

FLAT ROOF WINDOW STRUCTURE



Frame



Type F flat roof window



Type C flat roof window

Flat roof windows are designed and constructed using the highest quality materials, innovative solutions and with impeccable aesthetics in mind. Excellent thermal performance, an abundance of natural light, ventilation of the room, easy operation of windows and a wide range of accessories make these products ideal and perfect for the comfort of living in rooms under a flat roof.

Flat roof windows are available in three versions:

- type F window with innovative flat glazing unit,
- type G window with special glass section
- type Z window with angled glass section
- type C window with a dome made of durable polycarbonate

The flat roof window frame is constructed using reinforced multi-chamber PVC profiles. The internal surface of the frame is white (RAL 9010).

The material used in the profile features high resistance against acids and has low moisture absorption. As a result, the window can be installed in every room type.

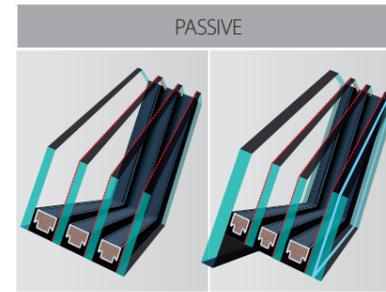
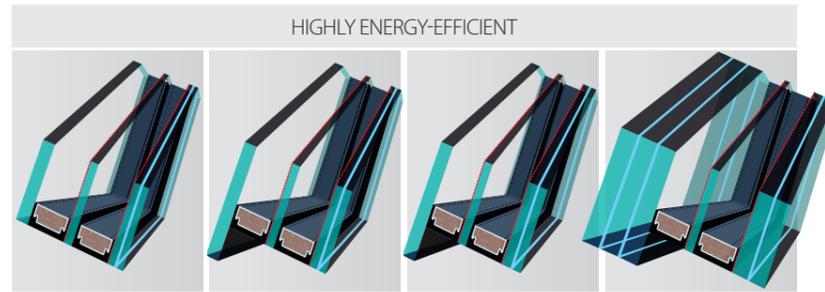
Profiles are filled with insulation material, thus additionally improving the energy saving parameters of the product. The specially profiled covering material under the frame drip cap further improves the ultimate finish between the window and the roof covering.

The type F flat roof window is available with a quadruple, passive DU8 glazing unit characterised by a heat transfer coefficient with a rating of $U_w = 0.64 \text{ W/m}^2\text{K}$ as per EN 14351-1 which makes the window suitable for use in energy-efficient and passive buildings. The frame is made of multi-chamber PVC profiles filled with insulation material. The plastic used in the window does not absorb moisture and the window itself is durable and corrosion free. Intended for installation in rooms where elevated humidity levels stay for long time (kitchens, wet rooms & shower rooms etc.).

The special structure of FAKRO flat roof windows provides excellent thermal insulation. The DEC U8 (VSG) window with a passive, quadruple U8 (VSG) glazing unit is characterised by a heat transfer coefficient with a rating of $U = 0.55 \text{ W/m}^2\text{K}$ (EN 1873). This result is for a 120x120cm window with frame, sash and dome.

FLAT ROOF WINDOW CONSTRUCTION

STANDARD GLAZING UNITS



GLAZING UNIT	U6	DU6*	DU6 Secure*	DW6
U _g (as per EN 673)	0.5 W/m ² K			
GLAZING STRUCTURE	6H-18-4HT-18-33.2T	6H-18-4HT-18-44.2T for the sizes 100x150,120x120,140x140,120x220: 6H-16-4HT-18-55.2T	6H-18-4HT-18-44.4T 6H-16-4HT-18-55.4T	888.44(1xESG, 2xTVG) -16-4HT-18-66.2T
CHAMBERS	DOUBLE CHAMBER	DOUBLE CHAMBER	DOUBLE CHAMBER	DOUBLE CHAMBER
TOUGHENED OUTER PANE	+	+	+	+
LAMINATED INNER PANE	+ class P2A	+ class P2A	+ class P2A	+ class P2A
SPACER	WARM TGI	WARM TGI	WARM TGI	WARM TGI
INERT GAS	ARGON	ARGON	ARGON	ARGON
SUN RAYS TRANSMISSION (τ _v)	0,67	0,54	0,54	npd
SUN ENERGY TRANSMISSION (SOLAR FACTOR G)	0,47	0,43	0,43	0,35
UV RAYS TRANSMISSION (τ _{UV})	0.01	npd	npd	npd
	6H - toughened glass 18 - spacer 4HT - toughened glass with low-emission layer 18 - spacer 33.2T -laminated glass with low-emission layer	6H - toughened glass 18 - spacer 4HT - toughened glass with low-emission layer 18 - spacer 44.2T -laminated glass with low-emission layer	6H - toughened glass 18 - spacer 4HT - toughened glass with low-emission layer 18 - spacer 44.4T -laminated glass with low-emission layer	888.44 - laminated glass 16 - spacer 4HT - toughened glass with low-emission layer 18 - spacer 66.2T -laminated glass with low-emission layer

GLAZING UNIT	U8(VSG)	DU8*
U _g (as per EN 673)	0.3 W/m ² K	0.4 W/m ² K
GLAZING STRUCTURE	4H-10-4HT-12-4HT-12-33.2T	6H-10-4HT-10-4HT-12-44.2T
CHAMBERS	TRIPLE CHAMBER	TRIPLE CHAMBER
TOUGHENED OUTER PANE	+	+
LAMINATED INNER PANE	+ class P2A	+ class P2A
SPACER	WARM TGI	WARM TGI
INERT GAS	KRYPTON	KRYPTON
SUN RAYS TRANSMISSION (τ _v)	0,61	0,49
SUN ENERGY TRANSMISSION (SOLAR FACTOR G)	npd	0,38
UV RAYS TRANSMISSION (τ _{UV})	0.01	npd
	4H - toughened glass 10 - spacer 4HT - toughened glass with low-emission layer 12 - spacer 4HT - toughened glass with low-emission layer 12 - spacer 33.2T -laminated glass with low-emission layer	6H - toughened glass 10 - spacer 4HT - toughened glass with low-emission layer 10 - spacer 4HT - toughened glass with low-emission layer 12 - spacer 44.2T -laminated glass with low-emission layer

GLAZING UNIT	P2	P4
U _g (as per EN 673)	1.1 W/m ² K	1.1 W/m ² K
GLAZING STRUCTURE	4H-14-33.2T	4H-14-33.4T
CHAMBERS	SINGLE CHAMBER	SINGLE CHAMBER
TOUGHENED OUTER PANE	+	+
LAMINATED INNER PANE	+ class P2A	+ class P4A
SPACER	WARM TGI	WARM TGI
INERT GAS	ARGON	ARGON
SUN RAYS TRANSMISSION (τ _v)	0,75	0,75
SUN ENERGY TRANSMISSION (SOLAR FACTOR G)	0,52	0,52
UV RAYS TRANSMISSION (τ _{UV})	0.01	npd
	4H - toughened glass 14 - spacer 33.2T -laminated glass with low-emission layer	4H - toughened glass 14 - spacer 33.2T -laminated glass with low-emission layer

* reflective outer pane

FLAT ROOF PRODUCTS

FLAT ROOF PRODUCTS							
WINDOWS						SMOKE VENTILATION WINDOWS	
DXF DMF DEF	DXG DMG DEG	DXZ-A DMZ-A DEZ-A	DXZ-B DMZ-B DEZ-B	DXC DMC DEC	DXW	DSF	DSC
Features: - Type F flat roof window. - Suitable for pitches from 2-15°. - Up to 16% greater glazing area when compared to competitors. - The frame constructed of multi-chamber PVC profiles filled with insulation material. - The window can be manufactured in any size in the range of 60x60 - 120x220cm. - DEF - electrically opened with wireless Z-Wave system. Sash tilts 15cm. - DMF - opened manually by means of included ZSD control rod. Sash tilts 30cm. - DXF - non-opening. - Available with the ColourLine option and so can be finished in any colour from the RAL classic palette. - Can be mounted on an additional XRD base with a height of 15cm, XRD/A base that allows mounting the window on a completely flat roof (0°) - RedDot Design Award Winner.	Features: - Type G window. - Suitable for pitches from 2-15°. - Covered with a special glass section which consists of toughened glass featuring a thickness of 4mm or 6mm. Window is factory equipped with glass section. - Specially prepared aluminium black profile. - Up to 16% greater glazing area when compared to competitors. - The frame constructed of multi-chamber PVC profiles filled with insulation material. - Available in standard sizes. - DEG - electrically opened with wireless Z-Wave system. Sash tilts 15cm. - DMG - opened manually by means of included ZSD control rod. Sash tilts 30cm. - DXG - non-opening. - Can be mounted on an additional XRD base with a height of 15cm. Can be mounted on an additional XRD/A base that allows mounting the window on a completely flat roof (0°)	Features: - Design based on that applied in the type G window. The glass section has a slope on the outer surface allowing water to be drained even when the window has been installed in perfectly horizontal position. - Suitable for pitches from 0-15°. - The frame made of multi-chamber PVC profiles filled inside with insulation material. - D_Z-A - with welded glass section to secure modern aesthetics. - DEZ-A - electrically opened with Z-Wave system. The sash tilts 15cm. - DMZ-A - opened manually by means of included ZSD control rod. The sash tilts 30cm. - DXZ-A - non-opening. - D_Z-B - with riveted glass section. - DEZ-B - electrically opened with Z-Wave system. The sash tilts 15cm. - DMZ-B - opened manually by means of included ZSD control rod. The sash tilts 30cm. - DXZ-B - non-opening. - Option to raise the window using the XRD base.	Features: - Type C window with a dome. - Suitable for pitches from 0-15°. - Dome made of durable polycarbonate in a transparent or an opaque version. - Up to 16% greater glazing area when compared to competitors. - The frame constructed of multi-chamber PVC profiles filled with insulation material. - Available in standard sizes. - DEC - electrically opened with wireless Z-Wave system. Sash tilts 15cm. - DMC - opened manually by means of included ZSD control rod. Sash tilts 30cm. - DXC - non-opening. - Can be mounted on an additional XRD base with a height of 15cm.	Features: - Special design ensures safe walk across the window surface. - Suitable for pitches from 0-15°. - Can be installed completely flush within the roofline. - The window can be manufactured in any size in the range of 60x60 - 120x120cm. - Non-slip coating - The frame constructed of multi-chamber PVC profiles filled with insulation material. - Can be mounted on an additional XRD/W base with a height of 15cm.	Features: - Smoke ventilation flat roof window. - Suitable for pitches from 0-15°. When installing, windows must be level. - The frame constructed of multi-chamber PVC profiles filled with insulation material. - The sash raises easily to a height of 23cm when used for everyday ventilation. - In the event of fire the sash raises to 50cm. - The size 105x105cm has a 1m2 of geometric smoke ventilation area. - DSF - flat roof window with specially designed bonded glazing unit. - DSC - window with a dome made of durable polycarbonate (transparent or an opaque version).		

FLAT ROOF PRODUCTS				
ACCESS ROOF LIGHTS		ROOF ACCESS DOOR	LIGHT TUNNEL WITH FLEXIBLE LIGHT TRANSMITTING TUBE	LIGHT TUNNEL WITH RIGID LIGHT TRANSMITTING TUBE
DRF	DRC	DRL	SFF	SRF
with a dome made of durable polycarbonate				
Features: - Room illumination. - Safe access to the roof. - Easy and convenient operation thanks to gas springs. - Sash opened to 80°. - DRF - flat window with DU6 glazing unit. Equipped with ZBR lock which protects against accidental closure of the sash. Suitable for pitches from 2-15°. - DRC - window with a dome (transparent DRC-C or opaque DRC-M). Equipped with P2 glazing unit. Suitable for pitches from 0-15°. - ZBR lock can be additionally purchased which protects against accidental closure of the sash. - Can be mounted on an additional XRD/W base with a height of 15cm (e.g. for installation in green roofs). Can be mounted on an additional XRD/A base that allows mounting the window on a completely flat roof (0°)	Features: - Safe access to the roof. - Designed to be installed together with FAKRO loft ladders (comprehensive solution providing convenient access to the flat roof). - Easy and convenient operation thanks to gas springs. - Sash opened to 60°. - ZBR lock can be additionally purchased which protects against accidental closure of the sash. - Can be mounted on an additional XRD/W base with a height of 15cm (e.g. for installation in green roofs). - Suitable for pitches from 0-5°.	Features: - Illumination with natural light for all rooms under flat roofs. - Dome made of durable polycarbonate. - Good thermal insulation performance. - The light tunnel consists of installation frame, specially profiled aluminium cover and dome made of stabilized polycarbonate. - SRF - the light tunnel with rigid light transmitting tube made of 0.5mm thick aluminium sheet metal covered with Miro-Silver reflective layer (coating reflectivity - 98%). Length of a single section of light transmitting tube is 0.61m. The tube can be extended up to 12cm using a special SRM extension kit featuring a telescopic structure (one element is inserted into another one). - SFF - the light tunnel with flexible light transmitting tube made of metallised polyester, additionally reinforced with a steel wire. The tube standard length is 2.1m. - Insulation: ≤ 2,0 W/m²K-350 mm ≤ 1,9 W/m²K-550 mm Suitable for pitches from 0-15°.		

FLAT ROOF PRODUCTS

ACCESSORIES FOR FLAT ROOF WINDOWS				
INTERNAL ACCESSORIES		EXTERNAL ACCESSORIES		
BLACKOUT BLINDS	PLEATED BLIND	AWNING BLINDS		
ARF/D, ARF/DZ-Wave	APF/D	AMZ/F Solar	AMZ/CZ-Wave	AMZ/Z Solar AMZ/ZZ-Wave
				
<p>Application:</p> <ul style="list-style-type: none"> - Type F flat roof windows. - Type C flat roof windows. - Type G flat roof windows. <p>Features:</p> <ul style="list-style-type: none"> - Variable reduction of incoming light. - Lockable in any position thanks to the side guides. - Protection from overheating inside. - Reduced heat loss during winter. - Resistant to moisture. <p>Control mode:</p> <ul style="list-style-type: none"> • ARF/D - manual operation (ZSD control rod). • ARF/DZ-Wave - operated by remote control or wall switch; powered from the mains. If the ARF/D Z-Wave blind is mounted onto DM_, DX_ windows, power supply and control unit must be purchased separately. 	<p>Application:</p> <ul style="list-style-type: none"> - Type F flat roof windows. - Type C flat roof windows. - Type G flat roof windows. <p>Features:</p> <ul style="list-style-type: none"> - Protection against intense sunlight. - Enhanced interior design. - Darkening of the interior on sunny days. - Partial protection against heat gain. - Lockable in any position. - Fabric with a honeycomb structure and an internal aluminium coating provides blackout and good thermal performance. - Aluminium guides are available in two colour versions: lacquered white and anodised silver. - Provision of complete privacy when closed. <p>Control mode:</p> <ul style="list-style-type: none"> • APF/D - manual operation (ZSD or ZST control rod) 	<p>Application:</p> <ul style="list-style-type: none"> - Type F flat roof windows. <p>Features:</p> <ul style="list-style-type: none"> - Protection of the room against excessive heat gain. - Ingress of natural light and view to the outside. - Protection against UV radiation. - Protection against light reflection on computer and TV screen. - When rolled up, it does not limit the glazing surface. • AMZ/Z awning blind installed under angled glass section of D_Z windows • AMZ/CZ-Wave awning blind installed under the light tunnel's dome - Comfortable and automatic operation (intelligent system controls the awning blind depending on the insolation level). - High insolation level triggers the blind to unroll automatically. - Blind rolls up automatically in cloudy weather. <p>Control mode:</p> <ul style="list-style-type: none"> • AMZ/F Solar is powered by solar battery pack. It can be operated in one of three control modes: <ul style="list-style-type: none"> - Automatic (automatically unrolls and rolls up depending on the insolation level). - Semi-automatic (automatically unrolls, it is rolled up using a remote control). - Operated by means of included remote control. 	<p>Application:</p> <ul style="list-style-type: none"> - Type C flat roof windows. <p>Control mode:</p> <ul style="list-style-type: none"> • AMZ/CZ-Wave - operated by remote control or wall switch in wireless Z-Wave system; powered from the mains (15V). If the AMZ/CZ-Wave blind is mounted onto DMC, DXC windows, power supply and control unit must be purchased separately. 	<p>Zastosowanie:</p> <ul style="list-style-type: none"> - okna do dachów płaskich typu Z. <p>Control versions:</p> <ul style="list-style-type: none"> • AMZ/ZZ-Wave - Operated by means of a wall switch or remote control in wireless Z-Wave system. Powered by 15V mains supply. When installing AMZ/ZZ-Wave awning blinds in DMZ and DXZ windows, power supply and control unit must be purchased separately. • AMZ/Z Solar - powered by solar battery pack. The awning blind can be operated in one of three control modes: <ul style="list-style-type: none"> - Automatic (automatically unrolls and rolls up depending on the insolation level). - Semi-automatic (automatically unrolls, it is rolled up using a remote control). - Operated by means of included remote control.