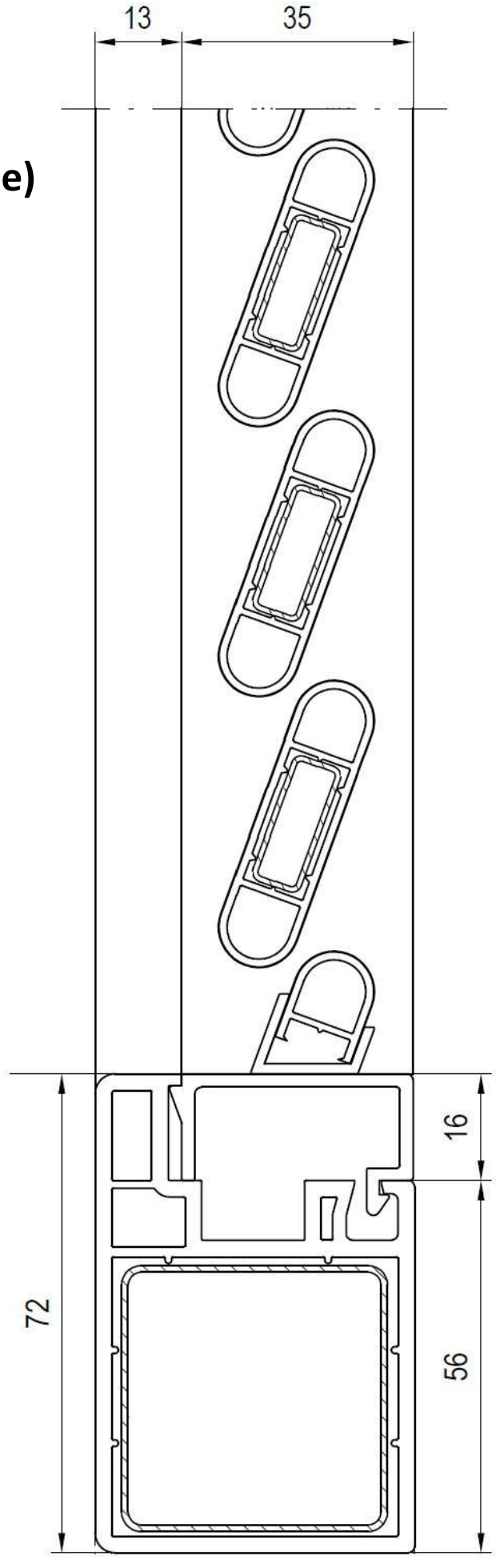
## MAXIMUM HIGHT LIMIT FOR ALU BOXES

| | | | | | | |
|---|---|---|---|---|---|---|
| **Alu K4 155*185** | 1900 mm | 1600 mm | 1400 mm | 1700 mm | 1400 mm | 1300 mm |
| **Alu K4 185*185** | 3200 mm | 2600 mm | 2200 mm | 3000 mm | 2400 mm | 2000 mm |
| **Alu K4 210*210** | 4100 mm | 3400 mm | 3000 mm | 3900 mm | 3300 mm | 2700 mm |
| **Alu K5 145*145** | 1700 mm | 1600 mm | 1400 mm | 1600 mm | 1450 mm | 1300 mm |
| **Alu K5 170*170** | 2600 mm | 2600 mm | 2200 mm | 2500 mm | 2200 mm | 2000 mm |

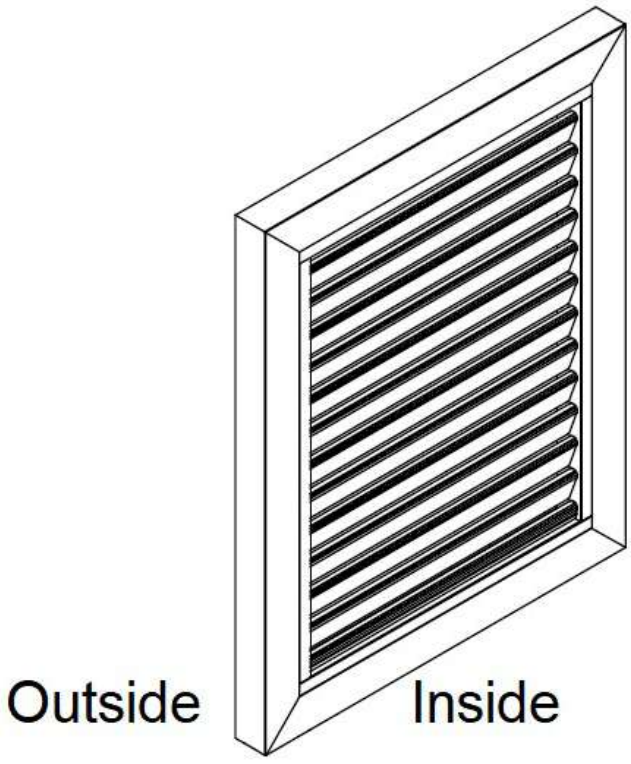
# LOUVERS K72

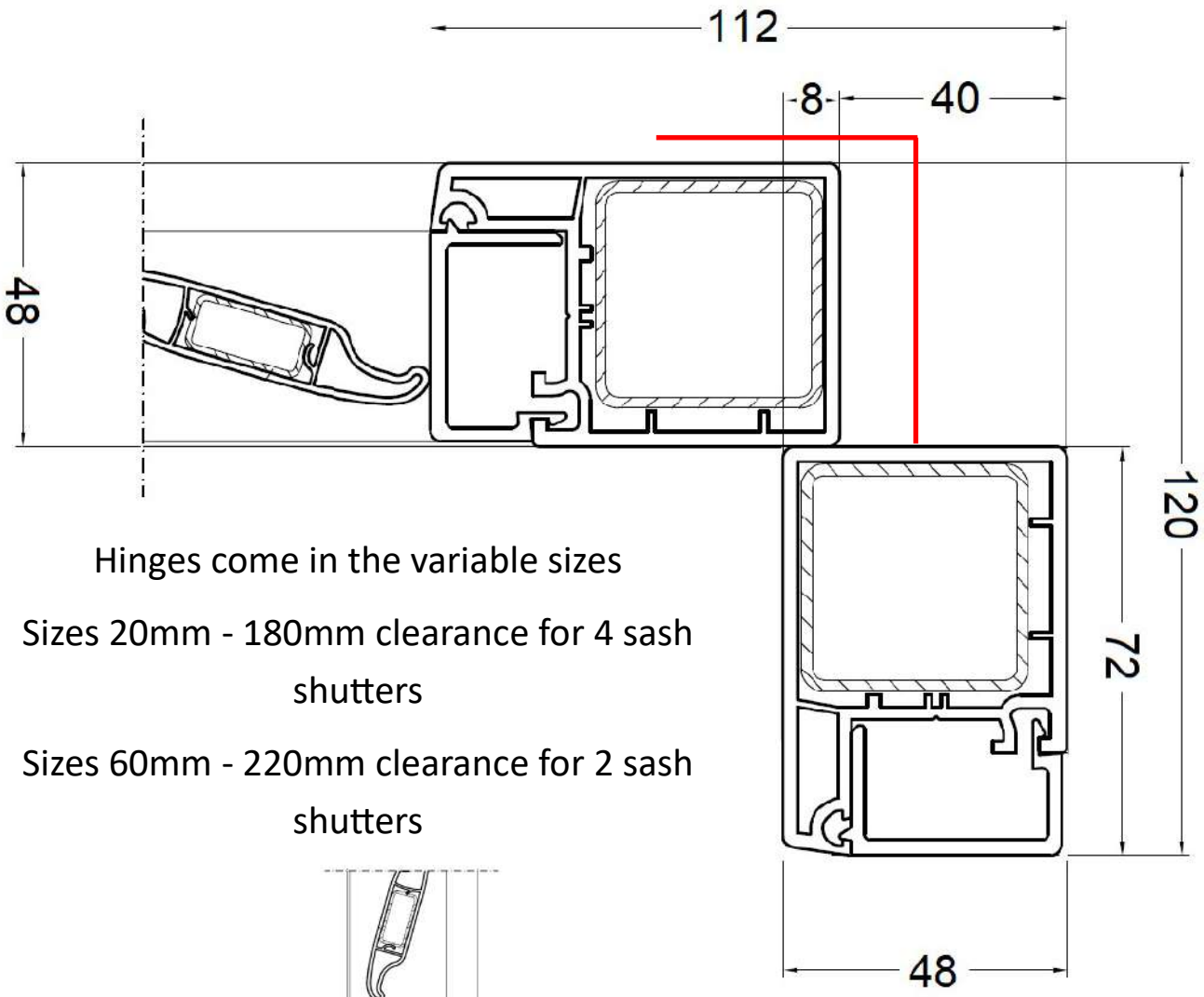
## Fixed louvers slats (Corfu style)




## Metal reinforcements for all the shutter's compo-nents (sash—frame—slats )

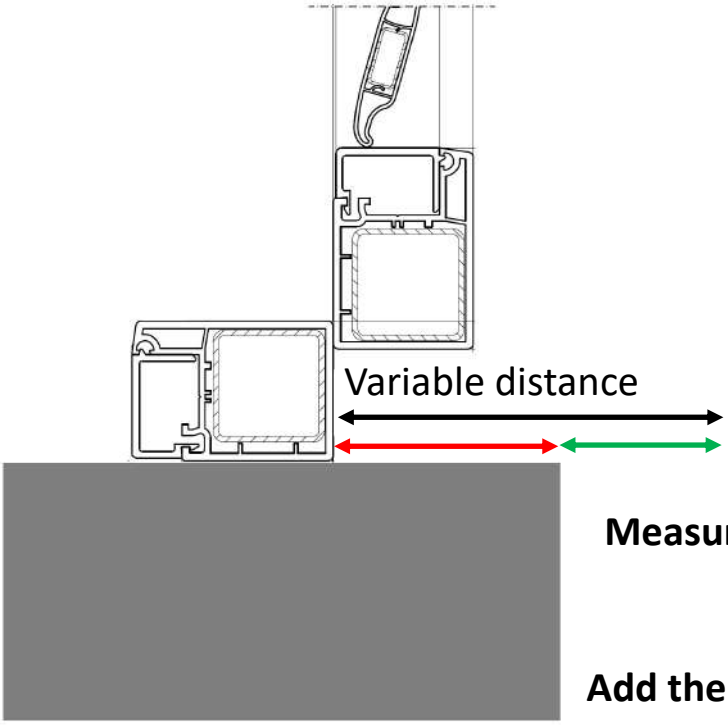





Hinges come in the variable sizes

Sizes 20mm - 180mm clearance for 4 sash shutters

Sizes 60mm - 220mm clearance for 2 sash shutters

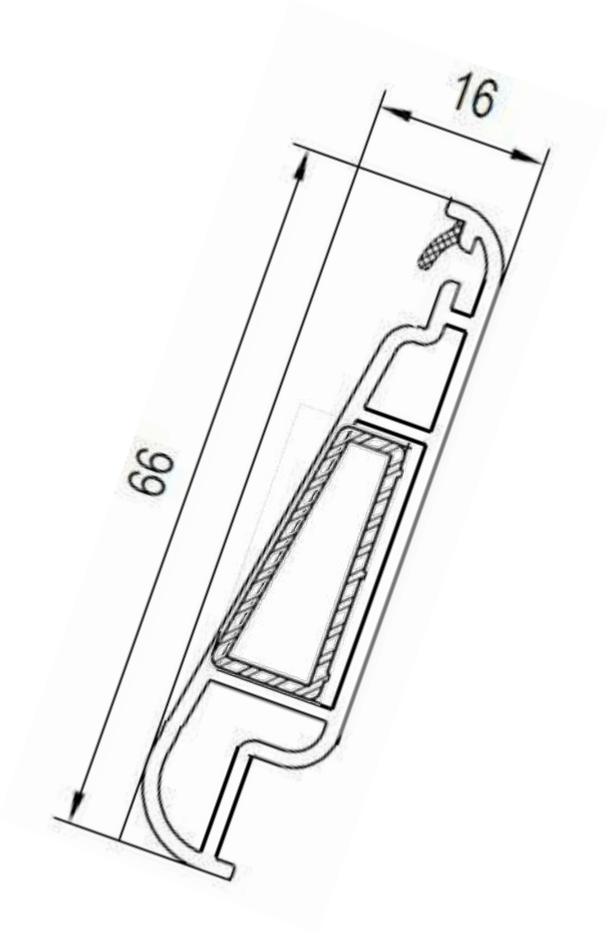


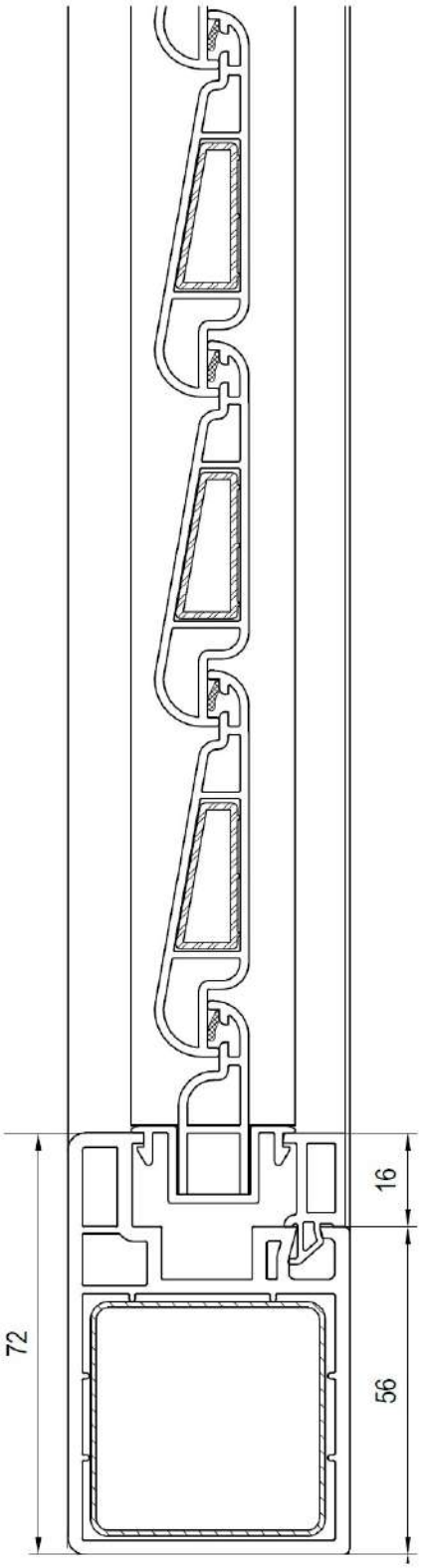

**Measure: end of frame to end of wall**

**+**

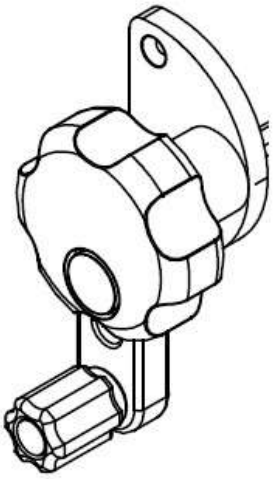
**Add the size of any obstacles that might be there and you need to over take them**

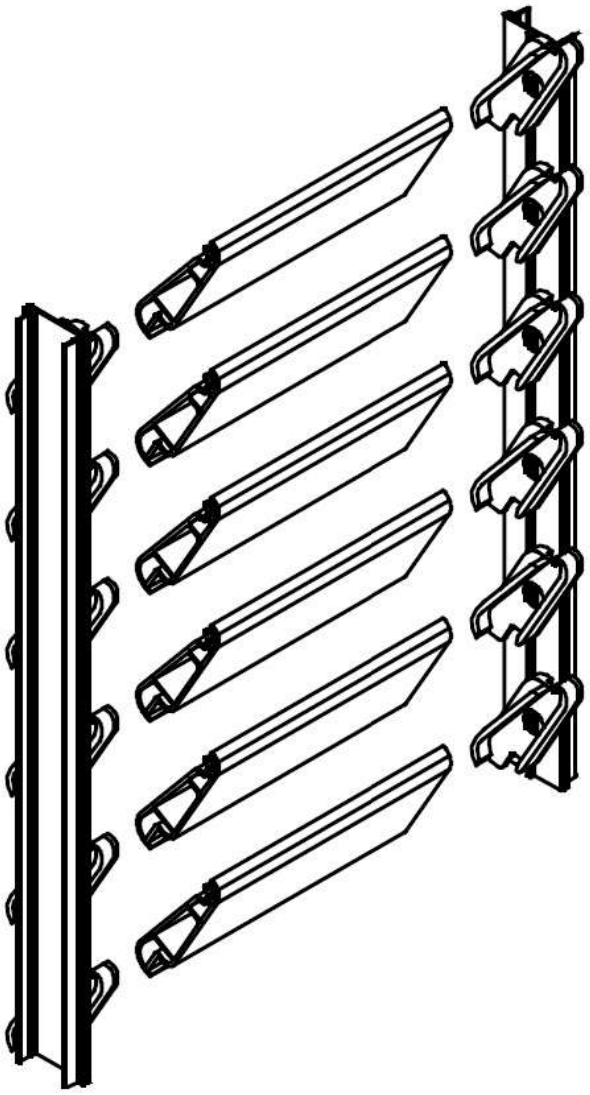
# Rotating louvers slats (Cyprus style)



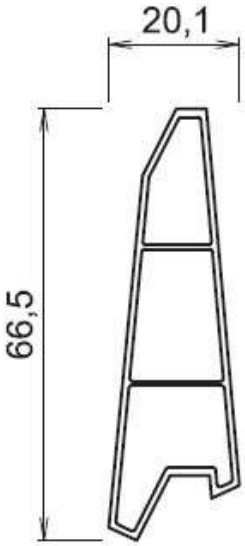

Metal reinforcements for all the shutter's components (sash—frame—slats )

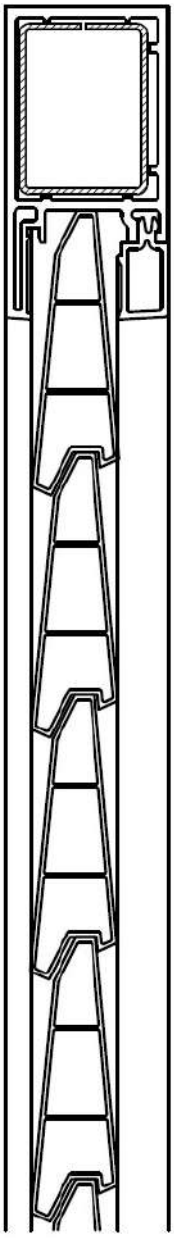


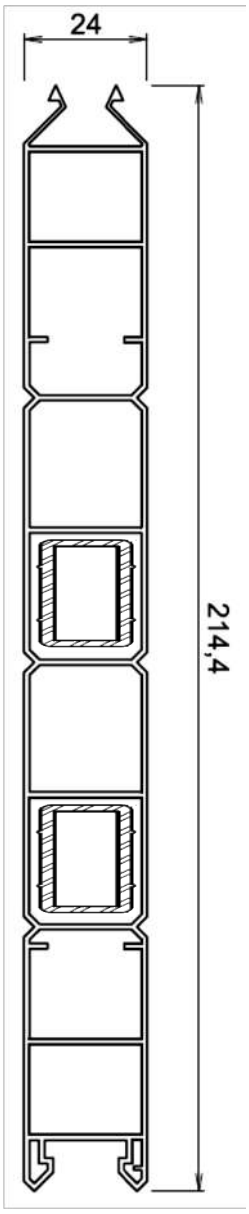


Rotating slats come with
mechanical rotating handle

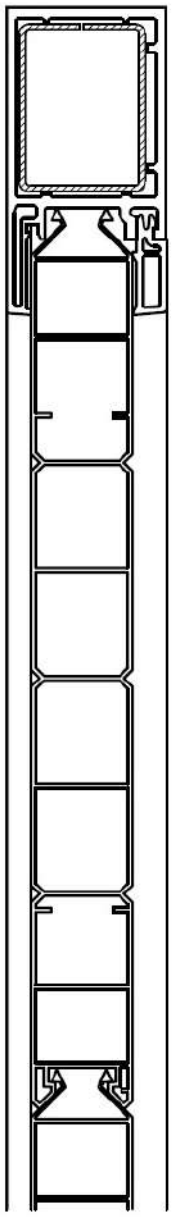
# Other possible fixed louver filling for designs and combinations

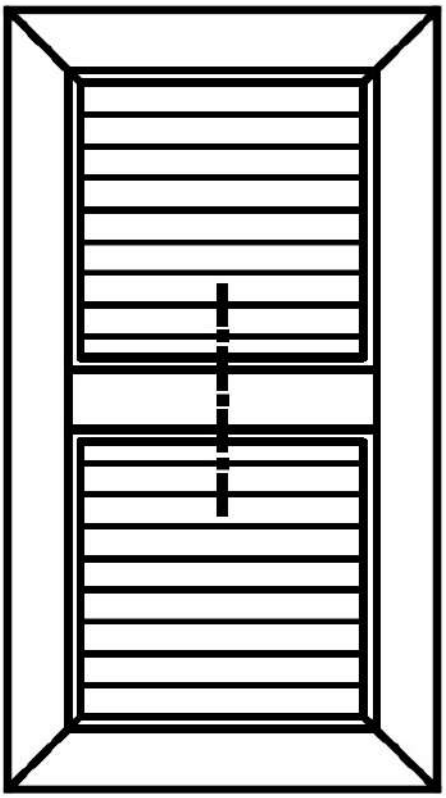


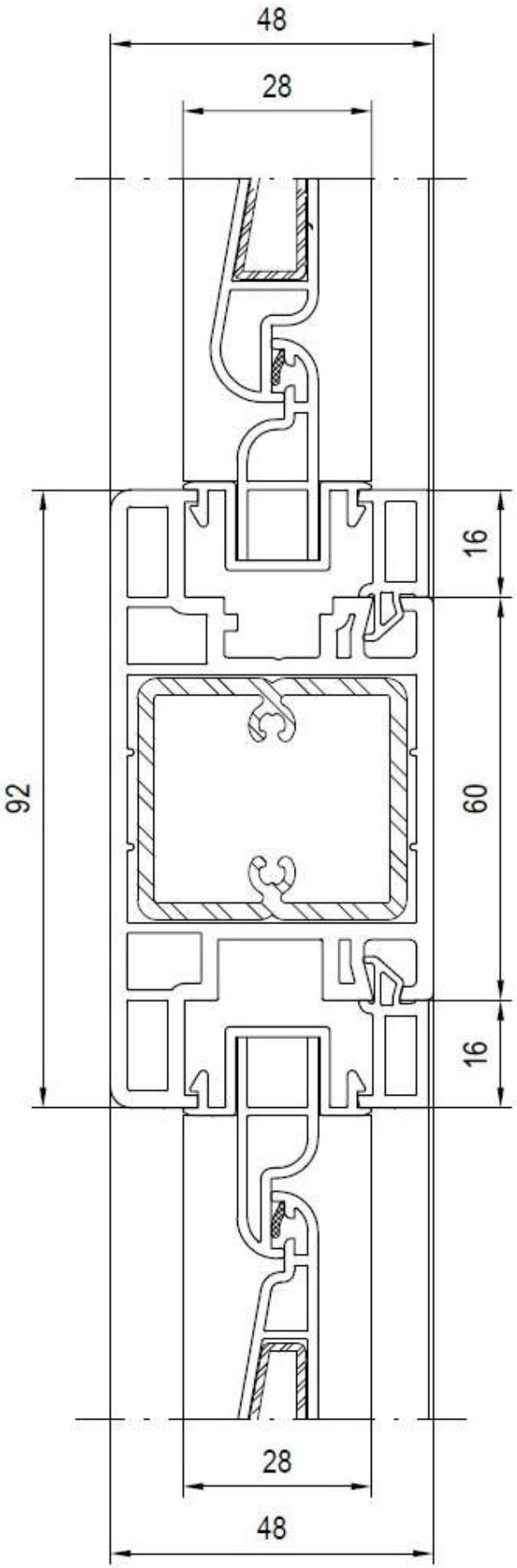


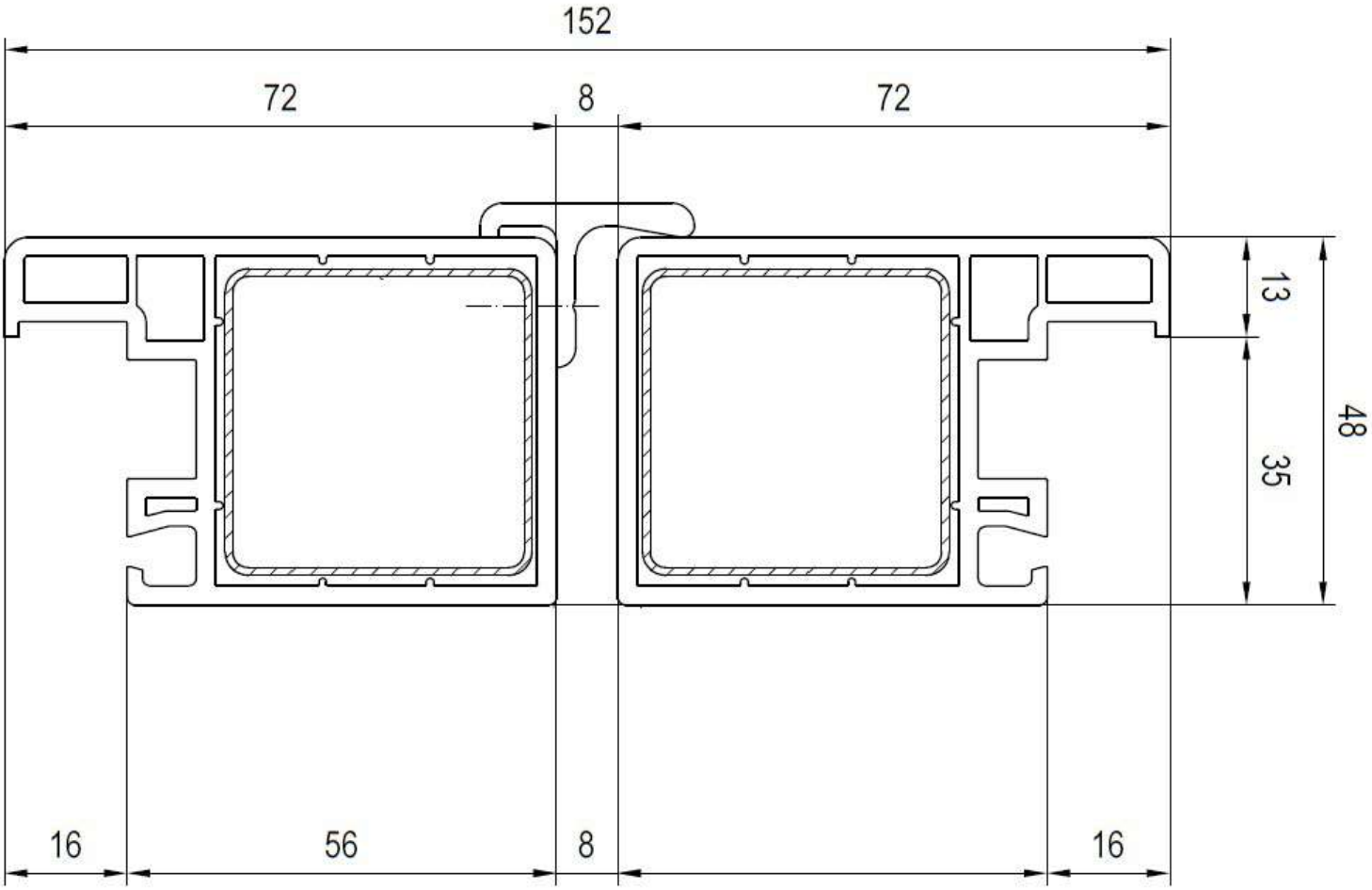

With metal reinforcement



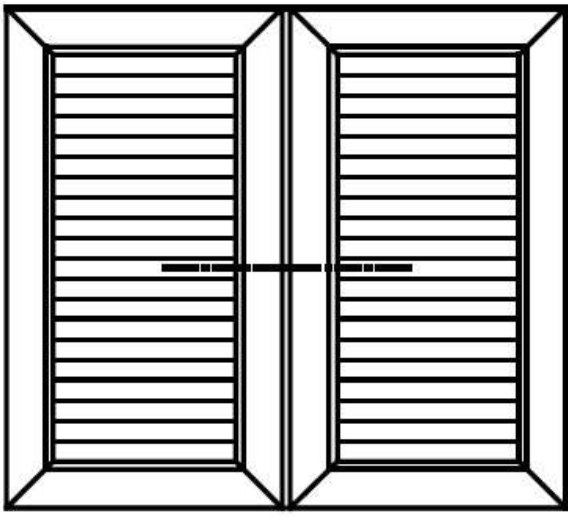


Horizontal transom section

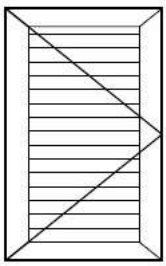




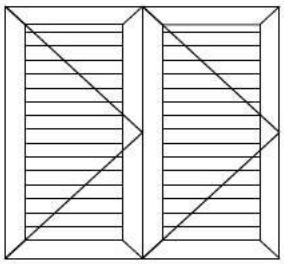

Louvers central floating mullion section cut



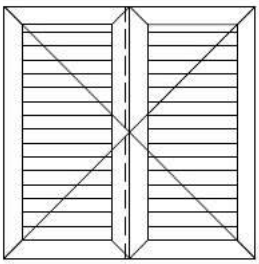
# Various shapes of shutters



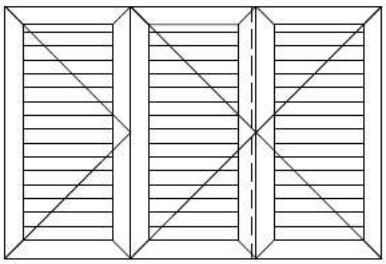
Single sash



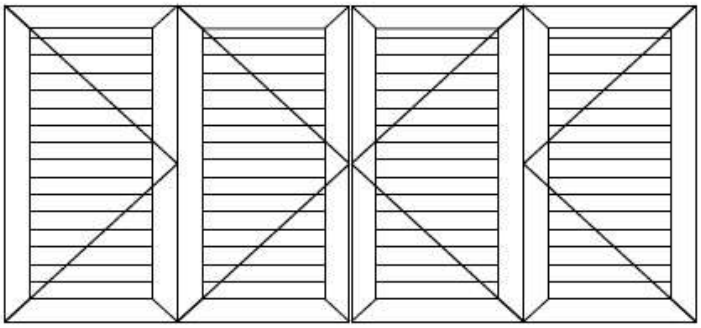
Double sash (folding)



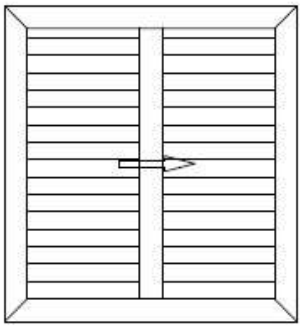
Double sash



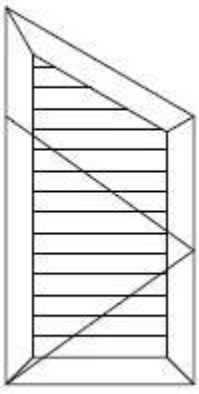
Triple sash



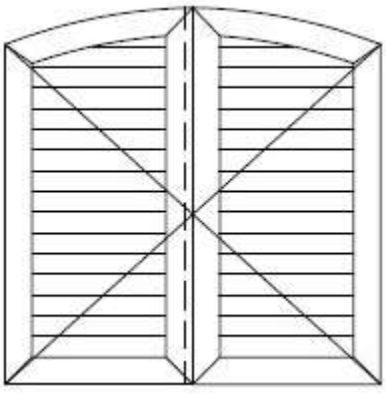
Quadruple sash / Four sash



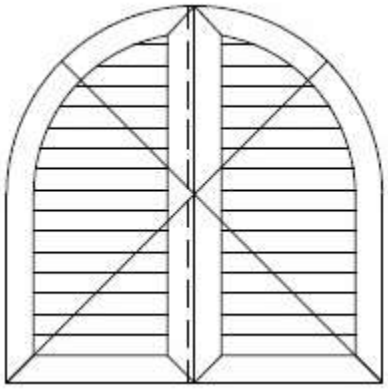
Single sash sliding



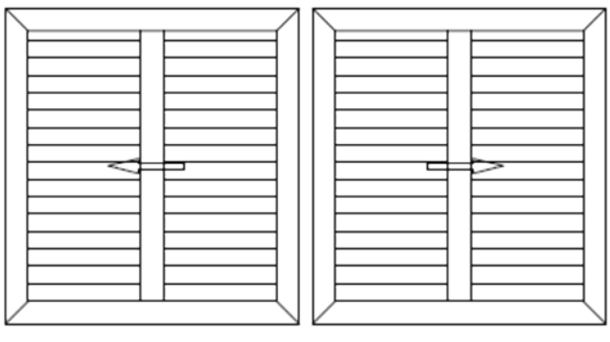
Slanted



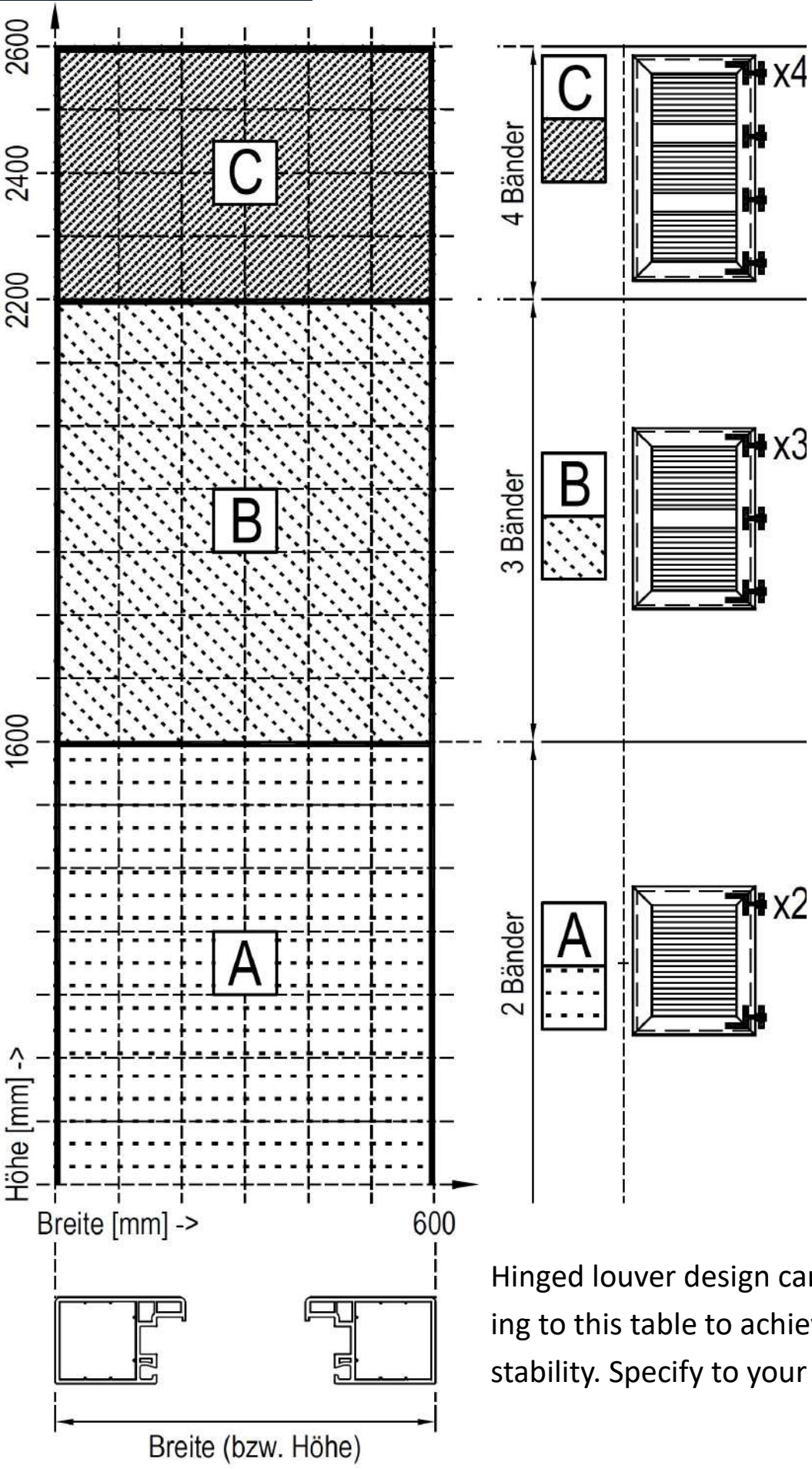
Arched double sash



Arched double sash



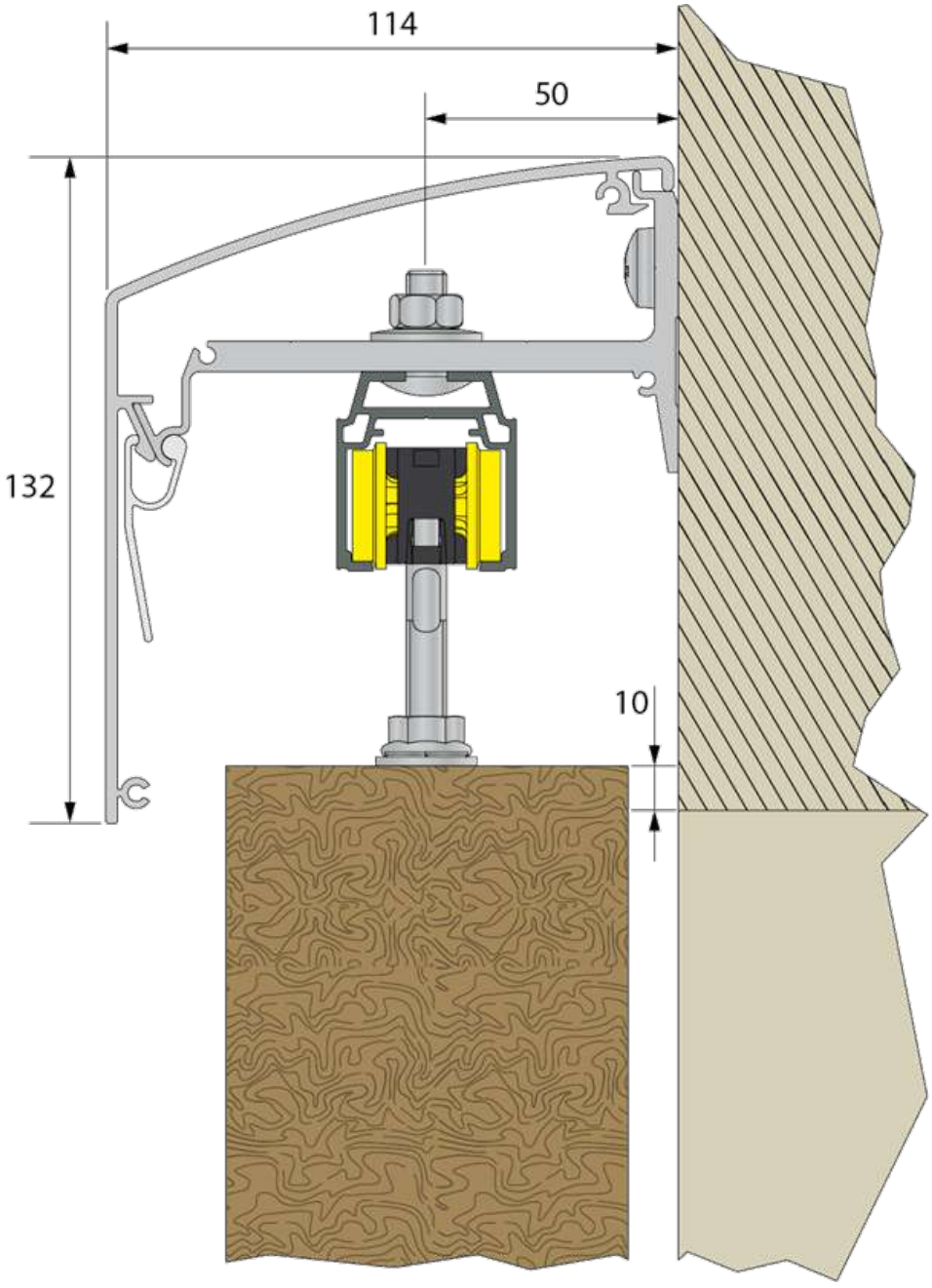
Double sash slider




Hinged louver design can be altered according to this table to achieve higher structural stability. Specify to your designated support.

# LOUVERS SLK48

Exterior sliding louver shutters



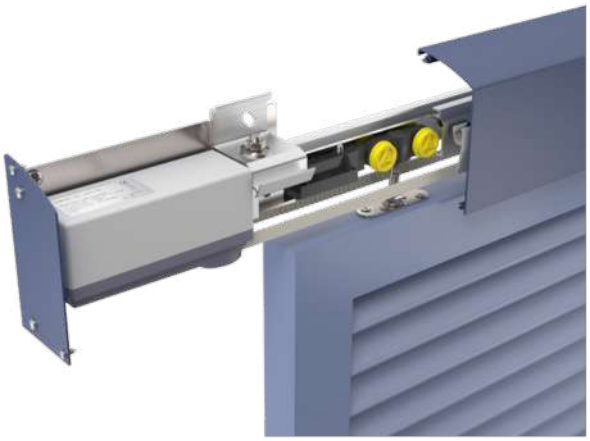

- Maximum Aperture Width: up to 2800mm
- Maximum Aperture Hight: Up to 2400mm
- Weight Capacity: 160kg (shared between one or two sashes)
- All available catalogue designs (incl. rotating slats)
- Available in manual or motorized version

**Manual Operation:**

- Locking hardware for manual control

**Motorized Operation:**

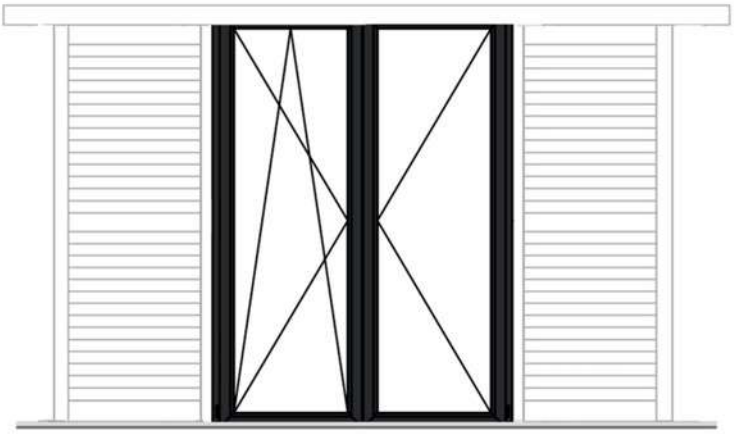
- Obstacle detection system
- Remote controlled
- Battery pack for power backup during electricity failures
- Can be integrated to any automation system



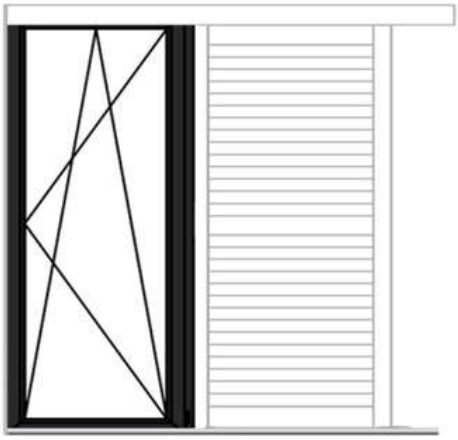
**All available louver types can be crafted**

# SYSTEM TYPOLOGY VARIATIONS

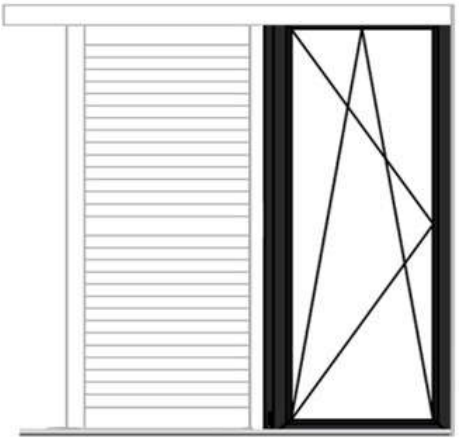
Double sash sliding in a single rail



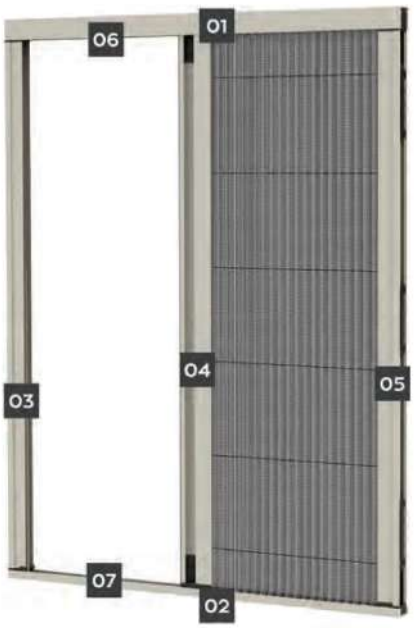
Single sash sliding in a single rail



Single sash sliding in a single rail



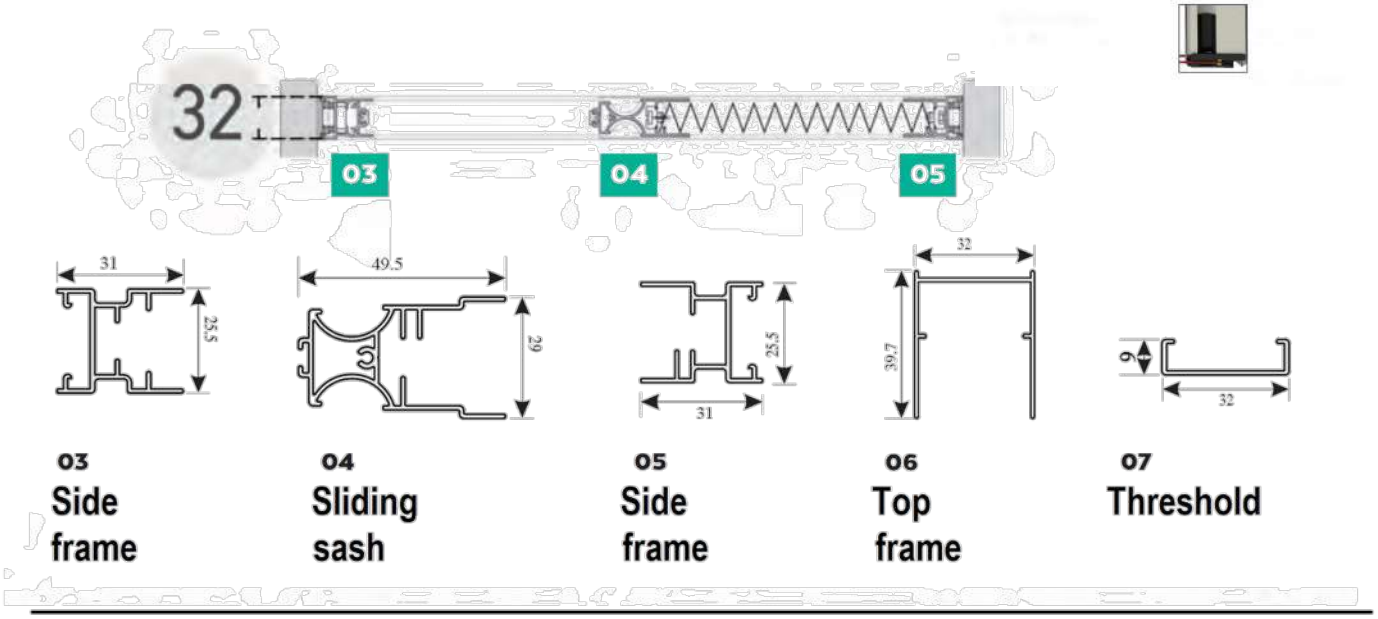
KAPTAIN
ARCHITECTURAL KEY FRAMES




## Horizontal pleated fly screen

Can fit onto a rectangular profile of 50mm*35mm

Possible in 1 or 2 sash variation (for large sizes)




**03** Side frame

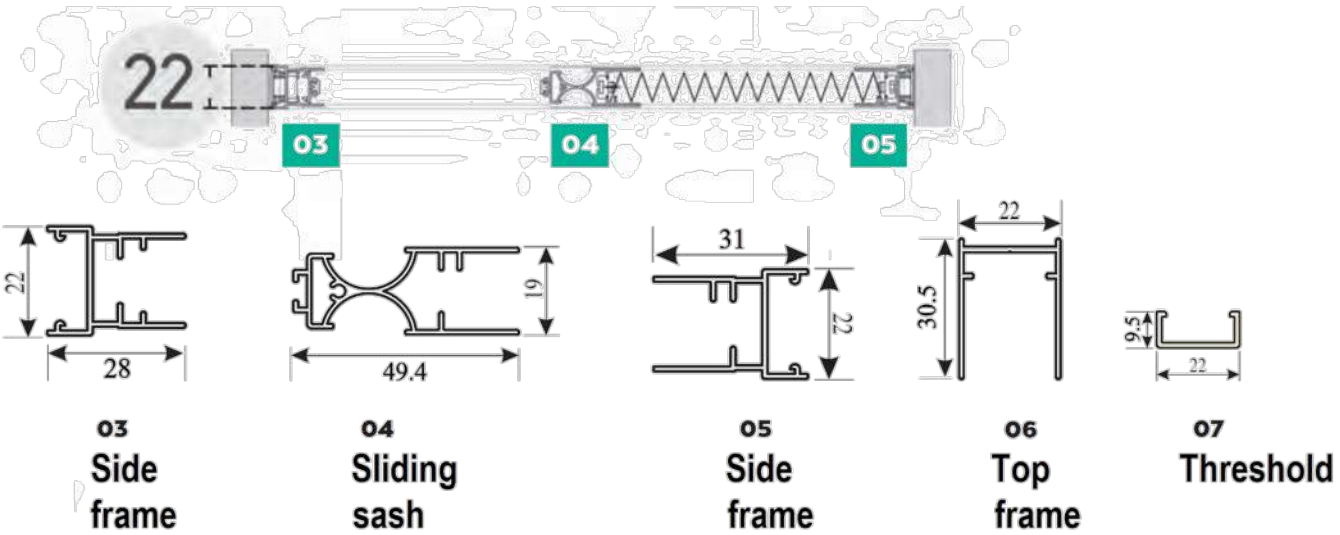
**04** Sliding sash

**05** Side frame

**06** Top frame

**07** Threshold

## Optional size, depending on size limitations




**03** Side frame

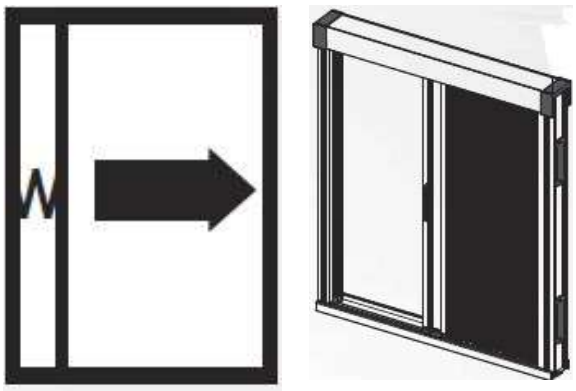
**04** Sliding sash

**05** Side frame

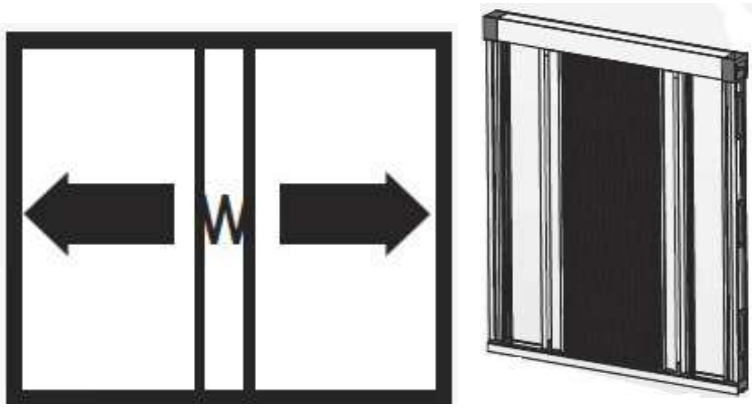
**06** Top frame

**07** Threshold

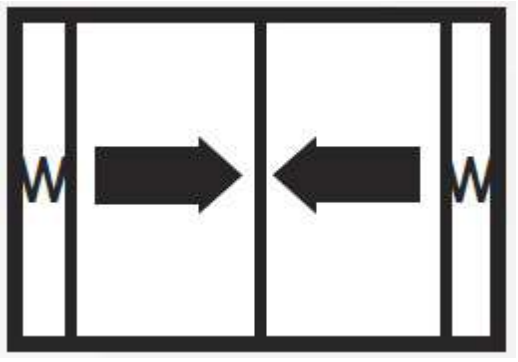
# Types of pleated flyscreen



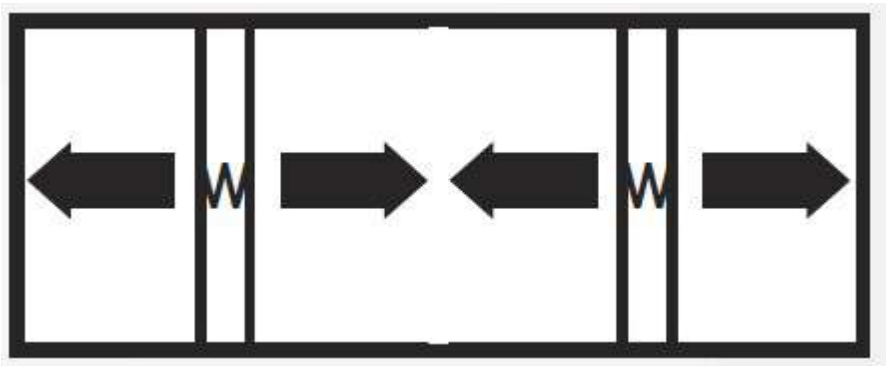
**Single sash - one sided**



**Single sash - double sided**

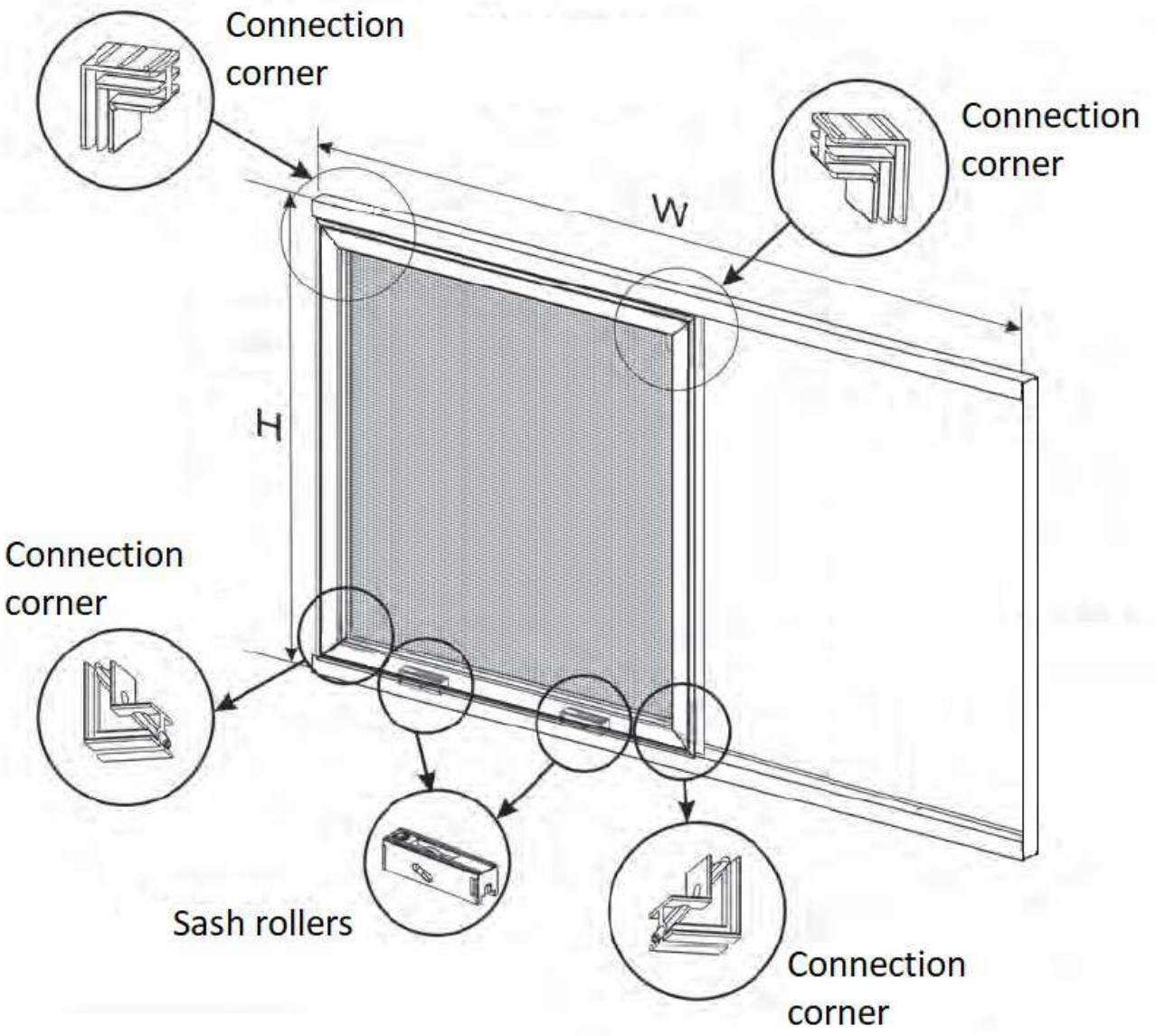


**Double sash - one sided**
(meets in the middle but doesn't operate from the side )

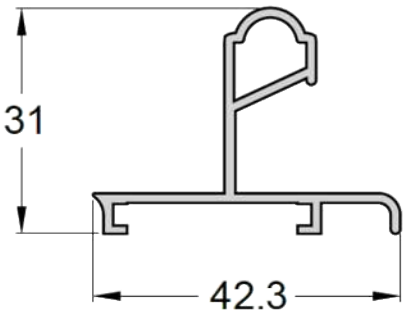


**Double sash - double sided**
(meets in the middle and operates also from the sides )

# Sliding Single panel fly screen with rail




**Can fit onto a rectangular profile of 60mm*30mm and be mounted with any slider door or window**



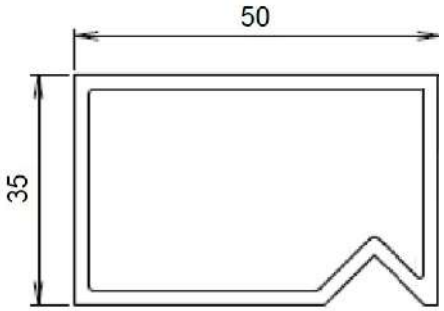


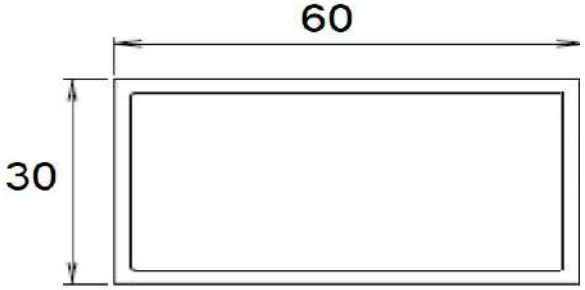
## Vertical fly screen

Can fit onto a rectangular profile of 50mm*35mm

Sash — Hook — Soft close break

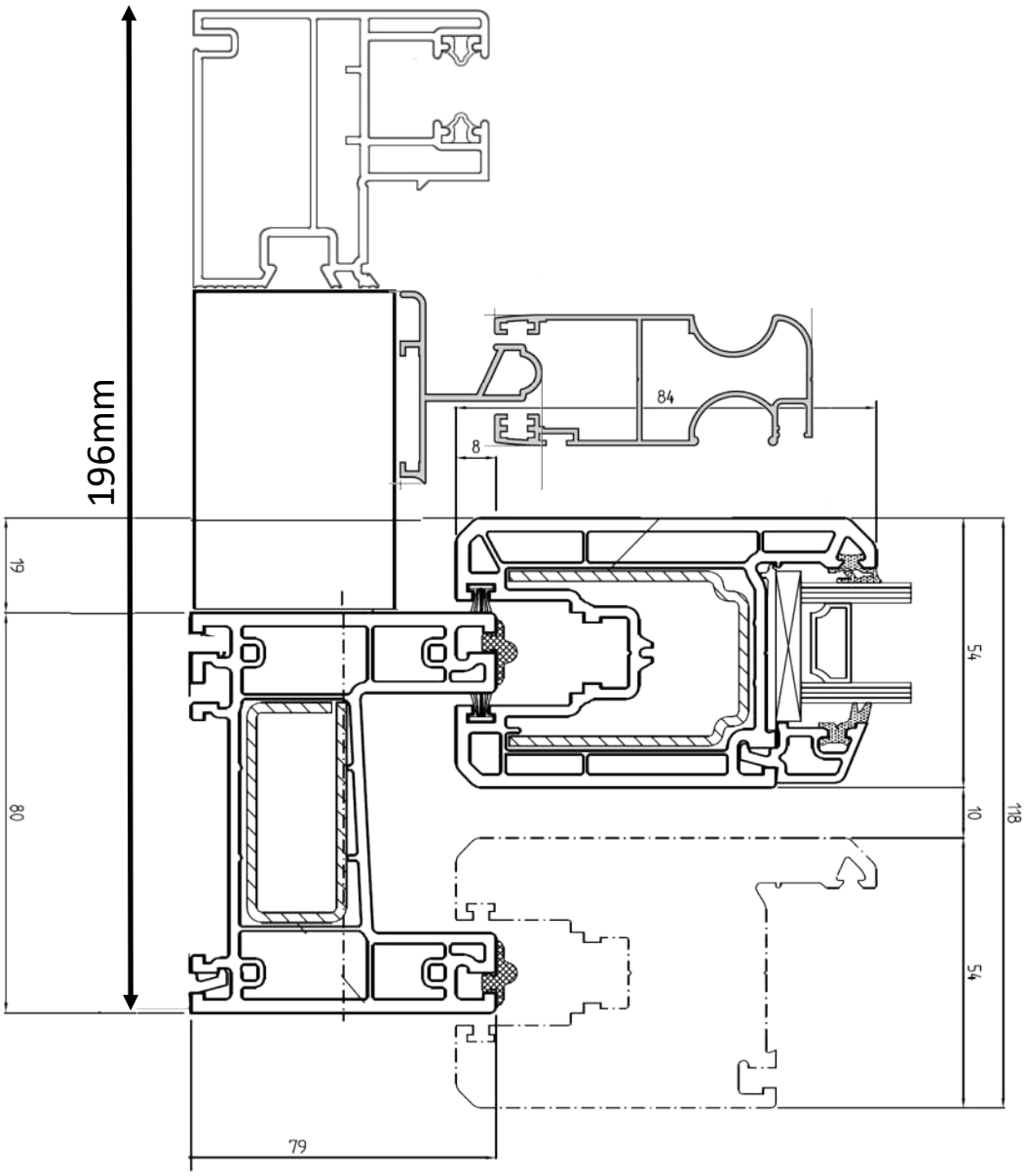
Rectangular profiles of 50mm*35mm or Alu 60mm*30mm are commonly used as support profiles for fly screen/ rolling shutters etc for factory pre mounting and joining frames.



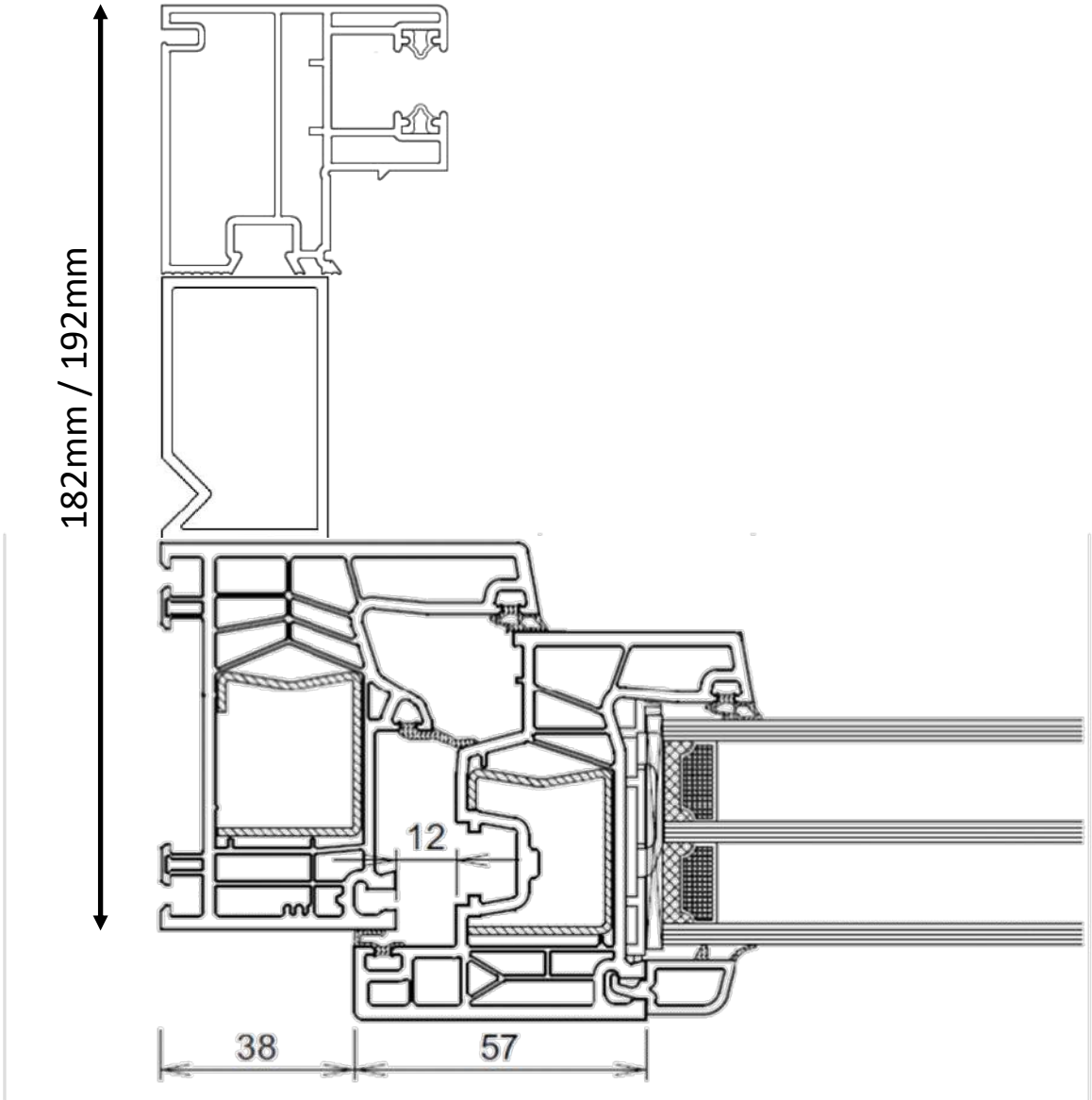
Standard sliding K54 profile composition with rolling shutter and single sash fly screen.

Total construction depth is approx. 196mm



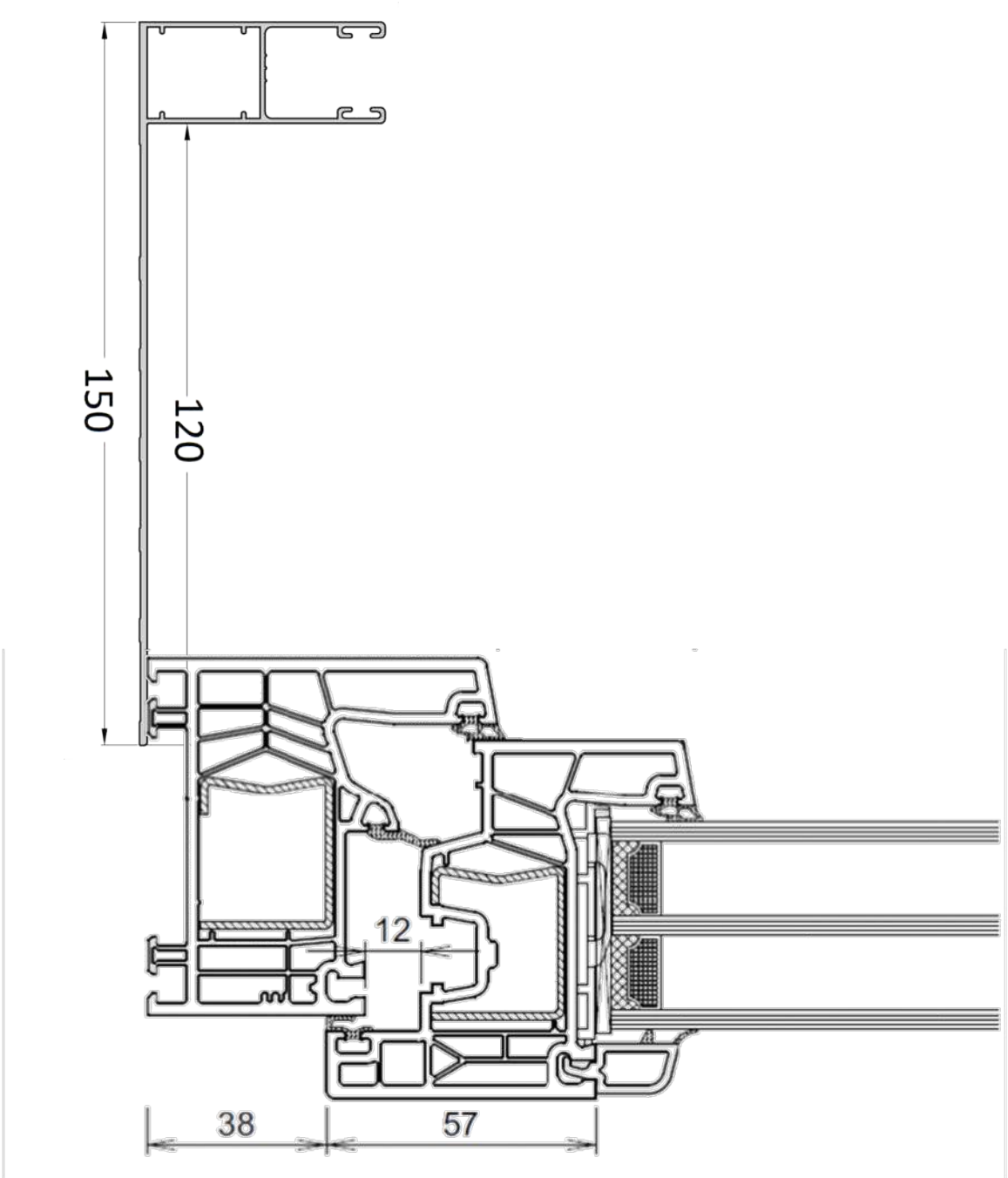
Tilt and turn profile composition with rolling shutter and vertical fly or horizontal pleated fly screen.

Total construction depth is approx. 182mm



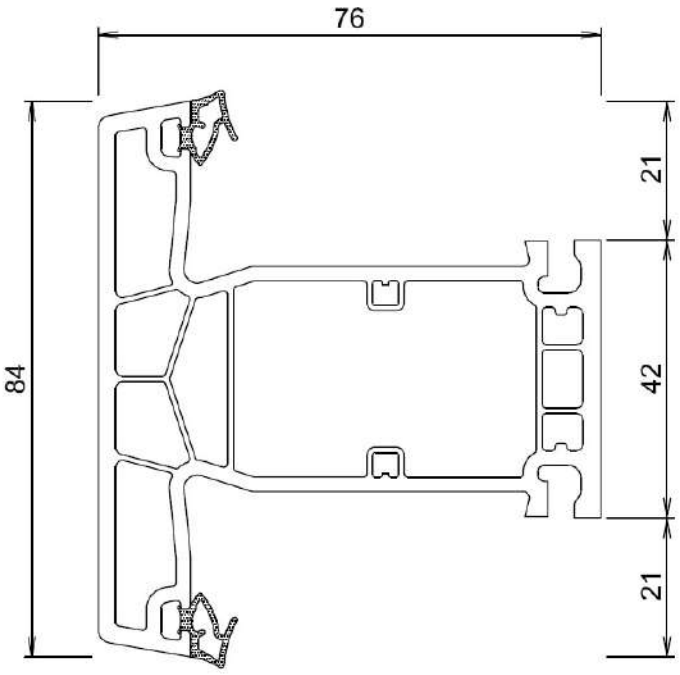
Tilt and turn profile composition with rolling shutter aluminum

Total construction depth is approx. from 110mm until 210mm

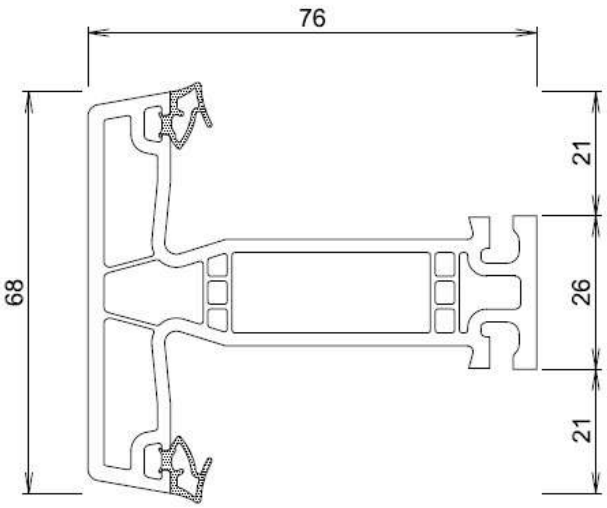


# GLASS PARTITION

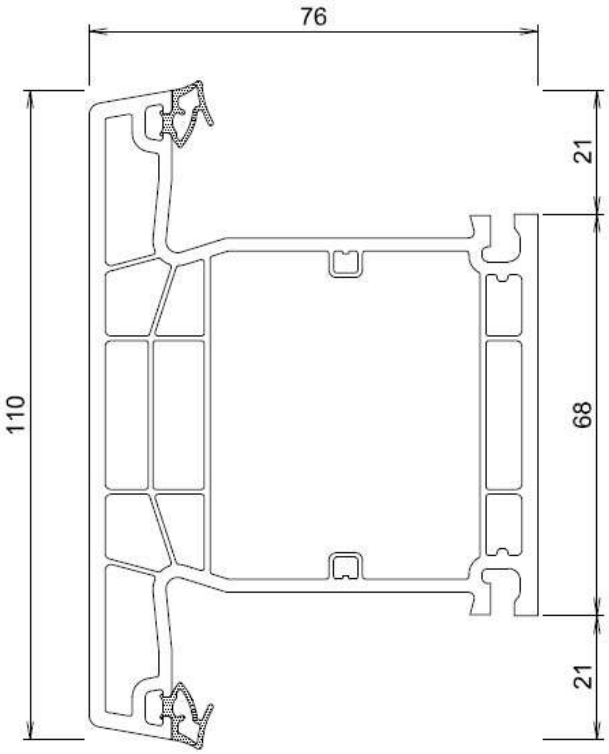
84mm T-profile for **sash only**

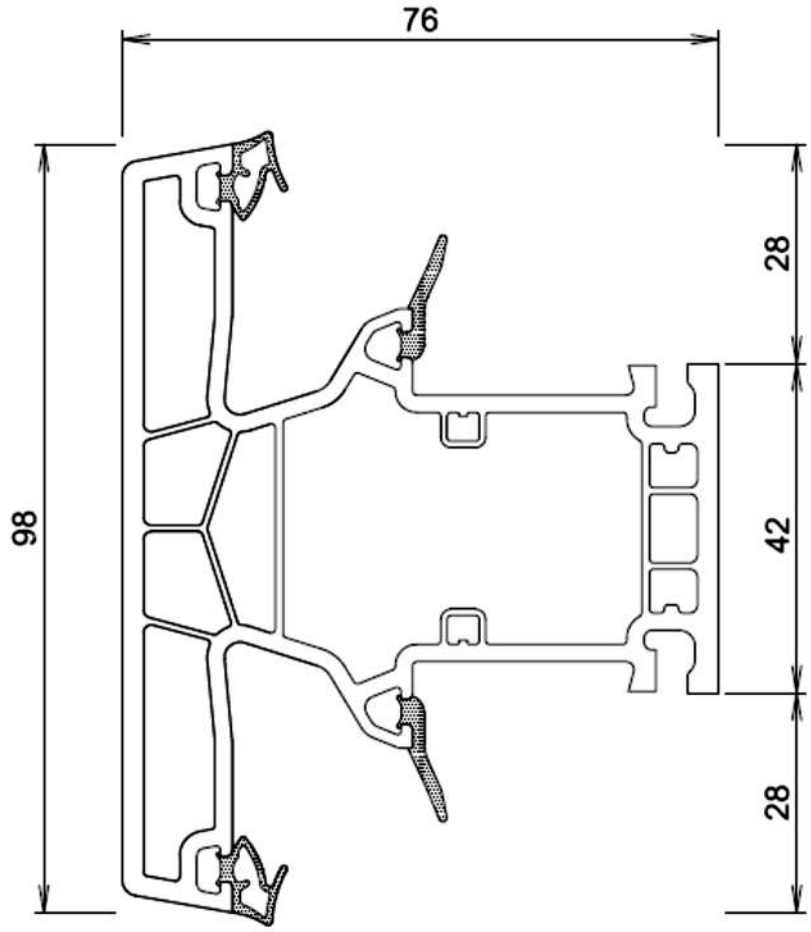



68mm T-profile for **sash only**

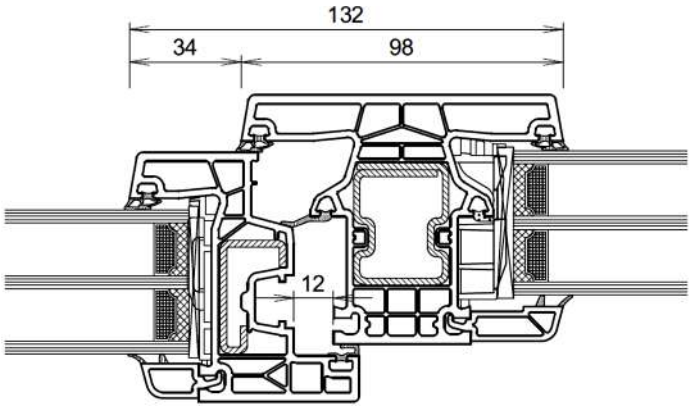



110mm T-profile for **sash only** (doors)

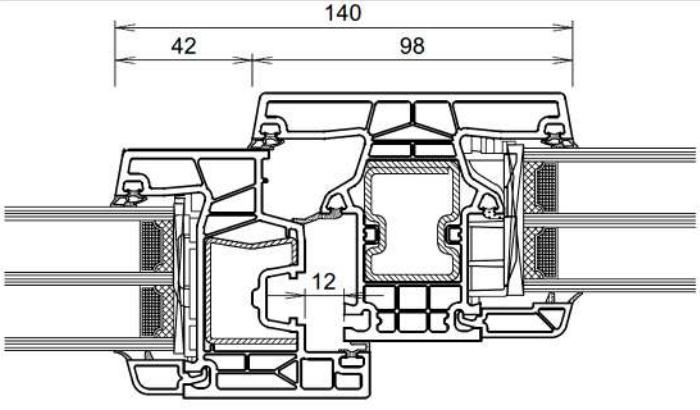





98mm T-profile for **frame only**

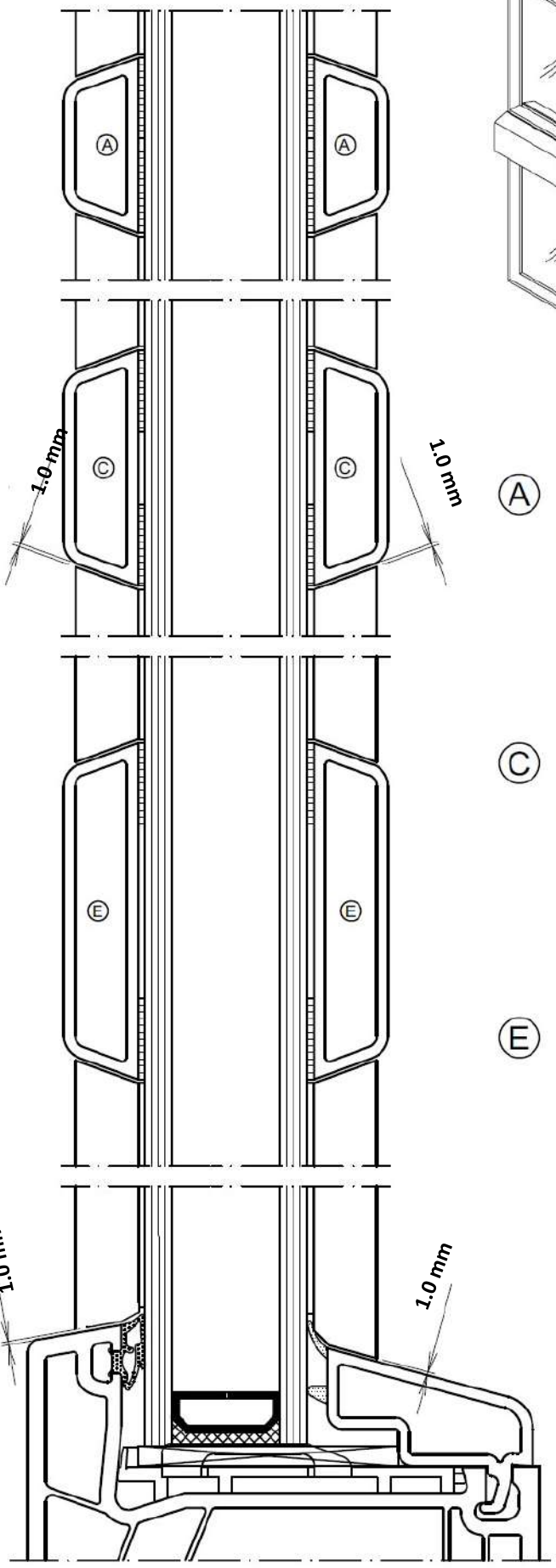


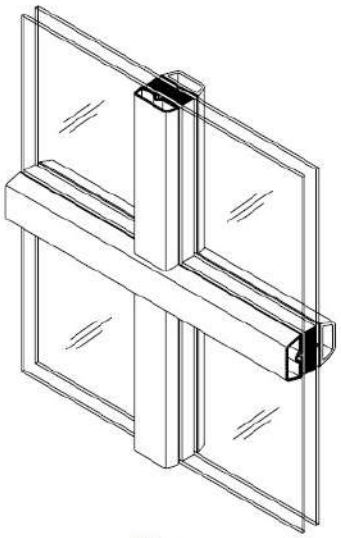

98mm T-profile with side fixed - Advanced KR76



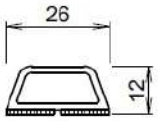

98mm T-profile with side fixed - Premium KN76

# External sash bars for traditional French doors and windows



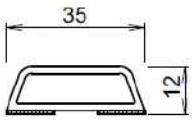



Ⓐ



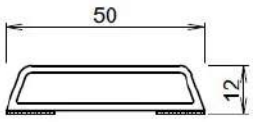

92001---T

Ⓒ




92003---T

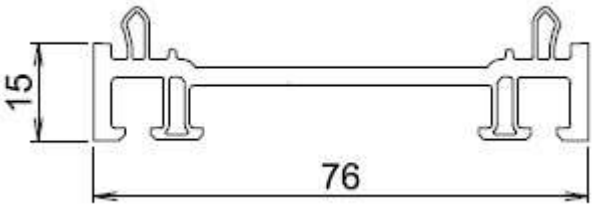
Ⓔ



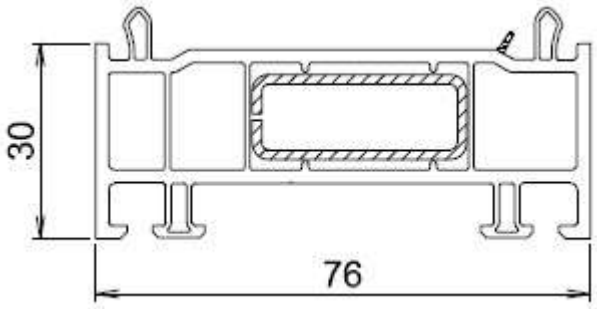

92004---T

KAPTAIN
ARCHITECTURAL KEY FRAMES

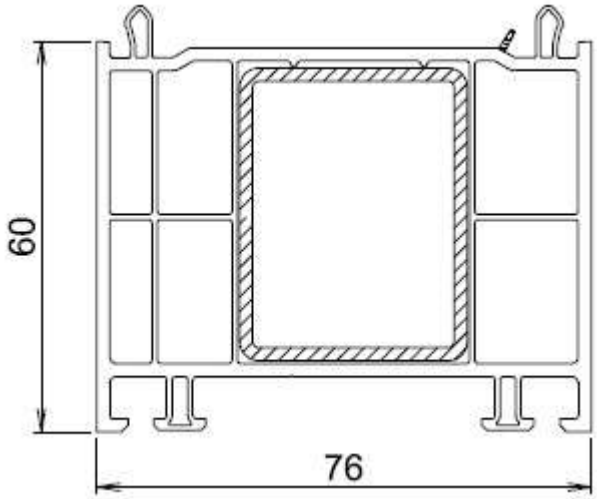
15mm extension profile



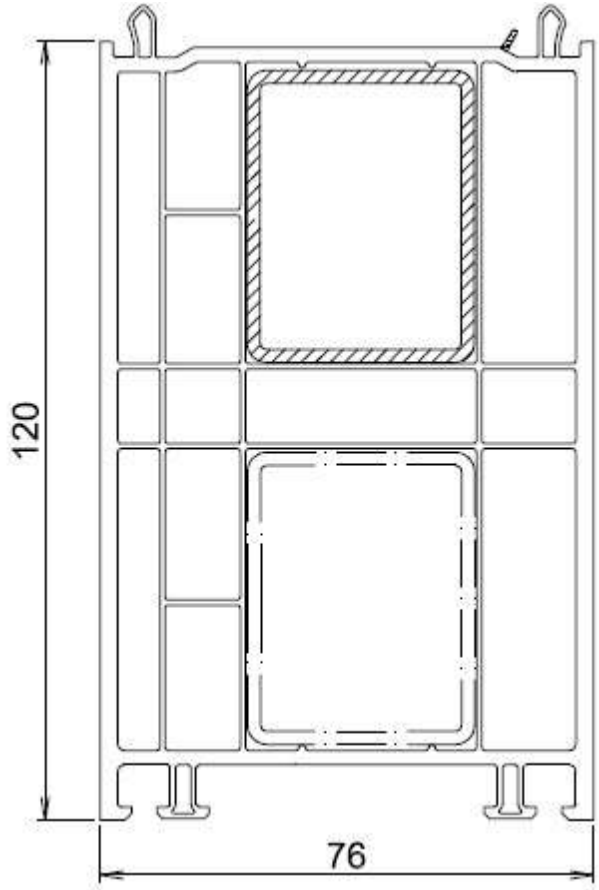

30mm extension profile

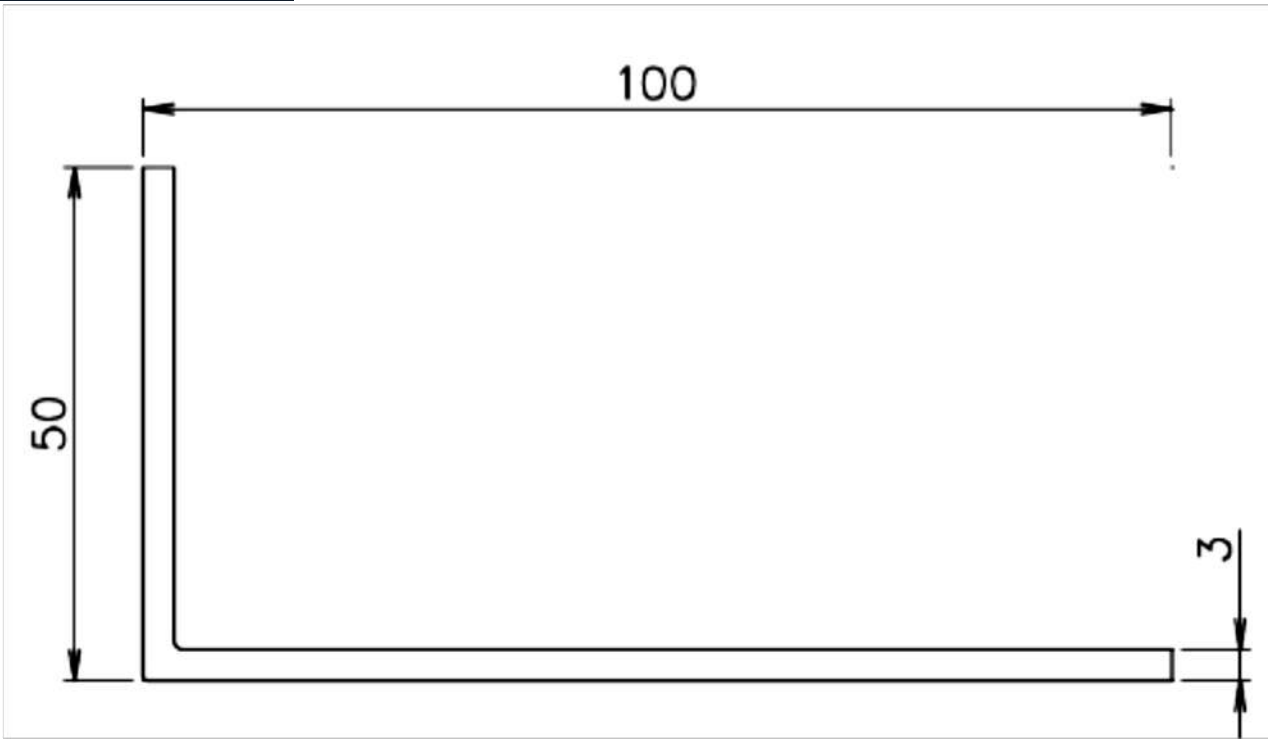



60mm extension profile

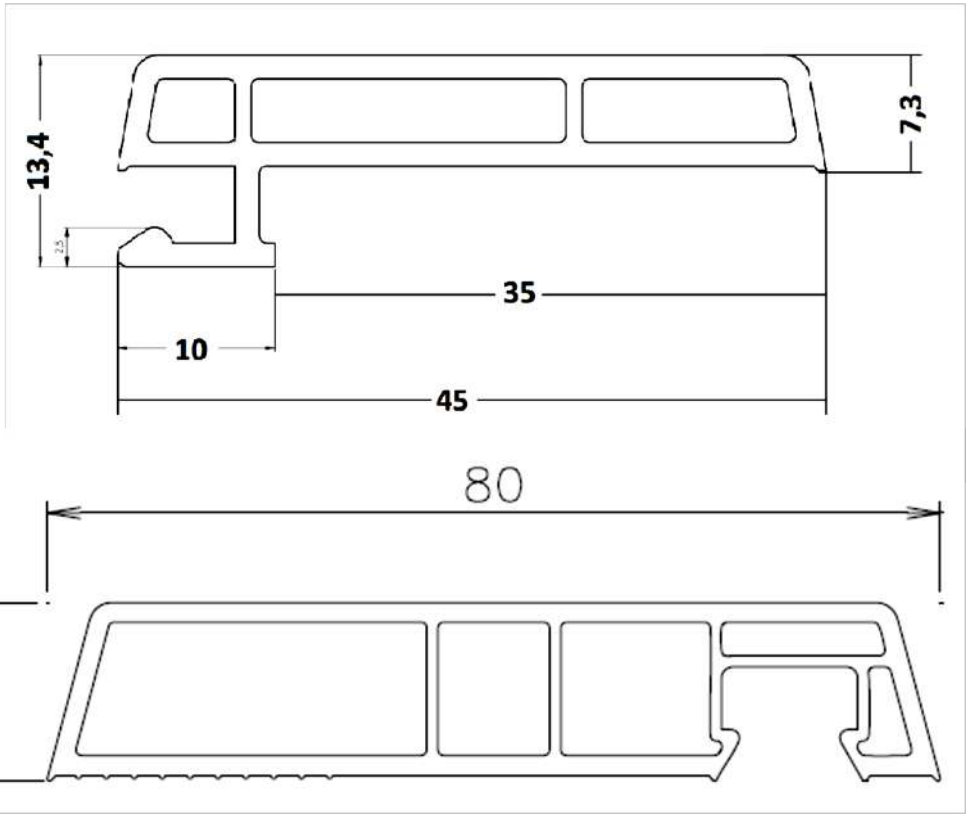



120mm extension profile



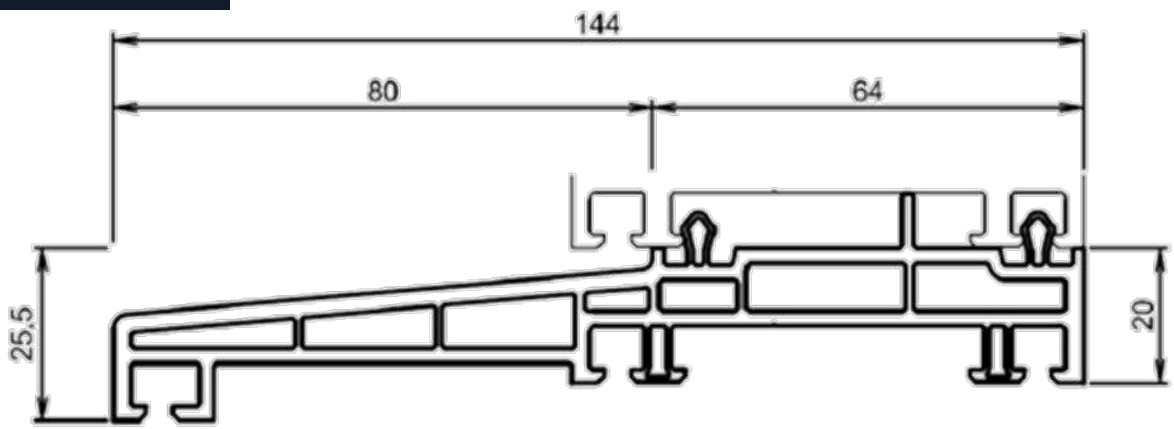



Advanced KR76 Corner profile for exterior cover

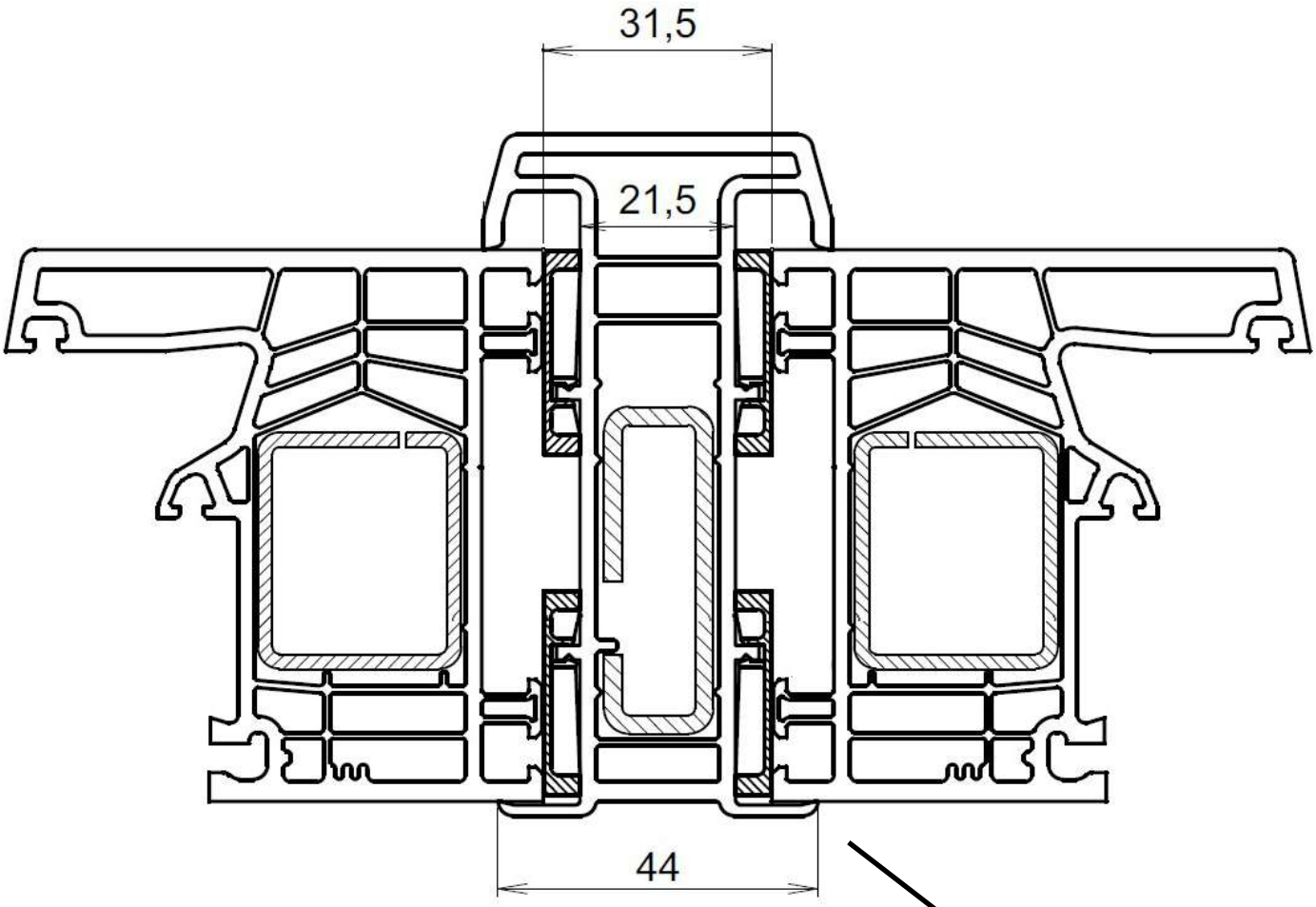



Premium KN76 lining profiles for interior cover

(16*80 is used with glamp bolts)

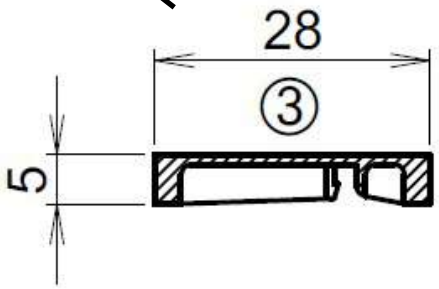


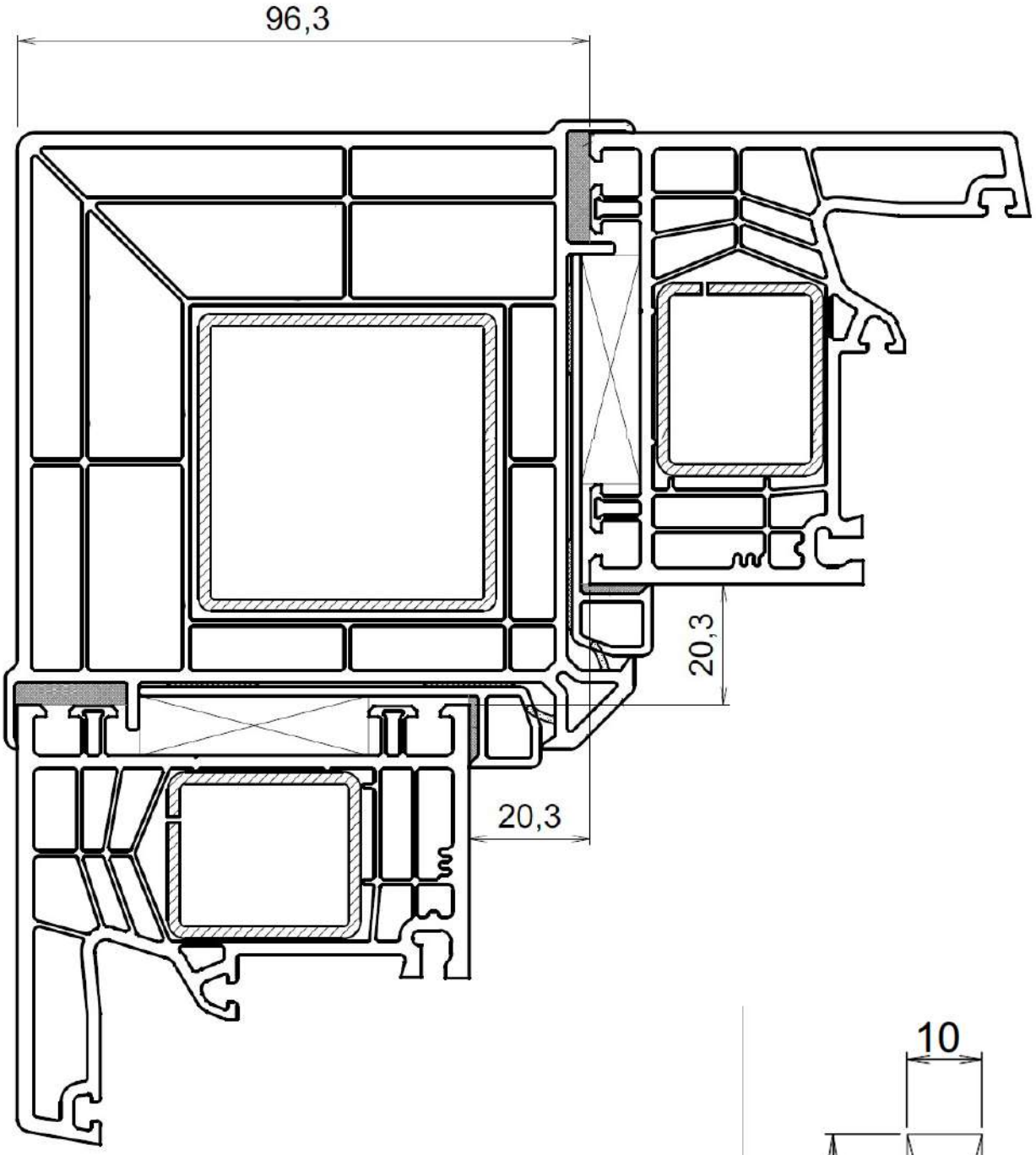

U-PVC extension sill (144mm x 20mm)

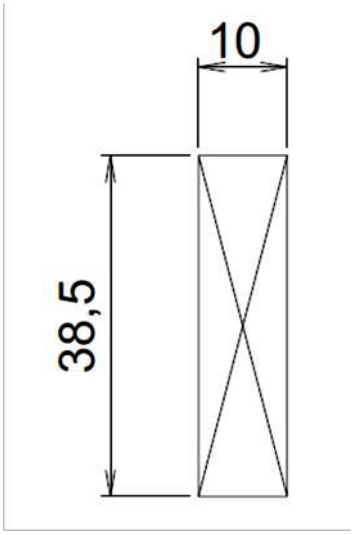



Post connection

Use silicone to the joints





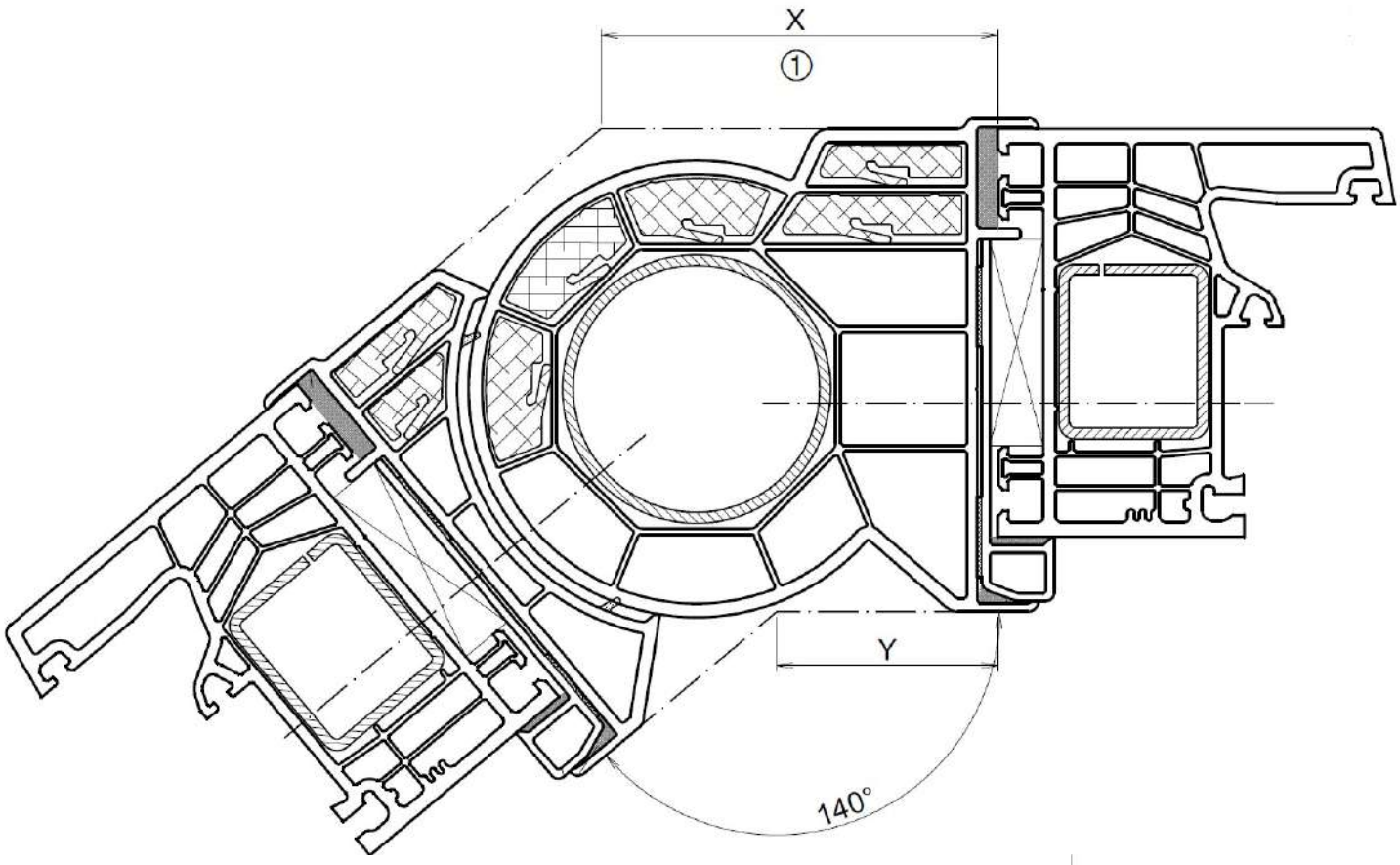



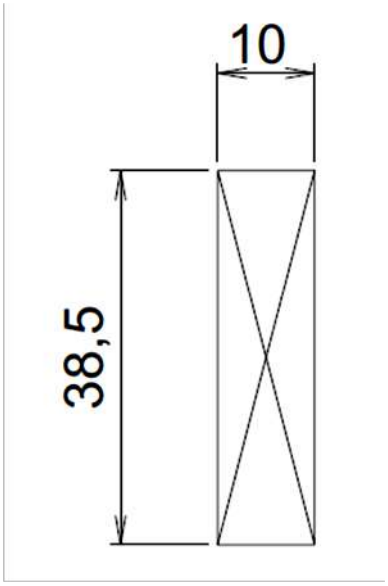

Corner post connection

Use silicone to the joints & **spacers**

for pressure equalization.

Measure the sizes internally



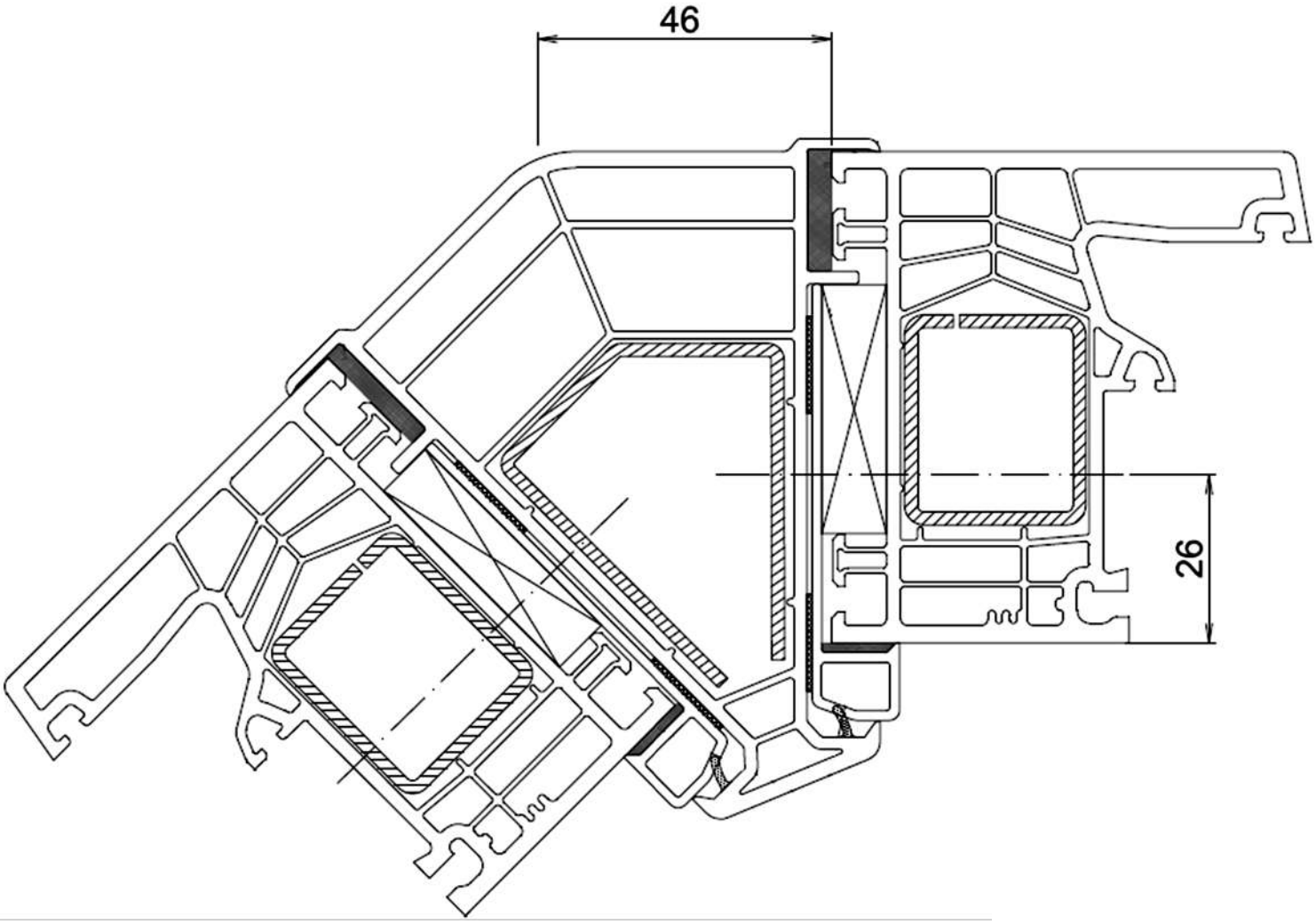



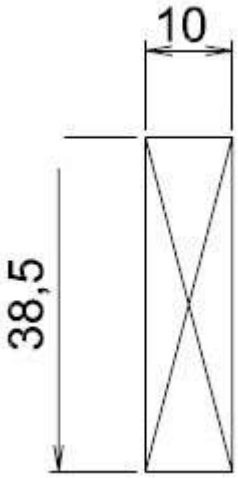

Round post connection

Use silicone to the joints and **spacers** for pressure equalization.

Used for bay windows.

While on site, measure the sizes internally and mark the corner angle.




135 Deg. Bay post connection

Use silicone to the joints and **spacers** for pressure equalization.

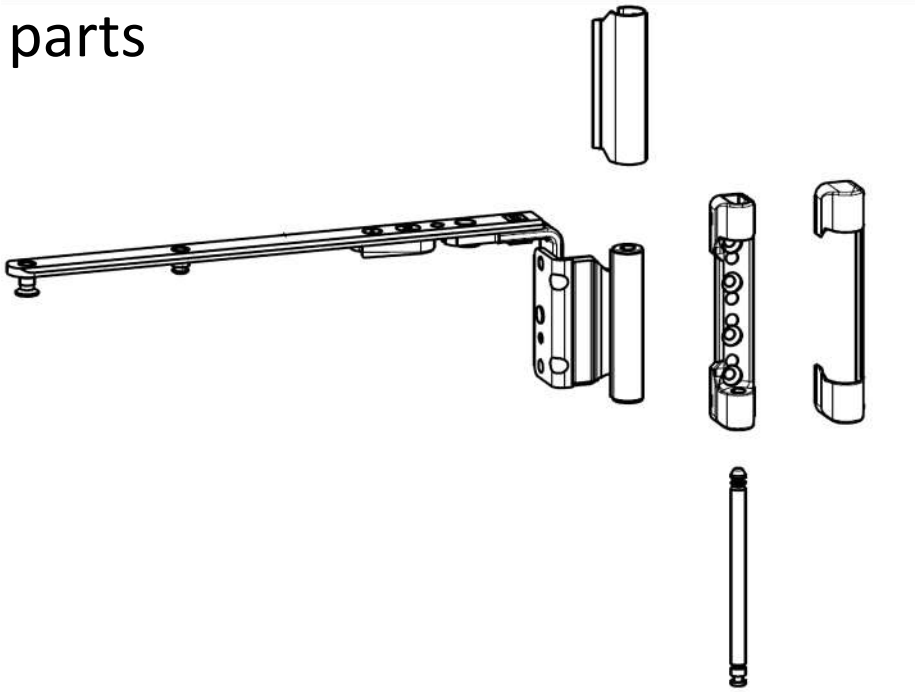
Used for bay windows with fixed 135 deg. conections.

# *Product adjustments*

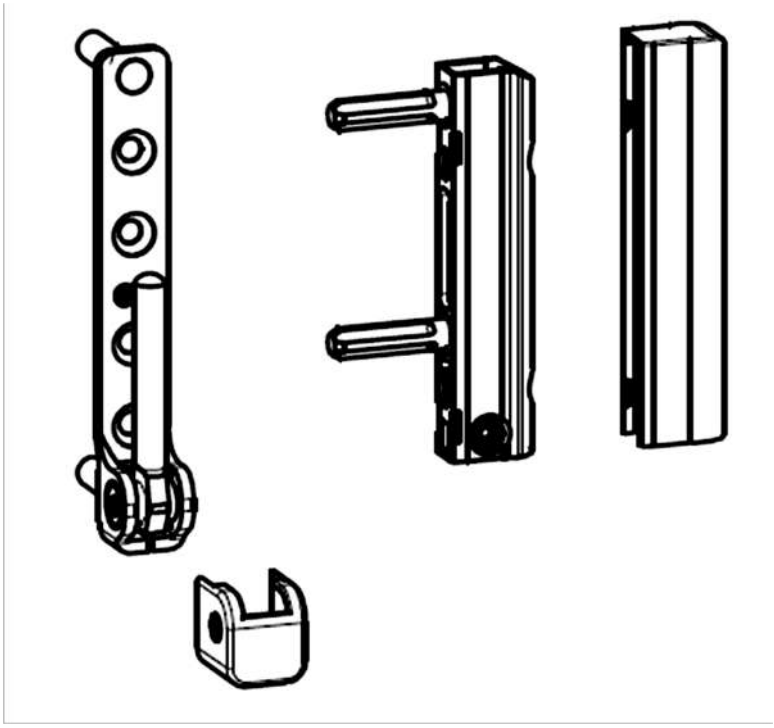
- Tilt and turn
- Door hinges
- Folding/stacking door
- Tilt and slide PSK
- Standard slider K54
- Motorized door lock
- Motorized glazing blinds
- Motorized rolling shutters

# Tilt and turn

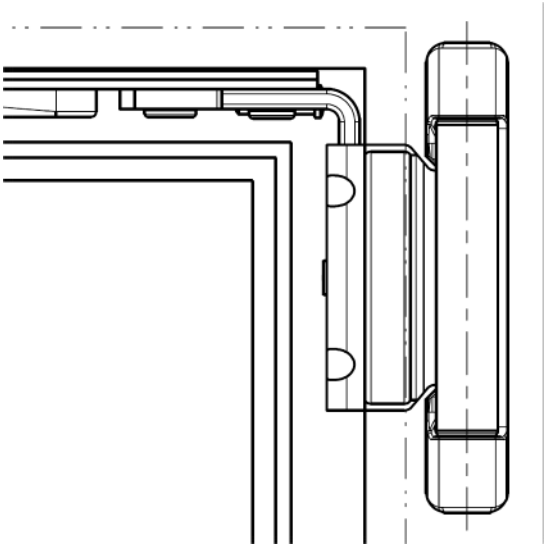
## Upper hinge parts



## Bottom hinge parts

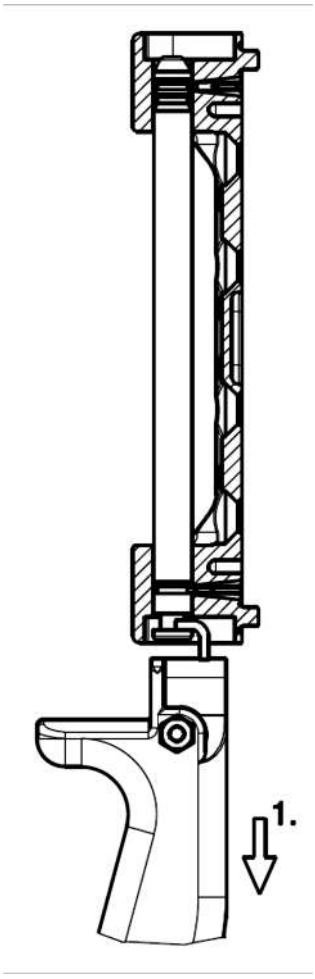


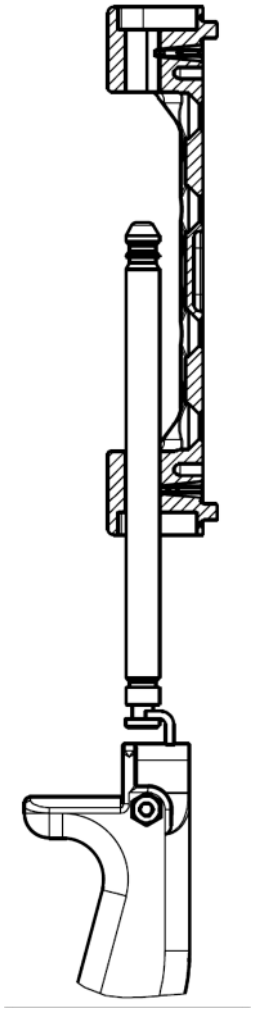
# Tilt and turn

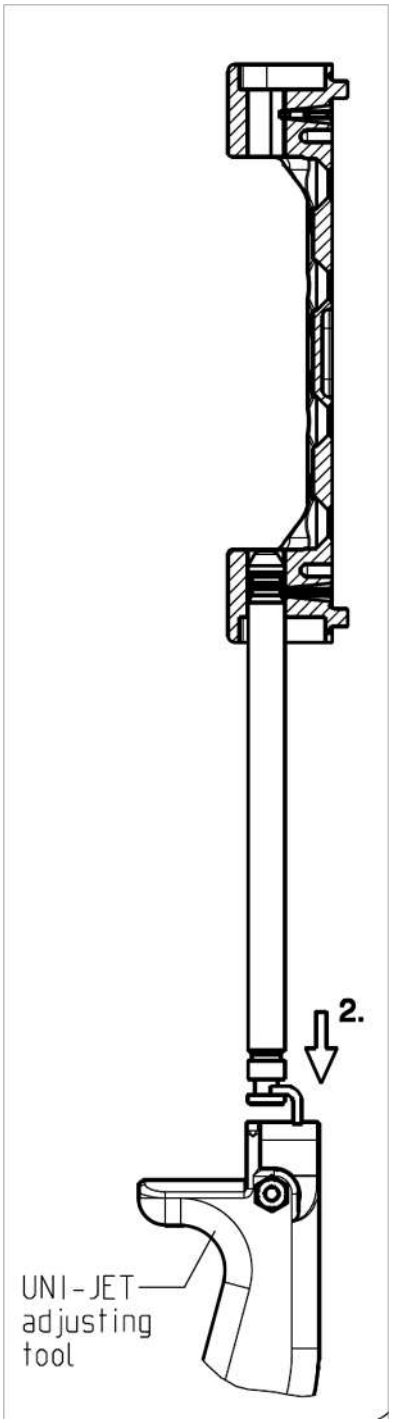


## Assembling/Disassembling stay bearing pin

1. Close the sash
2. Put the handle in open/tilt pos.
3. Insert pin flush with stay bearing or use the tool to remove it

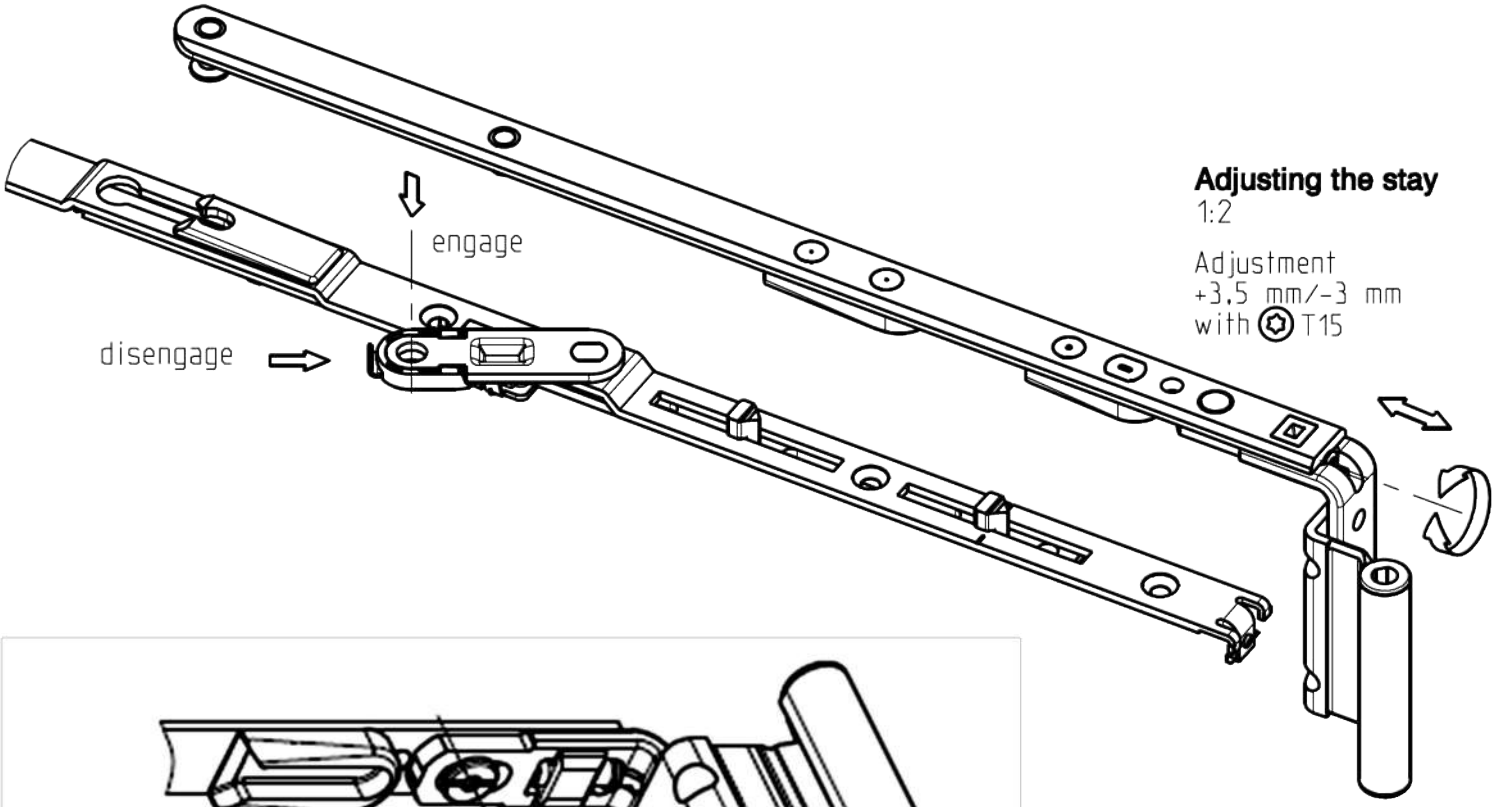




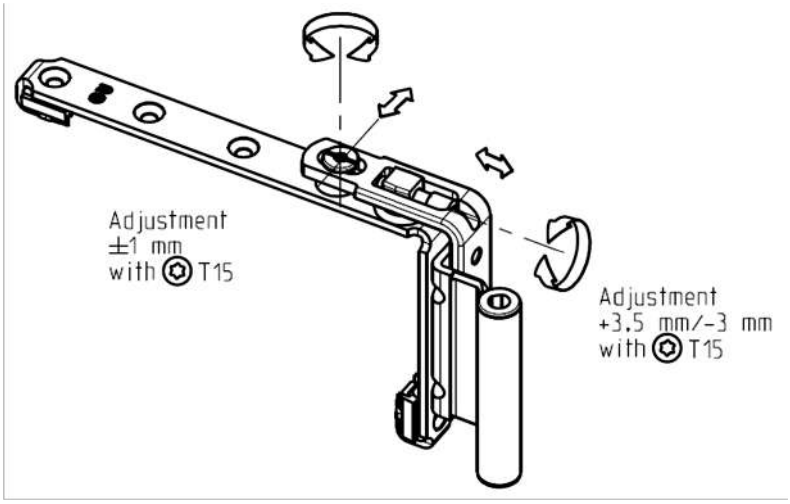
# Tilt and turn

## Upper hinge Adjustment



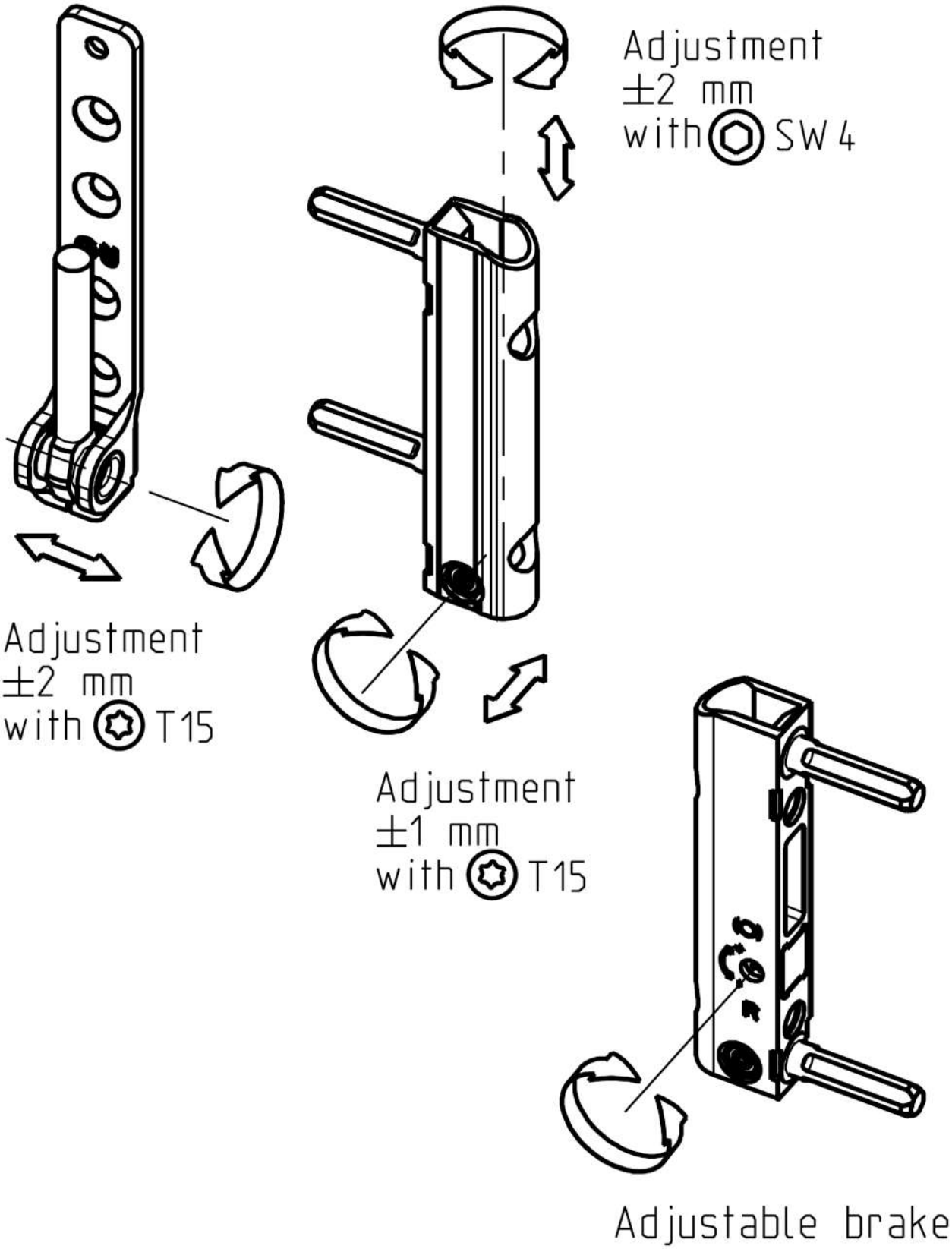


## Adjustment for very small sashes (~400mm)



# Tilt and turn

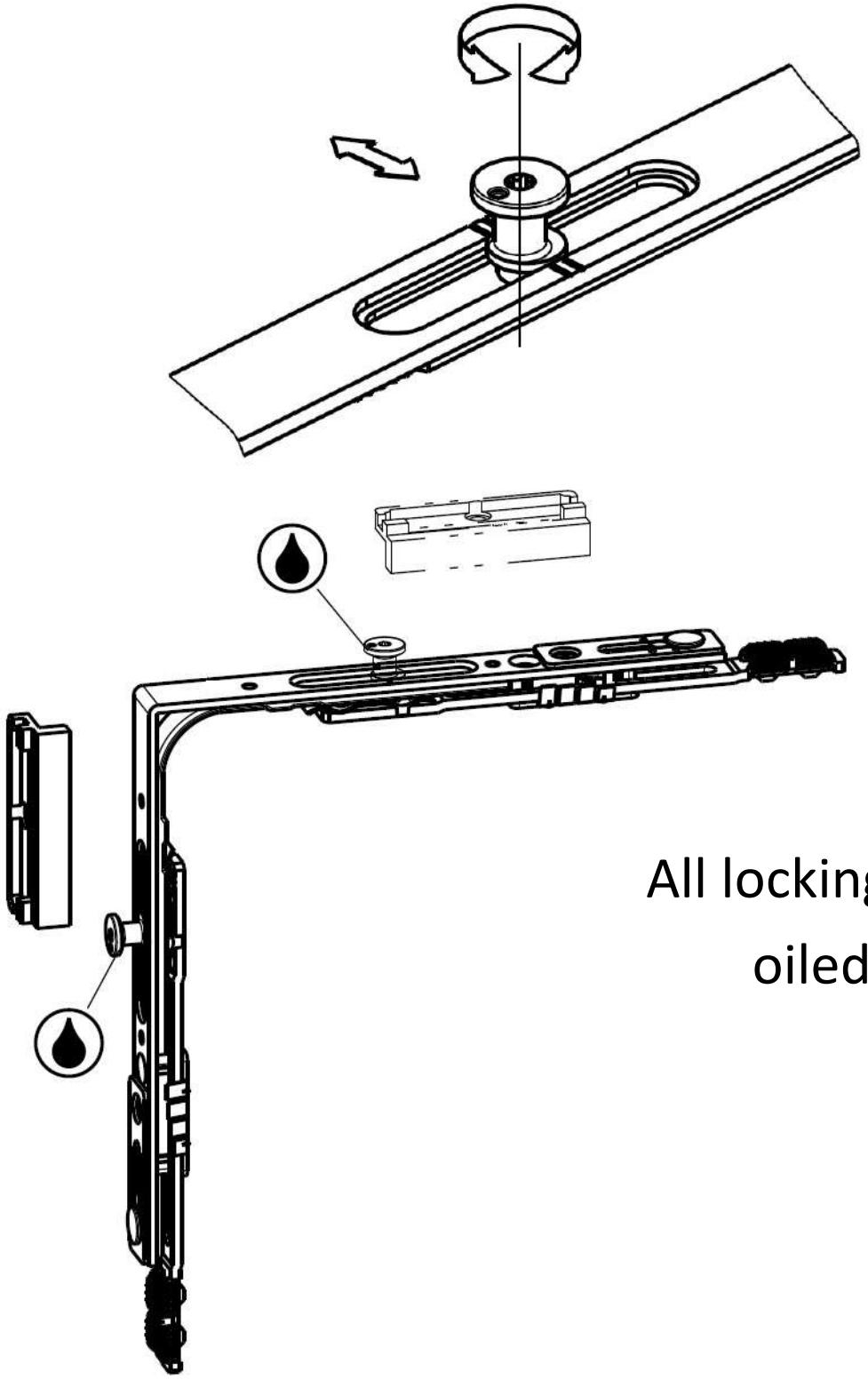
## Bottom hinge Adjustment



# Tilt and turn

## Gasket pressure adjustment for each pin

Adjustment
±1 mm
T15

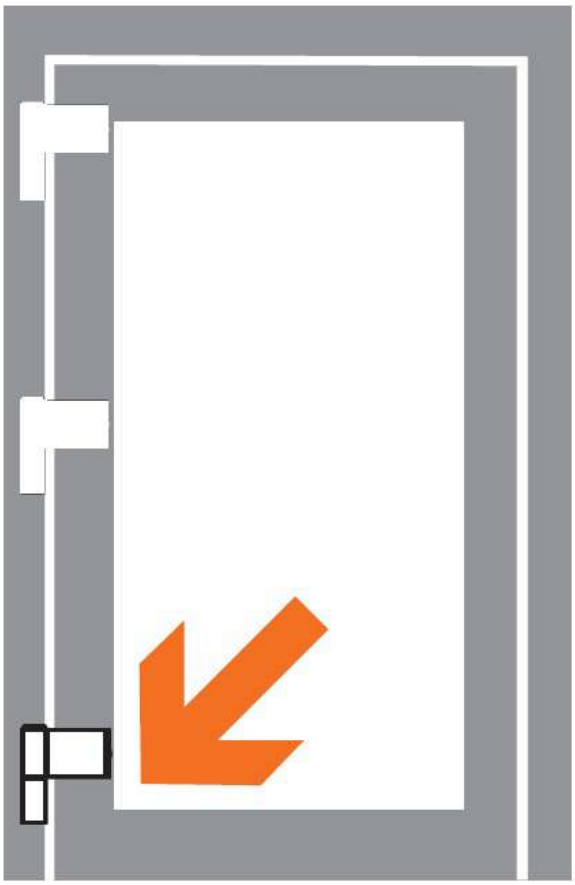


All locking pins should be oiled frequently.

# Entrance door

## Standard hinge adjustment

# Entrance door



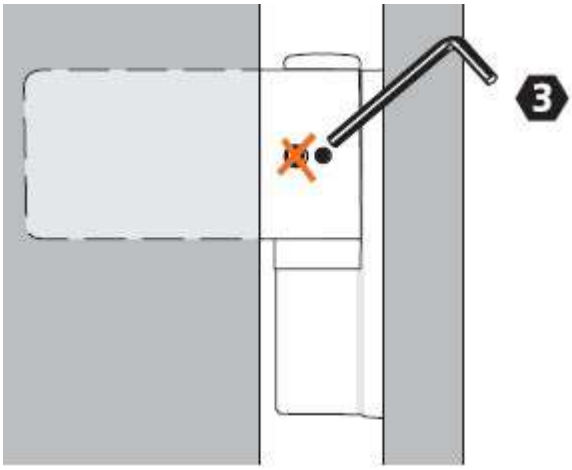
The bottom hinge should bear the door’s weight

Re-Adjust only the top hinges if required

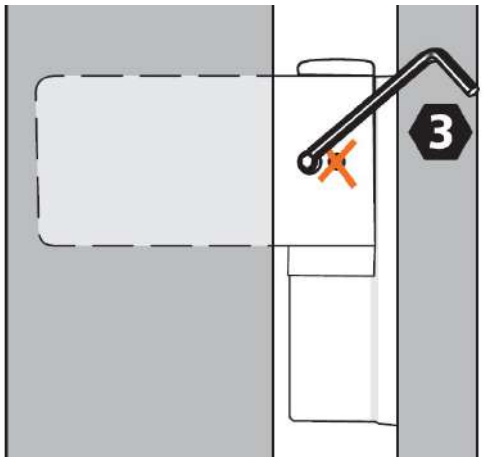

Hinges are maintenance free and lubrication is not necessary on Executive or Elite series.

They contain Teflon

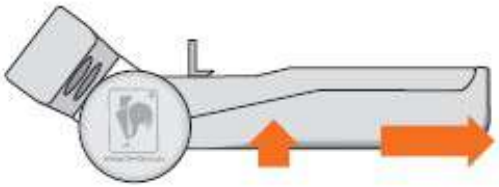
# Entrance door



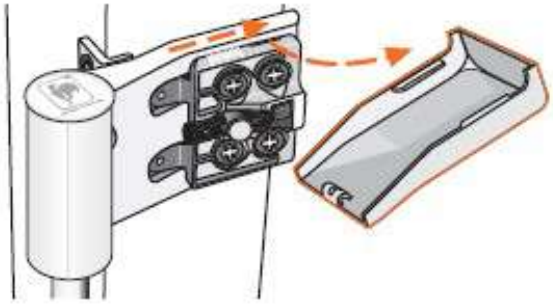

Sealing pressure adjustment

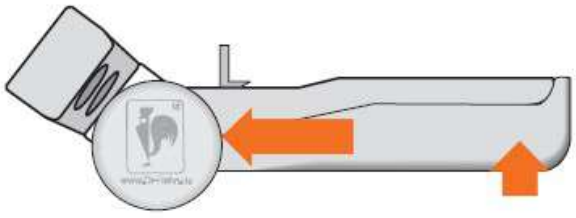



Cover plate securing



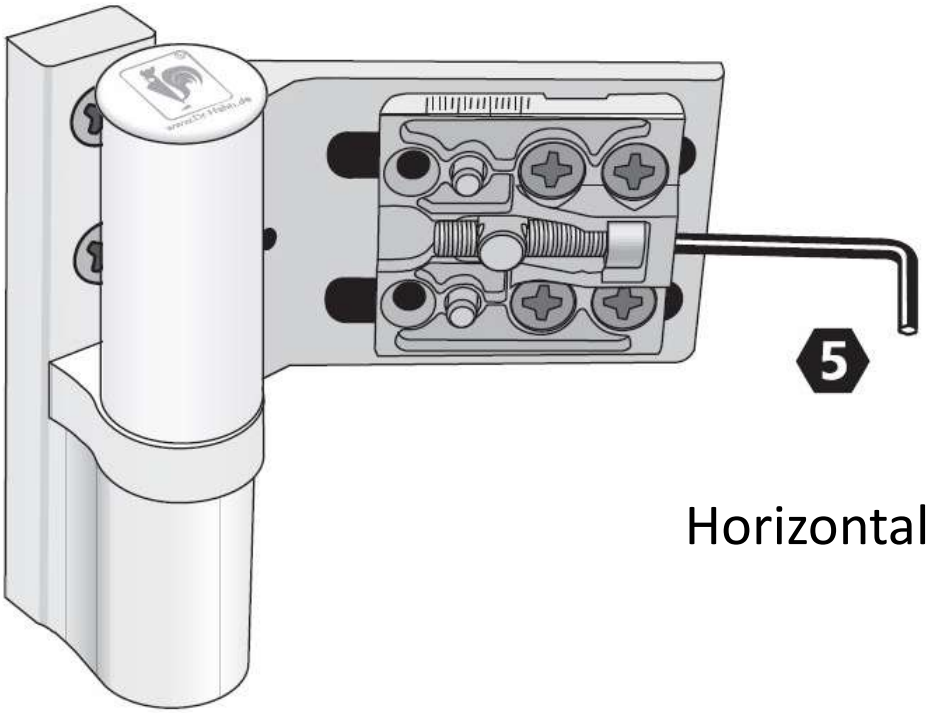
Press on and hold the cover plate





Put on and fit in cover cap and tighten locking screw

# Entrance door




Horizontal adjustment +/- 5mm


Vertical adjustment

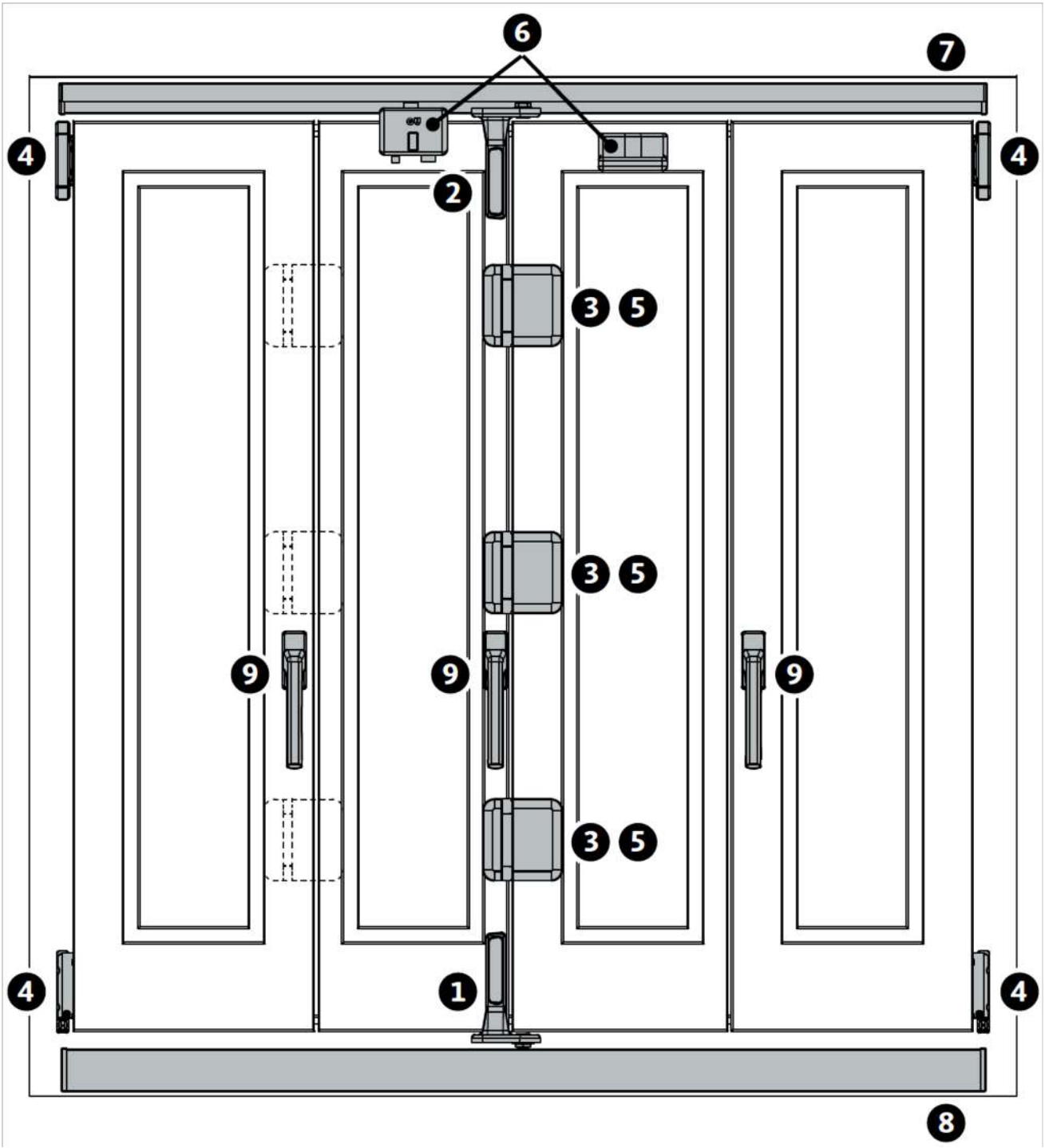
Raising up to 4mm

Lowering up to 3mm

Adjust vertical only when door is closed!

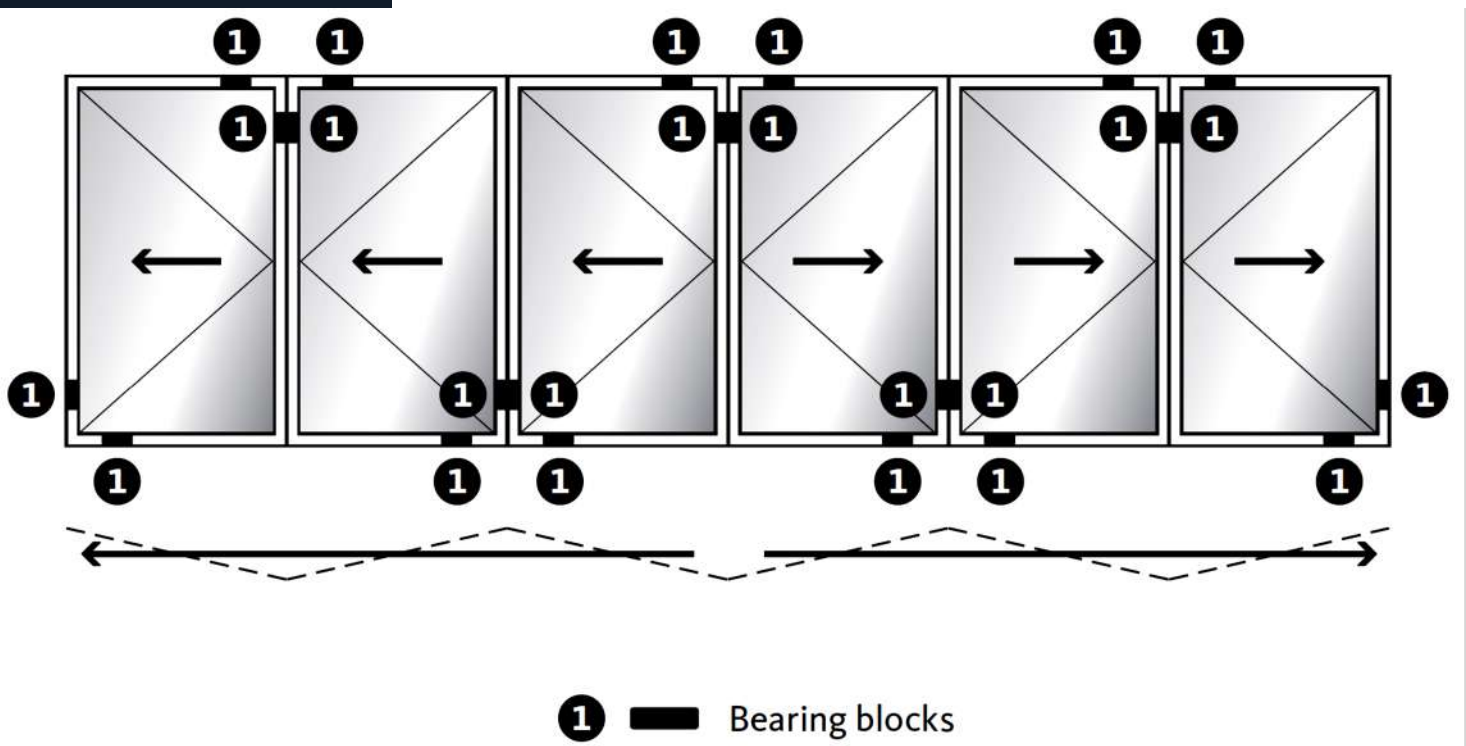
# Folding/Stacking door

## Parts overview

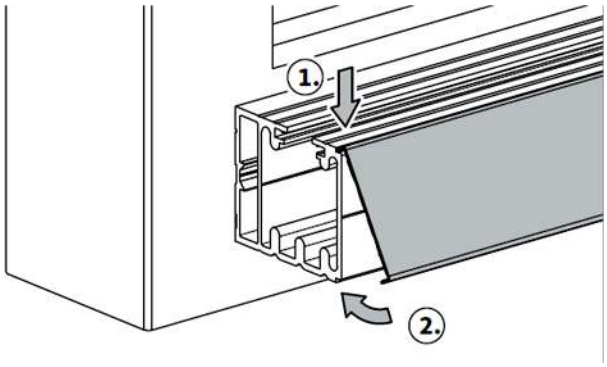



1. Bottom pivot-rest (roller)
2. Top pivot-rest
3. Sash hinges
4. Frame hinges
5. Sash hinge packers
6. Folding catch / support
7. Guide track
8. Roller track
9. Turn handle

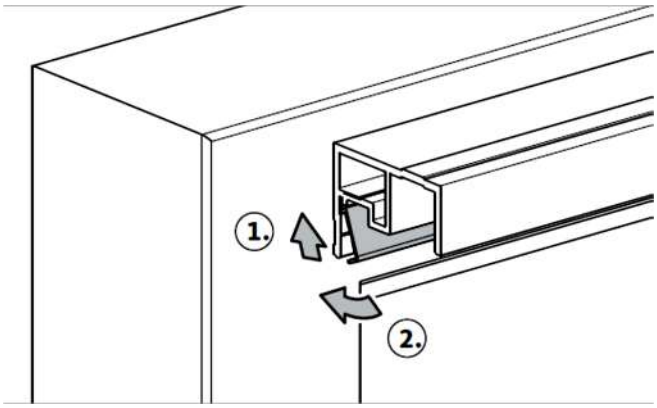
# Folding/Stacking door




Adding or removing spacers moves the sash to the desired direction. Sash-Frame overlap should be 8mm. When altering spacers to sashes with sash hinges both sash-es have to be re-spaced in order to achieve the desired movement




To fix the cover profile to the roller track Insert the entire length of the cover profile into the upper groove in the roller track and push the cover profile onto the lower groove in the roller track starting from one side and working along its entire length.




To fix the cover profile to the guide track Push the cover profile into the upper groove in the guide track and push the cover profile onto the lower groove of the guide track starting on one side and working along its entire length.

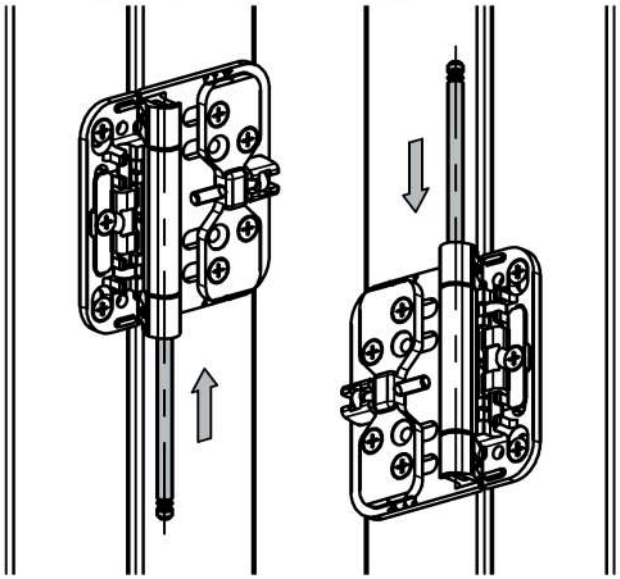
To remove them slide a thin flat bladed screwdriver into the first slot and lever the cover bit by bit with extreme caution to avoid damage

# Folding/Stacking door

As a prerequisite for installing the middle sashes, the sash with frame hinges on the frame side must already be installed and correctly adjusted.

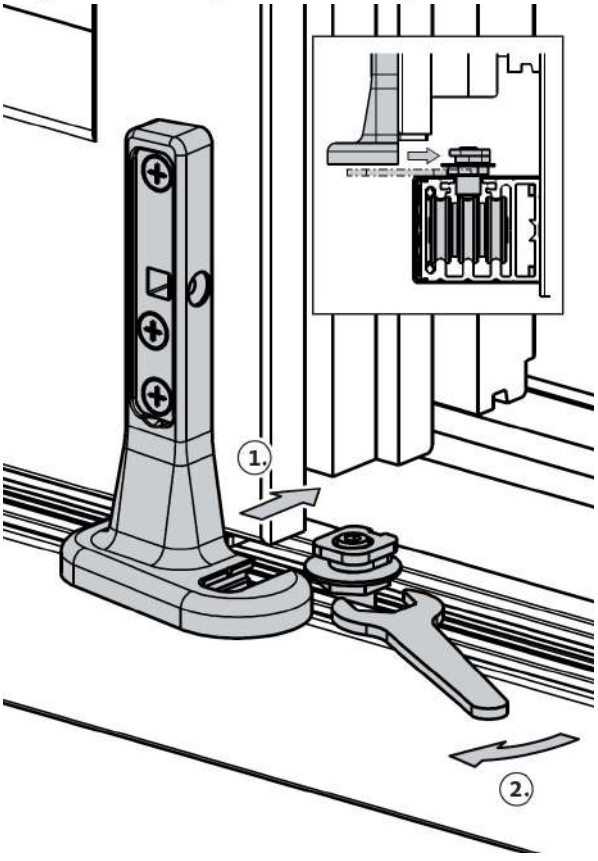
Attach the sash to be mounted to the sash that is already installed and push the hinges into one another. Insert the pins into the three sash hinges from above or from below, depending on the installation position of the sash hinges. The pins must noticeably engage.

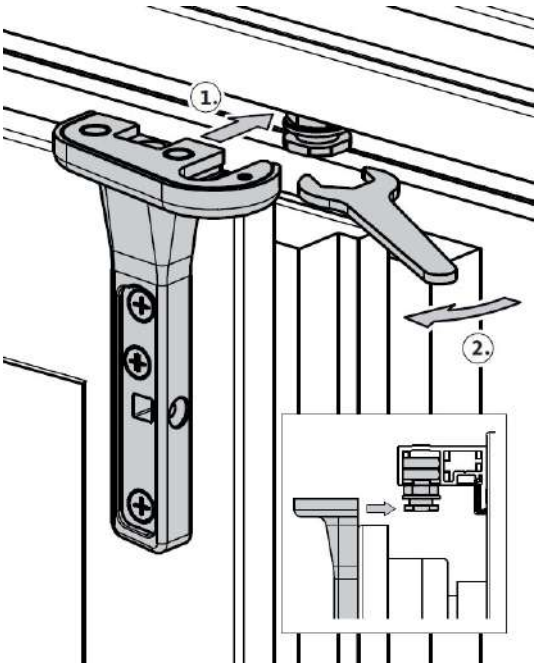
**Installing the pin in the sash hinge**



Long side to the right | Long side to the left

Push the lower pivot-rest of the sash to be installed onto the bogie (1). Tighten the locknut of the bogie with the open-end spanner (size 17) to prevent the sash from slipping out (2).



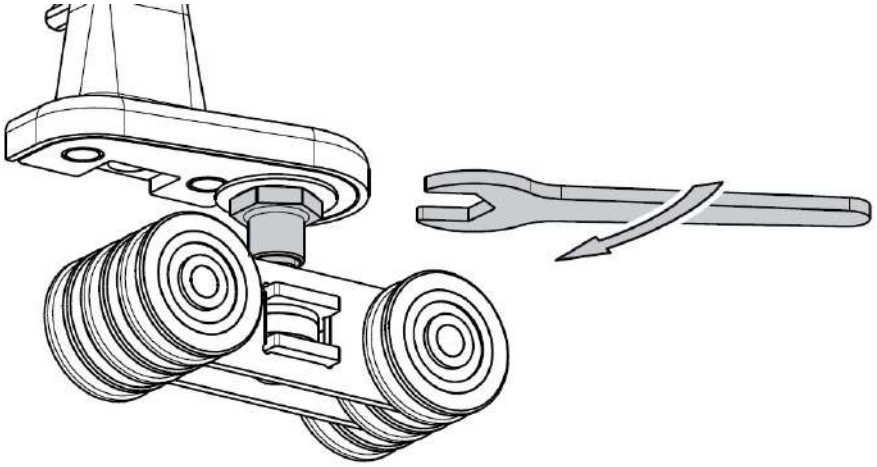




Push the upper pivot-rest of the sash to be installed onto the guide roll (1). Tighten the locknut on the guide roll with the open-end spanner (size 17) to prevent the sash from slipping out (2).

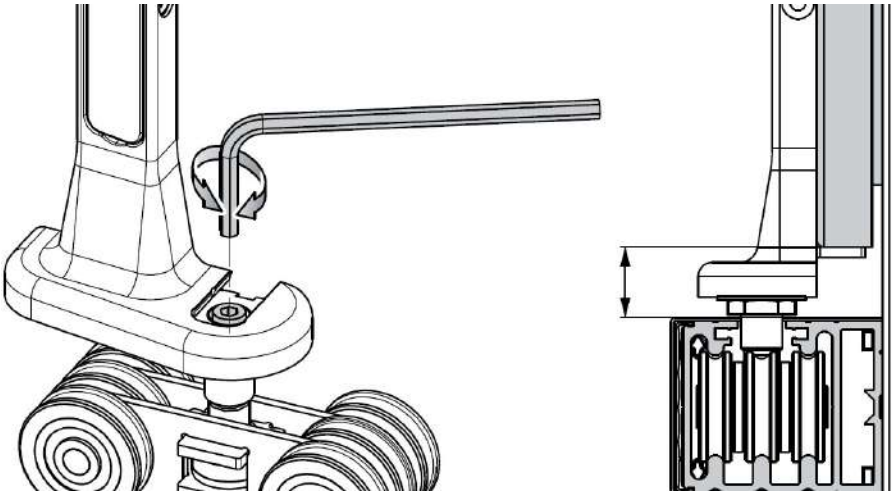
# Folding/Stacking door

The gap between the threshold and frame rebate and the gasket pressure of a sash can be adjusted at the bogie and guide roll. Please proceed as follows

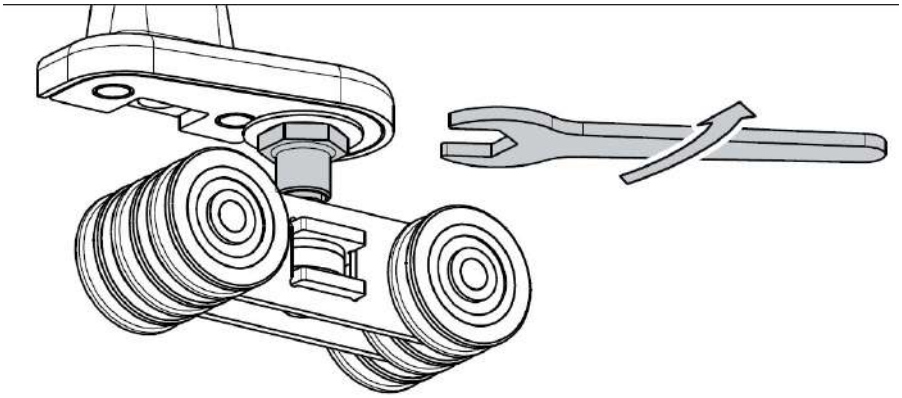
Move the sash that is already installed carefully into the closed position. Undo the locknut of the bogie on the sash to be adjusted using the open-end spanner (size 17)



Adjust the gap between the threshold and frame rebate by turning the set screw with a hexagon spanner (size 4) so it corresponds to the dimension specified in the installation drawing for the specific profile (the set screw can be adjusted from –1 mm to +3.5 mm). Adjust the gasket pressure by sliding the pivot-rest.

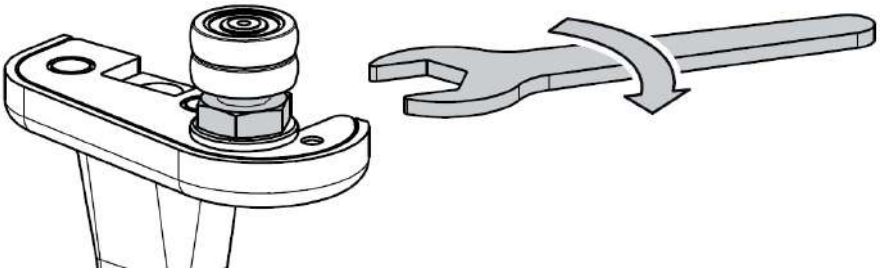


Then tighten the locknut again with the open-end spanner (size 17) (tightening torque: 15 Nm)

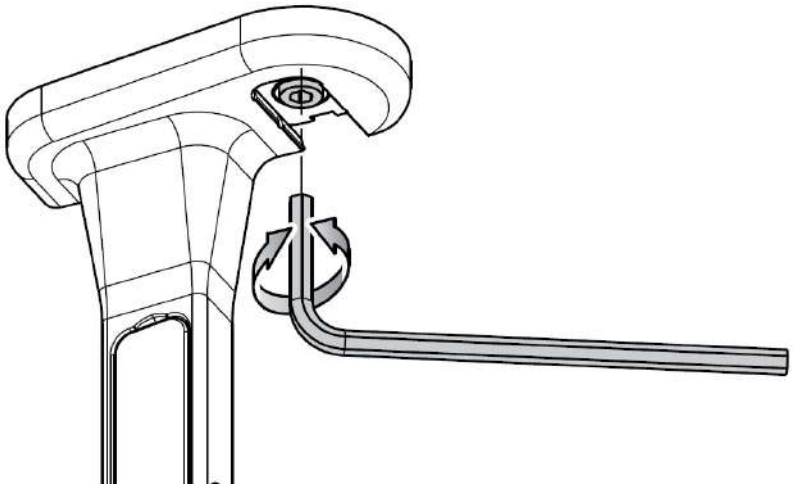


# Folding/Stacking door

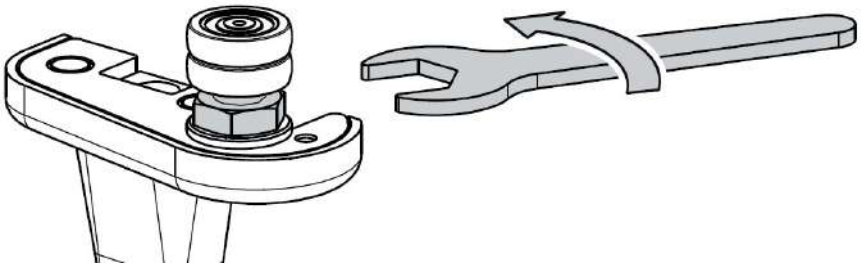
Undo the locknut on the guide roll of the sash to be adjusted using the open-end spanner (size 17).



Adjust the height of the guide roll by turning the set screw with a hexagon spanner (size 4) so the guide roll cannot scrape against the guide track (adjustment range –1 mm to +3.5 mm). Adjust the gasket pressure by sliding the pivot-rest.

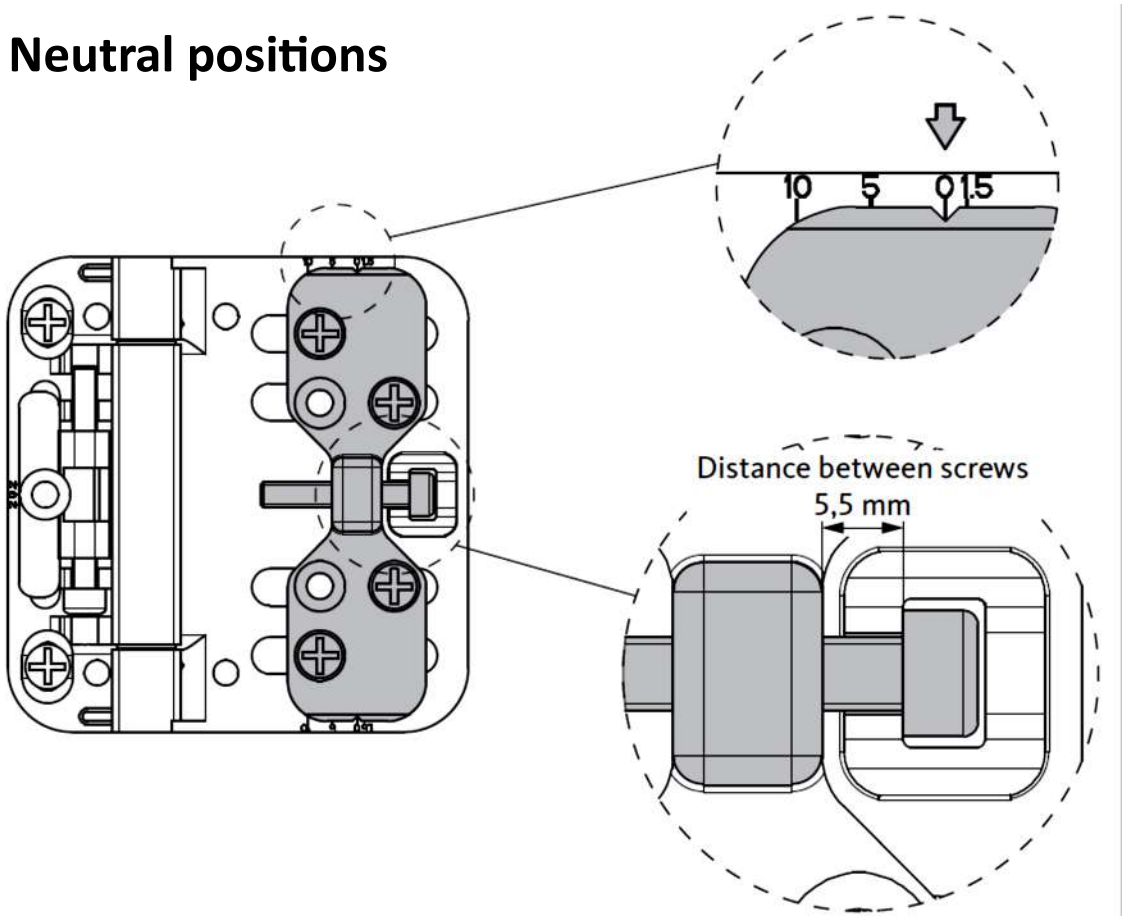


Then tighten the locknut again with the open-end spanner (size 17) (tightening torque: 15 Nm).



# Folding/Stacking door

## Neutral positions




| Hinge | Adjustment range | Neutral position ±0 on | |
|---|---|---|---|
| | | base plate scale | distance between screws |
| 20/50 | -5 to +1.5 | 0 | 5.5 mm |
| 20/35* | -5 to +1.5 | 0 | 5.5 mm |

* Adjusting plate turned through 180°

# Folding/Stacking door

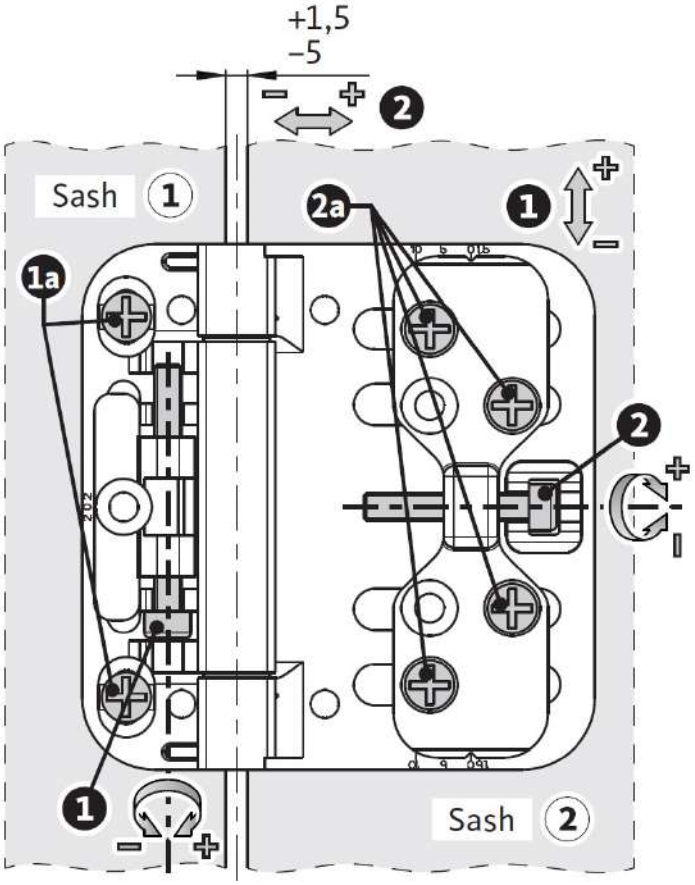
## Long side of the hinge on the right

**Set screw 1**

| Rotational direction of set screw | Direction of movement of sash ② | Max. adjustment range |
|---|---|---|
| RH (clockwise) | upwards | +2 |
| Left (counter-clockwise) | downward | −2 |

**Set screw 2**

| Rotational direction of set screw | Direction of movement of sash ② | Max. adjustment range |
|---|---|---|
| right (clockwise) | to the right (shadow gap increases) | +1,5 |
| Left (counter-clockwise) | to the left (shadow gap decreases) | −5 |



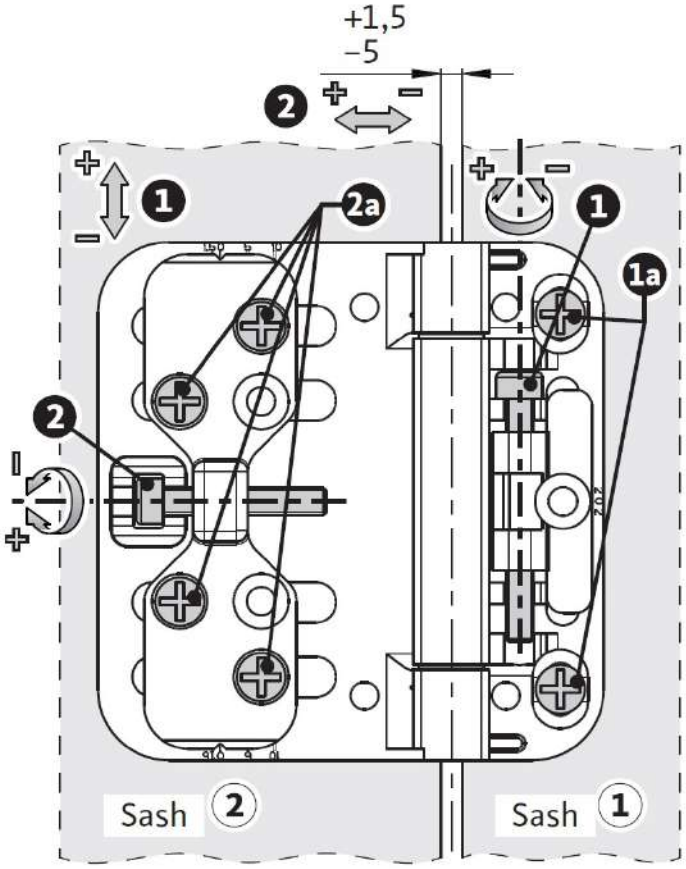

## Long side of hinge on left

**Set screw 1**

| Rotational direction of set screw | Direction of movement of sash ② | Max. adjustment range |
|---|---|---|
| RH (clockwise) | downward | −2 |
| Left (counter-clockwise) | upwards | +2 |

**Set screw 2**

| Rotational direction of set screw | Direction of movement of sash ② | Max. adjustment range |
|---|---|---|
| right (clockwise) | to the left (shadow gap increases) | +1,5 |
| Left (counter-clockwise) | to the right (shadow gap decreases) | −5 |



# Folding/Stacking door

## Adjusting Sash hinges

To align the sashes **vertically** proceed as follows

1. Slightly loosen screws 1a so the hinge can move
2. Adjust to the desired position by turning screw 1
3. Tighten screws 1a to fix the adjustment

To align the sashes **horizontally** proceed as follows

1. Slightly loosen screws 2a so the hinge can move
2. Adjust to the desired position by turning screw 2
3. Tighten screws 2a to fix the adjustment

**ATTENTION**

**Always make the adjustments at the set screws ❶ and ❷ one by one!**

**If you undo all screws at once, this could damage the sash hinge!**

**NOTE**

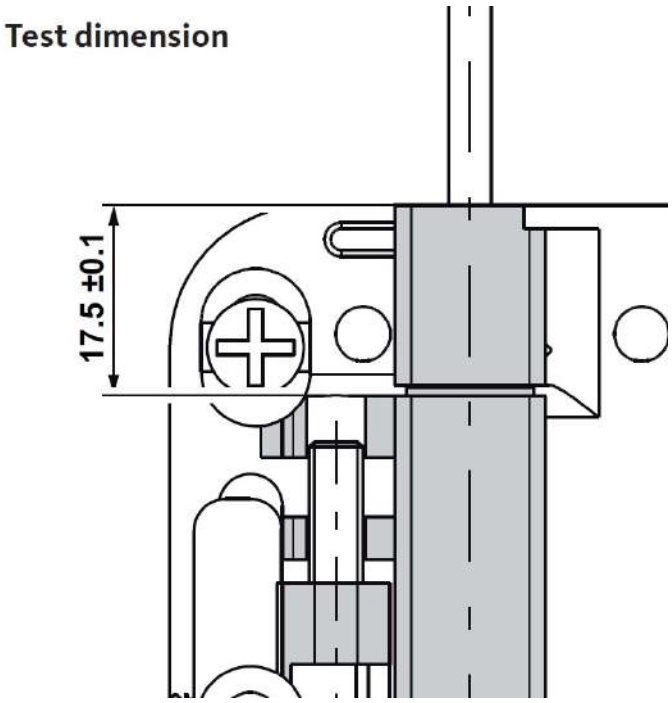
**Each time you adjust the hinges, check afterwards that they are uniformly aligned!**

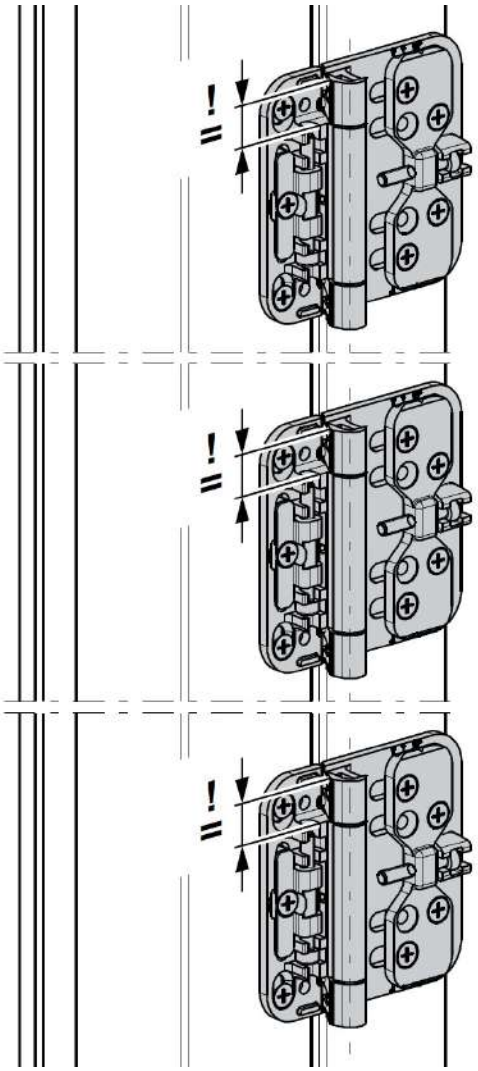
# Folding/Stacking door

## Check the settings

After adjustments you need to make 2 checks to verify that the hinges are aligned

**First check**, make sure that the dimensions shown in the figure below are the same. If they are not, adjust them as explained before with the set of screws 1 until they are the same.

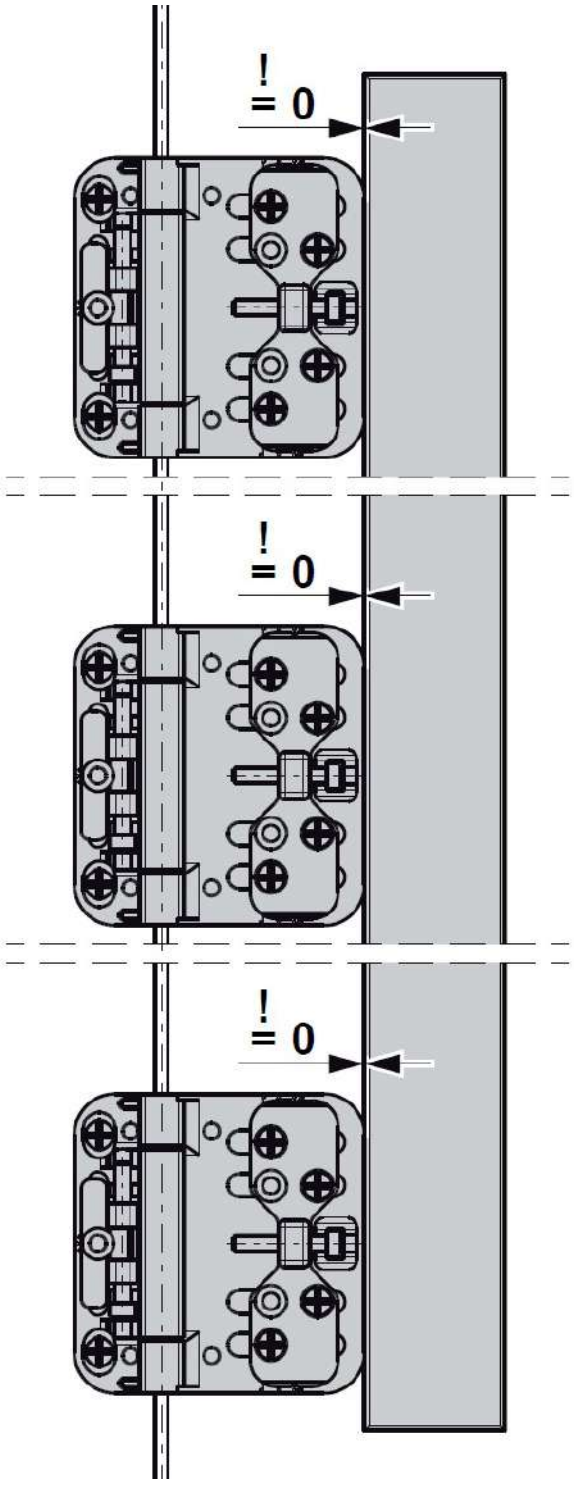


# Folding/Stacking door

**Level or**

**Straight edge**



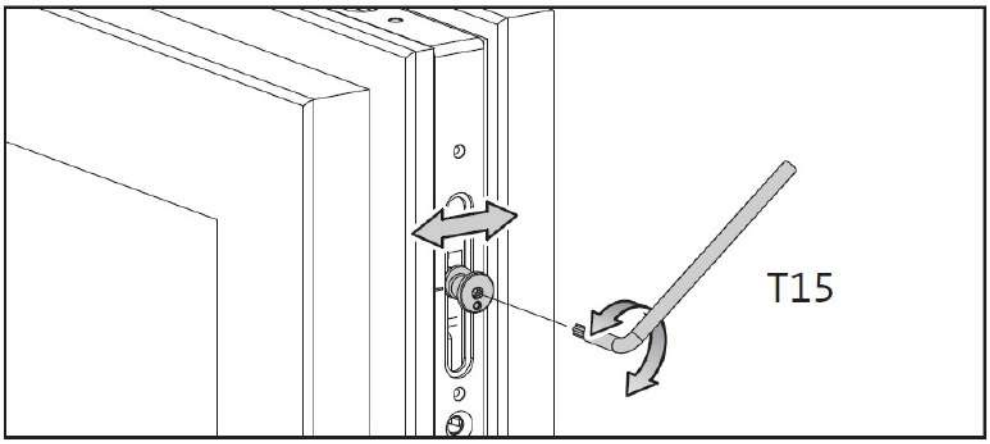

**Second check**

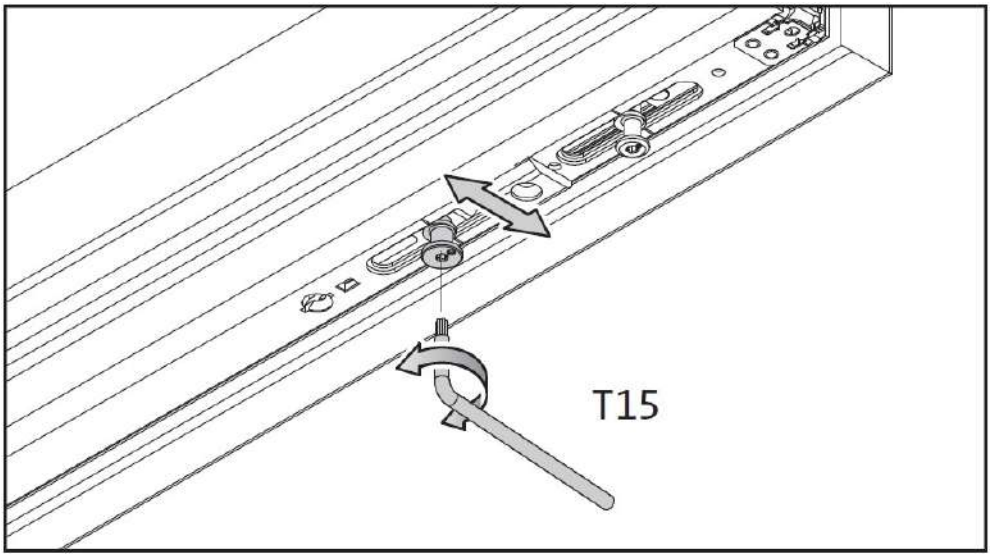
use a long spirit level against the lateral edges of the long sides of all three hinges and make sure they are flush. If one is not aligned adjust by turning the sed of screws 2 un-til it does.

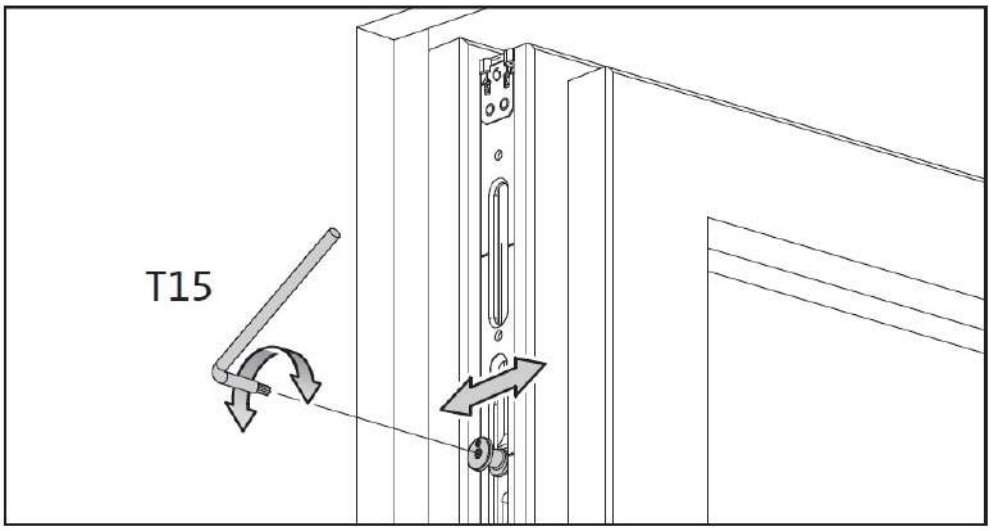
# Folding/Stacking door

## Adjust gasket pressure

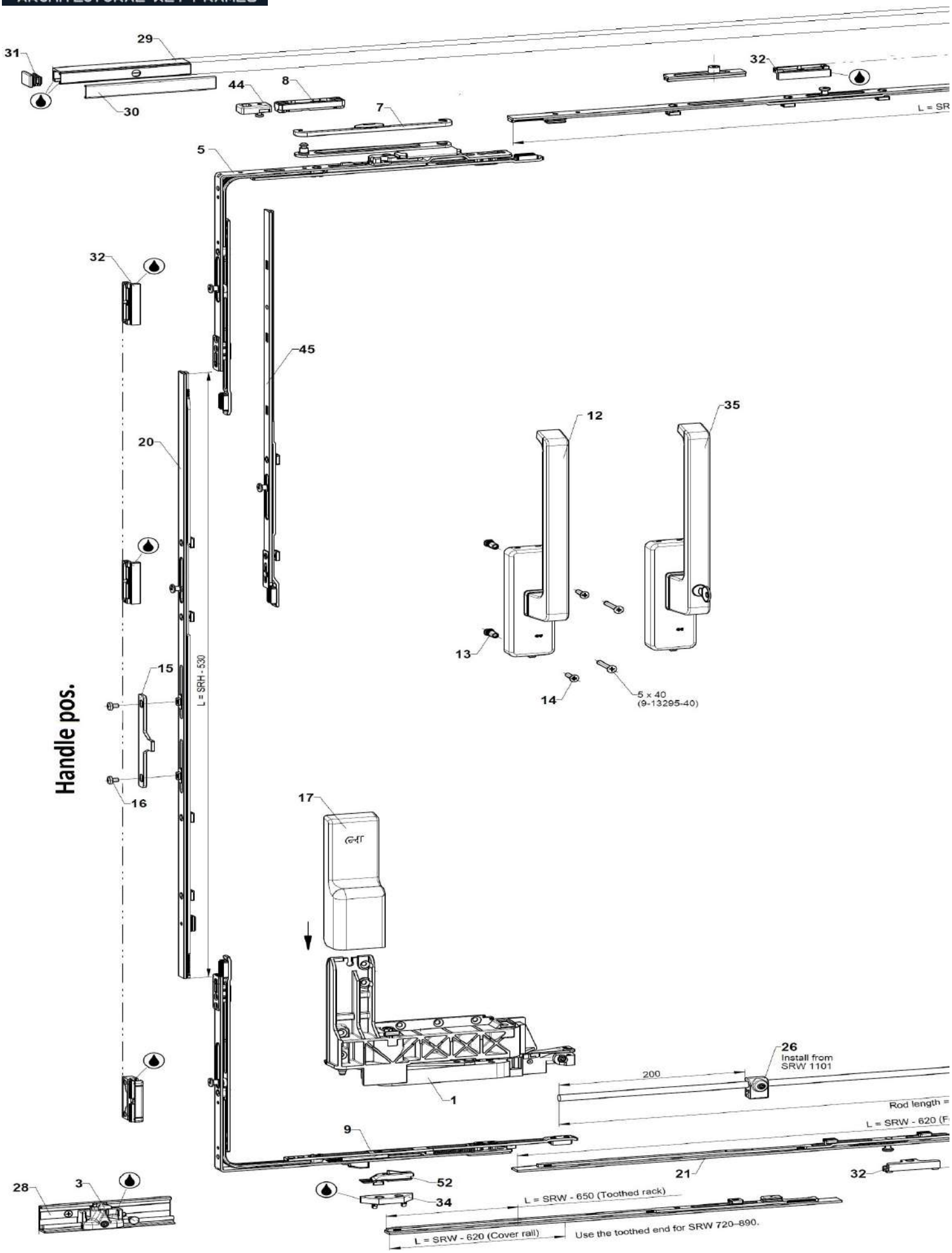
Use a Torx wrench T15 to adjust the pressure at the upper locking point on the locking side, the underside or the top of the sash



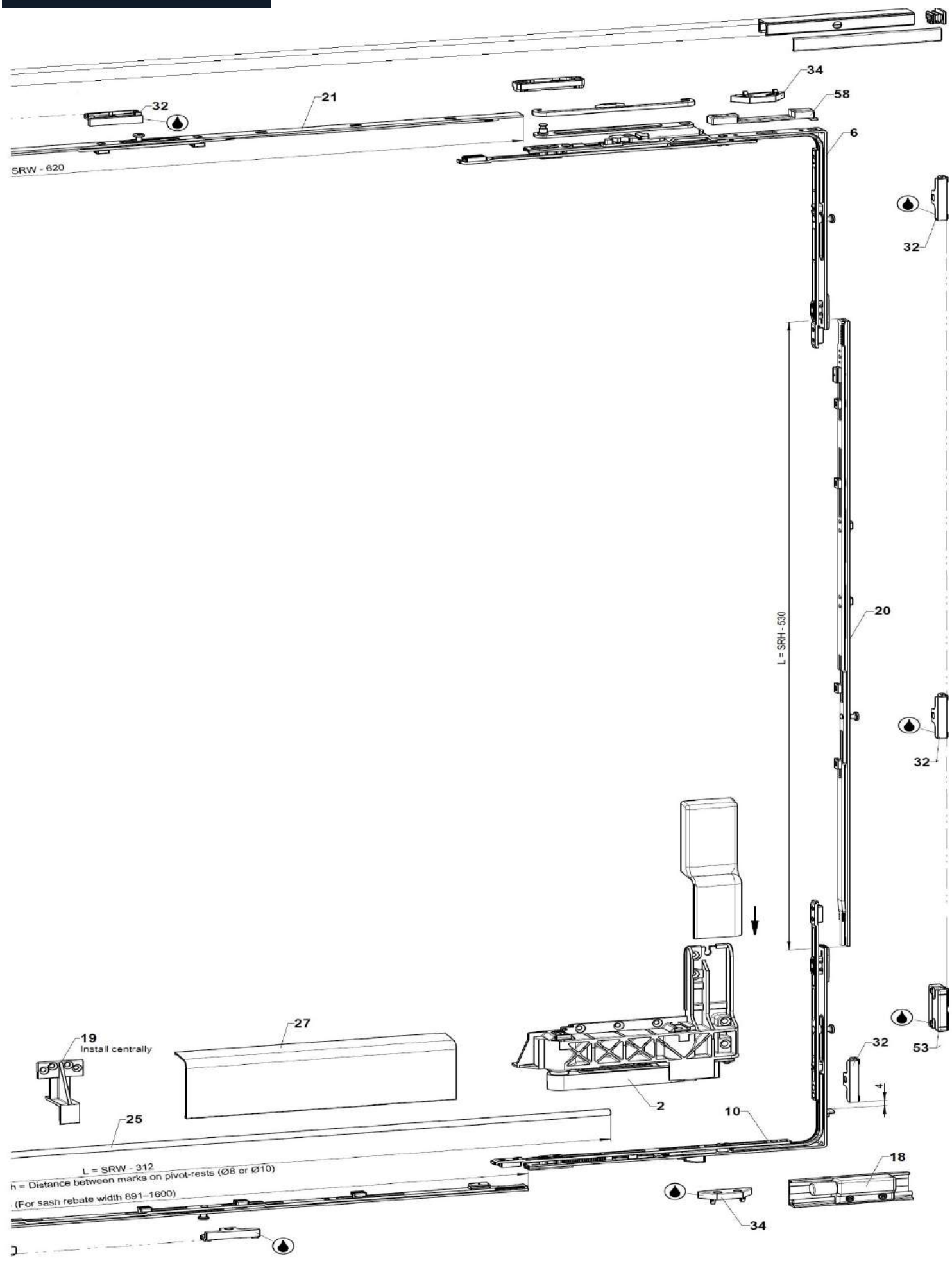



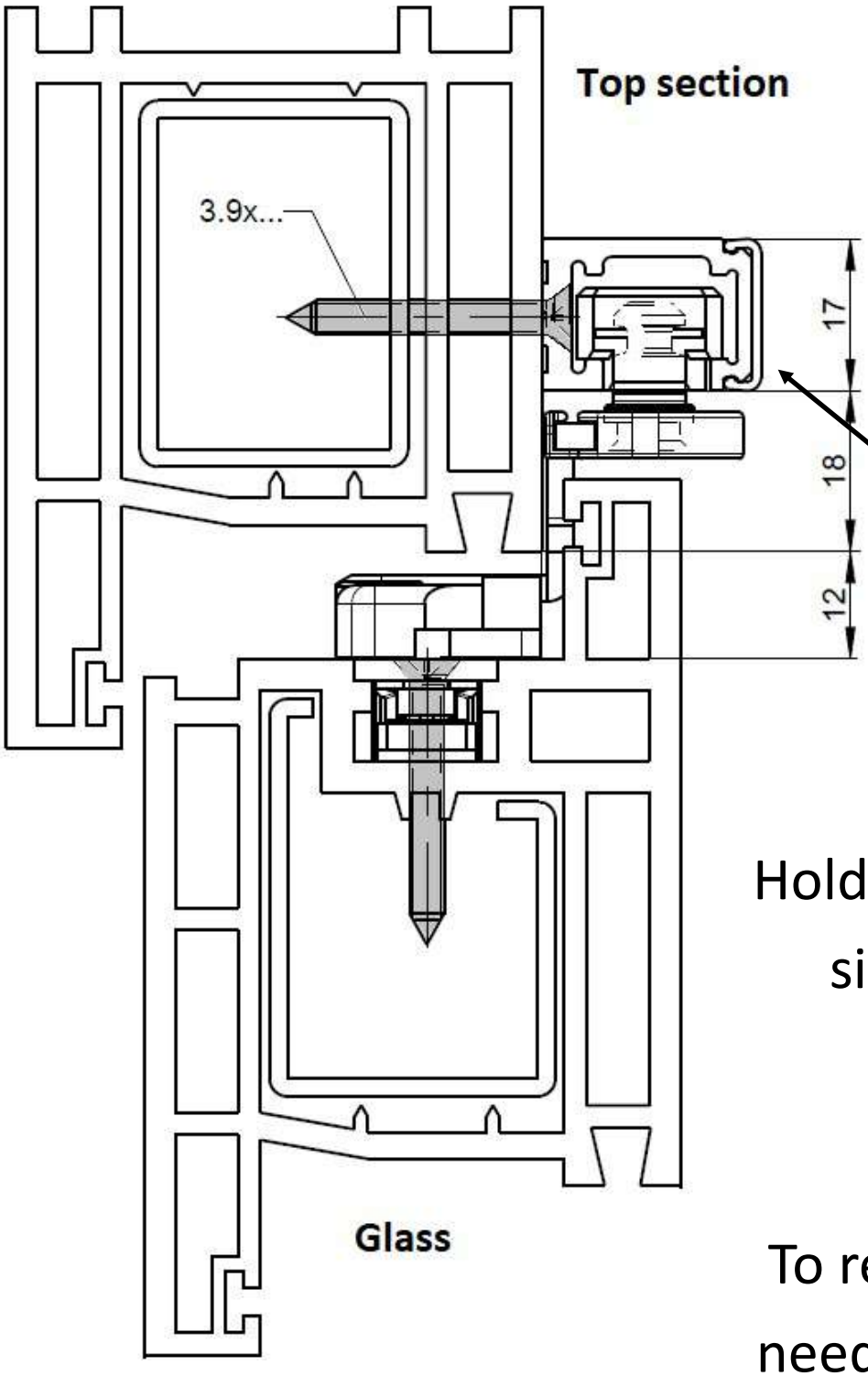
# Tilt and slide PSK Premium KN76



# Tilt and slide PSK Premium KN76



# Tilt and slide PSK Premium KN76



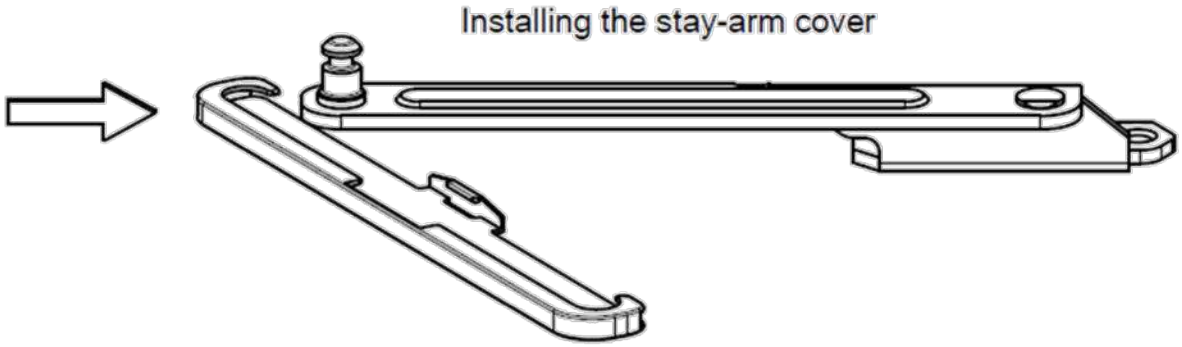

**Stay arm housing**

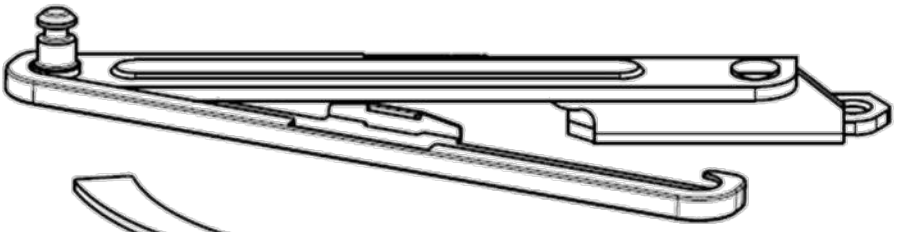
Holds the sash in tilt positions and allows for sash removal

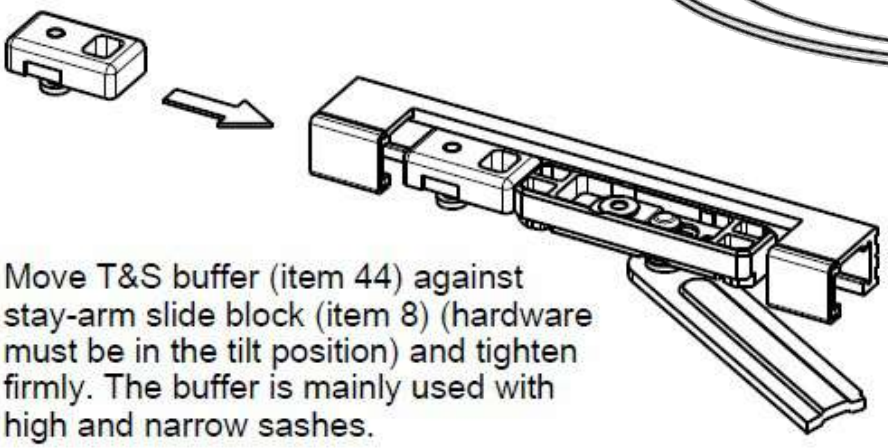
To remove the sash you need to release the pins from the stay arm gear

# Tilt and slide PSK Premium KN76

Installing the stay-arm cover

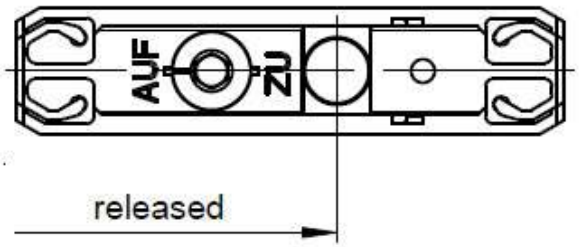




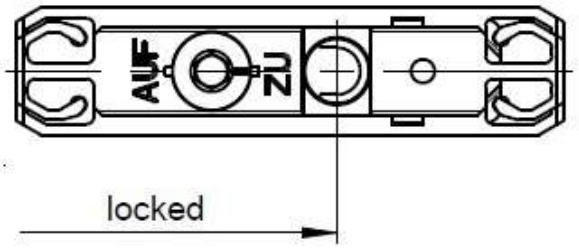


Move T&S buffer (item 44) against stay-arm slide block (item 8) (hardware must be in the tilt position) and tighten firmly. The buffer is mainly used with high and narrow sashes.

Lock stay-arm pin with
Allen key size 4.
See installation instructions point 14.




released

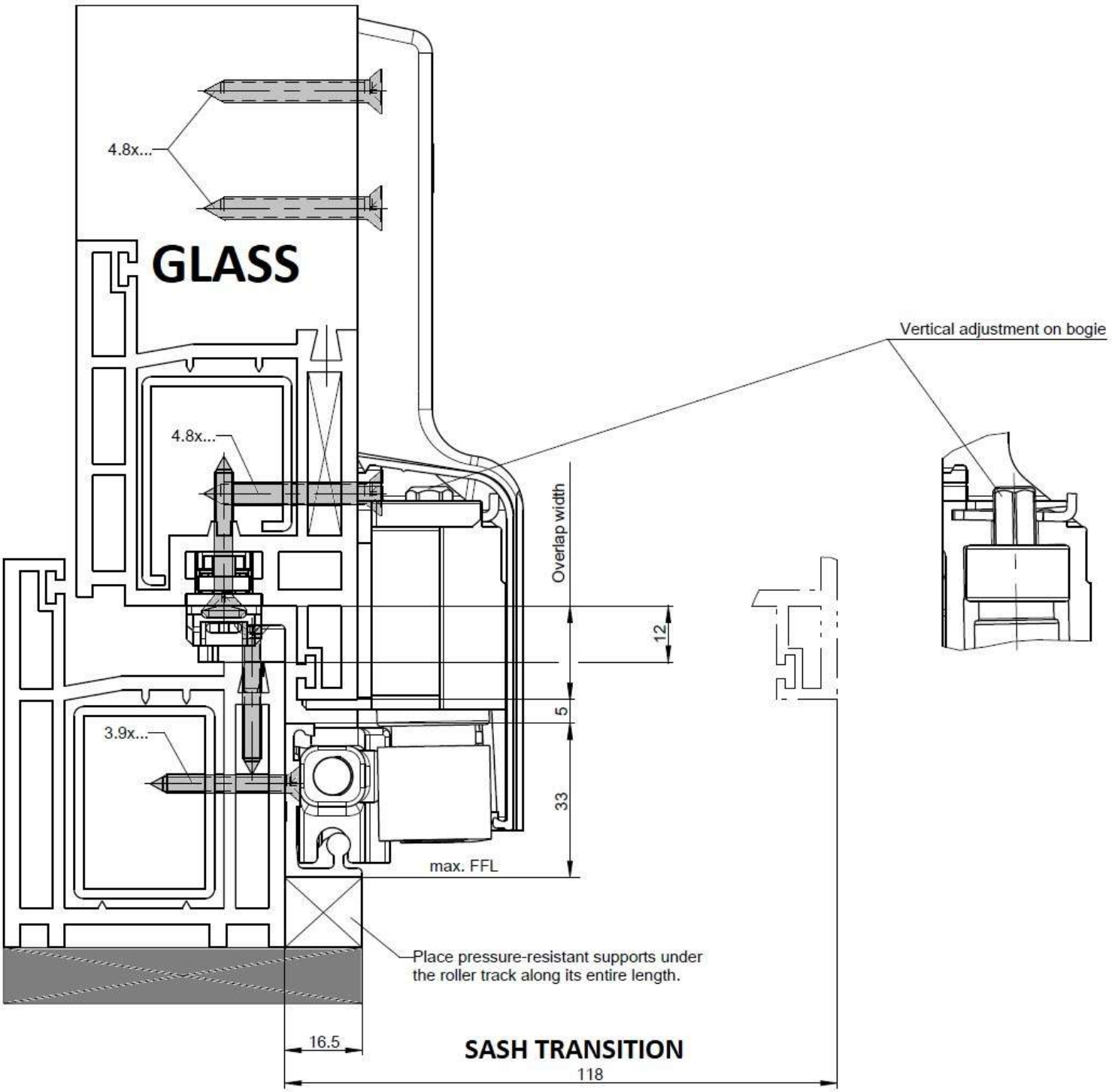



locked

**Attention**

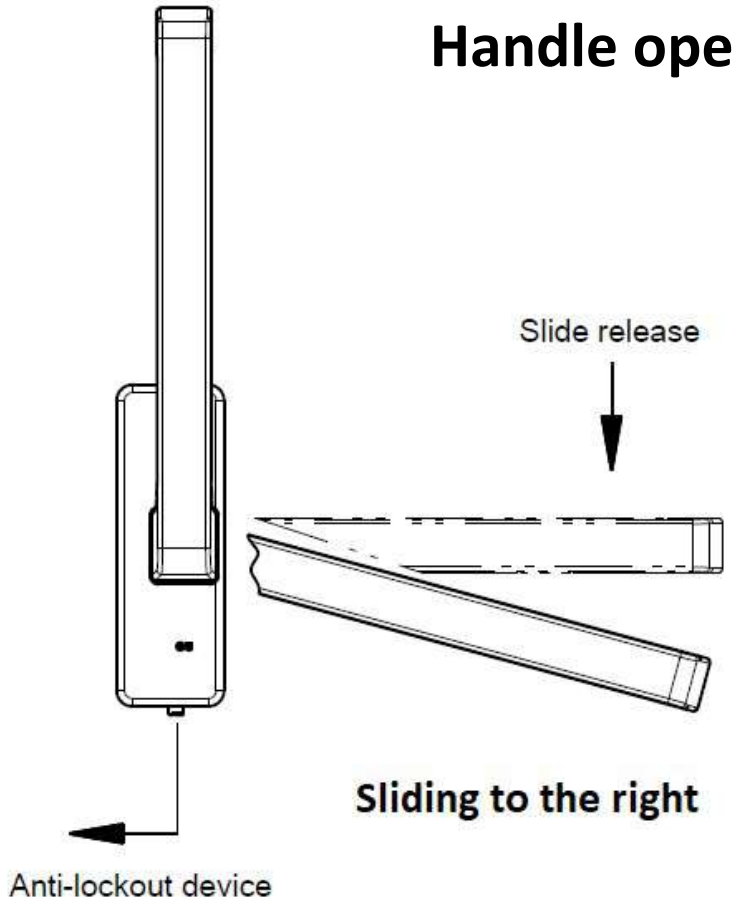
Pull on stay-arm firmly to ensure it is securely locked.

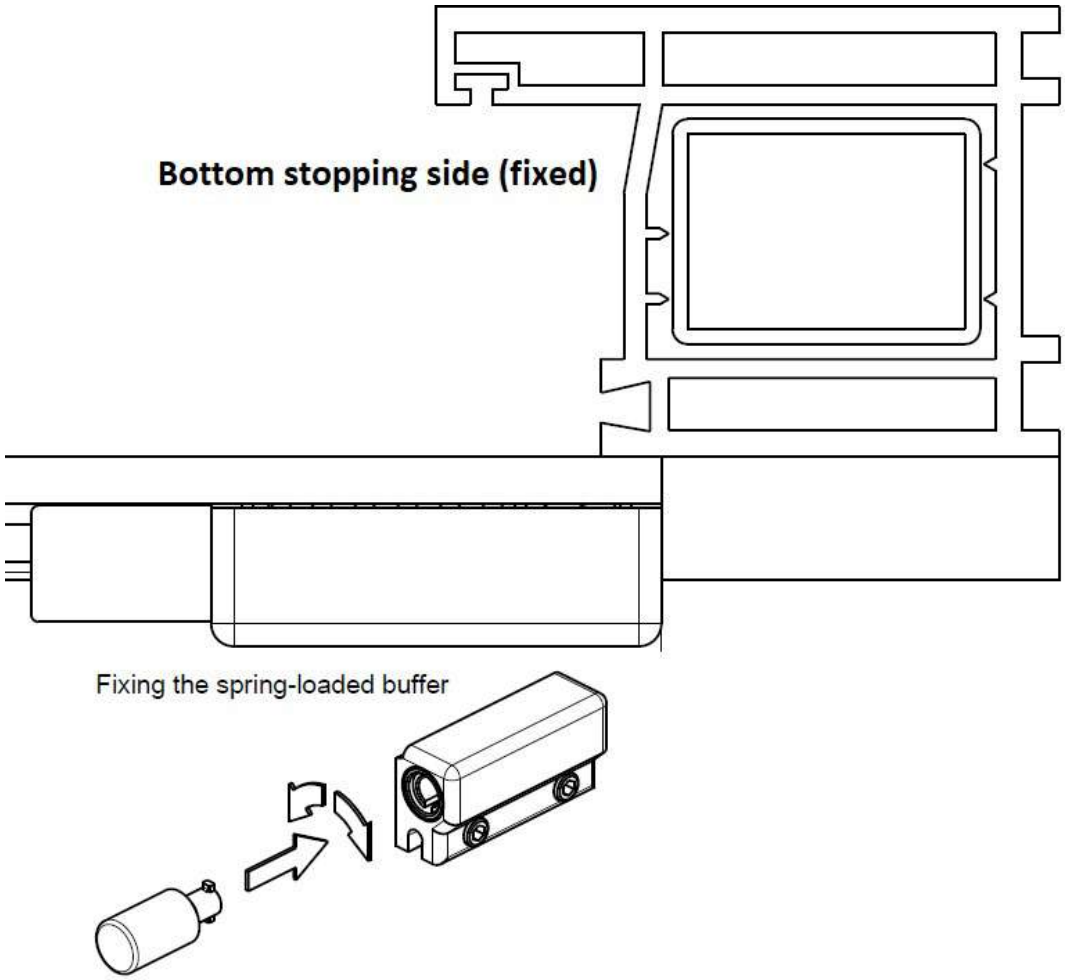
# Tilt and slide PSK Premium KN76



# Tilt and slide PSK Premium KN76

## Handle operation

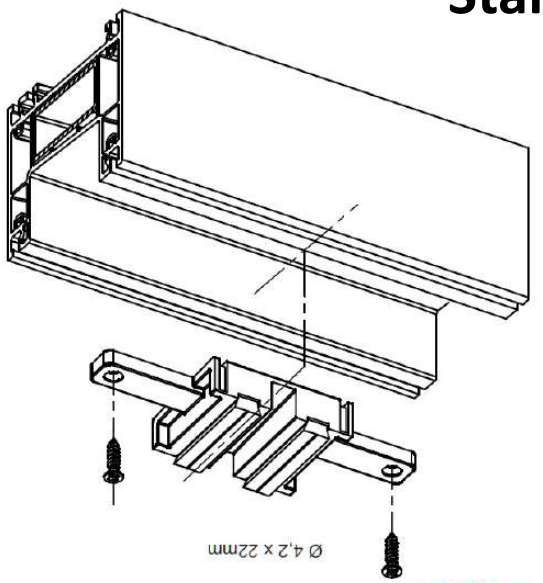


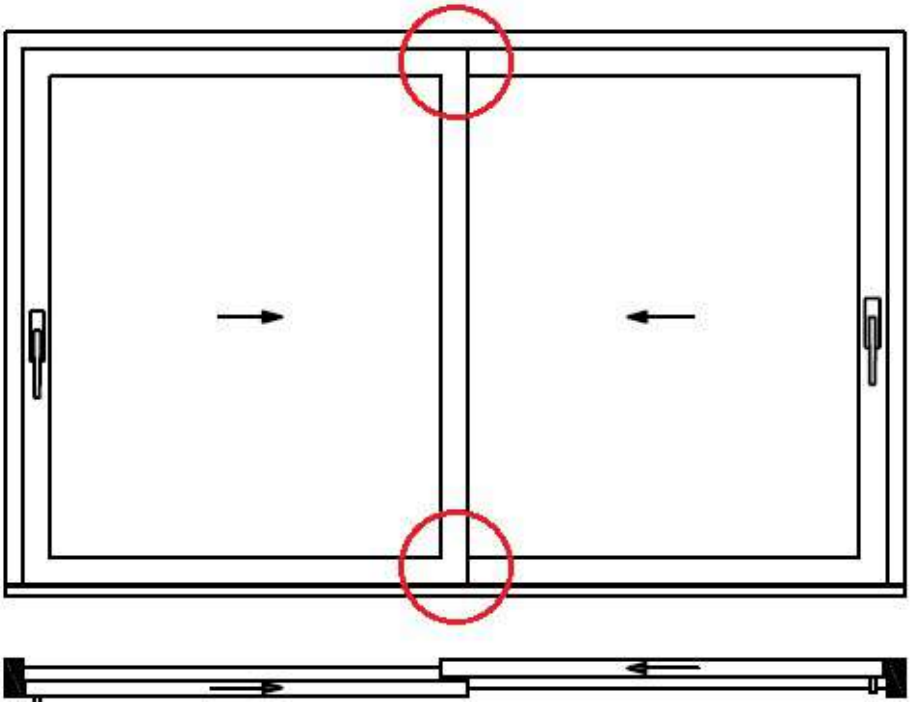



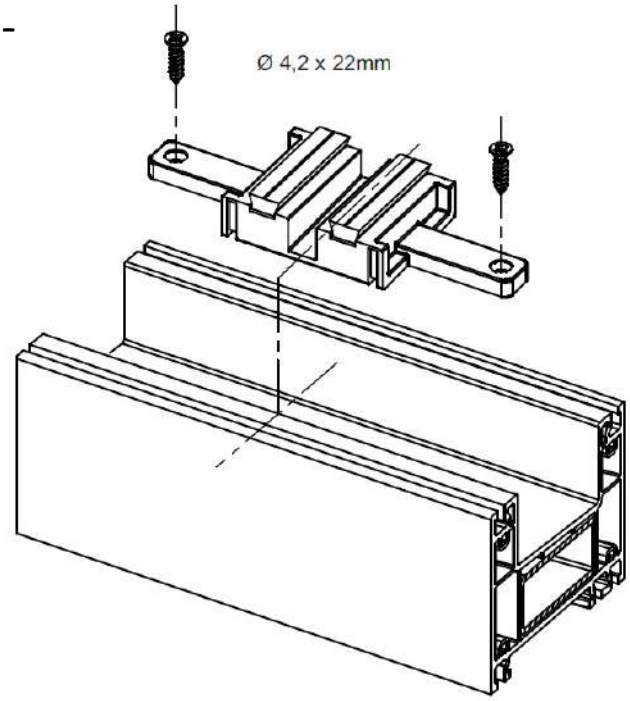
# Standard slider K54

## Wind stoppers

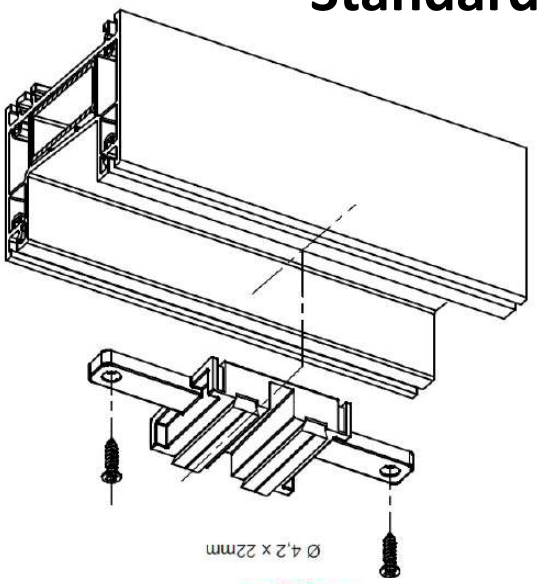
Secure the wind stopper at the midpoint of the frame, where the two sliding panels converge, using two 4*22mm bolts per wind stopper. Apply silicone beneath the wind stopper before installation. Pay careful attention to align its inclination with that of the frame, as the wind stopper is designed to be installed in only one specific orientation.



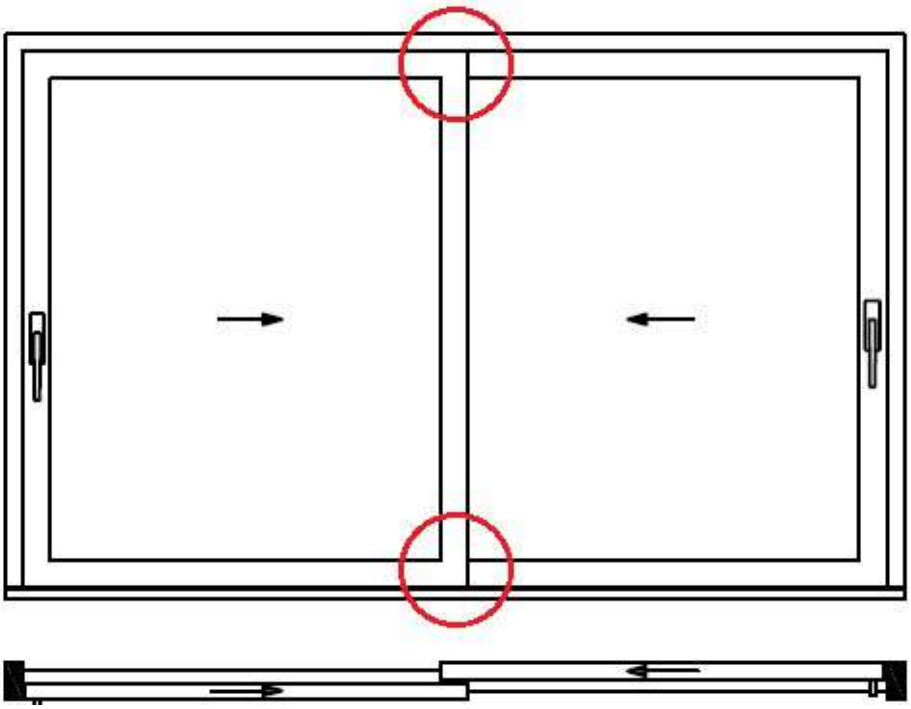


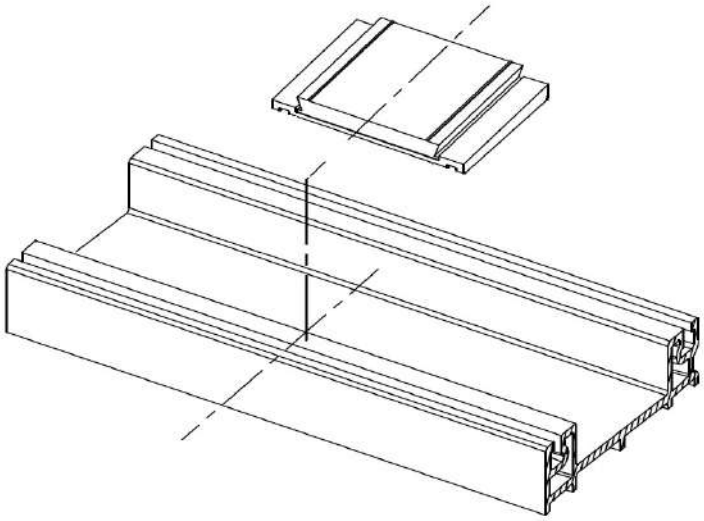
# Standard slider K54




## Wind stoppers

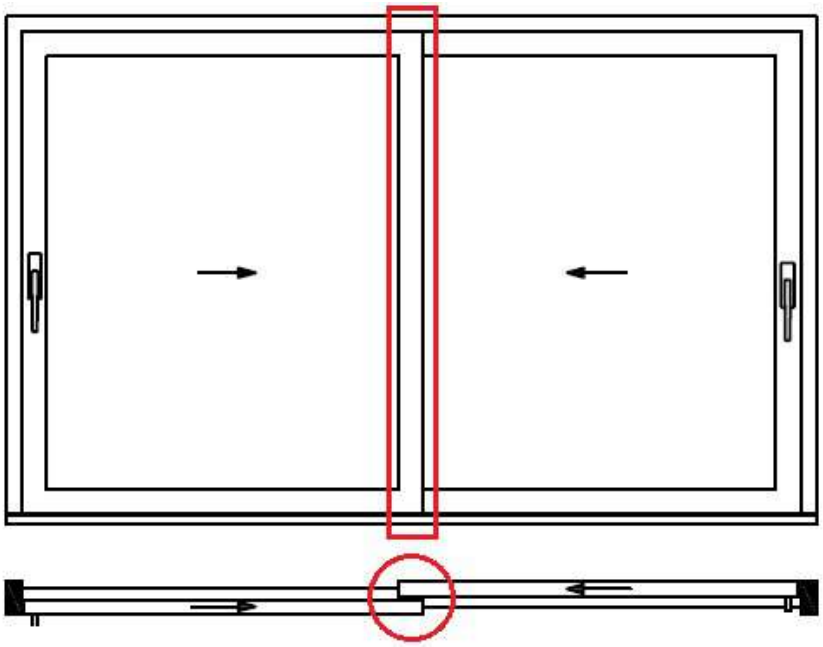
For the low aluminum sill, a distinct wind stopper pad is used, which is exclusively adhered to the sill. Ensure to apply silicone in the sealing pad grooves for optimal installation and performance.

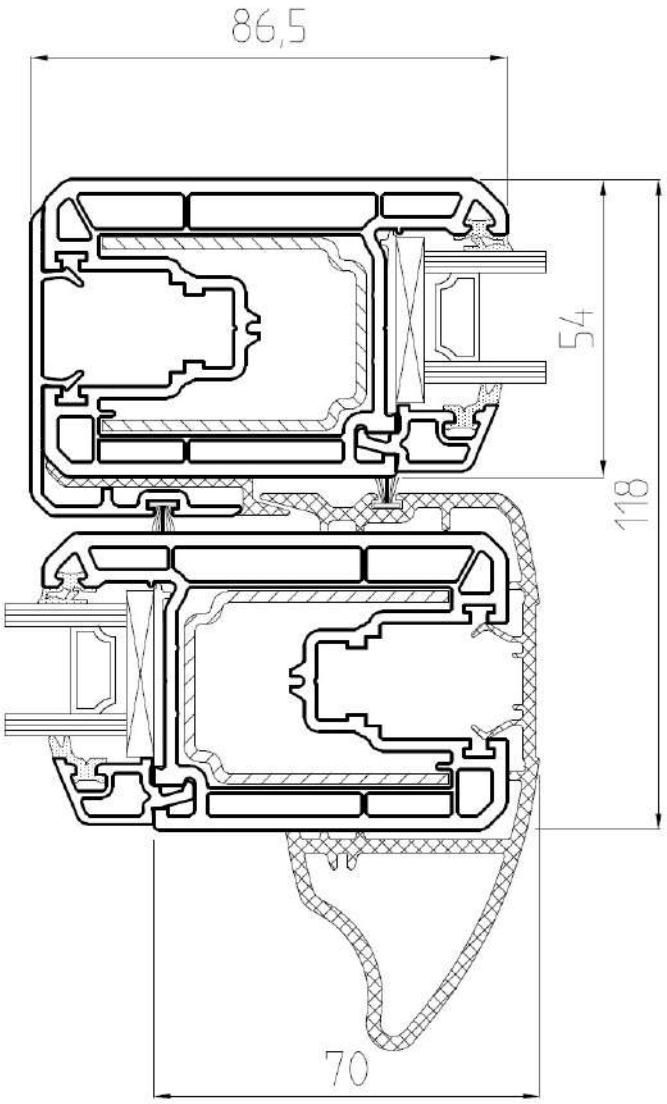




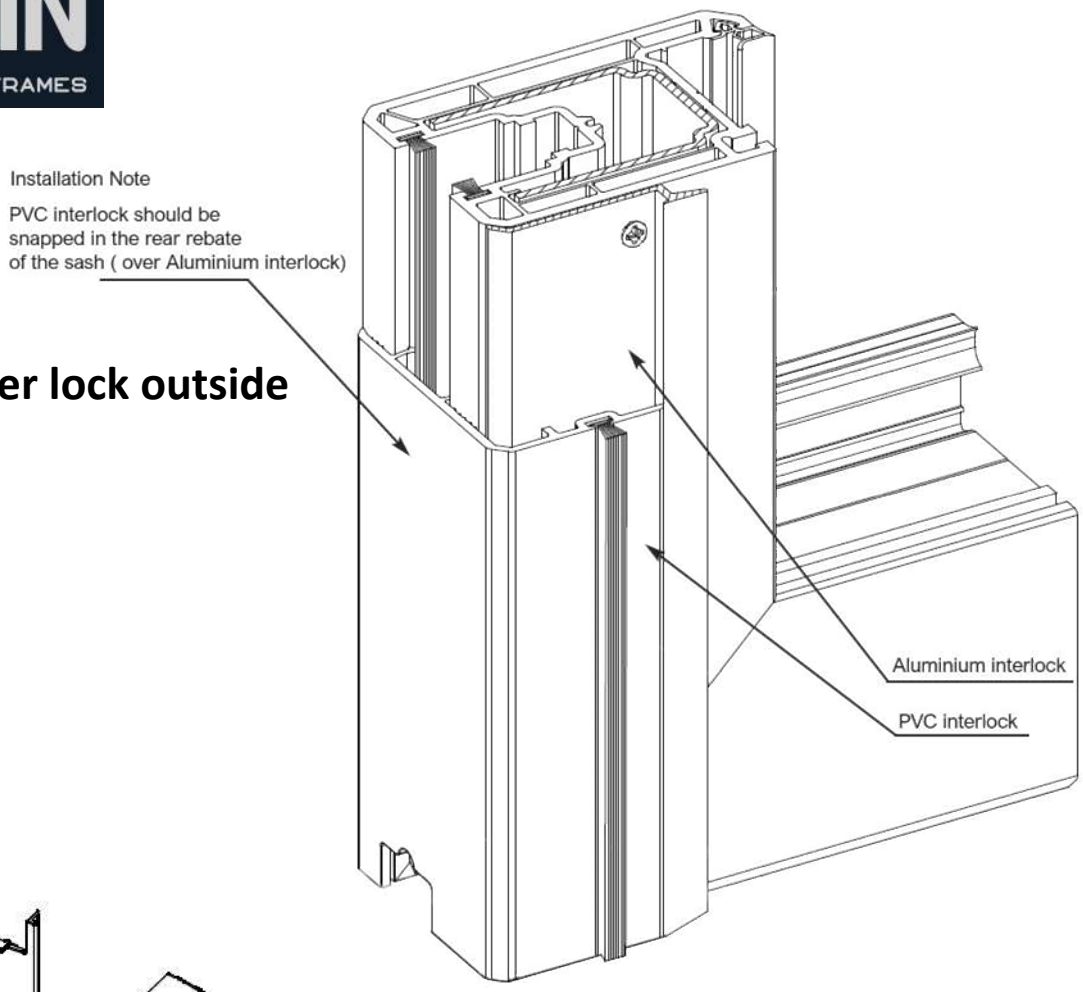
## Inter lock

In situations where a heavier wind load is anticipated, installing an Aluminum interlock with grip significantly enhances the door's performance, ensuring greater stability and resilience under such conditions.

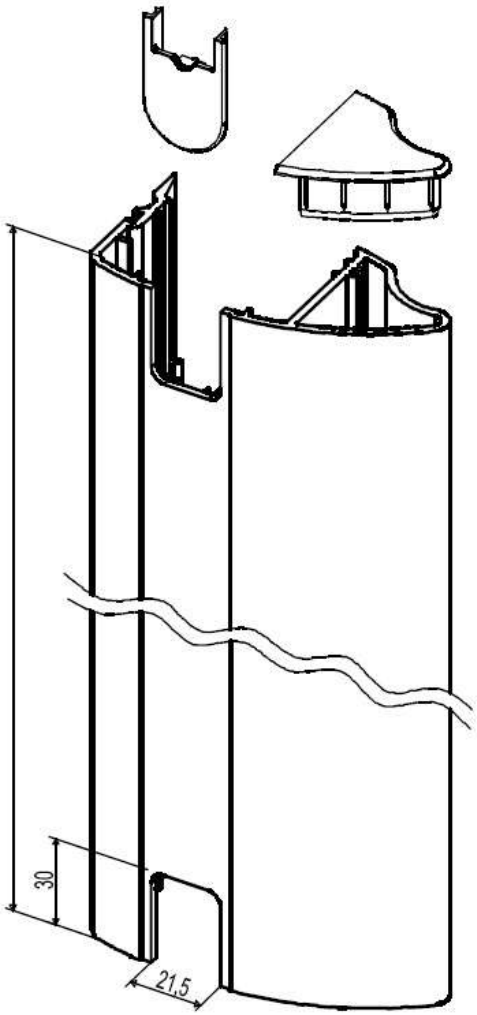


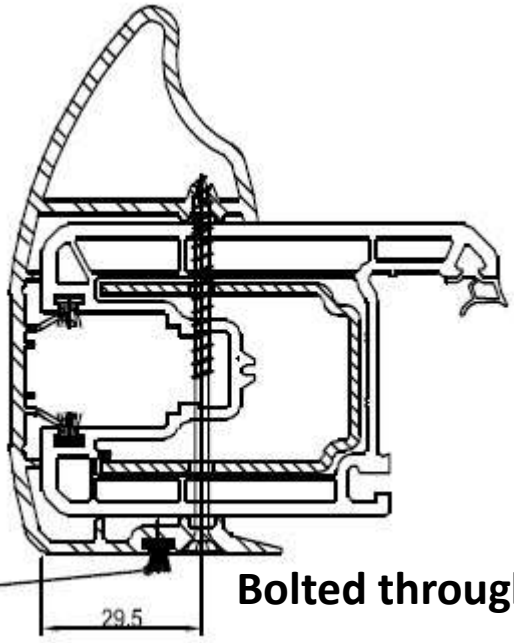


KAPTAIN
ARCHITECTURAL KEY FRAMES




## Inter lock outside



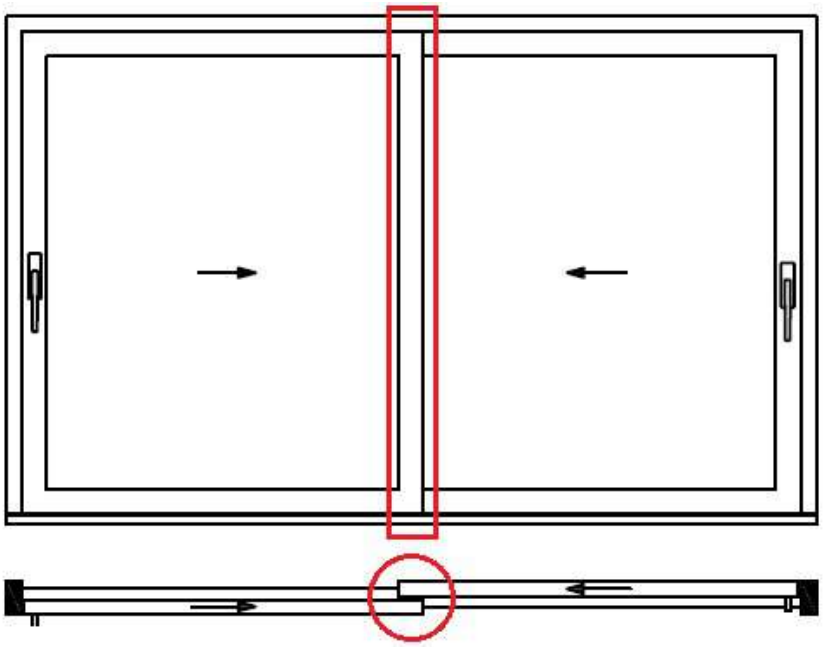



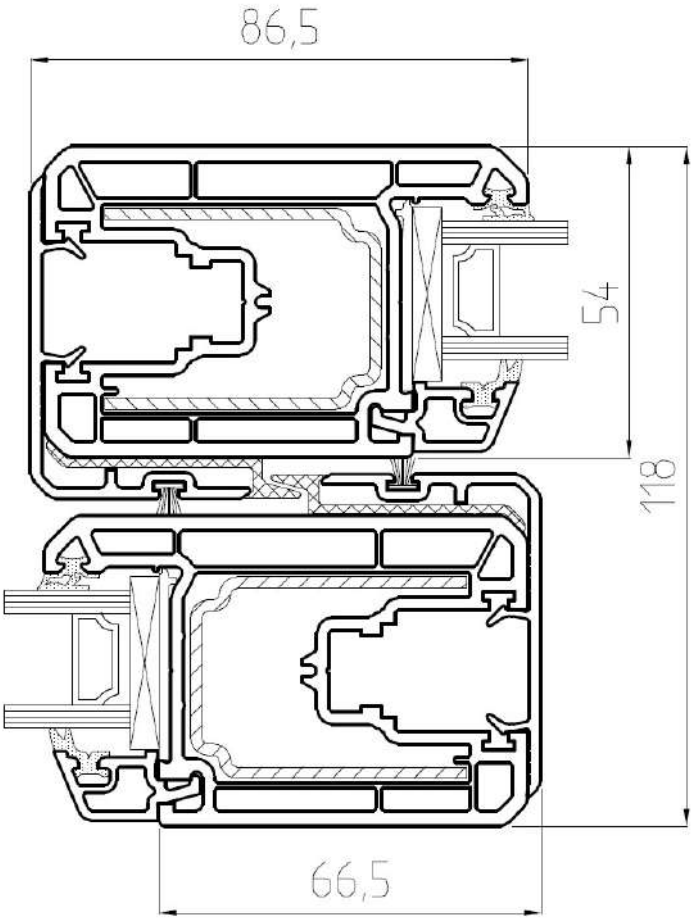

**Brush** **Bolted through out**

## Inter lock inside

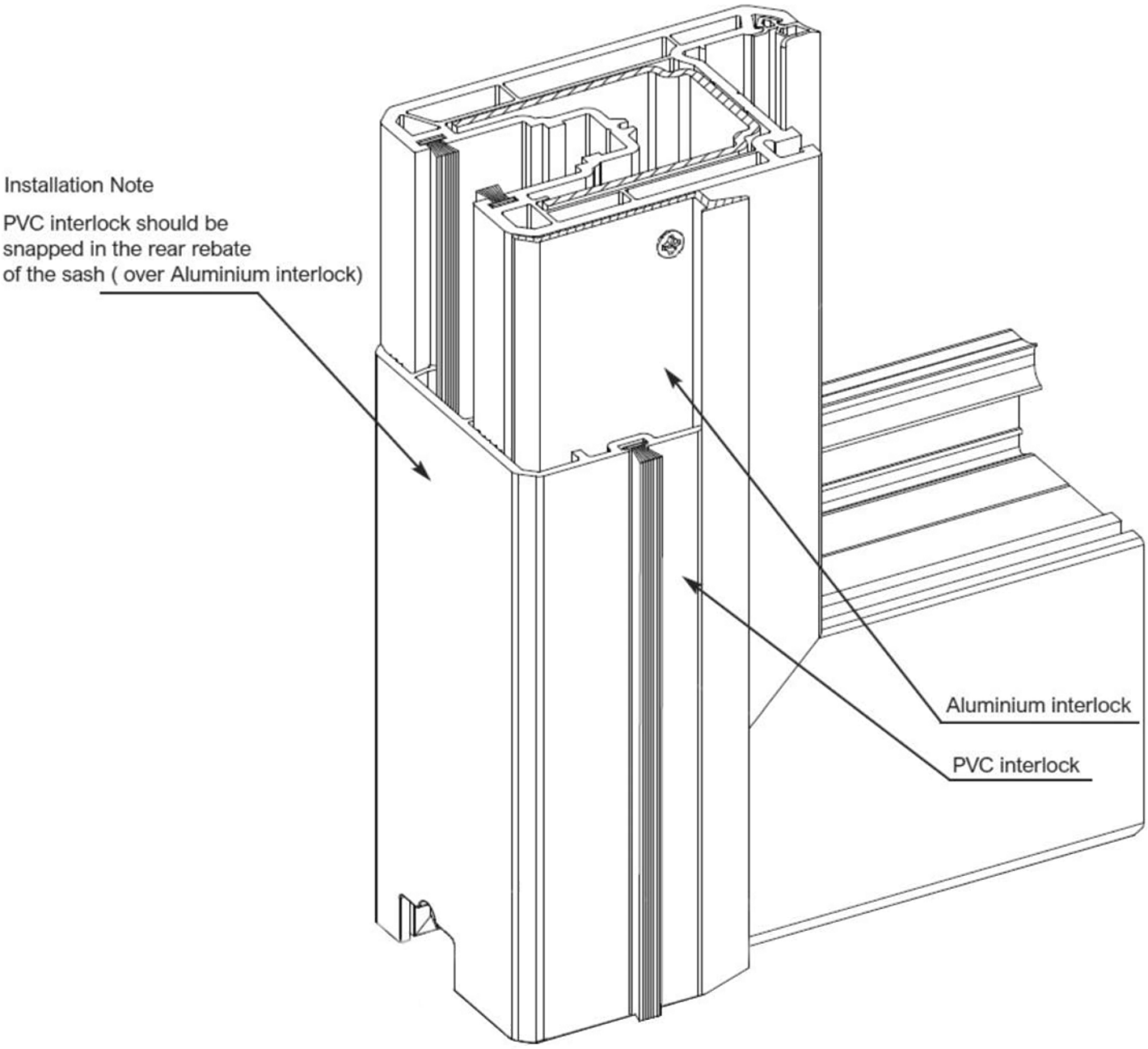
## Inter lock

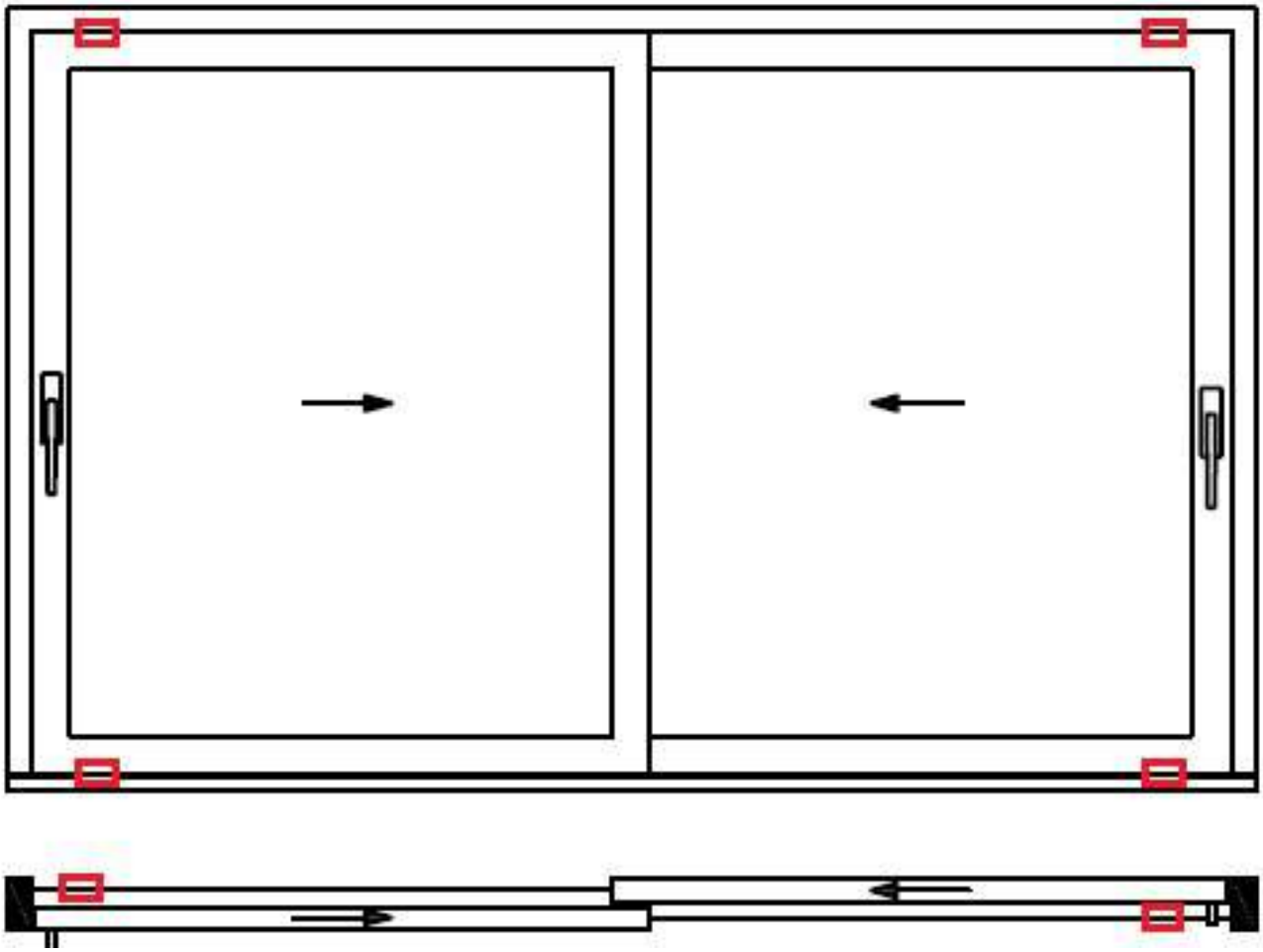
For standard window sizes or when basic requirements apply, the standard window interlock is used. This ensures optimal functionality and security for typical window configurations.





# Inter lock for both sides in/out





## Stoppers

Stoppers are essential safety features designed to prevent the sash from striking the user during operation.

They should be securely bolted at both the top and bottom of the frame, with the distance adjusted based on the type of handles selected.

It is crucial to install stoppers not only for operational efficiency but also to ensure finger safety.

Do not omit this step as it is vital for user protection.

# Connecting motorized lock for main door with power

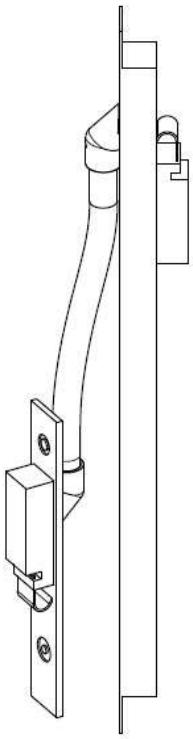
Door comes with the motorized lock installed in the sash and hardware that transfers the power between the opening sash and frame. On the back of the frame, doors have to be connected to a power source and a relay

**CAUTION**

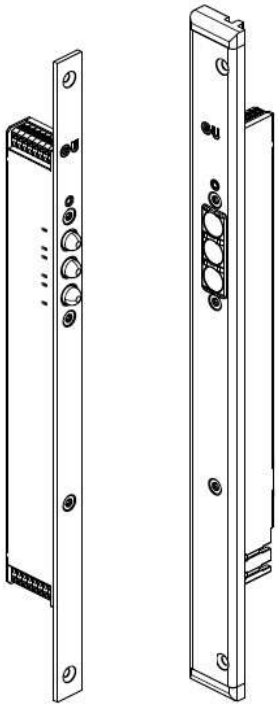
**The electric motor of the lock has a high power consumption (1A), for this reason a separate transformer is required, 220V to 12V AC (ballast type at least 50VA or 1A) and a relay with a coil at 12V AC.**

| | |
|---|---|
| Gray lock cable | Connect it directly to (-) 12V in the transformer |
| Brown lock cable | Connect it directly to (+) 12V in the transformer |
| Black lock cable | Connect it to the open contact of the relay. |
| A1 - A2 relay coil | Connect the cables from existing commands from the boutonniere. So every time you press the intercom relay is armed. |

On the other side of the open contact of the relay that we connected the black we give 12V AC current so that as soon as the relay is armed it gives 12 V current to the black of the lock



Sash frame power transfer



Secure connect 50 Sash frame power connector with transformer

After connecting, test the lock.

The function of the lock is as follows:

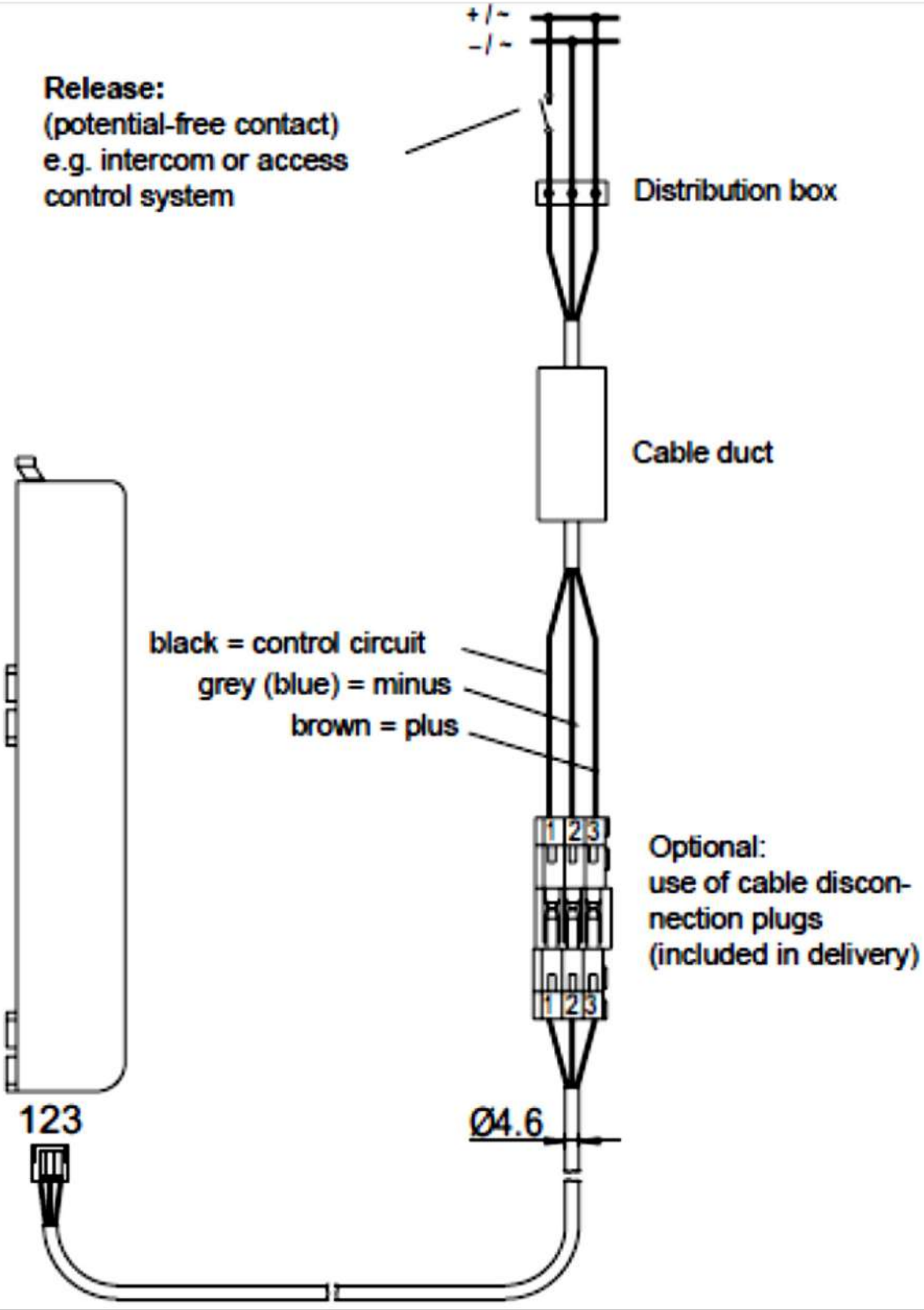
1.Press the intercom for 2 seconds. The lock picks up the tongues and you hear the "beep" sound

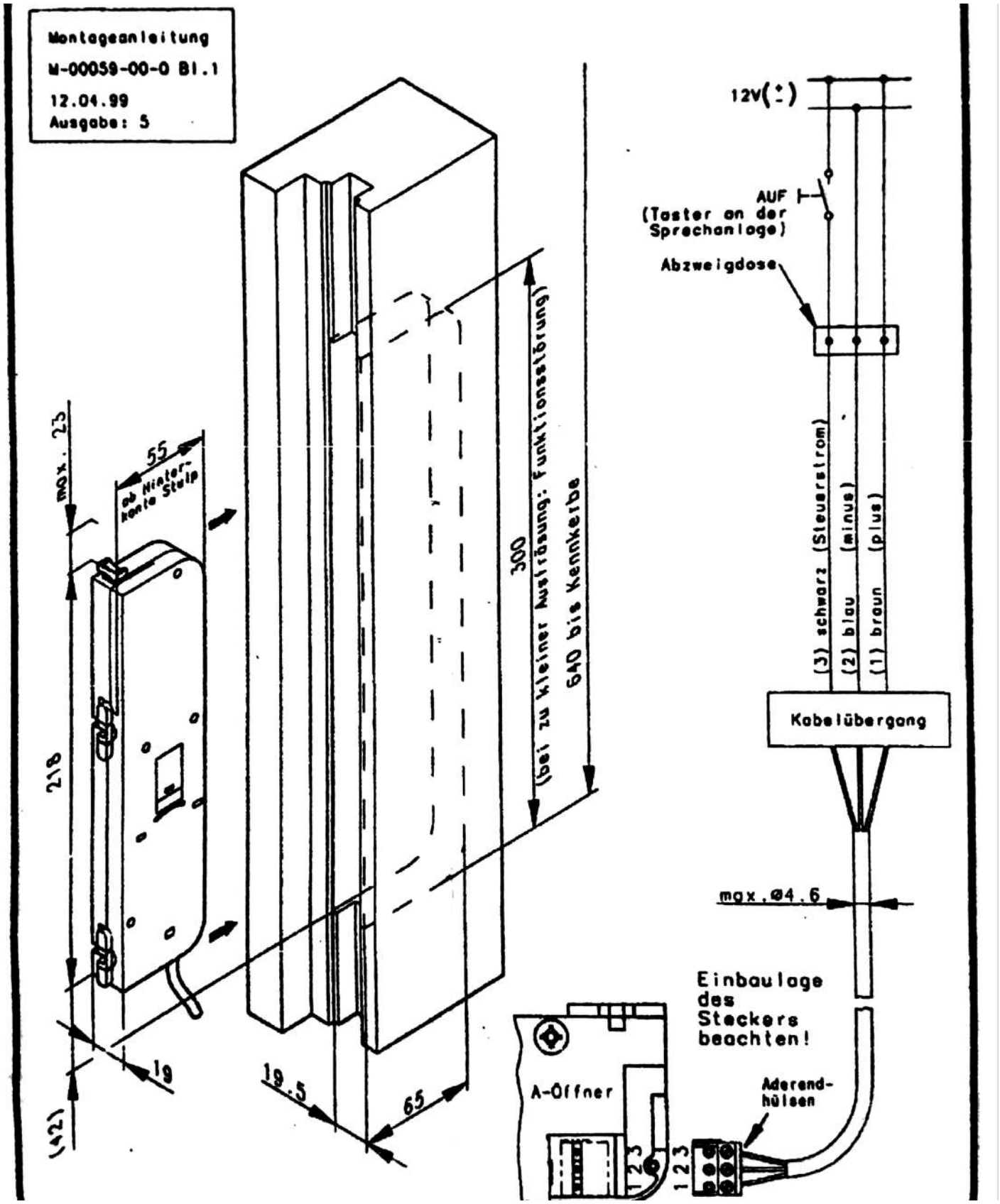
2.After a few seconds the latches return to the standby position. The latches lock mechanically as soon as the door is closed.

Repeat a few more times to check the process.

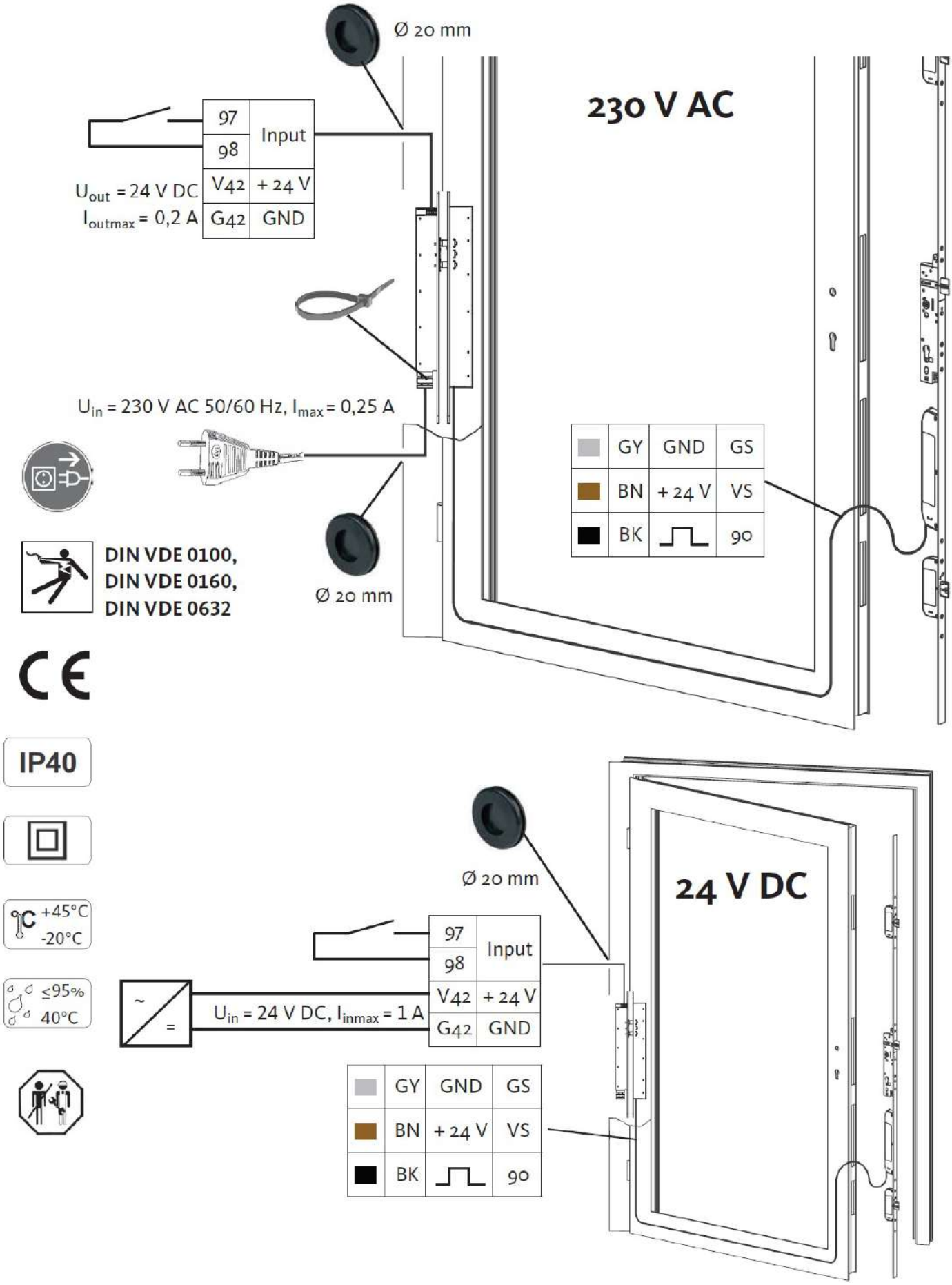
If the lock does not follow this procedure, check the wiring again (it must be as described above) and the wiring of the lock

# Linear lock electric motor connection diagram.



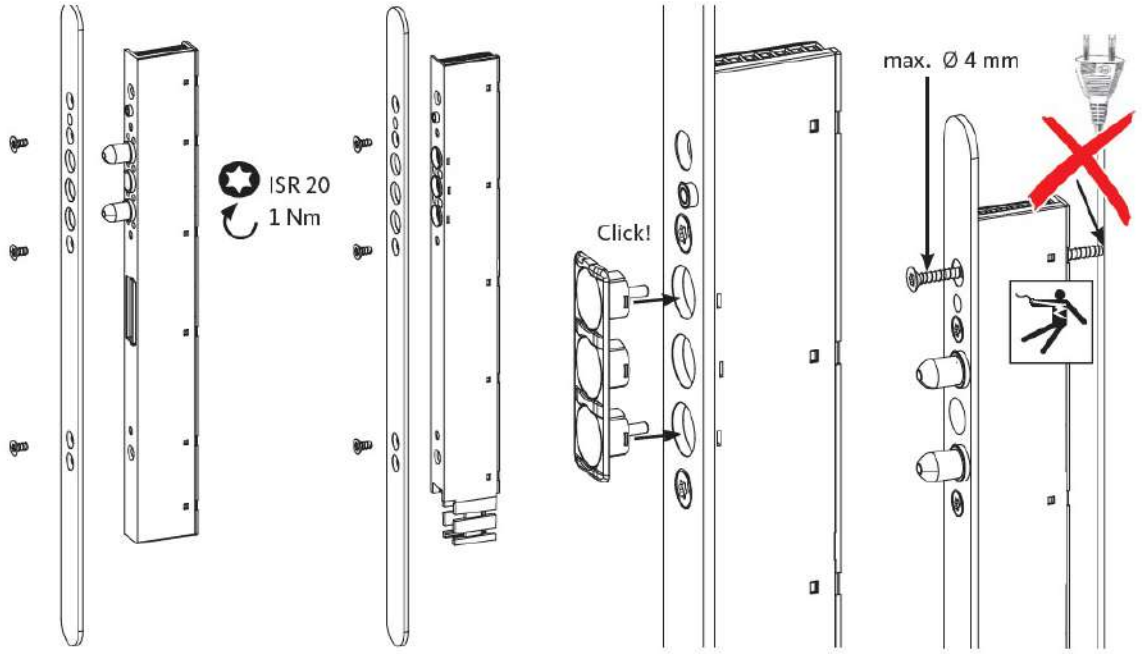

Montageanleitung
M-00059-00-0 Bl.1
12.04.99
Ausgabe: 5
12V(±)
AUF
(Taster an der Sprechanlage)
Abzweigdose
(3) schwarz (Steuerstrom)
(2) blau (minus)
(1) braun (plus)
Kabelübergang
max. ø4.6
Einbaulage des Steckers beachten!
A-Öffner
Aderend-hülsen
max. 23
55
ab Hinterkante Stulp
218
300
(bei zu kleiner Auflösung: Funktionsstörung!)
640 bis Kennkerbe
19
(42)
19.5
65

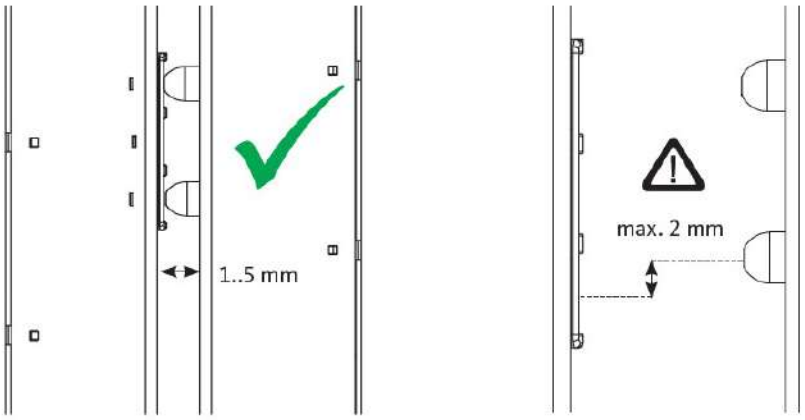
# Secure connect 50 Sash frame power connector with transformer

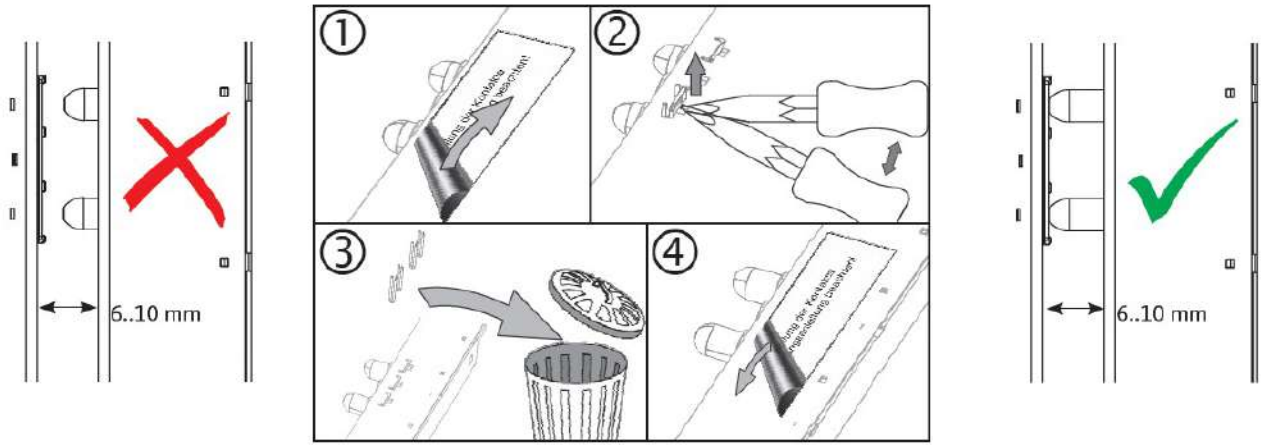


Disconnecting the unit from the mains is done by pulling the power plug from the socket. The socket must be freely accessible.

If Secure connect 50 is connected to the electricity supply permanently, it is necessary to provide for switch off by means of a suitable and appropriately marked device on the building's distribu-

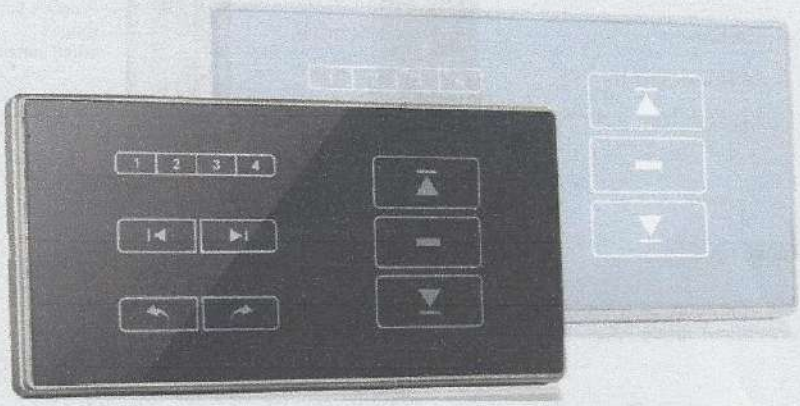


KAPTAIN
ARCHITECTURAL KEY FRAMES

# Instruction for double 86mm size 4 routes DC power radio receiver system V1.2



double 86mm size 4 routes DC power radio receiver

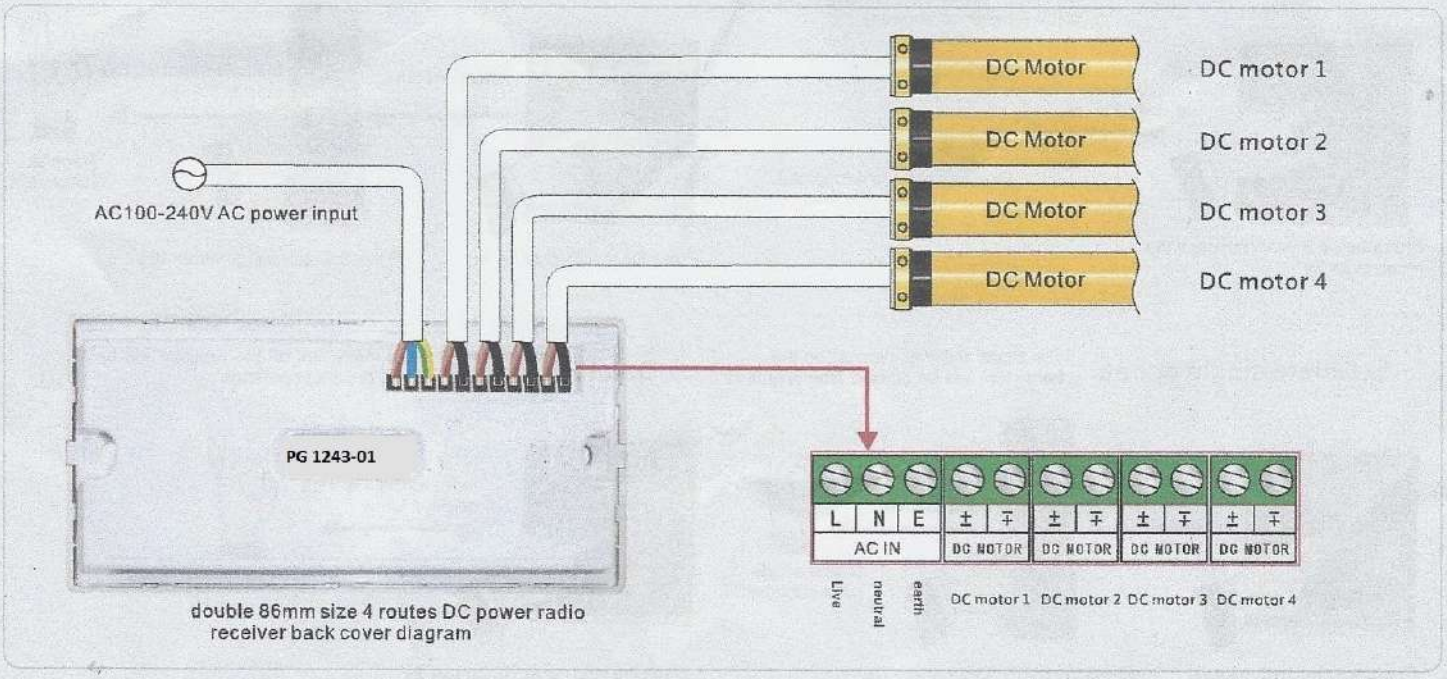
## Ⅰ. Features

- 172*86 mm size installing standard;
- capacitance style touch screen button design,built-in LED conductor,elegant appearance;
- manual and radio control two control ways;
- superhet chip model more sensitive receive signal;
- industrial level CUP,stable performance;
- fire-proof material,safety for the user;

## Ⅱ Parameter

| Input voltage | out voltage | Working temperature | Loading power | Receiving frequency | Receiving sensitivity | Transmitters quantity allowed | Operation |
|---|---|---|---|---|---|---|---|
| AC100-240V 50/60Hz | DC24V | -20℃~+55℃ | ≤ 24Wx4 | 433.92MHz | ≤-110dBm | four route≤5x4 | remote/manual |

## Ⅲ. Installation and wiring



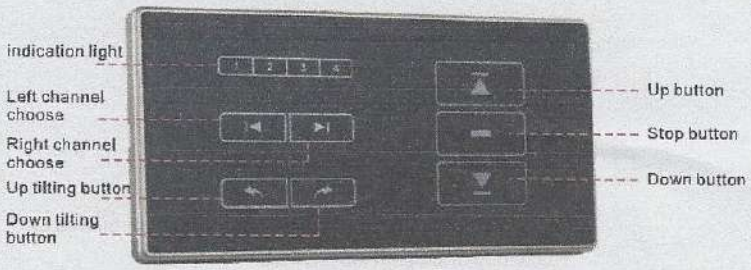

double 86mm size 4 routes DC power radio receiver back cover diagram

## ⚠ Installation Note

Besides the Standard of Electric Safety, please follow:

- Do not install the receiver in or too close to any metallic parts or it will affect the receive distance;
- Effective signal distance: 80m in open area;
- Minimum distance between the Receiver and the floor: 1. 5m;
- Minimum distance between the Receiver and the roof: 0. 3m;
- Minimum distance between the Receiver and the transmitter: 0. 2m;
- Make sure the power has been cut off before wiring to ensure safety;
- Avoid static disturbance which could damage electronic components
- Use flexible cables;
- Ensure no longitudinal force is acting on cables after installation.

## IV. Product diagram



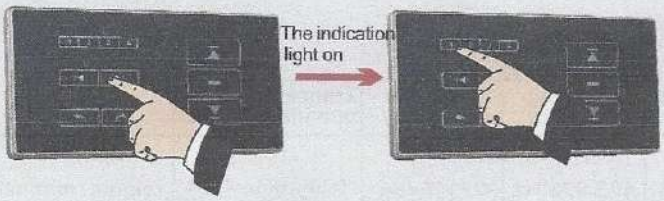

double 86mm size 4 routes DC power radio receiver


transmitter with touch screen

## V. Installation instruction

* 5Mins is the longest operation time for motor; 0.5S to transfer for up/down for motor.
* Please choose the channel firstly when the transmitter is multi-channel.

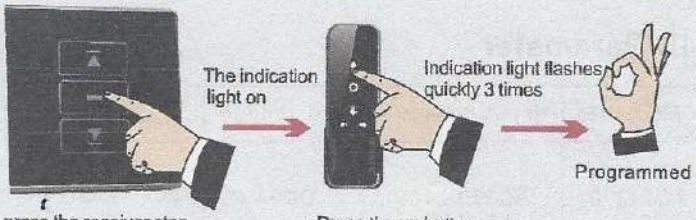
### 1. channel choose




Press the left /right channel choose ,the indication light of 1.2.3.4 and all the channel open status cycle light on,indication light 1.2.3.4 represent 1.2.3.4 single motor channel,For the all group motor control operation,please press the all channel;

### 2. Programming

* Press the up button within 10s

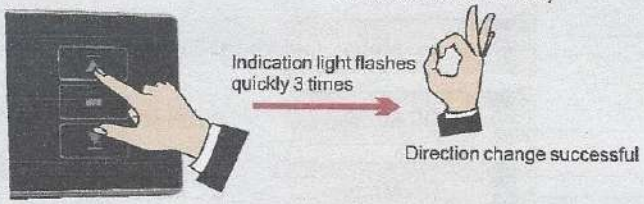



press the receiver stop button for 7s

Press the up button within 10s

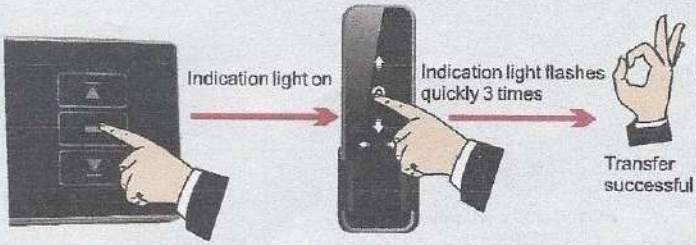
### 3. Direction convertion

* If the motor operates in a correct direction, no need to do the covertion, if not, it is necessary. (remark: the photo of the left part of this receiver not showed)




Press the up & down button of the receiver for 7s

### 4. Dot move /continue move transfer

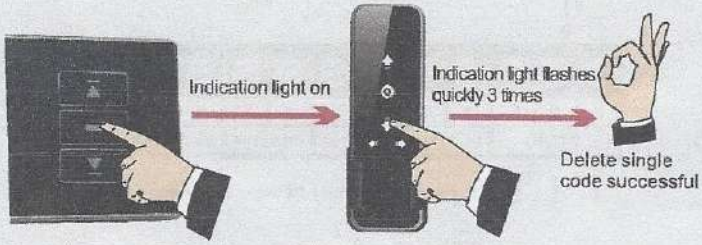



Press the stop button for 7s

Press the stop button within 10s

### 5. Delete single codes

* The single channel memory on the transmitter will be deleted after operation

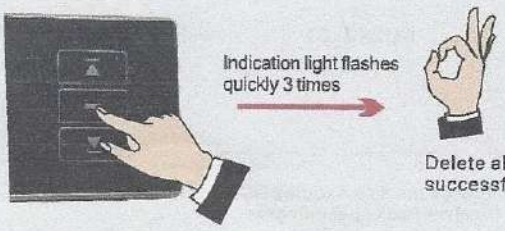



Press the stop button for 7s

Press the down button within 10s

### 6. Delete all codes

* All memories on the receiver will be all deleted after operation

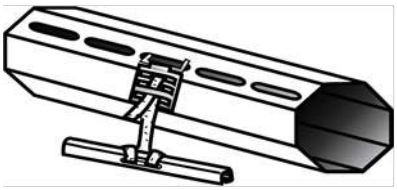


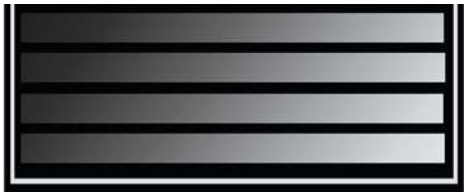

press the stop +down button for 7s

## VI. Trouble and shootings

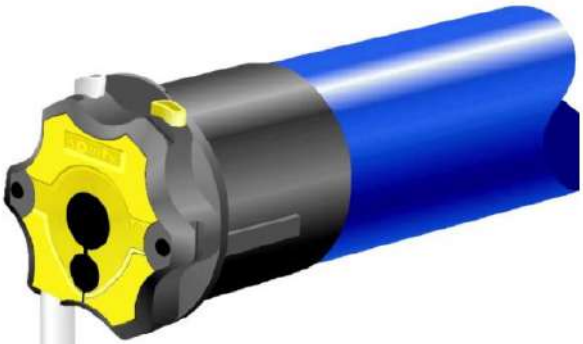
| No. | Performance | Checking point |
|---|---|---|
| 1 | Indicator on receiver do not light | Please check wiring connection for receiver |
| 2 | Indicator on transmitter do not light or poor light | Please check the battery power and installation |
| 3 | Transmitter and receiver work commonly, but motor has no rotating | Please check the motor wiring |

# CONNECT AND SETUP WIRED MOTOR

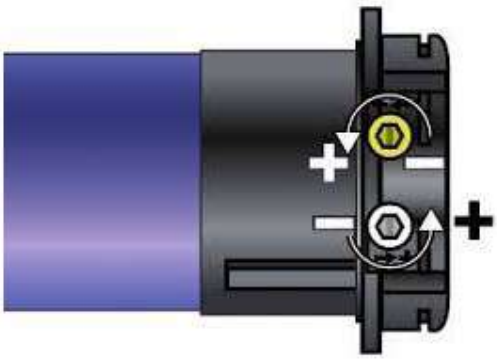




Safety fasteners are not included on wired motors

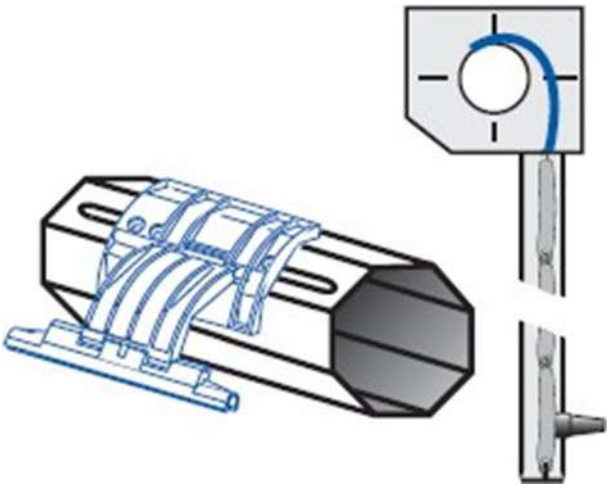


Black (up/down)
Brown (up/down)
Blue (neutral)
Yellow (ground)

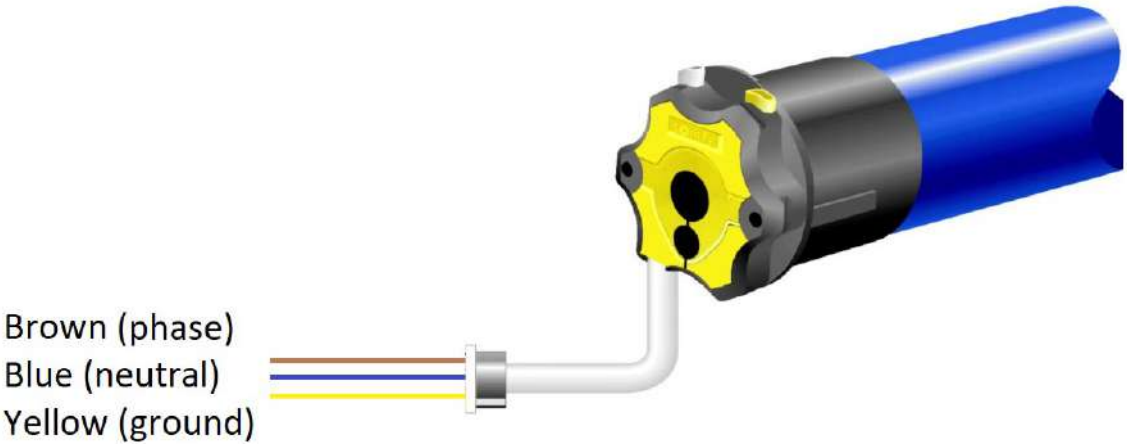


After the motor is connected to power and switch, press up or down until the shutter stops moving, then using an allen key No4 you rotate up or down bolt accordingly. Turning the bolt to the + side, the motor moves slowly, changing the limit until the desired position.

# CONNECT AND SETUP WIRELESS MOTOR



Safety fasteners are by default included on wireless motors




The motor comes preadjusted from the factory and adjusts the maximum limits using the safety fasteners and plastic caps on the last slat of the shutter.

This procedure takes place after the motor meet the limit 3 times in a row.

# INSTALLATION
# for EU practices

## General guidelines

Transport all window and door elements upright
Avoid pressure points and deflections
Avoid heat and water accumulation through packaging.

Always use fast clamps to secure the frame in the correct position and wedges for fixation.

Diagonal wedging is recommended but not directly at the corners.

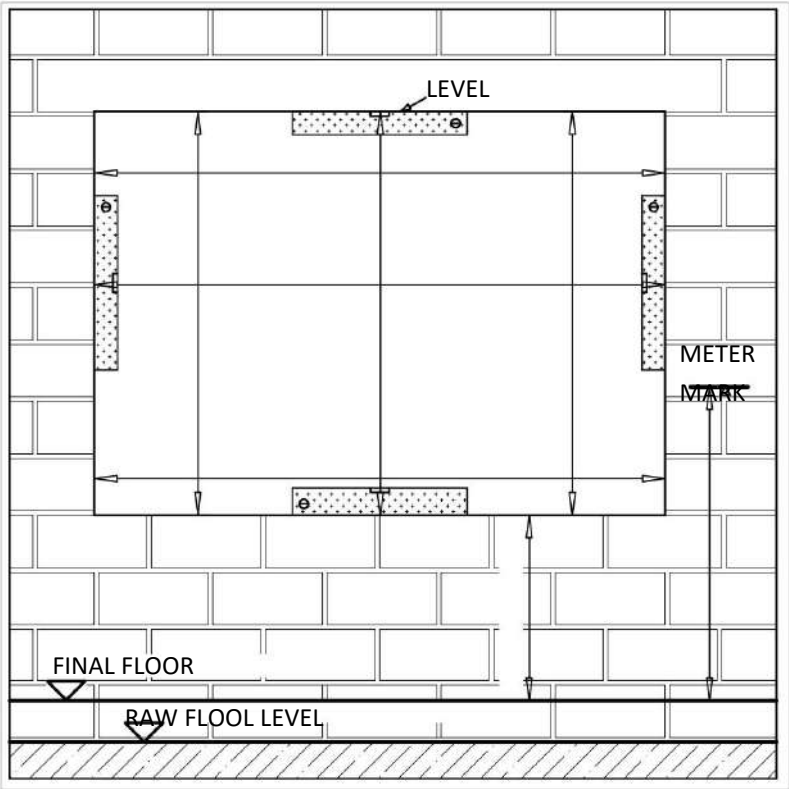
When mounting fixation blocks or wedges pay attention to avoid bending or deformations

**Attention !!**
**You are responsible to control all material compatibility before using, crew safety and damage control from heavy elements. Installation of windows requires good knowledge of materials and factory training.**

# Measuring

Aperture flatness should comply to initiate installation.

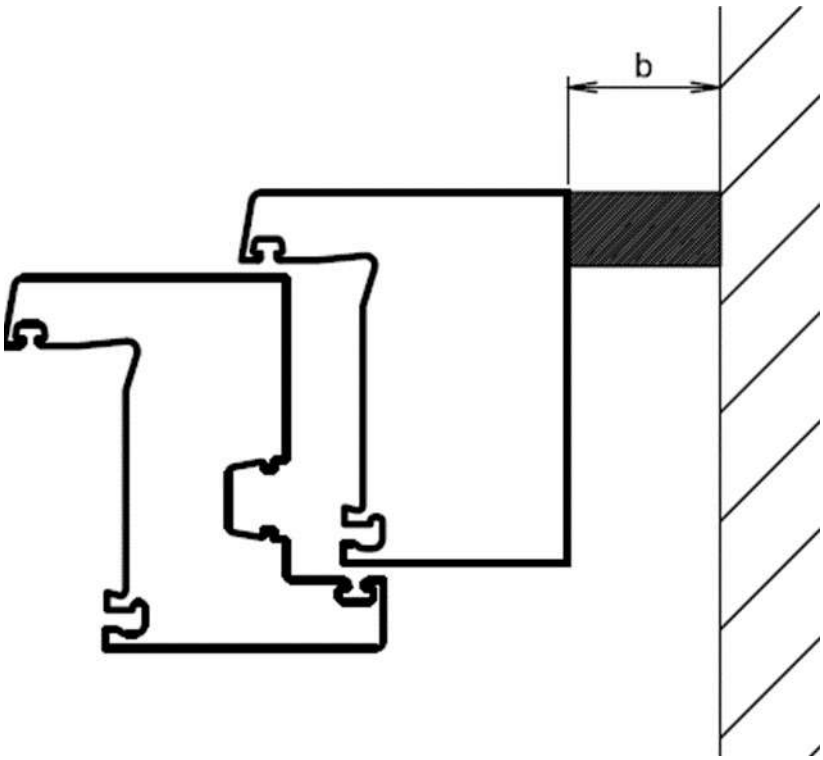
Check the sizes according to the permissible deviations table.
If found any inform the client!




| Surface sized until 2.5m | Surface sized 2.5m until 5m | Surface sized 5m and over |
|---|---|---|
| ± 10 mm (rough wall surface) | ± 15 mm (rough wall surface) | ± 20 mm (rough wall surface) |
| ± 5 mm (clean wall surface) | ± 10 mm (clean wall surface) | ± 15 mm (clean wall surface) |

# The joint of frame to wall should be as wide as possible. The following table should be taken into account when using sealants.

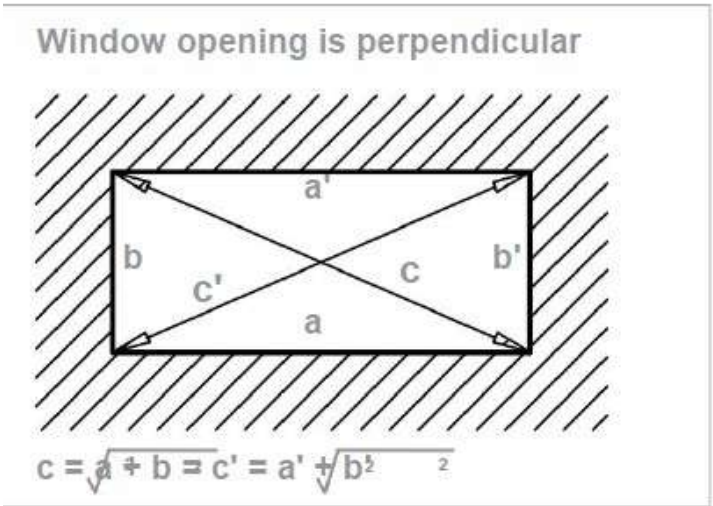
After installation it should be covered by external insulation to double seal the joint

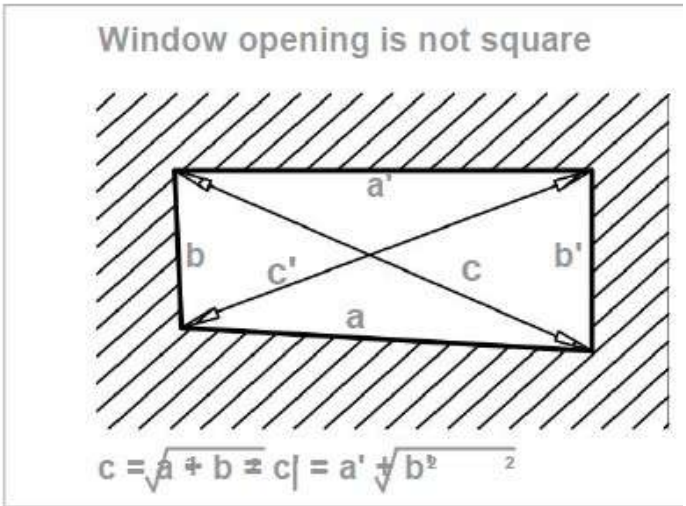



| For sizes up to 1.5m | For sizes up to 2.5m | For sizes up to 3.5m | For sizes up to 4.5m |
|---|---|---|---|
| 10 mm for white | 15 mm for white | 20 mm for white | 25 mm for white |
| 15 mm for colored | 20 mm for colored | 25 mm for colored | 30 mm for colored |

# Perpendicularity of the window openings

With a telescopic ruler and spirit level, it can be determined whether the reveal is bricked at right angles. Another possibility to do this, both diagonals of the reveal are measured and compared to each other. Are the diagonal dimensions different? there is no 90° angle



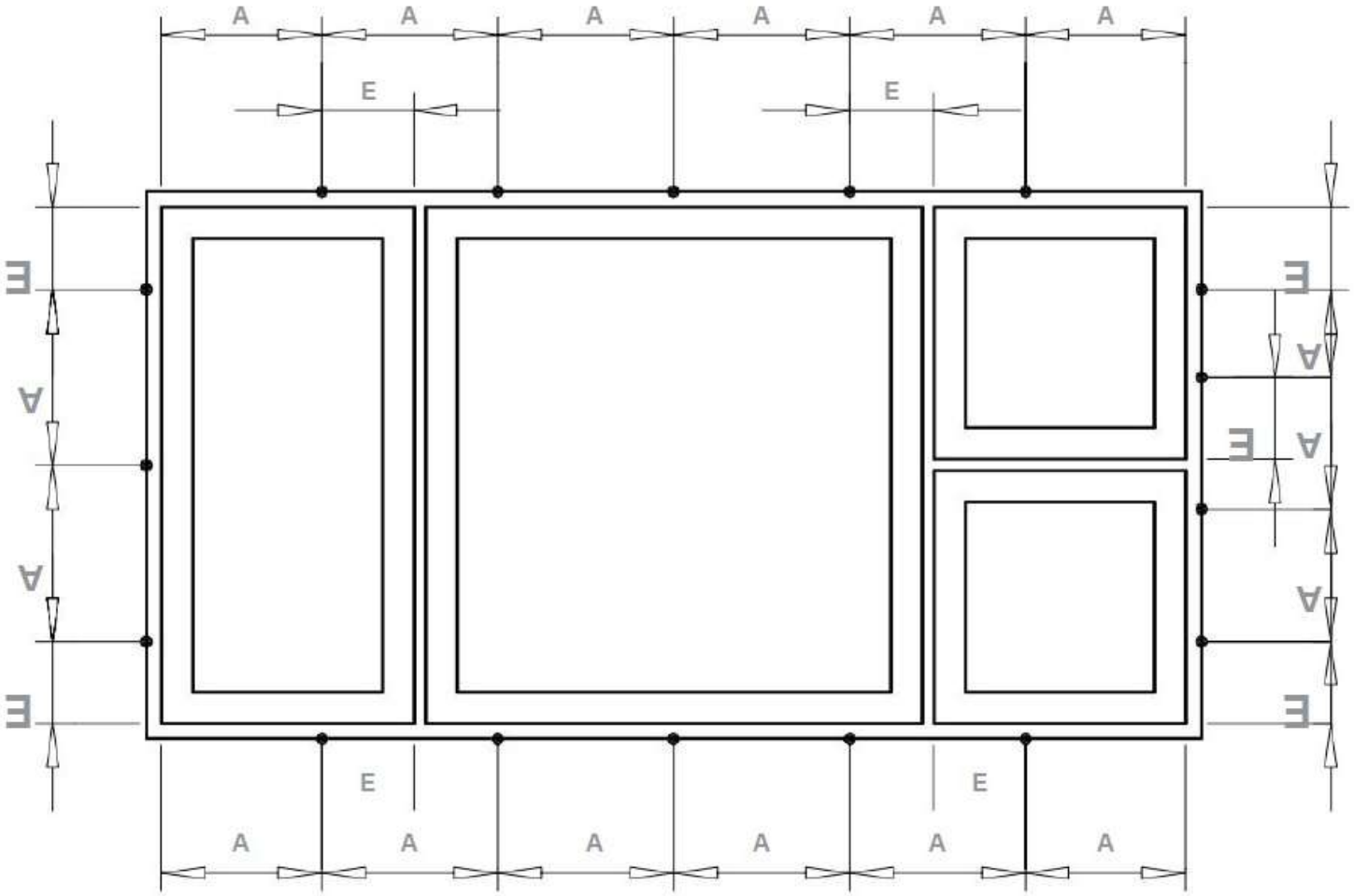

## Permissible diagonal tolerances in mm with nominal dimensions in m

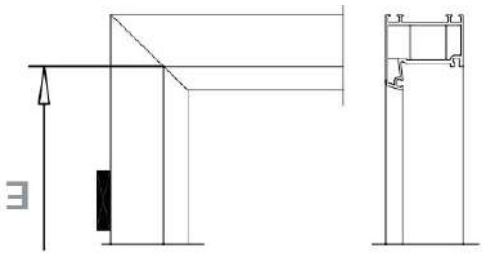
| Up to 1 m | From 1m to 3m | Over 3m to 6m |
|---|---|---|
| 6 mm | 8 mm | 12 mm |

# General anchoring positions

Each window element should be anchored safely and level to the wall by long concrete bolts or metal brackets at the positions shown in the diagram.
Proper anchoring will secure wind load, product stability and avoid long term deformation.

• = fixing points
A = mounting distance max. 700 mm
E = distance from the inside corner/transom 100 - 150 mm

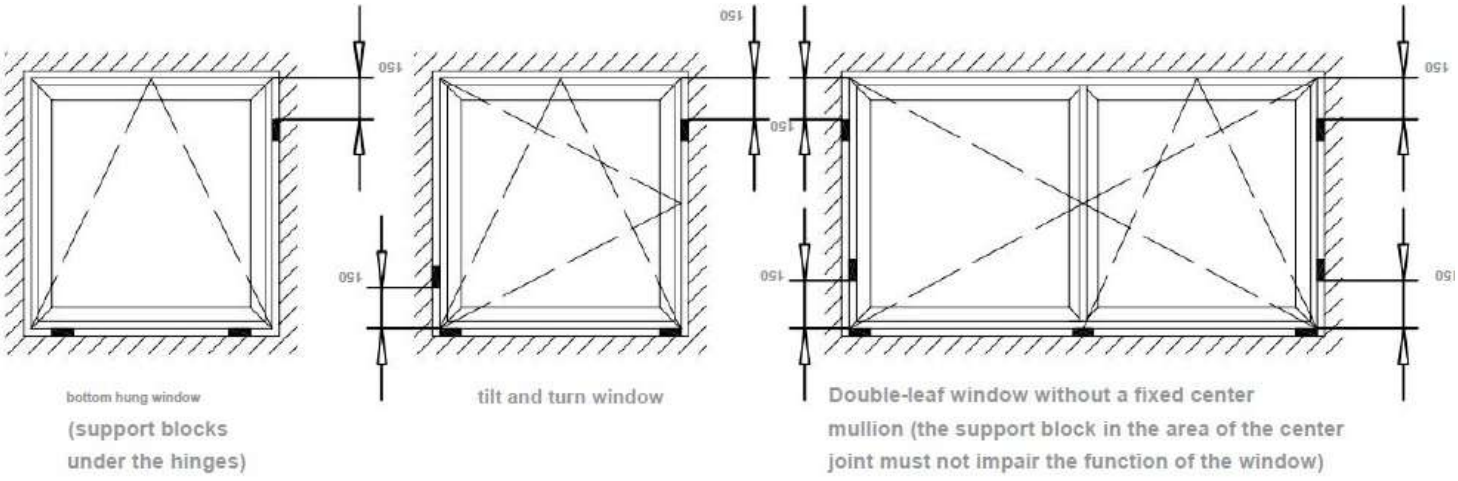


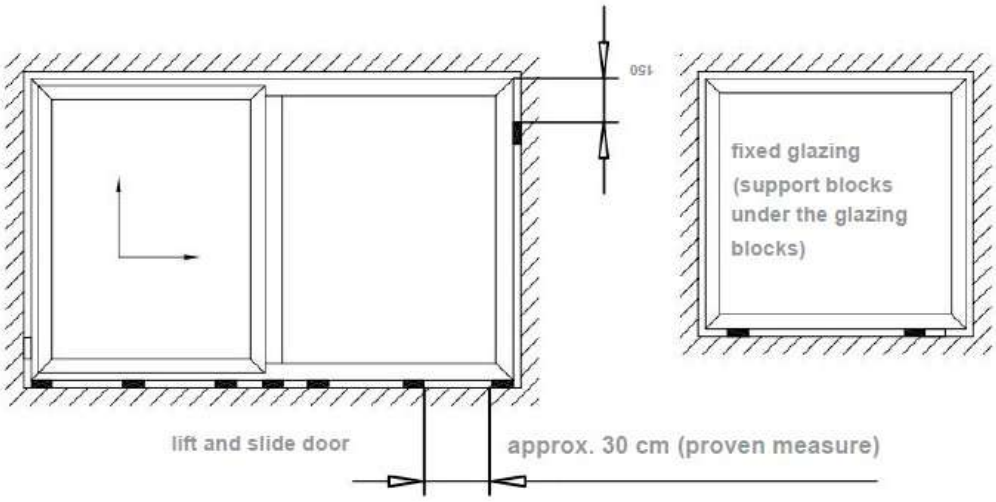



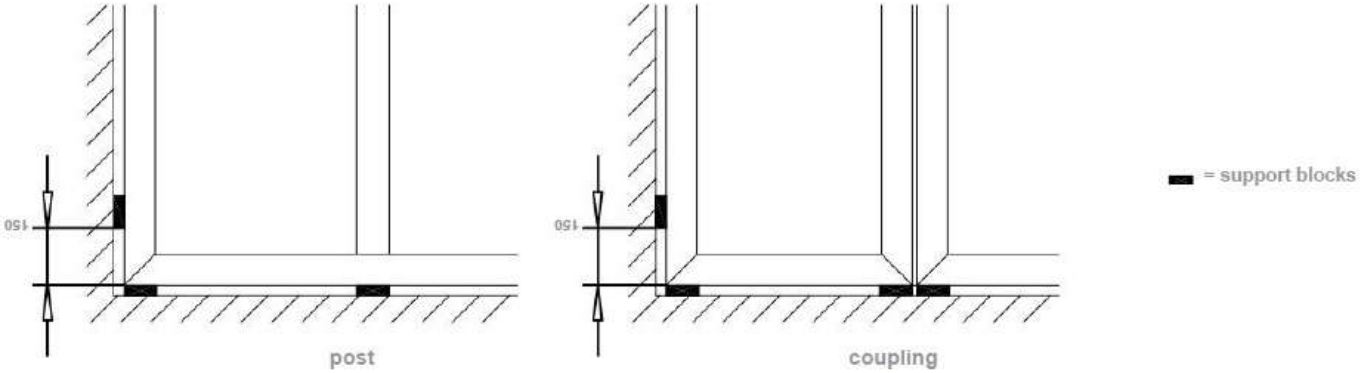
# Dead load and traffic loads

**By this are meant the forces that are generated by one's own weight of the window or door element and the situational other loads, e.g. caused by the action of people**

**The frames have to bear the load to the masonry supported and with standard fasteners on the market**



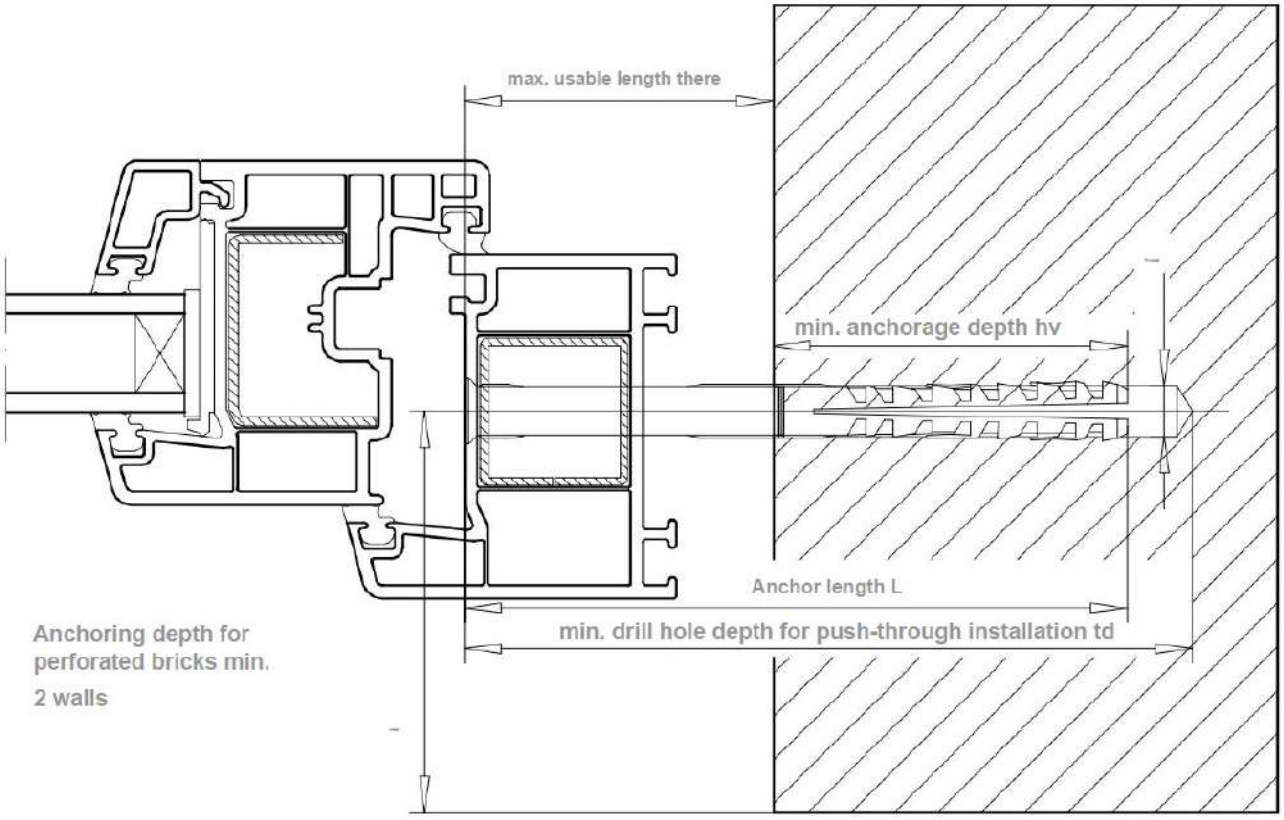



## The following must be observed:

- The blocks must be made of a suitable material
- The arrangement of the blocks allows the elongation of the element
- The blocks must be able to bear the permanent load in the construction joint
- For elements that sit in front of the masonry correspondingly stable steel brackets or consoles are used
- A prerequisite is always sufficient flexural rigidity of the frame profile
- The blocks must not affect the subsequent work

## Fasteners

For the selection of the right fasteners, the current construction situation, masonry and fastenings resources must be coordinated



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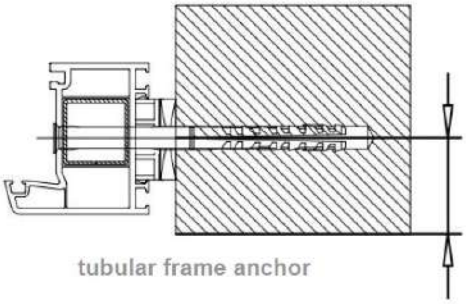
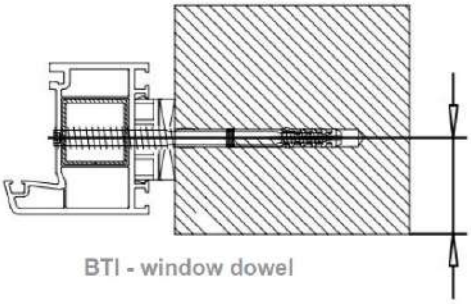
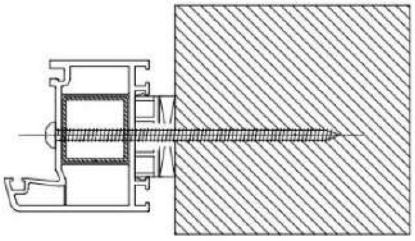
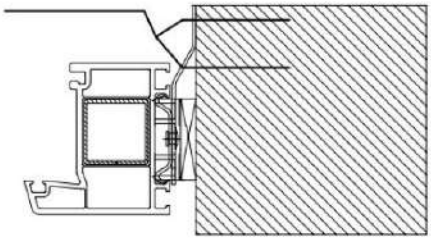
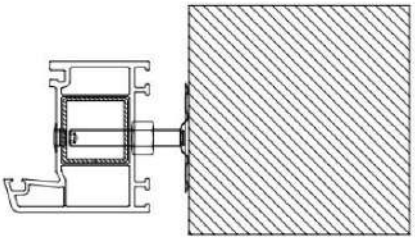
# Fastening methods

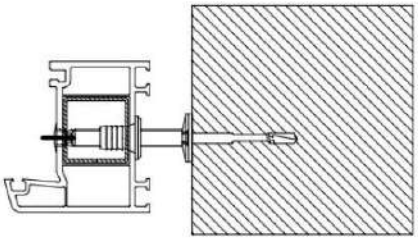

tubular frame anchor

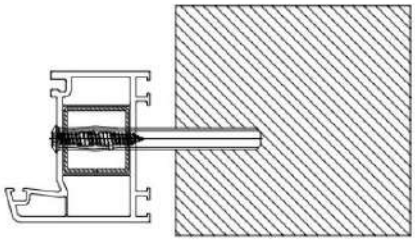

BTI - window dowel

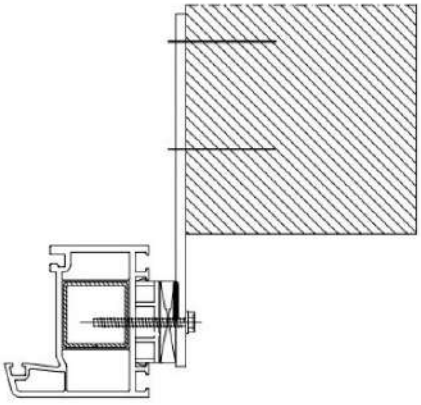

Self tapping screw

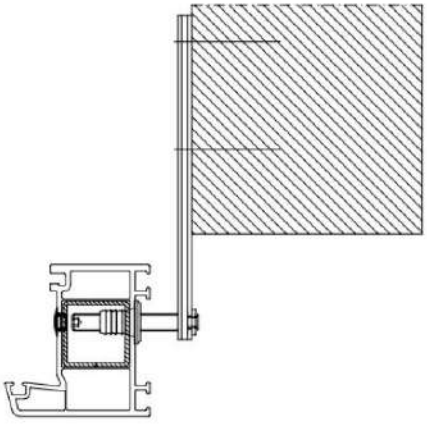

claw / sling

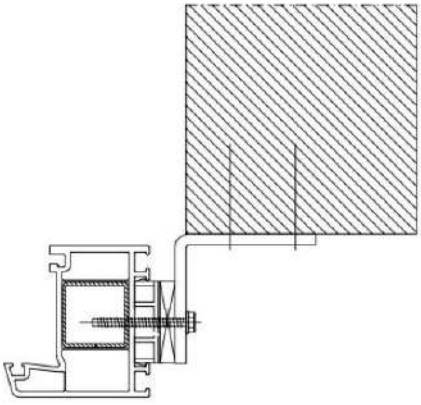

SFS JB

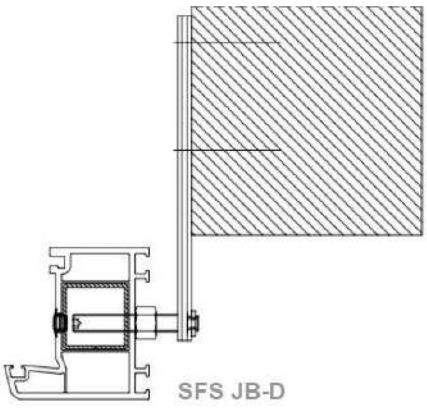

SFS JB

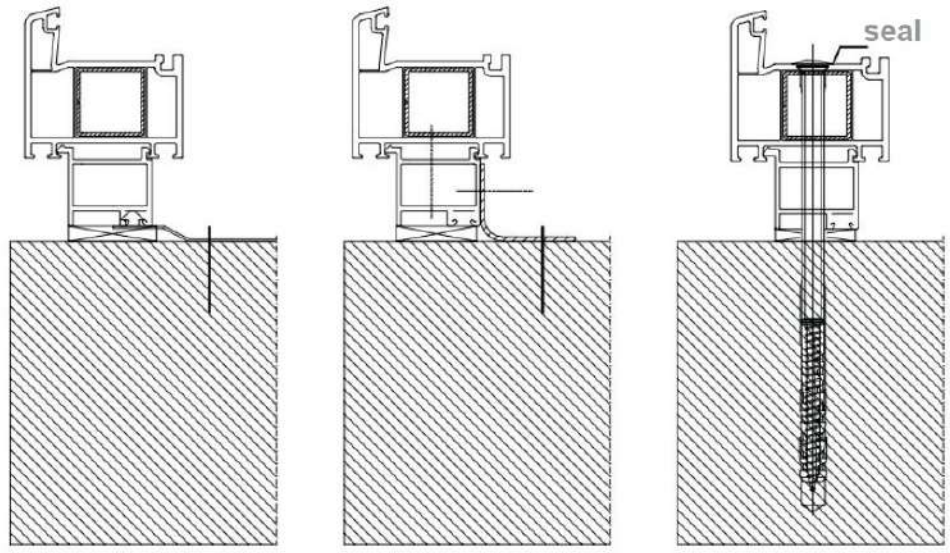

EJOT - socket anchor

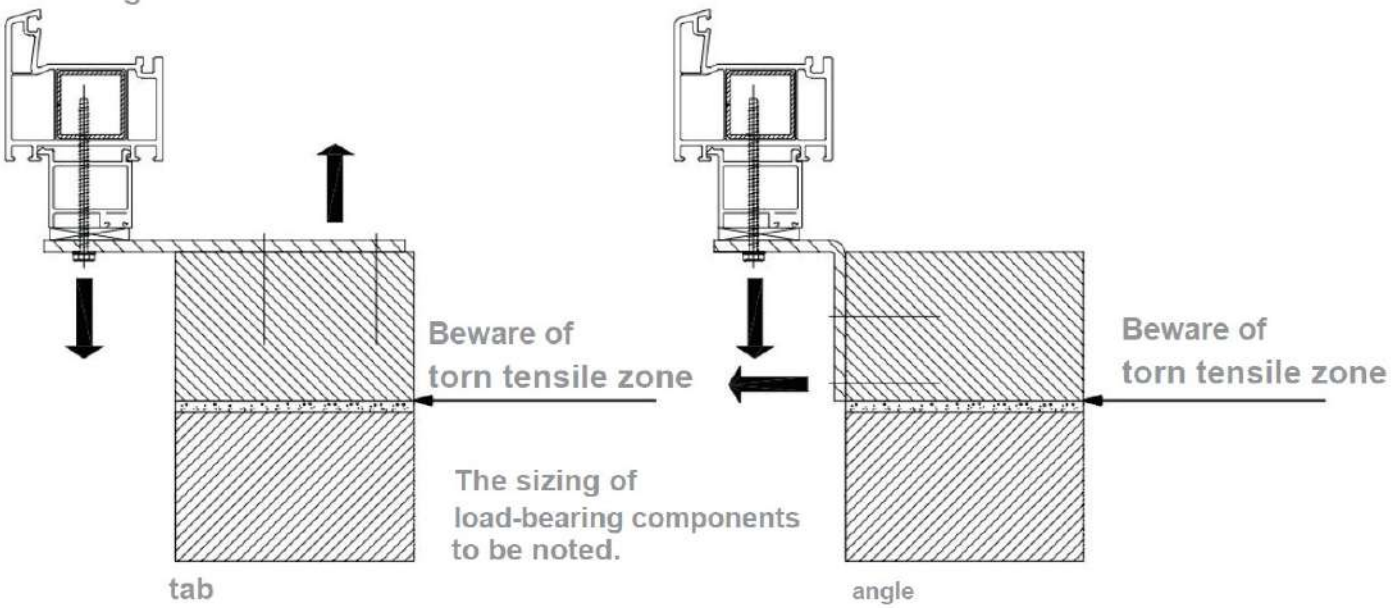

tab

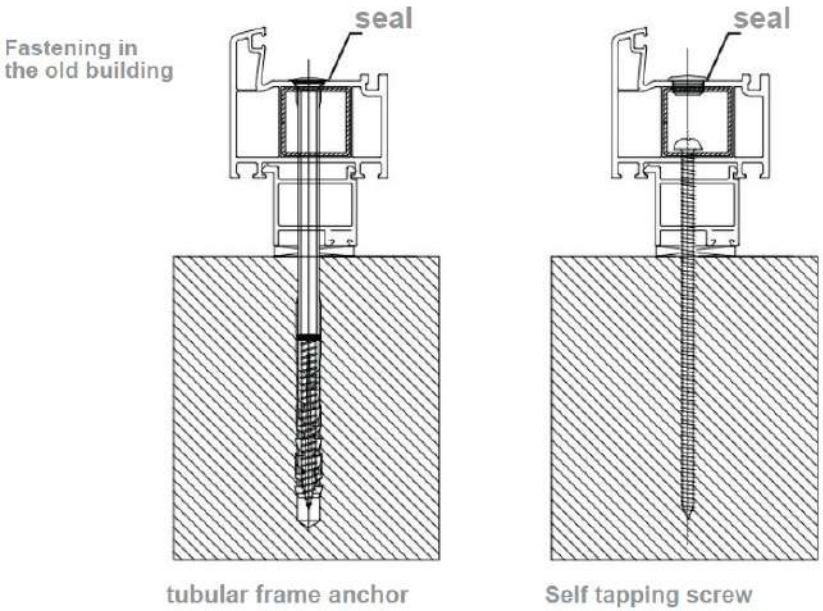

SFS JB-D


angle

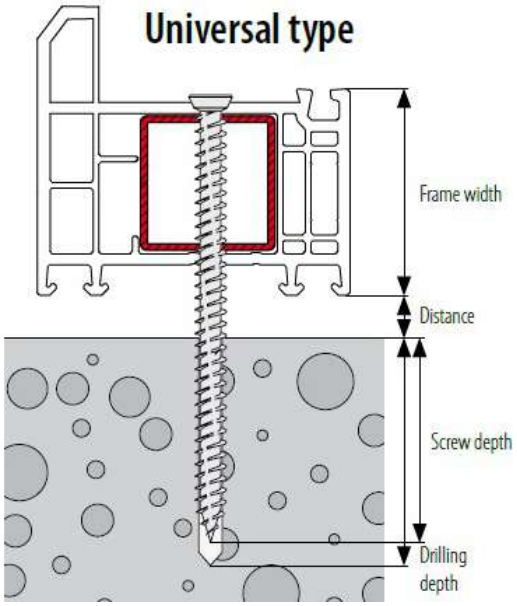

SFS JB-D


seal
claw / sling
angle
tubular frame anchor


Beware of
torn tensile zone
Beware of
torn tensile zone
The sizing of
load-bearing components
to be noted.
tab
angle


Fastening in
the old building
seal
seal
tubular frame anchor
Self tapping screw

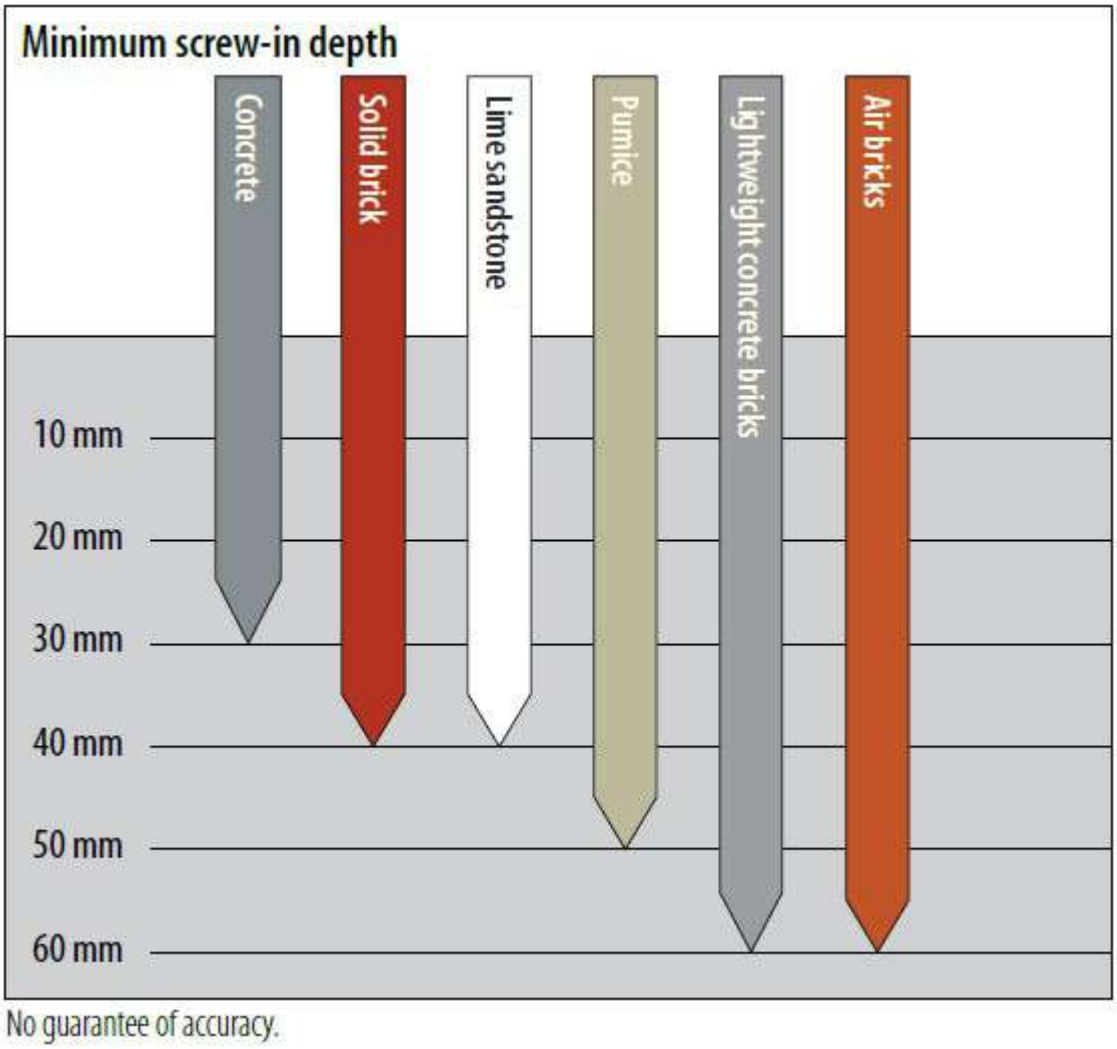
# Bolts and tools


**Use long universal anchoring bolts to secure the frame in place and keep a straight level.**

**Be advised ! While bolting, <u>control the frame from twisting</u>**

**Use the graph below to indicate the necessary depth and bolt size required**



**Use the straps located on both sides of the frame that come bolted from the factory to transport the windows safely. Afterwards you can remove the bolts and straps prior to installation**

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**Some suggested installations tools are :**

Spirit / water level

Measuring tape / laser / rulers / Calipers / steel angles

Voltage tester / heat shrink tubes / power cables

Knives / cutters / Saw blades

Scrapers / chisel / spatula

Fast clamps / screw clamps / duct tape / Tire up

wood blocks / assembly wedges / foam blocks

Vacuum cups/ pressure pads

Screwdrivers / Tongs / Pliers / Hammers / Mallets

Angled pin wrenches and sets

Power tools : Battery screwdriver / impact wrench / drill hammer / Angle grinder / saw

Cleaning rags / brushes / blowers / spotlight lamps

Silicone gun / Foam gun + cleaners

**Some suggested safety equipment :**

Working Gloves

Safety Glasses

Ear headphones

Masks/respirators

Safety shoes

Safety gear belt

(for high rise constructions)

Safety helmet

Tool Vest

Protective clothing

KAPTAIN
ARCHITECTURAL KEY FRAMES

# Installation Guide

## according to the US practices

- **Receiving, Handling, Storage, and Installation**
- **System Premium KN76**
- **Fixed Windows**
- **Dual Action Tilt + Turn Windows**

**Be advised, additional profiles/tools or processes for US installation method described below may be required. Always advise the headquarters as to the desired installation method.**

**You are responsible to control all material compatibility before using, crew safety and damage control from heavy elements. Installation of windows requires good knowledge of materials and factory training.**

# 1 Before you begin

## 1.1 Kaptain Windows and Doors

These are high quality windows have unique operating features. The instructions for handling, storing, and installing these units may be different from other window units you have installed. Thoroughly read and understand these instructions before you begin installation. Proper installation is necessary for the windows to perform as designed. It is presumed that the installer possesses basic woodworking skills and an understanding of wall and roof installation, sheet metal work, and joint sealant guides.

Improper installation (Failure to install and maintain this unit according to these instructions) will void any warranty, written or implied as well as compromise the units rating for water and air resistance. The installer is responsible for contacting the contractor, structural engineer, architect, consumer, or other person having authority to obtain information concerning proper installation according to local codes and/or ordinances.

## 1.2 Receiving and inspection

Conduct a thorough inspection of the window products immediately after receiving them. The windows should be inspected to confirm correct type, size, and for any shipping damage. All damages or freight claims must be reported within 48 hours of receipt and submitted in writing within 5 business days of receipt Kaptain, Inc.

Verify that you have all necessary hardware and accessory items.

Inspect the units again before installation to make sure they have not been damaged on the jobsite.

## 1.3 Safely unloading units from wooden racks

The units are shipped on wooden racks and secured with banding straps. In order to avoid accidents, place the wooden rack on a level surface with enough surrounding free area to safely maneuver the equipment and units being unloaded.

Take care when unloading the windows as they may have shifted during transportation. The windows are heavy. Always unload with at least two people. Leave all windows secured to the rack until just before they are unloaded.

## 1.4 Handling and moving units

Our units are heavy. Always use specialized equipment or at least two people to carry them. Do not drop these units. The installer is responsible for safe handling of the windows, for selecting appropriate handling equipment, and for the safety of the installation crew. We suggests using vacuum cups whenever moving window units. Windows are delivered in a vertical position and must remain vertical when moved and put down. **Do not** carry them either tilted at a sharp angle or in a horizontal position. **Do not** lay the units flat. Do not lift the units by the top framing member or bend the frames to go around a corner. Do not rack, twist, drag or pull window frames. Installers should wear clean gloves when handling products.

Frames with no glass can be heavy. Always carry the frames by supporting the frame weight from the bottom or by grasping vertical members near the quarter points. Lift frames gently. Never lift units by the top framing member or by a horizontal framing member. When lifting frames with vertical mullions, support the joints between mullions and the horizontal framing members. If you lift the frames by the ends you will crack the frames.

Use vacuum cups to carry frames with glass as this is considered to be the safest way to carry heavy glass and window units. When using vacuum cups on plastic film, do not attach the cups on the joint seams. If the plastic film is loose or peeling, or if there is a condition that causes you to believe it is unsafe to use the cups on the film surface, remove the film before applying vacuum cups.

Cold weather makes the windows brittle. Avoid any impact to the frames, sash or glazing bead when handling or installing at temperatures below 4O°.

## 1.5 Storing Kaptain units

Please review this section carefully. You are responsible for damage to the units from the time they are delivered until they are installed and turned over to the owner.

Protect stored windows against other job site hazards and contamination such as welding splatter, grinding sparks, concrete, mortar, stucco, paint, dust and other harmful installation materials.

Properly protecting the window units during storage is important to safeguard their intended function, aesthetics, and durability. Doing so can speed up or eliminate any cleanup and it can also prevent unnecessary damage.

Windows shall be stored out of the weather in a clean, dry, low-traffic area, away from direct sun light, extreme temperatures and temperature changes. Store windows inside if possible.

Do not leave wrapped windows exposed to weather, sunlight or heat. They must be well ventilated so that heat cannot be trapped under protective coverings. Heat trapped between surfaces and reflected by glass coatings can lead to permanent damage of frames, finishes, and glass.

Do not store windows in containers, trailers, or areas that might undergo dramatic fluctuations in temperature and humidity. Do not store near hazardous or chemical materials. Off-gassing of these materials may degrade the window finish or seals.

Store window units on a flat level surface in a way that will protect the integrity and perimeter of the unit. If windows must be stored so some lean against others, always stack the largest units at the back in a completely upright position and proceed forward with gradually smaller units. Never lean windows against each other without protective material between them. Always secure stacked units to prevent falling.

Units with a flange have shipping blocks on the bottom. Make sure windows are always supported on the blocks.

## 1.6 Kaptain windows and exterior finishes

The integral mounting flanges on Kaptain windows are **not** structural nailing flanges. They must **not** be used to anchor the window to the wall structure. Kaptain will provide anchoring straps to permanently mount the window into the window/wall assembly if demanded. Fasteners penetrating the flanges can cause operating problems and damage that is not covered by warranty. No permanent fasteners are to penetrate window flanges after the window installation. The builder or person of authority shall notify all trades of this requirement.

Exterior finish material must not restrict thermal movement of the window unit. Exterior finish material details must allow for movement between the exterior finish material and the window frames. Exterior finish material that restricts movement between the exterior finish material and the window frames can result in damage to the windows.

Kaptain strongly recommends that builder and building designer review exterior finishing details and coordinate the work of trades to ensure that fasteners used to attach exterior finishes and flashings do not penetrate the mounting flanges and ensure that exterior finish material details allow for movement between the exterior finish material and the window frames

## 1.7 Building codes

Kaptain builds quality units based on information provided by the purchaser. It is the responsibility of the owner, architect or builder to select and install units in compliance with all applicable laws, regulations and building codes.

## 1.8 Building interface detailing

These instructions show you how to place, shim and anchor the windows to the building. They do **not** show you how to prepare the building envelope and rough opening nor how to apply all the sealants, flashings, or barrier membranes required for a code compliant and weather-sealed installation. These requirements vary from one jurisdiction to another. It is presumed the installer has a working knowledge of the tools, equipment, and methods necessary for the installation of fenestration units. It further assumes familiarity with flashing and sealing, glazing procedures, finishes where applicable, and an understanding of the fundamentals of installation that affect the installation of these units.

Before installation the authority having jurisdiction (architect, building envelope consultant, local building department or building inspector) should be consulted about requirements for weather-tight installation, including use of flashings, sealants and barrier membranes.

### 1.9 Rough opening

Before installation the authority having jurisdiction (architect, building envelope consultant, local building department or building inspector) should be consulted about requirements for weather-tight installation, including use of flashings, sealants and barrier membranes.

The quality and installation of the material/lumber and fasteners of the rough opening must be structurally adequate for design load requirements. The structure above all window openings must be designed to limit deflection due to dead loads and live loads. The maximum allowable deflection of the structure above or below windows is +/- 3/8”.

Check all rough openings to see if they are square and have a level sill and plumb (vertical) jambs. Make sure that the outside face of the wall is straight and plumb. If a rough opening is out-of-square, adjust the thickness of the shim blocks as necessary to make sure that you install the window in a square, level and plumb way. Maintain a uniform space around the frame where possible, even if the rough opening is not. If the outside face of a wall is bowed or leaning, install the window to be vertical.

If any conditions exist that would prevent the proper installation of the fenestration unit, or prevent application of materials and components in accordance with local codes, inform the general contractor or the party responsible for the installation. Make sure that the general contractor corrects the rough opening if you find the rough opening does not allow you to install the unit perfectly level, square, plumb, and straight in every direction.

The rough opening size for our windows should be 3/4” -1” wider and 3/4”-1“ taller than the outside measurement of the window frame.

### 1.10 Compatibility of materials

Sealants, adhesives, adhesive tapes and barrier membranes used with our products must be compatible and safe for use with rigid PVC and painted and laminated color finishes. Installer or authority having jurisdiction is responsible to select compatible materials. The warranty does not cover damage to units or surrounding materials arising from the use of incompatible or unsuitable units.

If you are not sure what the finishes are on the units you are installing, contact your representative.

### 1.11 Protecting installed units

Use caution to avoid damage to windows before and after installation. Many field-applied protective coatings can damage fenestration gaskets and sealants, especially insulating glass sealants, and are not recommended. Contact us before applying any such coatings.

Do not block sashes in the open position with lumber or other materials.

Keep sills of operable windows free of dust, dirt and installation debris. Make sure gaskets are not damaged or dislodged and that drain slots are not blocked.

Protect installed windows from other installation activity such as welding spatter, grinding sparks, concrete, mortar, stucco, paint, acid solutions used to wash masonry and other harmful installation materials and practices.

Do not use metal scrapers, paint thinners, chemical solvents or abrasive cleaners to clean any part of the glass or framing on Kaptain units during or after installation.

### 1.12 Protective tapes and protective films.

Vinyl window frames may have protective plastic tape applied to interior and exterior surfaces to protect them during manufacturing and handling. Protective tape on exterior vinyl surfaces must be removed as soon as units are installed. Protective tape and masking tape should not remain on exterior vinyl surfaces for an extended period of time. They will begin to fuse to the unit surface making the adhesive residue difficult to remove. Failure to remove tape at the time the frames are installed may permanently damage the frame finish.

Do not remove the protective tape or film in the presence of flammable and explosive chemicals and gases. Removal can cause sparks that could ignite combustible liquids used nearby.

# 2 Tools and Materials Required

## 2.1 Tools required

- 24", 48" and 72" levels which are needed for tall windows.
- Substitute a cross line laser level for ultimate accuracy.
- Framing hammer
- Flat pry bar
- Screw gun
- Screw drivers
- Tape measure
- Caulking gun
- Small adjustable crescent wrench or 11 mm open end/box wrench, 11mm socket wrench (may be needed for certain hardware adjustments)
- Vacuum cups - Minimum two vacuum cups are recommended for handling large heavy windows.
- 3, 4, 5 and 8 mm Hex key or combination Hex-socket tool (required for hardware adjustments such as clearance and locking tightness adjustments).

## 2.2 Materials required

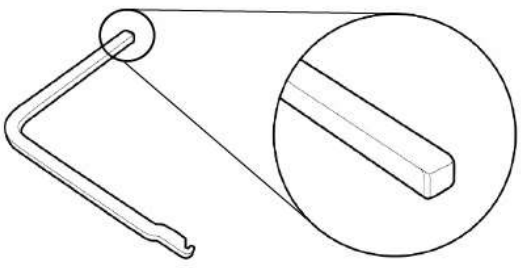
Treated wood products can be corrosive to many commonly used fasteners. All the fasteners are to be corrosion resistant and selected for compatibility with the substrate.

- Fasteners for securing strap anchors to wood substrates: #10-13 x 1-1/2" stainless steel Pan head screws.
- Fasteners for securing strap anchors to steel studs: #10-13 x 3/4" self drilling pan head screws.
- Sealants and membranes - Sealants and barrier membranes for air and water seal at perimeter joints shall be compatible with rigid PVC, with building substrates, and with one another.
- Sill support shims - Plastic or other non-deteriorating and non-swelling/non-compressing window support shims, min. 1-1/4" x 1-1/2".
- Shim blocks - Synthetic, plastic, or treated plywood shim blocks to be used at jambs.
- Caulking and backer rod - Compatible sealant for second plane of protection at interior perimeter of each window.

# 3 Installing Windows

## 3.1 Removing the sash before installation

Depending on the size of the unit, it may be helpful to remove the sash to make the units easier to handle. In order to remove a sash you need to install a handle or use the assembly key that will let you operate the hardware.



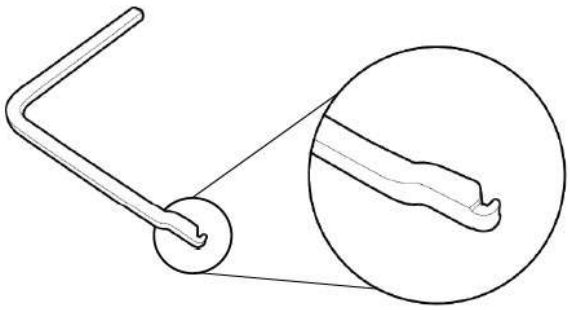
The sashes will need to be operated for removal. The window handles can become damaged during installation. It is advisable to use only the assembly key to operate all of the windows during installation. The square end of the assembly key can be used as a temporary handle to operate the windows. This ensures your handles are not damaged during installation.

The sash is heavy! DO NOT try to remove the sash by yourself. Kaptain recommends a crew of at least two people for this procedure.

To remove the sash, insert the square end of the assembly key into the center hole of the handle location. Partially open the sash and remove the hinge cover. Starting with the top hinge, grasp the top and bottom edges of the upper hinge cover and pull them towards you. Remove the hinge cover.

Once the hinge cover is removed, insert the hook end of the assembly tool into the bottom of the hinge.

With a gentle tug, pull the assembly key down to remove the pin from the hinge. The hinge on the sash will then detach from the frame.



Tilt sash towards you slightly then lift it off the lower hinge pin.

Put the sash in a safe place, on support blocks, on a clean and dry surface. Make sure dirt and sand do not enter the lower hinge hole while the sash is stored in this way.

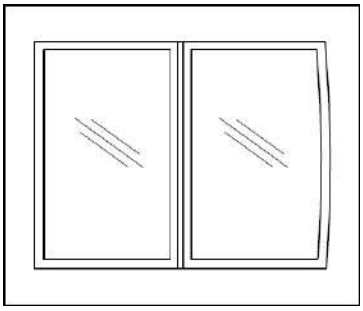
Push the upper hinge pin from below until it "clicks" in place. Put the hinge cap back on the hinge so it does not get lost.

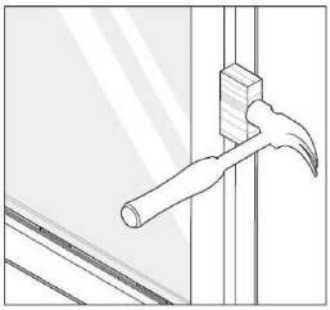
### 3.2 Prepare the frames for installation

Remove the wooden shipping blocks that are attached to the flange (flanged windows only).

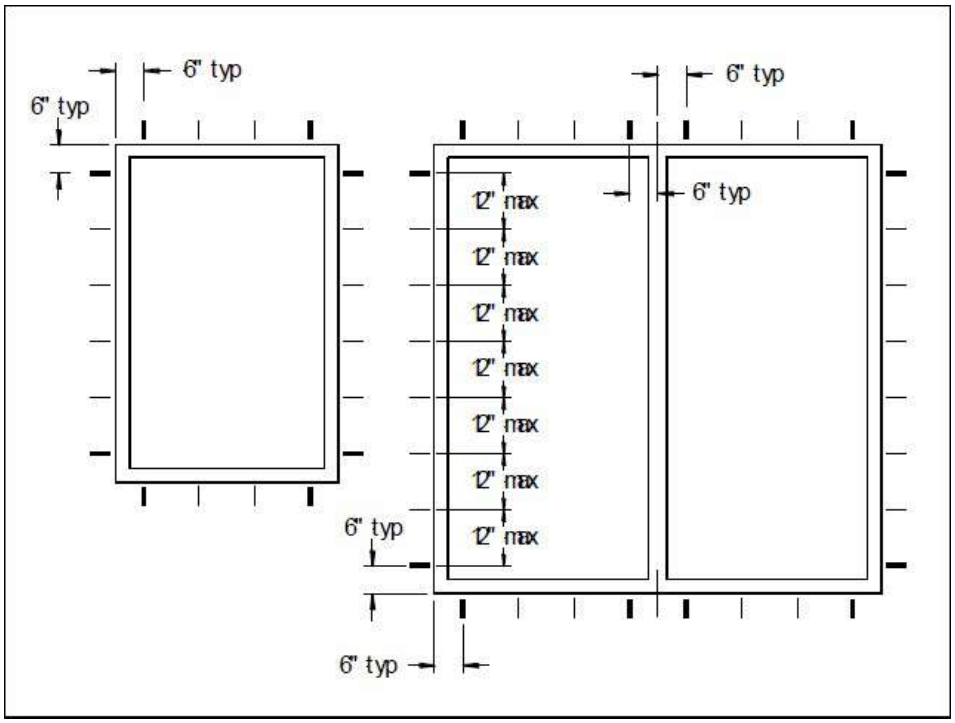
Sometimes a frame member may become bowed by actions such as dragging it by the edge of the frame.

The frame may be straightened by tapping it back into place with a wooden block and a hammer.

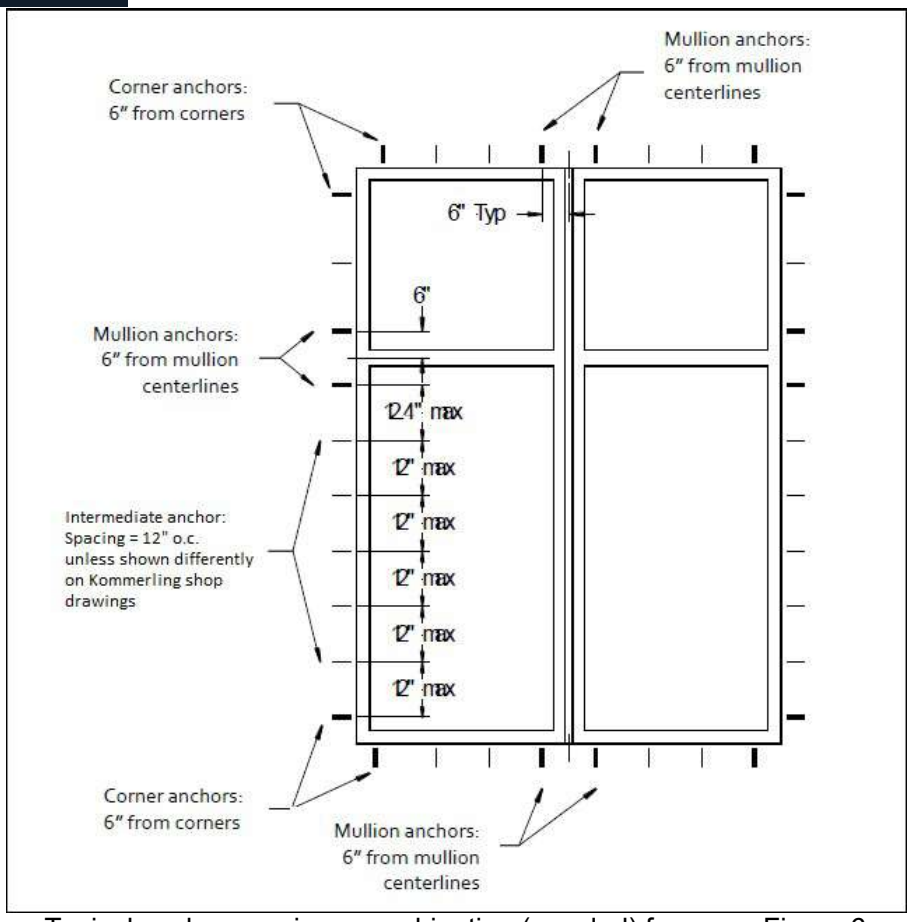




After straightening the frame, locate the anchor locations with reference to frame. Locate anchors on both sides of each frame corner at 6" from the corner. Locate anchors on both sides of each vertical and horizontal mullion at 6" from the mullion centerline. Locate intermediate anchors at a maximum spacing of 12" on center in between the corner and mullion anchors unless you have shop drawings that show a different spacing.



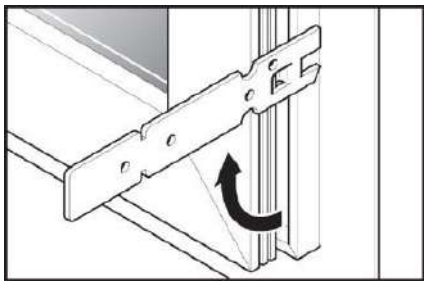

Typical anchor spacing – composite (one piece) frames - Figure 5

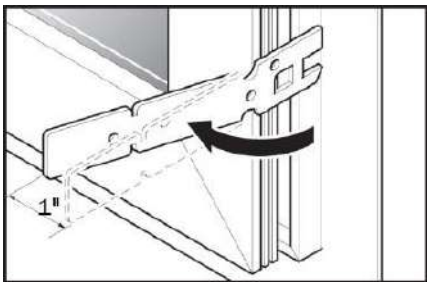



Typical anchor spacing – combination (coupled) frames - Figure 6

Install anchors at spacing shown in Figure 5 and Figure 6 or as indicated on the shop drawings. If no shop drawings are provided, follow anchor spacing shown.

Place the anchor in the groove so it can be turned clockwise. You cannot turn the anchors counter-clockwise.






Bend the anchor 1" towards the center of the window/door. **DO NOT** over-bend. If you bend them more than 1", you may have problems with the installation later. Continue to install the other anchors using the same technique.

## 4 Install Frames into openings

### STOP AND READ BEFORE PROCEEDING!

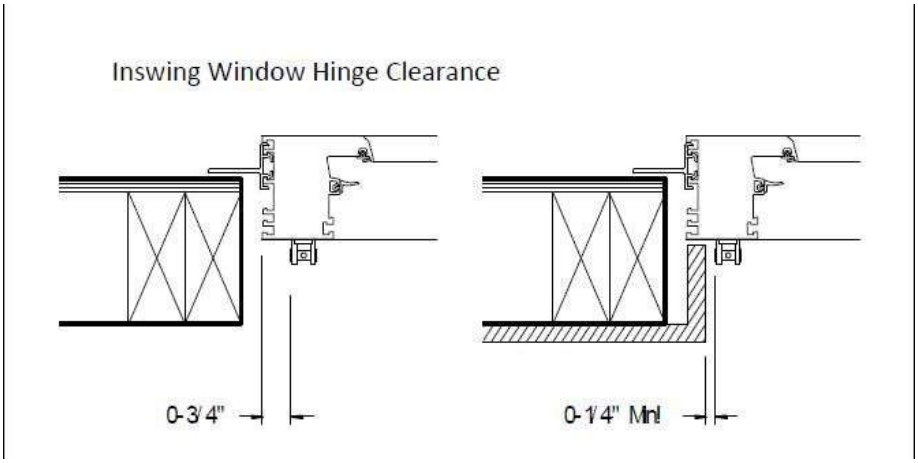
Measure the rough opening to ensure that it will allow installation of the window in a square, plumb, and level condition in accordance with manufacturer's instructions. If the opening will not allow correct installation, correct these deficiencies before proceeding.

Check that the fenestration products are the correct size and type for the opening, including tolerances for plumb, level, and square installation.

Verify that all interfacing components (such as panning systems, drip caps or moldings, and other weather barrier systems) have been installed.

Follow the handling instructions and on the sticker that appears on each frame.

For frames with hinges, make sure to position the frame in a way that will allow finish materials to clear the edge of hinge by at least 1/4". When jamb finish materials are thicker than 1/2" you may need to reposition the hinge side of the frame farther from the rough opening to allow finish materials to clear the edge of hinge by at least 1/4".




### 4.1 Position support shims

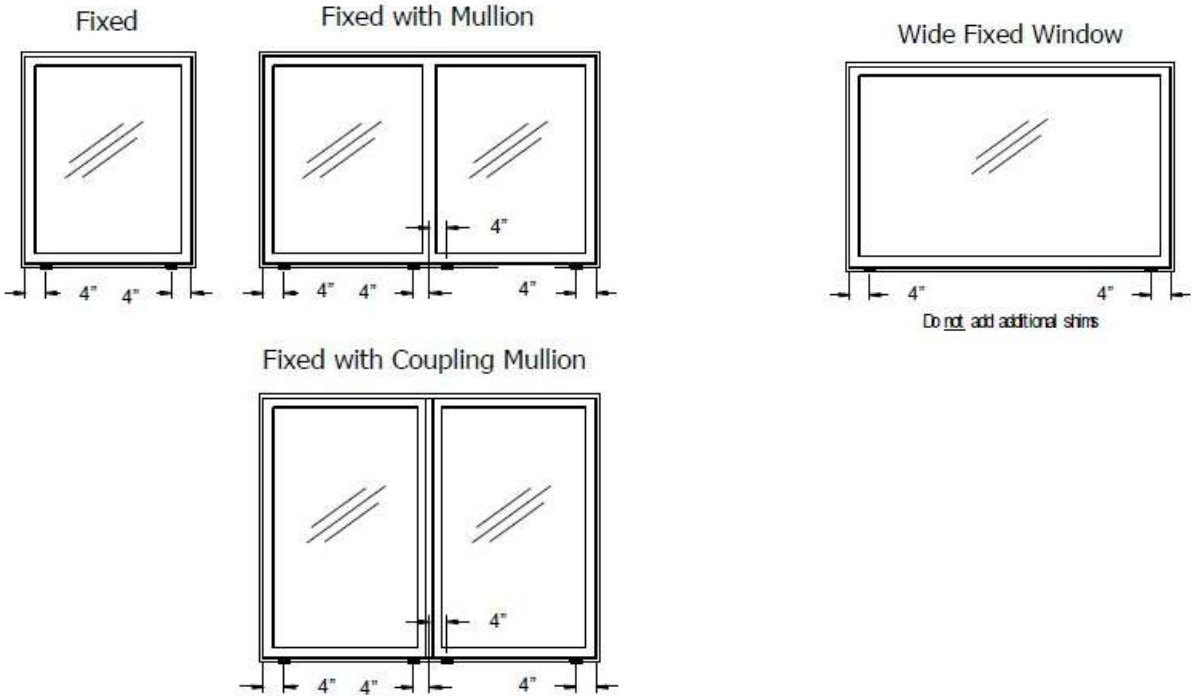
We recommend using composite or stackable plastic non-compression shims of different thicknesses to achieve the correct placement of the window in the rough opening.

Minimum shim size: 2" x 1-1/2".

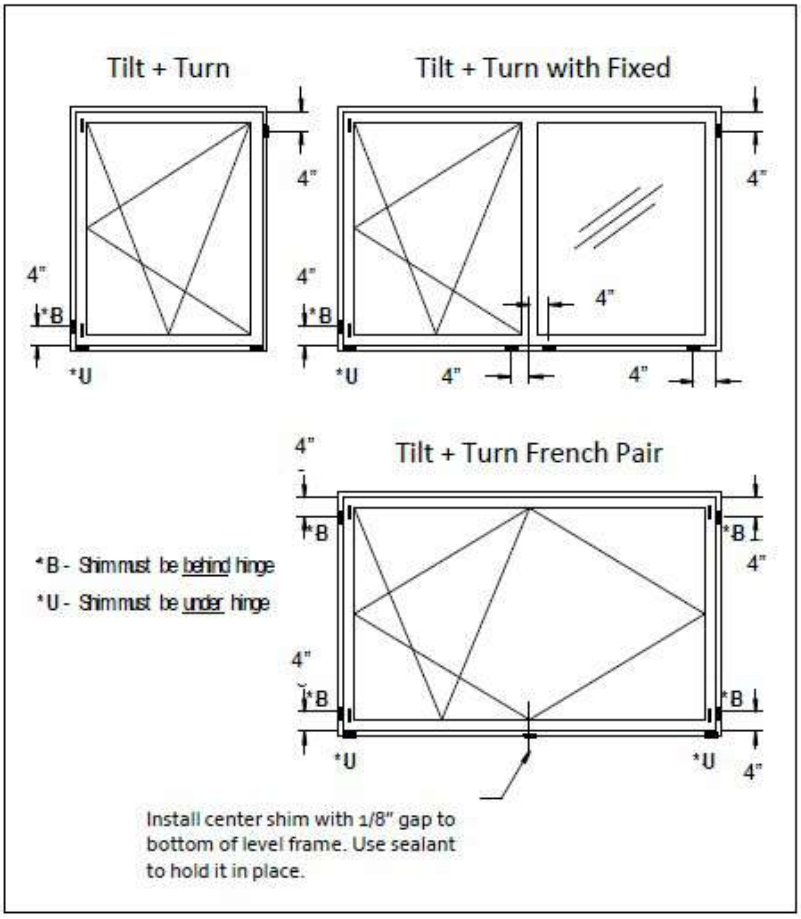
Place sill support shims under each frame where shown in the following diagrams. Adjust thickness of sill shims to ensure frame is level, straight, and plumb. Do not bend frames by forcing shims into place. Adjust the height of the shims to ensure there is a minimum 1/2" (13 mm) gap at the head.

Place lateral support shims at the jambs where shown in the following diagrams. Jamb shims are required near the tops of jambs opposite to the hinge side to prevent the frames from moving sideways from the weight of window sashes.

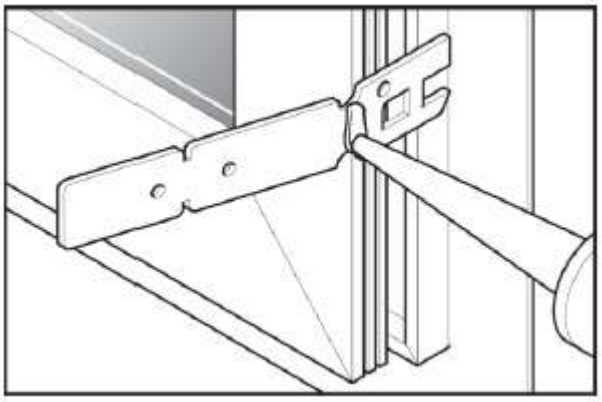
For fixed (non-operable) windows place shims 4 inches in from each corner and 4 inches from the center of each mullion to support the weight of the glass. These positions align the shims with the glass supports inside the frame. To prevent bending of the sill you must place the shims within 1" of the positions



For operable windows place shims under the vertical jambs to support the weight of the glass as transferred to the frame through the hinges. Then place shims where shown at the jambs to keep the frame from bending sideways. To prevent bending of the sill and jambs you must place the shims within 1" of the positions shown




## 4.2 Seal and adjust the anchors

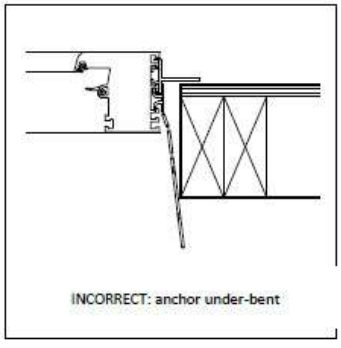


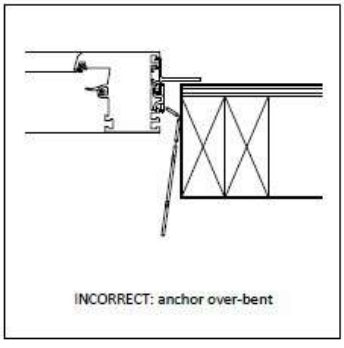
Apply sealant generously on the side of the anchor that will lie flat against the rough opening facing you (see drawing), near to the edge where it bends. Apply the sealant across the entire width of the anchor to maintain the continuity of the air barrier when the installation is finished. To ensure compatibility, use the same sealant that will be used for the entire installation.

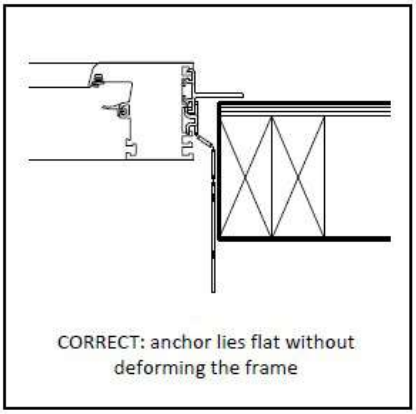
The anchors are designed to allow for anchoring the window securely for different gap widths. Adjusting the anchor to suit the gap is a two-step process: first you pre-bend the anchor towards the window, and then back against the side of the rough opening. The objective is to have the anchor lie flat against the side of the rough opening before it is screwed in place.

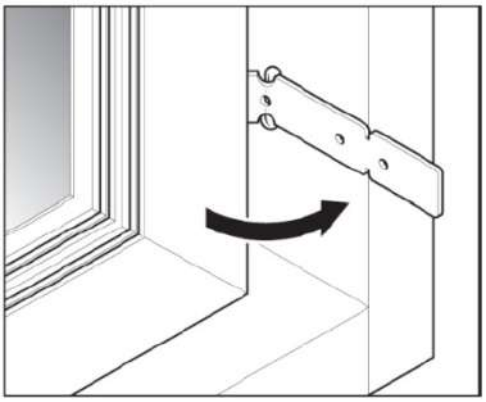
For narrower gaps, pre-bend the anchor less. For wider gaps, pre-bend the anchor more.

Start by pre-bending the anchor about 30 degrees from the face of the rough opening, then bend it back. If it does not lie flat, pre-bend it again, more than before. Continue until there is a consistent feel for how much you need to pre-bend the anchors for different sizes of gaps. Take a few minutes to practice how much or how little you need to bend the anchor towards the window in order to have it lie flat against the rough opening when you bend it back.

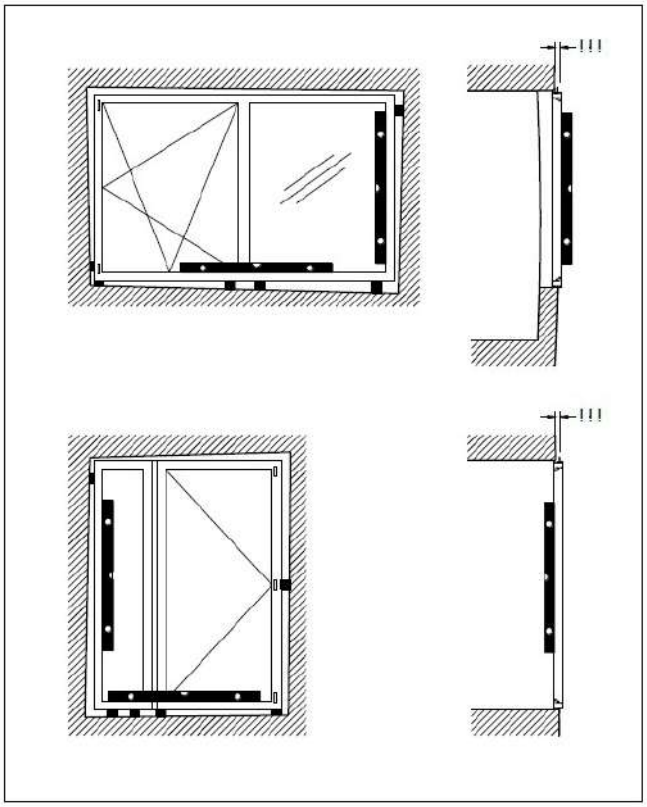




To prevent problems later on with wall finishing or window operation, all the anchors must lie flat against the sides of the opening before they are screwed to the wall. If the bend doesn't allow the anchors to lie flat against the opening, the frame will twist when screwed in to place.



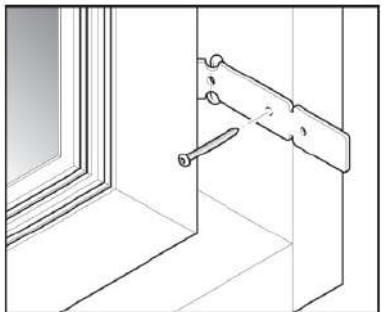
### 4.3 Place the frames into the rough opening

If the window is a fixed unit, center it in the rough opening with equal spacing on each side.

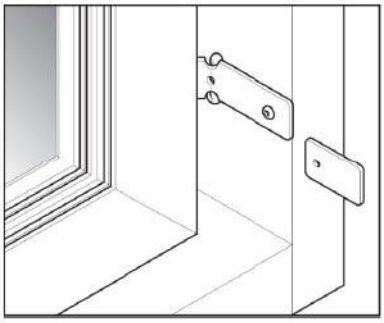
If the frame has hinges, first determine the thickness of the finish material. Then, position the frame to allow ¼" clearance between the hinge and the finish material.

Before fastening anchors to the rough opening make sure the frame is plumb, level and square, even if the wall isn't. Do not fasten the anchors in sequence

Start by loosely fastening the corners. Then fasten the anchors at the midpoints of the frame and at the mullions, installing the jamb shims at each anchor location. (there should be shims on either side of the anchors). Do not twist or deform the frame with the midpoint anchors. Finally, fasten the intermediate anchors. Alternate fastening from side to side and from top to bottom to lesson the chance of deforming or shifting the frame out of position.



Use the hole nearest to the window frame to fasten the anchor to the rough opening.



Remove the anchor tabs by bending or cutting the tabs where they extend past the inside face of the studs. Be careful to not damage the window or glazing.

Before moving to next step, recheck the frame to confirm it is plumb, level and square and not bowed or racked.

### 4.3 Re-Hang sash on frame

Remove the upper hinge cover and push the hinge pin down. Tilt the lower hinge pin towards you approximately 30 degrees. To prepare the sash for installation make sure there is no dirt in the lower hinge of the sash and make sure the handle is in the turn position (as when sash is swung open to one side). Get help to lift the sash, then set it down onto the lower hinge pin of the frame. Tilt the sash towards the frame carefully and align the top of the sash hinge with the slot in the hinge body on the frame.

As you tilt the sash into place, the shear arm at the top of the sash may disengage. If this occurs, gently lift the arm upwards and move it parallel to the sash, then press it downwards until it "clicks" into place. Push the upper hinge pin upwards until it "clicks" into place. The pin should easily click into place. Align the sash to the frame so the sash hinge is flush with the frame hinge. Make sure that the hinge pin is all the way up until the bottom is in line with the frame hinge. Replace the plastic upper hinge cover and close the sash.

### 4.4 Check sash operation

Kaptain squares the sashes and aligns them with the hardware at the factory. Operating problems occur when the frame is not installed level, plumb and square, or when the frame or sash members are not straight because of handling or incorrect installation.

Open and close the sash several times. The sash should operate freely without binding at any point and all the hardware functions should operate smoothly.

If the sash does not operate properly or the hardware does not engage properly, the frames are not installed plumb, square and level, or the frames have become twisted during anchor installation. For help in diagnosing the cause of operating problems see section titled Troubleshooting sash operation problems.

If the sash binds or strikes the frame at some point, or if the handle cannot be fully rotated to lock the sash, there is a problem with the installation. Do not proceed with applying interior sealants until you have corrected the sash operating problems.

If the frame is twisted towards the side of the rough opening, loosen anchor screws and use a flat pry bar to straighten frame. Insert shims between frame and rough opening and re-tighten the anchor screws.

If the frame is twisted away from the rough opening, try to twist it into position. If that is not possible you may need to replace and re-bend the anchor so it does not deform the frame.

If the interior face of the frames is bowed, unscrew anchors in the affected area, straighten the frame, and re-fasten anchors.

If the outside edges of the frames are bowed, follow the same steps as for correcting twisted frames above.

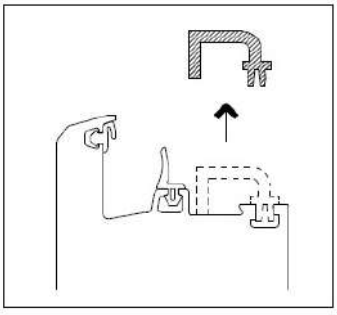
If a sash has become out of square or has become bowed and cannot be straightened, it will have to be re-glazed and re-shimmed.

### 4.5 Establishing Continuity between the window unit and the other Components of the Building Envelope

The window installation system should integrate into the building envelope and provide a continuous air and water seal on all four sides of each window. To ensure success it is essential to have a thorough understanding of the building system employed to prevent water and vapor penetration through the envelope.

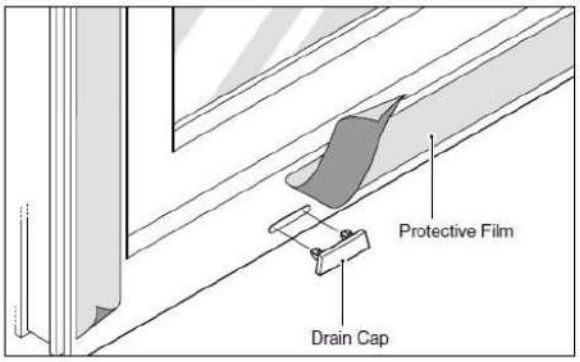
### 4.6 Remove sash spacer shims

Open each window sash and remove the spacer shims.



### 4.7 Remove protective tapes, install wind caps

Remove protective tape from frames and install wind caps to drain slots on the exterior of all elements.




## 5 Troubleshooting sash operation problems

### 5.1 Operating problems

Operating problems include sashes binding in one or more places, sashes that cannot be closed or locked, and excessive air leakage.

Operating problems may have a number of causes, from faulty installation to building settlement to deformations arising from abuse or unusual environmental conditions. In most cases operating problems are due to deformations of the frame or sash that exceed hardware tolerances.

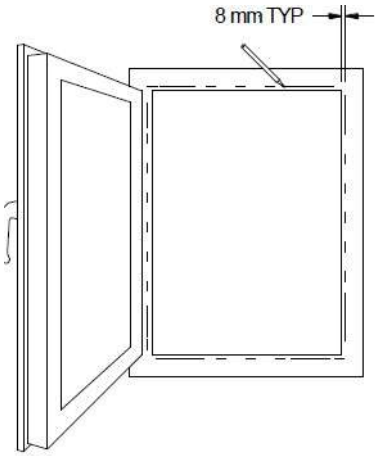
Do not make any assumptions about the cause of the problem. A common mistake is to start adjusting hardware before you have diagnosed the problem. This can add to existing problems and make them harder to correct.

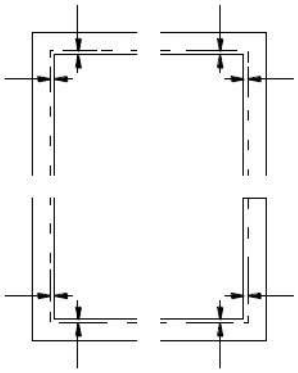
Follow all the troubleshooting steps before making any hardware adjustments. Use the checklist to determine whether the operating problem can be corrected by adjusting the hardware, the frame members, or the sash.

### 5.2 Check the Overlap

Kaptain windows are designed for a 6.5–8 mm (1/4"–5/16") overlap of the sash to the frame. Trace an outline of sash corners onto the frame with a pencil.

If there is too little or too much overlap, the sash or the frame may be out of square.



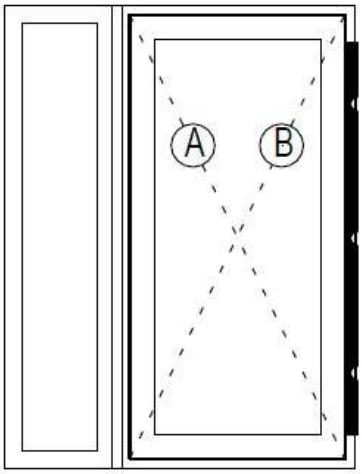



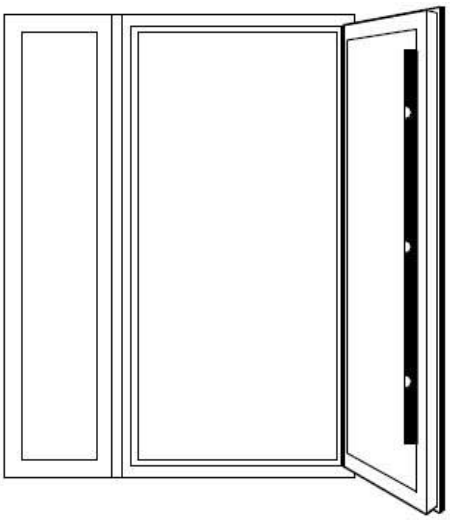
### 5.3 Check for squareness, level, plumb, bowing, racking, lean, or twist.

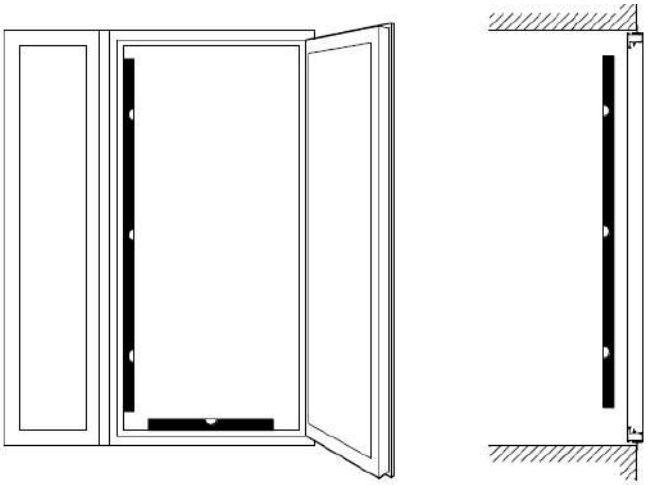
To determine if the sash is square measure the diagonals or from corner to corner. An out of square sash can cause operating problems.

Use a 6 foot straight edge to determine if the vertical edges of the sash are straight when you are facing it. If edges are bowed, the hardware may not engage. If the sash is bowed towards the center of the glass, the glazing shims may have slipped.

Use a 6 foot straight edge on the face of the sash to determine if the top, middle and bottom are in line or bowed towards or away from the frame.



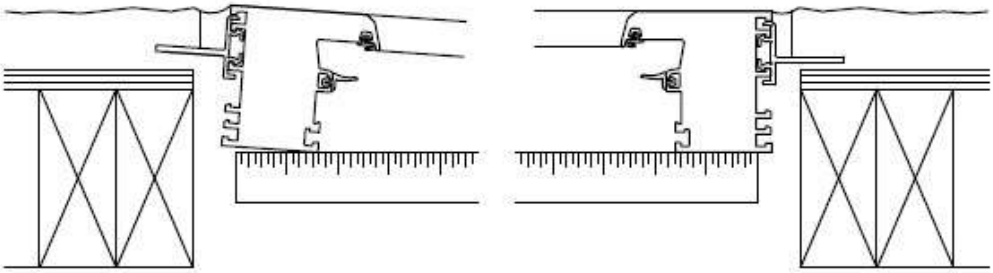





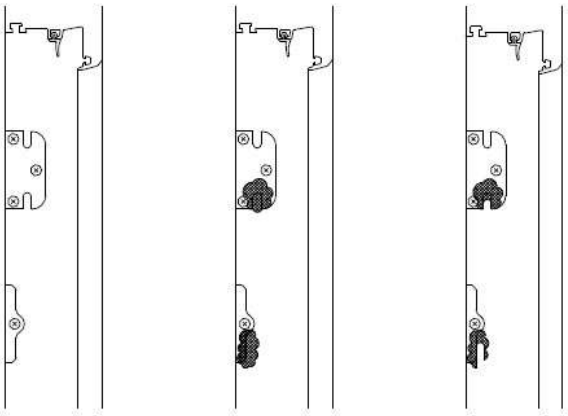
Use a 6 foot level to determine if frame and mullions are vertical when facing the window, and a shorter level to determine if the sill is level.

Use a 6 foot level on the face of the frame and mullions to determine if the frame members are leaning inwards or outwards at the top. Use a 6 foot straight edge on the face of the frame to determine if the top, middle and bottom are in line or bowed towards or away from the sash.

Incorrect bending of strap anchors can twist the frame, resulting in locking points that bind or don't engage. This is an installation problem that cannot be easily corrected after finishes are installed.



Use a straight edge to span between both jambs of an open sash to see if the jambs are twisted inwards (shown) or outwards.



It can be difficult to know whether locking points are engaged properly, especially on the hinge side of a sash. Apply putty to the slots where locking points are supposed to engage, close the sash, and then operate handle. Open the sash to see how far the keepers have traveled.

If frames are not plumb, level, square and straight, the frame installation must be corrected.

If sashes are out of square or bowed, they must be deglazed, reshimmed, and re-glazed.

If hardware binds or does not close properly, the frame installation must be corrected. In some cases such problems can be corrected with minor hardware adjustments. For more information contact and review our catalogue, provide photos and detail problem explanation.

KAPTAIN S.A.

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