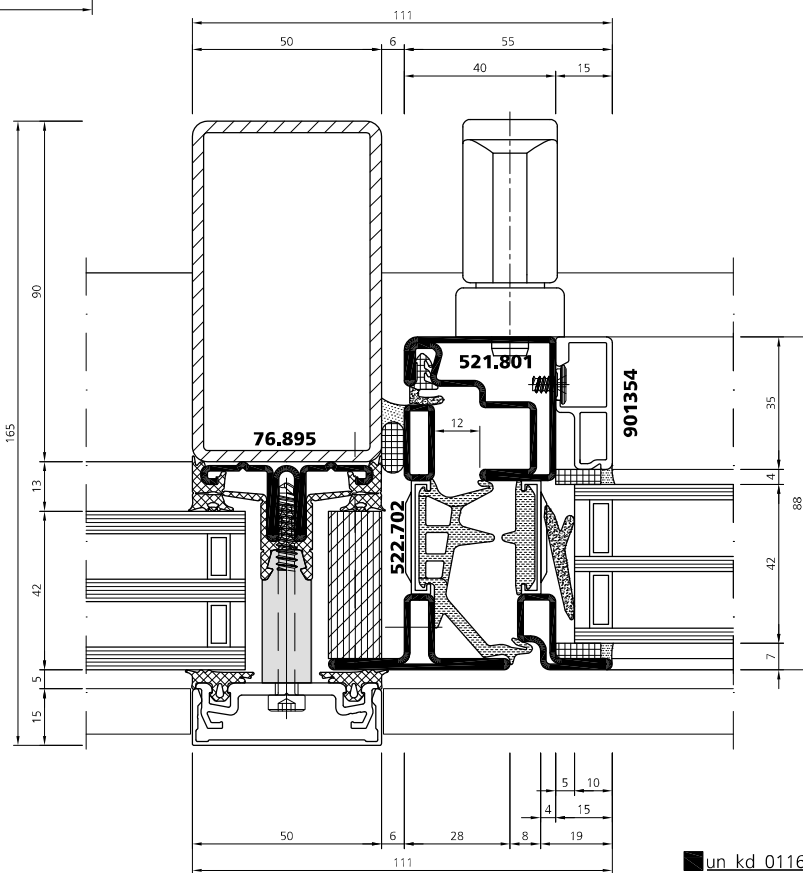
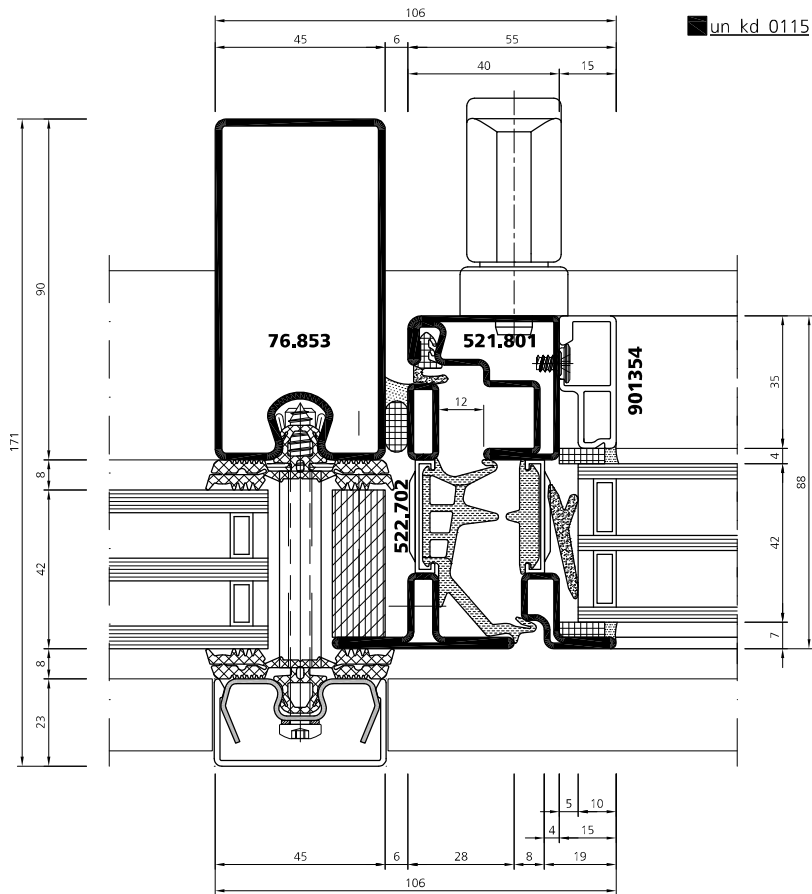


Konstruktionsdetails

Détails de construction

Construction details

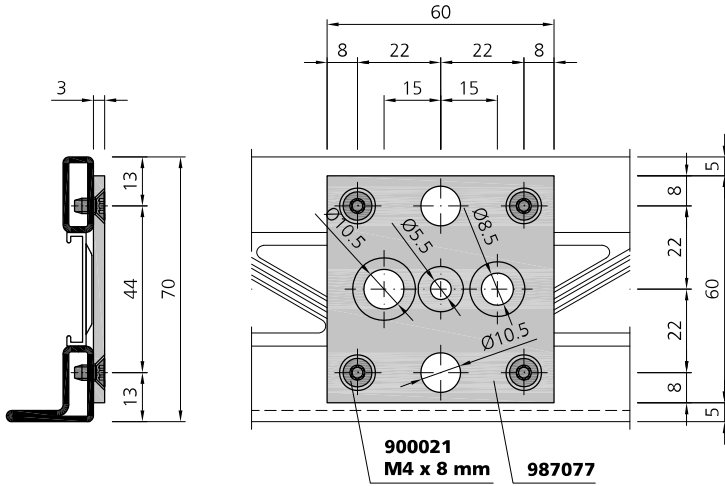


**Wandbefestigung**

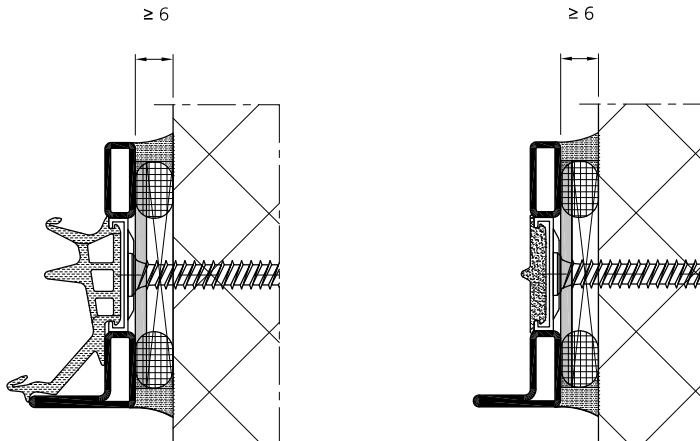
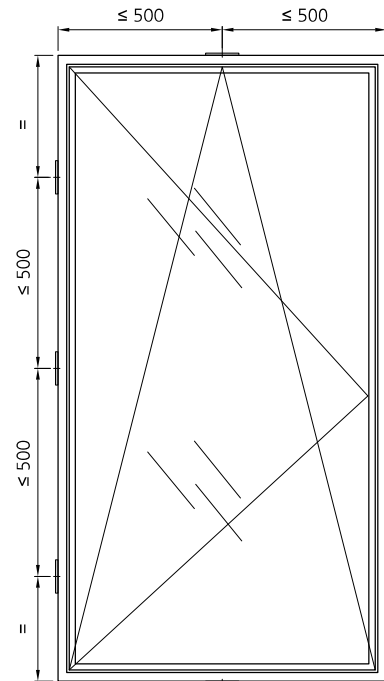
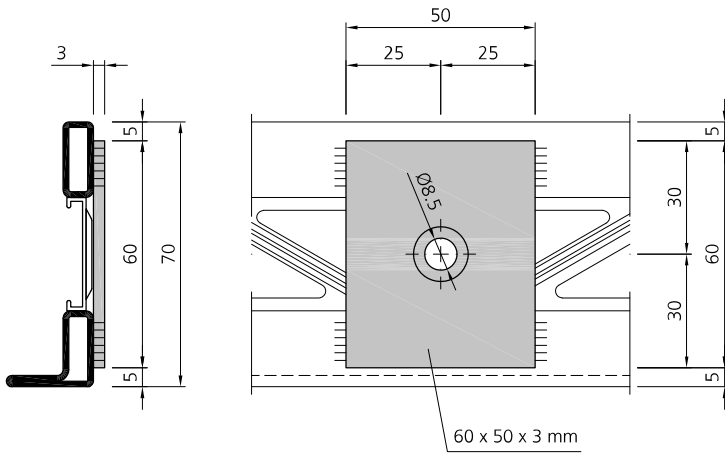
**Raccords muraux**

**Wall connections**

Montageplatte Art.Nr. 987077  
 Plaque de montage art.no. 987077  
 Assembly plate art.no. 987077



Alternativ Eigenanfertigung  
 Alternative propre fabrication  
 Alternatively own production

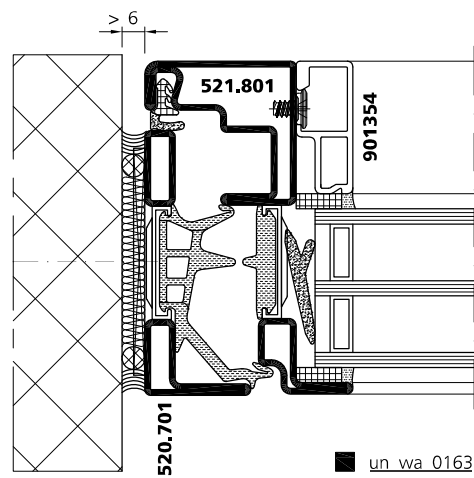
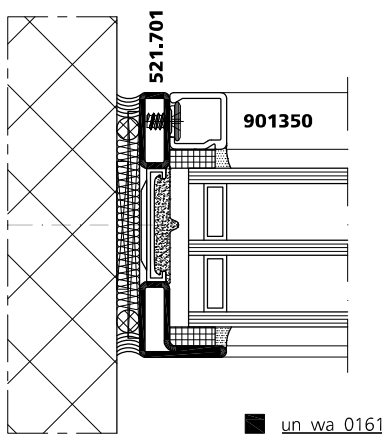


z.B. / par ex. / e.g.  
 Hilti HUS 6, Ø 7.5 mm

## Bauanschlüsse

## Raccords muraux

## Wall abutments



**Zuschnitt  
Schneidehilfen**

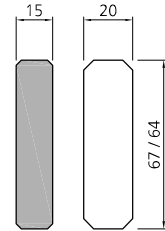
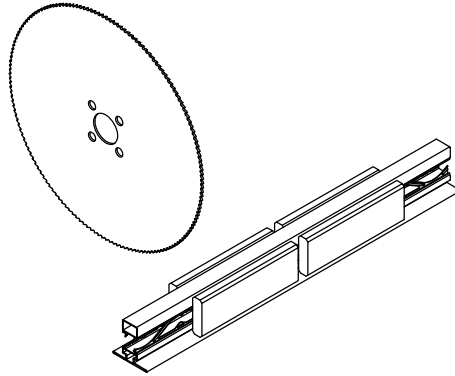
**Débitage  
Cales de débitage**

**Cutting  
Cutting aids**

**Übersicht Rahmen- und  
Flügelprofile**

**Tableau des profilés pour cadre et  
vantail**

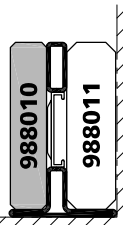
**Overview of frame and leaf  
profiles**



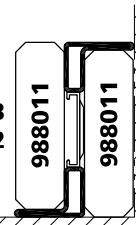
520.701



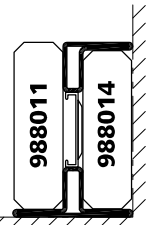
520.702  
522.703



520.703  
522.702



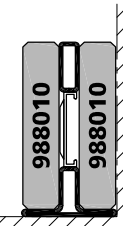
520.705



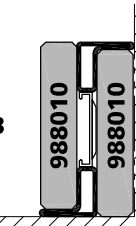
521.701



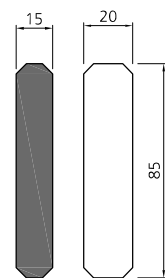
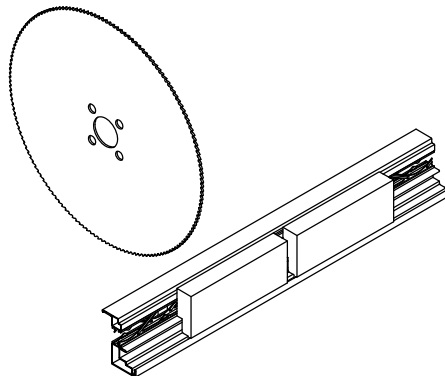
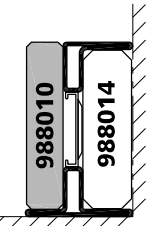
521.702



521.703



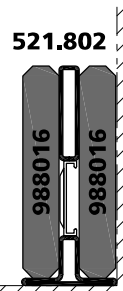
521.705



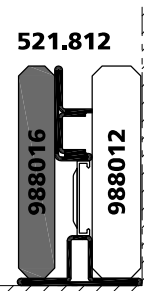
521.801



521.802



521.812

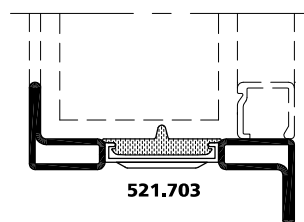
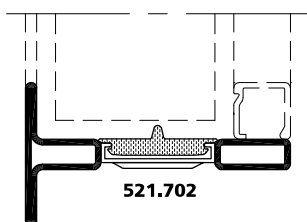
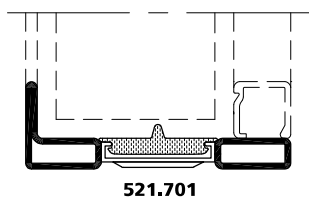
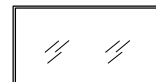


**Zuschnitt  
Profile 8 mm**

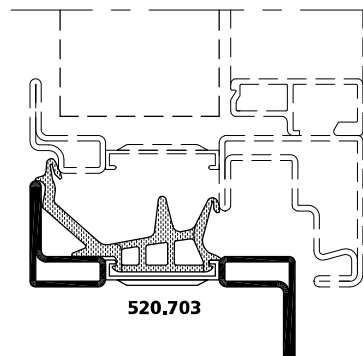
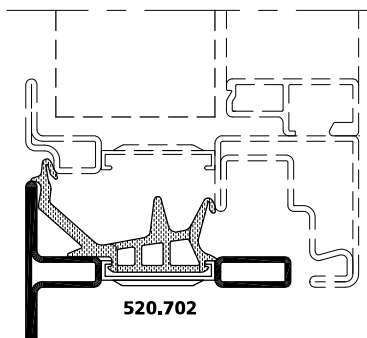
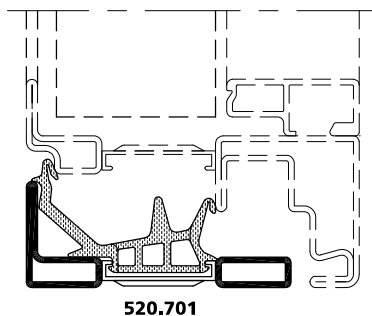
**Débitage  
Profils 8 mm**

**Cutting  
Profiles 8 mm**

**Festfelder / Vitrage fixe / Fixed glazing**



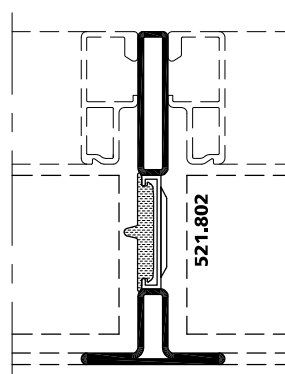
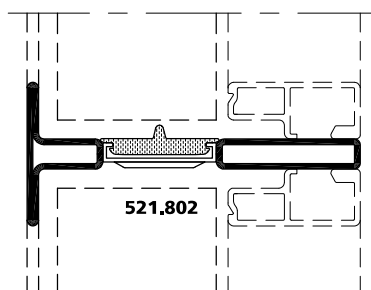
**Fensterrahmen / Cadre de fenêtre / Window frame**



**Fenstersprossen / Traverse de fenêtre / Window transom**

horizontal / horizontale / horizontal

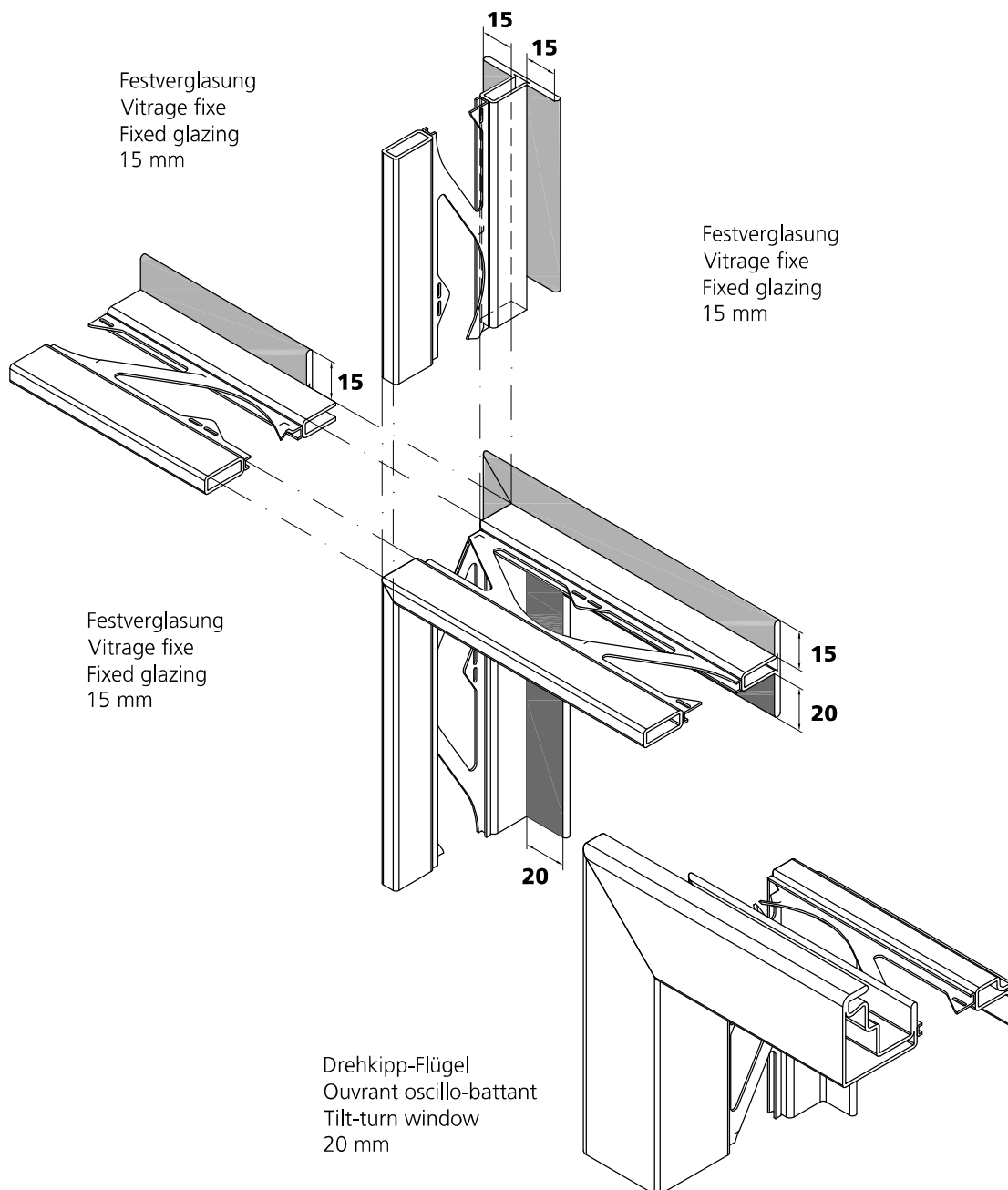
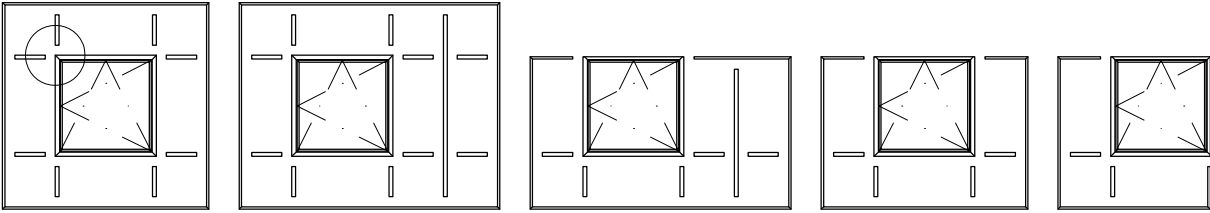
vertikal / verticale / vertical



**Profilbearbeitung  
Zusammenbau**

**Mise en œuvre des profilés  
Assemblage**

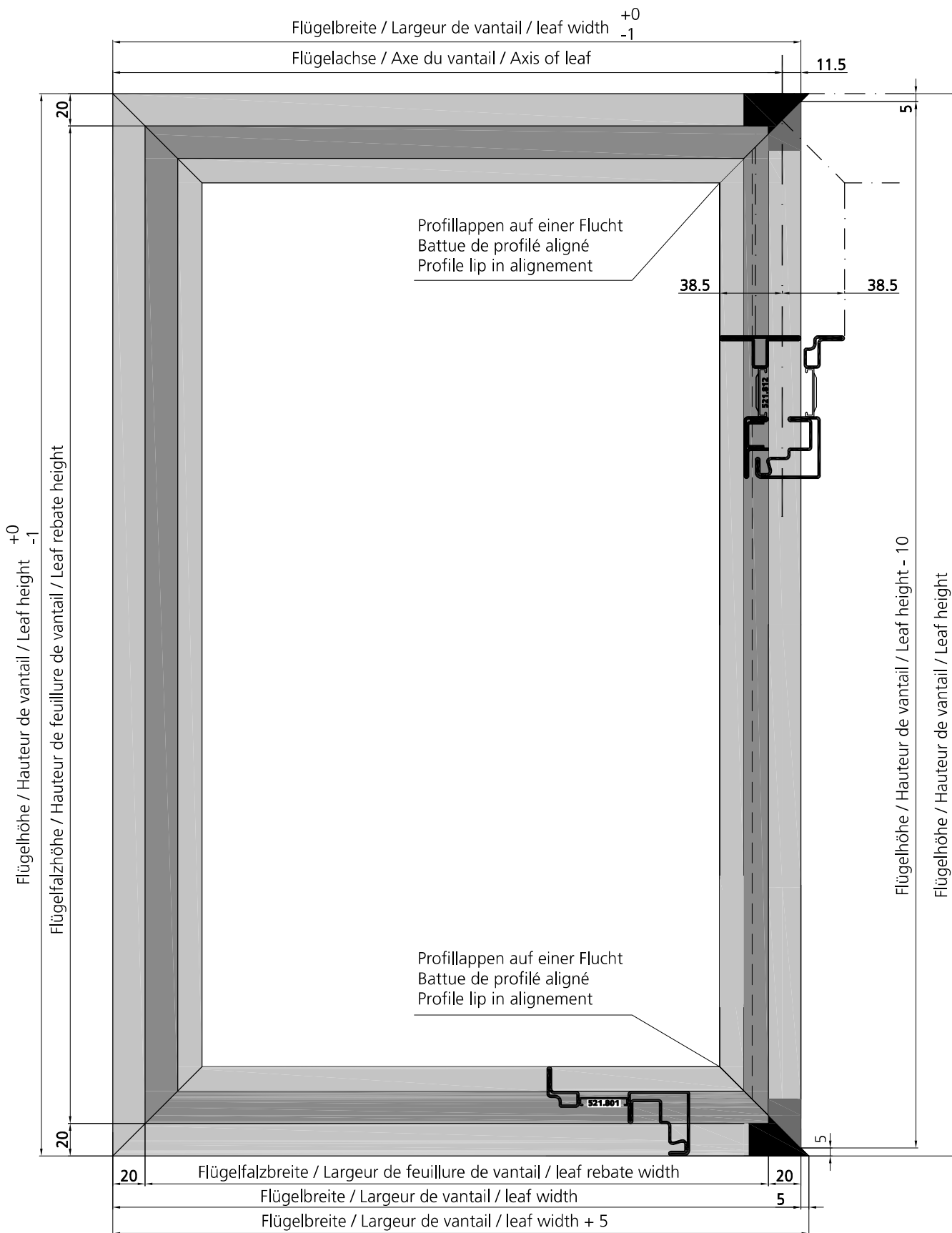
**Profile processing  
Assembly**



**Zuschnitt  
Stulpflügel**

**Usinage  
Vantail semi-fixe**

**Cutting  
Double sash**



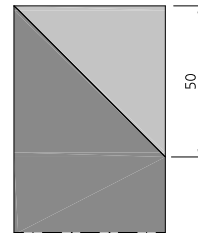
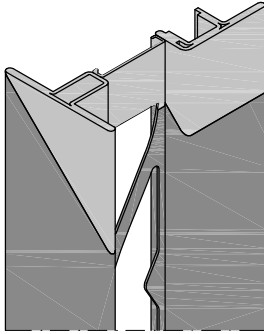


**Zuschnitt**  
**Klinkung Profile**

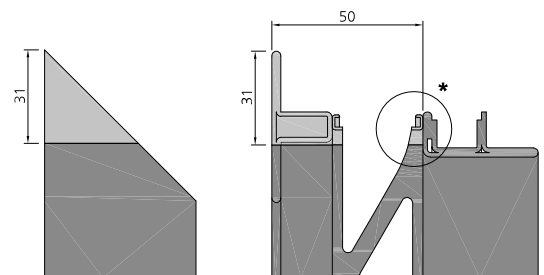
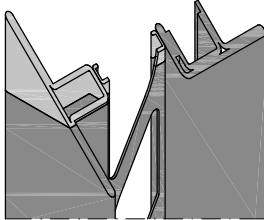
**Débitage**  
**Découpe profilés**

**Cutting**  
**Cut-outs profiles**

1. 531.812, 45° Schnitt, 50 mm  
531.812, coupe à 45°, 50 mm  
531.812, 45° cut, 50 mm

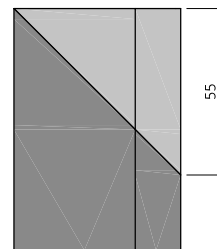
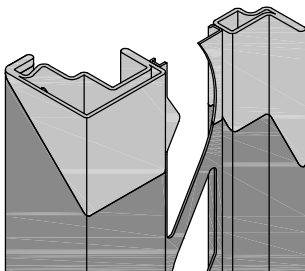


2. 531.812, Aussenschale und Isolator zuschneiden, Höhe 31 mm, Tiefe 50 mm  
531.812, découper la coque extérieure et l'isolant, hauteur 31 mm, profondeur 50 mm  
531.812, cut outer shell and insulator to size, 31 mm high, 50 mm deep



\* inkl.

3. 521.801, 45° Schnitt, 55 mm  
521.801, coupe à 45°, 55 mm  
521.801, 45° cut, 55 mm

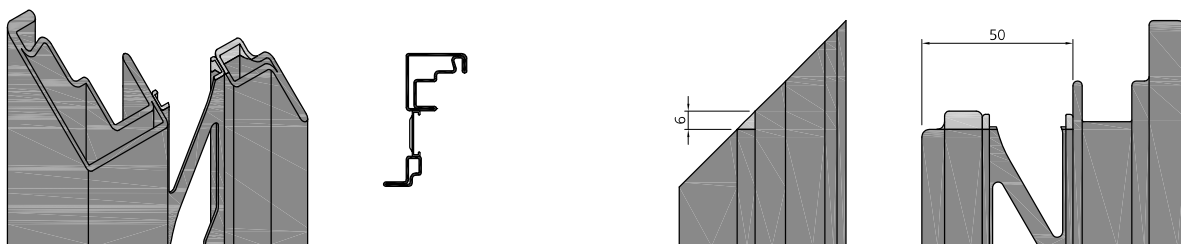


**Zuschnitt  
Klinkung Profile**

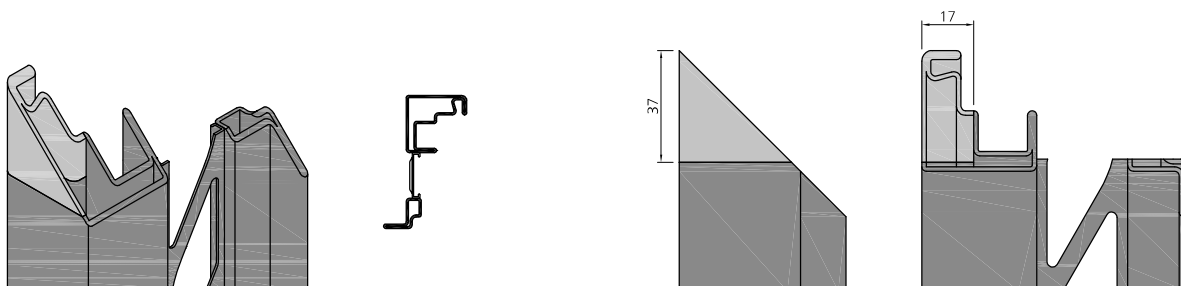
**Débitage  
Découpe profilés**

**Cutting  
Cut-outs profiles**

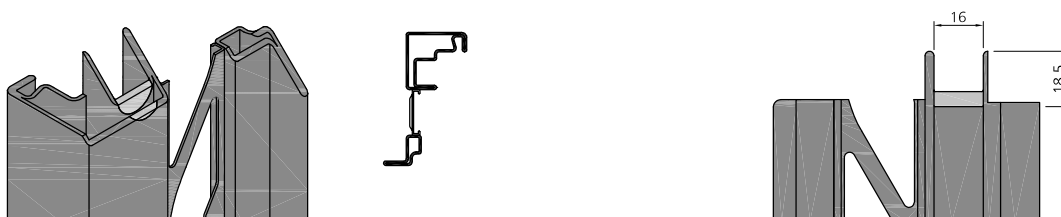
4. 521.801, Aussenschale und Isolator zuschneiden, Höhe 6 mm, Tiefe 50 mm  
 521.801, découper la coque extérieure et l'isolant, hauteur 6 mm, profondeur 50 mm  
 521.801, cut outer shell and insulation to size, 6 mm high, 50 mm deep



5. 521.801, Innenschale zuschneiden, Höhe 37 mm, Tiefe 17 mm  
 521.801, découper la coque intérieure et l'isolant, hauteur 37 mm, profondeur 17 mm  
 521.801, cut inner shell to size, 37 mm high, 17 mm deep



6. 521.801, Beschlagnut , Höhe 18.5 mm  
 521.801, gorge quincaillerie, hauteur 18,5 mm  
 521.801, fitting groove, 18.5 mm high

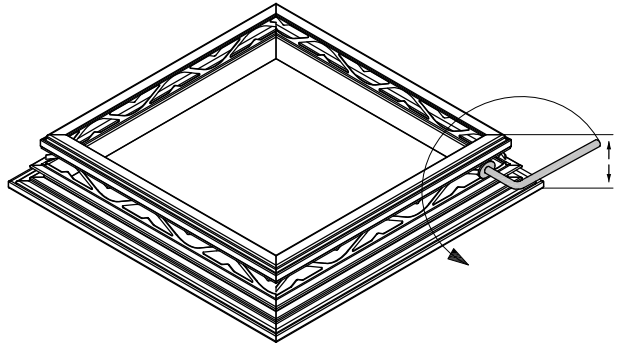


**Profilbearbeitung**  
Richten / Schweissen

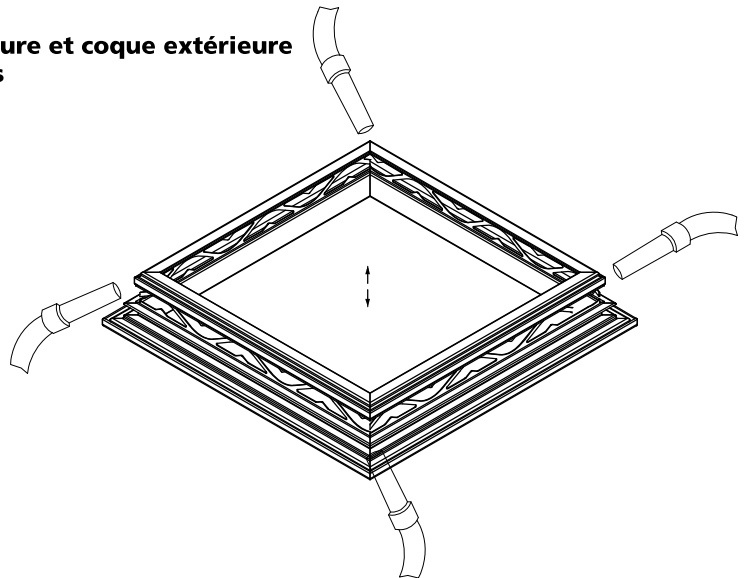
**Mise en œuvre des profilés**  
Alignement / soudage

**Profile processing**  
Straightening / welding

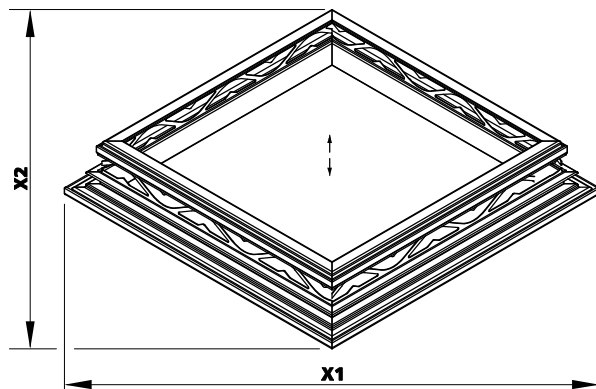
- 1. Profile mit Richthebel 989001 aufeinander ausrichten**  
**Aligner les profilés l'un avec l'autre avec le levier d'alignement 989001**  
**Straighten profiles using setting lever 989001**



- 2. Ecken heften Innen- und Aussenschale**  
**Souder les angles par points, coque intérieure et coque extérieure**  
**Tack-weld corners of inner and outer shells**



- 3. Diagonale X1 + X2 an innerer und äusserer Schale messen**  
**Mesurer la diagonale X1 + X2 sur les coques intérieure et extérieure**  
**Measure diagonals X1 + X2 on inner and outer shells**

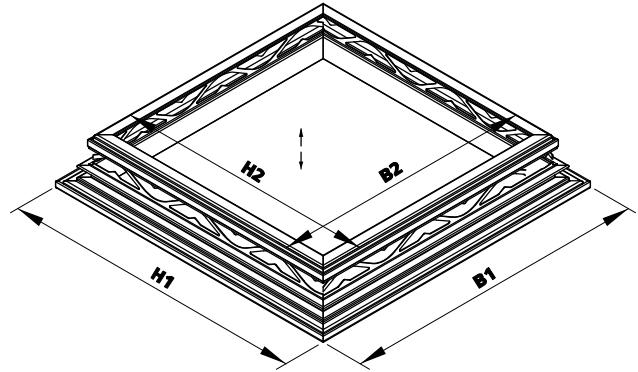


**Profilbearbeitung**  
Richten / Schweißen

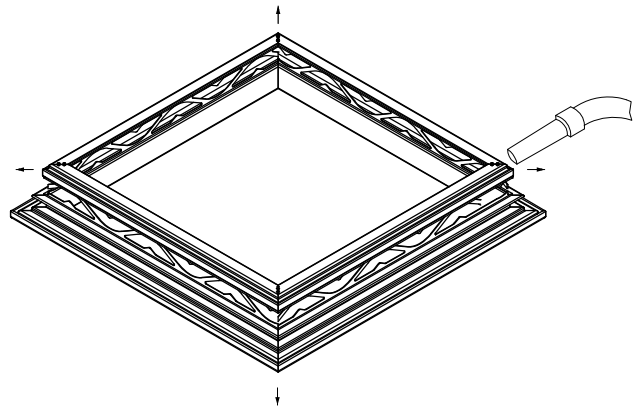
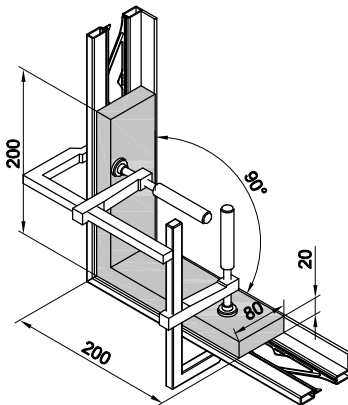
**Mise en œuvre des profilés**  
Alignement / soudage

**Profile processing**  
Straightening / welding

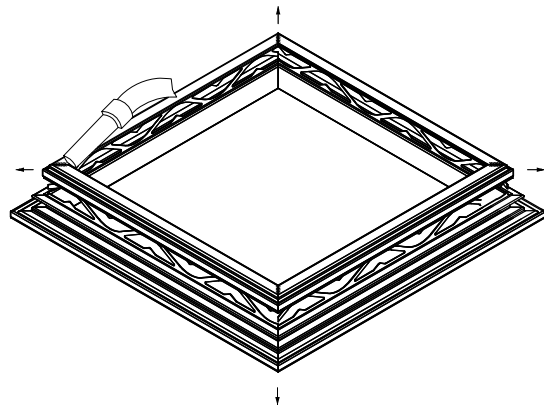
4. Höhe und Breite an innerer (H1, B1) und äusserer (H2, B2) Schale messen  
Mesurer la hauteur et la largeur sur la coque intérieure (H1, B1) et la coque extérieure (H2, B2)  
Measure height and width of inner (H1, B1) and outer (H2, B2) shells



5. Versteifen und anschliessend Sichtfläche (aussen) heften  
Raidir, puis souder la surface apparente par points (vers l'extérieur)  
Reinforce and then tack-weld visible surface (outer)



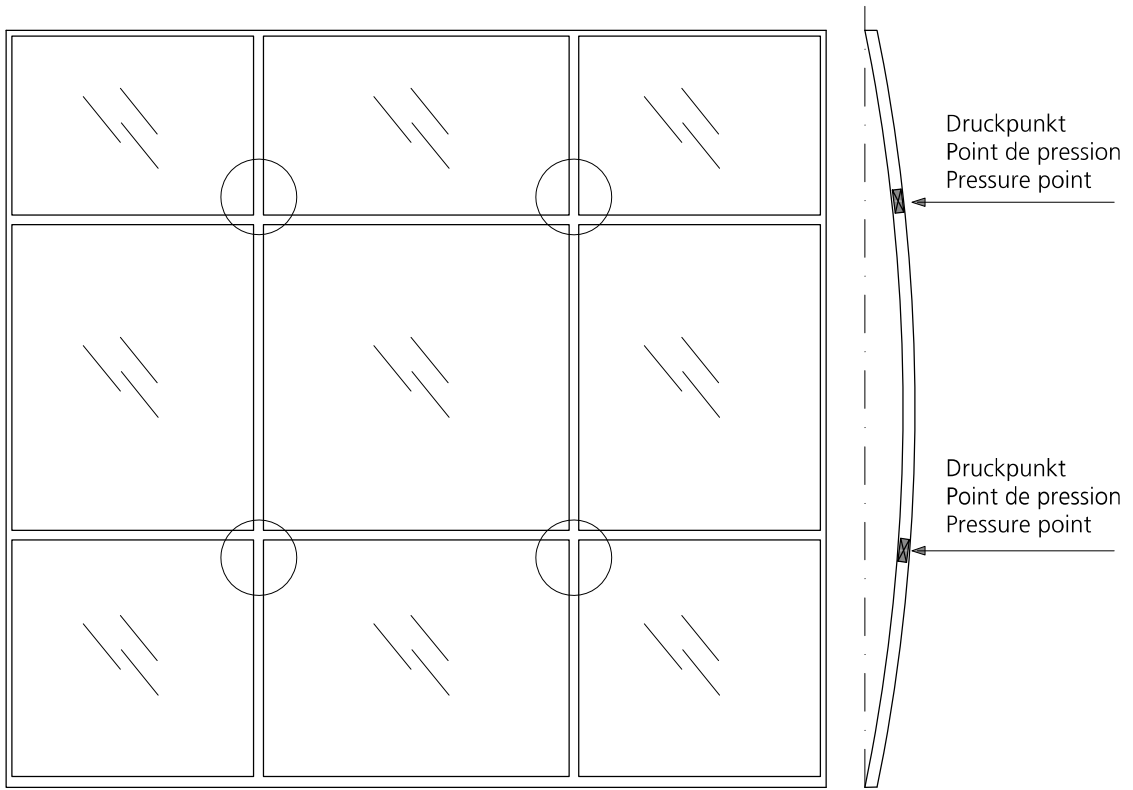
6. Rahmen beidseitig von innen nach aussen verschweissen  
Souder le cadre des deux côtés de l'intérieur vers l'extérieur  
Weld frame on both sides from inside to outside



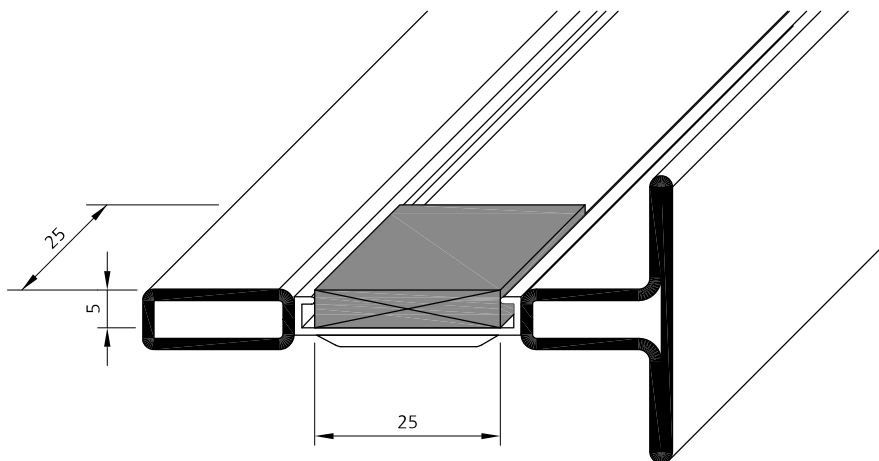
**Profilbearbeitung**  
**Richten**

**Mise en œuvre des profilés**  
**Alignement**

**Profile processing**  
**Straightening**



Zum Richten sind bei den Druckpunkten Distanzplatten einzuschweißen  
 Pour l'alignement, il faut souder des plaques entretoises au niveau des points de pression  
 To straighten, weld in spacers at pressure points



## Profilbearbeitung Klemmknöpfe

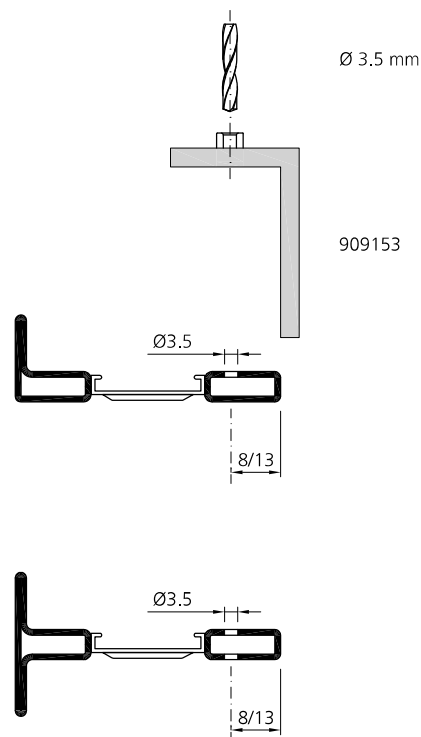
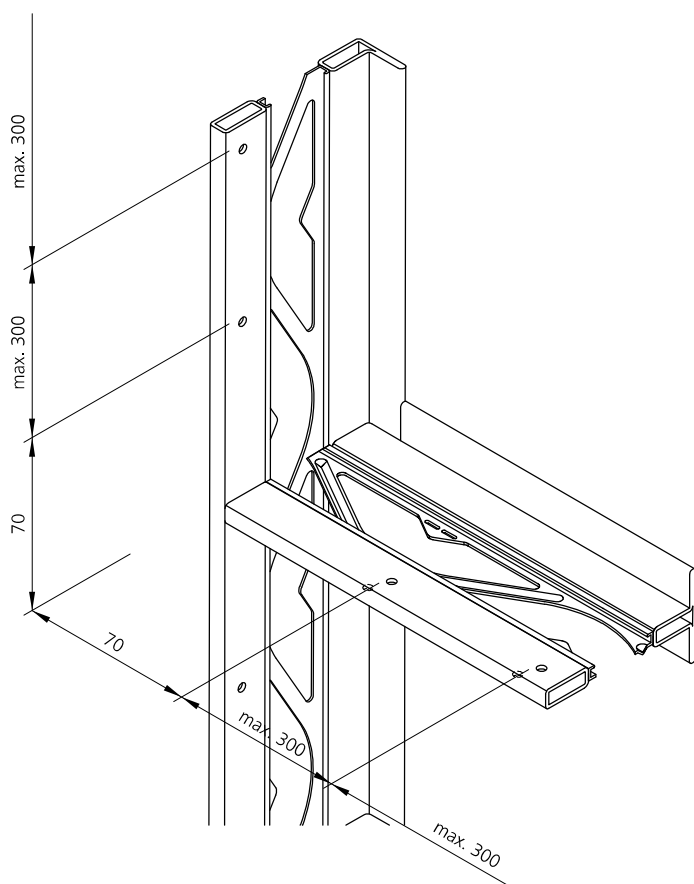
Rahmen

## Mise en œuvre des profilés Boutons de fixation

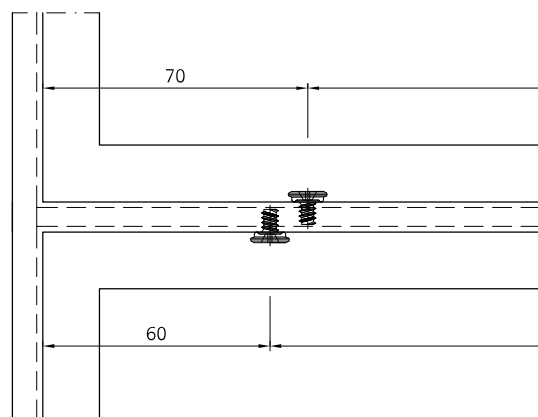
Cadre

## Profile processing Stud fasteners

Frame



beim Sprossenprofil versetzt anordnen  
disposer en quinconce sur le profilé de traverse  
set staggered at the transom profile



**906580** (VE/100 Stk./pcs)

### Klemmknöpfe

Bohrlehre Art.Nr. 909153,  
Bohrdurchmesser 3.5 mm

### Boutons de fixation

Gabarit de perçage art. no. 909153  
diamètre percé 3.5 mm

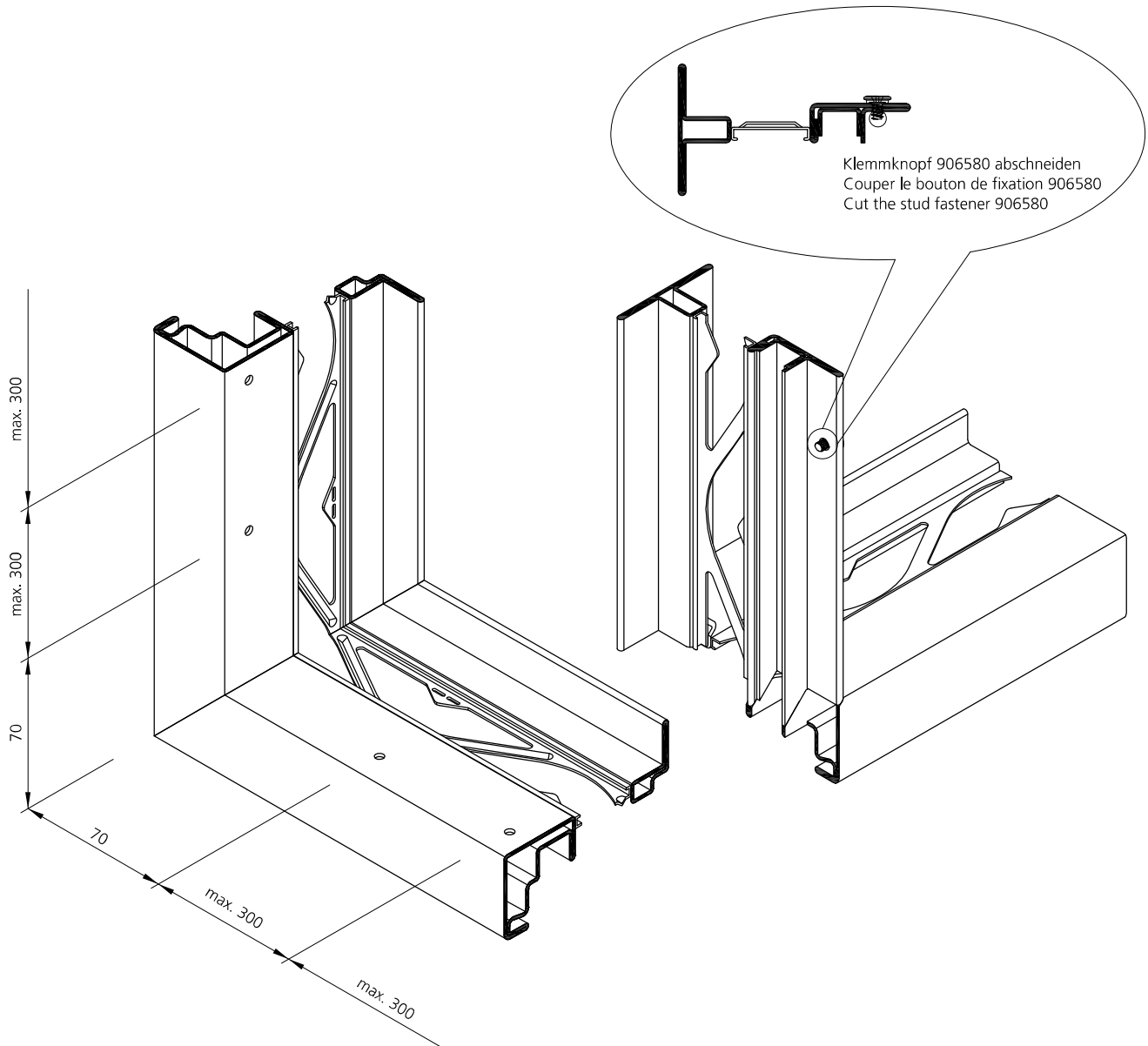
### Stud fasteners

Drilling template art. no. 909153  
drilling diameter 3.5 mm

**Profilbearbeitung**  
**Klemmknöpfe**  
 Flügel

**Mise en œuvre des profilés**  
**Boutons de fixation**  
 Vantail

**Profile processing**  
**Stud fasteners**  
 Leaf



**906580** (VE/100 Stk./pcs)

**Klemmknöpfe**

Bohrlehre Art.Nr. 909153,  
 Bohrdurchmesser 3.5 mm

**Boutons de fixation**

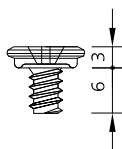
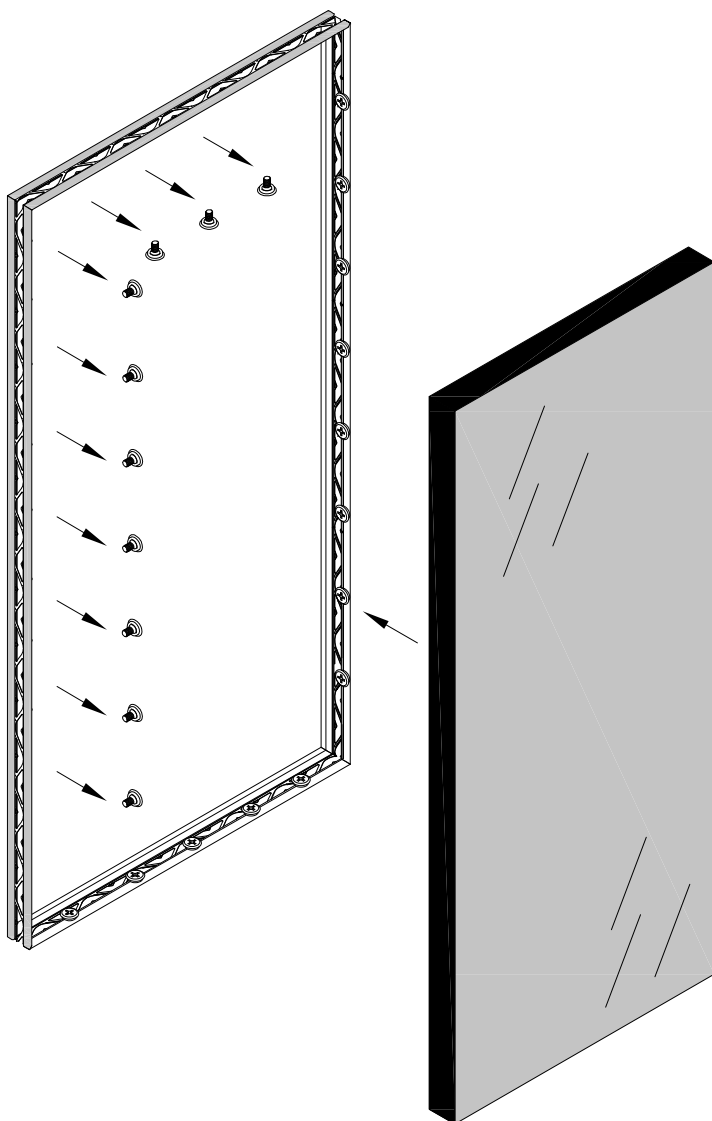
Gabarit de perçage art. no. 909153,  
 diamètre percé 3.5 mm

**Stud fasteners**

Drilling template art.no. 909153,  
 drilling diameter 3.5 mm

## Profilbearbeitung Klemmknöpfe

- \* **Empfehlung:**  
Zum Einglasen die Klemmknöpfe  
an zwei Seiten entfernen

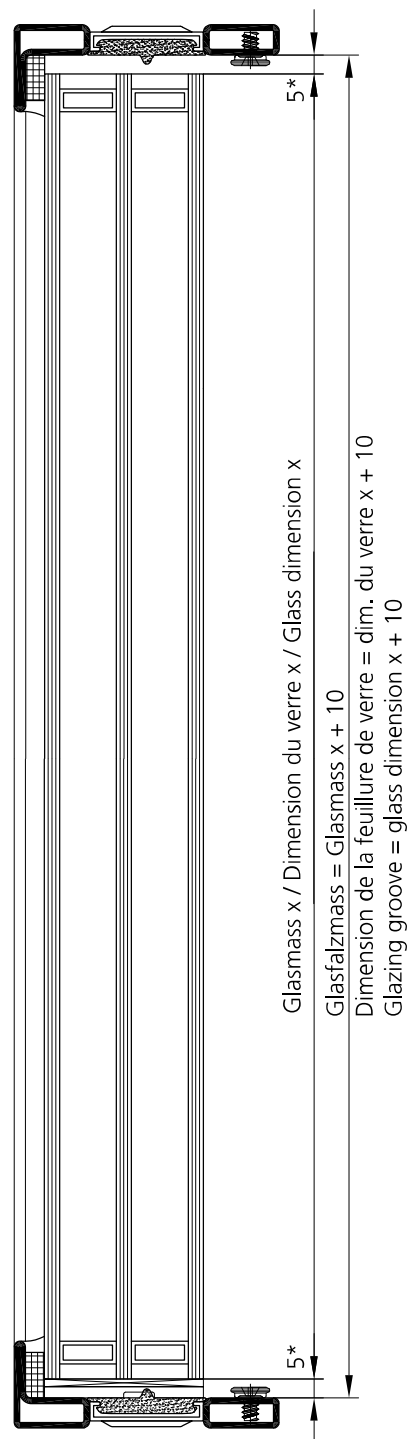


## Mise en œuvre des profilés Boutons de fixation

- \* **Recommandation:**  
Pour poser le vitrage, enlever  
les boutons de fixation sur deux  
côtés

## Profile processing Stud fasteners

- \* **Recommendation:**  
Remove stud fasteners on both  
sides to install glazing

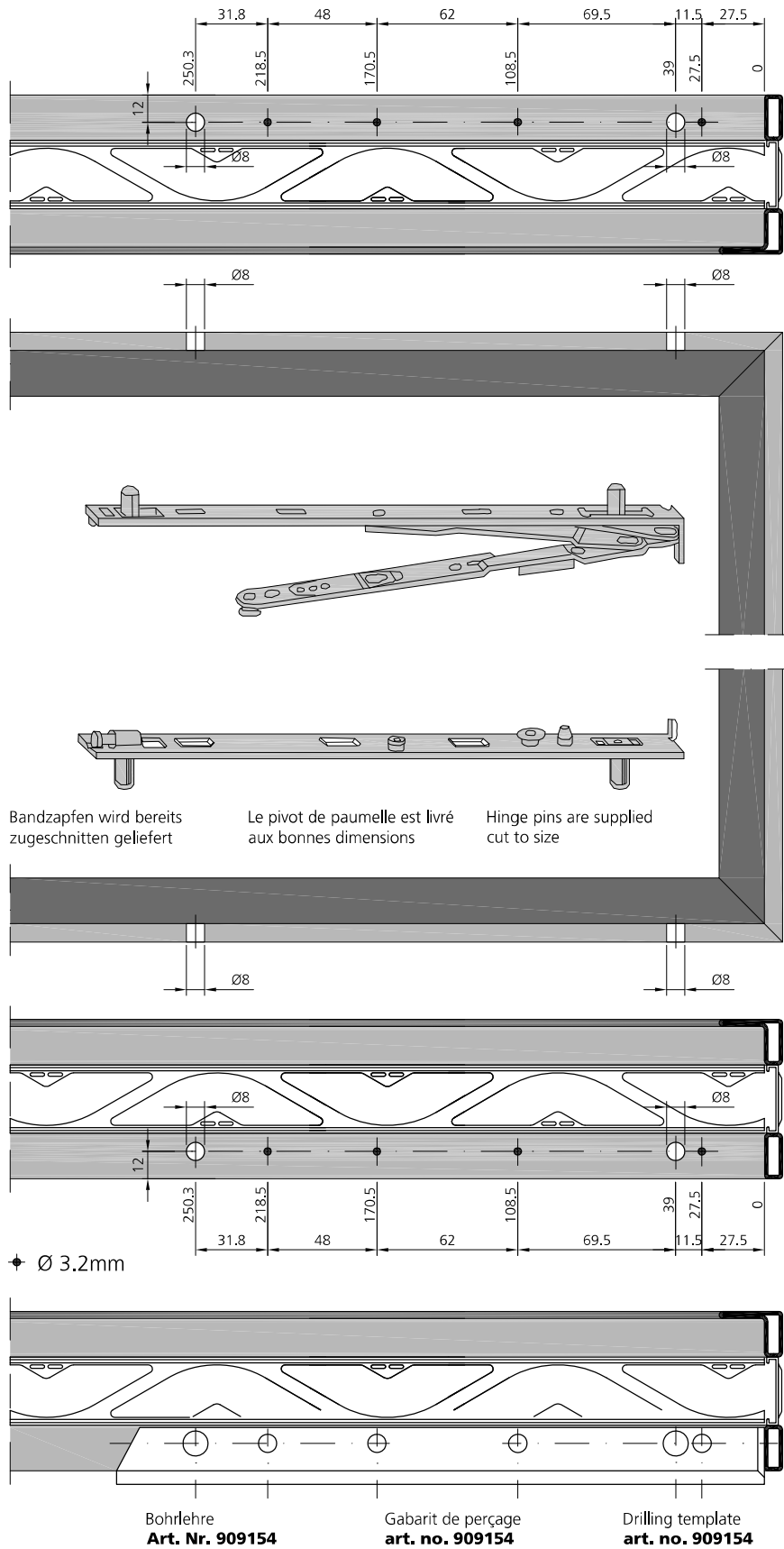




## Beschlagseinbau 1-flügeliges Fenster

## Montage de la quincaillerie Fenêtre à 1 vantail

## Installation of the fittings Window 1 leaf



**Beschlagseinbau  
1-flügeliges Fenster**

**Montage de la quincaillerie  
Fenêtre à 1 vantail**

**Installation of the fittings  
Window 1 leaf**

**Anordnung Schliessstücke**

1 flg. in Abhängigkeit der Flügelfalz-Höhe

**FFH 520 – 1200 [mm]**

**GH 260 – 600 [mm]**

**Disposition des gâches**

1 vantail selon la hauteur de la feuillure du vantail

**FFH 520 – 1200 [mm]**

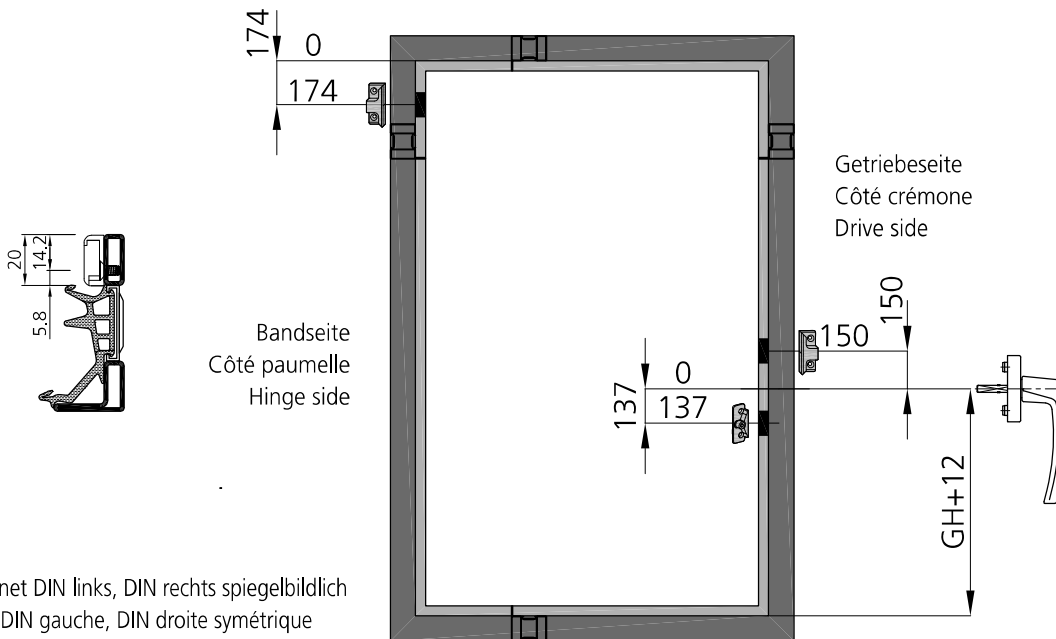
**GH 260 – 600 [mm]**

**Arrangement of the strikers**

1 leaf, depending on the height of the leaf rebate

**FFH 520 – 1200 [mm]**

**GH 260 – 600 [mm]**



Gezeichnet DIN links, DIN rechts spiegelbildlich  
Dessiné DIN gauche, DIN droite symétrique  
Marked DIN left, DIN right mirror images

**Anordnung Schliessstücke**

**FFH 1201 – 1600 [mm]**

**GH 601 - 800 [mm]**

**Disposition des gâches**

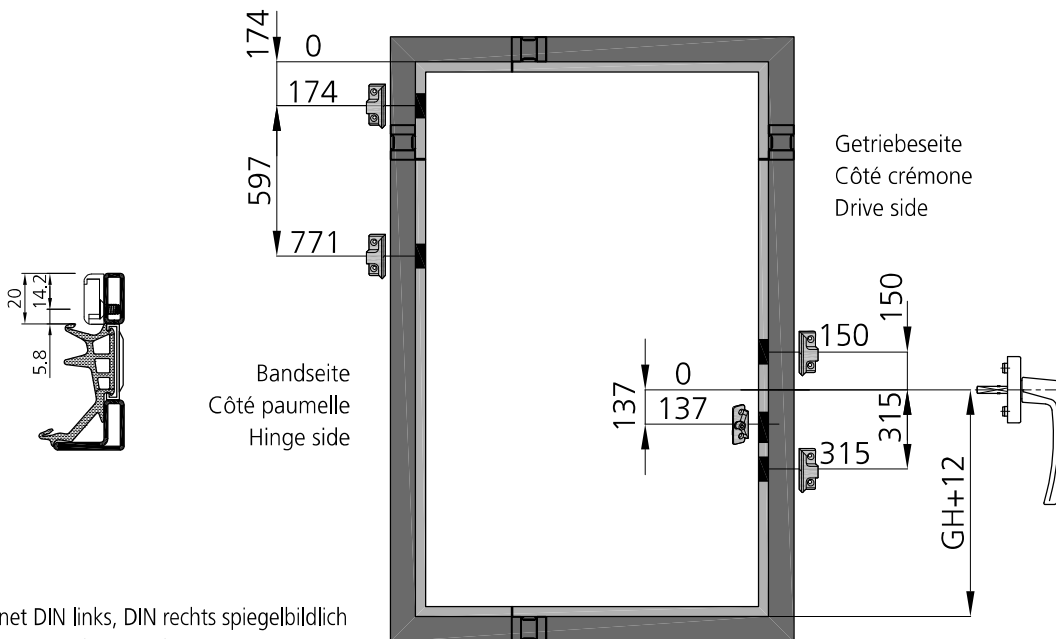
**FFH 1201 – 1600 [mm]**

**GH 601 - 800 [mm]**

**Arrangement of the strikers**

**FFH 1201 – 1600 [mm]**

**GH 601 - 800 [mm]**

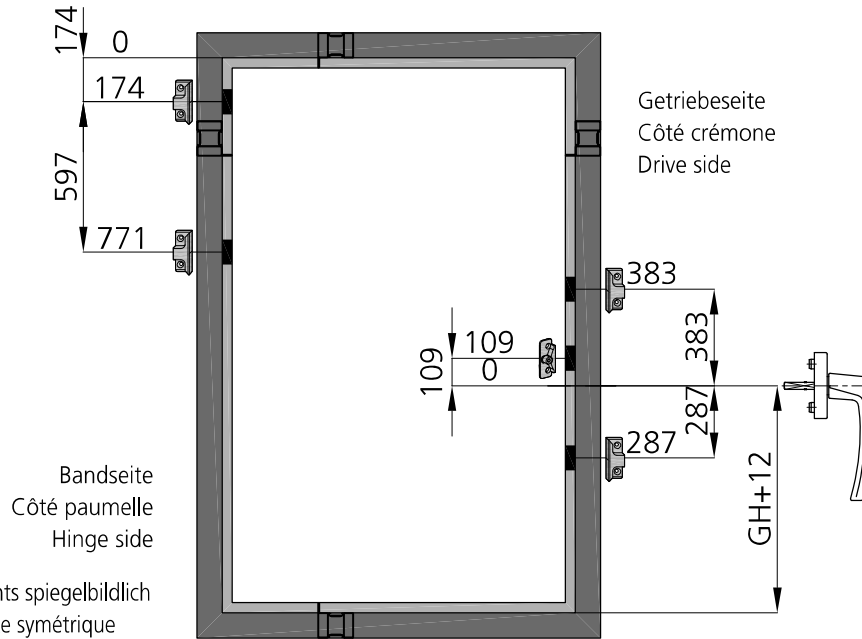
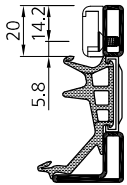


Gezeichnet DIN links, DIN rechts spiegelbildlich  
Dessiné DIN gauche, DIN droite symétrique  
Marked DIN left, DIN right mirror images

## Beschlagseinbau 1-flügeliges Fenster

### Anordnung Schliessstücke

1 flg. in Abhängigkeit der Flügelfalz-Höhe  
FFH 1601 – 2000 [mm]  
GH 801 - 1000 [mm]



Gezeichnet DIN links, DIN rechts spiegelbildlich  
Dessiné DIN gauche, DIN droite symétrique  
Marked DIN left, DIN right mirror images

## Montage de la quincaillerie Fenêtre à 1 vantail

### Disposition des gâches

1 vantail selon la hauteur de la feuillure du  
vantail  
FFH 1601 – 2000 [mm]  
GH 801 - 1000 [mm]

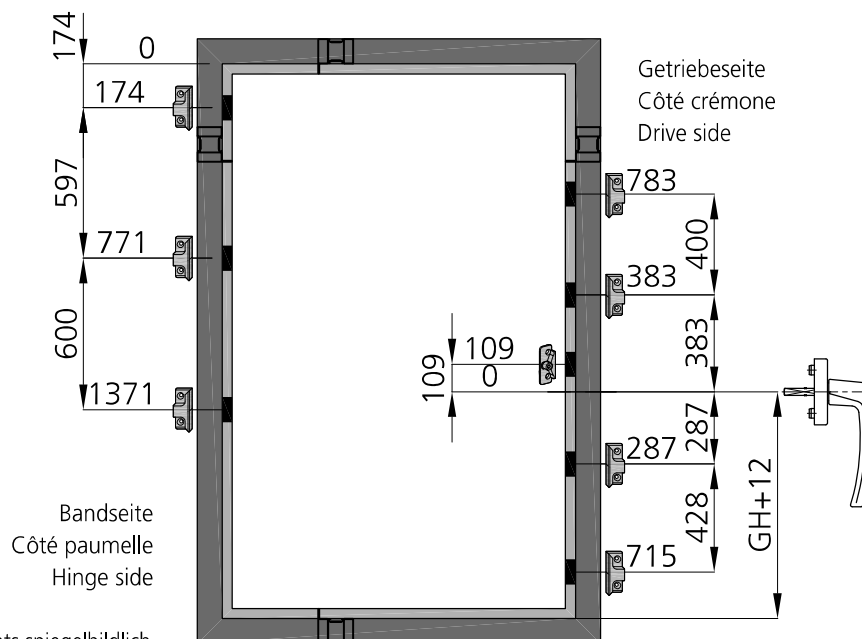
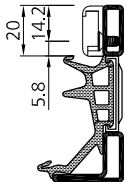
## Installation of the fittings Window 1 leaf

### Arrangement of the strikers

1 leaf, depending on the height of the leaf  
rebate  
FFH 1601 – 2000 [mm]  
GH 801 - 1000 [mm]

### Anordnung Schliessstücke

FFH 2001 – 2400 [mm]  
GH 1001 – 1200 [mm]

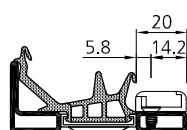


Gezeichnet DIN links, DIN rechts spiegelbildlich  
Dessiné DIN gauche, DIN droite symétrique  
Marked DIN left, DIN right mirror images

## Beschlagseinbau 1-flügeliges Fenster

### Anordnung Schliessstücke

1 flg. in Abhängigkeit der Flügelfalz-Breite  
FFB 360 – 1200 [mm]



Gezeichnet DIN links, DIN rechts spiegelbildlich  
Dessiné DIN gauche, DIN droite symétrique  
Marked DIN left, DIN right mirror images

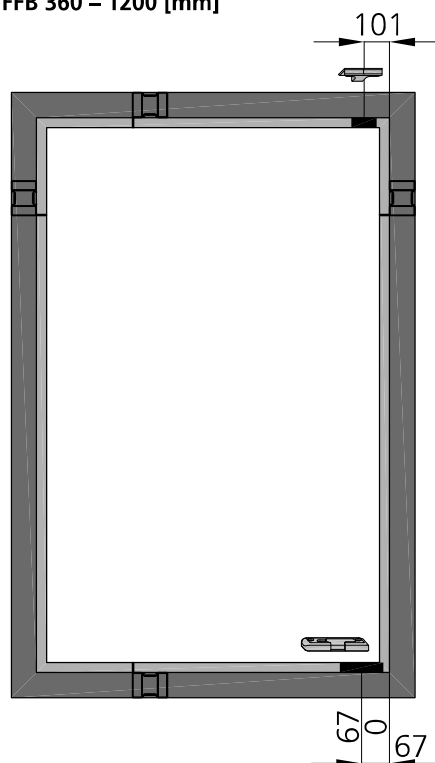
## Montage de la quincaillerie Fenêtre à 1 vantail

### Disposition des gâches

1 vantail selon la largeur de la feuillure du  
vantail

FFB 360 – 1200 [mm]

Bandseite  
Côté paumelle  
Hinge side



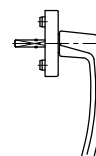
## Installation of the fittings Window 1 leaf

### Arrangement of the strikers

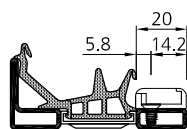
1 leaf, depending on the width of the leaf  
rebate

FFB 360 – 1200 [mm]

Getriebeseite  
Côté crémonne  
Drive side



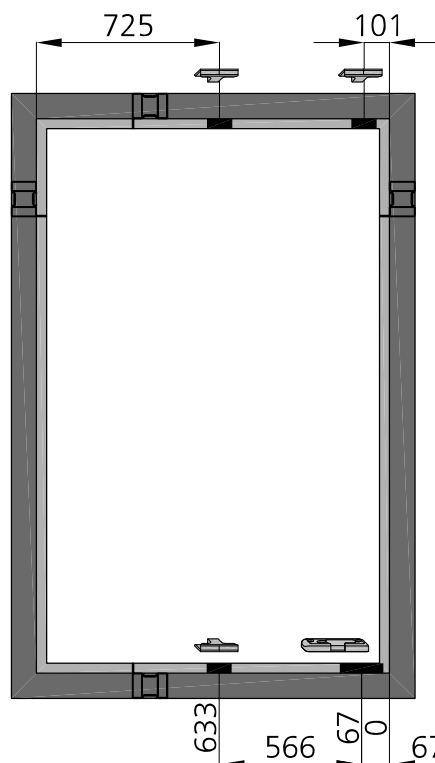
### Anordnung Schliessstücke FFB 1201 – 1400 [mm]



Gezeichnet DIN links, DIN rechts spiegelbildlich  
Dessiné DIN gauche, DIN droite symétrique  
Marked DIN left, DIN right mirror images

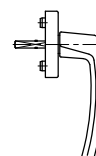
### Disposition des gâches FFB 1201 – 1400 [mm]

Bandseite  
Côté paumelle  
Hinge side



### Arrangement of the strikers FFB 1201 – 1400 [mm]

Getriebeseite  
Côté crémonne  
Drive side



**Beschlagseinbau  
1-flügeliges Fenster**

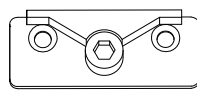
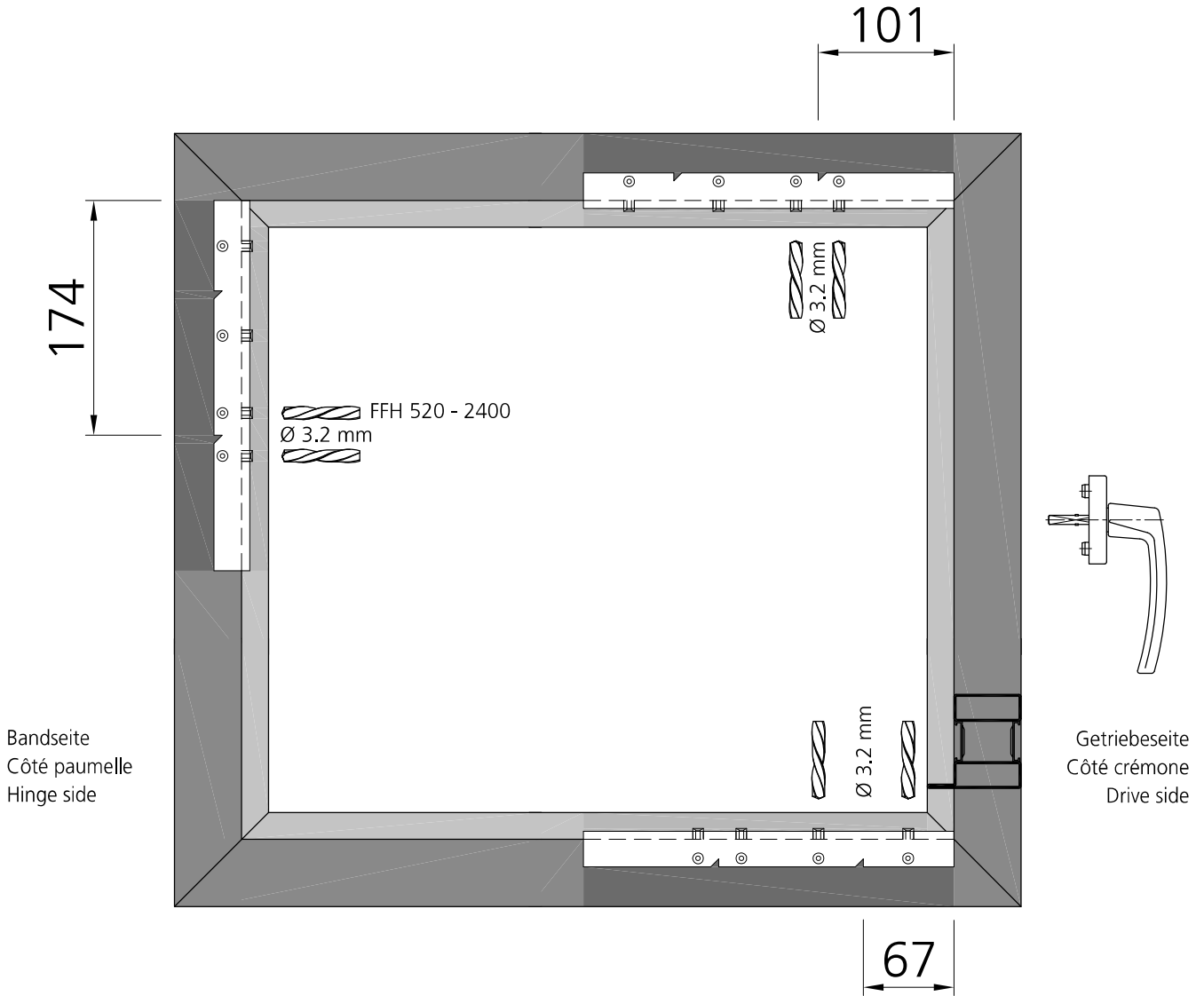
**Montage de la quincaillerie  
Fenêtre à 1 vantail**

**Installation of the fittings  
Window 1 leaf**

Bohrlehre **Art. Nr. 989104**  
1 flügelige Fenster

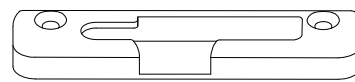
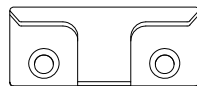
Gabarit de perçage **art. no. 989104**  
fenêtre à 1 vantail

Drilling template **art. no. 989104**  
single leaved windows

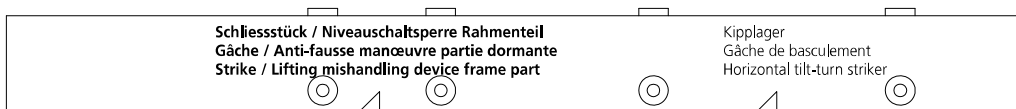


Niveauschaltsperrahmen  
Anti-fausse manœuvre partie cadre dormant  
Lifting mishandling device frame part

Schliessstücke  
Gâches  
Strikers



Kiplager  
Gâche de basculement  
Tilt-turn striker



Markierung Zentrum Schliessstück / NSP  
Marque centre gâche / AFM  
Marking on the center of the striker / LMD

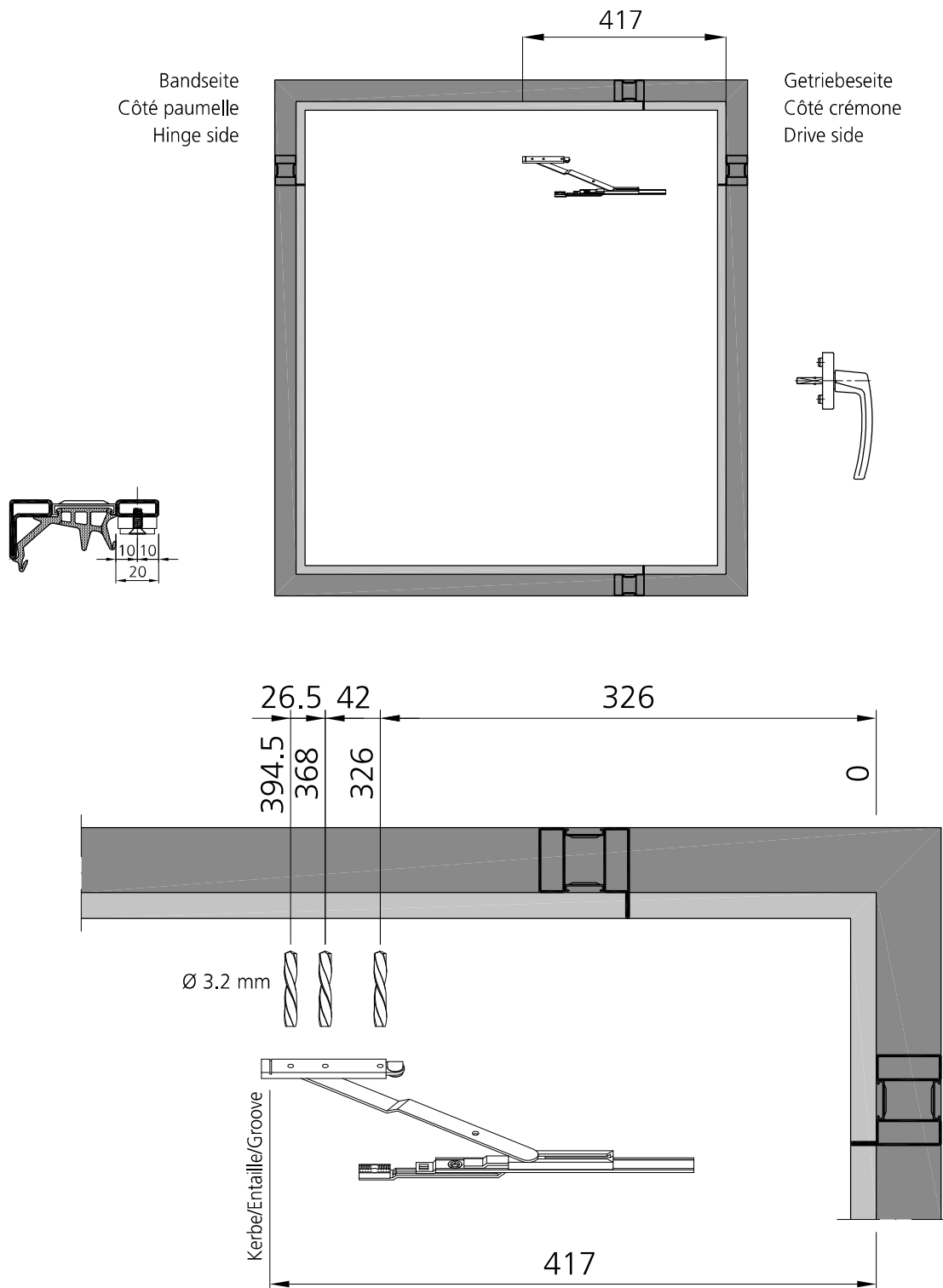
Markierung Zentrum Kiplager  
Marque centre gâche de basculement  
Marking on the center of the tilt-turn striker

**Beschlagseinbau  
1-flügeliges Fenster  
Zweitschere**

**Montage de la quincaillerie  
Fenêtre à 1 vantail  
Deuxième compas**

**Installation of the fittings  
Window 1 leaf  
Additional scissors-stay**

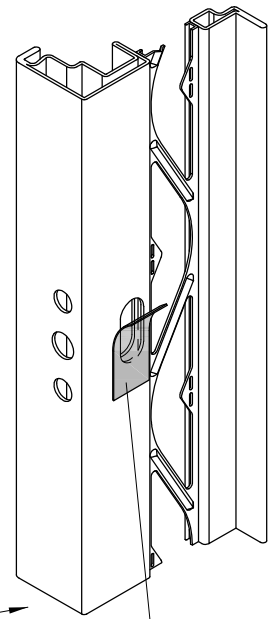
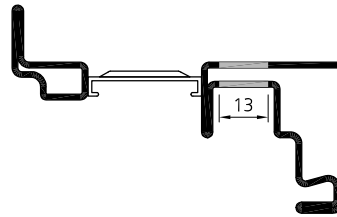
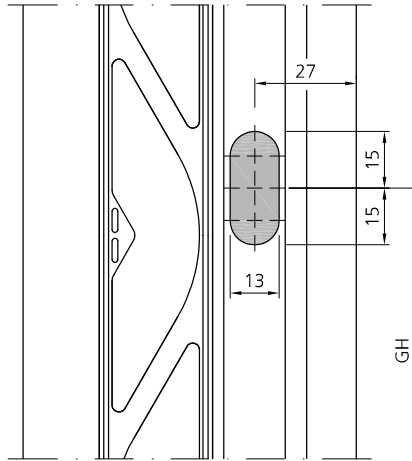
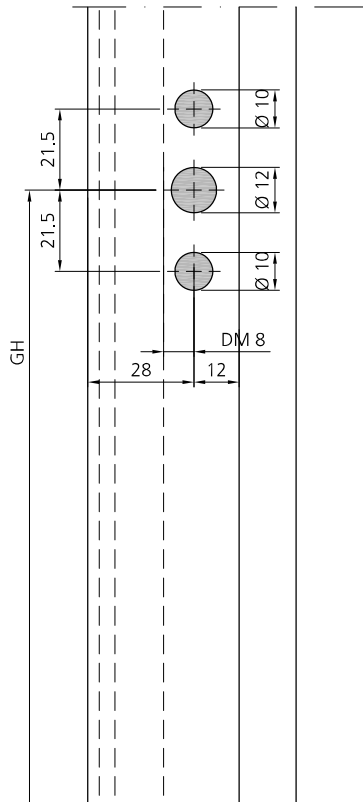
FFB 1201 – 1400 [mm]



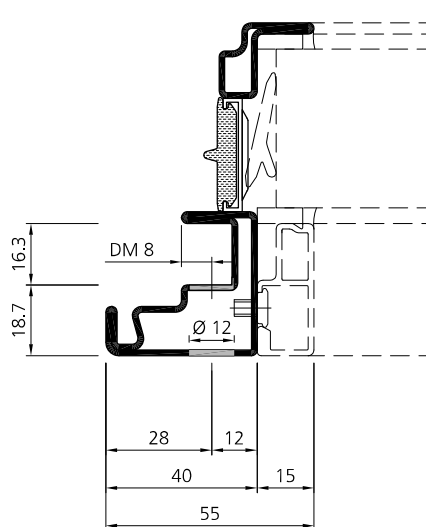
**Beschlagseinbau**  
**1- und 2-flügeliges Fenster**  
**Getriebeausnehmung**

**Montage de la quincaillerie**  
**Fenêtre à 1 ou 2 vantaux**  
**Usinage pour la créme**

**Installation of the fittings**  
**Window 1 or 2 leaved**  
**Cut-out for drive**



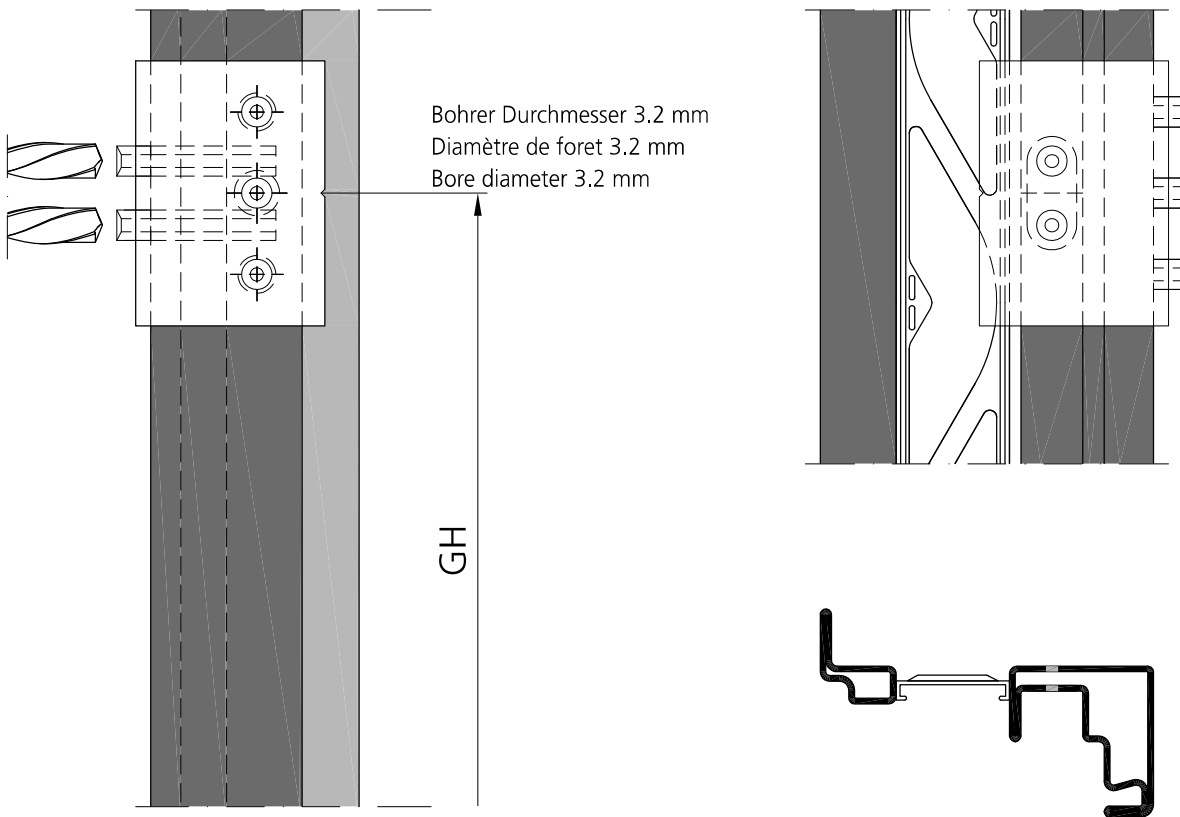
"GYSO" Alu-Tape  
 AB 620 (20 mm)



**Beschlagseinbau  
1- und 2-flügeliges Fenster  
Getriebeausnehmung**

**Montage de la quincaillerie  
Fenêtre à 1 ou 2 vantaux  
Usinage pour la crémone**

**Installation of the fittings  
Window 1 or 2 leaved  
Cut-out for drive**

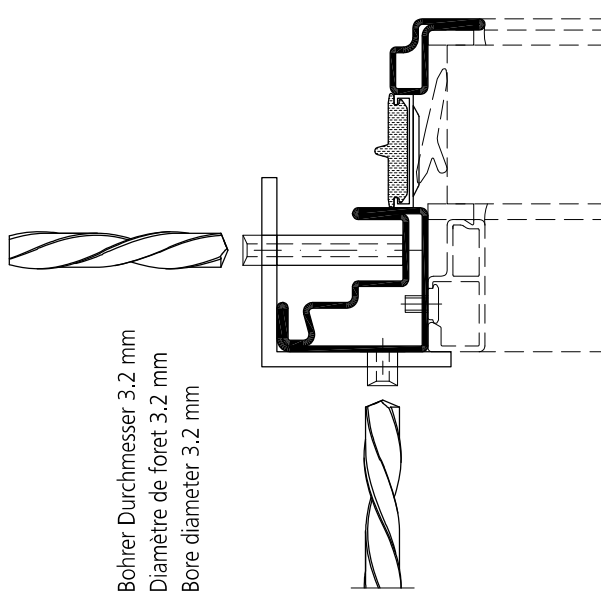


Bohrlehre **Art. Nr. 989101** zu Dreh-Kippgetriebe.

Bohrer Durchmesser 3.2 mm  
Diamètre de foret 3.2 mm  
Bore diameter 3.2 mm

Gabarit de perçage **art. no. 989101** pour crémonne oscillo-battant.

Drilling template **art. no. 989101** for tilt-turn drive.



Ausnahme für Fenstergetriebe im vertikalen Flügelprofil vorgängig ausführen!  
Exécuter préalablement l'usinage pour la crémonne de fenêtre dans le montant du vantail!  
Make the cut-out for the drive in the vertical leaf profile first!

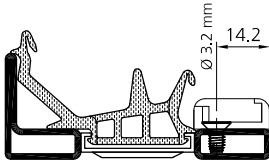


## Beschlagseinbau 1-flügeliges Fenster Rahmen

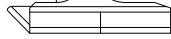
## Montage de la quincaillerie Fenêtre à 1 vantail Cadre

## Installation of the fittings Window 1 leaf Frame

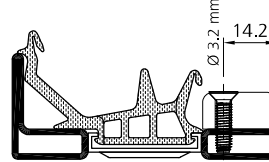
### Schliessstück Gâche Striker



\* 900021 / 900027  
M4 x 8 mm



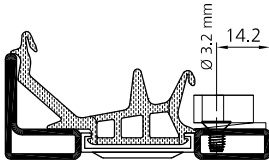
### Kipplager Gâche de basculement Tilt-turn striker



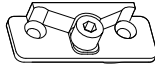
\* 900019 / 900025  
M4 x 16 mm



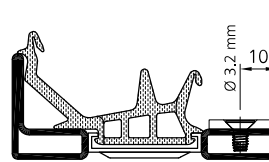
### Niveau-Schaltperre Rahmenteil Anti-fausse manoeuvre partie dormant Lifting mishandling device frame part



\* 900021 / 900027  
M4 x 8 mm



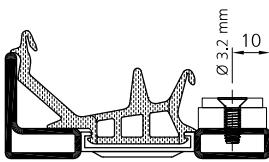
### Ecklager Royal Palier d'angle Royal Corner pivot rest Royal



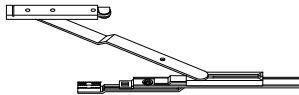
\* 900021 / 900027  
M4 x 8 mm



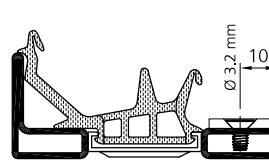
### Zweitschere Deuxième compas Additional scissors-stay



\* 900022 / 900026  
M4 x 12 mm



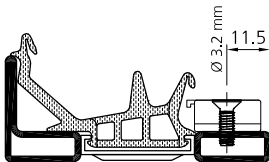
### Axerarm Royal Bras de compas Royal Sash stay arm Royal



\* 900021 / 900027  
M4 x 8 mm



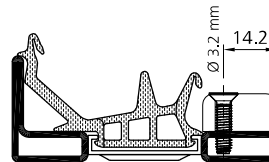
### Schnäpper Blocage à pion Bullet catch



\* 900022 / 900026  
M4 x 12 mm



### Kipplager RC Gâche de basculement CR Tilt-turn striker RC



\* 900019 / 900025  
M4 x 16 mm



\* in der Garnitur enthalten / compris dans la garniture / included in the fittings set

## Beschlagseinbau 1- und 2-flügeliges Fenster Flügel

- Schraube M4 x 18 (selbstfurchend)
- Bohrloch 3.2 mm
- Bei Edelstahlprofil muss das M4 Gewinde geschnitten werden. Alternative: Bohrloch auf 3.5 aufbohren, Schraube ohne M4 Gewindeschnitt einsetzen.

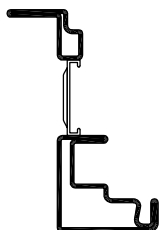
Bei jeder Verschraubung muss ein Distanzstück **927001** eingesetzt werden.

- Vis M4 x 18 (autotaraudeuse)
- Perçage 3.2 mm
- Avec le profilé en acier inox, la vis M4 doit être coupée. Alternative: agrandir le trou à 3.5, taraudage M4 pas nécessaire.

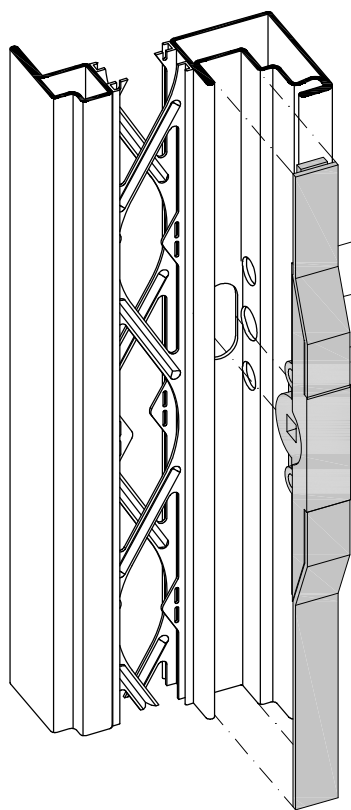
La pièce d'entretoise **927001** doit être insérée sous toutes les fixations et assemblages.

- Screw M4 x 18 (self tapping)
- Drill hole 3.2 mm
- In stainless steel profiles, the M4 thread needs to be cut. Alternative: drill out the drilling hole of 3.5, use screw without M4 thread.

The spacer **927001** must be placed under all screw connections.



## Montage de la quincaillerie Fenêtre à 1 ou 2 vantaux Vantail



**987300**  
**987301**  
**987302**

Senk-Schraube M5 x 40 (Wird mit Griffen **987300**, **987301** und **987302** mitgeliefert).

Vis coniques M5 x 40 (livrées avec les poignées **987300**, **987301** et **987302**).

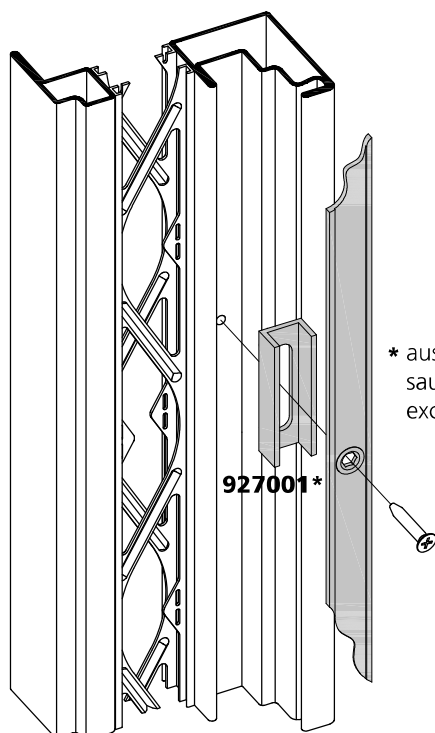
Countersunk screw M5 x 40 (supplied with handles **987300**, **987301** and **987302**).

DK-Getriebe  
Crémone OB  
Espagnolette

Ausnahme für Fenstergetriebe im vertikalen Flügelprofil vorgängig ausführen!

Exécuter préalablement l'usinage pour la crémonne de fenêtre dans le montant du vantail!

Make the cut-out for the drive in the vertical leaf profile first!



\* ausser bei Stulpprofil 521.812 Z  
sauf pour profilé vantail semi-fixe 521.812 Z  
except for double sash profile 521.812 Z

**927001** \*

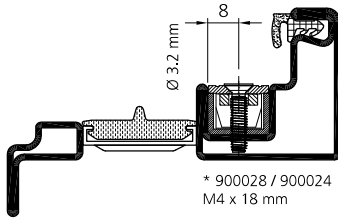
**900024 / 900028**

## Beschlagseinbau 1-flügeliges Fenster Flügel

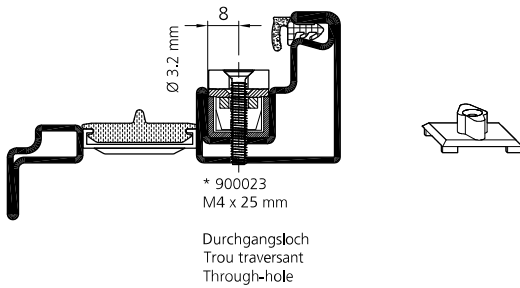
## Montage de la quincaillerie Fenêtre à 1 vantail Vantail

## Installation of the fittings Window 1 leaf Leaf

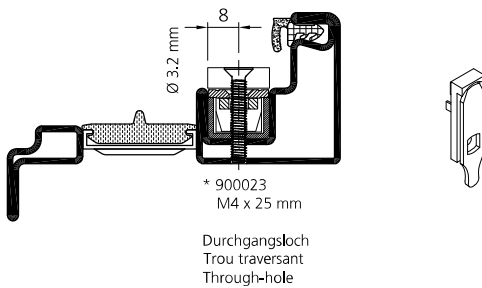
### Beschlagsteile Flügel Quincaillerie vantail Leaf fittings



### Schnäpperzapfen Blocage à pion Bullet catch



### Niveau-Schaltsperrte Flügelteil Anti-fausse manoeuvre partie ouvrant Lifting mishandling device sash component

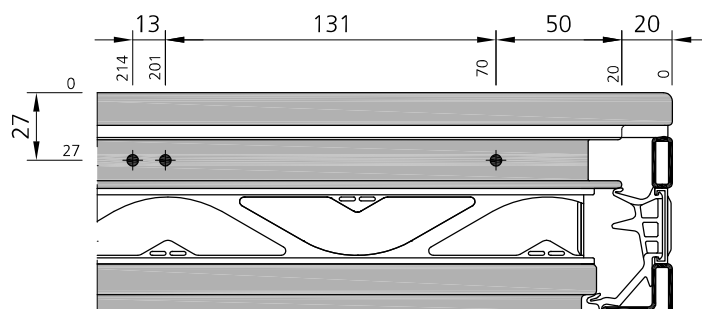
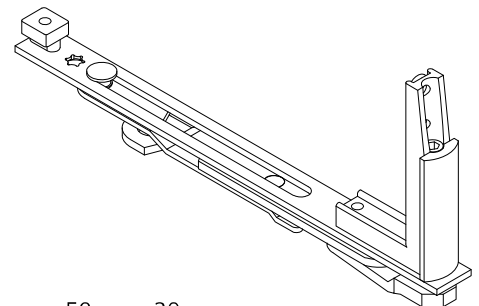
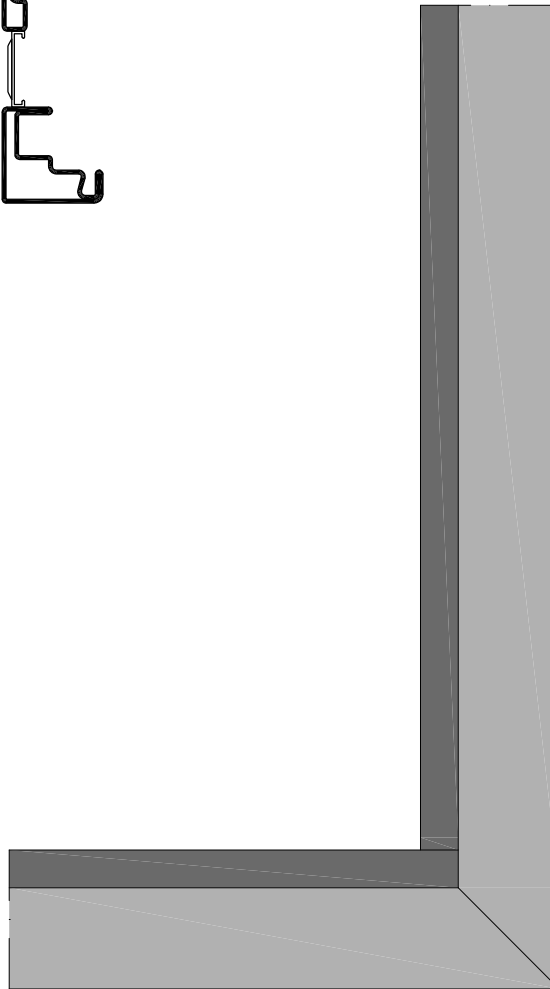
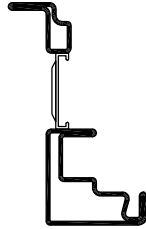
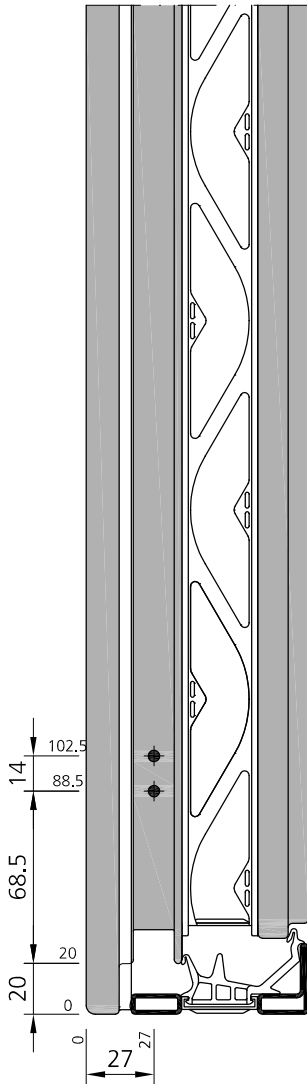


\* in der Garnitur enthalten / compris dans la garniture / included in the fittings set

**Beschlagseinbau  
1- und 2-flügeliges Fenster  
Eckband Royal**

**Montage de la quincaillerie  
Fenêtre à 1 ou 2 vantaux  
Pivot d'angle Royal**

**Installation of the fittings  
Window 1 or 2 leaved  
Corner hinge Royal**



## Beschlagseinbau 1-flügeliges Fenster

Einsatz der Forster Bohrlehren für den Standard Beschlag auf dem 1. öffnenden Flügel (Gez. DIN links, DIN rechts spiegelbildlich)

FFH 520 - 2400 mm

## Montage de la quincaillerie Fenêtre à 1 vantail

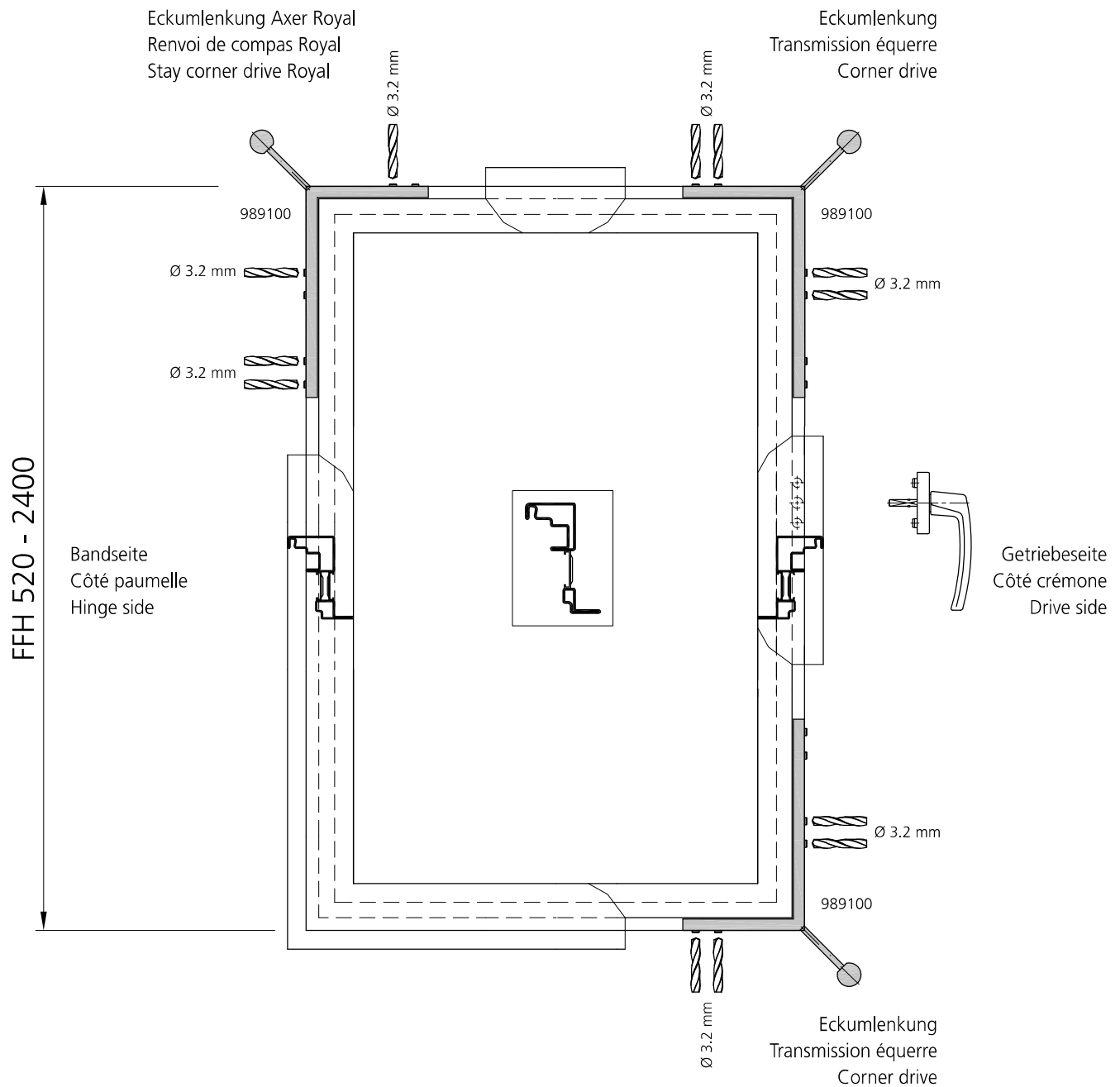
Utilisation des gabarits de perçage Forster pour la quincaillerie standard sur le vantail principal (Dessiné DIN gauche, DIN droite symétrique)

FFH 520 - 2400 mm

## Installation of the fittings Window 1 leaf

Use the Forster drilling template for the standard fittings on 1st active leaf (marking DIN left, DIN right mirror image)

FFH 520 - 2400 mm



## Beschlagseinbau 1-flügeliges Fenster

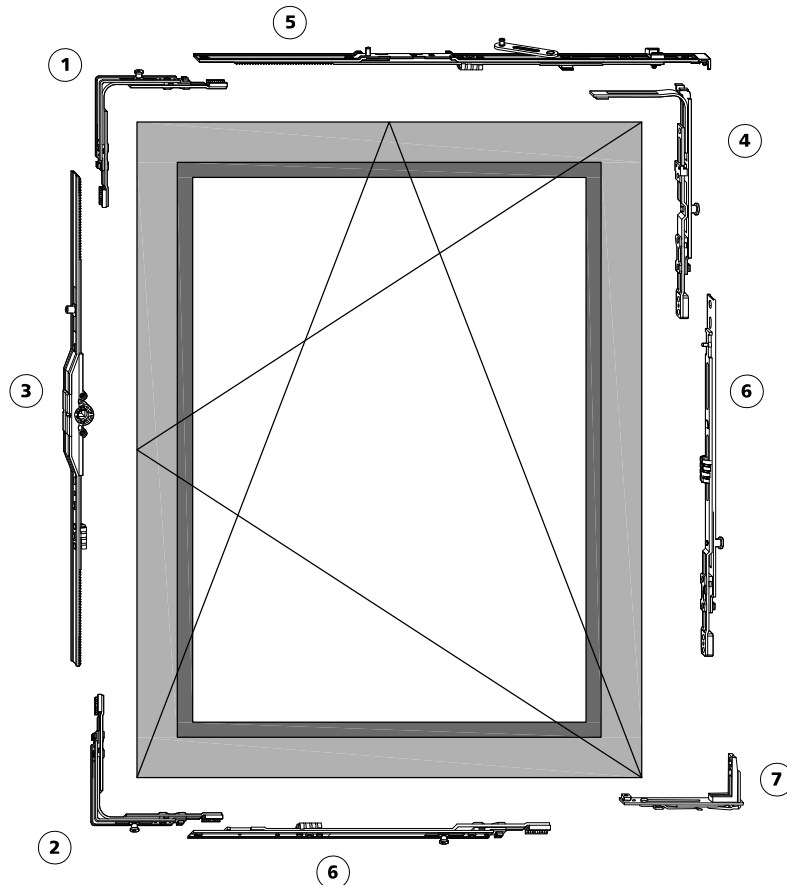
Einbauablauf  
(Vorschlag)

## Montage de la quincaillerie Fenêtre à 1 vantail

Ordre de montage  
(proposition)

## Installation of the fittings Window 1 leaf

Installation process  
(proposal)



- ① Eckumlenkung / Transmission équerre / Corner drive
- ② Eckumlenkung / Transmission équerre / Corner drive
- ③ DK-Getriebe / Cremone OB / Tilt-turn drive
- ④ Eckumlenkung Axer (FFH 1201-2400) / Renvoi d'angle de compas (FFH 1201-2400) / Stay corner drive (FFH 1201-2400)
- ⑤ Axerstulp / Tête de compas / Sash stay guide
- ⑥ Mitterverschluss, senkrecht und waagrecht (FFH 1201-2400 / FFB 1201-1400)  
Extension horizontale et verticale (FFH 1201-2400 / FFB 1201-1400)  
Extension horizontal and vertical (FFH 1201-2400 / FFB 1201-1400)
- ⑦ Eckband / Pivot d'angle / Corner hinge

## Beschlagseinbau 1-flügeliges Fenster

## Montage de la quincaillerie Fenêtre à 1 vantail

## Installation of the fittings Window 1 leaf

Kippweiten für Dreh-/Drehkippflügel

Plage de basculement pour vantail à ouverture à la française/oscillo-battant

Tilt distances for turn/turn-tilt leaves

Kippweite reduziert (80 mm)

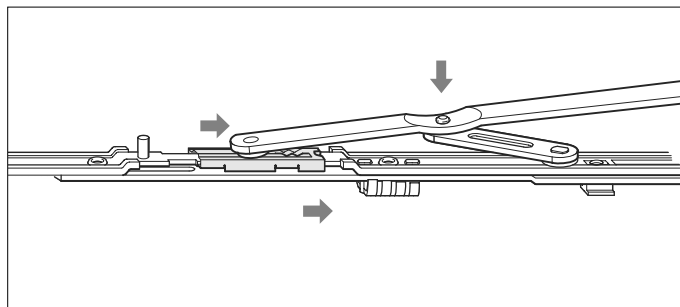
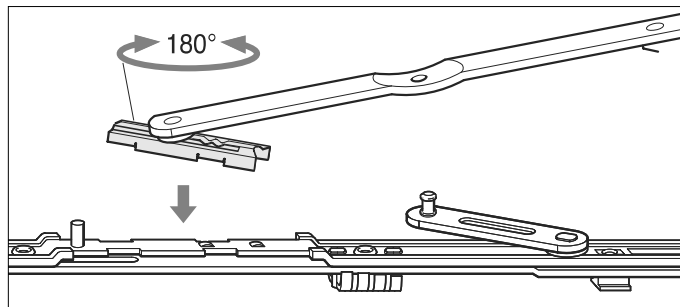
Plage de basculement réduite (80 mm)

Reduced tilt distances (80 mm)

Zwingend für Flügel mit  
FFB: 290 – 410 mm

Obligatoire pour vantail avec  
FFB: 290 – 410 mm

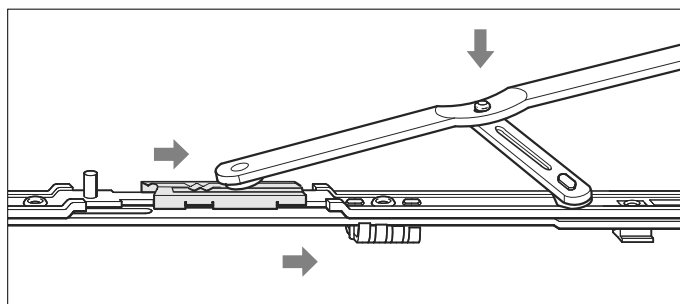
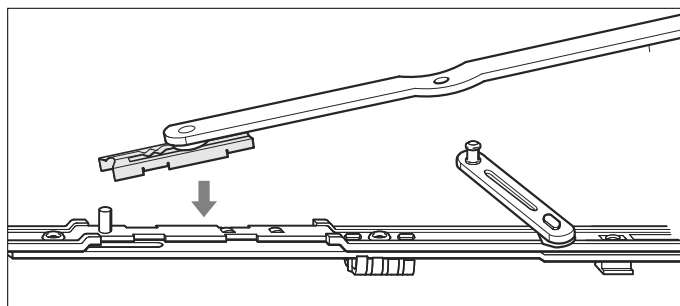
Required for leaves with  
FFB: 290 – 410 mm



Kippweite Standard (140 mm)

Plage de basculement standard (140 mm)

Standard tilt distances (140 mm)



## Beschlagseinbau 1-flügeliges Fenster

Umstellung der Öffnungsart von Drehkipp auf Dreh.

Die Änderung der Funktion von Drehkipp auf Dreh wird mit Hilfe des Hubbegrenzers ausgeführt.

Dieser wird beim Schliesszapfen der unteren Eckumlenkung eingesetzt.

Somit kann auch jederzeit die Funktion von Dreh auf Drehkipp durch Entfernen des Hubbegrenzers zurückgestellt werden.

## Montage de la quincaillerie Fenêtre à 1 vantail

Commutation du type d'ouverture - ouverture oscillo-battante sur ouverture à la française.

La modification de la fonction ouverture oscillo-battant/ouverture à la française est exécutée à l'aide du limiteur de course. Celui-ci est monté dans le tenon de fermeture du renvoi d'angle inférieur.

On peut ainsi modifier à tout moment l'ouverture à la française par l'ouverture oscillo-battant par retrait du limiteur de course.

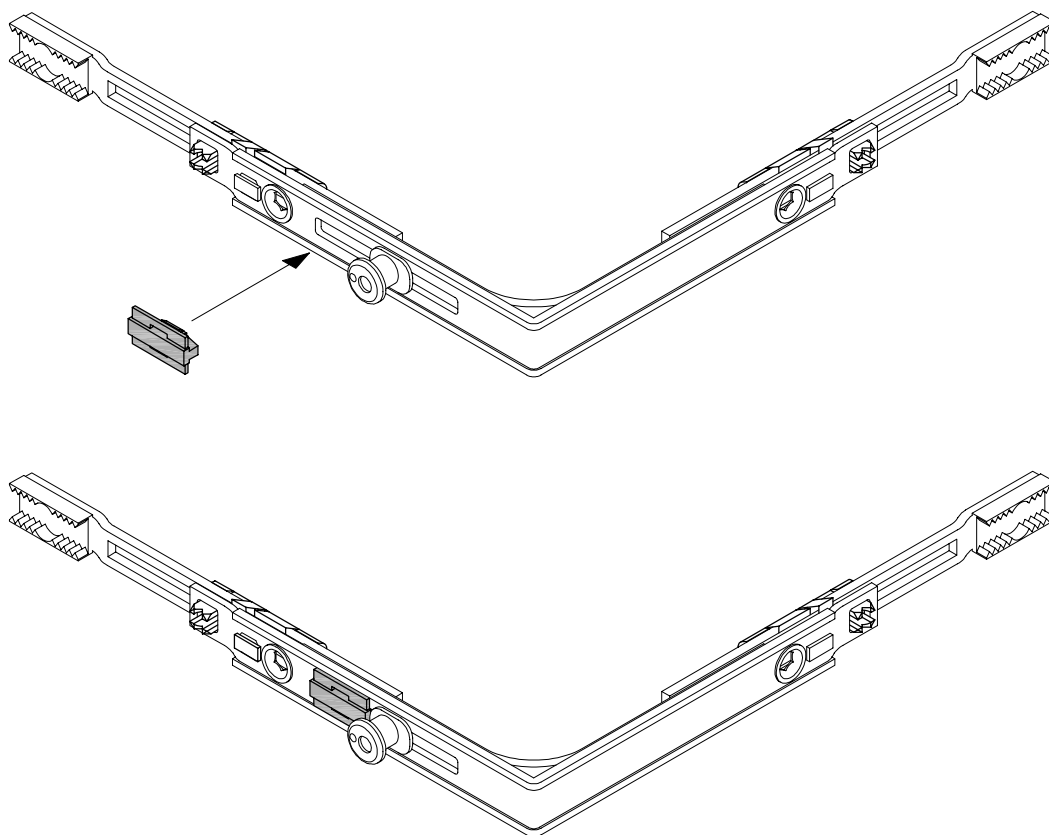
## Installation of the fittings Window 1 leaf

Switching the opening mode from turn-tilt to turn.

Switching the function from turn-tilt to turn is done with the help of the travel restrictor.

It is inserted into the pivot lock in the lower corner guide.

Therefore, the function can be reset from turn to tilt-turn at any time by removing the travel restrictor.

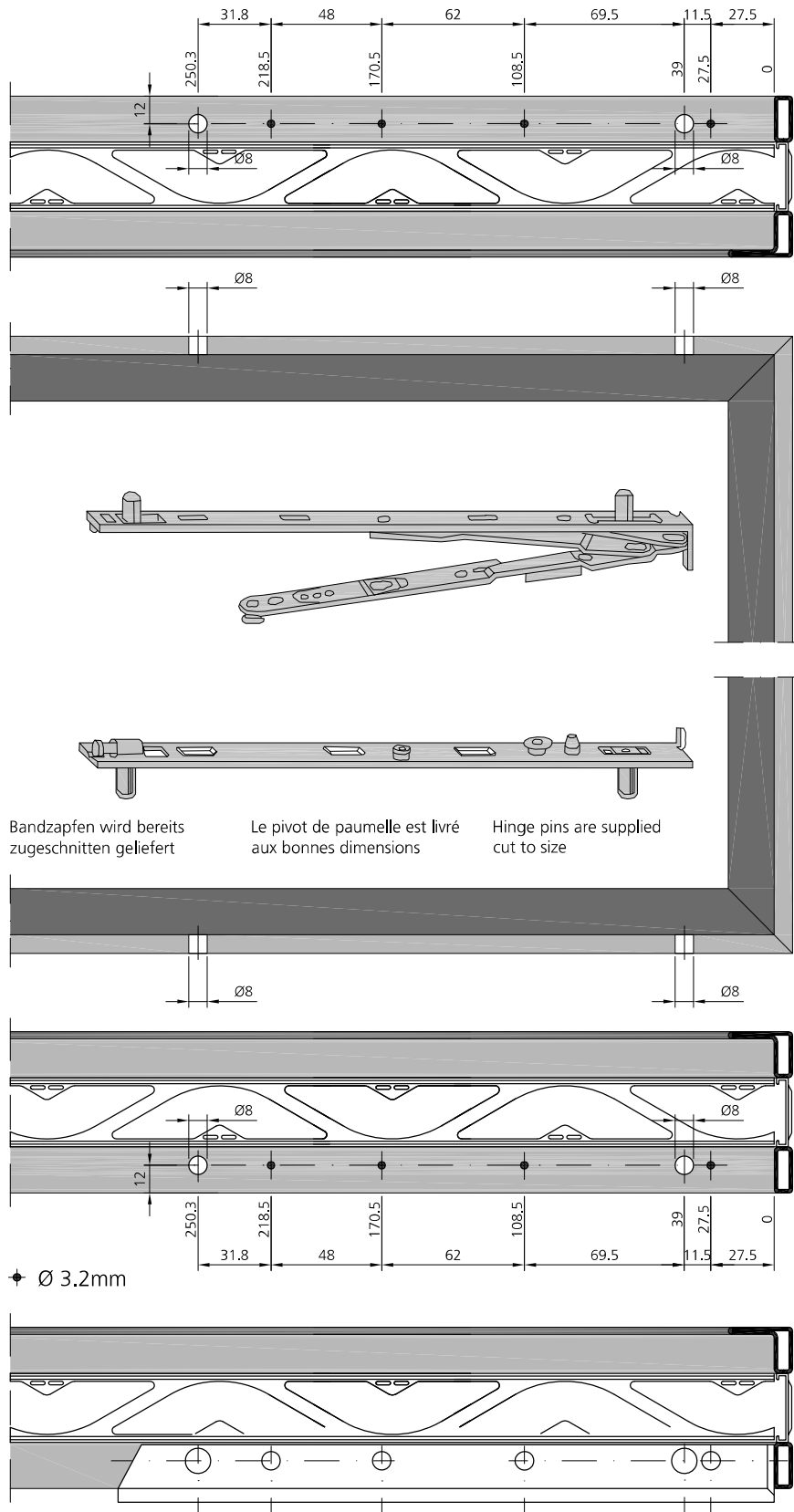




**Beschlagseinbau  
2-flügeliges Fenster**

**Montage de la quincaillerie  
Fenêtre à 2 vantaux**

**Installation of the fittings  
Double sash window**



Bandzapfen wird bereits  
zugeschnitten geliefert

Le pivot de paumelle est livré  
aux bonnes dimensions

Hinge pins are supplied  
cut to size

Ø 3.2mm

Bohrlehre  
Art. Nr. 909154

Gabarit de perçage  
art. no. 909154

Drilling template  
art. no. 909154

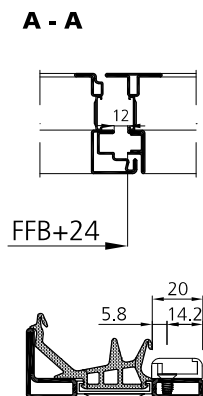
### Beschlagseinbau 2-flügeliges Fenster

#### Anordnung der Schliessstücke

1. öffnender Flügel bei 2 flg. Fenster in Abhängigkeit der Flügelalz-Breite

#### Anordnung Schliessstücke

1. öffnender Flügel  
FFB 360 – 1200 [mm]



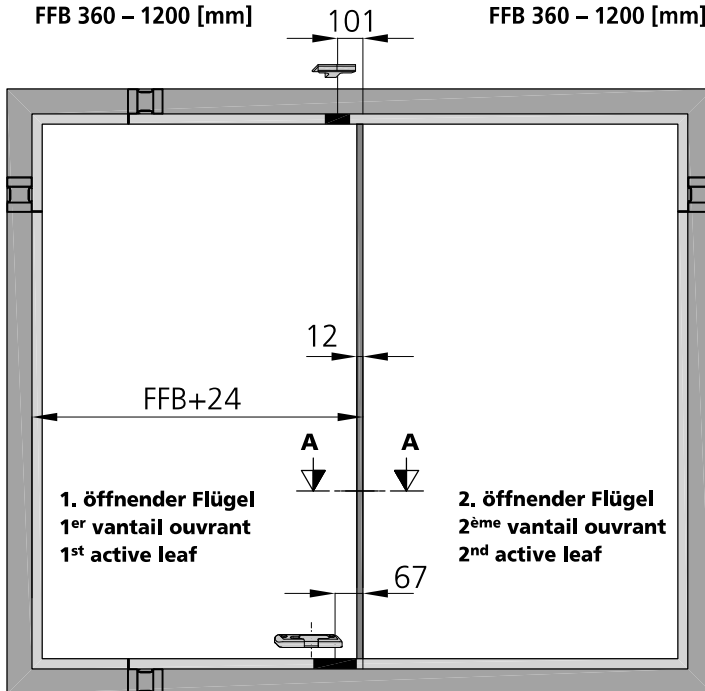
### Montage de la quincaillerie Fenêtre à 2 vantaux

#### Disposition des gâches

1er vantail ouvrant sur fenêtre à 2 vantaux selon la largeur de feuillure du vantail

#### Disposition des gâches

1er vantail ouvrant  
FFB 360 – 1200 [mm]



### Installation of the fittings Double sash window

#### Arrangement of the strikers

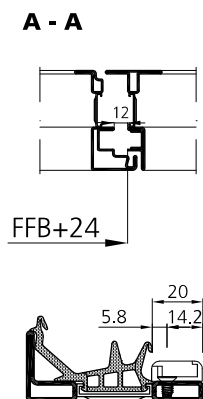
1st active leaf on 2 leaved windows is dependent on the width of the leaf rebate

#### Arrangement of the strikers

1st active leaf  
FFB 360 – 1200 [mm]

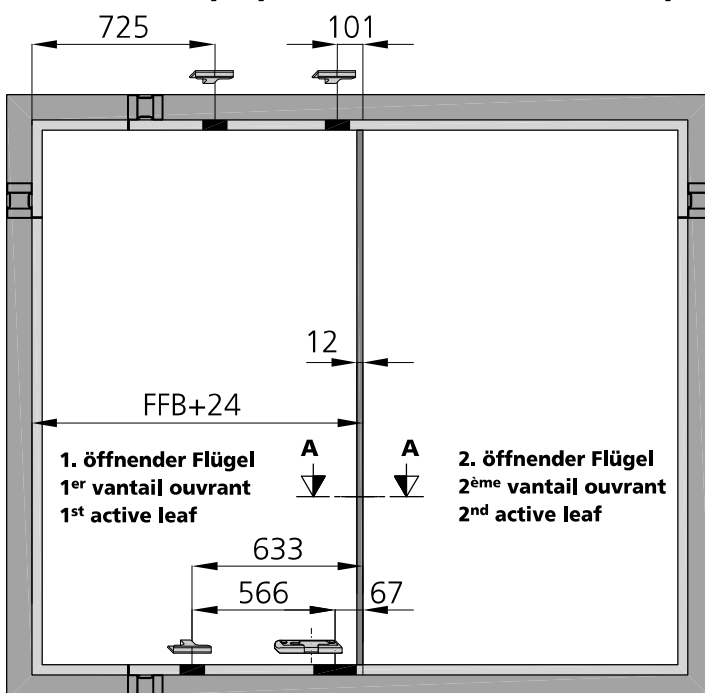
#### Anordnung Schliessstücke

1. öffnender Flügel  
FFB 1201 – 1400 [mm]



#### Disposition des gâches

1er vantail ouvrant  
FFB 1201 – 1400 [mm]



#### Arrangement of the strikers

1st active leaf  
FFB 1201 – 1400 [mm]

## Beschlagseinbau 2-flügeliges Fenster

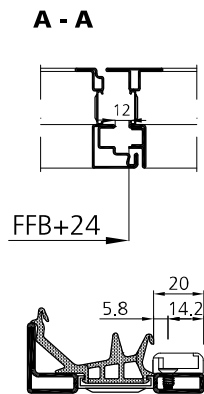
### Anordnung der Schliessstücke

2. öffnender Flügel bei 2 flg. Fenster in  
Abhängigkeit der Stulpfalz-Breite

Anordnung Schliessstücke

1. öffnender Flügel

SFB 360 – 1200 [mm]



## Montage de la quincaillerie Fenêtre à 2 vantaux

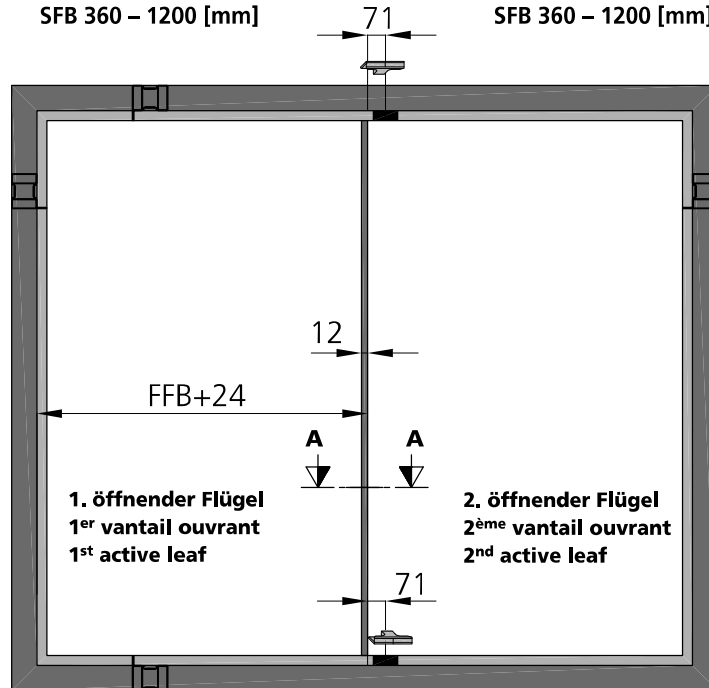
### Disposition des gâches

2ème vantail ouvrant sur fenêtre à 2 vantaux  
selon la largeur de feuillure du vantail semi-  
fixe

Disposition des gâches

1er vantail ouvrant

SFB 360 – 1200 [mm]



## Installation of the fittings Double sash window

### Arrangement of the strikers

2nd active leaves on 2 leaved windows is de-  
pendant on the width of the double sash rebate

Arrangement of the strikers

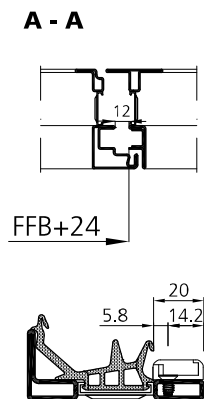
1st active leaf

SFB 360 – 1200 [mm]

Anordnung Schliessstücke

2. öffnender Flügel

SFB 1201 – 1400 [mm]



Disposition des gâches

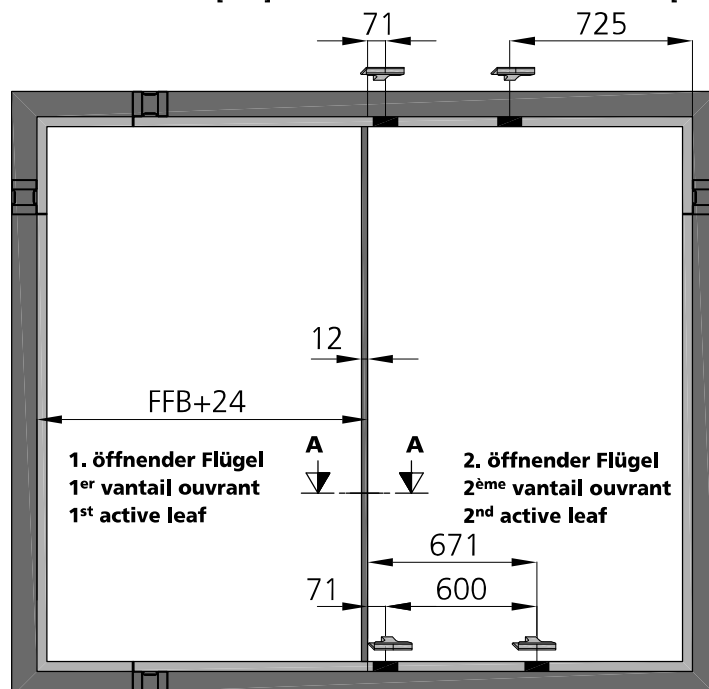
2e vantail ouvrant

SFB 1201 – 1400 [mm]

Arrangement of the strikers

2nd active leaf

SFB 1201 – 1400 [mm]



## Beschlagseinbau 2-flügeliges Fenster

### Anordnung Schnäpper

2. öffnender Flügel bei 2 flg. Fenster in  
Abhängigkeit der Stulpfalzhöhe

SFH 520 - 750 [mm]

## Montage de la quincaillerie Fenêtre à 2 vantaux

### Disposition de blocage à pion

2ème vantail ouvrant sur fenêtre à 2 van-  
taux selon la hauteur de feuillure du vantail  
semi-fixe

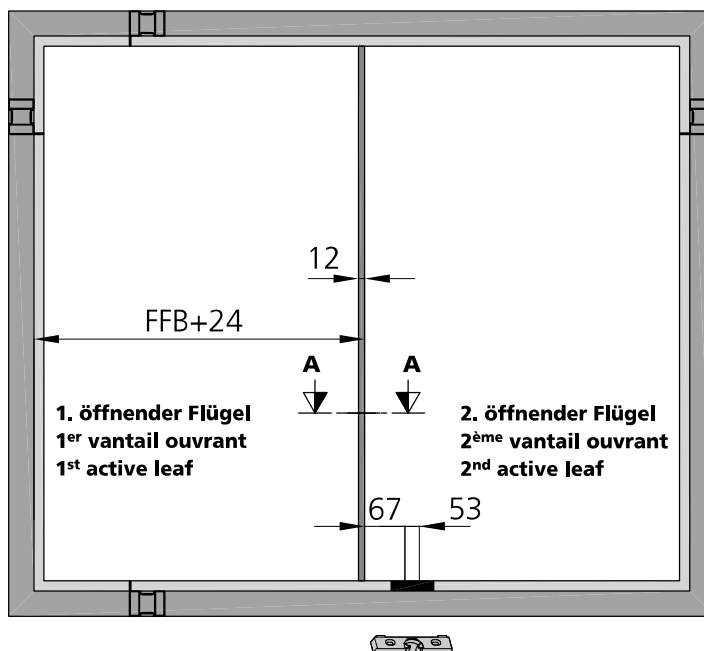
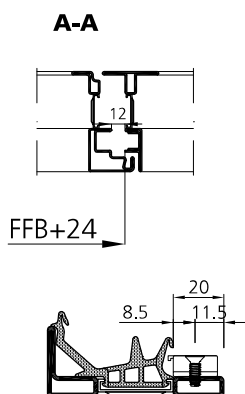
SFH 520 - 750 [mm]

## Installation of the fittings Double sash window

### Arrangement of the bullet catch

2nd active leaf on 2 leaved windows is  
dependant on the height of the double  
sash rebate

SFH 520 - 750 [mm]



## Beschlagseinbau 2-flügeliges Fenster

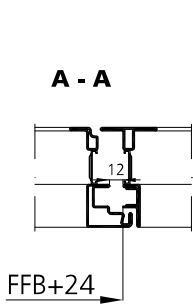
### Anordnung der Schliessstücke

bandseitig 2-flg. in Abhängigkeit der  
Flügelalz-Höhe

Anordnung Schliessstücke

FFH 520 – 1200 [mm]

SFH 751 – 1200 [mm]



## Montage de la quincaillerie Fenêtre à 2 vantaux

### Disposition des gâches

Côté paumelle 2 vantaux selon la hauteur  
de la feuillure du vantail

Disposition des gâches

FFH 520 – 1200 [mm]

SFH 751 – 1200 [mm]

## Installation of the fittings Double sash window

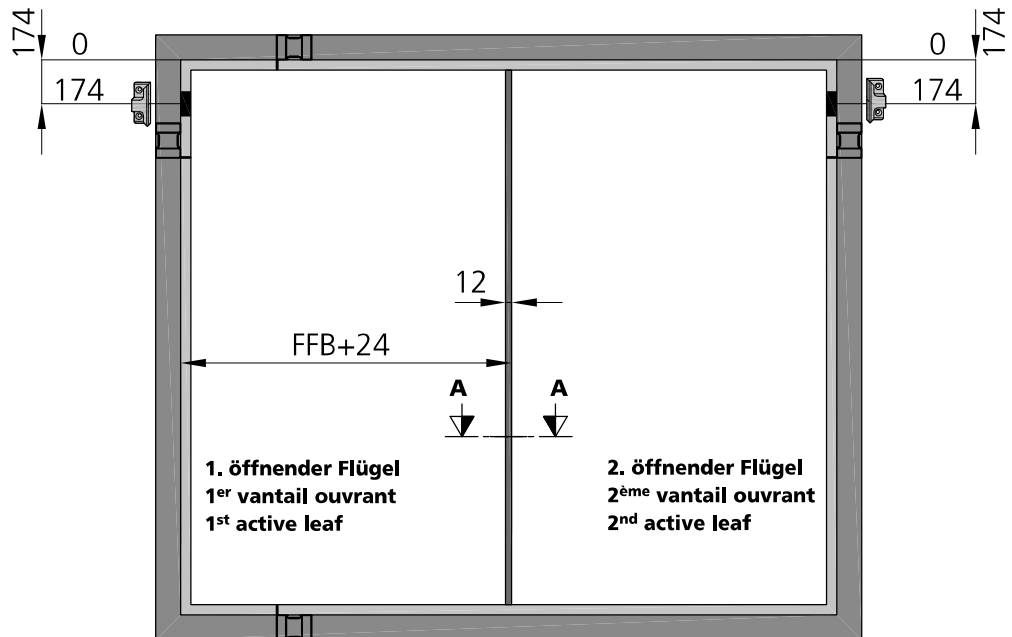
### Arrangement of the strikers

Hinge side, 2 leaved is dependant on the  
height of the leaf rebate

Arrangement of the strikers

FFH 520 – 1200 [mm]

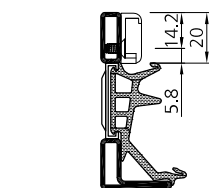
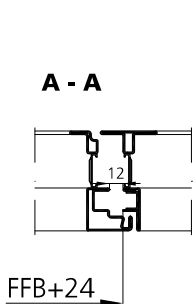
SFH 751 – 1200 [mm]



Anordnung Schliessstücke

FFH 1201 – 1600 [mm]

SFH 1201 – 1600 [mm]



Disposition des gâches

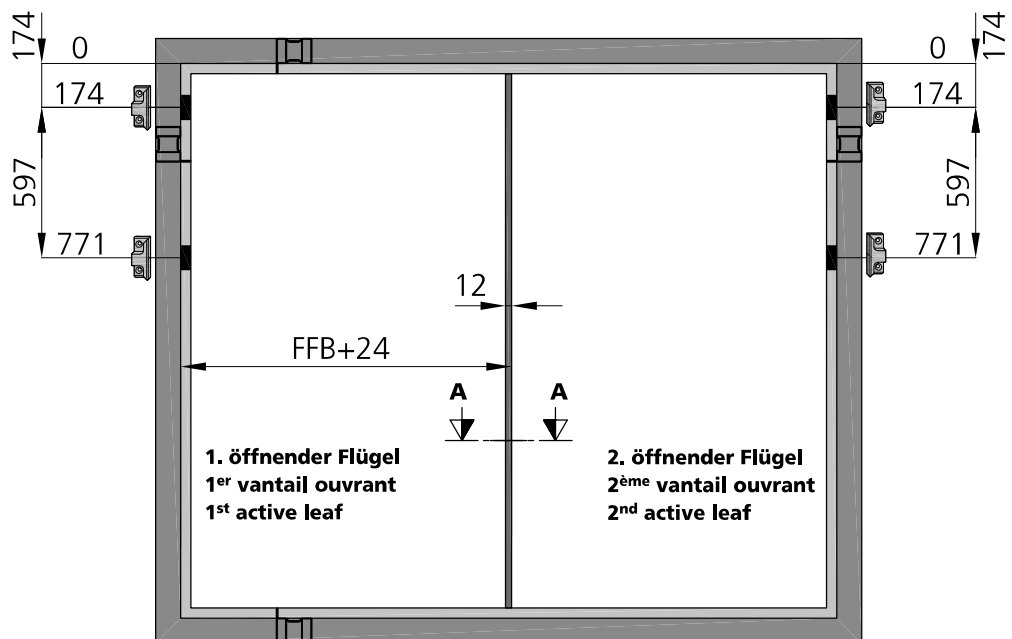
FFH 1201 – 1600 [mm]

SFH 1201 – 1600 [mm]

Arrangement of the strikers

FFH 1201 – 1600 [mm]

SFH 1201 – 1600 [mm]



Schliessstücke auf Getriebeseite sind fix auf  
Stulpgetriebe montiert

Les gâches du côté crémonne sont montées  
de façon fixe sur la crémonne

Strikers on the drive side are firmly moun-  
ted on the face plate drive

### Beschlagseinbau 2-flügeliges Fenster

### Montage de la quincaillerie Fenêtre à 2 vantaux

### Installation of the fittings Double sash window

#### Anordnung der Schliessstücke

bandseitig 2-flg. in Abhängigkeit der Flügelalz-Höhe

#### Disposition des gâches

Côté paumelle 2 vantaux selon la hauteur de la feuillure du vantail

#### Arrangement of the strikers

hinge side 2 leaved is dependant on the height of the leaf rebate

Anordnung Schliessstücke

FFH 1601 – 2000 [mm]

SFH 1601 – 2000 [mm]

Disposition des gâches

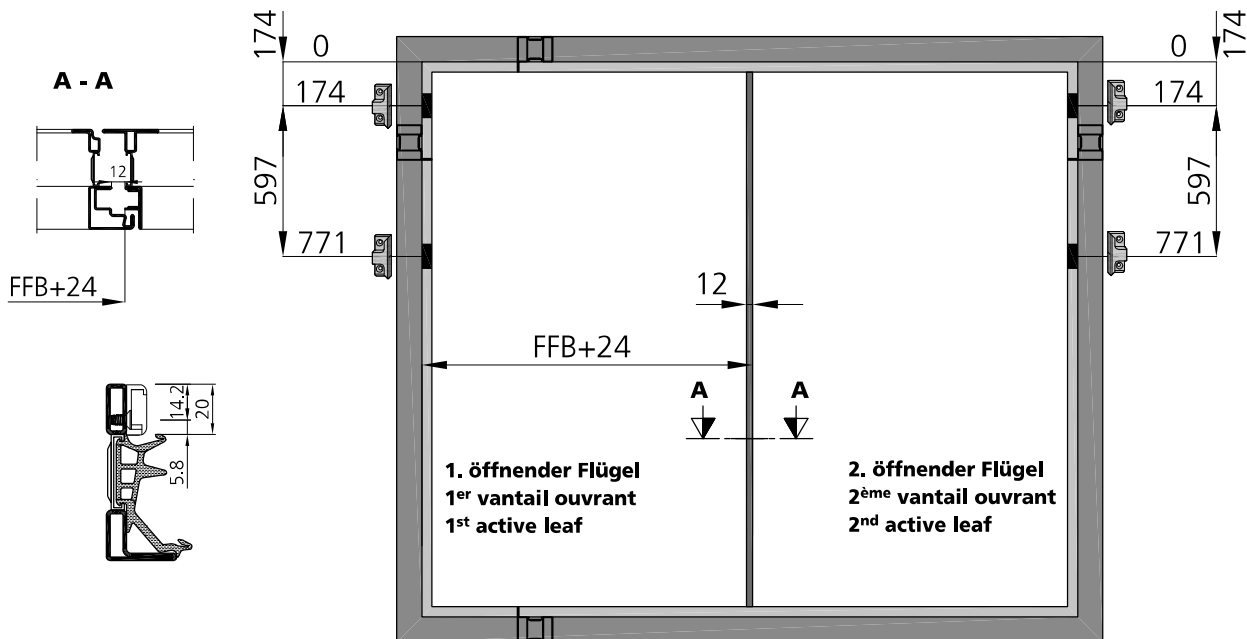
FFH 1601 – 2000 [mm]

SFH 1601 – 2000 [mm]

Arrangement of the strikers

FFH 1601 – 2000 [mm]

SFH 1601 – 2000 [mm]



Anordnung Schliessstücke

FFH 2001 – 2400 [mm]

SFH 2001 – 2400 [mm]

Disposition des gâches

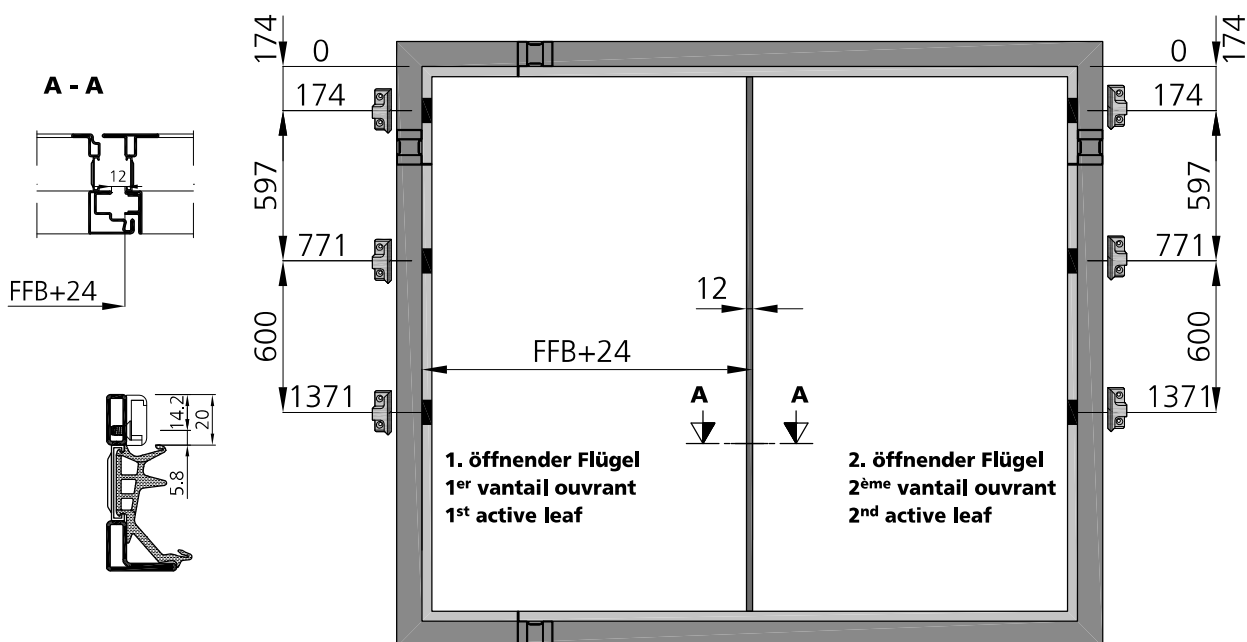
FFH 2001 – 2400 [mm]

SFH 2001 – 2400 [mm]

Arrangement of the strikers

FFH 2001 – 2400 [mm]

SFH 2001 – 2400 [mm]



Schliessstücke auf Getriebeseite sind fix auf Stulpgetriebe montiert

Les gâches du côté crémonne sont montées de façon fixe sur la crémonne

Strikers on the drive side are firmly mounted on the face plate drive

**Beschlagseinbau  
2-flügeliges Fenster**

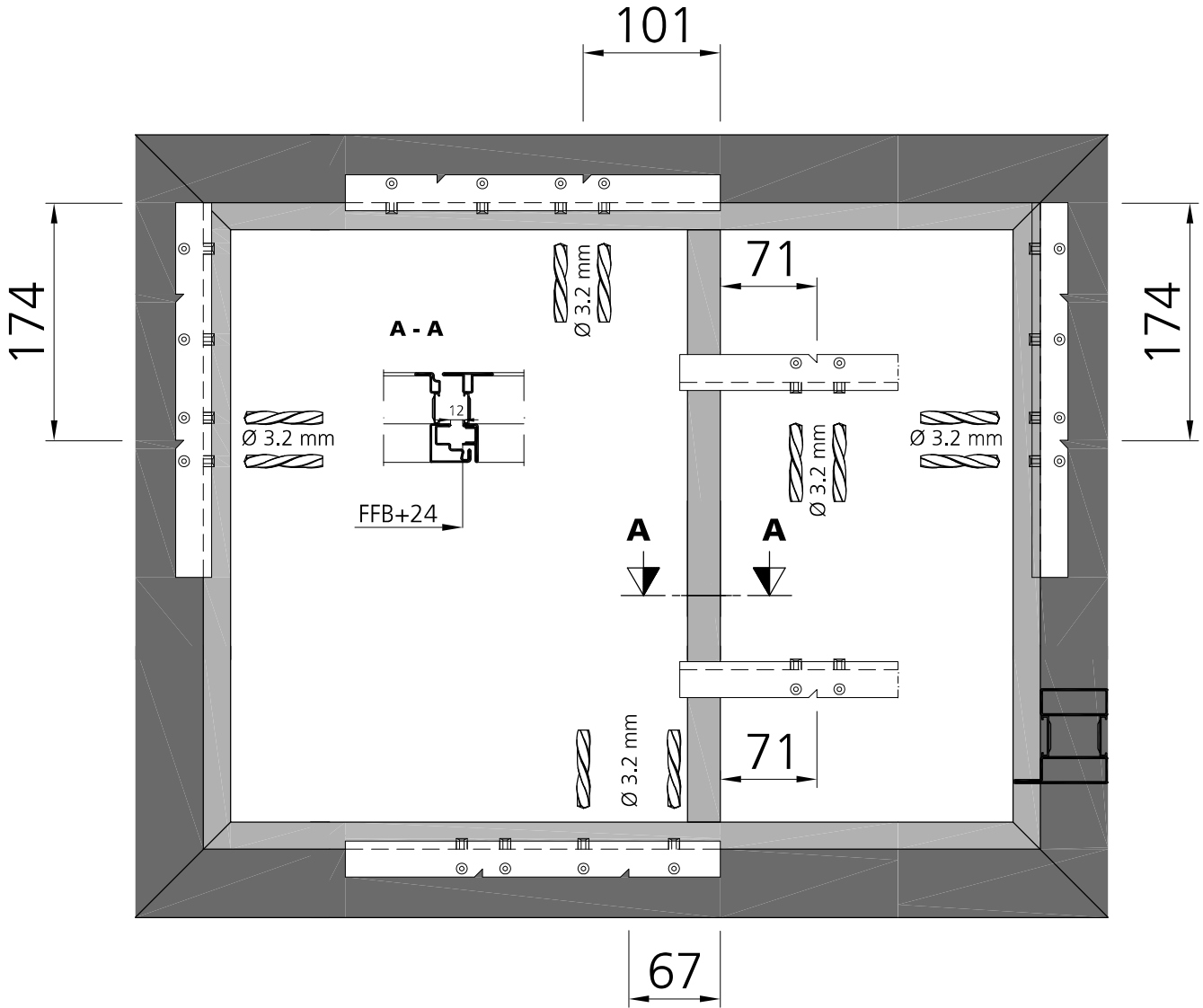
**Montage de la quincaillerie  
Fenêtre à 2 vantaux**

**Installation of the fittings  
Double sash window**

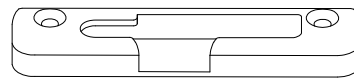
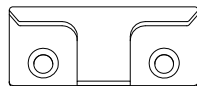
Bohrlehre **Art. Nr. 989104**

Gabarit de perçage **art. no. 989104**

Drilling template **art. no. 989104**



Schliessstücke  
Gâches  
Strikers



Kipplager  
Gâche de basculement  
Tilt-turn striker



Markierung Zentrum Schliessstück  
Marque centre gâche  
Marking on the center of the striker

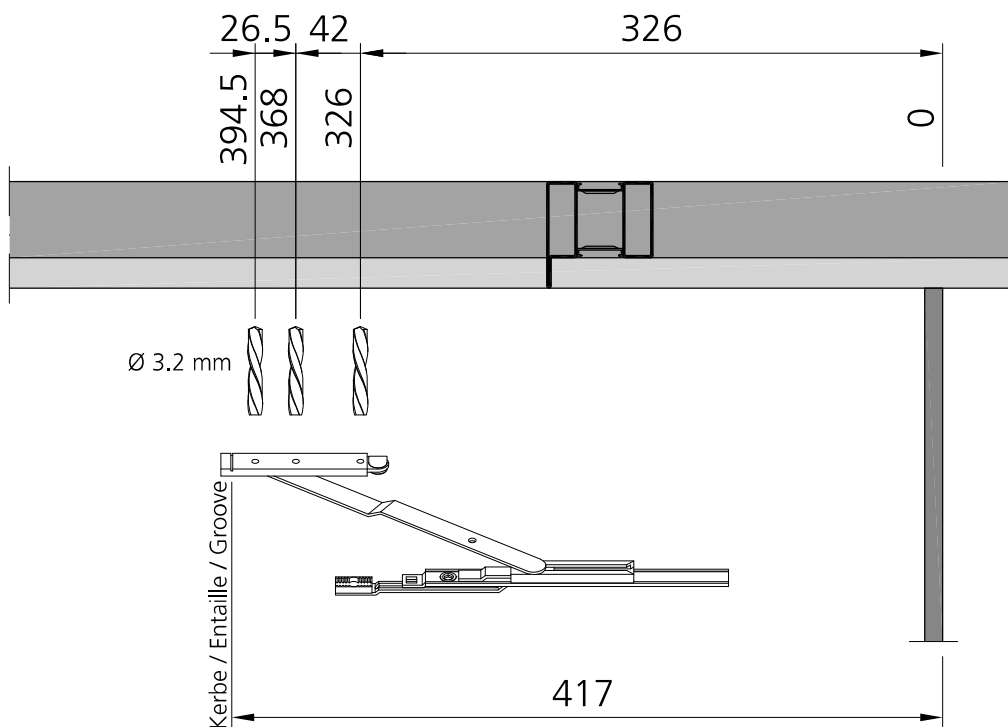
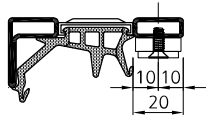
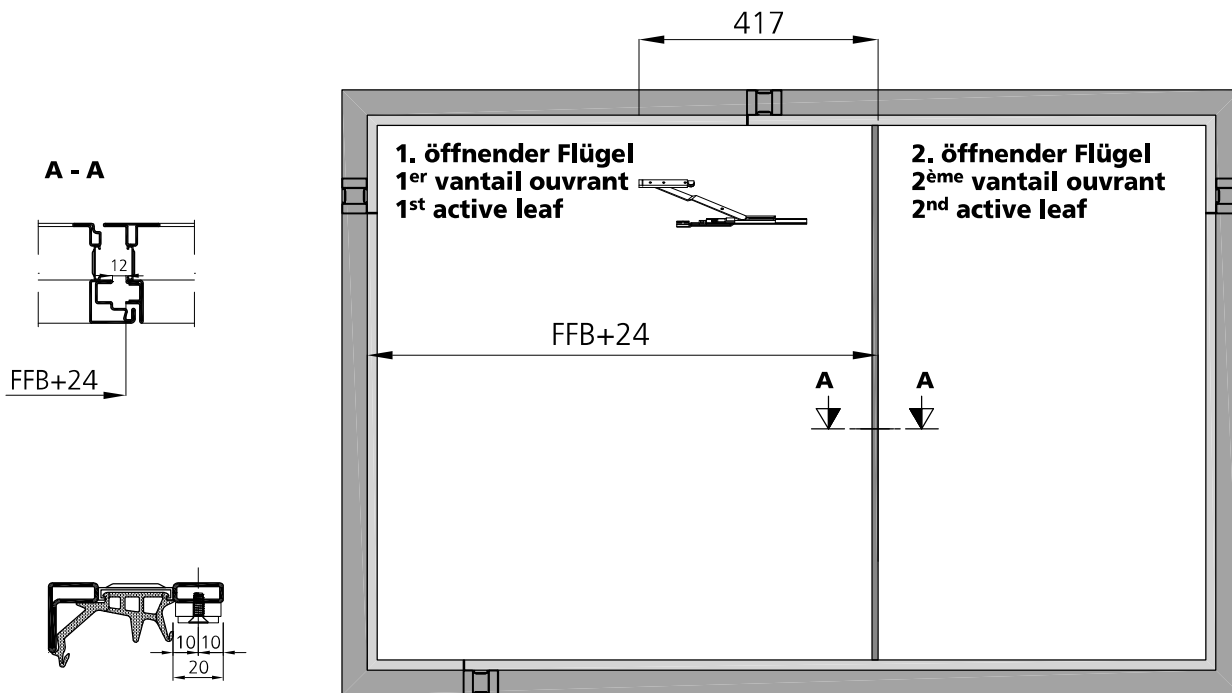
Markierung Zentrum Kipplager  
Marque centre gâche de basculement  
Marking on the center of the tilt-turn striker

**Beschlagseinbau  
2-flügeliges Fenster  
Zweitschere**

**Montage de la quincaillerie  
Fenêtre à 2 vantaux  
Deuxième compas**

**Installation of the fittings  
Double sash window  
Additional scissors-stay**

FFB 1201 – 1400 [mm]



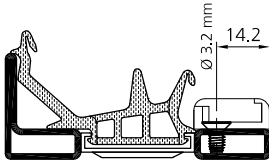


## Beschlagseinbau 2-flügeliges Fenster Rahmen

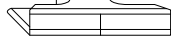
## Montage de la quincaillerie Fenêtre à 2 vantaux Cadre

## Installation of the fittings Double sash window Frame

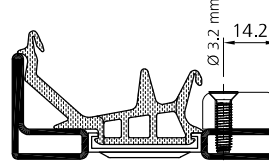
### Schliessstück Gâche Striker



\* 900021 / 900027  
M4 x 8 mm



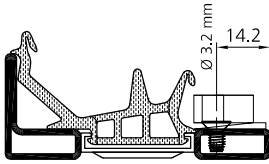
### Kipplager Gâche de basculement Tilt-turn striker



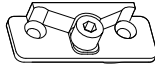
\* 900019 / 900025  
M4 x 16 mm



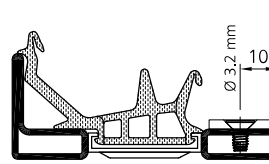
### Niveau-Schaltperre Rahmenteil Anti-fausse manoeuvre partie dormant Lifting mishandling device frame part



\* 900021 / 900027  
M4 x 8 mm



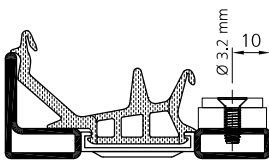
### Ecklager Royal Palier d'angle Royal Corner pivot rest Royal



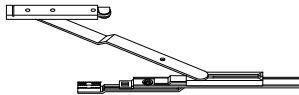
\* 900021 / 900027  
M4 x 8 mm



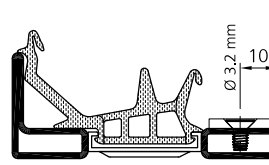
### Zweitschere Deuxième compas Additional scissors-stay



\* 900022 / 900026  
M4 x 12 mm



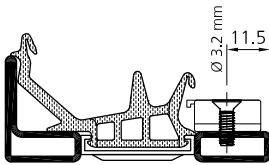
### Axerarm Royal Bras de compas Royal Sash stay arm Royal



\* 900021 / 900027  
M4 x 8 mm



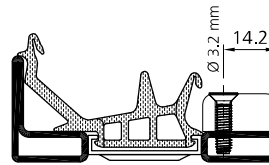
### Schnäpper Blocage à pion Bullet catch



\* 900022 / 900026  
M4 x 12 mm



### Kipplager RC Gâche de basculement CR Tilt-turn striker RC



\* 900019 / 900025  
M4 x 16 mm



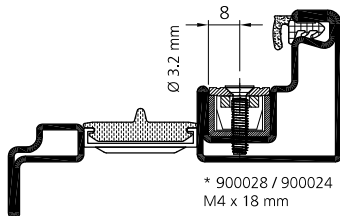
\* in der Garnitur enthalten / compris dans la garniture / included in the fittings set

**Beschlagseinbau  
2-flügeliges Fenster  
Flügel**

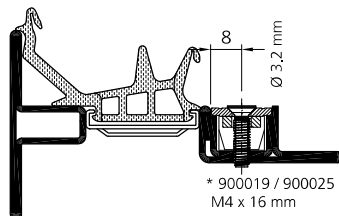
**Montage de la quincaillerie  
Fenêtre à 2 vantaux  
Vantail**

**Installation of the fittings  
Double sash window  
Leaf**

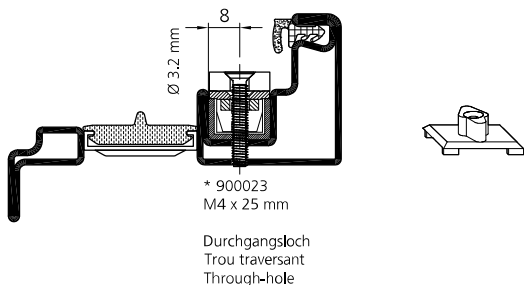
**Beschlagsteile Flügel  
Quincaillerie vantail  
Leaf fittings**



**Beschlagsteile Stulp  
Quincaillerie vantail semi-fixe  
Sash leaf fittings**



**Schnäpperzapfen  
Blocage à pion  
Bullet catch**

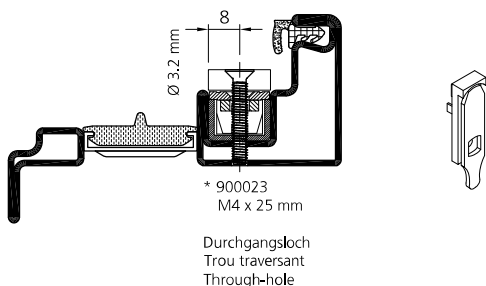


Durchgangsloch  
Trou traversant  
Through-hole

927001 nicht notwendig  
927001 non nécessaire  
927001 not required

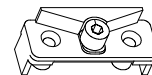
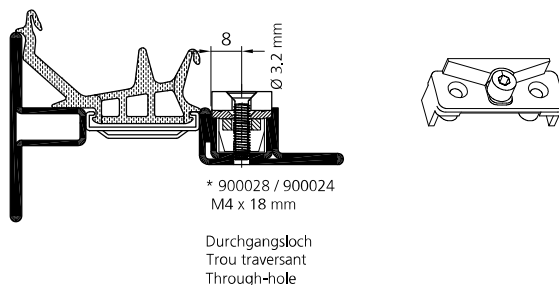
Schliesstück auf Stulpgetriebe  
Gâche sur crémonne pour vantail semi-fixe  
Striker on double sash drive  
900023 M4 x 25 mm

**Niveau-Schaltsperr  
Anti-fausse manoeuvre partie ouvrant  
Lifting mishandling device sash component**



Durchgangsloch  
Trou traversant  
Through-hole

**Niveau-Schaltsperr Stulp  
Anti-fausse manoeuvre vantail semi-fixe  
Lifting mishandling device sash leaf fittings**



Durchgangsloch  
Trou traversant  
Through-hole

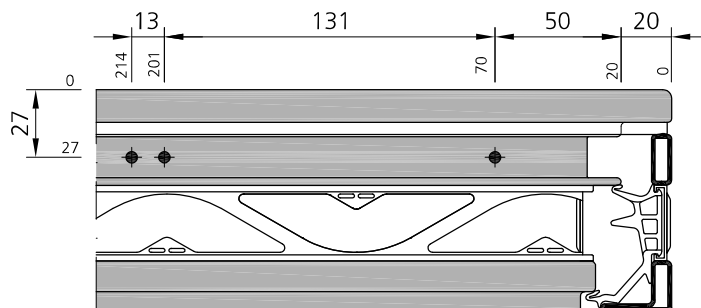
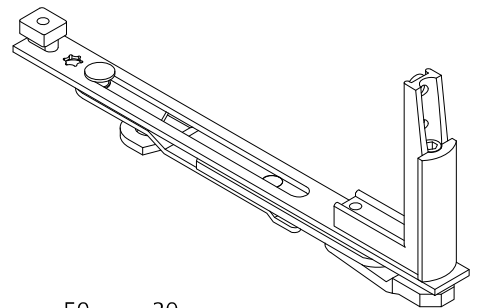
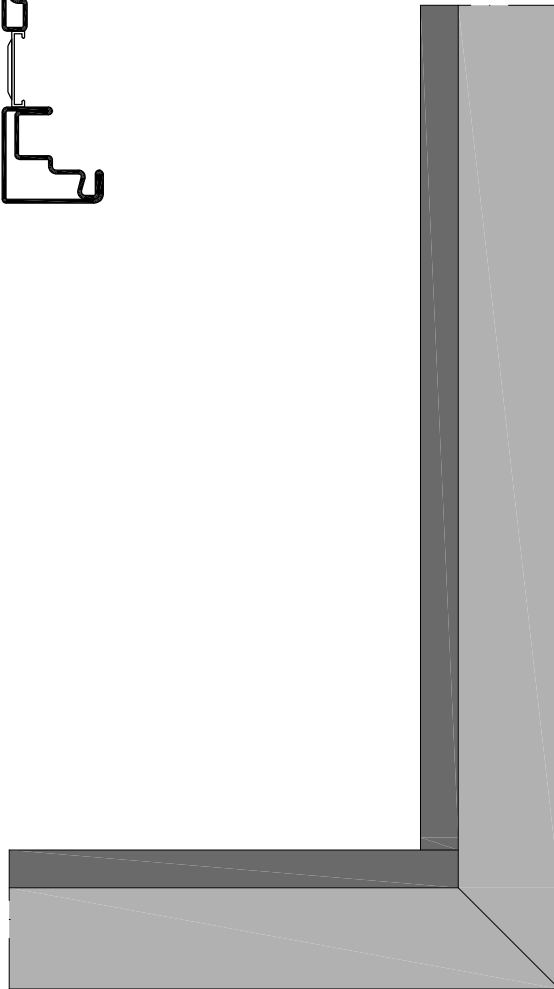
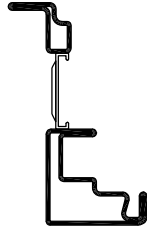
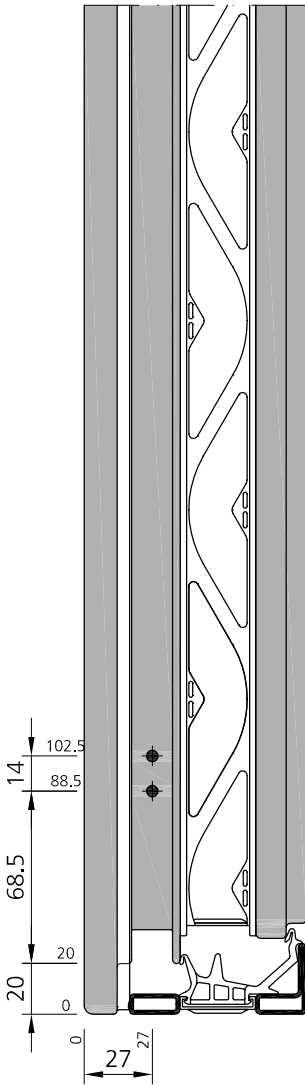
927001 nicht notwendig  
927001 non nécessaire  
927001 not required

\* in der Garnitur enthalten / comprises dans la garniture / included in the fittings set

**Beschlagseinbau  
1- und 2-flügeliges Fenster  
Eckband Royal**

**Montage de la quincaillerie  
Fenêtre à 1 ou 2 vantaux  
Pivot d'angle Royal**

**Installation of the fittings  
Window 1 or 2 leaved  
Corner hinge Royal**



### Beschlagseinbau 2-flügeliges Fenster

Einsatz der Forster Bohrlehren für den Standard Beschlag auf dem 2. öffnenden Flügel (Gez. Bandseite rechts, Bandseite links spiegelbildlich)

SFH 751 - 2400

### Montage de la quincaillerie Fenêtre à 2 vantaux

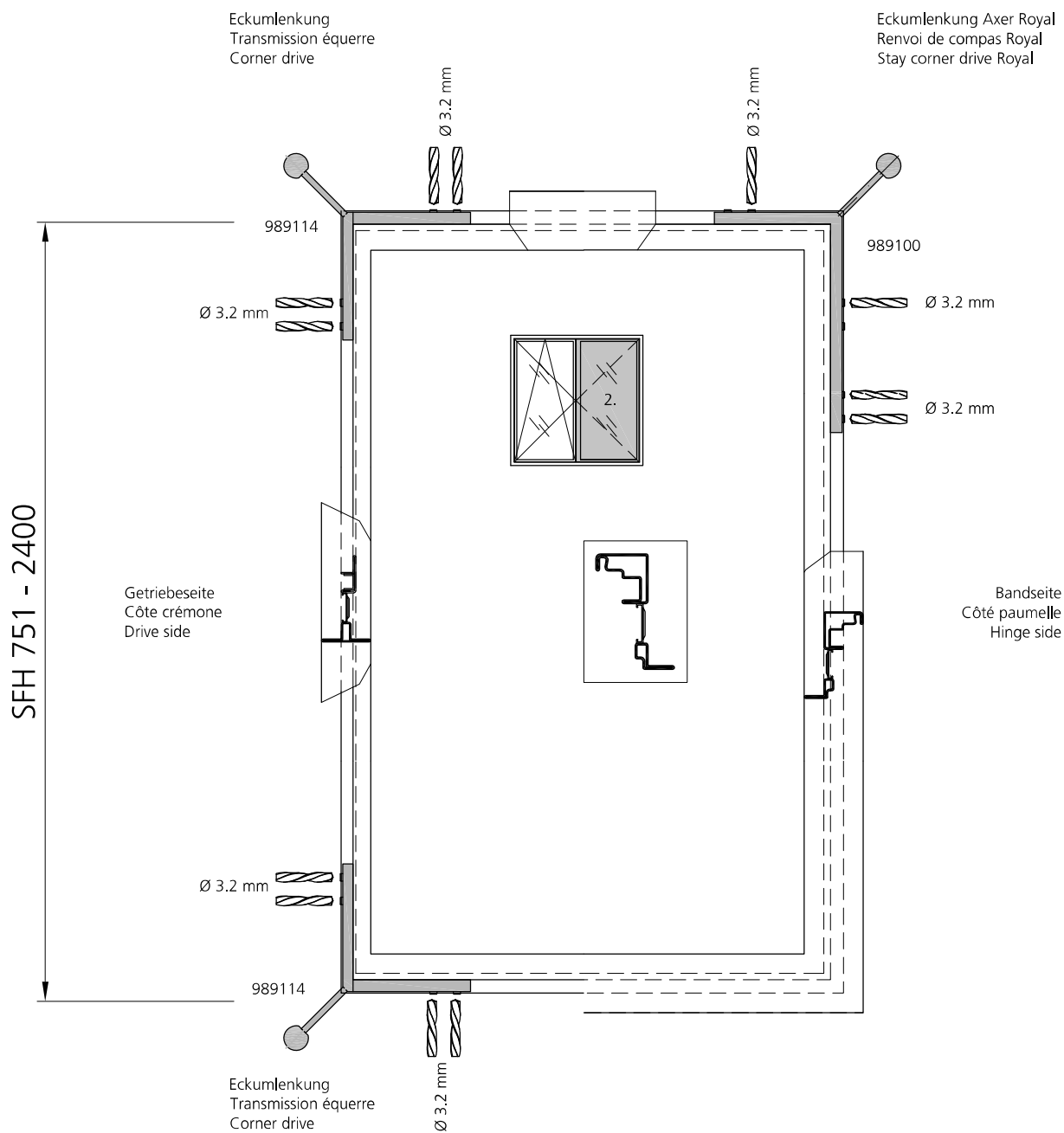
Utilisation des gabarits de perçage Forster pour la quincaillerie standard sur le vantail semi-fixe (dessiné côté paumelle à droite, côté paumelle à gauche symétrique)

SFH 751 - 2400

### Installation of the fittings Double sash window

Use the Forster drilling templates for standard fittings on the 2nd active leaf (marking hinge side right, hinge side left mirror image)

SFH 751 - 2400



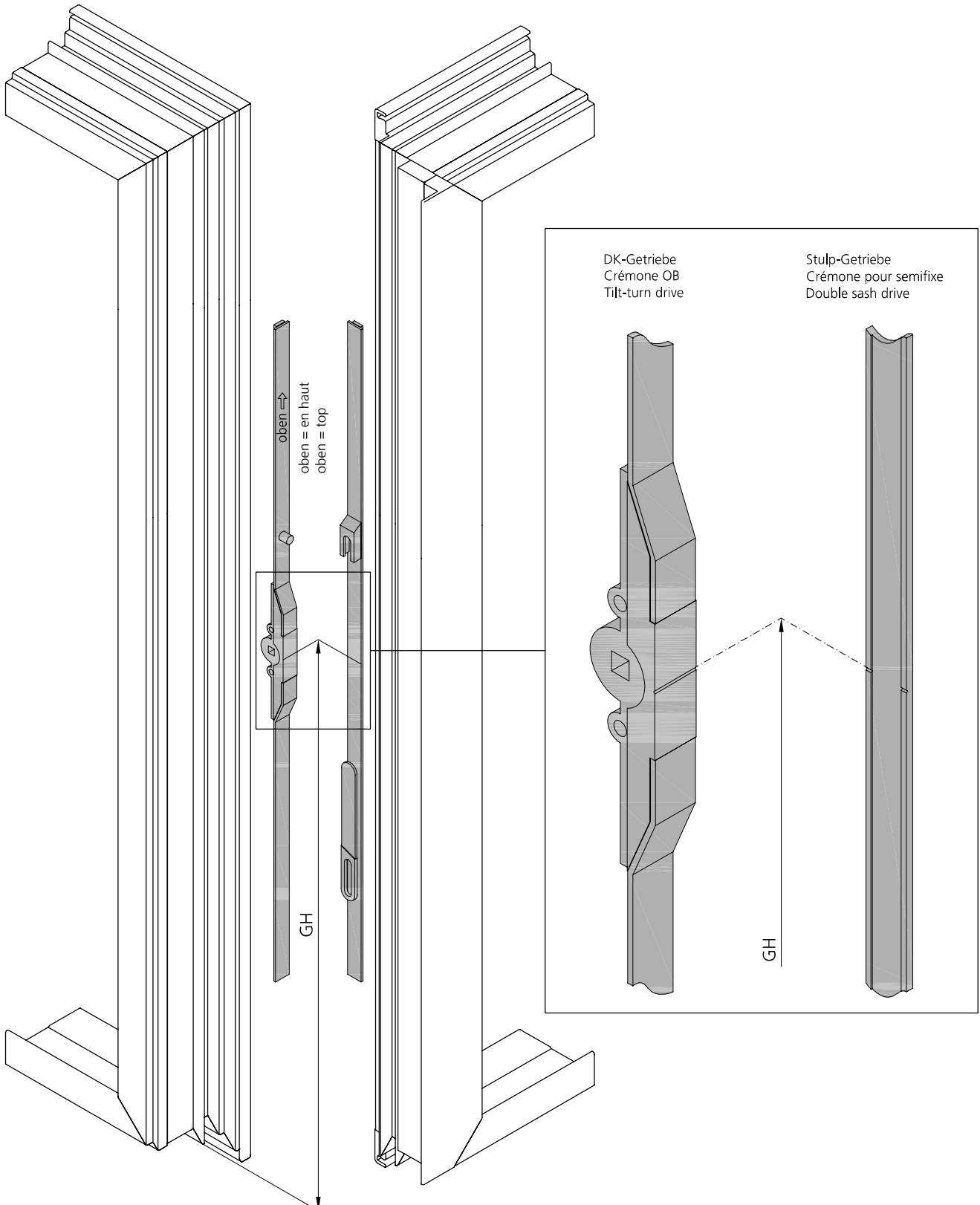
**Beschlagseinbau  
2-flügeliges Fenster**

**Montage de la quincaillerie  
Fenêtre à 2 vantaux**

**Installation of the fittings  
Double sash window**

**1. öffnender Flügel  
1<sup>er</sup> vantail ouvrant  
1<sup>st</sup> active leaf**

**2. öffnender Flügel  
2<sup>ème</sup> vantail ouvrant  
2<sup>nd</sup> active leaf**



## Beschlagseinbau 2-flügeliges Fenster

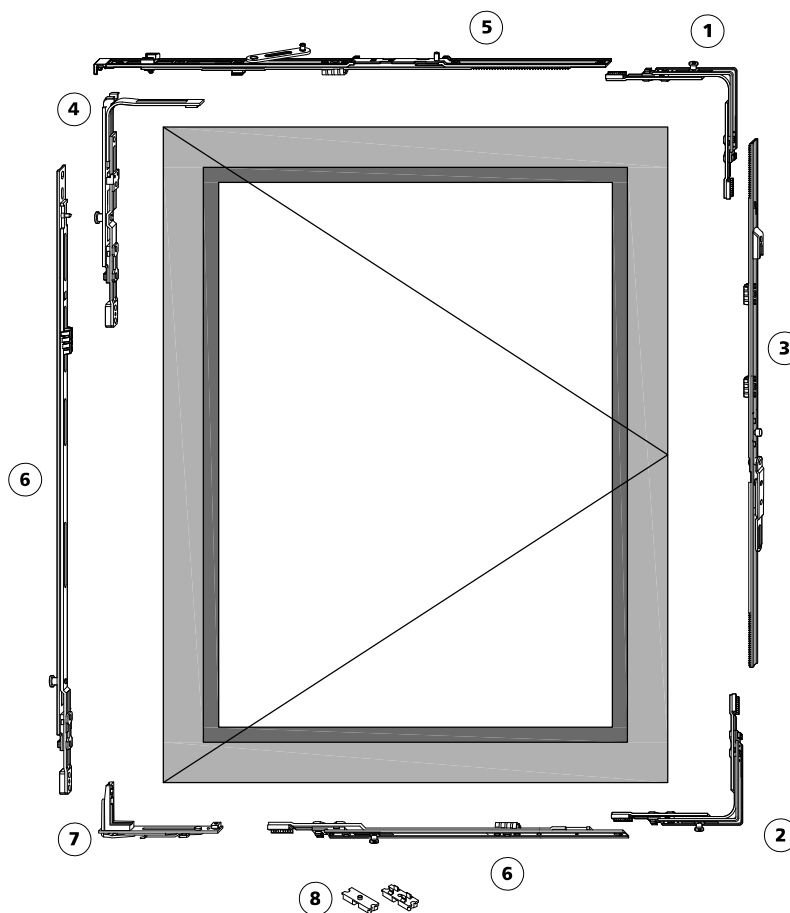
Einbauablauf Stulp  
(Vorschlag)

## Montage de la quincaillerie Fenêtre à 2 vantaux

Ordre de montage pour quincaillerie vantail  
semi-fixe (proposition)

## Installation of the fittings Double sash window

Sequence of assembly for double sash  
fittings (proposal)



- ① Eckumlenkung / Transmission équerre / Corner drive
- ② Eckumlenkung / Transmission équerre / Corner drive
- ③ Stulp-Getriebe / Cremone vantail semi-fixe / Double sash drive
- ④ Eckumlenkung Axer / Renvoi d'angle de compas / Stay corner drive
- ⑤ Axerstulp / Têtière de compas / Sash stay guide
- ⑥ Mittelverschluss, senkrecht und waagrecht  
Extension horizontale et verticale  
Extension horizontal and vertical
- ⑦ Eckband / Pivot d'angle / Corner hinge
- ⑧ Auflaufkeil / Support glissière / Run-up block

**Beschlagseinbau  
2-flügeliges Fenster**

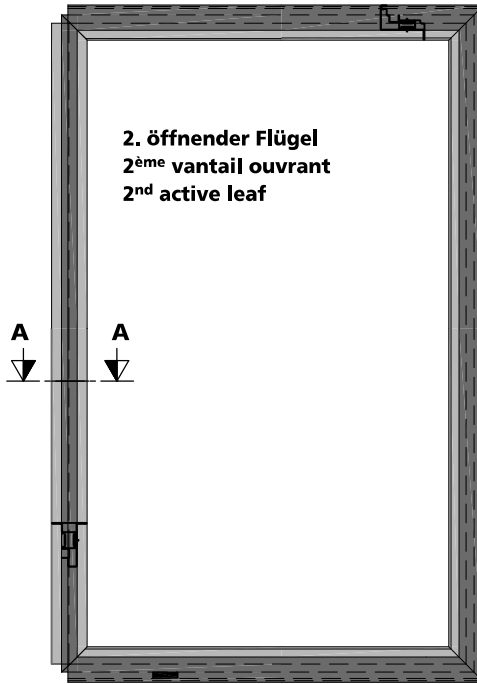
**Montage de la quincaillerie  
Fenêtre à 2 vantaux**

**Installation of the fittings  
Double sash window**

Anordnung Auflaufkeil  
2. öffnender Flügel

Disposition du support glissière  
2<sup>ème</sup> vantail ouvrant

Arrangement of the run-up block  
2<sup>nd</sup> active leaf



Auflaufkeil Stulpflügel  
SFB 360 – 1200 [mm]

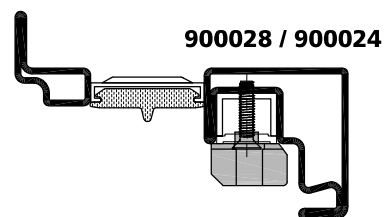
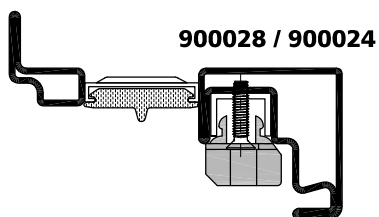
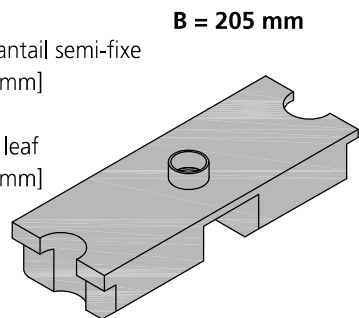
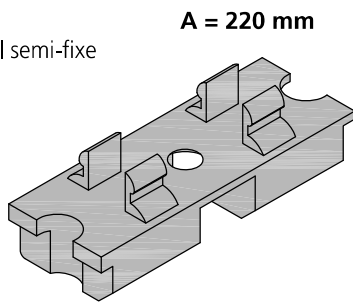
Auflaufkeil Stulpflügel  
SFB 1201 – 1400 [mm]

Support glissière vantail semi-fixe  
SFB 360 – 1200 [mm]

Support glissière vantail semi-fixe  
SFB 1201 – 1400 [mm]

Run-up block sash leaf  
SFB 360 – 1200 [mm]

Run-up block sash leaf  
SFB 1201 – 1400 [mm]



**Beschlagseinbau**

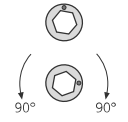
**Montage de la quincaillerie**

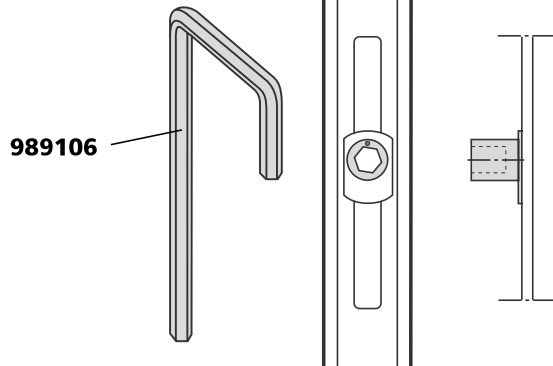
**Installation of the fittings**

Verstellhinweise Schliesszapfen E

Instructions de réglage pour le goujon de fermeture E

Notice for locking cam adjustment E

Schliesszapfen Goujons de fermeture Locking cam	Verstellweg in ° Plage de réglage en ° Adjustment in °	Anpressdruckverstellung in mm Ajustage de la pression d'application en mm Contact pressure adjustment in mm
	Grundstellung Position de base Default position	-
		± 0,8

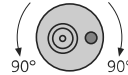
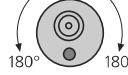

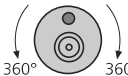
  


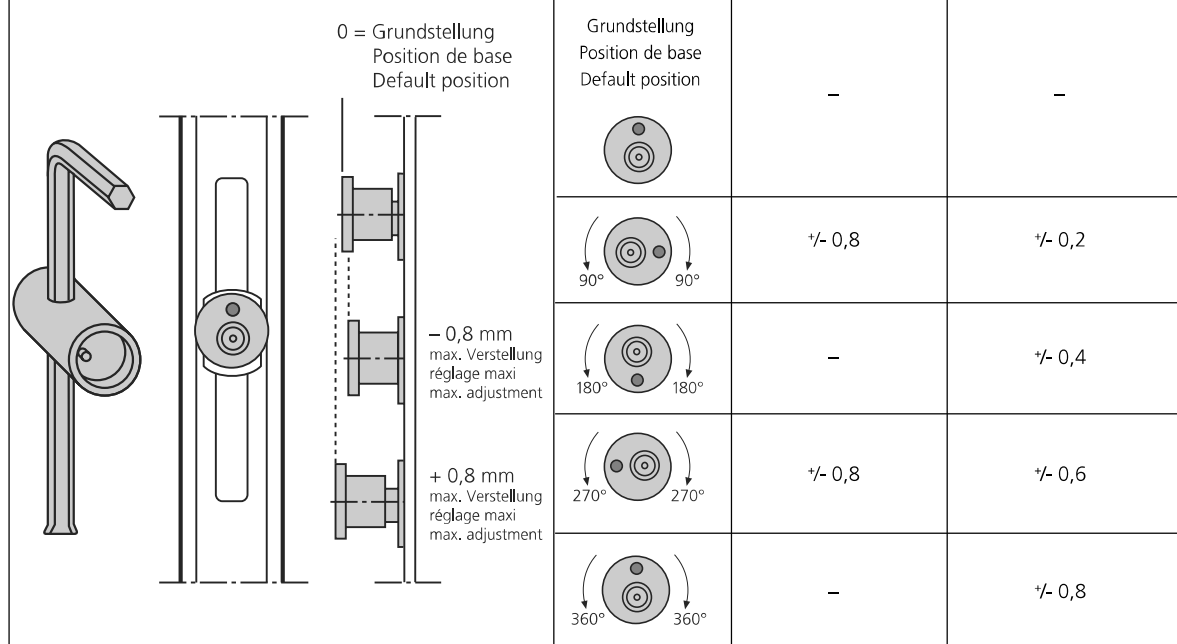
**989106**

Verstellhinweise Schliesszapfen V

Instructions de réglage pour le tenon de fermeture V

Notice for striker adjustment V

Schliesszapfen Goujons de fermeture Locking cam	Verstellweg in ° Plage de réglage en ° Adjustment in °	Anpressdruckverstellung in mm Ajustage de la pression d'application en mm Contact pressure adjustment in mm	Höhenverstellung in mm Réglage en hauteur en mm Height adjustment in mm
	Grundstellung Position de base Default position	-	-
		± 0,8	± 0,2
		-	± 0,4
		± 0,8	± 0,6
		-	± 0,8

0 = Grundstellung  
Position de base  
Default position

- 0,8 mm  
max. Verstellung  
réglage maxi  
max. adjustment

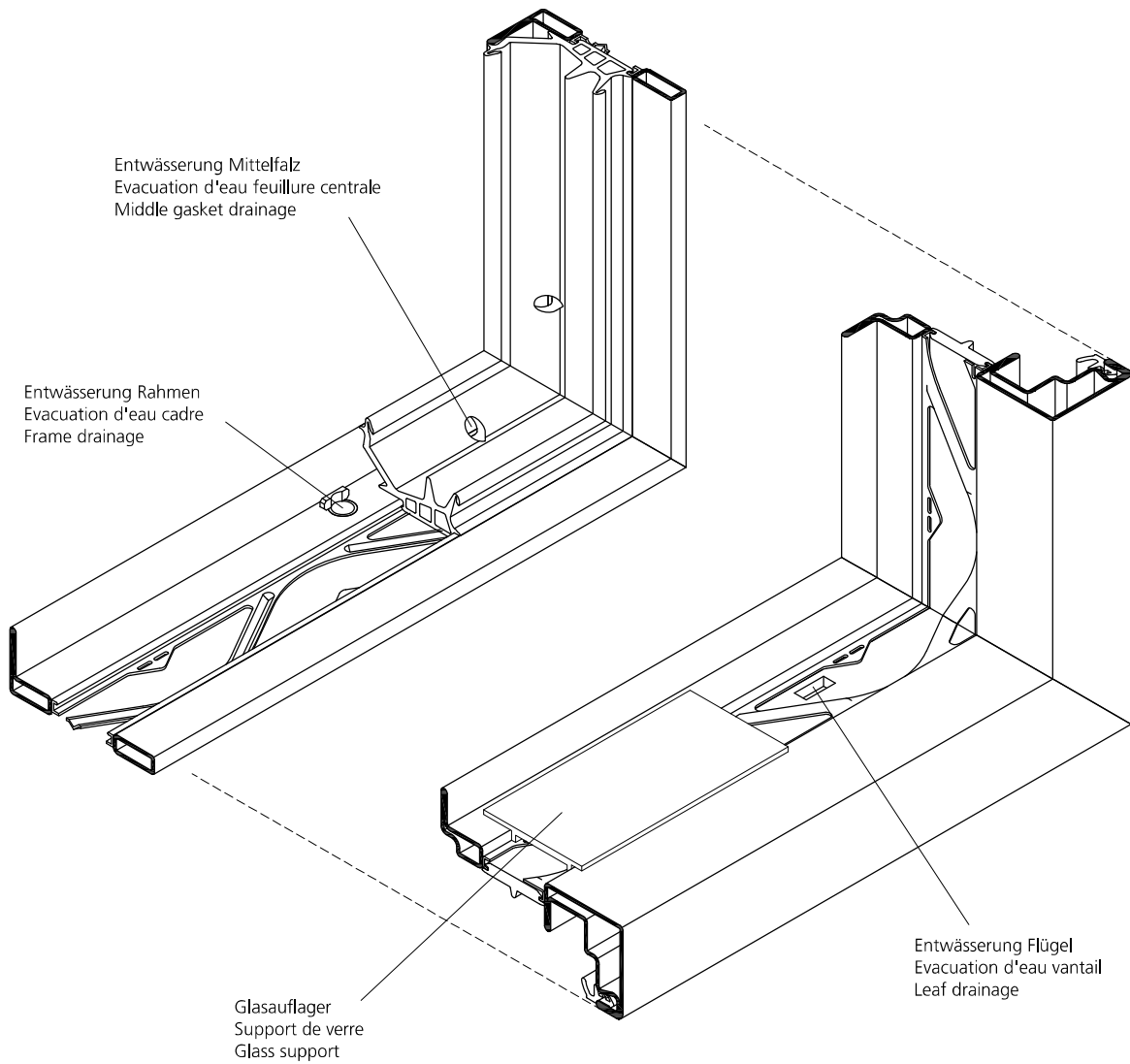
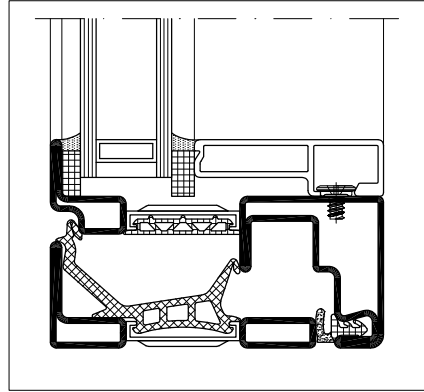
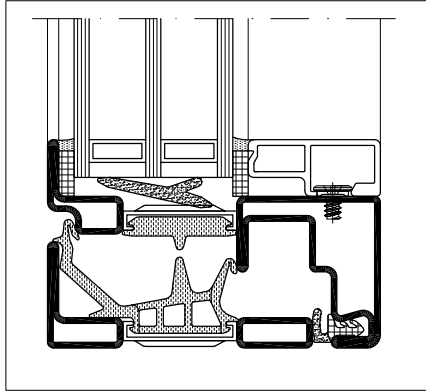
+ 0,8 mm  
max. Verstellung  
réglage maxi  
max. adjustment



**Entwässerung**

**Evacuation d'eau**

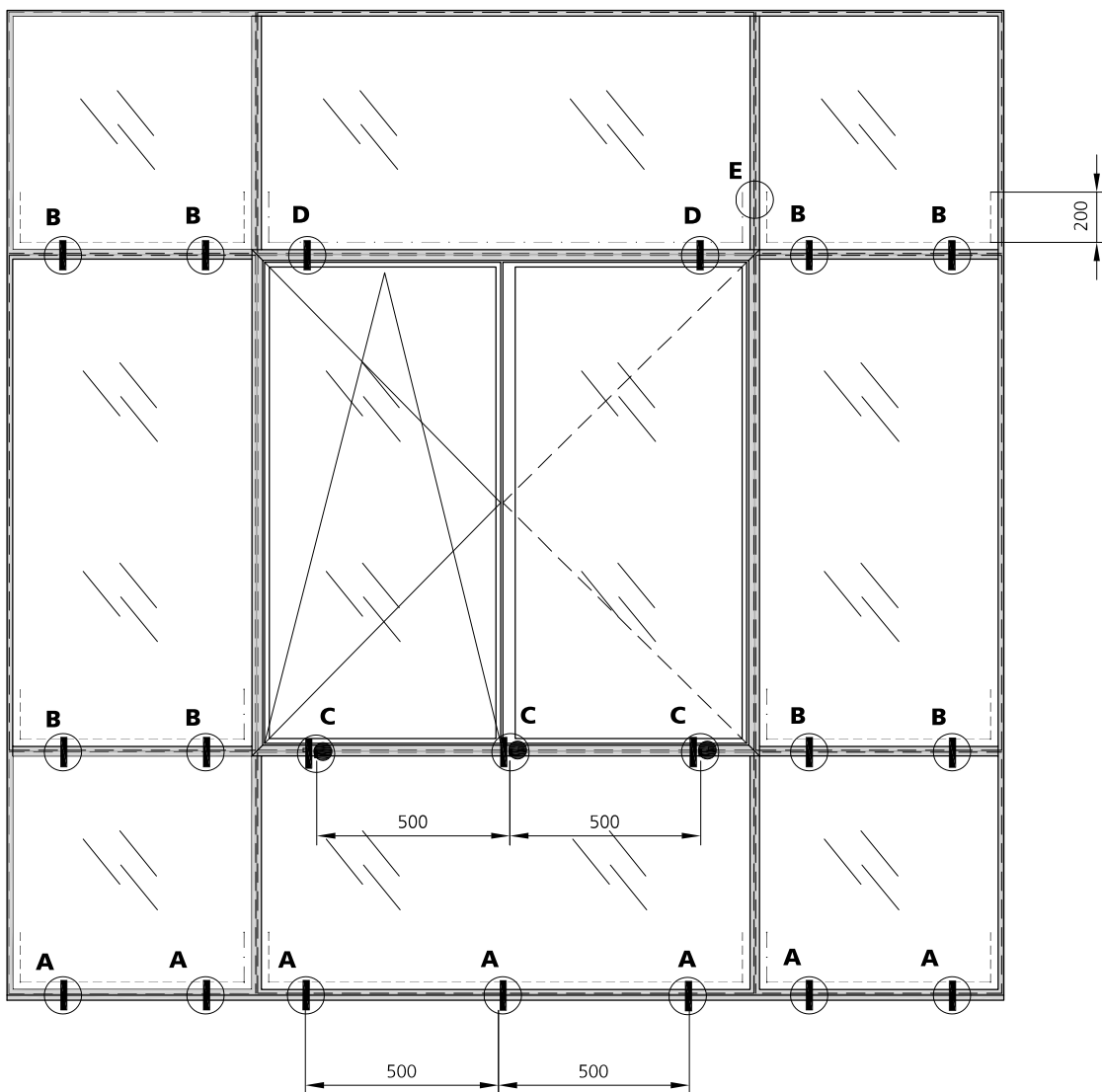
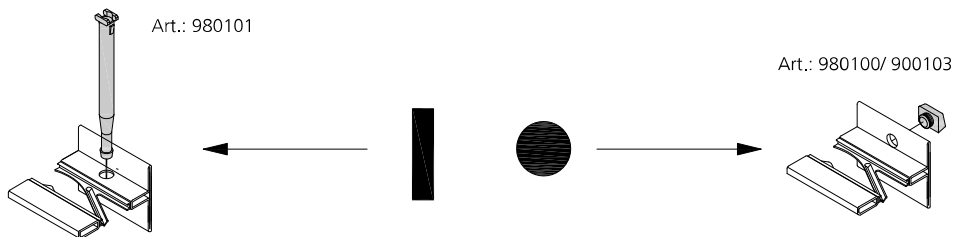
**Drainage**



**Entspannung  
Glasfalz**

**Décompression  
Feuillure du verre**

**Decompression  
Glass rebate**



Falzdichtband / Ruban d'étanchéité de feuillure / Rebate sealing tape:

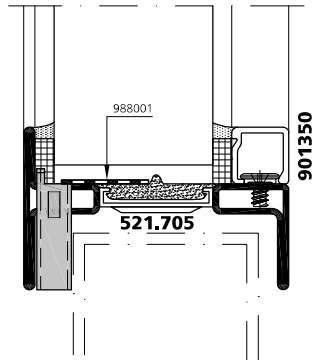
- - - - - Art. 988001
- . - . - Art. 988007

**Entspannung  
Glasfalz**

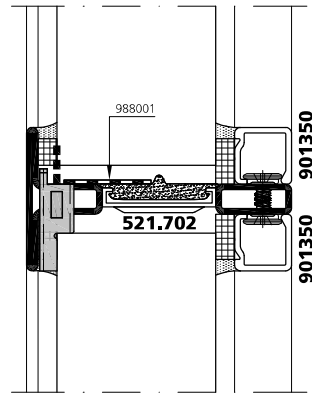
**Décompression  
Feuillure du verre**

**Decompression  
Glass rebate**

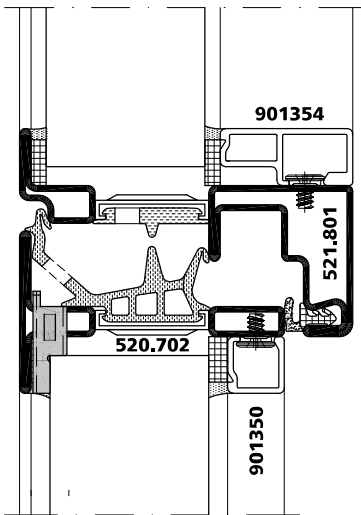
**A**



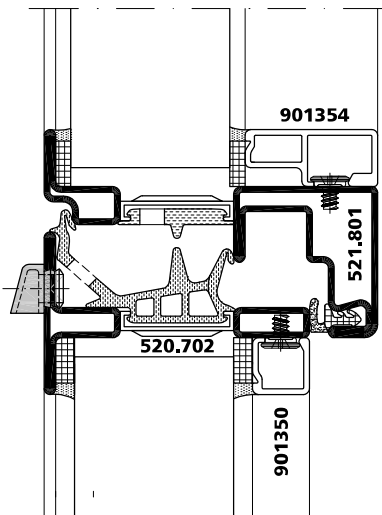
**B**



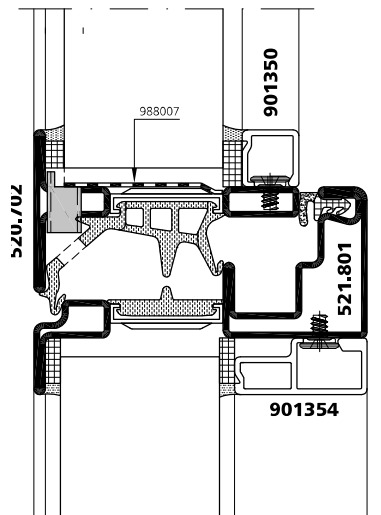
**C**



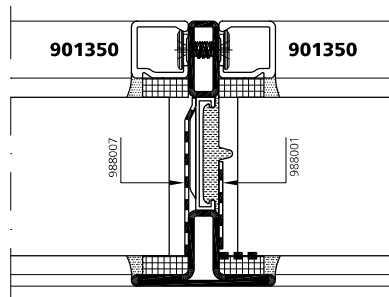
**C1**



**D**



**E**



### Entspannung Glasfalz

Wichtig: nur in Übereinstimmung mit dem Glaslieferanten

Bei Nassverglasung: innen und aussen  
Der Schlagregenschutz muss im Bereich der Verglasungsfugen und Anschlüssen sichergestellt sein.

Vorteile:

- Im Winter geringere Profil-Auskühlung bei Winddruck
- Bessere Luft- und Winddichtigkeit von Fenster und Tür (Blower-door-test)

### Décompression Feuillure du verre

Important: en accord avec le fournisseur du vitrage

Pour les joints de vitrage au silicone: à l'intérieur et à l'extérieur  
La protection contre la pluie battante doit être garantie au niveau des joints du vitrage et des raccords.

Avantages:

- En hiver, refroidissement plus faible du profilé à la pression du vent
- Meilleure étanchéité à l'air et au vent de la fenêtre et de la porte (blower door test)

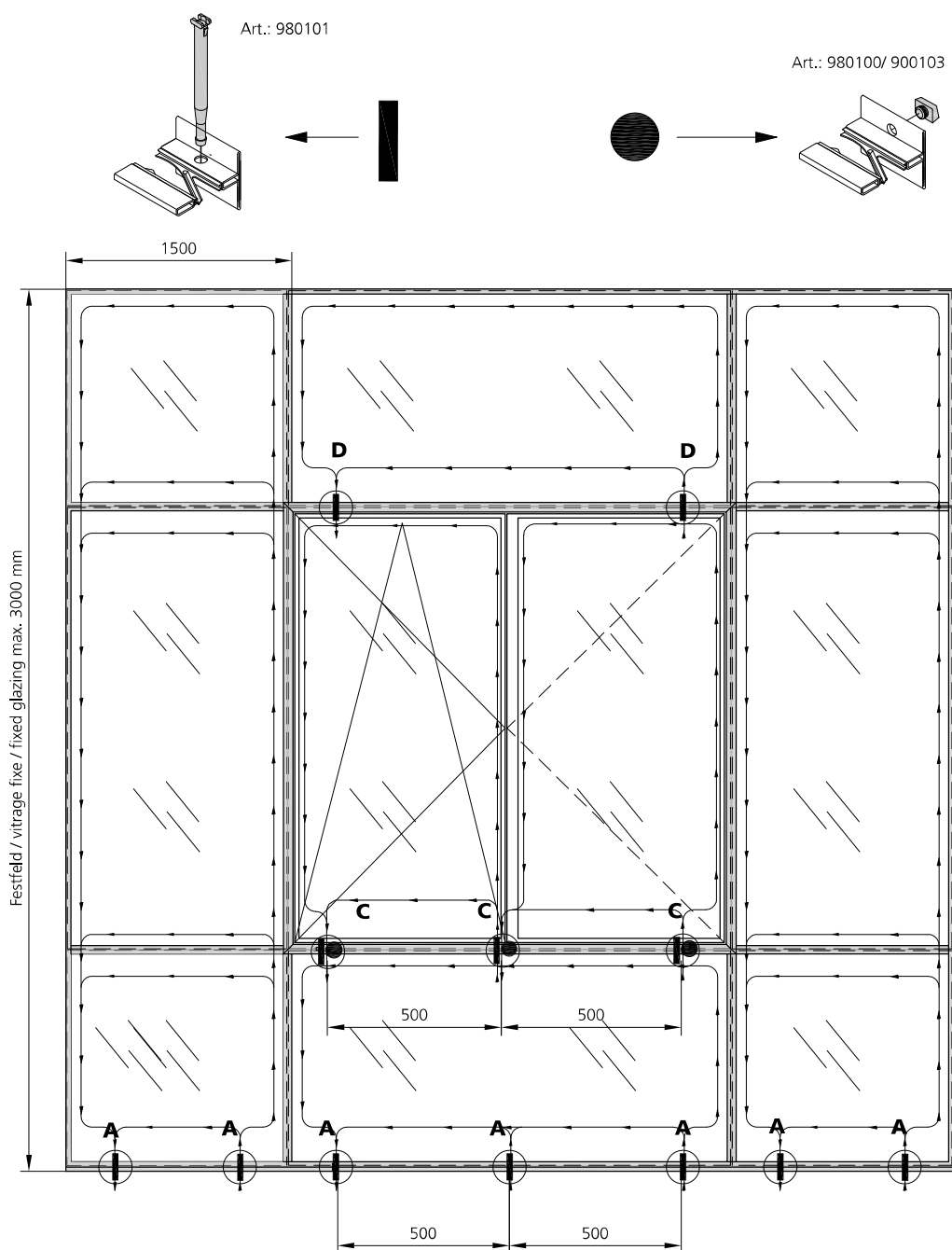
### Decompression Glass rebate

Important: Only in agreement with glass supplier

With wet glazing: inner and outer  
Driving rain protection must be provided in glazing grooves and joints.

Advantages:

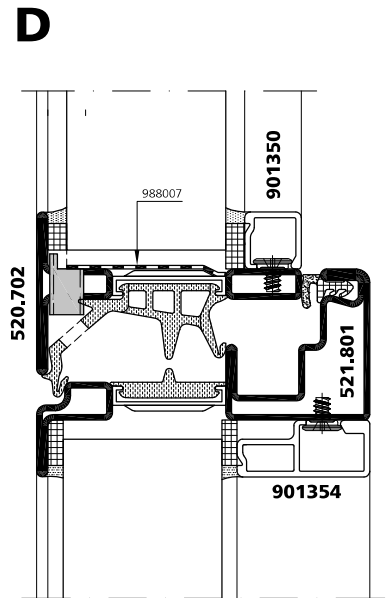
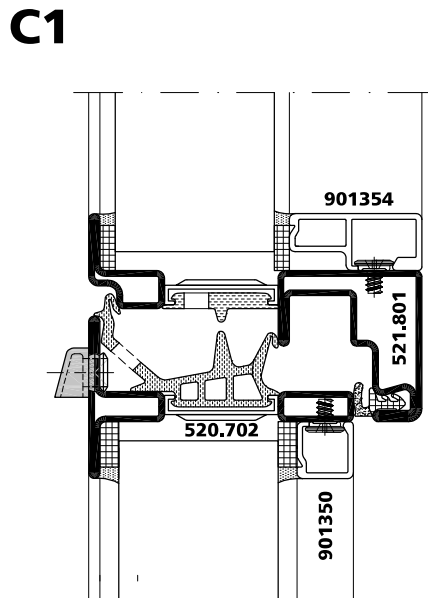
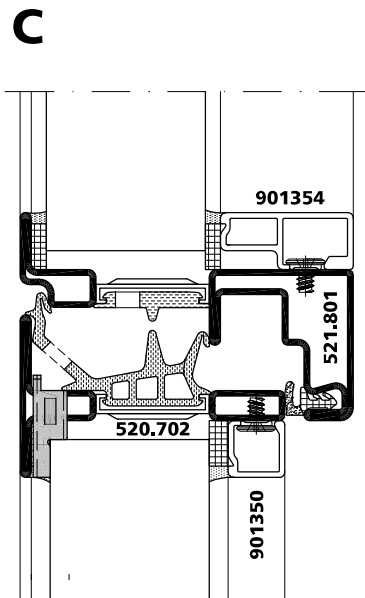
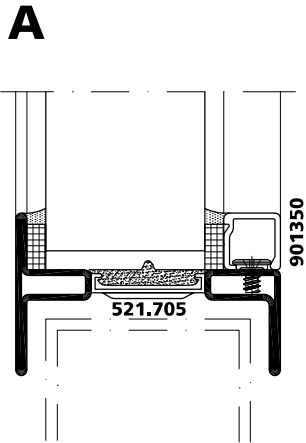
- In winter, less cooling of profile from wind pressure
- Windows and doors have better tightness against air and wind (blower door test)



**Entspannung  
Glasfalz**

**Décompression  
Feuillure du verre**

**Decompression  
Glass rebate**



## Dichtungseinbau Falzabdeckung

## Montage du joint Recouvrement de feuillure

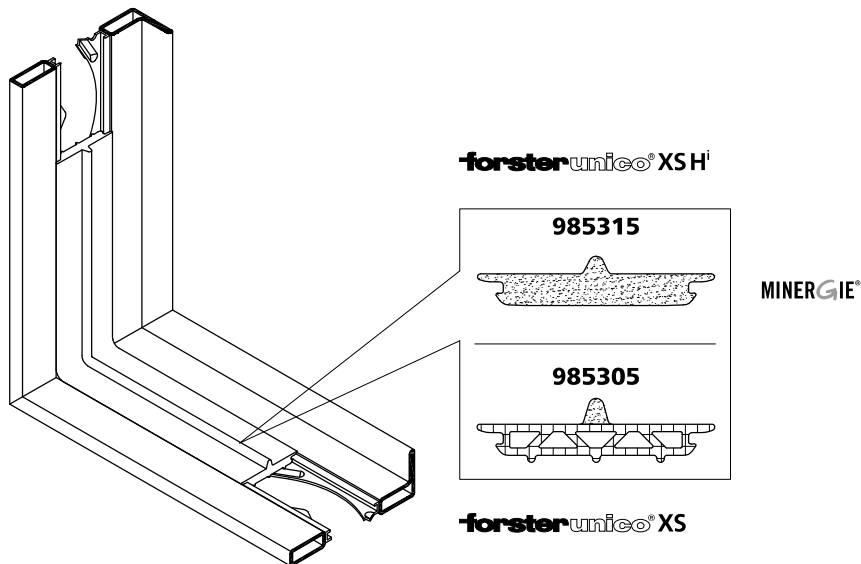
## Installation of seal Rebate cover

### Rahmen Cadre Frame

Die Dichtung 985315 oder 985305 wird in den Innenecken durchgehend geführt.

Le joint 985315 ou 985305 est posé en continu dans les angles intérieurs.

Seal 985315 or 985305 is fitted continuously in inner corners.

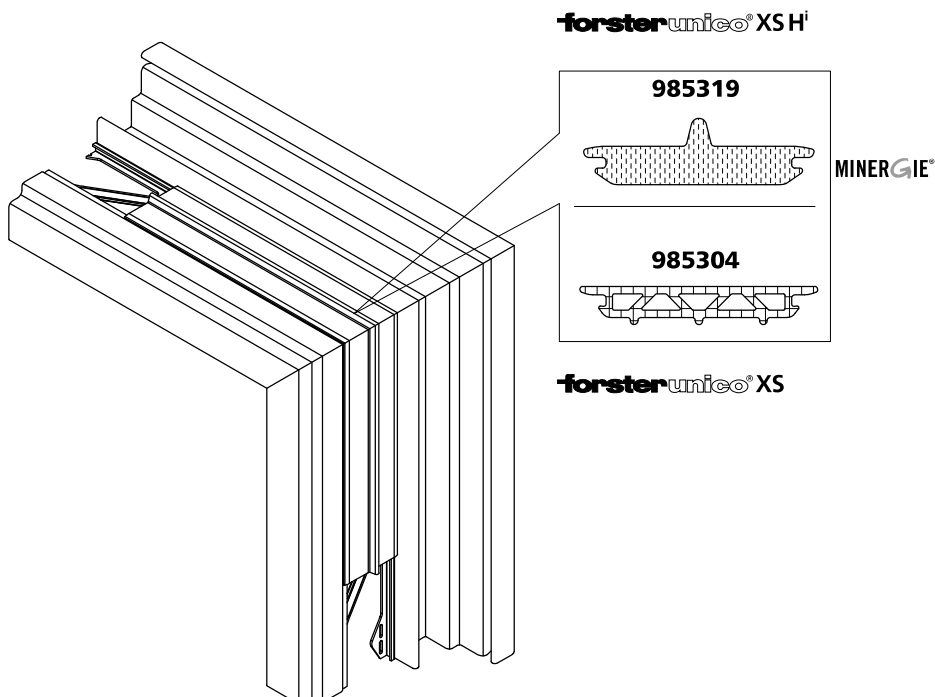


### Flügel Vantail Leaf

Die Dichtung 985319 oder 985304 wird um die Aussenecken herum durchgehend geführt.

Le joint 985319 ou 985304 est posé en continu sur les angles extérieurs.

Seal 985319 or 985304 is fitted continuously around outer corners.

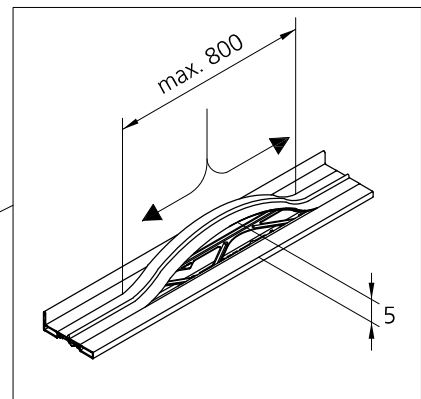
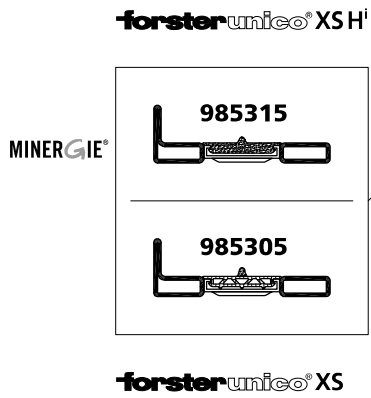
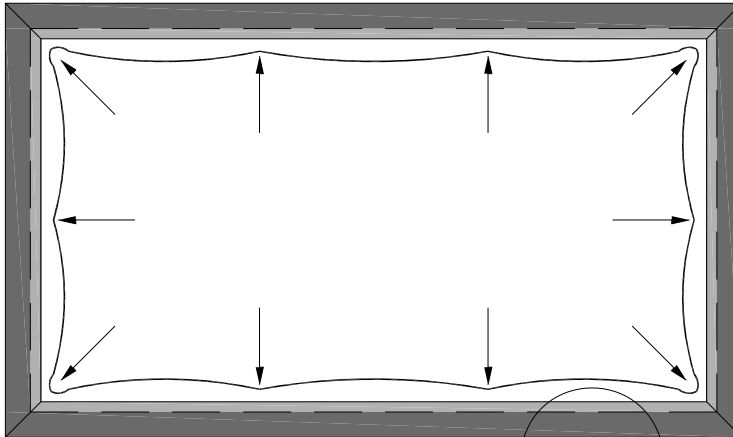


**Dichtungseinbau  
Falzabdeckung**

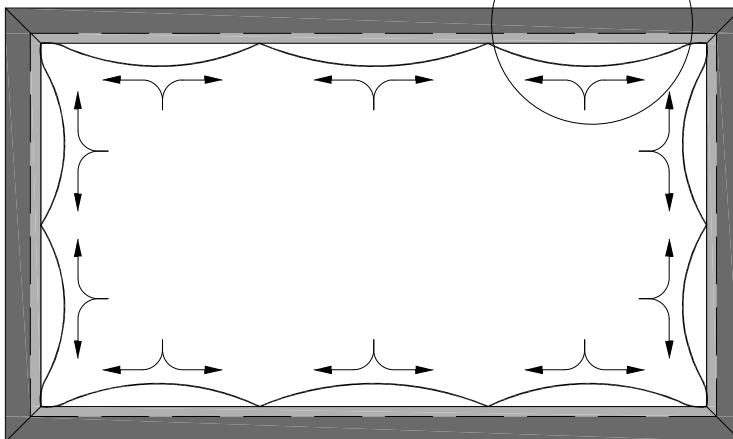
**Montage du joint  
Recouvrement de feuillure**

**Installation of seal  
Rebate cover**

1



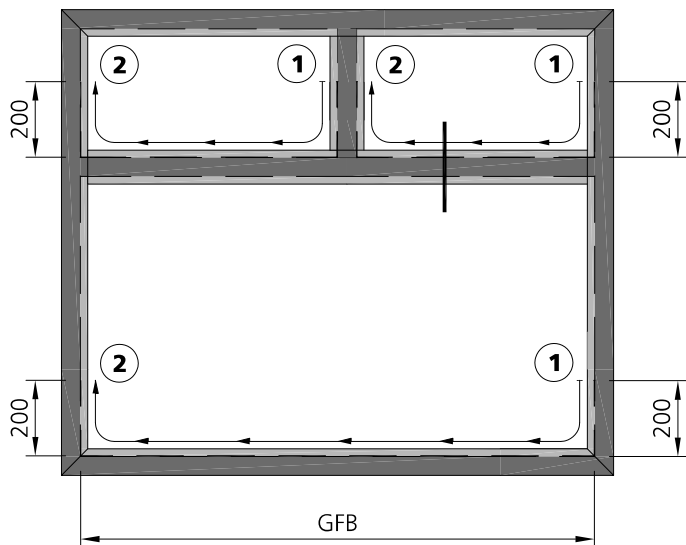
2



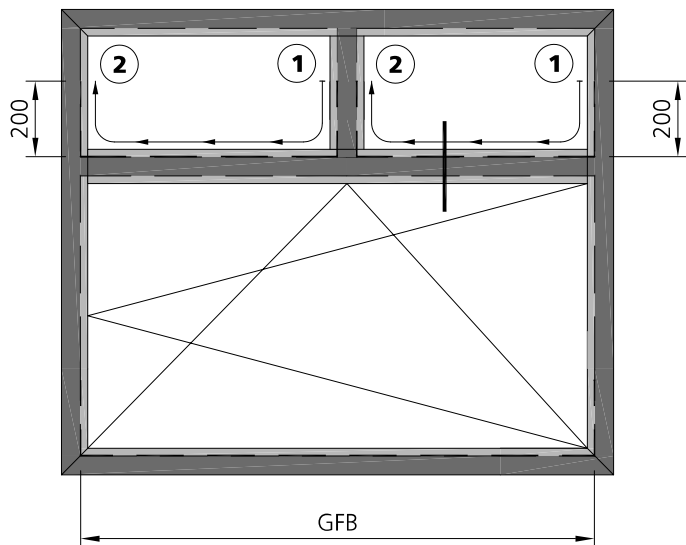
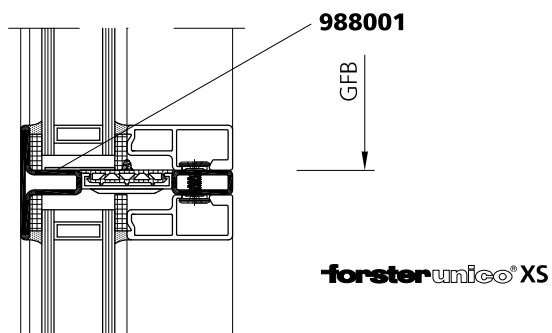
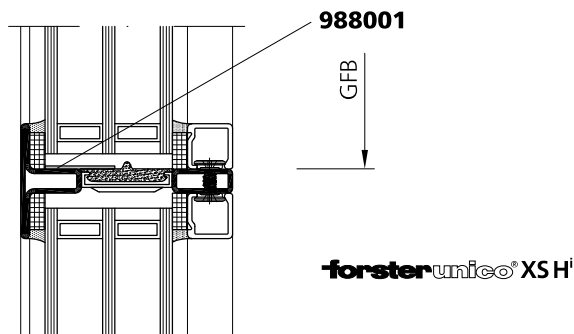
**Dichtungseinbau  
Falzabdichtung Festfeld**

**Montage du joint  
Étanchéité de la feuillure du  
vitrage fixe**

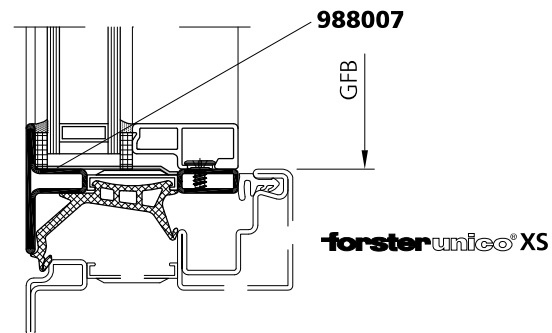
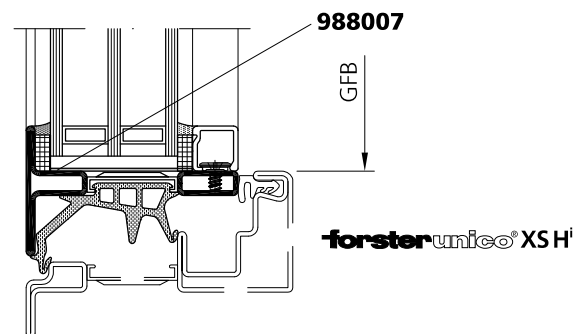
**Installation of seal  
Fixed glazing rebate seal**



- ① **Anfang / Début / Beginning**
- ② **Ende / Fin / End**



- ① **Anfang / Début / Beginning**
- ② **Ende / Fin / End**

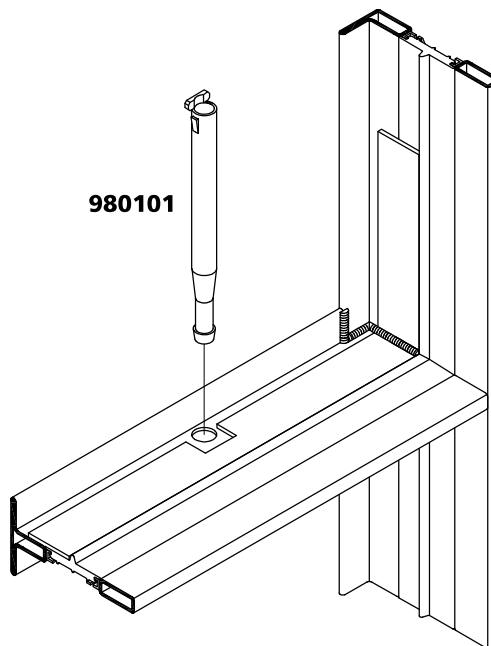
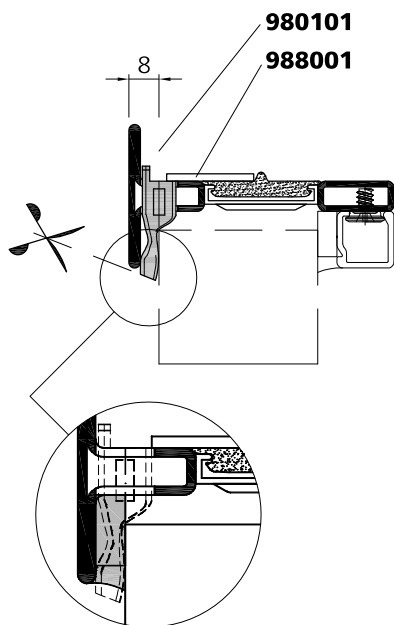




**Dichtungseinbau  
Bearbeitung Falzabdeckung**

**Montage du joint  
Mise en œuvre du  
recouvrement de feuillure**

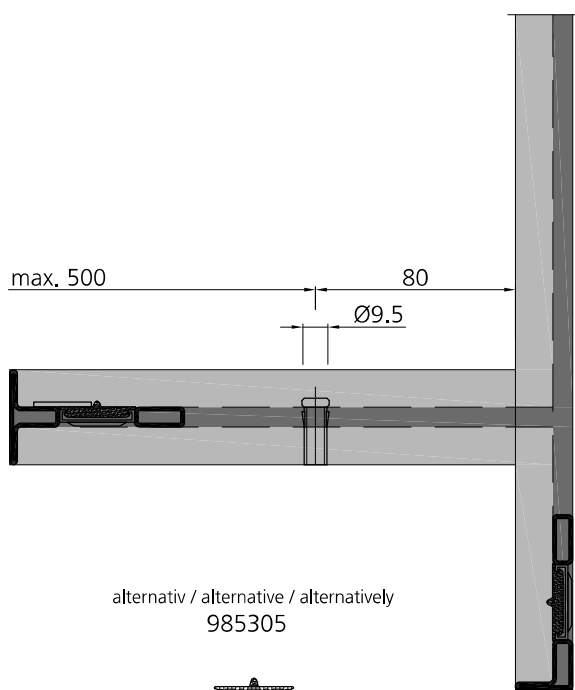
**Installation of seal  
Processing of rebate cover**



Das Butylband **Art. Nr. 988001** wird in den Ecken zusätzlich mit **Art. Nr. 908005** abgeklebt.

Coller le ruban de butyle **art. no. 988001** dans les angles avec le produit **art. no. 908005**.

The butyl tape **art. no. 988001** is bonded additionally in the corners with **art. no. 908005**.



Das indirekte Entspannungsrohrchen **Art. Nr. 980101** wird durch das Rahmenprofil gesteckt und auf der Austrittsseite mit 1 mm Überstand abgeschnitten.

Faire passer la tubulure de décompression indirecte **art. no. 980101** à travers le profilé de cadre et la couper sur le côté sortie avec une saillie de 1 mm.

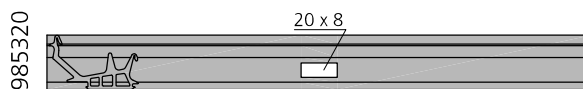
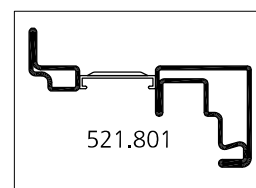
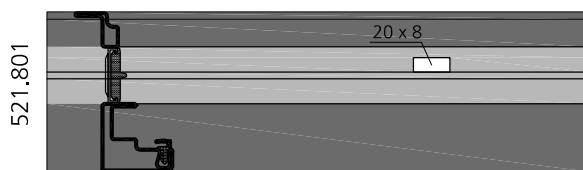
The indirect decompression pipe **art. no. 980101** is plugged in through the frame profile and cut off at the exit side, leaving an overhang of 1mm.

**Entwässerung  
Mittelfalzdichtung mit  
ganzen Rahmen (1-flügelig)**

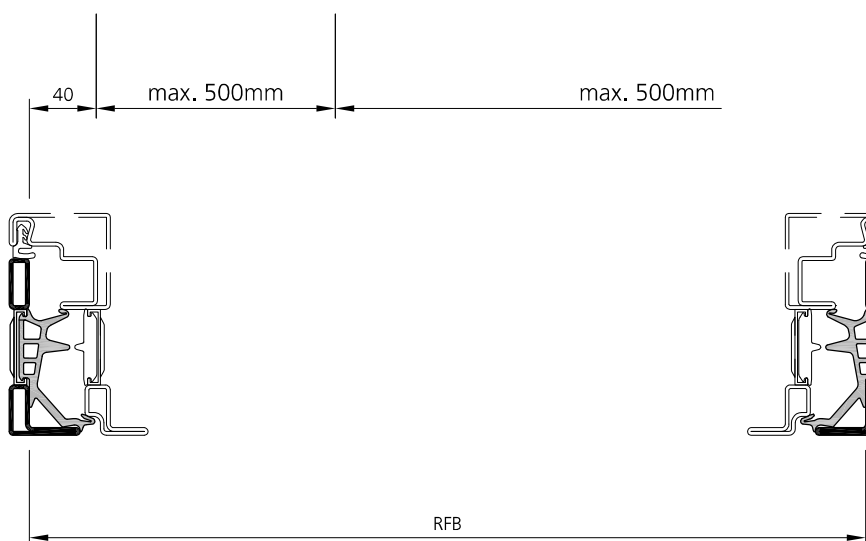
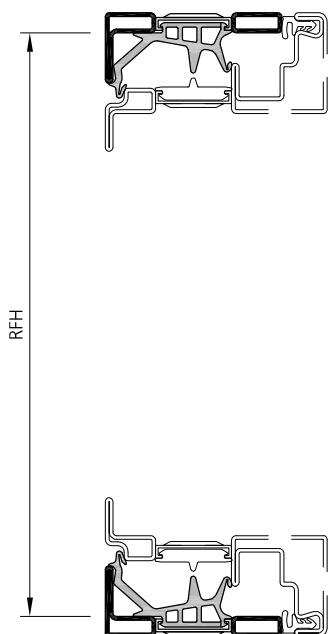
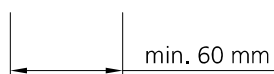
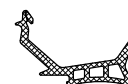
**Evacuation d'eau  
Joint central des cadres collés  
(1 vantail)**

**Drainage  
Middle rebate seal with complete frames (1 leaf)**

Art. Nr. 989411



alternativ / alternative / alternatively  
985303

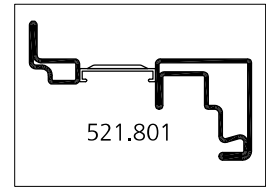
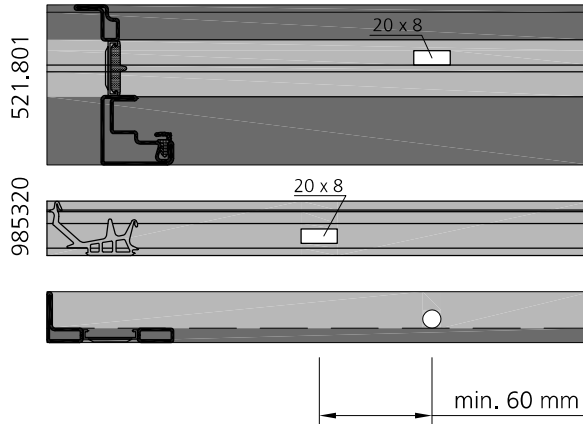


**Entwässerung  
Mittelfalzdichtung mit Eck-  
stücken (1-flügelig)**

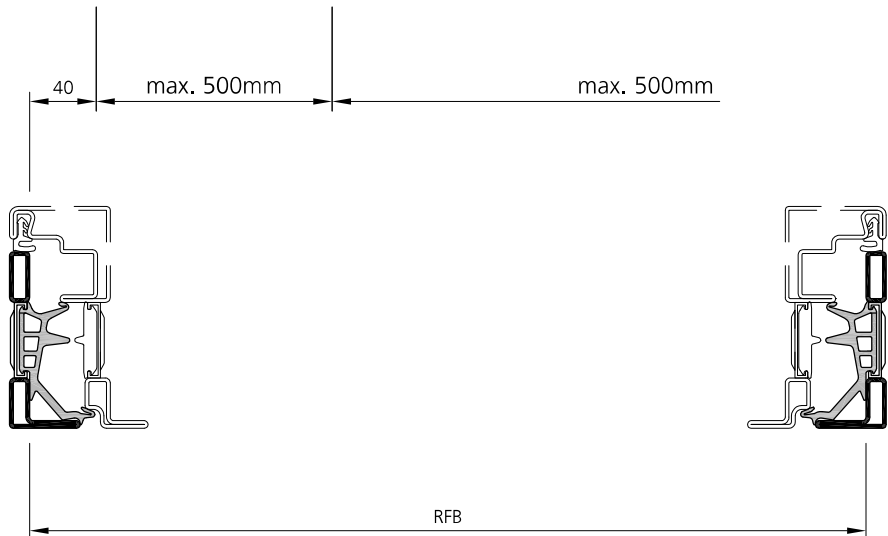
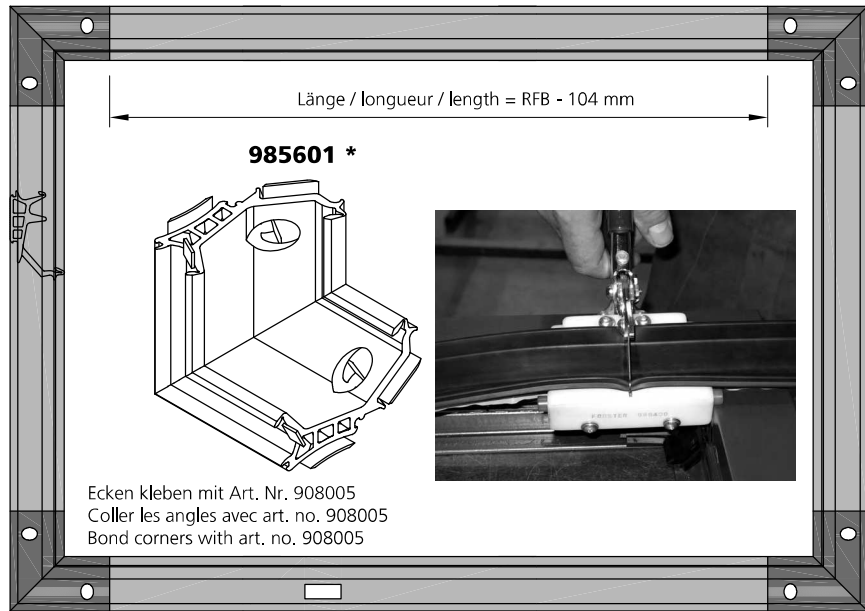
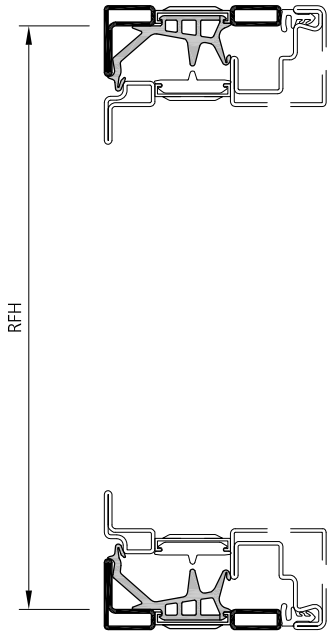
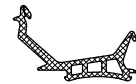
**Evacuation d'eau  
Joint central avec pièces  
d'angle (1 vantail)**

**Drainage  
Middle rebate seal with cor-  
ner pieces (1 leaf)**

Art. Nr. 989411



alternativ / alternative / alternatively  
985303



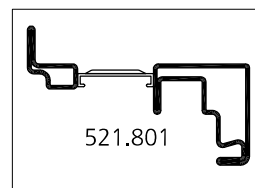
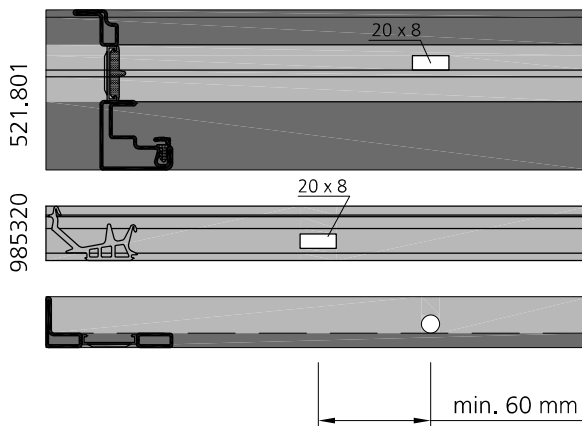
\* Alternativ kann die Dichtung in Gehrung geschnitten (Zuschneidwerkzeug 989201) und verklebt (Dichtungsmasse 908005) werden.  
On peut aussi biseauter le joint (outil de découpe 989201) et le coller (mastic 908005).  
Alternatively the seal can be mitred (cutting tool 989201) and bonded (sealing compound 908005).

**Entwässerung  
Mittelfalzdichtung mit  
ganzen Rahmen (2-flügelig)**

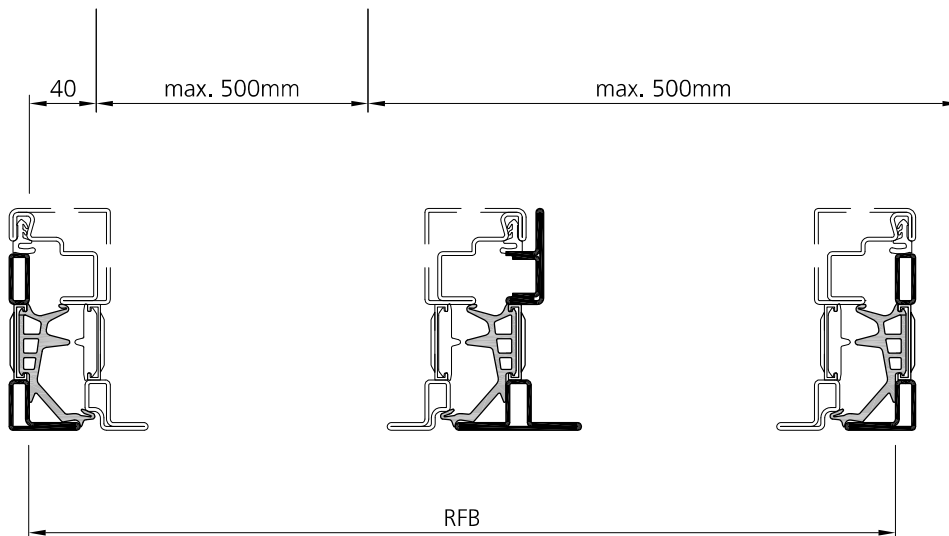
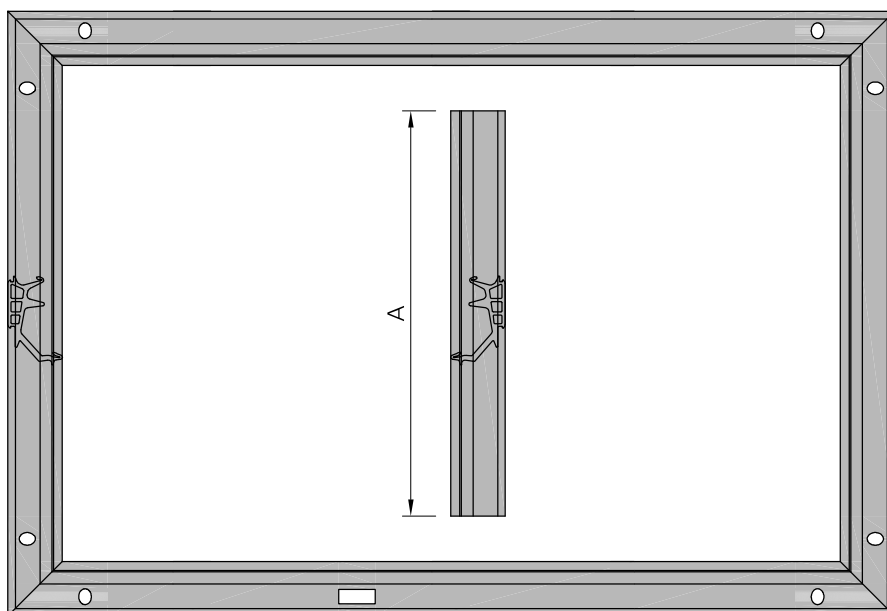
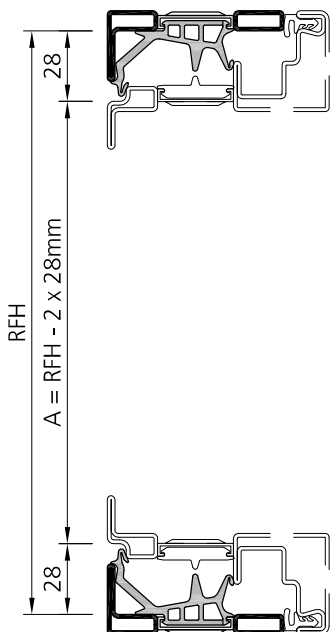
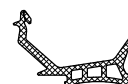
**Evacuation d'eau  
Joint central des cadres collés  
(2 vantaux)**

**Drainage  
Middle rebate seal with complete frames (2 leaves)**

Art. Nr. 989411



alternativ / alternative / alternatively  
985303



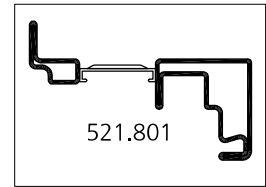
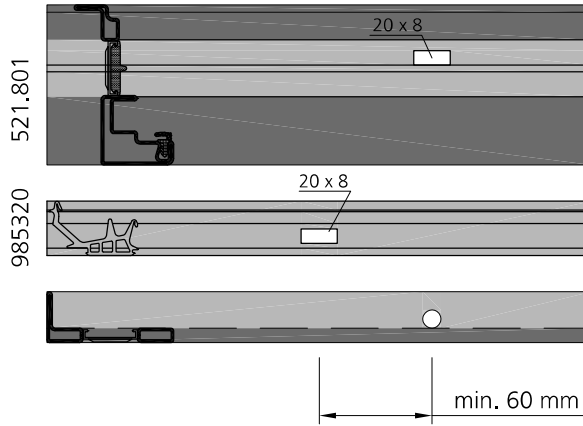
**Entwässerung  
Mittelfalzdichtung mit Eck-  
stücken (2-flügelig)**

Art. Nr. 989411

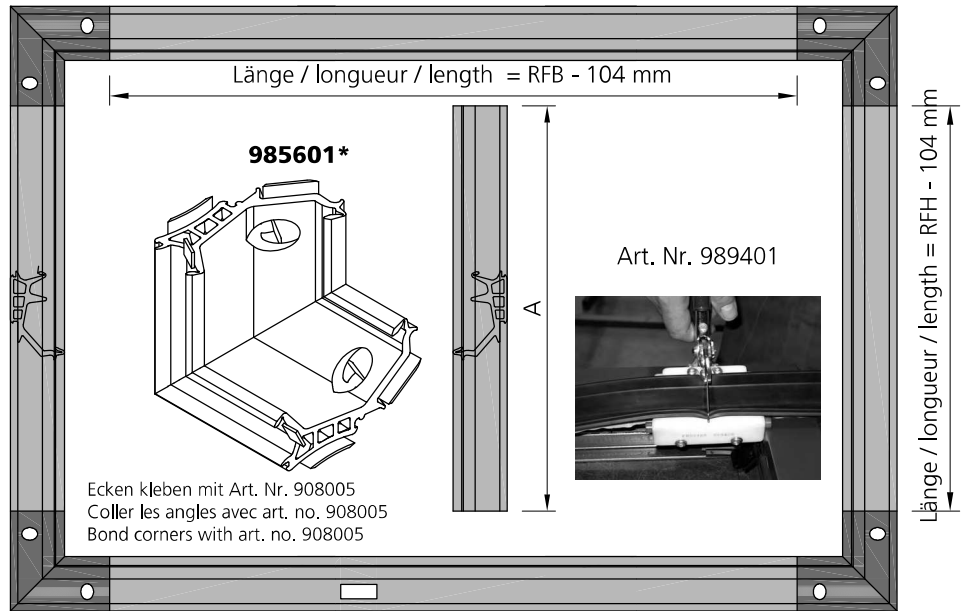
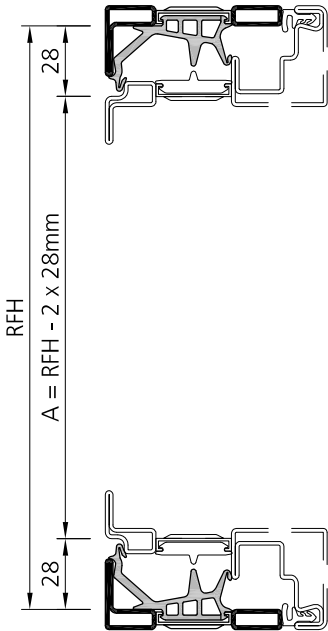
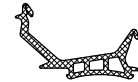


**Evacuation d'eau  
Joint central avec pièces  
d'angle (2 vantaux)**

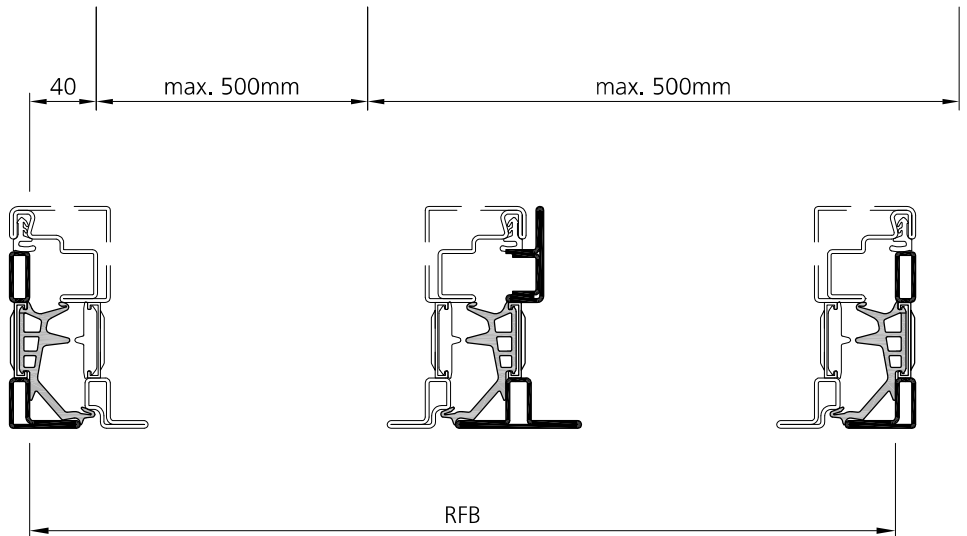
**Drainage  
Middle rebate seal with cor-  
ner pieces (2 leaves)**



alternativ / alternative / alternatively  
985303



Ecken kleben mit Art. Nr. 908005  
Coller les angles avec art. no. 908005  
Bond corners with art. no. 908005

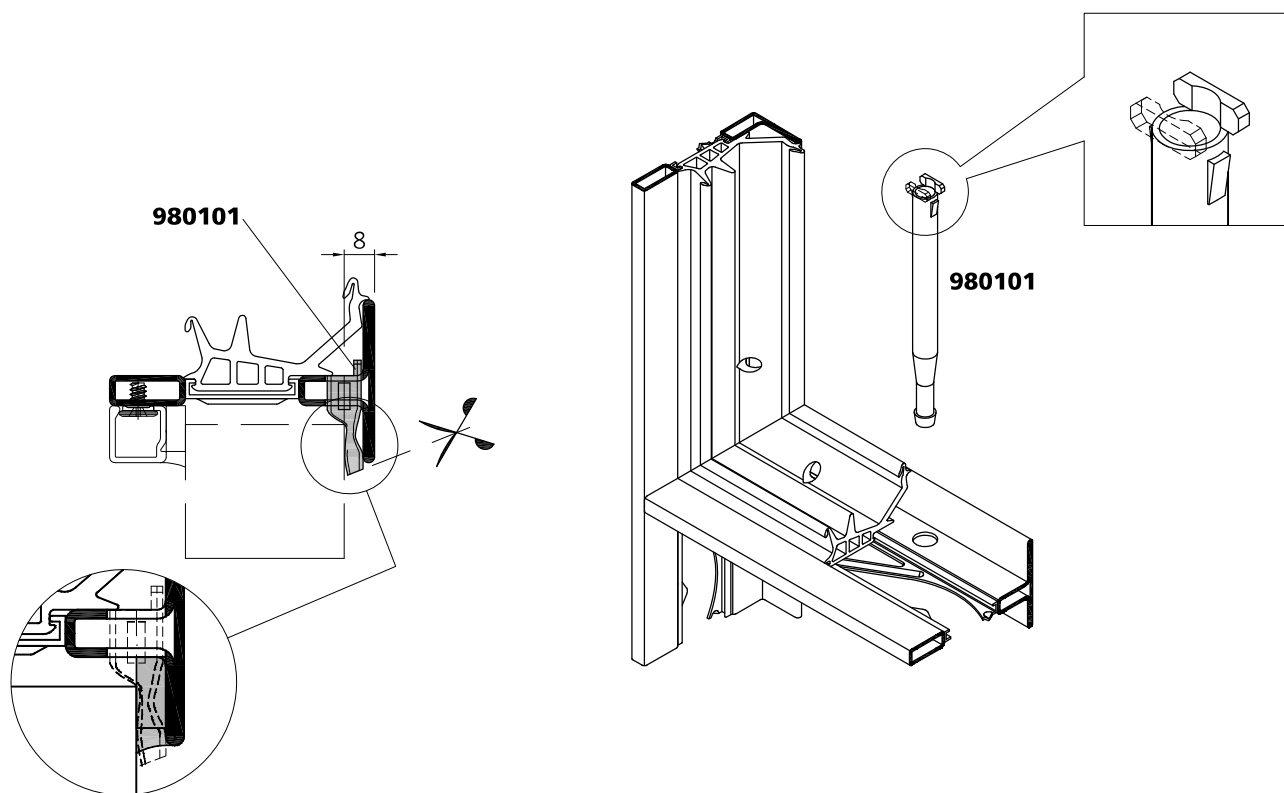


\* Alternativ kann die Dichtung in Gehrung geschnitten (Zuschnittwerkzeug 989201) und verklebt (Dichtungsmasse 908005) werden.  
On peut aussi biseauter le joint (outil de découpe 989201) et le coller (mastic 908005).  
Alternatively the seal can be mitred (cutting tool 989201) and bonded (sealing compound 908005).

## Entwässerung Mittelfalzdichtung

## Evacuation d'eau Joint central

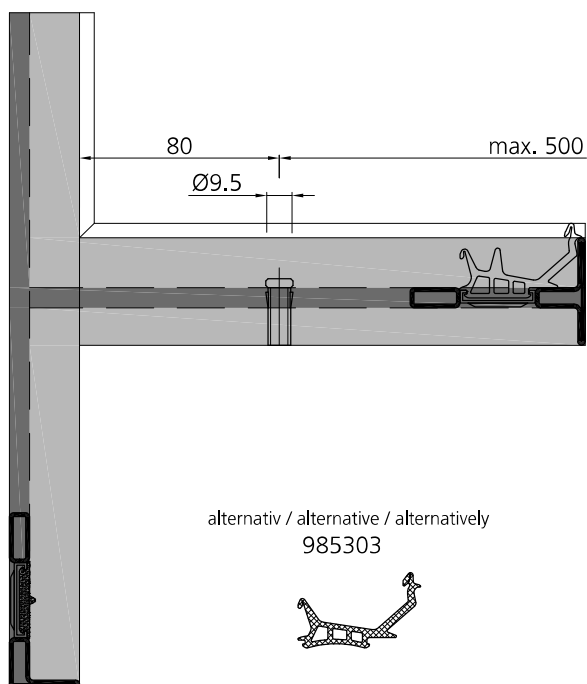
## Drainage Middle rebate seal



Das indirekte Entspannröhrchen **Art. Nr. 980101** wird durch das Rahmenprofil gesteckt und nach der Verglasung zum Profilappen hin zurückgeschnitten.

Faire passer la tubulure de décompression indirecte **art. no. 980101** à travers le profilé de cadre et couper la languette après le vitrage.

The indirect decompression pipe **art. no. 980101** is pushed through the frame profile and cut to length along the profile after the glazing.



Im Bereich der Mitteldichtung **Art. Nr. 985320, 985303** muss am eingeklebten Entspannröhrchen **980101** ein Stopper abgetrennt werden.

Dans la zone du joint du milieu **art. no. 985320, 985303**, il faut couper un butoir de la tubulure de décompression collée **980101**.

Around the middle seal **art. no. 985320, 985303** one of the stoppers has to be cut away from the bonded decompression pipe **980101**.

## Dichtungseinbau Eckstücke eingeklebt

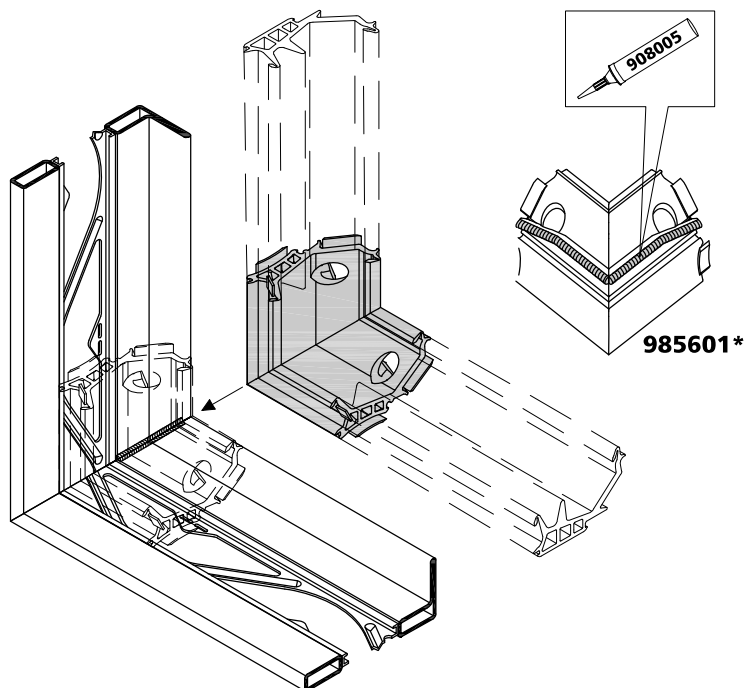
Der Fensterrahmen wird in der Gehrung und im Bereich der Eckstückauflage zusätzlich mit Dichtungsmasse **Art. Nr. 908005** abgedichtet.

Etancher le cadre de fenêtre dans l'angle et dans la zone du support de pièce d'angle avec du mastic **art. no. 908005**.

Seal the window frame with additional sealing compound **art. no. 908005** in the mitred joint and around the corner piece support.

## Montage du joint Pièces d'angle collées

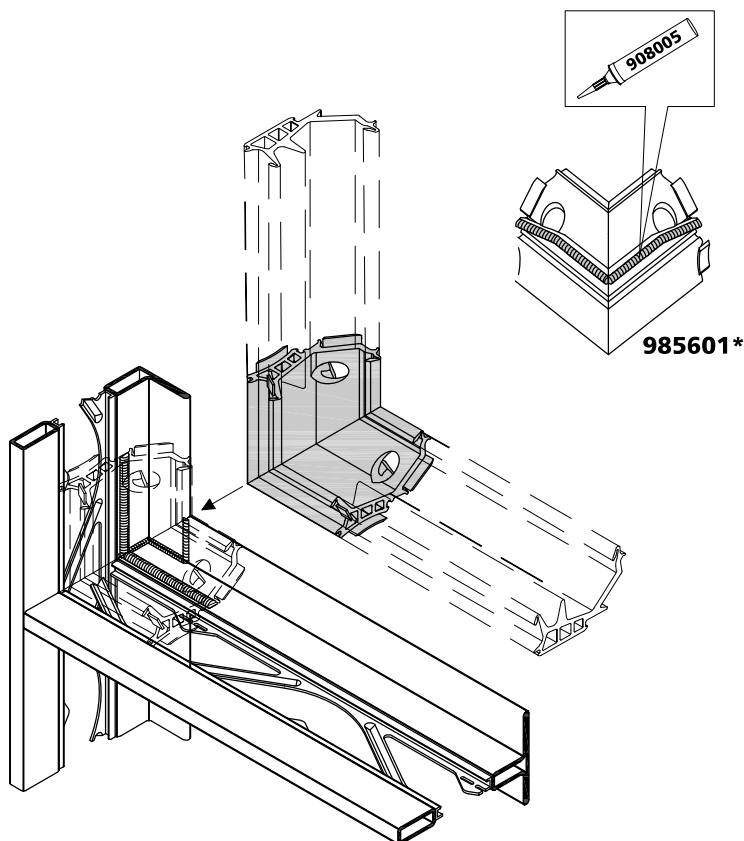
## Installation of seal Corner pieces are bonded in



Alternativ kann die Dichtung in Gehrung geschnitten (Zuschnittwerkzeug 989201) und verklebt (Dichtungsmasse 908005) werden.

On peut aussi biseauter le joint (outil de découpe 989201) et le coller (mastic 908005).

Alternatively the seal can be mitred (cutting tool 989201) and bonded (sealing compound 908005).



## Dichtungseinbau Verbindung Eckstücke Mittelfalzdichtung

Das Eckstück **985601** wird mittels Dichtungsmasse **Art. Nr. 908005** mit der Mittelfalzdichtung **985320, 985303** verklebt. Überquellende Dichtungsmasse wird abgezogen.

\* Alternativ kann die Dichtung in Gehung geschnitten (Zuschnittwerkzeug 989201) und verklebt (Dichtungsmasse 908005) werden.

## Montage du joint Liaison pièces d'angle Joint central

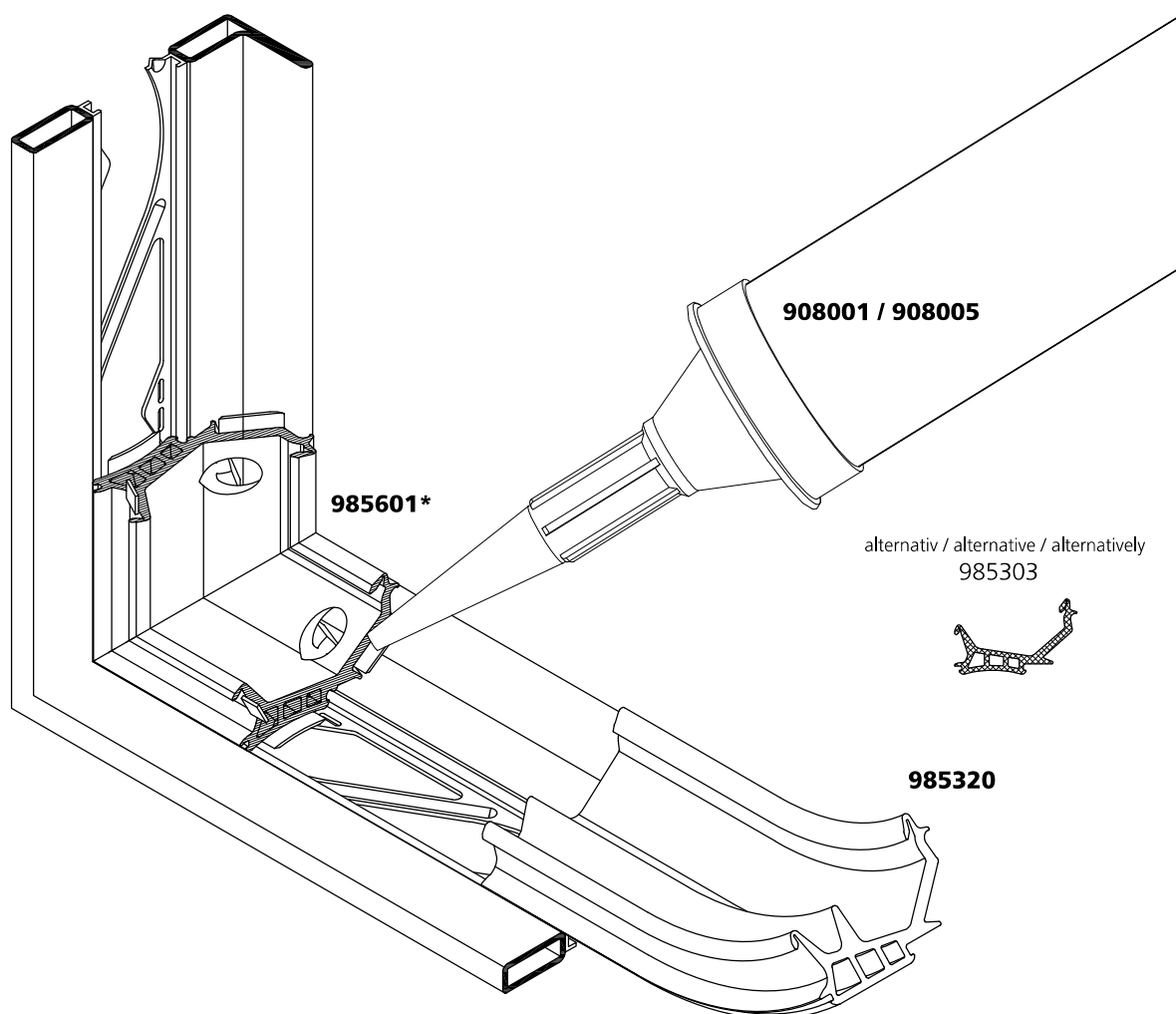
Coller la pièce d'angle **985601** au mastic **art. no. 908005** avec le joint de feuillure central **985320, 985303**. Enlever le mastic en trop.

\* On peut aussi biseauter le joint (outil de découpe 989201) et le coller (mastic 908005).

## Installation of seal Link corner pieces middle rebate seal

The corner piece **985601** is bonded with the sealing compound **art. no. 908005** to the middle rebate seal **985320, 985303**. Overflowing sealing compound is drawn off.

\* Alternatively the seal can be mitred (cutting tool 989201) and bonded (sealing compound 908005).

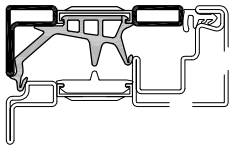
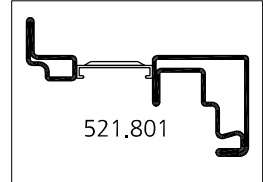




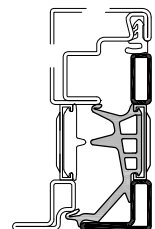
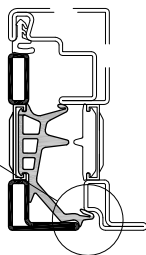
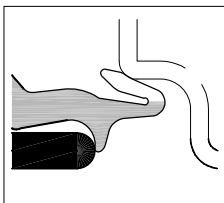
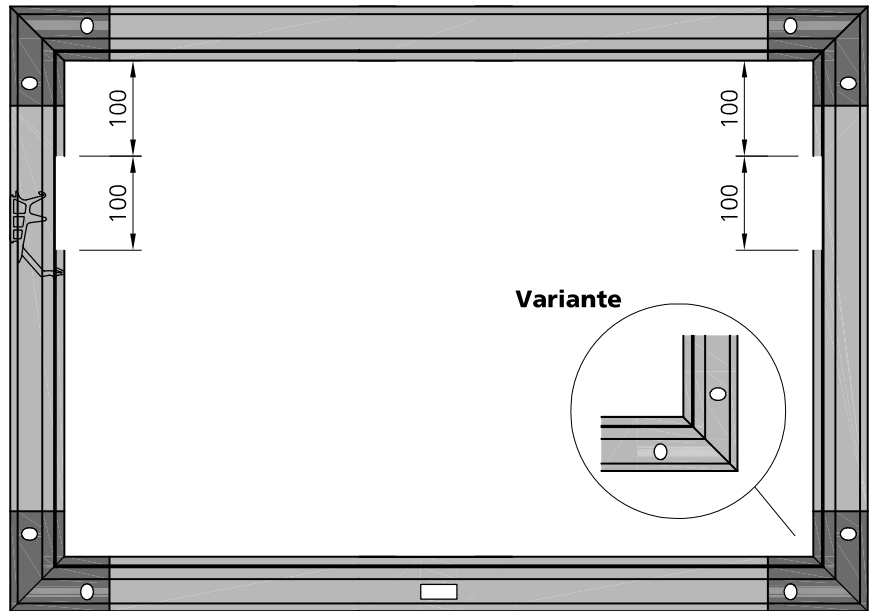
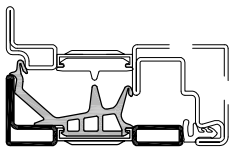
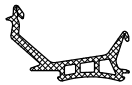
**Entspannung  
Mittelfalzdichtung  
1-flügelig**

**Décompression  
Joint central  
1 vantail**

**Decompression  
Middle rebate seal  
1 leaf**



alternativ / alternative / alternatively  
985303



Zur Falzentspannung wird die Mittelfalzdichtung auf einer Länge von 100 mm ausgeklinkt.

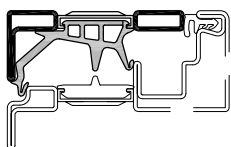
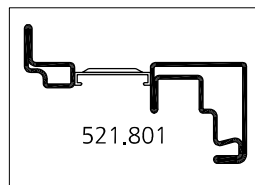
Pour la décompression de la feuillure, encocher le joint de feuillure central sur une longueur de 100 mm.

To decompress the rebate, the middle rebate seal is notched out at a length of 100 mm.

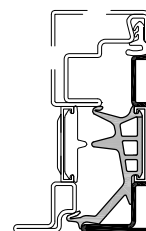
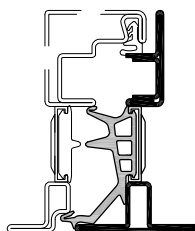
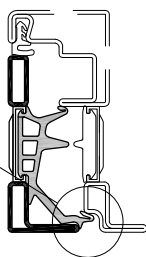
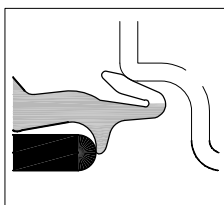
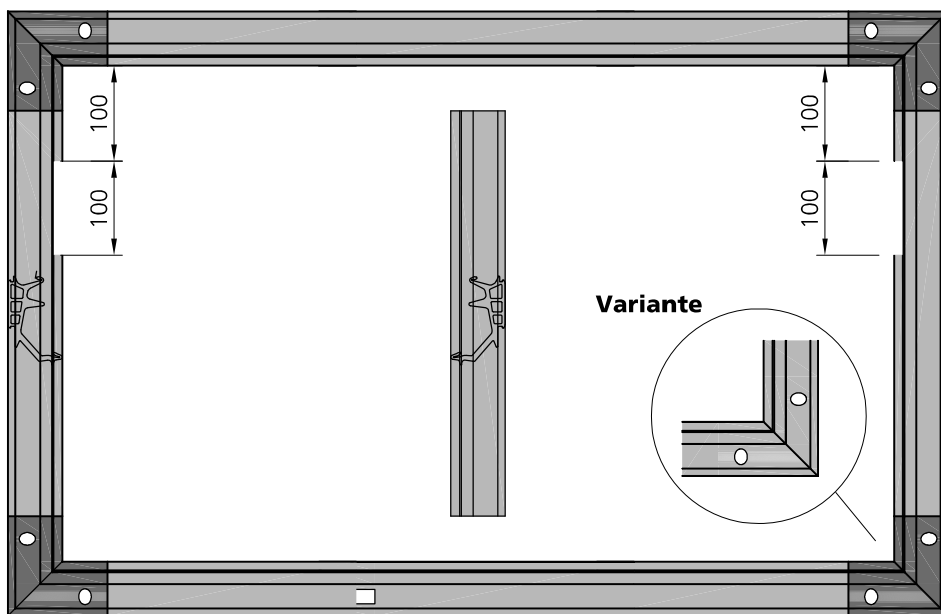
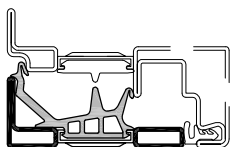
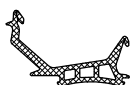
**Entspannung  
Mittelfalzdichtung  
2-flügelig**

**Décompression  
Joint central  
2 vantaux**

**Decompression  
Middle rebate seal  
2 leafs**



alternativ / alternative / alternatively  
985303



Zur Falzentspannung wird die Mittelfalzdichtung auf einer Länge von 100 mm ausgeklinkt.

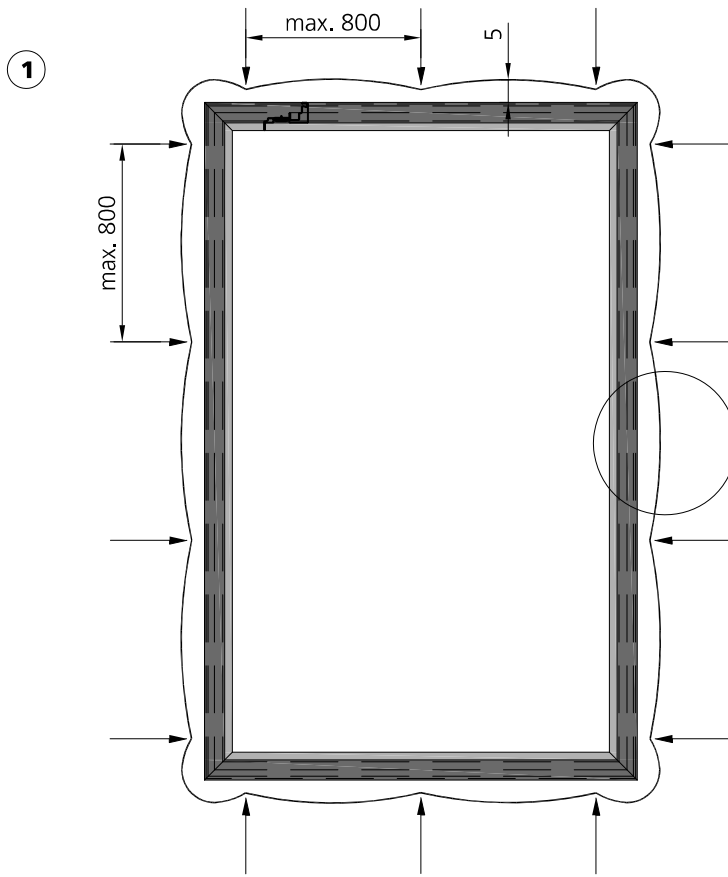
Pour la décompression de la feuillure, encocher le joint de feuillure central sur une longueur de 100 mm.

To decompress the rebate, the middle rebate seal is notched out at a length of 100 mm.

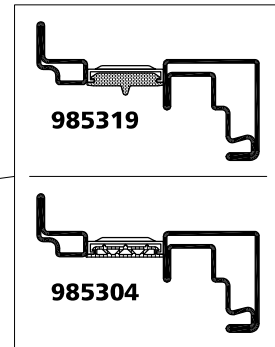
**Dichtungseinbau  
Falzabdeckung Flügel**

**Montage du joint  
Recouvrement de feuillure  
vantail**

**Installation of seal  
Rebate cover of double sash  
leaf**

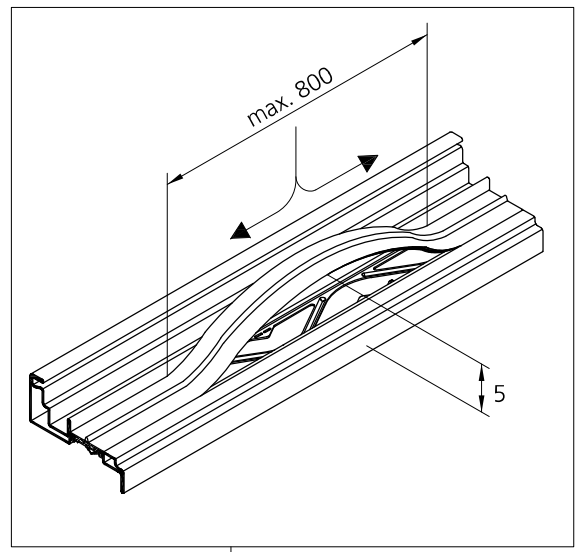
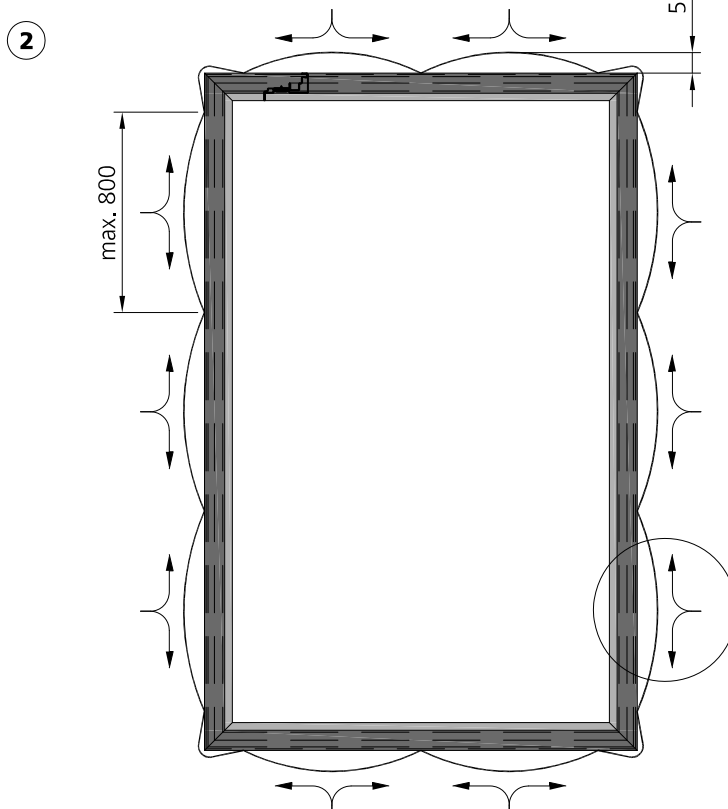


**forsterunico® XSH**



MINERGIE®

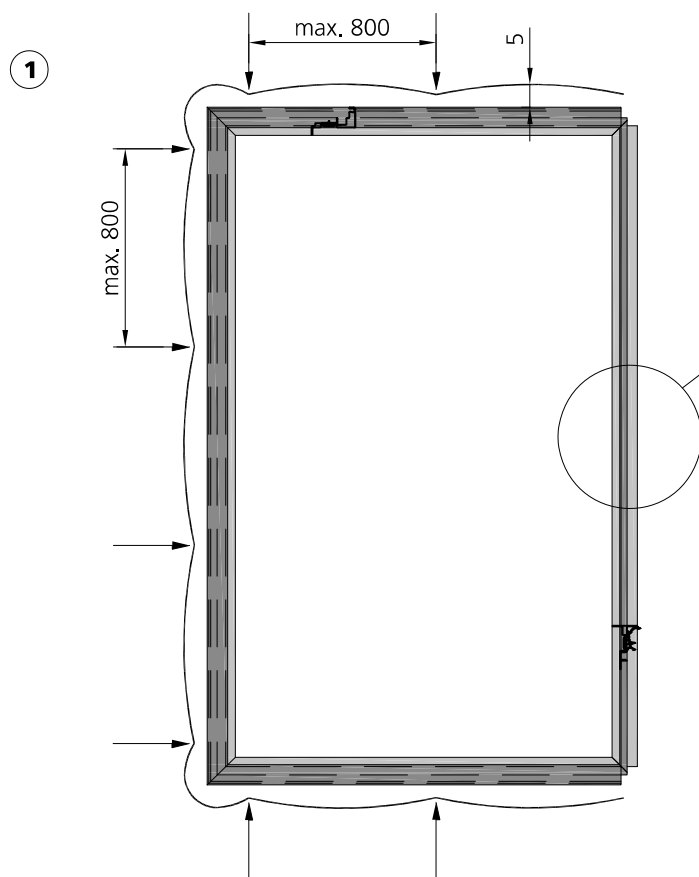
**forsterunico® XS**



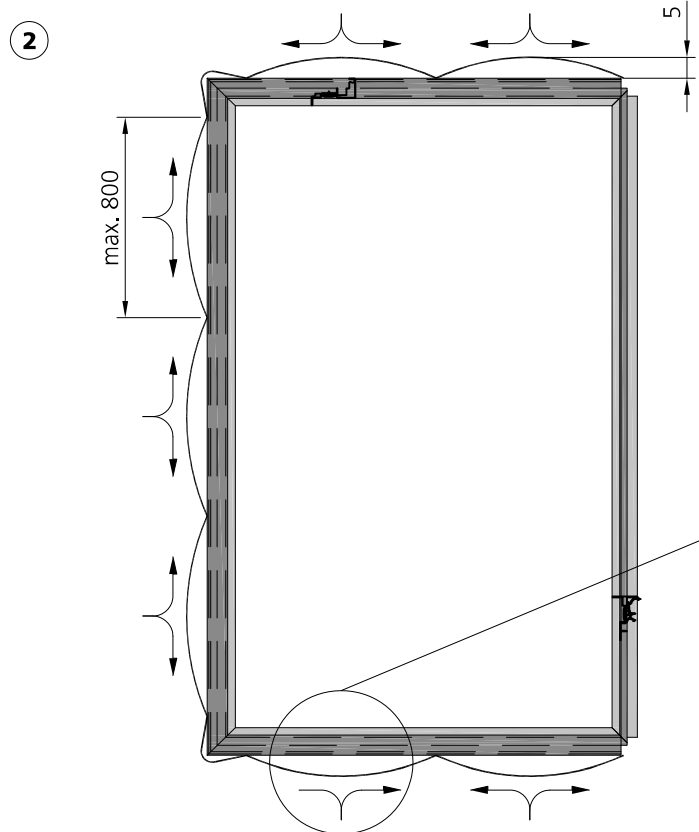
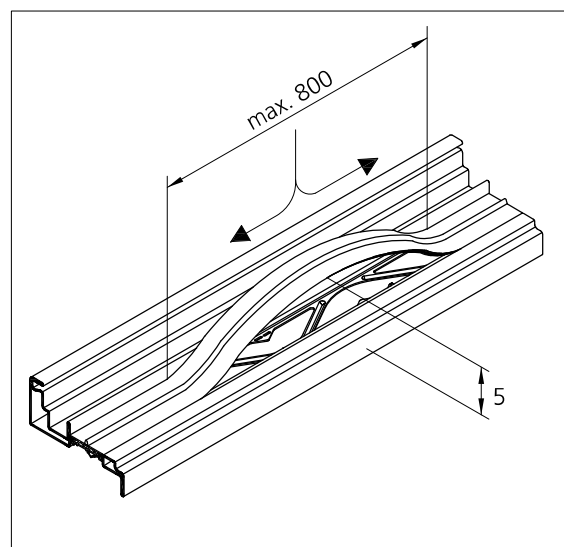
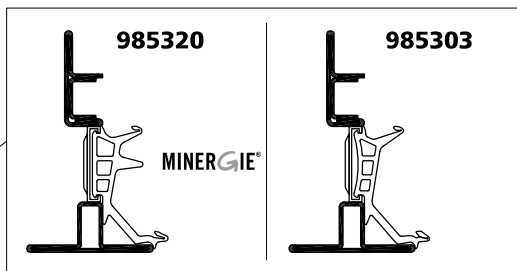
**Dichtungseinbau  
Falzabdeckung Stulpflügel**

**Montage du joint  
Recouvrement de feuillure  
vantail semi-fixe**

**Installation of seal  
Rebate cover of double sash  
leaf**

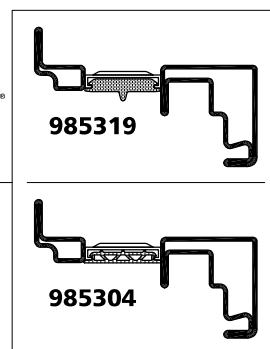


**forsterunico® XSH<sup>i</sup>** **forsterunico® XS**



**forsterunico® XSH<sup>i</sup>**

MINERGIE®



**forsterunico® XS**

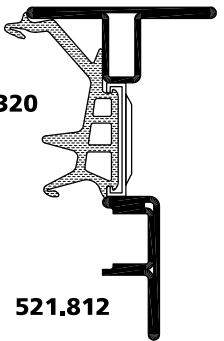
## Dichtungseinbau Stulp Endkappe

## Montage du joint Bouchon pour vantail semi- fixe

## Installation of seal Cover cap for double sash leaf

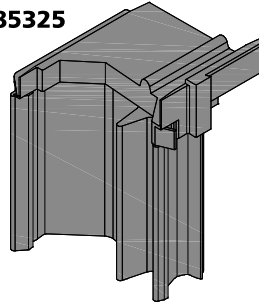
MINERGIE®

985320



521.812

985325

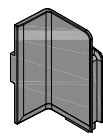


Die Endkappen werden mit  
**Art. Nr. 908005** eingeklebt.

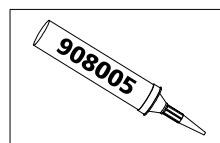
Coller les bouchons avec du produit  
**art. no. 908005.**

The cover caps are bonded in with  
**art. no. 908005.**

985603

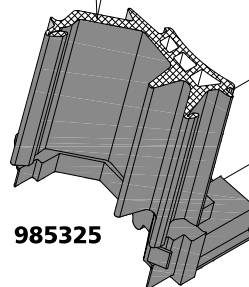


985320



908005

985325



985603

Luftspalt  
Entrefer  
Air space

**Dichtungseinbau  
Stulp Endkappe**

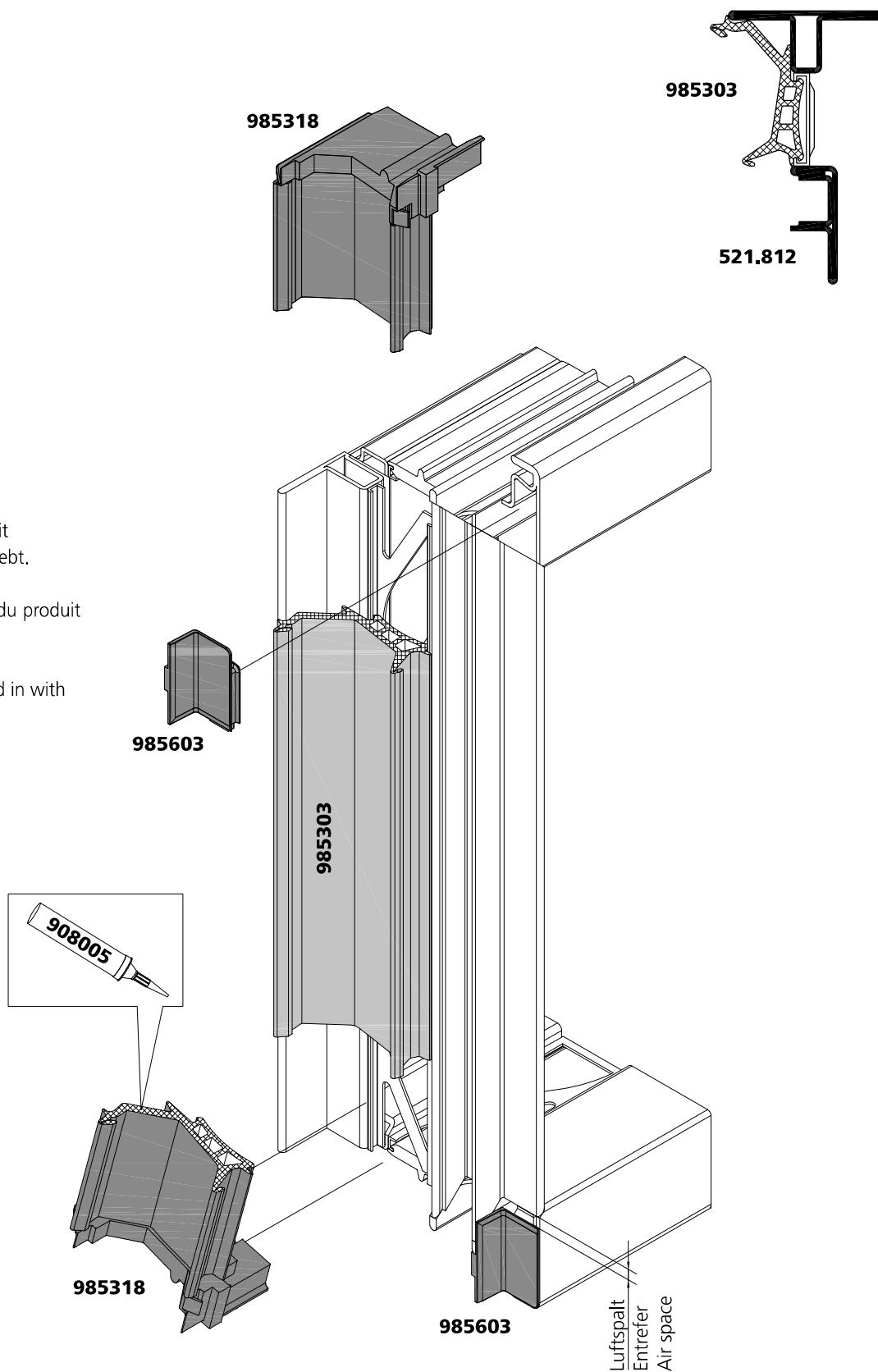
**Montage du joint  
Bouchon pour vantail semi-  
fixe**

**Installation of seal  
Cover cap for double sash  
leaf**

Die Endkappen werden mit  
**Art. Nr. 908005** eingeklebt.

Coller les bouchons avec du produit  
**art. no. 908005.**

The cover caps are bonded in with  
**art. no. 908005.**



**Dichtungseinbau  
Anschlagdichtung**

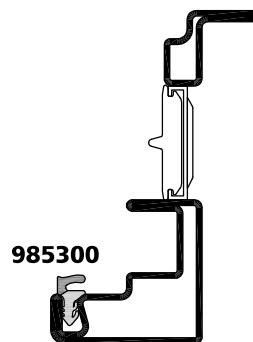
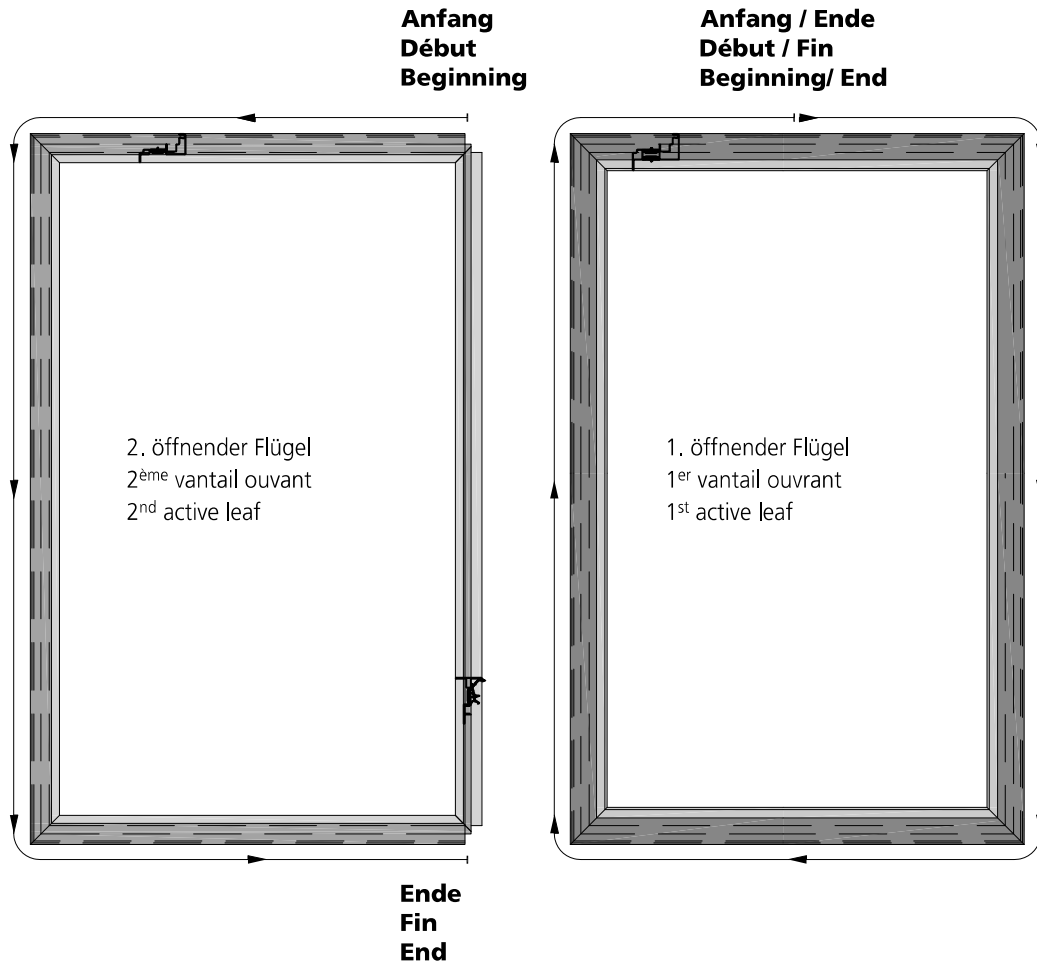
**Montage du joint  
Joint de butée**

**Installation of seal  
Weatherstripping**

**Flügel**

**Vantail**

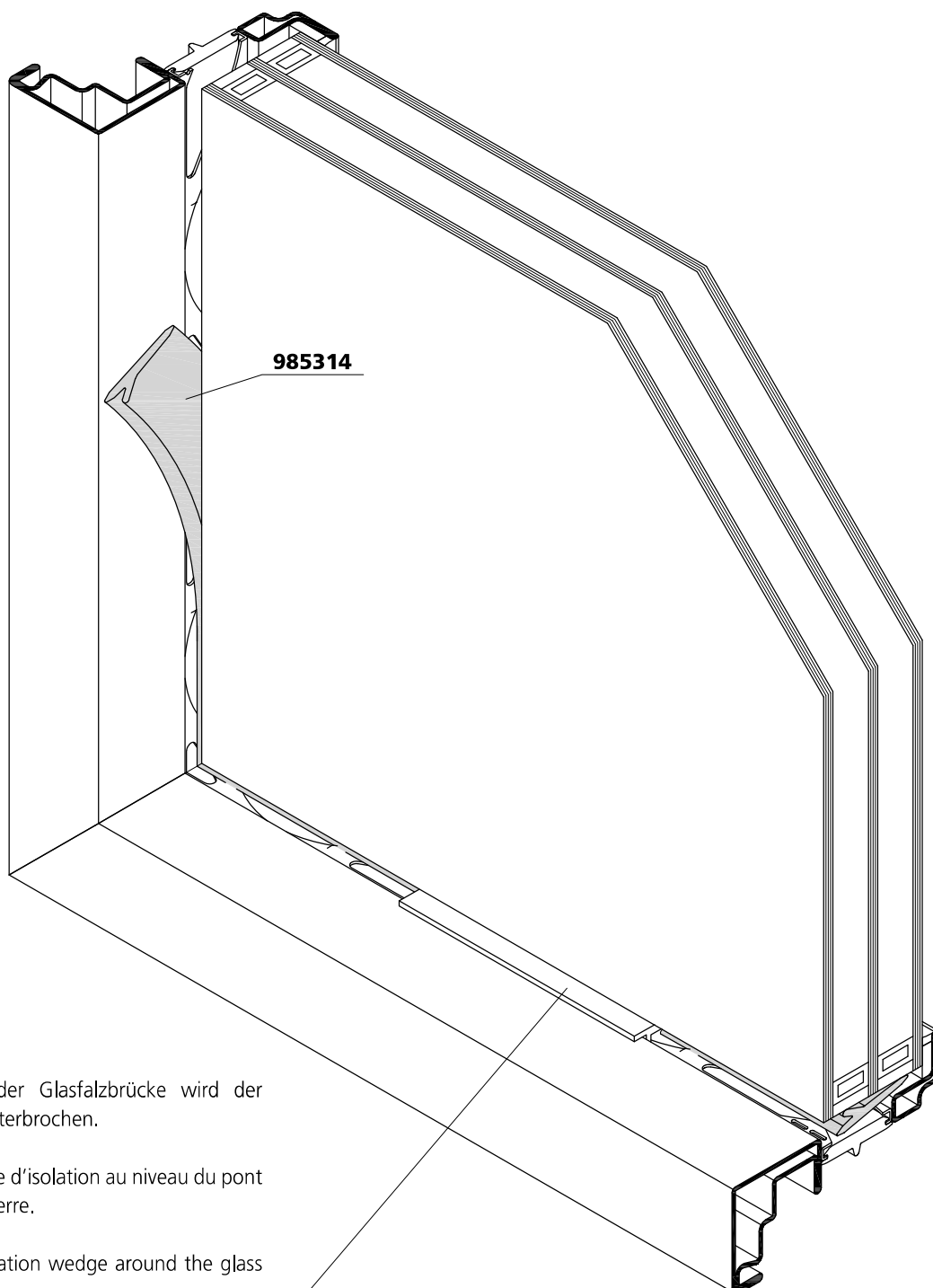
**Leaf**



**Flügel  
Einbau Dämmkeil**

**Vantail  
Montage de la cale  
d'isolation**

**Leaf  
Installation of the  
insulation wedge**



Im Bereich der Glasfalzbrücke wird der Dämmkeil unterbrochen.

Couper la cale d'isolation au niveau du pont feuillure du verre.

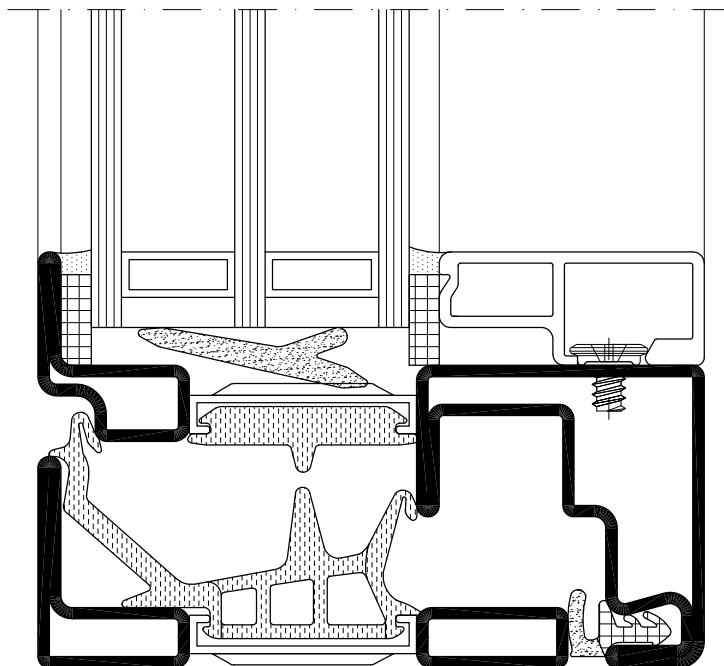
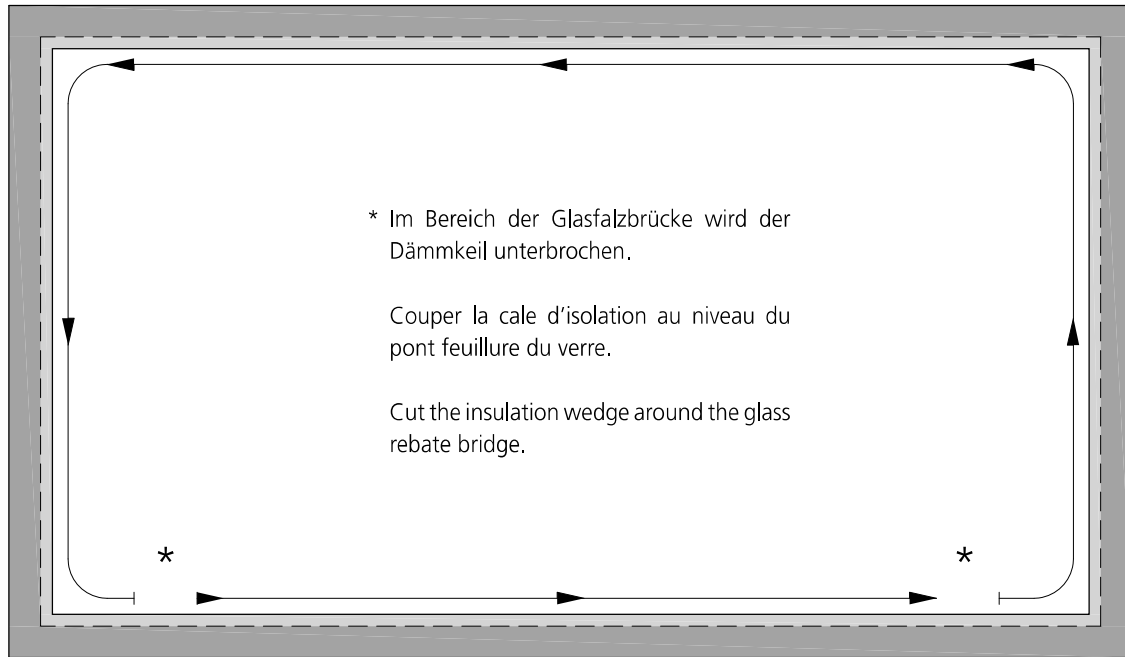
Cut the insulation wedge around the glass rebate bridge.



**Flügel  
Einbau Dämmkeil**

**Vantail  
Montage de la cale  
d'isolation**

**Leaf  
Installation of the  
insulation wedge**

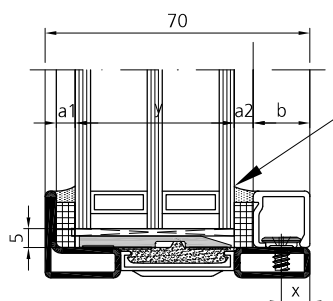


## Nassverglasung Bautiefe 70

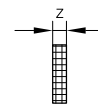
## Vitrage au silicone Profondeur 70

## Wet glazing Depth 70

y = 20 - 42



Versiegelung mind. bündig mit dem Glasrandverbund ziehen.  
Le joint d'étanchéité doit être au minimum au niveau du joint de scellement du vitrage.  
Pull seal at least flush with glass edge seal.



z	Art. Nr.:
4mm	988002
5mm	988003
6mm	988004
8mm	988006

Glas- dicke Epaisseur de verre Glass thickness  y [mm]	Glashalteiste Stahl/Edelstahl Parclose acier/acier inox Glazing beads steel/stainless steel  Stahl / Acier / Steel: Nr.	Glashalteiste Aluminium Parclose en Aluminium Glazing beads Aluminium  Aluminium: Nr.	Vorlegeband Bande de vitrage Glazing tape					Bohr- mass x Trusqui- nage x Hole dis- tance x
			a1 = 5 [mm] a2 = 5 [mm]	a1 = 5 [mm] a2 = 6 [mm]	a1 = 6 [mm] a2 = 6 [mm]	a1 = 5 [mm] a2 = 8 [mm]	a1 = 6 [mm] a2 = 8 [mm]	
20 - 22		901354	22	21	20	-	-	13 [mm]
23 - 27		901353	27	26	25	24	23	13 [mm]
28 - 32		901352	32	31	30	29	28	13 [mm]
33 - 37		901351	37	36	35	34	33	8 [mm]
34 - 38	901203		38	37	36	35	34	8 [mm]
38 - 42	901202	901350	42	41	40	39	38	8 [mm]

Diese theoretischen Verglasungstabellen gelten nur für flächenbündig gesetzte Glashalteleisten (Bohrmass x).

Bei versetzter Anordnung der Glashalteleisten sowie Toleranzen bei den Füllelementen sind Vorversuche durchzuführen.

Ces tableaux théoriques de vitrage sont seulement valables pour des parclose affleurées (trusquinage x).

Lors d'une disposition décalée des parclose, ainsi que pour les tolérances concernant les éléments de remplissage, des essais préalables doivent être effectués.

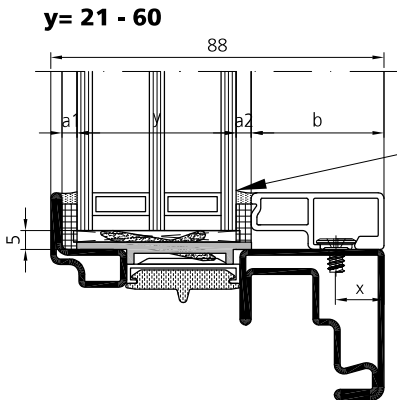
These theoretical glazing tables apply only to flush-fitting glazing beads (distance between holes x).

Where glazing beads are placed alternately and where there are tolerances in the infill element, a trial run is necessary before.

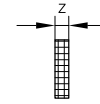
**Nassverglasung  
Bautiefe 88**

**Vitrage au silicone  
Profondeur 88**

**Wet glazing  
Depth 88**



Versiegelung mind. bündig mit dem Glasrandverbund ziehen.  
Le joint d'étanchéité doit être au minimum au niveau du joint de scellement du vitrage.  
Pull seal at least flush with glass edge seal.



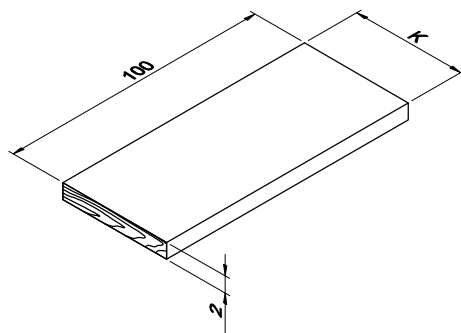
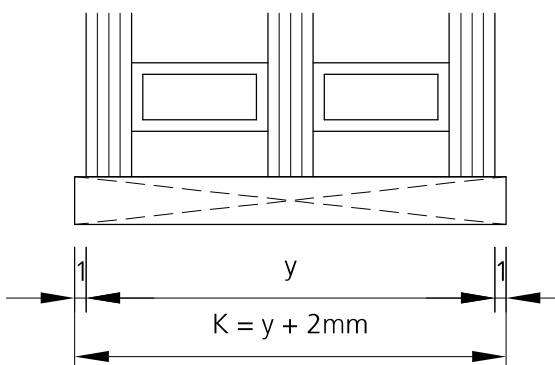
z	Art. Nr.:
4mm	988002
5mm	988003
6mm	988004
8mm	988006

Glas- dicke Epaisseur de verre Glass thickness  y [mm]	Glashalteleiste Stahl/Edelstahl Parclose acier/acier inox Glazing beads steel/stainless steel  Stahl / Acier / Steel: Nr.	Glashalteleiste Aluminium Parclose en Aluminium Glazing beads Aluminium  Aluminium: Nr.	Vorlegeband Bande de vitrage Glazing tape					Bohr- mass x Trusqui- nage x Hole dis- tance x
			a1 = 5 [mm] a2 = 5 [mm]	a1 = 5 [mm] a2 = 6 [mm]	a1 = 6 [mm] a2 = 6 [mm]	a1 = 5 [mm] a2 = 8 [mm]	a1 = 6 [mm] a2 = 8 [mm]	
<b>21 - 25</b>								13 [mm]
<b>26 - 30</b>								13 [mm]
<b>31 - 35</b>								13 [mm]
<b>36 - 40</b>								13 [mm]
<b>41 - 45</b>								13 [mm]
<b>46 - 50</b>								13 [mm]
<b>51 - 55</b>								8 [mm]
<b>52 - 56</b>								8 [mm]
<b>56 - 60</b>								8 [mm]

**Verglasung  
Glasfalzbrücke  
Bautiefe 70**

**Vitrage  
Pont feuillure du verre  
profondeur 70**

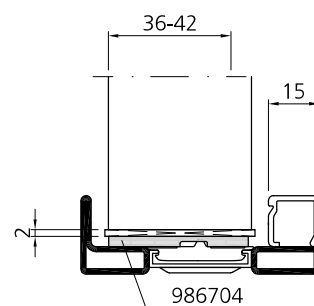
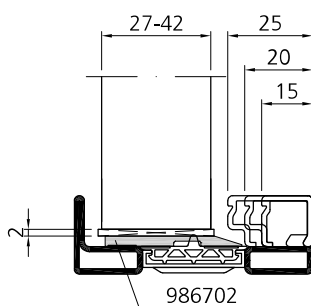
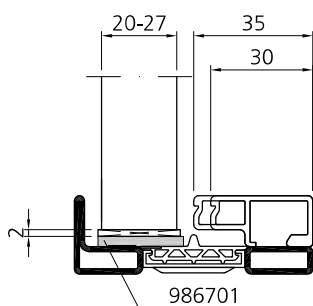
**Glazing  
Glass rebate bridge  
structural depth 70**



**forster** unico® XS

**forster** unico® XS

**forster** unico® XSH<sup>i</sup>

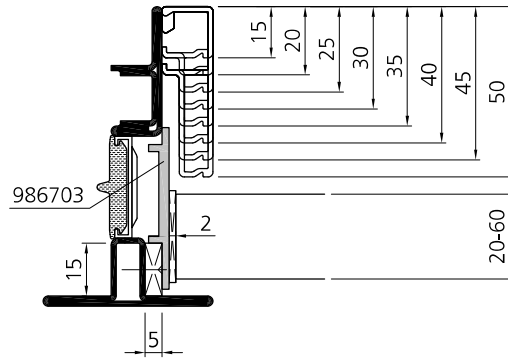
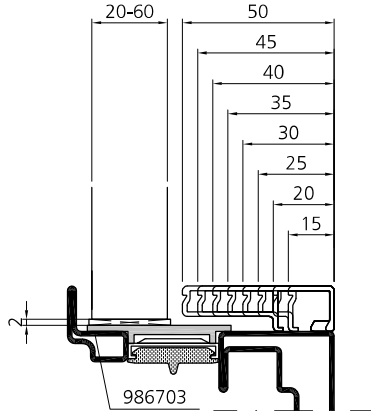


Glasdicke Epaisseur de verre Glass thickness y [mm]	Glashalteleiste Stahl/Edelstahl Parclose acier/acier inox Glazing beads steel/stainless steel Stahl / Acier / Steel: Nr.	Glashalteleiste Aluminium Parclose en Aluminium Glazing beads Aluminium Aluminium: Nr.	Glasfalzbrücke Pont feuillure en verre Glass rebate bridge Artikel: Nr.	Verglasungsklotz 2 [mm] Mass K Cale de vitrage 2 [mm] Cote K Glazing block 2 [mm] Size K
20 - 22		901354	986701	22 - 24
23 - 27		901353	986701	24 - 29
28 - 32		901352	986702	29 - 34
33 - 37		901351	986702	34 - 39
34 - 38	901203		986702	35 - 39
38 - 42	901202	901350	986702 986704	39 - 44

**Verglasung  
Glasfalzbrücke  
Bautiefe 88**

**Vitrage  
Pont feuillure du verre  
profondeur 88**

**Glazing  
Glass rebate bridge  
structural depth 88**




Glasdicke Epaisseur de verre Glass thickness y [mm]	Glashalteleiste Stahl/Edelstahl Parclose acier/acier inox Glazing beads steel/stainless steel Stahl / Acier / Steel: Nr.	Glashalteleiste Aluminium Parclose en Aluminium Glazing beads Aluminium Aluminium: Nr.	Glasfalzbrücke Pont feuillure du verre Glass rebate bridge Artikel: Nr.	Verglasungsklotz 2 [mm] Mass K Cale de vitrage 2 [mm] Cote K Glazing block 2 [mm] Size K
21 - 25		901357	986703	22 - 27
26 - 30		901356	986703	27 - 32
31 - 35		901355	986703	32 - 37
36 - 40		901354	986703	37 - 42
41 - 45		901353	986703	42 - 47
46 - 50		901352	986703	47 - 52
51 - 55		901351	986703	52 - 57
52 - 56	901203		986703	52 - 57
56 - 60	901202	901350	986703	57 - 62

**Verglasung  
Glasfalzbrücke**

**Vitrage  
Pont feuillure du verre**

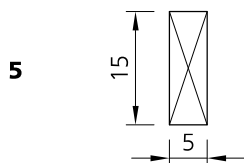
**Glazing  
Glass rebate bridge**

1  986701

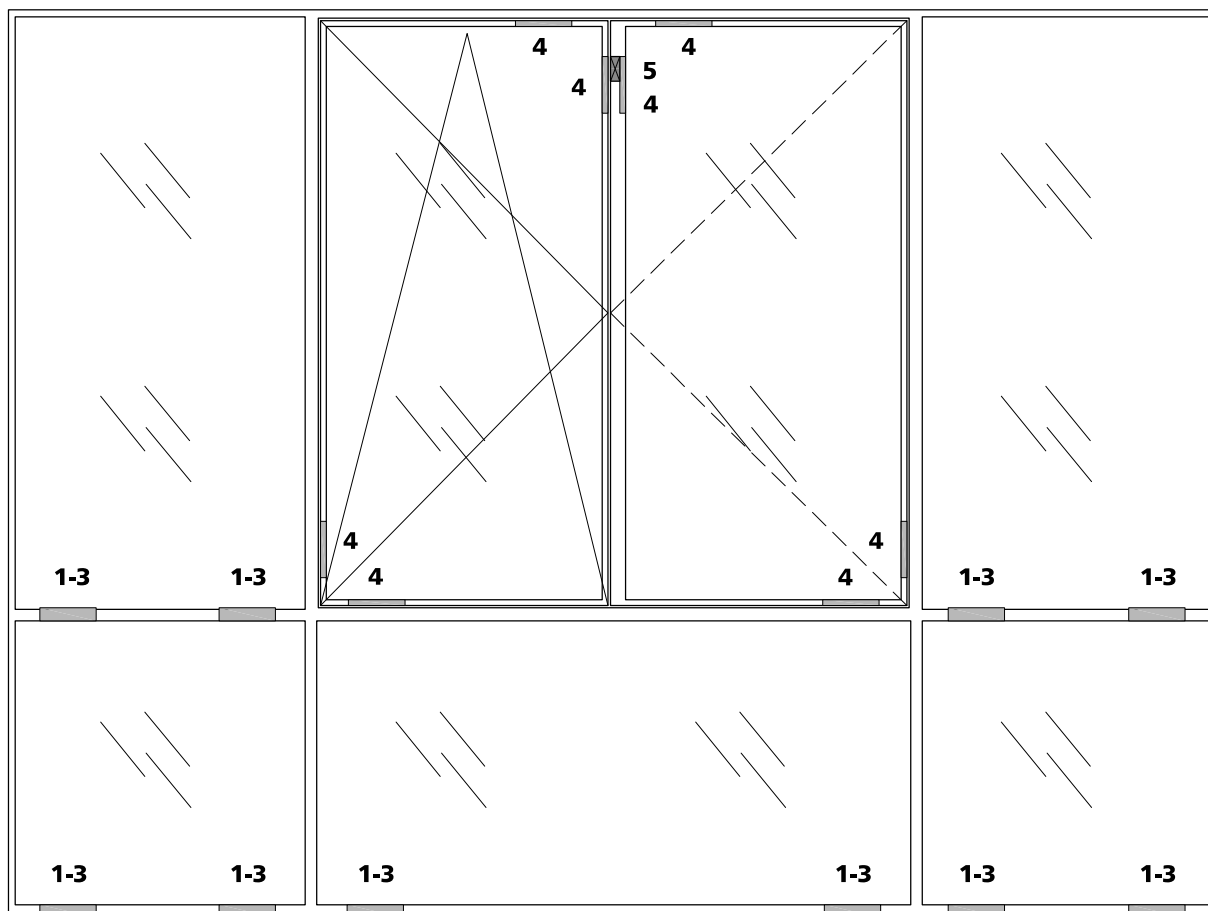
2  986702

3  986704

4  986703



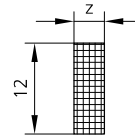
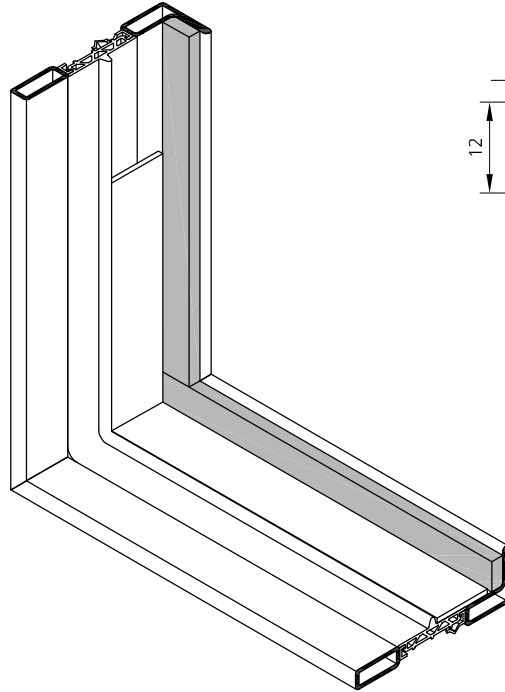
**Stulp Glasfalz (schweißen/kleben)  
Battue centrale feuillure du  
verre (soudier/coller)  
Glass rebate sash leaf (weld/bond)**



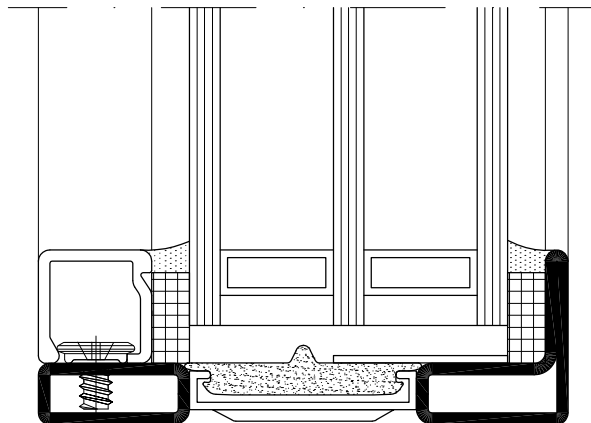
**Verglasung**  
Nassverglasung aussen

**Vitrage**  
Vitrage au silicone extérieur

**Glazing**  
Wet glazing outside



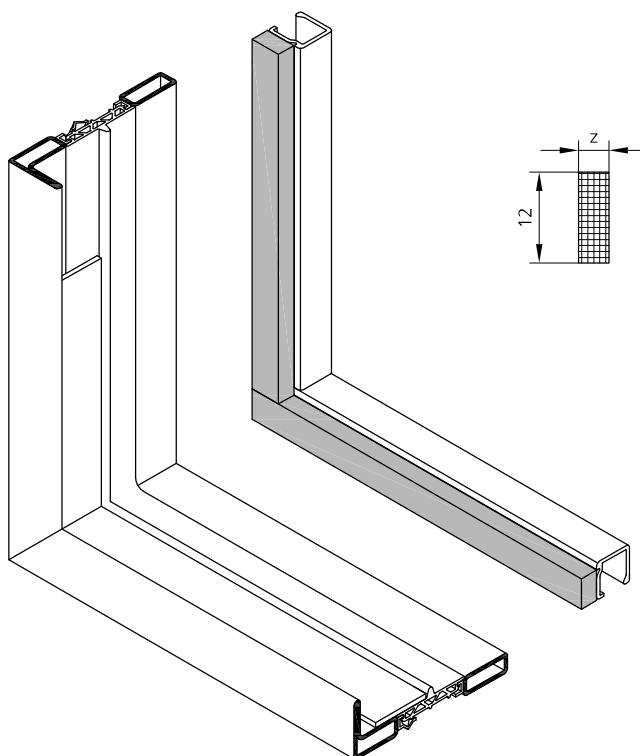
z	Art. Nr.:
4 [mm]	988002
5 [mm]	988003
6 [mm]	988004
8 [mm]	988006



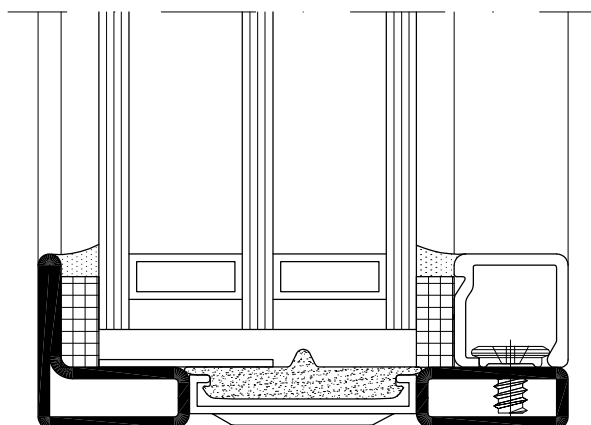
**Verglasung**  
Nassverglasung innen

**Vitrage**  
Vitrage au silicone intérieur

**Glazing**  
Wet glazing inside



z	Art. Nr.:
4 [mm]	988002
5 [mm]	988003
6 [mm]	988004
8 [mm]	988006





**Statik**

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

Beispiel:

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

**Statique**

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

Exemple:

Suivant le tableau ci-dessous, un profilé d'une longueur de 2535 [mm] une valeur  $I_y$  de 29,44 [cm] et une valeur  $W_y$  de 8,53 [cm].

**Static**

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

Example:

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

L [mm]	$I_y$ [cm <sup>4</sup> ]	$W_y$ [cm <sup>3</sup> ]	$I_z$ [cm <sup>4</sup> ]	$W_z$ [cm <sup>3</sup> ]
0 - 1999	<b>22.51</b>	<b>8.04</b>	<b>20.57</b>	<b>4.57</b>
2000 - 2499	<b>26.76</b>	<b>8.37</b>		
2500 - 2999	<b>29.44</b>	<b>8.53</b>		
3000 - 3499	<b>32.32</b>	<b>8.63</b>		
3500 - 3999	<b>33.13</b>	<b>8.69</b>		
4000 - 6000	<b>33.70</b>	<b>8.73</b>		

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****Belastungen**

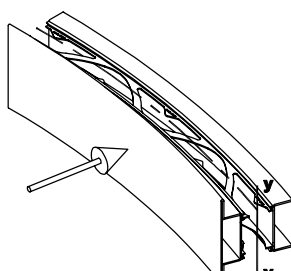
Profile, welche als Pfosten eingesetzt werden, sind im Regelfall mit Verkehrslasten beaufschlagt. Für diese Belastung sind die Werte bezüglich der y-Achse zu wählen.

**Statique****Charges**

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

**Static****Loads**

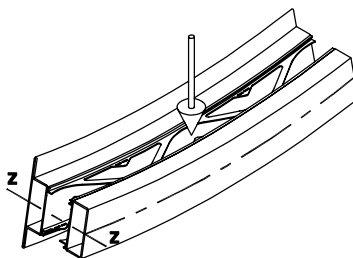
Profiles, used as transom are normally subjected to traffic loads. For these loads, select the value in respect to the y-axis.

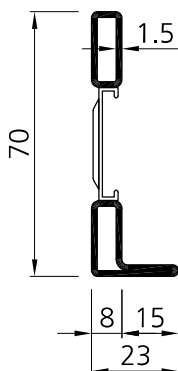


Profile, welche als Riegel eingesetzt werden, sind im Regelfall mit der Belastung vom Glasgewicht beaufschlagt. Für diese Belastung sind die Werte bezüglich der z-Achse zu wählen.

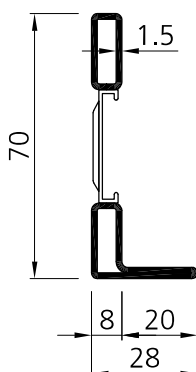
Les profilés utilisés comme traverses subissent en général une charge équivalente au poids du verre. Pour cette charge, il faut choisir les valeurs relatives à l'axe z.

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

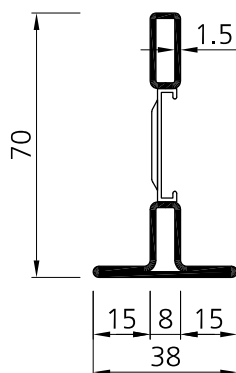


**Geometrische  
Querschnittswerte**
**Valeurs de résistance**
**Mechanical strength**

**521.701  
521.701 Z**

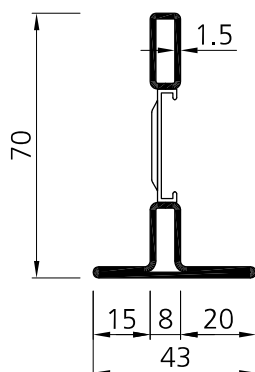
L [mm ]	I <sub>y</sub> [cm <sup>4</sup> ]	W <sub>y</sub> [cm <sup>3</sup> ]	I <sub>z</sub> [cm <sup>4</sup> ]	W <sub>z</sub> [cm <sup>3</sup> ]
- 999	<b>3.32</b>	<b>0.09</b>	<b>0.55</b>	<b>0.36</b>
1000 - 1999	<b>7.00</b>	<b>0.35</b>		
2000 - 3000	<b>11.22</b>	<b>1.44</b>		


**520.701  
520.701 Z**

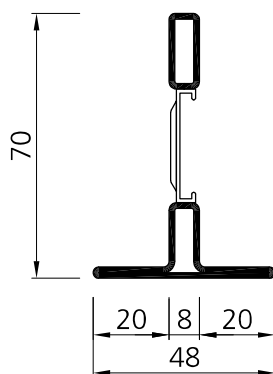
L [mm ]	I <sub>y</sub> [cm <sup>4</sup> ]	W <sub>y</sub> [cm <sup>3</sup> ]	I <sub>z</sub> [cm <sup>4</sup> ]	W <sub>z</sub> [cm <sup>3</sup> ]
- 999	<b>3.45</b>	<b>0.09</b>	<b>0.96</b>	<b>0.53</b>
1000 - 1999	<b>7.32</b>	<b>0.35</b>		
2000 - 3000	<b>11.87</b>	<b>1.44</b>		

**Geometrische  
Querschnittswerte**
**Valeurs de résistance**
**Mechanical strength**

**521.702  
521.702 Z**

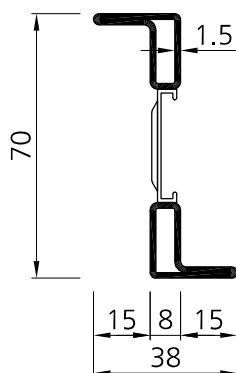
L [mm ]	I <sub>y</sub> [cm <sup>4</sup> ]	W <sub>y</sub> [cm <sup>3</sup> ]	I <sub>z</sub> [cm <sup>4</sup> ]	W <sub>z</sub> [cm <sup>3</sup> ]
- 999	<b>3.64</b>	<b>0.09</b>	<b>1.43</b>	<b>0.75</b>
1000 - 1999	<b>7.82</b>	<b>0.36</b>		
2000 - 3000	<b>12.91</b>	<b>1.44</b>		


**520.702  
520.702 Z**

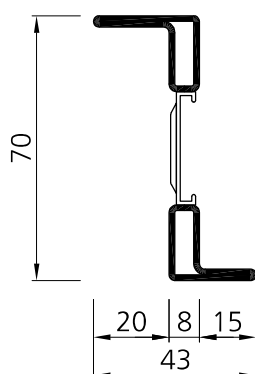
L [mm ]	I <sub>y</sub> [cm <sup>4</sup> ]	W <sub>y</sub> [cm <sup>3</sup> ]	I <sub>z</sub> [cm <sup>4</sup> ]	W <sub>z</sub> [cm <sup>3</sup> ]
- 999	<b>3.71</b>	<b>0.09</b>	<b>2.07</b>	<b>0.93</b>
1000 - 1999	<b>8.01</b>	<b>0.36</b>		
2000 - 3000	<b>13.34</b>	<b>1.44</b>		


**522.702  
522.702 Z**

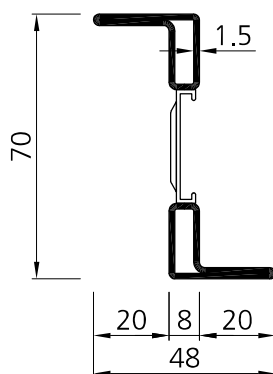
L [mm ]	I <sub>y</sub> [cm <sup>4</sup> ]	W <sub>y</sub> [cm <sup>3</sup> ]	I <sub>z</sub> [cm <sup>4</sup> ]	W <sub>z</sub> [cm <sup>3</sup> ]
- 999	<b>3.78</b>	<b>0.09</b>	<b>2.82</b>	<b>1.18</b>
1000 - 1999	<b>8.18</b>	<b>0.36</b>		
2000 - 3000	<b>13.72</b>	<b>1.44</b>		

**Geometrische  
Querschnittswerte**
**Valeurs de résistance**
**Mechanical strength**

**521.703  
521.703 Z**

L [mm ]	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> ]
- 999	<b>3.99</b>	<b>0.09</b>	<b>0.55</b>	<b>0.36</b>
1000 - 1999	<b>8.77</b>	<b>0.36</b>		
2000 - 3000	<b>15.07</b>	<b>1.44</b>		


**522.703  
522.703 Z**

L [mm ]	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> ]
- 999	<b>4.12</b>	<b>0.09</b>	<b>0.55</b>	<b>0.36</b>
1000 - 1999	<b>9.16</b>	<b>0.36</b>		
2000 - 3000	<b>16.00</b>	<b>1.44</b>		

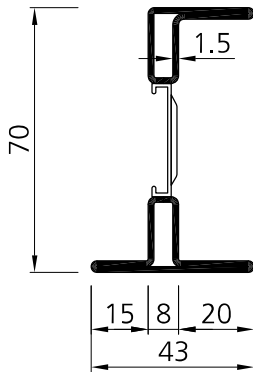

**520.703  
520.703 Z**

L [mm ]	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> ]
- 999	<b>4.26</b>	<b>0.09</b>	<b>0.96</b>	<b>0.53</b>
1000 - 1999	<b>9.56</b>	<b>0.36</b>		
2000 - 3000	<b>17.00</b>	<b>1.44</b>		

**Geometrische  
Querschnittswerte**

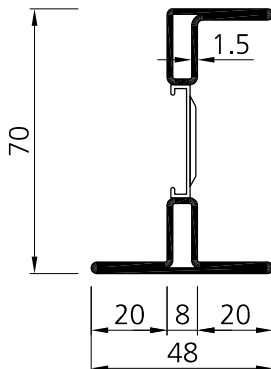
**Valeurs de résistance**

**Mechanical strength**



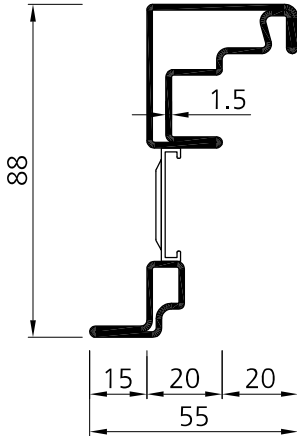
**521.705  
521.705 Z**

L [mm ]	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> ]
- 999	<b>4.55</b>	<b>0.09</b>	<b>2.07</b>	<b>0.93</b>
1000 - 1999	<b>10.44</b>	<b>0.36</b>		
2000 - 3000	<b>19.33</b>	<b>1.43</b>		

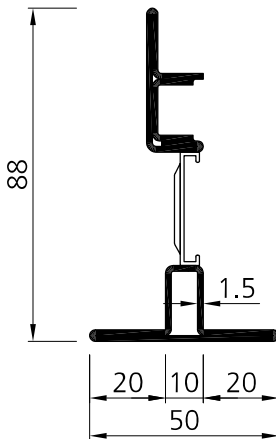


**520.705  
520.705 Z**

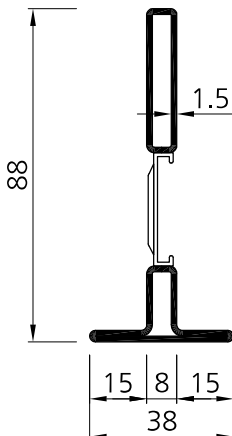
L [mm ]	I <sub>y</sub> [cm <sup>4</sup> ]	W <sub>y</sub> [cm <sup>3</sup> ]	I <sub>z</sub> [cm <sup>4</sup> ]	W <sub>z</sub> [cm <sup>3</sup> ]
- 999	<b>4.62</b>	<b>0.09</b>	<b>2.82</b>	<b>1.18</b>
1000 - 1999	<b>10.66</b>	<b>0.36</b>		
2000 - 3000	<b>19.94</b>	<b>1.43</b>		

**Geometrische  
Querschnittswerte**
**Valeurs de résistance**
**Mechanical strength**

**521.801 Z  
521.801**

L [mm]	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> ]
- 999	<b>3.64</b>	<b>0.09</b>	<b>1.43</b>	<b>0.75</b>
1000 - 1999	<b>7.82</b>	<b>0.36</b>		
2000 - 3000	<b>12.91</b>	<b>1.44</b>		


**521.812  
521.812 Z**

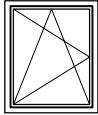
L [mm]	I <sub>y</sub> [cm <sup>4</sup> ]	W <sub>y</sub> [cm <sup>3</sup> ]	I <sub>z</sub> [cm <sup>4</sup> ]	W <sub>z</sub> [cm <sup>3</sup> ]
- 999	<b>9.32</b>	<b>2.44</b>	<b>2.97</b>	<b>1.19</b>
1000 - 1999	<b>13.14</b>	<b>3.02</b>		
2000 - 3000	<b>19.96</b>	<b>3.78</b>		


**521.802  
521.802 Z**

L [mm]	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> ]
- 999	<b>3.99</b>	<b>0.09</b>	<b>0.55</b>	<b>0.36</b>
1000 - 1999	<b>8.77</b>	<b>0.36</b>		
2000 - 3000	<b>15.07</b>	<b>1.44</b>		

**Berechnung der U<sub>f</sub>-Werte**  
für ein gesamtes Element gemäss  
EN 10077 - 1

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



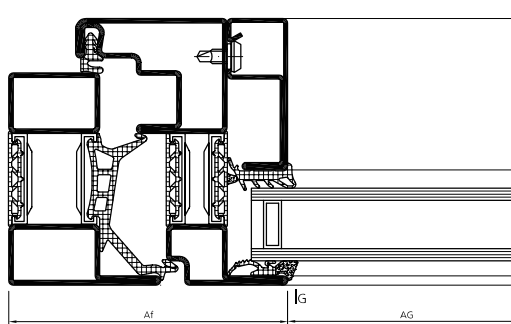
$$U_w = \frac{A_f \times U_f + A_g \times U_g + L_g \times \psi_g}{A_f + A_g}$$

**Calcul des valeurs U<sub>f</sub>**  
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

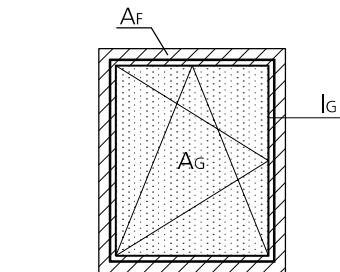
**Calculation of U<sub>f</sub>-value**  
of the complete unit according to  
EN 10077 - 1

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



- U<sub>w</sub>** = U-Wert Fenster [W/(m<sup>2</sup>·K)]
  - U<sub>d</sub>** = U-Wert Tür [W/(m<sup>2</sup>·K)]
  - A<sub>f</sub>** = Sichtbare Fläche Rahmen [m<sup>2</sup>]
  - U<sub>f</sub>** = U-Wert der Rahmenkombination [W/(m<sup>2</sup>·K)]
  - A<sub>g</sub>** = Sichtbare Fläche Glas [m<sup>2</sup>]
  - U<sub>g</sub>** = U-Wert des Glases [W/(m<sup>2</sup>·K)]
  - L<sub>g</sub>** = Umfang des sichtbaren Glasanteils [m]
  - ψ<sub>g</sub>** = Längenbezogener Wärmedurchgangskoeffizient [W/(m·K)]
- Tabelle E1 der EN 10077-1 (2006)

- U<sub>w</sub>** = Coefficient de transmission thermique de la fenêtre [W/(m<sup>2</sup>·K)]
  - U<sub>d</sub>** = Coefficient de transmission thermique de la porte [W/(m<sup>2</sup>·K)]
  - A<sub>f</sub>** = Surface de l'encadrement [m<sup>2</sup>]
  - U<sub>f</sub>** = Coefficient de transmission thermique de l'encadrement [W/(m<sup>2</sup>·K)]
  - A<sub>g</sub>** = Surface du vitrage [m<sup>2</sup>]
  - U<sub>g</sub>** = Coefficient de transmission thermique du vitrage [W/(m<sup>2</sup>·K)]
  - L<sub>g</sub>** = Périmètre du vitrage visible [m]
  - ψ<sub>g</sub>** = Valeurs du coefficient de transmission thermique linéique pour les intercalaires du vitrage [W/(m·K)]
- Tableau E1 EN ISO 10077-1 (2006)



- U<sub>w</sub>** = Thermal transmittance of the window [W/(m<sup>2</sup>·K)]
  - U<sub>d</sub>** = Thermal transmittance of the door [W/(m<sup>2</sup>·K)]
  - A<sub>f</sub>** = Area of the frame [m<sup>2</sup>]
  - U<sub>f</sub>** = Thermal transmittance of the frame [W/(m<sup>2</sup>·K)]
  - A<sub>g</sub>** = Aire du vitrage [m<sup>2</sup>]
  - U<sub>g</sub>** = Thermal transmittance of the glazing [W/(m<sup>2</sup>·K)]
  - L<sub>g</sub>** = Perimeter of the visible glazing [m]
  - ψ<sub>g</sub>** = Values of linear thermal transmittance for common types of glazing spacer bars [W/(m·K)]
- Table E1 EN ISO 10077-1 (2006)

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

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

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

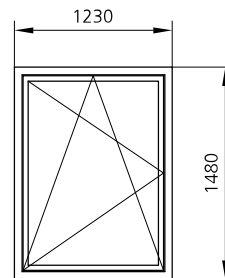
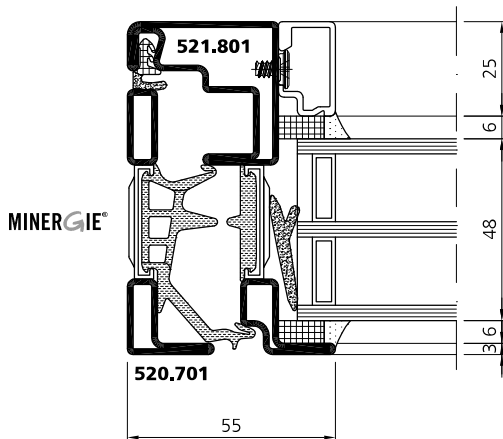
	2- oder 3 Scheiben Isolierverglasung, unbeschichtetes Glas, Luft oder Gaszwischenraum Vitrage double ou triple, verre non revêtu, lame d'air ou de gaz Double or triple glazing uncoated glass air- or gas-filled	2- oder 3 Scheiben Isolierverglasung, mit niedrigem Emissionsgrad, Luft oder Gaszwischenraum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

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

- a) intercalaires de vitrages 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  $U_w$ -Werte**für ein gesamtes Element gemäss  
EN 10077 - 1**Calcul des valeurs  $U_w$** pour tout l'élément selon la norme  
EN 10077 - 1**Calculation of  $U_w$ -value**of the complete unit according to  
EN 10077 - 1

$$A_w = \text{Fläche gesamtes Element} \\ 1.23 \cdot 1.48 = 1.82 [\text{m}^2]$$

$$A_w = \text{surface de la fenêtre} \\ 1.23 \cdot 1.48 = 1.82 [\text{m}^2]$$

$$A_w = \text{area of the window} \\ 1.23 \cdot 1.48 = 1.82 [\text{m}^2]$$

$$A_g = \text{Sichtbare Fläche Glas} \\ 1.12 \cdot 1.37 = 1.53 [\text{m}^2]$$

$$A_g = \text{surface du vitrage} \\ 1.12 \cdot 1.37 = 1.53 [\text{m}^2]$$

$$A_g = \text{area of the glazing} \\ 1.12 \cdot 1.37 = 1.53 [\text{m}^2]$$

$$A_f = \text{Sichtbare Fläche Rahmen} \\ A_w - A_f \\ 1.82 - 1.53 = 0.29 [\text{m}^2]$$

$$A_f = \text{surface de l'encadrement} \\ A_w - A_f \\ 1.82 - 1.53 = 0.29 [\text{m}^2]$$

$$A_f = \text{area of the frame} \\ A_w - A_f \\ 1.82 - 1.53 = 0.29 [\text{m}^2]$$

$$L_g = \text{Umfang des sichtbaren Glasanteils} \\ 2 \cdot 1.12 + 2 \cdot 1.37 = 2.98 [\text{m}]$$

$$L_g = \text{périmètre du vitrage visible} \\ 2 \cdot 1.12 + 2 \cdot 1.37 = 2.98 [\text{m}]$$

$$L_g = \text{perimeter of the visible glazing} \\ 2 \cdot 1.12 + 2 \cdot 1.37 = 2.98 [\text{m}]$$

$$U_f = \text{U-Wert der Rahmenkombination} \\ 2.1 [\text{W}/(\text{m}^2\text{K})]$$

$$U_f = \text{coefficient de transmission thermique de l'encadrement} \\ 2.1 [\text{W}/(\text{m}^2\text{K})]$$

$$U_f = \text{thermal transmittance of the frame} \\ 2.1 [\text{W}/(\text{m}^2\text{K})]$$

$$U_g = \text{U-Wert des Glases} \\ 0.5 [\text{W}/(\text{m}^2\text{K})]$$

$$U_g = \text{coefficient de transmission thermique du vitrage} \\ 0.5 [\text{W}/(\text{m}^2\text{K})]$$

$$U_g = \text{thermal transmittance of the glazing} \\ 0.5 [\text{W}/(\text{m}^2\text{K})]$$

$$\psi_g = \text{Längenbezogener Wärmedurchgangskoeffizient gemäss EN 10077-1 (2006)} \\ 0.031 [\text{W}/(\text{mK})]$$

$$\psi = \text{coefficient de transmission thermique linéique dû aux effets thermiques combinés de l'intercalaire du vitrage et du cadre} \\ 0.031 [\text{W}/(\text{mK})]$$

$$\psi = \text{linear thermal transmittance due to the combined thermal effects of glazing, spacer and frame} \\ 0.031 [\text{W}/(\text{mK})]$$

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

$$U_w = \frac{0.29 \cdot 2.1 + 1.53 \cdot 0.5 + 2.98 \cdot 0.031}{0.29 + 1.53}$$

$$= 0.84 [\text{W}/(\text{m}^2\text{K})]$$

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

Festfeld / Fenster  
Forster unico XS Hi

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

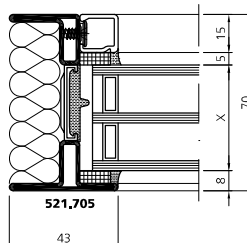
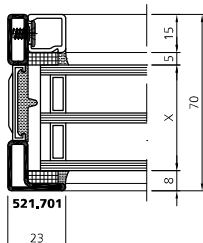
Vitrage fixe / fenêtre  
Forster unico XS Hi

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

Fixed glazing / window  
Forster unico XS Hi

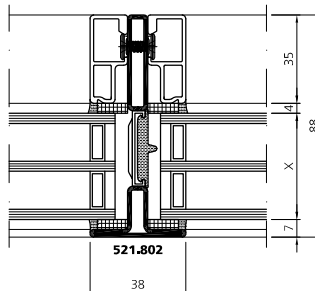
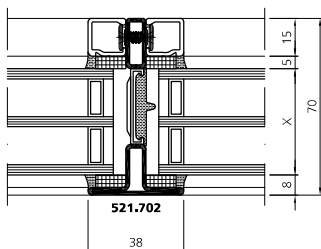
x = 36 : U<sub>f</sub> = 2.4 [W/(m<sup>2</sup> · K)]  
x = 42 : U<sub>f</sub> = 2.4 [W/(m<sup>2</sup> · K)]  
x = 48 : U<sub>f</sub> = 2.3 [W/(m<sup>2</sup> · K)]

x = 36 : U<sub>f</sub> = 1.7 [W/(m<sup>2</sup> · K)]  
x = 42 : U<sub>f</sub> = 1.6 [W/(m<sup>2</sup> · K)]  
x = 48 : U<sub>f</sub> = 1.6 [W/(m<sup>2</sup> · K)]



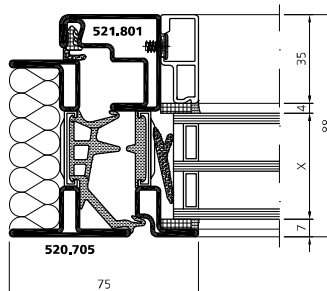
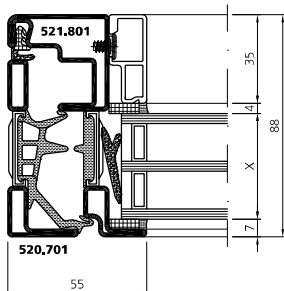
x = 36 : U<sub>f</sub> = 2.2 [W/(m<sup>2</sup> · K)]  
x = 42 : U<sub>f</sub> = 2.2 [W/(m<sup>2</sup> · K)]  
x = 48 : U<sub>f</sub> = 2.2 [W/(m<sup>2</sup> · K)]

x = 36 : U<sub>f</sub> = 2.2 [W/(m<sup>2</sup> · K)]  
x = 42 : U<sub>f</sub> = 2.2 [W/(m<sup>2</sup> · K)]  
x = 48 : U<sub>f</sub> = 2.3 [W/(m<sup>2</sup> · K)]

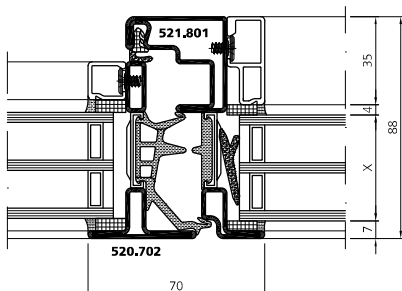


x = 36 : U<sub>f</sub> = 2.2 [W/(m<sup>2</sup> · K)] MINERGIE®  
x = 42 : U<sub>f</sub> = 2.2 [W/(m<sup>2</sup> · K)]  
x = 48 : U<sub>f</sub> = 2.2 [W/(m<sup>2</sup> · K)]

x = 36 : U<sub>f</sub> = 1.9 [W/(m<sup>2</sup> · K)] MINERGIE®  
x = 42 : U<sub>f</sub> = 1.9 [W/(m<sup>2</sup> · K)]  
x = 48 : U<sub>f</sub> = 1.9 [W/(m<sup>2</sup> · K)]



x = 36 : U<sub>f</sub> = 2.2 [W/(m<sup>2</sup> · K)] MINERGIE®  
x = 42 : U<sub>f</sub> = 2.2 [W/(m<sup>2</sup> · K)]  
x = 48 : U<sub>f</sub> = 2.2 [W/(m<sup>2</sup> · K)]



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

Fenster  
Forster unico XS Hi

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

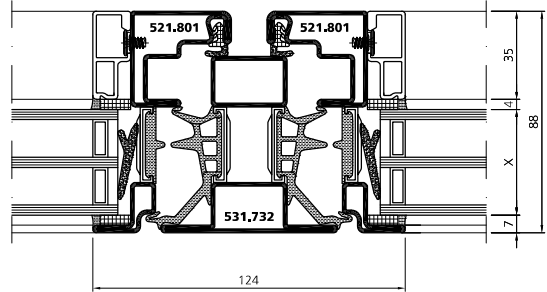
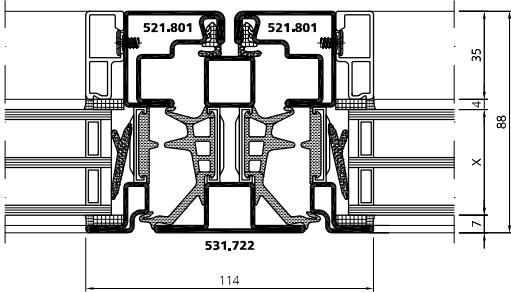
Fenêtre  
Forster unico XS Hi

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

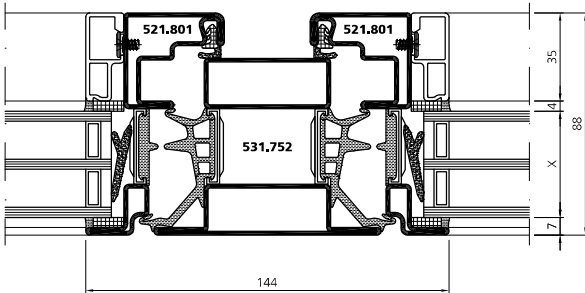
Window  
Forster unico XS Hi

x = 36 : U<sub>f</sub> = 2.2 [W/(m<sup>2</sup> · K)] MINERGIE®  
 x = 42 : U<sub>f</sub> = 2.2 [W/(m<sup>2</sup> · K)]  
 x = 48 : U<sub>f</sub> = 2.1 [W/(m<sup>2</sup> · K)]

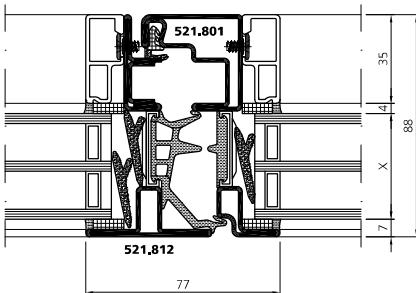
x = 36 : U<sub>f</sub> = 2.2 [W/(m<sup>2</sup> · K)] MINERGIE®  
 x = 42 : U<sub>f</sub> = 2.2 [W/(m<sup>2</sup> · K)]  
 x = 48 : U<sub>f</sub> = 2.1 [W/(m<sup>2</sup> · K)]



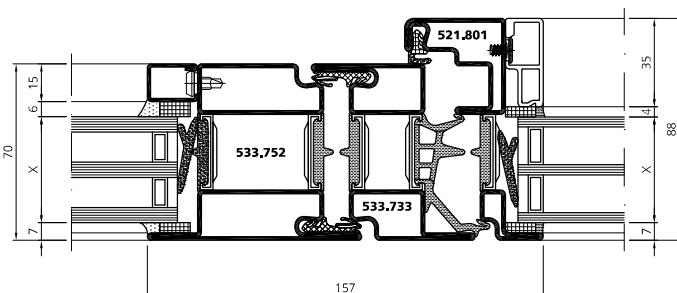
x = 36 : U<sub>f</sub> = 2.1 [W/(m<sup>2</sup> · K)] MINERGIE®  
 x = 42 : U<sub>f</sub> = 2.1 [W/(m<sup>2</sup> · K)]  
 x = 48 : U<sub>f</sub> = 2.0 [W/(m<sup>2</sup> · K)]



x = 36 : U<sub>f</sub> = 2.1 [W/(m<sup>2</sup> · K)] MINERGIE®  
 x = 42 : U<sub>f</sub> = 2.0 [W/(m<sup>2</sup> · K)]  
 x = 48 : U<sub>f</sub> = 2.0 [W/(m<sup>2</sup> · K)]



x = 36 : U<sub>f</sub> = 2.1 [W/(m<sup>2</sup> · K)] MINERGIE®  
 x = 42 : U<sub>f</sub> = 2.1 [W/(m<sup>2</sup> · K)]  
 x = 48 : U<sub>f</sub> = 2.1 [W/(m<sup>2</sup> · K)]

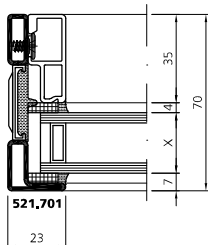


**U<sub>f</sub>-Werte**  
 Festfeld / Fenster  
 Forster unico XS

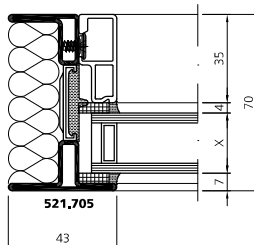
**Valeurs U<sub>f</sub>**  
 Vitrage fixe / fenêtre  
 Forster unico XS

**U<sub>f</sub>-values**  
 Fixed glazing / window  
 Forster unico XS

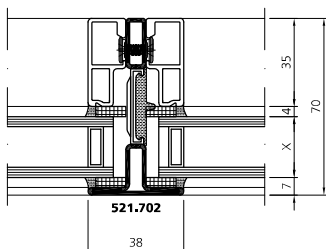
x = 24 : U<sub>f</sub> = 2.8 [W/(m<sup>2</sup> · K)]



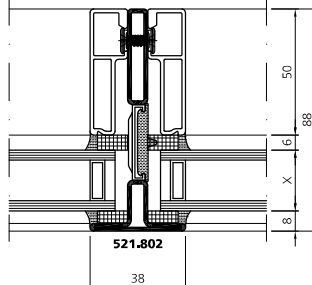
x = 24 : U<sub>f</sub> = 1.9 [W/(m<sup>2</sup> · K)]



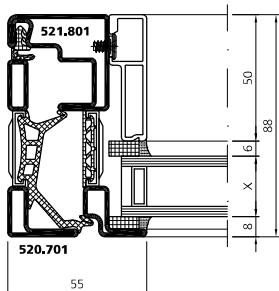
x = 24 : U<sub>f</sub> = 2.6 [W/(m<sup>2</sup> · K)]



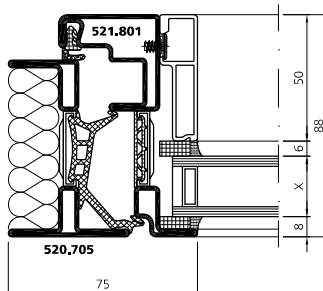
x = 24 : U<sub>f</sub> = 2.7 [W/(m<sup>2</sup> · K)]



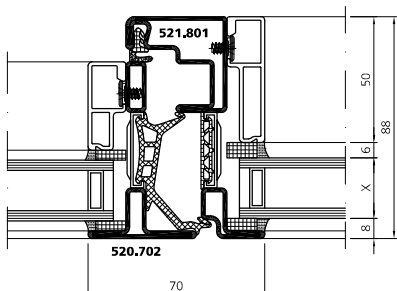
x = 24 : U<sub>f</sub> = 3.0 [W/(m<sup>2</sup> · K)]



x = 24 : U<sub>f</sub> = 2.6 [W/(m<sup>2</sup> · K)]



x = 24 : U<sub>f</sub> = 3.1 [W/(m<sup>2</sup> · K)]

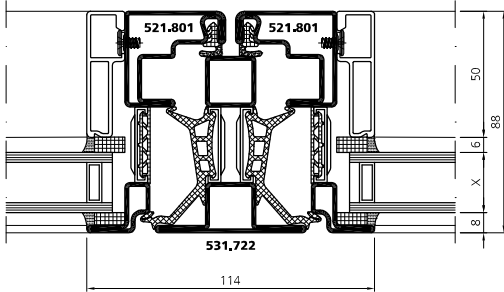


**U<sub>f</sub>-Werte**  
 Fenster  
 Forster unico XS

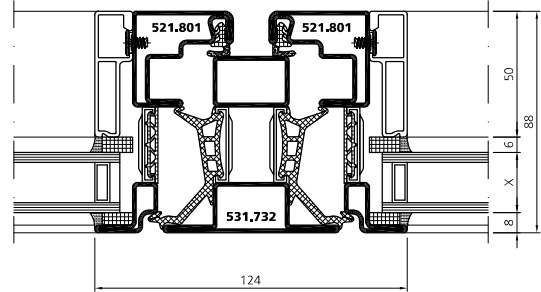
**Valeurs U<sub>f</sub>**  
 Fenêtre  
 Forster unico XS

**U<sub>f</sub>-values**  
 Window  
 Forster unico XS

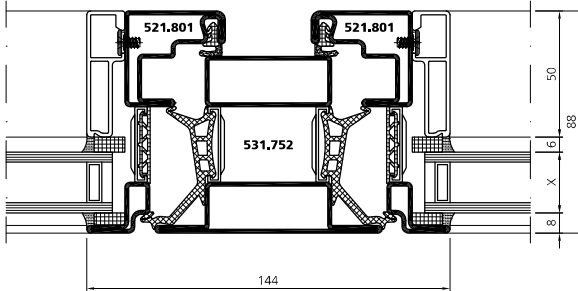
**x = 24 : U<sub>f</sub> = 3.0 [W/(m<sup>2</sup> · K)]**



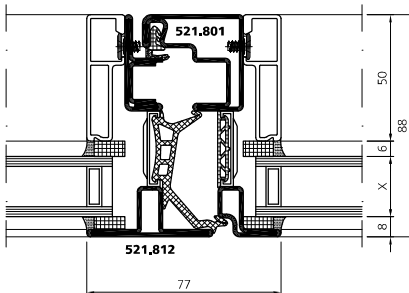
**x = 24 : U<sub>f</sub> = 2.9 [W/(m<sup>2</sup> · K)]**



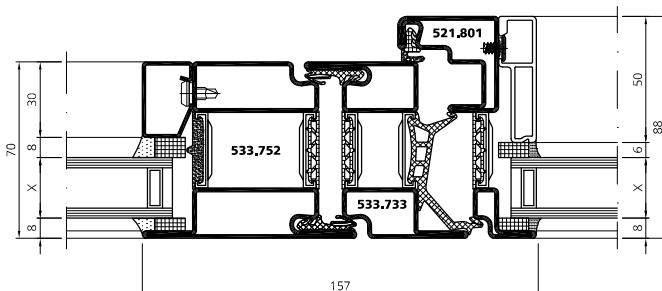
**x = 24 : U<sub>f</sub> = 2.7 [W/(m<sup>2</sup> · K)]**



**x = 24 : U<sub>f</sub> = 2.9 [W/(m<sup>2</sup> · K)]**



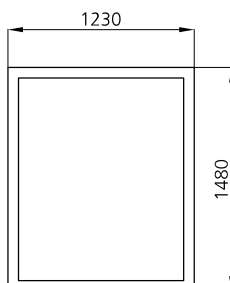
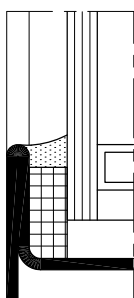
**x = 24 : U<sub>f</sub> = 2.6 [W/(m<sup>2</sup> · K)]**



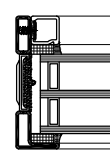
## Schalldämmwerte

Coefficients d'isolation  
phonique

## Sound insulation factor



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



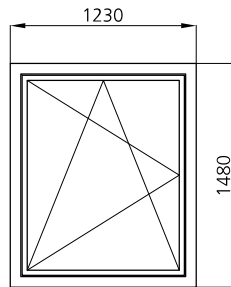
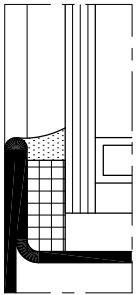
	R <sub>w</sub> (Element) R <sub>w</sub> (Element) R <sub>w</sub> (Element)	Spektrum - Anpassungswerte (C und C <sub>tr</sub> ) Termes d'adaptation à un spectre (C et C <sub>tr</sub> ) Range of adaptation values (C and C <sub>tr</sub> )
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) 32 [dB] R <sub>w</sub> (Glass)	R <sub>w(Element)</sub> = <b>32</b> [dB]	C = -1 [dB] C <sub>tr</sub> = -5 [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) 38 [dB] R <sub>w</sub> (Glass)	R <sub>w(Element)</sub> = <b>39</b> [dB]	C = -2 [dB] C <sub>tr</sub> = -5 [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) 45 [dB] R <sub>w</sub> (Glass)	R <sub>w(Element)</sub> = <b>44</b> [dB]	C = -1 [dB] C <sub>tr</sub> = -4 [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) 50 [dB] R <sub>w</sub> (Glass)	R <sub>w(Element)</sub> = <b>47</b> [dB]	C = -1 [dB] C <sub>tr</sub> = -4 [dB]

A <sub>w</sub> < 2.7 [m <sup>2</sup> ]	<b>R<sub>w(Element)</sub> - 0 [dB]</b>
2.7 [m <sup>2</sup> ] < A <sub>w</sub> < 3.6 [m <sup>2</sup> ]	<b>R<sub>w(Element)</sub> - 1 [dB]</b>
3.6 [m <sup>2</sup> ] < A <sub>w</sub> < 4.6 [m <sup>2</sup> ]	<b>R<sub>w(Element)</sub> - 2 [dB]</b>
4.6 [m <sup>2</sup> ] < A <sub>w</sub>	<b>R<sub>w(Element)</sub> - 3 [dB]</b>

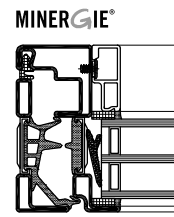
## Schalldämmwerte

Coefficients d'isolation  
phonique

## Sound insulation factor



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



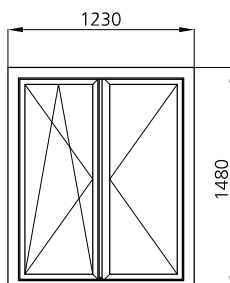
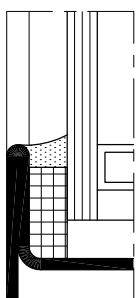
		R <sub>w</sub> (Element) R <sub>w</sub> (Element) R <sub>w</sub> (Element)	Spektrum - Anpassungswerte (C und C <sub>tr</sub> ) Termes d'adaptation à un spectre (C et C <sub>tr</sub> ) Range of adaptation values (C and C <sub>tr</sub> )
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) 32 [dB] R <sub>w</sub> (Glass)		R <sub>w</sub> (Element) = <b>33</b> [dB]	C = -1 [dB] C <sub>tr</sub> = -5 [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) 38 [dB] R <sub>w</sub> (Glass)		R <sub>w</sub> (Element) = <b>40</b> [dB]	C = -2 [dB] C <sub>tr</sub> = -5 [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) 45 [dB] R <sub>w</sub> (Glass)		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) 50 [dB] R <sub>w</sub> (Glass)		R <sub>w</sub> (Element) = <b>47</b> [dB]	C = -1 [dB] C <sub>tr</sub> = -4 [dB]

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>

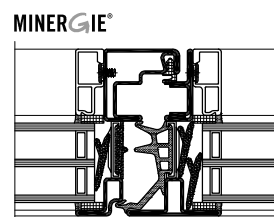
## Schalldämmwerte

Coefficients d'isolation  
phonique

## Sound insulation factor



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



	R <sub>w</sub> (Element) R <sub>w</sub> (Element) R <sub>w</sub> (Element)	Spektrum - Anpassungswerte (C und Ctr) Termes d'adaptation à un spectre (C et Ctr) Range of adaptation values (C and Ctr)
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) 32 [dB] R <sub>w</sub> (Glass)	R <sub>w(Element)</sub> = <b>33</b> [dB]	C = -1 [dB] C <sub>tr</sub> = -5 [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) 38 [dB] R <sub>w</sub> (Glass)	R <sub>w(Element)</sub> = <b>40</b> [dB]	C = -2 [dB] C <sub>tr</sub> = -5 [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) 45 [dB] R <sub>w</sub> (Glass)	R <sub>w(Element)</sub> = <b>43</b> [dB]	C = -1 [dB] C <sub>tr</sub> = -4 [dB]
R <sub>w</sub> (Glas) R <sub>w</sub> (Verre) 50 [dB] R <sub>w</sub> (Glass)	R <sub>w(Element)</sub> = <b>46</b> [dB]	C = -1 [dB] C <sub>tr</sub> = -4 [dB]

A <sub>w</sub> < 2.7 [m <sup>2</sup> ]	<b>R<sub>w(Element)</sub> - 0 [dB]</b>
2.7 [m <sup>2</sup> ] < A <sub>w</sub> < 3.6 [m <sup>2</sup> ]	<b>R<sub>w(Element)</sub> - 1 [dB]</b>
3.6 [m <sup>2</sup> ] < A <sub>w</sub> < 4.6 [m <sup>2</sup> ]	<b>R<sub>w(Element)</sub> - 2 [dB]</b>
4.6 [m <sup>2</sup> ] < A <sub>w</sub>	<b>R<sub>w(Element)</sub> - 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 Metallbaues, der Fensterherstellung und dergleichen, welche vertraut sind mit den anerkannten Regeln der Technik, insbesondere auf dem Gebiet des Metall-, Türen-, Fenster- und Fassadenbaues und bei denen die Kenntnisse aller einschlägigen Normen, Richtlinien und Verarbeitungshinweise der Profillieferanten vorausgesetzt werden kann.

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

### Technische Beratung bei Planung und Projektierung

Die kostenlose technische Beratung bei Planung und Projektierung sind weder als Haupt- noch als Nebenpflicht Gegenstand unserer Angebotes bzw. des Kaufvertrages und stellen somit keine Leistungsverpflichtung der Forster Profilsysteme AG dar. Diesen kostenlosen und freiwilligen Serviceleistungen liegt kein Beratervertrag zugrunde.

## 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.

### 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, et ne représente donc pas un engagement de Forster Systèmes de profilés SA. Cette prestation gratuite et volontaire ne se fonde sur aucun contrat de conseil.

## General advice

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

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

### 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 the contract of sale as either a primary or secondary obligation and therefore shall not represent a contractual obligation on Forster Profile Systems Ltd.. These free of charge and voluntary services are not the subject of a consultancy contract.

## Allgemeine Hinweise

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 technische Beratung ist eine ausschliessliche Produktberatung, die sich allein auf die Forster-Profilstahlrohr-Serien und das entsprechende Zubehör bezieht.

Die Beratungsleistungen müssen vom Architekten oder vom Bauherrn vor einer Weiterverwendung oder Weiterverarbeitung überprüft und genehmigt werden. In diesem Zusammenhang weisen wir insbesondere daraufhin, dass die Planungshoheit beim Bauherrn und beim Architekten liegt. Das bedeutet, dass eine Prüfung der bauseitigen Vorgaben des Bauherrn oder des Architekten unsererseits nicht erfolgt und für diese Vorgaben keine Haftung übernommen wird.

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

## Généralités

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.

Le conseil technique se rapporte exclusivement à des produits, ces derniers faisant uniquement partie des séries de profilés en acier Forster et accessoires correspondants.

Les prestations de conseil doivent être vérifiées et autorisées par l'architecte ou le maître de l'ouvrage avant leur application ou la réalisation de travaux basés dessus. A cet égard, nous attirons en particulier l'attention sur le fait que la planification relève des seules compétences du maître de l'ouvrage et de l'architecte. Nous ne contrôlons pas les exigences de construction de ces autorités et déclinons toute responsabilité en la matière.

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

## General advice

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.

Technical consultation is exclusively product consultation that relates solely to the Forster series of profiled steel sections and the related accessories.

The information provided must be checked and approved by the architect or the builder prior to further use or further processing. In this context we specifically emphasize that the responsibility for planning lies with the builder and the architect. This means that the information on the situation on site from the builder or the architect shall not be checked by us and no liability is accepted for this information.

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 on the installation of components from other manufacturers in the façades or metal structures from Forster Profile Systems Ltd., a separate consultancy contract involving payment must be concluded in written form.

## Allgemeine Hinweise

### Gewährleistung

Sofern nicht schriftlich eine andere Vereinbarung getroffen wird, besteht eine Gewährleistung der Forster Profilsysteme AG lediglich im Rahmen der dem Käufer bekannten „Allgemeinen Verkaufs- und Lieferbedingungen der Forster Profilsysteme AG“. Voraussetzung ist in jedem Fall die ausschliessliche Verwendung von Original-Konstruktionsteilen (Profile, Zubehör, Beschläge) aus dem jeweils gültigen Forster-Lieferprogramm. Für Mängel, welche aus der Verwendung von anderen Artikeln als Forster-Original-Artikeln herrühren, wird jede Haftung abgelehnt. Werden nicht Original-Konstruktionsteile zur Anwendung gebracht, verlieren die an Forster verliehenen Prüfzeugnisse und Atteste für derartig ausgeführte Konstruktionen ihre Gültigkeit.

Des Weiteren übernimmt Forster Profilsysteme AG keine Haftung für Mängel, die aufgrund des Einbaus von Komponenten anderer Hersteller in den Fassaden- bzw. Metallbaukonstruktionen von Forster Profilsysteme AG entstehen.

### Hinweis

Die in diesen Unterlagen enthaltenen Daten und Hinweise entsprechen den uns bekannten Informationen zum Zeitpunkt der Drucklegung. Wir behalten uns vor, den technischen Inhalt ohne Vorankündigung zu ändern.

Gemäss der im "Produkthaftungsgesetz" definierten Haftung des Herstellers für seine Produkte sind die im Gesamtkatalog enthaltenen Informationen (Produktinformationen und bestimmungsgemässe Verwendung, Fehlgebrauch, Produktleistung, Produktwartung, Informations- und Instruktionspflichten) zu beachten. Die Nichtbeachtung entbindet den Hersteller von seiner Haftung.

## Généralités

### Garantie

Dans la mesure où aucune autre convention par écrit n'a été passée, la garantie de la société Forster Systèmes de profilés SA n'est applicable que dans le cadre des «Conditions générales de vente et de livraison de la Forster Systèmes de profilés SA», qui sont connues de l'acheteur. Cela suppose dans chaque cas l'utilisation exclusive d'éléments de construction d'origine (profilés, accessoires, quincailleries) provenant du programme de fournitures Forster respectivement applicable. Toute responsabilité est déclinée dans le cas de vices résultant de l'utilisation de tout autre article que les éléments d'origine Forster. Dans l'éventualité où les éléments utilisés ne sont pas des pièces de construction d'origine, les certificats d'essais et attestations attribués à Forster pour les constructions de ce type perdent toute validité.

Par ailleurs, Forster Systèmes de profilés SA se dégage de toute responsabilité pour des vices causés par le montage de composants d'autres fabricants dans les façades et les constructions métalliques de Forster Systèmes de profilés SA.

### Remarque

Les données et indications figurant dans la présente documentation correspondent à l'état de nos connaissances au moment de son impression. Nous nous réservons le droit d'en modifier le contenu technique, sans préavis.

Conformément à la responsabilité du fournisseur pour ses produits, définie dans la «loi sur la responsabilité des produits», les informations figurant dans le catalogue général (informations au sujet des produits et utilisation conforme aux dispositions, utilisation non conforme, caractéristiques du produit, entretien du produit, obligations d'informations et d'instructions) doivent être respectées. En cas de non-respect, le fabricant décline toute responsabilité.

## General advice

### Warranty

Unless a written agreement to 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 Forster for constructions built using such articles are deemed to be invalid.

In addition Forster Profile Systems Ltd. does not accept any liability for defects due to the installation of components from other manufacturers in the façades and metal structures from Forster Profile Systems Ltd..

### Note

The specifications and instructions contained in this documentation are given to the best of our knowledge and ability at the time of going to press. We reserve the right to make technical alterations with no prior notice.

All information contained in the total catalogue (product information and use for the purpose intended, misuse, product performance, product maintenance, duty to inform and instruct) must be considered in accordance with the definition of the manufacturer's liability for his products as laid down in the "Product liability law". Non-observance frees the manufacturer from all liability.

# Profilsysteme in Stahl und Edelstahl

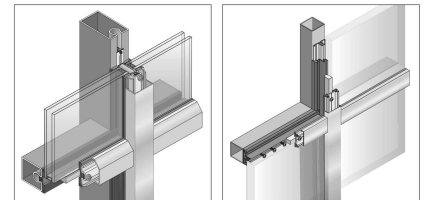
Systèmes de profilés en acier et en acier inox

Steel and stainless steel profile systems

## Fassaden / Façades / Curtain walls

**forster thermfix® vario**

**forster thermfix® light**

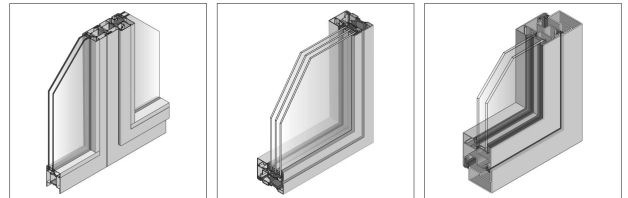


## Fenster / Fenêtres / Windows

**forster unico®**

**forster unico® H<sup>i</sup>**

**forster norm®**



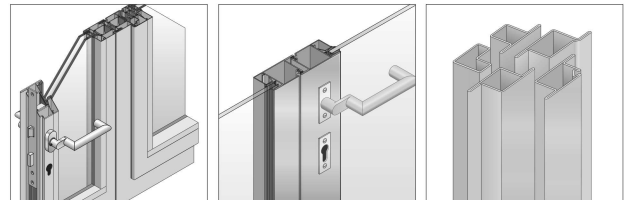
## Türen / Portes / Doors

**forster unico®**

**forster unico® H<sup>i</sup>**

**forster presto®**

**forster norm®**



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

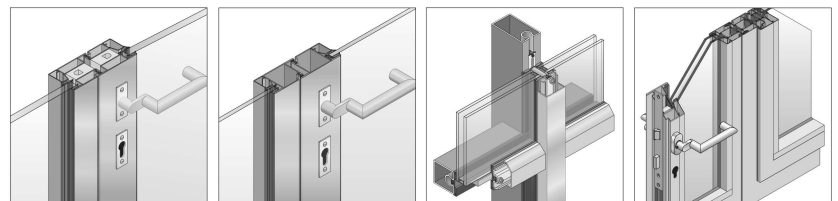
**forster fuego® light**

**forster presto®**

**forster thermfix® vario**


**forster thermfix® light**

**forster unico®**



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