

PVC WINDOWS

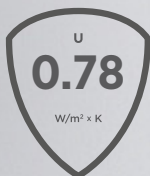


WIŚNIEWSKI

TÖRE | FENSTER | TÜREN | ZAUNSYSTEME

WINDOWS DEVELO

Intended use: PVC windows are intended for residential housing, industrial buildings, and public utility facilities.



THERMAL INSULATION

Thermal transmittance factor of the entire window from as low as 0.78 W/m²K for the DEVELO window. The values apply to the window size 1,230 x 1,480 [mm].



SAFETY

Intruders? Not in a house with WISNIOWSKI windows. Their precise structure ensures high resistance to breaking and entering.



WARRANTY

WISNIOWSKI windows are covered by a 5-year warranty. This is just to be on the safe side, but we want you to know that you can count on us.



PVC WINDOWS CAN BE GROUPED AS FOLLOWS:

- according to the number of leaves: single-leaf, double-leaf, three-leaf, multi-leaf,
- according to the opening method: fixed windows, turn-only (side hung) windows, tilt-only (awning/hopper) windows, tilt and turn windows, turn and tilt windows, tilt and slide patio door, lift and slide patio door.



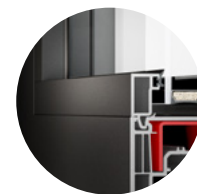
DEVELO STANDARD, MODERN

WINDOW CHARACTERISTICS:

- 6-chamber profiles, installation depth 76 [mm]
- Non-flush with the frame – straight
- Invisible effect (seam) profile joint, multi-chamber structure ensuring high thermal and acoustic insulation
- An arrangement of three gaskets (outer, central, and inner) perfectly insulates from noise, humidity, and cold
- Fitted as standard with a two-chamber glazing unit 4/18/4/18/4 $U_g = 0.5 \text{ W/m}^2\text{K}$ in acc. with EN 673, optionally a panel 24-48 [mm] thick infilled with XPS extruded polystyrene
- Glass units 24 [mm] to 56 [mm] thick can be used
- Reinforcement made of galvanized steel: frame 1.5 [mm], hollow steel section, white leaf, film coating up to 2 [mm], gasket extruded with a profile
- Heat bonded gasket is available in the following colours – black, grey.
- Profile core – double-sided film coating: anthracite
- Sound reduction index $R_w = 37$ (-2;-7)
- Thermal insulation RU of the reference window, dimensions 1.23 [m] x 1.48 [m], RU: $U_w = 0.78 \text{ W/m}^2\text{K}$ with a 3-pane glass unit $U_g = 0.5 \text{ W/m}^2\text{K}$
- The DEVELO window is available: with a low threshold (DEVELO with a low threshold), as PSK tilt and slide patio door



STANDARD



MODERN

MODEL VERSIONS

STANDARD WINDOW ACCESSORIES

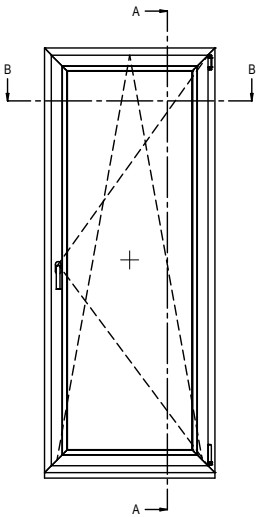
- drive gear with a lifting mishandling device and leaf lifter,
- all moving rollers i.S.,
- alloy strikers, additionally, the U, R and RU leaf features two anti-burglary strikers,
- in RU leaves, bottom striker plate as standard,
- microventilation in scissor stay,
- surface hinges with contact pressure adjustment in three dimensions,
- anti-draught lock in RU leaves,
- aluminium handle,
- infilled bottom hardware groove opening frame,
- the standard glass unit for the DEVELO system is 4/18/4/18/4 $U_g = 0.5 \text{ W/m}^2\text{K}$ in acc. with EN673,
- 5-chamber transport and installation bar,
- band handles for handling windows,
- installation anchors,
- widening system 25 [mm] in white for balcony windows with a low threshold, transport slides



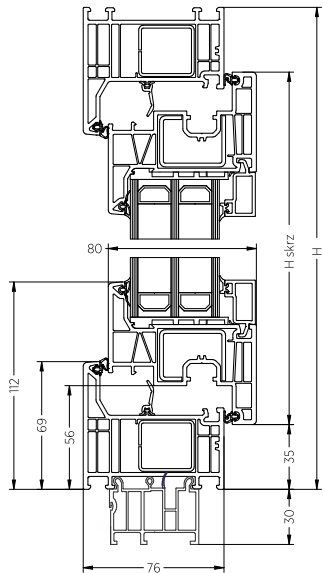
CROSS-SECTIONS AND VIEWS

Single-leaf, turn and tilt DEVELO window, window leaf

As seen from the inside

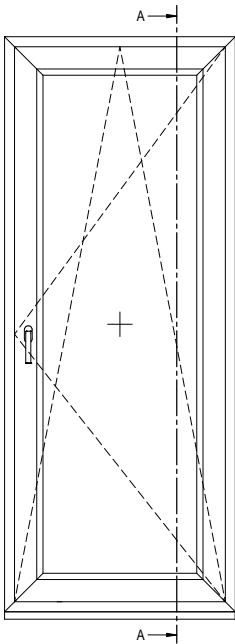


Vertical cross-section

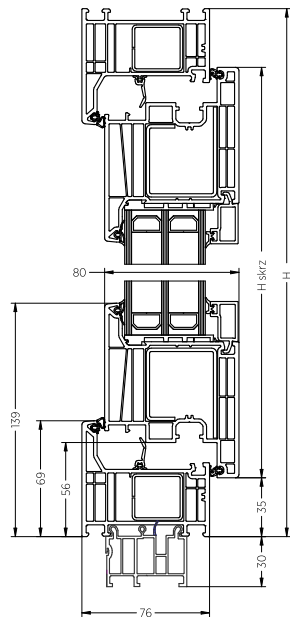


Single-leaf, turn and tilt DEVELO window, wide leaf

As seen from the inside



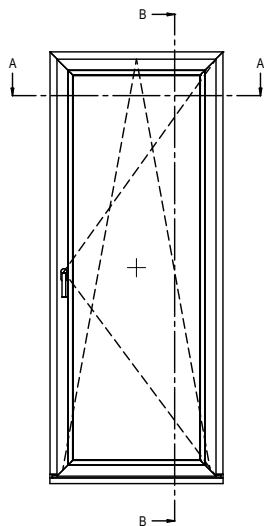
Vertical cross-section



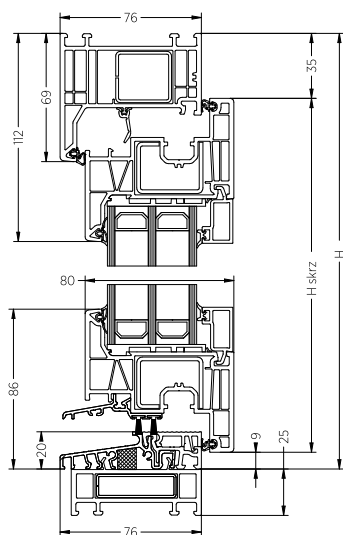


DEVELO window, single-leaf, turn and tilt, with a low threshold

As seen from the inside



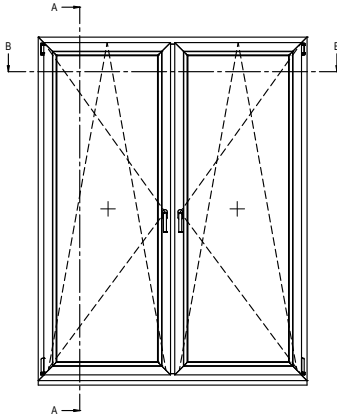
Vertical cross-section



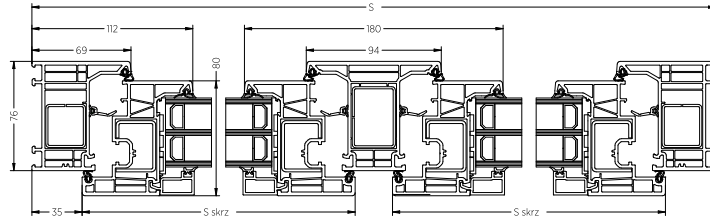


Double-leaf DEVELO window with a fixed mullion

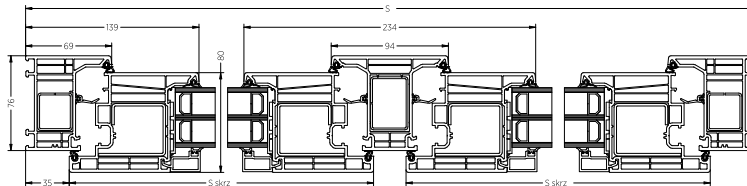
As seen from the inside



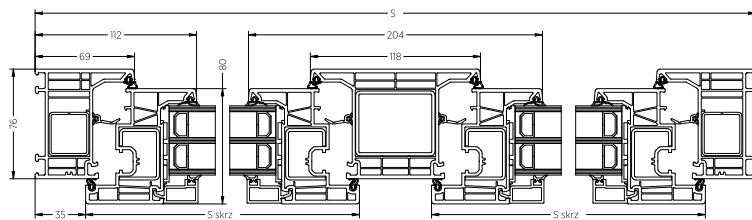
Horizontal cross-section, window leaf, standard mullion



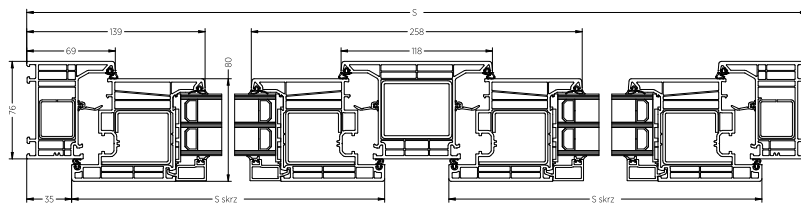
Horizontal cross-section, wide leaf, standard mullion



Horizontal cross-section, window leaf, wide mullion



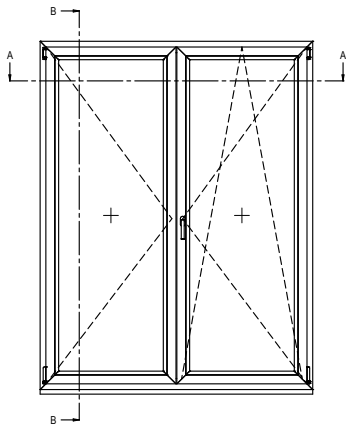
Horizontal cross-section, wide leaf, wide mullion



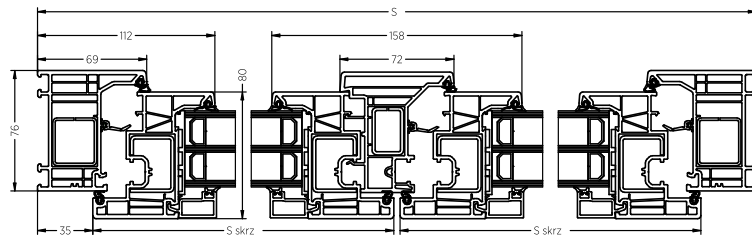


Double-leaf DEVELO window with a moving mullion

As seen from the inside



Horizontal cross-section





DEVELO PSK



PARALLEL SLIDING DOOR

Available in the PSK-S, PSK-Z, and PSK-PAS versions. The running system track is installed in the bottom section of the opening frame, which makes it visible to the user. The carriages are installed on the inner side of the sliding leaf.

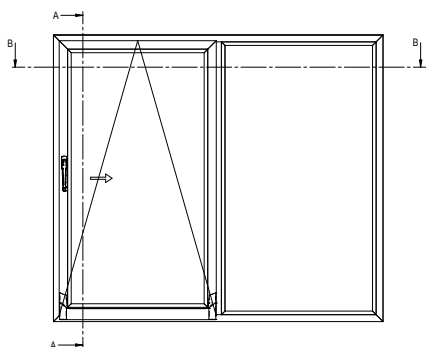
PSK-S STANDARD VERSION – manually operated, parallel tilt and slide door without motor support.

PSK-Z AUTOMATIC VERSION – automated, parallel tilt and slide door. This system features an additional control function “in the handle,” which makes it easier to tilt, slide, and close even very heavy leaves, and the integrated catch system enables easy transition between the sliding and tilting position.

PSK-PAS PARALLEL-STOP-SLIDE VERSION – the PSK-PAS system enables three functions: sliding, latching, and gap ventilation – parallel action gap up to 6 [mm] from the frame. The built-in damper stores the energy and allows the sliding door to be easily closed shut.

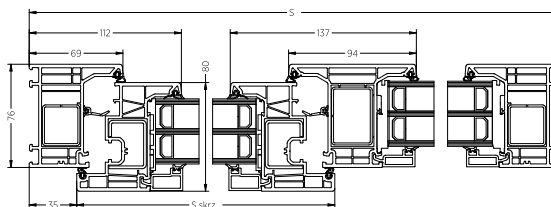
DEVELO patio window – PSK fix in the frame – Scheme A

As seen from the inside

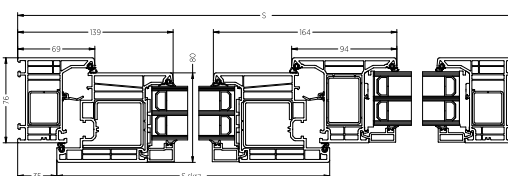


Horizontal cross-section

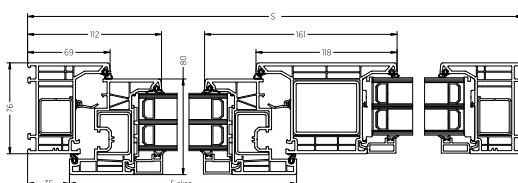
Window leaf, standard mullion



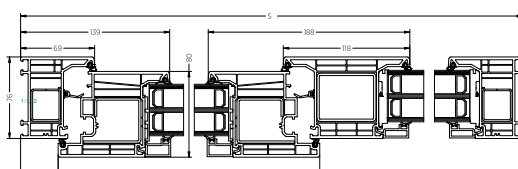
Wide leaf, standard mullion



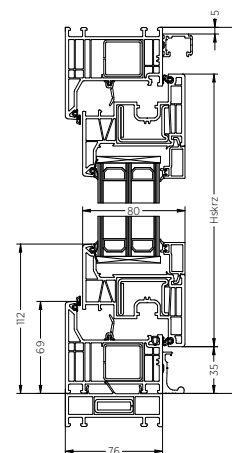
Window leaf, wide mullion



Wide leaf, wide mullion



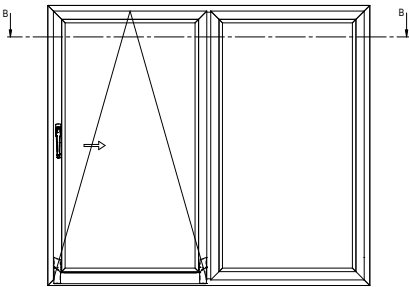
Vertical cross-section



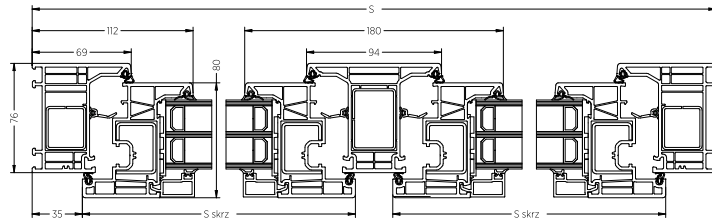


DEVELO patio window - PSK fix in the leaf - Scheme A

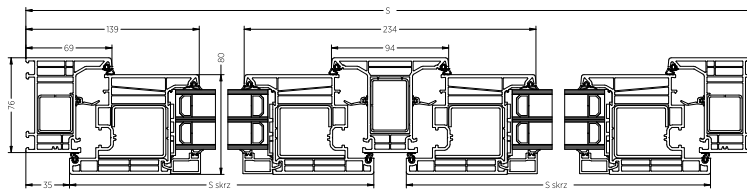
As seen from the inside



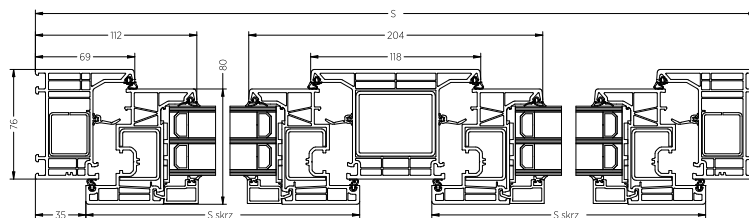
Horizontal cross-section, window leaf, standard mullion



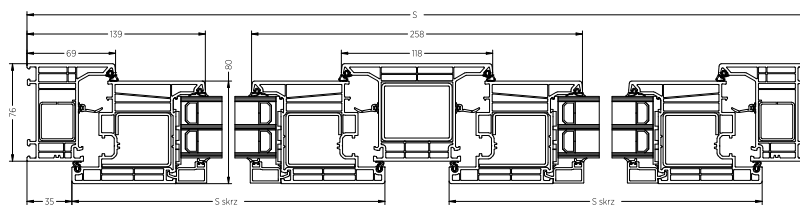
Horizontal cross-section, wide leaf, standard mullion



Horizontal cross-section, window leaf, wide mullion



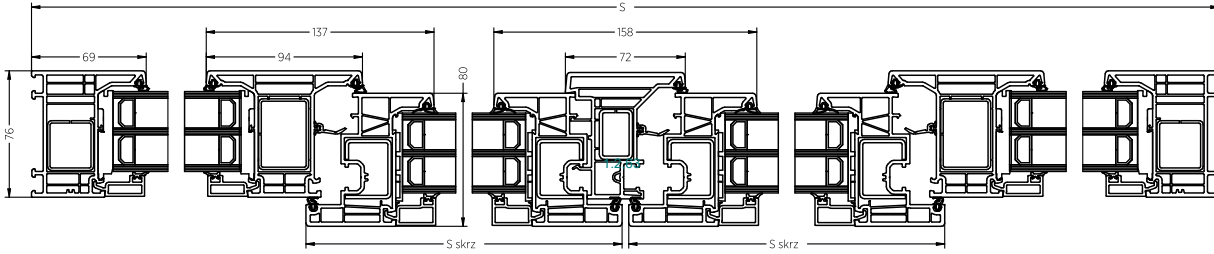
Horizontal cross-section, wide leaf, wide mullion



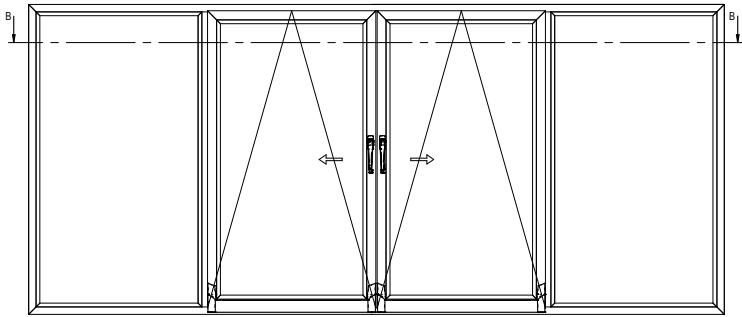


DEVELO patio window - PSK fix in the frame - Scheme C

Horizontal cross-section

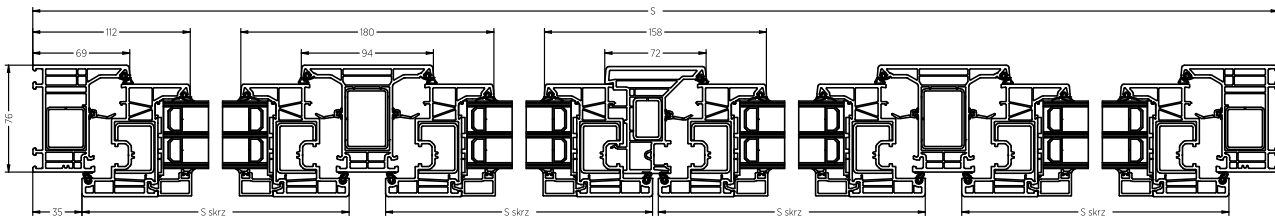


As seen from the inside

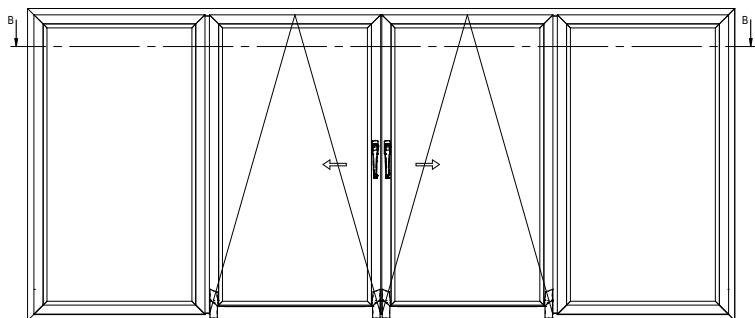


DEVELO patio window - PSK fix in the leaf - Scheme C

Horizontal cross-section



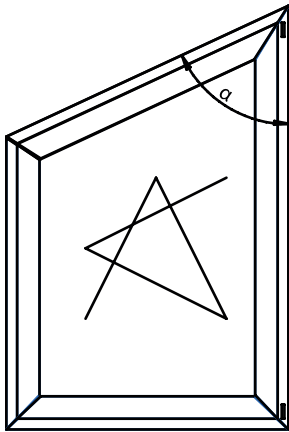
As seen from the inside





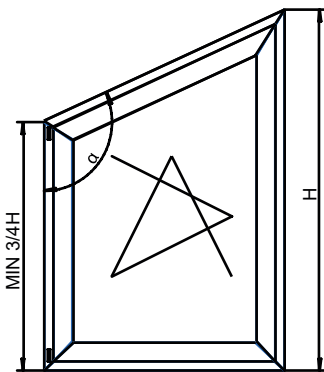
NON-STANDARD SHAPES

For technological reasons, non-standard shaped windows are not manufactured using the V-Perfect technology.



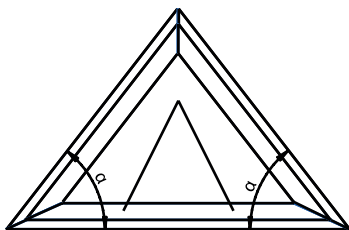
Minimum permissible angle α LEAF R, RU	65°
Minimum permissible angle α , with a groove milled in the frame, LEAF R, RU	55°
Minimum permissible angle α for welding profiles FIXED FRAME	30°
Minimum permissible angle α for welding profiles FIXED LEAF	40°

Minimum length of the welded sections of the frame/leaf for non-standard shape windows: 250 [mm]



The minimum height of the shorter side is $\frac{3}{4} H$ of the total window height	
Minimum permissible angle α LEAF R, RU	140°

Minimum length of the welded sections of the frame/leaf for non-standard shape windows: 250 [mm]



Minimum permissible angle α LEAF U	65°
Minimum permissible angle α , with a groove milled in the frame, LEAF U	55°
Minimum permissible angle α for welding profiles FIXED FRAME	30°
Minimum permissible angle α for welding profiles FIXED LEAF	40°

Minimum length of the welded sections of the frame/leaf for non-standard shape windows: 250 [mm]



SYSTEM LIMITATIONS

Structural limitations for the DEVELO windows

Maximum leaf dimensions

	System	Leaf geometry	Windows/balconies, single- and multi-leaf R, RU with a fixed mullion		Windows/balconies, double-leaf, with a moving mullion		Tilt-only (hopper/awning) windows	
			White	Colour	White	Colour	White	Colour
Maximum surface area of the leaf	DEVELO Modern DEVELO Standard	STANDARD leaf ZP 1-5150	2.1 [m ²]		2.1 [m ²]		2.3 [m ²]	2.0 [m ²]
	DEVELO Modern DEVELO Standard	WIDE leaf ZP 2-5151	2.4 [m ²]		2.4 [m ²]		made on request	
Maximum width of the leaf	DEVELO Modern DEVELO Standard	STANDARD leaf ZP 1-5150	1,430 [mm]		1,430 [mm]		1,700 [mm]	1,600 [mm]
	DEVELO Modern DEVELO Standard	WIDE leaf ZP 2-5151	1,500 [mm]		1,500 [mm]		made on request	
Maximum height of the leaf	DEVELO Modern DEVELO Standard	STANDARD leaf ZP 1-5150	2,400 [mm]		2,400 [mm]		1,400 [mm]	1,300 [mm]
	DEVELO Modern DEVELO Standard	WIDE leaf ZP 2-5151	2,400 [mm]		2,400 [mm]		made on request	
Maximum total weight of the leaf	DEVELO Modern DEVELO Standard	STANDARD leaf ZP 1-5150	leaf width up to 1,250 [mm]: 100 [kg] leaf width over 1,250 [mm]: 80 [kg]		leaf width up to 1,250 [mm]: 100 [kg] leaf width over 1,250 [mm]: 80 [kg]		80 [kg]	
		WIDE leaf ZP 2-5151	100 [kg]		100 [kg]		made on request	
Leaf width to height ratio			< 1.6				-	

* It is possible to increase the size range by using glass bonding technology

Minimum leaf dimensions

		Leaf R and RU		Leaf U	
		Width	Height	Width	Height
Minimum dimension	STANDARD leaf ZP 1/C-5150	330 [mm]	480 [mm]	340 [mm]	330 [mm]
		480 [mm]	400 [mm]		
	WIDE leaf ZP 2-5151	410 [mm]	480 [mm]	410 [mm]	410 [mm]
		480 [mm]	410 [mm]		



Maximum frame dimensions

	One-lite windows	Multi-lite windows
Maximum surface area of the window structure in a single frame	8 [m ²]	
Maximum width of the structure	3,500 [mm]	4,000 [mm]
Maximum height of the structure	3,500 [mm]	4,000 [mm]
Maximum weight of the glass	300 [kg]	

Minimum frame dimensions

	System	Frame geometry	Width	Height
Minimum dimension	DEVELO Modern	STANDARD LP 1-5103 frame	330 [mm]	330 [mm]
		HIGH LP 2-5111 frame		
	DEVELO Standard	STANDARD LP 1-5103 frame	390 [mm]	390 [mm]
		HIGH LP 2-5111 frame	420 [mm]	420 [mm]

Structural limitations for the patio door

Maximum PSK dimensions

	System	Leaf geometry	Steel geometry	PSK scheme A with the fix in the frame		PSK scheme A with the fix in the leaf		PSK scheme C Variant with the fix in the frame		PSK scheme C Variant with the fix in the leaf		PSK scheme C with the fix in the frame		PSK scheme C with the fix in the frame	
				White	Colour	White	Colour	White	Colour	White	Colour	White	Colour	White	Colour
Maximum surface area of the window	DEVELO Modern DEVELO Standard	-	-	8 [m ²]		8 [m ²]		8 [m ²]		8 [m ²]		8 [m ²]		8 [m ²]	
Maximum window width	DEVELO Modern DEVELO Standard	-	-	3230 [mm]		3230 [mm]		4000 [mm]		4000 [mm]		4000 [mm]		4000 [mm]	
Maximum window height	DEVELO Modern DEVELO Standard	-	-	2450 [mm]		2450 [mm]		2450 [mm]		2450 [mm]		2450 [mm]		2450 [mm]	
Maximum width of the leaf	DEVELO Modern DEVELO Standard	STANDARD leaf ZP 1-5150	NAC 184-17042	1200 [mm]		1200 [mm]		1200 [mm]		1200 [mm]		1200 [mm]		1200 [mm]	
			NAZ 184-17128	1365 [mm]		1365 [mm]		1365 [mm]		1365 [mm]		1300 [mm]	1200 [mm]	1300 [mm]	1200 [mm]
		WIDE leaf ZP 2-5151	NAC 284-17046	1600 [mm]	1555 [mm]	1600 [mm]	1555 [mm]	1600 [mm]	1555 [mm]	1600 [mm]	1555 [mm]	1600 [mm]	1400 [mm]	1600 [mm]	1400 [mm]
Maximum height of the leaf	DEVELO Modern DEVELO Standard	STANDARD leaf ZP 1-5150	NAC 184-17042	2200 [mm]	2100 [mm]	2200 [mm]	2100 [mm]	2200 [mm]	2100 [mm]	2200 [mm]	2100 [mm]	2200 [mm]	2100 [mm]	2200 [mm]	2100 [mm]
			NAZ 184-17128	2380 [mm]		2380 [mm]		2380 [mm]		2380 [mm]		2380 [mm]		2380 [mm]	
		WIDE leaf ZP 2-5151	NAC 284-17046	2380 [mm]		2380 [mm]		2380 [mm]		2380 [mm]		2380 [mm]		2380 [mm]	
Maximum surface area of the leaf	DEVELO Modern DEVELO Standard	STANDARD leaf ZP 1-5150	NAC 184-17042	2,2 [m ²]	2,0 [m ²]	2,2 [m ²]	2,0 [m ²]	2,2 [m ²]	2,0 [m ²]	2,2 [m ²]	2,0 [m ²]	2,2 [m ²]	2,0 [m ²]	2,2 [m ²]	2,0 [m ²]
			NAZ 184-17128	2,5 [m ²]		2,5 [m ²]		2,5 [m ²]		2,5 [m ²]		2,4 [m ²]		2,4 [m ²]	
		WIDE leaf ZP 2-5151	NAC 284-17046	3,7 [m ²]		3,7 [m ²]		3,7 [m ²]		3,7 [m ²]		3,3 [m ²]		3,3 [m ²]	
Leaf height to width ratio	DEVELO Modern DEVELO Standard	-	-	< 2,7		< 2,7		< 2,7		< 2,7		< 2,7		< 2,7	

* The above dimensional constraints for symmetrical division. Unbalanced split on request



Minimum PSK dimensions

	MANUAL PSK-S	PAS	AUTOMATED PSK-Z
Minimum width of the leaf	662 [mm]	792 [mm]	762 [mm]
Minimum height of the leaf	1,042 [mm]	883 [mm]	942 [mm]

HARDWARE TYPES AND RANGES OF APPLICATION

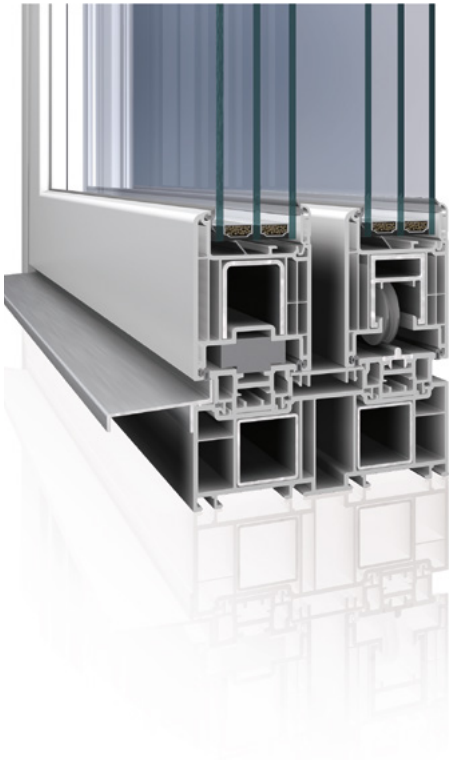
Hardware type	Leaf weight	Leaf surface
Maco Multi-Matic STANDARD frame and leaf hinge	≤ 100 kg	2.4 [m ²]
Maco Multi-Matic with a low threshold frame and leaf hinge with roller cams	≤ 110 kg	3.0 [m ²]
Maco Multi-Matic frame and leaf hinge with roller cams	≤ 120 kg	3.0 [m ²]
Maco Multi-Power	≤ 150 kg	3.0 [m ²]
Maco Multi-Power with a low threshold	≤ 110 kg	3.0 [m ²]

Minimum and maximum window dimensions by burglary protection class, and maximum weight

Window type	Min. width of the leaf	Max. width of the leaf	Min. height of the leaf	Max. height of the leaf	Weight
RU SECURITY 1	520	1,690	470	2,640	100 kg
U SECURITY 1	510	2,290	390	1,140	80 kg
Moving mullion SECURITY 1	520	1,340	701	2,640	100 kg

SECURITY WINDOW PROTECTION STANDARD, PSK

Type of window/patio door	WINDOWS	WINDOWS	PSK
Protection type	SECURITY 1	SECURITY 2	
ACCESSORIES			
Type and number of strikers	- Minimum 4 anti-burglary strikers - Number of strikers depends on the leaf dimensions	- All anti-burglary strikers - Number of strikers depends on the leaf dimensions	- All anti-burglary strikers - Number of strikers depends on the leaf dimensions
Anti-drill guard plate	Yes	Yes	Yes
Handle	Any	Any	Any
Installation	Anchors or dowels	Anchors or dowels	Anchors or dowels
Glass units	Any	Any	Any
Glass mounting	Not required	Not required	Not required



HTS DEVELO

DOOR CHARACTERISTICS LIFT AND SLIDE DOORS

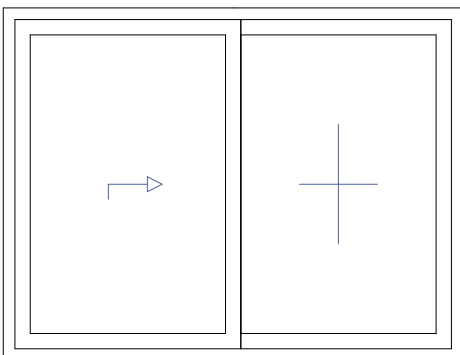
- Version Modern – simple glazing strips, standard rounded glazing strips,
- Invisible seam (seam) of joining profiles, multi-chamber construction guaranteeing high thermal and acoustic insulation,
- Standard double-chamber 4/18/4/18/4 with a thickness of 48 [mm]
- $U_g=0,5 \text{ W/m}^2\text{K}$ according to EN 673,
- Possibility of glass units usage with a thickness from 24 [mm] to 50 [mm], modern version and 52 [mm] standard version
- Reinforcement made of galvanized steel,
- As standard the threshold with a drop of 3 degrees, as an option the threshold with a drip under the roller shutter tracks
- Leaf gasket available in colours: black or grey
- Frame, leafs and all masks core available in white or grey colour only
- Scheme A available
- Thermal insulation for a 3500x2300 window is $U_w=0,77 \text{ W/m}^2\text{K}$ with a 3-panel package $U_g= 0,5 \text{ W/m}^2\text{K}$

STANDARD WINDOW ACCESSORIES

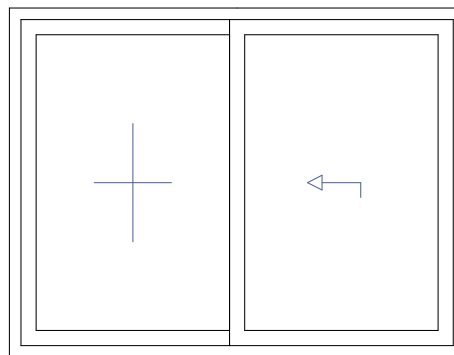
- Drive gear, 3-bolts as standard, 4-bolts option Security 2
- Microventilation in standard
- Aluminium handle from outside, short handle let from outside
- System extending 25 [mm] in white colour, with steel reinforcement
- Handles for moving windows
- Mounting anchors for mounting from outside and inside the room.

Develo HST patio window - scheme A

Scheme A Left - view

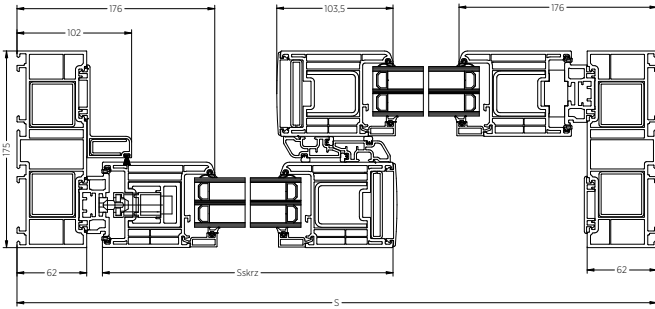


Scheme A Right - view

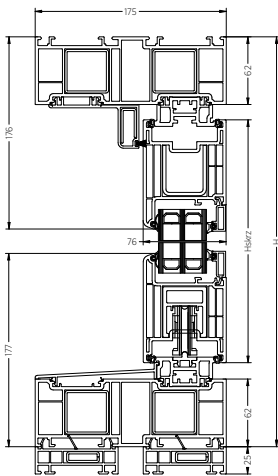




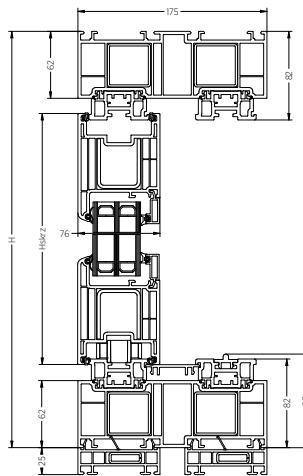
Horizontal section



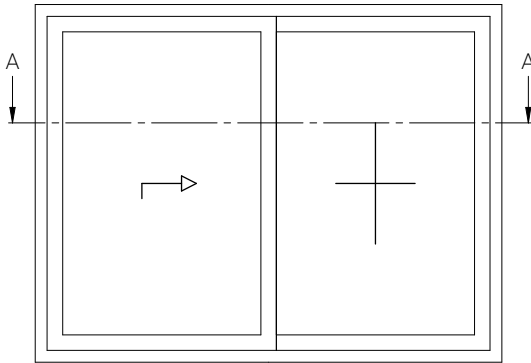
Vertical cross-section active leaf



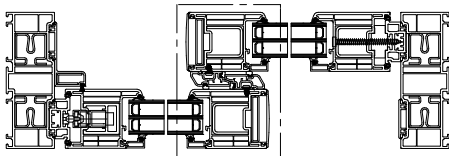
Vertical cross-section in the inactive leaf



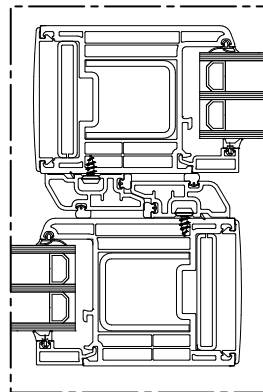
Labyrinth connection



PRZEKRÓJ A-A

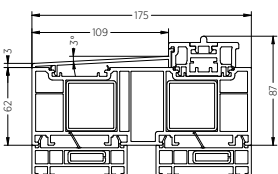


B

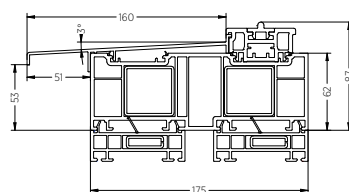


SZCZEGÓŁ B

Standard threshold

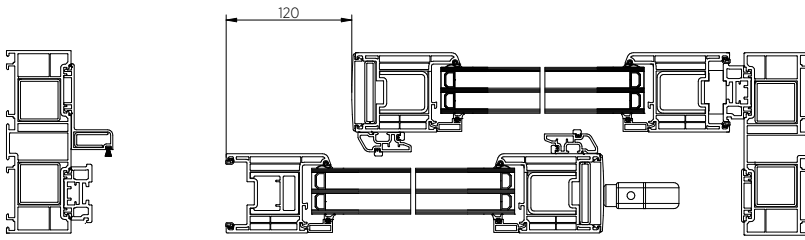


Roller shutter threshold



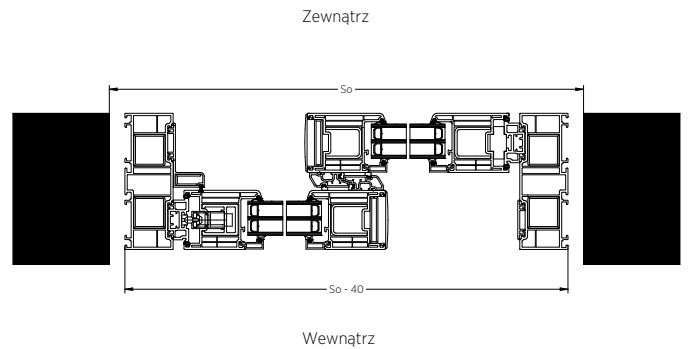
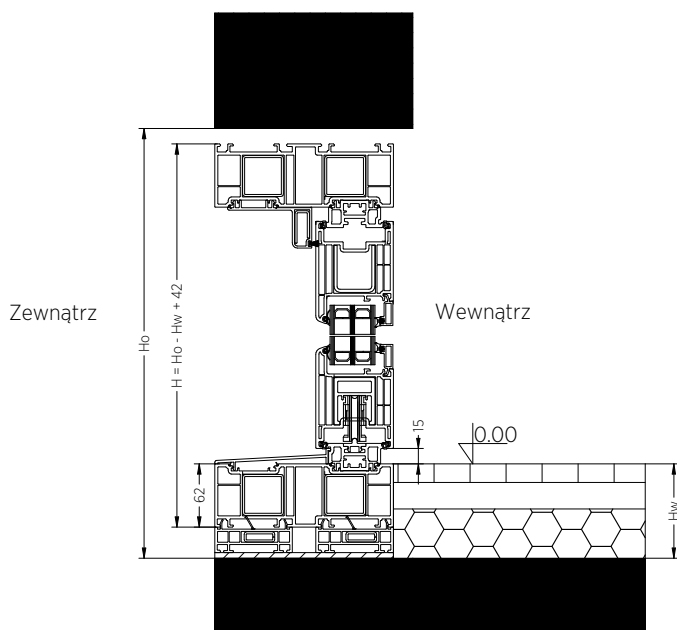


Transition light



Vertical dimensioning

Level dimensioning



Dimensional restrictions HST Develo

	Maximum dimensions			
	Scheme A			
	White		Color	
	Symetric	Asymmetrical	Symetric	Asymmetrical
Maximum window width	6500 [mm]		5000 [mm]	
Maximum window height	2511 [mm]		2500 [mm]	
Maximum window area	14 [m ²]		12,5 [m ²]	
Maximum running leaf area	6,5 [m ²]		5,8 [m ²]	
Maximum surface area of fixed leaf	6,5 [m ²]	6,5 [m ²]	5,8 [m ²]	5,8 [m ²]
Maximum wing width	3250 [mm]		2500 [mm]	
Maximum leaf weight	250 kg			
Ratio of leaf height to width	> 2,5 : 1			



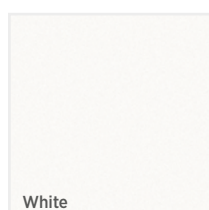
Minimum dimensions		
Minimum leaf height	1759 [mm]	1759 [mm]
Minimum leaf width < 200 [kg]	900 [mm]	900 [mm]
Minimum leaf width ≥ 200 [kg]	1650 [mm]	1650 [mm]

COLOURS

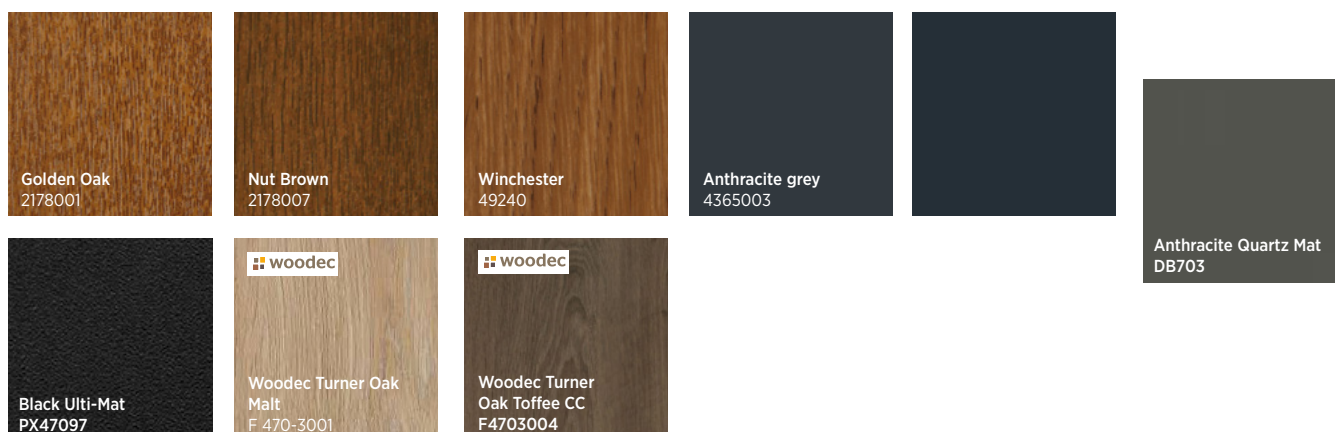
Available colours for PVC windows:

white with a grey gasket, single-side film coating, double-sided film coating.

Standard colours



Available film coatings



Accessory selection

No.	Film number	Name	Standard core	Gasket colour	Handle and cover colour	Balcony pull colour
1	2178001	GOLDEN OAK	grey	black	F4	Gold
2	2178007	WALNUT	grey	black	F4	RAL 8019
3	49240	WINCHESTER XA	grey	black	F4	Gold
4	4365003	ANTHRACITE GREY	grey	black	F1	RAL 7016
5	4367003	DARK GREY SILK	grey	black	F1	RAL 7016
6	F470-1014	Anthracite Quartz Mat - DB703	grey	black	F1	RAL 7016
7	PX47097	Black Ulti-Mat	grey	black	F1	RAL 9005
8	F 470-3001	Woodec Turner Oak Malt	grey	black	F4	Gold
9	F 470-3004	Woodec Turner Oak Toffee	grey	black	F4	RAL 8019



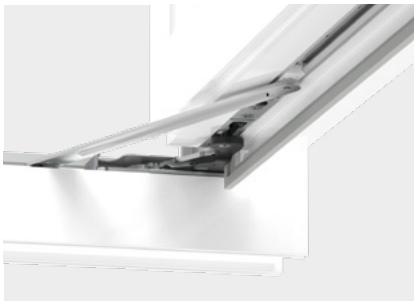
OPTIONAL ACCESSORIES

TILT-FIRST – tilting before turning



This solution is aimed at locking the leaf in the tilted position after rotating the handle by 90 degrees to the horizontal position, which prevents the leaf from moving from the tilted to the open position. Only after the handle is unlocked with a key, can the window be opened. This solution provides safety for children and at the same time makes it possible to ventilate the room with the window tilted.

Opening restriction



Prevents excessive opening of the leaf and thereby prevents the leaf from hitting the reveal. Opening restriction can be used both with surface and concealed MultiPower hinges. Cannot be used with a window version with the SECURITY enhanced burglary resistance.

Turn restrictor controlled with a handle



Prevents self-acting opening and closing movement of the leaf. The turn restrictor can be used both in the R and RU version, as well as with concealed and surface hinges.

This turn restrictor version cannot be used:

- with a low threshold,
- with SECURITY classes,
- with the UR option (tilt before turn).

Brake stay



Fixes the opening angle of the leaf in the desired position. The brake stay can only be used in the R window version, but it cannot be used with a low threshold and with the SECURITY enhanced burglary resistance window version.



SAFETY PIN



Safety Pin secures each turn-only (side-hung) and turn and tilt window against leaf unhinging from the frame caused by mishandling. Located on the hinge side, the security device is integrated with the central turn and tilt locking system. The spring-loaded steel wire prevents the window leaf from falling out of the frame and effectively prevents potential accidents.

The device is recommended for windows in residential buildings, as well as in children's rooms and nursing homes; these devices should be considered standard accessories in public buildings.

Comfort scissor stay



Problem-free operation of the window, primarily when windows are difficult to access, thanks to the handle in the bottom part of the window leaf.

The comfort scissor stay can only be used in the RU window version, it cannot be used with concealed hinges.

Benefits for the customer:

- The window tilts and closes automatically with the use of a handle.
- Meets the requirements of elderly and disabled persons.
- Enables operation of windows which are difficult to access.
- Optional electric assistance.

Contact



Flush-mounted, wired

Windows can optionally be fitted with an electronic closure monitoring system. Window contacts are connected to the monitoring system which triggers an alarm when the handle is rotated or the hardware is moved in any other way. The sensors operate regardless of whether the leaf was opened to the tilted or turned position. Available in a wired version, flush-mounted.



Balcony door catch with a pull



Balcony door catch with an aluminium pull increases the functionality of balcony doors, making it possible to close them from the outside.

Balcony door catch with a pull

Hardware with the SECURITY 1, SECURITY 2 burglary protection class



The SECURITY windows are available with the following structures:

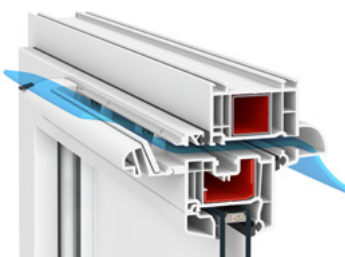
- turn and tilt (RU);
- tilt-only (hopper/awning) (U);
- with a low threshold;
- with a moving mullion;
- tilt and slide (PSK) – PSK Standard and PAS – up to class SECURITY 2 scheme A;

Optional accessories, which can be ordered with the SECURITY 1 and SECURITY 2 burglary resistance windows:

- balcony catch,
- surface hinges (MultiMatic),
- wired contact switch,
- SafetyPin;

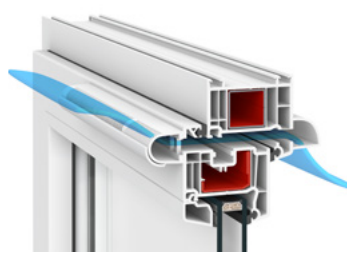
Other accessories are not available with the SECURITY burglary resistance windows.

Air inlets



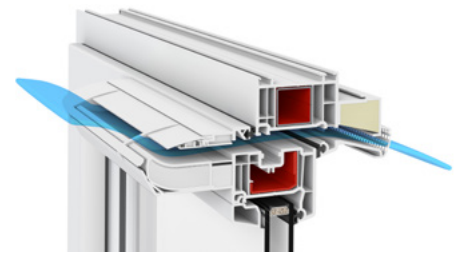
Aereco EMM humidity sensitive air inlet

Available colours: RAL 9003, RAL 8017, RAL 8001, RAL 7045, RAL 7016



Aereco AMO pressure sensitive air inlet

Available colours: RAL 9003, RAL 8017, RAL 8001, RAL 7016



Aereco EXR 409 humidity sensitive air inlet

Available colours: RAL 9003, RAL 8017, RAL 8001, RAL 7045, RAL 7016



Parameter	Unit	AMO.103 kit AMO pressure sensitive air inlet Standard AB canopy		EMM.707 kit EMM humidity sensitive air inlet Standard AB canopy		EXR.409 kit EXR humidity sensitive air inlet AQ acoustic canopy	
		Value					
Air flow	[m ³ /h]	Rated	25.3	Rated	26.1	Rated	27
		Minimum	5.9	Minimum	6.9	Minimum	7
Resistance to rainwater infiltration after installation in a window in a zone without rain cover	[Pa]	300		300		300	
Acoustic attenuation D _n (C; C _v)	[dB]	Air inlet open	32 (-1; 1)	Air inlet open	32 (-1; 0)	Air inlet open	40 (0; 0)
		Air inlet closed	33 (0; 0)	Air inlet closed	34 (0; 0)	Air inlet closed	41 (-1; -1)

Glazing bars

If inner glazing bars are used, silicone discs are not provided at the glazing bar intersection. The “glazing bar ringing” effect can occur, which is caused by normal vibrations of the aluminium glazing bar rod during opening and closing, or even by wind gusts outside.

Glazing bar types and colours

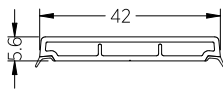
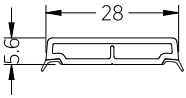
Glazing bar type		Colours	Restrictions
INNER (colour on both sides)	Inner glazing bar 8 [mm]	White 9010	The maximum length of an inner glazing bar without support = 700 [mm]
		Golden	
	Inner glazing bar 18 [mm] and 26 [mm]	White 9010	
		Golden	
		Nut Brown	
		Dark Oak	
		Golden Oak	
		Mahogany	
	Inner glazing bar 45 [mm]	Other colours available in the profile range	
		White 9010 Golden Oak	
INNER (colour on one side)	Inner glazing bar 18 [mm] and 26 [mm]	White / Walnut	
		White / Dark Oak	
		White / Golden Oak	
		White / Mahogany	
		White / 8014	
		White / 8017	
		White / 8022	
		Other colours available in the profile range	



Glued glazing bars

Glazing bars 5085

Glazing bars 5086



For 28 [mm] muntin bars use a 24 [mm] high duplex

For a 42 [mm] muntin a 40 [mm] high duplex should be used (two 20 [mm] duplexes joined)

Duplexes available for frame thicknesses:

14mm (duplex thickness 9.5 [mm])
 16mm (duplex thickness 11.5 [mm])
 18mm (duplex thickness 13.5 [mm])

Duplex colours:

Silver
 Light grey 7035
 Grey 7040
 Black 9005
 Light brown 8003
 Brown 8016
 White 9016

Due to colour matching, duplex not available with Premium warm frame (Multitech G).

Glass panes

When using glass 4 [mm] thick – the maximum side length can be 2,500 [mm] (maximum side ratio 1:6), maximum surface area up to 3.35 [m²].

The above standard dimensional limitations apply only to clear glazing units installed vertically in locations where increased wind loads do not occur.

The limitations do not take into account the effect of coatings reflecting heat on the increase of the temperature inside the glass units and the effect of the changes in atmospheric pressure resulting from fitting in mountainous areas.

The permissible glass sizes do not take into account the customer's detailed requirements regarding safety, wind load, etc.

When using varying thickness of glass in the glazing unit, the maximum surface is determined for the thinner glass.

In accordance with the regulations of the Building Law, safety glass should be used in the bottom section of the window up to the height of 850 [mm] (in buildings up to 25 [m] high) and 1,100 [mm] (in buildings over 25 [m]).

Warm edge

Available in the following colours for the PVC range:

Light Grey 7035, Grey 7040, Black 9005, Light Brown 8003, Brown 8016, White 9016



Window handles

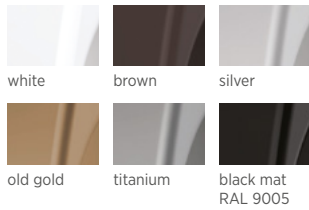
PVC windows are fitted with BASIC handles as standard.

BASIC



BASIC

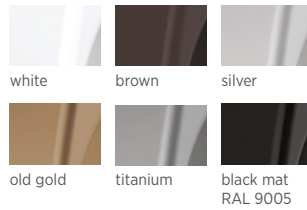
available colours:



BASIC K

with a key lock

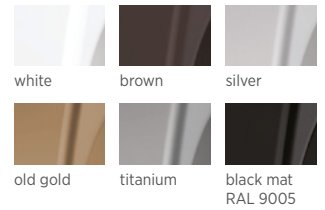
available colours:



BASIC P

with a locking button

available colours:



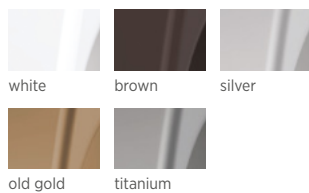
Optionally, PVC windows can be fitted with the following handles:

ROUND



ROUND

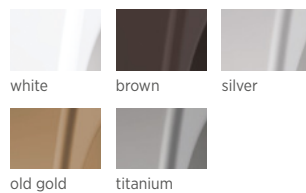
available colours:



ROUND K

with a key lock

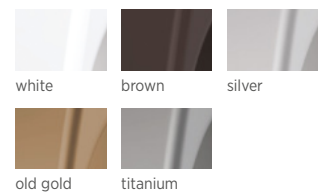
available colours:



ROUND P

with a locking button

available colours:

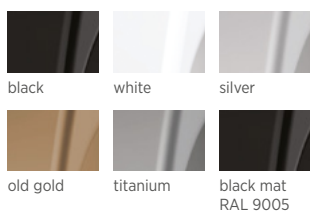


CUBE



CUBE

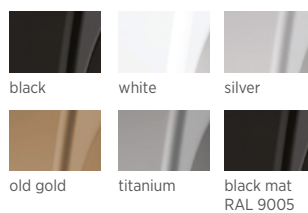
available colours:



CUBE K

with a key lock

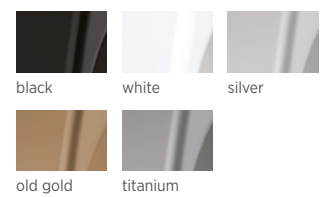
available colours:



CUBE P

with a locking button

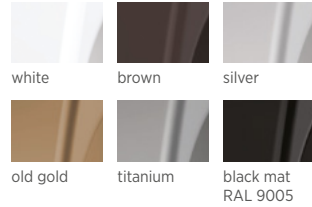
available colours:





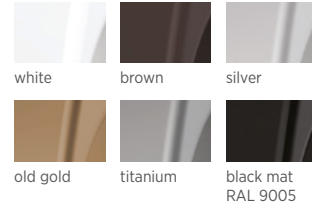
BASIC double-sided balcony

available colours:



BASIC double-sided flat for roller shutter

available colours:

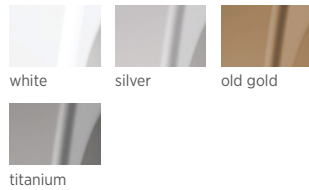


HOPPE



Secustic Hamburg handle

available colours:



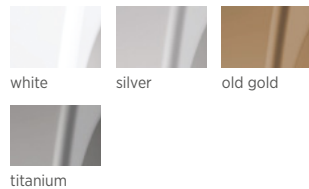
Atlanta

available colours:



Atlanta with a key lock

available colours:



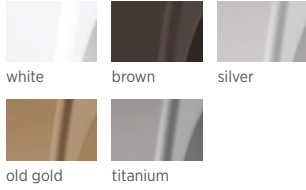


Handles for the PSK patio door



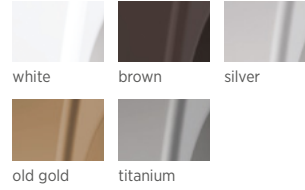
PSK-Z

available colours:



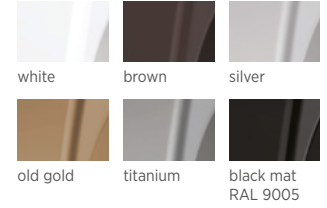
PSK-Z
with a key lock

available colours:



PSK-S
and **PSK-PAS**

available colours:

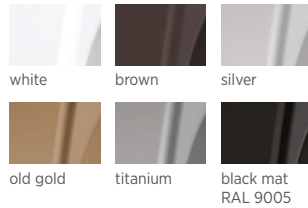


Old gold* - colour with a darker hue than other handle models



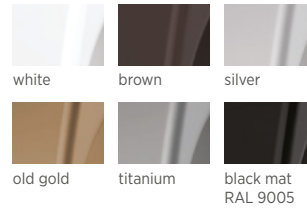
PSK-S
and **PSK-PAS** handle
with a key lock

available colours:



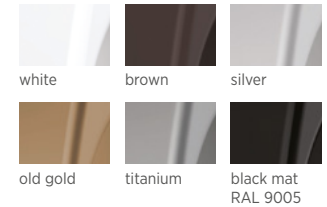
PSK-S and **PSK Pas**
double-sided handle

available colours:



PSK-S and **PSK Pas**
double-sided handle for
roller shutter

available colours:



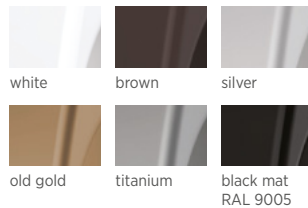
Handles for HST patio doors

Standard handle



HST handle

available colours:



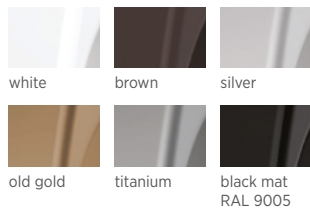


As an option handle with a lock cylinder or double-sided handle with a lock cylinder



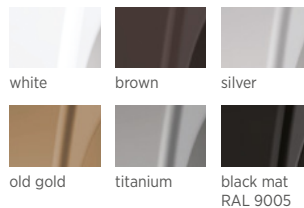
HST handle with insert from inside

available colours:



Double-sided HST handle with insert

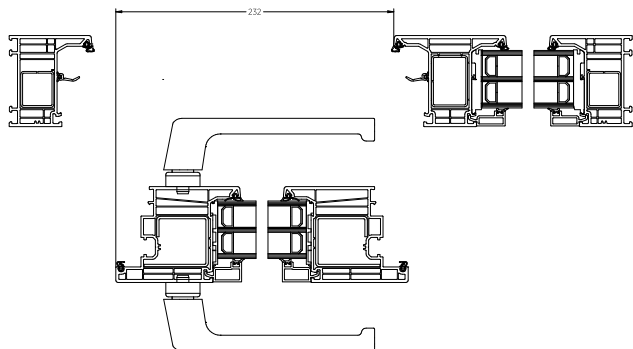
dostępne kolory:



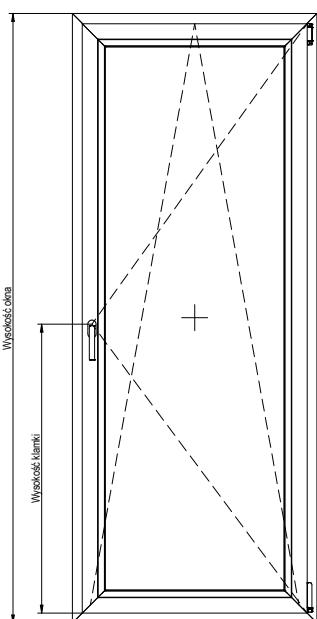
Clear passage

Clear opening with a double-sided handle – PSK

In the case of a double-sided handle in the PSK with fixed glazing in the frame, we use a double-sided handle for the roller shutter and the leaf is moved fully behind the fixed glazing. However, in the case of the PSK with fixed glazing in the leaf, we use a “standard” handle and at the same time, the leaf bumper is positioned so that it decreases the clear opening passage by 232 mm.



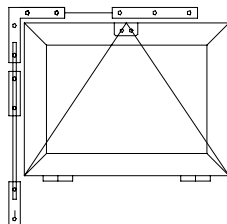
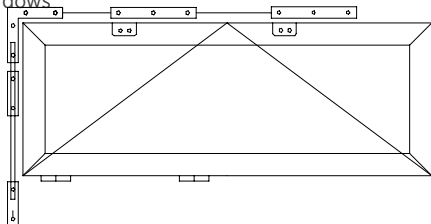
Handle heights



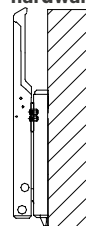
Handle height [mm]	Range of application/ height in the hardware groove		Range of application/ leaf height in the window	
	MIN. [mm]	MAX. [mm]	MIN. [mm]	MAX. [mm]
146	360	430	402	472
211	431	660	473	702
321	661	840	703	882
421	841	1,090	883	1,132
521	1,091	1,340	1,133	1,382
621	1,341	1,590	1,383	1,632
721	1,591	1,700	1,633	1,742
1,071	1,701	1,950	1,743	1,992
1,071	1,951	2,200	1,993	2,242
1,071	2,201	2,450	2,243	2,492

GEZE OL90 toplight opener

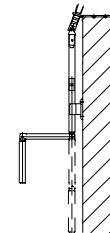
Tilt-only (hopper/awning) windows



Methods of window opening with the GEZE OL90 hardware



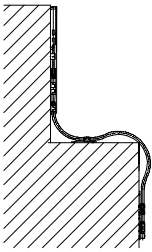
Lever



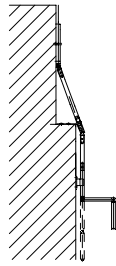
Crank



Method of drive transmission with the GEZE OL90



Flexible transmission



Articulated joint transmission

With the use of:

- manual lever,
- Fz91 gear unit installed under the elastic cable.

With the use of:

- crank mechanism.

Product features

- Full opening width = 170 mm for all leaf heights,
- Adjustable opening width,
- Total leaf weight up to 80 kg,
- Min. height of the leaf 250 mm,
- Max. width of the leaf 380 mm,
- Max. width of the leaf 3,600 mm with three scissor stays,
- Little space requirement due to flat scissor stay structure,
- Release inhibitor, lockable manual lever, and scissor stays ensure added security,
- Scissor stays can be disengaged with a release button for easy window cleaning inside and outside,
- Fully pre-installed mounting groups for easier fitting,

Areas of application

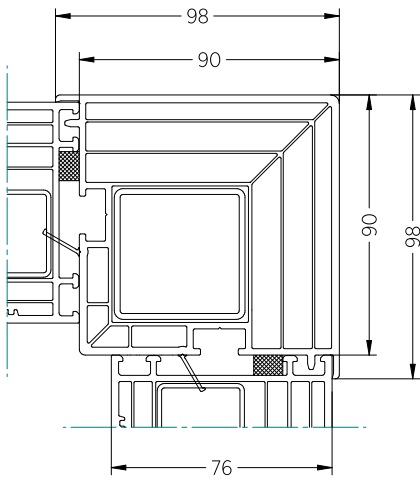
- Convenient everyday ventilation of rooms and staircases,
- Inswing windows,
- Can be used in non-standard structures, i.e. arched, triangular, round and segment windows,
- Connecting and operating several windows with an angular drive transmission.

Tape selection

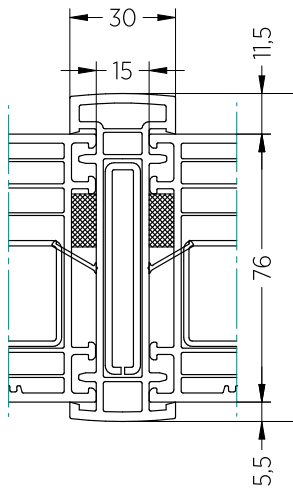
System	Profile type	Selected expansion tape
DEVELO	KPP 10 5307	*Pinta 10/4-20
	KPP 25 12157	*Pinta 10/4-20
	KPP 50 5300	*Pinta 10/4-20
	KPP 100 5301	*Pinta 10/4-20
	KP 176 14565	*Pinta 15/4-20
	EVP2 11035	*Pinta 10/4-20
	EVLE 184 17081	*Pinta 10/4-20
	KPZ 25 3300	*Pinta 10/4-20
	KPZ 40 3301	*Pinta 10/4-20
	KPZ 70 3302	*Pinta 10/4-20
	KPP 3 3310	*Pinta 15/4-20



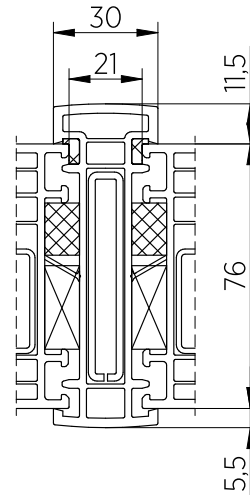
Coupling profiles



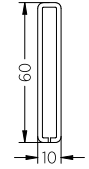
90 degree angle connector
EVLE 184 - 17081



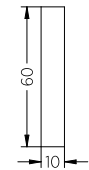
Fixed connector
KP 176 14565



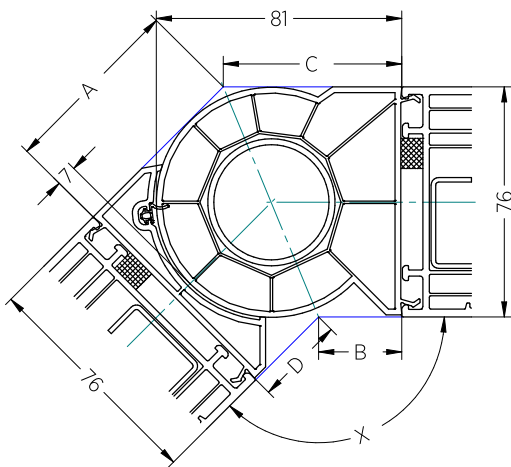
Fixed connector
KP 176 14565 with an expansion joint



- symbol: NA 30
- cross-section 60x10x2 mm
- $I_x = 8.6 \text{ cm}^4$



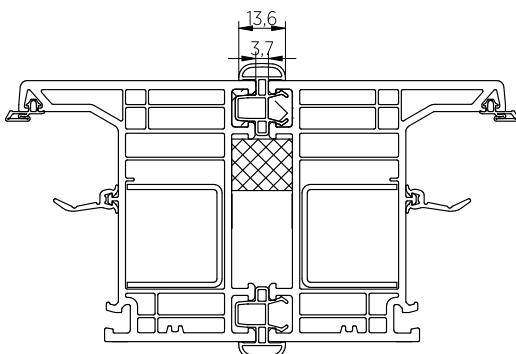
- symbol: 60x10 steel flat bar
- cross-section 60x10 mm
- $I_x = 18 \text{ cm}^4$



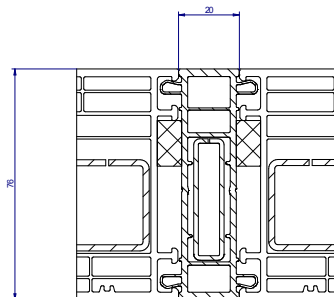
90 degree angle coupling profile EVLE 184 - 17081

Angle Decreased length on each side

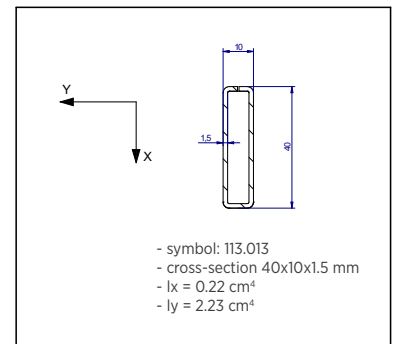
X	A	B	C	D
90°	83.3 mm	5.4 mm	81.3 mm	7.4 mm
95°	80.0 mm	8.6 mm	78.0 mm	10.6 mm
100°	77.2 mm	11.5 mm	75.2 mm	13.5 mm
105°	74.4 mm	14.0 mm	72.4 mm	16.0 mm
110°	71.8 mm	16.7 mm	69.8 mm	18.7 mm
115°	69.4 mm	19.0 mm	67.4 mm	21.0 mm
120°	67.1 mm	21.3 mm	65.1 mm	23.2 mm
125°	64.9 mm	23.5 mm	62.9 mm	25.5 mm
130°	62.9 mm	25.3 mm	60.9 mm	27.4 mm
135°	60.9 mm	27.5 mm	58.9 mm	29.5 mm
140°	58.9 mm	29.2 mm	56.9 mm	31.3 mm
145°	57.1 mm	31.2 mm	55.1 mm	33.2 mm
150°	55.3 mm	32.9 mm	53.3 mm	34.9 mm
155°	53.5 mm	34.8 mm	51.5 mm	36.8 mm
160°	51.8 mm	36.5 mm	49.8 mm	38.5 mm
165°	50.1 mm	38.1 mm	48.1 mm	40.1 mm
170°	48.4 mm	39.7 mm	46.4 mm	41.7 mm
175°	46.7 mm	41.4 mm	44.7 mm	43.4 mm
180°	45.0 mm	43.0 mm	43.0 mm	45.0 mm



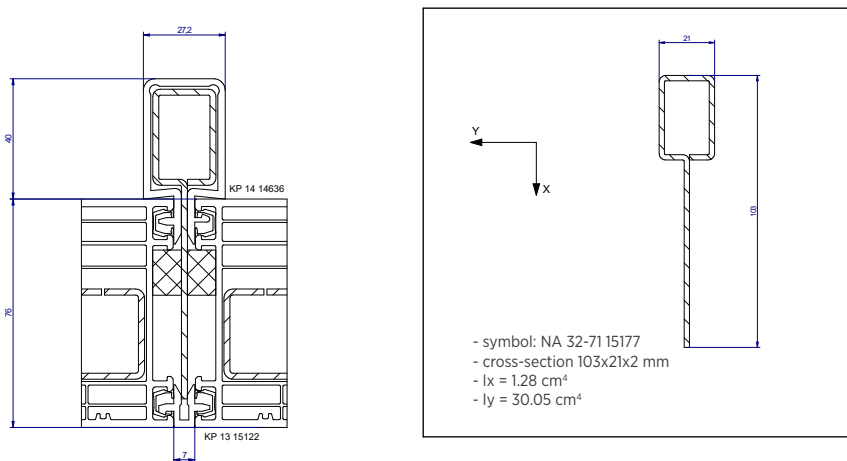
Balcony coupling mini 3310



Coupling profile 116.230
available only with colour on both sides



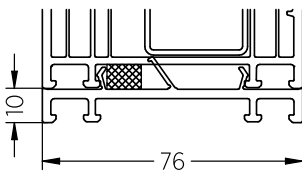
- symbol: 113.013
- cross-section 40x10x1.5 mm
- $I_x = 0.22 \text{ cm}^4$
- $I_y = 2.23 \text{ cm}^4$



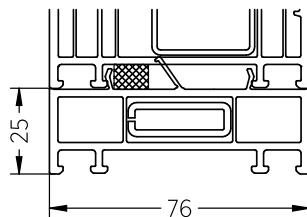
Connector KP14 14636 and KP13 15122

Widenings

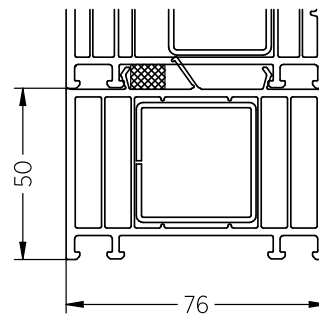
For the DEVELO windows



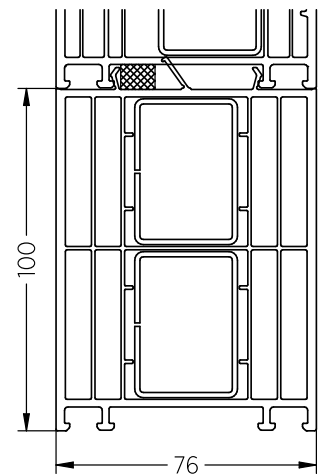
Widening KPP 10 5307



Widening KPP 25 12157

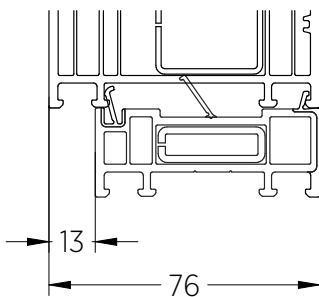


Widening KPP 50 5300

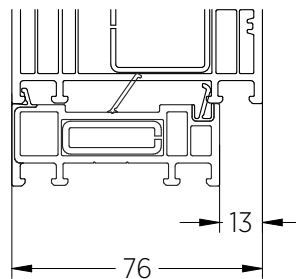


Widening KPP 100 5301

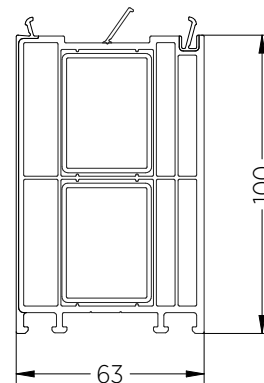
Narrow widening



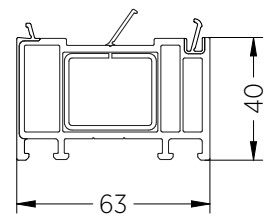
Facing from inside



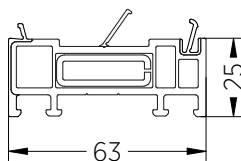
Facing from outside



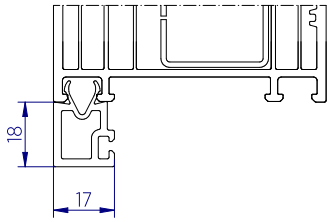
5963 - 100 [mm]



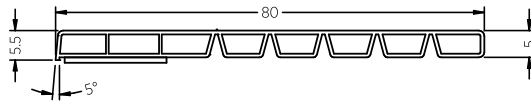
5962 - 40 [mm]



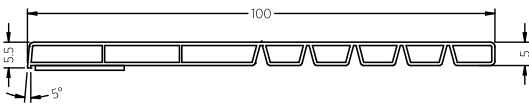
5961 - 25 [mm]



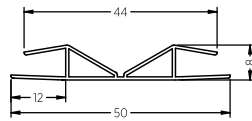
Window profile



Slat chamber 80 [mm]



Slat chamber 100 [mm]



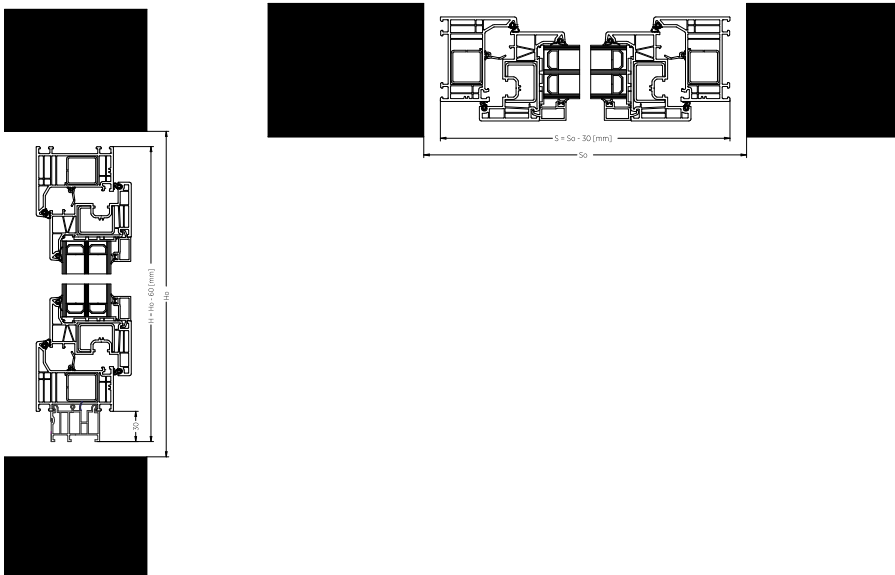
Connecting profile 50 [mm]

Accessories and delivery

The windows are assembled and ready for fitting (optionally with opening frame holes for direct mounting and steel anchors for indirect mounting). The windows are delivered in one piece. Large windows consisting of two or more elements are disassembled into parts for shipping.

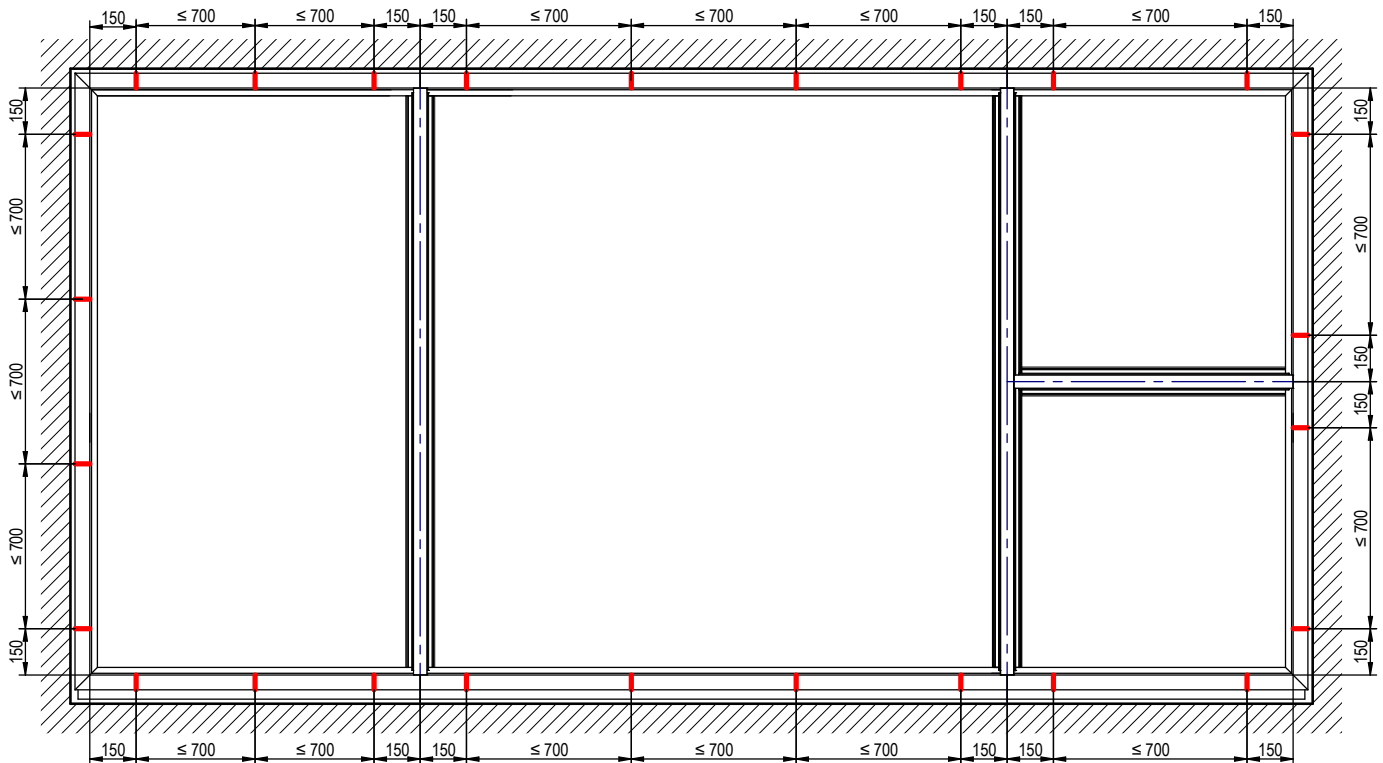
Ordering and installation dimensions for windows and PSK

Drilling for wall plugs is an option and is performed in accordance with the customer's requirements. Wall plug hole diameter – $\varnothing 6$ [mm]. In the order, please provide the H dimension, without the 30 [mm] undersill strip.





Spacing of anchors / dowels – STANDARD windows, windows with the Security 1 / Security 2 burglary protection class



Marking for wall plugs is an option and is performed in accordance with the customer's requirements. Wall plug hole diameter – $\varnothing 6$ [mm].

Pricing guidelines

- All the versions are presented as seen from the inside,
- Standard hardware for windows: Maco MultiMatic,
- Each structure includes a transport and installation bar,
- In window leaves, the RU function is always used for calculation. When pricing structures which are not listed in the price list, please contact the Sales Department.
- We reserve the right to estimate the final value and determine the feasibility of production of the joinery.





Window type		DEVELO	DEVELO with a low threshold
Number of chambers in the frame		6	6
Installation depth		76 mm	76 mm
Profile core		white, anthracite	white, anthracite
Gaskets around the circumference		3	3
Structural reinforcement		steel hollow section in the frame	steel hollow section in the frame
Standard glass unit		two-chamber 4/18/4/18/4 $U_g=0.5 \text{ W/m}^2\text{K}$	two-chamber 4/18/4/18/4 $U_g=0.5 \text{ W/m}^2\text{K}$
Standard hardware	Drive gear with a lifting mishandling device and a leaf lifter	●	●
	Moving rollers i.S.	●	●
	Alloy catches, two anti-burglary catches in the RU leaf	●	●
	Microventilation in scissor stay	●	●
	Surface hinges with pressure adjustment	●	●
	Bottom striker plate in the RU leaves	●	●
	Anti draught lock in RU	●	●
Aluminium threshold with a 25 mm widening	—	●	
Handle	aluminium	aluminium	
Also available in class	SECURITY 1, SECURITY 2	SECURITY 1, SECURITY 2	



Window type	DEVELO PSK
Number of chambers in the frame	6
Profile thickness	76 mm
Gaskets around the circumference	3
Structural reinforcement	steel hollow section in the frame
Standard glass unit	two-chamber 4/18/4/18/4 $U_g=0.5 \text{ W/m}^2\text{K}$
Hardware	tilt and slide, parallel-stop-slide
Handle	aluminium
Also available in class	PSK Standard and PAS – SECURITY 2 Scheme A
Widening 25 mm	-

**WIŚNIEWSKI**

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