INFOTEXT

.LIGHT LOVES GLASS

OKA*THERM* Double Glazing Units

A variety of structural and function designs can be created using OKA*THERM* functional insulating glass. A broad range of glass types, coatings and structures offer protection and supply functions for the façade or roof:

- very good heat insulation
- thermal sun protection thanks to the reduced light transmission
- reduced dazzle due to reduced light transmission
- sound insulation
- constructive space on account of glass projections, integrated fixing systems, shaped glazing

Technical Data

Heat insulation

A wide range of U-values can be realised with OKA*THERM*, in accordance with your requirements.
The U-value depends on:

- the number of cavities
- the emissivity of the glass coating(s)
- the filling of the cavity with air or gas

With 2-pane build-ups, U-values from 1.0 W/(m²K) (0.18 Btu/hr/ft²/°F) can be achieved, with 3 panes 0.5 W/(m²K) (0.10 Btu/hr/ft²/°F) can be achieved.

Sound insulation

The sound attenuation value of a glazing system depends in a complex way on

- glass thicknesses and coatings in laminated glass
- cavity
- gas filling

The figure of 36 dB for standard structures (6 mm glass /16 mm cavity/4 mm glass) can be increased to over 50 dB by means of suitable measures.

Total solar energy transmittance and light transmission

The total solar energy transmittance or solar heat gain coefficient (TSET or s.h.g.c.) of a glazing system is the sum of

- solar transmission
- secondary heat transfer

Solar transmission depends to a large extent on the coatings and types of glass involved. Secondary heat transfer also depends on the position of the coating.
The light transmission of a glazing system depends to a large extent on

- glass coating(s)
- glass types and thicknesses

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UV transmission can be reduced or completely eliminated on request by means of suitable measures including the use of pvb laminated glass.

			Heat transm.	Heat transm.	Light transm.	Light refl.	Total solar energy	Colour rend.	Emissivity	Cavity	Gas filling
#	Designation	External appear.	U_g	U_g	T_v	R_v	TSET	R_a	ε		
			[W/(m²/K)])	[Btu/(hr ft² °F)]	%	%	%	%	%	mm	-
1	Unbeschicht.	neutral	2,7	0,48	82	15	80	99	89	16	Lu
2	82/64	neutral	1,1	0,19	82	12	64	98	3	16	Ar
3	82/61	neutral	1,1	0,19	82	12	61	98	3	16	Ar
4	82/63	neutral	1,1	0,19	82	12	63	98	3	16	Ar
5	76/51	neutral	1,0	0,18	76	16	51	98	1	16	Ar
6	81/58	neutral	1,0	0,18	81	14	58	98	1	16	Ar
7	74/53	neutral	0,5	0,09	74	16	53	97	3	2x12	Kr
8	72/42	neutral	1,1	0,19	72	12	42	96	3	16	Ar
9	70/37	bluish	1,0	0,18	70	12	37	96	1	16	Ar
10	70/37	bluish	1,0	0,18	70	13	37	96	1	16	Ar
11	70/37	neutral	1,0	0,18	70	14	37	96	1	16	Ar
12	62/29	neutral	1,0	0,18	62	9	29	93	1	16	Ar
13	61/34	neutral	1,0	0,18	61	13	34	95	1	16	Ar
14	61/33	bluish	1,0	0,18	61	14	33	96	1	16	Ar
15	60/33	silver neutral	1,0	0,18	60	10	33	93	1	16	Ar
16	60/27	neutral	1,0	0,18	60	13	27	96	1	16	Ar
17	53/28	bluish	1,0	0,18	53	18	28	94	1	16	Ar
18	51/27	bluish	1,0	0,18	51	16	27	87	1	16	Ar
19	50/27	neutral	1,1	0,19	50	8	27	94	2	16	Ar
20	48/35	reflective	1,1	0,19	48	46	35	96	3	16	Ar
21	47/29	reflective	1,0	0,18	47	40	29	95	1	16	Ar
22	43/23	bluish	1,0	0,18	43	22	23	91	1	16	Ar
23	41/22	bluish	1,0	0,18	41	18	22	86	1	16	Ar
24	40/22	bluish green	1,1	0,19	40	16	22	92	3	16	Ar
25	32/21	reflective	1,1	0,19	32	22	21	93	1	16	Ar
26	30/17	bluish	1,1	0,19	30	18	17	86	3	16	Ar
27	25/17	reflective	1,0	0,18	25	61	17	97	1	16	Ar

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%.
U-values refer to European Standard EN 673. Please contact our sales department for values according to ASHRAE conditions.

Legend and related values:

	unit	standard	technical term
U	W/(m²K)	DIN EN 673 DIN EN 674	Thermal transmittance, U_g = U
TSET	%	DIN EN 410	Total solar energy transmittance or solar heat gain coefficient
T_v	%	DIN EN 410	Light transmission (direct/hemispheric)
R_v	%	DIN EN 410	Light reflection (outwards, direct/hemispheric)
R_a	1	DIN EN 410	Colour rendering (in transmission)
R_w	dB	DIN EN 20140	Sound reduction coefficient
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
ε			Emissivity

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, the former U-value according to DIBt/DIN is 0.1 W/(m²K) lower.

Structure

In the standard structure, the visible width of the perimeter seal is 12 mm. Glass-specific static loads may make a reinforced version necessary.
On request we can offer various special structures, such as

- stepped edges, if required with sheet metal applied to eave or glass joint
- stainless steel spacers
- U-profiles in the perimeter seal to hold the glass with claws
- silicone-compatible secondary seals
- glass types for structural sealant glazing

Dimensions and installation

We can produce standard insulating glass in dimensions up to 6 m x 3.21 m and a weight of up to 1000 kg per unit, special glass types on request.

Planning instructions

Colour differences through different glass thicknesses

In one continuous façade, only glass types of the same thickness should be used in order to reduce colour differences caused by the intrinsic colour of the glass (greenish tint). Alternatively, low iron glass may be used.

Colour differences caused by solar and thermal control coatings

The colour impression given by the insulating glass results from the interaction of different materials (glass, coatings) with different indices of refraction. Depending on the length of light wave and viewing angle, interference-specific colour distortions occur in the external reflection. In this connection, please note the guidelines for assessing the visual quality of insulating glass made of mirror glass. We shall be pleased to send you these guidelines on request; you can also download them as a pdf file from our homepage at www.okalux.de.
For the same reason, the colour effects of hand specimens must be treated with caution. Depending on the glass thickness of the sample submitted for visual purposes, cavity and light conditions, deviations may occur compared with the glass used in the actual project.

In case of doubt, inspection of the original construction on a mock-up is recommended. Delivery shall be made against payment.

Thermal glass breakage through highly absorbent glass

Mass-produced coloured glass is thermally highly sensitive and can therefore only be used if it has been either heat strengthened or fully toughened.
Highly absorbent solar control coatings react sensitively to hard shadow and to installation in winter/spring, as long as the building is not yet heated. For total solar energy transmittance levels below 34 %, we recommend the use of either heat strengthened or fully toughened glass or consultation with us.

Other printed matter

If you do not have the following printer matter, please request it directly from OKALUX or download it from the Internet at www.okalux.com:

General terms and conditions of business
Product-specific information texts

As well as these, there are the following customer notes:

Customer notes on offers
Customer notes on delivery
Customer notes alarm glass
Customer notes screen printing
Customer notes Structural Glazing / Edge deletion
Customer notes on heat-soak test
Customer notes on glazing
Customer notes SIGNAPUR®
Customer notes OKA*WOOD* tolerances
Cleaning instructions for OKA*LUX* gen.
Cleaning instructions OKA*COLOR*
Guideline for visual quality