

New dimensions in
facade planning:
**High security and
attractive appearance**

SYSTEM SÄLZER® Series S1es – Aluminum security facade system

High security with creative freedom

up to RC 5 | up to FB7-NS | tested with explosive charges up to 500 kg

certification with long pressure duration



Security facades

Transparent building envelope –
tough shell



Tailored security and attractive appearance

SÄLZER has taken its high-performance mullion-transom S1es series a step further – it looks just like the Schüco FWS system. And of course tested and certified like all SÄLZER products.



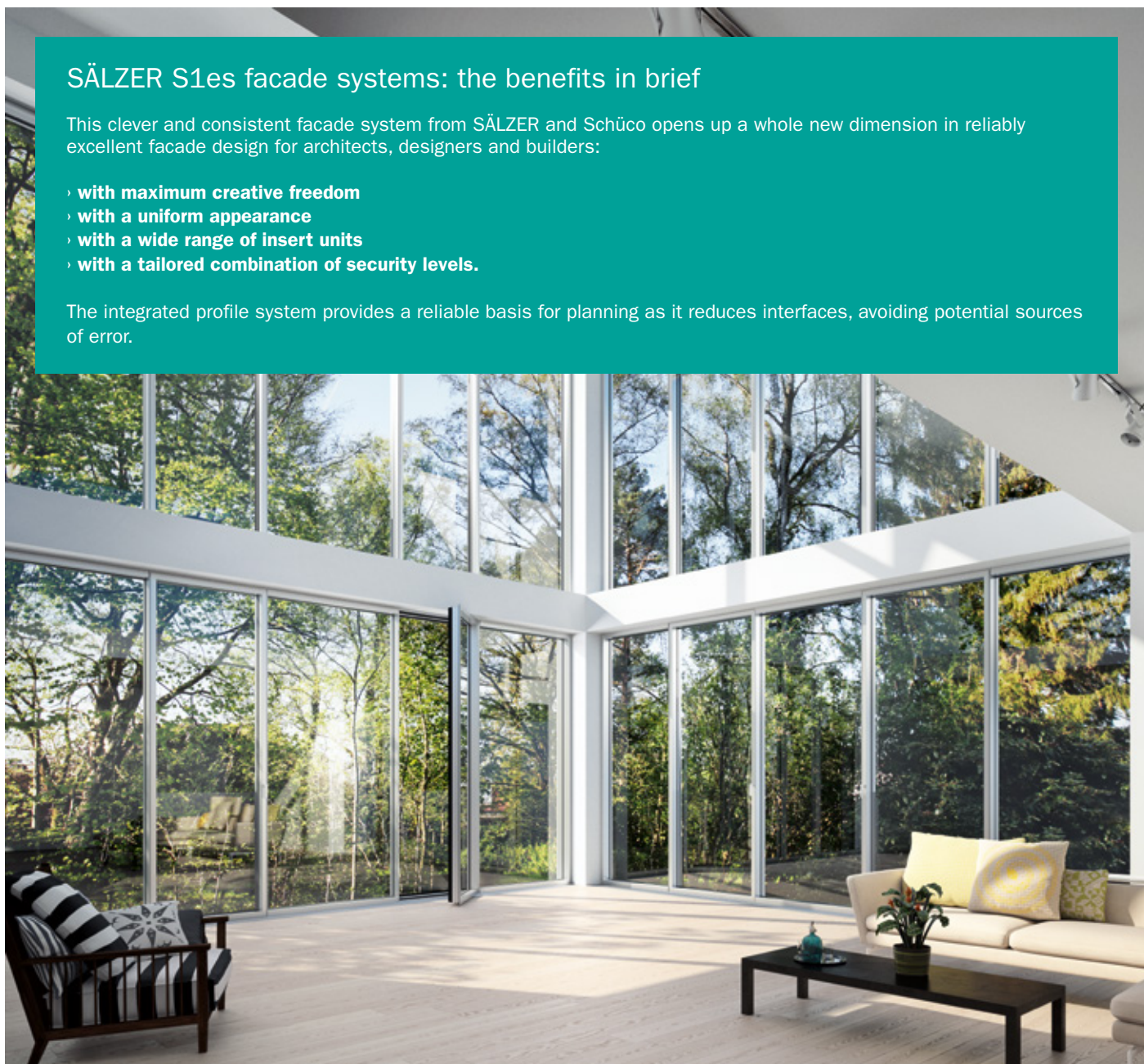
SÄLZER has drawn on **more than fifty years' experience** in the development and production of high-security structures for buildings to create the S1es facade, a **complete solution** that fits visually and architecturally with the Schüco FWS facade system. Integrated security components inside the profiles give the S1es system a **consistent appearance**, even when combined with the Schüco FWS facade system – there are no visible differences between different protection and security levels.

SÄLZER S1es facade systems: the benefits in brief

This clever and consistent facade system from SÄLZER and Schüco opens up a whole new dimension in reliably excellent facade design for architects, designers and builders:

- › **with maximum creative freedom**
- › **with a uniform appearance**
- › **with a wide range of insert units**
- › **with a tailored combination of security levels.**

The integrated profile system provides a reliable basis for planning as it reduces interfaces, avoiding potential sources of error.

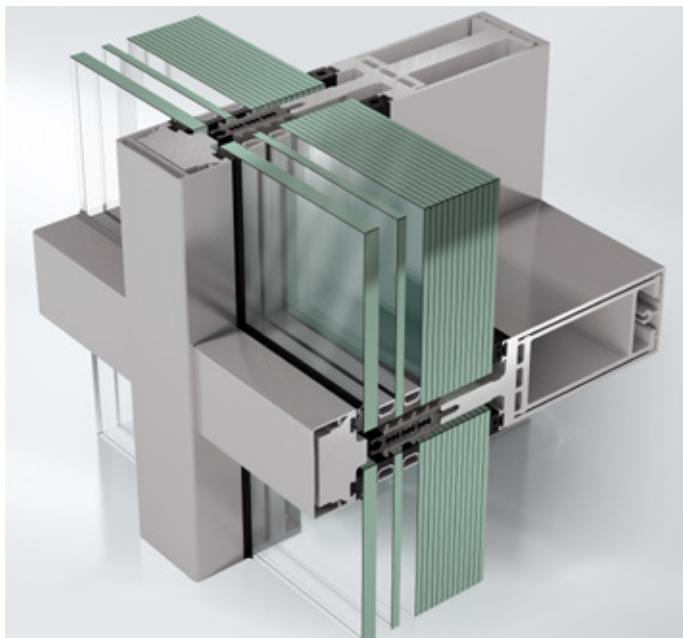


SÄLZER S1es facade systems: standardised design



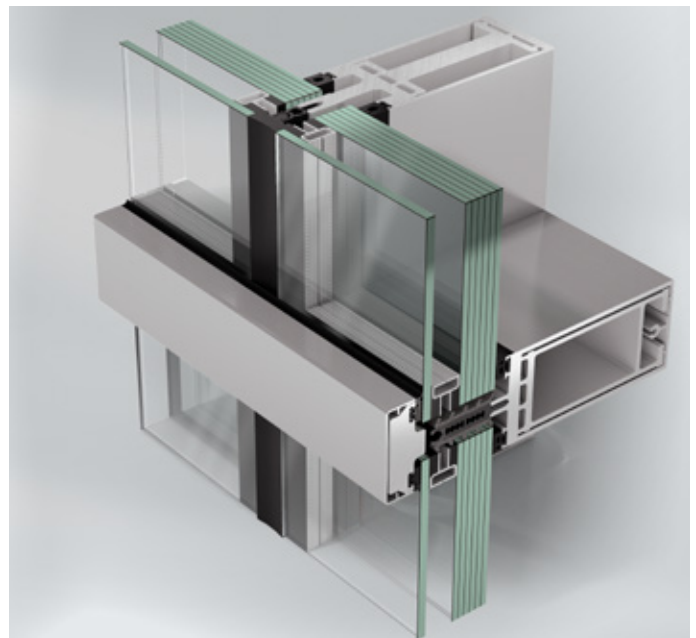
Individual protection from a range of threats in just one system.

Profile system



S1es-50/60*

Due to the same profile construction the S1es high-security facade can be combined „seamlessly“ with less secured or unsecured facade areas. The high-security components are integrated inside the profile invisibly.



S1es- 50/60 in Semi-SG optics with horizontal emphasis*

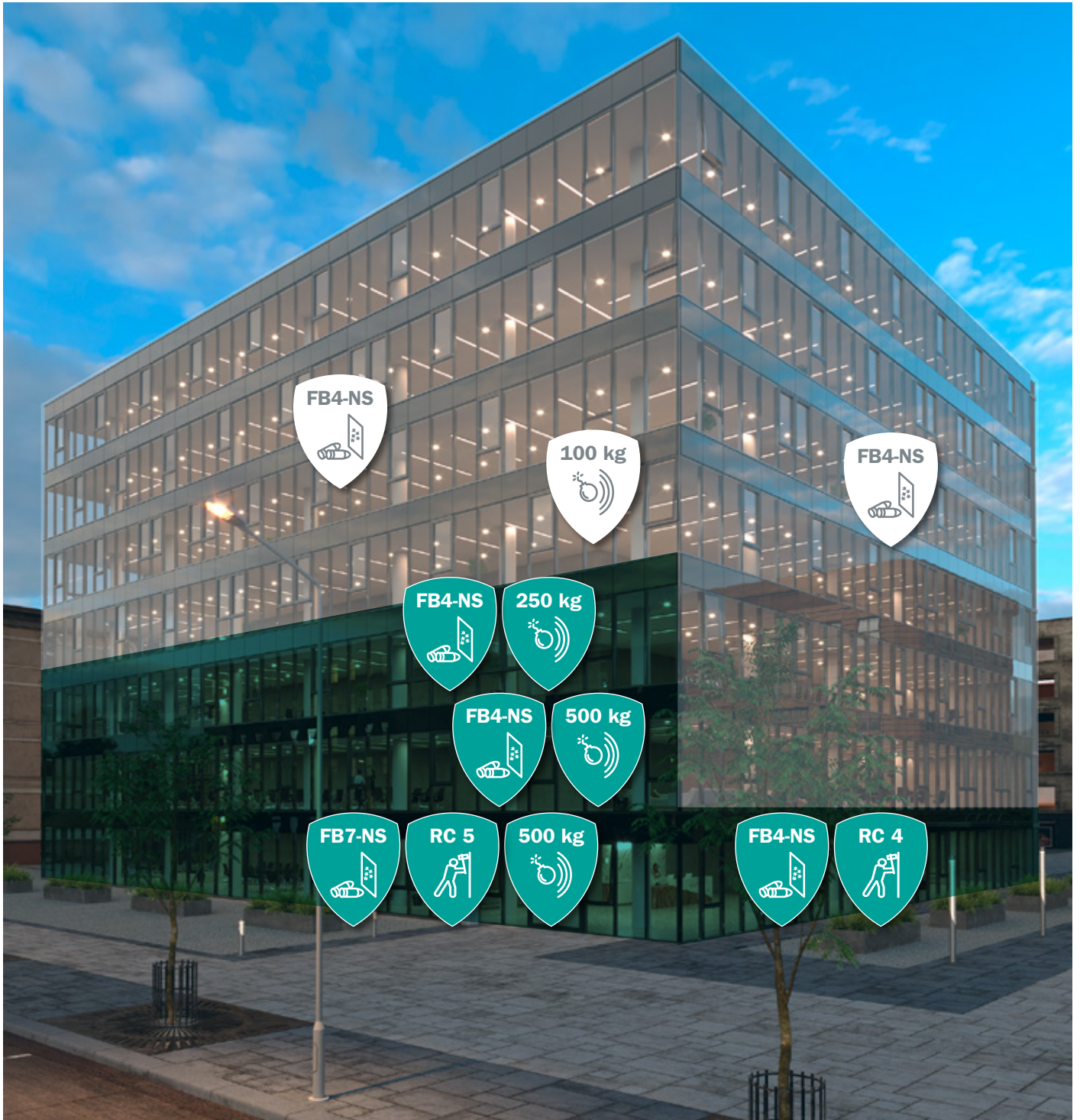
Attractive architectural accents of the facade can be set by horizontal or vertical emphasis.

*alienated drawings



Unlimited possibilities

The security components are integrated discrete and invisible. The S1es series offers, in combination with the Schüco series FWS, a flexible system solution, while the external aesthetic remain identical.



An example

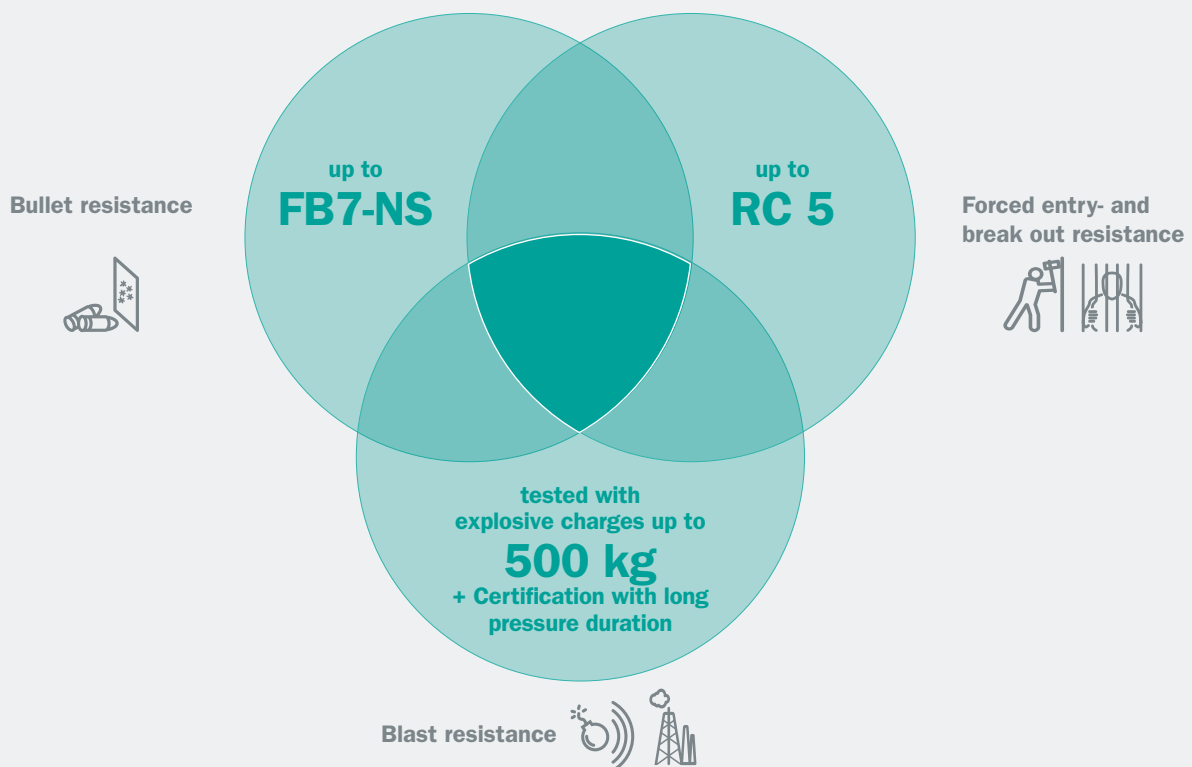
Uncompromisingly secure: tested and certified solutions

Almost 1000 test certificates verify to the high-security performance of SÄLZER products.

The SÄLZER S1es facade series was initially tested during development with different insert units and in customer-specific designs in SÄLZER's own test facilities, which include a ballistic test centre. Successful initial tests were followed by testing by independent, accredited testing institutes in Germany and abroad. The test certificates issued prove the S1es facade system's safety and security performance in a wide range of designs.

With many possible combinations of security components, the S1es series has just the right solution for your specific security requirements¹

› **S1es triple high-security combination:**
protection against bullets, forced entry/break-outs and explosion



› **S1es focused on a specific security aspect:**



› **S1es combination of two security requirements:**



¹Simply contact us to consult on the right solution for your specific requirements.



Multi-certification against forced entry, bullets and explosions

Our series variants – tested and certified



Forced entry- and break out resistance according DIN EN 1627-1630



Bullet resistance according DIN EN 1522-1523



Blast resistance*



› **Series S1es-50** Up to RC 4
Glazing according to DIN EN 356 up to P6B.

Up to FB4-NS
Glazing according to DIN EN 1063 up to BR4-NS.

› **Series S1es-60*** Up to RC 5
But **P7B, P8B glazing are inadequate in resistance level RC 5 and RC 6** (⚠️ please note remarks on forced entry resistance).

Up to FB7-NS
Glazing according to DIN EN 1063 up to BR7-NS.

Open range test with explosive charges up to 500 kg in different distances.

Project-specific verifications with long pressure duration for the petrochemical industry.

Project-specific verifications according to 13123-1/3124-1 up to **EPR4** are available.

› **Series S1es-50 Semi-SG** Up to RC 4
Glazing according to DIN EN 356 up to P6B.

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› **Series S1es-60* Semi-SG** Up to RC 4
Glazing according to DIN EN 356 up to P6B.

–

Open range test with explosive charges up to 500 kg

*Classified: GSA 2 ("Protection Level, Very High") | ISO B (Hazard-Rating, „No Hazard“).

Prüfzentrum für Bauelemente
Dipl.-Ing. (FH) Rüdiger Müller

Fenster - windows
Rolläden - shutters
Türen + Tore - doors
Fassaden - curtain walling
Bauelemente - building hardware

KLASSIFIZIERUNGSBERICHT NR. 2020-04-0215-K1 Version 1.de
Einbruchhemmung nach DIN EN 1627 : 2011-09 „Türen, Fenster, Vorhangfassaden, Gitterelemente und Abschlässe - Einbruchhemmung - Anforderungen und Klassifizierung Deutsche Fassung, EN 1627:2011“ in der Widerstandsklasse RC 5

Antragsteller: Sälzer GmbH building security
Dietrich Borthoer-Str. 1-3
35037 Marburg

Bauart: Pfosten-Riegel-Fassade aus Aluminium, thermisch getrennt, wahlweise verglast, mit nichttransparenter Füllung oder Einsatzelemente, auch in Ausführung als Dachziegel

Produktbezeichnung: SYSTEM SÄLZER S1es-60

Maße: Variable Feldgrößen unter Berücksichtigung der Vorgabed der Druckklemme und/oder der Stütz-Druckklemmen sowie der Stütz-Druckklemmen

Angriffsseite: Druckklemme und/oder Pfosten-Riegel-Seite

Druckklemme: Druckklemme im Pfosten mit mindestens 5 geschichteten einbruchhemmenden Verschränkungen je Seite im Feld und Riegel mit mindestens 6 geschichteten einbruchhemmenden Verschränkungen je Seite siehe auch Montageanleitung

Verglasung: Glas in Ausführung als Monomonte, 2-fach oder 3-fach Isolierverglasung mit einer durchbruchhemmenden Scheibe; Widerstandsklasse EN 356 P7B und Prüfnachweis des Widerstandes gegen Durchbrechen einer durchgangsfähigen Öffnung mit manueller Einbruchwucht nach EN 1630 in der Glasfläche Nichttransparente Füllung mit Deckblechen aus Aluminium, Stahlbleche und thermische Trennung oder Einsatzelemente mit gegebenem Nachweis der Widerstandsklasse RC 5 nach DIN EN 1627, jeweils in den Fugen verschraubt mit Fassade

Obige Bauart ist gemäß Gutachten/ Stellungnahme Nr. 2020-04-0215-G1 einbruchhemmend nach DIN EN 1627 : 2011-09 in der Widerstandsklasse RC 5

Normbezeichnung: Einbruchhemmende Fassade DIN EN 1627-RC 5

Gültigkeit: Anwendbarkeit der Druckklemme 1627 Ausgabe 2011-09

Andreas Nitz
Stellv. Geschäftsführer

Dipl.-Ing. Matthias Demmel
Prüfingenieur

ISO 9001:2015 zertifiziert
PFB S1es ist ein Produkt für die Bauelemente-Industrie
ISO 14001:2015 zertifiziert
ISO 45001:2018 zertifiziert
ISO 19011:2011 zertifiziert
ISO 9001:2015 zertifiziert
ISO 14001:2015 zertifiziert
ISO 45001:2018 zertifiziert
ISO 19011:2011 zertifiziert

Accredited test institute for ballistic and blast testing of protected vehicles, protection systems, components and materials.
Akkreditiertes Prüfzentrum für ballistische und Sprengversuche an geschützten Fahrzeugen, Schutzsystemen, Komponenten und Materialien.

Certificate (C20010)
Prüfzeugnis

Ballistic test of ballistic material
Ballistische Prüfung von Schutzmaterial

Customer: SÄLZER GmbH
Dietrich Borthoer-Str. 1-3
35037 Marburg
Germany

Manufacturer: SÄLZER GmbH
Dietrich Borthoer-Str. 1-3
35037 Marburg
Germany

Location and Date of Test: 33166 Lichtenau (Germany), 03/04/2020 and 16/04/2020

Test Specimen: Facade SÄLZER_Serie S1es-60 (FB7-NS)*
Fassade SÄLZER_Serie S1es-60 (FB7-NS)*

Test Result (summary)
Spezies der Prüfung (Zusammenfassung)
The above mentioned test specimen fulfilled the requirements according to the test procedure specified in the test report. The certificate is in line with the following requirements:
Das oben genannte Prüfgegenstand erfüllt die Anforderungen gemäß

DIN EN 1622 / 1623; Level FB-7 NS
KE: Small Level FB-7: 7.62 mm x 91 P80 @ 820 m/s ± 10 m/s

IABG Ballistic Report: BR20187
IABG Versuchsprotokoll

IABG Project Number: K-11134
IABG Projektnummer

Reference to the test method (optional): The following items only apply to the material and not to the vehicle configuration as described in the test report. The certificate is in line with the following requirements:
Die folgenden Angaben beziehen sich auf das Prüfgegenstand und nicht auf die Fahrzeugkonfiguration wie beschrieben in dem Testbericht. Die folgenden Angaben beziehen sich nur auf das Prüfgegenstand und nicht auf die Fahrzeugkonfiguration wie beschrieben in dem Testbericht.

Lichtenau, 13/07/2020

IABG msh
Test Site Lichtenau
Baughof 1
33166 Lichtenau
pruefung@iabg.de
iabg.de

IV
Administration Test Center
1.V. Dr. Roger Schöler

JA
Project Manager
A. B. B. B. B.

CCSD-FB-011, Phase 1

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TEST REPORT SUMMARY CERTIFICATE

Explosion Resistant Façade

Test Item No: PK1

Client: Sälzer GmbH
Dietrich Borthoer-Str. 1-3
35037 Marburg
Germany

Manufacturer: Sälzer GmbH

Test specimen: Series S1es-60 Mullion-Transom-Façade in 6 fields.

Size: 3360mm wide x 3810mm high sub-divided into 6 panels.

Glazing: SGG-12A-14-19A VSG-ISO for smaller fields and SGG-12A-14-27A VSG-ISO for larger fields.

Explosive: 500 kg TNT equivalent.

Range: 29 m

Date of Test: 29th September 2020

Reflected Pressure: 208kPa

Reflected Impulse: 1246kPa-msec

Certified Results: ISO16933 EXV15(B) (reflected impulse exceeds ISO requirement)
US GSA Category D performance condition 2

Details of the test specimen are certified on drawing and project reference: P20 – 0538 drawing numbers PK 01.1, 01.2 dated 07.07.2020

Simon Trundle
ComBlast Commercial Test Manager
ComBlast 2020 Explosion Range Trials

3-way tested and certified:

Forced entry resistance up to RC 5 (tested on both sides), bullet resistance up to FB7-NS, blast resistance tested with 500 kg

» More about certified security in our brochure [Norms and Standards.](#)

Advanced security features: a class apart

Bullet resistance: complete element and wall connection tested

Only complete tested elements can offer protection in case of emergency. The connections and material transitions in particular pose the greatest risks of bullet penetration. SÄLZER has specifically had the facade wall connection tested under fire at a testing institute to offer reliable and total security, even though this is not required under the European standard.

Comprehensive security beyond what the standards require.

Fig.: Facade after passing a ballistics test for the highest ballistic standard rating, FB7-NS.



Protection in the event of accidents and incidents, for example in the petrochemical industry

Explosions can have very different load scenarios. A very long duration of pressure is characteristic of accidents and incidents, for example those caused by deflagration or explosive gas and air mixtures in the petrochemical industry.

For this field too, the S1es series offers reliable solutions.

Fig.: S1es-60 series facade after passing a blast test with 500 kg of explosives (GSA 2, ISO B).



Note on forced entry resistance

Extract from EN 1630:2021 section 6.3:

For building products in resistance classes 5 and 6 according to DIN EN 1627:2011, the glass itself as well as the glazing and the infill connection system must be attacked.

This means that the glass must undergo RC 5 and RC 6 testing with the same solid tools as the profile, e.g. drill, compass saw, jigsaw, angle grinder. However, P7B and P8B glazing is only tested using axe blows according to EN 356. These types of glazing do not withstand the aforementioned electronic tools.

Therefore more resistant and higher quality glazing than P7B / P8B must be used for RC 5 and RC 6.

Break out resistant properties of the S1es series

SÄLZER provides tested and certified systems with high break out resistance **for use by the police, the prison service and the courts, in forensic psychiatry clinics and on military sites.** The S1es facade series has been **tested on both sides** in accordance with the European EN 1627-1630 standards.

The SÄLZER S1es facade series therefore simultaneously protects against forced entry or break out attempts from the outside and break out attempts from the inside.



What SÄLZER offers

Concealed security with specially developed system components that can be seamlessly integrated and combined as required.

› **Depending on the selected series variably combined security against forced entry and/or bullets and/or explosions:**

Series	Type of threats
S1es-50	Up to RC 4 + up to FB4-NS
S1es-60	Up to RC 5 + up to FB7-NS + tested with explosive charges up to 500 kg as well as further test certifications with long pressure duration
S1es-50 Semi-SG	Up to RC 4
S1es-60 Semi-SG	Up to RC 4 + blast resistance

› Seamless integration into the Schüco design. The high-security components are **integrated into the profiles**, and are invisible from the outside. **This ensures a consistent outer design, even with different levels of security.**

› Tested and certified in a wide range of versions as **a complete element including glazing and wall connection.**

› **Large portfolio** of cover profiles, glass pressure plates and mullions in line with the Schüco FWS 50/60 portfolio.

› Semi-SG version with horizontal or vertical accents for **great design scope.**

› Infills of **up to 108 mm** can be used in the facade structure. This allows the use of highly insulated, bullet-resistant triple glazing, for example, and ensures excellent thermal insulation as despite strict security standards.

› The S1es-50/S1es-60 series meets the necessary security standards **without the glazing being glued**. This means natural glazing rebate ventilation and controlled water flow, and makes it easy to replace the glass if required.

› **Specially developed cross-shaped supports** used with ultra-sturdy, heavy-duty butt connectors can bear considerable vertical and horizontal loads. These modular components can be adapted to different infill thicknesses and are screwed to the mullion and transom profile to transfer large infill weights. This makes it possible to use **high and wide panes for maximum natural light despite the weight of the security glazing.**

› **All screw connections** between the transom profile, heavy-duty connector and mullion profile are positioned **to be invisible once facade installation is complete.**

› Insert units: can be combined with all **SYSTEM SÄLZER door and window systems**. Window casements of up to 350 kg and door leaves of up to 400 kg (up to 800 kg with floor pivot) can be used.

› The facade can be delivered **pre-assembled** in ladder-shaped sections.

Further technical properties

Great creative scope for individual requirements, with structural and physical properties in compliance with standards.

Characteristics	S1es-50	S1es-60	S1es-50/-60 Semi-SG
› System basic depth min. – max.	85...255 mm 22 mm, top profiles	85...255 mm 22 mm, top profiles	85...255 mm
› Face width	50 mm	60 mm	50/60 mm
› Glass/panel thickness min. – max.	4 - 70 mm	4 - 112 mm	32 - 70 mm (S1es-50 Semi-SG) 32 - 75 mm (S1es-60 Semi-SG)
› Installation angle	7°- 105°	7°- 105°	90°- 105°
› Polygon facade angle (not for bullet resistance)	20°	20°	20°
› Skylight construction vert. Incline min. – max.	7° - 90°	7° - 90°	-
› Skylight construction	Yes	Yes	-
› Drainage	Yes	Yes	Yes
› Drainage levels	3	3	3
› Sun shading attachment	Yes	Yes	-
› Integrated sun shading	Yes	Yes	-
› Lightning protection	Yes	Yes	Yes
› Earthquake protection	On request	On request	On request

Building physics according to DIN EN 13830

Besides their high security function SÄLZER security facades comply with all requirements in building physics according to DIN EN 13830 and are CE marked.



Resistance against wind load

Depending on the type up to level 2,0/3,0 [kN/m²].



Water tightness

Depending on the type up to level RE 1200.



Air permeability

Depending on the type up to level AE.



Impact resistance

Depending on the type up to level I5/E5.



Thermal insulation

Depending on the type

U_f up to 1,4 W/(m²·K)

U_{cw} up to 0,9 W/(m²·K).



Sound insulation

S1es-50, S1es-50 SemiSG:
48 dB (A).

S1es-60, S1es-60 SemiSG:
46 dB (A).



Facade and insert units

Tested and certified – of course in the same security class.

› **Facade construction:**

Transom and mullion construction, available as single or double facade, as skylights or as top construction in various face width with glass and panel fillings, as Semi-SG variant with horizontal and vertical emphasis. Large portfolio of cover shells, glass pressure plate and mullion variants.

› **Insert unit windows:**

Single and multi-paned window elements with inward or outward opening turn and bottom hung casement, tilt-, tilt-before-turn-, turn-tilt casement, execution as transom window optionally with electric drive etc.

› **Insert unit doors:**

Single or double-winged side-hung doors or sliding elements in various shapes, with sprouts, panel or glass fillings, opening inwards or outwards. Integration of sluice system with door control system or doors for escape routes with fittings according to DIN EN 179 (emergency exits) or DIN EN 1125 (anti-panic doors) possible etc.

All systems are thoroughly tested by internationally recognized testing institutes and certified so that they will protect life and preserve property in an emergency.



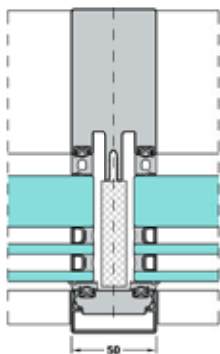


Example of profile sections (horizontal, with elevations)

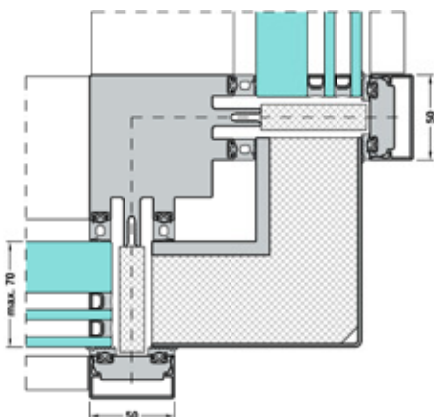
Facade S1es-50

Forced entry resistance up to RC 4, bullet resistance up to FB4-NS

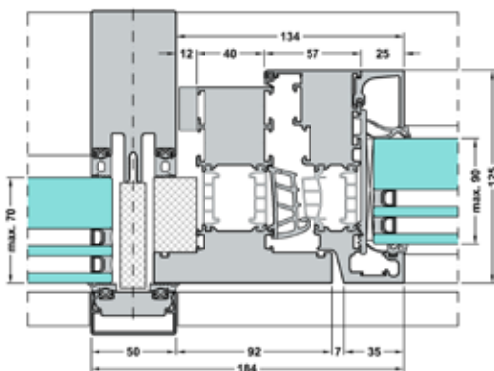
› **Section 1**
(Mullion)



› **Section 2**
(external angle 90°)



› **Section 3**
(Mullion with insert unit S6es window)

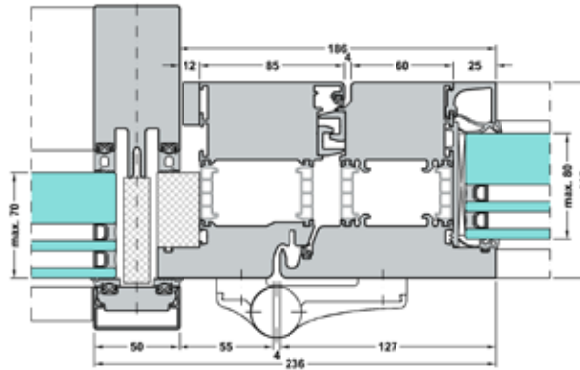


Example of profile sections (horizontal, with elevations)

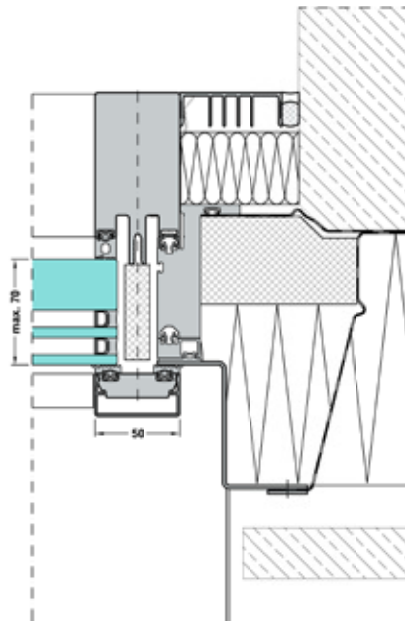
Facade S1es-50

Forced entry resistance up to RC 4, bullet resistance up to FB4-NS

- › **Section 4**
(Mullion with insert unit S6es door outward opening)



- › **Section 5**
(Mullion with wall connection)



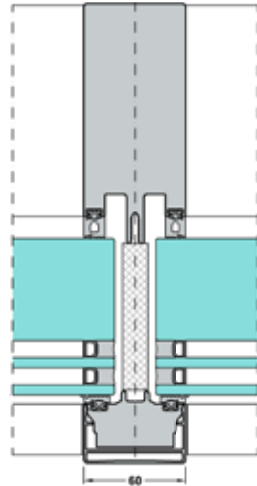


Example of profile sections (horizontal, with elevations)

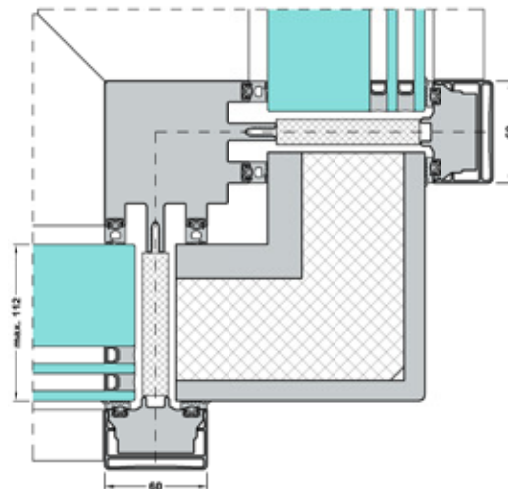
Facade S1es-60

Forced entry resistance up to RC 5, bullet resistance up to FB7-NS, tested with explosive charges up to 500 kg

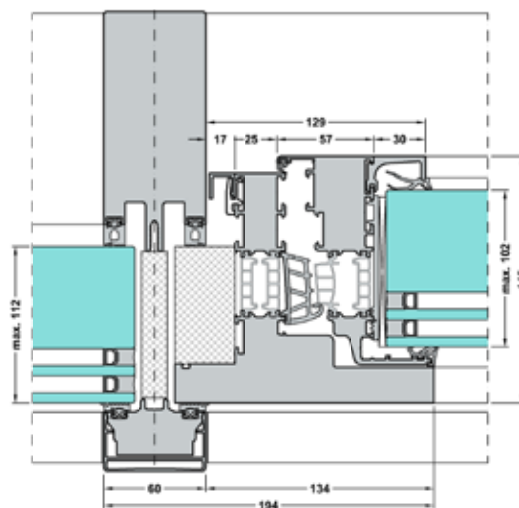
› Section 1 (Mullion)



› Section 2 (external angle 90°)



› Section 3 (Mullion with insert unit S2es window)



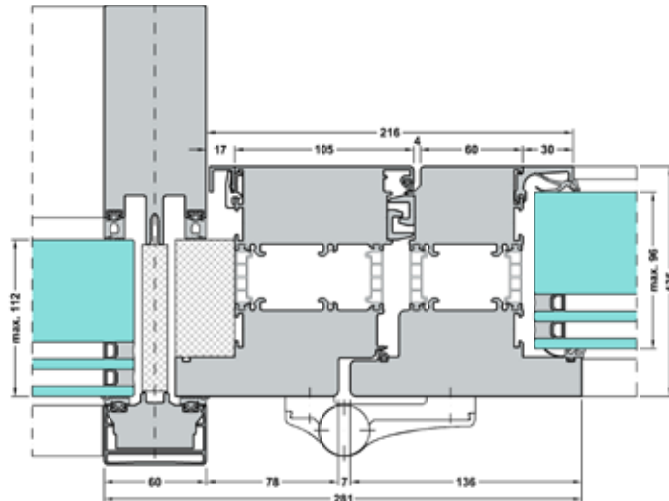


Example of profile sections (horizontal, with elevations)

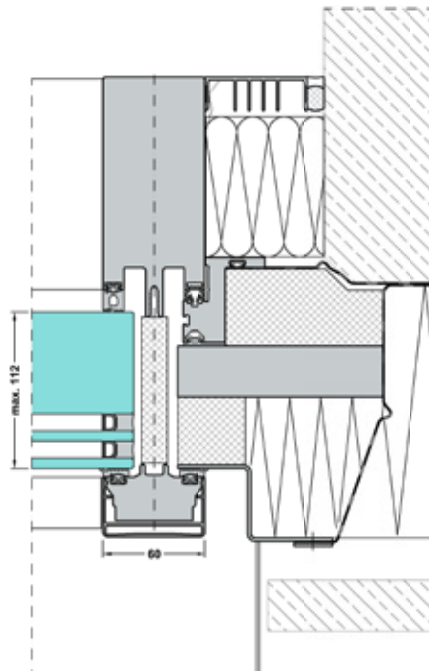
Facade S1es-60

Forced entry resistance up to RC 5, bullet resistance up to FB7-NS, tested with explosive charges up to 500 kg

- › **Section 4**
(Mullion with insert unit S2es door outward opening)



- › **Section 5**
(Mullion with wall connection)

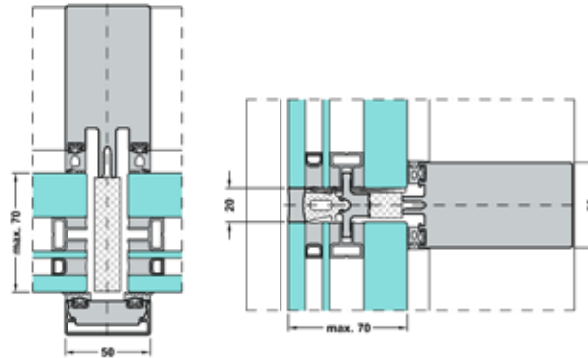


Example of profile sections (horizontal and vertical emphasis)

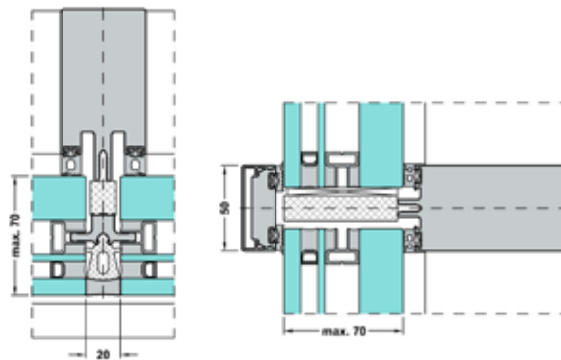
Facade S1es-50 Semi-SG

Forced entry resistance up to RC 4

› S1es-50 Semi-SG (vertical emphasis)



› S1es-50 Semi-SG (horizontal emphasis)



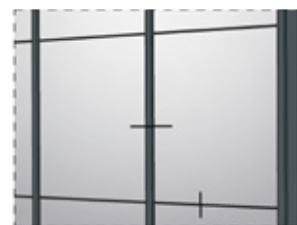
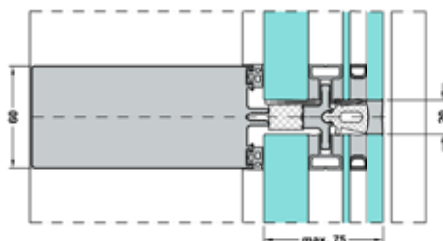
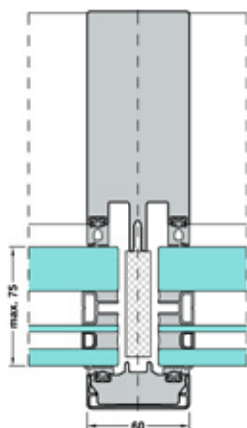


Example of profile sections (horizontal and vertical emphasis)

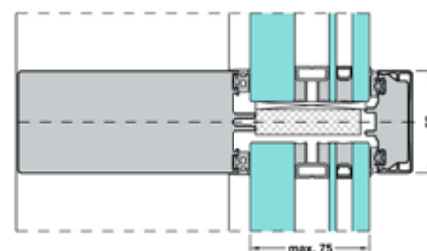
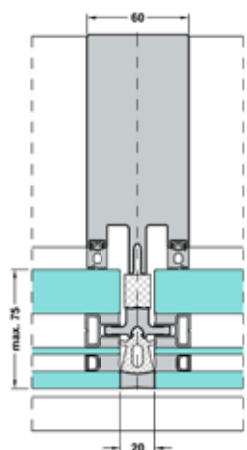
Facade S1es-60 Semi-SG

Forced entry resistance up to RC 4, tested with explosive charges up to 500 kg

› S1es-60 Semi-SG (vertical emphasis)



› S1es-60 Semi-SG (horizontal emphasis)



International requirements – global references

Security is a matter of trust. SÄLZER therefore treats information on the customized security concepts and product solutions of their customers with utmost discretion. Deliberately not including specific details like project names, individual threat scenarios, security classes and building locations, we refer to the projects listed below as a selection of our worldwide references. All projects mentioned have been executed according to standards and regulations valid on site and in the home country as well as to customer specific requirements in design, function and comfort.

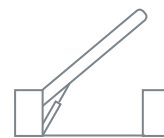
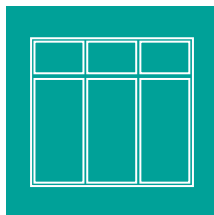
- › **Building security for embassies and administration buildings of international organizations:** security windows, doors, facades and integral security concepts for diplomatic representation buildings in foreign countries for the states of Germany, USA, Great Britain, Turkey, New Zealand as well as for the UN.
- › **Project specific special security solutions:** Visa security cash points/bank counters; mobile and stationary guard houses in modular container design, fully equipped with e.g. x-ray machines; fully armored outer building shells (facades, windows, doors, skylight constructions); bullet resistant and blast resistant partition walls for temporary building security.
- › **Private residences:** multi-functional security windows, -doors and -facades that comply with modern building physics and the building owners personal protective goals; elements with expansive glazing; individualized profile surfaces in color and material; multiple shapes, designs and fitting variations.
- › **Industrial security solutions:** e.g. security doors, -windows and -facades systems for refinery plants in the Middle East; blast resistance control stations for petrochemical production plants.
- › **Special products and security concepts for the police, detention facilities and military properties:** security windows and doors for detention rooms featuring forced entry/outbreak resistance, anti-vandalism and anti-self-injury functions; entry ports with airlocks and vehicle lock for prisons; panic rooms for private clients and international organizations operating in crisis regions; security barriers for military properties for example in Afghanistan.

SYSTEM SÄLZER® – Systemized security



As part of the Schüco Group with over 5,650 employees worldwide, SÄLZER GmbH is at the very cutting-edge of high-security technology. Our customers worldwide know that they can rely on our high-security windows, doors and facades. These offer combined protection against forced entry, bullet penetration and explosions, especially in the highest security classes. Our primary mission in everything we do is the protection of human life and values.

For more information, visit: www.saelzer-security.com and www.schueco.com



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