NON-STANDARD SOLUTIONS

Curved window

Window with a mullion bar

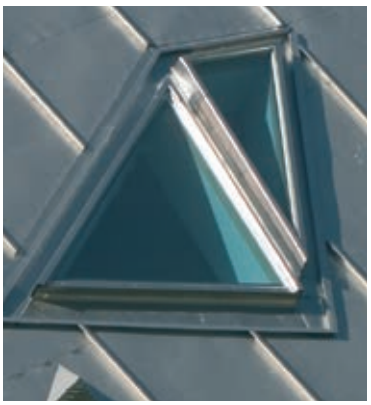
Among non-standard solutions we offer unusual shapes, sizes and colours of windows, a full range of glazing that meets the diverse needs of the user as well as solutions allowing for the unique application of roof windows.

CURVED WINDOW

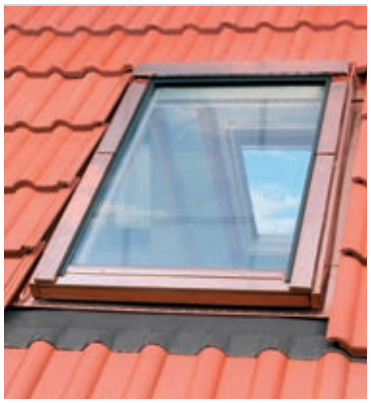
The curved window is a special structure with a curved frame, sash and glazing unit. The steel covering profiles are also adjusted to the window's shape. It is a pivot type window with a handle situated on the lower part of the sash. The curved window is a non-standard product designed and manufactured to individual order.

WINDOW WITH A MULLION BAR

The FAKRO window with a mullion bar is designed for historic or stylised buildings. Its characteristic feature is black vertical mullion bar in the middle of the glazing, cladding and flashing (colour RAL 9005) which suits traditional construction.
By using FAKRO windows with a mullion bar we can keep the unique, historic character of the building from the outside and create a comfortable and modern interior. Windows with a mullion bar feature all advantages of FAKRO roof windows. They are available in standard sizes in the following versions: pivot windows, top hung and pivot windows and roof access windows.
The windows are manufactured to individual order.



Various window shapes



Window in copper CU flashing

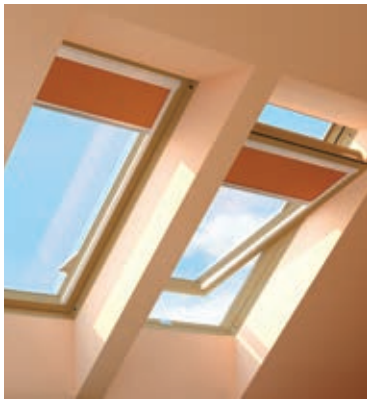
Window in titanium-zinc TC flashing

VARIOUS WINDOW SHAPES

FAKRO windows can be manufactured in any shape required. The glazing combination consists of a toughened outer and inner pane with a low emission coating on the inner pane 4H-16-4HT. These types of windows are all non-opening. When ordering non-standard windows, please indicate the roof pitch and type of roof covering. A drawing of the window will be needed with all dimensions and internal angles. Any order should also indicate whether the window is to be installed on its own or in combination with other windows.

COPPER AND TITANIUM-ZINC CLADDING

The outer cladding of the window and flashing can be made not only of aluminium but to suit specific customer needs can be made of copper CU or titanium zinc TC as well (bare rolled as standard, other available to individual order).

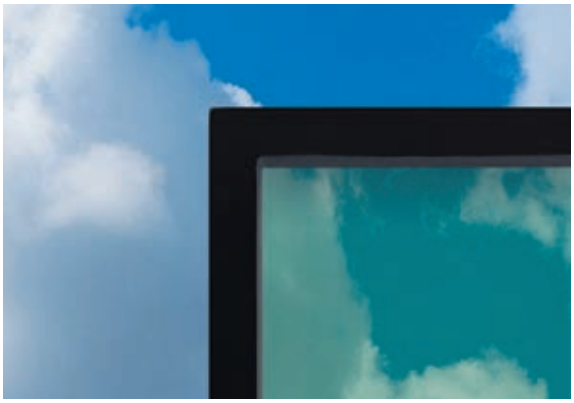


COLOUR PALETTE

Wooden elements – RAL palette
To suit customer preference, wooden elements of the window can be painted in any colour chosen from the RAL palette. It ensures excellent interior finish and décor.

Wooden elements coated with Lazure lacquer
The window sash and frame can be also coated with Lazure lacquer in any of five chosen colours: mahogany, walnut, light oak, teak, afromosia. The samples are available in FAKRO swatches.
On request, FAKRO will send samples for acceptance.

Non-standard colours of the flashing
To suit customer preference, FAKRO offers exterior metal coverings for windows and flashings in any colour chosen from the RAL palette. All flashings and exterior metal coverings can be matched exactly to the most unusual roof colours.



Tinted glazing

Obscure glass

GLAZING UNITS

Tinted glazing – W

It limits penetration of sun into the room. This glass is available in a range of colours: blue, brown, grey and green. Tinted glass is toughened and placed on the outer pane of the double-glazing. The inside pane features a low emission coating.

W1	Blue	4H – Tg16Ar – 4T	$\tau_V = 57\%$	$\tau_{UV} = 12\%$	g = 40%
W2		4H – Tg14Ar – 33.1T	$\tau_V = 50\%$	$\tau_{UV} = 1\%$	g = 33%
W3	Brown	4H – Tg16Ar – 4T	$\tau_V = 54\%$	$\tau_{UV} = 10\%$	g = 45%
W4		4H – Tg14Ar – 33.1T	$\tau_V = 48\%$	$\tau_{UV} = 0\%$	g = 37%
W5	Graphite	4H – Tg16Ar – 4T	$\tau_V = 49\%$	$\tau_{UV} = 11\%$	g = 43%
W6		4H – Tg14Ar – 33.1T	$\tau_V = 44\%$	$\tau_{UV} = 0\%$	g = 35%
W7	Green	4H – Tg16Ar – 4T	$\tau_V = 69\%$	$\tau_{UV} = 10\%$	g = 44%
W8		4H – Tg14Ar – 33.1T	$\tau_V = 61\%$	$\tau_{UV} = 0\%$	g = 38%

Obscure glass – O

O1, O2 - One side of the window is smooth, while the other side has regular or irregular patterns with different motifs. The patterned surface is on the outside of the window with smooth glass on the inside for ease of cleaning. Obscure glass is toughened and is used on the outer pane of the double-glazing. The inside pane features a low emission coating.

O4 - single chamber glazing unit equipped with satin (milky) toughened outer pane.

O5 - single chamber glazing unit equipped with opaque (milky) laminated inner pane class P2A (according to EN 356).

01	4HO–Tg16Ar–4T	$\tau_V = 78\%$	$\tau_{UV} = 21\%$	g = 60%
02	4HO–Tg14Ar–33.1T	$\tau_V = 69\%$	$\tau_{UV} = 0\%$	g = 50%
04	4H(satyna)–Tg16Ar–4T	$\tau_V = 44\%$		g = 48%
05	4HT–Tg15(14)Ar–33.2(mat)	$\tau_V = 49\%$		g = 57%

τ_V *– sun's rays transmission*

τ_{UV} *– UV rays transmission*

g – total transmission of solar energy (solar factor)

Reflective glass

Stained glass

GLAZING UNITS

Reflective glass – H

It reflects solar radiation, acting from the outside like a mirror. Available in the following colours: blue, brown, graphite and green. It is also available as reflective glass in a clear version. Reflective glass is toughened and is used on the outer pane of the double glazing. The inside pane features a low emission coating.

H0	Blue	4H – Tg16Ar – 4T	$\tau_V = 42\%$	$\tau_{UV} = 6\%$	g = 30%
H1		4H – Tg14Ar – 33.1T	$\tau_V = 37\%$	$\tau_{UV} = 1\%$	g = 25%
H2	Brown	4H – Tg16Ar – 4T	$\tau_V = 19\%$	$\tau_{UV} = 2\%$	g = 22%
H3		4H – Tg14Ar – 33.1T	$\tau_V = 17\%$	$\tau_{UV} = 0\%$	g = 18%
H4	Graphite	4H – Tg16Ar – 4T	$\tau_V = 17\%$	$\tau_{UV} = 3\%$	g = 20%
H5		4H – Tg14Ar – 33.1T	$\tau_V = 15\%$	$\tau_{UV} = 0\%$	g = 17%
H6	Green	4H – Tg16Ar – 4T	$\tau_V = 27\%$	$\tau_{UV} = 2\%$	g = 20%
H7		4H – Tg14Ar – 33.1T	$\tau_V = 25\%$	$\tau_{UV} = 0\%$	g = 17%
H8	Clear	4H – Tg16Ar – 4T	$\tau_V = 56\%$	$\tau_{UV} = 14\%$	g = 46%
H9		4H – Tg14Ar – 33.1T	$\tau_V = 51\%$	$\tau_{UV} = 0\%$	g = 38%

Stained-glass pane

The stained-glass pane is a type of glazing unit with an individual and permanent pattern. It is obtained through super-imposition of a resin outline onto the pane's surface. The space between the lines is filled with coloured resin.

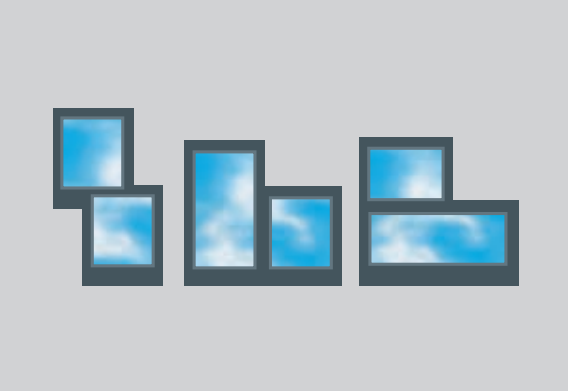
The resin outline is not transparent. The coloured space between the lines is partly transparent depending on the dye intensity. It is also possible to leave the sole outline on the pane. The stained-glass pattern for cleaning reasons and visual effects is placed on the inside of the glazing unit. It is possible to lay down on the pane any one of 200 patterns or to design a new one, suiting the Customer's taste.

Pictures of possible stained glass patterns are to be found at www.**fakro**.com

τ_V – *sun's rays transmission*

τ_{UV} – *UV rays transmission*

g – total transmission of solar energy (solar factor)

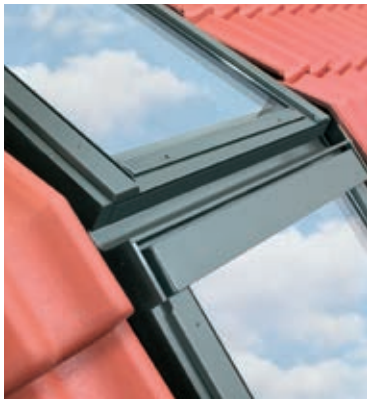


FLASHINGS

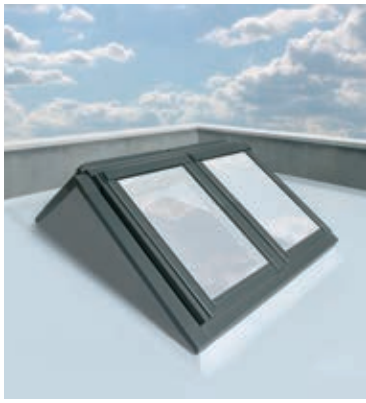
Non-standard combinations
In cases where the installation of windows side by side does not allow the use of typical flashing solutions, special non-standard combinations are manufactured to customer request. Such combinations are designed and made individually bearing in mind all the relevant window size details. The price of non-standard flashings is calculated individually.
Order processing time – 30 days.

When ordering, a drawing of the window (view from outside) is required.

Ridge combination



Mansard combination



Flat Roof Gable System

FLASHINGS

Ridge combination ERN-H, ERV-S, ERV-Z, ERV-L
These flashings enable roof windows on opposite sides of the ridge to be joined. Windows are linked together by the top element of the flashing. Windows joined at the ridge are fitted in roofs with pitches between 15° and 55°, though the internal roof angle should be between 70° and 150°.
Ridge combination flashings can be manufactured from aluminium, copper or titanium-zinc.

Mansard combination KMV, KMV-L
Modules for mansard combination are used for fitting roof windows in mansard roofs. Windows are positioned one above the other and joined with the mansard module.
The top window is installed at angles between 15° and 60°, while the lower window between 45° and 90°. The internal angle of the mansard roof should be between 105° and 150°.
The mansard module can be manufactured in aluminium, copper or titanium-zinc.

Flat Roof Gable System EFR
The flat roof gable system enables installation of roof windows in one combination in roofs with pitches between 0° and 15°. The gabled, wooden structure with a complete set of flashings reduces to minimum the time required to create an aesthetic solution that effectively illuminates the room.
The distance between adjacent windows is 40mm. The flashing is manufactured in aluminium.