



**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  $U_w = 0.58 \text{ W/m}^2\text{K}$  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.

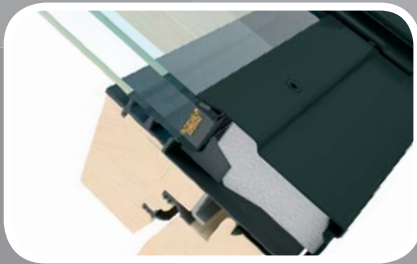
# NEW DIMENSION OF INNOVATION

## 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.



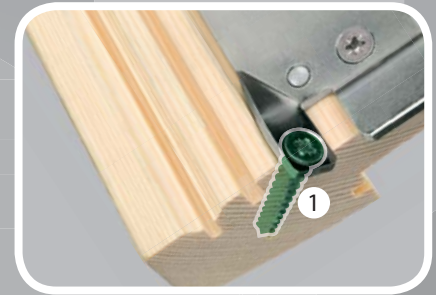
# System **topSafe**



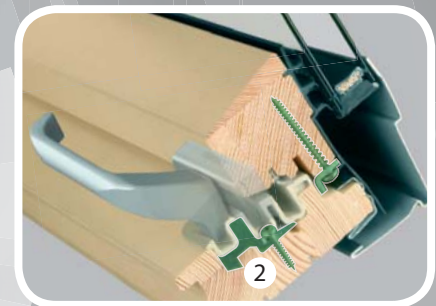
## INCREASED SECURITY

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.



**10** year  
**WARRANTY**  
for window

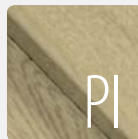
**20** year  
**WARRANTY**  
for glazing unit  
and hardware elements\*

**∞ LIFETIME**  
glazing unit hail  
resistance warranty

\*details to be found in warranty card available at [www.fakro.com](http://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.

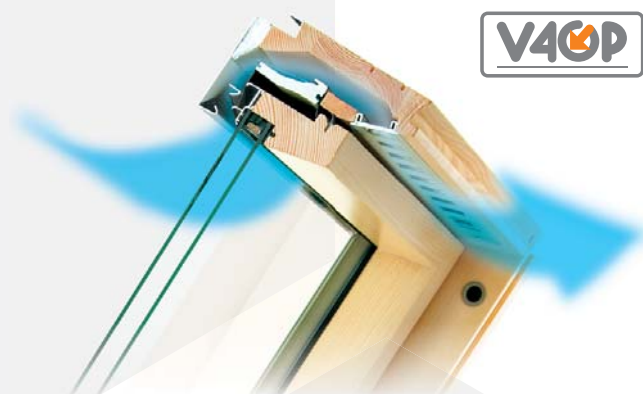
The window is also available in golden oak and pine veneer. Intended for installation in rooms where elevated humidity levels stay for long time (wet rooms & shower rooms etc.).

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.

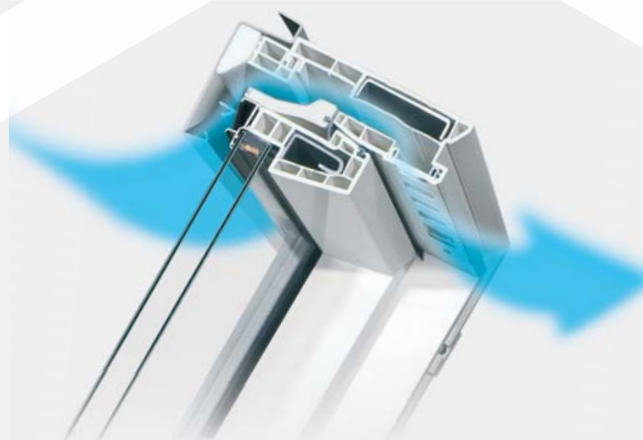
## AIR INLET CONSTRUCTION

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.



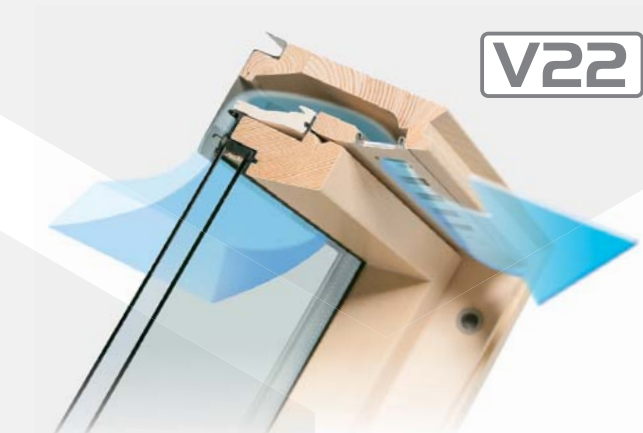
### Automatic V40P Air Inlet

Positioned in the top part of the frame. At a pressure difference of 10Pa air inlet capacity is up to 49m<sup>3</sup>/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<sup>3</sup>/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

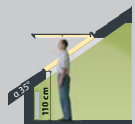
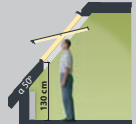











Positioned in the top part of the frame. The air inlet is equipped with manual adjustable air flow regulator. When fully opened, this inlet supplies fresh air up to 31m<sup>3</sup>/h at a pressure difference of 10Pa. The inlet's construction provides excellent filtering and acoustic insulation. The air 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				V35							
air inlet air flow	up to 49 m <sup>3</sup> /h			up to 41 m <sup>3</sup> /h		up to 49 m <sup>3</sup> /h					
glazing	double	triple	double	double	double	double	triple	double	triple	double	double
Ug (EN 673)	1.0 W/m <sup>2</sup> K	0.5 W/m <sup>2</sup> K	1.0 W/m <sup>2</sup> K	1.0 W/m <sup>2</sup> K	1.0 W/m <sup>2</sup> K	1.0 W/m <sup>2</sup> K	0.5 W/m <sup>2</sup> K	1.0 W/m <sup>2</sup> K	0.5 W/m <sup>2</sup> K	1.0 W/m <sup>2</sup> K	1.0 W/m <sup>2</sup> K
Uw	1.3 W/m <sup>2</sup> K	0.97 W/m <sup>2</sup> K	1.3 W/m <sup>2</sup> K	1.3 W/m <sup>2</sup> K	1.3 W/m <sup>2</sup> K	1.3 W/m <sup>2</sup> K	0.93 W/m <sup>2</sup> K	1.3 W/m <sup>2</sup> K	0.97 W/m <sup>2</sup> K	1.3 W/m <sup>2</sup> K	1.3 W/m <sup>2</sup> K
topSafe system	+			+		+					
acoustic insulation	32 dB	33 dB	35 dB	32dB	33 dB	32 dB	33 dB	35 dB	35 dB	36 dB	33 dB
handle	elegant			elegant white		elegant					
seals	4			4		4					
installation pitch	15-55° (55-85°)			15-55° (55-85°)		15-90°					


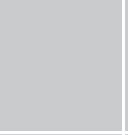
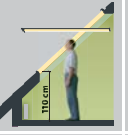
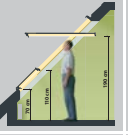
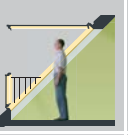

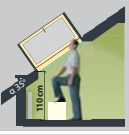













## GLAZING UNIT

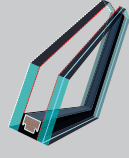
						
GLAZING UNIT	U3	U5	U6	U8	P2	P5
GLAZING STRUCTURE	4H-16-4T	4HT-10-4H-10-4HT	6H-18-4HT-18-33.2T	4H-12-4HT-12-4HT-12-4HT	4H-15-33.2T	4HS-10-4HT-8-33.2T
SOLAR FACTOR (G)	0.53	0.53	0.47	0.48	0.52	0.48
CHARACTERISTICS	ENERGY-EFFICIENT	HIGHLY ENERGY-EFFICIENT	HIGHLY ENERGY-EFFICIENT	PASSIVE	ANTY-BURGLARY	ANTY-BURGLARY
CHAMBERS	ONE	TWO	TWO	THREE	ONE	TWO
INNER LAMINATED GLASS	-	-	+(CLASS P2A)	-	+(CLASS P2A)	+(CLASS P2A)
INTER 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, BX P2	BD_P5, BVP P5, BX 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							—		—	
up to 41 m³/h		-		up to 49 m³/h		up to 49 m³/h	up to 49 m³/h	up to 49 m³/h	—		—	
double	double	quaduple	triple	double	double	double	double	double	double	triple	double	double
1.0 W/m²K	1.1 W/m²K	0.3 W/m²K	0.5 W/m²K	1.0 W/m²K	1.0 W/m²K	1.0 W/m²K	1.1 W/m²K	1.1 W/m²K	1.1 W/m²K	0.5 W/m²K	1.1 W/m²K	1.1 W/m²K
1.3 W/m²K	1.3 W/m²K	0.58 W/m²K	0.80 W/m²K	1.3 W/m²K	1.3 W/m²K	1.3 W/m²K	1.3 W/m²K	1.5 W/m²K	1.3 W/m²K	0.88 W/m²K	1.3 W/m²K	1.3 W/m²K
+	+	+	+	+	+	+	+	+	—		—	—
33 dB	36 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?

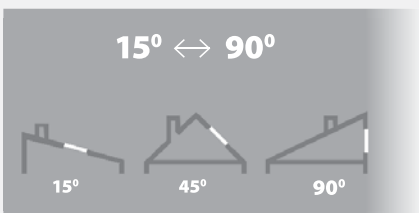
- The higher the windows are fitted within the roof, the more natural light floods the room.
- It is recommended that the glass area should be at least 15-20% of the total floor area for best results.



➤ 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.



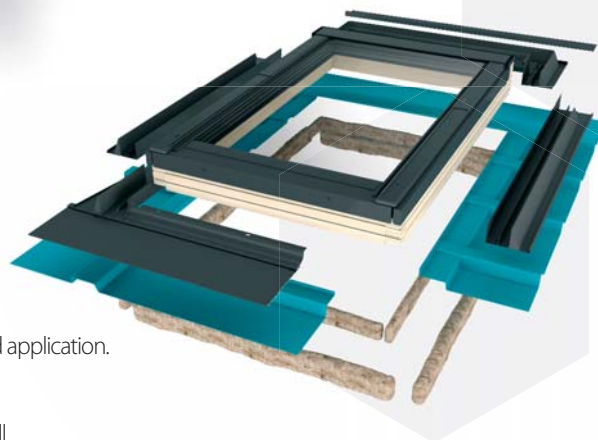
➤ 7

## 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	
<b>ES</b>		Flat roof coverings such as: - roofing felt - bitumen - flat sheet metal	ESV	V(0)	10mm	15° – 90°
			ESJ	J (-3 cm)	10mm	20° – 90°
<b>EL</b>		Flat roof coverings such as: - bitumen - slate	ELV	V(0)	up to 10mm	20° – 90°
			ELJ	J (-3 cm)		
<b>EP</b>		Plain tile roof coverings non interlocking (Peg Tiles)	EPV	V(0)	up to 16mm	25° – 90°
			EPJ	J (-3 cm)		
<b>EZ</b>		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°
<b>EH</b>		High profile roof coverings such as: - roof tiles - corrugated metal sheets	EHN-A	N (+3 cm)	up to 90mm	15° – 90°
<b>EH_-AT Thermo</b>		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°
<b>EE</b>		Flat roof coverings such as: - flat sheet metal - standing seam zinc etc	EEV	V(0)	—	15° – 90°
			EEJ	J (-3 cm)		20° – 90°
<b>E_A</b>		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 position 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 facility.
- 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

thermoPro



## FPU-V preSelect MAX

thermoPro



## PPP-V preSelect

thermoPro

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

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)

V35

- efficient air inlet V35

U3

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

P2



- multi chamber white PVC profile with reinforced steel core. Also available in golden oak (GO) or pine veneer (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 OF STANDARD TOP HUNG AND PIVOT WINDOWS

windows external dimensions [cm]	55x78	55x98	66x98	66x118	78x98	78x118	78x140	94x118	94x140	114x118	114x140	134x98	78x160
effective glazing area [m <sup>2</sup> ]	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
<b>FPP-V preSelect MAX</b>	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>FPU-V preSelect MAX</b>	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>PPP-V preSelect</b>	-	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	-

**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 facility.
- 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



# FTW-V



V40P

- automatic air inlet V40P

U3

P2

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

G61



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



- wood painted twice with ecological acrylic lacquer in natural colour

V40P

- automatic air inlet V40P

U3

P2

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

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
effective glazing area [m <sup>2</sup> ]	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
<b>FTP-V</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>FTW-V</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

**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 facility.
- 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



# PTP-V



V40P

- automatic air inlet V40P

U3

P2

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

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)

V35

- efficient air inlet V35

U3

P2

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

G61



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



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
effective glazing area [m <sup>2</sup> ]	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
<b>FTU-V</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>PTP-V</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

**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 facility.
- 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
effective glazing area [m <sup>2</sup> ]	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
<b>FTP-V</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>FTW-V</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>FTU-V</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

**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 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



thermoPro

U6

- highly energy efficient glazing unit U6  
**U<sub>w</sub> = 0,80W/m<sup>2</sup>K** with standard flashing,  
**U<sub>w</sub> = 0,71W/m<sup>2</sup>K** 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



thermoPro



U8



- passive U8 glazing unit  
**U<sub>w</sub> = 0,58W/m<sup>2</sup>K** 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



### SIZES OD STANDARD HIGHLY ENERGY EFFICIENT WINDOWS

windows external dimensions [cm]	55x78	55x98	66x98	66x118	78x98	78x118	78x140	94x118	94x140	114x118	114x140	134x98	78x160
effective glazing area [m <sup>2</sup> ]	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
<b>FTT</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>FTT Thermo</b>	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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



## CENTRE PIVOT WINDOWS Z-WAVE CONTROLLED



- 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.

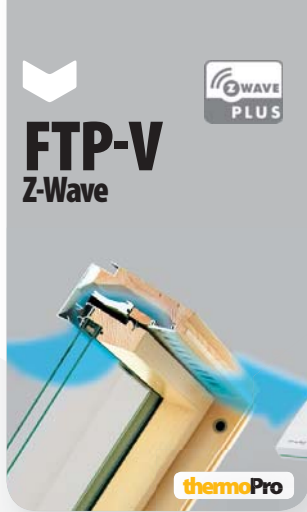
- Comfortable operation by remote control window. By turning the handle through 90° the sash is disconnected with the actuator.

- 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 CONTROLLED**

windows external dimensions [cm]	55x78	55x98	66x98	66x118	78x98	78x118	78x140	94x118	94x140	114x118	114x140	134x98	78x160
effective glazing area [m <sup>2</sup> ]	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
<b>FTP-V Z-Wave</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>FTU-V Z-Wave</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



## 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<sup>Thermo</sup>**  
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 OF 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
<b>ESV</b> for flat roof coverings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>EZV-P</b> for profiled roof coverings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>EHN-P</b> for high profile roof coverings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>EHV-AT<sup>Thermo</sup>*</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>ELV</b> for slated roof coverings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>EGV</b> for thick slated roof coverings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>EFW</b> 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 windows installed vertically, a gap of at least 20cm is required. There are seven modules in the FAKRO combination system to cater for any layout you may require.



**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
<b>B2/1</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>B1/2</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>B2/2</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

**FYP-V** proSky  
**FDY-V** Duet proSky



## WINDOW WITH RAISED AXIS OF ROTATION

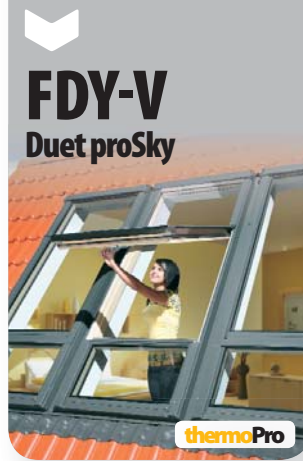


- The pivot window, but its axis of rotation is situated above the centre of the window so even a tall person can easily walk up to the window edge. The lower part of the sash fulfils a top hung window function and the upper part of the sash is an additional source of daylight. The sash when opened in 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 facility.
- 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



## FDY-V Duet proSky

V40P

- automatic air inlet V40P

U3



- 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°

V40P

- automatic air inlet V40P

U3



- 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 OF STANDARD WINDOWS WITH RAISED AXIS OF ROTATION

windows external dimensions [cm]	66x118	78x98	78x118	78x140	78x160	78x180	94x140	94x160	94x180	114x160
glazing area [m <sup>2</sup> ]	0,47	0,47	0,59	0,73	0,85	0,96	0,92	1,07	1,22	1,35
size symbol	04	05	06	07	13	40	09	80	41	50
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

### WITH LOWER TRANSOM FDY-V U3 Duet proSky

windows external dimensions [cm]	78x186	78x206	94x186	94x206
glazing area [m <sup>2</sup> ]	1,05	1,19	1,29	1,46
size symbol	CA	CB	DA	DB
	✓	✓	✓	✓

**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 from 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.

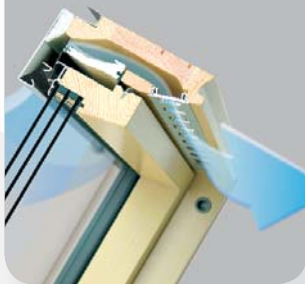
- Increased resistance to burglary - TopSafe system.



- A wide range of accessories.

- Installation range from 35 to 55 degrees.

# FGH-V Galeria



V40P

- automatic air inlet V40P

P2

- 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



FAKRO



FAKRO

- 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 [m <sup>2</sup> ]	1.32	1.67
<b>FGH-V P2 Galeria</b>		✓

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

**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.

P2

P5

- 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-opening

### SIZES OD STANDARD L-SHAPED WINDOW B\_ - WOODEN

window external dimensions [cm]	78x60	78x75	78x95	78x115	78x137	94x60	94x75	94x95	94x115	114x60	114x75	114x95	114x115
size symbol	33	81	82	83	84	34	85	86	87	35	89	90	91
<b>BDL (left)</b>	✓	✓	✓	✓	✓	-	✓	✓	✓	-	-	✓	✓
<b>BDR (right)</b>	✓	✓	✓	✓	✓	-	✓	✓	✓	-	-	✓	✓
<b>BVP</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>BXP</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



## 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 lamellae



### 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 awning 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**

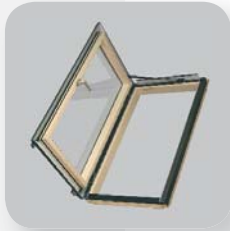


## **ROOF ACCESS WINDOWS**

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.

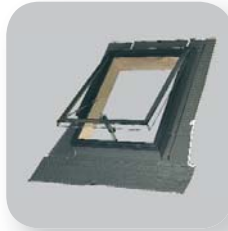


### FWP

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

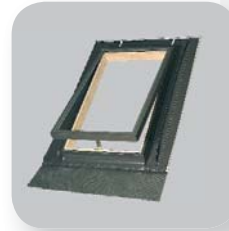
## STANDARD ACCESS ROOF LIGHTS

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 possibility to leave the sash ajar enters the space inside.



### 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]	66x78	66x98	66x118	78x98	78x118	94x118	94x98
size symbol	22	03	04	05	06	08	15
<b>FWP</b>	✓	✓	✓	✓	✓	✓	✓

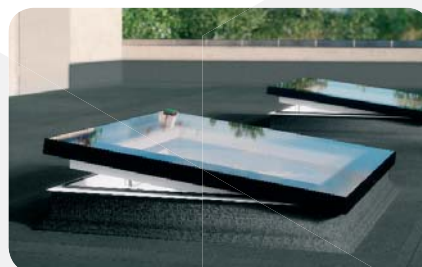
STANDARD ACCESS ROOF LIGHTS								
external dimensions [cm]	54x75	86x86	external dimensions [cm]	45x55	45x75	external dimensions [cm]	54x83	86x87
<b>WSS</b> for flat roof covering	✓	✓	<b>WGT</b>	✓	✓	<b>WLI</b>	✓	✓
<b>WSZ</b> for profiled roof coverings	✓	✓	<b>WGI</b>	✓	✓			
<b>WSH</b> for high profile roof coverings	✓	✓						

# 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.



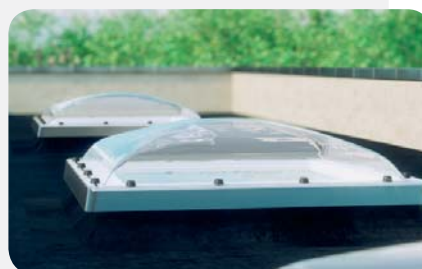
The servo-motor in electrically opened windows is positioned in the sash and is protected against adverse weather conditions such as rain and snow.

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 WINDOW TYPE D\_F

- Innovative type F flat roof window – excellent thermal insulation and modern design.
- An abundance of natural light. The specially designed shape of the window profiles has a glazing area up to 16% greater than those of competitors.
- The frame is constructed of multi-chamber PVC profiles filled with insulation material.
- The glazing unit is bonded using advanced manufacturing technologies to produce high durability and impeccable aesthetics.
- In addition to standard sizes, the D\_F type windows can be manufactured in non-standard sizes (in the range of 60x60 - 120x220cm). This enables existing skylights which do not meet current thermal insulation requirements to be replaced with ease.
- The innovative flat roof window D\_F ColourLine allows you to match the colour of the window finish with the existing roof design. A wide range of colours in accordance with the RAL Classic Palette.
- Windows are available 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 2.2m long control rod (included as standard). The sash tilts 30cm.
  - DXF** – Non-opening.
- Windows can be mounted on an additional XRD base with a height of 15cm for installation in green or gravel roofs.
- If the roof pitch is lower than 2° or it is recommended to increase it, it is required to use the XRD/A installation base, which fitted directly under the window increases its installation angle by 3°.
- Suitable for pitches from 2-15°.
- The structure of the window enables installation of internal as well as external accessories.



## FLAT ROOF WINDOW TYPE D\_G

- Design of the D\_G window is based on solutions applied in type C windows. The window is covered from the top with a special glass section consisting of toughened glass (4mm or 6mm thick depending on the size) and specially prepared black aluminium profile. The glass sections are factory fitted on the window which significantly reduces installation time.
- 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 a whole window U-value is 0.92 W/m<sup>2</sup>K, which is 35% better result than the solutions offered by the competition.
- An abundance of natural light. The specially designed shape of the window profiles has a glazing area up to 16% greater than those of competitors.
- Windows are available in 11 standard sizes from 60x60cm to 120x220cm. On request, windows can be manufactured in non-standard sizes (in the range of 60x60 - 120x220cm).
- Windows are available in three versions:
  - DEG** - Electrically opened with wireless Z-Wave system. The kit includes power supply, remote control and rain sensor. The sash tilts 15cm.
  - DMG** - Opened manually by means of the included control rod (2.2m). The sash tilts 30cm.
  - DXG** – Non-opening.
- Windows can be mounted on an additional XRD or XRD/W base with a height of 15cm for installation in green roofs, etc.
- If the roof pitch is less than 2° or if it is recommended to increase the assembly angle, the XRD/A angled installation base should be used, which mounted directly beneath the window increases the angle of its assembly by 3°.
- Suitable for pitches from 2° - 15°.
- The structure of the window enables installation of internal accessories.



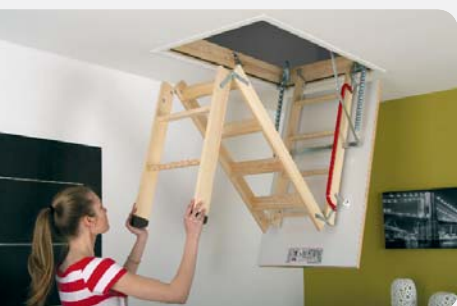
## FLAT ROOF WINDOW WALKABLE DXW

- DXW flat roof window which with special design featuring enhanced load capacity and applied non-slip coating ensures you can walk across its surface freely when installed in terraces or flat roofs. Thanks to the fact that the surface of the DXW window is in flush with the roof covering material, windows not only create a safe space in the terrace which can be utilized, but also do not spoil its aesthetics. It is therefore an excellent solution to be applied in the terrace or green roof that allows to achieve perfectly flat roof surface while maintaining properties of the roof window.
- Profiles are filled inside with insulating material which additionally improves thermal parameters of the product. Additional profiles clamping covering materials under eaves of the frame facilitate finish of the flat roof window connection with the roof covering.
- Safe, double chamber glazing unit with heat transfer coefficient  $U_g = 0.5 \text{ m}^2/\text{K}$  is used in windows. With reinforced design, anti-slip coating, safe glazing unit with external glass laminated, the DXW window is very safe product that allows to walk across its entire surface safely.
- 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

- In addition to illumination function, the insulated access roof lights DR\_ have an extra utility feature providing safe and convenient access to the flat roof. Special hinges and functional opening system used in the access roof light ensure easy sash opening up to  $80^\circ$  in windows in sizes  $90 \times 90$  and  $100 \times 100$ , while in sizes  $90 \times 120$  and  $120 \times 120$  it opens up to  $60^\circ$ . Gas springs facilitate operation of the sash and keep it stable in the open position, thus protecting against accidental closing. What is more, access roof lights feature increased safety of use thanks to the application of anti-slip covers on their profiles.
- The window comes in the following versions:
  - DRC** – flat access roof light with the dome equipped with P2 glazing unit featuring excellent insulation parameters. The dome can be transparent D\_C-C or opaque D\_C-M.
  - DRF** – flat access roof light without the dome, equipped with DU6 glazing unit featuring excellent insulation parameters.
- The type F access roof light is suitable for pitches between  $2^\circ$  and  $15^\circ$ , while the type C is designed for pitches between  $0^\circ$  and  $15^\circ$ .



## LIGHT TUNNELS

In order to supply interior with natural light where there are no opportunities to install roof or vertical windows, an effective solution can be a light tunnel. Thanks to the light tunnel, the natural light gets into the building illuminating its interior. Dimly lit interiors without access to the natural light can become light and comfortable to use.

There are two types of light tunnels available: **SR\_** with rigid light transmitting tube and **SF\_** with flexible light transmitting tube. Flashings enable installation of light tunnels in nearly every roof covering and even in flat roofs.

### Flat Light Tunnel SF\_-L, SR\_-L

It can be used in any room, but due to minimum light loss is recommended for special buildings in which natural light is transmitted over long distances.

The light tunnel illuminates with natural light the space directly below the installation of its outer element e.g. attic or loft. Three types of flashings are available: for flat, corrugated and high profile roof coverings.

### Flat roof light tunnels SFF, SRF






Make it possible to illuminate with natural light all rooms under flat roofs. The light tunnel consists of installation frame, specially profiled aluminium cover and dome made of stabilized polycarbonate.

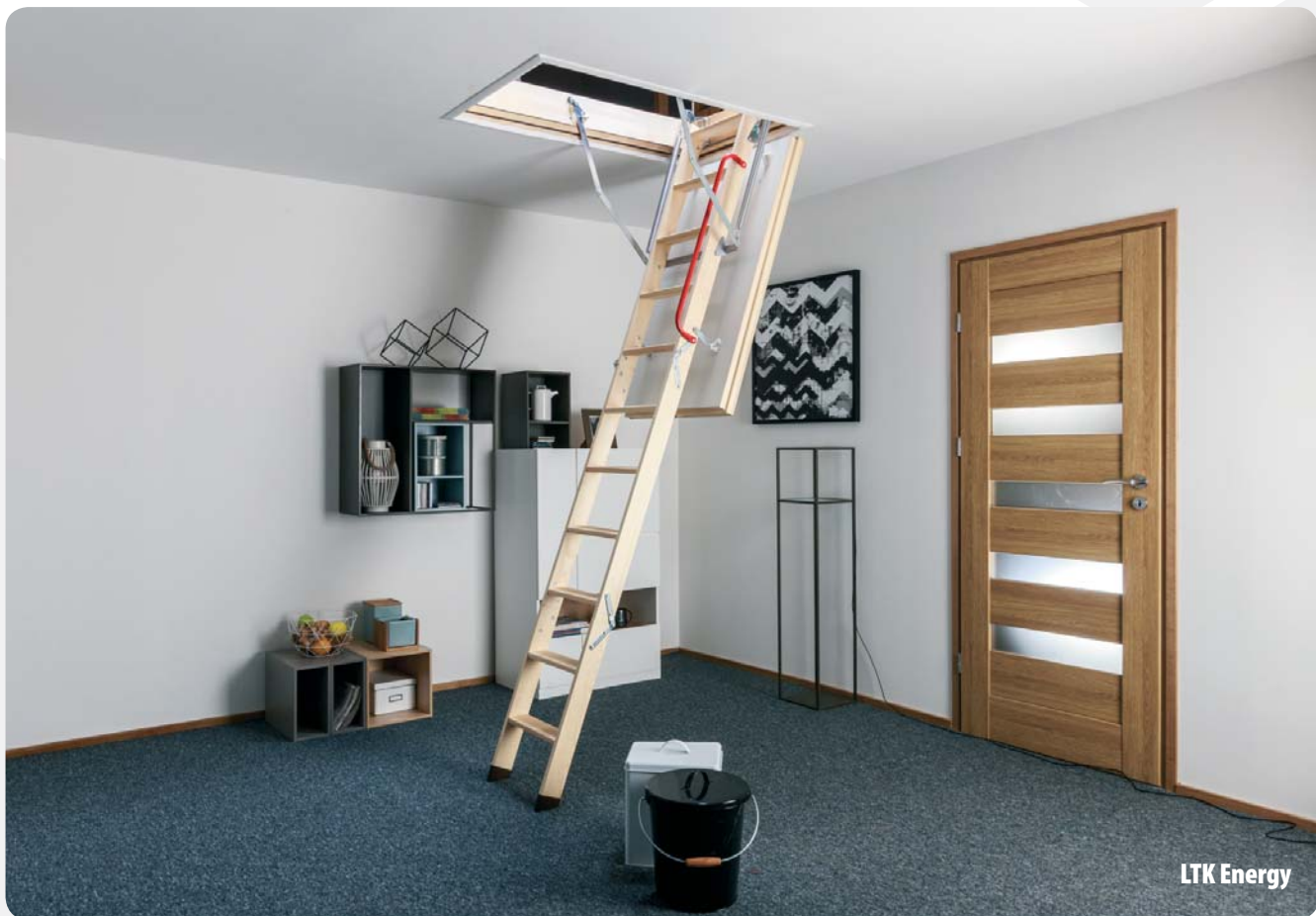
## LOFT LADDERS

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
	 U=1.1 W/m <sup>2</sup> K	 U=0.68 W/m <sup>2</sup> K	 EN 13501-2 EI, 45 U=0.6 W/m <sup>2</sup> K	 EN 13501-2 EI, 120 U=0.79 W/m <sup>2</sup> K	 U=1.1 W/m <sup>2</sup> K
Room height [cm]	280, 305			280, 305	250-280
Box	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.