



**Wärmegedämmte 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



**forsterunico®**

**forsterunico® HI**



Villa Stockhausen / Lingner-Schloss Lingnerterrassen, DE-Dresden

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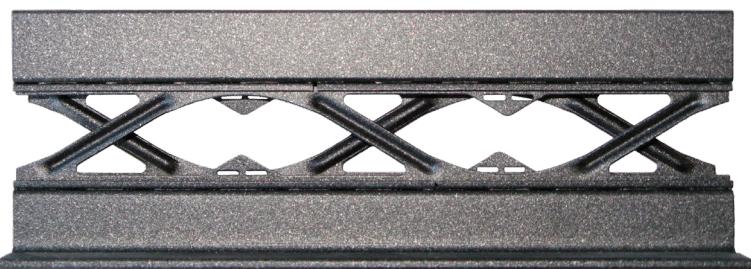
## Das System auf einen Blick

**Einzigartig**



## Le système en un coup d'œil

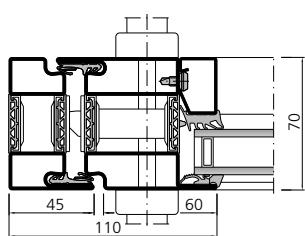
**Unique**



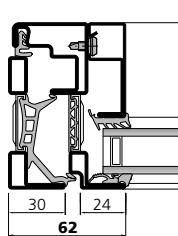
## The system at a glance

**Unique**

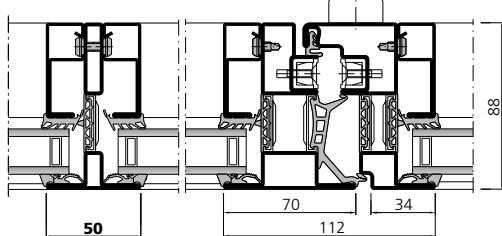
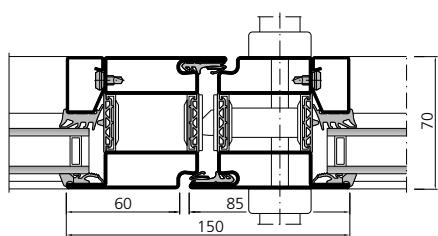
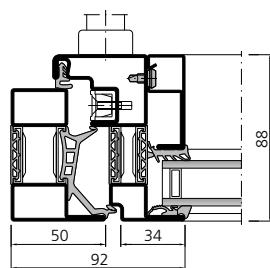
### Schlanke Ansicht



### Largeur de face étroite



### Narrow section views



### Gleiche Ansichten

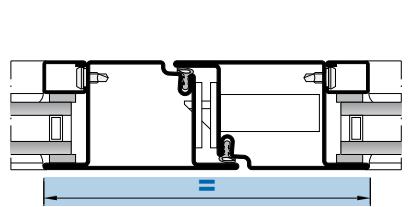
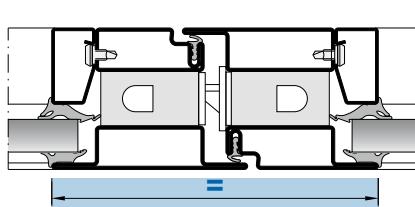
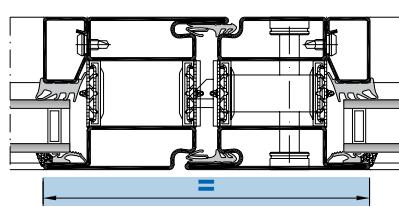
- Wärmegedämmte Türen und Fenster forster unico
- Brandschutztüren forster fuego light
- Rauchschutztüren forster presto

### Façons 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

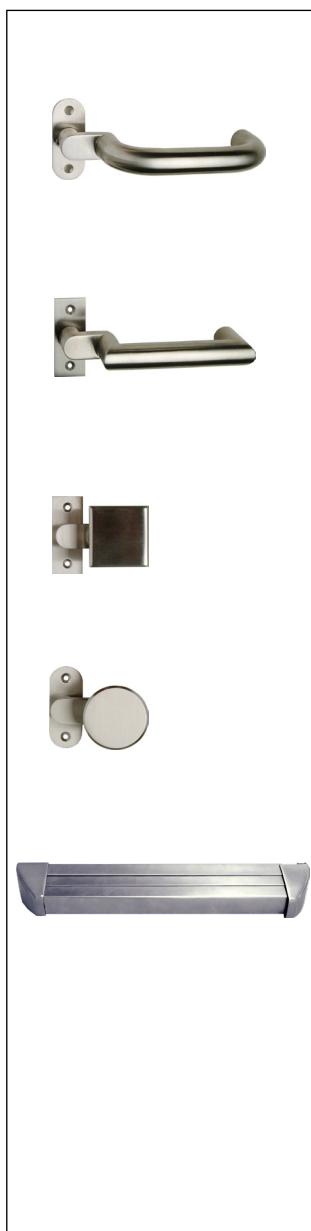


**forsterunico.**

**forsterfuego.light**

**forsterpresto**

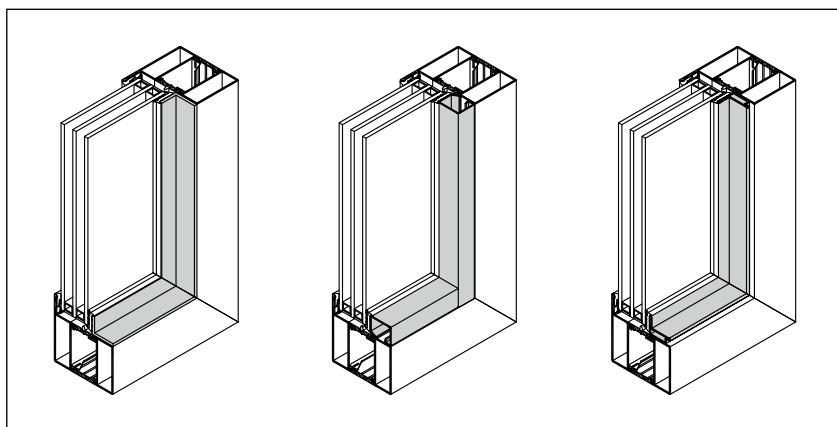
**Das System  
auf einen Blick**



**Le système  
en un coup d'œil**



**The system  
at a glance**



Verdeckt liegende Bänder

Paumelles cachées  
disponibles

Concealed hinges  
available



**Referenzobjekte****Réalisations****Project references**

## Referenzobjekte

## Réalisations

## Project references



## Das System

forster unico ist das wärmegedämmte Profilsystem mit Beschlägen und Zubehör für ein- und zweiflügelige Türen, Fenster sowie für Verglasungen im Außenbereich.

Die Grundprofile bestehen zu 100 % aus rezyklierbarem 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 hochwärmegedämmtes 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 structurelle 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

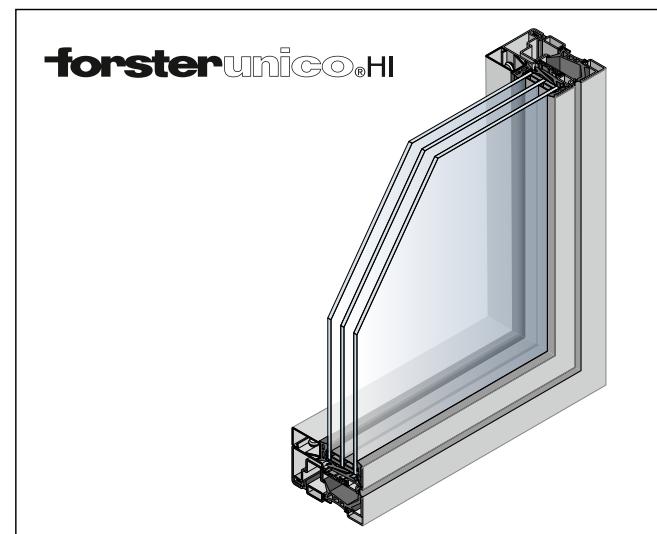
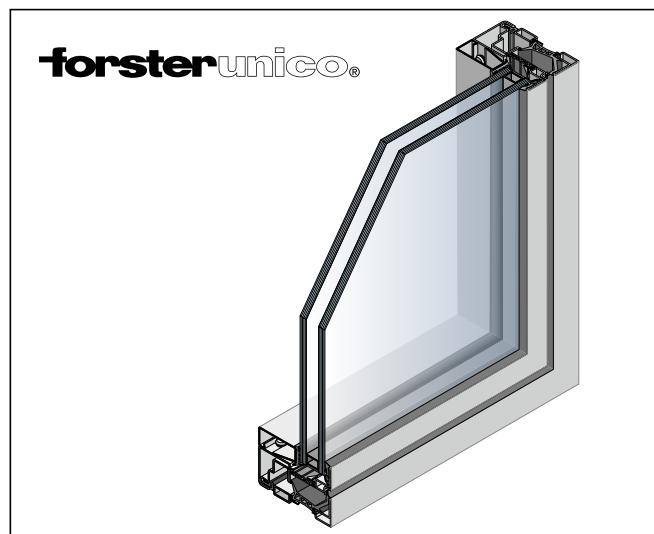
forster unico is the thermally insulated profile system with fittings and accessories for single- and double-leaf doors, for windows as well as for external glazings.

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 wärmedämmte 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 % rezyklierbar

### **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 engster Toleranzen hergestellt werden. Sie lassen sich problemlos zusammenfügen.

### **Sauber**

Beim Schweißen und Schleifen entstehen keine Emissionen durch Kunststoffe.

### **Einfach**

Keine aufwändigen Ausnehmungen beim Schlossereinbau. 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 Eindrehanker 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.

### **Légereté 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**

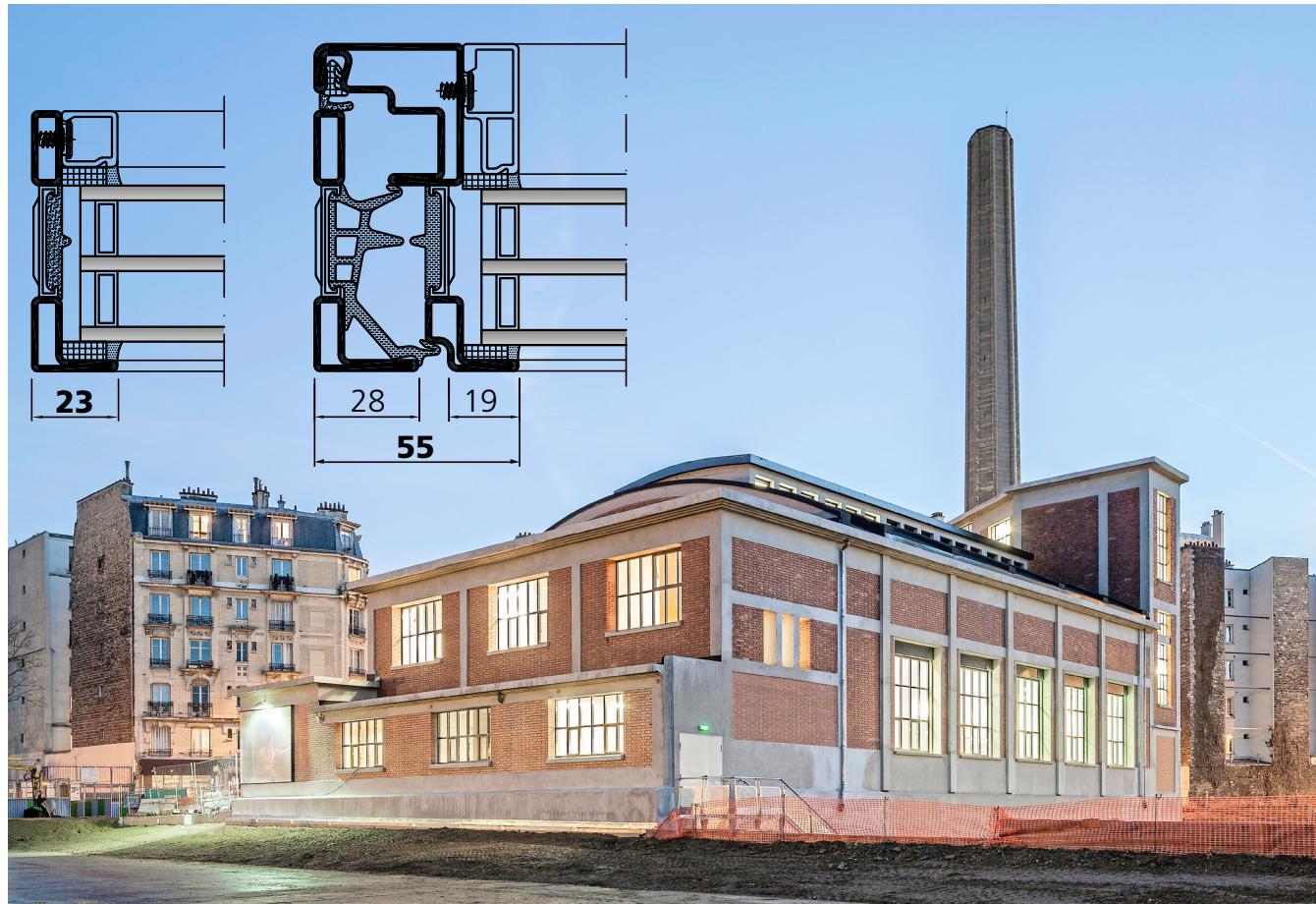
- Ecologiques et durables
- Dim. de vantail jusqu'à 1240 × 2440 mm (L×H)
- Capacité de poids 100–150 kg, dépend du choix du système de quincaillerie
- Quincaillerie cachée Forster disponible pour vantail ouvrant à la française, ouvrant oscillo-battant et vantail semi-fixe
- Compatibilité avec tous les 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**



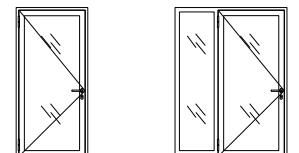
**Verlangen Sie die separaten Planungsunterlagen für forster unico XS!**

**Demandez la documentation de planification séparée pour forster unico XS!**

**Ask for the separate planning documentation for forster unico XS!**

## Minergie Standard Türen

**MINERGIE®**



**985301**



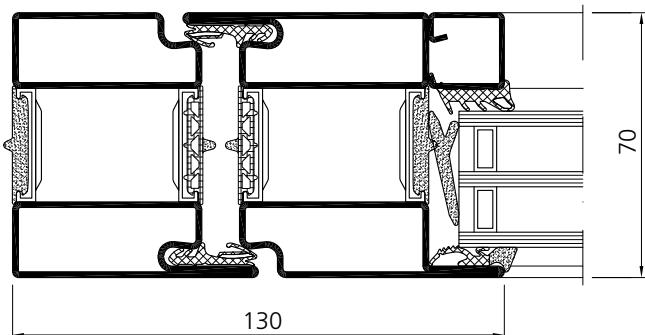
**985305**



**985314**



**985315**



### Elementgrößen

- 1-flügelig  
max.  $1300 \times 2400$  mm (B × H)
- 1-flügelig mit Seitenteil  
max.  $1800 \times 2400$  mm (B × H)

### Glas

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

## Standard Minergie Portes

## Minergie Standard Doors



### Dimensions des éléments

- 1 vantail  
max.  $1300 \times 2400$  mm (B × H)
- 1 vantail avec imposte  
max.  $1800 \times 2400$  mm (B × H)

### Verre

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

### Element dimensions

- 1 leaf  
max.  $1300 \times 2400$  mm (B × H)
- 1 leaf with screen abutment  
max.  $1800 \times 2400$  mm (B × H)

### Glass

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

Technische Merkmale	Caractéristiques techniques	Technical characteristics
<b>Werkstoffe</b> <ul style="list-style-type: none"> <li>Stahl blank, ZM (Zink Magnesium)</li> <li>Edelstahl</li> </ul> <p>Prüfbericht zur Laserschweissverbindung: siehe Anhang Kapitel 0</p>	<b>Matières premières</b> <ul style="list-style-type: none"> <li>acier brut, ZM (zinc-magnésium)</li> <li>acier inox</li> </ul> <p>Attestation d'assemblages soudés au laser: voir annexe chapitre 0</p>	<b>Materials</b> <ul style="list-style-type: none"> <li>Steel, bright, ZM (zinc-magnesium)</li> <li>Stainless steel</li> </ul> <p>Test report for laser-welds: see annex of chapter 0</p>
<b>Ansichtsbreiten</b> <ul style="list-style-type: none"> <li>Rahmenprofil 30, 50, 70 und 90 [mm]</li> <li>Türprofile 45, 65 + 85 [mm]</li> <li>Schmalste Ansichten für Festverglasungen ab 30 mm</li> <li>Gleiche Ansichtsbreite wie Forster Brand- und Rauchschutzsysteme</li> </ul>	<b>Largeurs des faces vues</b> <ul style="list-style-type: none"> <li>Profils de cadre 30, 50, 70 et 90 [mm]</li> <li>Profils de porte 45, 65 + 85 [mm]</li> <li>Les faces vues les plus fines pour vitrages fixes à partir de 30 mm</li> <li>Compatibilité avec les dimensions des systèmes coupe-feu et pare-flamme Forster</li> </ul>	<b>Facing widths</b> <ul style="list-style-type: none"> <li>Frame profile 30, 50, 70 and 90 [mm]</li> <li>Door profile 45, 65 + 85 [mm]</li> <li>Ultra-slim aspects for fixed glazing from 30 mm</li> <li>Compatible with Forster Fire and Smoke Protection Systems</li> </ul>
<b>Beschläge</b> <ul style="list-style-type: none"> <li>Forster Systembeschläge für Türen erhältlich</li> </ul>	<b>Quincaillerie</b> <ul style="list-style-type: none"> <li>Quincaillerie Forster disponible pour portes</li> </ul>	<b>Fittings</b> <ul style="list-style-type: none"> <li>Forster system fittings available for doors</li> </ul>
<b>Oberflächenbehandlung</b> <ul style="list-style-type: none"> <li>Freie Wahl des Beschichtungssystems           <ul style="list-style-type: none"> <li>- Nasslackierung</li> <li>- Pulverbeschichtung</li> <li>- Feuerverzinkung (Korrosivitätskategorie C1 – C3)</li> </ul> </li> </ul>	<b>Traitements de surface</b> <ul style="list-style-type: none"> <li>Libre choix du traitement de surface           <ul style="list-style-type: none"> <li>- Laque liquide</li> <li>- Revêtement par poudre</li> <li>- Galvanisation à chaud (catégorie de corrosivité C1 – C3)</li> </ul> </li> </ul>	<b>Surface treatments</b> <ul style="list-style-type: none"> <li>Free choice of coating system           <ul style="list-style-type: none"> <li>- Wet paint</li> <li>- Powder coating</li> <li>- Hot-dip galvanizing (corrosivity category C1 – C3)</li> </ul> </li> </ul>
<b>Klemmschutz (DIN 18650)</b> Fingerschutztür ≤ 8 mm (Nebenschliesskante)	<b>Protection anti-pince doigts (DIN 18650)</b> Porte anti-pince doigts ≤ 8 mm (arête de fermeture)	<b>Trapping protection (DIN 18650)</b> Anti-finger-trap door ≤ 8 mm (secondary closing edge)
<b>Barrierefrei (DIN 18040)</b> Schwellenfrei und stolperfrei (0 mm) mit isoliertem Bodenprofil und Edelstahlabdeckung	<b>Absence d'entrave au passage (DIN 18040)</b> Sans seuil et sans obstacle (0 mm) avec un profilé de sol isolé et un revêtement en acier inoxydable	<b>Barrier-free (DIN 18040)</b> No threshold (0 mm) and no tripping, with insulated floor profile and stainless steel cover
<b>CE-Kennzeichnung nach 14351-1</b> Detaillierte Informationen zu den einzelnen Eigenschaften stehen auf unserer Website <a href="http://www.forster-profile/downloads">www.forster-profile/downloads</a> zur Verfügung.	<b>Marquage CE selon EN 14351-1</b> Informations détaillées des différents caractéristiques sont disponibles sur notre site web <a href="http://www.forster-profile/téléchargement">www.forster-profile/téléchargement</a> .	<b>CE-Marking according to EN 14351-1</b> Detailed information for the different characteristics are available on our website <a href="http://www.forster-profile/downloads">www.forster-profile/downloads</a> .



#### \* 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 caractéristiques selon EN 14351-1

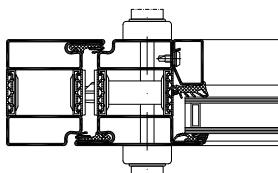
## Synopsis of characteristics according to EN 14351-1

Nr. No.	Geprüfte Eigenschaften Charactéristiques 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 Etanchéité 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 <sub>D</sub> 1.1 [W/(m <sup>2</sup> ·K)]	bis / jusqu'à / up to U <sub>w</sub> 1.0 [W/(m <sup>2</sup> ·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

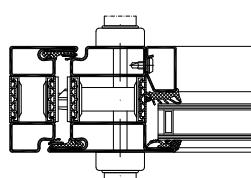
Wesentliche Eigenschaften / Caractéristiques essentielles / Essential characteristics

## Systemvarianten Türen

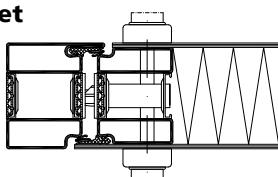
### Forster unico



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

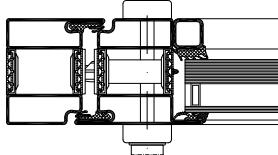


**Flächenbündig verblecht**  
**En tôle affleuré**  
**Flush mounted metal sheet**

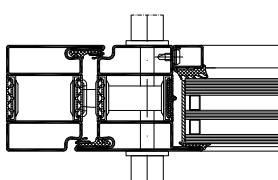


**Einbruchhemmend RC 1-3**  
**Anti-effraction RC 1-3**  
**Burglary resistant RC 1-3**

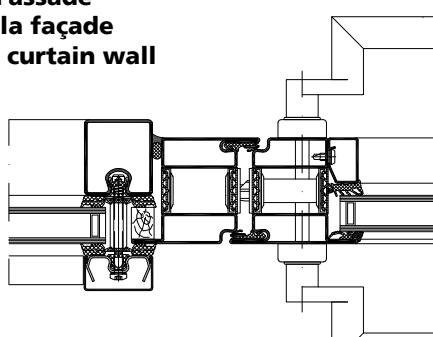
Festverglasung RC4 auf Anfrage  
Vitrage fixe RC4 sur demande  
Fixed glazing RC4 on request



**E30/EW30**  
**E60/EW60 (seulement France)**

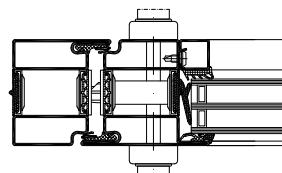


**Integriert in Fassade**  
**Intégré dans la façade**  
**Integrated in curtain wall**

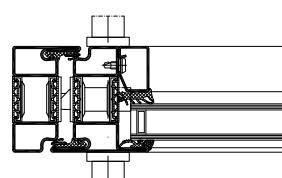


## Variantes du système Portes

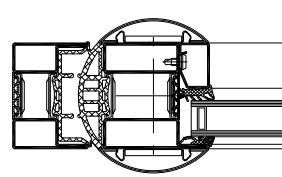
### Forster unico Hi



**Schlanke Tür 1-flg.**  
**Porte fine une vantail**  
**Slim door 1 leaf**

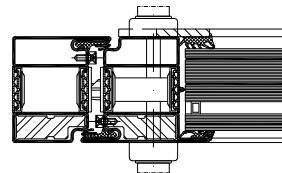


**Fingerschutz**  
**Porte anti-pince doigts**  
**Anti-finger-trap door**



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

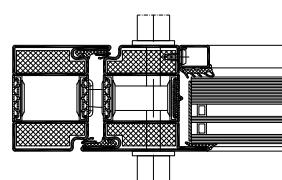
Tür FB5 NS auf Anfrage  
Porte FB5 NS sur demande  
Door FB5 NS on request  
Festverglasung FB6 NS auf Anfrage  
Vitrage fixe FB6 NS sur demande  
Fixed glazing FB6 NS on request



**Brandschutztür EI30**  
**Porte pare-flammes EI30**  
**Fire rated door EI30**



siehe separate Broschüre  
voir brochure séparée  
see separate brochure

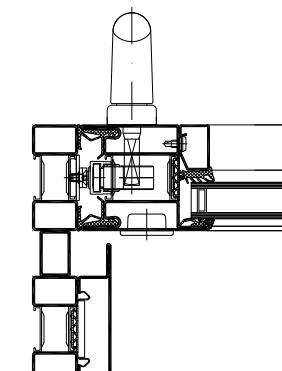


**Hebeschiebe**  
**Porte coulissante à levier**  
**Lift-up sliding door**

(siehe separate Broschüre)  
(voir brochure spéciale)  
(see separate brochure)



siehe separate Broschüre  
voir brochure séparée  
see separate brochure

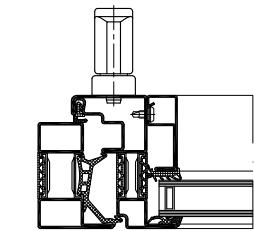


## Systemvarianten Fenster

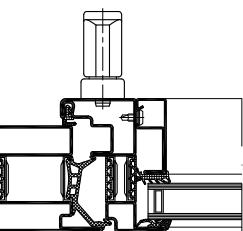
## Variantes du système Fenêtres

## System variations Windows

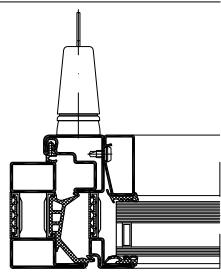
Ausführung Frankreich  
Exécution France  
Execution France



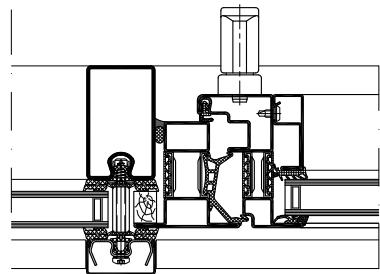
Einbruchhemmend RC1-3  
Anti-effraction RC1-3  
Burglary resistant RC1-3



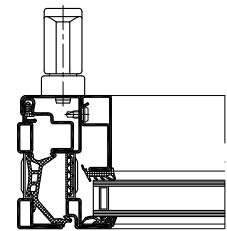
E30/EW30



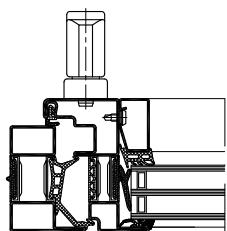
Integriert in Fassade  
Intégré dans la façade  
Integrated in curtain wall



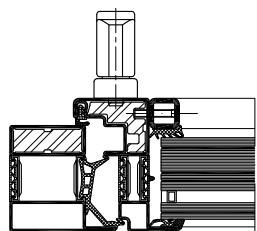
Mit schmalem Flügelprofil  
Avec profilé de vantail étroit  
With narrow leaf profile



Forster unico Hi



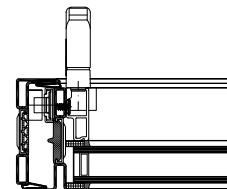
Durchschusshemmend FB4 NS  
Pare-balles FB4 NS  
Bullet resistant FB4 NS



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



## Zeichnungsdaten – dwg

Die in dieser Dokumentation gezeigten Schnitte und Pläne mit nachstehenden Bezeichnungen stehen als dwg-Daten unter [www.forster-profile.ch/downloads](http://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](http://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](http://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

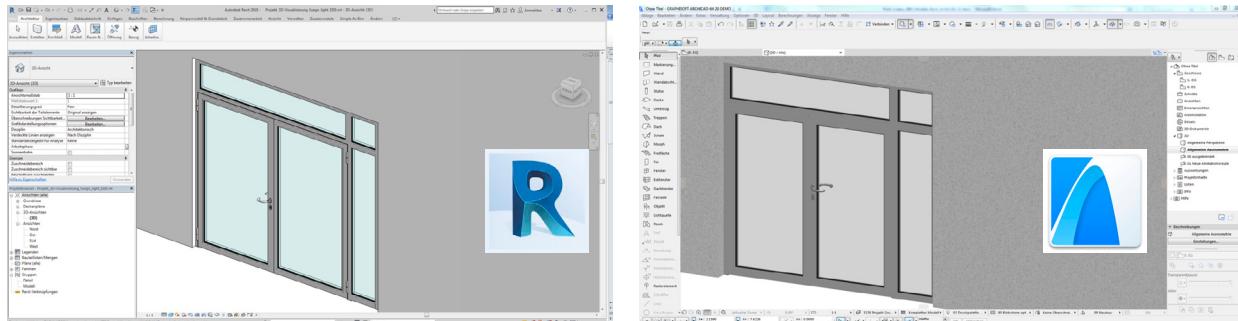
Für die BIM Planungsmethode stehen Ihnen zahlreiche Modelle des Systems forster unico in Revit und ArchiCAD unter [www.forster-profile.ch/Downloads](http://www.forster-profile.ch/Downloads) zur Verfügung.

## Modèles BIM

Nombreux modèles du système forster unico pour la méthode de planification BIM sont disponibles en Revit et ArchiCAD sous [www.forster-profile.ch/téléchargement](http://www.forster-profile.ch/téléchargement).

## BIM models

For the BIM planning method, numerous models of forster unico system are available for Revit and ArchiCAD on [www.forster-profile.ch/Downloads](http://www.forster-profile.ch/Downloads).



## Biegeradien

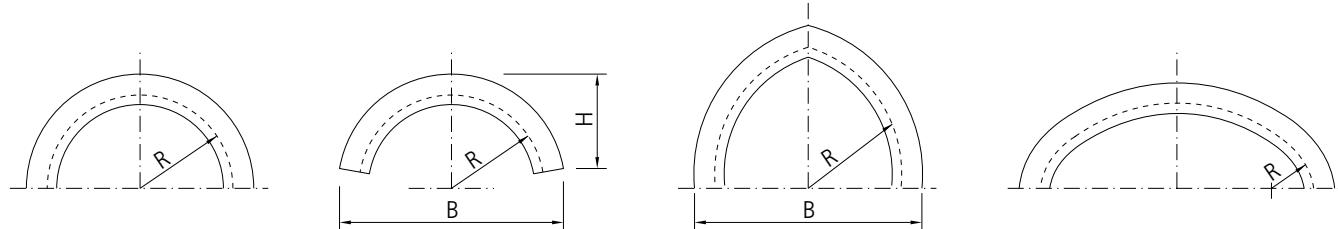
Enge Radien ab 300 mm möglich

## 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**



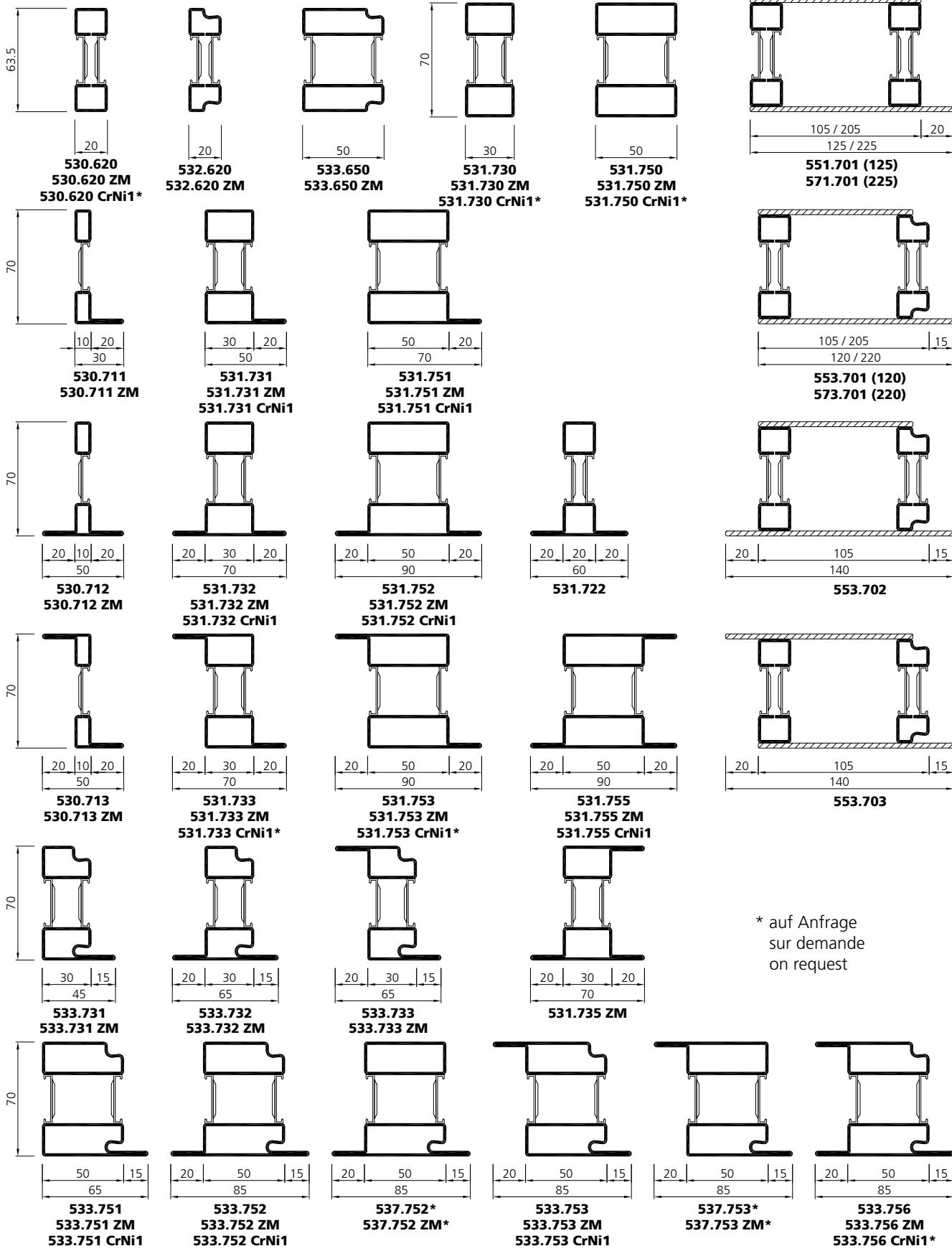
Möbel Pfister, CH-Walche in Zürich

03/21

## Systemübersicht Türen

## Tableau du système Portes

## Synopsis of system Doors

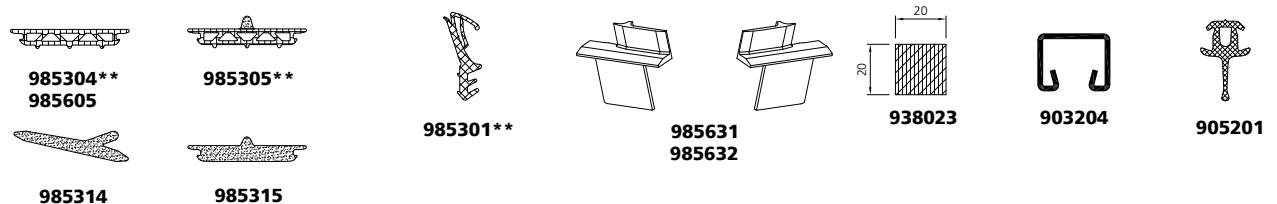
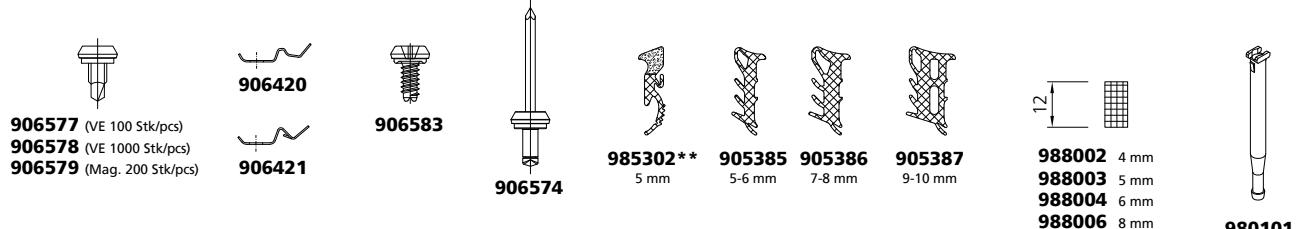
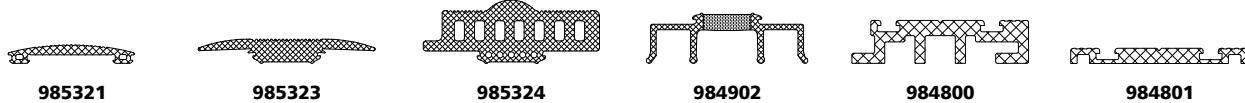
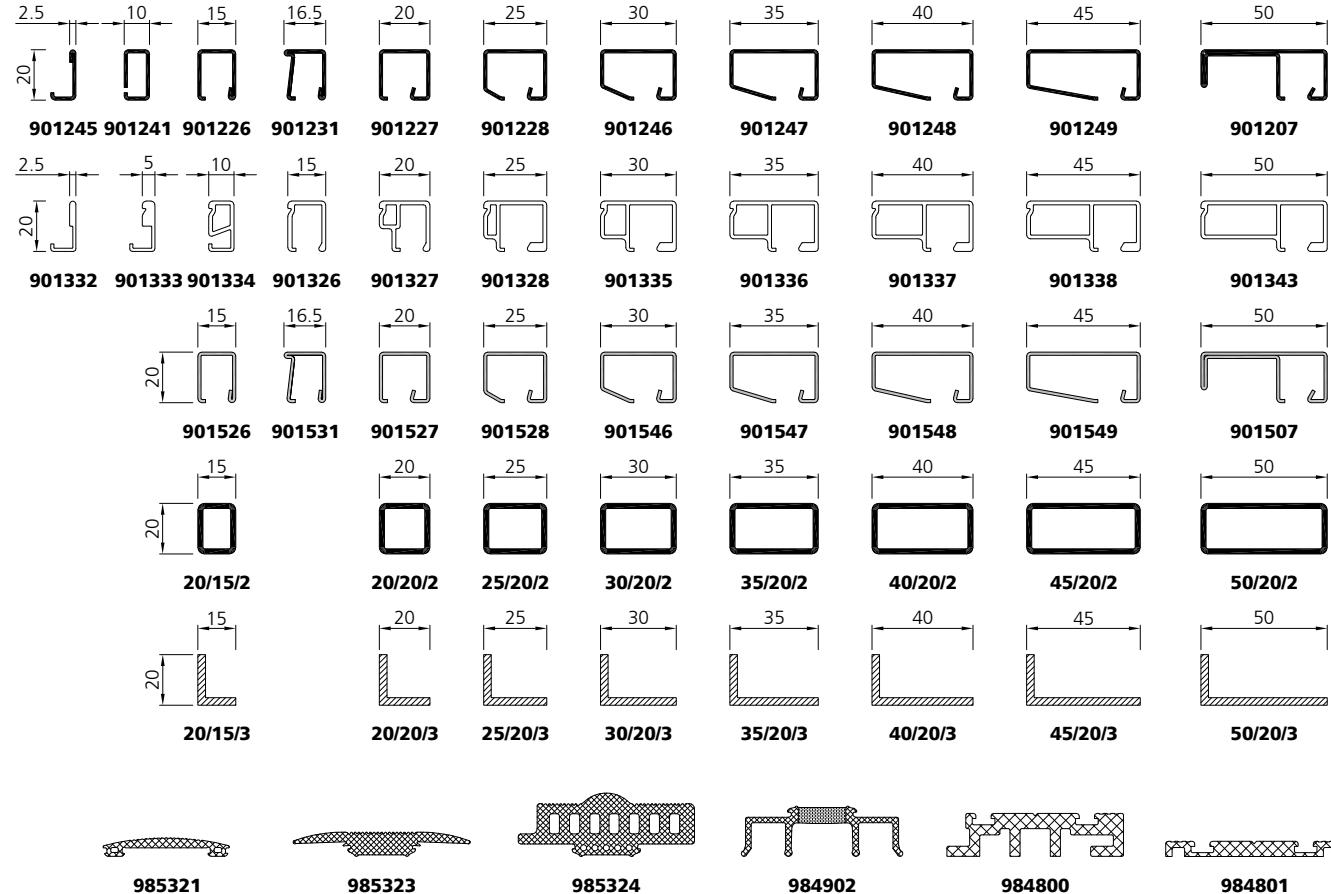


\* auf Anfrage  
sur demande  
on request

## Systemübersicht Türen

## Tableau du système Portes

## Synopsis of system Doors

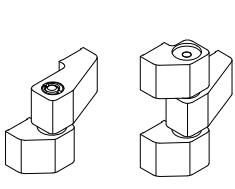


\*\* Silikon schwarz, andere Farben auf Anfrage / Silikon schwarz, andere Farben auf Anfrage / Silikon schwarz, andere Farben auf Anfrage

## Systemübersicht Türen

## Tableau du système Portes

## Synopsis of system Doors



**907617**  
**907613**  
(25 mm)  
**907600**  
(36 mm)

**907616**  
**907612**  
(25 mm)  
**907610**  
(36 mm)

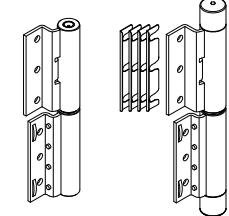
**907618**  
**907611**  
(16 mm)

**907662**  
**907664**  
(15 mm)

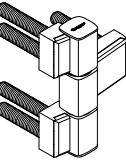
**907667**  
**907668**  
(15 mm)

**907663**  
(17 mm)

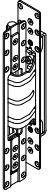
**907669**  
(17 mm)



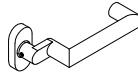
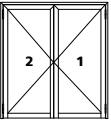
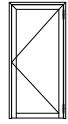
**987612 - 987613**  
**987623 - 987624**



**907670 - 907673**

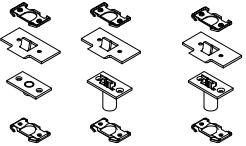


**907740**



**907350**

**907351**



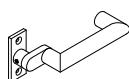
**907356**



**907352**      **907353**



**907327**



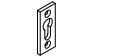
**907326**



**907329**



**907337**



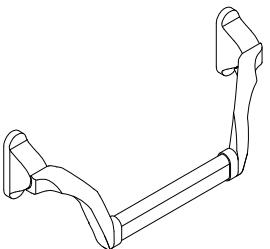
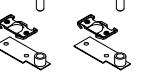
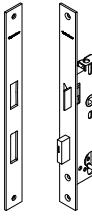
**907335**



**907338**



**907336**



**987207 - 987210**

**907286 - 907289**

## Systemübersicht Einbruchhemmede Türen

## Tableau du système Portes anti-effraction

## Synopsis of system Burglary-resistant doors



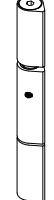
907662  
907664  
(15 mm)



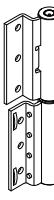
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907668  
(15 mm)



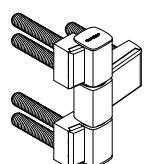
907663  
(17 mm)



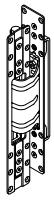
907669  
(17 mm)



987613 - 987613  
987623 - 987624  
nur RC2  
seulement RC2  
only RC2



907670 - 907673

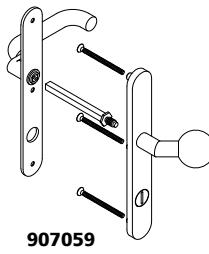


907059

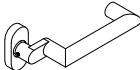


907074

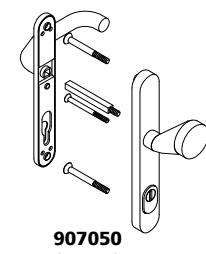
(RZ/CR/RC)



907350



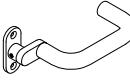
907351



907050  
(PZ/CP/PC)



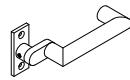
907356 907352 907353



907327



907329



907326



917031 907337



907337



917030 907335



917033 907338



907338

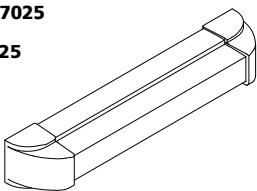


917032 907336



987712 917025

917025



987209 - 987210

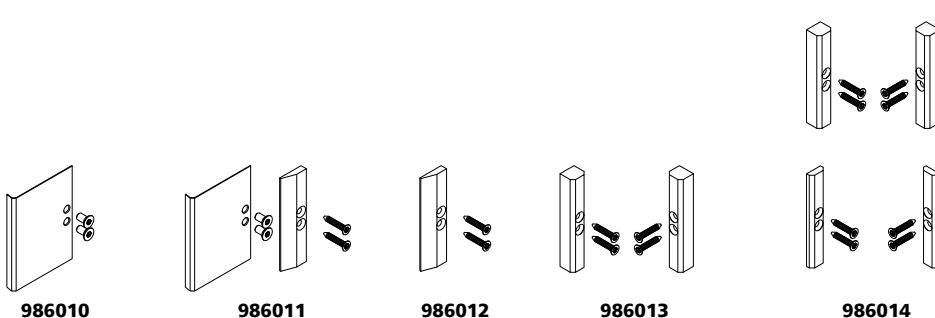
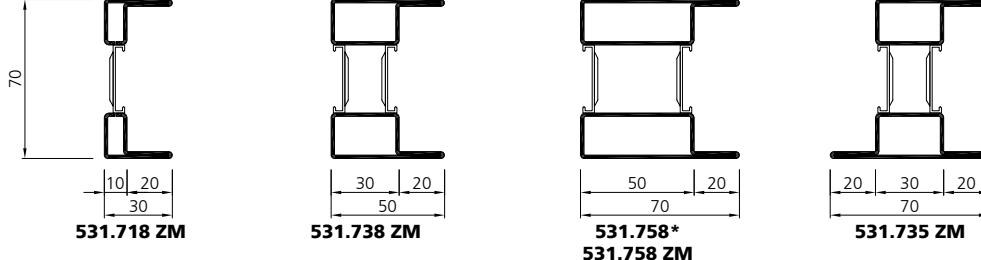
nur RC2  
seulement RC2  
only RC2



## Systemübersicht Fingerschutztüren

## Tableau du système Portes anti-pince doigts

## Synopsis of system Anti-finger-trap doors



\* auf Anfrage  
sur demande  
on request

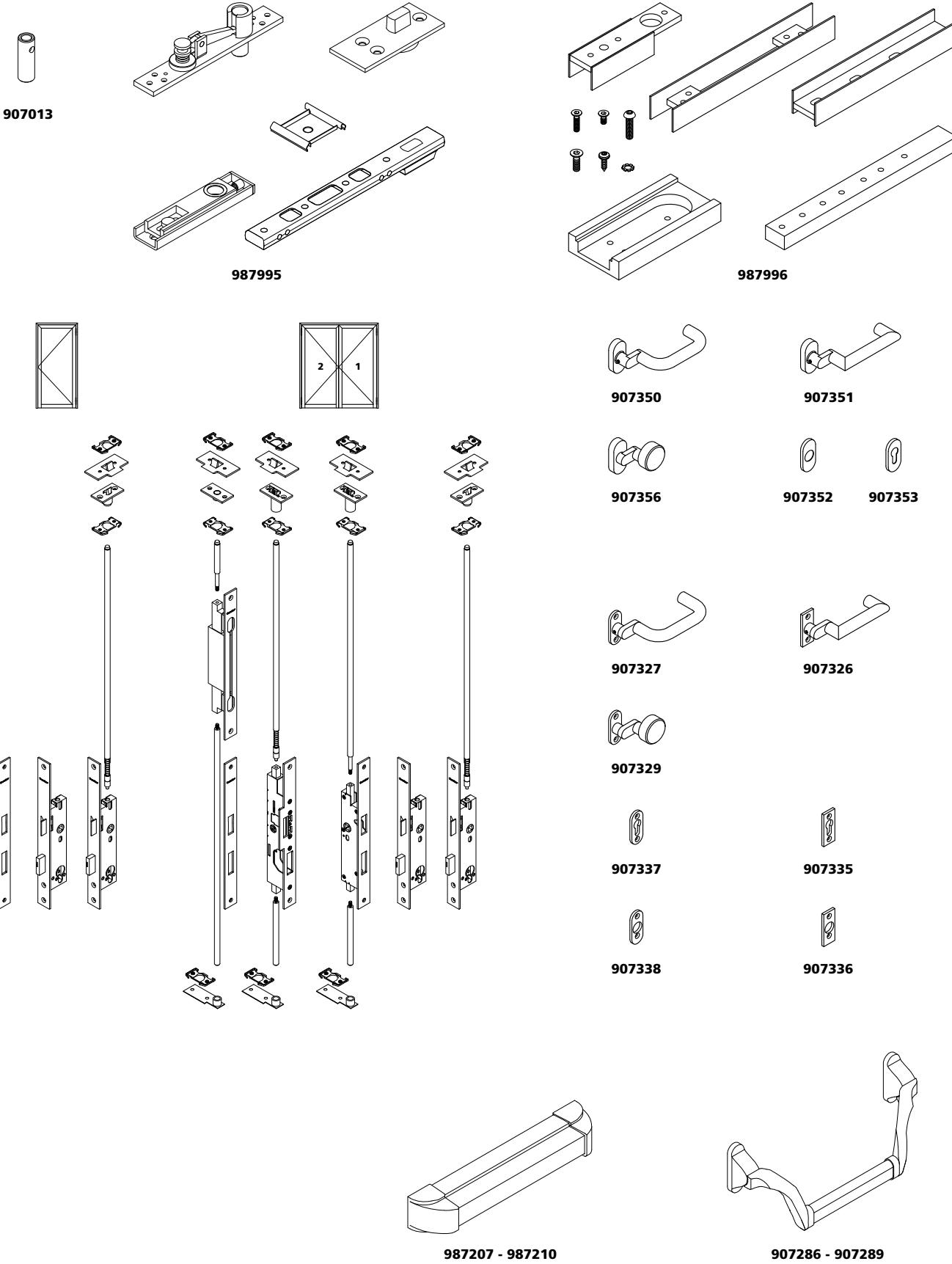
\*\* Silikon schwarz und Farben auf Anfrage / Silicone noir et couleurs sur demande / Silicone black and colours on request



## Systemübersicht Fingerschutztüren

## Tableau du système Portes anti-pince doigts

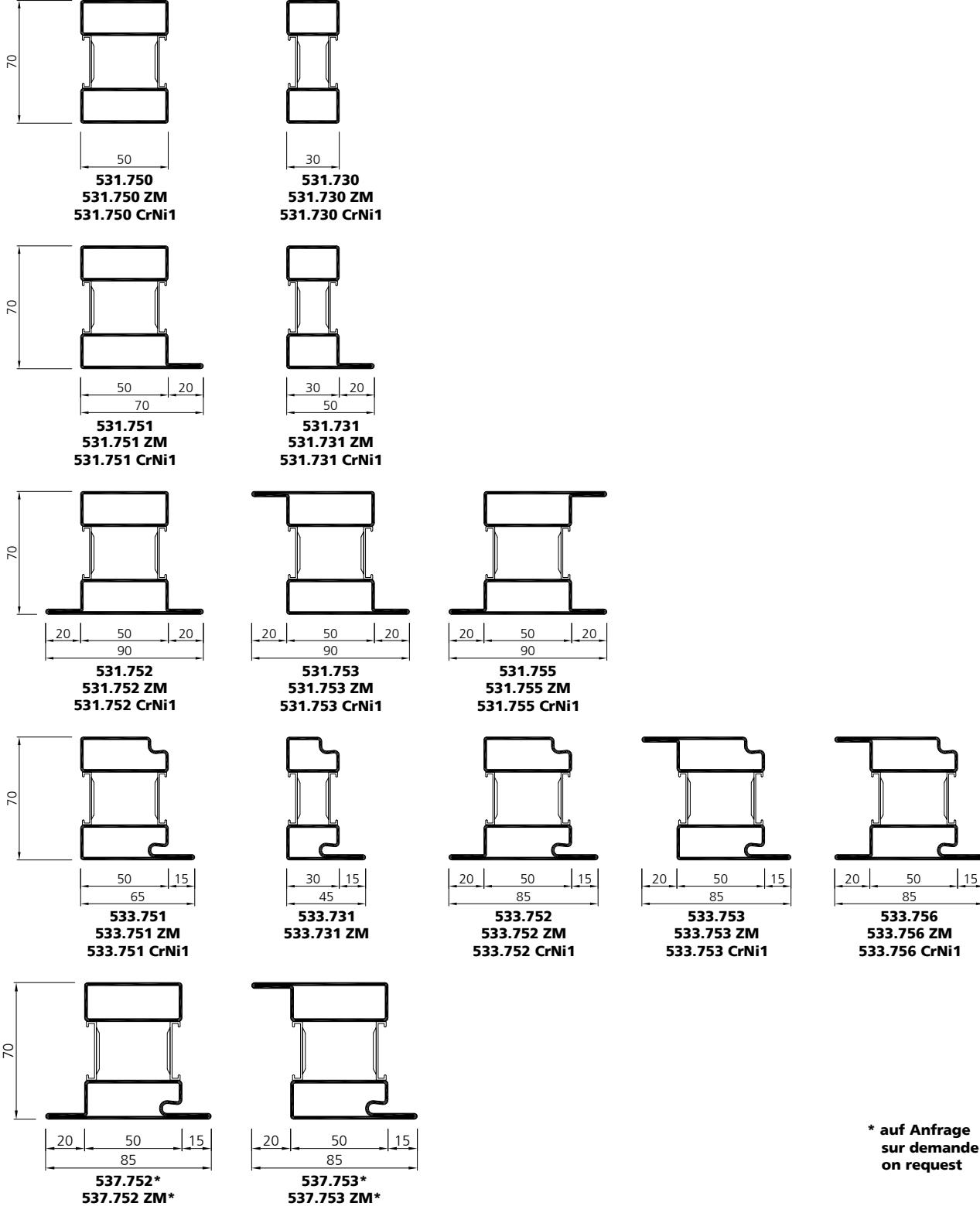
## Synopsis of system Anti-finger-trap doors



## Systemübersicht Türen E30 / EW30

## Tableau du système Portes E30 / EW30

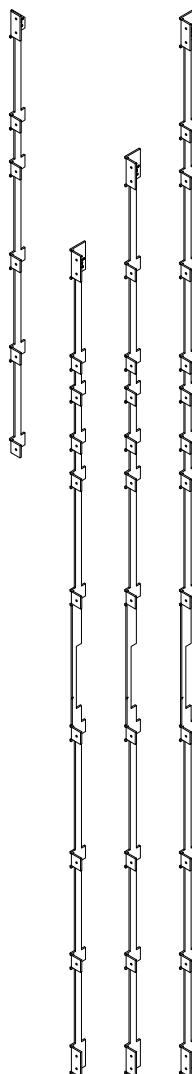
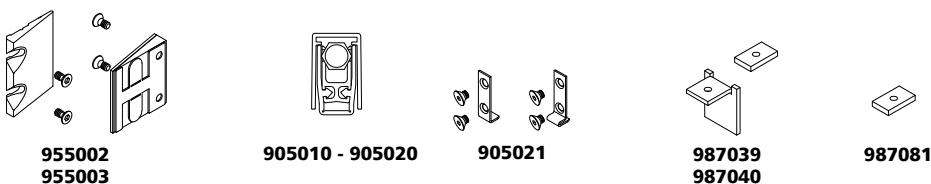
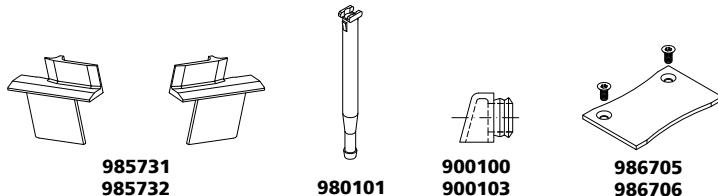
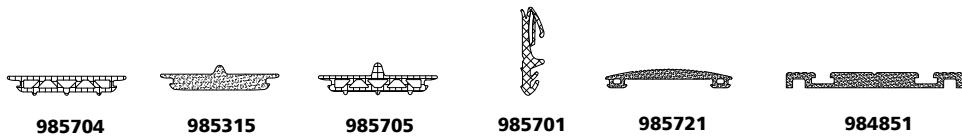
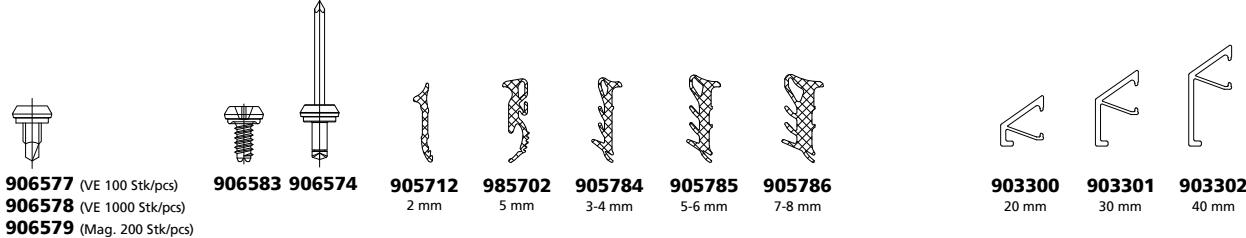
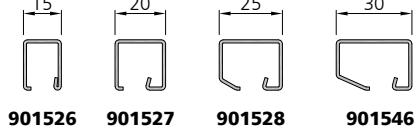
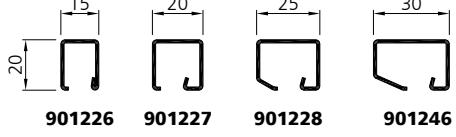
## Synopsis of system Doors E30 / EW30



## Systemübersicht Türen E30 / EW30

## Tableau du système Portes E30 / EW30

## Synopsis of system Doors E30 / EW30



**987035 - 987038**

## E30 / EW30

Stahl  
Acier  
Steel

Edelstahl  
Acier inox  
Stainless steel

26

### Systemübersicht Türen E30 / EW30

### Tableau du système Portes E30 / EW30

### Synopsis of system Doors E30 / EW30



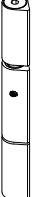
907662  
907664  
(15 mm)



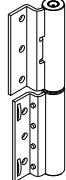
907667  
907668  
(15 mm)



907663  
(17 mm)



907669  
(17 mm)



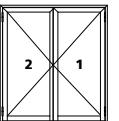
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987623 - 987624



907350



907351



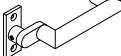
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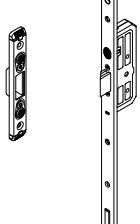
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907327



907326



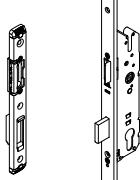
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907337



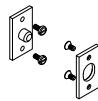
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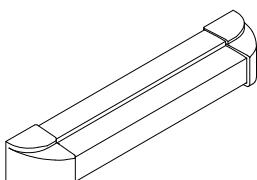
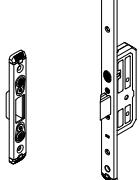
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907336



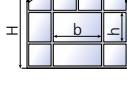
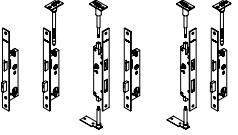
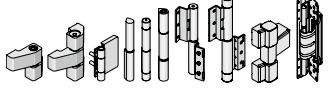
987713



987207 - 987208



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

	<b>Standard</b>	<b>RC1</b>	<b>RC2</b>	<b>RC3</b>
<b>Werkstoffe</b> Matières premières Materials				
Stahl / Acier / Steel	✓	✓	✓	✓
CrNi	✓	✓	✓	✓
<b>Elementgrößen</b> 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 $b_{\max} \times h_{\max}: 1500 \times 3000 \text{ mm} / 3000 \times 1500 \text{ mm}$ $A_{\max} 4.5 \text{ m}^2$	B / H: unbegrenzt, illimité, unlimited $b_{\max} \times h_{\max}: 1500 \times 3000 \text{ mm} / 3000 \times 1500 \text{ mm}$ $A_{\max} 4.5 \text{ m}^2$ (RC4 auf Anfrage / sur demande / on request)		
<b>Verglasung</b> Vitrage Glazing				
Trockenverglasung Vitrage à sec Dry glazing				
Nassverglasung Vitrage au silicone Silicone glazing				
<b>Glas / Paneele</b> 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
<b>Beschläge</b> 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**

	<b>Fingerschutz Anti-pince doigts Anti-finger-trap</b>	<b>E30 / EW30 *</b>	<b>FB4 NS</b>	<b>Hebeschiebetür Porte coulissante à levier Lift-up sliding door</b>
Werkstoffe Matières premières Materials		* Erweiterte Elementgrößen geprüft, Zulassung beantragt Dimensions d'éléments élargies 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 (FB4 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 Antipanik 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

## Schliessvarianten

## Variantes de fermetures

## Locking versions



EN 179 Notausgangsverschlüsse  
Fermetures sorties d'urgences  
Emergency exit devices

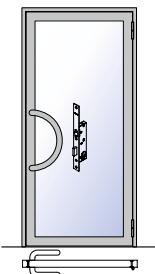


EN 1125 Paniktürverschlüsse  
Fermetures anti-paniques  
Panic exit devices

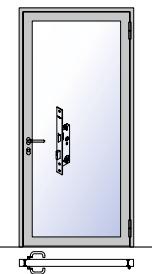


E-Öffner  
Ouverture électrique  
Electric door opener

### Standard / FB4



### Standard

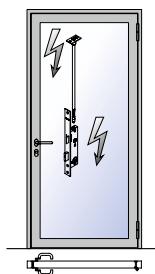
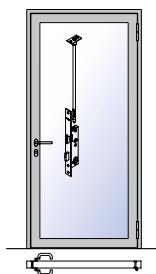
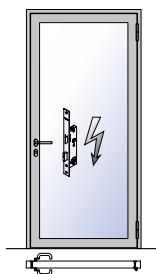
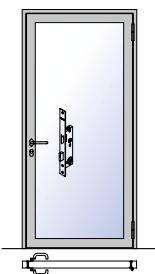


Schmaler Rahmen,  
Schloss mit Dornmaß 25 mm

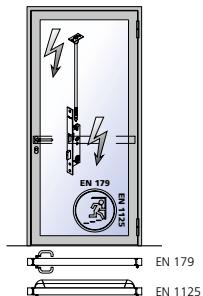
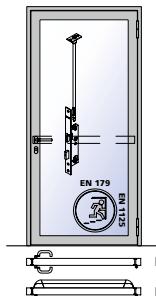
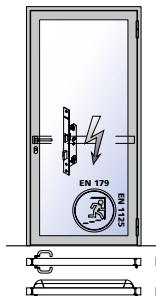
Cadre très fine,  
serrure avec distance au canon 25 mm

Slim frame,  
lock with pin size 25 mm

### Standard / RC1 / FB4



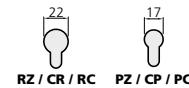
### Antipanik – anti-panique – anti-panic / RC1 / FB4



## Schliessvarianten

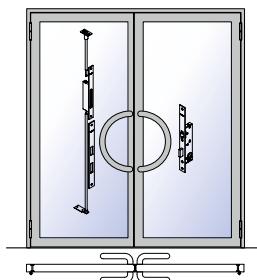
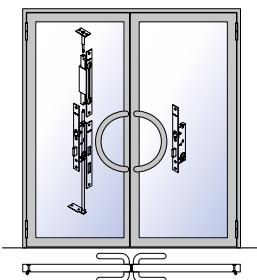
## Variantes de fermetures

## Locking versions

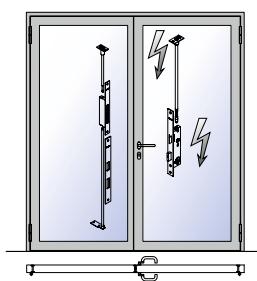
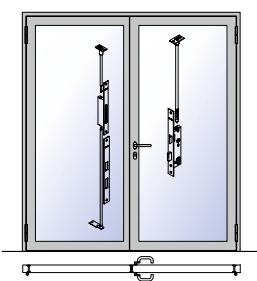
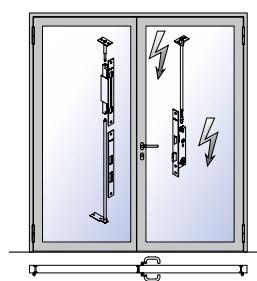
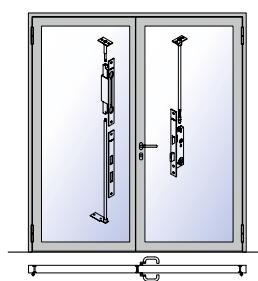
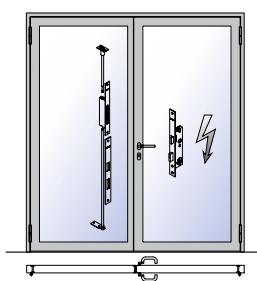
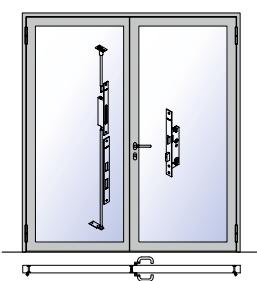
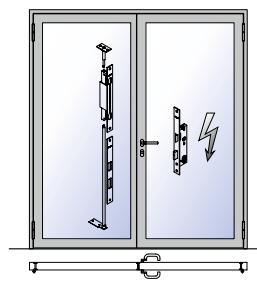
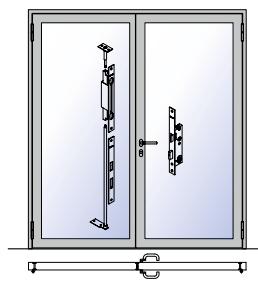
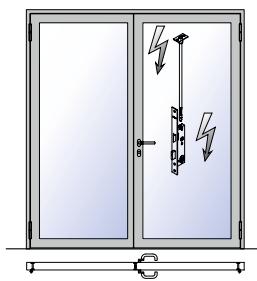
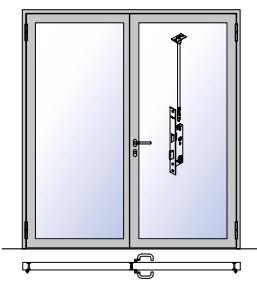


E-Öffner  
 Ouverture électrique  
 Electric door opener

### Standard / FB4



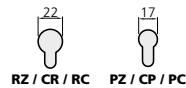
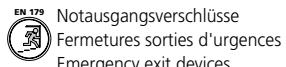
### Standard / RC1 / FB4



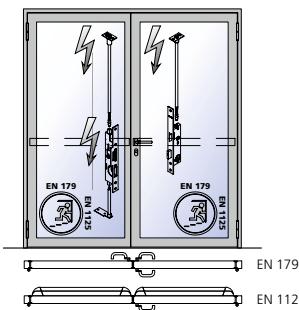
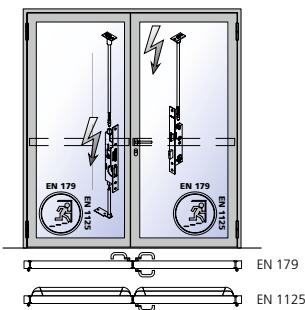
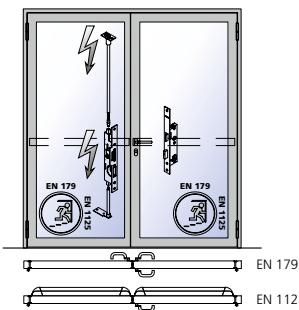
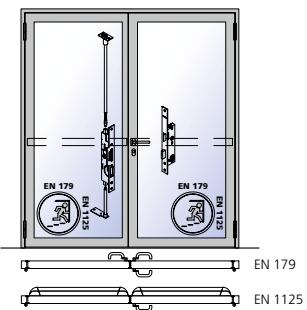
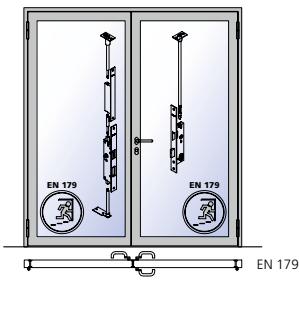
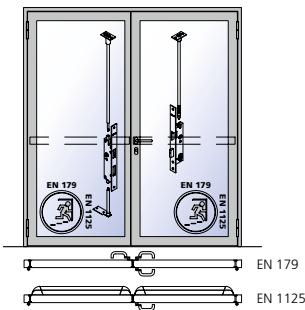
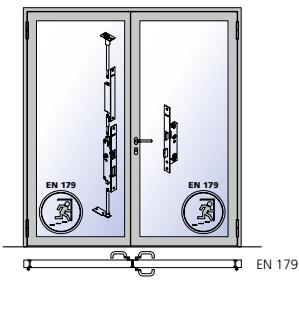
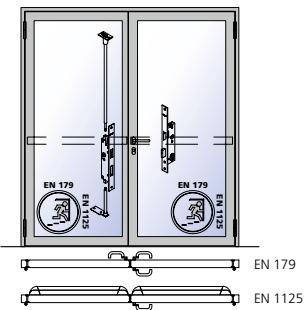
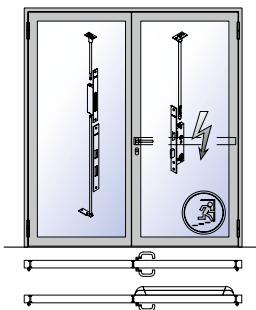
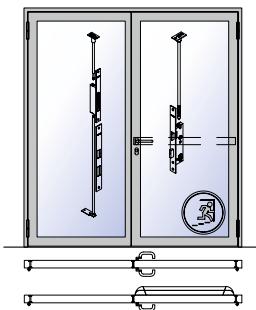
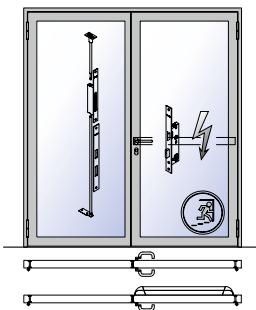
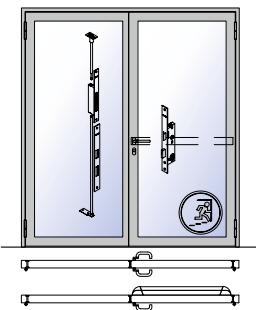
## Schliessvarianten

## Variantes de fermetures

## Locking versions



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



## Schliessvarianten

## Variantes de fermetures

## Locking versions

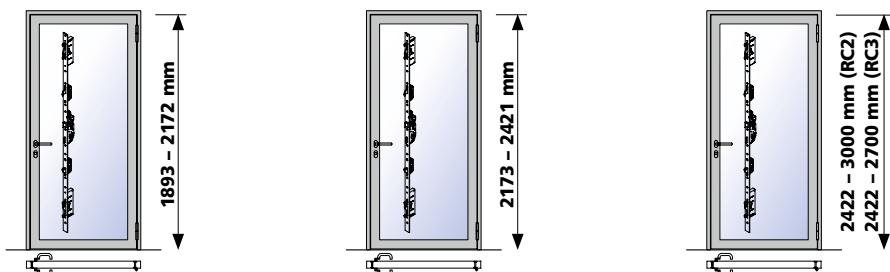
 EN 179 Notausgangsverschlüsse  
Fermetures sorties d'urgences  
Emergency exit devices

 SP11-N Paniktürverschlüsse  
Fermetures anti-paniques  
Panic exit devices

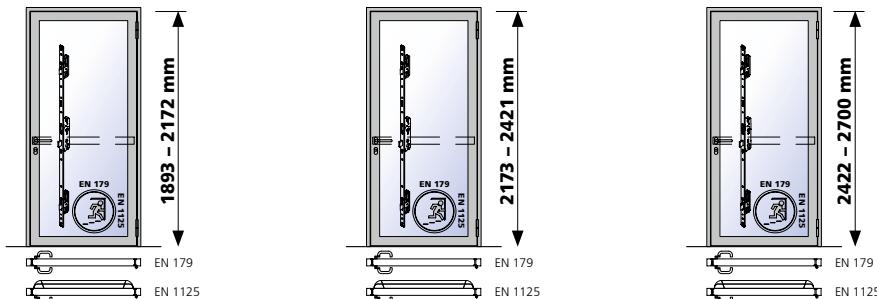
 22 RZ / CR / RC  
 17 PZ / CP / PC

 E-Öffner  
Ouverture électrique  
Electric door opener

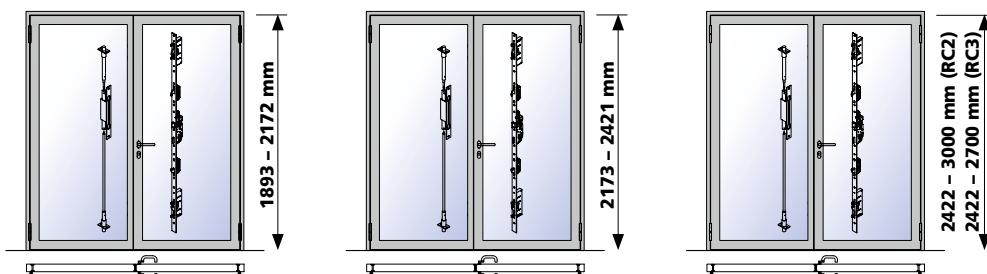
### RC2-3



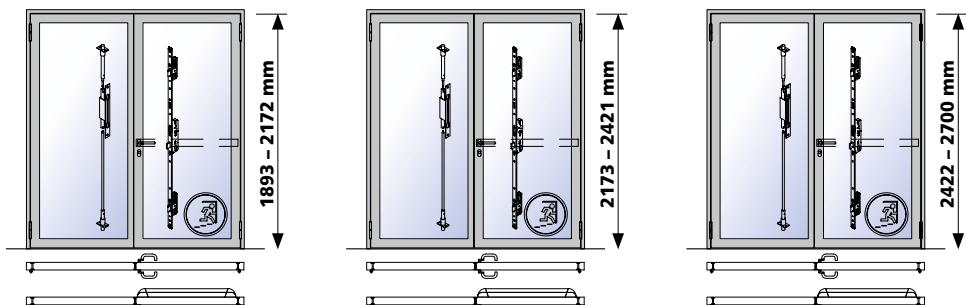
### Antipanik – anti-panique – anti-panic RC2

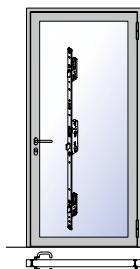


### RC2-3



### Antipanik – anti-panique – anti-panic RC2



**Schliessvarianten****Variantes de fermetures****Locking versions****3-Punkt-Verriegelung****Verrouillage 3 points****3 point locking**

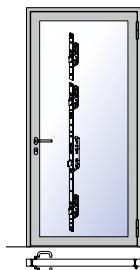
1935 - 2134 mm



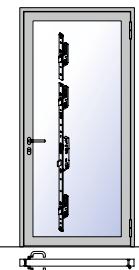
2135 - 2335 mm



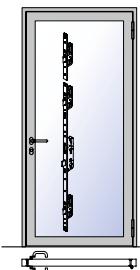
2435 - 2485 mm

**4-Punkt-Verriegelung****Verrouillage 4 points****4 point locking**

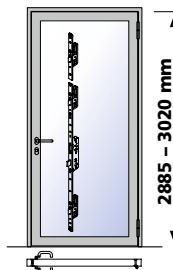
2285 - 2484 mm



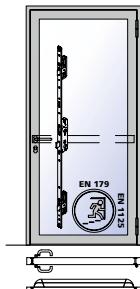
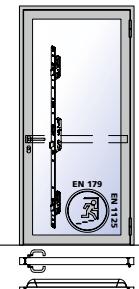
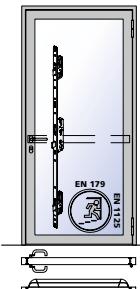
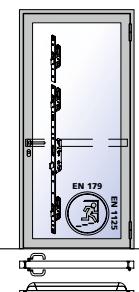
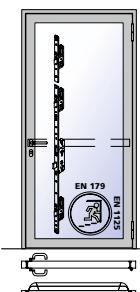
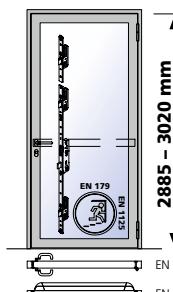
2485 - 2684 mm



2685 - 2884 mm



2885 - 3020 mm

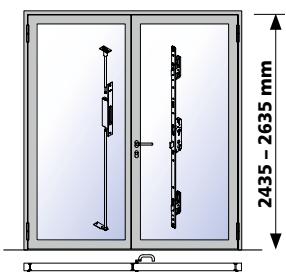
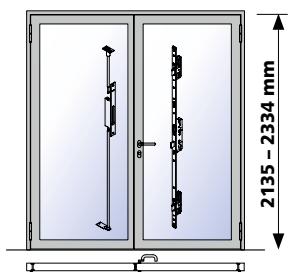
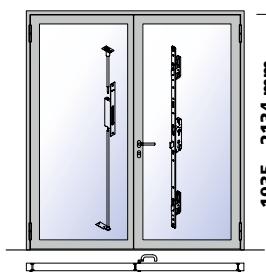
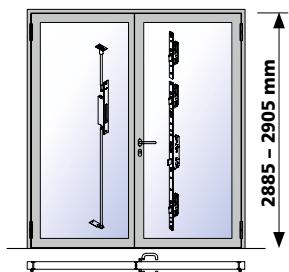
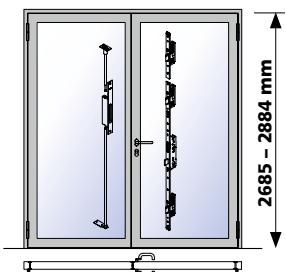
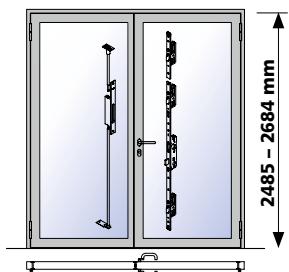
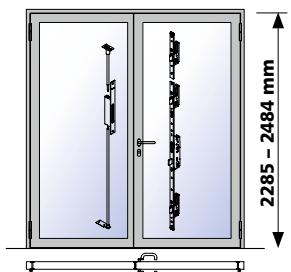
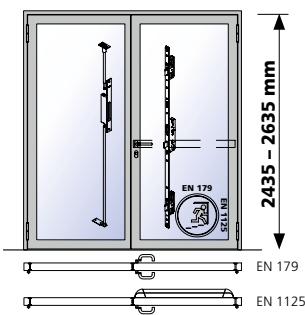
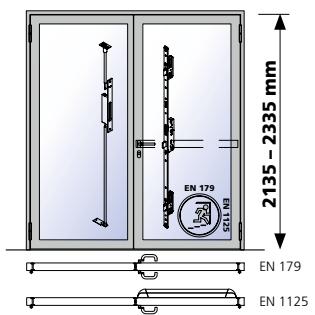
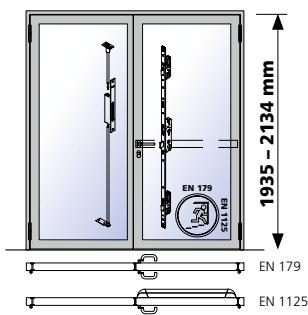
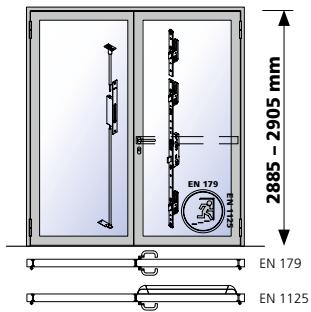
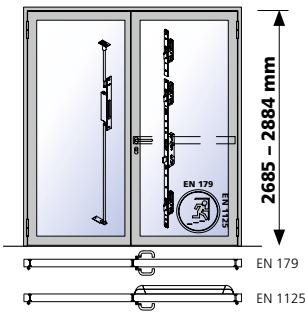
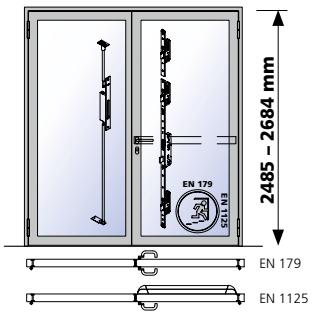
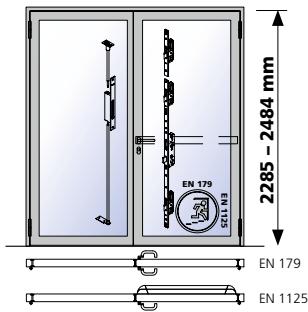
**3-Punkt-Verriegelung - Antipanik****Verrouillage 3 points - anti-panique****3 point locking - anti-panic**EN 179  
EN 1125EN 179  
EN 1125EN 179  
EN 1125**4-Punkt-Verriegelung - Antipanik****Verrouillage 4 points - anti-panique****4 point locking - anti-panic**EN 179  
EN 1125EN 179  
EN 1125EN 179  
EN 1125EN 179  
EN 1125

**Schliessvarianten****Variantes de fermetures****Locking versions**

 Notausgangsverschlüsse  
Fermettes sorties d'urgences  
Emergency exit devices

 Paniktürverschlüsse  
Fermettes 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 – Antipanik****Verrouillage 3 points – anti-panique****3 point locking – anti-panic****4-Punkt-Verriegelung – Antipanik****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

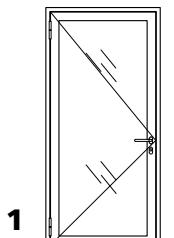
- porte à un vantail
  - avec partie latérale fixe
  - avec deux parties latérales fixes
  - avec imposte
  - avec imposte et partie latérale fixe
  - avec imposte et deux parties latérales fixes
- porte à deux vantaux
  - avec partie latérale fixe
  - avec deux parties latérales fixes
  - avec imposte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

- 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

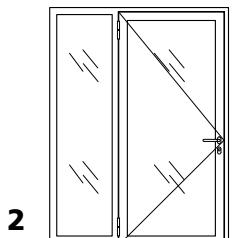
 Edelstahl / Acier inox / Stainless steel



**1**

-  [un\\_sp\\_0044](#)
-  [un\\_sp\\_0059](#)

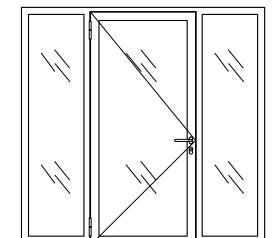
[BIM Revit / ArchiCAD](#)



**2**

-  [un\\_sp\\_0046](#)
-  [un\\_sp\\_0061](#)

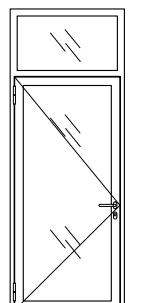
[BIM Revit / ArchiCAD](#)



**3**

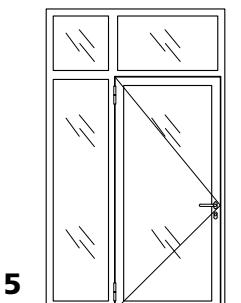
-  [un\\_sp\\_0048](#)
-  [un\\_sp\\_0063](#)

[BIM Revit / ArchiCAD](#)



**4**

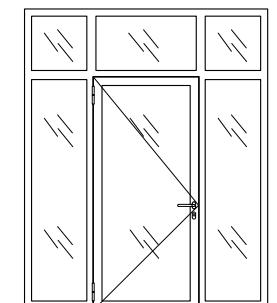
-  [un\\_sp\\_0045](#)
-  [un\\_sp\\_0060](#)



**5**

-  [un\\_sp\\_0047](#)
-  [un\\_sp\\_0062](#)

[BIM Revit / ArchiCAD](#)



**6**

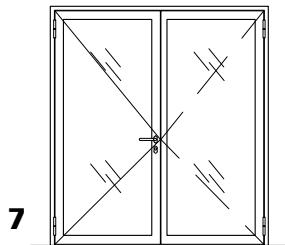
-  [un\\_sp\\_0049](#)
-  [un\\_sp\\_0064](#)

[BIM Revit / ArchiCAD](#)

## Übersicht Systempläne

## Tableau des plans du système

## Synopsis of system plans

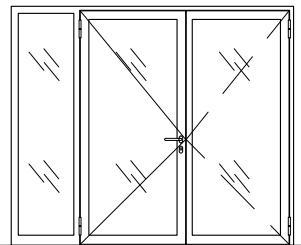


7

■ [un\\_sp\\_0050](#)

■ [un\\_sp\\_0065](#)

BIM Revit / ArchiCAD

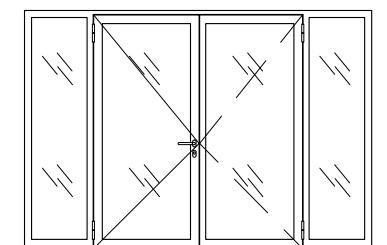


8

■ [un\\_sp\\_0052](#)

■ [un\\_sp\\_0067](#)

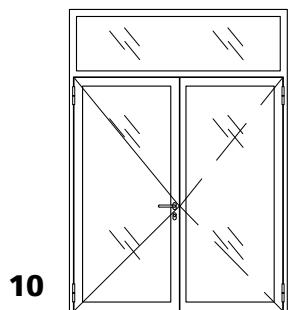
BIM Revit / ArchiCAD



9

■ [un\\_sp\\_0054](#)

■ [un\\_sp\\_0069](#)

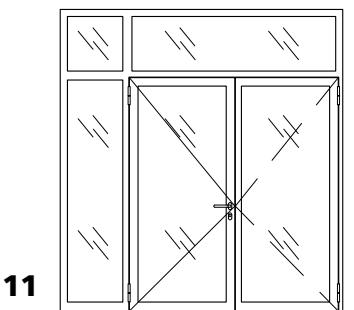


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■ [un\\_sp\\_0051](#)

■ [un\\_sp\\_0066](#)

BIM Revit / ArchiCAD

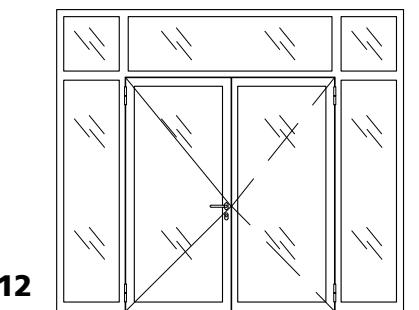


11

■ [un\\_sp\\_0053](#)

■ [un\\_sp\\_0068](#)

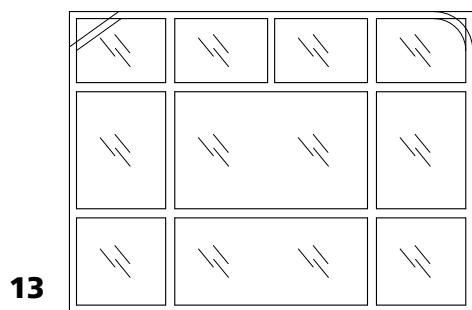
BIM Revit / ArchiCAD



12

■ [un\\_sp\\_0055](#)

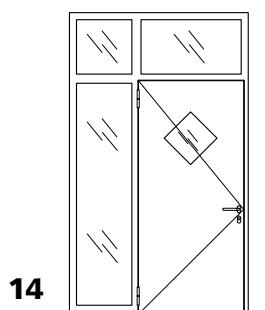
■ [un\\_sp\\_0070](#)



13

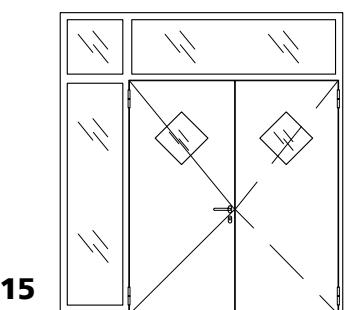
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■ [un\\_sp\\_0071](#)



14

■ [un\\_sp\\_0092](#)



15

■ [un\\_sp\\_0093](#)

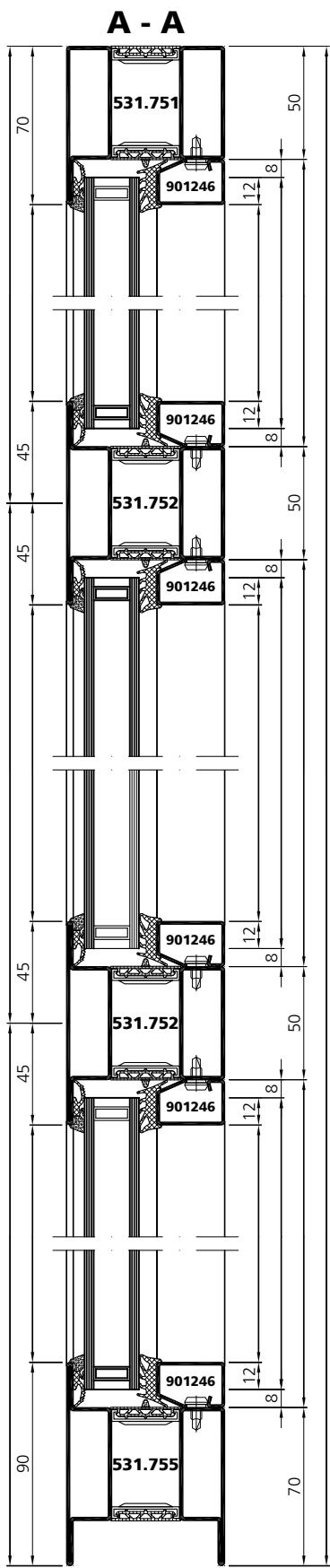
auf nachfolgenden Seiten dargestellt  
présenté dans les pages suivantes  
shown on the following pages

**Systemplan  
Festverglasung**

**Plan du système  
Vitrage fixe**

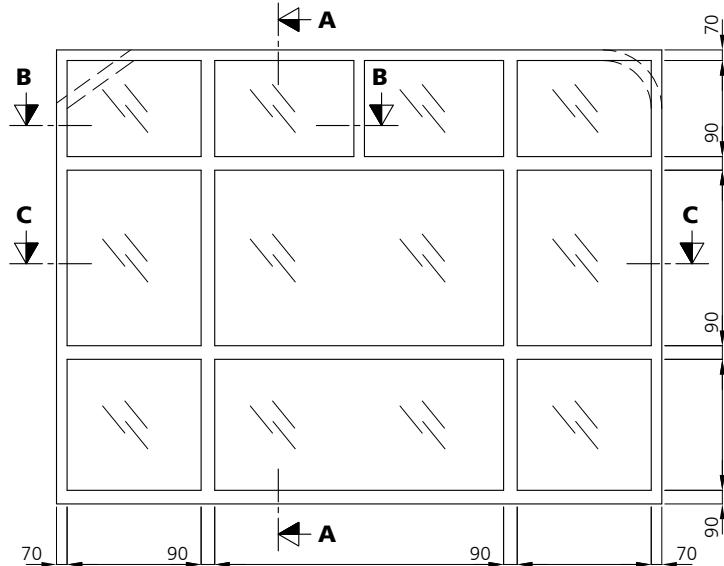
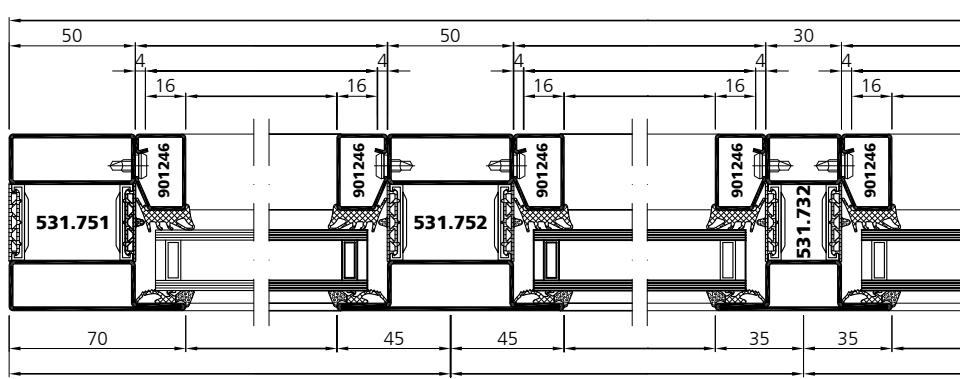
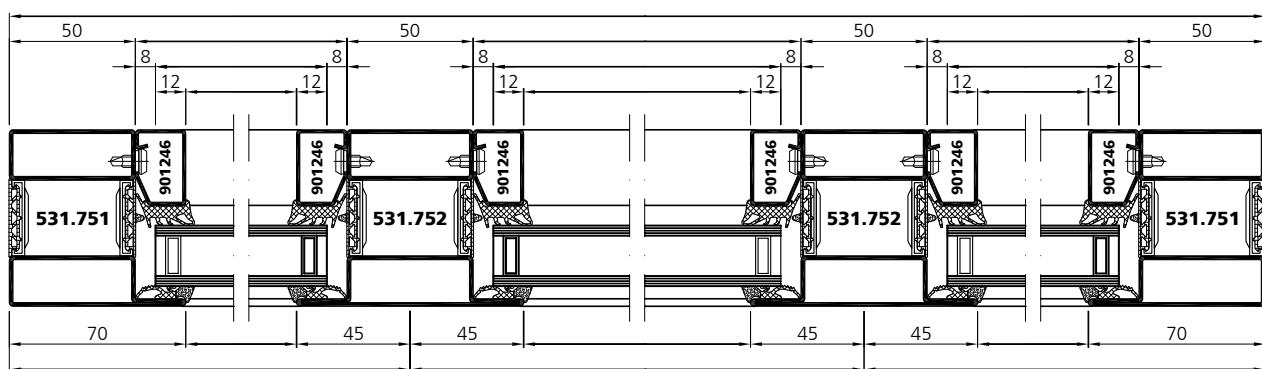
**System plan  
Fixed glazing**

■ 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**


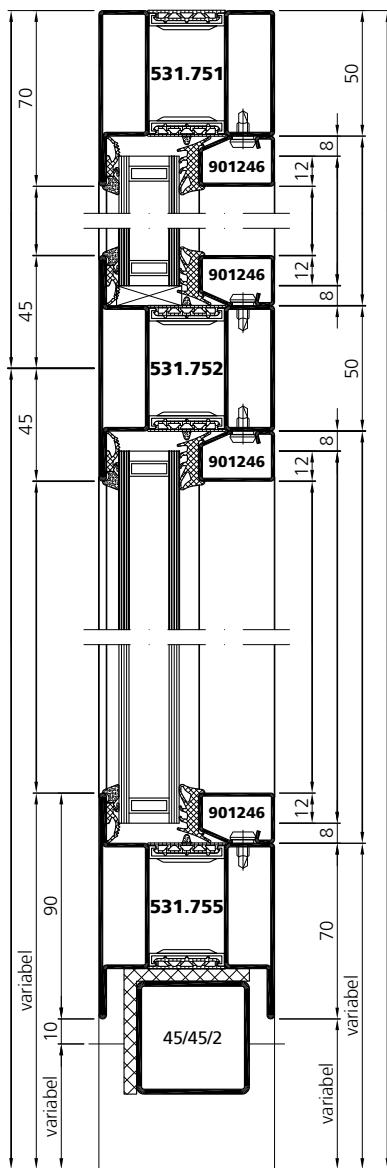
**Systemplan**  
**Türen**

**Plan du système**  
**Portes**

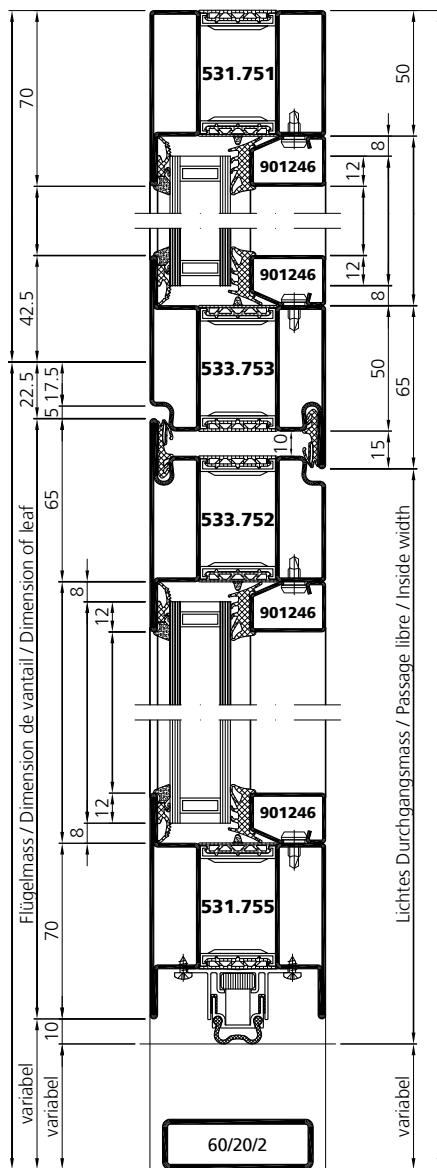
**System plan**  
**Doors**

un\_sp\_0049  
 un\_sp\_0064

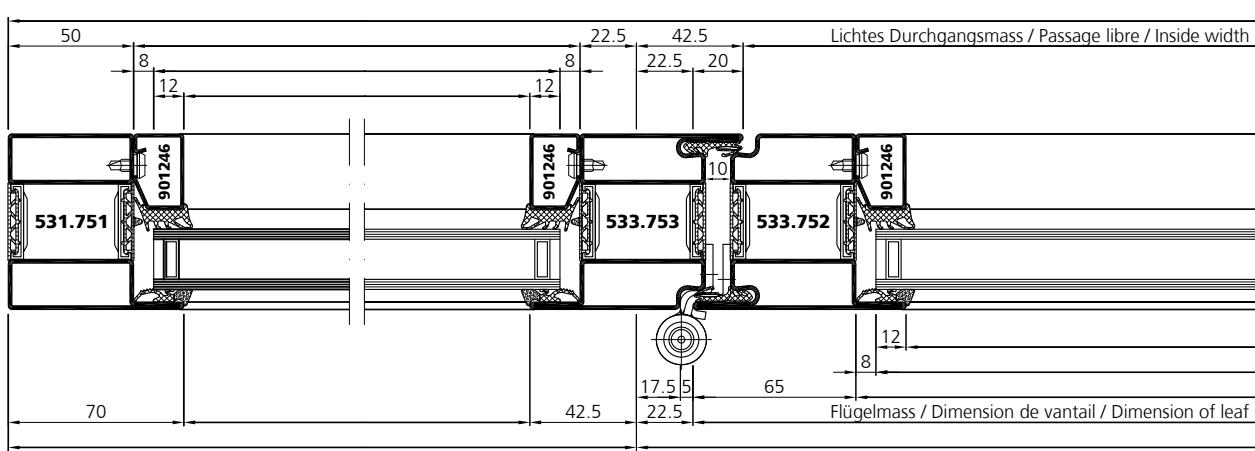
**A - A**



**B - B**

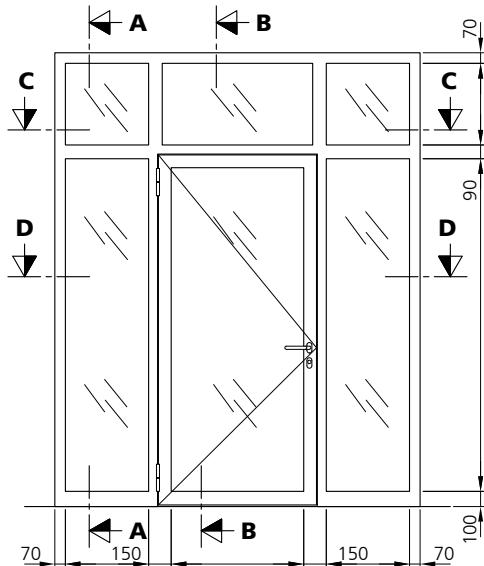
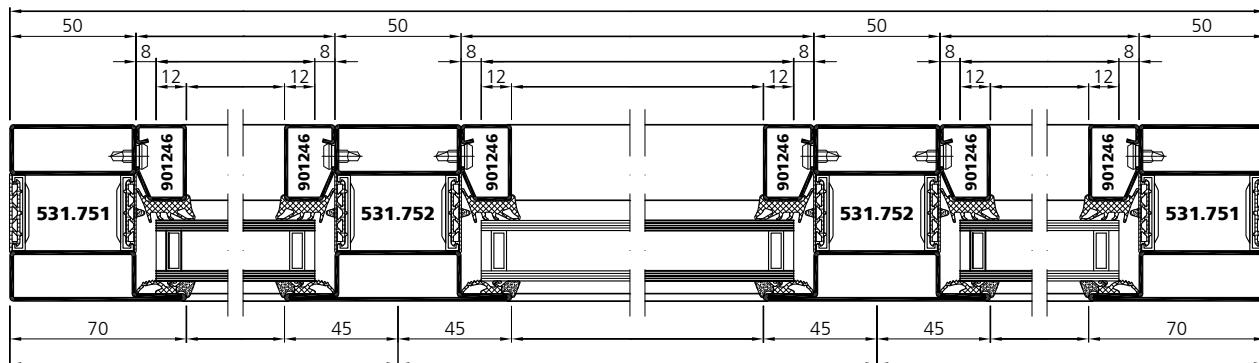
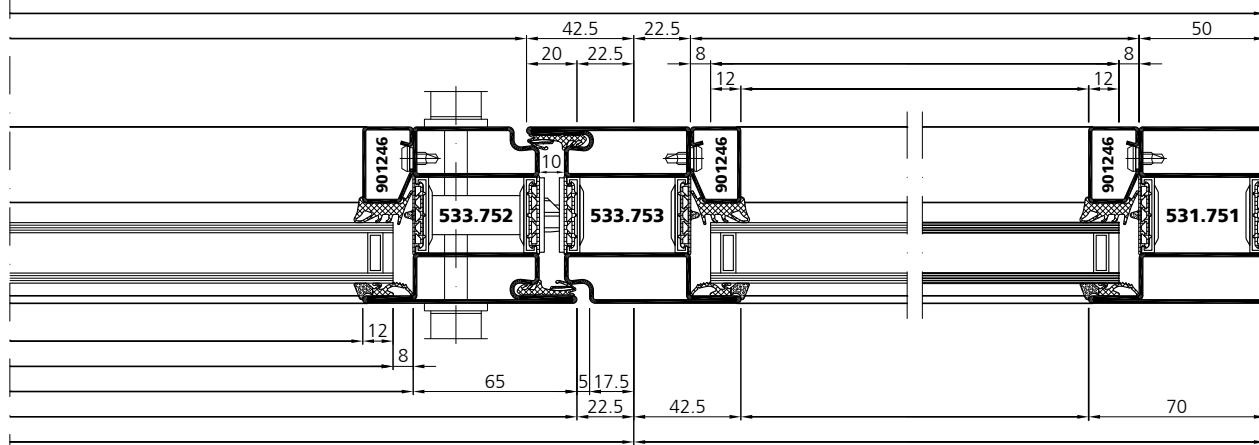


**D - D**



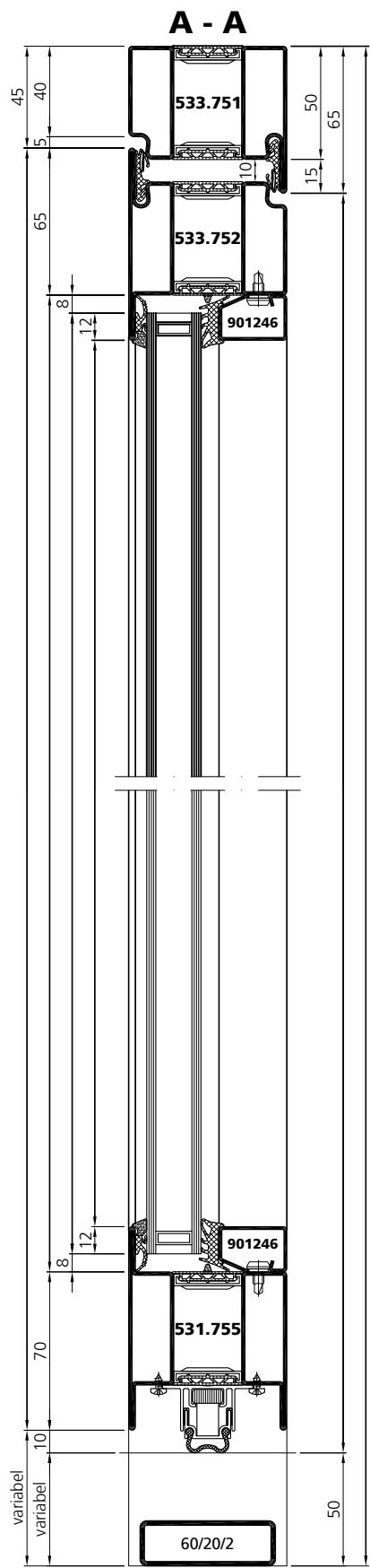
**Systemplan  
Türen**
**Plan du système  
Portes**
**System plan  
Doors**

■ un\_sp\_0049  
■ un\_sp\_0064


**C - C**

**D - D**


**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

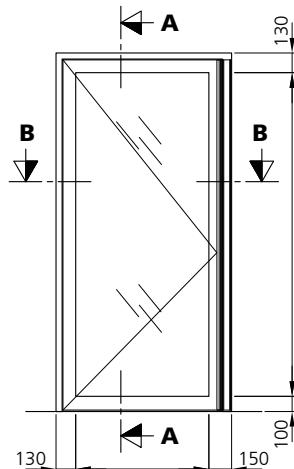
**Insulated thresholds**  
see pages 58 – 63

## Systemplan Türen

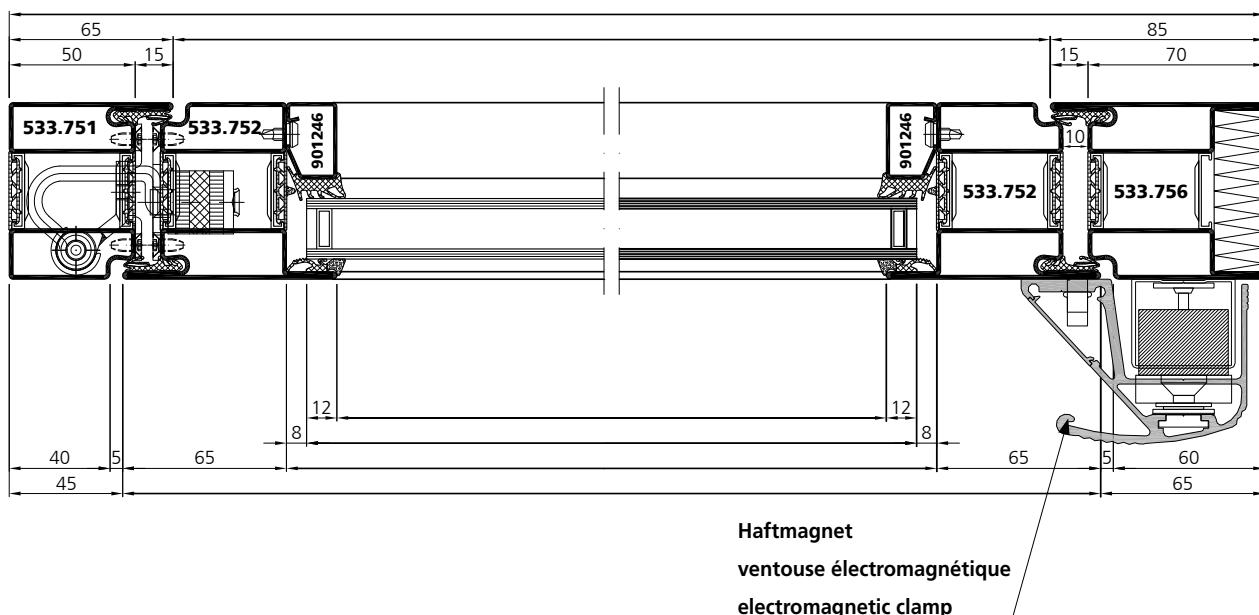
## Plan du système Portes

## System plan Doors

■ un\_sp\_0272  
■ un\_sp\_0273



### B - B



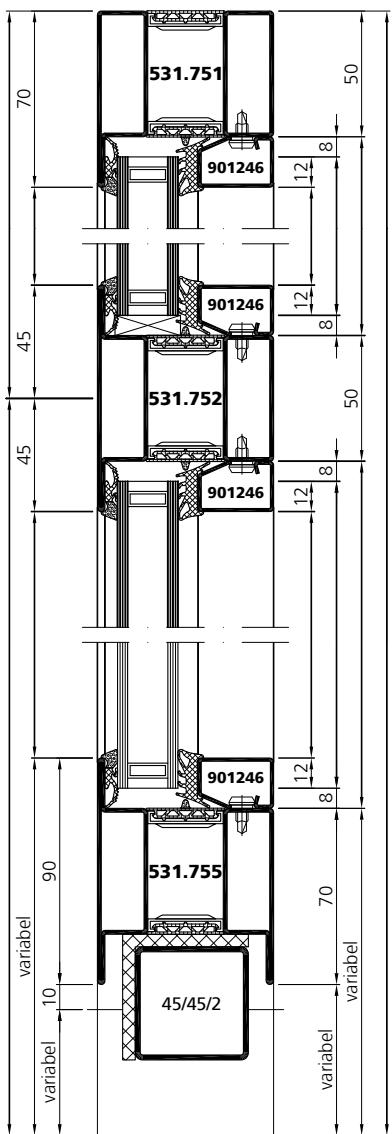
**Systemplan  
Türen**

**Plan du système  
Portes**

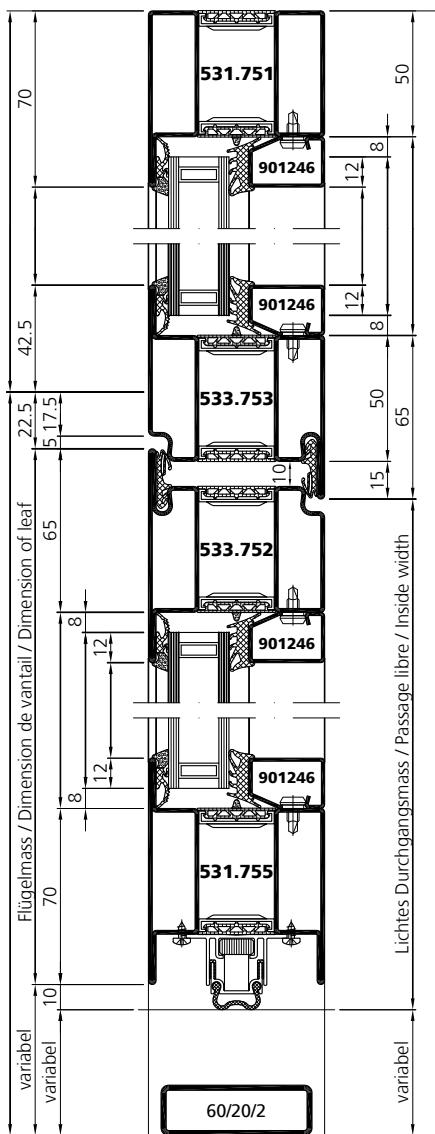
**System plan  
Doors**

un\_sp\_0055  
 un\_sp\_0070

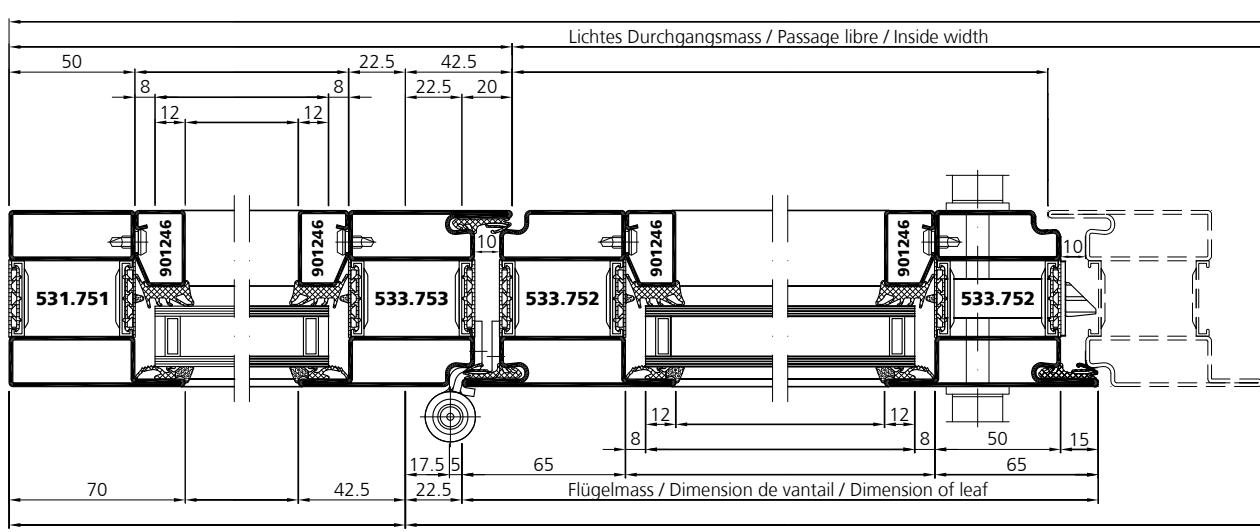
**A - A**



**B - B**

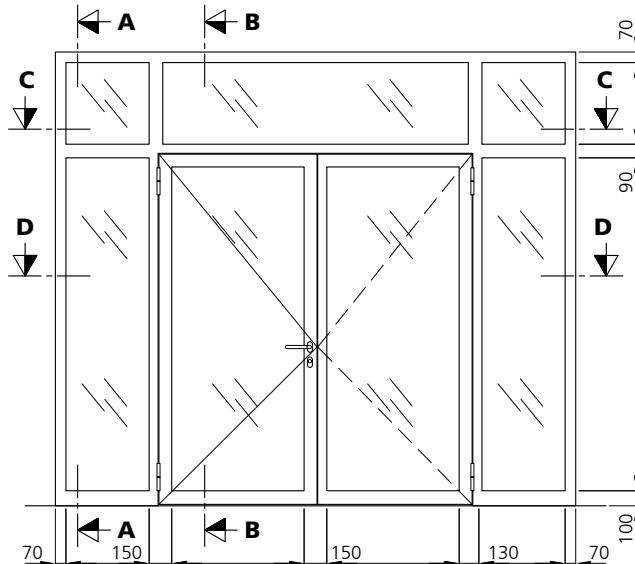
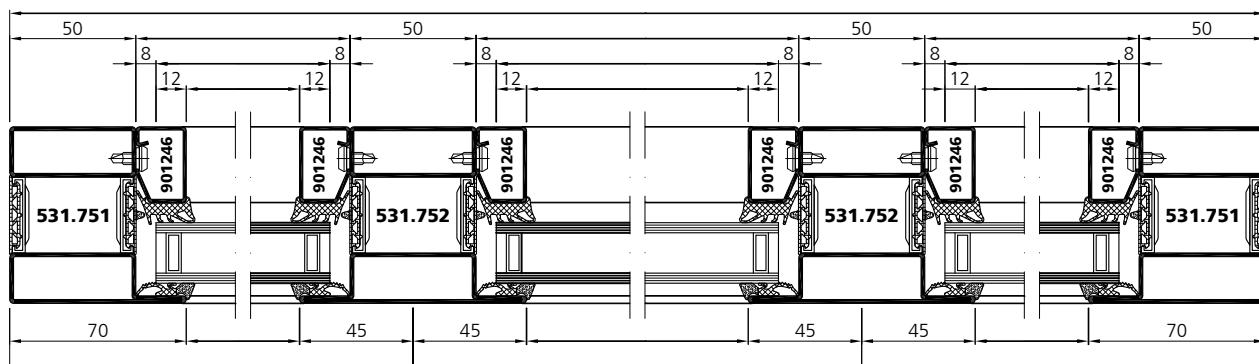
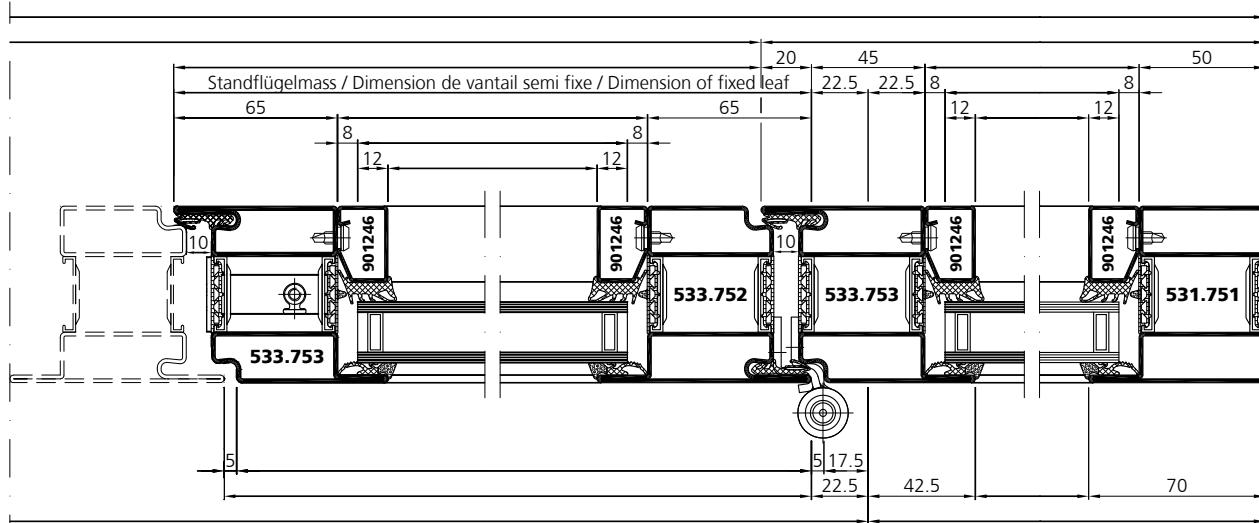


**D - D**



**Systemplan  
Türen**
**Plan du système  
Portes**
**System plan  
Doors**

■ un\_sp 0055  
■ un\_sp 0070


**C - C**

**D - D**


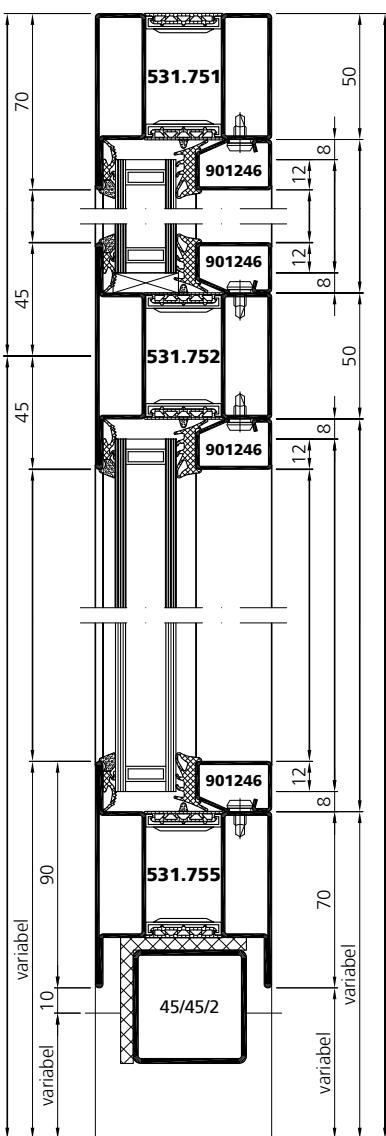
**Systemplan  
Türen**

**Plan du système  
Portes**

**System plan  
Doors**

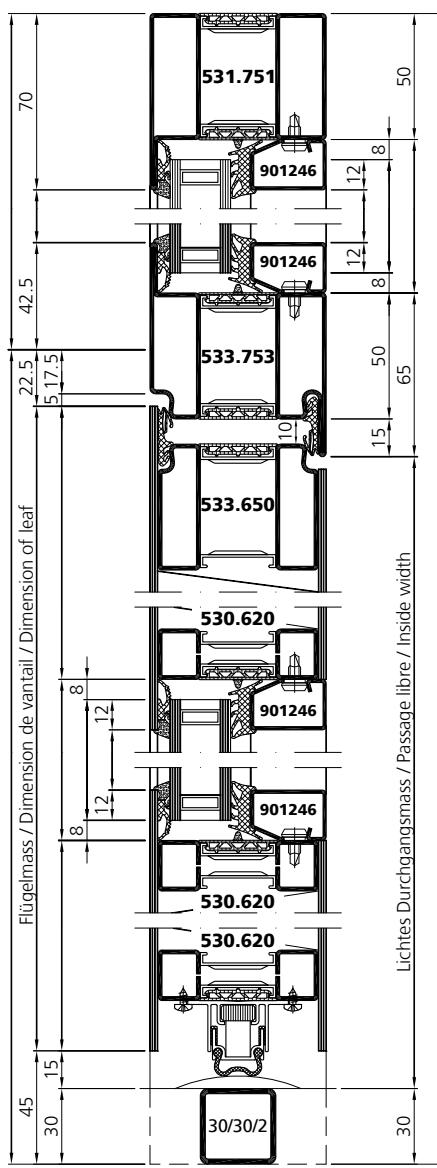
■ un sp 0093

**A - A**

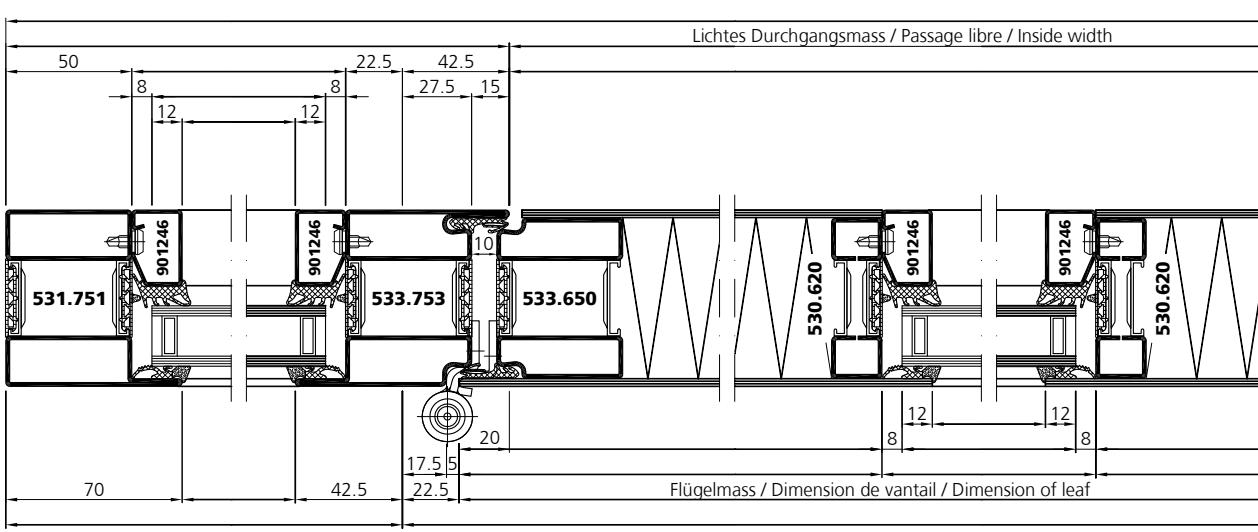


Isolierte Schwellen  
siehe Seiten 58 – 63  
Seuils isolés  
voir pages 58 – 63  
Insulated thresholds  
see pages 58 – 63

**B - B**



**D - D**

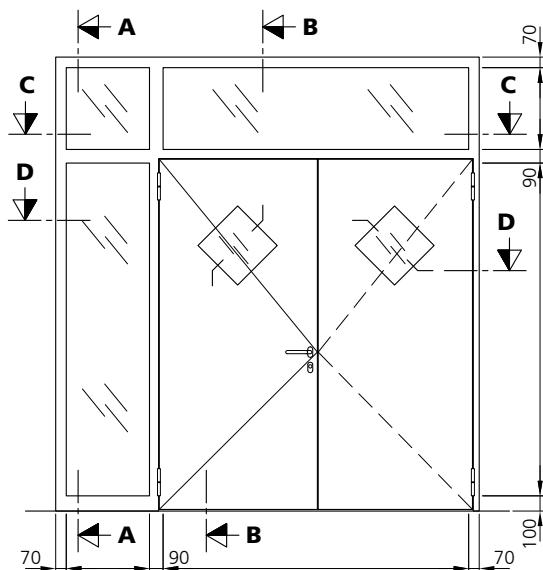


**Systemplan**  
**Türen**

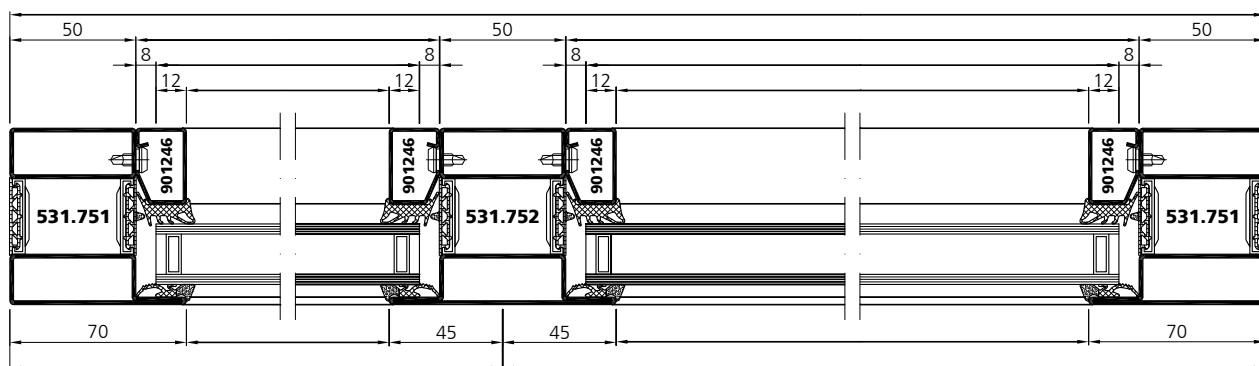
**Plan du système**  
**Portes**

**System plan**  
**Doors**

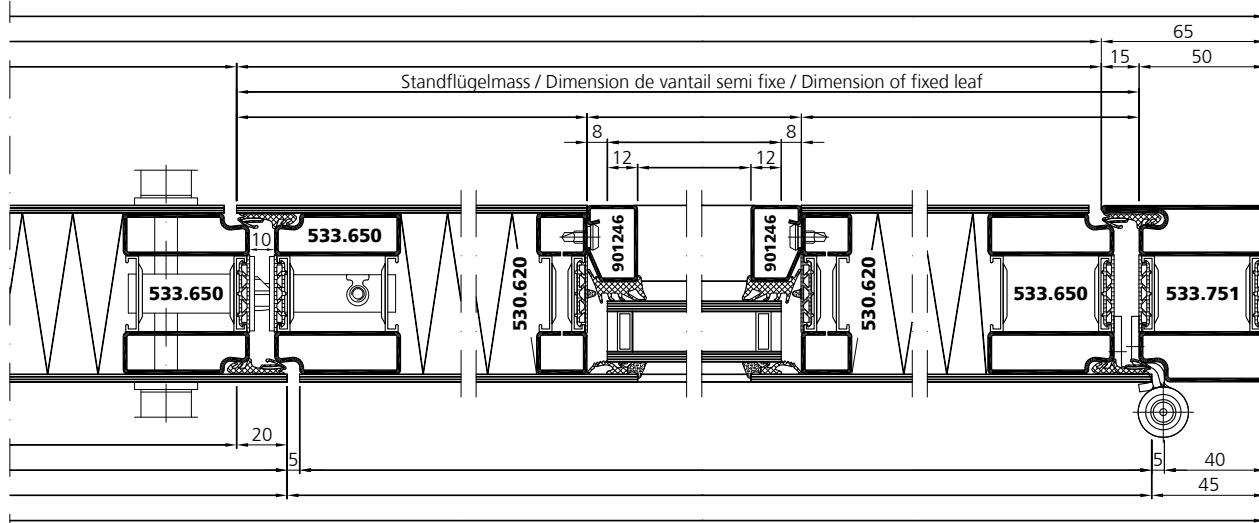
un\_sp\_0093



**C - C**



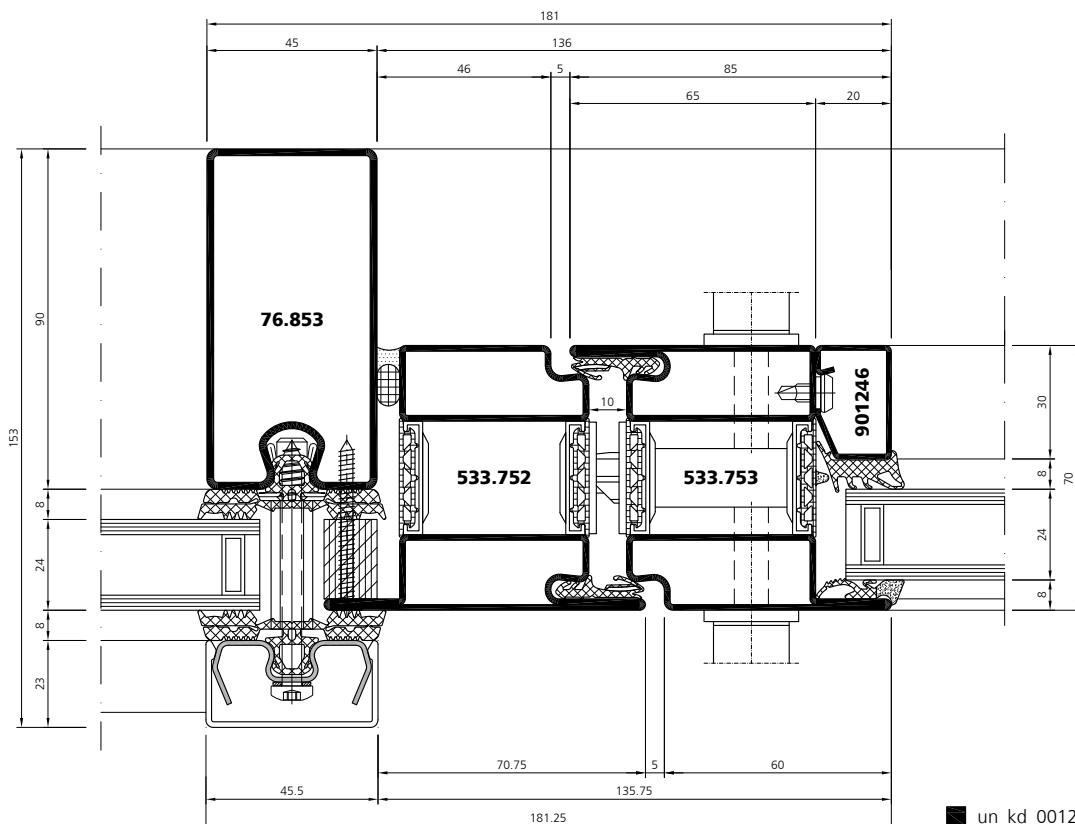
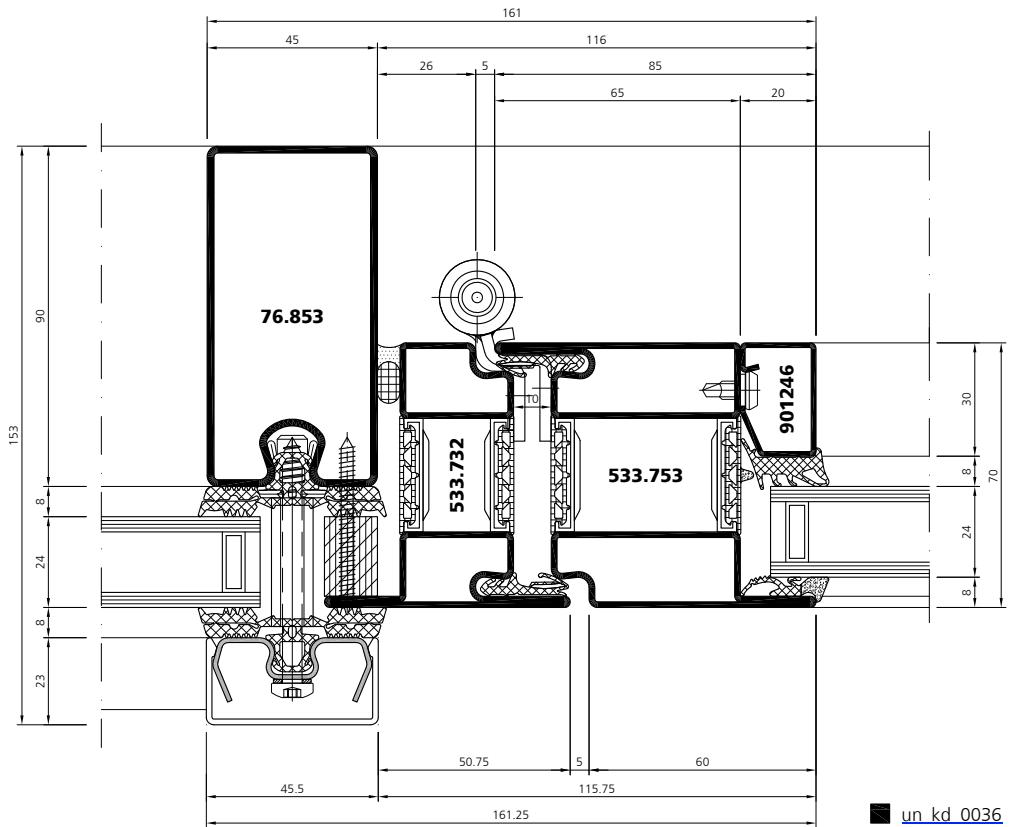
**D - D**



**Konstruktionsdetails**  
**Türen**  
**Einbau in thermfix vario**

**Détails de construction**  
**Portes**  
**Montage dans thermfix vario**

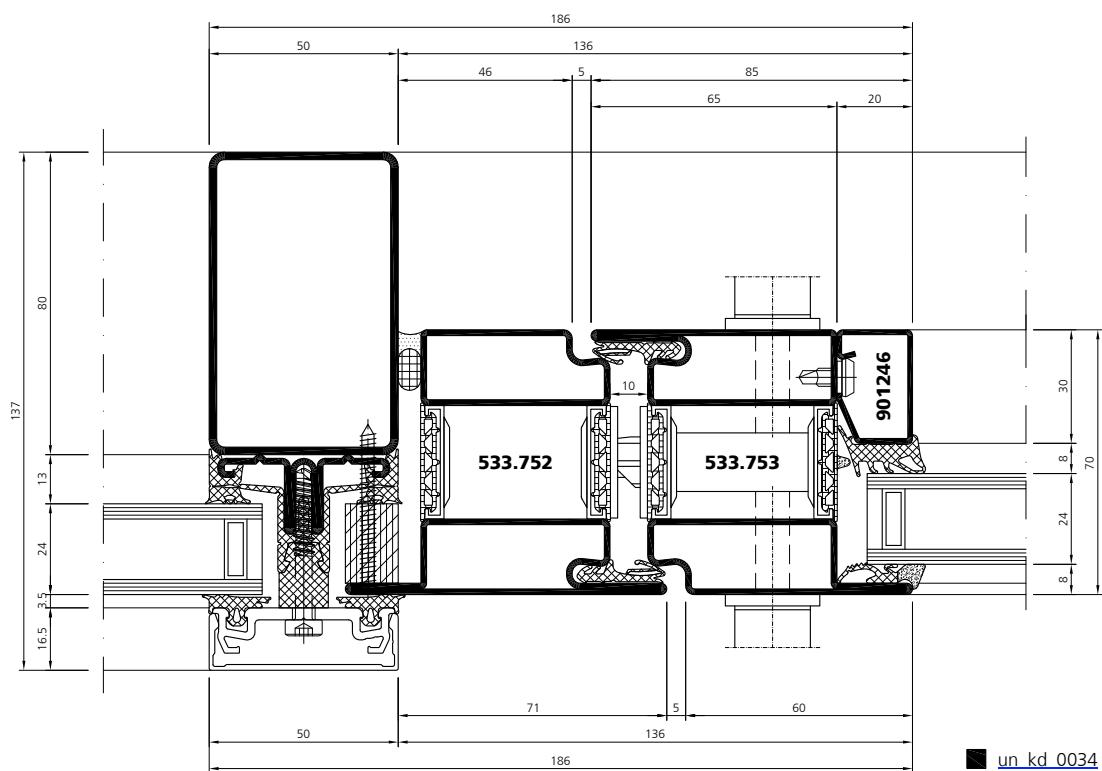
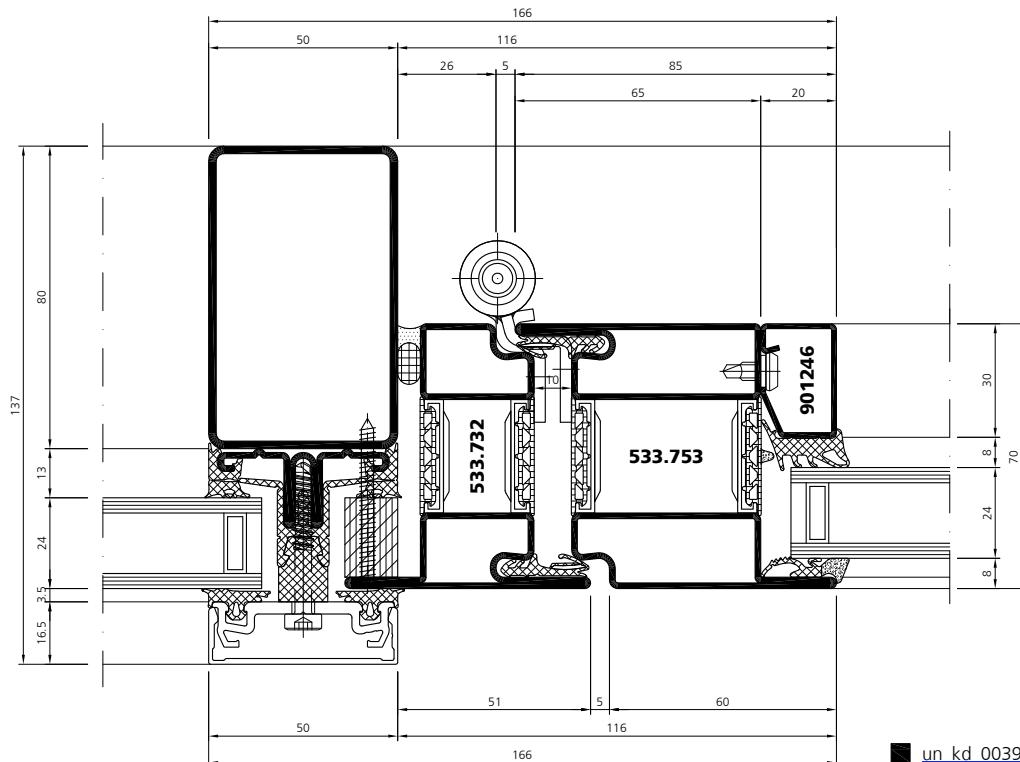
**Construction details**  
**Doors**  
**Installation in thermfix vario**



**Konstruktionsdetails**  
**Türen**  
**Einbau in thermfix light**

**Détails de construction**  
**Portes**  
**Montage dans thermfix light**

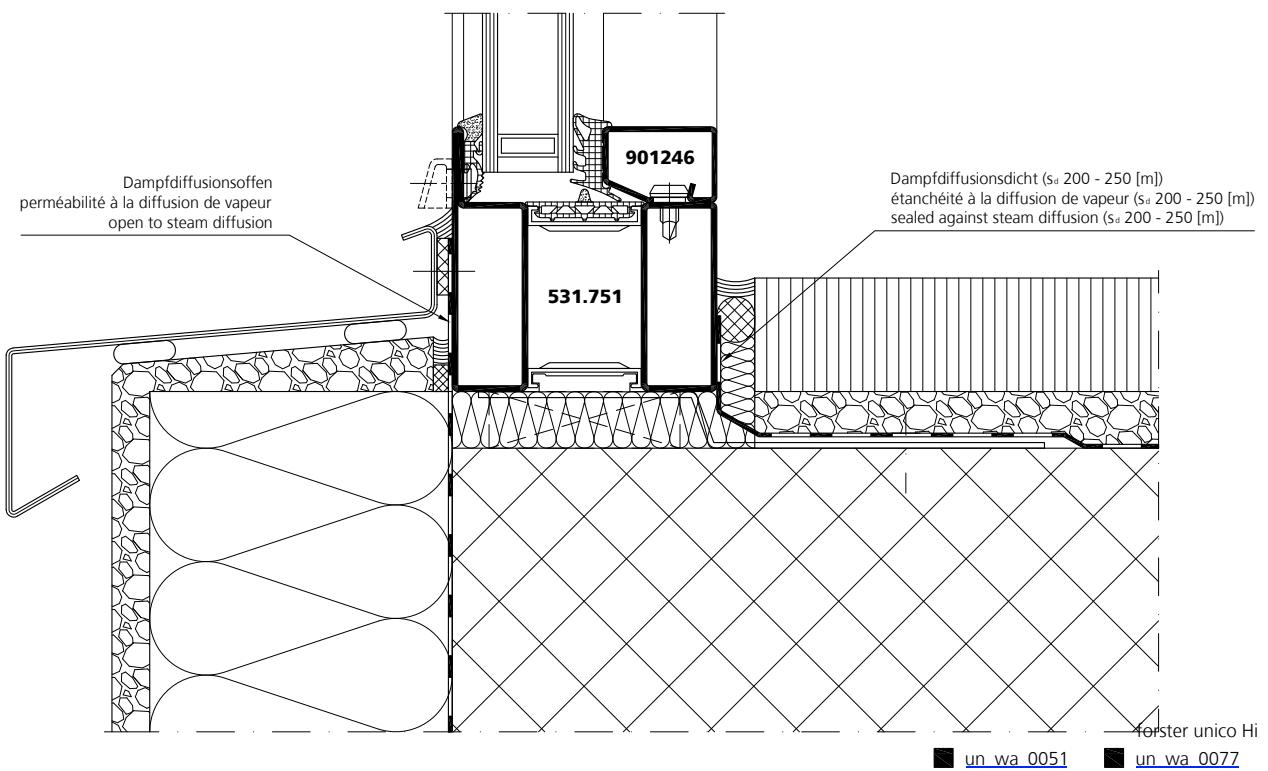
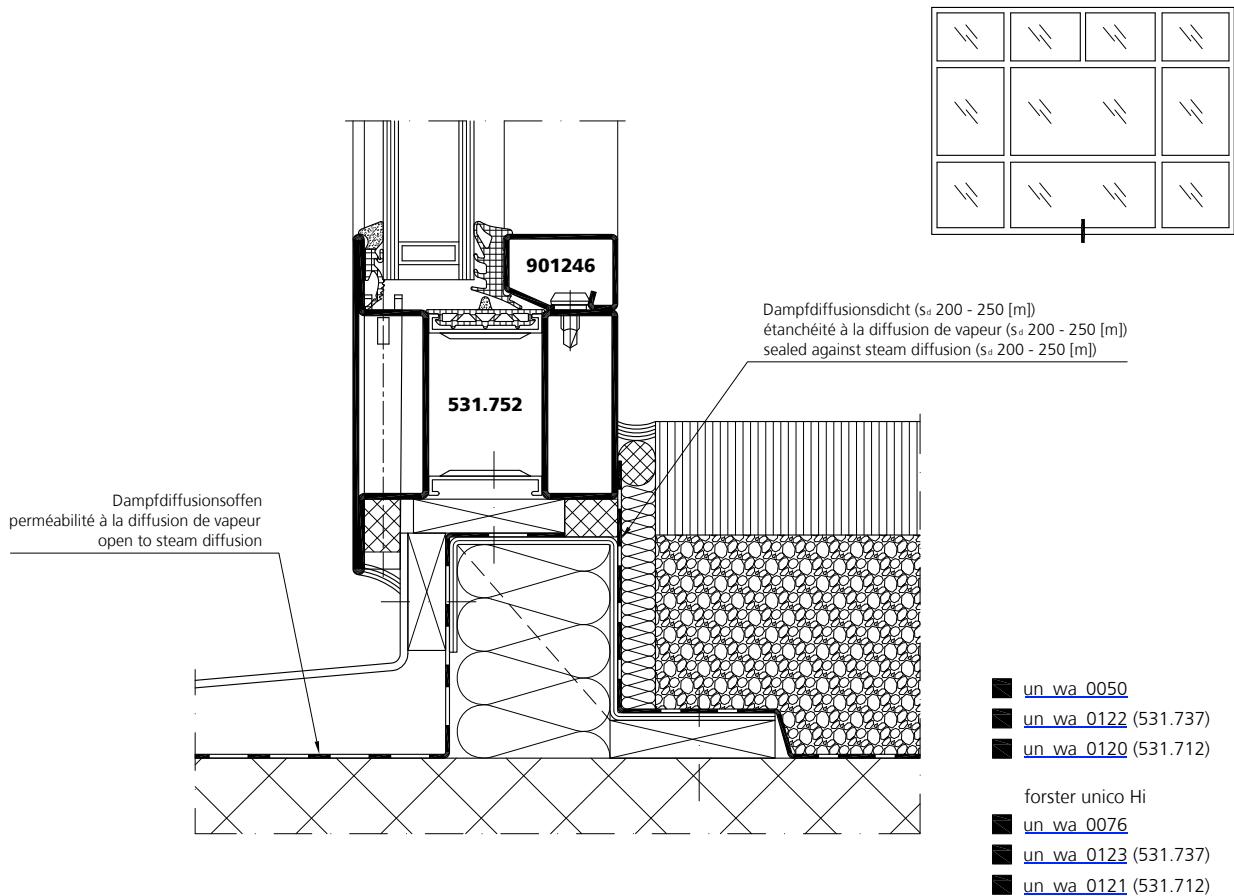
**Construction details**  
**Doors**  
**Installation in thermfix light**



**Bauanschlüsse  
Türen**

**Raccords muraux  
Portes**

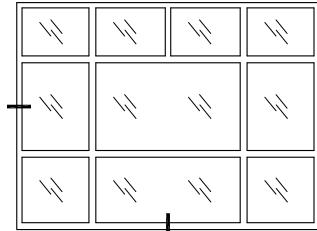
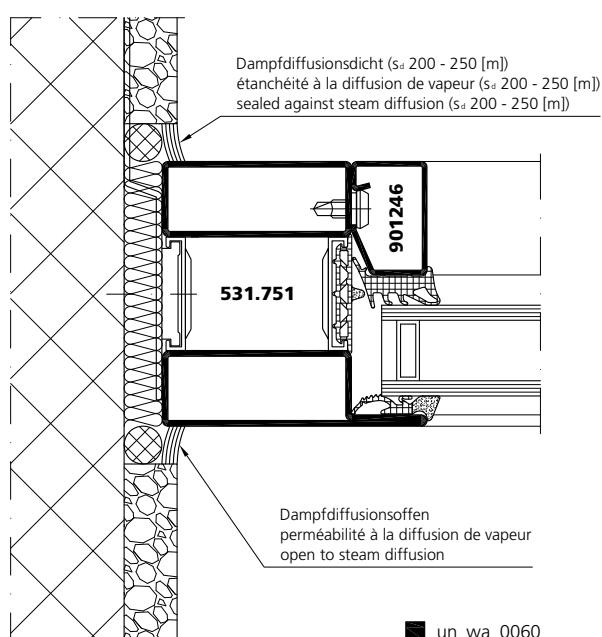
**Wall abutments  
Doors**



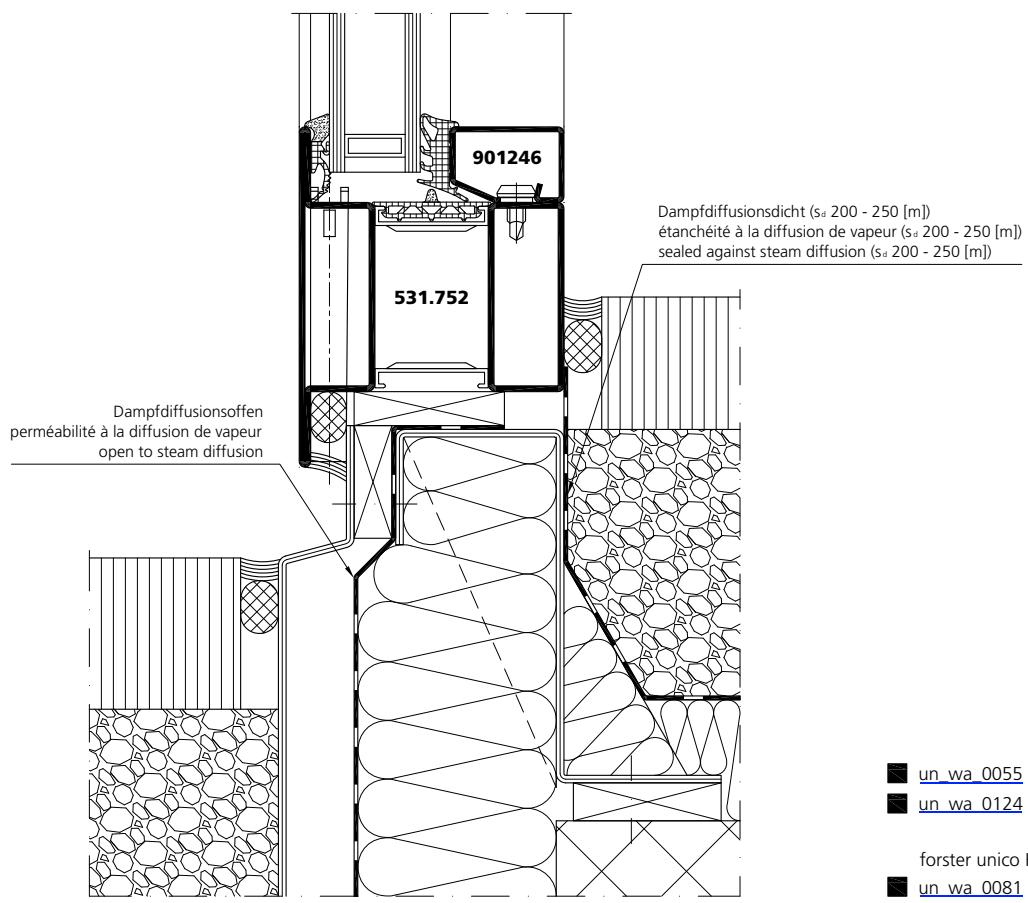
**Bauanschlüsse  
Türen**

**Raccords muraux  
Portes**

**Wall abutments  
Doors**

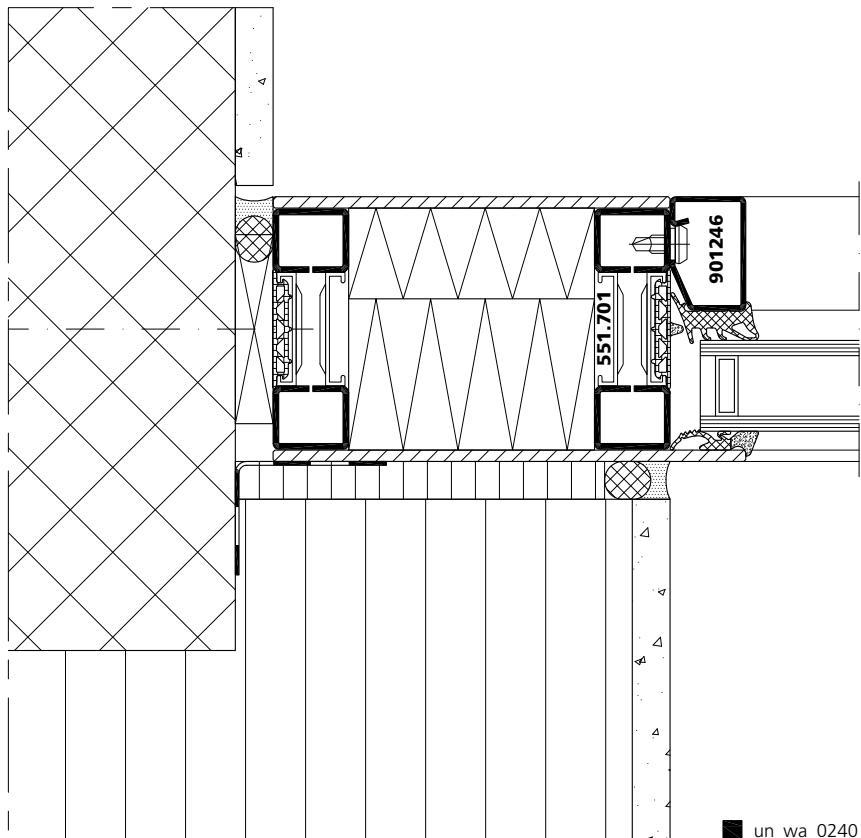


- forster unico Hi
- [un\\_wa\\_0086](#)
  - [un\\_wa\\_0135 \(530.711\)](#)
  - [un\\_wa\\_0137 \(530.713\)](#)



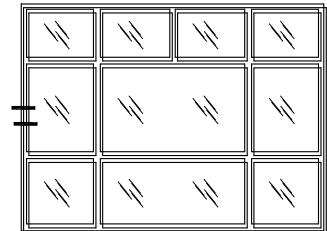
- forster unico Hi
- [un\\_wa\\_0081](#)
  - [un\\_wa\\_0125 \(530.712\)](#)

**Bauanschlüsse  
Türen  
Rahmenverbreiterung**



**Raccords muraux  
Portes  
Elargissement de cadre**

**Wall abutments  
Doors  
Frame enlargement**



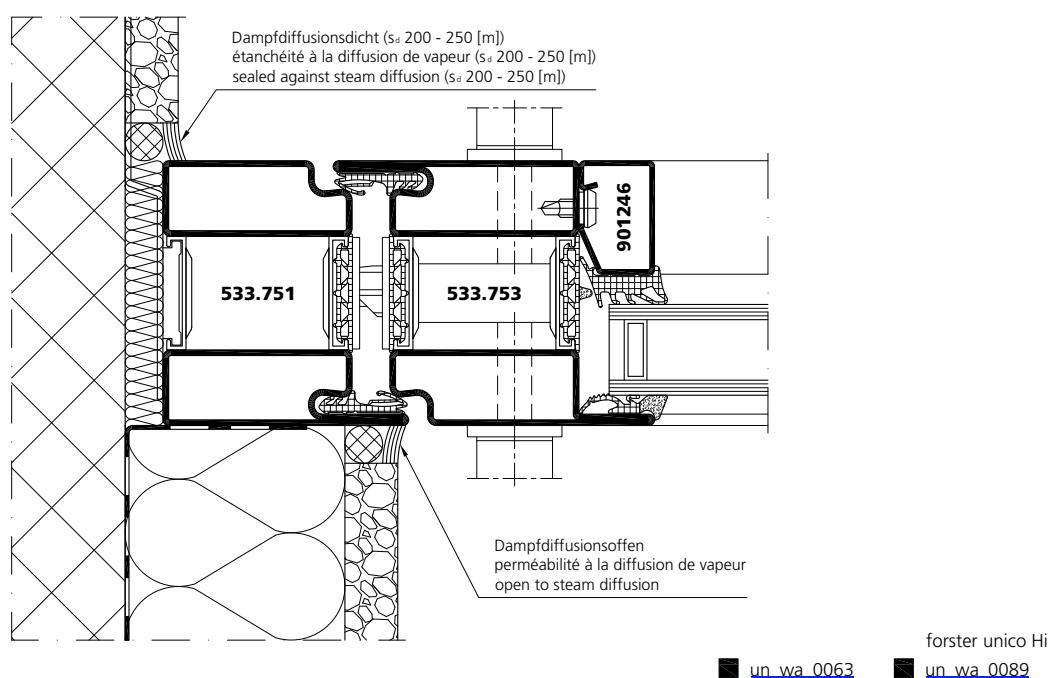
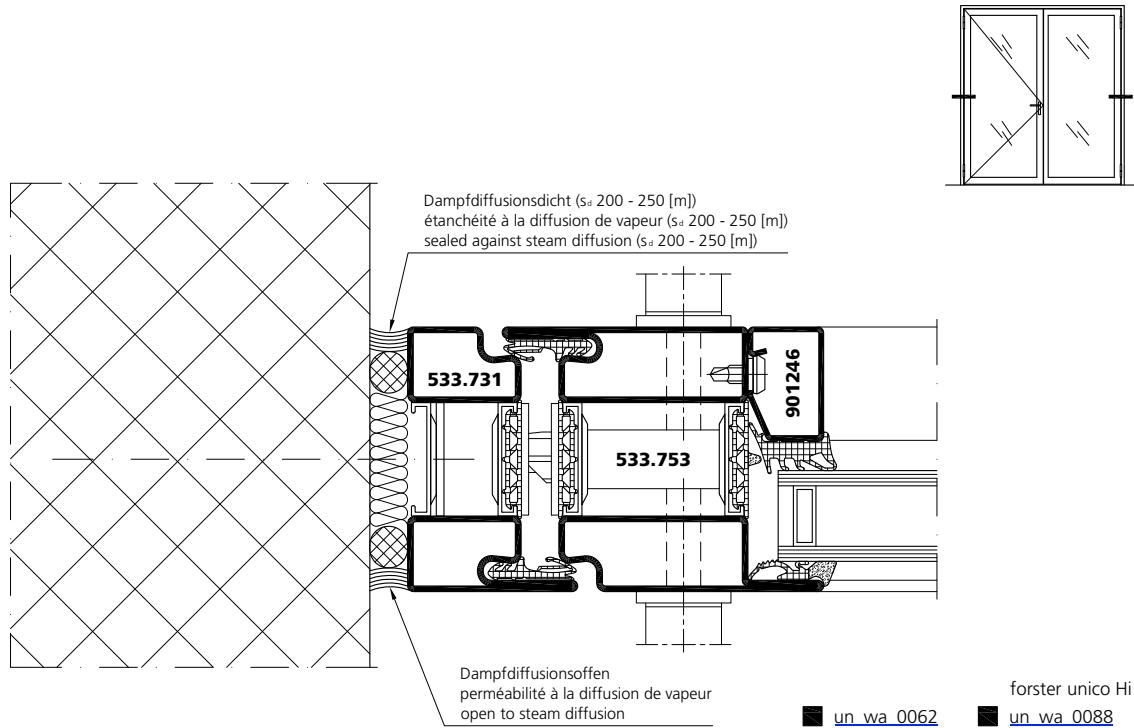
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un wa 0220

un wa 0240

**Bauanschlüsse  
Türen**

**Raccords muraux  
Portes**

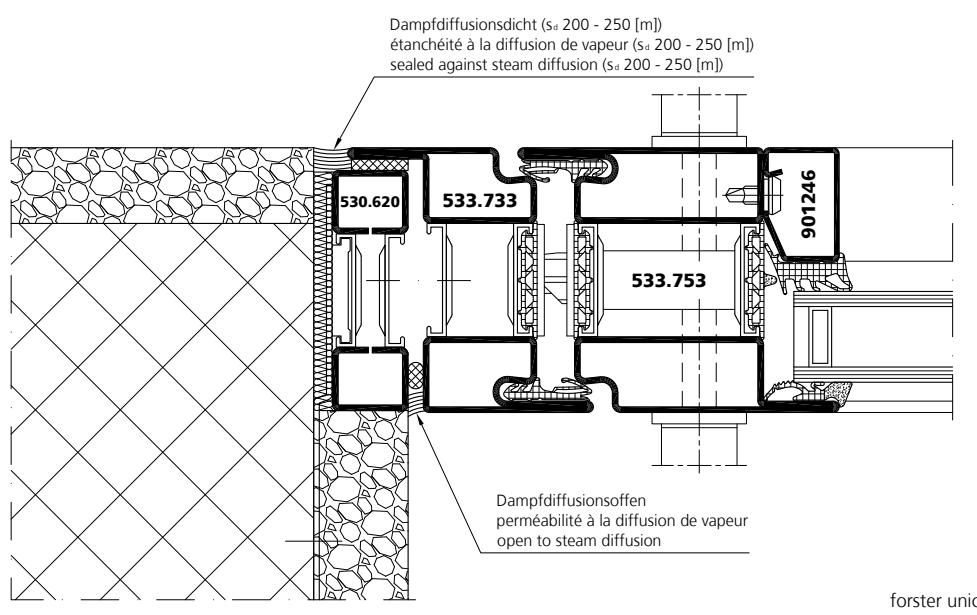
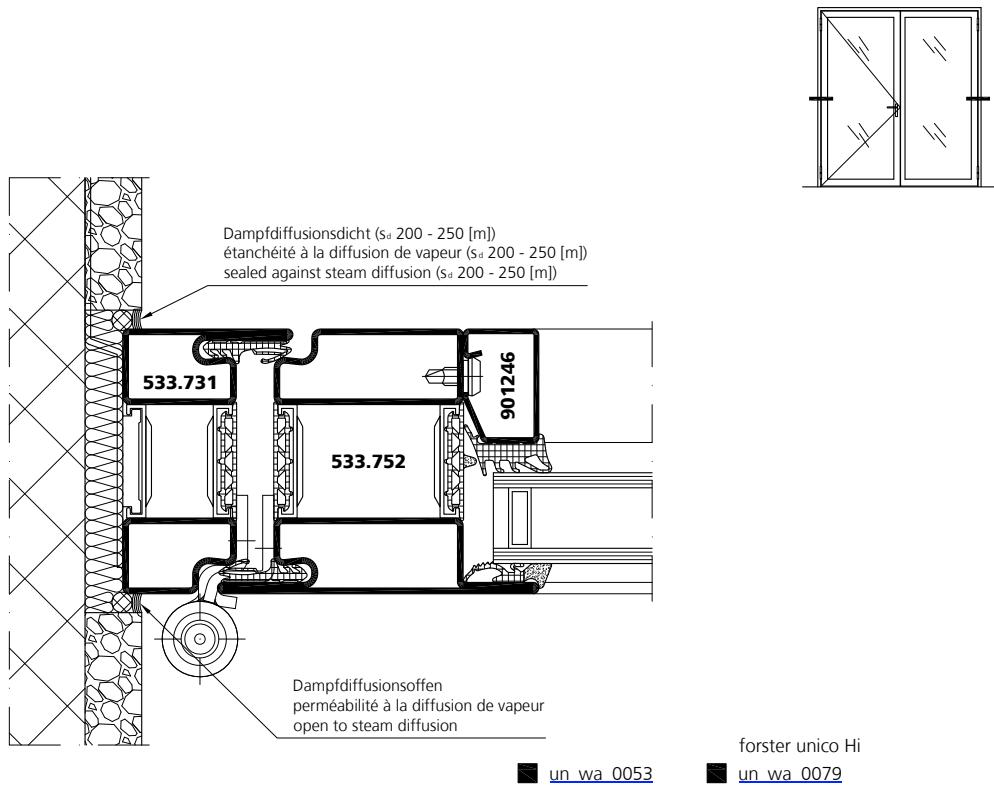
**Wall abutments  
Doors**



**Bauanschlüsse  
Türen**

**Raccords muraux  
Portes**

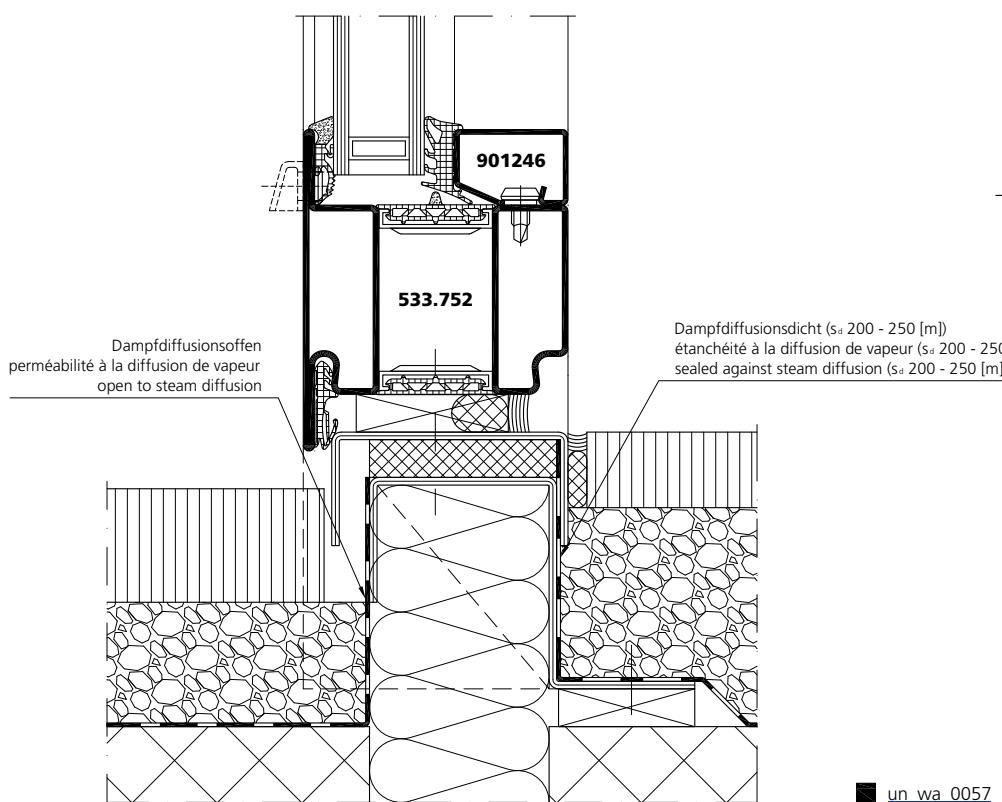
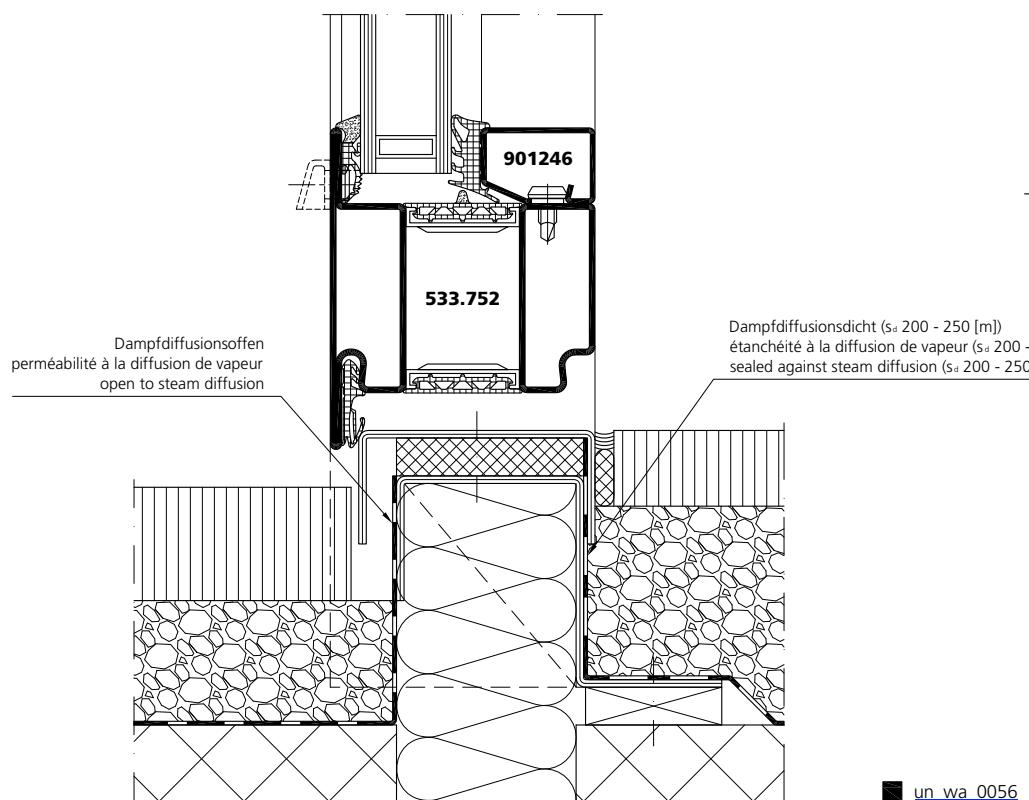
**Wall abutments  
Doors**



**Bauanschlüsse**  
**Türen**

**Raccords muraux**  
**Portes**

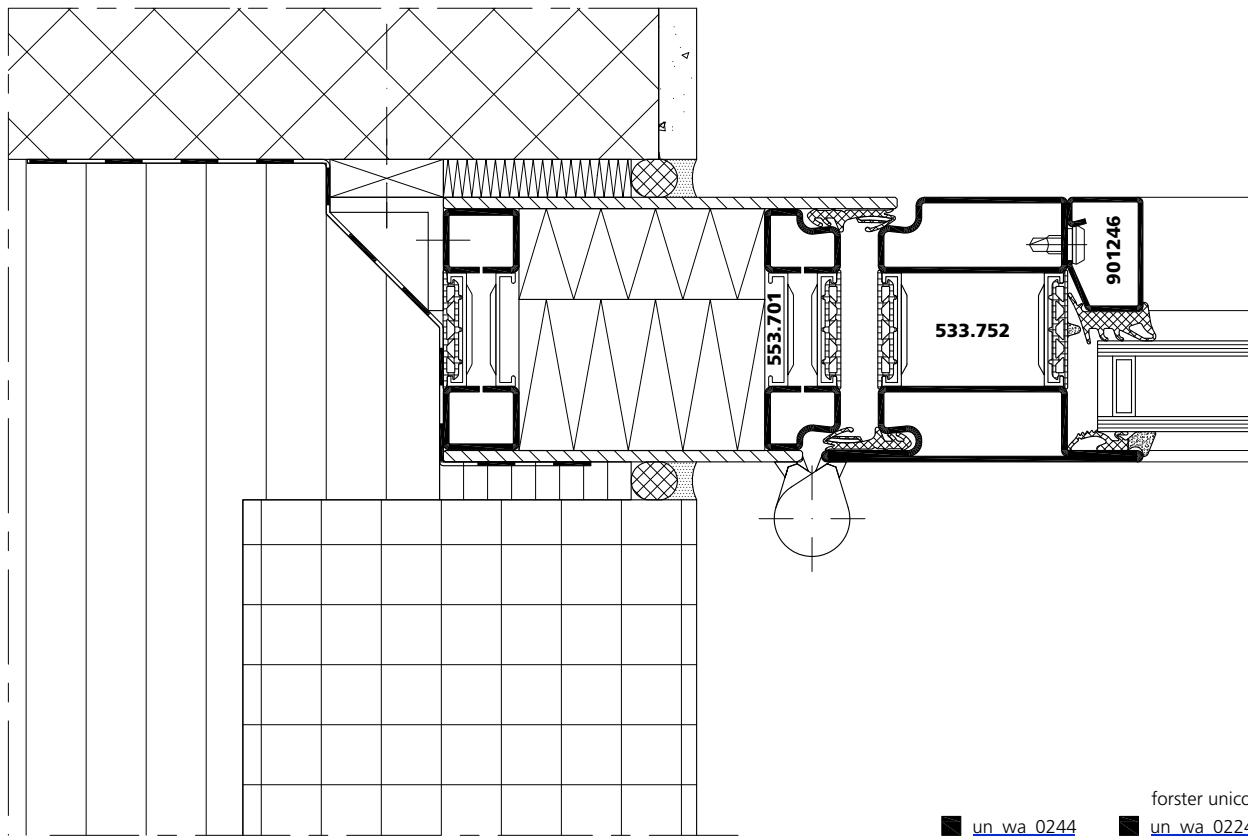
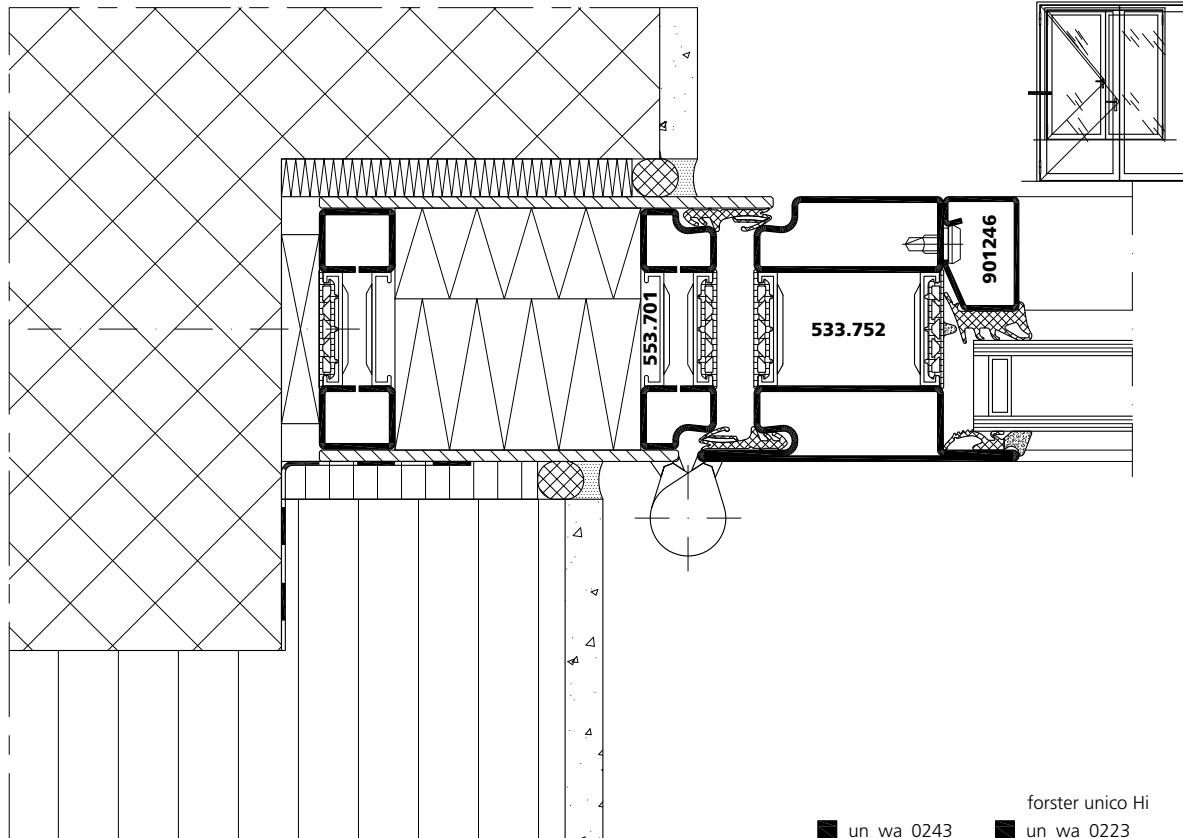
**Wall abutments**  
**Doors**



**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**

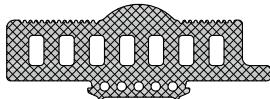


Mahieu, BE-Schoten

03/21

**Schwellenprofil  
Anschlagschwelle**

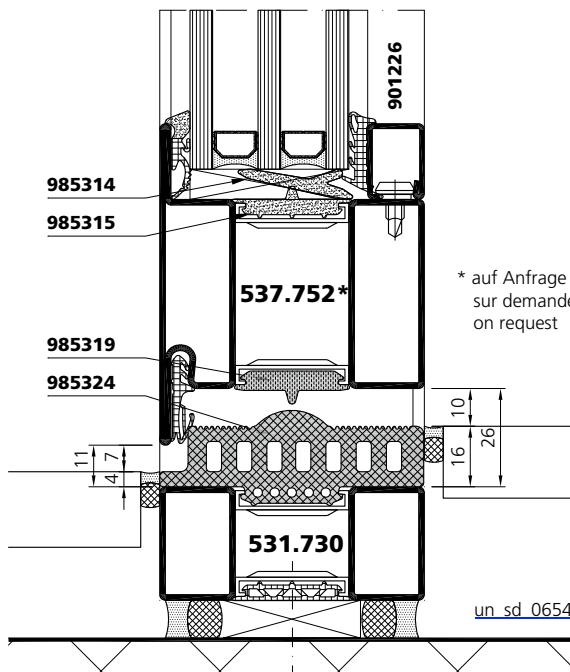
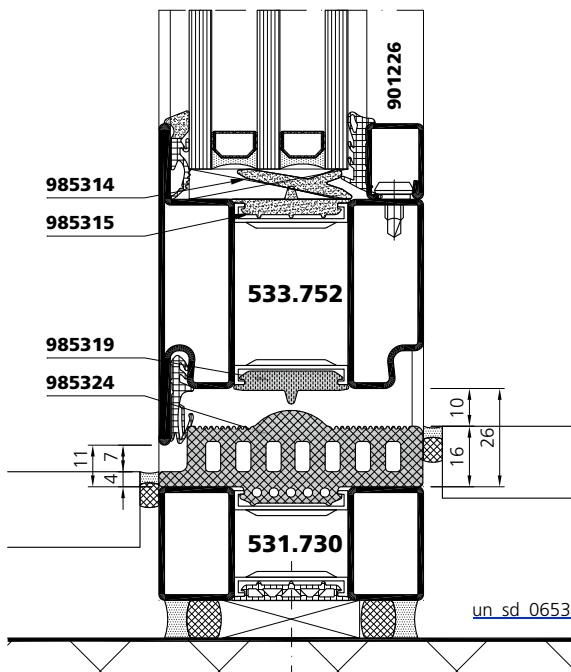
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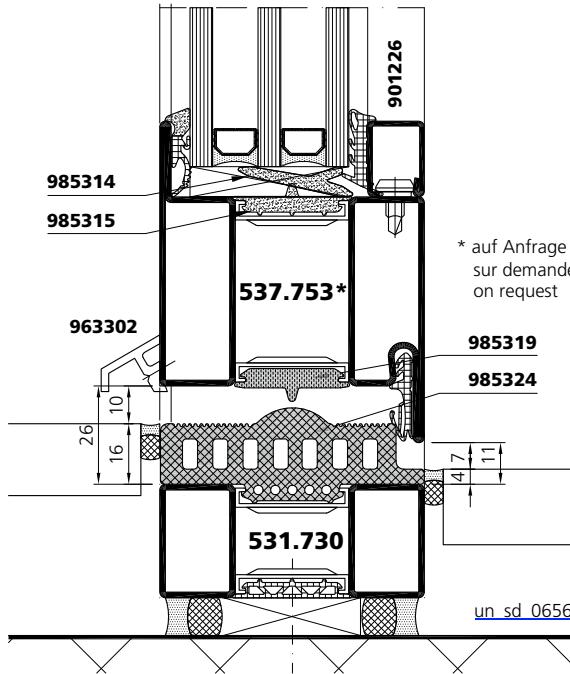
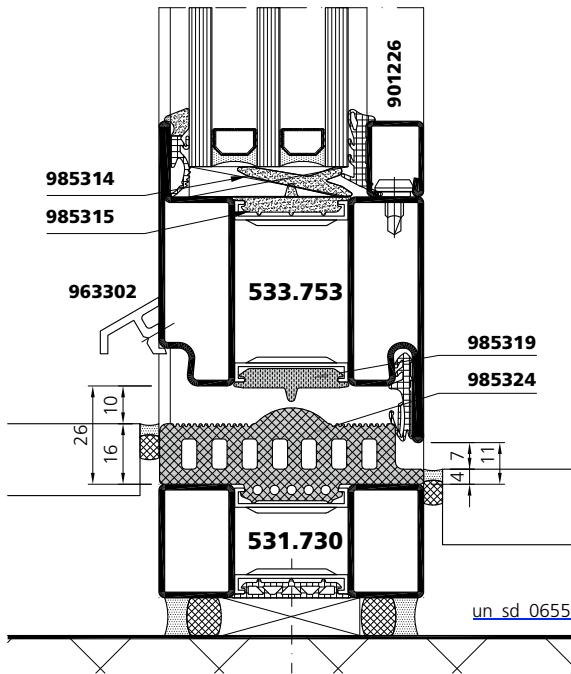
**Profilé de seuil  
Seuil en butée**

**Threshold profile  
Buffer threshold**

**Auswärts öffnend / Ouvrant vers l'extérieur / Opening outwards**



**Einwärts öffnend / Ouvrant vers l'intérieur / Opening inwards**



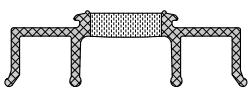
**Schwellenprofil**  
**Schwellenlos**

985323



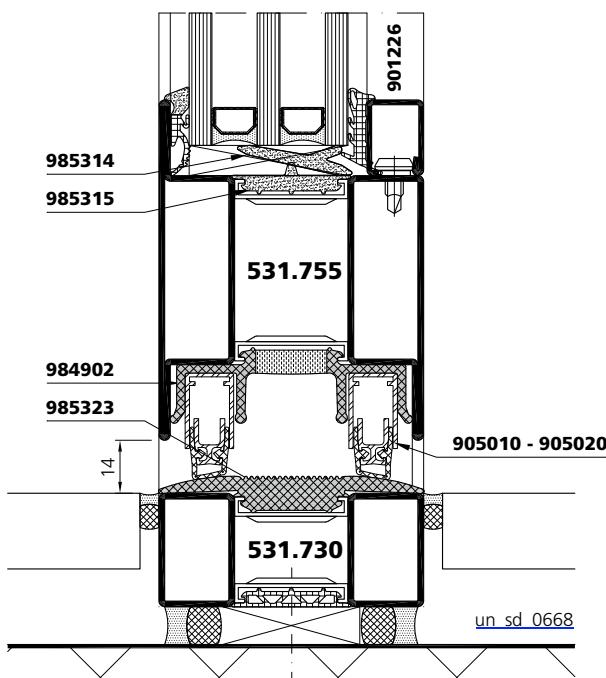
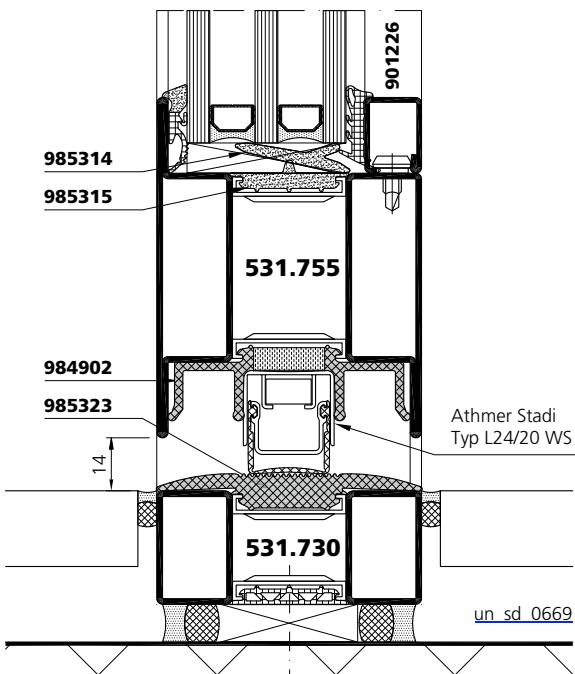
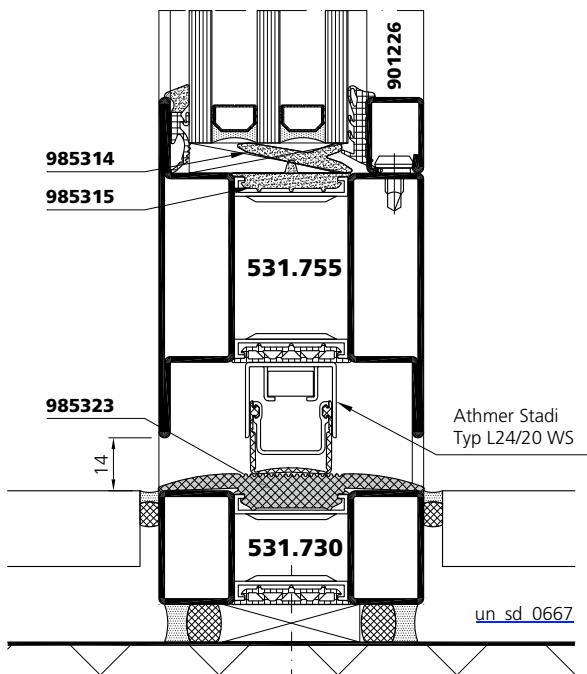
**Profilé de seuil**  
**Sans obstacle**

984902



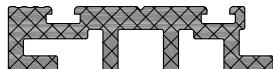
**Threshold profile**  
**Trip-free**

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

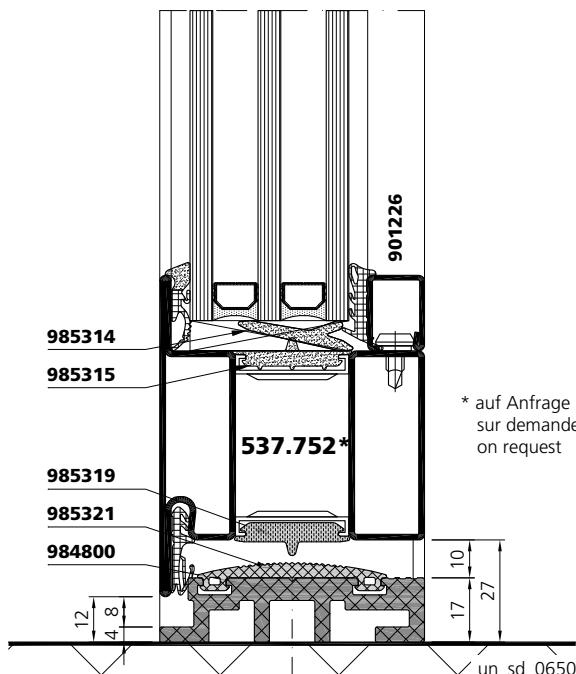
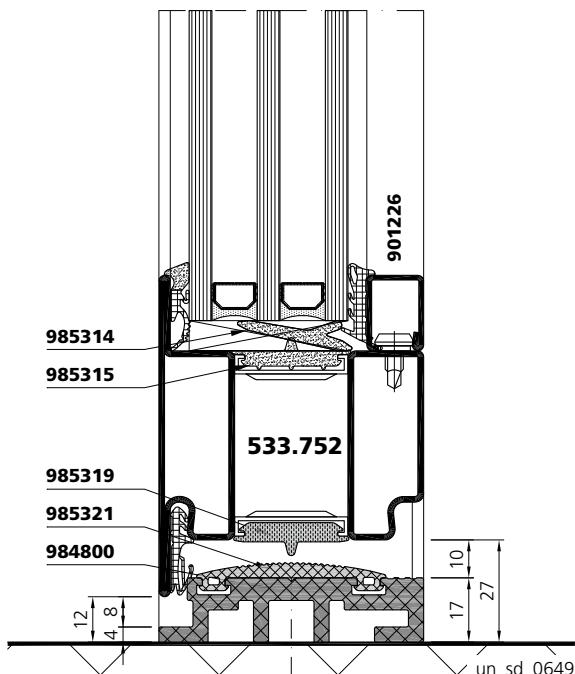
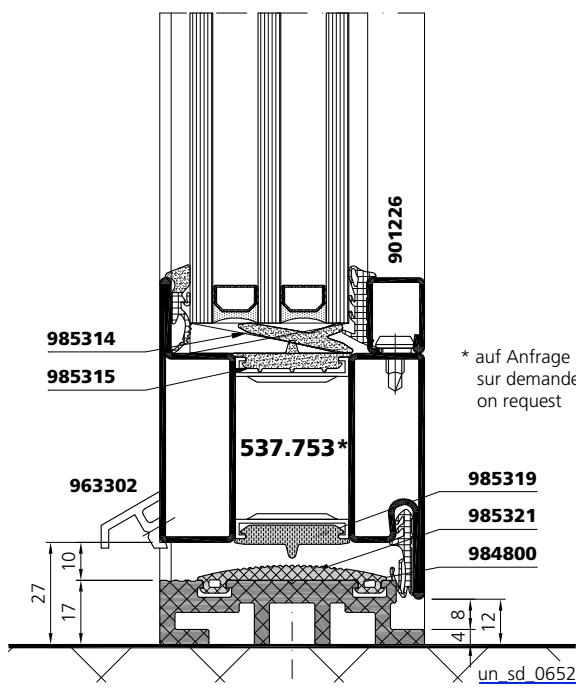
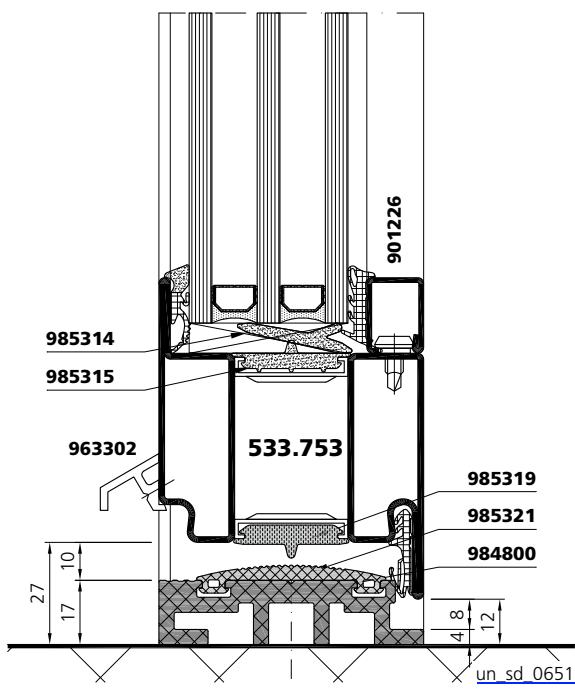


**Aufsatzprofil  
Anschlagschwelle**

984800

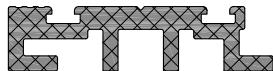

**Profilé d'applique  
Seuil en butée**

985321

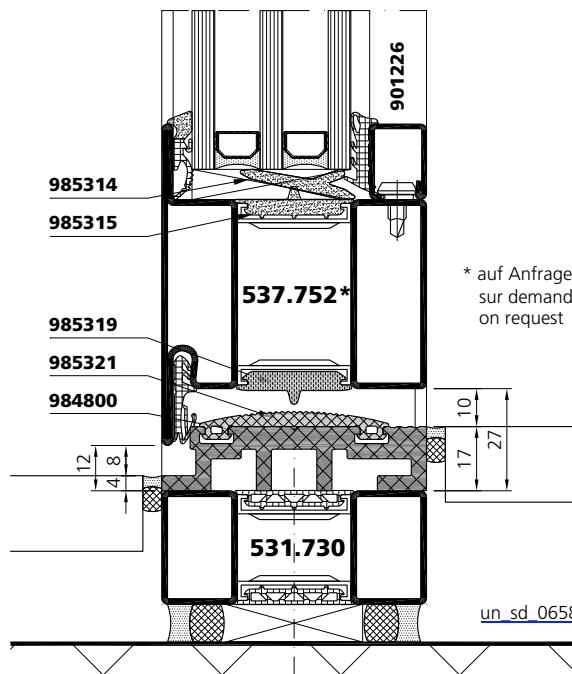
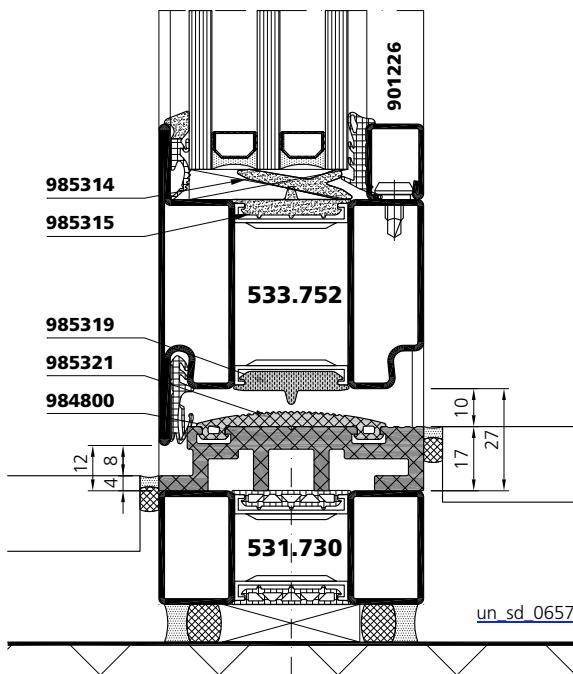
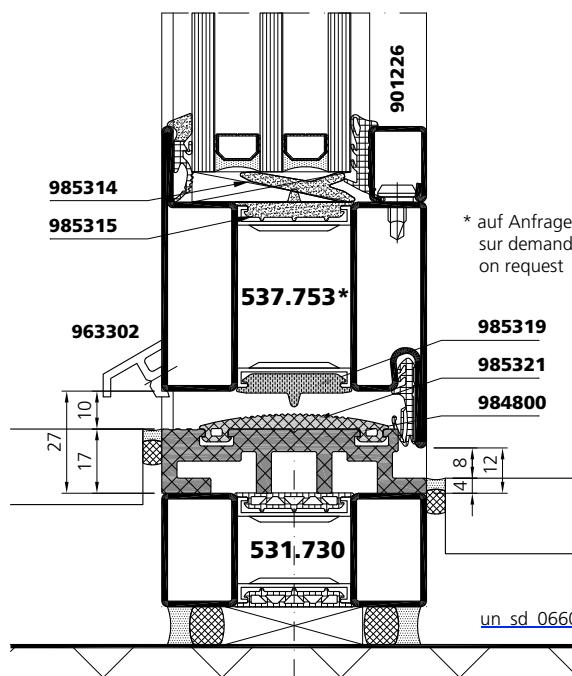
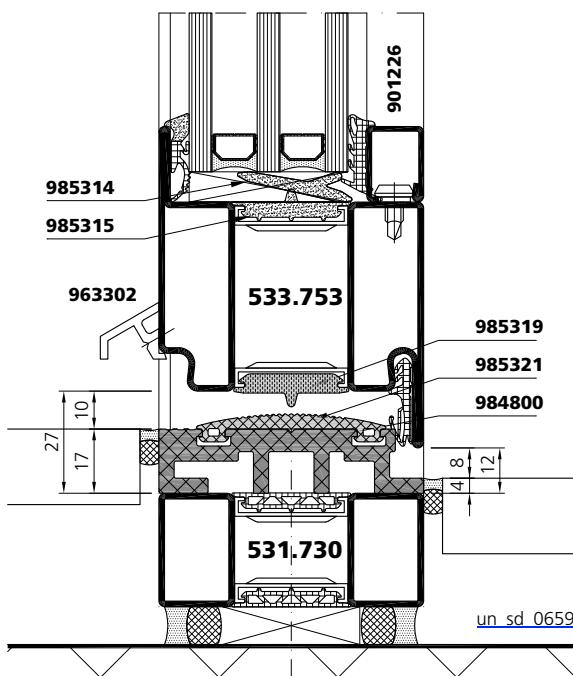

**Attachment profile  
Buffer threshold**
**Auswärts öffnend / Ouvrant vers l'extérieur / Opening outwards**

**Einwärts öffnend / Ouvrant vers l'intérieur / Opening inwards**


**Aufsatzprofil  
Anschlagschwelle**

984800


**Profilé d'applique  
Seuil en butée**

985321


**Attachment profile  
Buffer threshold**
**Auswärts öffnend / Ouvrant vers l'extérieur / Opening outwards**

**Einwärts öffnend / Ouvrant vers l'intérieur / Opening inwards**


**Aufsatzprofil  
Universal Design**

984801


**Profilé d'applique  
Universal Design**

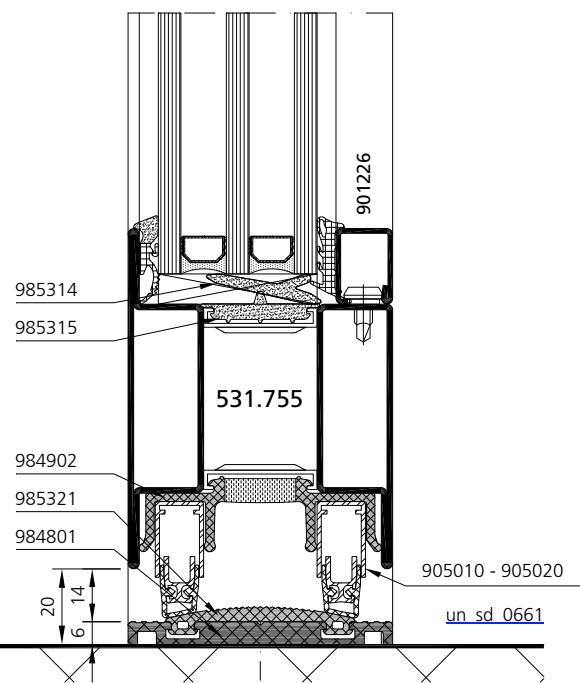
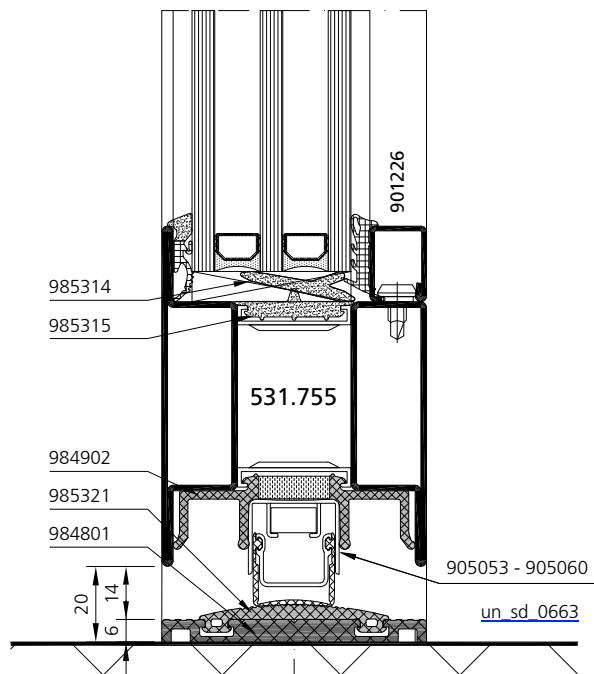
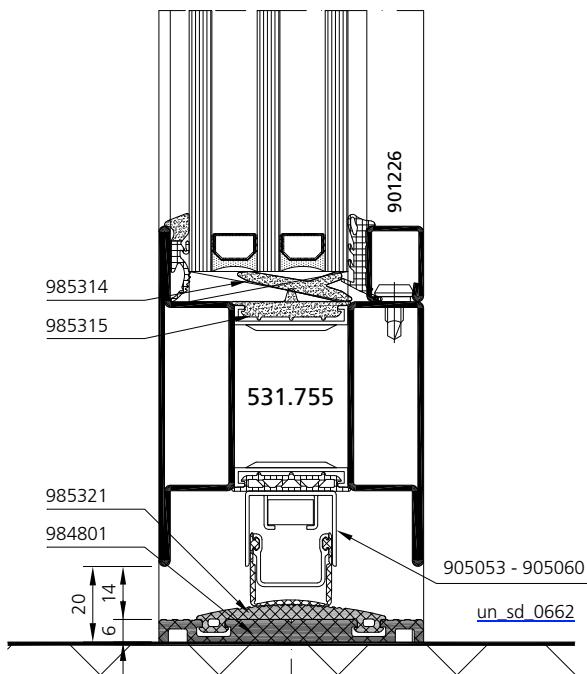
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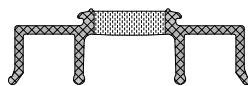

**Attachment profile  
Universal Design**

984902

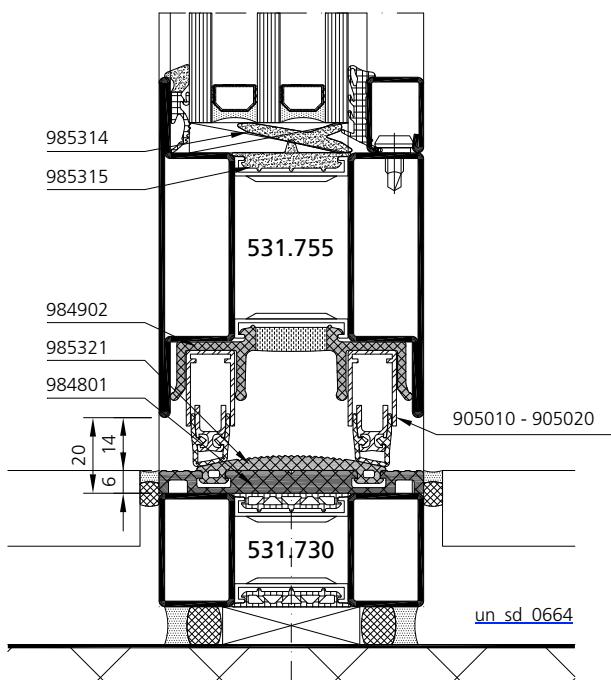
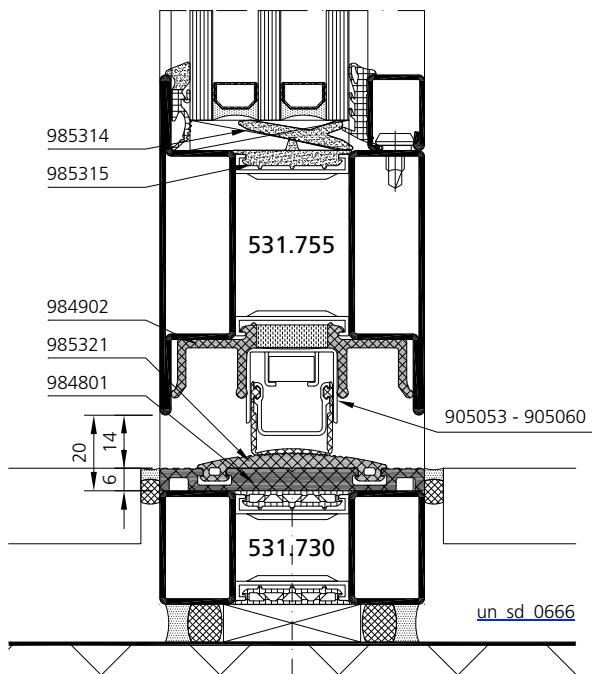
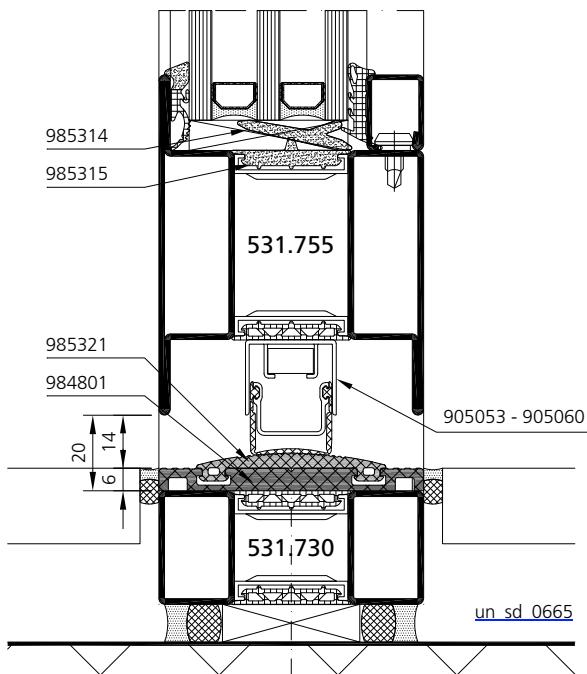


**Auswärts- und Einwärts öffnend /  
Ouvrant à l'extérieur et ouvrant à l'intérieur /  
Opening outwards and opening inwards**



**Aufsatzprofil  
Universal Design**
**984801**
**Profilé d'applique  
Universal Design**
**985321****984902**
**Attachment profile  
Universal Design**

**Auswärts- und Einwärts öffnend /  
Ouvrant à l'extérieur et ouvrant à l'intérieur /  
Opening outwards and opening 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

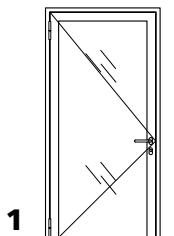
- porte à un vantail
  - avec partie latérale fixe
  - avec deux parties latérales fixes
  - avec imposte
  - avec imposte et partie latérale fixe
  - avec imposte et deux parties latérales fixes
- porte à deux vantaux
  - avec partie latérale fixe
  - avec deux parties latérales fixes
  - avec imposte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

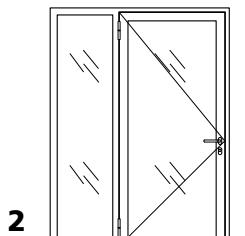
- single-leaf door
- with screen abutment
- with 2 screen abutments
- with fanlight
- with fanlight and screen abutment
- with fanlight and 2 screen abutments
- double-leaf door
- with screen abutment
- with 2 screen abutments
- with fanlight
- with fanlight and screen abutment
- with fanlight and 2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

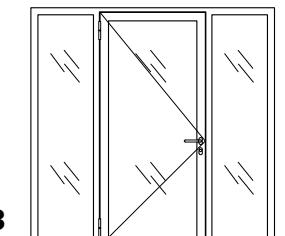
 Edelstahl / Acier inox / Stainless steel

**1**

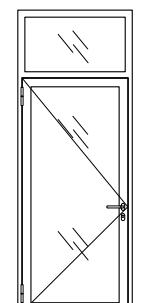
-  [un\\_sp\\_0240](#)
-  [un\\_sp\\_0254](#)

**2**

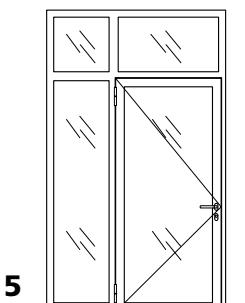
-  [un\\_sp\\_0242](#)
-  [un\\_sp\\_0256](#)

**3**

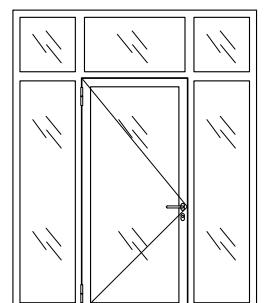
-  [un\\_sp\\_0244](#)
-  [un\\_sp\\_0258](#)

**4**

-  [un\\_sp\\_0241](#)
-  [un\\_sp\\_0255](#)

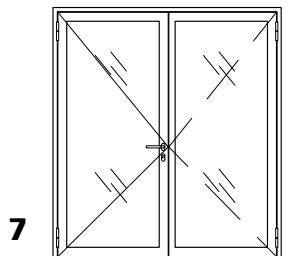
**5**

-  [un\\_sp\\_0243](#)
-  [un\\_sp\\_0257](#)

**6**

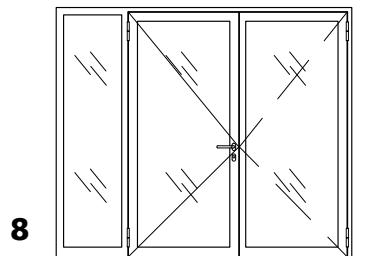
-  [un\\_sp\\_0245](#)
-  [un\\_sp\\_0259](#)

**Übersicht Systempläne  
Einbruchhemmende Türen  
RC1**



7

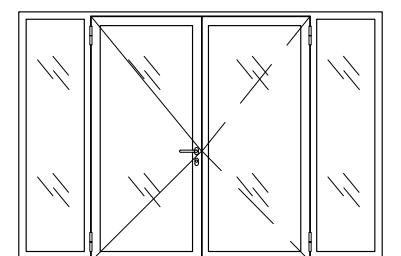
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8

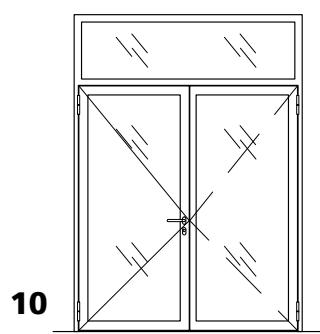
- un\_sp\_0249
- un\_sp\_0262

**Tableau des plans du  
système – Portes anti-  
effraction RC1**



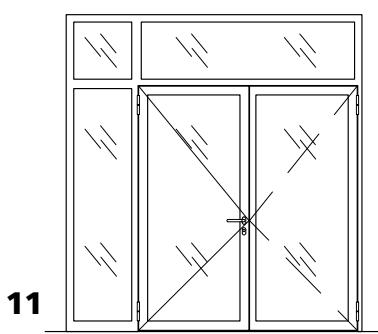
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- un\_sp\_0251
- un\_sp\_0264



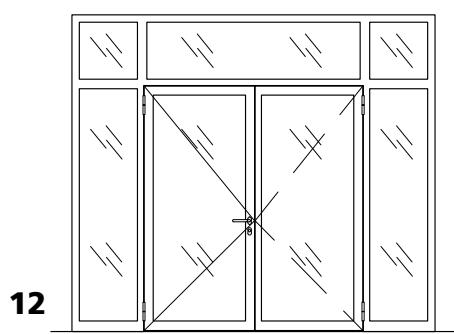
10

- un\_sp\_0248
- un\_sp\_0261



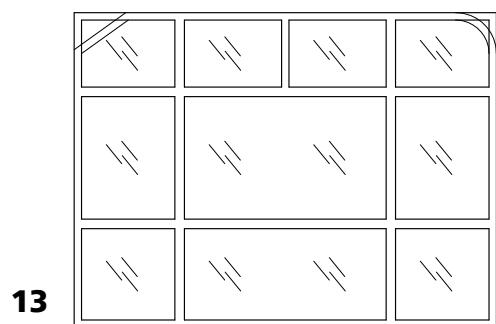
11

- un\_sp\_0250
- un\_sp\_0263



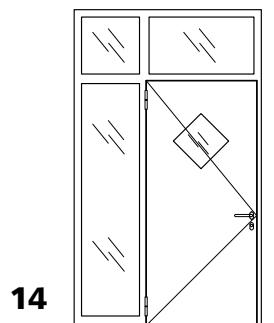
12

- un\_sp\_0252
- un\_sp\_0265



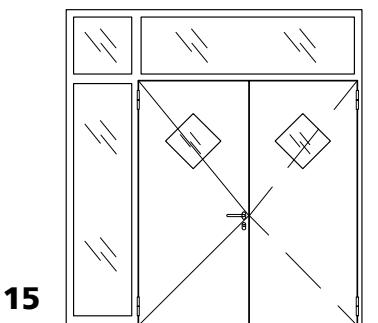
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- un\_sp\_0226
- un\_sp\_0225



14

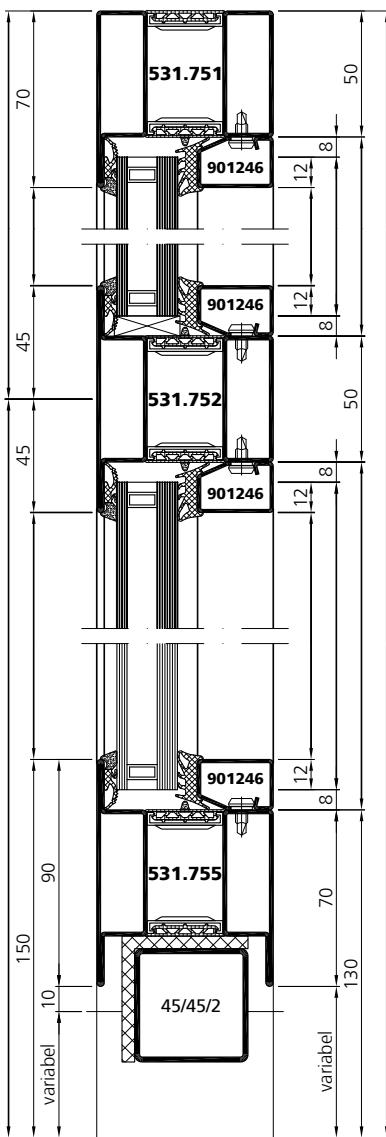
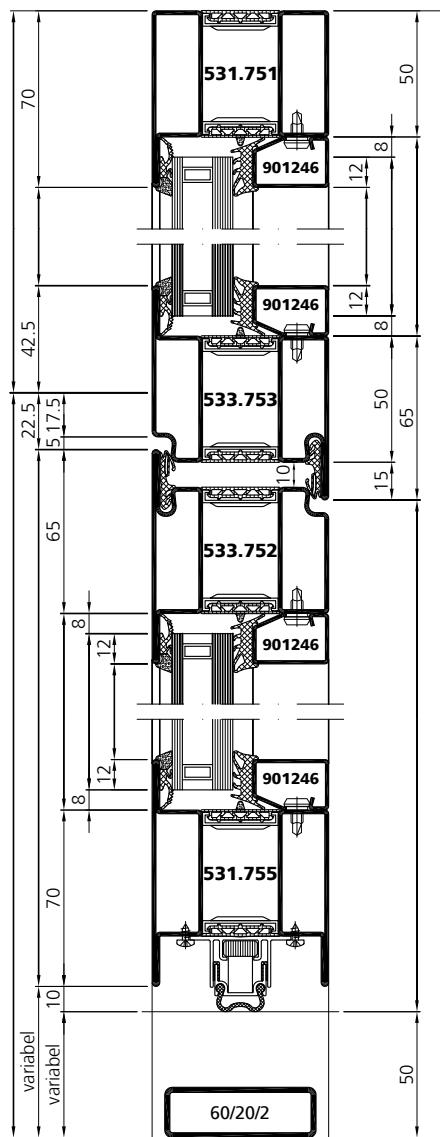
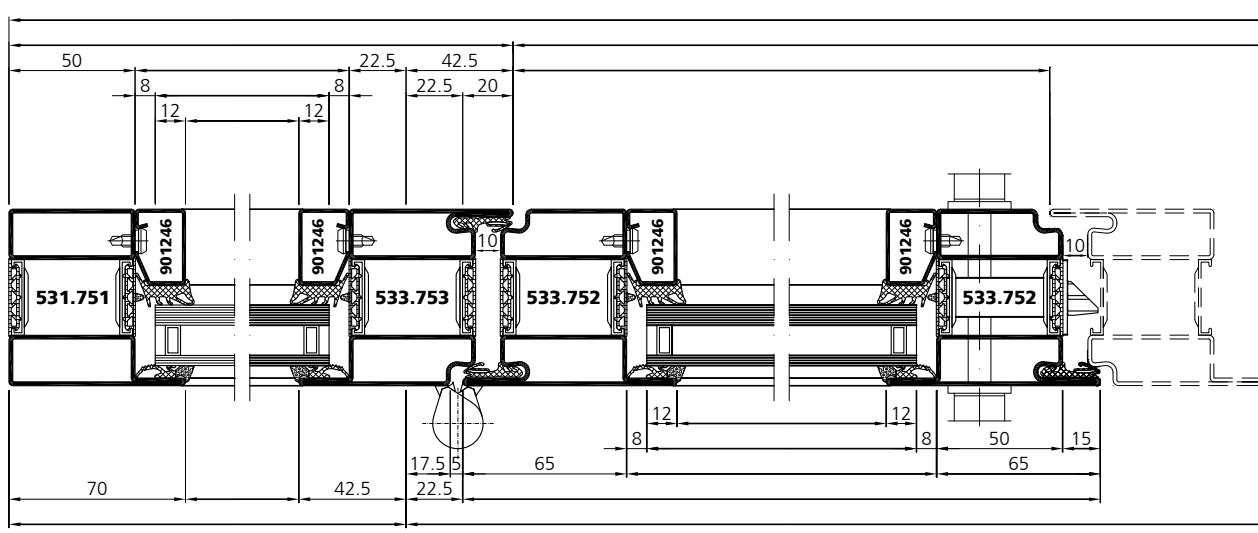
- un\_sp\_0246



15

- un\_sp\_0253

**Synopsis of system plans  
Burglary-resistant doors  
RC1**

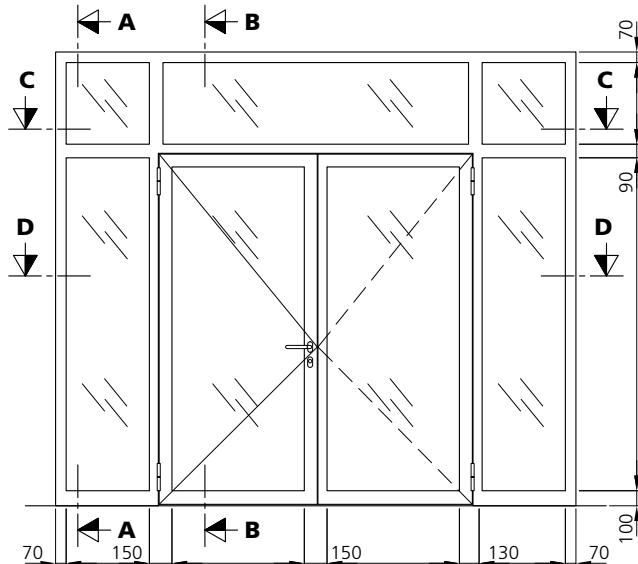
**Systemplan**  
**Einbruchhemmende Türen**  
**RC1**
**Plan du système**  
**Portes anti-effraction**  
**RC1**
**System plan**  
**Burglary-resistant doors**  
**RC1**
 un sp 0252  
 un sp 0265
 **A - A****B - B****D - D**

**Systemplan**  
**Einbruchhemmende Türen**  
**RC1**

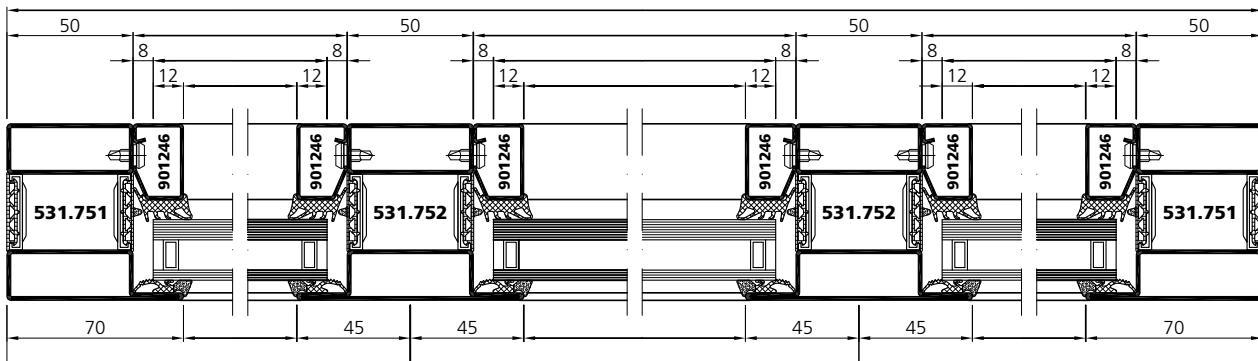
**Plan du système**  
**Portes anti-effraction**  
**RC1**

**System plan**  
**Burglary-resistant doors**  
**RC1**

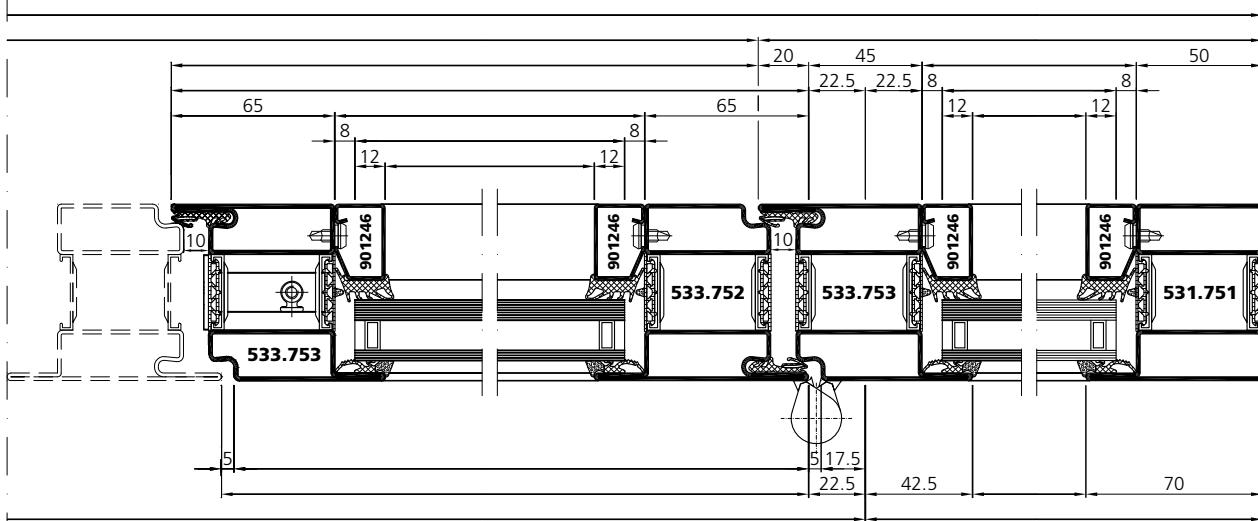
■ un\_sp 0252  
■ un\_sp 0265



**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

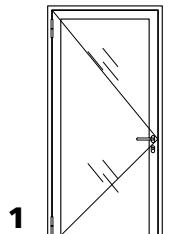
- porte à un vantail
  - avec partie latérale fixe
  - avec deux parties latérales fixes
  - avec imposte
  - avec imposte et partie latérale fixe
  - avec imposte et 2 parties latérales fixes
- porte à deux vantaux
  - avec partie latérale fixe
  - avec deux parties latérales fixes
  - avec imposte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

## Synopsis of system plans Burglary-resistant doors RC2

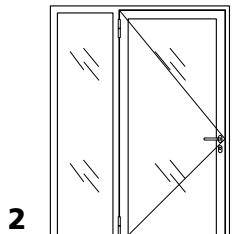
- single-leaved door
  - with screen abutment
  - with 2 screen abutments
  - with fanlight
  - with fanlight and screen abutment
  - with fanlight and 2 screen abutments
- double-leaved door
  - with screen abutment
  - with 2 screen abutments
  - with fanlight
  - with fanlight and screen abutment
  - 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

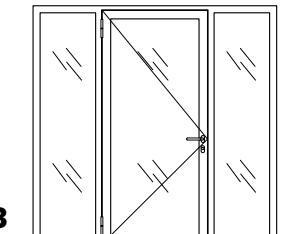
 Edelstahl / Acier inox / Stainless steel

**1**

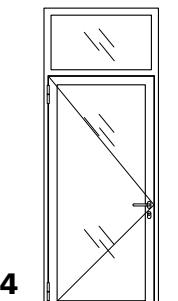
-  [un\\_sp\\_0131](#)
-  [un\\_sp\\_0131](#)

**2**

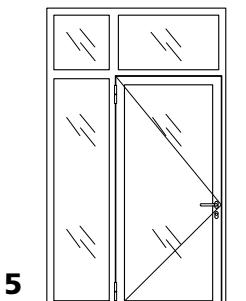
-  [un\\_sp\\_0105](#)
-  [un\\_sp\\_0135](#)

**3**

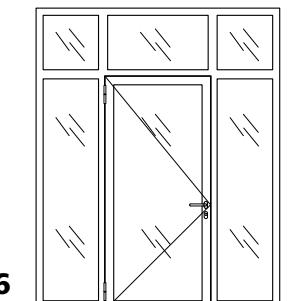
-  [un\\_sp\\_0139](#)
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**4**

-  [un\\_sp\\_0133](#)
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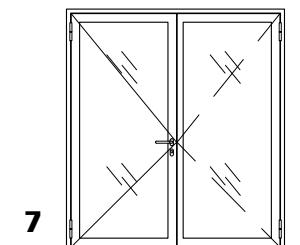
**5**

-  [un\\_sp\\_0107](#)
-  [un\\_sp\\_0137](#)

**6**

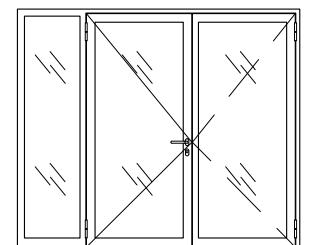
-  [un\\_sp\\_0141](#)
-  [un\\_sp\\_0141](#)

## Übersicht Systempläne Einbruchhemmende Türen RC2



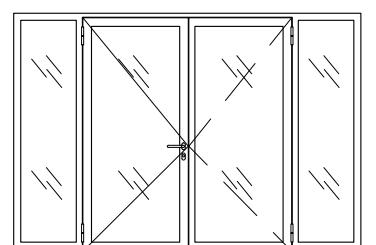
■ [un\\_sp\\_0113](#)  
■ [un\\_sp\\_0143](#)

## Tableau des plans du système – Portes anti- effraction RC2

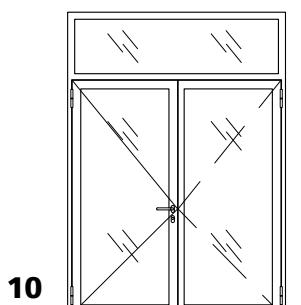


■ [un\\_sp\\_0117](#)  
■ [un\\_sp\\_0147](#)

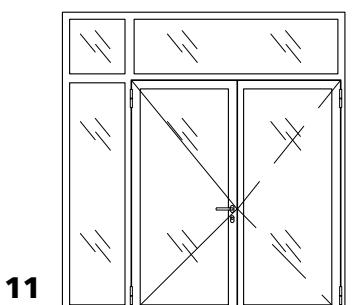
## Synopsis of system plans Burglary-resistant doors RC2



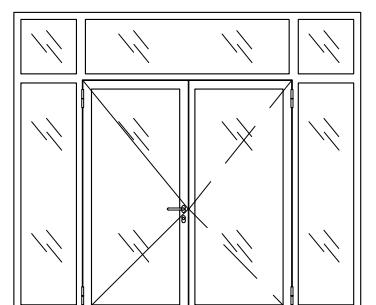
■ [un\\_sp\\_0121](#)  
■ [un\\_sp\\_0151](#)



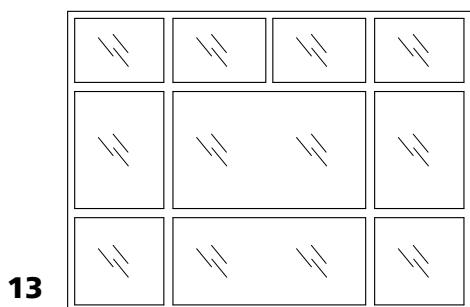
■ [un\\_sp\\_0115](#)  
■ [un\\_sp\\_0145](#)



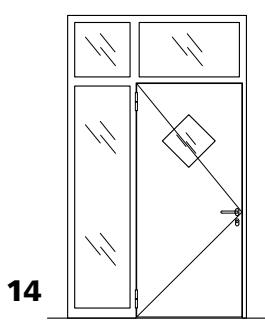
■ [un\\_sp\\_0119](#)  
■ [un\\_sp\\_0149](#)



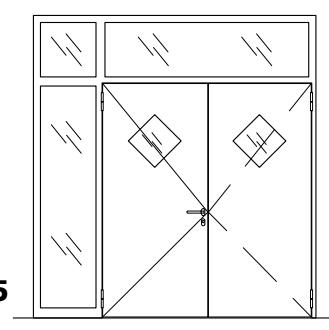
■ [un\\_sp\\_0123](#)  
■ [un\\_sp\\_0153](#)



■ [un\\_sp\\_0125](#)  
■ [un\\_sp\\_0155](#)



■ [un\\_sp\\_0127](#)



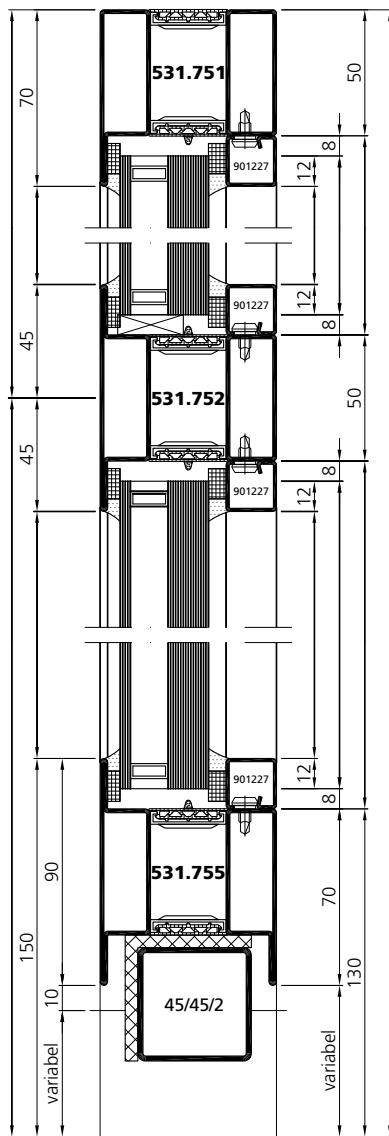
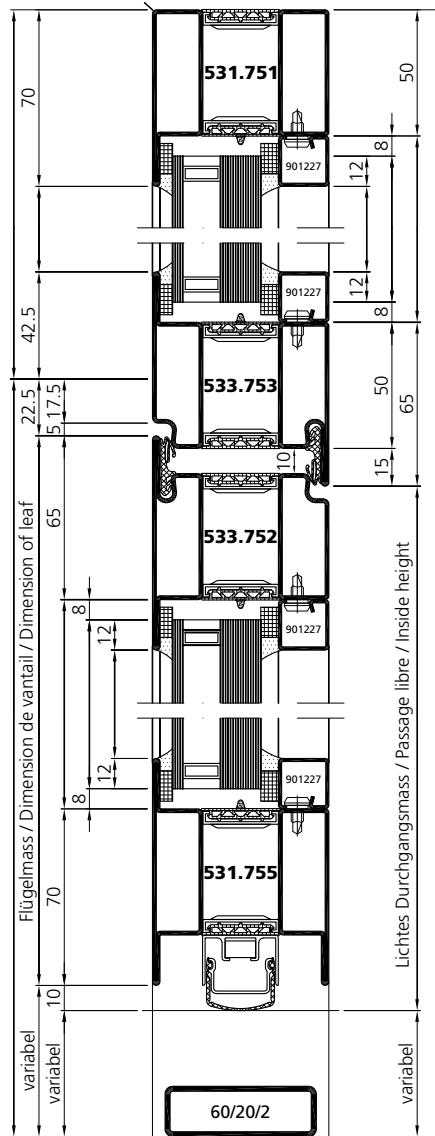
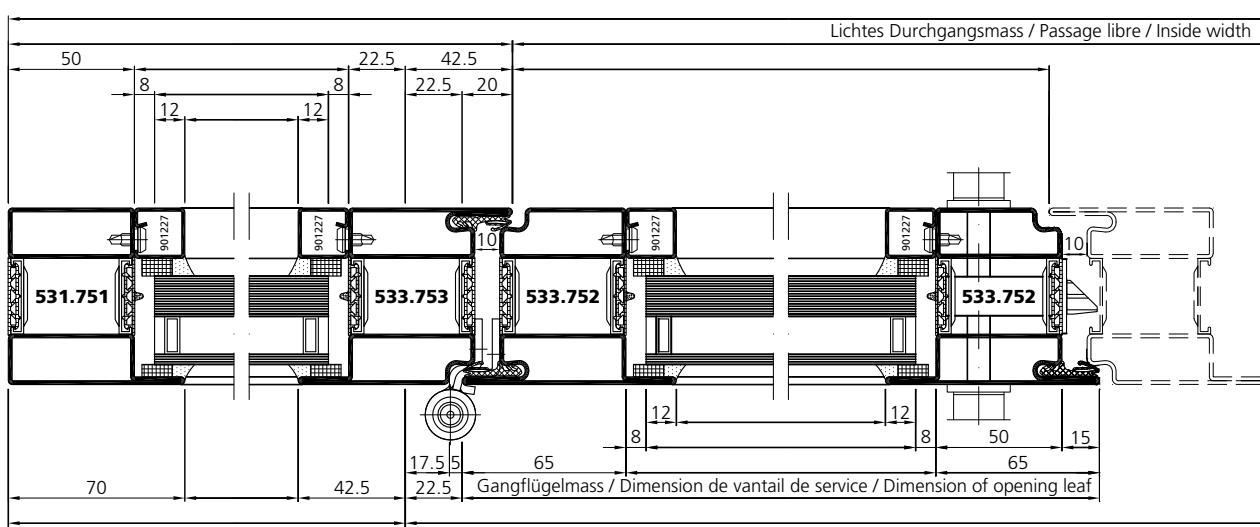
■ [un\\_sp\\_0129](#)

**Systemplan**  
**Einbruchhemmende Türen**  
**RC2**

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

**System plan**  
**Burglary-resistant doors**  
**RC2**

■ un sp 0123  
■ un sp 0153

**A - A****B - B****D - D**

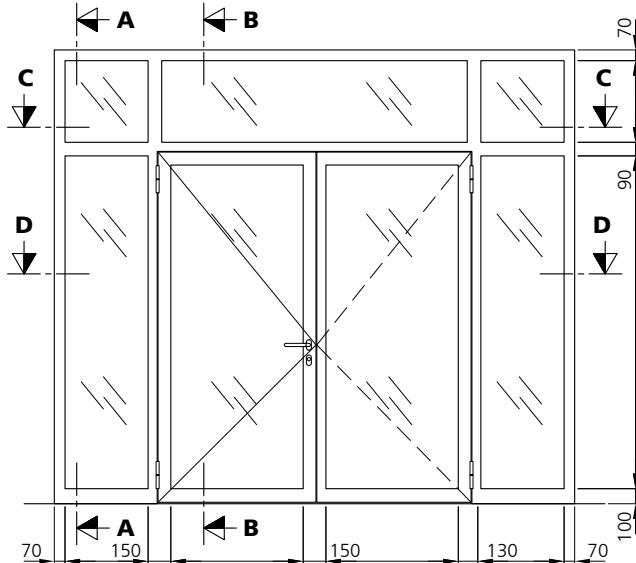
**Systemplan**  
**Einbruchhemmende Türen**  
**RC2**

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

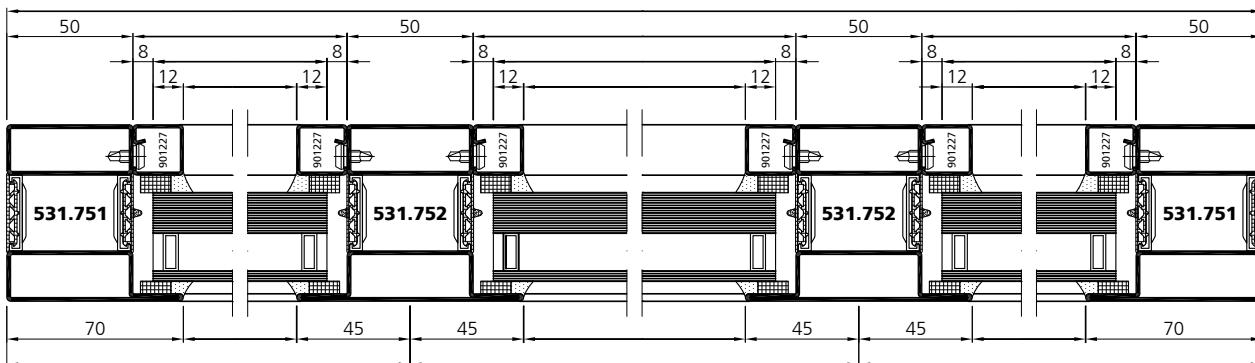
**System plan**  
**Burglary-resistant doors**  
**RC2**

■ un\_sp 0123  
■ un\_sp 0153

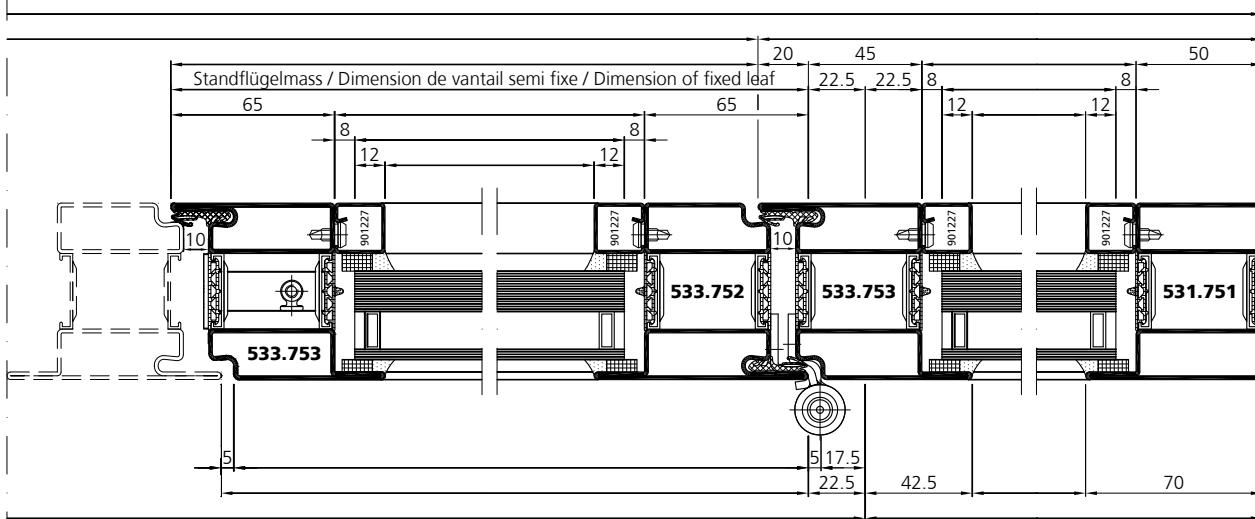
**RC 2**



**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

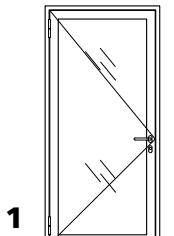
- porte à un vantail
  - avec partie latérale fixe
  - avec deux parties latérales fixes
  - avec imposte
  - avec imposte et partie latérale fixe
  - avec imposte et 2 parties latérales fixes
- porte à deux vantaux
  - avec partie latérale fixe
  - avec deux parties latérales fixes
  - avec imposte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

## Synopsis of system plans Burglary-resistant doors RC3

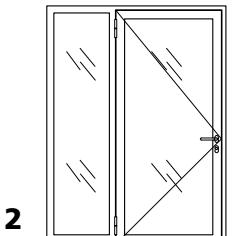
- single-leaved door
  - with screen abutment
  - with 2 screen abutments
  - with fanlight
  - with fanlight and screen abutment
  - with fanlight and 2 screen abutments
- double-leaved door
  - with screen abutment
  - with 2 screen abutments
  - with fanlight
  - with fanlight and screen abutment
  - 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

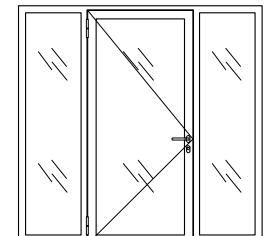
 Edelstahl / Acier inox / Stainless steel



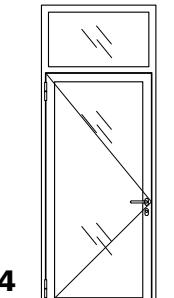
**1**  
 [un\\_sp\\_0100](#)  
 [un\\_sp\\_0130](#)



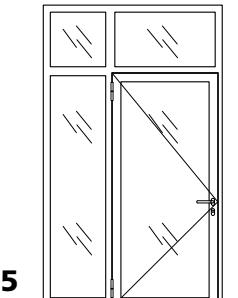
**2**  
 [un\\_sp\\_0104](#)  
 [un\\_sp\\_0134](#)



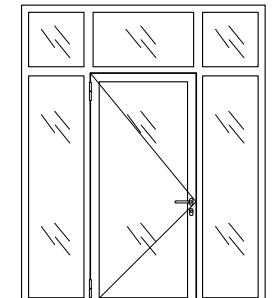
**3**  
 [un\\_sp\\_0108](#)  
 [un\\_sp\\_0138](#)



**4**  
 [un\\_sp\\_0102](#)  
 [un\\_sp\\_0132](#)

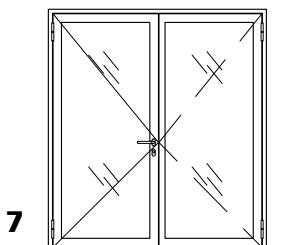


**5**  
 [un\\_sp\\_0106](#)  
 [un\\_sp\\_0136](#)



**6**  
 [un\\_sp\\_0110](#)  
 [un\\_sp\\_0140](#)

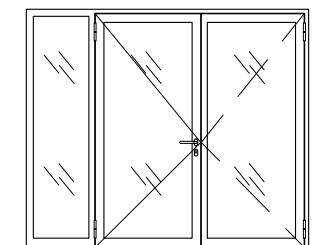
**Übersicht Systempläne**  
**Einbruchhemmende Türen**  
**RC3**



7

- [un\\_sp\\_0112](#)
- [un\\_sp\\_0142](#)

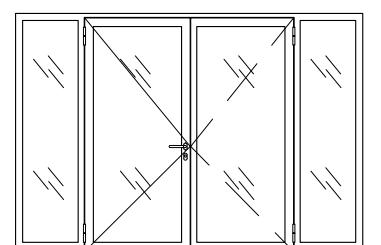
**Tableau des plans du**  
**système – Portes anti-**  
**effraction RC3**



8

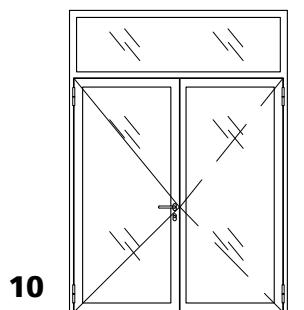
- [un\\_sp\\_0116](#)
- [un\\_sp\\_0146](#)

**Synopsis of system plans**  
**Burglary-resistant doors**  
**RC3**



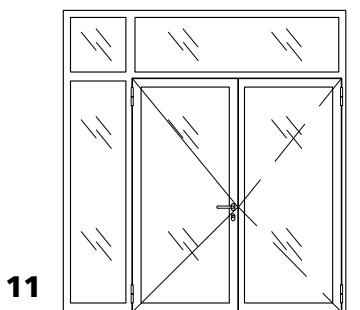
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- [un\\_sp\\_0120](#)
- [un\\_sp\\_0150](#)



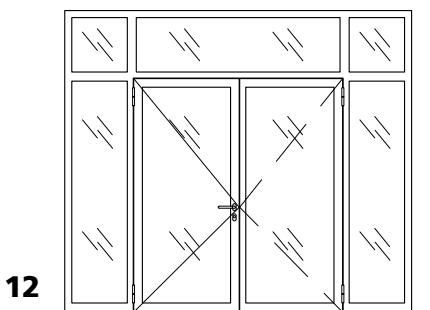
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- [un\\_sp\\_0114](#)
- [un\\_sp\\_0144](#)



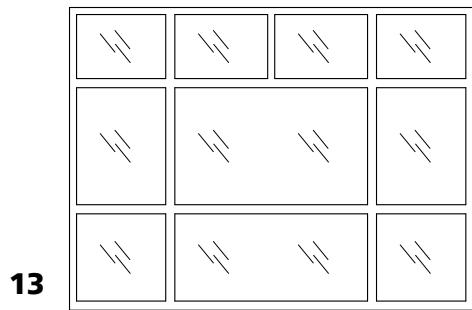
11

- [un\\_sp\\_0118](#)
- [un\\_sp\\_0148](#)



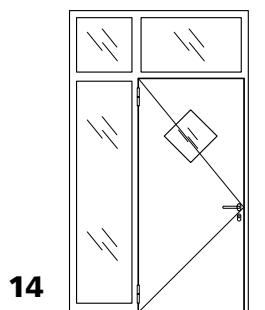
12

- [un\\_sp\\_0122](#)
- [un\\_sp\\_0152](#)



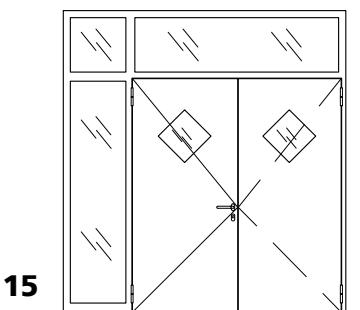
13

- [un\\_sp\\_0124](#)
- [un\\_sp\\_0154](#)



14

- [un\\_sp\\_0126](#)



15

- [un\\_sp\\_0128](#)

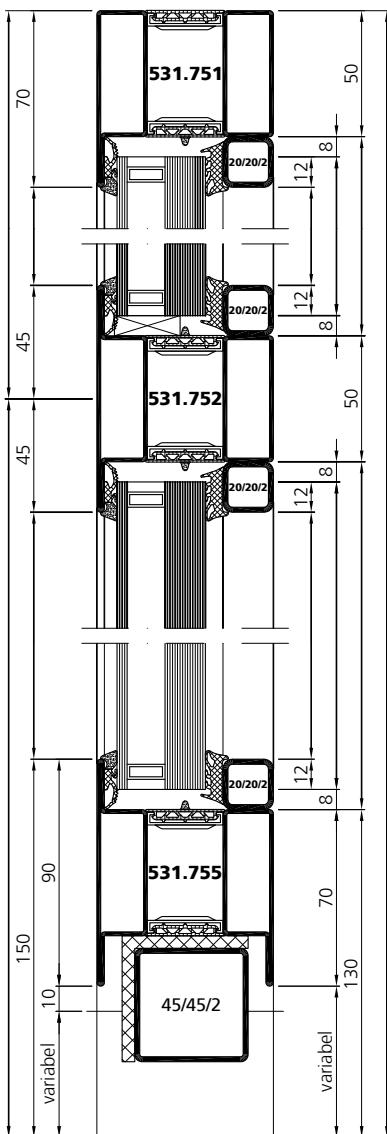
**Systemplan**  
**Einbruchhemmende Türen**  
**RC3**

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

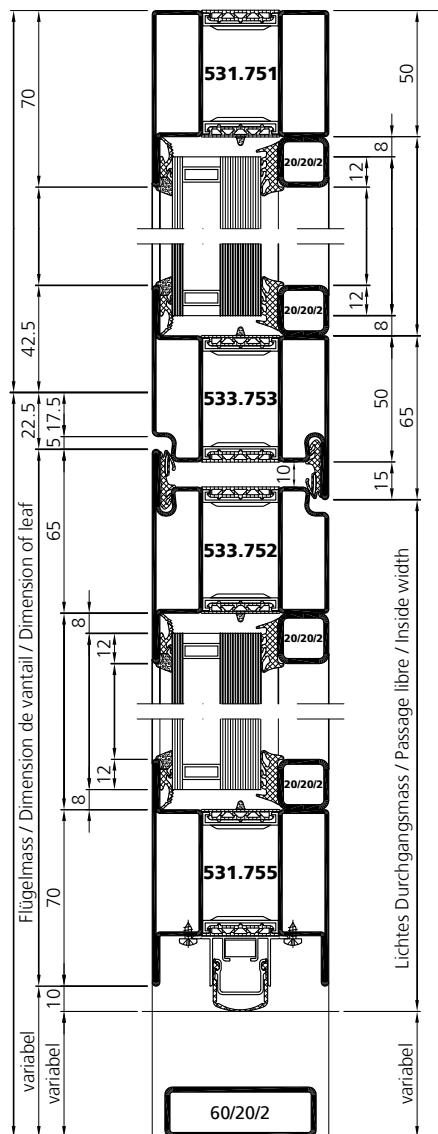
**System plan**  
**Burglary-resistant doors**  
**RC3**

■ un\_sp\_0122  
■ un\_sp\_0152

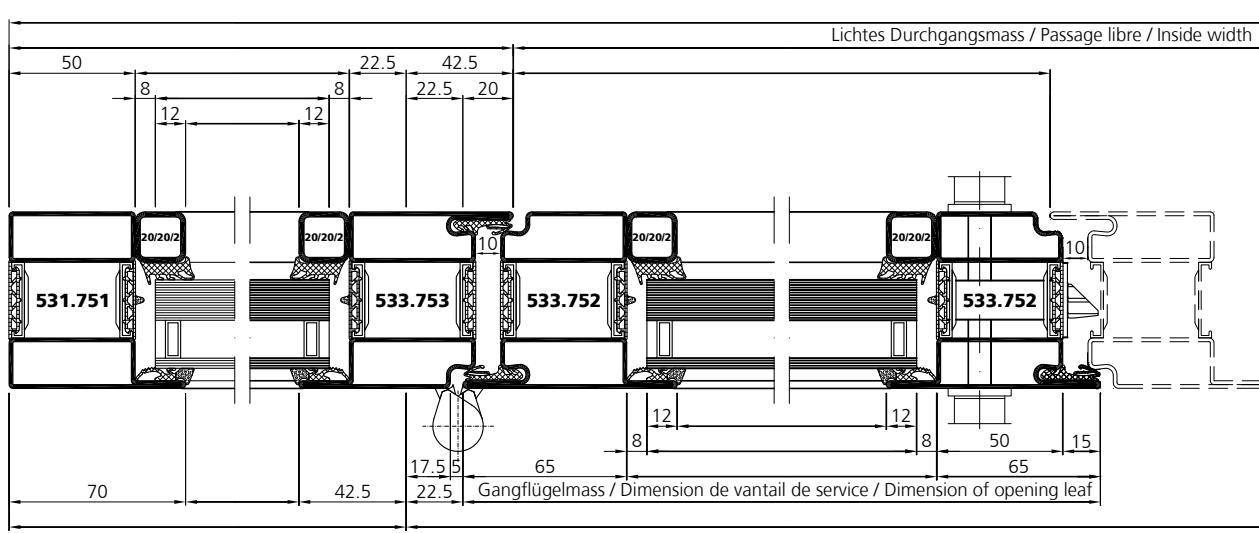
**A - A**



**B - B**



**D - D**

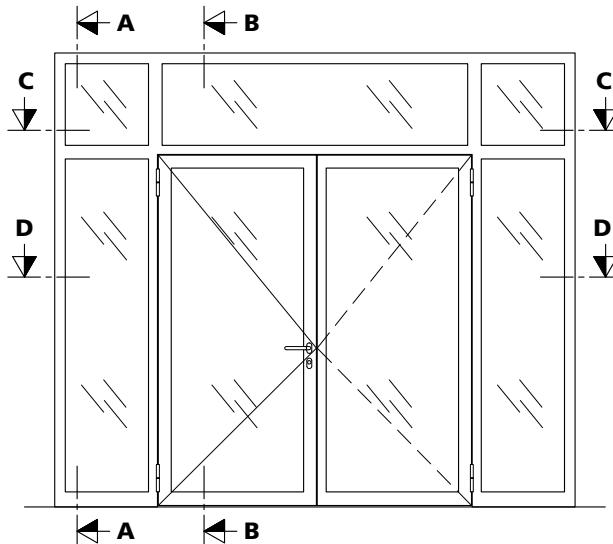


**Systemplan**  
**Einbruchhemmende Türen**  
**RC3**

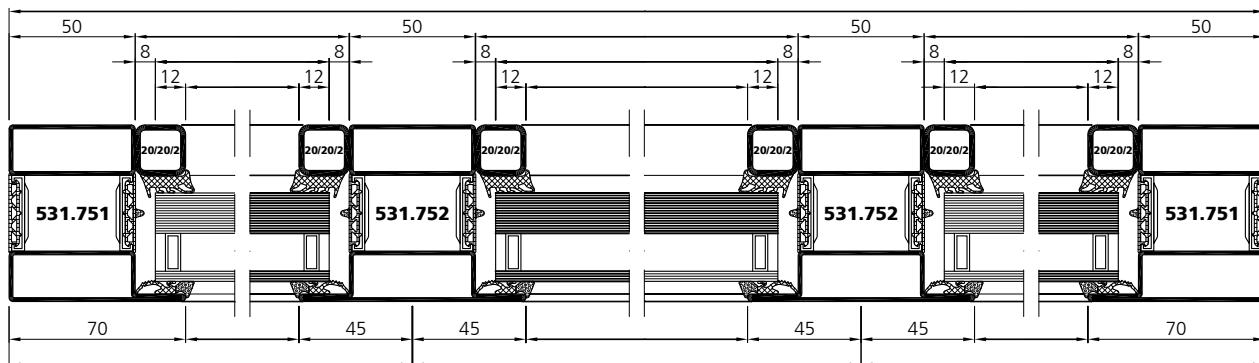
**Plan du système**  
**Portes anti-effraction**  
**RC3**

**System plan**  
**Burglary-resistant doors**  
**RC3**

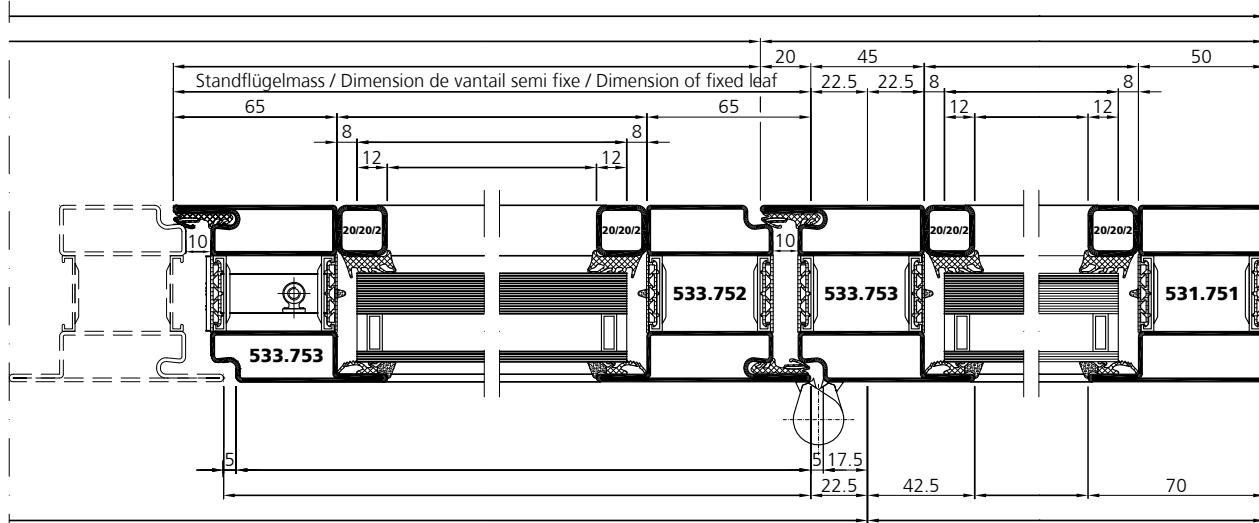
■ un\_sp\_0122  
■ un\_sp\_0152



**C - C**



**D - D**



## 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

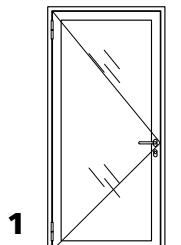
- porte à un vantail
  - avec partie latérale fixe
  - avec deux parties latérales fixes
  - avec imposte
  - avec imposte et partie latérale fixe
  - avec imposte et deux parties latérales fixes
- porte à deux vantaux
  - avec partie latérale fixe
  - avec deux parties latérales fixes
  - avec imposte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

## Synopsis of system plans Bullet resistant doors

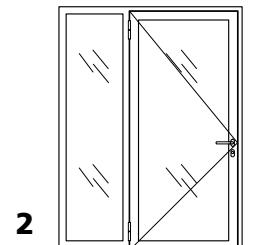
- single-leaf door
- with screen abutment
- with 2 screen abutments
- with fanlight
- with fanlight and screen abutment
- with fanlight and 2 screen abutments
- double-leaf door
- with screen abutment
- with 2 screen abutments
- with fanlight
- with fanlight and screen abutment
- with fanlight and 2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

 Stahl / Acier / Steel

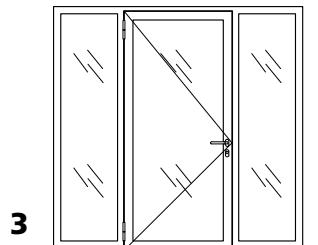
 Edelstahl / Acier inox / Stainless steel

**1**

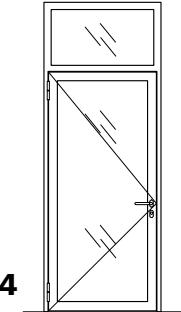
-  [un\\_sp\\_0330](#)
-  [un\\_sp\\_0343](#)

**2**

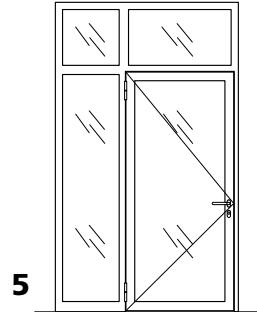
-  [un\\_sp\\_0332](#)
-  [un\\_sp\\_0345](#)

**3**

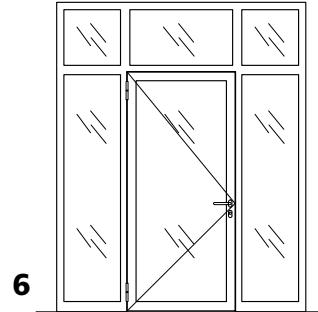
-  [un\\_sp\\_0334](#)
-  [un\\_sp\\_0347](#)

**4**

-  [un\\_sp\\_0331](#)
-  [un\\_sp\\_0344](#)

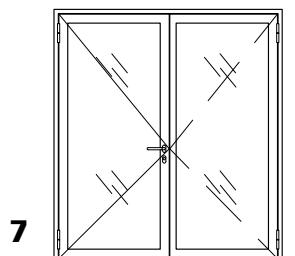
**5**

-  [un\\_sp\\_0333](#)
-  [un\\_sp\\_0346](#)

**6**

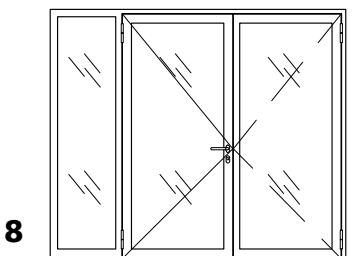
-  [un\\_sp\\_0335](#)
-  [un\\_sp\\_0348](#)

## Übersicht Systempläne Durchschusshemmende Türen



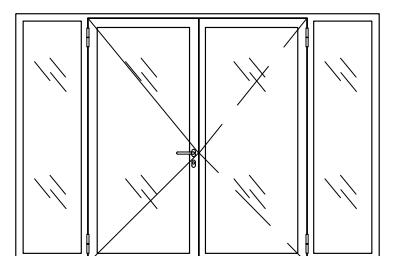
- [un\\_sp\\_0336](#)
- [un\\_sp\\_0349](#)

## Tableau des plans du système Portes pare-balles

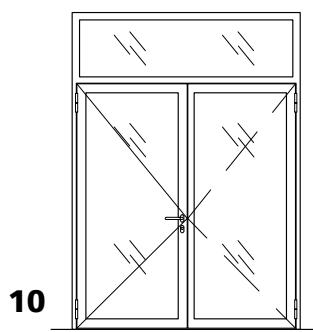


- [un\\_sp\\_0338](#)
- [un\\_sp\\_0351](#)

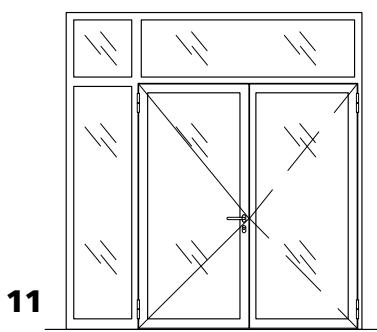
## Synopsis of system plans Bullet resistant doors



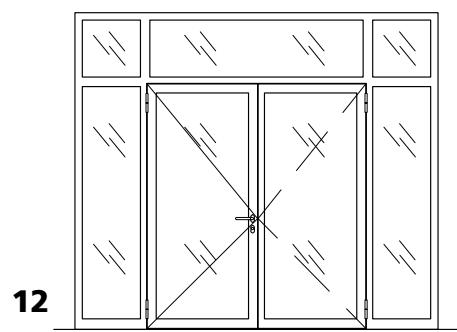
- [un\\_sp\\_0340](#)
- [un\\_sp\\_0353](#)



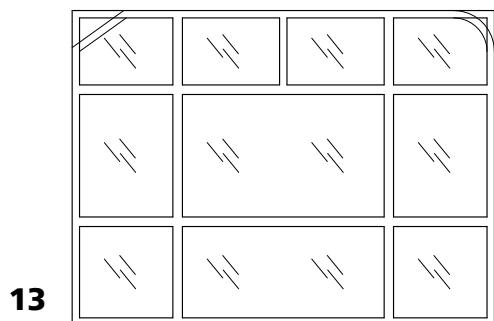
- [un\\_sp\\_0337](#)
- [un\\_sp\\_0350](#)



- [un\\_sp\\_0339](#)
- [un\\_sp\\_0352](#)



- [un\\_sp\\_0341](#)
- [un\\_sp\\_0354](#)



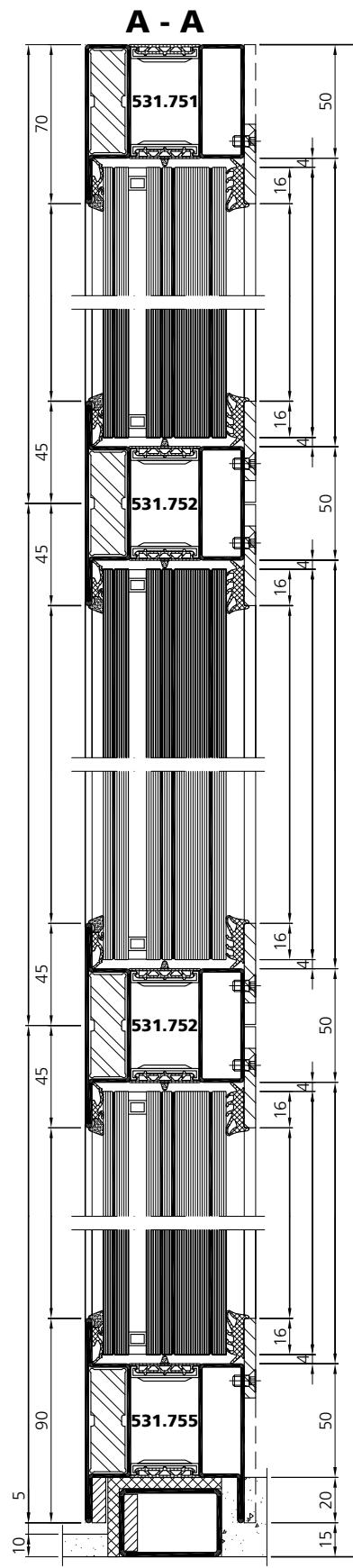
- [un\\_sp\\_0342](#)
- [un\\_sp\\_0355](#)

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

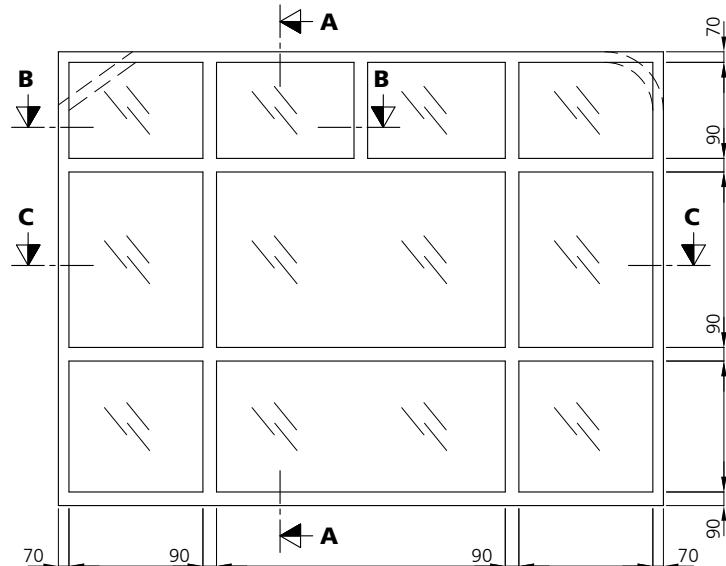
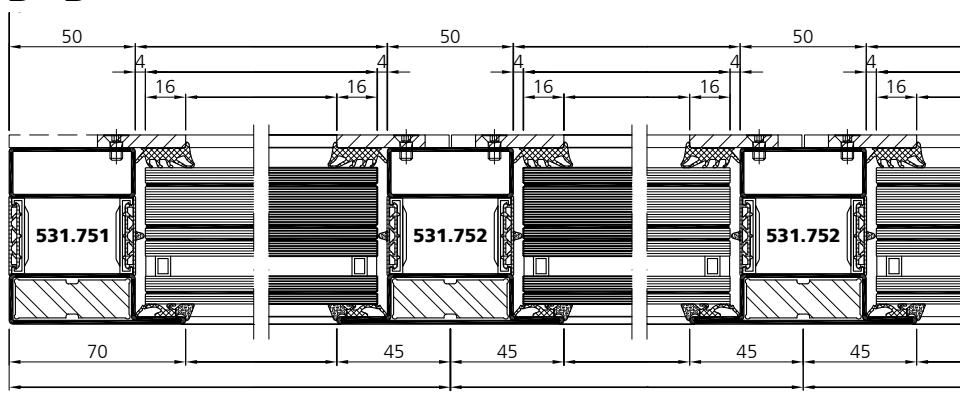
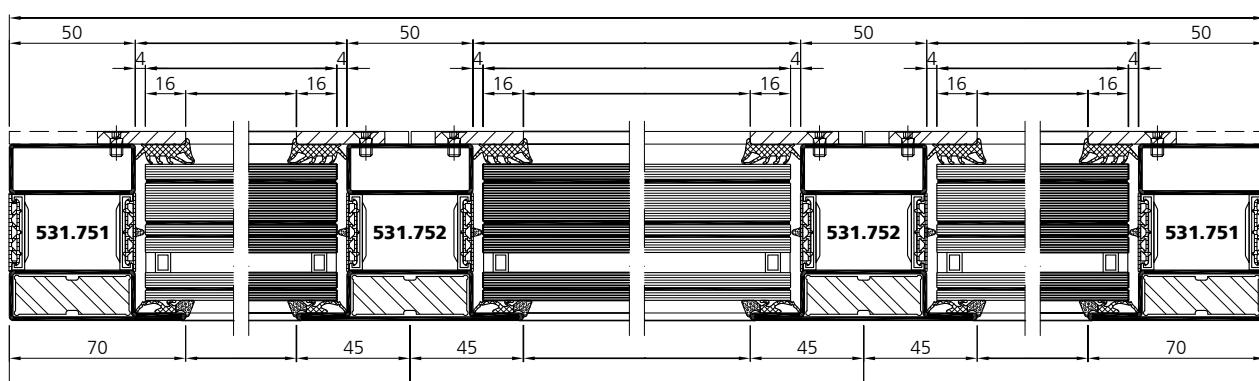
- Vetrotech, Polygard PRO Climaplus BR4-NS/P8B (ISO), 42 mm
- Vetrotech, Vetrogard PRO Climaplus BR4-NS/P7B (ISO), 54 mm
- Schott, NOVOLAY secure BR4-NS/15.3.0 (ISO), 38 mm
- Flachglas, ALLSTOP ISO BR4-NS-22 (ISO), 57 mm
- Vetrotech, Polygard PRO BR4-NS/P8B (Mono), 21 mm
- Schott, NOVOLAY secure BR4-NS/15.3.0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

**Systemplan  
Durchschusshemmende  
Türen****Plan du système  
Portes pare-balles****System plan  
Bullet resistant doors**

■ un\_sp\_0342  
■ un\_sp\_0355



**Systemplan**  
**Durchschusshemmende**  
**Türen**
**Plan du système**  
**Portes pare-balles**
**System plan**  
**Bullet resistant doors**

 un\_sp\_0342  
 un\_sp\_0355

**B - B**

**C - C**




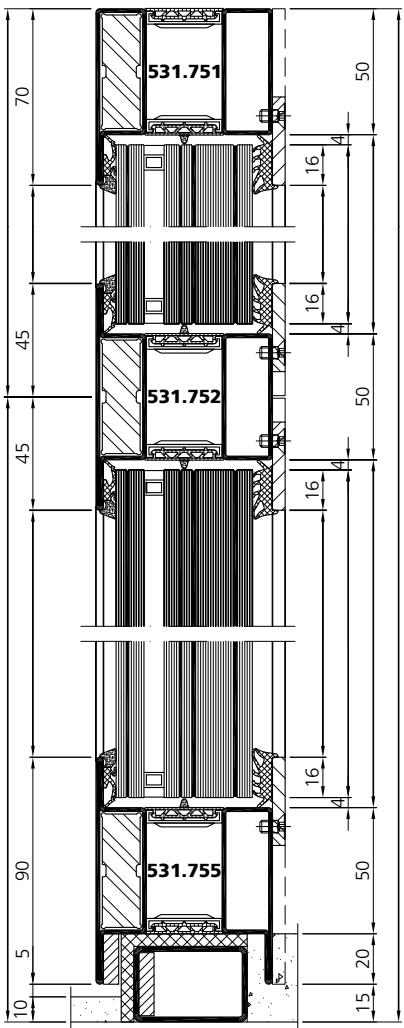
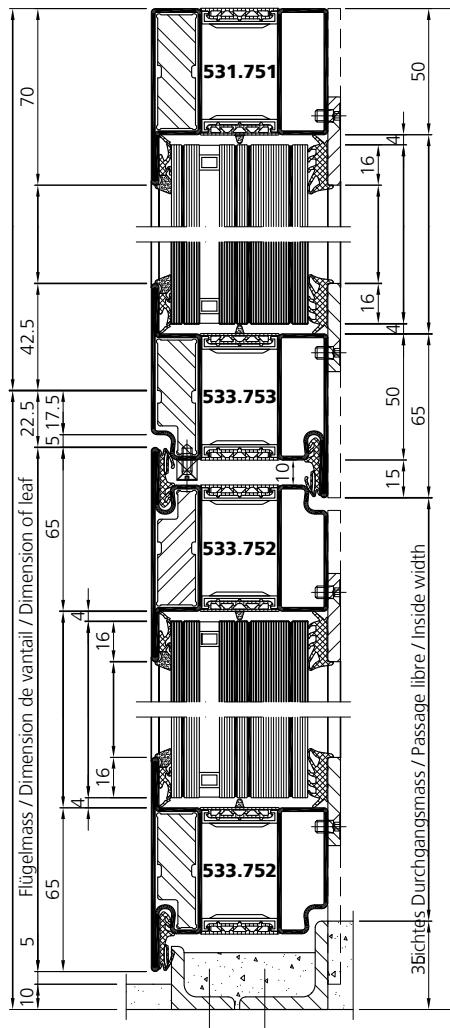
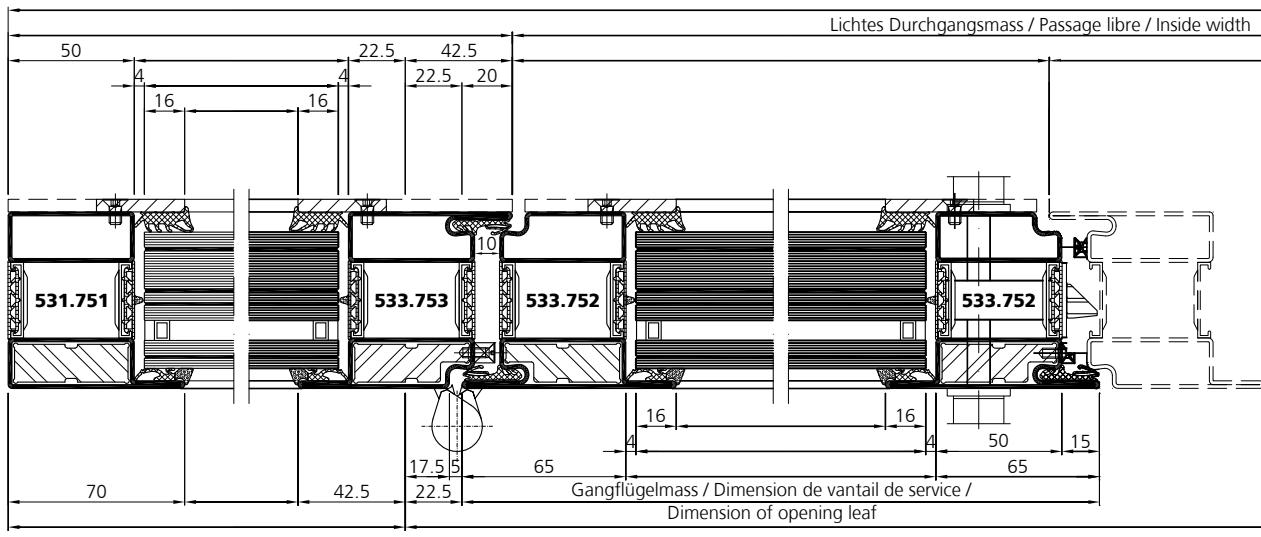
FB4

Stahl  
Acier  
SteelEdelstahl  
Acier inox  
Stainless steel

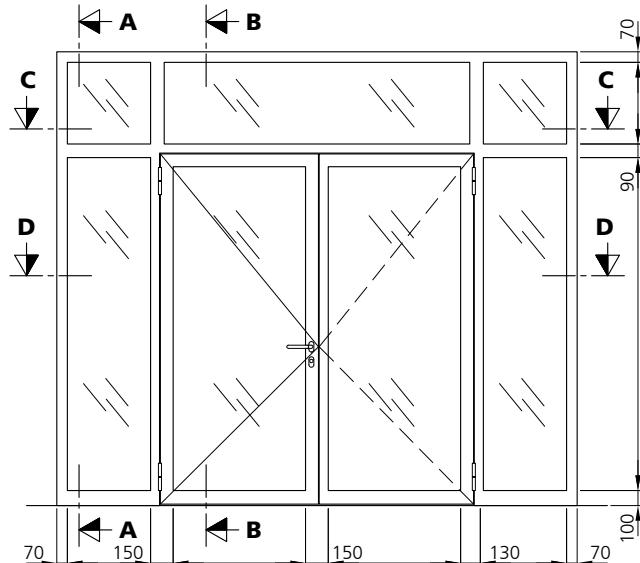
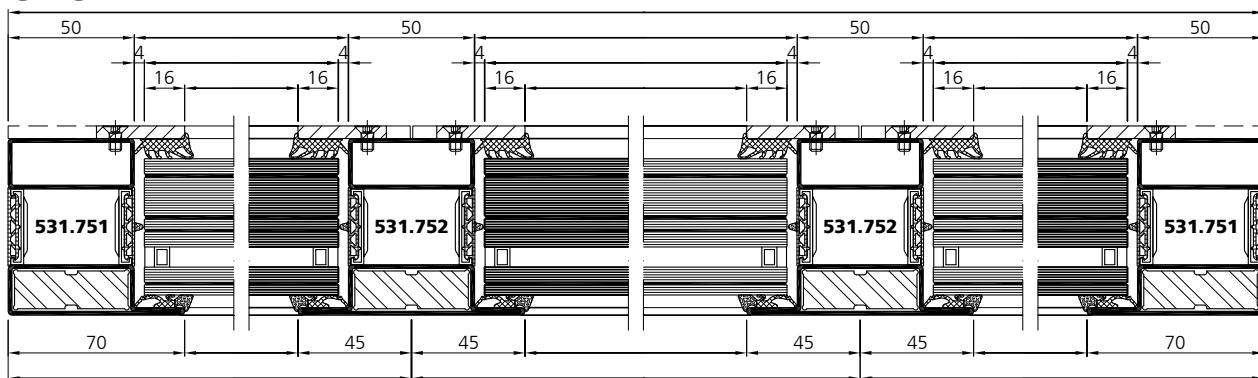
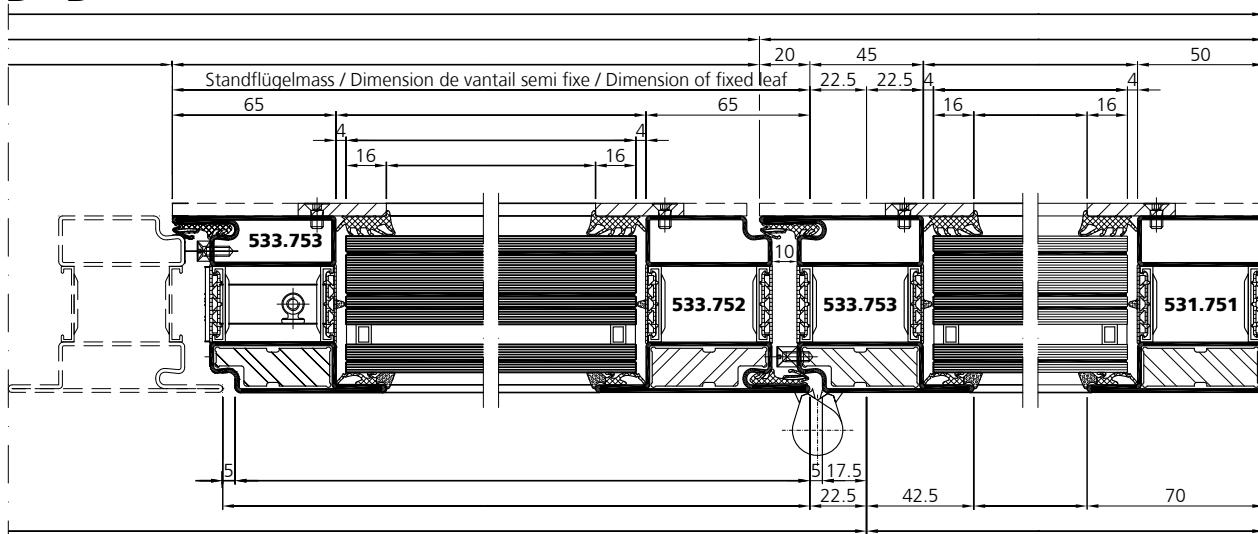
80

**Systemplan  
Durchschusshemmende  
Türen****Plan du système  
Portes pare-balles****System plan  
Bullet resistant doors**

■ un\_sp\_0341  
■ un\_sp\_0354

**A - A****B - B****D - D**

**Systemplan**  
**Durchschusshemmende**  
**Türen**
**Plan du système**  
**Portes pare-balles**
**System plan**  
**Bullet resistant doors**

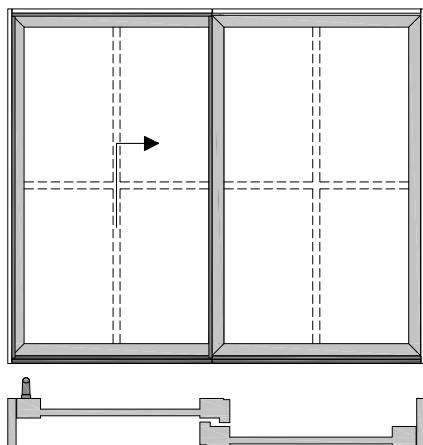
 un\_sp\_0341  
 un\_sp\_0354

**C - C**

**D - D**


**Übersicht  
Öffnungsvarianten  
Hebeschiebetüren**

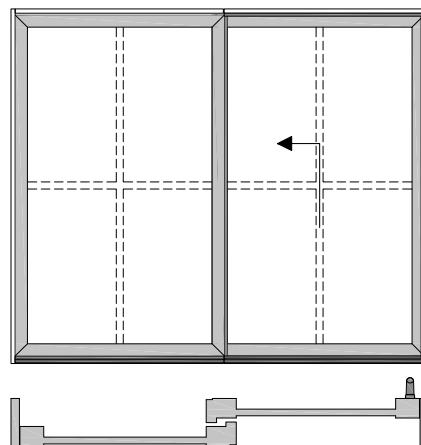
**Vue d'ensemble  
types d'ouverture  
Portes coulissantes à levier**

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

**Schema A**

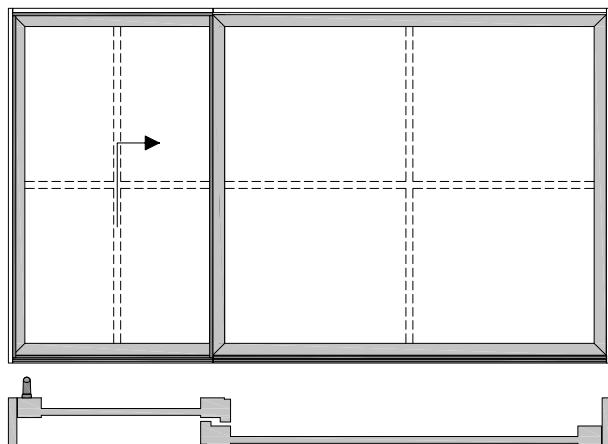


Griffseite rechts  
Côté poignée à droite  
Handle on the right



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

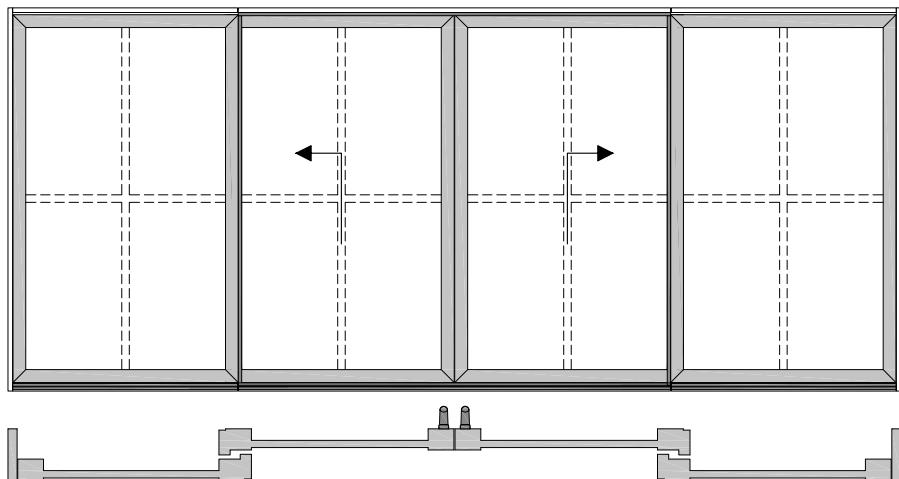
■ Stahl / Acier / Steel  
■ Edelstahl / Acier inox / Stainless steel

**Übersicht  
Öffnungsvarianten  
Hebeschiebetüren**

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

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

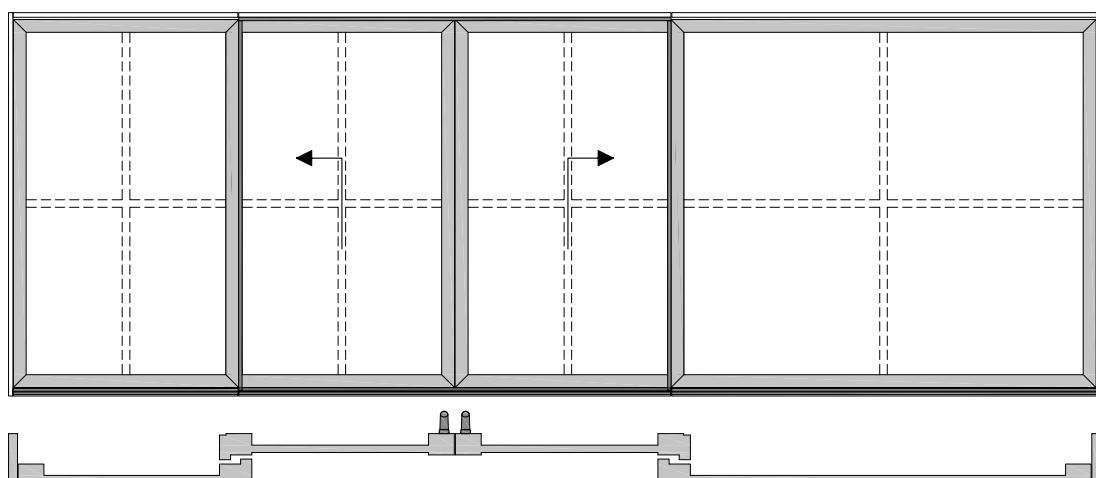
**Schema C**



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

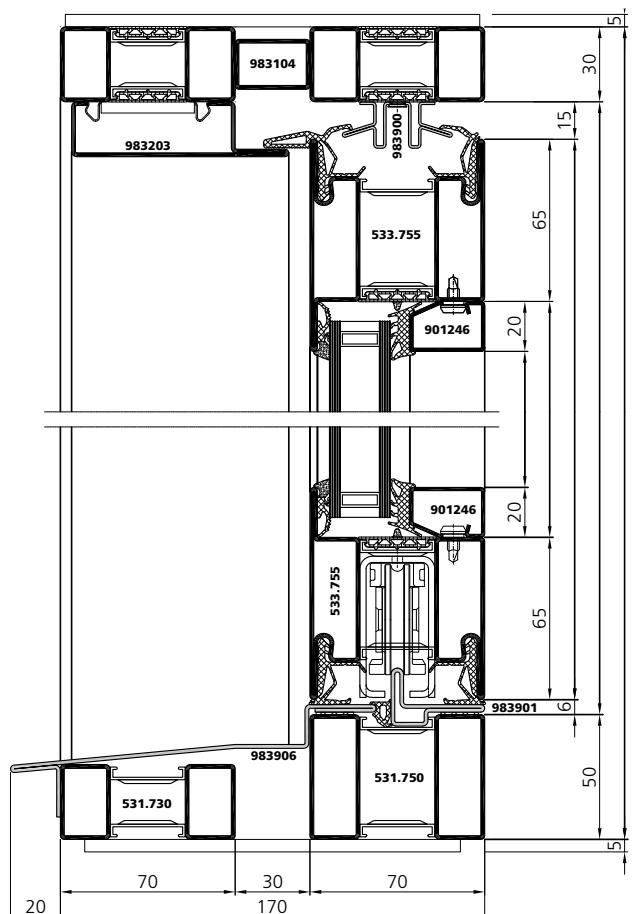
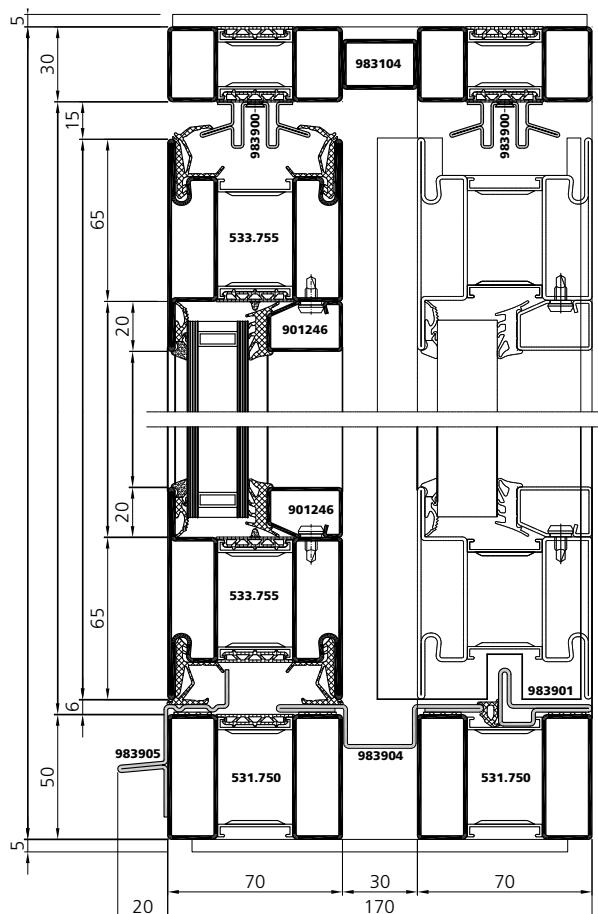
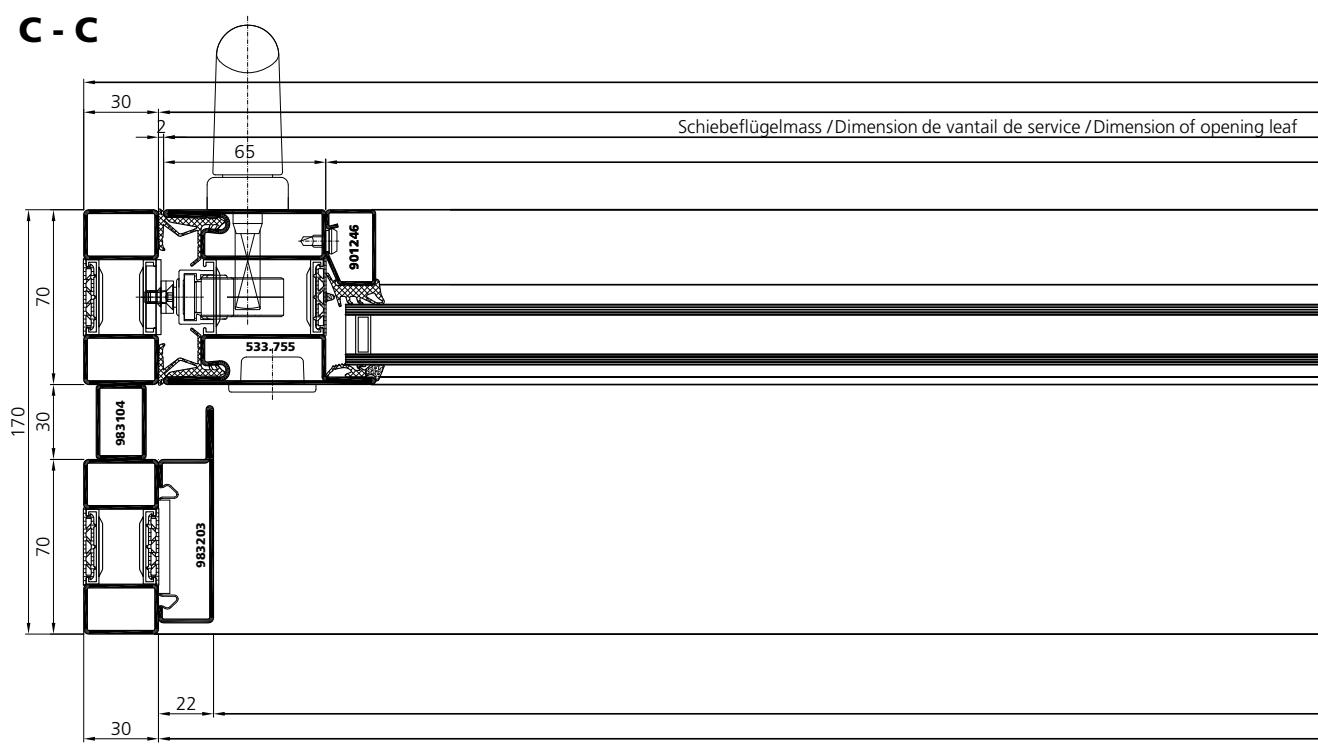
- Stahl / Acier / Steel
- Edelstahl / Acier inox / Stainless steel

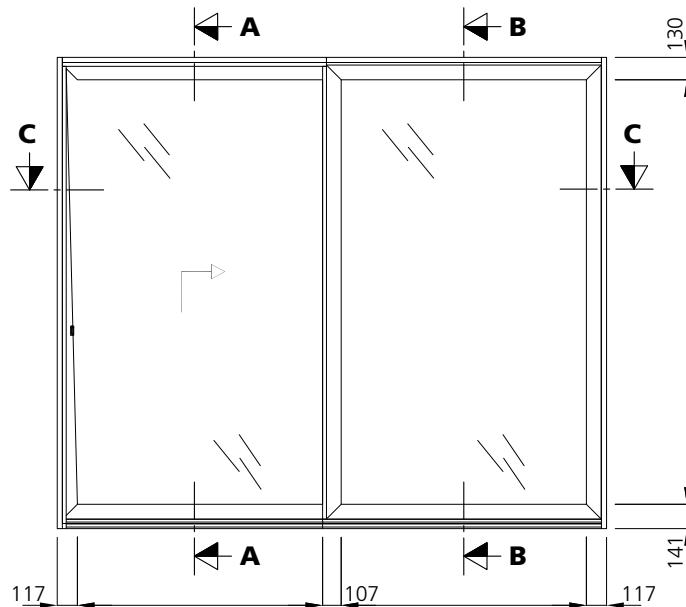
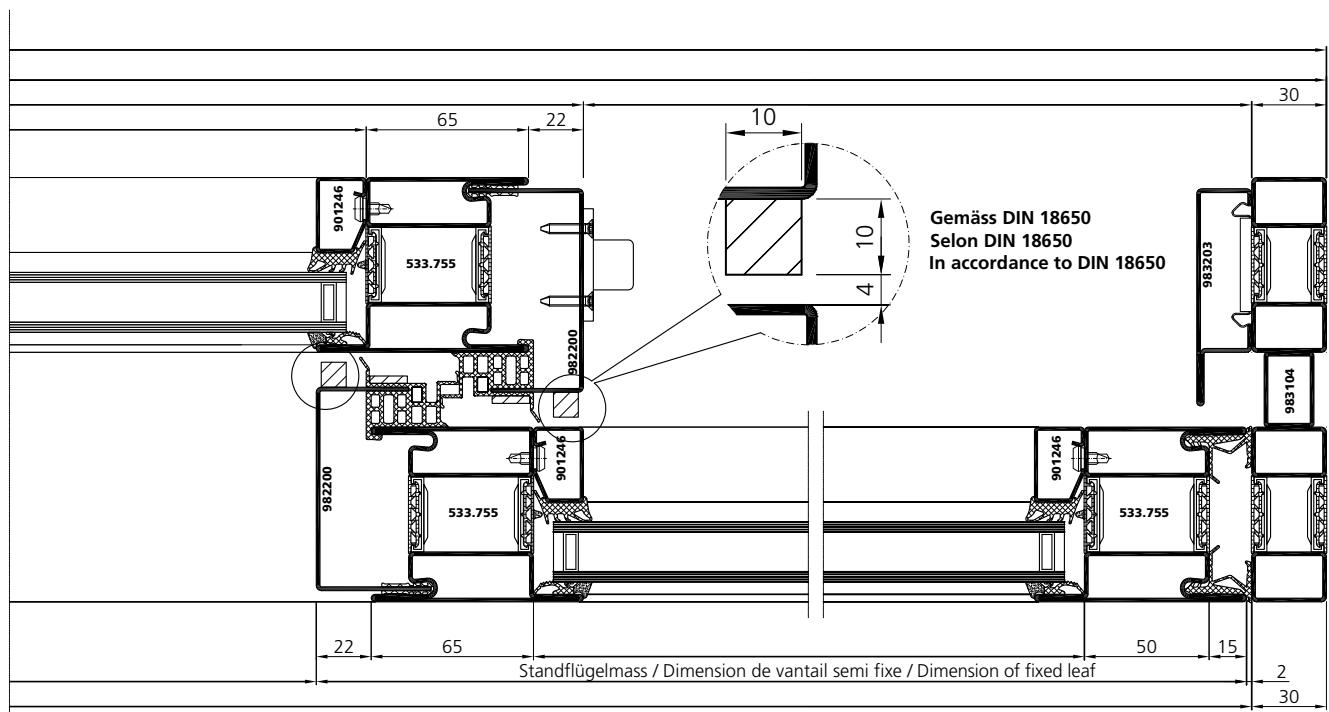
## Systemplan Hebeschiebetüren

## Plan du système Portes coulissantes à levier

## System plan Lift-up sliding doors

un\_sp 0233

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

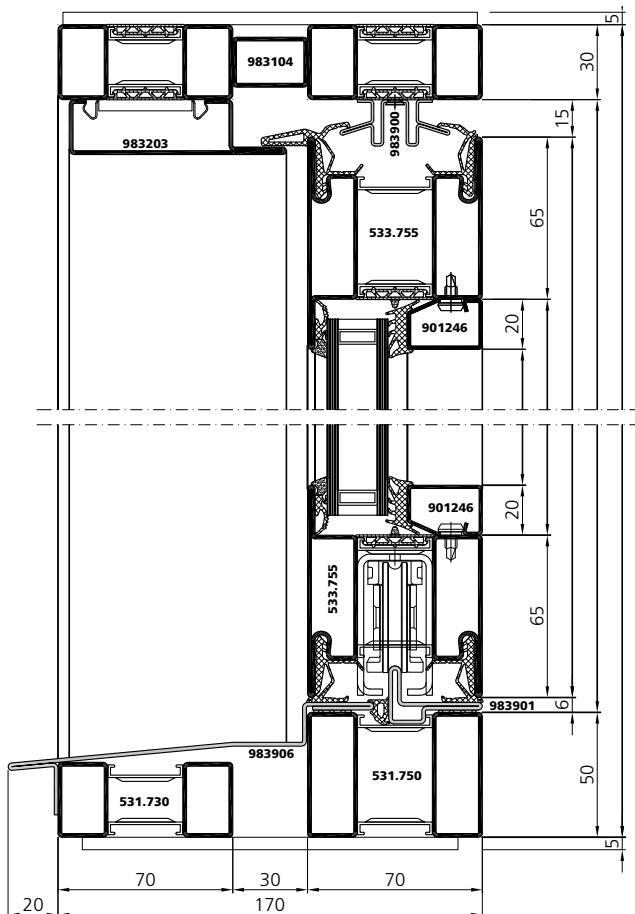
**Systemplan  
Hebeschiebetüren**
**Plan du système  
Portes coulissantes à levier**
**System plan  
Lift-up sliding doors**
[un\\_sp\\_0233](#)

**Schema A**


**Systemplan  
Hebeschiebetüren**

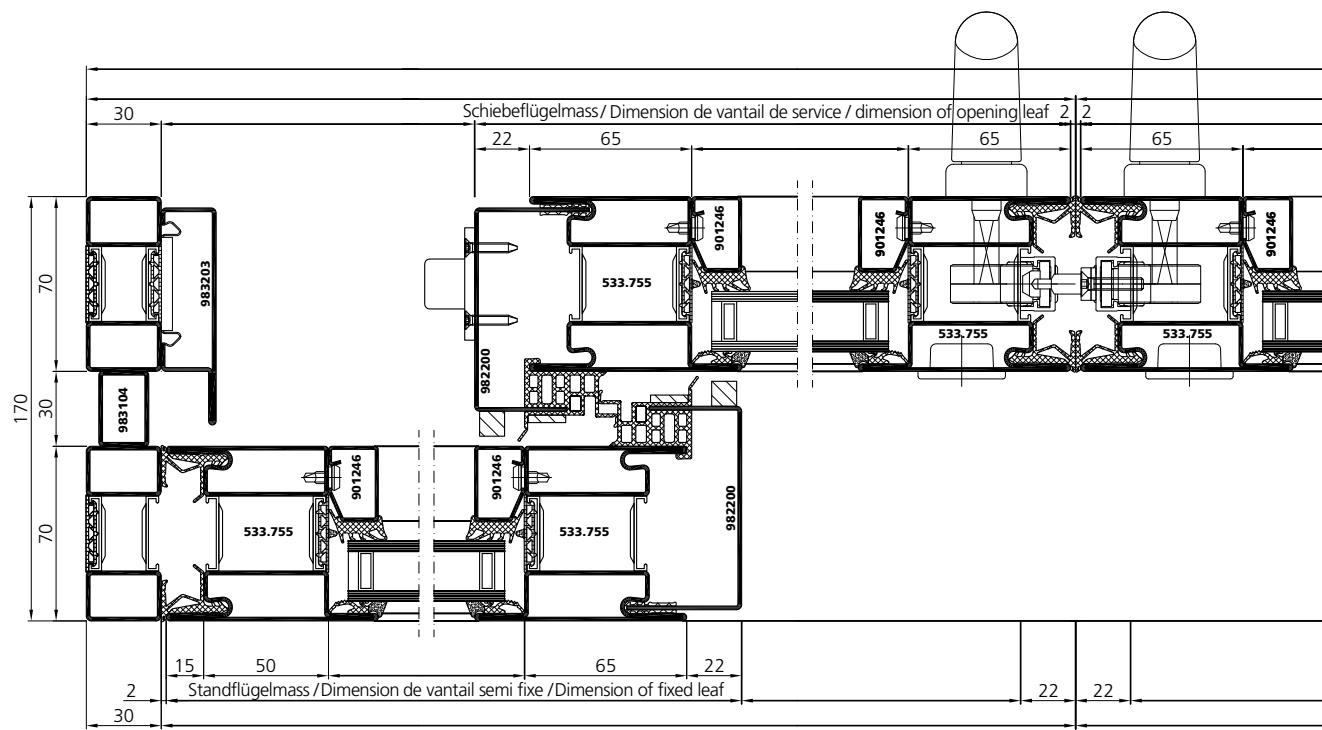
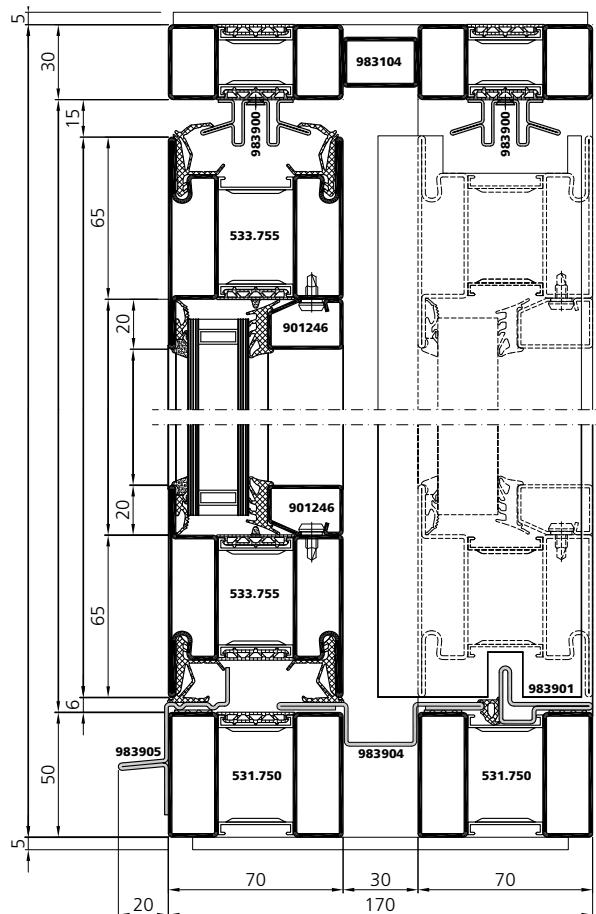
**Plan du système  
Portes coulissantes à levier**

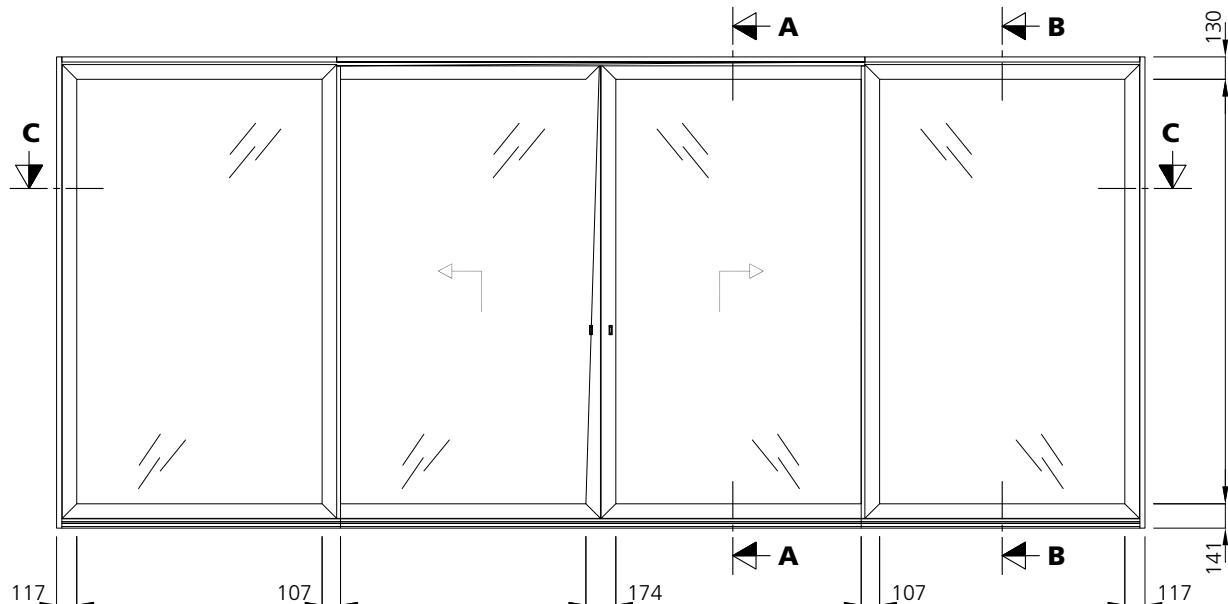
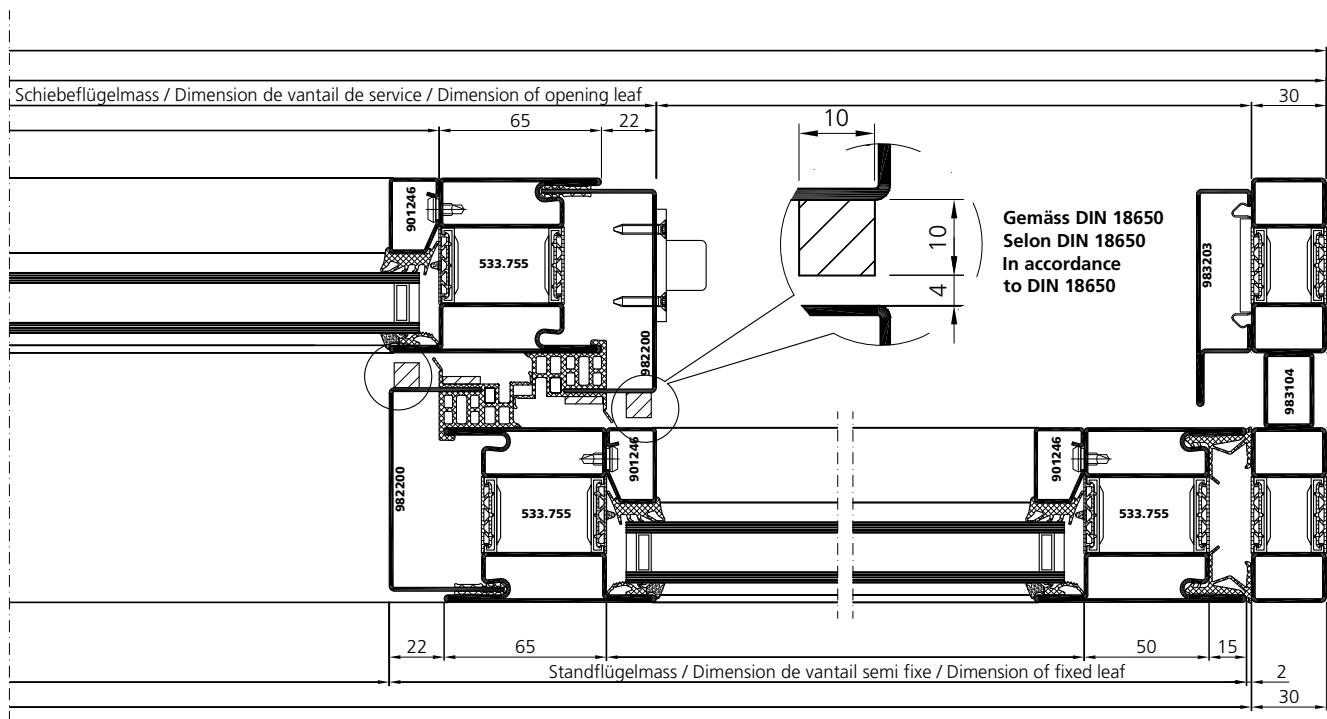
**System plan  
Lift-up sliding doors**

**A - A**



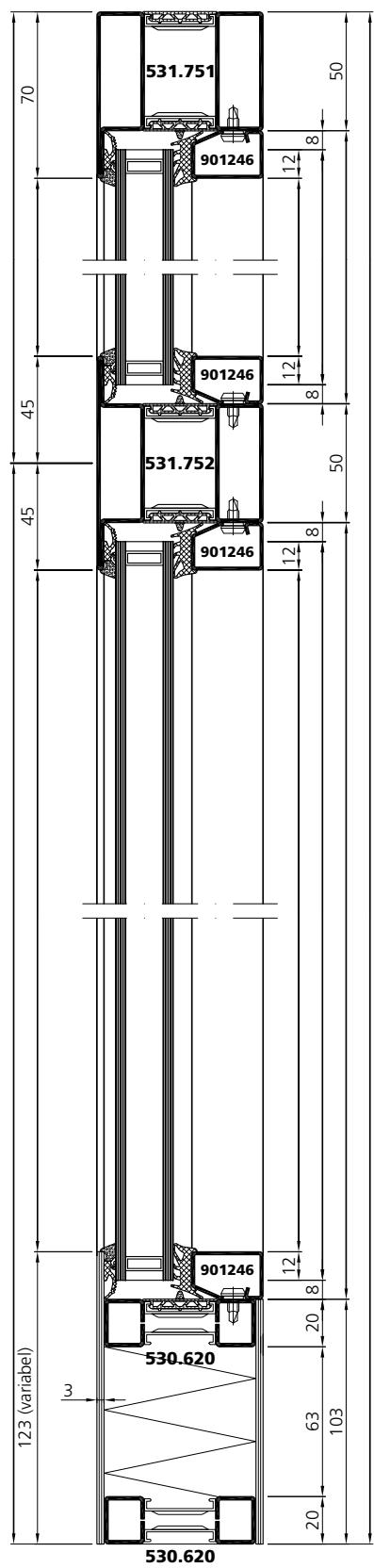
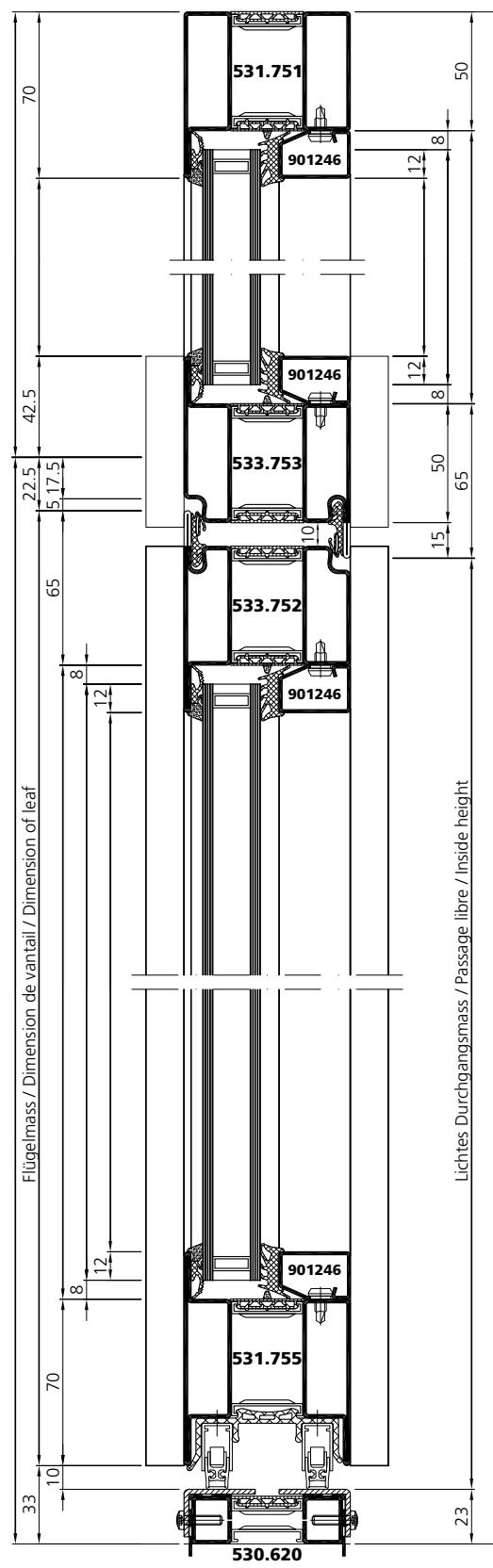
**B - B**



**Systemplan  
Hebeschiebetüren**
**Plan du système  
Portes coulissantes à levier**
**System plan  
Lift-up sliding doors**
[un\\_sp\\_0270](#)

**Schema C**



**Systemplan**  
**Fingerschutztür**
**Plan du système**  
**Porte anti-pince doigts**
**System plan**  
**Anti-finger-trap door**

■ un\_sp\_0398

**A - A****B - B**



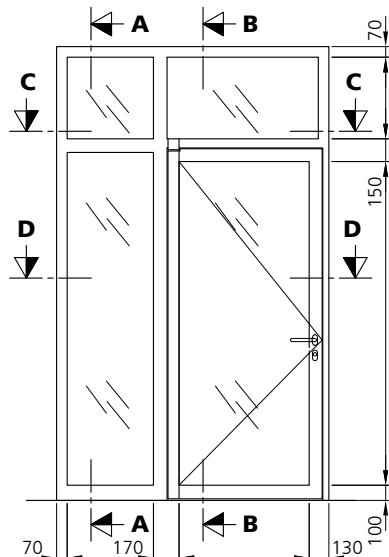
Stahl  
Acier  
Steel

**Systemplan**  
**Fingerschutztür**

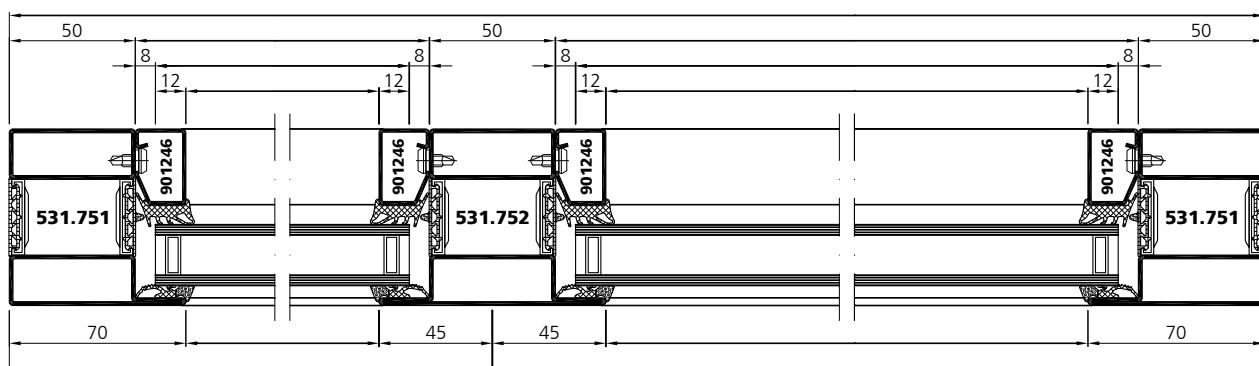
**Plan du système**  
**Porte anti-pince doigts**

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

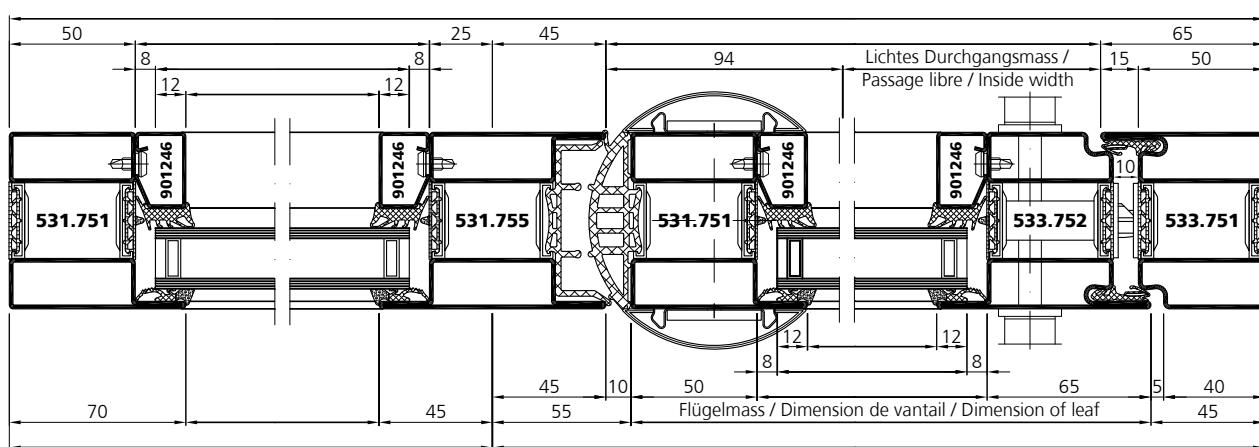
■ un\_sp 0398



**C - C**



**D - D**





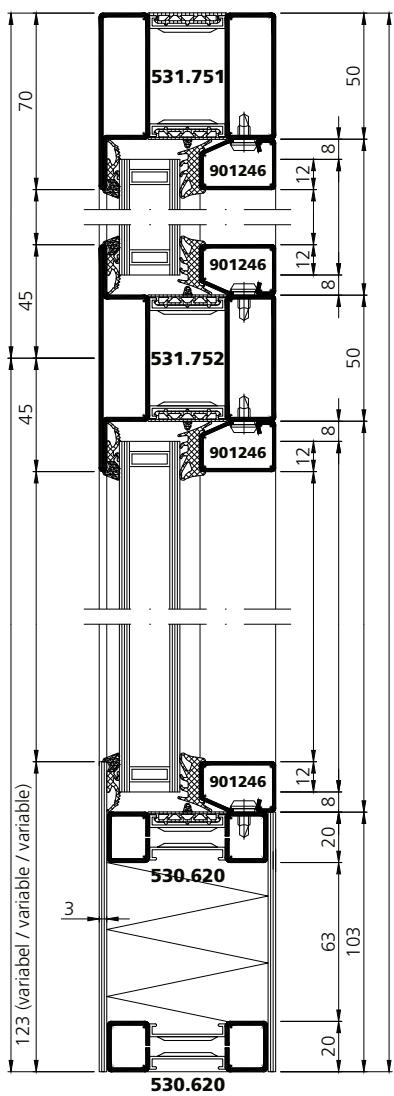
**Systemplan**  
**Fingerschutztür**

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

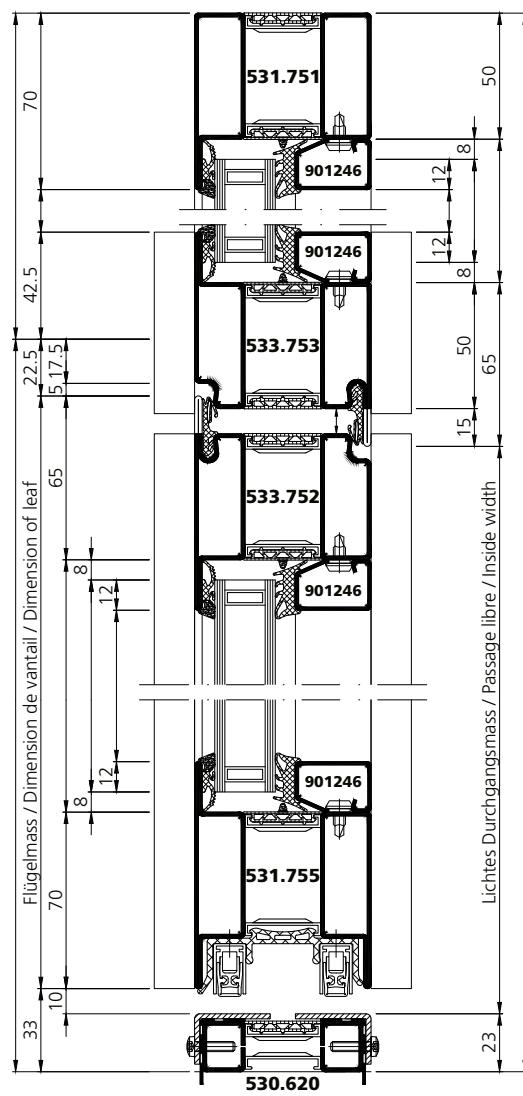
**System plan**  
**Anti-finger-trap door**

■ un\_sp 0404

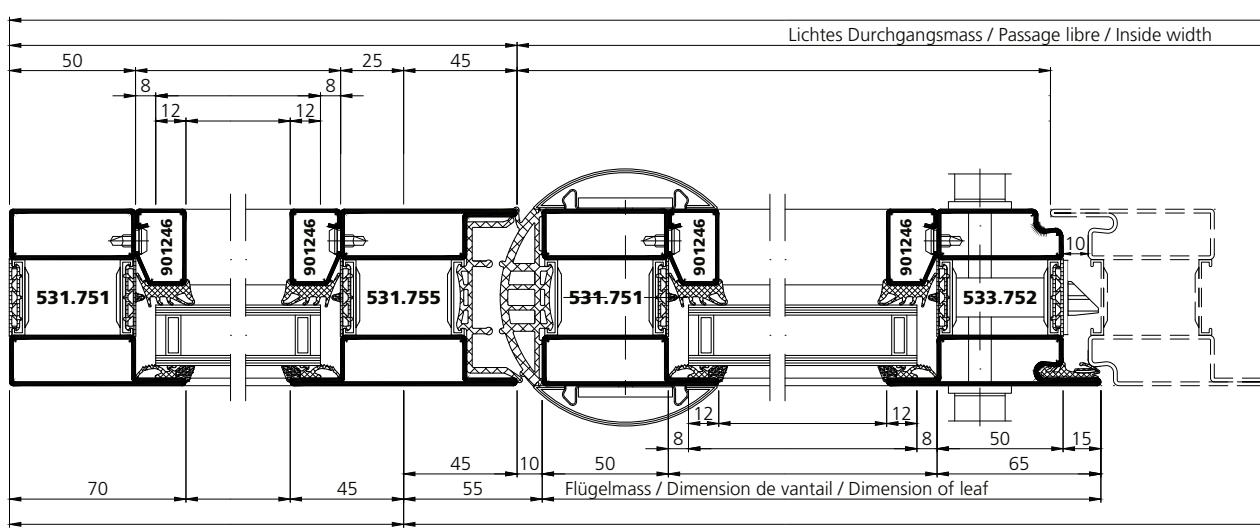
**A - A**



**B - B**



**D - D**





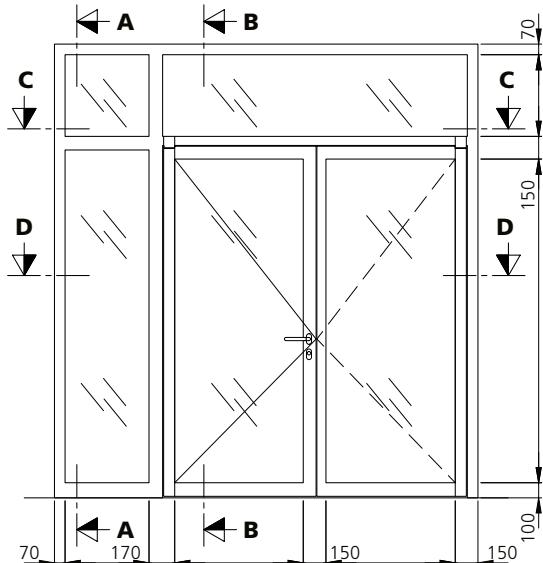
Stahl  
Acier  
Steel

**Systemplan**  
**Fingerschutztür**

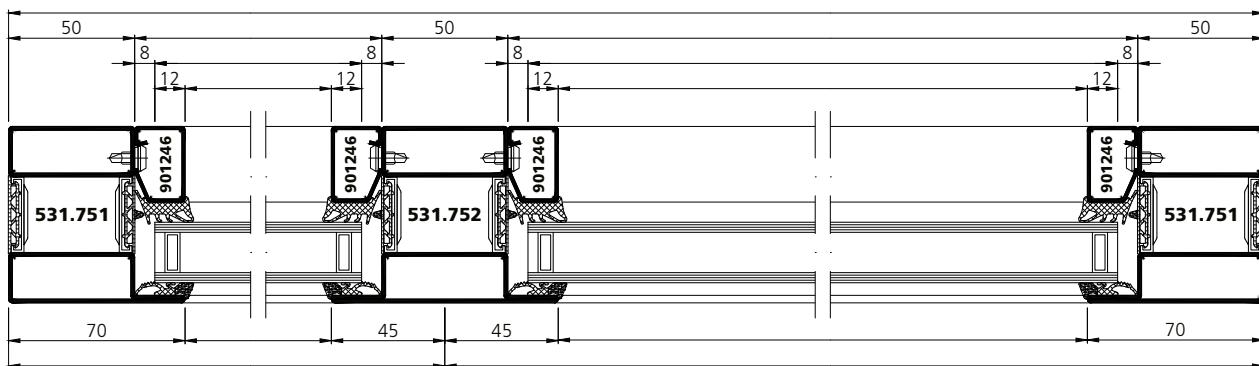
**Plan du système**  
**Porte anti-pince doigts**

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

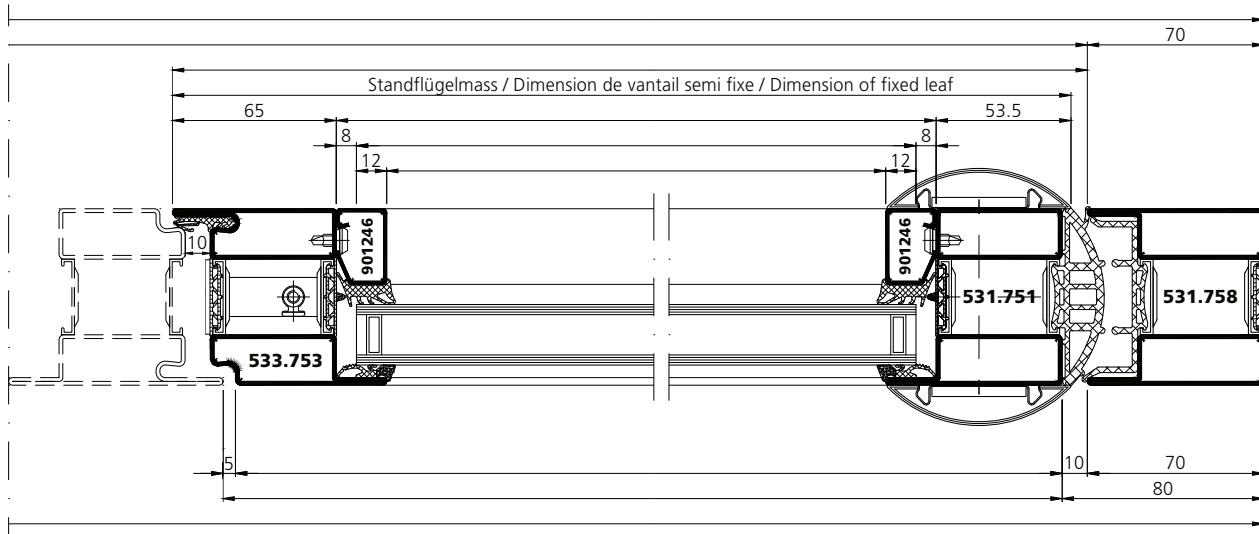
■ un\_sp\_0404



**C - C**



**D - D**



**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

**Tableau des plans du système**

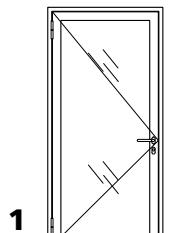
- porte à un vantail
  - avec partie latérale fixe
  - avec deux parties latérales fixes
  - avec imposte
  - avec imposte et partie latérale fixe
  - avec imposte et deux parties latérales fixes
- porte à deux vantaux
  - avec partie latérale fixe
  - avec deux parties latérales fixes
  - avec imposte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

**Synopsis of system plans**

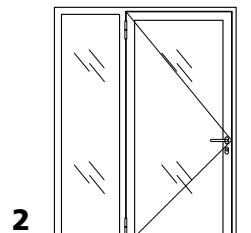
- single-leaf door
  - with screen abutment
  - with 2 screen abutments
  - with fanlight
  - with fanlight and screen abutment
  - with fanlight and 2 screen abutments
- double-leaf door
  - with screen abutment
  - with 2 screen abutments
  - with fanlight
  - with fanlight and screen abutment
  -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

■ Stahl / Acier / Steel

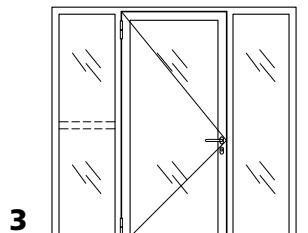
■ Edelstahl / Acier inox / Stainless steel



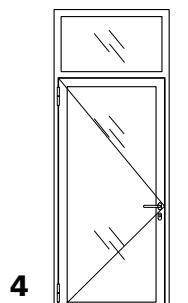
■ un\_sp\_0500  
■ un\_sp\_0850



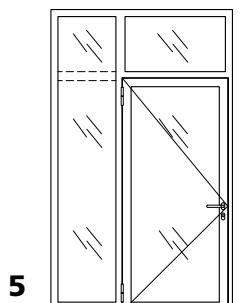
■ un\_sp\_0501  
■ un\_sp\_0851



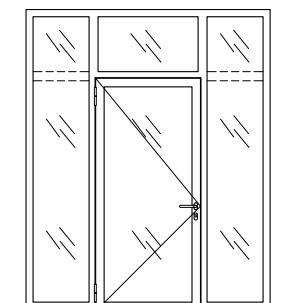
■ un\_sp\_0502  
■ un\_sp\_0852



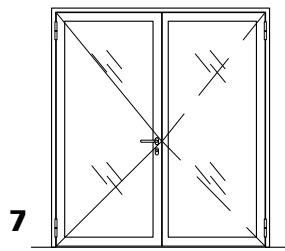
■ un\_sp\_0503  
■ un\_sp\_0853



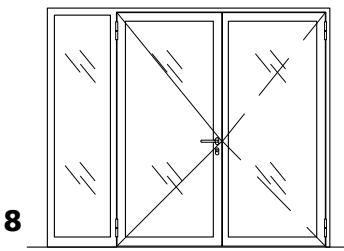
■ un\_sp\_0504  
■ un\_sp\_0854



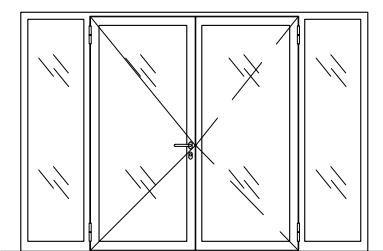
■ un\_sp\_0505  
■ un\_sp\_0855

**Übersicht Systempläne****Tableau des plans du système****Synopsis of system plans****7**

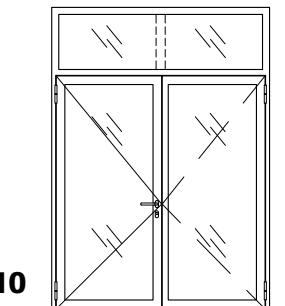
- [un\\_sp\\_0506](#)
- [un\\_sp\\_0856](#)

**8**

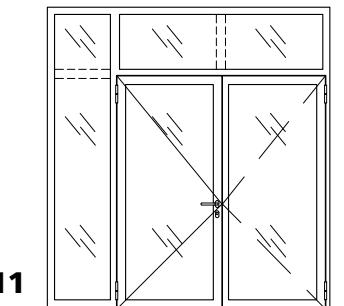
- [un\\_sp\\_0507](#)
- [un\\_sp\\_0857](#)

**9**

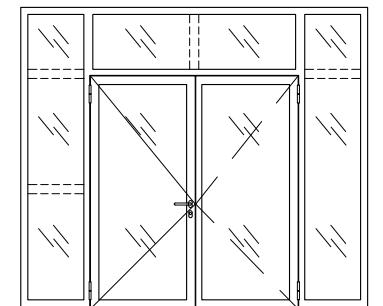
- [un\\_sp\\_0508](#)
- [un\\_sp\\_0858](#)

**10**

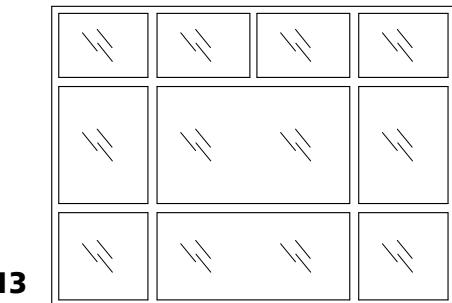
- [un\\_sp\\_0509](#)
- [un\\_sp\\_0859](#)

**11**

- [un\\_sp\\_0510](#)
- [un\\_sp\\_0860](#)

**12**

- [un\\_sp\\_0511](#)
- [un\\_sp\\_0861](#)

**13**

- [un\\_sp\\_0512](#)
- [un\\_sp\\_0862](#)

**Wichtig**

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

Massgebend sind ausschliesslich die für Ihr Land gültigen Zulassungen.

**Important****Important**

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

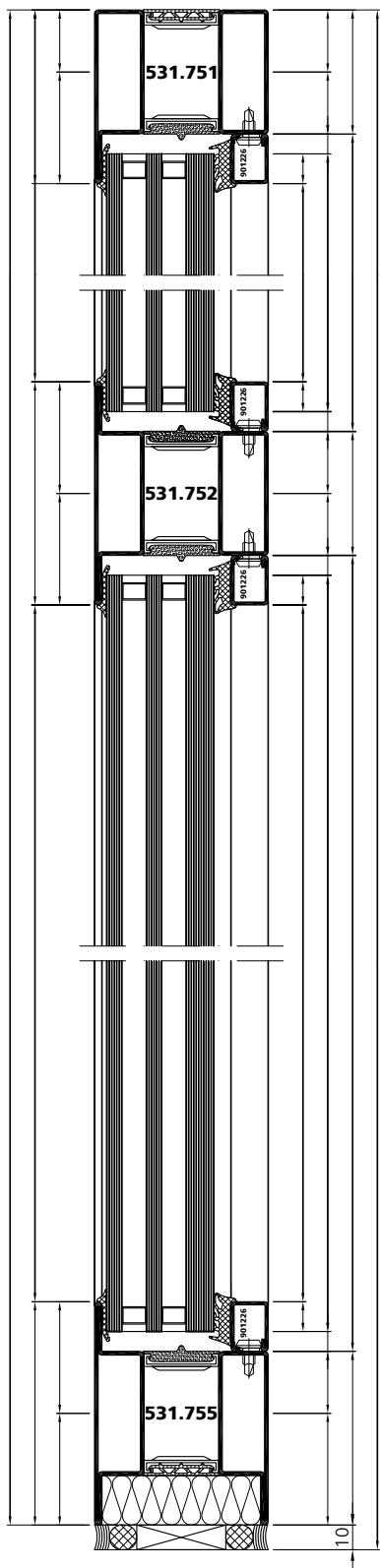
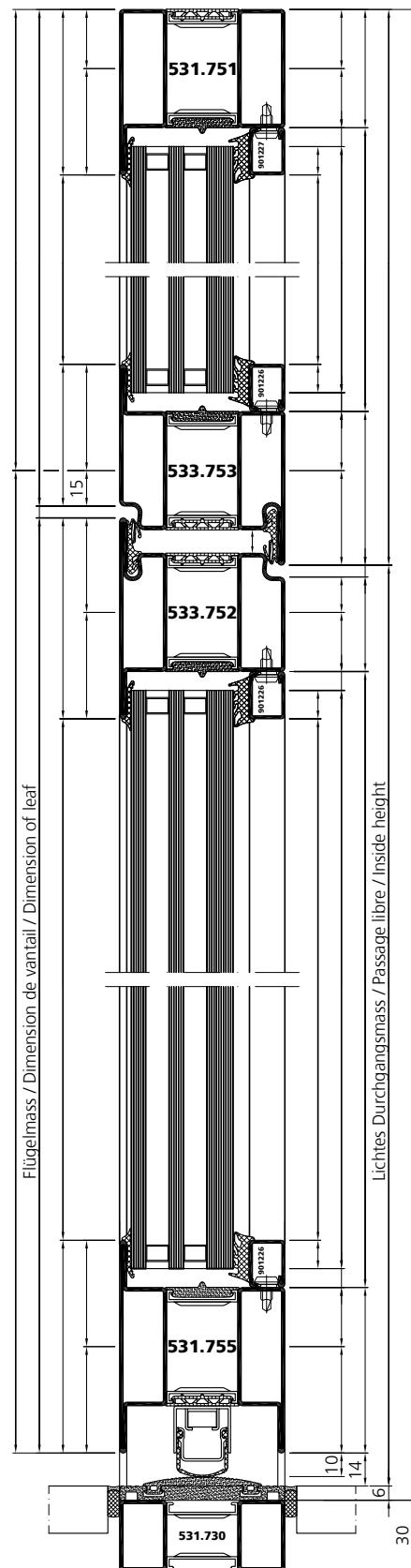
En conséquence, nous vous demandons de vous reporter aux procès-verbaux de classement en cours de validité dans votre pays.

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.

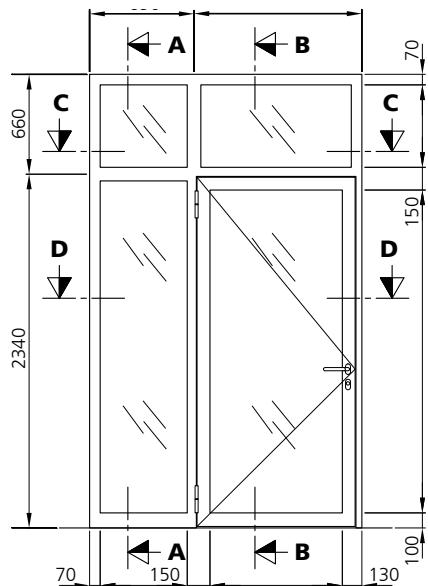
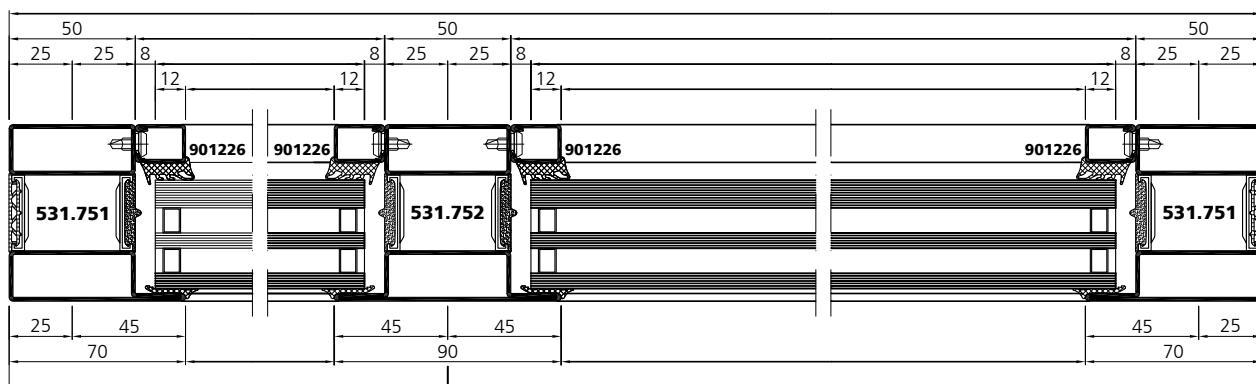
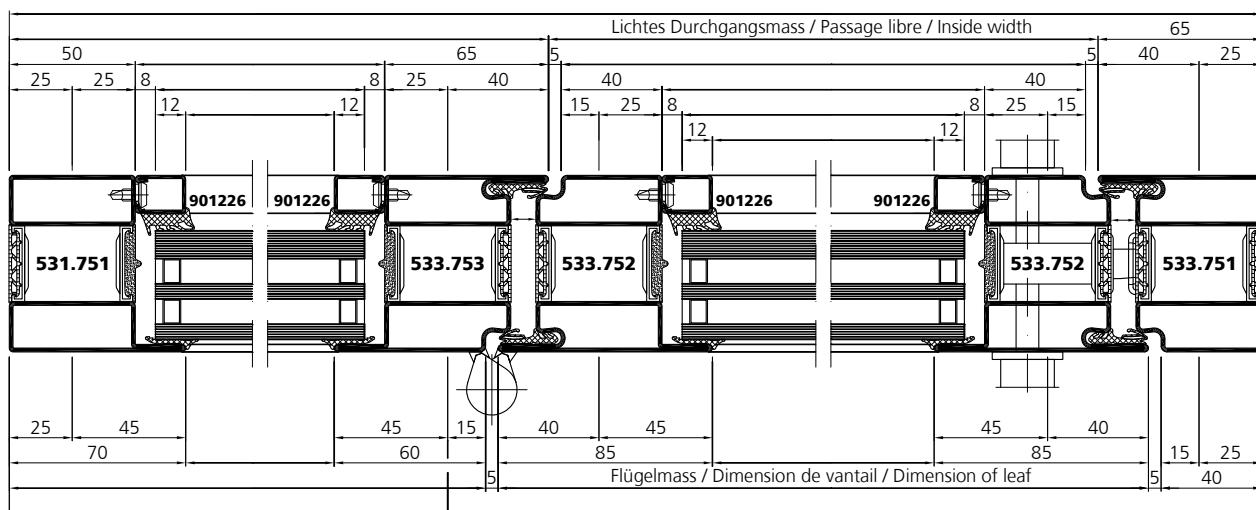
**Systemplan****Plan du système****System plan**

■ un sp 0504

**A - A****B - B**

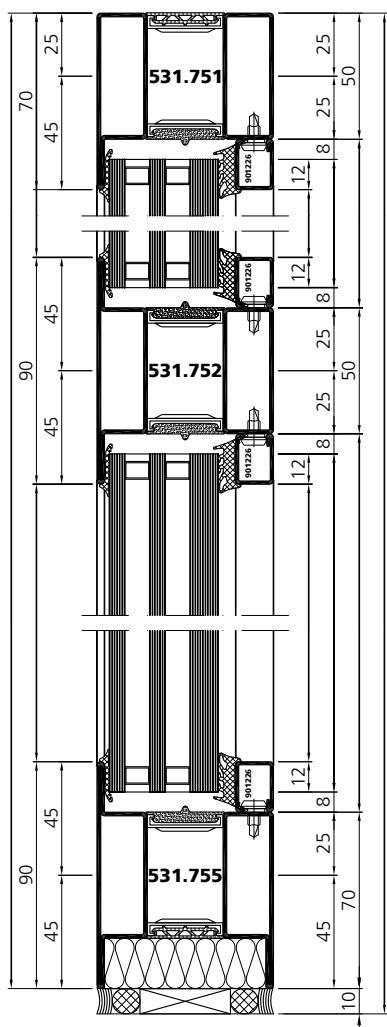
**Systemplan****Plan du système****System plan**

■ un\_sp 0504

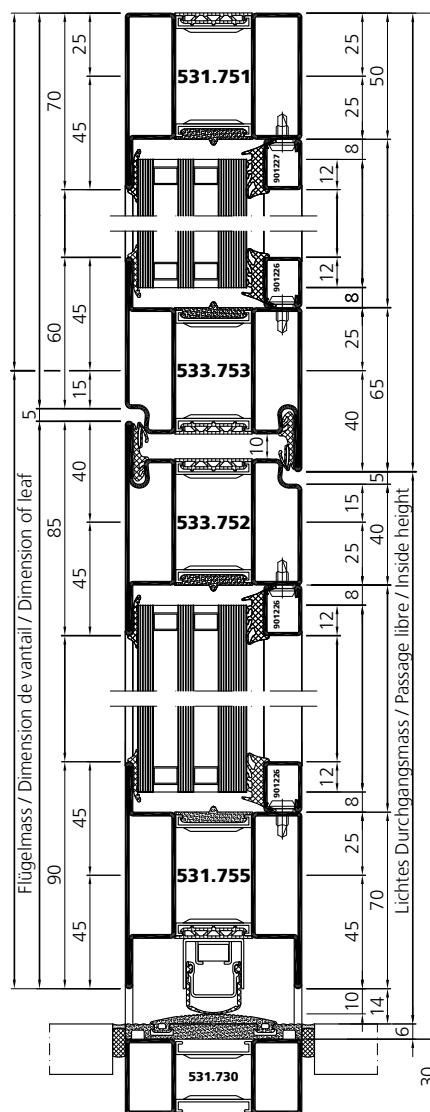
**C - C****D - D**

**Systemplan****Plan du système****System plan**

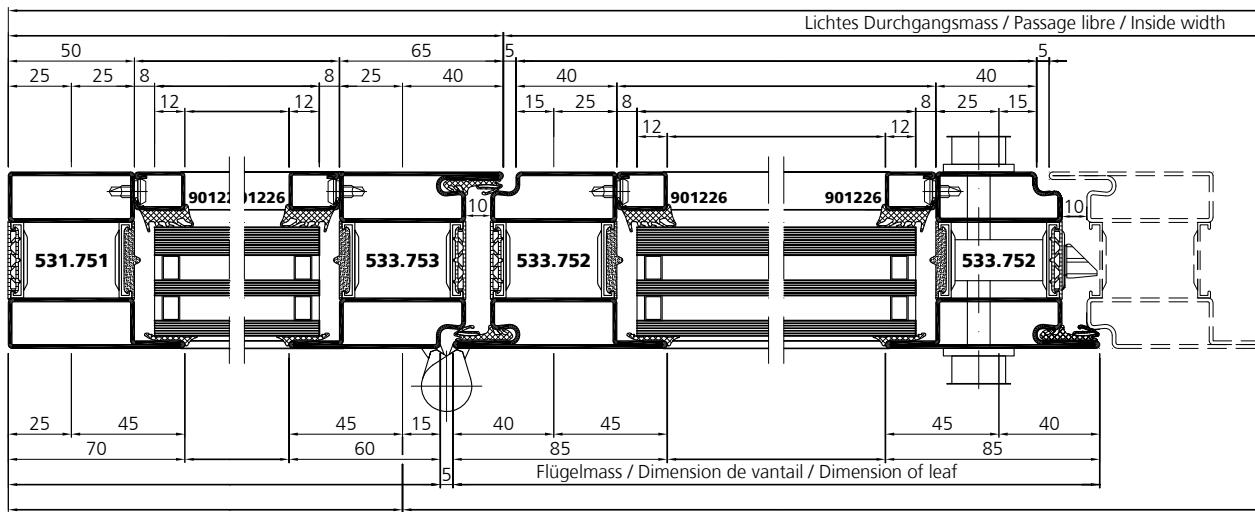
■ un sp 0510

**A - A**

**Isolierte Schwellen  
siehe Seiten 98**  
**Seuils isolés  
voir pages 98**  
**Insulated thresholds  
see pages 98**

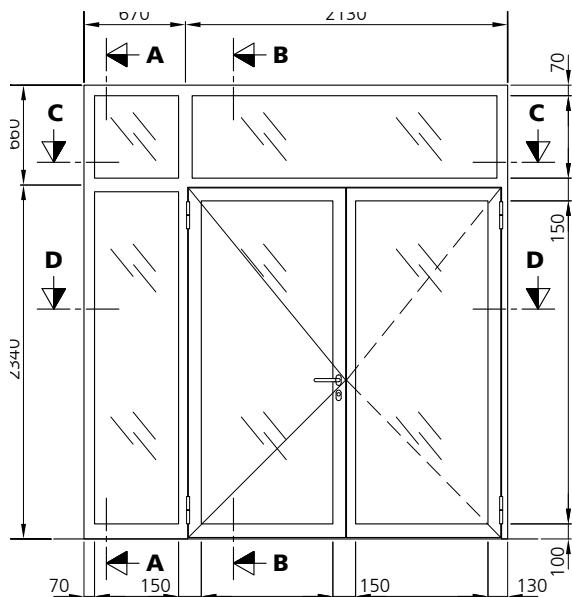
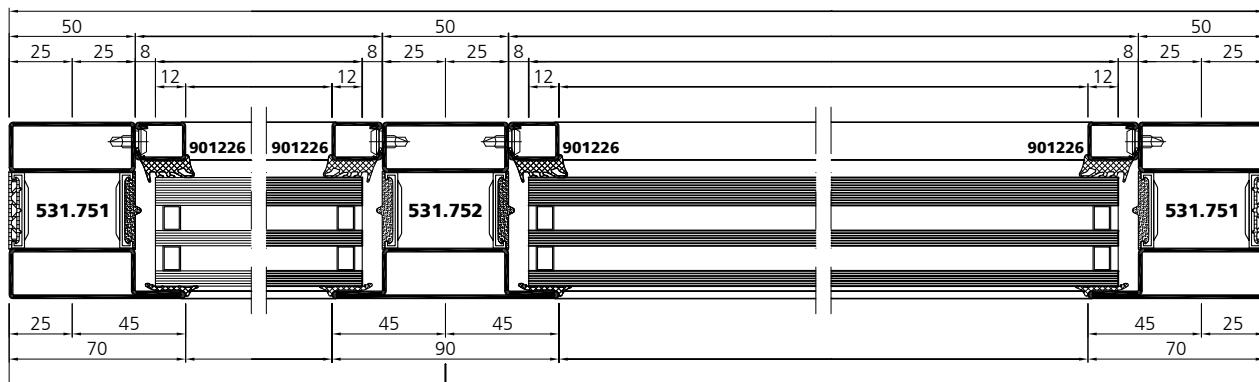
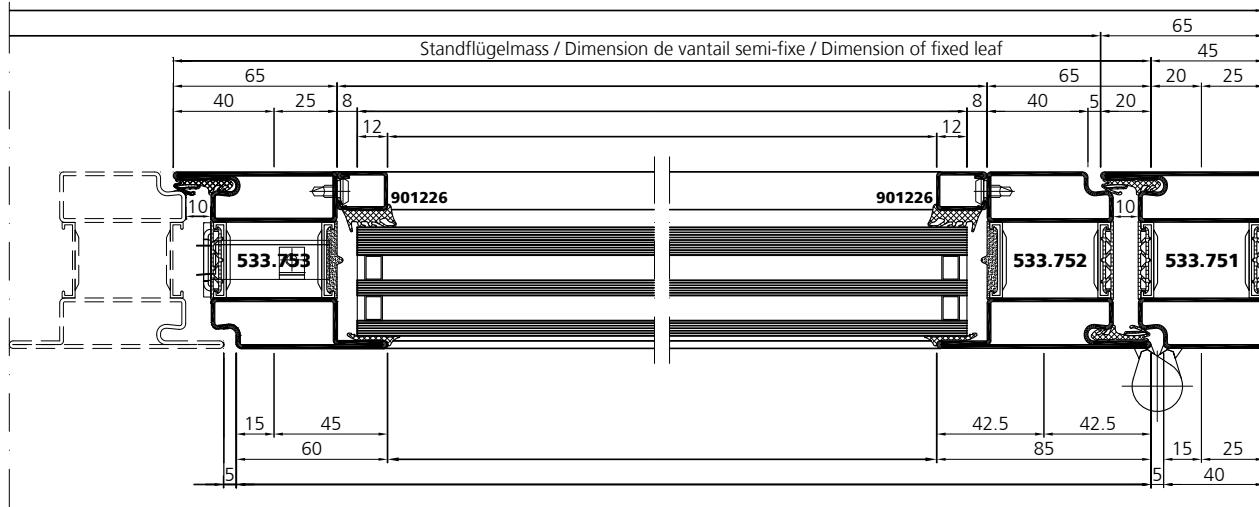
**B - B**

Lichtes Durchgangsmass / Passage libre / Inside width



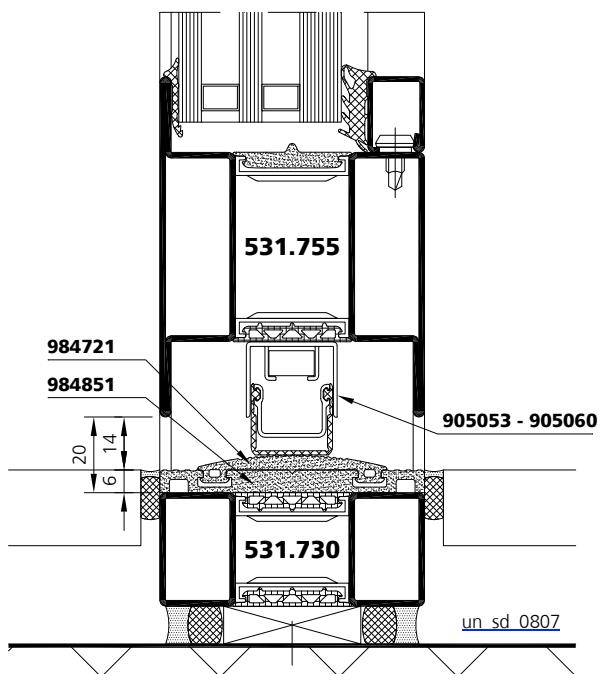
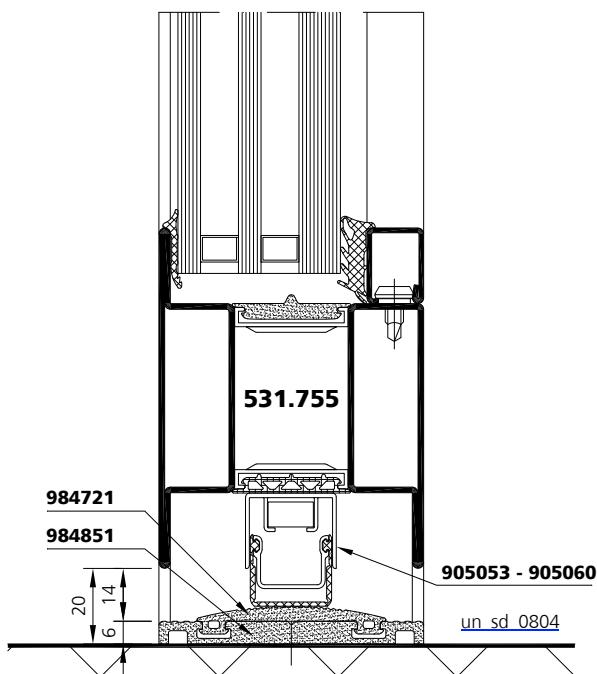
**Systemplan****Plan du système****System plan**

■ un\_sp 0510

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

**Aufsatzprofil  
Anschlagschwelle****984851****Profilé d'applique  
Seuil en butée****985721****Attachment profile  
Buffer threshold**

**Auswärts- und Einwärts öffnend /  
Ouvrant à l'extérieur et ouvrant à l'intérieur /  
Opening outwards and opening inwards**



**Systemübersicht  
Fenster**

**Tableau du système  
Fenêtres**

**Synopsis of system  
Windows**

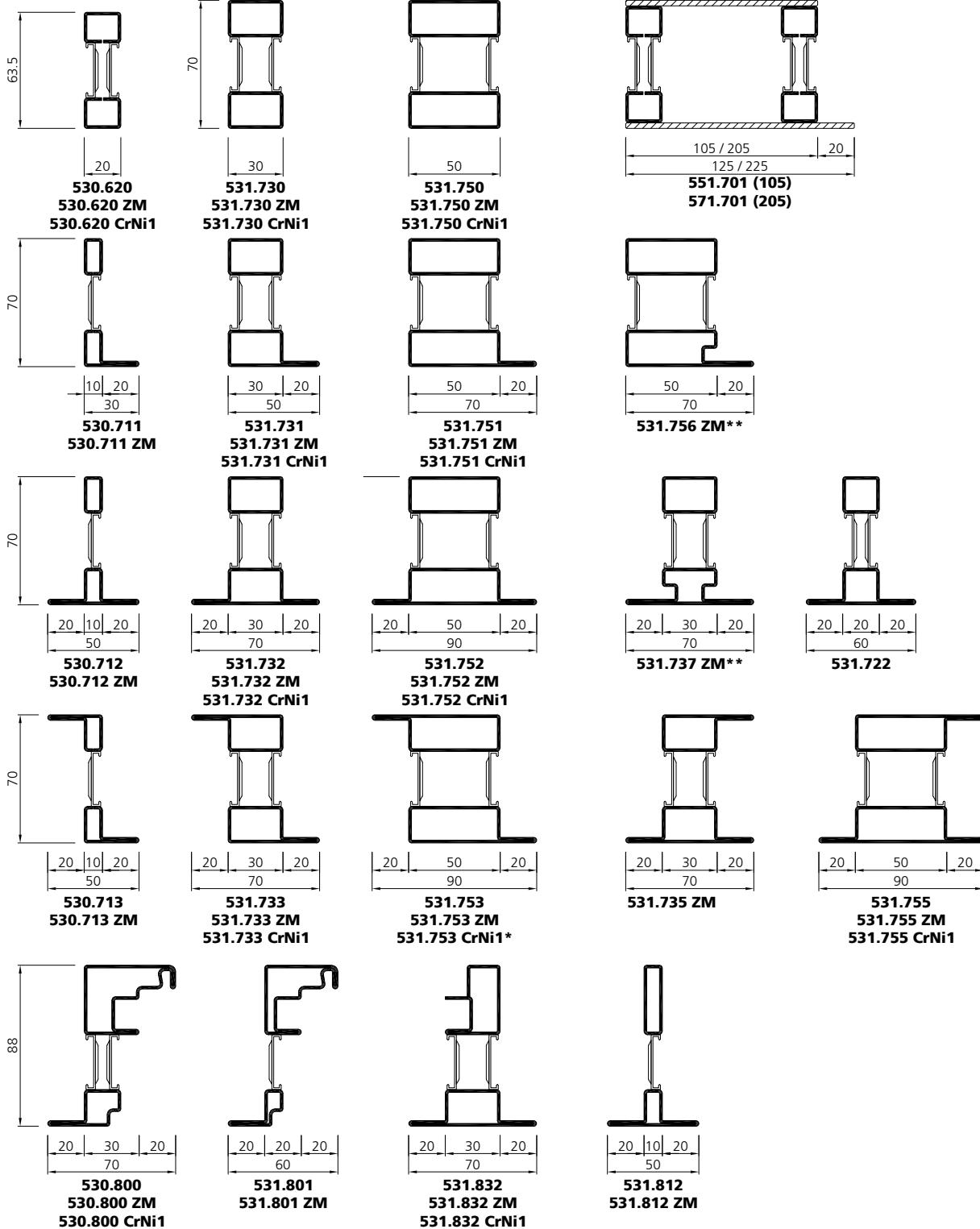


03/21

## Systemübersicht Fenster

## Tableau du système Fenêtres

## Synopsis of system Windows



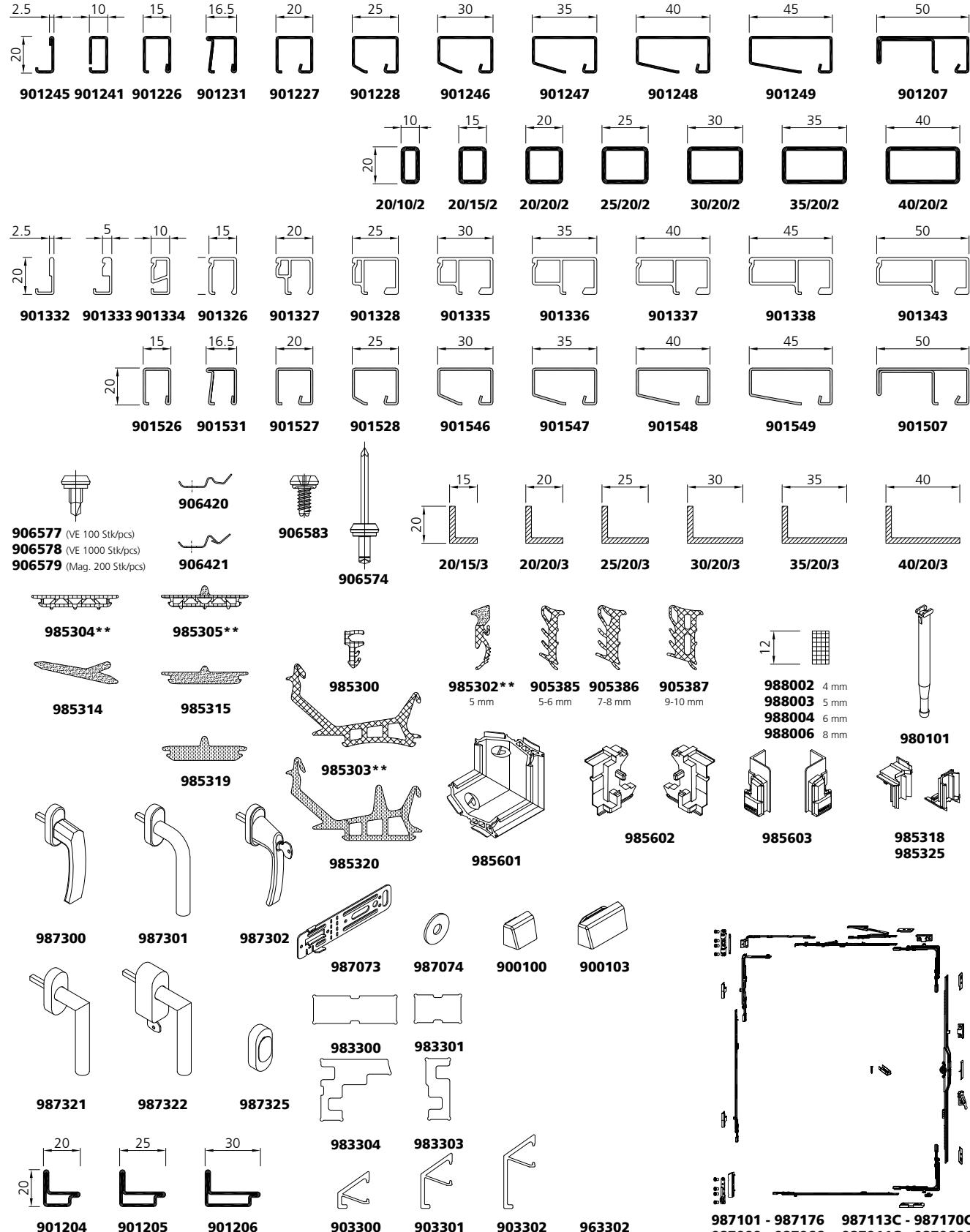
\* auf Anfrage  
sur demande  
on request

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

## Systemübersicht Fenster

## Tableau du système Fenêtres

## Synopsis of system Windows



\*\* Silikon schwarz, Farben auf Anfrage / Silicon noir, couleurs sur demande / Silicon black, colors on request

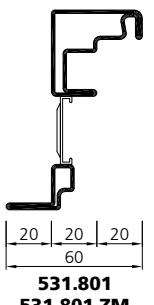
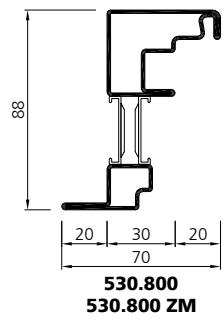
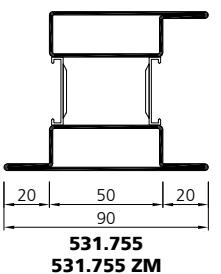
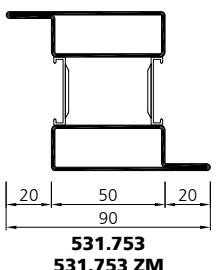
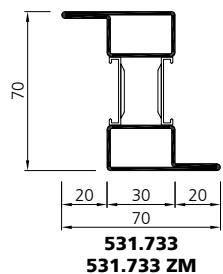
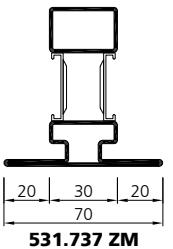
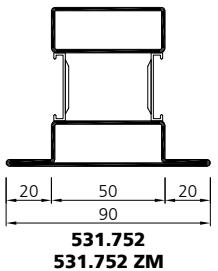
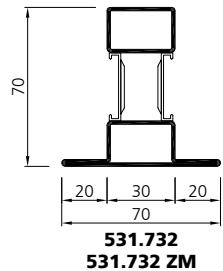
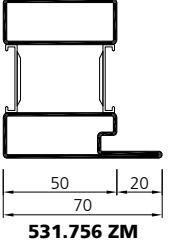
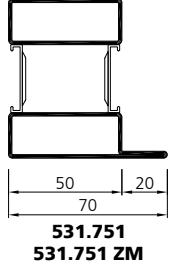
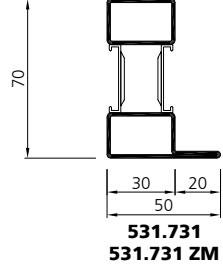
987101 - 987176 987113C - 987170C  
987900 - 987966 987911C - 987966C  
987181 - 987186 987181C - 987192C

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

## Systemübersicht Fenster

## Tableau du système Fenêtre

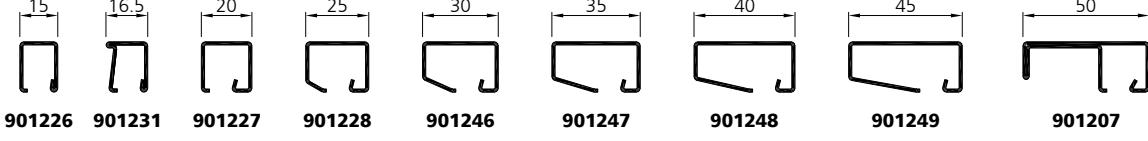
## Synopsis of system Windows



## Systemübersicht Fenster

## Tableau du système Fenêtre

## Synopsis of system Windows



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

948002 4 mm  
948003 5 mm  
948004 6 mm  
948006 8 mm  
  
948007 4 mm  
948008 5 mm  
948009 6 mm  
948010 8 mm  
  
980101

985704

985703

985320

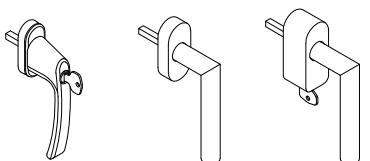
985325

985700

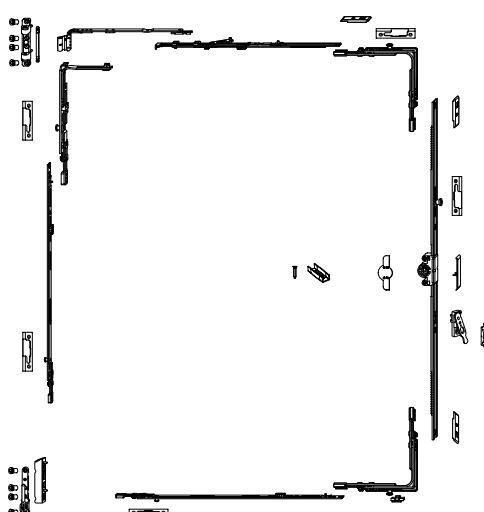
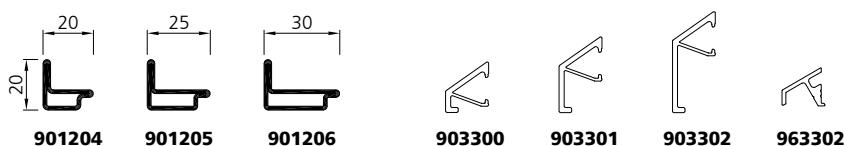
900100  
900103

988051

985319



987325



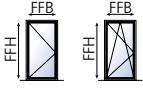
987101 RC3 - 987158 RC3

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

	Standard	RC1	RC2	RC3
<b>Werkstoffe</b> <b>Matières premières</b> <b>Materials</b>				
Stahl / Acier / Steel	✓	✓	✓	✓
CrNi	✓	✓	✓	✓
<b>Elementgrößen</b> <b>Dim. des éléments</b> <b>Element dimensions</b>				
	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
<b>Verglasung</b> <b>Vitrage</b> <b>Glazing</b>				
Trockenverglasung Vitrage à sec Dry glazing				
Nassverglasung Vitrage au silicone Silicone glazing				
<b>Glas / Paneele</b> <b>Verres / Panneaux</b> <b>Glass / Panels</b>				
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
<b>Beschläge</b> <b>Quincaillerie</b> <b>Fittings</b>				
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	NRWG (Rauch- und Wärmeabzug) DENFC (évacuation des fumées et de la chaleur) SHEVS (smoke- and heat exhaust)
<b>Werkstoffe</b> <b>Matières premières</b> <b>Materials</b>			
Stahl / Acier / Steel	✓	✓	✓
CrNi		✓	✓
<b>Elementgrößen</b> <b>Dim. des éléments</b> <b>Element dimensions</b>			
	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
	---	---	---
<b>Verglasung</b> <b>Vitrage</b> <b>Glazing</b>			
Trockenverglasung Vitrage à sec Dry glazing			
Nassverglasung Vitrage au silicone Silicone glazing			
<b>Glas / Paneele</b> <b>Verres / Panneaux</b> <b>Glass / Panels</b>			
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
Paneele / Panneaux / Panels	33 mm	54 mm	20 – 60 mm
<b>Beschläge</b> <b>Quincaillerie</b> <b>Fittings</b>			
Systembeschläge Quincaillerie du système System fittings	- aufgesetzt / apparent / surface-mounted - verdeckt / invisible / concealed	- aufgesetzt / apparent / surface-mounted	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)	 Drehflügel / ouverture à la française / turn window
Griffe Poignées Handles			---



03/21

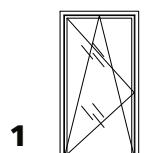
Zentrum für Energietechnik, Technische Universität, DE-Dresden

## 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

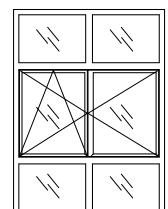
**1**

 un\_sp\_0072  
un\_sp\_0090  
 un\_sp\_0082

[BIM Revit](#) / [ArchiCAD](#)

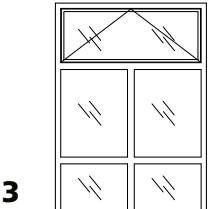
## Tableau des plans du système Fenêtres

- 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

**2**

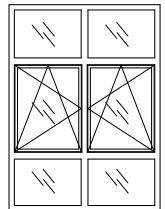
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un\_sp\_0091  
 un\_sp\_0083

[BIM Revit](#) / [ArchiCAD](#)

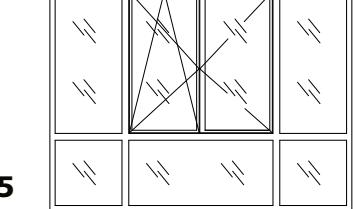
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un\_sp\_0087  
 un\_sp\_0084

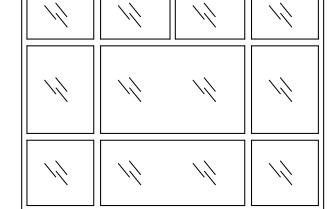
[BIM Revit](#) / [ArchiCAD](#)

**4**

 un\_sp\_0075  
un\_sp\_0088  
 un\_sp\_0085

**5**

 un\_sp\_0076  
un\_sp\_0089  
 un\_sp\_0086

**6**

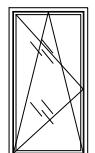
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 un\_sp\_0071

Tilt-turn window

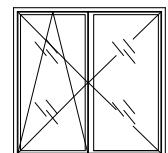
Double sash window turn/tilt-turn

Fixed glazing

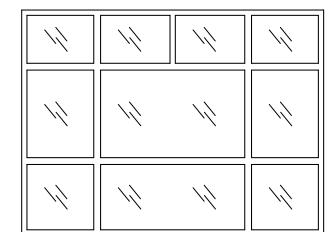
531.801 Z

**1**

 un\_sp\_0201

**2**

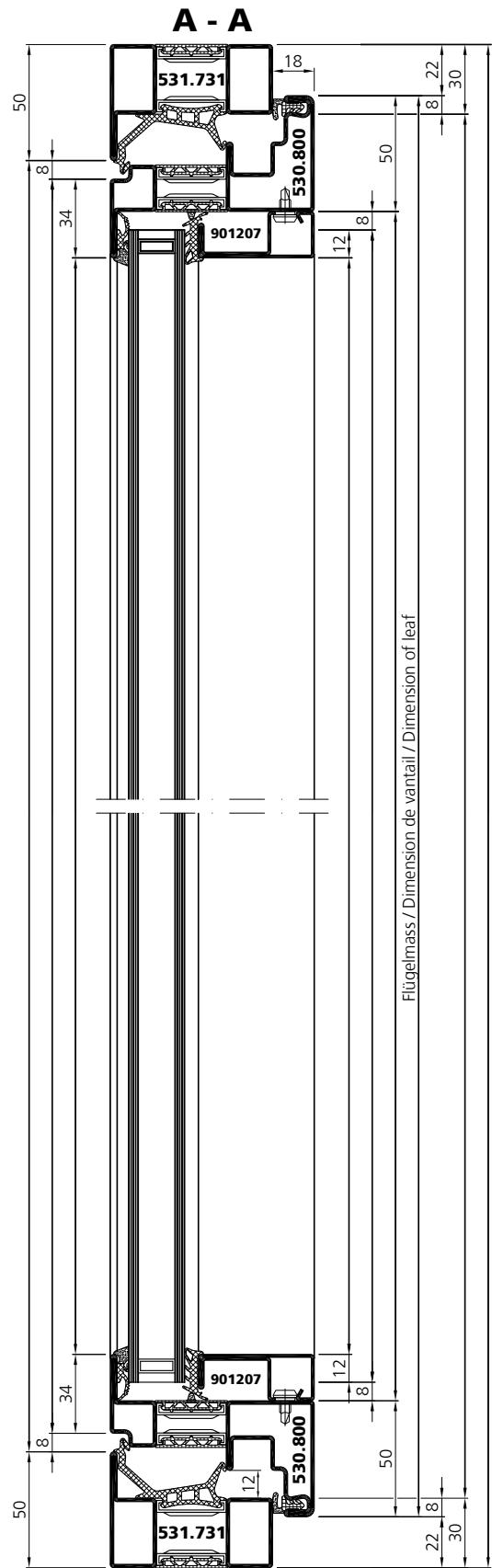
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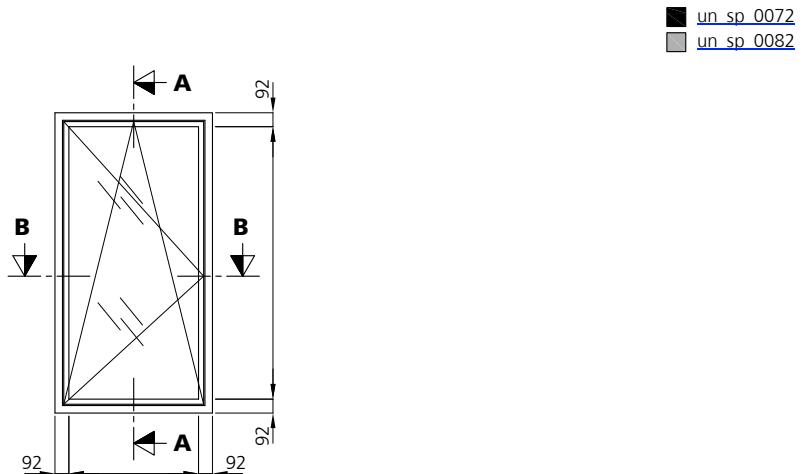
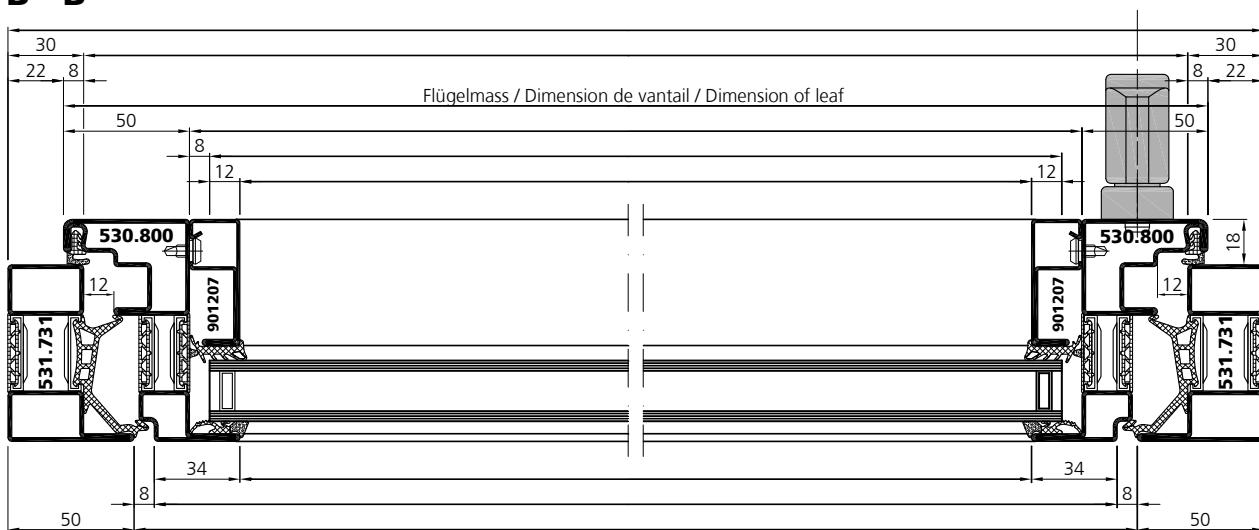
**3**

 un\_sp\_0200

**Systemplan  
Fenster**
**Plan du système  
Fenêtres**
**System plan  
Windows**

un\_sp\_0072  
 un\_sp\_0082



**Systemplan  
Fenster**
**Plan du système  
Fenêtres**
**System plan  
Windows**

**B - B**


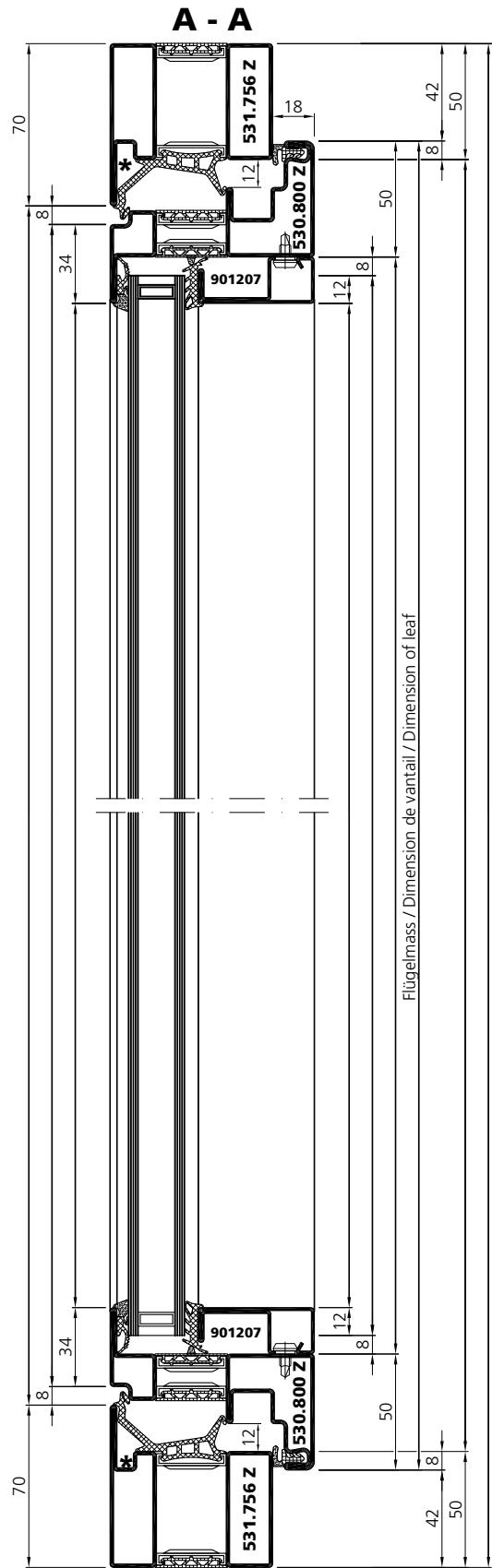
**Systemplan  
Fenster**

**Plan du système  
Fenêtres**

**System plan  
Windows**

un sp 0090

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



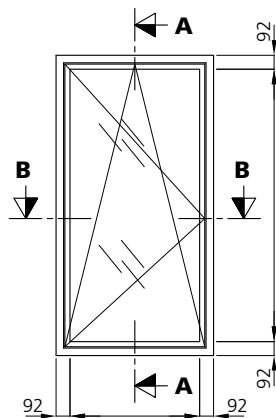
## Systemplan Fenster

## Plan du système Fenêtres

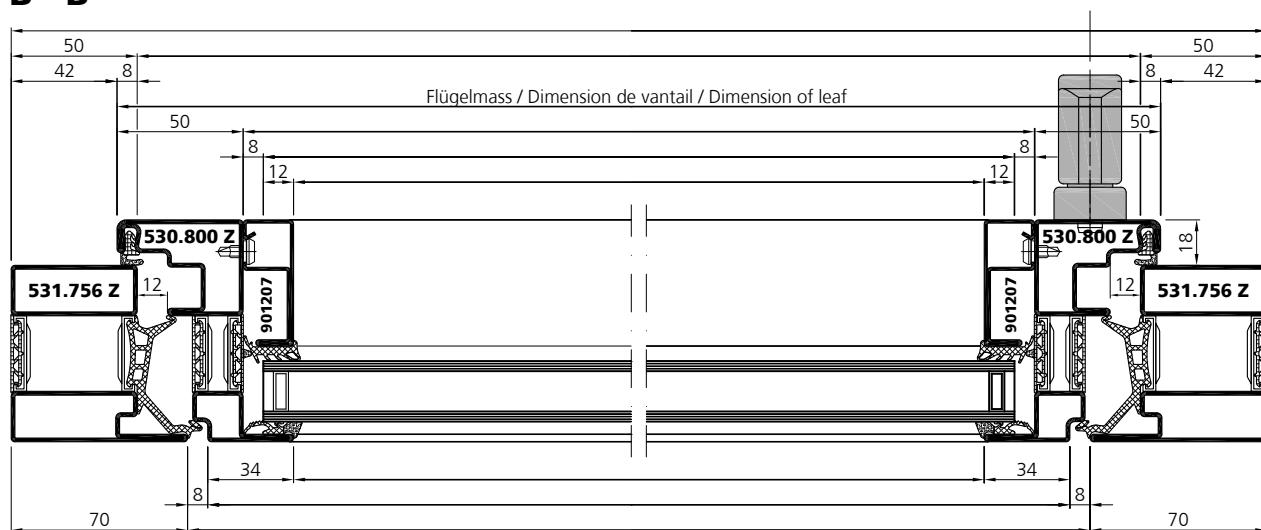
## System plan Windows

 un\_sp\_0090

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



### B - B



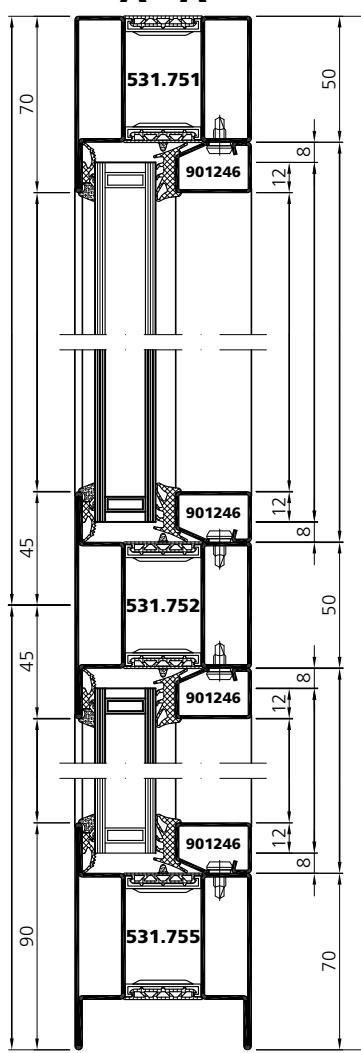
**Systemplan  
Fenster**

**Plan du système  
Fenêtres**

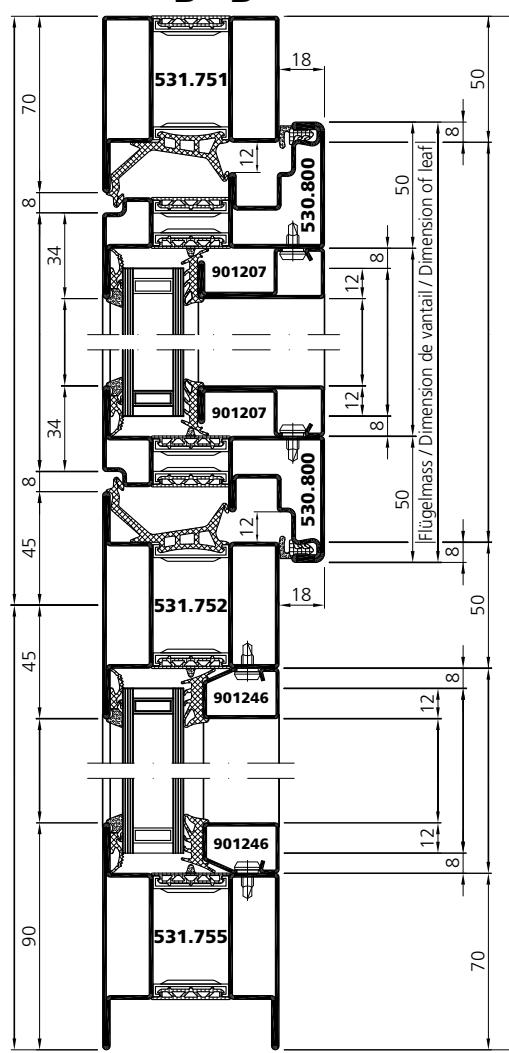
**System plan  
Windows**

un\_sp\_0076  
 un\_sp\_0086

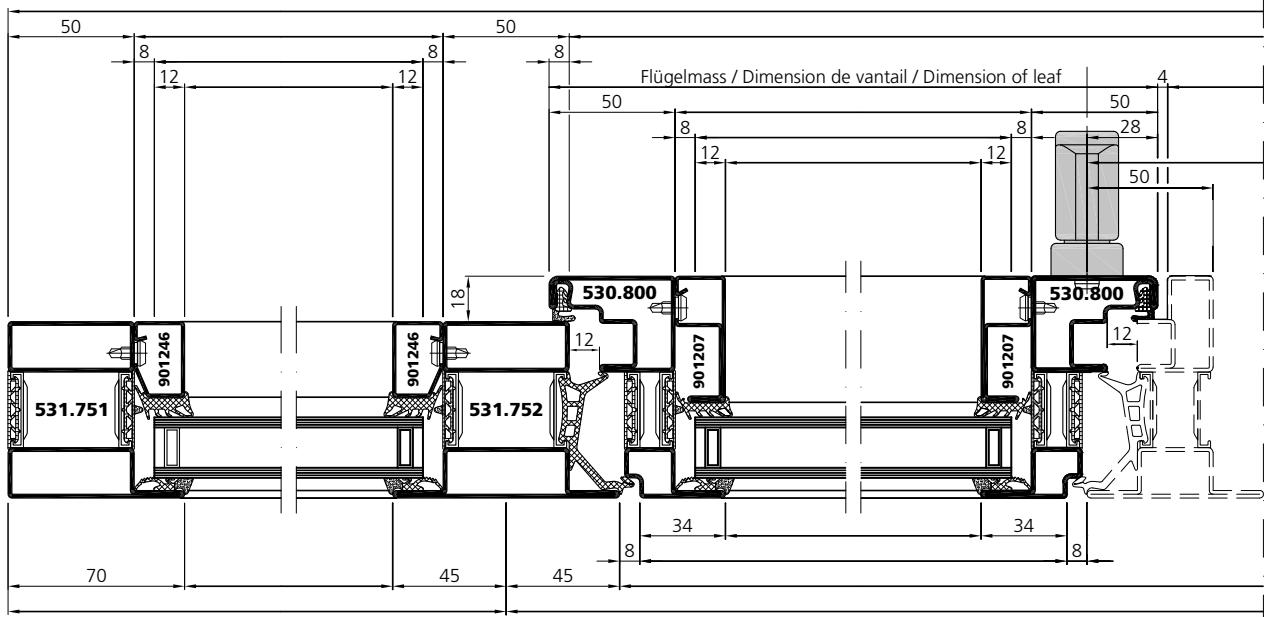
**A - A**



**B - B**

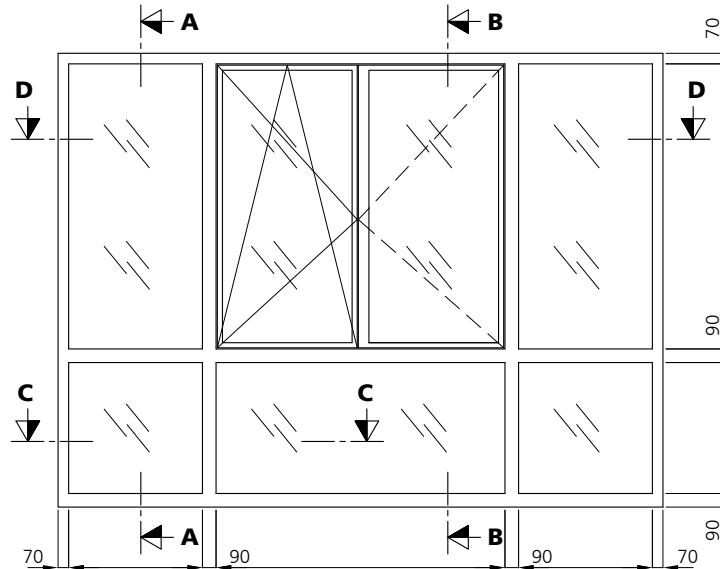
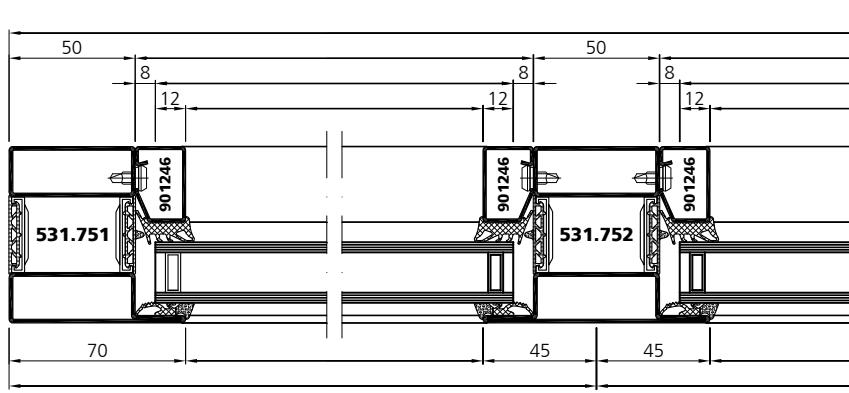
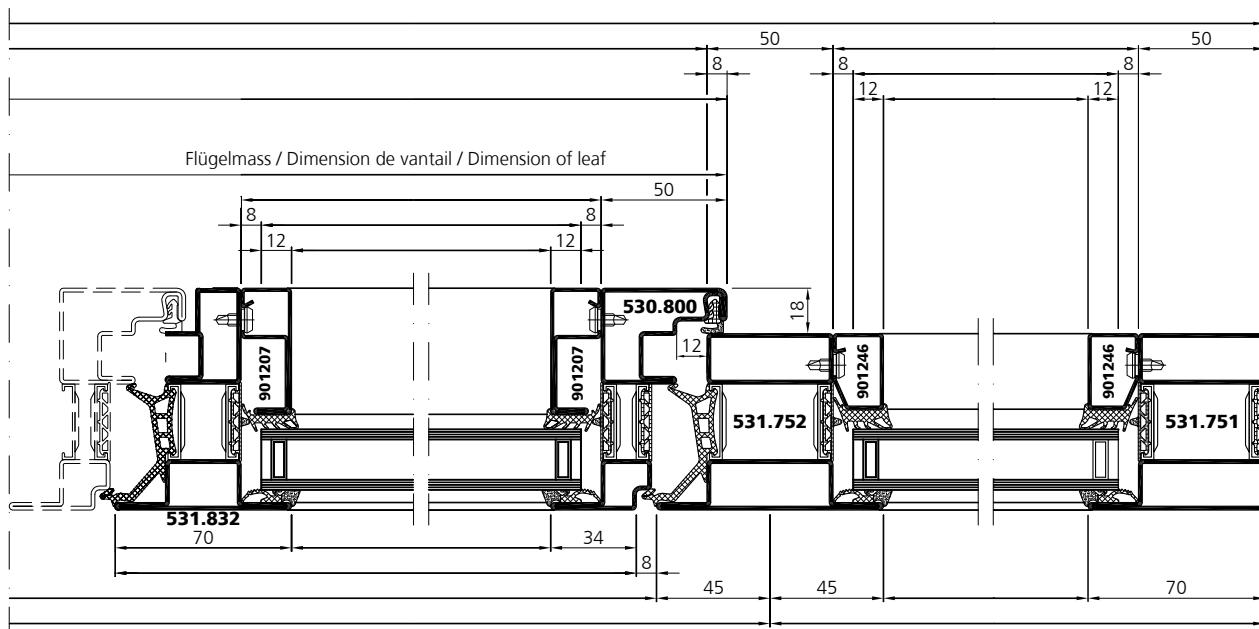


**D - D**



**Systemplan  
Fenster**
**Plan du système  
Fenêtres**
**System plan  
Windows**

■ un\_sp 0076  
■ un\_sp 0086

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

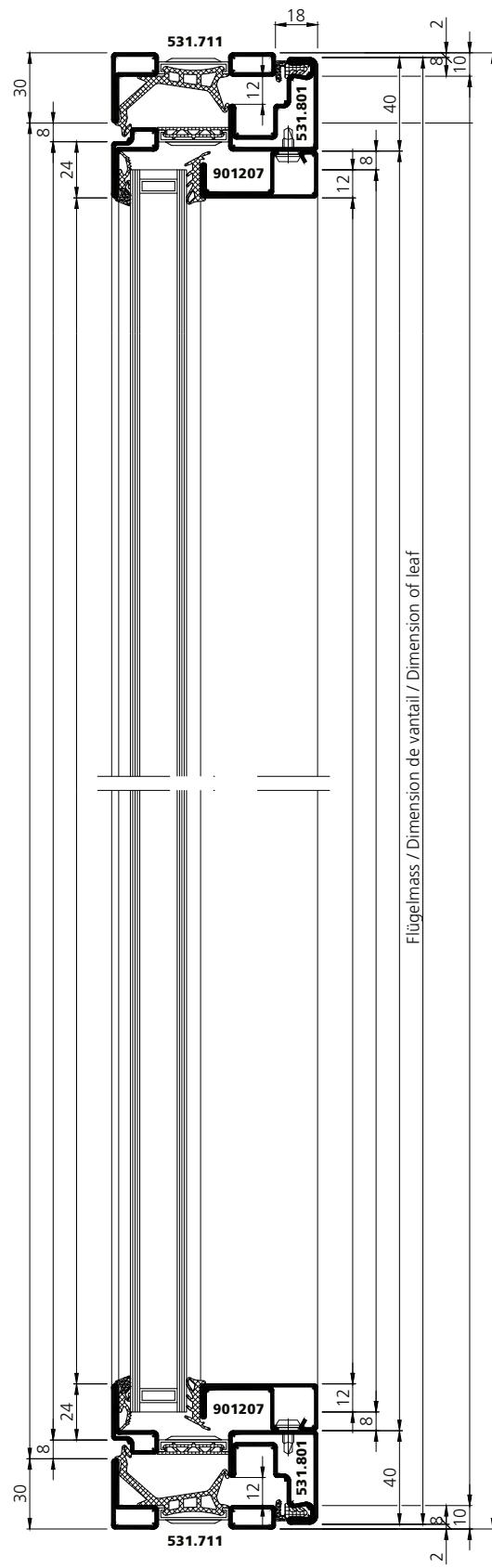
**Systemplan  
Fenster**

**Plan du système  
Fenêtres**

**System plan  
Windows**

■ un\_sp\_0202

**A - A**

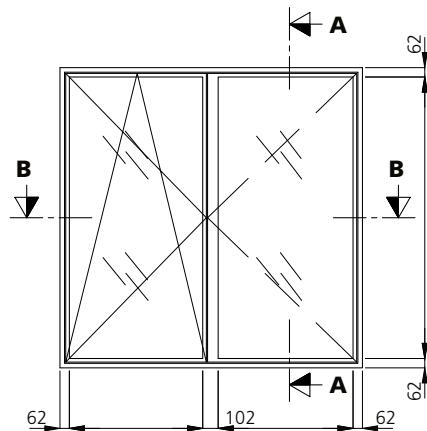


**Systemplan**  
**Fenster**

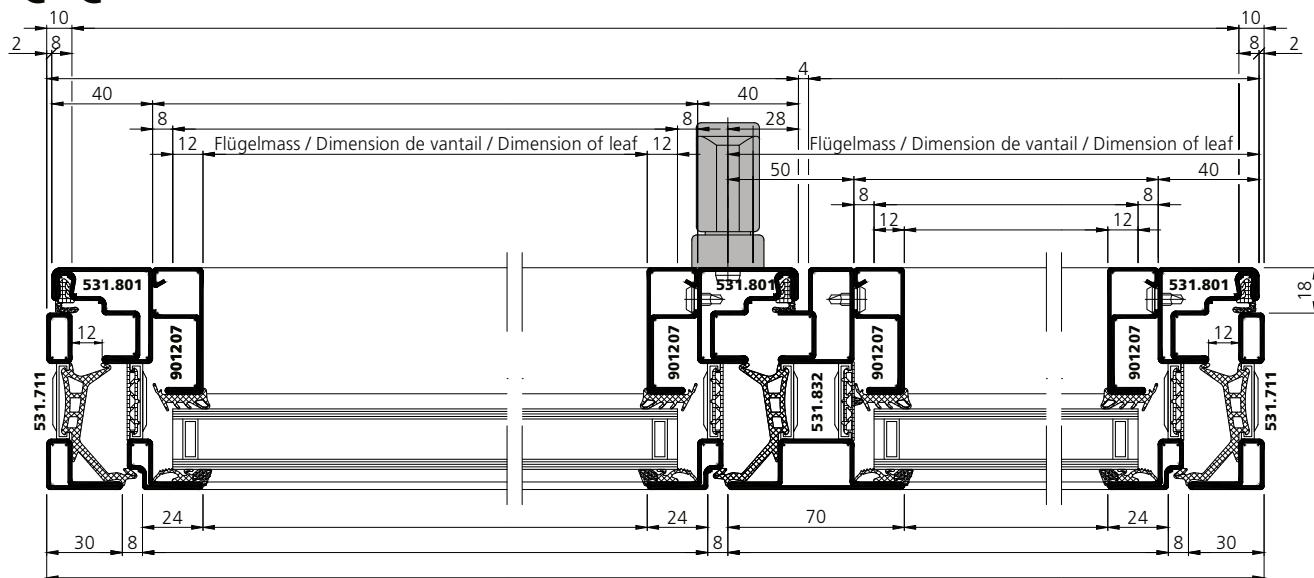
**Plan du système**  
**Fenêtres**

**System plan**  
**Windows**

■ un\_sp\_0202



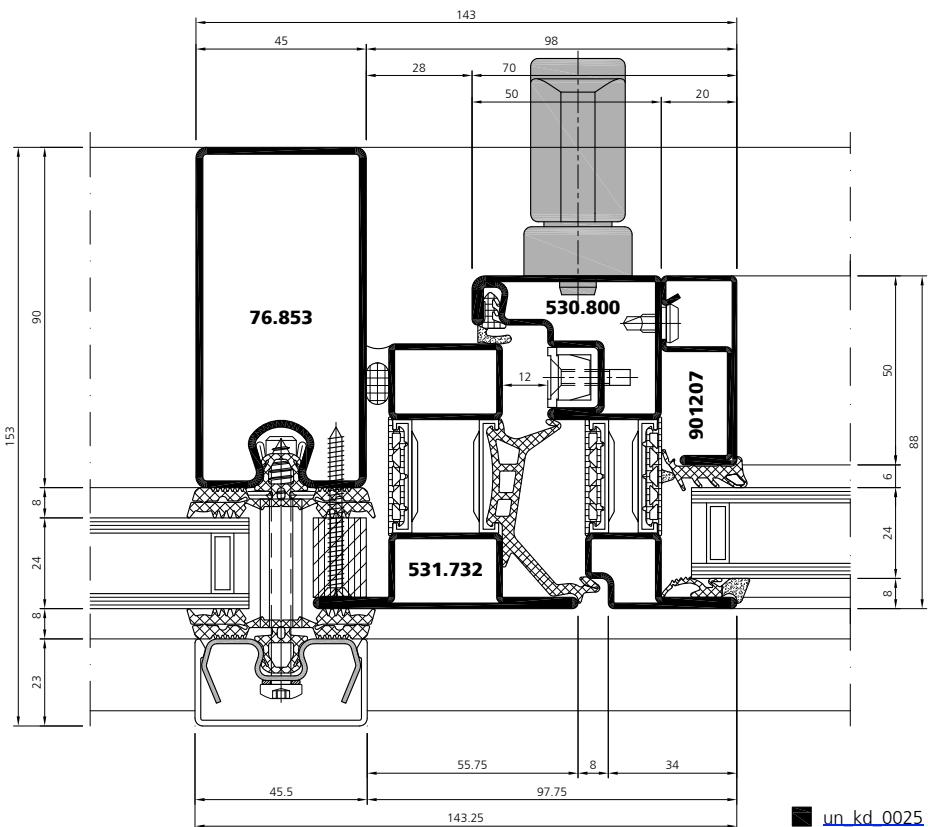
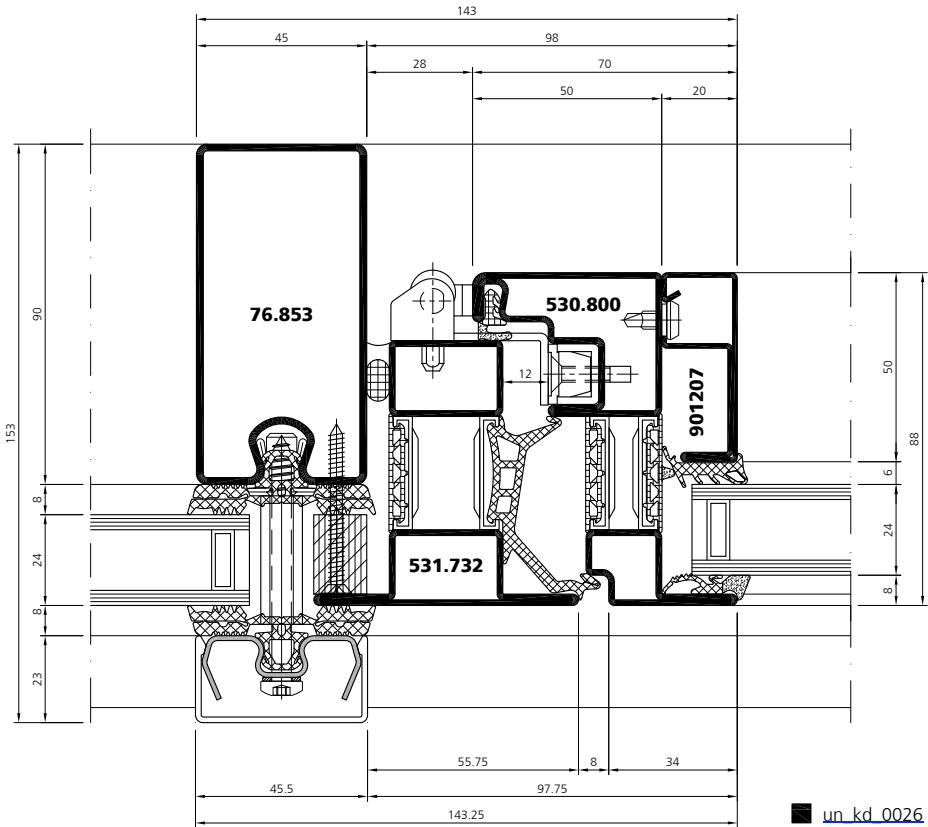
**C - C**



**Konstruktionsdetails**  
**Fenster**  
**Einbau in thermfix vario**

**Détails de construction**  
**Fenêtres**  
**Montage dans thermfix vario**

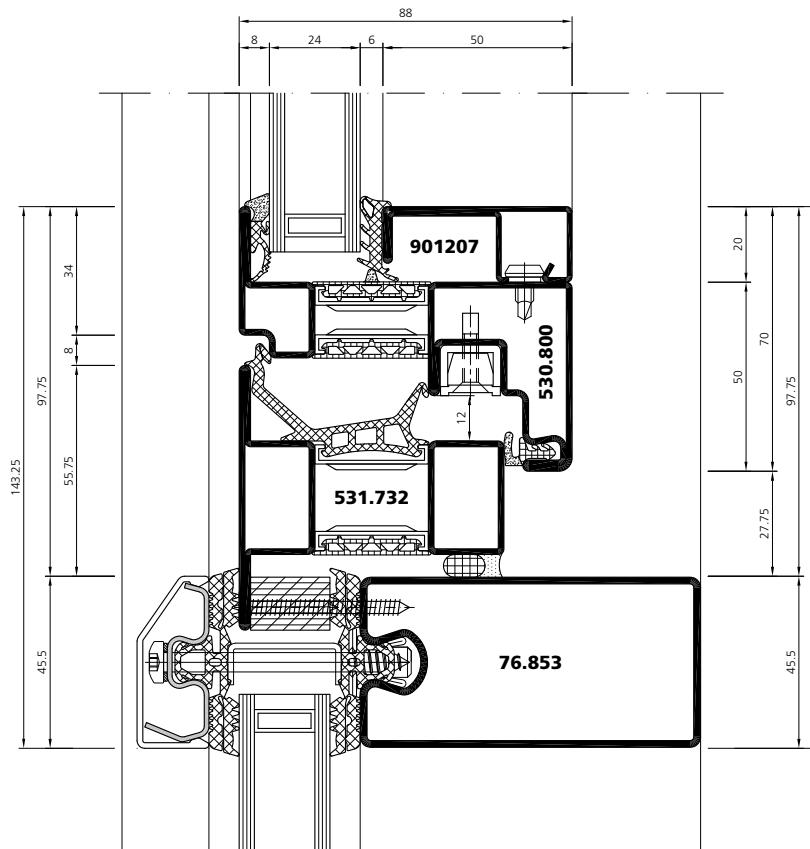
**Construction details**  
**Windows**  
**Installation in thermfix vario**



**Konstruktionsdetails**  
**Fenster**  
**Einbau in thermfix vario**

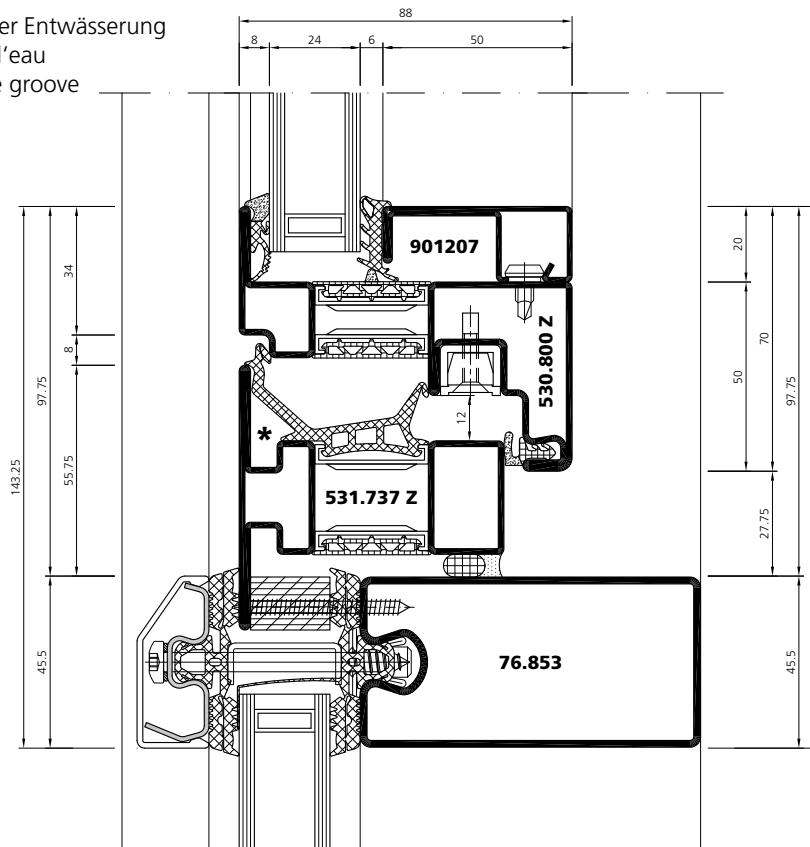
**Détails de construction**  
**Fenêtres**  
**Montage dans thermfix vario**

**Construction details**  
**Windows**  
**Installation in thermfix vario**



un\_kd\_0014

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

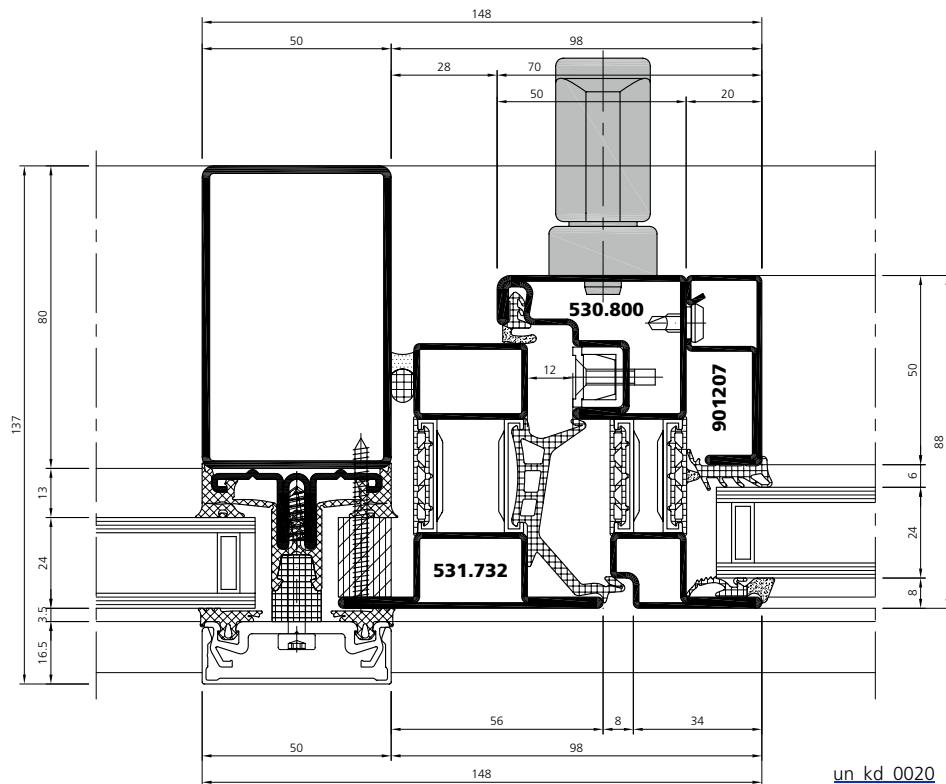
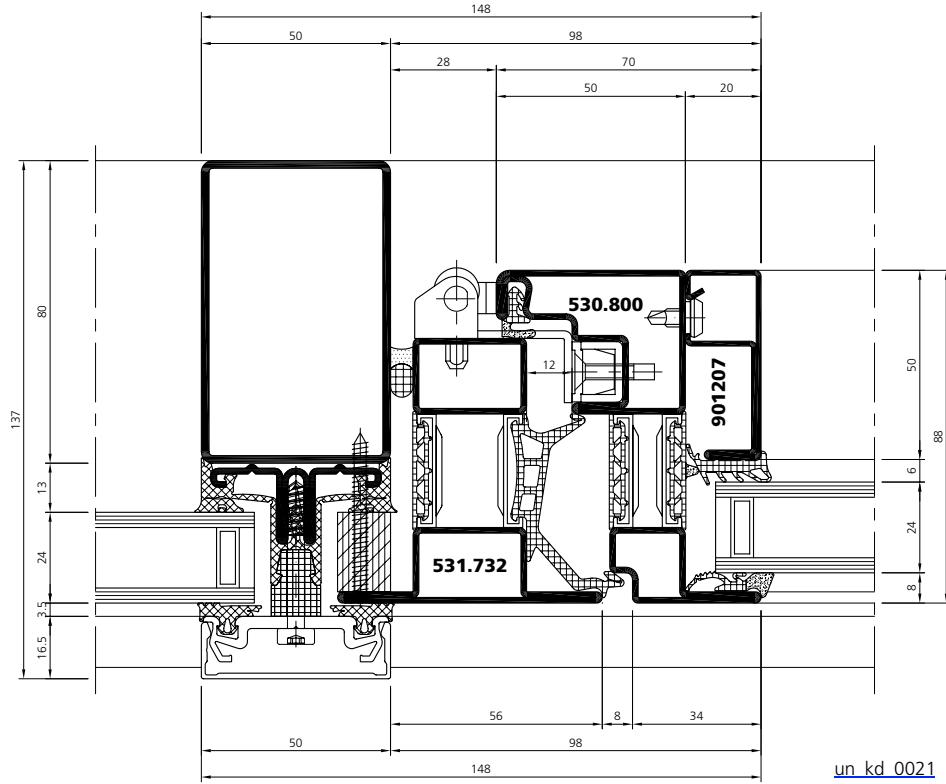


un\_kd\_0027

**Konstruktionsdetails**  
**Fenster**  
**Einbau in thermfix light**

**Détails de construction**  
**Fenêtres**  
**Montage dans thermfix light**

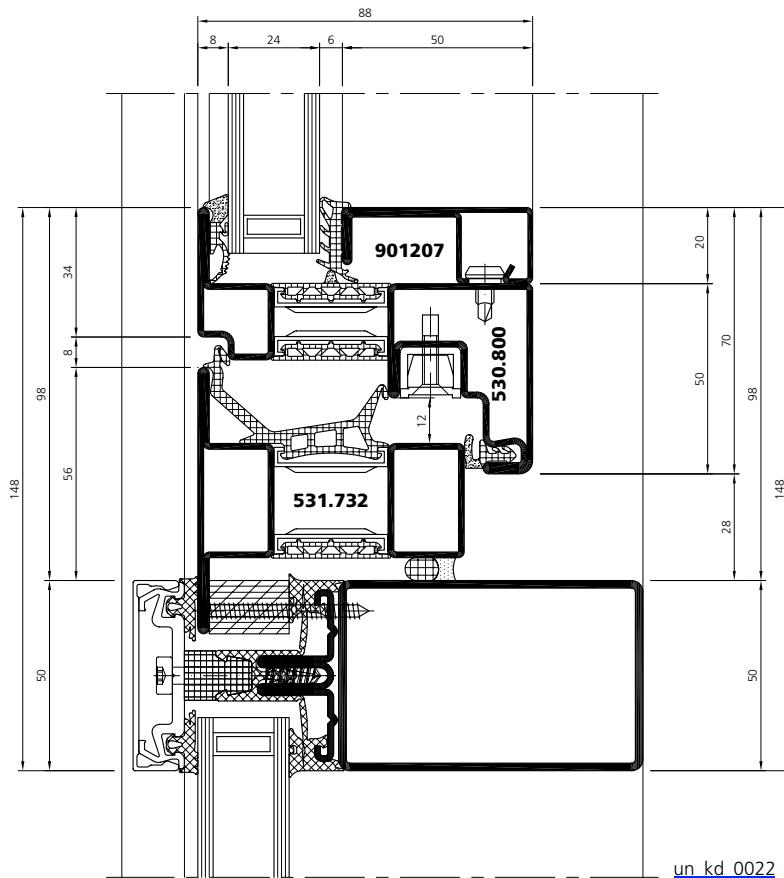
**Construction details**  
**Windows**  
**Installation in thermfix light**



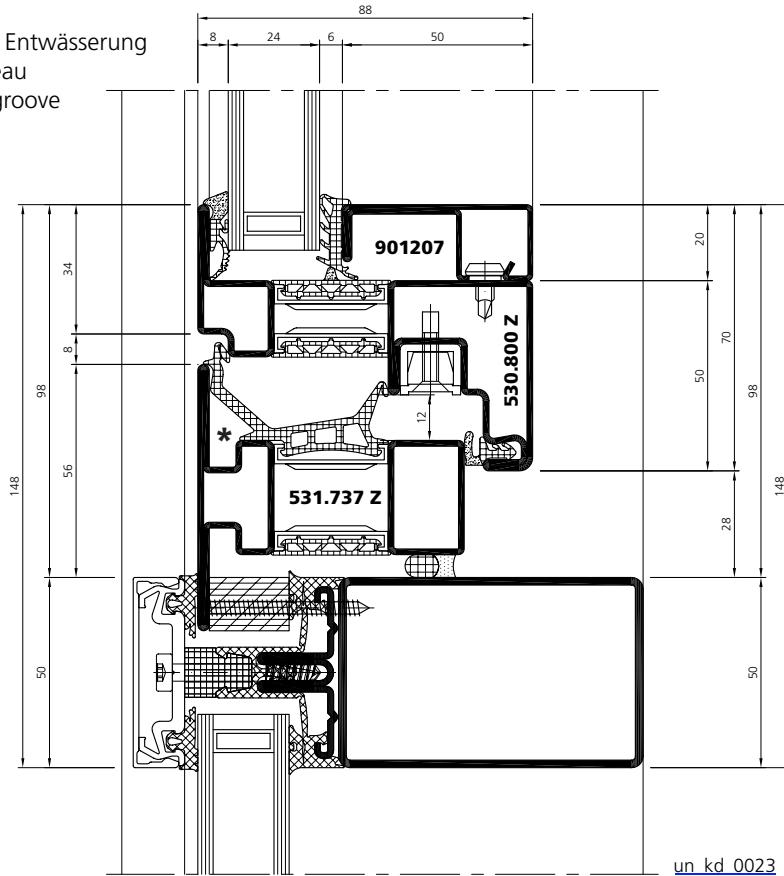
**Konstruktionsdetails**  
**Fenster**  
**Einbau in thermfix light**

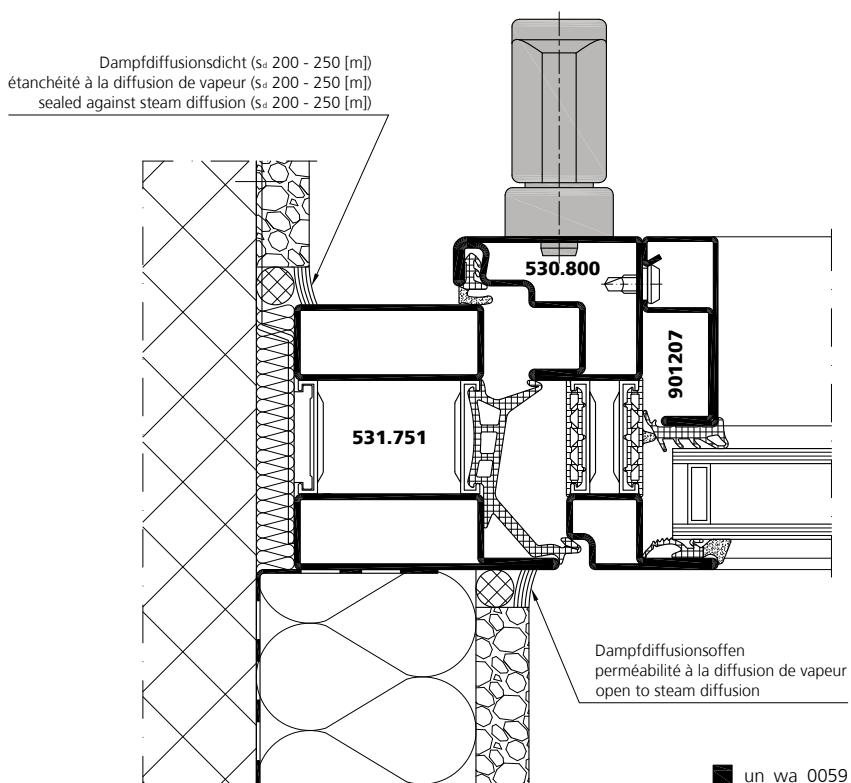
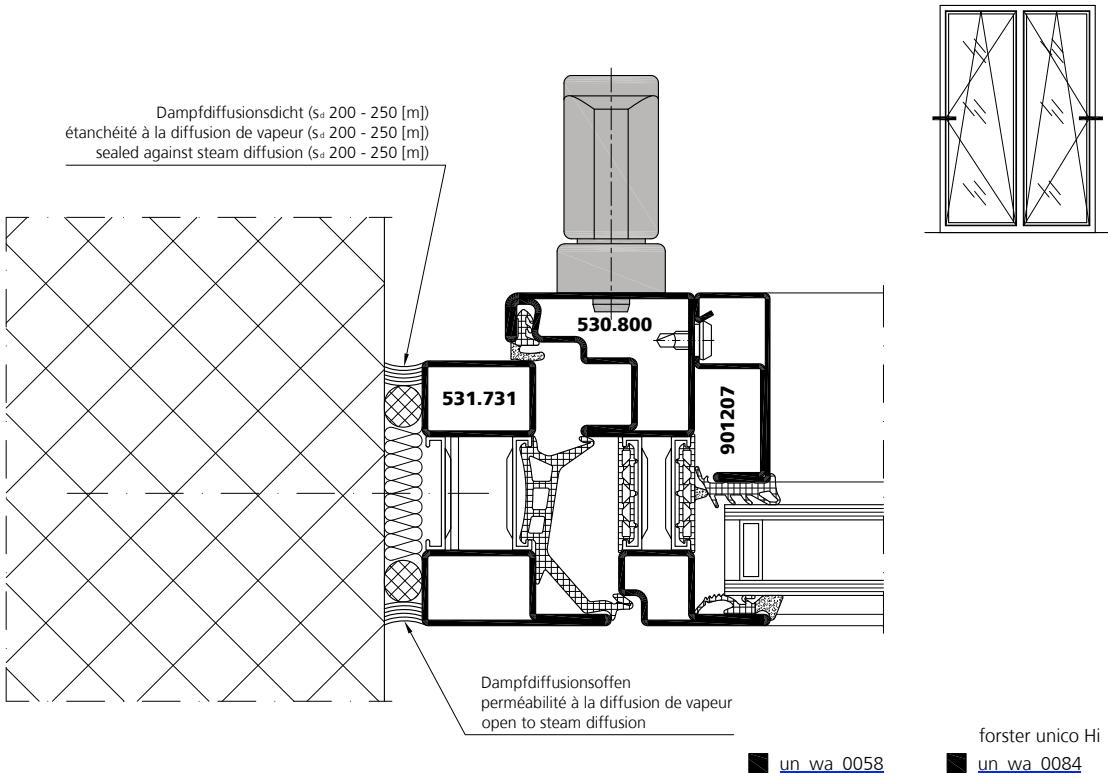
**Détails de construction**  
**Fenêtres**  
**Montage dans thermfix light**

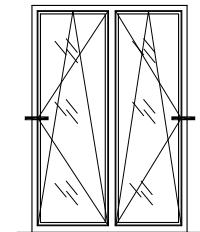
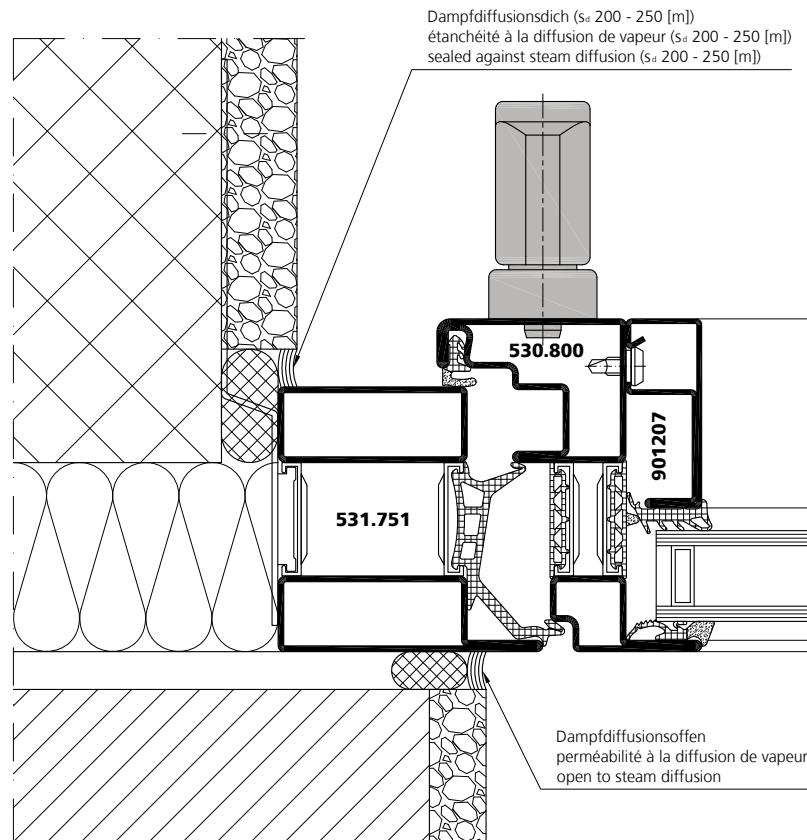
**Construction details**  
**Windows**  
**Installation in thermfix light**



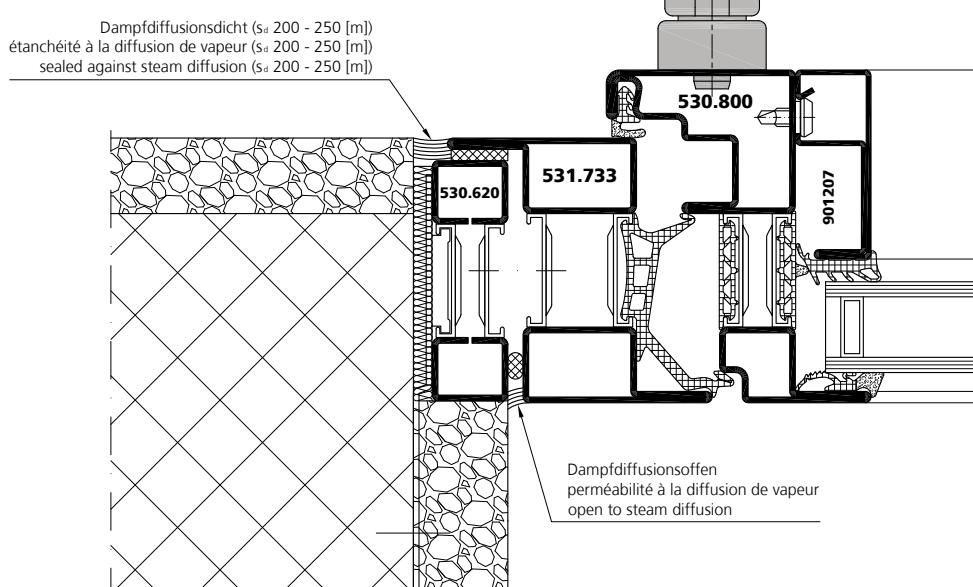
\* Profil mit kontrollierter Entwässerung  
Profilé avec garde à l'eau  
Profile with drainage groove



**Bauanschlüsse  
Fenster**
**Raccords muraux  
Fenêtres**
**Wall abutments  
Windows**


**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 \(530.711/531.801\)](#)

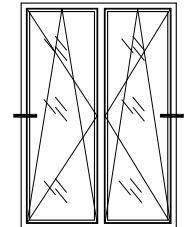
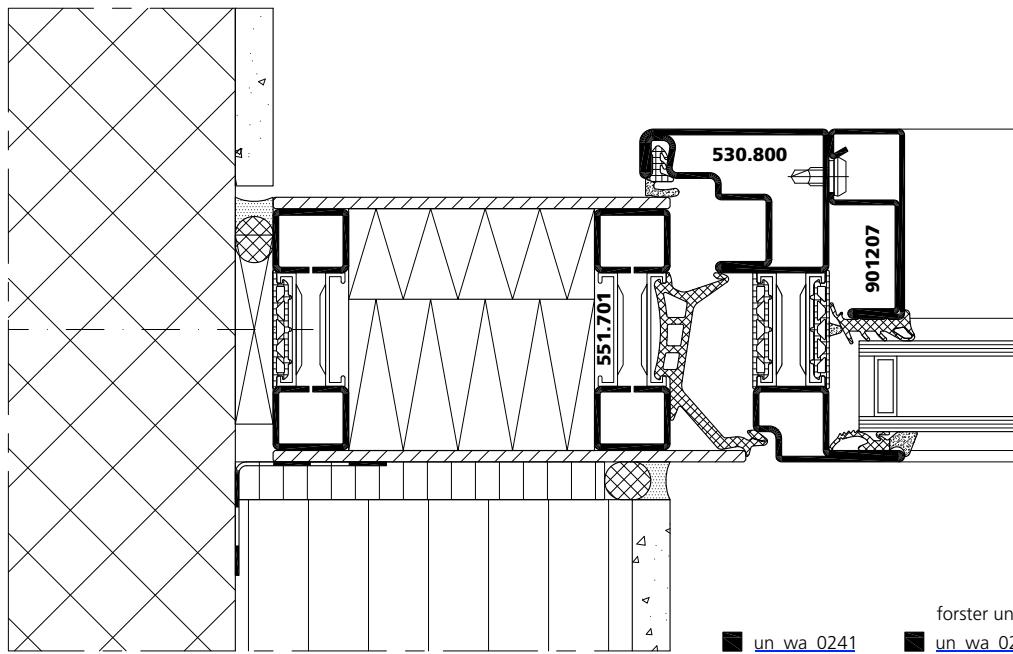
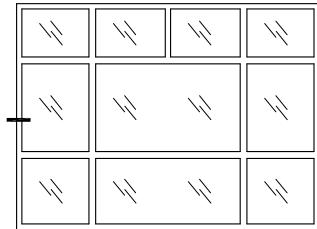
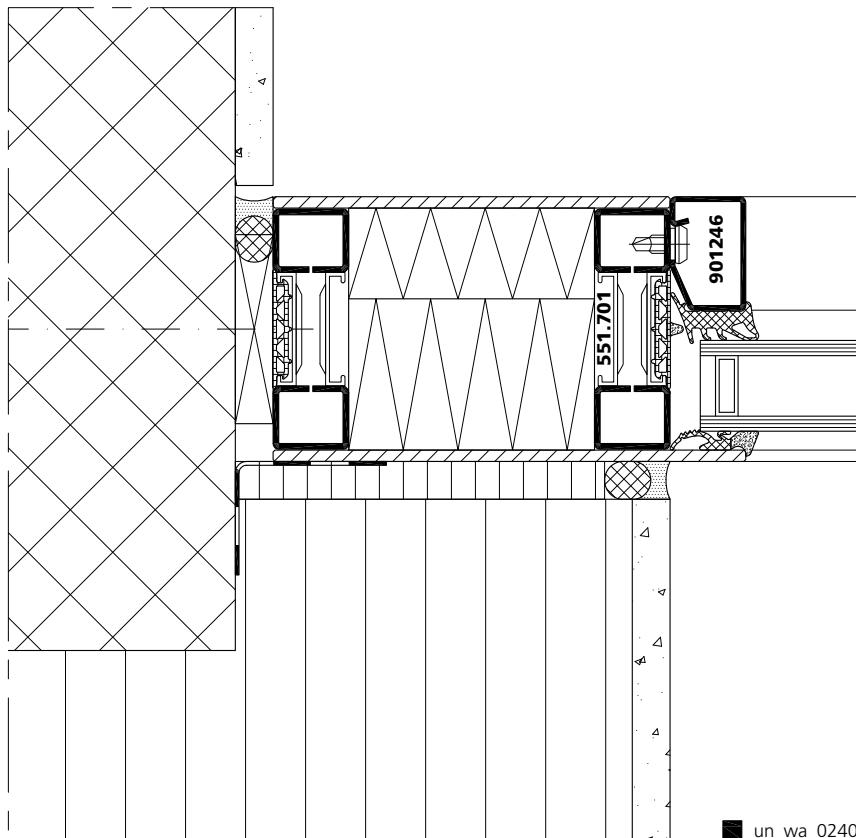


- [un\\_wa\\_0061](#)
- [un\\_wa\\_0129 \(530.713/531.801\)](#)
- forster unico Hi
- [un\\_wa\\_0087](#)
- [un\\_wa\\_0138 \(530.713/531.801\)](#)

**Bauanschlüsse**  
**Fenster**  
**Rahmenverbreiterung**

**Raccords muraux**  
**Fenêtres**  
**Elargissement de cadre**

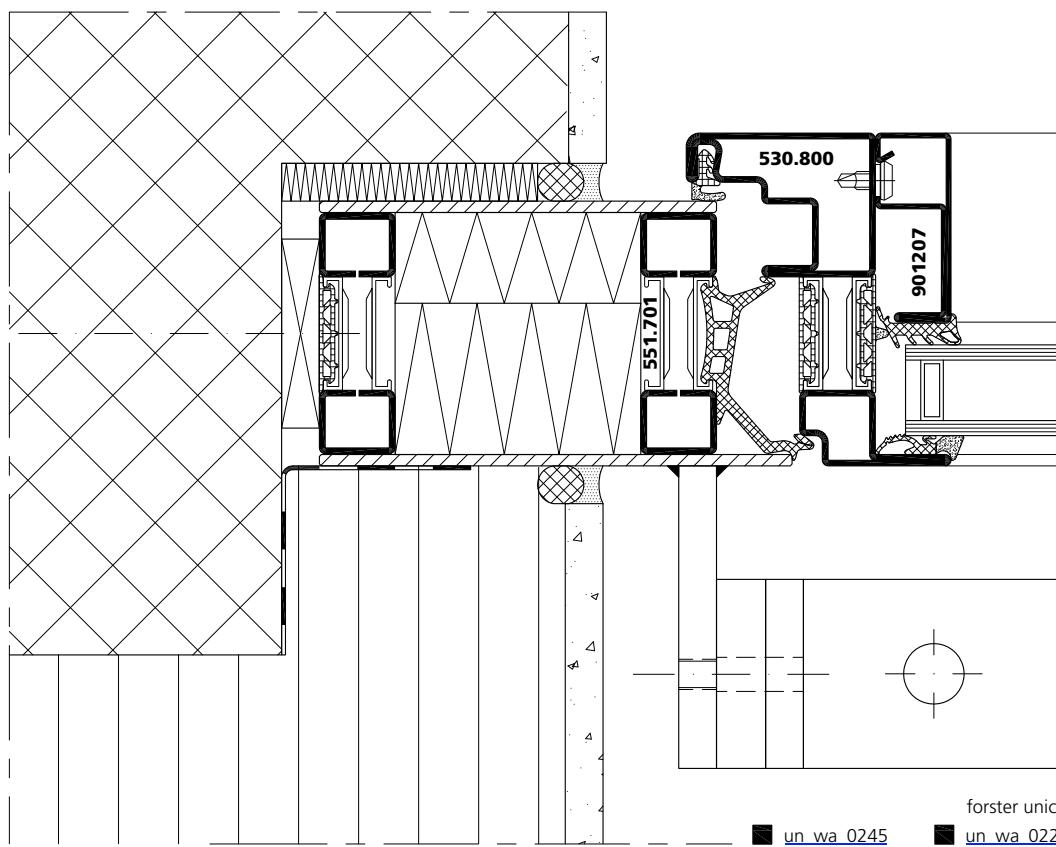
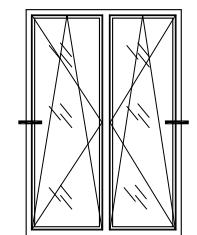
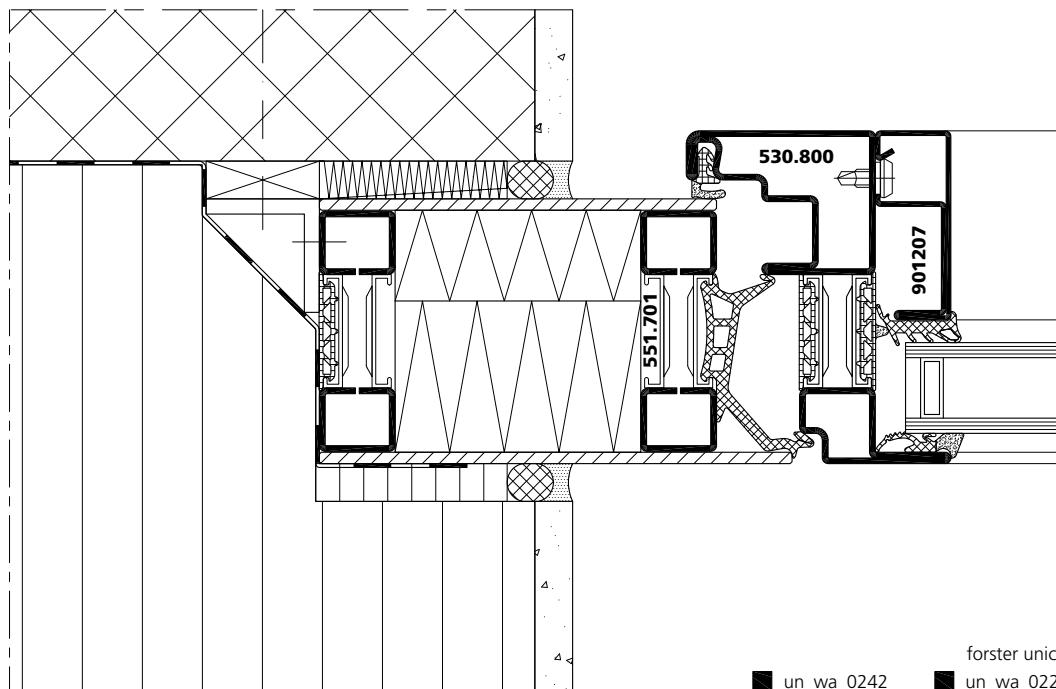
**Wall abutments**  
**Windows**  
**Frame enlargement**



**Bauanschlüsse**  
**Fenster**  
**Rahmenverbreiterung**

**Raccords muraux**  
**Fenêtres**  
**Elargissement de cadre**

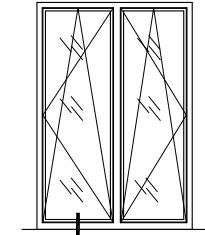
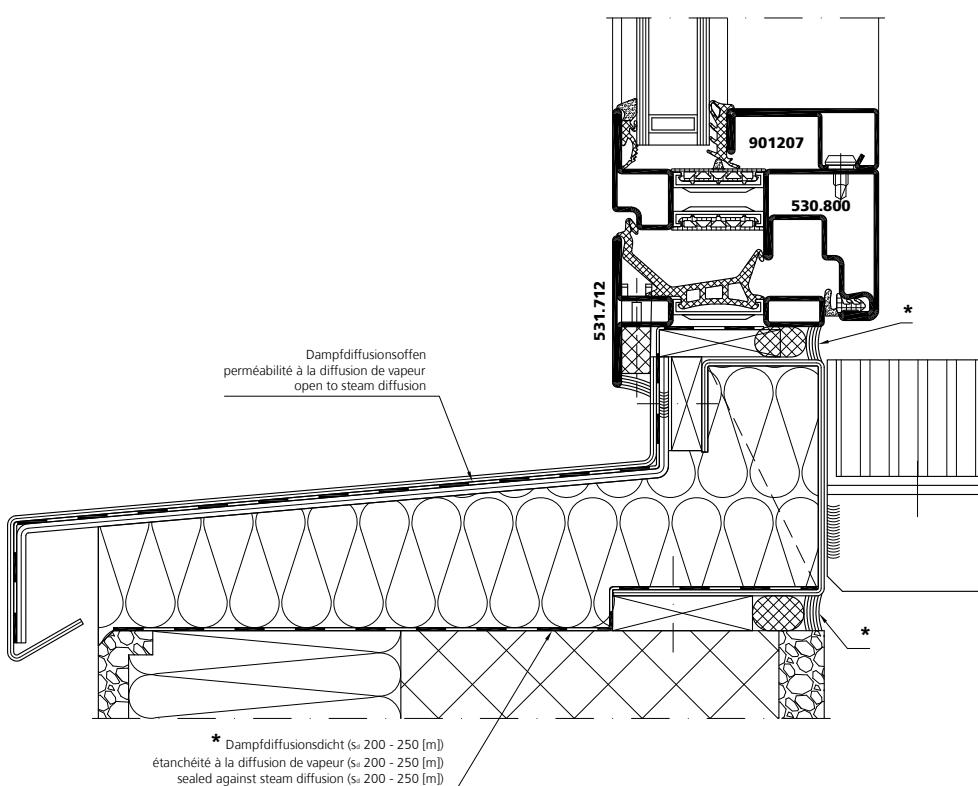
**Wall abutments**  
**Windows**  
**Frame enlargement**



**Bauanschlüsse  
Fenster**

**Raccords muraux  
Fenêtres**

**Wall abutments  
Windows**

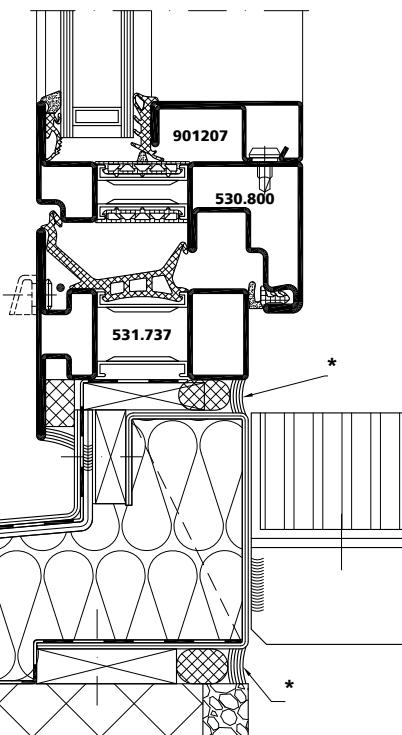


- un wa 0054
- un wa 0131 (531.801)
- forster unico Hi
- un wa 0080
- un wa 0132 (531.801)

• 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

03/21

## 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

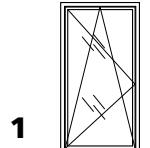
- 1** Ouvrant oscillo-battant
- 2** Ouvrant oscillo-battant/oscillo-battant
- 3** Ouverture à soufflet
- 4** Ouvrant semi-fixe à la française/oscillo-  
battant
- 5** Ouvrant semi-fixe à la française/oscillo-  
battant avec parties latérales fixes
- 6** Vitrage fixe

## Synopsis of system plans Burglary-resistant windows RC1

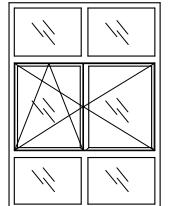
- 1** Tilt-turn window
- 2** Tilt-turn/tilt-turn window
- 3** Bottom hung window
- 4** Double sash window turn/tilt-turn
- 5** Double sash window turn/tilt-turn with  
screen abutments
- 6** Fixed glazing

 Stahl / Acier / Steel

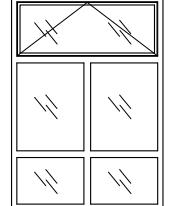
 Edelstahl / Acier inox / Stainless steel

**1**

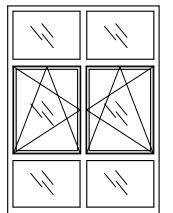
-  [un\\_sp\\_0205](#)
-  [un\\_sp\\_0223](#)
-  [un\\_sp\\_0215](#)

**2**

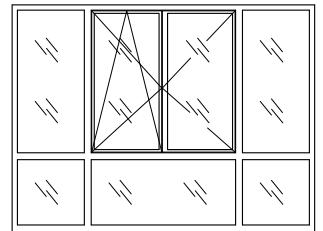
-  [un\\_sp\\_0208](#)
-  [un\\_sp\\_0224](#)
-  [un\\_sp\\_0216](#)

**3**

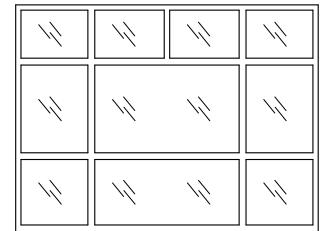
-  [un\\_sp\\_0207](#)
-  [un\\_sp\\_0220](#)
-  [un\\_sp\\_0217](#)

**4**

-  [un\\_sp\\_0206](#)
-  [un\\_sp\\_0221](#)
-  [un\\_sp\\_0218](#)

**5**

-  [un\\_sp\\_0209](#)
-  [un\\_sp\\_0222](#)
-  [un\\_sp\\_0219](#)

**6**

-  [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

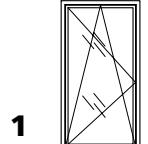
- 1** Ouvrant oscillo-battant
- 2** Ouvrant oscillo-battant/oscillo-battant
- 3** Ouverture à soufflet
- 4** Ouvrant semi-fixe à la française/oscillo-  
battant
- 5** Ouvrant semi-fixe à la française/oscillo-  
battant avec parties latérales fixes
- 6** Vitrage fixe

## Synopsis of system plans Burglary-resistant windows RC2

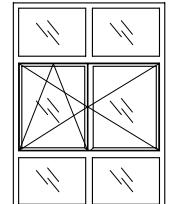
- 1** Tilt-turn window
- 2** Tilt-turn/tilt-turn window
- 3** Bottom hung window
- 4** Double sash window turn/tilt-turn
- 5** Double sash window turn/tilt-turn with  
screen abutments
- 6** Fixed glazing

 Stahl / Acier / Steel

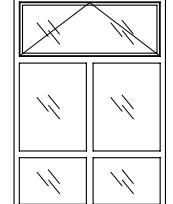
 Edelstahl / Acier inox / Stainless steel

**1**

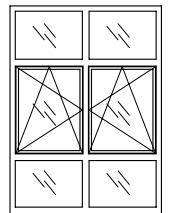
-  [un\\_sp\\_0157](#)
-  [un\\_sp\\_0193](#)
-  [un\\_sp\\_0177](#)

**2**

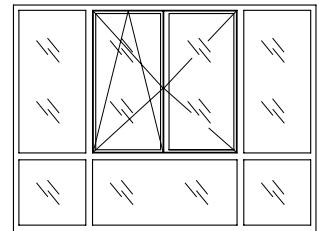
-  [un\\_sp\\_0159](#)
-  [un\\_sp\\_0195](#)
-  [un\\_sp\\_0179](#)

**3**

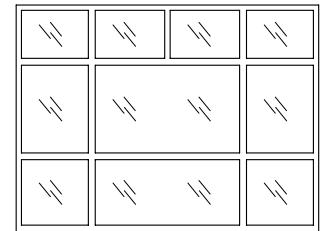
-  [un\\_sp\\_0161](#)
-  [un\\_sp\\_0187](#)
-  [un\\_sp\\_0181](#)

**4**

-  [un\\_sp\\_0163](#)
-  [un\\_sp\\_0189](#)
-  [un\\_sp\\_0183](#)

**5**

-  [un\\_sp\\_0165](#)
-  [un\\_sp\\_0191](#)
-  [un\\_sp\\_0185](#)

**6**

-  [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

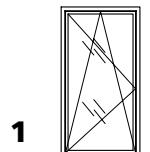
- 1** Ouvrant oscillo-battant
- 2** Ouvrant oscillo-battant/oscillo-battant
- 3** Ouverture à soufflet
- 4** Ouvrant semi-fixe à la française/oscillo-  
battant
- 5** Ouvrant semi-fixe à la française/oscillo-  
battant avec parties latérales fixes
- 6** Vitrage fixe

## Synopsis of system plans Burglary-resistant windows RC3

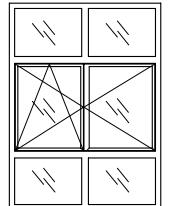
- 1** Tilt-turn window
- 2** Tilt-turn/tilt-turn window
- 3** Bottom hung window
- 4** Double sash window turn/tilt-turn
- 5** Double sash window turn/tilt-turn with  
screen abutments
- 6** Fixed glazing

 Stahl / Acier / Steel

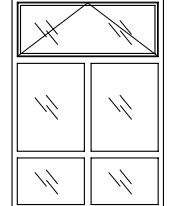
 Edelstahl / Acier inox / Stainless steel

**1**

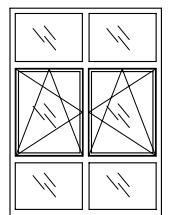
-  [un\\_sp\\_0156](#)
-  [un\\_sp\\_0192](#)
-  [un\\_sp\\_0176](#)

**2**

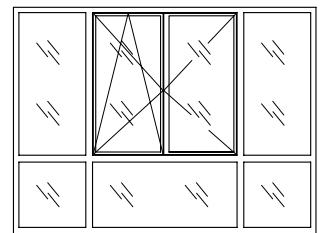
-  [un\\_sp\\_0158](#)
-  [un\\_sp\\_0194](#)
-  [un\\_sp\\_0178](#)

**3**

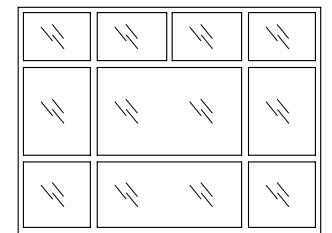
-  [un\\_sp\\_0160](#)
-  [un\\_sp\\_0186](#)
-  [un\\_sp\\_0180](#)

**4**

-  [un\\_sp\\_0162](#)
-  [un\\_sp\\_0188](#)
-  [un\\_sp\\_0182](#)

**5**

-  [un\\_sp\\_0164](#)
-  [un\\_sp\\_0190](#)
-  [un\\_sp\\_0184](#)

**6**

-  [un\\_sp\\_0124](#)
-  [un\\_sp\\_0154](#)

## 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

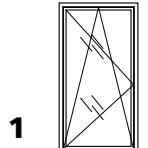
- 1** Ouvrant oscillo-battant
- 2** Ouvrant oscillo-battant/oscillo-battant
- 3** Ouverture à soufflet
- 4** Ouvrant semi-fixe à la française/oscillo-battant
- 5** Ouvrant semi-fixe à la française/oscillo-battant avec parties latérales fixes
- 6** Vitrage fixe

## Synopsis of system plans Bullet resistant windows

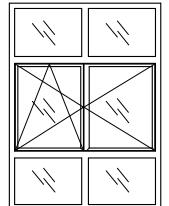
- 1** Tilt-turn window
- 2** Tilt-turn/tilt-turn window
- 3** Bottom hung window
- 4** Double sash window turn/tilt-turn
- 5** Double sash window turn/tilt-turn with screen abutments
- 6** Fixed glazing

 Stahl / Acier / Steel

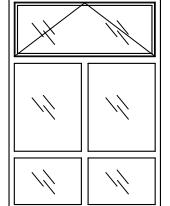
 Edelstahl / Acier inox / Stainless steel

**1**

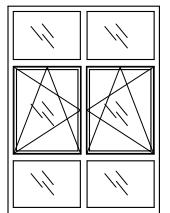
-  [un\\_sp\\_0356](#)
-  [un\\_sp\\_0361](#)
-  [un\\_sp\\_0366](#)

**2**

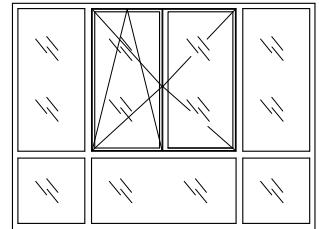
-  [un\\_sp\\_0357](#)
-  [un\\_sp\\_0362](#)
-  [un\\_sp\\_0367](#)

**3**

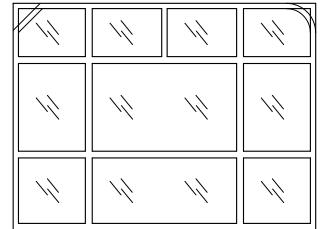
-  [un\\_sp\\_0358](#)
-  [un\\_sp\\_0363](#)
-  [un\\_sp\\_0368](#)

**4**

-  [un\\_sp\\_0359](#)
-  [un\\_sp\\_0364](#)
-  [un\\_sp\\_0369](#)

**5**

-  [un\\_sp\\_0360](#)
-  [un\\_sp\\_0365](#)
-  [un\\_sp\\_0370](#)

**6**

-  [un\\_sp\\_0342](#)
-  [un\\_sp\\_0355](#)

### Glastypen Fensterflügel und Festfeld (EN 1063) Vitrage vantail et partie fixe (EN 1063) Glass types leafs 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)

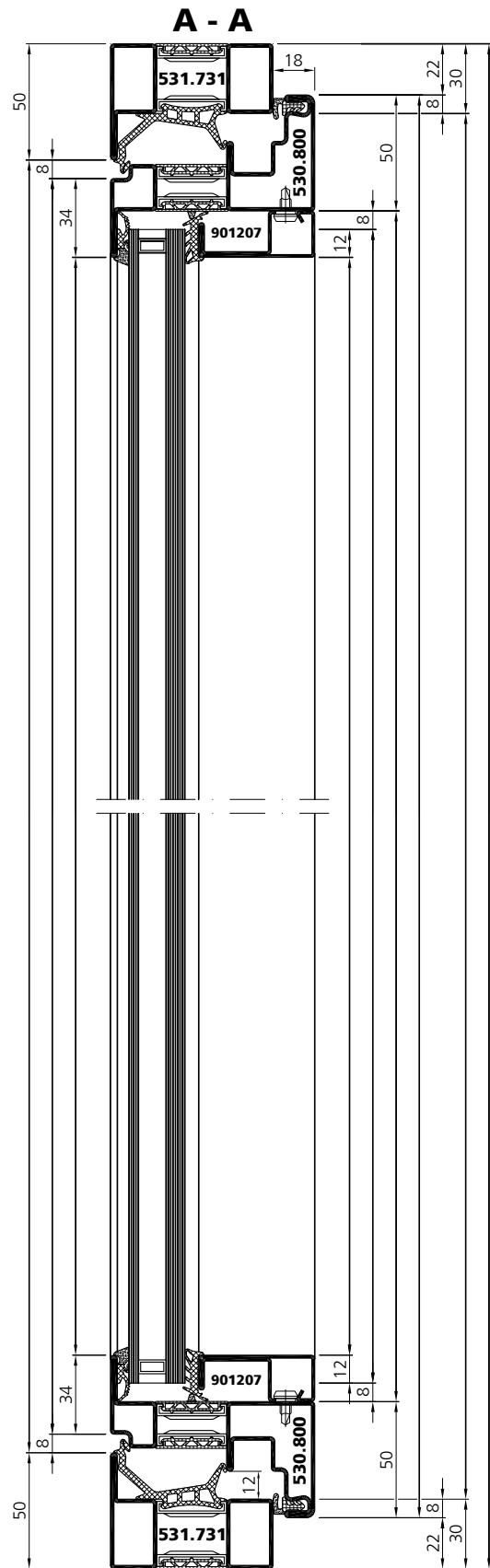
- Vetrotech, Polygard PRO BR4-NS/P8B (Mono), 21 mm
- Schott, NOVOLAY secure BR4-NS/15.3.0 (Mono), 20 mm

**RC1**Stahl  
Acier  
SteelEdelstahl  
Acier inox  
Stainless steel

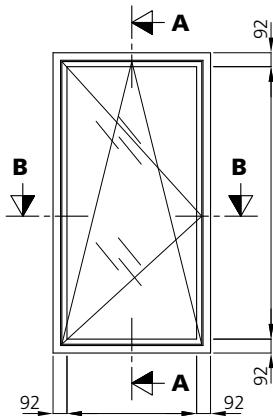
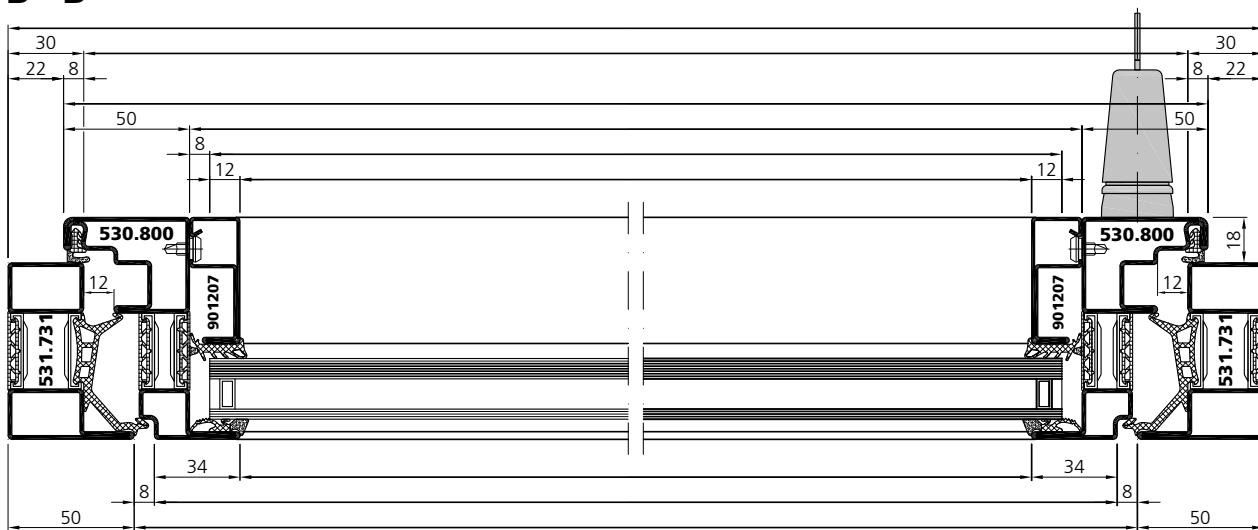
130

**Systemplan  
Einbruchhemmende  
Fenster RC1**

- un\_sp\_0205
- un\_sp\_0215

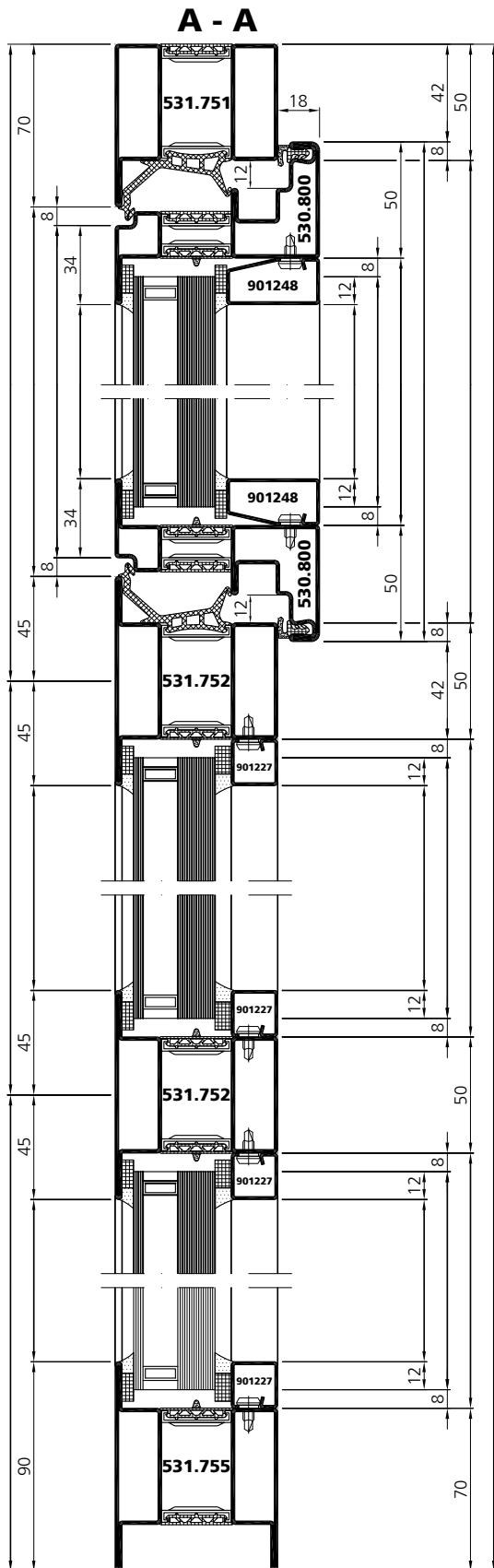
**Plan du système  
Fenêtres anti-effraction  
RC1****System plan  
Burglary-resistant windows  
RC1**

**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**

■ un sp 0161  
■ un sp 0181

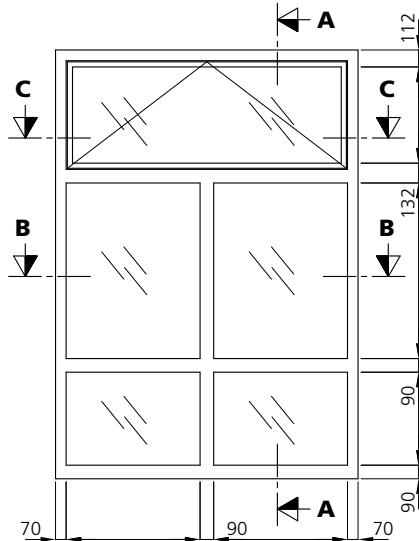
**Plan du système  
Fenêtres anti-effraction  
RC2****System plan  
Burglary-resistant windows  
RC2**

**Systemplan**  
**Einbruchhemmende**  
**Fenster RC2**

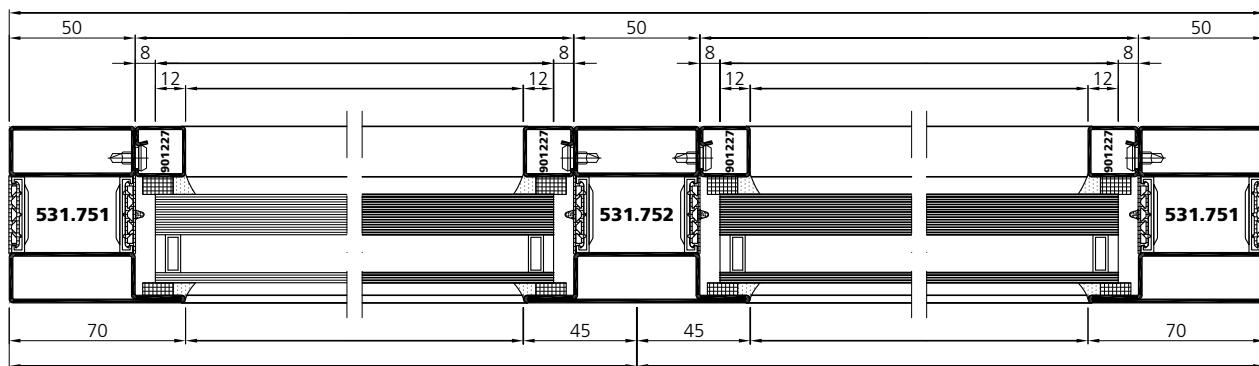
**Plan du système**  
**Fenêtres anti-effraction**  
**RC2**

**System plan**  
**Burglary-resistant windows**  
**RC2**

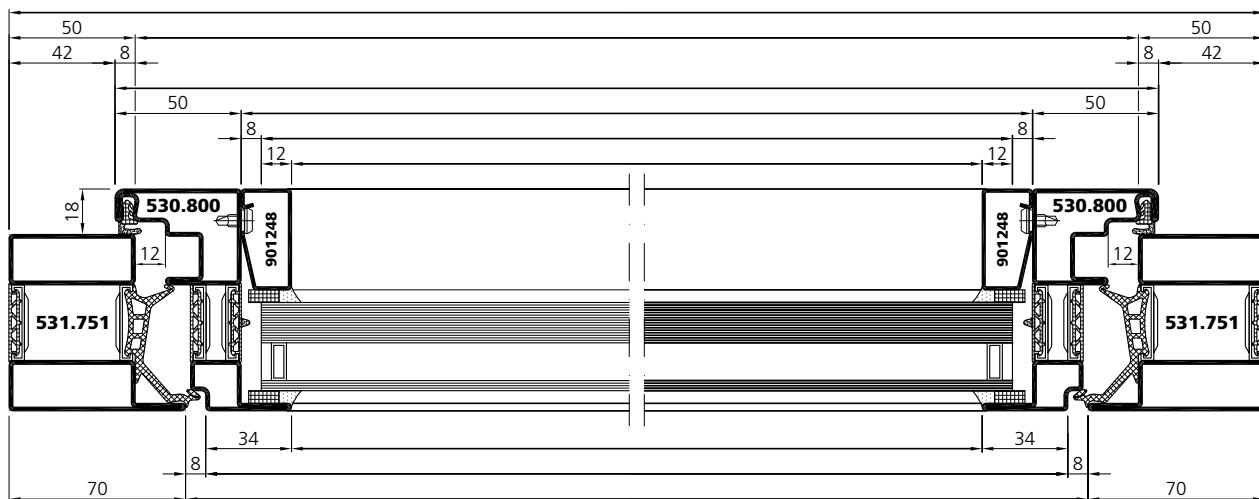
■ un\_sp 0161  
□ un\_sp 0181



**B - B**

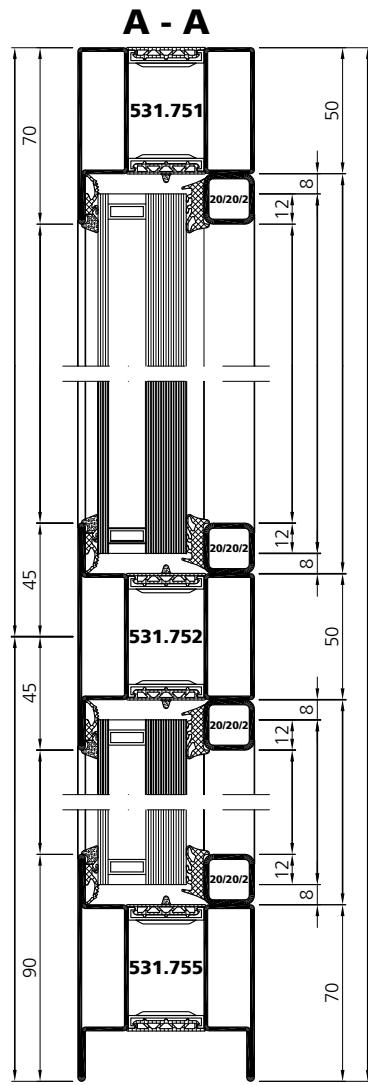
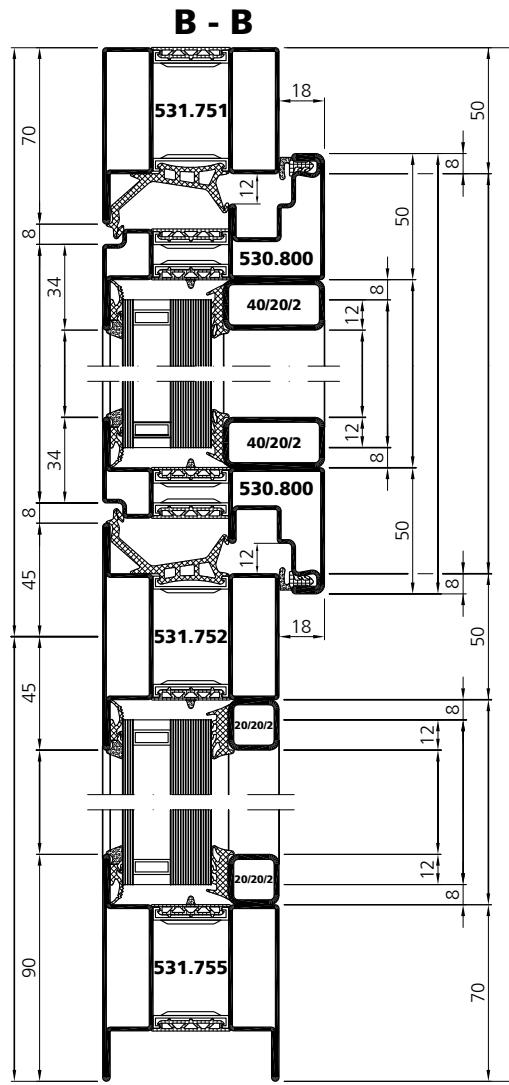
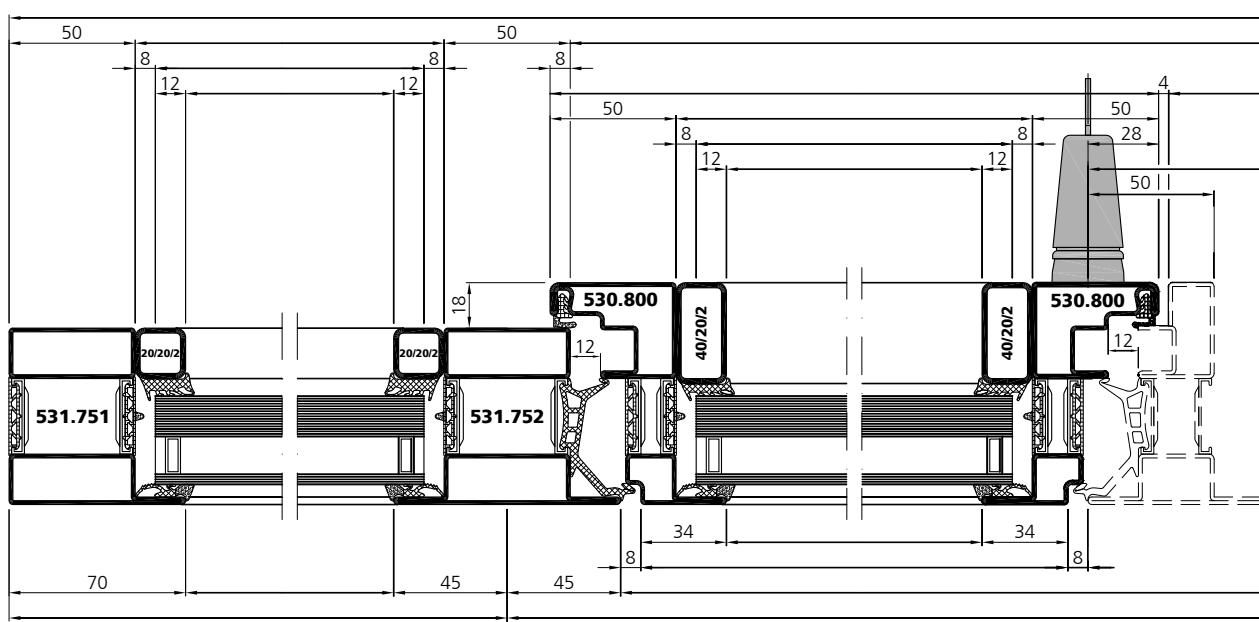


**C - C**



**Systemplan**  
**Einbruchhemmende**  
**Fenster RC3**

■ un\_sp\_0164  
 ■ un\_sp\_0184

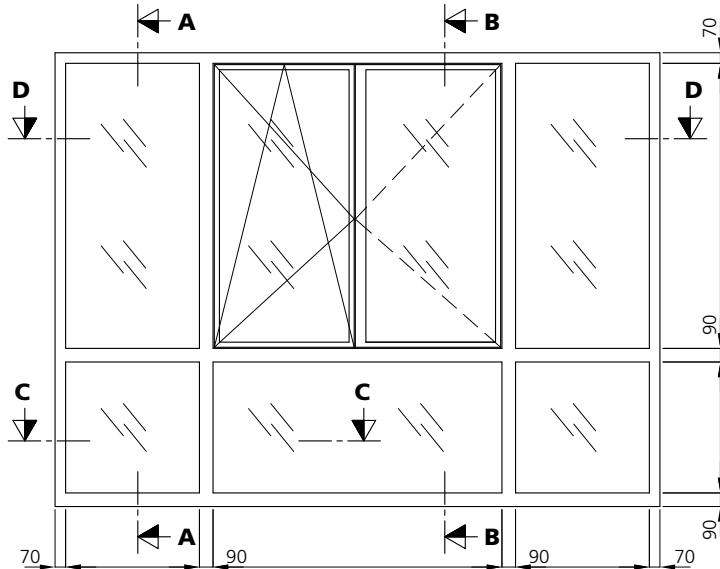

**Plan du système**  
**Fenêtres anti-effraction**  
**RC3**

**System plan**  
**Burglary-resistant windows**  
**RC3**


**Systemplan**  
**Einbruchhemmende**  
**Fenster RC3**

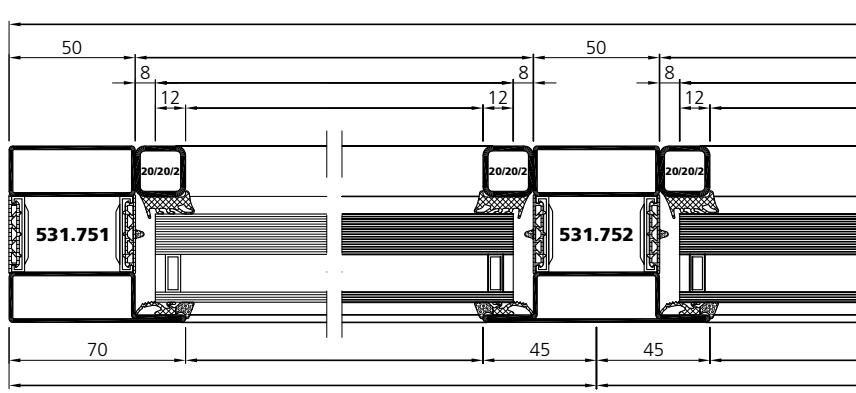
**Plan du système**  
**Fenêtres anti-effraction**  
**RC3**

**System plan**  
**Burglary-resistant windows**  
**RC3**

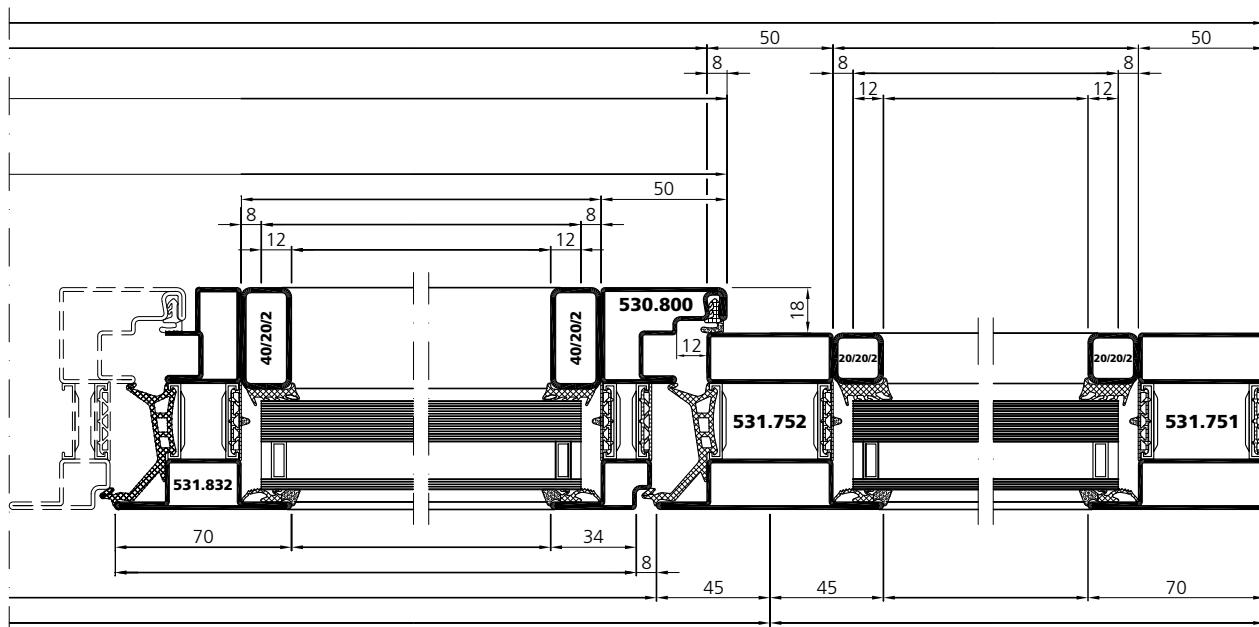
■ un\_sp\_0164  
□ un\_sp\_0184



**C - C**

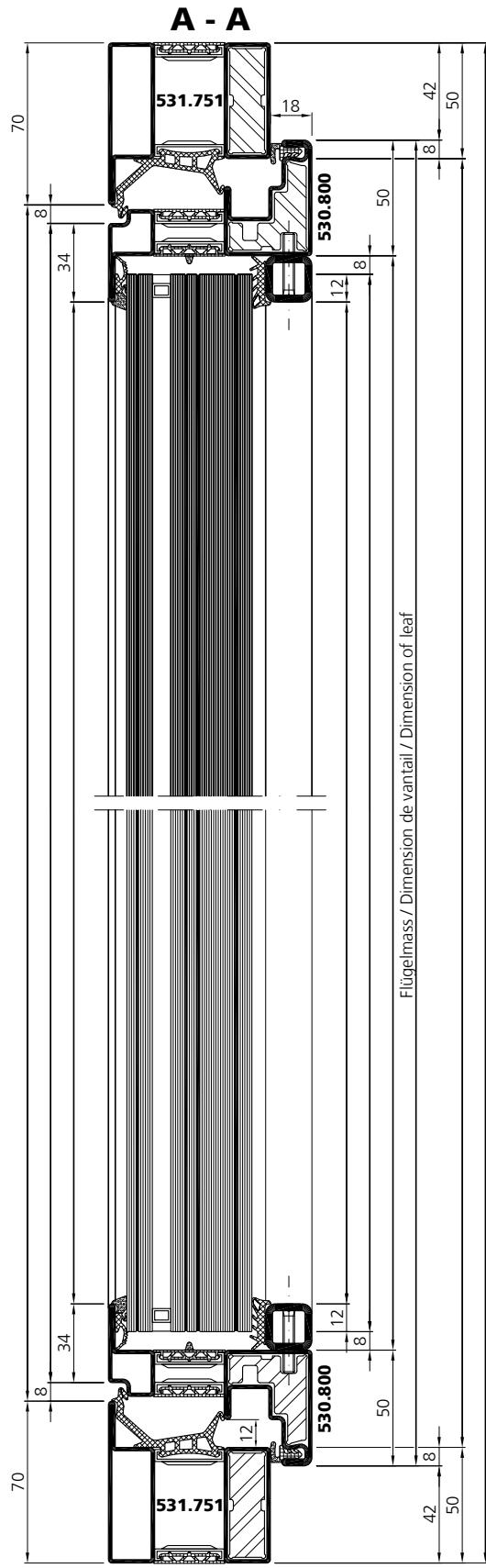


**D - D**



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

136

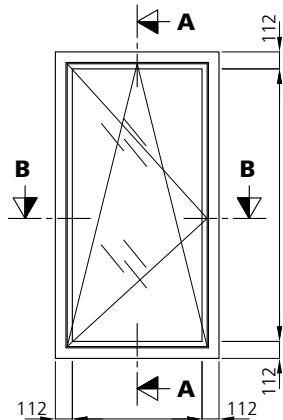
**Systemplan  
Durchschusshemmende  
Fenster****Plan du système  
Fenêtres pare-balles****System plan  
Bullet resistant windows**

**Systemplan**  
**Durchschusshemmende**  
**Fenster**

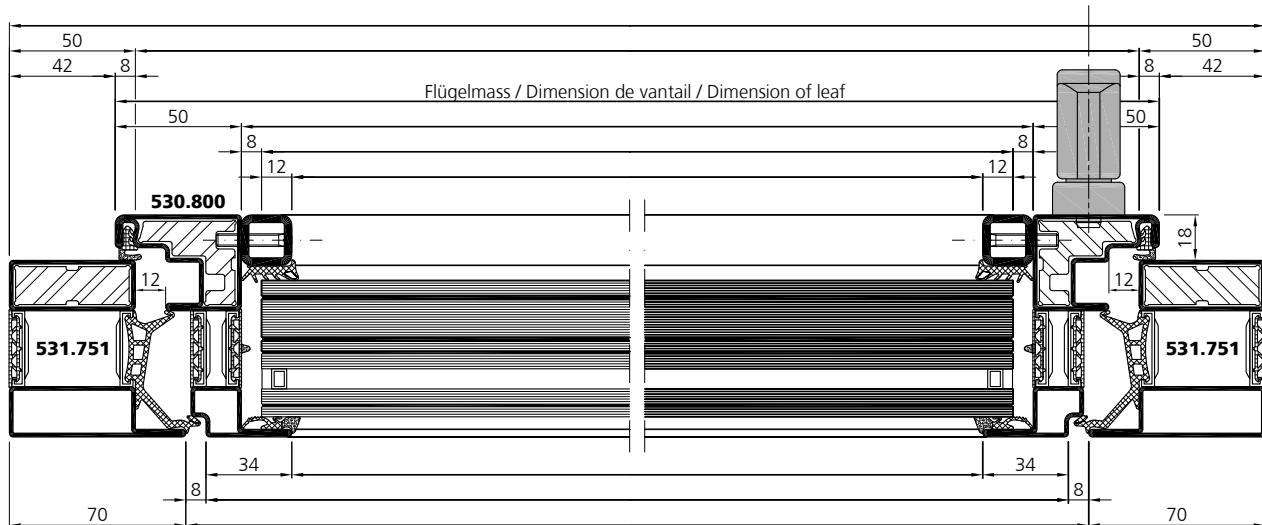
**Plan du système**  
**Fenêtres pare-balles**

**System plan**  
**Bullet resistant windows**

■ un\_sp\_0356  
■ un\_sp\_0366



**B - B**

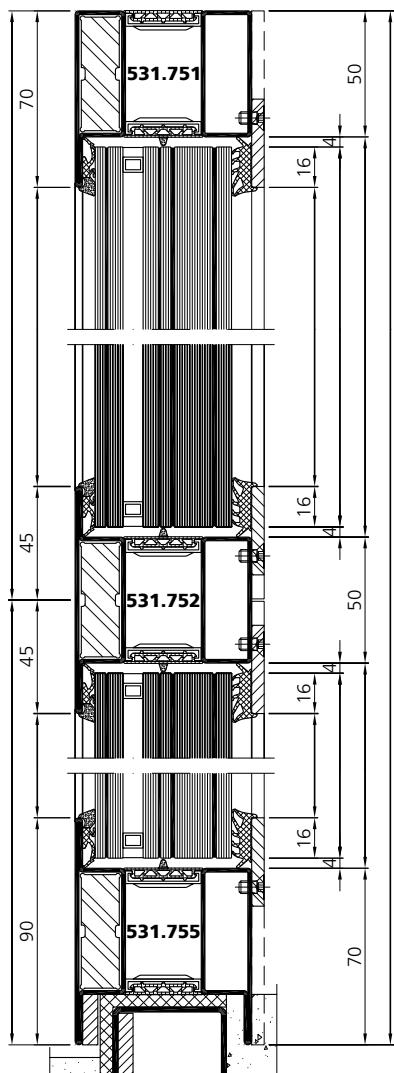
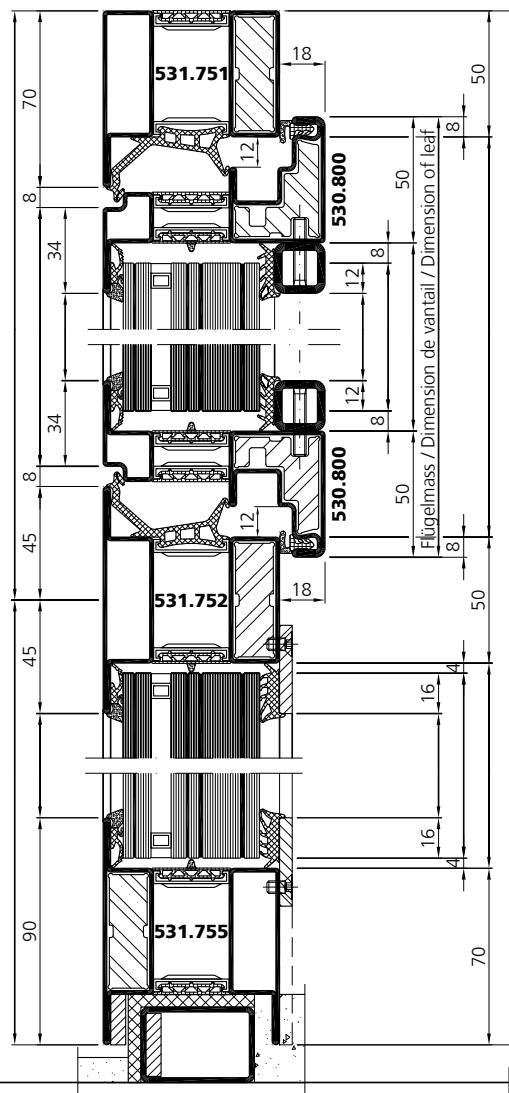
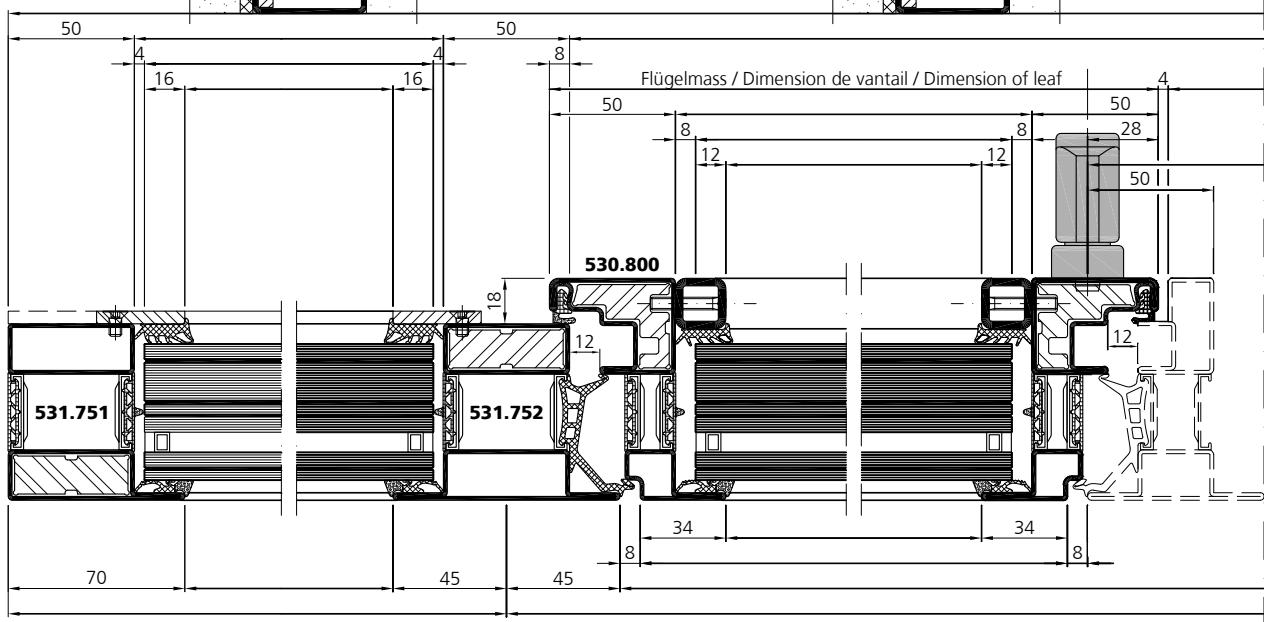


**Systemplan**  
**Durchschusshemmende**  
**Fenster**

**Plan du système**  
**Fenêtres pare-balles**

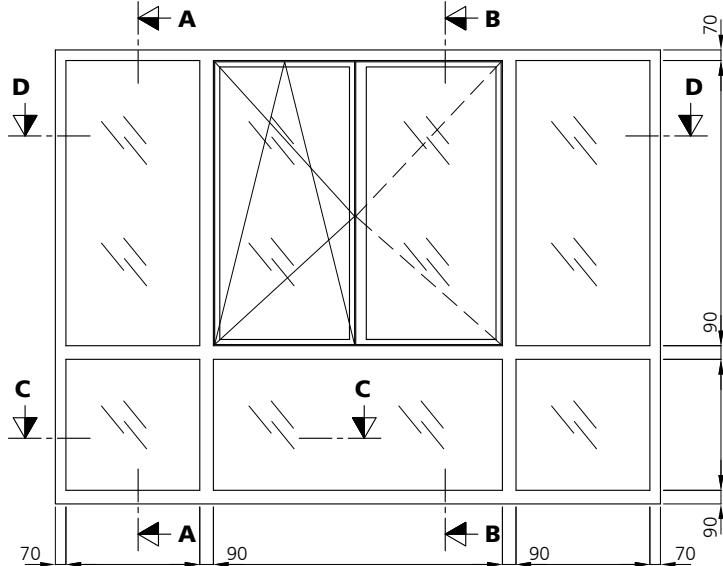
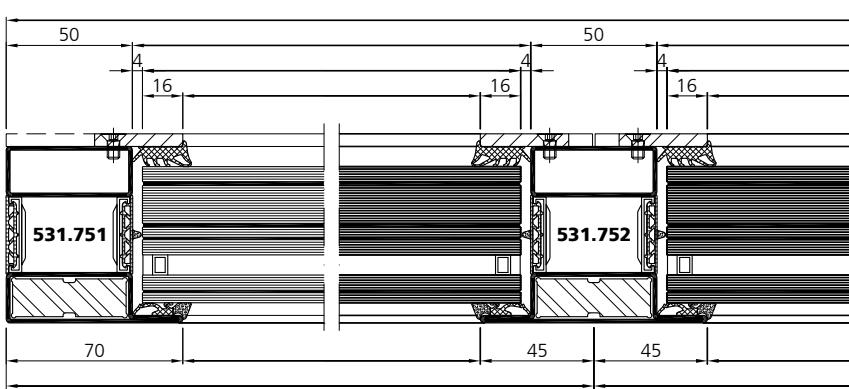
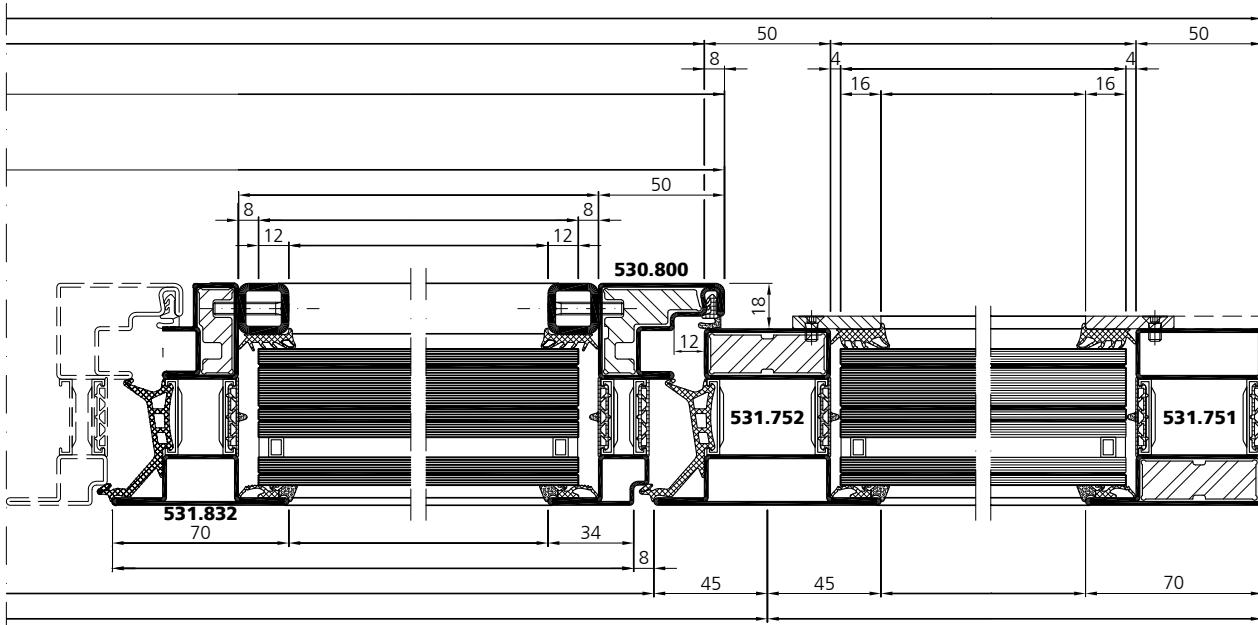
**System plan**  
**Bullet resistant windows**

■ un\_sp\_0360  
■ un\_sp\_0370

**A - A****B - B****D - D**

**Systemplan  
Durchschusshemmende  
Fenster**
**Plan du système  
Fenêtres pare-balles**
**System plan  
Bullet resistant windows**

 un\_sp\_0360  
 un\_sp\_0370

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



03/21

Hôtel Crowne Plaza, BE-Liège

**Übersicht Systempläne**

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

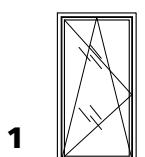
**Tableau des plans du système**

- 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

**Synopsis of system plans**

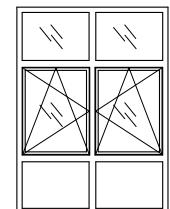
- 1** single-leaf window
- 2** two single-leaf windows with fanlight and sublight
- 3** single-leaf window with sublight and two screen abutments
- 4** fixed glazing

 Stahl / Acier / Steel



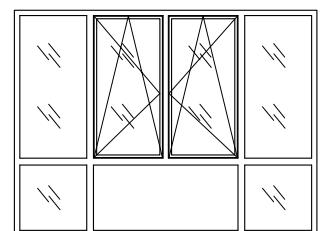
**1**

-  [un\\_sp\\_0321](#) ①
- [un\\_sp\\_0324](#) ②
- [un\\_sp\\_0322](#) ③
- [un\\_sp\\_0325](#) ④



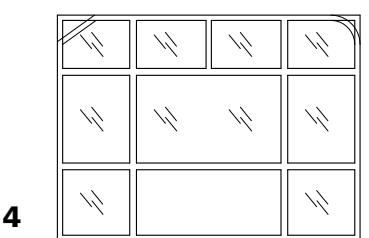
**2**

-  [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



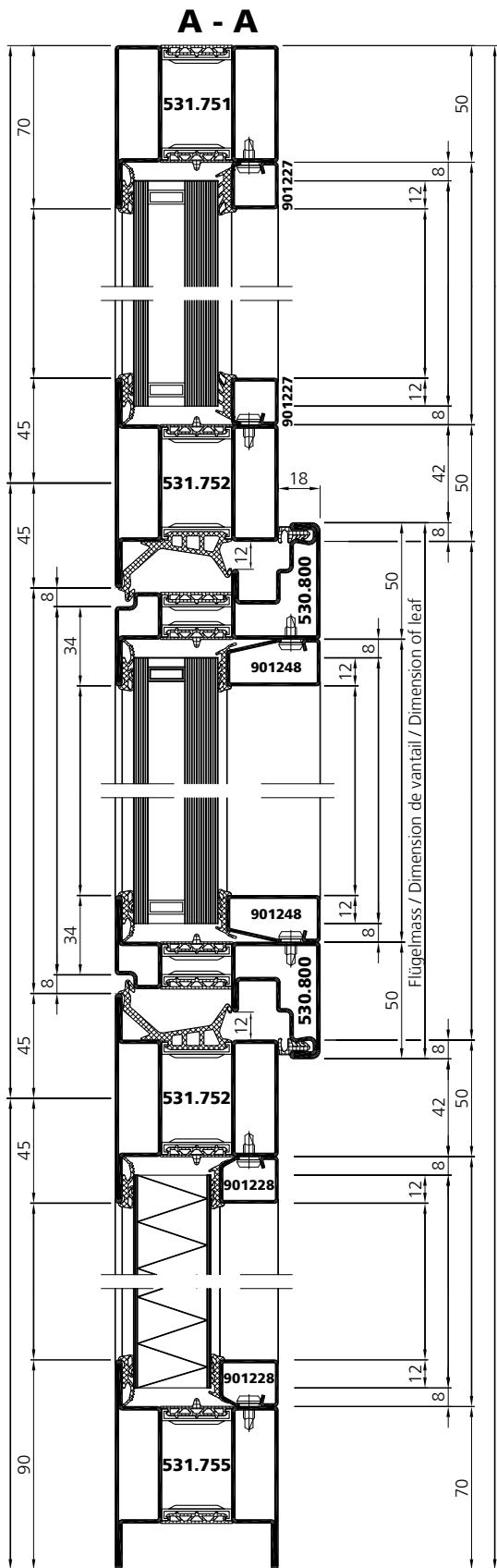
**4**

-  [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)

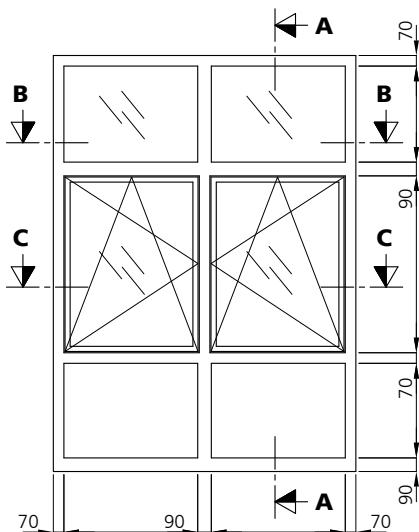
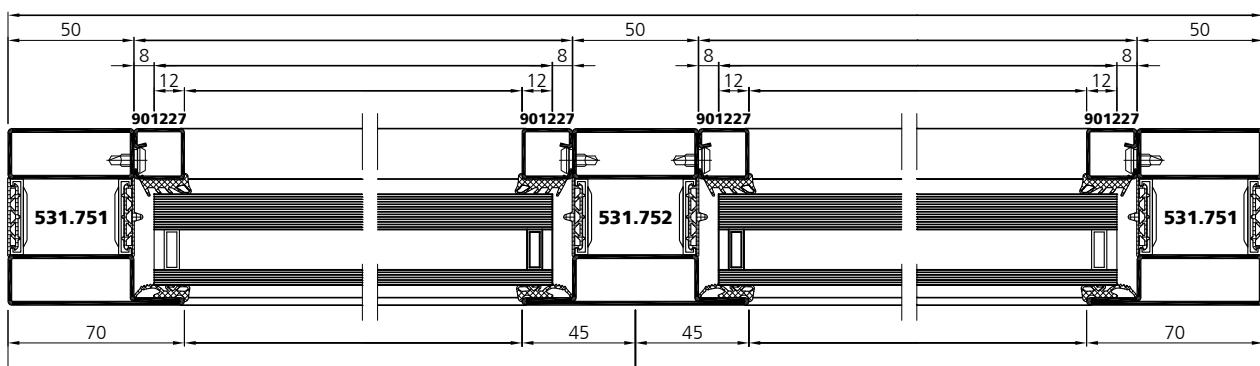
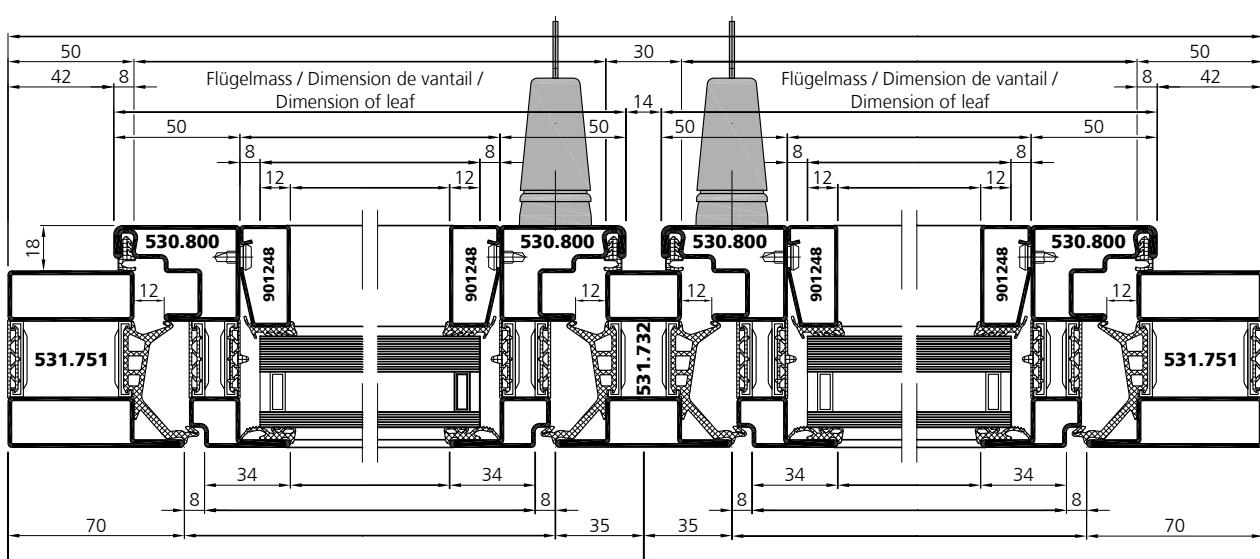
**Systemplan****Plan du système****System plan**

■ un\_sp\_0323



**Systemplan****Plan du système****System plan**

■ un\_sp\_0323

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

**Statik****Statique****Static**

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 ly-Wert von 29.44 [cm<sup>4</sup>] und einen Wy von 8.53 [cm<sup>3</sup>].

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 ly de 29,44 [cm<sup>4</sup>] et une valeur Wy de 8,53 [cm<sup>3</sup>].

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 ly-value of 29.44 [cm<sup>4</sup>] and a Wy of 8.53 [cm<sup>3</sup>].

<b>L</b> [mm]	<b>G</b> [kg/m]	<b>I<sub>y</sub></b> [cm <sup>4</sup> ]	<b>W<sub>y</sub></b> [cm <sup>3</sup> ]	<b>I<sub>z</sub></b> [cm <sup>4</sup> ]	<b>W<sub>z</sub></b> [cm <sup>3</sup> ]	<b>e<sub>y</sub></b> [mm]	<b>e<sub>z</sub></b> [mm]	<b>O</b> [m <sup>2</sup> /m]
6000	4.325							
- 1999 mm		22.51	8.04					
2000 - 2499 mm		26.76	8.37					
2500 - 2999 mm	<b>29.44</b>	<b>8.53</b>						
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/mm<sup>2</sup>]  
E-Modul Edelstahlprofile: 170'000 [N/mm<sup>2</sup>]

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/mm<sup>2</sup>]  
Module E des profilés en acier inox: 170'000 [N/mm<sup>2</sup>]

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/mm<sup>2</sup>]  
E-module stainless steel profiles: 170'000 [N/mm<sup>2</sup>]

**Statik****Statique****Static****Belastungen**

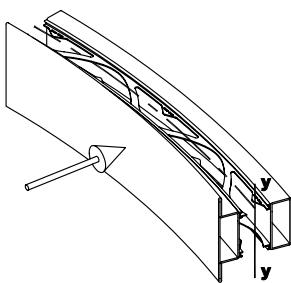
Profile, welche als Pfosten eingesetzt werden, sind im Regelfall mit Verkehrslasten beaufschlagt. Für diese Belastung sind die Werte bezüglich der y-Achse zu wählen.

**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.

**Loads**

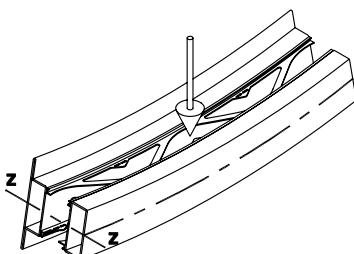
Profiles, used as transom are normally subjected to traffic loads. For these loads, select the value in respect to the y-axis.



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 / Profilés / Profiles (1:4)	Art. Nr. art. no.	m	L [mm]	G [kg/m]	I <sub>y</sub> [cm <sup>4</sup> ]	W <sub>y</sub> [cm <sup>3</sup> ]	I <sub>z</sub> [cm <sup>4</sup> ]	W <sub>z</sub> [cm <sup>3</sup> ]	e <sub>y</sub> [mm]	e <sub>z</sub> [mm]	O [m <sup>2</sup> /m]
	530.620	blank brut bright	6000	1.826			0.60	0.60	31.75	10.00	0.200
			- 1999 mm		9.70	3.67					
			2000 - 2499 mm		10.71	3.77					
		ZM	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	6000	2.460			1.71	1.41	35.00	15.00	0.235
			- 1999 mm		13.34	5.00					
			2000 - 2499 mm		15.04	5.17					
		ZM	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	6000	3.408			6.09	2.44	35.00	25.00	0.315
			- 1999 mm		17.47	7.03					
			2000 - 2499 mm		20.31	7.33					
		ZM	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	6000	1.826			6.09	2.44	27.01	8.61	0.220
			- 999 mm		3.54	0.09					
			1000 - 1499 mm		7.56	0.35					
		ZM	1500 - 2000 mm		10.53	0.80					
		531.731	6000	3.130			4.44	1.58	29.11	19.38	0.270
			- 1999 mm		16.55	5.60					
			2000 - 2499 mm		18.95	5.78					
		ZM	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	6000	3.865			11.78	3.15	30.69	29.49	0.310
			- 1999 mm		20.40	7.65					
			2000 - 2499 mm		24.02	7.96					
		ZM	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	6000	2.300			3.22	1.28	22.11	24.97	0.260
			- 999 mm		3.86	0.08					
			1000 - 1499 mm		8.41	0.35					
		ZM	1500 - 2000 mm		11.96	0.80					



Schwerpunktabstand  
Distance au centre de gravité  
Distance of center of gravity

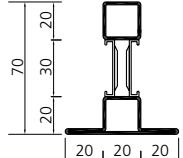
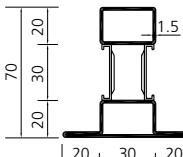
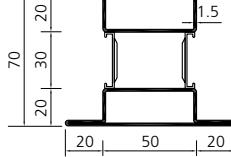
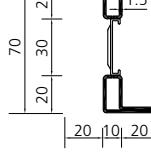
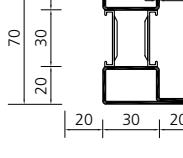
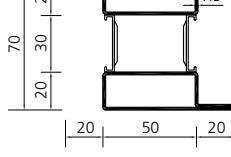
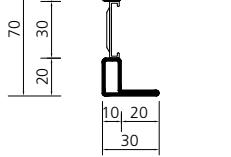
m = Material  
Matériau  
Material

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

**Geometrische  
Querschnittswerte  
Profile**

**Valeurs de résistance  
Profilés**

**Mechanical strength  
Profiles**

Profile / Profilés / Profiles (1:4)	Art. Nr. art. no.	m	L [mm]	G [kg/m]	I <sub>y</sub> [cm <sup>4</sup> ]	W <sub>y</sub> [cm <sup>3</sup> ]	I <sub>z</sub> [cm <sup>4</sup> ]	W <sub>z</sub> [cm <sup>3</sup> ]	e <sub>y</sub> [mm]	e <sub>z</sub> [mm]	O [m <sup>2</sup> /m]
	531.722	blank brut bright	6000	2.919			5.49	1.83	25.04	30.00	0.290
			- 1999 mm		16.38	4.83					
			2000 - 2499 mm		18.63	4.96					
			2500 - 2999 mm		19.92	5.02					
			3000 - 3499 mm		20.71	5.06					
			3500 - 3999 mm		21.22	5.08					
	531.732	blank brut bright	6000	3.385			9.17	2.62	25.04	35.00	0.310
			- 1999 mm		18.68	5.93					
			2000 - 2499 mm		21.60	6.12					
			ZM		23.34	6.21					
			3000 - 3499 mm		24.42	6.27					
			3500 - 3999 mm		25.13	6.30					
	531.752	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					
			ZM		29.44	8.53					
			3000 - 3499 mm		32.32	8.63					
			3500 - 3999 mm		33.13	8.69					
	530.713	blank brut bright	6000	2.295			1.11	0.59	35.00	24.97	0.260
			- 999 mm		4.31	0.09					
			1000 - 1499 mm		9.72	0.35					
			ZM		14.29	0.80					
			1500 - 2000 mm								
	531.733	blank brut bright	6000	3.385			4.44	1.58	35.00	35.00	0.310
			- 1999 mm		20.57	8.58					
			2000 - 2499 mm		24.02	8.85					
			bandverzinkt sendzimir galvanized		26.10	8.99					
			3000 - 3499 mm		27.41	9.07					
			3500 - 3999 mm		28.27	9.12					
	531.753	blank brut bright	6000	4.325			20.57	4.57	35.00	45.00	0.350
			- 1999 mm		23.80	10.53					
			2000 - 2499 mm		28.74	10.97					
			ZM		31.44	11.19					
			3000 - 3499 mm		33.37	11.32					
			3500 - 3999 mm		34.67	11.37					
	531.718	ZM	6000	2.295			1.12	0.59	35.00	11.41	0.260
			- 999 mm		4.32	0.09					
			1000 - 1499 mm		9.72	0.35					
			1500 - 2000 mm		14.30	0.08					



Schwerpunktabstand  
Distance au centre de gravité  
Distance of center of gravity

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  
Profilés**
**Mechanical strength  
Profiles**

<b>Profile / Profilés / Profiles (1:4)</b>	<b>Art. Nr. art. no.</b>	<b>m</b>	<b>L [mm]</b>	<b>G [kg/m]</b>	<b>I<sub>y</sub> [cm<sup>4</sup>]</b>	<b>W<sub>y</sub> [cm<sup>3</sup>]</b>	<b>I<sub>z</sub> [cm<sup>4</sup>]</b>	<b>W<sub>z</sub> [cm<sup>3</sup>]</b>	<b>e<sub>y</sub> [mm]</b>	<b>e<sub>z</sub> [mm]</b>	<b>O [m<sup>2</sup>/m]</b>
	<b>531.738</b>	ZM	6000	3.385			4.44	1.58	35.00	2.43	0.310
			- 1999 mm		20.57	8.58					
			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					
	<b>531.758*</b>	blank brut bright	6000	4.325			11.78	3.15	35.00	32.99	0.350
			- 1999 mm		23.80	10.53					
			2000 - 2499 mm		28.47	10.97					
		ZM	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					
	<b>531.735</b>	ZM	6000	3.847			9.17	2.62	34.12	35.64	0.350
			- 1999 mm		23.28	9.04					
			2000 - 2499 mm		27.56	9.34					
			2500 - 2999 mm		30.21	9.48					
			3000 - 3499 mm		31.90	9.56					
			3500 - 3999 mm		33.03	9.61					
			4000 - 6000 mm		33.81	9.64					
	<b>531.755</b>	blank brut bright	6000	4.870			20.57	4.57	31.58	48.57	0.390
			- 1999 mm		26.27	11.04					
			2000 - 2499 mm		31.80	11.49					
		ZM	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					
	<b>533.731</b>	blank brut bright	6000	3.008			4.44	1.58	27.97	17.99	0.280
			- 1999 mm		16.55	5.60					
			2000 - 2499 mm		18.95	5.78					
		ZM	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					
	<b>533.732</b>	blank brut bright	6000	3.463			9.17	2.62	24.16	33.95	0.320
			- 1999 mm		18.68	5.93					
			2000 - 2499 mm		21.60	6.12					
		ZM	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					
	<b>533.733</b>	blank brut bright	6000	3.463			4.44	1.58	33.81	33.95	0.320
			- 1999 mm		20.57	8.58					
			2000 - 2499 mm		24.02	8.85					
		ZM	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					

\* auf Anfrage / sur demande / on request

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

Profile / Profilés / Profiles (1:4)	Art. Nr. art. no.	m	L [mm]	G [kg/m]	I <sub>y</sub> [cm <sup>4</sup> ]	W <sub>y</sub> [cm <sup>3</sup> ]	I <sub>z</sub> [cm <sup>4</sup> ]	W <sub>z</sub> [cm <sup>3</sup> ]	e <sub>y</sub> [mm]	e <sub>z</sub> [mm]	O [m <sup>2</sup> /m]
	<b>532.620</b>	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					
		ZM	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					
			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					
			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					
	<b>533.650</b>	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					
		ZM	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					
			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					
			2500 - 2999 mm		26.26	8.12					
	<b>533.751</b>	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					
		ZM	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					
	<b>533.752</b>	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					
		ZM	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					
	<b>533.753</b>	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					
		ZM	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					
	<b>533.756</b>	blank brut bright	6000	4.870			11.78	3.15	35.00	45.00	0.350
			- 1999 mm		26.27	11.04					
			2000 - 2499 mm		31.80	11.49					
		ZM	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					
	<b>537.752 *</b>	ZM	6000	4.408			20.57	4.57	30.83	40.95	0.390
			- 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					
			6000	4.408			20.57	4.57	44.10	35.00	0.361
			- 1999 mm		22.51	8.04					

\* auf Anfrage / sur demande / on request

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

Profile / Profilés / Profiles (1:4)	Art. Nr. art. no.	m	L [mm]	G [kg/m]	I <sub>y</sub> [cm <sup>4</sup> ]	W <sub>y</sub> [cm <sup>3</sup> ]	I <sub>z</sub> [cm <sup>4</sup> ]	W <sub>z</sub> [cm <sup>3</sup> ]	e <sub>y</sub> [mm]	e <sub>z</sub> [mm]	O [m <sup>2</sup> /m]
	<b>537.753 *</b>	ZM	6000	4.408			11.78	3.15	44.10	36.10	0.361
			- 1999 mm		23.80	10.53					
			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					
	<b>553.701</b>	blank brut bright	3000	8.692			100.00	2.93	34.16	51.33	0.401
			- 999 mm		22.00	11.00					
			1000 - 1999 mm		49.00	24.50					
			2000 - 2999 mm		73.00	36.50					
	<b>553.702</b>	blank brut bright	3000	9.163			120.00	3.58	33.51	69.88	0.441
			- 999 mm		22.00	11.00					
			1000 - 1999 mm		49.00	24.50					
			2000 - 2999 mm		73.00	36.50					
	<b>553.703</b>	blank brut bright	3000	9.163			125.00	3.59	34.83	69.88	0.441
			- 999 mm		22.00	11.00					
			1000 - 1999 mm		49.00	24.50					
			2000 - 2999 mm		73.00	36.50					
	<b>573.701</b>	blank brut bright	3000	13.408			580.00	16.91	34.30	100.34	0.601
			- 999 mm		25.00	12.50					
			1000 - 1999 mm		82.00	41.00					
			2000 - 2999 mm		115.00	57.50					
	<b>551.701</b>	blank brut bright	3000	9.081			115.00	3.35	34.36	53.70	0.394
			- 999 mm		22.00	11.00					
			1000 - 1999 mm		49.00	24.50					
			2000 - 2999 mm		73.00	36.50					
	<b>571.701</b>	blank brut bright	3000	13.797			625.00	18.14	34.46	104.31	0.594
			- 999 mm		25.00	12.50					
			1000 - 1999 mm		82.00	41.00					
			2000 - 2999 mm		115.00	57.50					



Schwerpunktabstand  
Distance au centre de gravité  
Distance of center of gravity

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  
Profilés**
**Mechanical strength  
Profiles**

<b>Profile / Profilés / Profiles (1:4)</b>	<b>Art. Nr. art. no.</b>	<b>m</b>	<b>L [mm]</b>	<b>G [kg/m]</b>	<b>I<sub>y</sub> [cm<sup>4</sup>]</b>	<b>W<sub>y</sub> [cm<sup>3</sup>]</b>	<b>I<sub>z</sub> [cm<sup>4</sup>]</b>	<b>W<sub>z</sub> [cm<sup>3</sup>]</b>	<b>e<sub>y</sub> [mm]</b>	<b>e<sub>z</sub> [mm]</b>	<b>O [m<sup>2</sup>/m]</b>
	<b>531.756 Z **</b>	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					
	<b>531.737 Z **</b>	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					
	<b>530.800</b>	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					
		ZM	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					
	<b>531.801</b>	blank brut bright	6000	3.435			1.43	0.57	47.76	28.68	0.360
			- 999 mm		8.97	3.76					
			1000 - 1499 mm		12.55	4.20					
		ZM	1500 - 2000 mm		16.66	4.52					
	<b>531.832</b>	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					
		ZM	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					
	<b>531.812</b>	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					
		ZM	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**

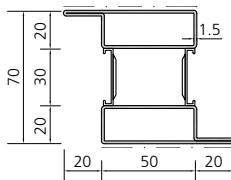
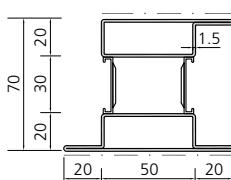
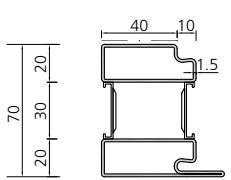
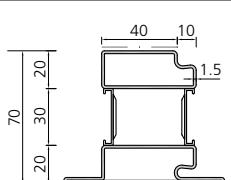
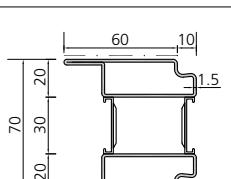
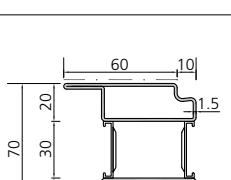
**Valeurs de résistance  
Profilés**

**Mechanical strength  
Profiles**

Profile / Profilés / Profiles (1:4)	Art. Nr. art. no.	m	L [mm]	G [kg/m]	I <sub>y</sub> [cm <sup>4</sup> ]	W <sub>y</sub> [cm <sup>3</sup> ]	I <sub>z</sub> [cm <sup>4</sup> ]	W <sub>z</sub> [cm <sup>3</sup> ]	e <sub>y</sub> [mm]	e <sub>z</sub> [mm]	O [m <sup>2</sup> /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							

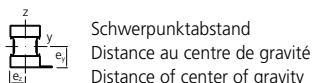
\* auf Anfrage / sur demande / on request

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

<b>Profile / Profilés / Profiles (1:4)</b>	<b>Art. Nr. art. no.</b>	<b>m</b>	<b>L [mm]</b>	<b>G [kg/m]</b>	<b>I<sub>y</sub> [cm<sup>4</sup>]</b>	<b>W<sub>y</sub> [cm<sup>3</sup>]</b>	<b>I<sub>z</sub> [cm<sup>4</sup>]</b>	<b>W<sub>z</sub> [cm<sup>3</sup>]</b>	<b>e<sub>y</sub> [mm]</b>	<b>e<sub>z</sub> [mm]</b>	<b>O [m<sup>2</sup>/m]</b>	<b>mo [cm]</b>
	<b>531.753 CrNi*</b>	CrNi 1.4301	6000	4.350								
			- 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							
	<b>531.755 CrNi</b>	CrNi 1.4301	6000	4.810								
			- 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							
	<b>533.751 CrNi</b>	CrNi 1.4301	6000	3.975								
			- 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							
	<b>533.752 CrNi</b>	CrNi 1.4301	6000	4.450								
			- 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							
	<b>533.753 CrNi</b>	CrNi 1.4301	6000	4.430								
			- 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							
	<b>533.756 CrNi</b>	CrNi 1.4301	6000	4.880								
			- 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



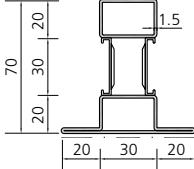
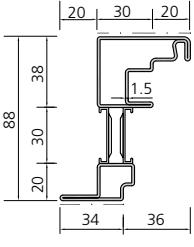
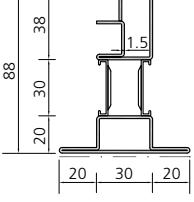
m = Material  
Matériau  
Material

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

**Geometrische  
Querschnittswerte  
Profile**

**Valeurs de résistance  
Profilés**

**Mechanical strength  
Profiles**

<b>Profile / Profilés / Profiles (1:4)</b>	<b>Art. Nr. art. no.</b>	<b>m</b>	<b>L [mm]</b>	<b>G [kg/m]</b>	<b>I<sub>y</sub> [cm<sup>4</sup>]</b>	<b>W<sub>y</sub> [cm<sup>3</sup>]</b>	<b>I<sub>z</sub> [cm<sup>4</sup>]</b>	<b>W<sub>z</sub> [cm<sup>3</sup>]</b>	<b>e<sub>y</sub> [mm]</b>	<b>e<sub>z</sub> [mm]</b>	<b>O [m<sup>2</sup>/m]</b>	<b>mo [cm]</b>
	<b>531.732</b> <b>CrNi</b>	CrNi 1.4301	6000	3.400								
			- 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							
			4000 - 6000 mm	26.09	6.17							
	<b>530.800</b> <b>CrNi</b>	CrNi 1.4301	6000	4.097								
			- 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							
			3000 - 3499 mm	38.58	7.54							
	<b>531.832</b> <b>CrNi</b>	CrNi 1.4301	6000	4.000								
			- 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

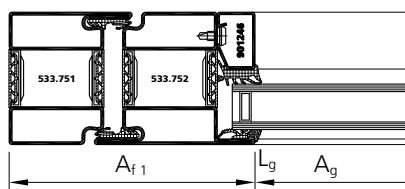
03/21

## 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

$$U_D = \frac{(A_f 1 \times U_f) + (A_f 2 \times U_f) + (A_g \times U_g) + (L_g \times \psi_g)}{A_f 1 + A_f 2 + A_g}$$



## Calcul des valeurs U

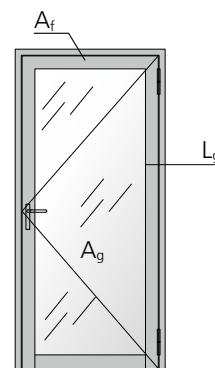
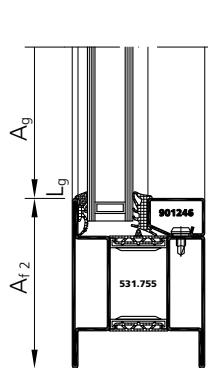
pour tout l'élément selon la norme EN 10077 - 1

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



<b>U<sub>D</sub></b>	=	U-Wert Tür	[W/(m <sup>2</sup> K)]
<b>A<sub>f</sub></b>	=	Sichtbare Fläche Rahmen	[m <sup>2</sup> ]
<b>U<sub>f</sub></b>	=	U-Wert der Rahmenkombination	[W/(m <sup>2</sup> K)]
	(Seite 194-195)		
<b>A<sub>g</sub></b>	=	Sichtbare Fläche Glas	[m <sup>2</sup> ]
<b>U<sub>g</sub></b>	=	U-Wert des Glases	[W/(m <sup>2</sup> K)]
<b>L<sub>g</sub></b>	=	Umfang des sichtbaren Glasanteils [m]	
<b>ψ<sub>g</sub></b>	=	Längenbezogener Wärmedurchgangskoeffizient	[W/(mK)]
		Tabelle E1 der EN 10077-1	

<b>U<sub>D</sub></b>	=	Coefficient de transmission thermique de la porte	[W/(m <sup>2</sup> K)]
<b>A<sub>f</sub></b>	=	Surface de l'encadrement	[m <sup>2</sup> ]
<b>U<sub>f</sub></b>	=	Coefficient de transmission thermique de l'encadrement (page 194-195)	[W/(m <sup>2</sup> K)]
<b>A<sub>g</sub></b>	=	Surface du vitrage	[m <sup>2</sup> ]
<b>U<sub>g</sub></b>	=	Coefficient de transmission thermique du vitrage	[W/(m <sup>2</sup> K)]
<b>L<sub>g</sub></b>	=	Périmètre du vitrage visible [m]	
<b>ψ<sub>g</sub></b>	=	Valeurs du coefficient de transmission thermique linéique pour les intercalaires du vitrage	[W/(mK)]
		Tableau E1 EN ISO 10077-1	

<b>U<sub>D</sub></b>	=	Thermal transmittance of the door	[W/(m <sup>2</sup> K)]
<b>A<sub>f</sub></b>	=	Area of the frame	[m <sup>2</sup> ]
<b>U<sub>f</sub></b>	=	Thermal transmittance of the frame (page 194-195)	[W/(m <sup>2</sup> K)]
<b>A<sub>g</sub></b>	=	Area of the glazing	[m <sup>2</sup> ]
<b>U<sub>g</sub></b>	=	Thermal transmittance of the glazing	[W/(m <sup>2</sup> K)]
<b>L<sub>g</sub></b>	=	Perimeter of the visible glazing [m]	
<b>ψ<sub>g</sub></b>	=	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 verbesselter 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.

Metallrahmen mit wärmetechnischer Trennung Cadre avec isolation thermique Frame with thermal break	a) <b>0.08</b> b) <b>0.06</b>	a) <b>0.11</b> b) <b>0.08</b>
	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

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

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

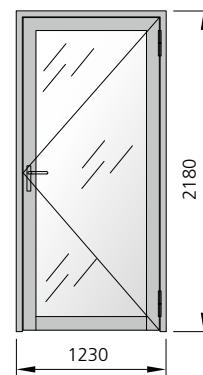
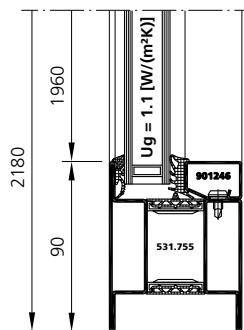
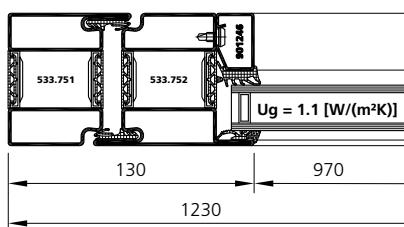
- a) glazing spacer bars in aluminium or steel
- b) glazing spacer bar with higher thermal efficiency

**Berechnung der U-Werte**  
für 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



$$A_D = \text{Fläche gesamtes Element} \\ 1.23 \times 2.18 = 2.681 \text{ [m}^2\text{]}$$

$$A_g = \text{Sichtbare Fläche Glas} \\ (1.23 - 2 \times 130) \times (2.18 - 130 - 90) = 1.901 \text{ [m}^2\text{]}$$

$$A_f = \text{Sichtbare Fläche Rahmen (total)} \\ A_D - A_g \\ 2.681 - 1.901 = 0.78 \text{ [m}^2\text{]}$$

$$A_{f1} = \text{Sichtbare Fläche Rahmen} \\ 0.78 \text{ [m}_2\text{]} - 0.087 \text{ [m}_2\text{]} = 0.693 \text{ [m}_2\text{]}$$

$$A_{f2} = \text{Sichtbare Fläche Sockel} \\ (1.23 - 2 \times 130) \times 90 = 0.087 \text{ [m}^2\text{]}$$

$$L_g = \text{Umfang des sichtbaren Glasanteils} \\ ((1.23 - 2 \times 130) + (2.18 - 130 - 90)) \times 2 = 5.860 \text{ [m]}$$

$$U_f = \text{U-Wert der Rahmenkombination} \\ \text{Rahmen: } 2.5 \text{ [W/(m}^2\text{K}]\text{)} \\ \text{Sockel: } 3.1 \text{ [W/(m}^2\text{K}]\text{)}$$

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

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

$$A_D = \text{Surface de l'élément} \\ 1.23 \times 2.18 = 2.681 \text{ [m}^2\text{]}$$

$$A_g = \text{Surface du vitrage} \\ (1.23 - 2 \times 130) \times (2.18 - 130 - 90) = 1.901 \text{ [m}^2\text{]}$$

$$A_f = \text{Surface de l'encadrement (total)} \\ A_D - A_g \\ 2.681 - 1.901 = 0.78 \text{ [m}^2\text{]}$$

$$A_{f1} = \text{Surface de l'encadrement} \\ 0.78 \text{ [m}_2\text{]} - 0.087 \text{ [m}_2\text{]} = 0.693 \text{ [m}_2\text{]}$$

$$A_{f2} = \text{Surface du socle} \\ (1.23 - 2 \times 130) \times 90 = 0.087 \text{ [m}^2\text{]}$$

$$L_g = \text{Périmètre du vitrage visible} \\ ((1.23 - 2 \times 130) + (2.18 - 130 - 90)) \times 2 = 5.860 \text{ [m]}$$

$$U_f = \text{Coefficient de transmission thermique de} \\ \text{l'encadrement} \\ \text{cadre: } 2.5 \text{ [W/(m}^2\text{K}]\text{)} \\ \text{socle: } 3.1 \text{ [W/(m}^2\text{K}]\text{)}$$

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

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

$$A_D = \text{Area of the element} \\ 1.23 \times 2.18 = 2.681 \text{ [m}^2\text{]}$$

$$A_g = \text{Area of the glazing} \\ (1.23 - 2 \times 130) \times (2.18 - 130 - 90) = 1.901 \text{ [m}^2\text{]}$$

$$A_f = \text{Area of the frame (total)} \\ A_D - A_g \\ 2.681 - 1.901 = 0.78 \text{ [m}^2\text{]}$$

$$A_{f1} = \text{Area of the frame} \\ 0.78 \text{ [m}_2\text{]} - 0.087 \text{ [m}_2\text{]} = 0.693 \text{ [m}_2\text{]}$$

$$A_{f2} = \text{Area of the threshold} \\ (1.23 - 2 \times 130) \times 90 = 0.087 \text{ [m}^2\text{]}$$

$$L_g = \text{Perimeter of the visible glazing} \\ ((1.23 - 2 \times 130) + (2.18 - 130 - 90)) \times 2 = 5.860 \text{ [m]}$$

$$U_f = \text{Thermal transmittance of the frame} \\ \text{frame: } 2.5 \text{ [W/(m}^2\text{K}]\text{)} \\ \text{threshold: } 3.1 \text{ [W/(m}^2\text{K}]\text{)}$$

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

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

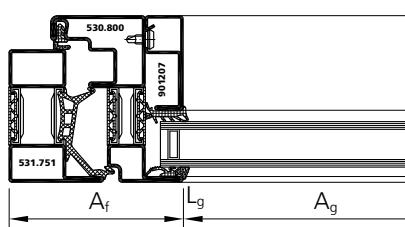
$$U_D = \frac{(A_{f1} \times U_f) + (A_{f2} \times U_f) + (A_g \times U_g) + (L_g \times \Psi_g)}{A_{f1} + A_{f2} + A_g} \quad U_D = \frac{(0.693 \times 2.5) + (0.087 \times 3.1) + (1.901 \times 1.1) + (5.86 \times 0.11)}{(0.693 + 0.087 + 1.901)} = 1.66 \text{ [W/(m}^2\text{K}]\text{)}$$

## 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

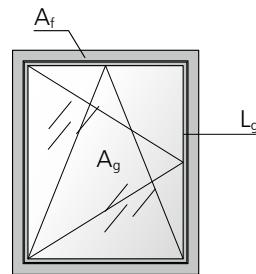
pour tout l'élément selon la norme  
EN 10077 - 1

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



<b>U<sub>w</sub></b>	=	U-Wert Fenster	[W/(m <sup>2</sup> K)]
<b>A<sub>f</sub></b>	=	Sichtbare Fläche Rahmen	[m <sup>2</sup> ]
<b>U<sub>f</sub></b>	=	U-Wert der Rahmenkombination	[W/(m <sup>2</sup> K)]
<b>A<sub>g</sub></b>	=	Sichtbare Fläche Glas	[m <sup>2</sup> ]
<b>U<sub>g</sub></b>	=	U-Wert des Glases	[W/(m <sup>2</sup> K)]
<b>L<sub>g</sub></b>	=	Umfang des sichtbaren Glasanteils [m]	
<b>Ψ<sub>g</sub></b>	=	Längenbezogener Wärmedurchgangskoeffizient	[W/(mK)]

Tabelle E1 der EN 10077-1

<b>U<sub>w</sub></b>	=	Coefficient de transmission thermique de la fenêtre	[W/(m <sup>2</sup> K)]
<b>A<sub>f</sub></b>	=	Surface de l'encadrement	[m <sup>2</sup> ]
<b>U<sub>f</sub></b>	=	Coefficient de transmission thermique de l'encadrement	[W/(m <sup>2</sup> K)]
<b>A<sub>g</sub></b>	=	Surface du vitrage	[m <sup>2</sup> ]
<b>U<sub>g</sub></b>	=	Coefficient de transmission thermique du vitrage	[W/(m <sup>2</sup> K)]
<b>L<sub>g</sub></b>	=	Périmètre du vitrage visible [m]	
<b>Ψ<sub>g</sub></b>	=	Valeurs du coefficient de transmission thermique linéique pour les intercalaires du vitrage	[W/(mK)]

Tableau E1 EN ISO 10077-1

<b>U<sub>w</sub></b>	=	Thermal transmittance of the window	[W/(m <sup>2</sup> K)]
<b>A<sub>f</sub></b>	=	Area of the frame	[m <sup>2</sup> ]
<b>U<sub>f</sub></b>	=	Thermal transmittance of the frame	[W/(m <sup>2</sup> K)]
<b>A<sub>g</sub></b>	=	Area of the glazing	[m <sup>2</sup> ]
<b>U<sub>g</sub></b>	=	Thermal transmittance of the glazing	[W/(m <sup>2</sup> K)]
<b>L<sub>g</sub></b>	=	Perimeter of the visible glazing [m]	
<b>Ψ<sub>g</sub></b>	=	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 verbesselter 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.

Metallrahmen mit wärmetechnischer Trennung Cadre avec isolation thermique Frame with thermal break	a) <b>0.08</b> b) <b>0.06</b>	a) <b>0.11</b> b) <b>0.08</b>
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- a) Abstandhalter aus Aluminium und Stahl
- b) Abstandhalter mit wärmetechnisch verbesserten Leistungsfähigkeit

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

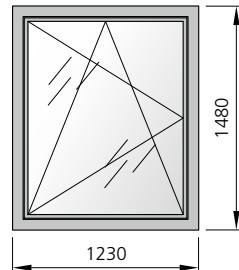
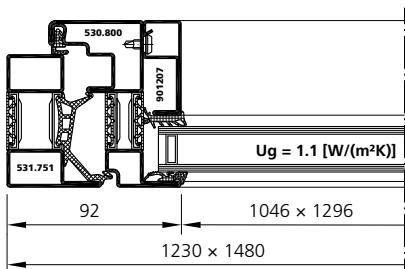
- a) glazing spacer bars in aluminium or steel
- b) glazing spacer bar with higher thermal efficiency

**Berechnung der U-Werte**  
für 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



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

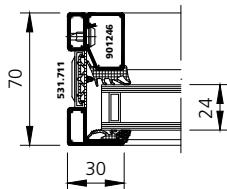
$$\Psi_g = \text{Längenbezogener Wärmedurchgangskoeffizient} \\ \text{gemäss EN 10077-1} \\ 0.11 \text{ [W/(mK)]}$$

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

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

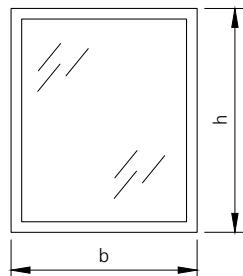
$$U_w = \frac{A_f \times U_f + A_g \times U_g + L_g \times \Psi_g}{A_f + A_g}$$

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

**Element – U-Werte**  
U-Werte Festfeld  $U_W$ 


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

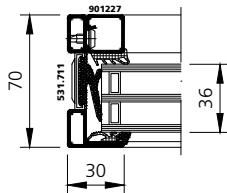
$$\psi = 0.06 \text{ [W/(m} \cdot \text{K}]$$

**Élément – Coefficient de transmission 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 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
Höhe h / hauteur h / height h [mm]	800	1.65	1.60	1.57	1.54	1.52	1.51	1.50	1.49	1.48
	1000	1.60	1.55	1.51	1.49	1.47	1.45	1.44	1.43	1.42
	1200	1.57	1.51	1.48	1.45	1.43	1.42	1.40	1.39	1.39
	1400	1.54	1.49	1.45	1.42	1.40	1.39	1.38	1.37	1.36
	1600	1.52	1.47	1.43	1.40	1.38	1.37	1.36	1.35	1.34
	1800	1.51	1.45	1.42	1.39	1.37	1.35	1.34	1.33	1.32
	2000	1.50	1.44	1.40	1.38	1.36	1.34	1.33	1.32	1.31
	2200	1.49	1.43	1.39	1.37	1.35	1.33	1.32	1.31	1.30
	2400	1.48	1.42	1.39	1.36	1.34	1.32	1.31	1.30	1.29
	2600	1.47	1.42	1.38	1.35	1.33	1.32	1.30	1.29	1.28
	2800	1.47	1.41	1.37	1.35	1.33	1.31	1.30	1.29	1.28
	3000	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	0.9	Breite b / largeur b / width b [mm]								
		800	1000	1200	1400	1600	1800	2000	2200	2400
Höhe h / hauteur h / height h [mm]	800	1.48	1.43	1.39	1.36	1.34	1.33	1.32	1.31	1.30
	1000	1.43	1.37	1.33	1.31	1.29	1.27	1.26	1.25	1.24
	1200	1.39	1.33	1.29	1.27	1.25	1.23	1.22	1.21	1.20
	1400	1.36	1.31	1.27	1.24	1.22	1.20	1.19	1.18	1.17
	1600	1.34	1.29	1.25	1.22	1.20	1.18	1.17	1.16	1.15
	1800	1.33	1.27	1.23	1.20	1.18	1.17	1.15	1.14	1.13
	2000	1.32	1.26	1.22	1.19	1.17	1.15	1.14	1.13	1.12
	2200	1.31	1.25	1.21	1.18	1.16	1.14	1.13	1.12	1.11
	2400	1.30	1.24	1.20	1.17	1.15	1.13	1.12	1.11	1.10
	2600	1.29	1.23	1.19	1.16	1.14	1.13	1.11	1.10	1.09
	2800	1.29	1.23	1.19	1.16	1.14	1.12	1.11	1.10	1.09
	3000	1.28	1.22	1.18	1.15	1.13	1.11	1.10	1.09	1.08

**Element – U-Werte**  
U-Werte Festfeld  $U_W$

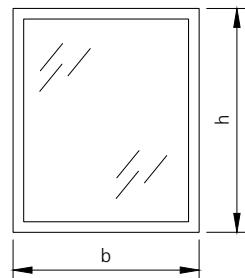


$U_f = 2.1 \text{ [W/(m}^2 \cdot \text{K}]}$

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

**Élément – Coefficient de transmission thermique**  
Coefficient de transmission thermique du vitrage fixe  $U_W$

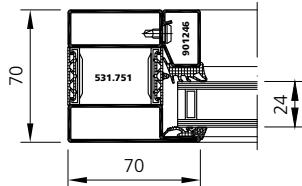
**Element – Thermal transmittance**  
Thermal transmittance of fixed glazing  $U_W$



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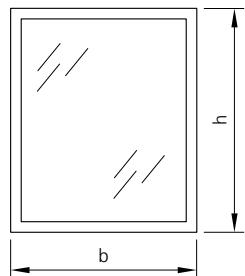
$U_g$ -Wert Glas 0.7 Valeur $U_g$ verre 0.7 $U_g$ -value glass 0.7	Breite b / largeur b / width b [mm]									
	800	1000	1200	1400	1600	1800	2000	2200	2400	
Höhe h / hauteur h / height h [mm]	800	1.09	1.05	1.03	1.01	1.00	0.99	0.98	0.97	0.97
	1000	1.05	1.01	0.99	0.97	0.96	0.95	0.94	0.93	0.93
	1200	1.03	0.99	0.96	0.95	0.93	0.92	0.91	0.91	0.90
	1400	1.01	0.97	0.95	0.93	0.91	0.90	0.89	0.89	0.88
	1600	1.00	0.96	0.93	0.91	0.90	0.89	0.88	0.87	0.87
	1800	0.99	0.95	0.92	0.90	0.89	0.88	0.87	0.86	0.86
	2000	0.98	0.94	0.91	0.89	0.88	0.87	0.86	0.85	0.85
	2200	0.97	0.93	0.91	0.89	0.87	0.86	0.85	0.85	0.84
	2400	0.97	0.93	0.90	0.88	0.87	0.86	0.85	0.84	0.83
	2600	0.96	0.92	0.90	0.88	0.86	0.85	0.84	0.84	0.83
	2800	0.96	0.92	0.89	0.87	0.86	0.85	0.84	0.83	0.82
	3000	0.95	0.91	0.89	0.87	0.85	0.84	0.83	0.83	0.82

$U_g$ -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	0.92	0.88	0.85	0.83	0.82	0.81	0.80	0.79	0.79
	1000	0.88	0.84	0.81	0.79	0.78	0.77	0.76	0.75	0.74
	1200	0.85	0.81	0.78	0.76	0.75	0.74	0.73	0.72	0.71
	1400	0.83	0.79	0.76	0.74	0.73	0.72	0.71	0.70	0.69
	1600	0.82	0.78	0.75	0.73	0.71	0.70	0.69	0.69	0.68
	1800	0.81	0.77	0.74	0.72	0.70	0.69	0.68	0.67	0.67
	2000	0.80	0.76	0.73	0.71	0.69	0.68	0.67	0.66	0.66
	2200	0.79	0.75	0.72	0.70	0.69	0.67	0.66	0.66	0.65
	2400	0.79	0.74	0.71	0.69	0.68	0.67	0.66	0.65	0.64
	2600	0.78	0.74	0.71	0.69	0.67	0.66	0.65	0.65	0.64
	2800	0.78	0.73	0.70	0.68	0.67	0.66	0.65	0.64	0.63
	3000	0.77	0.73	0.70	0.68	0.67	0.65	0.64	0.64	0.63

**Element – U-Werte**  
U-Werte Festfeld  $U_W$ 


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

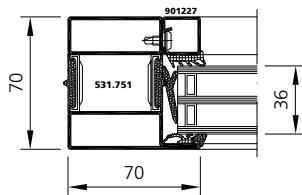
$$\psi = 0.06 \text{ [W/(m} \cdot \text{K}]}$$

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

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$U_g$ -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
Höhe h / hauteur h / height h [mm]	800	1.79	1.73	1.69	1.67	1.64	1.63	1.61	1.60	1.59
	1000	1.73	1.67	1.63	1.60	1.58	1.56	1.54	1.53	1.52
	1200	1.69	1.63	1.58	1.55	1.53	1.51	1.50	1.48	1.47
	1400	1.67	1.60	1.55	1.52	1.50	1.48	1.46	1.45	1.44
	1600	1.64	1.58	1.53	1.50	1.47	1.45	1.44	1.42	1.41
	1800	1.63	1.56	1.51	1.48	1.45	1.43	1.42	1.40	1.39
	2000	1.61	1.54	1.50	1.46	1.44	1.42	1.40	1.39	1.38
	2200	1.60	1.53	1.48	1.45	1.42	1.40	1.39	1.37	1.36
	2400	1.59	1.52	1.47	1.44	1.41	1.39	1.38	1.36	1.35
	2600	1.59	1.51	1.47	1.43	1.40	1.38	1.37	1.35	1.34
	2800	1.58	1.51	1.46	1.42	1.40	1.38	1.36	1.35	1.34
	3000	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	0.9	Breite b / largeur b / width b [mm]								
		800	1000	1200	1400	1600	1800	2000	2200	2400
Höhe h / hauteur h / height h [mm]	800	1.66	1.59	1.55	1.52	1.49	1.48	1.46	1.45	1.44
	1000	1.59	1.52	1.48	1.44	1.42	1.40	1.38	1.37	1.36
	1200	1.55	1.48	1.43	1.39	1.37	1.35	1.33	1.32	1.31
	1400	1.52	1.44	1.39	1.36	1.33	1.31	1.29	1.28	1.27
	1600	1.49	1.42	1.37	1.33	1.30	1.28	1.27	1.25	1.24
	1800	1.48	1.40	1.35	1.31	1.28	1.26	1.25	1.23	1.22
	2000	1.46	1.38	1.33	1.29	1.27	1.25	1.23	1.21	1.20
	2200	1.45	1.37	1.32	1.28	1.25	1.23	1.21	1.20	1.19
	2400	1.44	1.36	1.31	1.27	1.24	1.22	1.20	1.19	1.18
	2600	1.43	1.35	1.30	1.26	1.23	1.21	1.19	1.18	1.17
	2800	1.42	1.34	1.29	1.25	1.22	1.20	1.18	1.17	1.16
	3000	1.42	1.34	1.28	1.24	1.22	1.19	1.18	1.16	1.15

**Element – U-Werte**  
U-Werte Festfeld  $U_W$

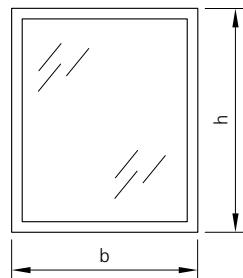


$U_f = 2.1 \text{ [W/(m}^2 \cdot \text{K}]}$

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

**Élément – Coefficient de transmission thermique**  
Coefficient de transmission thermique du vitrage fixe  $U_W$

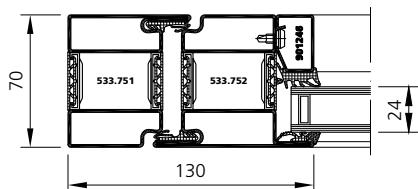
**Element – Thermal transmittance**  
Thermal transmittance of fixed glazing  $U_W$



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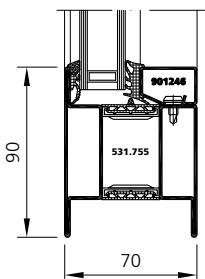
$U_g$ -Wert Glas Valeur $U_g$ verre $U_g$ -value glass	0.7	Breite b / largeur b / width b [mm]								
		800	1000	1200	1400	1600	1800	2000	2200	2400
Höhe h / hauteur h / height h [mm]	800	1.31	1.26	1.22	1.20	1.18	1.16	1.15	1.14	1.13
	1000	1.26	1.20	1.16	1.14	1.12	1.10	1.09	1.08	1.07
	1200	1.22	1.16	1.13	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 Valeur $U_g$ verre $U_g$ -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

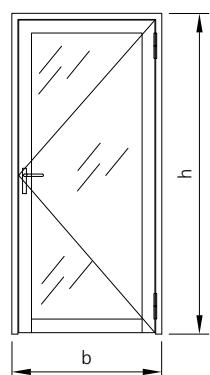
**Element – U-Werte**U-Werte Tür  $U_D$ 

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

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

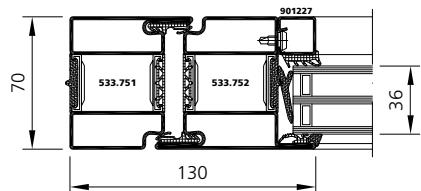
**Élément – Coefficient de transmission thermique**Coefficient de transmission thermique de la porte  $U_D$ 

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

**Element – Thermal transmittance**Thermal transmittance of the door  $U_D$ 
**forsterunico®**

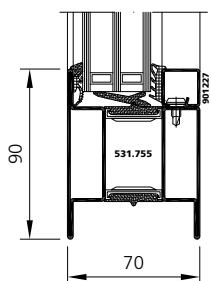
U <sub>g</sub> -Wert Glas 1.1		Breite b / largeur b / width b [mm]				
		800	1000	1200	1400	1600
Höhe h / hauteur h / height h [mm]	2000	1.85	1.75	1.68	1.63	1.59
	2200	1.84	1.74	1.67	1.62	1.58
	2400	1.83	1.72	1.65	1.60	1.56
	2600	1.82	1.71	1.64	1.59	1.55
	2800	1.81	1.70	1.63	1.58	1.54
	3000	1.80	1.69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

U <sub>g</sub> -Wert Glas 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

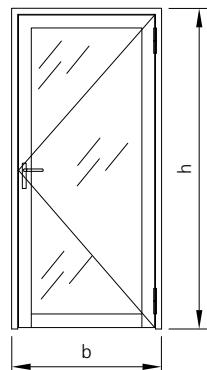
**Element – U-Werte**U-Werte Tür  $U_D$ 

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

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

**Élément – Coefficient de transmission thermique**Coefficient de transmission thermique de la porte  $U_D$ 

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

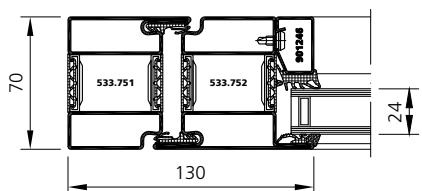
**Element – Thermal transmittance**Thermal transmittance of the door  $U_D$ 
**forsterunico<sup>®</sup>HI**

		Breite b / largeur b / width b [mm]				
		800	1000	1200	1400	1600
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
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

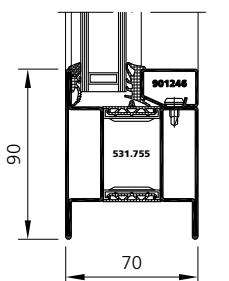
U-Werte Tür  $U_D$



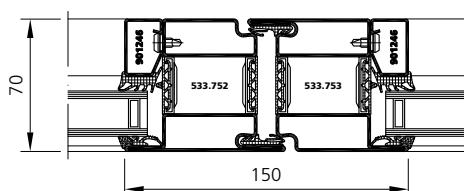
$U_f = 2.5 \text{ [W/(m}^2 \cdot \text{K}]}$   
 $\psi = 0.06 \text{ [W/(m} \cdot \text{K}]$

## Élément – Coefficient de transmission thermique

Coefficient de transmission thermique de la porte  $U_D$



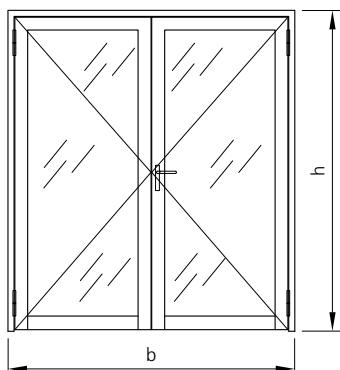
$U_f = 3.1 \text{ [W/(m}^2 \cdot \text{K}]$



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

## Element – Thermal transmittance

Thermal transmittance of the door  $U_D$



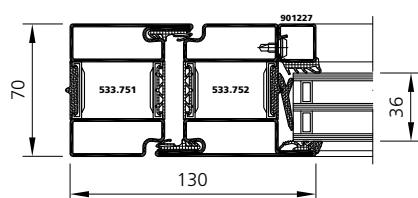
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U <sub>g</sub> -Wert Glas 1.1		Breite b / largeur b / width b [mm]									
Valeur U <sub>g</sub> verre 1.1		1200	1400	1600	1800	2000	2200	2400	2600	2800	3000
Höhe h / hauteur h / height h [mm]	2000	1.91	1.83	1.77	1.72	1.69	1.65	1.63	1.61	1.59	1.57
	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 <sub>g</sub> -Wert Glas 0.9		Breite b / largeur b / width b [mm]									
Valeur U <sub>g</sub> verre 0.9		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-Werte

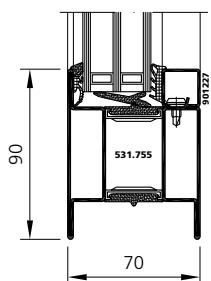
U-Werte Tür  $U_D$



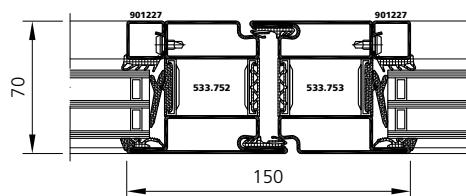
$U_f = 2.1 \text{ [W/(m}^2 \cdot \text{K}]}$   
 $\psi = 0.04 \text{ [W/(m} \cdot \text{K}]}$

## Élément – Coefficient de transmission thermique

Coefficient de transmission thermique de la porte  $U_D$



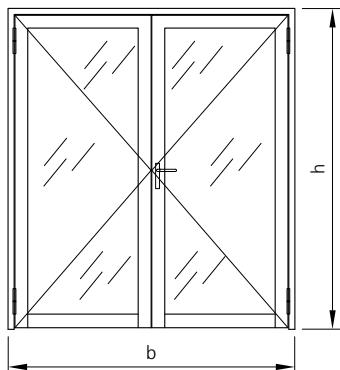
$U_f = 2.3 \text{ [W/(m}^2 \cdot \text{K}]}$



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

## Element – Thermal transmittance

Thermal transmittance of the door  $U_D$

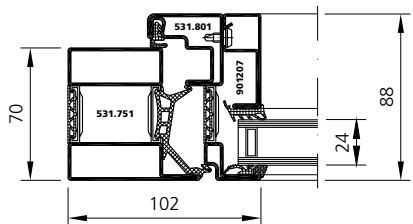


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$U_g$ -Wert Glas Valeur $U_g$ verre $U_g$ -value glass	0.7	Breite b / largeur b / width b [mm]									
		1200	1400	1600	1800	2000	2200	2400	2600	3000	
Höhe h / hauteur h / height h [mm]	2000	1.43	1.36	1.30	1.25	1.22	1.19	1.17	1.15	1.13	1.11
	2200	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	0.5	Breite b / largeur b / width b [mm]									
		1200	1400	1600	1800	2000	2200	2400	2600	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-Werte**  
U-Werte Fenster  $U_W$

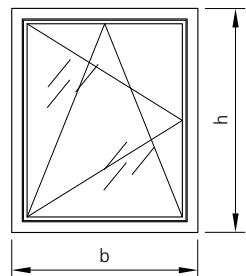


$$U_f = 2.9 \text{ [W/(m}^2 \cdot \text{K}]}$$

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

**Élément – Coefficient de transmission thermique**  
Coefficient de transmission thermique de la fenêtre  $U_W$

**Element – Thermal transmittance**  
Thermal transmittance of the window  $U_W$



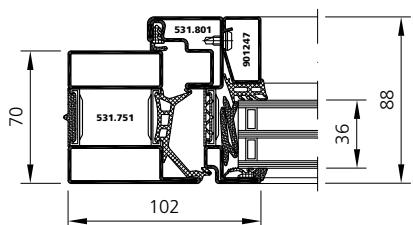
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$U_g$ -Wert Glas Valeur $U_g$ verre $U_g$ -value glass	1.1	Breite b / largeur b / width b [mm]					
		600	800	1000	1200	1400	1600
Höhe h / hauteur h / height h [mm]	600	2.38	2.26	2.19	2.15		
	800	2.26	2.12	2.04	1.99	1.95	
	1000	2.19	2.04	1.95	1.89	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	0.9	Breite b / largeur b / width b [mm]					
		600	800	1000	1200	1400	1600
Höhe h / hauteur h / height h [mm]	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-Werte

U-Werte Fenster  $U_W$



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

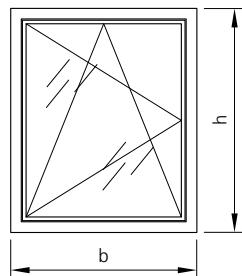
$$\psi = 0.04 \text{ [W/(m} \cdot \text{K}]}$$

## Élément – Coefficient de transmission thermique

Coefficient de transmission thermique de la fenêtre  $U_W$

## Element – Thermal transmittance

Thermal transmittance of the window  $U_W$

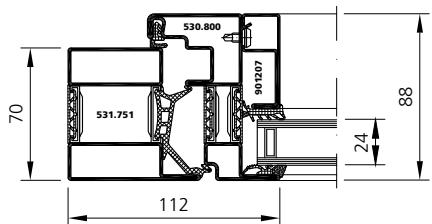


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$U_g$ -Wert Glas 0.7 Valeur $U_g$ verre 0.7 $U_g$ -value glass 0.7	Breite b / largeur b / width b [mm]					
	600	800	1000	1200	1400	1600
Höhe h / hauteur h / height h [mm]	600	1.67	1.58	1.52	1.49	
	800	1.58	1.47	1.41	1.37	1.34
	1000	1.52	1.41	1.34	1.29	1.26
	1200	1.49	1.37	1.29	1.25	1.21
	1400	1.46	1.34	1.26	1.21	1.18
	1600	1.44	1.31	1.24	1.19	1.15
	1800	1.43	1.30	1.22	1.17	1.13
	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 0.5 Valeur $U_g$ verre 0.5 $U_g$ -value glass 0.5	Breite b / largeur b / width b [mm]					
	600	800	1000	1200	1400	1600
Höhe h / hauteur h / height h [mm]	600	1.58	1.48	1.42	1.38	
	800	1.48	1.36	1.29	1.24	1.21
	1000	1.42	1.29	1.21	1.16	1.13
	1200	1.38	1.24	1.16	1.11	1.07
	1400	1.35	1.21	1.13	1.07	1.03
	1600	1.33	1.18	1.10	1.04	1.00
	1800	1.31	1.16	1.08	1.02	0.98
	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-Werte**  
U-Werte Fenster  $U_W$

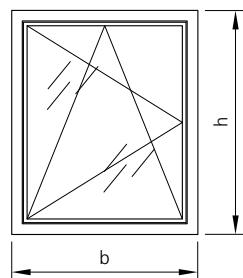


$$U_f = 2.7 \text{ [W/(m}^2 \cdot \text{K}]}$$

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

**Élément – Coefficient de transmission thermique**  
Coefficient de transmission thermique de la fenêtre  $U_W$

**Element – Thermal transmittance**  
Thermal transmittance of the window  $U_W$



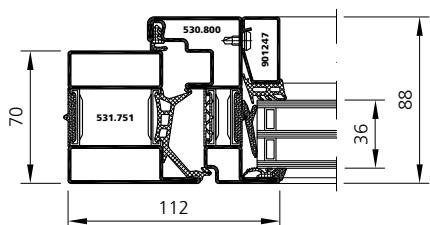
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$U_g$ -Wert Glas Valeur $U_g$ verre $U_g$ -value glass	1.1	Breite b / largeur b / width b [mm]					
		600	800	1000	1200	1400	1600
Höhe h / hauteur h / height h [mm]	600	2.32	2.22	2.15	2.11		
	800	2.22	2.09	2.01	1.96	1.92	
	1000	2.15	2.01	1.92	1.87	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	

$U_g$ -Wert Glas Valeur $U_g$ verre $U_g$ -value glass	0.9	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-Werte

U-Werte Fenster  $U_W$



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

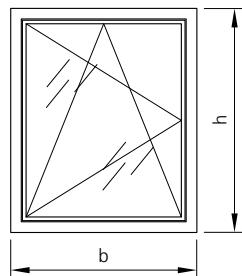
$$\psi = 0.04 \text{ [W/(m} \cdot \text{K}]}$$

## Élément – Coefficient de transmission thermique

Coefficient de transmission thermique de la fenêtre  $U_W$

## Element – Thermal transmittance

Thermal transmittance of the window  $U_W$

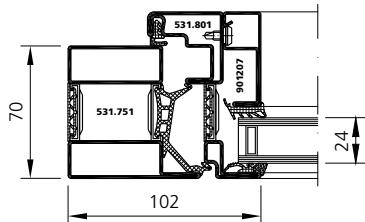


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$U_g$ -Wert Glas 0.7 Valeur $U_g$ verre 0.7 $U_g$ -value glass 0.7	Breite b / largeur b / width b [mm]					
	600	800	1000	1200	1400	1600
Höhe h / hauteur h / height h [mm]	600	1.78	1.68	1.62	1.59	
	800	1.68	1.57	1.50	1.45	1.42
	1000	1.62	1.50	1.42	1.37	1.33
	1200	1.59	1.45	1.37	1.32	1.28
	1400	1.56	1.42	1.33	1.28	1.24
	1600	1.54	1.39	1.31	1.25	1.21
	1800	1.52	1.37	1.29	1.23	1.18
	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

$U_g$ -Wert Glas 0.5 Valeur $U_g$ verre 0.5 $U_g$ -value glass 0.5	Breite b / largeur b / width b [mm]					
	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
	1200	1.48	1.33	1.24	1.18	1.14
	1400	1.45	1.30	1.20	1.14	1.10
	1600	1.43	1.27	1.17	1.11	1.06
	1800	1.41	1.25	1.15	1.08	1.04
	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-Werte**  
U-Werte Fenster  $U_W$

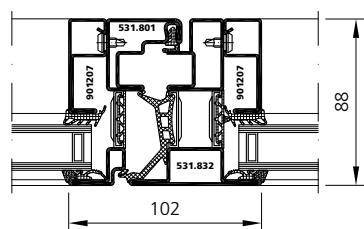


$$U_f = 2.8 \text{ [W/(m}^2 \cdot \text{K}])$$

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

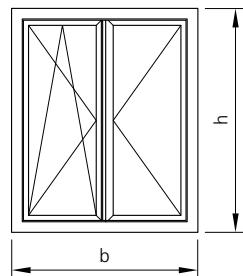
**Élément – Coefficient de transmission thermique**  
Coefficient de transmission thermique de la fenêtre  $U_W$

Coefficient de transmission thermique de la fenêtre  $U_W$



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

**Element – Thermal transmittance**  
Thermal transmittance of the window  $U_W$



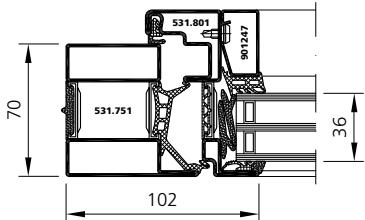
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$U_g$ -Wert Glas 1.1		Breite b / largeur b / width b [mm]												
		800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
Höhe h / hauteur h / height h [mm]	600	2.47	2.35	2.27	2.21	2.17	2.14	2.11	2.09	2.07				
	800	2.37	2.23	2.14	2.08	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 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-Werte

U-Werte Fenster  $U_W$

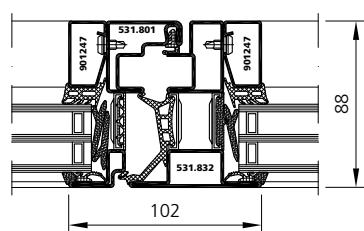


$$U_f = 2.1 \text{ [W/(m}^2 \cdot \text{K}])$$

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

### Élément – Coefficient de transmission thermique

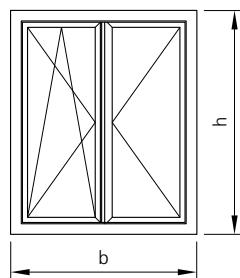
Coefficient de transmission thermique de la fenêtre  $U_W$



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

### Element – Thermal transmittance

Thermal transmittance of the window  $U_W$

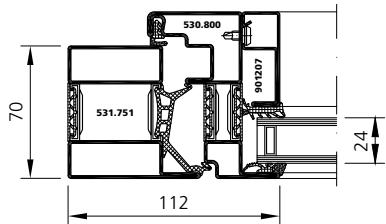


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U <sub>g</sub> -Wert Glas 0.7		Breite b / largeur b / width b [mm]												
		800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
Höhe h / hauteur h / height h [mm]	600	1.74	1.66	1.60	1.56	1.53	1.50	1.48	1.47	1.45				
	800	1.67	1.56	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 <sub>g</sub> -Wert Glas 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	1.66	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	0.89	
	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		

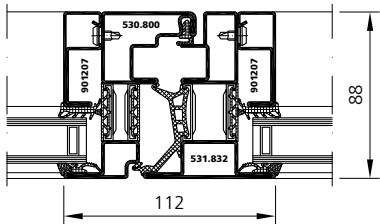
**Element – U-Werte**  
U-Werte Fenster  $U_W$



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

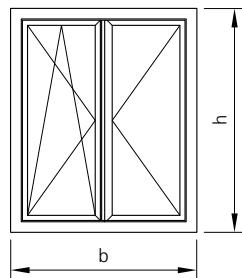
$$\psi = 0.06 \text{ [W/(m} \cdot \text{K}])$$

**Élément – Coefficient de transmission thermique**  
Coefficient de transmission thermique de la fenêtre  $U_W$



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

**Element – Thermal transmittance**  
Thermal transmittance of the window  $U_W$

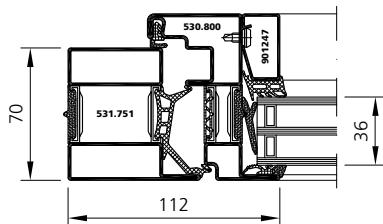


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U <sub>g</sub> -Wert Glas 1.1		Breite b / largeur b / width b [mm]												
		800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
Höhe h / hauteur h / height h [mm]	600	2.46	2.35	2.28	2.22	2.18	2.15	2.12	2.10	2.09				
	800	2.38	2.24	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 <sub>g</sub> -Wert Glas 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-Werte**  
U-Werte Fenster  $U_W$

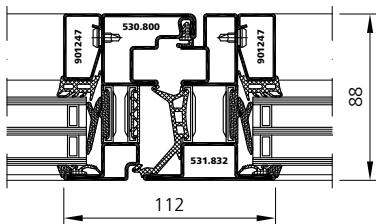


$$U_f = 2.2 \text{ [W/(m}^2 \cdot \text{K}])$$

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

**Élément – Coefficient de transmission thermique**  
Coefficient de transmission thermique de la fenêtre  $U_W$

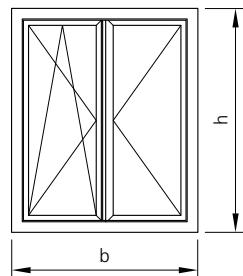
Coefficient de transmission thermique de la fenêtre  $U_W$



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

**Element – Thermal transmittance**  
Thermal transmittance of the window  $U_W$

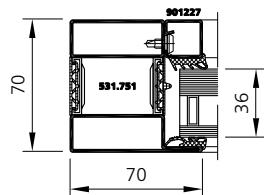
Thermal transmittance of the window  $U_W$



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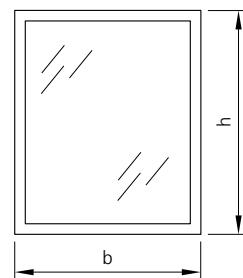
U <sub>g</sub> -Wert Glas 0.7		Breite b / largeur b / width b [mm]												
		800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
Höhe h / hauteur h / height h [mm]	600	1.86	1.76	1.70	1.66	1.63	1.60	1.58	1.56	1.55				
	800	1.78	1.66	1.59	1.54	1.50	1.47	1.44	1.42	1.41				
	1000	1.73	1.60	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 <sub>g</sub> -Wert Glas 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  $U_W$ 


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

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

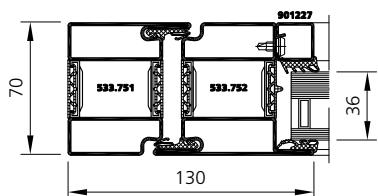
**Élément – Coefficient de transmission thermique**  
 Coefficient de transmission thermique du vitrage fixe  $U_W$ 
**Element – Thermal transmittance**  
 Thermal transmittance of fixed glazing  $U_W$ 

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		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!

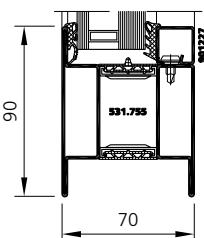
Tenir compte des normes et homologations nationales!

Refer to the country specific approvals!

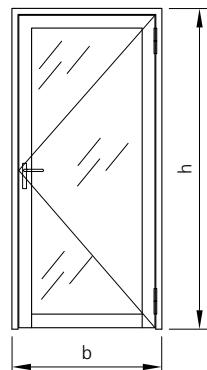
**Element – U-Werte**U-Werte Tür  $U_D$ 

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

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

**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  $U_D$ 

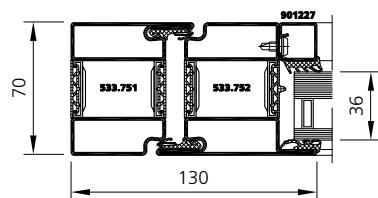
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U <sub>g</sub> -Wert Glas 1.1 Valeur U <sub>g</sub> verre 1.1 U <sub>g</sub> -value glass 1.1		Breite b / largeur b / width b [mm]				
		800	1000	1200	1400	1600
Höhe h / hauteur h / height h [mm]	2000	1.82	1.72	1.66	1.61	1.57
	2200	1.80	1.70	1.64	1.59	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!

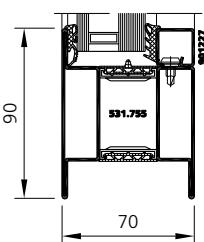
Tenir compte des normes et homologations nationales!

Refer to the country specific approvals!

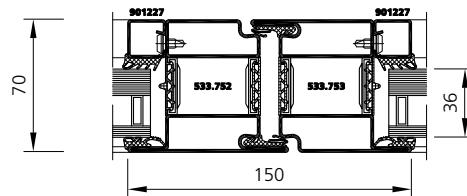
**Element – U-Werte**U-Werte Tür  $U_D$ 

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

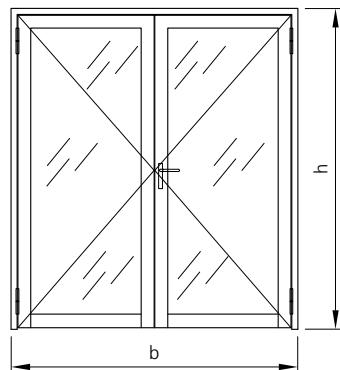
$$\psi = 0.06 \text{ [W/(m} \cdot \text{K}]}$$

**Élément – Coefficient de transmission thermique**Coefficient de transmission thermique de la porte  $U_D$ 

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



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

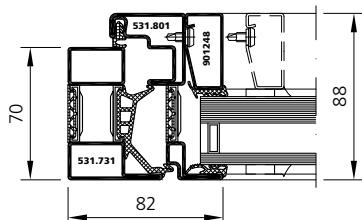
**Element – Thermal transmittance**Thermal transmittance of the door  $U_D$ 
**forsterunico.**

U <sub>g</sub> -Wert Glas 1.1		Breite b / largeur b / width b [mm]									
Valeur U <sub>g</sub> verre 1.1		1200	1400	1600	1800	2000	2200	2400	2600	2800	3000
Höhe h / hauteur 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-Werte**U-Werte Fenster  $U_W$ 

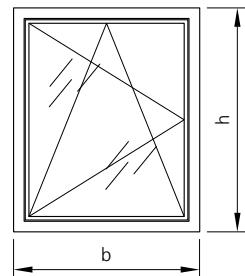
$$U_f = 3.1 \text{ [W/(m}^2 \cdot \text{K)]}$$

**Élément – Coefficient de transmission thermique**Coefficient de transmission thermique de la fenêtre  $U_W$ 

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

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 transmittance**Thermal transmittance of the window  $U_W$ 
**forsterunico.**
U<sub>w</sub>-Werte bei / Valeurs U<sub>w</sub> avec / U<sub>w</sub>-values with

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

Höhe h / hauteur h / height h [mm]	U <sub>g</sub> -Wert Glas 1.1				Breite b / largeur b / width b [mm]			
	600	800	1000	1200	600	800	1000	1200
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<sub>w</sub>-Werte bei / Valeurs U<sub>w</sub> avec / U<sub>w</sub>-values with

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

Höhe h / hauteur h / height h [mm]	U <sub>g</sub> -Wert Glas 1.1				Breite b / largeur b / width b [mm]			
	600	800	1000	1200	600	800	1000	1200
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				

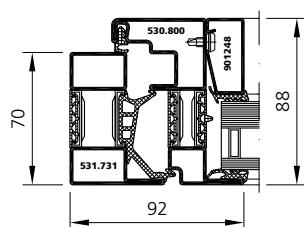
Die länderspezifischen Zulassungen sind zu beachten!

Tenir compte des normes et homologations nationales!

Refer to the country specific approvals!

## Element – U-Werte

U-Werte Fenster  $U_W$



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

## Élément – Coefficient de transmission thermique

Coefficient de transmission thermique de la fenêtre  $U_W$

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

Randverbund aus Edelstahl  
Intercalaire périphérique en acier inox  
Perimeter sandwich structure of stainless steel

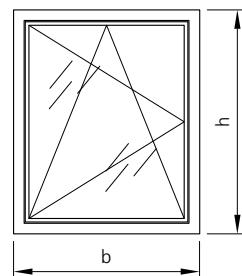
$\psi = 0.065 \text{ [W/(m} \cdot \text{K}]$

Randverbund aus Stahl  
Intercalaire périphérique en acier  
Perimeter sandwich structure of steel

$\psi = 0.11 \text{ [W/(m} \cdot \text{K}]$

## Element – Thermal transmittance

Thermal transmittance of the window  $U_W$



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$U_W$ -Werte bei / Valeurs  $U_W$  avec /  $U_W$ -values with

$\psi = 0.065 \text{ [W/(m} \cdot \text{K}]$

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

$U_W$ -Werte bei / Valeurs  $U_W$  avec /  $U_W$ -values with

$\psi = 0.11 \text{ [W/(m} \cdot \text{K}]$

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

Die länderspezifischen Zulassungen sind zu beachten!

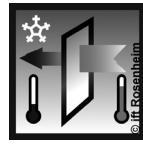
Tenir compte des normes et homologations nationales!

Refer to the country specific approvals!

**U<sub>f</sub>-Werte**  
Festfeld

**Valeurs U<sub>f</sub>**  
Vitrage fixe

**U<sub>f</sub>-values**  
Fixed glazing



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 <sub>f</sub> Stahl U <sub>f</sub> Acier U <sub>f</sub> Steel [W/(m <sup>2</sup> ·K)]	U <sub>f</sub> CrNi [W/(m <sup>2</sup> ·K)]
	24	2-fach / double	Standard	<b>3.0</b>
	36	3-fach / triple	Hi	<b>2.1</b>
	42	3-fach / triple	Hi	<b>2.0</b>
	48	3-fach / triple	Hi	<b>2.0</b>
	24	2-fach / double	Standard	<b>2.9</b>
	36	3-fach / triple	Hi	<b>2.3</b>
	42	3-fach / triple	Hi	<b>2.2</b>
	48	3-fach / triple	Hi	<b>2.2</b>
	24	2-fach / double	Standard	<b>2.5</b>
	36	3-fach / triple	Hi	<b>2.1</b>
	42	3-fach / triple	Hi	<b>2.1</b>
	48	3-fach / triple	Hi	<b>2.0</b>
	24	2-fach / double	Standard	<b>2.9</b>
	36	3-fach / triple	Hi	<b>1.7</b>
	42	3-fach / triple	Hi	<b>1.7</b>
	48	3-fach / triple	Hi	<b>1.7</b>
	24	2-fach / double	Standard	<b>2.8</b>
	36	3-fach / triple	Hi	<b>2.0</b>
	42	3-fach / triple	Hi	<b>1.9</b>
	48	3-fach / triple	Hi	<b>1.9</b>
	24	2-fach / double	Standard	<b>2.5</b>
	36	3-fach / triple	Hi	<b>1.9</b>
	42	3-fach / triple	Hi	<b>1.9</b>
	48	3-fach / triple	Hi	<b>1.9</b>
	24	2-fach / double	Standard	<b>3.4</b>
	36	3-fach / triple	Hi	<b>1.8</b>
	42	3-fach / triple	Hi	<b>1.7</b>
	48	3-fach / triple	Hi	<b>1.7</b>

**U<sub>f</sub>-Werte**  
Tür

**Valeurs U<sub>f</sub>**  
Porte

**U<sub>f</sub>-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 <sub>f</sub> Stahl U <sub>f</sub> Acier U <sub>f</sub> Steel [W/(m <sup>2</sup> ·K)]	U <sub>f</sub> CrNi [W/(m <sup>2</sup> ·K)]
	24	2-fach / double	Standard	<b>2.6</b>
	36	3-fach / triple	Hi	<b>2.2</b>
	42	3-fach / triple	Hi	<b>2.2</b>
	48	3-fach / triple	Hi	<b>2.2</b>
	24	2-fach / double	Standard	<b>2.5</b>
	36	3-fach / triple	Hi	<b>2.1</b>
	42	3-fach / triple	Hi	<b>2.1</b>
	48	3-fach / triple	Hi	<b>2.1</b>
	24	2-fach / double	Standard	<b>2.6</b>
	36	3-fach / triple	Hi	<b>2.1</b>
	42	3-fach / triple	Hi	<b>2.1</b>
	48	3-fach / triple	Hi	<b>2.1</b>
	24	2-fach / double	Standard	<b>2.5</b>
	36	3-fach / triple	Hi	<b>2.1</b>
	42	3-fach / triple	Hi	<b>2.0</b>
	48	3-fach / triple	Hi	<b>2.0</b>
	24	2-fach / double	Standard	<b>2.6</b>
	36	3-fach / triple	Hi	<b>2.4</b>
	42	3-fach / triple	Hi	<b>2.3</b>
	48	3-fach / triple	Hi	<b>2.3</b>
	24	2-fach / double	Standard	<b>2.5</b>
	36	3-fach / triple	Hi	<b>2.3</b>
	42	3-fach / triple	Hi	<b>2.3</b>
	48	3-fach / triple	Hi	<b>2.2</b>
	24	2-fach / double	Standard	<b>2.6</b>
	36	3-fach / triple	Hi	<b>2.3</b>
	42	3-fach / triple	Hi	<b>2.2</b>
	48	3-fach / triple	Hi	<b>2.2</b>
	24	2-fach / double	Standard	<b>2.5</b>
	36	3-fach / triple	Hi	<b>2.2</b>
	42	3-fach / triple	Hi	<b>2.2</b>
	48	3-fach / triple	Hi	<b>2.1</b>

**U<sub>f</sub>-Werte**

Verblechte Tür

**Valeurs U<sub>f</sub>**

Porte tôleée

**U<sub>f</sub>-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	<b>U<sub>f</sub> Stahl U<sub>f</sub> Acier U<sub>f</sub> Steel [W/(m<sup>2</sup>·K)]</b>	
	Standard	<b>2.9</b>		
	Hi	<b>2.6</b>		
	Standard	<b>2.4</b>		
	Hi	<b>2.2</b>		
	Standard	<b>2.4</b>		
	Hi	<b>2.3</b>		
			<b>3.6</b>	

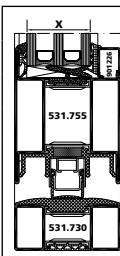
Dämmung  $\lambda = 0.04$  [W/m · K])Isolation  $\lambda = 0.04$  [W/m · K])Insulation  $\lambda = 0.04$  [W/m · K])

**U<sub>f</sub>-Werte**Tür  
Schwellen**Valeurs U<sub>f</sub>**Porte  
Seuils**U<sub>f</sub>-values**Door  
Thresholds

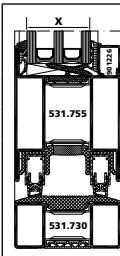
EN ISO 10077-2:2012

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

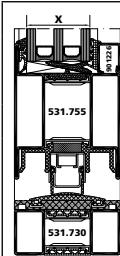
Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U <sub>f</sub> Stahl U <sub>f</sub> Acier U <sub>f</sub> Steel [W/(m <sup>2</sup> ·K)]	U <sub>f</sub> CrNi [W/(m <sup>2</sup> ·K)]
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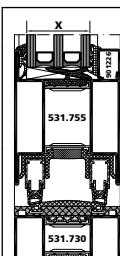
24	2-fach / double	Standard	<b>3.8</b>	<b>3.6</b>
36	3-fach / triple	Hi	<b>3.6</b>	<b>3.4</b>
42	3-fach / triple	Hi	<b>3.6</b>	<b>3.4</b>
48	3-fach / triple	Hi	<b>3.5</b>	<b>3.4</b>



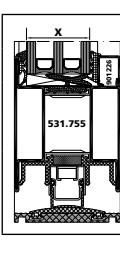
24	2-fach / double	Standard	<b>2.6</b>	<b>2.5</b>
36	3-fach / triple	Hi	<b>2.4</b>	<b>2.3</b>
42	3-fach / triple	Hi	<b>2.4</b>	<b>2.2</b>
48	3-fach / triple	Hi	<b>2.4</b>	<b>2.2</b>



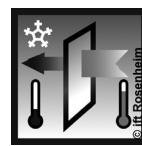
24	2-fach / double	Standard	<b>3.7</b>	<b>3.5</b>
36	3-fach / triple	Hi	<b>3.5</b>	<b>3.3</b>
42	3-fach / triple	Hi	<b>3.5</b>	<b>3.3</b>
48	3-fach / triple	Hi	<b>3.4</b>	<b>3.2</b>



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



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

**U<sub>f</sub>-Werte**Tür  
Schwellen**Valeurs U<sub>f</sub>**Porte  
Seuils**U<sub>f</sub>-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 <sub>f</sub> Stahl U <sub>f</sub> Acier U <sub>f</sub> Steel [W/(m <sup>2</sup> ·K)]	U <sub>f</sub> CrNi [W/(m <sup>2</sup> ·K)]
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	24	2-fach / double	Standard	<b>2.5</b>	<b>2.4</b>
	36	3-fach / triple	Hi	<b>2.3</b>	<b>2.2</b>
	42	3-fach / triple	Hi	<b>2.3</b>	<b>2.1</b>
	48	3-fach / triple	Hi	<b>2.2</b>	<b>2.0</b>

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

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

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

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

**U<sub>f</sub>-Werte**Tür  
Schwellen**Valeurs U<sub>f</sub>**Porte  
Seuils**U<sub>f</sub>-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 <sub>f</sub> Stahl U <sub>f</sub> Acier U <sub>f</sub> Steel [W/(m <sup>2</sup> ·K)]	U <sub>f</sub> CrNi [W/(m <sup>2</sup> ·K)]
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	24	2-fach / double	Standard	<b>2.4</b>	
	36	3-fach / triple	Hi	<b>2.1</b>	
	42	3-fach / triple	Hi	<b>2.1</b>	
	48	3-fach / triple	Hi	<b>2.0</b>	

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

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

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

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

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

**U<sub>f</sub>-Werte**

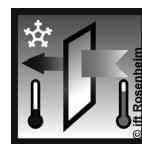
Festfeld / Tür  
Rahmenverbreiterungen

**Valeurs U<sub>f</sub>**

Vitrage fixe / porte  
Elargissements de vantail

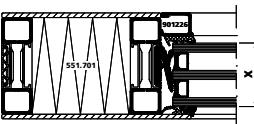
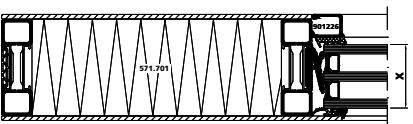
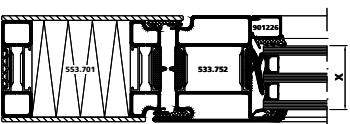
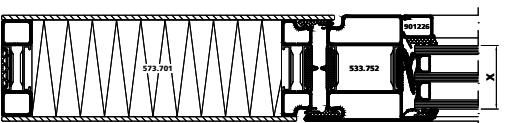
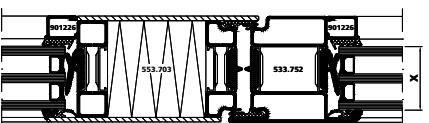
**U<sub>f</sub>-values**

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 <sub>f</sub> Stahl U <sub>f</sub> Acier U <sub>f</sub> Steel [W/(m <sup>2</sup> ·K)]	U <sub>f</sub> isoliert U <sub>f</sub> isolé U <sub>f</sub> insulated [W/(m <sup>2</sup> ·K)]
	24	2-fach / double	Standard	<b>2.7</b>
	36	3-fach / triple	Hi	<b>2.5</b>
	42	3-fach / triple	Hi	<b>2.5</b>
	48	3-fach / triple	Hi	<b>2.5</b>
	24	2-fach / double	Standard	<b>2.4</b>
	36	3-fach / triple	Hi	<b>2.3</b>
	42	3-fach / triple	Hi	<b>2.2</b>
	48	3-fach / triple	Hi	<b>2.2</b>
	24	2-fach / double	Standard	<b>2.6</b>
	36	3-fach / triple	Hi	<b>2.4</b>
	42	3-fach / triple	Hi	<b>2.3</b>
	48	3-fach / triple	Hi	<b>2.3</b>
	24	2-fach / double	Standard	<b>2.4</b>
	36	3-fach / triple	Hi	<b>2.2</b>
	42	3-fach / triple	Hi	<b>2.2</b>
	48	3-fach / triple	Hi	<b>2.2</b>
	24	2-fach / double	Standard	<b>2.7</b>
	36	3-fach / triple	Hi	<b>2.3</b>
	42	3-fach / triple	Hi	<b>2.3</b>
	48	3-fach / triple	Hi	<b>2.3</b>

Für einwärts öffnende Türen gelten die gleichen Werte.

Die Profile werden ohne Isolation geliefert.

Dämmung  $\lambda = 0.04$  [W/m · K])

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

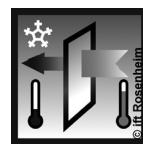
Les profilés sont livrés sans isolation.

Isolation  $\lambda = 0.04$  [W/m · K])

For inward opening doors, the same values are valid.

The profiles are delivered without insulation.

Insulation  $\lambda = 0.04$  [W/m · K])

**U<sub>f</sub>-Werte**Festfeld / Tür  
E30 / EW30**Valeurs U<sub>f</sub>**Vitrage fixe / porte  
E30 / EW30**U<sub>f</sub>-values**Fixed glazing / door  
E30 / EW30**EN ISO 10077-2:2012**

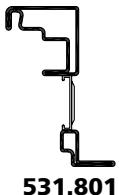
Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing

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

**U<sub>f</sub>-Werte**  
Fenster

**Valeurs U<sub>f</sub>**  
Fenêtre

**U<sub>f</sub>-values**  
Window


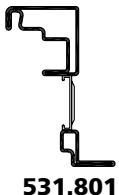
 <b>EN ISO 10077-2:2012</b> Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing				
Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U <sub>f</sub> Stahl U <sub>f</sub> Acier U <sub>f</sub> Steel [W/(m <sup>2</sup> ·K)]	U <sub>f</sub> CrNi [W/(m <sup>2</sup> ·K)]
	24	2-fach / double	Standard	<b>3.1</b>
	36	3-fach / triple	Hi	<b>2.2</b>
	42	3-fach / triple	Hi	<b>2.2</b>
	48	3-fach / triple	Hi	<b>2.1</b>
	24	2-fach / double	Standard	<b>2.7</b>
	36	3-fach / triple	Hi	<b>2.0</b>
	42	3-fach / triple	Hi	<b>2.0</b>
	48	3-fach / triple	Hi	<b>2.0</b>
	24	2-fach / double	Standard	<b>2.8</b>
	36	3-fach / triple	Hi	<b>2.1</b>
	42	3-fach / triple	Hi	<b>2.1</b>
	48	3-fach / triple	Hi	<b>2.1</b>
	24	2-fach / double	Standard	<b>2.6</b>
	36	3-fach / triple	Hi	<b>1.9</b>
	42	3-fach / triple	Hi	<b>1.9</b>
	48	3-fach / triple	Hi	<b>1.9</b>
	24	2-fach / double	Standard	<b>3.0</b>
	36	3-fach / triple	Hi	<b>2.1</b>
	42	3-fach / triple	Hi	<b>2.1</b>
	48	3-fach / triple	Hi	<b>2.0</b>
	24	2-fach / double	Standard	<b>2.8</b>
	36	3-fach / triple	Hi	<b>2.0</b>
	42	3-fach / triple	Hi	<b>2.0</b>
	48	3-fach / triple	Hi	<b>2.0</b>

Dämmung  $\lambda = 0.04$  [W/m · K])Isolation  $\lambda = 0.04$  [W/m · K])Insulation  $\lambda = 0.04$  [W/m · K])

**U<sub>f</sub>-Werte**  
Fenster

**Valeurs U<sub>f</sub>**  
Fenêtre

**U<sub>f</sub>-values**  
Window



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 <sub>f</sub> Stahl U <sub>f</sub> Acier U <sub>f</sub> Steel [W/(m <sup>2</sup> ·K)]	U <sub>f</sub> CrNi [W/(m <sup>2</sup> ·K)]
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	24	2-fach / double	Standard	<b>3.2</b>	
	36	3-fach / triple	Hi	<b>2.1</b>	
	42	3-fach / triple	Hi	<b>2.1</b>	
	48	3-fach / triple	Hi	<b>2.1</b>	

	24	2-fach / double	Standard	<b>2.9</b>	
	36	3-fach / triple	Hi	<b>2.0</b>	
	42	3-fach / triple	Hi	<b>2.0</b>	
	48	3-fach / triple	Hi	<b>2.0</b>	

	24	2-fach / double	Standard	<b>3.1</b>	
	36	3-fach / triple	Hi	<b>2.1</b>	
	42	3-fach / triple	Hi	<b>2.1</b>	
	48	3-fach / triple	Hi	<b>2.1</b>	

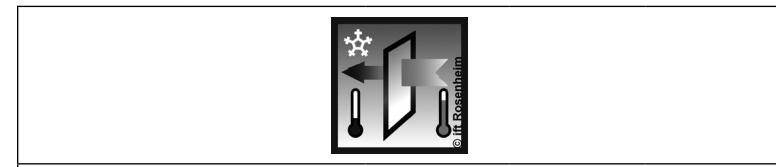
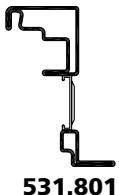
	24	2-fach / double	Standard	<b>2.8</b>	
	36	3-fach / triple	Hi	<b>2.1</b>	
	42	3-fach / triple	Hi	<b>2.1</b>	
	48	3-fach / triple	Hi	<b>2.0</b>	

	24	2-fach / double	Standard	<b>3.1</b>	
	36	3-fach / triple	Hi	<b>2.1</b>	
	42	3-fach / triple	Hi	<b>2.1</b>	
	48	3-fach / triple	Hi	<b>2.0</b>	

**U<sub>f</sub>-Werte**  
Fenster

**Valeurs U<sub>f</sub>**  
Fenêtre

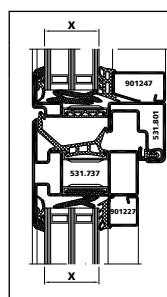
**U<sub>f</sub>-values**  
Window



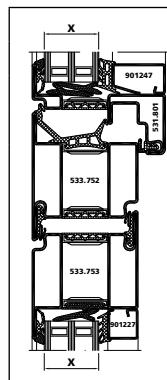
EN ISO 10077-2:2012

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 <sub>f</sub> Stahl U <sub>f</sub> Acier U <sub>f</sub> Steel [W/(m <sup>2</sup> ·K)]	U <sub>f</sub> CrNi [W/(m <sup>2</sup> ·K)]
--	----------------------------------	------------------------------	---	--



24	2-fach / double	Standard	<b>3.0</b>	
36	3-fach / triple	Hi	<b>2.1</b>	
42	3-fach / triple	Hi	<b>2.1</b>	
48	3-fach / triple	Hi	<b>2.0</b>	

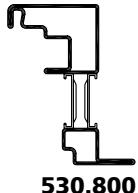


24	2-fach / double	Standard	<b>2.7</b>	
36	3-fach / triple	Hi	<b>2.1</b>	
42	3-fach / triple	Hi	<b>2.0</b>	
48	3-fach / triple	Hi	<b>2.0</b>	

**U<sub>f</sub>-Werte**  
Fenster

**Valeurs U<sub>f</sub>**  
Fenêtre

**U<sub>f</sub>-values**  
Window

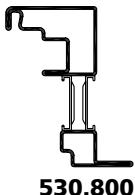


 <b>EN ISO 10077-2:2012</b> Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing				
<b>Glasdicke</b> <b>Ep. du verre</b> <b>Glass thickness</b> X [mm]	<b>Verglasung</b> <b>Vitrage</b> <b>Glazing</b>	<b>Dichtung</b> <b>Joint</b> <b>Sealing</b>	<b>U<sub>f</sub> Stahl</b> <b>U<sub>f</sub> Acier</b> <b>U<sub>f</sub> Steel</b> [W/(m <sup>2</sup> ·K)]	<b>U<sub>f</sub> CrNi</b> [W/(m <sup>2</sup> ·K)]
24	2-fach / double	Standard	<b>2.9</b>	<b>2.6</b>
36	3-fach / triple	Hi	<b>2.3</b>	<b>2.3</b>
42	3-fach / triple	Hi	<b>2.2</b>	<b>2.0</b>
48	3-fach / triple	Hi	<b>2.2</b>	<b>2.0</b>
24	2-fach / double	Standard	<b>2.6</b>	<b>2.4</b>
36	3-fach / triple	Hi	<b>2.1</b>	<b>1.9</b>
42	3-fach / triple	Hi	<b>2.1</b>	<b>1.9</b>
48	3-fach / triple	Hi	<b>2.0</b>	<b>1.9</b>
24	2-fach / double	Standard	<b>2.7</b>	<b>2.4</b>
36	3-fach / triple	Hi	<b>2.2</b>	<b>2.0</b>
42	3-fach / triple	Hi	<b>2.1</b>	<b>1.9</b>
48	3-fach / triple	Hi	<b>2.1</b>	<b>1.9</b>
24	2-fach / double	Standard	<b>2.5</b>	<b>2.2</b>
36	3-fach / triple	Hi	<b>2.0</b>	<b>1.8</b>
42	3-fach / triple	Hi	<b>2.0</b>	<b>1.8</b>
48	3-fach / triple	Hi	<b>2.0</b>	<b>1.8</b>
24	2-fach / double	Standard	<b>2.9</b>	<b>2.6</b>
36	3-fach / triple	Hi	<b>2.2</b>	<b>2.0</b>
42	3-fach / triple	Hi	<b>2.1</b>	<b>2.0</b>
48	3-fach / triple	Hi	<b>2.1</b>	<b>1.9</b>
24	2-fach / double	Standard	<b>2.7</b>	<b>2.2</b>
36	3-fach / triple	Hi	<b>2.1</b>	<b>1.9</b>
42	3-fach / triple	Hi	<b>2.1</b>	<b>1.9</b>
48	3-fach / triple	Hi	<b>2.0</b>	<b>1.9</b>

**U<sub>f</sub>-Werte**  
Fenster

**Valeurs U<sub>f</sub>**  
Fenêtre

**U<sub>f</sub>-values**  
Window

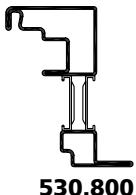


 <b>EN ISO 10077-2:2012</b>				
Nass- und trockenverglast / Vitrage à sec et au silicone / Dry and silicone glazing				
Glasdicke Ep. du verre Glass thickness X [mm]	Verglasung Vitrage Glazing	Dichtung Joint Sealing	U <sub>f</sub> Stahl U <sub>f</sub> Acier U <sub>f</sub> Steel [W/(m <sup>2</sup> ·K)]	U <sub>f</sub> CrNi [W/(m <sup>2</sup> ·K)]
	24	2-fach / double	Standard	<b>3.0</b>
	36	3-fach / triple	Hi	<b>2.2</b>
	42	3-fach / triple	Hi	<b>2.2</b>
	48	3-fach / triple	Hi	<b>2.2</b>
	24	2-fach / double	Standard	<b>2.8</b>
	36	3-fach / triple	Hi	<b>2.1</b>
	42	3-fach / triple	Hi	<b>2.1</b>
	48	3-fach / triple	Hi	<b>2.1</b>
	24	2-fach / double	Standard	<b>3.0</b>
	36	3-fach / triple	Hi	<b>2.2</b>
	42	3-fach / triple	Hi	<b>2.2</b>
	48	3-fach / triple	Hi	<b>2.1</b>
	24	2-fach / double	Standard	<b>2.7</b>
	36	3-fach / triple	Hi	<b>2.2</b>
	42	3-fach / triple	Hi	<b>2.1</b>
	48	3-fach / triple	Hi	<b>2.1</b>
	24	2-fach / double	Standard	<b>2.9</b>
	36	3-fach / triple	Hi	<b>2.3</b>
	42	3-fach / triple	Hi	<b>2.2</b>
	48	3-fach / triple	Hi	<b>2.2</b>

**U<sub>f</sub>-Werte**  
Fenster

**Valeurs U<sub>f</sub>**  
Fenêtre

**U<sub>f</sub>-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 <sub>f</sub> Stahl U <sub>f</sub> Acier U <sub>f</sub> Steel [W/(m <sup>2</sup> ·K)]	U <sub>f</sub> CrNi [W/(m <sup>2</sup> ·K)]
--	----------------------------------	------------------------------	---	--

	24	2-fach / double	Standard	<b>2.9</b>	—
	36	3-fach / triple	Hi	<b>2.2</b>	—
	42	3-fach / triple	Hi	<b>2.1</b>	—
	48	3-fach / triple	Hi	<b>2.1</b>	—

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

**U<sub>f</sub>-Werte**

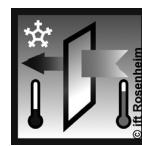
Rahmenverbreiterungen

**Valeurs U<sub>f</sub>**

Elargissements de vantail

**U<sub>f</sub>-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 <sub>f</sub> Stahl U <sub>f</sub> Acier U <sub>f</sub> Steel [W/(m <sup>2</sup> ·K)]	U <sub>f</sub> isoliert U <sub>f</sub> isolé U <sub>f</sub> insulated [W/(m <sup>2</sup> ·K)]
	24	2-fach / double	Standard	<b>2.7</b>
	36	3-fach / triple	Hi	<b>2.5</b>
	42	3-fach / triple	Hi	<b>2.5</b>
	48	3-fach / triple	Hi	<b>2.5</b>
	24	2-fach / double	Standard	<b>2.4</b>
	36	3-fach / triple	Hi	<b>2.3</b>
	42	3-fach / triple	Hi	<b>2.2</b>
	48	3-fach / triple	Hi	<b>2.2</b>
	24	2-fach / double	Standard	<b>2.8</b>
	36	3-fach / triple	Hi	<b>2.4</b>
	42	3-fach / triple	Hi	<b>2.4</b>
	48	3-fach / triple	Hi	<b>2.4</b>
	24	2-fach / double	Standard	<b>2.8</b>
	36	3-fach / triple	Hi	<b>2.5</b>
	42	3-fach / triple	Hi	<b>2.5</b>
	48	3-fach / triple	Hi	<b>2.5</b>
	24	2-fach / double	Standard	<b>2.5</b>
	36	3-fach / triple	Hi	<b>2.2</b>
	42	3-fach / triple	Hi	<b>2.2</b>
	48	3-fach / triple	Hi	<b>2.2</b>
	24	2-fach / double	Standard	<b>2.5</b>
	36	3-fach / triple	Hi	<b>2.3</b>
	42	3-fach / triple	Hi	<b>2.3</b>
	48	3-fach / triple	Hi	<b>2.3</b>

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<sub>f</sub>-Werte**

Fenster

E30 / EW30

**Valeurs U<sub>f</sub>**

Fenêtre

E30 / EW30

**U<sub>f</sub>-values**

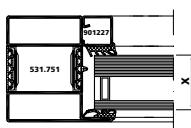
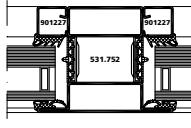
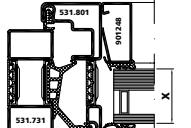
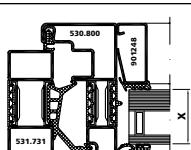
Window

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 <sub>f</sub> Stahl U <sub>f</sub> Acier U <sub>f</sub> Steel [W/(m <sup>2</sup> ·K)]
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	36	2-fach / triple	CR	<b>2.4</b>
	36	2-fach / triple	CR	<b>2.4</b>
	36	2-fach / triple	CR	<b>3.1</b>
	36	2-fach / triple	CR	<b>3.1</b>

## Schalldämmwerte

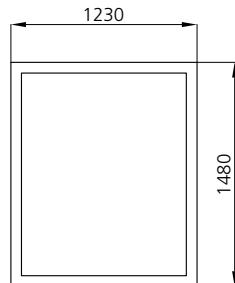
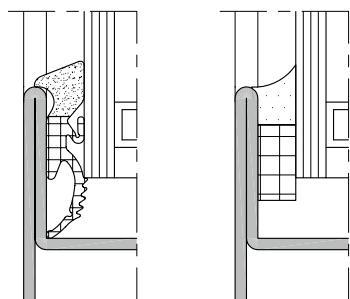
Werte gültig für Stahl- und Edelstahlprofile

## 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 <sub>w</sub> (Element) R <sub>w</sub> (Element) R <sub>w</sub> (Element)	Spektrum - Anpassungswerte (C und C <sub>tr</sub> ) Termes d' adaptation à un spectre (C et C <sub>tr</sub> ) Spectrum adaptation terms (C and C <sub>tr</sub> )
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	32 [dB]	R <sub>w</sub> (Element) = <b>32</b> [dB]	C = -1 [dB] C <sub>tr</sub> = -5 [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	38 [dB]	R <sub>w</sub> (Element) = <b>39</b> [dB]	C = -2 [dB] C <sub>tr</sub> = -5 [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	45 [dB]	R <sub>w</sub> (Element) = <b>44</b> [dB]	C = -1 [dB] C <sub>tr</sub> = -4 [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	50 [dB]	R <sub>w</sub> (Element) = <b>47</b> [dB]	C = -1 [dB] C <sub>tr</sub> = -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 <sub>w</sub> < 2.7 [m <sup>2</sup> ]	<b>R<sub>w</sub> (Element) - 0 [dB]</b>
2.7 [m <sup>2</sup> ] < A <sub>w</sub> < 3.6 [m <sup>2</sup> ]	<b>R<sub>w</sub> (Element) - 1 [dB]</b>
3.6 [m <sup>2</sup> ] < A <sub>w</sub> < 4.6 [m <sup>2</sup> ]	<b>R<sub>w</sub> (Element) - 2 [dB]</b>
4.6 [m <sup>2</sup> ] < A <sub>w</sub>	<b>R<sub>w</sub> (Element) - 3 [dB]</b>

## Schalldämmwerte

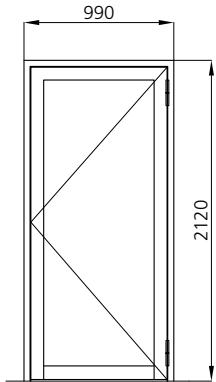
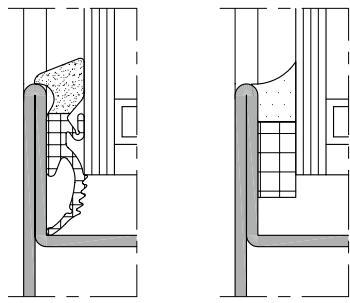
Werte gültig für Stahl- und Edelstahlprofile

## Coefficients d'isolation phonique

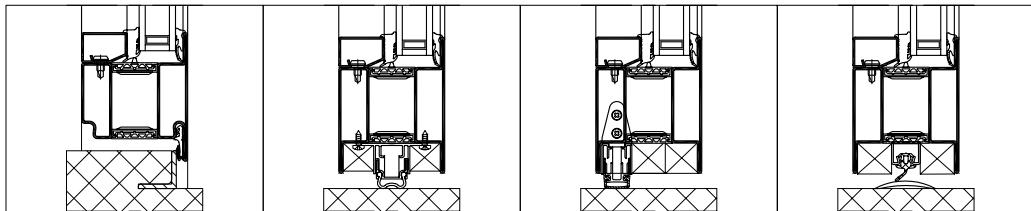
Valeurs valables pour profilés en acier et en acier inox

## Sound insulation factor

Values valid for steel and stainless steel profiles



$$A_D = 0.99 \text{ [m]} \times 2.12 \text{ [m]} \\ = 2.10 \text{ [m}^2\text{]}$$



R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	32 [dB]	R <sub>w</sub> (Element) = <b>33</b> [dB] (C = -2 ; C <sub>tr</sub> = -5)	R <sub>w</sub> (Element) = <b>33</b> [dB] (C = -2 ; C <sub>tr</sub> = -5)	R <sub>w</sub> (Element) = <b>33</b> [dB] (C = -2 ; C <sub>tr</sub> = -5)	R <sub>w</sub> (Element) = <b>32</b> [dB] (C = -1 ; C <sub>tr</sub> = -4)
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	38 [dB]	R <sub>w</sub> (Element) = <b>39</b> [dB] (C = -2 ; C <sub>tr</sub> = -5)	R <sub>w</sub> (Element) = <b>36</b> [dB] (C = 0 ; C <sub>tr</sub> = -2)	R <sub>w</sub> (Element) = <b>37</b> [dB] (C = -1 ; C <sub>tr</sub> = -3)	R <sub>w</sub> (Element) = <b>37</b> [dB] (C = -1 ; C <sub>tr</sub> = -3)
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	45 [dB]	R <sub>w</sub> (Element) = <b>44</b> [dB] (C = -2 ; C <sub>tr</sub> = -6)	R <sub>w</sub> (Element) = <b>39</b> [dB] (C = -1 ; C <sub>tr</sub> = -3)	R <sub>w</sub> (Element) = <b>40</b> [dB] (C = -1 ; C <sub>tr</sub> = -3)	R <sub>w</sub> (Element) = <b>40</b> [dB] (C = -2 ; C <sub>tr</sub> = -3)
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	50 [dB]	R <sub>w</sub> (Element) = <b>46</b> [dB] (C = -2 ; C <sub>tr</sub> = -5)	R <sub>w</sub> (Element) = <b>40</b> [dB] (C = -1 ; C <sub>tr</sub> = -2)	R <sub>w</sub> (Element) = <b>42</b> [dB] (C = -2 ; C <sub>tr</sub> = -3)	R <sub>w</sub> (Element) = <b>41</b> [dB] (C = -2 ; C <sub>tr</sub> = -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 <sub>D</sub> < 3.15 [m <sup>2</sup> ]	R <sub>w</sub> (Element) - <b>0</b> [dB]
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## Schalldämmwerte

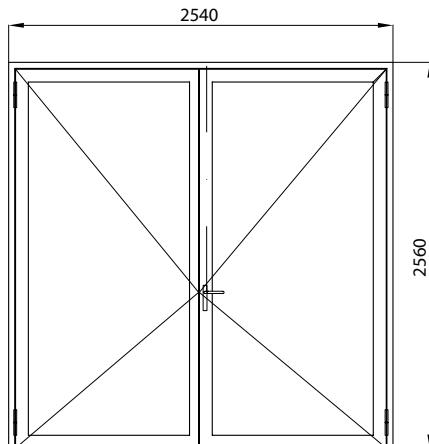
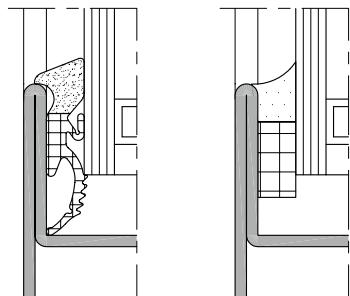
Werte gültig für Stahl- und Edelstahlprofile

## Coefficients d'isolation phonique

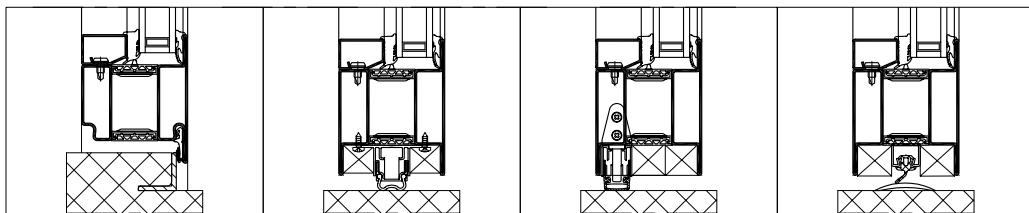
Valeurs valables pour profilés en acier et en acier inox

## 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 <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	32 [dB]	R <sub>w</sub> (Element) = <b>33</b> [dB] (C = -2 ; C <sub>tr</sub> = -5)	R <sub>w</sub> (Element) = <b>32</b> [dB] (C = -1 ; C <sub>tr</sub> = -4)	R <sub>w</sub> (Element) = <b>33</b> [dB] (C = -2 ; C <sub>tr</sub> = -5)	R <sub>w</sub> (Element) = <b>33</b> [dB] (C = -2 ; C <sub>tr</sub> = -5)
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	38 [dB]	R <sub>w</sub> (Element) = <b>38</b> [dB] (C = -1 ; C <sub>tr</sub> = -4)	R <sub>w</sub> (Element) = <b>36</b> [dB] (C = 0 ; C <sub>tr</sub> = -2)	R <sub>w</sub> (Element) = <b>37</b> [dB] (C = -1 ; C <sub>tr</sub> = -3)	R <sub>w</sub> (Element) = <b>37</b> [dB] (C = -1 ; C <sub>tr</sub> = -3)
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	45 [dB]	R <sub>w</sub> (Element) = <b>42</b> [dB] (C = -1 ; C <sub>tr</sub> = -4)	R <sub>w</sub> (Element) = <b>40</b> [dB] (C = -2 ; C <sub>tr</sub> = -3)	R <sub>w</sub> (Element) = <b>40</b> [dB] (C = -1 ; C <sub>tr</sub> = -3)	R <sub>w</sub> (Element) = <b>40</b> [dB] (C = -2 ; C <sub>tr</sub> = -3)
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	50 [dB]	R <sub>w</sub> (Element) = <b>45</b> [dB] (C = -1 ; C <sub>tr</sub> = -4)	R <sub>w</sub> (Element) = <b>40</b> [dB] (C = -1 ; C <sub>tr</sub> = -1)	R <sub>w</sub> (Element) = <b>41</b> [dB] (C = -1 ; C <sub>tr</sub> = -2)	R <sub>w</sub> (Element) = <b>41</b> [dB] (C = -2 ; C <sub>tr</sub> = -2)

Korrekturwerte  
flächenabhängig  
(gemäß EN 14351 Tabelle E2)

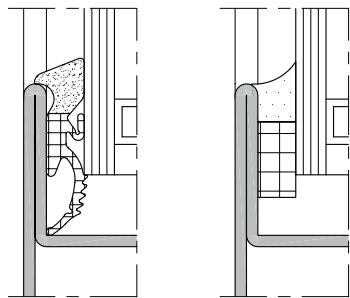
Valeurs de correction  
dépendant de la surface  
(selon EN 14351 tableau E2)

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

A <sub>D</sub> < 9.75 [m <sup>2</sup> ]	R <sub>w</sub> (Element) = <b>0</b> [dB]
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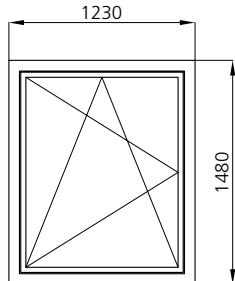
## Schalldämmwerte

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 <sub>w</sub> (Element) R <sub>w</sub> (Elément) R <sub>w</sub> (Element)	Spektrum - Anpassungswerte (C und C <sub>tr</sub> ) Termes d' adaptation à un spectre (C et C <sub>tr</sub> ) Spectrum adaptation terms (C and C <sub>tr</sub> )
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	32 [dB]	R <sub>w</sub> (Element) = <b>33</b> [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	38 [dB]	R <sub>w</sub> (Element) = <b>40</b> [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	45 [dB]	R <sub>w</sub> (Element) = <b>44</b> [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	50 [dB]	R <sub>w</sub> (Element) = <b>47</b> [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 <sub>w</sub> < 2.7 [m <sup>2</sup> ]	<b>R<sub>w</sub> (Element) - 0 [dB]</b>
2.7 [m <sup>2</sup> ] < A <sub>w</sub> < 3.6 [m <sup>2</sup> ]	<b>R<sub>w</sub> (Element) - 1 [dB]</b>
3.6 [m <sup>2</sup> ] < A <sub>w</sub> < 4.6 [m <sup>2</sup> ]	<b>R<sub>w</sub> (Element) - 2 [dB]</b>
4.6 [m <sup>2</sup> ] < A <sub>w</sub>	<b>R<sub>w</sub> (Element) - 3 [dB]</b>

## Schalldämmwerte

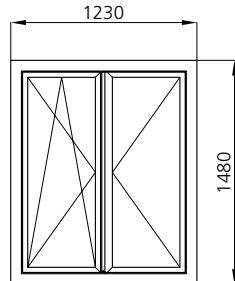
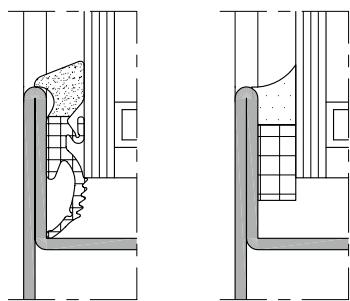
Werte gültig für Stahl- und Edelstahlprofile

## 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 <sub>w</sub> (Element) R <sub>w</sub> (Elément) R <sub>w</sub> (Element)	Spektrum - Anpassungswerte (C und C <sub>tr</sub> ) Termes d' adaptation à un spectre (C et C <sub>tr</sub> ) Spectrum adaptation terms (C and C <sub>tr</sub> )
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	32 [dB]	R <sub>w</sub> (Element) = <b>33</b> [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	38 [dB]	R <sub>w</sub> (Element) = <b>40</b> [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	45 [dB]	R <sub>w</sub> (Element) = <b>43</b> [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) R <sub>w</sub> (Glass)	50 [dB]	R <sub>w</sub> (Element) = <b>46</b> [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 <sub>w</sub> < 2.7 [m <sup>2</sup> ]	<b>R<sub>w</sub> (Element) - 0 [dB]</b>
2.7 [m <sup>2</sup> ] < A <sub>w</sub> < 3.6 [m <sup>2</sup> ]	<b>R<sub>w</sub> (Element) - 1 [dB]</b>
3.6 [m <sup>2</sup> ] < A <sub>w</sub> < 4.6 [m <sup>2</sup> ]	<b>R<sub>w</sub> (Element) - 2 [dB]</b>
4.6 [m <sup>2</sup> ] < A <sub>w</sub>	<b>R<sub>w</sub> (Element) - 3 [dB]</b>

## 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 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 facades. 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 facade 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

## Généralités

## General advice

### Technische Beratung bei Planung und Projektierung

Die kostenlose technische Beratung bei Planung und Projektierung sind weder als Haupt- noch als Nebenpflicht Gegenstand unserer Angebote 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.

### 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.

### 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****Généralités****General advice****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, Be-schläge) 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.

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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.

**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 (profils, 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.

**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.

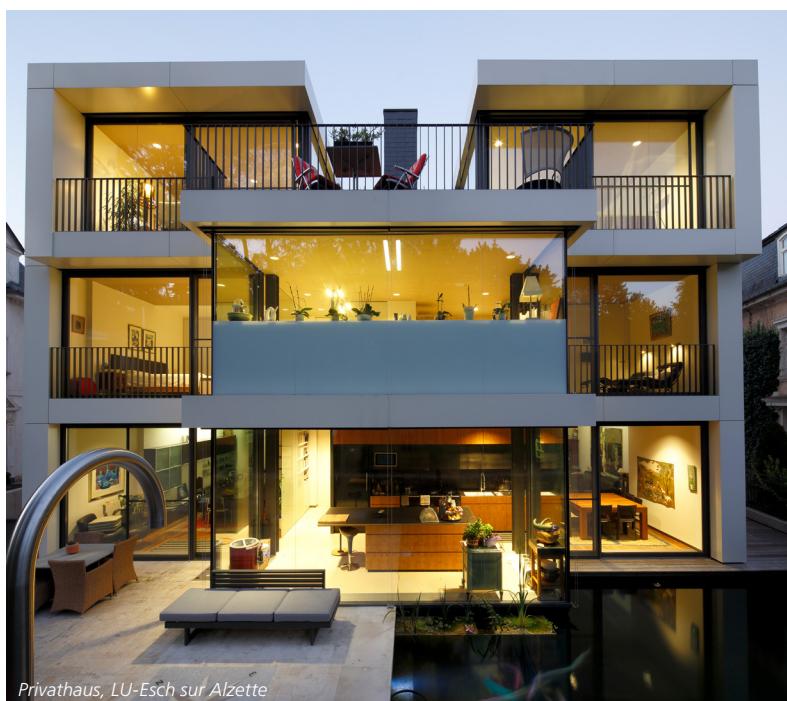
**Note**

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**Referenzobjekte****Réalisations****Project references**

# **forster**



**Profilsysteme in Stahl und Edelstahl**

**Systèmes de profilés en acier et en acier inox**

**Steel and stainless steel profile systems**

