INFOTEXT

We take architectural glass a step ahead.

OKA*SOLAR* RETROFLEX

Glazing with Integral Sun Control Louvres

OKA*SOLAR* RETROFLEX insulating glass is a daylighting system without any moving components. Thanks to its prismatic microstructure, OKA*SOLAR* RETROFLEX offers a convincing compromise between protection and provision requirements.

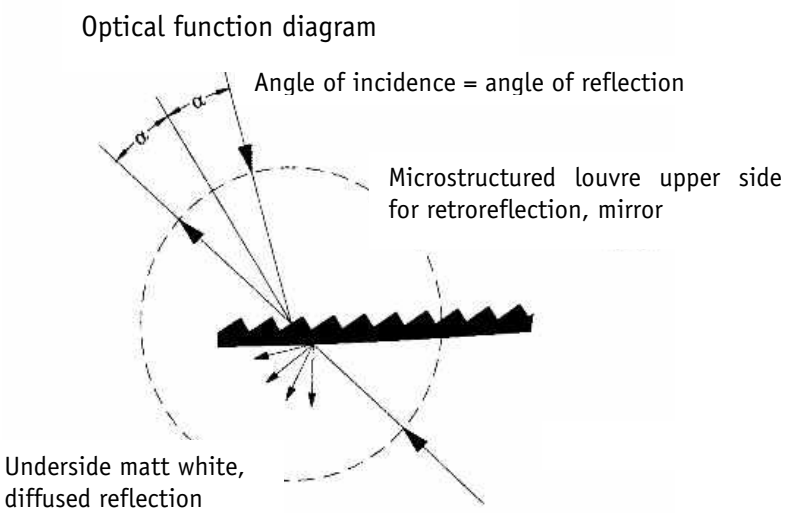
- efficient directionally selctive sun protection
- directionally selective light transmission
- partial through-vision

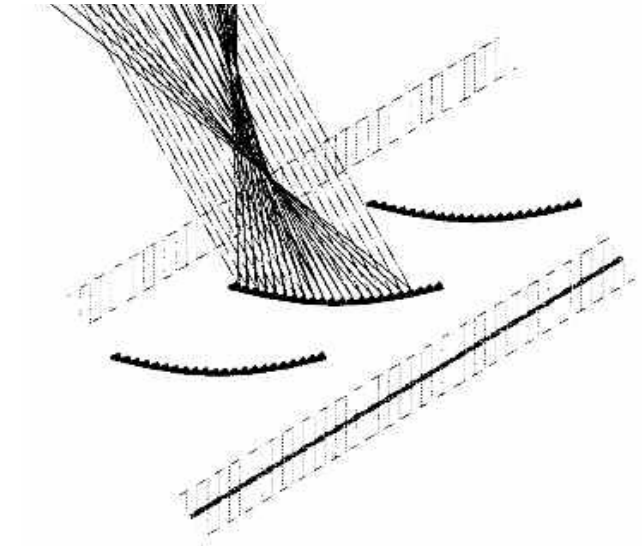
The function of OKA*SOLAR* RETROFLEX depends on the current radiation conditions, partial transparency is always available.

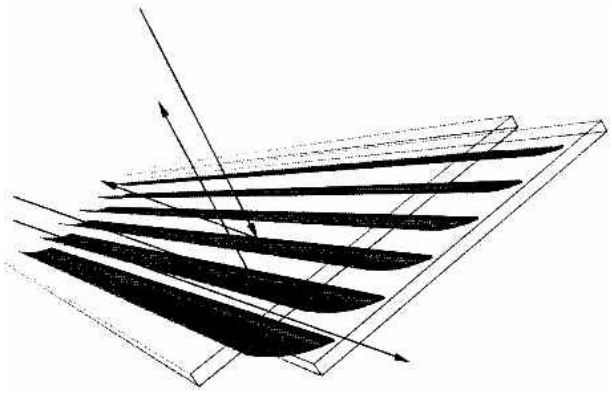
OKA*SOLAR* RETROFLEX has a concave/convex louvre, which has a reflecting prismatic microstructure on its upper side. On the underside, the louvres are covered with a white, highly reflective, special matt paint for glare-free light diffusion to the outside. The microprism structure is rolled into a very pure aluminium material, then polished and stabilised for interior use by means of an anodised layer.
The microprisms form several parabolas with respect to the solar irradiation with different focal points on the side struck by the sun, so that a solar excursion takes place primarily with one single reflection.

As a result of this light management, OKA*SOLAR* RETROFLEX is characterised by its extremely favourable G values.

Optical function diagram







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Technical Data

U-value: as low as approx. 1.3 - 1.6 - 2.1 W/m²K (DIN), (0.23 - 0.29 - 0.37 Btu/hr/ft²/°F), depending on the cavity
Total solar energy transmittance: angle- and type-dependent as low as approx. 9%

Legend and related values:

	unit	standard	technical term
U	W/m^2K	DIN EN 673 DIN EN 674	Thermal transmittance, (ΔT=10°C)
TSET	%	DIN EN 410	Total solar energy transmittance or solar heat gain coefficient
T_v	%	DIN EN 410	Light transmission (direct/hemispheric)
F_C	%	DIN 4108	Reduction factor of a solar control system, F_C=TSET/$TSET_{reference}$
SC	%	GANA Manual	Shading coefficient, SC=TSET/0.86

The above data are approximate data. They are based on measurements of recognized test institutes and calculations derived from these measurements.
At the moment, not all suppliers have adapted their key data to the currently applicable regulations. When making comparisons, please pay attention to the relevant manufacturer's notes. On the basis of the old standards, total solar energy transmittances as well as shading coefficient values are each 1-3% lower.
Lower U-values can only be achieved in combination with thermal control gases (Kr, Ar). If thermal control gases are used, a gastight perimeter seal is required. It must be protected against solar radiation by means of covering profiles or a black edge screen print and is normally not compatible with jointing silicone.

Structure

- Panes made of heat strengthened glass
- Thermal/solar protection coating on surface 2
- Louvre width 25 mm, louvre distance 21,2 mm, inclination of louvres 25° in relation to the glass pane
- Cavity 24 mm

Dimensions and installation

OKA*SOLAR* Insulating Glass is installed like standard insulating glass. The temperature-dependent movements of the OKA*SOLAR* louvre panel requires a small space between the panel and the spacers. To avoid direct light penetrating through the gap between the louvre panel and the adjoining spacer bar of the insulating glass, the unit edge cover has to be a minimum of 15 mm. With widths and heights exceeding 2 m, the coverage has to be increased to at least 20 mm.

glass dimension parallel to louvre	max. 3000 mm
glass dimension perpendicular to louvre direction	max. 3500 mm
louvre length	max. 1500 mm
unsupported span of louvres	max. 500 mm
visible width edge profile	15.0 mm
visible width support profile	7.2 mm
visible width of punched out area of louvre at support profile	7.2+1 mm
visible width of joint profile	29.3 mm

For louvre lengths between 1000 and 1500 mm, 3 supporting profiles are required.
In order to cover the louvre panel for visual reasons, the surrounding U-profile is sometimes used along all four edges.
Maximum pane surface is 7 m^2. Shapes are not possible at the moment.
Any pressure exerted on areas other than the area close to the edge of the glass pane can cause long-term damage to the louvre panel. Even with appropriate dimensions, it is only allowed to walk on the panes after prior agreement with the manufacturer. If planks are placed on the panes loads must be borne via the edge of the pane.

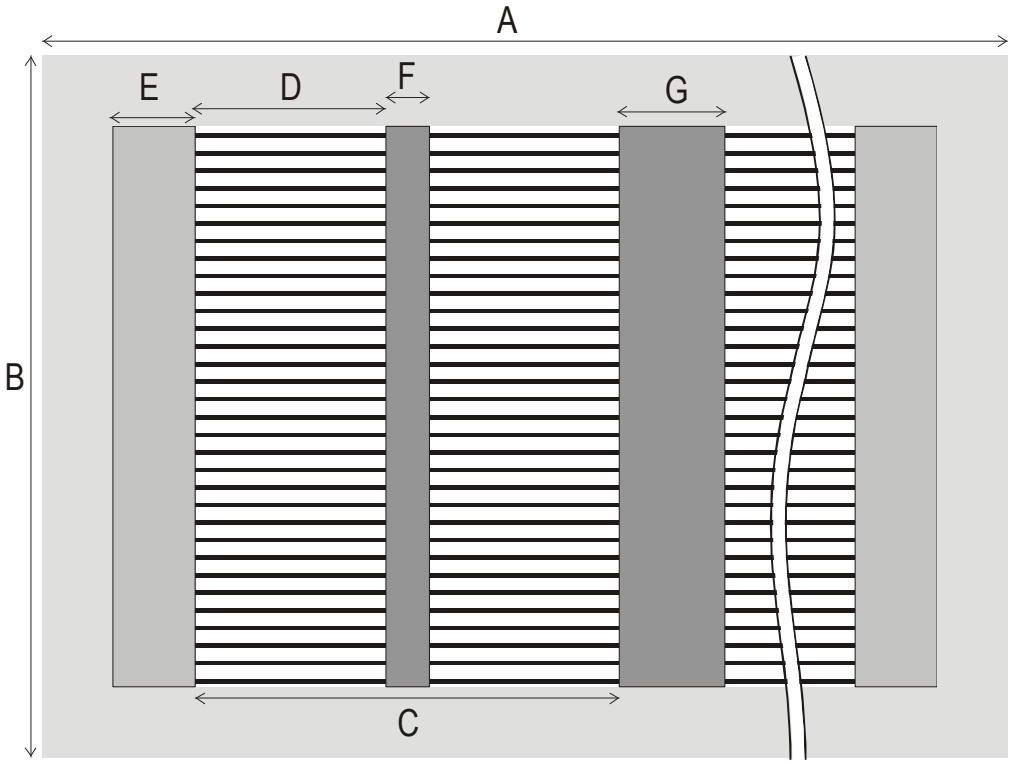
Planning instructions

On the basis of the planning data, in particular

- geographical latitude of the project
- façade orientation
- roof inclination
- room utilisation

we can provide an OKA*SOLAR* assessment. This will explain the functional operation in detail, and furthermore we recommend the OKA*SOLAR* type that best meets the project-specific requirements.
On account of the occasional penetration of the sun through the louvres and of the light deflection by OKA*SOLAR*, additional internal glare protection may be required for particularly critical applications (e.g. computer workstations).
Types I and III indicate that the louvre axes are oriented parallel to the lower edge of the glass pane, which in general is horizontal. In Types II and IV, the louvres run at right angles to the lower edge of the glass pane.
The louvres have a highly reflective coating, which contributes to an effective redirection of solar radiation. For this reason, certain lighting conditions and viewing angles may already make slight deviations in the positions of some of the louvres visible. These deviations are unavoidable and do not affect the function of the insulating glass.

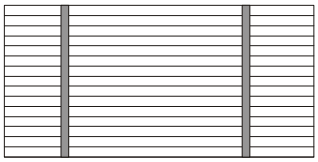
OKA*SOLAR* dimensions



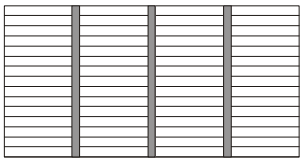
A: glass dimension towards louvre axis
B: glass dimension perpendicular to louvre axis
C: louvre length
D: unsupported span of louvres

E: visible width edge profile
F: visible width tooth profile
G: visible width of joint profile

Example 1:
symmetric divison with 1 joint profile and 2 tooth profiles



Example 2:
asymmetric divison with 2 tooth profiles



Example 3:
symmetric divison with 3 tooth profiles