FAKRO®

PRODUCT
CATALOGUE

WE CHANGE THE VIEW

TAKING FROM

this experience we create a better, more perfect future. When designing our products, we take into account the values that shape our lives. Setting the highest standards we try to mobilise others. Changing the point of view we introduce innovations that help make life more comfortable. With our quality products, life gains an edge.

WE CARE ABOUT NATURE

One of the major objectives to be taken into account when designing products is their impact on nature. For this reason, the FAKRO products are extremely energy efficient and safe, whilst also contributing to the conservation of exhaustible natural resources of the Earth.

Our environmental responsibility is not only the acquisition of raw materials, mainly wood acquired from well-managed forests which is used in the production of natural, organic products but rational waste management as well.

WHAT MAKES FAKRO ROOF WINDOW BETTER?

THERMAL INSULATION

LOWER HEATING BILLS

Energy-efficient design

One of the top priorities when designing FAKRO roof windows is their energy-efficiency.

Special structure of the FTT U8 Thermo window featuring Uw = 0.58 W/m²K makes it the most energy-efficient roof window with a single glazing unit in the world. Such structure allows the retention of thermal energy inside the room.

The application of the V40P air inlet in FAKRO windows ensures that the optimum level of fresh air is provided without unnecessary heat loss. The FAKRO roof window design allows for large thermal energy savings in the winter, which guarantees lower heating costs.

Ample natural light

The design of FAKRO roof windows provides appropriate illumination of the room within the loft space.

Specially shaped profiles of the frame and sash as well as an air inlet location in the upper part of the frame allows for the influx of high quantities of natural light.

Sustainable energy balance

In addition to providing an effective light source, roof windows also act as means of passive heating in winter. The larger glazed area provided by FAKRO windows is correspondingly more effective in this respect, with the free thermal energy being retained by virtue of their energy-efficient design.

Appropriate structure of FAKRO roof windows enables sustainable balance in terms of acquisition and loss of thermal energy.

SAFETY

HIGH SENSE OF SAFETY

Window reinforced structure – topSafe system

Roof windows have to ensure safety of use and protect against unauthorised access to the room from the roof. The patented system of the window structure reinforcement topSafe significantly improves resistance of roof windows to break-in attempts and protects against the sash opening under foot pressure if inadvertently stepped on. The topSafe system consists of:

- innovative installation system of specially shaped hinges
- metal element strengthening the locking system
- metal slat making break-in using tools much more difficult.

FUNCTIONALITY

EASE OF OPERATION

III safety class

Toughened glass together with the topSafe reinforced structure found on FAKRO roof windows enables them to meet the minimum class III safety as per EN 13049 for the whole window including glazing. FAKRO was the first company to introduce to the market a full range of windows achieving at least class III safety, setting a new standard in the roof window sector.

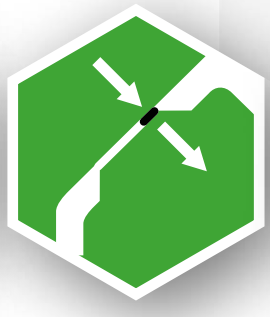
Anti-burglary protection

High level of anti-burglary protection is a crucial issue in FAKRO products. The standard window for pitched roofs – the FTP-V P2 Secure meets European 2nd anti-burglary class RC 2 N as per EN 1627. Installation of this type of windows in the roof considerably enhances safety and anti-burglary resistance of the building.

Handle in the base of the sash

Positioning the handle in the bottom section of the sash ensures easy operation of the window. Windows with the handle in the bottom section allow correct installation satisfying the requirements of DIN 5034-1* standard, according to which the upper window edge has to be situated 220cm above the floor level. With such installation system, the handle is always within easy reach. With higher installation of windows, even a tall person can freely approach open window with a pivot design. Advantages of the lower handle as an optimal solution have been recognized by other manufacturers and roof windows with the handle in the bottom have been introduced to their product range.

*standard effective on the German market



Automatic V40P air inlet

High functionality in FAKRO windows is also provided by the automatic V40P air inlet which optimally adjusts the amount of fresh air. Maintenance-free ventilation in FAKRO windows secures a healthy micro-climate in the loft and energy savings. Open air inlet features high watertightness, even during wind. It protects against dust and insects from the outside.

High window tightness

Using additional seals and a sash guiding system make the window feature high tightness.
This groundbreaking system helps maintain the proper position of the sash in the frame and correct operation of seals during repeated opening and closing the sash.
This solution ensures that the sash remains square within the frame.

NEW DIMENSION OF INNOVATION

thermoPro Technology

PROFI and LUX class roof windows are manufactured using **thermoPro** technology. The solutions introduced ensure improved quality and parameters of windows. **ThermoPro** technology increases energy-efficiency performance, provides greater durability, ensures excellent tightness and facilitates the installation process of roof windows.

BETTER
THERMAL INSULATION OF WINDOWS

- Reduced heat loss and lower heating bills
- New version of low emission coating on the glass
- Introduction of insulation inserts in the bottom corners of the sash aimed at enhancing the window's energy-efficiency performance

GREATER WOOD DURABILITY
THANKS TO WATER DRAINAGE CHANNELS

Special water drainage channels are introduced in the lower corners of the frame to discharge water from condensation and potential leakage caused by, e.g. damaged external aluminium profiles. Wooden profiles are less exposed to the moisture, which adds to their durability.

GREATER WINDOW TIGHTNESS
IN TERMS OF AIR PERMEABILITY

Windows manufactured using **thermoPro** technology feature 3rd and 4th tightness class according to **EN12207**, thus reducing the amount of air penetrating into the room. It is particularly important for mechanical ventilation.

EASIER INSTALLATION
GREATER COMFORT OF WORK

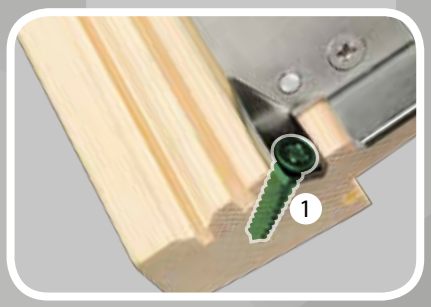
New brackets facilitate installation work and increase the ability to adjust roof windows during their installation. In addition, the use of **Torx screws** streamlines installation process of roof windows.

System topSafe

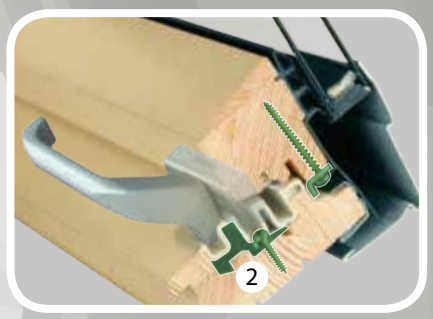
INCREASED SECURITY

Roof windows have to ensure safety of use and protect against unauthorised access to the room from the roof.
The special system of the window structure reinforcement **topSafe significantly improves resistance of roof windows to break-in attempts and protects against the sash opening under foot pressure if inadvertently stepped on.**

INNOVATIVE
INSTALLATION SYSTEM OF SPECIALLY SHAPED HINGES



METAL
ELEMENT STRENGTHENING THE LOCKING SYSTEM



METAL
STEEL BAR, MAKING IT DIFFICULT TO BREAK THE WINDOW USING TOOLS

ROOF WINDOW CONSTRUCT

TYPES OF WINDOW PROFILES

FAKRO products are constructed with a detailed analysis of their influence on nature. In this way, the company contributes to sustainable energy balance and protection of non-renewable resources of the Earth.

FSC www.fsc.org FSC® C012577
Sign of responsible forest management

10 year **WARRANTY** for window

20 year **WARRANTY** for glazing unit and hardware elements*

LIFETIME glazing unit hail resistance warranty

*details to be found in warranty card available at www.**fakro**.com and at Builders Merchants

FAKRO obtains wood from forests with planned forestry economy and uses in the production process eco-friendly materials which do not contain harmful substances. FAKRO obtains wood from forests with planned forestry economy and uses in the production process eco-friendly materials which do not contain harmful substances. The window durability is acquired by using specially selected high quality pinewood, vacuum impregnated and lacquered several times with eco-friendly acrylic lacquer in natural colour. Such windows find their destination in most of the rooms in the attic.
FAKRO roof windows can also be coated with white acrylic lacquer.

For rooms with periodically elevated humidity levels (kitchens, bathrooms) we recommend wooden windows coated with three layers of white polyurethane lacquer to create durable and perfectly smooth surface.
Visible parts of the window such as bolts or locking elements are made of plastic in white colour which add to its aesthetics.
Handle in silver colour.

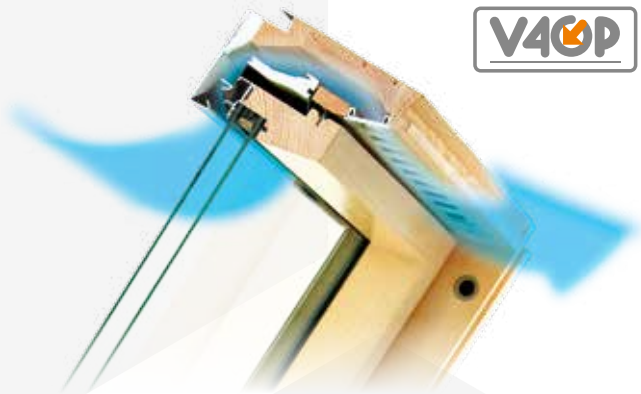
Roof windows can also be manufactured in aluminium clad - plastic version.
Multi-chamber PVC profiles are strengthened from the inside with galvanized steel. The plastic used in the window does not absorb any moisture and the window itself is durable and corrosion free.
The window is also available in golden oak and pine veneer. Intended for installation in rooms where elevated humidity levels stay for long time (wet rooms & shower rooms etc.).

The connection of PVC profile corners requires extreme care. In all aluminium clad - plastic preSelect and pivot windows in pine (PI) and golden oak (GO) veneer, an innovative technology V-PERFECT joining has been implemented. This method allows for perfect and aesthetic connection of window corners, allowing precise joining without the need for additional processing.
As a result, accurate and clean joints in the corners are created - which is especially important with coloured profiles.

ION

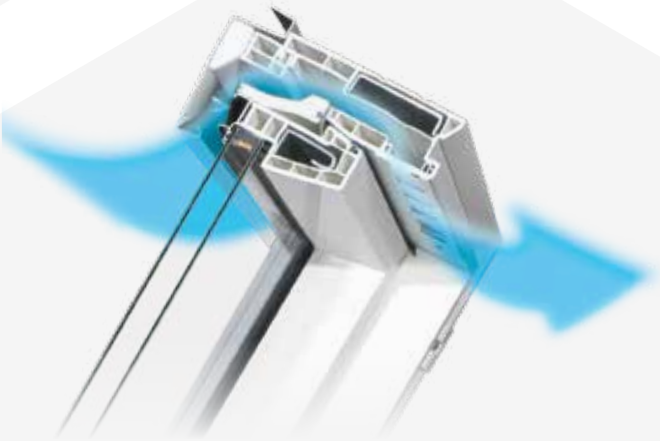
AIR INLET CONSTRUCTION

The air inlet in roof windows ensures a constant and adjusted inflow of fresh air, even when the window is closed. Due to this feature, proper functioning of the natural ventilation in the loft is possible. The air inlet channel is made in such a way that its construction provides excellent thermal and acoustic performance.
It also features very good filtering properties which prevent dust from entering the room.
Situated in the window frame it does not diminish window's actual glazed surface.



Automatic V40P Air Inlet

Positioned in the top part of the frame. At a pressure difference of 10Pa air inlet capacity is up to 49m^3/h depending on the window width. The capacity rises up to the point where the optimum value is achieved. If the pressure difference continues to grow, the airflow capacity stays on the same stable level. An elastic, pneumatic flap deflects, limiting the amount of inflowing air by reducing the air inlet duct area e.g. when strong gusts of wind appear and in the winter time. Used in the following windows:
— FTP-V, FTU-V, FPP-V preSelect, FPU-V preSelect, FYP-V proSky, FDY-V Duet proSky, FGH-V Galeria.



Air Inlet V35

Positioned in the top part of the frame. When fully opened the air inlet ensures fresh air inflow up to 41m^3/h at a pressure difference of 10Pa depending upon the window width. With increased capacity, air humidity inside the room is effectively decreased, thereby reducing condensation.
The V35 air inlet can in part discharge air when natural ventilation is not working properly. Its excellent venting efficiency guarantees that a greater amount of stale and humid air is removed from the room.
Used in PTP-V, PPP -V preSelect.

Air Inlet V22

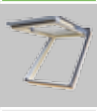
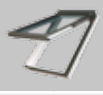
Positioned in the top part of the frame. The air inlet is equipped with manual adjustable air flow regulator. When fully opened, this inlet supplies fresh air up to 31m^3/h at a pressure difference of 10Pa. The inlet's construction provides excellent filtering and acoustic insulation. The air inlet V10 should be used solely in rooms where unassisted natural ventilation works well.
Used in FTS-V windows.

Centre pivot roof windows are still the most popular design, with a wide variety of options including highly energy-efficient windows suited to airtight construction, burglar–resistant windows (particularly suited to low pitch roofs and multi-occupancy buildings). All can be rotated through 180° to clean the outer pane from within the room. A choice of natural pine, white acrylic, white PU-coated pine and PVC is available.

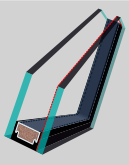
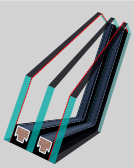
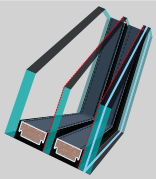
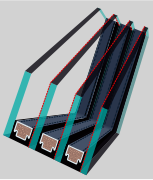
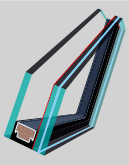
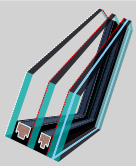
Top hung and pivot dual function roof windows provide total flexibility of use. When open, the top hung function provides an unrestricted field of view at a lower height than a centre pivot window while centre pivot operation enables the sash to be rotated through 180° to clean the outer pane from within the room. A choice of natural pine, white PU-coated pine, white acrylic and PVC is available.

High pivot roof windows function in the same way as a centre pivot window but with the axis of rotation slightly higher in the frame to enable more head space. This allows a greater glazing height to be achieved without adding to the window's width. With scope also to choose a twin sash window in a single frame (the FDY-V proSky Duet window) , this can extend up to 2.55 metres.

STANDARD ROOF WINDOWS

type	TOP HUNG AND PIVOT WINDOWS					CENTRE PIVOT					
											
material	wood			PVC		wood					
natural pine	FPP-V U3 preSelect MAX	FPP-V U5 preSelect MAX	FPP-V P2 preSelect MAX	-	-	FTP-V U3	FTP-V U5	FTP-V P2	FTP-V P5	FTP-V G61	-
white acrylic	-	-	-	-	-	FTW-V U3	FTW-V U5	FTW-V P2	FTW-V P5	FTW-V G61	-
white polyurethane	FPU-V U3 preSelect MAX	FPU-V U5 preSelect MAX	FPU-V P2 preSelect MAX	-	-	FTU-V U3	FTU-V U5	FTU-V P2	FTU-V P5	FTU-V G61	-
white PVC	-	-	-	PPP-V U3 preSelect	PPP-V P2 preSelect	-	-	-	-	-	PTP-V U3
coloured PVC	-	-	-	PPP-V GO/PI U3 preSelect	PPP-V GO/PI P2 preSelect	-	-	-	-	-	PTP-V/GO U3 PTP-V/PI U3
view											
air inlet	V4OP	V4OP	V4OP	V35		V4OP	V4OP	V4OP	V4OP	V4OP	
air inlet air flow	up to 49 m^3/h			up to 41 m^3/h		up to 49 m^3/h -					
glazing	double	triple	double	double	double	double	triple	double	triple	double	double
Ug (EN 673)	1.0 W/m^2K	0.5 W/m^2K	1.0 W/m^2K	1.0 W/m^2K	1.0 W/m^2K	1.0 W/m^2K	0.5 W/m^2K	1.0 W/m^2K	0.5 W/m^2K	1.0 W/m^2K	1.0 W/m^2K
Uw	1.3 W/m^2K	1.0 W/m^2K	1.3 W/m^2K	1.3 W/m^2K	1.3 W/m^2K	1.3 W/m^2K	0.97 W/m^2K	1.3 W/m^2K	0.97 W/m^2K	1.3 W/m^2K	1.3 W/m^2K
topSafe system	+			+		+					
acoustic insulation	33 dB	33 dB	34 dB	32dB	33 dB	32 dB	33 dB	35 dB	35 dB	36 dB	32 dB
handle	elegant			elegant white		elegant					
seals	4			4		4					
installation pitch	15-55° (55-85°)			15-55° (55-85°)		15-90°					

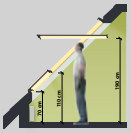
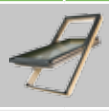
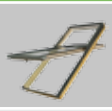
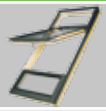
GLAZING UNIT

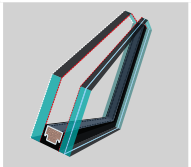
						
GLAZING UNIT	U3	U5	U6	U8	P2	P5
GLAZING STRUCTURE	4H-16-4T	4HT-10-4H-10-4HT	6H-18-4HT-18-33.2T	4H-12-4HT-12-4HT-12-4HT	4H-15-33.2T	4HS-10-4HT-8-33.2T
SOLAR FACTOR (G)	0.53	0.53	0.47	0.48	0.52	0.48
CHARACTERISTICS	ENERGY-EFFICIENT	HIGHLY ENERGY-EFFICIENT	HIGHLY ENERGY-EFFICIENT	PASSIVE	ANTY-BURGLARY	ANTY-BURGLARY
CHAMBERS	ONE	TWO	TWO	THREE	ONE	TWO
INNER LAMINATED GLASS	-	-	+ (CLASS P2A)	-	+ (CLASS P2A)	+ (CLASS P2A)
INERT GAS	ARGON	KRYPTON	ARGON	KRYPTON	ARGON	KRYPTON

The balcony window is the ultimate, modern twin sash window. With the top sash opening as a top hung window, the bottom sash with laminated internal glazing opens from the bottom to reveal built-in balustrades.

L-shaped windows provide scope to take any of FAKRO's standard roof windows into a vertical wall. This gives a much extended field of view and a bigger glazing area which maximises the use of natural daylight.

Conservation roof windows are designed to meet planning requirements in conservation areas or for the sensitive development of older buildings. In addition to all our standard windows being available in conservation style, bespoke commissions are routinely undertaken.

		CENTRE PIVOT				HIGH PIVOT		BALCONY	L-SHAPED		SIDE HUNG	
												
PVC		wood		wood		wood	wood	wood	wood		wood	
-	-	FTT U8 Thermo	FTT U6	FTP-V U3 Z-Wave	FTP-V P2 Z-Wave	FYP-V U3 proSky	FDY-V U3 Duet proSky	FGH-V P2 Galeria	BD_P2, BVP P2, BXP P2	BD_P5, BVP P5, BXP P5	FWP U3	FWP P2
-	-	-	-	-	-	-	-	-	BD_/W P2, BVW P2, BXW P2	BD_/W P5, BVW P5, BXW P5	-	-
-	-	-	-	FTU-V U3 Z-Wave	FTU-V P2 Z-Wave	FYU-V P2 proSky	FDY-V/U P2 Duet proSky	FGH-V/U P2 Galeria	BD_/U P2, BVU P2, BXU P2	BD_/U P5, BVU P5, BXU P5	-	-
PTP-V P2	PTP-V G61	-	-	-	-	-	-	-	-	-	-	-
PTP-V/GO P2 PTP-V/PI P2	PTP-V/GO G61 PTP-V/PI G61	-	-	-	-	+	+	-	-	-	-	-
												
V35		non-vented		V4GP	V4GP	V4GP	V4GP	V4GP	—		—	
up to 41 m^3/h		—		up to 49 m^3/h		up to 49 m^3/h	up to 49 m^3/h	up to 49 m^3/h	—		—	
double	double	quadruple	triple	double	double	double	double	double	double	triple	double	double
1.0 W/m^2K	1.0 W/m^2K	0.3 W/m^2K	0.5 W/m^2K	1.0 W/m^2K	1.0 W/m^2K	1.0 W/m^2K	1.1 W/m^2K	1.1 W/m^2K	1.1 W/m^2K	0.5 W/m^2K	1.0 W/m^2K	1.0 W/m^2K
1.3 W/m^2K	1.3 W/m^2K	0.58 W/m^2K	0.80 W/m^2K	1.3 W/m^2K	1.3 W/m^2K	1.3 W/m^2K	1.3 W/m^2K	1.5 W/m^2K	1.3 W/m^2K	0.88 W/m^2K	1.3 W/m^2K	1.3 W/m^2K
+		+		+		+	+	+	—		—	—
33 dB	37 dB	36 dB	38 dB	32 dB	35 dB	32 dB	32 dB	35 dB	37 dB	38 dB	33 dB	35 dB
elegant white		elegant		—		elegant	elegant	elegant	elegant slim		standard	
4		5		4		4	4	4	2		2	2
15-90°		15-70°		15-90°		20-65°	25-65°	35-55°	90°		15-55°	15-55°



G61
6HT-12-33.2
0.23
SOLAR CONTROL
ONE
+ (CLASS P2A)
KRYPTON

HOW TO SELECT A ROOF WINDOW

1

HOW WILL YOU MAKE A HOME?

- Choose the correct type of window to suit your environment.
- Classic centre pivot windows make the windows easy to clean as the sash will swivel to allow cleaning of the outside on the inside!
- Top hung and pivot windows give an unrestricted view at a lower height than a standard centre pivot window.

2

HOW MUCH DAYLIGHT DO YOU NEED?

- The higher the windows are fitted within the roof, the more natural light floods the room.
- It is recommended that the glass area should be at least 15-20% of the total floor area for best results.

3

WHICH GLAZING UNIT TO CHOOSE?

- For windows above head height you should use a laminated glass. If the glass shatters a plastic membrane between the two sheets of glass retain the shards.
- Energy-efficient triple glazed units ensure exceptional thermal efficiency and can almost eliminate heat loss altogether.
- Other glazing choices include; tinted, obscure, reflective and self-cleaning glass.

4

WHAT IS YOUR ROOF PITCH?

- Most roof windows are well suited for a roof pitch of between 15 and 90 degrees. However, the installation pitch range may differ for certain types of windows.
- For flat roofs you can choose between standard domed or non-domed designs.
- To ensure the flow of water from the glass surface of non-domed windows, the window should be installed with a pitch of at least 2 degrees.

5

SUPER SAVINGS WITH HIGHLY ENERGY-EFFICIENT WINDOWS

- A well insulated roof can be let down by a poorly insulated window which will cause heat loss.
- Standard double glazed windows with a thermally insulated glazing unit and flashing may suffice.
- For increased performance you should consider a highly energy-efficient roof window specially designed and supplied with insulating flashing.

6

MANUAL OR ELECTRIC CONTROL?

- Electric control using wireless technology is available to operate your roof windows – supplied as standard with a factory fitted motor, remote control and a rain sensor. Allows multiple windows and accessories to be operated from one controller. The use of the Z-Wave protocol permits communication with other smart home devices.

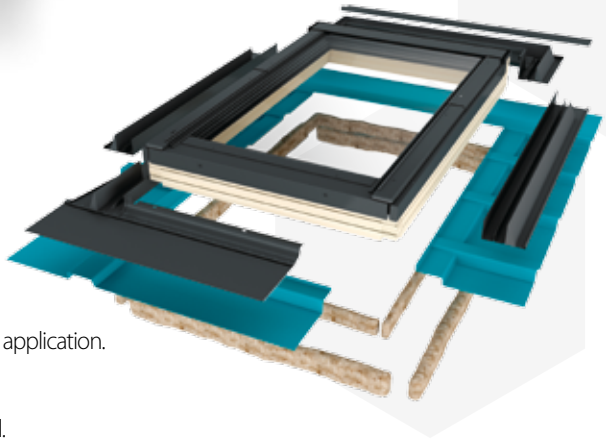
7

HOW TO PROTECT AGAINST HEAT AND SUNLIGHT?

- Contemporary awning blinds can be up to eight times more efficient than internal blinds in terms of passive heat reduction while still allowing light through.
- As well as heat absorption, solar powered awnings open automatically in cloudy weather to increase the available light. In winter they reduce noise from rain and hail and protect the window from an accumulation of snow and leaves.

SELECTING THE CORRECT FLASHING KIT

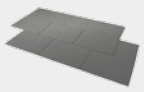
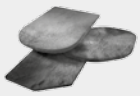
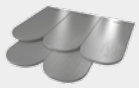
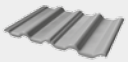
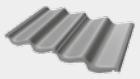
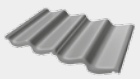
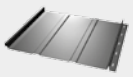
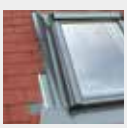
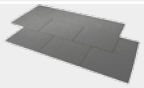
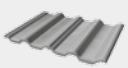
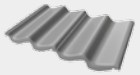
Flashing kits are necessary to provide a neat and waterproof connection to the roof, therefore choosing the correct kit is an essential requirement in the selection process.



FAKRO roof window flashings are categorised according to the roof material and application.

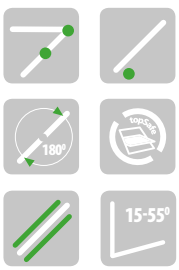
- They enable roof windows to be installed with any type of roof covering.
  - Standard depth and ideal for tiles such as the Double Roman.
  - 3cm higher than the standard depth, for high profile tiles such as the Bold Roll.
  - 3cm deeper than the standard depth, for where a recessed style is required.
- Ideal for conservation roof windows which invariably need to be positioned lower in the roof.

FLASHING KIT TYPE

		Type of roofing material		Flashing type	Fitting depth	Maximum profile depth of roof material	Roof pitch
ES			Flat roof coverings such as: - roofing felt - bitumen - flat sheet metal	ESV	**V**(0)	10mm	15° – 90°
				ESJ	**J** (–3 cm)	10mm	20° – 90°
EL			Flat roof coverings such as: - bitumen - slate	ELV	**V**(0)	up to 10mm	20° – 90°
				ELJ	**J** (–3 cm)		
EP			Plain tile roof coverings non interlocking (Peg Tiles)	EPV	**V**(0)	up to 16mm	25° – 90°
				EPJ	**J** (–3 cm)		
EZ			Profiled roof coverings such as: - roof tiles - corrugated metal sheeting	EZN-A	**N** (+3 cm)	up to 45mm	15° – 90°
				EZV-A	**V**(0)	up to 45mm	15° – 90°
				EZJ-A	**J** (–3 cm)	up to 45mm	20° – 90°
EH			High profile roof coverings such as: - roof tiles - corrugated metal sheets	EHN-A	**N** (+3 cm)	up to 90mm	15° – 90°
EH_-AT Thermo			High profile roof coverings such as: - roof tiles - corrugated metal sheeting	EHV-AT Thermo	**V**(0)	up to 90mm	15° – 90°
				EHN-AT Thermo	**N** (+3 cm)	up to 120mm	15° – 90°
EE			Flat roof coverings such as: - flat sheet metal - standing seam zinc etc	EEV	**V**(0)	—	15° – 90°
				EEJ	**J** (–3 cm)		20° – 90°
E_A			Flat roof coverings such as: - roofing felt - bitumen - corrugated metal sheeting	ESA		10mm	10° – 75°
			Profiled roof coverings such as: - roof tiles - corrugated metal sheeting	EZA-A		up to 45mm	10° – 75°
			High profile roof coverings such as: - roof tiles - corrugated metal sheeting	EHA-A		up to 90mm	10° – 75°

FPP-V preSelect MAX
FPU-V preSelect MAX
PPP-V preSelect

TOP HUNG AND PIVOT WINDOWS preSelect



- A new generation of top hung and pivot windows with two separate opening functions of sash: top hung and pivot. Separate opening functions provide sash stability and increase safety. The outward opening function enables the sash to be opened in any poisition from 0 to 35 degrees enabling easy approach to the edge of the open windows, which increases the usable area and provides unlimited view to the outside. The pivot function enables the sash to be rotated through 180 ° and is used when cleaning the outer pane or operating an awning blind. Innovative hardware system guarantees the use of only one way of opening and complete stability of the sash in outward as well as in pivot opening function. Opening method can be switched using the preSelect sliding switch positioned in the middle of the frame accessible when the window is open.
- Comfort of operation when using the handle located at the bottom of the sash. Elegant handle is equipped with a two step micro-opening facilty.
- Easy cleaning of the outer pane and setting the awning blind with the use of blocking sash bolt when rotated through 180 degrees.
- Increased resistance to burglary - topSafe system.
- A wide range of accessories.
- Suitable for pitches from 15°-55°, window in a special version installed in pitches from 55°-85°.

FPP-V
preSelect MAX

V40P - automatic air inlet V40P

U3 U5 - energy saving glazing unit U3, highly energy efficient U5 or laminated and anti-burglary glass P2

P2

- highest quality pine wood, glued in layers, vacuum impregnated

- wood painted twice with ecological acrylic lacquer in natural colour

FPU-V
preSelect MAX

V40P - automatic air inlet V40P

U3 U5 - energy saving glazing unit U3, highly energy efficient U5 or laminated and anti-burglary glass P2

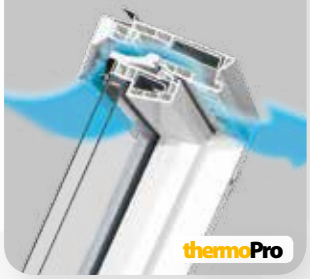
P2

- highest quality pine wood, glued in layers, vacuum impregnated

- three coats of polyurethane varnish ideal for creating a durable and smooth finish in white on the surface of the frame

- designed for rooms with periodically elevated humidity levels (kitchens, bathrooms)

PPP-V
preSelect



V35 - efficient air inlet V35

U3 - energy saving glazing unit U3,

P2 - laminated and anti-burglary glass P2

- multi chamber white PVC profile with reinforced steel core. Also available in golden oak (GO) or pine veneer (PI)

GO PI

- the material does not absorb moisture, the window is durable and resistant to corrosion.

- designed for rooms where elevated humidity level stays for long time (bathrooms, laundry rooms)

SIZES OD STANDARD TOP HUNG AND PIVOT WINDOWS

windows external dimensions [cm]	55x78	55x98	66x98	66x118	78x98	78x118	78x140	94x118	94x140	114x118	114x140	134x98	78x160
effectve glazing area [m²]	0.22	0.29	0.38	0.47	0.47	0.59	0.72	0.75	0.92	0.95	1.16	0.92	0.85
size symbol	01	02	03	04	05	06	07	08	09	10	11	12	13
FPP-V preSelect MAX	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FPU-V preSelect MAX	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PPP-V preSelect	-	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	-

FTP-V
FTW-V

CENTRE PIVOT WINDOW

- A popular design of windows with a hinge located in the middle of the window height.
- Convenient way to use the window as the handle is located at the bottom of the sash. The handle is equipped with a two step micro-opening facilty.
- Easy cleaning of the outer pane and operating the awning blind with the use of blocking sash bolt when rotated through 180 degrees.
- Increased resistance to burglary - topSafe system.
- A wide range of accessories. Ability to install electrical controls.
- Installation in roof pitches from 15 to 90 degrees.

FTP-V

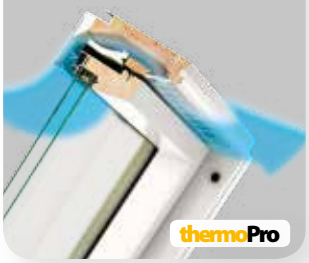
V40P - automatic air inlet V40P

U3 P2 G61 - energy saving glazing unit U3, laminated and anti-burglary glass P2 or solar control glass G61

- highest quality pine wood, glued in layers, vacuum impregnated

- wood painted twice with ecological acrylic lacquer in natural colour

FTW-V



V40P - automatic air inlet V40P

U3 P2 G61 - energy saving glazing unit U3, laminated and anti-burglary glass P2 or solar control glass G61

- highest quality pine wood, glued in layers, vacuum impregnated

- wood coated with two layers of white ecological acrylic varnish

SIZES OD STANDARD CENTRE PIVOT WINDOW

windows external dimensions [cm]	55x78	55x98	66x98	66x118	78x98	78x118	78x140	94x118	94x140	114x118	114x140	134x98	78x160
effectve glazing area [m²]	0.22	0.29	0.38	0.47	0.47	0.59	0.72	0.75	0.92	0.95	1.16	0.92	0.85
size symbol	01	02	03	04	05	06	07	08	09	10	11	12	13
FTP-V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FTW-V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

FTU-V
PTP-V

WINDOWS WITH INCREASED RESISTANCE TO MOISTURE

- A popular design of the windows with a hinge located in the middle of the window height, designed for rooms with higher humidity.
- Convenient way of using the window as the handle is located at the bottom of the sash. The handle is equipped with a two step micro-opening facilty.
- Easy cleaning of the outer pane and operating an awning blind with the use of blocking sash bolt when rotated through 180 degrees.
- Increased resistance to burglary - topSafe system.
- A wide range of accessories.
- Possibility to install electrical control.
- Installation in roof pitches from 15 to 90 degrees.

FTU-V

V40P - automatic air inlet V40P

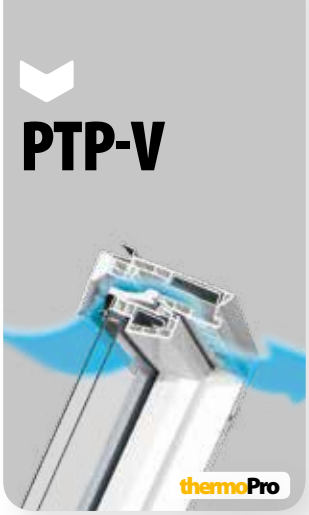
U3 P2 G61 - energy saving glazing unit U3, laminated and anti-burglary glass P2 or solar control glass G61

- highest quality pine wood, glued in layers, vacuum impregnated

- three coats of polyurethane varnish ideal for creating a durable and smooth finish in white on the surface of the frame

- designed for rooms with periodically elevated humidity levels (kitchens, bathrooms)

PTP-V



V35 - efficient air inlet V35

U3 P2 G61 - energy saving glazing unit U3, laminated and anti-burglary glass P2 or solar control glass G61

- multi chamber white PVC profile with reinforced steel core. Also available in golden oak (GO) or pine veneer (PI)

GO PI

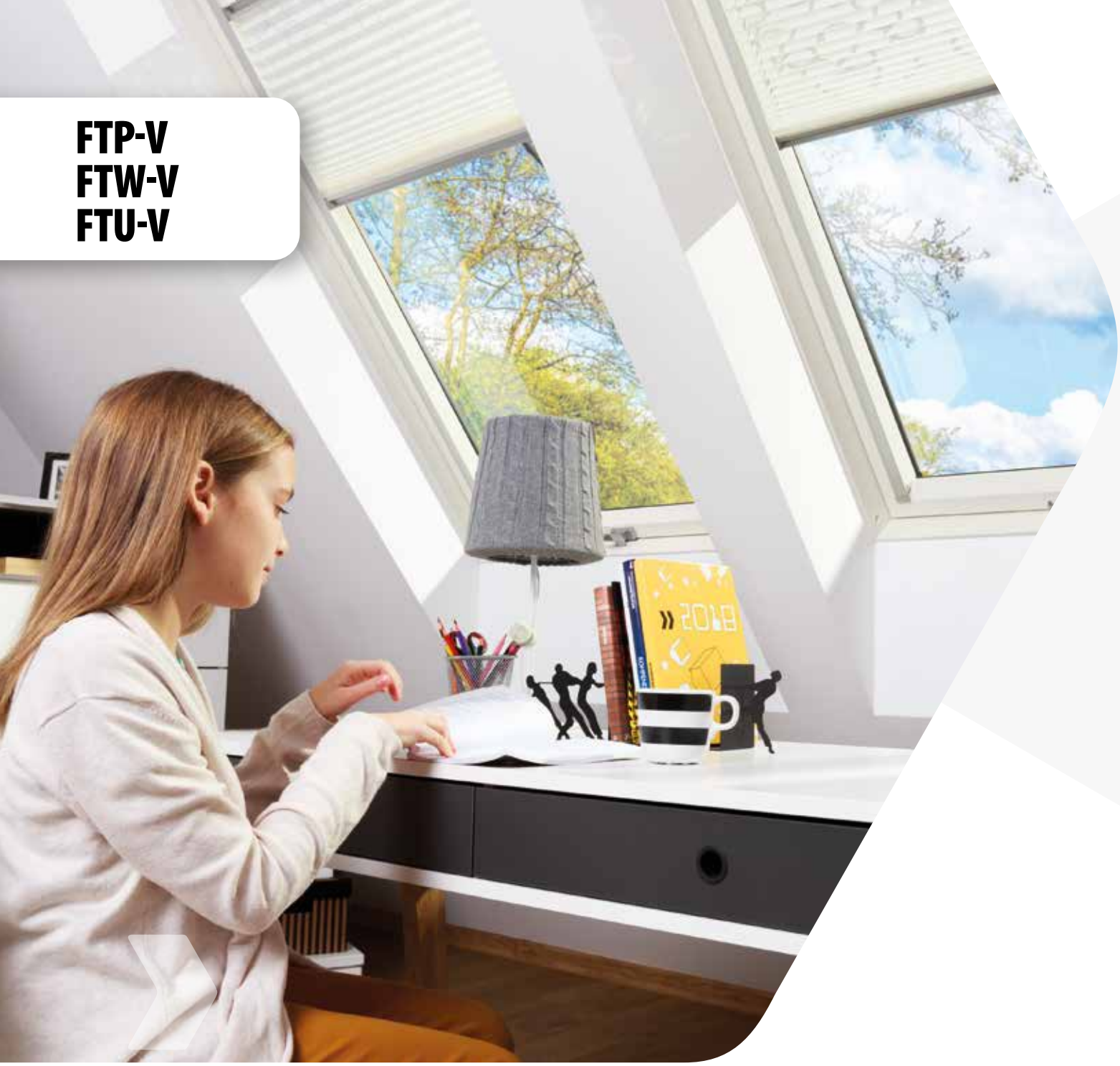
- the material does not absorb moisture, the window is durable and resistant to corrosion.

- designed for rooms where elevated humidity level stays for long time (bathrooms, laundry rooms)

SIZES OD STANDARD WINDOWS WITH INCREASED RESISTANCE TO MOISTURE

windows external dimensions [cm]	55x78	55x98	66x98	66x118	78x98	78x118	78x140	94x118	94x140	114x118	114x140	134x98	78x160
effectve glazing area [m²]	0.22	0.29	0.38	0.47	0.47	0.59	0.72	0.75	0.92	0.95	1.16	0.92	0.85
size symbol	01	02	03	04	05	06	07	08	09	10	11	12	13
FTU-V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PTP-V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

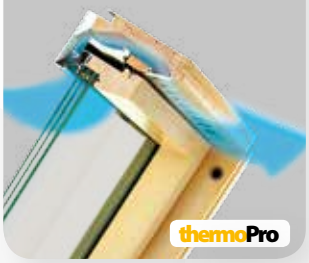
FTP-V
FTW-V
FTU-V



WINDOWS WITH DOUBLE CHAMBER GLAZING UNIT

- Richly equipped pivot windows with double chamber glazing unit (consisting of three panes).
- Convenient way of using the window as the handle is located at the bottom of the sash. The handle is equipped with a two step micro-opening facilty.
- Easy cleaning of the outer pane and operating an awning blind with the use of blocking sash bolt when rotated through 180 degrees.
- Increased resistance to burglary - topSafe system.
- A wide range of accessories.
- Possibility to install electrical control.
- Installation in roof pitches from 15 to 90 degrees.

FTP-V



V40P - automatic air inlet V40P

U5 P5 - highly energy saving glazing unit U5 or laminated and safe glass P5

- highest quality pine wood, glued in layers, vacuum impregnated

- double coated wood with ecological acrylic lacquer in natural colour

FTW-V

V40P - automatic air inlet V40P

U5 P5 - highly energy saving glazing unit U5 or laminated and safe glass P5

- highest quality pine wood, glued in layers, vacuum impregnated

- wood coated with two layers of white ecological acrylic varnish

FTU-V

V40P - automatic air inlet V40P

U5 P5 - highly energy saving glazing unit U5 or laminated and safe glass P5

- highest quality pine wood, glued in layers, vacuum impregnated

- three coats of polyurethane varnish ideal for creating a durable and smooth finish in white on the surface of the frame

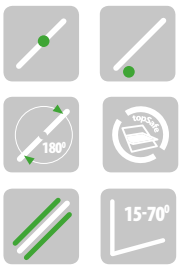
- designed for rooms with periodically elevated humidity levels (kitchens, bathrooms)

SIZES OD STANDARD WINDOWS WITH DOUBLE CHAMBER GLAZING UNIT

windows external dimensions [cm]	55x78	55x98	66x98	66x118	78x98	78x118	78x140	94x118	94x140	114x118	114x140	134x98	78x160
effectve glazing area [m²]	0.22	0.29	0.38	0.47	0.47	0.59	0.72	0.75	0.92	0.95	1.16	0.92	0.85
size symbol	01	02	03	04	05	06	07	08	09	10	11	12	13
FTP-V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FTW-V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FTU-V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

FTT U6
FTT U8
Thermo

HIGHLY ENERGY EFFICIENT WINDOWS



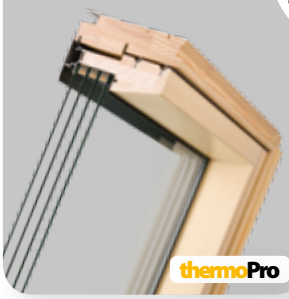
- Special roof windows for energy-efficient construction and passive buildings. The glazing units are installed to the specially designed sash frames. The sashes have widened frames when compared to standard windows. Such a structure minimizes the phenomenon of thermal bridges and provides a better window insulation.
- The pivot window with hinge situated above the centre of the window height, so even a tall person can comfortably stand at the open window. The special window design with widened sash frames and quadruple sealing system.
- Convenient way to use the window as the handle is located at the bottom of the sash.
- Easy cleaning of the outer pane and operating the awning blind with the use of blocking sash bolt when sash rotated through 180 degrees.
- Increased resistance to burglary - topSafe system.
- A wide range of accessories.
- Suitable for roof pitches from 15 to 70 degrees.

FTT U6

U6 - highly energy efficient glazing unit U6 **Uw = 0.80W/m²K** with standard flashing, **Uw=0.71W//m²K** when installed with EHV-AT Thermo flashing,

- highest quality pine wood, glued in layers, vacuum impregnated
- double coated wood with ecological acrylic lacquer in natural colour

FTT U8 Thermo



FTT U8Thermo THE WARMEST ROOF WINDOWS ON THE MARKET U_w 0.58 W/m²K ASSEMBLED TOGETHER WITH EHV-AT THERMO FLASHINGS

U8 - passive U8 glazing unit **Uw = 0.58W/m²K** the warmest roof window with a single glazing unit available on the market .
Supplied with a thermoinsulating flashing EHV-AT Thermo,

- insulation flashings XDK consisting of insulation set XDP and air-tight flashing XDS
- highest quality pine wood, glued in layers, vacuum impregnated
- double coated wood with ecological acrylic lacquer in natural colour

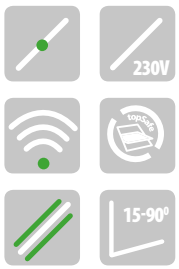
CERTIFIED COMPONENT Passive House Institute

SIZES OD STANDARD HIGHLY ENERGY EFFICIENT WINDOWS

windows external dimensions [cm]	55x78	55x98	66x98	66x118	78x98	78x118	78x140	94x118	94x140	114x118	114x140	134x98	78x160
effectve glazing area [m²]	0.22	0.29	0.38	0.47	0.47	0.59	0.72	0.75	0.92	0.95	1.16	0.92	0.85
size symbol	01	02	03	04	05	06	07	08	09	10	11	12	13
FTT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FTT Thermo	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

FTP-V Z-Wave
FTU-V Z-Wave

CENTRE PIVOT WINDOWS Z-WAVE CONTROLED



- Pivot window with factory-fitted equipment (switchboard, motor and transformer) to enable it to remotely open, close and control accessories via the remote control. Equipped with a rain sensor that automatically closes the sash during the rain. It has contacts on the frame for easy fitting of the electrical accessories.
- Easy connection to the mains supply 230V.
- Comfortable window operation by remote control. By turning the handle through 90 ° the sash is disconnected with the actuator.
- Increased resistance to burglary - topSafe system.
- Accessories in the electric version are additionally equipped with Z-Wave module.
- Suitable for roof pitches from 15 to 90 degrees.

V40P - automatic air inlet V40P

U3 P2 - energy saving glazing unit U3 or laminated and anti-burglary glass P2

- highest quality pine wood, glued in layers, vacuum impregnated

- double coated wood with ecological acrylic lacquer in natural colour

- cover in silver colour

V40P - automatic air inlet V40P

U3 P2 - energy saving glazing unit U3 or laminated and anti-burglary glass P2

- highest quality pine wood, glued in layers, vacuum impregnated

- three coats of polyurethane varnish ideal for creating a durable and smooth finish in white on the surface of the frame

- designed for rooms with periodically elevated humidity levels (kitchens, bathrooms)

- cover in white colour

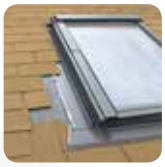
SIZES OD STANDARD CENTRE PIVOT WINDOWS Z-WAVE CONTROLED

windows external dimensions [cm]	55x78	55x98	66x98	66x118	78x98	78x118	78x140	94x118	94x140	114x118	114x140	134x98	78x160
effectve glazing area [m²]	0.22	0.29	0.38	0.47	0.47	0.59	0.72	0.75	0.92	0.95	1.16	0.92	0.85
size symbol	01	02	03	04	05	06	07	08	09	10	11	12	13
FTP-V Z-Wave	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FTU-V Z-Wave	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

FLASHINGS

Flashings are essential for the correct installation of window in the roof. Precisely designed flashing details ensure durable and neat fit with the roofing material used. The purpose of flashing is to ensure good drainage away of rainwater and melting snow from the window and to provide protection from the wind. In FAKRO product range there are many types of flashing solutions, which are made of aluminum sheet, protected by polyester lacquer. The basic colour is grey - brown RAL 7022, by which the window matches perfectly any standard roofing colour.

Standard flashings allow to install windows in the most popular types of roofing materials:

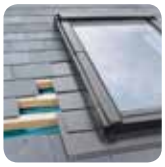


ES_
for flat roof coverings up to 10mm thickness (2x5mm)

EZ_
for profiled roof coverings (up to 45mm profile depth)

EH_
for high profile roof coverings (up to 90mm profile depth)

EHV-AT$_{Thermo}$
provides thermal insulation of roof windows above the surface of battens



EL_
for slated roof coverings up to 10mm thickness (2x5mm)

EG_
for slated roof coverings with thickness (24-32mm)

EFW
flat roof system

SIZES OD STANDARD FLASHINGS FOR CENTRE PIVOT WINDOW, TOP HUNG AND PIVOT WINDOWS

window dimensions [cm] size symbol	55x78 01	55x98 02	66x98 03	66x118 04	78x98 05	78x118 06	78x140 07	94x118 08	94x140 09	114x118 10	114x140 11	134x98 12	78x160 13
ESV for flat roof coverings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EZV-P for profiled roof coverings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EHN-P for high profile roof coverings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EHV-AT Thermo*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ELV for slated roof coverings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EGV for thick slated roof coverings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EFW flat roof system	-	✓	-	✓	✓	✓	✓	✓	-	✓	-	-	-

*flashing for flat, profiled and high profiled roof coverings (up to 90mm profile depth)

FLASHING FOR JOINING WINDOWS IN COMBINATIONS

Flashing systems are ready made flashing combinations for joining windows in the groups: horizontally, vertically and in a block.
The distance between the windows joined horizontally and vertically is normally 10cm. If external shutters are installed on roof windows in vertical combination, a gap between the windows of at least 20 cm is required.

B2/1
horizontal combination

B1/2
vertical combination

B2/2
block combination

THE MOST POPULAR-FLASHING COMBINATIONS FOR PROFILED ROOF COVERINGS

window dimensions [cm] size symbol	55x78 01	55x98 02	66x98 03	66x118 04	78x98 05	78x118 06	78x140 07	94x118 08	94x140 09	114x118 10	114x140 11	134x98 12	78x160 13
B2/1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
B1/2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
B2/2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

FYP-V proSky
FDY-V Duet proSky

WINDOW WITH RAISED AXIS OF ROTATION

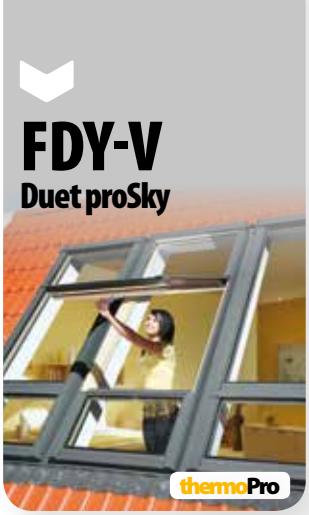
- The pivot window, but its axis of rotation is situated above the centre of the window so even a tall person can easily walk up to the window edge. The lower part of the sash fulfils a top hung window function and the upper part of the sash is an additional source of daylight. The sash when opened in position from 0 to 45 degrees is supported by innovative supporting mechanism enabling the sash to be open in any position within this range. When installed in roofs with pitches 39°- 43° the window satisfies the requirements of DIN 5034-1* standard, according to which the bottom window edge has to be placed 95cm above the floor level and the top minimum 220cm.
- The window is operated by the use of handle located at the bottom of the sash.
  The handle is equipped with a two step micro-opening facilty.
- Sash rotated through 160 degrees is locked by the bolt for cleaning.
- Increased resistance to burglary - topSafe system.
- A wide range of accessories.

* *Rule applies to the German market*

FYP-V
proSky

- automatic air inlet V40P
- energy saving glazing unit U3
- single sash window
- highest quality pine wood, glued in layers, vacuum impregnated
- double coated wood with ecological acrylic lacquer in natural colour
- windows available up to height 206 cm
- installation range 20-65°

FDY-V
Duet proSky



- automatic air inlet V40P
- energy saving glazing unit U3
- two sash window,
- highest quality pine wood, glued in layers, vacuum impregnated
- double coated wood with ecological acrylic lacquer in natural colour
- windows available up to height 255 cm
- installation range 25-65°

SIZES OD STANDARD WINDOWS WITH RAISED AXIS OF ROTATION

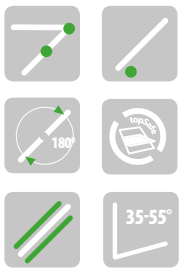
windows external dimensions [cm]	78x160	78x180	78x206	94x160	94x180	94x206
glazing area [m²]	0,47	0,47	0,59	1.07	1.22	1,35
size symbol	13	40	42	80	41	43
	✓	✓	✓	✓	✓	✓

WITH LOWER TRANSOM
FDY-V U3 Duet proSky

78x206	78x235	78x255	94x206	94x235	94x255
1.19	1.19	1.29	1.46	1.46	1.46
CB	CC	CD	DB	DC	DD
✓	✓	✓	✓	✓	✓

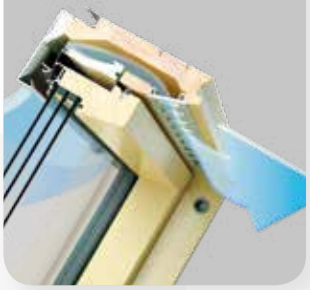
FGH-V Galeria

BALCONY WINDOW Galeria



- Innovative, large roof window in which the open sashes create a balcony. The upper sash is opened upwards, the lower forward allowing easy access to the balcony bay. The sash when opened in position form 0 °to 45 ° is supported by innovative supporting mechanism enabling to leave the sash open in any position within this range.
- The window is operated by the handle located at the bottom of the upper sash. Handle with two-point locking mechanism.
- The sash when rotated through 180 degrees is locked by the bolt for cleaning.
- Increased resistance to burglary - topSafe system.
- A wide range of accessories.
- Installation range from 35 to 55 degrees.

FGH-V
Galeria



FAKRO

FAKRO

- automatic air inlet V40P
- laminated and anti-burglary glass P2
- highest quality pine wood, glued in layers, vacuum impregnated
- double coated wood with ecological acrylic lacquer in natural colour

- the upper sash can be raised smoothly up to an angle of 45 °. Side safety barriers are integrated into the bottom sash and they tilt forward during the sash opening
- when closing the lower sash, the balcony barriers are hidden below the window profiles and are not visible above the roof, so do not get dirty and do not spoil aesthetics of the roof

Installation of balcony window can only be performed by qualified personnel.
Cost of installation services is determined individually.

FGH-V balcony window in combination with other FAKRO windows e.g.
FDY-V can be realised only by means of K__ / G flashing.

BALCONY WINDOW		
window external dimensions [cm]	78x255	94x255
glazing area [m²]	1.32	1.67
FGH-V P2 Galeria	✓	✓

FLASHING	window external dimensions [cm]	78x255 CD	94x255 DD
	ESV/G for flat roof coverings	✓	✓
	EZV-A/G for profiled roof coverings	✓	✓
	EHN-AT Thermo/G	✓	✓

BDL, BDR
BVP
BXP

L- SHAPE COMBINATION WINDOW

- The L-shaped windows are designed to be installed where the roof meets a vertical wall. These windows serve to extend the roof window into the wall. This results in the amount of light entering the room and the field of view being greatly increased. The L-shaped combination windows can be combined with roof windows of any design.
- As standard equipped with safety glazing unit P2 or P5.
- Windows equipped with multi-point locking fittings.
- The highest quality pine wood, glued in layers, vacuum impregnated.
- Double coated wood with ecological acrylic lacquer.
- A wide range of accessories.
- The roof window installation range joined with L-shaped combination window is 15 to 55 degrees.

BDL, BDR

- tilt and turn opening system.
- the sash opened by tilting 12cm and turned to 90 degrees. Operated by one handle located on the side of the sash. As standard comes with a key, by which you can lock the window. Opened to the right (BDR) or left side (BDL).

BVP

- tilt opening
- the sash opened by tilting about 12 cm. The handle with key lock is situated on the upper part of the sash.

BXP

- non-openining

SIZES OD STANDARD L-SHAPED WINDOW B_ - WOODEN

window external dimensions [cm]	78x60	78x75	78x95	78x115	78x137	94x75	94x95	114x75	114x95
size symbol	33	81	82	83	84	85	86	89	90
BDL (left) **BDR** (right)	✓	✓	✓	✓	✓	✓	✓	-	✓
BVP	✓	✓	✓	✓	✓	✓	✓	✓	✓
BXP	✓	✓	✓	✓	✓	✓	✓	✓	✓

ROOF WINDOW ACCESSORIES

Roof window accessories combine functionality and utility features with an attractive decorative form. They make it possible to control the action of light, reducing heat excess in the summer and save energy in winter. A wide range of types, patterns and colours of accessories ensures that the window matches with any interior décor and offers the possibility of shaping the style of any room.

INTERNAL ACCESSORIES

Venetian blind AJP

- ability to control the amount of incoming light to the room
- control the direction of light entering through by changing the angle of lamellaes

roller blind standard ARS

- protection from light
- can leave the blind in three different positions

dimming roller blinds ARP

- protection against sunlight during sunny days
- possibility to lock the blind in any position

blackout blinds ARF

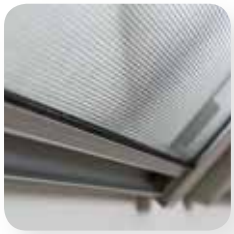
- very good protection from sunlight
- the possibility of darkening the room
- possibility to lock the blind in any position
- partial protection from solar heat

pleated blinds APS

- provide a soft and diffused light into the room
- possibility to lock the blind in any position
- top-down system – easy operation by means of an upper and lower bar

pleated blinds APF

- provide a soft and diffused light into the room
- possibility to lock the blind in any position
- top-down system – easy operation by means of an upper and lower bar



Insect screen AMS

- protection against insects
- minimum shading of the room
- can be installed with other internal and external accessories

EXTERNAL ACCESSORIES

awning blind AMZ

- 8 times more efficient against room overheating
- optimal protection against burdensome heat (effect - price)
- effective shading of the interior while providing visibility
- comfortable use, the awnig blind can cover the window for a whole summer without the need to roll it up and down every day

external roller shutter ARZ

- effective protection against burdensome heat
- reducing heat loss in winter
- darkening the room
- makes break-in attempts difficult

FWP
WS_, WG_
WLI

ROOF ACCESS WINDOWS

Roof access windows provide fast, easy and safe access to the roof for conservation, installation or maintenance. Depending on the type of room in the loft space, proper roof access window can be installed.

ESCAPE WINDOW FWP

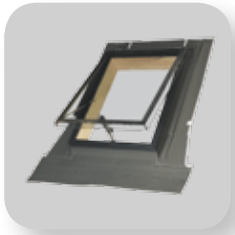
Escape window FWP combines advantages of roof window and roof access window. As a roof access window provides easy and safe access to the roof and as a roof window it lets sunlight and fresh air enter the space. The FWP escape window also has good thermal insulation properties.

STANDARD ACCESS ROOF LIGHTS

The main function of standard access roof lights is to enable access to the roof. They provide lighting and fresh air which thanks to the possiblity to leave the sash ajar enters the space inside.

FWP

- is designed for inhabited, heated and insulated attics. The FWP with any opening side (right or left).



WS_

- top hung design, semi-circular made from polycarbonate dome opens upwards through 180 degrees, providing easy access to the roof, and the effective lighting of the room.
- The material from which it is made is characterised by increased resistance to weathering and UV rays' penetration.

WG_

- top hung design, the sash opens upwards.
- is available in two versions:
- WGT version with single toughened glass 4H,
- WGI version with integrated toughened glass 4H-10-4H

WLI

- top hung design with sash which opens to the side. It can be installed in such a way as to be opened to the right or the left. The applied turn limiter holds the sash stable when opened and prevents it slamming shut accidentally.

SIDE HUNG ESCAPE WINDOW

external dimensions [cm] size symbol	66x78 22	66x98 03	66x118 04	78x98 05	78x118 06	94x118 08	94x98 15
FWP	✓	✓	✓	✓	✓	✓	✓

STANDARD ACCESS ROOF LIGHTS

external dimensions [cm]	54x75	86x86
WSS for flat roof covering	✓	✓
WSZ for profiled roof coverings	✓	✓
WSH for high profile roof coverings	✓	✓

external dimensions [cm]	45x55	45x75
WGT	✓	✓
WGI	✓	✓

external dimensions [cm]	54x83	86x87
WLI	✓	✓

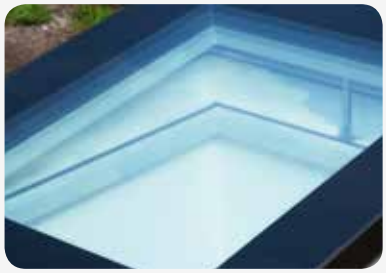
FLAT ROOF WINDOW STRUCTURE

A 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. The specially profiled covering material under the frame drip cap further improves the ultimate finish between the window and the roof covering.

The servo-motor 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 servo-motor and all control elements.



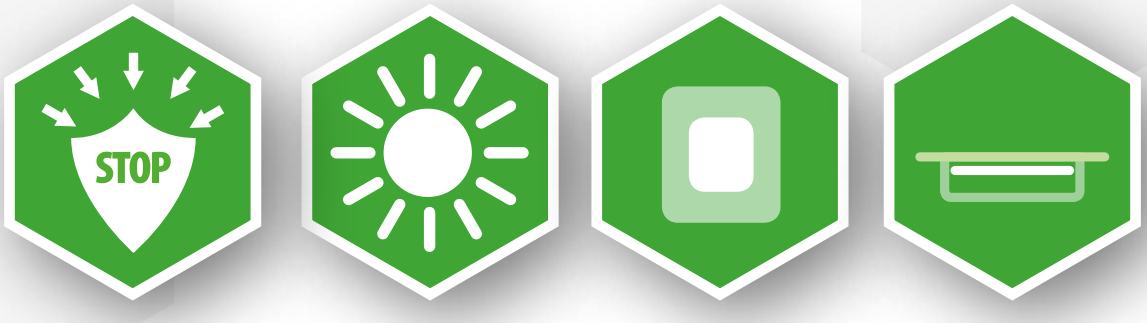
The electrically operated windows (type C, type F and type G) have a built-in sensor that automatically activates the sash closing function when it rains.

Electric actuator situated in the window sash allows for sash maximum micro--opening up to 150mm.

SAFETY & FUNCTIONALITY

THERMAL INSULATION

LOWER HEATING BILLS



High safety

Flat roof windows DMF DU6 Secure, DXF DU6 Secure, DMC P4 Secure and DXC P4 Secure comply with European anti-burglary class RC2 (EN 1627). They are also characterised by the highest impact resistance (Class SB 1200 - EN 1873). Installation of such windows in flat roofs increases operational safety and anti-burglary resistance of 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 windows 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.

Non-standard sizes

In addition to standard sizes, type F windows can be manufactured in non-standard dimensions (in the range of 60x60cm - 120x220cm). Thermal insulation standards of buildings have been significantly increased and old skylights in flat roofs will not meet current requirements. The specification of a type F window enables existing, often non-standard skylights to be replaced with ease. Taking advantage of such opportunity provides high flexibility when designing or renovating buildings.

Accessories and control

Installing the right internal and external accessories enhances functionality and aesthetic appearance of windows in the roof. Use of an external awning blind protects the room from overheating, while internal accessories provide protection from intense sunlight and enhance interior design.

FLAT ROOF WINDOWS TYPE F

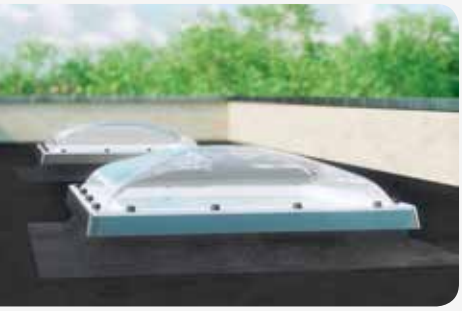
- An abundance of natural light. The specially designed shape of the window profiles features glazing area up to 16% greater than those of competitors.
- Windows are available with two glazing units:

1. Energy-efficient, DU6 triple-glazed unit with a whole window U-value of 0.70 W/m^{2}K (EN 14351-1
2. Quadruple glazing unit DU8 with a whole window U-value of 0.64 W/m^{2}K (EN 14351-1). Such excellent performance makes the window suitable for use in passive buildings.

- The F type windows are available with the ColourLine option and so can be finished in over 200 colours from the RAL classic palette. This wide range enables customers to customize their windows to suit their personal taste.
- Windows come in three versions:
  DEF - Electrically opened with wireless Z-Wave system. The sash tilts 15cm. The kit includes power supply, remote control and rain sensor.
  DMF - Opened manually by means of 2.2 m long control rod (included as standard). The sash tilts 30cm.
  DXF - Non-opening.
- 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 structure of the window enables installation of internal as well as external accessories.
- For more detailed information see Flat Roof System Products Catalogue.

FLAT ROOF WINDOWS TYPE G

- Excellent thermal insulation performance. Thanks to proven design of the window which is constructed of multi-chamber PVC profiles filled with insulation material, heat transfer coefficient for the complete window is 0.92 W/m^{2}K, which far exceeds similar systems available on the market.
- 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 come in three versions:
  DEG - Electrically opened with wireless Z-Wave system. The kit includes power supply, remote control and rain sensor. The sash tilts 15 cm.
  DMG - Opened manually by means of 2.2 m long control rod (included as standard). The sash tilts 30cm.
  DXG – Non-opening.
- 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 structure of the window enables installation of internal as well as external accessories.
- For more detailed information see Flat Roof System Products Catalogue.



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.
- Available with a transparent dome D_C-C or an opaque dome D_C-M.
- Windows are available with two glazing units:

1) Anti-burglary, P2 glazing unit with a whole window U-value of 1.2 W/m^{2}K (EN 12567-2) which is as much as 14% better when compared with other manufacturer's products.
2) Quadruple glazing unit U8 (VSG) with a whole window U-value of 0.72 W/m^{2}K (EN 12567-2) or 0.55 W/m^{2}K (EN 1873 for the size 120x120cm). Such excellent parameters make the window suitable for use in passive buildings.

- Windows come in three versions:
  DEC - Electrically opened with wireless Z-Wave system. The kit includes power supply, remote control and rain sensor. The sash tilts 15 cm.
  DMC - Opened manually by means of 2.2 m long control rod (included as standard). The sash tilts 30cm.
  DXC – Non-opening.
- 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 structure of the window enables installation of internal as well as external accessories.
- For more detailed information see Flat Roof System Products Catalogue.

FLAT ROOF WINDOWS TYPE Z

- Excellent thermal insulation performance. Thanks to proven design of the window which is constructed of multi-chamber PVC profiles filled with insulation material, heat transfer coefficient for the complete window is 0.95 W/m^{2}K.
- Upon request, windows are available with a factory-installed AMZ/Z Z-Wave awning blind under the glass segment, thus providing customers with a fully functional solution while saving time and limiting investment expenses.
- Window parameters are the same, the only difference is in their aesthetics as D_Z-A are available with welded glass segment, while D_Z-B with riveted one. Windows come in versions:
  DEZ-A/ DEZ-B - Electrically opened with wireless Z-Wave system.
  DMZ-A/ DMZ-B - Opened manually by means of 2.2 m long control rod (included as standard).
  DXZ-A/ DXZ-B - Non-opening.
- The structure of the window enables installation of internal as well as external accessories.
- For more detailed information see Flat Roof System Products Catalogue.

FLAT ROOF WINDOW WALKABLE DXW

- 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.
- 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/m^{2}K.
- 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.
- FAKRO has been given the prestigious award "ICONIC AWARDS 2018: Innovative Architecture-Best of Best" for its innovative DXW "walkable" flat roof window.

FLAT ACCESS ROOF LIGHTS DRC, DRF

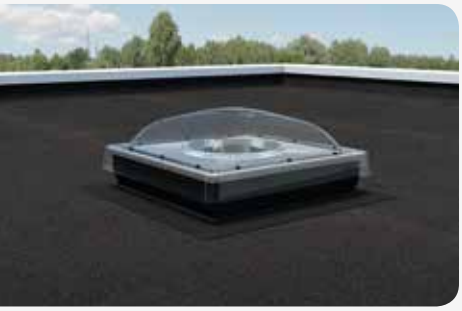
- Providing safe and convenient access to flat roofs. The use of special hinges and a simple method of operation enables the sash to be opened to 80° (in sizes 90x120 and 120x120 open up to an angle of 60°). Gas springs facilitate operation of the sash, keep it stable in the open position and protect against accidental closure. Additionally, the access roof light incorporates increased operational safety through use of an anti-slip tape on its lower frame element.
- 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.

Access roof lights are available with two glazing units:

1. The **DRF** access roof light with energy-efficient, DU6 glazing unit with a class P2A anti-burglary inner pane and the U-value of 0.74 W/m^{2}K for the complete product (EN14351-1:2006+A2:2016).
2. The **DRC** access roof light with P2 glazing unit and the U-value of 0.93 W/m^{2}K for the complete product (EN 1873:2005).

- 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 is designed for pitches between 2° and 15° or from 0° with the XRD/A.
- 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 fitted directly beneath the access roof light lifts installation angle by 3 degrees.
- The structure of the access roof light enables installation of manual internal accessories and solar powered external accessories. Use of an external awning blind protects the room from overheating, while internal accessories provide protection from intense sunlight and enhance interior design.



LIGHT TUNNELS

A source of natural daylight should be available in any living space. It often happens that there are interiors in which the use of vertical or even roof windows is not feasible. To ensure illumination in such places, installing a light tunnel will channel natural light to the centre. Light tunnels enhance the user's comfort and save energy. They can also be used in the evenings and at night when equipped with the SLO light kit which acts as a lamp.
The light tunnel with flexible light transmitting tube comes in two versions:
- **SFD-_** - with the dome. Equipped with integrated flashing.
- **SF_** - flat. Equipped with integrated flashing.
The light tunnel with rigid light transmitting tube comes in two versions:
- **SRD-_** - with the dome. Equipped with integrated flashing.
- **SR_** - flat. Equipped with integrated flashing.

The offer of light tunnels has been expanded with flat roof light tunnels which make it possible to illuminate with natural light all rooms under flat roofs. Their structure is based on proven design of the type C flat roof window with a dome to ensure high durability and tightness. Flat roof light tunnels come in the following versions:
- **SRF** - with rigid light transmitting tube having a length of 61cm.
- **SFF** - with flexible light transmitting tube which allows to bypass potential structural obstacles. The tube length is 210cm.

LOFT LADDERS

FOLDING LOFT LADDERS enable safe and easy access to loft spaces without the need for costly and space-consuming staircases. FAKRO ladders satisfy all technical and safety requirements whilst maximising ease of use and comfort.

FAKRO offers a choice of wood and metal loft ladders to satisfy the needs of each individual customer and home. All FAKRO folding ladders offer a high degree of thermal efficiency.

All loft ladders compliant with EN 14975.

LOFT LADDER TYPE	LWK Komfort	LTK Energy	LWF 45	LMF 120	LST
					
Room height [cm]	280, 305			280, 305	250-280
Box	pinewood			metal	pinewood
Hatch	thermo-insulating	extra thermo-insulating	fire-resistant	fire-resistant	thermo-insulating
Hatch colour	white	white	white	white	white
Ladder	pinewood			metal	metal
Treads	non-slip treads set flush with ladder strings			metal, anti-slip	metal, anti-slip
Thermal insulation thickness	3 cm	6 cm	7.4 cm	8cm	3 cm
Hatch thickness	3.6 cm	6.6 cm	8 cm	8.2 cm	3.6 cm
Maximum loading	**160 kg**	**160 kg**	**160 kg**	**200 kg**	**200 kg**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FAKRO reserves the right to change specifications at any time.

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