

A woman with curly hair is looking up at a large, rectangular skylight in a modern kitchen. The kitchen features a white marble countertop, a black espresso machine, and a shelf with various items including a potted plant, jars, and a mirror. The skylight is set into a white ceiling, and the overall atmosphere is bright and airy.

FLAT ROOF SYSTEM PRODUCTS 2023

**Wide
range**
of durable
and insulated
flat roof windows

 **FAKRO®**

INVITE THE LIGHT INSIDE





FLAT ROOFS

MEANS OF ILLUMINATION

The benefits of natural illumination of buildings are unquestionable but in those with flat roofs it is not always possible to install sufficient standard vertical windows. A source of natural light should be available in any living space to make its occupants feel comfortable. The ideal solution for providing light is the installation of specially designed products for flat roofs.

FAKRO flat roof products bring the very highest standard of natural light to interiors. They provide ventilation, combine exceptional functionality, modern design and perfect insulation performance. In short, they can transform any room under a flat roof into warm, bright and extremely comfortable space.

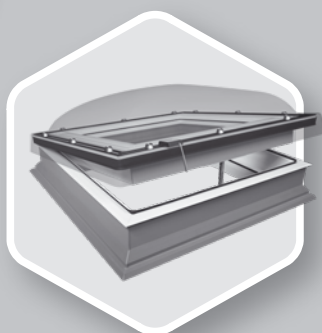




MAIN ADVANTAGES OF FLAT ROOF WINDOWS



HIGH ENERGY-EFFICIENCY

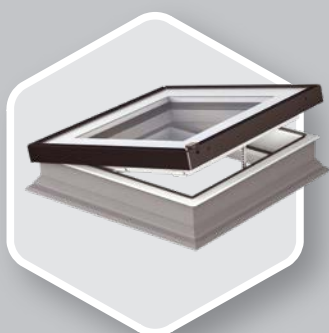
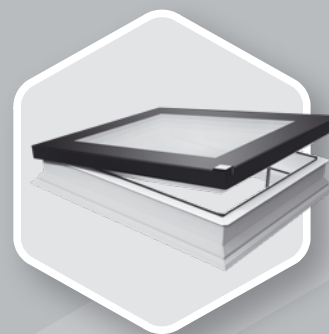


WINDOW TYPE C

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 excellent result is for a 120x120 cm window with frame, sash and dome.

WINDOW TYPE F

The type F window is available with a passive, quadruple DU8 glazing unit. The heat transfer coefficient for the whole window is **$U_w = 0.64 \text{ W/m}^2\text{K}$** (PN-EN 14351-1) and makes the window suitable for use in energy-efficient and passive buildings.



WINDOW TYPE G

The type G window with a single chamber, anti-burglary P2 glazing unit features 22% better thermal insulation performance than the competition.



AVAILABLE IN ANY SIZE

In addition to standard sizes, type F & G windows can be manufactured in non-standard dimensions (in the range of 60x60 cm - 120x220 cm). Thermal insulation standards of buildings have been significantly increased and old skylights in flat roofs do not meet current requirements.

The specification of type F & G windows enables existing, often non-standard skylights to be replaced with ease. Taking advantage of such opportunity provides improved insulation as well as high flexibility when designing or renovating buildings.



AMPLE NATURAL LIGHT

The basic function of the window is to provide an abundance of natural light in buildings with flat roofs. With specially designed shapes of the sash and frame profiles, flat roof win-

dows feature up to 16% greater glazing area when compared with other manufacturer's windows of a similar size. With such solution interiors under a flat roof are full of daylight.



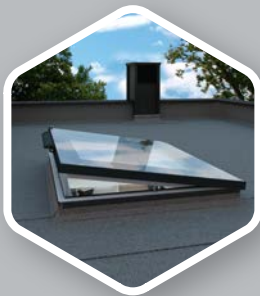
INSTALLATION IN GREEN ROOFS

The flat roof window can also be mounted on an additional XRD base with a height of 15 cm to ensure installation in green or gravel roofs.



FLAT ROOF WINDOW STRUCTURE

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



Window type F

(with innovative glazing unit)

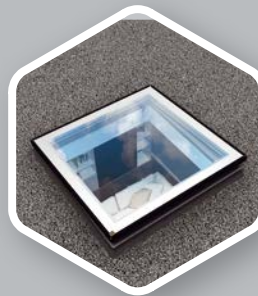
- DEF
- DMF
- DXF



Window type C

(with glazing unit and dome)

- DEC
- DMC
- DXC



Window type G

(with glazing unit and glass section)

- DEG
- DMG
- DXG



Window type Z

(factory equipped with AMZ/Z, glazing unit and angular glass section)

- DEZ-A AMZ/Z Z-Wave
- DMZ-A AMZ/Z Z-Wave
- DXZ-A AMZ/Z Z-Wave

The type F flat roof window is equipped with an innovative glazing unit which offers excellent thermal insulation and is of contemporary design. The window can be manufactured in non-standard sizes within production tolerances or capability. The type C window is equipped with a glazing unit and polycarbonate dome. The type G window combines innovative appearance of the type F window and the design offered by the type C window. The type Z window comes with factory fitted angular glass section. Flat roof windows are available in three opening versions:

DE_ - electrically opened

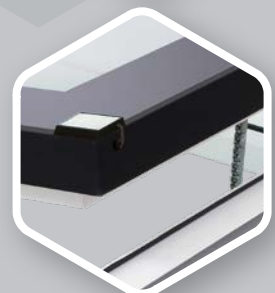
DM_ - manually opened

DX_ - non-opening

The actuator in electrically opened windows is positioned in the sash and is protected against adverse weather conditions such as rain and snow. This ensures trouble free operation of the actuator and all control elements.



The electrically operated windows (type F, type C, type G and type Z) have a built-in sensor that automatically activates the sash closing function when it rains.



**DEF
DMF
DXF**



reddot design award
winner 2016

FLAT ROOF WINDOWS TYPE F

The design innovation of the DEF DU6 flat roof window has been acknowledged with the prestigious Red Dot Design Award.



- An abundance of natural light. The specially designed shape of the window profiles features glazing area up to 16% greater than those of competitors.



- The frame of the flat roof window is constructed of multi-chamber PVC profiles filled with insulation material. The upper part of the window has an innovative flat glazing unit. The external glass is toughened and reflects the sun rays while the internal pane is anti-burglary class P2A. Should the pane crack, shards of glass do not pose a danger.



- Windows are available with two glazing units:
1) DU6 triple-glazed unit with a whole window U_w -value of $0.70 \text{ W/m}^2\text{K}$ (EN 14351-1) and $U_{rc}=0.59 \text{ [W/m}^2\text{K]}$, $A_4:0\text{m}^2$ according to EN1873:2014



2) Quadruple glazing unit DU8 with a whole window U_w -value of $0.64 \text{ W/m}^2\text{K}$ (EN 14351-1) and $U_{rc}=0.51 \text{ [W/m}^2\text{K]}$, $A_4:0\text{m}^2$ according to En 1873:2014 Such excellent performance makes the window suitable for use in passive buildings.



- In addition to standard sizes, type F windows can be manufactured in any size (in the range of $60 \times 60 \text{ cm}$ - $120 \times 220 \text{ cm}$). This assists in the replacement of existing skylights (often in non-standard dimensions) which fail to meet current thermal requirements.



- Available with the ColourLine option which enables customers to customize their windows to suit their personal taste.



- Windows can be mounted on an additional XRD or XRD/W base with a height of 15 cm to ensure installation in green or gravel roofs.



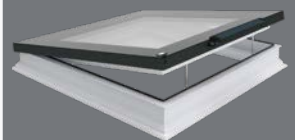
- If the roof pitch is less than 2° or if it is advisable to increase the installation angle, the XRD/A angular installation base should be used, which lifts installation angle by 3 or 5 degrees depending on size..

- Suitable for roof pitches between 2° and 15° or 0° - 15° with the XRD/A base.

- The structure of the window enables installation of internal as well as external accessories.

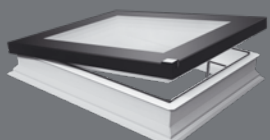


DEF Solar



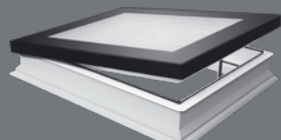
- autonomous window powered by solar energy
- opened via remote control in wireless Z-Wave system
- included in the kit: remote control (available to order), rain sensor, solar panel and battery
- sash tilts 12cm.

DEF



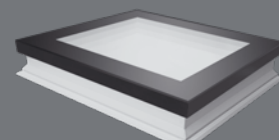
- electrically opened with wireless Z-Wave system
- included in the kit: power supply, remote control (available to order), rain sensor
- sash tilts 12cm.

DMF



- opened manually by means of included control rod (2.2 m)
- sash tilts 30 cm

DXF



- non-opening

The autonomous DEF Solar window is powered by solar energy through the special PV panel, therefore the product does not require any additional electrical systems. The PV panel integrated with the battery ensures continuous operation even on cloudy days. Proven design of flat roof windows stands behind excellent performance and impeccable aesthetics. Convenient operation with the wireless Z-Wave system using the included ZRH1 remote control.

Flat roof windows type F:

- Have a very high, Class B reaction to fire (PN-EN 13501-1). This confirms their high performance in relation to spread of flame.
- Are characterized by the highest impact resistance - 950 mm (Class 5 according to EN 14351-1).
- Have been tested for sound insulation during rainfall (ISO 10140-1/A2:2014) and obtained very good results. The L_{A} coefficient for DEF DU6 windows is 36 dB.

FLAT ROOF WINDOWS

window size [cm] (installation opening size)	60x60	60x90	70x70	80x80	90x60	90x90	90x120	100x100	100x150	120x90 ¹⁾	120x120	120x220 ¹⁾	140x140 ¹⁾	150x100	200x100
glazing area [m²]	0.23	0.37	0.33	0.46	0.37	0.6	0.83	0.77	1.21	0.83	1.16	2.23	1.63	1.21	1.64
size symbol	01K	02K	03K	04K	31K	05K	06K	07K	10K	32K	08K	11K	09K	33K	34K

NEW

DEF DU6 Solar

$U_w = 0.70 \text{ W/m}^2\text{K}$
 $U_{ic} = 0.59 \text{ W/m}^2\text{K}^{***}$

DEF DU6

Electrically opened
 $U_w = 0.70 \text{ W/m}^2\text{K}$
 $U_{ic} = 0.59 \text{ W/m}^2\text{K}^{***}$

DEF DU8

Electrically opened
 $U_w = 0.64 \text{ W/m}^2\text{K}$
 $U_{ic} = 0.51 \text{ W/m}^2\text{K}^{***}$

DMF DU6

Opened manually by means of included control rod (2.2 m)
 $U_w = 0.70 \text{ W/m}^2\text{K}$
 $U_{ic} = 0.59 \text{ W/m}^2\text{K}^{***}$

DMF DU8

Opened manually by means of included control rod (2.2 m)
 $U_w = 0.64 \text{ W/m}^2\text{K}$
 $U_{ic} = 0.51 \text{ W/m}^2\text{K}^{***}$

DXF DU6

Non-opening
 $U_w = 0.70 \text{ W/m}^2\text{K}$
 $U_{ic} = 0.59 \text{ W/m}^2\text{K}^{***}$

DXF DU8

Non-opening
 $U_w = 0.64 \text{ W/m}^2\text{K}$
 $U_{ic} = 0.51 \text{ W/m}^2\text{K}^{***}$

*according to EN 14351-1:2006+A2:2016

***according to EN 1873:2014+A1:2016 for the size 120x120, A:4,1m²



Position of hinges and actuators in DEF and DMF opening windows.

¹⁾ DMF windows in sizes of 100x150 cm, 120x90 and 120x120cm have one screw actuator.



**DEC
DMC
DXC**

**WINDOWS
WITH DURABLE
POLYCARBONATE
DOME**

FLAT ROOF WINDOWS TYPE C



- An abundance of natural light. The specially designed shape of the window profiles features glazing area up to 16% greater than those of competitors.



- The frame of the flat roof window is constructed of multi-chamber PVC profiles filled with insulation material. The dome is made of durable polycarbonate which is characterised by high resistance to impact and adverse weather conditions such as rain or hail. Special coatings on the outer and inner surface of the dome protect it against UV radiation. Available with a transparent dome D_C-C or an opaque dome D_G-M.



- Windows are available with two glazing units:
1) Anti-burglary, P2 glazing unit with a whole window U-value U_{rc} of 0.73 as per EN 1873 ($U=1.2$ W/m²K as per EN 12567-2).



- 2) Quadruple glazing unit U8 (VSG) with a whole window U-value of 0.72 W/m²K as per EN 12567-2 ($U=0.55$ W/m²K as per EN 1873 for the size 120x120 cm). Such excellent parameters make the window suitable for use in passive buildings.



- Wide range of standard sizes

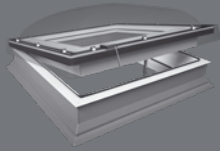


- Windows can be mounted on an additional XRD or XRD/W base with a height of 15 cm to ensure installation in green or gravel roofs.

- Suitable for roof pitches between 0° and 15°.

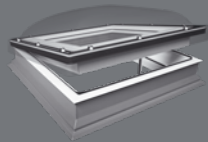
- The structure of the window enables installation of internal as well as external accessories.

DEC



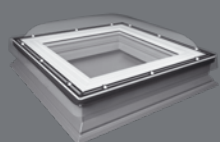
- electrically opened with wireless Z-Wave system
- included in the kit: power supply, remote control (available to order), rain sensor
- sash tilts 12 cm.

DMC



- opened manually by means of included control rod (2.2 m)
- sash tilts 30 cm

DXC



- non-opening

Flat roof windows type C:

- Have a very high, Class B reaction to fire (PN-EN 13501-1). This confirms their high performance in relation to spread of flame.
- Are characterized by the highest impact resistance (SB1200 according to EN 1873).
- Have been tested for sound insulation during rainfall (ISO 10140-1/A2:2014) and obtained very good results. The L_{IA} coefficient for DEC-C P2 windows is 45.6 dB.

FLAT ROOF WINDOWS

window size [cm] (installation opening size)	60x60	60x90	70x70	80x80	90x90	90x120	100x100	100x150 ¹⁾	120x120 ¹⁾	120x220 ²⁾	140x140 ²⁾
glazing area [m²]	0.23	0.37	0.33	0.46	0.6	0.83	0.77	1.21	1.16	2.23	1.63
size symbol	01K	02K	03K	04K	05K	06K	07K	10K	08K	11K	09K
DEC-C U8 (VSG) Electrically opened $U=0.72\text{ W/m}^2\text{K}^*$ $U=0.55\text{ W/m}^2\text{K}^{**}$	+	+	+	+	+	+	+	+	+	-	-
DEC-C P2 Electrically opened $U=1.2\text{ W/m}^2\text{K}^*$ $U_{rc}=0.73\text{ W/m}^2\text{K}^{***}$	+	+	+	+	+	+	+	+	+	+	+
DMC-C P2 Opened manually by means of included control rod (2.2 m) $U=1.2\text{ W/m}^2\text{K}^*$ $U_{rc}=0.73\text{ W/m}^2\text{K}^{***}$	+	+	+	+	+	+	+	+	+	+	+
DXC-C P2 Non-opening $U=1.2\text{ W/m}^2\text{K}^*$ $U_{rc}=0.73\text{ W/m}^2\text{K}^{***}$	+	+	+	+	+	+	+	+	+	+	+

*according to EN 12567-2

**according to EN 1873 for the size 120x120 cm.

***according to EN 1873:2014+A1:2016 for the size 120x120, A:4,1m²



Position of hinges and actuators in DEC and DMC opening windows.

¹⁾ DEC U8(VSG) windows in sizes of 100x150 cm and 120x120 cm have two electric actuators.

²⁾ DMC P2 windows in sizes of 140x140 cm and 120x220 cm have one screw actuator.

D_F Secure
D_C Secure

**ANTI-BURGLARY
WINDOWS
IN RC2 CLASS**

FLAT ROOF WINDOWS D_F SECURE, D_C SECURE



- An abundance of natural light. The specially designed shape of the window profiles features glazing area up to 16% greater than those of competitors.



- The frame of the flat roof window is constructed of multi-chamber PVC profiles filled with insulation material. In the D_F Secure, the upper part of the window comes with an innovative flat glazing unit, while D_C Secure windows have a dome made of durable polycarbonate.



- Windows are available with two glazing units:



1) D_F Secure windows with DU6 Secure glazing with a class P4A anti-burglary inner pane. The whole window U-value is 0.70 W/m²K (EN 14351-1).



2) D_C Secure windows with anti-burglary P4 glazing unit featuring a whole window U-value of 1.2 W/m²K (EN 12567-2). Inner glass is anti-burglary and offers class P4A.



- Windows can be mounted on an additional XRD or XRD/W base with a height of 15 cm to ensure installation in green or gravel roofs.



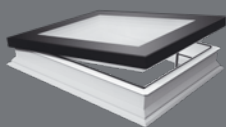
- The type C flat roof window is suitable for roof pitches between 0° and 15°, while the type F is designed for pitches between 2° and 15° or 0° -15° with the XRD/A.



- If in the type F Secure window the roof pitch is less than 2° or if it is advisable to increase the installation angle, the XRD/A angular installation base should be used, which fitted directly beneath the window lifts installation angle by 3 degrees.

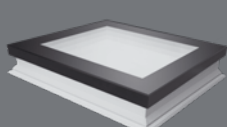
- The structure of the window enables installation of internal as well as external accessories.

DMF Secure



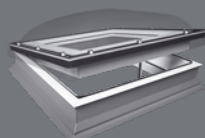
- opened manually by means of included control rod (2.2 m)
- sash tilts 30 cm

DXF Secure



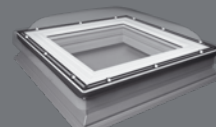
- non-opening

DMC Secure



- opened manually by means of included control rod (2.2 m)
- sash tilts 30 cm

DXC Secure



- non-opening

Flat roof windows D_F Secure, D_C Secure:

- Comply with European anti-burglary class RC2 (EN 1627)
- Have a very high, Class B reaction to fire (PN-EN 13501-1). This confirms their high performance in relation to spread of flame.
- Are characterized by the highest impact resistance (SB1200 according to EN 1873).

FLAT ROOF WINDOWS

window size [cm] (installation opening size)	90x90	90x120	100x100	120x90	120x120
glazing area [m²]	0.6	0.83	0.77	0.83	1.16
size symbol	05K	06K	07K	32K	08K

DMF DU6 Secure

Opened manually by means of included control rod (2.2 m)

$U_w = 0.70 \text{ W/m}^2\text{K}^*$

+

+

+

+

+

DXF DU6 Secure

Non-opening

$U_w = 0.70 \text{ W/m}^2\text{K}^*$

+

+

+

+

+

DMC-C P4 Secure

Electrically opened

$U = 1.2 \text{ W/m}^2\text{K}^{**}$

+

+

+

-

+

DXC-C P4 Secure

Non-opening

$U = 1.2 \text{ W/m}^2\text{K}^{**}$

+

+

+

-

+

*according to EN EN 14351-1:2006+A2:2016

**according to EN 12567-2



Position of hinges and actuators in DMF Secure and DMC Secure opening windows.

**DEG
DMG
DXG**



**WINDOWS
WITH SPECIAL
GLASS SECTION**

FLAT ROOF WINDOWS TYPE G

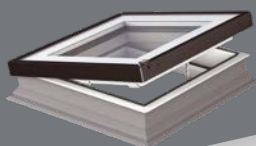


- The D_G window construction is based on the solutions available in our type C window range. The window is covered from the top with a special glass section that consists of 4 mm or 6 mm toughened glass depending on the unit size combined with a unique aluminium black profile. The glass section is factory applied to the window which substantially reduces its installation time.
- Excellent thermal insulation performance. The heat transfer coefficient for the complete window is $U_w=0,92$ [W/m²K] and $U_{rc}=0,71$ [W/m²K] for A:4,0m² according to En 1873:2014, which is 22% better than solutions offered by the competition
- An abundance of natural light. The specially designed shape of the window profiles features glazing area up to 16% greater than those of competitors.
- Windows are offered with a safety P2 glazing unit



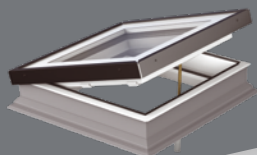
- equipped with internal laminated glass in P2A class ensuring safety of use. Optionally, there is also available anti-burglary glazing P4 in P4A class.
- Available to special order are non-standard sizes ranging from 60x60 cm to 120x220 cm. This assists in the replacement of existing skylights (often in non-standard dimensions) which fail to meet current thermal requirements.
- Windows can be mounted on an additional XRD or XRD/W base with a height of 15 cm to ensure installation in green or gravel roofs.
- Windows can be installed in the roof pitch as low as 2° or 0° with the XRD/A base thanks to the innovative method of rain water drainage from the window surface.
- The structure of the window enables installation of internal as well as external accessories.

DEG



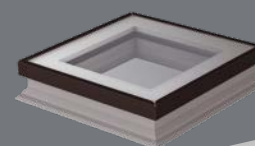
- electrically opened with wireless Z-Wave system
- included in the kit: power supply, remote control (available to order), rain sensor
- sash tilts 12 cm.

DMG



- opened manually by means of included control rod (2.2 m)
- sash tilts 30 cm

DXG



- non-opening

The new range of D_G windows to expand the offer of products for flat roofs.

Windows of this type incorporate solutions known from type C & type F windows, therefore these products are technologically advanced, offer high operational features and provide an alternative solution for bringing natural daylight into rooms below a flat roof. Their modern design refers to the prestigious award-winning products from the type F flat roof window range.

The D_G flat roof windows have been tested for sound insulation during rainfall (ISO 10140-1/A2:2014) and obtained very good results. The L_{A} coefficient for DEG P2 windows is 42.1 dB.

FLAT ROOF WINDOWS

window size [cm] (installation opening size)	60x60	60x90	70x70	80x80	90x60	90x90	90x120	100x100	100x150	120x90 ¹⁾	120x120	120x220 ¹⁾	140x140 ¹⁾	150x100	200x100
glazing area [m²]	0.23	0.37	0.33	0.46	0.37	0.6	0.83	0.77	1.21	0.83	1.16	2.23	1.63	1.21	1.64
size symbol	01K	02K	03K	04K	31K	05K	06K	07K	10K	32K	08K	11K	09K	33K	34K
DEG P2 Electrically opened $U = 0.92 \text{ W/m}^2\text{K}^*$ $U_{\text{ic}} = 0.71 \text{ [W/m}^2\text{K]}^{**}$	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
DMG P2 Opened manually by means of included control rod (2.2 m) $U = 0.92 \text{ W/m}^2\text{K}^*$ $U_{\text{ic}} = 0.71 \text{ [W/m}^2\text{K]}^{**}$	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
DXG P2 Non-opening $U = 0.92 \text{ W/m}^2\text{K}^*$ $U_{\text{ic}} = 0.71 \text{ [W/m}^2\text{K]}^{**}$	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

*according to EN 14351-1:2006+A2:2016

**according to 1873:2014; A:4,0m²



Position of hinges and actuators in D_G opening windows.

¹⁾ DMG windows in sizes of 100x150 cm and 120x120 cm have one screw actuator.



D_Z-A_{AMZ/Z}

**WINDOWS
WITH ANGLED
GLASS SECTION**

FLAT ROOF WINDOWS TYPE Z



- Windows as standard are factory-fitted with AMZ/Z. Complete solution ensuring drainage of rainwater from a horizontally installed window while maintaining the flat surface as requested by customers.



- Installation possible from 0 degrees – the shape of windows has been designed to allow their installation without any additional elements that would increase their mounting pitch.



- Excellent thermal insulation performance thanks to proven design of the window. The heat transfer coefficient for the complete window is 0.95 W/m²K.



- Windows are offered with a safety P2 glazing unit equipped with internal laminated glass in P2A class ensuring safety of use. Optionally, there is also available anti-burglary glazing P4 with internal laminated glass in P4A class.
- Z-Wave awning blind under the glass section, thus provi-

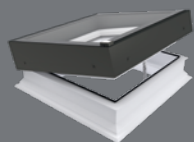


ding customers with a fully functional solution while saving time and limiting investment expenses.



- Factory-fitted angled glass section replacing a dome reduces installation time.
- Wide range of standard sizes and option to produce windows in non-standard ones (from 60x60 cm to 120x120 cm) which makes them suitable for renovation purposes and for use in projects to meet customer's specifications.
- Eco-friendly thanks to the use of profiles made largely from recycled material.
- Windows can be equipped with awning blinds as well as internal accessories. They are also fully compatible with installation accessories for FAKRO flat roof windows.

D_Z-A AMZ/Z



- electrically opened with wireless, Z-Wave system, remote control,
- sash tilts 12 cm,
- opened manually,
- non-opening.

The type Z windows are built based on the the design incorporated in our type G windows.

A specially constructed glass section with a slope on the outer surface allows drainage of water even when the window is fitted perfectly horizontally in relation to the roofline.

The new D_Z window line offers the widest range of applications to complement the FAKRO flat roof window offering. Windows are factory equipped with AMZ/Z, glazing unit and glass section.

FLAT ROOF WINDOWS

window size [cm] (installation opening size)	60x60	60x90	70x70	80x80	90x90	90x120	100x100	120x120
---	-------	-------	-------	-------	-------	--------	---------	---------

glazing area [m²]	01K	02K	03K	04K	05K	06K	07K	08K
-------------------	-----	-----	-----	-----	-----	-----	-----	-----

size symbol	01K	02K	03K	04K	05K	06K	07K	08K
-------------	-----	-----	-----	-----	-----	-----	-----	-----

DEZ-A P2
Electrically opened
 $U_w = 0.95 \text{ W/m}^2\text{K}$

	+	+	+	+	+	+	+	+
--	---	---	---	---	---	---	---	---

DMZ-A P2
Opened manually by means
of included control rod (2.2 m)
 $U_w = 0.95 \text{ W/m}^2\text{K}$

	+	+	+	+	+	+	+	+
--	---	---	---	---	---	---	---	---

DXZ-A P2
Non-opening
 $U_w = 0.95 \text{ W/m}^2\text{K}$

	+	+	+	+	+	+	+	+
--	---	---	---	---	---	---	---	---

*according to EN 14351-1:2006+A2:2016



DXW



FLAT ROOF WINDOWS DXW

Our innovative DXW flat roof window has been given the prestigious "ICONIC AWARDS 2018: Innovative Architecture - Best of Best".



- An abundance of natural light in buildings with flat roofs.



- The frame of the flat roof window is constructed of multi-chamber PVC profiles filled with insulation material. The upper part of the window comes with an innovative flat glazing unit.



- The window comes with passive, double-chamber glazing unit with a perfect U-value of 0.70 W/m²K.



- Windows can be mounted on an additional XRD/W base with a height of 15 cm to ensure installation in green or gravel roofs.

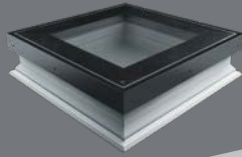


- Suitable for roof pitches between 0° and 15°.



- It is possible to install the same internal accessories which are used in all our type F flat roof windows.

DXW



- providing a surface level with the roof and a special non-slip glass to ensure complete safety when walking across the window
- enhanced load capacity, operational load of 500kg/m²,
- innovative method of glazing unit installation
- high resistance to break-in attempts thanks to reinforced design
- reduced heat loss ($U_w = 0.70 \text{ W/m}^2\text{K}$)
- modern design and high quality finish
- quick and easy installation

The DXW flat roof window offers a completely new approach to be taken with flat roof design. Its specially strengthened sash and frame enable it to be installed completely flush within the roofline. With special design features such as enhanced load-bearing capacity and a lasting, non-slip glass you can walk across its surface freely.

FLAT ROOF WINDOWS

window size [cm] (installation opening size)	60x60	60x90	70x70	80x80	90x90	90x120	100x100	120x120
glazing area [m ²]	0.23	0.37	0.33	0.46	0.6	0.83	0.77	1.16
size symbol	01K	02K	03K	04K	05K	06K	07K	08K

DXW

Non-opening
 $U_w = 0.70 \text{ W/m}^2\text{K}^*$

+ + + + + + + +

*according to EN 14351-1:2006+A2:2016

**DRC
DRF
DRG**

**EASY ACCESS
TO THE ROOF**

FLAT ACCESS ROOF LIGHTS DRF, DRC, DRG



DU6

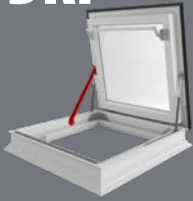
P2

- Providing safe and convenient access to flat roofs. The use of special hinges and a functional method of operation enables the sash to be opened to 80° (in sizes 90x120 and 120x120 opened up to an angle of 60°). Gas springs facilitate operation of the sash. Additionally, the access roof light incorporates increased operational safety through use of an anti-slip tape on its frame profiles.
- The frame of the access roof light is constructed of multi-chamber PVC profiles filled with insulation material. In the DRF access roof light, the upper part comes with an innovative flat glazing unit, while the DRC model has a dome made of durable polycarbonate DRG hatch window with a glass segment.
- The roof lights are available in options:
 - 1). The DRF access roof light with DU6 glazing unit with a class P2A anti-burglary inner pane and the U_w -value of 0.74 W/m²K (EN14351-1:2006+A2:2016) and U_{rc} =0,64



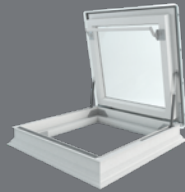
- [W/m²K], A:4,0m² according to EN1873:2014+A1:2016
- 2). The DRC access roof light with P2 glazing unit and the U -value of 0.93 W/m²K (EN 1873:2005) and U_{rc} =0,76 [W/m²K], A:4,1m² according to EN 1873:2014+A1:2016
- 3). The DRG access rooflight with P2 glazing unit and U -value of 1.00 W/m²K (EN14351-1:2006+A2:2016)
- Suitable for installation on an additional XRD/W base with a height of 15 cm to ensure installation in green or gravel roofs.
- The type C flat access roof light is suitable for roof pitches between 0° and 15°, while the type F and G are designed for pitches between 2° and 15° or 0° -15° with the XRD/A.
- The structure of the access roof light enables installation of internal manual as well as external solar accessories. Use of an external awning blind protects the room from overheating, while internal accessories provide protection from intense sunlight and enhance interior design.

DRF



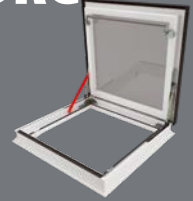
- flat access roof light without a dome, equipped with the ZBR lock as standard to protect against accidental closure of the sash

DRC



- flat access roof light with a dome. The dome can be transparent (DRC-C) or opaque (DRC-M)
- Optionally, the access roof light can be equipped with the ZBR lock to protect against accidental closure of the sash

DRG



- flat access roof light without a dome, as standard is equipped with a ZBR lock which prevents against accidental closure of the sash

FLAT ROOF WINDOWS

window size [cm] (installation opening size)	90x90	90x120	100x100	120x120
glazing area [m²]	0,6	0,83	0,77	1,16
size symbol	05K	06K	07K	08K

DRF DU6

Flat access roof light

$U_g=0.74 \text{ W/m}^2\text{K}$

$U_k=0.64 \text{ [W/m}^2\text{K]}, A:4,0\text{m}^2 *$

+ + + +

DRC-C P2

Access roof light with transparent dome

$U=0.93 \text{ W/m}^2\text{K}$

$U_k=0.76 \text{ [W/m}^2\text{K]}, A:4,0\text{m}^2 *$

+ + + +

DRC-M P2

Access roof light with opaque dome

$U=0.93 \text{ W/m}^2\text{K}$

$U_k=0.76 \text{ [W/m}^2\text{K]}, A:4,0\text{m}^2 *$

+ + + +

DRG P2

Flat access roof light

$U=1.00 \text{ W/m}^2\text{K}$

+ + + +

*according to EN1873:2014+A1:2016



**DSC-C
DSF**


**EFFECTIVE
SMOKE
VENTILATION**

SMOKE VENTILATION FLAT ROOF WINDOWS



- An abundance of natural light in buildings with flat roofs.
- The frame of the smoke ventilation window is constructed of multi-chamber PVC profiles filled with insulation material.



- Easy opening to set the window in standard ventilation position (everyday flow of fresh air).

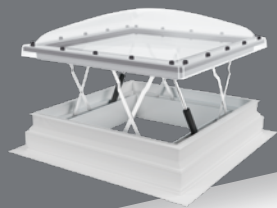


- The sash raises to a height of 23cm when used for everyday ventilation, but in the event of fire it raises to 50cm. Elements of the sash lifting mechanism are not visible with the window closed.



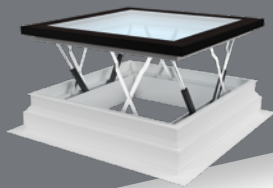
- Opening mechanism and two or four 24V actuators ensure perfect operation and ease of access for maintenance purposes.
- Suitable for roof pitches between 0° and 15°. When installing, windows must be level.

DSC-C_P2



- smoke ventilation flat roof window without dome
- modern design - new smoke ventilation windows have the same profile as standard flat roof windows
- the upper part of the window comes with an innovative flat glazing unit DU6 $U_g=0.5 \text{ W/m}^2\text{K}$
- the size 105x105 has a 1m^2 of geometric smoke ventilation area to meet the varied standards required in different countries
- DSF windows can be painted in any colour chosen from the RAL Classic palette
- $U_w=0.79 \text{ W/m}^2\text{K}$ for DSF DU6 120x120 (PN-EN ISO 10077-1:2007)

DSF DU6



- smoke ventilation flat roof window with a dome made of durable polycarbonate. Dome made of durable polycarbonate which can be transparent (DSC-C) or opaque (DSC-M)
- equipped with P2 glazing unit ($U_g=1.1 \text{ W/m}^2\text{K}$)
- $U_w = 1.0 \text{ W/m}^2\text{K}$ for DSC-C2 P2 120x120 (PN-EN ISO 10077-1:2007)

SMOKE VENTILATION FLAT ROOF WINDOWS

window size [cm]
(installation opening size)

100x100 105x105 120x120

glazing area [m^2]

0.77 1.00 1.16

size symbol

07K 12K 08K

DSF DU6
 $U_g=0.5 \text{ W/m}^2\text{K}$

- + +

DSC-C2 P2
 $U_g=1.1 \text{ W/m}^2\text{K}$

+ - +



**DRL
LML**

**COMPLETE
SOLUTION
TO ENABLE ACCESS
TO THE ROOF**

FLAT ROOF ACCESS DOOR



- Fully assembled product.
- The frame is constructed of multi-chamber PVC profiles filled with insulation material.
- The sash is filled with a sandwich panel to ensure perfect thermal insulation performance.
- The sash can be opened up to 60°. Gas springs facilitate opening and closing and the sash can be left in open position.
- Anti-slip tape on the base ensures safe access to the flat roof.



- Sizes of the roof access door are adjusted according to the size of loft ladder (loft ladders are sold separately - see Loft Ladder Catalogue).
- Suitable for installation on an additional XRD/W base with a height of 15 cm to ensure installation in green or gravel roofs.
- Option to install an additional ZBR lock which protects against accidental closure of the sash.
- Suitable for roof pitches between 0° and 5°.

DRL



- mounted on the roof surface
- the whole structure is insulated

LML







(details to be found in Loft Ladder Catalogue)



- can be installed in the opening under the DRL roof access door
- mechanism to support unfolding and folding the ladder
- additional tread in the box
- wide (13 cm) anti-slip treads

The DRL roof access door is an innovative product providing safe and comfortable access to flat roofs. Its structural durability and range of sizes provide the perfect combination with a loft ladder that results in a comprehensive flat roof access solution.

FLAT ROOF ACCESS DOOR

roof access door size [cm]	60x120	70x120	70x130	70x140	86x130	92x130
(installation opening size)						
size symbol	13K	14K	15K	16K	17K	18K

DRL
 $U_w=0.67 \text{ W/m}^2\text{K}^*$

+ + + + + +

*according to EN14351-1:2006+A2:2016

room height [cm]	280						305				
loft ladder size [cm]	60x120	70x120	70x130	70x140	86x130	92x130	60x130	70x130	70x140	86x130	92x130

LML

+ + + + + + + + + + +



**XRD
XRD/W
XRD/A**

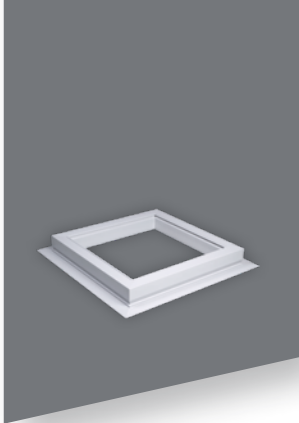

**HIGHER
WINDOW
INSTALLATION**

INSTALLATION BASE XRD, XRD/W, XRD/A

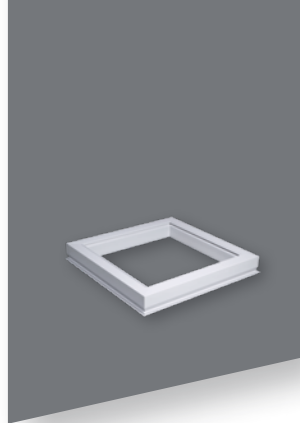
- Versatility of the XRD installation base enables a maximum of two bases to be stacked on top of one another to achieve greater height. The extended element of the frame, the so called 'fin' is used to connect the base and the roof waterproofing layer.
- The XRD/W ensures greater stability and rigidity of the base under the window when compared to standard XRD base, which increases comfort of use. It allows for a combination of three bases under one window.
- Profiles of the XRD and XRD/W installation bases are made of recycled material (grey colour), thus products are eco-friendly. Profiles are filled with insulation material (polystyrene) to ensure a high standard of insulation. The difference between these two bases is the application of

impregnated wooden blocks in the XRD/W model. Blocks are in sizes adapted to fit chambers of the profile of the base in order to enhance its rigidity.

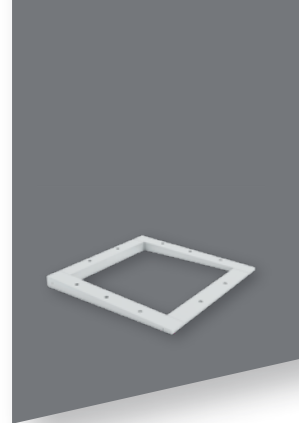
- Bases are adapted to standard sizes of flat roof windows. They can also be produced in non-standard ones.
- The XRD/A bases designed for type F & type G windows are fitted directly under the window, increasing its installation pitch by 3 or 5 degrees depending on size. They consist of four wooden painted and impregnated elements creating wedge-shaped frame once assembled. They are fully compatible with the XRD and XRD/W bases. The XRD/A base is made on request.



- extended element of the base, the so called 'fin' allows for connection of the installation base with the roof waterproofing layer



- for a higher structure, the peripheral protruding 'fin' is cut off and bases are stacked



- XRD/A base fitted directly under the window

The XRD and XRD/W installation bases are specifically designed for our range of flat roof windows. They allow the window to be installed above the roof line by 15 cm which may be required with green or gravel roof systems. The XRD/A base is intended for the type F & type G windows and lifts their installation angle by 3 degrees.

| INSTALLATION BASE | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|-------|-------|-------|-------|-------|-------|--------|---------|---------|--------|---------|---------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--|
| window size [cm] | 60/60 | 60/90 | 70/70 | 80/80 | 90/60 | 90/90 | 90/120 | 100/100 | 100/150 | 120/90 | 120/120 | 120/220 | 140/140 | 150/100 | 200/100 | 60/120 | 70/120 | 70/130 | 70/140 | 86/130 | 92/130 | |
| size symbol | 01K | 02K | 03K | 04K | 31K | 05K | 06K | 07K | 10K | 32K | 08K | 11K | 09K | 33K | 34K | 13K | 14K | 15K | 16K | 17K | 18K | |
| XRD | + | + | + | + | - | + | + | + | + | - | + | + | + | - | + | - | - | - | - | - | - | |
| XRD/W | + | + | + | + | - | + | + | + | + | - | + | + | + | - | + | + | + | + | + | + | + | |
| XRD/A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | - | - | - | - | - | - | |



ADDITIONAL ACCESSORIES



ZSD

Telescopic rod is used for operating DMF, DMC, DMG, DMZ flat roof windows and ARF/D internal roller blinds. Standard rod length is 119 cm (can be extended to 330 cm).



ZBR

The lock protects against unintentional closure of the sash caused by accidental push or strong gusts of wind.



ZBL/D

The lock enables closing the window with the key everywhere where it is necessary to protect the roof against unauthorized entrance (e.g. in multi-family buildings). The lock is compatible with all standard DRF, DRC and DRG access roof lights and DRL roof access doors.



**AMZ/F
AMZ/C
AMZ/Z**


**PROTECTION
AGAINST
OVERHEATING**

EXTERNAL ACCESSORIES - AWNING BLINDS

- The structure of the flat roof window enables installation of internal as well as external accessories.
- The awning blind absorbs solar radiation before it reaches the glazing and emits the heat to the outside. It therefore provides much better protection against solar gain.
- Up to 8 times more effective than internal blinds.
- Effective shading of the room whilst still allowing view to the outside.
- Providing relief for the eyes and protection from harmful effects of strong reflected light, especially uncomfortable when working on a computer.
- Protection against UV radiation.



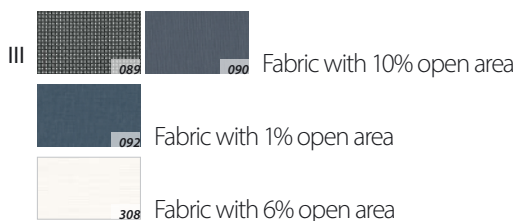
8times
more effective



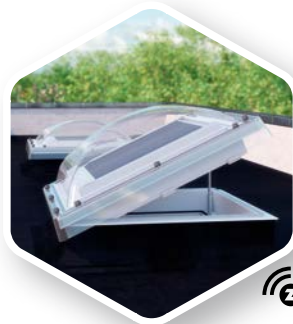
AMZ/F SOLAR

- For type F & type G flat roof windows.
 - Comfortable, automatic operation of the blind (intelligent system controls the awning blind depending on the insolation level). Photovoltaic panel acts a sensor and reacts to solar radiation. High insolation levels trigger the awning blind to unroll automatically. In cloudy weather, the awning blind rolls back up automatically without any user intervention.
 - Powered by a solar battery pack.
- Control:
- Remote control or wall switch are not included

II



The material samples printed can differ in colour from the actual product.



AMZ/CZ-WAVE AMZ/C SOLAR (fit for DRC)

- For type C flat roof windows.
 - Opened with wireless Z-Wave system.
 - Innovative profile system enables installation of the awning blind under the window's dome.
- Control:
- Remote control or wall switch are not included



AMZ/Z Z-WAVE, AMZ/Z SOLAR

- For type Z flat roof windows.
- AMZ/Z Z-Wave:**
- Opened with wireless Z-Wave system.
- Control:
- Remote control or wall switch are not included
- AMZ/Z Solar:**
- Comfortable, automatic operation of the blind (intelligent system controls the awning blind depending on the insolation level). Photovoltaic panel acts a sensor and reacts to solar radiation. High insolation levels trigger the awning blind to unroll automatically. In cloudy weather, the awning blind rolls back up automatically without any user intervention.
 - Powered by a solar battery pack.

- Control:
- Remote control or wall switch are not included

| size [cm]
size symbol | 60x60
01K | 60x90
02K | 70x70
03K | 80x80
04K | 90x60
31K | 90x90
05K | 90x120
06K | 100x100
07K | 100x150
10K | 120x90
32K | 120x120
08K | 120x220
11K | 140x140
09K | 150x100
33K | 200x100
34K |
|------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|----------------|----------------|---------------|----------------|----------------|----------------|----------------|----------------|
| AMZ/F I Solar
(089, 090) | + | + | + | + | - | + | + | + | - | - | + | + | + | - | - |
| AMZ/F II Solar
(092) | + | + | + | + | - | + | + | + | - | - | + | + | + | - | - |
| AMZ/C I Z-Wave
(090) | + | + | + | + | - | + | + | + | + | - | + | + | + | - | - |
| AMZ/C II Z-Wave
(092) | + | + | + | + | - | + | + | + | + | - | + | + | + | - | - |
| AMZ/Z III Z-Wave
(308) | + | + | + | + | - | + | + | + | - | - | + | - | - | - | - |
| AMZ/Z III Solar
(308) | + | + | + | + | - | + | + | + | - | - | + | - | - | - | - |

When installing the AMZ/C Z-Wave, AMZ/Z Z-Wave awning blinds on DX_ and DM_ windows, power supply and remote control have to be purchased additionally.



ARF/D



**PROTECTION
AGAINST INTENSE
SUNLIGHT**

INTERNAL ACCESSORIES - BLINDS

- Protection against intense light entering a room while offering scope to be used as an intrinsic element of interior design.
- Darkness even on sunny days to secure a pleasant rest.
- Guide rails can stop the blind at any position and provide gradual reduction of incoming light.
- Complete privacy by covering the whole window.
- Designed for use with F, C, G and Z type flat roof windows.



ARF/D SOLAR

- Powered by a solar battery pack.
- Opened with wireless Z-Wave system
- Guide rails and cassette are available in two colour versions - lacquered white and anodised silver.

Control:

- Remote control or wall switch are not included

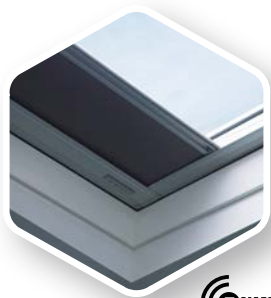


ARF/D

- Aesthetic aluminium fascia to conceal the mechanism of the blind
- Protection against heat gain

Control:

- Operated by means of ZSD control rod

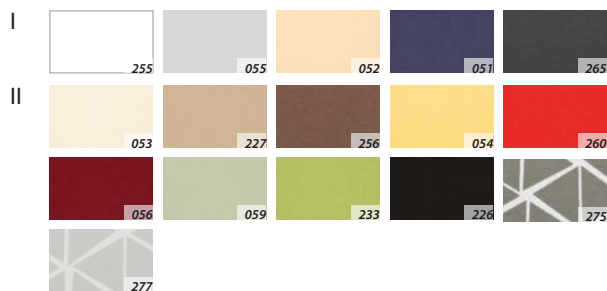


ARF/D Z-WAVE

- Aesthetic aluminium fascia to conceal the mechanism of the blind
- Protection against heat gain
- Opened with wireless Z-Wave system
- Powered from the mains

Control:

- Remote control or wall switch are not included



The material samples printed can differ in colour from the actual product.

| size [cm]
size symbol | 60x60
01K | 60x90
02K | 70x70
03K | 80x80
04K | 90x60
31K | 90x90
05K | 90x120
06K | 100x100
07K | 100x150
10K | 120x90
32K | 120x120
08K | 120x220
11K | 140x140
09K | 150x100
33K | 200x100
34K |
|----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|----------------|----------------|---------------|----------------|----------------|----------------|----------------|----------------|
| ARF/D I | + | + | + | + | + | + | + | + | - | + | + | - | - | - | - |
| ARF/D II | + | + | + | + | + | + | + | + | - | + | + | - | - | - | - |
| ARF/D I Z-Wave | + | + | + | + | + | + | + | + | + | + | + | - | - | + | - |
| ARF/D II Z-Wave | + | + | + | + | + | + | + | + | + | + | + | - | - | + | - |
| NEW ARF/ D Solar I | + | + | + | + | + | + | + | + | + | + | + | - | + | + | + |
| NEW ARF/ D Solar II | + | + | + | + | + | + | + | + | + | + | + | - | + | + | + |
| ARF/D Z-Wave NL I | | | | | | | | | | | | | | | |
| ARF/D Z-Wave NL II | | | | | | | | | | | | | | | |



EF_


**SYSTEM
FOR ROOF WINDOW
INSTALLATION**

FLAT ROOF SYSTEM EF_



- The flat roof system makes it possible to lift the window installation pitch in relation to the roof and therefore enables standard roof windows to be used on a flat roof.
- Most often used to provide natural light when adapting attic with low pitch roof to living or office space, in production halls and warehouses while at the same time maintaining good insulation properties.
- The system consists of two main components: a specially designed wooden base with insulation material and aluminium flashing to join the window with the housing. Once installed, the wooden housing must be properly fixed and sealed to the existing roof covering.
- Windows in the flat roof system can be equipped with internal accessories to protect against sunlight and

external accessories to protect against overheating of the room. We recommend the use of electrically operated accessories.

- Suitable for roof pitches between 0° and 15°.
- Available in several options. Each provides illumination and ventilation of the room and, depending on the solution used, can offer additional functions.



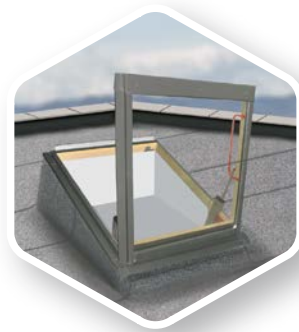
ILLUMINATION EFW

- with roof window - FTP Z-Wave window with remote control is recommended



EXIT EFW

- with FWP side hung escape window - access to a flat roof



SMOKE VENTILATION EFS

- with FSP smoke ventilation window used for extraction of smoke and heat emitted during a fire

FLAT ROOF SYSTEM

| window size [cm]
(frame external size) | 55/78 | 55/98 | 66/98 | 66/118 | 66/140 | 78/98 | 78/118 | 78/140 | 78/160 | 94/118 | 94/140 | 114/118 | 114/140 | 134/98 |
|--|-------|-------|-------|--------|--------|-------|--------|--------|--------|--------|--------|---------|---------|--------|
| size symbol | 01 | 02 | 03 | 04 | 14 | 05 | 06 | 07 | 13 | 08 | 09 | 10 | 11 | 12 |
| EFW
Flat roof system
for roof windows | + | + | + | + | + | + | + | + | + | + | + | + | + | + |

| window size [cm]
(frame external size) | 66/78 | 66/98 | 66/118 | 78/98 | 78/118 | 94/118 | 94/98 |
|--|-------|-------|--------|-------|--------|--------|-------|
| size symbol | 22 | 03 | 04 | 05 | 06 | 08 | 15 |
| EFW
Flat roof system
for roof windows | + | + | + | + | + | + | + |

| | | | | | | | |
|--|---|---|---|---|---|---|---|
| FWP U5
Side hung escape window | + | + | + | + | + | + | + |
|--|---|---|---|---|---|---|---|

| window size [cm]
(frame external size) | 78/140 | 94/140 | 114/118 | 114/140 | 134/98 |
|---|--------|--------|---------|---------|--------|
| size symbol | 07 | 09 | 10 | 11 | 12 |
| EFS
Flat roof system for smoke
ventilation windows | + | + | + | + | + |

| | | | | | |
|---|---|---|---|---|---|
| FSP P2
Smoke ventilation window | + | + | + | + | + |
|---|---|---|---|---|---|



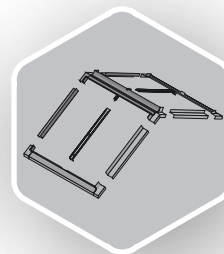
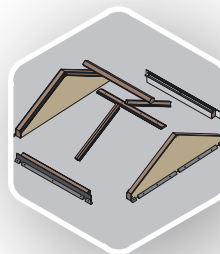
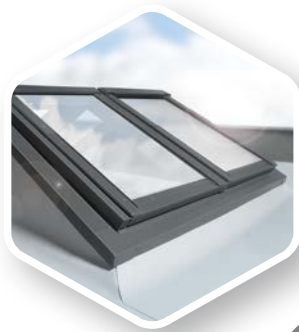
EFR


**SYSTEM
FOR ROOF WINDOW
COMBINATION
INSTALLATION**

FLAT ROOF GABLE SYSTEM EFR

- The EFR system enables combination of roof windows in flat roof structure.
- Wooden gable structure with complete set of flashings shortens to the minimum the installation time. Aesthetic and highly effective solution to illuminate rooms in buildings with low-angle roofs.
- Flat roof gable system ensures good thermal insulation performance. Design allows for fitting standard wooden roof windows.
- The product is supplied as a complete system and provides a high standard of thermal insulation. It consists of a wooden kerb with auxiliary rafters, OSB and EPS panels. The inner OSB panels can be finished with a lining. The minimum distance between adjacent windows is 40 mm.

- Windows are purchased separately.
- Windows can be equipped with internal accessories to protect against sunlight and external accessories to protect against overheating of the room. We recommend the use of electrically operated accessories.
 - Suitable for roof pitches between 0° and 15°.







EFR



- Basic version of the EFR system is offered for windows with widths of 78 cm and 114 cm in B2/2 combination (view from the top).
- Maximum window height for this system is 140 cm.
- Maximum flat roof opening is 228x250 cm.
- Standard angle between windows is 120° and the angle to that of the roof is 30°.
- Other designs of the EFR flat roof gable system (B3/2, B4/2) and other window angles are available upon request. The total width of the combination must not exceed 250 cm.

FLAT ROOF GABLE SYSTEM

| Size [cm] | 4 pcs.78x98 | 4 pcs.78x118 | 4 pcs.78x140 | 4 pcs.114x98 | 4 pcs.114x118 | 4 pcs.114x140 |
|---|---|---|---|---|--|---|
| Overall product size [cm] - (S x L x h) | 196x217x73 | 196x252x83 | 196x290x94 | 268x217x73 | 268x252x83 | 268x290x94 |
| Flat roof opening size [cm] | 156x177 | 156x212 | 156x250 | 228x177 | 228x212 | 228x250 |
|  |  |  |  |  |  |  |
| Glazing area B2/2 [m²] | 1.88 | 2.36 | 2.92 | 3.04 | 3.80 | 4.64 |
| Product code | B2/2 05 | B2/2 06 | B2/2 07 | B2/2 20 | B2/2 10 | B2/2 11 |

EFR

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+

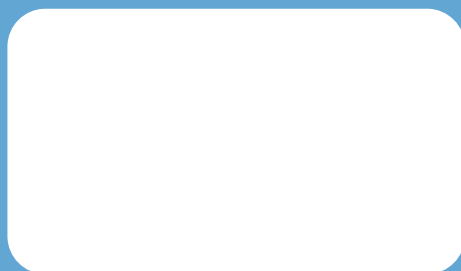
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NOTES



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