Nachweis

Passivhaustauglichkeit von Komponenten für Fenster

Gutachtliche Stellungnahme

Nr. 16-000746-PR02
(GAS-A01-06-de-01)

Auftraggeber	Schüco Polymer Technologies KG Selauer Str. 155 06667 Weißenfels/OT Borau Deutschland
Produkt	Einflügliges Kunststofffenster in der Einbausituation
Bezeichnung	Schüco Living 82 MD Profilkombinationen: 9431/9411, 9434/9411
Rahmenmaterial	Kunststoff Hohlkammerprofile
Außenmaß Fenster (B x H)	1230 x 1480 mm

Leistungseigenschaften: Wärmedurchgang, Behaglichkeit, Temperaturfaktor (Hygiene)
(nach **ift**-Richtlinie WA 15/2: 2011-02)

Ergebnisse

U_f = 0,93 bis 0,96 W/(m² · K)
U_f der Rahmenprofile umlaufend. Rahmen-Ansichtsbreite B = 120 mm

U_g = 0,6 W/(m² · K) < 0,7 W/(m² · K)

$f_{0,13}$ ≥ 0,88 mit $f_{Rsi} = 1 - R_{si} \cdot U_f$

U_W = 0,79 bis 0,80 W/(m² · K)
Bezogen auf ein repräsentatives Bezugselement mit der Abmessung 1230mm x 1480 mm, einer Verglasung mit U_g = 0,6 W/(m² · K), Aufbau 4/16/4/16/4 mm und wärmetechnisch verbesserten Abstandhaltern nach Tabelle 4

$U_{W,Einbau}$ = 0,82 W/(m² · K)
Für den Wandaufbau „Monolithische Außenwand mit Wärmdämmverbundsystem“

$f_{0,25/0,13}$ ≥ 0,73 für die Baukörperanschlüsse an dem genannten Wandaufbau

$f_{0,20}$ ≥ 0,73 für den Glasrandbereich

Weitere Leistungseigenschaften
(nach EN 14351 Anhang ZA.1)

Ergebnisse

Eigenschaften	Widerstand gegen Windlast	Schlagregen-dichtheit	Stoß-festigkeit	Wärme-durchgang	Luft-durchlässigkeit
Klasse / Wert	**C3 / B3**	**9A**	**3**	siehe oben	**4**

ift Rosenheim
05.04.2016

Manuel Demel, M.BP. Dipl.-Ing. (FH)
Stv. Prüfstellenleiter
Bauphysik

Robert Kolacny, Dipl.-Ing. (FH)
Produktingenieur
Bauteile

Grundlagen *)

ift-Richtlinie WA15/2 (2011-02)

EN 14351-1:2006 + A1:2010

ift Prüfberichte:
16-000746-PR01
(PB 01-A01-06-de-01)

16-000746-PR01
(PB 02-A01-06-de-01)

15-002325-PR25
(PB-K20-06-de-02)

15-002325-PR29
(PB-K20-06-de-01)

14-003469-PR20
(GAS-A01-020310-de-01)

*) und entsprechende nationale Fassungen (z.B. DIN EN)

Verwendungshinweis

Diese Stellungnahme dient zusammen mit den genannten Grundlagen zum Nachweis der Leistungseigenschaften gemäß oben genannter Richtlinie.

Die Werte / Klassen der weiteren Leistungseigenschaften beziehen sich jeweils auf den in den Einzelnachweisen beschriebenen Gegenstand.

Für die Anwendung der Leistungseigenschaften gelten die nationalen baurechtlichen Bestimmungen.

Gültigkeit

Die genannten Daten und Ergebnisse beziehen sich ausschließlich auf den geprüften und beschriebenen Gegenstand.

Die Prüfung der genannten Leistungseigenschaften ermöglicht keine Aussage über weitere leistungs- und qualitätsbestimmende Eigenschaften der vorliegenden Konstruktion.

Der Prüfbericht verliert seine Gültigkeit, wenn die Richtlinie oder die in den Grundlagen zitierten Dokumente ihre Gültigkeit verlieren.

Veröffentlichungshinweise

Es gilt das ift-Merkblatt „Bedingungen und Hinweise zur Benutzung von **ift**-Prüfdokumentationen“.

Es gilt das "Merkblatt zur Benutzung von ift-Prüfdokumentationen". Das Dokument darf nur vollständig veröffentlicht werden.

Inhalt

Der Nachweis umfasst insgesamt 13 Seiten.

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ift-KONFORMITÄTSZERTIFIKAT
ift-CERTIFICATE OF CONFORMITY

ZERTIFIZIERT
CERTIFIED

Einbruchhemmende Nachrüstprodukte /
burglar inhibiting retrofittable products

Produkt *product*	**FAVORIT Si-line S-ES; AUBI 300 Safety PLUS!; TITAN AF; PSK PORTAL 160; PSK PORTAL 200-Z**
Bauart *type of construction*	**Im Falz eingelassene Beschläge für ein- und zweiflügelige Dreh- und Drehkippfenster sowie Parallel-Schiebe-Kipp-Elemente**
Einsatzbereich *field of application*	**Einbruchhemmende Nachrüstprodukte für Fenster und Fenstertüren** *burglar inhibiting retrofittable products for windows and balcony door*
Hersteller *manufacturer*	**SIEGENIA-AUBI KG Beschlag- und Lüftungstechnik** Industriestraße 1-3 , D 57234 Wilnsdorf
Produktionsstandort *production site*	**SIEGENIA-AUBI KG Beschlag- und Lüftungstechnik,** Industriestraße 1-3 , D 57234 Wilnsdorf **SIEGENIA-AUBI KG Beschlag- und Lüftungstechnik,** Am Fohlengarten 6, 54411 Hermeskeil/Reinsfeld

SIEGENIA®
SOLUTIONS INSIDE

Mit diesem Zertifikat wird bescheinigt, dass die benannten Bauprodukte den Anforderungen des **ift**-Zertifizierungsprogramm für einbruchhemmende Nachrüstprodukte (QM314 : 2013) entsprechen.

Grundlagen sind eine Prüfung durch das Prüflabor nach DIN 18104-2 : 2013, eine werkseigene Produktionskontrolle des Herstellers und eine Fremdüberwachung der Fertigung durch die Überwachungsstelle in den benannten Standorten.

Die Gültigkeitsdauer des Zertifikates beträgt 5 Jahre. Mit der Erteilung des Zertifikates ist eine regelmäßige Fremdüberwachung des Herstellers verbunden.

Das Zertifikat darf nur unverändert vervielfältigt werden. Alle Änderungen der Voraussetzungen für die Zertifizierung sind dem **ift**-Q-Zert mit den erforderlichen Nachweisen unverzüglich schriftlich anzuzeigen.

Das Unternehmen ist berechtigt, die Bauprodukte gemäß der **ift**-Zeichensatzung mit dem „**ift**-zertifiziert"-Zeichen zu kennzeichnen.

This Certificate attests that the construction products mentioned fulfil the requirements of the **ift** Certification Scheme for burglar resistant retrofit products (QM314 : 2013).

Basis are tests performed by the testing laboratory as per DIN 18104-2 : 2013, factory production control by the manufacturer and third-party surveillance audits of the production by the surveillance bodies at the plants mentioned.

The certificate is valid for a period of 5 years. Award of the Certificate is subject to regular third-party surveillance of the manufacturer.

The reproduction of the Certificate without any change whatsoever from the original, is permitted. Any changes to the requirements and conditions applicable to the certification shall be immediately communicated in writing to **ift**-Q-Zert accompanied by the necessary evidence.

The company is authorised to affix the "**ift**-certified"-mark to the construction product according to the "**ift** Rules for Use of the "**ift**-certified"-mark.

Einbruchhemmende Nachrüstprodukte
burglar inhibiting retrofittable products

DIN 18104-2

Rosenheim
13. Februar 2014

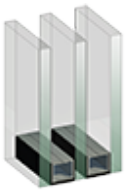
Christian Kehrer
Leiter ift Zertifizierungs- und Überwachungsstelle
Head of ift Certification and Surveillance Body

Ulrich Sieberath
Institutsleiter
Director of Institute

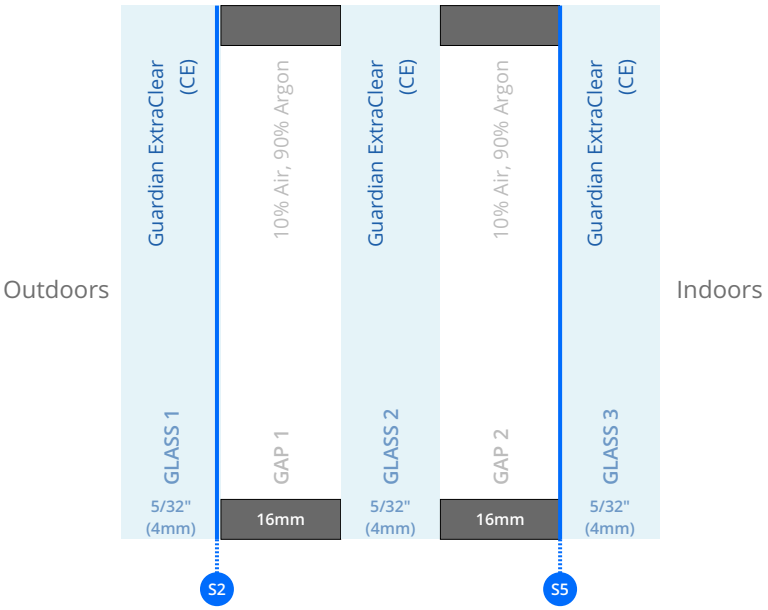
Vertrag-Nr. / *Contract No.*:	**219 6246810**	Zertifikat-Nr. / *Certificate No.*:	**219 6246810-1-6**
Prüfbericht-Nr. / *Test Report No.*:	**12-002870-PR01** vom/dated **10.10.12**	Gültig bis / *Valid:*	**12. Februar 2019**

Make-up Name	Glass 1 & Coating	Glass 2 & Coating	Visible Light			Solar Energy				Thermal Properties	Embodied CO_2
			Transmittance	Reflectance		Transmittance	Reflectance	Solar Factor (g%)	Secondary Heat Transfer (q_i)	U-Value	[eq. kg/m²] A1-A3
			Visible (τ_V %)	ρ_V % out	ρ_V % in	Solar (τ_e %)	ρ_e % out			$U_g W/m^2 \cdot K$	
Make-up 01	ClimaGuard® Solar (CE) on Guardian ExtraClear (CE)	Guardian ExtraClear (CE)	60.8	28.7	25.5	34.3	45.4	38.5	4.3	0.5	38.10

Calculation Standard: EN 410:2011 / EN 673:2011



Total Unit (Nominal):
44 mm
Glazing Weight:
28.75 kg/m²
Slope: 90°



Coatings

S2 **SURFACE 2 COATING** ClimaGuard® Solar (CE)

S5 **SURFACE 5 COATING** ClimaGuard® Premium2 (CE)

Important Notes

Calculations and terms in this report are based on EN 410:2011/EN 673:2011. The performance values shown above represent nominal values for the center of glass with no spacer system or framing. Solar Factor (g) and Secondary Heat Transfer (qi) are not available for sloped glazing, as no calculation method is prescribed by the standard for these attributes.

The KIWA logo and KIWA Validation Report MD - 14/477/GL are provided as evidence of validation of the Guardian Performance Calculator software, program version 4.1, for execution of calculations of luminous and solar characteristics of glazing and thermal transmittance, according to EN 410:2011 and EN 673:2011.

Embodied CO2 [eq. kg/m2] A1-A3, except for Guardian Nexa™ 6, is estimated based on material Embodied Carbon Factor (ECF), derived from Guardian Glass Regional third-party independently verified and published / current Environmental Product Declarations (EPDs) which are produced to EN 15804 and are compliant with the requirements of ISO 14044, the International Life Cycle Assessment (LCA) standard, and ISO 14025 and ISO 21930, the international standards covering EPD for construction products. The Nexa™ 6 ECF is derived from the LCA of Lower-Carbon production runs and pending verification for conformance to ISO 14040/44, ISO 21930, and the Product Category Rules (PCR) through a program operator and independent reviewer. The Nexa™ 6 ECF values are subject to change based on the critical review process. The new Guardian Nexa™ 6 EPD

is expected to be published around mid-2024. The A1–A3 ECF is an estimate of the embodied carbon due to production of that material. The resulting material value should then be multiplied by the square area of glazing to provide an estimate of embodied carbon of the material at the project scale. Embodied CO2 estimates provided by Guardian represent only values associated with the glass components manufactured by Guardian. The estimated values do not represent in any way a plant-specific and/or product specific guarantee.

Laminated products:

The Performance Calculator allows the user to model a wide variety of laminated glass makeups using different float glass substrates, coatings and interlayer material, including those makeups where the coating faces the interlayer. It is the user's responsibility to assess whether the laminated glass makeup meets relevant regional standards and complies with applicable laminated glass safety regulations.

In addition, when the laminated glass makeup includes a coating facing the interlayer material, there may be a loss of thermal insulation performance and a color change compared to non-embedded coated class.

Non-specular products (translucent or diffuse):

The performance measurement for non-specular (translucent or diffuse) materials such as translucent interlayers or acid etched glass surface, or surface with ceramic frit is limited by the current experimental technologies. Since measurements capture physically only a part of the resulting radiation, calculated performance results provided herein and based on such measurements are not compliant with any standard (including EN 410) and may only be used as a general reference. Actual values may vary significantly based upon exact fabrication process, as well as type, thickness and color of used non-specular material.

Explanation of Terms according to EN 410:2011/EN 673:2011

Visible Light Transmittance (Tv, %) is the percentage of incident light in the wavelength range of 380 nm to 780 nm that is transmitted by the glass.

Ultraviolet (UV) Transmittance (Tuv, %) is the percentage of the incident UV component of the solar radiation in the wavelength range of 280 nm to 380 nm that is transmitted by the glass.

Solar Energy Direct Transmittance (Te, %) is the percentage of incident solar energy in the wavelength range of 300 nm to 2500 nm that is directly transmitted by the glass.

Visible Light Reflectance Outdoors/Indoor (Rv out/in, %) is the percentage of incident visible light directly reflected by the glass.

Solar Direct Reflectance Outdoors/Indoors (Re out/in, %) is the percentage of incident solar energy directly reflected by the glass.

Solar Energy Absorptance (Ae, %) is the percentage of the sun's energy that is absorbed by glass.

U-Value (Ug, W/m2 K) is the glazing parameter that characterizes the heat transfer through the central part of the glazing, i.e. without edge effects, and expresses the steady-state density of heat transfer rate per temperature difference between the environmental temperatures on each side. Temperature differential according to standard conditions: ΔT=15K°. The lower the value, the greater is the insulating value. EN 673 defines the value with 1 decimal place. The value is also provided with 3 decimal places for informational purposes.

Solar Factor or Total Solar Energy Transmittance or g-value (g%) is the total solar radiation transmitted by the glass.

Shading Coefficient (sc) is Solar Factor divided by 0.87. It is a measure of the solar heat gain referenced to 3 mm clear glass which has the designated value of 1.00.

Secondary Heat Transfer Coefficient (q_i)) is the result of heat transfer by convection and longwave IR-radiation of that part of the incident solar radiation which has been absorbed by the glazing.

Colour Rendering Index in transmission, D65 (R_a) is the change in colour of an object as a result of the light being transmitted through the glass.

Disclaimer for Acoustic Performance

Disclaimer for Acoustic Performance: The acoustic performance data provided in the reports is based on a test protocol or an estimation and may be used if user actual glazing is identical to input data described herein. Acoustic performance data herein is only applicable for glazing dimensions 1,23 m x 1,48 m (as per testing standard). Estimation of acoustic performance is based on component-similarity assumptions which are derived from measured data and interpolation to expand the database of values from test protocols. Due to inherent variations in acoustic performance when testing in accordance with EN ISO 10140-3/EN ISO 10140-2, some variation in the calculated performance can also be expected. As such, the weighted performance, Rw, and adaptation terms, C and Ctr, should typically be considered to be accurate within ±2 dB. However, wider deviations can

occur. Actual performance may vary according to the glazing dimensions, frame system, noise sources and many other parameters. The acoustic performance data herein should not be used as a substitute for tests of actual glazing. For more information, please consult Assumptions and Terminology section in Guardian Acoustic Assistant.
By accessing this calculator, you agree not to alter or modify the generated report data and information, by any means. Any manual alteration will be your own responsibility and will annul all the content of the report.

Disclaimer

This performance analysis is provided for the limited purpose of assisting the user in evaluating the performance of the glass products identified on this report. Spectral data for products manufactured by Guardian reflect nominal values derived from typical production samples or CE Initial Type Testing and subject to variations due to manufacturing and calculation tolerances. Spectral data for products not manufactured by Guardian were derived from the LBNL International Glazing Database and have not been independently verified by Guardian. Guardian recommends a full-size mock-up be approved. The values provided herein are generated according to established engineering practices and applicable calculation standards. Many factors may affect glazing characteristics, including glass size, building orientation, shading, wind speed, type of installation, production process and others. The applicability and results of the analysis are directly related to user inputs and any changes in actual conditions can have a significant effect on the results. It is the responsibility of the users of the analysis to ensure that the intended application is appropriate and complies with all relevant laws, regulations, standards, codes of practices, processing guidelines and other requirements. Guardian makes no guarantee that any glazing modeled herein is available from Guardian or any other manufacturer. The user has the responsibility to check with the manufacturer regarding availability of any glass type or make-up.

All the HT/T coatings must undergo heat treatment. The specified values for these coatings are valid only once the heat treatment process has been completed.

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Program Version: 4.1.0.9850
Database Version: 20240909