

## OKASOLAR W

### Glazing with Integral Sun Control Louvres

OKASOLAR W insulating glass is a daylighting system without any moving components. Thanks to its three-dimensional, direction-selective mirror profiles, OKASOLAR offers a convincing compromise between protection and provision requirements. The function of OKASOLAR depends on the current radiation conditions, partial transparency is always possible.



Integrated in a vertical façade, OKASOLAR functions as follows:

1. direct irradiation from high and medium solar profile (sun) angles (> approx. 28°)
  - thermal solar protection with total solar energy transmittance values of as low as to 12%, in particular secondary heat transfer without solar radiation transmission
  - glare protection
2. direct irradiation from low solar profile (sun) angles (< approx. 28°)
  - partial transmission of the direct sunlight, also heating contributions on south-facing façades
  - partial light deflection into the depths of the room
  - indirect illumination through deflected direct daylight
3. diffuse irradiation
  - preferred light emission upwards in the direction of the room

### Technical Data

Type	TSET min.	SC min.	TSET max.	SC max.	T <sub>v</sub> min.	T <sub>v</sub> max.	U-value approx.	U-value
	%	%	%	%	%	%	W/(m <sup>2</sup> K)	Btu/hr/ft <sup>2</sup> /°F
OKASOLAR W thermal control coating	18	21	49	57	4	58	1.1 – 1.5 - 1.9	0.19 - 0.26 - 0.33
OKASOLAR W neutral solar control coating	12	14	32	37	4	46	1.0 – 1.4 - 1.8	0.18 - 0.25 - 0.32

U-values refer to European Standard EN 673. Please contact our sales department for values according to ASHRAE conditions. U-value dependant on angle of incidence.

TSET (total solar energy transmittance or solar heat gain coefficient) and transmission values refer to European Standard EN 410. Values according to ISO 9050 may differ by 1-2%. TSET is also dependent on angle of incidence and based on calorimetric measurements.

The data refer to a composition with thermal control coating or neutral solar control coating on surface 2. The values may be changed in either direction by using other coatings.

Legend and related values:

	<b>unit</b>	<b>standard</b>	<b>technical term</b>
<b>U</b>	W/(m <sup>2</sup> K)	DIN EN 673 DIN EN 674	Thermal transmittance, ( $\Delta T=10^{\circ}\text{C}$ )
<b>TSET</b>	%	DIN EN 410	Total solar energy transmittance or solar heat gain coefficient
<b>T<sub>v</sub></b>	%	DIN EN 410	Light transmission (direct/hemispheric)
<b>R<sub>w</sub></b>	dB	DIN EN 20140	Sound reduction coefficient
<b>F<sub>c</sub></b>	%	DIN 4108	Reduction factor of a solar control system, $F_c = \text{TSET} / \text{TSET}_{\text{reference}}$
<b>SC</b>	%	GANA Manual	Shading coefficient, $SC = \text{TSET} / 0.86$

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

- Both panes made of toughened or heat strengthened glass
- Coating on surface 2
- Cavity 22 mm
- Louvre interval 17 mm, louvre alignment type-dependent

## Dimensions and installation

OKASOLAR Insulating Glass is installed like normal insulating glass. The temperature-dependent movements of the OKASOLAR 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.

The table and drawing below show maximum dimensions and visible widths.

glass dimension parallel to louvre direction	max. 3000 mm
glass dimension perpendicular to louvre direction without louvre profile	max. 4000 mm
with louvre profile	max. 1200 mm
louvres length	max. 1500 mm
unsupported span of louvres	max. 1000 mm
visible width edge profile	12.0 mm
visible width support profile	3.3 mm
visible width of punched out area of louvre at support profile	3.3+1 mm
visible width of joint profile	23 mm

Maximum pane surface is 7 m<sup>2</sup>. Shapes are possible. Edge and tooth profiles have an unpolished surface (colour: aluminium nature). If requested we can offer a powder coating (RAL colours).

## 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 OKASOLAR assessment. This will explain the functional operation in detail, and furthermore we recommend the OKASOLAR 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 OKASOLAR, additional internal glare protection may be required for particularly critical applications (e.g. computer workstations).

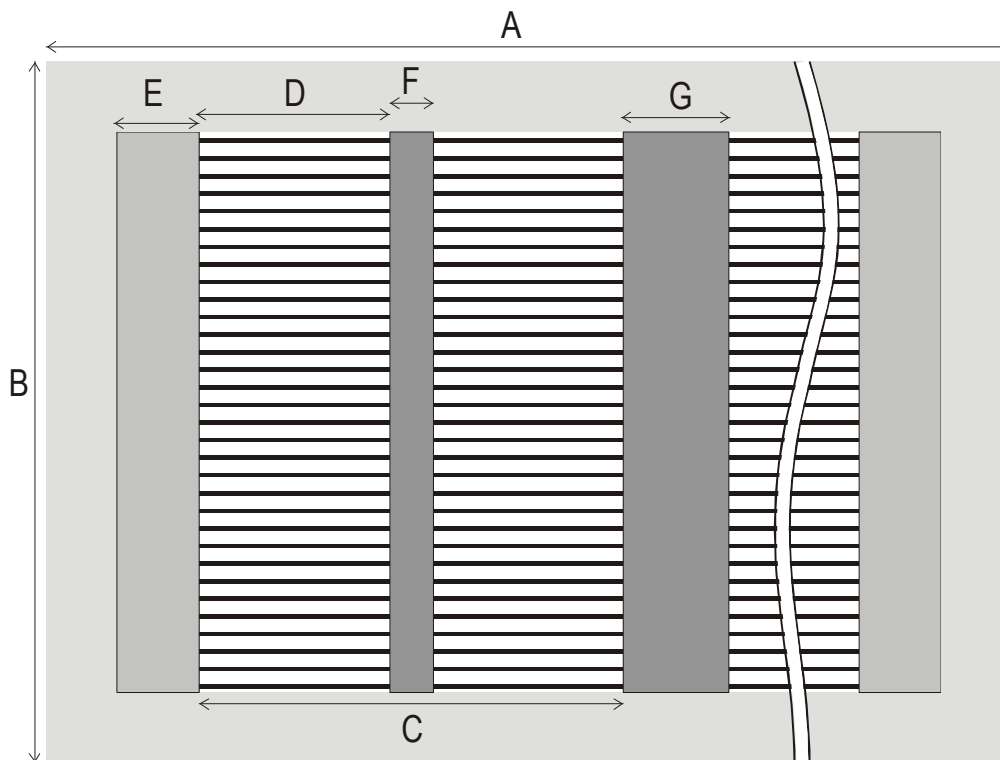
Types I and III indicate that the louvre axes are oriented parallel to the lower edge of the glass pane, which in general is horizontal. In Types II and IV, the louvres run at right angles to the lower edge of the glass pane.

On account of the occasional penetration of the sun through the louvres and of the light deflection by OKASOLAR, additional internal glare protection may be required for particularly critical applications (e.g. computer workstations).

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.

Depending on the size of the insulating glass units, tooth and joint profiles are requested to support the louvres. If we do not receive a specification, the louvres of each individual insulating glass unit are divided symmetrically. If another division is requested please inform us at an early stage of the project.

## OKASOLAR dimensions



A: glass dimension towards louvre axis

B: glass dimension perpendicular to louvre axis

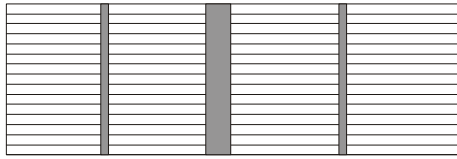
C: louvre length

D: unsupported span of louvres

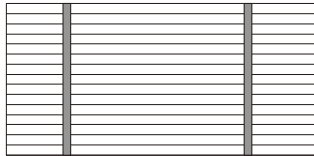
E: visible width edge profile

F: visible width tooth profile

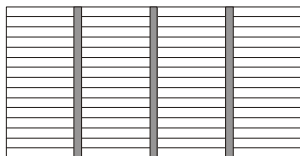
G: visible width of joint profile



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



Example 2:  
asymmetric division with 2 tooth profiles



Example 3:  
symmetric division with 3 tooth profiles