

Wärmegeämmte Türen und Fenster

Portes et fenêtres à isolation thermique

Thermally insulated doors and windows

In Stahl und Edelstahl / En acier et acier inox / In steel and stainless steel





Villa Stockhausen / Lingner-Schloss Lingnerterrassen, DE-Dresden

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Das System auf einen Blick

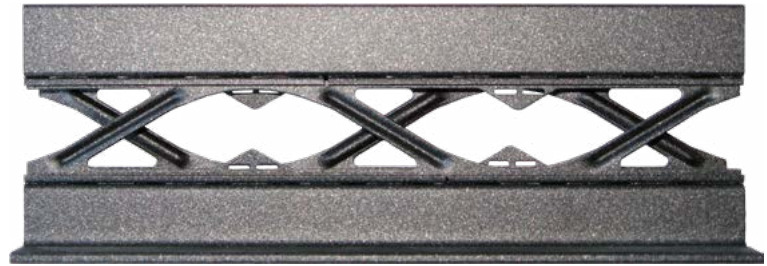
Le système en un coup d'œil

The system at a glance

Einzigartig

Unique

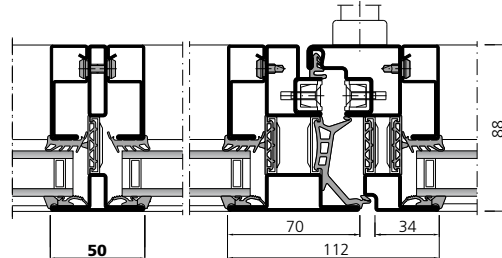
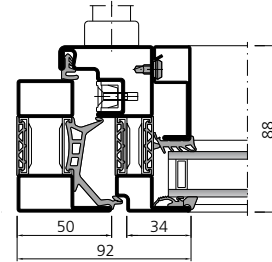
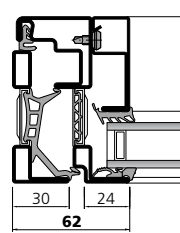
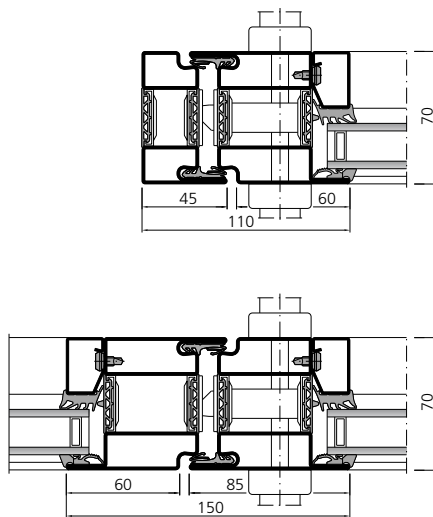
Unique



Schlanke Ansicht

Largeur de façade étroite

Narrow section views



Gleiche Ansichten

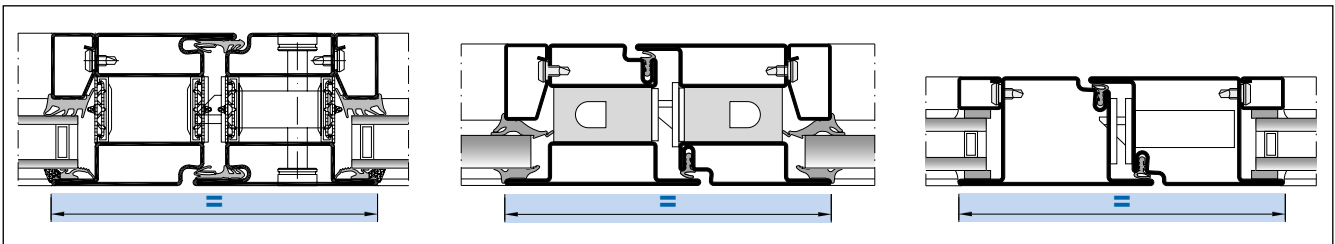
- Wärmedämmte Türen und Fenster Forster unico
- Brandschutztüren Forster fuego light
- Rauchschutztüren Forster presto

Façes vue identiques

- Portes coupe-feux Forster fuego light
- Portes pare-flamme Forster presto
- Portes et fenêtres à isolation thermique Forster unico

Same construction widths

- Fire resistant doors Forster fuego light
- Smoke-proofed doors Forster presto
- Thermally insulated doors and windows Forster unico



forsterunico.

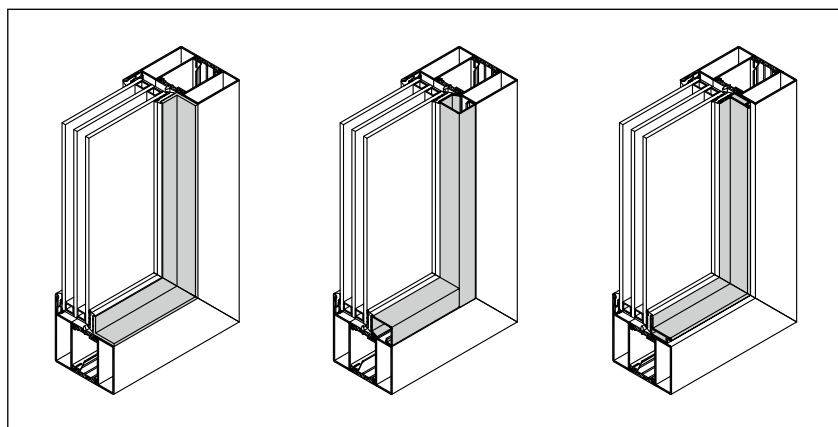
forsterfuego.light

forsterpresto

**Das System
auf einen Blick**

**Le système
en un coup d'œil**

**The system
at a glance**



Verdecktliegende Bänder

Paumelles cachées
disponibles

Concealed hinges
available



Referenzobjekte

Réalisations

Project references



Büro und Geschäftshaus Jungfernstieg Hamburg, DE-Hamburg



Campus Hoogvliet, NL-Hoogvliet



Linkin Park, CN-Beijing

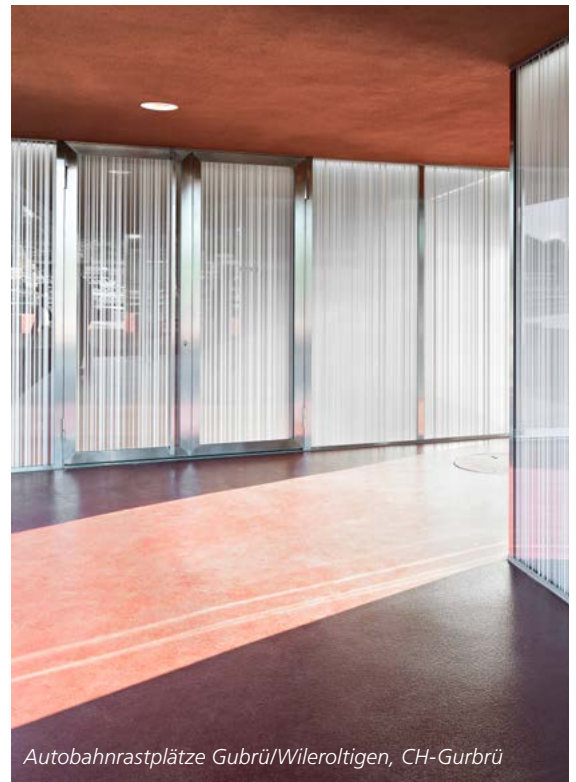
Referenzobjekte

Réalisations

Project references



Zentrum für Energietechnik, Technische Universität, DE-Dresden



Autobahnrastplätze Gubrü/Wileroltigen, CH-Gurbrü



Möbel Pfister, CH-Zürich



Weingut von Winning (Restaurant Leopold), DE-Deidesheim

Das System

Forster unico ist das wärmedämmte Profilsystem mit Beschlägen und Zubehör für ein- und zweiflügelige Türen, Fenster sowie für Verglasungen im Aussenbereich.

Die Grundprofile bestehen zu 100 % aus recyklierbarem Stahl und enthalten keine Kunststoffisolatoren – im Gegensatz zu herkömmlichen isolierten Systemen.

Diese Innovation in einzigartiger Fachwerk-Anmutung erfüllt die höchsten Ansprüche an technische und bauphysikalische Funktionen.

Höhere Isolationswerte mit Forster unico Hi

Nur zwei Komponenten werden zusätzlich benötigt, um aus Forster unico ein hochwärmedämmtes Forster unico Hi Element zu machen.

Le système

Forster unico est un système de profilés à isolation thermique, qui permet la réalisation de portes, de fenêtres et de vitrages fixes.

Les profilés sont fabriqués entièrement en acier, sans aucun isolant en matière synthétique, système novateur ne portant pas atteinte à l'environnement.

Cette technologie permet grâce à la conception structurale et alvéolaire du profilé de répondre aux exigences les plus élevées de la physique du bâtiment.

Valeurs d'isolation thermique plus élevées avec Forster unico Hi

Seuls deux composants additionnels sont nécessaires pour faire de Forster unico un système Forster unico Hi à haute isolation thermique.

The system

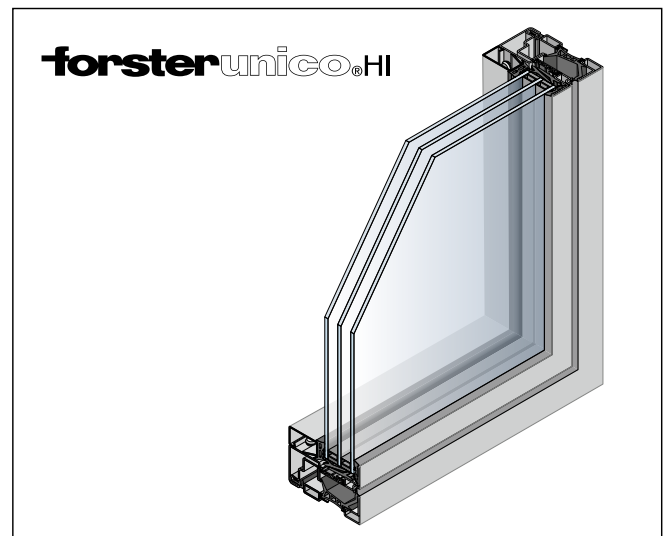
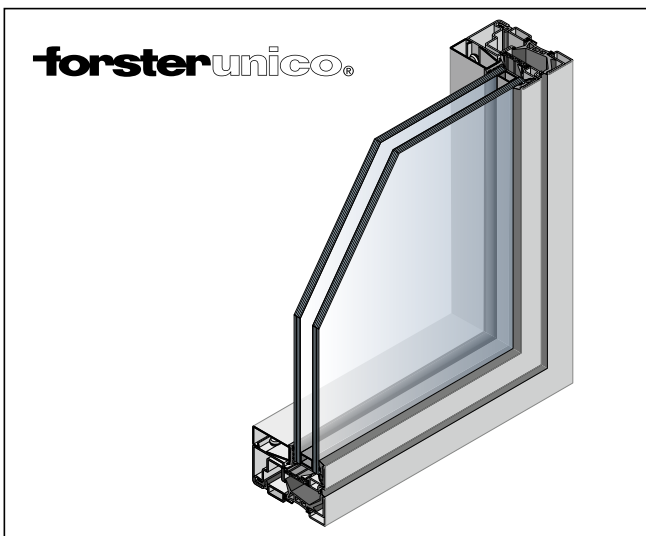
Forster unico is the thermally insulated profile system with fittings and accessories for single- and double-leaf doors, for windows as well as for external glazings.

The base profiles comprise 100 % recyclable steel and contain no synthetic insulating materials – in contrast to other insulated systems.

This innovation, with a unique framework style appearance, satisfies the most stringent demands relating to physical and structural functions.

Higher insulation parameters with Forster unico Hi

Only two additional components are needed to convert Forster unico into a high level thermal insulated Forster unico Hi element.



Die Vorteile

Einzigartig

Das erste komplett aus Stahl gefertigte wärmeisoliertes Profilsystem ohne Kunststoffisolatoren.

High-tech

Eine absolut neue Verbindungstechnologie mittels Laserschweiß-Verfahren ermöglicht die Herstellung dieser aussergewöhnlichen Stahl-Systemprofile.

Wärmedämmend

Die Profile erreichen die heute üblichen Dämmwerte, vergleichbar mit herkömmlichen isolierten Profilserien.

Leicht und stark

Dank der speziellen Tragwerk-Geometrie erreichen die Profile höchste statische Werte. Die Gewichtseinsparung erleichtert gleichzeitig das Handling in der Werkstatt und bei der Montage.

Ökologisch

100 % Stahl, 100 % recycelbar

Ästhetisch

Die clevere Verbindungstechnik ermöglicht schlankste Profilquerschnitte.

Sicher

Sämtliche Systemprüfungen entsprechen der Produktnorm EN 14351-1 und erfüllen damit die Anforderungen der CE-Kennzeichnung.

Effizient

Dank einzigartigem Produktionsverfahren können die Profile innerhalb enger Toleranzen hergestellt werden. Sie lassen sich problemlos zusammenfügen.

Sauber

Beim Schweißen und Schleifen entstehen keine Emissionen durch Kunststoffe.

Einfach

Keine aufwändigen Ausnehmungen beim Schlosseinbau. Zudem bieten die Profile genügend Raum für den – auch nachträglichen – Einbau einer Türautomation.

Schnell

Das Befestigen der Elemente am Mauerwerk kann ohne zusätzliche Bohrungen durch einen Eindrehanke am Rahmen erfolgen.

Les avantages

Unique

Le premier système de profilés à isolation thermique fabriqué entièrement en acier sans isolant en matière synthétique.

Haute technologie

Une technologie absolument révolutionnaire par soudage au rayon laser permet la fabrication des profilés de ce système unique.

Isolation thermique

Ces profilés permettent de respecter sans problèmes les valeurs d'isolation usuelles.

Légèreté et solidité

Grâce à la géométrie spéciale de l'ossature, les profilés atteignent des valeurs statiques particulièrement élevées. L'économie de poids facilite en même temps la manipulation à l'atelier et lors du montage.

Respect de l'environnement

100% acier, 100% recyclable

Esthétique

La technique de raccordement intelligente permet des sections de profilés d'une grande finesse.

Sécurité

Tous les contrôles des systèmes effectués satisfont à la norme produit EN 14351-1 et répondent ainsi aux exigences du marquage CE.

Efficacité

Ce procédé de fabrication unique fait que les profilés sont de dimensions absolument exactes. Ils peuvent ainsi être assemblés sans problème.

Propreté

Aucune émission de matière synthétique n'a lieu lors du soudage et du ponçage.

Simplicité

Aucun usinage compliqué pour le montage de la serrure. Les profilés offrent en outre suffisamment d'espace libre pour le montage ultérieur d'une automatisation de la porte.

Rapidité

Grâce à une fixation par ancrage sur le cadre, la fixation des châssis n'occasionne pas de perçage additionnel.

The benefits

Unique

The first ever thermally-insulated profile system made entirely from steel and devoid of all synthetic insulating materials.

High-tech

An entirely new joining method employing a laser welding process allows the manufacture of these extraordinary steel system profiles.

Thermally insulating

These profiles achieve today's customary insulation values, comparable with conventional, insulated profile series.

Light and strong

Thanks to the special geometry of the supporting framework, the profiles attain extremely high statical values. The weight reduction simultaneously facilitates handling in the workshop and on-site during installation.

Environmentally-friendly

100 % steel, 100 % recyclable

Aesthetically appealing

The advanced joining method facilitates extremely narrow profile cross sections.

Secure

All system tests comply with the EN 14351-1 product standard and thereby fulfil the requirements of CE-marking.

Efficient

Thanks to a unique production process, the profiles are 100% true to dimension. Assembly of profiles is so easy as to be practically child's play.

Clean

No emissions are produced during welding or grinding.

Simple

No time-consuming cutouts for lock installation. The profiles also offer sufficient space for the installation – as well as the retrofit fitting – of door automation systems.

Fast

Fixing of elements can take place with a turn-in anchor, without having to drill additional holes through the frames.

Einzigartig schlanke Stahlfenster Forster unico XS

Nur 23 mm Ansichtsbreite

- Ökologisch und nachhaltig
- Flügelgrößen bis 1240×2440 mm (B×H)
- Tragfähigkeit 100–150 kg, je nach Beschlagssystem
- Verdeckt liegende Forster Systembeschläge für Dreh-, Drehkipp- und Stulpflügel
- Kompatibel mit allen Standardprofilen Forster unico
- Grosse Glasflächen ohne Sprossen
- Rundbogenfenster möglich

Fenêtres en acier avec finesse unique Forster unico XS

Face vue de seulement 23 mm

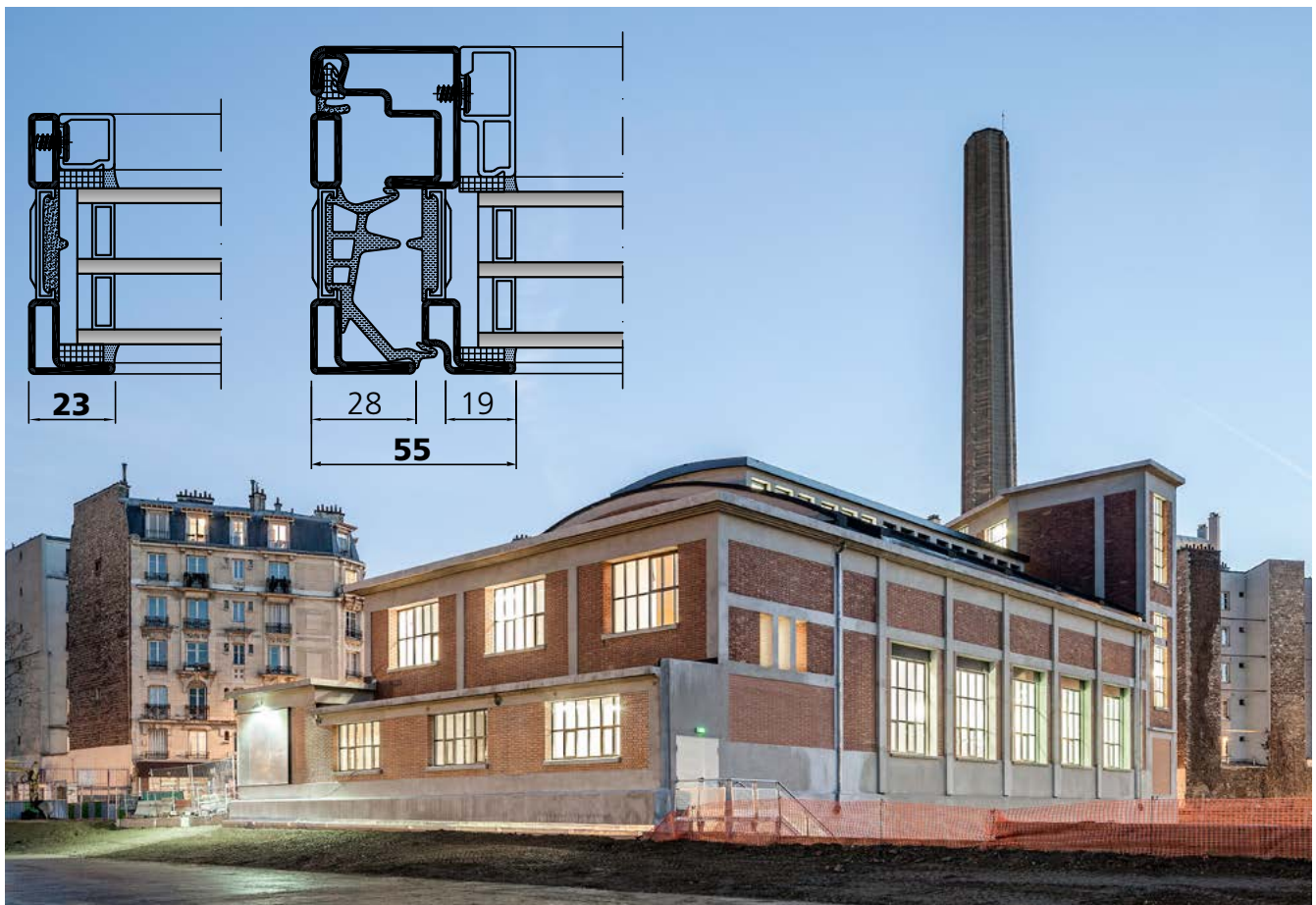
- Ecologiques et durables
- Dim. de vantail jusqu'à 1240×2440 mm (L×H)
- Capacité de poids 100–150 kg, dépend du choix du système de quincaillerie
- Quincaillerie cachée Forster disponible pour vantail ouvrant à la française, ouvrant oscillo-battant et vantail semi-fixe
- Compatibilité avec tous les profilés standard Forster unico
- Grandes surfaces vitrées sans traverse
- Fenêtres cintrées possible

Unique ultra-slim steel windows Forster unico XS

Only 23 mm facing width

- Ecological and sustainable
- Leaf dimension up to 1240×2440 mm (W×H)
- Load capacity 100–150 kg, depending on the fitting system
- Concealed Forster system fittings available for side-hung, tilt-turn and overlapping casements
- Compatibility with all standard profiles Forster unico
- Large glass surfaces without transoms
- Arched windows possible

forsterunico®XS



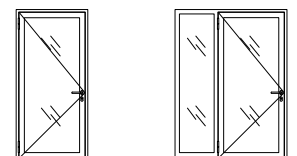
Verlangen Sie die separaten Planungsunterlagen für Forster unico XS!
Demandez la documentation de planification séparée pour Forster unico XS!
Ask for the separate planning documentation for Forster unico XS!

Minergie Standard Türen

Standard Minergie Portes

Minergie Standard Doors

MINERGIE®



985301



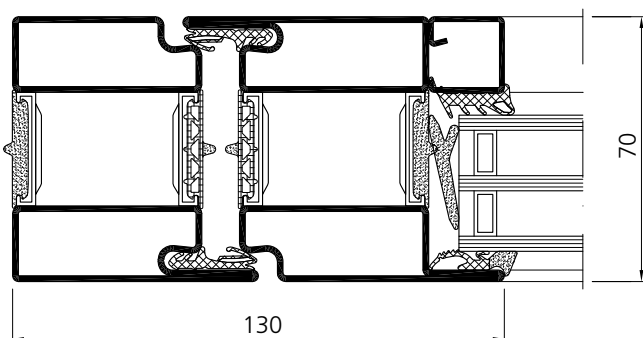
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985314



985315



Elementgrößen

- 1-flügelig
max. 1300 x 2400 mm (B x H)
- 1-flügelig mit Seitenteil
max. 1800 x 2400 mm (B x H)

Glas

- 3-fach Isolierglas $U_g \leq 0.7$
- Glasdicke ≥ 36 mm

Dimensions des éléments

- 1 vantail
max. 1300 x 2400 mm (B x H)
- 1 vantail avec imposte
max. 1800 x 2400 mm (B x H)

Verre

- triple vitrage isolant $U_g \leq 0.7$
- épaisseur du verre ≥ 36 mm

Element dimensions

- 1 leaf
max. 1300 x 2400 mm (B x H)
- 1 leaf with screen abutment
max. 1800 x 2400 mm (B x H)

Glass

- Triple insulation glass $U_g \leq 0.7$
- Glass thickness ≥ 36 mm



Technische Merkmale**Werkstoffe**

- Stahl blank
- Stahl bandverzinkt
- Edelstahl

Prüfbericht zur Laserschweißverbindung:
siehe Anhang Kapitel 0

Ansichtsbreiten

- Rahmenprofil 30, 50, 70 und 90 [mm]
- Türprofile 45, 65 + 85 [mm]
- Schmalste Ansichten für Festverglasungen ab 30 mm
- Gleiche Ansichtsbreite wie Forster Brand- und Rauchschutzsysteme

Beschläge

- Forster Systembeschläge für Türen erhältlich

Oberflächenbehandlung

- Freie Wahl des Beschichtungssystems
 - Nasslackierung
 - Pulverbeschichtung
 - Feuerverzinkung (Korrosivitätskategorie C1 – C3)

Klemmschutz (DIN 18650)

Fingerschutztür
≤ 8 mm (Nebenschliesskante)

Barrierefrei (DIN 18040)

Schwelfrei und stolperfrei (0 mm) mit isoliertem Bodenprofil und Edelstahlabdeckung

CE-Kennzeichnung nach 14351-1

Detaillierte Informationen zu den einzelnen Eigenschaften stehen auf unserer Website www.forster-profile/downloads zur Verfügung.

Caractéristiques techniques**Matières premières**

- acier brut
- acier en feuillard galvanisé
- acier inox

Attestation d'assemblages soudés au laser:
voir annexe chapitre 0

Largeurs des faces vues

- Profils de cadre 30, 50, 70 et 90 [mm]
- Profils de porte 45, 65 + 85 [mm]
- Les faces vues les plus fines pour vitrages fixes à partir de 30 mm
- Compatibilité avec les dimensions des systèmes coupe-feu et pare-flamme Forster

Quincaillerie

- Quincaillerie Forster disponible pour portes

Traitement de surface

- Libre choix du traitement de surface
 - Laquage liquide
 - Revêtement par poudre
 - Galvanisation à chaud (catégorie de corrosivité C1 – C3)

Protection anti-pince doigts (DIN 18650)

Porte anti-pince doigts
≤ 8 mm (arête de fermeture)

Absence d'entrave au passage (DIN 18040)

Sans seuil et sans obstacle (0 mm) avec un profilé de sol isolé et un revêtement en acier inoxydable

Marquage CE selon EN 14351-1

Informations détaillées des différentes caractéristiques sont disponibles sur notre site web www.forster-profile/téléchargement.

Technical characteristics**Materials**

- Steel, bright
- Steel, continuously galvanized
- Stainless steel

Test report for laser-welds: see annex of chapter 0

Facing widths

- Frame profile 30, 50, 70 and 90 [mm]
- Door profile 45, 65 + 85 [mm]
- Ultra-slim aspects for fixed glazing from 30 mm
- Compatible with Forster Fire and Smoke Protection Systems

Fittings

- Forster system fittings available for doors

Surface treatments

- Free choice of coating system
 - Wet paint
 - Powder coating
 - Hot-dip galvanizing (corrosivity category C1 – C3)

Trapping protection (DIN 18650)

Anti-finger-trap door
≤ 8 mm (secondary closing edge)

Barrier-free (DIN 18040)

No threshold (0 mm) and no tripping, with insulated floor profile and stainless steel cover

CE-Marking according to EN 14351-1

Detailed information for the different characteristics are available on our website www.forster-profile/downloads.

*** Brandschutz**

Das System Forster unico ist erfolgreich als Brandschutzanwendung in der Klasse EI30 geprüft. Siehe separate Dokumentation.

*** Résistance au feu**

Le système Forster unico est testé avec succès pour coupe-feu EI30. Voir documentation séparée.















*** Fire resistance**

The system Forster unico is successfully tested for fire resistance EI30. See separate documentation.

Übersicht Eigenschaften nach EN 14351-1

Tableau des caractéris- tiques selon EN 14351-1

Synopsis of characteristics according to EN 14351-1

Nr. No.	Geprüfte Eigenschaften Caractéristiques testées Tested characteristics	Normen Normes Standards	Türen – Klasse / Wert Portes – Classe / Valeur Doors – Class / Value	Fenster – Klasse / Wert Fenêtres – Classe / Valeur Windows – Class / Value
4.2	 Widerstand bei Windlast Résistance au vent Resistance to wind load	EN 12210	bis / jusqu'à / up to C3	bis / jusqu'à / up to C5 / B5
4.5	 Schlagregendichtheit Étanchéité à la pluie battante Watertightness	EN 12208	bis / jusqu'à / up to E900	bis / jusqu'à / up to E1050
4.7	 Stossfestigkeit Résistance au chocs Impact resistance	EN 13049	1	3
4.8	 Tragfähigkeit von Sicherheitsvorrichtungen Capacité portante des dispositifs de sécurité Load-bearing capacity of safety devices	EN 14351	Anforderung erfüllt Exigence satisfaite Requirement fulfilled	Anforderung erfüllt Exigence satisfaite Requirement fulfilled
4.11	 Schallschutz Performance acoustique Acoustic performance	EN ISO 140-3	bis / jusqu'à / up to Rw 46 dB	bis / jusqu'à / up to Rw 48 dB
4.12	 Wärmedurchgangskoeffizient Coefficient de transmission thermique Thermal transmittance	EN 10077-1	bis / jusqu'à / up to U _D 1.1 [W/(m ² ·K)]	bis / jusqu'à / up to U _w 1.0 [W/(m ² ·K)]
4.14	 Luftdurchlässigkeit Perméabilité à l'air Air permeability	EN 12207	bis / jusqu'à / up to 4	bis / jusqu'à / up to 4
4.16	 Bedienkräfte Forces de manœuvre Operating forces	EN 12217	3	1
4.17	 Mechanische Festigkeit Résistance mécanique Mechanical strength	EN 13115	3	4
4.19	 Durchschusshemmung Résistance aux balles Bullet resistance	EN 1522	FB4 NS FB6 NS (Festverglasung / vitrage fixe / fixed glazing)	FB4 NS
4.21	 Dauerfunktion Résistance à l'ouverture et fermeture répétées Durability test	EN 12400	6 (200'000 Zyklen / cycles)	2 (10'000 Zyklen / cycles)
4.22	 Differenzklimaverhalten Comportement entre climats différents Behaviour between different climates	EN 12219	bis / jusqu'à / up to 3(C) / 3(d) / 3(e)	---
4.23	 Einbruchhemmung Résistance à l'effraction Burglar resistance	EN 1627	RC1-3 RC4 (Festverglasung / vitrage fixe / fixed glazing)	RC1-3
	 Brandschutz Résistance aux feu Fire resistance	EN 13501-2	E30 / EW30 E60 / EW60 (seulement France) EI30 *	E30 / EW30

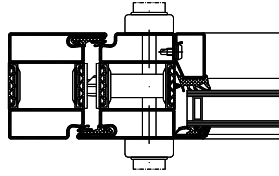
Wesentliche Eigenschaften / Caractéristiques essentielles / Essential characteristics

Systemvarianten Türen

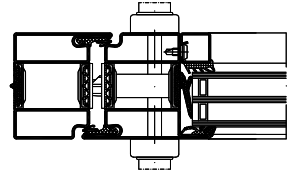
Variantes du système Portes

System variations Doors

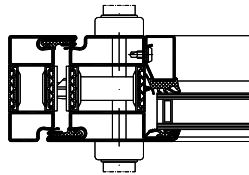
Forster unico



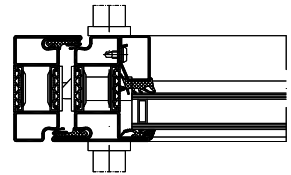
Forster unico Hi



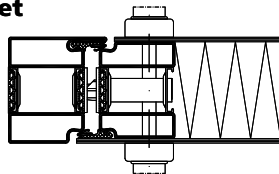
Mit schmalem Rahmenprofil Avex profilé de cadre étroit With narrow frame profile



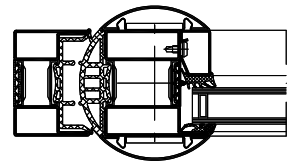
Schlanke Tür, 1-flügelig Porte fine, à 1 vantail Slim door, 1 leaf



Flächenbündig verblecht En tôle affleuré Flush mounted metal sheet

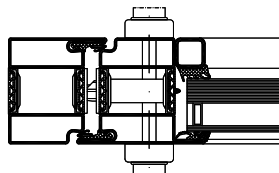


Fingerschutz Porte anti-pince doigts Anti-finger-trap door



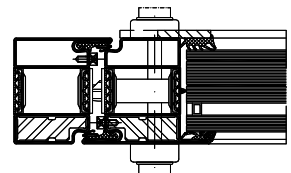
Einbruchhemmend RC 1-3 Anti-effraction RC 1-3 Burglary resistant RC 1-3

Festverglasung RC4 auf Anfrage
Vitrage fixe RC4 sur demande
Fixed glazing RC4 on request

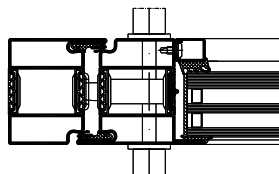


Durchschusshemmend FB4-NS Pare-balles FB4 NS Bullet resistant FB4 NS

Festverglasung FB6 NS auf Anfrage
Vitrage fixe FB6 NS sur demande
Fixed glazing FB6 NS on request



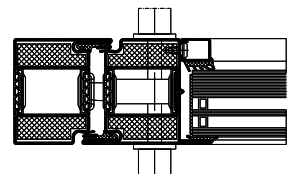
E30/EW30 E60/EW60 (seulement France)



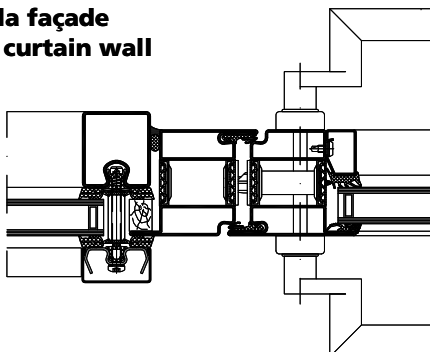
Brandschutztür EI30 Porte pare-flammes EI30 Fire rated door EI30



siehe separate Broschüre
voir brochure séparée
see separate brochure



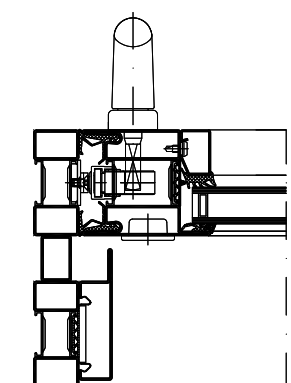
Integriert in Fassade Intégré dans la façade Integrated in curtain wall



Hebeschiebe Porte coulissante à levier Lift-up sliding door



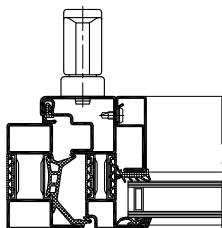
siehe separate Broschüre
voir brochure séparée
see separate brochure



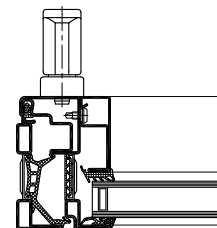
Systemvarianten Fenster

Variantes du système Fenêtres

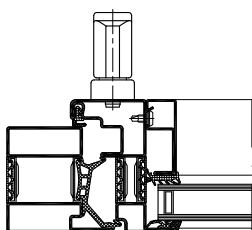
System variations Windows



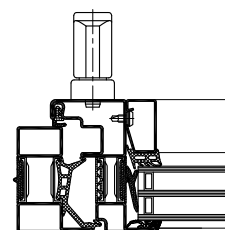
Mit schmalem Flügelprofil
Avec profilé de vantail étroit
With narrow leaf profile



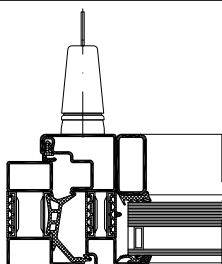
Ausführung Frankreich
Exécution France
Execution France



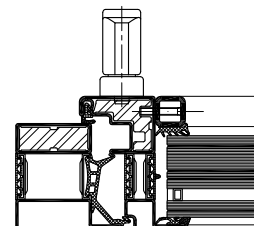
Forster unico Hi



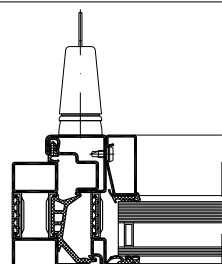
Einbruchhemmend RC1-3
Anti-effraction RC1-3
Burglary resistant RC1-3



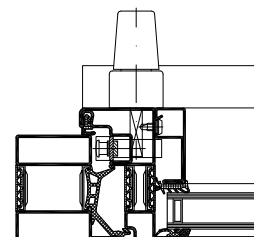
Durchschusshemmend FB4 NS
Pare-balles FB4 NS
Bullet resistant FB4 NS



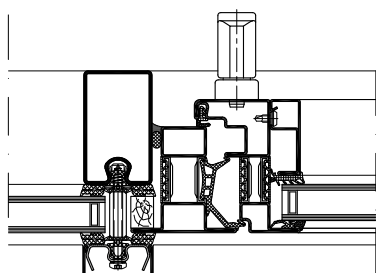
E30/EW30



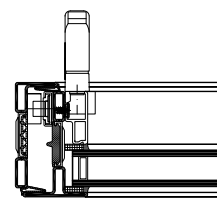
Parallel-Schiebe-Kipp (PSK)
Coulissant parallèle (FCP)
Parallel slide and tilt (PST)



Integriert in Fassade
Intégré dans la façade
Integrated in curtain wall



Auswärts öffnendes Fenster (Forster unico XS)
Fenêtre ouvrant vers l'extérieur (Forster unico XS)
Outward opening window (Forster unico XS)



siehe separate Broschüre
voir brochure séparée
see separate brochure

Zeichungsdaten – dwg

Die in dieser Dokumentation gezeigten Schnitte und Pläne mit nachstehenden Bezeichnungen stehen als dwg-Daten unter www.forster-profile.ch/downloads zur Verfügung.

In der PDF-Version der Dokumentation sind diese Zeichnungen mit einem Link versehen.

un_ep_xxxx Einbaupläne
un_kd_xxxx Konstruktionsdetails
un_sd_xxxx Systemdetails
un_sp_xxxx Systempläne
un_wa_xxxx Wandanschlüsse

Dessins en dwg

Les coupes et les plans présentés dans cette documentation avec les désignations ci-dessous sont disponibles au format DWG sous www.forster-profile.ch/téléchargement.

Dans la version PDF de la documentation, ces dessins sont dotés d'un lien.

un_ep_xxxx Plans de la mise en œuvre
un_kd_xxxx Détails de construction
un_sd_xxxx Coupes du système
un_sp_xxxx Plans du système
un_wa_xxxx Raccords muraux

Drawing data – dwg

The sections and plans in this documentation with the below-mentioned designations are available as DWG data under www.forster-profile.ch/downloads.

In the PDF version of the documentation, these drawings are provided with a link.

un_ep_xxxx Processing plans
un_kd_xxxx Construction details
un_sd_xxxx System sections
un_sp_xxxx System plans
un_wa_xxxx Wall abutments

BIM-Modelle

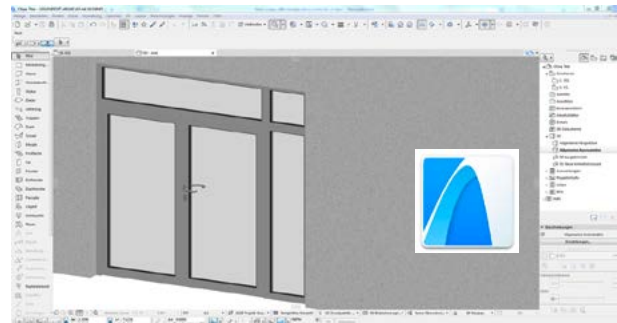
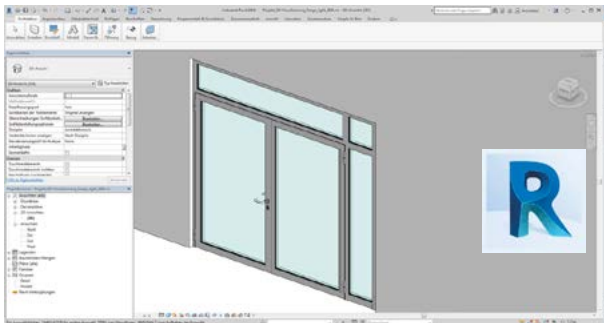
Für die BIM Planungsmethode stehen Ihnen zahlreiche Modelle der Brandschutztüren Forster fuego light in Revit und ArchiCAD unter www.forster-profile.ch/Downloads zur Verfügung.

Modèles BIM

Nombreux modèles des portes coupe-feu Forster fuego light pour la méthode de planification BIM sont disponibles en Revit et ArchiCAD sous www.forster-profile.ch/téléchargement.

BIM models

For the BIM planning method, numerous models of Forster fuego light fire resistant doors are available for Revit and ArchiCAD on www.forster-profile.ch/Downloads.



Biegeradien

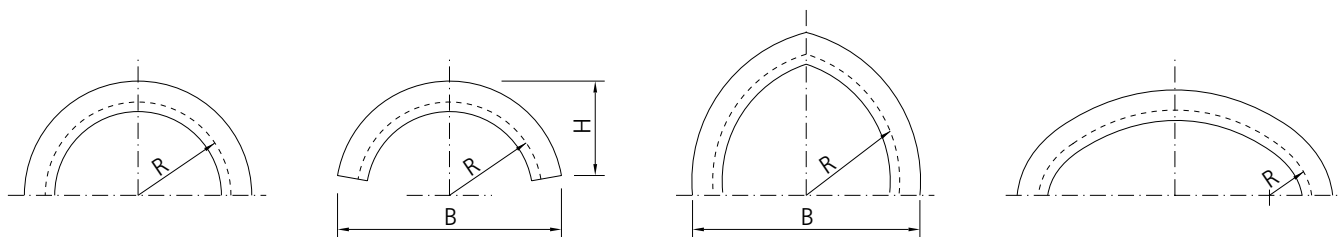
Enge Radien ab 300 mm möglich

Rayon de cintrage

Rayons de cintrage étroits dès 300 mm

Bending

Narrow bending radii from 300 mm



**Systemübersicht
Türen**

**Tableau du système
Portes**

**Synopsis of system
Doors**



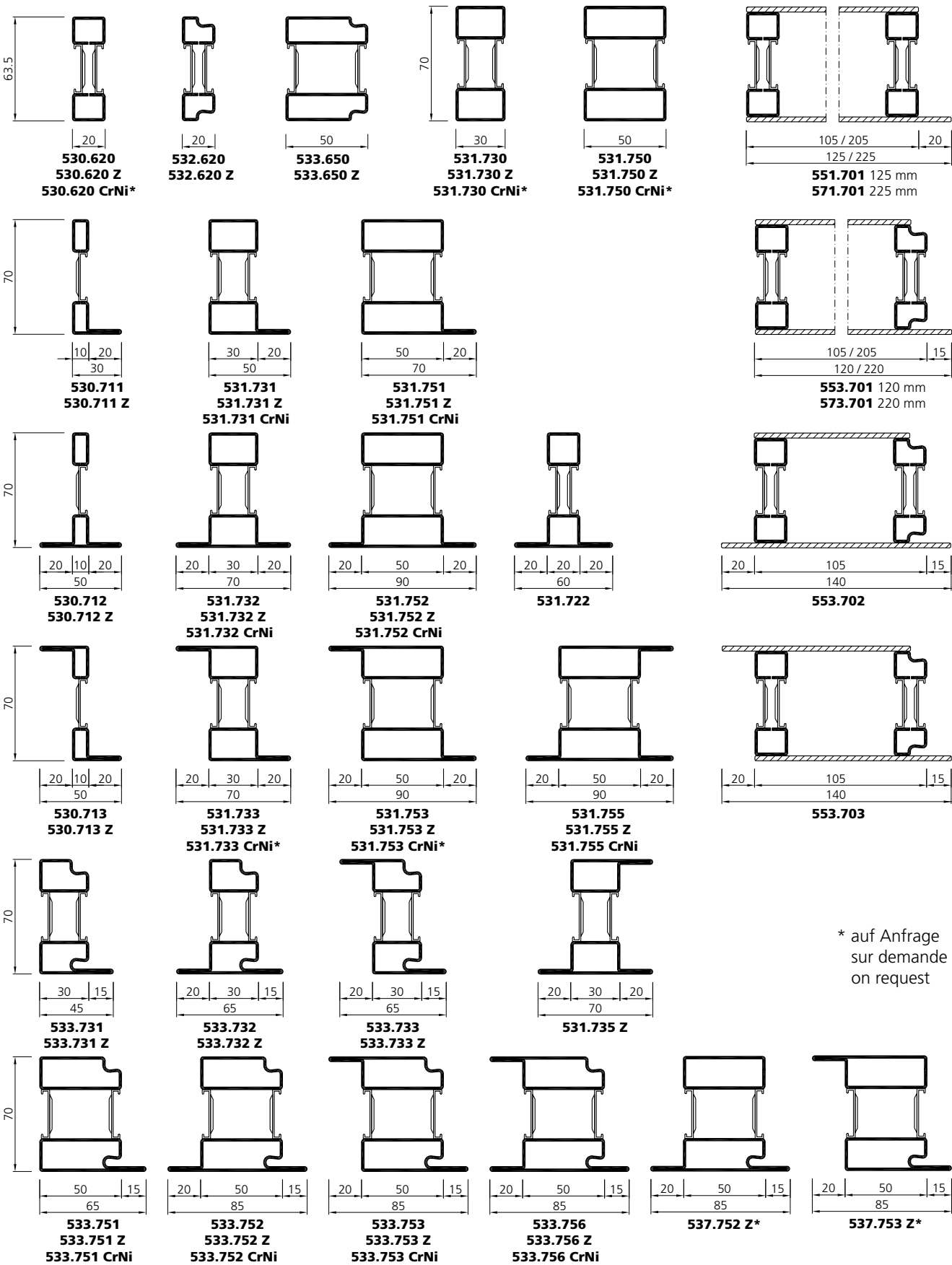
Möbel Pfister, CH-Walche in Zürich

Stahl Acier Steel	Edelstahl Acier inox Stainless steel
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**Systemübersicht
Türen**

**Tableau du système
Portes**

**Synopsis of system
Doors**

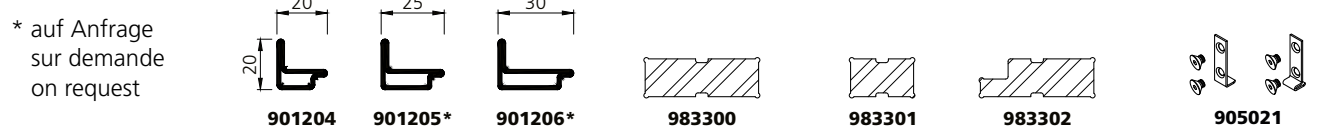
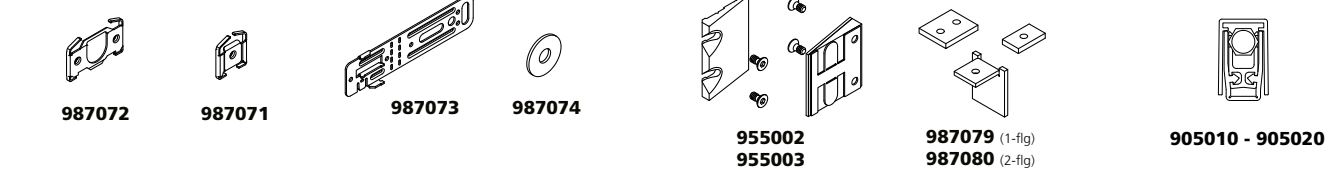
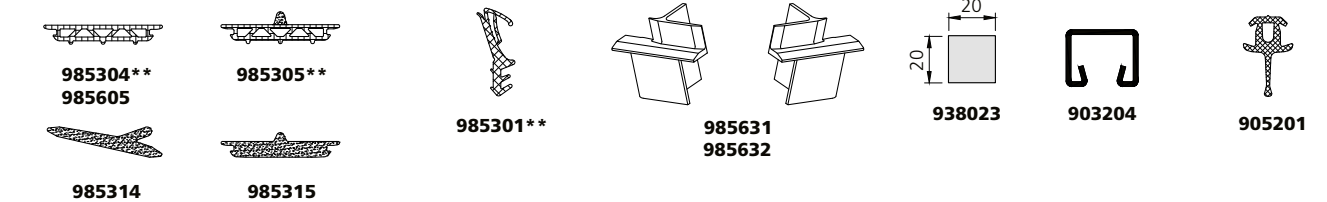
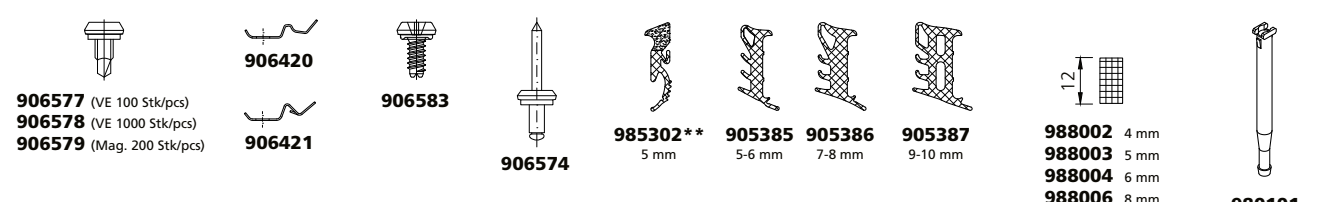
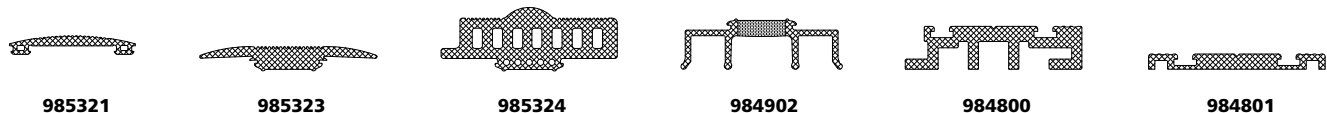
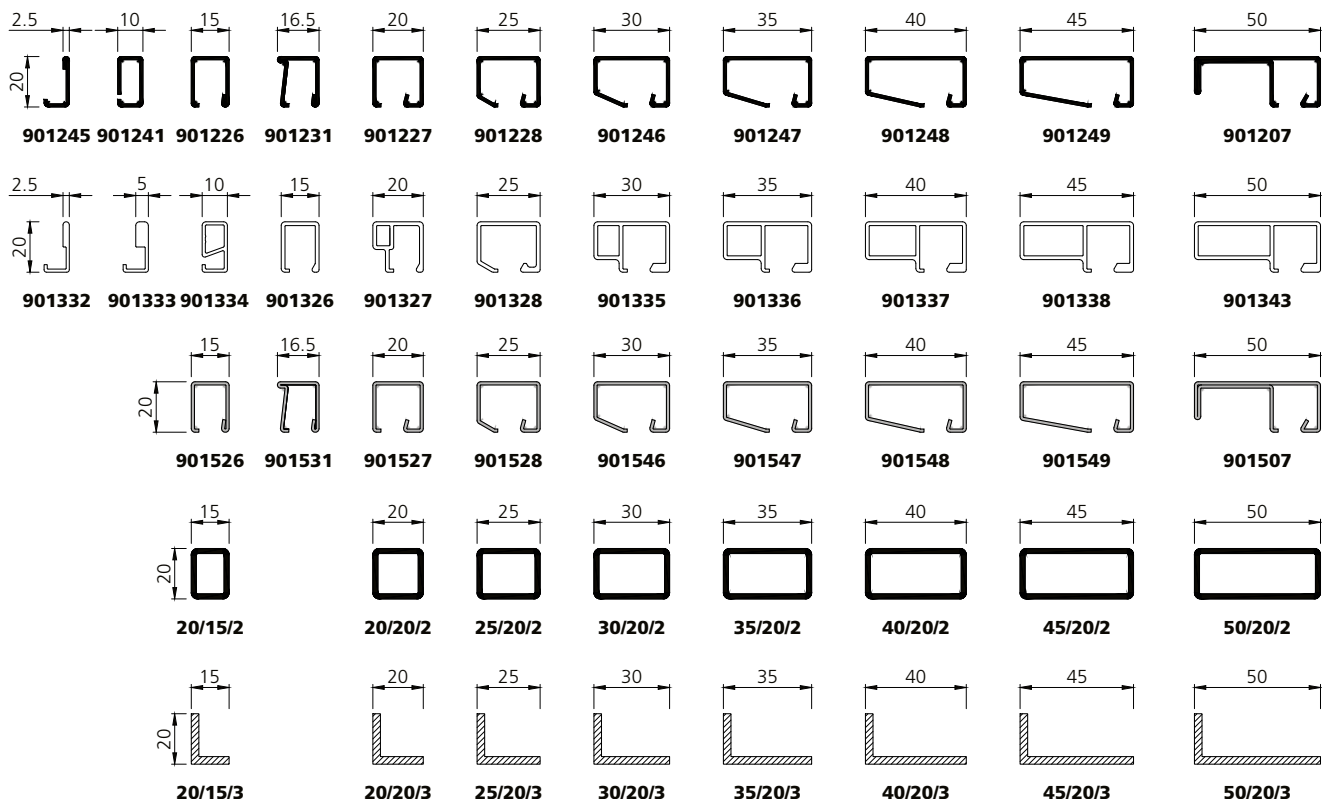


* auf Anfrage
sur demande
on request

Systemübersicht Türen

Tableau du système Portes

Synopsis of system Doors



* auf Anfrage
sur demande
on request

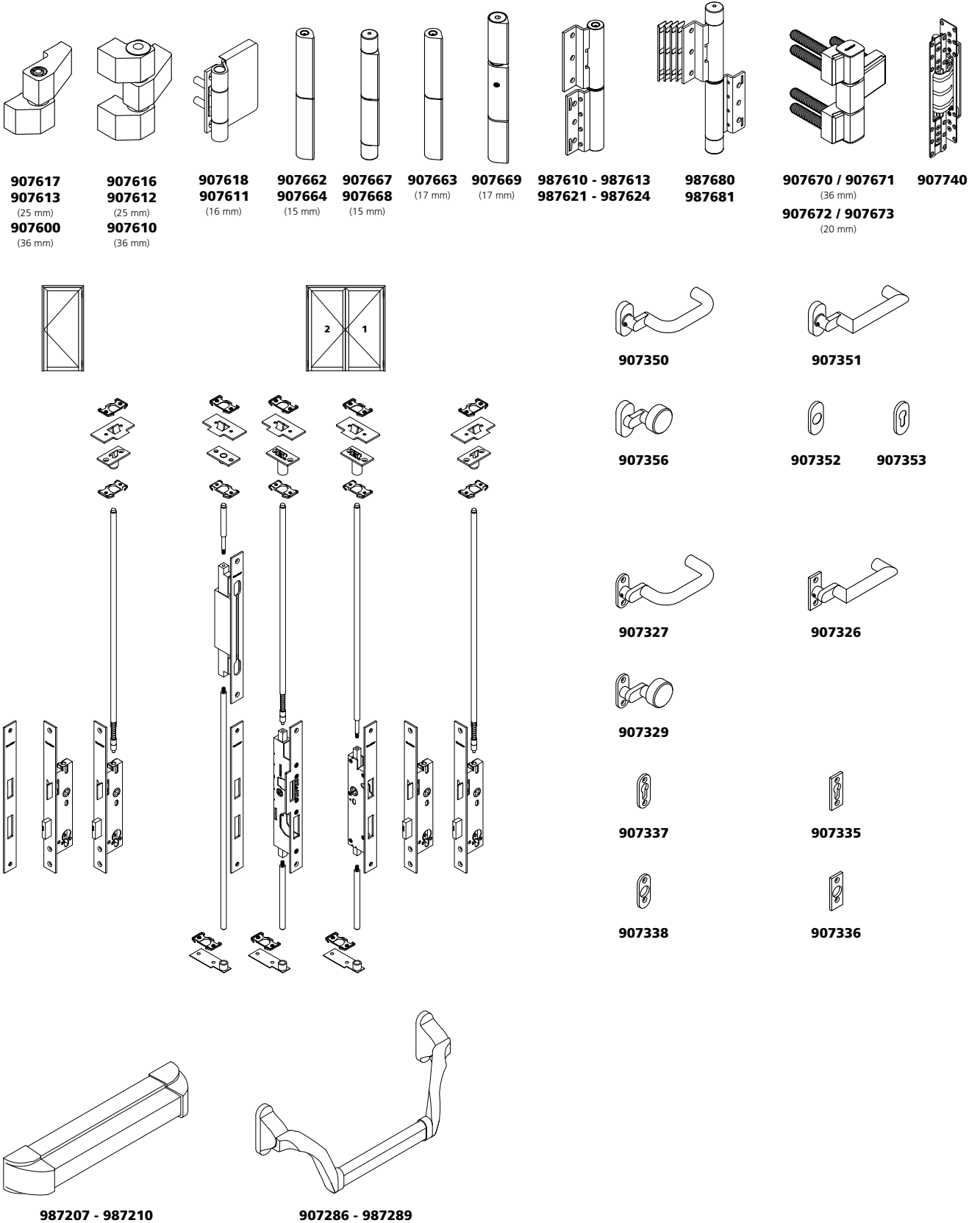
** Silikon schwarz und Farben auf Anfrage / Silicone noir et couleurs sur demande / Silicone black and colours on request

Stahl Acier Steel	Edelstahl Acier inox Stainless steel
-------------------------	--

Systemübersicht Türen

Tableau du système Portes

Synopsis of system Doors



**Systemübersicht
Einbruchhemmende Türen**

**Tableau du système
Portes anti-effraction**

**Synopsis of system
Burglary-resistant doors**



907662
907664
(15 mm)



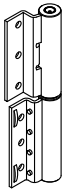
907667
907668
(15 mm)



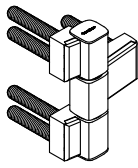
907663
(17 mm)



907669
(17 mm)



987610 - 987613
987621 - 987624
nur RC2
seulement RC2
only RC2

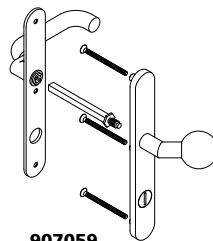
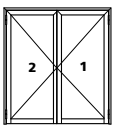
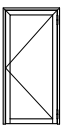


907670 / 907671
(36 mm)

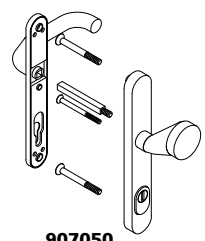


907740

907672 / 907673
(20 mm)



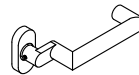
907059
907074
(RZ/CR/RC)



907050
(PZ/CP/PC)



907350



907351



907356



907352



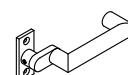
907353



907327



907329



907326



917031



907337



917030



907335



917033



907338



917032



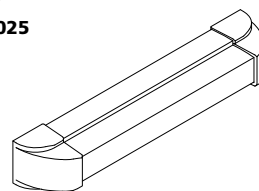
907336



987712



917025



987209 - 987210
nur RC2
seulement RC2
only RC2

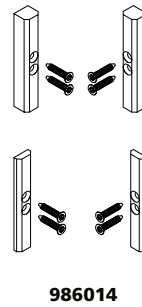
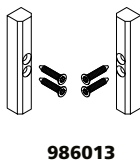
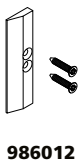
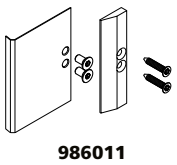
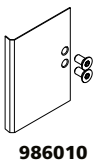
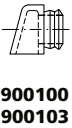
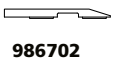
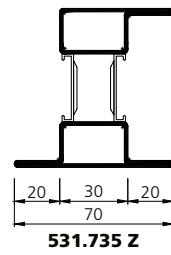
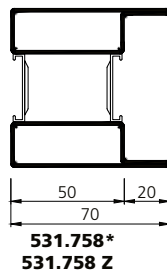
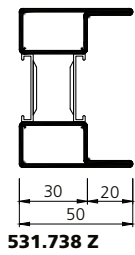
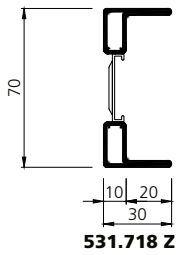


Stahl
Acier
Steel

Systemübersicht Fingerschutztüren

Tableau du système Portes anti-pince doigts

Synopsis of system Anti-finger-trap doors



* auf Anfrage
sur demande
on request

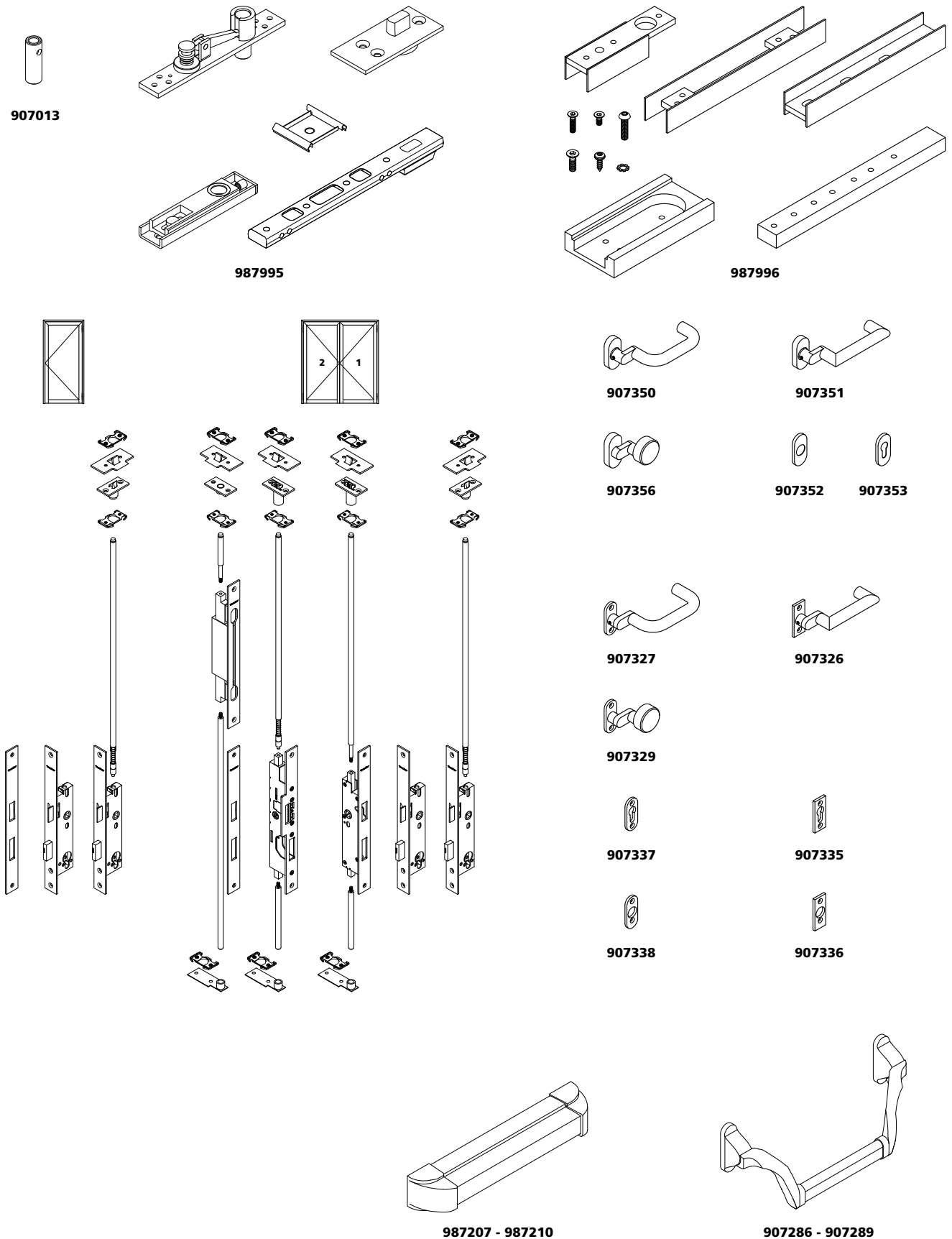
** Silikon schwarz und Farben auf Anfrage / Silicone noir et couleurs sur demande / Silicone black and colours on request



Systemübersicht Fingerschutztüren

Tableau du système Portes anti-pince doigts

Synopsis of system Anti-finger-trap doors



E30 / EW30

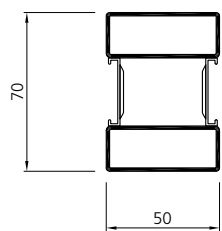
Stahl
Acier
Steel

Edelstahl
Acier inox
Stainless steel

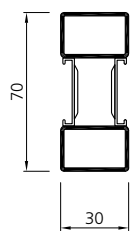
**Systemübersicht
Türen E30 / EW30**

**Tableau du système
Portes E30 / EW30**

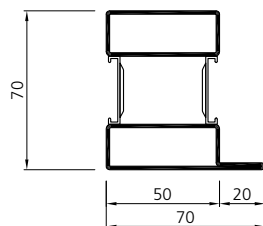
**Synopsis of system
Doors E30 / EW30**



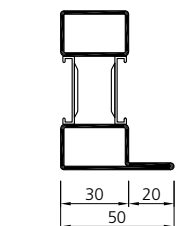
531.750
531.750 Z
531.750 CrNi



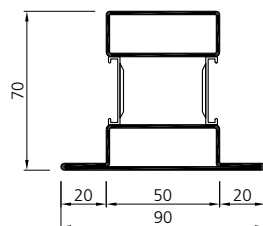
531.730
531.730 Z
531.730 CrNi



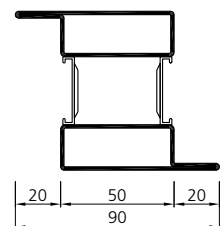
531.751
531.751 Z
531.751 CrNi



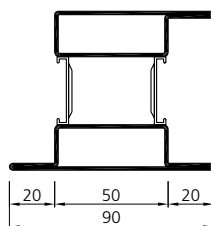
531.731
531.731 Z
531.731 CrNi



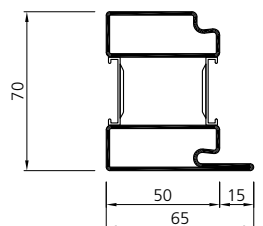
531.752
531.752 Z
531.752 CrNi



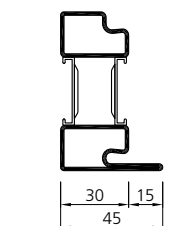
531.753
531.753 Z
531.753 CrNi



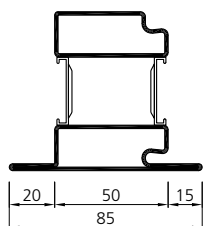
531.755
531.755 Z
531.755 CrNi



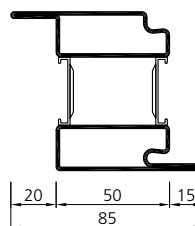
533.751
533.751 Z
533.751 CrNi



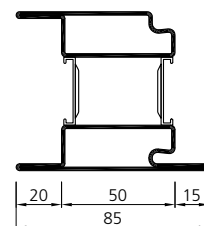
533.731
533.731 Z
533.731 CrNi*



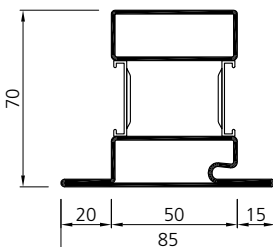
533.752
533.752 Z
533.752 CrNi



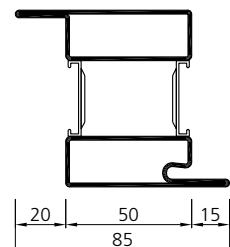
533.753
533.753 Z
533.753 CrNi



533.756
533.756 Z
533.756 CrNi



537.752*
537.752 Z*



537.753*
537.753 Z*

* auf Anfrage
sur demande
on request

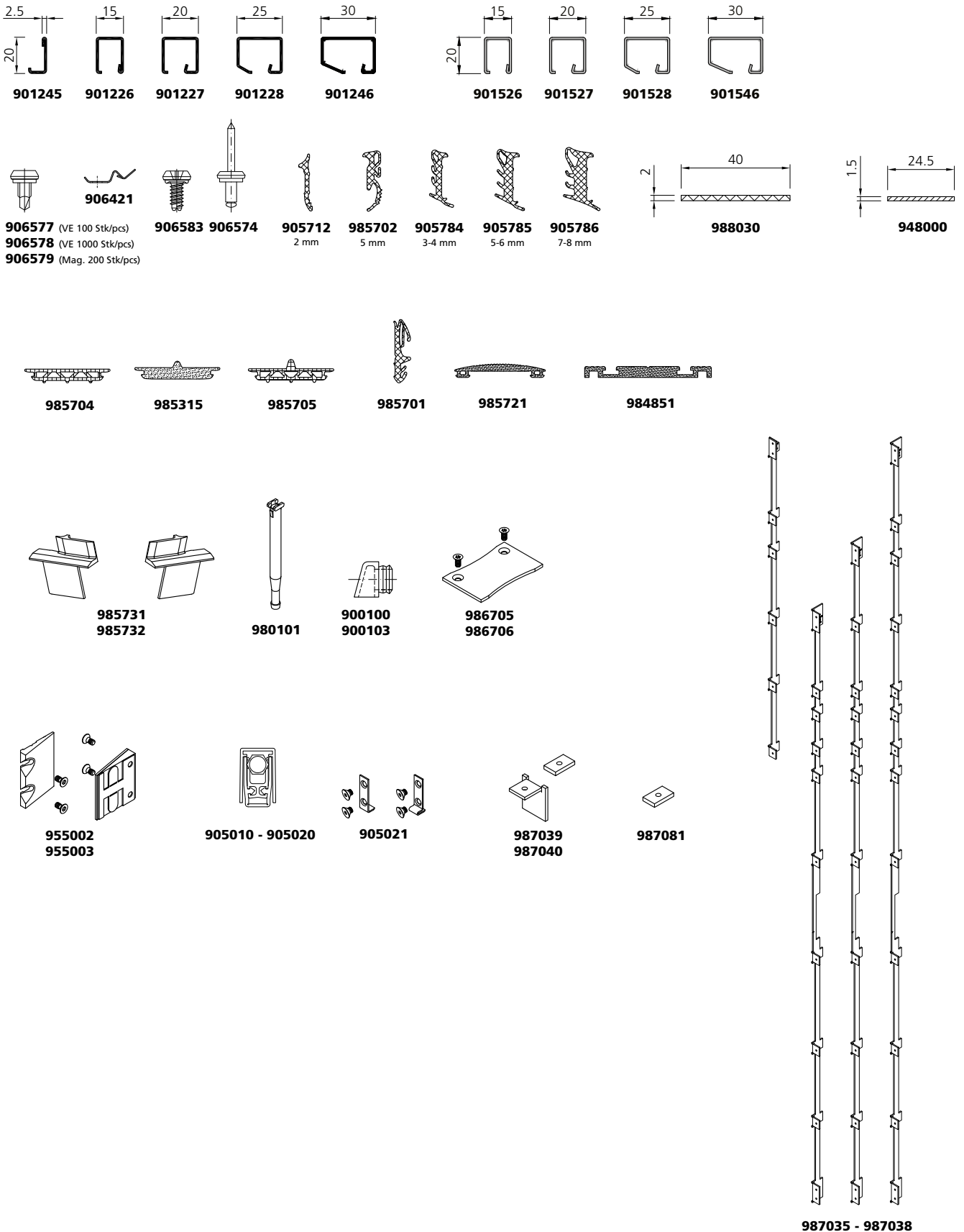
E30 / EW30

Stahl Acier Steel	Edelstahl Acier inox Stainless steel
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**Systemübersicht
Türen E30 / EW30**

**Tableau du système
Portes E30 / EW30**

**Synopsis of system
Doors E30 / EW30**



E30 / EW30

Stahl
Acier
Steel

Edelstahl
Acier inox
Stainless steel

**Systemübersicht
Türen E30 / EW30**

**Tableau du système
Portes E30 / EW30**

**Synopsis of system
Doors E30 / EW30**



907662
907664
(15 mm)



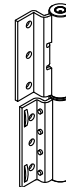
907667
907668
(15 mm)



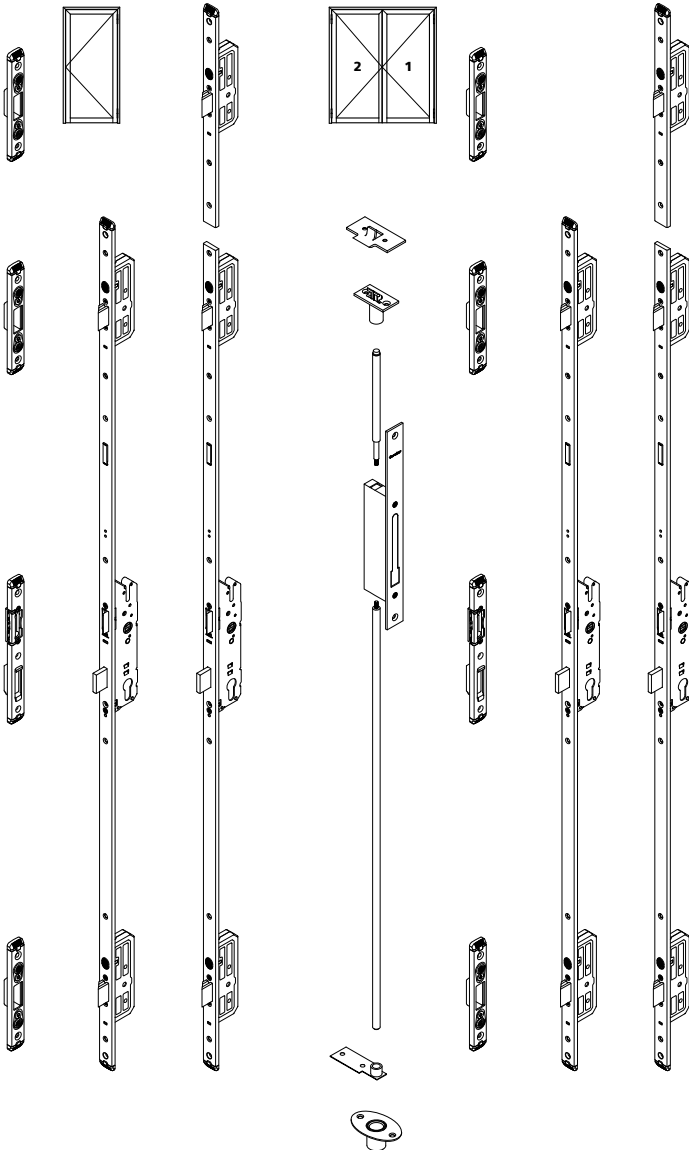
907663
(17 mm)



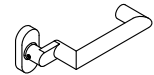
907669
(17 mm)



987610 - 987613
987621 - 987624



907350



907351



907356



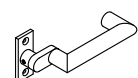
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907353



907327



907326



907329



907337



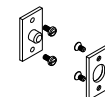
907335



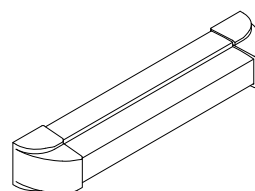
907338



907336



987713



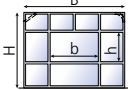








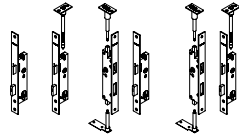

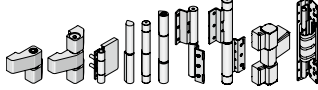
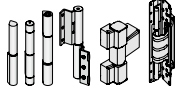

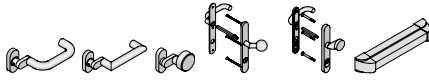


987207 - 987208





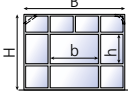








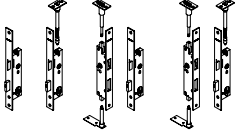

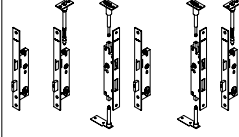



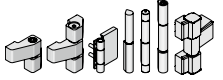
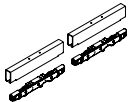


Auberge Communale de l'Union, CH-Arzier

**Systemvarianten
Türen**
**Variantes du système
Portes**
**System variations
Doors**

	Standard	RC1	RC2	RC3
Werkstoffe Matières premières Materials				
Stahl / Acier / Steel	✓	✓	✓	✓
CrNi	✓	✓	✓	✓
Elementgrößen Dim. des éléments Element dimensions				
	FB: max. 1440 mm FH: max. 3040 mm	FB: 600 – 1400 mm FH: 1870 – 3000 mm	FB: 600 – 1400 mm FH: 1870 – 3000 mm	FB: 600 – 1400 mm FH: 1870 – 2700 mm
	FB: max. 1440 mm FH: max. 3040 mm	FB: 600 – 1400 mm FH: 1870 – 3000 mm	FB: 600 – 1400 mm FH: 1870 – 3000 mm	FB: 600 – 1400 mm FH: 1870 – 2700 mm
	B / H: unbegrenzt, illimité, unlimited $b_{max} \times h_{max}$: 1500 x 3000 mm / 3000 x 1500 mm A_{max} 4.5 m ²	B / H: unbegrenzt, illimité, unlimited $b_{max} \times h_{max}$: 1500 x 3000 mm / 3000 x 1500 mm A_{max} 4.5 m ² (RC4 auf Anfrage / sur demande / on request)		
Verglasung Vitrage Glazing				
Trockenverglasung Vitrage à sec Dry glazing				
Nassverglasung Vitrage au silicone Silicone glazing				
Glas / Paneele Verres / Panneaux Glass / Panels				
Isolierglas Vitrage isolant Insulating glass	20 – 54.5 mm	P1A – EN 356	P4A – EN 356	P5A – EN 356
Isolierglas Antipanik Vitrage isolant anti-panique Insulating glass anti-panic	20 – 54.5 mm	P4A Polycarbonat – EN 356	P6B Polycarbonat – EN 356	---
Paneele / Panneaux / Panels	20 – 54.5 mm	24 mm	34 mm	34 mm
Beschläge Quincaillerie Fittings				
Schlösser Serrures Locks				
Bänder Paumelles Hinges				
Drücker / Druckstangen Poignées / Barres Handles / Push bars				

FB: Flügelbreite / Largeur de vantail / Leaf width
FH: Flügelhöhe / Hauteur de vantail / Leaf height

**Systemvarianten
Türen**
**Variantes du système
Portes**
**System variations
Doors**

	Fingerschutz Anti-pince doigts Anti-finger-trap	E30 / EW30 *	FB4 NS	Hebeschiettür Porte coulissante à levier Lift-up sliding door
Werkstoffe Matières premières Materials	* Erweiterte Elementgrößen geprüft, Zulassung beantragt Dimensions d'éléments élargissées testées, homologation en cours Enlarged element dimensions tested, approval applied			
Stahl / Acier / Steel	✓	✓	✓	✓
CrNi		✓	✓	✓
Elementgrößen Dim. des éléments Element dimensions				
	FB: max. 1400 mm FH: max. 3000 mm G: max. 300 kg	FB: max. 1410 mm (France max. 1535 mm) FH: max. 2445 mm (France max. 2563 mm)	FB: 600 – 1400 mm FH: 1000 – 2400 mm	FB: unbegrenzt, illimité, unlimited FH: max. 3400 mm G: max. 400 kg
	FB: max. 1400 mm FH: max. 3000 mm G: max. 300 kg	FB: max. 1390 mm (France max. 1607 mm) FH: max. 2720 mm (France max. 2725 mm)	FB: 600 – 1400 mm FH: 1000 – 2400 mm	FB: unbegrenzt, illimité, unlimited FH: max. 3400 mm G: max. 400 kg
	---	B: unbegrenzt, illimité, unlimited H: max. 3000 mm (France max. 3100 mm) $b_{max} \times h_{max}$: abhängig vom Glas- typ, dépend de type du verre, depend on glass type	B / H: unbegrenzt, illimité, unlimited $b_{max} \times h_{max}$: abhängig vom Glas- typ, dépend de type du verre, depend on glass type (FB6 NS auf Anfrage / sur de- mande / on request)	---
Verglasung Vitrage Glazing				
Trockenverglasung Vitrage à sec Dry glazing				
Nassverglasung Vitrage au silicone Silicone glazing				
Glas / Paneele Verres / Panneaux Glass / Panels				
Isolierglas / Vitrage isolant / Insulating glass	20 – 54.5 mm	- Pilkington Pyrodur 30-25, 30-26, 30-27, 30-28 - Pyroguard T-EW 30-6 - Pyroguard T-EW30/13-1 VI	20 – 57 mm (siehe Systempläne) (voir plans du système) (see system plans)	20 – 54.5 mm
Isolierglas Antipanic Vitrage isolant anti-panique Insulating glass anti-panic				
Paneele / Panneaux / Panels	20 – 54.5 mm		54 mm	34 mm
Beschläge Quincaillerie Fittings				
Schlösser Serrures Locks				
Bänder Paumelles Hinges				
Drücker / Druckstangen Poignées / Barres Handles / Push bars				


FB: Flügelbreite / Largeur de vantail / Leaf width
FH: Flügelhöhe / Hauteur de vantail / Leaf height


Stahl Acier Steel	Edelstahl Acier inox Stainless steel
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Schliessvarianten

Variantes de fermetures


Locking versions

 Notausgangsverschlüsse
Fermetures sorties d'urgences
Emergency exit devices

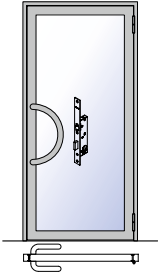
 Paniktürverschlüsse
Fermetures anti-paniques
Panic exit devices

 22
RZ / CR / RC

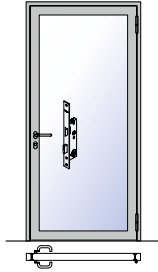
 17
PZ / CP / PC

 E-Öffner
Ouverture électrique
Electric door opener

Standard / FB4



Standard

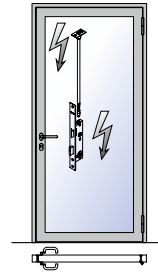
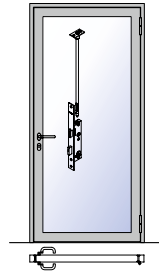
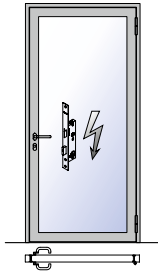
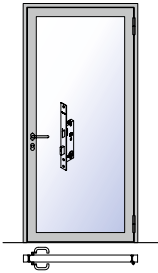


Schmaler Rahmen,
Schloss mit Dornmass 25 mm

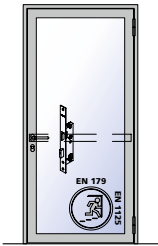
Cadre très fine,
serrure avec distance au canon 25 mm

Slim frame,
lock with pin size 25 mm

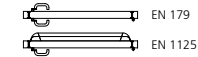
Standard / RC1 / FB4



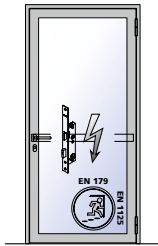
Antipanik – anti-panique – anti-panic / RC1 / FB4



EN 179



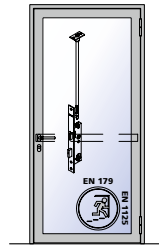
EN 1125



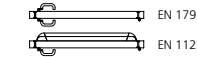
EN 179



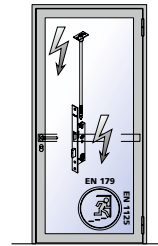
EN 1125



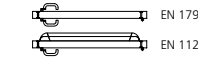
EN 179



EN 1125



EN 179

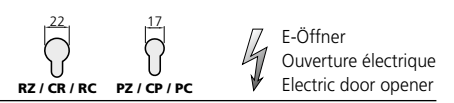


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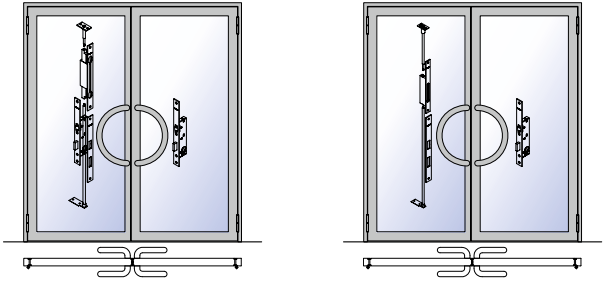
Schliessvarianten

Variantes de fermetures

Locking versions



Standard / FB4




Standard / RC1 / FB4




Schliessvarianten

Variantes de fermetures


Locking versions

 Notausgangsverschlüsse
Fermetures sorties d'urgences
Emergency exit devices

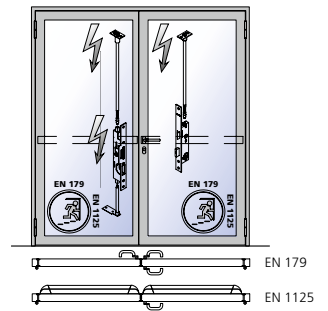
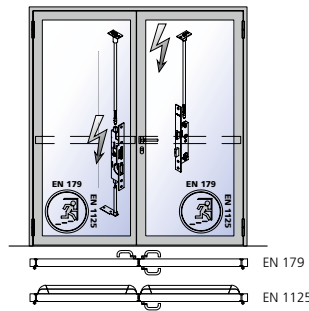
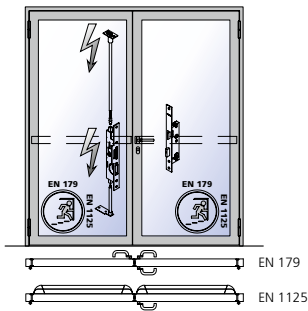
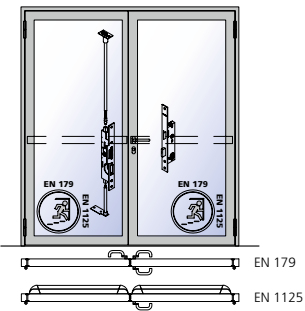
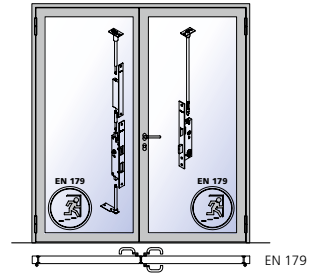
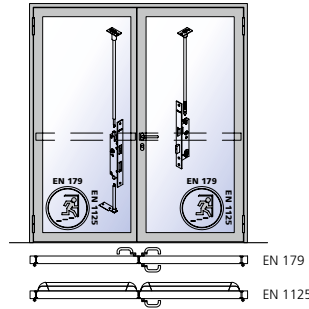
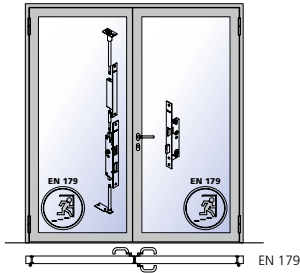
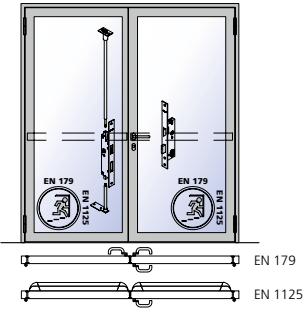
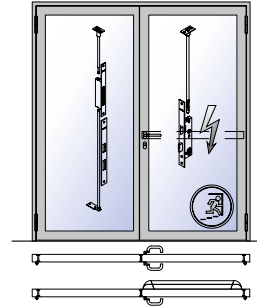
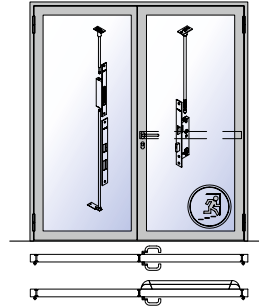
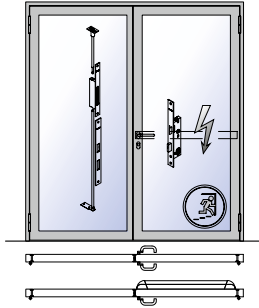
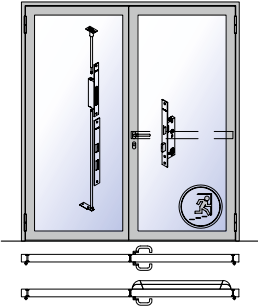
 Paniktürverschlüsse
Fermetures anti-paniques
Panic exit devices

 RZ / CR / RC

 PZ / CP / PC

 E-Öffner
Ouverture électrique
Electric door opener

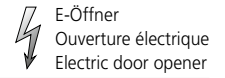
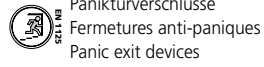
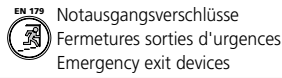
Antipanik – anti-panique – anti-panic / RC1 / FB4



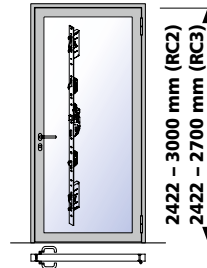
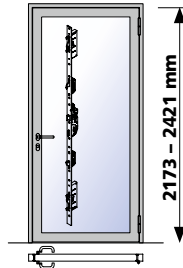
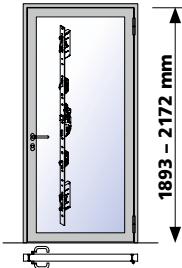
Schliessvarianten

Variantes de fermetures

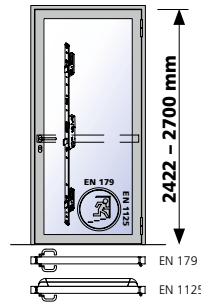
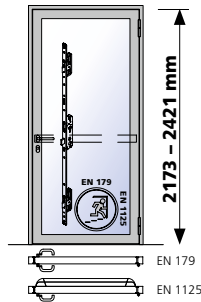
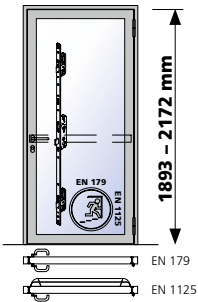
Locking versions



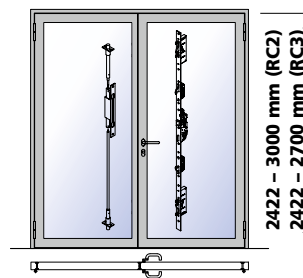
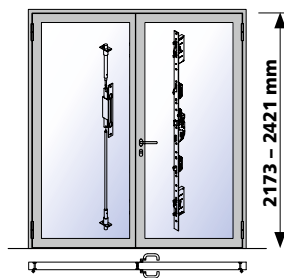
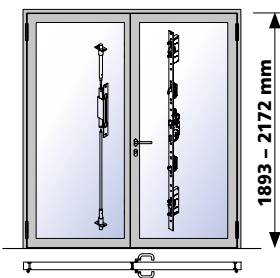
RC2-3



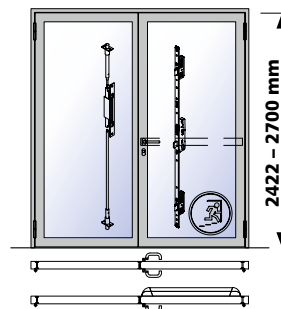
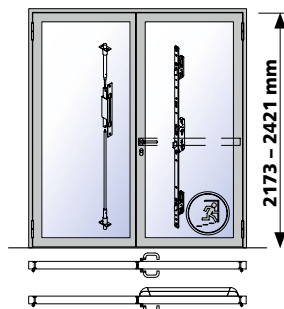
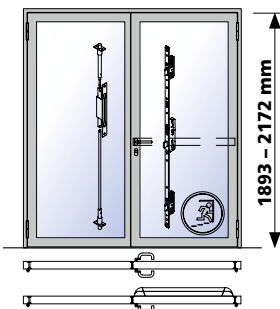
Antipanik – anti-panique – anti-panic RC2



RC2-3



Antipanik – anti-panique – anti-panic RC2



Schliessvarianten

Variantes de fermetures

Locking versions



Notausgangsverschlüsse
Fermetures sorties d'urgences
Emergency exit devices



Paniktürverschlüsse
Fermetures anti-paniques
Panic exit devices



RZ / CR / RC

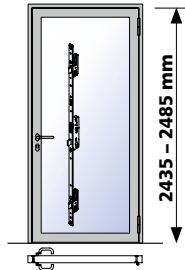
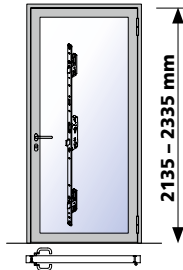
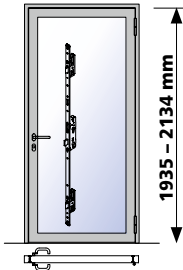


PZ / CP / PC

3-Punkt-Verriegelung

Verrouillage 3 points

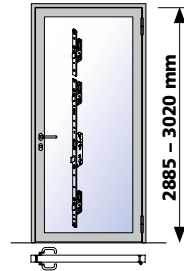
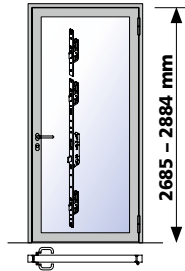
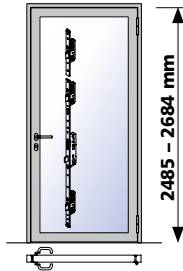
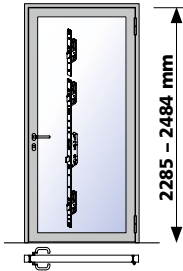
3 point locking



4-Punkt-Verriegelung

Verrouillage 4 points

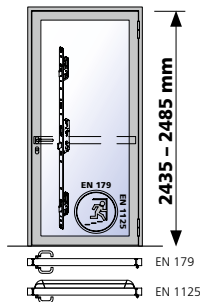
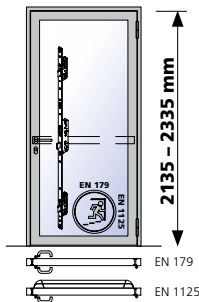
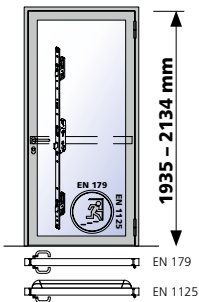
4 point locking



3-Punkt-Verriegelung - Antipanic

Verrouillage 3 points - anti-panique

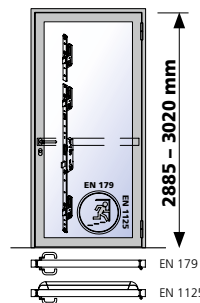
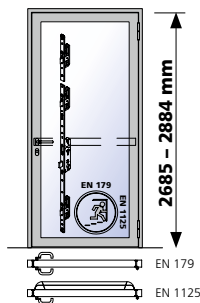
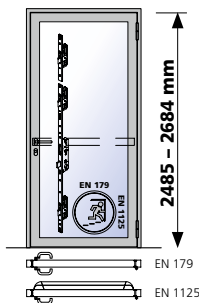
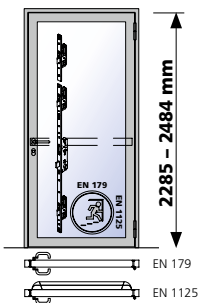
3 point locking - anti-panic



4-Punkt-Verriegelung - Antipanic

Verrouillage 4 points - anti-panique

4 point locking - anti-panic



Schliessvarianten

Variantes de fermetures

Locking versions



Notausgangsverschlüsse
Fermetures sorties d'urgences
Emergency exit devices



Paniktürverschlüsse
Fermetures anti-paniques
Panic exit devices



RZ / CR / RC

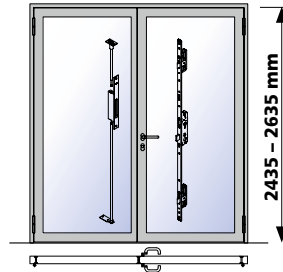
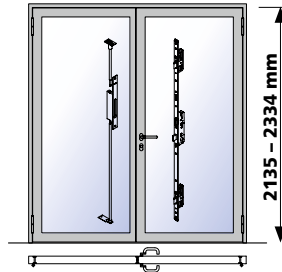
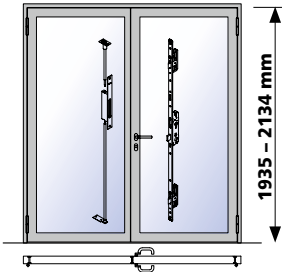


PZ / CP / PC

3-Punkt-Verriegelung

Verrouillage 3 points

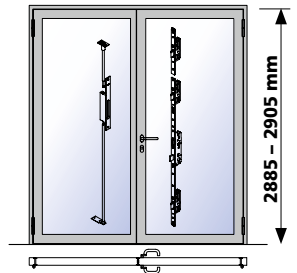
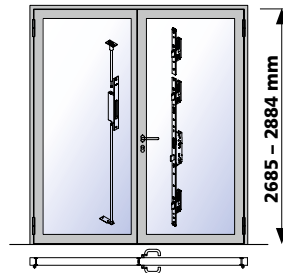
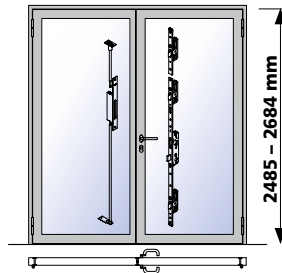
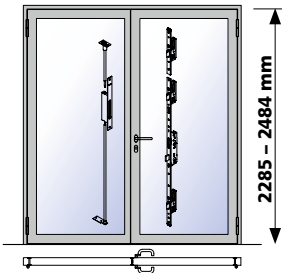
3 point locking



4-Punkt-Verriegelung

Verrouillage 4 points

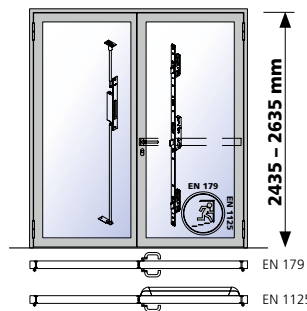
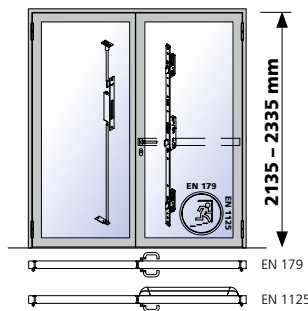
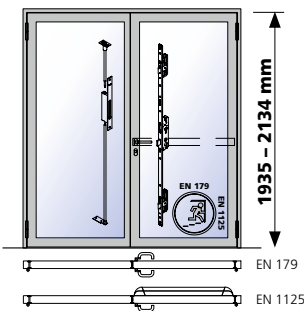
4 point locking



3-Punkt-Verriegelung - Antipanic

Verrouillage 3 points - anti-panique

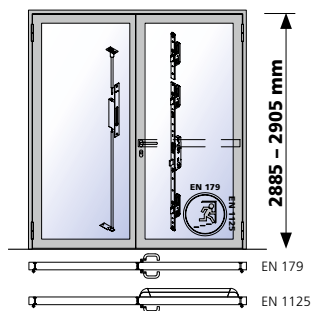
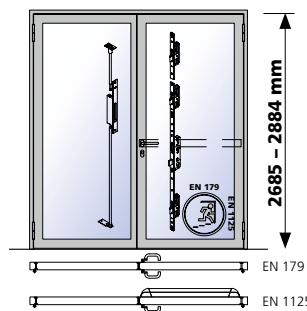
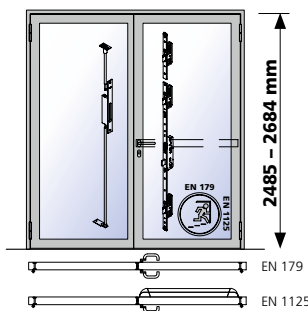
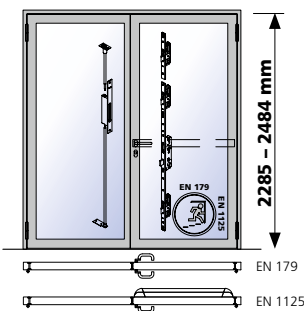
3 point locking - anti-panic



4-Punkt-Verriegelung - Antipanic

Verrouillage 4 points - anti-panique

4 point locking - anti-panic



Übersicht Systempläne

- | | |
|-----------|---|
| 1 | einflügelige Tür |
| 2 | • mit Seitenteil |
| 3 | • mit zwei Seitenteilen |
| 4 | • mit Oberlicht |
| 5 | • mit Oberlicht und Seitenteil |
| 6 | • mit Oberlicht und zwei Seitenteilen |
| 7 | zweiflügelige Tür |
| 8 | • mit Seitenteil |
| 9 | • mit zwei Seitenteilen |
| 10 | • mit Oberlicht |
| 11 | • mit Oberlicht und Seitenteil |
| 12 | • mit Oberlicht und zwei Seitenteilen |
| 13 | Festverglasung |
| 14 | einflügelige verblechte Tür mit Oberlicht und Seitenteil |
| 15 | zweiflügelige verblechte Tür mit Oberlicht und Seitenteil |

Tableau des plans du système

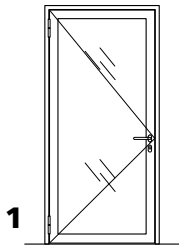
- | |
|--|
| porte à un vantail |
| • avec partie latérale fixe |
| • avec deux parties latérales fixes |
| • avec imposte |
| • avec imposte et partie latérale fixe |
| • avec imposte et deux parties latérales fixes |
| porte à deux vantaux |
| • avec partie latérale fixe |
| • avec deux parties latérales fixes |
| • avec imposte |
| • avec imposte et partie latérale fixe |
| • avec imposte et deux parties latérales fixes |
| vitrage fixe |
| porte tôle à 1 vantail avec imposte et partie latérale fixe |
| porte tôle à deux vantaux avec imposte et partie latérale fixe |

Synopsis of system plans

- | |
|--|
| single-leaf door |
| • with screen abutment |
| • with 2 screen abutments |
| • with fanlight |
| • with fanlight and screen abutment |
| • with fanlight and 2 screen abutments |
| double-leaf door |
| • with screen abutment |
| • with 2 screen abutments |
| • with fanlight |
| • with fanlight and screen abutment |
| • with fanlight and 2 screen abutments |
| fixed glazing |
| single-leaf metal sheet door with fanlight and screen abutment |
| double-leaf metal sheet door with fanlight and screen abutment |

■ Stahl / Acier / Steel

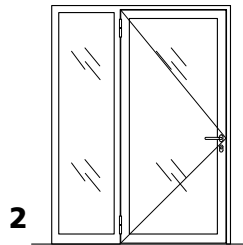
■ Edelstahl / Acier inox / Stainless steel



1

■ un_sp_0044

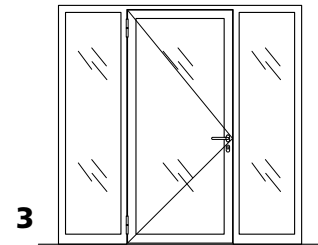
■ un_sp_0059

[BIM Revit / ArchiCAD](#)

2

■ un_sp_0046

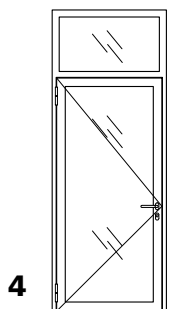
■ un_sp_0061

[BIM Revit / ArchiCAD](#)

3

■ un_sp_0048

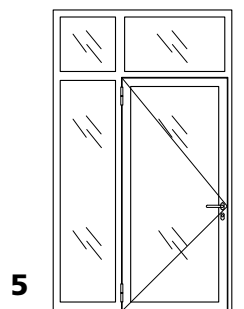
■ un_sp_0063



4

■ un_sp_0045

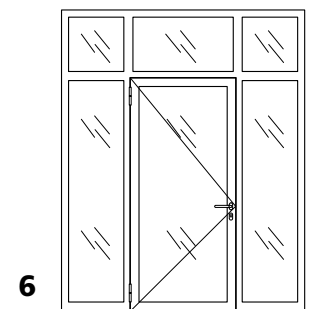
■ un_sp_0060



5

■ un_sp_0047

■ un_sp_0062

[BIM Revit / ArchiCAD](#)

6

■ un_sp_0049

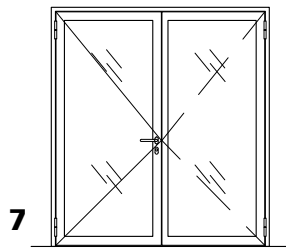
■ un_sp_0064

[BIM Revit / ArchiCAD](#)

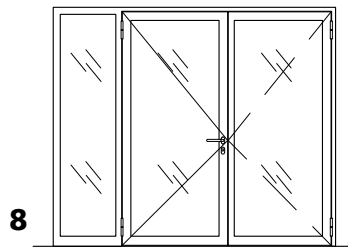
Übersicht Systempläne

Tableau des plans du système

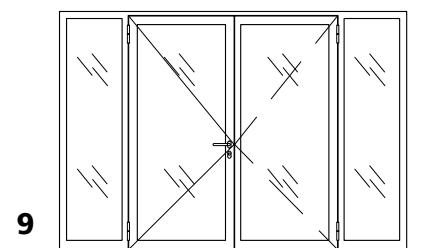
Synopsis of system plans



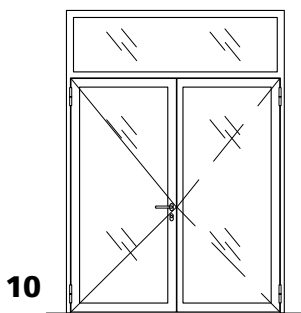
■ [un_sp_0050](#)
 ■ [un_sp_0065](#)
 BIM Revit / ArchiCAD



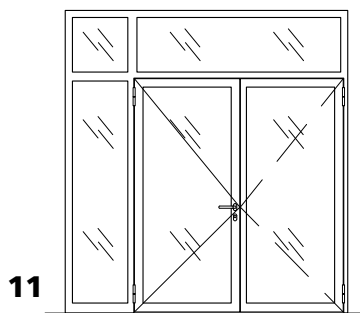
■ [un_sp_0052](#)
 ■ [un_sp_0067](#)
 BIM Revit / ArchiCAD



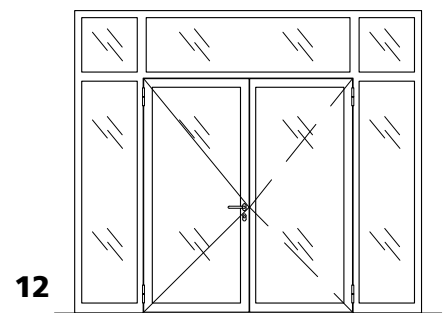
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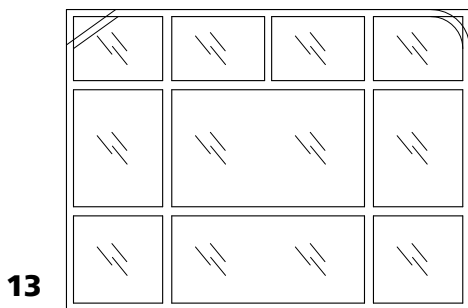
■ [un_sp_0051](#)
 ■ [un_sp_0066](#)
 BIM Revit / ArchiCAD



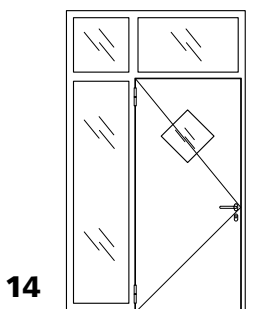
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 BIM Revit / ArchiCAD



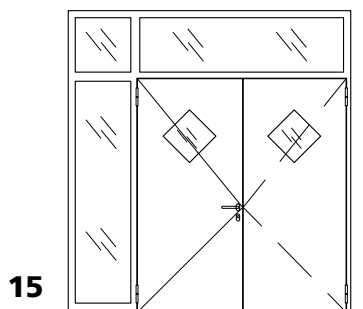
■ [un_sp_0055](#)
 ■ [un_sp_0070](#)




■ [un_sp_0056](#)
 ■ [un_sp_0071](#)



■ [un_sp_0092](#)



■ [un_sp_0093](#)

 auf nachfolgenden Seiten dargestellt
 présenté dans les pages suivantes
 shown on the following pages

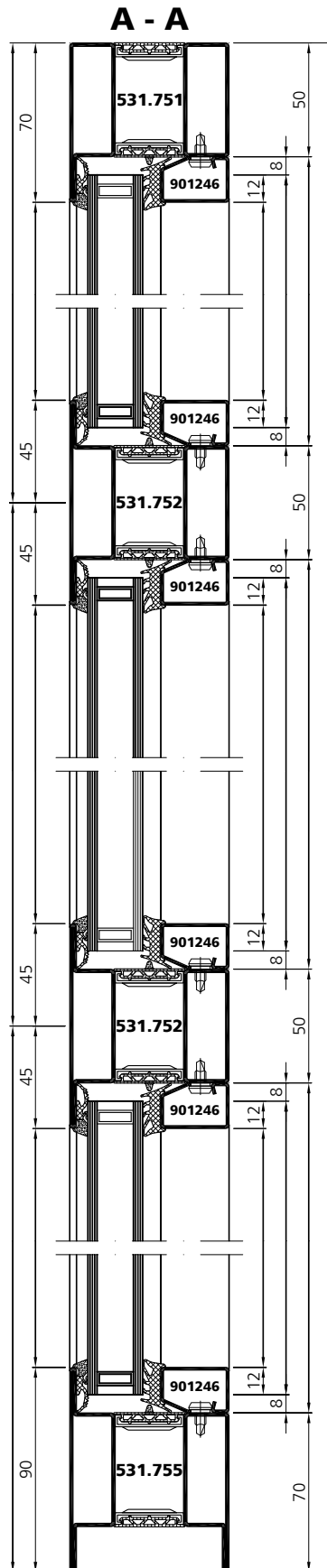
Stahl Acier Steel	Edelstahl Acier inox Stainless steel
-------------------------	--

**Systemplan
Festverglasung**

**Plan du système
Vitrage fixe**

**System plan
Fixed glazing**

- un_sp_0056
- un_sp_0071

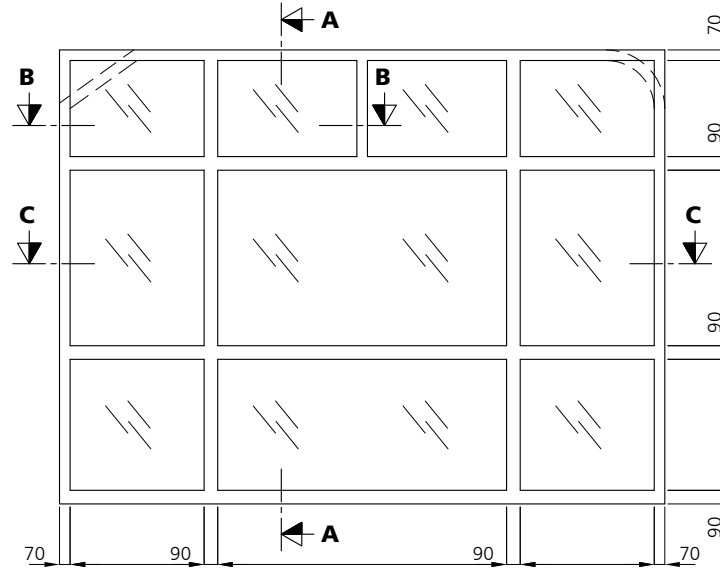


**Systemplan
Festverglasung**

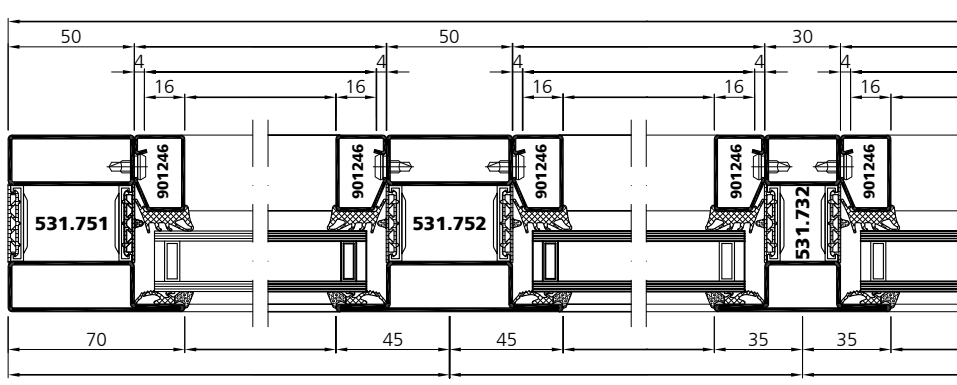
**Plan du système
Vitrage fixe**

**System plan
Fixed glazing**

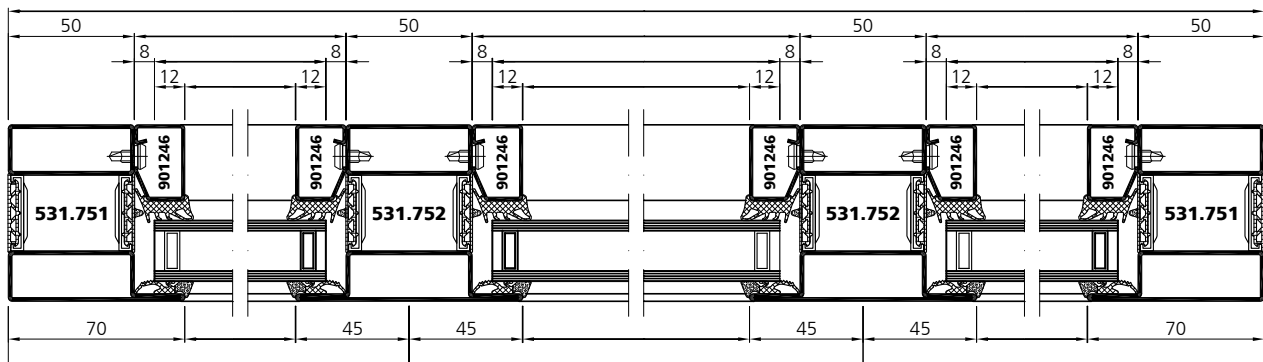
■ un_sp_0056
■ un_sp_0071



B - B



C - C



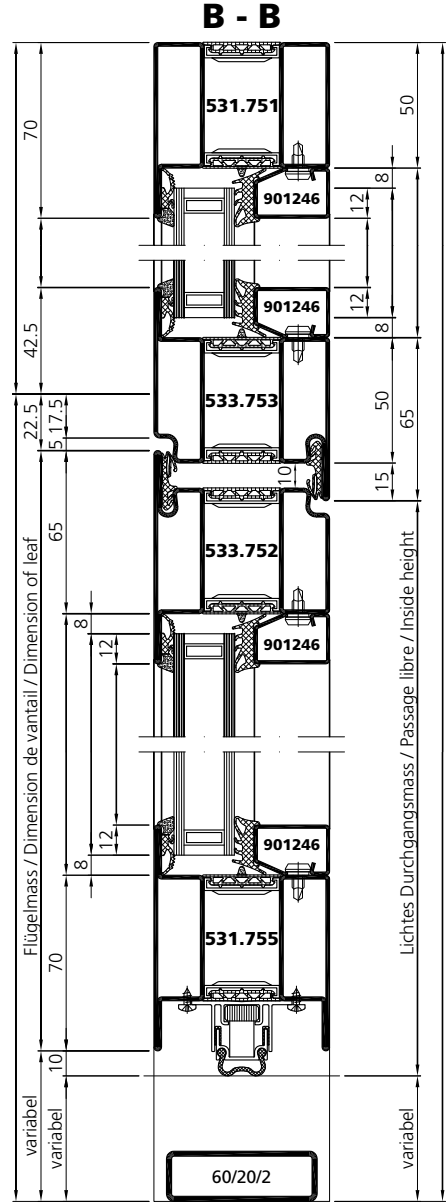
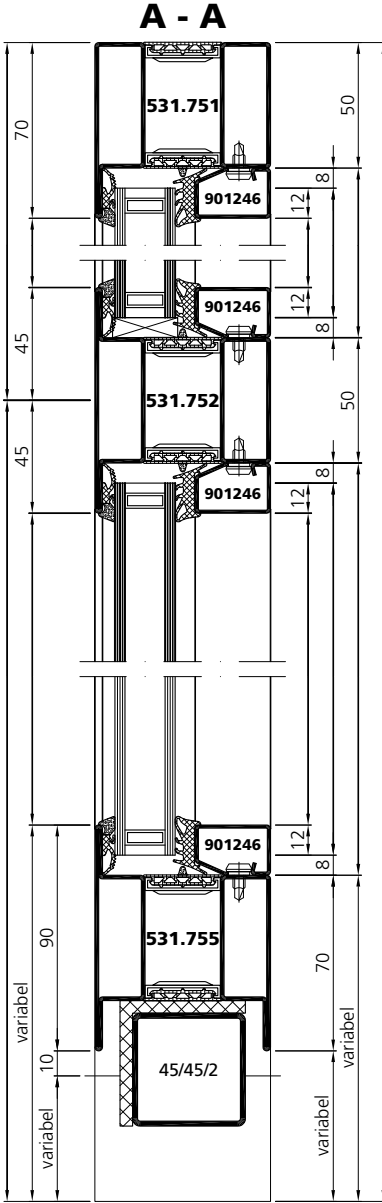
Stahl Acier Steel	Edelstahl Acier inox Stainless steel
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**Systemplan
Türen**

**Plan du système
Portes**

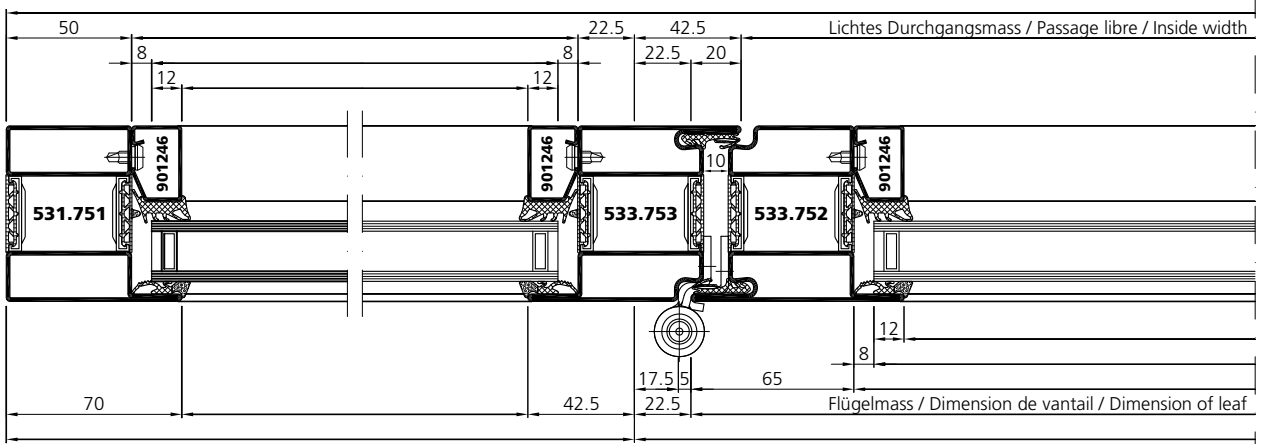
**System plan
Doors**

- un_sp_0049
- un_sp_0064



**Isolierte Schwellen
siehe Seiten 58 – 63**
**Seuils isolés
voir pages 58 – 63**
**Insulated thresholds
see pages 58 – 63**

D - D



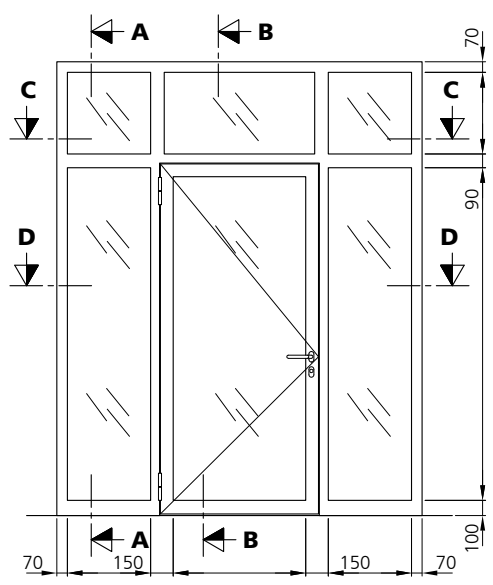
Stahl	Edelstahl
Acier	Acier inox
Steel	Stainless steel

**Systemplan
Türen**

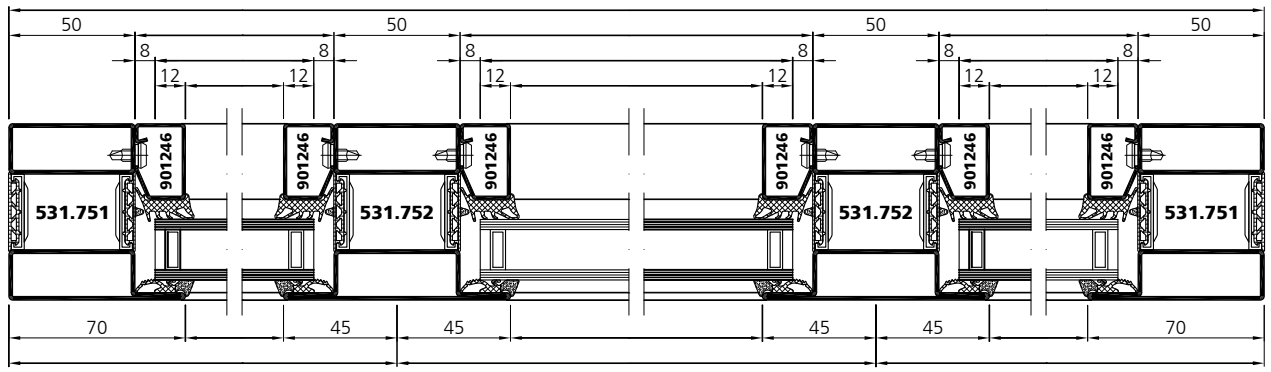
**Plan du système
Portes**

**System plan
Doors**

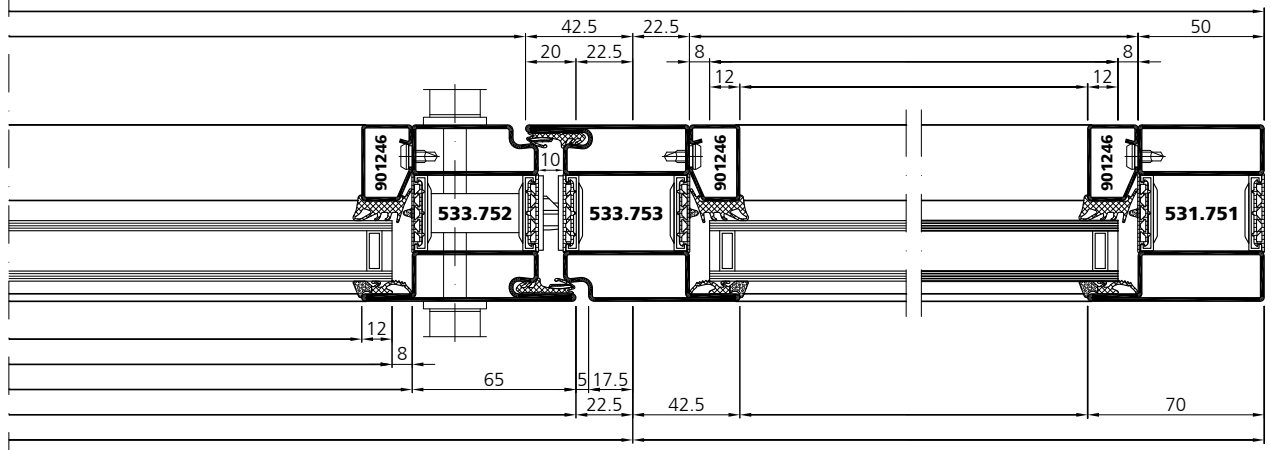
- un_sp_0049
- un_sp_0064



C - C



D - D



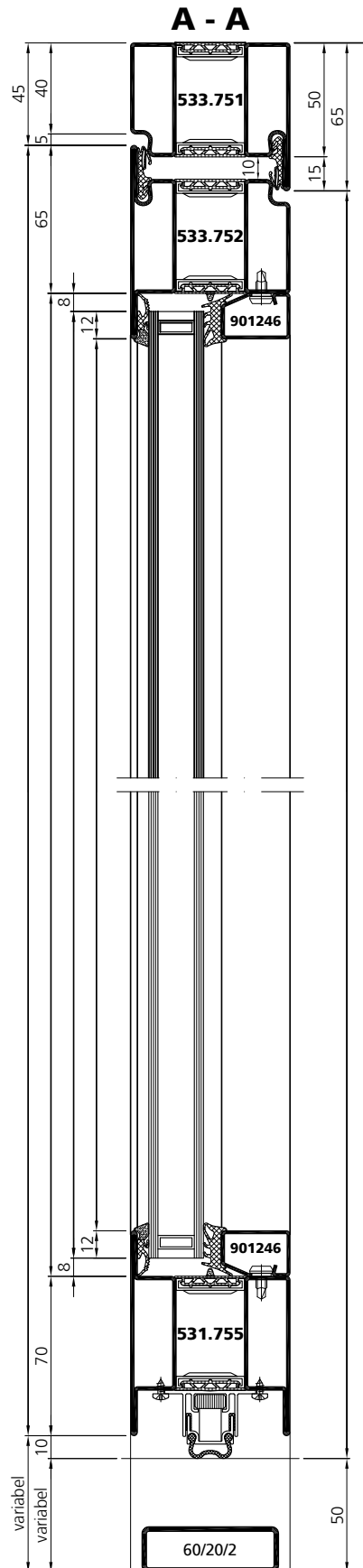
Stahl	Edelstahl
Acier	Acier inox
Steel	Stainless steel

**Systemplan
Türen**

**Plan du système
Portes**

**System plan
Doors**

- [un_sp_0272](#)
- [un_sp_0273](#)



Isolierte Schwellen
siehe Seiten 58 – 63

Seuils isolés
voir pages 58 – 63

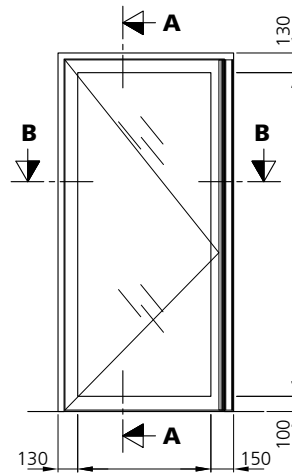
Insulated thresholds
see pages 58 – 63

**Systemplan
Türen**

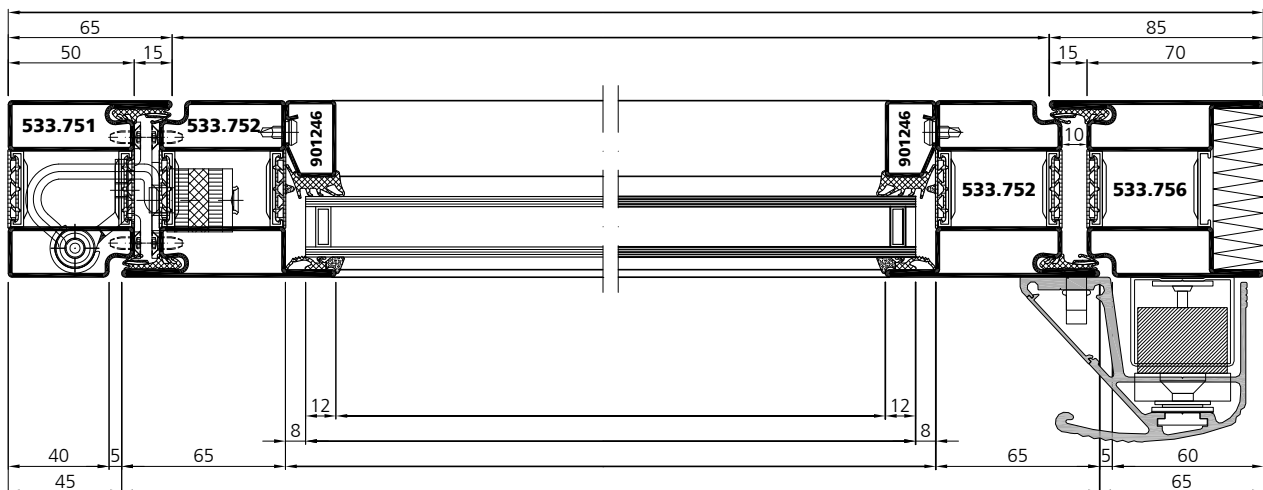
**Plan du système
Portes**

**System plan
Doors**

■ un_sp_0272
 ■ un_sp_0273



B - B



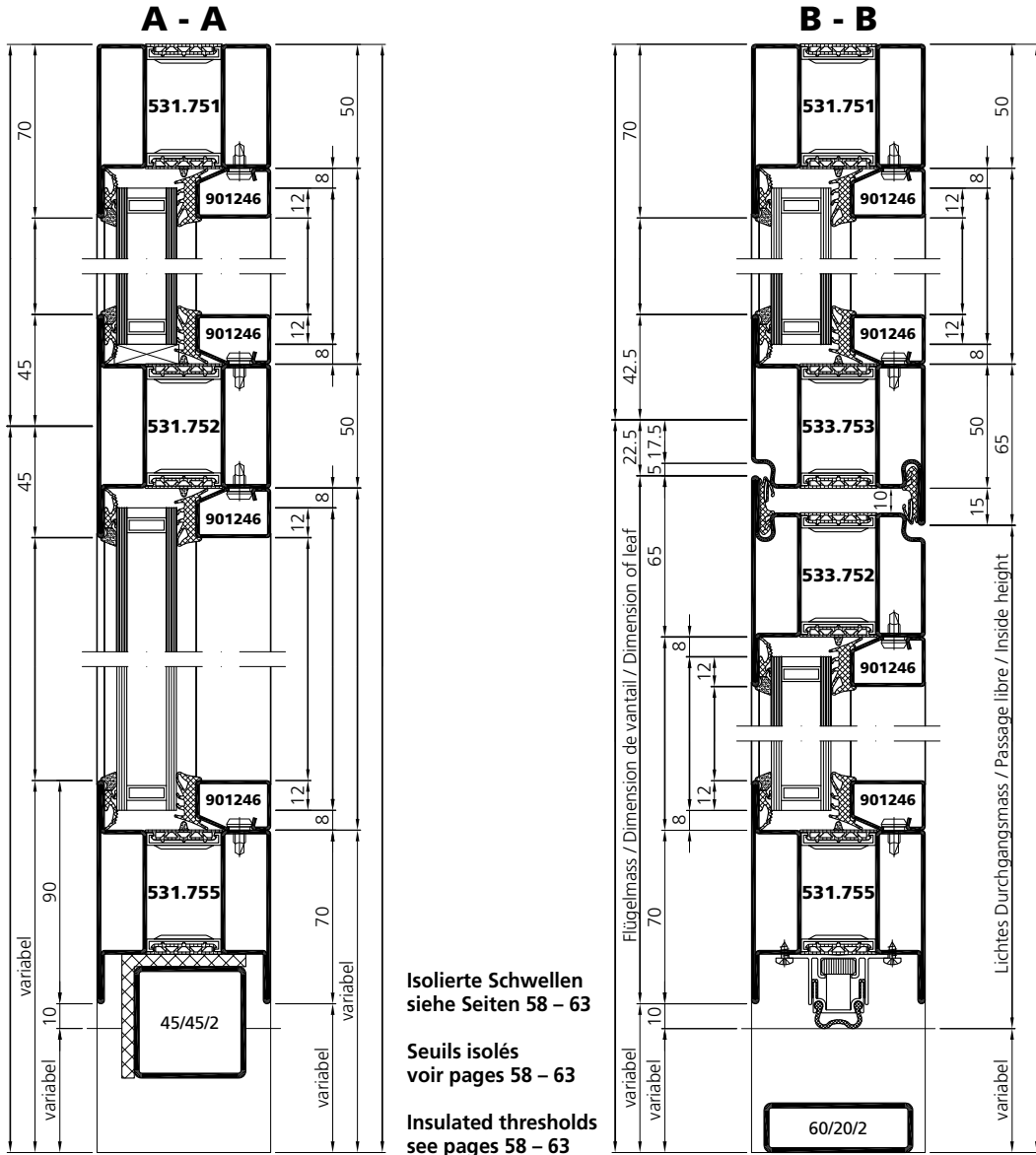
Stahl Acier Steel	Edelstahl Acier inox Stainless steel
-------------------------	--

**Systemplan
Türen**

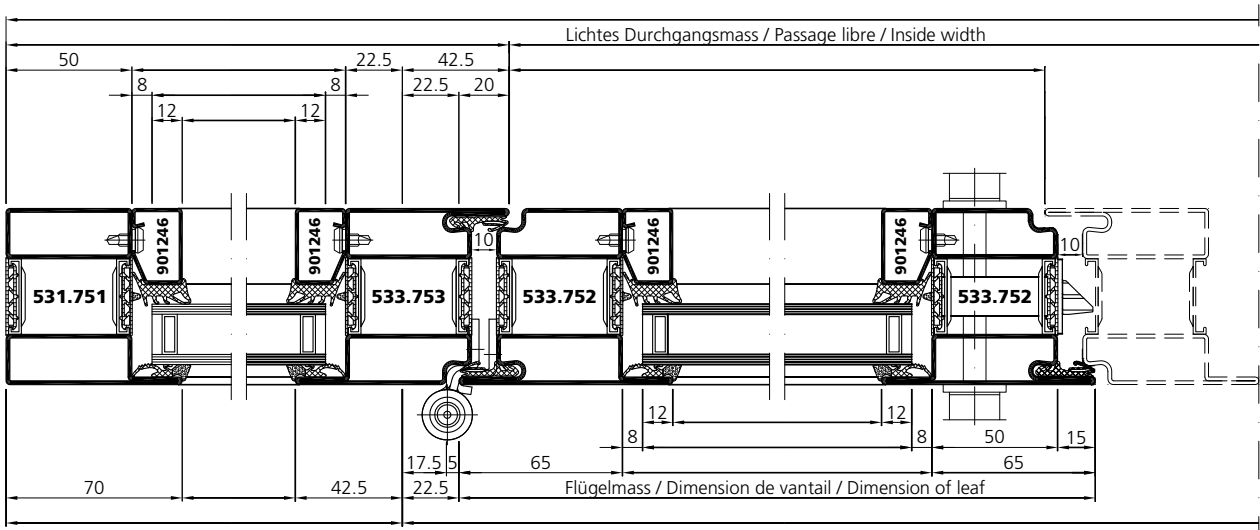
**Plan du système
Portes**

**System plan
Doors**

- un_sp_0055
- un_sp_0070



D - D

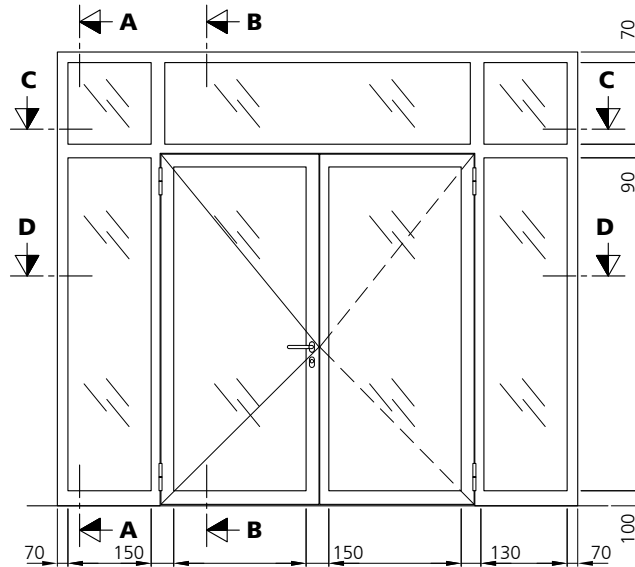


Systemplan Türen

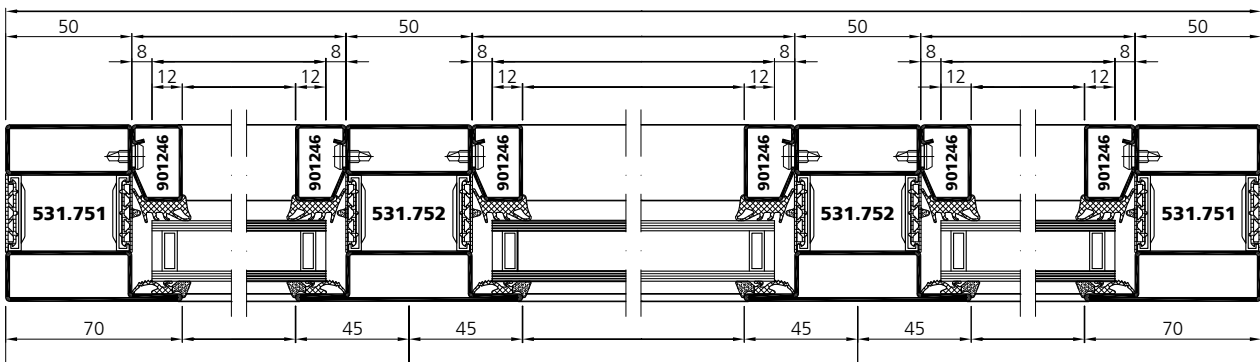
Plan du système Portes

System plan Doors

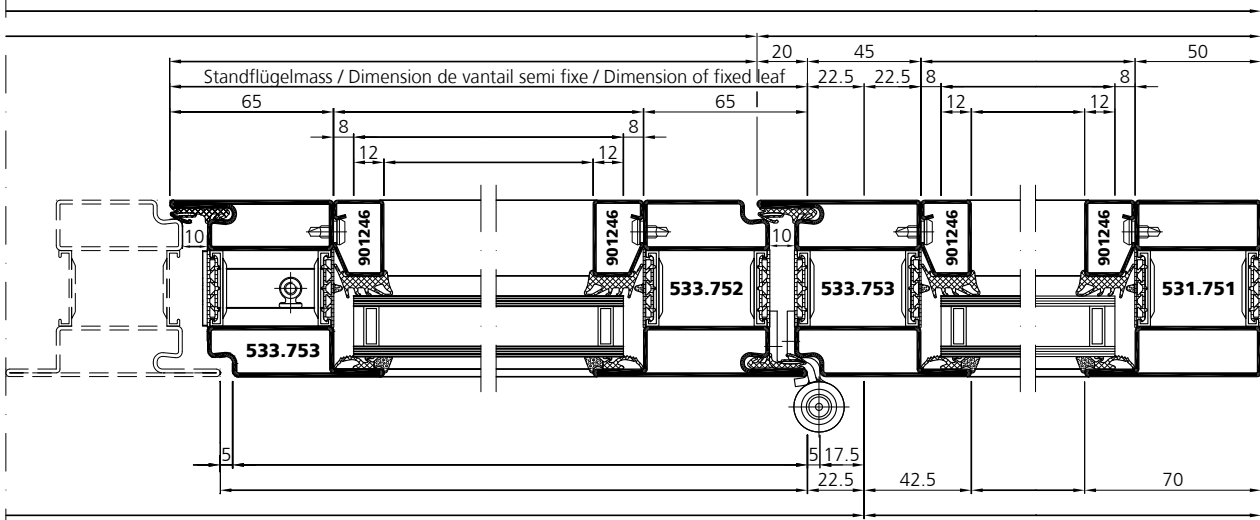
■ un_sp_0055
■ un_sp_0070



C - C



D - D

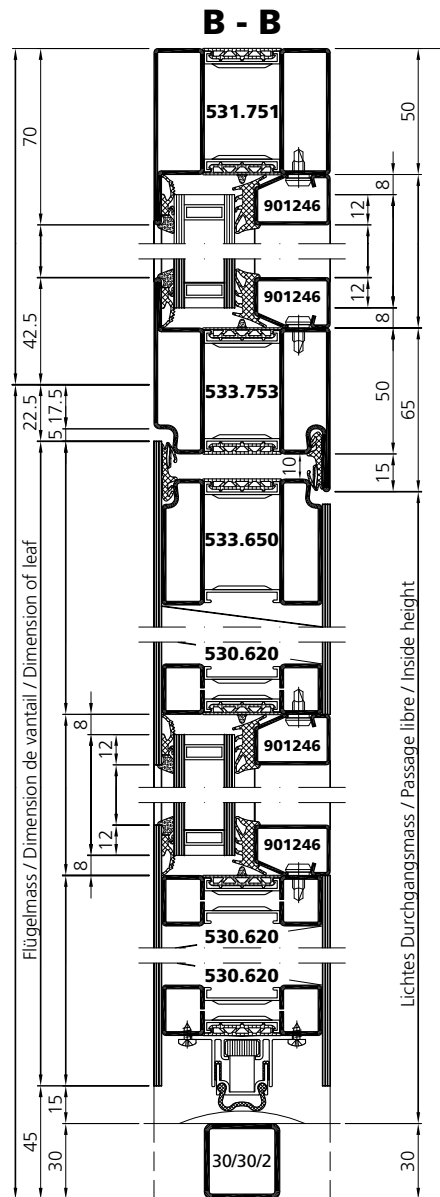
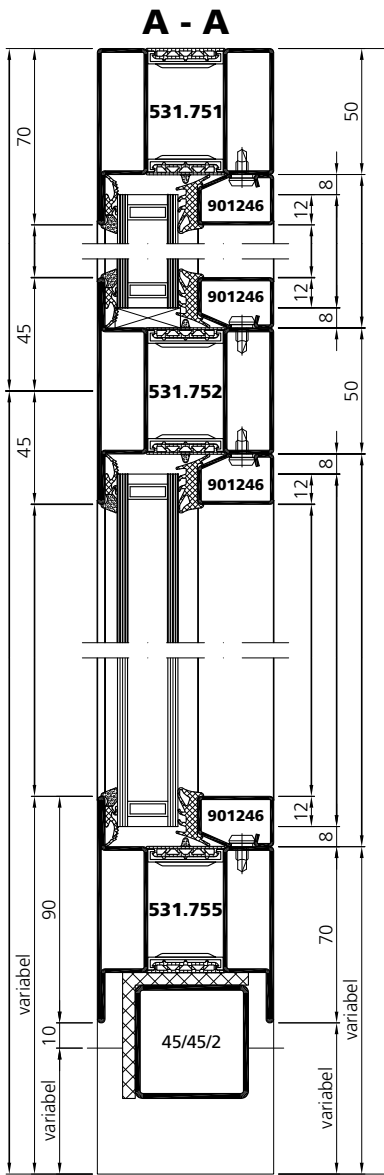


**Systemplan
Türen**

**Plan du système
Portes**

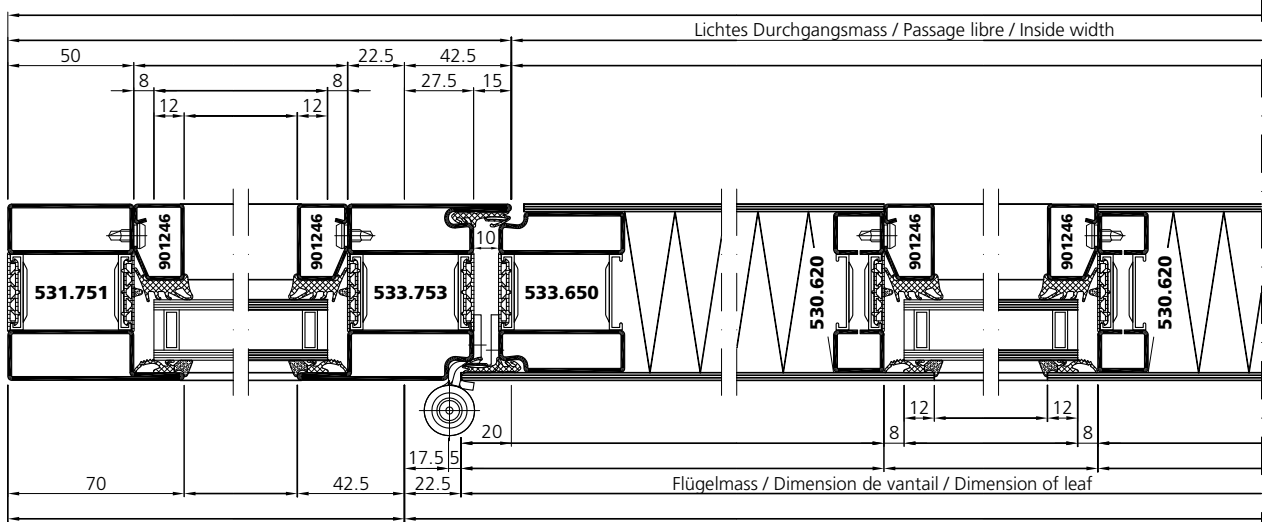
**System plan
Doors**

un_sp_0093



Isolierte Schwellen
siehe Seiten 58 – 63
Seuils isolés
voir pages 58 – 63
Insulated thresholds
see pages 58 – 63

D - D

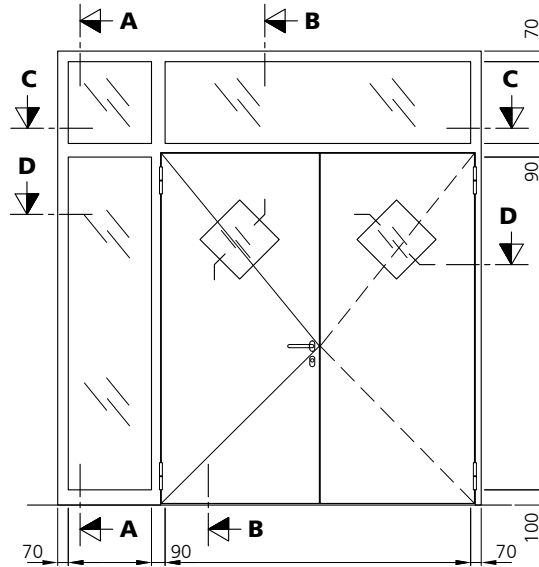


**Systemplan
Türen**

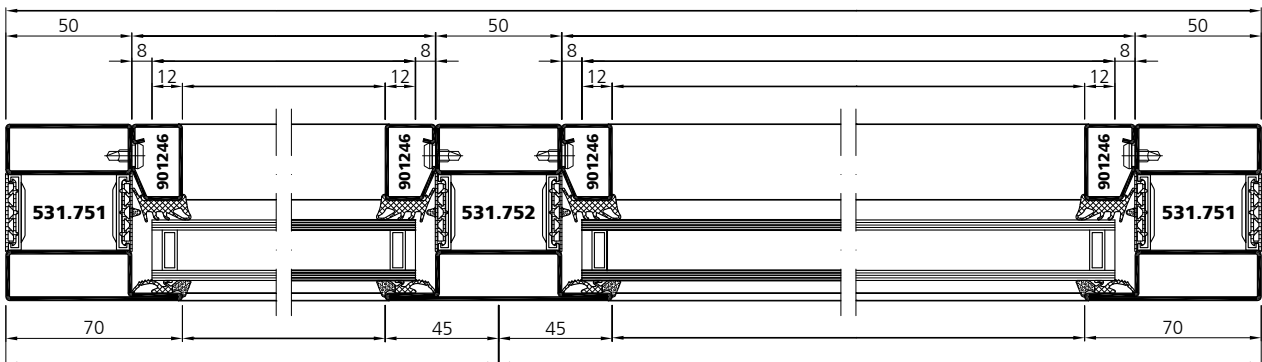
**Plan du système
Portes**

**System plan
Doors**

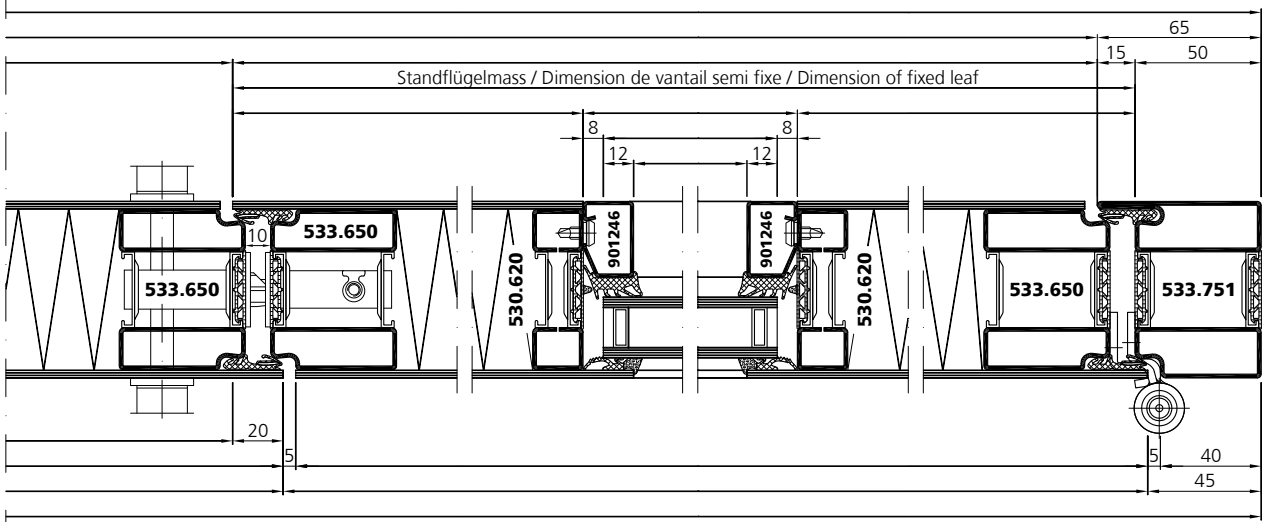
un_sp_0093



C - C



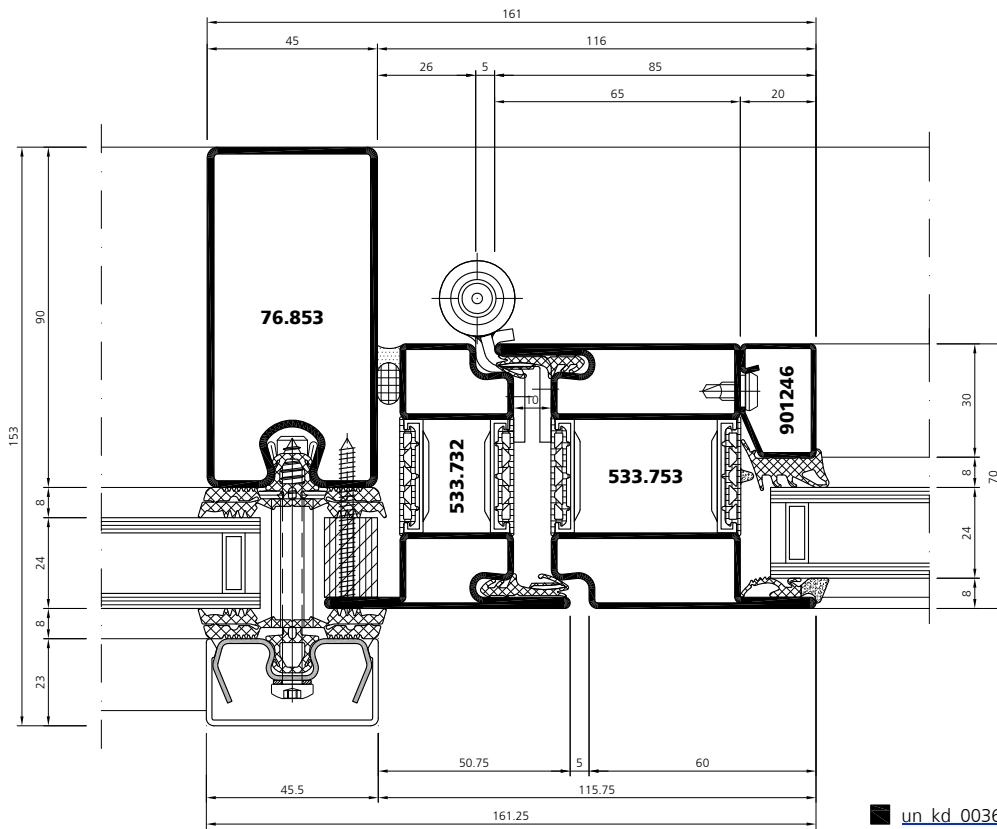
D - D



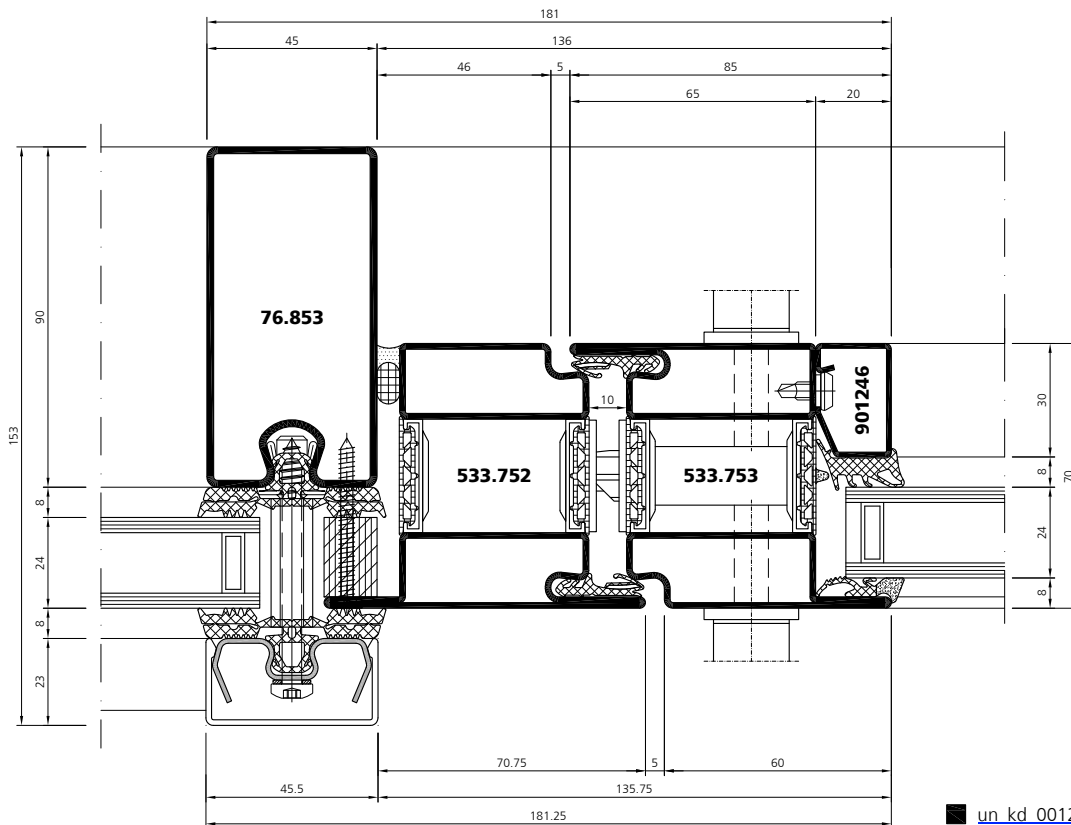
**Konstruktionsdetails
Türen**

**Détails de construction
Portes**

**Construction details
Doors**



■ [un kd 0036](#)

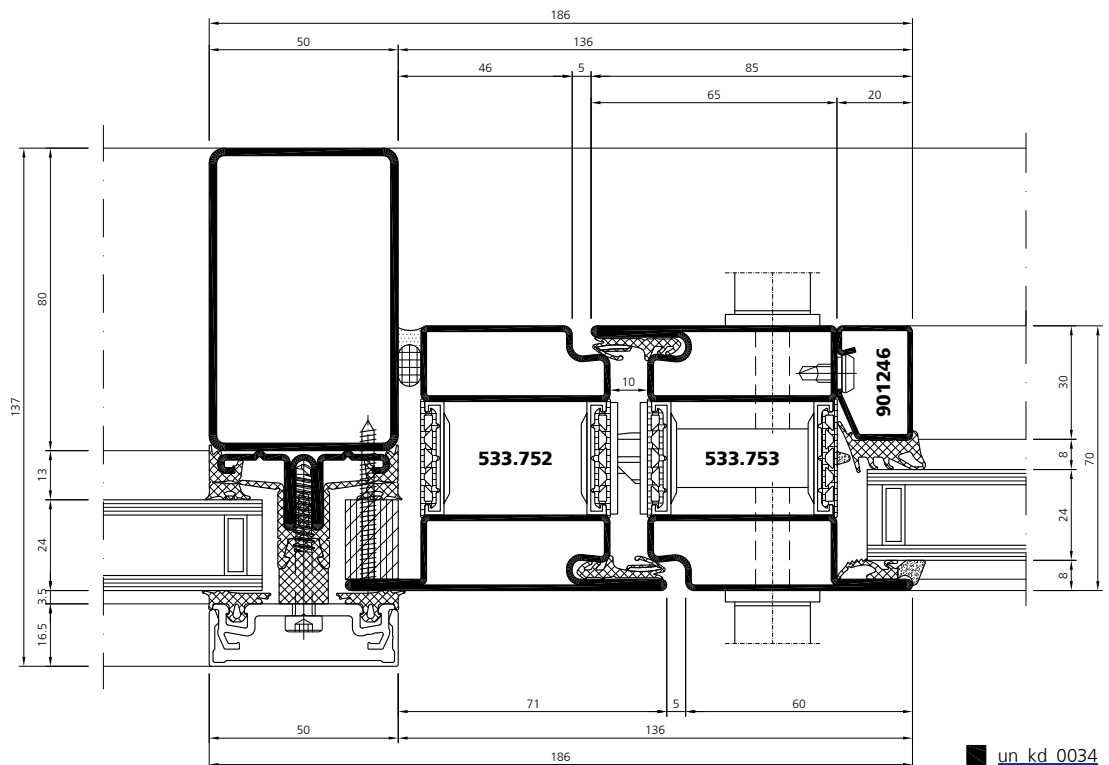
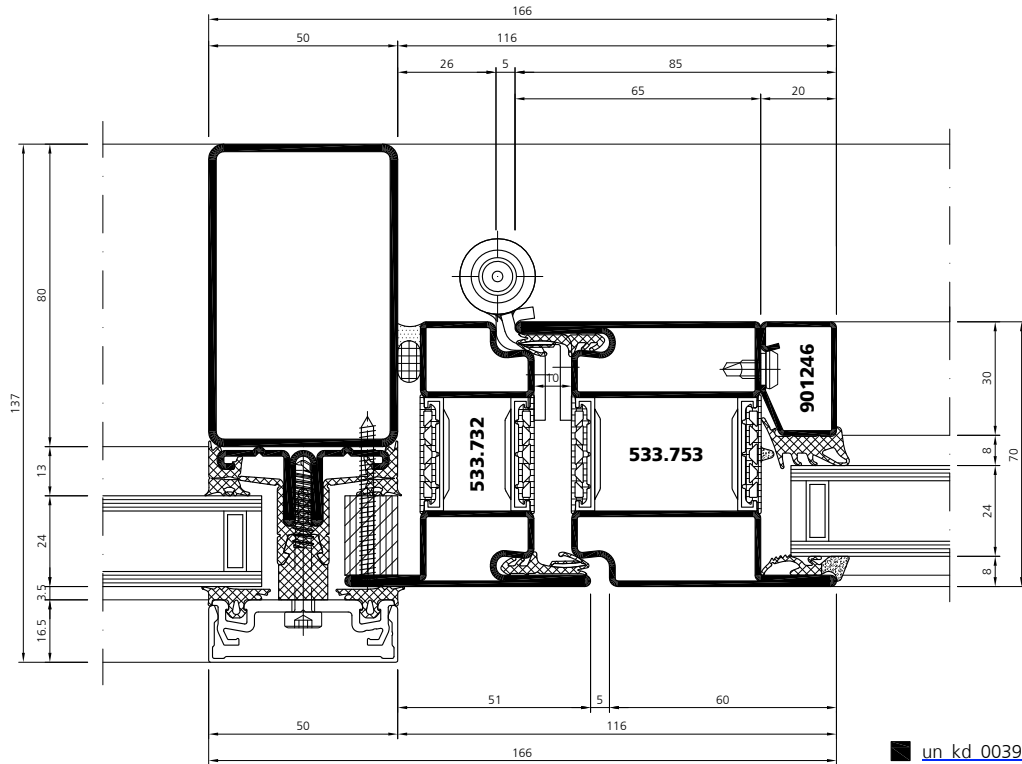


■ [un kd 0012](#)

**Konstruktionsdetails
Türen**

**Détails de construction
Portes**

**Construction details
Doors**

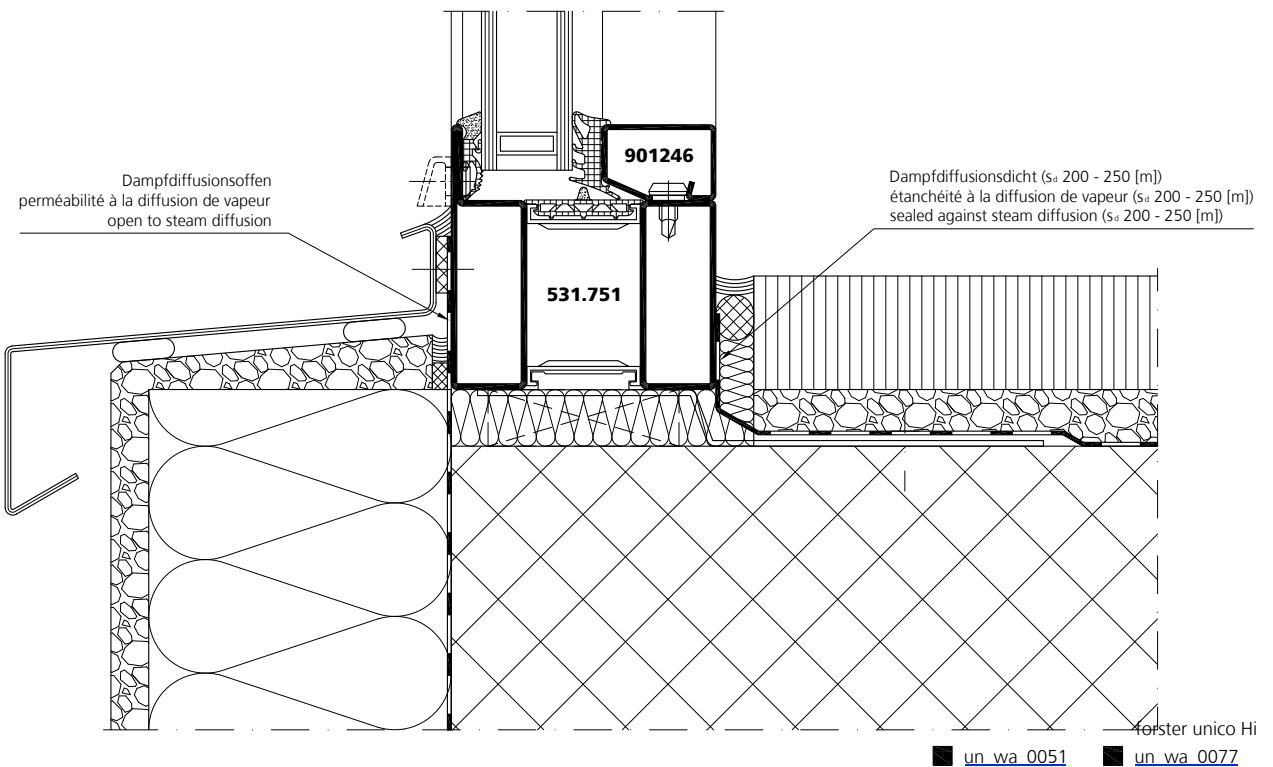
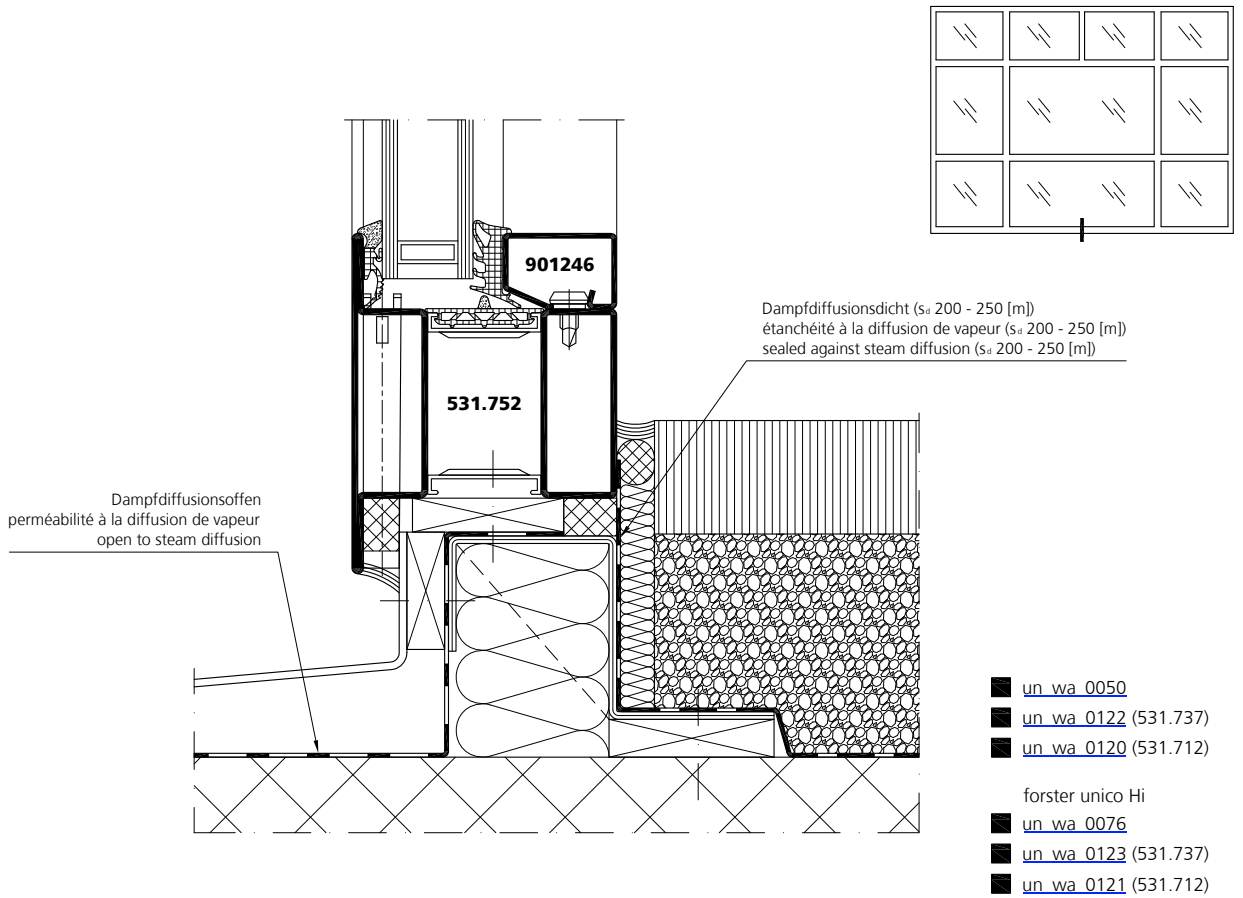


Stahl Acier Steel	Edelstahl Acier inox Stainless steel
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**Bauanschlüsse
Türen**

**Raccords muraux
Portes**

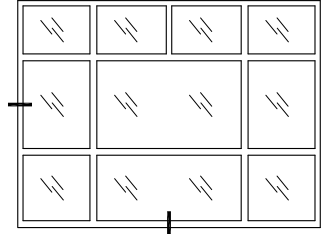
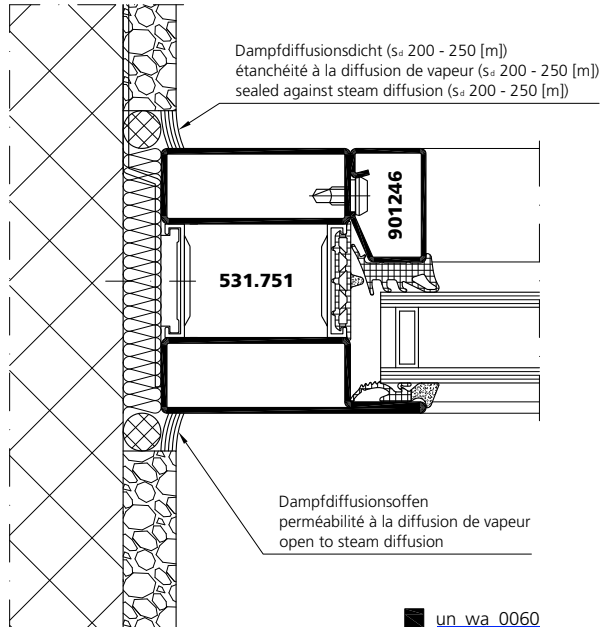
**Wall abutments
Doors**



Bauanschlüsse Türen

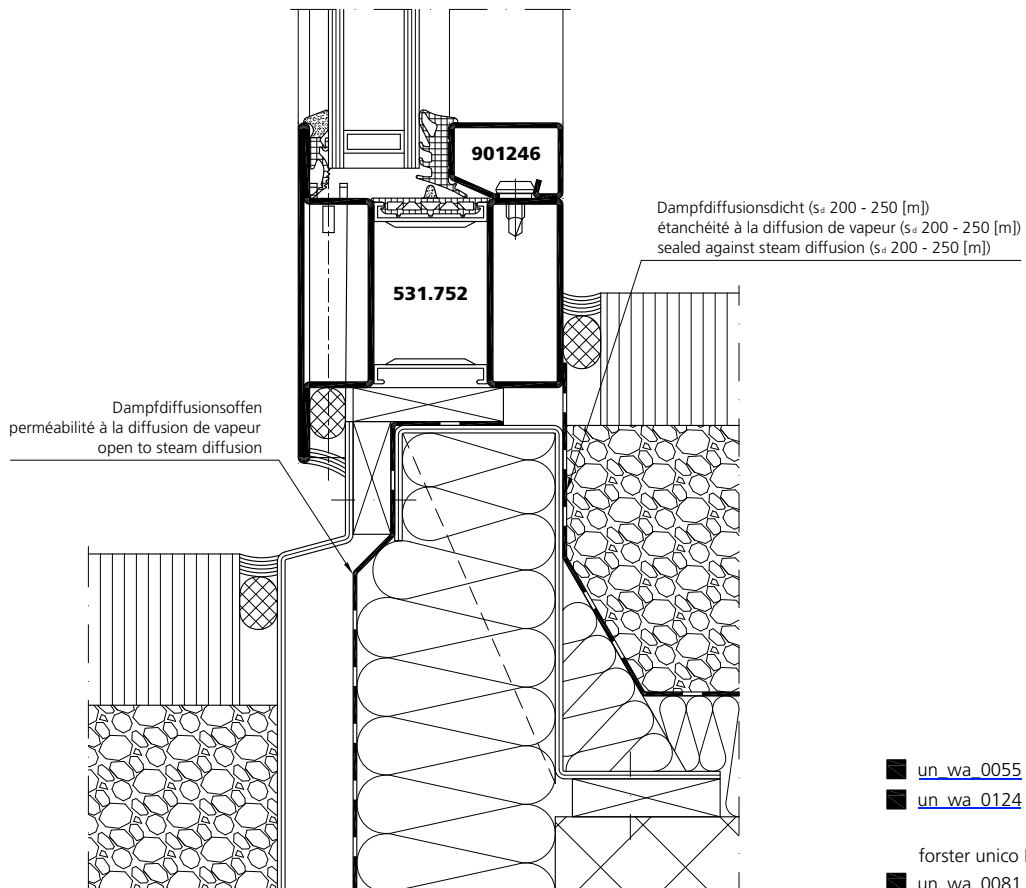
Raccords muraux Portes

Wall abutments Doors



- [un_wa_0060](#)
- [un_wa_0126](#) (530.711)
- [un_wa_0128](#) (530.713)

- forster unico Hi
- [un_wa_0086](#)
 - [un_wa_0135](#) (530.711)
 - [un_wa_0137](#) (530.713)



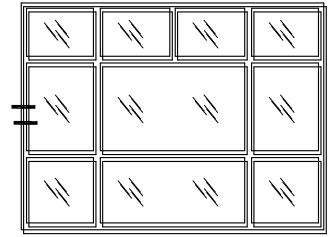
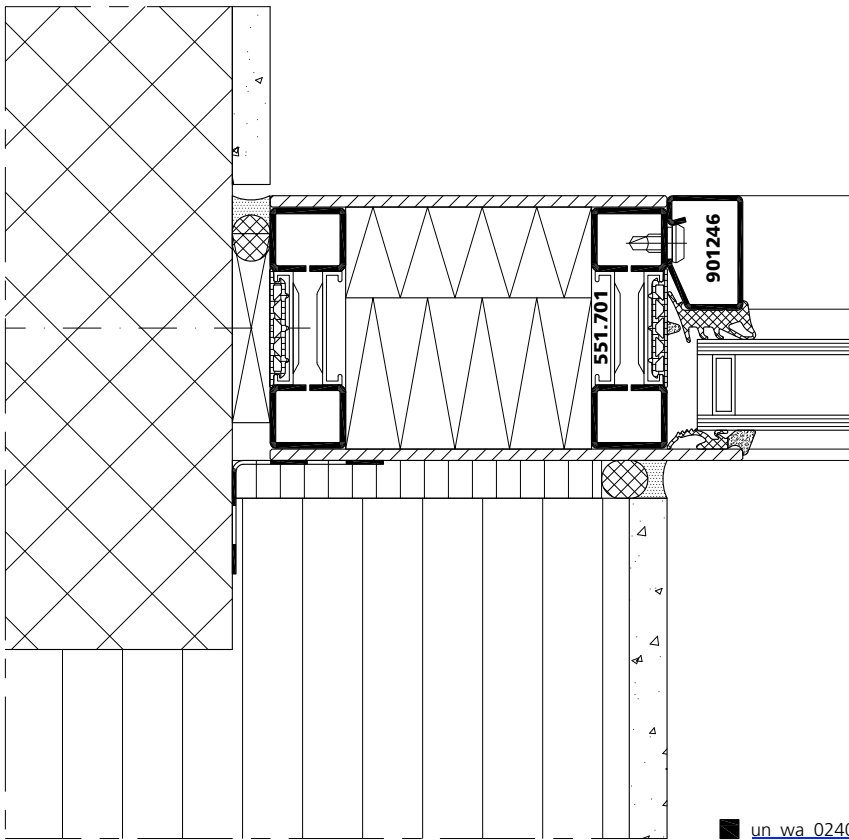
- [un_wa_0055](#)
- [un_wa_0124](#) (530.712)

- forster unico Hi
- [un_wa_0081](#)
 - [un_wa_0125](#) (530.712)

Bauanschlüsse
Türen
Rahmenverbreiterung

Raccords muraux
Portes
Elargissement de cadre

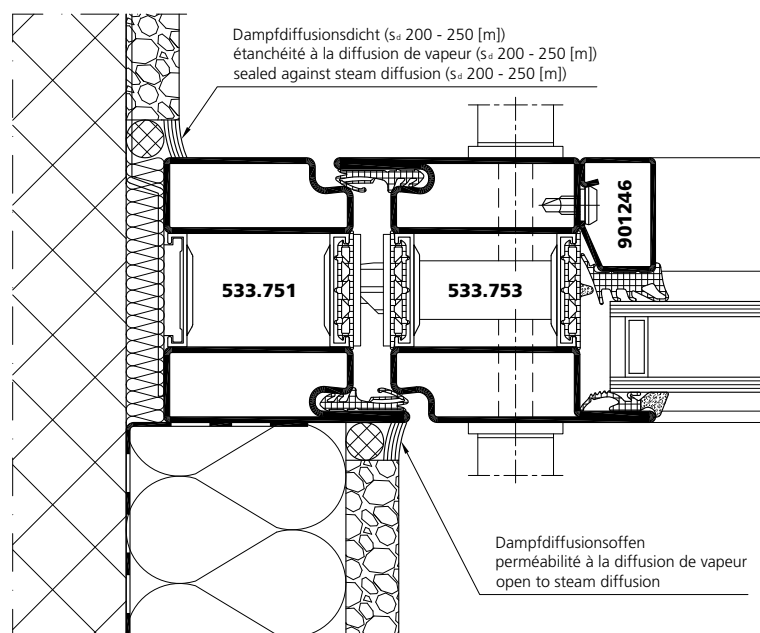
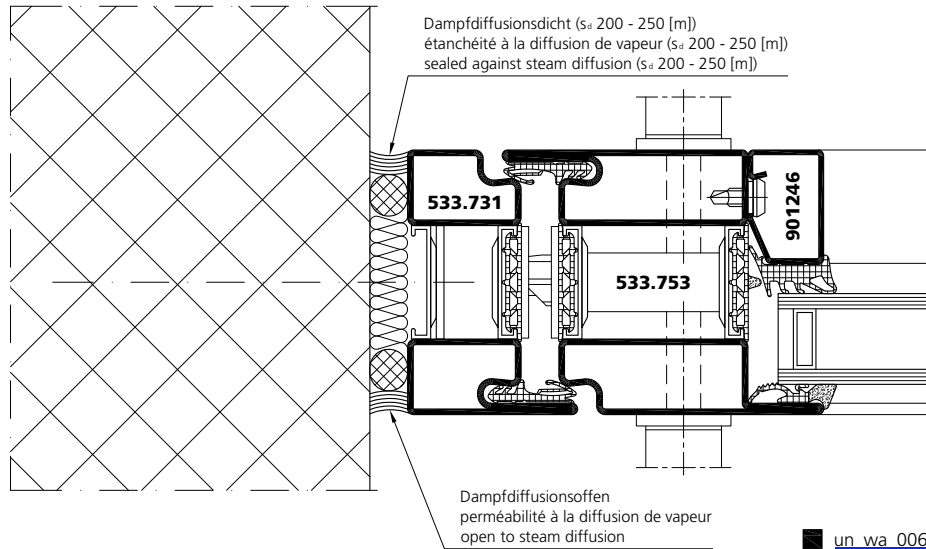
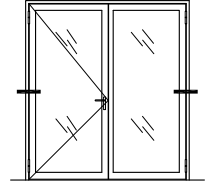
Wall abutments
Doors
Frame enlargement



Bauanschlüsse Türen

Raccords muraux Portes

Wall abutments Doors

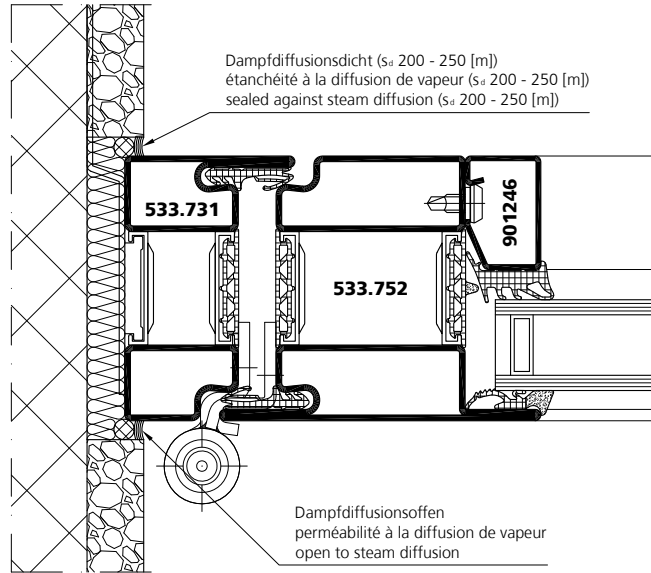
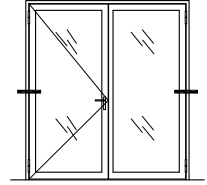


Stahl Acier Steel	Edelstahl Acier inox Stainless steel
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**Bauanschlüsse
Türen**

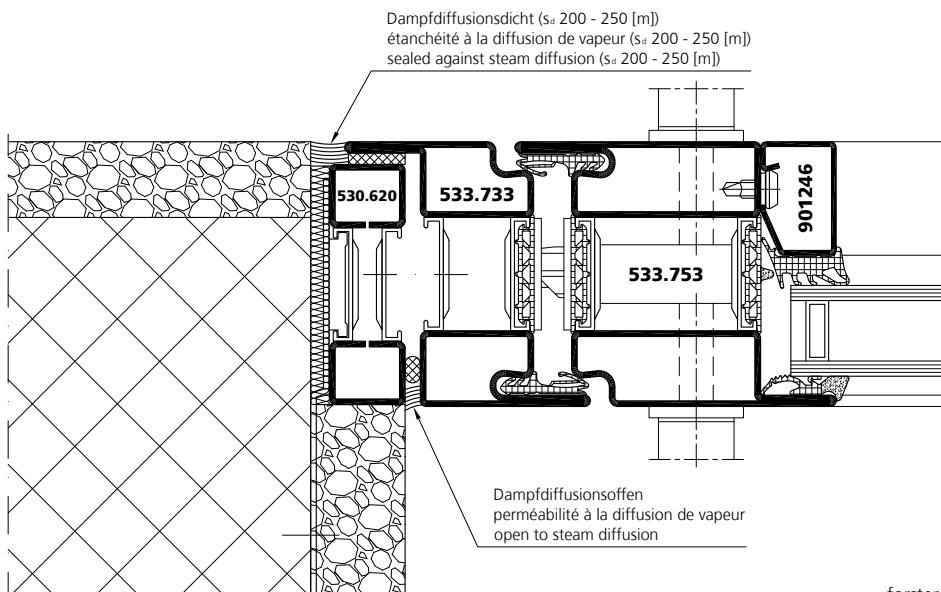
**Raccords muraux
Portes**

**Wall abutments
Doors**



■ [un_wa_0053](#)

forster unico Hi
■ [un_wa_0079](#)



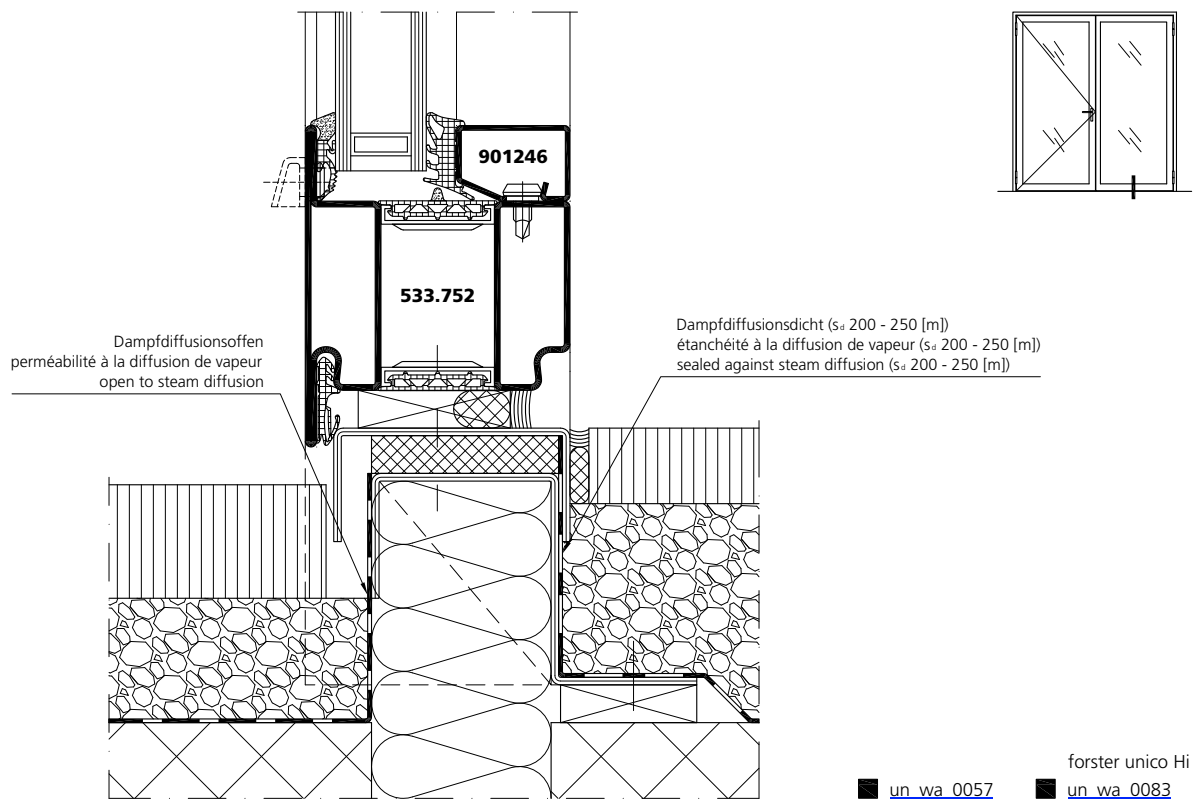
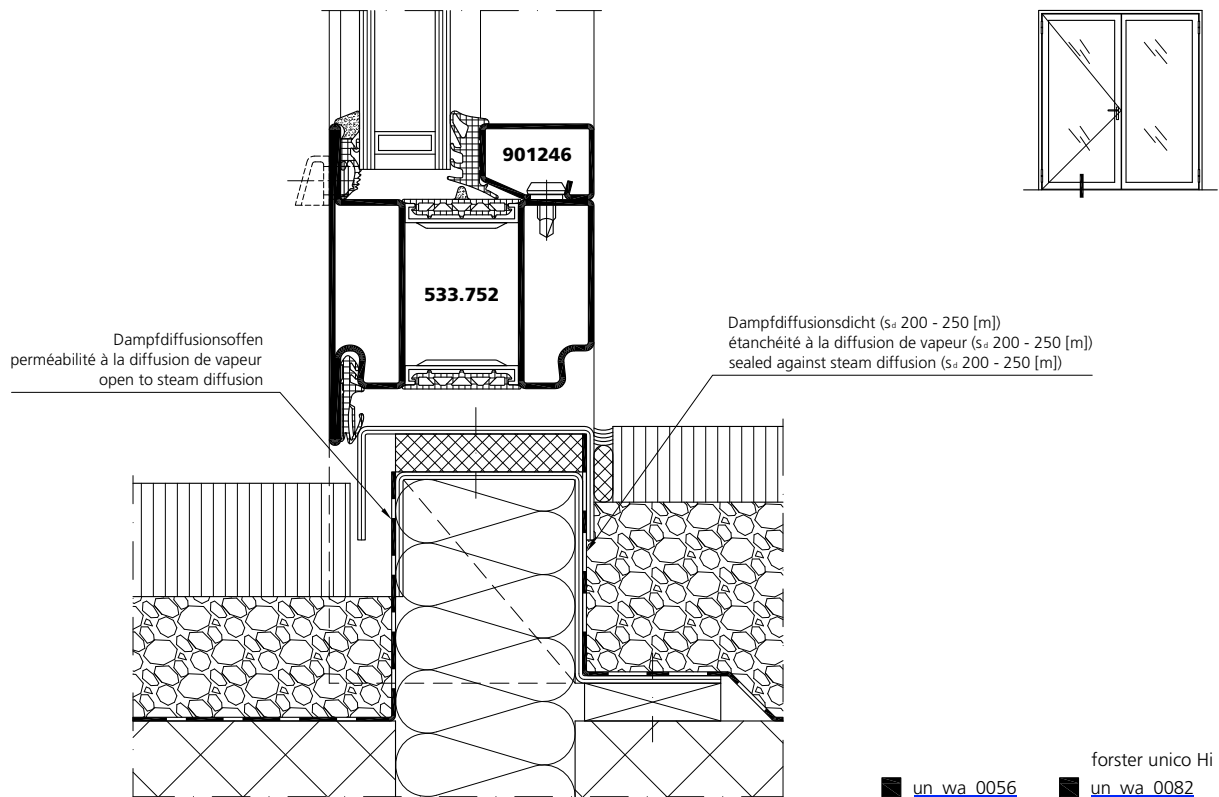
■ [un_wa_0064](#)

forster unico Hi
■ [un_wa_0090](#)

Bauanschlüsse Türen

Raccords muraux Portes

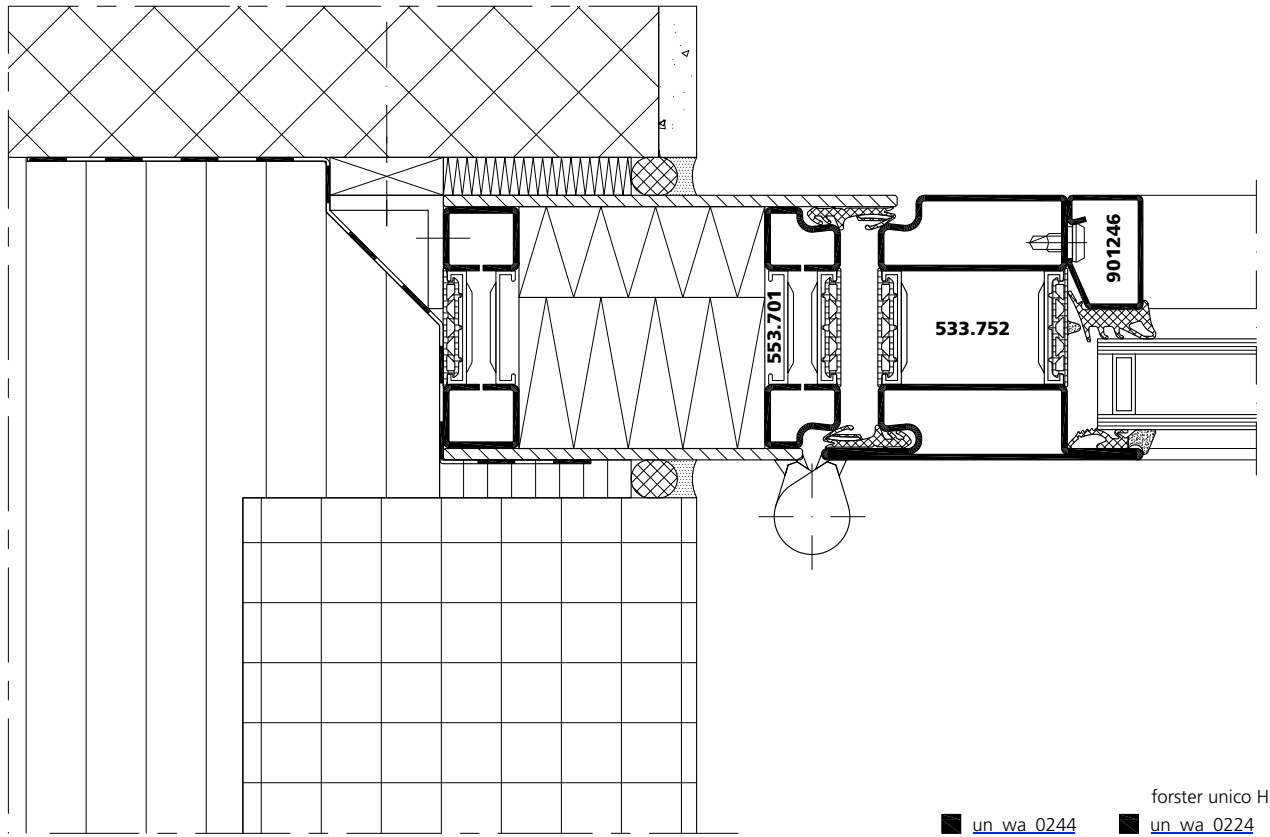
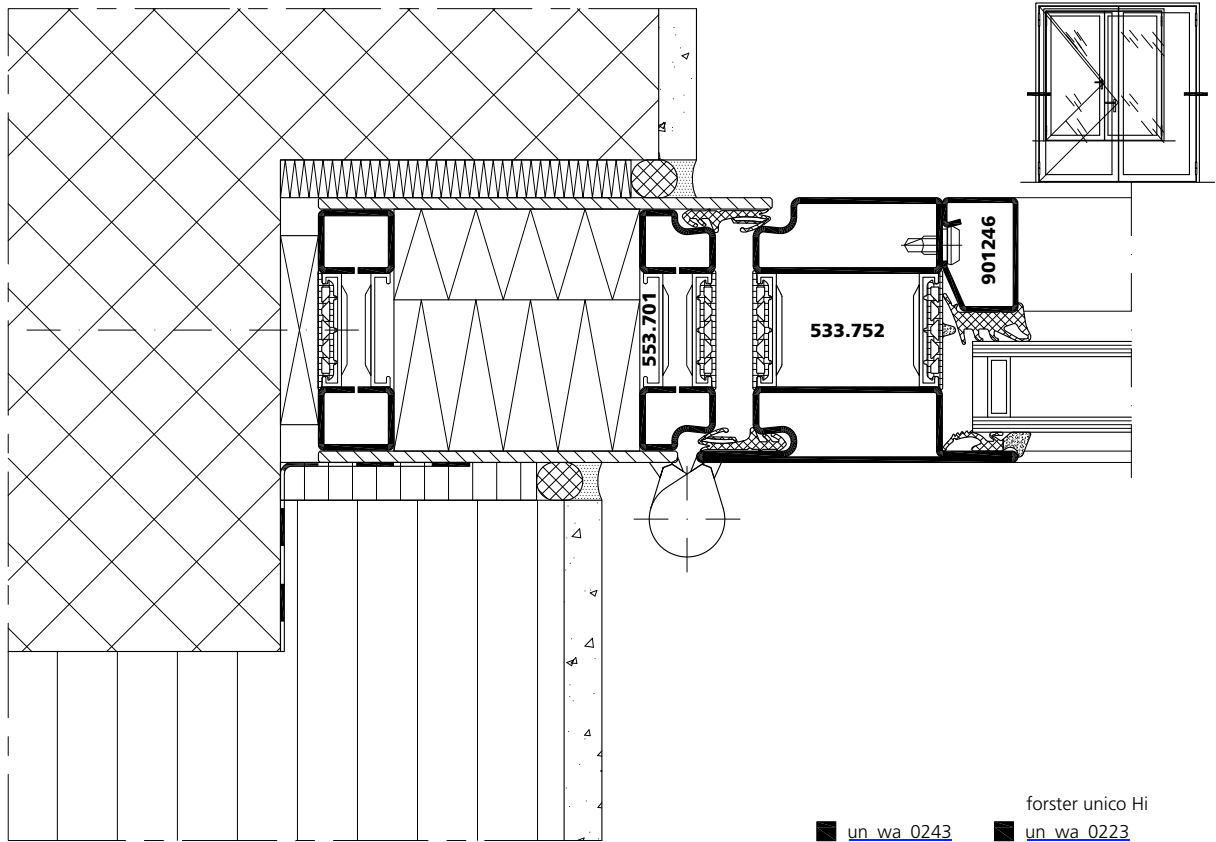
Wall abutments Doors



**Bauanschlüsse
Türen
Rahmenverbreiterung**

**Raccords muraux
Portes
Elargissement de cadre**

**Wall abutments
Doors
Frame enlargement**



Bauanschlüsse
Türen
Isolierte Schwellen

Raccords muraux
Portes
Seuils isolés

Wall abutments
Doors
Insulated thresholds



Mahieu, BE-Schoten

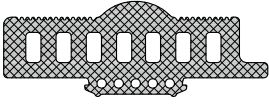
03/19

**Schwellenprofil
Anschlagschwelle**

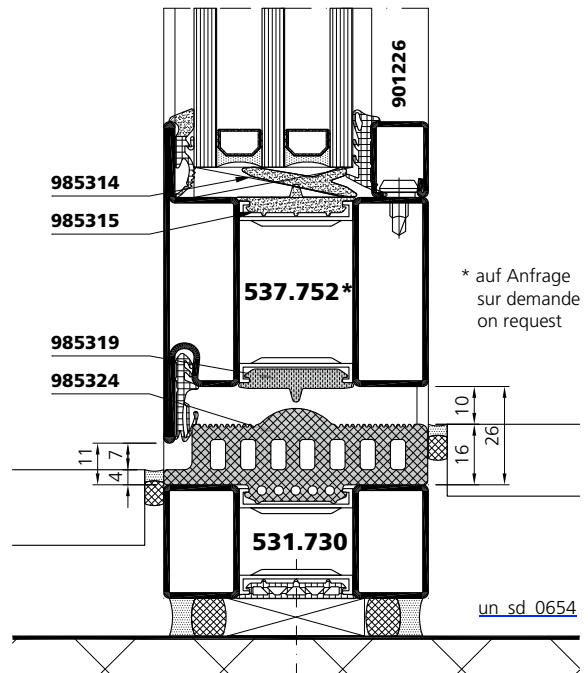
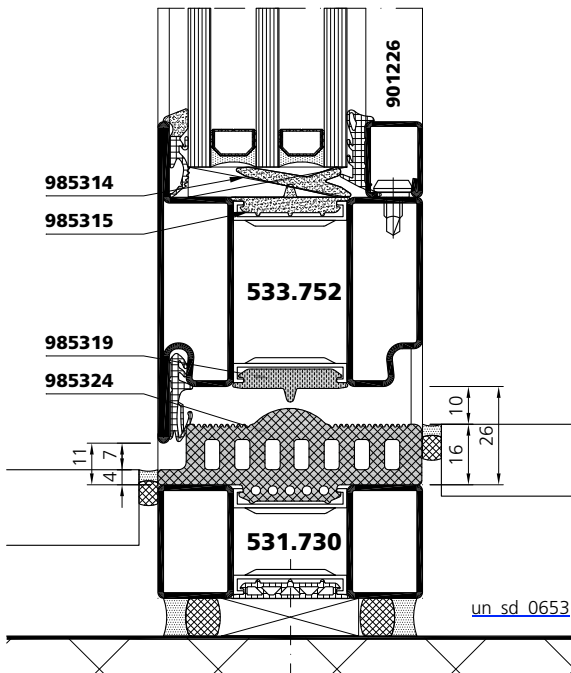
**Profilé de seuil
Seuil en butée**

**Threshold profile
Buffer threshold**

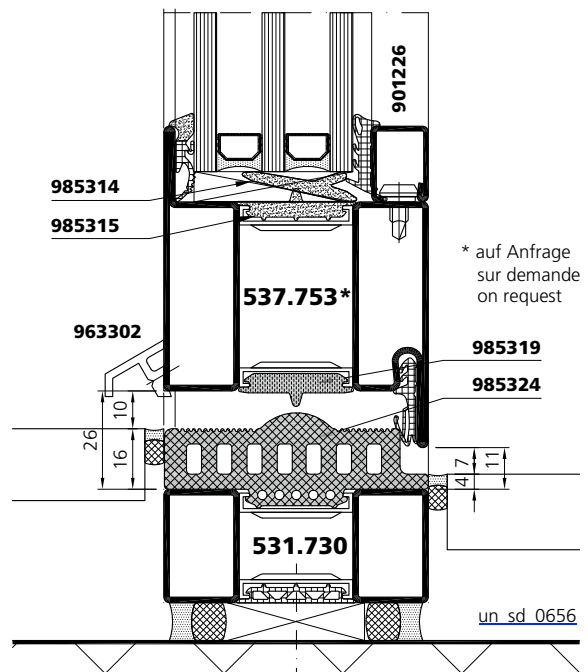
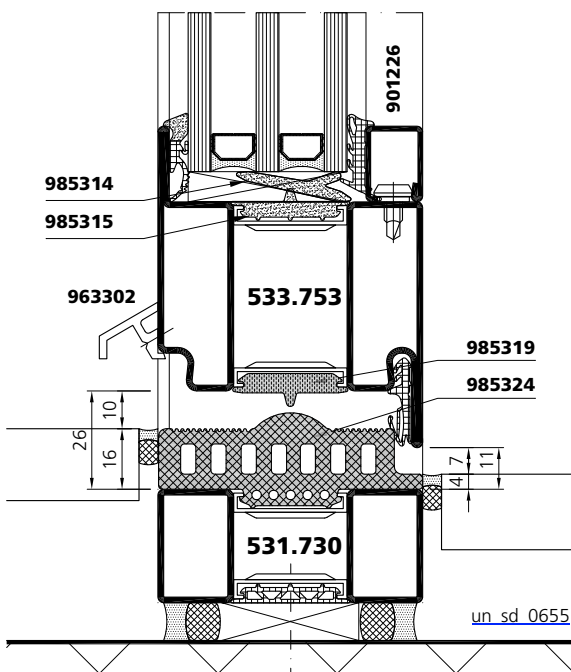
985324



Auswärts öffnend / Ouvrant vers l'extérieur / Opening outwards



Einwärts öffnend / Ouvrant vers l'intérieur / Opening inwards



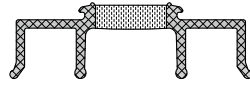
**Schwellenprofil
Schwellenlos**

**Profilé de seuil
Sans obstacle**

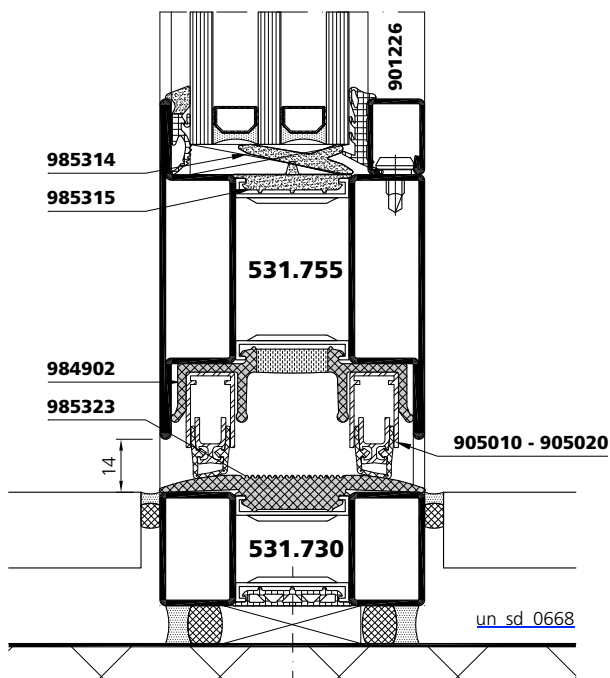
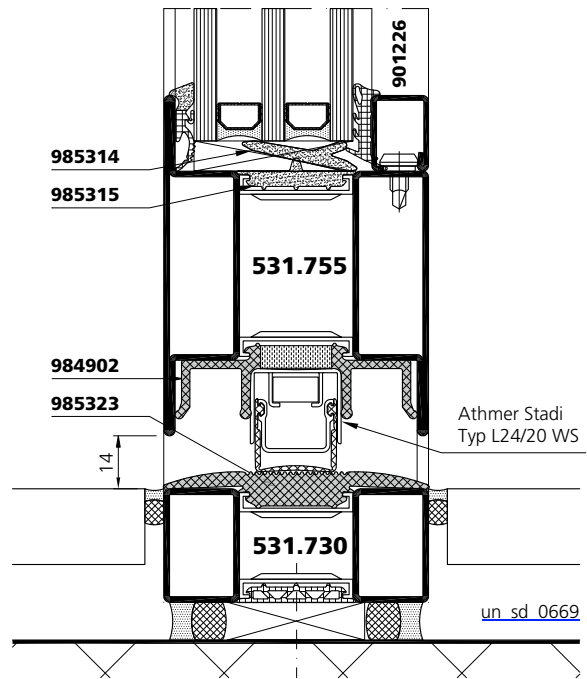
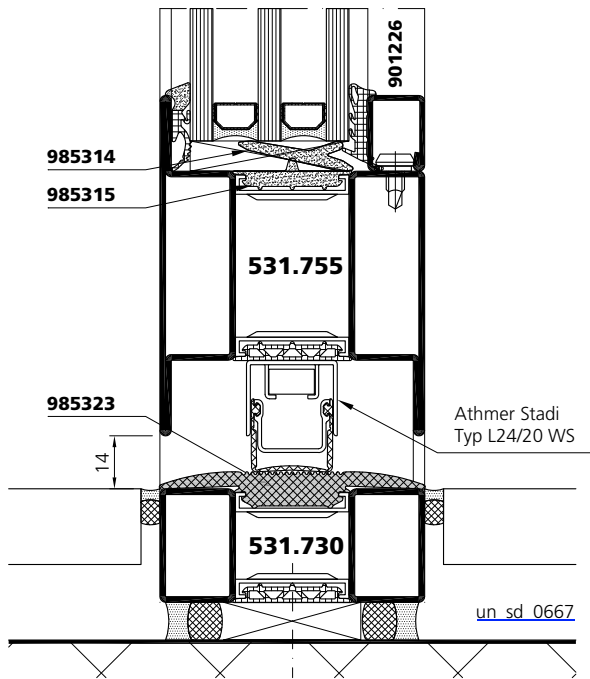
**Threshold profile
Trip-free**

985323

984902



**Aus- und einwärts öffnend /
Ouvrant vers l'extérieur ou l'intérieur /
Opening out- and inwards**



Stahl Acier Steel	Edelstahl Acier inox Stainless steel
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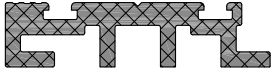
**Aufsatzprofil
Anschlagschwelle**

**Profilé d'applique
Seuil en butée**

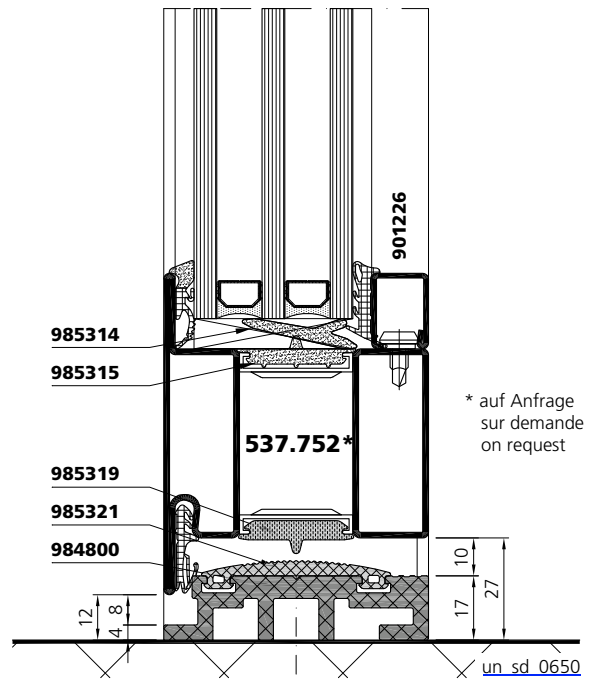
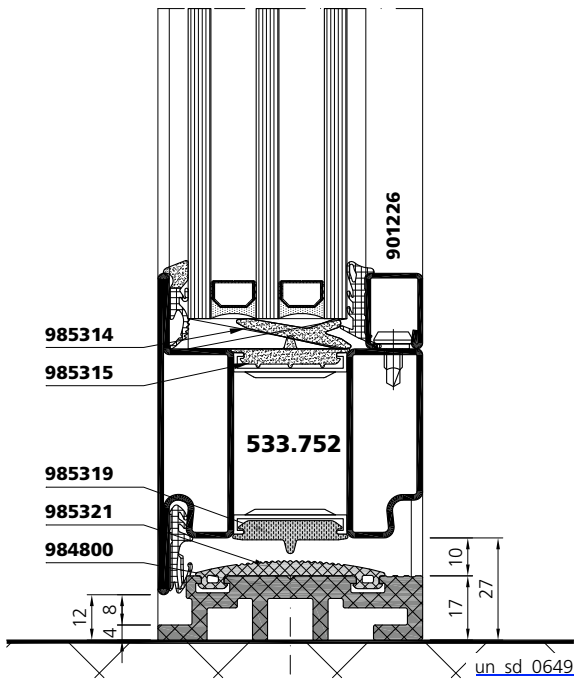
**Attachment profile
Buffer threshold**

984800

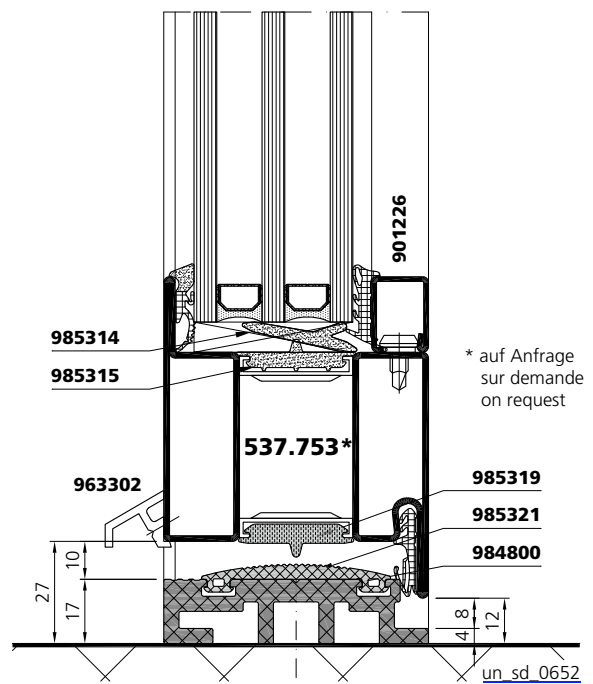
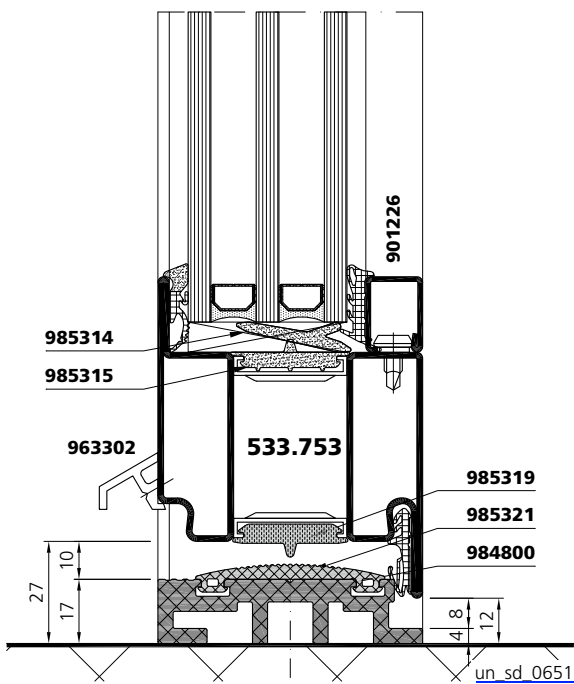
985321



Auswärts öffnend / Ouvrant vers l'extérieur / Opening outwards



Einwärts öffnend / Ouvrant vers l'intérieur / Opening inwards



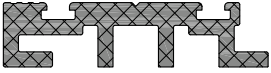
Aufsatzprofil Anschlagschwelle

Profilé d'applique Seuil en butée

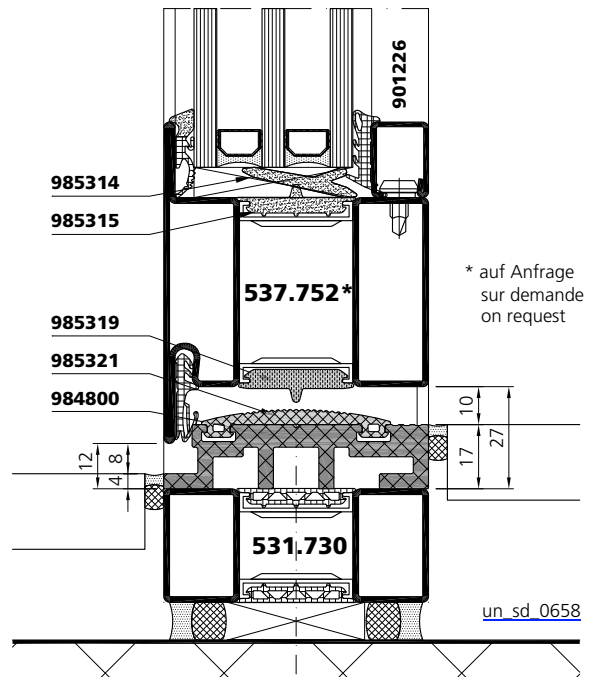
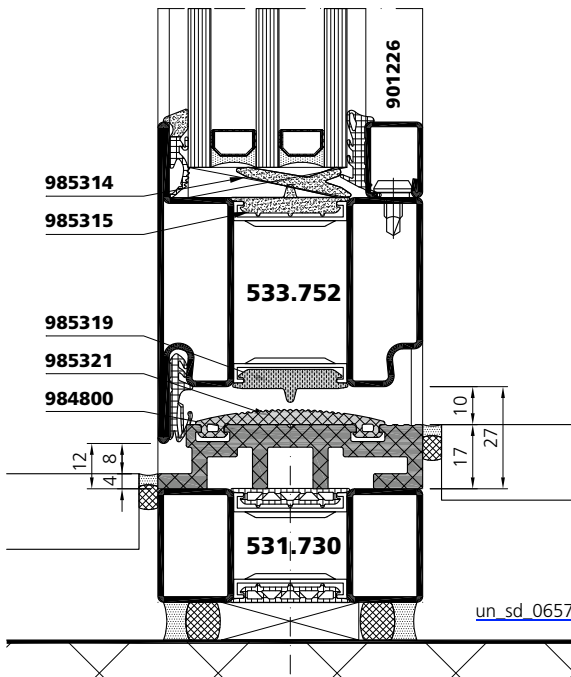
Attachment profile Buffer threshold

984800

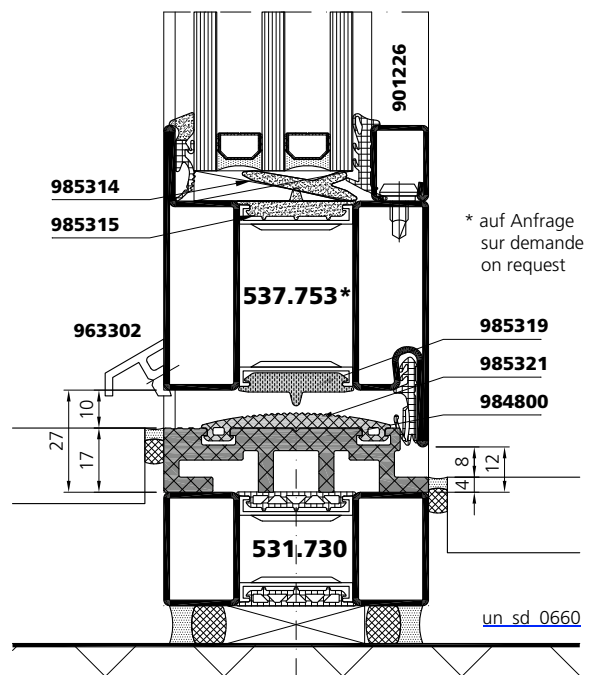
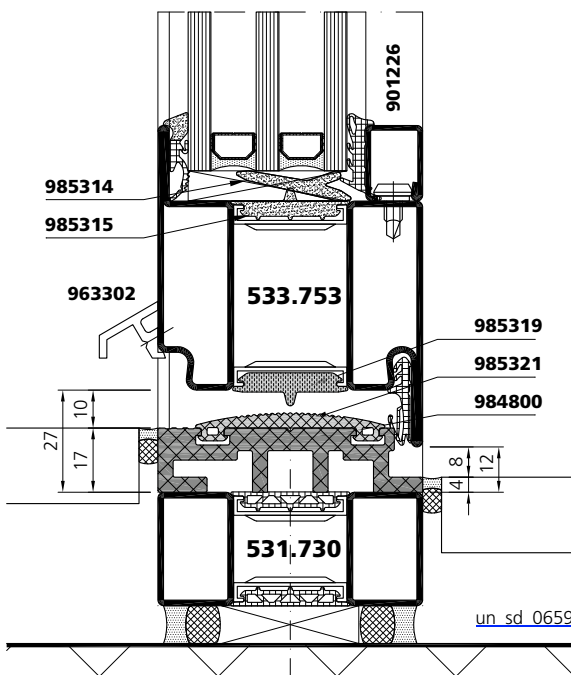
985321



Auswärts öffnend / Ouvrant vers l'extérieur / Opening outwards



Einwärts öffnend / Ouvrant vers l'intérieur / Opening inwards



Stahl Acier Steel	Edelstahl Acier inox Stainless steel
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**Aufsatzprofil
Universal Design**

**Profilé d'applique
Universal Design**

**Attachment profile
Universal Design**

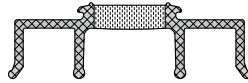
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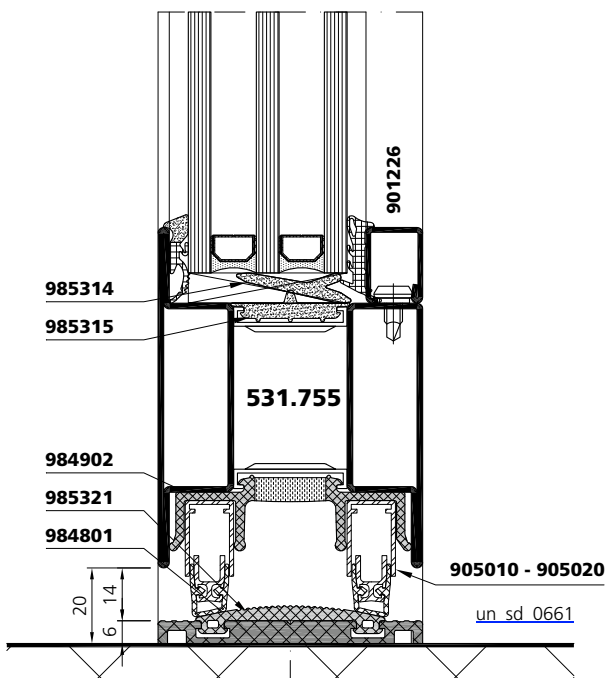
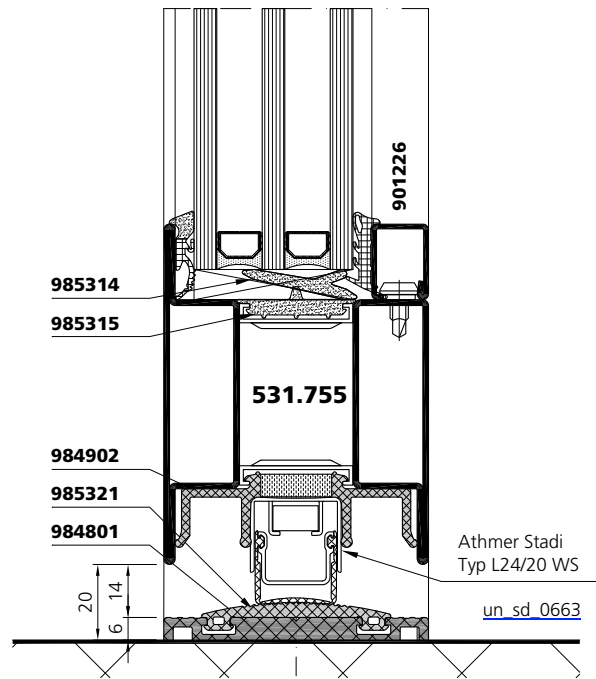
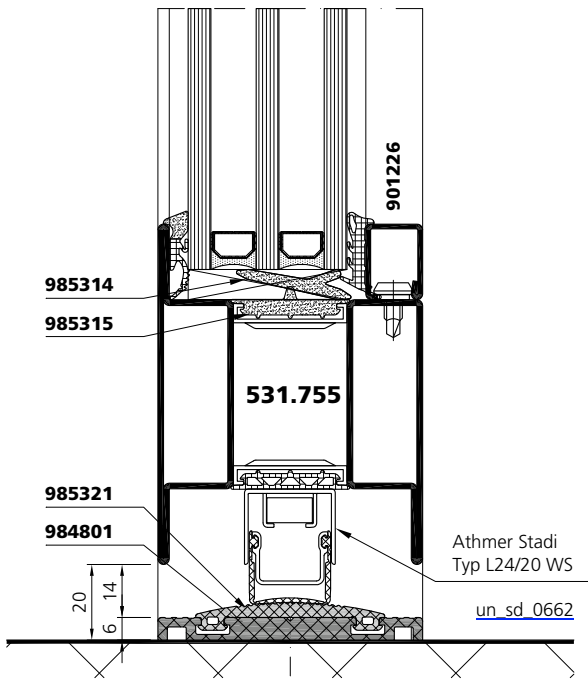
985321



984902



**Aus- und einwärts öffnend /
Ouvrant vers l'extérieur ou l'intérieur /
Opening out- and inwards**



Aufsatzprofil Universal Design

Profilé d'applique Universal Design

Attachment profile Universal Design

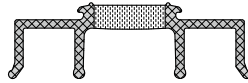
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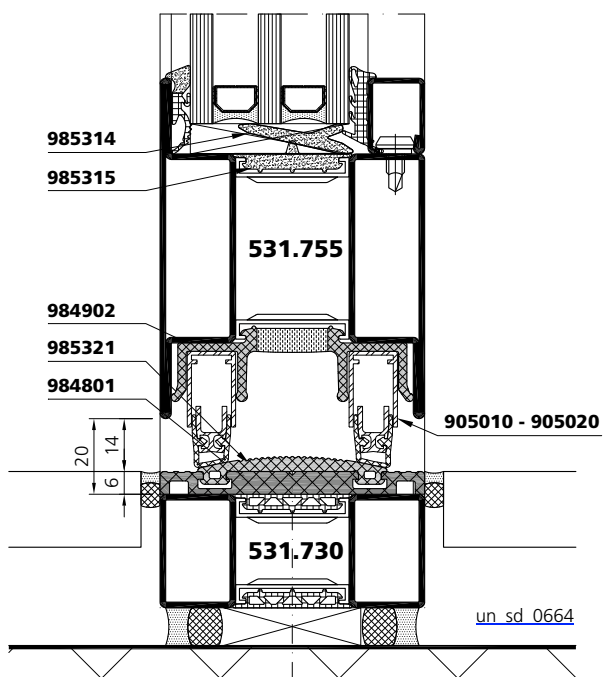
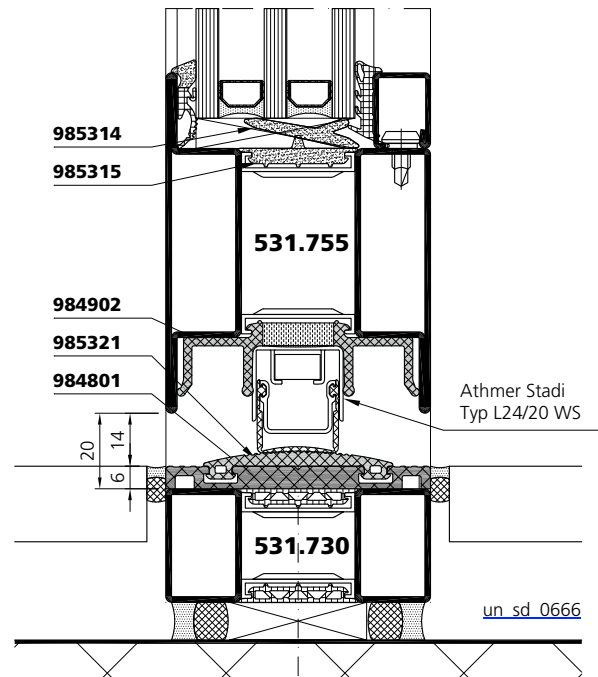
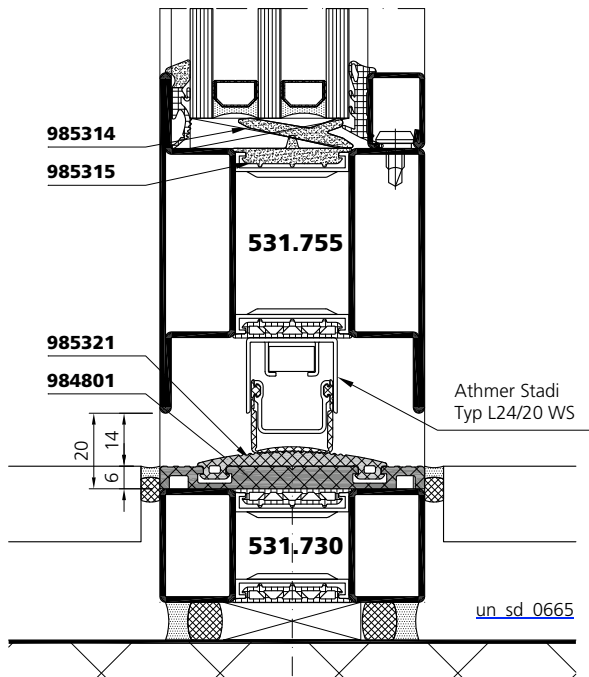
985321



984902



Aus- und einwärts öffnend /
Ouvrant vers l'extérieur ou l'intérieur /
Opening out- and inwards



Übersicht Systempläne Einbruchhemmende Türen RC1

- | | |
|----|---|
| 1 | einflügelige Tür |
| 2 | • mit Seitenteil |
| 3 | • mit zwei Seitenteilen |
| 4 | • mit Oberlicht |
| 5 | • mit Oberlicht und Seitenteil |
| 6 | • mit Oberlicht und zwei Seitenteilen |
| 7 | zweiflügelige Tür |
| 8 | • mit Seitenteil |
| 9 | • mit zwei Seitenteilen |
| 10 | • mit Oberlicht |
| 11 | • mit Oberlicht und Seitenteil |
| 12 | • mit Oberlicht und zwei Seitenteilen |
| 13 | Festverglasung |
| 14 | • einflügelige Blechtür mit Oberlicht und Seitenteil |
| 15 | • zweiflügelige Blechtür mit Oberlicht und Seitenteil |

Tableau des plans du système – Portes anti-effraction RC1

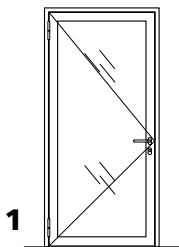
- | |
|---|
| porte à un vantail |
| • avec partie latérale fixe |
| • avec deux parties latérales fixes |
| • avec imposte |
| • avec imposte et partie latérale fixe |
| • avec imposte et deux parties latérales fixes |
| porte à deux vantaux |
| • avec partie latérale fixe |
| • avec deux parties latérales fixes |
| • avec imposte |
| • avec imposte et partie latérale fixe |
| • avec imposte et deux parties latérales fixes |
| vitrage fixe |
| porte tôlée à 1 vantail avec imposte et partie latérale fixe |
| porte tôlée à deux vantaux avec imposte et partie latérale fixe |

Synopsis of system plans Burglary-resistant doors RC1

- | |
|--|
| single-leaf door |
| • with screen abutment |
| • with 2 screen abutments |
| • with fanlight |
| • with fanlight and screen abutment |
| • with fanlight and 2 screen abutments |
| double-leaf door |
| • with screen abutment |
| • with 2 screen abutments |
| • with fanlight |
| • with fanlight and screen abutment |
| • with fanlight and 2 screen abutments |
| fixed glazing |
| single-leaf metal sheet door with fanlight and screen abutment |
| double-leaf metal sheet door with fanlight and screen abutment |

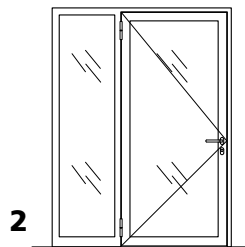
■ Stahl / Acier / Steel

■ Edelstahl / Acier inox / Stainless steel



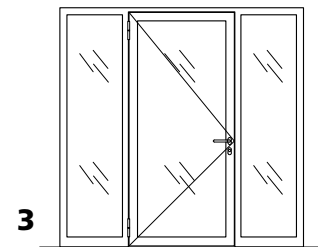
1

- [un_sp_0240](#)
■ [un_sp_0254](#)



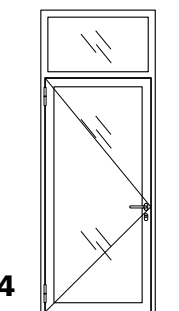
2

- [un_sp_0242](#)
■ [un_sp_0256](#)



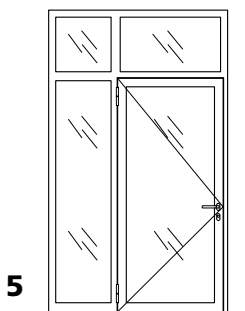
3

- [un_sp_0244](#)
■ [un_sp_0258](#)



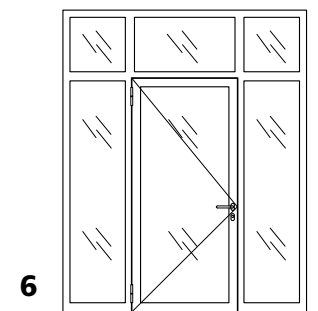
4

- [un_sp_0241](#)
■ [un_sp_0255](#)



5

- [un_sp_0243](#)
■ [un_sp_0257](#)



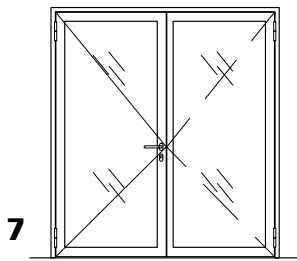
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- [un_sp_0245](#)
■ [un_sp_0259](#)

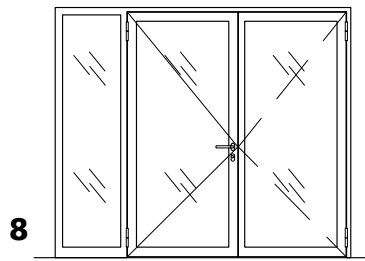
Übersicht Systempläne Einbruchhemmende Türen RC1

Tableau des plans du système – Portes anti-effraction RC1

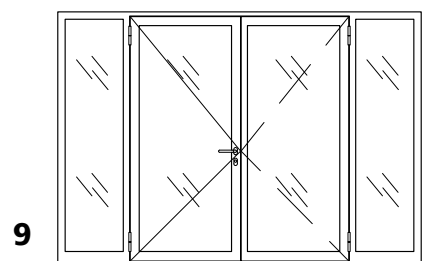
Synopsis of system plans Burglary-resistant doors RC1



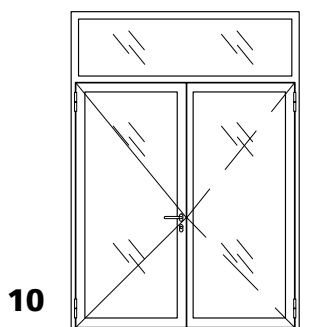
- [un_sp_0247](#)
- [un_sp_0260](#)



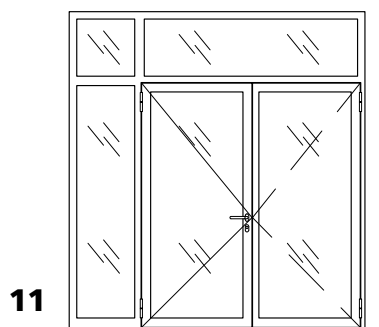
- [un_sp_0249](#)
- [un_sp_0262](#)



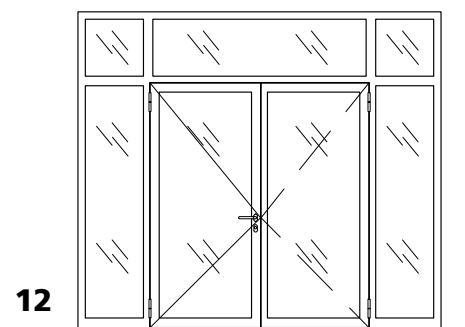
- [un_sp_0251](#)
- [un_sp_0264](#)



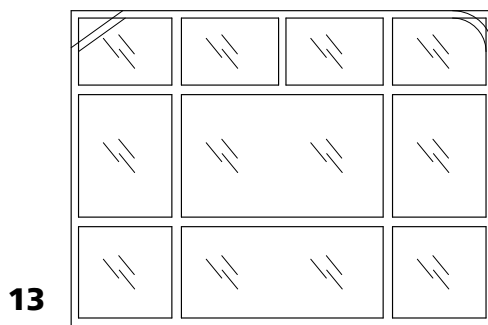
- [un_sp_0248](#)
- [un_sp_0261](#)



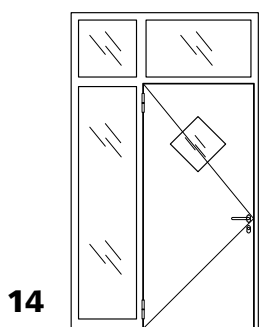
- [un_sp_0250](#)
- [un_sp_0263](#)



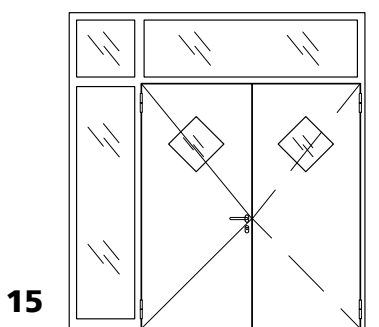
- [un_sp_0252](#)
- [un_sp_0265](#)



- [un_sp_0226](#)
- [un_sp_0225](#)



- [un_sp_0246](#)



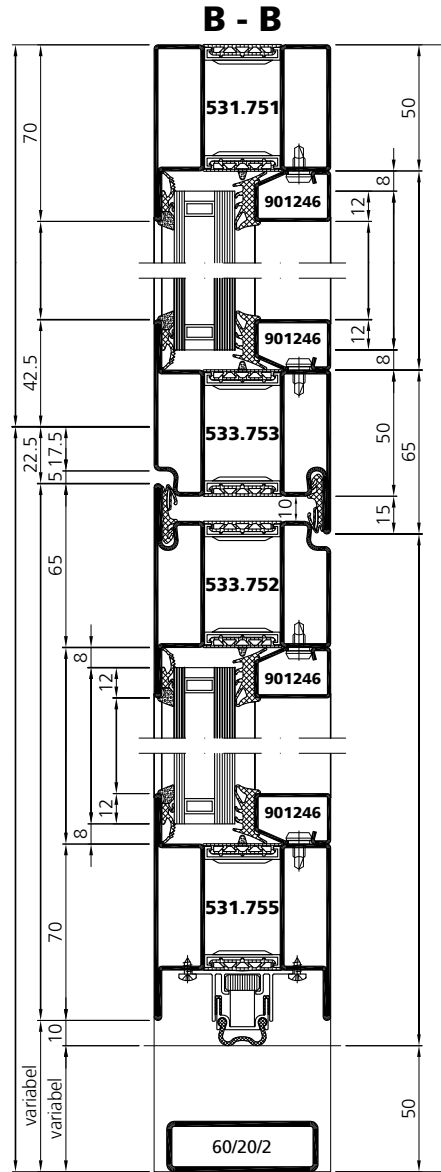
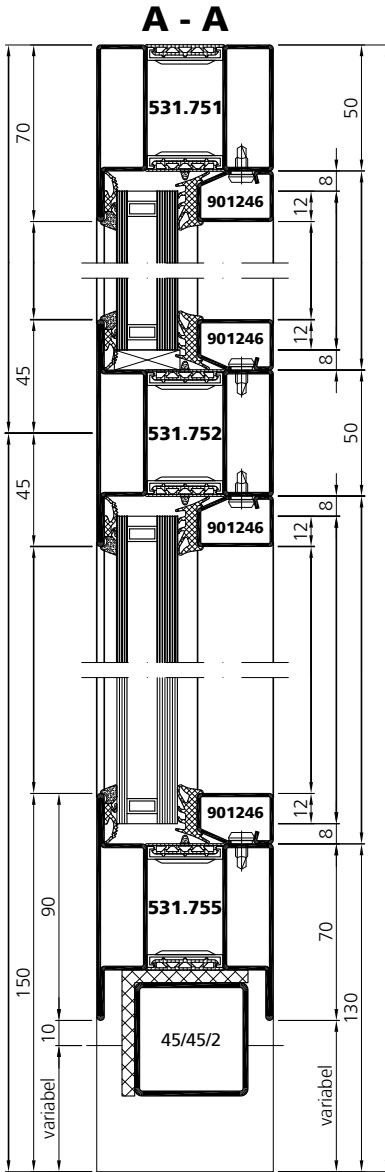
- [un_sp_0253](#)

**Systemplan
Einbruchhemmende Türen
RC1**

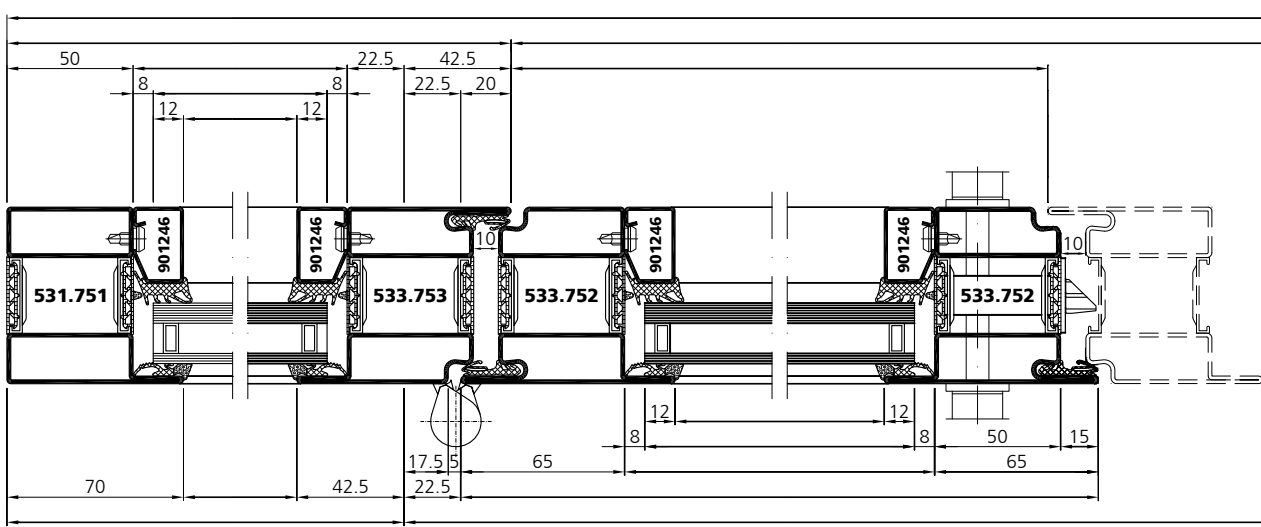
**Plan du système
Portes anti-effraction
RC1**

**System plan
Burglary-resistant doors
RC1**

- un_sp_0252
- un_sp_0265



D - D

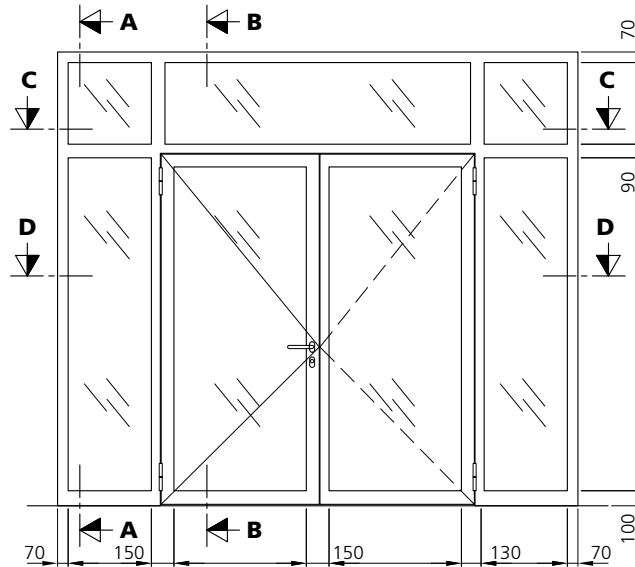


**Systemplan
Einbruchhemmende Türen
RC1**

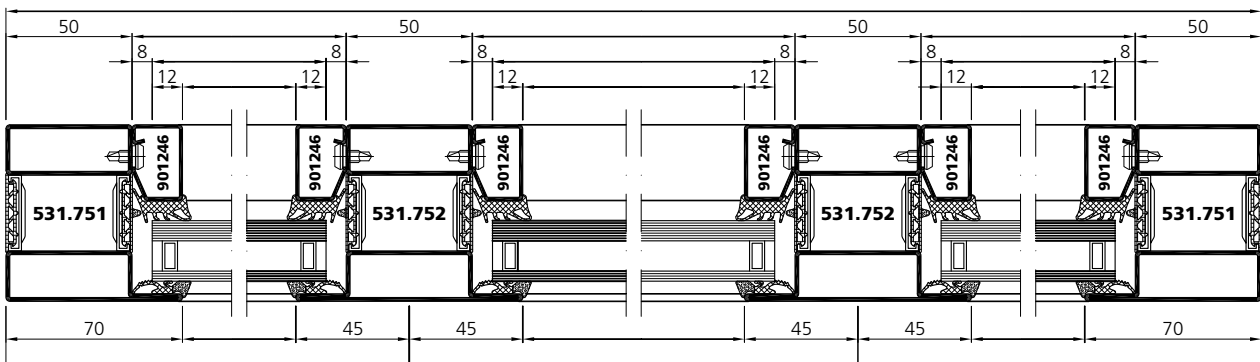
**Plan du système
Portes anti-effraction
RC1**

**System plan
Burglary-resistant doors
RC1**

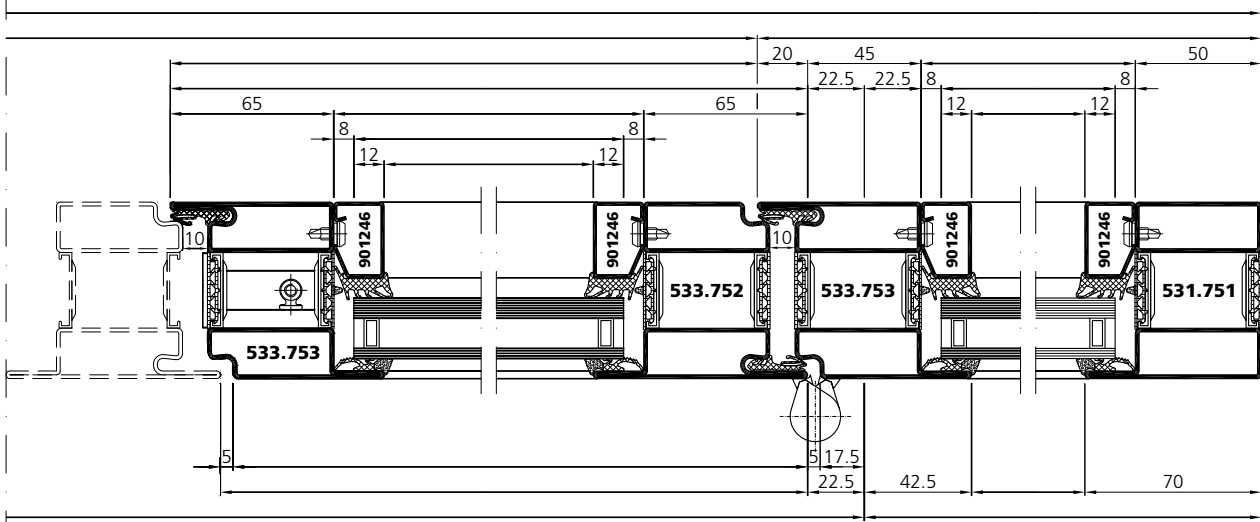
■ un_sp_0252
■ un_sp_0265



C - C



D - D



Übersicht Systempläne Einbruchhemmende Türen RC2

- | | |
|-----------|---|
| 1 | einflügelige Tür |
| 2 | • mit Seitenteil |
| 3 | • mit zwei Seitenteilen |
| 4 | • mit Oberlicht |
| 5 | • mit Oberlicht und Seitenteil |
| 6 | • mit Oberlicht und zwei Seitenteilen |
| 7 | zweiflügelige Tür |
| 8 | • mit Seitenteil |
| 9 | • mit zwei Seitenteilen |
| 10 | • mit Oberlicht |
| 11 | • mit Oberlicht und Seitenteil |
| 12 | • mit Oberlicht und zwei Seitenteilen |
| 13 | Festverglasung |
| 14 | • einflügelige Blechtür mit Oberlicht und Seitenteil |
| 15 | • zweiflügelige Blechtür mit Oberlicht und Seitenteil |


Tableau des plans du système – Portes anti- effraction RC2

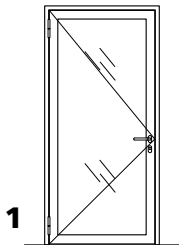
- | |
|--|
| porte à un vantail |
| • avec partie latérale fixe |
| • avec deux parties latérales fixes |
| • avec imposte |
| • avec imposte et partie latérale fixe |
| • avec imposte et 2 parties latérales fixes |
| porte à deux vantaux |
| • avec partie latérale fixe |
| • avec deux parties latérales fixes |
| • avec imposte |
| • avec imposte et partie latérale fixe |
| • avec imposte et 2 parties latérales fixes |
| vitrage fixe |
| • porte tôle à un vantail avec imposte et partie latérale fixe |
| • porte tôle à deux vantaux avec imposte et partie latérale fixe |

Synopsis of system plans Burglary-resistant doors RC2



- | |
|--|
| single-leaved door |
| • with screen abutment |
| • with 2 screen abutments |
| • with fanlight |
| • with fanlight and screen abutment |
| • with fanlight and 2 screen abutments |
| double-leaved door |
| • with screen abutment |
| • with 2 screen abutments |
| • with fanlight |
| • with fanlight and screen abutment |
| • with fanlight and 2 screen abutments |
| fixed glazing |
| • single-leaved metal sheet door with fanlight and screen abutment |
| • double-leaved metal sheet door with fanlight and screen abutment |

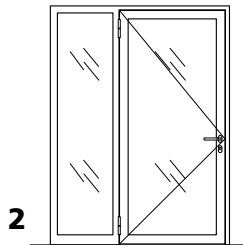
 Stahl / Acier / Steel

 Edelstahl / Acier inox / Stainless steel





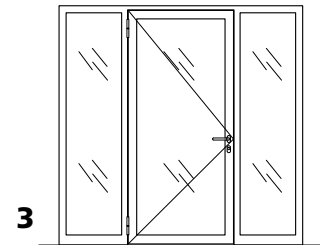
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-  [un_sp_0101](#)
-  [un_sp_0131](#)





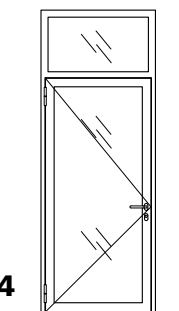
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-  [un_sp_0105](#)
-  [un_sp_0135](#)





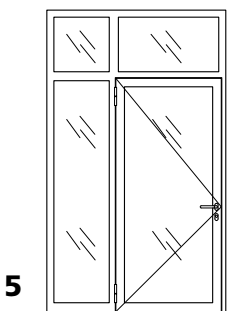
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-  [un_sp_0109](#)
-  [un_sp_0139](#)





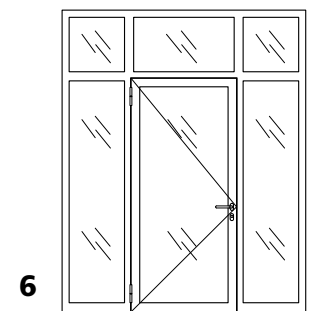
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-  [un_sp_0103](#)
-  [un_sp_0133](#)





5

-  [un_sp_0107](#)
-  [un_sp_0137](#)



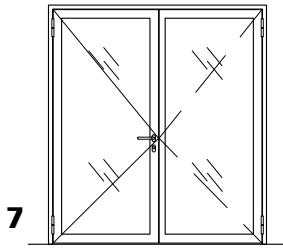
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-  [un_sp_0111](#)
-  [un_sp_0141](#)

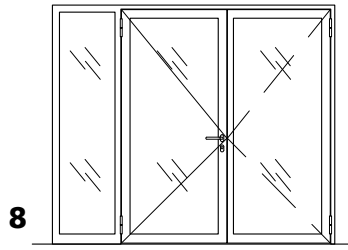
Übersicht Systempläne Einbruchhemmende Türen RC2

Tableau des plans du système – Portes anti- effraction RC2

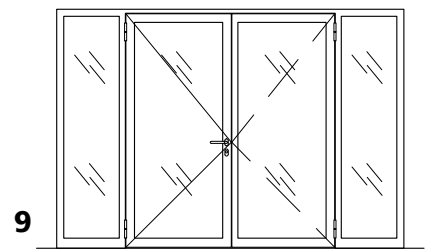
Synopsis of system plans Burglary-resistant doors RC2



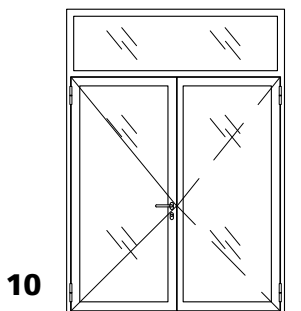
■ [un_sp_0113](#)
■ [un_sp_0143](#)



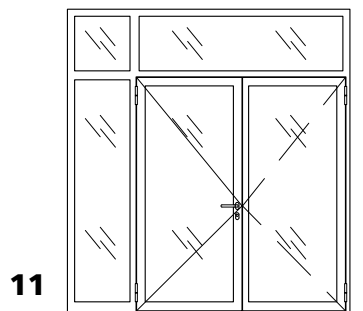
■ [un_sp_0117](#)
■ [un_sp_0147](#)



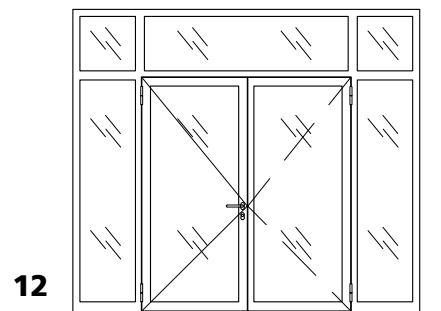
■ [un_sp_0121](#)
■ [un_sp_0151](#)



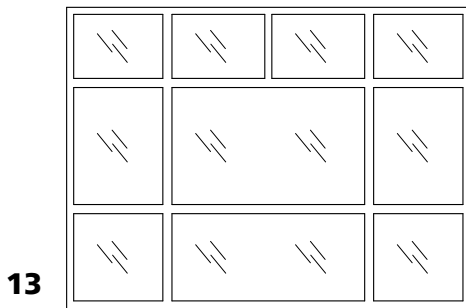
■ [un_sp_0115](#)
■ [un_sp_0145](#)



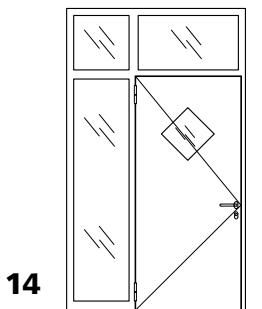
■ [un_sp_0119](#)
■ [un_sp_0149](#)



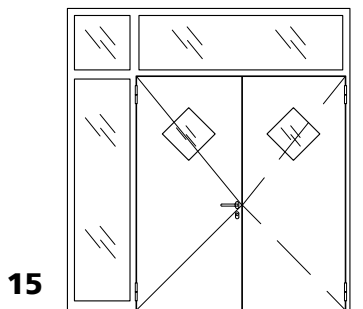
■ [un_sp_0123](#)
■ [un_sp_0153](#)



■ [un_sp_0125](#)
■ [un_sp_0155](#)



■ [un_sp_0127](#)



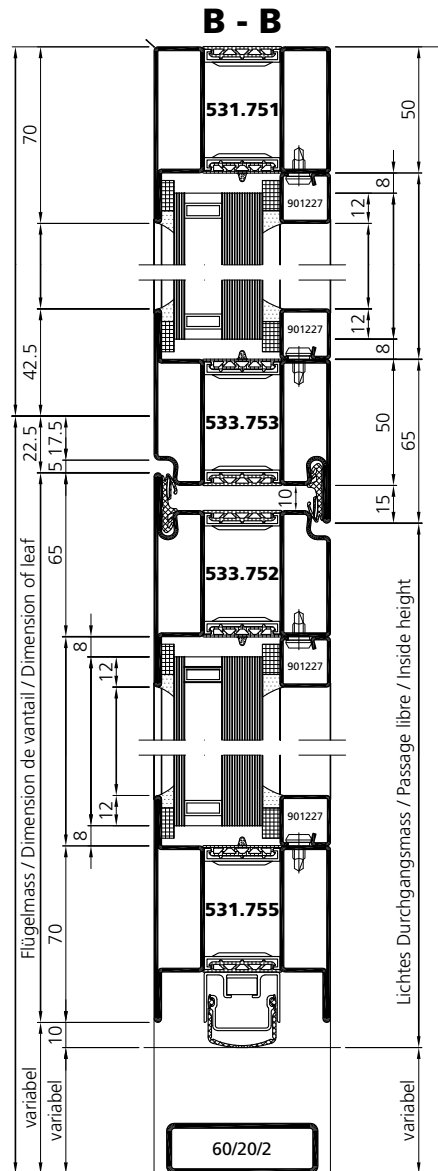
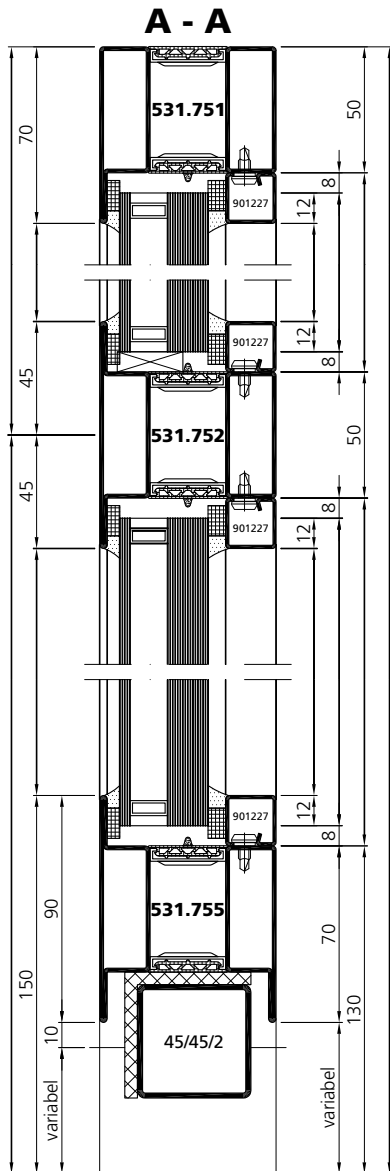
■ [un_sp_0129](#)

**Systemplan
Einbruchhemmende Türen
RC2**

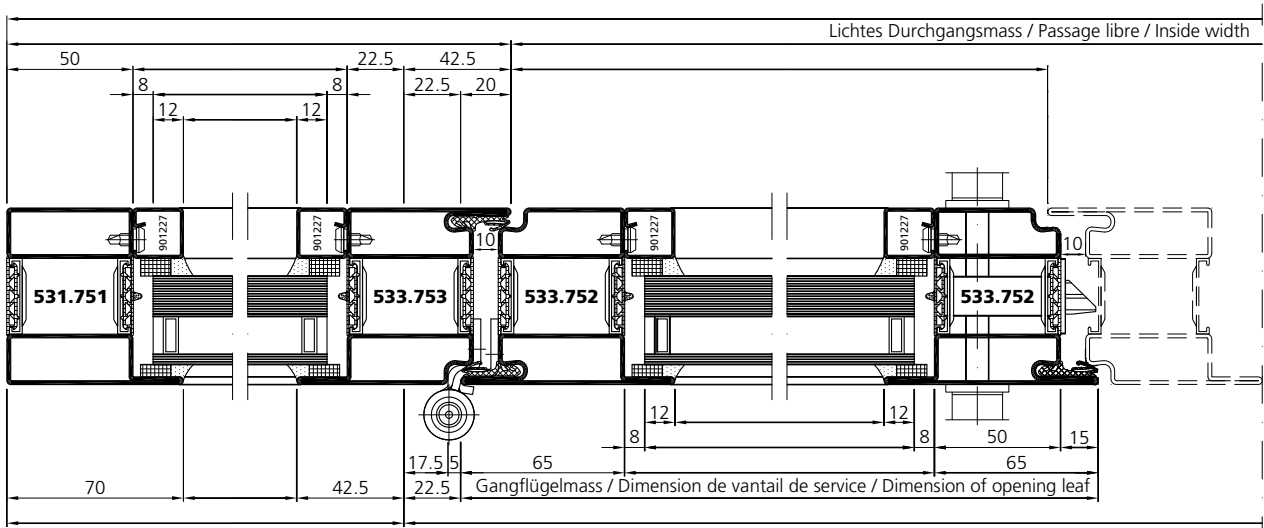
**Plan du système
Portes anti-effraction
RC2**

**System plan
Burglary-resistant doors
RC2**

- un_sp_0123
- un_sp_0153



D - D



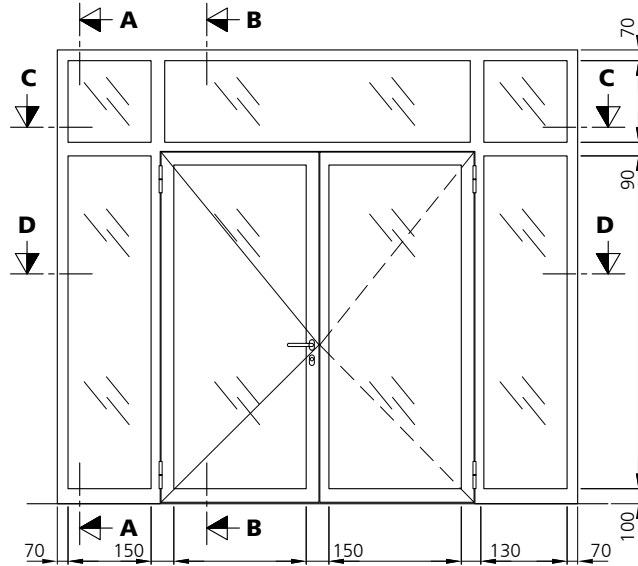
**Systemplan
Einbruchhemmende Türen
RC2**

**Plan du système
Portes anti-effraction
RC2**

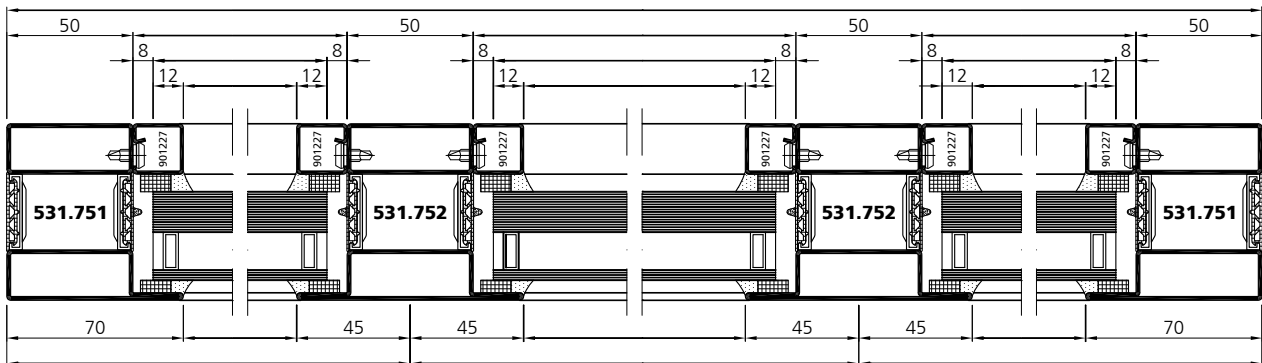
**System plan
Burglary-resistant doors
RC2**

RC 2

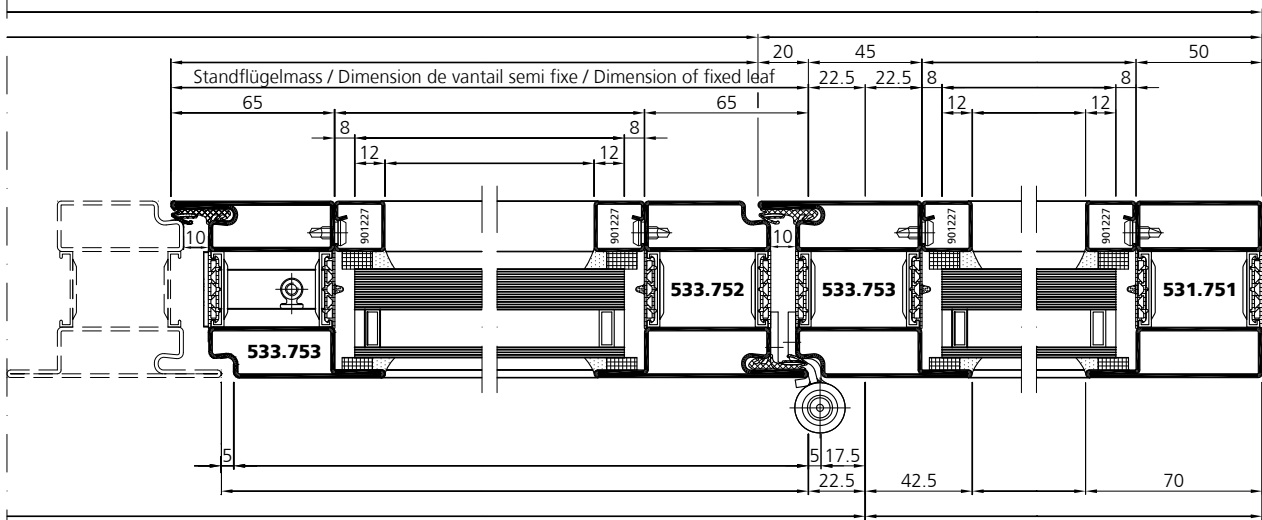
■ un_sp_0123
■ un_sp_0153



C - C



D - D



Übersicht Systempläne Einbruchhemmende Türen RC3

- | | |
|-----------|---|
| 1 | einflügelige Tür |
| 2 | • mit Seitenteil |
| 3 | • mit zwei Seitenteilen |
| 4 | • mit Oberlicht |
| 5 | • mit Oberlicht und Seitenteil |
| 6 | • mit Oberlicht und zwei Seitenteilen |
| 7 | zweiflügelige Tür |
| 8 | • mit Seitenteil |
| 9 | • mit zwei Seitenteilen |
| 10 | • mit Oberlicht |
| 11 | • mit Oberlicht und Seitenteil |
| 12 | • mit Oberlicht und zwei Seitenteilen |
| 13 | Festverglasung |
| 14 | • einflügelige Blechtür mit Oberlicht und Seitenteil |
| 15 | • zweiflügelige Blechtür mit Oberlicht und Seitenteil |

Tableau des plans du système – Portes anti-effraction RC3

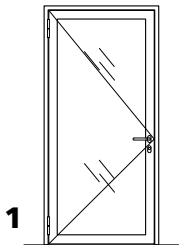
- | |
|---|
| porte à un vantail |
| • avec partie latérale fixe |
| • avec deux parties latérales fixes |
| • avec imposte |
| • avec imposte et partie latérale fixe |
| • avec imposte et 2 parties latérales fixes |
| porte à deux vantaux |
| • avec partie latérale fixe |
| • avec deux parties latérales fixes |
| • avec imposte |
| • avec imposte et partie latérale fixe |
| • avec imposte et 2 parties latérales fixes |
| vitrage fixe |
| • porte tôlée à un vantail avec imposte et partie latérale fixe |
| • porte tôlée à deux vantaux avec imposte et partie latérale fixe |

Synopsis of system plans Burglary-resistant doors RC3

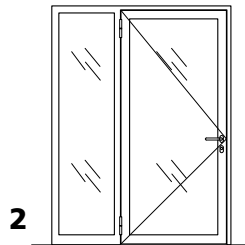
- | |
|--|
| single-leaved door |
| • with screen abutment |
| • with 2 screen abutments |
| • with fanlight |
| • with fanlight and screen abutment |
| • with fanlight and 2 screen abutments |
| double-leaved door |
| • with screen abutment |
| • with 2 screen abutments |
| • with fanlight |
| • with fanlight and screen abutment |
| • with fanlight and 2 screen abutments |
| fixed glazing |
| • single-leaved metal sheet door with fanlight and screen abutment |
| • double-leaved metal sheet door with fanlight and screen abutment |

■ Stahl / Acier / Steel

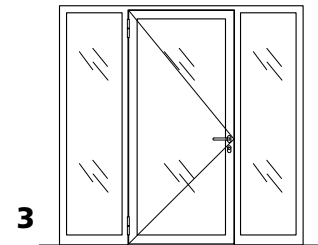
■ Edelstahl / Acier inox / Stainless steel



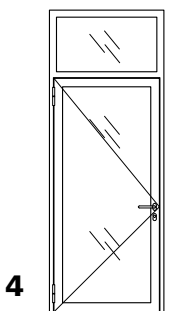
- [un_sp_0100](#)
■ [un_sp_0130](#)



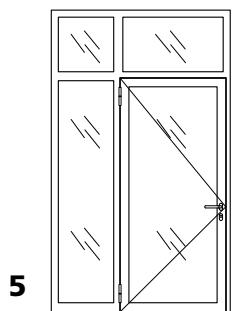
- [un_sp_0104](#)
■ [un_sp_0134](#)



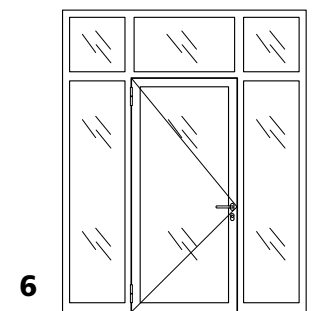
- [un_sp_0108](#)
■ [un_sp_0138](#)



- [un_sp_0102](#)
■ [un_sp_0132](#)



- [un_sp_0106](#)
■ [un_sp_0136](#)

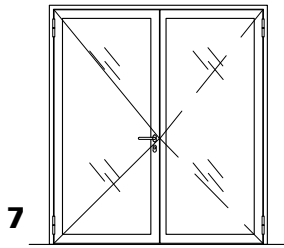


- [un_sp_0110](#)
■ [un_sp_0140](#)

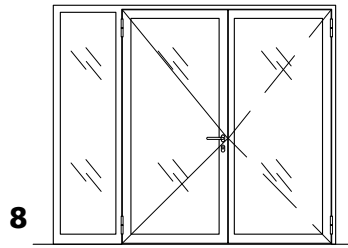
Übersicht Systempläne Einbruchhemmende Türen RC3

Tableau des plans du système – Portes anti-effraction RC3

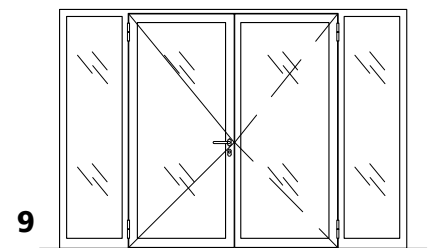
Synopsis of system plans Burglary-resistant doors RC3



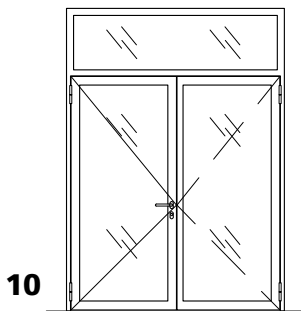
■ [un_sp_0112](#)
 ■ [un_sp_0142](#)



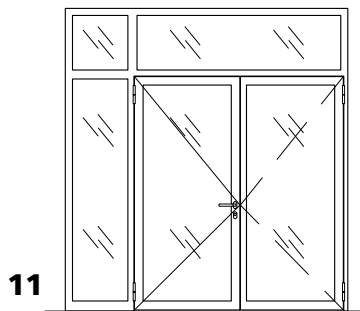
■ [un_sp_0116](#)
 ■ [un_sp_0146](#)



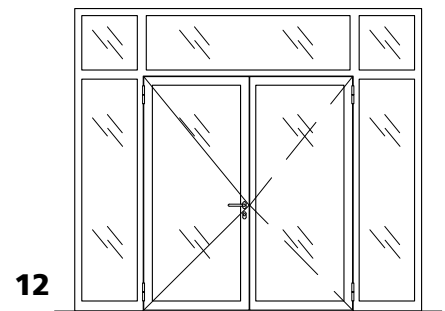
■ [un_sp_0120](#)
 ■ [un_sp_0150](#)



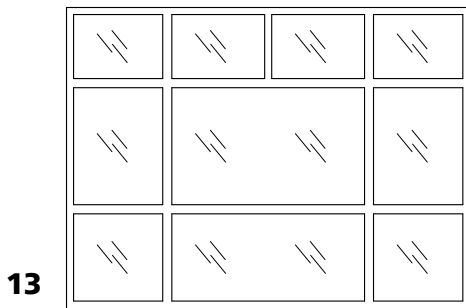
■ [un_sp_0114](#)
 ■ [un_sp_0144](#)



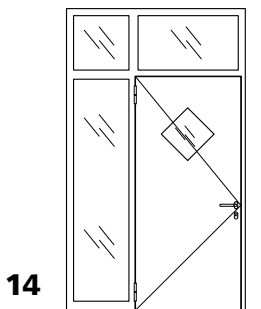
■ [un_sp_0118](#)
 ■ [un_sp_0148](#)



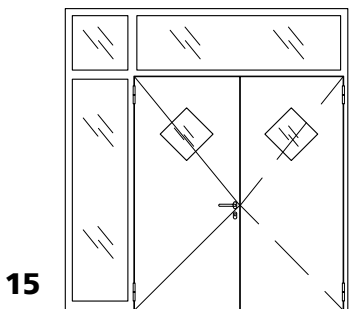
■ [un_sp_0122](#)
 ■ [un_sp_0152](#)



■ [un_sp_0124](#)
 ■ [un_sp_0154](#)



■ [un_sp_0126](#)



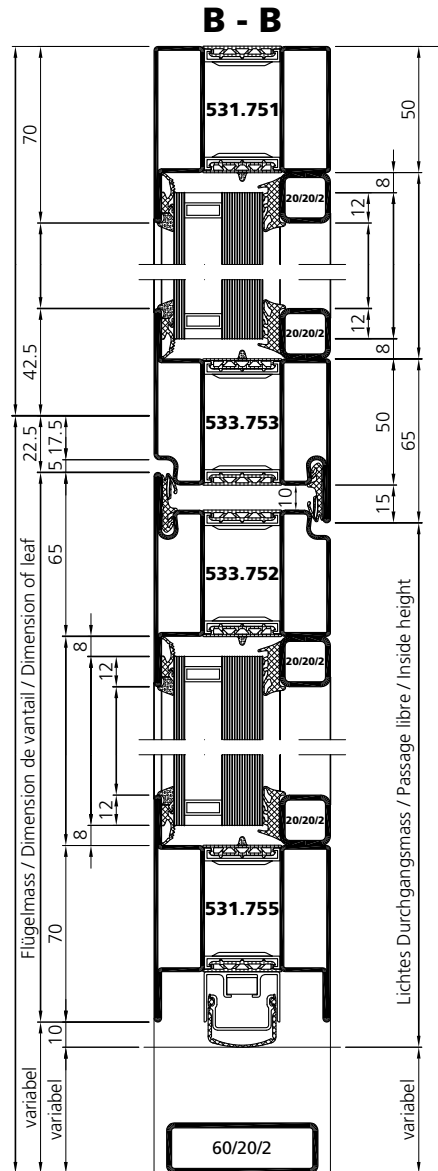
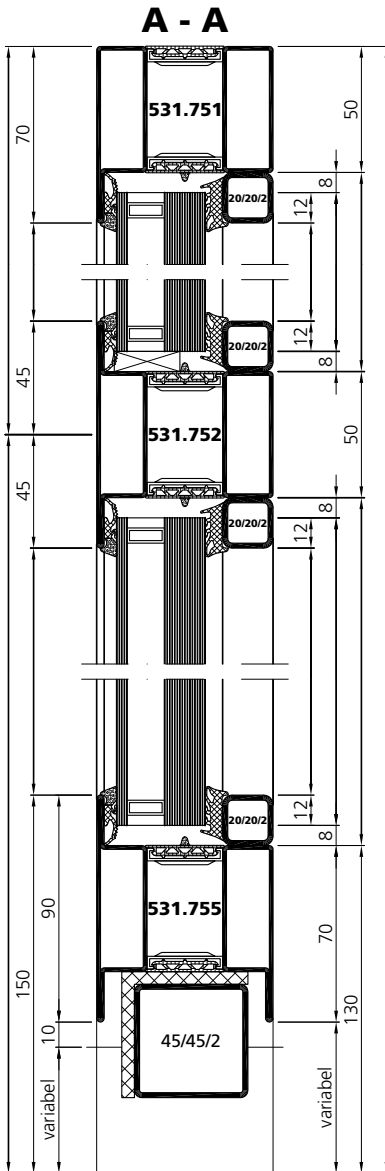
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**Systemplan
Einbruchhemmende Türen
RC3**

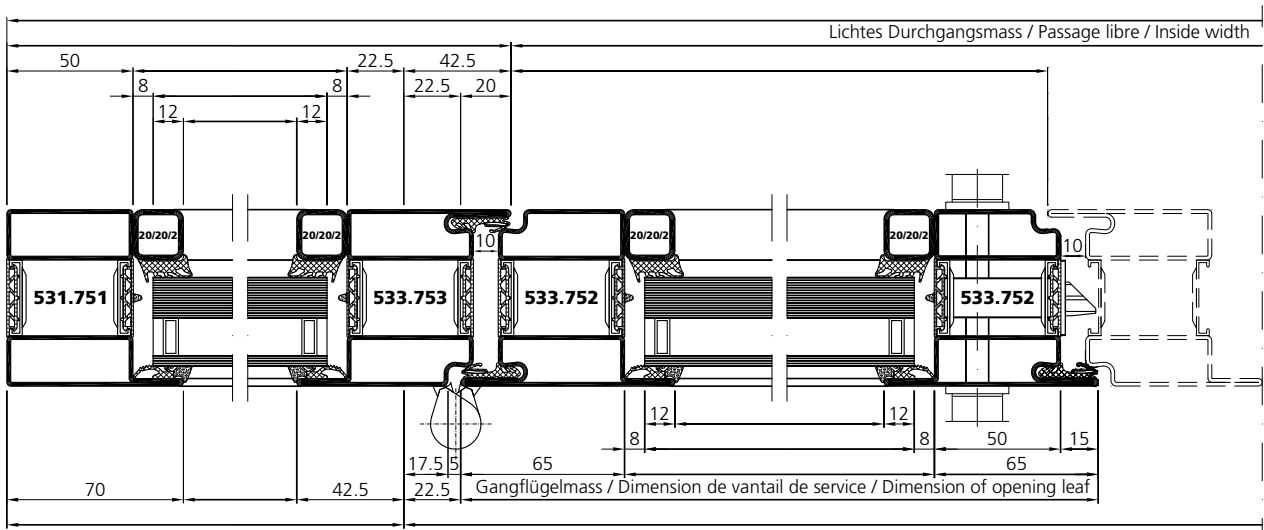
**Plan du système
Portes anti-effraction
RC3**

**System plan
Burglary-resistant doors
RC3**

- un_sp_0122
- un_sp_0152



D - D

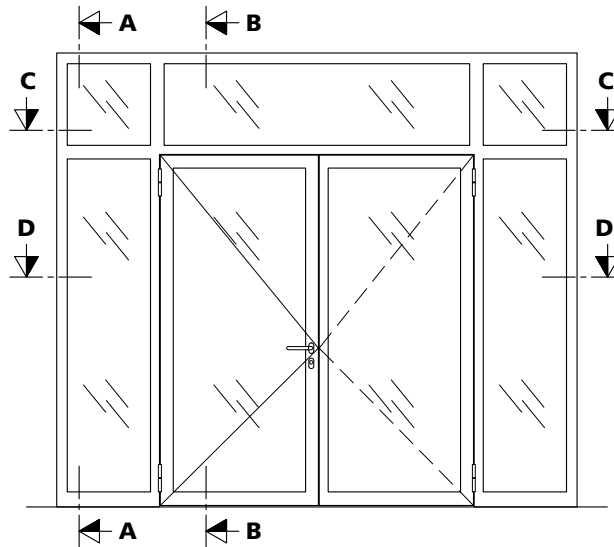


**Systemplan
Einbruchhemmende Türen
RC3**

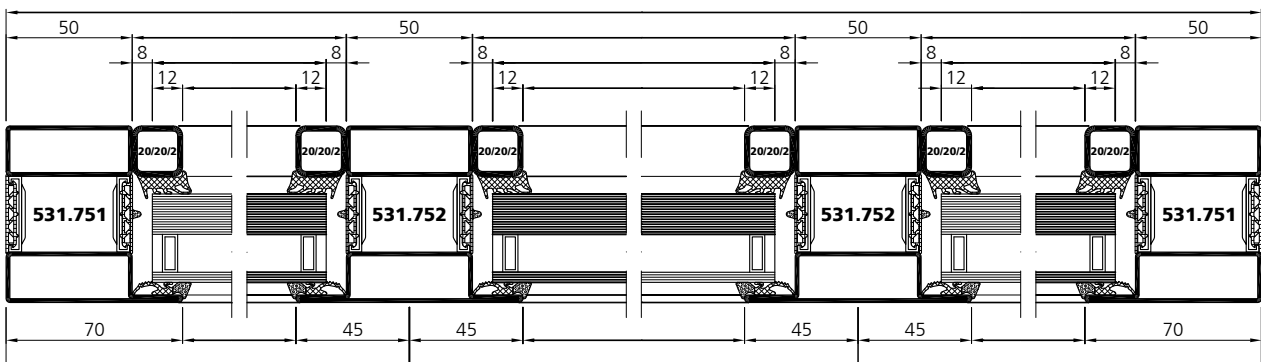
**Plan du système
Portes anti-effraction
RC3**

**System plan
Burglary-resistant doors
RC3**

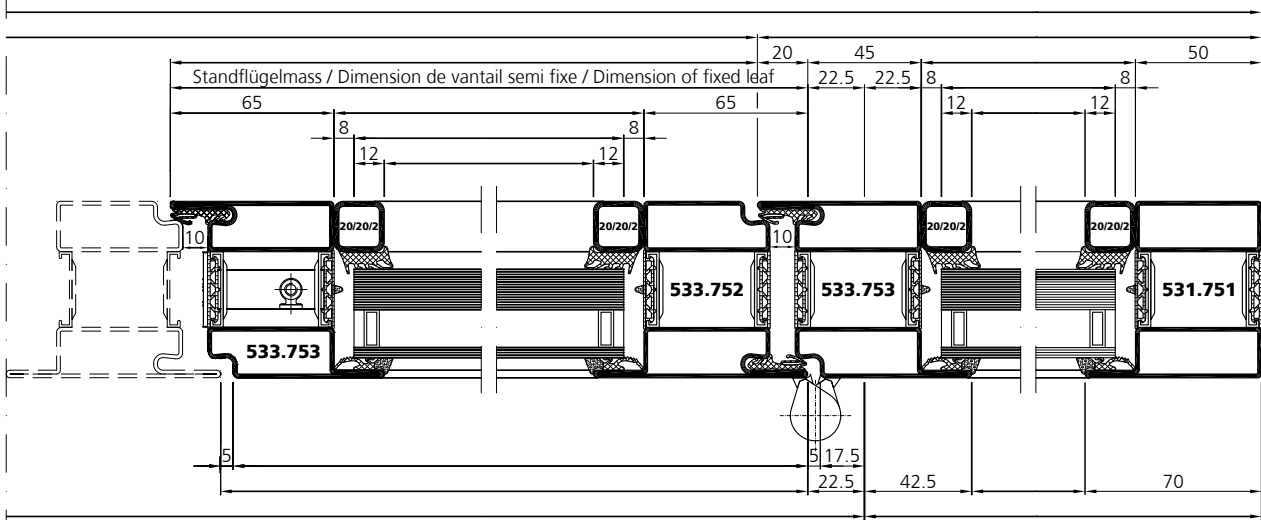
■ un_sp_0122
■ un_sp_0152



C - C



D - D



**FB4**Stahl
Acier
SteelEdelstahl
Acier inox
Stainless steel

Übersicht Systempläne Durchschusshemmende Türen

- | | |
|-----------|---------------------------------------|
| 1 | einflügelige Tür |
| 2 | • mit Seitenteil |
| 3 | • mit zwei Seitenteilen |
| 4 | • mit Oberlicht |
| 5 | • mit Oberlicht und Seitenteil |
| 6 | • mit Oberlicht und zwei Seitenteilen |
| 7 | zweiflügelige Tür |
| 8 | • mit Seitenteil |
| 9 | • mit zwei Seitenteilen |
| 10 | • mit Oberlicht |
| 11 | • mit Oberlicht und Seitenteil |
| 12 | • mit Oberlicht und zwei Seitenteilen |
| 13 | Festverglasung |

Tableau des plans du système Portes pare-balles

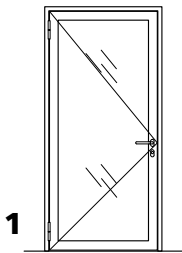
- | |
|--|
| porte à un vantail |
| • avec partie latérale fixe |
| • avec deux parties latérales fixes |
| • avec imposte |
| • avec imposte et partie latérale fixe |
| • avec imposte et deux parties latérales fixes |
| porte à deux vantaux |
| • avec partie latérale fixe |
| • avec deux parties latérales fixes |
| • avec imposte |
| • avec imposte et partie latérale fixe |
| • avec imposte et deux parties latérales fixes |
| vitrage fixe |

Synopsis of system plans Bullet resistant doors

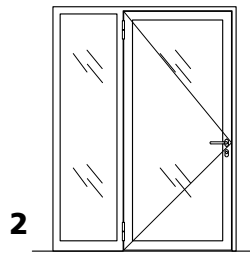
- | |
|--|
| single-leaf door |
| • with screen abutment |
| • with 2 screen abutments |
| • with fanlight |
| • with fanlight and screen abutment |
| • with fanlight and 2 screen abutments |
| double-leaf door |
| • with screen abutment |
| • with 2 screen abutments |
| • with fanlight |
| • with fanlight and screen abutment |
| • with fanlight and 2 screen abutments |
| fixed glazing |

■ Stahl / Acier / Steel

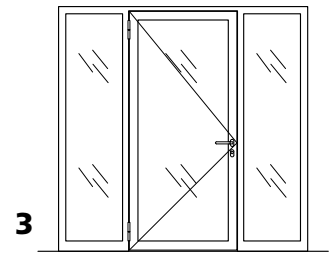
■ Edelstahl / Acier inox / Stainless steel

**1**

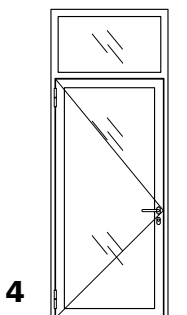
- [un_sp_0330](#)
■ [un_sp_0343](#)

**2**

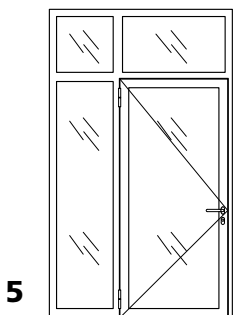
- [un_sp_0332](#)
■ [un_sp_0345](#)

**3**

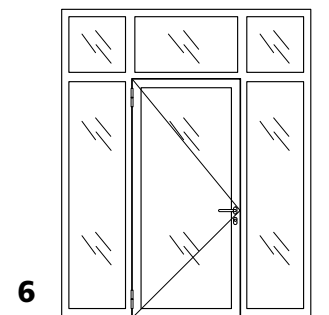
- [un_sp_0334](#)
■ [un_sp_0347](#)

**4**

- [un_sp_0331](#)
■ [un_sp_0344](#)

**5**

- [un_sp_0333](#)
■ [un_sp_0346](#)

**6**

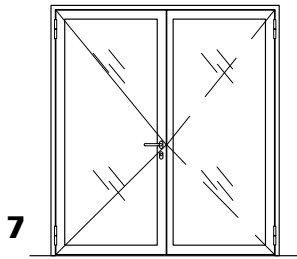
- [un_sp_0335](#)
■ [un_sp_0348](#)



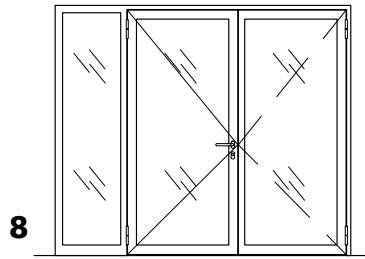
Übersicht Systempläne Durchschusshemmende Türen

Tableau des plans du système Portes pare-balles

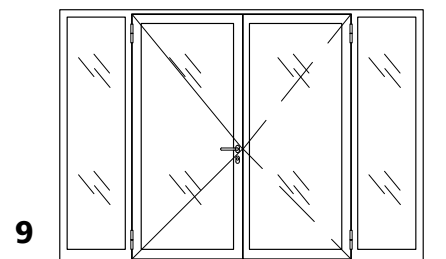
Synopsis of system plans Bullet resistant doors



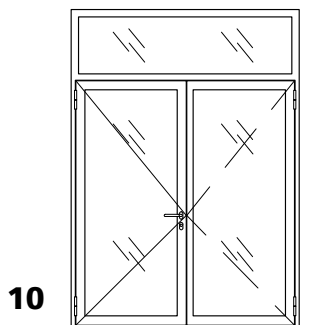
- [un_sp_0336](#)
- [un_sp_0349](#)



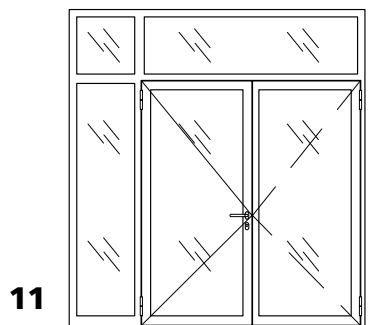
- [un_sp_0338](#)
- [un_sp_0351](#)



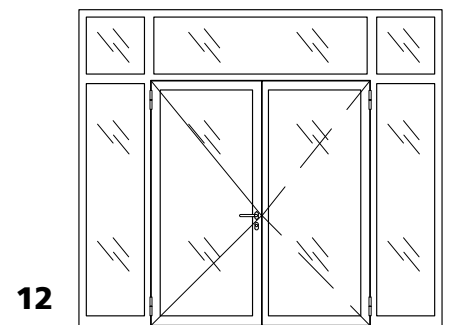
- [un_sp_0340](#)
- [un_sp_0353](#)



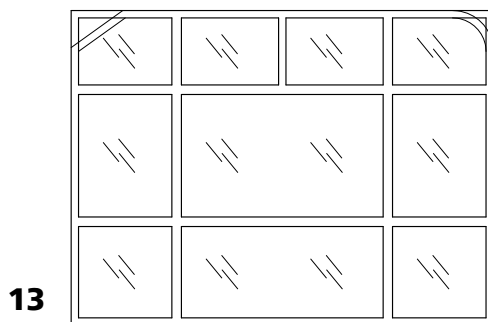
- [un_sp_0337](#)
- [un_sp_0350](#)



- [un_sp_0339](#)
- [un_sp_0352](#)



- [un_sp_0341](#)
- [un_sp_0354](#)



- [un_sp_0342](#)
- [un_sp_0355](#)

Glastypen Tür und Festfeld (EN 1063) Vitrage porte et partie fixe (EN 1063) Glass types doors and screens (EN 1063)

- Vetrotech, Polygard PRO Climaplus BR4-NS/P8B (ISO), 42 mm
 - Vetrotech, Vetrogard PRO Climaplus BR4-NS/P7B (ISO), 54 mm
 - Schott, NOVOLAY secure BR4-NS/15.3.0 (ISO), 38 mm
 - Flachglas, ALLSTOP ISO BR4-NS-22 (ISO), 57 mm
-
- Vetrotech, Polygard PRO BR4-NS/P8B (Mono), 21 mm
 - Schott, NOVOLAY secure BR4-NS/15.3.0 (Mono), 20 mm



FB4

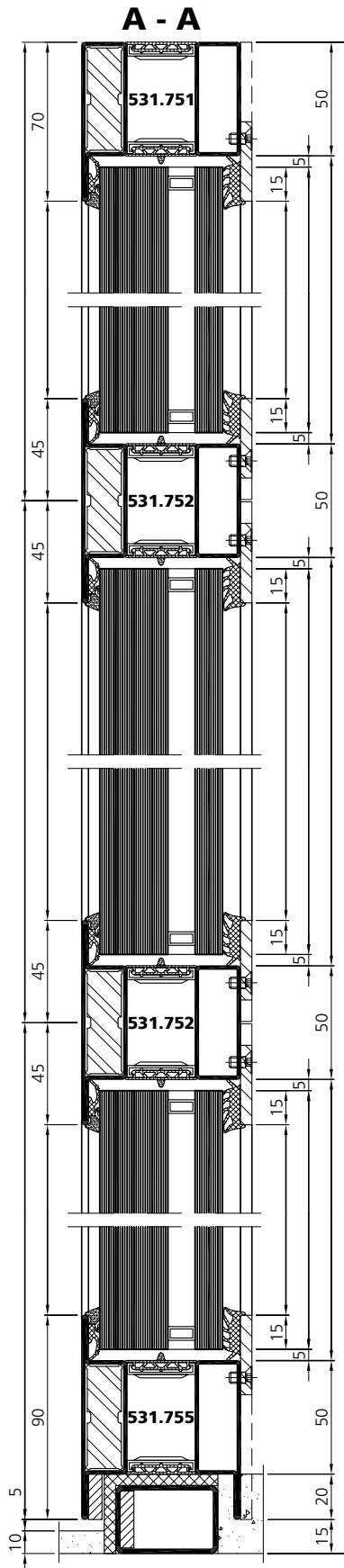
Stahl	Edelstahl
Acier	Acier inox
Steel	Stainless steel

**Systemplan
Durchschusshemmende
Türen**

**Plan du système
Portes pare-balles**

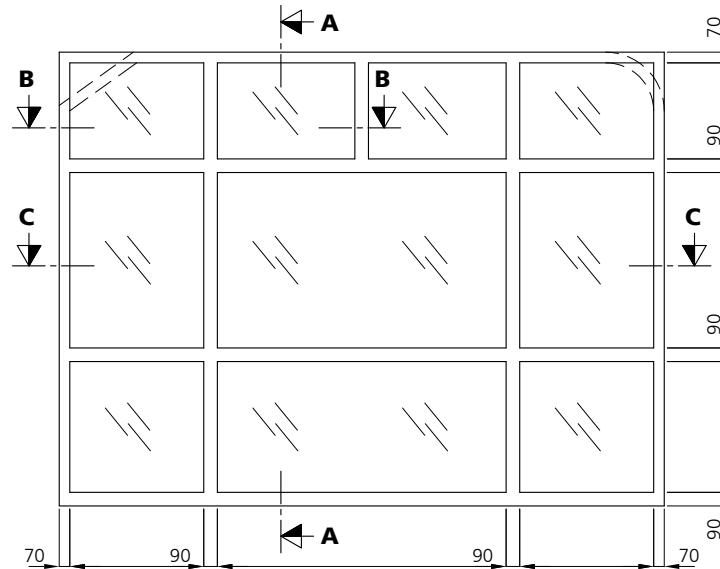
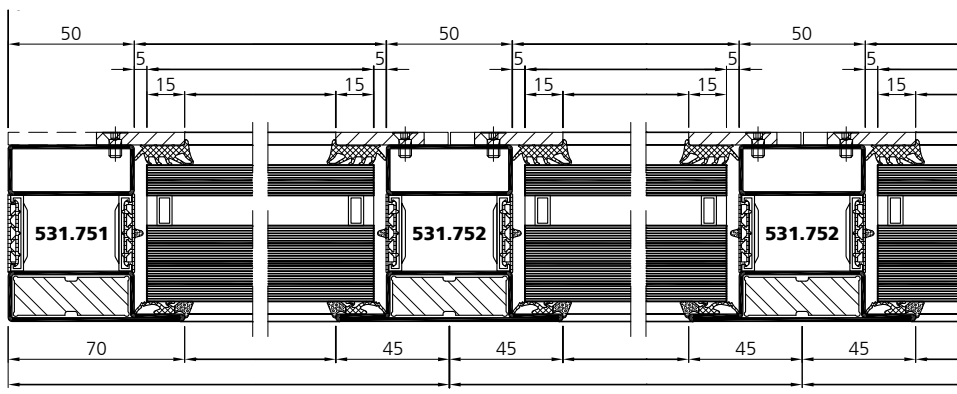
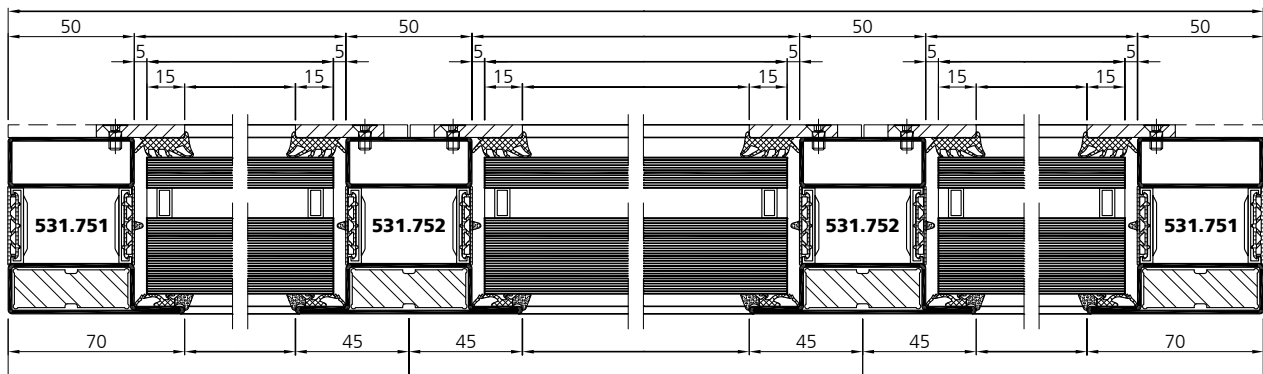
**System plan
Bullet resistant doors**

- [un_sp_0342](#)
- [un_sp_0355](#)



**FB4**Stahl
Acier
SteelEdelstahl
Acier inox
Stainless steel**Systemplan
Durchschusshemmende
Türen****Plan du système
Portes pare-balles****System plan
Bullet resistant doors**

■ [un_sp_0342](#)
 ■ [un_sp_0355](#)

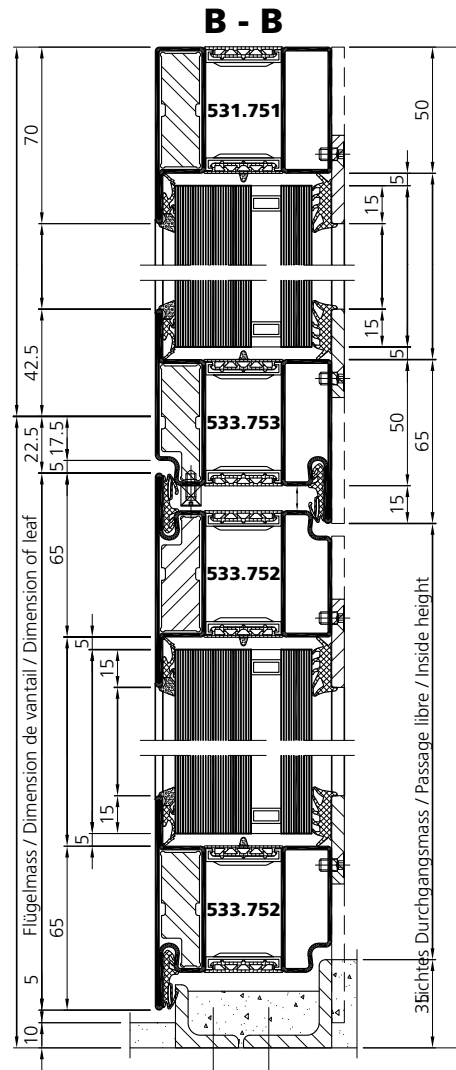
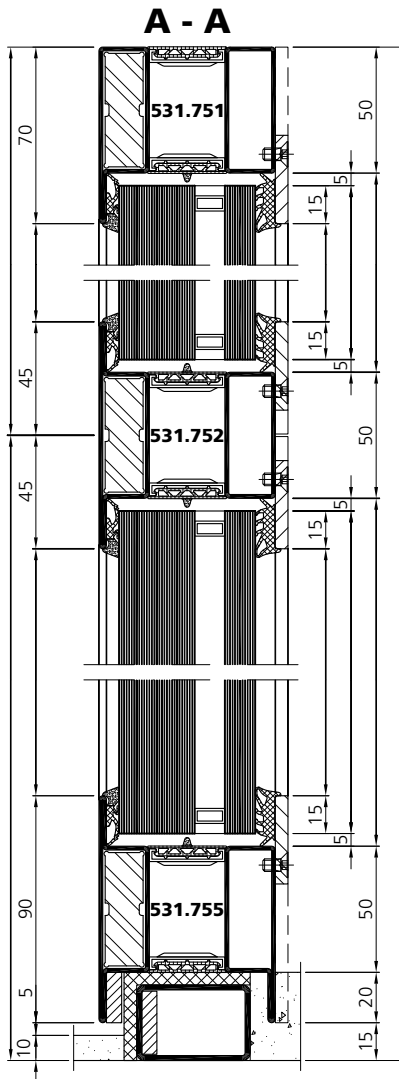
**B - B****C - C**

**Systemplan
Durchschusshemmende
Türen**

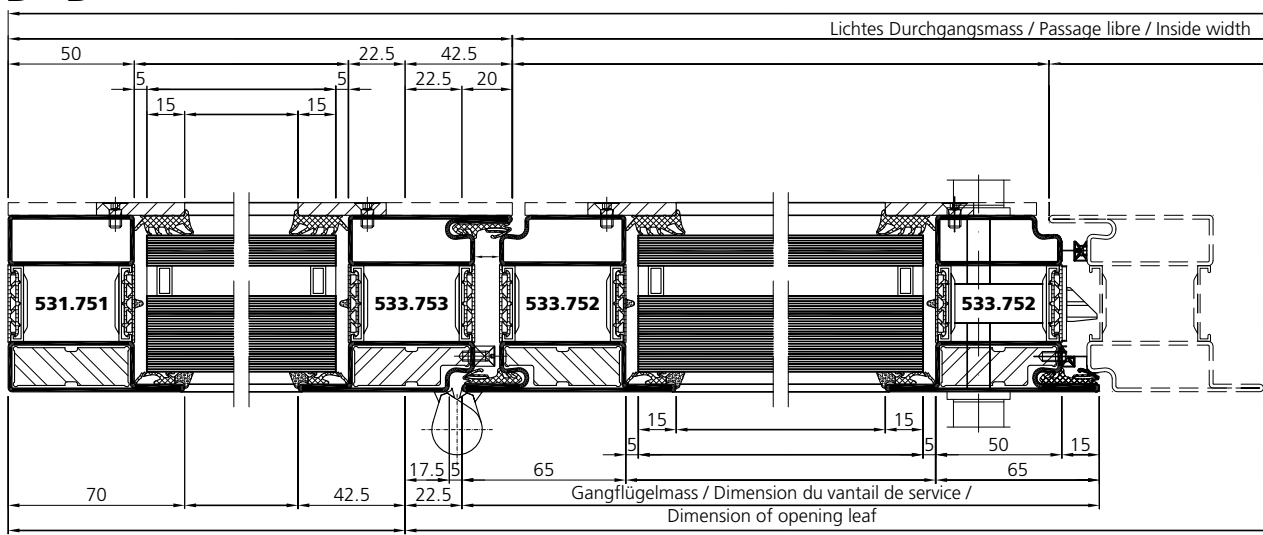
**Plan du système
Portes pare-balles**

**System plan
Bullet resistant doors**

- un_sp_0341
- un_sp_0354

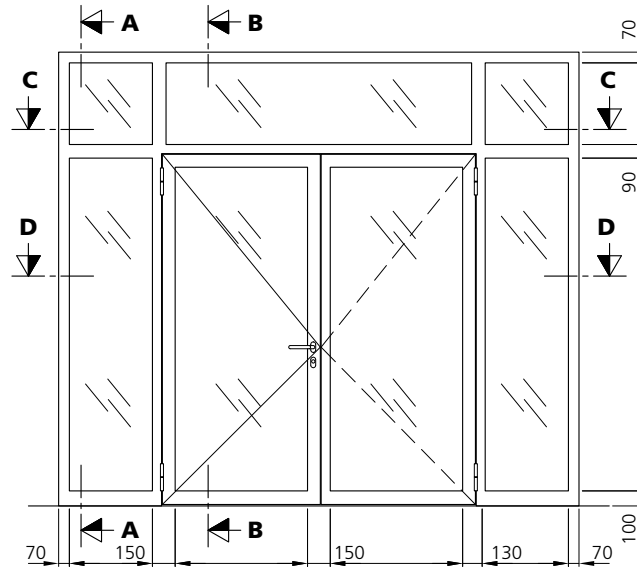
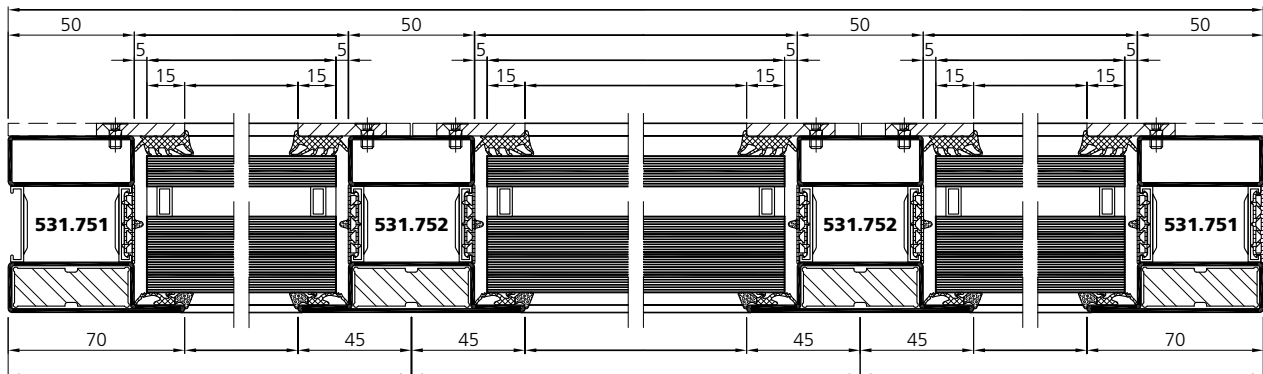
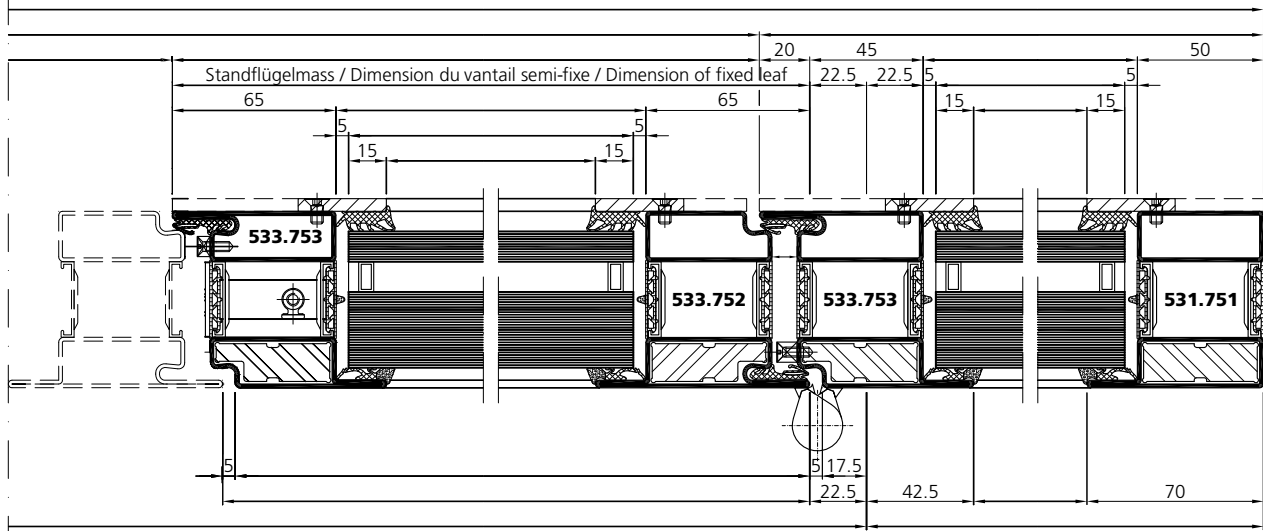


D - D



**FB4**Stahl
Acier
SteelEdelstahl
Acier inox
Stainless steel**Systemplan
Durchschusshemmende
Türen****Plan du système
Portes pare-balles****System plan
Bullet resistant doors**

■ un_sp_0341
 ■ un_sp_0354

**C - C****D - D**

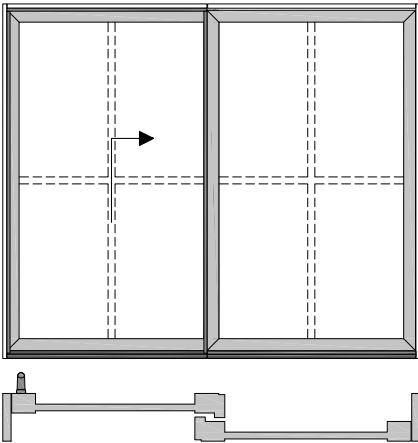
Stahl Acier Steel	Edelstahl Acier inox Stainless steel
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Übersicht Öffnungsvarianten Hebeschiebetüren

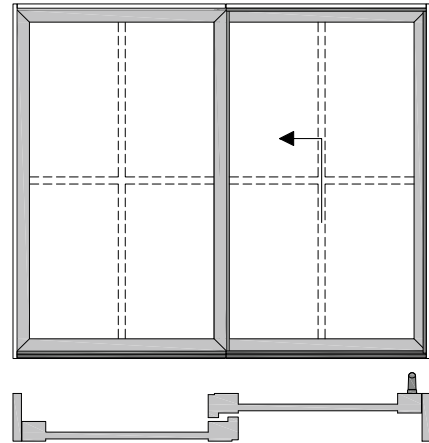
Vue d'ensemble
types d'ouverture
Portes coulissantes à levier

Overview types
of openings
Lift-up sliding doors

Schema A

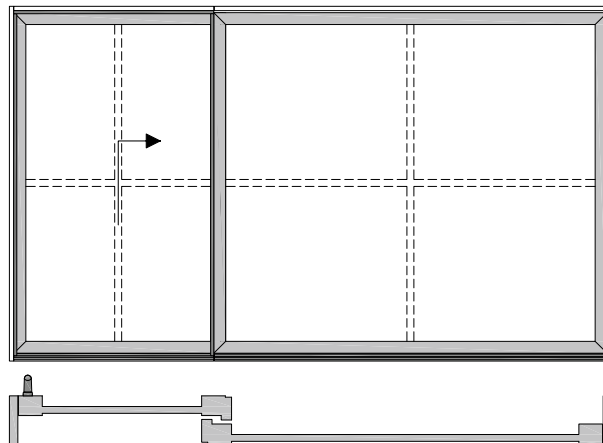


Griffseite rechts
Côté poignée à droite
Handle on the right



Griffseite links
Côté poignée à gauche
Handle on the left

- [un_sp_0233](#)
- [un_sp_0239](#)



Asymmetrisch
Asymétrique
Asymmetric

Weitere Typen auf Anfrage
Autres types sur demande
Other types on request

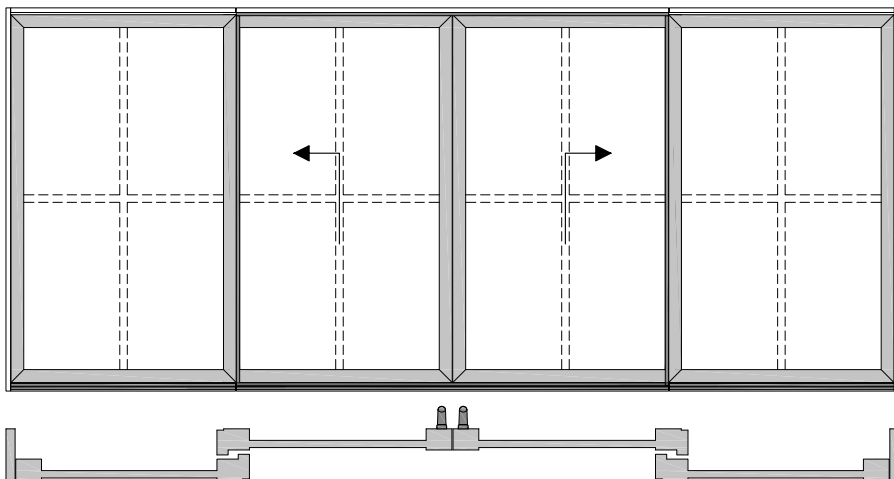
- Stahl / Acier / Steel
- Edelstahl / Acier inox / Stainless steel

**Übersicht
Öffnungsvarianten
Hebeschlebetüren**

**Vue d'ensemble
types d'ouverture
Portes coulissantes à levier**

**Overview types
of openings
Lift-up sliding doors**

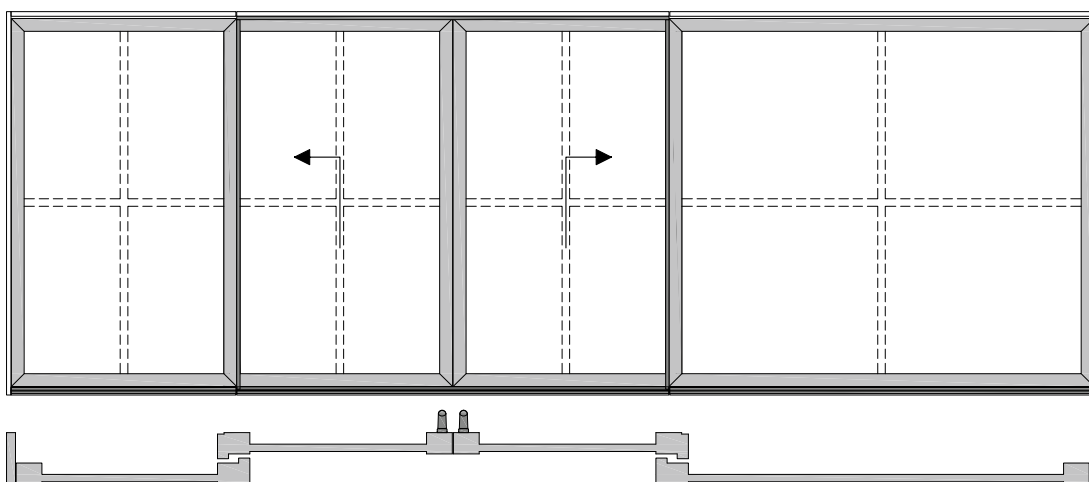
Schema C



**Griffseite links
Côté poignée à gauche
Handle on the left**

**Griffseite rechts
Côté poignée à droite
Handle on the right**

- [un_sp_0270](#)
- [un_sp_0271](#)



**Asymmetrisch
Asymétrique
Asymmetric**

**Weitere Typen auf Anfrage
Autres types sur demande
Other types on request**

- Stahl / Acier / Steel
- Edelstahl / Acier inox / Stainless steel

Stahl Acier Steel	Edelstahl Acier inox Stainless steel
-------------------------	--

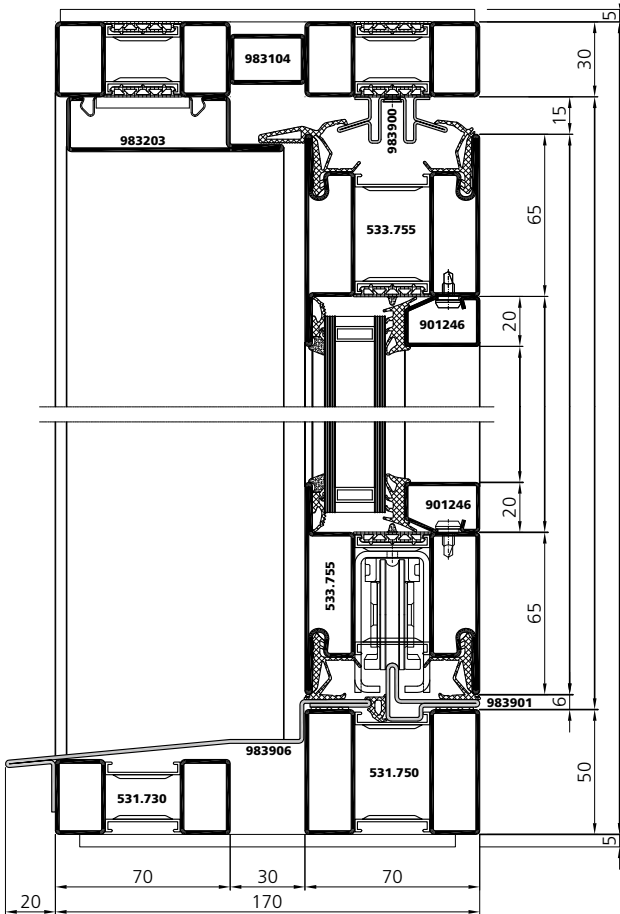
**Systemplan
Hebeschlebetüren**

**Plan du système
Portes coulissantes à levier**

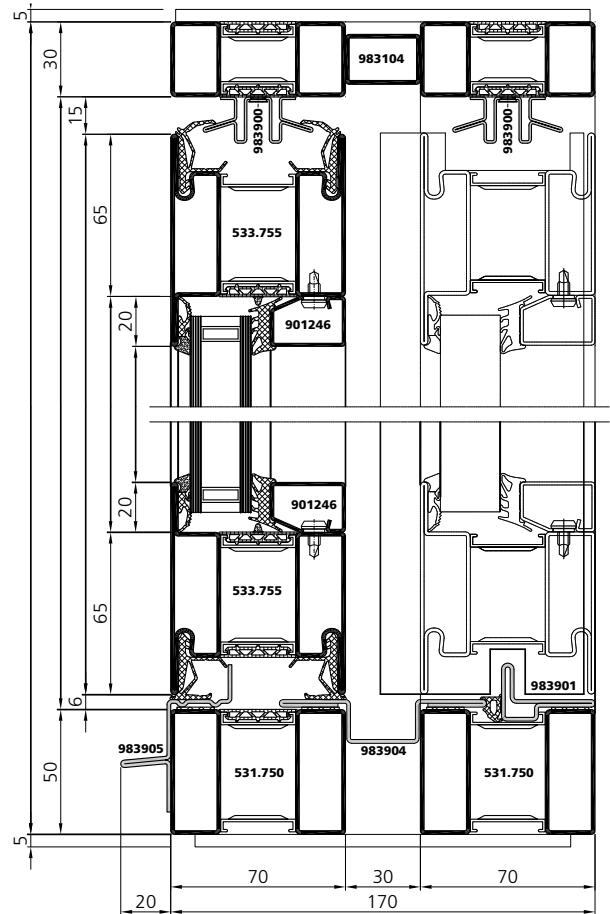
**System plan
Lift-up sliding doors**

un_sp_0233

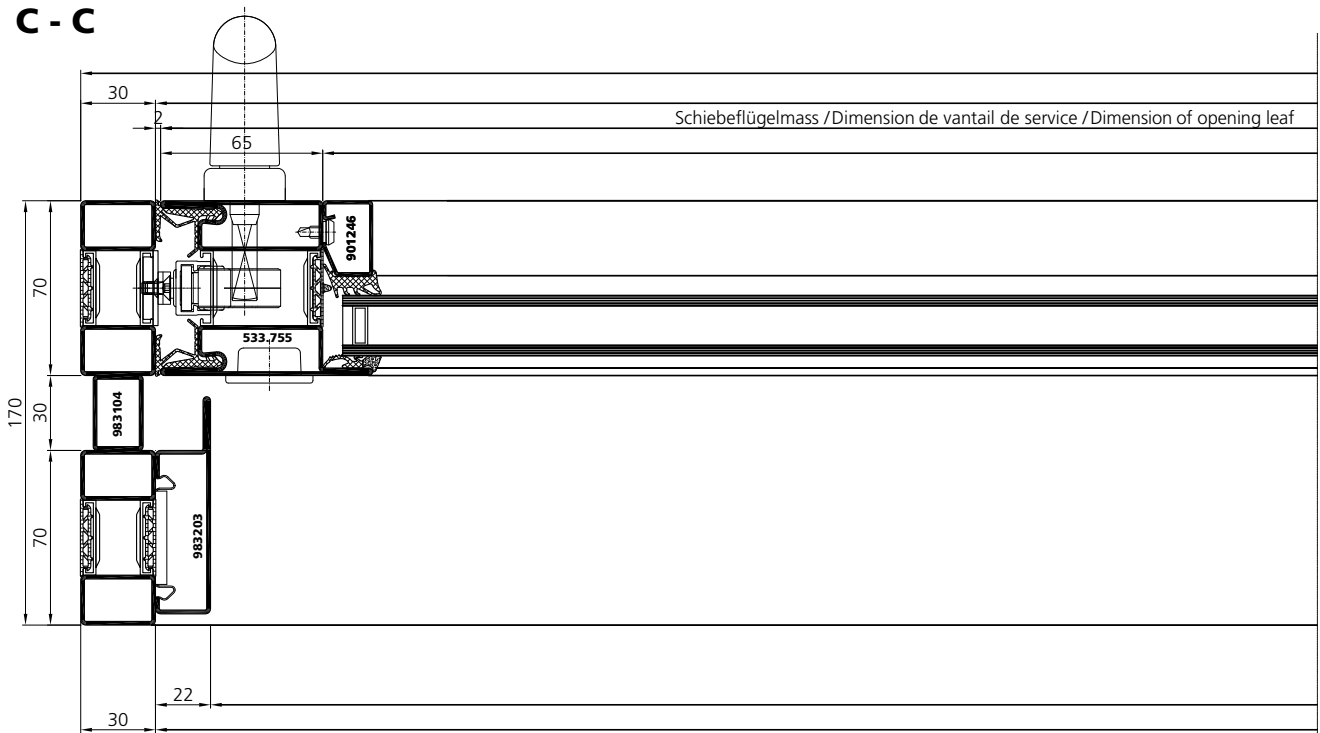
A - A



B - B



C - C

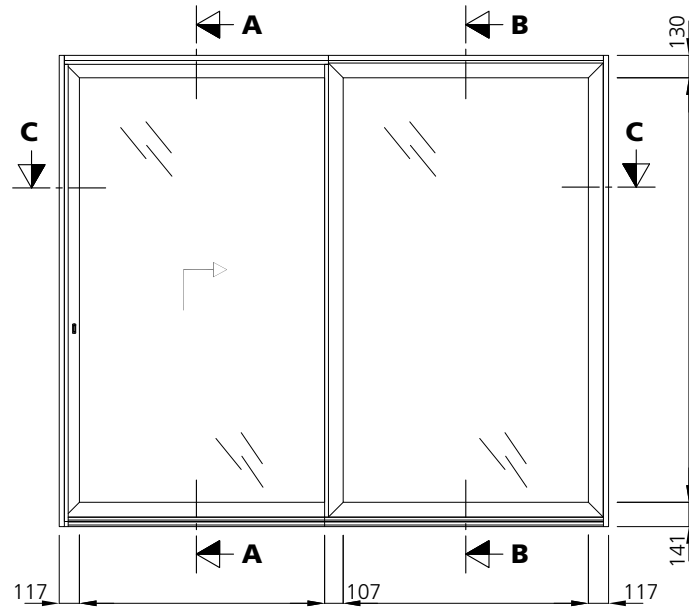


**Systemplan
Hebeschiebetüren**

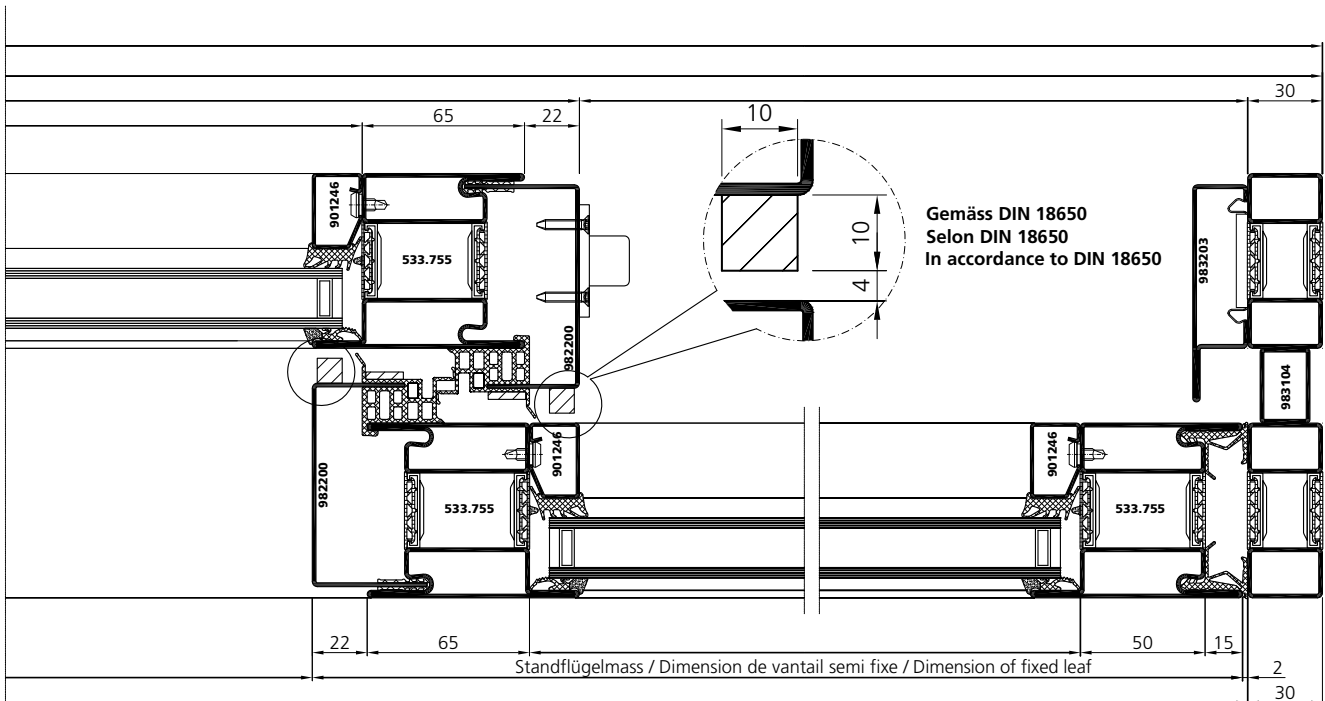
**Plan du système
Portes coulissantes à levier**

**System plan
Lift-up sliding doors**

[un_sp_0233](#)



Schema A



03/19

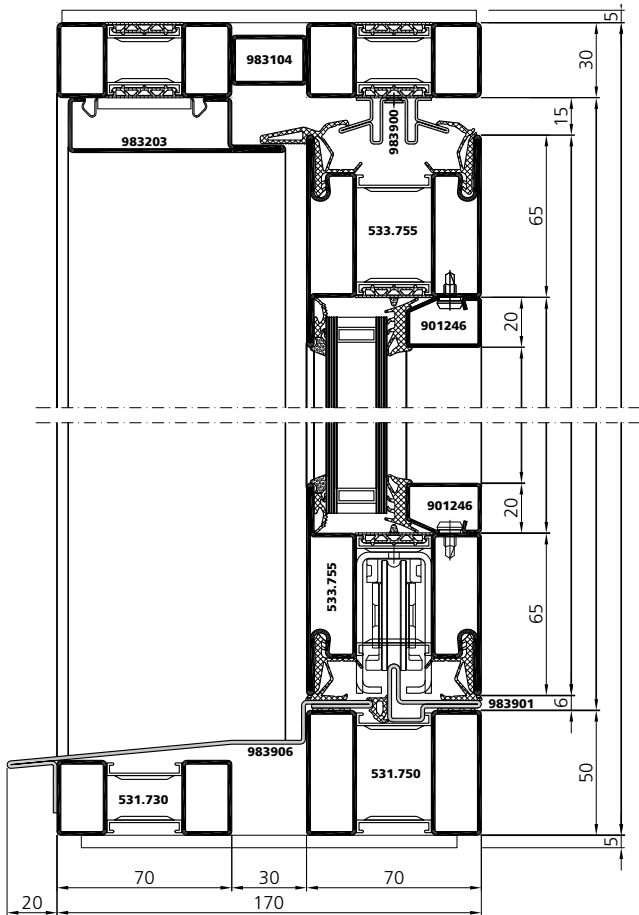
Stahl Acier Steel	Edelstahl Acier inox Stainless steel
-------------------------	--

**Systemplan
Hebeschiebetüren**

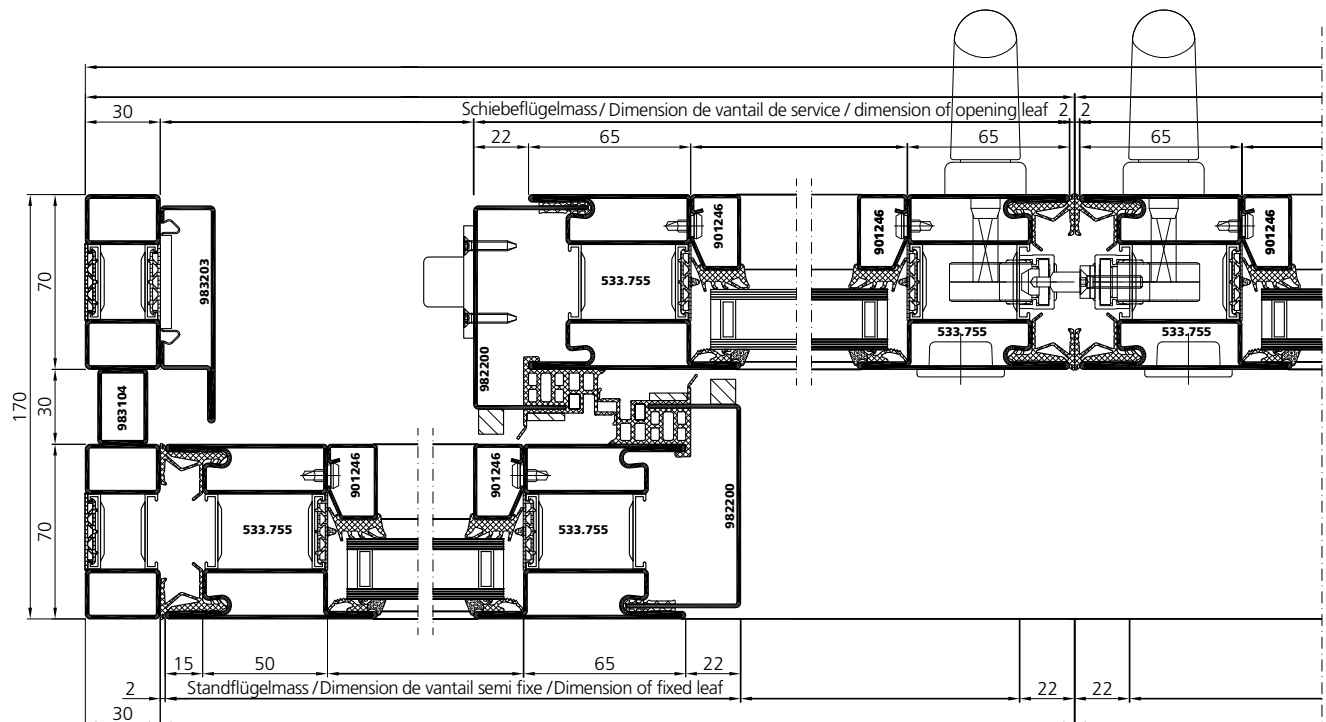
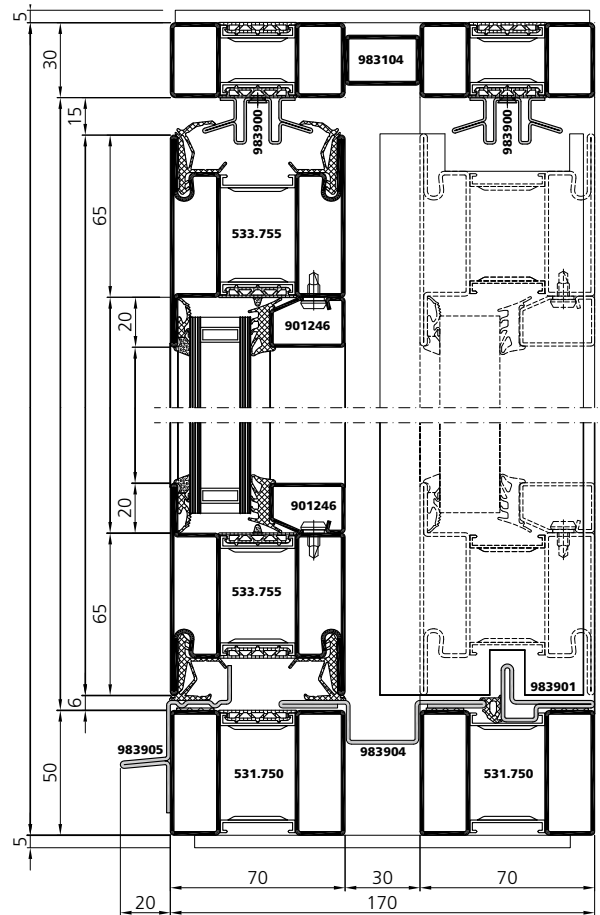
**Plan du système
Portes coulissantes à levier**

**System plan
Lift-up sliding doors**

A - A



B - B

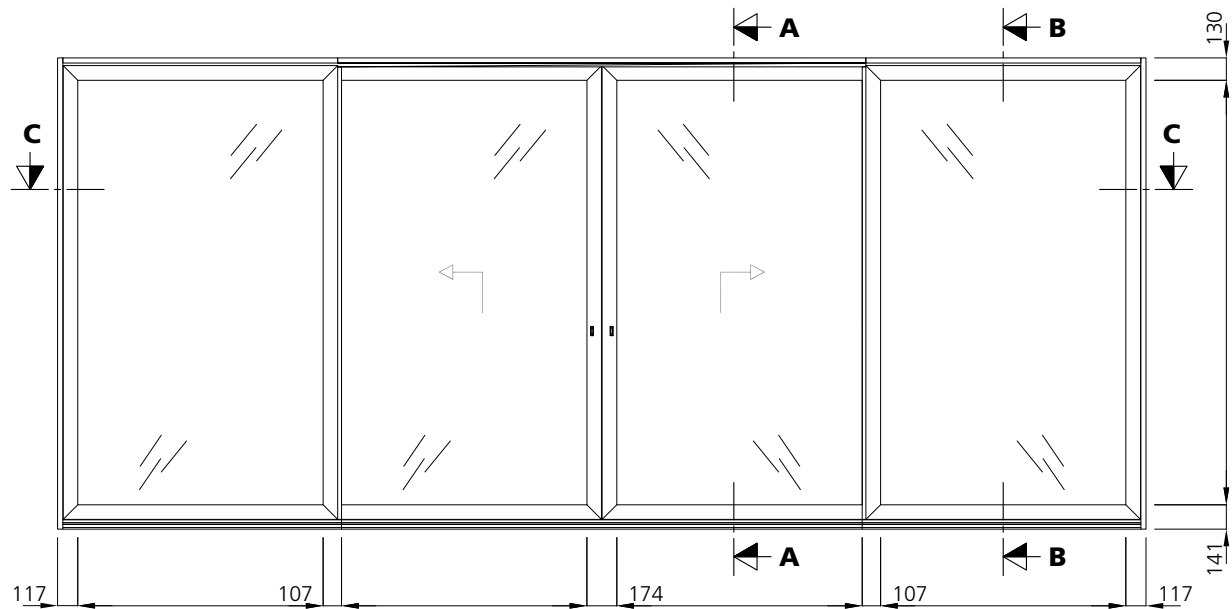


**Systemplan
Hebeschiebetüren**

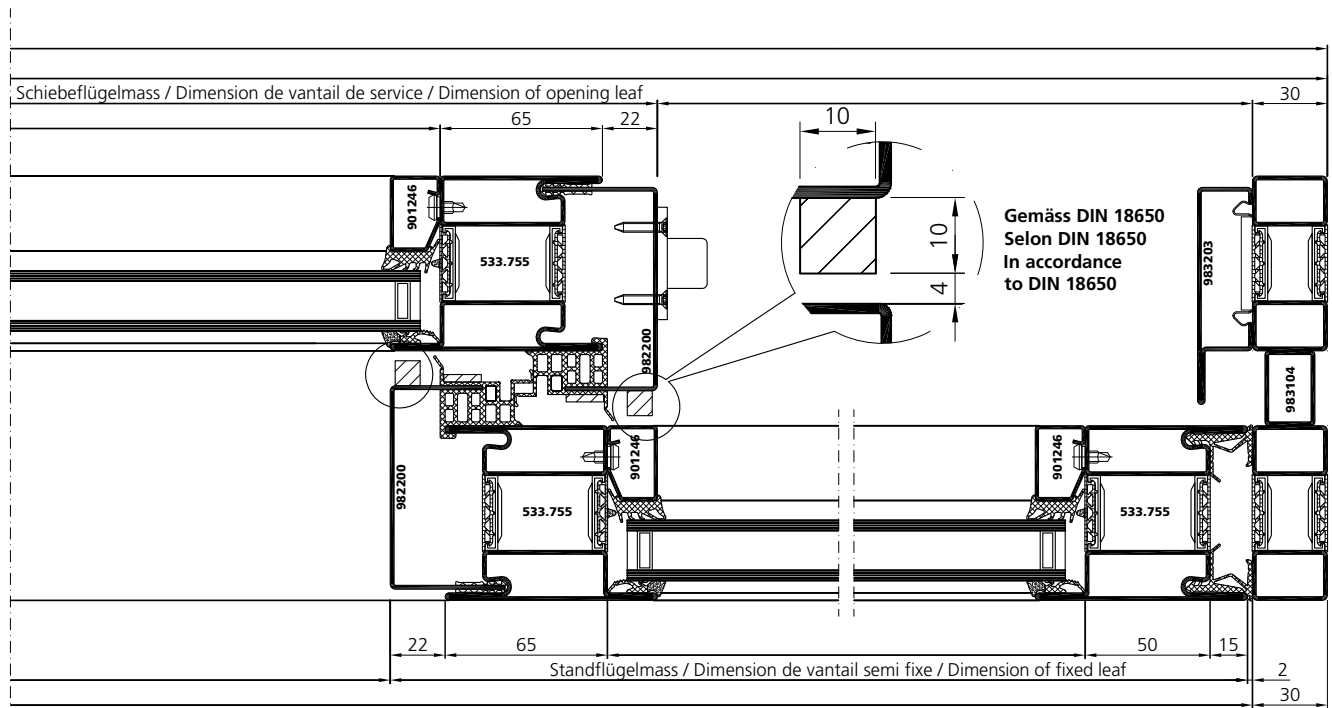
**Plan du système
Portes coulissantes à levier**

**System plan
Lift-up sliding doors**

un sp 0270



Schema C



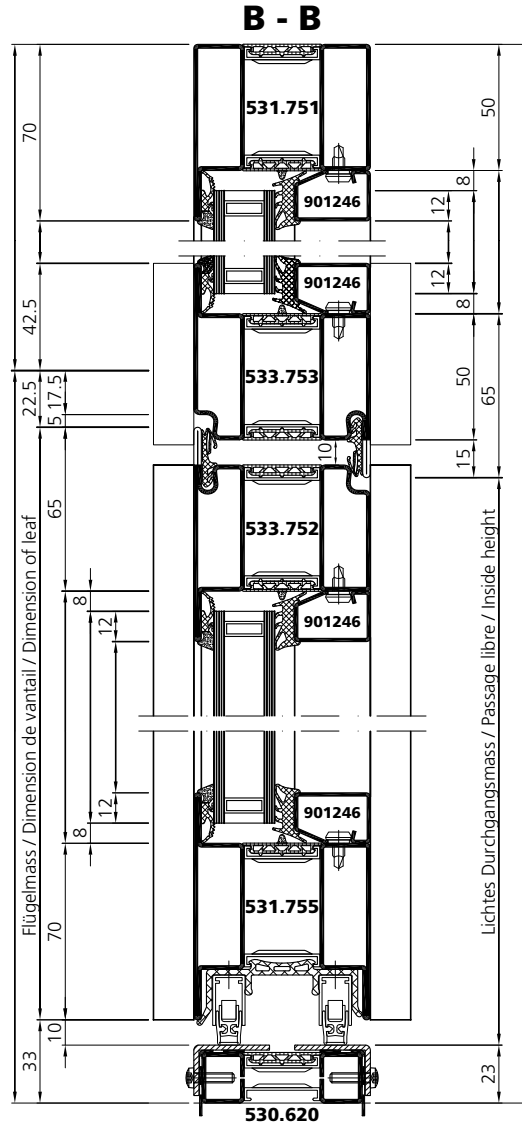
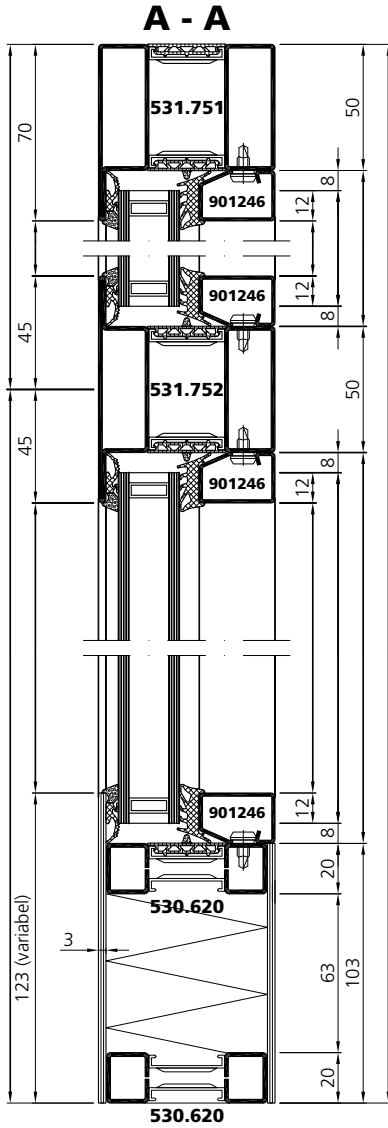
03/19

**Systemplan
Fingerschutztür**

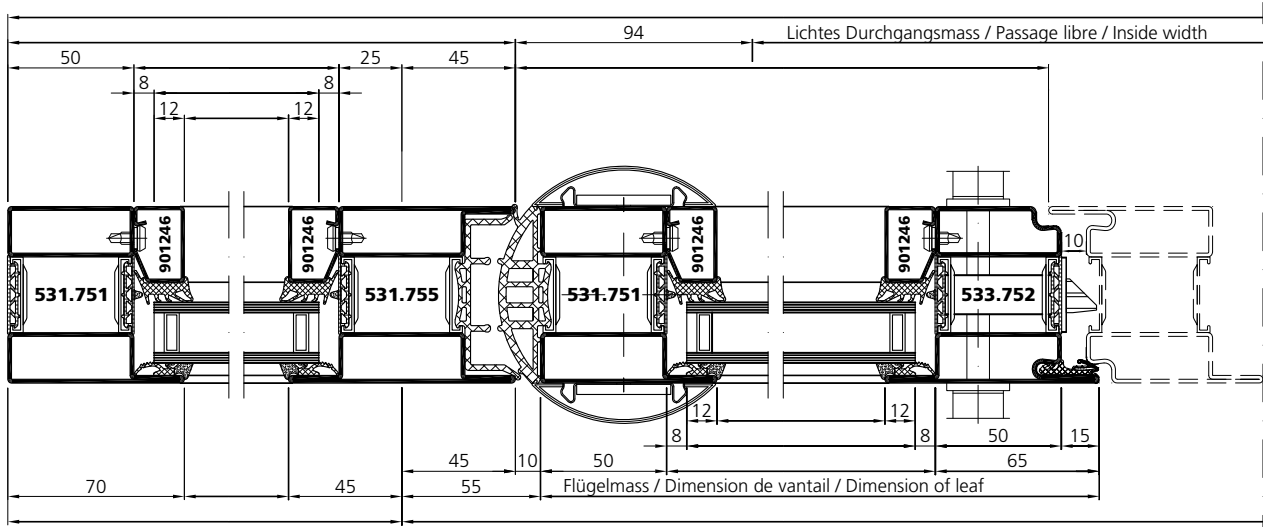
**Plan du système
Porte anti-pince doigts**

**System plan
Anti-finger-trap door**

■ [un_sp_0404](#)



D - D



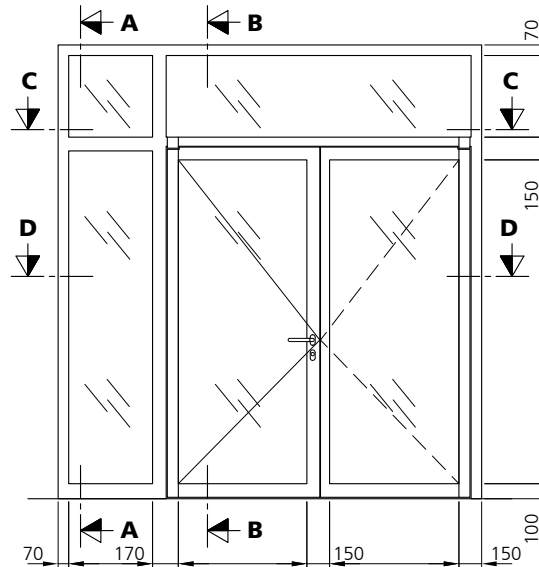


**Systemplan
Fingerschutztür**

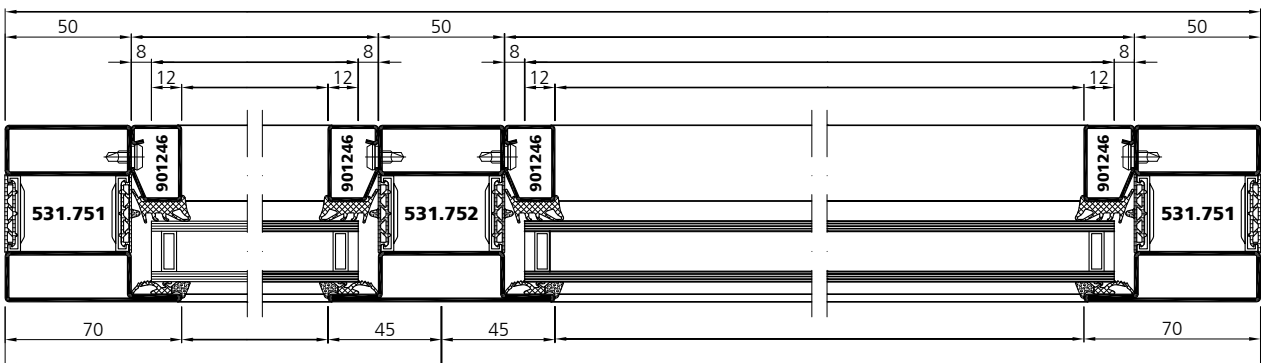
**Plan du système
Porte anti-pince doigts**

**System plan
Anti-finger-trap door**

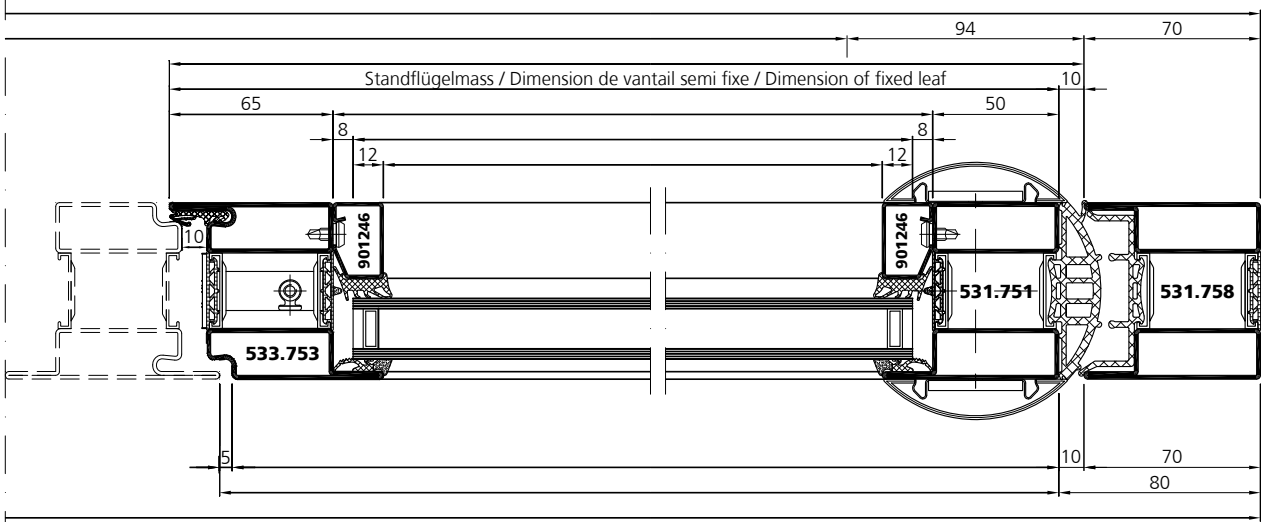
un_sp_0404



C - C



D - D



Übersicht Systempläne

Tableau des plans du système

Synopsis of system plans

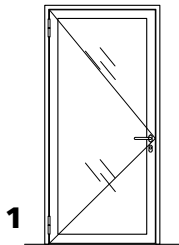
1	einflügelige Tür
2	• mit Seitenteil
3	• mit zwei Seitenteilen
4	• mit Oberlicht
5	• mit Oberlicht und Seitenteil
6	• mit Oberlicht und zwei Seitenteilen
7	zweiflügelige Tür
8	• mit Seitenteil
9	• mit zwei Seitenteilen
10	• mit Oberlicht
11	• mit Oberlicht und Seitenteil
12	• mit Oberlicht und zwei Seitenteilen
13	Festverglasung

porte à un vantail
• avec partie latérale fixe
• avec deux parties latérales fixes
• avec imposte
• avec imposte et partie latérale fixe
• avec imposte et deux parties latérales fixes
porte à deux vantaux
• avec partie latérale fixe
• avec deux parties latérales fixes
• avec imposte
• avec imposte et partie latérale fixe
• avec imposte et deux parties latérales fixes
vitrage fixe

single-leaf door
• with screen abutment
• with 2 screen abutments
• with fanlight
• with fanlight and screen abutment
• with fanlight and 2 screen abutments
double-leaf door
• with screen abutment
• with 2 screen abutments
• with fanlight
• with fanlight and screen abutment
• with fanlight and 2 screen abutments
fixed glazing

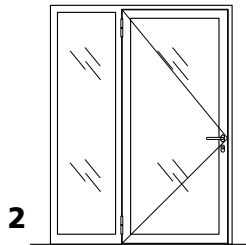
■ Stahl / Acier / Steel

■ Edelstahl / Acier inox / Stainless steel



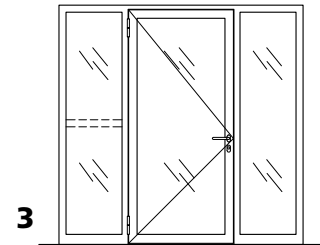
1

■ [un_sp_0500](#)
 ■ [un_sp_0850](#)



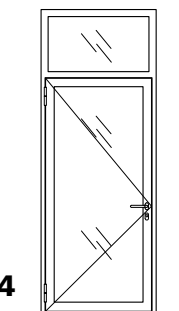
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■ [un_sp_0501](#)
 ■ [un_sp_0851](#)



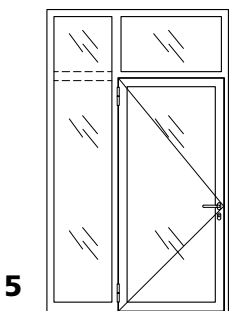
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■ [un_sp_0502](#)
 ■ [un_sp_0852](#)



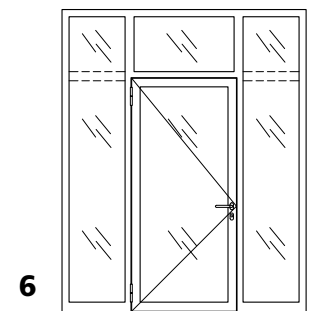
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■ [un_sp_0503](#)
 ■ [un_sp_0853](#)



5

■ [un_sp_0504](#)
 ■ [un_sp_0854](#)



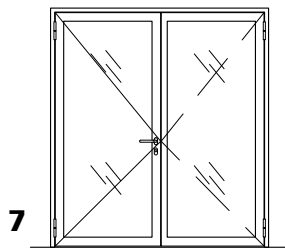
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■ [un_sp_0505](#)
 ■ [un_sp_0855](#)

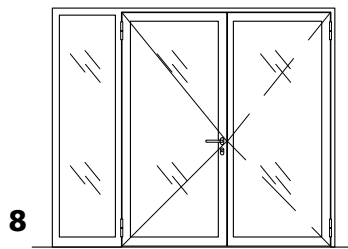
Übersicht Systempläne

Tableau des plans du système

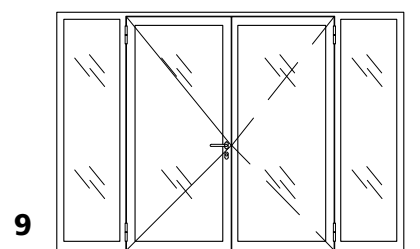
Synopsis of system plans



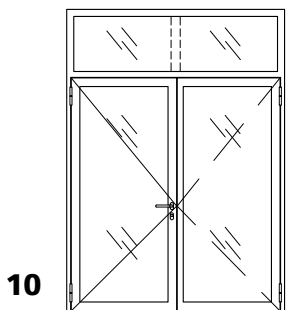
■ [un_sp_0506](#)
 ■ [un_sp_0856](#)



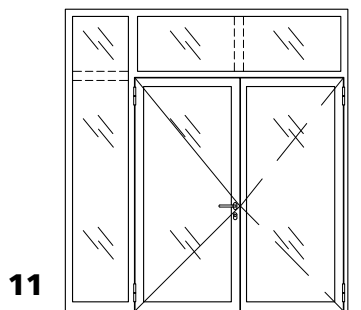
■ [un_sp_0507](#)
 ■ [un_sp_0857](#)



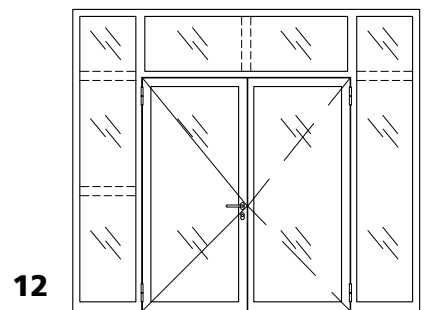
■ [un_sp_0508](#)
 ■ [un_sp_0858](#)



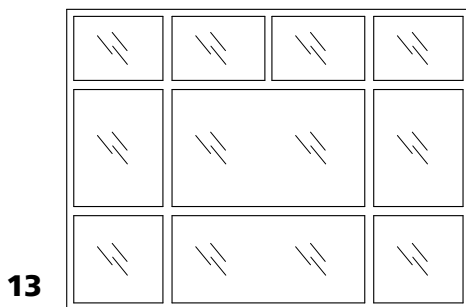
■ [un_sp_0509](#)
 ■ [un_sp_0859](#)



■ [un_sp_0510](#)
 ■ [un_sp_0860](#)



■ [un_sp_0511](#)
 ■ [un_sp_0861](#)



■ [un_sp_0512](#)
 ■ [un_sp_0862](#)

Wichtig

Einzelne in dieser Dokumentation gezeigte Anwendungsbeispiele entsprechen nicht den in Ihrem Land gültigen Brandschutznormen.

Massgebend sind ausschliesslich die für Ihr Land gültigen Zulassungen.

Important

Les exemples d'application présentés ci-après ne sont pas tous conformes à la réglementation en vigueur dans votre pays.

En conséquence, nous vous demandons de vous reporter aux procès-verbaux de classement en cours de validité dans votre pays.

Important

Some of the construction details, mentioned in this documentation, do not correspond to the fire protecting standards in your country.

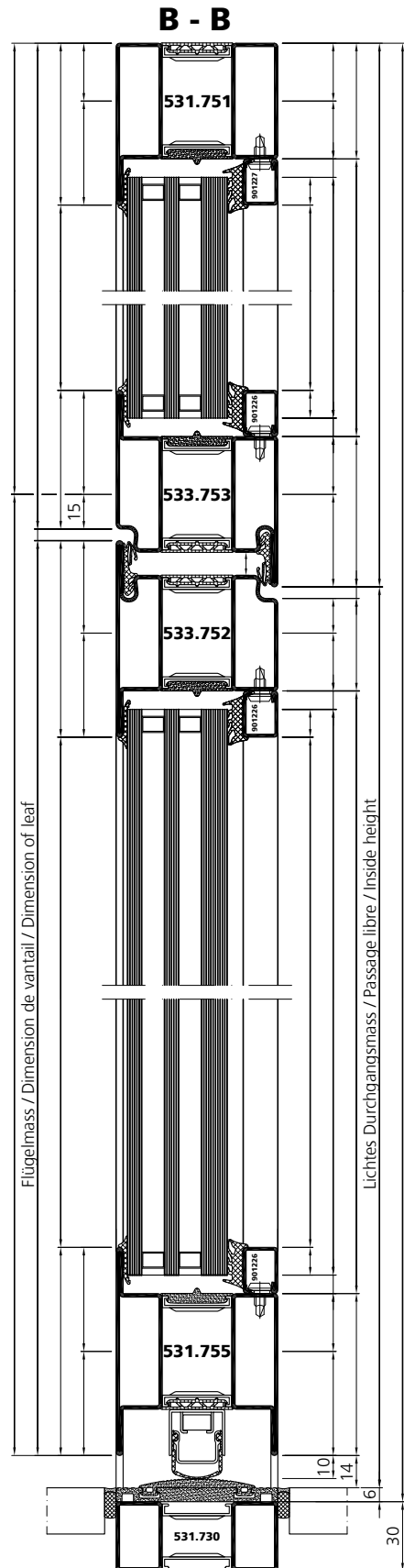
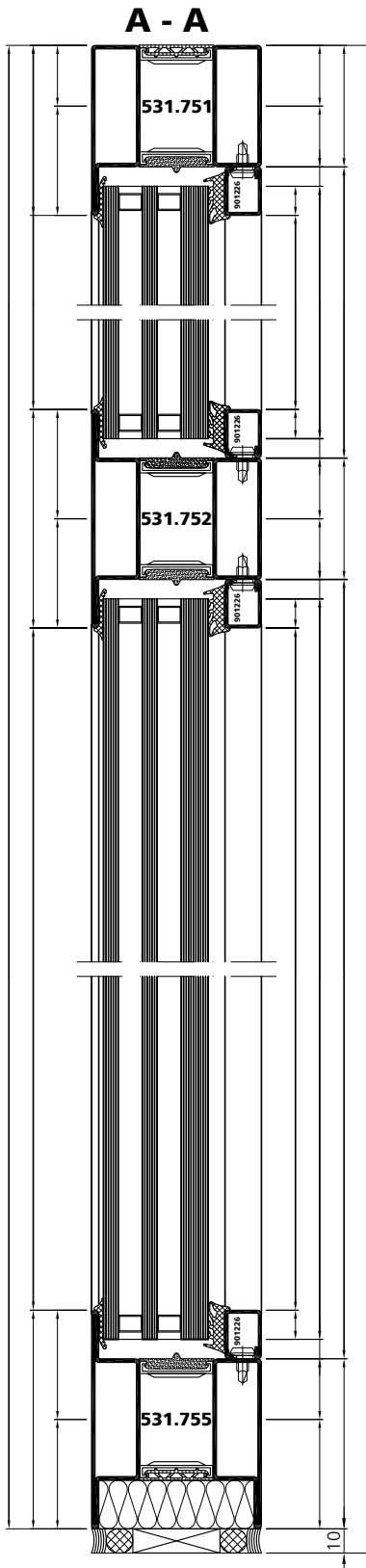
Only the certificates valid in your country are relevant, please check with your specific countries representatives.

Systemplan

Plan du système

System plan

■ [un_sp_0504](#)

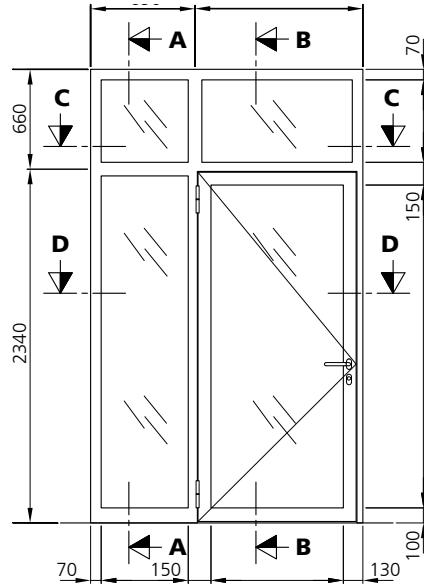


Systemplan

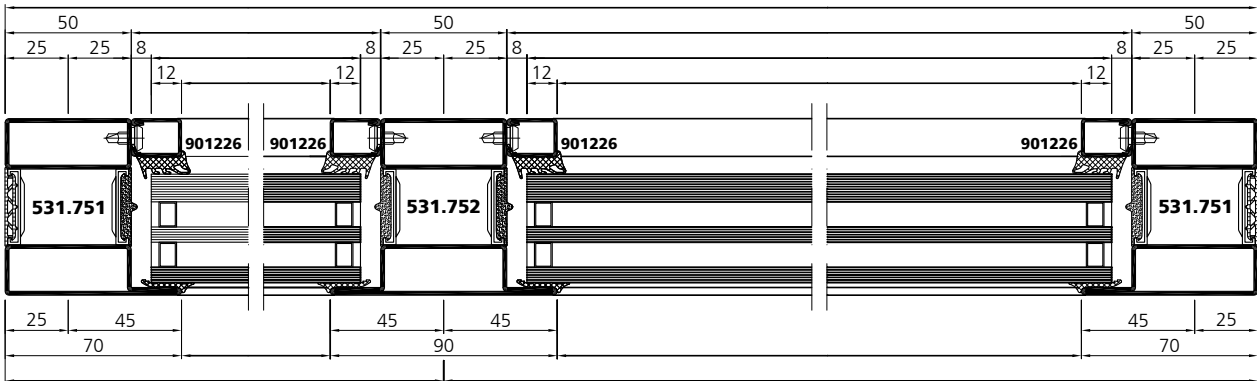
Plan du système

System plan

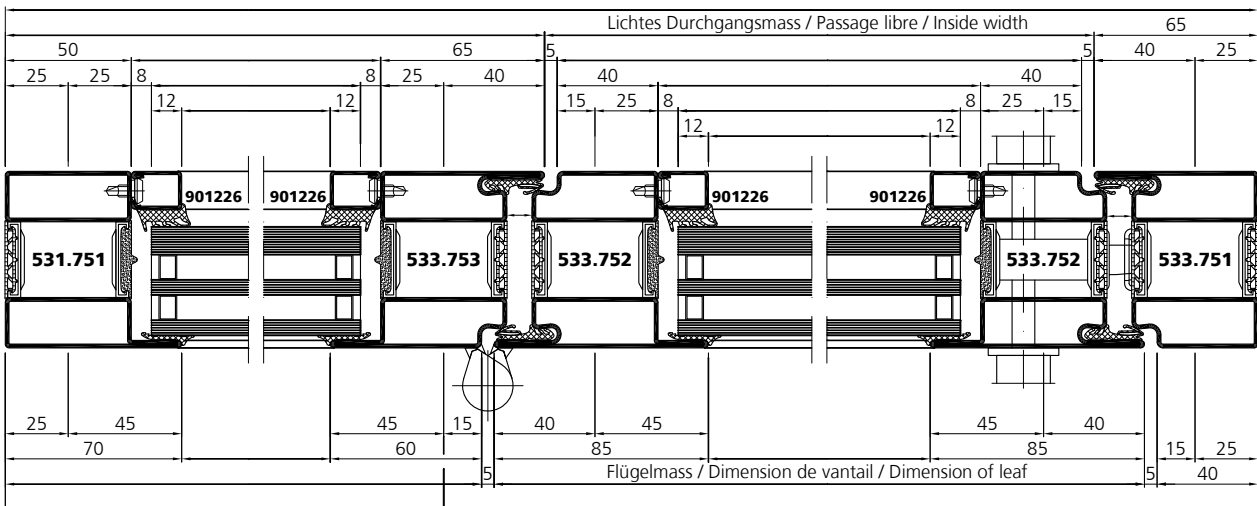
un_sp_0504



C - C



D - D

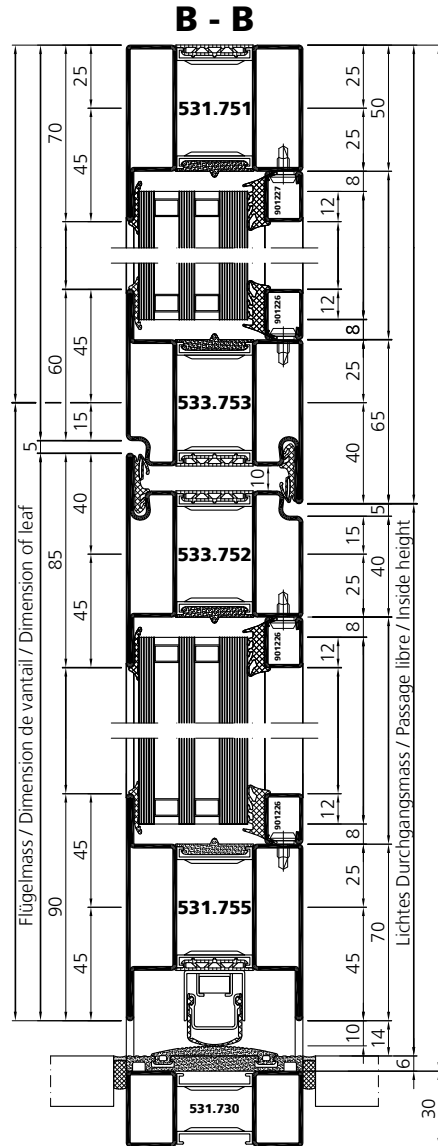
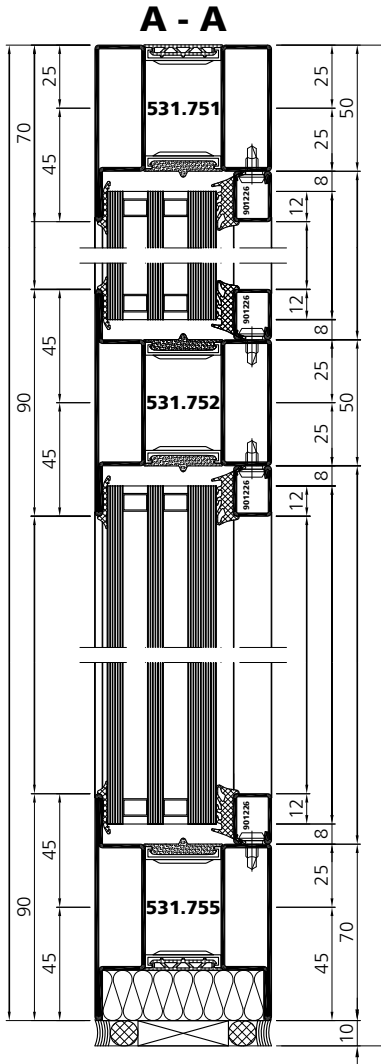


Systemplan

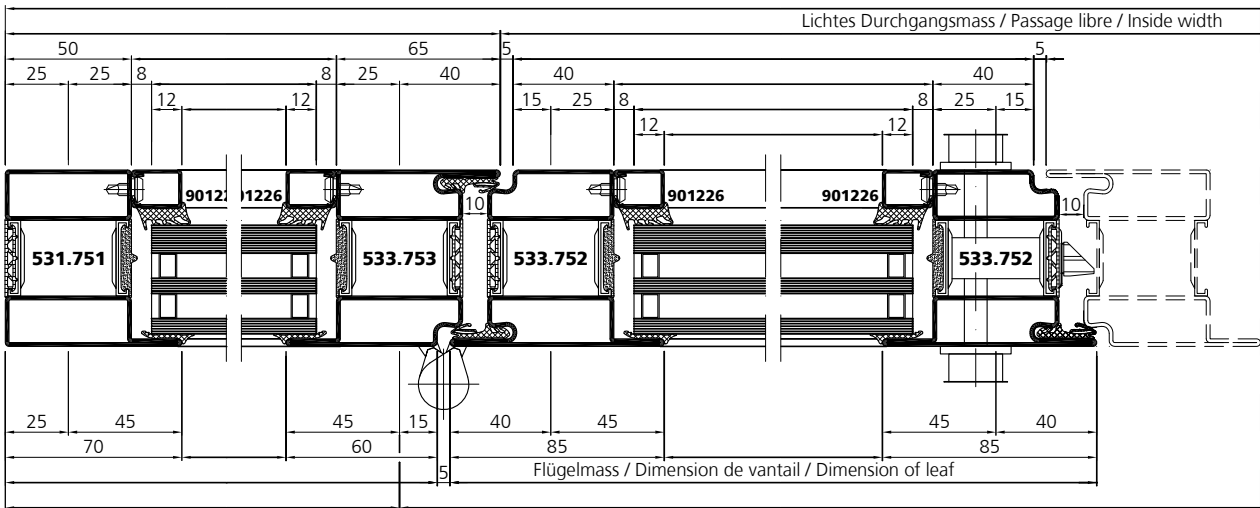
Plan du système

System plan

■ [un_sp_0510](#)



D - D

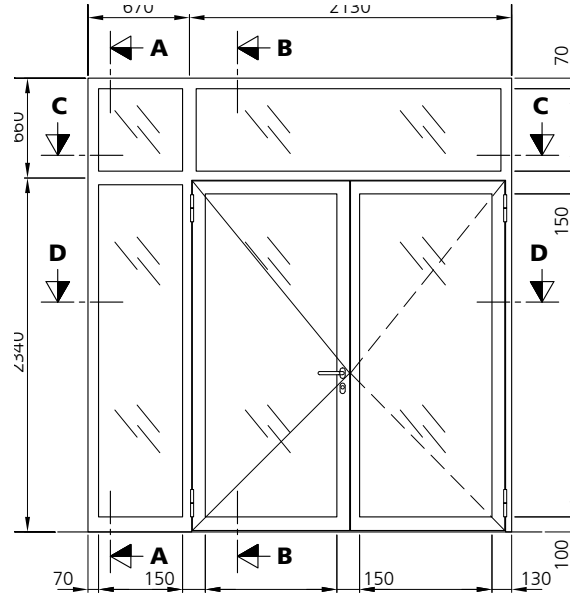


Systemplan

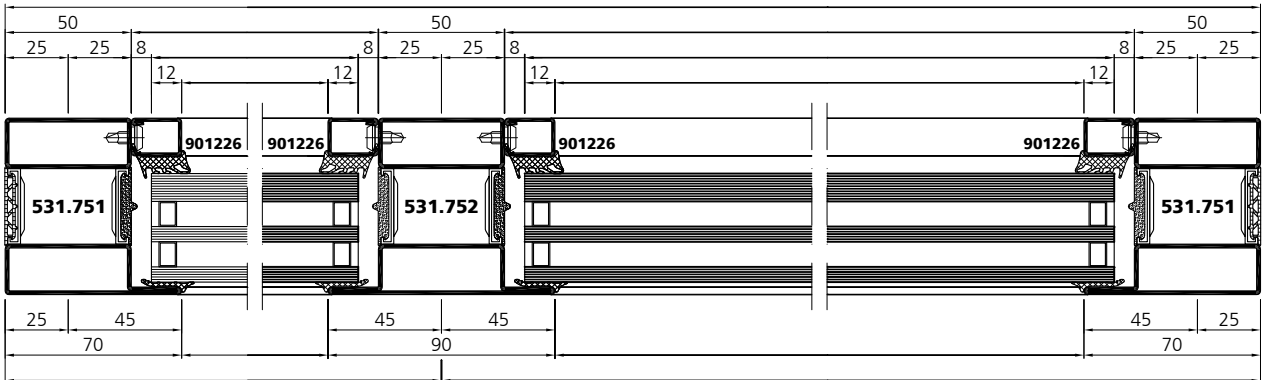
Plan du système

System plan

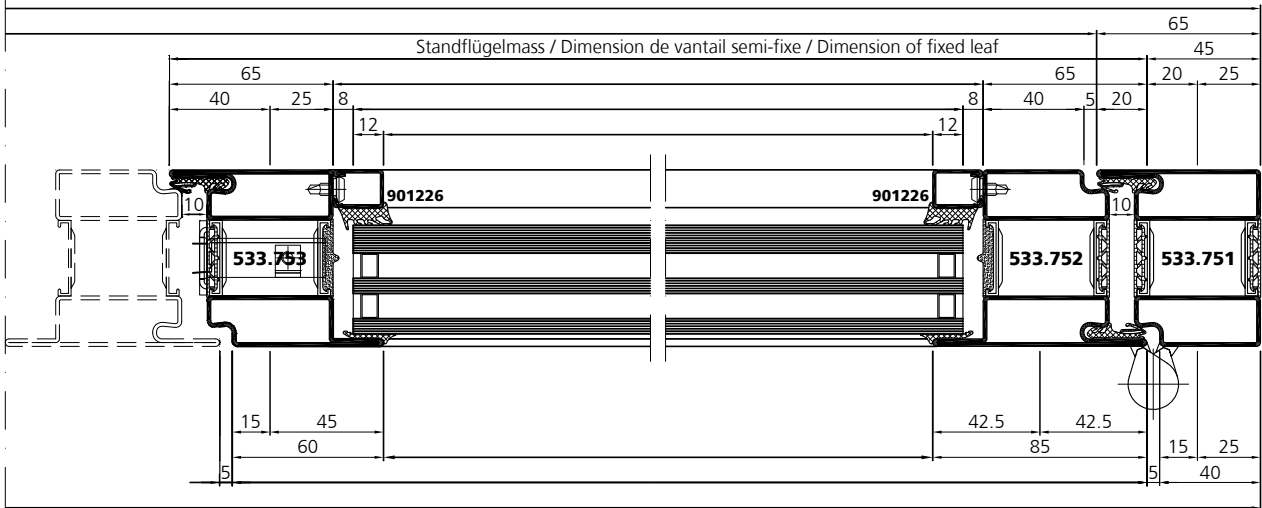
un_sp_0510



C - C



D - D





Politie Doetinchem, NL-Doetinchem

03/19

**Systemübersicht
Fenster**

**Tableau du système
Fenêtres**

**Synopsis of system
Windows**



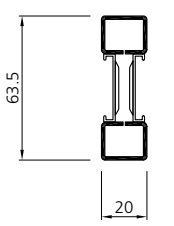
Verwaltungsgebäude Matterhorn Gotthard Bahn, CH-Brig

03/19

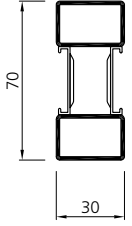
Systemübersicht Fenster

Tableau du système Fenêtres

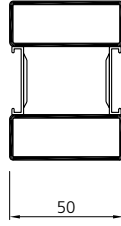
Synopsis of system Windows



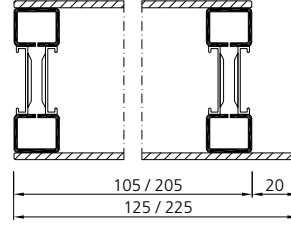
530.620
530.620 Z
530.620 CrNi*



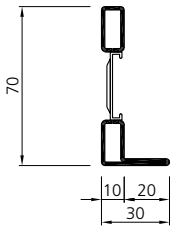
531.730
531.730 Z
531.730 CrNi*



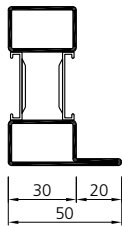
531.750
531.750 Z
531.750 CrNi*



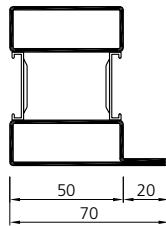
551.701 125 mm
571.701 225 mm



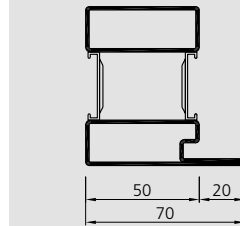
530.711
530.711 Z



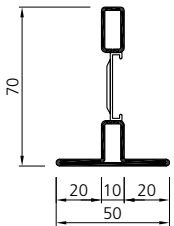
531.731
531.731 Z
531.731 CrNi



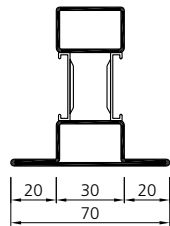
531.751
531.751 Z
531.751 CrNi



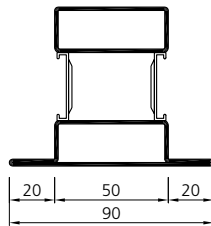
531.756 Z**



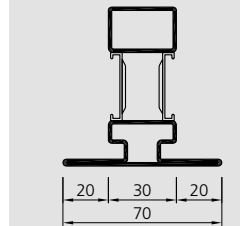
530.712
530.712 Z



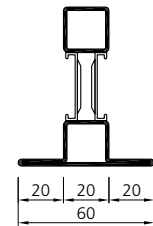
531.732
531.732 Z
531.732 CrNi



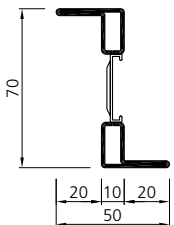
531.752
531.752 Z
531.752 CrNi



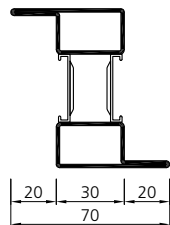
531.737 Z**



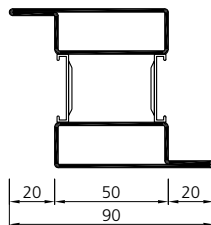
531.722



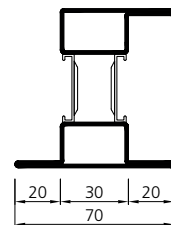
530.713
530.713 Z



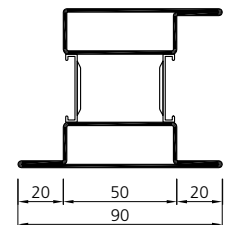
531.733
531.733 Z
531.733 CrNi*



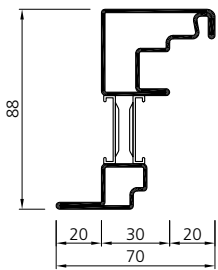
531.753
531.753 Z
531.753 CrNi*



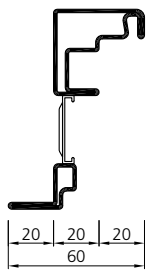
531.735 Z



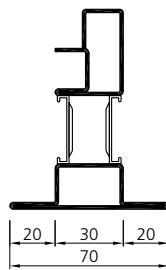
531.755
531.755 Z
531.755 CrNi



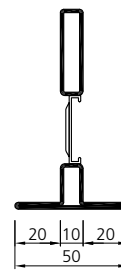
530.800
530.800 Z
530.800 CrNi



531.801
531.801 Z



531.832
531.832 Z
531.832 CrNi



531.812
531.812 Z

* auf Anfrage
sur demande
on request

** Profil mit kontrollierter Entwässerung
Profilé avec garde à l'eau
Profile with drainage groove

Systemübersicht Fenster

Tableau du système Fenêtres

Synopsis of system Windows

2.5	10	15	16.5	20	25	30	35	40	45	50	
901245	901241	901226	901231	901227	901228	901246	901247	901248	901249	901207	
20/10/2 20/15/2 20/20/2 25/20/2 30/20/2 35/20/2 40/20/2											
2.5	5	10	15	20	25	30	35	40	45	50	
901332	901333	901334	901326	901327	901328	901335	901336	901337	901338	901343	
901526 901531 901527 901528 901546 901547 901548 901549 901507											
906577 (VE 100 Stk/pcs)	906420	906583	906421	906574	20/15/3	20/20/3	25/20/3	30/20/3	35/20/3	40/20/3	
906578 (VE 1000 Stk/pcs)											
906579 (Mag. 200 Stk/pcs)											
985304**	985305**	985300	985302**	905385	905386	905387	988002 4 mm	988003 5 mm	988004 6 mm	988006 8 mm	980101
985314	985315	985303**									
987300	987301	987302	985601	985602	985603	985318					
987321	987322	987325	987073	987074	900100	900103					
901204	901205*	901206*	983300	983301							
			983304	983303							
							987101 - 987176	987113C - 987170C			
							987900 - 987966	987911C - 987966C			
							987181 - 987186	987181C - 987192C			

* auf Anfrage
sur demande
on request

** Silikon schwarz, Farben auf Anfrage / Silicone noire, couleurs sur demande / Silicone black, colours on request

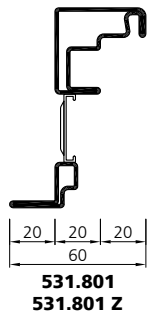
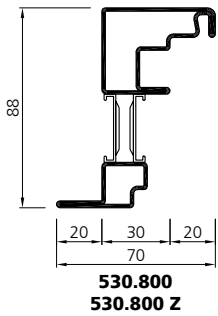
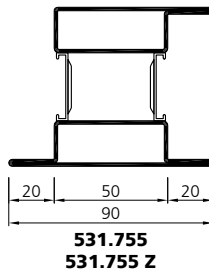
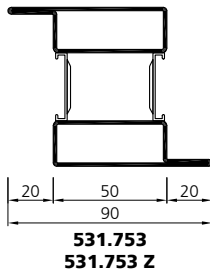
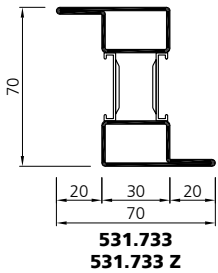
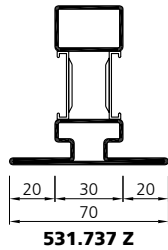
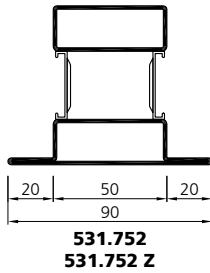
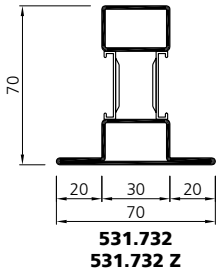
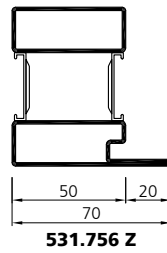
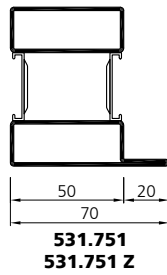
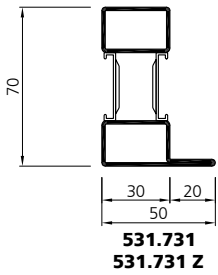
E30 / EW30

Stahl
Acier
Steel

**Systemübersicht
Fenster**

**Tableau du système
Fenêtre**

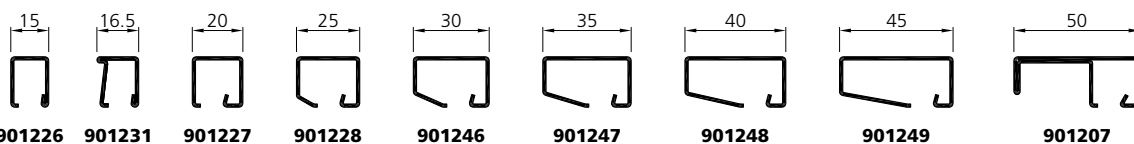
**Synopsis of system
Windows**



**Systemübersicht
Fenster**

**Tableau du système
Fenêtre**

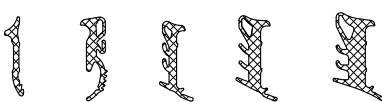
**Synopsis of system
Windows**



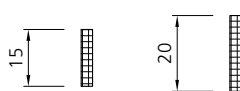
901226 901231 901227 901228 901246 901247 901248 901249 901207



906577 (VE 100 Stk/pcs)
906578 (VE 1000 Stk/pcs)
906579 (Mag. 200 Stk/pcs)



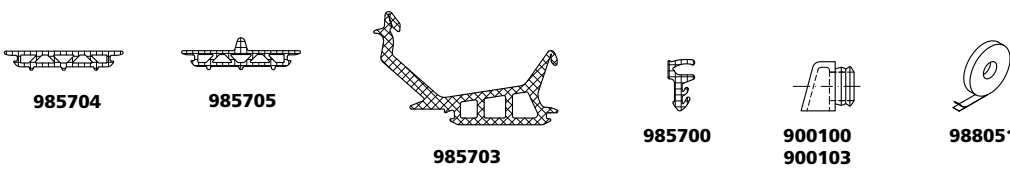
905712 2 mm **985702** 5 mm **905784** 3-4 mm **905785** 5-6 mm **905786** 7-8 mm



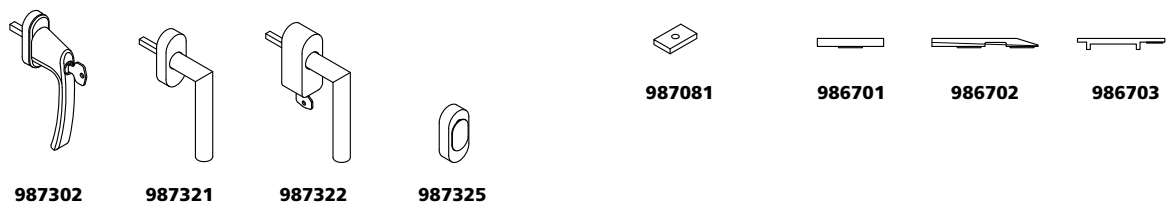
948003 3 mm **948007** 3 mm
948004 4 mm **948008** 4 mm
948005 5 mm **948009** 5 mm
948006 6 mm **948010** 6 mm



980101

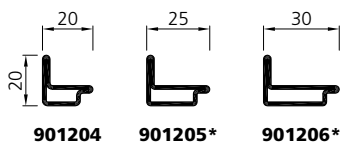


985704 985705 985703 985700 900100 900103 988051

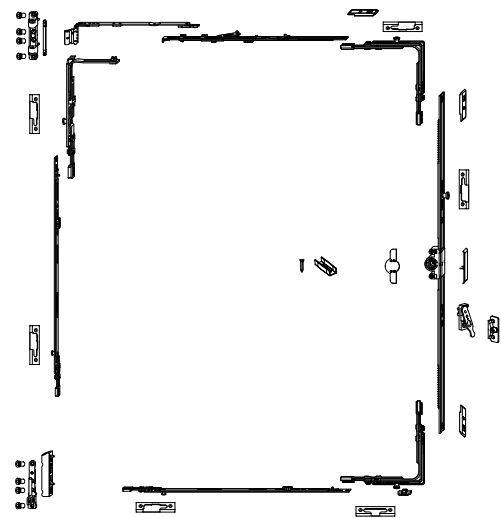


987302 987321 987322 987325 987081 986701 986702 986703

* auf Anfrage
sur demande
on request

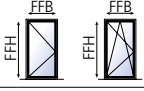





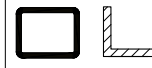



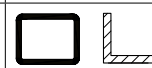
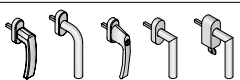
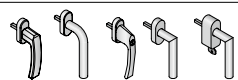
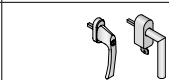
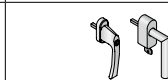


901204 901205* 901206*



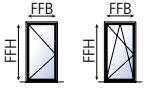













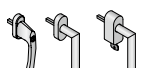
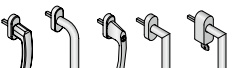
987101 RC3 - 987158 RC3

**Systemvarianten
Fenster**
**Variantes du système
Fenêtres**
**System variations
Windows**

	Standard	RC1	RC2	RC3
Werkstoffe Matières premières Materials				
Stahl / Acier / Steel	✓	✓	✓	✓
CrNi	✓	✓	✓	✓
Elementgrößen Dim. des éléments Element dimensions				
	FFB: 290 – 1600 mm FFH: 520 – 2400 mm G: max. 150 kg	FFB: 290 – 1400 mm FFH: 520 – 2400 mm G: max. 150 kg	FFB: 310 – 1400 mm FFH: 520 – 2400 mm G: max. 150 kg	FFB: 310 – 1400 mm FFH: 520 – 2400 mm G: max. 150 kg
	FFB: 290 – 1600 mm FFH: 520 – 2400 mm G: max. 150 kg	FFB: 290 – 1400 mm FFH: 750 – 2400 mm G: max. 150 kg	FFB: 310 – 1400 mm FFH: 750 – 2400 mm G: max. 150 kg	FFB: 310 – 1400 mm FFH: 750 – 2400 mm G: max. 150 kg
	FFB: 520 – 2400 mm FFH: 350 – 1200 mm G: max. 80 kg	FFB: 520 – 2400 mm FFH: 350 – 1200 mm G: max. 80 kg	FFB: 520 – 2400 mm FFH: 370 – 1200 mm G: max. 80 kg	FFB: 520 – 2400 mm FFH: 370 – 1200 mm G: max. 80 kg
Verglasung Vitrage Glazing				
Trockenverglasung Vitrage à sec Dry glazing				
Nassverglasung Vitrage au silicone Silicone glazing				
Glas / Paneele Verres / Panneaux Glass / Panels				
Isolierglas Vitrage isolant Insulating glass	20 – 60 mm	P1A – EN 356	P4A – EN 356	P5A – EN 356 P6B – EN 356
Paneele / Panneaux / Panels	20 – 54.5 mm	24 mm	34 mm	34 mm
Beschläge Quincaillerie Fittings				
Systembeschläge Quincaillerie du système System fittings	- aufgesetzt / apparent / surface-mounted - verdeckt / invisible / concealed	- aufgesetzt / apparent / surface-mounted	- aufgesetzt / apparent / surface-mounted	- aufgesetzt / apparent / surface-mounted
Griffe Poignées Handles				

FFB: Flügelfalzbreite / Largeur de feuillure de vantail / Leaf rebate width
FFH: Flügelfalzhöhe / Hauteur de feuillure de vantail / Leaf rebate height

**Systemvarianten
Fenster**
**Variantes du système
Fenêtres**
**System variations
Windows**

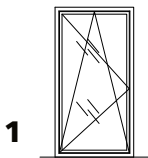
	E30 / EW30	FB4 NS	PSK (Parallel-Schiebe-Kipp) FCP (coulissante parallèle) PST (parallel slide and tilt)	NRWG (Rauch- und Wärmeabzug) DENFC (évacuation des fumées et de la chaleur) SHEVS (smoke- and heat exhaust)
Werkstoffe Matières premières Materials				
Stahl / Acier / Steel	✓	✓	✓	✓
CrNi		✓	✓	✓
Elementgrößen Dim. des éléments Element dimensions				
	FFB: 310 – 946 mm 310 – 1094 mm (France) FFH: 520 – 1531 mm 520 – 1767 mm (France) G: max. 150 kg	FFB: 290 – 1400 mm FFH: 520 – 2400 mm	---	FFB: 290 – 1400 mm FFH: 520 – 2400 mm (nur Drehflügel / seulement ouvrant à la française / only turn window)
	---	FFB: 290 – 1400 mm FFH: 750 – 2400 mm	---	---
	---	FFB: 520 – 2400 mm FFH: 350 – 1200 mm	---	FFB: 520 – 2400 mm FFH: 350 – 1000 mm
	---	---	FFB: 600 – 2000 mm FFH: 900 – 2400 mm G: max. 200 kg	---
Verglasung Vitrage Glazing				
Trockenverglasung Vitrage à sec Dry glazing				
Nassverglasung Vitrage au silicone Silicone glazing				
Glas / Paneele Verres / Panneaux Glass / Panels				
Isolierglas Vitrage isolant Insulating glass	- Pilkington Pyrodur 30-25, 30-26, 30-27, 30-28	20 – 57 mm (siehe Systempläne) (voir plans du système) (see system plans)	20 – 60 mm	20 – 60 mm
Paneele / Panneaux / Panels	33 mm	54 mm	20 – 54.5 mm	20 – 60 mm
Beschläge Quincaillerie Fittings				
Systembeschläge Quincaillerie du système System fittings	- aufgesetzt / apparent / surface-mounted - verdeckt / invisible / concealed	- aufgesetzt / apparent / surface-mounted	PSK Beschlag quincaillerie FCP PST fitting	aufgesetzt + Antrieb / apparent + système d'entraînement / surface-mounted + actuator
Bänder Paumelles Hinges	---	(> 150 kg Drehflügel / ouverture à la française / turn window)  (> 80 kg Kippflügel / ouverture à soufflet / bottom hung window)	Wenden Sie sich bitte an Ihren Technischen Berater. Veuillez contacter votre con- seiller technique.	Drehflügel / ouverture à la française / turn window 
Griffe Poignées Handles			Please contact your country distributor of Forster repre- sentative.	---



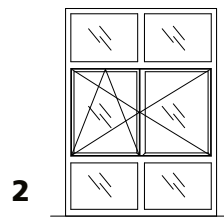
Übersicht Systempläne Fenster

- 1 Drehkipp-Flügel
- 2 Drehkipp-/Drehkipp-Flügel
- 3 Kippflügel
- 4 Stulpflügel Dreh/Drehkipp
- 5 Stulpflügel Dreh/Drehkipp mit Seitenteilen
- 6 Festverglasung

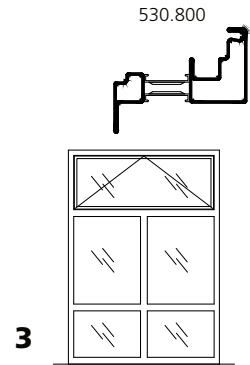
- Stahl / Acier / Steel
- Edelstahl / Acier inox / Stainless steel



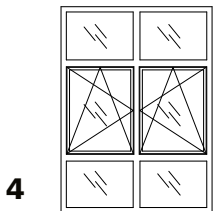
- [un_sp_0072](#)
 - [un_sp_0090](#)
 - [un_sp_0082](#)
- BIM Revit / ArchiCAD



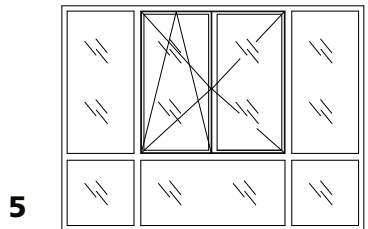
- [un_sp_0075](#)
 - [un_sp_0088](#)
 - [un_sp_0085](#)
- BIM Revit / ArchiCAD



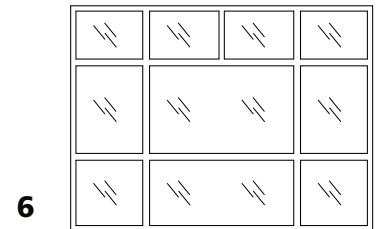
- [un_sp_0074](#)
 - [un_sp_0087](#)
 - [un_sp_0084](#)
- BIM Revit / ArchiCAD



- [un_sp_0073](#)
- [un_sp_0091](#)
- [un_sp_0083](#)



- [un_sp_0076](#)
- [un_sp_0089](#)
- [un_sp_0086](#)



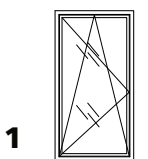
- [un_sp_0056](#)
- [un_sp_0071](#)

- 1 Drehkippflügel
- 2 Stulpflügel Dreh/Drehkipp
- 3 Festverglasung

- Ouvrant oscillo-battant
- Ouvrant semi-fixe à la française/
oscillo-battant
- Vitrage fixe

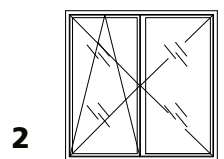
- Tilt-turn window
- Double sash window turn/tilt-turn
- Fixed glazing

- Stahl / Acier / Steel



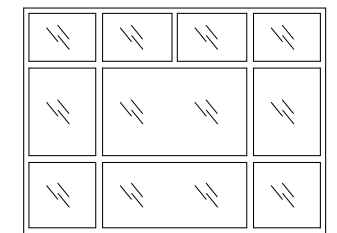
- [un_sp_0201](#)

**weitere Typen auf Anfrage
autres types sur demande
other types on request**



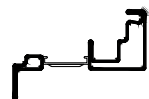
- [un_sp_0202](#)

3



- [un_sp_0200](#)

531.801 Z



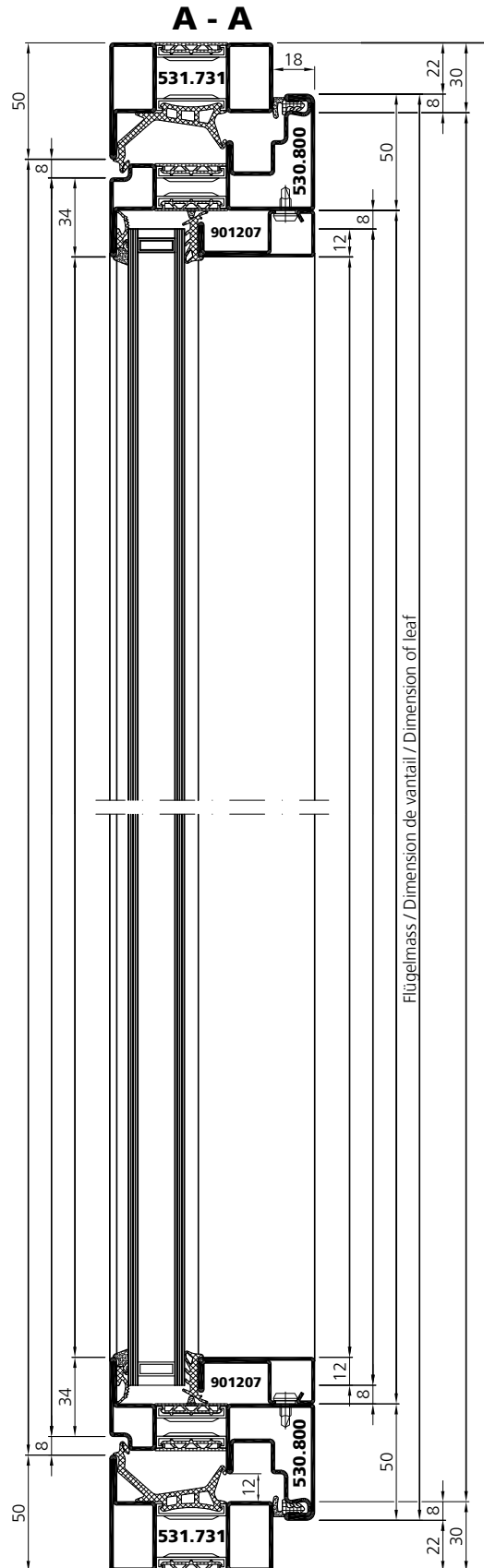
Stahl	Edelstahl
Acier	Acier inox
Steel	Stainless steel

**Systemplan
Fenster**

**Plan du système
Fenêtres**

**System plan
Windows**

- un_sp_0072
- un_sp_0082

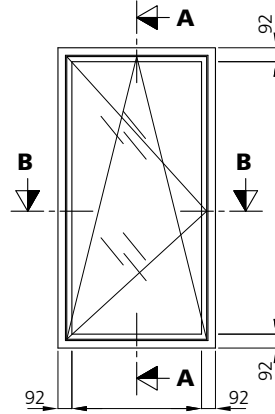


**Systemplan
Fenster**

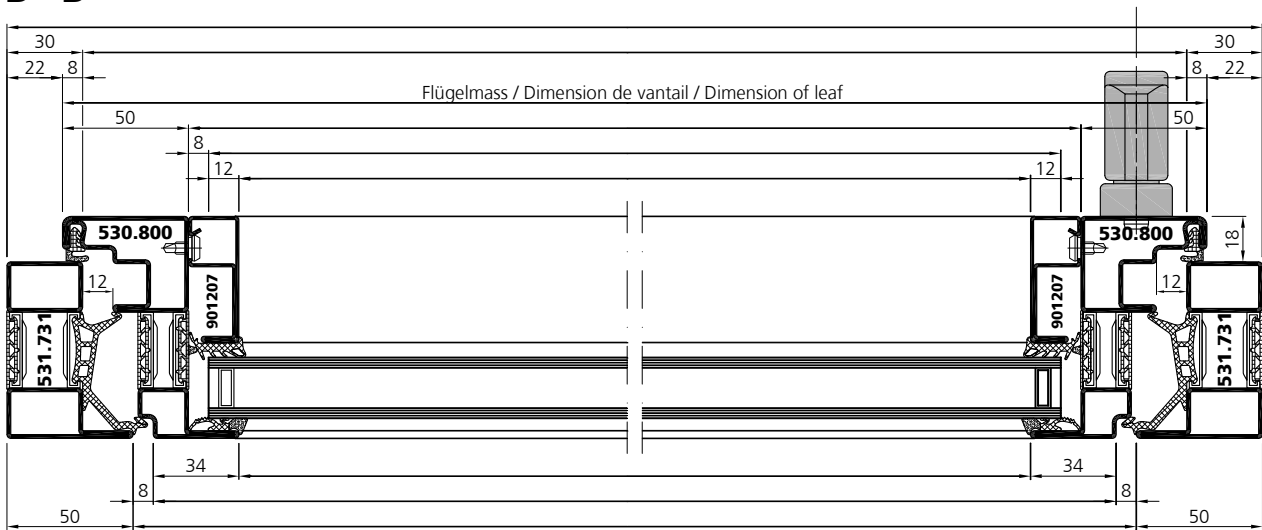
**Plan du système
Fenêtres**

**System plan
Windows**

■ un_sp_0072
■ un_sp_0082



B - B



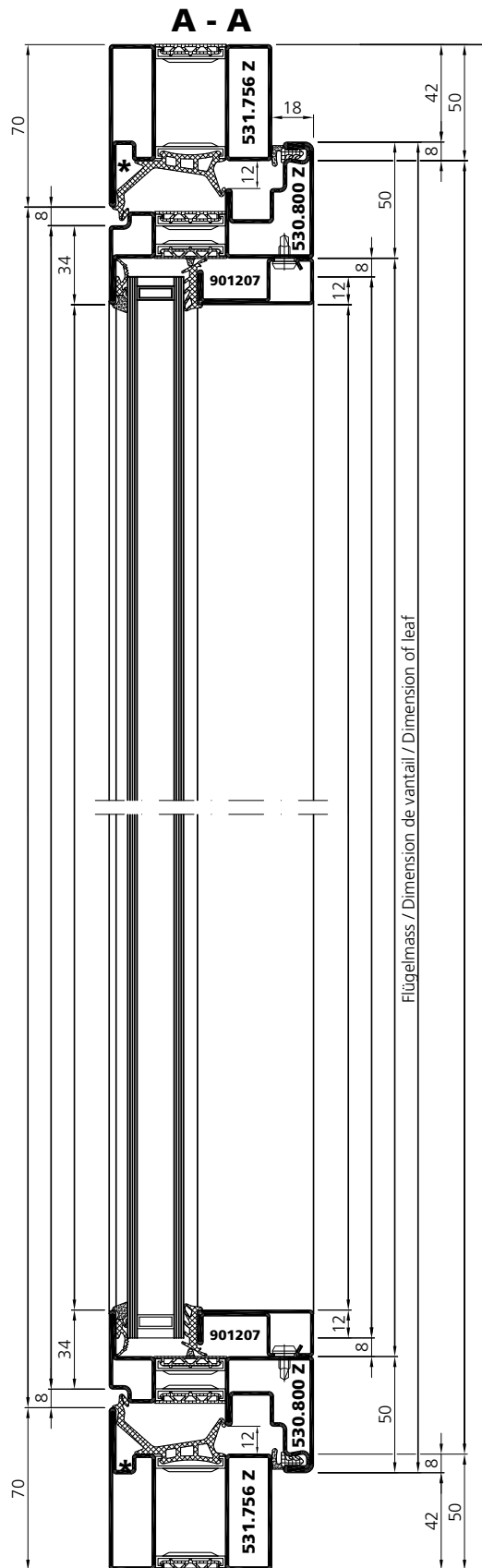
**Systemplan
Fenster**

**Plan du système
Fenêtres**

**System plan
Windows**

■ [un_sp_0090](#)

- * Profil mit kontrollierter Entwässerung
Profilé avec garde à l'eau
Profile with drainage groove



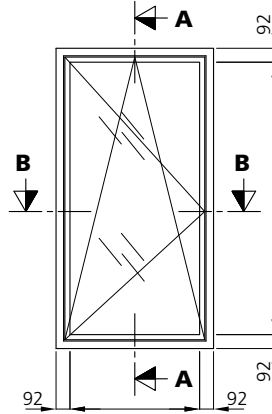
**Systemplan
Fenster**

**Plan du système
Fenêtres**

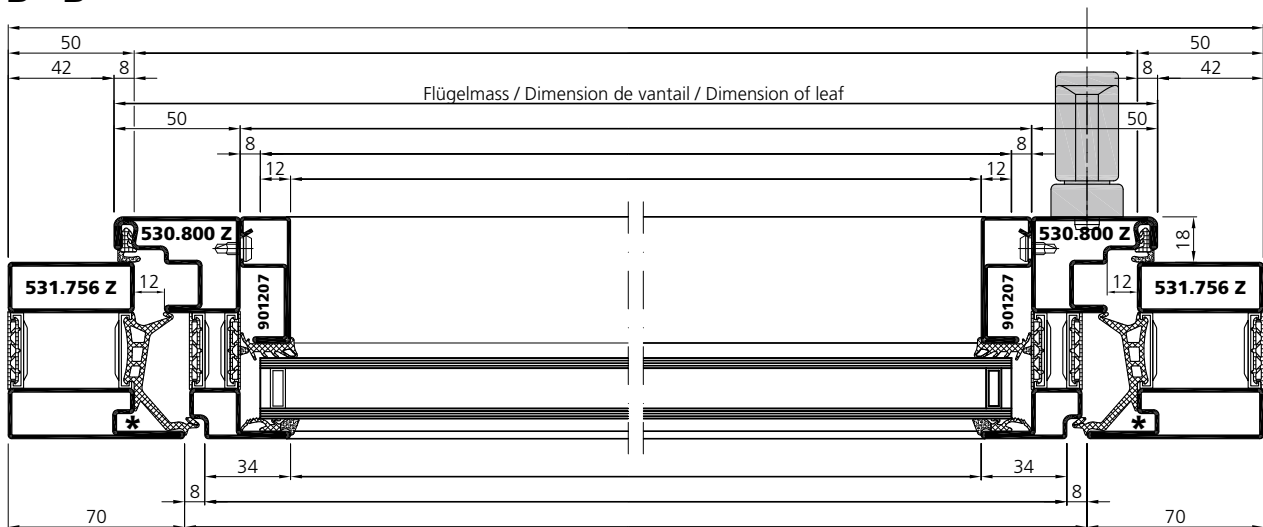
**System plan
Windows**

un_sp_0090

* Profil mit kontrollierter Entwässerung
 Profilé avec garde à l'eau
 Profile with drainage groove



B - B



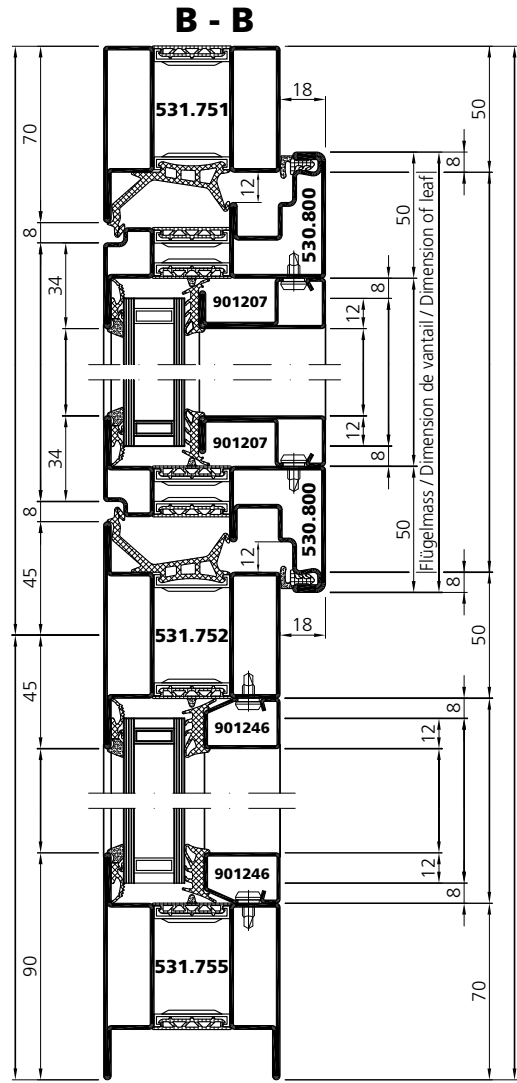
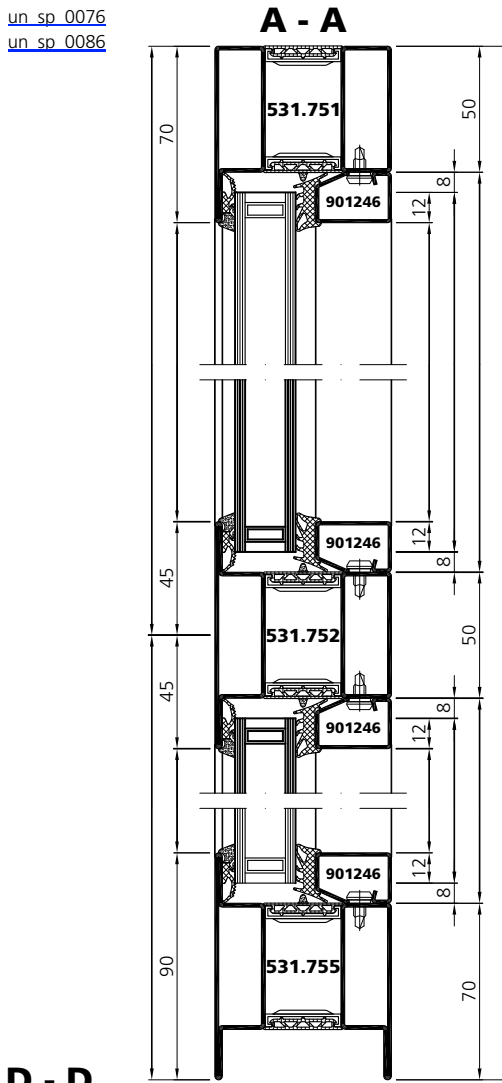
Stahl Acier Steel	Edelstahl Acier inox Stainless steel
-------------------------	--

**Systemplan
Fenster**

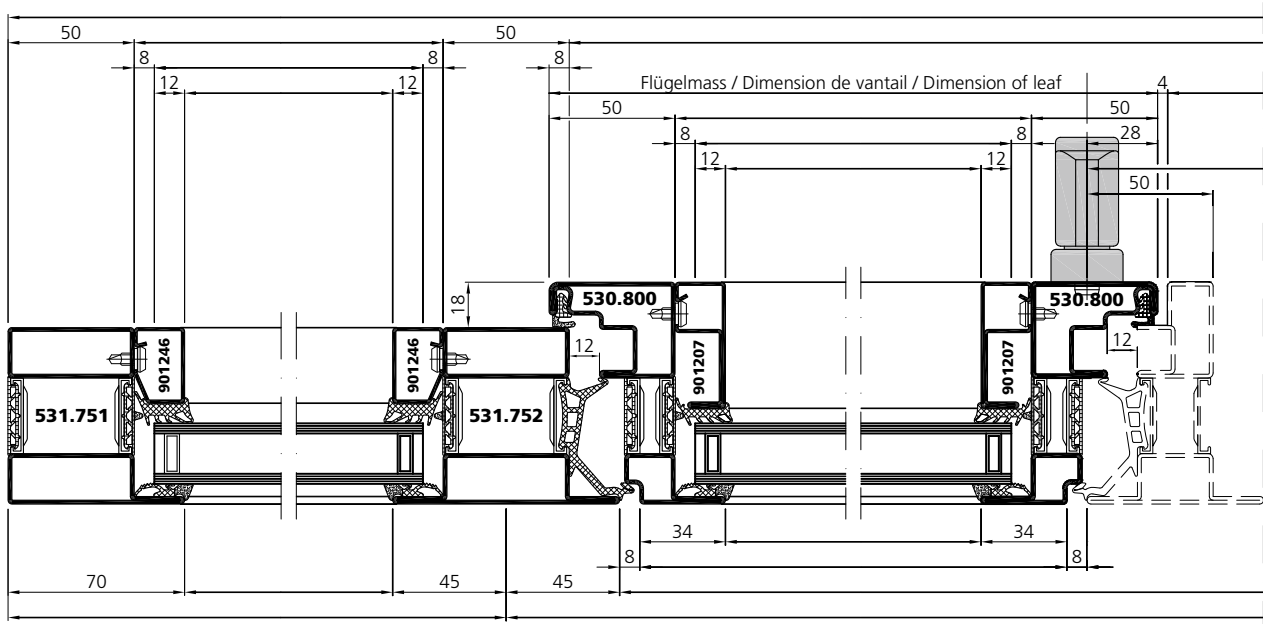
**Plan du système
Fenêtres**

**System plan
Windows**

- un_sp_0076
- un_sp_0086



D - D

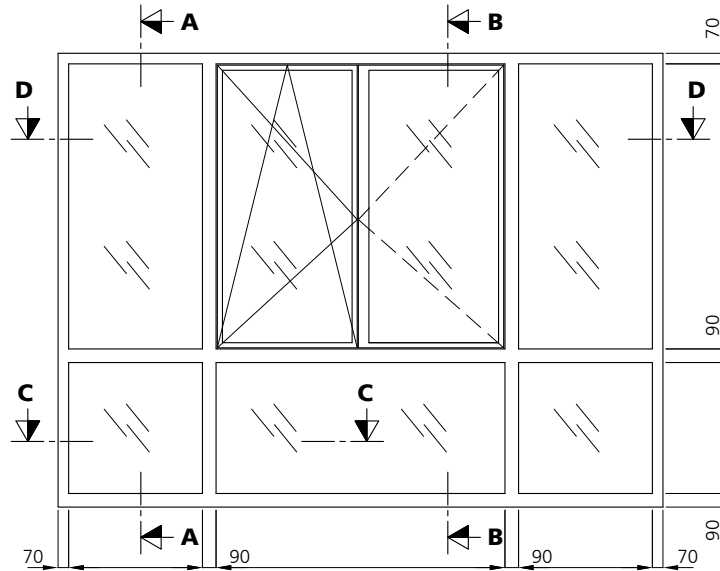


**Systemplan
Fenster**

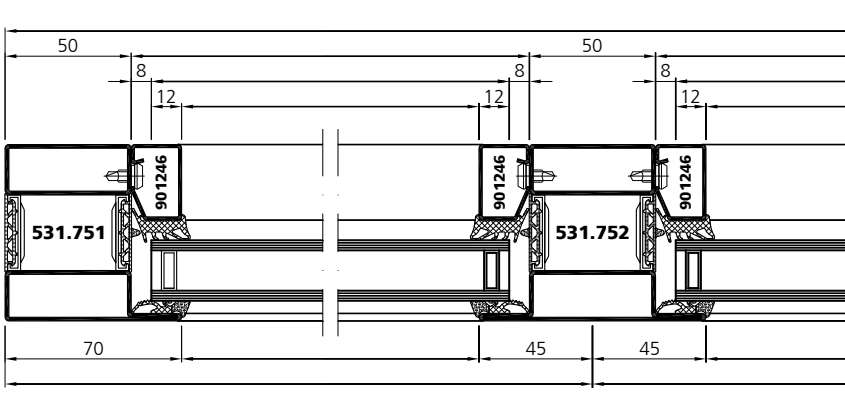
**Plan du système
Fenêtres**

**System plan
Windows**

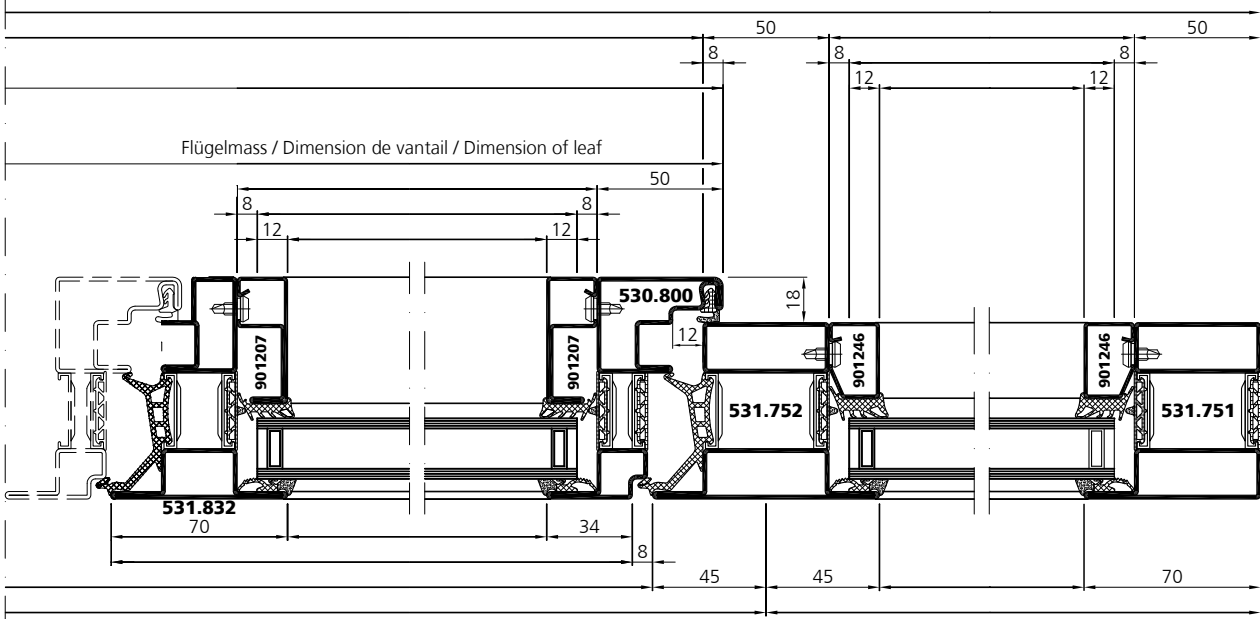
■ un_sp_0076
■ un_sp_0086



C - C



D - D



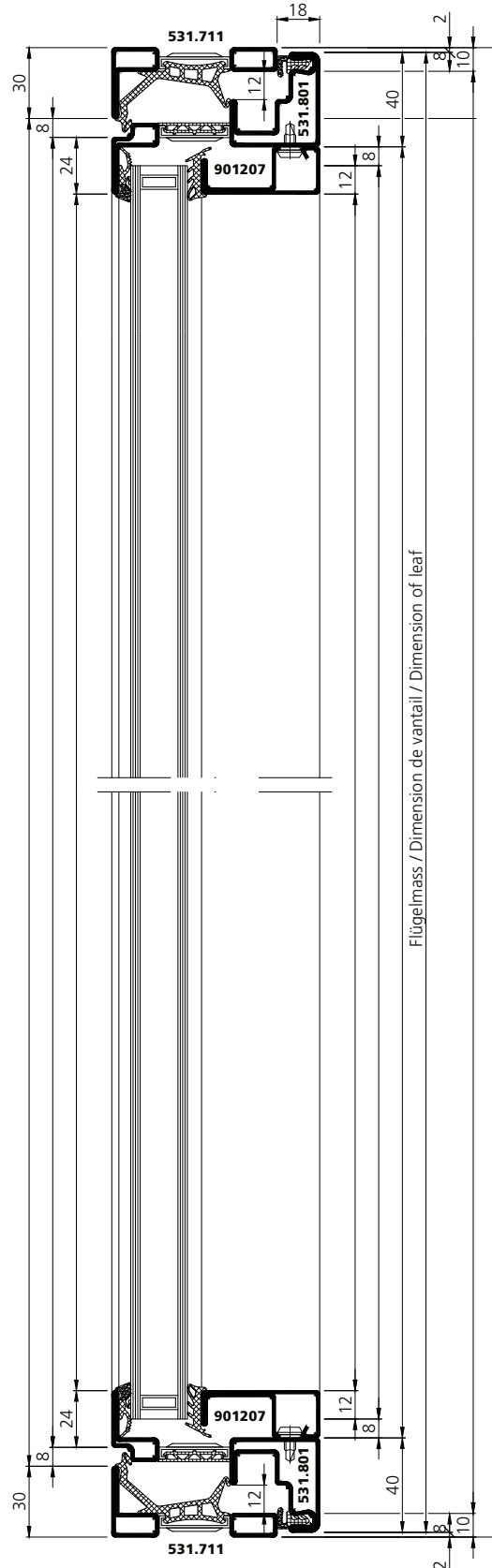
**Systemplan
Fenster**

**Plan du système
Fenêtres**

**System plan
Windows**

■ [un_sp_0202](#)

A - A

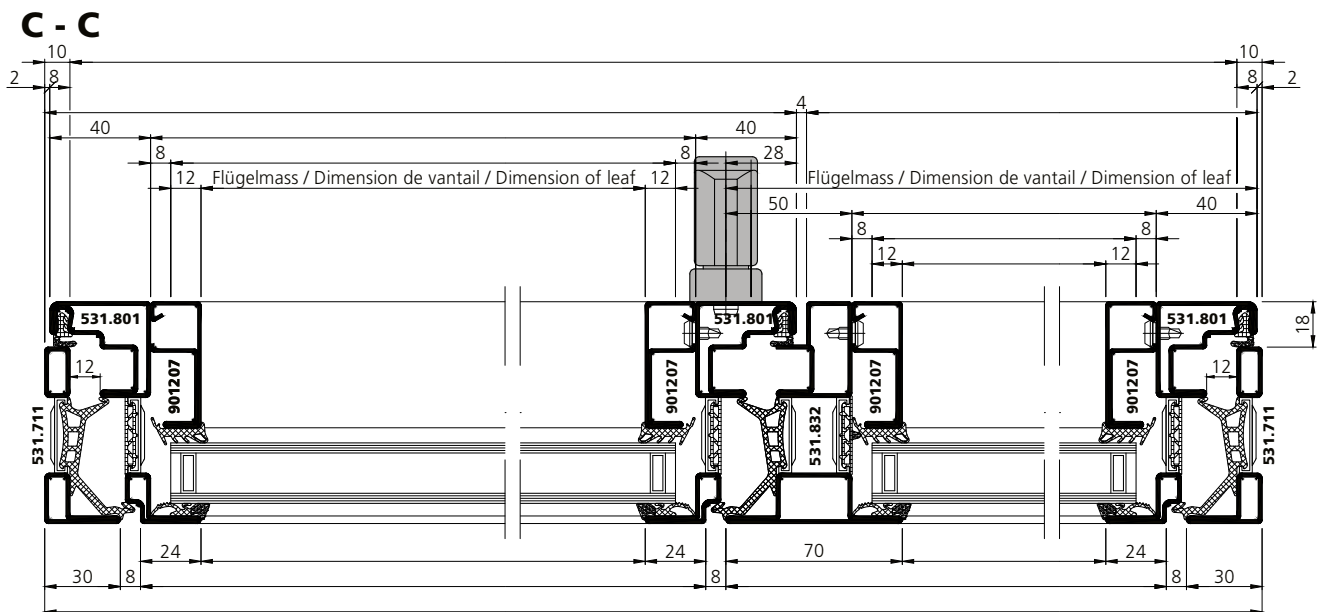
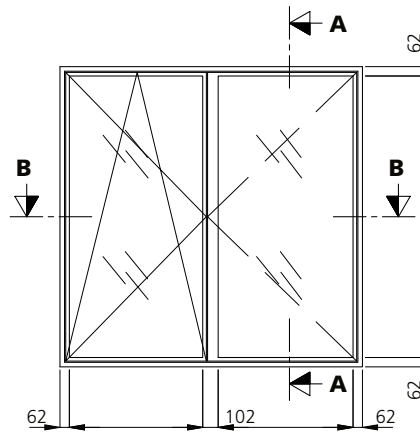


**Systemplan
Fenster**

**Plan du système
Fenêtres**

**System plan
Windows**

■ un_sp_0202





PSK

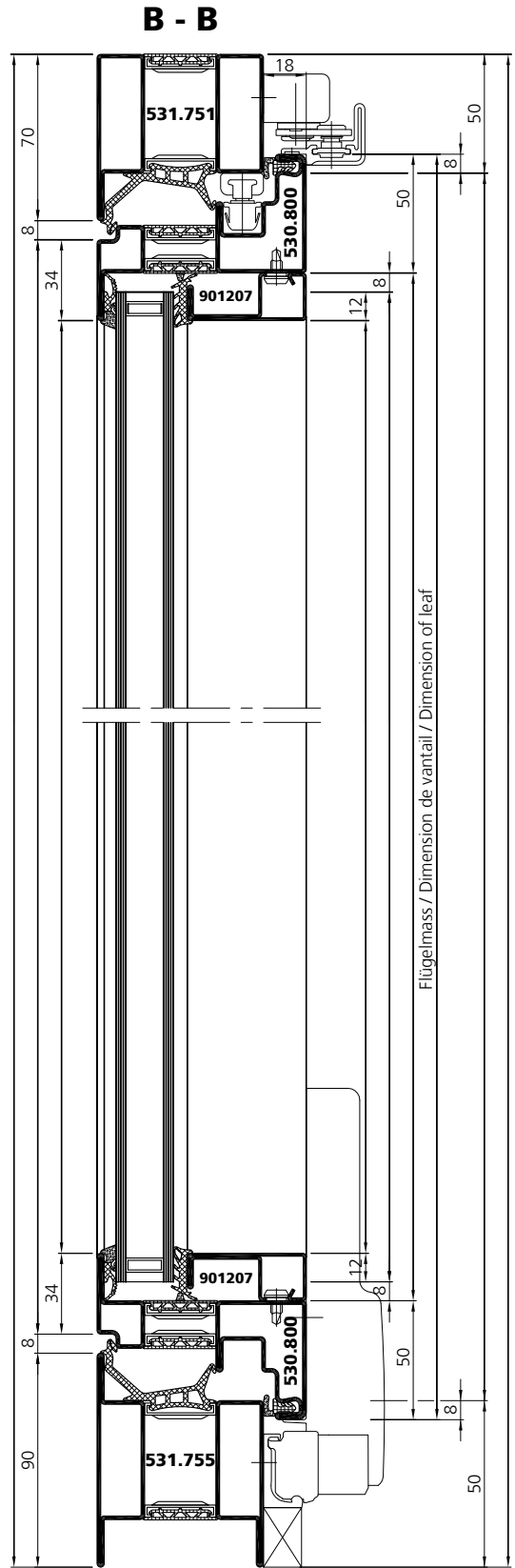
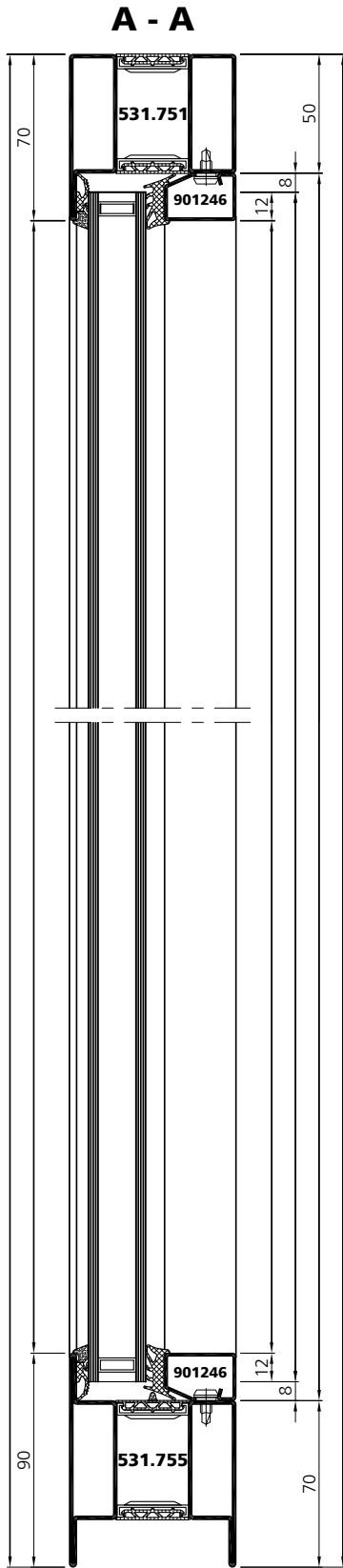
Stahl Acier Steel	Edelstahl Acier inox Stainless steel
-------------------------	--

**Systemplan
Parallel-Schiebe-Kipp**

**Plan du système
Fenêtre coulissante
parallèle**

**System plan
Parallel slide and tilt
window**

- [un_sp_0094](#)
- [un_sp_0095](#)





PSK

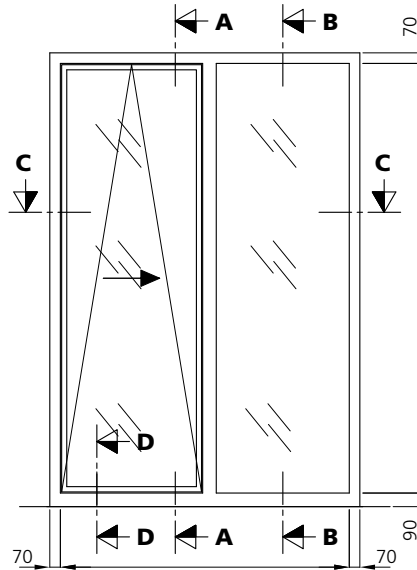
Stahl Acier Steel	Edelstahl Acier inox Stainless steel
-------------------------	--

**Systemplan
Parallel-Schiebe-Kipp**

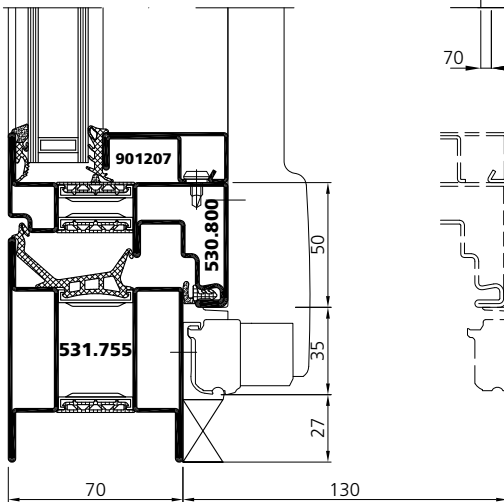
**Plan du système
Fenêtre coulissante
parallèle**

**System plan
Parallel slide and tilt
window**

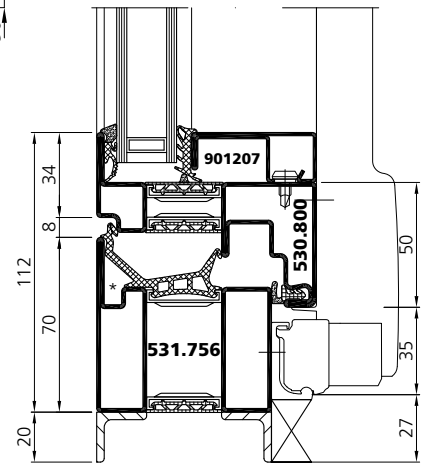
■ un_sp_0094
 ■ un_sp_0095



D - D



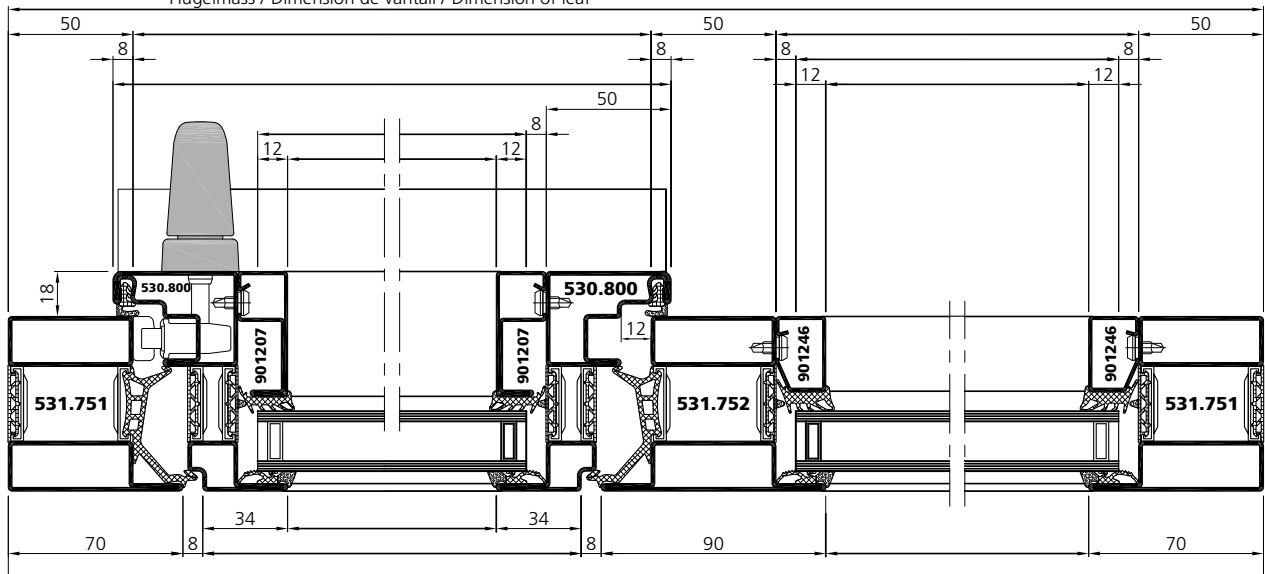
D' - D'



* Für Fensterkonstruktion in Frankreich zwingend notwendig!
 Obligatoire pour fenêtre en France!
 Mandatory for window construction in France!

C - C

Flügelmass / Dimension de vantail / Dimension of leaf

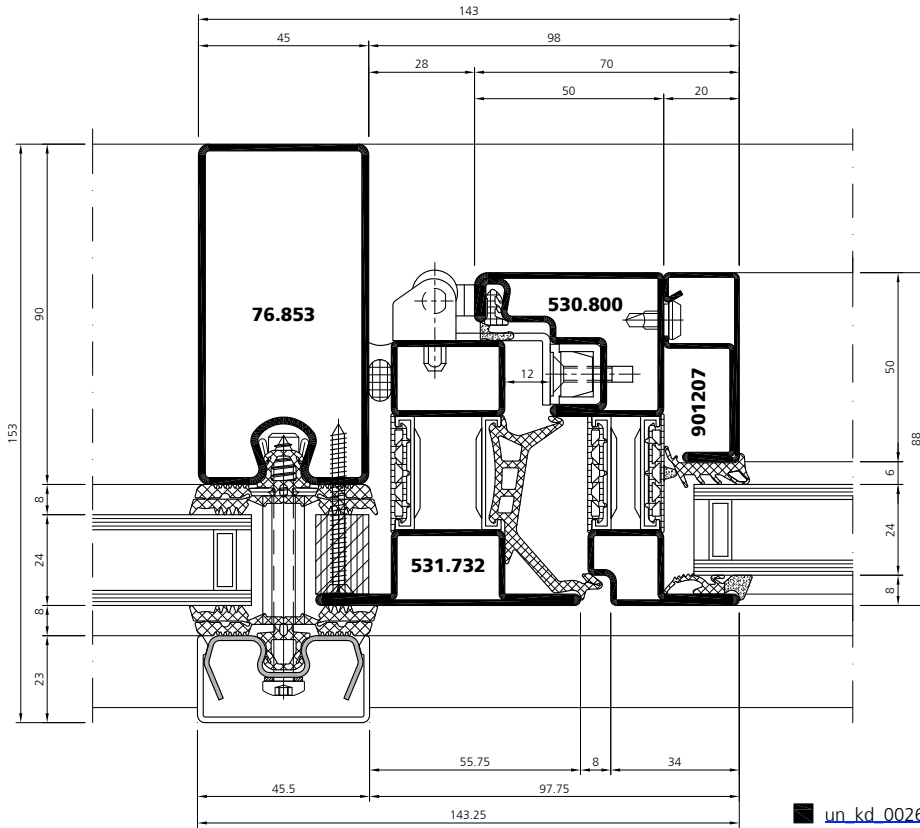


Stahl Acier Steel	Edelstahl Acier inox Stainless steel
-------------------------	--

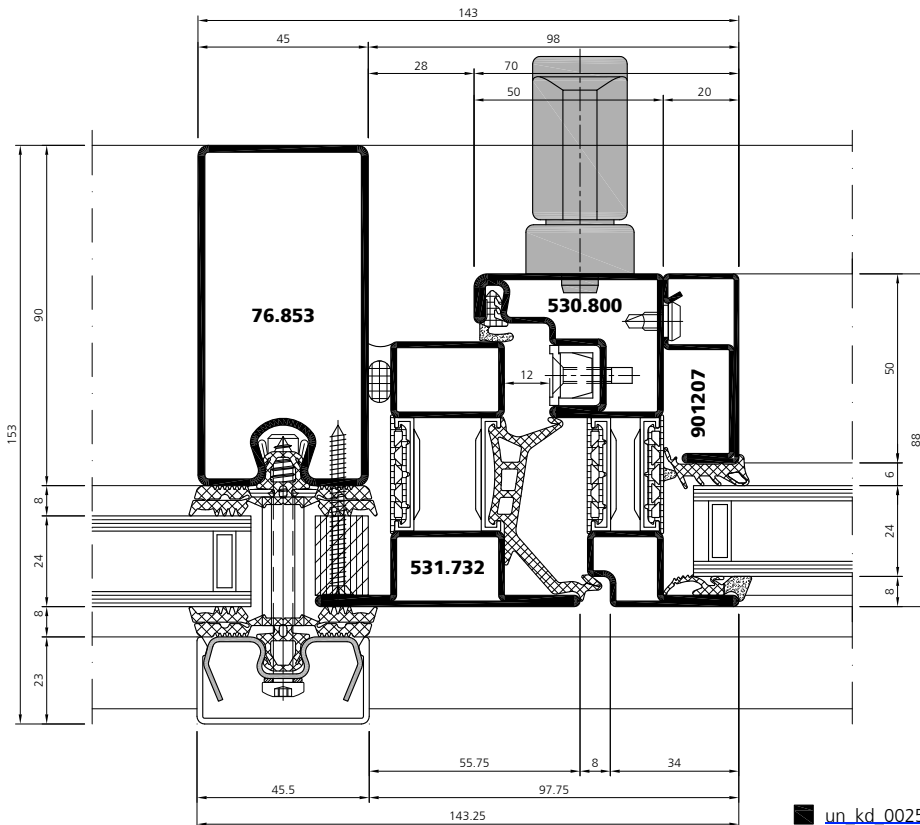
**Konstruktionsdetails
Fenster**

**Détails de construction
Fenêtres**

**Construction details
Windows**



■ [un_kd_0026](#)

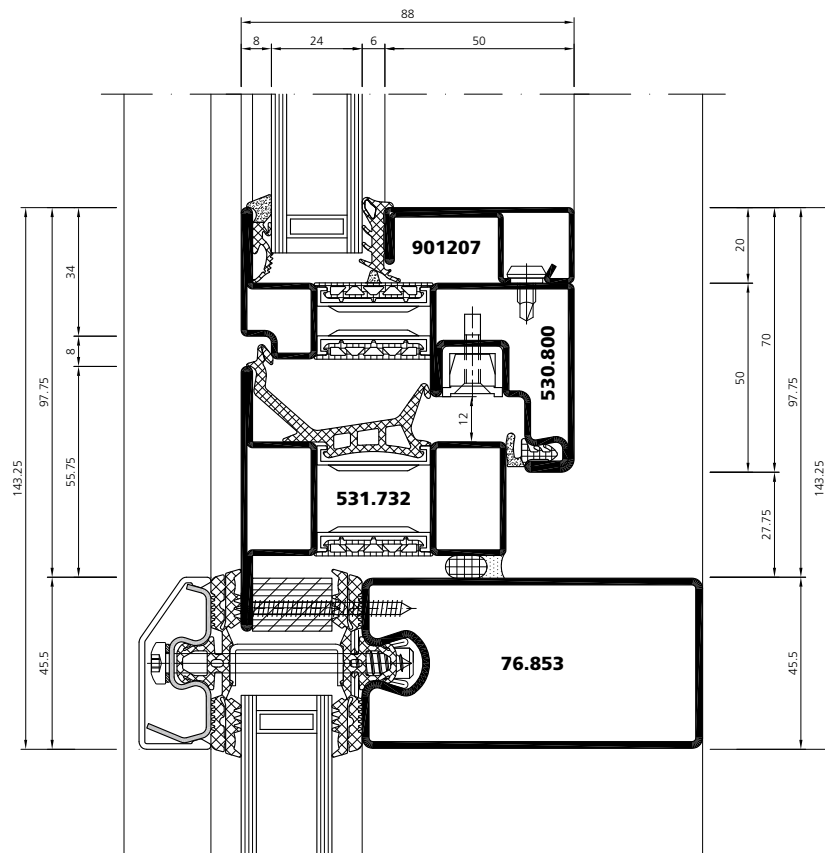


■ [un_kd_0025](#)

Konstruktionsdetails
Fenster

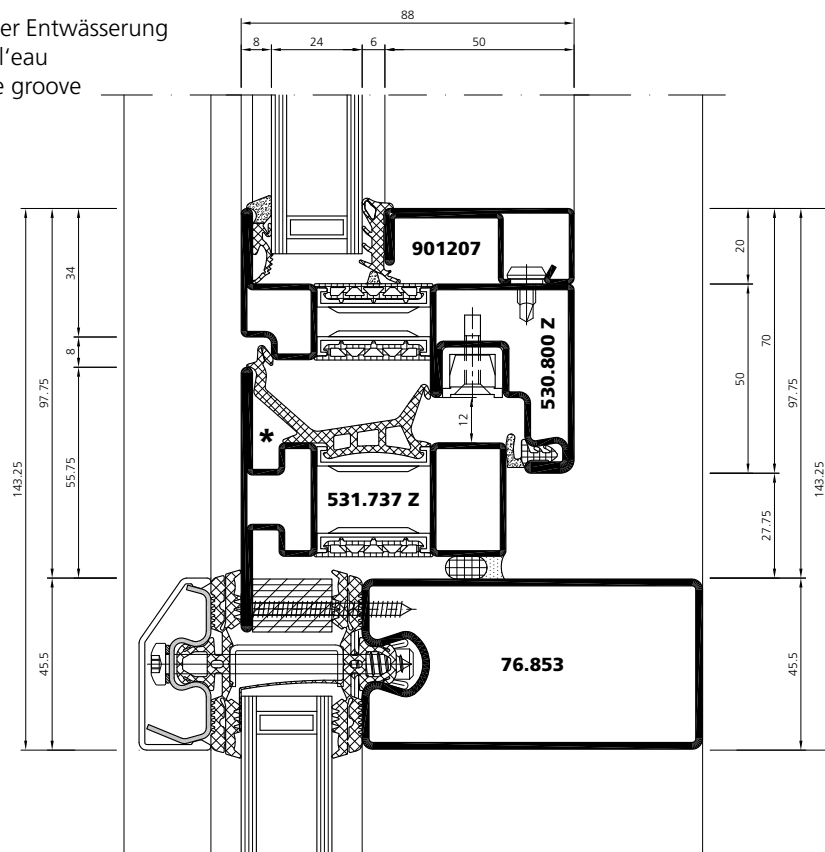
Détails de construction
Fenêtres

Construction details
Windows



un_kd_0014

* Profil mit kontrollierter Entwässerung
 Profilé avec garde à l'eau
 Profile with drainage groove



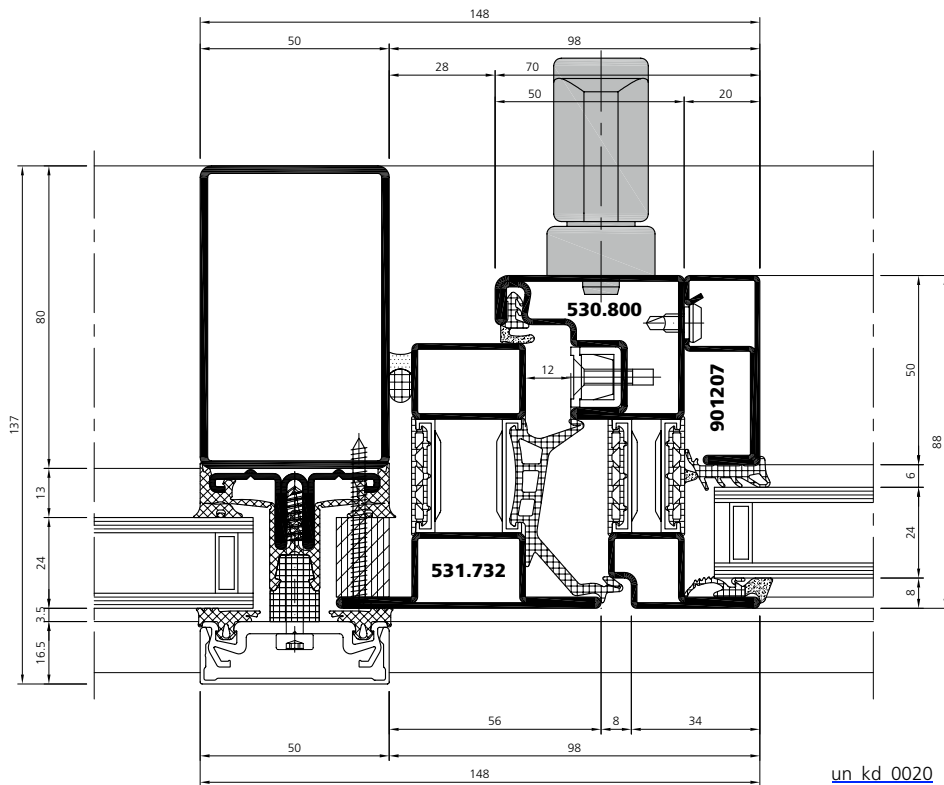
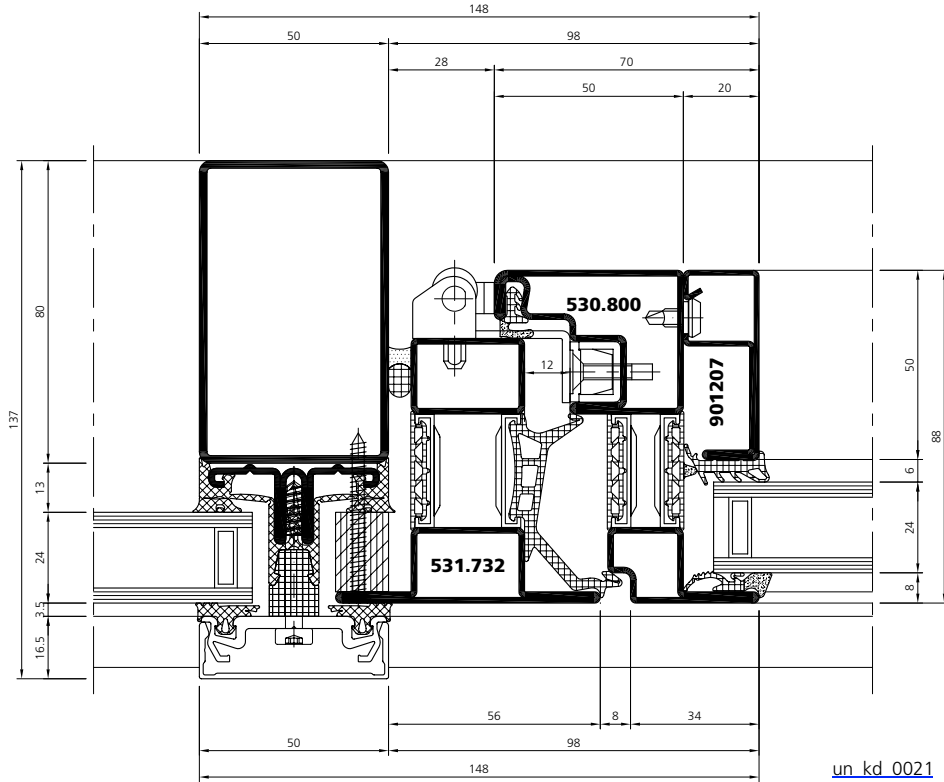
un_kd_0027

Stahl Acier Steel	Edelstahl Acier inox Stainless steel
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**Konstruktionsdetails
Fenster**

**Détails de construction
Fenêtres**

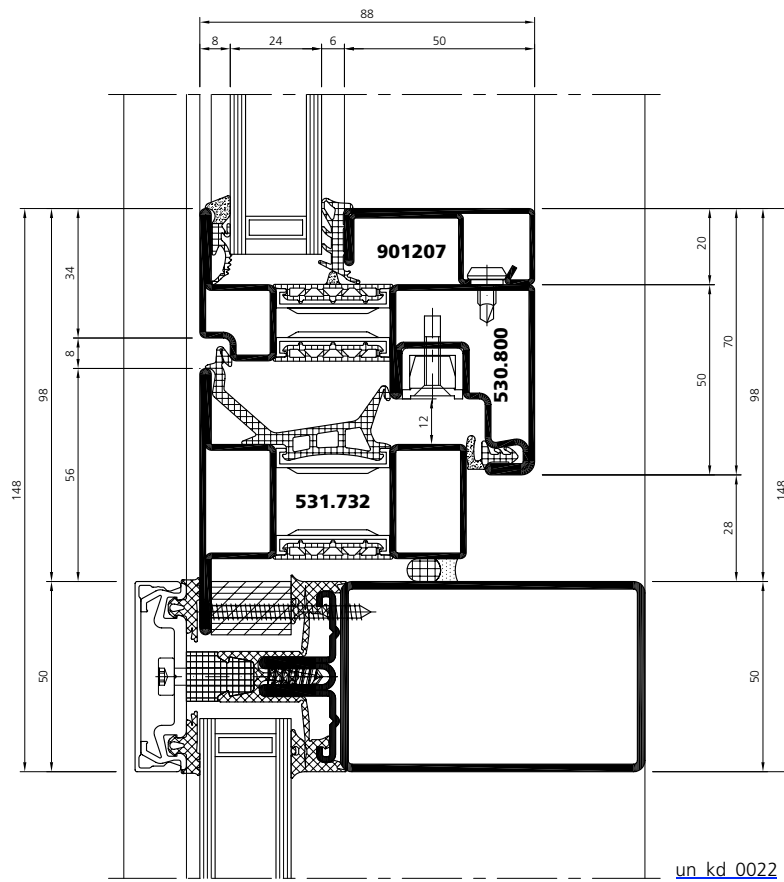
**Construction details
Windows**



**Konstruktionsdetails
Fenster**

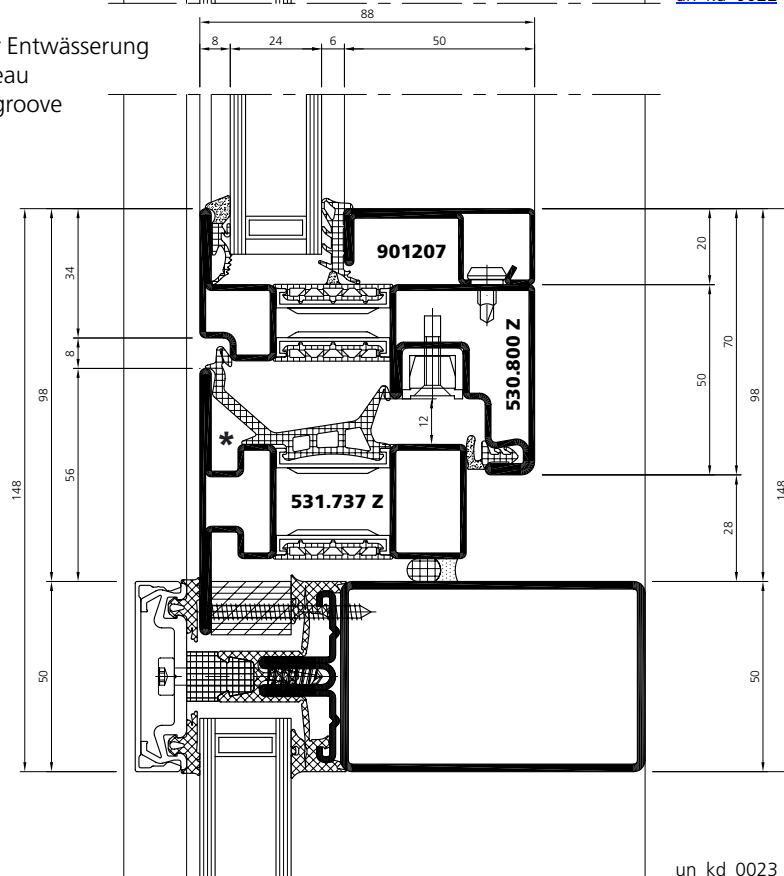
**Détails de construction
Fenêtres**

**Construction details
Windows**



[un kd 0022](#)

- * Profil mit kontrollierter Entwässerung
 Profilé avec garde à l'eau
 Profile with drainage groove



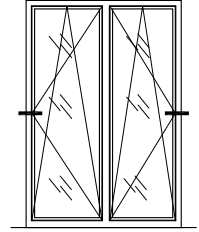
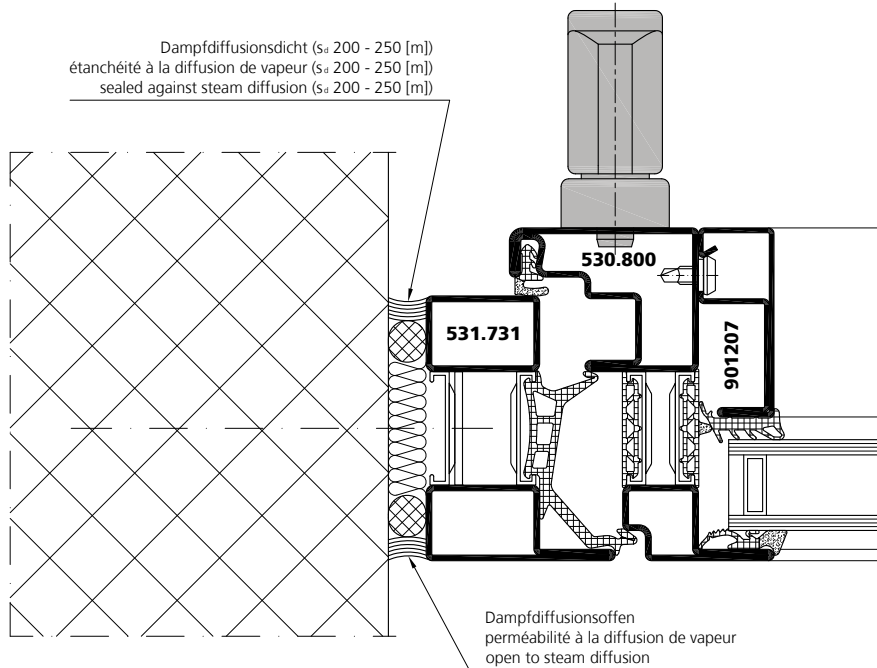
[un kd 0023](#)

Stahl	Edelstahl
Acier	Acier inox
Steel	Stainless steel

**Bauanschlüsse
Fenster**

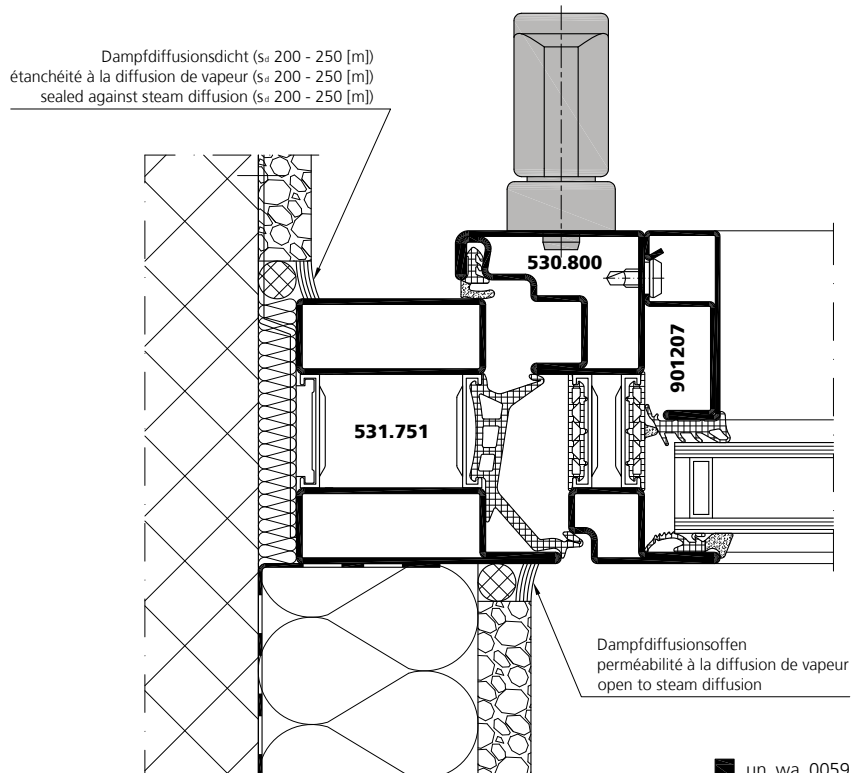
**Raccords muraux
Fenêtres**

**Wall abutments
Windows**



■ [un_wa_0058](#)

forster unico Hi
■ [un_wa_0084](#)



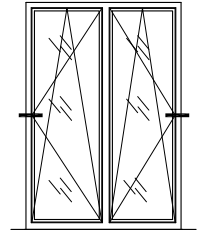
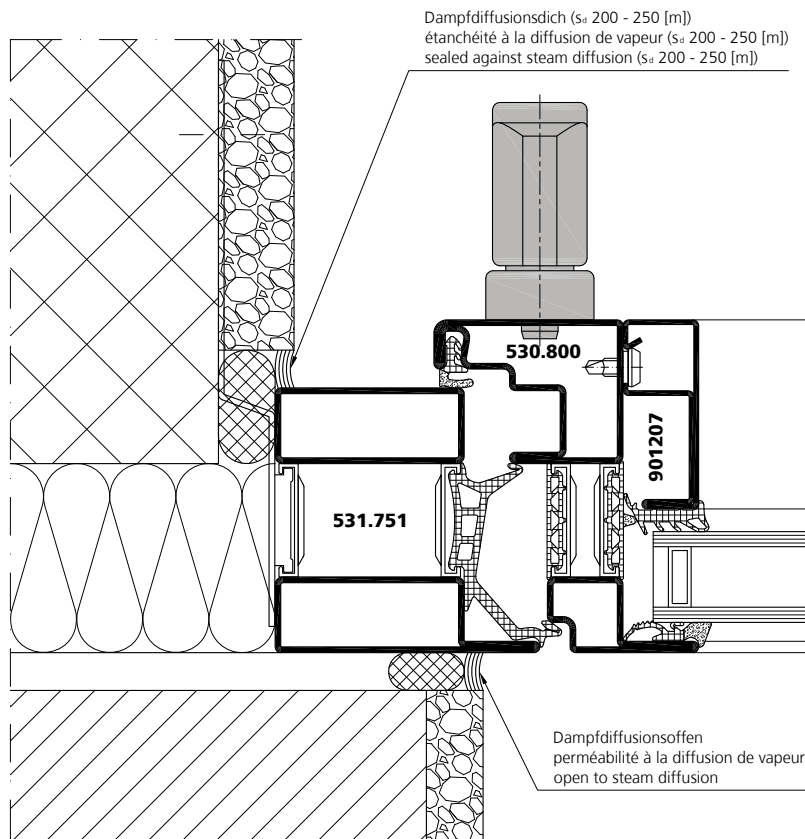
■ [un_wa_0059](#)

forster unico Hi
■ [un_wa_0085](#)

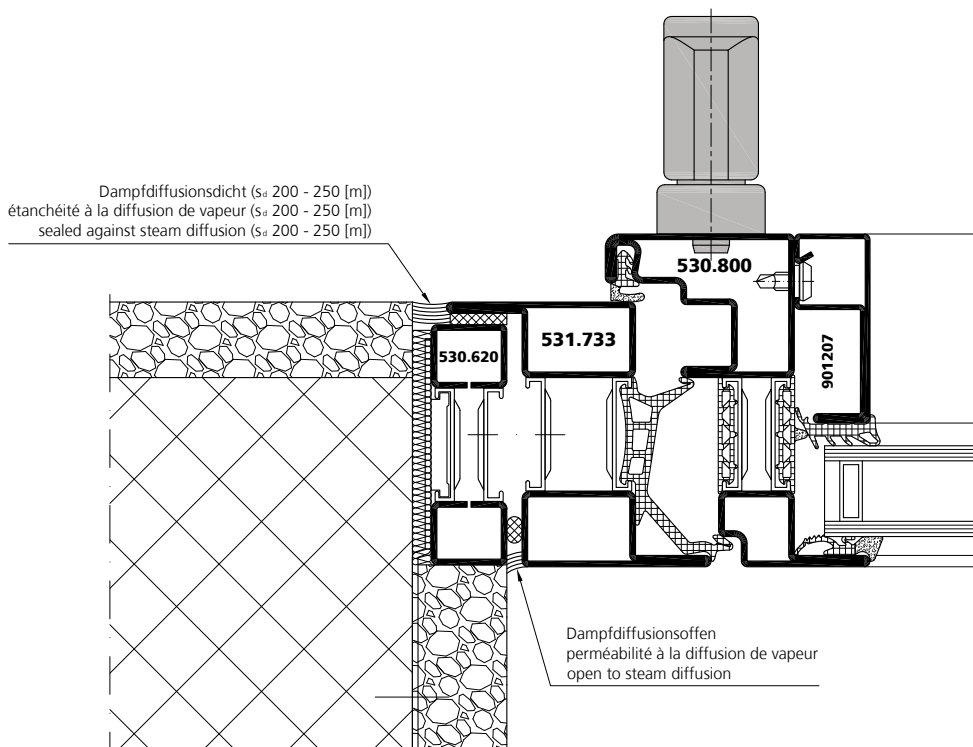
Bauanschlüsse Fenster

Raccords muraux Fenêtres

Wall abutments Windows



- [un_wa_0052](#)
- [un_wa_0130](#) (530.711/531.801)
- forster unico Hi
- [un_wa_0078](#)
- [un_wa_0139](#) (530.711/531.801)

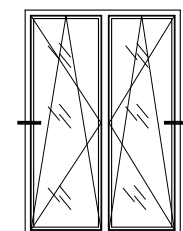
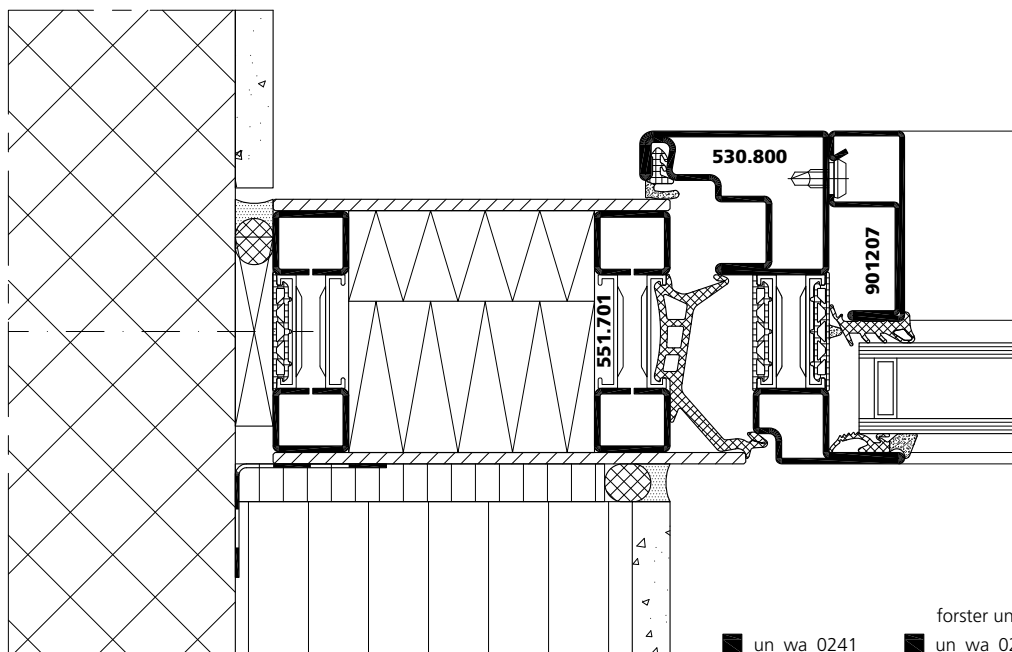
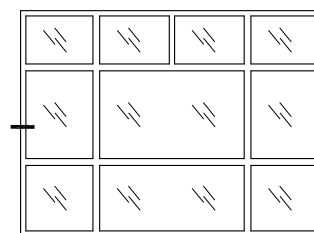
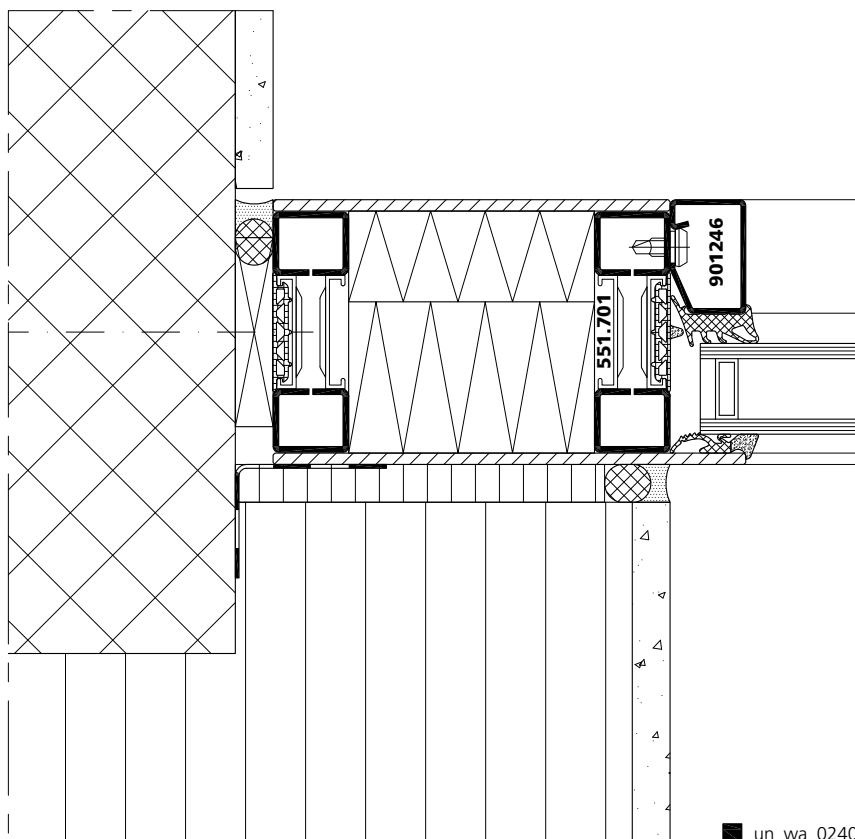


- [un_wa_0061](#)
- [un_wa_0129](#) (530.713/531.801)
- forster unico Hi
- [un_wa_0087](#)
- [un_wa_0138](#) (530.713/531.801)

Bauanschlüsse
Fenster
Rahmenverbreiterung

Raccords muraux
Fenêtres
Elargissement de cadre

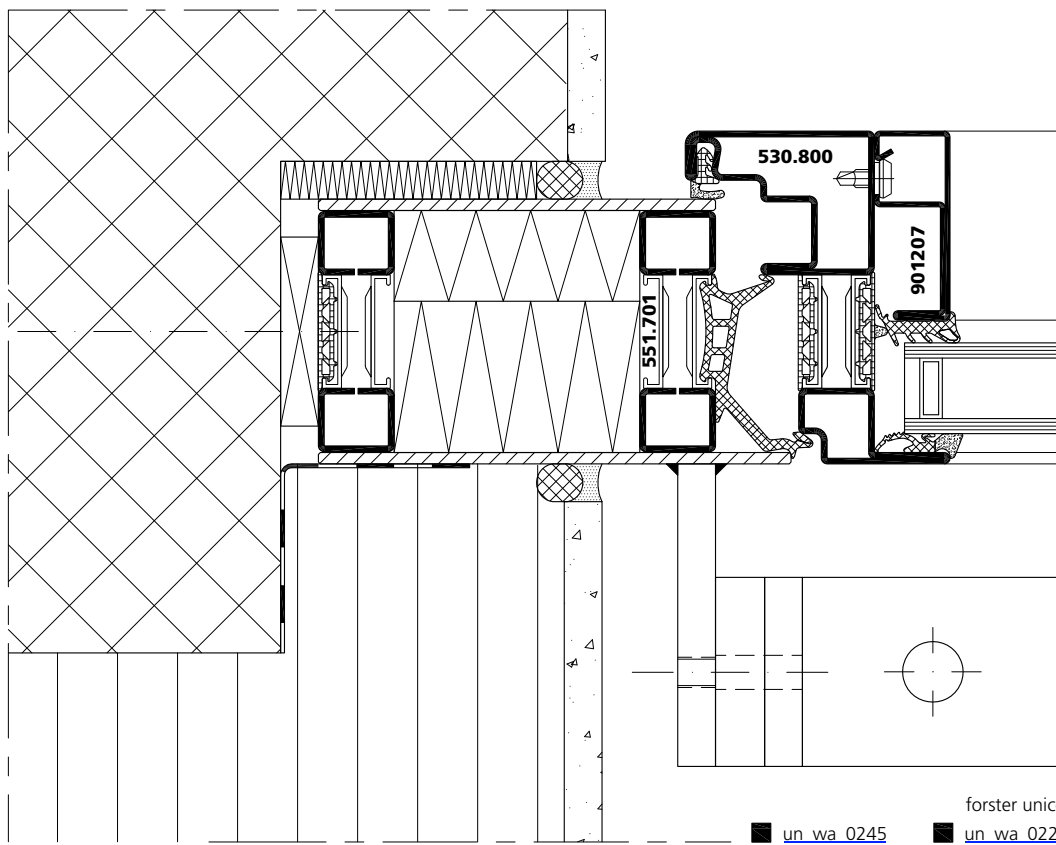
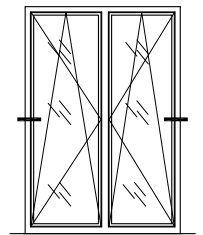
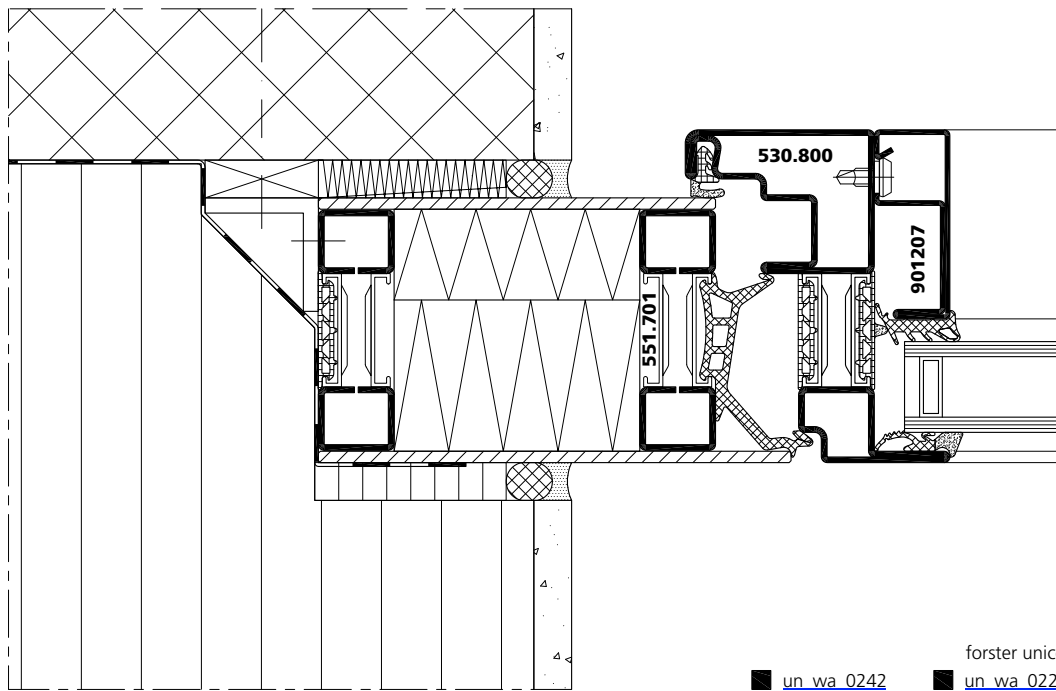
Wall abutments
Windows
Frame enlargement



Bauanschlüsse
Fenster
Rahmenverbreiterung

Raccords muraux
Fenêtres
Elargissement de cadre

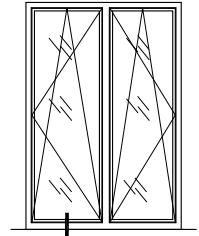
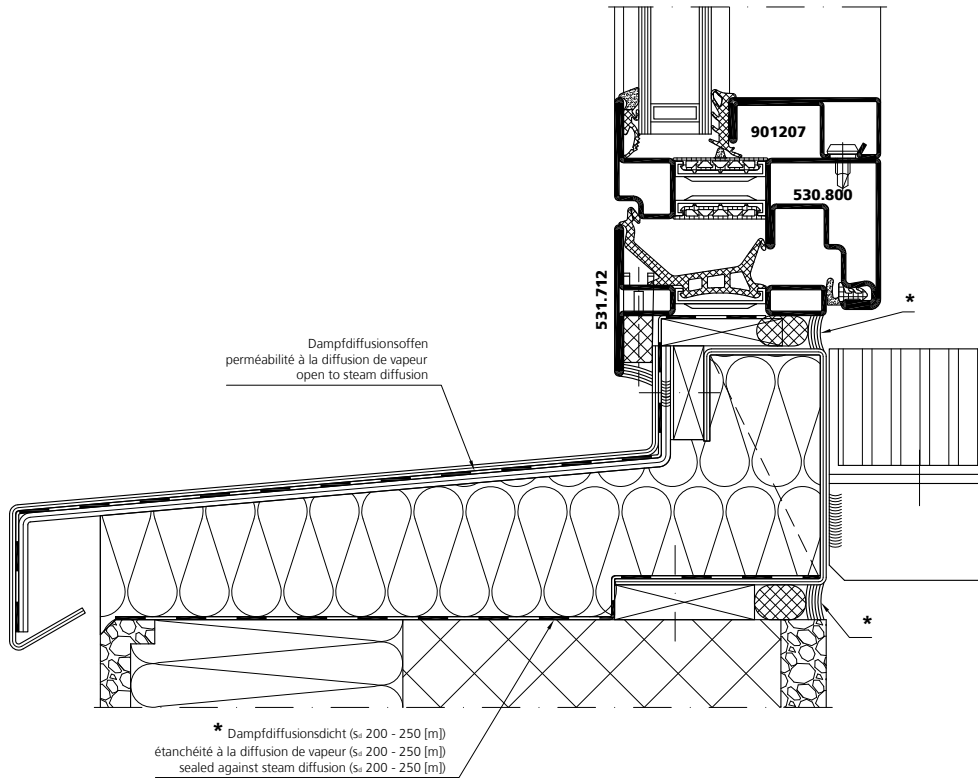
Wall abutments
Windows
Frame enlargement



**Bauanschlüsse
Fenster**

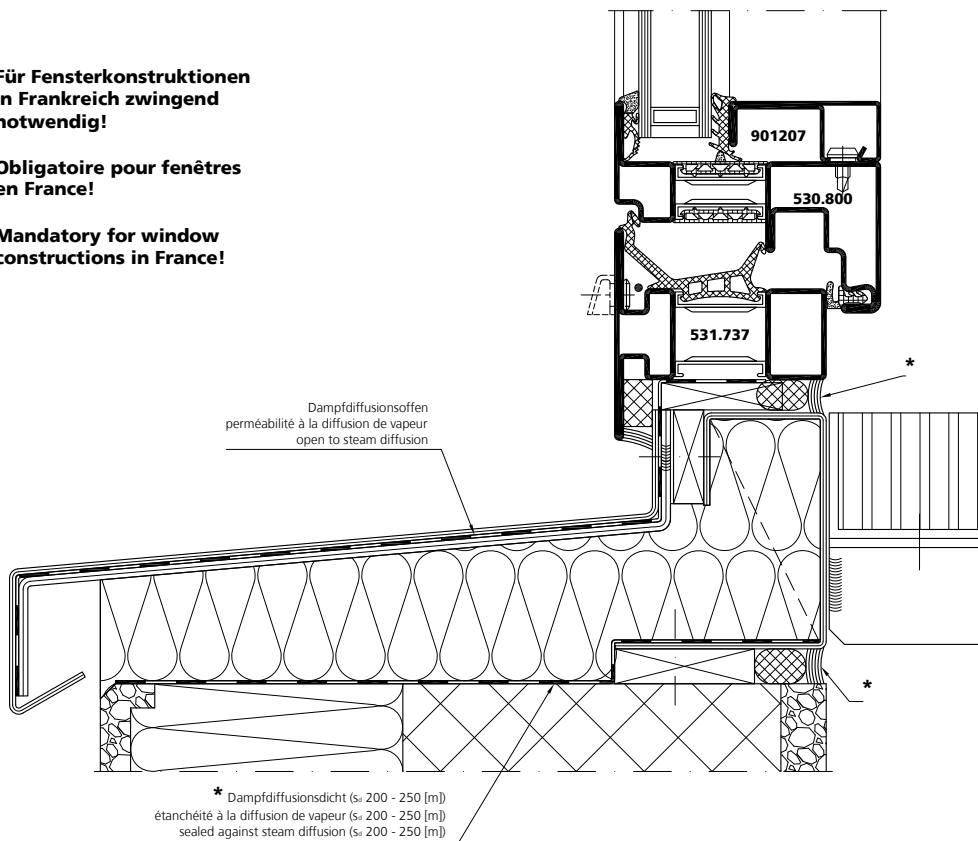
**Raccords muraux
Fenêtres**

**Wall abutments
Windows**



- [un_wa_0054](#)
- [un_wa_0131](#) (531.801)
- forster unico Hi
- [un_wa_0080](#)
- [un_wa_0132](#) (531.801)

- **Für Fensterkonstruktionen in Frankreich zwingend notwendig!**
- Obligatoire pour fenêtres en France!**
- Mandatory for window constructions in France!**



- [un_wa_0065](#)
- [un_wa_0133](#) (531.801)
- forster unico Hi
- [un_wa_0091](#)
- [un_wa_0134](#) (531.801)



Casino de Monte Carlo, Restauration du Cabaret, MC-Monaco

Übersicht Systempläne Einbruchhemmende Fenster RC1

1	Drehkipp-Flügel
2	Drehkipp-/Drehkipp-Flügel
3	Kippflügel
4	Stulpflügel Dreh/Drehkipp
5	Stulpflügel Dreh/Drehkipp mit Seitenteilen
6	Festverglasung


Tableau des plans du système – Fenêtres anti- effraction RC1

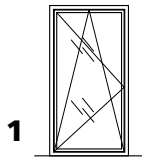
1	Ouvrant oscillo-battant
2	Ouvrant oscillo-battant/oscillo-battant
3	Ouverture à soufflet
4	Ouvrant semi-fixe à la française/oscillo-battant
5	Ouvrant semi-fixe à la française/oscillo-battant avec parties latérales fixes
6	Vitrage fixe




Synopsis of system plans Burglary-resistant windows RC1

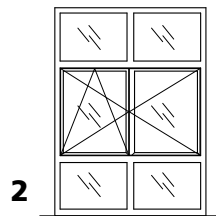
1	Tilt-turn window
2	Tilt-turn/tilt-turn window
3	Bottom hung window
4	Double sash window turn/tilt-turn
5	Double sash window turn/tilt-turn with screen abutments
6	Fixed glazing




 Stahl / Acier / Steel

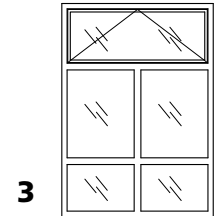
 Edelstahl / Acier inox / Stainless steel






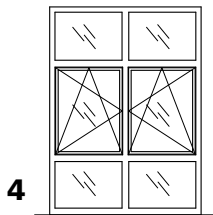
-  [un_sp_0205](#)
-  [un_sp_0223](#)
-  [un_sp_0215](#)






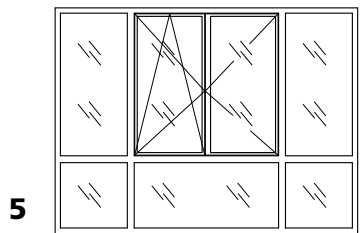
-  [un_sp_0208](#)
-  [un_sp_0224](#)
-  [un_sp_0216](#)






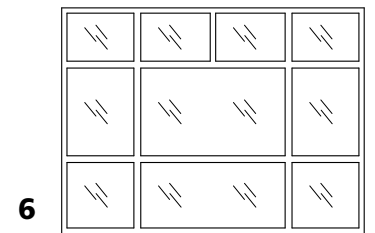
-  [un_sp_0207](#)
-  [un_sp_0220](#)
-  [un_sp_0217](#)





-  [un_sp_0206](#)
-  [un_sp_0221](#)
-  [un_sp_0218](#)



-  [un_sp_0209](#)
-  [un_sp_0222](#)
-  [un_sp_0219](#)



-  [un_sp_0226](#)
-  [un_sp_0225](#)

Übersicht Systempläne Einbruchhemmende Fenster RC2

- 1 Drehkipp-Flügel
- 2 Drehkipp-/Drehkipp-Flügel
- 3 Kippflügel
- 4 Stulpflügel Dreh/Drehkipp
- 5 Stulpflügel Dreh/Drehkipp mit Seitenteilen
- 6 Festverglasung

Tableau des plans du système – Fenêtres anti- effraction RC2

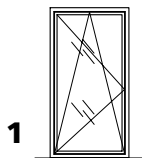
- 1 Ouvrant oscillo-battant
- 2 Ouvrant oscillo-battant/oscillo-battant
- 3 Ouverture à soufflet
- 4 Ouvrant semi-fixe à la française/oscillo-battant
- 5 Ouvrant semi-fixe à la française/oscillo-battant avec parties latérales fixes
- 6 Vitrage fixe

Synopsis of system plans Burglary-resistant windows RC2

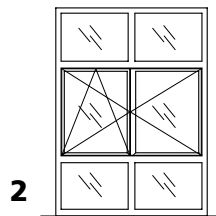
- 1 Tilt-turn window
- 2 Tilt-turn/tilt-turn window
- 3 Bottom hung window
- 4 Double sash window turn/tilt-turn
- 5 Double sash window turn/tilt-turn with screen abutments
- 6 Fixed glazing

■ Stahl / Acier / Steel

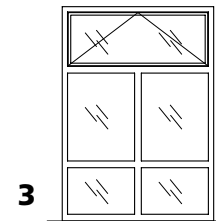
■ Edelstahl / Acier inox / Stainless steel



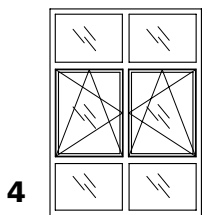
- [un_sp_0157](#)
[un_sp_0193](#)
- [un_sp_0177](#)



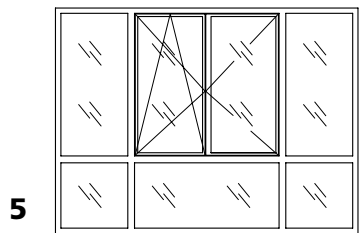
- [un_sp_0159](#)
[un_sp_0195](#)
- [un_sp_0179](#)



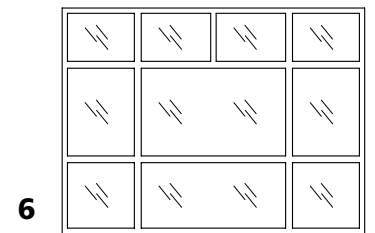
- [un_sp_0161](#)
[un_sp_0187](#)
- [un_sp_0181](#)



- [un_sp_0163](#)
[un_sp_0189](#)
- [un_sp_0183](#)



- [un_sp_0165](#)
[un_sp_0191](#)
- [un_sp_0185](#)



- [un_sp_0125](#)
[un_sp_0155](#)

Übersicht Systempläne Einbruchhemmende Fenster RC3

1	Drehkipp-Flügel
2	Drehkipp-/Drehkipp-Flügel
3	Kippflügel
4	Stulpflügel Dreh/Drehkipp
5	Stulpflügel Dreh/Drehkipp mit Seitenteilen
6	Festverglasung


Tableau des plans du système – Fenêtres anti- effraction RC3

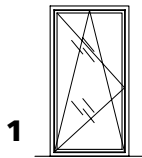
1	Ouvrant oscillo-battant
2	Ouvrant oscillo-battant/oscillo-battant
3	Ouverture à soufflet
4	Ouvrant semi-fixe à la française/oscillo-battant
5	Ouvrant semi-fixe à la française/oscillo-battant avec parties latérales fixes
6	Vitrage fixe



Synopsis of system plans Burglary-resistant windows RC3

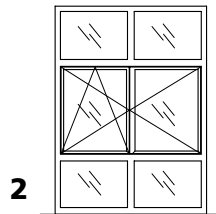
1	Tilt-turn window
2	Tilt-turn/tilt-turn window
3	Bottom hung window
4	Double sash window turn/tilt-turn
5	Double sash window turn/tilt-turn with screen abutments
6	Fixed glazing



 Stahl / Acier / Steel

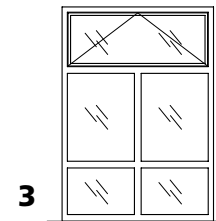
 Edelstahl / Acier inox / Stainless steel





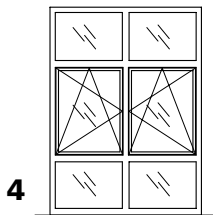
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[un_sp_0192](#)
 [un_sp_0176](#)





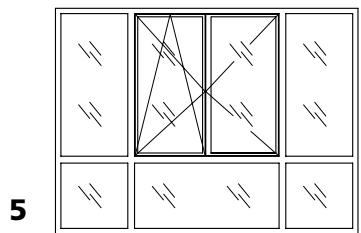
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[un_sp_0194](#)
 [un_sp_0178](#)





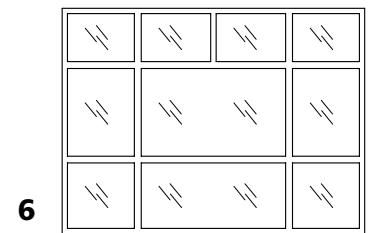
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[un_sp_0186](#)
 [un_sp_0180](#)





 [un_sp_0162](#)
[un_sp_0188](#)
 [un_sp_0182](#)



 [un_sp_0164](#)
[un_sp_0190](#)
 [un_sp_0184](#)



 [un_sp_0124](#)
 [un_sp_0154](#)

**FB4**Stahl
Acier
SteelEdelstahl
Acier inox
Stainless steel

Übersicht Systempläne Durchschusshemmende Fenster

1	Drehkipp-Flügel
2	Drehkipp-/Drehkipp-Flügel
3	Kippflügel
4	Stulpflügel Dreh/Drehkipp
5	Stulpflügel Dreh/Drehkipp mit Seitenteilen
6	Festverglasung

Tableau des plans du système Fenêtres pare-balles

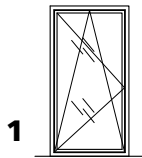
1	Ouvrant oscillo-battant
2	Ouvrant oscillo-battant/oscillo-battant
3	Ouverture à soufflet
4	Ouvrant semi-fixe à la française/oscillo-battant
5	Ouvrant semi-fixe à la française/oscillo-battant avec parties latérales fixes
6	Vitrage fixe

Synopsis of system plans Bullet resistant windows

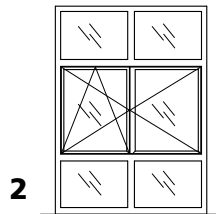
1	Tilt-turn window
2	Tilt-turn/tilt-turn window
3	Bottom hung window
4	Double sash window turn/tilt-turn
5	Double sash window turn/tilt-turn with screen abutments
6	Fixed glazing

■ Stahl / Acier / Steel

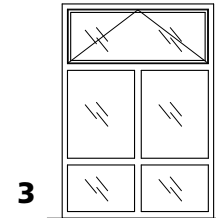
■ Edelstahl / Acier inox / Stainless steel



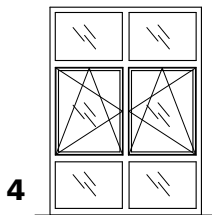
- [un_sp_0356](#)
- [un_sp_0361](#)
- [un_sp_0366](#)



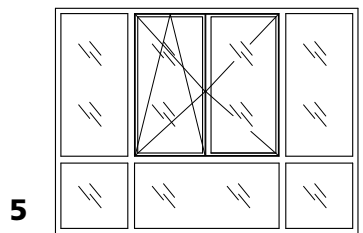
- [un_sp_0357](#)
- [un_sp_0362](#)
- [un_sp_0367](#)



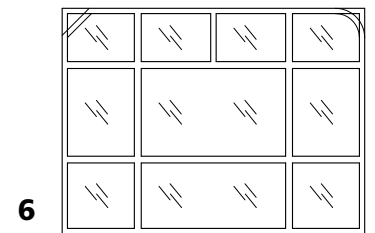
- [un_sp_0358](#)
- [un_sp_0363](#)
- [un_sp_0368](#)



- [un_sp_0359](#)
- [un_sp_0364](#)
- [un_sp_0369](#)



- [un_sp_0360](#)
- [un_sp_0365](#)
- [un_sp_0370](#)



- [un_sp_0342](#)
- [un_sp_0355](#)

Glastypen Fensterflügel und Festfeld (EN 1063)

Vitrage vantail et partie fixe (EN 1063)

Glass types leaves and screens (EN 1063)

- Vetrotech, Polygard PRO Climaplus BR4-NS/P8B (ISO), 42 mm
- Vetrotech, Vetrogard PRO Climaplus BR4-NS/P7B (ISO), 54 mm
- Schott, NOVOLAY secure BR4-NS/15.3.0 (ISO), 38 mm
- Flachglas, ALLSTOP ISO BR4-NS-22 (ISO), 57 mm

Glastypen Festfeld (EN 1063)

Vitrage partie fixe (EN 1063)

Glass types screens (EN 1063)



- Vetrotech, Polygard PRO BR4-NS/P8B (Mono), 21 mm
- Schott, NOVOLAY secure BR4-NS/15.3.0 (Mono), 20 mm

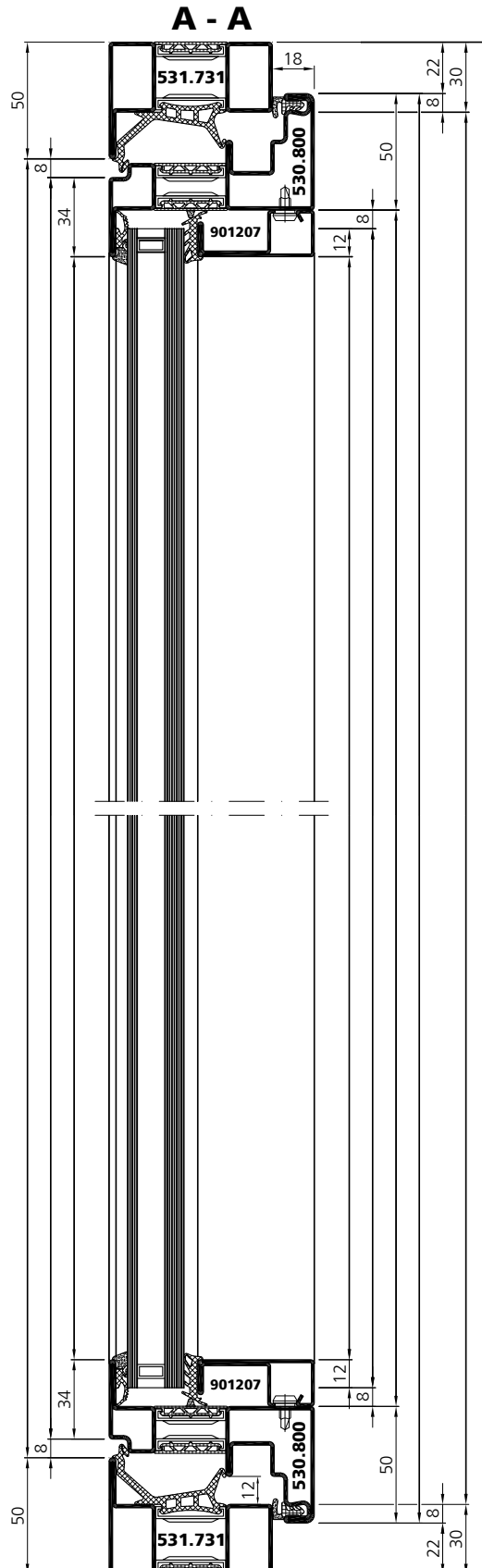
	RC1	Stahl	Edelstahl
		Acier	Acier inox
		Steel	Stainless steel

**Systemplan
Einbruchhemmende
Fenster RC1**

**Plan du système
Fenêtres anti-effraction
RC1**

**System plan
Burglary-resistant windows
RC1**

-  [un_sp_0205](#)
-  [un_sp_0215](#)

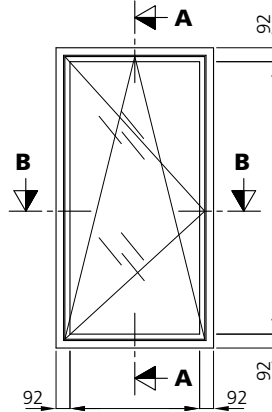


**Systemplan
Einbruchhemmende
Fenster RC1**

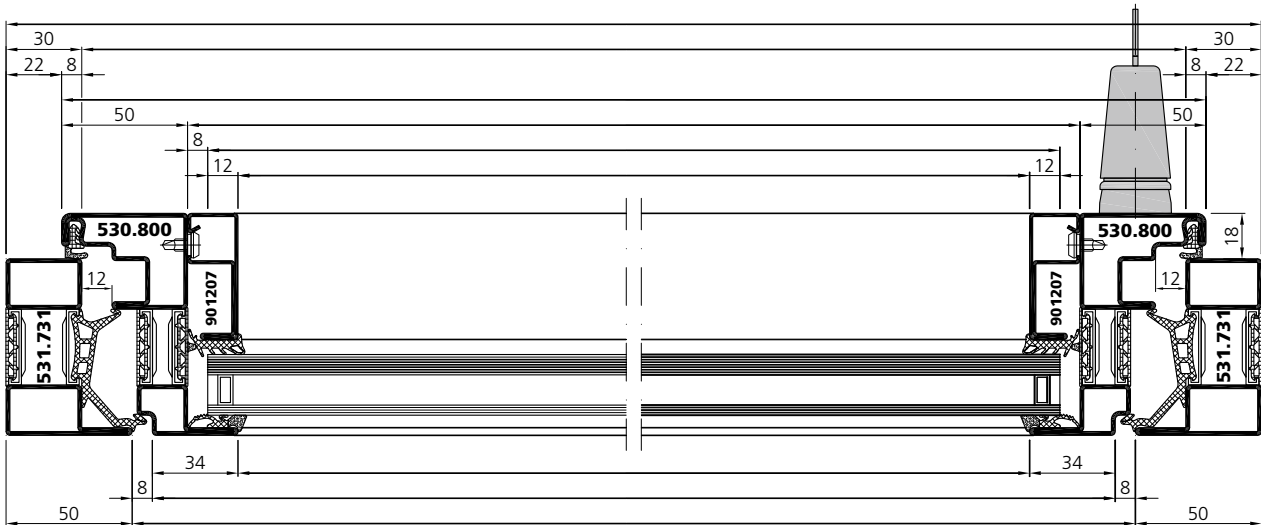
**Plan du système
Fenêtres anti-effraction
RC1**

**System plan
Burglary-resistant windows
RC1**

■ un_sp_0205
■ un_sp_0215





B - B

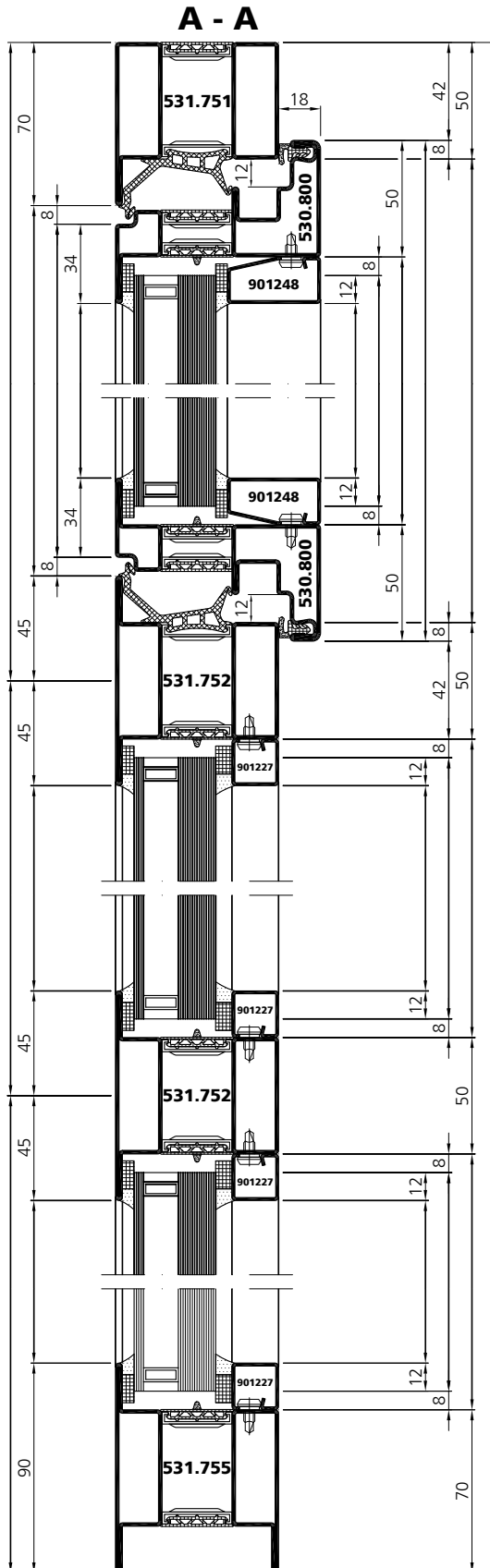


**Systemplan
Einbruchhemmende
Fenster RC2**

**Plan du système
Fenêtres anti-effraction
RC2**

**System plan
Burglary-resistant windows
RC2**

-  un_sp_0161
-  un_sp_0181

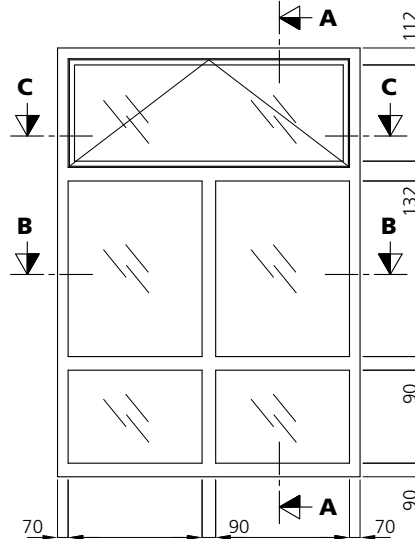


**Systemplan
Einbruchhemmende
Fenster RC2**

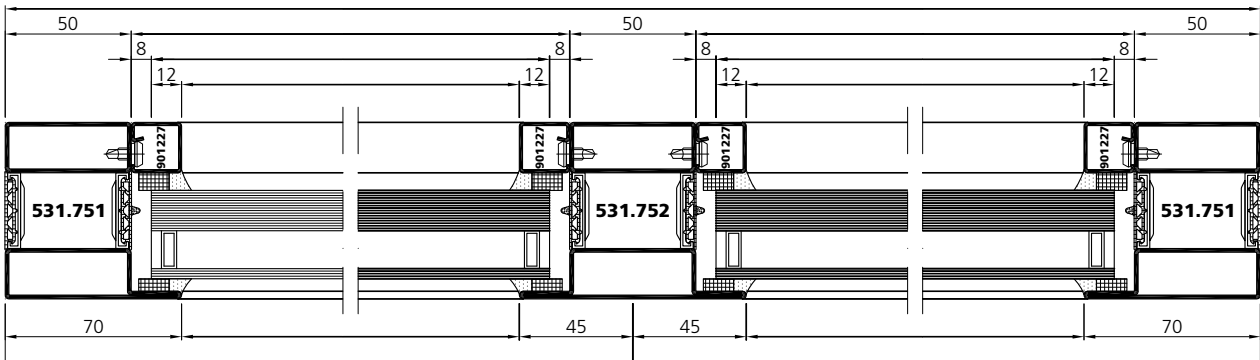
**Plan du système
Fenêtres anti-effraction
RC2**

**System plan
Burglary-resistant windows
RC2**

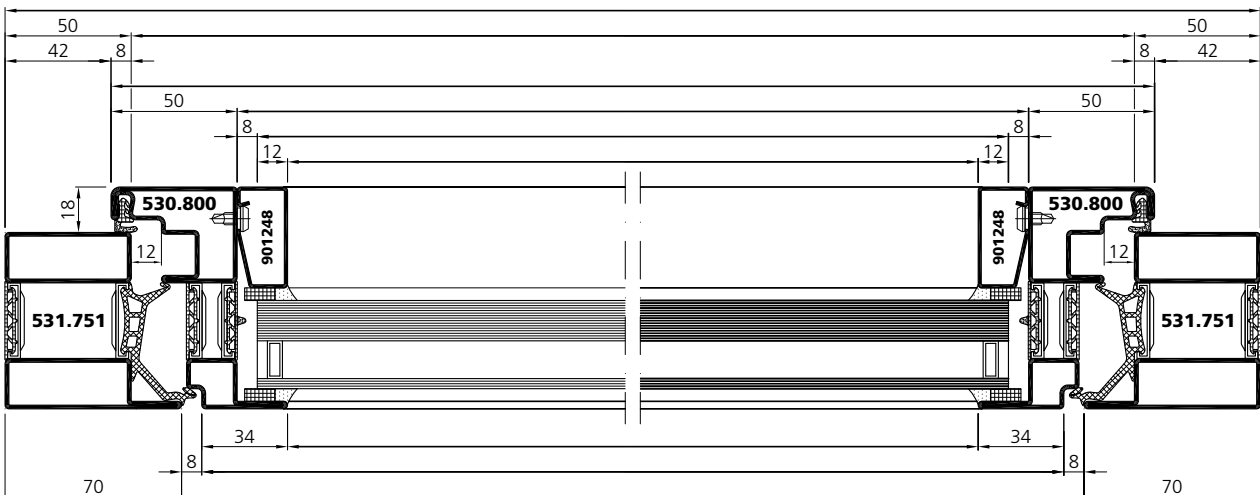
■ un_sp_0161
■ un_sp_0181



B - B



C - C

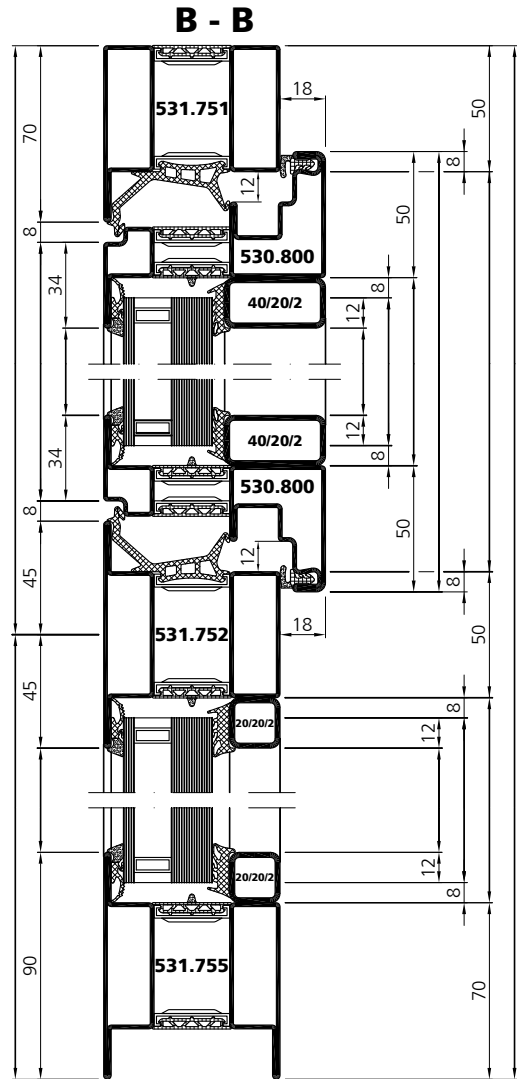
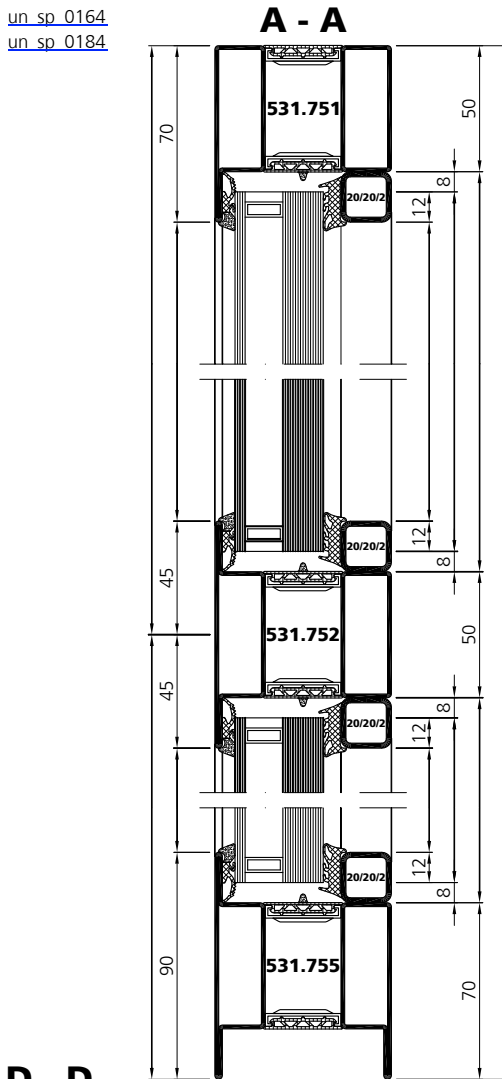


**Systemplan
Einbruchhemmende
Fenster RC3**

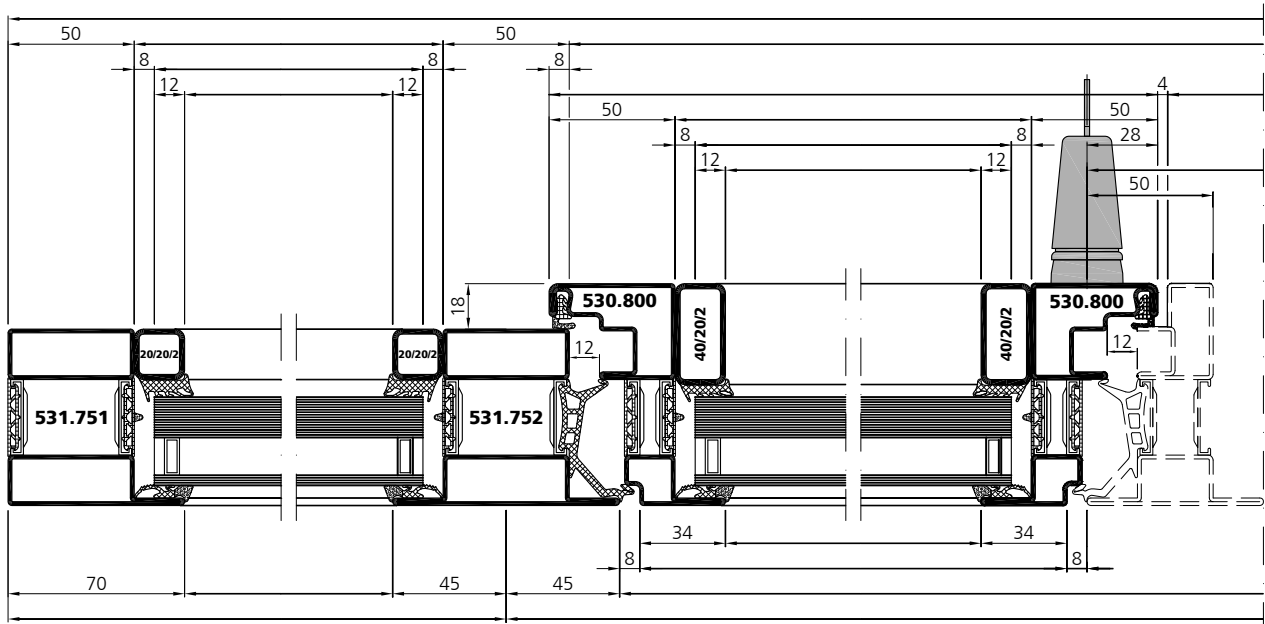
**Plan du système
Fenêtres anti-effraction
RC3**

**System plan
Burglary-resistant windows
RC3**

- un_sp_0164
- un_sp_0184



D - D

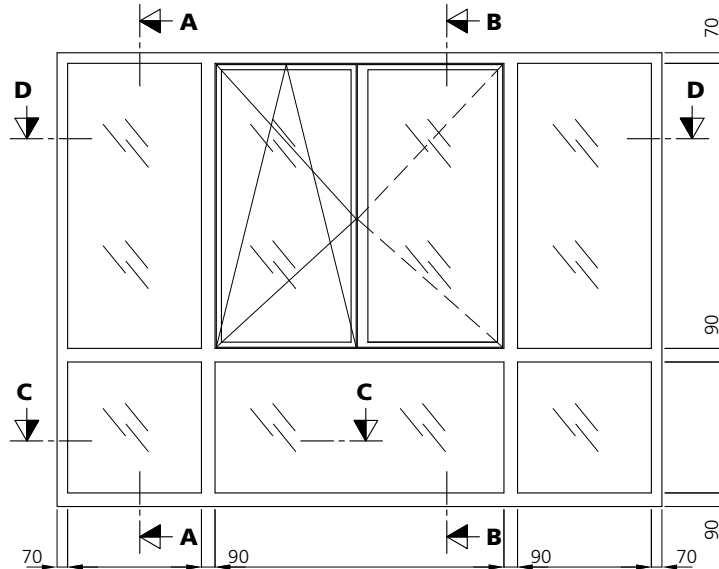


**Systemplan
Einbruchhemmende
Fenster RC3**

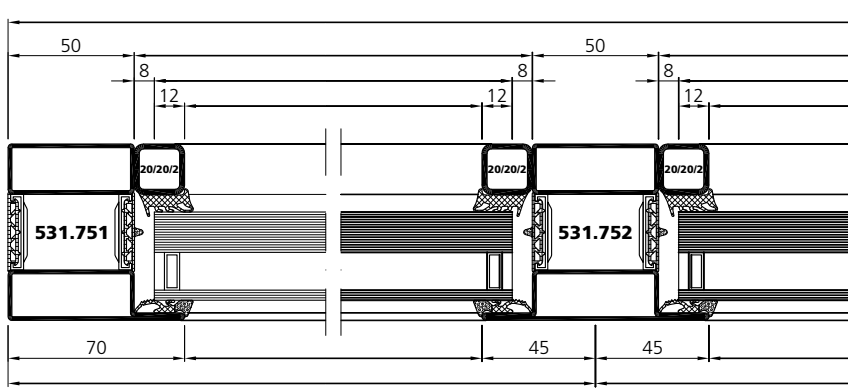
**Plan du système
Fenêtres anti-effraction
RC3**

**System plan
Burglary-resistant windows
RC3**

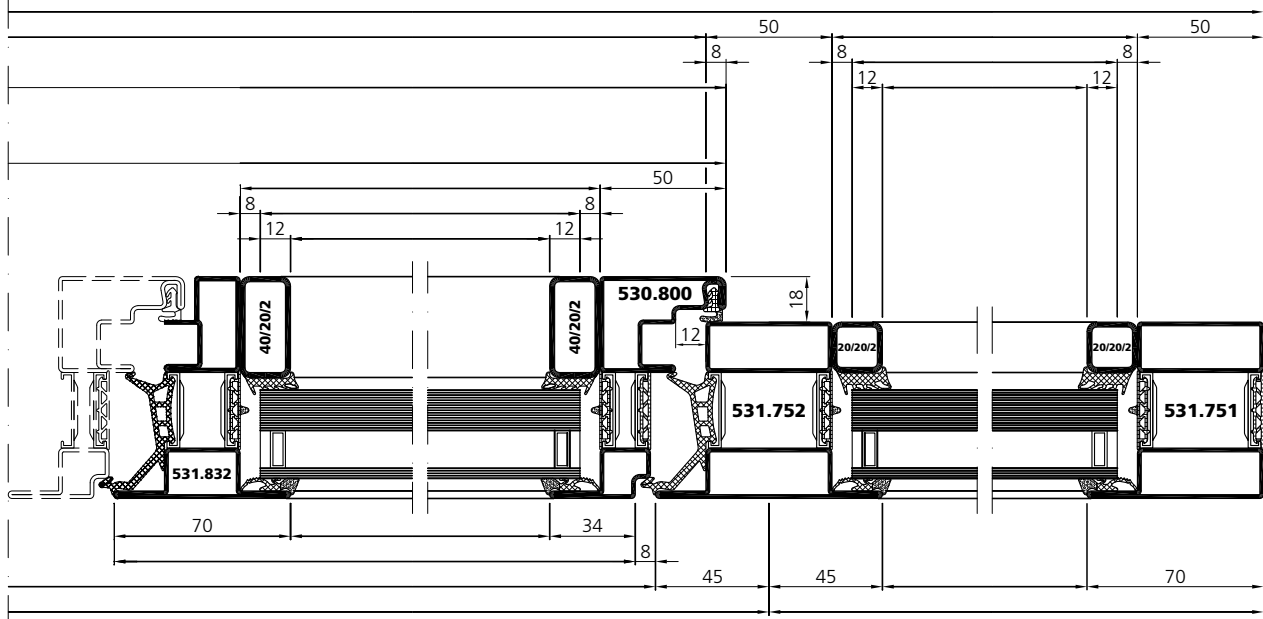
■ un_sp_0164
■ un_sp_0184



C - C



D - D





FB4

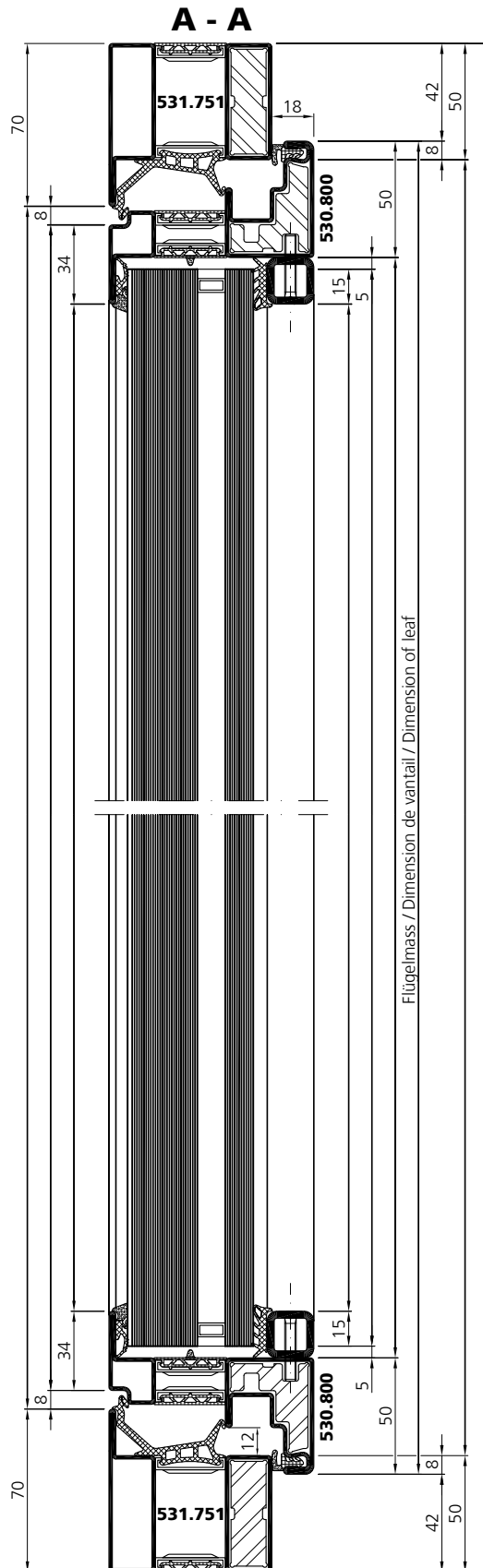
Stahl	Edelstahl
Acier	Acier inox
Steel	Stainless steel

**Systemplan
Durchschusshemmende
Fenster**

**Plan du système
Fenêtres pare-balles**

**System plan
Bullet resistant windows**

- [un_sp_0356](#)
- [un_sp_0366](#)





FB4

Stahl
Acier
Steel

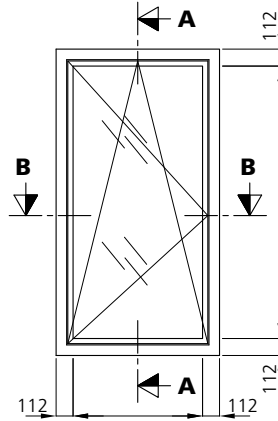
Edelstahl
Acier inox
Stainless steel

**Systemplan
Durchschusshemmende
Fenster**

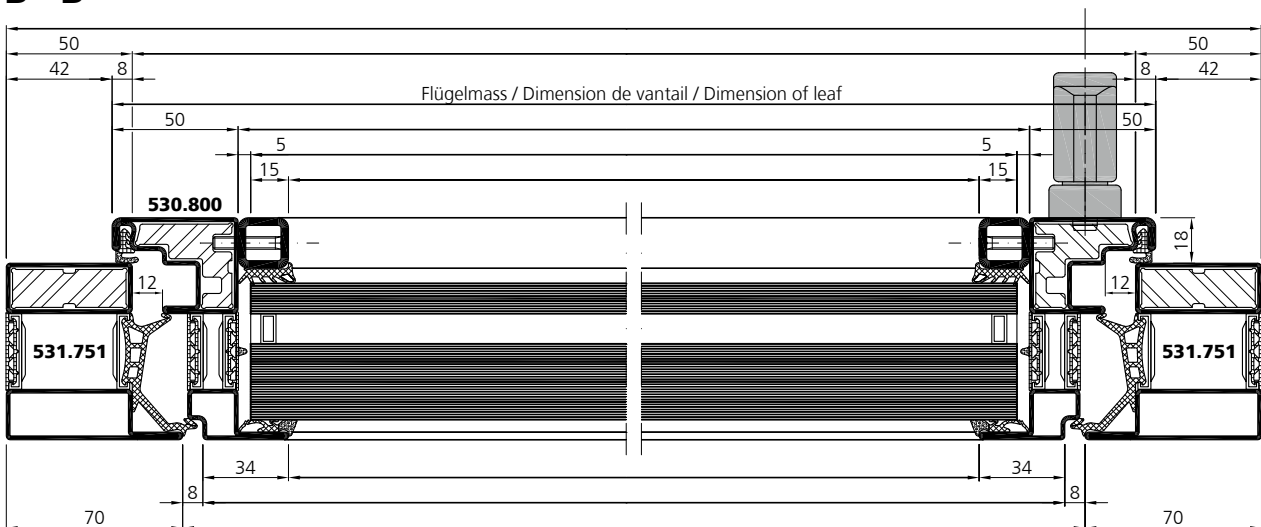
**Plan du système
Fenêtres pare-balles**

**System plan
Bullet resistant windows**

■ un_sp_0356
■ un_sp_0366





B - B

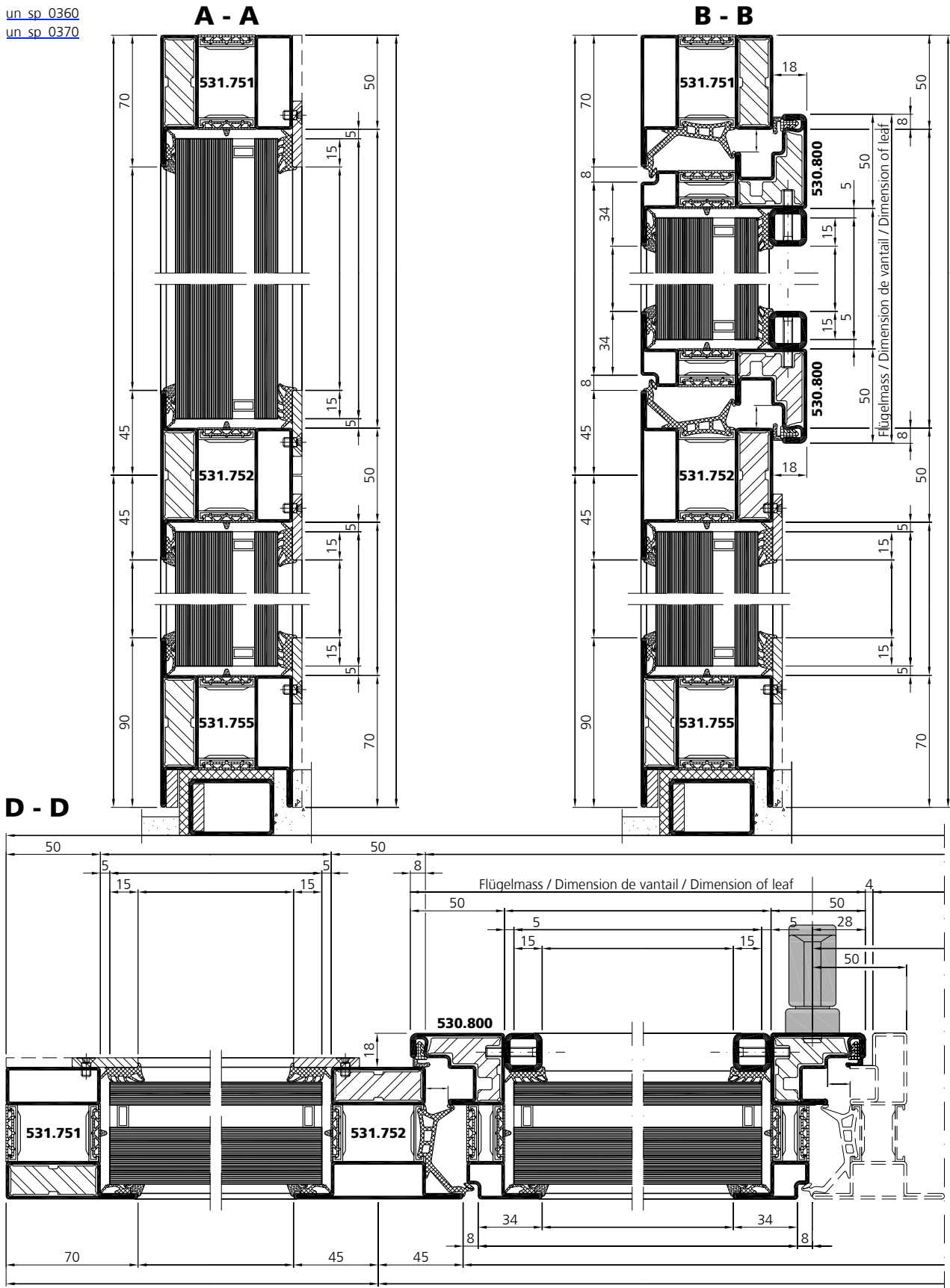


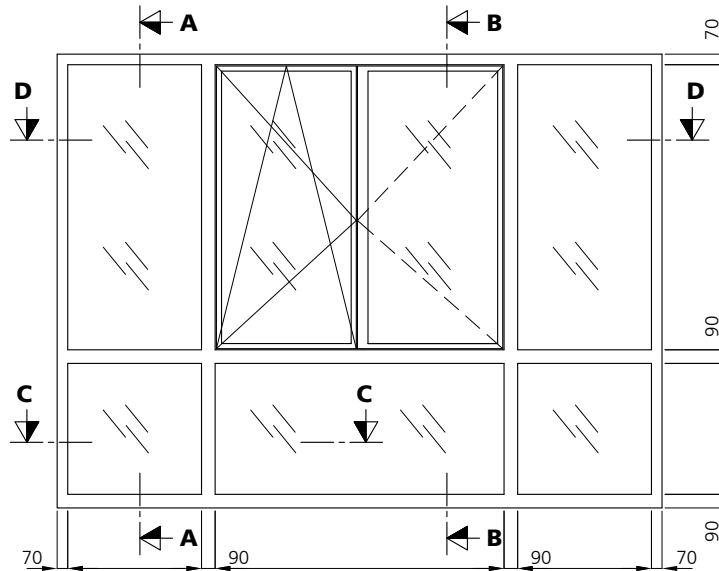
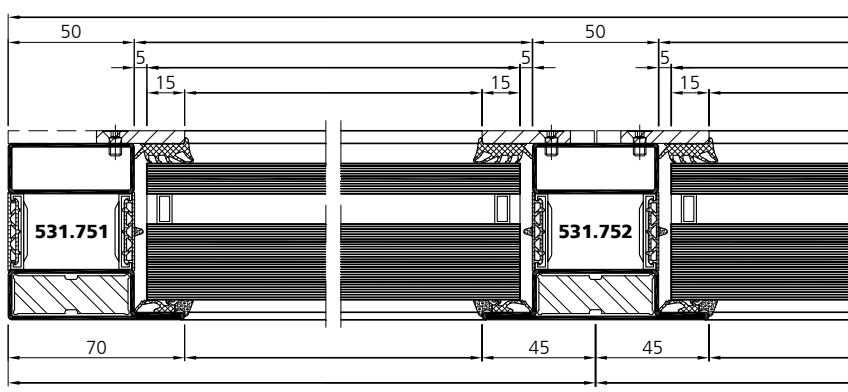
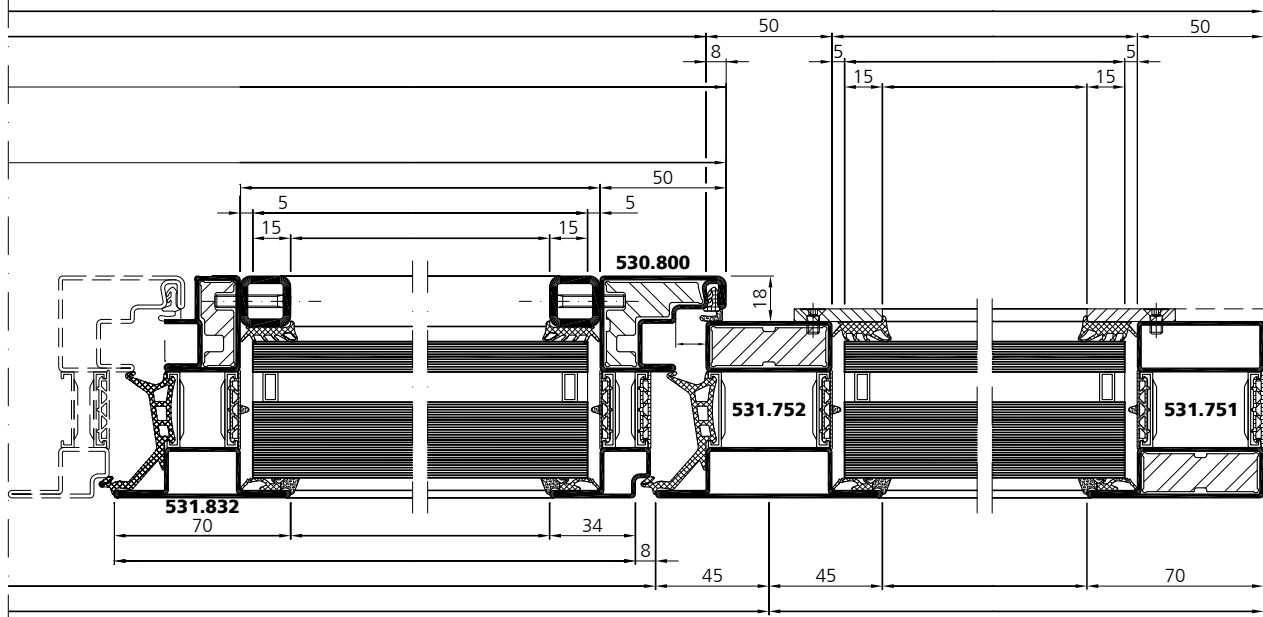
**Systemplan
Durchschusshemmende
Fenster**

**Plan du système
Fenêtres pare-balles**

**System plan
Bullet resistant windows**

-  un_sp_0360
-  un_sp_0370



**FB4**Stahl
Acier
SteelEdelstahl
Acier inox
Stainless steel**Systemplan
Durchschusshemmende
Fenster****Plan du système
Fenêtres pare-balles****System plan
Bullet resistant windows**■ un_sp_0360
■ un_sp_0370**C - C****D - D**



Übersicht Systempläne

Tableau des plans du système

Synopsis of system plans

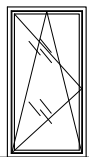
- | | |
|---|--|
| 1 | einflügeliges Fenster |
| 2 | zwei einflügelige Fenster mit Ober- und Unterlicht |
| 3 | zwei einflügelige Fenster mit Unterlicht und zwei Seitenteilen |
| 4 | Festverglasung |

- | | |
|---|--|
| 1 | fenêtre à un vantail |
| 2 | deux fenêtres à un vantail avec imposte et allège |
| 3 | deux fenêtres à un vantail avec allège et deux parties latérales fixes |
| 4 | vitrage fixe |

- | | |
|---|---|
| 1 | single-leaf window |
| 2 | two single-leaf windows with fanlight and sublight |
| 3 | single-leaf window with sublight and two screen abutments |
| 4 | fixed glazing |

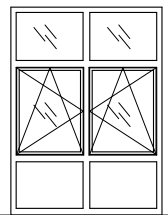
 Stahl / Acier / Steel

1



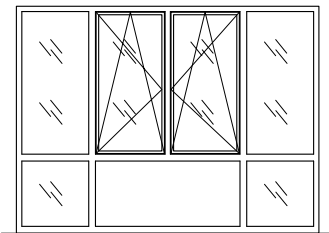
- [un_sp_0321](#) ①
- [un_sp_0324](#) ②
- [un_sp_0322](#) ③
- [un_sp_0325](#) ④

2



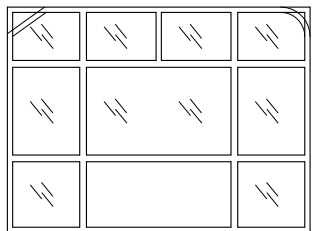
- [un_sp_0323](#) ①
- [un_sp_0326](#) ②
- [un_sp_0327](#) ③
- [un_sp_0328](#) ④

3



- [un_sp_0420](#) ①
- [un_sp_0421](#) ②
- [un_sp_0422](#) ③
- [un_sp_0423](#) ④

4



- [un_sp_0393](#)

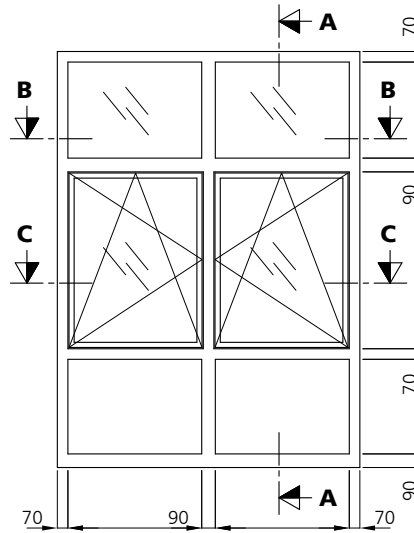
- ① (531.7XX, 530.800)
- ② (531.7XX, 531.801)
- ③ (531.737 Z / 756 Z, 530.800)
- ④ (531.737 Z / 756 Z, 531.801)

Systemplan

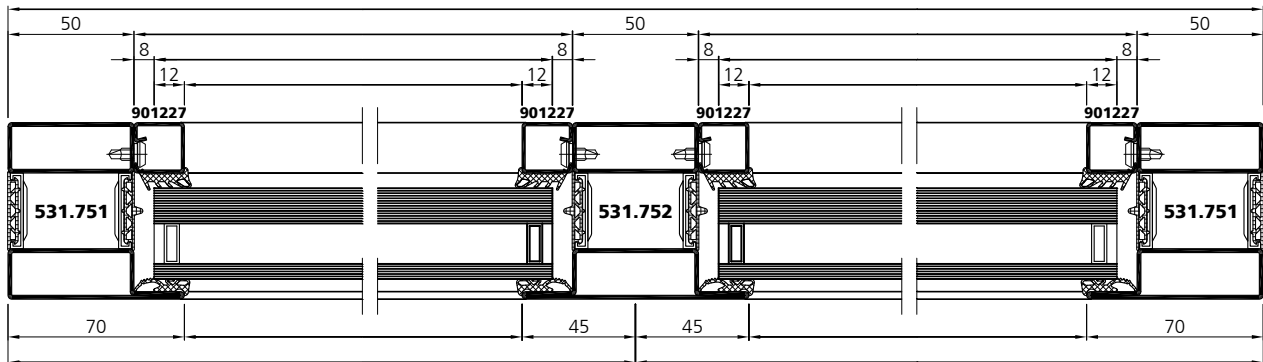
Plan du système

System plan

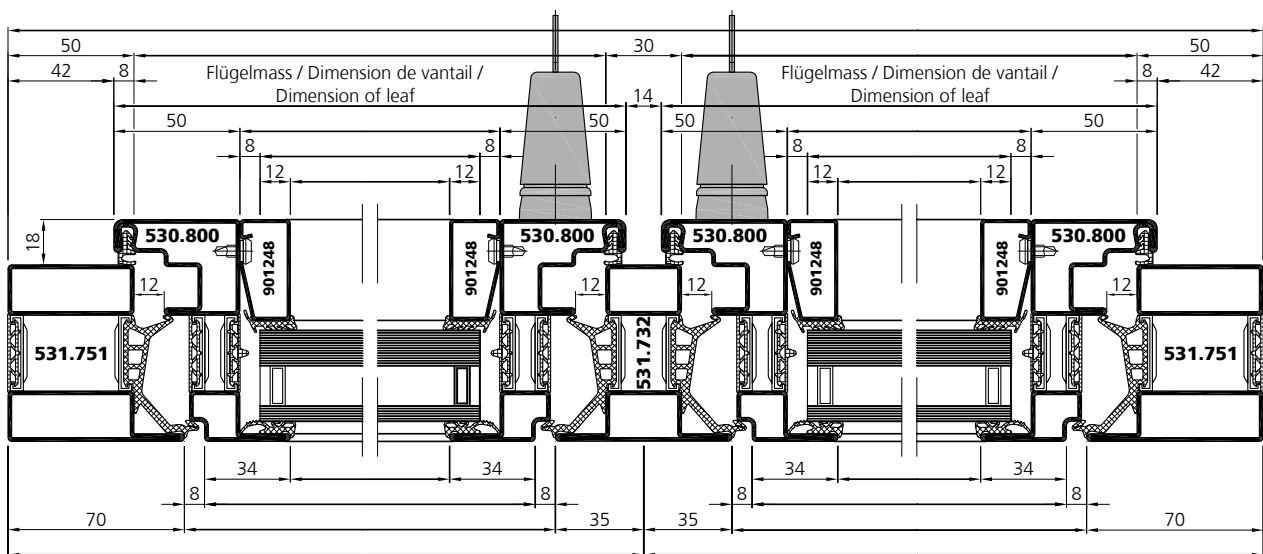
un_sp_0323



B - B



C - C



Statik

Die Geometrischen Querschnittswerte um die y-Achse verändern sich mit zunehmender Länge, die um die z-Achse nicht. Die Geometrischen Querschnittswerte werden aus diesem Grund längenabhängig für jedes Profil in einer Tabelle dargestellt.

Beispiel:

Ein Profil mit einer Länge von 2535 [mm] hat gemäss der unten stehenden Tabelle einen I_y -Wert von 29.44 [cm⁴] und einen W_y von 8.53 [cm³].

Statique

Les valeurs de résistance de l'axe y varient avec la longueur, celles de l'axe z ne changent pas. Les valeurs de résistance sont par conséquent répertoriées par longueur pour chaque profilé.

Exemple:

un profilé d'une longueur de 2535 [mm] a suivant le tableau ci-dessous une valeur I_y de 29,44 [cm⁴] et une valeur W_y de 8,53 [cm³].

Static

The mechanical strength properties of the y-axis change with increasing length, those of the z-axis do not. The mechanical strength properties are therefore listed for every profile in the table according to length.

Example:

A profile with a length of 2535 [mm] has according to the table below a I_y -value of 29.44 [cm⁴] and a W_y of 8.53 [cm³].

L [mm]	G [kg/m]	I_y [cm ⁴]	W_y [cm ³]	I_z [cm ⁴]	W_z [cm ³]	e_y [mm]	e_z [mm]	O [mz/m]
6000	4.325			20.57	4.57	27.37	45.00	0.350
	- 1999 mm	22.51	8.04					
	2000 - 2499 mm	26.76	8.37					
	2500 - 2999 mm	29.44	8.53					
	3000 - 3499 mm	32.32	8.63					
	3500 - 3999 mm	33.13	8.69					
	4000 - 6000 mm	33.70	8.73					

Der Werkstoff der Halbschale definiert den E-Modul des Profils. Somit ist für die Stahlprofile (obwohl der Isolator aus Edelstahl ist) der E-Modul für Stahl zu verwenden. Da es sich bei den Edelstahlprofilen um keine Werkstoffkombination handelt, wird für die Edelstahlprofile der E-Modul von Edelstahl eingesetzt.

E-Module

E-Modul Stahlprofile: 210'000 [N/mm²]

E-Modul Edelstahlprofile: 170'000 [N/mm²]

Le matériau du semi-profilé définit le module E du profilé. Pour les profilés en acier, il faut ainsi utiliser le module E de l'acier (bien que l'isolant soit en acier inox). Pour les profilés en acier inox, on utilisera le module E de l'acier inox puisque ces profilés ne sont pas formés de matériaux combinés.

Modules E

Module E des profilés

en acier:

210'000 [N/mm²]

Module E des profilés

en acier inox:

170'000 [N/mm²]

The material of the semi shell defines the E-module of the profile. Therefore for the steel profile (even though the insulator is made of stainless steel) the E-module for steel must be used. As stainless steel profiles are not a combination of materials, the E-module for stainless steel is used for stainless steel profiles.

E-modules

E-module steel profiles: 210'000 [N/mm²]

E-module stainless steel profiles:

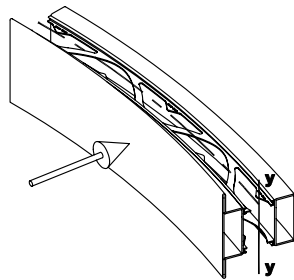
170'000 [N/mm²]

Statik**Belastungen**

Profile, welche als Pfosten eingesetzt werden, sind im Regelfall mit Verkehrslasten beaufschlagt. Für diese Belastung sind die Werte bezüglich der y-Achse zu wählen.

Statique**Charges**

Les profilés utilisés comme montants subissent en général des charges vives. Pour cette charge, il faut choisir les valeurs relatives à l'axe y.

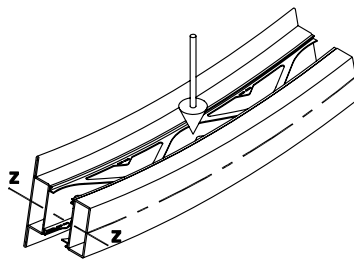
**Static****Loads**

Profiles, used as transom are normally subjected to traffic loads. For these loads, select the value in respect to the y-axis.

Profile, welche als Riegel eingesetzt werden, sind im Regelfall mit der Belastung vom Glasgewicht beaufschlagt. Für diese Belastung sind die Werte bezüglich der z-Achse zu wählen.

Les profilés utilisés comme traverses subissent en général une charge équivalente au poids du verre. Pour cette charge, il faut choisir les valeurs relatives à l'axe z.

Profiles, used as mullion are normally subjected to the loads of the weight of the glass. For these loads, select the value in respect to the z-axis.



**Geometrische
Querschnittswerte
Profile**

**Valeurs de résistance
Profils**

**Mechanical strength
Profiles**

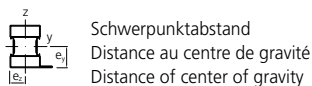
Profile / Profils / Profiles (1:4)	Art. Nr. art. no.	m	L [mm]	G [kg/m]	I _y [cm ⁴]	W _y [cm ³]	I _z [cm ⁴]	W _z [cm ³]	e _y [mm]	e _z [mm]	O [m ² /m]
	530.620	blank brut bright	6000	1.826			0.60	0.60	31.75	10.00	0.200
	530.620 Z	bandverzinkt sendzimir galvanized	- 1999 mm		9.70	3.67					
			2000 - 2499 mm		10.71	3.77					
			2500 - 2999 mm		11.26	3.82					
			3000 - 3499 mm		11.59	3.85					
			3500 - 3999 mm		11.79	3.86					
4000 - 6000 mm		11.93	3.87								
	531.730	blank brut bright	6000	2.460			1.71	1.41	35.00	15.00	0.235
	531.730 Z	bandverzinkt sendzimir galvanized	- 1999 mm		13.34	5.00					
			2000 - 2499 mm		15.04	5.17					
			2500 - 2999 mm		16.01	5.25					
			3000 - 3499 mm		16.98	5.30					
			3500 - 3999 mm		17.24	5.33					
4000 - 6000 mm		17.42	5.35								
	531.750	blank brut bright	6000	3.408			6.09	2.44	35.00	25.00	0.315
	531.750 Z	bandverzinkt sendzimir galvanized	- 1999 mm		17.47	7.03					
			2000 - 2499 mm		20.31	7.33					
			2500 - 2999 mm		22.02	7.48					
			3000 - 3499 mm		23.10	7.57					
			3500 - 3999 mm		23.81	7.62					
4000 - 6000 mm		24.30	7.63								
	530.711	blank brut bright	6000	1.826			6.09	2.44	27.01	8.61	0.220
	530.711 Z	bandverzinkt sendzimir galvanized	- 999 mm		3.54	0.09					
			1000 - 1499 mm		7.56	0.35					
			1500 - 2000 mm		10.53	0.80					
	531.731	blank brut bright	6000	3.130			4.44	1.58	29.11	19.38	0.270
	531.731 Z	bandverzinkt sendzimir galvanized	- 1999 mm		16.55	5.60					
			2000 - 2499 mm		18.95	5.78					
			2500 - 2999 mm		20.35	5.87					
			3000 - 3499 mm		21.21	5.92					
			3500 - 3999 mm		21.77	5.95					
4000 - 6000 mm		22.15	5.95								
	531.751	blank brut bright	6000	3.865			11.78	3.15	30.69	29.49	0.310
	531.751 Z	bandverzinkt sendzimir galvanized	- 1999 mm		20.40	7.65					
			2000 - 2499 mm		24.02	7.96					
			2500 - 2999 mm		26.26	8.12					
			3000 - 3499 mm		27.69	8.22					
			3500 - 3999 mm		28.64	8.27					
4000 - 6000 mm		29.30	8.31								
	530.712	blank brut bright	6000	2.300			3.22	1.28	22.11	24.97	0.260
	530.712 Z	bandverzinkt sendzimir galvanized	- 999 mm		3.86	0.08					
			1000 - 1499 mm		8.41	0.35					
			1500 - 2000 mm		11.96	0.80					

**Geometrische
Querschnittswerte
Profile**

**Valeurs de résistance
Profils**

**Mechanical strength
Profiles**

Profile / Profils / Profiles (1:4)	Art. Nr. art. no.	m	L [mm]	G [kg/m]	I _y [cm ⁴]	W _y [cm ³]	I _z [cm ⁴]	W _z [cm ³]	e _y [mm]	e _z [mm]	O [m ² /m]
	531.722	blank brut bright	6000	2.919	16.38	4.83	5.49	1.83	25.04	30.00	0.290
			- 1999 mm								
			2000 - 2499 mm								
			2500 - 2999 mm								
			3000 - 3499 mm								
			3500 - 3999 mm								
4000 - 6000 mm											
	531.732	blank brut bright	6000	3.385	18.68	5.93	9.17	2.62	25.04	35.00	0.310
			- 1999 mm								
	531.732 Z	bandverzinkt sendzimir galvanized	2500 - 2999 mm		23.34	6.21					
			3000 - 3499 mm		24.42	6.27					
			3500 - 3999 mm		25.13	6.30					
			4000 - 6000 mm		25.62	6.32					
	531.752	blank brut bright	6000	4.325	22.51	8.04	20.57	4.57	27.37	45.00	0.350
			- 1999 mm								
	531.752 Z	bandverzinkt sendzimir galvanized	2000 - 2499 mm		26.76	8.37					
			2500 - 2999 mm		29.44	8.53					
			3000 - 3499 mm		32.32	8.63					
			3500 - 3999 mm		33.13	8.69					
4000 - 6000 mm		33.70	8.73								
	530.713	blank brut bright	6000	2.295	4.31	0.09	1.11	0.59	35.00	24.97	0.260
			- 999 mm								
	530.713 Z	bandverzinkt sendzimir galvanized	1000 - 1499 mm		9.72	0.35					
			1500 - 2000 mm		14.29	0.80					
	531.733	blank brut bright	6000	3.385	20.57	8.58	4.44	1.58	35.00	35.00	0.310
			- 1999 mm								
	531.733 Z	bandverzinkt sendzimir galvanized	2000 - 2499 mm		24.02	8.85					
			2500 - 2999 mm		26.10	8.99					
			3000 - 3499 mm		27.41	9.07					
			3500 - 3999 mm		28.27	9.12					
4000 - 6000 mm		28.87	9.15								
	531.753	blank brut bright	6000	4.325	23.80	10.53	20.57	4.57	35.00	45.00	0.350
			- 1999 mm								
	531.753 Z	bandverzinkt sendzimir galvanized	2000 - 2499 mm		28.74	10.97					
			2500 - 2999 mm		31.44	11.19					
			3000 - 3499 mm		33.37	11.32					
			3500 - 3999 mm		34.67	11.37					
4000 - 6000 mm		35.58	10.95								
	531.718 Z	bandverzinkt sendzimir galvanized	6000	2.295	4.32	0.09	1.12	0.59	35.00	11.41	0.260
			- 999 mm								
			1000 - 1499 mm		9.72	0.35					
			1500 - 2000 mm		14.30	0.08					



m = Material
Matériau
Material

O = Umlaufende Oberfläche per Laufmeter
Surface périphérique par mètre courant
Outlying surface per running meter

* auf Anfrage / sur demande / on request

**Geometrische
Querschnittswerte
Profile**

**Valeurs de résistance
Profils**

**Mechanical strength
Profiles**

Profile / Profils / Profiles (1:4)	Art. Nr. art. no.	m	L [mm]	G [kg/m]	I _y [cm ⁴]	W _y [cm ³]	I _z [cm ⁴]	W _z [cm ³]	e _y [mm]	e _z [mm]	O [m ² /m]		
	531.738 Z	bandverzinkt sendzimir galvanized	6000	3.385	20.57	8.58	4.44	1.58	35.00	2.43	0.310		
			- 1999 mm										
			2000 - 2499 mm										
			2500 - 2999 mm										
			3000 - 3499 mm										
			3500 - 3999 mm										
			4000 - 6000 mm										
	531.758*	blank brut bright	6000	4.325	23.80	10.53	11.78	3.15	35.00	32.99	0.350		
	- 1999 mm												
	2000 - 2499 mm												
	531.758 Z	bandverzinkt sendzimir galvanized	2500 - 2999 mm										
			3000 - 3499 mm										
			3500 - 3999 mm										
			4000 - 6000 mm										
	531.735 Z	bandverzinkt sendzimir galvanized	6000	3.847	23.28	9.04	9.17	2.62	34.12	35.64	0.350		
			- 1999 mm										
			2000 - 2499 mm										
			2500 - 2999 mm										
			3000 - 3499 mm										
			3500 - 3999 mm										
			4000 - 6000 mm										
	531.755	blank brut bright	6000	4.870	26.27	11.04	20.57	4.57	31.58	48.57	0.390		
			- 1999 mm										
			2000 - 2499 mm										
			531.755 Z	bandverzinkt sendzimir galvanized								2500 - 2999 mm	
												3000 - 3499 mm	
												3500 - 3999 mm	
												4000 - 6000 mm	
	533.731	blank brut bright	6000	3.008	16.55	5.60	4.44	1.58	27.97	17.99	0.280		
			- 1999 mm										
			2000 - 2499 mm										
			533.731 Z	bandverzinkt sendzimir galvanized								2500 - 2999 mm	
												3000 - 3499 mm	
												3500 - 3999 mm	
												4000 - 6000 mm	
	533.732	blank brut bright	6000	3.463	18.68	5.93	9.17	2.62	24.16	33.95	0.320		
			- 1999 mm										
			2000 - 2499 mm										
			533.732 Z	bandverzinkt sendzimir galvanized								2500 - 2999 mm	
												3000 - 3499 mm	
												3500 - 3999 mm	
												4000 - 6000 mm	
	533.733	blank brut bright	6000	3.463	20.57	8.58	4.44	1.58	33.81	33.95	0.320		
			- 1999 mm										
			2000 - 2499 mm										
			533.733 Z	bandverzinkt sendzimir galvanized								2500 - 2999 mm	
												3000 - 3499 mm	
												3500 - 3999 mm	
												4000 - 6000 mm	

* auf Anfrage / sur demande / on request

**Geometrische
 Querschnittswerte
 Profile**
**Valeurs de résistance
 Profilés**
**Mechanical strength
 Profiles**

Profile / Profilés / Profiles (1:4)	Art. Nr. art. no.	m	L [mm]	G [kg/m]	I _y [cm ⁴]	W _y [cm ³]	I _z [cm ⁴]	W _z [cm ³]	e _y [mm]	e _z [mm]	O [m ² /m]
	532.620	blank brut bright	6000	1.790			0.60	0.60	31.75	9.29	0.200
			- 1999 mm		9.70	3.67					
			2000 - 2499 mm		10.71	3.77					
	532.620 Z	bandverzinkt sendzimir galvanized	2500 - 2999 mm		11.26	3.82					
			3000 - 3499 mm		11.59	3.85					
			3500 - 3999 mm		11.79	3.86					
		4000 - 6000 mm		11.93	3.87						
	533.650	blank brut bright	6000	3.250			5.78	2.31	31.75	24.47	0.260
			- 1999 mm		15.70	6.67					
			2000 - 2499 mm		18.25	6.95					
	533.650 Z	bandverzinkt sendzimir galvanized	2500 - 2999 mm		19.78	7.09					
			3000 - 3499 mm		20.74	7.17					
			3500 - 3999 mm		21.38	7.22					
		4000 - 6000 mm		21.81	7.23						
	533.751	blank brut bright	6000	3.950			11.78	3.15	29.78	28.68	0.320
			- 1999 mm		20.40	7.65					
			2000 - 2499 mm		24.02	7.96					
	533.751 Z	bandverzinkt sendzimir galvanized	2500 - 2999 mm		26.26	8.12					
			3000 - 3499 mm		27.69	8.22					
			3500 - 3999 mm		28.64	8.27					
		4000 - 6000 mm		29.30	8.31						
	533.752	blank brut bright	6000	4.325			20.57	4.57	27.37	45.00	0.350
			- 1999 mm		22.51	8.04					
			2000 - 2499 mm		26.76	8.37					
	533.752 Z	bandverzinkt sendzimir galvanized	2500 - 2999 mm		29.44	8.53					
			3000 - 3499 mm		32.32	8.63					
			3500 - 3999 mm		33.13	8.69					
		4000 - 6000 mm		33.70	8.73						
	533.753	blank brut bright	6000	4.325			11.78	3.15	35.00	45.00	0.350
			- 1999 mm		23.80	10.53					
			2000 - 2499 mm		28.74	10.97					
	533.753 Z	bandverzinkt sendzimir galvanized	2500 - 2999 mm		31.44	11.19					
			3000 - 3499 mm		33.37	11.32					
			3500 - 3999 mm		34.67	11.37					
		4000 - 6000 mm		35.58	10.95						
	533.756	blank brut bright	6000	4.870			20.57	4.57	30.83	40.95	0.390
			- 1999 mm		26.27	11.04					
			2000 - 2499 mm		31.80	11.49					
	533.756 Z	bandverzinkt sendzimir galvanized	2500 - 2999 mm		35.40	11.72					
			3000 - 3499 mm		37.77	11.85					
			3500 - 3999 mm		38.12	11.93					
		4000 - 6000 mm		38.78	11.56						
	537.752 Z*	bandverzinkt sendzimir galvanized	6000	4.408			20.57	4.57	44.10	35.00	0.361
			- 1999 mm		22.51	8.04					
			2000 - 2499 mm		26.76	8.37					
			2500 - 2999 mm		29.44	8.53					
			3000 - 3499 mm		32.32	8.63					
			3500 - 3999 mm		33.13	8.69					
		4000 - 6000 mm		33.70	8.73						

* auf Anfrage / sur demande / on request

**Geometrische
Querschnittswerte
Profile**

**Valeurs de résistance
Profils**

**Mechanical strength
Profiles**

Profile / Profils / Profiles (1:4)	Art. Nr. art. no.	m	L [mm]	G [kg/m]	I _y [cm ⁴]	W _y [cm ³]	I _z [cm ⁴]	W _z [cm ³]	e _y [mm]	e _z [mm]	O [m ² /m]
	537.753 Z *	bandverzinkt sendzimir galvanized	6000	4.408	23.80	10.53	11.78	3.15	44.10	36.10	0.361
			- 1999 mm								
			2000 - 2499 mm								
			2500 - 2999 mm								
			3000 - 3499 mm								
			3500 - 3999 mm								
4000 - 6000 mm											
	553.701	blank brut bright	3000	8.692	22.00	11.00	100.00	2.93	34.16	51.33	0.401
			- 999 mm								
			1000 - 1999 mm								
			2000 - 2999 mm								
	553.702	blank brut bright	3000	9.163	22.00	11.00	120.00	3.58	33.51	69.88	0.441
			- 999 mm								
			1000 - 1999 mm								
			2000 - 2999 mm								
	553.703	blank brut bright	3000	9.163	22.00	11.00	125.00	3.59	34.83	69.88	0.441
			- 999 mm								
			1000 - 1999 mm								
			2000 - 2999 mm								
	573.701	blank brut bright	3000	13.408	25.00	12.50	580.00	16.91	34.30	100.34	0.601
			- 999 mm								
			1000 - 1999 mm								
			2000 - 2999 mm								
	551.701	blank brut bright	3000	9.081	22.00	11.00	115.00	3.35	34.36	53.70	0.394
			- 999 mm								
			1000 - 1999 mm								
			2000 - 2999 mm								
	571.701	blank brut bright	3000	13.797	25.00	12.50	625.00	18.14	34.46	104.31	0.594
			- 999 mm								
			1000 - 1999 mm								
			2000 - 2999 mm								

**Geometrische
 Querschnittswerte
 Profile**
**Valeurs de résistance
 Profilés**
**Mechanical strength
 Profiles**

Profile / Profilés / Profiles (1:4)	Art. Nr. art. no.	m	L [mm]	G [kg/m]	I _y [cm ⁴]	W _y [cm ³]	I _z [cm ⁴]	W _z [cm ³]	e _y [mm]	e _z [mm]	O [m ² /m]
	531.756 Z **	bandverzinkt sendzimir galvanized	6000	4.044			11.78	3.15	29.63	30.02	0.320
			- 1999 mm		20.40	7.65					
			2000 - 2499 mm		24.02	7.96					
			2500 - 2999 mm		26.26	8.12					
			3000 - 3499 mm		27.69	8.22					
			3500 - 3999 mm		28.64	8.27					
4000 - 6000 mm		29.30	8.31								
	531.737 Z **	bandverzinkt sendzimir galvanized	6000	3.729			9.17	2.62	23.24	35.00	0.340
			- 1999 mm		18.68	5.93					
			2000 - 2499 mm		21.60	6.12					
			2500 - 2999 mm		23.34	6.21					
			3000 - 3499 mm		24.42	6.27					
			3500 - 3999 mm		25.13	6.30					
4000 - 6000 mm		25.62	6.32								
	530.800 530.800 Z	blank brut bright	6000	4.080			5.49	1.83	49.72	35.87	0.390
			- 999 mm		19.45	3.99					
			1000 - 1499 mm		21.71	4.66					
		bandverzinkt sendzimir galvanized	1500 - 1999 mm		26.02	6.29					
			2000 - 2499 mm		30.19	8.30					
			2500 - 2999 mm		33.76	8.10					
3000 - 3499 mm		36.63	7.72								
3500 - 4000 mm		38.90	7.49								
	531.801 531.801 Z	blank brut bright	6000	3.435			1.43	0.57	47.76	28.68	0.360
			- 999 mm		8.97	3.76					
		bandverzinkt sendzimir galvanized	1000 - 1499 mm		12.55	4.20					
			1500 - 2000 mm		16.66	4.52					
	531.832 531.832 Z	blank brut bright	6000	3.975			9.17	2.62	33.37	36.06	0.370
			- 999 mm		13.62	4.41					
			1000 - 1499 mm		19.38	5.41					
		bandverzinkt sendzimir galvanized	1500 - 1999 mm		26.79	6.35					
			2000 - 2499 mm		31.45	6.81					
			2500 - 2999 mm		34.33	7.06					
3000 - 3499 mm		36.16	7.20								
3500 - 4000 mm		37.38	7.29								
	531.812 531.812 Z	blank brut bright	6000	2.725			3.22	1.29	31.22	24.97	0.300
			- 999 mm		6.76	0.09					
			1000 - 1499 mm		13.96	0.36					
		bandverzinkt sendzimir galvanized	1500 - 1999 mm		20.40	0.80					
			2000 - 2499 mm		24.96	1.43					
			2500 - 2999 mm		28.00	2.24					
3000 - 3499 mm		30.04	3.25								
3500 - 4000 mm		31.44	4.45								

** Profil mit kontrollierter Entwässerung
 Profilé avec garde à l'eau
 Profile with drainage groove

**Geometrische
Querschnittswerte
Profile**

**Valeurs de résistance
Profils**

**Mechanical strength
Profiles**

Profile / Profils / Profiles (1:4)	Art. Nr. art. no.	m	L [mm]	G [kg/m]	I _y [cm ⁴]	W _y [cm ³]	I _z [cm ⁴]	W _z [cm ³]	e _y [mm]	e _z [mm]	O [m ² /m]	mo [cm]			
	530.620 CrNi*	CrNi 1.4301	6000	1.837			0.60	0.60	31.75	10.00	0.200	0.040			
			- 1999 mm		9.75	3.35									
			2000 - 2499 mm		10.53	3.40									
			2500 - 2999 mm		10.93	3.42									
			3000 - 3499 mm		11.17	3.42									
			3500 - 3999 mm		11.31	3.43									
4000 - 6000 mm		11.41	3.44												
	531.730 CrNi*	CrNi 1.4301	6000	2.480			1.73	1.15	35.00	15.00	0.235	0.060			
			- 1999 mm		14.07	5.10									
			2000 - 2499 mm		15.61	5.25									
			2500 - 2999 mm		16.47	5.32									
			3000 - 3499 mm		16.98	5.36									
			3500 - 3999 mm		17.30	5.25									
4000 - 6000 mm		17.42	5.06												
	531.750 CrNi*	CrNi 1.4301	6000	3.420			6.41	2.46	35.00	25.00	0.315	0.100			
			- 1999 mm		18.62	7.17									
			2000 - 2499 mm		21.24	7.44									
			2500 - 2999 mm		22.76	7.57									
			3000 - 3499 mm		23.70	7.64									
			3500 - 3999 mm		24.31	6.66									
4000 - 6000 mm		24.41	6.36												
	531.731 CrNi	CrNi 1.4301	6000	2.940			4.44	1.58	29.11	19.38	0.270	0.080			
			- 1999 mm		17.55	5.71									
			2000 - 2499 mm		19.73	5.87									
			2500 - 2999 mm		20.97	5.95									
			3000 - 3499 mm		21.72	5.99									
			3500 - 3999 mm		22.20	5.96									
4000 - 6000 mm		22.53	5.76												
	531.751 CrNi	CrNi 1.4301	6000	3.890			11.78	3.15	30.69	29.49	0.310	0.120			
			- 1999 mm		21.83	7.81									
			2000 - 2499 mm		25.20	8.08									
			2500 - 2999 mm		27.21	8.22									
			3000 - 3499 mm		28.46	8.30									
			3500 - 3999 mm		29.28	7.37									
4000 - 6000 mm		29.26	7.04												
	531.752 CrNi	CrNi 1.4301	6000	4.350			20.57	4.57	27.37	45.00	0.350	0.140			
			- 1999 mm		24.18	8.21									
			2000 - 2499 mm		28.17	8.50									
			2500 - 2999 mm		30.58	8.64									
			3000 - 3499 mm		32.09	8.72									
			3500 - 3999 mm		33.09	7.96									
4000 - 6000 mm		33.72	7.48												
	531.733 CrNi*	CrNi 1.4301	6000	3.400			4.44	1.58	35.00	35.00	0.310	0.100			
			- 1999 mm		21.95	8.71									
			2000 - 2499 mm		25.12	8.95									
			2500 - 2999 mm		26.97	9.07									
			3000 - 3499 mm		28.11	9.14									
			3500 - 3999 mm		28.85	8.77									
4000 - 6000 mm		29.36	7.99												

* auf Anfrage / sur demande / on request

**Geometrische
Querschnittswerte
Profile**

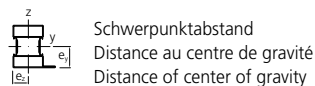
**Valeurs de résistance
Profils**

**Mechanical strength
Profiles**

Profile / Profils / Profiles (1:4)	Art. Nr. art. no.	m	L [mm]	G [kg/m]	I _y [cm ⁴]	W _y [cm ³]	I _z [cm ⁴]	W _z [cm ³]	e _y [mm]	e _z [mm]	O [m ² /m]	mo [cm]
	531.753 CrNi*	CrNi 1.4301	6000	4.350			11.78	3.15	35.00	45.00	0.350	0.140
			- 1999 mm		25.61	10.73						
			2000 - 2499 mm		29.99	11.11						
			2500 - 2999 mm		32.67	11.29						
			3000 - 3499 mm		34.37	11.40						
			3500 - 3999 mm		35.49	10.65						
4000 - 6000 mm		35.65	9.09									
	531.755 CrNi	CrNi 1.4301	6000	4.810			20.57	4.57	31.58	48.57	0.390	0.160
			- 1999 mm		28.40	11.25						
			2000 - 2499 mm		33.63	11.64						
			2500 - 2999 mm		36.89	11.84						
			3000 - 3499 mm		38.98	11.89						
			3500 - 3999 mm		39.45	11.81						
4000 - 6000 mm		39.91	11.55									
	533.751 CrNi	CrNi 1.4301	6000	3.975			11.78	3.15	29.78	28.68	0.320	0.105
			- 1999 mm		21.83	7.81						
			2000 - 2499 mm		25.20	8.08						
			2500 - 2999 mm		27.21	8.22						
			3000 - 3499 mm		28.46	8.30						
			3500 - 3999 mm		29.28	7.37						
4000 - 6000 mm		29.26	7.04									
	533.752 CrNi	CrNi 1.4301	6000	4.450			20.57	4.57	26.65	44.39	0.350	0.125
			- 1999 mm		24.18	8.21						
			2000 - 2499 mm		28.17	8.50						
			2500 - 2999 mm		30.58	8.64						
			3000 - 3499 mm		32.09	8.72						
			3500 - 3999 mm		33.09	7.96						
4000 - 6000 mm		33.72	7.48									
	533.753 CrNi	CrNi 1.4301	6000	4.430			11.78	3.15	34.08	44.39	0.370	0.125
			- 1999 mm		25.61	10.73						
			2000 - 2499 mm		29.99	11.11						
			2500 - 2999 mm		32.67	11.29						
			3000 - 3499 mm		34.37	11.40						
			3500 - 3999 mm		35.49	10.65						
4000 - 6000 mm		35.65	9.09									
	533.756 CrNi	CrNi 1.4301	6000	4.880			20.57	1.04	30.83	40.95	0.390	0.145
			- 999 mm		28.40	11.26						
			1000 - 1499 mm		33.64	11.65						
			1500 - 1999 mm		36.90	11.84						
			2000 - 2499 mm		38.99	11.95						
			2500 - 2999 mm		40.38	11.39						
3000 - 3499 mm		40.91	9.63									
3500 - 4000 mm		40.98	9.28									

— geschliffen, Korn 220-240
poncé, grain 220-240
grinded, 220-240 grain

* auf Anfrage / sur demande / on request



m = Material
Matériau
Material

O = Umlaufende Oberfläche per Laufmeter
Surface périphérique par mètre courant
Outlying surface per running meter

**Geometrische
Querschnittswerte
Profile**

**Valeurs de résistance
Profils**

**Mechanical strength
Profiles**

Profile / Profils / Profiles (1:4)	Art. Nr. art. no.	m	L [mm]	G [kg/m]	I _y [cm ⁴]	W _y [cm ³]	I _z [cm ⁴]	W _z [cm ³]	e _y [mm]	e _z [mm]	O [m ² /m]	mo [cm]
	531.732 CrNi	CrNi 1.4301	6000	3.400			9.17	2.62	25.04	35.00	0.310	0.100
			- 1999 mm		19.89	6.06						
			2000 - 2499 mm		22.58	6.22						
			2500 - 2999 mm		24.13	6.31						
			3000 - 3499 mm		25.07	6.35						
			3500 - 3999 mm		25.68	6.37						
	530.800 CrNi	CrNi 1.4301	6000	4.097			2.61	1.04	49.72	35.87	0.390	0.084
			- 999 mm		20.04	4.11						
			1000 - 1499 mm		22.65	4.97						
			1500 - 1999 mm		27.49	6.94						
			2000 - 2499 mm		31.98	8.41						
			2500 - 2999 mm		35.68	7.86						
	531.832 CrNi	CrNi 1.4301	6000	4.000			9.17	2.62	31.58	48.57	0.370	0.088
			- 999 mm		15.19	4.71						
			1000 - 1499 mm		21.30	5.68						
			1500 - 1999 mm		28.62	6.55						
			2000 - 2499 mm		32.94	6.95						
			2500 - 2999 mm		35.51	7.17						
3000 - 3499 mm		37.11	7.29									
3500 - 4000 mm		38.16	7.36									

— geschliffen, Korn 220-240
poncé, grain 220-240
grinded, 220-240 grain



Lotte Plaza, RU-Moscow

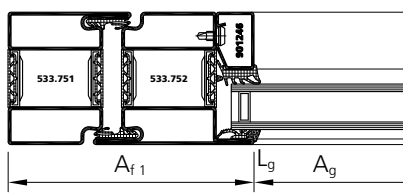
03/19

Berechnung der U-Werte

für ein gesamtes Element gemäss EN 10077 - 1

Die Element U-Werte werden gemäss Norm EN 10077-1 mit folgenden Formeln berechnet

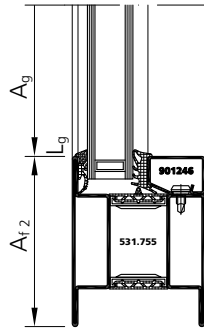
$$U_D = \frac{(A_{f1} \times U_f) + (A_{f2} \times U_f) + (A_g \times U_g) + (L_g \times \psi_g)}{A_{f1} + A_{f2} + A_g}$$



Calcul des valeurs U

pour tout l'élément selon la norme EN 10077 - 1

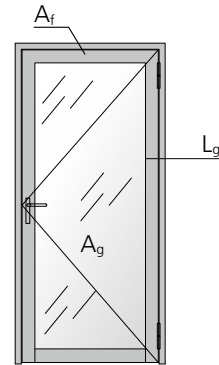
Les valeurs U sont calculées selon la norme EN 10077-1 avec la formule suivante



Calculation of U-value

of the complete unit according to EN 10077 - 1

The U-value of the unit will be calculated according to EN 10077-1 with following computation formula



- U_D** = U-Wert Tür [W/(m²K)]
- A_f** = Sichtbare Fläche Rahmen [m²]
- U_f** = U-Wert der Rahmenkombination [W/(m²K)] (Seite 194-195)
- A_g** = Sichtbare Fläche Glas [m²]
- U_g** = U-Wert des Glases [W/(m²K)]
- L_g** = Umfang des sichtbaren Glasanteils [m]
- ψ_g** = Längenbezogener Wärmedurchgangskoeffizient [W/(mK)]
Tabelle E1 der EN 10077-1

- U_D** = Coefficient de transmission thermique de la porte [W/(m²K)]
- A_f** = Surface de l'encadrement [m²]
- U_f** = Coefficient de transmission thermique de l'encadrement (page 194-195)
- A_g** = Surface du vitrage [m²]
- U_g** = Coefficient de transmission thermique du vitrage [W/(m²K)]
- L_g** = Périmètre du vitrage visible [m]
- ψ_g** = Valeurs du coefficient de transmission thermique linéique pour les intercalaires du vitrage [W/(mK)]
Tableau E1 EN ISO 10077-1

- U_D** = Thermal transmittance of the door [W/(m²K)]
- A_f** = Area of the frame [m²]
- U_f** = Thermal transmittance of the frame (page 194-195)
- A_g** = Area of the glazing [m²]
- U_g** = Thermal transmittance of the glazing [W/(m²K)]
- L_g** = Perimeter of the visible glazing [m]
- ψ_g** = Values of linear thermal transmittance for common types of glazing spacer bars [W/(mK)]
Table E1 EN ISO 10077-1

Längenbezogener Wärmedurchgangskoeffizient für Abstandhalter aus Aluminium und Stahl, Tabellen E.1 und E.2 der EN 10077-1 (2010) für Abstandhalter mit wärmetechnisch verbesserter Leistungsfähigkeit.

Valeurs du coefficient de transmission thermique linéique pour les intercalaires de vitrages en aluminium et en acier, tableaux E.1 et E.2 selon EN ISO 10077-1 (2010) pour intercalaires de vitrages avec une efficacité thermique plus performante.

Values of linear thermal transmittance for common types of glazing spacer bars (aluminium or steel) tables E1 and E.2 according to EN ISO 10077-1 (2010) for glazing spacer bars with higher thermal efficiency.

	2- oder 3 Scheiben Isolierverglasung, unbeschichtetes Glas, Luft oder Gaszwischenraum Vitrage double ou triple, verre non revêtu, lame d'air ou de gaz Double or triple glazing uncoated glass air- or gas-filled	2- oder 3 Scheiben Isolierverglasung, mit niedrigem Emissionsgrad, Luft oder Gaszwischenraum Vitrage double à faible émissivité, vitrage triple avec deux couches à faible émissivité, lame d'air ou gaz Double or triple glazing low-emissivity glass air- or gas-filled
Metallrahmen mit wärmetechnischer Trennung Cadre avec isolation thermique Frame with thermal break	a) 0.08 b) 0.06	a) 0.11 b) 0.08

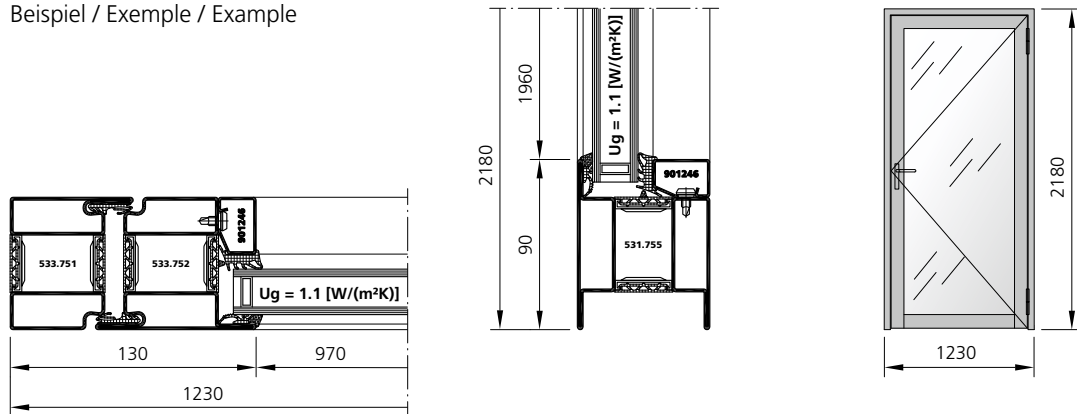
- a) Abstandhalter aus Aluminium und Stahl
- b) Abstandhalter mit wärmetechnisch verbesserter Leistungsfähigkeit

- a) intercalaire de vitrage en aluminium et en acier
- b) intercalaire de vitrage avec une efficacité thermique plus performante

- a) glazing spacer bars in aluminium or steel
- b) glazing spacer bar with higher thermal efficiency

Berechnung der U-Wertefür ein gesamtes Element gemäss
EN 10077 - 1**Calcul des valeurs U**pour tout l'élément selon la norme
EN 10077 - 1**Calculation of U-value**of the complete unit according to
EN 10077 - 1

Beispiel / Exemple / Example



A_D = Fläche gesamtes Element 1.23×2.18 = 2.681 [m ²]	A_D = Surface de l'élément 1.23×2.18 = 2.681 [m ²]	A_D = Area of the element 1.23×2.18 = 2.681 [m ²]
A_g = Sichtbare Fläche Glas $(1.23 - 2 \times 130) \times (2.18 - 130 - 90)$ = 1.901 [m ²]	A_g = Surface du vitrage $(1.23 - 2 \times 130) \times (2.18 - 130 - 90)$ = 1.901 [m ²]	A_g = Area of the glazing $(1.23 - 2 \times 130) \times (2.18 - 130 - 90)$ = 1.901 [m ²]
A_f = Sichtbare Fläche Rahmen (total) $A_D - A_g$ $2.681 - 1.901$ = 0.78 [m ²]	A_f = Surface de l'encadrement (total) $A_D - A_g$ $2.681 - 1.901$ = 0.78 [m ²]	A_f = Area of the frame (total) $A_D - A_g$ $2.681 - 1.901$ = 0.78 [m ²]
A_{f1} = Sichtbare Fläche Rahmen $0.78 [m_2] - 0.087 [m_2]$ = 0.693 [m ²]	A_{f1} = Surface de l'encadrement $0.78 [m_2] - 0.087 [m_2]$ = 0.693 [m ²]	A_{f1} = Area of the frame $0.78 [m_2] - 0.087 [m_2]$ = 0.693 [m ²]
A_{f2} = Sichtbare Fläche Sockel $(1.23 - 2 \times 130) \times 90$ = 0.087 [m ²]	A_{f2} = Surface du socle $(1.23 - 2 \times 130) \times 90$ = 0.087 [m ²]	A_{f2} = Area of the threshold $(1.23 - 2 \times 130) \times 90$ = 0.087 [m ²]
L_g = Umfang des sichtbaren Glasanteils $((1.23 - 2 \times 130) + (2.18 - 130 - 90)) \times 2$ = 5.860 [m]	L_g = Périmètre du vitrage visible $((1.23 - 2 \times 130) + (2.18 - 130 - 90)) \times 2$ = 5.860 [m]	L_g = Perimeter of the visible glazing $((1.23 - 2 \times 130) + (2.18 - 130 - 90)) \times 2$ = 5.860 [m]
U_f = U-Wert der Rahmenkombination Rahmen: 2.5 [W/(m ² K)] Sockel: 3.1 [W/(m ² K)]	U_f = Coefficient de transmission thermique de l'encadrement cadre: 2.5 [W/(m ² K)] socle: 3.1 [W/(m ² K)]	U_f = Thermal transmittance of the frame frame: 2.5 [W/(m ² K)] threshold: 3.1 [W/(m ² K)]
U_g = U-Wert des Glases 1.1 [W/(m ² K)]	U_g = Coefficient de transmission thermique du vitrage 1.1 [W/(m ² K)]	U_g = Thermal transmittance of the glazing 1.1 [W/(m ² K)]
ψ_g = Längenbezogener Wärmedurchgangskoeffizient gemäss EN 10077-1 0.11 [W/(mK)]	ψ_g = Coefficient de transmission thermique linéique selon EN 10077-1 0.11 [W/(mK)]	ψ_g = Linear thermal transmittance according to EN 10077-1 0.11 [W/(mK)]

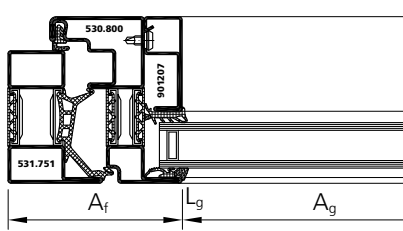
$$U_D = \frac{(A_{f1} \times U_f) + (A_{f2} \times U_f) + (A_g \times U_g) + (L_g \times \psi_g)}{A_{f1} + A_{f2} + A_g} \quad U_D = \frac{(0.693 \times 2.5) + (0.087 \times 3.1) + (1.901 \times 1.1) + (5.86 \times 0.11)}{(0.693 + 0.087 + 1.901)} = 1.66 \text{ [W/(m}^2\text{K)]}$$

Berechnung der U-Werte

für ein gesamtes Element gemäss EN 10077 - 1

Die Element U-Werte werden gemäss Norm EN 10077-1 mit folgenden Formeln berechnet

$$U_w = \frac{A_f \times U_f + A_g \times U_g + L_g \times \psi_g}{A_f + A_g}$$



Calcul des valeurs U

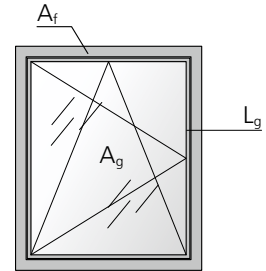
pour tout l'élément selon la norme EN 10077 - 1

Les valeurs U sont calculées selon la norme EN 10077-1 avec la formule suivante

Calculation of U-value

of the complete unit according to EN 10077 - 1

The U-value of the unit will be calculated according to EN 10077-1 with following computation formula



- U_w** = U-Wert Fenster [W/(m²K)]
- A_f** = Sichtbare Fläche Rahmen [m²]
- U_f** = U-Wert der Rahmenkombination [W/(m²K)]
- A_g** = Sichtbare Fläche Glas [m²]
- U_g** = U-Wert des Glases [W/(m²K)]
- L_g** = Umfang des sichtbaren Glasanteils [m]
- ψ_g** = Längenbezogener Wärmedurchgangskoeffizient [W/(mK)]
Tabelle E1 der EN 10077-1

- U_w** = Coefficient de transmission thermique de la fenêtre [W/(m²K)]
- A_f** = Surface de l'encadrement [m²]
- U_f** = Coefficient de transmission thermique de l'encadrement [W/(m²K)]
- A_g** = Surface du vitrage [m²]
- U_g** = Coefficient de transmission thermique du vitrage [W/(m²K)]
- L_g** = Périmètre du vitrage visible [m]
- ψ_g** = Valeurs du coefficient de transmission thermique linéique pour les intercalaires du vitrage [W/(mK)]
Tableau E1 EN ISO 10077-1

- U_w** = Thermal transmittance of the window [W/(m²K)]
- A_f** = Area of the frame [m²]
- U_f** = Thermal transmittance of the frame [W/(m²K)]
- A_g** = Area of the glazing [m²]
- U_g** = Thermal transmittance of the glazing [W/(m²K)]
- L_g** = Perimeter of the visible glazing [m]
- ψ_g** = Values of linear thermal transmittance for common types of glazing spacer bars [W/(mK)]
Table E1 EN ISO 10077-1

Längenbezogener Wärmedurchgangskoeffizient für Abstandhalter aus Aluminium und Stahl, Tabellen E.1 und E.2 der EN 10077-1 (2010) für Abstandhalter mit wärmetechnisch verbesserter Leistungsfähigkeit.

Valeurs du coefficient de transmission thermique linéique pour les intercalaires de vitrages en aluminium et en acier, tableaux E.1 et E.2 selon EN ISO 10077-1 (2010) pour intercalaires de vitrages avec une efficacité thermique plus performante.

Values of linear thermal transmittance for common types of glazing spacer bars (aluminium or steel) tables E1 and E.2 according to EN ISO 10077-1 (2010) for glazing spacer bars with higher thermal efficiency.

	2- oder 3 Scheiben Isolierverglasung, unbeschichtetes Glas, Luft oder Gaszwischenraum Vitrage double ou triple, verre non revêtu, lame d'air ou de gaz Double or triple glazing uncoated glass air- or gas-filled	2- oder 3 Scheiben Isolierverglasung, mit niedrigem Emissionsgrad, Luft oder Gaszwischenraum Vitrage double à faible émissivité, vitrage triple avec deux couches à faible émissivité, lame d'air ou gaz Double or triple glazing low-emissivity glass air- or gas-filled
Metallrahmen mit wärmetechnischer Trennung Cadre avec isolation thermique Frame with thermal break	a) 0.08 b) 0.06	a) 0.11 b) 0.08

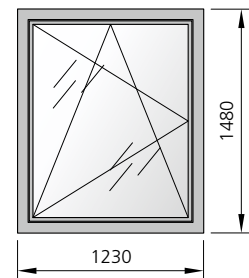
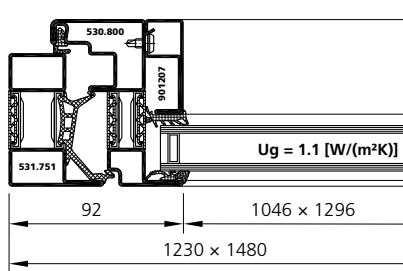
- a) Abstandhalter aus Aluminium und Stahl
- b) Abstandhalter mit wärmetechnisch verbesserter Leistungsfähigkeit

- a) intercalaire de vitrage en aluminium et en acier
- b) intercalaire de vitrage avec une efficacité thermique plus performante

- a) glazing spacer bars in aluminium or steel
- b) glazing spacer bar with higher thermal efficiency

Berechnung der U-Wertefür ein gesamtes Element gemäss
EN 10077 - 1**Calcul des valeurs U**pour tout l'élément selon la norme
EN 10077 - 1**Calculation of U-value**of the complete unit according to
EN 10077 - 1

Beispiel / Exemple / Example



$$A_w = \text{Fläche gesamtes Element} \\ 1.23 \times 1.48 = 1.820 \text{ [m}^2\text{]}$$

$$A_w = \text{Surface de l'élément} \\ 1.23 \times 1.48 = 1.820 \text{ [m}^2\text{]}$$

$$A_w = \text{Area of the element} \\ 1.23 \times 1.48 = 1.820 \text{ [m}^2\text{]}$$

$$A_g = \text{Sichtbare Fläche Glas} \\ 1.046 \times 1.296 = 1.356 \text{ [m}^2\text{]}$$

$$A_g = \text{Surface du vitrage} \\ 1.046 \times 1.296 = 1.356 \text{ [m}^2\text{]}$$

$$A_g = \text{Area of the glazing} \\ 1.046 \times 1.296 = 1.356 \text{ [m}^2\text{]}$$

$$A_f = \text{Sichtbare Fläche Rahmen} \\ A_w - A_g \\ 1.820 - 1.356 = 0.464 \text{ [m}^2\text{]}$$

$$A_f = \text{Surface de l'encadrement} \\ A_w - A_g \\ 1.820 - 1.356 = 0.464 \text{ [m}^2\text{]}$$

$$A_f = \text{Area of the frame} \\ A_w - A_g \\ 1.820 - 1.356 = 0.464 \text{ [m}^2\text{]}$$

$$L_g = \text{Umfang des sichtbaren Glasanteils} \\ 2 \times 1.046 + 2 \times 1.296 = 4.684 \text{ [m]}$$

$$L_g = \text{Périmètre du vitrage visible} \\ 2 \times 1.046 + 2 \times 1.296 = 4.684 \text{ [m]}$$

$$L_g = \text{Perimeter of the visible glazing} \\ 2 \times 1.046 + 2 \times 1.296 = 4.684 \text{ [m]}$$

$$U_f = \text{U-Wert der Rahmenkombination} \\ 2.9 \text{ [W/(m}^2\text{K)]}$$

$$U_f = \text{Coefficient de transmission thermique de l'encadrement} \\ 2.9 \text{ [W/(m}^2\text{K)]}$$

$$U_f = \text{Thermal transmittance of the frame} \\ 2.9 \text{ [W/(m}^2\text{K)]}$$

$$U_g = \text{U-Wert des Glases} \\ 1.1 \text{ [W/(m}^2\text{K)]}$$

$$U_g = \text{Coefficient de transmission thermique du vitrage} \\ 1.1 \text{ [W/(m}^2\text{K)]}$$

$$U_g = \text{Thermal transmittance of the glazing} \\ 1.1 \text{ [W/(m}^2\text{K)]}$$

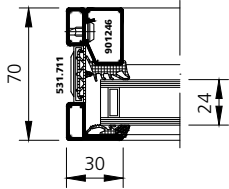
$$\Psi_g = \text{Längenbezogener Wärmedurchgangskoeffizient} \\ \text{gemäss EN 10077-1} \\ 0.11 \text{ [W/(mK)]}$$

$$\Psi_g = \text{Coefficient de transmission thermique linéique} \\ \text{selon EN 10077-1} \\ 0.11 \text{ [W/(mK)]}$$

$$\Psi_g = \text{Linear thermal transmittance} \\ \text{according to EN 10077-1} \\ 0.11 \text{ [W/(mK)]}$$

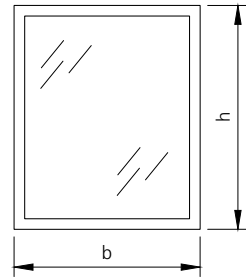
$$U_w = \frac{A_f \times U_f + A_g \times U_g + L_g \times \Psi_g}{A_f + A_g}$$

$$U_w = \frac{0.464 \times 2.9 + 1.356 \times 1.1 + 4.684 \times 0.11}{0.464 + 1.356} = 1.84 \text{ [W/(m}^2\text{K)]}$$

Element – U-WerteU-Werte Festfeld U_W 

$U_f = 3.0 \text{ [W/(m}^2 \cdot \text{K)]}$

$\psi = 0.06 \text{ [W/(m} \cdot \text{K)]}$

Élément – Coefficient de transmission thermiqueCoefficient de transmission thermique du vitrage fixe U_W **Element – Thermal transmittance**Thermal transmittance of fixed glazing U_W **forsterunico**

	U_g -Wert Glas Valeur U_g verre U_g -value glass	Breite b / largeur b / width b [mm]								
		800	1000	1200	1400	1600	1800	2000	2200	2400
Höhe h / hauteur h / height h [mm]	1.1	1.65	1.60	1.57	1.54	1.52	1.51	1.50	1.49	1.48
	1.1	1.60	1.55	1.51	1.49	1.47	1.45	1.44	1.43	1.42
	1.1	1.57	1.51	1.48	1.45	1.43	1.42	1.40	1.39	1.39
		1.54	1.49	1.45	1.42	1.40	1.39	1.38	1.37	1.36
		1.52	1.47	1.43	1.40	1.38	1.37	1.36	1.35	1.34
		1.51	1.45	1.42	1.39	1.37	1.35	1.34	1.33	1.32
		1.50	1.44	1.40	1.38	1.36	1.34	1.33	1.32	1.31
		1.49	1.43	1.39	1.37	1.35	1.33	1.32	1.31	1.30
		1.48	1.42	1.39	1.36	1.34	1.32	1.31	1.30	1.29
		1.47	1.42	1.38	1.35	1.33	1.32	1.30	1.29	1.28
		1.47	1.41	1.37	1.35	1.33	1.31	1.30	1.29	1.28
	1.46	1.40	1.37	1.34	1.32	1.30	1.29	1.28	1.27	

	U_g -Wert Glas Valeur U_g verre U_g -value glass	Breite b / largeur b / width b [mm]								
		800	1000	1200	1400	1600	1800	2000	2200	2400
Höhe h / hauteur h / height h [mm]	0.9	1.48	1.43	1.39	1.36	1.34	1.33	1.32	1.31	1.30
	0.9	1.43	1.37	1.33	1.31	1.29	1.27	1.26	1.25	1.24
	0.9	1.39	1.33	1.29	1.27	1.25	1.23	1.22	1.21	1.20
		1.36	1.31	1.27	1.24	1.22	1.20	1.19	1.18	1.17
		1.34	1.29	1.25	1.22	1.20	1.18	1.17	1.16	1.15
		1.33	1.27	1.23	1.20	1.18	1.17	1.15	1.14	1.13
		1.32	1.26	1.22	1.19	1.17	1.15	1.14	1.13	1.12
		1.31	1.25	1.21	1.18	1.16	1.14	1.13	1.12	1.11
		1.30	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.10
		1.29	1.23	1.19	1.16	1.14	1.13	1.11	1.10	1.09
		1.29	1.23	1.19	1.16	1.14	1.12	1.11	1.10	1.09
	1.28	1.22	1.18	1.15	1.13	1.11	1.10	1.09	1.08	

Element – U-Werte

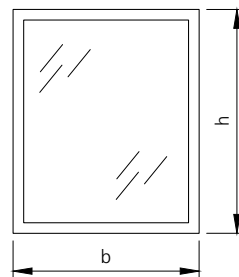
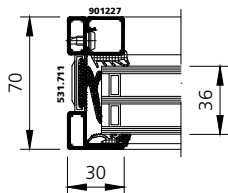
U-Werte Festfeld U_W

Élément – Coefficient de transmission thermique

Coefficient de transmission thermique du vitrage fixe U_W

Element – Thermal transmittance

Thermal transmittance of fixed glazing U_W

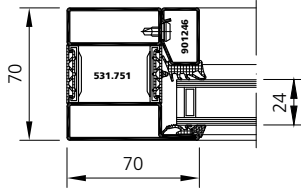
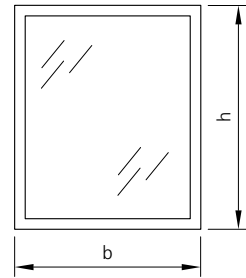


$U_f = 2.1 [W/(m^2 \cdot K)]$
 $\psi = 0.04 [W/(m \cdot K)]$

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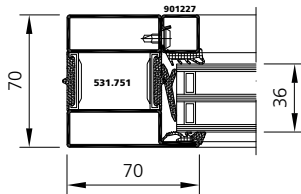
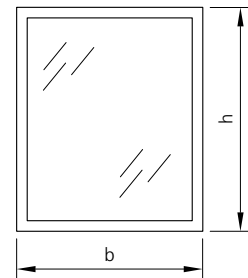
	U _g -Wert Glas Valeur U _g verre U _g -value glass	Breite b / largeur b / width b [mm]								
		800	1000	1200	1400	1600	1800	2000	2200	2400
Höhe h / hauteur h / height h [mm]	0.7	1.09	1.05	1.03	1.01	1.00	0.99	0.98	0.97	0.97
	0.7	1.05	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.93
	0.7	1.03	0.99	0.96	0.95	0.93	0.92	0.91	0.91	0.90
		1.01	0.97	0.95	0.93	0.91	0.90	0.89	0.89	0.88
		1.00	0.96	0.93	0.91	0.90	0.89	0.88	0.87	0.87
		0.99	0.95	0.92	0.90	0.89	0.88	0.87	0.86	0.86
		0.98	0.94	0.91	0.89	0.88	0.87	0.86	0.85	0.85
		0.97	0.93	0.91	0.89	0.87	0.86	0.85	0.85	0.84
		0.97	0.93	0.90	0.88	0.87	0.86	0.85	0.84	0.83
		0.96	0.92	0.90	0.88	0.86	0.85	0.84	0.84	0.83
		0.96	0.92	0.89	0.87	0.86	0.85	0.84	0.83	0.82
		0.95	0.91	0.89	0.87	0.85	0.84	0.83	0.83	0.82

	U _g -Wert Glas Valeur U _g verre U _g -value glass	Breite b / largeur b / width b [mm]								
		800	1000	1200	1400	1600	1800	2000	2200	2400
Höhe h / hauteur h / height h [mm]	0.5	0.92	0.88	0.85	0.83	0.82	0.81	0.80	0.79	0.79
	0.5	0.88	0.84	0.81	0.79	0.78	0.77	0.76	0.75	0.74
	0.5	0.85	0.81	0.78	0.76	0.75	0.74	0.73	0.72	0.71
		0.83	0.79	0.76	0.74	0.73	0.72	0.71	0.70	0.69
		0.82	0.78	0.75	0.73	0.71	0.70	0.69	0.69	0.68
		0.81	0.77	0.74	0.72	0.70	0.69	0.68	0.67	0.67
		0.80	0.76	0.73	0.71	0.69	0.68	0.67	0.66	0.66
		0.79	0.75	0.72	0.70	0.69	0.67	0.66	0.66	0.65
		0.79	0.74	0.71	0.69	0.68	0.67	0.66	0.65	0.64
		0.78	0.74	0.71	0.69	0.67	0.66	0.65	0.65	0.64
		0.78	0.73	0.70	0.68	0.67	0.66	0.65	0.64	0.63
		0.77	0.73	0.70	0.68	0.67	0.65	0.64	0.64	0.63

Element – U-WerteU-Werte Festfeld U_W  $U_f = 2.5 \text{ [W/(m}^2 \cdot \text{K)]}$ $\psi = 0.06 \text{ [W/(m} \cdot \text{K)]}$ **Élément – Coefficient de transmission thermique**Coefficient de transmission thermique du vitrage fixe U_W **Element – Thermal transmittance**Thermal transmittance of fixed glazing U_W **forsterunico**

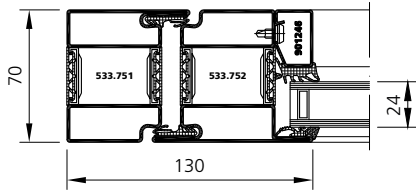
	U_g -Wert Glas Valeur U_g verre U_g -value glass	Breite b / largeur b / width b [mm]								
		800	1000	1200	1400	1600	1800	2000	2200	2400
Höhe h / hauteur h / height h [mm]	1.1	1.79	1.73	1.69	1.67	1.64	1.63	1.61	1.60	1.59
	1.1	1.73	1.67	1.63	1.60	1.58	1.56	1.54	1.53	1.52
	1.1	1.69	1.63	1.58	1.55	1.53	1.51	1.50	1.48	1.47
		1.67	1.60	1.55	1.52	1.50	1.48	1.46	1.45	1.44
		1.64	1.58	1.53	1.50	1.47	1.45	1.44	1.42	1.41
		1.63	1.56	1.51	1.48	1.45	1.43	1.42	1.40	1.39
		1.61	1.54	1.50	1.46	1.44	1.42	1.40	1.39	1.38
		1.60	1.53	1.48	1.45	1.42	1.40	1.39	1.37	1.36
		1.59	1.52	1.47	1.44	1.41	1.39	1.38	1.36	1.35
		1.59	1.51	1.47	1.43	1.40	1.38	1.37	1.35	1.34
		1.58	1.51	1.46	1.42	1.40	1.38	1.36	1.35	1.34
		1.57	1.50	1.45	1.42	1.39	1.37	1.35	1.34	1.33

	U_g -Wert Glas Valeur U_g verre U_g -value glass	Breite b / largeur b / width b [mm]								
		800	1000	1200	1400	1600	1800	2000	2200	2400
Höhe h / hauteur h / height h [mm]	0.9	1.66	1.59	1.55	1.52	1.49	1.48	1.46	1.45	1.44
	0.9	1.59	1.52	1.48	1.44	1.42	1.40	1.38	1.37	1.36
	0.9	1.55	1.48	1.43	1.39	1.37	1.35	1.33	1.32	1.31
		1.52	1.44	1.39	1.36	1.33	1.31	1.29	1.28	1.27
		1.49	1.42	1.37	1.33	1.30	1.28	1.27	1.25	1.24
		1.48	1.40	1.35	1.31	1.28	1.26	1.25	1.23	1.22
		1.46	1.38	1.33	1.29	1.27	1.25	1.23	1.21	1.20
		1.45	1.37	1.32	1.28	1.25	1.23	1.21	1.20	1.19
		1.44	1.36	1.31	1.27	1.24	1.22	1.20	1.19	1.18
		1.43	1.35	1.30	1.26	1.23	1.21	1.19	1.18	1.17
		1.42	1.34	1.29	1.25	1.22	1.20	1.18	1.17	1.16
		1.42	1.34	1.28	1.24	1.22	1.19	1.18	1.16	1.15

Element – U-WerteU-Werte Festfeld U_W  $U_f = 2.1 \text{ [W/(m}^2 \cdot \text{K)]}$ $\psi = 0.04 \text{ [W/(m} \cdot \text{K)]}$ **Élément – Coefficient de transmission thermique**Coefficient de transmission thermique du vitrage fixe U_W **Element – Thermal transmittance**Thermal transmittance of fixed glazing U_W **forster**unico[®]HI

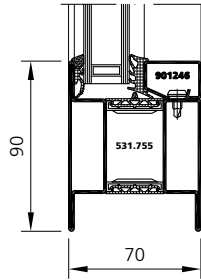
	U_g -Wert Glas 0.7 Valeur U_g verre 0.7 U_g -value glass 0.7	Breite b / largeur b / width b [mm]								
		800	1000	1200	1400	1600	1800	2000	2200	2400
Höhe h / hauteur h / height h [mm]	800	1.31	1.26	1.22	1.20	1.18	1.16	1.15	1.14	1.13
	1000	1.26	1.20	1.16	1.14	1.12	1.10	1.09	1.08	1.07
	1200	1.22	1.16	1.13	1.10	1.08	1.06	1.05	1.04	1.03
	1400	1.20	1.14	1.10	1.07	1.05	1.03	1.02	1.01	1.00
	1600	1.18	1.12	1.08	1.05	1.03	1.01	0.99	0.98	0.97
	1800	1.16	1.10	1.06	1.03	1.01	0.99	0.98	0.97	0.96
	2000	1.15	1.09	1.05	1.02	0.99	0.98	0.96	0.95	0.94
	2200	1.14	1.08	1.04	1.01	0.98	0.97	0.95	0.94	0.93
	2400	1.13	1.07	1.03	1.00	0.97	0.96	0.94	0.93	0.92
	2600	1.13	1.06	1.02	0.99	0.97	0.95	0.93	0.92	0.91
	2800	1.12	1.06	1.01	0.98	0.96	0.94	0.93	0.92	0.91
	3000	1.12	1.05	1.01	0.98	0.95	0.94	0.92	0.91	0.90

	U_g -Wert Glas 0.5 Valeur U_g verre 0.5 U_g -value glass 0.5	Breite b / largeur b / width b [mm]								
		800	1000	1200	1400	1600	1800	2000	2200	2400
Höhe h / hauteur h / height h [mm]	800	1.18	1.12	1.08	1.05	1.03	1.01	1.00	0.99	0.98
	1000	1.12	1.05	1.01	0.98	0.96	0.94	0.93	0.92	0.91
	1200	1.08	1.01	0.97	0.94	0.92	0.90	0.88	0.87	0.86
	1400	1.05	0.98	0.94	0.91	0.88	0.86	0.85	0.84	0.83
	1600	1.03	0.96	0.92	0.88	0.86	0.84	0.83	0.81	0.80
	1800	1.01	0.94	0.90	0.86	0.84	0.82	0.81	0.79	0.78
	2000	1.00	0.93	0.88	0.85	0.83	0.81	0.79	0.78	0.77
	2200	0.99	0.92	0.87	0.84	0.81	0.79	0.78	0.77	0.75
	2400	0.98	0.91	0.86	0.83	0.80	0.78	0.77	0.75	0.74
	2600	0.97	0.90	0.85	0.82	0.79	0.77	0.76	0.75	0.73
	2800	0.96	0.89	0.85	0.81	0.79	0.77	0.75	0.74	0.73
	3000	0.96	0.89	0.84	0.81	0.78	0.76	0.74	0.73	0.72

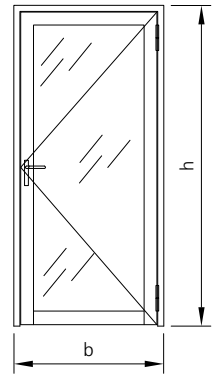
Element – U-WerteU-Werte Tür U_D 

$U_f = 2.5 \text{ [W/(m}^2 \cdot \text{K)]}$

$\psi = 0.06 \text{ [W/(m} \cdot \text{K)]}$

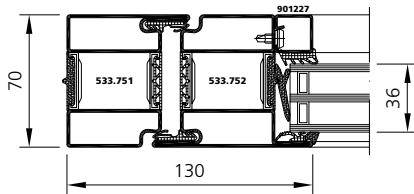
Élément – Coefficient de transmission thermiqueCoefficient de transmission thermique de la porte U_D 

$U_f = 3.1 \text{ [W/(m}^2 \cdot \text{K)]}$

Element – Thermal transmittanceThermal transmittance of the door U_D **forsterunico**

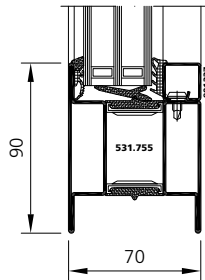
U _g -Wert Glas 1.1 Valeur U _g verre 1.1 U _g -value glass 1.1		Breite b / largeur b / width b [mm]				
		800	1000	1200	1400	1600
Höhe h / hauteur h / height h [mm]	2000	1.85	1.75	1.68	1.63	1.59
	2200	1.84	1.74	1.67	1.62	1.58
	2400	1.83	1.72	1.65	1.60	1.56
	2600	1.82	1.71	1.64	1.59	1.55
	2800	1.81	1.70	1.63	1.58	1.54
	3000	1.80	1.69	1.62	1.57	1.53

U _g -Wert Glas 0.9 Valeur U _g verre 0.9 U _g -value glass 0.9		Breite b / largeur b / width b [mm]				
		800	1000	1200	1400	1600
Höhe h / hauteur h / height h [mm]	2000	1.73	1.62	1.54	1.49	1.44
	2200	1.72	1.60	1.52	1.47	1.43
	2400	1.71	1.59	1.51	1.45	1.41
	2600	1.69	1.58	1.50	1.44	1.40
	2800	1.69	1.57	1.49	1.43	1.38
	3000	1.68	1.56	1.48	1.42	1.37

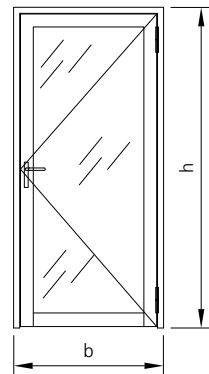
Element – U-WerteU-Werte Tür U_D 

$U_f = 2.1 \text{ [W/(m}^2 \cdot \text{K)]}$

$\psi = 0.04 \text{ [W/(m} \cdot \text{K)]}$

Élément – Coefficient de transmission thermiqueCoefficient de transmission thermique de la porte U_D 

$U_f = 2.3 \text{ [W/(m}^2 \cdot \text{K)]}$

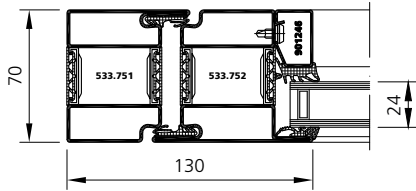
Element – Thermal transmittanceThermal transmittance of the door U_D **forster**unico®HI

		Breite b / largeur b / width b [mm]				
		800	1000	1200	1400	1600
U _g -Wert Glas 0.7						
Valeur U _g verre 0.7						
U _g -value glass 0.7						
Höhe h / hauteur h / height h [mm]	2000	1.38	1.29	1.22	1.18	1.14
	2200	1.37	1.27	1.21	1.16	1.13
	2400	1.36	1.26	1.20	1.15	1.11
	2600	1.35	1.25	1.19	1.14	1.10
	2800	1.35	1.25	1.18	1.13	1.09
	3000	1.34	1.24	1.17	1.12	1.09

		Breite b / largeur b / width b [mm]				
		800	1000	1200	1400	1600
U _g -Wert Glas 0.5						
Valeur U _g verre 0.5						
U _g -value glass 0.5						
Höhe h / hauteur h / height h [mm]	2000	1.26	1.15	1.08	1.03	0.99
	2200	1.25	1.14	1.07	1.02	0.98
	2400	1.24	1.13	1.05	1.00	0.96
	2600	1.23	1.12	1.04	0.99	0.95
	2800	1.22	1.11	1.03	0.98	0.94
	3000	1.21	1.10	1.03	0.97	0.93

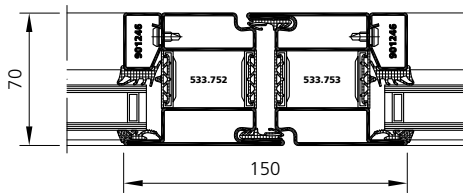
Element – U-Werte

U-Werte Tür U_D



U_f = 2.5 [W/(m² · K)]

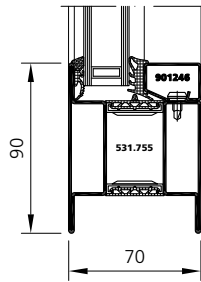
ψ = 0.06 [W/(m · K)]



U_f = 2.5 [W/(m² · K)]

Élément – Coefficient de transmission thermique

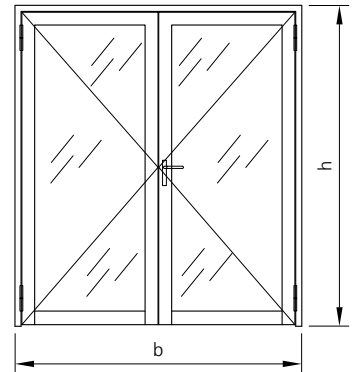
Coefficient de transmission thermique de la porte U_D



U_f = 3.1 [W/(m² · K)]

Element – Thermal transmittance

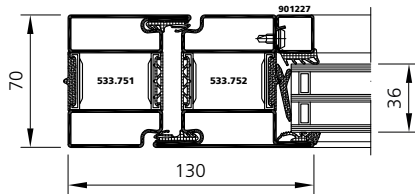
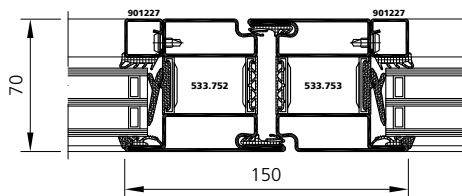
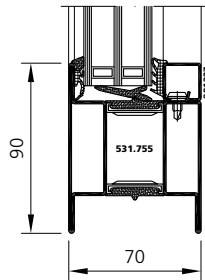
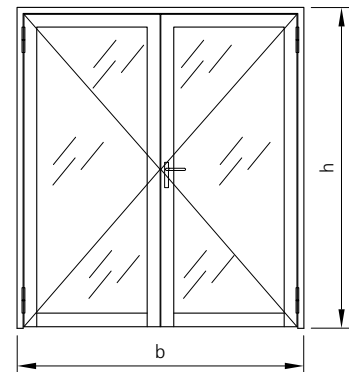
Thermal transmittance of the door U_D



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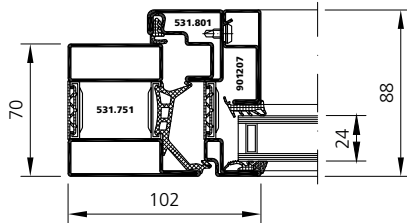
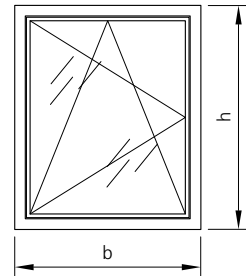
U _g -Wert Glas Valeur U _g verre U _g -value glass		Breite b / largeur b / width b [mm]									
		1200	1400	1600	1800	2000	2200	2400	2600	2800	3000
Höhe h / hauteur h / height h [mm]	2000	1.91	1.83	1.77	1.72	1.69	1.65	1.63	1.61	1.59	1.57
	2200	1.90	1.82	1.76	1.71	1.67	1.64	1.61	1.59	1.57	1.55
	2400	1.89	1.81	1.74	1.70	1.66	1.62	1.60	1.57	1.55	1.54
	2600	1.88	1.80	1.73	1.68	1.64	1.61	1.58	1.56	1.54	1.52
	2800	1.88	1.79	1.72	1.67	1.63	1.60	1.57	1.55	1.53	1.51
	3000	1.87	1.78	1.72	1.67	1.63	1.59	1.57	1.54	1.52	1.50

U _g -Wert Glas Valeur U _g verre U _g -value glass		Breite b / largeur b / width b [mm]									
		1200	1400	1600	1800	2000	2200	2400	2600	2800	3000
Höhe h / hauteur h / height h [mm]	2000	1.80	1.71	1.64	1.59	1.54	1.51	1.48	1.46	1.44	1.42
	2200	1.78	1.69	1.62	1.57	1.53	1.49	1.46	1.44	1.42	1.40
	2400	1.77	1.68	1.61	1.55	1.51	1.48	1.45	1.42	1.40	1.38
	2600	1.76	1.67	1.60	1.54	1.50	1.46	1.43	1.41	1.39	1.37
	2800	1.75	1.66	1.59	1.53	1.49	1.45	1.42	1.40	1.37	1.35
	3000	1.75	1.65	1.58	1.52	1.48	1.44	1.41	1.39	1.36	1.34

Element – U-WerteU-Werte Tür U_D  $U_f = 2.1 \text{ [W/(m}^2 \cdot \text{K)]}$ $\psi = 0.04 \text{ [W/(m} \cdot \text{K)]}$  $U_f = 2.1 \text{ [W/(m}^2 \cdot \text{K)]}$ **Élément – Coefficient de transmission thermique**Coefficient de transmission thermique de la porte U_D  $U_f = 2.3 \text{ [W/(m}^2 \cdot \text{K)]}$ **Element – Thermal transmittance**Thermal transmittance of the door U_D **forsterunico**®HI

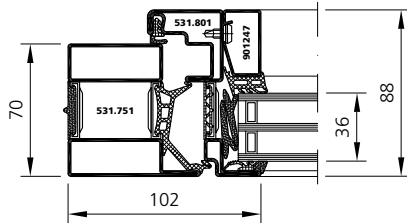
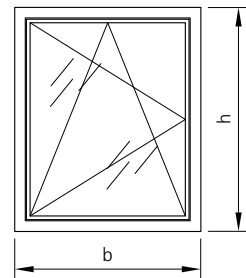
U _g -Wert Glas Valeur U _g verre U _g -value glass		Breite b / largeur b / width b [mm]									
		1200	1400	1600	1800	2000	2200	2400	2600	2800	3000
Höhe h / hauteur h / height h [mm]	2000	1.43	1.36	1.30	1.25	1.22	1.19	1.17	1.15	1.13	1.11
	2200	1.42	1.34	1.29	1.24	1.21	1.18	1.15	1.13	1.11	1.10
	2400	1.41	1.33	1.28	1.23	1.19	1.16	1.14	1.12	1.10	1.09
	2600	1.40	1.33	1.27	1.22	1.18	1.15	1.13	1.11	1.09	1.07
	2800	1.40	1.32	1.26	1.21	1.18	1.15	1.12	1.10	1.08	1.07
	3000	1.39	1.31	1.25	1.21	1.17	1.14	1.11	1.09	1.07	1.06

U _g -Wert Glas Valeur U _g verre U _g -value glass		Breite b / largeur b / width b [mm]									
		1200	1400	1600	1800	2000	2200	2400	2600	2800	3000
Höhe h / hauteur h / height h [mm]	2000	1.31	1.23	1.17	1.12	1.08	1.05	1.02	1.00	0.98	0.96
	2200	1.30	1.22	1.15	1.10	1.06	1.03	1.00	0.98	0.96	0.94
	2400	1.29	1.20	1.14	1.09	1.05	1.02	0.99	0.97	0.95	0.93
	2600	1.28	1.20	1.13	1.08	1.04	1.01	0.98	0.95	0.93	0.92
	2800	1.28	1.19	1.12	1.07	1.03	1.00	0.97	0.94	0.92	0.91
	3000	1.27	1.18	1.11	1.06	1.02	0.99	0.96	0.94	0.92	0.90

Element – U-WerteU-Werte Fenster U_W  $U_f = 2.9 \text{ [W/(m}^2 \cdot \text{K)]}$ $\psi = 0.06 \text{ [W/(m} \cdot \text{K)]}$ **Élément – Coefficient de transmission thermique**Coefficient de transmission thermique de la fenêtre U_W **Element – Thermal transmittance**Thermal transmittance of the window U_W **forsterunico**

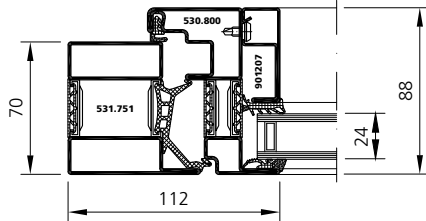
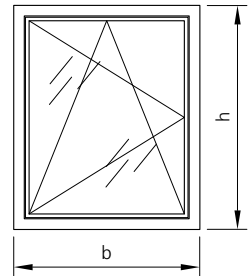
	U_g -Wert Glas Valeur U_g verre U_g -value glass	Breite b / largeur b / width b [mm]						
		600	800	1000	1200	1400	1600	
Höhe h / hauteur h / height h [mm]	1.1							
	1.1							
	1.1							
		600	2.38	2.26	2.19	2.15		
		800	2.26	2.12	2.04	1.99	1.95	
		1000	2.19	2.04	1.95	1.89	1.85	1.81
		1200	2.15	1.99	1.89	1.83	1.78	1.75
		1400	2.11	1.95	1.85	1.78	1.73	1.70
		1600	2.09	1.92	1.81	1.75	1.70	1.66
		1800	2.07	1.89	1.79	1.72	1.67	1.63
		2000	2.05	1.88	1.77	1.70	1.65	
	2200	2.04	1.86	1.75	1.68	1.63		
	2400	2.03	1.85	1.74	1.67	1.61		
	2600	2.02	1.84	1.73	1.65	1.60		

	U_g -Wert Glas Valeur U_g verre U_g -value glass	Breite b / largeur b / width b [mm]						
		600	800	1000	1200	1400	1600	
Höhe h / hauteur h / height h [mm]	0.9							
	0.9							
	0.9							
		600	2.29	2.16	2.09	2.04		
		800	2.16	2.01	1.92	1.86	1.82	
		1000	2.09	1.92	1.82	1.76	1.71	1.68
		1200	2.04	1.86	1.76	1.69	1.64	1.60
		1400	2.00	1.82	1.71	1.64	1.59	1.55
		1600	1.97	1.79	1.68	1.60	1.55	1.51
		1800	1.95	1.76	1.65	1.57	1.52	1.48
		2000	1.93	1.74	1.63	1.55	1.49	
	2200	1.92	1.72	1.61	1.53	1.47		
	2400	1.91	1.71	1.59	1.51	1.46		
	2600	1.90	1.70	1.58	1.50	1.44		

Element – U-WerteU-Werte Fenster U_W  $U_f = 2.1 \text{ [W/(m}^2 \cdot \text{K)]}$ $\psi = 0.04 \text{ [W/(m} \cdot \text{K)]}$ **Élément – Coefficient de transmission thermique**Coefficient de transmission thermique de la fenêtre U_W **Element – Thermal transmittance**Thermal transmittance of the window U_W **forster**unico®HI

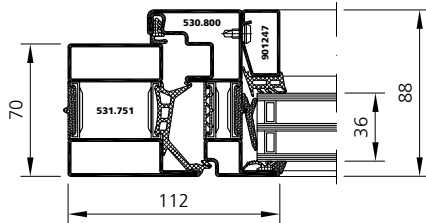
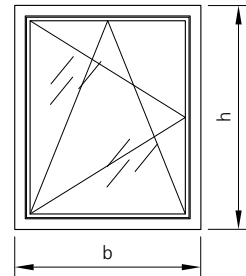
	U_g -Wert Glas Valeur U_g verre U_g -value glass	Breite b / largeur b / width b [mm]						
		600	800	1000	1200	1400	1600	
Höhe h / hauteur h / height h [mm]	0.7	600	1.67	1.58	1.52	1.49		
	0.7	800	1.58	1.47	1.41	1.37	1.34	
	0.7	1000	1.52	1.41	1.34	1.29	1.26	1.24
		1200	1.49	1.37	1.29	1.25	1.21	1.19
		1400	1.46	1.34	1.26	1.21	1.18	1.15
		1600	1.44	1.31	1.24	1.19	1.15	1.12
		1800	1.43	1.30	1.22	1.17	1.13	1.10
		2000	1.42	1.28	1.20	1.15	1.11	
		2200	1.41	1.27	1.19	1.14	1.10	
		2400	1.40	1.26	1.18	1.13	1.09	
		2600	1.39	1.25	1.17	1.12	1.08	

	U_g -Wert Glas Valeur U_g verre U_g -value glass	Breite b / largeur b / width b [mm]						
		600	800	1000	1200	1400	1600	
Höhe h / hauteur h / height h [mm]	0.5	600	1.58	1.48	1.42	1.38		
	0.5	800	1.48	1.36	1.29	1.24	1.21	
	0.5	1000	1.42	1.29	1.21	1.16	1.13	1.10
		1200	1.38	1.24	1.16	1.11	1.07	1.04
		1400	1.35	1.21	1.13	1.07	1.03	1.00
		1600	1.33	1.18	1.10	1.04	1.00	0.97
		1800	1.31	1.16	1.08	1.02	0.98	0.95
		2000	1.30	1.15	1.06	1.00	0.96	
		2200	1.29	1.14	1.05	0.99	0.94	
		2400	1.28	1.13	1.03	0.97	0.93	
		2600	1.27	1.12	1.02	0.96	0.92	

Element – U-WerteU-Werte Fenster U_W  $U_f = 2.7 \text{ [W/(m}^2 \cdot \text{K)]}$ $\psi = 0.06 \text{ [W/(m} \cdot \text{K)]}$ **Élément – Coefficient de transmission thermique**Coefficient de transmission thermique de la fenêtre U_W **Element – Thermal transmittance**Thermal transmittance of the window U_W **forsterunico.**

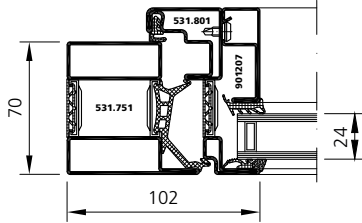
		Breite b / largeur b / width b [mm]					
		600	800	1000	1200	1400	1600
Höhe h / hauteur h / height h [mm]	600	2.32	2.22	2.15	2.11		
	800	2.22	2.09	2.01	1.96	1.92	
	1000	2.15	2.01	1.92	1.87	1.82	1.79
	1200	2.11	1.96	1.87	1.80	1.76	1.73
	1400	2.08	1.92	1.82	1.76	1.72	1.68
	1600	2.06	1.89	1.79	1.73	1.68	1.65
	1800	2.04	1.87	1.77	1.70	1.65	1.62
	2000	2.02	1.85	1.75	1.68	1.63	
	2200	2.01	1.84	1.73	1.67	1.62	
	2400	2.00	1.83	1.72	1.65	1.60	
	2600	2.00	1.82	1.71	1.64	1.59	

		Breite b / largeur b / width b [mm]					
		600	800	1000	1200	1400	1600
Höhe h / hauteur h / height h [mm]	600	2.24	2.13	2.06	2.01		
	800	2.13	1.98	1.90	1.84	1.80	
	1000	2.06	1.90	1.80	1.74	1.69	1.66
	1200	2.01	1.84	1.74	1.67	1.62	1.59
	1400	1.97	1.80	1.69	1.62	1.57	1.54
	1600	1.95	1.77	1.66	1.59	1.54	1.50
	1800	1.93	1.74	1.63	1.56	1.51	1.47
	2000	1.91	1.73	1.61	1.54	1.48	
	2200	1.90	1.71	1.60	1.52	1.46	
	2400	1.89	1.70	1.58	1.50	1.45	
	2600	1.88	1.69	1.57	1.49	1.44	

Element – U-WerteU-Werte Fenster U_W  $U_f = 2.2 \text{ [W/(m}^2 \cdot \text{K)]}$ $\psi = 0.04 \text{ [W/(m} \cdot \text{K)]}$ **Élément – Coefficient de transmission thermique**Coefficient de transmission thermique de la fenêtre U_W **Element – Thermal transmittance**Thermal transmittance of the window U_W **forster**unico®HI

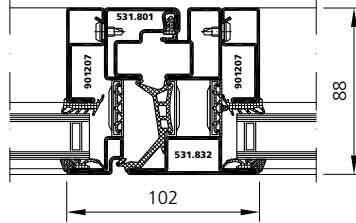
		Breite b / largeur b / width b [mm]					
		600	800	1000	1200	1400	1600
Höhe h / hauteur h / height h [mm]	600	1.78	1.68	1.62	1.59		
	800	1.68	1.57	1.50	1.45	1.42	
	1000	1.62	1.50	1.42	1.37	1.33	1.31
	1200	1.59	1.45	1.37	1.32	1.28	1.25
	1400	1.56	1.42	1.33	1.28	1.24	1.21
	1600	1.54	1.39	1.31	1.25	1.21	1.18
	1800	1.52	1.37	1.29	1.23	1.18	1.15
	2000	1.51	1.36	1.27	1.21	1.17	
	2200	1.50	1.35	1.25	1.19	1.15	
	2400	1.49	1.34	1.24	1.18	1.14	
	2600	1.48	1.33	1.23	1.17	1.13	

		Breite b / largeur b / width b [mm]					
		600	800	1000	1200	1400	1600
Höhe h / hauteur h / height h [mm]	600	1.70	1.59	1.53	1.48		
	800	1.59	1.46	1.39	1.33	1.30	
	1000	1.53	1.39	1.30	1.24	1.20	1.17
	1200	1.48	1.33	1.24	1.18	1.14	1.11
	1400	1.45	1.30	1.20	1.14	1.10	1.06
	1600	1.43	1.27	1.17	1.11	1.06	1.03
	1800	1.41	1.25	1.15	1.08	1.04	1.00
	2000	1.40	1.23	1.13	1.06	1.02	
	2200	1.39	1.22	1.12	1.05	1.00	
	2400	1.38	1.20	1.10	1.03	0.99	
	2600	1.37	1.19	1.09	1.02	0.97	

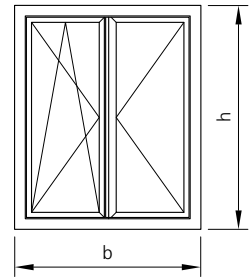
Element – U-WerteU-Werte Fenster U_W 

$U_f = 2.8 \text{ [W/(m}^2 \cdot \text{K)]}$

$\psi = 0.06 \text{ [W/(m} \cdot \text{K)]}$

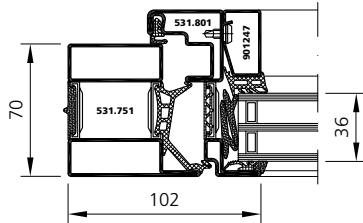
Élément – Coefficient de transmission thermiqueCoefficient de transmission thermique de la fenêtre U_W 

$U_f = 3.1 \text{ [W/(m}^2 \cdot \text{K)]}$

Element – Thermal transmittanceThermal transmittance of the window U_W **forsterunico.**

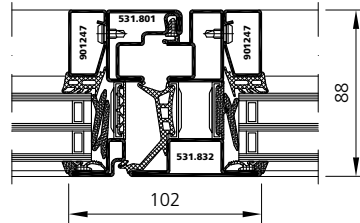
U _g -Wert Glas Valeur U _g verre U _g -value glass	1.1	Breite b / largeur b / width b [mm]												
		800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
Höhe h / hauteur h / height h [mm]	600	2.47	2.35	2.27	2.21	2.17	2.14	2.11	2.09	2.07				
	800	2.37	2.23	2.14	2.08	2.03	1.99	1.96	1.93	1.91				
	1000	2.32	2.17	2.07	1.99	1.94	1.90	1.87	1.84	1.82	1.80	1.78	1.77	1.75
	1200	2.28	2.12	2.01	1.94	1.88	1.84	1.80	1.78	1.75	1.73	1.71	1.70	1.69
	1400	2.25	2.09	1.98	1.90	1.84	1.80	1.76	1.73	1.71	1.68	1.67	1.65	1.64
	1600	2.23	2.06	1.95	1.87	1.81	1.76	1.73	1.70	1.67	1.65	1.63	1.62	1.60
	1800	2.21	2.04	1.93	1.85	1.79	1.74	1.70	1.67	1.64	1.62	1.60	1.59	1.57
	2000	2.20	2.03	1.91	1.83	1.77	1.72	1.68	1.65	1.62	1.60	1.58		
	2200	2.19	2.02	1.90	1.81	1.75	1.70	1.66	1.63	1.61	1.58	1.56		
	2400	2.18	2.01	1.89	1.80	1.74	1.69	1.65	1.62	1.59	1.57	1.55		
	2600	2.18	2.00	1.88	1.79	1.73	1.68	1.64	1.61	1.58	1.56	1.54		

U _g -Wert Glas Valeur U _g verre U _g -value glass	0.9	Breite b / largeur b / width b [mm]												
		800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
Höhe h / hauteur h / height h [mm]	600	2.39	2.26	2.17	2.11	2.07	2.03	2.00	1.98	1.96				
	800	2.28	2.13	2.03	1.96	1.91	1.87	1.83	1.81	1.78				
	1000	2.22	2.06	1.95	1.87	1.81	1.77	1.73	1.70	1.68	1.66	1.64	1.62	1.61
	1200	2.18	2.00	1.89	1.81	1.75	1.70	1.66	1.63	1.61	1.59	1.57	1.55	1.54
	1400	2.15	1.97	1.85	1.77	1.70	1.65	1.62	1.58	1.56	1.53	1.51	1.50	1.48
	1600	2.12	1.94	1.82	1.73	1.67	1.62	1.58	1.55	1.52	1.50	1.48	1.46	1.44
	1800	2.11	1.92	1.80	1.71	1.64	1.59	1.55	1.52	1.49	1.47	1.45	1.43	1.41
	2000	2.09	1.90	1.78	1.69	1.62	1.57	1.53	1.49	1.47	1.44	1.42		
	2200	2.08	1.89	1.76	1.67	1.61	1.55	1.51	1.48	1.45	1.42	1.40		
	2400	2.07	1.88	1.75	1.66	1.59	1.54	1.49	1.46	1.43	1.41	1.39		
	2600	2.06	1.87	1.74	1.65	1.58	1.52	1.48	1.45	1.42	1.39	1.37		

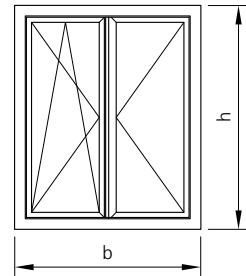
Element – U-WerteU-Werte Fenster U_W 

$U_f = 2.1 \text{ [W/(m}^2 \cdot \text{K)]}$

$\psi = 0.04 \text{ [W/(m} \cdot \text{K)]}$

Élément – Coefficient de transmission thermiqueCoefficient de transmission thermique de la fenêtre U_W 

$U_f = 2.1 \text{ [W/(m}^2 \cdot \text{K)]}$

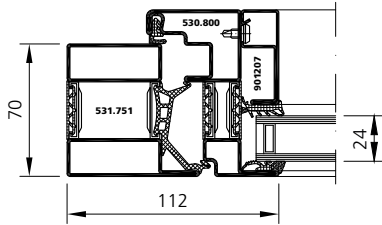
Element – Thermal transmittanceThermal transmittance of the window U_W **forster**unico_®HI

U _g -Wert Glas Valeur U _g verre U _g -value glass		Breite b / largeur b / width b [mm]												
		800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
0.7	0.7													
0.7	0.7													
0.7	0.7													
Höhe h / hauteur h / height h [mm]	600	1.74	1.66	1.60	1.56	1.53	1.50	1.48	1.47	1.45				
	800	1.67	1.56	1.50	1.45	1.41	1.38	1.36	1.34	1.33				
	1000	1.62	1.51	1.44	1.38	1.34	1.31	1.29	1.27	1.25	1.24	1.22	1.21	1.20
	1200	1.59	1.47	1.39	1.34	1.30	1.26	1.24	1.22	1.20	1.18	1.17	1.16	1.15
	1400	1.57	1.45	1.37	1.31	1.26	1.23	1.20	1.18	1.16	1.15	1.13	1.12	1.11
	1600	1.55	1.43	1.34	1.28	1.24	1.21	1.18	1.15	1.14	1.12	1.11	1.09	1.08
	1800	1.54	1.41	1.33	1.27	1.22	1.19	1.16	1.13	1.11	1.10	1.08	1.07	1.06
	2000	1.53	1.40	1.31	1.25	1.21	1.17	1.14	1.12	1.10	1.08	1.07		
	2200	1.52	1.39	1.30	1.24	1.19	1.16	1.13	1.10	1.08	1.07	1.05		
	2400	1.51	1.38	1.29	1.23	1.18	1.15	1.12	1.09	1.07	1.06	1.04		
	2600	1.51	1.37	1.28	1.22	1.17	1.14	1.11	1.08	1.06	1.05	1.03		

U _g -Wert Glas Valeur U _g verre U _g -value glass		Breite b / largeur b / width b [mm]												
		800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
0.5	0.5													
0.5	0.5													
0.5	0.5													
Höhe h / hauteur h / height h [mm]	600	1.66	1.57	1.50	1.45	1.42	1.39	1.37	1.35	1.34				
	800	1.57	1.46	1.39	1.33	1.29	1.26	1.23	1.21	1.20				
	1000	1.52	1.40	1.32	1.26	1.21	1.18	1.15	1.13	1.11	1.10	1.08	1.07	1.06
	1200	1.49	1.36	1.27	1.21	1.16	1.13	1.10	1.07	1.05	1.04	1.02	1.01	1.00
	1400	1.46	1.33	1.24	1.17	1.13	1.09	1.06	1.03	1.01	1.00	0.98	0.97	0.96
	1600	1.44	1.31	1.21	1.15	1.10	1.06	1.03	1.00	0.98	0.97	0.95	0.94	0.93
	1800	1.43	1.29	1.19	1.13	1.08	1.04	1.01	0.98	0.96	0.94	0.93	0.91	0.90
	2000	1.42	1.27	1.18	1.11	1.06	1.02	0.99	0.96	0.94	0.92	0.91		
	2200	1.41	1.26	1.17	1.10	1.05	1.01	0.97	0.95	0.93	0.91	0.89		
	2400	1.40	1.25	1.16	1.09	1.03	0.99	0.96	0.93	0.91	0.89	0.88		
	2600	1.39	1.25	1.15	1.08	1.02	0.98	0.95	0.92	0.90	0.88	0.87		

Element – U-Werte

U-Werte Fenster U_W

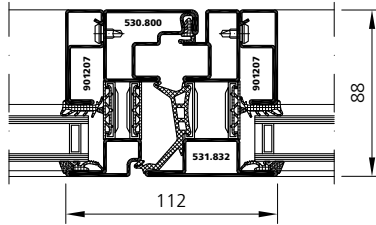


$U_f = 2.7 [W/(m^2 \cdot K)]$

$\psi = 0.06 [W/(m \cdot K)]$

Élément – Coefficient de transmission thermique

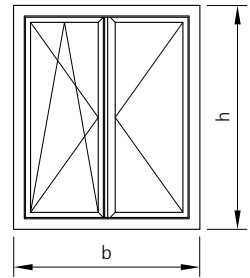
Coefficient de transmission thermique de la fenêtre U_W



$U_f = 3.0 [W/(m^2 \cdot K)]$

Element – Thermal transmittance

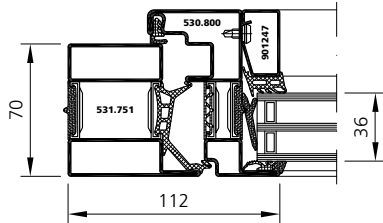
Thermal transmittance of the window U_W



forsterunico.

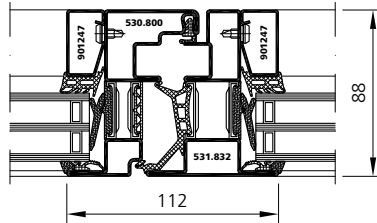
U _g -Wert Glas Valeur U _g verre U _g -value glass	1.1	Breite b / largeur b / width b [mm]												
		800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
Höhe h / hauteur h / height h [mm]	600	2.46	2.35	2.28	2.22	2.18	2.15	2.12	2.10	2.09				
	800	2.38	2.24	2.15	2.09	2.04	2.00	1.97	1.94	1.92				
	1000	2.32	2.18	2.08	2.00	1.95	1.91	1.88	1.85	1.83	1.81	1.79	1.78	1.76
	1200	2.29	2.13	2.03	1.95	1.89	1.85	1.81	1.79	1.76	1.74	1.72	1.71	1.70
	1400	2.26	2.10	1.99	1.91	1.85	1.81	1.77	1.74	1.72	1.69	1.68	1.66	1.65
	1600	2.25	2.08	1.96	1.88	1.82	1.78	1.74	1.71	1.68	1.66	1.64	1.62	1.61
	1800	2.23	2.06	1.94	1.86	1.80	1.75	1.71	1.68	1.65	1.63	1.61	1.60	1.58
	2000	2.22	2.04	1.93	1.84	1.78	1.73	1.69	1.66	1.63	1.61	1.59		
	2200	2.21	2.03	1.91	1.83	1.76	1.71	1.67	1.64	1.61	1.59	1.57		
	2400	2.20	2.02	1.90	1.81	1.75	1.70	1.66	1.63	1.60	1.58	1.56		
	2600	2.19	2.01	1.89	1.80	1.74	1.69	1.65	1.62	1.59	1.56	1.54		

U _g -Wert Glas Valeur U _g verre U _g -value glass	0.9	Breite b / largeur b / width b [mm]												
		800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
Höhe h / hauteur h / height h [mm]	600	2.39	2.27	2.19	2.13	2.08	2.05	2.02	2.00	1.98				
	800	2.29	2.15	2.05	1.98	1.92	1.88	1.85	1.82	1.80				
	1000	2.23	2.07	1.96	1.89	1.83	1.78	1.75	1.72	1.69	1.67	1.65	1.64	1.63
	1200	2.19	2.02	1.91	1.83	1.77	1.72	1.68	1.65	1.62	1.60	1.58	1.57	1.55
	1400	2.17	1.99	1.87	1.78	1.72	1.67	1.63	1.60	1.57	1.55	1.53	1.51	1.50
	1600	2.15	1.96	1.84	1.75	1.69	1.64	1.59	1.56	1.53	1.51	1.49	1.47	1.46
	1800	2.13	1.94	1.82	1.73	1.66	1.61	1.57	1.53	1.50	1.48	1.46	1.44	1.43
	2000	2.12	1.93	1.80	1.71	1.64	1.59	1.54	1.51	1.48	1.46	1.43		
	2200	2.11	1.91	1.78	1.69	1.62	1.57	1.52	1.49	1.46	1.44	1.41		
	2400	2.10	1.90	1.77	1.68	1.61	1.55	1.51	1.47	1.44	1.42	1.40		
	2600	2.09	1.89	1.76	1.67	1.60	1.54	1.50	1.46	1.43	1.41	1.38		

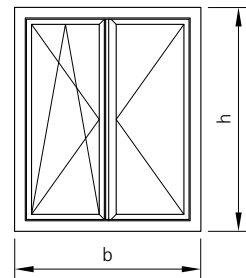
Element – U-WerteU-Werte Fenster U_W 

$U_f = 2.2 \text{ [W/(m}^2 \cdot \text{K)]}$

$\psi = 0.04 \text{ [W/(m} \cdot \text{K)]}$

Élément – Coefficient de transmission thermiqueCoefficient de transmission thermique de la fenêtre U_W 

$U_f = 2.2 \text{ [W/(m}^2 \cdot \text{K)]}$

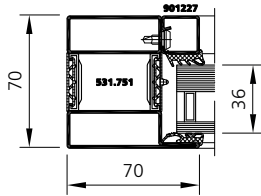
Element – Thermal transmittanceThermal transmittance of the window U_W **forster**unico®HI

U _g -Wert Glas 0.7 Valeur U _g verre 0.7 U _g -value glass 0.7		Breite b / largeur b / width b [mm]												
		800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
Höhe h / hauteur h / height h [mm]	600	1.86	1.76	1.70	1.66	1.63	1.60	1.58	1.56	1.55				
	800	1.78	1.66	1.59	1.54	1.50	1.47	1.44	1.42	1.41				
	1000	1.73	1.60	1.52	1.46	1.42	1.39	1.36	1.34	1.32	1.30	1.29	1.28	1.27
	1200	1.69	1.56	1.48	1.42	1.37	1.33	1.31	1.28	1.26	1.25	1.23	1.22	1.21
	1400	1.67	1.54	1.45	1.38	1.33	1.30	1.27	1.24	1.22	1.20	1.19	1.18	1.17
	1600	1.65	1.51	1.42	1.36	1.31	1.27	1.24	1.21	1.19	1.17	1.16	1.14	1.13
	1800	1.64	1.50	1.40	1.34	1.29	1.25	1.21	1.19	1.17	1.15	1.13	1.12	1.11
	2000	1.63	1.48	1.39	1.32	1.27	1.23	1.20	1.17	1.15	1.13	1.11		
	2200	1.62	1.47	1.38	1.31	1.25	1.21	1.18	1.15	1.13	1.11	1.10		
	2400	1.61	1.46	1.37	1.30	1.24	1.20	1.17	1.14	1.12	1.10	1.08		
	2600	1.61	1.46	1.36	1.29	1.23	1.19	1.16	1.13	1.11	1.09	1.07		

U _g -Wert Glas 0.5 Valeur U _g verre 0.5 U _g -value glass 0.5		Breite b / largeur b / width b [mm]												
		800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
Höhe h / hauteur h / height h [mm]	600	1.78	1.68	1.61	1.56	1.53	1.50	1.47	1.46	1.44				
	800	1.69	1.57	1.49	1.43	1.38	1.35	1.32	1.30	1.28				
	1000	1.64	1.50	1.41	1.35	1.30	1.26	1.23	1.21	1.19	1.17	1.15	1.14	1.13
	1200	1.60	1.46	1.36	1.29	1.24	1.20	1.17	1.14	1.12	1.10	1.09	1.07	1.06
	1400	1.57	1.42	1.32	1.25	1.20	1.16	1.13	1.10	1.08	1.06	1.04	1.03	1.02
	1600	1.55	1.40	1.30	1.23	1.17	1.13	1.09	1.07	1.04	1.02	1.01	0.99	0.98
	1800	1.54	1.38	1.28	1.20	1.15	1.10	1.07	1.04	1.02	1.00	0.98	0.96	0.95
	2000	1.53	1.37	1.26	1.18	1.13	1.08	1.05	1.02	1.00	0.97	0.96		
	2200	1.52	1.35	1.25	1.17	1.11	1.07	1.03	1.00	0.98	0.96	0.94		
	2400	1.51	1.34	1.24	1.16	1.10	1.05	1.02	0.99	0.96	0.94	0.92		
	2600	1.50	1.34	1.23	1.15	1.09	1.04	1.01	0.98	0.95	0.93	0.91		

Element – U-Werte

U-Werte Festfeld U_W



$U_f = 2.4 [W/(m^2 \cdot K)]$

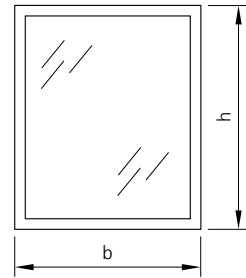
$\psi = 0.06 [W/(m \cdot K)]$

Élément – Coefficient de transmission thermique

Coefficient de transmission thermique du vitrage fixe U_W

Element – Thermal transmittance

Thermal transmittance of fixed glazing U_W



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U _g -Wert Glas 1.1 Valeur U _g verre 1.1 U _g -value glass 1.1		Breite b / largeur b / width b [mm]								
		800	1000	1200	1400	1600	1800	2000	2200	2400
Höhe h / hauteur h / height h [mm]	800	1.76	1.71	1.67	1.64	1.62	1.60	1.59	1.58	1.57
	1000	1.71	1.64	1.60	1.58	1.55	1.54	1.52	1.51	1.50
	1200	1.67	1.60	1.56	1.53	1.51	1.49	1.48	1.47	1.46
	1400	1.64	1.58	1.53	1.50	1.48	1.46	1.45	1.43	1.42
	1600	1.62	1.55	1.51	1.48	1.45	1.44	1.42	1.41	1.40
	1800	1.60	1.54	1.49	1.46	1.44	1.42	1.40	1.39	1.38
	2000	1.59	1.52	1.48	1.45	1.42	1.40	1.39	1.37	1.36
	2200	1.58	1.51	1.47	1.43	1.41	1.39	1.37	1.36	1.35
	2400	1.57	1.50	1.46	1.42	1.40	1.38	1.36	1.35	1.34
	2600	1.57	1.50	1.45	1.42	1.39	1.37	1.36	1.34	1.33
	2800	1.56	1.49	1.44	1.41	1.38	1.36	1.35	1.34	1.32
3000	1.55	1.48	1.44	1.40	1.38	1.36	1.34	1.33	1.32	

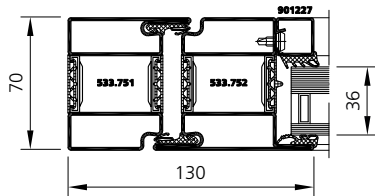
Die länderspezifischen Zulassungen sind zu beachten!

Tenir compte des normes et homologations nationales!

Refer to the country specific approvals!

Element – U-Werte

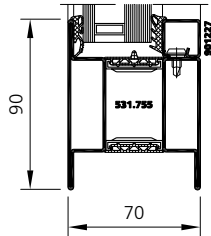
U-Werte Tür U_D



$U_f = 2.4 \text{ [W/(m}^2 \cdot \text{K)]}$
 $\psi = 0.06 \text{ [W/(m} \cdot \text{K)]}$

Élément – Coefficient de transmission thermique

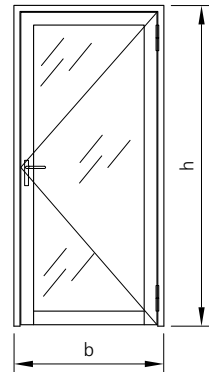
Coefficient de transmission thermique de la porte U_D



$U_f = 3.1 \text{ [W/(m}^2 \cdot \text{K)]}$

Element – Thermal transmittance

Thermal transmittance of the door U_D



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U_g -Wert Glas 1.1 Valeur U_g verre 1.1 U_g -value glass 1.1		Breite b / largeur b / width b [mm]				
		800	1000	1200	1400	1600
Höhe h / hauteur h / height h [mm]	2000	1.82	1.72	1.66	1.61	1.57
	2200	1.80	1.70	1.64	1.59	1.55
	2400	1.79	1.69	1.63	1.58	1.54
	2600	1.78	1.68	1.62	1.57	1.53
	2800	1.77	1.67	1.61	1.56	1.52
	3000	1.77	1.67	1.60	1.55	1.51

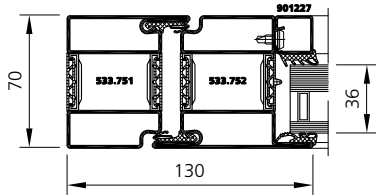
Die länderspezifischen Zulassungen sind zu beachten!

Tenir compte des normes et homologations nationales!

Refer to the country specific approvals!

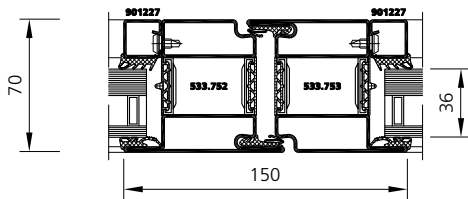
Element – U-Werte

U-Werte Tür U_D



$U_f = 2.4 [W/(m^2 \cdot K)]$

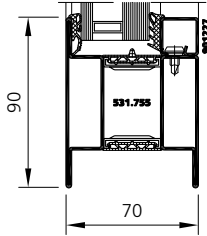
$\psi = 0.06 [W/(m \cdot K)]$



$U_f = 2.4 [W/(m^2 \cdot K)]$

Élément – Coefficient de transmission thermique

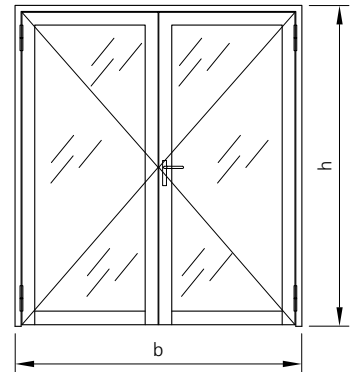
Coefficient de transmission thermique de la porte U_D



$U_f = 3.1 [W/(m^2 \cdot K)]$

Element – Thermal transmittance

Thermal transmittance of the door U_D



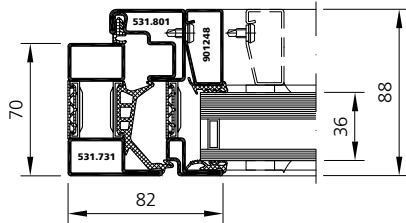
forsterunico

U_g -Wert Glas 1.1 Valeur U_g verre 1.1 U_g -value glass 1.1		Breite b / largeur b / width b [mm]									
		1200	1400	1600	1800	2000	2200	2400	2600	2800	3000
Höhe h / hauteur h / height h [mm]	2000	1.88	1.80	1.74	1.70	1.66	1.63	1.61	1.58	1.57	1.55
	2200	1.86	1.79	1.73	1.68	1.64	1.61	1.59	1.57	1.55	1.53
	2400	1.85	1.77	1.71	1.67	1.63	1.60	1.57	1.55	1.54	1.52
	2600	1.85	1.77	1.70	1.66	1.62	1.59	1.56	1.54	1.52	1.51
	2800	1.84	1.76	1.70	1.65	1.61	1.58	1.55	1.53	1.51	1.50
	3000	1.83	1.75	1.69	1.64	1.60	1.57	1.54	1.52	1.50	1.49

Die länderspezifischen Zulassungen sind zu beachten!

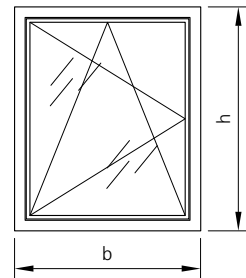
Tenir compte des normes et homologations nationales!

Refer to the country specific approvals!

Element – U-WerteU-Werte Fenster U_w  $U_f = 3.1 \text{ [W/(m}^2 \cdot \text{K)]}$ **Élément – Coefficient de transmission thermique**Coefficient de transmission thermique de la fenêtre U_w

Randverbund aus Edelstahl
Intercalaire périphérique en acier inox
Perimeter sandwich structure of stainless steel
 $\psi = 0.065 \text{ [W/(m} \cdot \text{K)]}$

Randverbund aus Stahl
Intercalaire périphérique en acier
Perimeter sandwich structure of steel
 $\psi = 0.11 \text{ [W/(m} \cdot \text{K)]}$

Element – Thermal transmittanceThermal transmittance of the window U_w **forsterunico**U_w-Werte bei / Valeurs U_w avec / U_w-values with $\psi = 0.065 \text{ [W/(m} \cdot \text{K)]}$

U _g -Wert Glas Valeur U _g verre U _g -value glass		Breite b / largeur b / width b [mm]			
		600	800	1000	1200
Höhe h / hauteur h / height h [mm]	600	2.36	2.23	2.16	2.11
	800	2.23	2.09	2.01	1.95
	1000	2.16	2.01	1.92	1.86
	1200	2.11	1.95	1.86	1.80
	1400	2.08	1.91	1.82	1.75
	1600	2.05	1.88	1.78	1.72
	1800	2.03	1.86	1.76	1.69
	2000	2.01	1.84	1.74	1.67

U_w-Werte bei / Valeurs U_w avec / U_w-values with $\psi = 0.11 \text{ [W/(m} \cdot \text{K)]}$

U _g -Wert Glas Valeur U _g verre U _g -value glass		Breite b / largeur b / width b [mm]			
		600	800	1000	1200
Höhe h / hauteur h / height h [mm]	600	2.58	2.44	2.35	2.30
	800	2.44	2.27	2.18	2.11
	1000	2.35	2.18	2.07	2.00
	1200	2.30	2.11	2.00	1.93
	1400	2.25	2.06	1.95	1.87
	1600	2.22	2.03	1.91	1.83
	1800	2.20	2.00	1.88	1.80
	2000	2.18	1.98	1.86	1.78

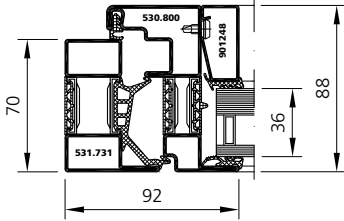
Die länderspezifischen Zulassungen sind zu beachten!

Tenir compte des normes et homologations nationales!

Refer to the country specific approvals!

Element – U-Werte

U-Werte Fenster U_w



$U_f = 3.1 [W/(m^2 \cdot K)]$

Élément – Coefficient de transmission thermique

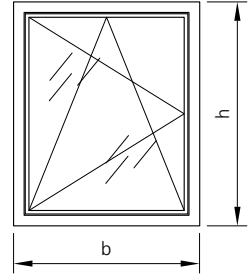
Coefficient de transmission thermique de la fenêtre U_w

Randverbund aus Edelstahl
Intercalaire périphérique en acier inox
Perimeter sandwich structure of stainless steel
 $\psi = 0.065 [W/(m \cdot K)]$

Randverbund aus Stahl
Intercalaire périphérique en acier
Perimeter sandwich structure of steel
 $\psi = 0.11 [W/(m \cdot K)]$

Element – Thermal transmittance

Thermal transmittance of the window U_w



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U_w -Werte bei / Valeurs U_w avec / U_w -values with

$\psi = 0.065 [W/(m \cdot K)]$

U _g -Wert Glas Valeur U _g verre U _g -value glass	1.1	Breite b / largeur b / width b [mm]			
		600	800	1000	1200
Höhe h / hauteur h / height h [mm]	600	2.44	2.31	2.24	2.18
	800	2.31	2.16	2.08	2.02
	1000	2.24	2.08	1.98	1.92
	1200	2.18	2.02	1.92	1.85
	1400	2.15	1.98	1.87	1.80
	1600	2.12	1.94	1.84	1.77
	1800	2.10	1.92	1.81	1.74
	2000	2.08	1.90	1.79	1.72

U_w -Werte bei / Valeurs U_w avec / U_w -values with

$\psi = 0.11 [W/(m \cdot K)]$

U _g -Wert Glas Valeur U _g verre U _g -value glass	1.1	Breite b / largeur b / width b [mm]			
		600	800	1000	1200
Höhe h / hauteur h / height h [mm]	600	2.65	2.51	2.42	2.36
	800	2.51	2.34	2.24	2.17
	1000	2.42	2.24	2.13	2.05
	1200	2.36	2.17	2.05	1.98
	1400	2.32	2.12	2.00	1.92
	1600	2.29	2.09	1.96	1.88
	1800	2.27	2.06	1.93	1.85
	2000	2.25	2.04	1.91	1.82

Die länderspezifischen Zulassungen sind zu beachten!


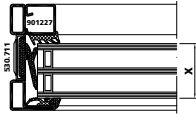
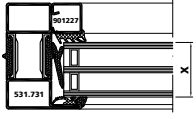
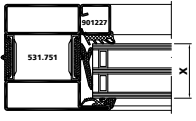
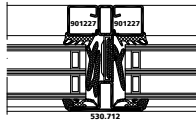
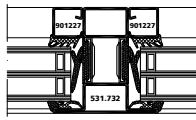
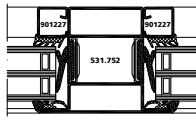
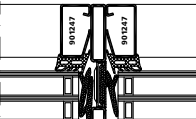
Tenir compte des normes et homologations nationales!

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U_f-Werte Festfeld

Valeurs U_f Vitrage fixe

U_f-values Fixed glazing

					
EN ISO 10077-2:2012					
Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing					
Glassdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U _f Stahl U _f Acier U _f Steel [W/(m ² ·K)]	U _f CrNi [W/(m ² ·K)]	
	24	2-fach / double	Standard	3.0	—
	36	3-fach / triple	Hi	2.1	—
	42	3-fach / triple	Hi	2.0	—
	48	3-fach / triple	Hi	2.0	—
	24	2-fach / double	Standard	2.9	2.7
	36	3-fach / triple	Hi	2.3	2.1
	42	3-fach / triple	Hi	2.2	2.1
	48	3-fach / triple	Hi	2.2	2.0
	24	2-fach / double	Standard	2.5	2.3
	36	3-fach / triple	Hi	2.1	1.9
	42	3-fach / triple	Hi	2.1	1.9
	48	3-fach / triple	Hi	2.0	1.9
	24	2-fach / double	Standard	2.9	—
	36	3-fach / triple	Hi	1.7	—
	42	3-fach / triple	Hi	1.7	—
	48	3-fach / triple	Hi	1.7	—
	24	2-fach / double	Standard	2.8	2.5
	36	3-fach / triple	Hi	2.0	1.9
	42	3-fach / triple	Hi	1.9	1.8
	48	3-fach / triple	Hi	1.9	1.8
	24	2-fach / double	Standard	2.5	2.3
	36	3-fach / triple	Hi	1.9	1.8
	42	3-fach / triple	Hi	1.9	1.7
	48	3-fach / triple	Hi	1.9	1.7
	24	2-fach / double	Standard	3.4	—
	36	3-fach / triple	Hi	1.8	—
	42	3-fach / triple	Hi	1.7	—
	48	3-fach / triple	Hi	1.7	—

U_f-Werte

Tür

Valeurs U_f

Porte

U_f-values

Door

**EN ISO 10077-2:2012**

Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing

Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U _f Stahl U _f Acier U _f Steel [W/(m ² ·K)]	U _f CrNi [W/(m ² ·K)]	
	24	2-fach / double	Standard	2.6	—
	36	3-fach / triple	Hi	2.2	—
	42	3-fach / triple	Hi	2.2	—
	48	3-fach / triple	Hi	2.2	—
	24	2-fach / double	Standard	2.5	2.3
	36	3-fach / triple	Hi	2.1	1.9
	42	3-fach / triple	Hi	2.1	1.9
	48	3-fach / triple	Hi	2.1	1.9
	24	2-fach / double	Standard	2.6	—
	36	3-fach / triple	Hi	2.1	—
	42	3-fach / triple	Hi	2.1	—
	48	3-fach / triple	Hi	2.1	—
	24	2-fach / double	Standard	2.5	2.3
	36	3-fach / triple	Hi	2.1	1.9
	42	3-fach / triple	Hi	2.0	1.8
	48	3-fach / triple	Hi	2.0	1.8
	24	2-fach / double	Standard	2.6	—
	36	3-fach / triple	Hi	2.4	—
	42	3-fach / triple	Hi	2.3	—
	48	3-fach / triple	Hi	2.3	—
	24	2-fach / double	Standard	2.5	—
	36	3-fach / triple	Hi	2.3	—
	42	3-fach / triple	Hi	2.3	—
	48	3-fach / triple	Hi	2.2	—
	24	2-fach / double	Standard	2.6	—
	36	3-fach / triple	Hi	2.3	—
	42	3-fach / triple	Hi	2.2	—
	48	3-fach / triple	Hi	2.2	—
	24	2-fach / double	Standard	2.5	—
	36	3-fach / triple	Hi	2.2	—
	42	3-fach / triple	Hi	2.2	—
	48	3-fach / triple	Hi	2.1	—

U_f-Werte
Verblechte Tür

Valeurs U_f
Porte tôleée

U_f-values
Sheet metal door



EN ISO 10077-2:2012

Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing

		Dichtung Joint Sealing	U_f Stahl U_f Acier U_f Steel [W/(m ² ·K)]	
		Standard	2.9	
		Hi	2.6	
		Standard	2.4	
		Hi	2.2	
		Standard	2.4	
		Hi	2.3	
			3.6	

Stahl Acier Steel	Edelstahl Acier inox Stainless steel
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U_f-Werte
Tür
Schwellen

Valeurs U_f
Porte
Seuils

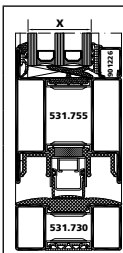
U_f-values
Door
Thresholds



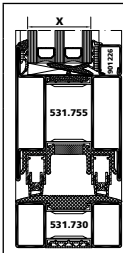
EN ISO 10077-2:2012

Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing

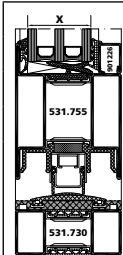
Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U _f Stahl U _f Acier U _f Steel [W/(m ² ·K)]	U _f CrNi [W/(m ² ·K)]
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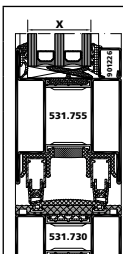
24	2-fach / double	Standard	3.8	3.6
36	3-fach / triple	Hi	3.6	3.4
42	3-fach / triple	Hi	3.6	3.4
48	3-fach / triple	Hi	3.5	3.4



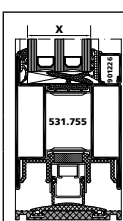
24	2-fach / double	Standard	2.6	2.5
36	3-fach / triple	Hi	2.4	2.3
42	3-fach / triple	Hi	2.4	2.2
48	3-fach / triple	Hi	2.4	2.2



24	2-fach / double	Standard	3.7	3.5
36	3-fach / triple	Hi	3.5	3.3
42	3-fach / triple	Hi	3.5	3.3
48	3-fach / triple	Hi	3.4	3.2



24	2-fach / double	Standard	2.6	2.5
36	3-fach / triple	Hi	2.4	2.3
42	3-fach / triple	Hi	2.3	2.2
48	3-fach / triple	Hi	2.3	2.2

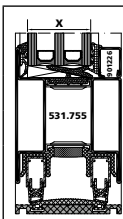


24	2-fach / double	Standard	3.8	3.6
36	3-fach / triple	Hi	3.6	3.4
42	3-fach / triple	Hi	3.6	3.4
48	3-fach / triple	Hi	3.5	3.3

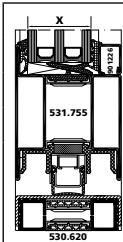
U_f-WerteTür
Schwellen**Valeurs U_f**Porte
Seuils**U_f-values**Door
Thresholds**EN ISO 10077-2:2012**

Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing

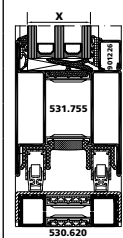
Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U _f Stahl U _f Acier U _f Steel [W/(m ² ·K)]	U _f CrNi [W/(m ² ·K)]
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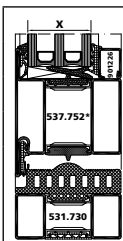
24	2-fach / double	Standard	2.5	2.4
36	3-fach / triple	Hi	2.3	2.2
42	3-fach / triple	Hi	2.3	2.1
48	3-fach / triple	Hi	2.2	2.0



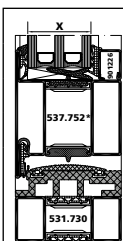
24	2-fach / double	Standard	3.3	3.1
36	3-fach / triple	Hi	3.1	2.9
42	3-fach / triple	Hi	2.9	2.7
48	3-fach / triple	Hi	2.9	2.7



24	2-fach / double	Standard	3.1	2.9
36	3-fach / triple	Hi	2.9	2.7
42	3-fach / triple	Hi	2.9	2.7
48	3-fach / triple	Hi	2.9	2.7



24	2-fach / double	Standard	2.6	—
36	3-fach / triple	Hi	2.3	—
42	3-fach / triple	Hi	2.3	—
48	3-fach / triple	Hi	2.3	—



24	2-fach / double	Standard	2.6	—
36	3-fach / triple	Hi	2.3	—
42	3-fach / triple	Hi	2.3	—
48	3-fach / triple	Hi	2.2	—

Stahl Acier Steel	Edelstahl Acier inox Stainless steel
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U_f-Werte
Tür
Schwellen

Valeurs U_f
Porte
Seuils

U_f-values
Door
Thresholds



EN ISO 10077-2:2012

Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing

Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U _f Stahl U _f Acier U _f Steel [W/(m ² ·K)]	U _f CrNi [W/(m ² ·K)]
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	24	2-fach / double	Standard	2.4	
	36	3-fach / triple	Hi	2.1	
	42	3-fach / triple	Hi	2.1	
	48	3-fach / triple	Hi	2.0	

	24	2-fach / double	Standard	2.6	
	36	3-fach / triple	Hi	2.3	
	42	3-fach / triple	Hi	2.3	
	48	3-fach / triple	Hi	2.3	

	24	2-fach / double	Standard	2.6	
	36	3-fach / triple	Hi	2.3	
	42	3-fach / triple	Hi	2.2	
	48	3-fach / triple	Hi	2.2	

	24	2-fach / double	Standard	2.5	
	36	3-fach / triple	Hi	2.1	
	42	3-fach / triple	Hi	2.1	
	48	3-fach / triple	Hi	2.1	

	24	2-fach / double	Standard	3.0	
	36	3-fach / triple	Hi	2.8	
	42	3-fach / triple	Hi	2.8	
	48	3-fach / triple	Hi	2.8	

	24	2-fach / double	Standard	2.6	
	36	3-fach / triple	Hi	2.4	
	42	3-fach / triple	Hi	2.4	
	48	3-fach / triple	Hi	2.4	

U_f-Werte

Festfeld / Tür
Rahmenverbreiterungen

Valeurs U_f

Vitrage fixe / porte
Elargissements de vantail

U_f-values

Fixed glazing / door
Line frame extensions



EN ISO 10077-2:2012

Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing

Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U _f Stahl U _f Acier U _f Steel [W/(m ² ·K)]	U _f isoliert U _f isolé U _f insulated [W/(m ² ·K)]
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	24	2-fach / double	Standard	2.7	2.1
	36	3-fach / triple	Hi	2.5	1.9
	42	3-fach / triple	Hi	2.5	1.8
	48	3-fach / triple	Hi	2.5	1.8
	24	2-fach / double	Standard	2.4	1.5
	36	3-fach / triple	Hi	2.3	1.3
	42	3-fach / triple	Hi	2.2	1.3
	48	3-fach / triple	Hi	2.2	1.3
	24	2-fach / double	Standard	2.6	2.3
	36	3-fach / triple	Hi	2.4	2.0
	42	3-fach / triple	Hi	2.3	1.9
	48	3-fach / triple	Hi	2.3	1.9
	24	2-fach / double	Standard	2.4	1.7
	36	3-fach / triple	Hi	2.2	1.5
	42	3-fach / triple	Hi	2.2	1.5
	48	3-fach / triple	Hi	2.2	1.5
	24	2-fach / double	Standard	2.7	2.3
	36	3-fach / triple	Hi	2.3	1.9
	42	3-fach / triple	Hi	2.3	1.9
	48	3-fach / triple	Hi	2.3	1.9

Für einwärts öffnende Türen gelten die gleichen Werte.

Pour portes ouvrant vers l'intérieur sont valables les mêmes valeurs.

For inward opening doors, the same values are valid.

Die Profile werden ohne Isolation geliefert.

Les profilés sont livrés sans isolation.

The profiles are delivered without insulation.

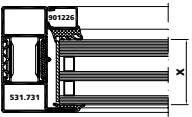
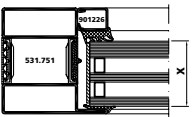

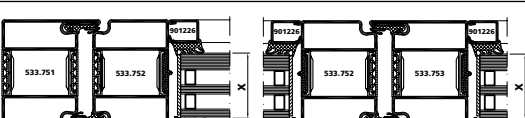

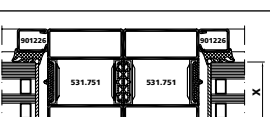
Dämmung $\lambda = 0.04$ [W/m · K]

Isolation $\lambda = 0.04$ [W/m · K]

Insulation $\lambda = 0.04$ [W/m · K]

U_f-WerteFestfeld / Tür
E30 / EW30**Valeurs U_f**Vitrage fixe / porte
E30 / EW30**U_f-values**Fixed glazing / door
E30 / EW30**EN ISO 10077-2:2012**

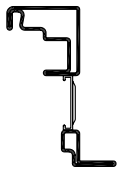
Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing

	Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U_f Stahl U_f Acier U_f Steel [W/(m ² ·K)]	U_f CrNi [W/(m ² ·K)]
	42	3-fach / triple	CR	2.9	2.7
	42	3-fach / triple	CR	2.6	2.3
	42	3-fach / triple	CR	2.4	2.2
	42	3-fach / triple	CR	2.6	2.4
	42	3-fach / triple	CR	2.6	2.3
	42	3-fach / triple	CR	2.8	2.3

U_f-Werte
Fenster

Valeurs U_f
Fenêtre

U_f-values
Window

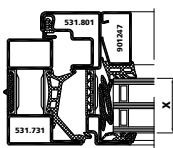
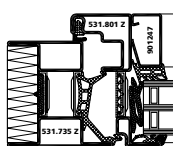
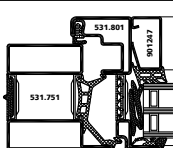
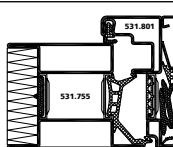
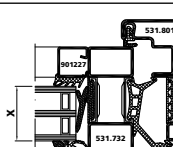
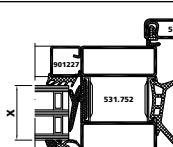


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EN ISO 10077-2:2012

Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing

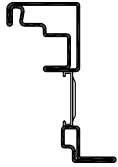
	Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U _f Stahl U _f Acier U _f Steel [W/(m ² ·K)]	U _f CrNi [W/(m ² ·K)]
	24	2-fach / double	Standard	3.1	
	36	3-fach / triple	Hi	2.2	
	42	3-fach / triple	Hi	2.2	
	48	3-fach / triple	Hi	2.1	
	24	2-fach / double	Standard	2.7	
	36	3-fach / triple	Hi	2.0	
	42	3-fach / triple	Hi	2.0	
	48	3-fach / triple	Hi	2.0	
	24	2-fach / double	Standard	2.8	
	36	3-fach / triple	Hi	2.1	
	42	3-fach / triple	Hi	2.1	
	48	3-fach / triple	Hi	2.1	
	24	2-fach / double	Standard	2.6	
	36	3-fach / triple	Hi	1.9	
	42	3-fach / triple	Hi	1.9	
	48	3-fach / triple	Hi	1.9	
	24	2-fach / double	Standard	3.0	
	36	3-fach / triple	Hi	2.1	
	42	3-fach / triple	Hi	2.1	
	48	3-fach / triple	Hi	2.0	
	24	2-fach / double	Standard	2.8	
	36	3-fach / triple	Hi	2.0	
	42	3-fach / triple	Hi	2.0	
	48	3-fach / triple	Hi	2.0	

Stahl Acier Steel	Edelstahl Acier inox Stainless steel
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U_f-Werte Fenster

Valeurs U_f Fenêtre

U_f-values Window



531.801



EN ISO 10077-2:2012

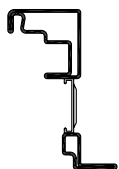
Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing

	Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U _f Stahl U _f Acier U _f Steel [W/(m ² ·K)]	U _f CrNi [W/(m ² ·K)]
	24	2-fach / double	Standard	3.2	
	36	3-fach / triple	Hi	2.1	
	42	3-fach / triple	Hi	2.1	
	48	3-fach / triple	Hi	2.1	
	24	2-fach / double	Standard	2.9	
	36	3-fach / triple	Hi	2.0	
	42	3-fach / triple	Hi	2.0	
	48	3-fach / triple	Hi	2.0	
	24	2-fach / double	Standard	3.1	
	36	3-fach / triple	Hi	2.1	
	42	3-fach / triple	Hi	2.1	
	48	3-fach / triple	Hi	2.1	
	24	2-fach / double	Standard	2.8	
	36	3-fach / triple	Hi	2.1	
	42	3-fach / triple	Hi	2.1	
	48	3-fach / triple	Hi	2.0	
	24	2-fach / double	Standard	3.1	
	36	3-fach / triple	Hi	2.1	
	42	3-fach / triple	Hi	2.1	
	48	3-fach / triple	Hi	2.0	

U_f-Werte
Fenster

Valeurs U_f
Fenêtre

U_f-values
Window



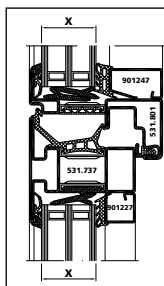
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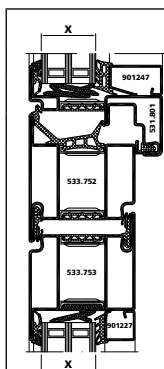
EN ISO 10077-2:2012

Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing

Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U _f Stahl U _f Acier U _f Steel [W/(m ² ·K)]	U _f CrNi [W/(m ² ·K)]
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24	2-fach / double	Standard	3.0	
36	3-fach / triple	Hi	2.1	
42	3-fach / triple	Hi	2.1	
48	3-fach / triple	Hi	2.0	

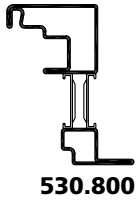


24	2-fach / double	Standard	2.7	
36	3-fach / triple	Hi	2.1	
42	3-fach / triple	Hi	2.0	
48	3-fach / triple	Hi	2.0	

U_f-Werte Fenster

Valeurs U_f Fenêtre

U_f-values Window



EN ISO 10077-2:2012

Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing

Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U _f Stahl U _f Acier U _f Steel [W/(m ² ·K)]	U _f CrNi [W/(m ² ·K)]
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	24	2-fach / double	Standard	2.9	2.6
	36	3-fach / triple	Hi	2.3	2.3
	42	3-fach / triple	Hi	2.2	2.0
	48	3-fach / triple	Hi	2.2	2.0

	24	2-fach / double	Standard	2.6	2.4
	36	3-fach / triple	Hi	2.1	1.9
	42	3-fach / triple	Hi	2.1	1.9
	48	3-fach / triple	Hi	2.0	1.9

	24	2-fach / double	Standard	2.7	2.4
	36	3-fach / triple	Hi	2.2	2.0
	42	3-fach / triple	Hi	2.1	1.9
	48	3-fach / triple	Hi	2.1	1.9

	24	2-fach / double	Standard	2.5	2.2
	36	3-fach / triple	Hi	2.0	1.8
	42	3-fach / triple	Hi	2.0	1.8
	48	3-fach / triple	Hi	2.0	1.8

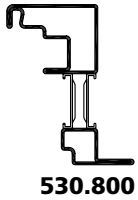
	24	2-fach / double	Standard	2.9	2.6
	36	3-fach / triple	Hi	2.2	2.0
	42	3-fach / triple	Hi	2.1	2.0
	48	3-fach / triple	Hi	2.1	1.9

	24	2-fach / double	Standard	2.7	2.2
	36	3-fach / triple	Hi	2.1	1.9
	42	3-fach / triple	Hi	2.1	1.9
	48	3-fach / triple	Hi	2.0	1.9

U_f-Werte
Fenster

Valeurs U_f
Fenêtre

U_f-values
Window



EN ISO 10077-2:2012

Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing

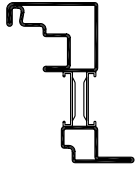
	Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U_f Stahl U_f Acier U_f Steel [W/(m ² ·K)]	U_f CrNi [W/(m ² ·K)]
	24	2-fach / double	Standard	3.0	2.6
	36	3-fach / triple	Hi	2.2	2.0
	42	3-fach / triple	Hi	2.2	2.0
	48	3-fach / triple	Hi	2.2	2.0
	24	2-fach / double	Standard	2.8	2.5
	36	3-fach / triple	Hi	2.1	1.9
	42	3-fach / triple	Hi	2.1	1.9
	48	3-fach / triple	Hi	2.1	1.9
	24	2-fach / double	Standard	3.0	2.7
	36	3-fach / triple	Hi	2.2	2.0
	42	3-fach / triple	Hi	2.2	2.0
	48	3-fach / triple	Hi	2.1	1.9
	24	2-fach / double	Standard	2.7	—
	36	3-fach / triple	Hi	2.2	—
	42	3-fach / triple	Hi	2.1	—
	48	3-fach / triple	Hi	2.1	—
	24	2-fach / double	Standard	2.9	—
	36	3-fach / triple	Hi	2.3	—
	42	3-fach / triple	Hi	2.2	—
	48	3-fach / triple	Hi	2.2	—

Stahl Acier Steel	Edelstahl Acier inox Stainless steel
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U_f-Werte Fenster

Valeurs U_f Fenêtre

U_f-values Window



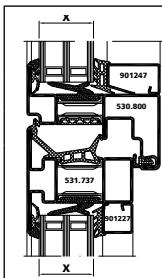
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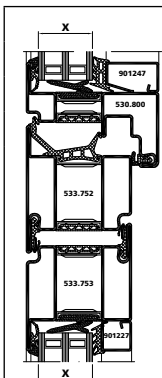
EN ISO 10077-2:2012

Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing

Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U _f Stahl U _f Acier U _f Steel [W/(m ² ·K)]	U _f CrNi [W/(m ² ·K)]
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24	2-fach / double	Standard	2.9	—
36	3-fach / triple	Hi	2.2	—
42	3-fach / triple	Hi	2.1	—
48	3-fach / triple	Hi	2.1	—



24	2-fach / double	Standard	2.6	npd
36	3-fach / triple	Hi	2.1	npd
42	3-fach / triple	Hi	2.1	npd
48	3-fach / triple	Hi	2.1	npd

U_f-Werte
Rahmenverbreiterungen

Valeurs U_f
Elargissements de vantail

U_f-values
Line frame extensions



EN ISO 10077-2:2012

Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing

	Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U_f Stahl U_f Acier U_f Steel [W/(m ² ·K)]	U_f isoliert U_f isolé U_f insulated [W/(m ² ·K)]
	24	2-fach / double	Standard	2.7	2.1
	36	3-fach / triple	Hi	2.5	1.9
	42	3-fach / triple	Hi	2.5	1.8
	48	3-fach / triple	Hi	2.5	1.8
	24	2-fach / double	Standard	2.4	1.5
	36	3-fach / triple	Hi	2.3	1.3
	42	3-fach / triple	Hi	2.2	1.3
	48	3-fach / triple	Hi	2.2	1.3
	24	2-fach / double	Standard	2.8	2.4
	36	3-fach / triple	Hi	2.4	2.0
	42	3-fach / triple	Hi	2.4	2.0
	48	3-fach / triple	Hi	2.4	2.0
	24	2-fach / double	Standard	2.8	2.4
	36	3-fach / triple	Hi	2.5	2.0
	42	3-fach / triple	Hi	2.5	2.0
	48	3-fach / triple	Hi	2.5	2.0
	24	2-fach / double	Standard	2.5	1.8
	36	3-fach / triple	Hi	2.2	1.5
	42	3-fach / triple	Hi	2.2	1.5
	48	3-fach / triple	Hi	2.2	1.5
	24	2-fach / double	Standard	2.5	1.8
	36	3-fach / triple	Hi	2.3	1.5
	42	3-fach / triple	Hi	2.3	1.5
	48	3-fach / triple	Hi	2.3	1.5

Die Profile werden ohne Isolation geliefert.
Dämmung $\lambda = 0.04$ [W/m · K]

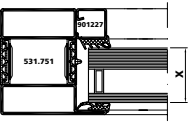
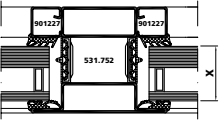
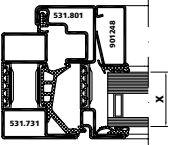
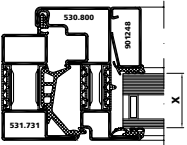
Les profilés sont livrés sans isolation.
Isolation $\lambda = 0.04$ [W/m · K]

The profiles are delivered without insulation.
Insulation $\lambda = 0.04$ [W/m · K]

U_f-Werte
Fenster
E30 / EW30**Valeurs U_f**
Fenêtre
E30 / EW30**U_f-values**
Window
E30 / EW30**EN ISO 10077-2:2012**

Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing

Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U_f Stahl U_f Acier U_f Steel [W/(m ² ·K)]
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	36	2-fach / triple	CR	2.4
	36	2-fach / triple	CR	2.4
	36	2-fach / triple	CR	3.1
	36	2-fach / triple	CR	3.1

Schalldämmwerte

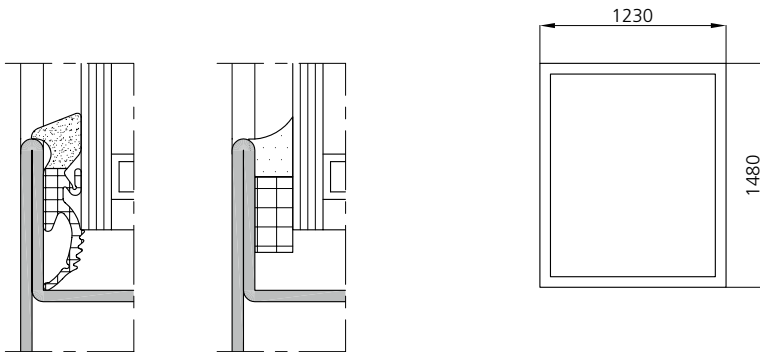
Werte gültig für Stahl- und Edelstahlprofile

Coefficients d'isolation phonique

Valeurs valables pour profilés en acier et en acier inox

Sound insulation factor

Values valid for steel and stainless steel profiles



$$A_w = 1.23 \text{ [m]} \times 1.48 \text{ [m]} \\ = 1.82 \text{ [m}^2\text{]}$$

	R _w (Element) R _w (Element) R _w (Element)	Spektrum - Anpassungswerte (C und C _{tr}) Termes d' adaptation à un spectre (C et C _{tr}) Spectrum adaptation terms (C and C _{tr})
R _w (Glas) R _w (Verre) 32 [dB] R _w (Glass)	R _{w (Element)} = 32 [dB]	C = -1 [dB] C _{tr} = -5 [dB]
R _w (Glas) R _w (Verre) 38 [dB] R _w (Glass)	R _{w (Element)} = 39 [dB]	C = -2 [dB] C _{tr} = -5 [dB]
R _w (Glas) R _w (Verre) 45 [dB] R _w (Glass)	R _{w (Element)} = 44 [dB]	C = -1 [dB] C _{tr} = -4 [dB]
R _w (Glas) R _w (Verre) 50 [dB] R _w (Glass)	R _{w (Element)} = 47 [dB]	C = -1 [dB] C _{tr} = -4 [dB]

Korrekturwerte
flächenabhängig
(gemäss EN 14351 Tabelle B.3)

Valeurs de correction
dépendant de la surface
(selon EN 14351 tableau B.3)

Correction values
depend on area
(according to EN 14351 table B.3)

A _w < 2.7 [m ²]	R_{w (Element)} - 0 [dB]
2.7 [m ²] < A _w < 3.6 [m ²]	R_{w (Element)} - 1 [dB]
3.6 [m ²] < A _w < 4.6 [m ²]	R_{w (Element)} - 2 [dB]
4.6 [m ²] < A _w	R_{w (Element)} - 3 [dB]

Stahl Acier Steel	Edelstahl Acier inox Stainless steel
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Schalldämmwerte

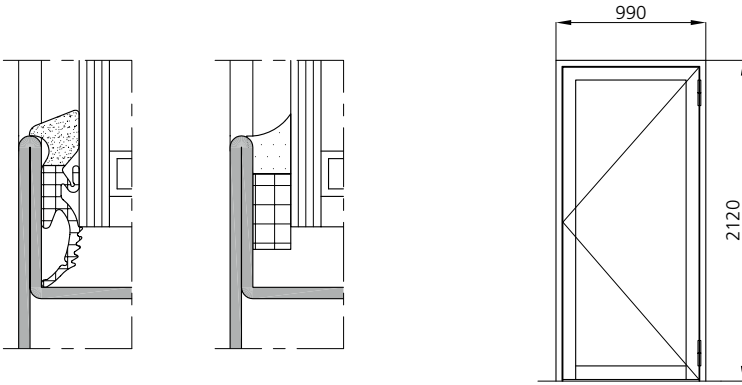
Werte gültig für Stahl- und Edelstahlprofile

Coefficients d'isolation phonique

Valeurs valables pour profilés en acier et en acier inox

Sound insulation factor

Values valid for steel and stainless steel profiles



AD = 0.99 [m] x 2.12 [m]
= 2.10 [m²]

R _w (Glas) R _w (Verre) 32 [dB] R _w (Glass)	R _w (Element) = 33 [dB] (C = -2 ; C _{tr} = -5)	R _w (Element) = 33 [dB] (C = -2 ; C _{tr} = -5)	R _w (Element) = 33 [dB] (C = -2 ; C _{tr} = -5)	R _w (Element) = 32 [dB] (C = -1 ; C _{tr} = -4)
R _w (Glas) R _w (Verre) 38 [dB] R _w (Glass)	R _w (Element) = 39 [dB] (C = -2 ; C _{tr} = -5)	R _w (Element) = 36 [dB] (C = 0 ; C _{tr} = -2)	R _w (Element) = 37 [dB] (C = -1 ; C _{tr} = -3)	R _w (Element) = 37 [dB] (C = -1 ; C _{tr} = -3)
R _w (Glas) R _w (Verre) 45 [dB] R _w (Glass)	R _w (Element) = 44 [dB] (C = -2 ; C _{tr} = -6)	R _w (Element) = 39 [dB] (C = -1 ; C _{tr} = -3)	R _w (Element) = 40 [dB] (C = -1 ; C _{tr} = -3)	R _w (Element) = 40 [dB] (C = -2 ; C _{tr} = -3)
R _w (Glas) R _w (Verre) 50 [dB] R _w (Glass)	R _w (Element) = 46 [dB] (C = -2 ; C _{tr} = -5)	R _w (Element) = 40 [dB] (C = -1 ; C _{tr} = -2)	R _w (Element) = 42 [dB] (C = -2 ; C _{tr} = -3)	R _w (Element) = 41 [dB] (C = -2 ; C _{tr} = -2)

Korrekturwerte
flächenabhängig
(gemäss EN 14351 Tabelle E2)

Valeurs de correction
dépendant de la surface
(selon EN 14351 tableau E2)

Correction values
depend on area
(according to EN 14351 table E2)

AD < 3.15 [m ²]	R_w (Element) - 0 [dB]
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Schalldämmwerte

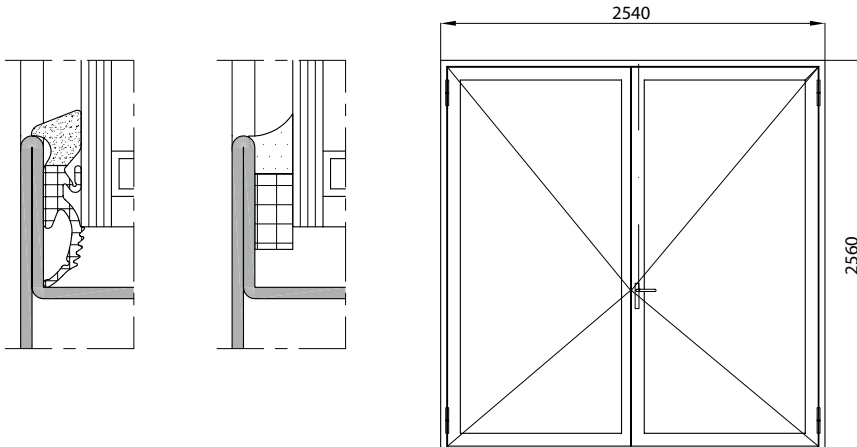
Werte gültig für Stahl- und
Edelstahlprofile

Coefficients d'isolation phonique

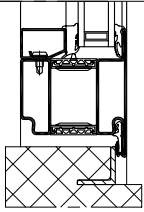
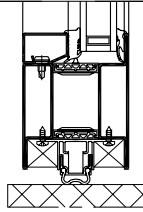
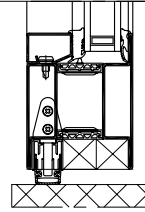
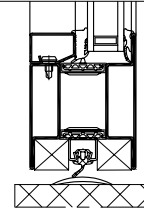
Valeurs valables pour profilés en
acier et en acier inox

Sound insulation factor

Values valid for steel and stainless
steel profiles



$$A_D = 2.54 \text{ [m]} \times 2.56 \text{ [m]} \\ = 6.50 \text{ [m}^2\text{]}$$

				
R _w (Glas) R _w (Verre) 32 [dB] R _w (Glass)	R _w (Element) = 33 [dB] (C = -2 ; C _{tr} = -5)	R _w (Element) = 32 [dB] (C = -1 ; C _{tr} = -4)	R _w (Element) = 33 [dB] (C = -2 ; C _{tr} = -5)	R _w (Element) = 33 [dB] (C = -2 ; C _{tr} = -5)
R _w (Glas) R _w (Verre) 38 [dB] R _w (Glass)	R _w (Element) = 38 [dB] (C = -1 ; C _{tr} = -4)	R _w (Element) = 36 [dB] (C = 0 ; C _{tr} = -2)	R _w (Element) = 37 [dB] (C = -1 ; C _{tr} = -3)	R _w (Element) = 37 [dB] (C = -1 ; C _{tr} = -3)
R _w (Glas) R _w (Verre) 45 [dB] R _w (Glass)	R _w (Element) = 42 [dB] (C = -1 ; C _{tr} = -4)	R _w (Element) = 40 [dB] (C = -2 ; C _{tr} = -3)	R _w (Element) = 40 [dB] (C = -1 ; C _{tr} = -3)	R _w (Element) = 40 [dB] (C = -2 ; C _{tr} = -3)
R _w (Glas) R _w (Verre) 50 [dB] R _w (Glass)	R _w (Element) = 45 [dB] (C = -1 ; C _{tr} = -4)	R _w (Element) = 40 [dB] (C = -1 ; C _{tr} = -1)	R _w (Element) = 41 [dB] (C = -1 ; C _{tr} = -2)	R _w (Element) = 41 [dB] (C = -2 ; C _{tr} = -2)

Korrekturwerte
flächenabhängig
(gemäss EN 14351 Tabelle E2)

Valeurs de correction
dépendant de la surface
(selon EN 14351 tableau E2)

Correction values
depend on area
(according to EN 14351 table E2)

A _D < 9.75 [m ²]	R _w (Element) - 0 [dB]
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Schalldämmwerte

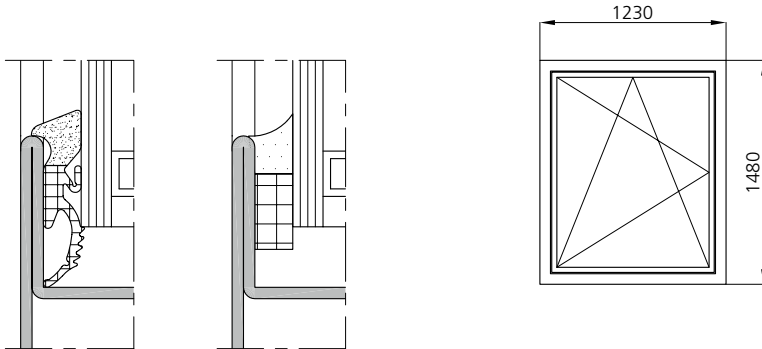
Werte gültig für Stahl- und
Edelstahlprofile

Coefficients d'isolation phonique

Valeurs valables pour profilés en
acier et en acier inox

Sound insulation factor

Values valid for steel and stainless
steel profiles



$$A_w = 1.23 \text{ [m]} \times 1.48 \text{ [m]} \\ = 1.82 \text{ [m}^2\text{]}$$

	R _w (Element) R _w (Elément) R _w (Element)	Spektrum - Anpassungswerte (C und C _{tr}) Termes d'adaptation à un spectre (C et C _{tr}) Spectrum adaptation terms (C and C _{tr})
R _w (Glas) R _w (Verre) 32 [dB] R _w (Glass)	R _w (Element) = 33 [dB]	C = -1 [dB] C _{tr} = -5 [dB]
R _w (Glas) R _w (Verre) 38 [dB] R _w (Glass)	R _w (Element) = 40 [dB]	C = -2 [dB] C _{tr} = -5 [dB]
R _w (Glas) R _w (Verre) 45 [dB] R _w (Glass)	R _w (Element) = 44 [dB]	C = -1 [dB] C _{tr} = -4 [dB]
R _w (Glas) R _w (Verre) 50 [dB] R _w (Glass)	R _w (Element) = 47 [dB]	C = -1 [dB] C _{tr} = -4 [dB]

Korrekturwerte
flächenabhängig
(gemäß EN 14351 Tabelle B.3)

Valeurs de correction
dépendant de la surface
(selon EN 14351 tableau B.3)

Correction values
depend on area
(according to EN 14351 table B.3)

A _w < 2.7 [m ²]	R_w (Element) - 0 [dB]
2.7 [m ²] < A _w < 3.6 [m ²]	R_w (Element) - 1 [dB]
3.6 [m ²] < A _w < 4.6 [m ²]	R_w (Element) - 2 [dB]
4.6 [m ²] < A _w	R_w (Element) - 3 [dB]

Schalldämmwerte

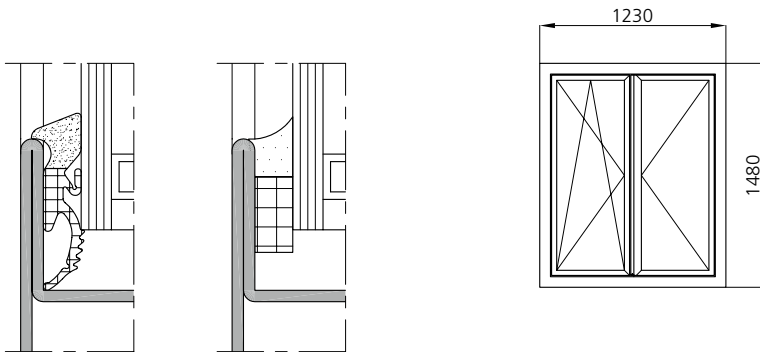
Werte gültig für Stahl- und Edelstahlprofile

Coefficients d'isolation phonique

Valeurs valables pour profilés en acier et en acier inox

Sound insulation factor

Values valid for steel and stainless steel profiles



$$A_w = 1.23 \text{ [m]} \times 1.48 \text{ [m]} \\ = 1.82 \text{ [m}^2\text{]}$$

	R _w (Element) R _w (Elément) R _w (Element)	Spektrum - Anpassungswerte (C und C _{tr}) Termes d' adaptation à un spectre (C et C _{tr}) Spectrum adaptation terms (C and C _{tr})
R _w (Glas) R _w (Verre) 32 [dB] R _w (Glass)	R _w (Element) = 33 [dB]	C = -1 [dB] C _{tr} = -5 [dB]
R _w (Glas) R _w (Verre) 38 [dB] R _w (Glass)	R _w (Element) = 40 [dB]	C = -2 [dB] C _{tr} = -5 [dB]
R _w (Glas) R _w (Verre) 45 [dB] R _w (Glass)	R _w (Element) = 43 [dB]	C = -1 [dB] C _{tr} = -4 [dB]
R _w (Glas) R _w (Verre) 50 [dB] R _w (Glass)	R _w (Element) = 46 [dB]	C = -1 [dB] C _{tr} = -4 [dB]

Korrekturwerte
flächenabhängig
(gemäss EN 14351 Tabelle B.3)

Valeurs de correction
dépendant de la surface
(selon EN 14351 tableau B.3)

Correction values
depend on area
(according to EN 14351 table B.3)

A _w < 2.7 [m ²]	R_w (Element) - 0 [dB]
2.7 [m ²] < A _w < 3.6 [m ²]	R_w (Element) - 1 [dB]
3.6 [m ²] < A _w < 4.6 [m ²]	R_w (Element) - 2 [dB]
4.6 [m ²] < A _w	R_w (Element) - 3 [dB]

Allgemeine Hinweise

Die Forster-Profilstahlrohr-Serien und das entsprechende Zubehör sind für unterschiedliche Anwendungsmöglichkeiten im Metall- und Fassadenbau entwickelt. Die Serien sind bestimmt für die Verarbeitung durch Fachbetriebe des Metallbaus, der Fensterherstellung und dergleichen, welche vertraut sind mit den anerkannten Regeln der Technik, insbesondere auf dem Gebiet des Metall-, Türen-, Fenster- und Fassadenbaus und bei denen die Kenntnisse aller einschlägigen Normen, Richtlinien und Verarbeitungshinweise der Profillieferanten vorausgesetzt werden kann.

Alle von uns herausgegebenen Unterlagen, die sich mit der Kombination, dem Zusammenbau, der Anordnung, Verarbeitung, Veredelung und Montage der angebotenen Artikel befassen, sind freiwillige Dienstleistungen, die dem Facharbeiter Anregungen und Vorschläge bieten sollen oder aber einen Bericht über bereits ausgeführte Kombinationen und Anlagen zum Inhalt haben. Dabei muss der Facharbeiter bei Benutzung solcher Unterlagen stets selber kritisch prüfen, ob die hier gemachten Vorschläge für seinen Fall in jeder Hinsicht geeignet und zutreffend sind, da die Vielzahl der in der Praxis vorkommenden Einbau- und Belastungsfälle in derartigen Unterlagen nicht erfasst werden kann.

Généralités

Les séries de profilés en acier Forster et les accessoires correspondants sont développés en vue d'offrir diverses possibilités d'applications pour les constructions métalliques et les façades. Ces séries sont destinées à la mise en œuvre par des entreprises spécialisées dans la construction métallique, la fabrication de fenêtres et autres secteurs similaires, et qui connaissent les règles reconnues de la technique, notamment dans le domaine de la construction de portes, fenêtres et façades métalliques, et qui disposent des connaissances nécessaires sur toutes les normes, directives et indications de mise en œuvre applicables des fournisseurs de profilés.

Tous les documents publiés par nos soins et qui portent sur les possibilités de combinaison, l'assemblage, l'implantation, la mise en œuvre, la finition et le montage des articles que nous proposons, constituent des prestations de plein gré censées fournir au spécialiste des suggestions et des solutions ou rendre compte des combinaisons et installations déjà réalisées. En utilisant cette documentation, le spécialiste devra toujours l'examiner de manière critique et vérifier que les propositions qu'elle présente sont bien pertinentes et adaptées à son propre cas à tous égards, car il est impossible de résumer dans une documentation de ce type la multitude des cas de figure rencontrés dans la pratique tant en termes d'installations que de sollicitations.

General advice

Forster's series of profiled steel sections and the corresponding accessories have been developed for a wide range of applications in the manufacture of metal structures and façades. These series are designed for processing by specialist firms in the metal-working industry, window construction and similar, who are familiar with the appropriate technical standards, particularly in the field of metal working, door, window and façade construction and where an adequate knowledge of all relevant standards, directives and suppliers' processing instructions can safely be assumed.

All the documentation published by us concerning the combination, erection, arrangement, processing, refinement and assembly of the articles on offer are voluntary services intended as suggestions and ideas for the expert, or else represent a report on combinations and installations already assembled. In all cases when using this documentation, the expert must always critically study whether the suggestions and ideas are suitable and appropriate for the case in point, since loads and stresses vary so greatly that it is impossible in this kind of documentation to cover every eventuality occurring in practice.

Allgemeine Hinweise

Technische Beratung bei Planung und Projektierung

Die kostenlose technische Beratung bei Planung und Projektierung sind weder als Haupt- noch als Nebenpflicht Gegenstand unserer Angebotes bzw. des Kaufvertrages. Die Forster Profilsysteme AG hat diesbezüglich keinen Rechtsbindungswillen.

Alle Anregungen, Ausschreibungs-, Konstruktions- und Einbauvorschläge, statische Berechnungen, Materialkalkulationen, etc., die im Rahmen der Beratung und Diskussion, in Skizzenform, Zeichnungen, Schriftwechsel oder Ausarbeitung von Mitarbeitern unseres Hauses gemacht werden, erfolgen nach bestem Wissen und sind als kostenlose und unverbindliche Dienstleistung zu verstehen, für die wir keine Haftung übernehmen. Die Planungshoheit liegt jederzeit ausschliesslich beim Bauherrn und Architekten. Bauseitige Vorgaben werden durch die Forster Profilsysteme AG nicht geprüft.

Werden verbindliche Auskünfte erwünscht, insbesondere über den Einbau der Elemente und über bauphysikalische Probleme, wie z. B. Statik, Befestigung, Wärme-, Feuchtigkeits-, Brand-, Rauch- oder Schallschutz, etc. oder über den Einbau von Komponenten anderer Hersteller in den Fassaden- bzw. Metallbaukonstruktionen von Forster Profilsysteme AG muss ein gesonderter entgeltlicher Beratervertrag in schriftlicher Form abgeschlossen werden.

Généralités

Conseil technique lors de la planification et de l'établissement du projet

Le conseil technique gratuit fourni lors de la planification et de l'établissement du projet ne constitue ni une obligation principale ni une obligation secondaire de notre offre ou du contrat de vente. Forster Systèmes de profilés SA n'exprime pas la volonté de se lier juridiquement à ce sujet.

Toutes les idées, propositions de soumission, de construction et de montage, de même que tous les calculs statiques, calculs de matériel, etc. fournis par nos collaborateurs dans le cadre des prestations de conseil ou discussions, sous forme de croquis, de dessins, de correspondance ou d'une étude, sont donnés en toute bonne foi et s'entendent comme service gratuit non contractuel pour lequel nous déclinons toute responsabilité. A tout moment, la planification relève exclusivement des compétences du maître de l'ouvrage et de l'architecte. Forster Systèmes de profilés SA ne contrôle pas les exigences incombant à ces autorités.

La demande de renseignements contractuels, notamment en relation avec le montage des éléments et les questions relatives à la physique des constructions, comme la statique, la fixation, la protection contre la chaleur, l'humidité, le feu ou le bruit, etc. ou concernant le montage de composants d'autres fabricants dans les façades ou les constructions métalliques de Forster Systèmes de profilés SA exige la conclusion d'un contrat de conseil payant établi séparément par écrit.

General advice

Technical support in planning and project work

Free of charge technical consultation during planning and project preparation does not form part of our quotation or contract of sale as either a primary or secondary obligation. Forster Profile Systems Ltd. has no intention to create legal relations in this regard.

All ideas, suggestions for tender, design and installation, static calculations, material calculations, etc. provided within the context of consultation and discussion, in the form of sketches, drawings, correspondence or plans drawn up by our employees are made to the best of our knowledge and ability and shall be considered a free of charge service without any obligation for which we do not accept any liability. The responsibility for the planning lies at all times exclusively with the builder and architect. On-site plans will not be verified by Forster Profile Systems Ltd.

A separate consultancy contract involving payment must be concluded in the written form if information of a binding nature is required, especially with regard to the installation of the elements and the building physics involved in problems such as static calculations, fastenings, thermal insulation, waterproofing, fire, smoke and sound protection, etc. or to the installation of components from other manufacturers in the façades or metal structures from Forster Profile Systems Ltd.

Allgemeine Hinweise

Gewährleistung

Sofern nicht schriftlich eine andere Vereinbarung getroffen wird, besteht eine Gewährleistung der Forster Profilsysteme AG lediglich im Rahmen der dem Käufer bekannten „Allgemeinen Verkaufs- und Lieferbedingungen der Forster Profilsysteme AG“.

Voraussetzung ist in jedem Fall die ausschliessliche Verwendung von Original-Konstruktionsteilen (Profile, Zubehör, Beschläge) aus dem jeweils gültigen Forster-Lieferprogramm. Für Mängel, welche aus der Verwendung von anderen Artikeln als Forster-Original-Artikeln herrühren, wird jede Haftung abgelehnt. Werden nicht Original-Konstruktionsteile zur Anwendung gebracht, verlieren die an Forster verliehenen Prüfzeugnisse und Atteste für derartig ausgeführte Konstruktionen ihre Gültigkeit.

Hinweis

Die Aktualität, Vollständigkeit oder Qualität der Inhalte wird nicht gewährleistet. Wir behalten uns vor, den technischen Inhalt ohne Vorankündigung ganz oder teilweise zu ändern. Für Schäden irgendwelcher Art, die aufgrund der Verwendung der Informationen in diesem Dokument oder aufgrund deren Unvollständigkeit entstehen, wird keinerlei Haftung übernommen.

Die Nichtbeachtung der jeweils aktuellen auf der Herstellerhomepage abrufbaren produktspezifischen sowie allgemeinen Informationen, insbesondere betreffend bestimmungsgemässe Verwendung, Sicherheitsbestimmungen, Produktleistung und -wartung sowie Informations- und Instruktionspflichten, entbindet den Hersteller von seiner Produkthaftung.

Généralités

Garantie

Dans la mesure où aucune autre convention par écrit n'a été passée, la garantie de la société Forster Systèmes de profilés SA n'est applicable que dans le cadre des «Conditions générales de vente et de livraison de Forster Systèmes de profilés SA», qui sont connues de l'acheteur.

Cela suppose dans chaque cas l'utilisation exclusive d'éléments de construction d'origine (profilés, accessoires, quincailleries) provenant du programme de fournitures Forster respectivement applicable. Toute responsabilité est déclinée dans le cas de vices résultant de l'utilisation de tout autre article que les éléments d'origine Forster. Dans l'éventualité où les éléments utilisés ne sont pas des pièces de construction d'origine, les certificats d'essais et attestations attribués à Forster pour les constructions de ce type perdent toute validité.

Remarque

Nous ne garantissons pas l'actualité, l'exhaustivité ou la qualité des contenus. Nous nous réservons le droit de modifier le contenu technique, en partie ou en totalité, sans préavis. Nous déclinons toute responsabilité pour les dommages de quelque nature que ce soit, résultant de l'utilisation des informations contenues dans le présent document ou de leur caractère incomplet.

Le non-respect des informations spécifiques aux produits et générales qui sont consultables sur le site du fabricant dans leur version actualisée, en particulier concernant l'utilisation conforme aux dispositions, les consignes de sécurité, les caractéristiques et l'entretien du produit, de même que les obligations d'informations et d'instructions, dégage le fabricant de sa responsabilité du fait des produits.

General advice

Warranty

Unless a written agreement on the contrary has been concluded, the warranty granted by Forster Profile Systems Ltd. applies solely to the extent of the "General Conditions of Sale and Delivery of Forster Profile Systems Ltd." with which the customer is already familiar.

In all cases the warranty only applies provided that original construction parts (profiles, accessories, fittings) are used from the currently valid Forster range. All liability is declined for any damage arising from the use of articles other than Forster original articles. If articles other than Forster original articles are used, test certificates and attestations granted to Foster for constructions built using such articles are deemed to be invalid.

Note

The up-to-dateness, completeness or quality of the contents are not guaranteed. We reserve the right to make technical alterations in the content wholly or partially with no prior notice. We are not liable for damages of any kind, which arise from the use of the information in this document or on the basis of its incompleteness.

The non-observance of the information on the home page of the manufacturer which is currently retrievable, specific for the product, as well as general, in particular with regard to the use for the purpose intended, safety regulations, product performance, product maintenance as well as the duty to inform and instruct, releases the manufacturer from his liability for his product.

Referenzobjekte

Réalisations

Project references



Profilsysteme in Stahl und Edelstahl

Systèmes de profilés en acier et en acier inox

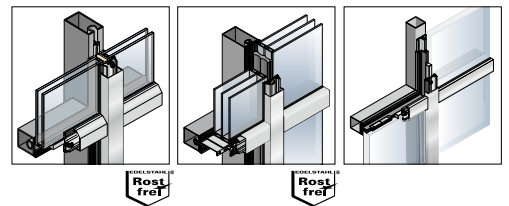
Steel and stainless steel profile systems

Fassaden / Façades / Curtain walls

forsterthermfix®vario

forsterthermfix®varioHI

forsterthermfix®light



Fenster / Fenêtres / Windows

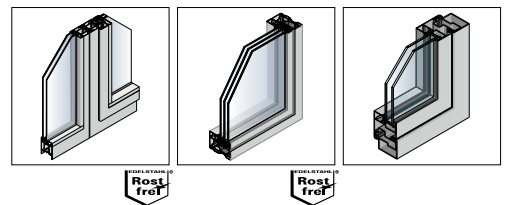
forsterunico®

forsterunico®XS

forsterunico®HI

forsterunico®XSHI

forsternorm



Türen / Portes / Doors

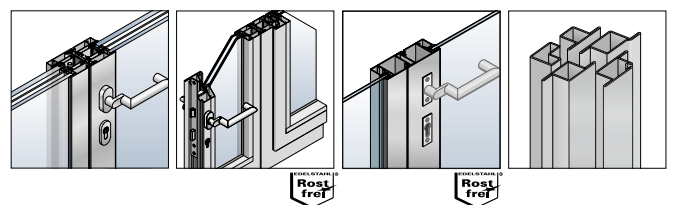
forsteromnia

forsterunico®

forsterunico®HI

forsterpresto

forsternorm



Brand- und Rauchschutz / Coupe-feu et pare-flamme / Fire and smoke protection

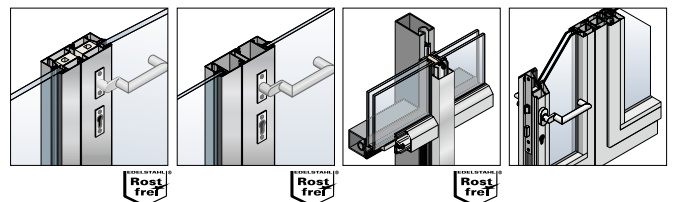
forsterfuego®light

forsterpresto

forsterthermfix®vario

forsterthermfix®light

forsterunico®



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