



SCHOTT
glass made of ideas

**GOETHEGLAS
RESTOVER®
TIKANA®**

Glass for Restoration

SCHOTT is an international technology group with 130 years of experience in the areas of specialty glasses and materials and advanced technologies. With our high-quality products and intelligent solutions, we contribute to our customers' success and make SCHOTT part of everyone's life.

SCHOTT works closely with architects and designers to extend the boundaries of design and create new opportunities for building culture – in terms of design and space, indoors and outdoors, aesthetics and functionality. That's what makes SCHOTT a qualified partner for architecture.

Cover: The windows of the German Historical Museum located in a former arsenal in Berlin are special energy-efficient windows including RESTOVER® Glass for Restoration.

Right: The Palace of Tears at the Friedrichstrasse train station in Berlin classified as a historical monument received a glass facade including the restoration glass TIKANA® that closely resembles the original when it was renovated.

SCHOTT's Glasses for Restoration are the best choice for the faithful restoration of historical buildings from various eras – mimicking the appearance of the original glazing materials – GOETHEGLAS for buildings from the 18th and 19th centuries, RESTOVER® glass for buildings dating from the early 1900s and TIKANA® glass for buildings from the classical modern period – these glasses also meet any number of contemporary needs because of the wide variety of processing options available, from UV protection to thermal insulation.



Accurate in style and true to the times

Historical in form, innovative in function

Restoring historical monuments is a delicate task in which every aesthetic nuance is important. SCHOTT's Glasses for Restoration provide the wide range of materials that architects need to do the job right. Manufactured using the traditional Fourcault process, the look of the glass is based on historical window glasses from different eras.

GOETHEGLAS

GOETHEGLAS is a colorless, drawn glass with the irregular surface characteristic of window glass common to the 18th and 19th centuries. It can also be used to protect precious, leaded glazing from the elements and other adverse environmental conditions.

RESTOVER®

RESTOVER® resembles the window glass manufactured at the turn of the century. Its minimal thickness makes it easy to install in historical window frames and fittings. While the surface of RESTOVER® light glass is slightly less irregular, RESTOVER® plus glass has a much more irregular surface structure and resembles mouth-blown glass.

TIKANA®

TIKANA® glass is particularly well-suited for buildings in the Bauhaus style. Its slightly irregular surface harmonizes with buildings from the classical modern period. Like the other SCHOTT restoration glasses, TIKANA® glass offers every opportunity to link historical charm with modern physical building properties.

SCHOTT Glass for Restoration

- GOETHEGLAS for buildings from the 18th and 19th centuries
- RESTOVER® glass for buildings from the early 1900s
- TIKANA® glass for buildings from the classical modern period
- Also available with enhanced UV protection
- A wide variety of processing options (e. g. as laminated glass, with coatings or as insulating glass units)

Left: TIKANA® restoration glass was used during the renovation of the Bauhaus-Universität Weimar (Germany).

Right: RESTOVER® glass was chosen for the German Historical Museum in Berlin.







Bauhaus-University Weimar – Brendelsches Atelier

SCHOTT Glass for Restoration

For monument authenticity in step with the times

SCHOTT enhances restoration glazing by integrating proven modern solutions, such as heat insulation-, sun-, UV-protection, secure overhead mounting, burglar resistance, soundprotection, which were unknown at the time of construction. Elements of these solutions include coatings and films, inert gas fillings between the window panes and a number of different spacers for insulating glass units, colored or otherwise. For example, an assembly made of TIKANA® glass provides heat insulation and sun protection without detracting from the appearance of the Van de Velde Building at the Bauhaus-Universität. While conventional PVB films only effectively protect against UV in the wavelength range between 280 nm and 380 nm, SCHOTT has developed a film that can be used with all SCHOTT Glasses for Restoration and reduces transmission from 57% to 8% in the range 380 nm to 420 nm.

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SCHOTT Glass for Restoration TIKANA®

Technical Data Sheet

Spacers

Insulating glass units can be manufactured with different spacers:

- Aluminum or stainless steel spacers, upon request, painted to match the color of the window frame
- Aluminum-reinforced plastic spacers with outstanding thermal insulation properties in different colors

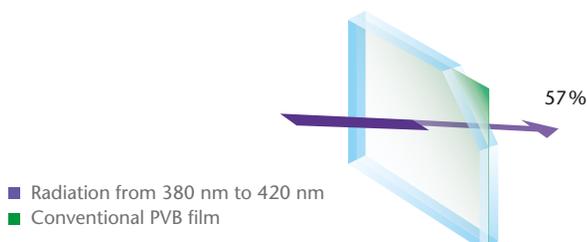
State-of-the-art insulating glasses can be installed in historical window constructions with a minimal gap of 4 mm between the glass panes.

SCHOTT has a solution to meet your special requirements

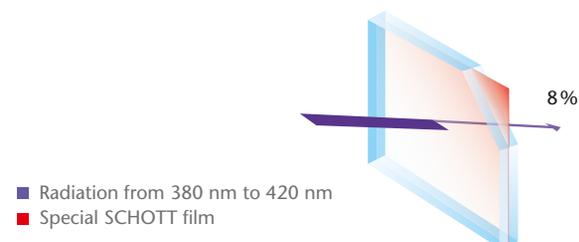
In addition, SCHOTT has developed solutions with different compositions, laminate structures, and combinations to fulfill a wide range of functions. For example: a sun protection coating applied directly to the restoration glass, combined with the special SCHOTT UV protection in the laminated glass within an insulating glass unit. This combination protects sensitive materials against high energy UV radiation and undesirable heating-up by sun irradiation. In spite of this, the color rendering index remains extremely high.

The SCHOTT special film

SCHOTT has developed a laminated glass with UV protection to protect your works of art and historical objects from short-wave radiation as effectively as possible. The solution is based on the use of a special film, which ensures extra protection in the critical wavelength range between 380 nm and 420 nm and far surpasses the performance of other solutions currently available. While standard PVB film in laminated glass typically achieves average transmittance of 57%, the innovative SCHOTT special film achieves an exceptional 8%.



With conventional PVB film, transmittance in the relevant wavelength range = 57%.



With the special film from SCHOTT, the average transmittance of laminated glasses in the wavelength range between 380 nm and 420 nm is 8%.

All systems are also available with the other restoration glasses. The technical data are exemplary for TIKANA®.

Glass type	Thickness mm	Thickness Tolerances mm	Max. Dimensions mm x mm
TIKANA®	4.0	± 0.25	2,400 x 1,500
GOETHEGLAS	4.5	± 0.50	2,100 x 1,500
RESTOVER®	2.75	± 0.25	1,600 x 1,500
RESTOVER® light	2.75	± 0.25	1,600 x 1,500
RESTOVER® plus	2.95	± 0.35	1,600 x 1,500



SCHOTT Glass for Restoration TIKANA®

Technical Data Sheet

Glass configuration	Heat transfer coefficient U_g W/(m ² ·K)	UV-transmittance τ_{UV} %	Spectral transmittance $\tau_{380\text{ nm} - 420\text{ nm}}$ %	Light transmittance τ_v %	Total solar energy transmittance g %	General color rendering index R_a
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Standard glass without coating

TIKANA®	5.8	78	91	91	91	100
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 TIKANA® 4 mm

Laminated glass with UV protection

TIKANA®, PVB standard, float; assembly thickness approx. 8 mm	5.6	< 1	57	90	83	99
TIKANA®, SCHOTT special film with UV protection, standard float; assembly thickness approx. 8 mm	5.6	< 1	8	89	80	98

 TIKANA® 4 mm  Float glass 4 mm  Standard PVB film or film with UV protection

Glass configuration	U_g W/(m ² ·K)	τ_{UV} %	τ_v %	g %	R_a
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Insulating glass with heat insulation

TIKANA®, Cavity, float with arcon N33; (4/4/4); total assembly thickness approx. 12 mm	1.9	26	80	64	98
TIKANA®, Cavity, float with arcon N33; (4/16/4); total assembly thickness approx. 24 mm	1.1	26	80	65	98

 TIKANA® 4 mm  Cavity/gas: 4 mm krypton, 16 mm argon  Standard float glass 4 mm  low-e coating (arcon N33)

Insulating glass with sun protection

TIKANA®, with arcon sunbelt platin, Cavity, float glass according to building codes; (4/4/4); total assembly thickness approx. 12 mm	1.9	17	73	45	96
TIKANA®, with arcon sunbelt platin, Cavity, float glass according to building codes; (4/16/4); total assembly thickness approx. 24 mm	1.1	17	73	45	96

 TIKANA® 4 mm  Sun protection coating (arcon sunbelt platin)  Cavity/gas: 4 mm krypton, 16 mm argon  Float glass 4 mm

Insulating glass with interior laminated safety glass / laminated glass

TIKANA®, with arcon sunbelt platin, Cavity, LSG (float/0.76 mm PVB/float); (4/16/8); total assembly thickness approx. 28 mm	1.1	< 1	74	45	97
TIKANA®, with arcon sunbelt platin, Cavity, LG (float/film with UV protection/TIKANA®); (4/16/8); total assembly thickness approx. 28 mm	1.1	< 1	73	45	96

 TIKANA® 4 mm  Sun protection coating (arcon sunbelt platin)  Cavity/gas: 16 mm argon  Standard PVB film or film with UV protection  Float glass 4 mm

Insulating glass with exterior laminated glass

LG TIKANA®, 0.76 mm standard PVB/float, float with arcon N33; (8/16/4); total assembly thickness approx. 28 mm	1.1	< 1	74	64	97
LG TIKANA®, 0.76 mm film with UV protection/float, float with arcon N33; (8/16/4); total assembly thickness 28 mm	1.1	< 1	73	63	96

 TIKANA® 4 mm  Float glass 4 mm  Cavity/gas: 16 mm argon  Standard PVB film or film with UV protection  low-e coating (arcon N33)

U_g -value calculated per DIN EN 673

τ_{UV} Ultraviolet transmittance

τ_v Light transmittance

g Total energy transmittance

R_a General color rendering index per DIN EN 410

Cavity Space between panes

LG Laminated glass

LSG Laminated Safety Glass

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