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## Recycling

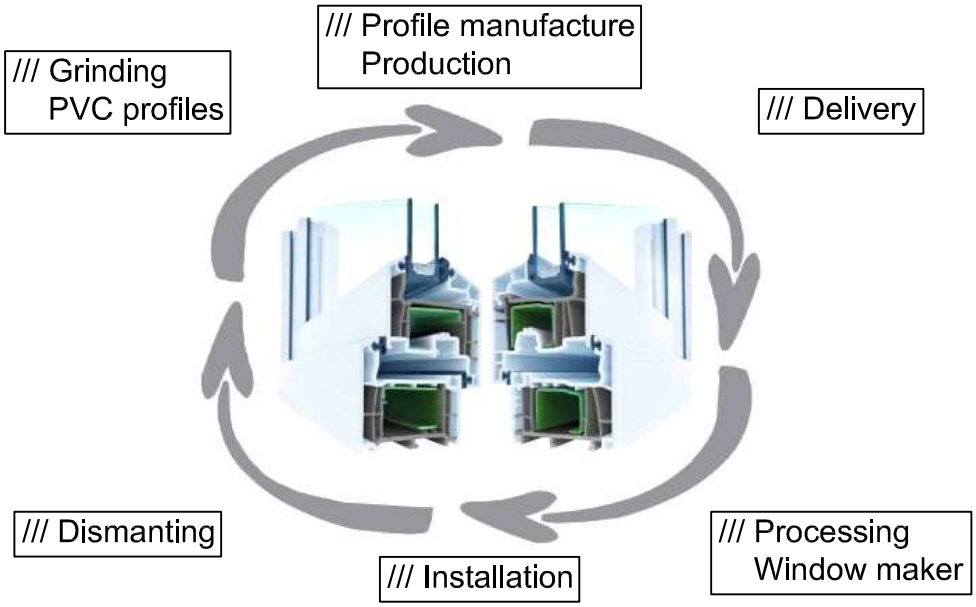
As a founding member of the recycling initiative "Rewindo" the protection of resources is very important to Salamander. Profile sections and removed old windows will be supplied to a qualified recycling process through this recycling initiative. Disposal and recycling of the window profiles form an environmentally and resource efficient recycling circuit.

## Environmental Product Declaration (EPD)

Environmental Product Declaration (EPD) are required for the sustainability certification of buildings, for instance according to DGNB or BNB. Generally valid model-EPD for PVC windows are available from the trade associations.

## Recycling-PVC encourages green building

Circular flow of profiles:




Rewindo
Fenster-Recycling-Service

AGPU
WORKING GROUP
PVC AND ENVIRONMENT

KUNSTSTOFF
FENSTERPROFILSYSTEME
RAL GÜTEZEICHEN

EPPA
European PVC Window Profile and
Related Building Products Association

| Designation | Page bE92 01 0... |
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| - Dimension of opening | 06.1 |
| - Minimum corner breaking forces | 07.1 |
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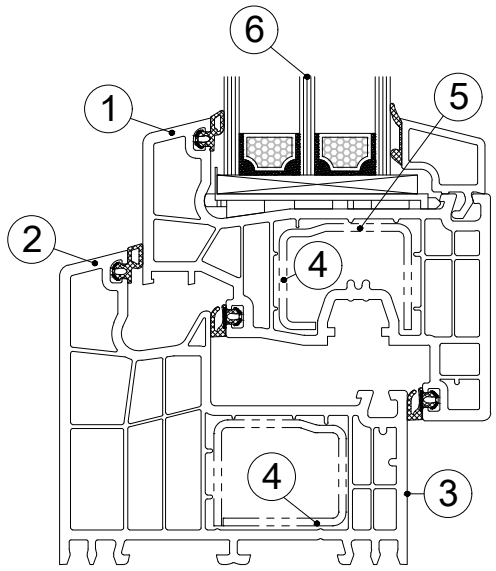
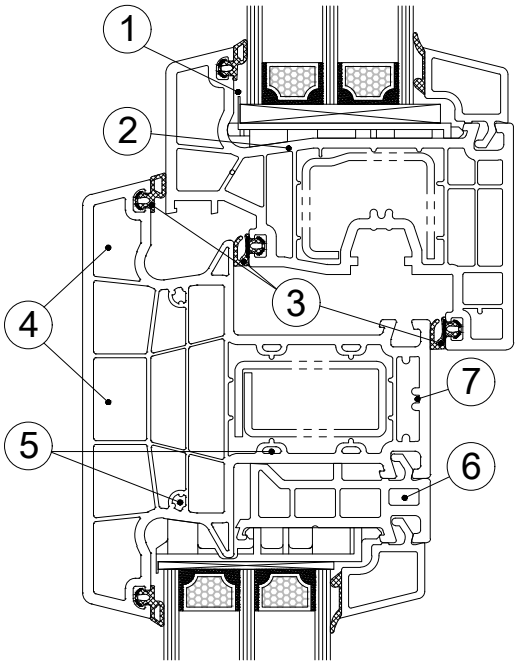
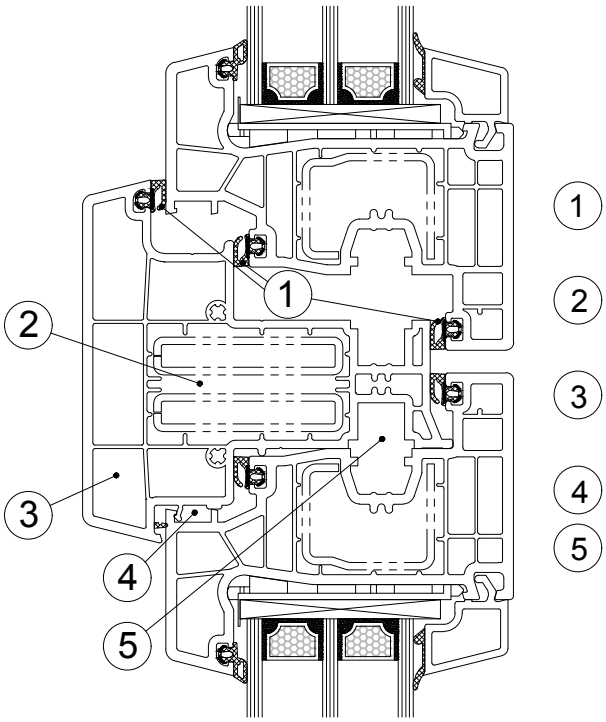


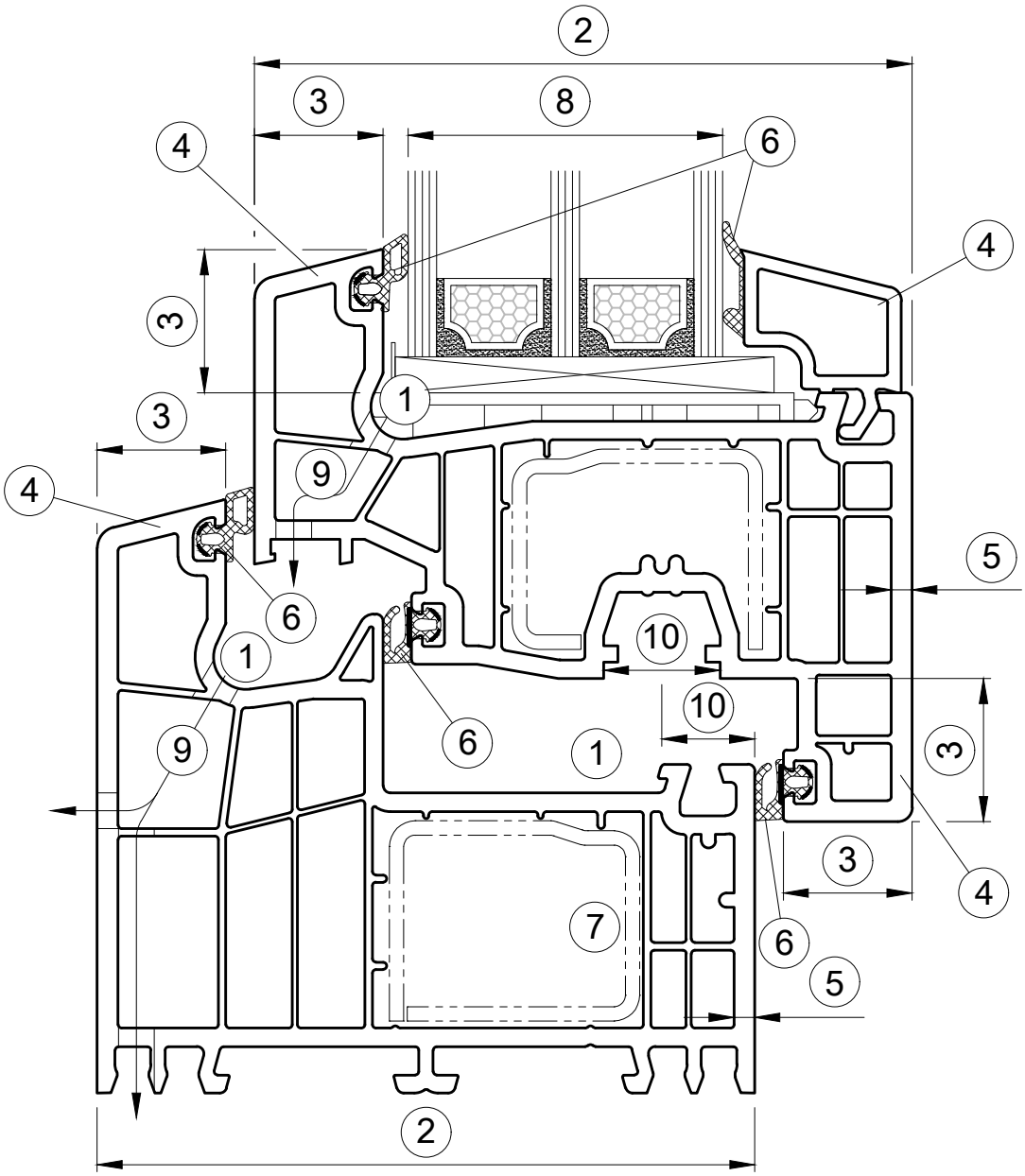

1. Elegant, classical design
2. Profiles made in Germany with manufactured according to DIN EN 12608
3. $U_f$ Value of the profile combination illustrated: 1,0 W/(m²K)
4. Standardised steels possible for frames and sashes
5. Safe load transfer under high glass weight
6. Filling thicknesses up to 60 mm




1. Sash overlap ideally suitable for gluing
2. Angled rebate in the sash guarantees functional reliability
3. Three gasket levels
4. Large pre-chambers for high thermal stability and optimum drainage
5. Mechanical T-connection through six screw channels for optimum sealing
6. Fixed glazing with additional profile without machining the frame
7. Safe fitting attachment through additional screw pin




1. Three gasket levels all the for optimum sealing
2. High moments of inertia are possible, for maximum requirements
3. Floating mullion caps, 2-part, for easy colour adjustment
4. Assembly aid through fixing web
5. Operation of the floating mullion window with a second handle or rebate lever possible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| | | |
|---|---|---|
| 1 | Rebate | Large chamber for water collection, angular glazing rebate with 4 mm upstand in frame / sash |
| 2 | Construction depth | Frame: 92 mm<br>Post: 92 mm<br>Sash: 92 mm |
| 3 | Stops | Stop height: 20 mm<br>Stop width: 18 mm |
| 4 | Stop design | All outer stops chamfered at an angle of 15°<br>Inner sash stop straight<br>Glazing bead chamfered at an angle of 15°<br>Design variants possible |
| 5 | Profile wall thickness | Outside walls of the main profiles in accordance with RAL-GZ 716<br>Inside walls according to constructive requirements |
| 6 | Gasket | Rebate gasket, inner and central rebate gasket,<br>outer glazing gasket fitted in the factory, made of PVC-P, weldable<br>Glazing bar gasket made of PVC-P<br>Gap dimension of glazing 3,5 mm<br>Gap dimension outer, inner and central rebate 4 mm |
| 7 | Reinforcements | Galvanized steel profiles in accordance with RAL-RG 716<br>Thermally separated galvanised steel, PUR composite |
| 8 | Glazing | All standard insulatingglass panes for thermal and sound insulation and burglary resistance. Filling thickness from 24 - 60 mm |
| 9 | Drainage / ventilation | Via separate, large pre-chambers to the front or concealed downwards |
| 10 | Fitting | All standard one-handed fittings for 16 mm Euro-groove and 13 mm groove centre postion |
| 11 | Profile connection | Frame and sash corner connection by butt- welding<br>Posts, bars and muntins by mechanical connection |
| 12 | Chamber construction | 6-Chamber-System as standard in frame and sash<br>5-Chamber-System in post / mullion |
| 13 | Colours | SALAMANDER-white solid coloured,<br>homogeneous in mass with long-life surface protection<br>BRÜGMANN-white solid coloured,<br>homogeneous in mass with long-life surface protection<br>Standard decor films insideand outside<br>Special decor films on request<br>RAL coating on request |

| No. | Types: | bE |
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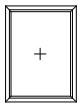
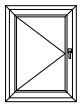
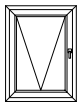
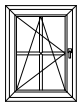
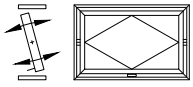
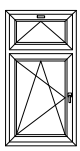
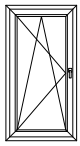
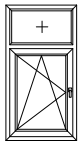
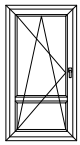
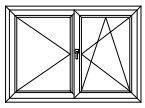
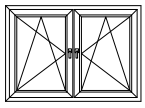
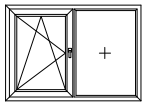
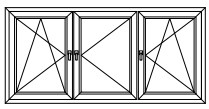
| 01 |  Fixed glazing | ✓ |
| 02 |  Side-hung window | ✓ |
| 03 | Tilt-and-turn window | ✓ |
| 04 | Bottom-hung window | ✓ |
| 05 |  Top-hung window | ✓ |
| 06 | Tilt-and-turn window with sash bar | ✓ |
| 07 |  Tilt-and-turn window with sash cross bar | ✓ |
| 08 |  Centre-hung window | – |
| 09 |  Tilt-and-turn window with skylight | ✓ |

| No. | Types: | bE |
|---|---|---|
| 10 | Tilt-and-turn window with parapet | ✓ |
| 11 |  Tilt-and-turn door | ✓ |
| 12 |  Tilt-and-turn door with fixed glazed skylight | ✓ |
| 13 |  Tilt-and-turn door with cross muntin in sash | ✓ |
| 14 |  Floating mullion window side-hung - tilt-and-turn | ✓ |
| 15 |  Double-sash window tilt-and-turn - tilt-and-turn | ✓ |
| 16 |  Window element tilt-and-turn - fixed | ✓ |
| 17 |  Triple-sash window tilt-and-turn - side-hung - tilt-and-turn | ✓ |

| No. | Types: | bE |
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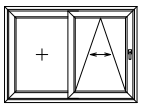
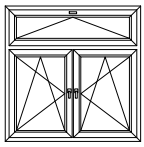
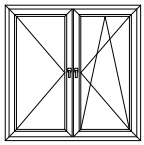
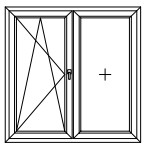
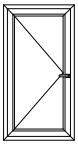
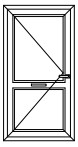
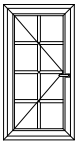
| 18 |  Tilt-and-slide window or door | ✓ |
| 19 |  Double-sash window with bottom-hung skylight | ✓ |
| 20 |  Floating mullion door | ✓ |
| 21 |  Door element tilt-and-turn - fixed | ✓ |
| 22 |  Side entrance door | ✓ |
| 23 |  Side entrance door with letter drop in cross muntin | – |
| 24 |  Side entrance door with muntins | ✓ |

| No. | Types: | bE |
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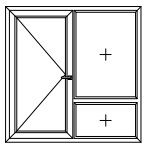
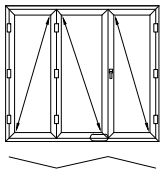
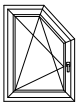
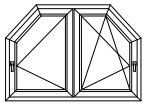
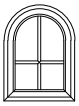
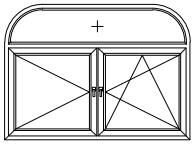
| 25 |  Side entrance door combined with fixed glazing | ✓ |
| 26 |  Folding and sliding door | – |
| 27 |  Tilt-and-turn window with incline | ✓ |
| 28 |  Double-sash tilt-and-tun window with inclines | ✓ |
| 29 | Tilt-and-turn pointed-arch window | ✓ |
| 30 |  Pointed-arch window with muntin | ✓ |
| 31 |  Basket arched window | ✓ |

| Frame | Post | Sash | bE92 01 |
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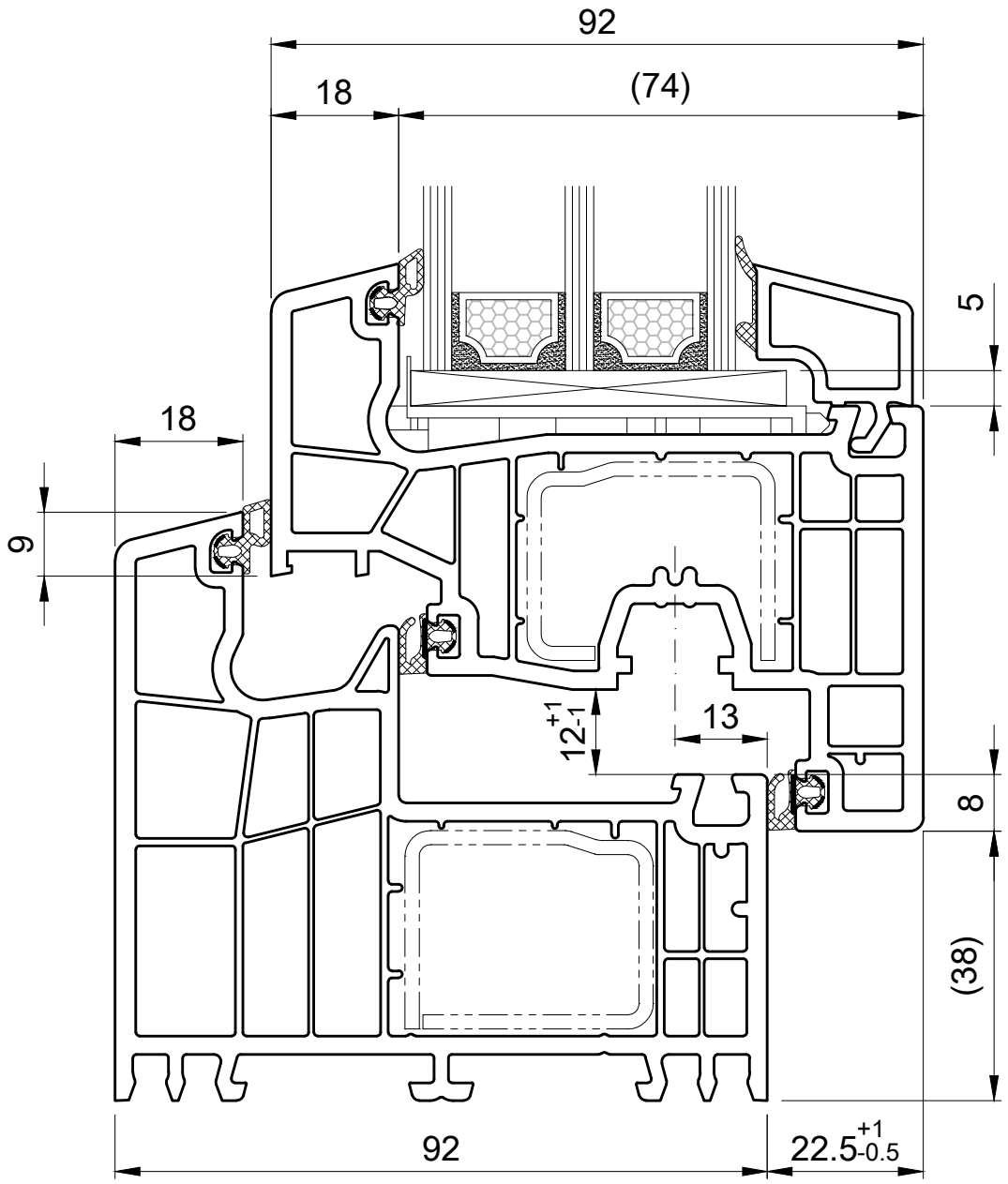
| **170 xxx** | **172 xxx** | **171 xxx** | **04.1** |




## General information

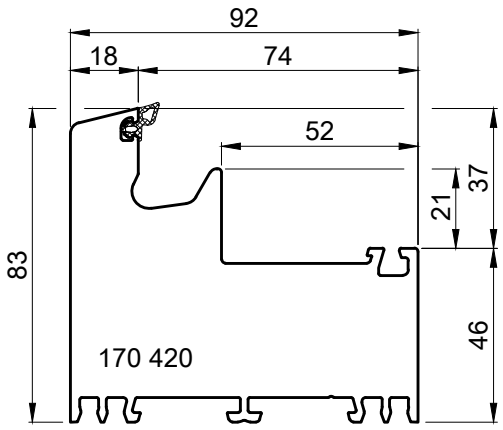
The following dimensions are approximate. Tolerances result from DIN 16941-2A, if not separately agreed.

In the bluEvolution 92 system, the inner sash stop depth is 22.5 $^{+1}_{-0.5}$ mm. Deviations from this nominal dimensional specification can result from tolerances in the profiles, seals and fittings used, as well as from the window production itself.

For the evaluation of the tightness of window elements, the dimension of the inner sash stop depth alone is not meaningful; possible dimensional deviations do not necessarily justify a claim.

For air and water tightness, only technical evaluations and classifications according to the respectively valid EN standards are decisive.

The specification for permissible operating forces on window elements (≤ 10 Nm) takes precedence over compliance with the window stop dimensions.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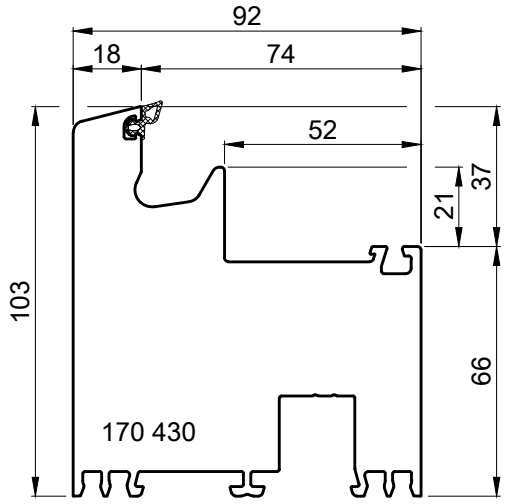
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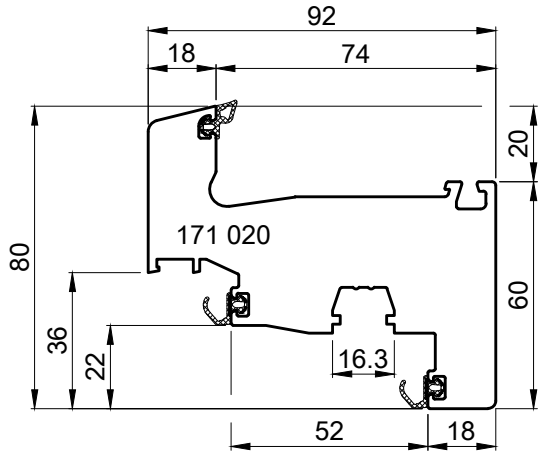
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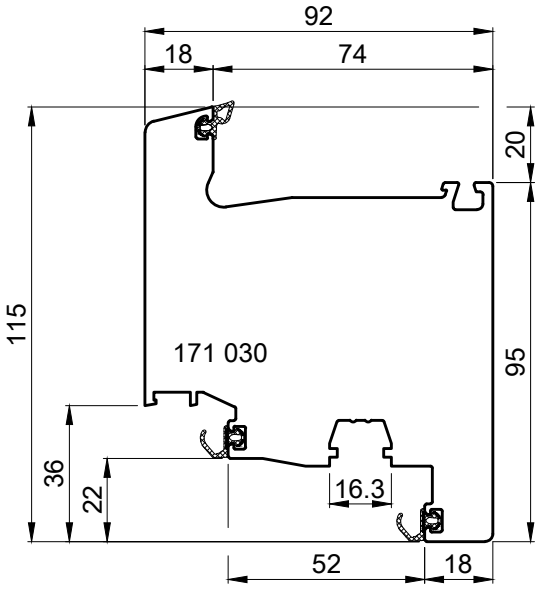
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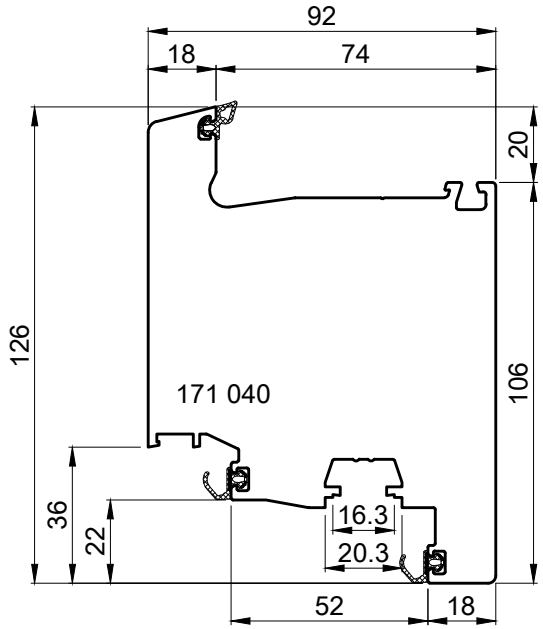
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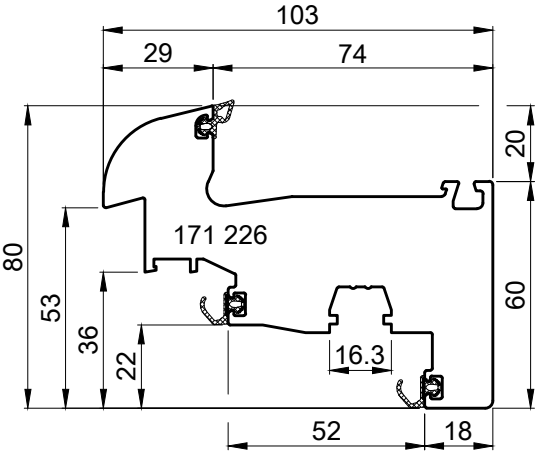
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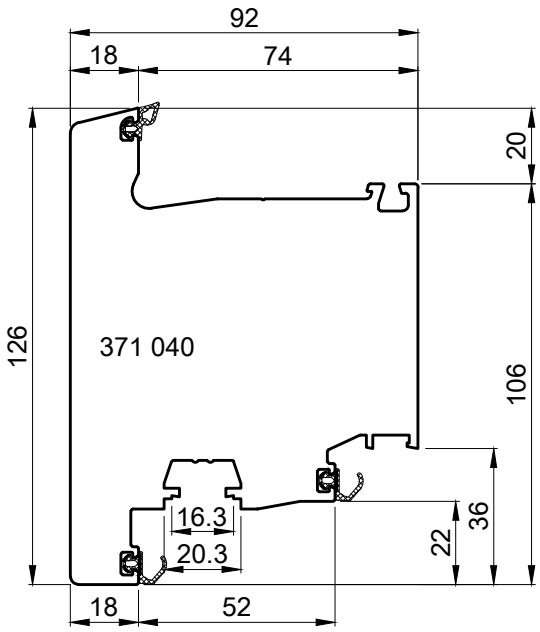
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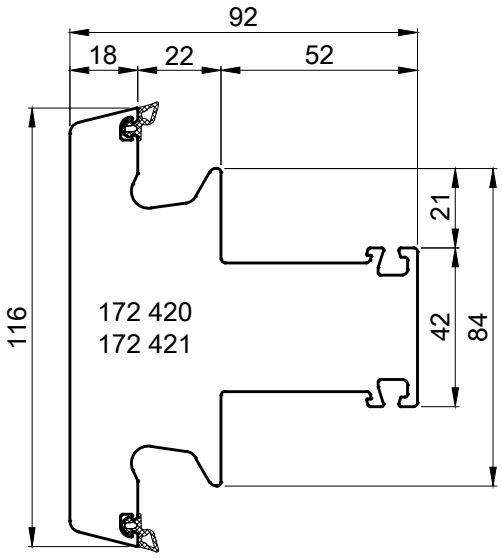
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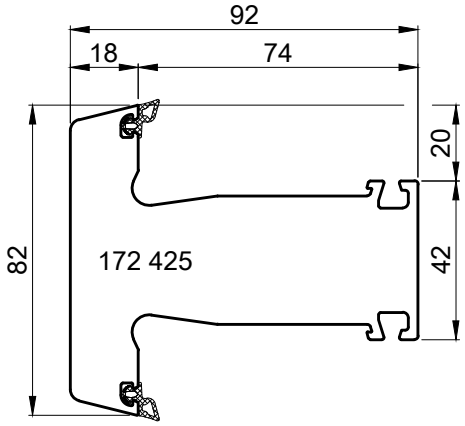
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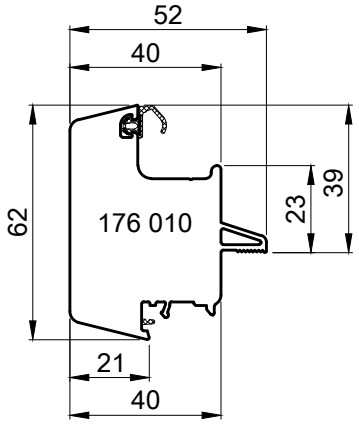
172 425
42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21
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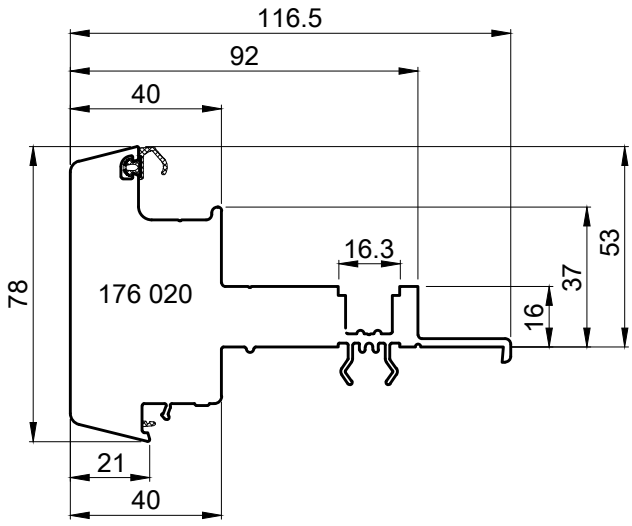
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78
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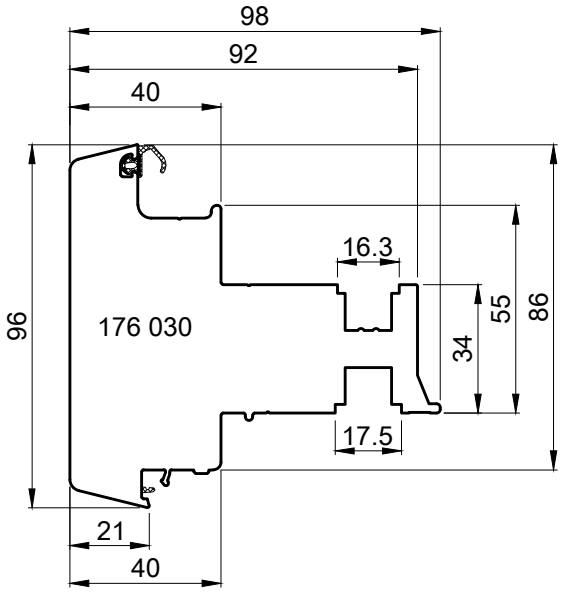
40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96
176 030
16.3
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86
17.5
21
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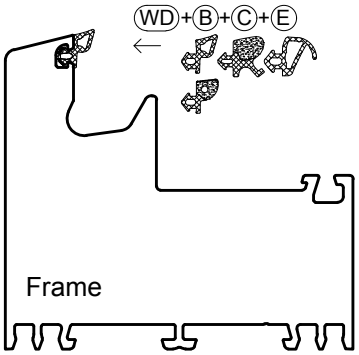
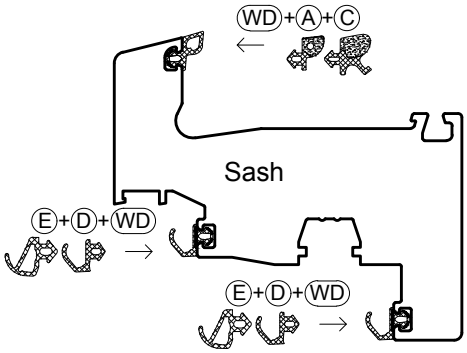
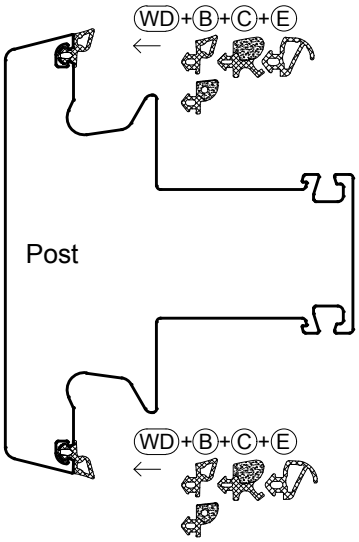
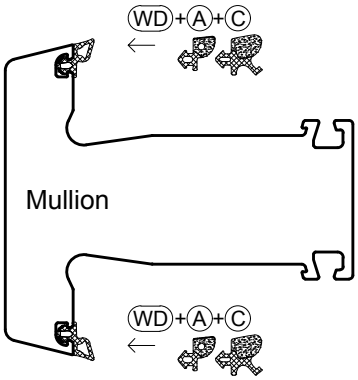
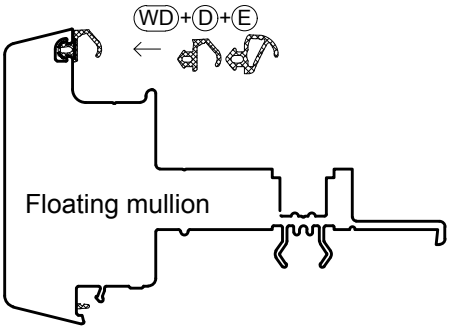


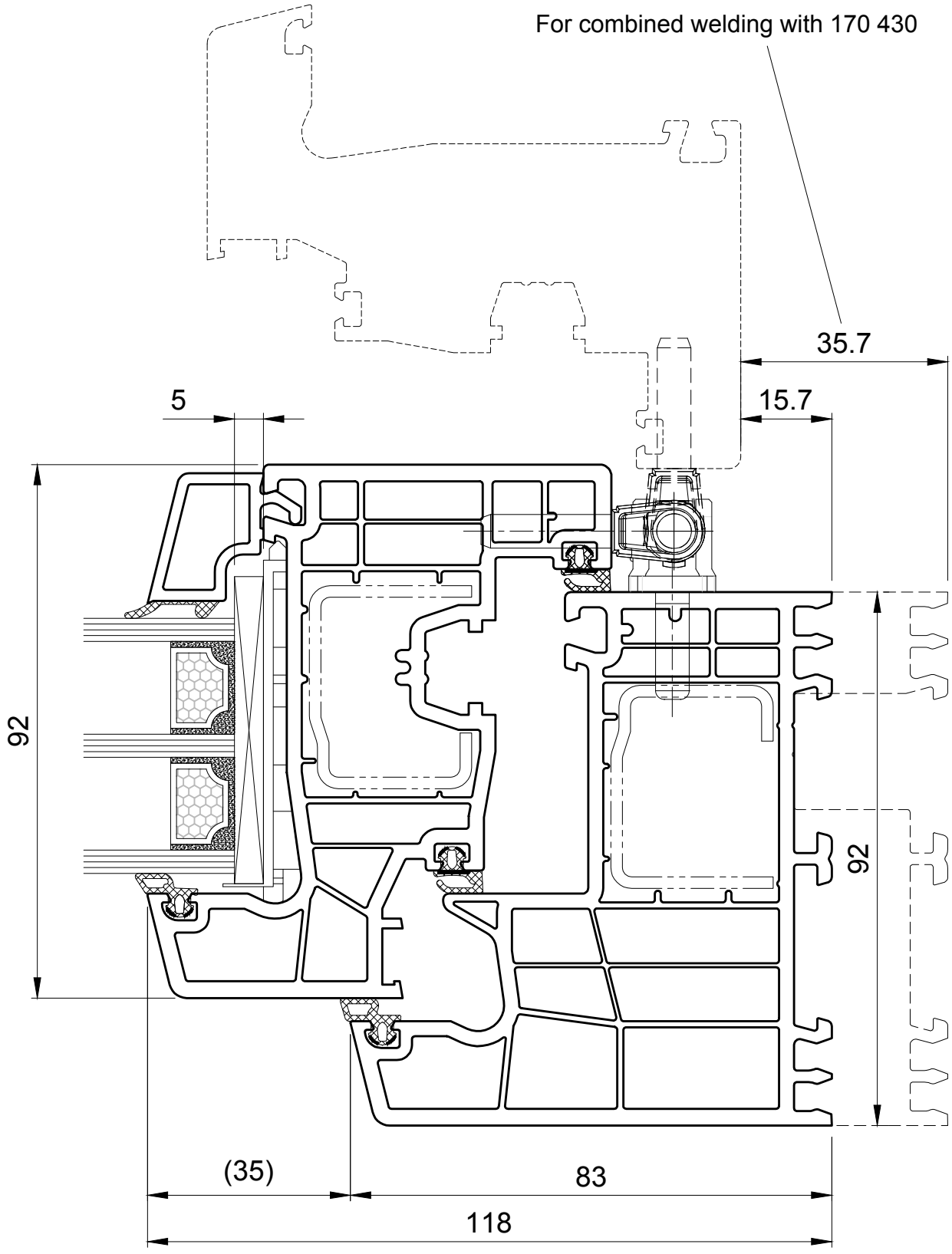




WD = Gasket integrated in the factory
A = Repair gasket sash + mullion EPDM 414 566
B = Repair gasket frame + mullion PVC-P 474 645
(alternatively EPDM 414 566)
C = Special gasket frame + sash + post +
mullion EPDM 414 573
D = Repair gasket sash + floating mullion PVC-P 474 221
E = Repair gasket frame + sash + post +
floating mullion EPDM 474 025

# Frame/Sash (opening dimension)

| Frame | Sash | bE92 01 |
|---|---|---|
| **170 420, 170 430** | **171 020** | **06.1** |






Scale 1:1 (or depending on print-out)

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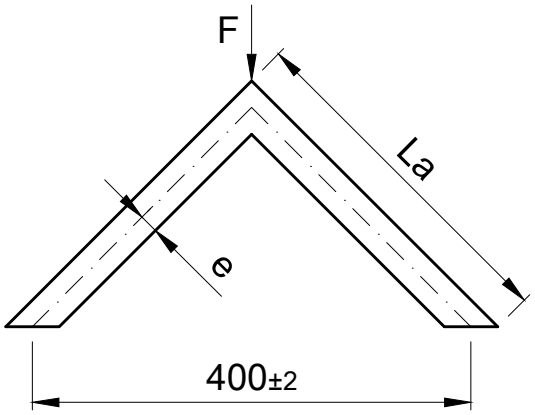
SALAMANDER WINDOW & DOOR SYSTEMS

| Art.-Nr. | La (mm) | Pre-cut part (mm) | F ref. (N) before corner cleaning | F ref. (N) after corner cleaning |
|---|---|---|---|---|
| 170 420 | 349 | 352 | 5300 | 4240 |
| 170 820 | 349 | 352 | 5300 | 4240 |
| 170 430 | 368 | 371 | 8000** | 6400 |
| 171 020 | 362 | 365 | 4200 | 3360 |
| 171 820 | 362 | 365 | 4200 | 3360 |
| 171 030 | 395 | 398 | 8000** | 6400 |
| 171 040 | 406 | 409 | 8000** | 6400 |
| 171 226 | 364 | 367 | 4600 | 3680 |
| 172 420 | 399 | 402 | 8000** | 6400 |
| 172 421 | 399 | 402 | 8000** | 6400 |
| 172 425 | 365 | 368 | 4200 | 3360 |




e Distance between the inside of the section and the neutral axis
La Length of the bars on the outside
F ref. Minimum value for breaking force

** For F ref. / F actual values over 8000 N the maximum limit according to RAL-GZ 716 - Section I applies with 8000 N.

The testing of welding suitability is carried out according to RAL-GZ 716 or DIN EN 514 respectively.

Not to scale

## Profile material

SALAMANDER plastic window profiles are made of highly impact-resistant modified hard PVC in line with RAL quality and testing conditions for plastic window profiles RAL-GZ 716.

## Moulding material:

Solid coloured hard PVC moulding material in white, brown and special colours (e.g. cream,caramel).

## Description according to DIN EN ISO 1163-1:

Moulding material ISO 1163-PVC-U, EDLP, 082-25-28

PVC = Polyvinyl chloride
U = Hard (plasticizer-free)
E = Extrusion
D = Powder
L = Stabilised resistant to light and the weather
P = Modified in terms of impact resistance

The SALAMANDER moulding material exceeds the requirements of RAL-GZ 716.

| Type of PVC | | Delivery form | | Processing | |
|---|---|---|---|---|---|
| Letter | Meaning | Letter | Meaning | Letter | Meaning |
| U | plasticizer-free | D | Powder | E | Extrusion |
| Vicat softening temperature VST/B | | Notch impact resistance at least | | Bending-E-module at least | |
| Number | °C | Number | kJ/m² | Number | N/mm² |
| 082 | > 80<br>≤ 84 | 25 | > 20 | 28 | > 2500 |

Testing on hardboard

## Material characteristics of the SALAMANDER window profiles

Measurement on test bodies made of extruded profiles: (taken in direction of extrusion)

| | Testing method | Unit | Value |
|---|---|---|---|
| Density | DIN EN ISO 1183-1 | g/cm³ | 1,44 ±0,03 |
| Tensile stress at yield | DIN EN ISO 527 - 3/1B/50 | N/mm² | 43 ±4 |
| Pull-E-module | DIN EN ISO 527 - 3/1B/1 | N/mm² | > 2500 ±100 |
| Notch impact resistance double-V notch at +23°C | DIN EN ISO 179/1fC | kJ/m² | ≥ 45 |
| Notch impact resistance at +23°C | DIN EN ISO 179/1e A | kJ/m² | > 80 |
| Tensile impact resistance | EN ISO 8256 | kJ/m²<br>kJ/m² | > 700 - 1200 (23°C)<br>> 500 - 700 (0°C) |
| Vicat softening temperature VST/B | DIN EN ISO 306 | °C | 81° ±2°C |
| Coefficient of linear expansion between -30°C and +50°C | Leitz dilatometer | $K^{-1}$ | 7 x $10^{-5}$ |
| Heat conductivity | Two-board method | W/(m K) | 0,17 |



Overview without guarantee of completeness and normative changes.

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# Material characteristics of SALAMANDER gaskets, PVC-P

PVC-P-quality in accordance with RAL-GZ 716, technical appendix, section B

| | Testing method | Unit | Value |
|---|---|---|---|
| Density | DIN EN ISO 1183-1 | g/cm³ | 1,2 ±0,3 |
| Tolerance of the rated hardness | DIN ISO 7619-1 | Shore A | ±5 |
| Hardness change | DIN ISO 7619-1 | Shore A | -5 / +10 |
| Tensile test | ISO 37 | | |
| Tensile strength | | N/mm² | ≥ 5,0 |
| Elongation at break | | % | ≥ 250 |
| Compression set | DIN ISO 815 | | |
| (-25°C / 24 h) | | % | ≤ 90 |
| ( 23°C / 24 h) | | % | ≤ 35 |
| ( 70°C / 24 h) | | % | ≤ 50 |
| Behaviour according to Thermal ageing | ISO 37 | | Without complaint |
| Change in tensile strength | ISO 37 | % | ≤ 25 % of the initial value |
| Elongation at break (absolute) | ISO 37 | % | > 200 |
| Weight loss | ISO 188 | % | ≤ 3,0 |
| Behaviour after ozone influence | DIN ISO 1431-1, Method A | Crack stage | 0 |
| Behaviour in artificial weather conditions | RAL-GZ 716, tech. app., secction 1 "4-A1", test method 2.13<br>DIN EN 513, Method 1 | | No cracks, no bubbles |
| Weather-proofness | DIN 53504 (Elongation at break) | % | ≥ 200 |
| Contact discolouration | Grey scale ISO 105 | A04 | ≥ 4 |
| | DIN EN 20105 (all colours except white) | A03 | ≥3 |
| Compatibility | Contact under tensile bending strain from 0 - 15 N/mm² | | No cracks formed in the contact material |



Overview without guarantee of completeness and normative changes.

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## Material characteristics of SALAMANDER seals, EPDM

EPDM-quality according to DIN 7863-1 respectively RAL-GZ 716, technical appendix, section B

| | Testing method | Unit | Value | Value |
|---|---|---|---|---|
| Rated hardness | | IRHD | ≤ 50 | > 50 / ≤ 70 |
| Density | DIN EN ISO 1183-1 | g/cm$^3$ | | |
| Tolerance of the rated hardness | DIN ISO 48 | IRHD | ±5 | ±5 |
| Tensile test | DIN 53 504 | | | |
| Tensile strength | | N/mm$^2$ | ≥ 7,5 | ≥ 7,5 |
| Elongation at break | | % | ≥ 300 | ≥200 |
| Compression set | DIN ISO 815 | | | |
| ( -25°C / 22 h / 25 %) | | % | ≤ 70 | ≤ 80 |
| ( 23°C / 22 h / 25 %) | | % | ≤ 15 | ≤ 15 |
| (100°C / 22 h / 25 %) | | % | ≤ 35 | ≤ 35 |
| Behaviour according to thermal ageing | DIN 53 508 (7 days, 100°C) | | Without complaint | |
| Hardness change | DIN 53 519 | IRHD | ≤ 15 | ≤ 15 |
| Change in tensile strength | DIN 53 504 | % | ≤ 25 | ≤ 25 |
| Elongation at break (absolute) | DIN 53 504 | % | ≥ 200 | ≥150 |
| Change in Shore hardness with change in termperature | DIN 53 505 from 23°C to -10°C | Shore A | ≤ 10 | ≤ 10 |
| Behaviour after ozone influence | DIN 53 509 | Crack stage | 0 | 0 |
| Behaviour in artificial weather conditions | RAL-GZ 716 | | no cracks, no bubbles | |
| Weather-proofness | DIN 53504 (Elongation at break) | % | ≥ 200 | ≥ 150 |
| Contact discolouration | DIN 53 540 | Authenticity figure (A02) | ≥ 3 | ≥ 3 |
| | | Authenticity figure (A03) | ≥ 4 | ≥ 4 |
| Weight loss | DIN EN ISO 176 Method A | % | ≤ 3,0 | ≤ 3,0 |
| Compatibility | Contact under tensile bending strain from 0 - 15 N/mm$^2$ | | No cracks formed in the contact material | |



Overview without guarantee of completeness and normative changes.

Issue: 07/2018

SALAMANDER WINDOW & DOOR SYSTEMS

# Award Certificate for Quality mark according to RAL-GZ 716

KUNSTSTOFF FENSTERPROFILSYSTEME | RAL GÜTEZEICHEN

Am Hofgarten 1-2, 53113 Bonn, Germany

In conformity with the quality and test requirements of RAL-GZ 716, part 1, Gütegemeinschaft Kunststoff-Fensterprofilsysteme (quality association for plastic window profile systems) confers the RAL-quality mark "RAL-Gütezeichen für Kunststoff-Fensterprofilsysteme",

to

## Salamander Industrie-Produkte GmbH

Jakob-Sigle-Straße 58, 86842 Türkheim

referring to the profile system

## bluEvolution: 92

The RAL-quality mark as shown below is acknowledged by RAL Deutsches Institut für Gütesicherung und Kennzeichnung e.V. and internationally protected as collective mark by Deutsches Patent- und Markenamt.

RAL-Gütezeichen für
Kunststoff-Fensterprofilsysteme

RAL GÜTEZEICHEN Kunststoff Fensterprofilsysteme

Awarding criteria: A system manual as well as several test certificates of sample windows are the basis for this certification. A summary of tested samples and test results of this profile system are listed in the corresponding "RAL-Systempass", which can be seen as brief technical description of the system.
Periodical audits by a neutral testing institute ensure that system manual as well as system tests are up to date.

first issue on 23.05.2017

Gerald Feigenbutz
*General Manager*

issued on 23.05.2017

Peter Czajkowski
*Chairman of the Quality Committee*

The validity of this award certificate can be verified on www.gkfp.de.

# Award Certificate for Quality mark according to RAL-GZ 716

KUNSTSTOFF FENSTERPROFILSYSTEME | RAL GÜTEZEICHEN

Am Hofgarten 1-2, 53113 Bonn, Germany

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to

## Salamander Industrie-Produkte GmbH

Jakob-Sigle-Straße 58, 86842 Türkheim

referring to the profile system

## bluEvolution: 92 – Door system

The RAL-quality mark as shown below is acknowledged by RAL Deutsches Institut für Gütesicherung und Kennzeichnung e.V. and internationally protected as collective mark by Deutsches Patent- und Markenamt.

RAL-Gütezeichen für
Kunststoff-Fensterprofilsysteme

RAL GÜTEZEICHEN Kunststoff Fensterprofilsysteme

Awarding criteria: A system manual as well as several test certificates of sample windows are the basis for this certification. A summary of tested samples and test results of this profile system are listed in the corresponding "RAL-Systempass", which can be seen as brief technical description of the system.
Periodical audits by a neutral testing institute ensure that system manual as well as system tests are up to date.

first issue on 10.02.2017

Gerald Feigenbutz
*General Manager*

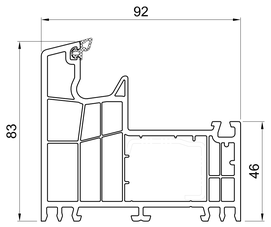
issued on 10.02.2017

Peter Czajkowski
*Chairman of the Quality Committee*

The validity of this award certificate can be verified on www.gkfp.de.

| Designation | Page bE92 02 0... |
|---|---|
| - Main profiles | |
| - Accessories 1 (Salamander) | |
| - Accessories 2 (Salamander) | |
| - Accessories 3 (Salamander) | |
| - Accessories 4 (bluEvolution 92) | |
| - Reinforcement profile 1 | |
| - Reinforcement profile 2 | |
| - Main profiles | 01.1 - 01.2 |
| - Glazing bars | 02.1 - 02.3 |
| - Gaskets | 03.1 - 03.2 |
| - Bridge setting blocks, glass setting blocks | 04.1 |
| - Reinforcements | 05.1 - 05.4 |
| - Cruciform coupler set | 06.1 |
| - Overlap end caps | 07.1 |
| - Thresholds, step protection | 08.1 - 08.3 |
| - Extension profiles | 09.1 - 09.2 |
| - Sill profiles | 10.1 - 10.4 |
| - Couplings / corner connections | 11.1 - 11.4 |
| - Pilaster strip profiles | 12.1 |
| - Muntin, self adhesive | 13.1 - 13.2 |
| - Weatherboard | 14.1 |
| - Reveal panelling / panelling profiles | 15.1 - 15.7 |
| - PVC, laminate, sandwich board | 16.1 |
| - Roller shutter accessories | 17.1 - 17.5 |
| - Fixing profiles | 18.1 |
| - Other accessories | 19.1 - 19.6 |

## Frames



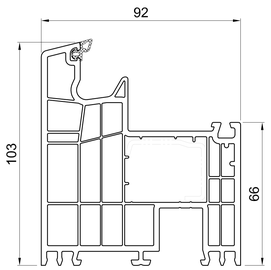

**170 420**

Reinforcement:
37x28
**475 200**

Reinforcement:
35x28
**455 230**

Steel tube:
35x28
**455 235**

Reinforcement
(tg**):
35x28
**455 231**




**170 430**

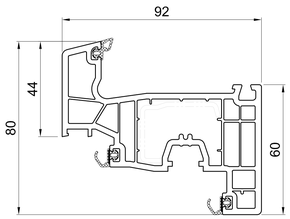
Reinforcement:
37x28
**475 200**

Reinforcement:
35x28
**455 230**

Steel tube:
35x28
**455 235**

Reinforcement
(tg**):
35x28
**455 231**

## Casements

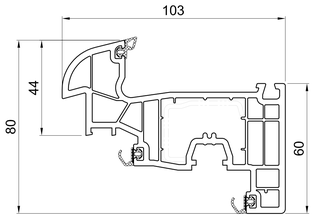



**171 020**

Reinforcement:
37x28
**475 200**

Reinforcement:
35x28
**455 230**

Reinforcement
(tg**):
35x28
**455 231**

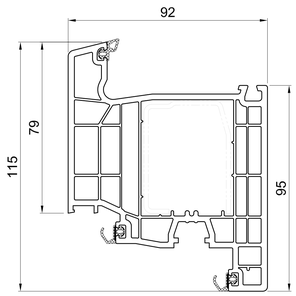



**171 226**

Reinforcement:
37x28
**475 200**

Reinforcement:
35x28
**455 230**

Reinforcement
(tg**):
35x28
**455 231**



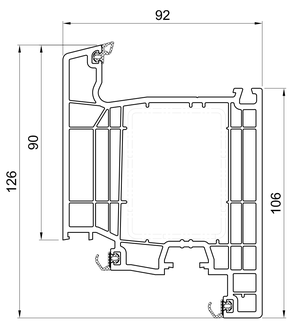

**171 030**

Reinforcement:
40x52
**455 030**

Steel tube:
40x50
**405 065**

Weldable corner connector:
**208 110**
Clamping lever for connector
**207 910**

## Entrance door leafs



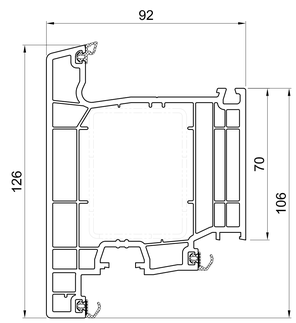

**171 040**

Backset 55

**415 055**
DIN left

**415 056**
DIN right

Weldable corner connector:
**217 060**
Clamping lever for connector
**207 910**




**371 040**

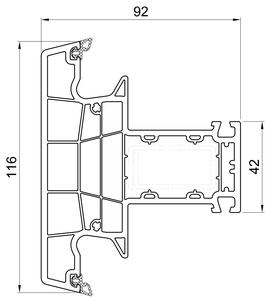
Backset 55

**415 055**
DIN left

**415 056**
DIN right

Weldable corner connector:
**217 060**
Clamping lever for connector
**207 910**

## Posts / Mullions



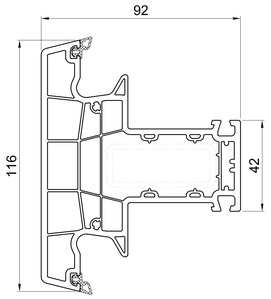

**172 420**

Steel tube:
40x20
**415 020**

Post cruciform
coupler set
**178 020**
Drilling template
**178 420**

Post coupler set
**178 030**
Drilling template
**178 420**

Sealing block
**178 820**



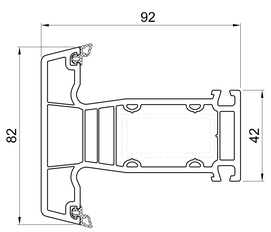

**172 421**

Steel tube:
50x20
**475 021**

Post cruciform
coupler set
**178 020**
Drilling template
**178 420**

Post coupler set
**178 030**
Drilling template
**178 420**

Sealing block
**178 820**




**172 425**

Steel tube:
45x20
**215 120**

Mullion cruciform
coupler set
**178 040**
Drilling template
**178 440**

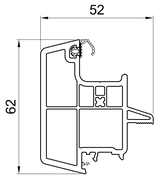
Sealing block
**178 840**

## Overlap bars

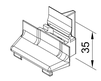
**416 026**

Sealing block
**474 926**

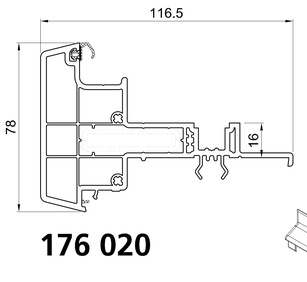
Overlap-cover fillet,
self-adhesive
**406 317**




**176 010**

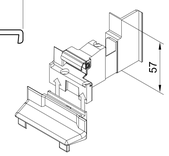



End cap
**177 010**

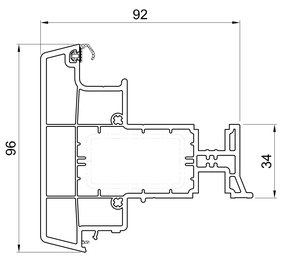



**176 020**

Steel tube:
45x10
**405 012**




End cap set
2-part
**177 020**

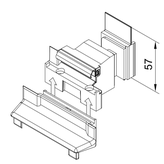



**176 030**

Steel tube:
50x10
**405 015**

Steel tube:
45x25
**475 045**

Flat steel:
50x10
**405 125**

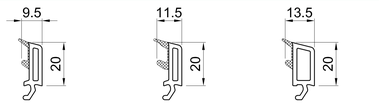



End cap set
2-part
**177 030**

# System Salamander: Accessories 1

ZUB1-006
**Condition: 10/2015**

## Glazing bars



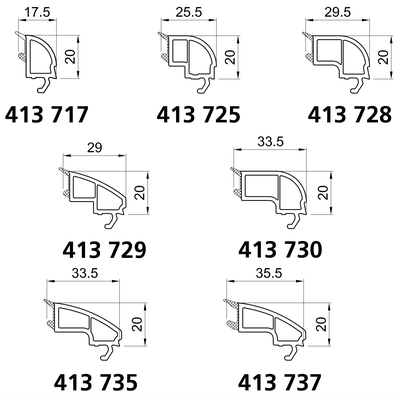

**413 809** **413 811** **413 813**

**413 817** **413 821** **413 825**

**413 829** **413 833**

**413 837** **413 841** **413 843**

## Design - glazing bars

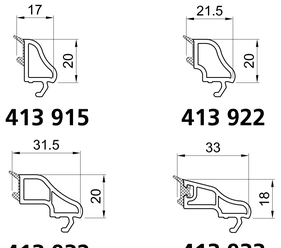



**413 717** **413 725** **413 728**

**413 729** **413 730**

**413 735** **413 737**

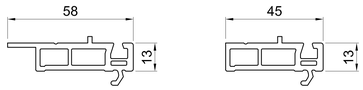
## Style glazing bars




**413 915** **413 922**

**413 932** **413 933**

## Fixed glazing bars

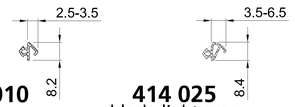



**113 415**
Fixed glazing bar
3D

**113 425**
Fixed glazing bar
3D

## Stopper- / Glazing gaskets

EPDM

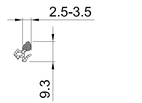



**114 010**
Stopper gasket

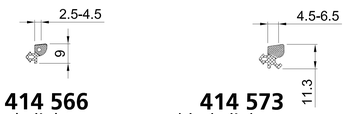
**414 025**
black, light grey

**414 565**
black

EPDM
(foamed)



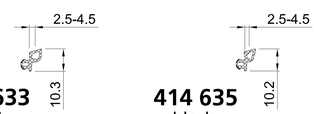

**114 410**
Fixed glazing seal




**414 566**
black, light grey
(Substitute for 414 564)

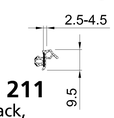
**414 573**
black, light grey

TPE

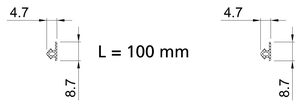



**414 633**
black,
light grey

**414 635**
black,
light grey




**414 211**
black,
light grey



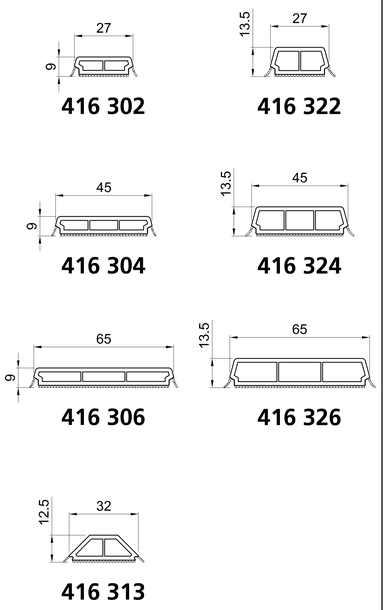

**414 023**
Pressure equalization
gasket black, light grey

**414 024**
Ventilation gasket
black, light grey

**414 916**
Door gasket for
16 mm fitting groove

**414 920**
Door gasket for
20 mm fitting groove

## Muntins, self adhesive



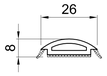

**416 302** **416 322**

**416 304** **416 324**

**416 306** **416 326**

**416 313**

## Design-muntins, self adhesive




**412 026**

## Cover caps

**417 022**
Water slot cap

**407 025**
Tube cap

## Other accessories

**414 954**
Wind blocker
(STAD, STMD,
3D, 2D)

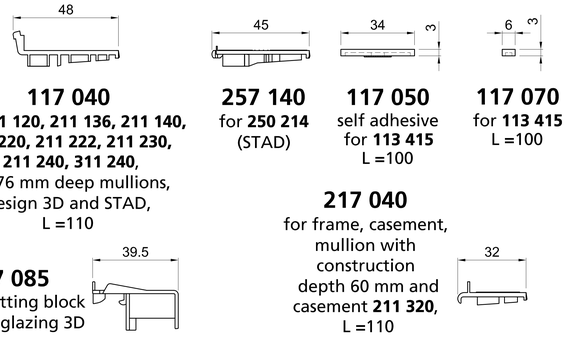
**407 150**
Frame run-up-wedge
for 16 mm fittings groove

**417 011** 13 mm
**417 012** 14 mm
Transport protection
(Casement for
adhesion STAD, 3D)

**417 015**
Design run-up-wedge
(STAD, 3D, 2D)

**417 760**
Adhesive tape for
overlap adhesion
(DGS®)

## Bridge setting blocks




**117 040**
for **211 120, 211 136, 211 140, 211 220, 211 222, 211 230, 211 240, 311 240,**
all 76 mm deep mullions,
design 3D and STAD,
L =110

**257 140**
for **250 214**
(STAD)

**117 050**
self adhesive
for **113 415**
L =100

**117 070**
for **113 415**
L =100

**217 040**
for frame, casement,
mullion with
construction
depth 60 mm and
casement **211 320**,
L =110

**257 008**

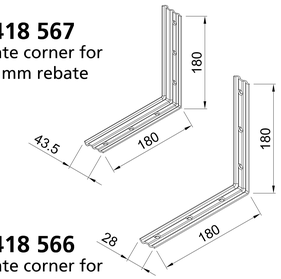
**257 009**

**257 010**

**257 011**
for **251 007**
(STAD, WGS®, DGS®)

**117 085**
Bridge setting block
for fixed glazing 3D

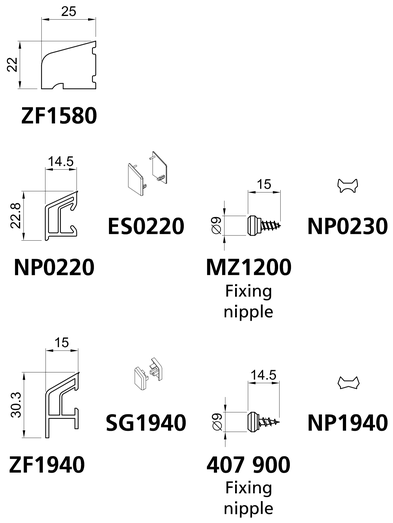
## Rebate corner




**418 567**
Rebate corner for
62 mm rebate

**418 566**
Rebate corner for
46 mm rebate

## Weatherboard

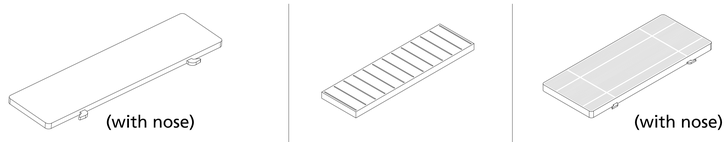



**ZF1580**

**NP0220** **ES0220** **MZ1200** Fixing nipple **NP0230**

**ZF1940** **SG1940** **407 900** Fixing nipple **NP1940**

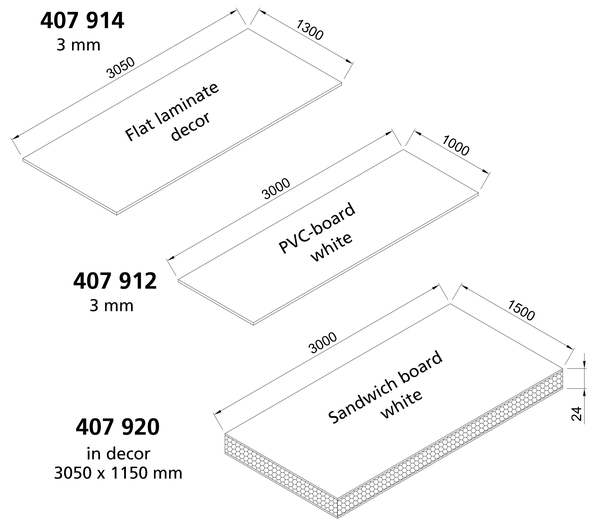
## Glass setting block



(with nose) (with nose)

| 110 x 28 | 110 x 41 | 110 x 53 | 90 x 26 | 90 x 30 | 110 x 45 | 110 x 49 |
|---|---|---|---|---|---|---|
| **417 121** 1 mm grey | **417 141** 1 mm grey | **417 171** 1 mm grey | **407 111** 1 mm grey | **407 131** 1 mm grey | **417 151** 1 mm grey | **417 161** 1 mm grey |
| **417 122** 2 mm red | **417 142** 2 mm red | **417 172** 2 mm red | **407 112** 2 mm red | **407 132** 2 mm red | **417 152** 2 mm red | **417 162** 2 mm red |
| **417 123** 3 mm green | **417 143** 3 mm green | **417 173** 3 mm green | **407 113** 3 mm green | **407 133** 3 mm green | **417 153** 3 mm green | **417 163** 3 mm green |
| **417 124** 4 mm yellow | **417 144** 4 mm yellow | **417 174** 4 mm yellow | **407 114** 4 mm yellow | **407 134** 4 mm yellow | **417 154** 4 mm yellow | **417 164** 4 mm yellow |
| **417 125** 5 mm blue | **417 145** 5 mm blue | **417 175** 5 mm blue | **407 115** 5 mm blue | **407 135** 5 mm blue | **417 155** 5 mm blue | **417 165** 5 mm blue |

## Boards

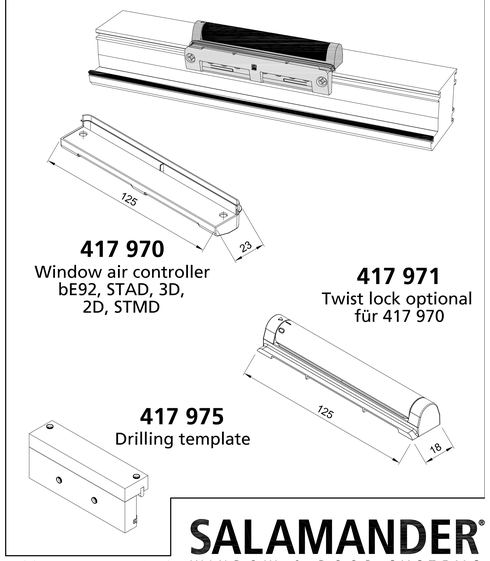



**407 914**
3 mm

**407 912**
3 mm

**407 920**
in decor
3050 x 1150 mm

## Air controller




**417 970**
Window air controller
bE92, STAD, 3D,
2D, STMD

**417 971**
Twist lock optional
für 417 970

**417 975**
Drilling template

Subject to technical changes

Scale 1:1 (1:2 / not to scale) (or depending on print-out)

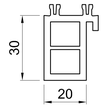
SALAMANDER®
WINDOW & DOOR SYSTEMS

# System Salamander: Accessories 2

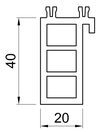
ZUB2-008
**Condition: 11/2015**

## Sill profiles

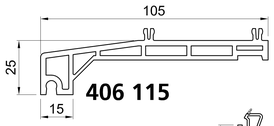
**406 105**



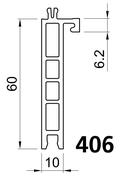

**406 139**



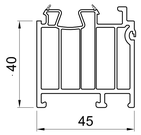

**406 140**



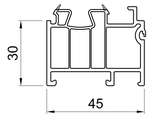

**406 115**



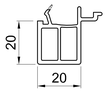

**406 157**



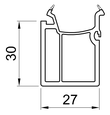

**416 100**



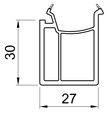

**416 106**



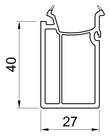

**416 122**




**416 134**

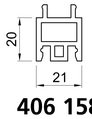



**416 131**

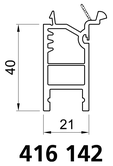



**416 141**

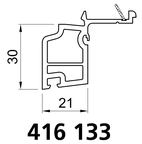
## Stone bank profiles



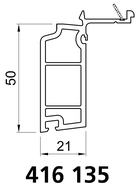

**406 158**



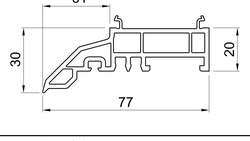

**416 142**




**416 133**

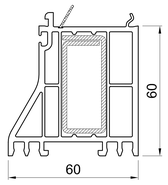



**416 135**

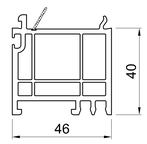



**416 126**

## French window profile

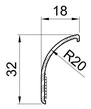



**416 145**
Reinforcement: 45x20
**215 120**

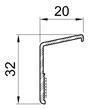



**416 146**

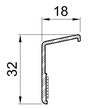
## Step protection




**116 605**

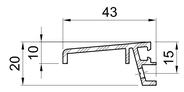



**116 610**

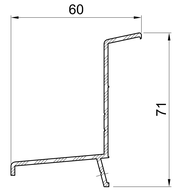



**216 610**

**216 620**

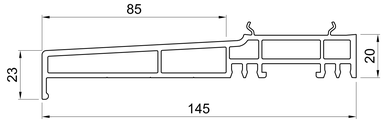



**416 615**

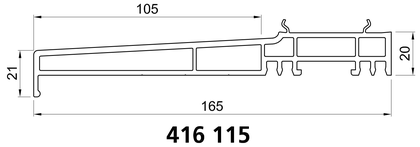



**216 615**
for Design 2D,
STAD, STMD

## Sills

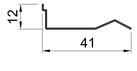



**416 110**
End cap **417 115**

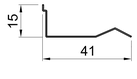



**416 115**
End cap **417 115**

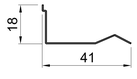
## Locking clamps



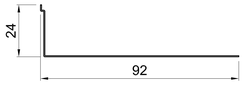

**417 517**




**417 520**

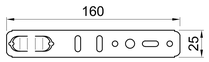



**417 523**

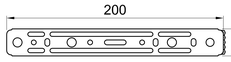



**417 530**

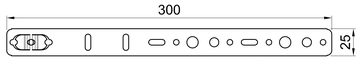
## Tie bolt



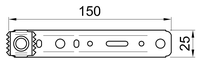

**417 540** fixed




**417 545** fixed

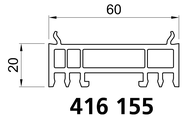



**417 548** fixed

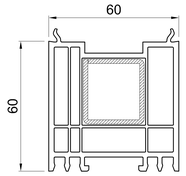



**417 550** rotary

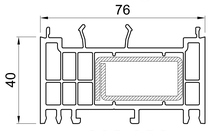
## Extension profiles



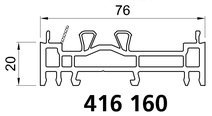

**416 155**



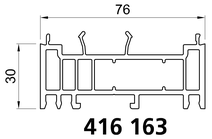

**416 165**
Steel tube: 30x28
**415 028**



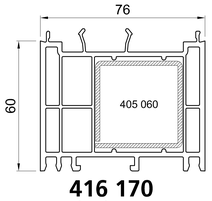

**416 164**
Steel tube: 20x40
**415 020**



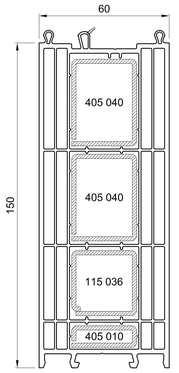

**416 160**



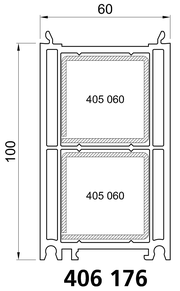

**416 163**



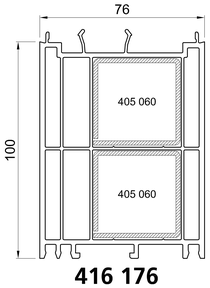

**416 170**
Steel tube: 40x40
**405 060**




**416 395**
Steel tube: 40x30 **405 040**
Steel tube: 30x30 **115 036**
Steel tube: 10x30 **405 010**




**406 176**




**416 176**

## Cover cap profiles

**406 410**
Cover trim

**416 390**
Groove profile
for GL-groove

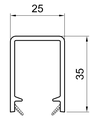
**406 391**
Clip profile 16 mm

**NP0060**
Cover trim

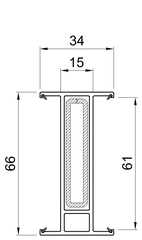
## Coupling profiles

**414 915**

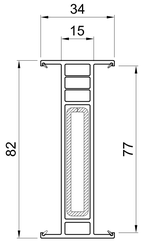
**406 255**



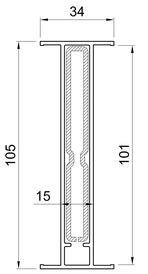

**ZF2110**



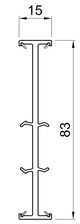

**406 272**
Steel tube: 50x10
**405 015**
or solid steel: 50x10
**405 125**



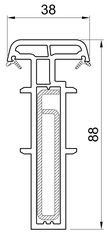

**416 273**




**406 273**
Steel tube: 90x10
**405 273**




**416 260**



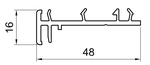

**416 272**
Reinforcement:
60x10, **415 173**

**414 910**
Self adhesive gasket
for **405 155, 405 165,**
**405 175**

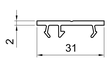
**414 025**
Additional gasket for
decor for **406 281,**
**406 286, 406 295**

**416 267**
Coupling profile
1500 mm

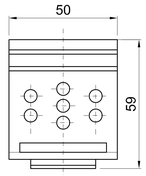
**416 268**
Spacer
50 mm



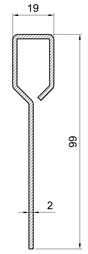

**416 264**



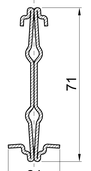

**416 265**



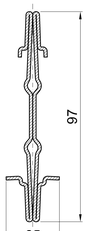

**407 055**
Expansion plate
t = 6,75 mm



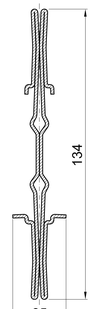

**VS0140**
for STAD, STMD



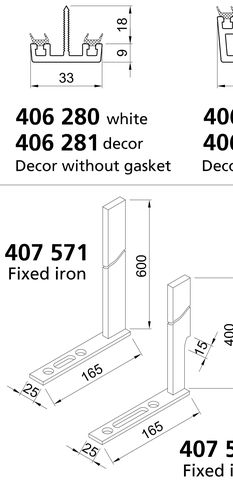

**405 155**




**405 165**




**405 175**




**406 280** white
**406 281** decor
Decor without gasket

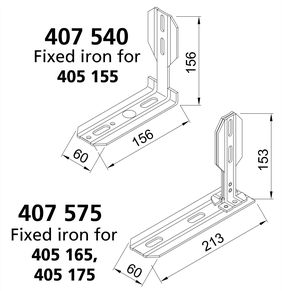
**406 285** white
**406 286** decor
Decor without gasket

**406 290** white
**406 295** decor
Decor with out gasket




**407 571**
Fixed iron

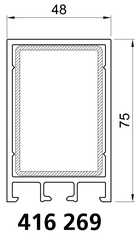
**407 570**
Fixed iron



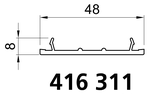

**407 540**
Fixed iron for
**405 155**

**407 575**
Fixed iron for
**405 165,**
**405 175**

## Pilaster strip profiles
## (Post reinforccement)

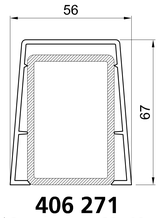



**416 269**
for decor
Steel tube: 60x40
**AR4630**

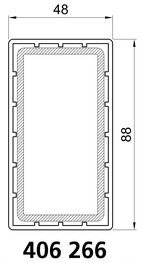



**416 311**
Cover profile

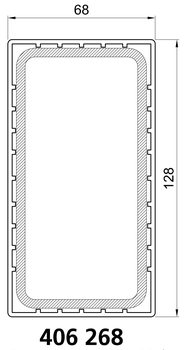
**407 900**
Fixing nipple
for **416 269**




**406 271**
Steel tube: 60x40



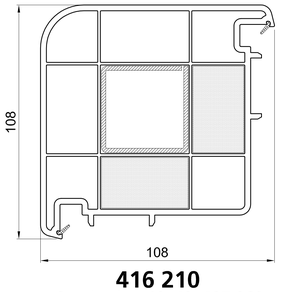

**406 266**
Steel tube: 80x40



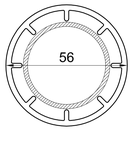

**406 268**
Steel tube: 120x60

Thickness according to statics
Purchase by steel trade

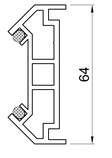
## Corner coupling profiles



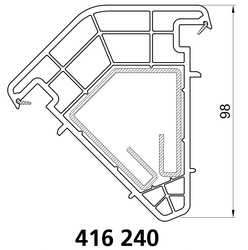

**416 210**
Steel tube: 40x40, **405 060**
End cap, **417 210**
Isulation strip, **417 810**



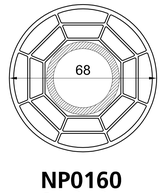

**406 215**
Steel tube
D = 40x2,0
**405 080**



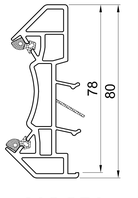

**406 225**
Gasket
**404 920**




**416 240**
Steel tube: **415 140**
End cap **417 240**




**NP0160**
Steel tube
D = 34x3,2
**415 016**




**416 251**
Gasket / EPDM
**414 566**

Subject to technical changes

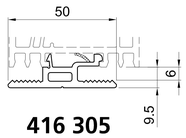
Scale 1:1 (1:2 / not to scale) (or depending on print-out)

SALAMANDER
WINDOW & DOOR SYSTEMS

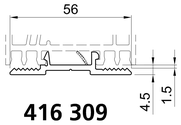
# System Salamander: Accessories 3

ZUB3-006
**Condition: 05/2015**

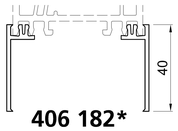
## Additional profiles



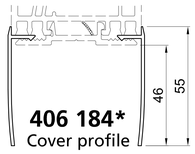

**416 305**
Adapter



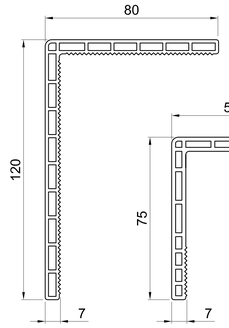

**416 309**
Adapter



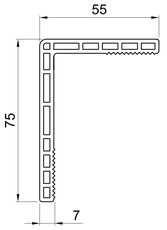

**406 182***
Cover



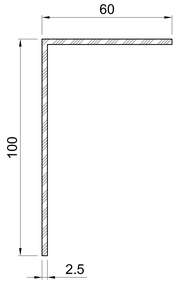

**406 184***
Cover profile



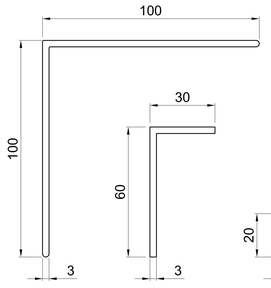

**406 329***
Old building angle




**406 325***
Old building angle



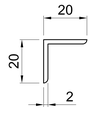

**406 660**
Old building angle-Alu
(only decor)



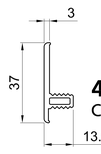

**406 321***
Angle




**406 320***
Angle

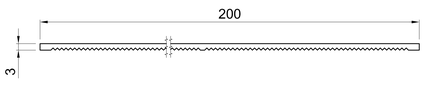



**406 319***
Angle

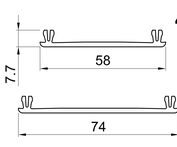



**406 006**
Cover strip

**406 430**
Adapterprofil
for old building-frames

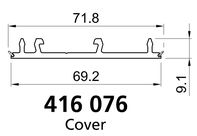



**406 316***




**406 180**
Cover

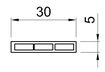
**416 180**
Cover



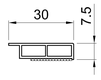

**416 076**
Cover

* to use in decor only room side!

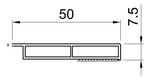
## Paneling profile



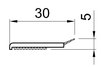

**406 310***



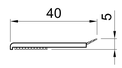

**406 345***
Chamber profile, sk




**406 350***
Chamber profile, sk

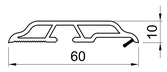



**406 312***
self-adhesive

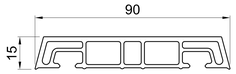



**406 315***
self-adhesive

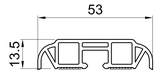
**406 317***
self-adhesive



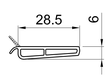

**216 230**
False mullion inside
Fixing nipple
**407 900**
Fixing profile
**406 635** Alu
**406 335** PVC



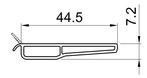

**406 340**
Cover
Fixing nipple
**407 900**
Fixing profile
**406 635** Alu
**406 335** PVC




**416 312**
Decorative bead, sk
Fixing nipple
**407 900**
Fixing profile
**406 635** Alu
**406 335** PVC



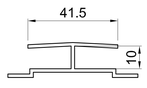

**216 380**
Compensation for
angled rebate
rebate depth 46 mm



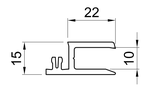

**416 380**
Compensation for
angled rebate
rebate depth 62 mm

* to use in decor only room side!

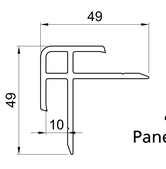
## Connections / Panelling




**406 306**
H-profile

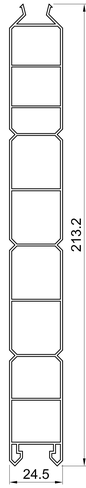



**406 307**
Adapter panelling

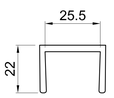



**406 308**
Panelling coupling

## Panel profile/paneling profile

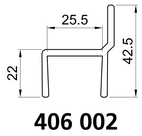



**406 670**

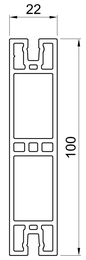



**406 001**

**406 251**
Spring coupling

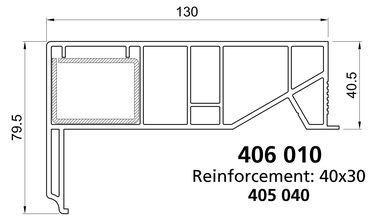



**406 002**

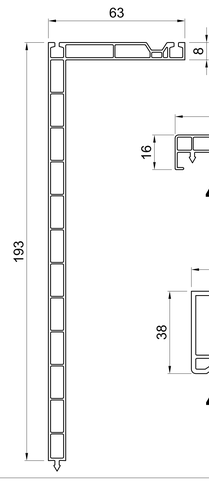



**406 267**
Panelling profile

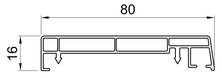
## Reveal paneling



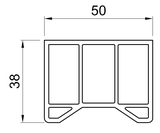

**406 010**
Reinforcement: 40x30
**405 040**




**406 386**
Panelling

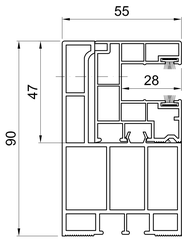



**406 387**
Cover

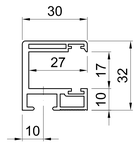



**406 020**
Extension

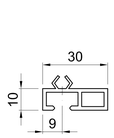
## Rolller shutter - accessories



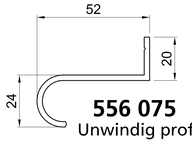

**556 070**
Adapter profile
Guide end cap
**557 170**
Fixing nipple
**407 900**



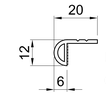

**406 065**
Guide end cap
**407 065**
Fixing nipple
**407 965**



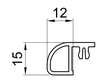

**406 066**
False edge
Fixing nipple
**407 965**



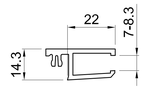

**556 075**
Unwindig profile



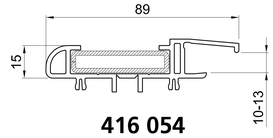

**406 050**
Unwinding strip
only for **406 065**



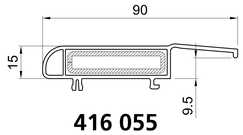

**406 051**
Spreader



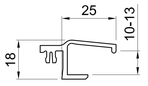

**406 052**
Cover connection



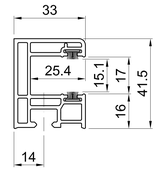

**416 054**
Reinforcement 45x10
**405 012**



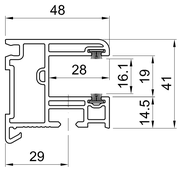

**416 055**
Reinforcement 45x10
**405 012**



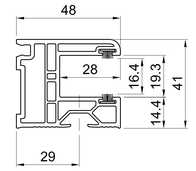

**406 053**
cover connection



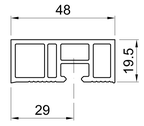

**406 073*****
Guide end cap
**407 070**



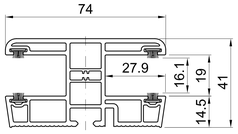

**416 082*****
Guide end cap
**417 082**
End cap
**417 081**




**416 086****
Guide end cap
**417 082**
End cap
**417 081**

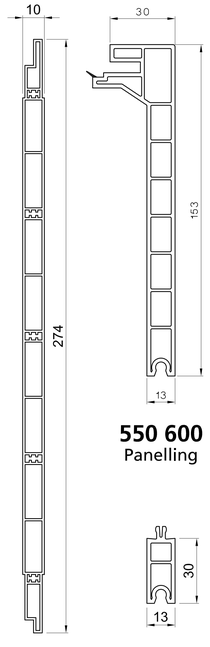



**406 081*****
False edge




**416 096*****
Guide end cap **417 096**
End cap **417 095**

**404 935**
Brush seal




**550 990**
Blind

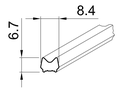



**550 600**
Panelling

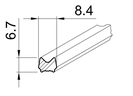



**550 601**
Extension

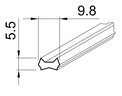
** **Fixing nipple** 407 900, **fixing profile** NP1940
*** **Fixing nipple** 407 900, **fixing profile** 406 635 aluminium and **fixing profile** 406 335 PVC




**406 335**
Fixing profile
PVC



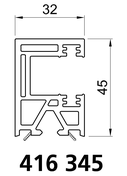

**406 635**
Fixing profile
aluminium



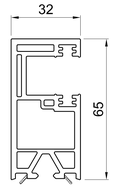

**NP1940**
Fixing profile
PVC

**407 900**
Fixing nipple

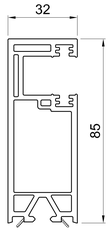
**407 965**
Fixing nipple




**416 345**




**416 365**




**416 385**

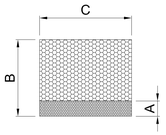
**407 900**
Fixing nipple

**414 970**
Brush gasket

**406 335**
Fixing profile
PVC

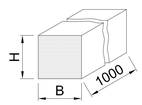
**406 635**
Fixing profile aluminium (with decor)

## Pre-compressed gasket tape




| Article-Nr. | filling A / B x C |
|---|---|
| 407 930 | 3 / 15 x 20 H.F. |
| 407 932 | 4 / 20 x 20 H.F. |
| 407 934 | 6 / 30 x 20 H.F. |

## Polyamid conectors

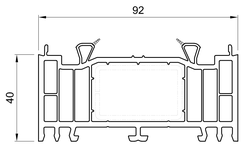



Polyamid connector
**418 930** H = 40, B = 40 for mullion / muntin: **212 030, 212 220, 252 130**
**418 925** H = 20, B = 30 for mullion / muntin: **212 025**
**208 930** H = 40, B = 50
**208 920** H = 20, B = 40 for mullion / muntin: **112 125, 112 220, 212 020**
**418 940** H = 45, B = 40 for mullion / muntin: **252 130, 212 130**
**418 920** H = 45, B = 20 for mullion / muntin: **252 120, 212 120, 252 110, 212 110**



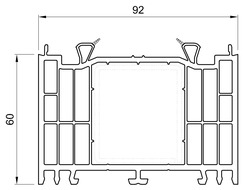
SALAMANDER
WINDOW & DOOR SYSTEMS

## Extension profile




Steel tube:
40x25
VS3020

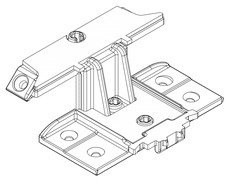
476 164



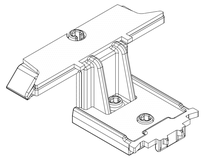

Steel tube:
40x45
215 130

476 170

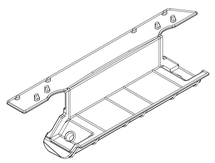
## Connector



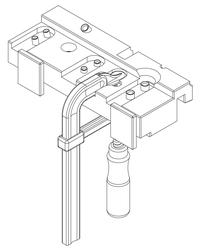
178 020
Post cruciform coupler set
for 172 420, 172 421



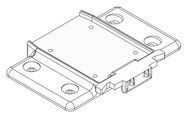
178 030
Post coupler set
for 172 420, 172 421



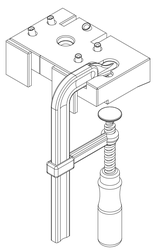
178 820
Sealing block
for 178 020, 178 030



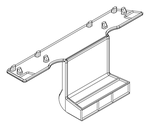
178 420
Drilling template
for 178 020, 178 030



178 040
Mullion cruciform coupler
set for 172 425

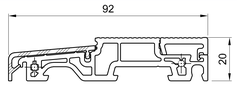


178 440
Drilling template
for 178 040

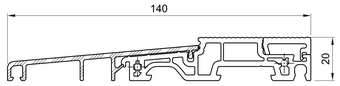


178 840
Sealing block
for 178 040

## Threshold

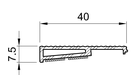



476 325
Door-threshold
opening to the inside

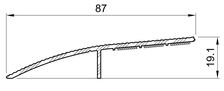



476 340
Door-threshold
opening to the inside

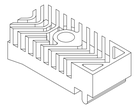
216 321
Adapter profile
opening to the outside




476 626
Adapter profile
opening to the outside

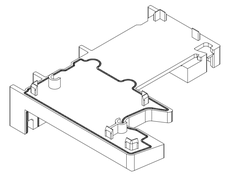


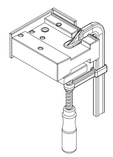

476 627
Adapter profile
handicapped accessible



474 954
Wind blocker

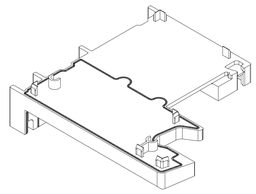
478 520
Threshold connector
for frame 170 420

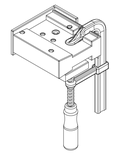




478 420
Drilling template
for 478 520

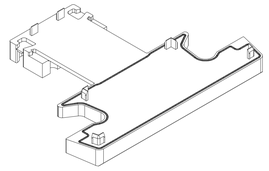
478 530
Threshold connector
for frame 170 430

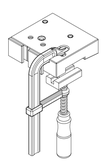




478 430
Drilling template
for 478 530

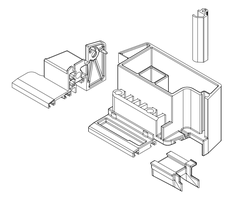
478 525
Threshold connector
for 172 420; 172 421





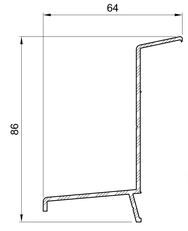
478 425
Drilling template
for 478 525

## Overlap end cap



477 020
End cap set for
HT-Overlap 176 020 R + L

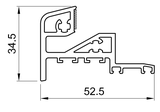
## Step protection




476 615
French window threshold

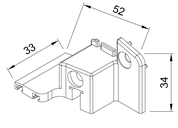
476 620
Step protection
self-adhesive

## Weatherboard




476 640
Weatherboard

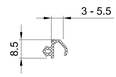
404 940
Brush gasket



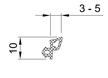

477 045
End cap set for
HT-Weatherboard R + L

604 930
Graze gasket

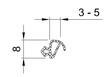
## Repair gasket




474 221
Repair stopper and
central gasket
(casement) (manual
application) TPE

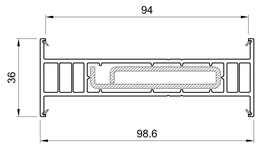



474 645
Repair stopper and
glazing gasket (frame)
(manual application)
TPE



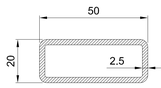

474 025
Repair stopper and
central gasket
(manual application)
EPDM

## Coupling profile

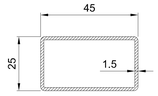



476 273
Reinforcement: 415 173
Steel tube: VS0130

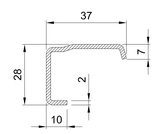
## Reinforcement




475 021
Steel tube: 50x20x2,5
Insert: 172 421

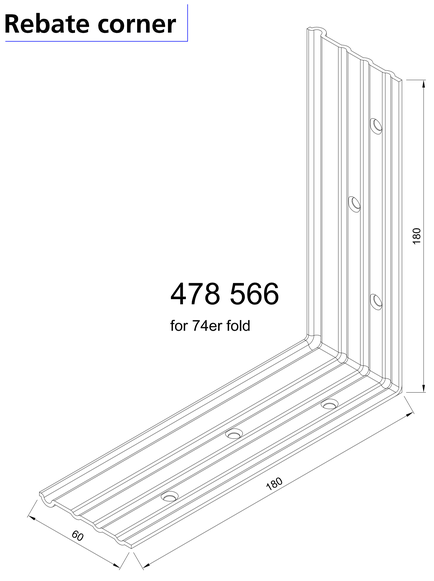



475 045
Steel tube: 45x25x1,5
Insert: 176 030



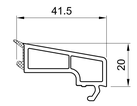

475 200
Reinforcement: 37x28x2
Insert:
170 420, 170 430,
171 020, 171 030

## Rebate corner

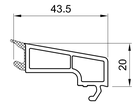



478 566
for 74er fold

## Glazing bar

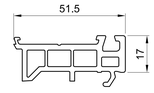



413 841



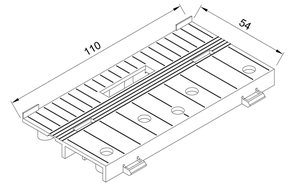

413 843

## Fixed glazing bar

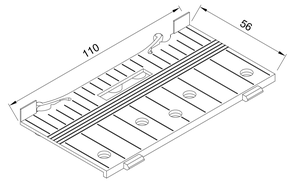



173 415

## Bridge setting block

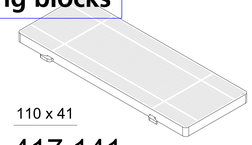



177 015
for frame and post

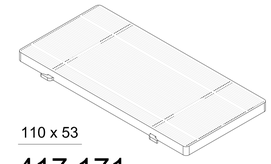



177 040
for casement and muntin

## Glass setting blocks



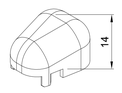
110 x 41
417 141
1mm grey
417 142
2mm red
417 143
3mm green
417 144
4mm yellow
417 145
5mm blue



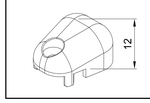
110 x 53
417 171
1mm grey
417 172
2mm red
417 173
3mm green
417 174
4mm yellow
417 175
5mm blue

## Other accessories

477 010
Transport protection
(red)

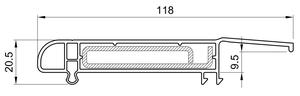



477 012
Transport protection
(green)




477 015
Run-up wedge

## Roller shutter - accessories

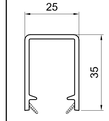


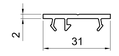

476 055
Roller shutter spreader / reinforcement: 415 173

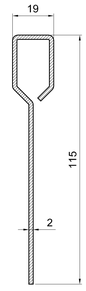
## Roller shutter - accessories

416 267
Coupling
profile
1500 mm

416 268
Spacer
50 mm

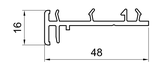



ZF2110

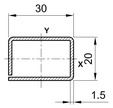
416 265



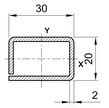

416 264

415 167

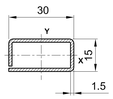
# Reinforcement profiles



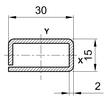

**105 011**
**Reinforcement profile**
30 / 20 / 1,5 mm
galvanized steel
Ix= 0,86 cm$^4$
Iy= 1,63 cm$^4$
Insert: 210 010; 210 148; 212 024; 212 025; 250 148; 250 154



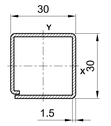

**105 011**
**Reinforcement profile**
30 / 20 / 2,0 mm
galvanized steel
Ix= 1,07 cm$^4$
Iy= 2,04 cm$^4$
Insert: 210 010; 210 148; 212 024; 212 025; 250 148; 250 154



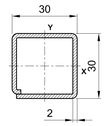

**105 020**
**Reinforcement profile**
30 / 15 / 1,5 mm
galvanized steel
Ix= 0,44 cm$^4$
Iy= 1,35 cm$^4$
Insert: 110 148, 110 154, 210 145, 210 146, 250 100, 610 040



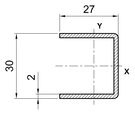

**105 020**
**Reinforcement profile**
30 / 15 / 2,0 mm
galvanized steel
Ix= 0,53 cm$^4$
Iy= 1,67 cm$^4$
Insert: 110 148, 110 154, 210 145, 210 146, 250 100, 610 040



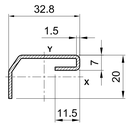

**115 036**
**Reinforcement profile**
30 / 30 / 1,5 mm
galvanized steel
Ix= 2,24 cm$^4$
Iy= 2,24 cm$^4$
Insert: 210 020; 210 024; 220 220; 416 395



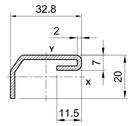

**115 036**
**Reinforcement profile**
30 / 30 / 2,0 mm
galvanized steel
Ix= 2,82 cm$^4$
Iy= 2,82 cm$^4$
Insert: 210 020; 210 024; 220 220; 416 395



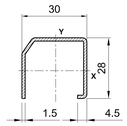

**205 245**
**Reinforcement profile**
27 / 30 / 2,0 mm
galvanized steel
Ix= 1,15 cm$^4$
Iy= 2,30 cm$^4$
Insert: 206 036



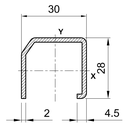

**215 010**
**Reinforcement profile**
33 / 20 / 1,5 mm
galvanized steel
Ix= 0,25 cm$^4$
Iy= 1,28 cm$^4$
Insert: 211 010



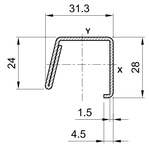

**215 010**
**Reinforcement profile**
33 / 20 / 2,0 mm
galvanized steel
Ix= 0,32 cm$^4$
Iy= 1,59 cm$^4$
Insert: 211 010



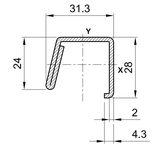

**215 025**
**Reinforcement profile**
30 / 28 / 1,5 mm
galvanized steel
Ix= 1,06 cm$^4$
Iy= 1,84 cm$^4$
Insert: 110 036; 110 220, 110 230, 210 020; 210 024; 210 025; 210 026, 211 024; 211 025, 211 120; 211 220; 211 226; 211 320; 211 365



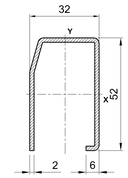

**215 025**
**Reinforcement profile**
30 / 28 / 2,0 mm
galvanized steel
Ix= 1,34 cm$^4$
Iy= 2,32 cm$^4$
Insert: 110 036; 110 220, 110 230, 210 020; 210 024; 210 025; 210 026, 211 024; 211 025, 211 120; 211 220; 211 226; 211 320; 211 365



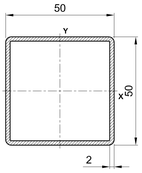

**215 028**
**Reinforcement profile**
31,5 / 28 / 1,5 mm
galvanized steel
Ix= 1,02 cm$^4$
Iy= 2,07 cm$^4$
Insert: 211 024; 211 025; 211 026; 211 120; 211 220; 211 226; 211 320



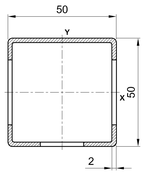

**215 028**
**Reinforcement profile**
31,5 / 28 / 2,0 mm
galvanized steel
Ix= 1,31 cm$^4$
Iy= 2,90 cm$^4$
Insert: 211 024; 211 026; 211 025; 211 120; 211 220; 211 226; 211 320



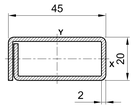

**215 035**
**Reinforcement profile**
32 / 52 / 2,0 mm
galvanized steel
Ix= 7,62 cm$^4$
Iy= 4,80 cm$^4$
Insert: 211 035



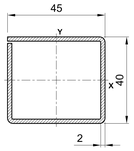

**215 040**
**Reinforcement profile**
50 / 50 / 2,0 mm
galvanized steel
Ix= 14,46 cm$^4$
Iy= 14,46 cm$^4$
Insert: 211 240, 311 240



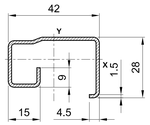

**215 050**
**Entrance door-casement reinforcement**
50 / 50 / 2,0 mm
galvanized steel
Ix= 14,60 cm$^4$
Iy= 14,60 cm$^4$
Insert: 211 240; 311 240



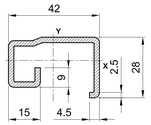

**215 120**
**Reinforcement profile**
45 / 20 / 2,0 mm
galvanized steel
Ix= 1,60 cm$^4$
Iy= 6,69 cm$^4$
Insert: 172 425; 252 120; 132 020; 136 030; 416 145



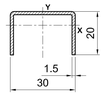

**215 130**
**Reinforcement profile**
45 / 40 / 2,0 mm
galvanized steel
Ix= 7,85 cm$^4$
Iy= 9,42 cm$^4$
Insert: 211 136; 212 220; 252 130; 476 170



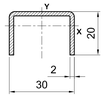

**215 222**
**Reinforcement profile**
42 / 28 / 1,5 mm
galvanized steel
Ix= 1,35 cm$^4$
Iy= 4,13 cm$^4$
Insert: 211 222



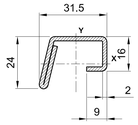

**215 222**
**Reinforcement profile**
42 / 28 / 2,5 mm
galvanized steel
Ix= 2,05 cm$^4$
Iy= 6,43 cm$^4$
Insert: 211 222



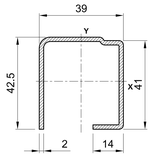

**215 224**
**Reinforcement profile**
30 / 20 / 1,5 mm
galvanized steel
Ix= 0,40 cm$^4$
Iy= 1,44 cm$^4$
Insert: *210 610; 211 624; 212 624*



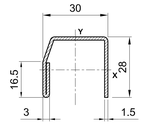

**215 224**
**Reinforcement profile**
30 / 20 / 2,0 mm
galvanized steel
Ix= 0,51 cm$^4$
Iy= 1,81 cm$^4$
Insert: *210 610; 211 624; 212 624*



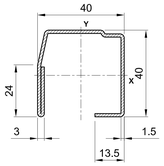

**215 228**
**Reinforcement profile**
31,5 / 24 / 2,0 mm
galvanized steel
Ix= 0,89 cm$^4$
Iy= 2,11 cm$^4$
Insert: 211 025; 211 026; 211 120; 211 220



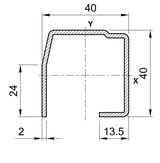

**215 227**
**Reinforcement profile**
39 / 42,5 / 2,0 mm
galvanized steel
Ix= 5,75 cm$^4$
Iy= 6,49 cm$^4$
Insert: 211 027



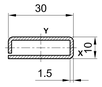

**315 020**
**Reinforcement profile**
30 / 28 / 1,5 mm
galvanized steel
Ix= 1,20 cm$^4$
Iy= 2,11 cm$^4$
Insert: 311 020



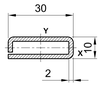

**315 030**
**Reinforcement profile**
40 / 40 / 1,5 mm
galvanized steel
Ix= 4,26 cm$^4$
Iy= 5,95 cm$^4$
Insert: 311 030



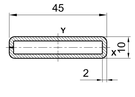

**315 030**
**Reinforcement profile**
40 / 40 / 2,0 mm
galvanized steel
Ix= 4,82 cm$^4$
Iy= 6,30 cm$^4$
Insert: 311 030



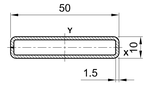

**405 010**
**Reinforcement profile**
30 / 10 / 1,5 mm
galvanized steel
Ix= 0,17 cm$^4$
Iy= 1,02 cm$^4$
Insert: 212 010; 216 020



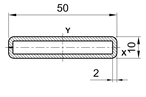

**405 010**
**Reinforcement profile**
30 / 10 / 2,0 mm
galvanized steel
Ix= 0,19 cm$^4$
Iy= 1,28 cm$^4$
Insert: 212 010; 216 020



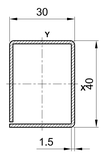

**405 012**
**Reinforcement profile**
45 / 10 / 2,0 mm
galvanized steel
Ix= 0,29 cm$^4$
Iy= 3,87 cm$^4$
Insert: 116 022; 176 020; 132 015; 212 210; 252 110; 256 020; 406 240; 416 054; 416 055



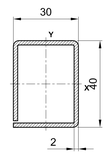

**405 015**
**Reinforcement profile**
50 / 10 / 1,5 mm
galvanized steel
Ix= 0,27 cm$^4$
Iy= 4,06 cm$^4$
Insert: 176 030; 216 030; 406 272; 416 054; 416 273



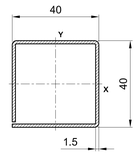

**405 015**
**Reinforcement profile**
50 / 10 / 2,0 mm
galvanized steel
Ix= 0,32 cm$^4$
Iy= 5,20 cm$^4$
Insert: 176 030; 216 030; 406 272; 416 054; 416 273



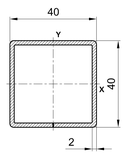

**405 040**
**Reinforcement profile**
30 / 40 / 1,5 mm
galvanized steel
Ix= 4,46 cm$^4$
Iy= 2,85 cm$^4$
Insert: 210 030; 230 036; 250 240; 406 010; 416 395



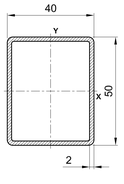

**405 040**
**Reinforcement profile**
30 / 40 / 2,0 mm
galvanized steel
Ix= 5,68 cm$^4$
Iy= 3,61 cm$^4$
Insert: 210 030; 230 036; 250 240; 406 010; 416 395



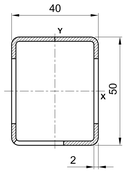

**405 060**
**Reinforcement profile**
40 / 40 / 1,5 mm
galvanized steel
Ix= 5,57 cm$^4$
Iy= 5,57 cm$^4$
Insert: 212 030; 406 176; 416 170; 416 176; 416 210



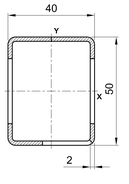

**405 060**
**Reinforcement profile**
40 / 40 / 2,0 mm
galvanized steel
Ix= 7,13 cm$^4$
Iy= 7,12 cm$^4$
Insert: 212 030; 406 176; 416 170; 416 176; 416 210



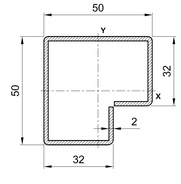

**405 065**
**Reinforcement**
40 / 50 / 2,0 mm
galvanized steel
Ix= 12,19 cm$^4$
Iy= 8,61 cm$^4$
Insert: 211 040; 311 040; 171 030; 131 030



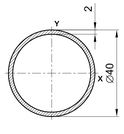

**405 071**
**Reinforcement profile**
40 / 50 / 2,0 mm;
backset 45
galvanized steel
Ix= 8,12 cm$^4$
Iy= 3,62 cm$^4$
Insert: 211 040; 311 040; *171 030; 131 030*



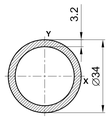

**405 072**
**Reinforcement profile**
40 / 50 / 2,0 mm;
backset 45
galvanized steel
Ix= 8,12 cm$^4$
Iy= 3,62 cm$^4$
Insert: 211 040; 311 040; *171 030; 131 030*




**405 075**
**Reinforcement profile**
50 / 50 / 2,0 mm
galvanized steel
Ix= 12,46 cm$^4$
Iy= 12,46 cm$^4$
Insert: 406 210

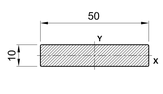



**405 080**
**Precision tube**
Ø40 / 2,0 mm
galvanized steel
Ix= 4,32 cm$^4$
Iy= 4,32 cm$^4$
Insert: 406 215

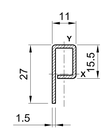



**415 016**
**Round steel tube for variable corner**
Ø34 / 3,2 mm
galvanized steel
Ix= 3,60 cm$^4$
Iy= 3,60 cm$^4$
Insert: 416 250

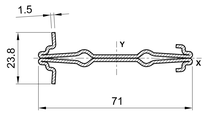
**705 020**
**Aluminium-tube**
Ø13 / 1,5 mm
aluminium
Ix= 0,094 cm$^4$
Iy= 0,094 cm$^4$
Insert: 706 200; 706 210



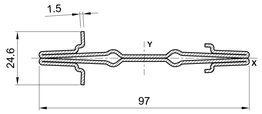

**405 125**
**Reinforcement profile**
50 / 10 mm
galvanized steel
Ix= 0,41 cm$^4$
Iy= 10,41 cm$^4$
Insert: 406 272, 176 030, 416 273



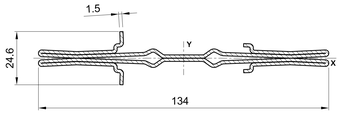

**405 420**
**Reinforcement prüfile**
11 / 27 / 1,5 mm
galvanized steel
Ix= 0,47 cm$^4$
Iy= 0,14 cm$^4$
Insert: 406 005



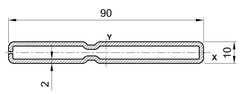

**405 155**
**Coupling profile**
71 / 24 / 1,5 mm
galvanized steel
Ix= 0,40 cm$^4$
Iy= 15,60 cm$^4$



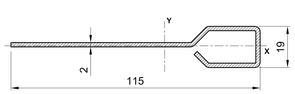

**405 165**
**Coupling profile**
97 / 25 / 1,5 mm
galvanized steel
Ix= 0,40 cm$^4$
Iy= 43,00 cm$^4$



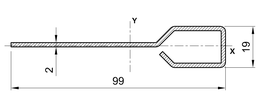

**405 175**
**Coupling profile**
134 / 25 / 1,5 mm
galvanized steel
Ix= 0,50 cm$^4$
Iy= 117,30 cm$^4$



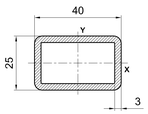

**405 273**
**Coupling profile**
90 / 10 / 2,0 mm
galvanized steel
Ix= 0,55 cm$^4$
Iy= 26,98 cm$^4$
Insert: 406 273




**415 167**
**Reinforcement profile**
115 / 19 / 2,0 mm
galvanized steel
Ix= 0,86 cm$^4$
Iy= 40,38 cm$^4$




**VS0140**
**Reinforcement profile**
99 / 19 / 2,0 mm
galvanized steel
Ix= 0,85 cm$^4$
Iy= 26,26 cm$^4$

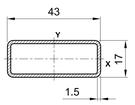



**VS3020**
**Reinforcement profile**
40 / 25 / 3,0 mm
galvanized steel
Ix= 3,12 cm$^4$
Iy= 6,73 cm$^4$
Insert: 136 031; HP3020

**E-modul us steel = 210 KN / mm$^2$ at 20°C**
**E-modul us aluminium = 70 KN / mm$^2$ at 20°C**

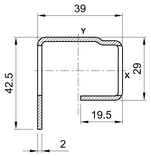
**Please note:**
**Steel is the basis for calkulation with static calkulators; aluminium reinforcements could falsify the result (~ 3 times higher)**

# Reinforcement profiles

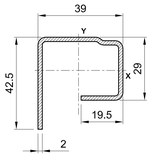



**415 015**
**Reinforcement profile**
43 / 17 / 1,5 mm
Galvanized steel
Ix= 0,82 cm⁴
Iy= 3,65 cm⁴
Insert: 621 020

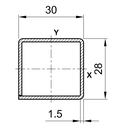
**415 020**
**Reinforcement profile**
40 / 20 / 2,0 mm
Galvanized steel
Ix= 1,44 cm⁴
Iy= 4,96 cm⁴
Insert: 112 125; 112 220; 212 020; 172 420; 416 164



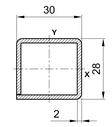

**415 026**
**Reinforcement profile**
39 / 42,5 / 2,0 mm
Galvanized steel
Ix= 3,75 cm⁴
Iy= 5,67 cm⁴
Insert: 211 027



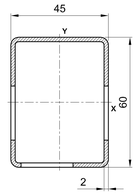

**415 027**
**Reinforcement profile**
39 / 42,5 / 2,0 mm
Galvanized steel
Ix= 3,75 cm⁴
Iy= 5,67 cm⁴
Insert: 211 027



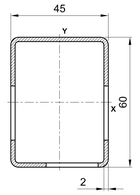

**415 028**
**Reinforcement profile**
30 / 28 / 1,5 mm
Galvanized steel
Ix= 1,92 cm⁴
Iy= 2,14 cm⁴
Insert: 110 225; 416 165



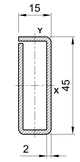

**415 028**
**Reinforcement profile**
30 / 28 / 2,0 mm
Galvanized steel
Ix= 2,42 cm⁴
Iy= 2,70 cm⁴
Insert: 110 225; 416 165



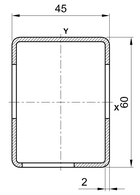

**415 045**
**Entrance door- casement reiforcement**
45 / 60 / 2,0 mm;
backset 45
Galvanized steel
Ix= 20,22 cm⁴
Iy= 12,96 cm⁴
Insert: 171 040; 211 040; 211 140; 251 040; 251 050; 351 040; 371 040



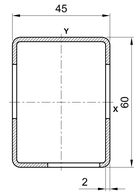

**415 046**
**Entrance door- casement reinforcement**
45 / 60 / 2,0 mm;
backset 45
Galvanized steel
Ix= 20,22 cm⁴
Iy= 12,96 cm⁴
Insert: 171 040; 211 040; 211 140; 251 040; 251 050; 351 040; 371 040



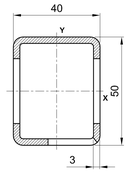

**415 050**
**Reinforcement profile**
15 / 45 / 2,0 mm
Galvanized steel
Ix= 4,81 cm⁴
Iy= 0,78 cm⁴
Insert: 610 040



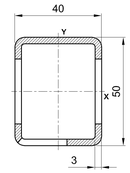

**415 055**
**Entrance door- casement reinforcement**
45 / 60 / 2,0 mm;
backset 55
galvanized steel
Ix= 20,22 cm⁴
Iy= 12,96 cm⁴
Insert: 171 040; 211 040; 211 140; 251 040; 251 050; 351 040; 371 040



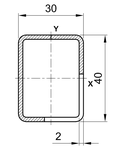

**415 056**
**Entrance door- casement reinforcement**
45 / 60 / 2,0 mm;
backset 55
Gavanized steel
Ix= 20,22 cm⁴
Iy= 12,96 cm⁴
Insert: 171 040; 211 040; 211 140; 251 040; 251 050; 351 040; 371 040



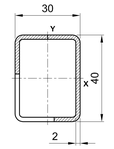

**415 071**
**Entrance door- casement reinforcement**
40 / 50 / 3,0 mm;
backset 45
Galvanized steel
Ix= 16,62 cm⁴
Iy= 11,68 cm⁴
Insert: 311 040



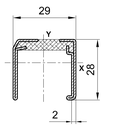

**415 072**
**Entrance door- casa-ment reinforcement**
40 / 50 / 3,0 mm;
backset 45
Galvanized steel
Ix= 16,60 cm⁴
Iy= 11,70 cm⁴
Insert: 311 040



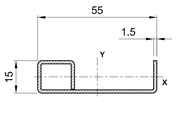

**415 073**
**Reiforcement profile**
30 / 40 / 2,0 mm
Galvanized steel
Ix= 5,55 cm⁴
Iy= 3,54 cm⁴
Insert: 210 030



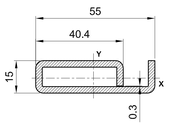

**415 074**
**Reinforcement profile**
30 / 40 / 2,0 mm
Galvanized steel
Ix= 5,55 cm⁴
Iy= 3,54 cm⁴
Insert: 210 030



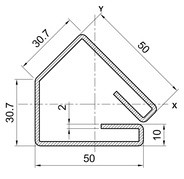

**415 127**
**Reinforcement profile (tg)**
29 / 28 / 2,0 mm
Galvanized steel / PUR-laminate
Ix= 1,62 cm⁴
Iy= 2,59 cm⁴
Insert: 211 120; 211 220; 211 320; 211 365



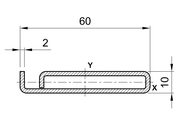

**415 135**
**Reinforcement profile**
55 / 15 / 1,5 mm
Galvanized steel
Ix= 0,47 cm⁴
Iy= 5,65 cm⁴
Insert: 116 035; 256 030



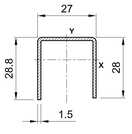

**415 136**
**Reinforcement profile**
55 / 15 / 3,0 mm
Galvanized steel
Ix= 1,08 cm⁴
Iy= 10,44 cm⁴
Insert: 116 035; 256 030



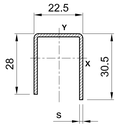

**415 140**
**Reinforcement profile**
50 / 30,7 / 30,7 / 50 / 2,0 mm
Galvanized steel
Ix= 10,11 cm⁴
Iy= 12,78 cm⁴
Insert: 416 240



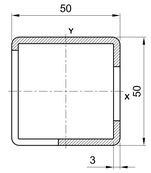

**415 173**
**Reinforcement profile**
60 / 10 / 2,0 mm
Galvanized steel
Ix= 0,36 cm⁴
Iy= 8,31 cm⁴
Insert: 416 272; 476 055; 476 273



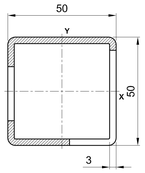

**415 220**
**Reinforcement profile**
27 / 28,8 / 1,5 mm
Galvanized steel
Ix= 1,02 cm⁴
Iy= 1,53 cm⁴
Insert: 131 620; 250 220; 251 020



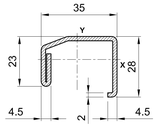

**415 224**
**Reinforcement profile**
22,5 / 30,5 / 1,5 mm
Galvanized steel
Ix= 1,04 cm⁴
Iy= 1,04 cm⁴
Insert: 250 220



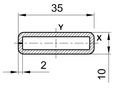

**415 240**
**Reinforcement profile**
50 / 50 / 3,0 mm
Galvanized steel
Ix= 20,24 cm⁴
Iy= 20,24 cm⁴
Insert: 311 240



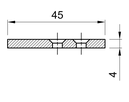

**415 241**
**Reinforcement profile**
50 / 50 / 3,0 mm
Galvanized steel
Ix= 20,24 cm⁴
Iy= 20,24 cm⁴
Insert: 311 240



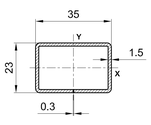

**415 270**
**Reifercement profile**
35 / 28 / 2,0 mm
Galvanized steel
Ix= 1,20 cm⁴
Iy= 3,60 cm⁴
Insert: 211 270; 211 365



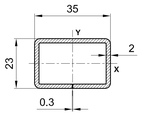

**435 110**
**Reifercement profile**
10 / 35 / 2,0 mm
Galvanized steel
Ix= 0,23 cm⁴
Iy= 1,92 cm⁴
Insert: 136 020



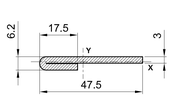

**435 176**
**Reifercement profile**
45 / 4,0 mm
Galvanized steel
Ix= 0,00 cm⁴
Iy= 0,30 cm⁴
Insert: 131 620; 131 660; 131 030



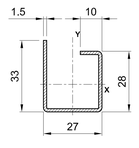

**455 014**
**Reifercement profile**
35 / 23 / 1,5 mm
Galvanized steel
Ix= 1,37 cm⁴
Iy= 2,66 cm⁴
Insert: 250 214



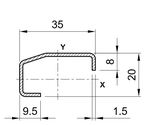

**455 014**
**Reifercement profile**
35 / 23 / 1,5 mm
Galvanized steel
Ix= 1,71 cm⁴
Iy= 3,35 cm⁴
Insert: 250 214



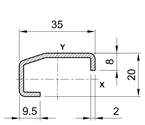

**455 176**
**Rebate reinforcement**
*47,5 / 3,0 mm*
Galvanized steel
*Ix= 0,05 cm⁴*
*Iy= 3,55 cm⁴*
*Insert: für alle Flügel mit BT 76 mm*



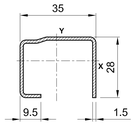

**435 220**
**Reifercement profile**
27 / 33 / 1,5 mm
Galvanized steel
Ix= 1,54 cm⁴
Iy= 1,70 cm⁴
Insert: 130 620



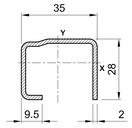

**455 220**
**Reinforcement profile**
35 / 20 / 1,5 mm
Galvanized steel
Ix= 0,45 cm⁴
Iy= 1,40 cm⁴
Insert: 251 010



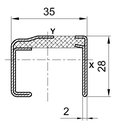

**455 220**
**Reinforcement profile**
35 / 20 / 2,0 mm
Galvanized steel
Ix= 0,56 cm⁴
Iy= 1,78 cm⁴
Insert: 251 010



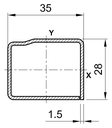

**455 230**
**Reinforcement profile**
35 / 28 / 1,5 mm
Galvanized steel
Ix= 1,34 cm⁴
Iy= 2,77 cm⁴
Insert: 130 620; 131 660; 170 420; 170 430; 171 020; 171 226; 250 220; 250 224; 250 227; 250 230; 250 240; 251 007; 251 020; 251 024; 251 027; 251 224; 251 226; 251 365; 251 236; 251 227



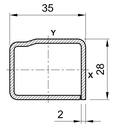

**455 230**
**Reinforcement profile**
35 / 28 / 2,0 mm
Galvanized steel
Ix= 1,67 cm⁴
Iy= 3,49 cm⁴
Insert: 130 620; 131 660; 170 420; 170 430; 171 020; 171 226; 250 220; 250 224; 250 227; 250 230; 250 240; 251 007; 251 020; 251 024; 251 027; 251 224; 251 226; 251 365; 251 236; 251 227



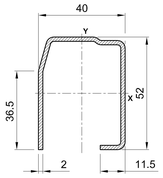

**455 231**
**Reinforcement profile (tg)**
35 / 28 / 2,0 mm
Galvanized steel / PUR-laminate
Ix= 1,93 cm⁴
Iy= 4,55 cm⁴
Insert: 130 620; 131 660; 170 420; 170 430; 171 020; 171 226; 250 220; 250 224; 250 227; 250 230; 250 240; 251 007; 251 020; 251 024; 251 027; 251 224; 251 226; 251 365; 251 236; 251 227



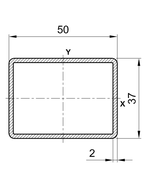

**455 235**
**Reinforcement profile**
35 / 28 / 1,5 mm
Galvanized steel
Ix= 2,08 cm⁴
Iy= 2,99 cm⁴
Insert: 130 620; 170 420; 170 430; 250 220; 250 224; 250 227; 250 230; 250 240



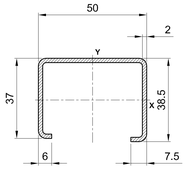

**455 235**
**Reinforcement profile**
35 / 28 / 2,0 mm
Galvanized steel
Ix= 2,60 cm⁴
Iy= 3,75 cm⁴
Insert: 130 620; 170 420; 170 430; 250 220; 250 224; 250 227; 250 230; 250 240



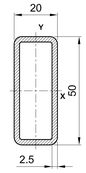

**455 030**
**Reinforcement profile**
40 / 52 / 2,0 mm
Galvanized steel
Ix= 8,86 cm⁴
Iy= 7,87 cm⁴
Insert: 131 030; 171 030; 211 030; 211 230; 251 030; 251 036



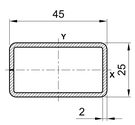

**455 031**
**Reinforcement profile**
50 / 37 / 2,0 mm
Galvanized steel
Ix= 7,16 cm⁴
Iy= 11,46 cm⁴
Insert: 351 030



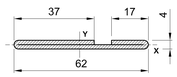

**455 033**
**Reinforcement profile**
50 / 38,5 / 2,0 mm
Galvanized steel
Ix= 4,38 cm⁴
Iy= 10,59 cm⁴
Insert: 351 030



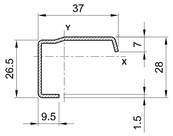

**475 021**
**Reinforcement profile**
20 / 50 / 2,5 mm
Galvanized steel
Ix= 8,86 cm⁴
Iy= 1,98 cm⁴
Insert: 172 421



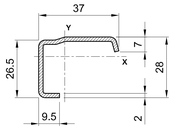

**475 045**
**Reinforcement profile**
45 / 25 / 2,0 mm
Galvanized steel
Ix= 2,60 cm⁴
Iy= 6,60 cm⁴
Insert: 176 030



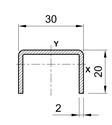

**475 192**
**Rebate reinforcement**
*62 / 2,0 mm*
Galvanized steel
*Ix= 0,03 cm⁴*
*Iy= 7,44 cm⁴*
*Insert: für alle Flügel mit BT 92 mm*



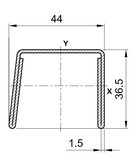

**475 200**
**Reinforcement profile**
37 / 28 / 1,5 mm
Galvanized steel
Ix= 1,07 cm⁴
Iy= 1,67 cm⁴
Insert: 130 620; 131 660; 170 430; 170 420; 171 020; 171 030; 171 226; 251 020; 251 027; 251 226; 251 227; 251 365



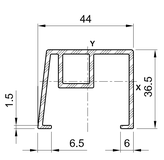

**475 200**
**Reinforcement profile**
37 / 28 / 2,0 mm
Galvanized steel
Ix= 1,33 cm⁴
Iy= 2,08 cm⁴
Insert: 130 620; 131 660; 170 430; 170 420; 171 020; 171 030; 171 226; 251 020; 251 027; 251 226; 251 227; 251 365



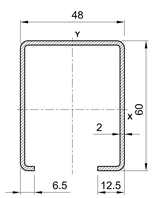

**605 028**
**Reinforcement profile**
30 / 20 / 2,0 mm
Galvanized steel
Ix= 0,51 cm⁴
Iy= 1,81 cm⁴
Insert: 600 028



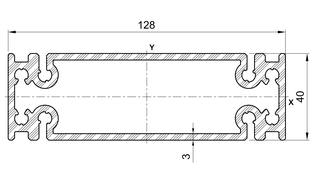

**615 222**
**Casement reinforcement**
44 / 36,5 / 1,5 mm
Galvanized steel
Ix= 3,40 cm⁴
Iy= 8,47 cm⁴
Insert: 611 020



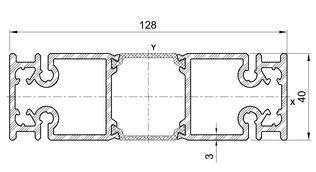

**615 510**
**Carriage reinforcement**
44 / 36,5 / 2,0 mm
Aluminium
Ix= 3,92 cm⁴
Iy= 7,65 cm⁴
Insert: 611 020



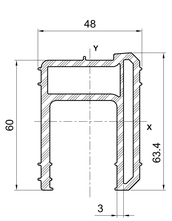

**625 220**
**Reinforcement profile**
48 / 60 / 2,0 mm
Galvanized steel
Ix= 15,50 cm⁴
Iy= 14,60 cm⁴
Insert: 621 020



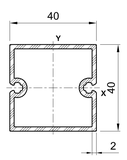

**625 520**
**Frame reinforcement**
128 / 40 / 3,0 mm
Aluminium
Ix= 31,50 cm⁴
Iy= 292,60 cm⁴
Insert: 620 020



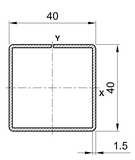

**625 525**
**Frame reinforcement**
128 / 40 / 3,0 mm
Aluminium
Ix= 23,40 cm⁴
Iy= 246,60 cm⁴
Insert: 620 020



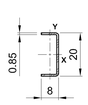

**625 620**
**Reinforcement profile**
48 / 60 / 63,4 / 3,0 mm
Aluminium
Ix= 28,03 cm⁴
Iy= 24,06 cm⁴
Insert: 621 020



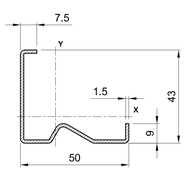

**715 520**
**Reinforcement profile**
40 / 40 / 2,0 mm
Aluminium
Ix= 8,20 cm⁴
Iy= 7,73 cm⁴
Insert: 732 125; 732 025



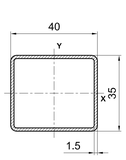

**715 303**
**Reinforcement profile**
40 / 40 / 1,5 mm
Galvanized steel
Ix= 5,60 cm⁴
Iy= 5,60 cm⁴
Insert: 731 010; 731 020



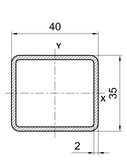

**715 317**
**Reinforcement profile**
8 / 20 / 0,85 mm
Ix= 0,05 cm⁴
Iy= 0,20 cm⁴
Insert: 716 317



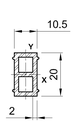

**735 010**
**Reinforcement profile**
50 / 43 / 1,5 mm
Galvanized steel
Ix= 3,12 cm⁴
Iy= 4,90 cm⁴
Insert: 730 010




**735 035**
**Reinforcement profile**
40 / 35 / 1,5 mm
Galvanized steel
Ix= 4,04 cm⁴
Iy= 4,96 cm⁴
Insert: 731 110; 731 120



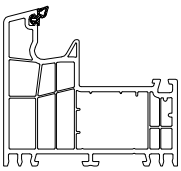
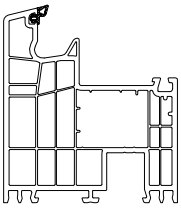
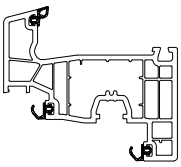
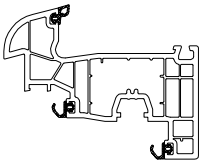
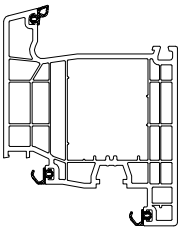
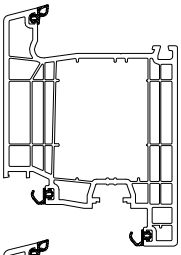
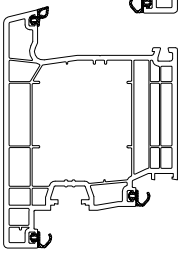
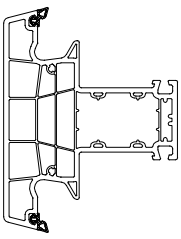

**735 035**
**Reinforcement profile**
40 / 35 / 2,0 mm
Galvanized steel
Ix= 5,09 cm⁴
Iy= 6,27 cm⁴
Insert: 731 110; 731 120




**735 290**
**Reinforcement profile**
10,5 / 20 / 2,0 mm
Aluminium
Ix= 0,50 cm⁴
Iy= 0,17 cm⁴
Insert: 706 290

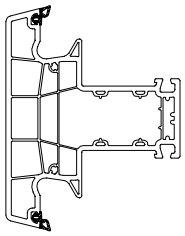
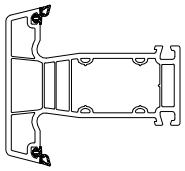
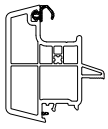
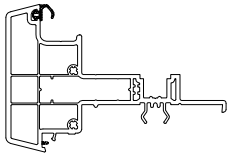
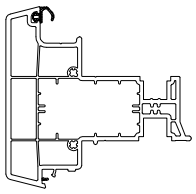
**E-modul us steel = 210 KN / mm² at 20°C**
**E-modul us aluminium = 70 KN / mm² at 20°C**

**Pleas note:**
**Steel is the basis for calculation with static calculators;**
**aluminium reinforcement could falsify the result (~ 3 times higher)**

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 170 420 | Frame | bE92 03 001.1 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6,5 m | |
|  | 170 430 | Frame | bE92 03 001.2 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6,5 m | |
|  | 171 020 | Casement | bE92 03 002.1 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6,5 m | |
|  | 171 226 | Casement | bE92 03 002.2 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6,5 m | |
|  | 171 030 | Casement | bE92 03 002.3 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6,5 m | |
|  | 171 040 | Casement | bE92 03 002.4 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6,5 m | |
|  | 371 040 | Casement | bE92 03 002.5 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6,5 m | |
|  | 172 420 | Mullion | bE92 03 003.1 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6,5 m | |

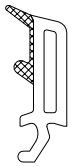
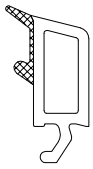
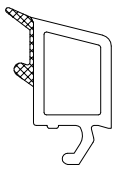
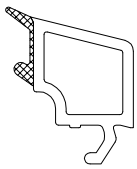
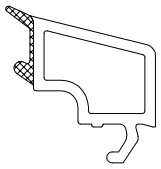
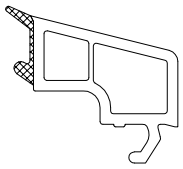
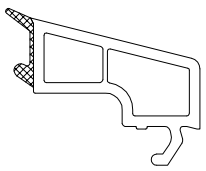
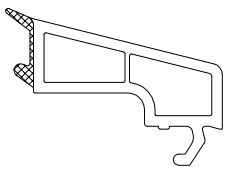
Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 172 421 | Post | bE92 03 003.2 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6,5 m | |
|  | 172 425 | Post | bE92 03 003.3 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6,5 m | |
| | 416 026 | Overlap bar | bE92 03 004.1 |
| | Base colour: | SW / - / SB / SC / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
| | 474 926 | Gasket block | bE92 03 004.1 |
| | Base colour: | black, light grey | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | PU: | 100 pc. | |
|  | 176 010 | Overlap | bE92 03 004.1 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6,5 m | |
|  | 176 020 | Overlap | bE92 03 004.2 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6,5 m | |
|  | 176 030 | Overlap | bE92 03 004.3 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6,5 m | |

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

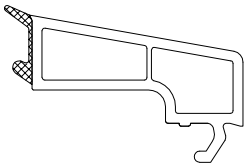
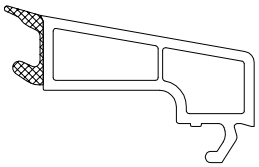
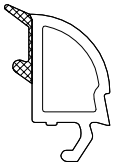
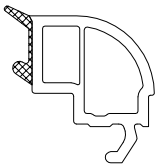
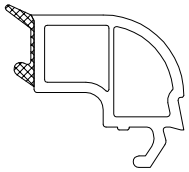
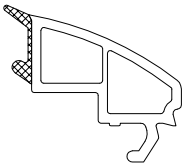
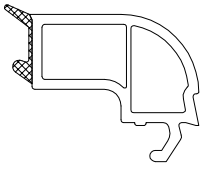
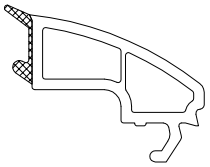
| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 413 809 | Glazing bar | bE92 03 005.1 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 413 813 | Glazing bar | bE92 03 005.1 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 413 817 | Glazing bar | bE92 03 005.1 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 413 821 | Glazing bar | bE92 03 005.1 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 413 825 | Glazing bar | bE92 03 005.1 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 413 829 | Glazing bar | bE92 03 005.1 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 413 833 | Glazing bar | bE92 03 005.1 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 413 837 | Glazing bar | bE92 03 005.1 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

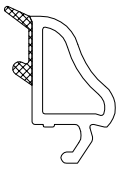
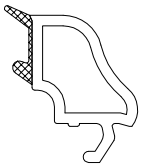
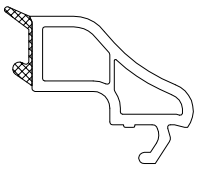
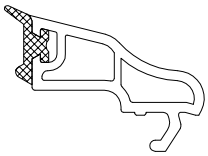
Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 413 841 | Glazing bar | bE92 03 005.1 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 413 843 | Glazing bar | bE92 03 005.1 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 413 717 | Design glazing bar | bE92 03 005.2 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 413 725 | Design glazing bar | bE92 03 005.2 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 413 728 | Design glazing bar | bE92 03 005.2 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 413 729 | Design glazing bar | bE92 03 005.2 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 413 730 | Design glazing bar | bE92 03 005.2 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 413 735 | Design glazing bar | bE92 03 005.2 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black, light grey (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 413 915 | Style glazing bar | bE92 03 005.2 |
| | | Base colour: SW / SB / - / -<br>Colour of gasket: black, light grey (TPE)<br>Decor film: see price list<br>Length: 6 m | |
|  | 413 922 | Design glazing bar | bE92 03 005.2 |
| | | Base colour: SW / SB / - / -<br>Colour of gasket: black, light grey (TPE)<br>Decor film: see price list<br>Length: 6 m | |
|  | 413 932 | Design glazing bar | bE92 03 005.2 |
| | | Base colour: SW / SB / - / -<br>Colour of gasket: black, light grey (TPE)<br>Decor film: see price list<br>Length: 6 m | |
|  | 413 933 | Design glazing bar | bE92 03 005.2 |
| | | Base colour: SW / SB / - / -<br>Colour of gasket: black, light grey (TPE)<br>Decor film: see price list<br>Length: 6 m | |

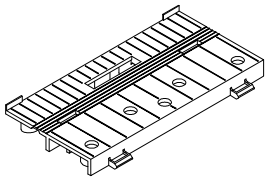
Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 474 221 | Stopper gasket in TPE<br>Base colour: black, light grey<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 300 m / role | bE92 03 006.1 |
| | 474 645 | Stopper gasket in TPE<br>Base colour: black, light grey<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 400 m / role | bE92 03 006.1 |
| | 474 025 | Stopper and center gasket in TPE<br>Base colour: black, light grey<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 400 m / role | bE92 03 006.1 |
| | 414 566 | Glazing gasket in EPDM<br>Base colour: black, light grey<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 300 m / role | bE92 03 006.1 |
| | 414 573 | Glazing gasket in EPDM<br>Base colour: black, light grey<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 200 m / role | bE92 03 006.1 |
| | 414 023 | Pressure compensation gasket in EPDM<br>Base colour: black, light grey<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 100 pc.<br>Length: 100 mm | bE92 03 006.1 |
| | 414 024 | Ventilation gasket in EPDM<br>Base colour: black, light grey<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 400 m / role | bE92 03 006.1 |

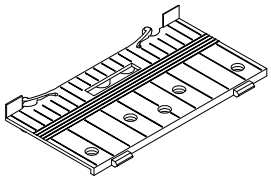
| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 414 633 | Galzing gasket in TPE | bE92 03 006.1 |
| | Base colour: | black, light grey | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | PU: | 400 m / role | |
| | 404 930 | Brush gasket | bE92 03 025.3 |
| | Base colour: | black | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | PU: | 100 m | |
| | 414 025 | Special gasket in EPDM | bE92 03 016.2 |
| | Base colour: | black, light grey | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | PU: | 400 m / role | |
| | 414 910 | Adhesive gasket | bE92 03 016.3 |
| | Base colour: | black, light grey | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | PU: | 100 m / role | |
| | 414 970 | Brush gasket | bE92 03 025.4 |
| | Base colour: | grey | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | PU: | 225 m / role | |
| | 404 940 | Brush gasket for Weatherboard 476 640 | bE92 03 026.2 |
| | Base colour: | black | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | PU: | 12 m / role | |
| | 604 930 | Graze gasket for Weatherboard 476 640 | bE92 03 026.2 |
| | Base colour: | black, light grey | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | PU: | 200 m / role | |

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|



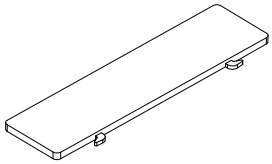
177 015 Bridge setting block — bE92 03 007.1

| | |
|---|---|
| Base colour: | black / grey |
| Colour of gasket: | --------- |
| Decor film: | --------- |
| PU: | 100 pc. |



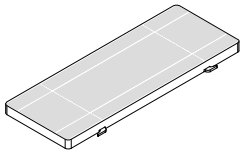
177 040 Bridge setting block — bE92 03 007.1

| | |
|---|---|
| Base colour: | orange |
| Colour of gasket: | --------- |
| Decor film: | --------- |
| PU: | 500 pc. |



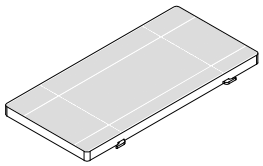
417 12x Glass setting block — bE92 03 008.1

| | |
|---|---|
| Base colour: | x = 1- grey, 2 - red, 3 - green, 4 - yellow, 5 - blue |
| Colour of gasket: | --------- |
| Decor film: | --------- |
| PU: 1-4 mm | 1000 pc. |
| PU: 5 mm | 500 pc. |



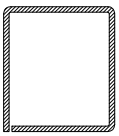
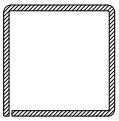
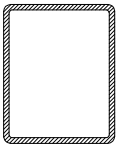
417 14x Glass setting block — bE92 03 008.1

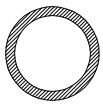
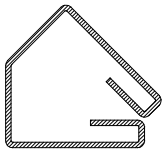
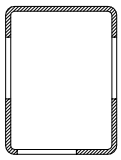
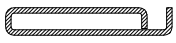
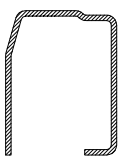
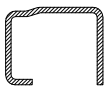
| | |
|---|---|
| Base colour: | x = 1- grey, 2 - red, 3 - green, 4 - yellow, 5 - blue |
| Colour of gasket: | --------- |
| Decor film: | --------- |
| PU: 1-4 mm | 1000 pc. |
| PU: 5 mm | 500 pc. |



417 17x Glass setting block — bE92 03 008.1

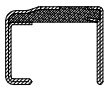
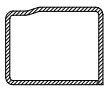
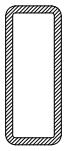
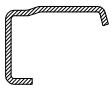
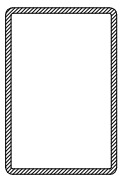
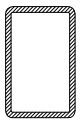
| | |
|---|---|
| Base colour: | x = 1- grey, 2 - red, 3 - green, 4 - yellow, 5 - blue |
| Colour of gasket: | --------- |
| Decor film: | --------- |
| PU: 1-4 mm | 1000 pc. |
| PU: 5 mm | 500 pc. |

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 215 120 | Reinforcement | bE92 03 009.1 |
| | Base colour: | Steel, galvanized | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
|  | 215 130 | Reinforcement | bE92 03 009.1 |
| | Base colour: | Steel, galvanized | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
| | 405 012 | Reinforcement | bE92 03 009.1 |
| | Base colour: | Steel, galvanized | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
| | 405 015 | Reinforcement | bE92 03 009.1 |
| | Base colour: | Steel, galvanized | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
| | 405 040 | Reinforcement | bE92 03 009.2 |
| | Base colour: | Steel, galvanized | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
| | 405 050 | Reinforcement | bE92 03 009.2 |
| | Base colour: | Steel, galvanized | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
|  | 405 060 | Reinforcement | bE92 03 009.2 |
| | Base colour: | Steel, galvanized | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
|  | 405 065 | Reinforcement | bE92 03 009.2 |
| | Base colour: | Steel, galvanized | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 405 125 | Reinforcement | bE92 03 009.3 |
|  | 415 016 | Reinforcement | bE92 03 009.3 |
| | 415 020 | Reinforcement | bE92 03 009.3 |
|  | 415 140 | Reinforcement | bE92 03 009.3 |
|  | 415 xxx | Reinforcement | bE92 03 009.4 |
|  | 415 173 | Reinforcement | bE92 03 009.5 |
|  | 455 030 | Reinforcement | bE92 03 009.5 |
|  | 455 230 | Reinforcement | bE92 03 009.5 |

Base colour: Steel, galvanized
Colour of gasket: ---------
Decor film: ---------
Length: 6 m

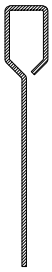
Backset 55: 415 055, 415 056
Base colour: Steel, galvanized
Colour of gasket: ---------
Decor film: ---------
Length: 6 m

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 455 231 | Reinforcement | bE92 03 009.5 |
|  | 455 235 | Reinforcement | bE92 03 009.6 |
|  | 475 021 | Reinforcement | bE92 03 009.6 |
| | 475 045 | Reinforcement | bE92 03 009.6 |
|  | 475 200 | Reinforcement | bE92 03 009.6 |
|  | AR4630 | Reinforcement | bE92 03 009.7 |
|  | VS3020 | Reinforcement | bE92 03 009.7 |
| | VS0130 | Reinforcement | bE92 03 009.7 |

Base colour: Steel, galvanized
Colour of gasket: ---------
Decor film: ---------
Length: 6 m

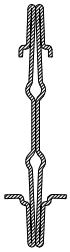
| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 475 192 | Rebate reinforcement | bE92 03 009.7 |

Base colour: Steel, galvanized
Colour of gasket: ---------
Decor film: ---------
Length: 4,5 m



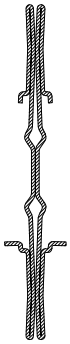
415 167 Reinforcement — bE92 03 009.8

Base colour: Steel, galvanized
Colour of gasket: ---------
Decor film: ---------
Length: 6 m



405 165 Static coupling — bE92 03 009.8

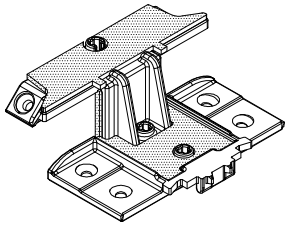
Base colour: Steel, galvanized
Colour of gasket: ---------
Decor film: ---------
Length: 6 m



405 175 Static coupling — bE92 03 009.8

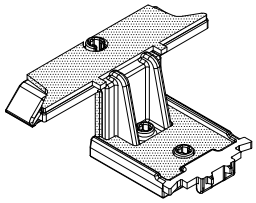
Base colour: Steel, galvanized
Colour of gasket: ---------
Decor film: ---------
Length: 6 m

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|



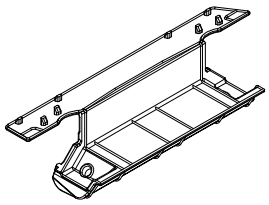
178 020 Post cruciform coupler set — bE92 03 010.1

Base colour: titan silver
Colour of gasket: black
Decor film: --------
PU: 50 Set



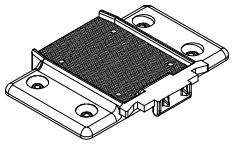
178 030 Post coupler set — bE92 03 010.1

Base colour: titan silver
Colour of gasket: black
Decor film: --------
PU: 50 Set



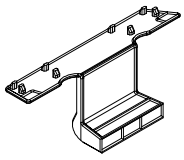
178 820 Gasket block — bE92 03 010.1

Base colour: black, light grey
Colour of gasket: --------
Decor film: --------
PU: 50 pc.



178 040 Mullion cruciform coupler set — bE92 03 010.2

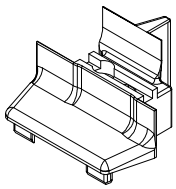
Base colour: titan silver
Colour of gasket: black
Decor film: --------
PU: 50 Set



178 840 Gasket block — bE92 03 010.2

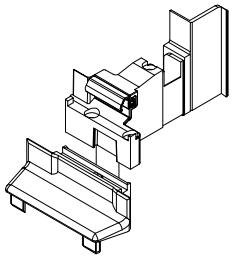
Base colour: black, light grey
Colour of gasket: --------
Decor film: --------
PU: 50 pc.

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|



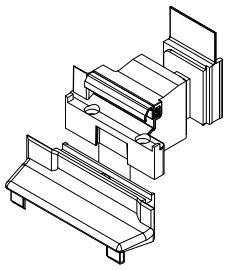
177 010 Overlap cap — bE92 03 011.1

Base colour: SW / SB / - / -
Colour of gasket: black, light grey (TPE)
Decor film: ---------
PU: 20 pc.



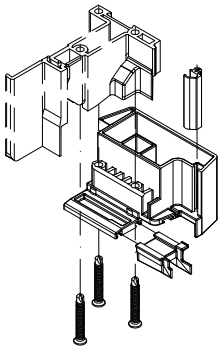
177 020 Overlap end cap set — bE92 03 011.1

Base colour: SW / SB / - / -
Colour of gasket: black, light grey (TPE)
Decor film: ---------
PU: 20 Pairs (Set)



177 030 Overlap end cap set — bE92 03 011.1

Base colour: SW / SB / - / -
Colour of gasket: black, light grey (TPE)
Decor film: ---------
PU: 20 Pairs (Set)

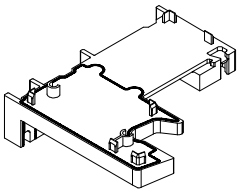
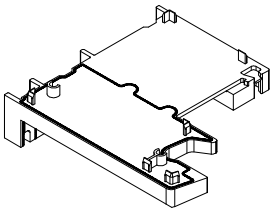
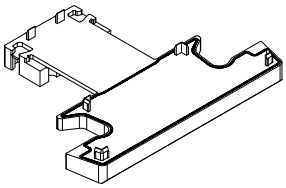


477 020 End cap set for overlap 176 020 R+L — bE92 03 026.2

Base colour: SW / black
Colour of gasket: ---------
Decor film: ---------
PU: 5 set

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

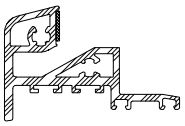
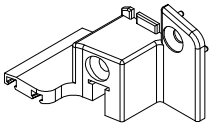
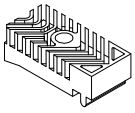
| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 478 520 | Threshold connector | bE92 03 026.3 |
| | Base colour: | SW / black | |
| | Colour of gasket: | hyaline | |
| | Decor film: | --------- | |
| | PU: | 5 Pairs | |
|  | 478 530 | Threshold connector | bE92 03 026.3 |
| | Base colour: | SW / black | |
| | Colour of gasket: | hyaline | |
| | Decor film: | --------- | |
| | PU: | 5 Pairs | |
|  | 478 525 | Threshold connector for post | bE92 03 026.3 |
| | Base colour: | SW / black | |
| | Colour of gasket: | hyaline | |
| | Decor film: | --------- | |
| | PU: | 10 pc. | |
| | 476 325 | Door threshold 92 mm | bE92 03 026.1 |
| | Base colour: | E6 / EV1 / Alu / grey | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
| | 476 340 | Door threshold 140 mm | bE92 03 026.1 |
| | Base colour: | E6 / EV1 / Alu / grey | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
| | 476 626 | Adapter profile opening to the outside | bE92 03 026.1 |
| | Base colour: | E6 / EV1 / Alu / grey | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 476 627 | Adapter profile handicapped accessible<br>Base colour: E6 / EV1 / Alu / grey<br>Colour of gasket: ---------<br>Decor film: ---------<br>Length: 6 m | bE92 03 026.1 |
| | 216 321 | Adapter profile used for opening to the outside<br>Base colour: E6 / EV1 / Alu / grey<br>Colour of gasket: ---------<br>Decor film: ---------<br>Length: 6 m | bE92 03 026.1 |
|  | 476 640 | Weatherboard<br>Base colour: E6 / EV1 / Alu / grey<br>Colour of gasket: ---------<br>Decor film: ---------<br>Length: 6 m | bE92 03 026.2 |
|  | 477 045 | End cap set for weatherboard<br>Base colour: grey<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 5 Pairs (Set) | bE92 03 026.2 |
|  | 474 954 | Wind blocker<br>Base colour: SW / black<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 25 Pairs | bE92 03 026.2 |

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

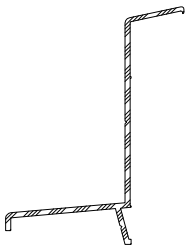
Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|

## 476 620 Step protection, self-adhesive

bE92 03 013.1

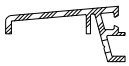
Base colour: E6 / EV1 / Alu
Colour of gasket: ---------
Decor film: ---------
Length: 6 m



## 476 615 Step protection

bE92 03 013.1

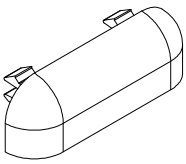
Base colour: E6 / EV1 / Alu
Colour of gasket: ---------
Decor film: ---------
Length: 6 m



## 416 615 Step protection

bE92 03 013.1

Base colour: E6 / EV1 / Alu
Colour of gasket: ---------
Decor film: ---------
Length: 6 m



## 417 022 Water slot cap

bE92 03 013.2

Base colour: SW / SB / SC / -
Colour of gasket: ---------
Decor film: ---------
PU: 200 pc.

## 407 025 Tube cap

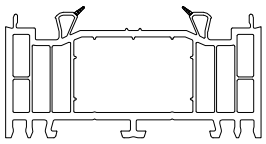
bE92 03 013.2

Base colour: SW / SB / SC / -
Colour of gasket: ---------
Decor film: ---------
PU: 100 pc.

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

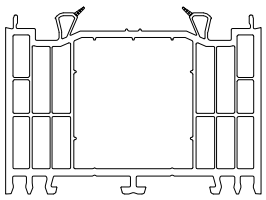
Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|



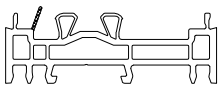
476 164 Extension profiles — bE92 03 014.1

Base colour: SW / SB / - / -
Colour of gasket: white (TPE)
Decor film: see price list
Length: 6 m



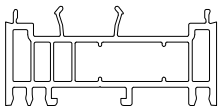
476 170 Extension profiles — bE92 03 014.1

Base colour: SW / SB / - / -
Colour of gasket: white (TPE)
Decor film: see price list
Length: 6 m



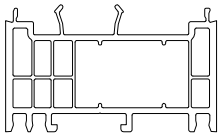
416 160 Extension profiles — bE92 03 014.2

Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m



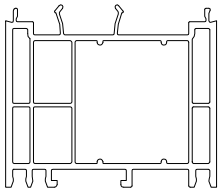
416 163 Extension profiles — bE92 03 014.2

Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m



416 164 Extension profiles — bE92 03 014.2

Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

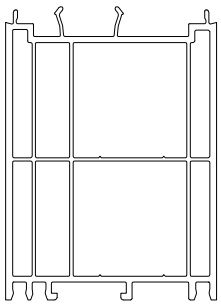


416 170 Extension profiles — bE92 03 014.3

Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

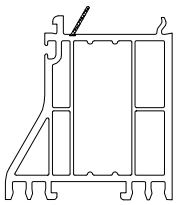
| Profile | Part no. | Designation | Page no. |
|---|---|---|---|



## 416 176 Extension profiles

bE92 03 014.3

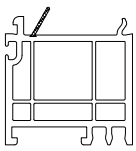
Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m



## 416 145 French window profile

bE92 03 014.4

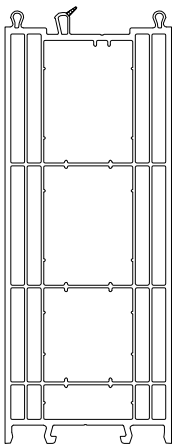
Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m



## 416 146 French window profile

bE92 03 014.4

Base colour: SW / - / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m



## 416 395 Base frame profile

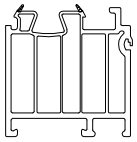
bE92 03 014.5

Base colour: - / - / - / coloured
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

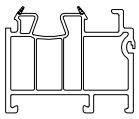
| Profile | Part no. Designation | Page no. |
|---|---|---|



## 416 100 Sill profile

bE92 03 015.1

Base colour: coloured
Colour of gasket: ---------
Decor film: ---------
Length: 6 m



## 416 106 Sill profile

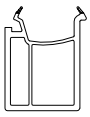
bE92 03 015.1

Base colour: coloured
Colour of gasket: ---------
Decor film: ---------
Length: 6 m

## 416 122 Sill profile

bE92 03 015.1

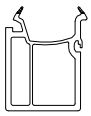
Base colour: coloured
Colour of gasket: ---------
Decor film: ---------
Length: 6 m



## 416 131 Sill profile

bE92 03 015.1

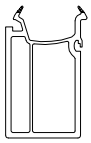
Base colour: coloured
Colour of gasket: ---------
Decor film: ---------
Length: 6 m



## 416 134 Sill profile

bE92 03 015.1

Base colour: coloured
Colour of gasket: ---------
Decor film: ---------
Length: 6 m



## 416 141 Sill profile

bE92 03 015.1

Base colour: coloured
Colour of gasket: ---------
Decor film: ---------
Length: 6 m

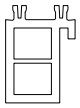
Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 406 105 | Sill profile | bE92 03 015.3 |

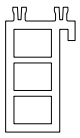
Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: ---------
Length: 6 m

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 406 157 | Sill profile | bE92 03 015.3 |

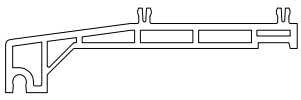
Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 406 139 | Sill profile | bE92 03 015.3 |

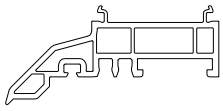
Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 406 140 | Sill profile | bE92 03 015.3 |

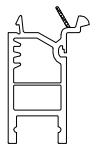
Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 406 115 | Sill profile | bE92 03 015.3 |

Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 416 126 | Stone bank profile | bE92 03 015.4 |

Base colour: SW / BW / - / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 416 142 | Stone bank profile | bE92 03 015.4 |

Base colour: SW / - / - / -
Colour of gasket: white (TPE)
Decor film: ---------
Length: 6 m

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

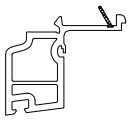
Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 406 158 | Stone bank profile | bE92 03 015.4 |

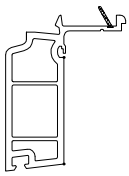
Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

| | 416 133 | Stone bank profile | bE92 03 015.4 |
|---|---|---|---|



Base colour: SW / SB / - / -
Colour of gasket: white (TPE)
Decor film: see price list
Length: 6 m

| | 416 135 | Stone bank profile | bE92 03 015.4 |
|---|---|---|---|



Base colour: SW / SB / - / -
Colour of gasket: white (TPE)
Decor film: see price list
Length: 6 m

| | 417 517 | Locking clamps | bE92 03 015.5 |
|---|---|---|---|

Base colour: ---------
Decor film: see price list
Length: 30 mm
PU: 500 pc.

| | 417 520 | Locking clamps | bE92 03 015.5 |
|---|---|---|---|

Base colour: ---------
Decor film: see price list
Length: 30 mm
PU: 500 pc.

| | 417 523 | Locking clamps | bE92 03 015.5 |
|---|---|---|---|

Base colour: ---------
Decor film: see price list
Length: 30 mm
PU: 500 pc.

| | 417 530 | Locking clamps | bE92 03 015.5 |
|---|---|---|---|

Base colour: ---------
Decor film: see price list
Length: 30 mm
PU: 250 pc.

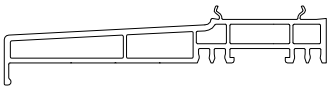
Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

Issue: 11/2015

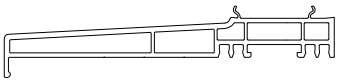
SALAMANDER
WINDOW & DOOR SYSTEMS

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 416 110 | Window sill | bE92 03 015.6 |



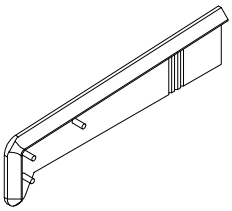
Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

| | | | |
|---|---|---|---|
| | 416 115 | Window sill | bE92 03 015.6 |



Base colour: SW / - / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

| | | | |
|---|---|---|---|
| | 417 115 | End cap for window sill | bE92 03 015.6 |



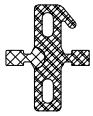
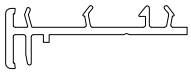
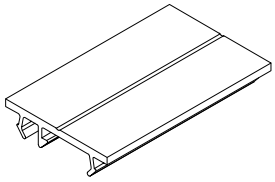
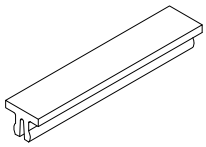
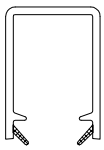
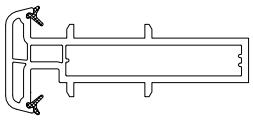
Base colour: SW / SB / SC / -
Colour of gasket: ---------
Decor film: ---------
PU: 50 Pairs

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

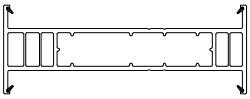
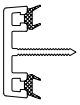
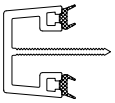
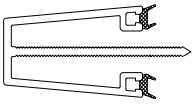
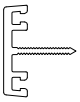
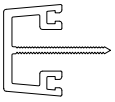
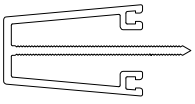
Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 406 250 | Coupling profile PVC | bE92 03 016.1 |
| | Base colour: | black and grey | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 150 m / role | |
| | 406 255 | Coupling profile | bE92 03 016.1 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 416 264 | Coupling profile | bE92 03 016.1 |
| | Base colour: | SW / - / - / decor | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 416 265 | Spacer | bE92 03 016.1 |
| | Base colour: | - / - / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | VE: | 100 pc. | |
| | 416 267 | Coupling profile | bE92 03 016.1 |
| | Base colour: | - / - / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 416 268 | Spacer | bE92 03 016.1 |
| | Base colour: | - / - / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Lenght: | 50 mm | |
| | VE: | 100 pc. | |
|  | ZF2110 | Cover profile | bE92 03 016.1 |
| | Base colour: | SW / - / - / decor | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
|  | 416 272 | Coupling profile | bE92 03 016.2 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | light grey, black (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |

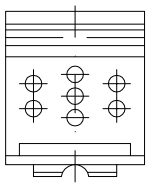
Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 476 273 | Coupling profile | bE92 03 016.2 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | black (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 406 280 | Cover cap with gasket | bE92 03 016.3 |
| | Base colour: | SW / - / - / - | |
| | Colour of gasket: | light grey, black (TPE) | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
|  | 406 285 | Cover cap with gasket | bE92 03 016.3 |
| | Base colour: | SW / - / - / - | |
| | Colour of gasket: | light grey, black (TPE) | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
|  | 406 290 | Cover cap with gasket | bE92 03 016.3 |
| | Base colour: | SW / - / - / - | |
| | Colour of gasket: | light grey, black (TPE) | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
|  | 406 281 | Decor cover cap without gasket | bE92 03 016.3 |
| | Base colour: | only decor | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 406 286 | Decor cover cap without gasket | bE92 03 016.3 |
| | Base colour: | only decor | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 406 295 | Decor cover cap without gasket | bE92 03 016.3 |
| | Base colour: | only decor | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Length: | 6 m | |

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

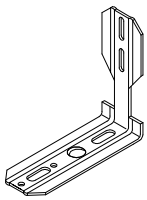
| Profile | Part no. | Designation | Page no. |
|---|---|---|---|



## 407 055 Spacer

bE92 03 016.4

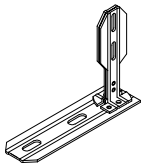
Base colour: ----------
Colour of gasket: ----------
Decor film: ----------
PU: 100 pc.



## 407 540 Shear connector

bE92 03 016.4

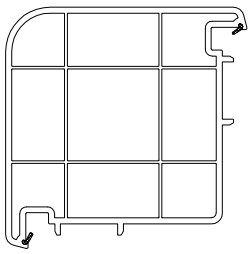
Base colour: steel, galvanized
Colour of gasket: ----------
Decor film: ----------
PU: 1 pc.



## 407 575 Shear connector

bE92 03 016.4

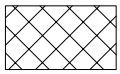
Base colour: steel, galvanized
Colour of gasket: ----------
Decor film: ----------
PU: 1 pc.



## 416 210 Profile for corner connection, 90°

bE92 03 017.1

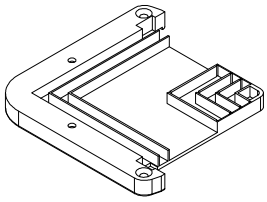
Base colour: SW / SB / - / -
Colour of gasket: white (TPE)
Decor film: see price list
Length: 6 m



## 417 810 Insulation strip

bE92 03 017.1

Base colour: ----------
Colour of gasket: ----------
Decor film: ----------
Length: 1 m
PU: 100 pc.



## 417 210 Cover up for 416 210, 90°

bE92 03 017.1

Base colour: SW / SB / - / -
Colour of gasket: ----------
Decor film: see price list
PU: 30 pc.

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

Issue: 11/2015

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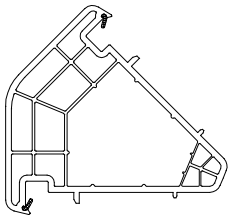
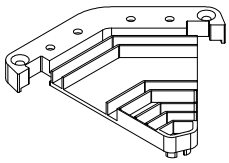
| Profile | Part no. | Designation | Page no. |
|---|---|---|---|



## 416 240 Profile for corner connection,135°

bE92 03 017.2

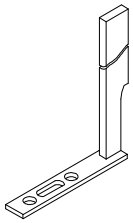
Base colour: SW / SB / - / -
Colour of gasket: light grey, black at Decor (TPE)
Decor film: see price list
Length: 6 m



## 417 240 Cover up for 416 240, 135°

bE92 03 017.2

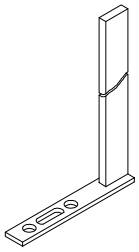
Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: ---------
PU: 30 pc.



## 407 570 Fixed iron

bE92 03 017.2

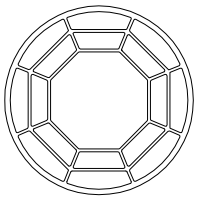
Base colour: steel, galvanized
Colour of gasket: ---------
Decor film: ---------
PU: 1 pc.



## 407 571 Fixed iron

bE92 03 017.2

Base colour: steel, galvanized
Colour of gasket: ---------
Decor film: ---------
PU: 1 pc.



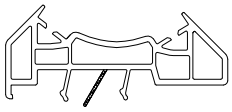
## NP0160 Corner connection, variable

bE92 03 017.3

Base colour: SW / - / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

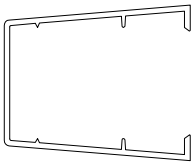
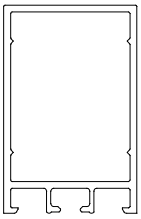
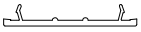
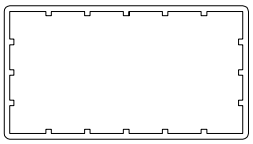
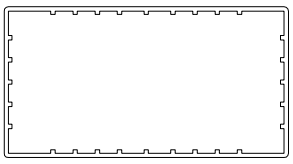
## 416 251 Corner connection, variable

bE92 03 017.3



Base colour: SW / - / - / -
Colour of gasket: black (TPE)
Decor film: see price list
Length: 6 m

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

| Profile | Part no. Designation | Page no. |
|---|---|---|
|  | 406 271 Pilaster strip profiles/ post reinforcement<br>Base colour: SW / - / - / -<br>Colour of gasket: ---------<br>Decor film: ---------<br>Length: 6 m | bE92 03 018.1 |
|  | 416 269 Pilaster strip profiles/ post reinforcement<br>Base colour: SW / - / - / -<br>Colour of gasket: ---------<br>Decor film: see price list<br>Length: 6 m | bE92 03 018.1 |
|  | 416 311 Cover up for 416 269<br>Base colour: SW / SB / - / -<br>Colour of gasket: ---------<br>Decor film: see price list<br>Length: 6 m | bE92 03 018.1 |
|  | 406 266 Pilaster strip profiles/ post reinforcement<br>Base colour: SW / - / - / -<br>Colour of gasket: ---------<br>Decor film: ---------<br>Length: 6 m | bE92 03 018.2 |
|  | 406 268 Pilaster strip profiles/ post reinforcement<br>Base colour: SW / - / - / -<br>Colour of gasket: ---------<br>Decor film: ---------<br>Length: 6 m | bE92 03 018.2 |

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale



SALAMANDER
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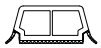
| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 416 302 | Muntin, self-adhesive | bE92 03 019.1 |

Base colour: SW / SB / - / -
Colour of gasket: light grey, black
Decor film: see price list
Length: 6 m

| | | | |
|---|---|---|---|
| | 416 322 | Muntin, self-adhesive | bE92 03 019.1 |

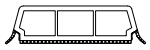


Base colour: SW / SB / - / -
Colour of gasket: light grey, black
Decor film: see price list
Length: 6 m

| | | | |
|---|---|---|---|
| | 416 304 | Muntin, self-adhesive | bE92 03 019.1 |

Base colour: SW / SB / - / -
Colour of gasket: light grey, black
Decor film: see price list
Length: 6 m

| | | | |
|---|---|---|---|
| | 416 324 | Muntin, self-adhesive | bE92 03 019.1 |

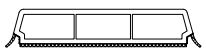


Base colour: SW / SB / - / -
Colour of gasket: light grey, black
Decor film: see price list
Length: 6 m

| | | | |
|---|---|---|---|
| | 416 306 | Muntin, self-adhesive | bE92 03 019.1 |

Base colour: SW / SB / - / -
Colour of gasket: light grey, black
Decor film: see price list
Length: 6 m

| | | | |
|---|---|---|---|
| | 416 326 | Muntin, self-adhesive | bE92 03 019.1 |

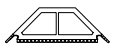


Base colour: SW / SB / - / -
Colour of gasket: light grey, black
Decor film: see price list
Length: 6 m

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 416 313 | Muntin, self-adhesive | bE92 03 019.1 |



Base colour: SW / SB / - / -
Colour of gasket: light grey, black
Decor film: see price list
Length: 6 m

| | | | |
|---|---|---|---|
| | 412 026 | Muntin, self-adhesive | bE92 03 019.1 |

Base colour: SW / SB / - / -
Colour of gasket: light grey, black
Decor film: see price list
Length: 6 m

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

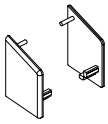
Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | ZF1580 | Weatherboard | bE92 03 020.1 |

Base colour: SW / - / - / -
Colour for gasket: ---------
Decor film: see price list
Length: 6 m

| | | | |
|---|---|---|---|
| | NP0220 | Weatherboard | bE92 03 020.1 |

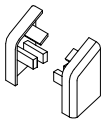
Base colour: SW / SC / - / -
Colour for gasket: ---------
Decor film: see price list
Length: 6 m

| | | | |
|---|---|---|---|
|  | ES0220 | End cap | bE92 03 020.1 |

Base colour: SW / SB / - / black
Colour for gasket: ---------
Decor film: ---------
PU: 200 pc.

| | | | |
|---|---|---|---|
| | ZF1940 | Weatherboard | bE92 03 020.1 |

Base colour: SW / SB / SC / -
Colour for gasket: ---------
Decor film: ---------
Length: 6 m

| | | | |
|---|---|---|---|
|  | SG1940 | End cap | bE92 03 020.1 |

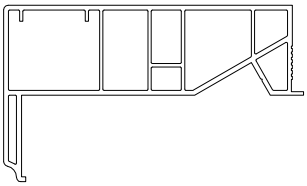
Base colour: SW / SB / SC / -
Colour of gasket: ---------
Decor film: ---------
PU: 200 pc.

| | | | |
|---|---|---|---|
| | 216 650 | Weatherboard | bE92 03 026.1 |

Base colour: E6 / EV1 / white / bronze
Colour for gasket: ---------
Decor film: ---------
Length: 6 m

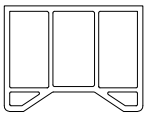
Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|



406 010 Reveal panelling — bE92 03 021.1

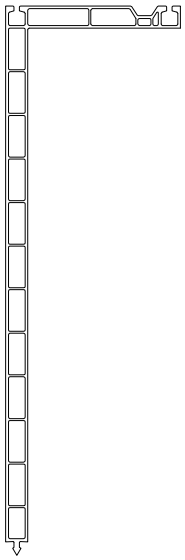
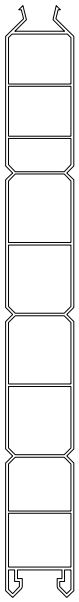
Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m



406 020 Reveal panelling — bE92 03 021.1

Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 406 387 | Cover | bE92 03 021.2 |
|  | 406 386 | Panelling profile | bE92 03 021.2 |
|  | 406 670 | Panel profile | bE92 03 022.1 |

**406 387 Cover**

| | |
|---|---|
| Base colour: | SW / - / - / - |
| Colour of gasket: | --------- |
| Decor film: | see price list |
| Length: | 6 m |

**406 386 Panelling profile**

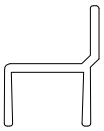
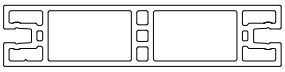
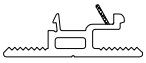
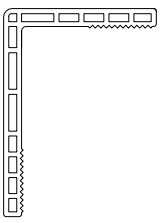
| | |
|---|---|
| Base colour: | SW / - / - / - |
| Colour of gasket: | --------- |
| Decor film: | see price list |
| Length: | 6 m |

**406 670 Panel profile**

| | |
|---|---|
| Base colour: | SW / - / SB / - / - |
| Colour of gasket: | --------- |
| Decor film: | see price list |
| Length: | 6 m |

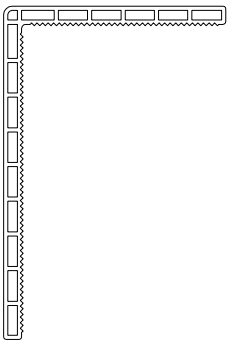
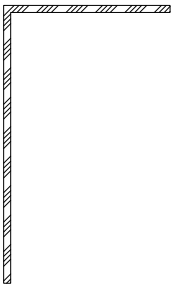
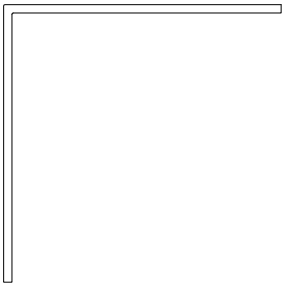
Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 406 001 | Panel frame | bE92 03 022.1 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 406 002 | Panel frame with rebate | bE92 03 022.1 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 406 267 | Panelling profile | bE92 03 022.1 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
| | 406 251 | Coupling spring | bE92 03 022.1 |
| | Base colour: | coloured | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
|  | 416 305 | Adapter | bE92 03 023.1 |
| | Base colour: | coloured | |
| | Colour of gasket: | white (TPE) | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
| | 406 182 | Cover | bE92 03 023.1 |
| | Base colour: | SW / - / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
| | 406 184 | Cover | bE92 03 023.1 |
| | Base colour: | SW / - / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 406 325 | Angle for old building | bE92 03 023.1 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Length: | 6 m | |

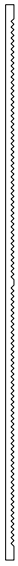
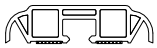
Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 406 329 | Angle for old building | bE92 03 023.1 |
| | | Base colour: SW / SB / - / -<br>Colour of gasket: ---------<br>Decor film: see price list<br>Length: 6 m | |
|  | 406 660 | Angle for old building (only Decor) | bE92 03 023.1 |
| | | Base colour: Alu, brown (Powder-coated)<br>Colour of gasket: ---------<br>Decor film: see price list<br>Length: 6 m | |
| | 406 430 | Adapter profile for frame for old building | bE92 03 023.1 |
| | | Base colour: SW / SB / - / -<br>Colour of gasket: ---------<br>Decor film: ---------<br>Length: 6 m | |
|  | 406 321 | Angle | bE92 03 023.2 |
| | | Base colour: SW / SB / - / -<br>Colour of gasket: ---------<br>Decor film: see price list<br>Length: 6 m | |
| | 406 320 | Angle | bE92 03 023.2 |
| | | Base colour: SW / SB / - / -<br>Colour of gasket: ---------<br>Decor film: see price list<br>Length: 6 m | |
| | 406 319 | Angle | bE92 03 023.2 |
| | | Base colour: SW / SB / - / -<br>Colour of gasket: ---------<br>Decor film: see price list<br>Length: 6 m | |

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 406 316 | Panelling profile | bE92 03 023.2 |
| | 406 340 | Cover | bE92 03 023.2 |
|  | 416 312 | Decorative bead, self adhesive | bE92 03 023.3 |

406 316 Panelling profile

Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

406 340 Cover

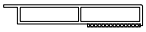
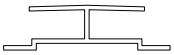
Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

416 312 Decorative bead, self adhesive

Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: ---------
Length: 6 m

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 216 230 | False mullion, inside | bE92 03 023.3 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | white (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
| | 406 345 | Chamber profile, self-adhesive | bE92 03 023.3 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 406 350 | Chamber profile, self-adhesive | bE92 03 023.3 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
| | 406 310 | Panelling profile | bE92 03 023.3 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 406 317 | Panelling profile, self adhesive | bE92 03 023.3 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
|  | 406 312 | Panelling profile, self adhesive | bE92 03 023.3 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | white (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 406 315 | Panelling profile, self adhesive | bE92 03 023.3 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | white (TPE) | |
| | Decor film: | see price list | |
| | Length: | 6 m | |
|  | 406 306 | H- profile | bE92 03 023.4 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | see price list | |
| | Length: | 6 m | |

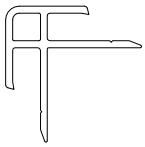
Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 406 307 | Panelling adapter | bE92 03 023.4 |

Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

| | | | |
|---|---|---|---|
| | 406 308 | Panelling coupling | bE92 03 023.4 |



Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

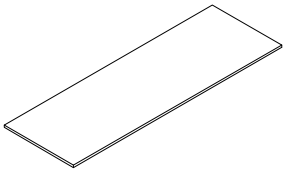
Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

Issue: 11/2015

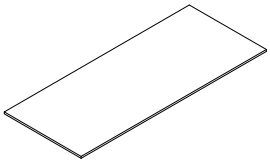
SALAMANDER
WINDOW & DOOR SYSTEMS

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|



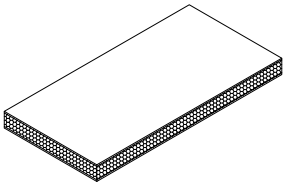
407 912 PVC-board 3000x1000x3 mm — bE92 03 024.1

Base colour: SW / - / - / -
Colour of gasket: ---------
Decor film: see price list
PU: 1 pc.



407 914 Laminate board 3050x1300x3 mm — bE92 03 024.1

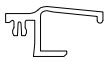
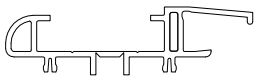
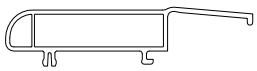
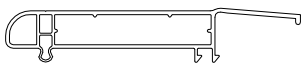
Base colour: coloured
Colour of gasket: ---------
Decor film: see price list
PU: 1 pc.



407 920 Sandwich board 3000x1500x24 mm — bE92 03 024.1

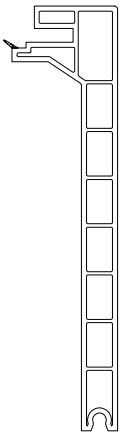
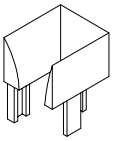
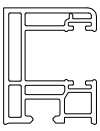
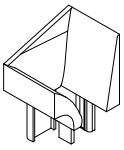
Base colour: SW / - / - / coloured
Colour of gasket: ---------
Decor film: see price list
PU: 1 pc.

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 406 051 | Roller shutter spreader | bE92 03 025.1 |
| | Base colour: | SW / SB / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
| | 406 052 | Cover connection | bE92 03 025.1 |
| | Base colour: | SW / - / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
|  | 406 053 | Cover connection | bE92 03 025.1 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
|  | 416 054 | Roller shutter spreader | bE92 03 025.1 |
| | Base colour: | SW / - / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
|  | 416 055 | Roller shutter spreader | bE92 03 025.1 |
| | Base colour: | SW / - / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
|  | 476 055 | Roller shutter spreader | bE92 03 025.1 |
| | Base colour: | SW / - / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
| | 550 990 | Cover for roller shutter housihg | bE92 03 025.2 |
| | Base colour: | SW / SB / SC / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 550 600 | Roller shutter panelling | bE92 03 025.2 |
| | | Base colour: SW / SB / SC / -<br>Colour of gasket: white (TPE)<br>Decor film: see price list<br>Length: 6 m | |
| | 550 601 | Extension profile | bE92 03 025.2 |
| | | Base colour: SW / SB / - / -<br>Colour of gasket: ---------<br>Decor film: see price list<br>Length: 6 m | |
| | 406 065 | Roller shutter guide | bE92 03 025.3 |
| | | Base colour: SW / SB / - / -<br>Colour of gasket: ---------<br>Decor film: see price list<br>Length: 6 m | |
|  | 407 065 | Roller shutter guide end caps | bE92 03 025.3 |
| | | Base colour: SW / SB / - / -<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 50 Pairs | |
|  | 406 073 | Roller shutter guide | bE92 03 025.3 |
| | | Base colour: SW / - / - / -<br>Colour of gasket: ---------<br>Decor film: ---------<br>Length: 6 m | |
|  | 407 070 | Roller shutter guide end caps | bE92 03 025.3 |
| | | Base colour: SW / - / - / -<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 50 Pairs | |
| | 406 066 | False edge | bE92 03 025.3 |
| | | Base colour: SW / - / - / -<br>Colour of gasket: ---------<br>Decor film: ---------<br>Length: 6 m | |

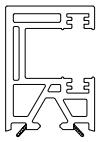
Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 406 050 | Unwinding strip | bE92 03 025.3 |

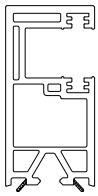
Base colour: SW / - / - / -
Colour of gasket: ---------
Decor film: ---------
Length: 6 m

| | | | |
|---|---|---|---|
| | 416 345 | Tapee | bE92 03 025.4 |



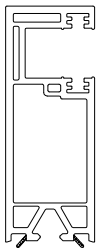
Base colour: SW / SB / - / -
Colour of gasket: white (TPE)
Decor film: see price list
Length: 6 m

| | | | |
|---|---|---|---|
| | 416 365 | Tapee | bE92 03 025.4 |



Base colour: SW / SB / - / -
Colour of gasket: white (TPE)
Decor film: see price list
Length: 6 m

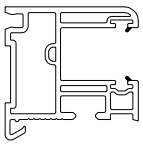
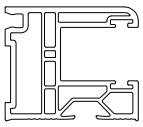
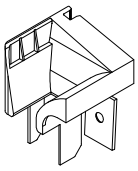
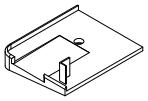
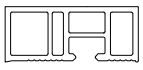
| | | | |
|---|---|---|---|
| | 416 385 | Tapee | bE92 03 025.4 |



Base colour: SW / SB / - / -
Colour of gasket: white (TPE)
Decor film: see price list
Length: 6 m

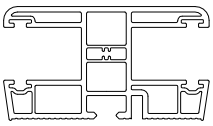
Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 416 082 | Roller shutter guide<br>Base colour: SW / - / - / -<br>Colour of gasket: ---------<br>Decor film: ---------<br>Length: 6 m | bE92 03 025.5 |
|  | 416 086 | Roller shutter guide<br>Base colour: SW / SB / SC / -<br>Colour of gasket: ---------<br>Decor film: see price list<br>Length: 6 m | bE92 03 025.6 |
|  | 417 082 | Roller shutter guide end caps<br>Base colour: SW / SB / SC / -<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 50 Pairs | bE92 03 025.5 |
|  | 417 081 | End caps for roller shutter guide<br>Base colour: SW / SB / - / -<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: white / 50 Pairs<br>PU: colour / 30 Pairs | bE92 03 025.5 |
|  | 406 081 | False edge for roller shutter guide<br>Base colour: SW / - / - / -<br>Colour of gasket: ---------<br>Decor film: see price list<br>Length: 6 m | bE92 03 025.6 |

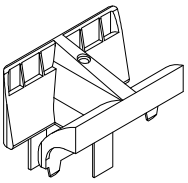
Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|



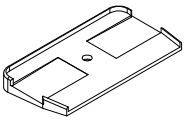
416 096 Double roller shutter guide — bE92 03 025.7

Base colour: SW / SB / SC / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m



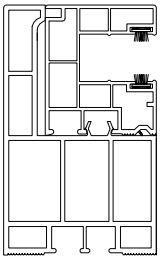
417 096 Double roller shutter guide end cap — bE92 03 025.7

Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: ---------
PU: 30 pc.



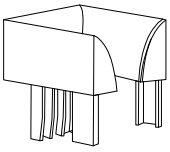
417 095 End cap for double roller shutter guide — bE92 03 025.7

Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: ---------
PU (white): 50 pc.
PU (colour): 30 pc.



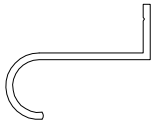
556 070 Adapter profile with roller shutter guide and brush — bE92 03 025.8

Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6,5 m



557 170 Roller shutter guide end caps — bE92 03 025.8

Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: ---------
PU: 50 Pairs



556 075 Unwinding profile — bE92 03 025.8

Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: ---------
Length: 6 m

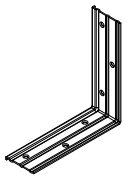
Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | NP0230 | Fixing profile for NP0220 | bE92 03 020.1 |
| | Base colour: | coloured | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
| | NP1940 | Fixing profile for ZF1940 | bE92 03 020.1 |
| | Base colour: | coloured | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
| | MZ1200 | Fixing nipple | bE92 03 020.1 |
| | Base colour: | yellow | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | PU: | 1000 pc. | |
| | 407 900 | Fixing nipple | bE92 03 020.1 |
| | Base colour: | yellow | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | PU: | 1000 pc. | |
| | 407 965 | Fixing nipple | bE92 03 025.8 |
| | Base colour: | yellow | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | PU: | 200 pc. | |
| | 406 335 | Fixing profile PVC | bE92 03 023.2 |
| | Base colour: | SW / - / - / - | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |
| | 406 635 | Fixing profile Alu | bE92 03 023.2 |
| | Base colour: | Alu | |
| | Colour of gasket: | --------- | |
| | Decor film: | --------- | |
| | Length: | 6 m | |

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

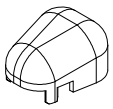
| Profile | Part no. | Designation | Page no. |
|---|---|---|---|



## 478 566 Rebate corner

bE92 03 012.1

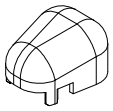
Base colour: titan silver
Colour of gasket: ---------
Decor film: ---------
PU: 20 pc.



## 477 010 Run-up wedge

bE92 03 013.2

Base colour: red
Colour of gasket: ---------
Decor film: ---------
PU: 200 pc.



## 477 012 Run-up wedge

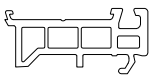
bE92 03 013.2

Base colour: green
Colour of gasket: ---------
Decor film: ---------
PU: 200 pc.

## 477 015 Run-up wedge

bE92 03 013.2

Base colour: SW / SB / SC / -
Colour of gasket: ---------
Decor film: ---------
PU: 200 pc.



## 173 415 Fixed glazing bar

bE92 03 013.2

Base colour: SW / SB / - / -
Colour of gasket: ---------
Decor film: see price list
Length: 6 m

Salamander white = SW; Salamander brown = SB;
Salamander caramel = SC; coloured = coloured

Not to scale

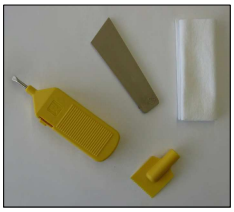


SALAMANDER
WINDOW & DOOR SYSTEMS

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 407 810 | Cleaning agent<br>very weakly abrasive<br>Base colour: ---------<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 1 pc. | bE92 10 001.3 |
| | 407 830 | Cleaning agent<br>non-abrasive<br>Base colour: ---------<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 1 pc. | bE92 10 001.3 |
| | 407 840 | Smoothing and polishing agent<br>strongly abrasive<br>Base colour: ---------<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 1 pc. | bE92 10 001.3 |

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 407 850 | SIP Cleaning agent<br>Base colour: ---------<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 1 pc. | bE92 10 001.5 |
| | 407 895 | Care set for laminated profiles SIP<br>Base colour: ---------<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 1 set | bE92 10 001.5 |
| | 407 890 | Cleaning and care set<br>Base colour: ---------<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 1 set | bE92 10 001.5 |
| | 417 850 | Repair agent for white profiles<br>Base colour: ---------<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 1 set | bE92 10 001.5 |
| | 407 852 | SIP Repair resin<br>Base colour: ---------<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 1 set | bE92 10 001.6 |
| | 407 880 | Paint stick (edge fix)<br>Base colour: ---------<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 1 pc. | bE92 10 001.6 |
| | 417 885 | SIP Film repair set<br>Base colour: ---------<br>Colour of gasket: ---------<br>Decor film: ---------<br>PU: 1 set | bE92 10 001.6 |

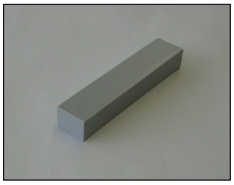
| Profile | Part no. | Designation | Page no. |
|---|---|---|---|



## 417 986 SIP Mini-smelter

bE92 10 001.7

Base colour: ---------
Colour of gasket: ---------
Decor film: ---------
PU: 1 set



## 417 886 Hard wax for repair set

bE92 10 001.7

Base colour: ---------
Colour of gasket: ---------
Decor film: see price list
PU: 1 pc.

## 407 720-000 Adhesive: Fenoplast KF

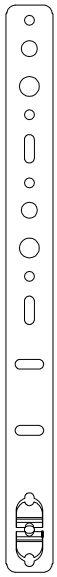
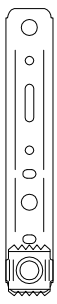
bE92 03 020.1

Base colour: ---------- (for white profiles)
Colour of gasket: ---------
Decor film: ---------
PU: 1 pc.

## 407 725-000 Adhesive: Fenoplast PMMA

bE92 03 020.1

Grundfarbe: ---------- (for decor profiles)
Colour of gasket: ---------
Decor film: ---------
PU: 1 pc.

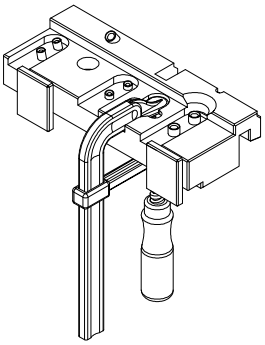
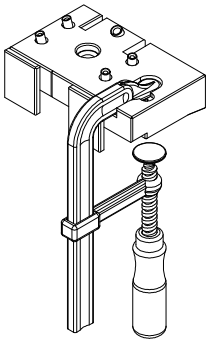
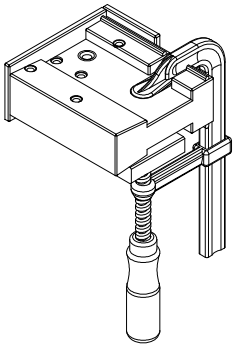
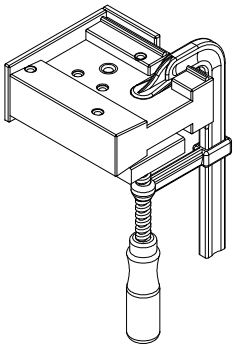
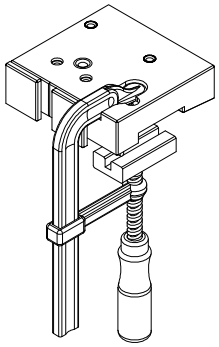
| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
| | 417 540 | Tie bolt, fixed | bE92 03 012.1 |
| | 417 545 | Tie bolt, fixed | bE92 03 012.1 |
|  | 417 548 | Tie bolt, fixed | bE92 03 012.1 |
|  | 417 550 | Tie bolt, rotary | bE92 03 012.1 |

Base colour: galvanized
Colour of gasket: ---------
Decor film: ---------
PU: 250 pc.

Base colour: galvanized
Colour of gasket: ---------
Decor film: ---------
PU: 150 pc.

Base colour: galvanized
Colour of gasket: ---------
Decor film: ---------
PU: 250 pc.

Base colour: galvanized
Colour of gasket: ---------
Decor film: ---------
PU: 250 pc.

| Profile | Part no. | Designation | Page no. |
|---|---|---|---|
|  | 178 420 | Drilling template<br>Base colour: --------<br>Colour of gasket: --------<br>Decor film: --------<br>PU: 1 pc. | bE92 03 010.1 |
|  | 178 440 | Drilling template<br>Base colour: --------<br>Colour of gasket: --------<br>Decor film: --------<br>PU: 1 pc. | bE92 03 010.1 |
|  | 478 520 | Drilling template<br>Base colour: --------<br>Colour of gasket: --------<br>Decor film: --------<br>PU: 1 pc. | bE92 03 010.1 |
|  | 478 430 | Drilling template<br>Base colour: --------<br>Colour of gasket: --------<br>Decor film: --------<br>PU: 1 pc. | bE92 03 010.1 |
|  | 478 425 | Drilling template<br>Base colour: --------<br>Colour of gasket: --------<br>Decor film: --------<br>PU: 1 pc. | bE92 03 010.1 |

Not to scale

| Designation | Page bE92 03 0... |
|---|---|
| - Frame | 01.1 - 01.2 |
| └► 170 420 | 01.1 |
| └► 170 430 | 01.2 |
| - Casement | 02.1 - 02.5 |
| └► 171 020 | 02.1 |
| └► 171 226 | 02.2 |
| └► 171 030 | 02.3 |
| └► 171 040 | 02.4 |
| └► 371 040 | 02.5 |
| - Mullion / post | 03.1 - 03.3 |
| └► 172 420 | 03.1 |
| └► 172 421 | 03.2 |
| └► 172 425 | 03.3 |
| - Overlap | 04.1 - 04.3 |
| └► 176 010 | 04.1 |
| └► 176 020 | 04.2 |
| └► 176 030 | 04.3 |
| - Glazing bars | 05.1 - 05.2 |
| - Gaskets | 06.1 |
| - Bridge setting blocks | 07.1 |
| - Glass setting blocks | 08.1 |
| - Reinforcements | 09.1 - 09.8 |
| - Post / mullion cruciform coupler set | 10.1 - 10.2 |
| - Overlap cap set | 11.1 |
| - Rebate corner / tie bolts | 12.1 |
| - Accessories | 13.1 - 13.2 |
| └► Step protection | 13.1 |
| └► Transport protection, run - up wedge, fixed glazing bar | 13.2 |
| - Extension profiles / French window profiles | 14.1 - 14.5 |
| └► Extension profiles | 14.1 - 14.4 |
| └► French window profiles | 14.5 |

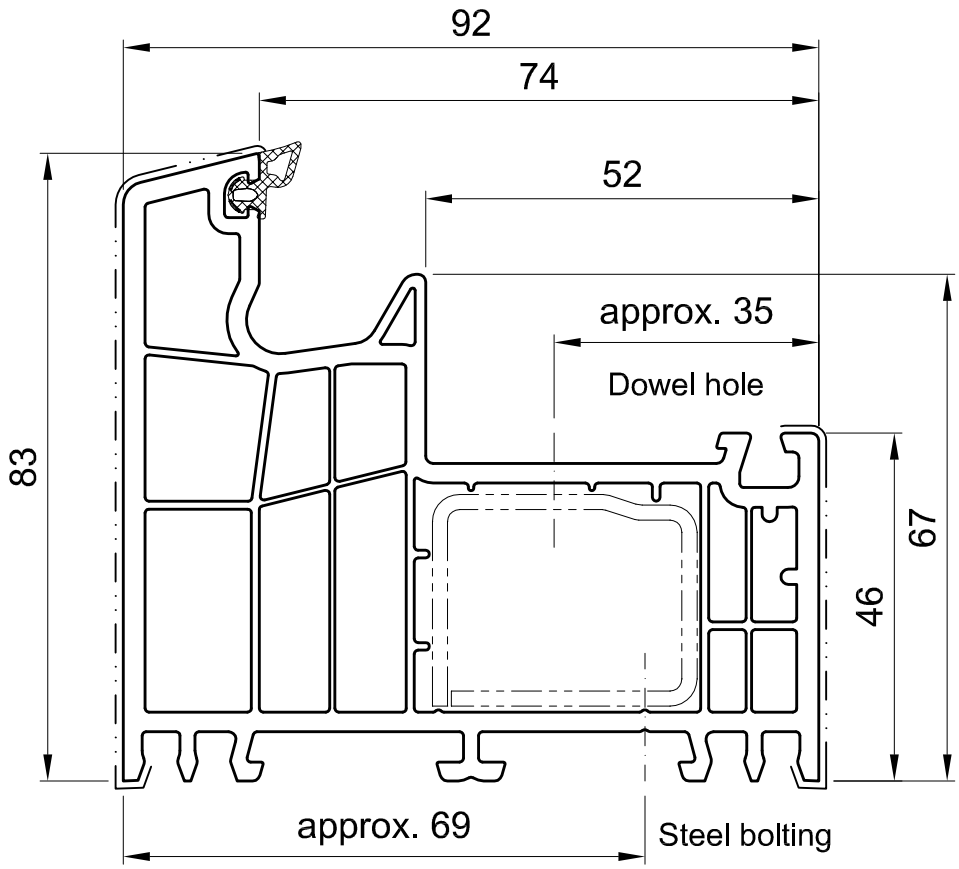
| Designation | Page bE92 03 0... |
|---|---|
| - Sill profile | 15.1 - 15.5 |
| └► Sill profile | 15.1 - 15.2 |
| └► Stone bank profiles | 15.3 |
| └► Locking clamps | 15.4 |
| └► Window sill | 15.5 |
| - Couplings | 16.1 - 16.4 |
| - Corner connections | 17.1 - 17.3 |
| - Pilaster strip profiles (post reinforcement) | 18.1 - 18.2 |
| - Muntins (self - adhesive) | 19.1 |
| - Weatherboard | 20.1 |
| - Reveal panelling | 21.1 - 21.2 |
| - Panel profiles / panelling profiles | 22.1 |
| - Additional profiles | 23.1 - 23.4 |
| - Plastic boards | 24.1 |
| - Roller shutter accessories | 25.1 - 25.8 |
| - Door threshold | 26.1 - 26.3 |

Frame

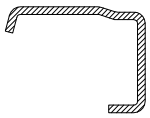
**170 420**

bE92 03

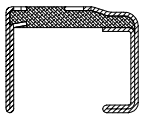
**01.1**



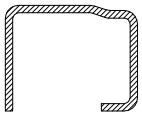

## Reinforcement:



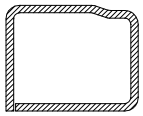
475 200



455 231 (tg)

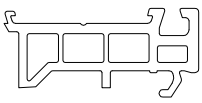


455 230



455 235

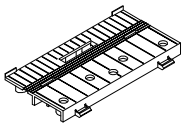
## Fixed glazing bar:



173 415

## Bridge setting block:

(not to scale)



177 015

-·-·- Decor

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

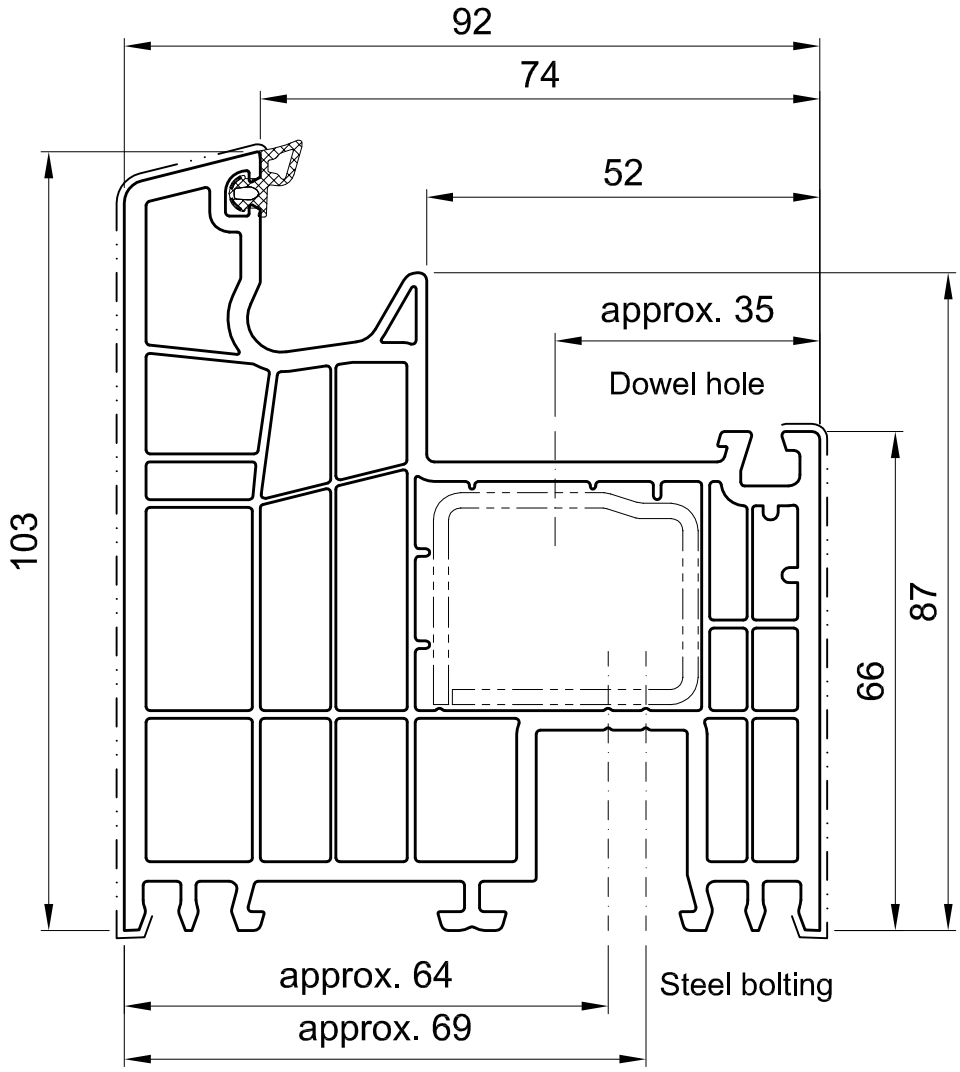
SALAMANDER WINDOW & DOOR SYSTEMS

Frame

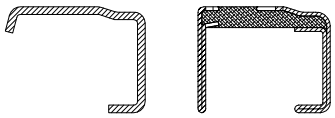
**170 430**

bE92 03

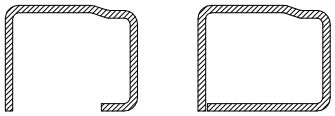
**01.2**




## Reinforcement:

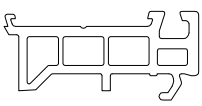


475 200 455 231 (tg)



455 230 455 235

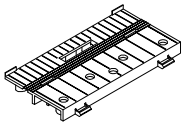
## Fixed glazing bar:



173 415

## Bridge setting block:

(not to scale)



177 015

-·-·- Decor

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

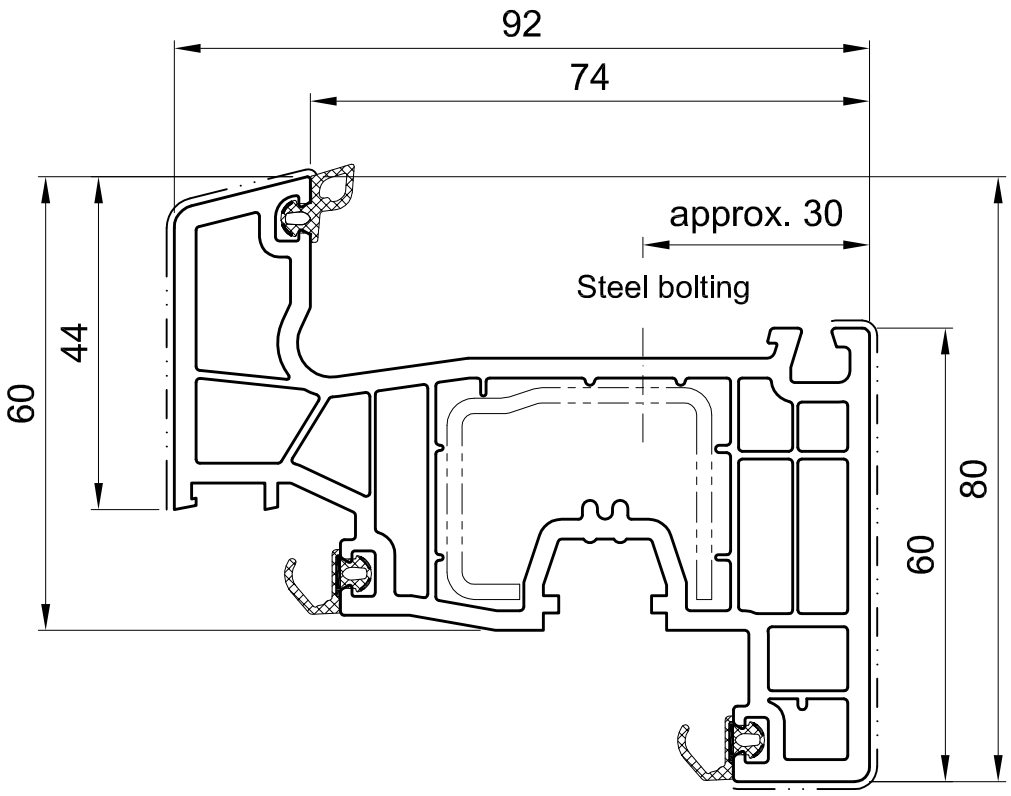
SALAMANDER WINDOW & DOOR SYSTEMS

Casement

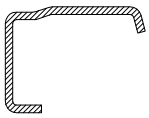
**171 020**

bE92 03

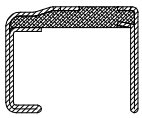
**02.1**



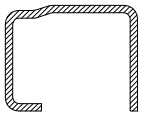

## Reinforcement:



475 200



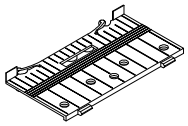
455 231 (tg)



455 230

## Bridge setting block:

(not to scale)



177 040

## Rebate reinforcement:

475 192

– · · — · · – Decor

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

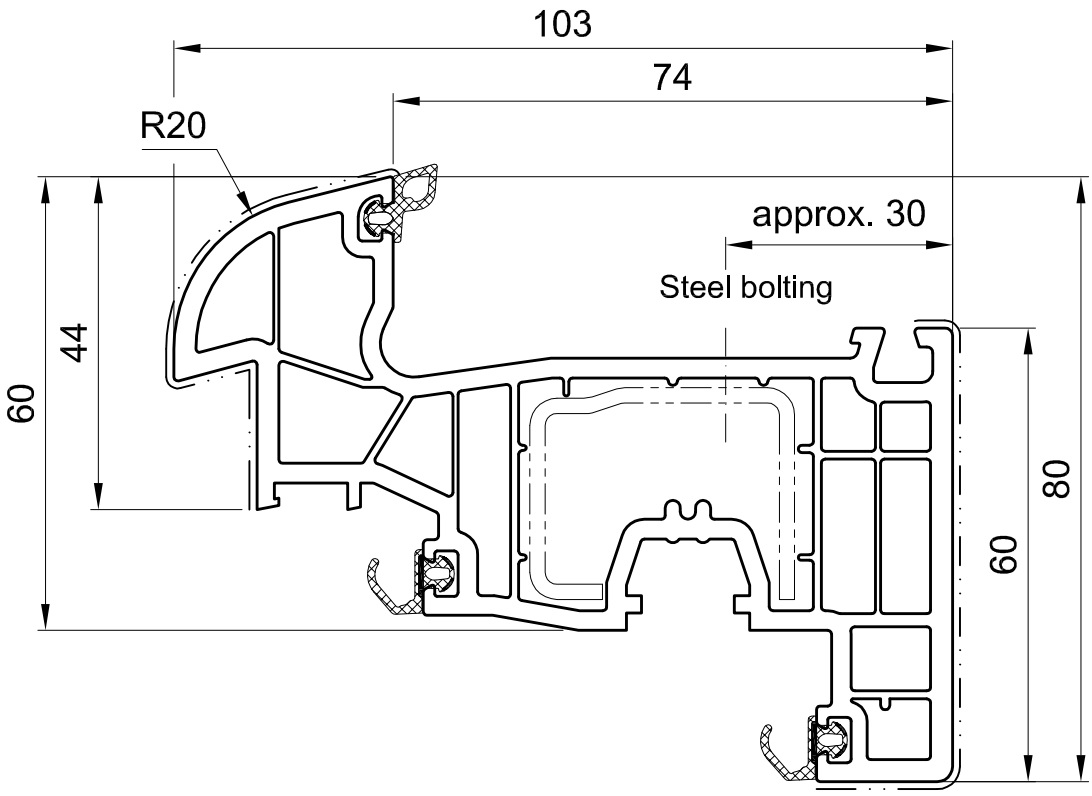
SALAMANDER WINDOW & DOOR SYSTEMS

Casement

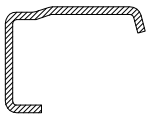
**171 226**

bE92 03

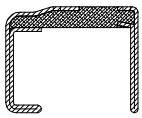
**02.2**



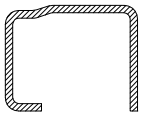

## Reinforcement:



475 200



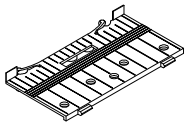
455 231 (tg)



455 230

## Bridge setting block:

(not to scale)



177 040

## Rebate reinforcement:

475 192

-·-·- Decor

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

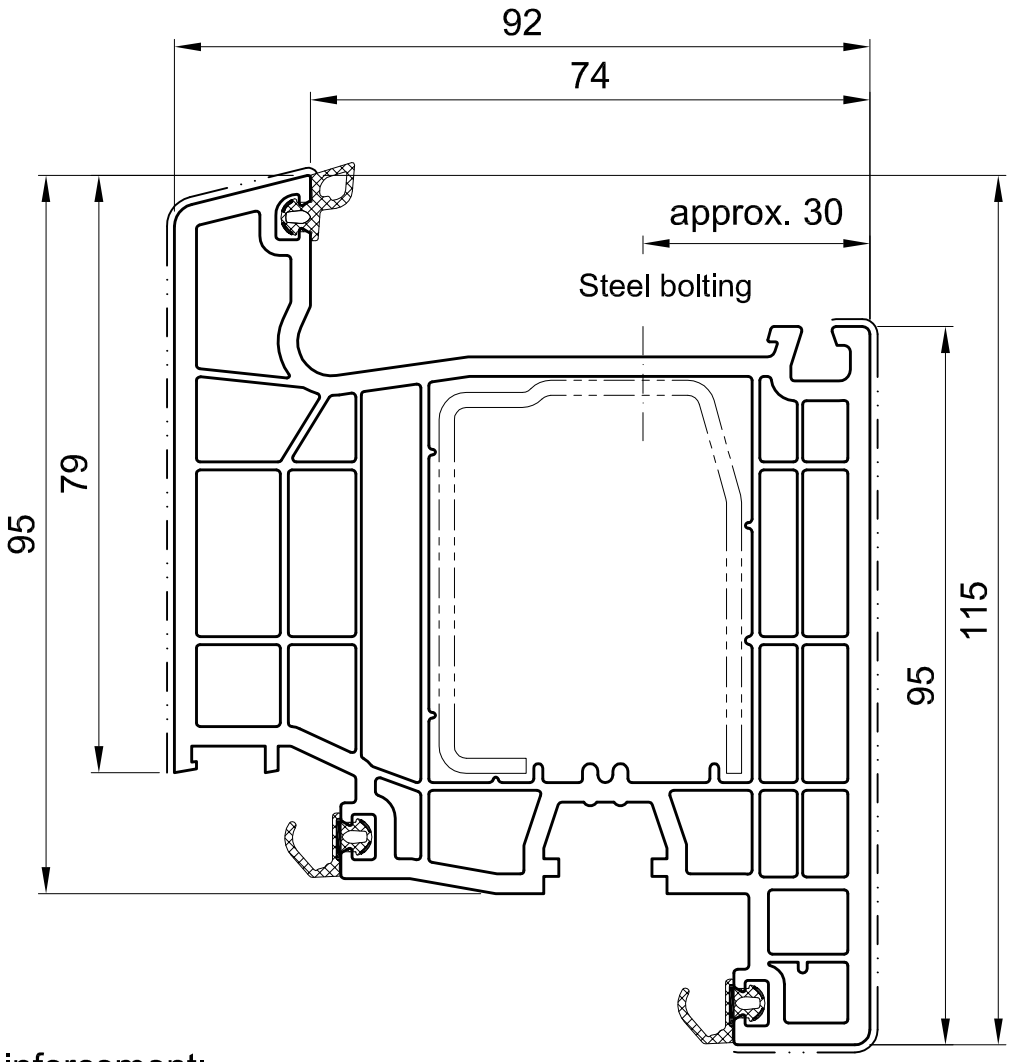
SALAMANDER WINDOW & DOOR SYSTEMS

Casement

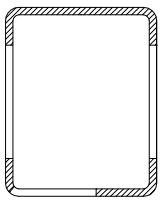
**171 030**

bE92 03

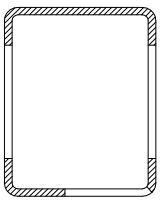
**02.3**



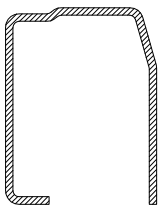

## Reinforcement:



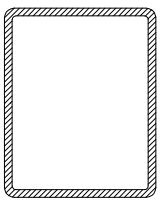
405 071



405 072

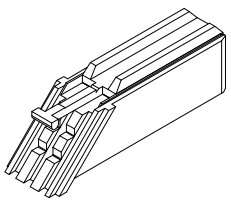


455 030



405 065

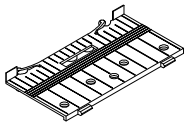
## Weldable corner connector:



208 110
(for 405 065)

## Bridge setting block:

(not to scale)



177 040

## Rebate reinforcement:

475 192

-·-·- Decor

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

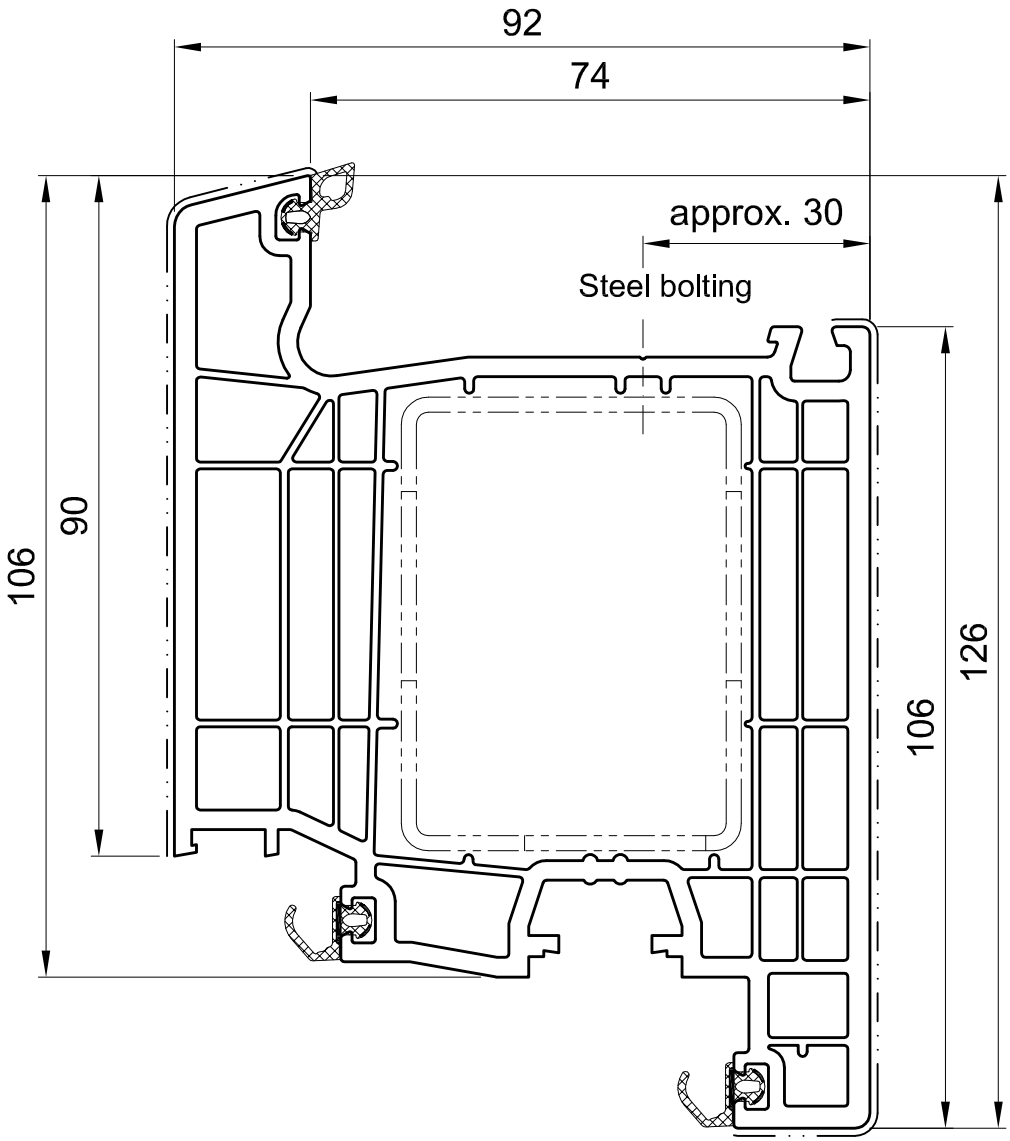
SALAMANDER
WINDOW & DOOR SYSTEMS

Entrance door leaf

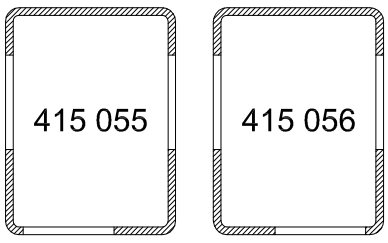
**171 040**

bE92 03

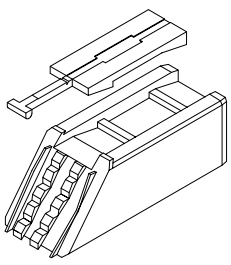
**02.4**




## Reinforcement:



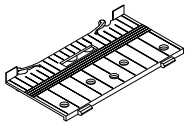

## Weldable corner connector:



217 060

## Bridge setting block:

(not to scale)



177 040

## Rebate reinforcement:

475 192

-·-·- Decor

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

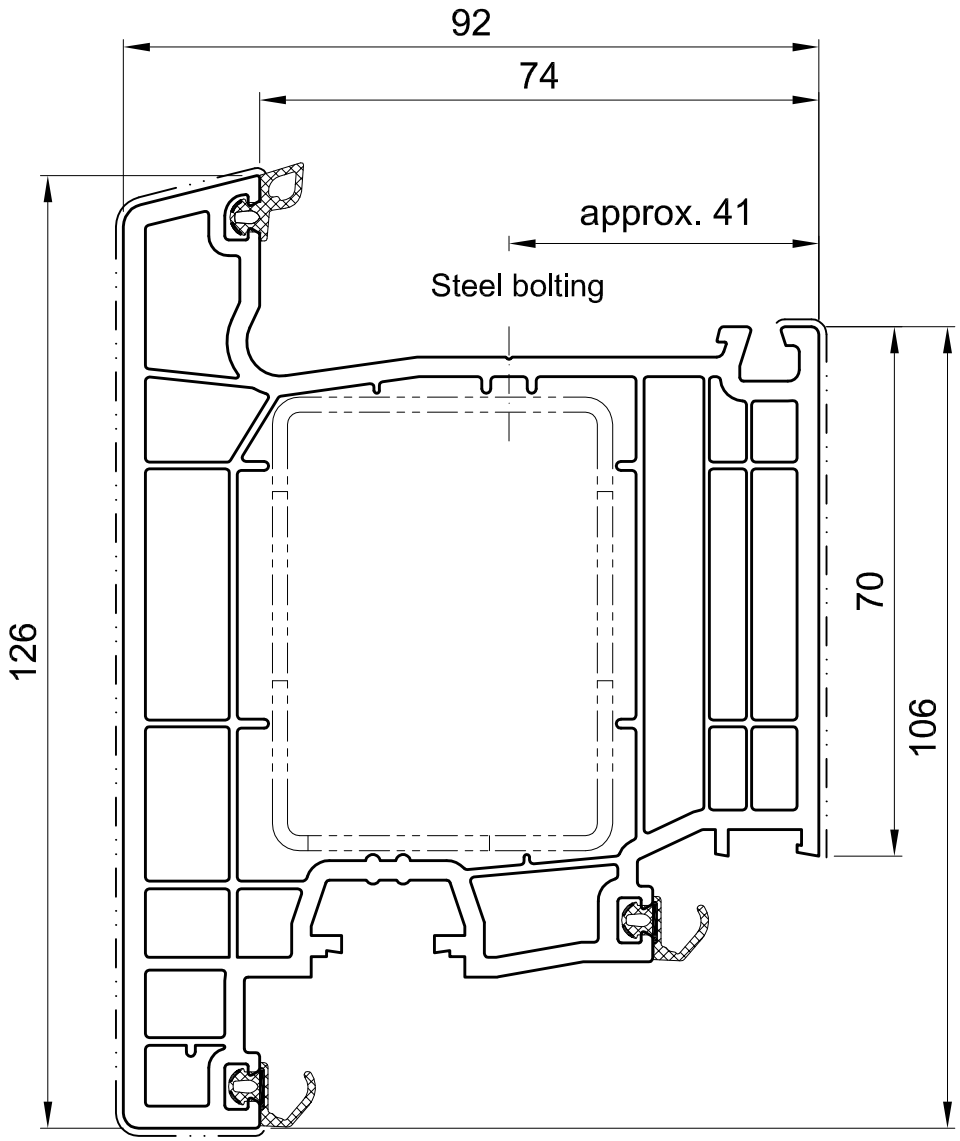
SALAMANDER WINDOW & DOOR SYSTEMS

T-shaped entrance door leaf

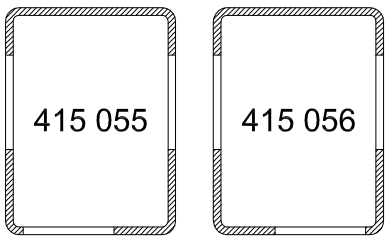
**371 040**

bE92 03

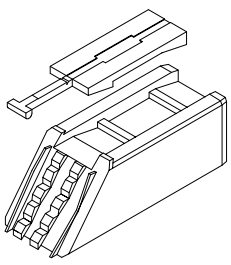
**02.5**




## Reinforcement:



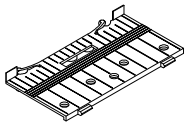

## Weldable corner connector:



217 060

## Bridge setting block:

(not to scale)



177 040

## Rebate reinforcement:

475 192

-·-·- Decor

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

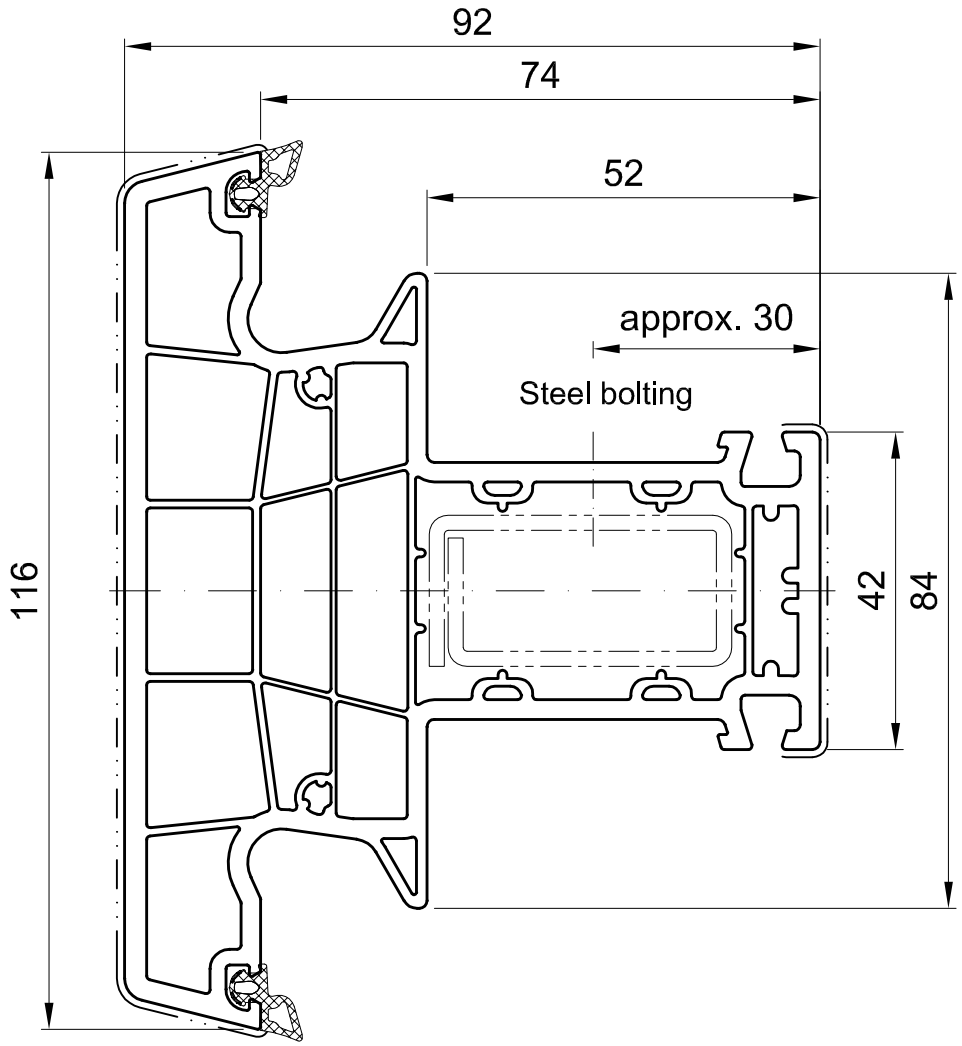
SALAMANDER WINDOW & DOOR SYSTEMS

Post

**172 420**

bE92 03

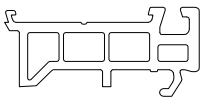
**03.1**




## Reinforcement:

415 020

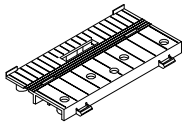
## Fixed glazing bar:



173 415

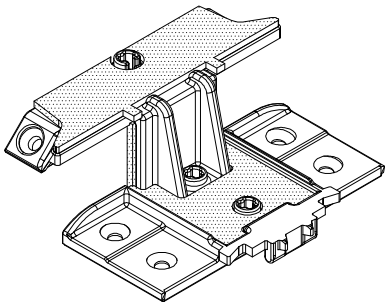
## Bridge setting block:

(not to scale)



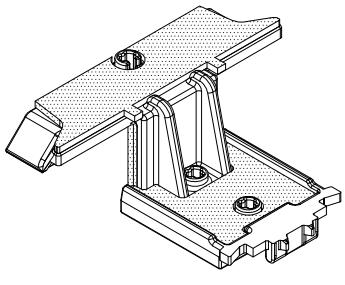
177 015

## Post cruciform coupler set:



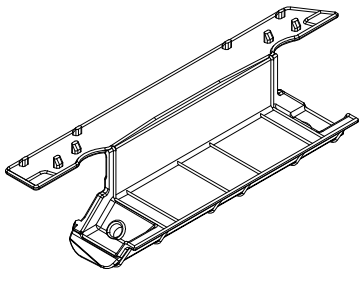
178 020

## Post coupler set:



178 030

## Sealing block:



178 820

Drilling template 178 420 (no picture)

-·-·- Decor

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

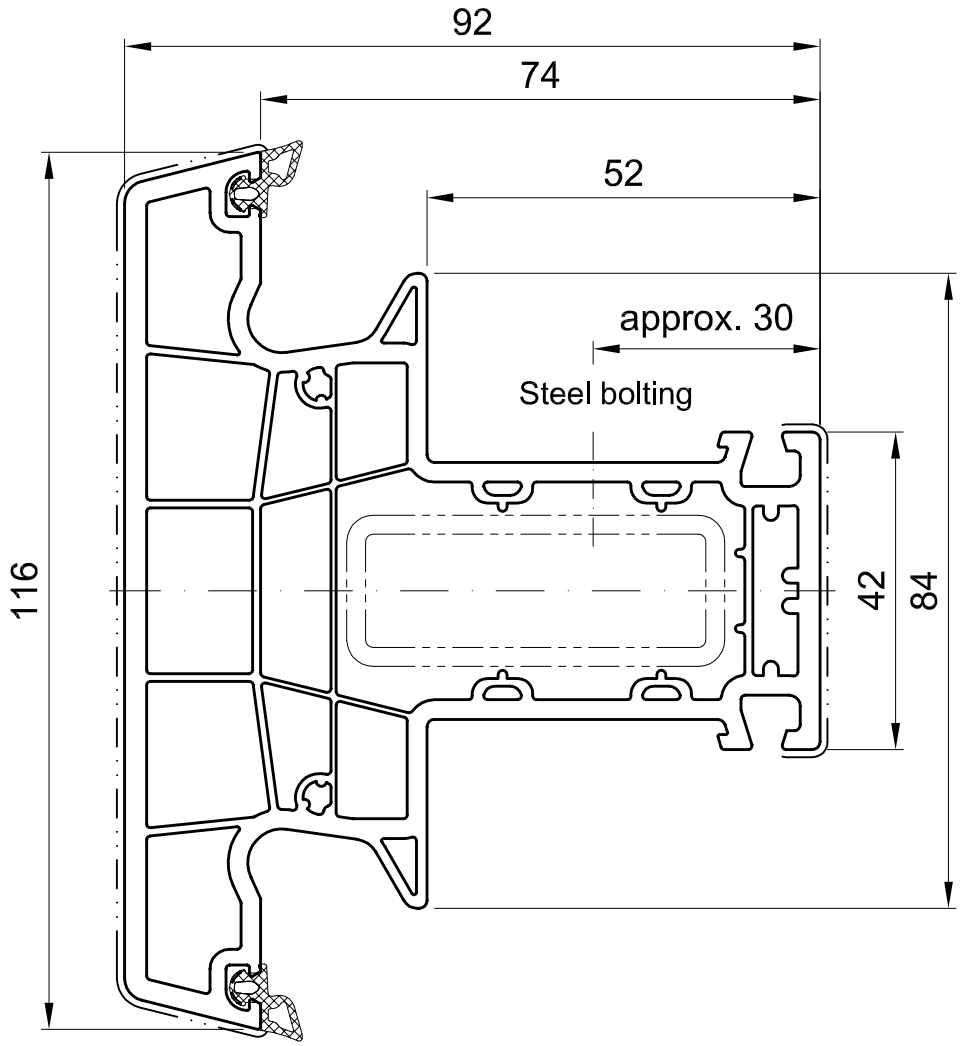
SALAMANDER WINDOW & DOOR SYSTEMS

Post

**172 421**

bE92 03

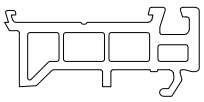
**03.2**




## Reinforcement:

475 021

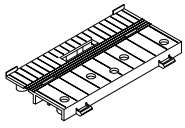
## Fixed glazing bar:



173 415

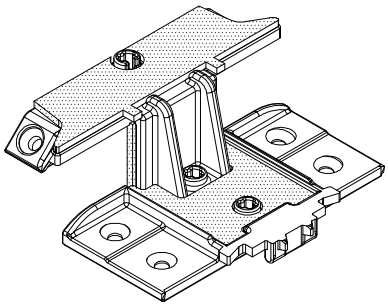
## Bridge setting block:

(not to scale)



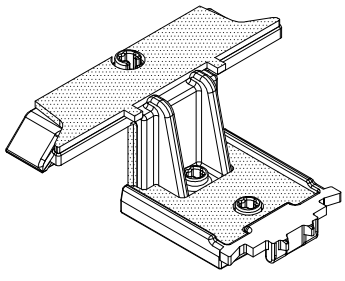
177 015

## Post cruciform coupler set:



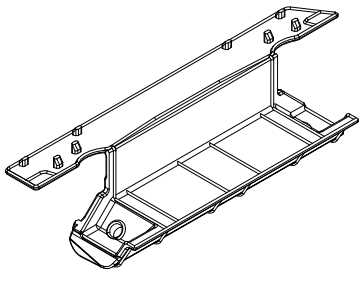
178 020

## Post coupler set:



178 030

## Sealing block:



178 820

Drilling template 178 420 (no picture)

-·-·- Decor

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

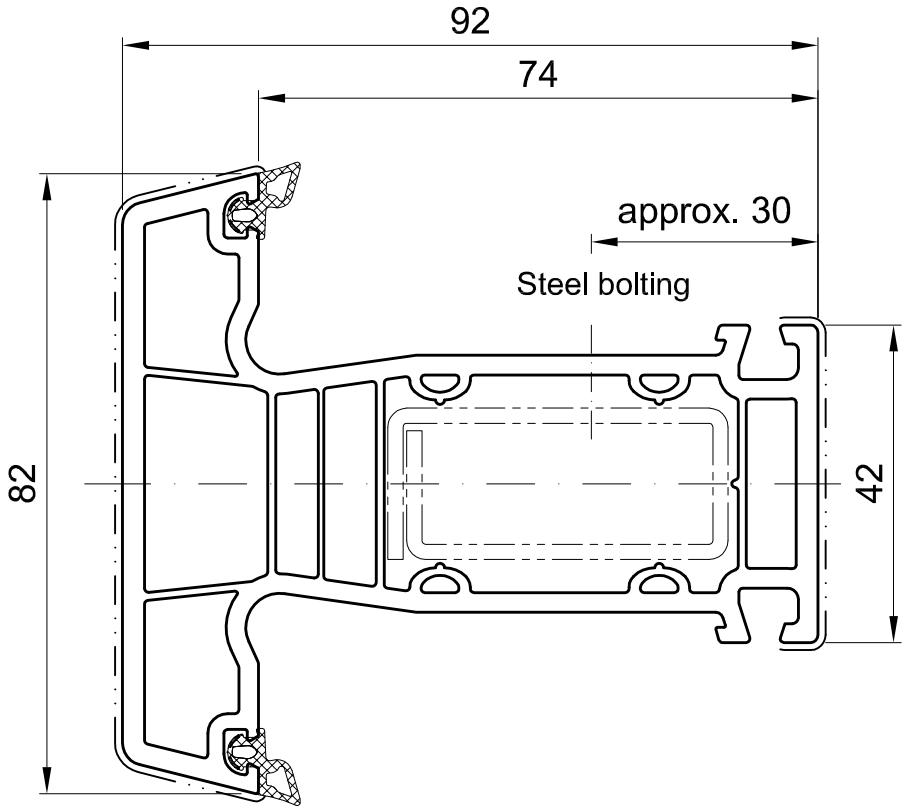
SALAMANDER WINDOW & DOOR SYSTEMS

Mullion

**172 425**

bE92 03

**03.3**

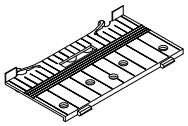



## Reinforcement:

215 120

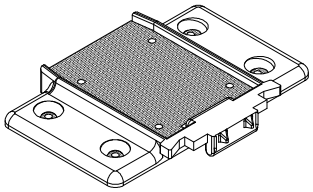
## Bridge setting block:

(not to scale)



177 040

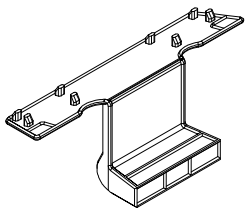
## Mullion cruciform coupler set:



178 040

Drilling template 178 420 (no picture)

## Sealing block:



178 840

-·-·- Decor

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

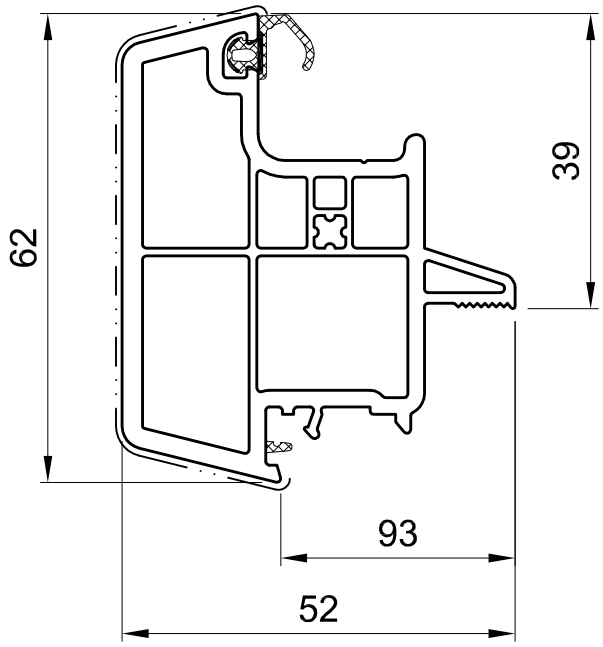
SALAMANDER WINDOW & DOOR SYSTEMS

Overlap

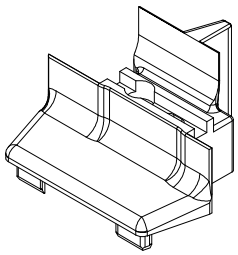
**176 010**

bE92 03

**04.1**

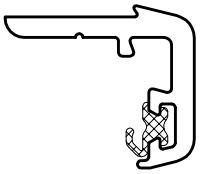



Overlap cap set:



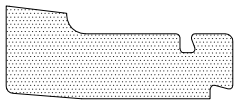
177 010

Overlap bar, inside:



416 026

Sealing block:



474 926

Overlap covering bar, self adhesive:

406 317



-··—·- Decor

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

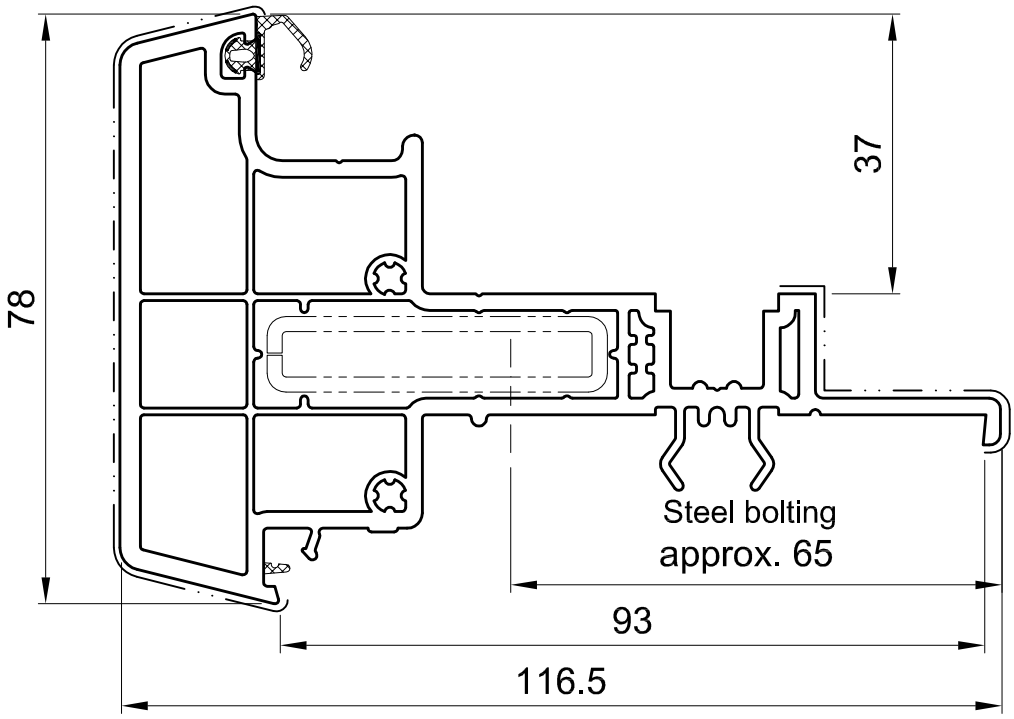
SALAMANDER WINDOW & DOOR SYSTEMS

Overlap

**176 020**

bE92 03

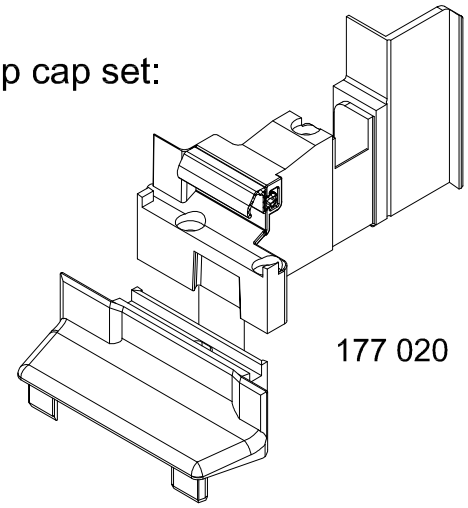
**04.2**




Reinforcement:

405 012

Overlap cap set:



177 020

Decor

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

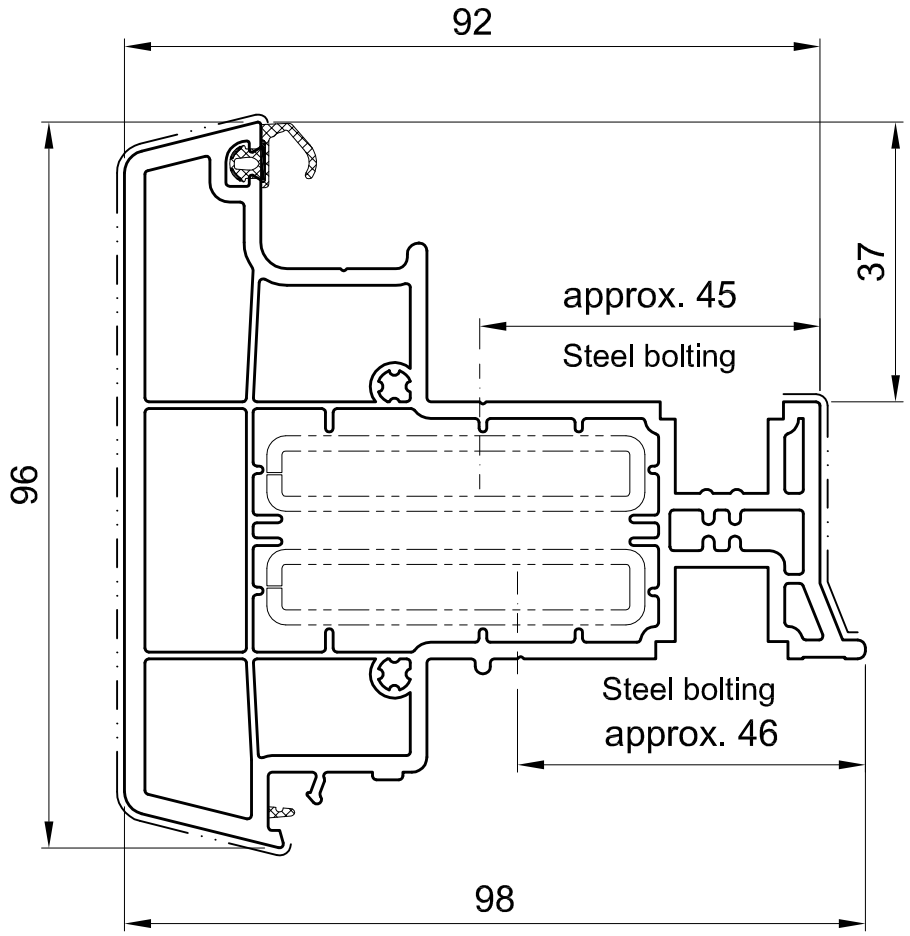
SALAMANDER WINDOW & DOOR SYSTEMS

Overlap

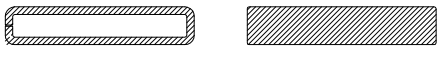
**176 030**

bE92 03

**04.3**




Reinforcement:



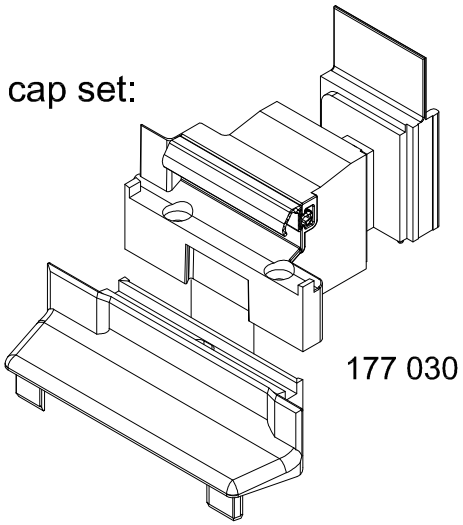
405 015



405 125

475 045

Overlap cap set:



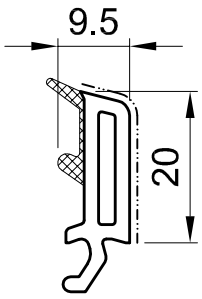
177 030

-·-·- Decor

Scale 1:1 (1:2) (or depending on print-out)

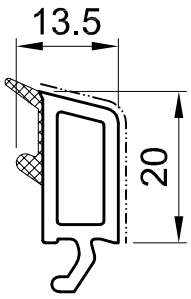
Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS



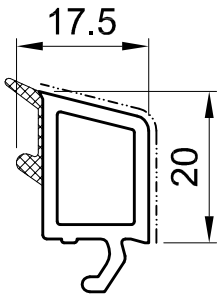

413 809

Glass thickness: 59 60 61



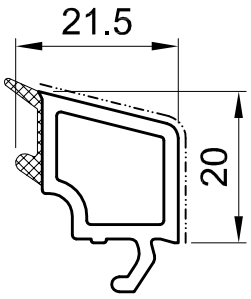

413 813

Glass thickness: 55 56 57



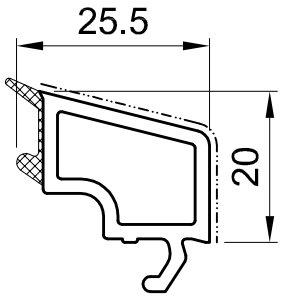

413 817

Glass thickness: 51 52 53



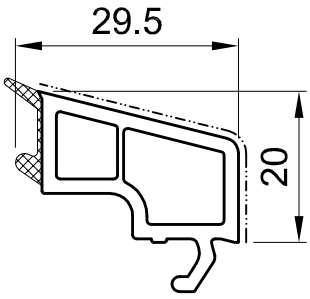

413 821

Glass thickness: 47 48 49



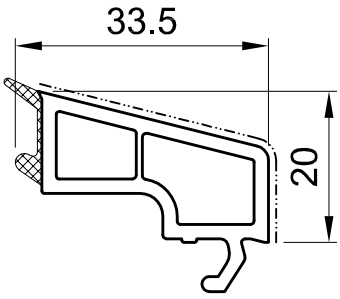

413 825

Glass thickness: 43 44 45



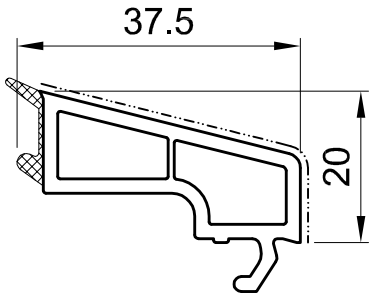

413 829

Glass thickness: 39 40 41



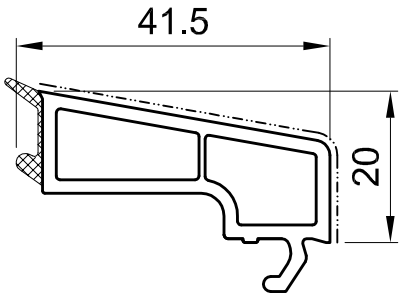

413 833

Glass thickness: 35 36 37



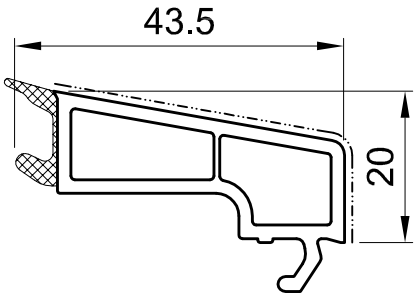

413 837

Glass thickness: 31 32 33




413 841

Glass thickness: 27 28 29




413 843

Glass thickness: 25 26 27
with 414 573 23 24 25

- Glass thickness based on factory-integrated standard gaskets and a rebate depth of 74mm

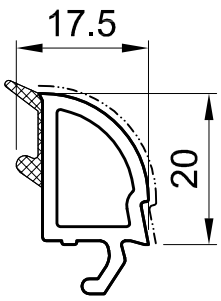
-·-·- Decor

Scale 1:1 (or depending on print-out)

Issue: 11/2015

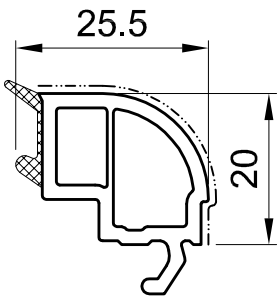


SALAMANDER
WINDOW & DOOR SYSTEMS



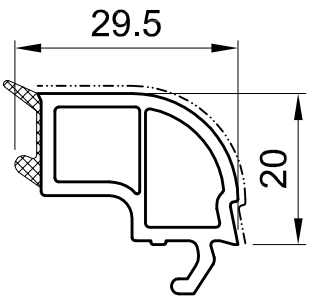

413 717

Glass thickness: 51 52 53



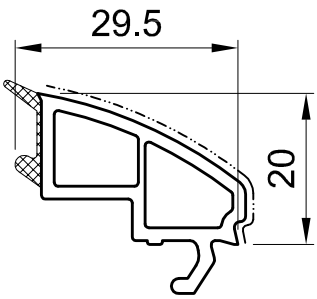

413 725

Glass thickness: 43 44 45



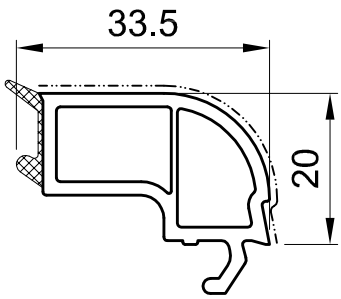

413 728

Glass thickness: 39 40 41



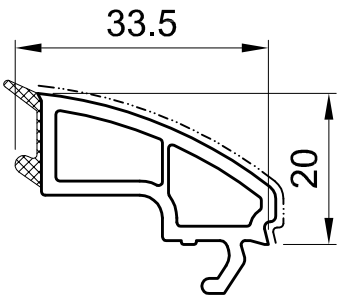

413 729

Glass thickness: 39 40 41



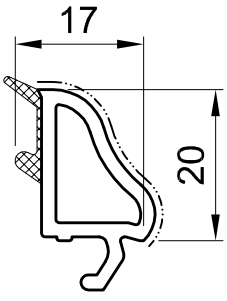

413 730

Glass thickness: 35 36 37



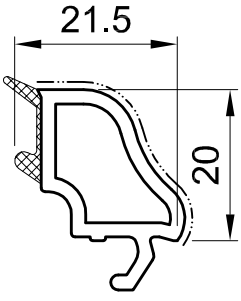

413 735

Glass thickness: 35 36 37



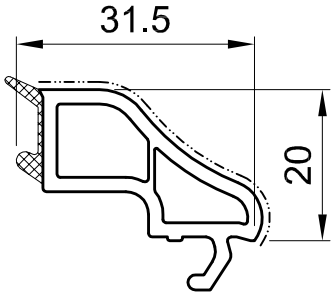

413 915

Glass thickness: 51 52 53



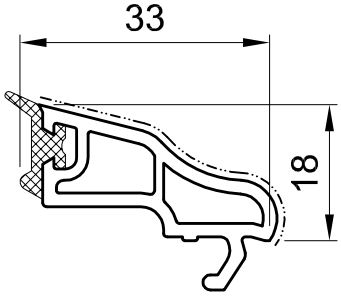

413 922

Glass thickness: 47 48 49




413 932

Glass thickness: 37 38 39




413 933

Glass thickness: 35 36 37

- Glass thickness based on factory-
integrated standard gaskets and a rebate depth of 74mm

-·-·- Decor

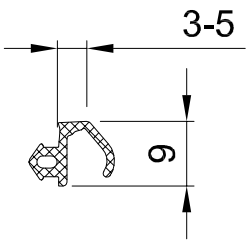
Scale 1:1 (or depending on print-out)

Issue: 11/2015

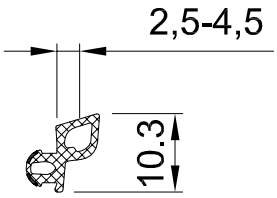


SALAMANDER
WINDOW & DOOR SYSTEMS

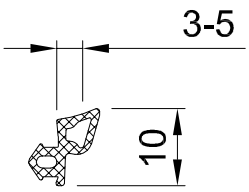
## Gaskets in TPE, Repair gasket frame + manual application




**474 221**
black, light grey
stopper gasket,
inside and center
casement / overlap outside

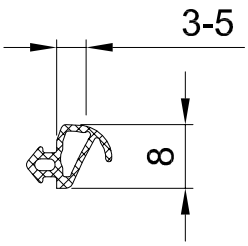



**414 633**
black, light grey
glazing gasket
casement / mullion

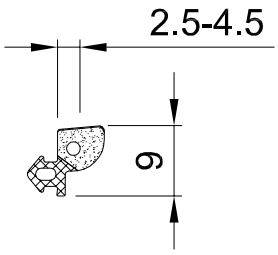



**474 645**
black, light grey
stopper gasket
frame / post

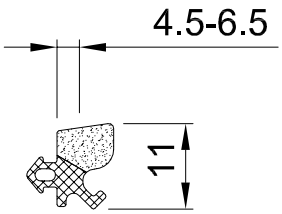
## Gaskets in EPDM, manual application




**474 025**
black, light grey
stopper and
center gasket
frame / casement
post / overlap

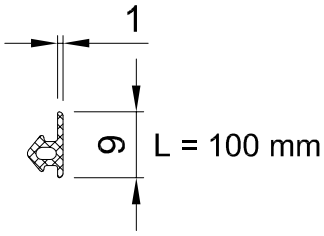



**414 566**
black, light grey
foamed
glazing gasket
casement / mullion
frame / post

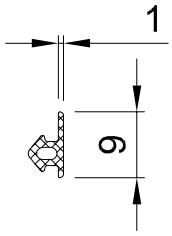



**414 573**
black, light grey
foamed
glazing gasket
casement / mullion
frame / post

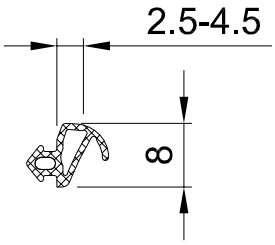
## Special gasket in EPDM, manual application




**414 023**
black, light grey
pressure compensation gasket




**414 024**
black, light grey
ventilation gasket



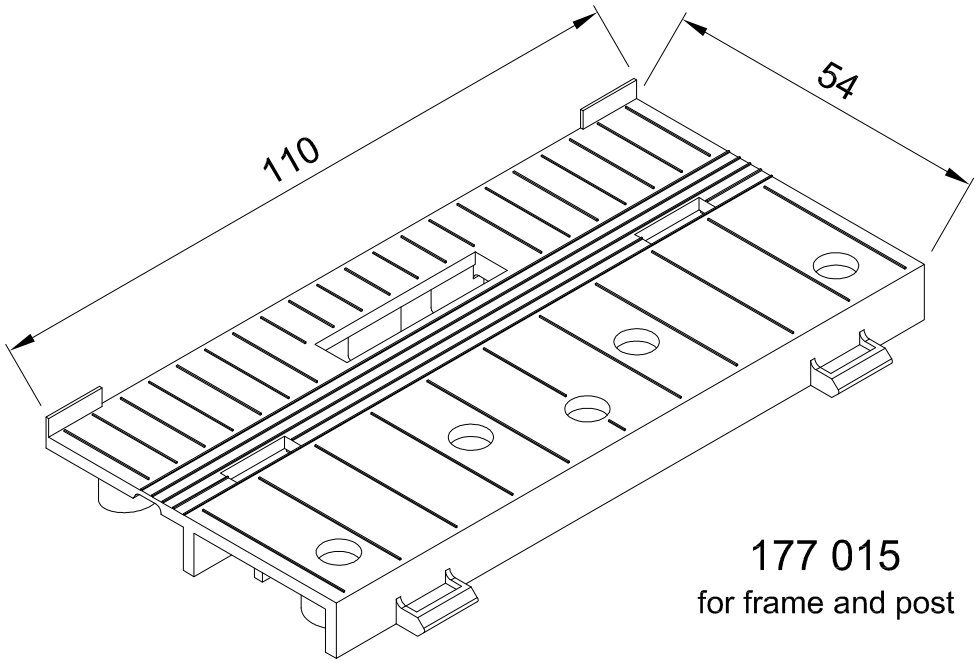

**414 025**
black, light grey
stopper gasket
casement / frame
post / additional profiles

Bridge setting block

**177 015, 177 040**

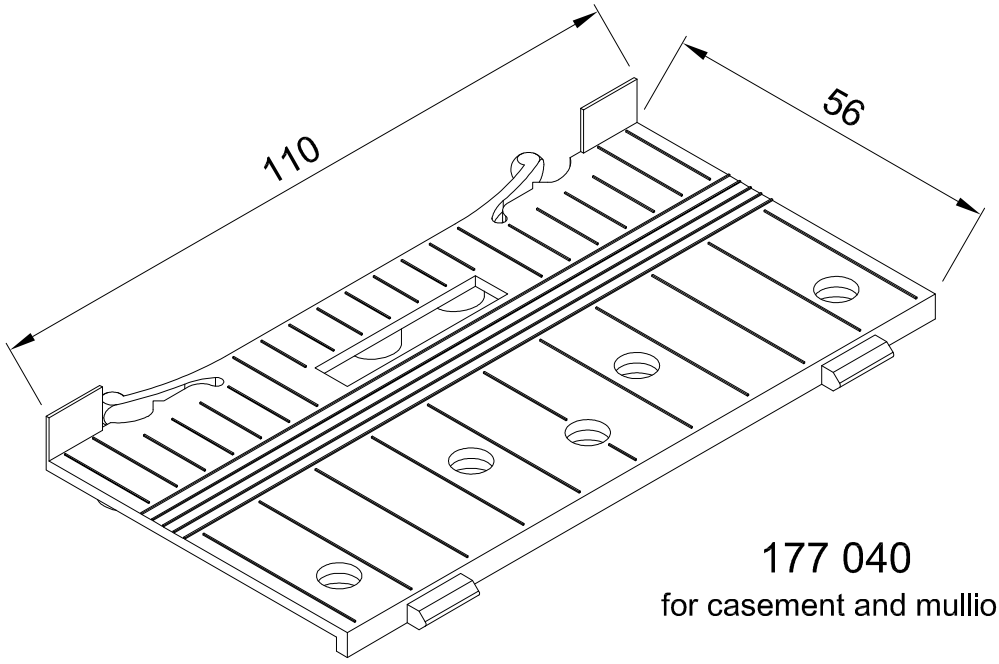
bE92 03

**07.1**




177 015

for frame and post




177 040

for casement and mullion



not to scale

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

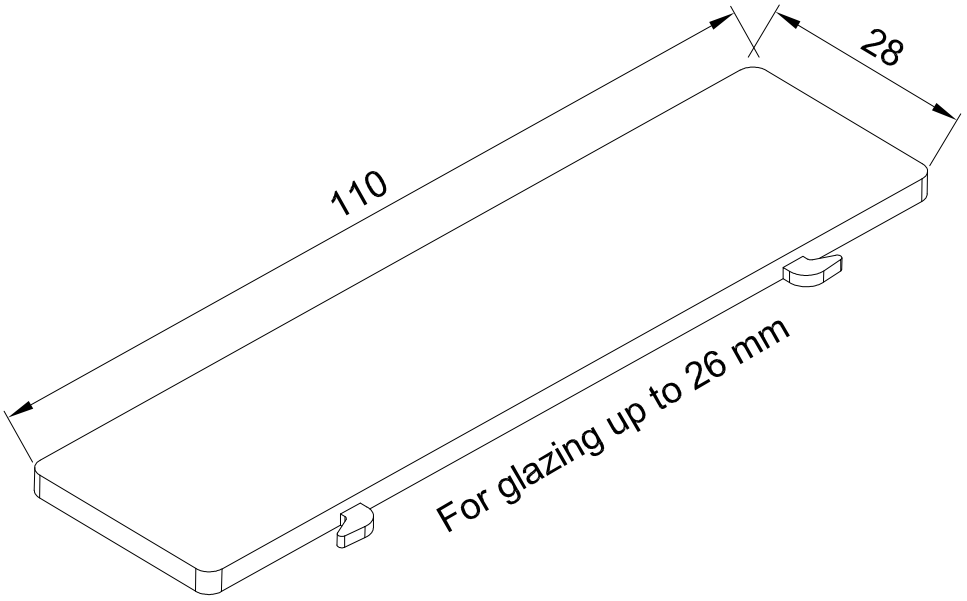
Glass setting blocks

**417 121 - 125, 417 141 - 145, 417 171 - 175**

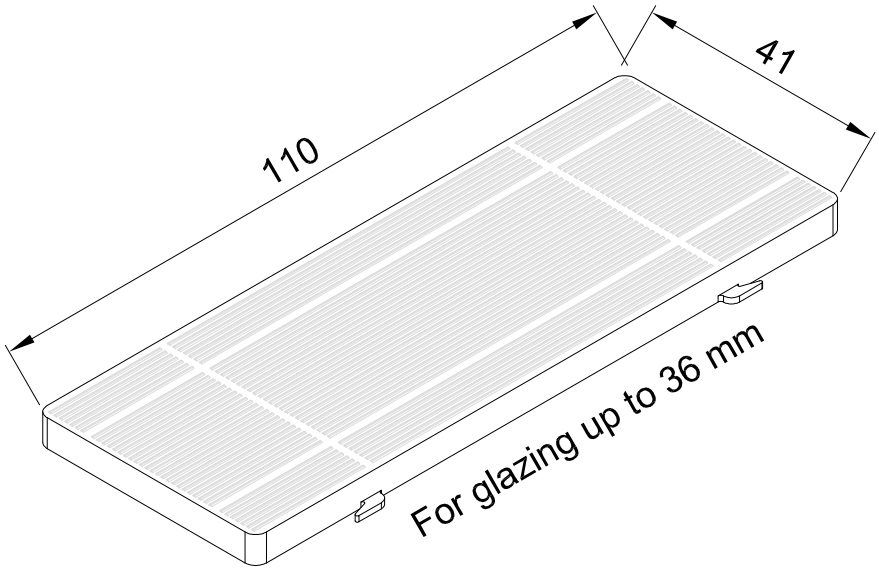
bE92 03

**08.1**

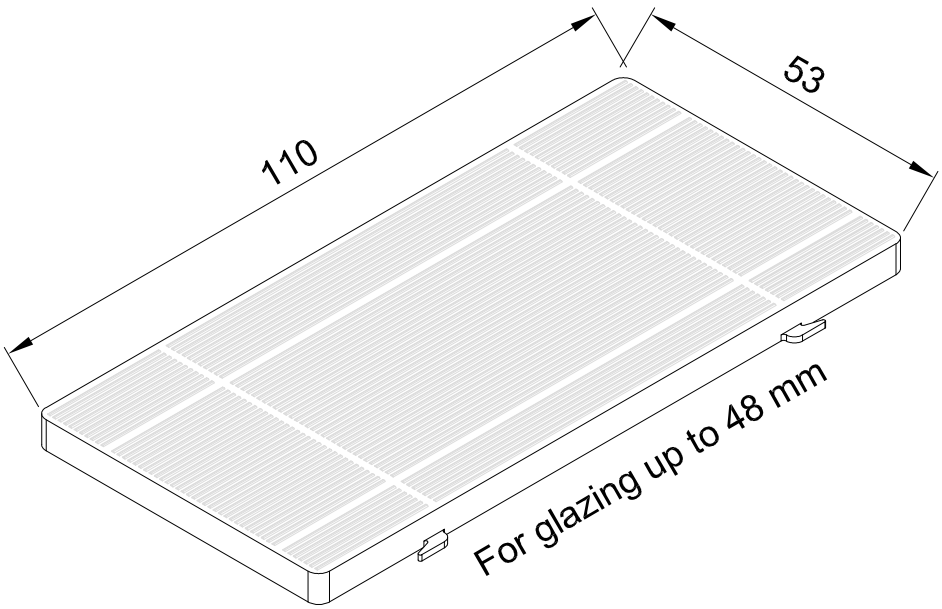
417 121
1 mm grey
417 122
2 mm red
417 123
3 mm green
417 124
4 mm yellow
417 125
5 mm blue




417 141
1 mm grey
417 142
2 mm red
417 143
3 mm green
417 144
4 mm yellow
417 145
5 mm blue




417 171
1 mm grey
417 172
2 mm red
417 173
3 mm green
417 174
4 mm yellow
417 175
5 mm blue

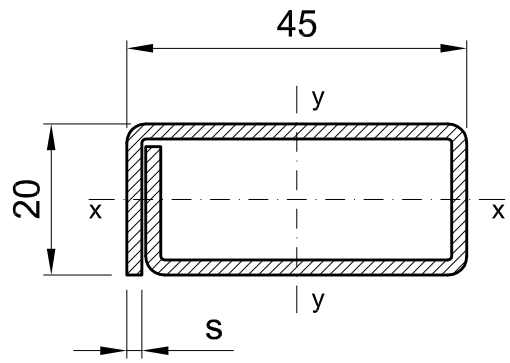





Scale 1:1 (or depending on print-out)

Issue: 11/2015

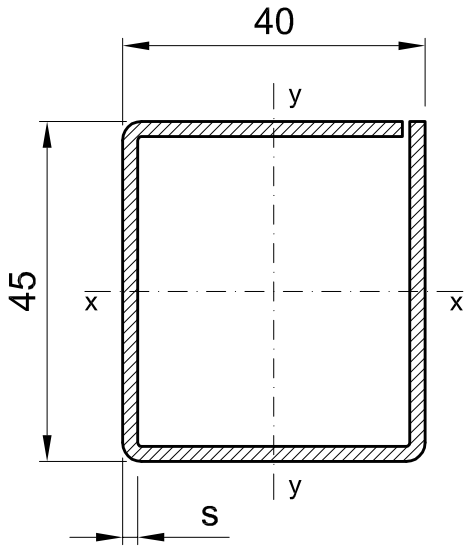
SALAMANDER
WINDOW & DOOR SYSTEMS




## 215 120

| | | |
|---|---|---|
| Model code: | | 74 |
| Weight: | (g/m) | approx.2100 |
| Size s: | (mm) | 2,0 |
| Ix: | ($cm^4$) | 1,60 |
| Iy: | ($cm^4$) | 6,69 |

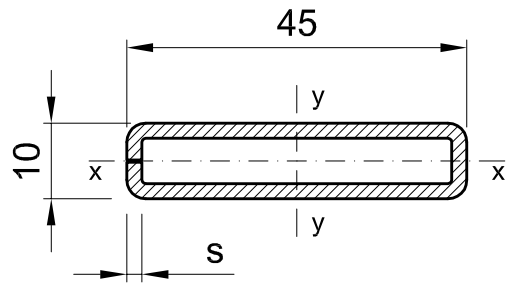
Insert: 172 425, 416 145




## 215 130

| | | |
|---|---|---|
| Model code: | | 74 |
| Weight: | (g/m) | approx.2500 |
| Size s: | (mm) | 2,0 |
| Ix: | ($cm^4$) | 9,42 |
| Iy: | ($cm^4$) | 7,85 |

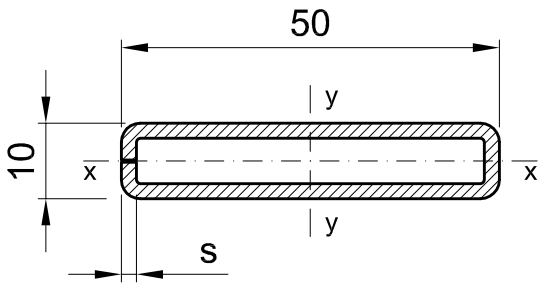
Insert: 476 170




## 405 012

| | | |
|---|---|---|
| Model code: | | 74 |
| Weight: | (g/m) | approx.1600 |
| Size s: | (mm) | 2,0 |
| Ix: | ($cm^4$) | 0,29 |
| Iy: | ($cm^4$) | 3,87 |

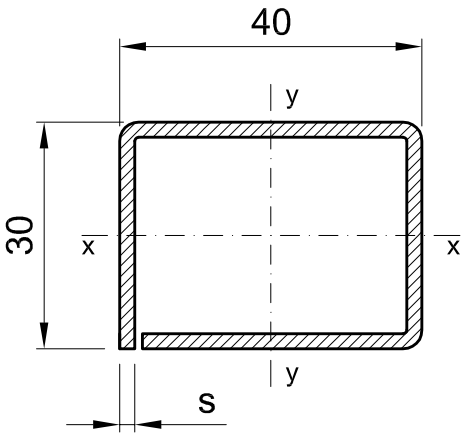
Insert: 176 020




## 405 015

| | | | |
|---|---|---|---|
| Model code: | | 73 | 74 |
| Weight: | (g/m) | approx.1300 | approx.1700 |
| Size s: | (mm) | 1,5 | 2,0 |
| Ix: | ($cm^4$) | 0,27 | 0,32 |
| Iy: | ($cm^4$) | 4,06 | 5,20 |

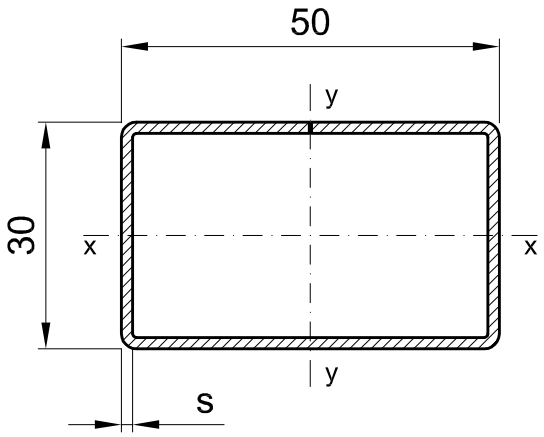
Insert: 176 030




## 405 040

| Model code: | | 73 | 74 |
|---|---|---|---|
| Weight: | (g/m) | approx.1500 | approx.2000 |
| Size s: | (mm) | 1,5 | 2,0 |
| Ix: | ($cm^4$) | 2,85 | 3,61 |
| Iy: | ($cm^4$) | 4,46 | 5,68 |

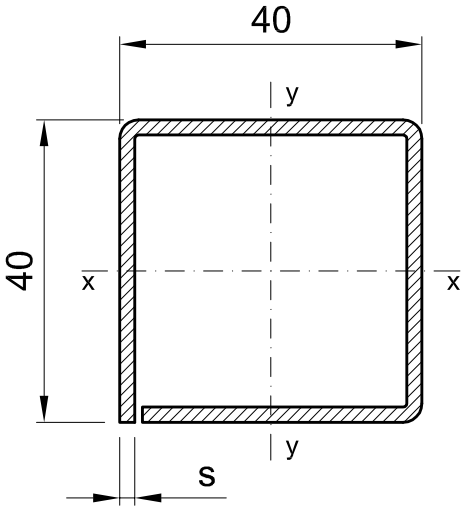
Insert: 406 010




## 405 050

| Model code: | | 73 |
|---|---|---|
| Weight: | (g/m) | approx.1800 |
| Size s: | (mm) | 1,5 |
| Ix: | ($cm^4$) | 3,47 |
| Iy: | ($cm^4$) | 7,61 |

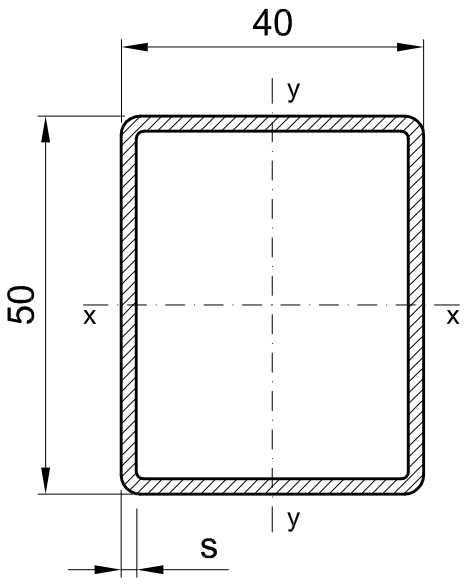
Insert: 406 265




## 405 060

| Model code: | | 73 | 74 |
|---|---|---|---|
| Weight: | (g/m) | approx.1800 | approx.2300 |
| Size s: | (mm) | 1,5 | 2,0 |
| Ix: | ($cm^4$) | 5,57 | 7,13 |
| Iy: | ($cm^4$) | 5,57 | 7,12 |

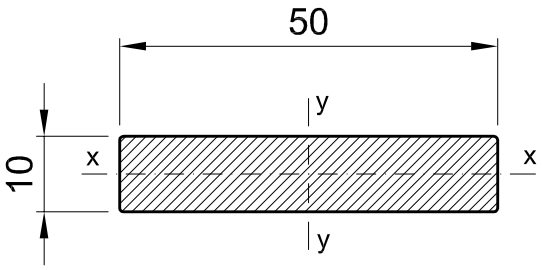
Insert: 416170, 416 176, 461 210




## 405 065

| Model code: | | 74 |
|---|---|---|
| Weight: | (g/m) | approx.2700 |
| Size s: | (mm) | 2,0 |
| Ix: | ($cm^4$) | 12,19 |
| Iy: | ($cm^4$) | 8,61 |

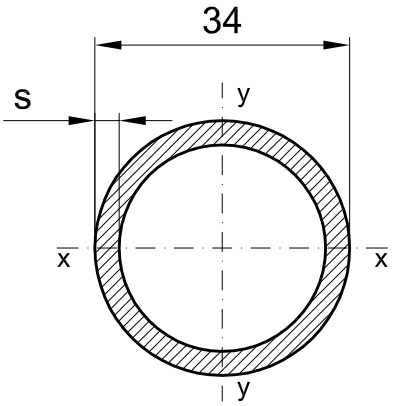
Insert: 171 030




## 405 125

| | | |
|---|---|---|
| Model code: | | - |
| Weight: | (g/m) | approx.3900 |
| Size s: | (mm) | 10 |
| Ix: | ($cm^4$) | 0,42 |
| Iy: | ($cm^4$) | 10,41 |

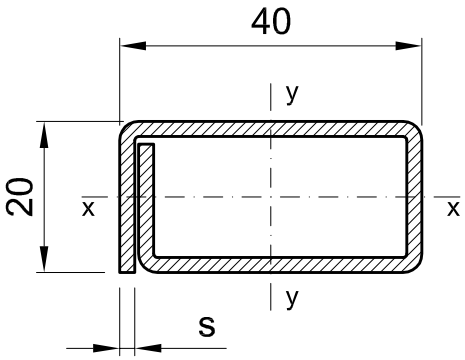
Insert: 176 030




## 415 016

| | | |
|---|---|---|
| Model code: | | - |
| Weight: | (g/m) | approx.2000 |
| Size s: | (mm) | 3,20 |
| Ix: | ($cm^4$) | 3,60 |
| Iy: | ($cm^4$) | 3,60 |

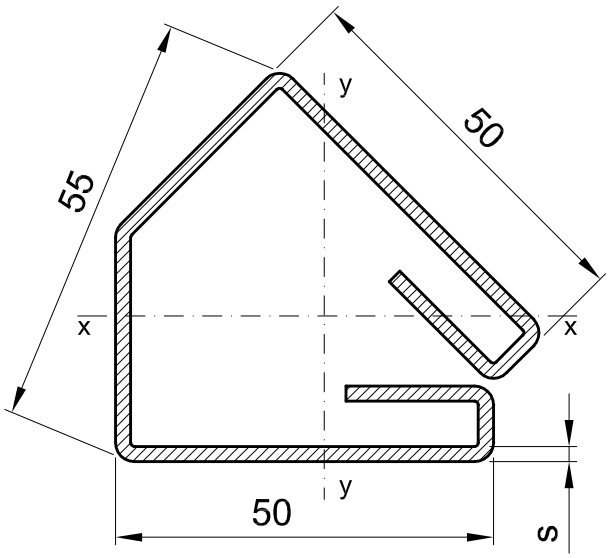
Insert: 416 250




## 415 020

| | | |
|---|---|---|
| Model code: | | 74 |
| Weight: | (g/m) | approx.1900 |
| Size s: | (mm) | 2,0 |
| Ix: | ($cm^4$) | 1,44 |
| Iy: | ($cm^4$) | 4,95 |

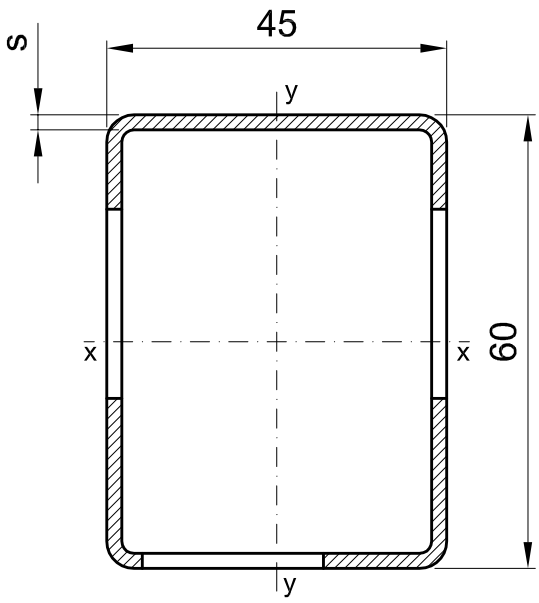
Insert: 172 420, 416 164




## 415 140

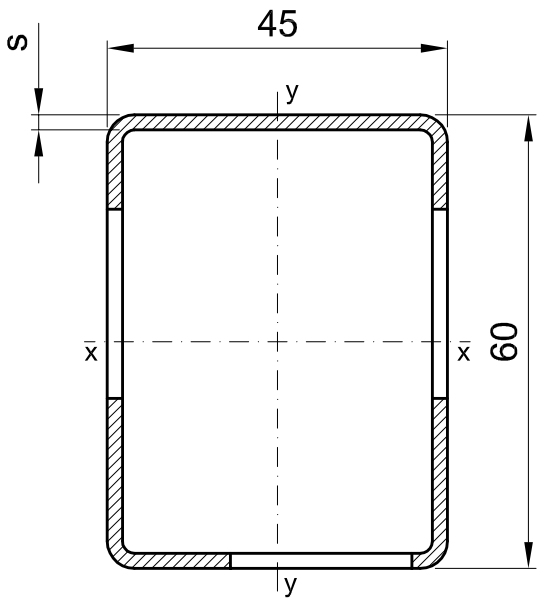
| | | |
|---|---|---|
| Model code: | | 74 |
| Weight: | (g/m) | approx.3200 |
| Size s: | (mm) | 3,20 |
| Ix: | ($cm^4$) | 10,20 |
| Iy: | ($cm^4$) | 12,93 |

Insert: 416 240




415 055 Backset 55

171 040 DIN left
371 040 DIN left



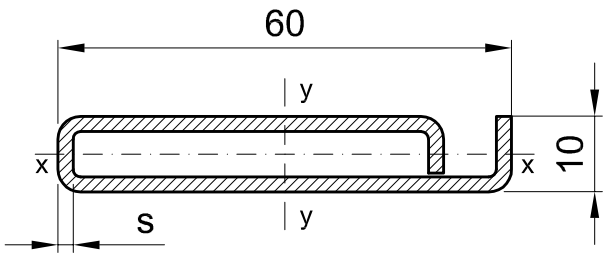

415 056 Backset 55

171 040 DIN right
371 040 DIN right

## 415 055 / 415 056

| | | |
|---|---|---|
| Model code: | | 74 |
| Weight: | (g/m) | approx.3100 |
| Size s: | (mm) | 2,0 |
| Ix: | ($cm^4$) | 20,22 |
| Iy: | ($cm^4$) | 12,96 |

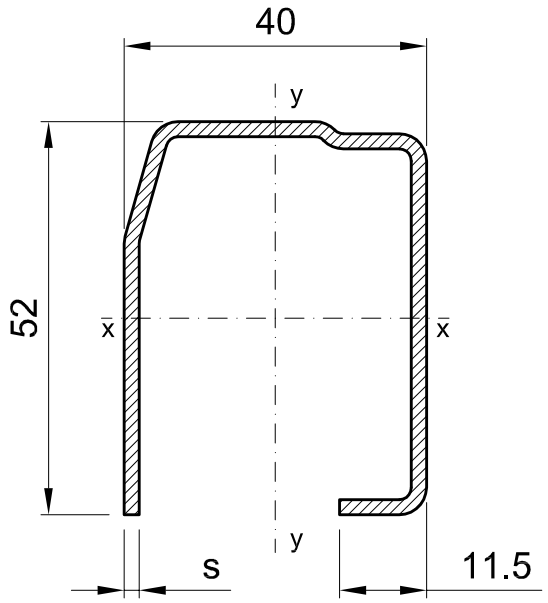
Insert: 171 040, 371 040




## 415 173

| | | |
|---|---|---|
| Model code: | | 74 |
| Weight: | (g/m) | approx.2000 |
| Size s: | (mm) | 2,0 |
| Ix: | ($cm^4$) | 0,36 |
| Iy: | ($cm^4$) | 8,29 |

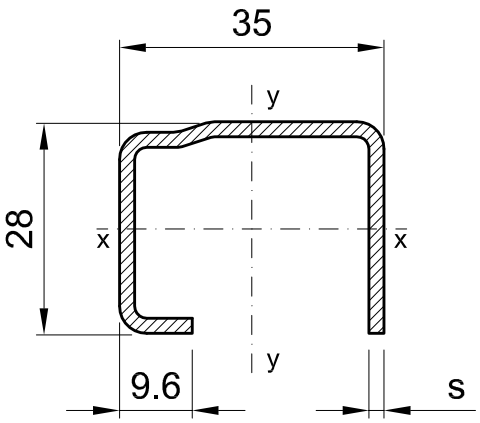
Insert: 416 054, 416 272, 476 055




## 455 030

| | | |
|---|---|---|
| Model code: | | 74 |
| Weight: | (g/m) | approx.2000 |
| Size s: | (mm) | 2,0 |
| Ix: | ($cm^4$) | 8,86 |
| Iy: | ($cm^4$) | 7,87 |

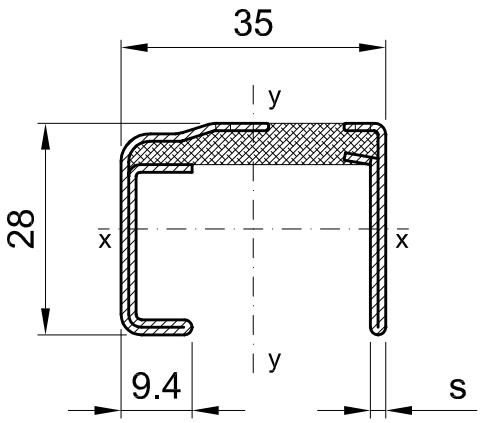
Insert: 171 030




## 455 230

| | | | |
|---|---|---|---|
| Model code: | | 73 | 74 |
| Weight: | (g/m) | approx.1100 | approx.1400 |
| Size s: | (mm) | 1,5 | 2,0 |
| Ix: | ($cm^4$) | 1,34 | 1,67 |
| Iy: | ($cm^4$) | 2,77 | 3,49 |

Insert: 170 420, 170 430, 171 020, 171 226

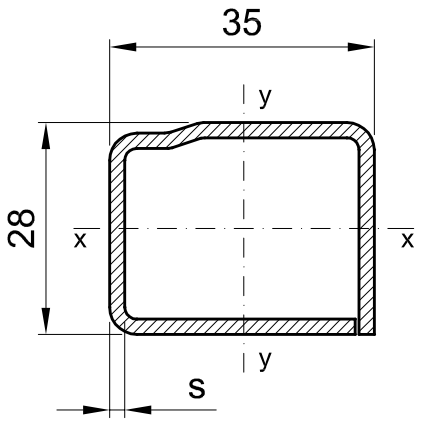



## 455 231

Reinforcement galvanizes /
thermal composite of polyurethane

| | | |
|---|---|---|
| Model code: | | 74 |
| Weigth: | (g/m) | approx.1300 |
| Size s: | (mm) | 2,0 |
| Ix: | ($cm^4$) | 1,93 |
| Iy: | ($cm^4$) | 4,55 |

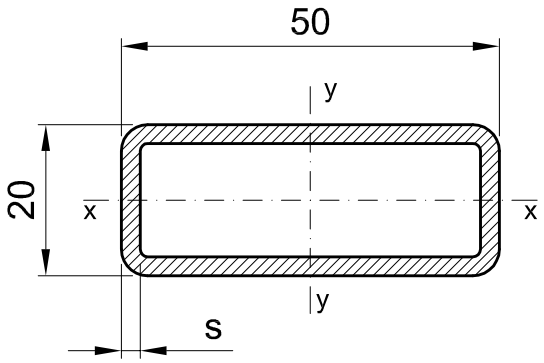
Insert: 170 420, 170 430, 171 020, 171 226




## 455 235

| Model code: | | 73 | 74 |
|---|---|---|---|
| Weigth: | (g/m) | approx.1400 | approx.1800 |
| Size s: | (mm) | 1,5 | 2,0 |
| Ix: | ($cm^4$) | 2,08 | 2,60 |
| Iy: | ($cm^4$) | 2,99 | 3,75 |

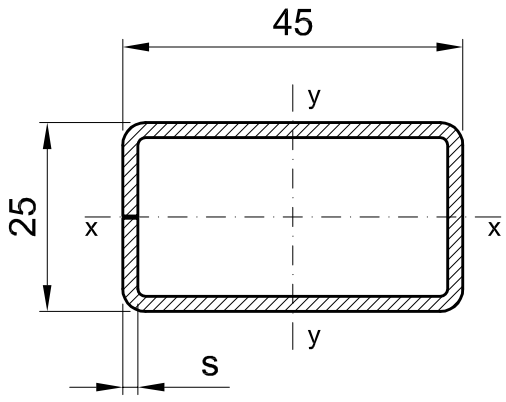
Insert: 170 420, 170 430, 171 020




## 475 021

| Model code: | | 75 |
|---|---|---|
| Weigth: | (g/m) | approx.2500 |
| Size s: | (mm) | 2,5 |
| Ix: | ($cm^4$) | 1,98 |
| Iy: | ($cm^4$) | 8,87 |

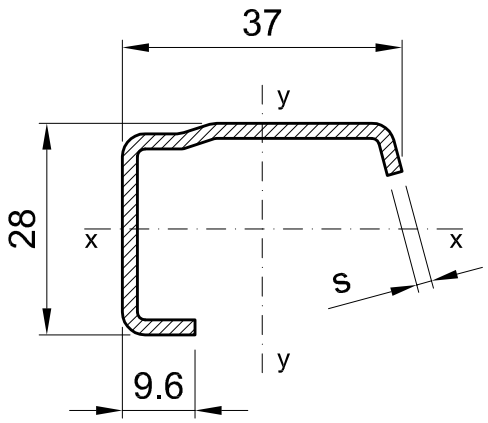
Insert: 172 421




## 475 045

| Model code: | | 74 |
|---|---|---|
| Weigth: | (g/m) | approx.2000 |
| Size s: | (mm) | 2,0 |
| Ix: | ($cm^4$) | 2,60 |
| Iy: | ($cm^4$) | 6,60 |

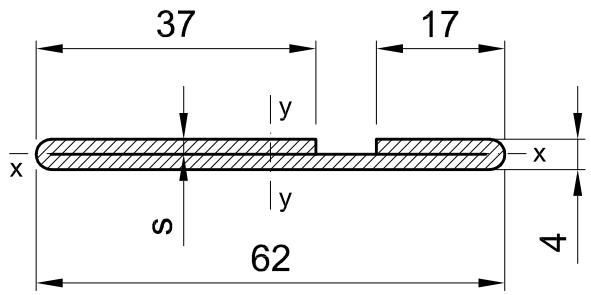
Insert: 176 030




## 475 200

| Model code: | | 73 | 74 |
|---|---|---|---|
| Weigth: | (g/m) | approx.900 | approx.1100 |
| Size s: | (mm) | 1,5 | 2,0 |
| Ix: | ($cm^4$) | 1,08 | 1,33 |
| Iy: | ($cm^4$) | 1,67 | 2,08 |

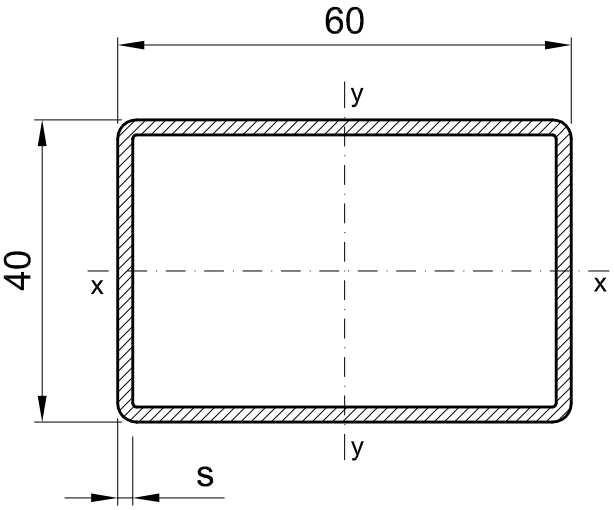
Insert: 170 420, 170 430, 171 020, 171 226




## 475 192

| | | |
|---|---|---|
| Model code: | | 74 |
| Weight: | (g/m) | approx.1800 |
| Size s: | (mm) | 2,0 |
| Ix: | ($cm^4$) | 0,03 |
| Iy: | ($cm^4$) | 7,44 |

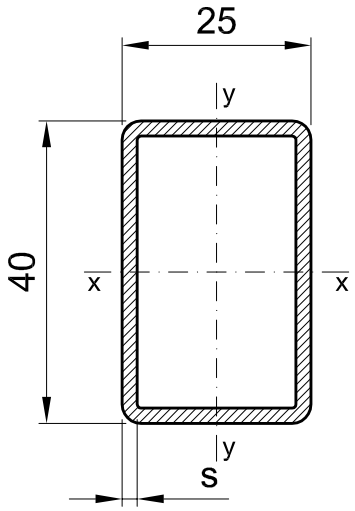
Insert: for all casement with BT 92 mm




## AR4630

| | | |
|---|---|---|
| Model code: | | 74 |
| Weight: | (g/m) | approx.3000 |
| Size s: | (mm) | 2,0 |
| Ix: | ($cm^4$) | 10,03 |
| Iy: | ($cm^4$) | 18,87 |

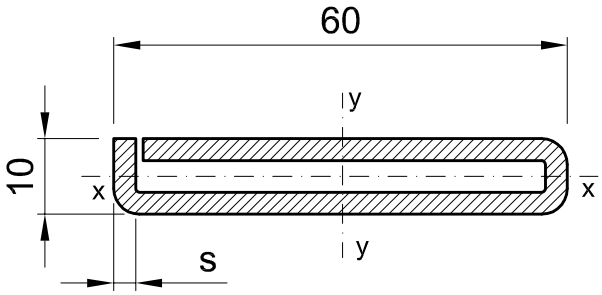
Insert: ZF0710




## VS3020

| | | |
|---|---|---|
| Model code: | | 74 |
| Weight: | (g/m) | approx.1900 |
| Size s: | (mm) | 2,0 |
| Ix: | ($cm^4$) | 4,97 |
| Iy: | ($cm^4$) | 2,36 |

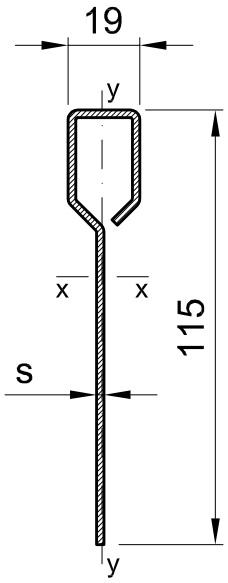
Insert: 476 164




## VS 0130

| | | |
|---|---|---|
| Model code: | | - |
| Weight: | (g/m) | approx.2800 |
| Size s: | (mm) | 2,9 |
| Ix: | ($cm^4$) | 0,44 |
| Iy: | ($cm^4$) | 11,59 |

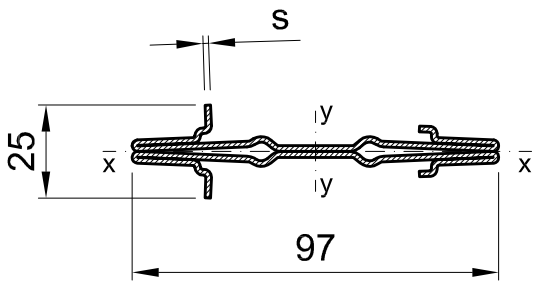
Insert: 476 273




## 415 167

| | | |
|---|---|---|
| Model code: | | 74 |
| Weight: | (g/m) | approx.2571 |
| Size s: | (mm) | 2,0 |
| Ix: | ($cm^4$) | 40,38 |
| Iy: | ($cm^4$) | 0,86 |

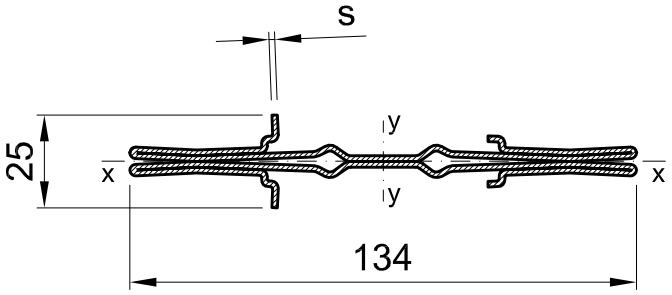
Insert: Coupling




## 405 165

| | | |
|---|---|---|
| Model code: | | 73 |
| Weight: | (g/m) | approx.3500 |
| Size s: | (mm) | 1,5 |
| Ix: | ($cm^4$) | 0,59 |
| Iy: | ($cm^4$) | 43,03 |

Insert: Coupling




## 405 175

| | | |
|---|---|---|
| Model code: | | 73 |
| Weight: | (g/m) | approx.6600 |
| Size s: | (mm) | 1,5 |
| Ix: | ($cm^4$) | 0,50 |
| Iy: | ($cm^4$) | 117,30 |

Insert: Coupling

# Post cruciform coupler set

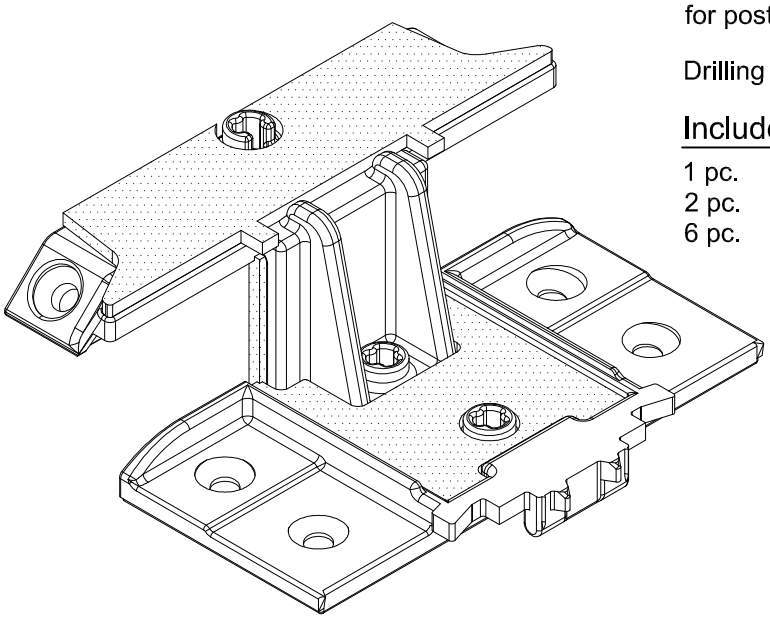
| Post cruciform coupler set | Post coupler set | Sealing block | bE92 03 |
|---|---|---|---|
| **178 020** | **178 030** | **178 820** | **10.1** |

## 178 020

titanium-silver

for post 172 420, 172 421

Drilling template 178 420 (no picture)



### Included in the set:

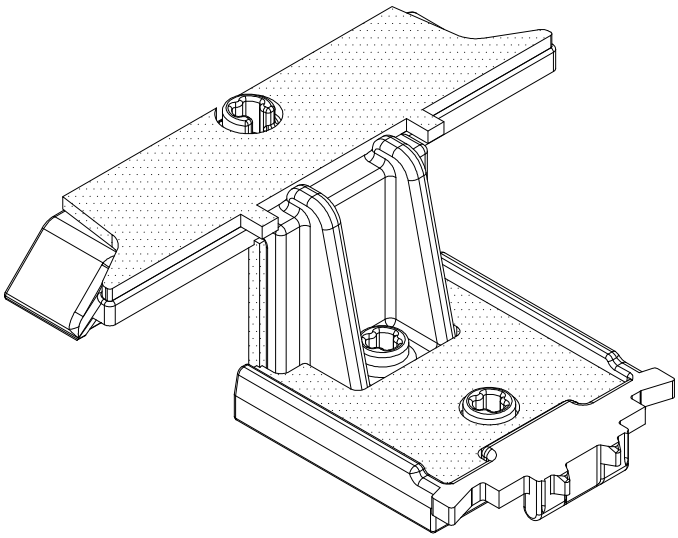
1 pc. post cruciform coupler set
2 pc. window-fitting screws 4,3 x 30 mm, A2
6 pc. chipboard screw 4,5 x 60 mm

## 178 030

titanium-silver

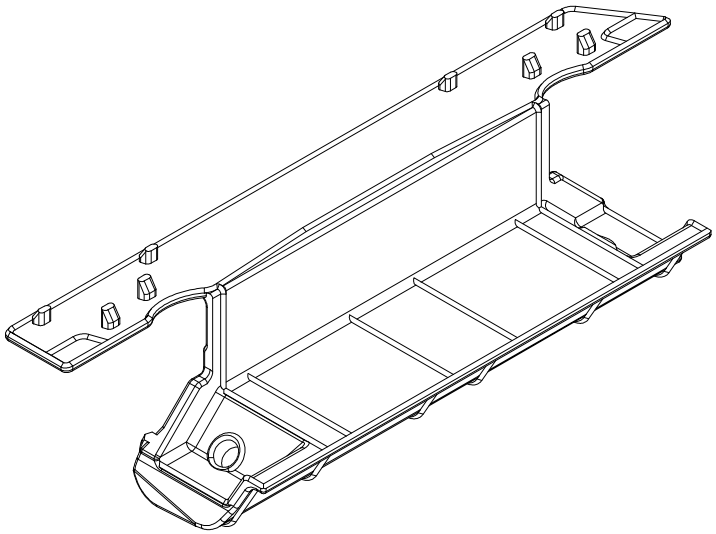
for post 172 420, 172 421

Drilling template 178 420 (no picture)



### Included in the set:

1 pc. post coupler set
6 pc. chipboard screw 4,5 x 60 mm
3 pc. coupling screw 4,5 x 95 mm



## 178 820

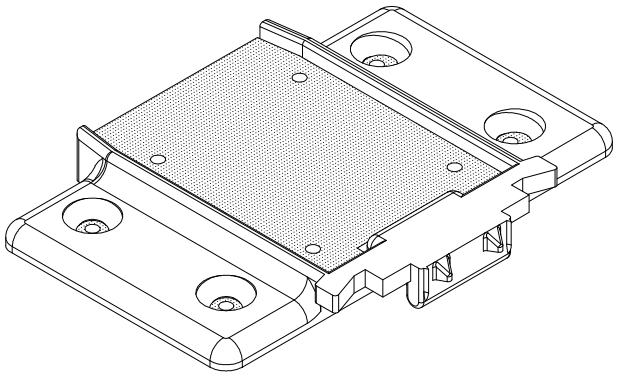
black, light grey

for post cruciform coupler set
178 020, 178 030

(not included in the set)

# Mullion cruciform coupler set

| Mullion cruciform coupler set | Sealing block | bE92 03 |
|---|---|---|
| **178 040** | **178 840** | **10.2** |



## 178 040

titanium-silver

for mullion 172 425

Drilling template 178 440 (no picture)

### Included in the set:

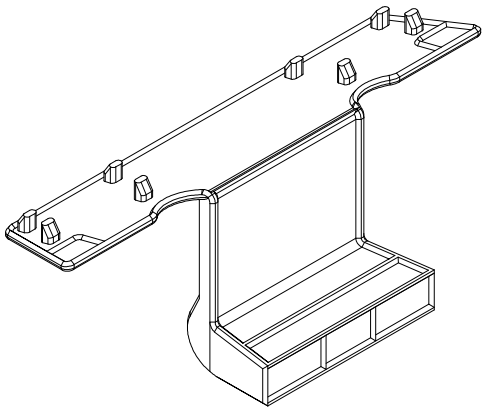
1 pc. mullion cruciform coupler set
4 pc. chipboard screw 4,5 x 60 mm

## 178 840

black / light grey

for mullion cruciform coupler set 178 040

(not included in the set)

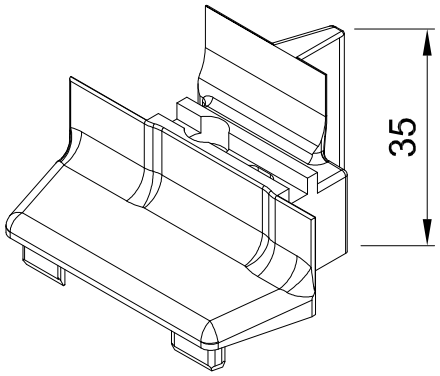


# Overlap cap set

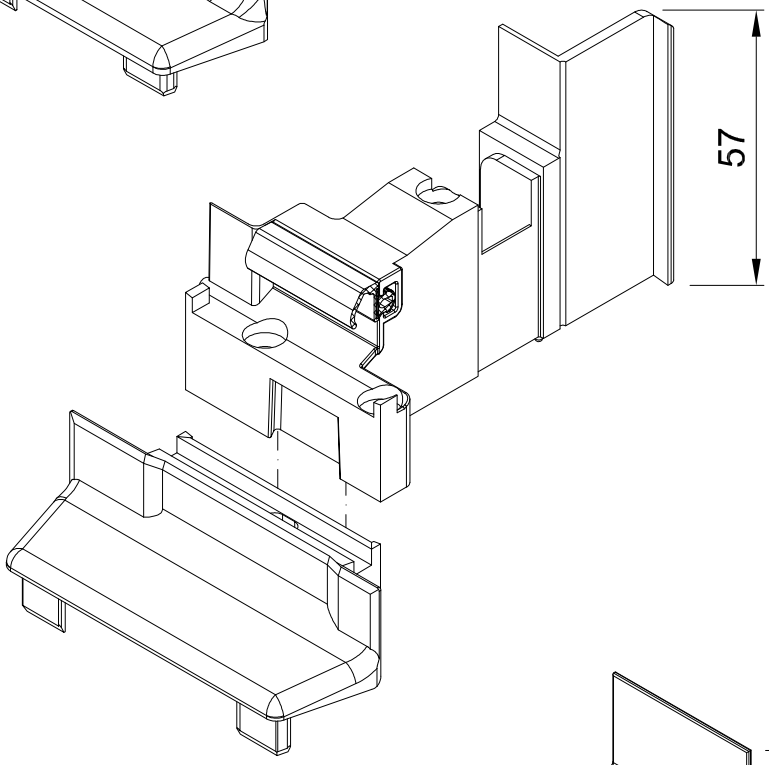
Overlap cap set

**177 010, 177 020, 177 030**

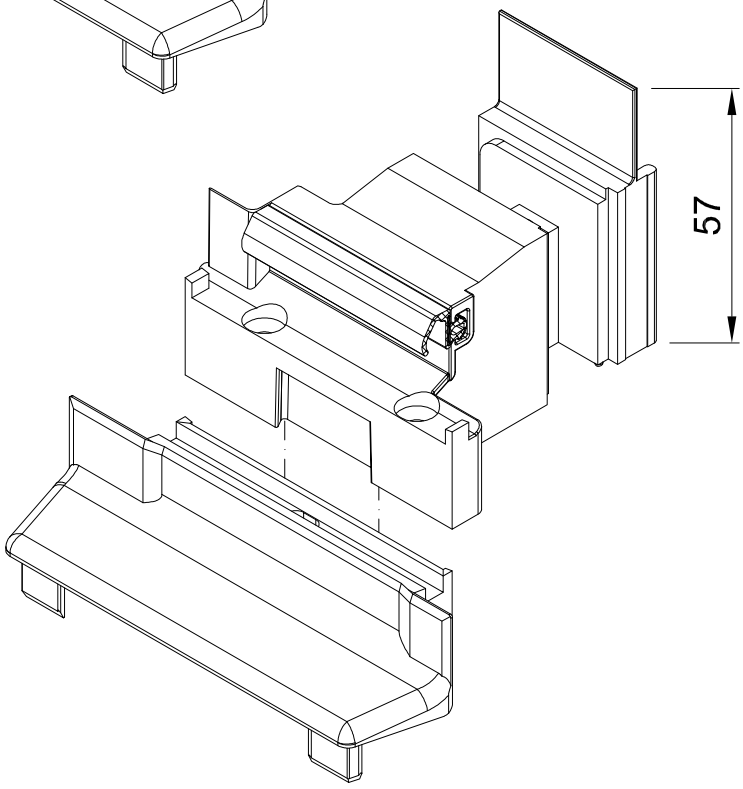





177 010
for 176 010
1-part




177 020
for 176 020
2-part




177 030
for 176 030
2-part



Not to scale

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

## Accessories

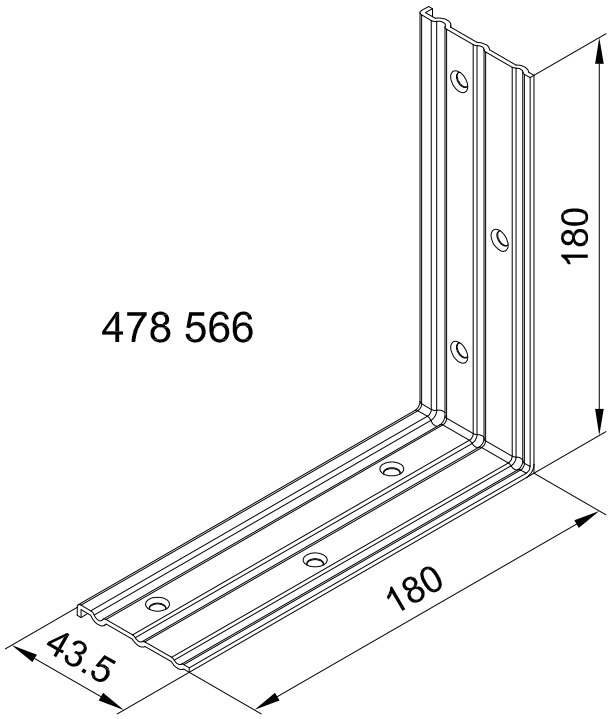
Rebate corner

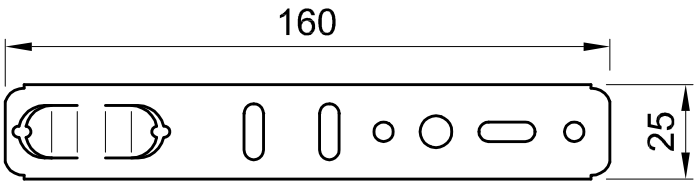
**478 566**

Tie bolt

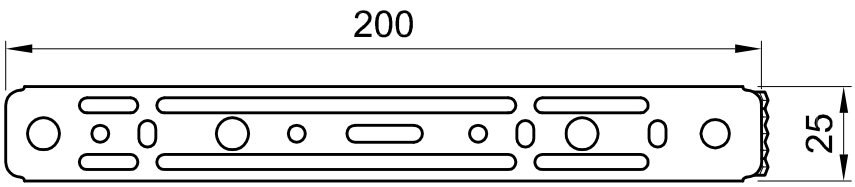
**417 540, 417 545, 417 548, 417 550**



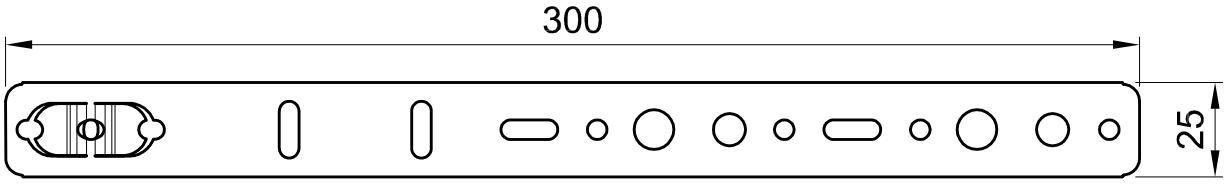


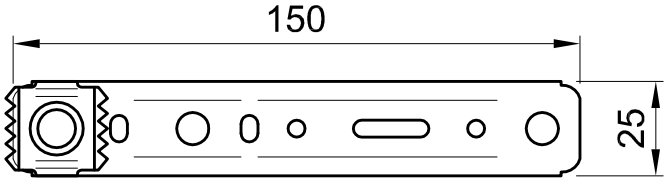

417 540 fixed




417 545 fixed




417 548 fixed

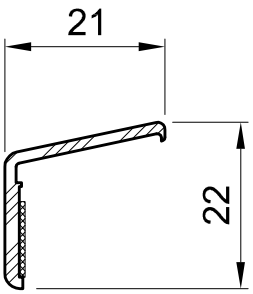



417 550 rotary

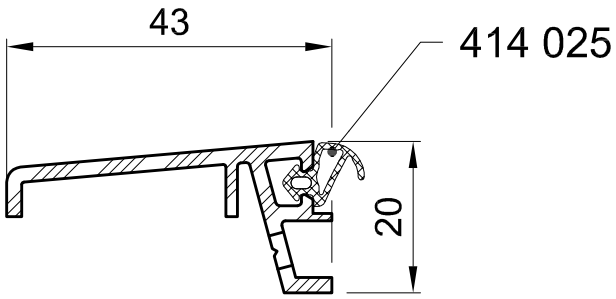
Not to scale



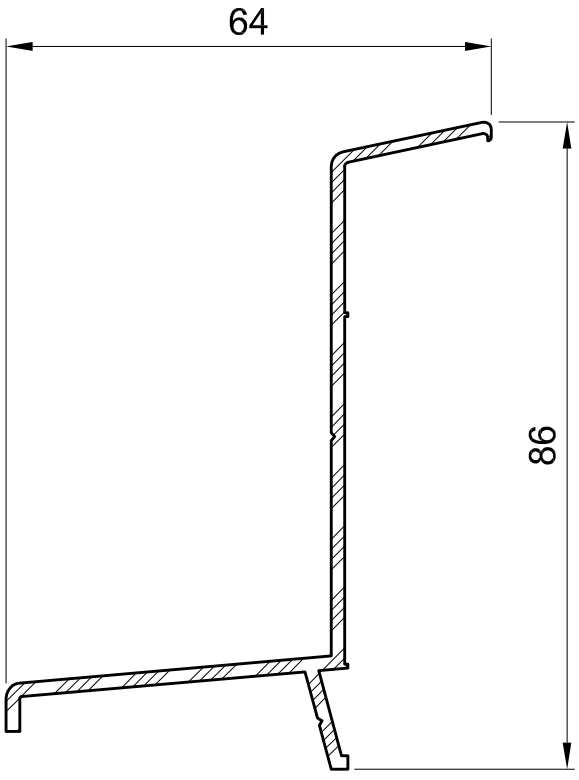
SALAMANDER
WINDOW & DOOR SYSTEMS



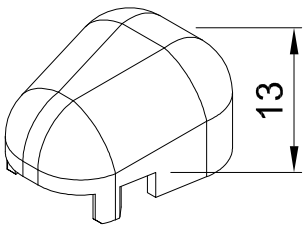

476 620
Step protection
self adhesive



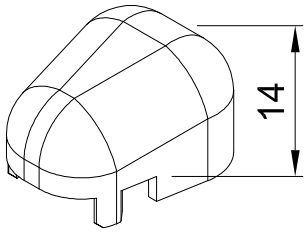

416 615
Step protection



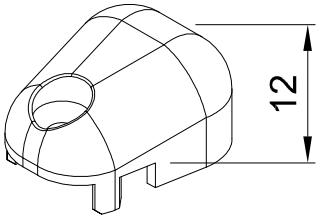

476 615
Step protection



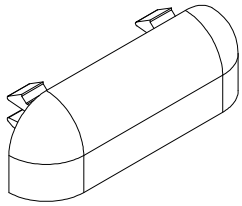

477 010
Transport protection
(red)



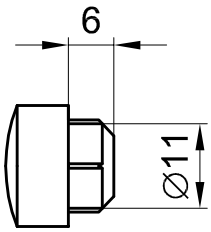

477 012
Transport protection
(green)



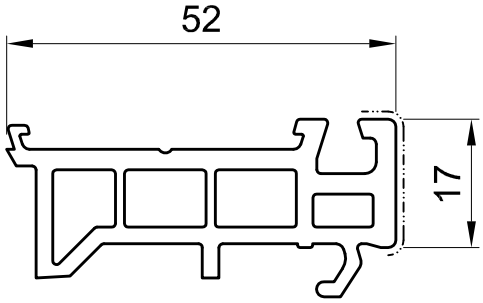

477 015
Run-up wedge



417 022
Water slot cap



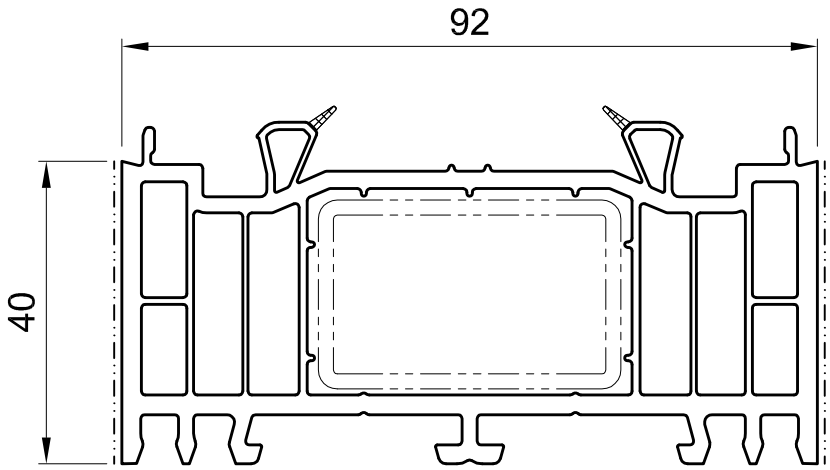

407 025
Tube cap




173 415
Fixed glazing bar

-·-·- Decor

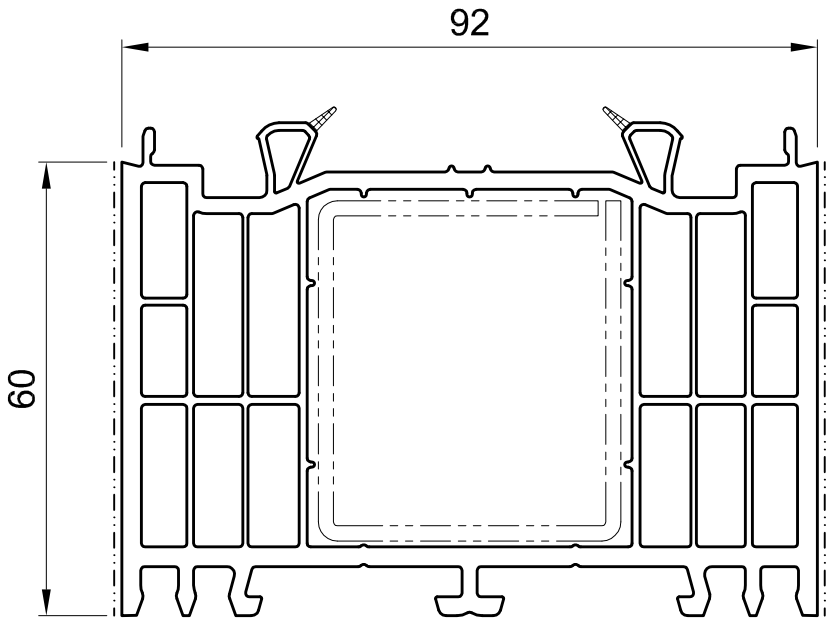
Scale 1:1 (not to scale) (or depending on print-out)




476 164

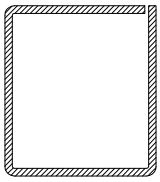
Reinforcement:

VS3020




476 170

Reinforcement:



215 130



-·-·- Decor

Scale 1:1 (1:2) (or depending on print-out)

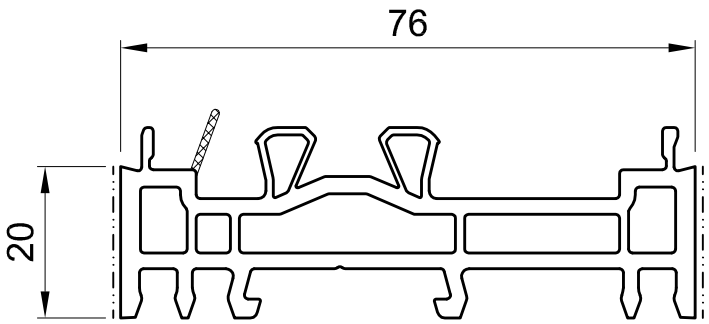


SALAMANDER
WINDOW & DOOR SYSTEMS

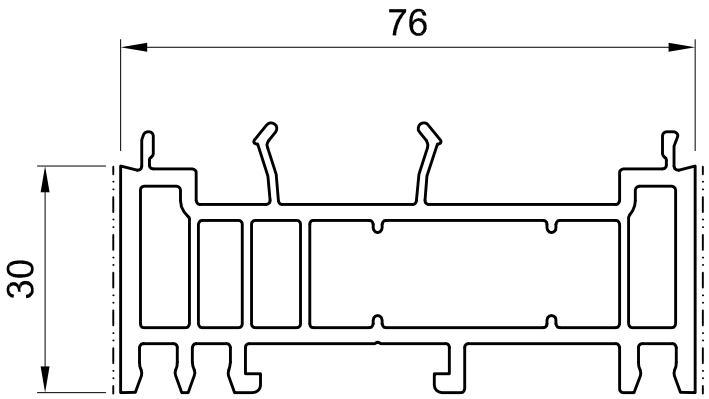
Extension profile

**416 160, 416 163, 416 164**





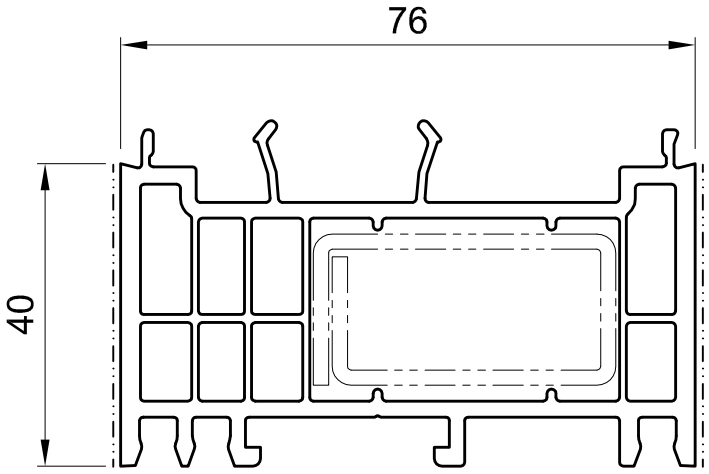

416 160




416 163

Reinforcement:

10 x 40 x X mm
steel, galvanized
purchased from steel trade




416 164

Reinforcement:

415 020



-·-·- Decor

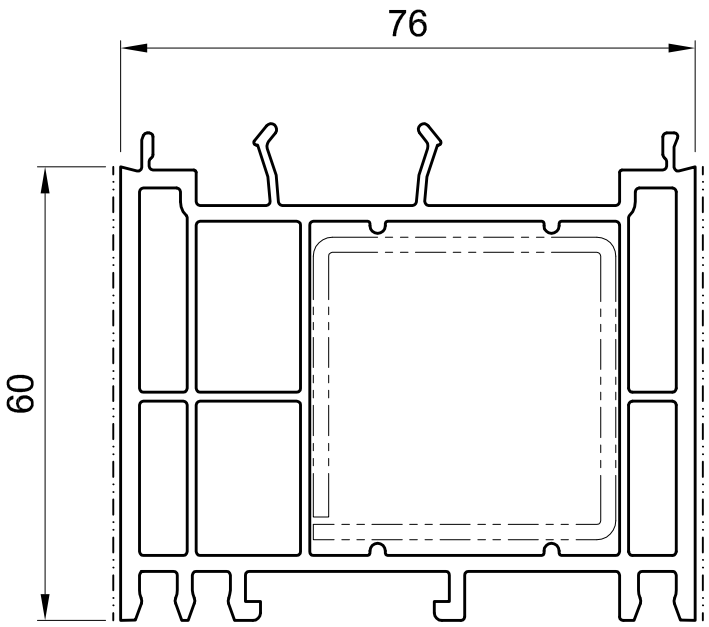
Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

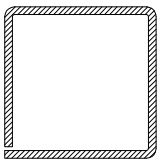
Extension profile

**416 170, 416 176**



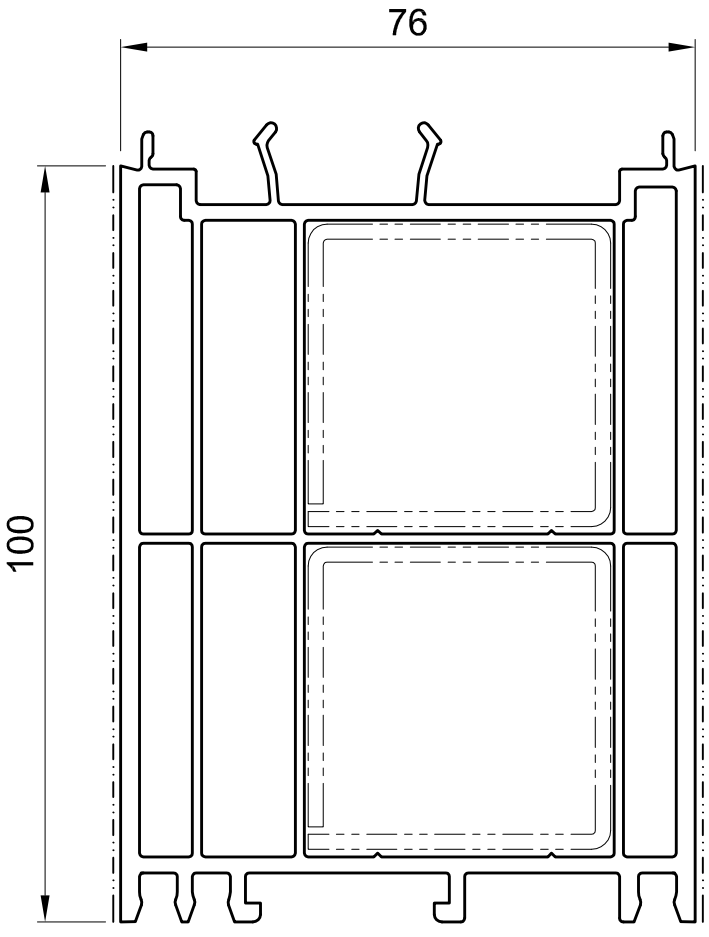



Reinforcement:

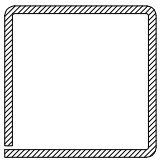


405 060

416 170




Reinforcement:



405 060

416 176



-·-·- Decor

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

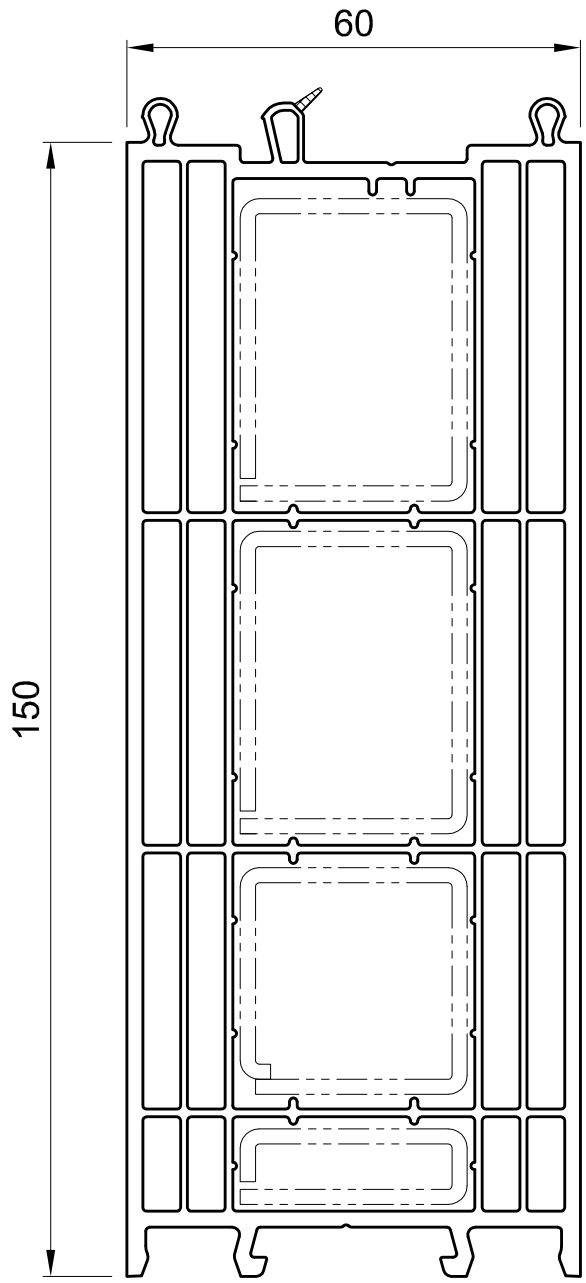
SALAMANDER
WINDOW & DOOR SYSTEMS

Base frame profile

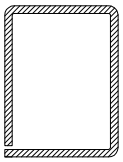
**416 395***

bE92 03

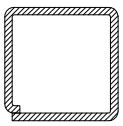
**14.4**




Reinforcement:



405 040



115 036

405 010

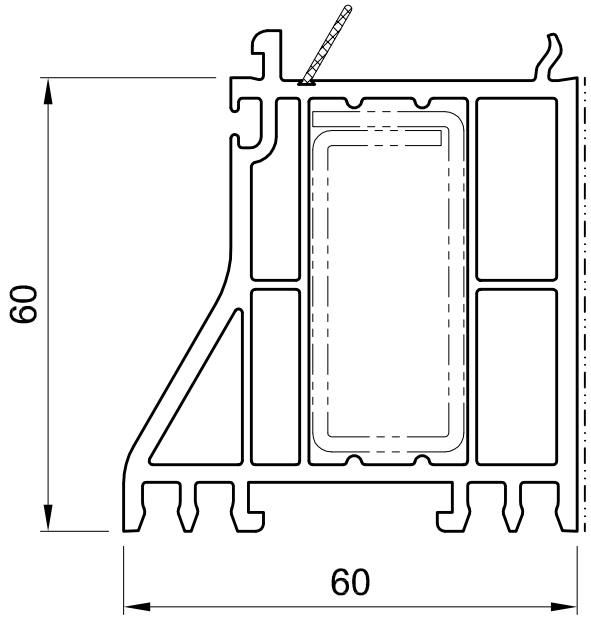


* in preparation

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

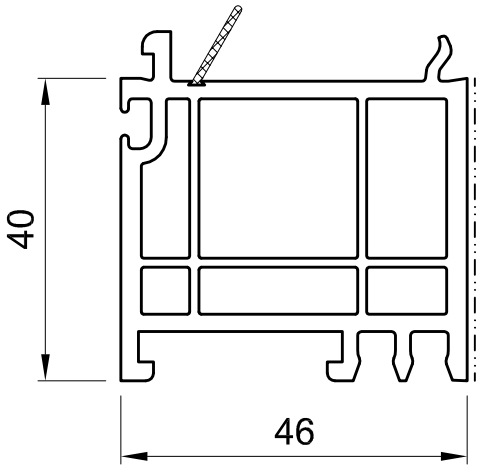
SALAMANDER WINDOW & DOOR SYSTEMS




416 145

Reinforcement:

215 120




416 146

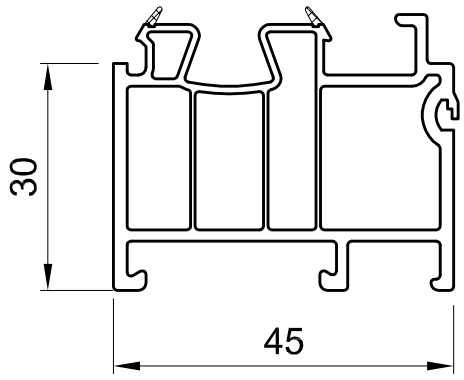
Reinforcement:

20 x 20 x X mm
steel, galvanized
purchased from steel trade

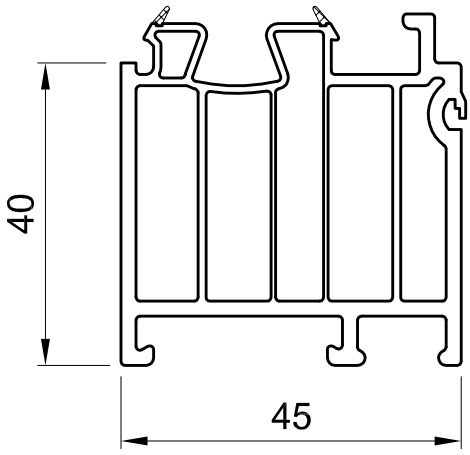
Sill profile

**416 100, 416 106, 416 122, 416 131, 416 134, 416 141**

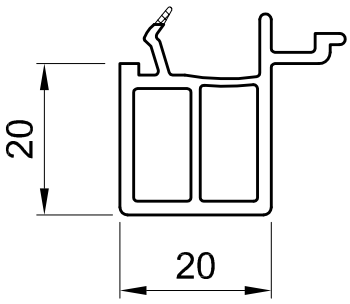




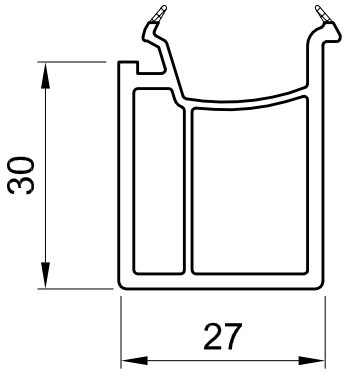

416 106



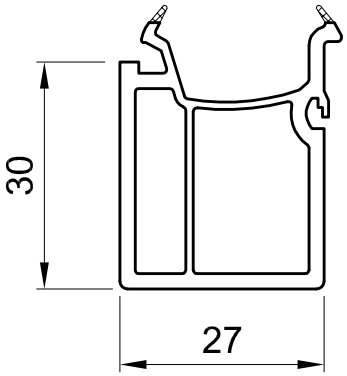

416 100



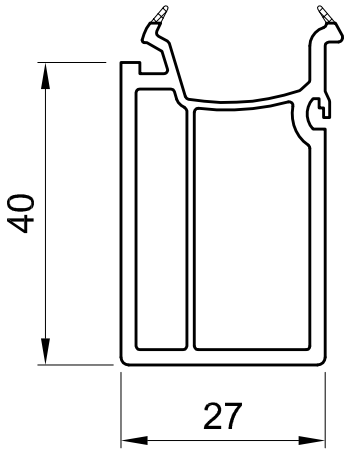

416 122




416 131




416 134




416 141



Scale 1:1 (or depending on print-out)

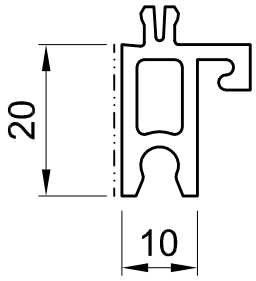
Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

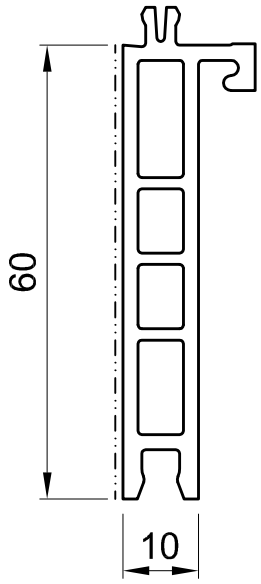
Sill profile

**406 105, 406 115, 406 157**

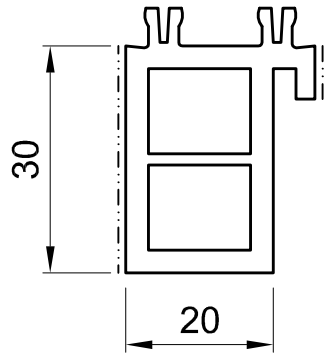




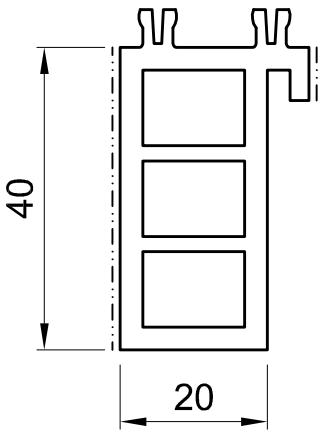

406 105



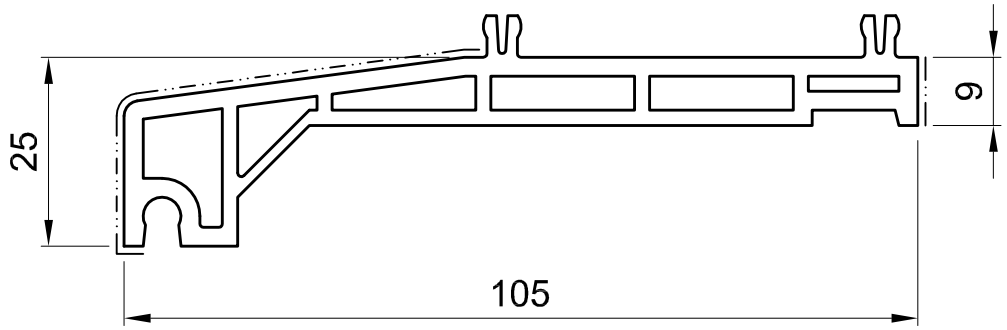

406 157




406 139




406 140




406 115



– ·· — ·· – Decor

Scale 1:1 (or depending on print-out)

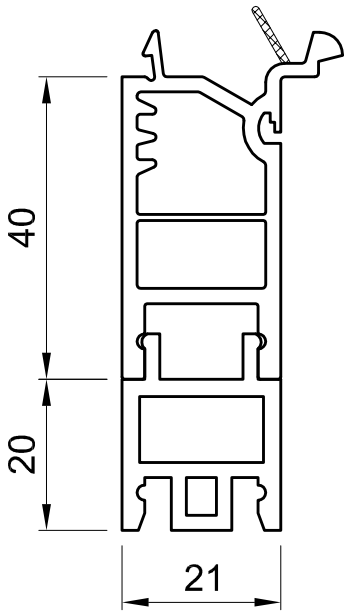
Issue: 11/2015

Stone bank profiles

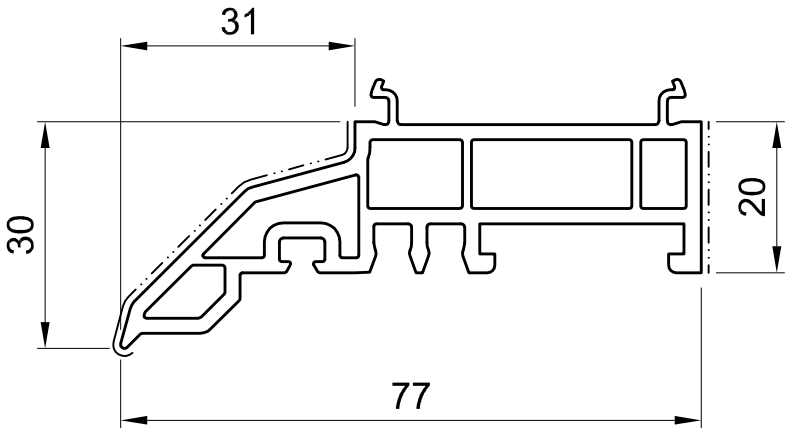
**406 158, 416 126, 416 133, 416 135, 416 142**



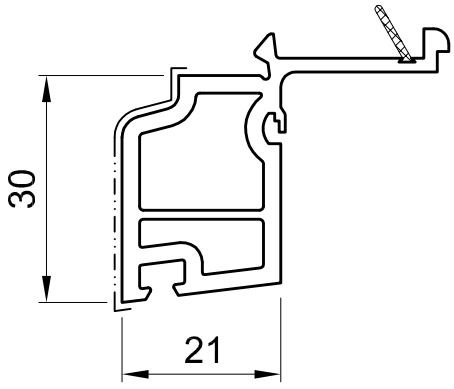
## 416 142



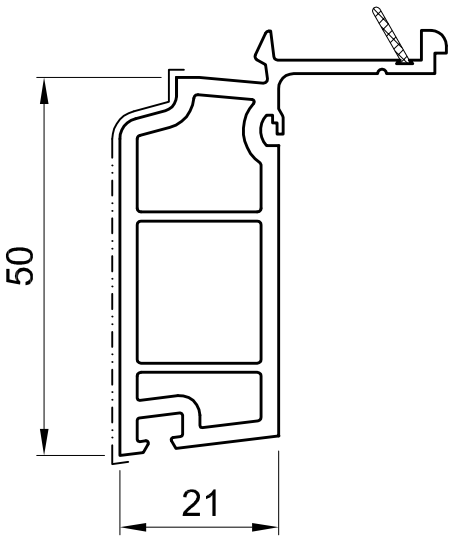

406 158




416 126



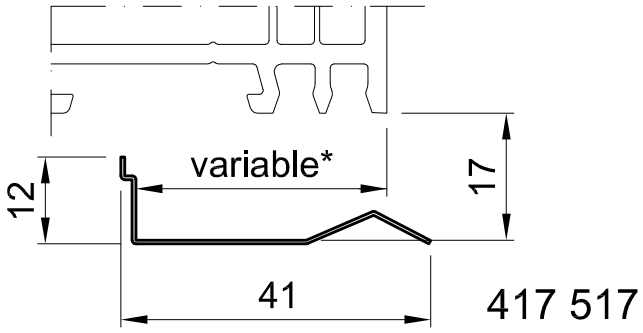

416 133



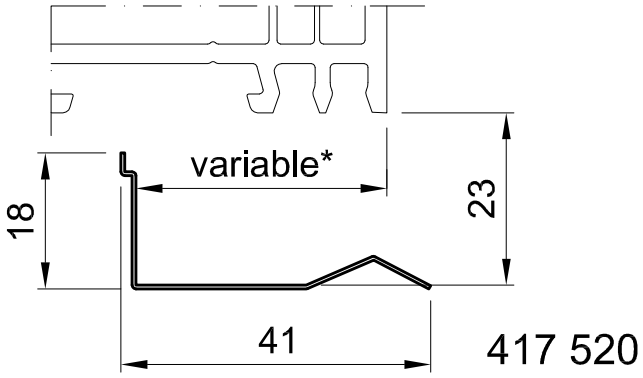

416 135

Decor

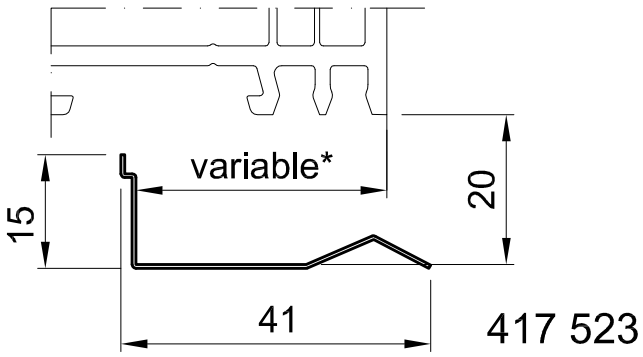
Scale 1:1 (or depending on print-out)



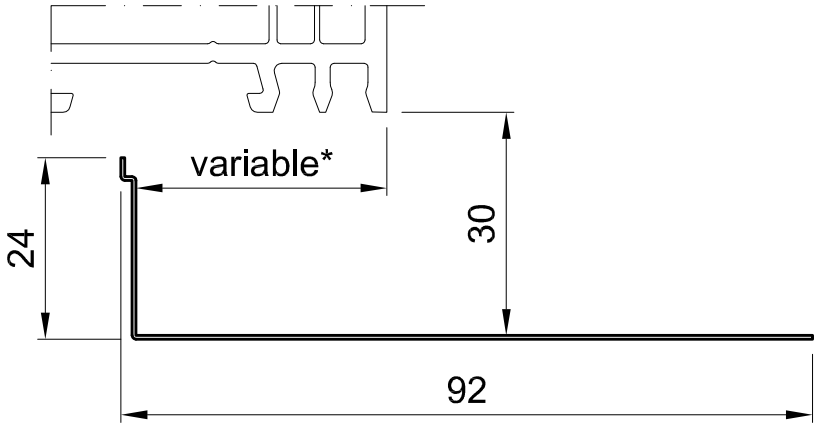

417 517




417 520




417 523




417 530

## Locking clamps for:

416 100
416 133
416 134
416 135
416 141
416 142

* varies depending on the additional profile

Scale 1:1 (or depending on print-out)

Issue: 11/2015

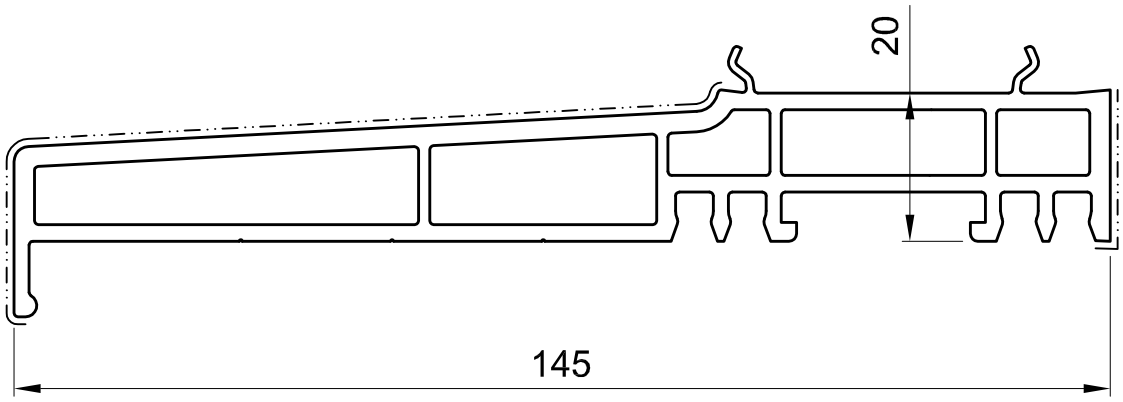


SALAMANDER
WINDOW & DOOR SYSTEMS

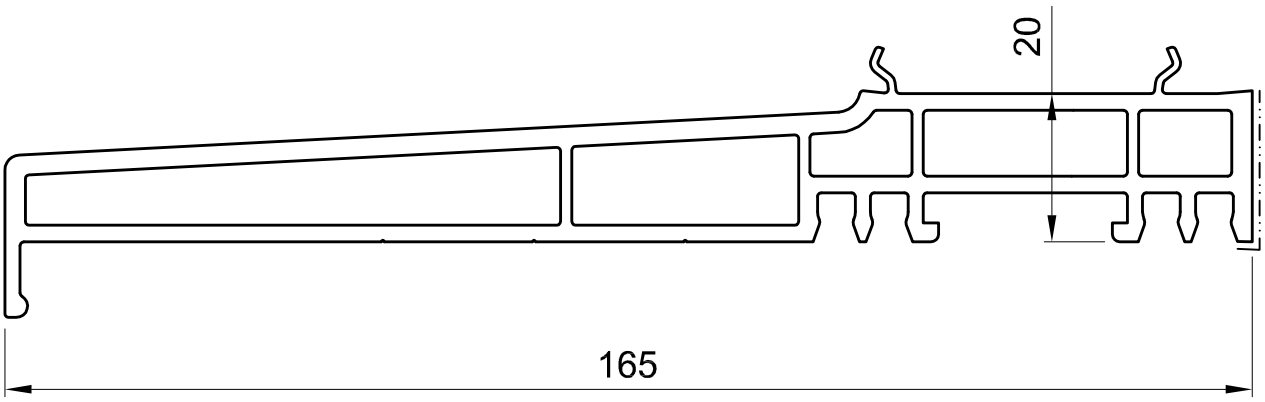
Window sill

**416 110, 416 115, 417 115**

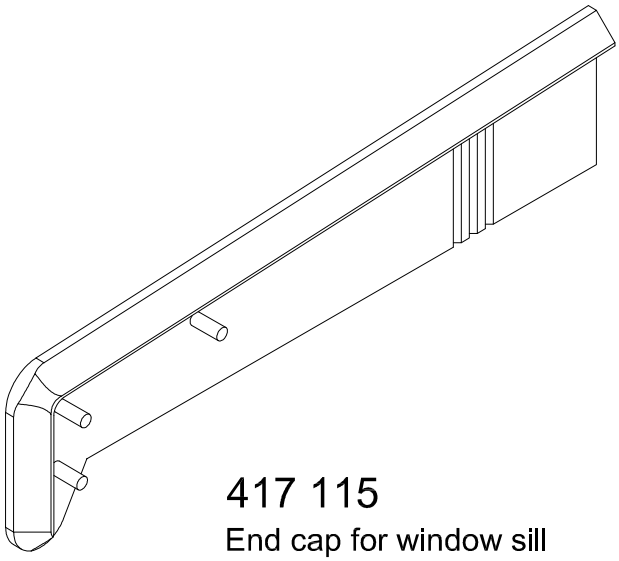





416 110




416 115



417 115

End cap for window sill
416 110 and 416 115

-·-·- Decor

Scale 1:1 (or depending on print-out)

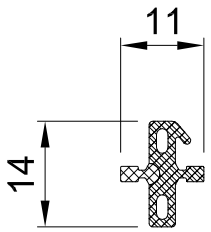
Coupling profiles

**414 915, 406 255, 416 264, 416 267**

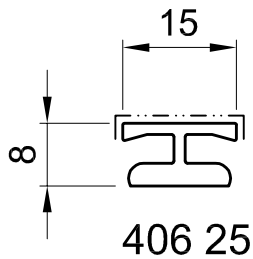
Spacer

**416 265, 416 268**

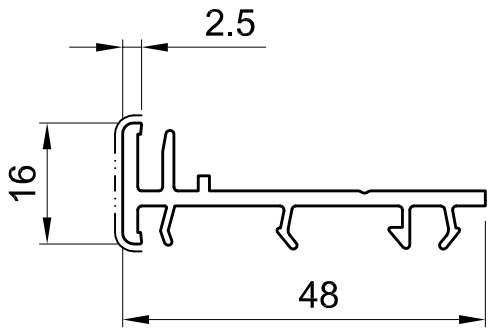




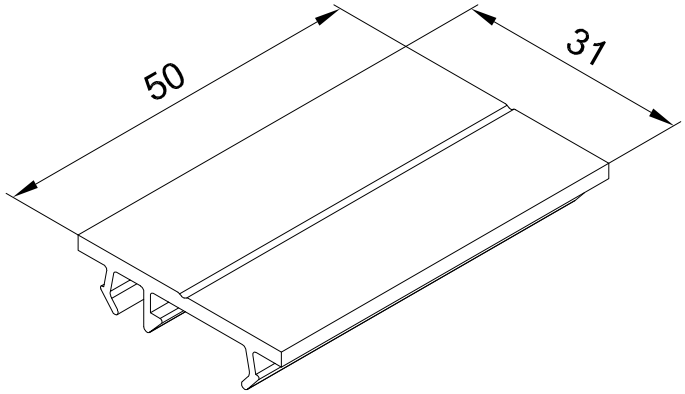

414 915



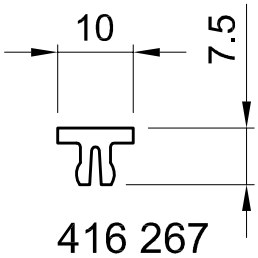

406 255



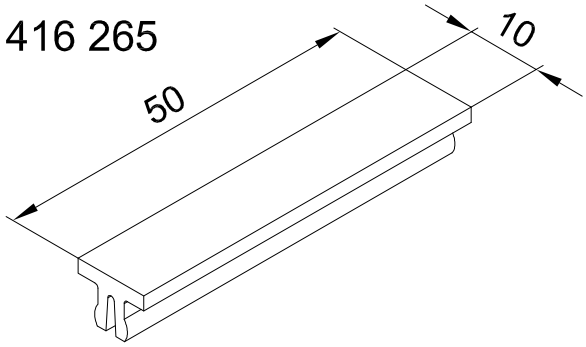

416 264



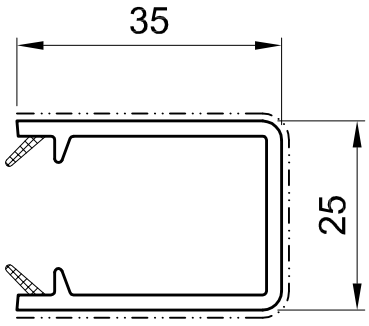

416 265




416 267

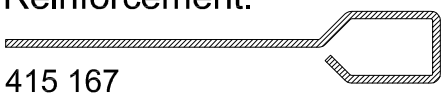



416 268




ZF2110

Reinforcement:



415 167

-·-·- Decor

Scale 1:1 (or depending on print-out)

Issue: 11/2015

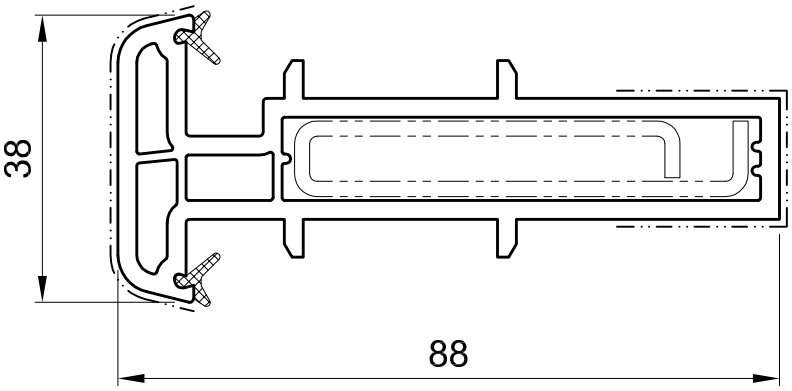


SALAMANDER
WINDOW & DOOR SYSTEMS

Coupling profile

**416 272, 476 273**

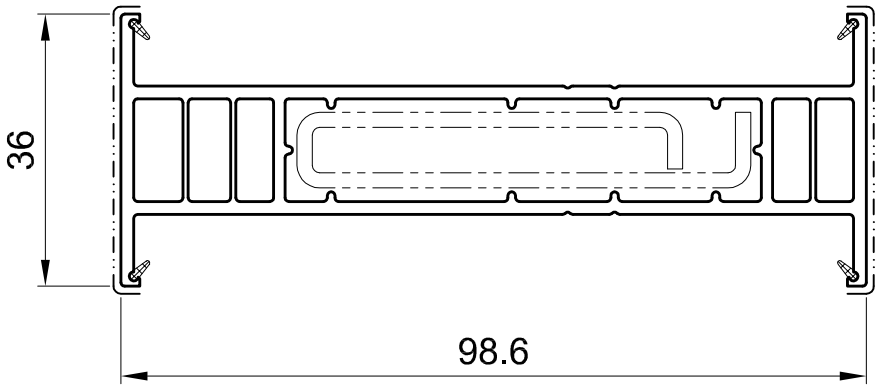





416 272

Reinforcement:

415 173




476 273

Reinforcement:

VS0130



Decor

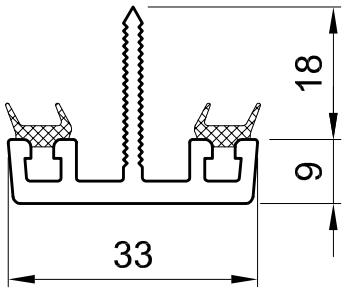
Scale 1:1 (or depending on print-out)

Issue: 11/2015

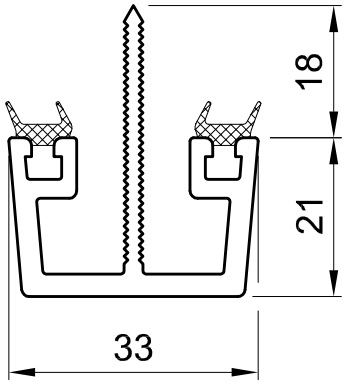
Cover up with gasket
**406 280, 406 285, 406 290**

Decor cover cap without gasket
**406 281, 406 286, 406 295**

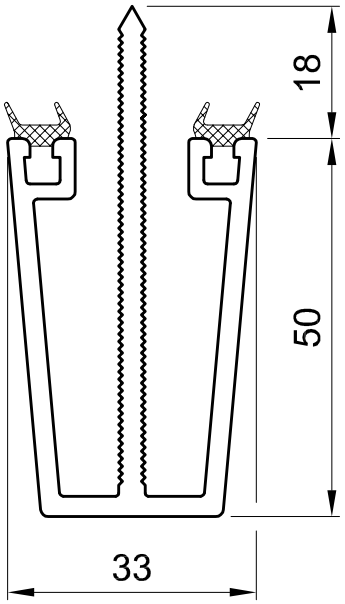




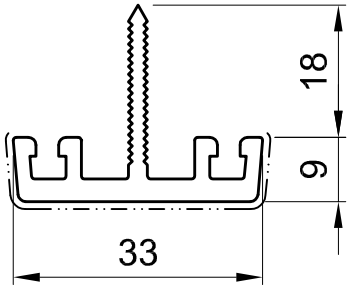

406 280



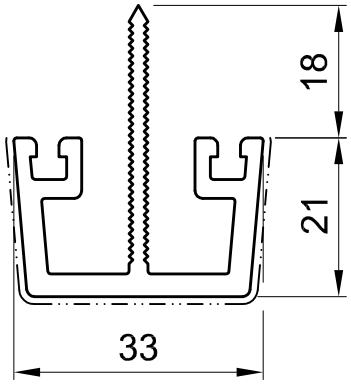

406 285



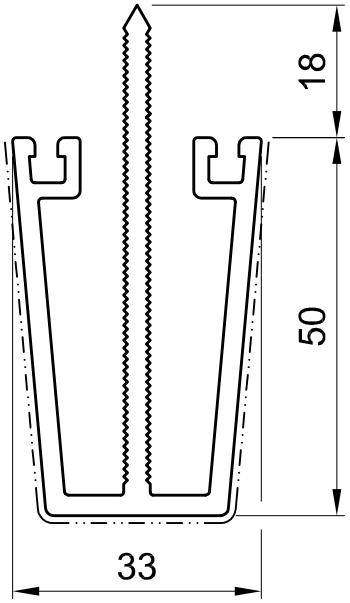

406 290




406 281




406 286




406 295

Rebate - glazing gasket (for Decor)

414 025

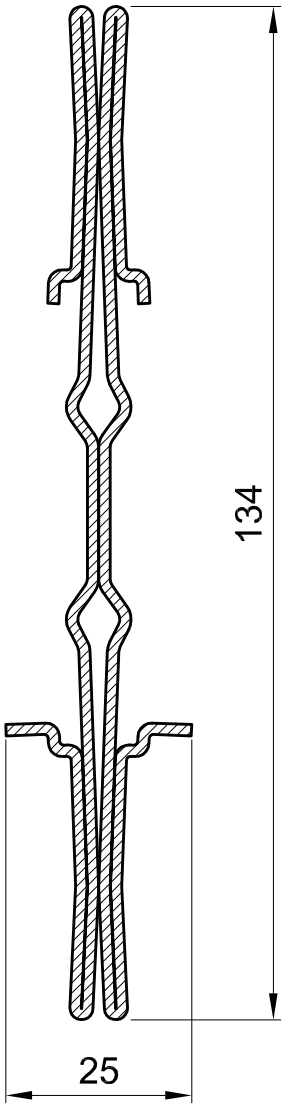
-·-·- Decor

Scale 1:1 (or depending on print-out)

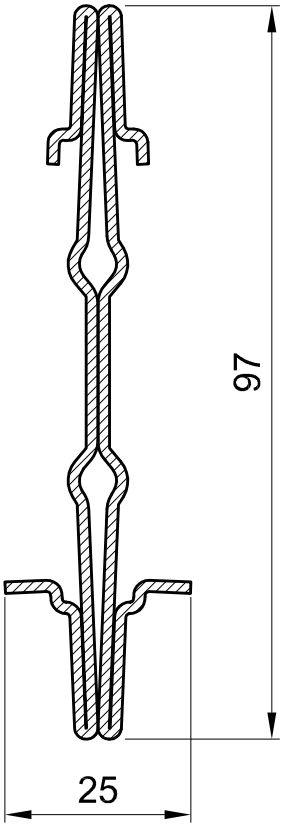


SALAMANDER
WINDOW & DOOR SYSTEMS

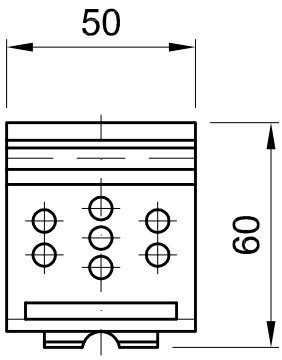
| Static coupling | Shear connector | Spacer | bE92 03 |
|---|---|---|---|
| **405 165, 405 175** | **407 575, 407 540** | **407 055** | **16.4** |




405 175

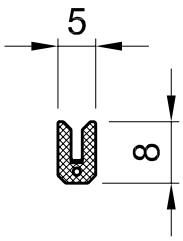



405 165



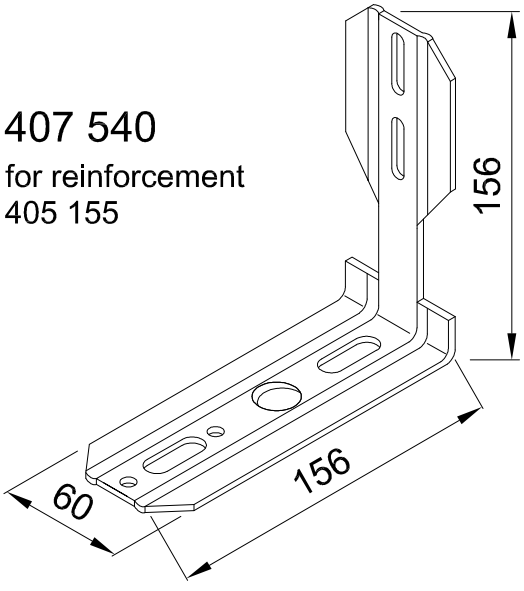

407 055

Gasket self-adhesive

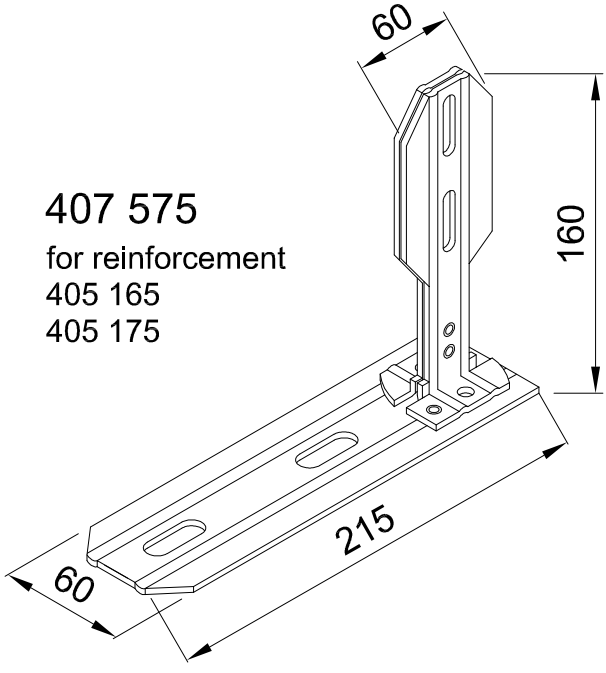



414 910

407 540
for reinforcement
405 155



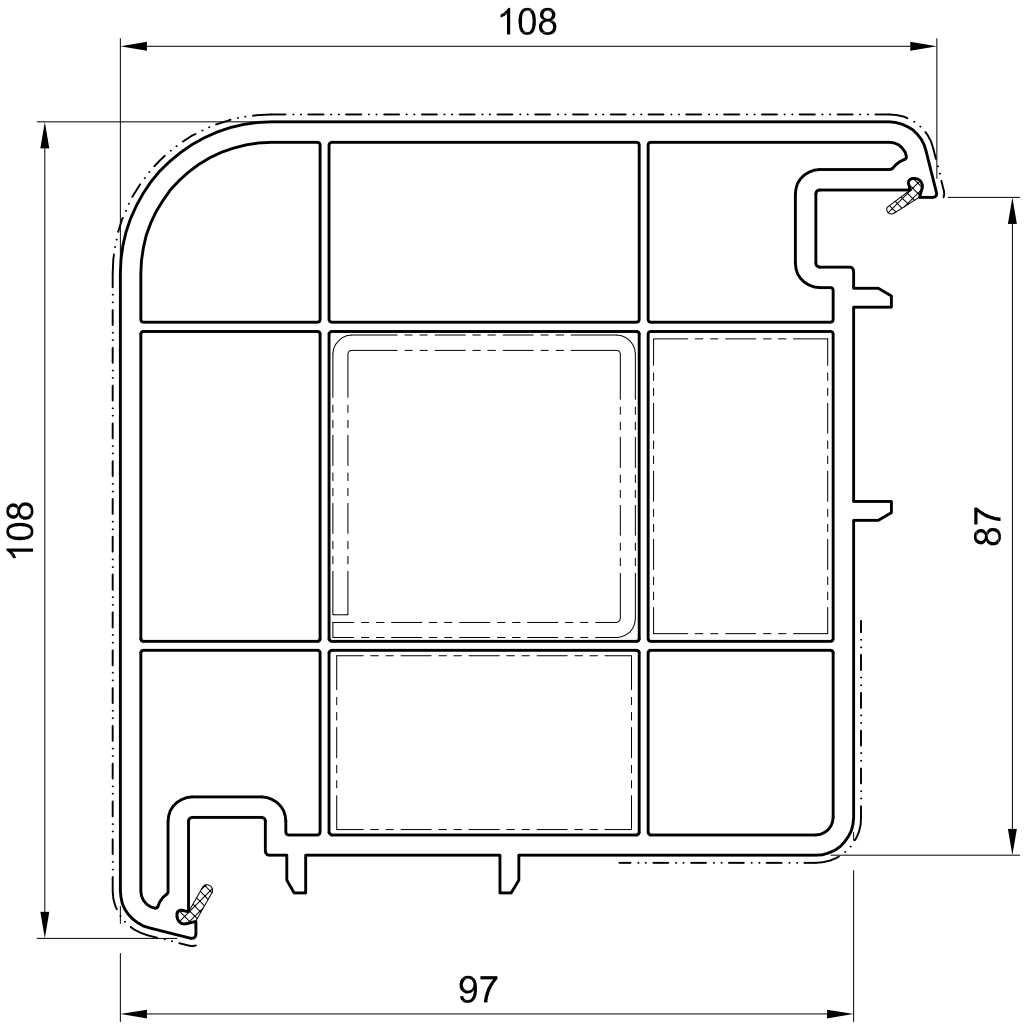

407 575
for reinforcement
405 165
405 175



Profile for corner connection, 90°

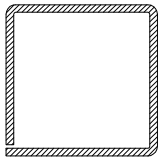
**416 210, 417 210**





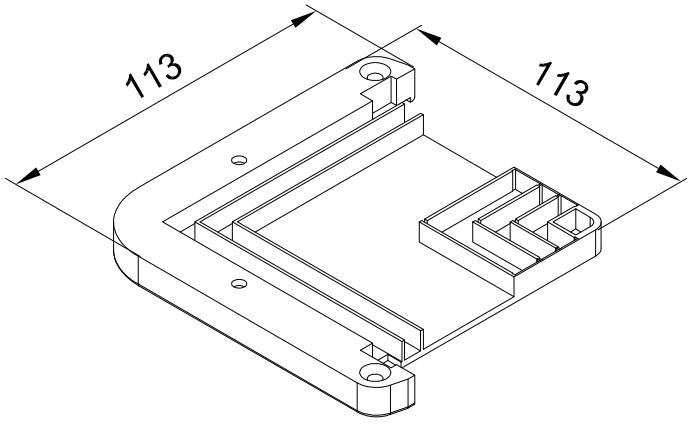

416 210

Reinforcement:



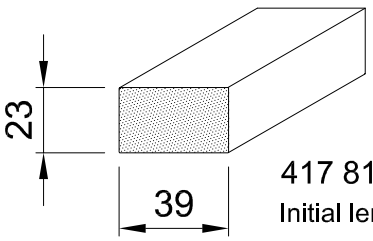
405 060

Cover cap:




417 210

Insulating strip:




417 810
Initial length 1 m

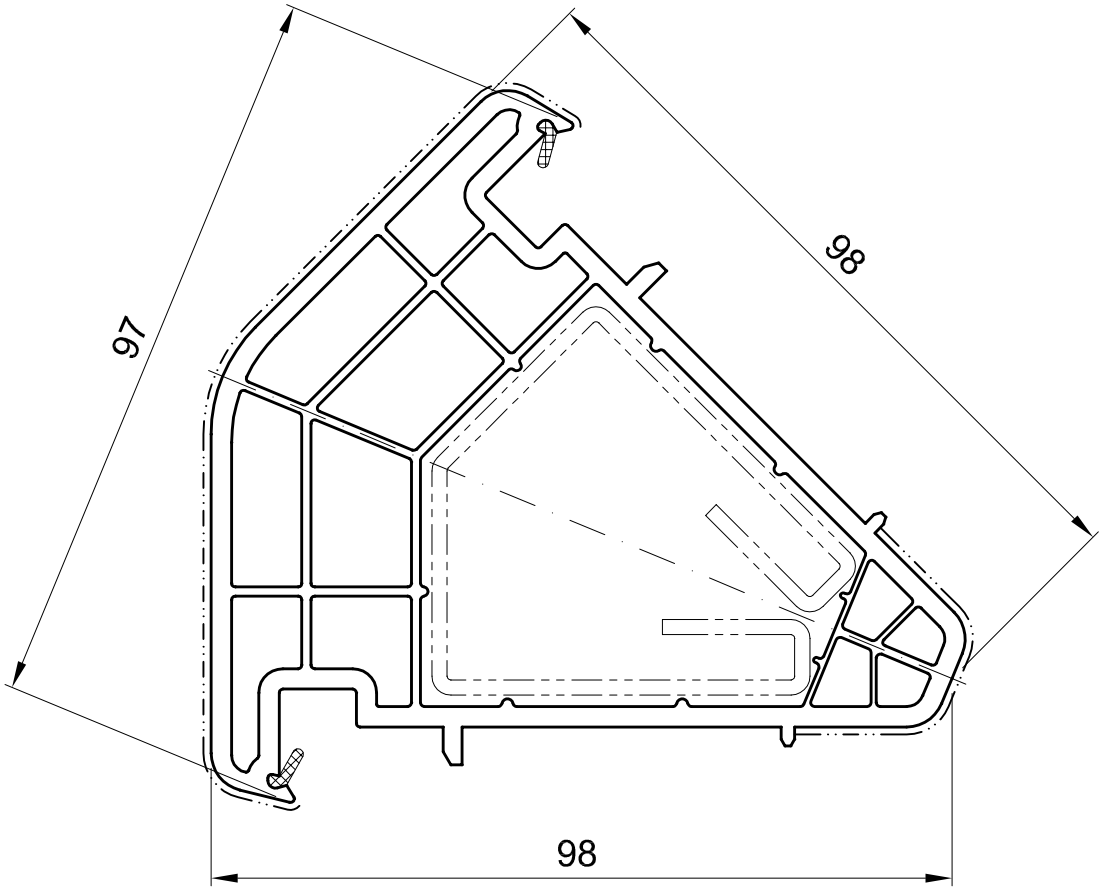
-·-·- Decor

Scale 1:1 (1:2) (or depending on print-out)

Profile for corner connection, 135° **416 240**

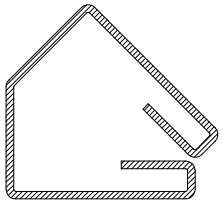
Cover cap **417 240**

bE92 03 **17.2**



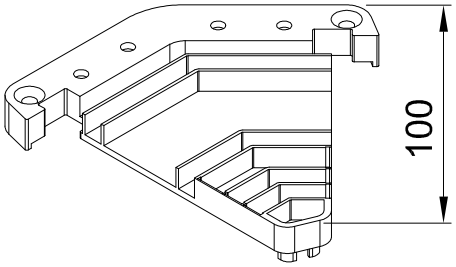

416 240

Reinforcement:

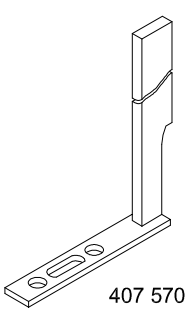


415 140

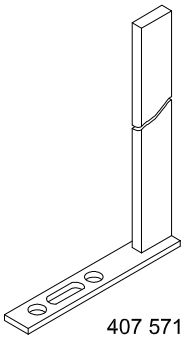
Cover cap:




417 240



407 570



407 571

-·-·- Decor

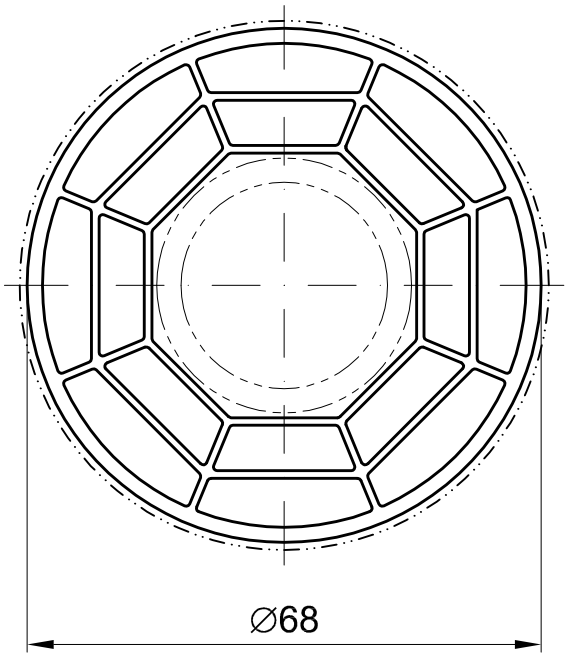
Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015



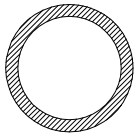
SALAMANDER WINDOW & DOOR SYSTEMS

| Corner connection, variable | Adapter for NP0160 | bE92 03 |
|---|---|---|
| **NP0160** | **416 251** | **17.3** |

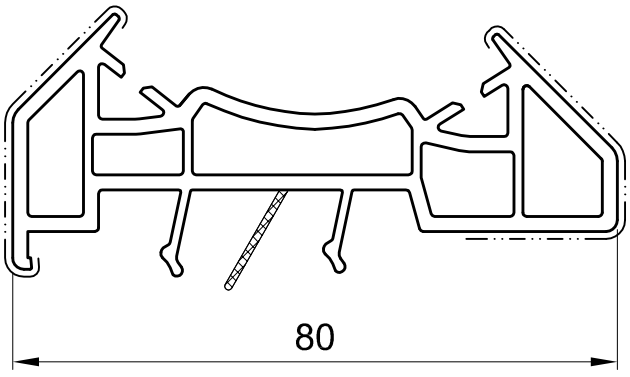



NP0160

Reinforcement:



415 016




416 251

Gasket:

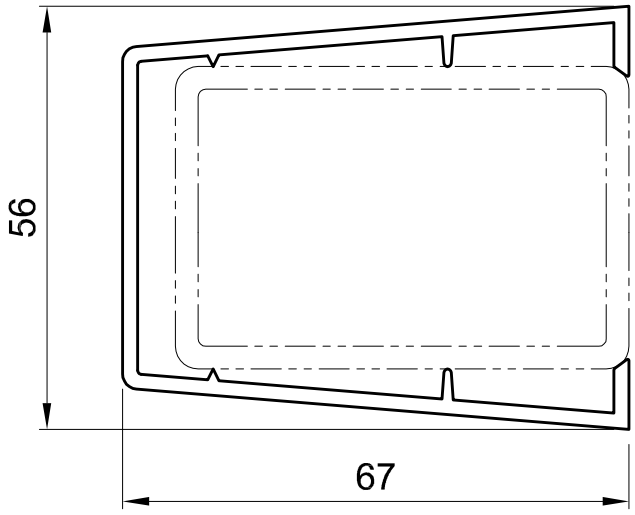
414 566



-·-·- Decor

Scale 1:1 (1:2) (or depending on print-out)

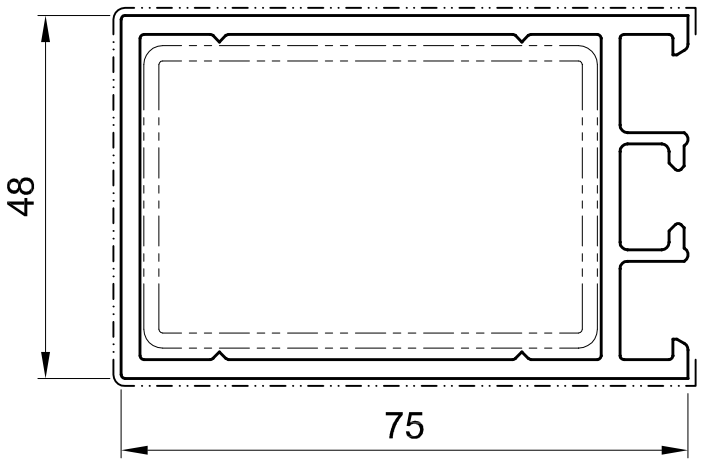
Issue: 11/2015



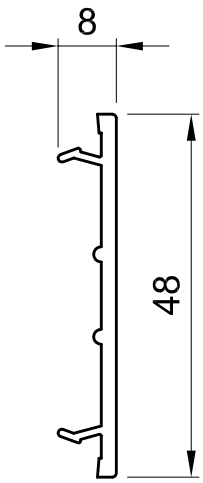

406 271

Reinforcement:

60 x 40 x X mm *
steel, galvanized
purchased from steel trade




416 269




416 311
Cover

Reinforcement:

AR4630

Fixing nippel:

407 900

-··—·· Decor
* Wall thickness steel on the required static

Scale 1:1 (1:2) (or depending on print-out)

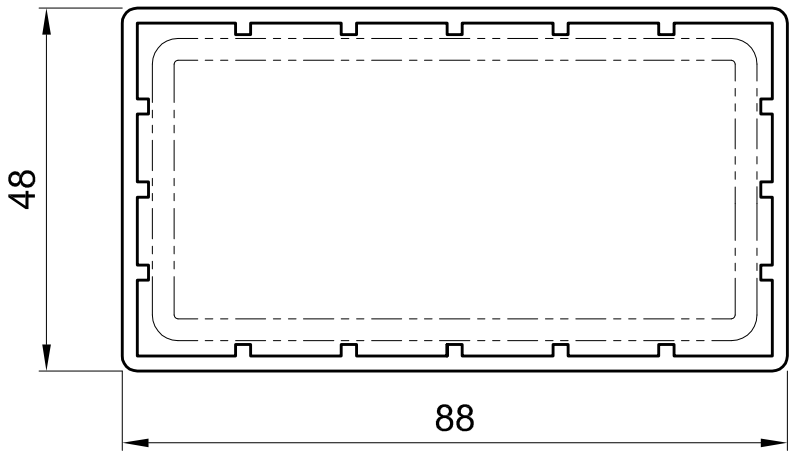
Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

**Pilaster strip profiles / post reinforcement**

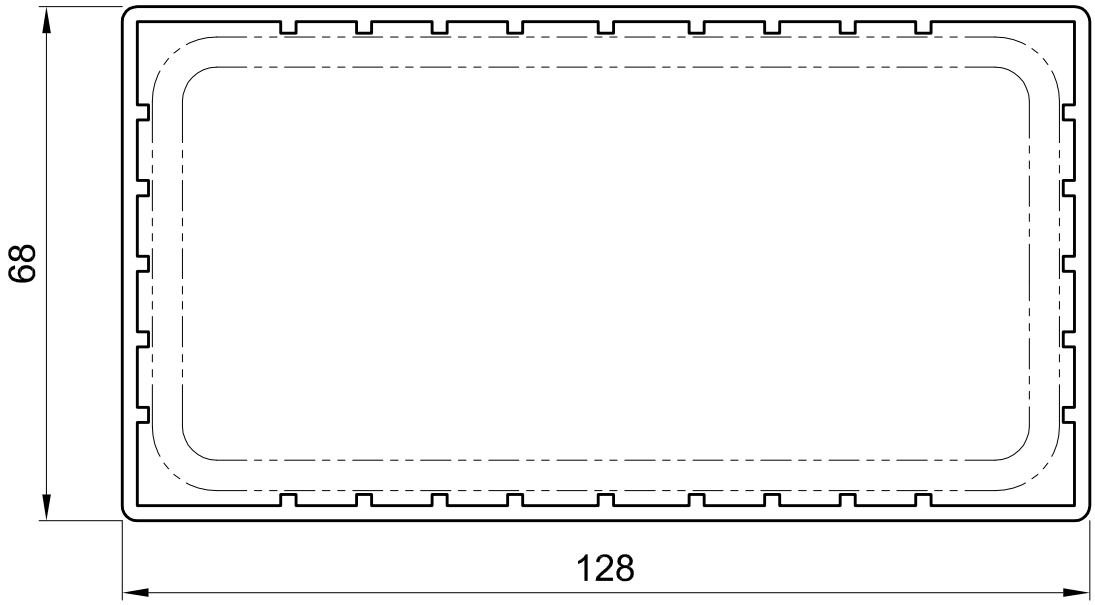
**406 266, 406 268**






Reinforcement: 406 266

80 x 40 x X mm *
steel, galvanized
purchased from steel trade




Reinforcement: 406 268

120 x 60 x X mm *
steel, galvanized
purchased from steel trade

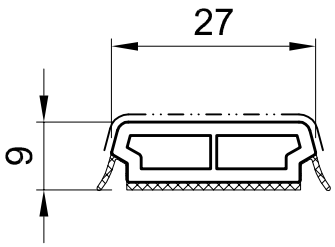
* Wall thickness steel on the required static

Scale 1:1 (or depending on print-out)

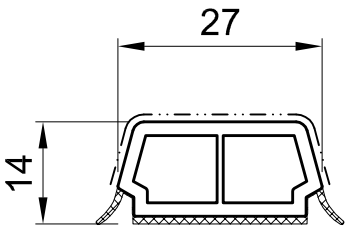
Muntin, self-adhesive

**412 026, 416 302, 416 304, 416 306, 416 322, 416 324, 416 326, 416 313**

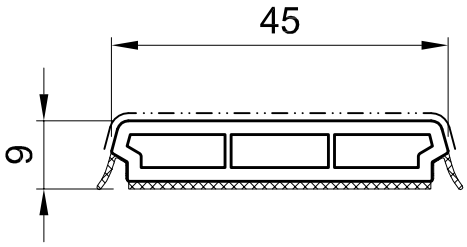




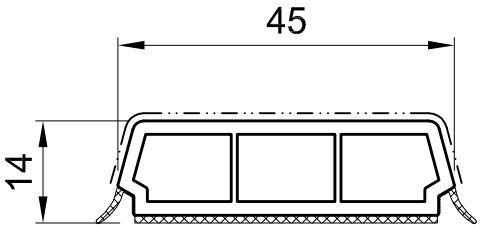

416 302



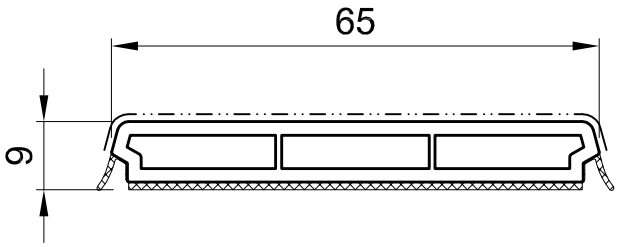

416 322



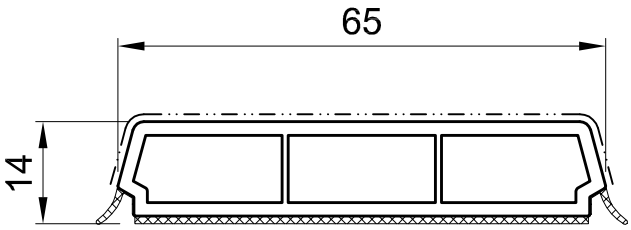

416 304



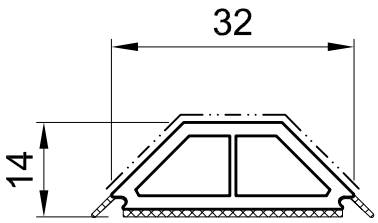

416 324



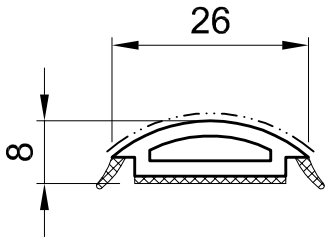

416 306




416 326




416 313




412 026

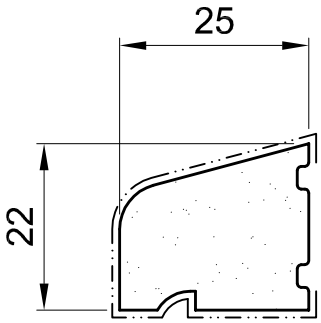


-·—·- Decor

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

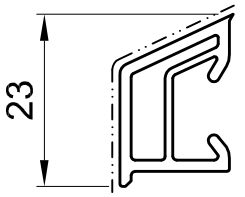



ZF1580

## Adhesive:

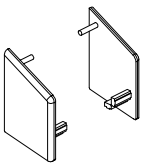
- Fenoplast KF -
  407 720 - 000
  (for white profiles)

- Fenoplast PMMA -
  407 725 - 000
  (for decor profiles)




NP0220

End cap:



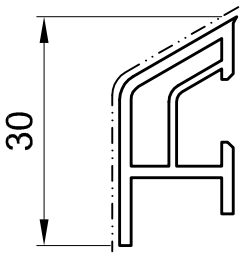
ES0220

**Terminal strip:**

NP0230

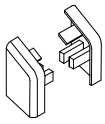
Fixing nipple:

MZ1200




ZF1940

End cap:



SG1940

**Terminal strip:**

NP1940

Fixing nipple:

407 900

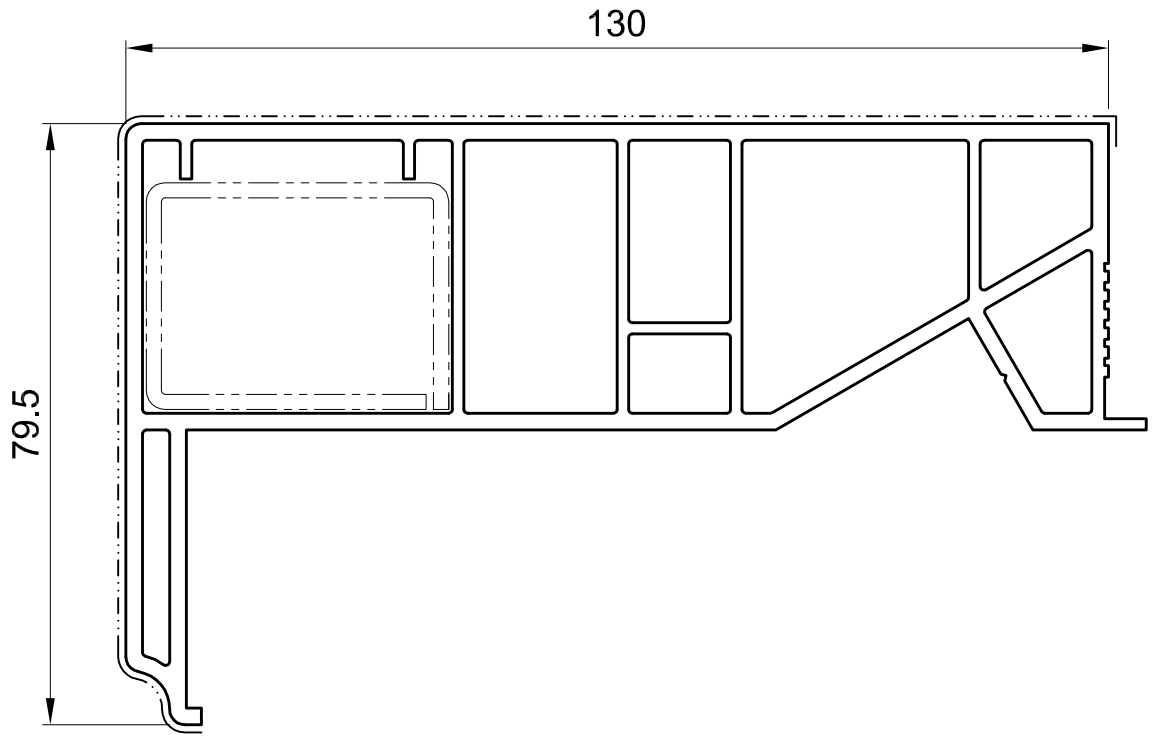


-·-·- Decor

Scale 1:1 (or depending on print out)

Issue: 11/2015

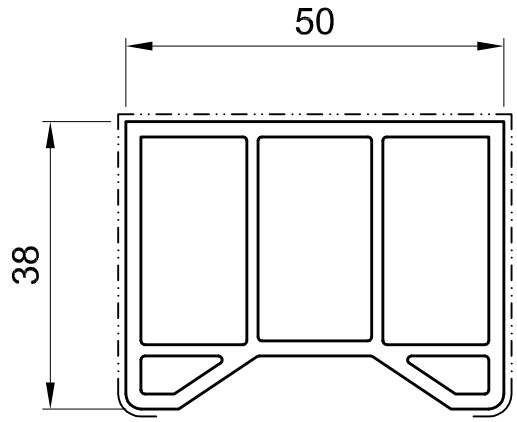
SALAMANDER
WINDOW & DOOR SYSTEMS




406 010

Reinforcement:

405 040



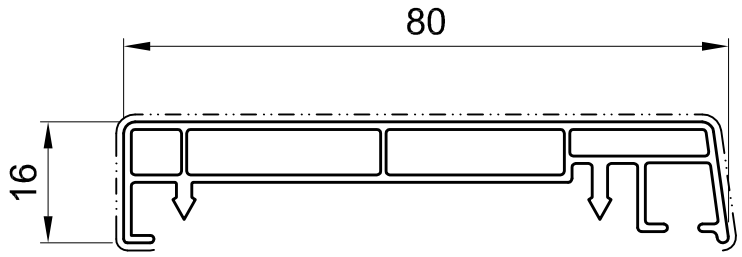

406 020



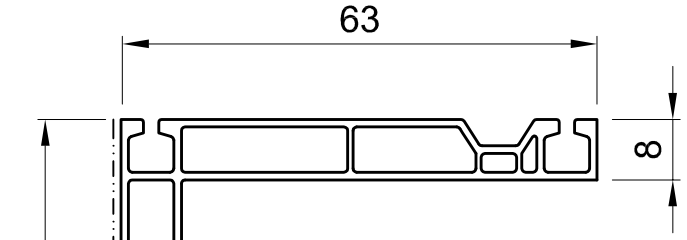
Decor

Scale 1:1 (1:2) (or depending on print-out)

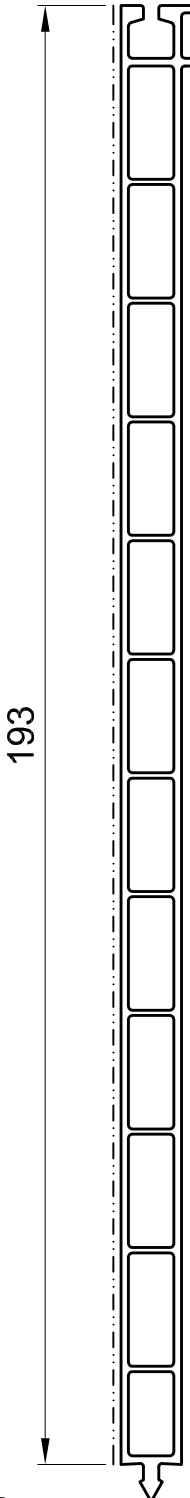
Issue: 11/2015




406 387
Cover




406 386
Panelling profile



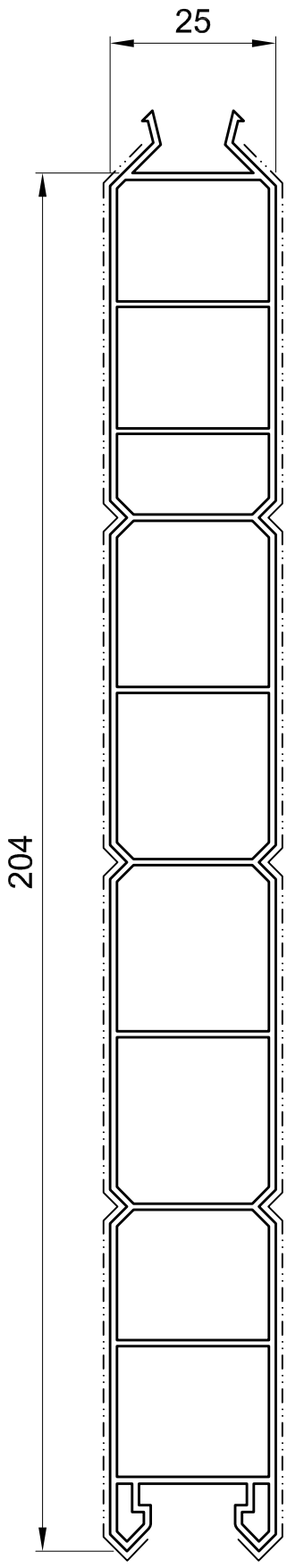

Decor

Scale 1:1 (or depending on print-out)

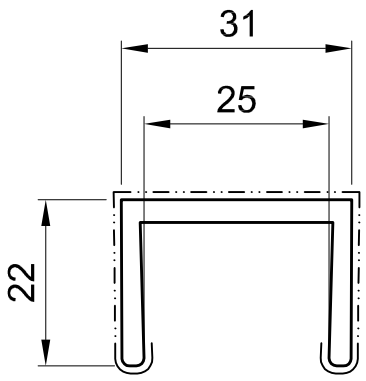
Panel profile / panelling profile

**406 001, 406 002, 406 251, 406 267, 406 670**

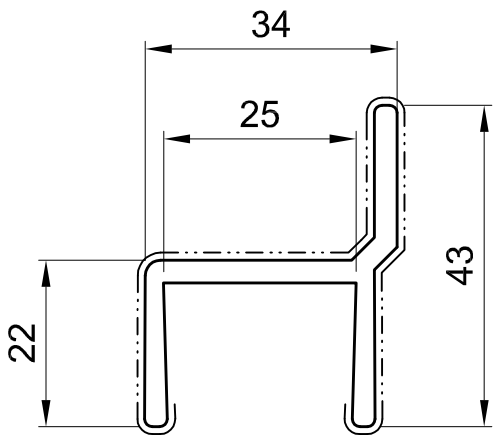




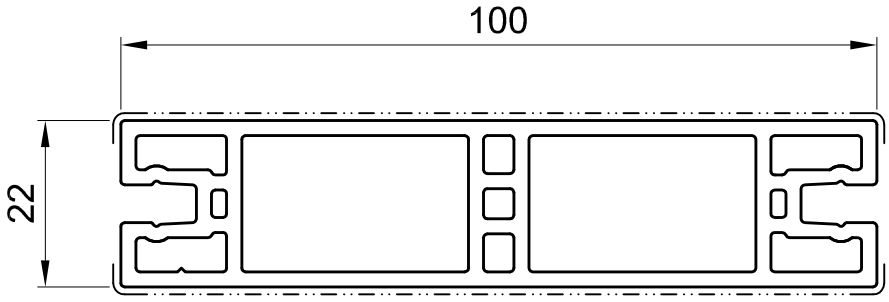

406 670



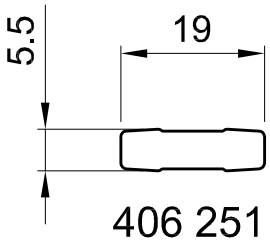

406 001




406 002




406 267




406 251

-·-·- Decor

Scale 1:1 (or depending on print-out)

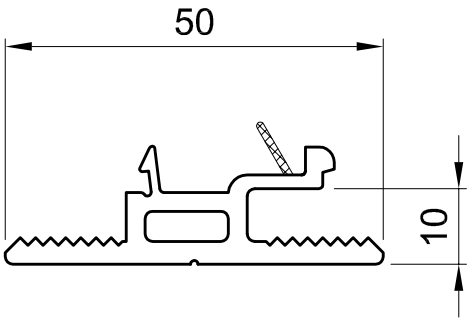


SALAMANDER
WINDOW & DOOR SYSTEMS

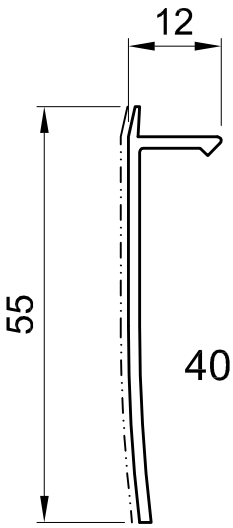
Additional profile

**406 182, 406 184, 406 325, 406 329, 406 430, 406 660, 416 305**

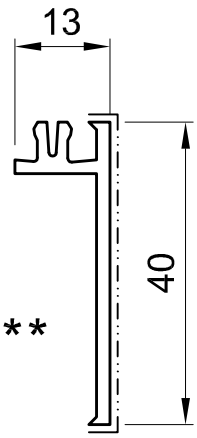




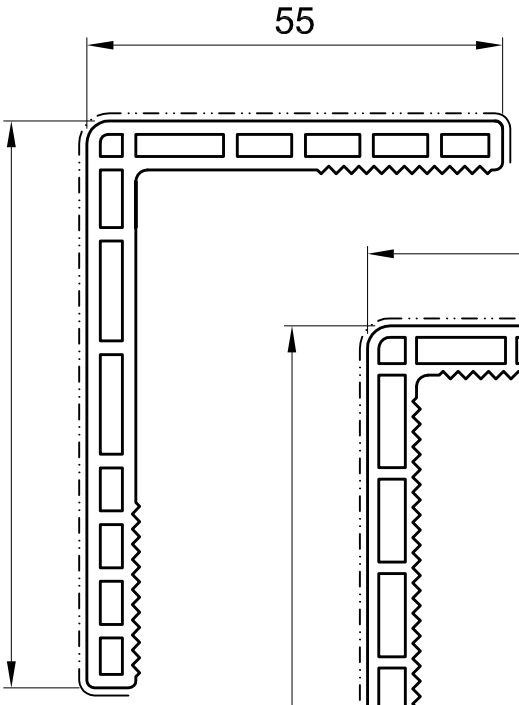

416 305



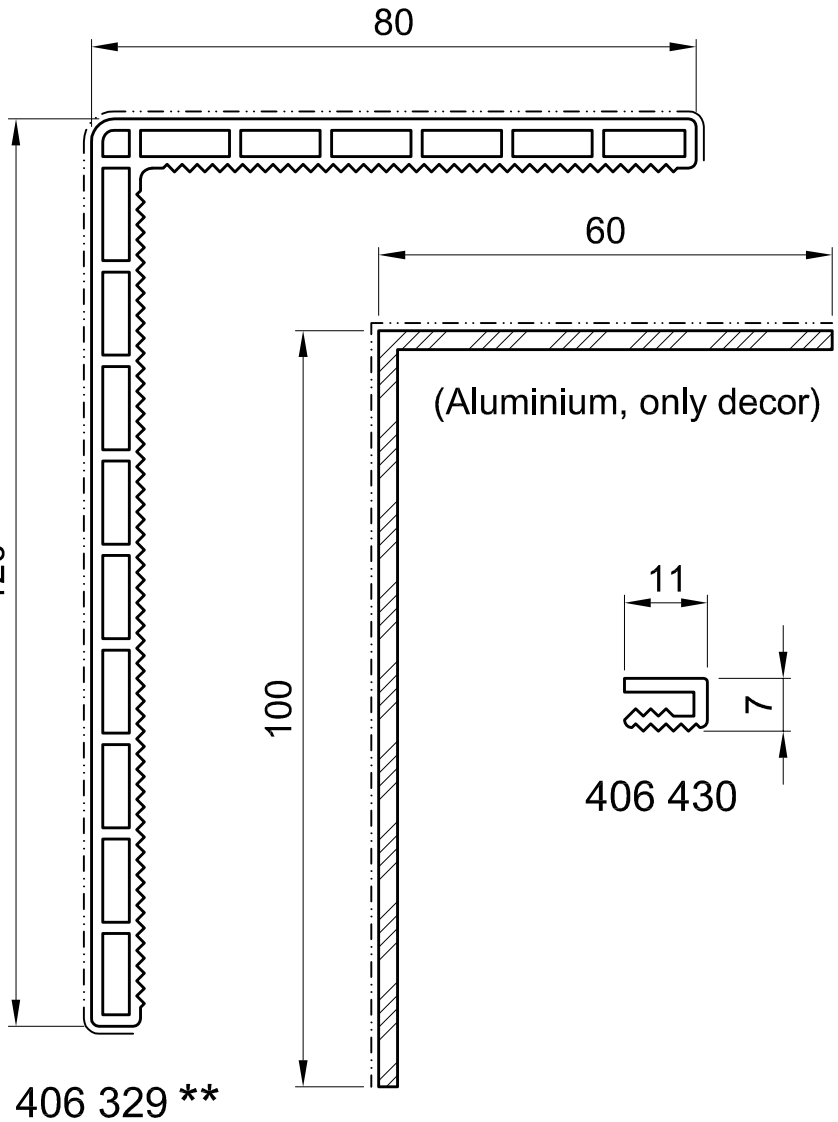

406 184 **




406 182 **




406 325 **




406 329 **

406 660




406 430

-·-·- Decor

** To use in decor only room side!

Scale 1:1 (or depending on print-out)



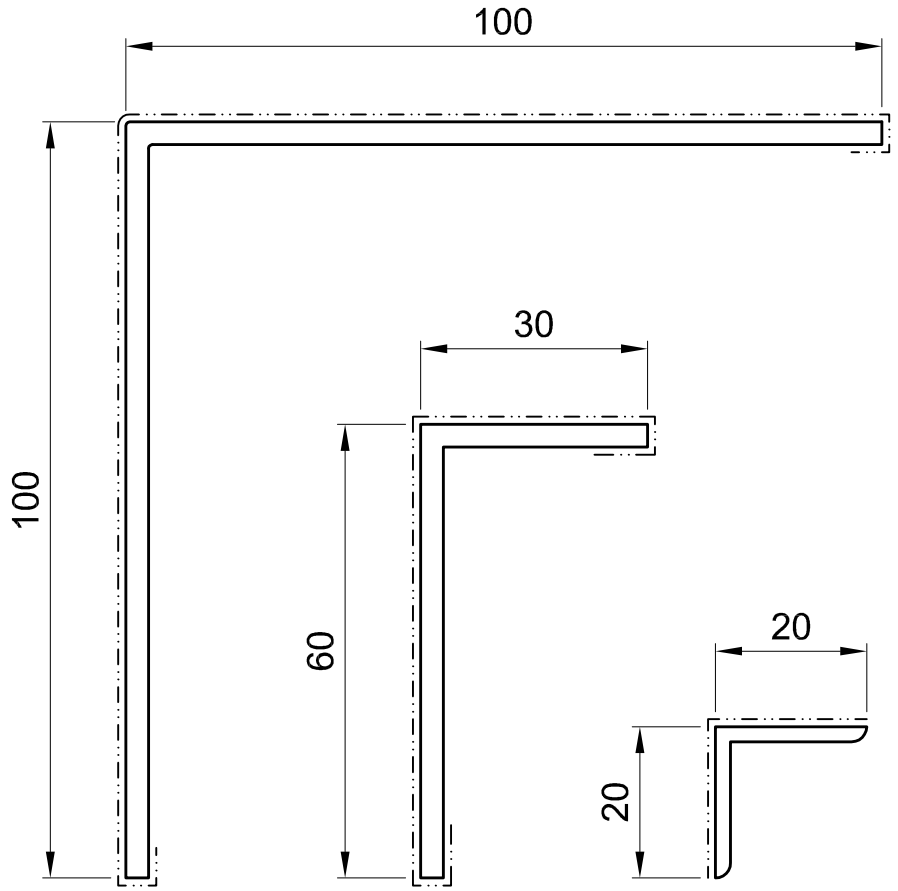
Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

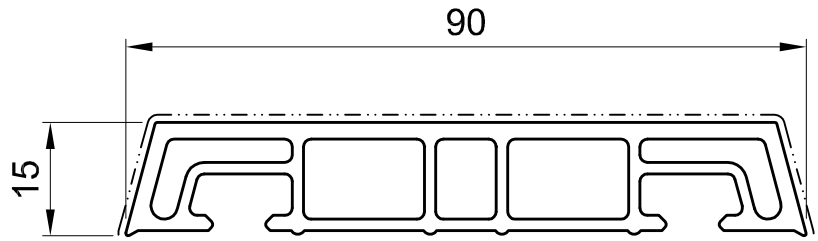
Additional profile

**406 316, 406 319, 406 320, 406 321, 406 340**

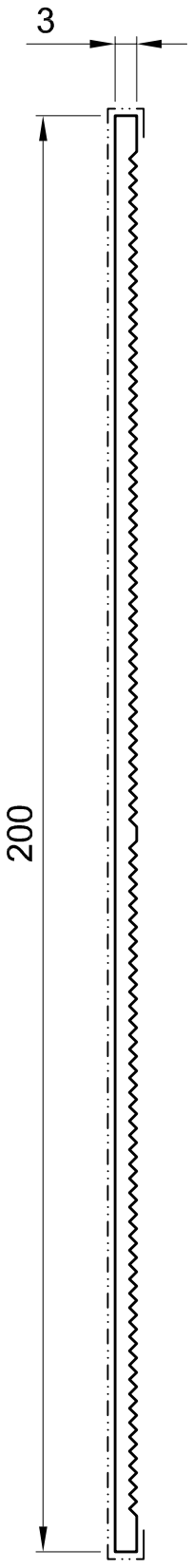





406 321 ** 406 320 ** 406 319 **

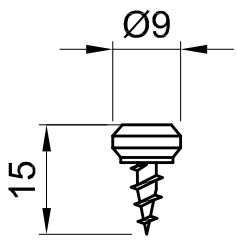



406 340



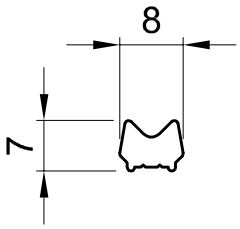

406 316 **

Fixing nipple



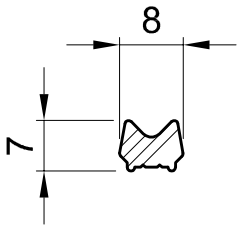

407 900

Fixing profile PVC




406 335

Fixing profile aluminium



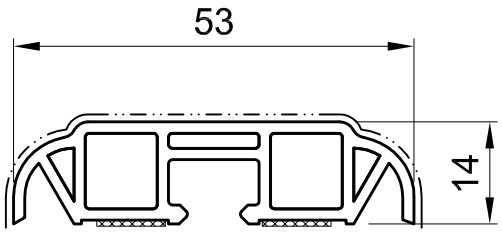

406 635

-·—·- Decor

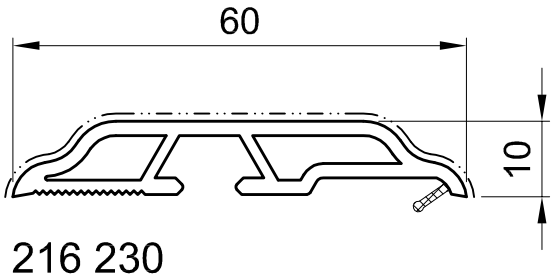
** To use in decor only room side!

Scale 1:1 (or depending on print-out)

**216 230, 406 310, 406 312, 406 315, 406 317, 406 345, 406 350, 416 312**

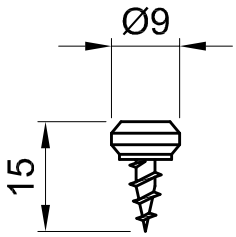



416 312
self-adhesive



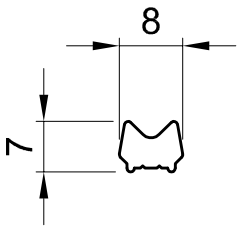

216 230

## Fixing nipple



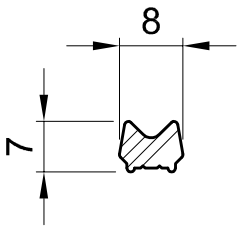

407 900

## Fixing profile PVC

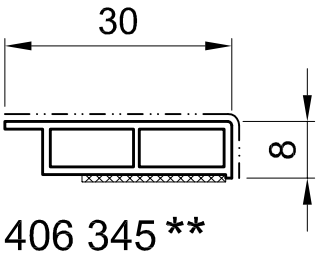



406 335

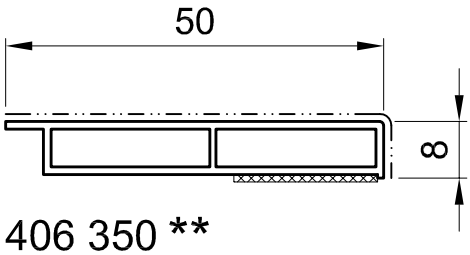
## Fixing profile aluminium



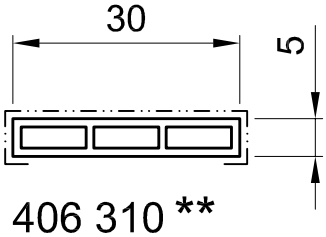

406 635



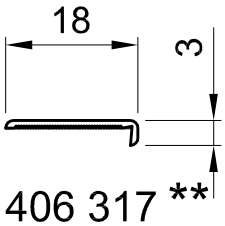

406 345 **
self-adhesive



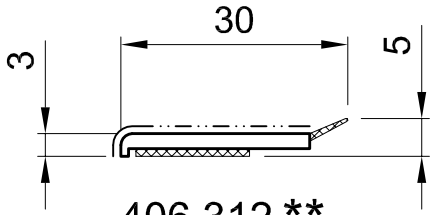

406 350 **
self-adhesive




406 310 **




406 317 **
self-adhesive



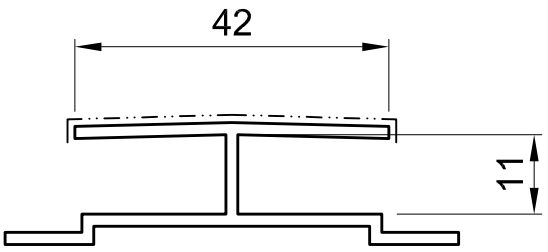

406 312 **
self-adhesive

406 315 **
self-adhesive

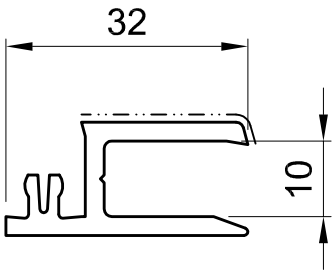
-·-·- Decor

** To use in decor only room side!

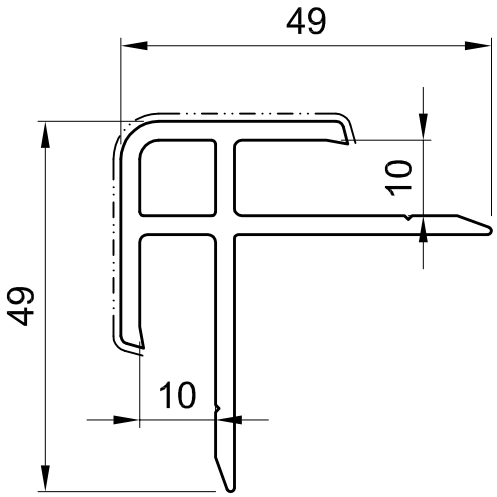
Scale 1:1 (or depending on print-out)




406 306

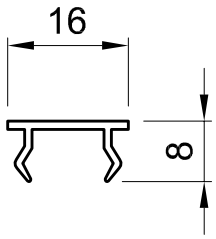



406 307



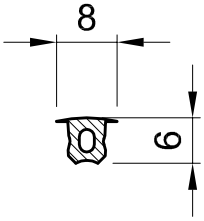

406 308

## Clip profile 16 mm



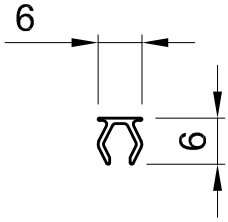

406 391

## Cover trim




406 410

## Groove filling




416 390

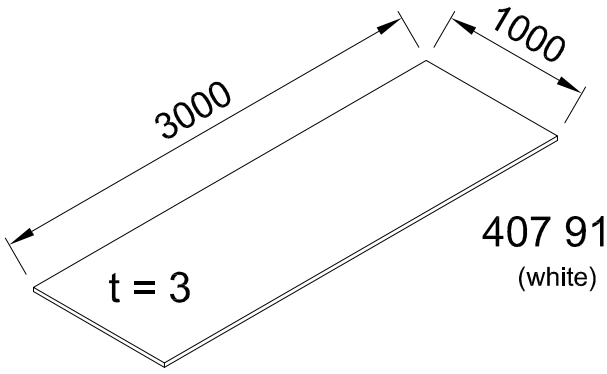
-·-·- Decor

Scale 1:1 (or depending on print-out)

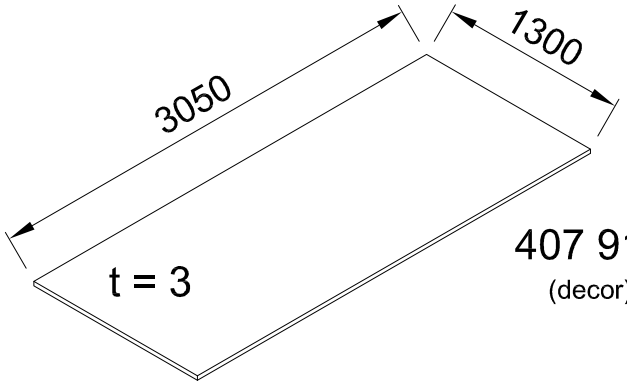
Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

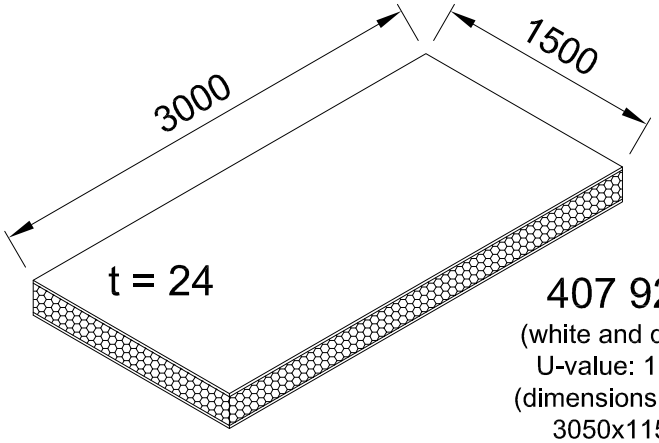
| PVC-board | Flat laminate | Sandwich board | bE92 03 |
|---|---|---|---|
| **407 912** | **407 914** | **407 920** | **24.1** |




407 912
(white)




407 914
(decor)




407 920
(white and decor)
U-value: 1,348
(dimensions decor 3050x1150)

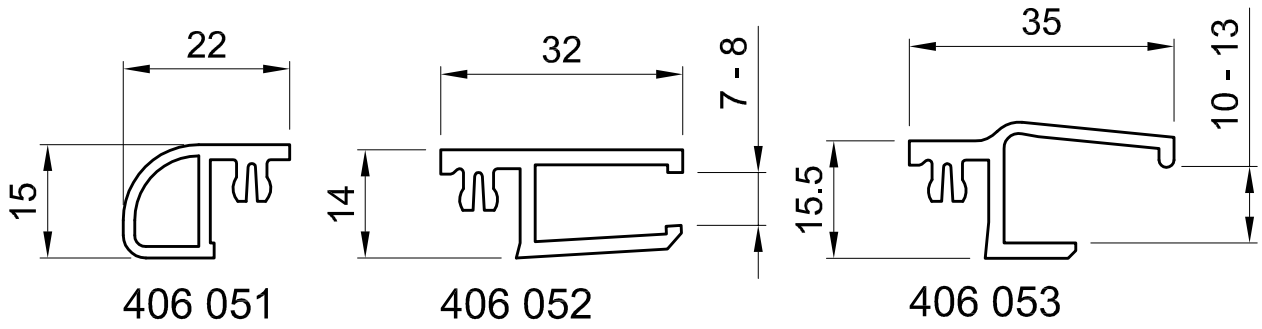
Roller shutter spreader

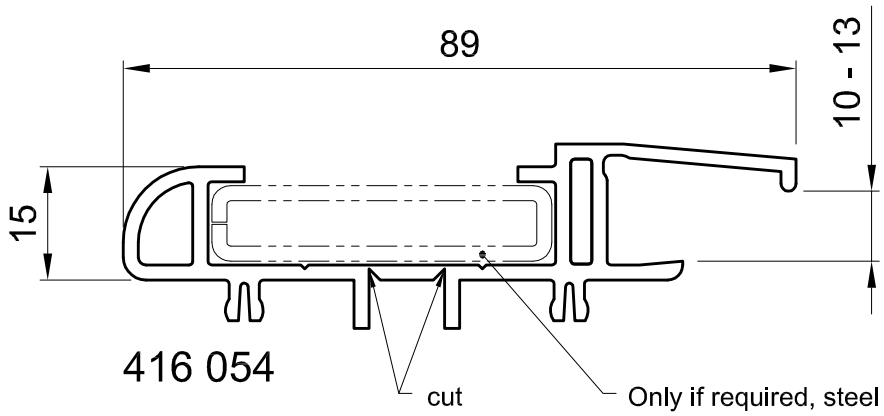
**406 051, 416 054, 416 055, 476 055**

Cover connection

**406 052, 406 053**

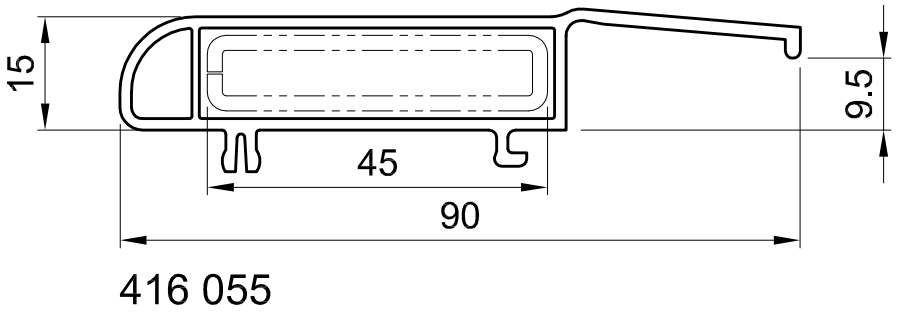




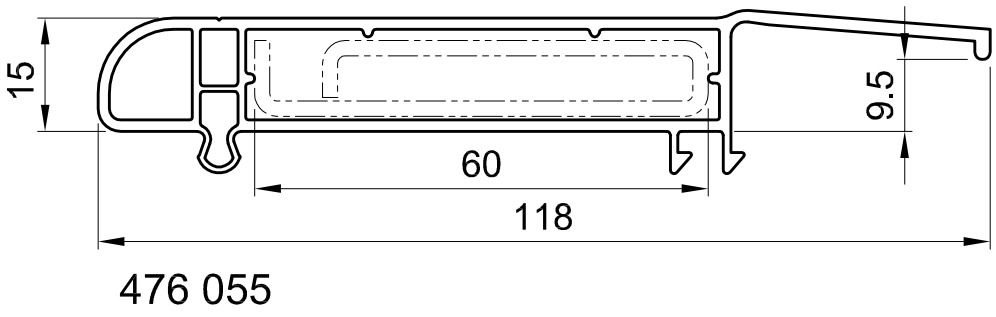

Reinforcement:
Steel if required

405 012
405 015
415 173
405 125




Reinforcement:

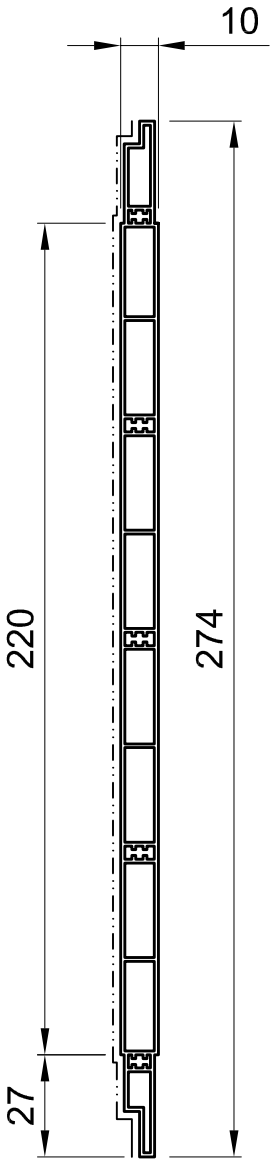
405 012



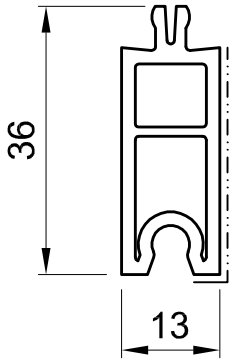

Reinforcement:

415 173

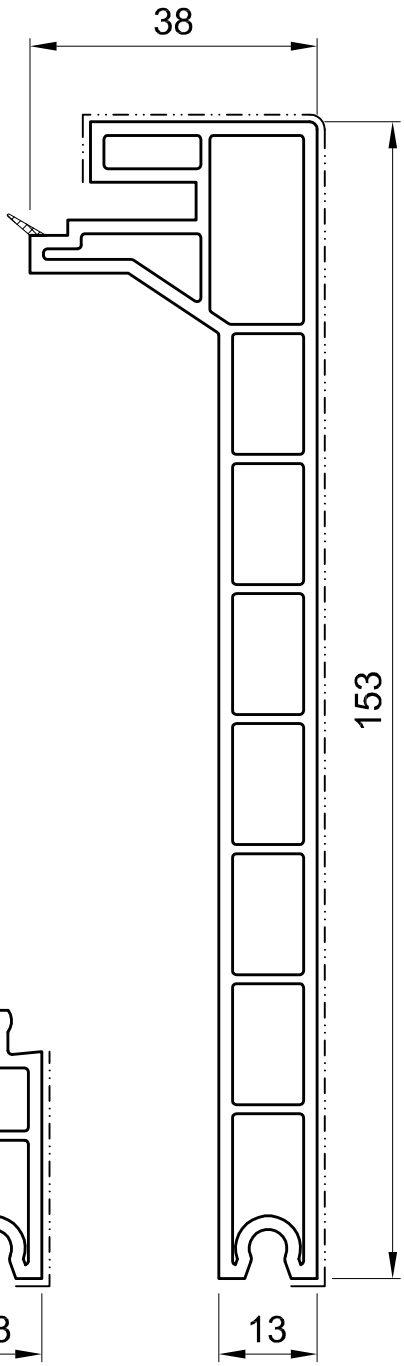
| Roller shutter panelling | Extension profile | Cover for roller shutter housing | bE92 03 |
|---|---|---|---|
| **550 600** | **550 601** | **550 990** | **25.2** |




550 990




550 601




550 600

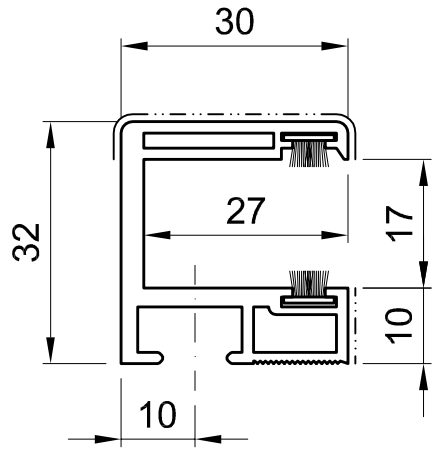
Decor

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

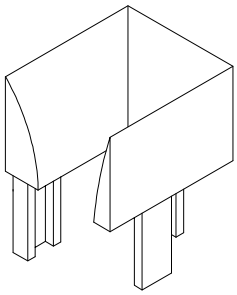
SALAMANDER WINDOW & DOOR SYSTEMS

| Roller shutter guide | False edge | Unwinding strip | bE92 03 |
|---|---|---|---|
| **406 065, 406 073** | **406 066** | **406 050** | **25.3** |



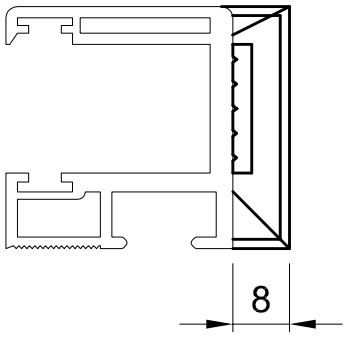

406 065

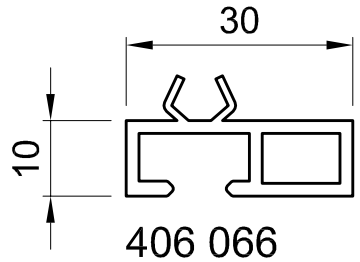
Roller shutter guide end cap:
(not to scale)



407 065

Overhang end cap

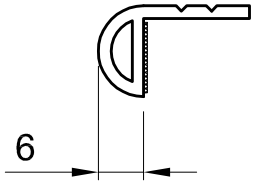


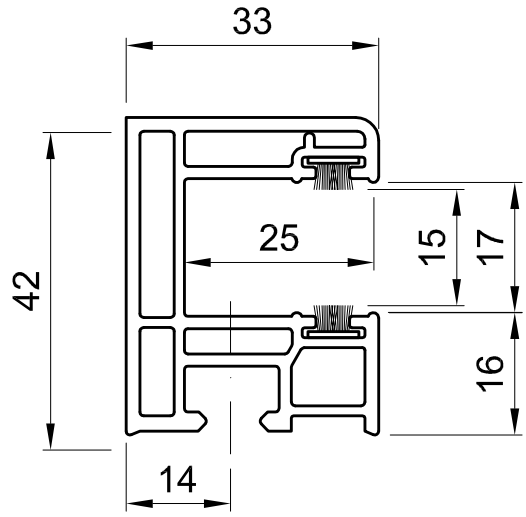

406 066
(for 406 065)

Fixing nipple
(for 406 065 and 406 066)

407 965

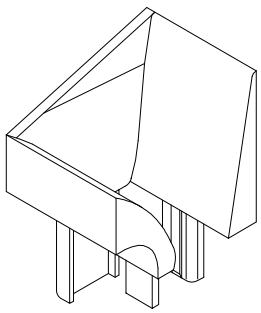



406 050
(only for 406 065)




406 073

Roller shutter guide end cap:
(not to scale)



407 070

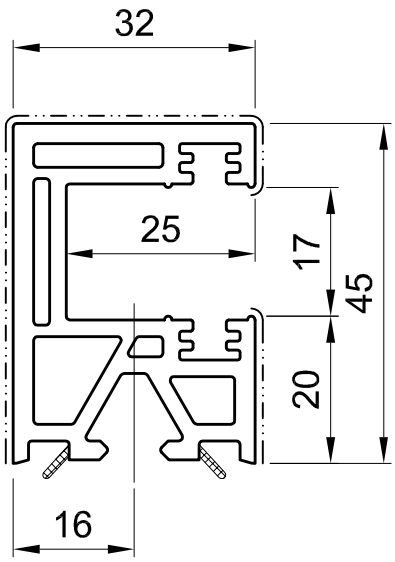
| Fixing nipple: | Fixing profile Aluminium: | Fixing profile PVC: | Brush gasket: |
|---|---|---|---|
| | | |  |
| 407 900 | 406 635 | 406 335 | 404 930 |



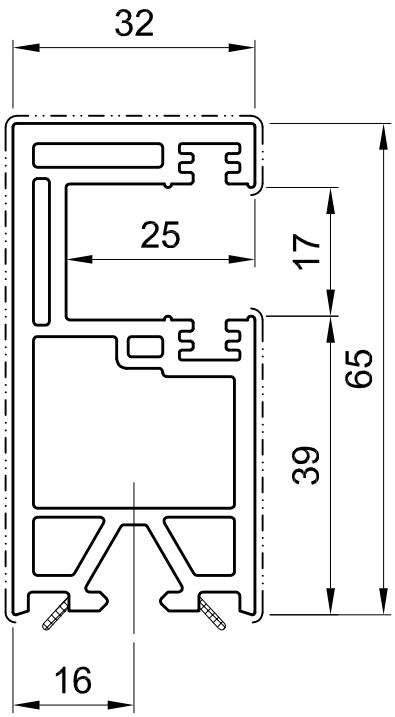
-·-·- Decor
Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

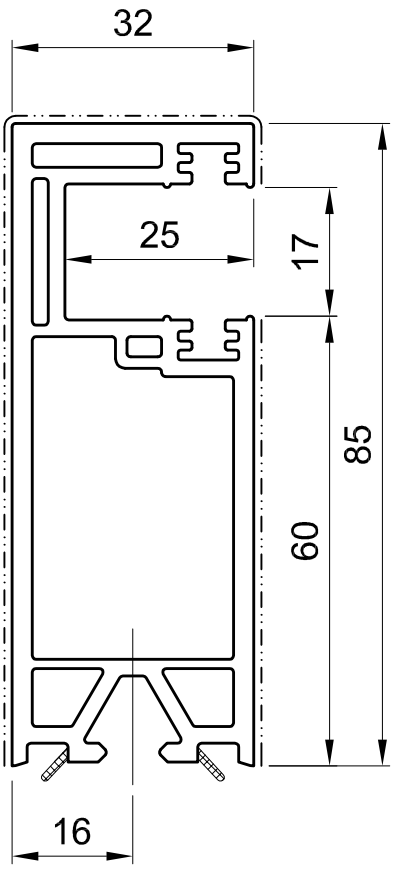
SALAMANDER
WINDOW & DOOR SYSTEMS




416 345




416 365




416 385

No roller shutter guide end caps in the program!

Foamed silicone gasket tape:
40 x 2 mm, self-adhesive

(no picture)

417 740

Fixing nipple:

407 900

Fixing profile Aluminium:

406 635

Fixing profile PVC:

406 335

Brush gasket:

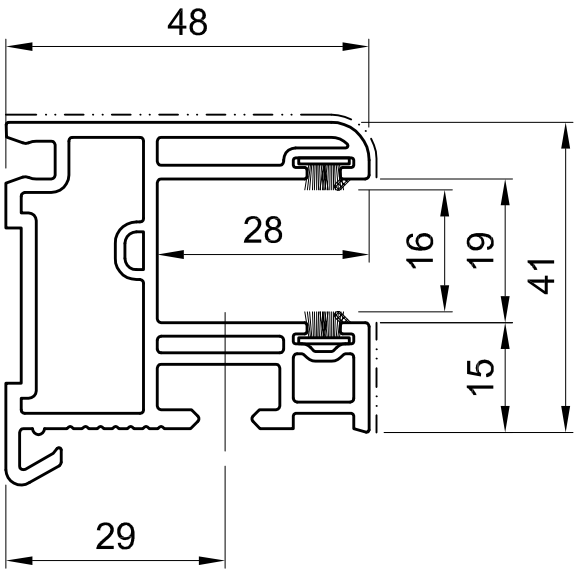
414 970



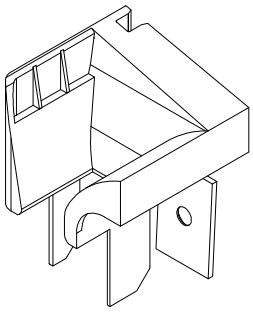
Decor
Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

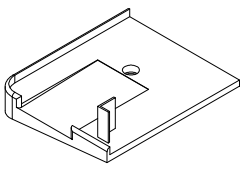



## Roller shutter guide end cap:
(not to scale)



417 082

## End cap:
(not to scale)



417 081

## Fixing nipple:

407 900

## Fixing profile Aluminium:

406 635

## Fixing profile PVC:

406 335

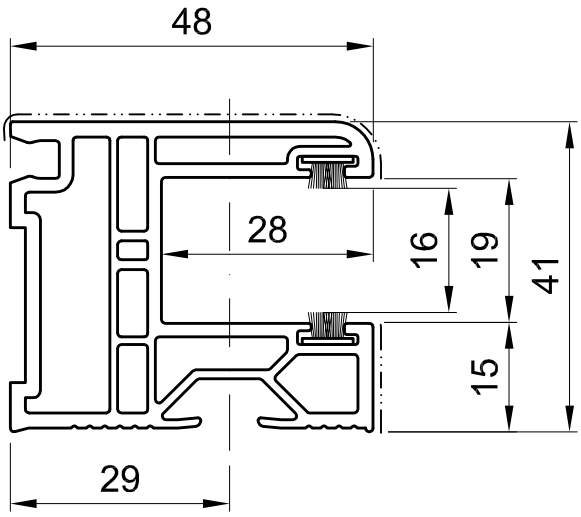
## Brush gasket:



404 930

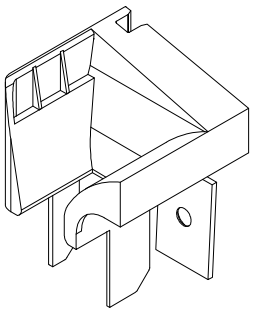
— · · — Decor

Scale 1:1 (1:2) (or depending on print-out)



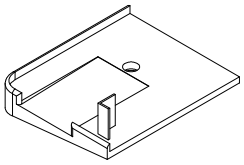

416 086

Roller shutter guide end cap:
(not to scale)



417 082

End cap:
(not to scale)



417 081

Brush gasket:

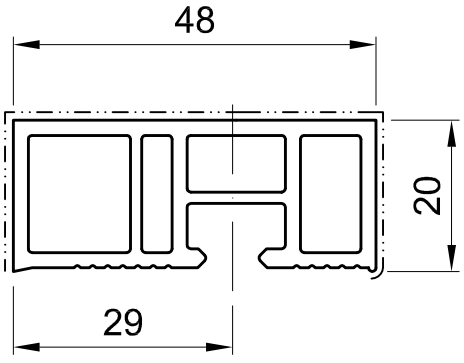
404 930

Fixing nipple:

407 900

Fixing profile:

406 635




406 081

Brush gasket:

404 930

Fixing nipple:

407 900

Fixing profile Aluminium:

406 635

Fixing profile PVC:

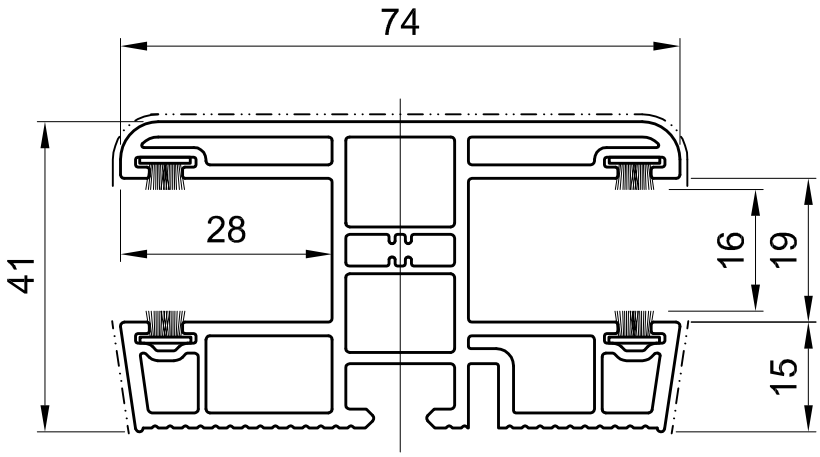
406 335

Double roller shutter guide

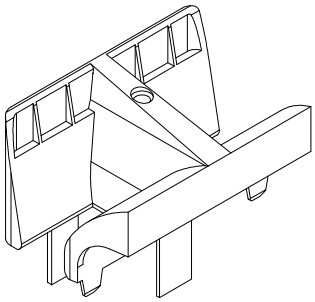
**416 096**

bE92 03

**25.7**

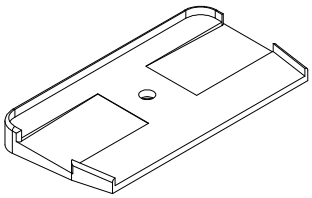



## Roller shutter guide end cap:
(not to scale)



417 096

## End cap:
(not to scale)



417 095

## Fixing nipple:

407 900

## Fixing profile Aluminium:

406 635

## Fixing profile PVC:

406 335

## Brush gasket:



404 930

Decor

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

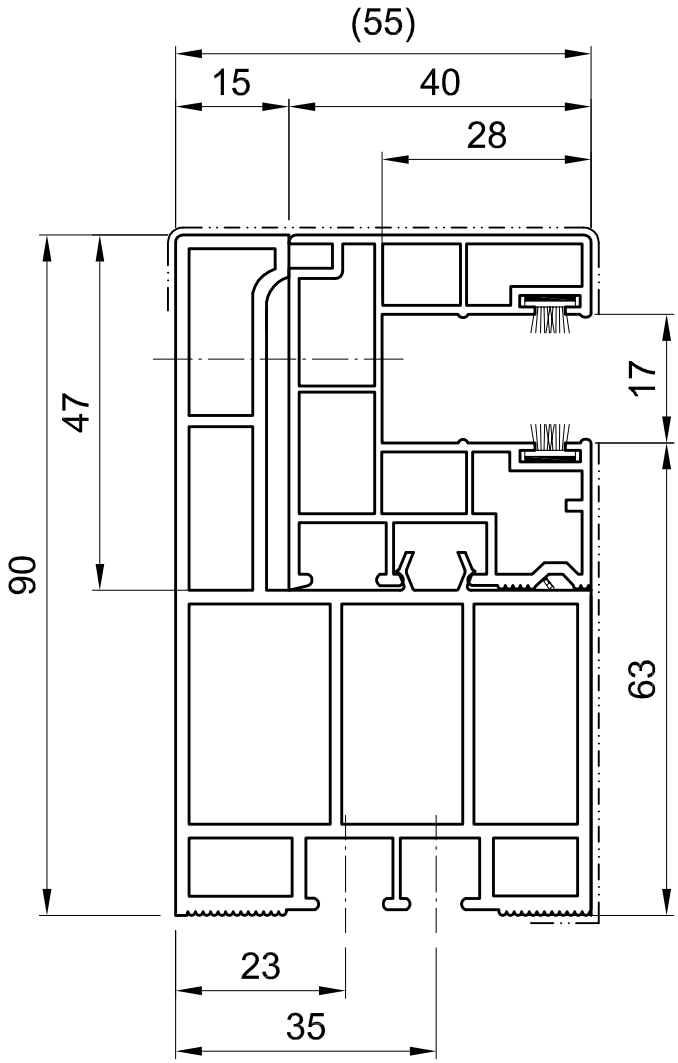
Adapter profile with roller shutter guide and brush

**556 070**

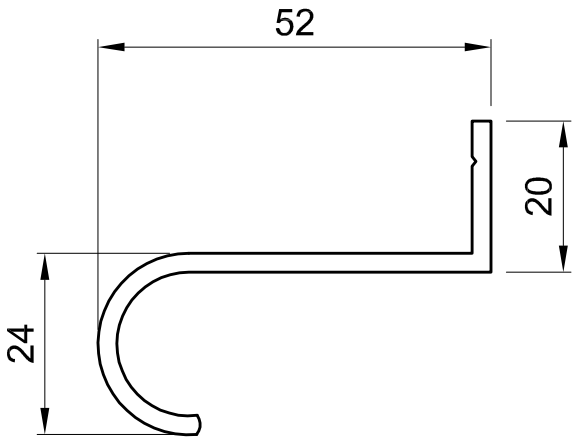
Unwinding strip

**556 075**



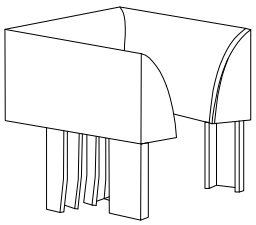



556 070




556 075

Roller shutter guide end cap:
(not to scale)



557 170

Fixing nipple:

407 900

Brush gasket:

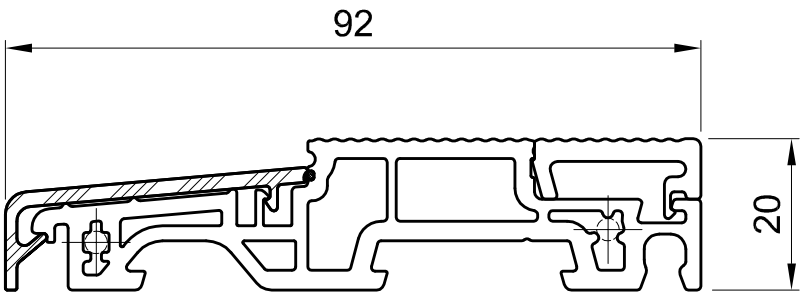
404 930

— · · — Decor

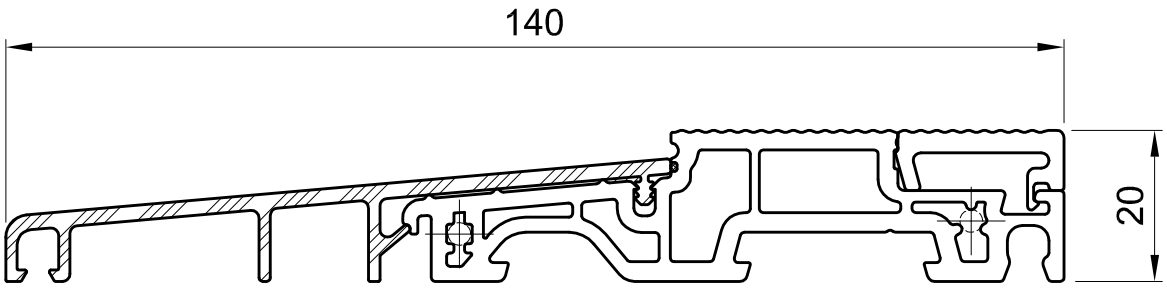
Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

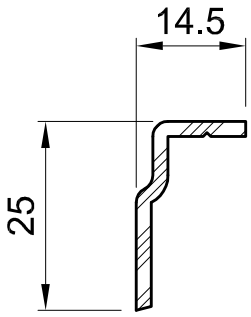



476 325

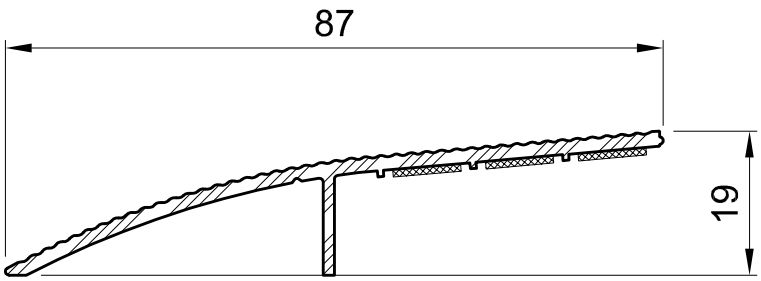



476 340

Adapter profile
handicapped accessible

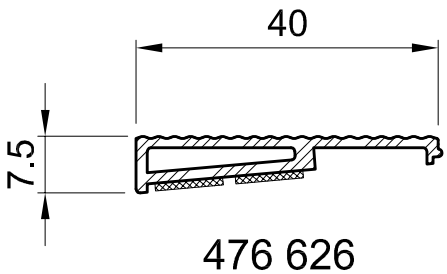



216 650



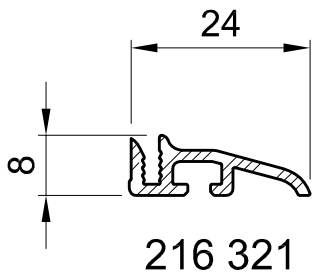

476 627

Adapter profile
opening to the outside



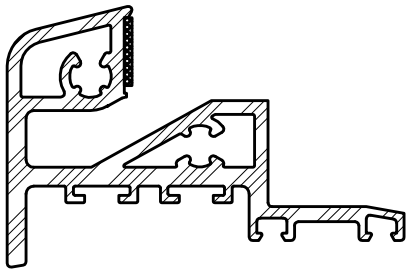

476 626

Adapter profile



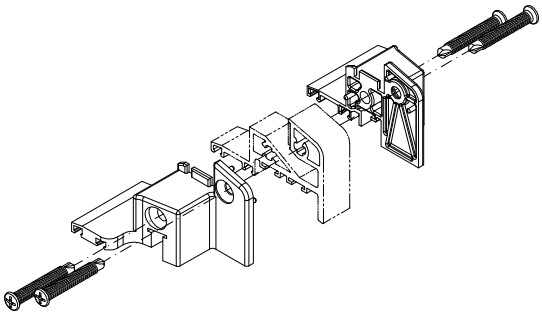

216 321

Weatherboard

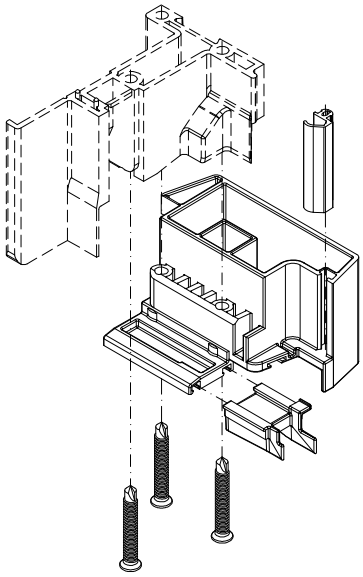


476 640

End cap set for
weatherboard 476 640



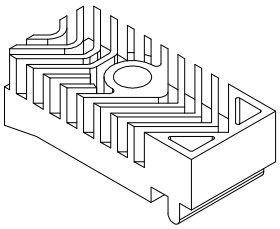
477 045



End cap set for
overlap 176 020 R+L

477 020

Wind blocker



474 954

Brush gasket for
weatherboard
476 640

404 940

Graze gasket for
weatherboard
476 640

604 930

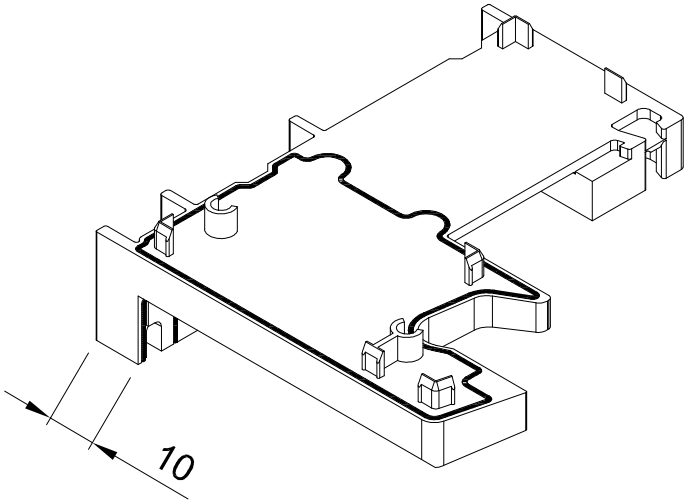
Threshold connector

**478 520, 478 530, 478 525**

## 478 520 (for frame 170 420)

for threshold 476 325, 476 340

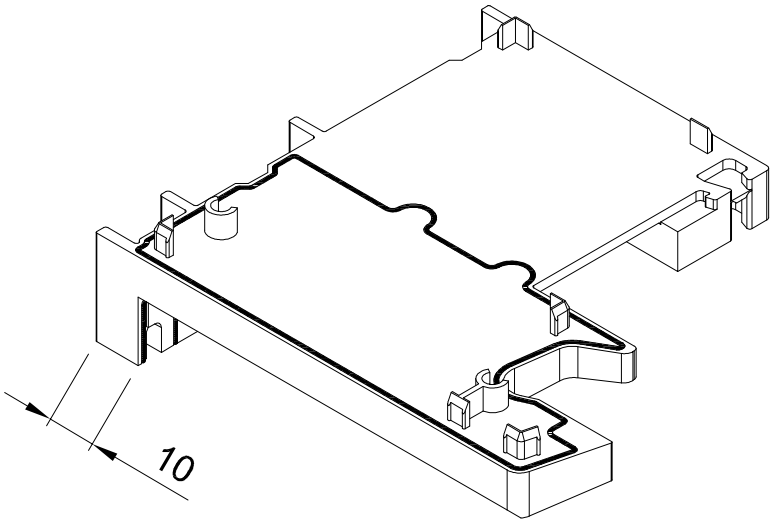
Drilling template 478 420




## 478 530 (for frame 170 430)

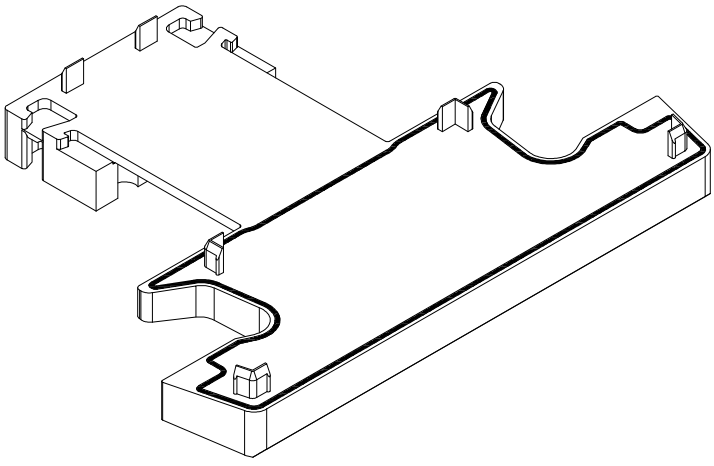
for threshold 476 325, 476 340

Drilling template 478 430




## 478 525 (for post 172 420, 172 421)

Drilling template 478 425





Not to scale



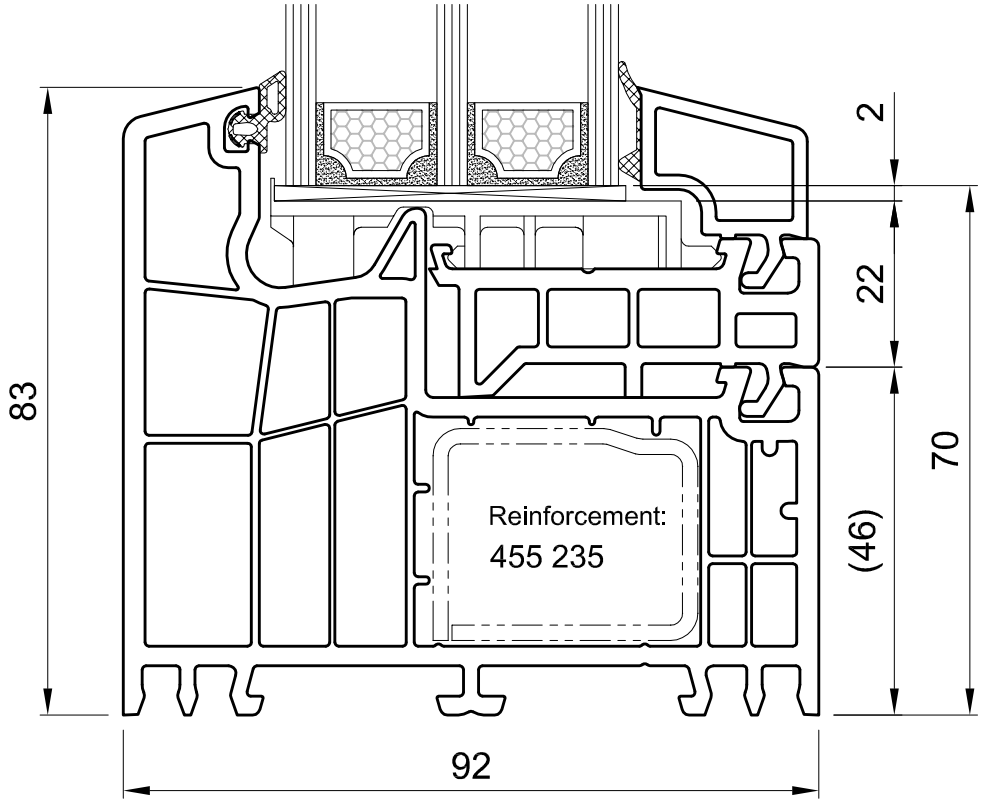
SALAMANDER WINDOW & DOOR SYSTEMS

| Designation | Page bE92 04 0... |
|---|---|
| - Frame | 01.1 - 01.12 |
| └► Fixed glazing | 01.1 - 01.2 |
| └► 170 420 / Casement | 01.3 - 01.7 |
| └► 170 430 / Casement | 01.8 - 01.12 |
| - Mullion / post | 02.1 - 02.21 |
| └► Fixed glazing - post / transom | 02.1 - 02.2 |
| └► 172 420-Casement | 02.3 - 02.6 |
| └► 172 421-Casement | 02.7 - 02.10 |
| └► Casement-172 420-casement | 02.11 - 02.15 |
| └► Casement-172 421-casement | 02.16 - 02.20 |
| └► Glazing mullion | 02.21 |
| - Overlap | 03.1 - 03.13 |
| └► 176 010 | 03.1 - 03.3 |
| └► 176 020 | 03.4 - 03.8 |
| └► 176 030 | 03.9 - 03.13 |
| - Rebate reinforcement / rebate corner | 04.1 - 04.2 |
| - Step protection / Transport protection / run up wedge | 05.1 - 05.3 |
| - Extension profiles / French window profiles | 06.1 - 06.9 |
| └► Extension profiles | 06.1 - 06.6 |
| └► French window profiles | 06.7 - 06.9 |
| - Sill profiles | 07.1 - 07.16 |
| └► Sill profiles | 07.1 - 07.10 |
| └► Stone bank profiles | 07.11 - 07.14 |
| └► Window sill | 07.15 - 07.16 |

| Designation | Page bE92 04 0... |
|---|---|
| - Couplings | 08.1 - 08.11 |
| - Corner connections | 09.1 - 09.3 |
| - Pilaster strip profiles (post reinforcement) | 10.1 - 10.4 |
| - Reveal panelling | 11.1 - 11.2 |
| - Panelling profiles | 12.1 - 12.5 |
| - Roller shutter accessories | 13.1 - 13.12 |
| - Area of application cover profiles | 14.1 |
| - Thresholds | 15.1 - 15.8 |
| └► Door threshold | 15.1 - 15.6 |
| └► Threshold | 15.7 - 15.8 |

# Fixed glazing

| Frame | Fixed glazing bar | bE92 04 |
|---|---|---|
| **170 420** | **173 415** | **01.1** |





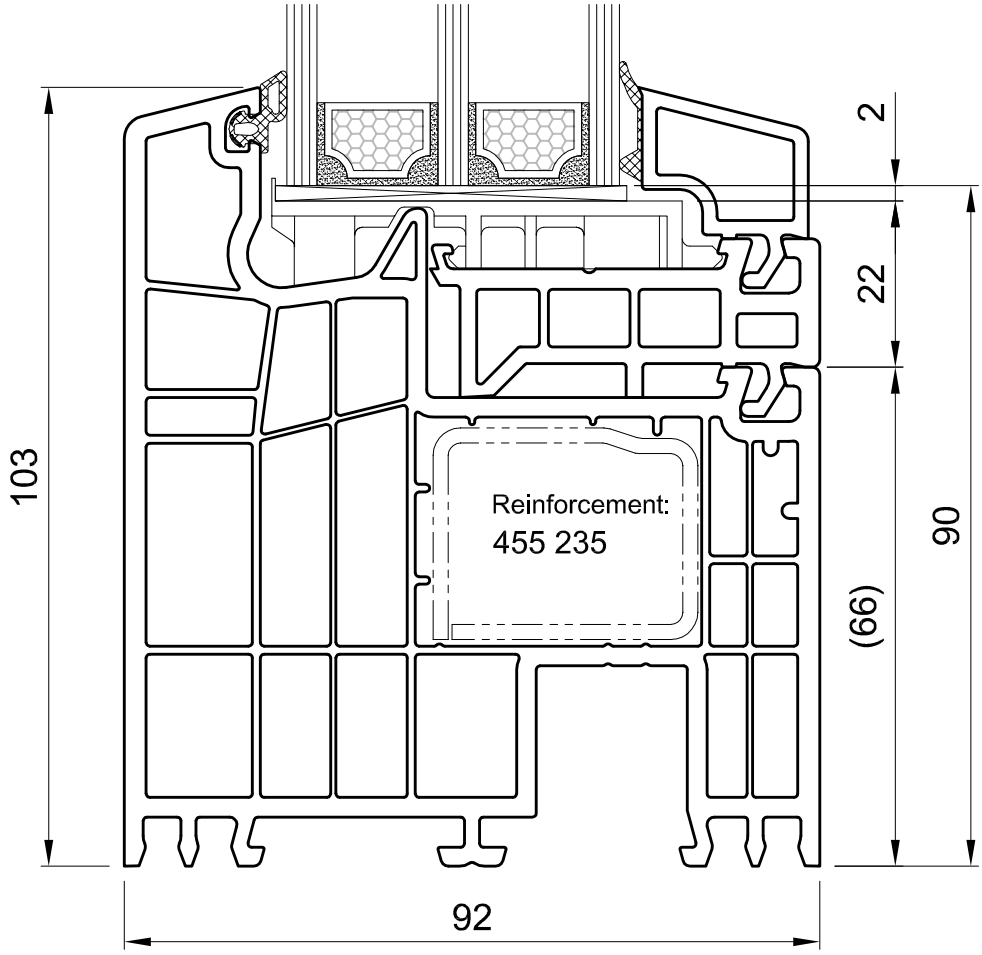

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Fixed glazing

| Frame | Fixed glazing bar | bE92 04 |
|---|---|---|
| **170 430** | **173 415** | **01.2** |





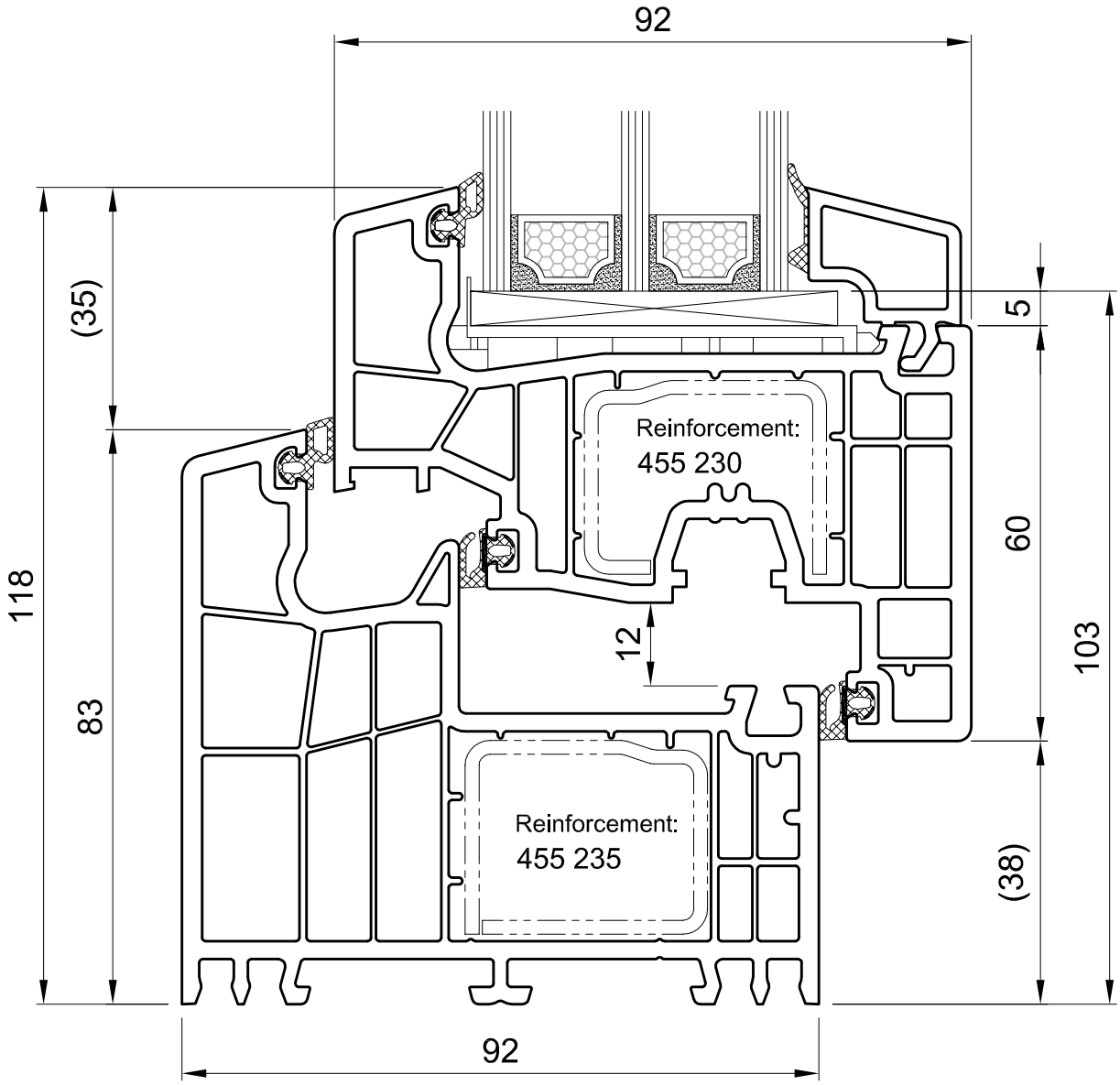

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Frame / Casement

| Frame | Casement | bE92 04 |
|---|---|---|
| **170 420** | **171 020** | **01.3** |





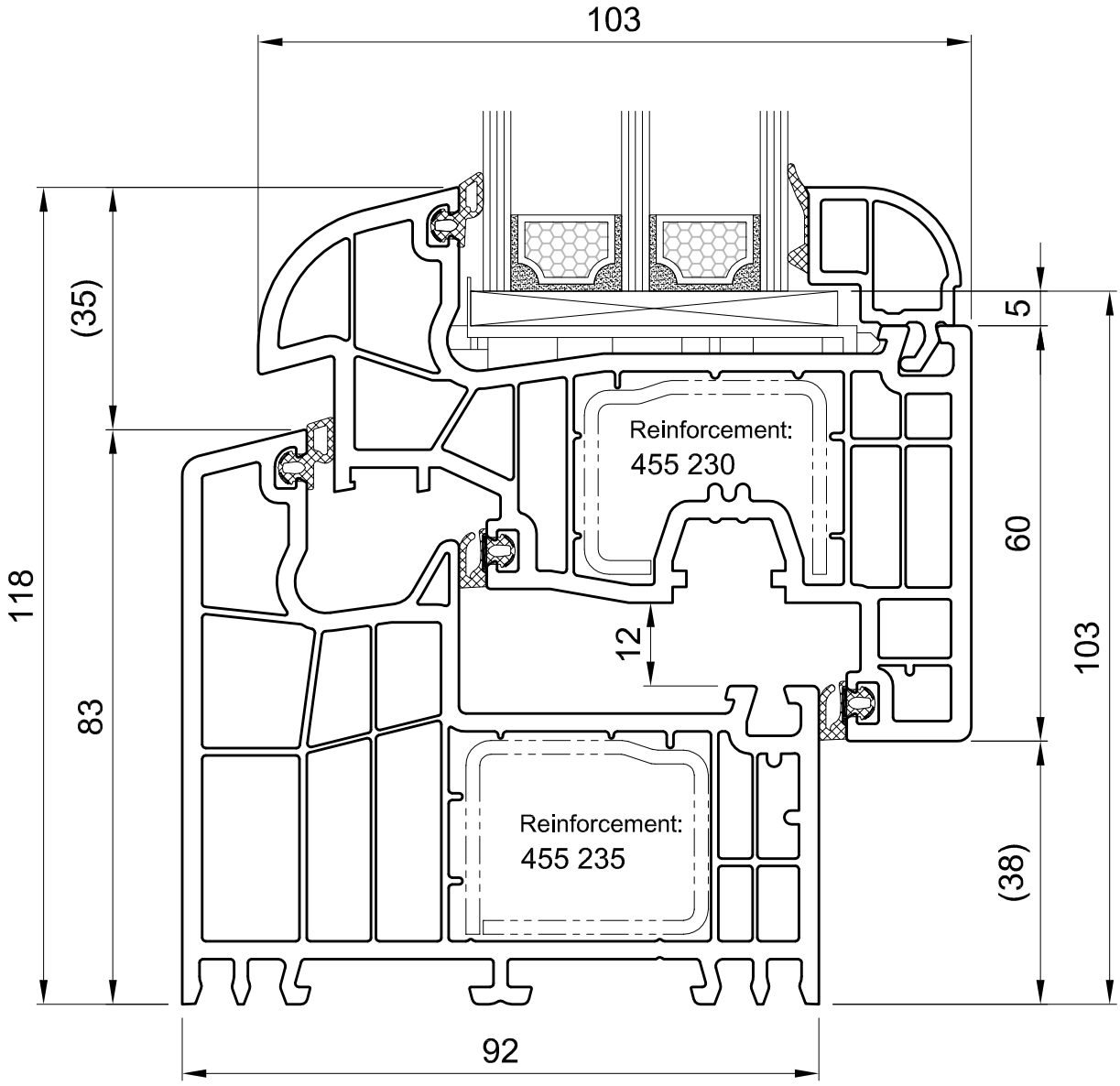

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Frame / Casement

| Frame | Casement | bE92 04 |
|---|---|---|
| **170 420** | **171 226** | **01.4** |





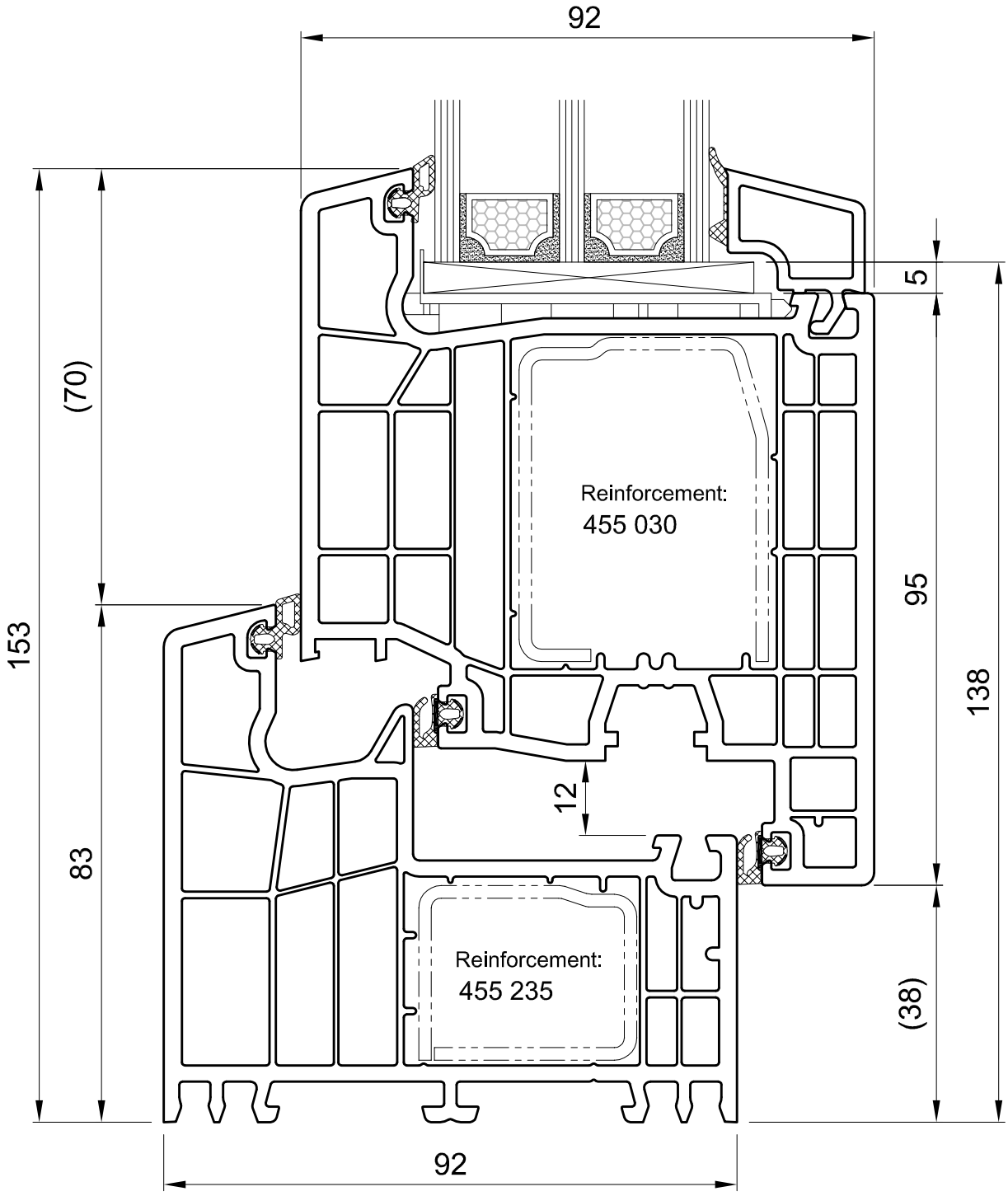

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Frame / Casement

| Frame | Casement | bE92 04 |
|---|---|---|
| **170 420** | **171 030** | **01.5** |





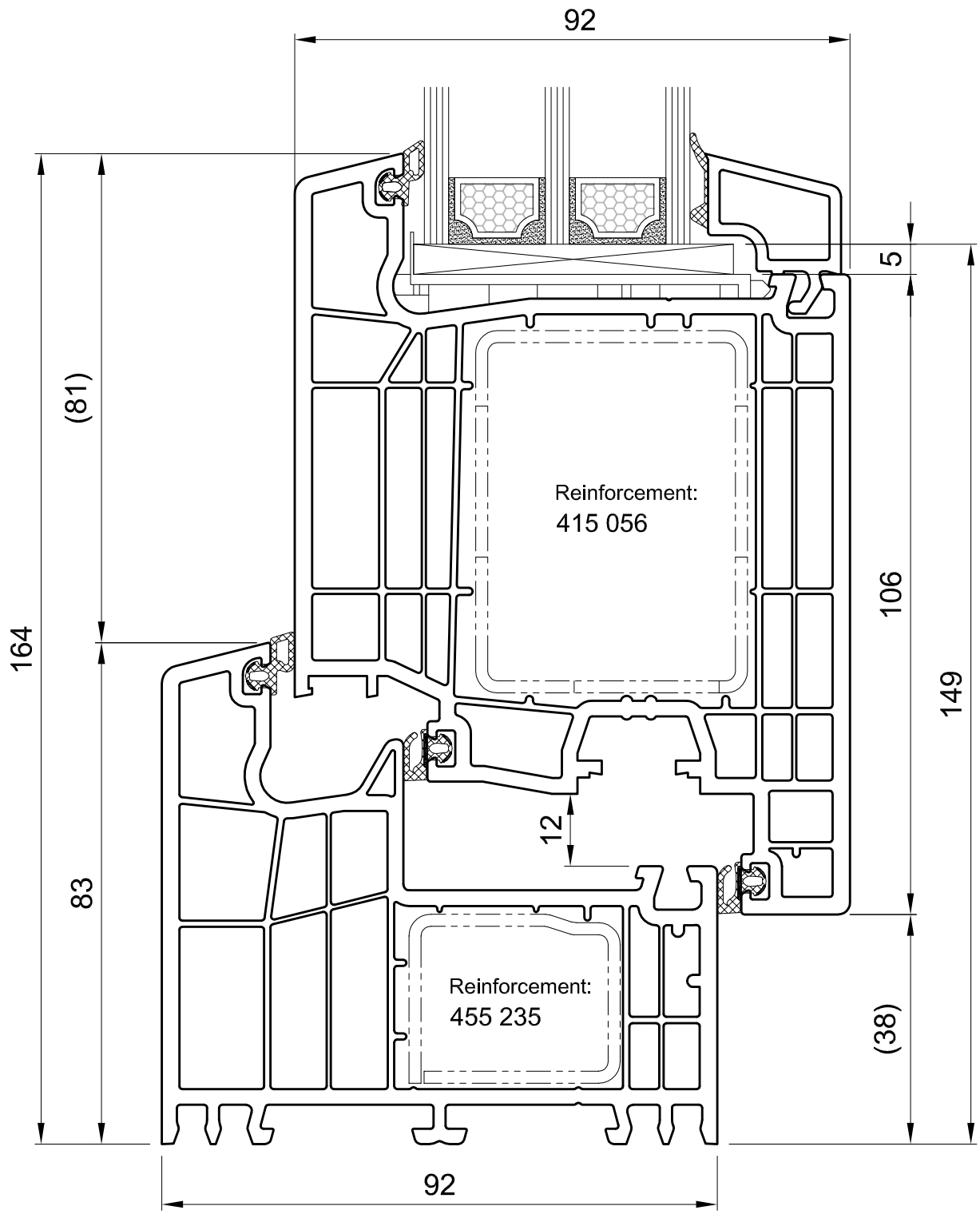

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Frame / Casement

| Frame | Casement | bE92 04 |
|---|---|---|
| **170 420** | **171 040** | **01.6** |





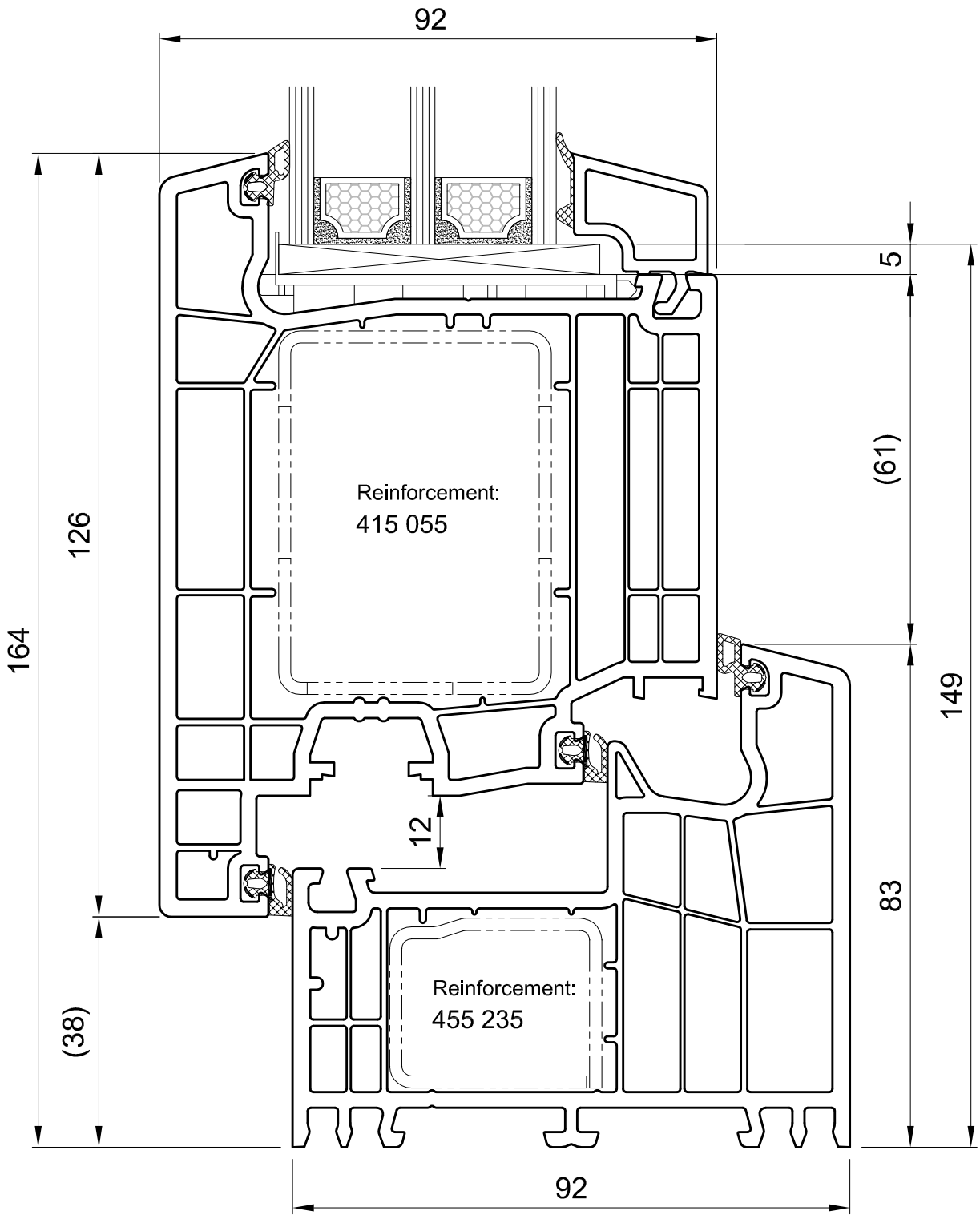

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Frame / Casement

| Frame | Casement | bE92 04 |
|---|---|---|
| **170 420** | **371 040** | **01.7** |





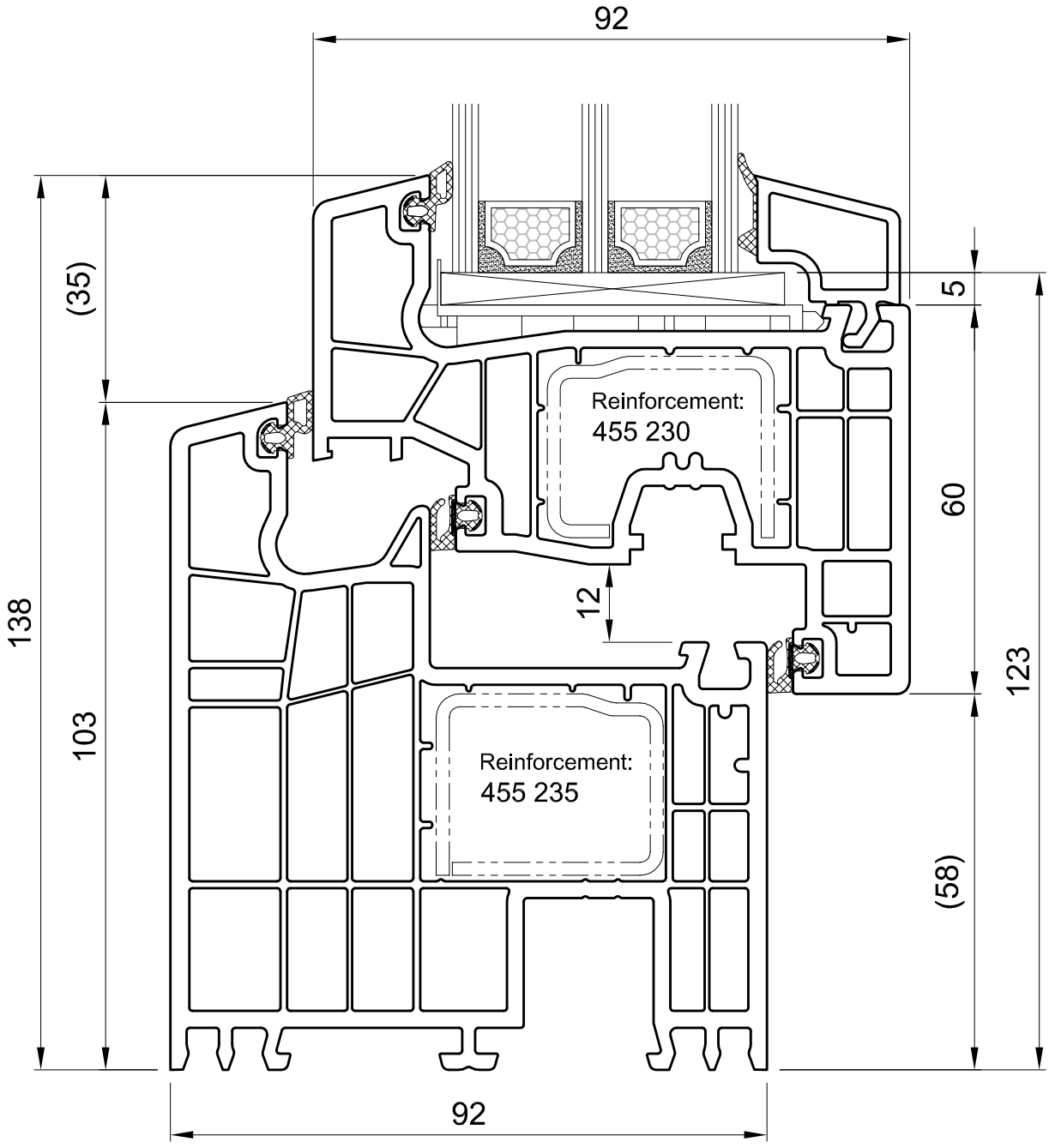

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Frame / Casement

| Frame | Casement | bE92 04 |
|---|---|---|
| **170 430** | **171 020** | **01.8** |





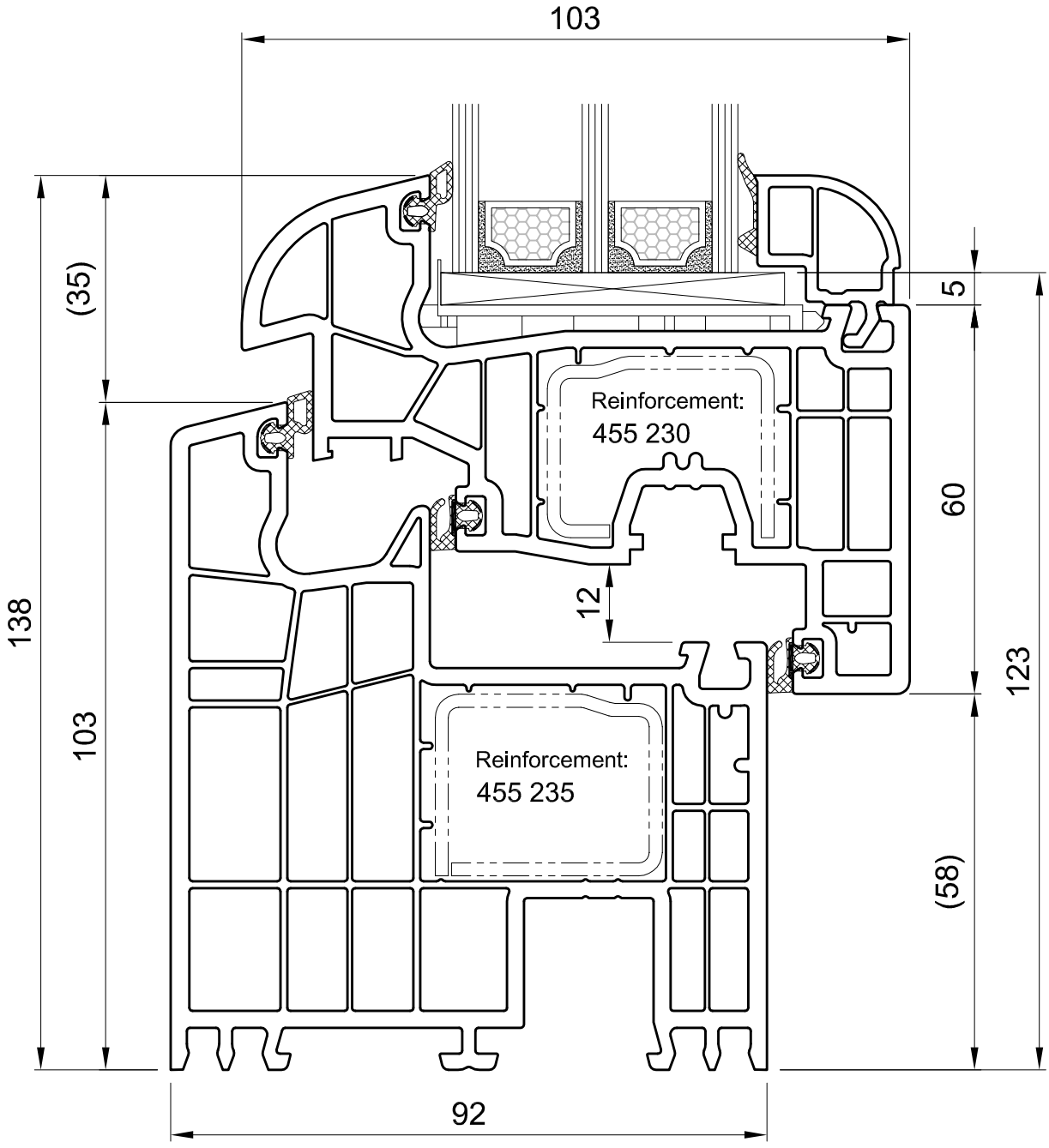

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Frame / Casement

| Frame | Casement | bE92 04 |
|---|---|---|
| **170 430** | **171 226** | **01.9** |





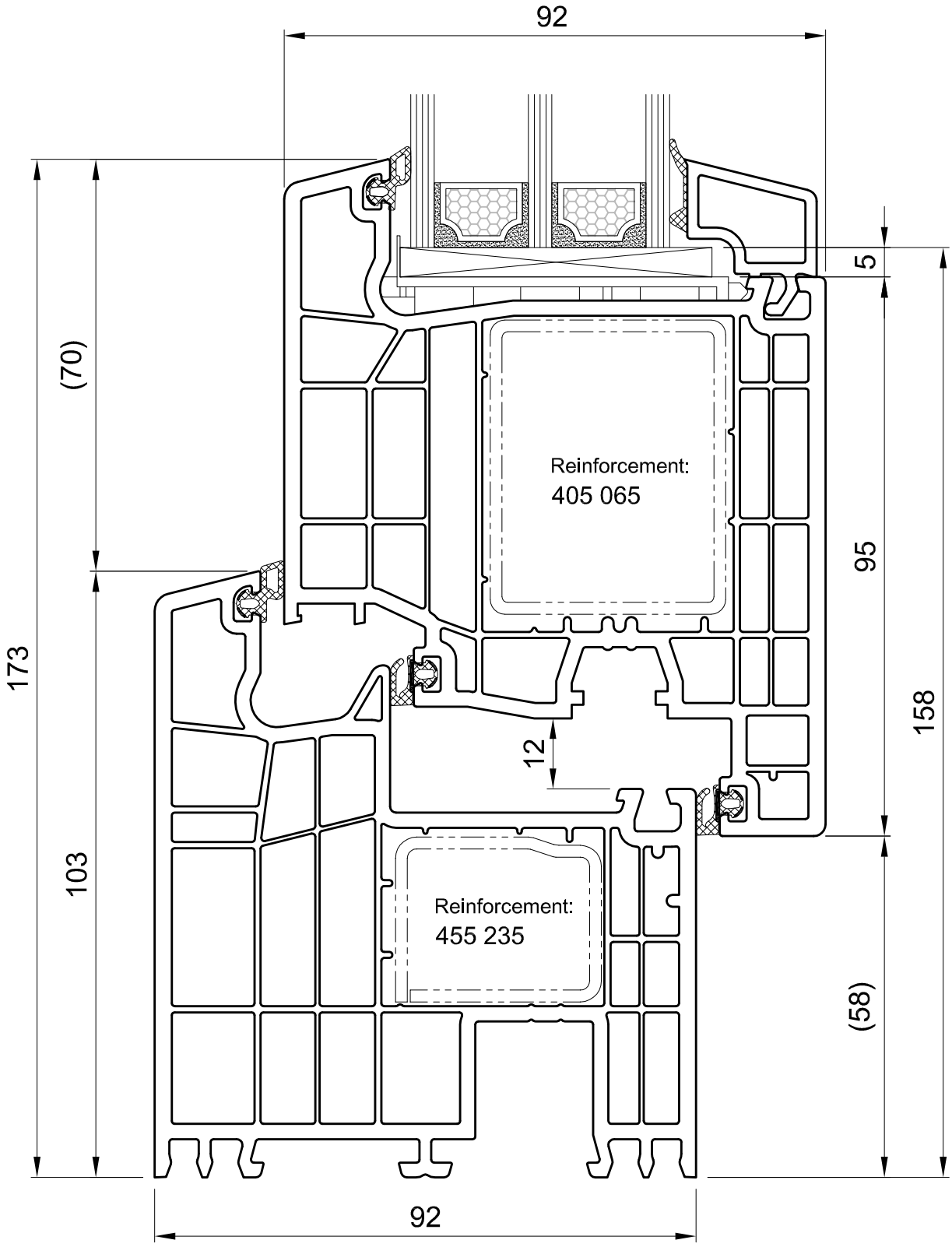

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Frame / Casement

| Frame | Casement | bE92 04 |
|---|---|---|
| **170 430** | **171 030** | **01.10** |





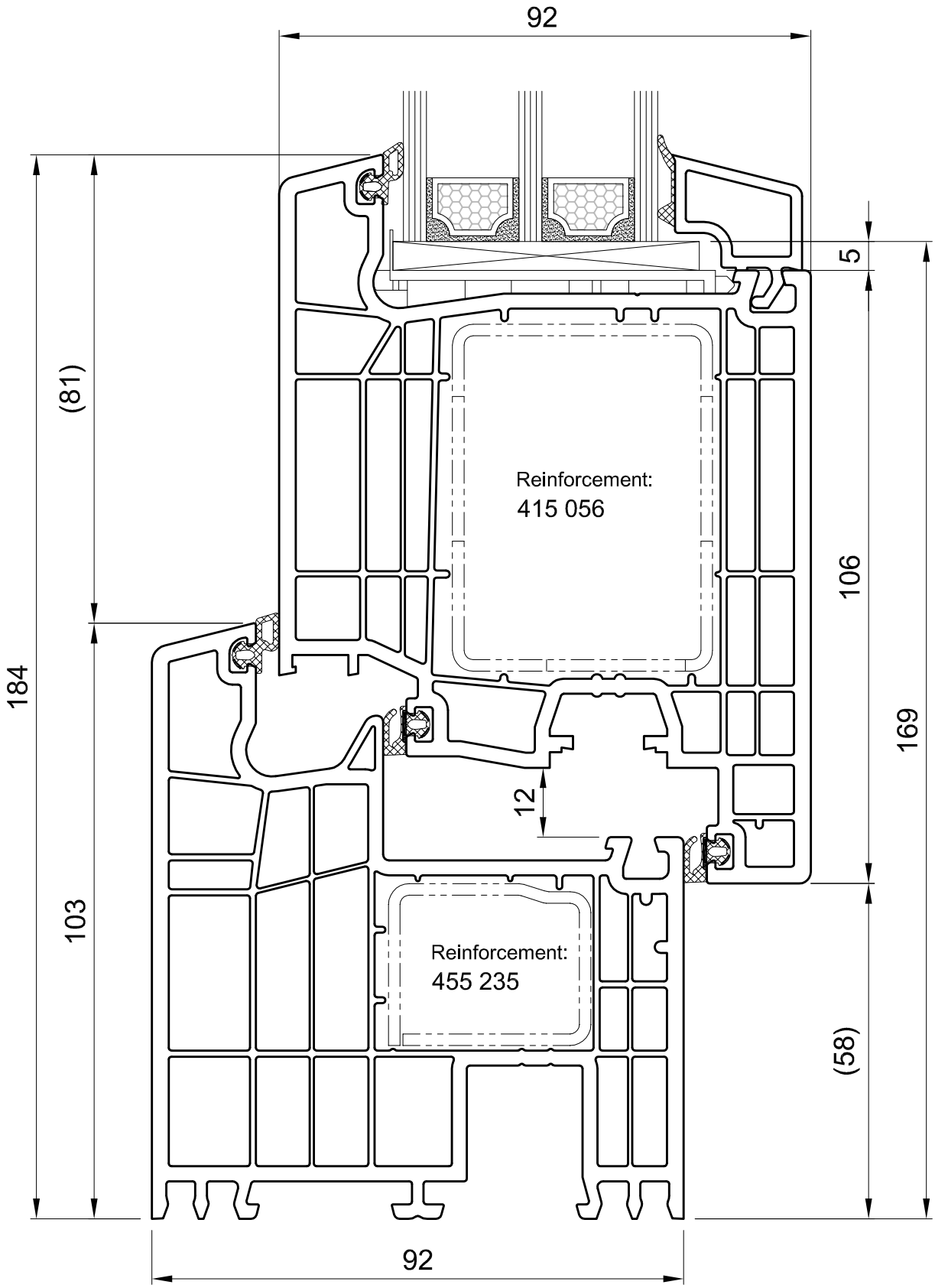

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Frame / Casement

| Frame | Casement | bE92 04 |
|---|---|---|
| **170 430** | **171 040** | **01.11** |





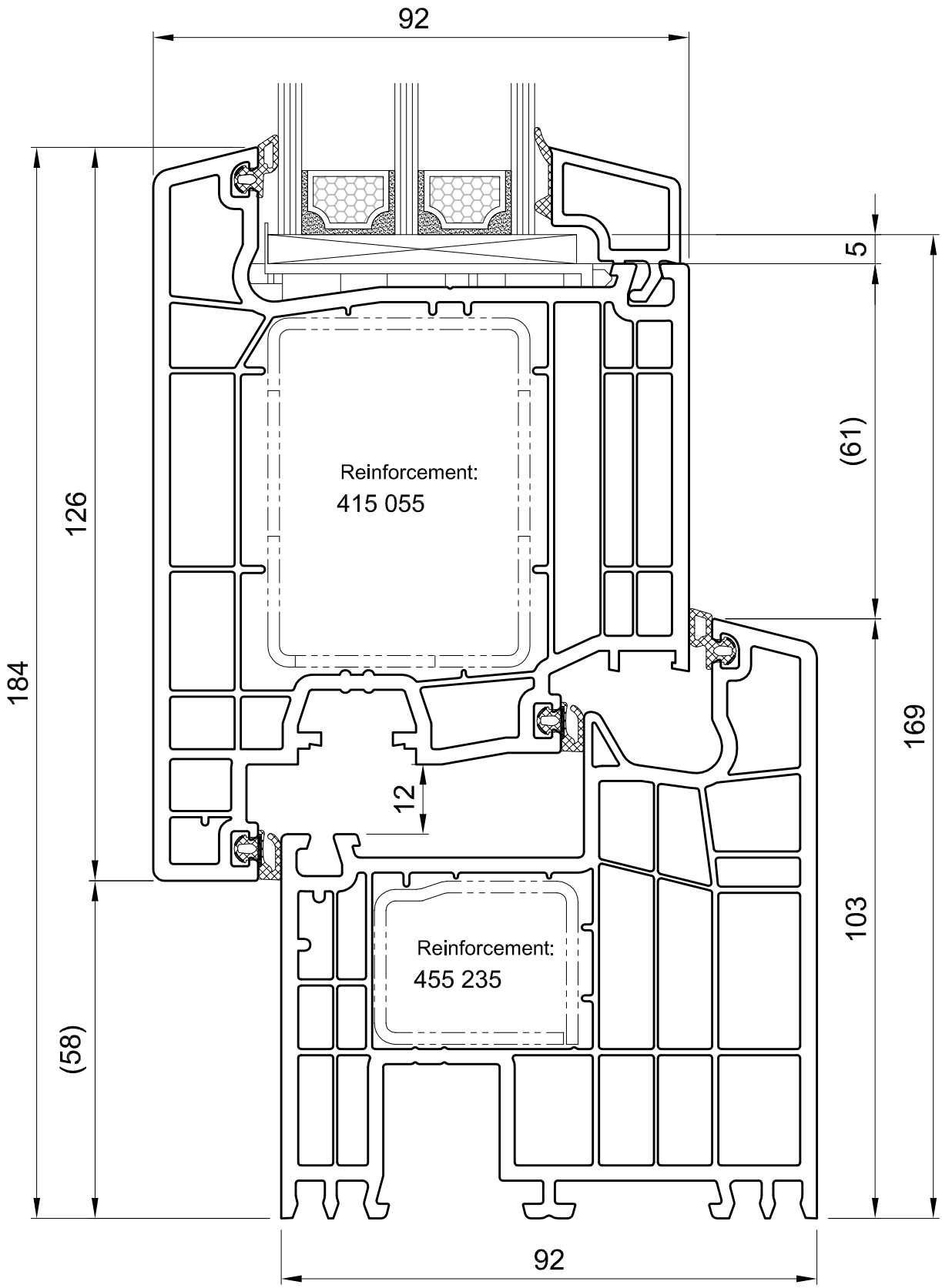

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Frame / Casement

| Frame | Casement | bE92 04 |
|---|---|---|
| **170 430** | **371 040** | **01.12** |





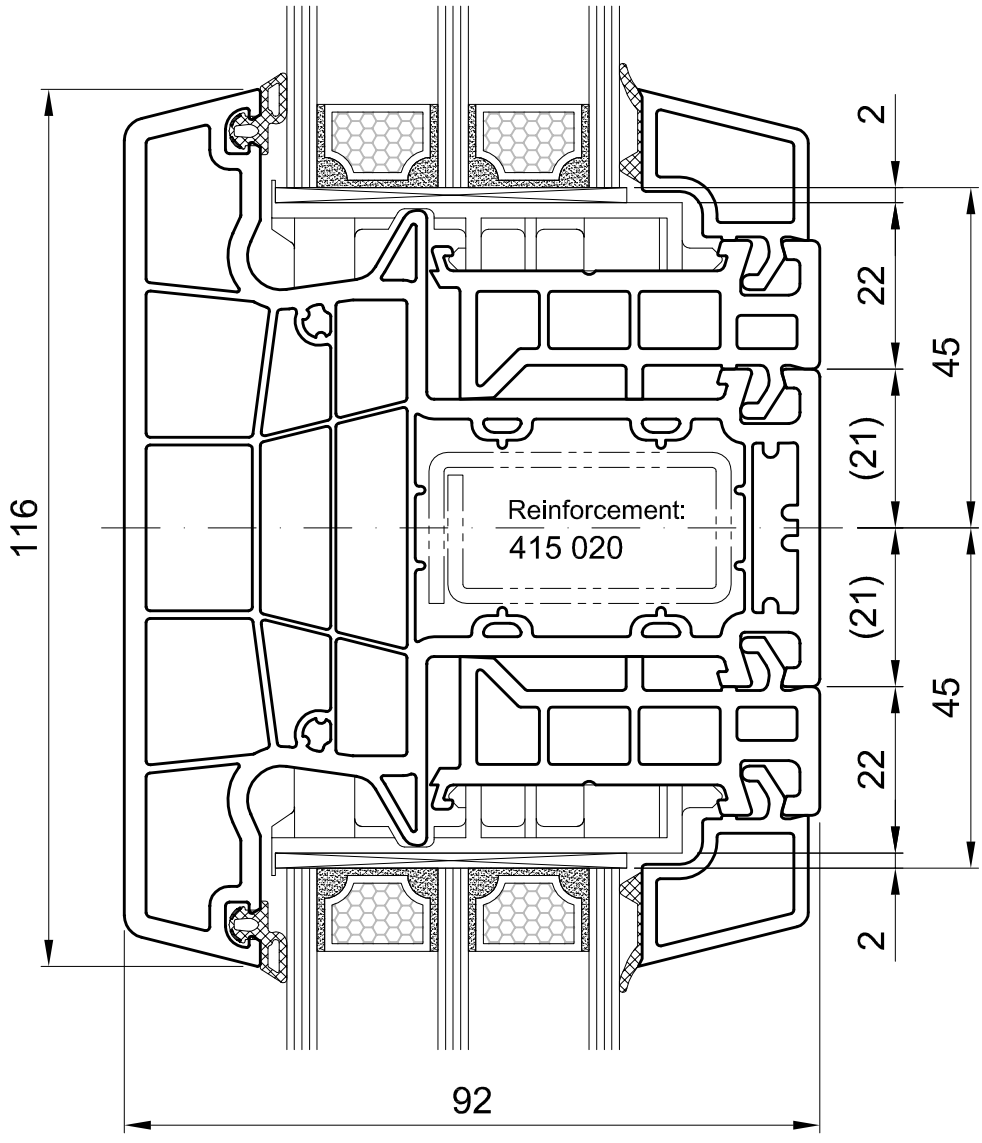

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Fixed glazing-post/transom

| Post | Fixed glazing bar | bE92 04 |
|---|---|---|
| **172 420** | **173 415** | **02.1** |





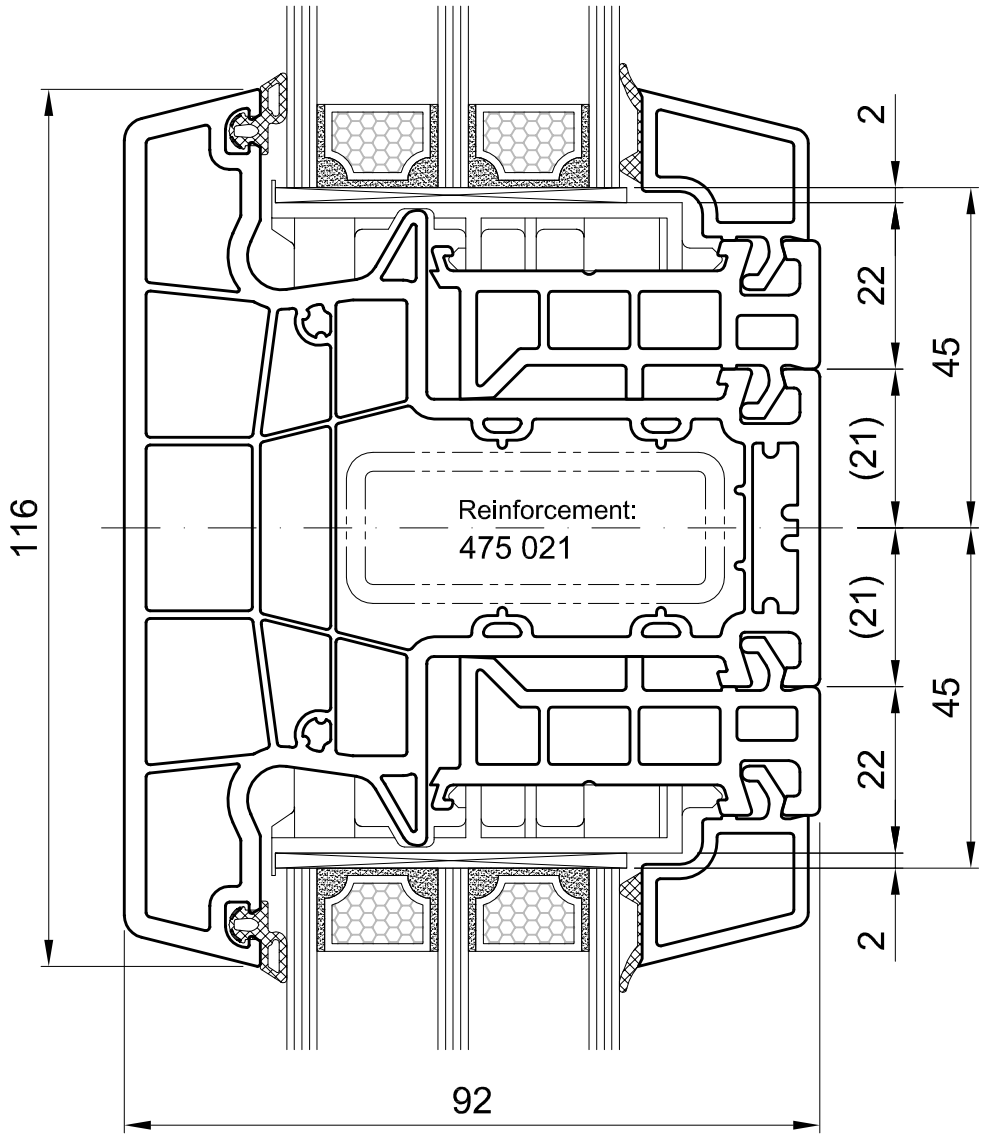

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Fixed glazing-post/transom

| Post | Fixed glazing bar | bE92 04 |
|---|---|---|
| **172 421** | **173 415** | **02.2** |





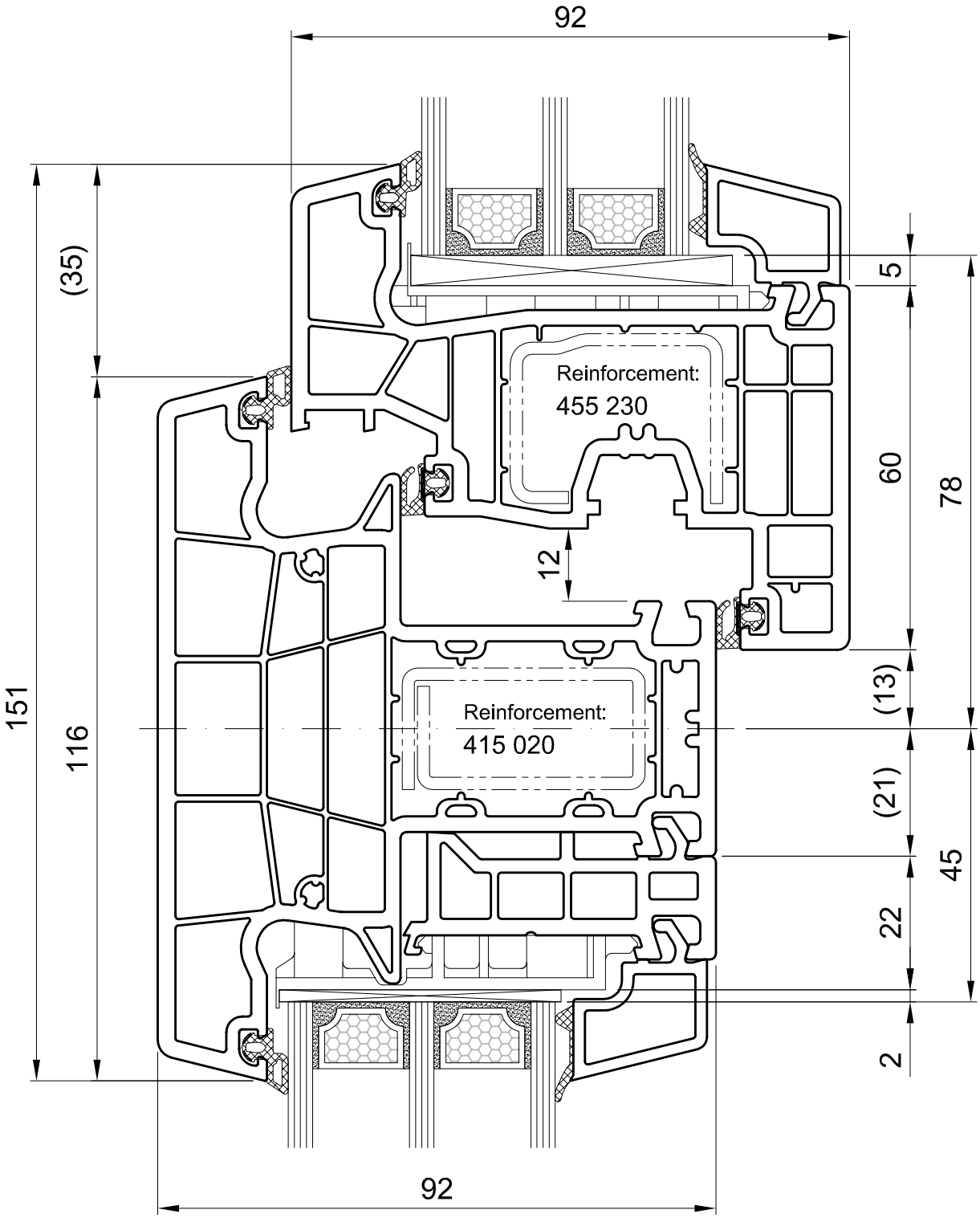

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Fixed glazing-post/transom-casement

| Post | Casement | Fixed glazing bar | bE92 04 |
|---|---|---|---|
| **172 420** | **171 020** | **173 415** | **02.3** |





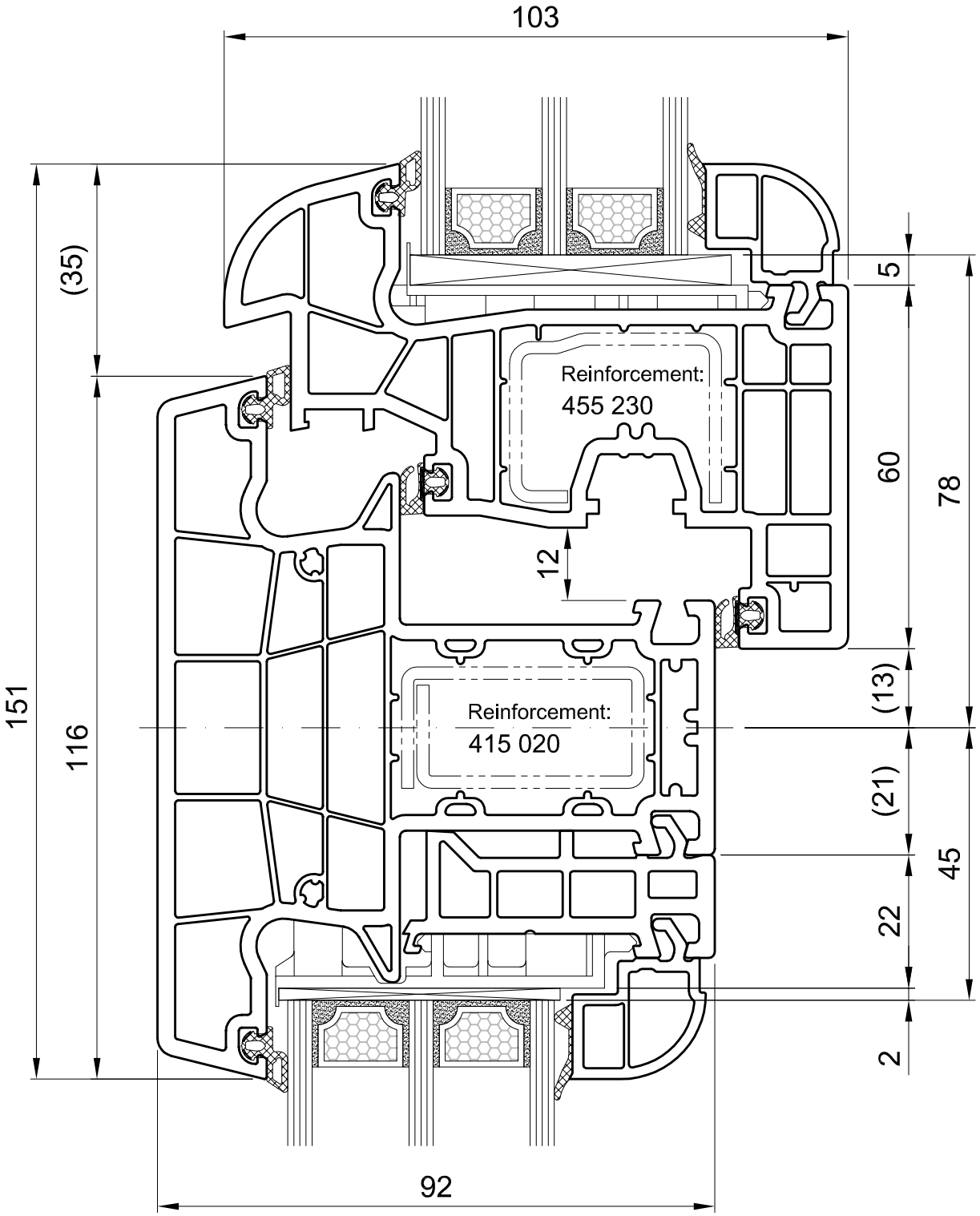

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Fixed glazing-post/transom-casement

| Post | Casement | Fixed glazing bar | bE92 04 |
|---|---|---|---|
| **172 420** | **171 226** | **173 415** | **02.4** |





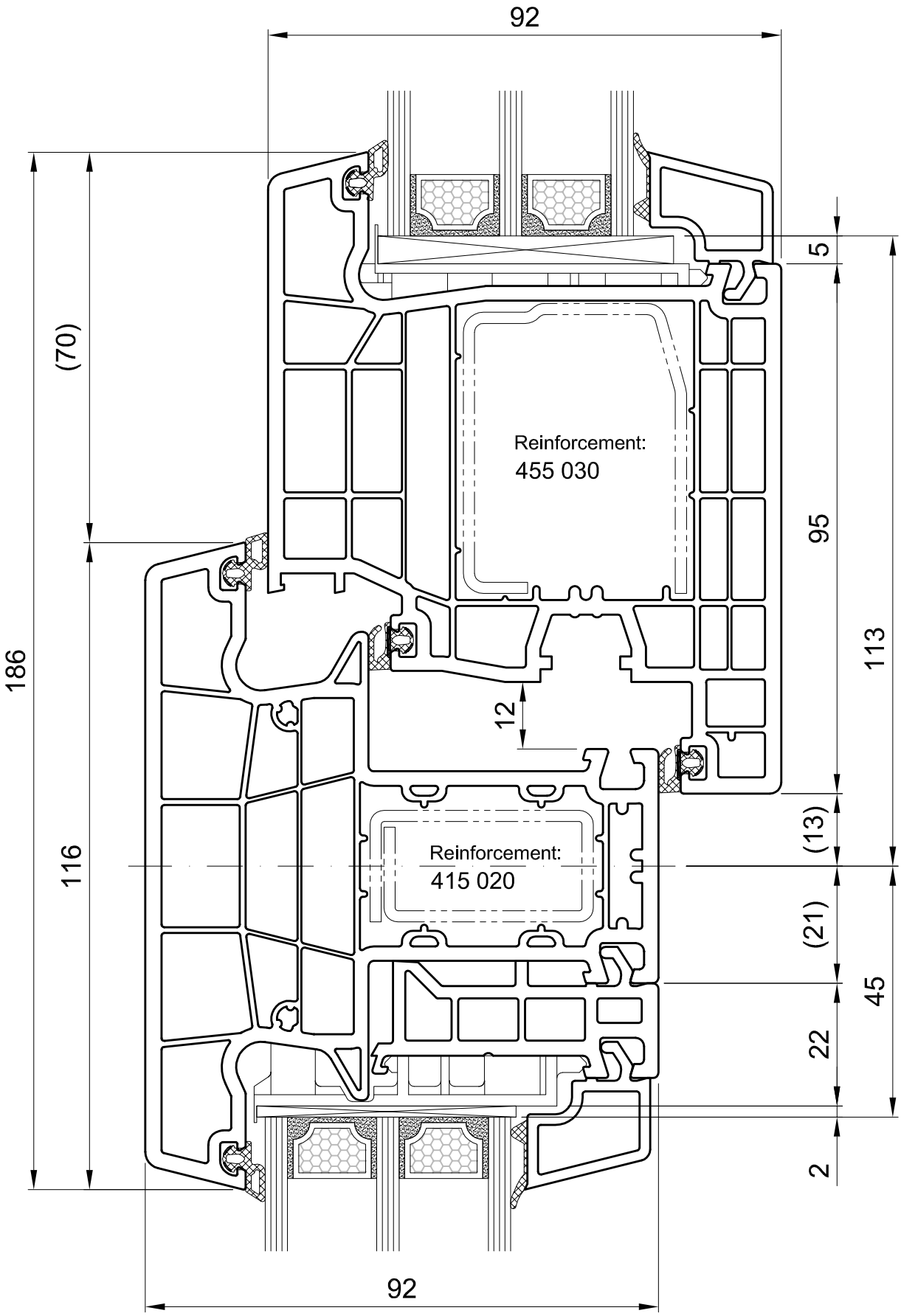

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Fixed glazing-post/transom-casement

| Post | Casement | Fixed glazing bar | bE92 04 |
|---|---|---|---|
| **172 420** | **171 030** | **173 415** | **02.5** |





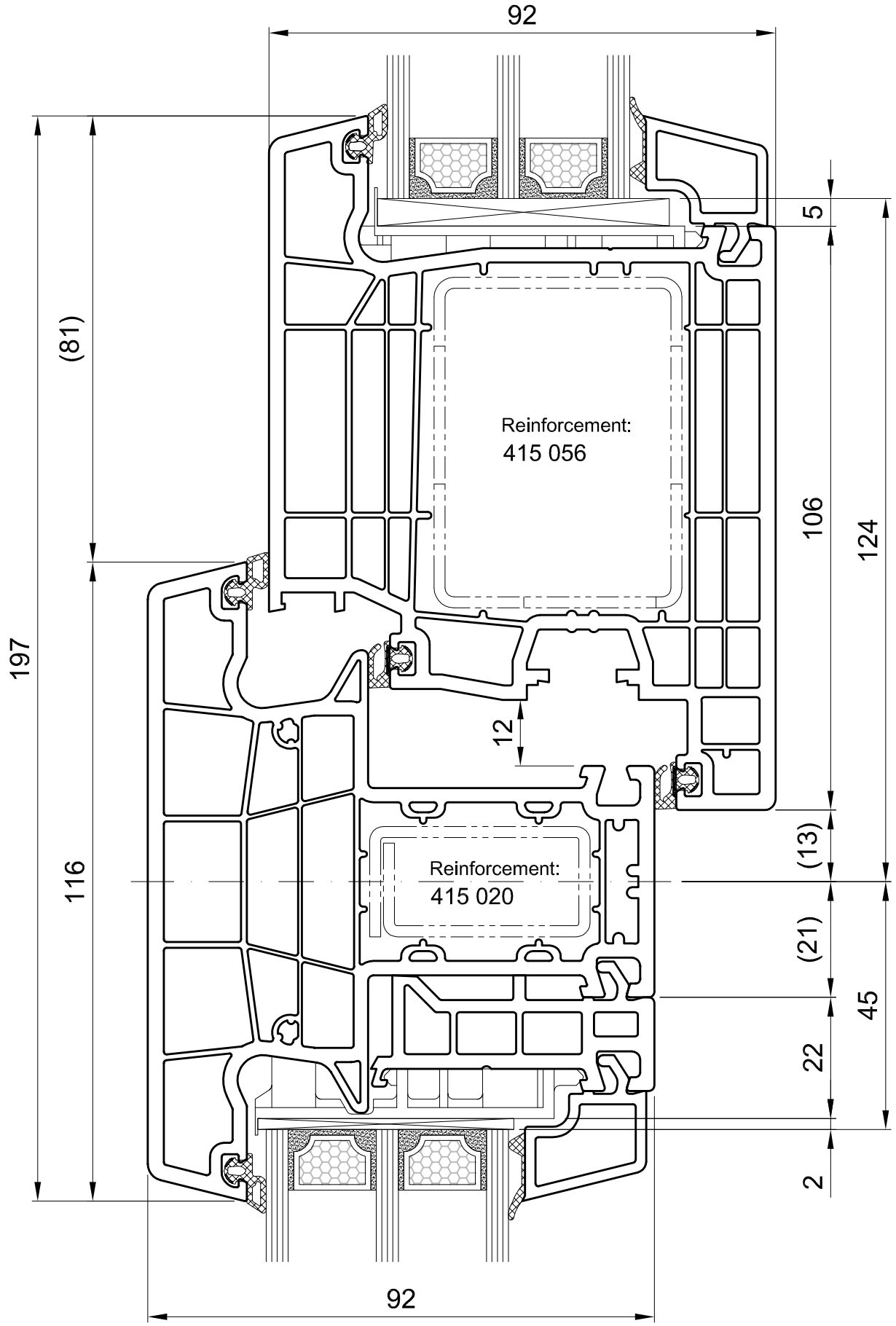

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Fixed galzing-Post/transom-casement

| Post | Casement | Fixed glazing bar | bE92 04 |
|---|---|---|---|
| **172 420** | **171 040** | **173 415** | **02.6** |





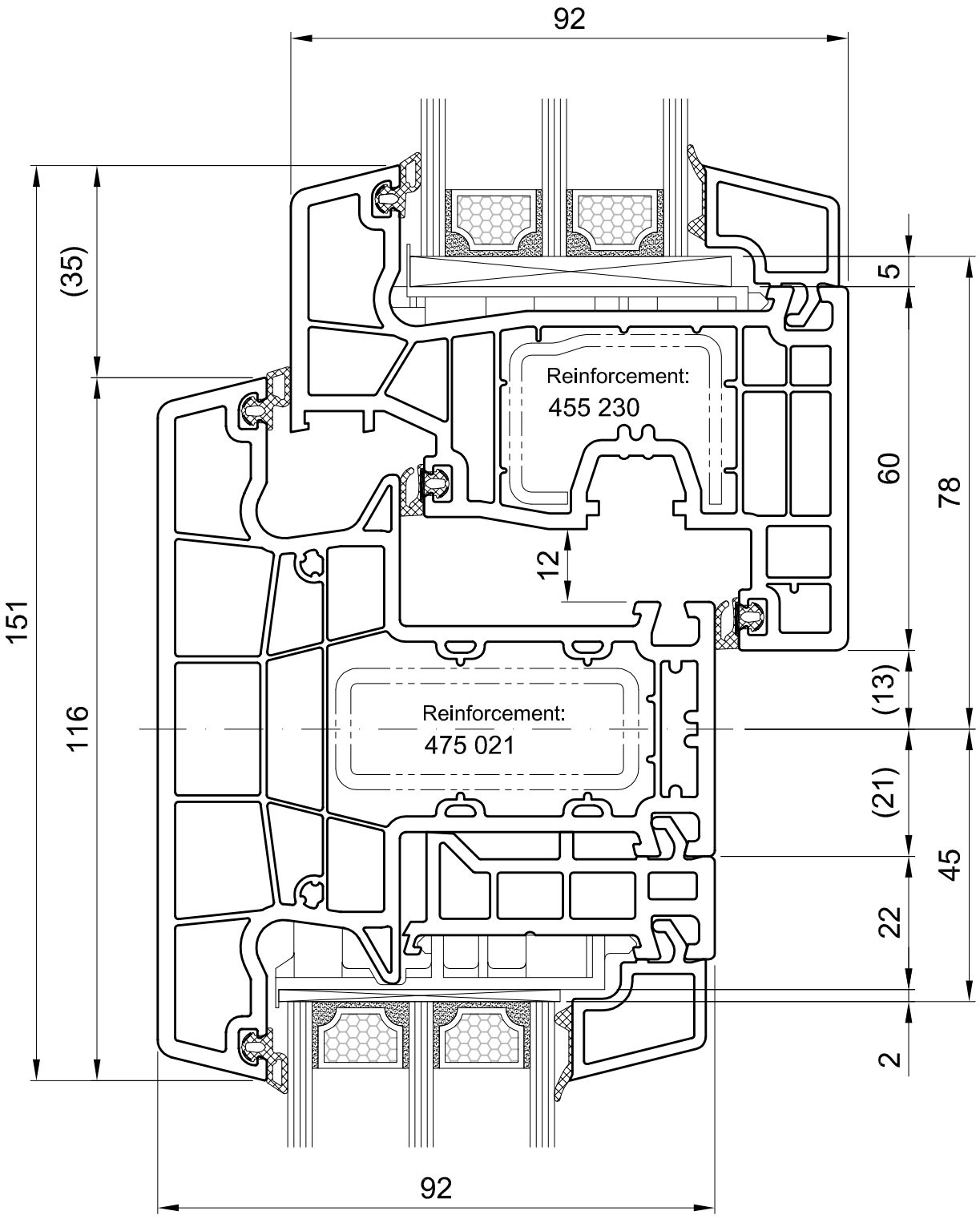

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Fixed glazing-post/transom-casement

| Post | Casement | Fixed glazing bar | bE92 04 |
|---|---|---|---|
| **172 421** | **171 020** | **173 415** | **02.7** |





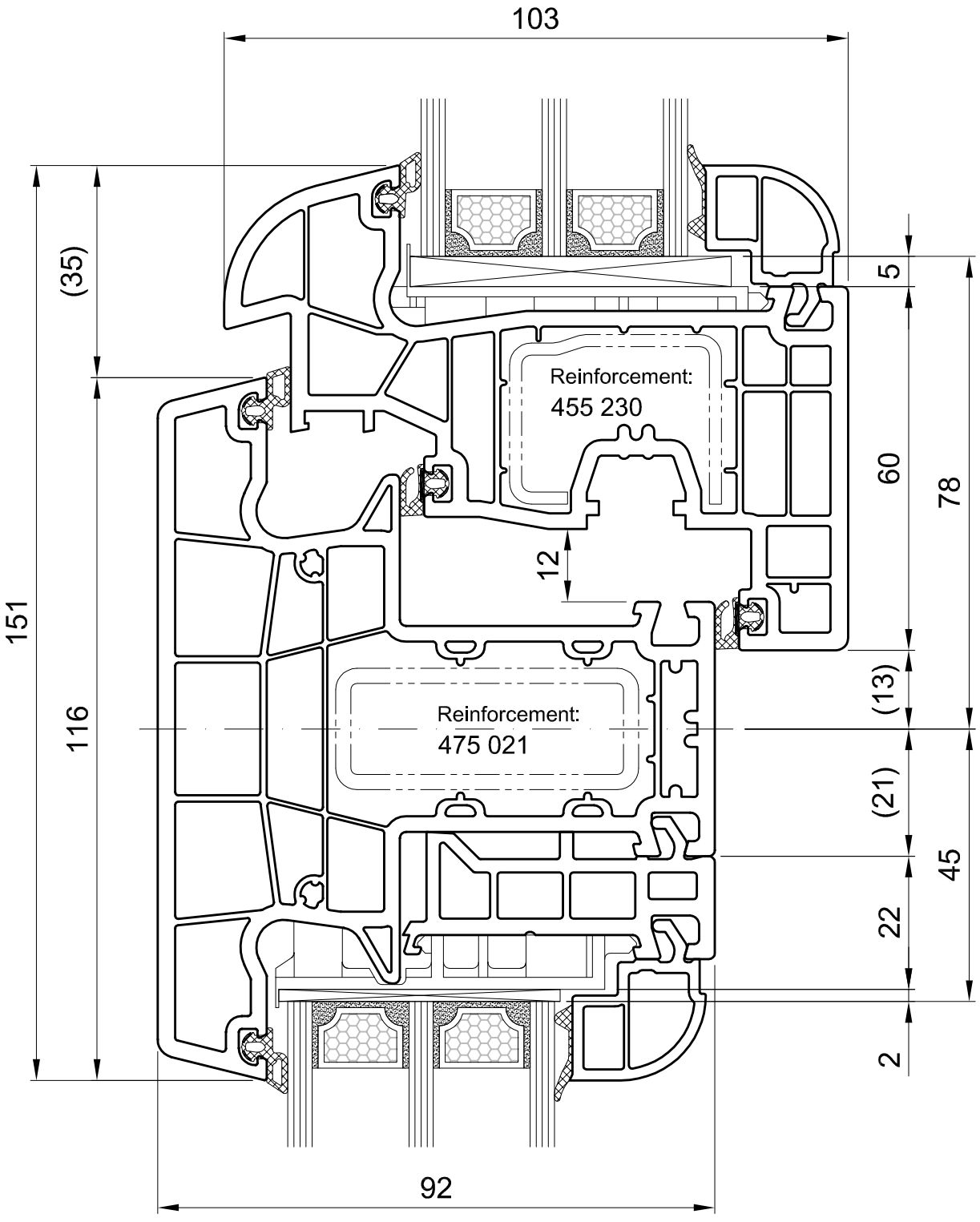

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Fixed glazing-post/transom-casement

| Post | Casement | Fixed glazing bar | bE92 04 |
|---|---|---|---|
| **172 421** | **171 226** | **173 415** | **02.8** |





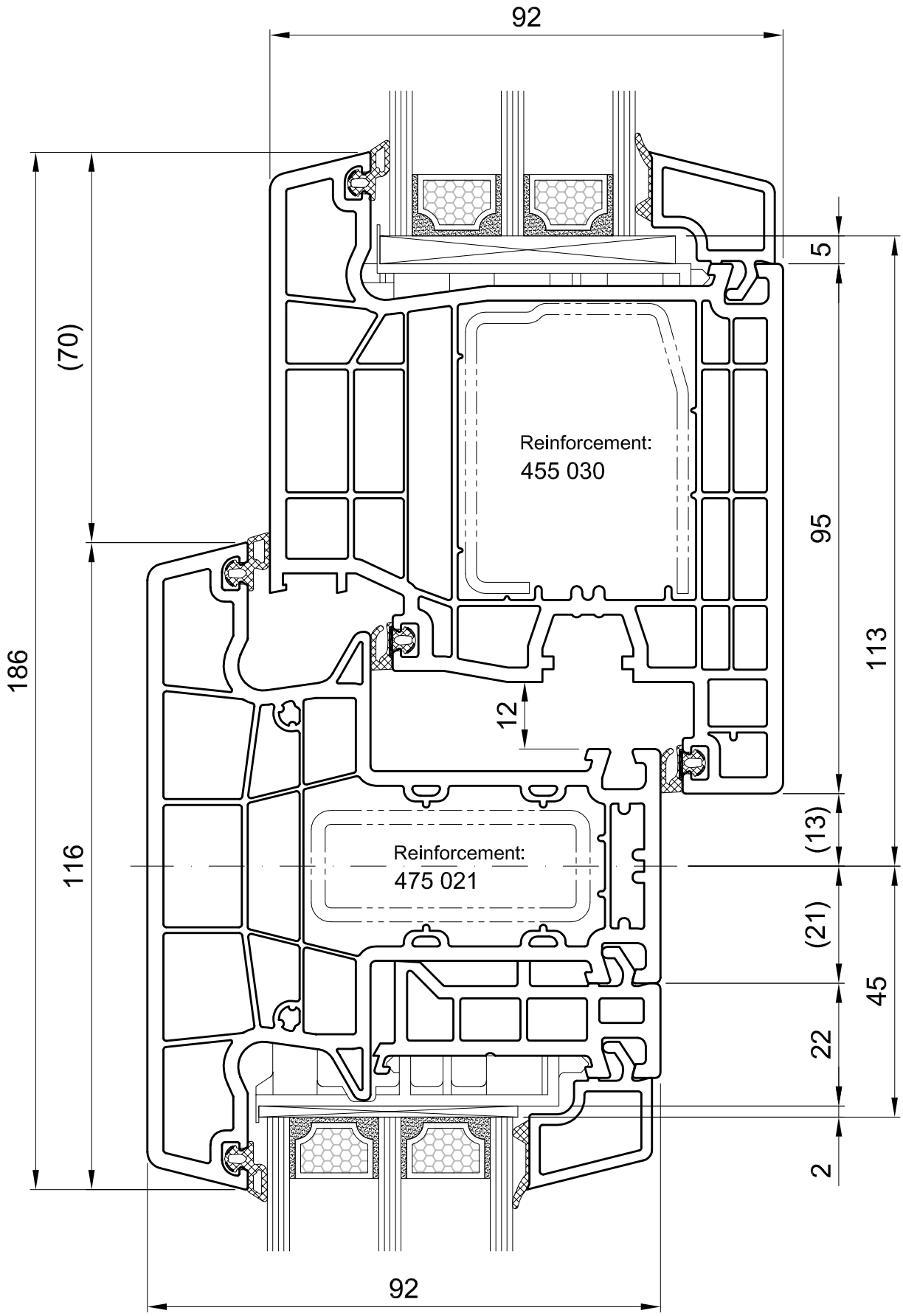

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Fixed glazing-post/transom-casement

| Post | Casement | Fixed galzing bar | bE92 04 |
|---|---|---|---|
| **172 421** | **171 030** | **173 415** | **02.9** |





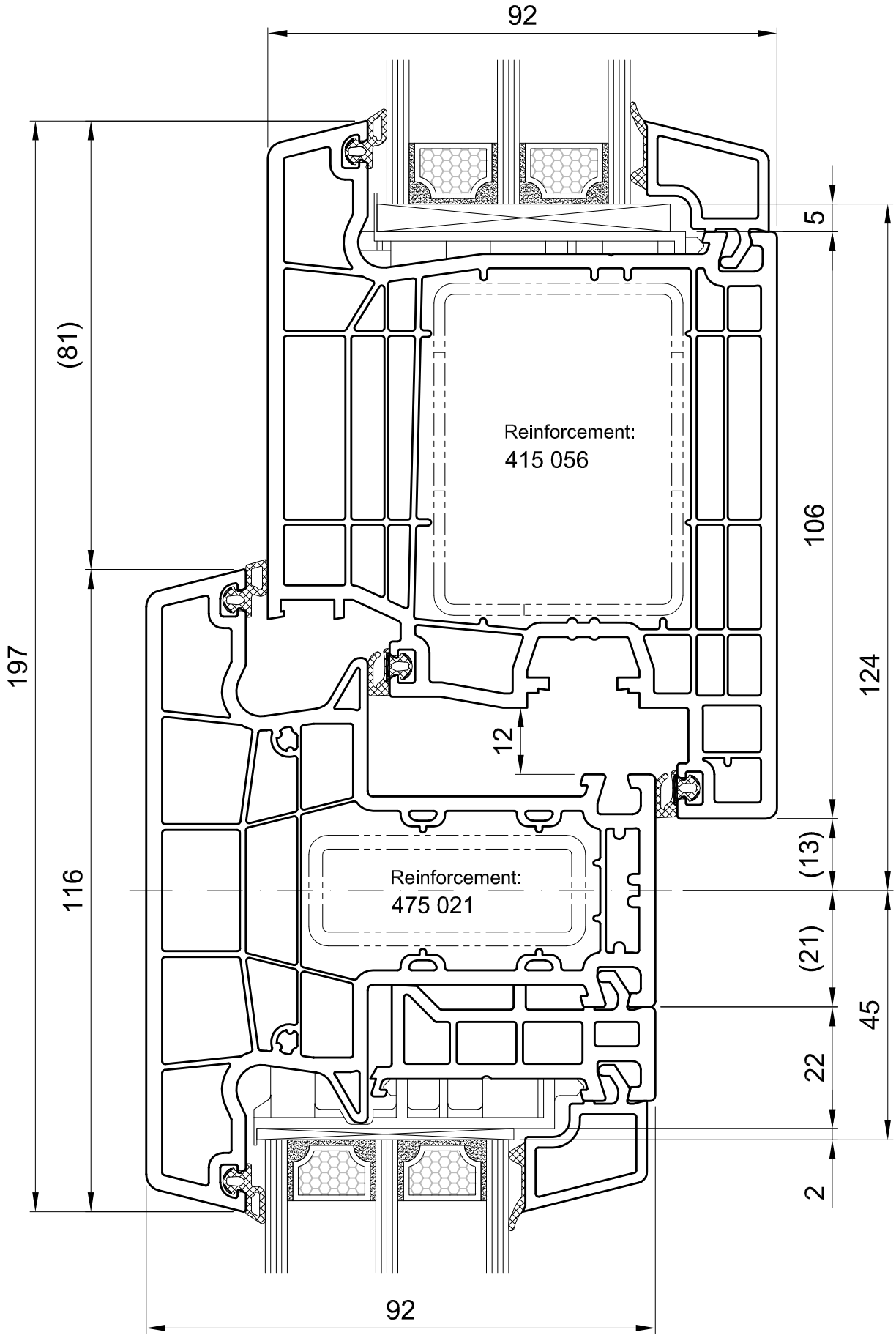

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Fixed glazing-post/transom-casement

| Post | Casement | Fixed glazing bar | bE92 04 |
|---|---|---|---|
| **172 421** | **171 040** | **173 415** | **02.10** |





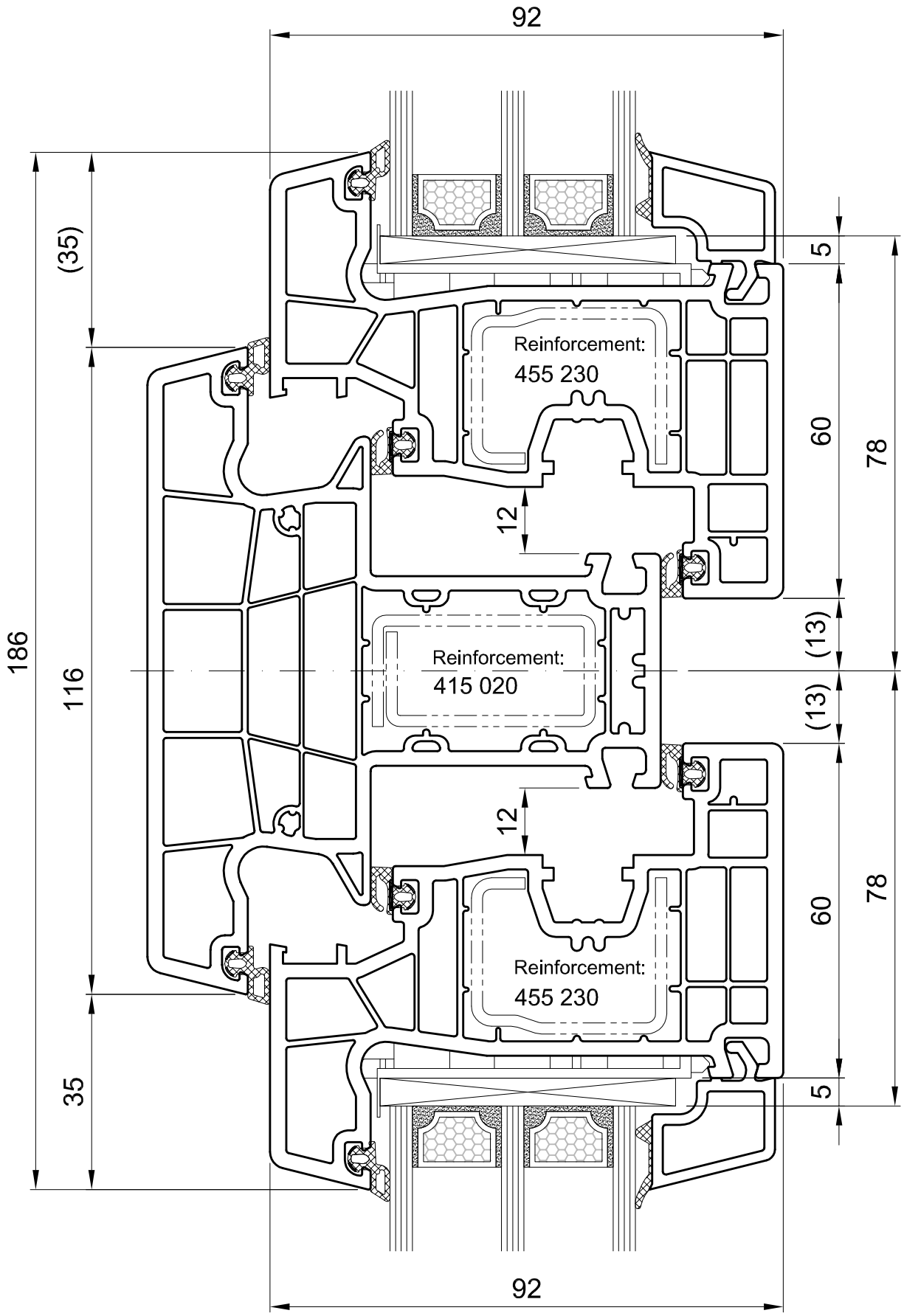

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Casement-post/transom-casement

| Post | Casement | bE92 04 |
|---|---|---|
| **172 420** | **171 020** | **02.11** |





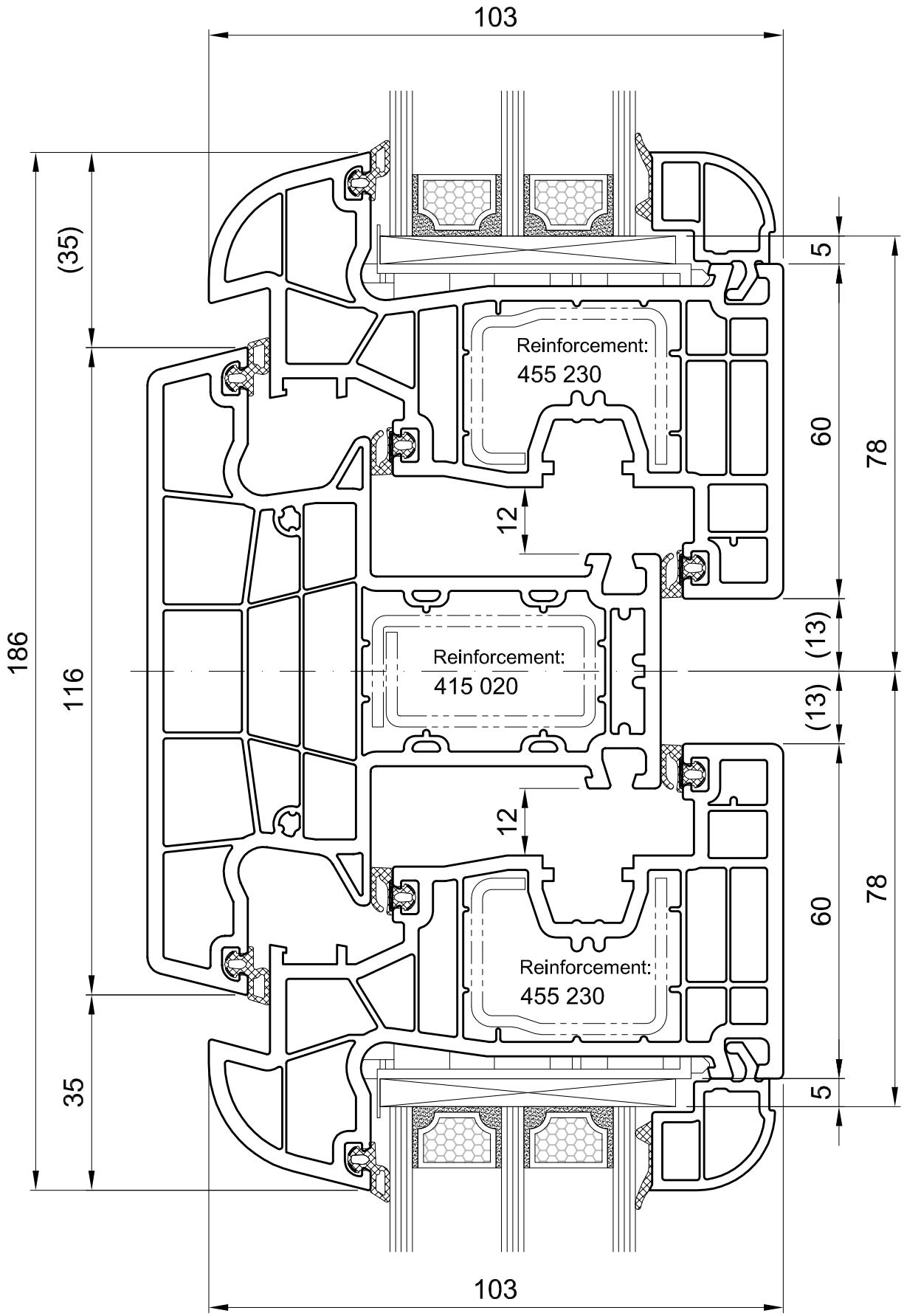

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Casement-post/transom-casement

| Post | Casement | bE92 04 |
|---|---|---|
| **172 420** | **171 226** | **02.12** |





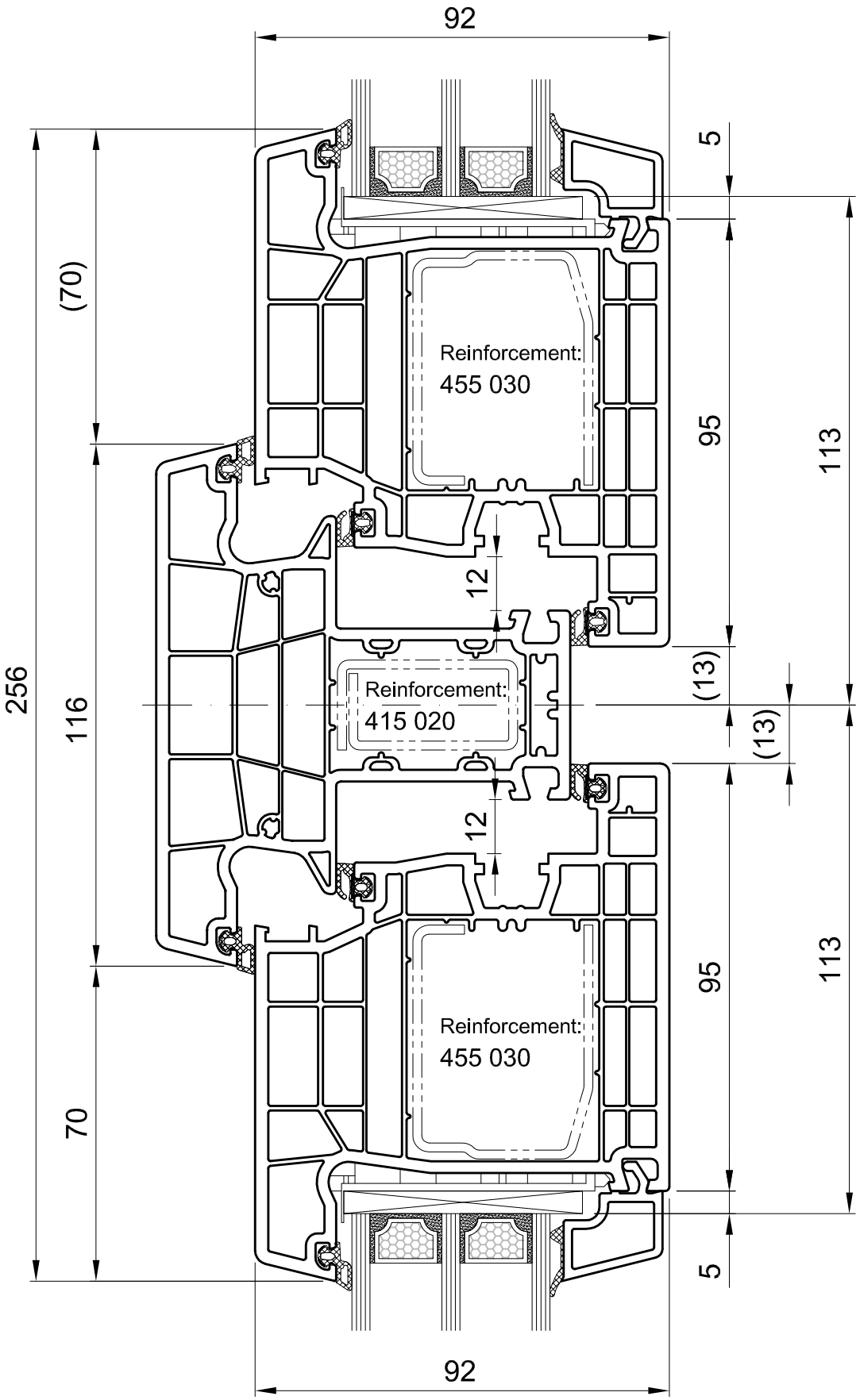

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Casement-post/transom-casement

| Post | Casement | bE92 04 |
|---|---|---|
| **172 420** | **171 030** | **02.13** |





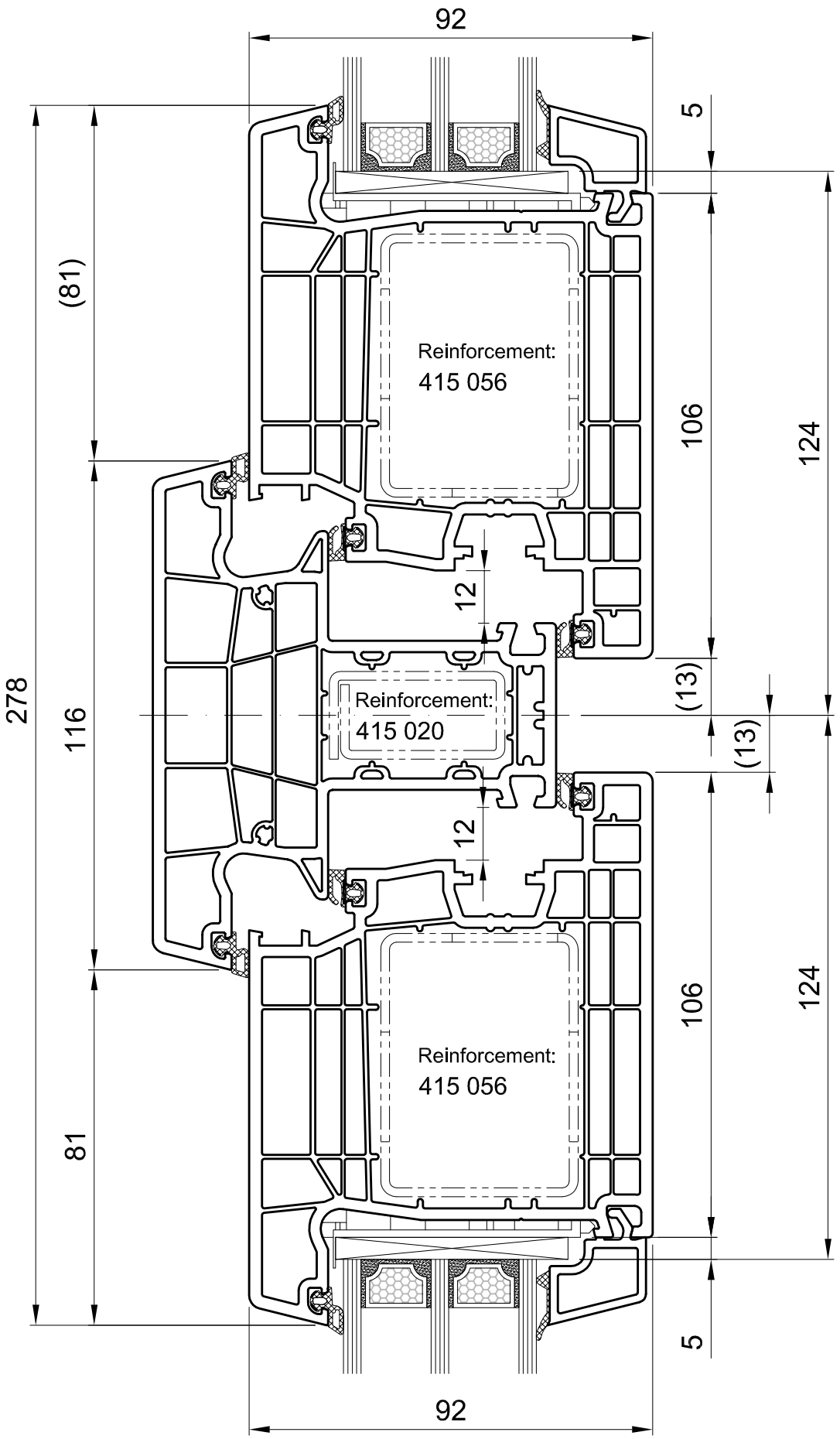

Not to scale

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Casement-post/transom-casement

| Post | Casement | bE92 04 |
|---|---|---|
| **172 420** | **171 040** | **02.14** |



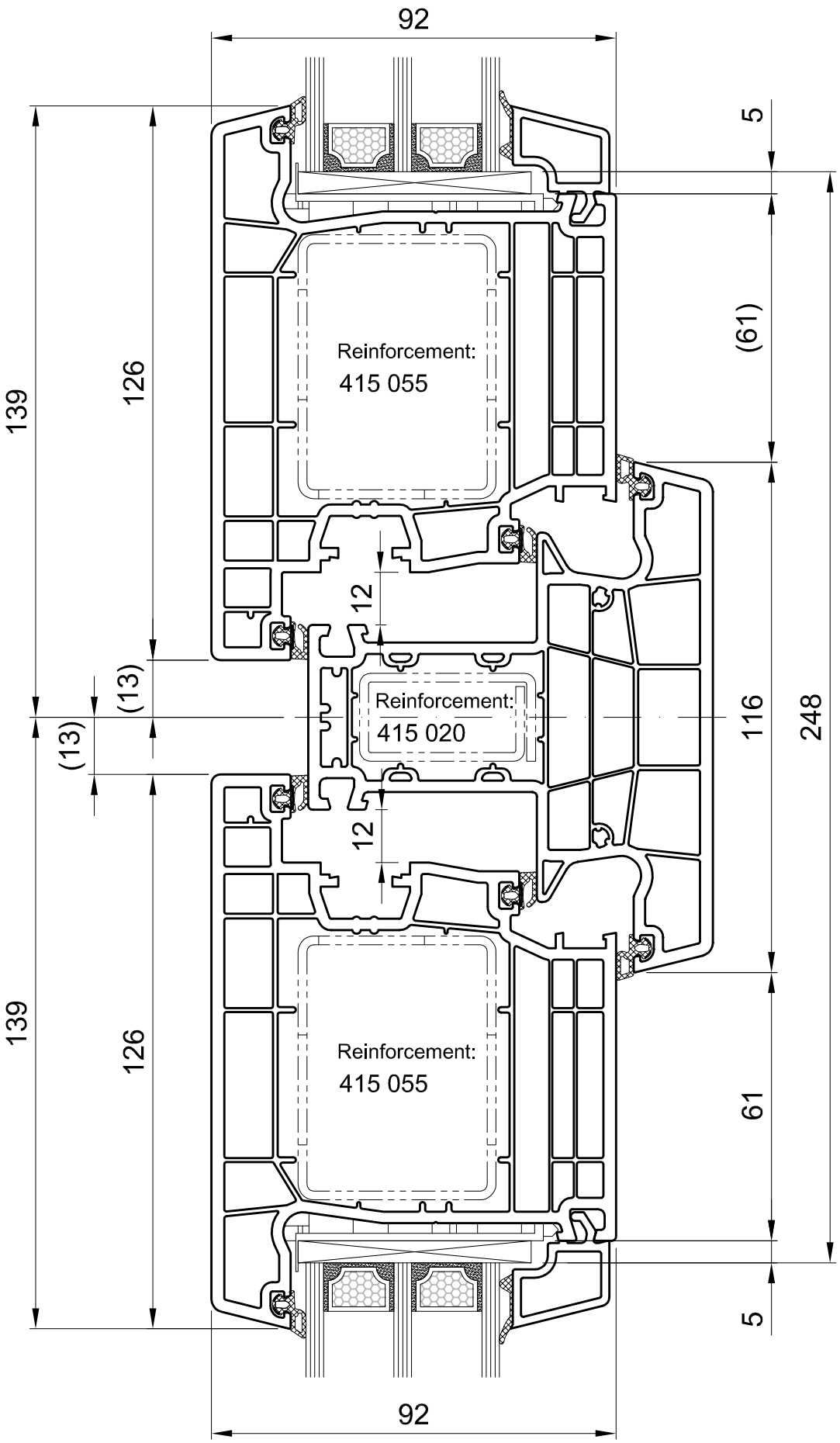

Not to scale

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Casement-post/transom-casement

| Post | Casement | bE92 04 |
|---|---|---|
| **172 420** | **371 040** | **02.15** |



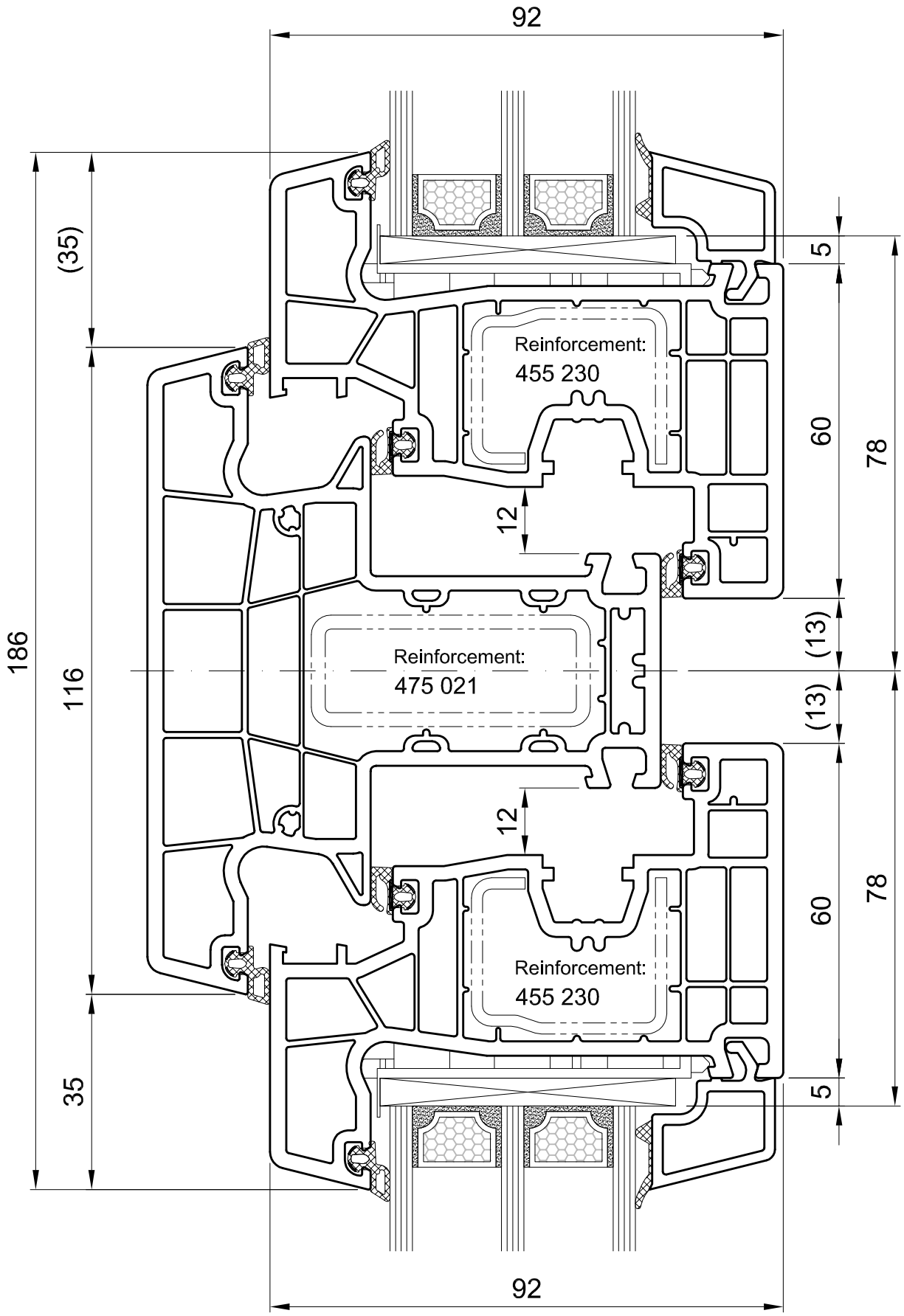

Not to scale

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Casement-post/transom-casement

| Post | Casement | bE92 04 |
|---|---|---|
| **172 421** | **171 020** | **02.16** |





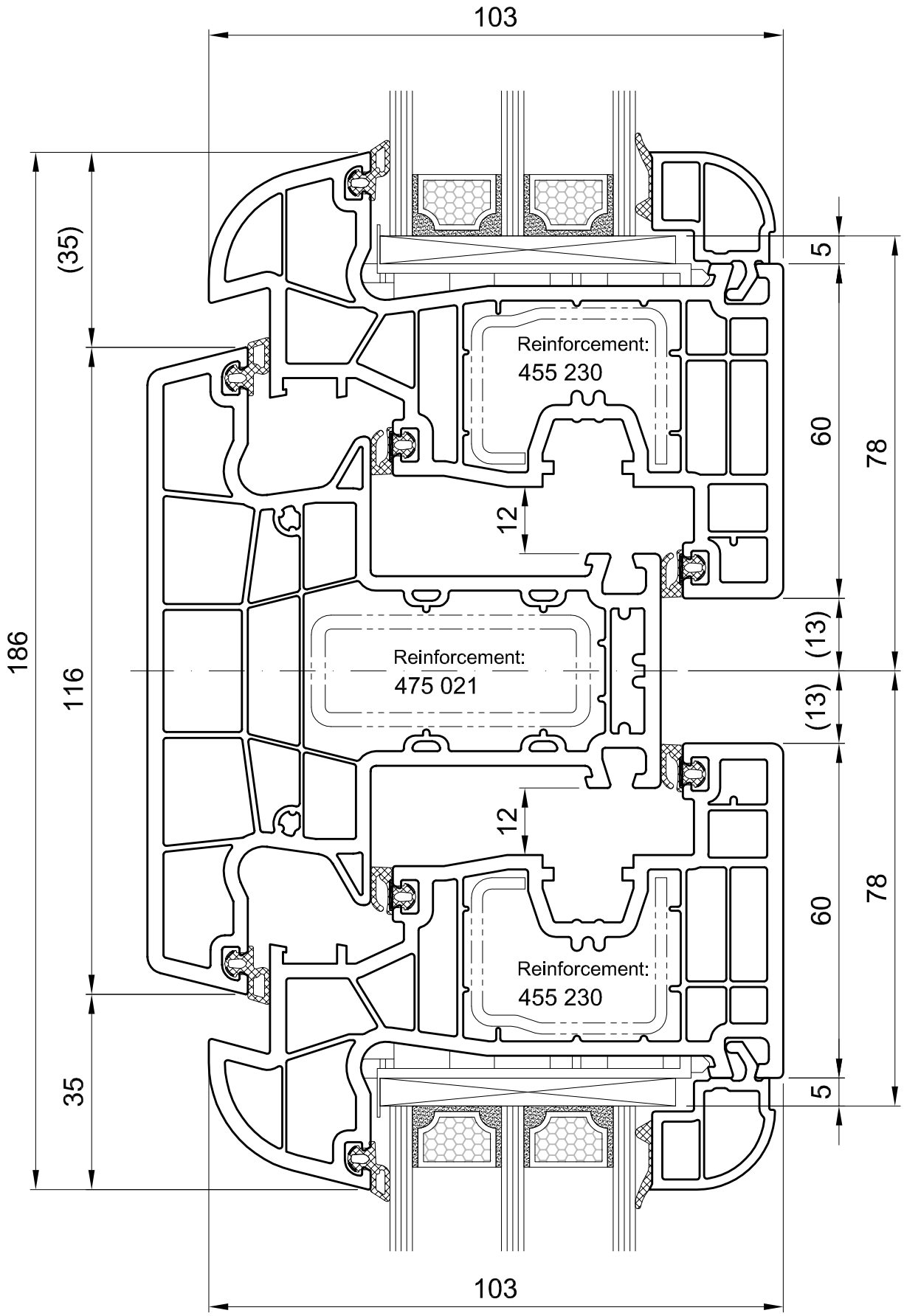

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Casement-post/transom-casement

| Post | Casement | bE92 04 |
|---|---|---|
| **172 421** | **171 226** | **02.17** |





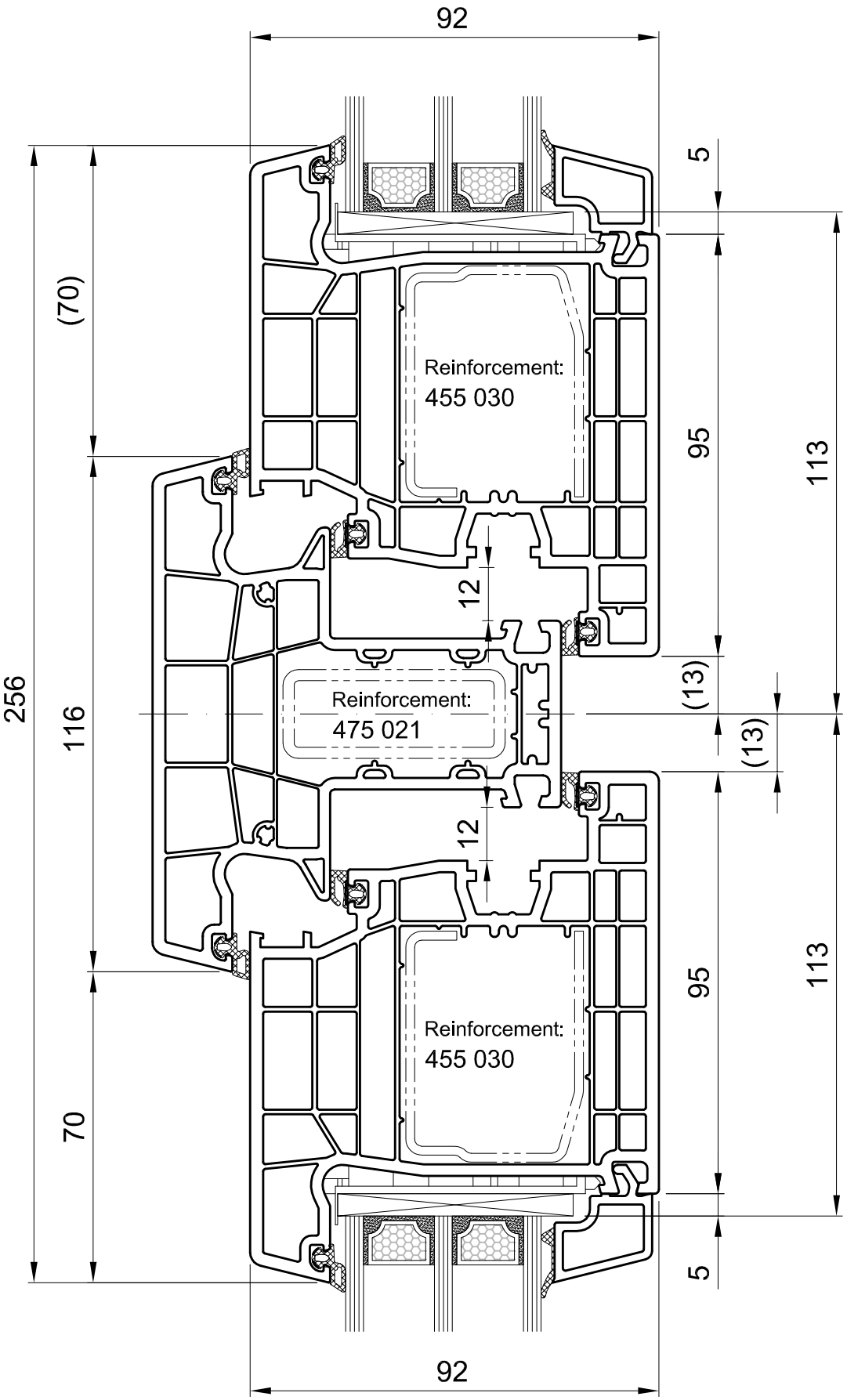

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Casement-post/transom-casement

| Post | Casement | bE92 04 |
|---|---|---|
| **172 421** | **171 030** | **02.18** |





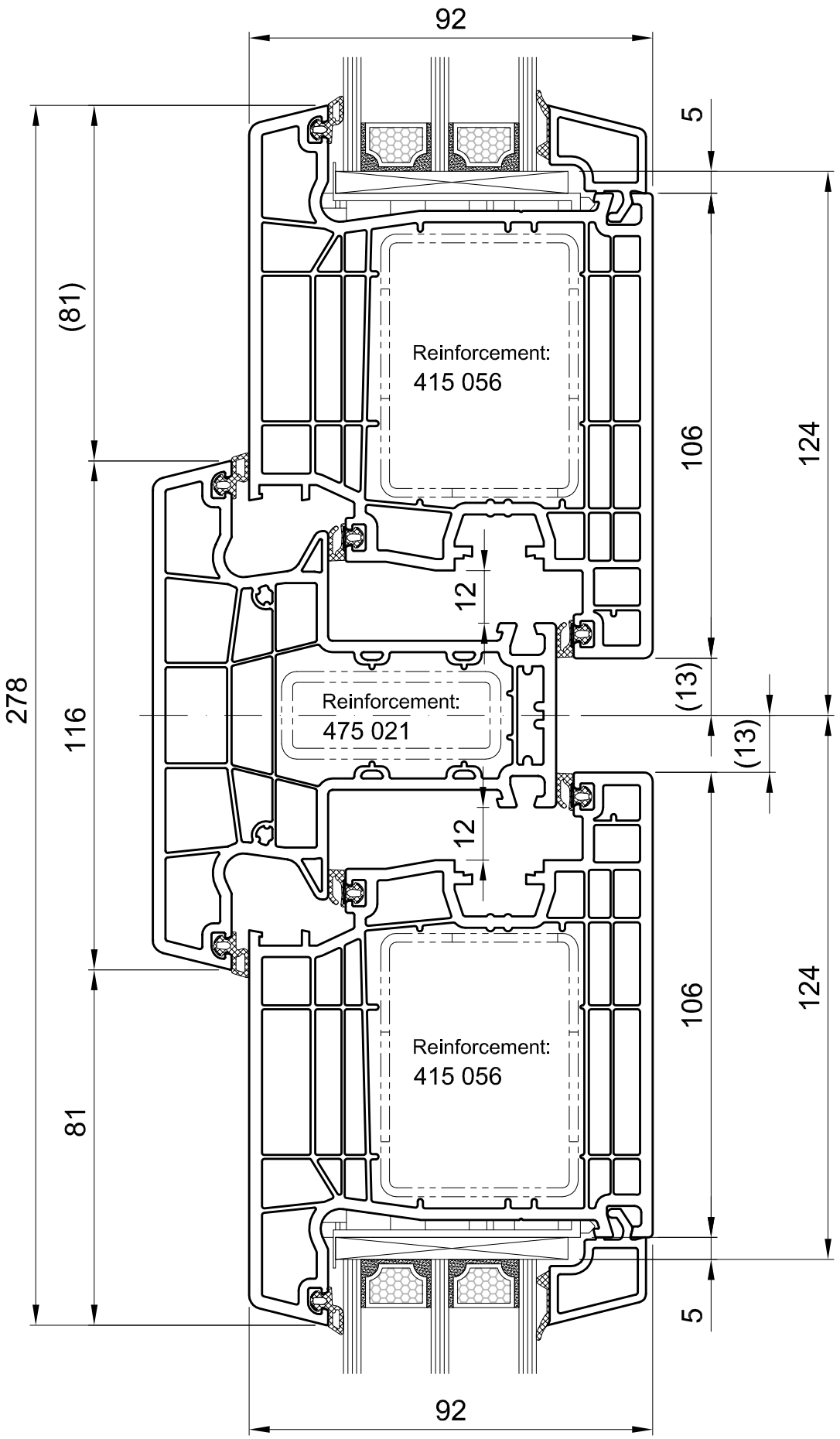

Not to scale

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Casement-post/transom-casement

| Post | Casement | bE92 04 |
|---|---|---|
| **172 421** | **171 040** | **02.19** |



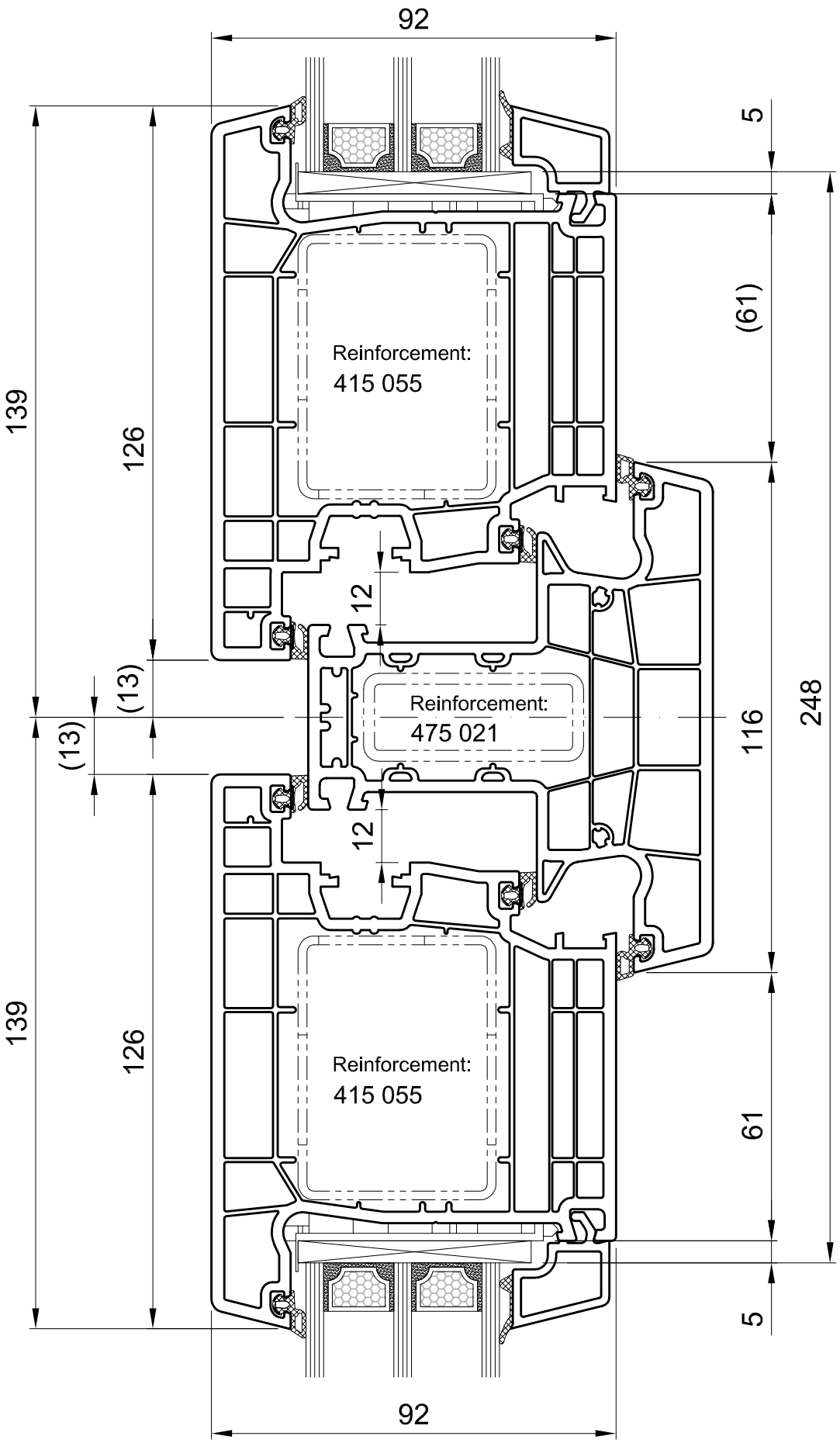

Not to scale

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Casement-post/transom-casement

| Post | Casement | bE92 04 |
|---|---|---|
| **172 421** | **371 040** | **02.20** |




Not to scale

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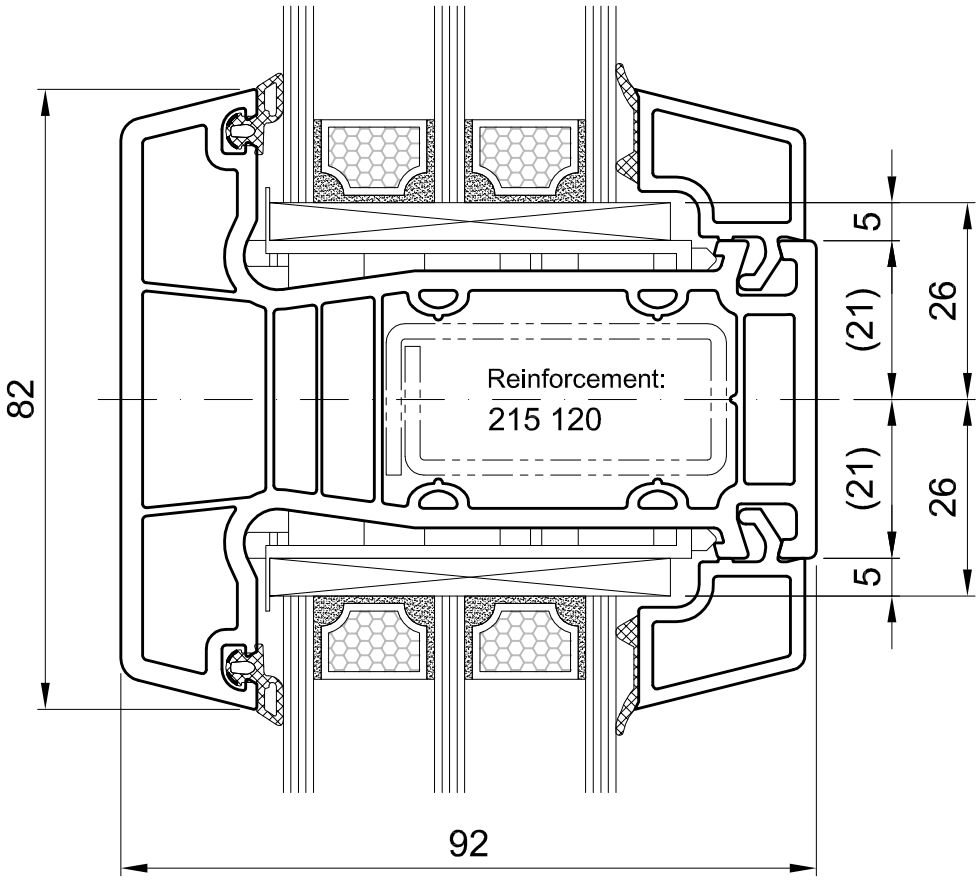
SALAMANDER
WINDOW & DOOR SYSTEMS

Mullion

**172 425**

bE92 04

**02.21**






Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Overlap

| Overlap | Casement | bE92 04 |
|---|---|---|
| **176 010** | **171 020** | **03.1** |

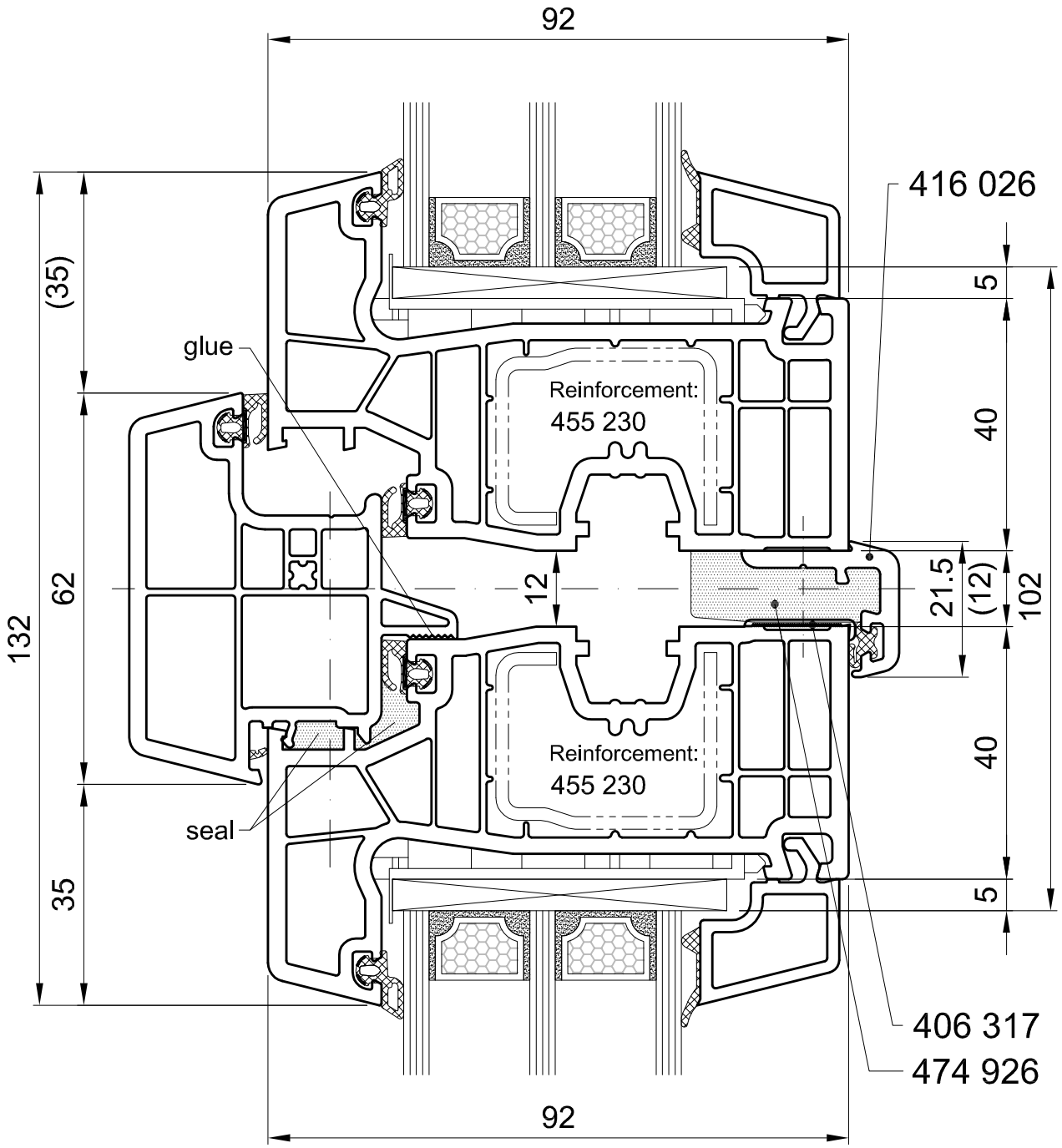
Casement cut (width)

at 170 420 = (RAM:2) - 24 mm
at 170 430 = (RAM:2) - 44 mm

Overlap profile cut (altitude)

176 010 = FAM - 110 mm

Overlap cap 177 010




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Overlap

| Overlap | Casement | bE92 04 |
|---|---|---|
| **176 010** | **171 226** | **03.2** |

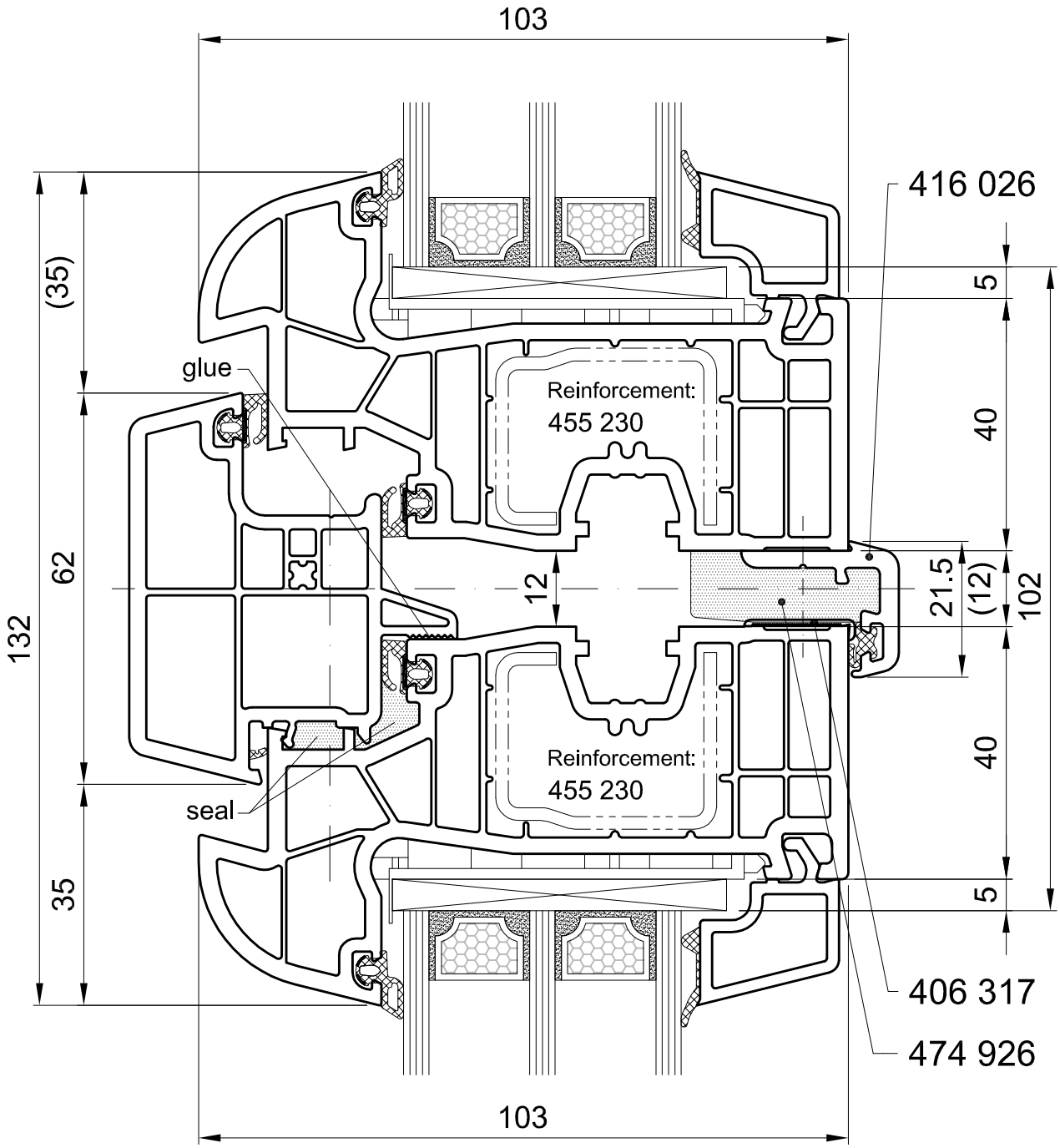
Casement cut (width)

at 170 420 = (RAM:2) - 24 mm
at 170 430 = (RAM:2) - 44 mm

Overlap profile cut (altitude)

176 010 = FAM - 110 mm

Overlap cap 177 010




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Overlap

| Overlap | Casement | bE92 04 |
|---|---|---|
| **176 010** | **171 030** | **03.3** |

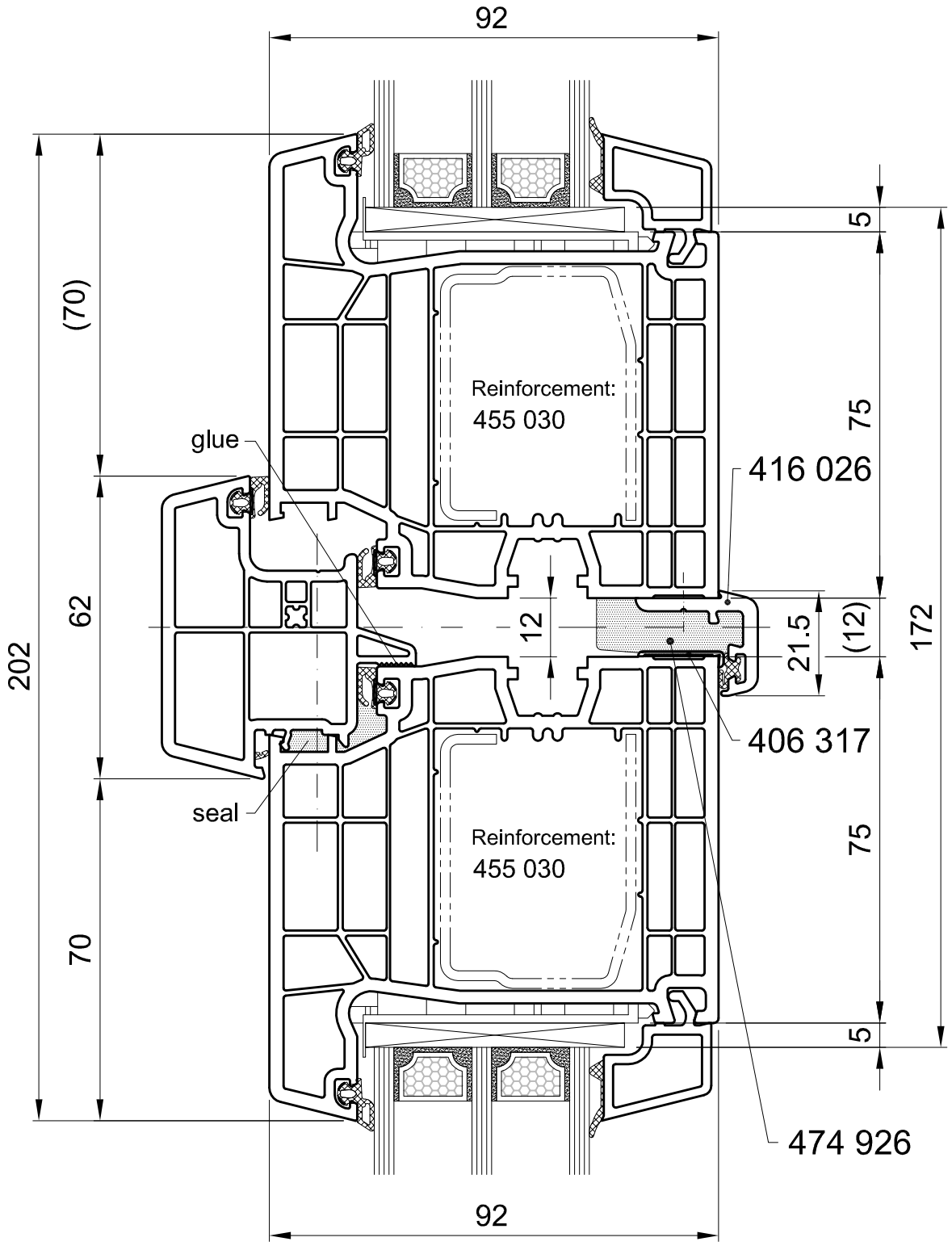
Casement cut (width)

at 170 420 = (RAM:2) - 24 mm
at 170 430 = (RAM:2) - 44 mm

Overlap profile cut (altitude)

176 010 = FAM - 110 mm

Overlap cap 177 010




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Not to scale

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Overlap

| Overlap | Casement | bE92 04 |
|---|---|---|
| **176 020** | **171 020** | **03.4** |

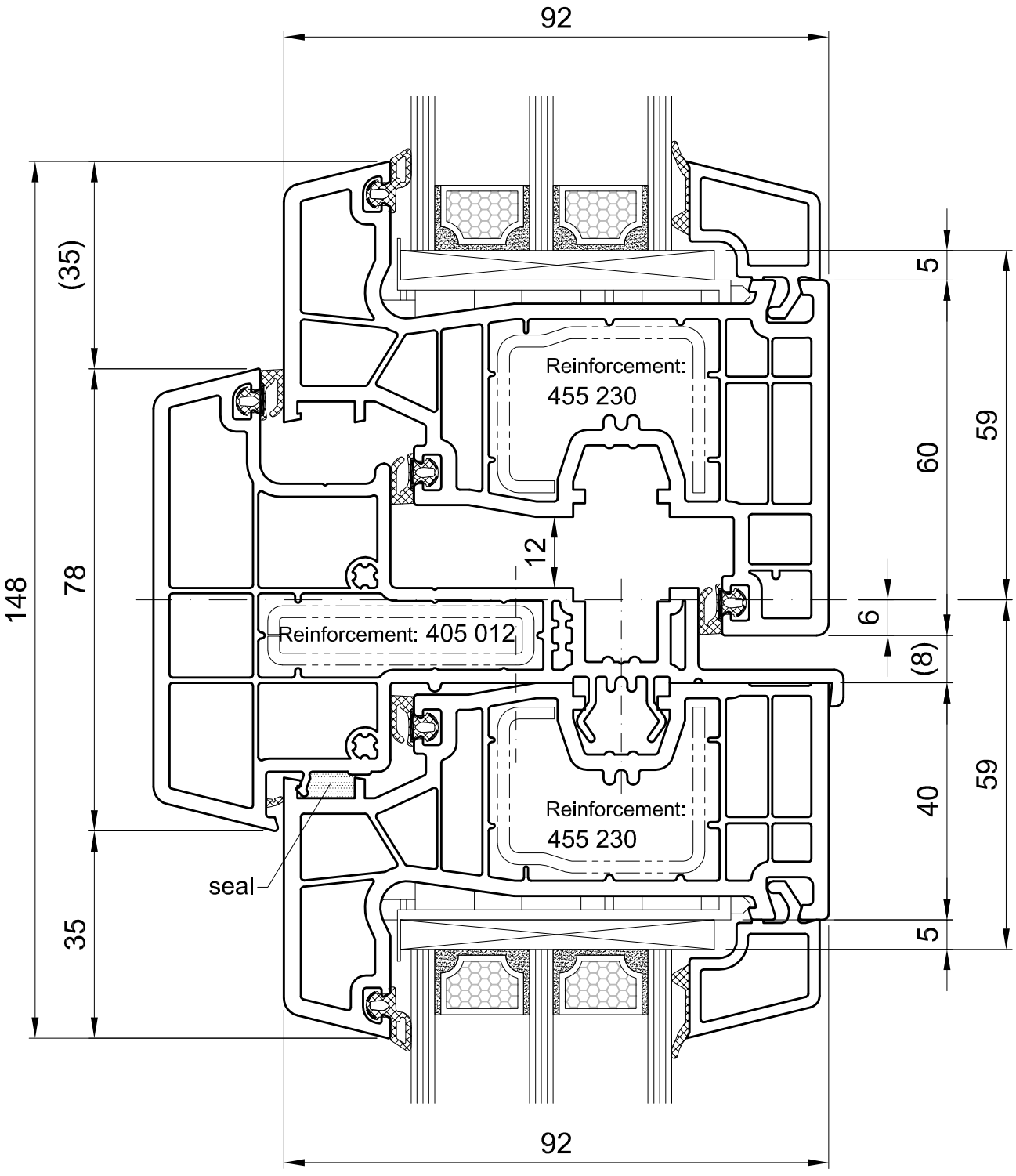
Casement cut (width)

at 170 420 = (RAM:2) - 32 mm
at 170 430 = (RAM:2) - 52 mm

Overlap profile cut (altitude)

176 020 = FAM - 114 mm

Overlap cap 177 020




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Overlap

| Overlap | Casement | bE92 04 |
|---|---|---|
| **176 020** | **171 226** | **03.5** |

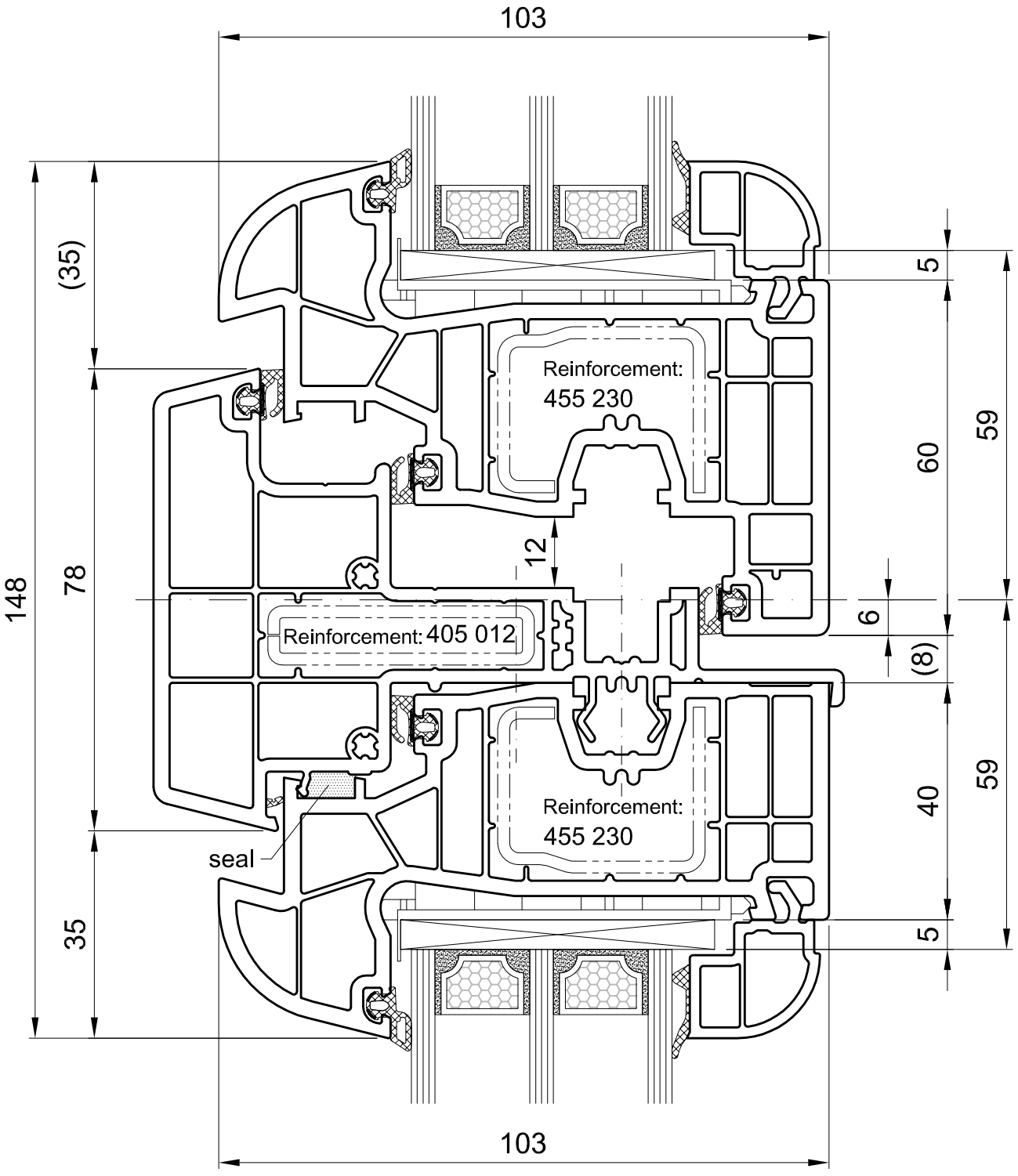
Casement cut (width)

at 170 420 = (RAM:2) - 32 mm
at 170 430 = (RAM:2) - 52 mm

Overlpa profile cut (altitude)

176 020 = FAM - 114 mm

Overlap cap 177 020




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Overlap

| Overlap | Casement | bE92 04 |
|---|---|---|
| **176 020** | **171 030** | **03.6** |

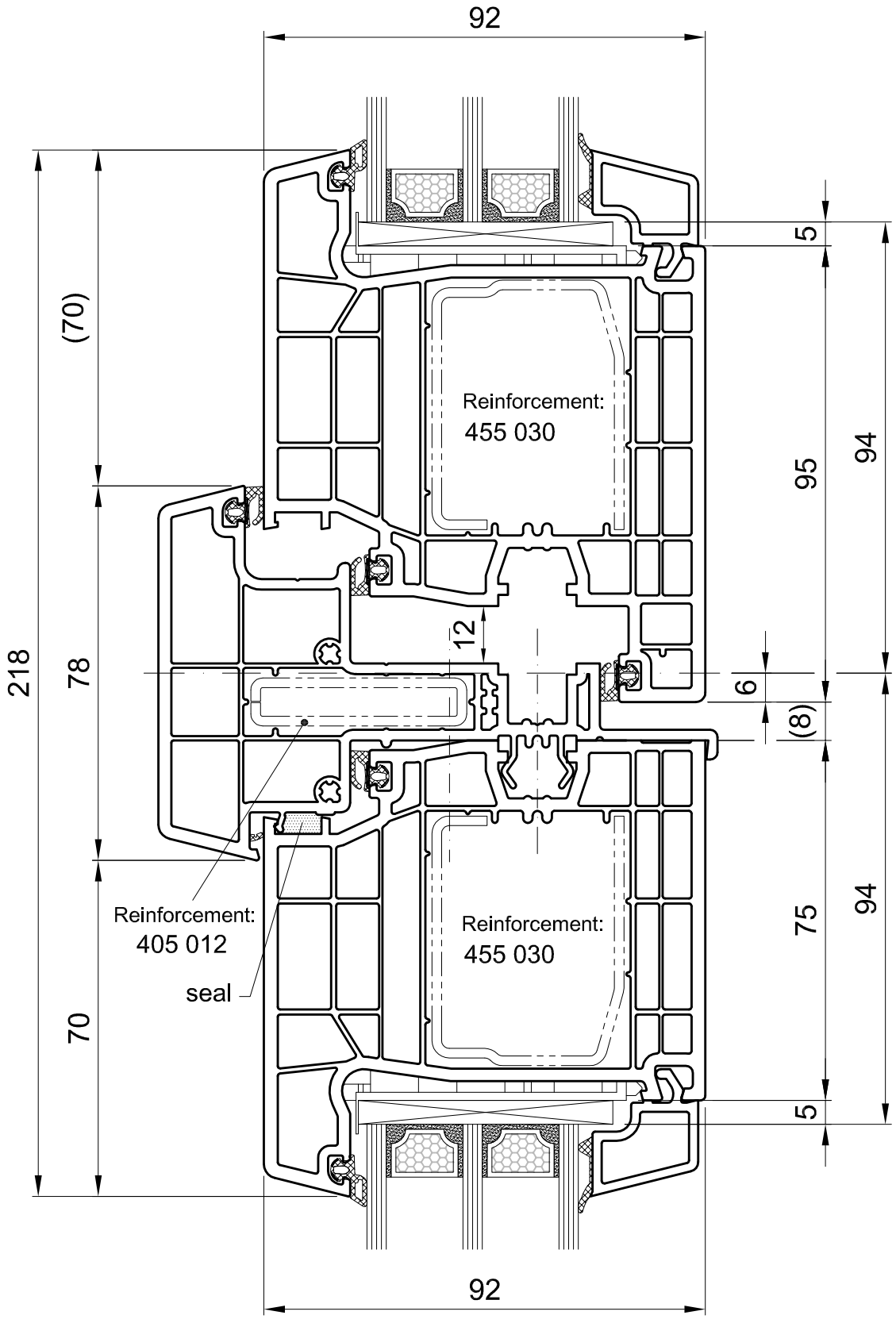
Casement cut (width)

at 170 420 = (RAM:2) - 32 mm
at 170 430 = (RAM:2) - 52 mm

Overlap profile cut (altitude)

176 020 = FAM - 114 mm

Overlap cap 177 020




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Not to scale

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Overlap

| Overlap | Casement | bE92 04 |
|---|---|---|
| **176 020** | **171 040** | **03.7** |

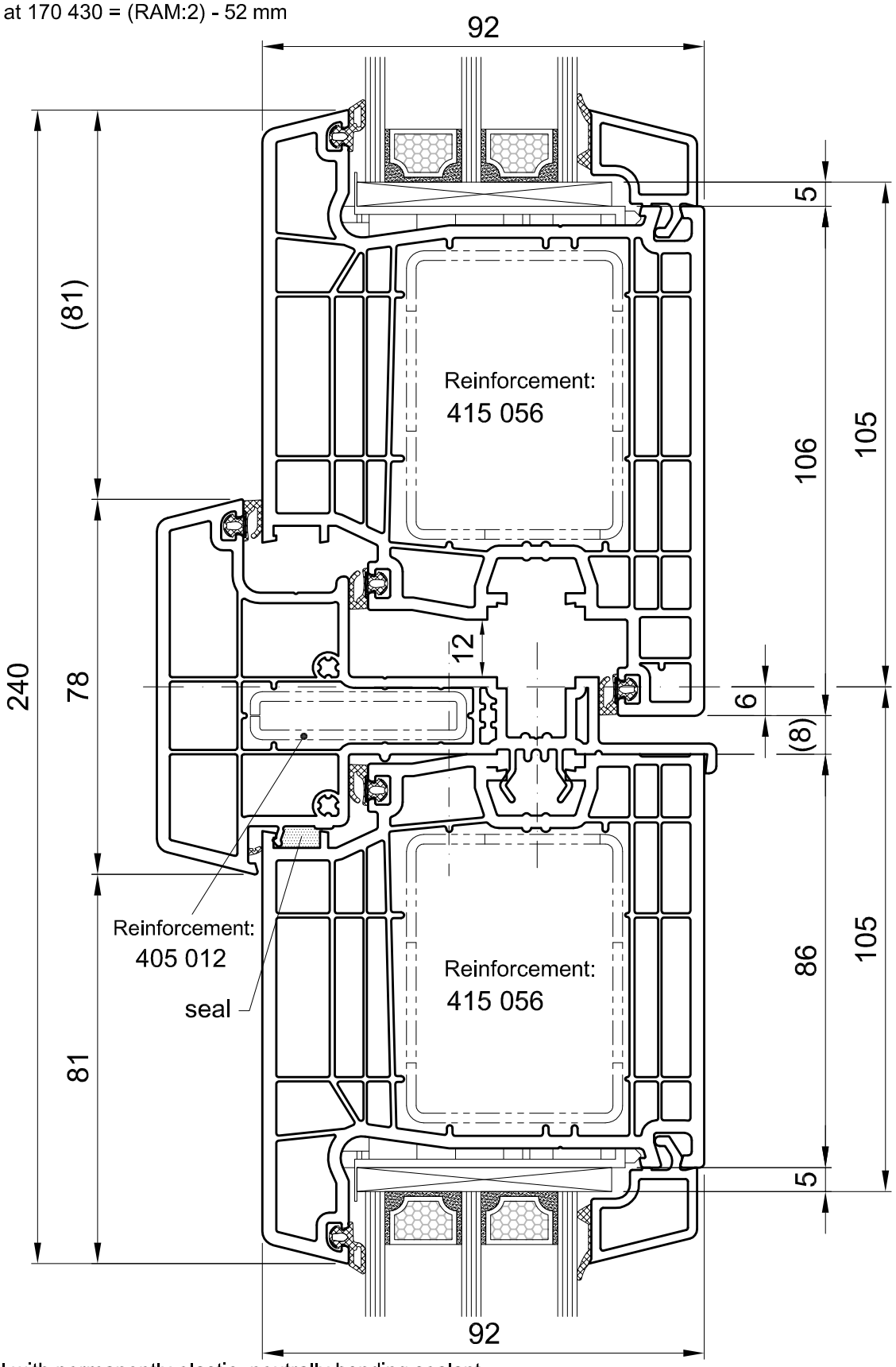
Casement cut (width)

at 170 420 = (RAM:2) - 32 mm
at 170 430 = (RAM:2) - 52 mm

Overlap profile cut (altitude)

176 020 = FAM - 114 mm

Overlap cap 177 020




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Not to scale

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Overlap

| Overlap | Casement | bE92 04 |
|---|---|---|
| **176 020** | **371 040** | **03.8** |

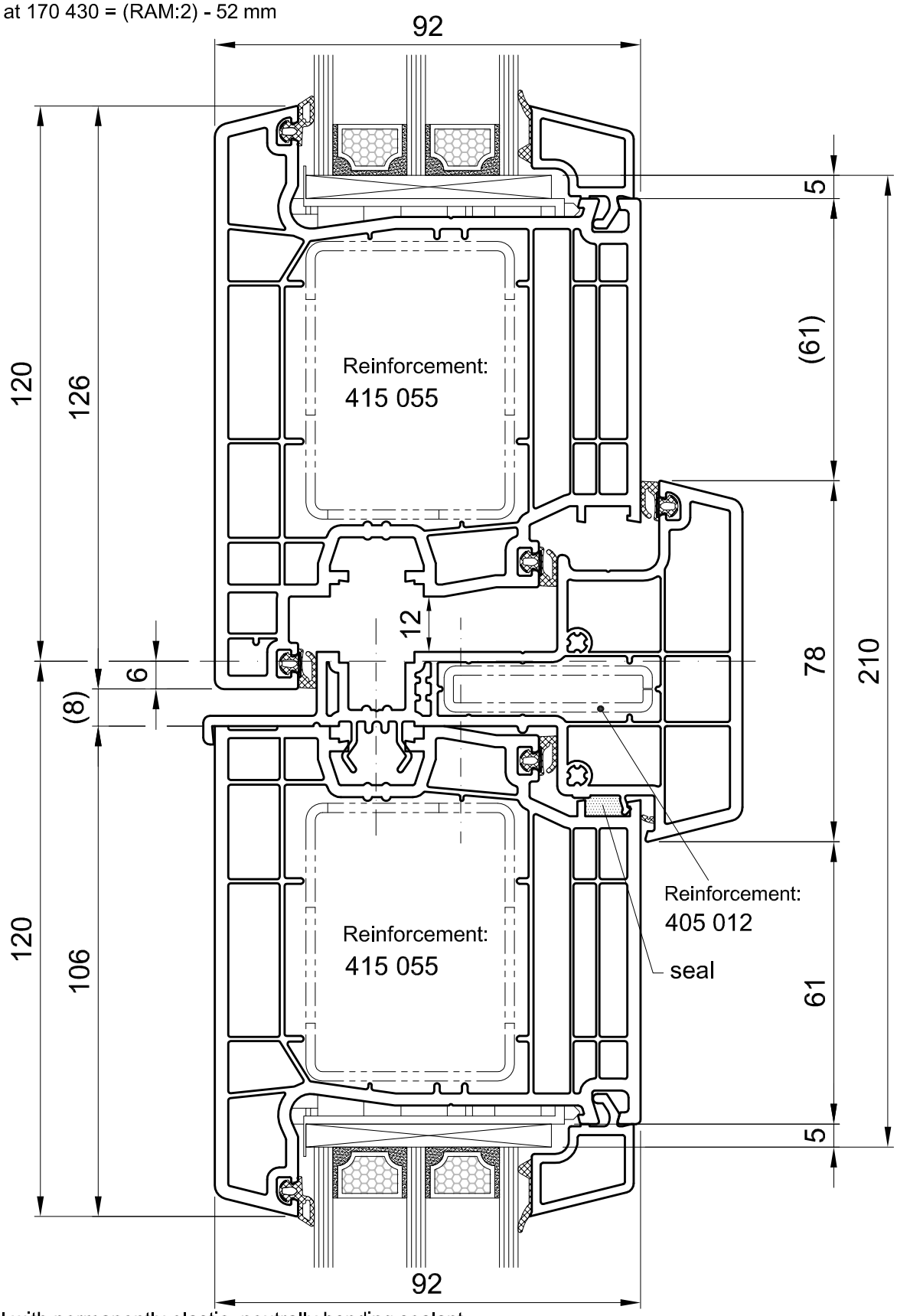
Casement cut (width)

at 170 420 = (RAM:2) - 32 mm
at 170 430 = (RAM:2) - 52 mm

Overlap profile cut (altitude)

176 020 = FAM - 114 mm

Overlap cap 177 020




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Not to scale

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Overlap

| Overlap | Casement | bE92 04 |
|---|---|---|
| **176 030** | **171 020** | **03.9** |

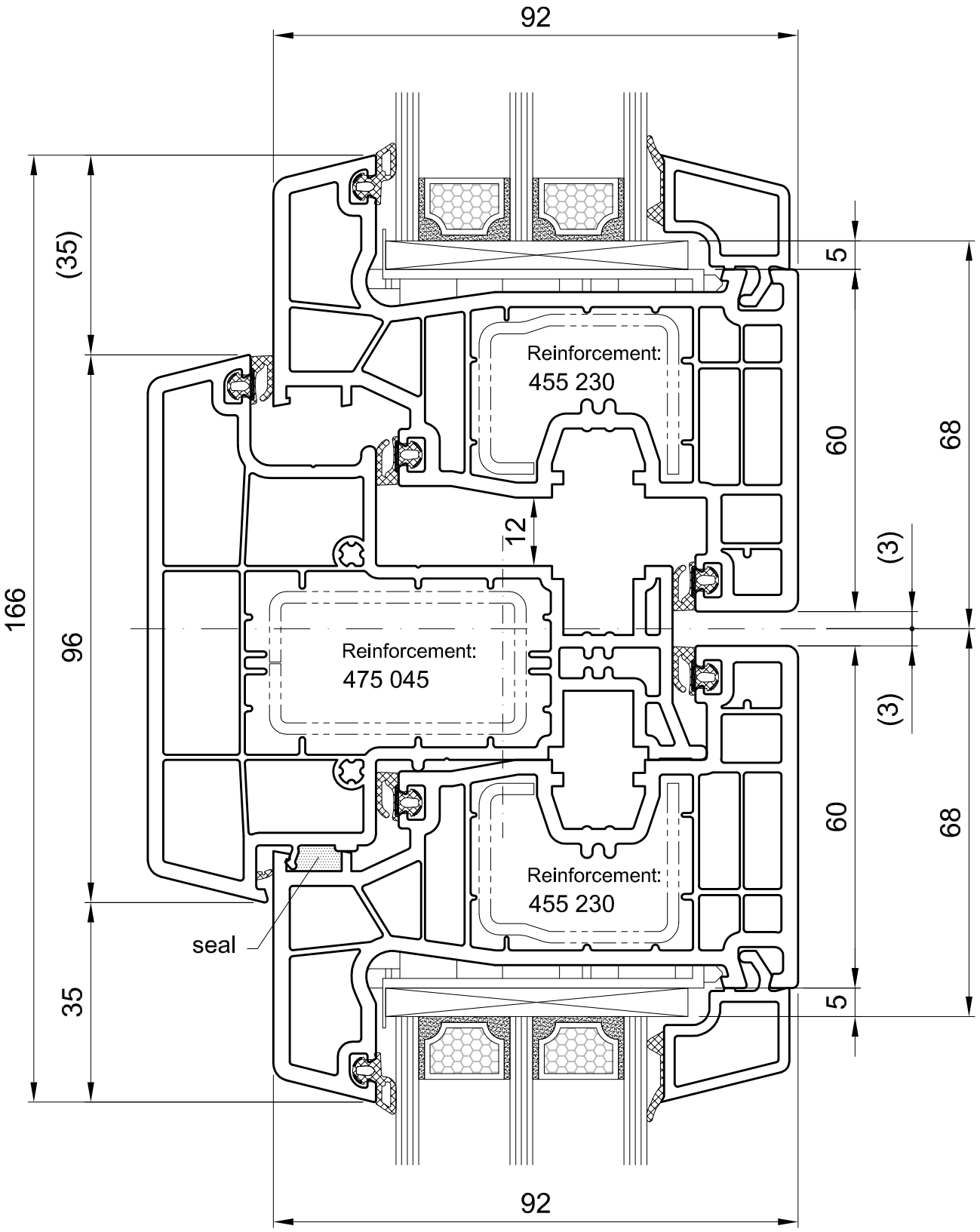
Casement cut (width)

at 170 420 = (RAM:2) - 41 mm
at 170 430 = (RAM:2) - 61 mm

Overlap profile cut (altitude)

176 030 = FAM - 114 mm

Overlap cap 177 030




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Overlap

| Overlap | Casement | bE92 04 |
|---|---|---|
| **176 030** | **171 226** | **03.10** |

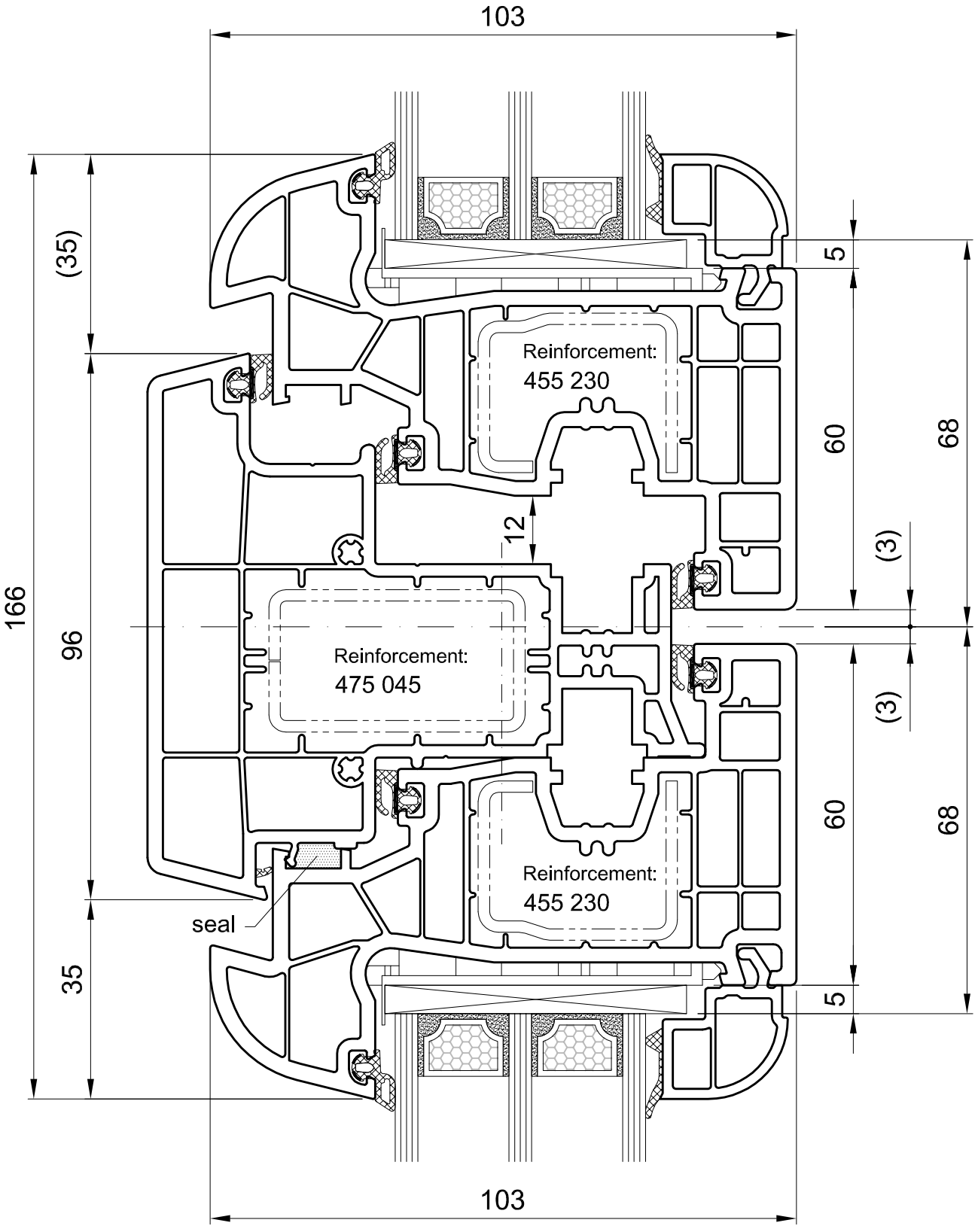
Casement cut (width)

at 170 420 = (RAM:2) - 41 mm
at 170 430 = (RAM:2) - 61 mm

Overlap profile cut (altitude)

176 030 = FAM - 114 mm

Overlap cap 177 030




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Overlap

| Overlap | Casement | bE92 04 |
|---|---|---|
| **176 030** | **171 030** | **03.11** |

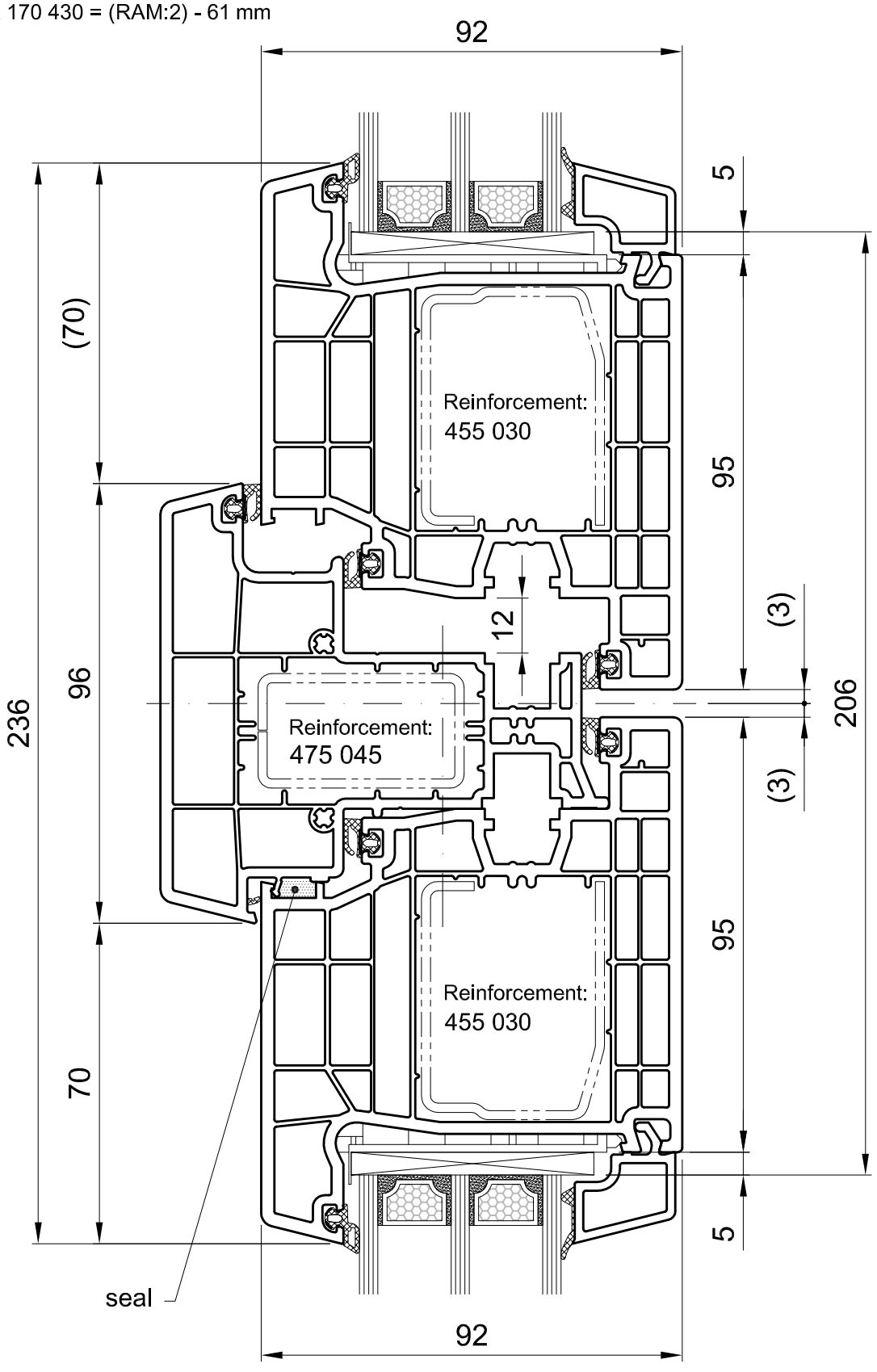
Casement cut (width)

at 170 420 = (RAM:2) - 41 mm
at 170 430 = (RAM:2) - 61 mm

Overlap profile cut (altitude)

176 030 = FAM - 114 mm

Overlap cap 177 030




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Not to scale

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Overlap

| Overlap | Casement | bE92 04 |
|---|---|---|
| **176 030** | **171 040** | **03.12** |

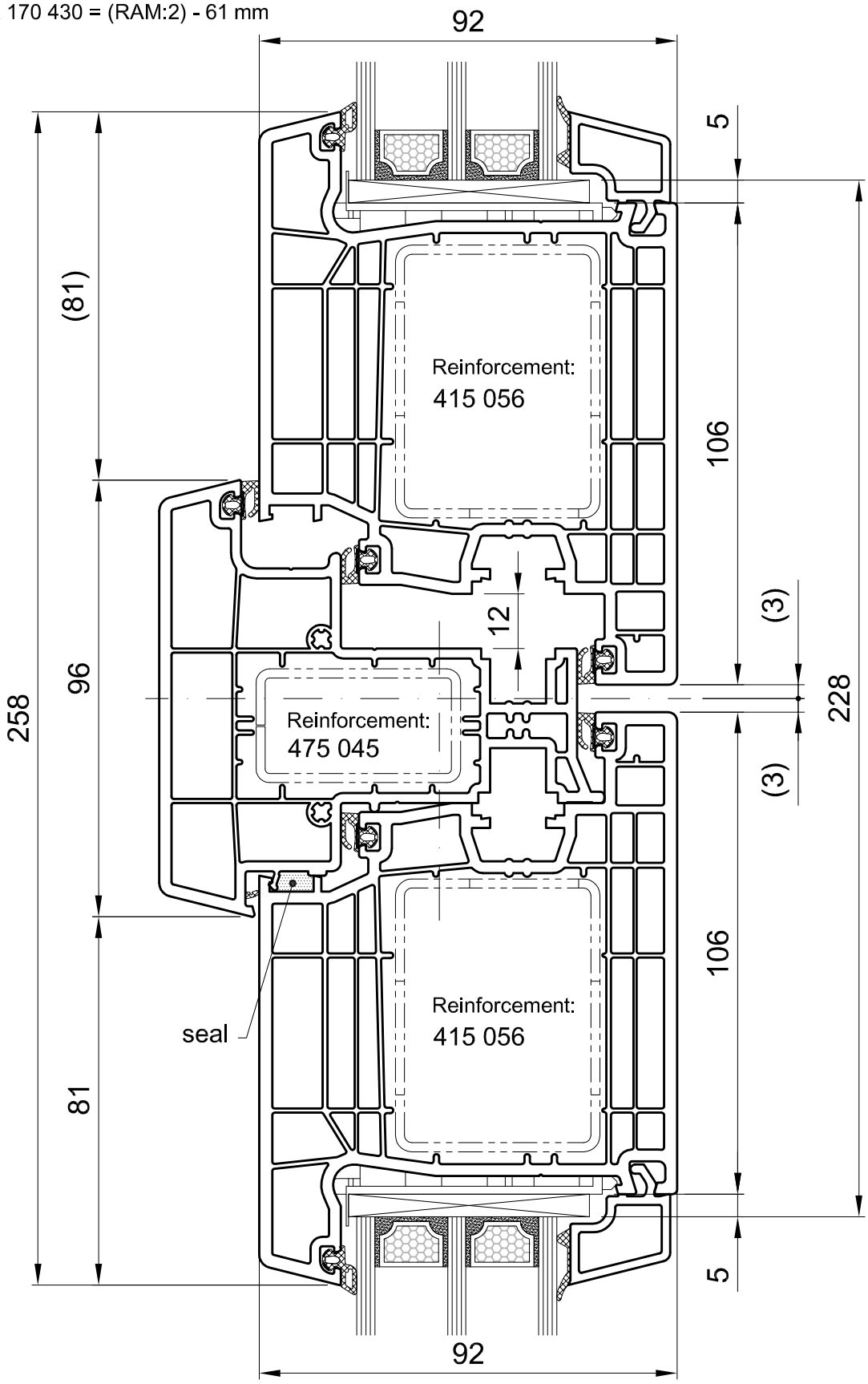
Casement cut (width)

at 170 420 = (RAM:2) - 41 mm
at 170 430 = (RAM:2) - 61 mm

Overlap profile cut (altitude)

176 030 = FAM - 114 mm

Overlap cap 177 030




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Not to scale

Issue: 11/2015



SALAMANDER WINDOW & DOOR SYSTEMS

# Overlap

| Overlap | Casement | bE92 04 |
|---|---|---|
| **176 030** | **371 040** | **03.13** |

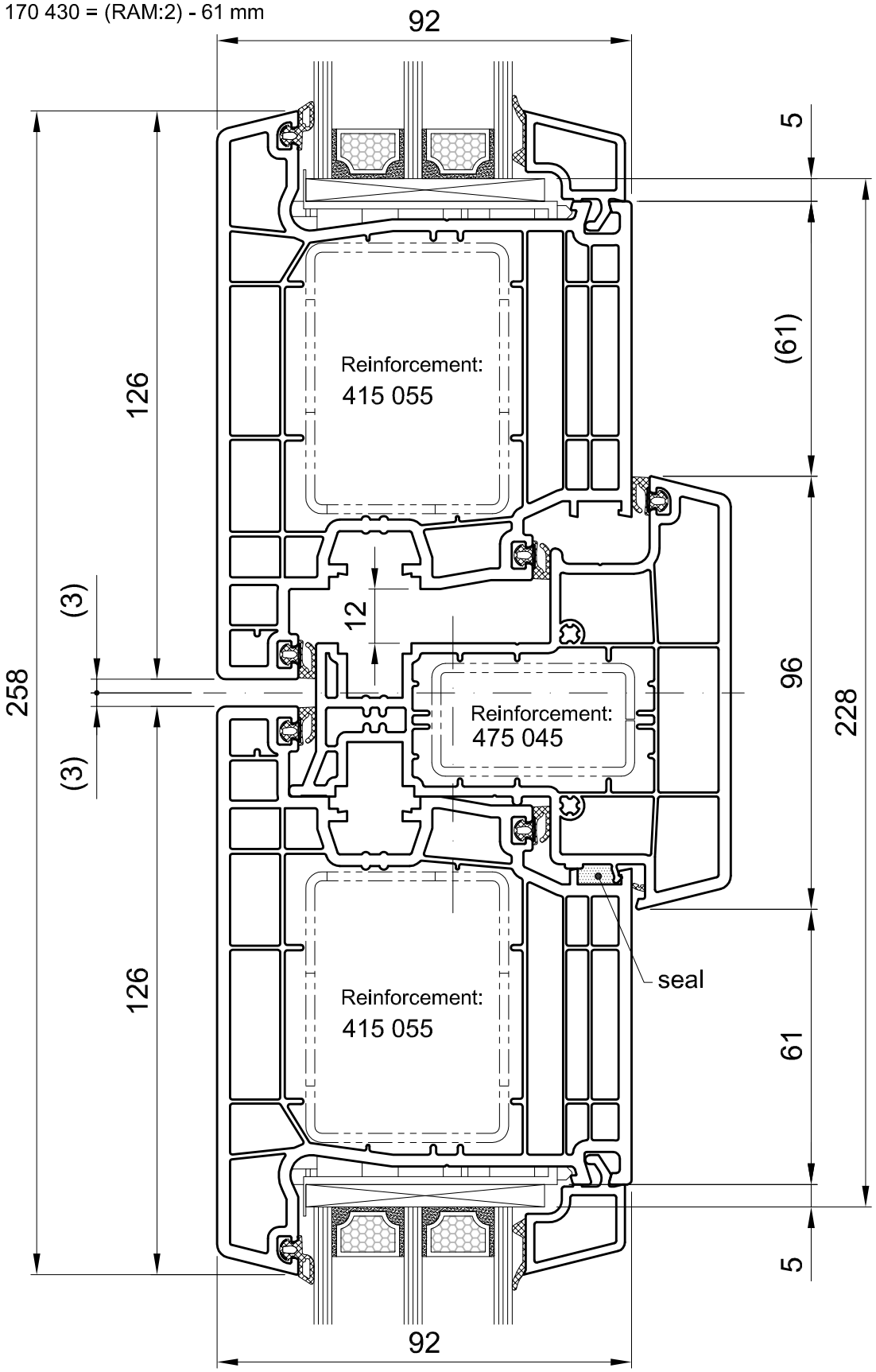
Casement cut (width)

at 170 420 = (RAM:2) - 41 mm
at 170 430 = (RAM:2) - 61 mm

Overlap profile cut (altitude)

176 030 = FAM - 114 mm

Overlap cap 177 030




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Not to scale

Issue: 11/2015



SALAMANDER WINDOW & DOOR SYSTEMS

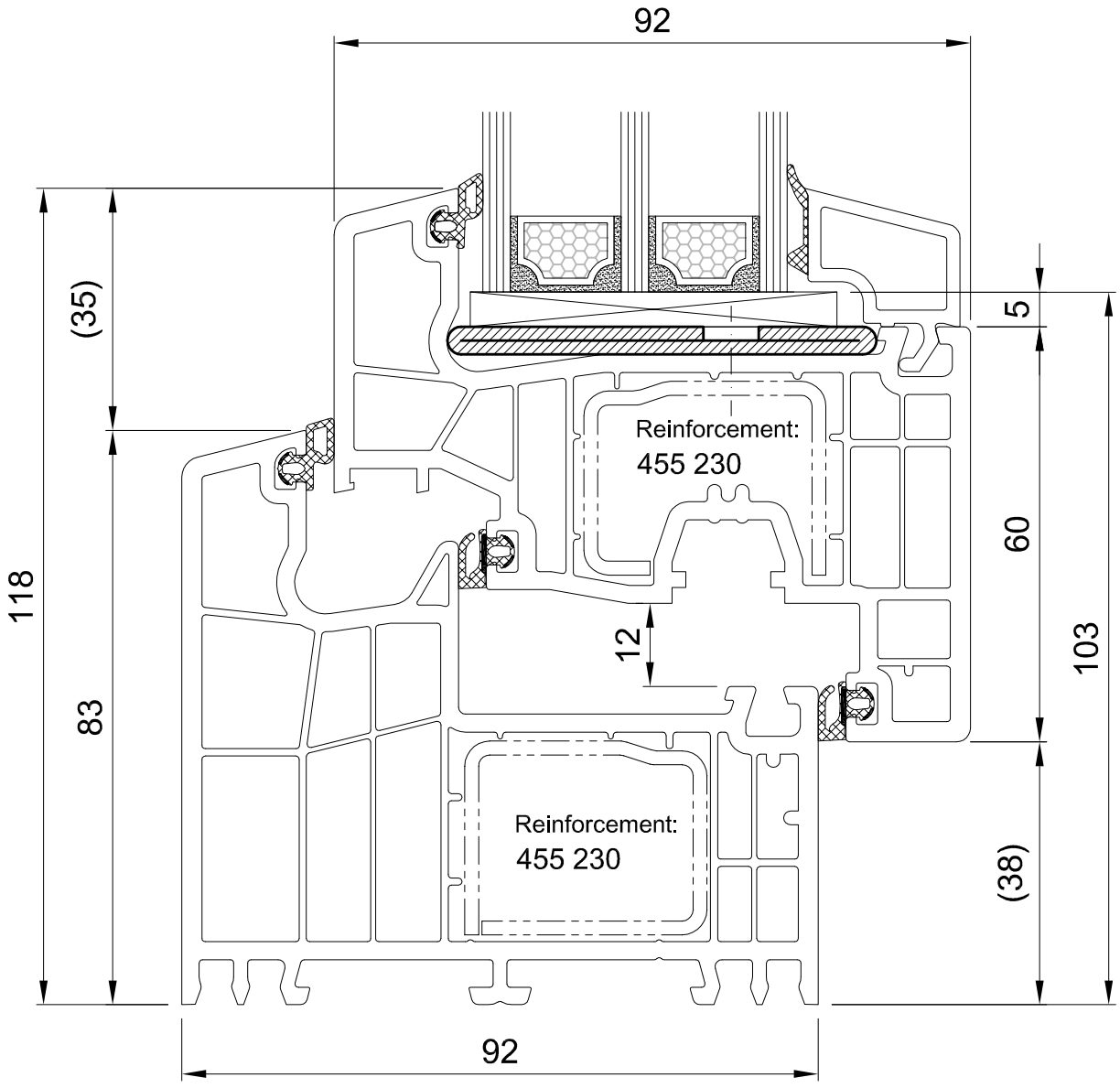
Rebate reinforcement

**475 192**

bE92 04

**04.1**

Only vertical installation!
171 020, 171 226, 171 030,
171 040, 371 040






Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Frame-Casement / Rebate corner

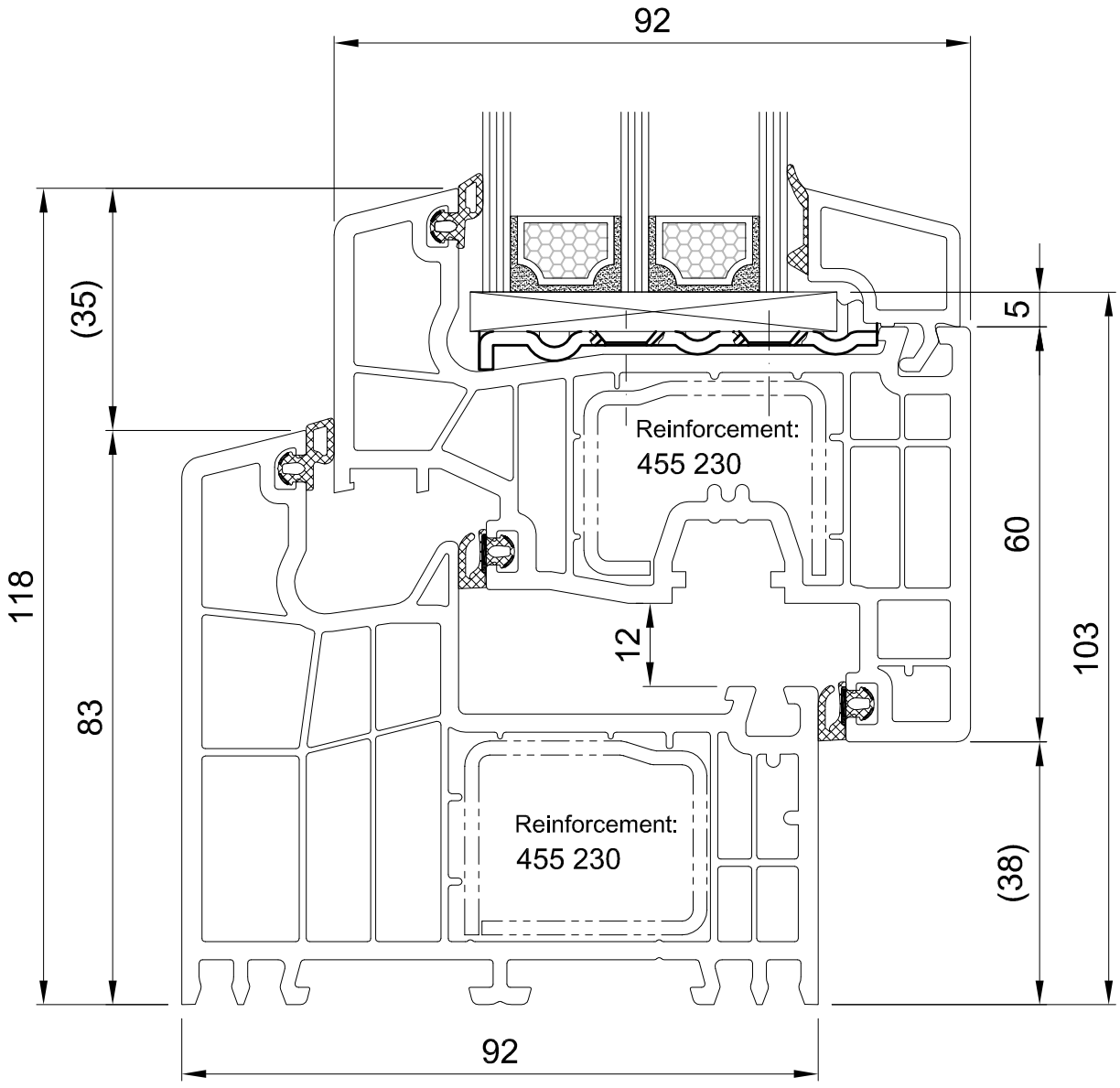
Rebate corner

**478 556**

bE92 04

**04.2**

Insert in the corner






Scale 1:1 (or depending on print-out)

Issue: 11/2015

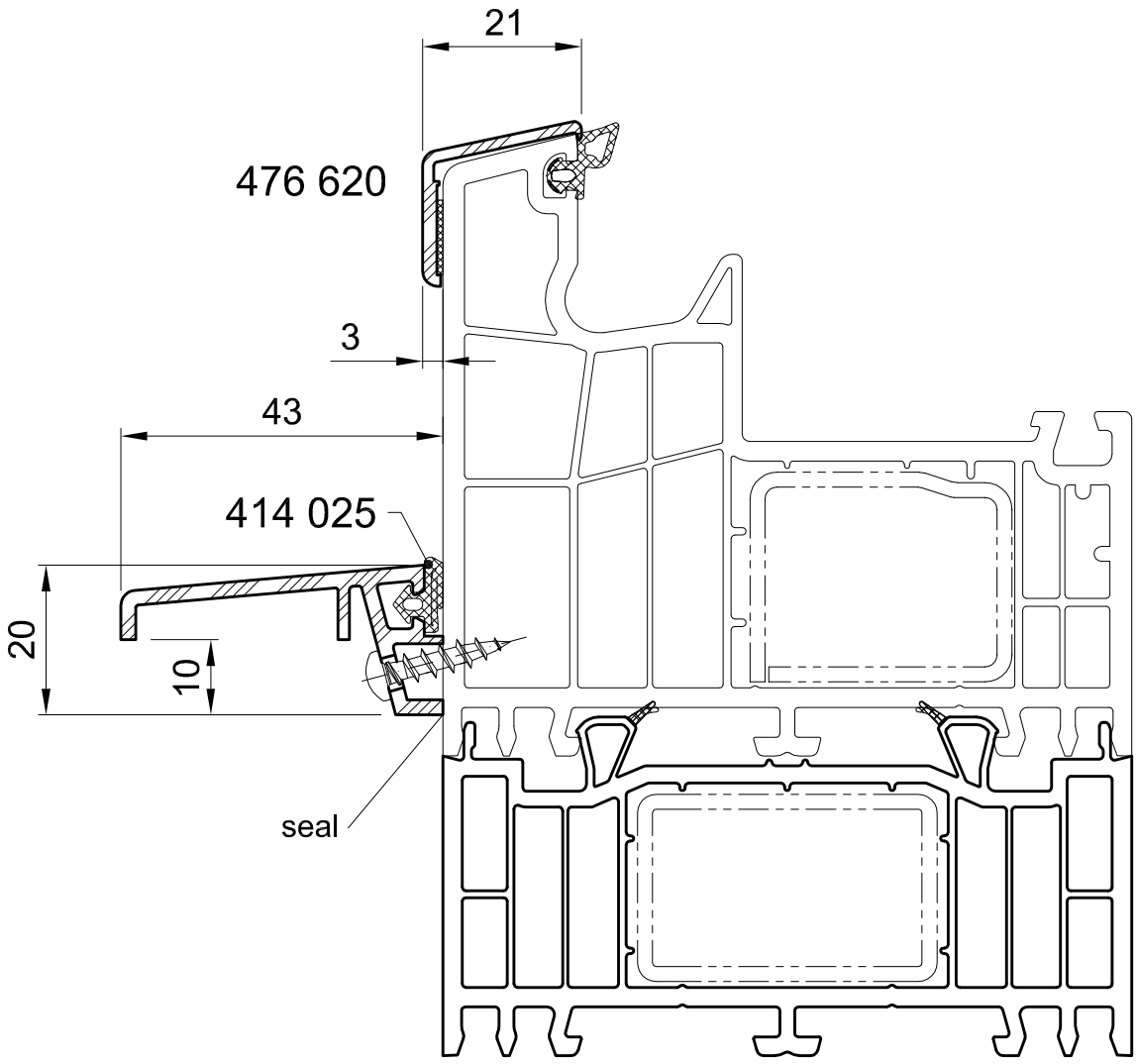
SALAMANDER
WINDOW & DOOR SYSTEMS

Step protection

**476 620, 416 615**

bE92 04

**05.1**




476 164

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

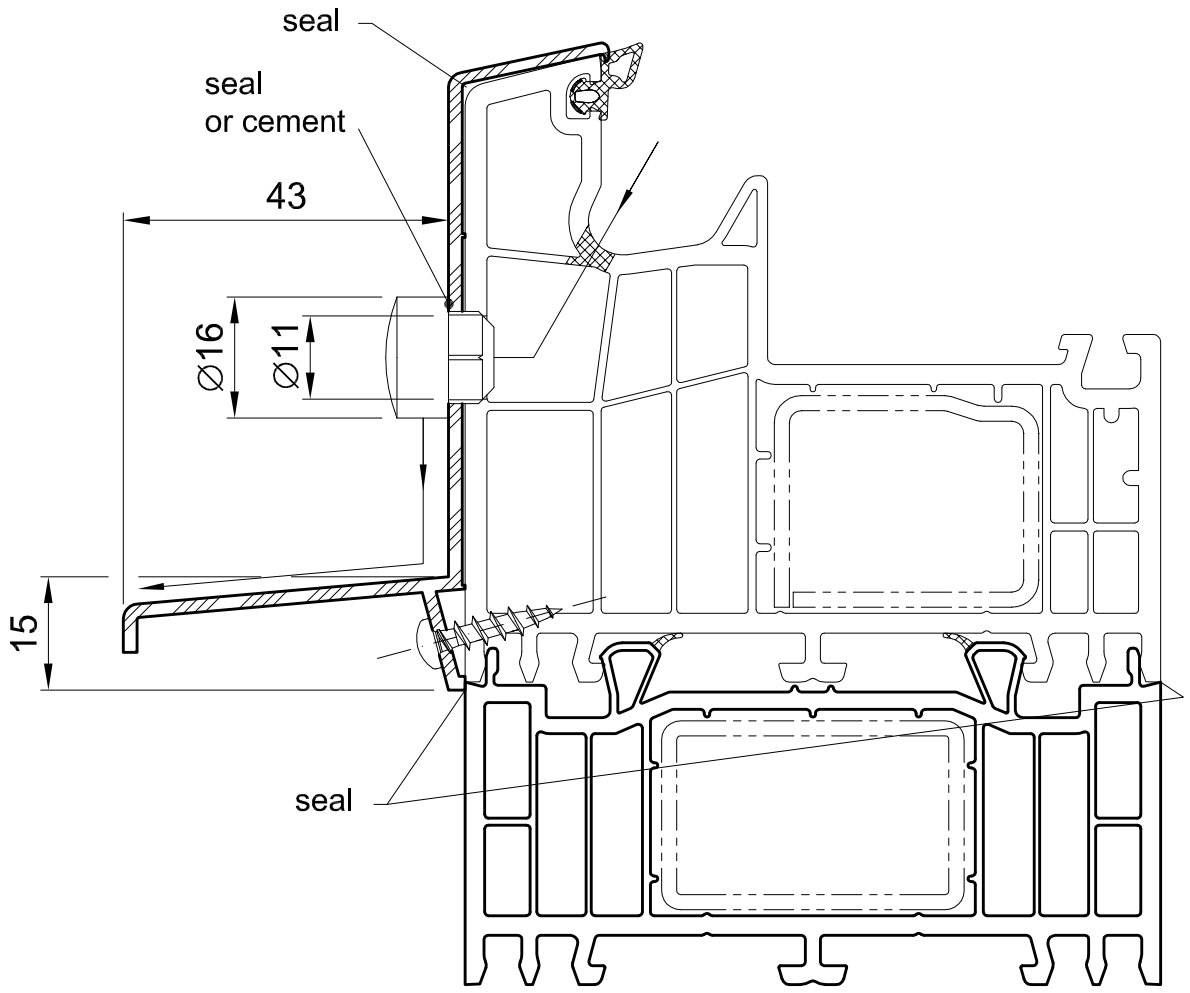
Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Step protection

| Step protection | Tube cap | bE92 04 |
|---|---|---|
| **476 615** | **407 025** | **05.2** |



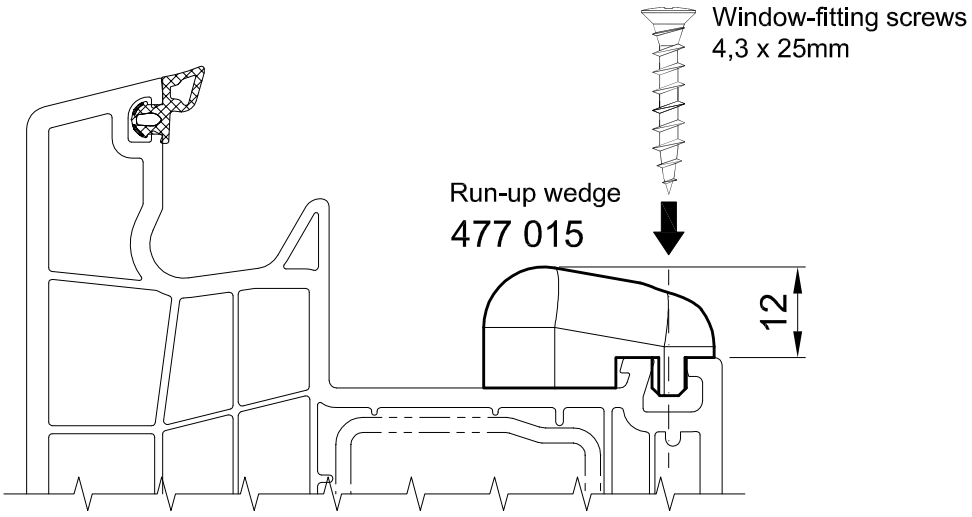

476 164

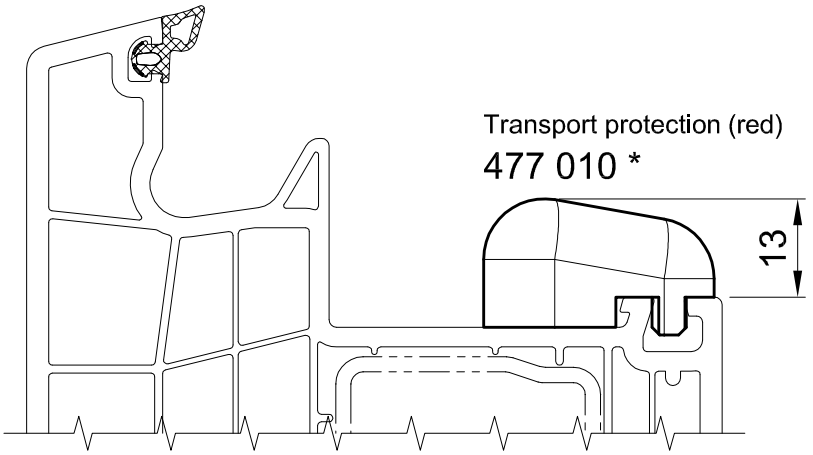
Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

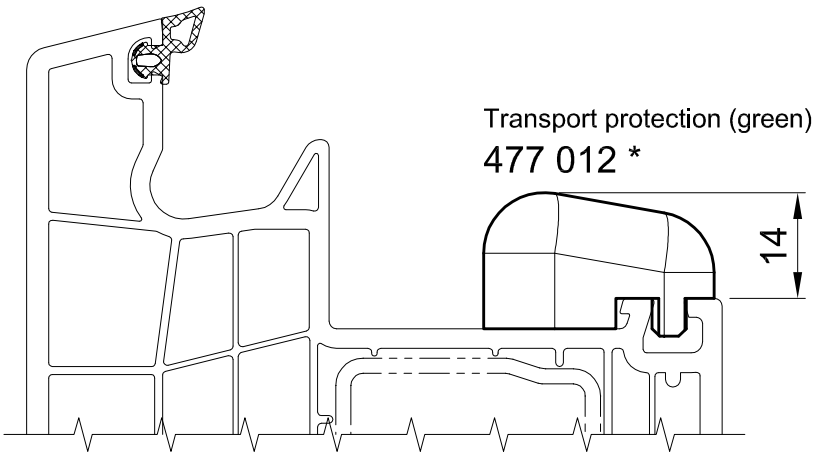
Scale 1:1 (or depending on print-out)

# Transport protection / run-up wedge

| Run-up wedge | Transport protection | bE92 04 |
|---|---|---|
| **477 015** | **477 010, 477 012** | **05.3** |




* be removed after the installation of windows

Scale 1:1 (or depending on print-out)

Issue: 11/2015

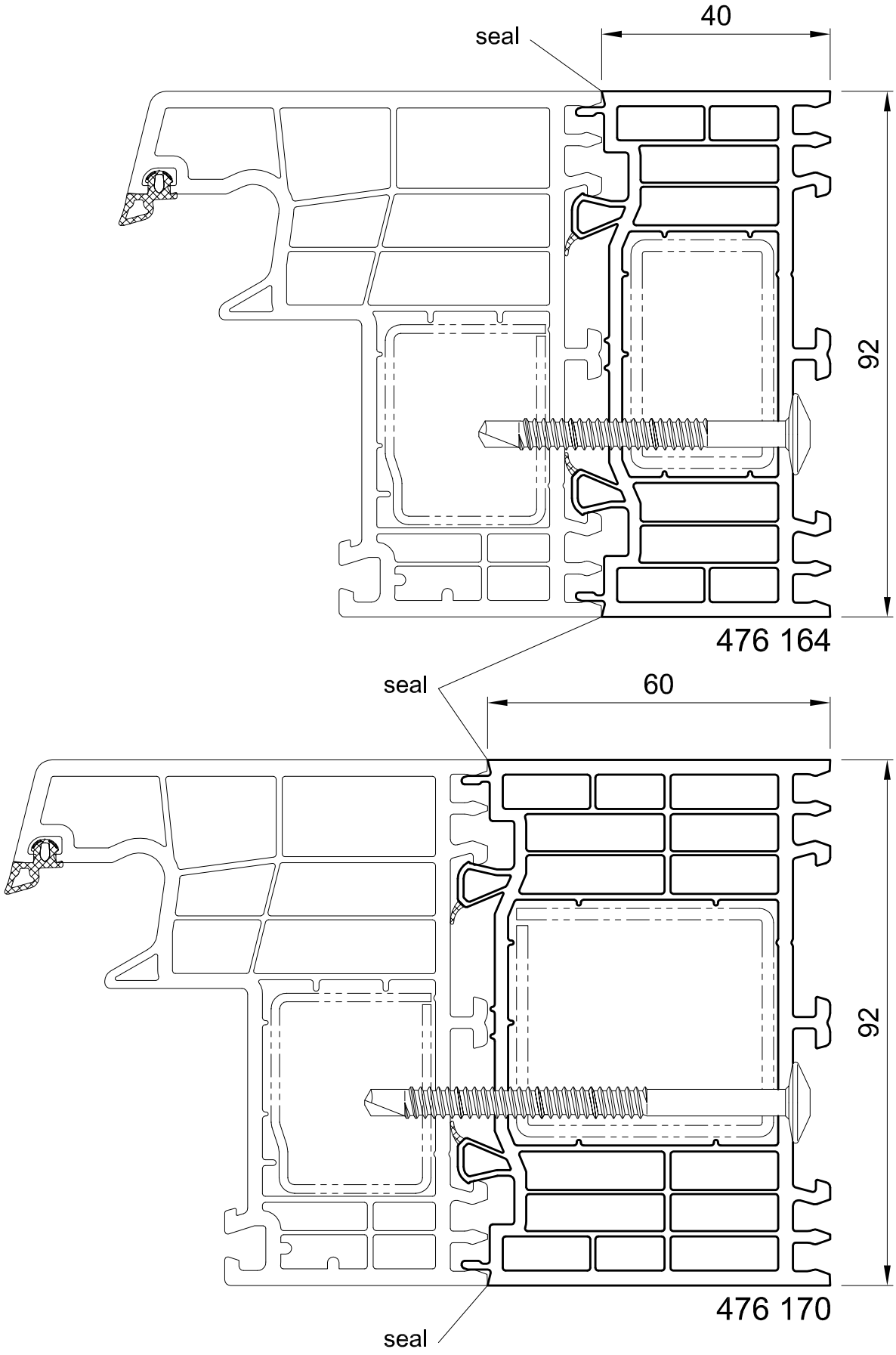
SALAMANDER WINDOW & DOOR SYSTEMS

# Extension profile

Extensions profile

**476 164, 476 170**






Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

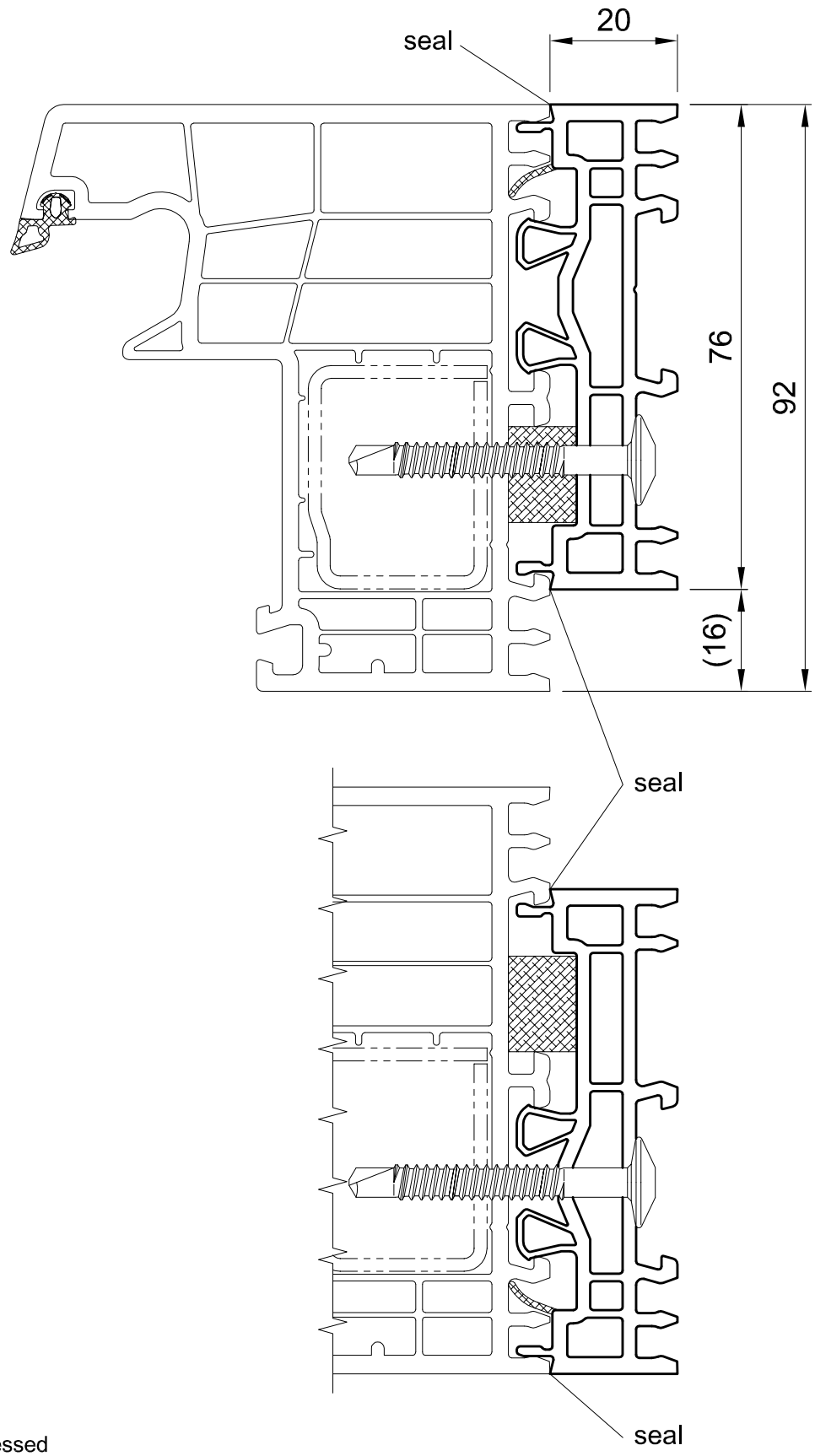
SALAMANDER
WINDOW & DOOR SYSTEMS

Extension profile

**416 160**

bE92 04

**06.2**




Pre-compressed gasket tape

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

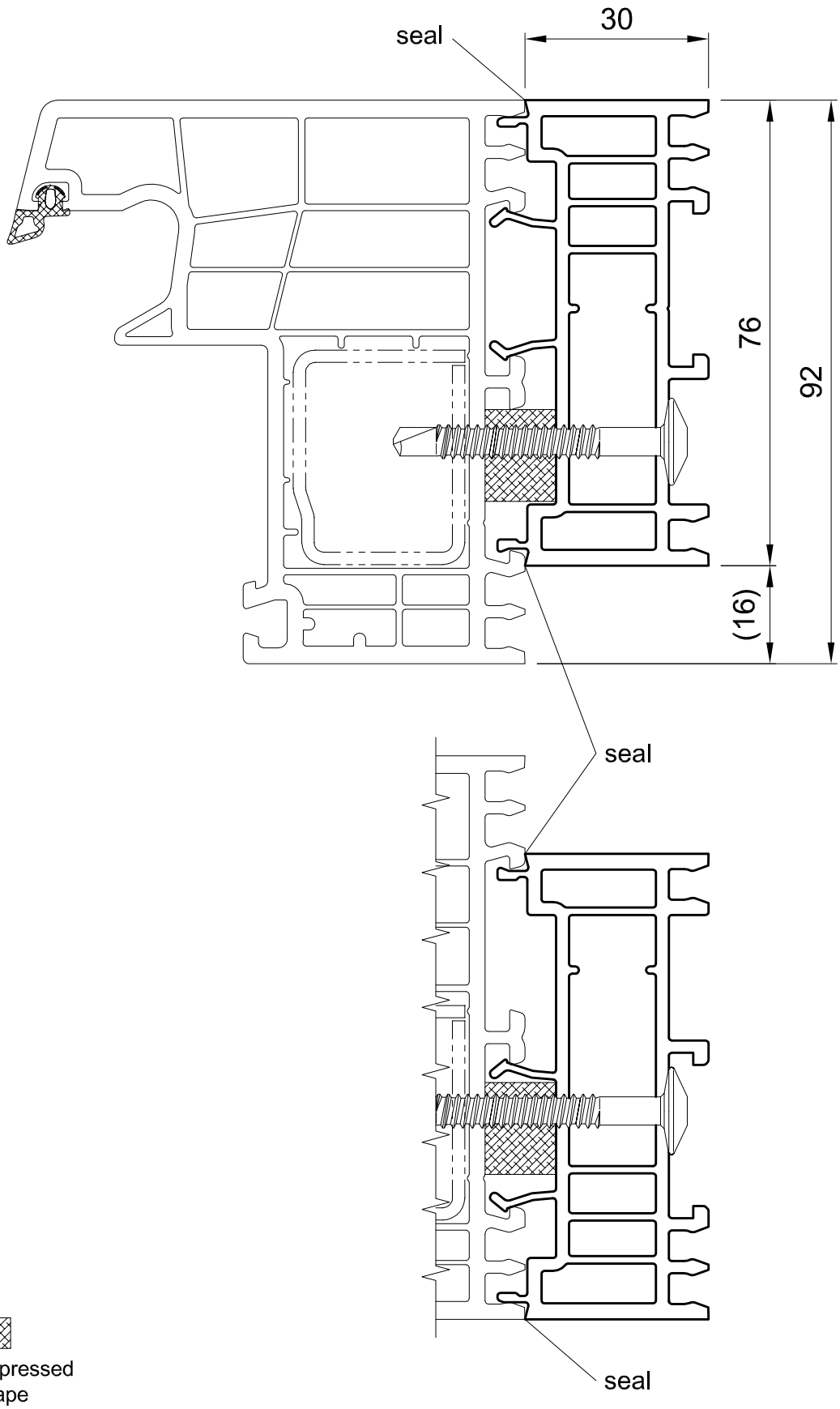
SALAMANDER WINDOW & DOOR SYSTEMS

Extension profile

**416 163**

bE92 04

**06.3**




Pre-compressed gasket tape

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

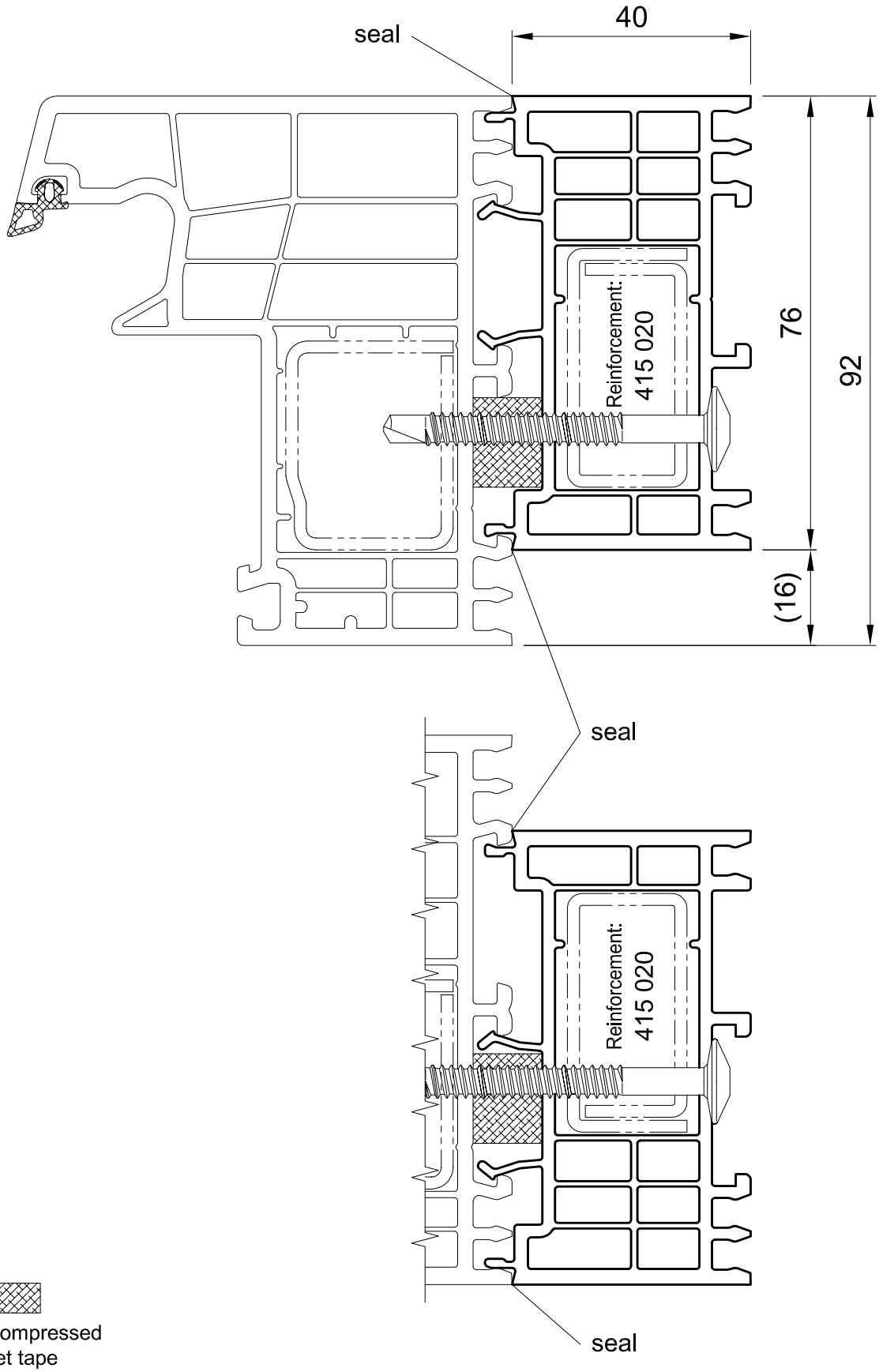
# Extension profile

Extension profile

**416 164**

bE92 04

**06.4**




Pre-compressed gasket tape

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

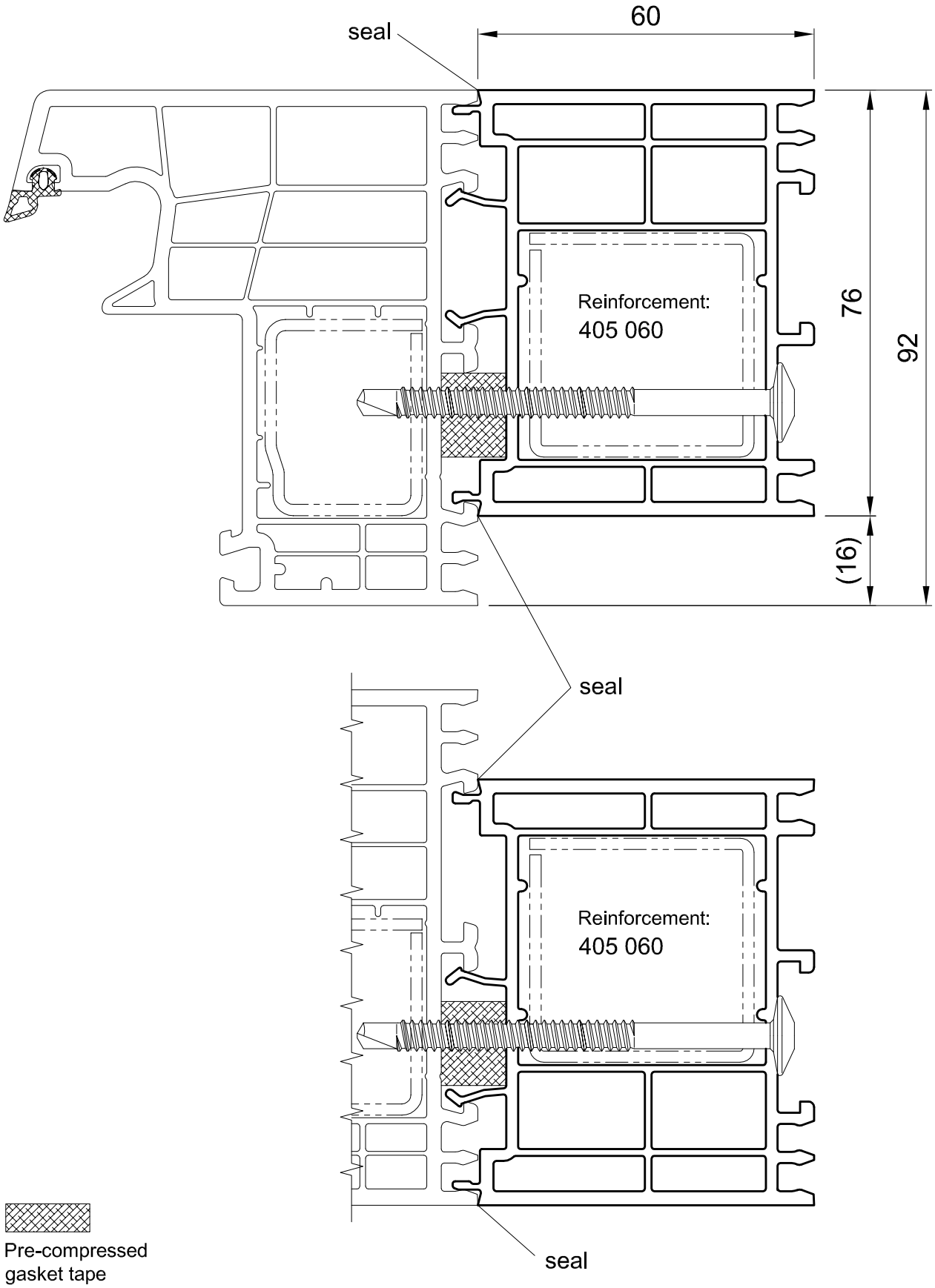
# Extension profile

Extension profile

**416 170**

bE92 04

**06.5**




Pre-compressed gasket tape

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

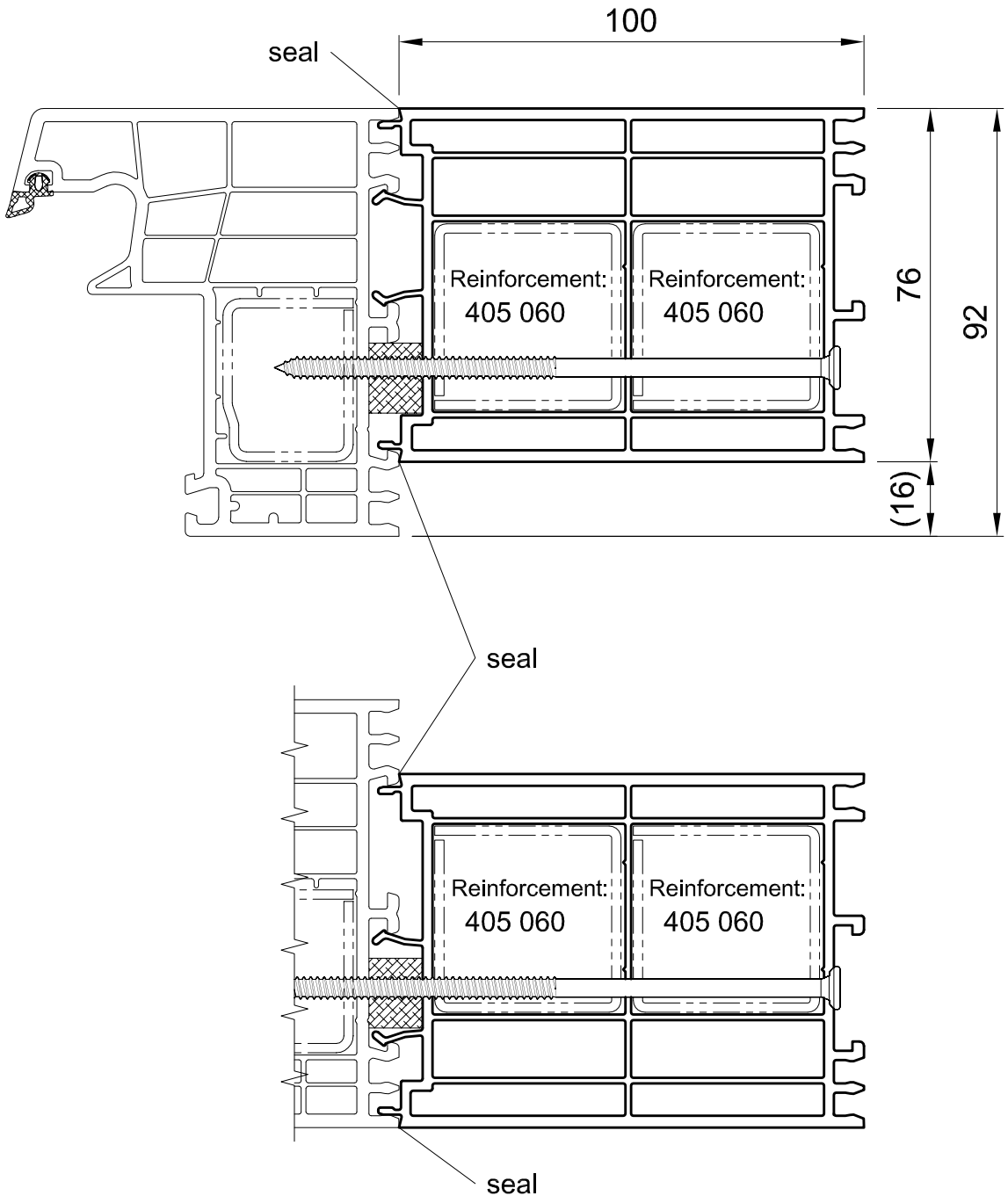
SALAMANDER WINDOW & DOOR SYSTEMS

Extension profile

**416 176**

bE92 04

**06.6**




Pre-compressed
gasket tape

Seal with permanently elastic, neutrally bonding sealant,
suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

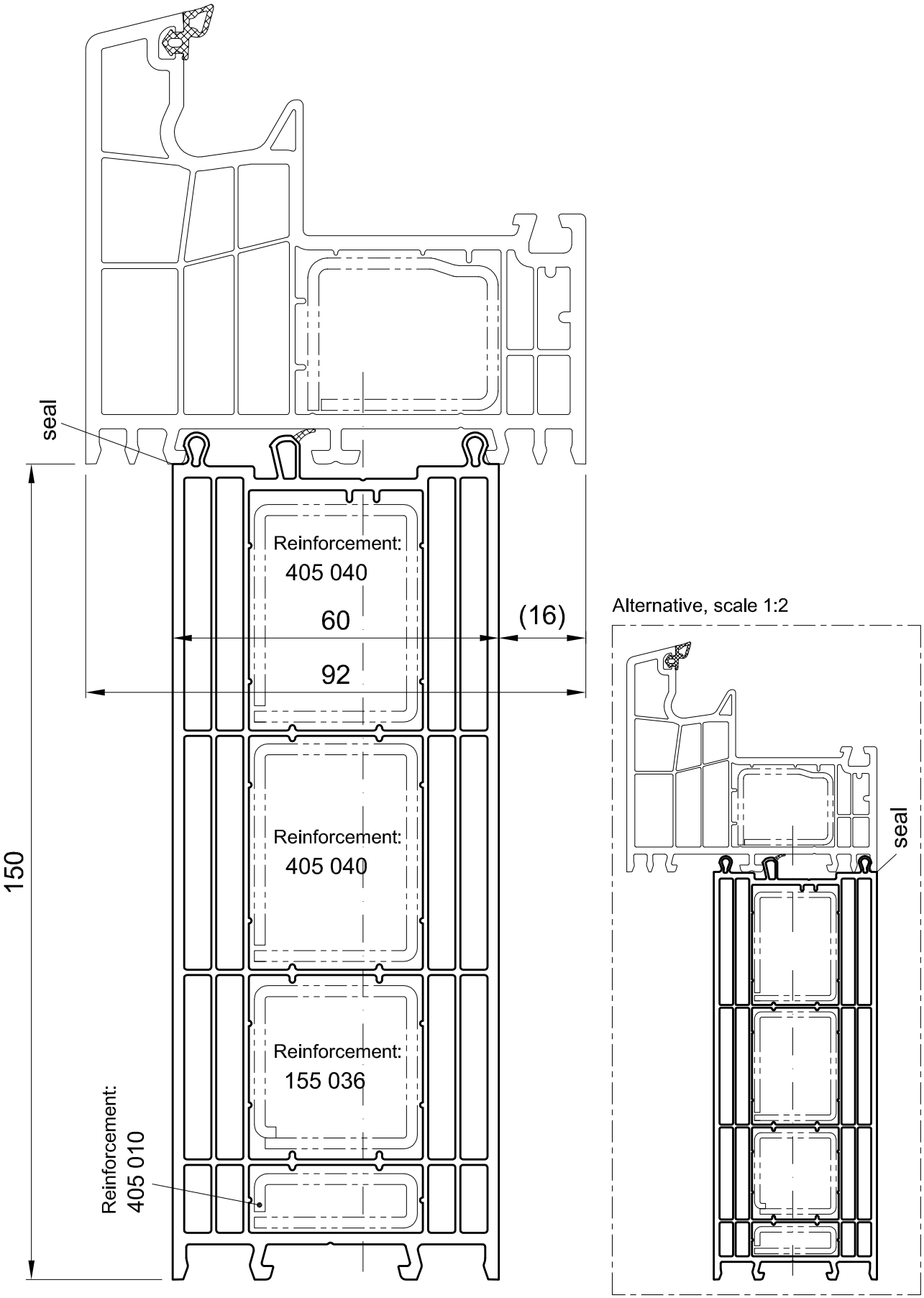
# French window profile

Base frame profile

**416 395**

bE92 04

**06.7**




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

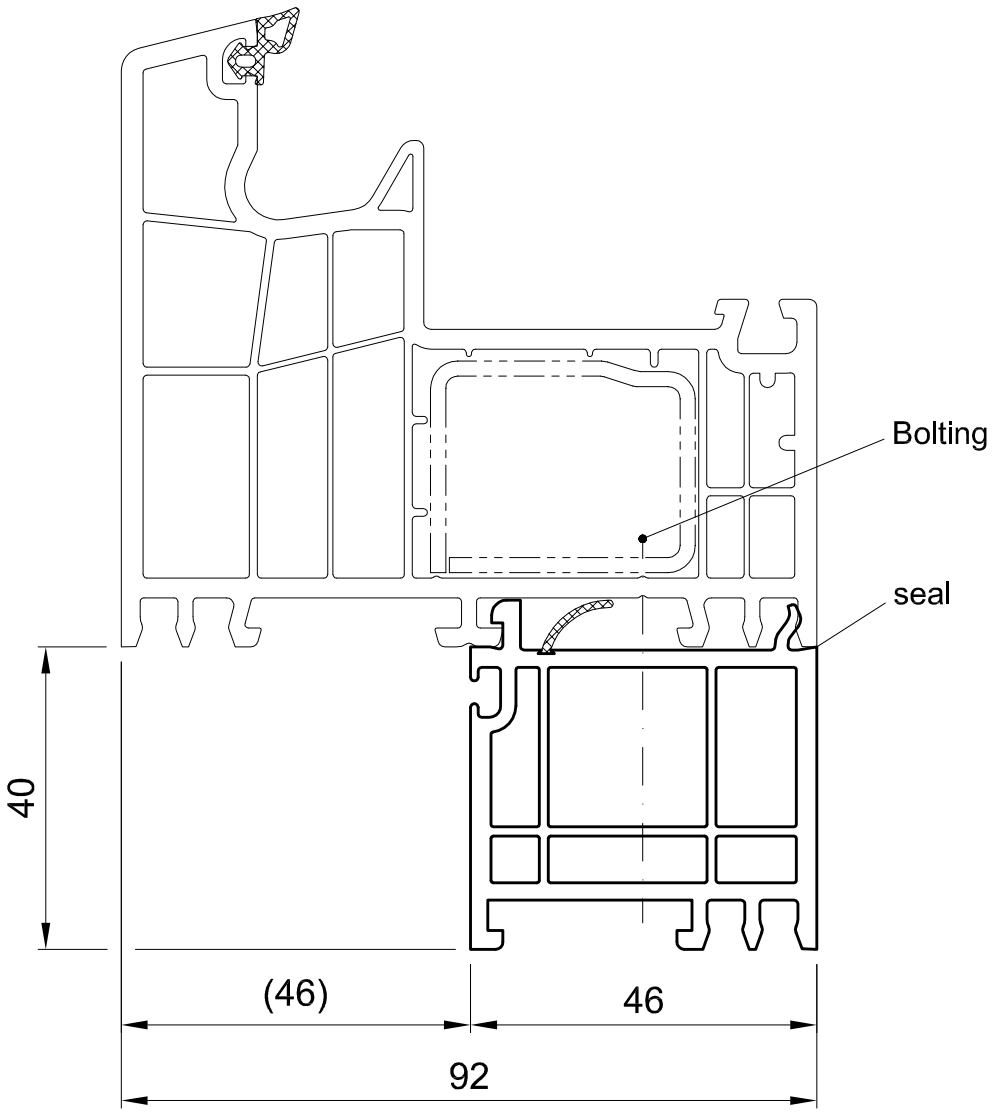
SALAMANDER
WINDOW & DOOR SYSTEMS

French window profile

**416 146**

bE92 04

**06.8**




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

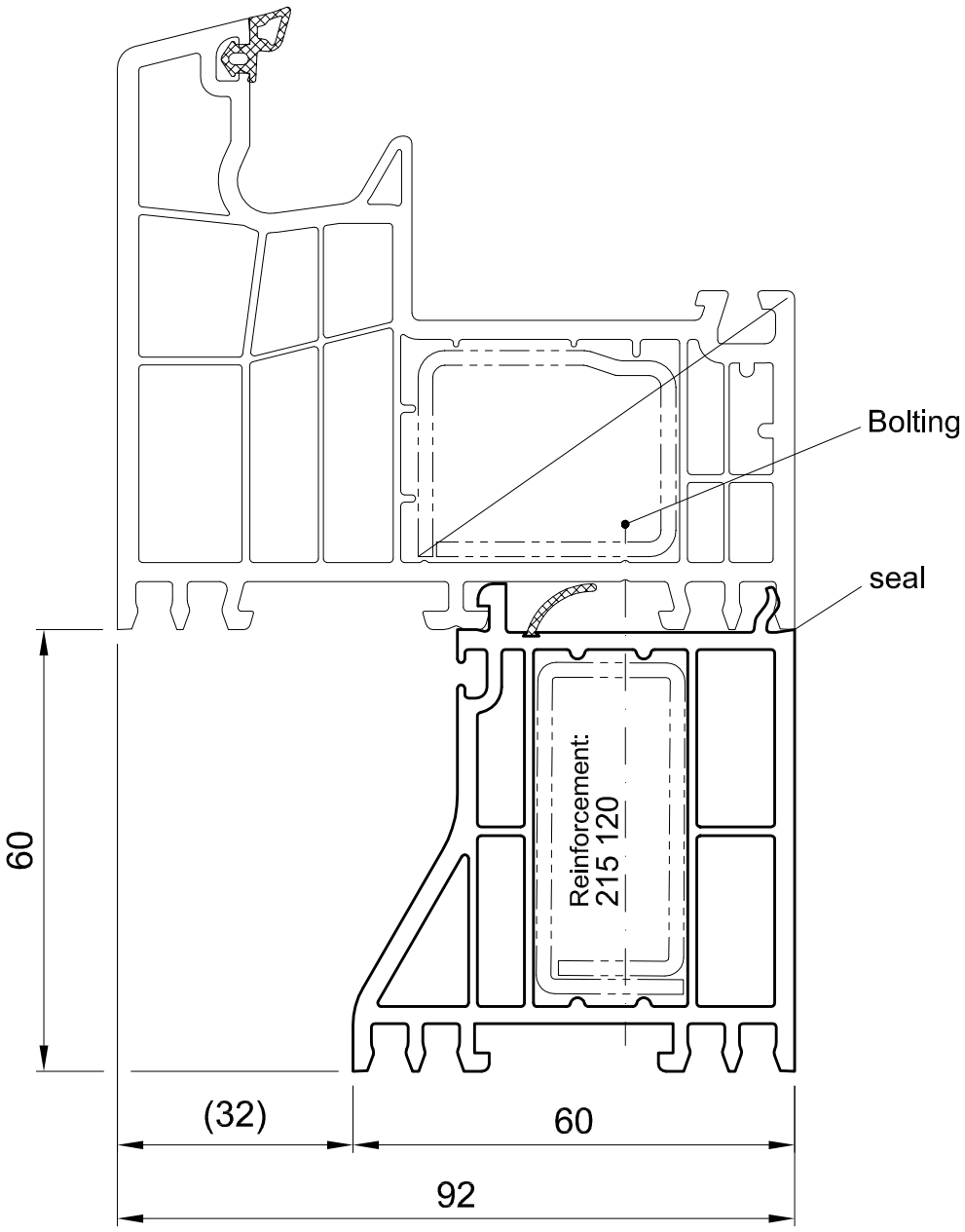
SALAMANDER
WINDOW & DOOR SYSTEMS

French window profile

**416 145**

bE92 04

**06.9**




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

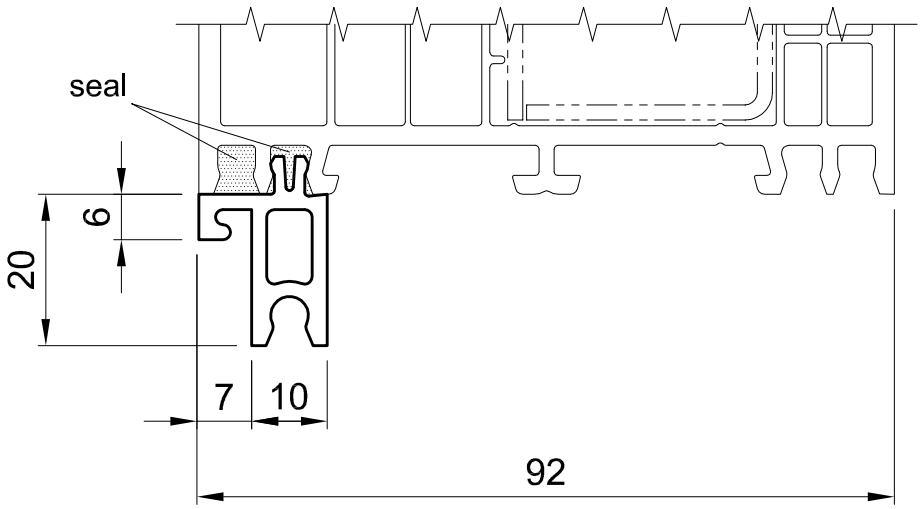
SALAMANDER
WINDOW & DOOR SYSTEMS

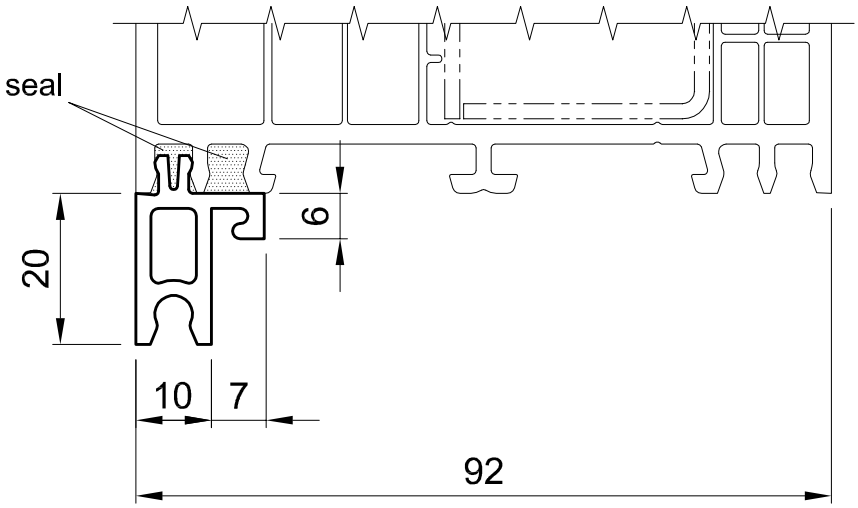
Sill profile

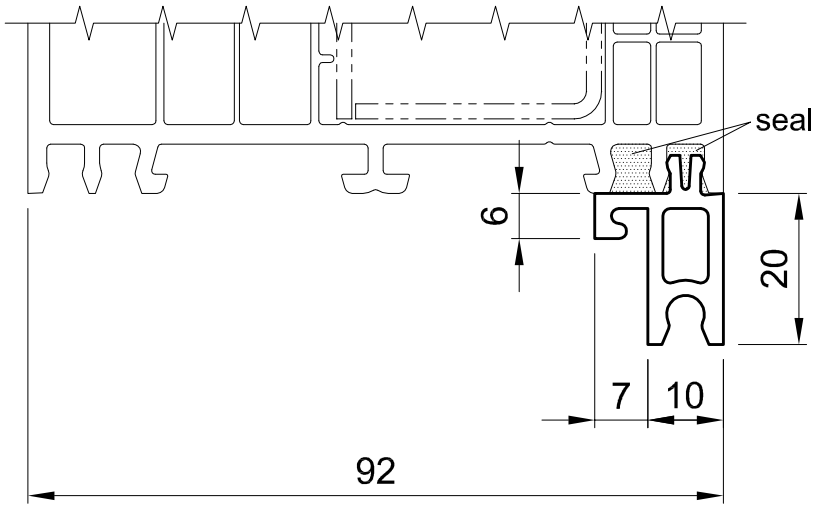
**406 105**

bE92 04

**07.1**




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015



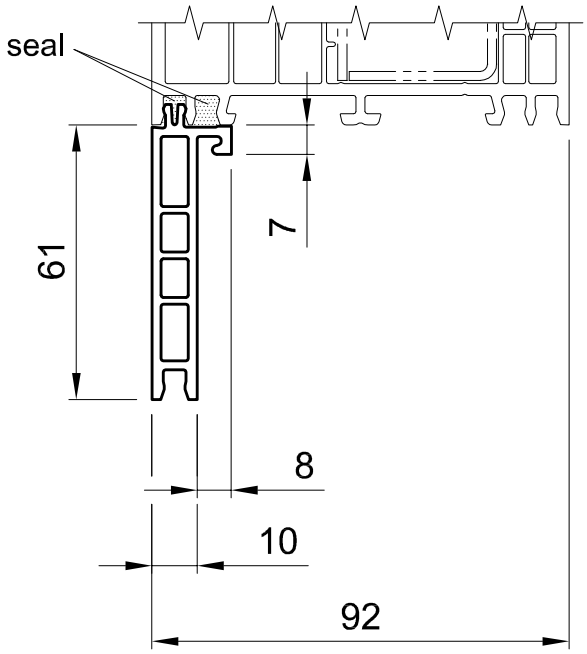
SALAMANDER
WINDOW & DOOR SYSTEMS

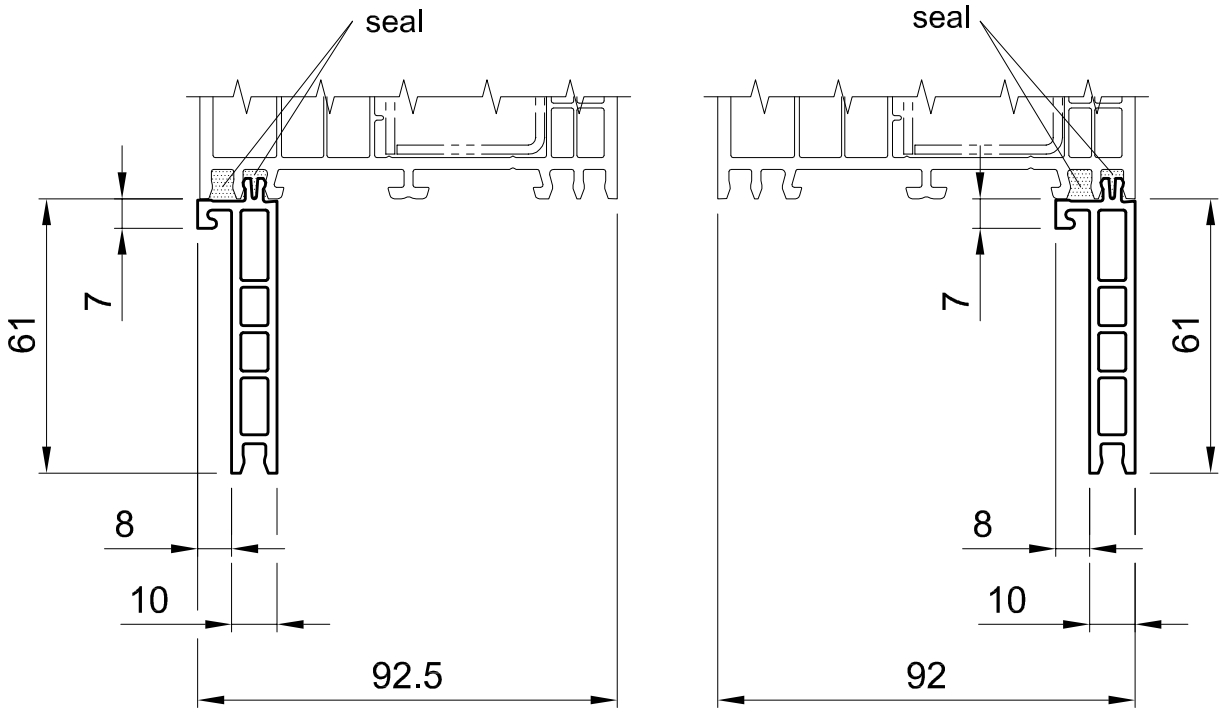
Sill profile

**406 157**

bE92 04

**07.2**




Note: Profile can deviate in the evenness to the frame

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Not to scale

Issue: 11/2015



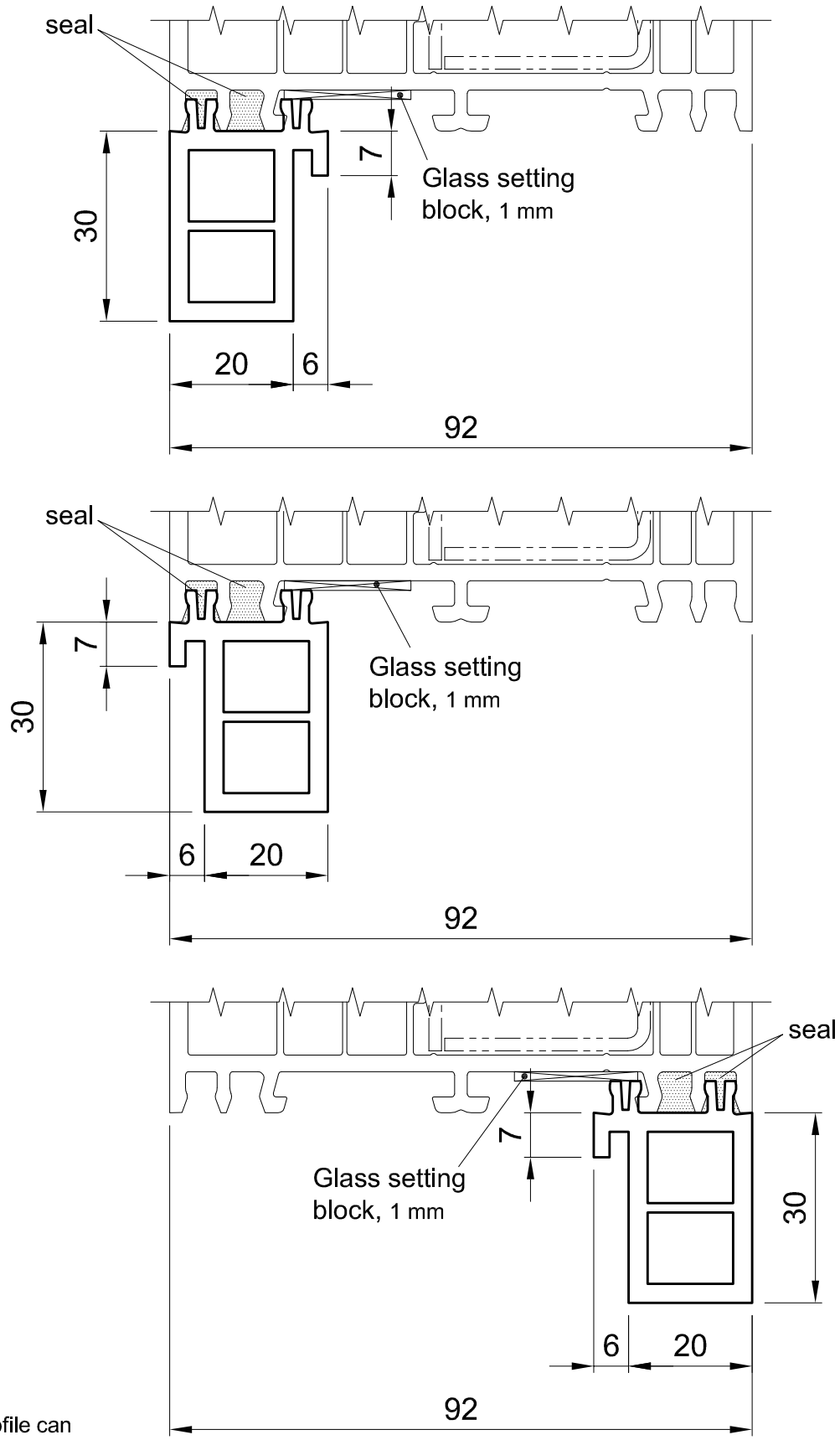
SALAMANDER
WINDOW & DOOR SYSTEMS

Sill profile

**406 139**

bE92 04

**07.3**




Note: Profile can deviate in the evenness to the frame

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

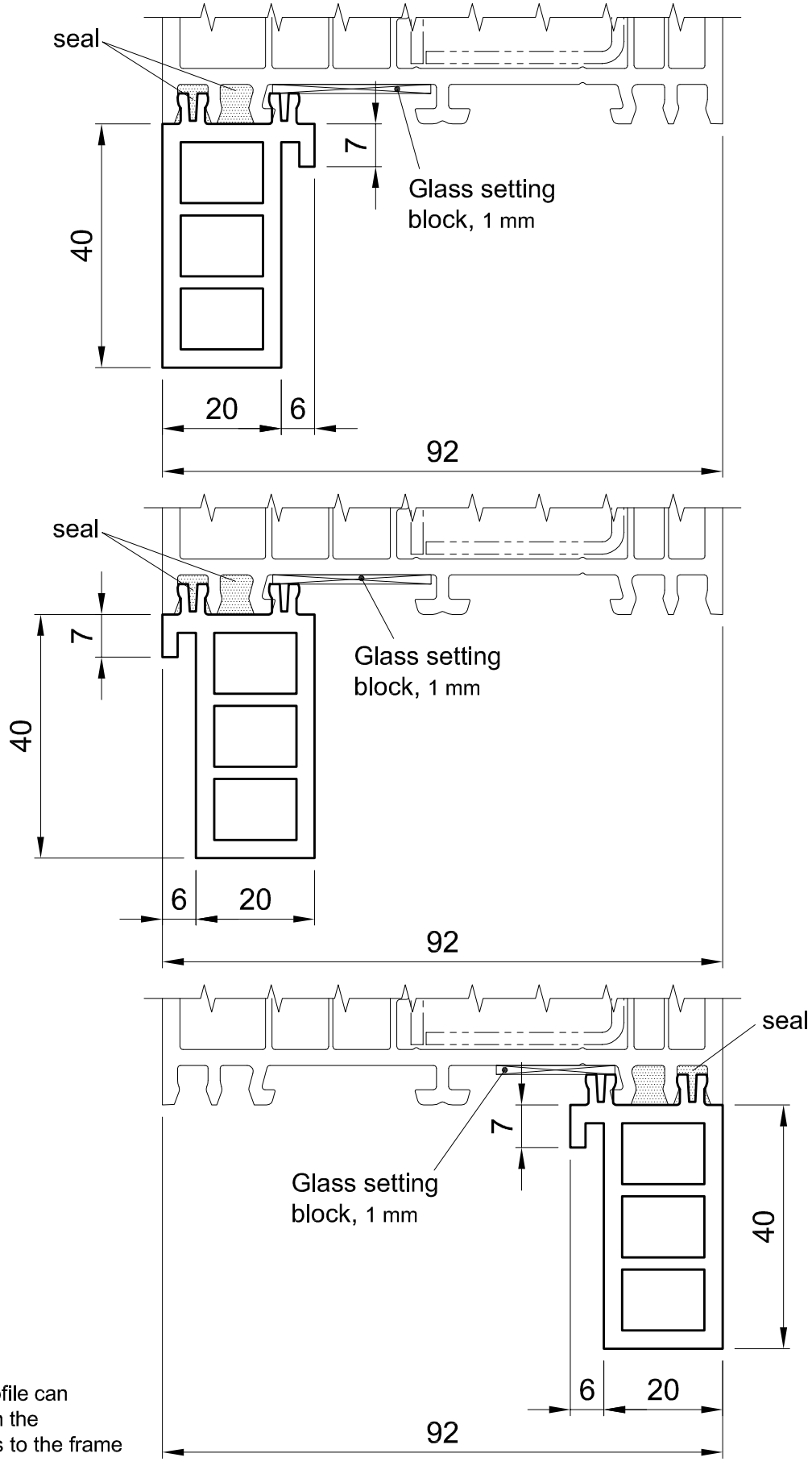
SALAMANDER WINDOW & DOOR SYSTEMS

Sill profile

**406 140**

bE92 04

**07.4**




Note: Profile can deviate in the evenness to the frame

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015



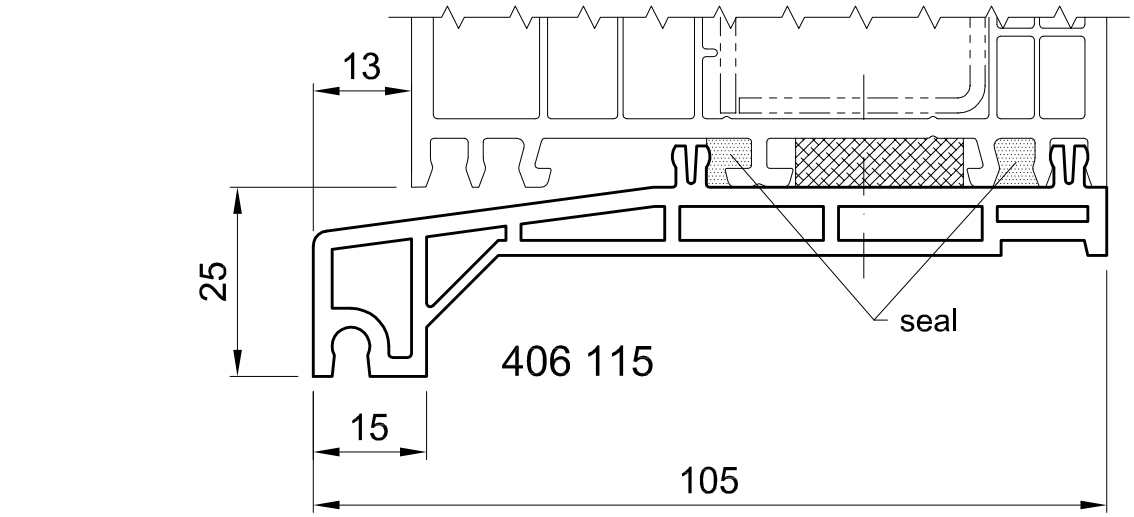
SALAMANDER WINDOW & DOOR SYSTEMS

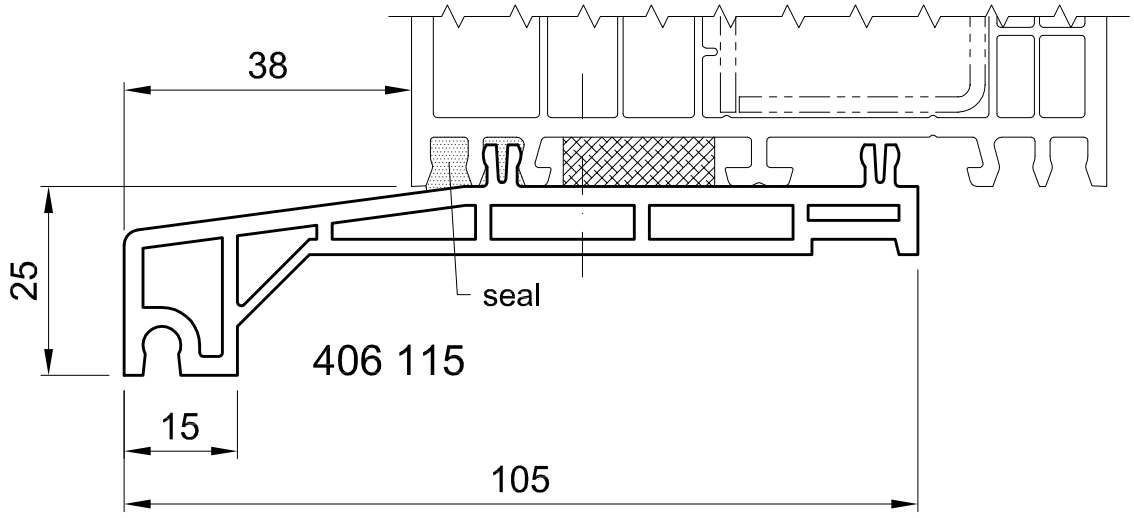
Sill profile

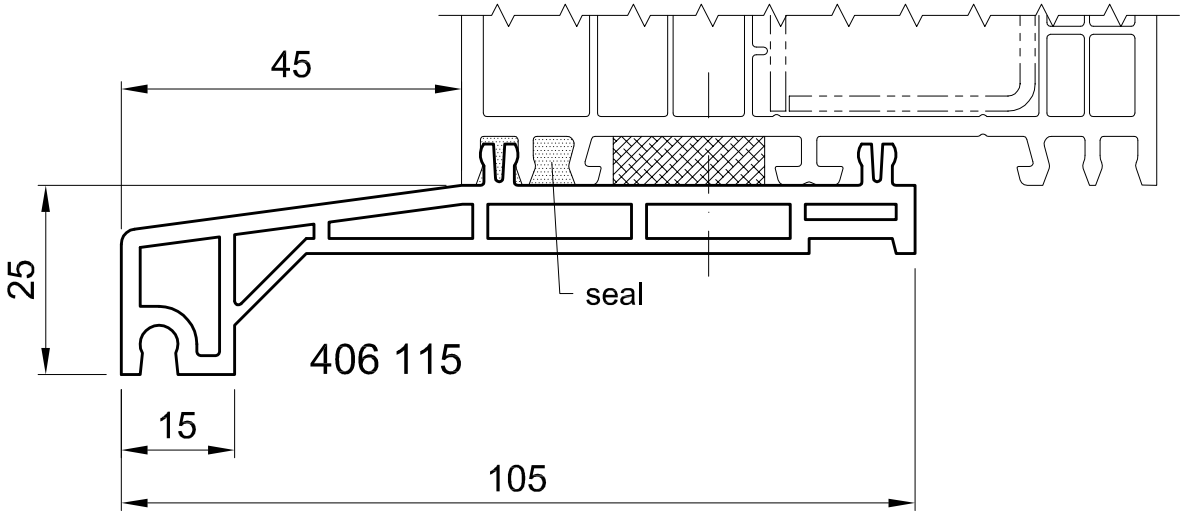
**406 115**

bE92 04

**07.5**




Pre-compressed gasket tape

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

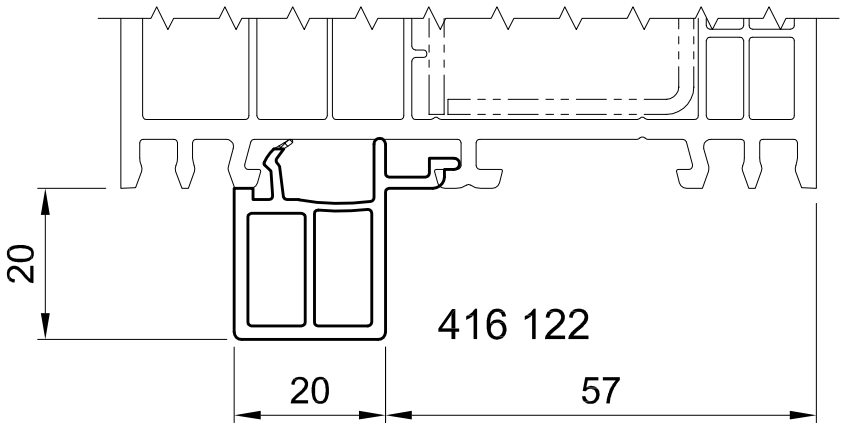
SALAMANDER WINDOW & DOOR SYSTEMS

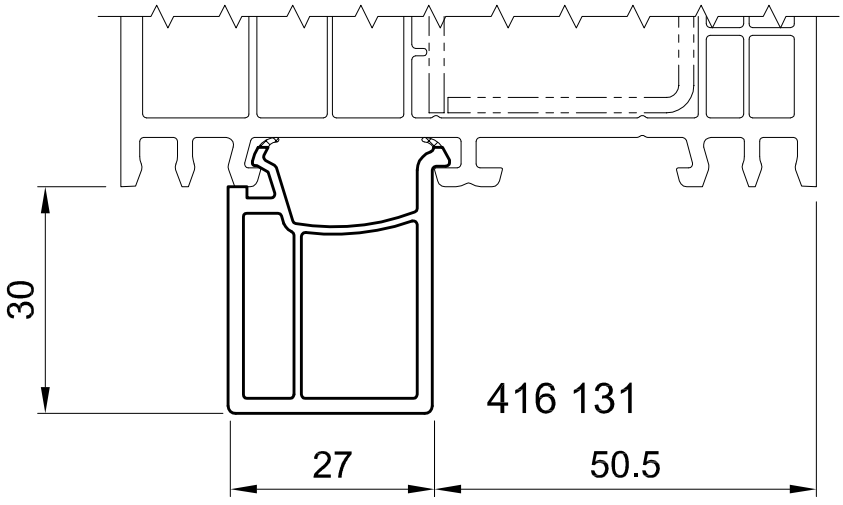
Sill profile

**416 122, 416 131**

bE92 04

**07.6**




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

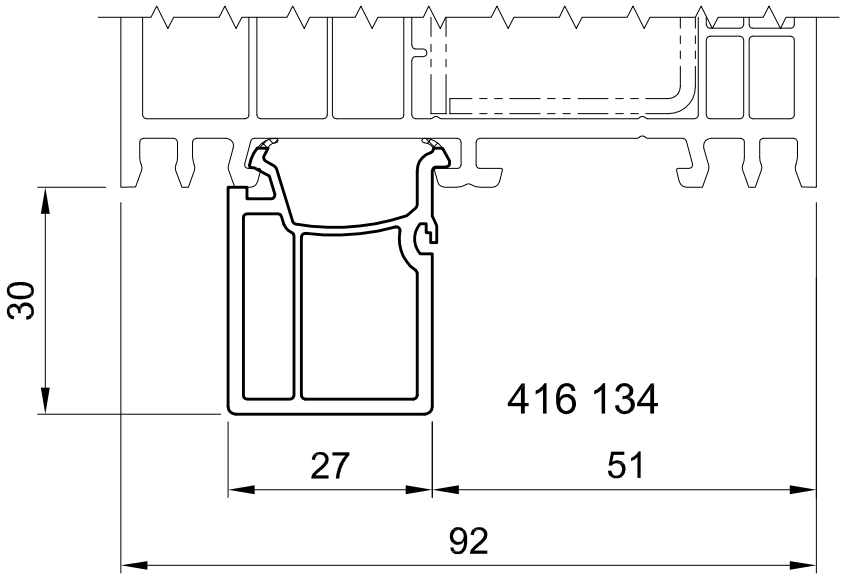
Issue: 11/2015

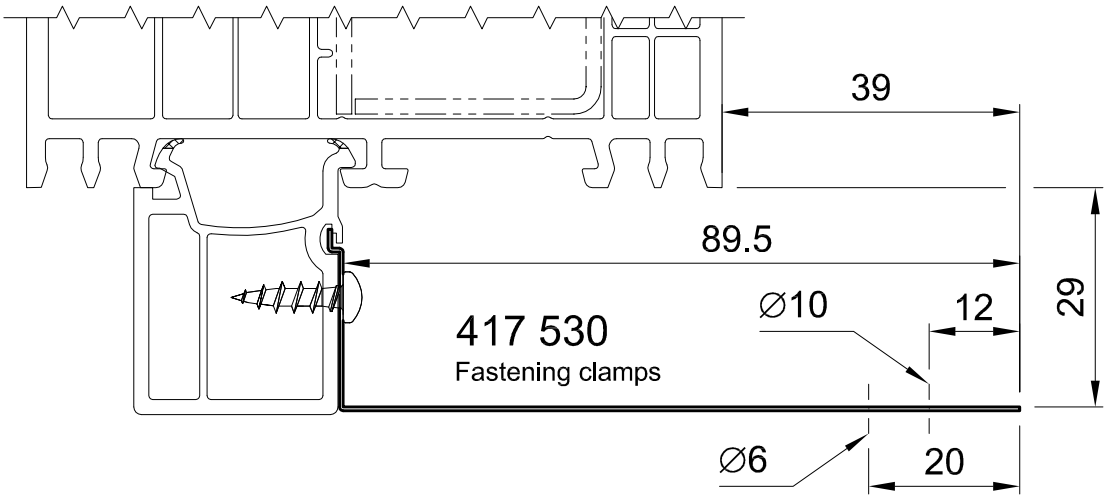


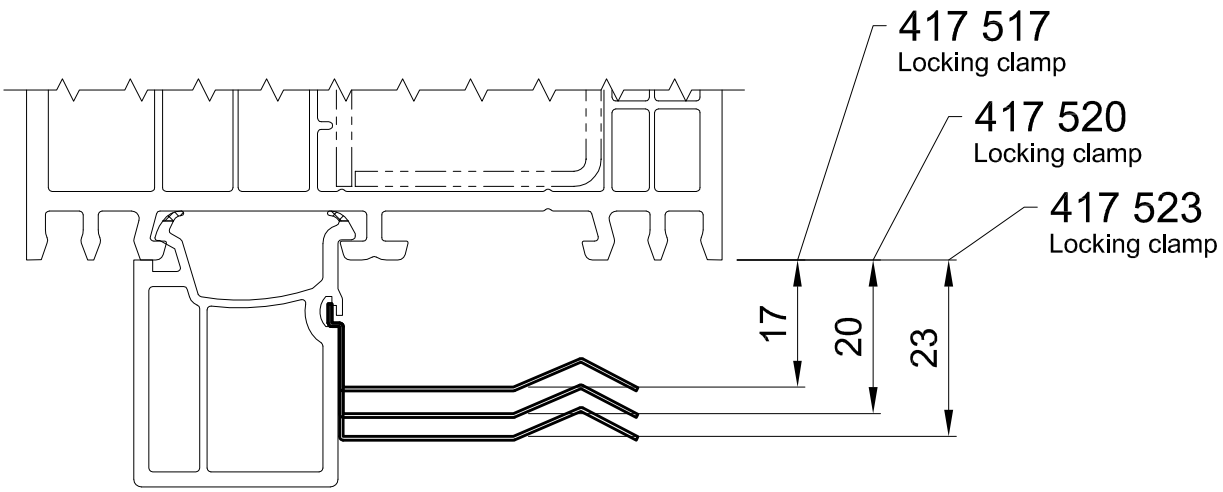
SALAMANDER WINDOW & DOOR SYSTEMS

# Sill profile

| Sill profile | Fastening clamp | Locking clamps | bE92 04 |
|---|---|---|---|
| **416 134** | **417 530** | **417 517, 417 520, 417 523** | **07.7** |





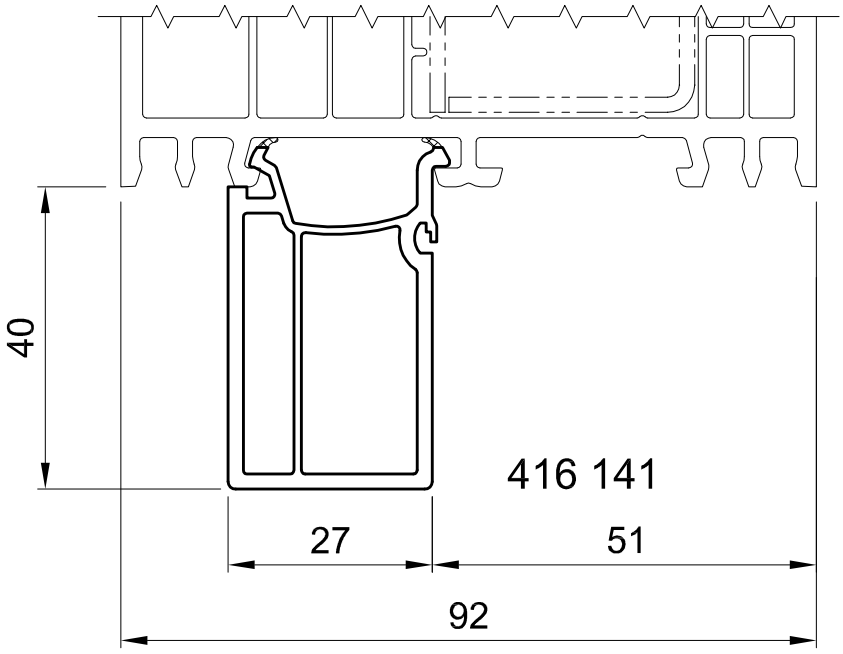

Scale 1:1 (or depending on print-out)

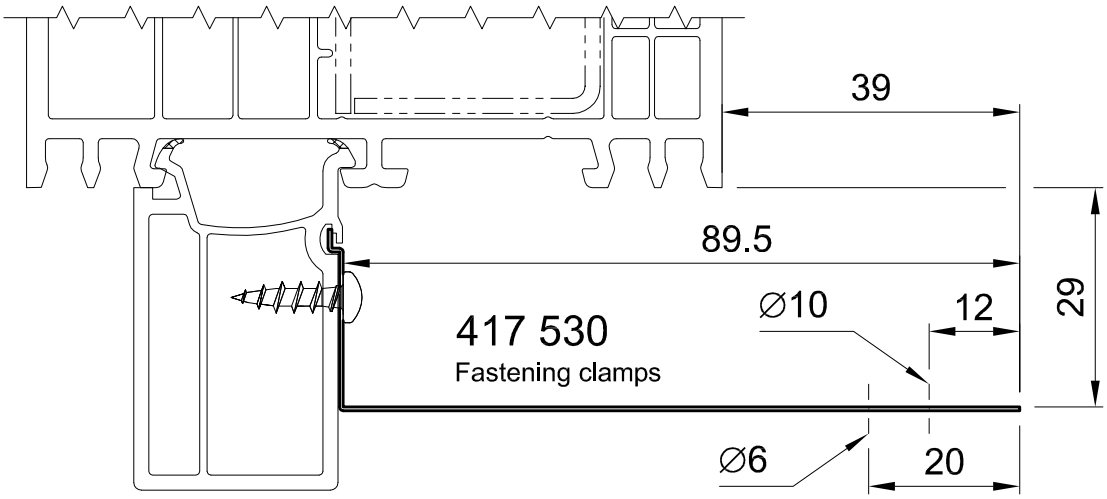
Issue: 11/2015

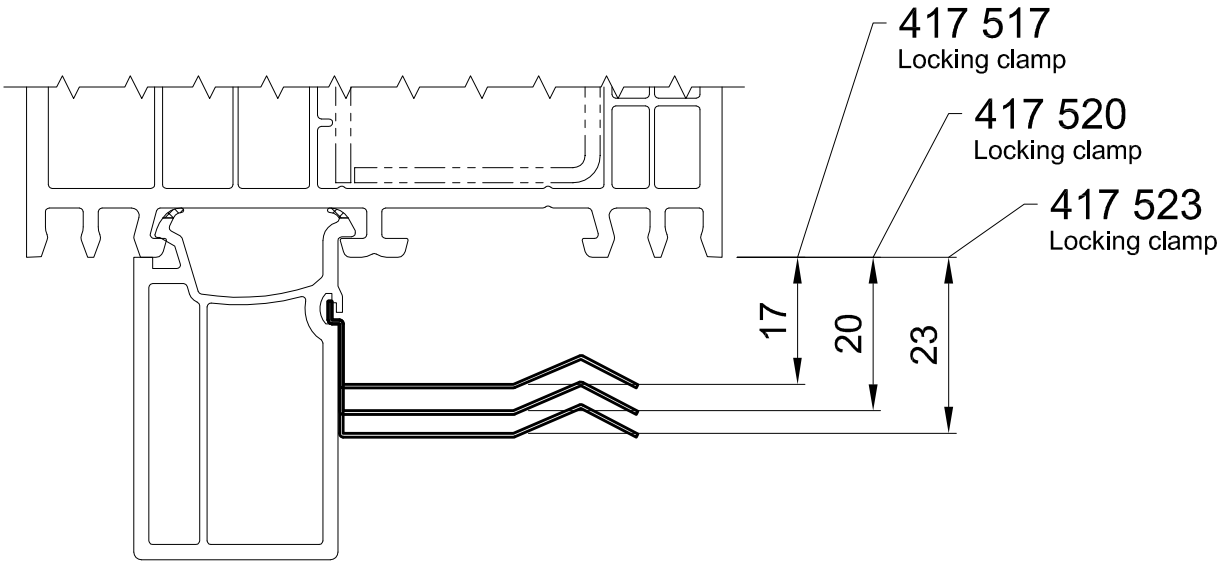
SALAMANDER
WINDOW & DOOR SYSTEMS

# Sill profile

| Sill profile | Fastening clamp | Locking clamp | bE92 04 |
|---|---|---|---|
| **416 141** | **417 530** | **417 517, 417 520, 417 523** | **07.8** |





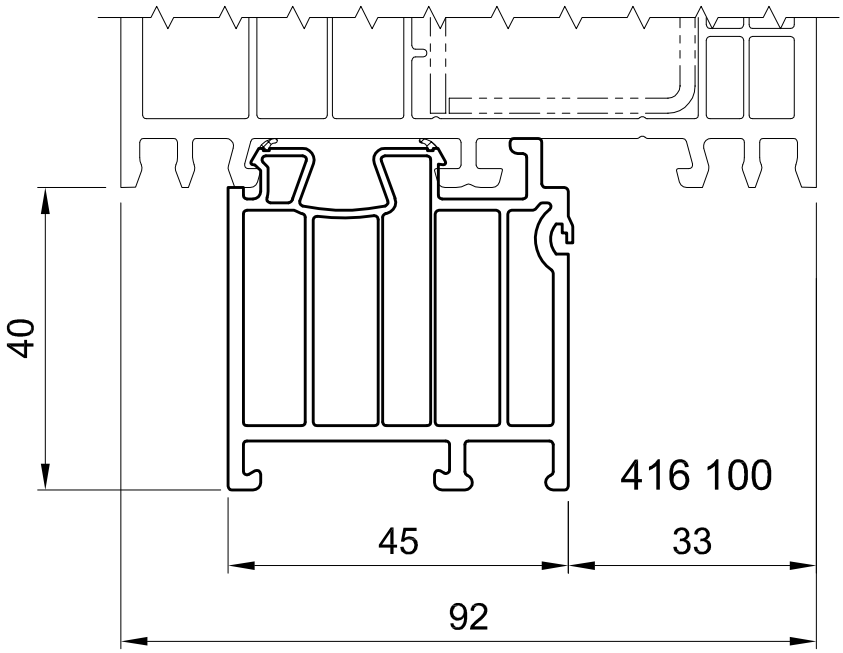

Scale 1:1 (or depending on print-out)

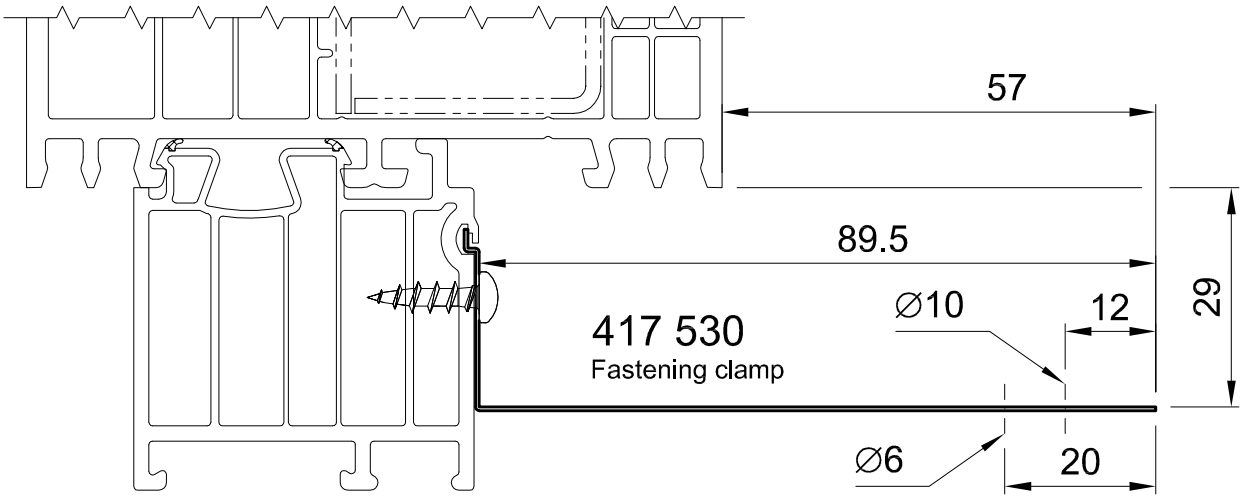
Issue: 11/2015

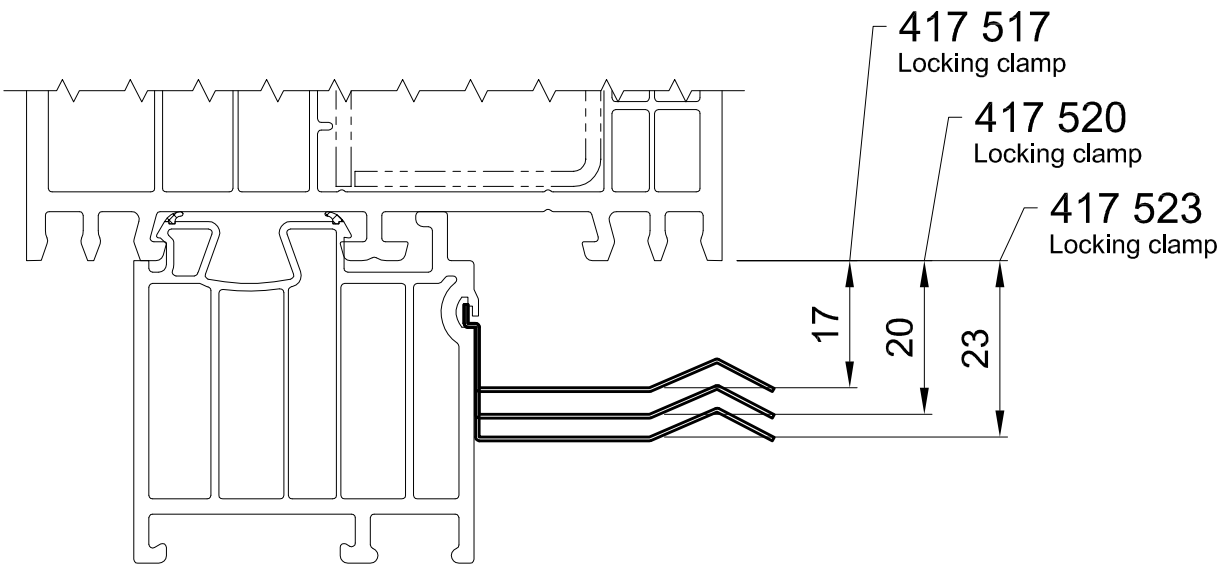
SALAMANDER WINDOW & DOOR SYSTEMS

# Sill profile (5-chamber)

| Sill profile | Fastening clamp | Locking clamp | bE92 04 |
|---|---|---|---|
| **416 100** | **417 530** | **417 517, 417 520, 417 523** | **07.9** |





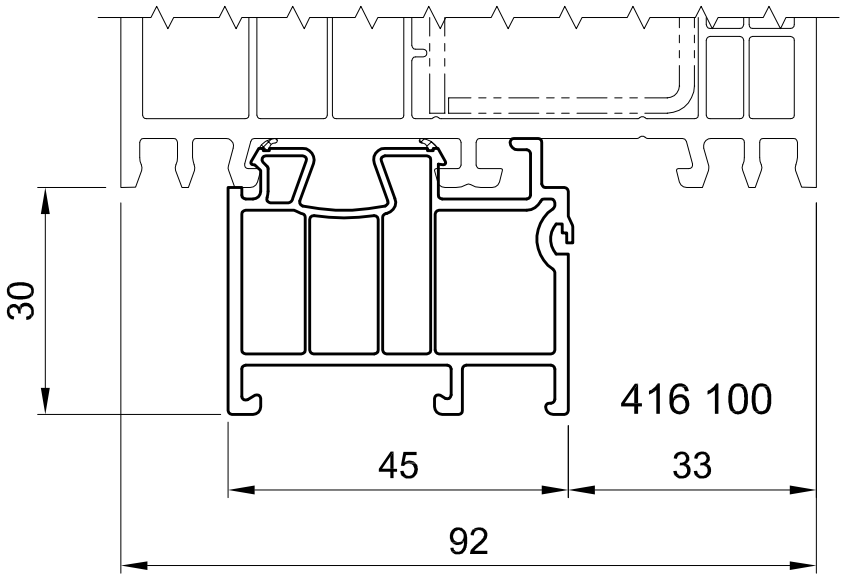

Scale 1:1 (or depending on print-out)

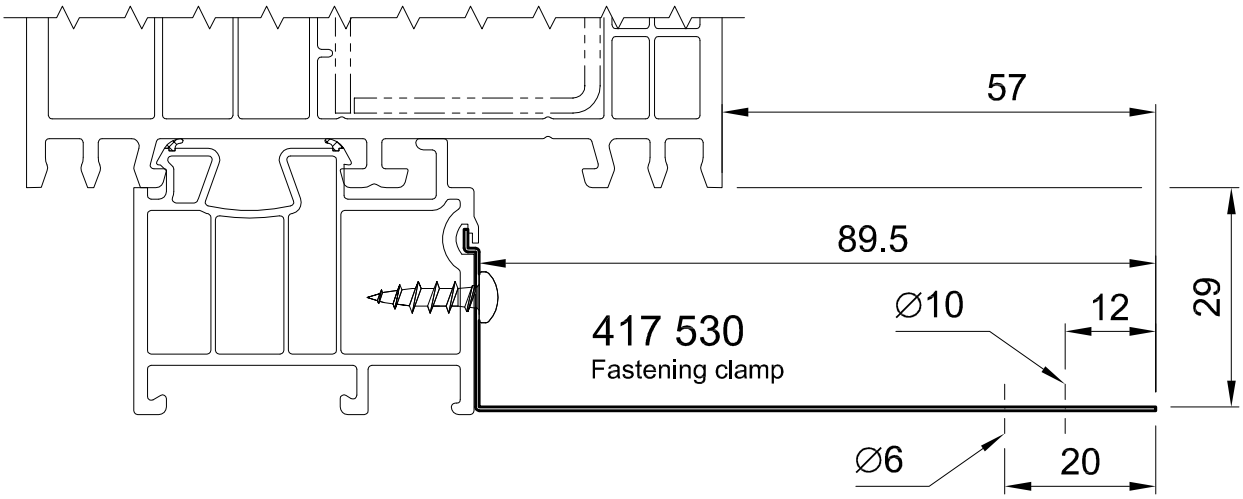
Issue: 11/2015

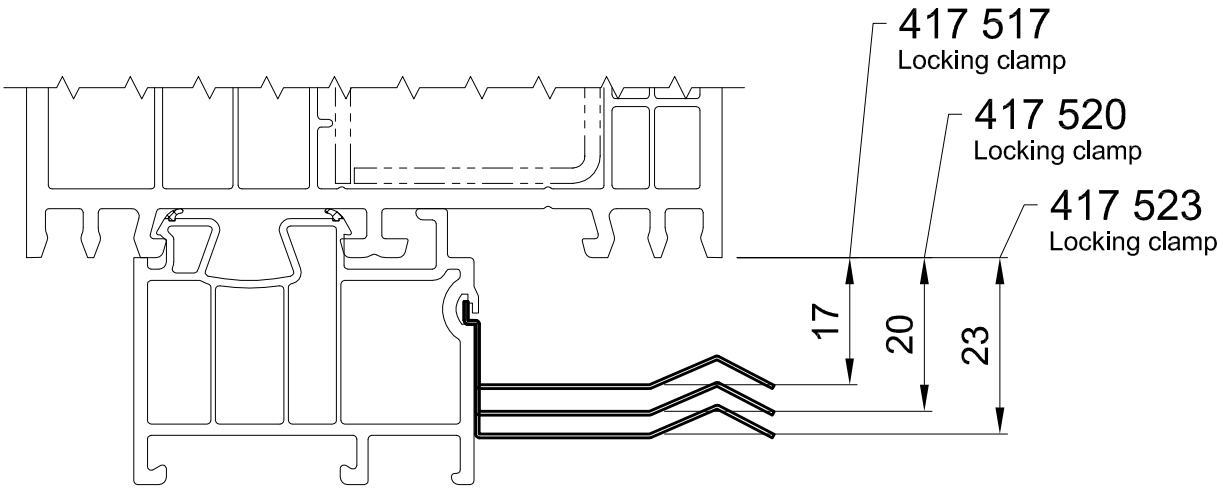
SALAMANDER
WINDOW & DOOR SYSTEMS

# Sill profile (4-chamber)

| Sill profile | Fastening clamp | Locking clamp | bE92 04 |
|---|---|---|---|
| **416 106** | **417 530** | **417 517, 417 520, 417 523** | **07.10** |





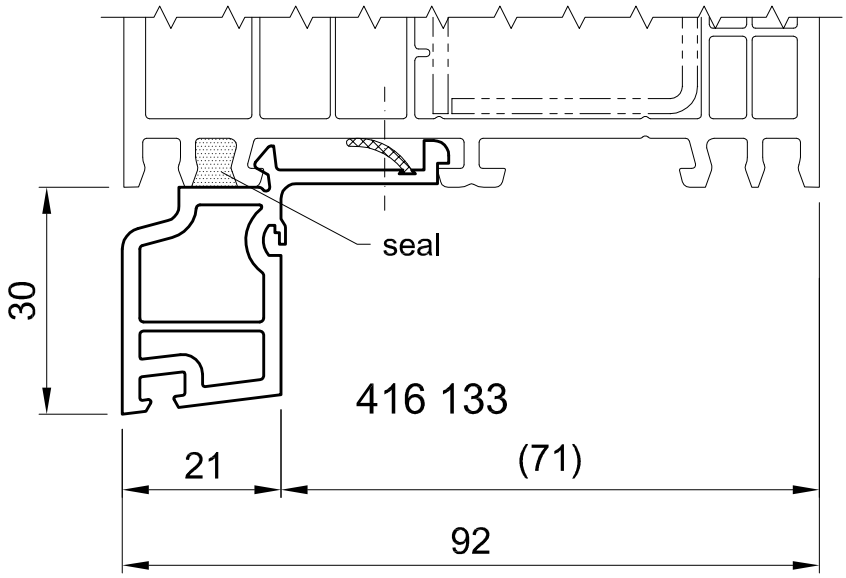

Scale 1:1 (or depending on print-out)

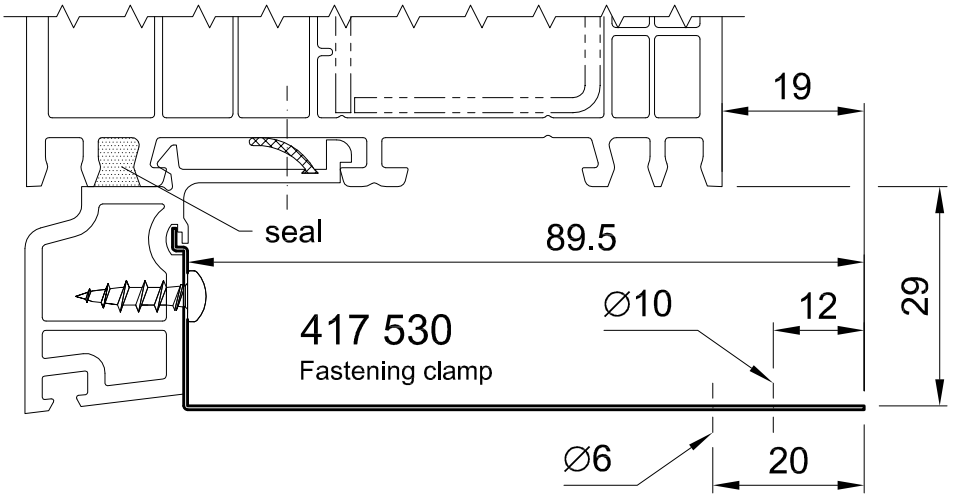
Issue: 11/2015

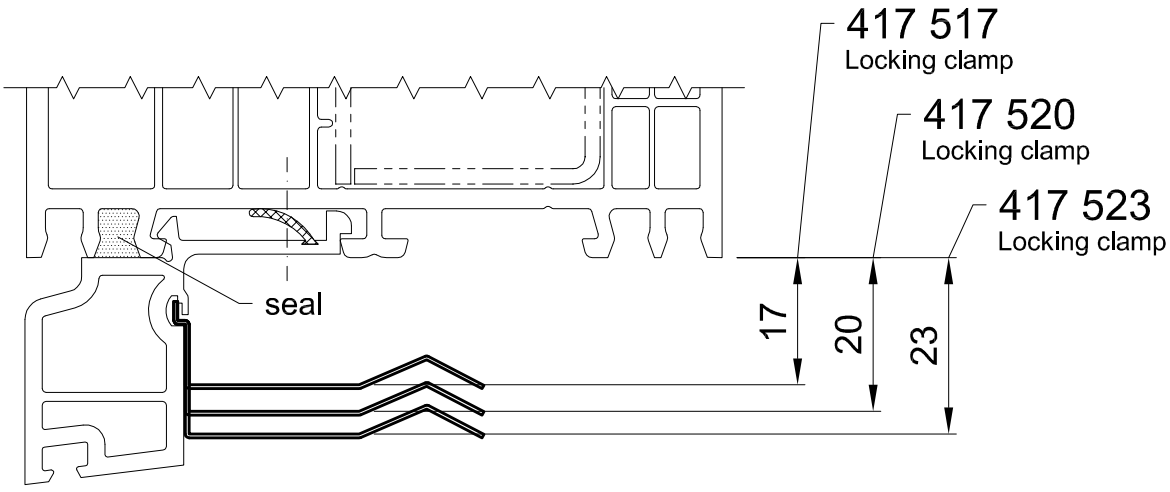
SALAMANDER
WINDOW & DOOR SYSTEMS

# Stone bank profiles

| Stone bank profiles | Fastening clamp | Locking clamp | bE92 04 |
|---|---|---|---|
| **416 133** | **417 530** | **417 517, 417 520, 417 523** | **07.11** |




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

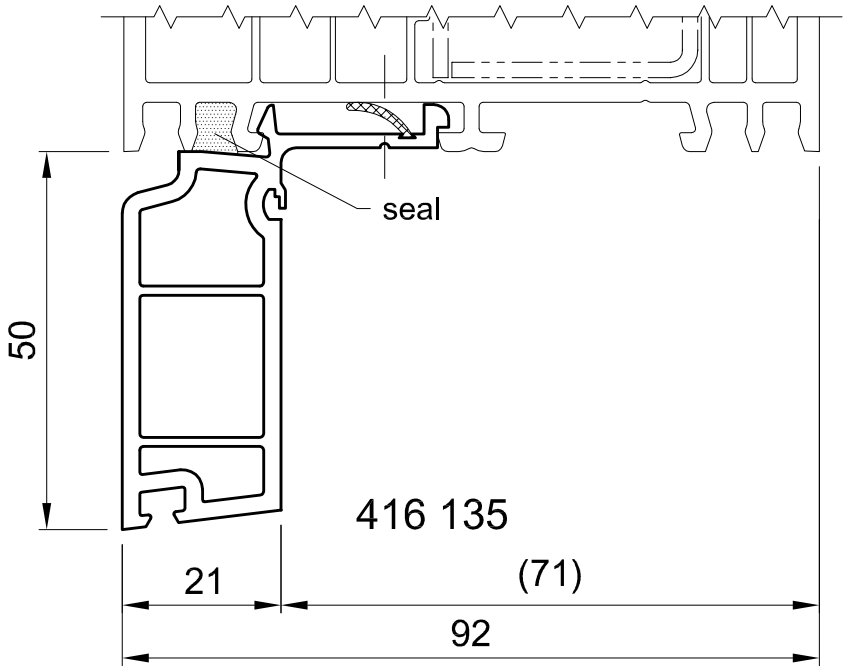
Scale 1:1 (or depending on print-out)

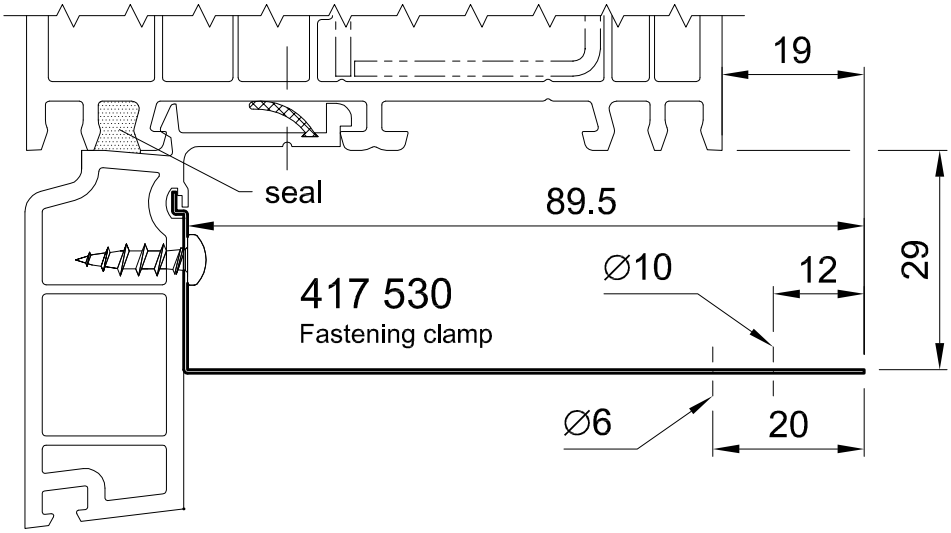
Issue: 11/2015

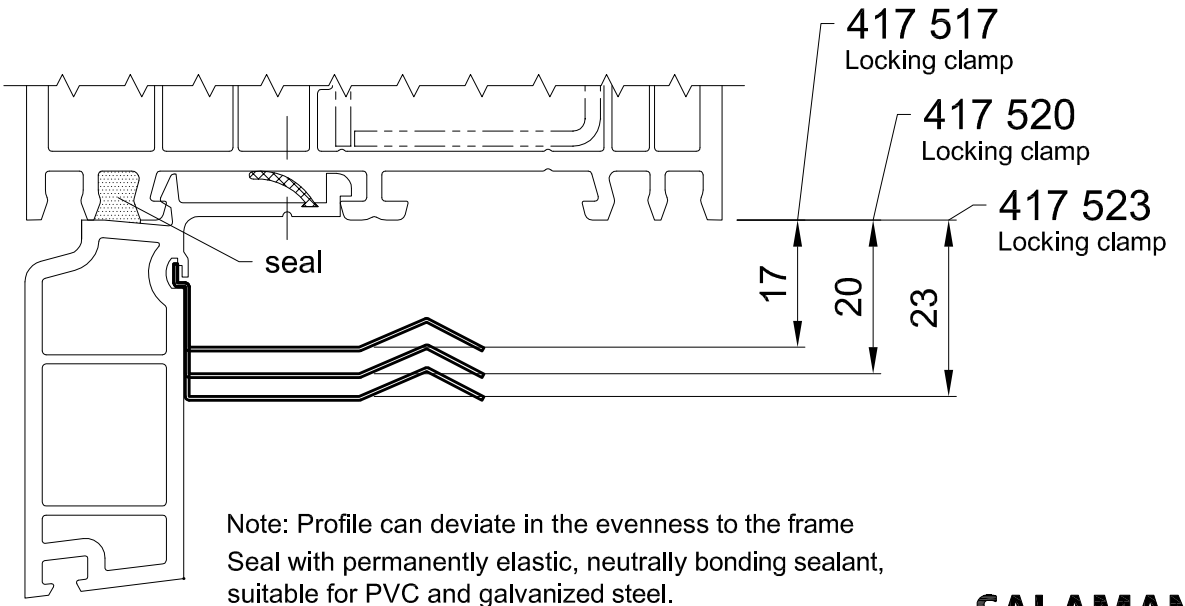
SALAMANDER WINDOW & DOOR SYSTEMS

# Stone bank profiles

| Stone bank profiles | Fastening clamp | Locking clamp | bE92 04 |
|---|---|---|---|
| **416 135** | **417 530** | **417 517, 417 520, 417 523** | **07.12** |




Note: Profile can deviate in the evenness to the frame
Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

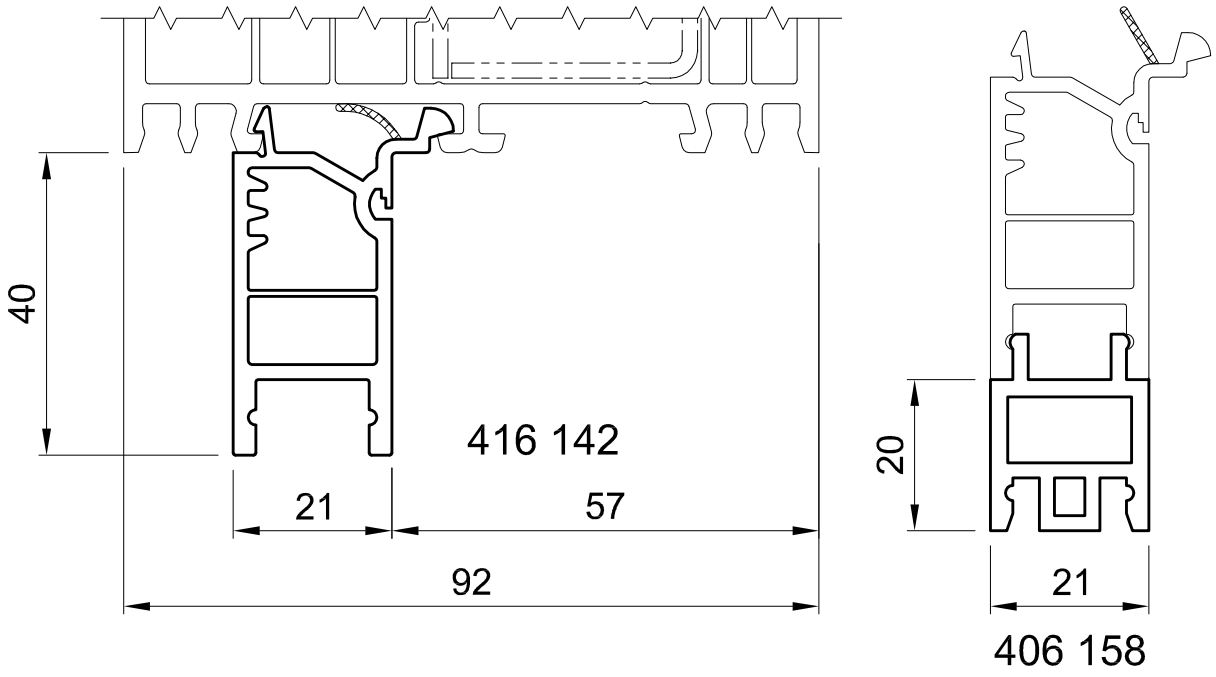
Scale 1:1 (or depending on print-out)

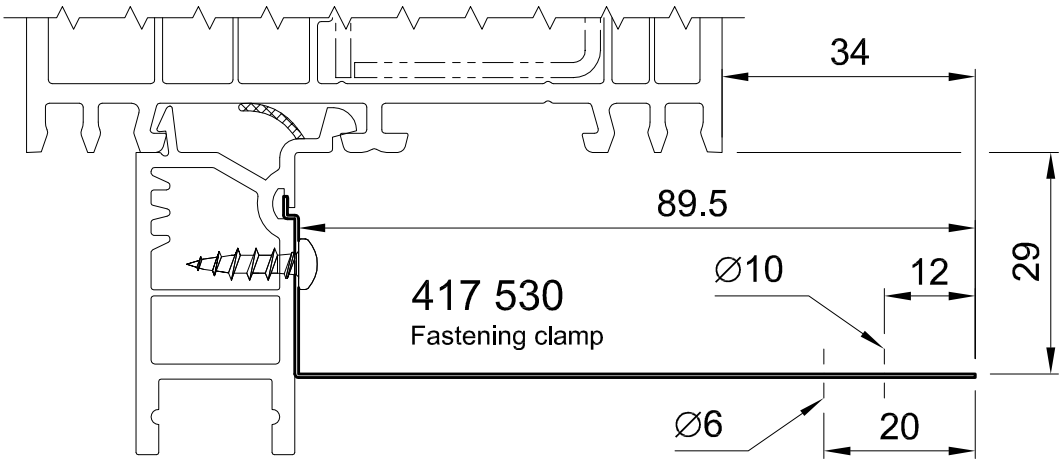
Issue: 11/2015

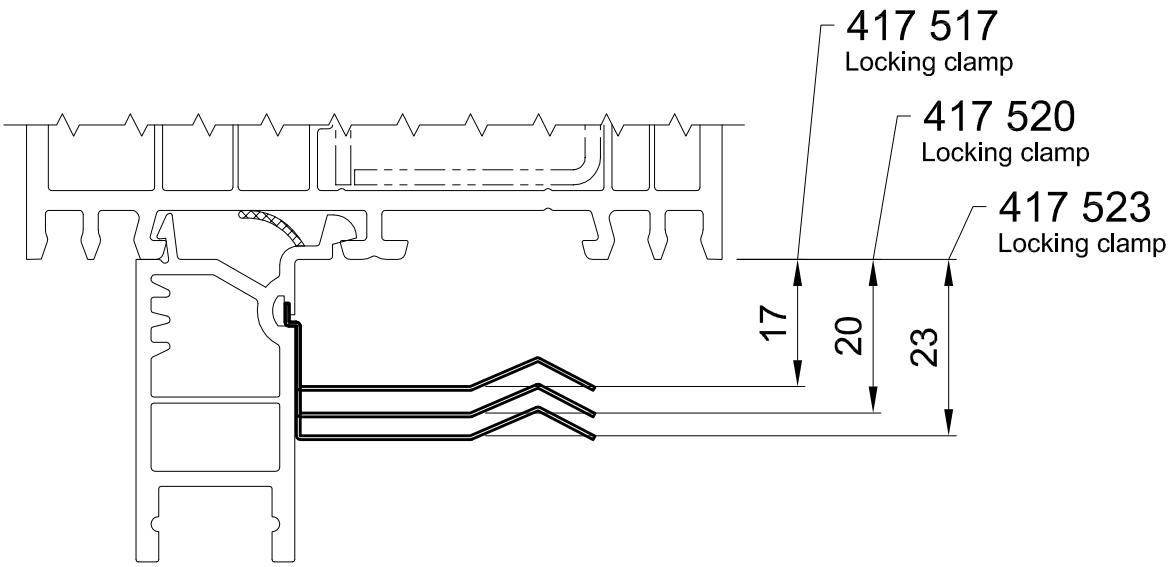
SALAMANDER WINDOW & DOOR SYSTEMS

# Stone bank profiles

| Stone bank profiles | Fastening clamp | Locking clamp | bE92 04 |
|---|---|---|---|
| **416 142, 406 158** | **417 530** | **417 517, 417 520, 417 523** | **07.13** |




Note: Profile can deviate in the evenness to the frame

Scale 1:1 (or depending on print-out)

Issue: 11/2015

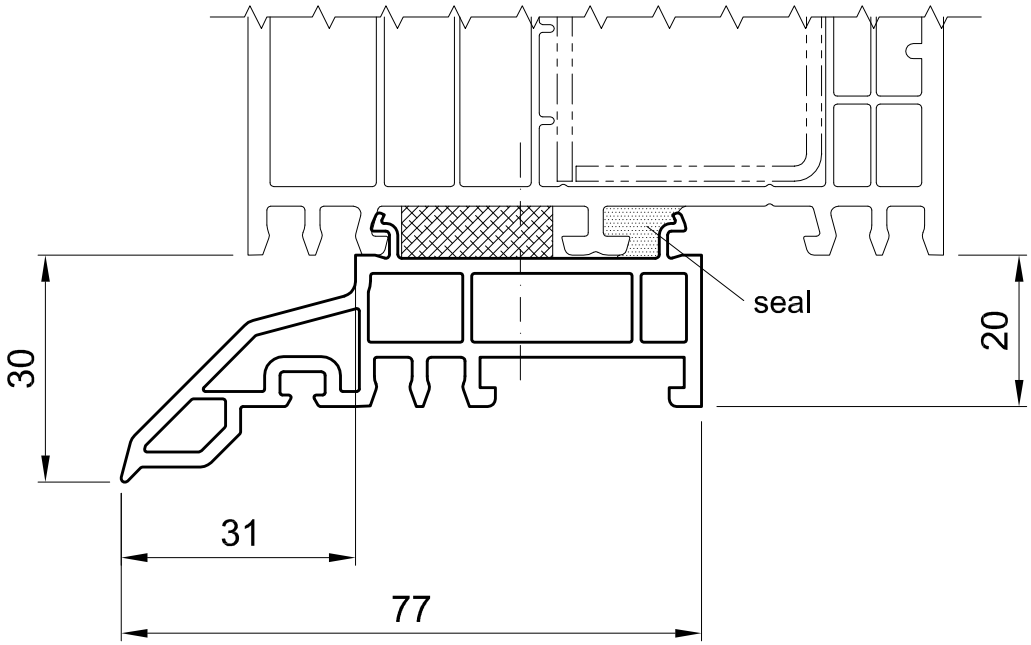
SALAMANDER WINDOW & DOOR SYSTEMS

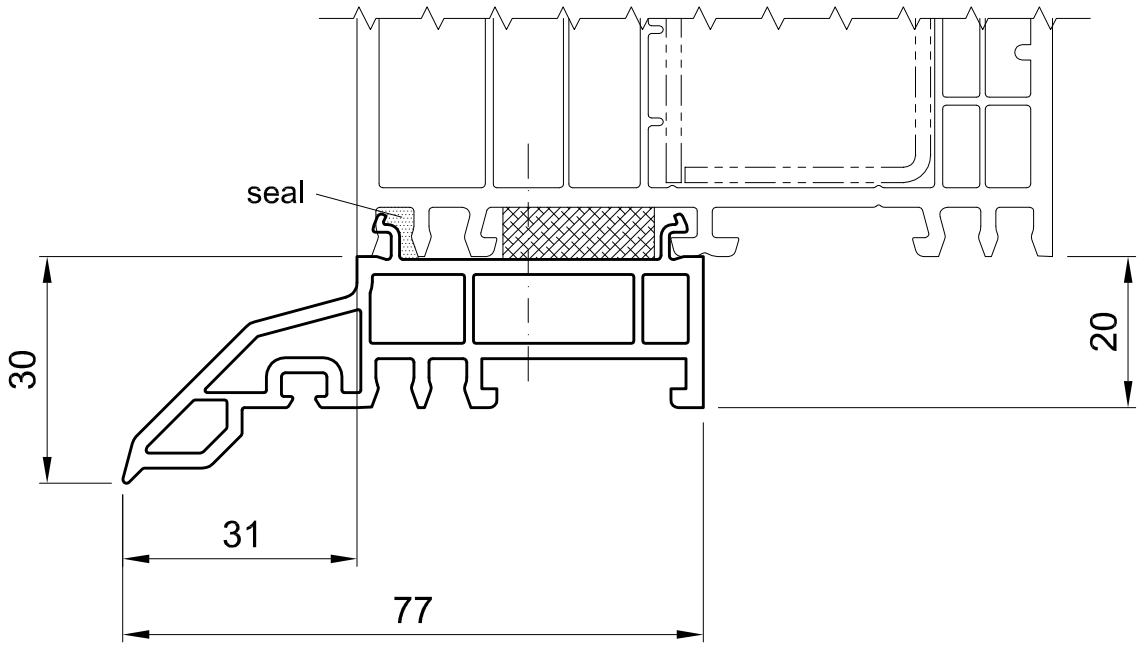
Stone bank profile

**416 126**

bE92 04

**07.14**




Pre-compressed
gasket tape

Seal with permanently elastic, neutrally bonding sealant,
suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

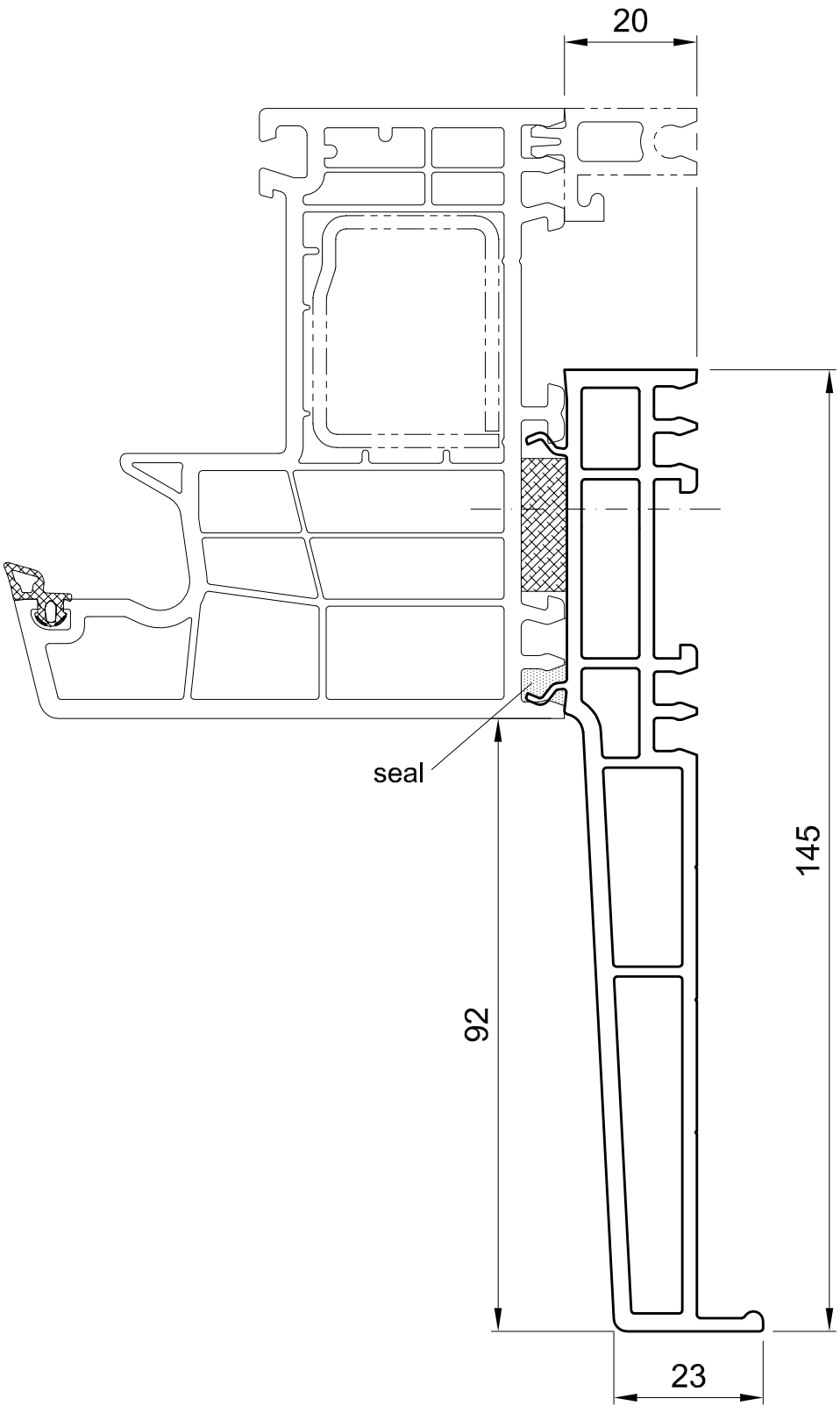
SALAMANDER
WINDOW & DOOR SYSTEMS

Sill profile

**416 110**

bE92 04

**07.15**




Pre-compressed
gasket tape

Seal with permanently elastic, neutrally bonding sealant,
suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

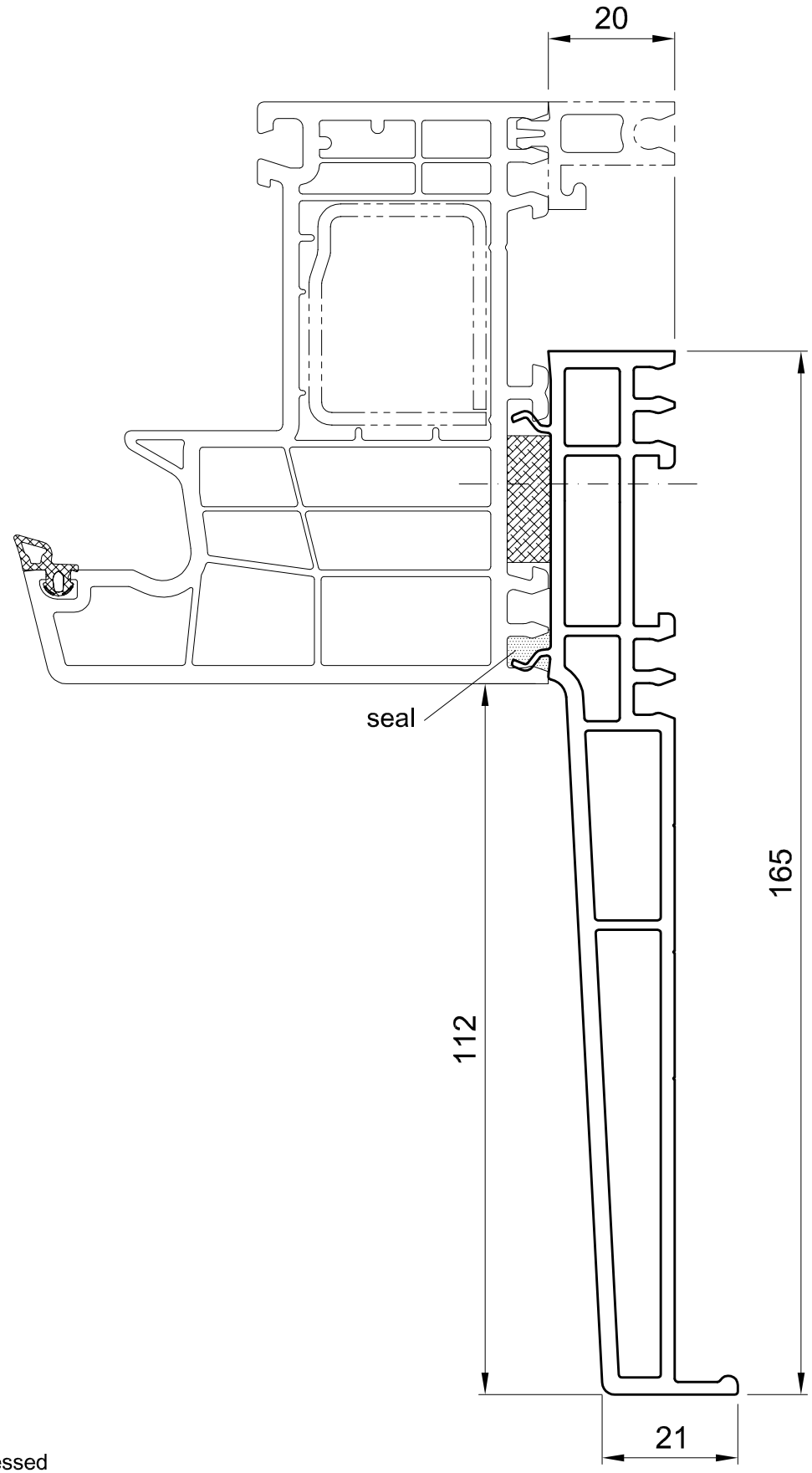
SALAMANDER
WINDOW & DOOR SYSTEMS

Sill profile

**416 115**

bE92 04

**07.16**




Pre-compressed gasket tape

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

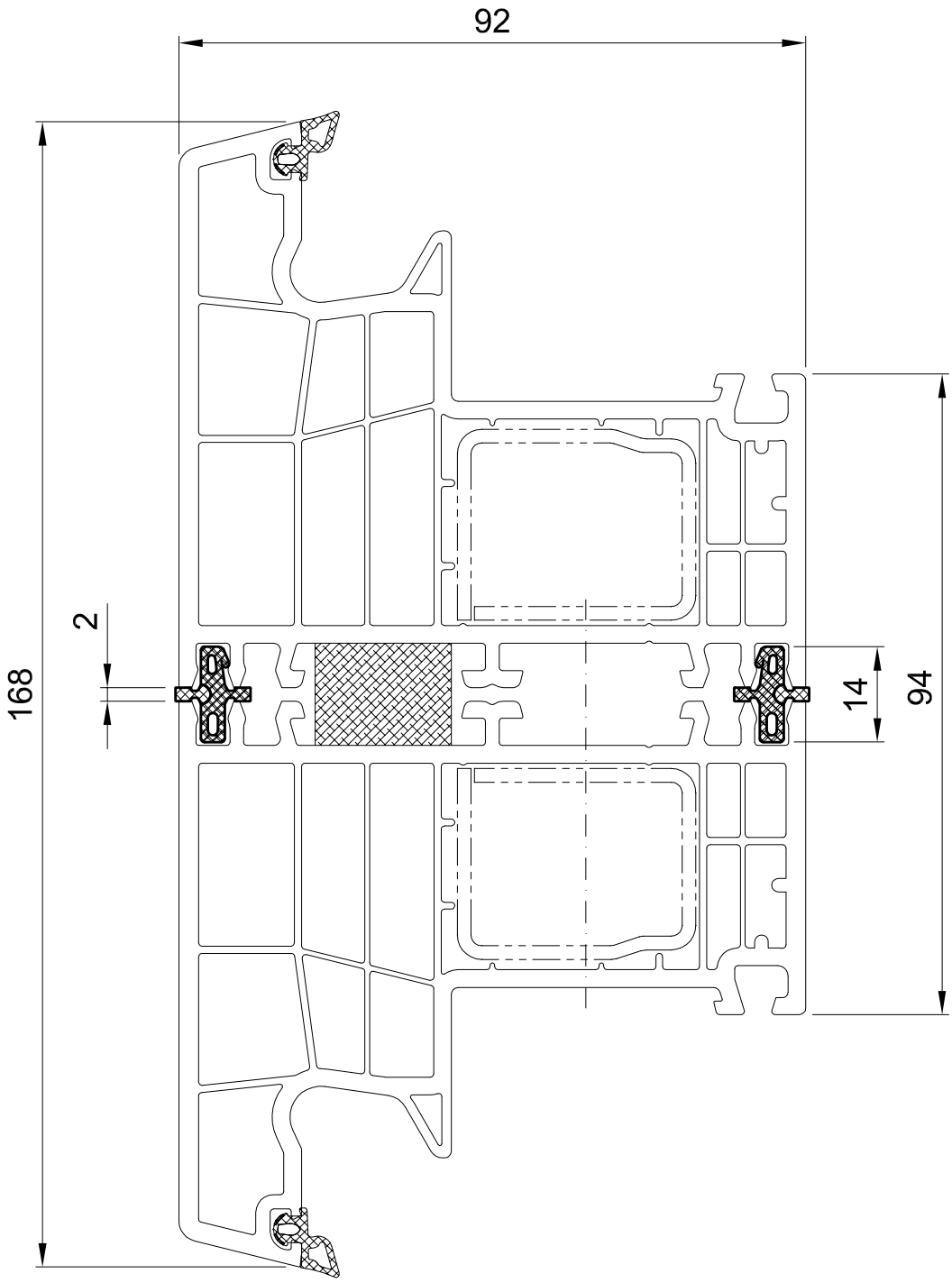
# Coupling

Spring coupling

**414 915**

bE92 04

**08.1**




Pre-compressed
gasket tape

Seal with permanently elastic, neutrally bonding sealant,
suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

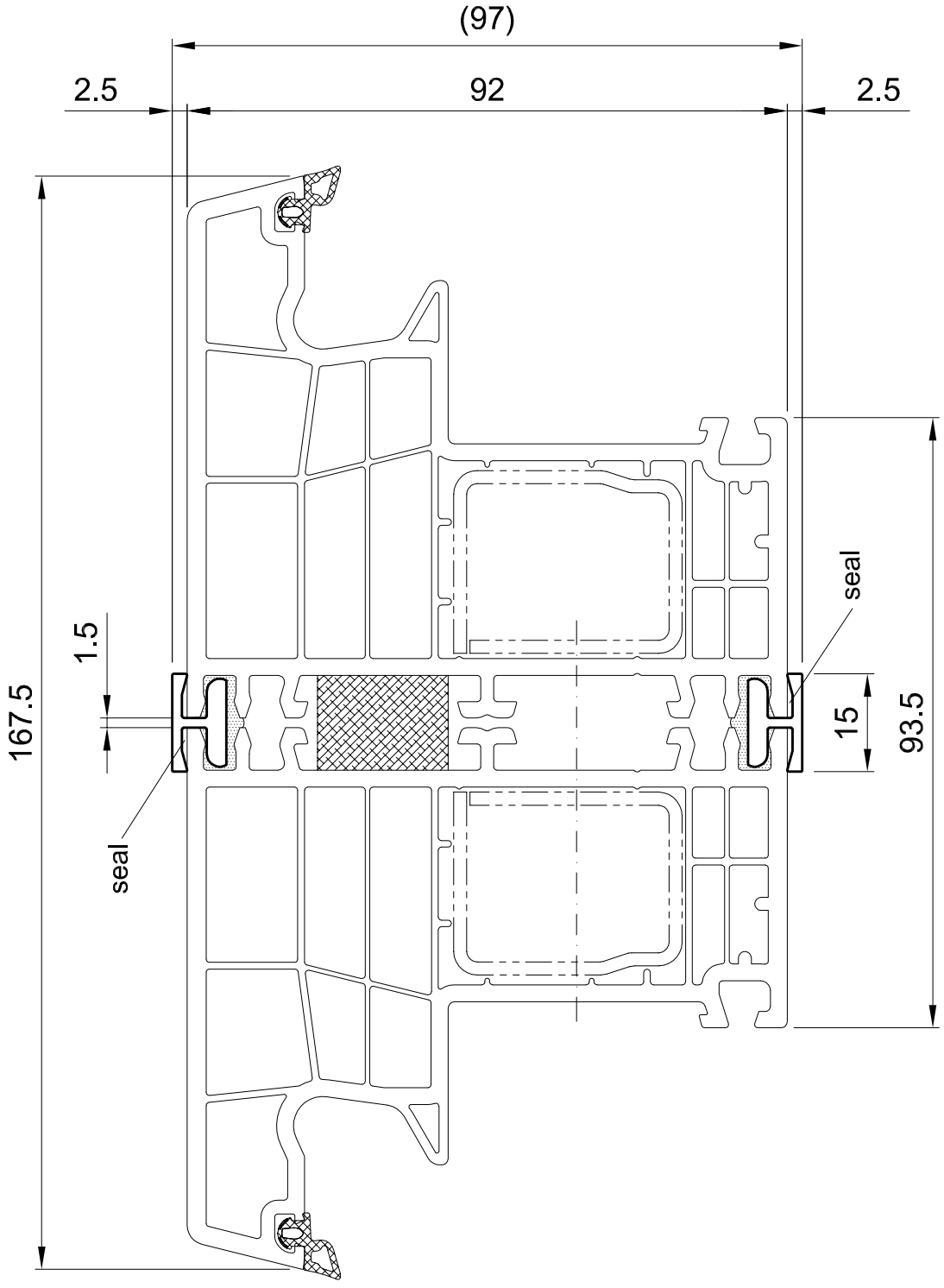
# Coupling

Spring coupling

**406 255**

bE92 04

**08.2**




Pre-compressed gasket tape

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

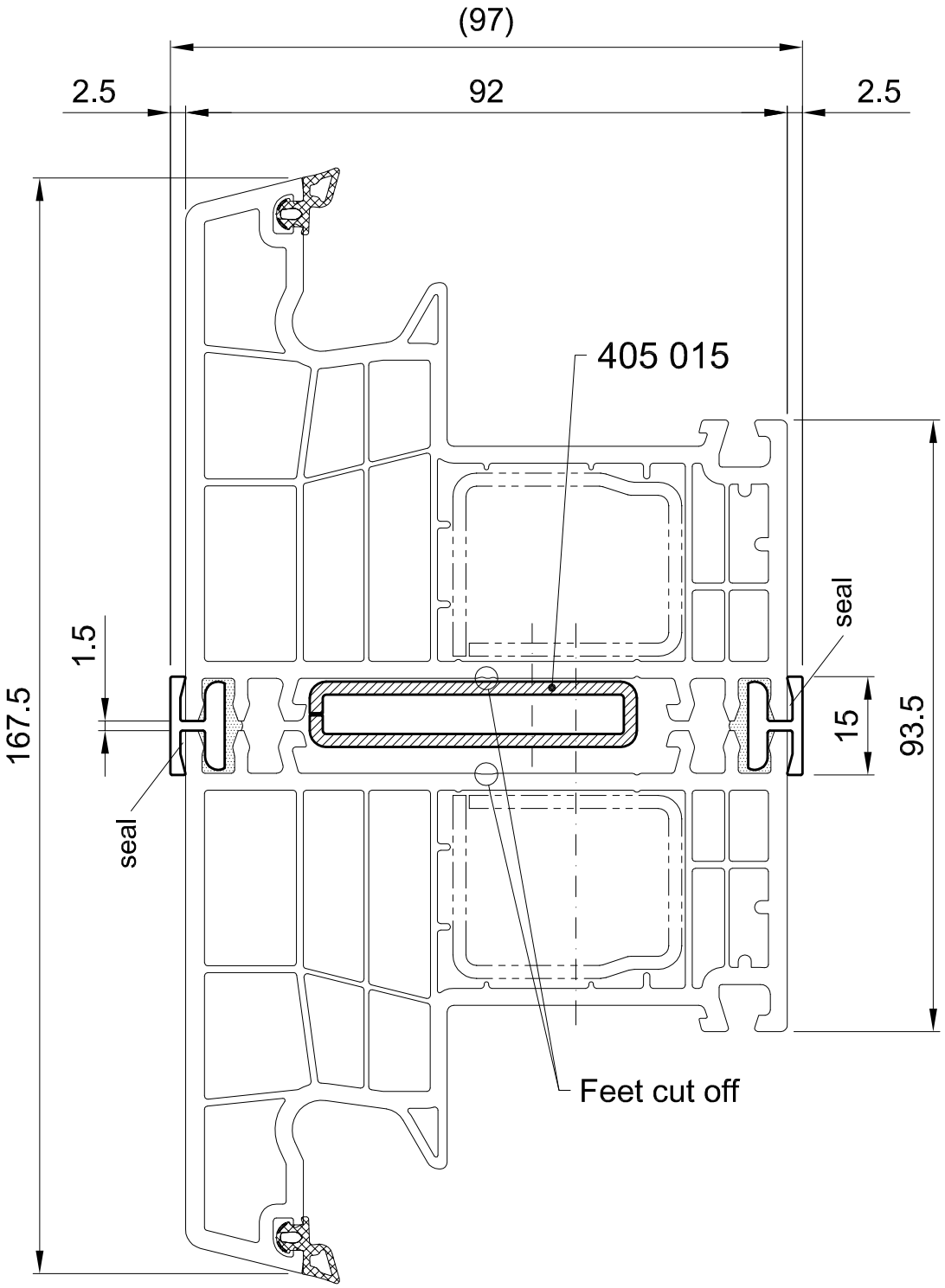
Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Coupling

| Spring coupling | Reinforcement | bE92 04 |
|---|---|---|
| **406 255** | **405 015** | **08.3** |




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

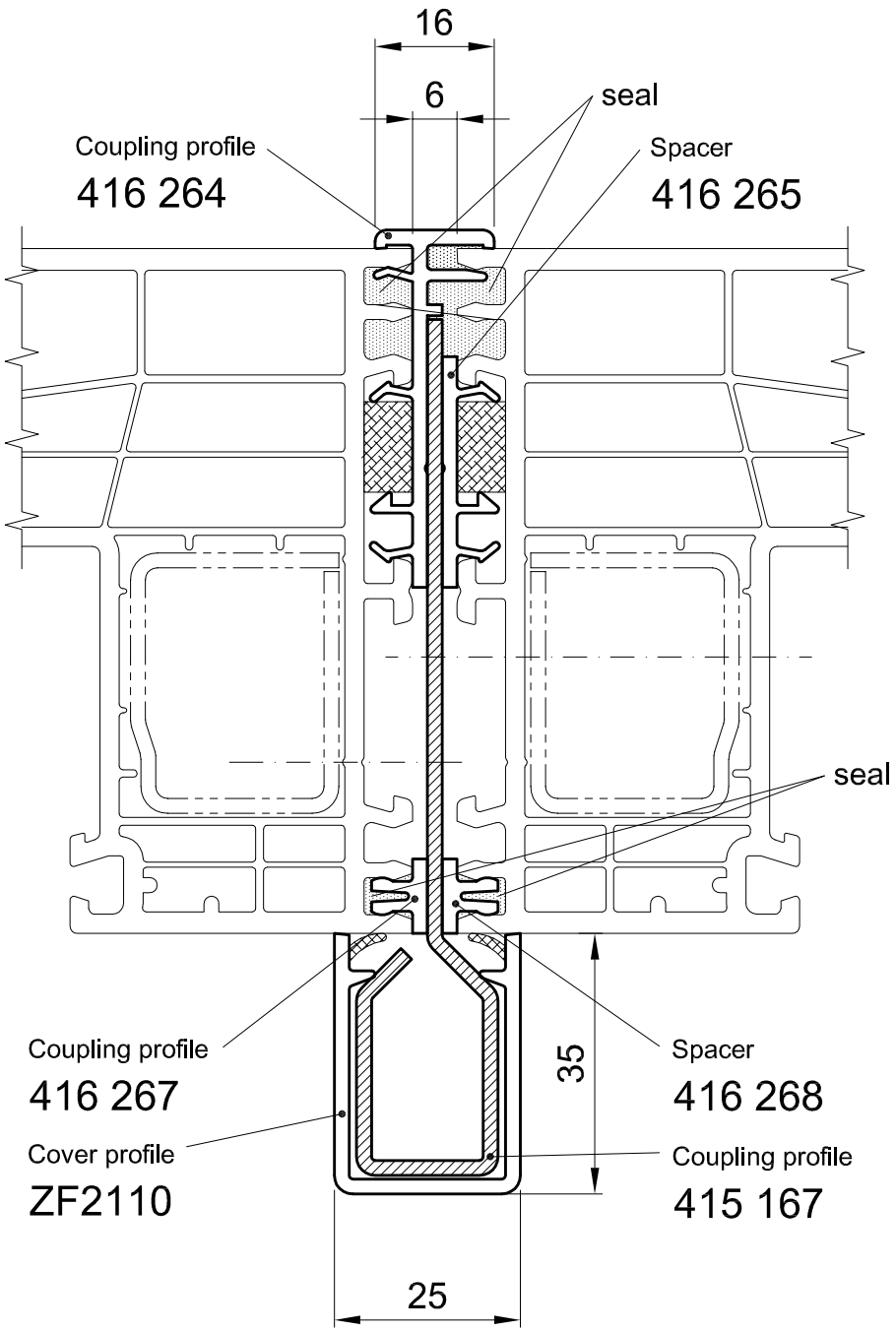
Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

Coupling profile

**416 264, 416 265, 416 267, 416 268, 415 167, ZF2110**






Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)



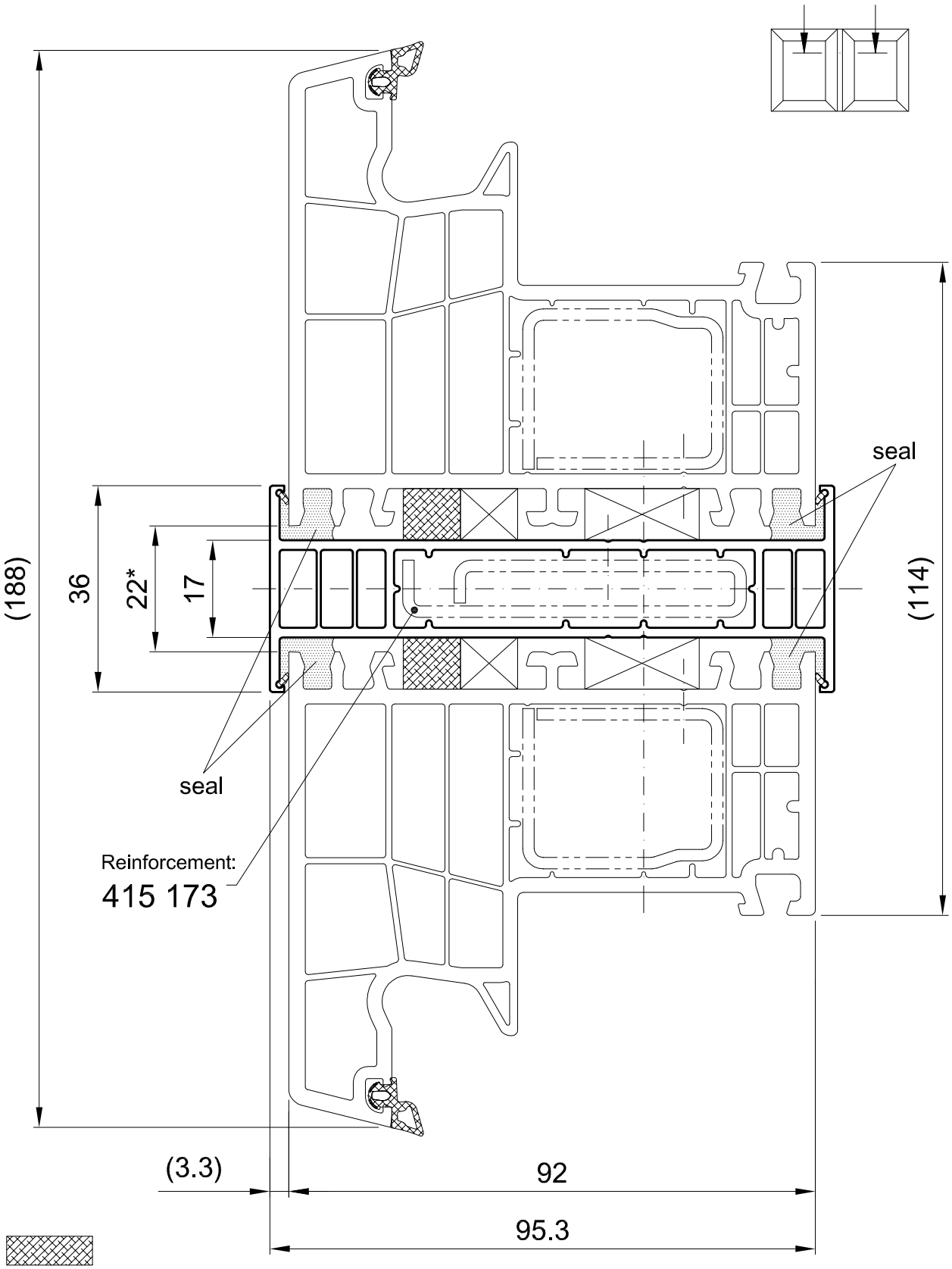
SALAMANDER WINDOW & DOOR SYSTEMS

Coupling (insert vertical)

**476 273**

bE92 04

**08.5**




Pre-compressed gasket tape

* with expansion compensation

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

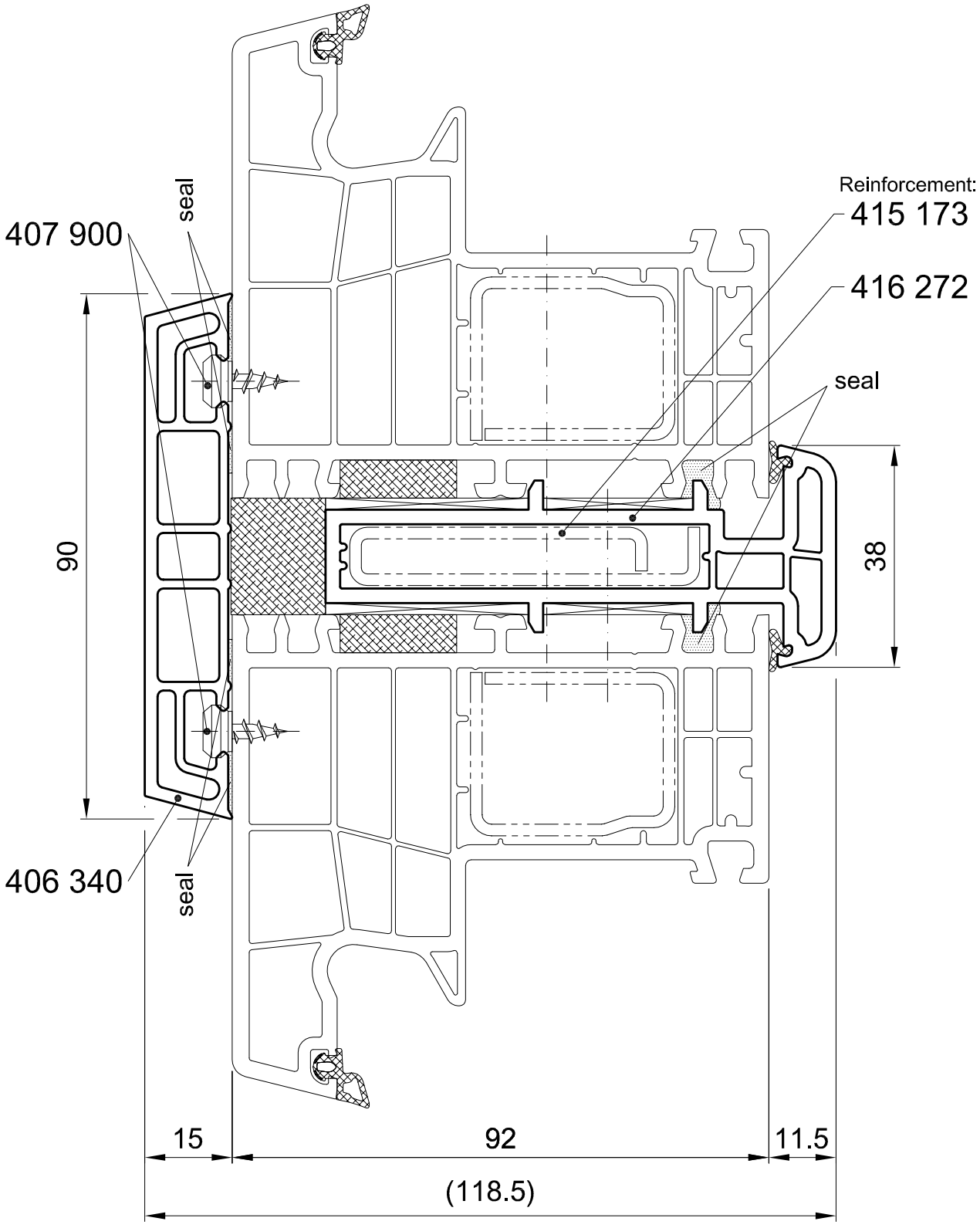
Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Coupling

| Coupling | Cover | bE92 04 |
|---|---|---|
| **416 272** | **406 340** | **08.6** |




Pre-compressed gasket tape

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

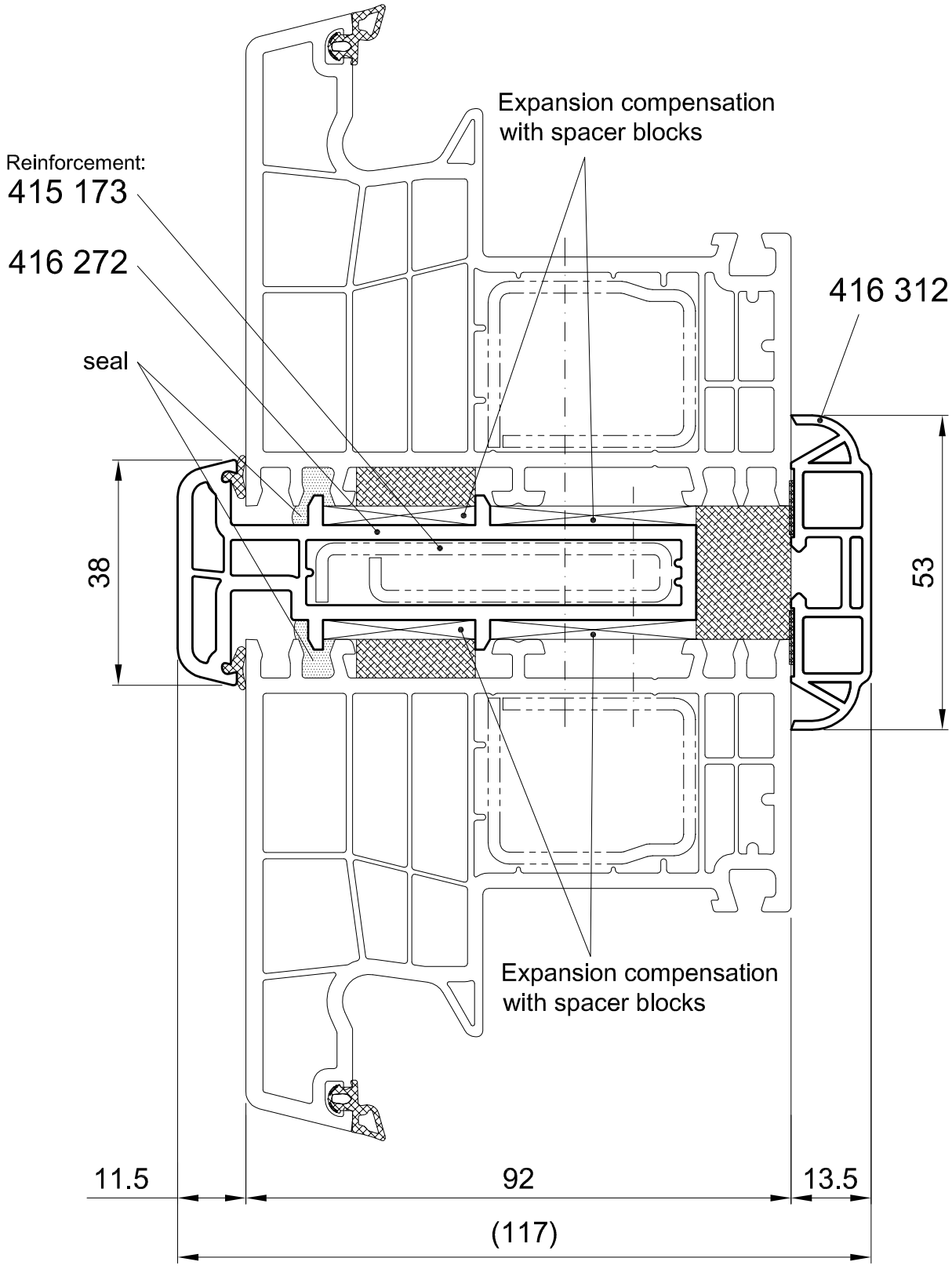
Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Coupling

| Coupling | Cover, self-adhesive | bE92 04 |
|---|---|---|
| **416 272** | **416 312** | **08.7** |




Precompressed gasket strip

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

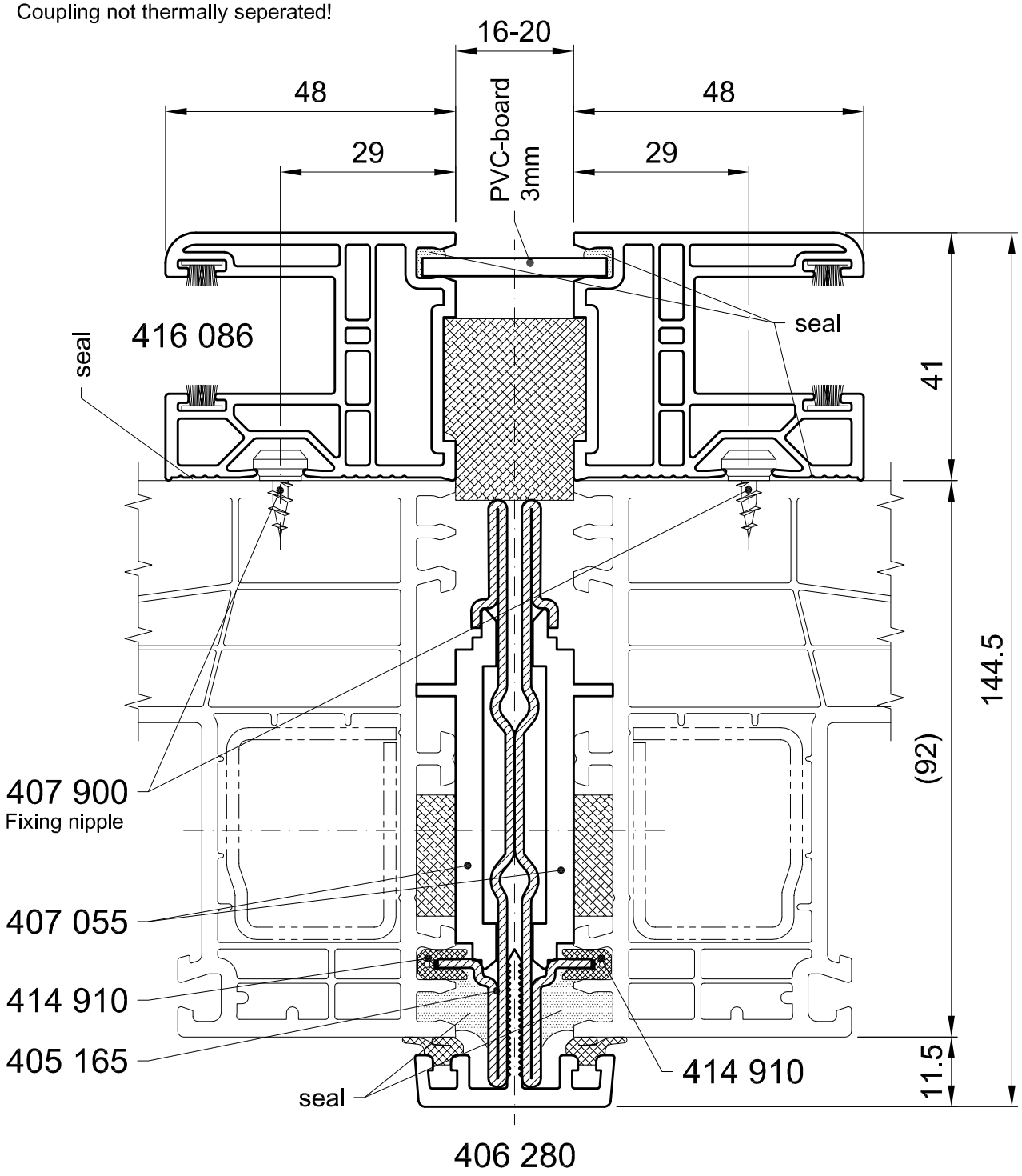


SALAMANDER WINDOW & DOOR SYSTEMS

# Coupling

| Static coupling | Cover cap | Expansion plate | Roller shutter guide | bE92 04 |
|---|---|---|---|---|
| **405 165** | **406 288** | **407 055** | **416 086** | **08.8** |

Coupling not thermally seperated!




depending on installation,
risk of condensation

Pre-compressed
gasket tape

Seal with permanently elastic, neutrally bonding sealant,
suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

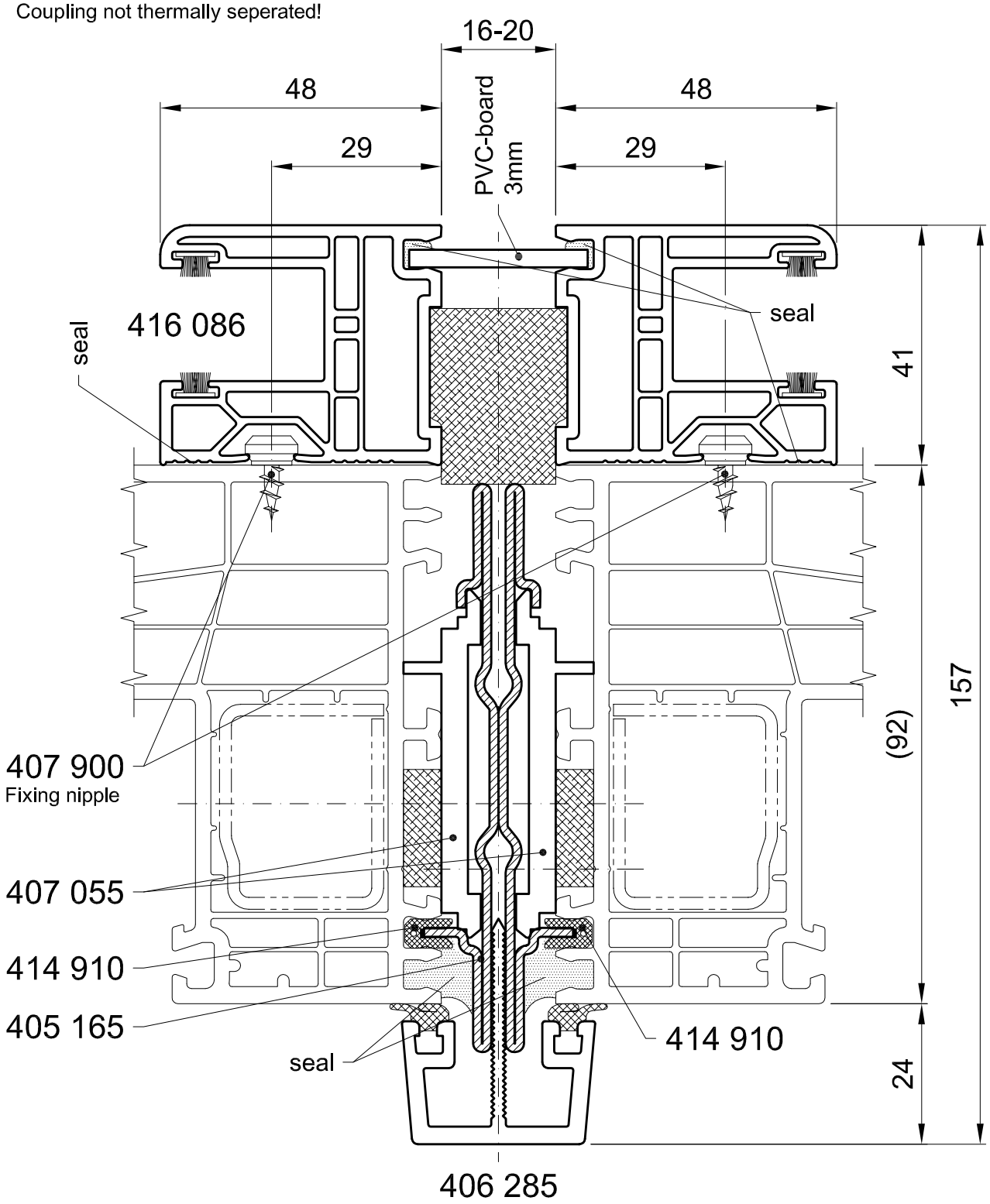
Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Coupling

| Static coupling | Cover cap | Expansion plate | Roller shutter guide | bE92 04 |
|---|---|---|---|---|
| **405 165** | **406 285** | **407 055** | **416 086** | **08.9** |

Coupling not thermally seperated!




depending on installation,
risk of condensation

Pre-compressed
gasket tape

Seal with permanently elastic, neutrally bonding sealant,
suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

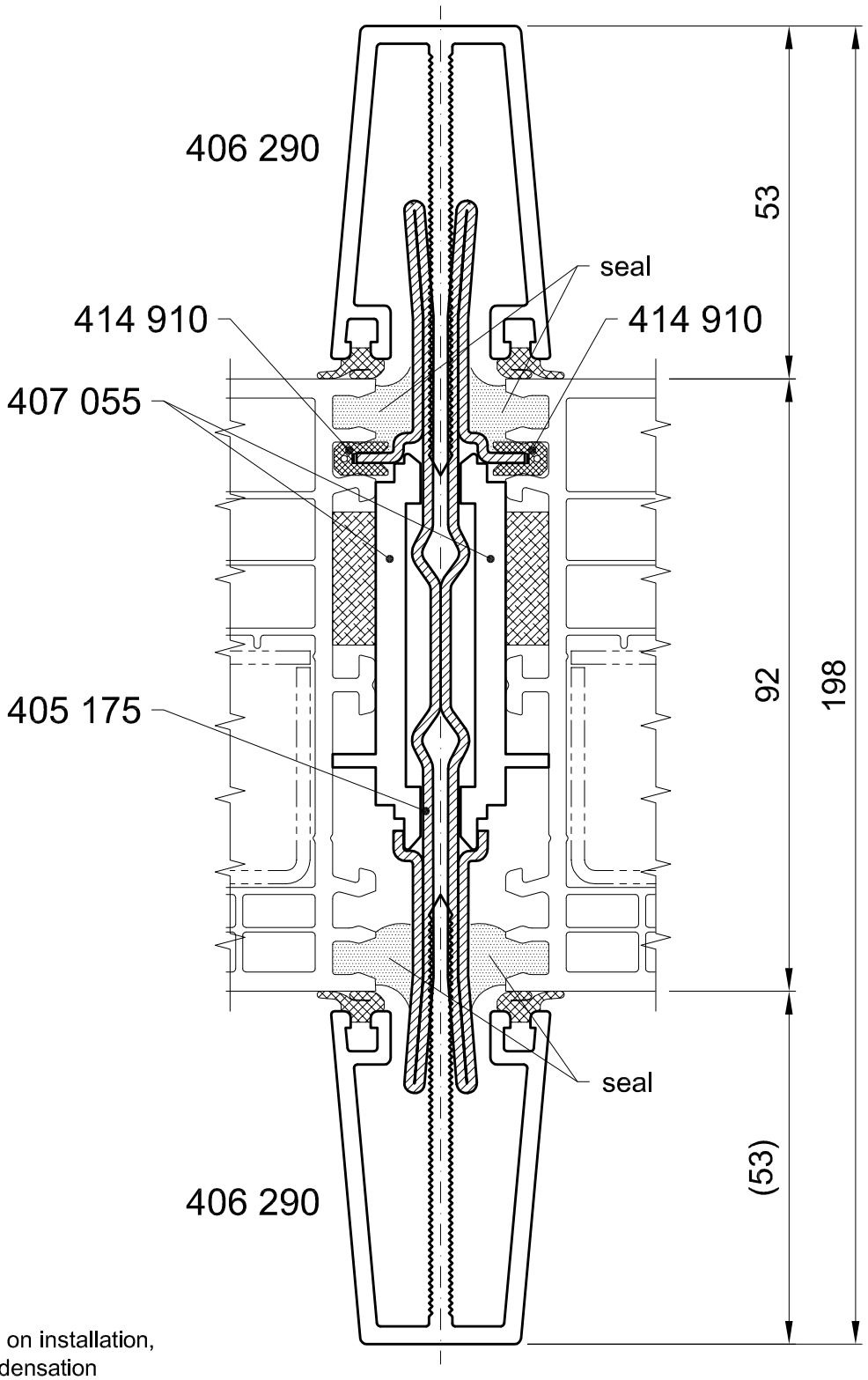
Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Coupling

| Static coupling | Cover cap | Expansion plate | bE92 04 |
|---|---|---|---|
| **405 175** | **406 290** | **407 055** | **08.10** |

Coupling not thermally seperated!




depending on installation,
risk of condensation

Pre-compressed
gasket tape

Seal with permanently elastic, neutrally bonding sealant,
suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

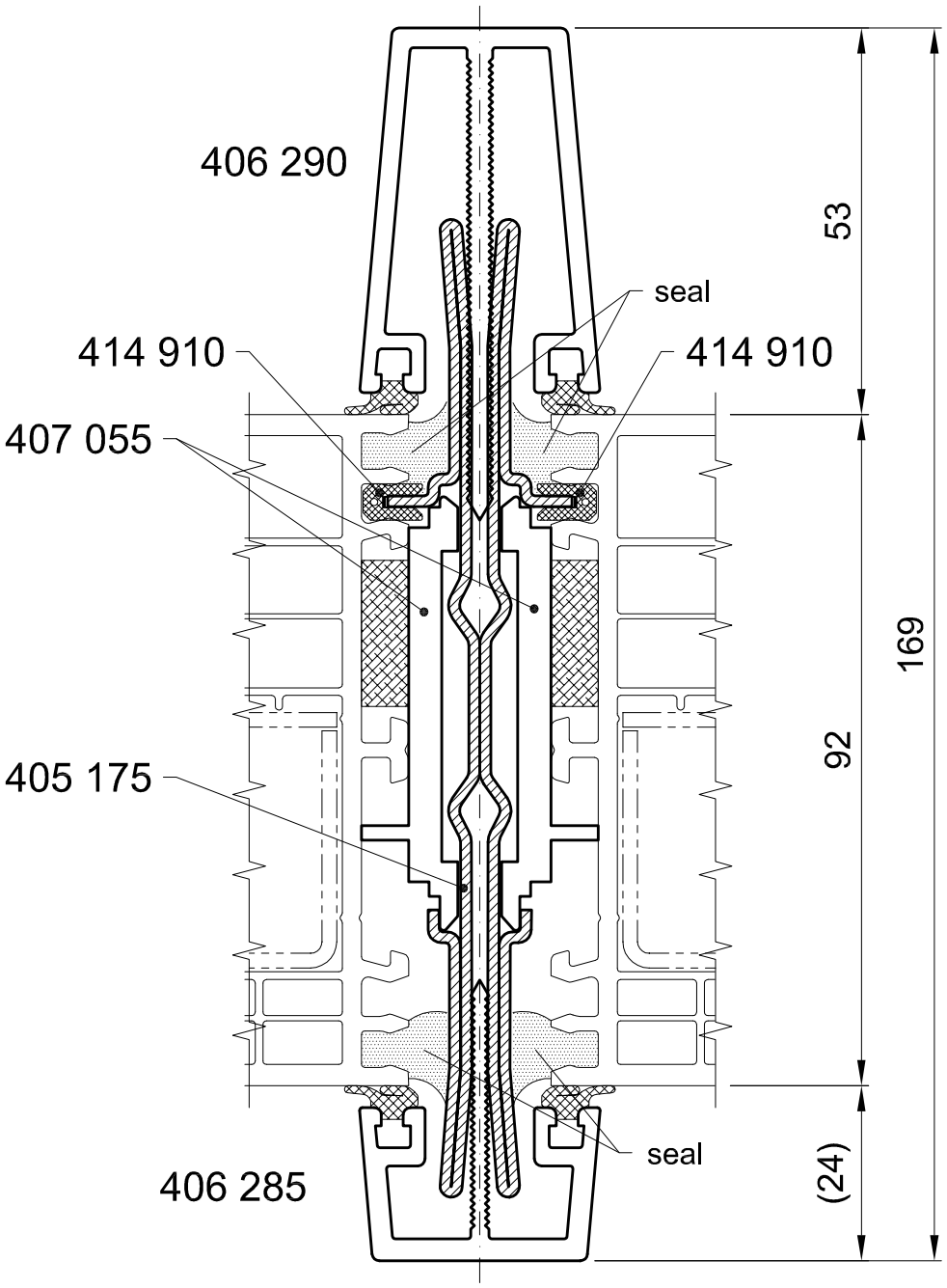
Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Coupling

| Static coupling | Cover cap | Expansion plate | bE92 04 |
|---|---|---|---|
| **405 175** | **406 285, 406 290** | **407 055** | **08.11** |

Coupling not thermally seperated!




depending on installation,
risk of condensation

Pre-compressed
gasket tape

Seal with permanently elastic, neutrally bonding sealant,
suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015



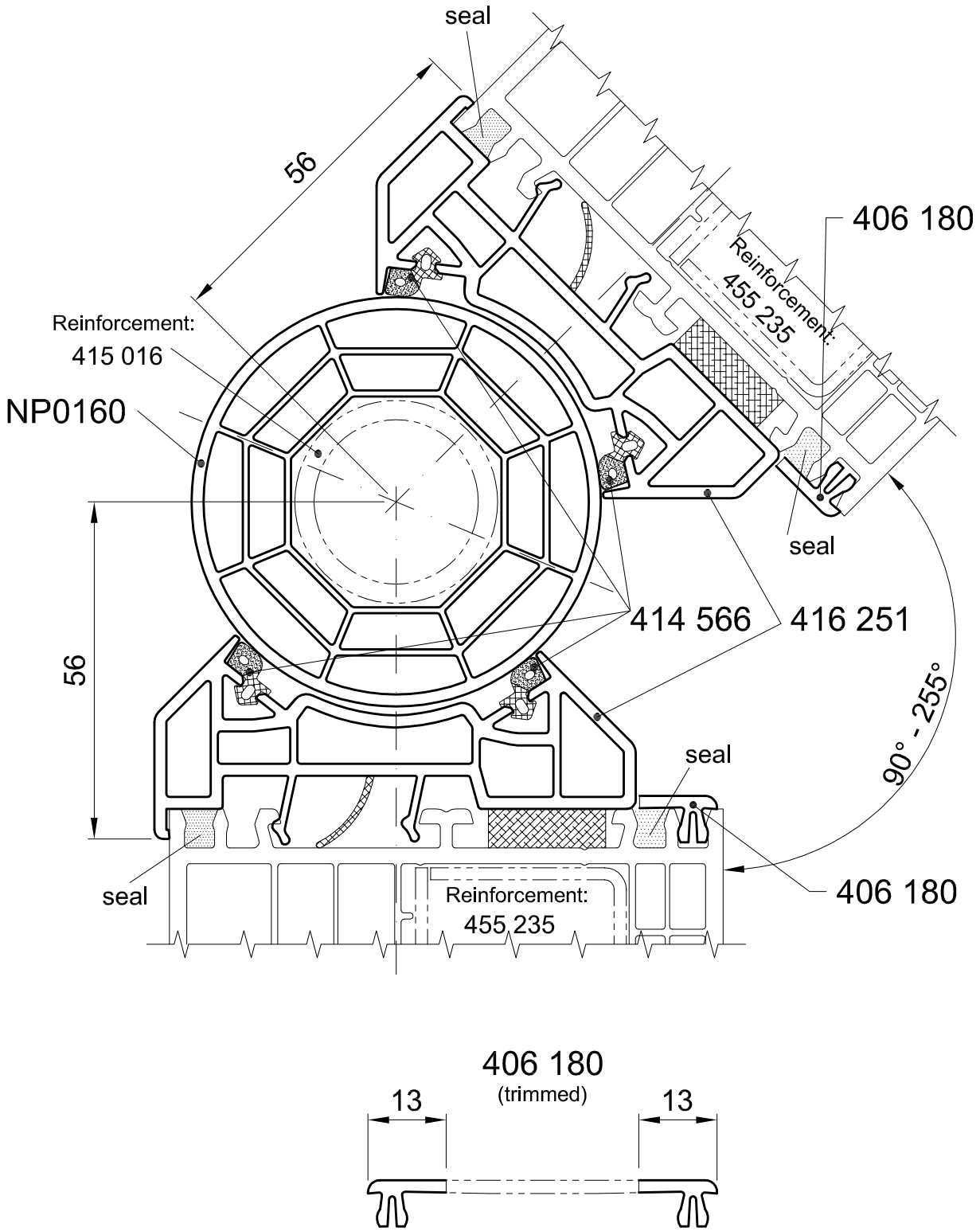
SALAMANDER
WINDOW & DOOR SYSTEMS

# Variable corner connection

Corner connection

**NP0160, 416 251**









Precompressed gasket strip

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

Deductible dimension in chapter bE92 07 page 23.1

SALAMANDER WINDOW & DOOR SYSTEMS

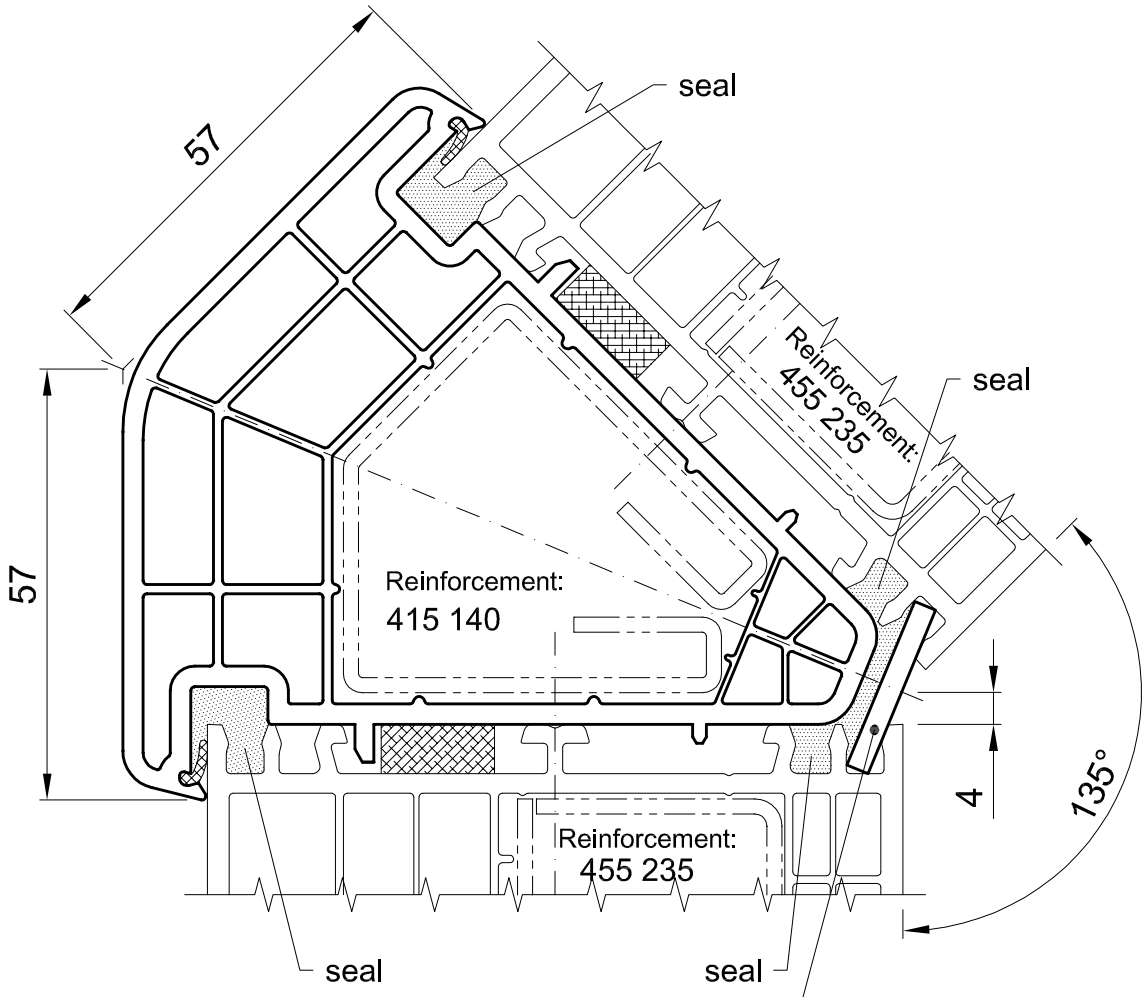
# Corner connection 135°

Corner connection

**416 240**

bE92 04

**09.2**




PVC- board
to cut at 23x3 mm
for example: 407 912 (white)
407 914 (decor)

Pre-compressed
gasket tape

Deductible dimension in
chapter bE92 07
page 23.2

Seal with permanently elastic, neutrally bonding sealant,
suitable for PVC and galvanized steel.

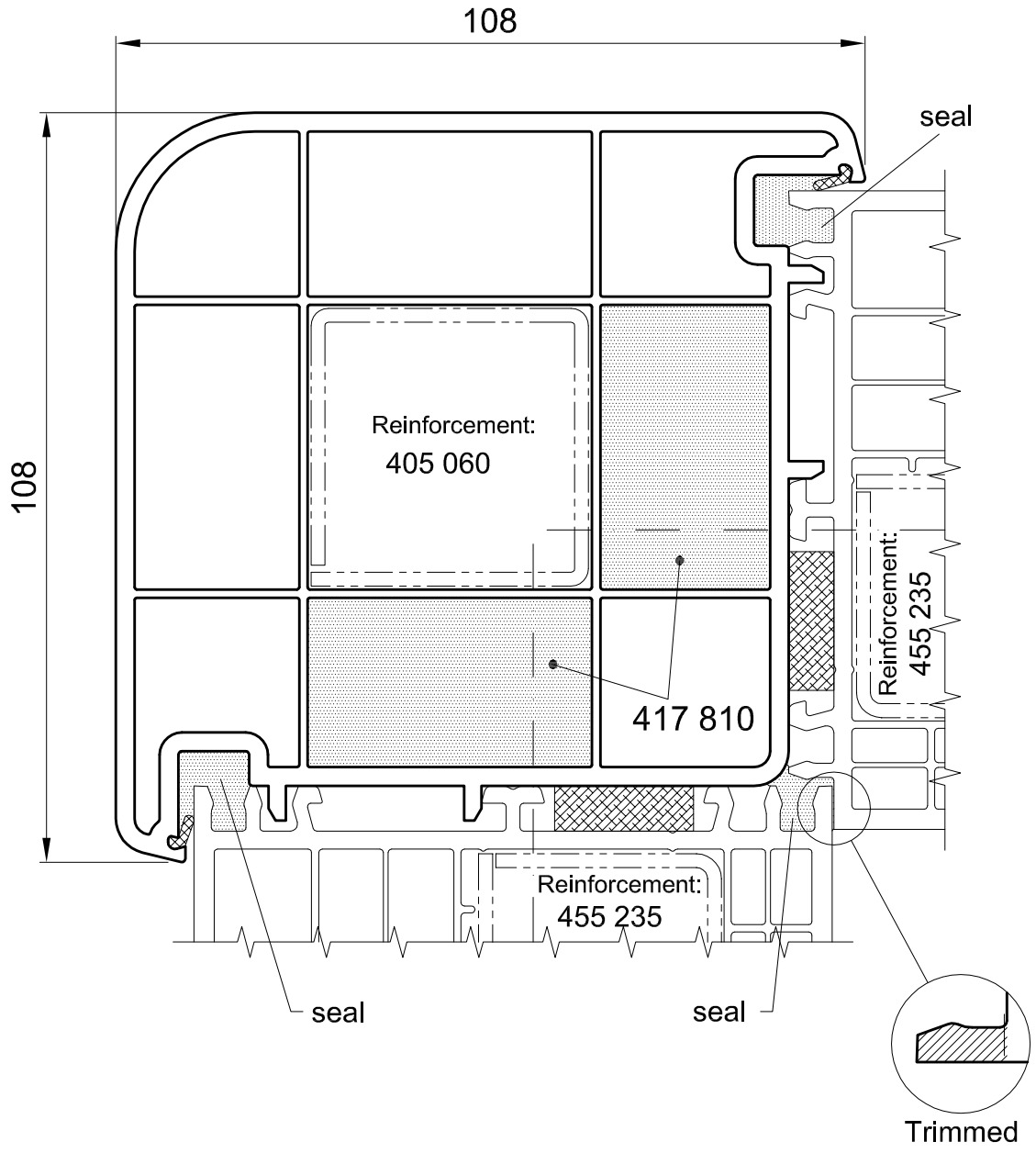
Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Corner connection 90°

| Corner connection | Insulation strip | bE92 04 |
|---|---|---|
| **416 210** | **417 810** | **09.3** |




Pre-compressed gasket tape

Deductible dimension in chapter bE92 07 page 23.3

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

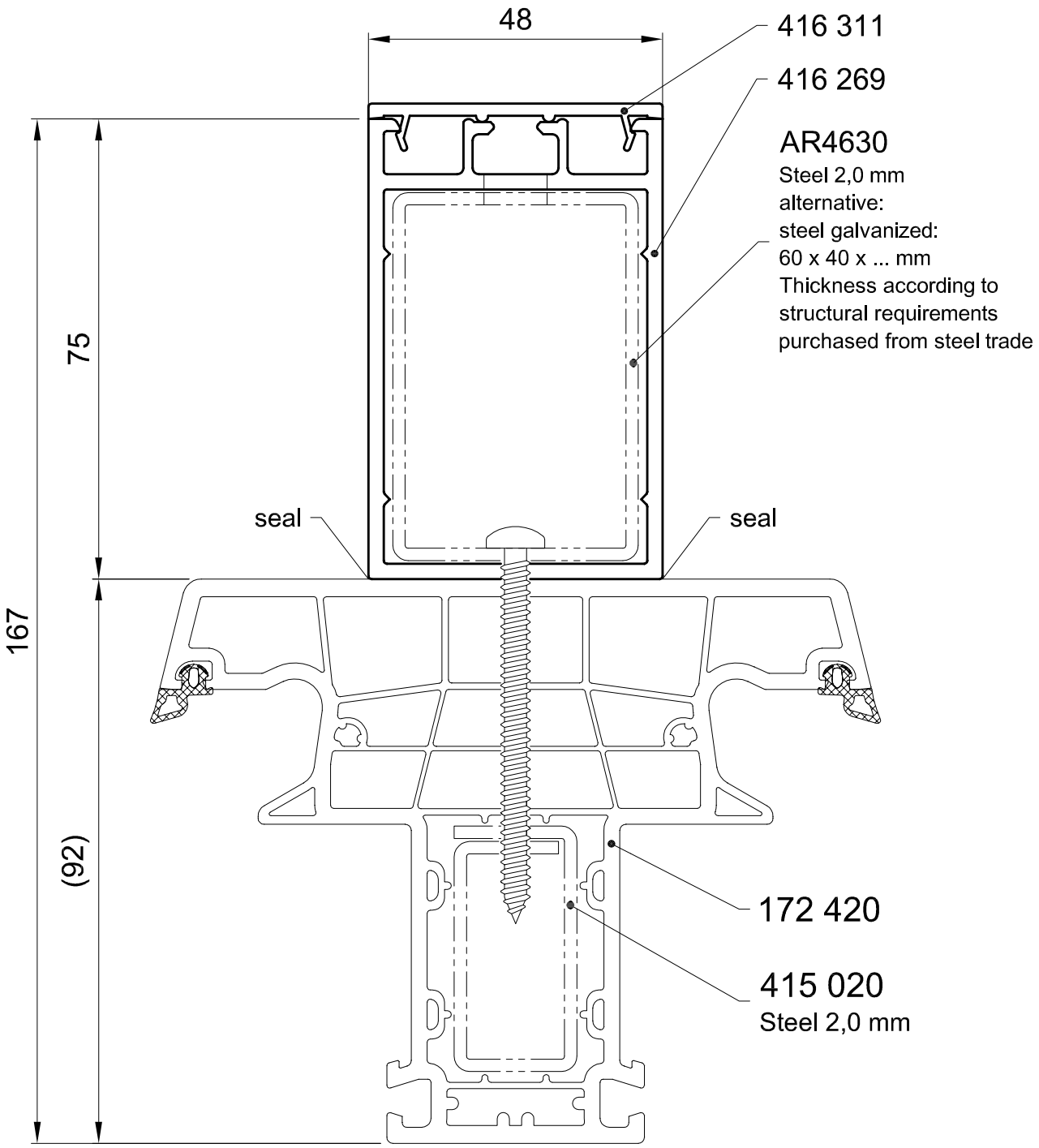
Scale 1:1 (or depending on print-out)

Issue: 11/2015

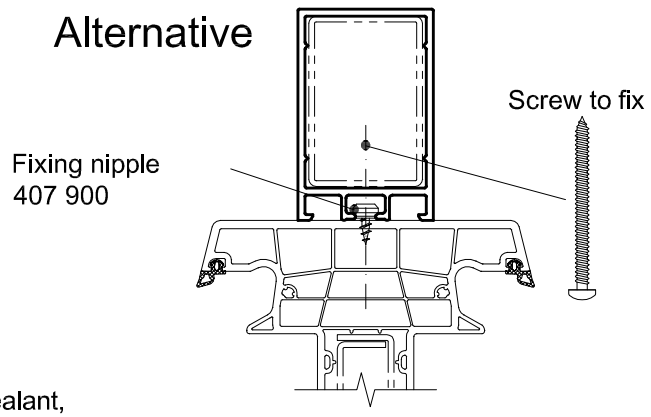
SALAMANDER WINDOW & DOOR SYSTEMS

# Pilaster strip profiles

| Post | Post reinforcement | Cover profile | bE92 04 |
|---|---|---|---|
| **172 420 (172 421)** | **416 269** | **416 311** | **10.1** |




## Alternative




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

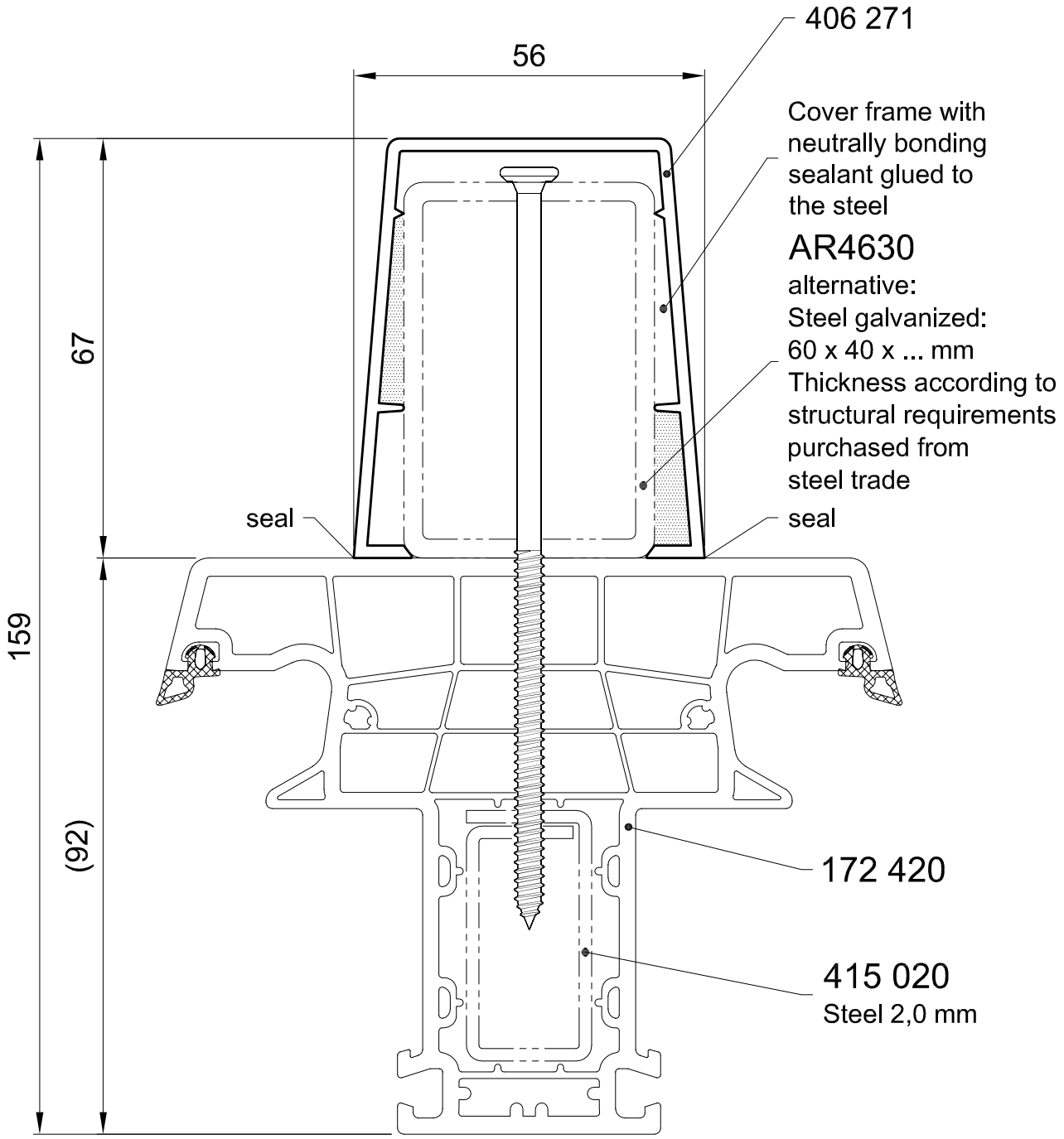
Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Pilaster strip profiles

| Post | Post reinforcement | bE92 04 |
|---|---|---|
| **172 420 (172 421)** | **406 271** | **10.2** |




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

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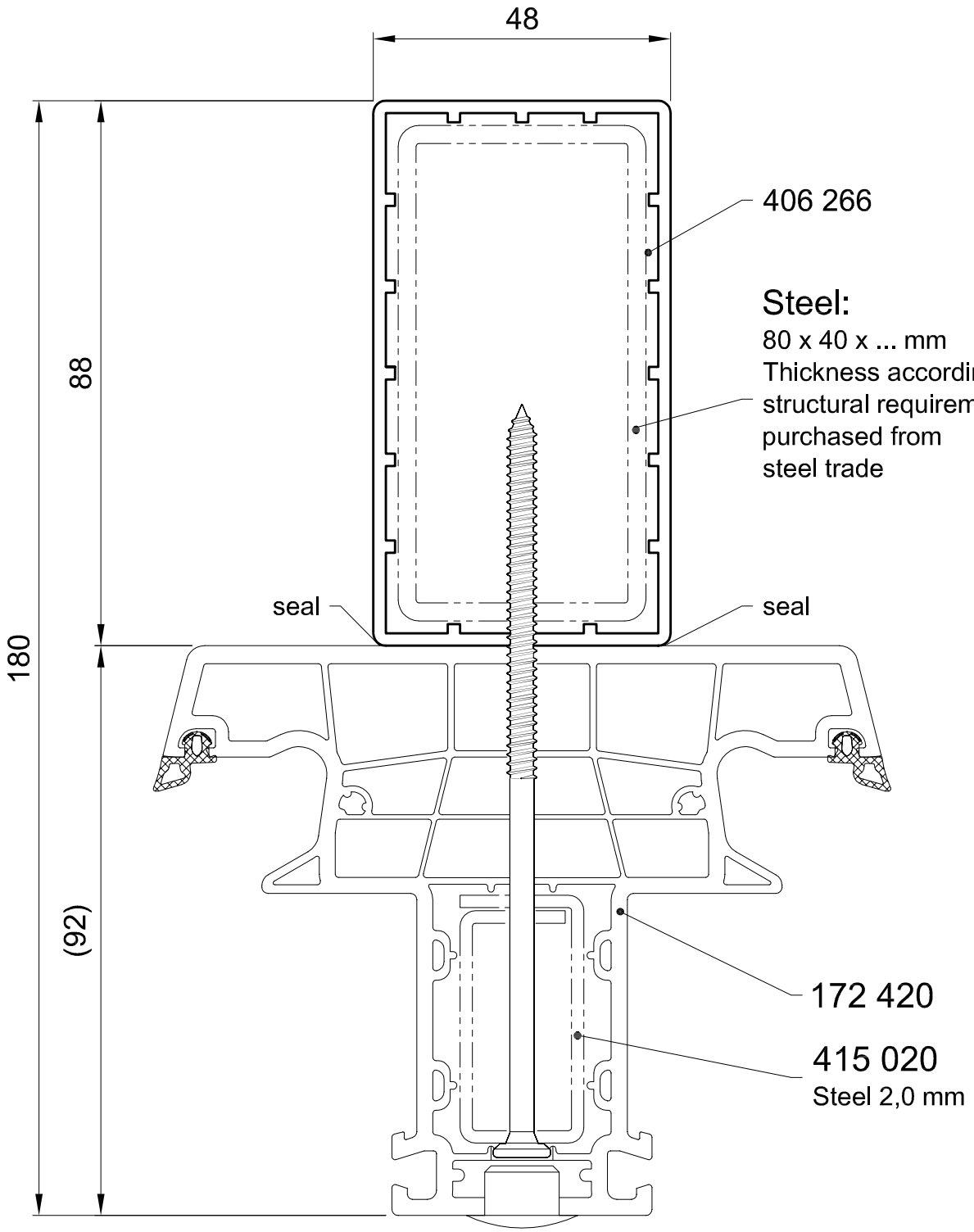
SALAMANDER WINDOW & DOOR SYSTEMS

# Pilaster strip profiles

| Post | Post reinforcement | bE92 04 |
|---|---|---|
| **172 420 (172 421)** | **406 266** | **10.3** |




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

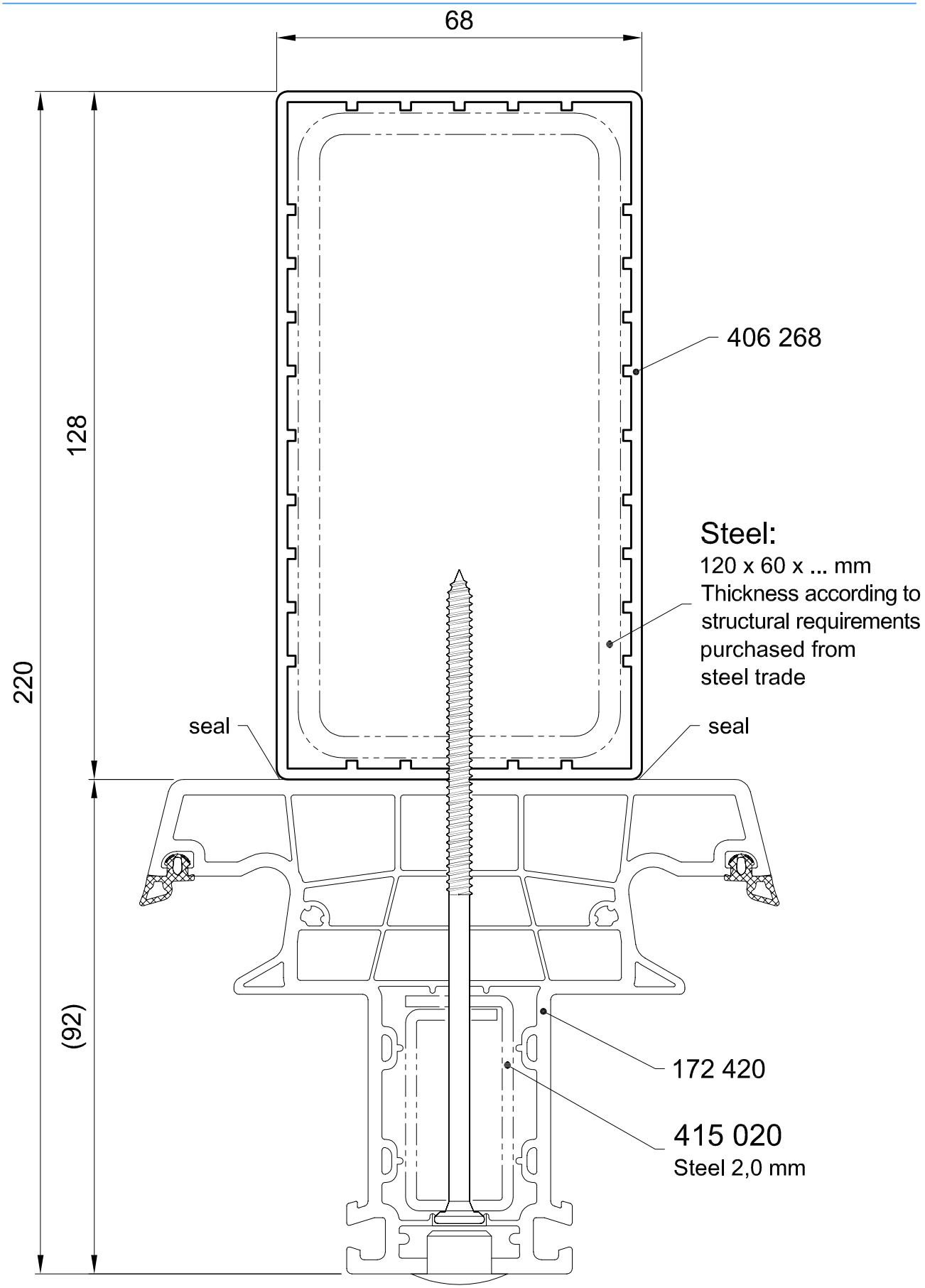
Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

# Pilaster strip profiles

| Post | Post reinforcement | bE92 04 |
|---|---|---|
| **172 420 (172 421)** | **406 268** | **10.4** |




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

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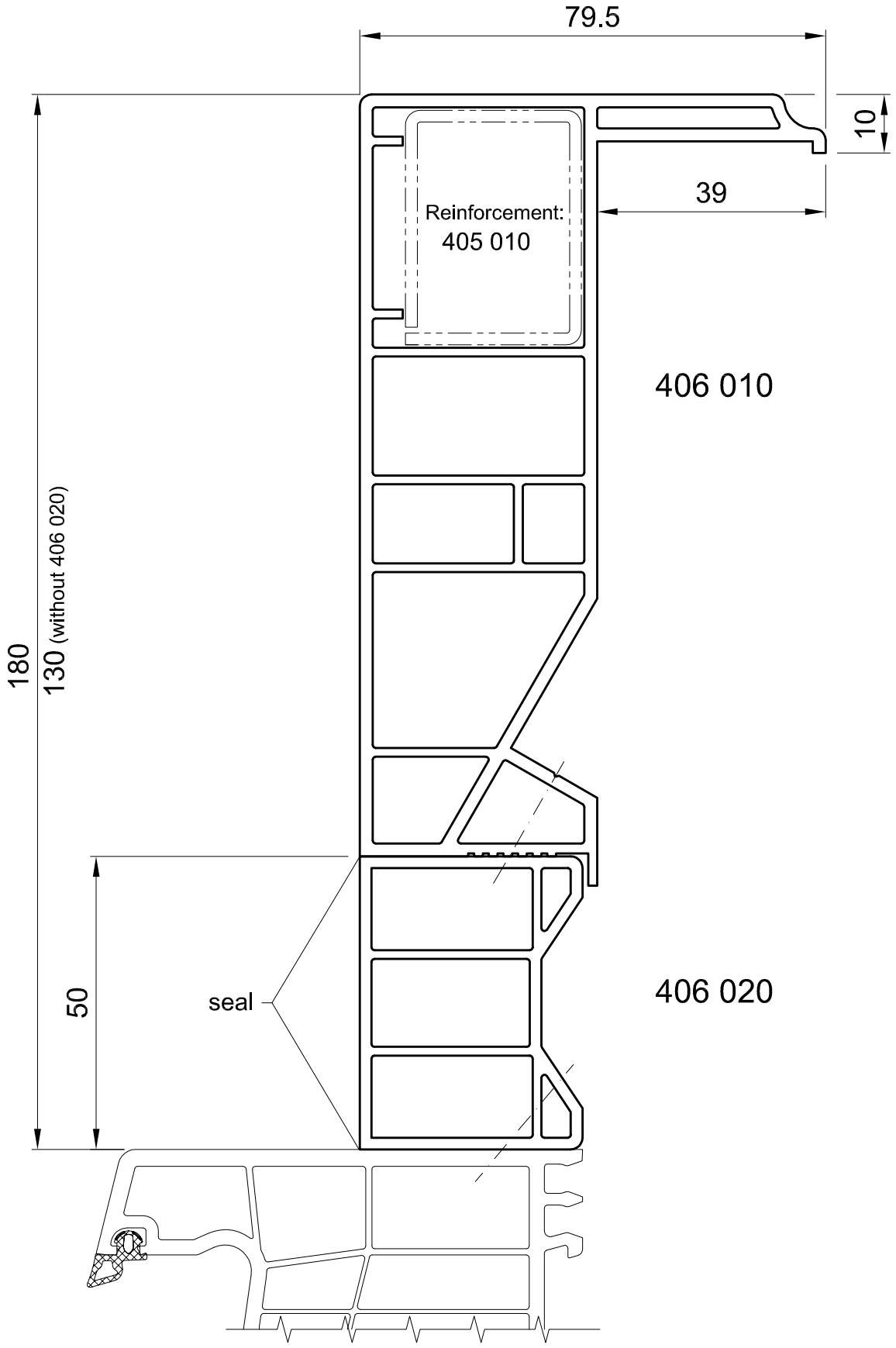
SALAMANDER
WINDOW & DOOR SYSTEMS

Pilaster strip profiles

**406 010, 406 020**

bE92 04

**11.1**




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

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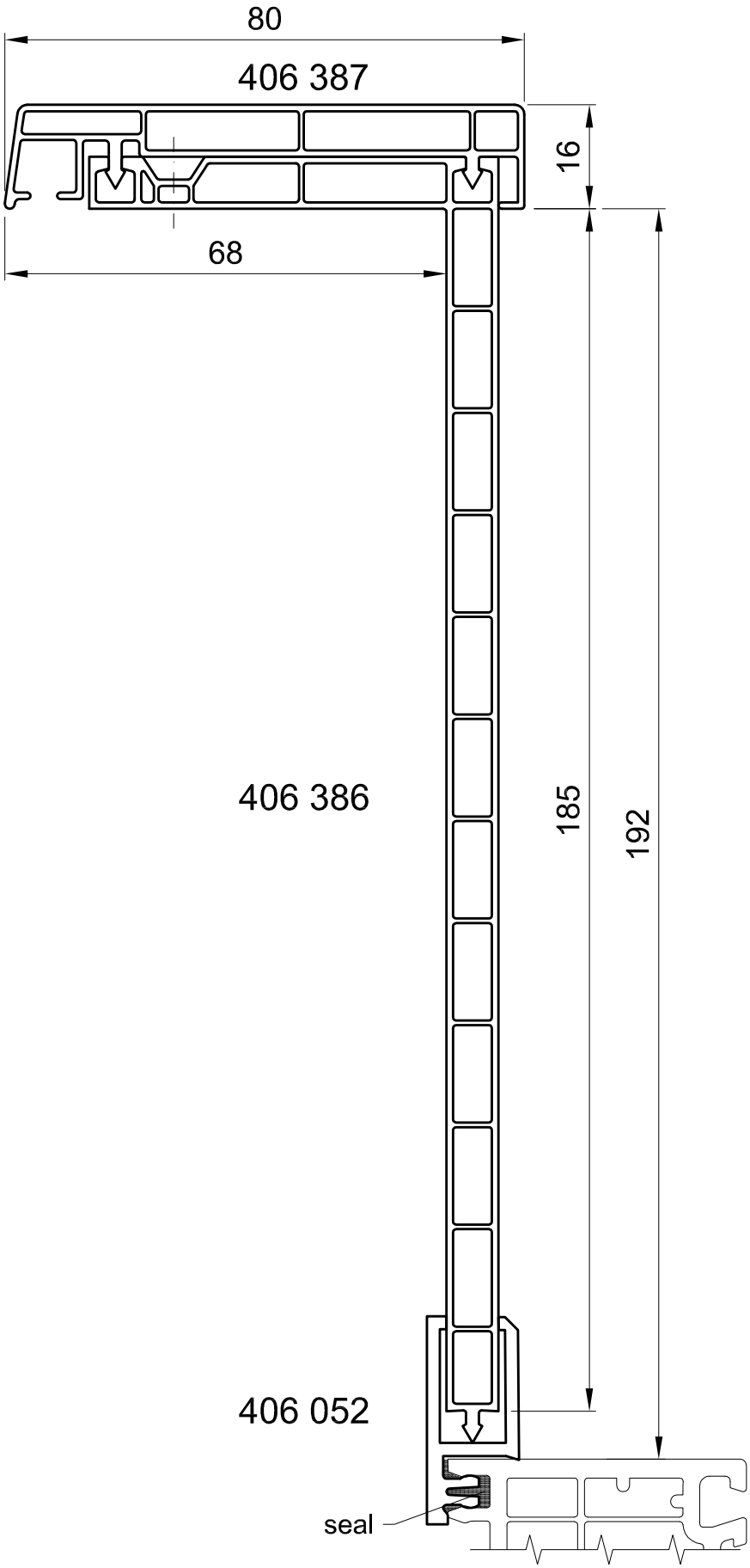
SALAMANDER
WINDOW & DOOR SYSTEMS

# Pilaster strip profiles

| Pilaster strip profiles | Cover | Connection profile | bE92 04 |
|---|---|---|---|
| **406 386** | **406 387** | **406 052** | **11.2** |




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

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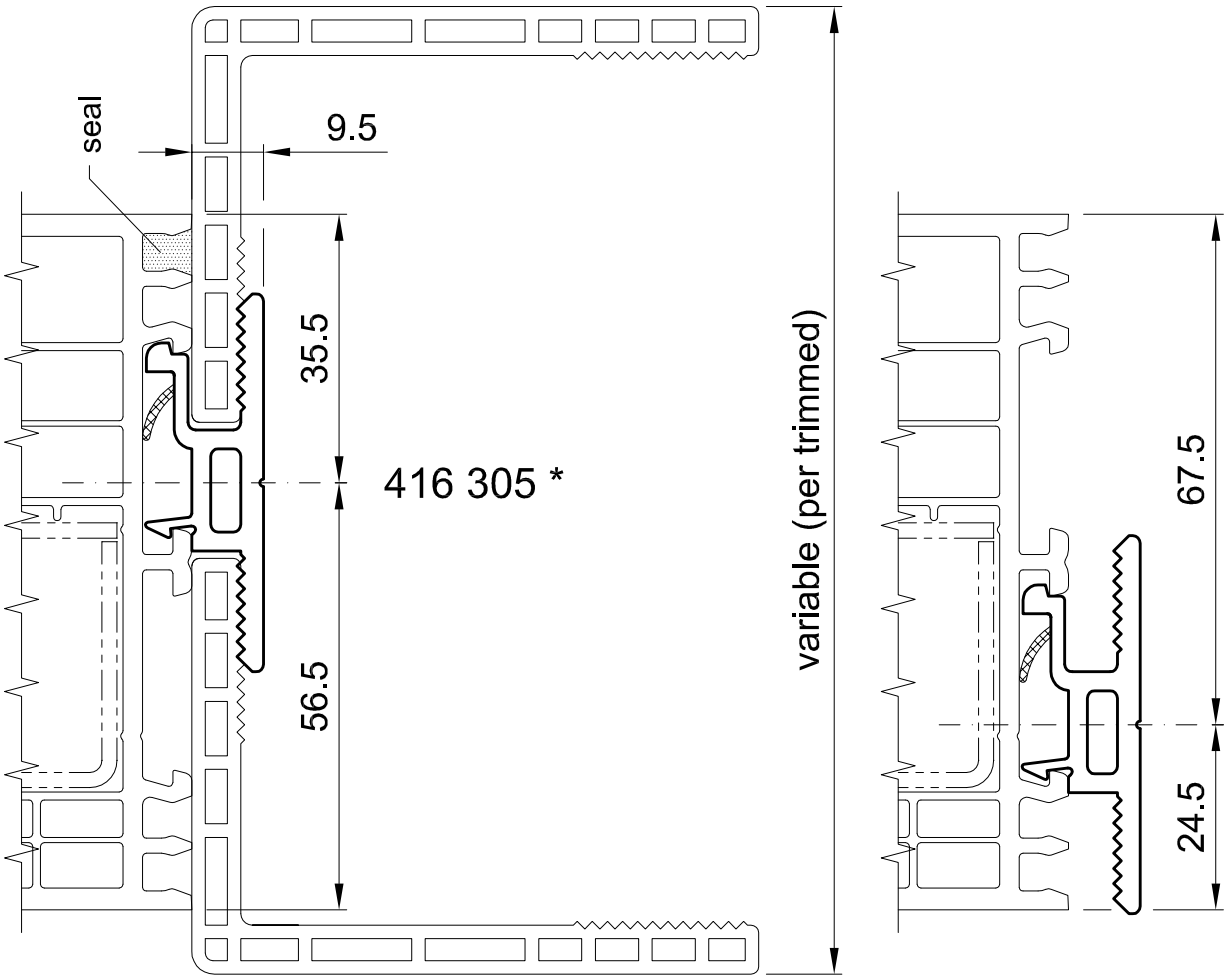
SALAMANDER
WINDOW & DOOR SYSTEMS

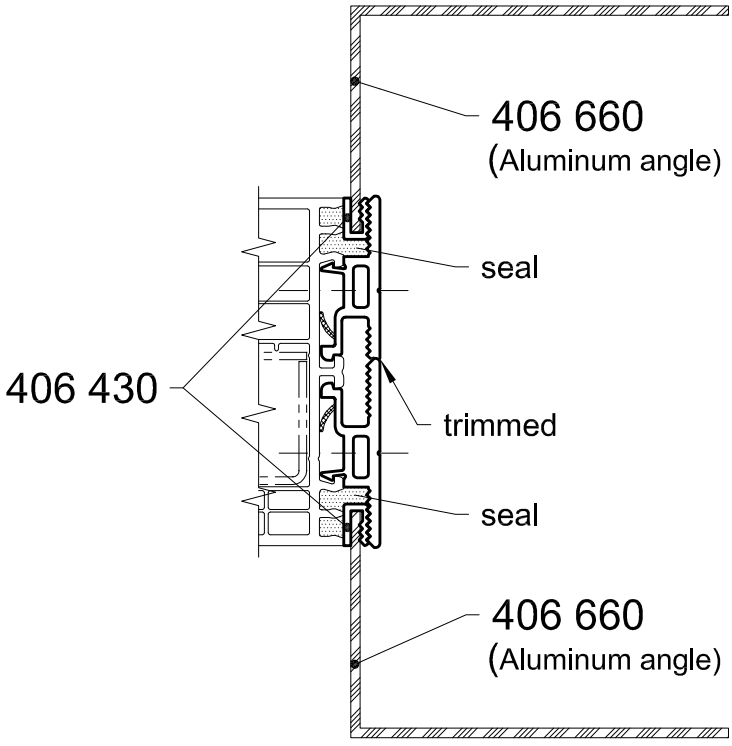
Adapter profile

**406 430, 416 305**

bE92 04

**12.1**




* to use in decor only room side

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

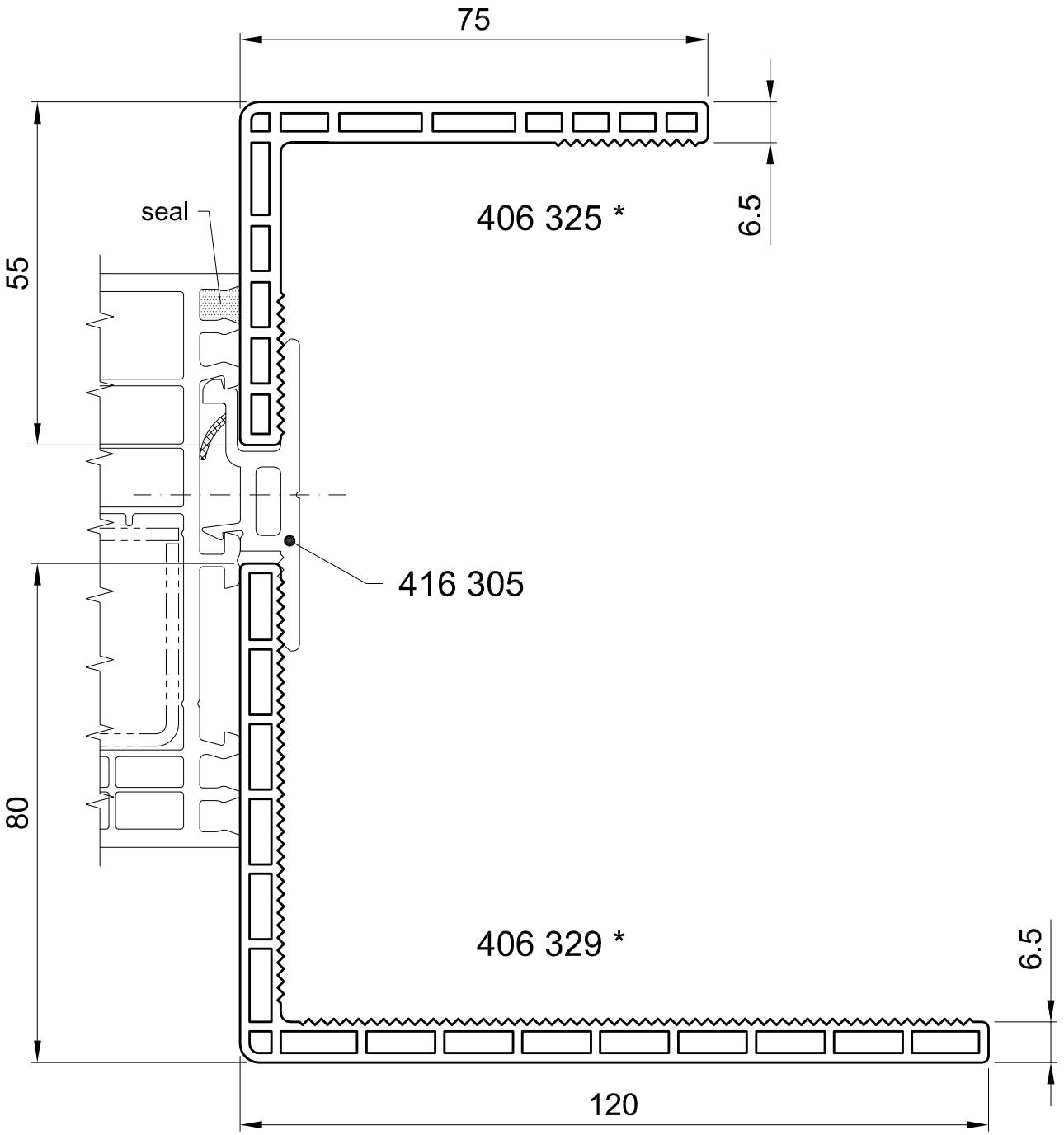
SALAMANDER WINDOW & DOOR SYSTEMS

Cover angle

**406 325, 406 329**

bE92 04

**12.2**




* to use in decor only room side

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

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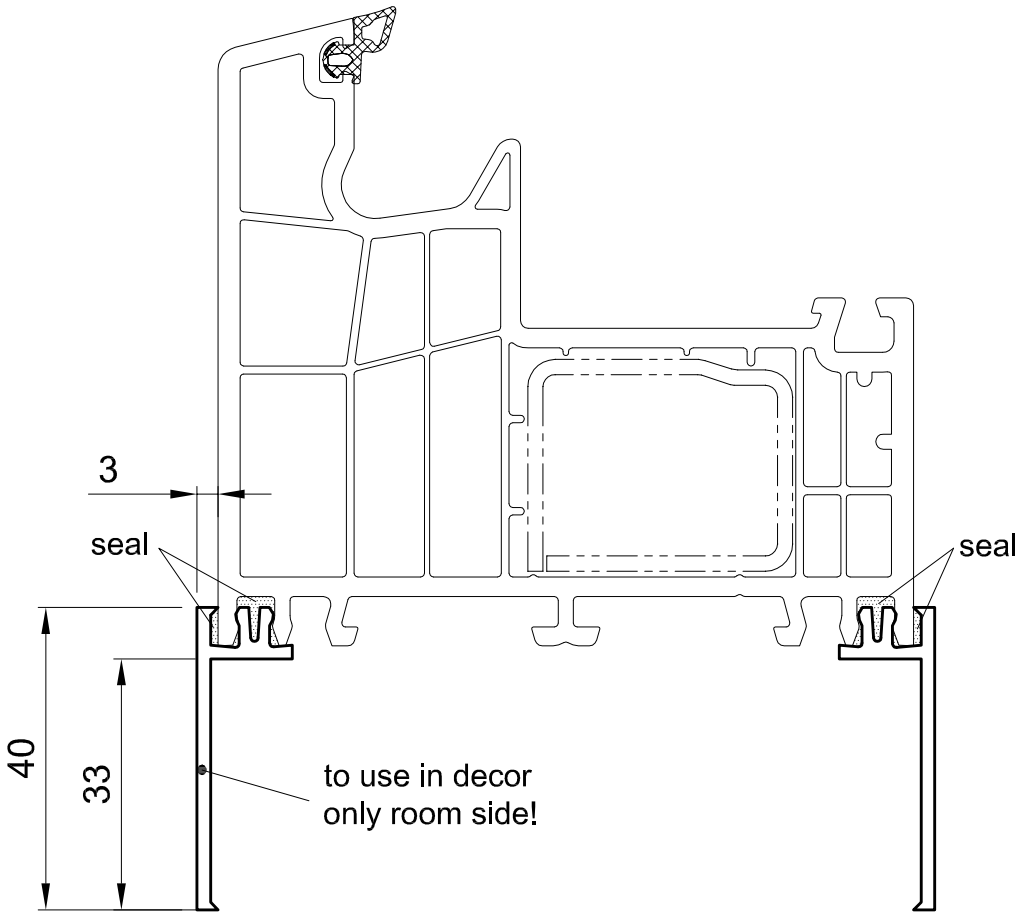
SALAMANDER WINDOW & DOOR SYSTEMS

Cover angle

**406 182**

bE92 04

**12.3**

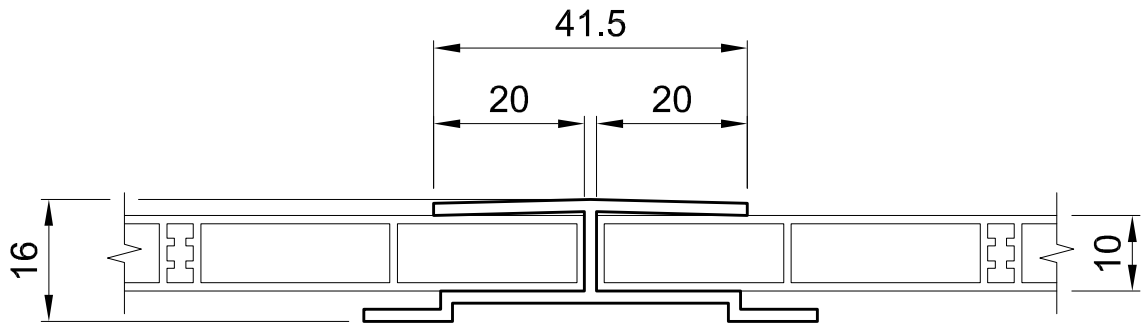



Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

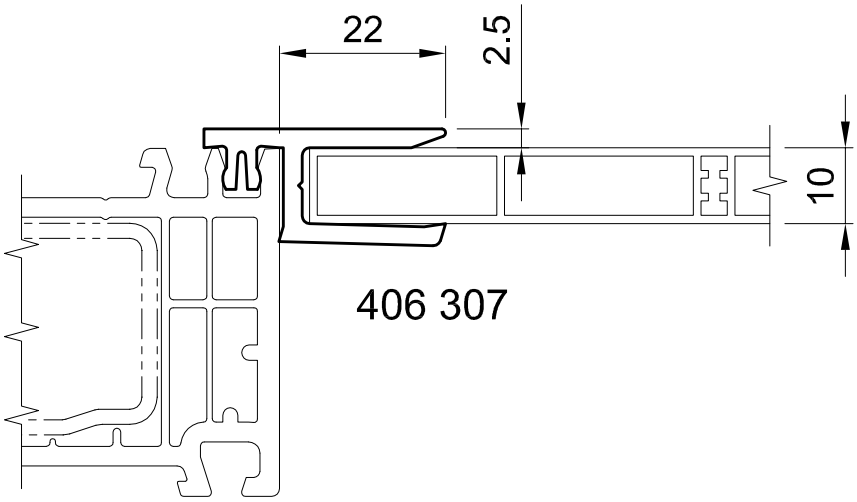
Scale 1:1 (or depending on print-out)

Issue: 11/2015

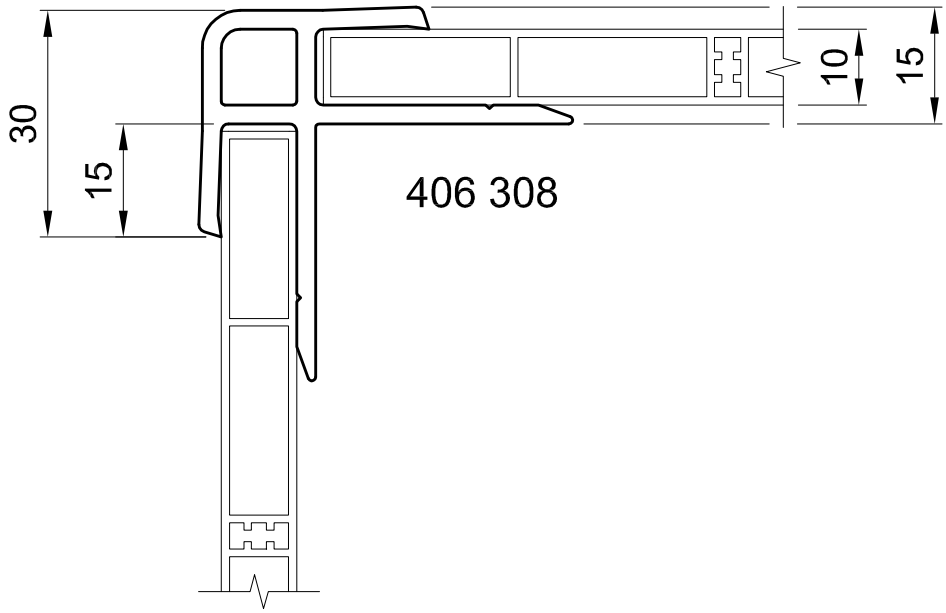
SALAMANDER
WINDOW & DOOR SYSTEMS




406 306

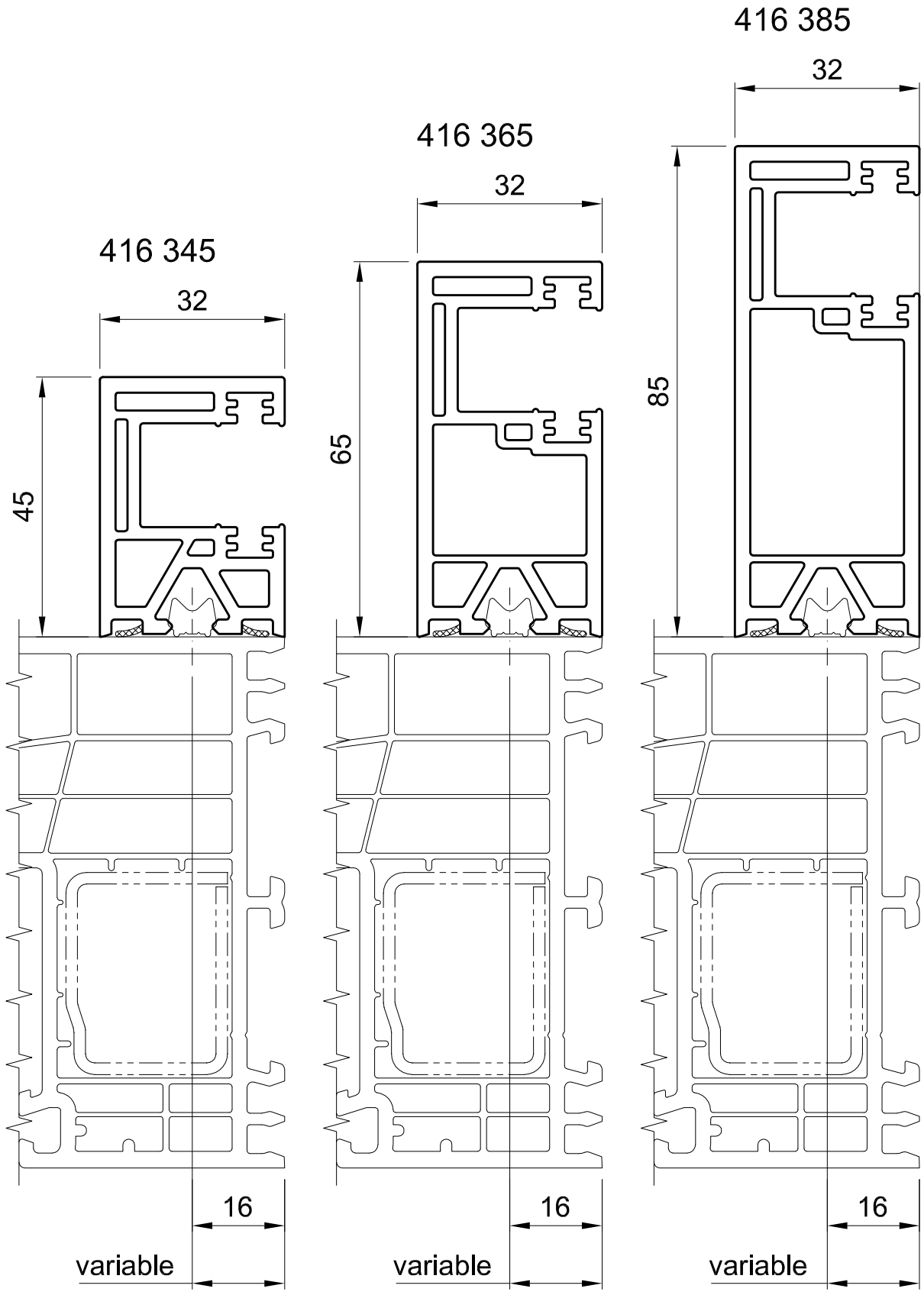



406 307




406 308

| Tapee | Clip bead | bE92 04 |
|---|---|---|
| **416 345, 416 365, 416 385** | **406 335** | **12.5** |




406 335

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

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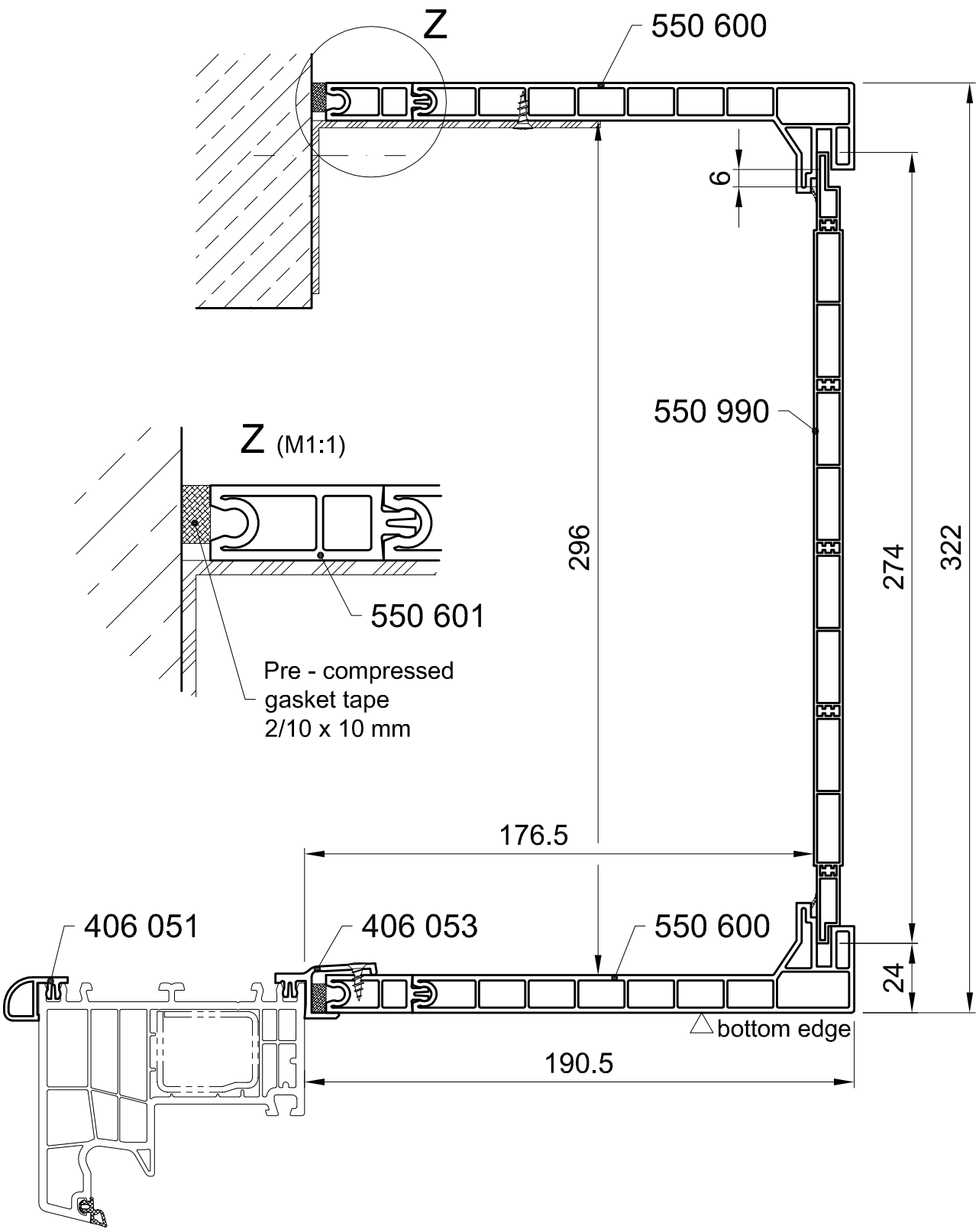
SALAMANDER WINDOW & DOOR SYSTEMS

# Roller shutter panelling

| Roller shutter panelling | Cover for roller shutter housing | Connection profile | Spreader | bE92 04 |
|---|---|---|---|---|
| **550 600, 550 601** | **550 990** | **406 053** | **406 051** | **13.1** |




Pre-compressed gasket tape

Scale 1:2 (1:1) (or depending on print-out)

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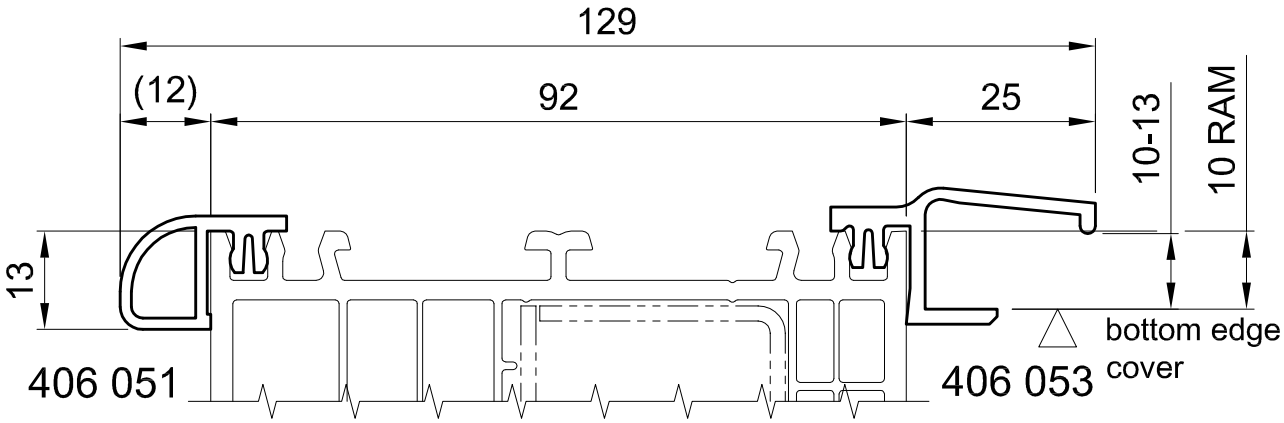
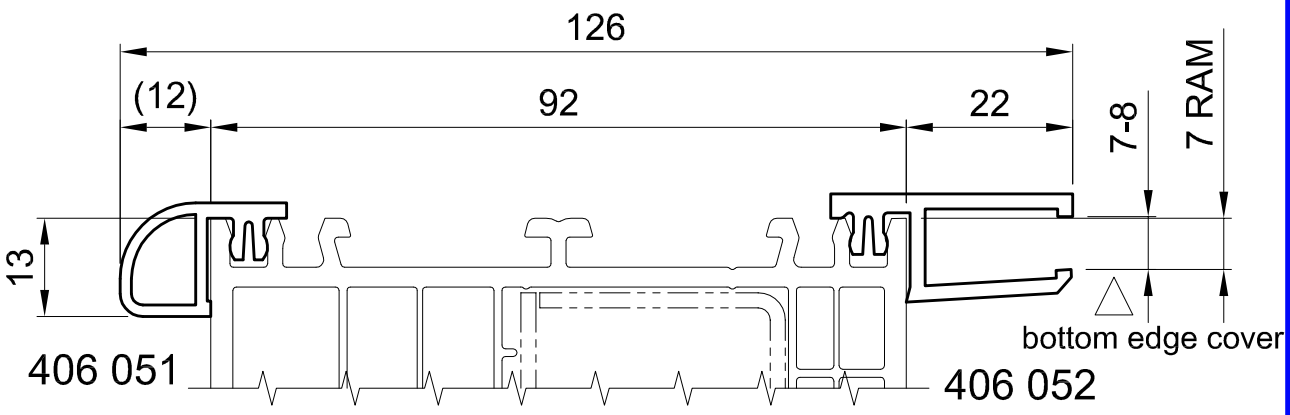
SALAMANDER WINDOW & DOOR SYSTEMS

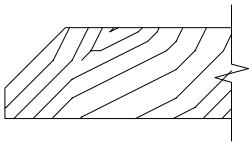
# Roller shutter panelling

| Spreader | Cover connection | bE92 04 |
|---|---|---|
| **406 051** | **406 052, 406 053** | **13.2** |




Trim the cap for roller shutter housing





Scale 1:1 (or depending on print-out)

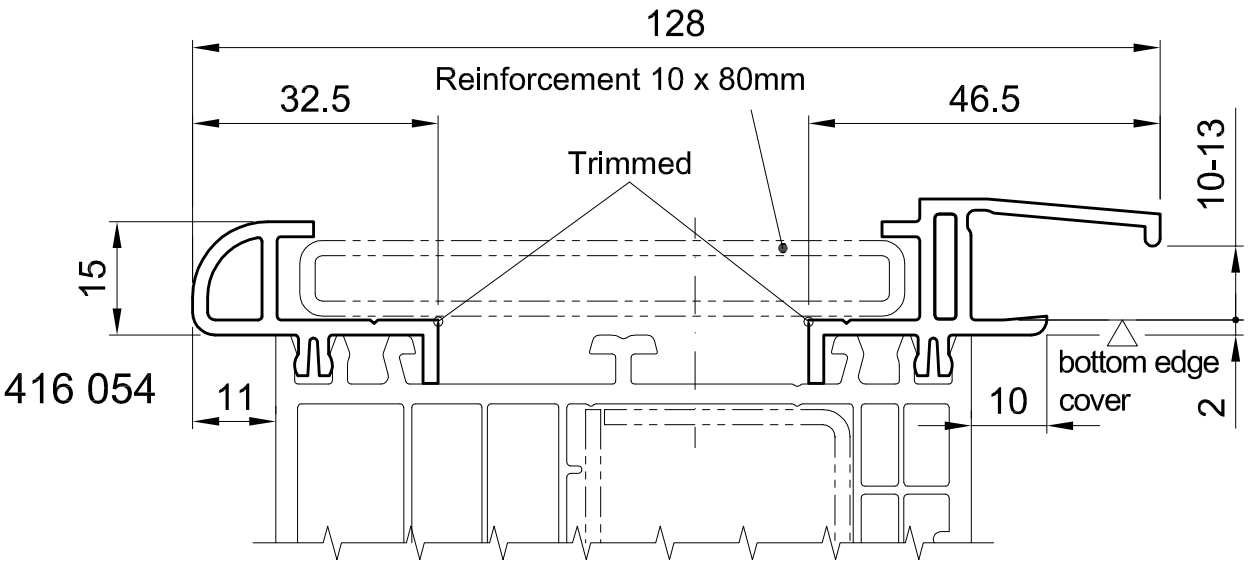
Issue: 11/2015

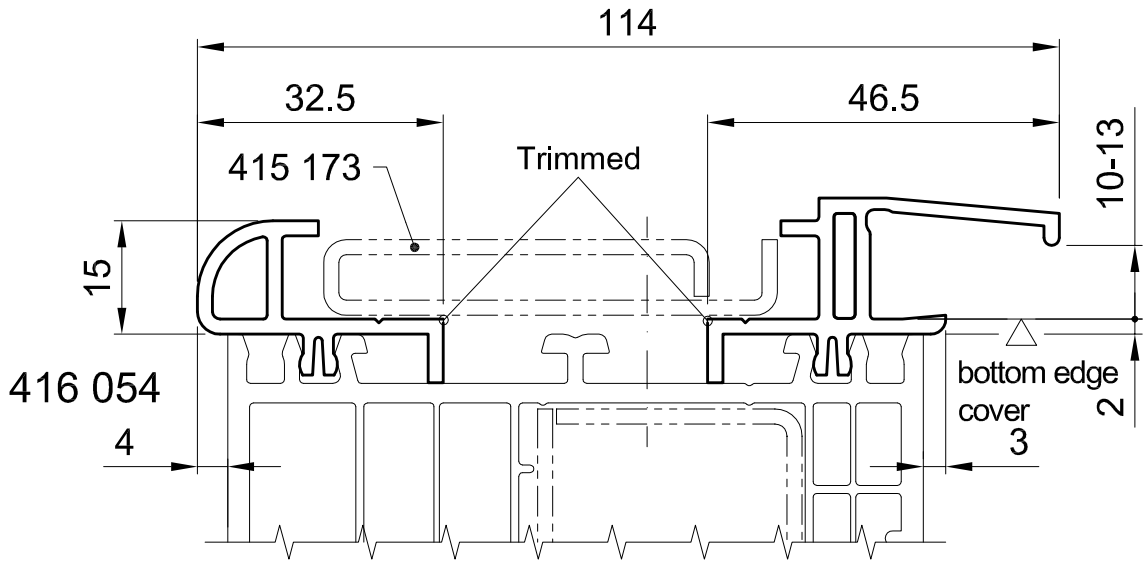
# Roller shutter panelling connection

Spreader

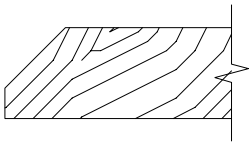
**416 054**





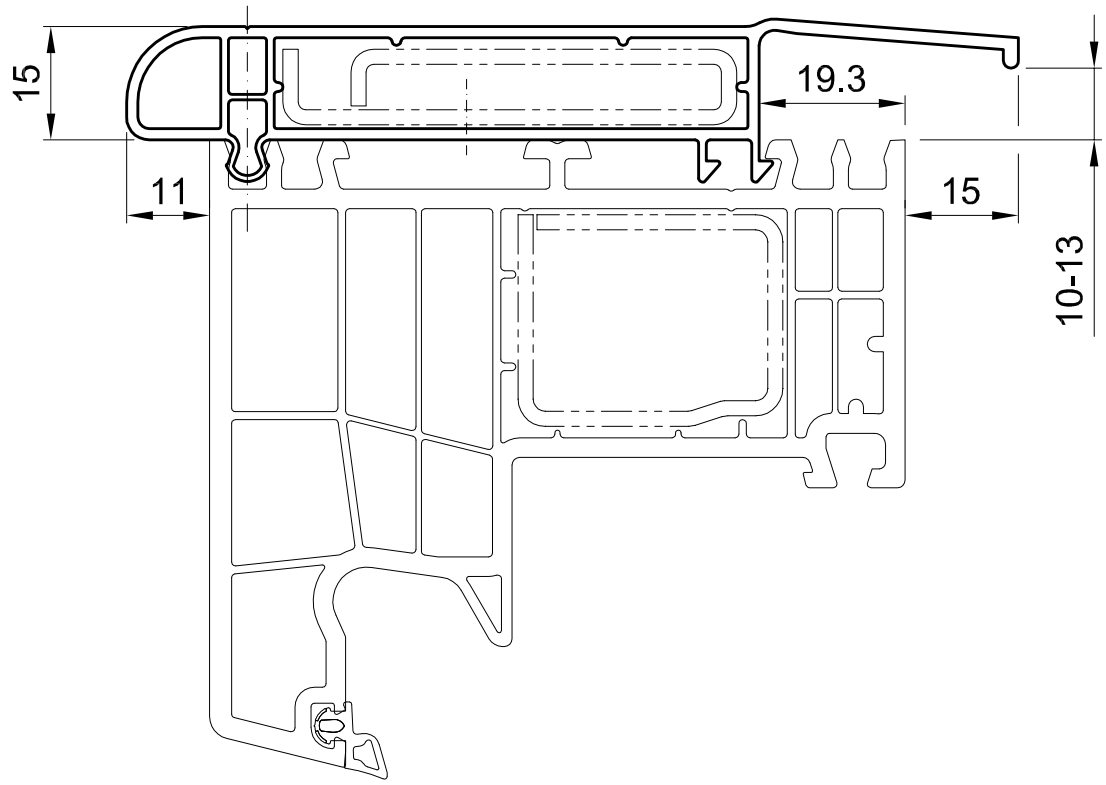



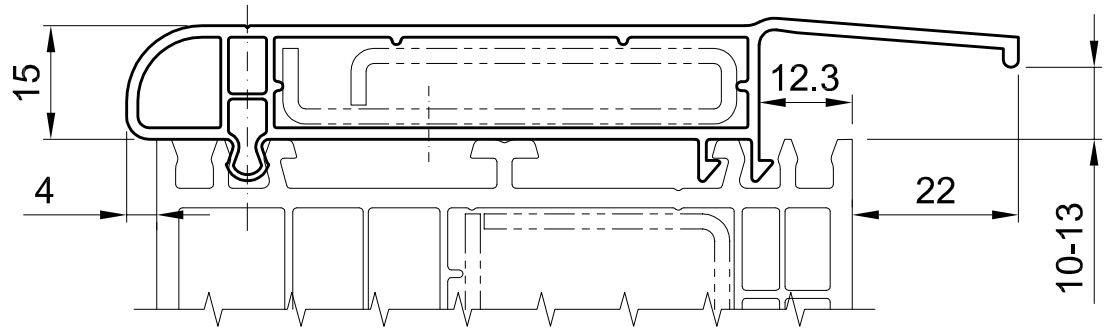

Trim the cap for roller shutter housing



# Roller shutter spreader

| Roller shutter spreader | Reinforcement | bE92 04 |
|---|---|---|
| **476 055** | **415 173** | **13.4** |




Reinforcement employ only if required!

Scale 1:1 (or depending on print-out)

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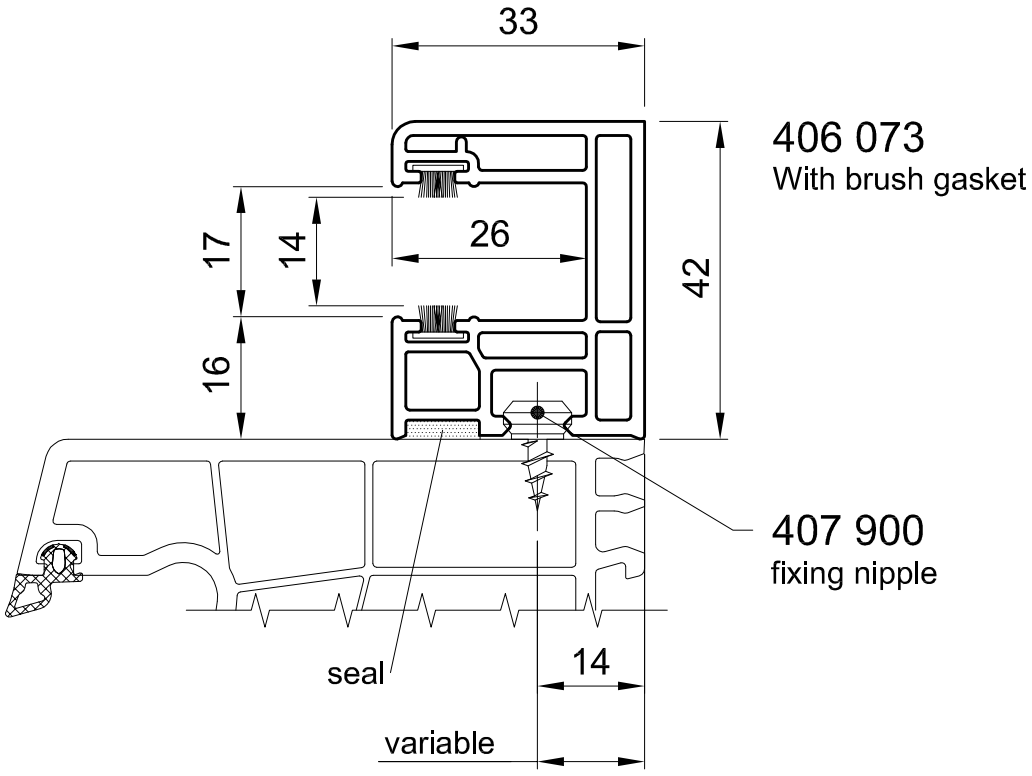
SALAMANDER WINDOW & DOOR SYSTEMS

Roller shutter guide

**406 073**

bE92 04

**13.5**




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

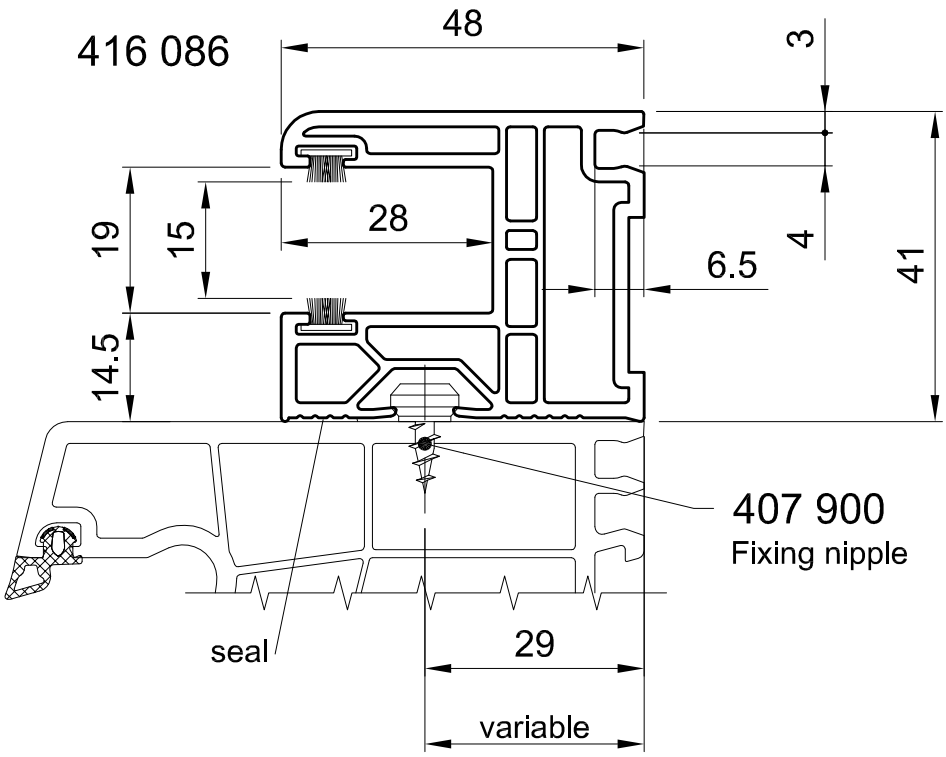
Scale 1:1 (or depending on print-out)

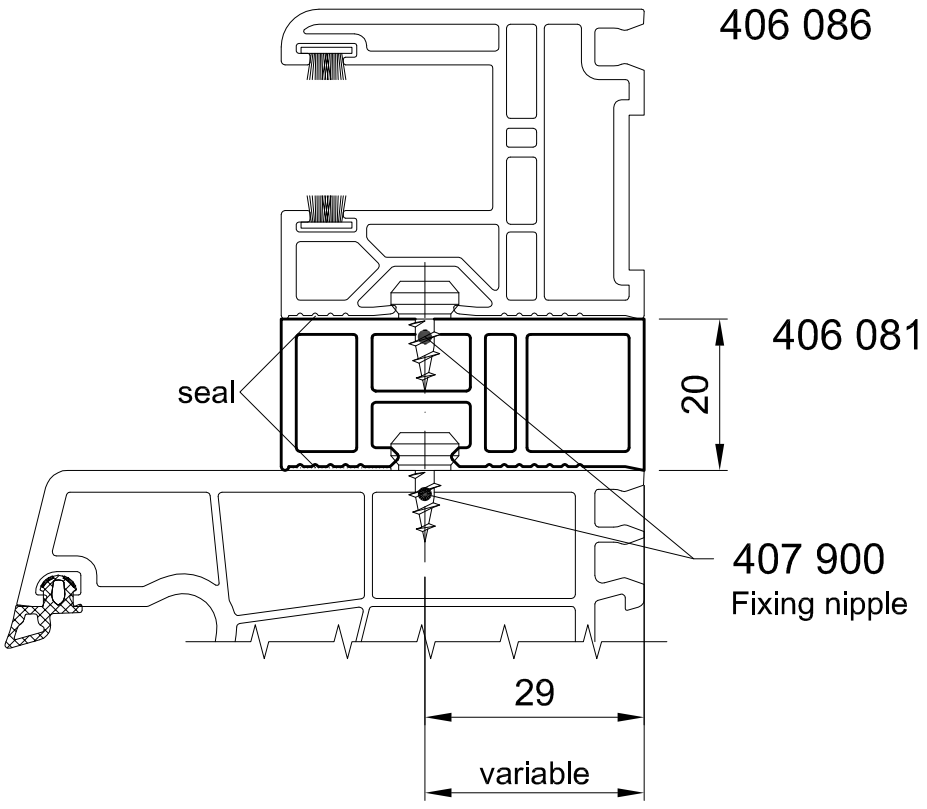
Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Roller shutter guide

| Roller shutter guide | False edge | bE92 04 |
|---|---|---|
| **416 086** | **406 081** | **13.6** |




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

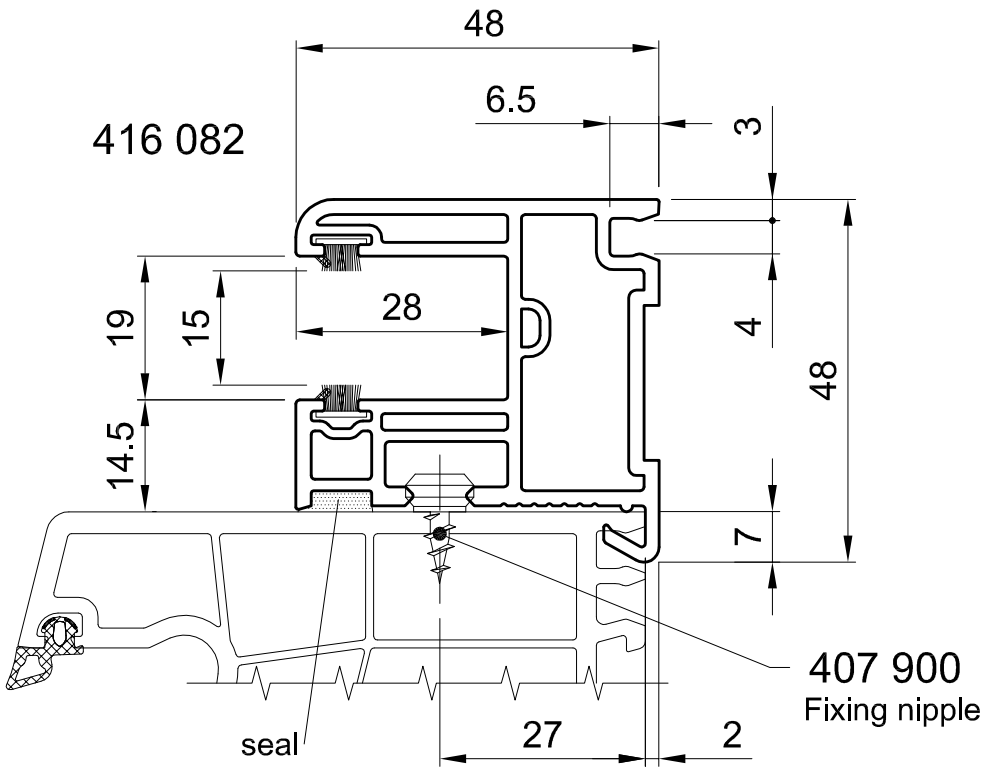
# False edge for roller shutter guide

False edge

**416 082**

bE92 04

**13.7**




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

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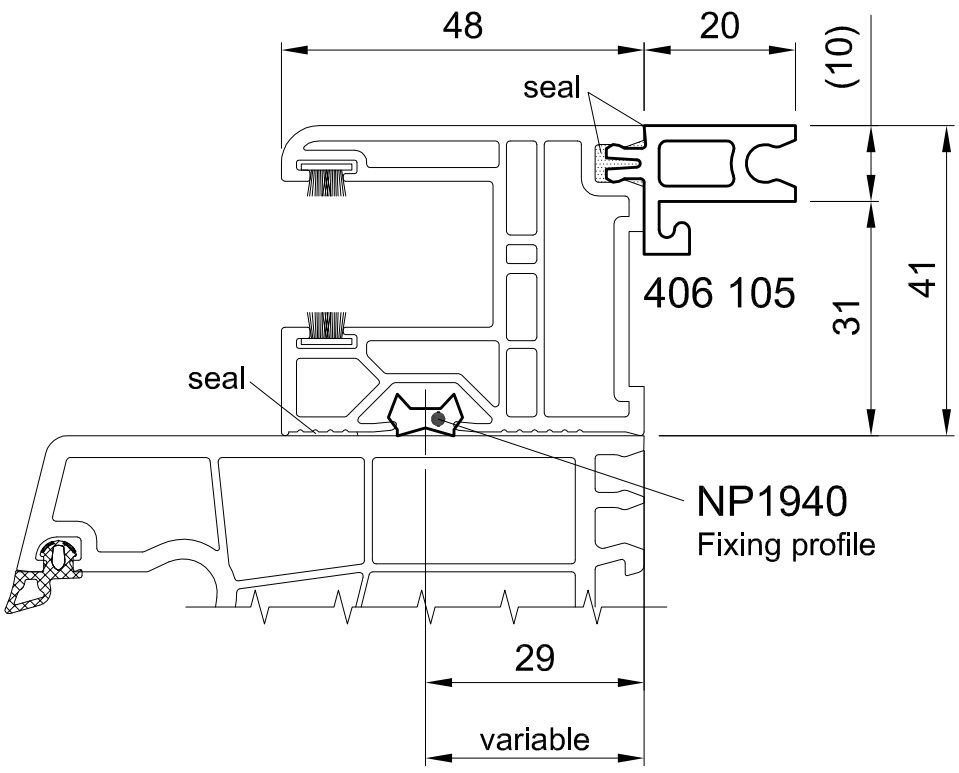
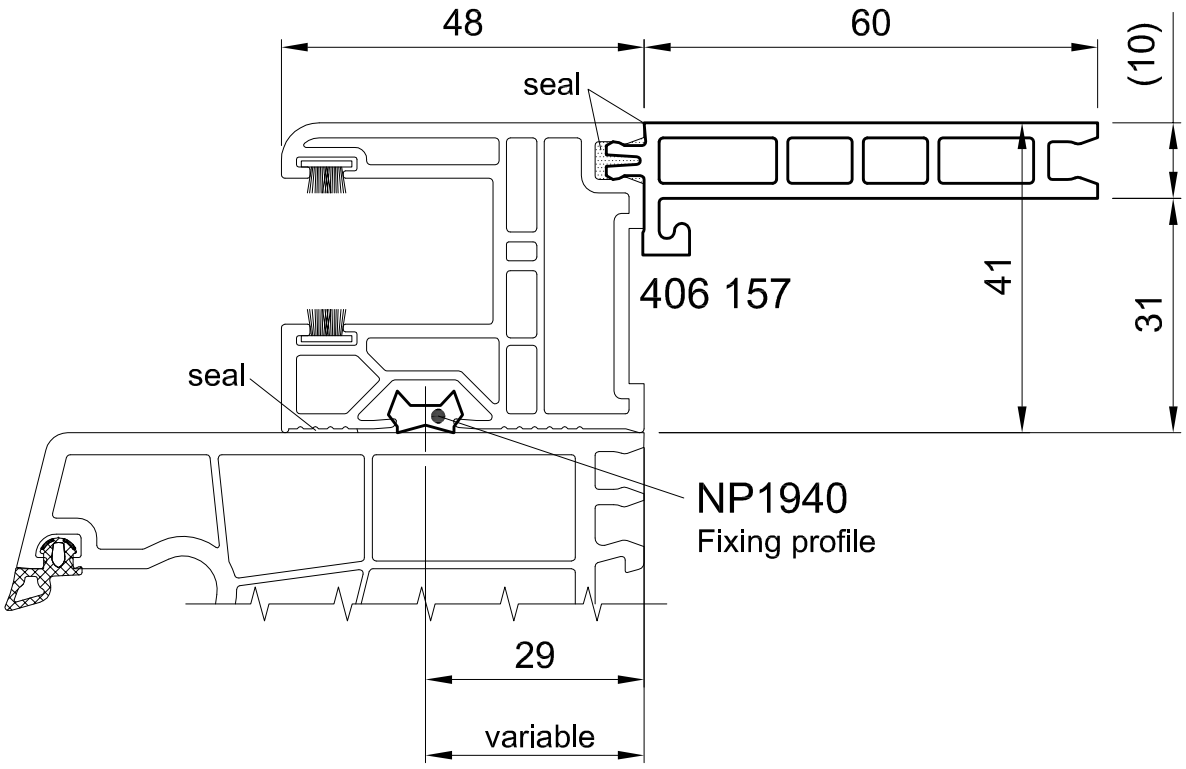
SALAMANDER
WINDOW & DOOR SYSTEMS

False edge

**406 105, 406 157**






Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

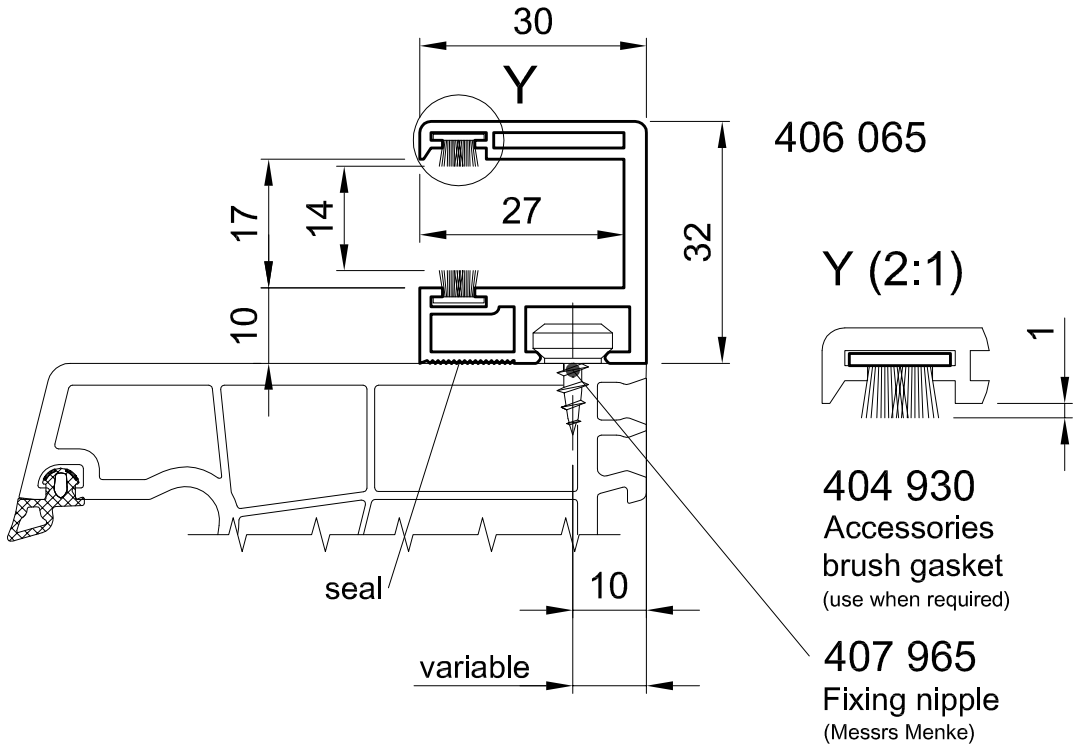
Issue: 11/2015

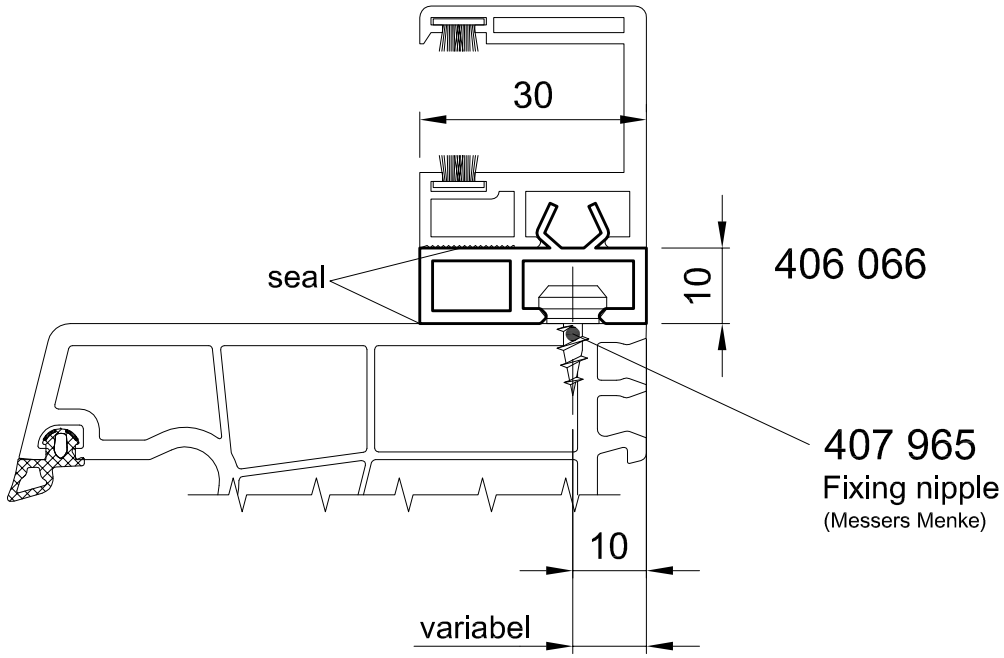


SALAMANDER
WINDOW & DOOR SYSTEMS

# Roller shutter guide

| Roller shutter guide | False edge | Brush gasket | bE92 04 |
|---|---|---|---|
| **406 065** | **406 066** | **404 930** | **13.9** |




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

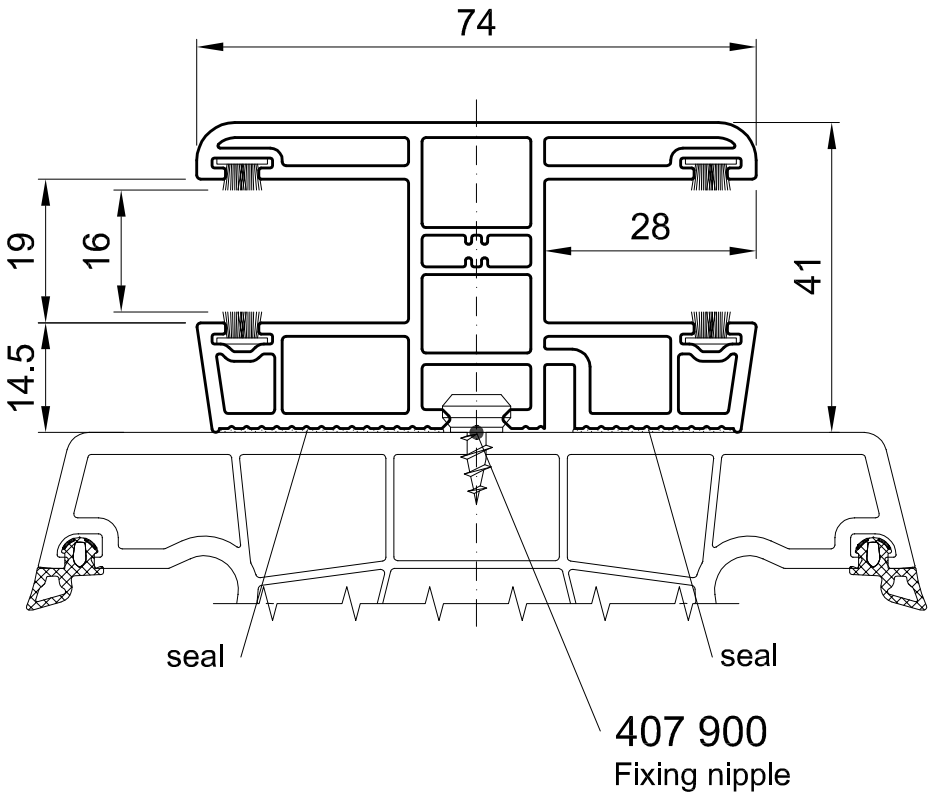
SALAMANDER
WINDOW & DOOR SYSTEMS

Roller shutter guide

**416 096**

bE92 04

**13.10**




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

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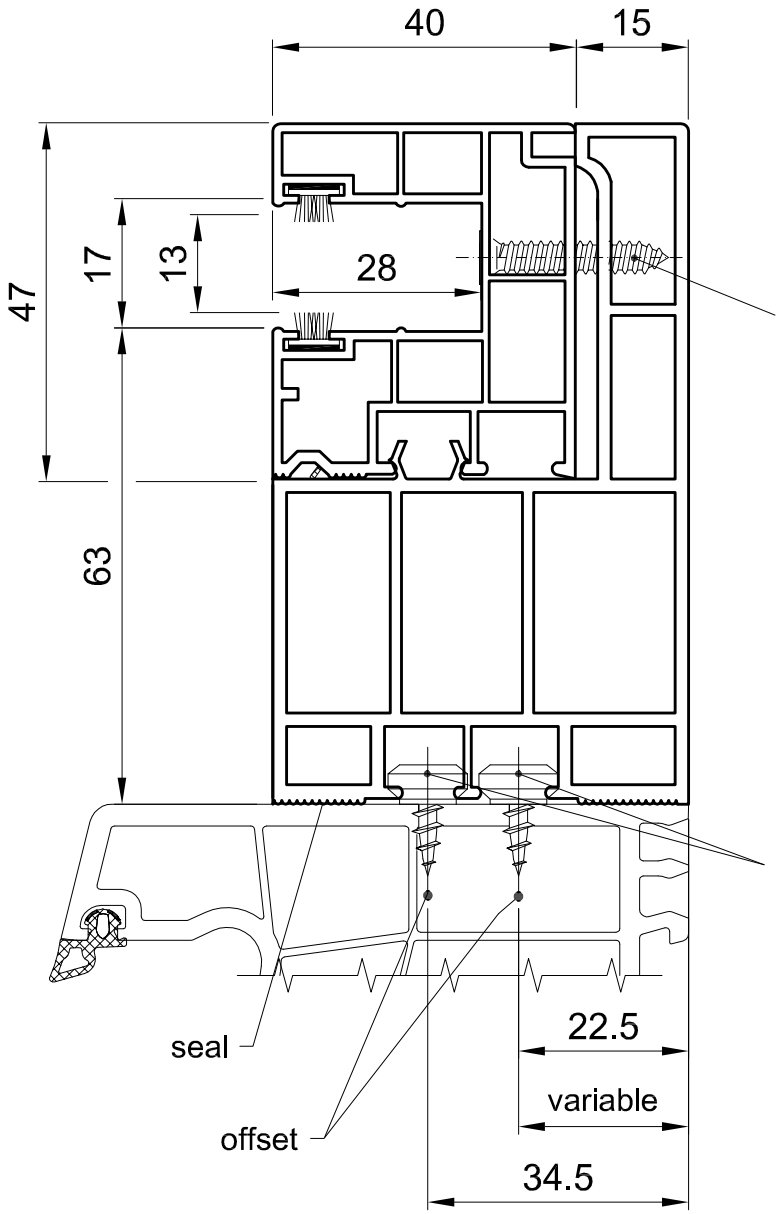
SALAMANDER
WINDOW & DOOR SYSTEMS

Roller shutter guide

**556 070**

bE92 04

**13.11**




The roller rail must be screwed to the adapter profile over the windows sill.
Screw ∅ 4.3 x 25 mm.
Distance approx. 200 mm to the lower edge of the roller shutter guide.

Fixing nipple
407 965

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

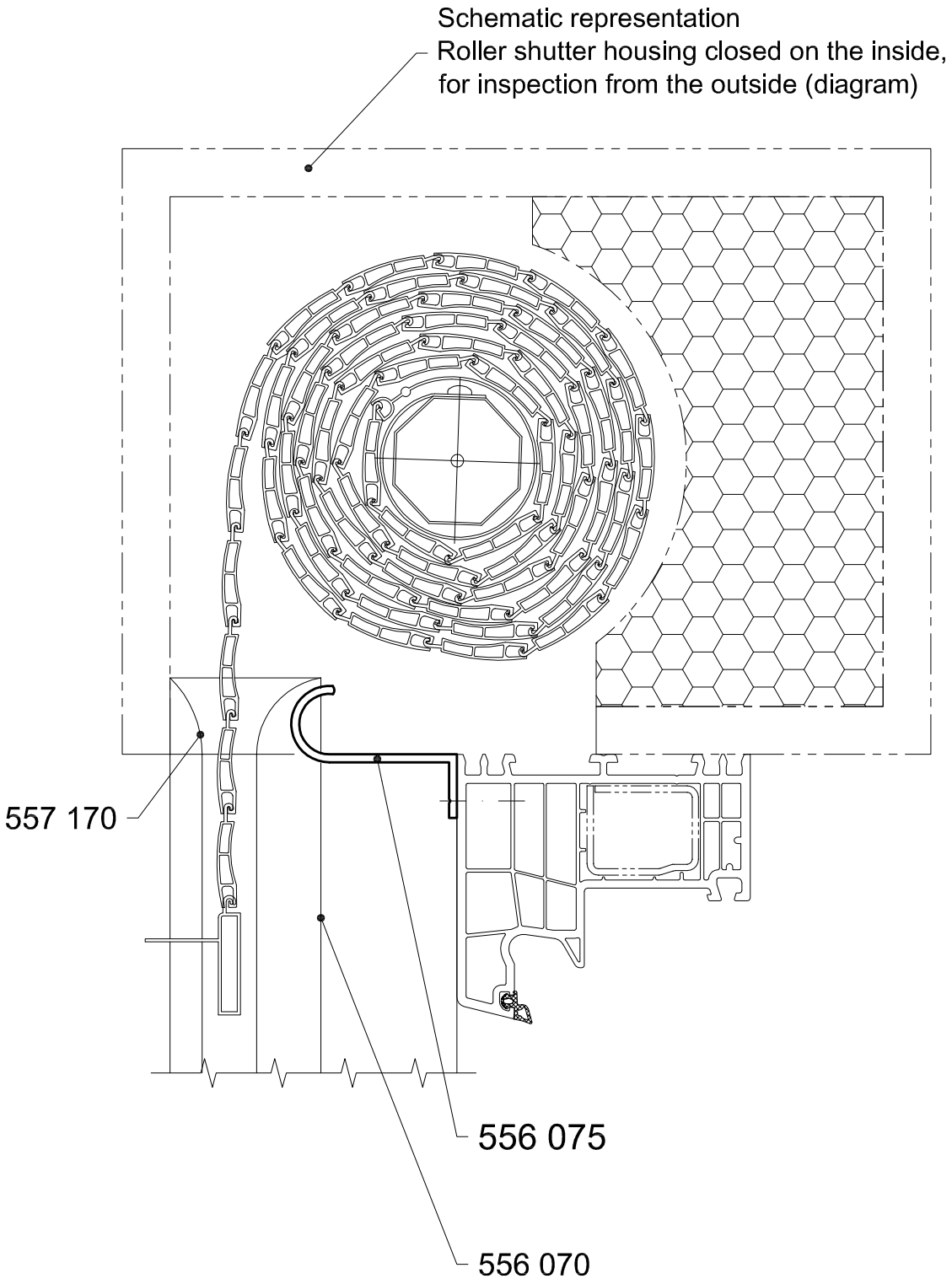
Issue: 11/2015



SALAMANDER
WINDOW & DOOR SYSTEMS

# Unwinding profile

| Unwinding profile | Roller shutter guide | Intake guide | bE92 04 |
|---|---|---|---|
| **556 075** | **556 070** | **557 170** | **13.12** |





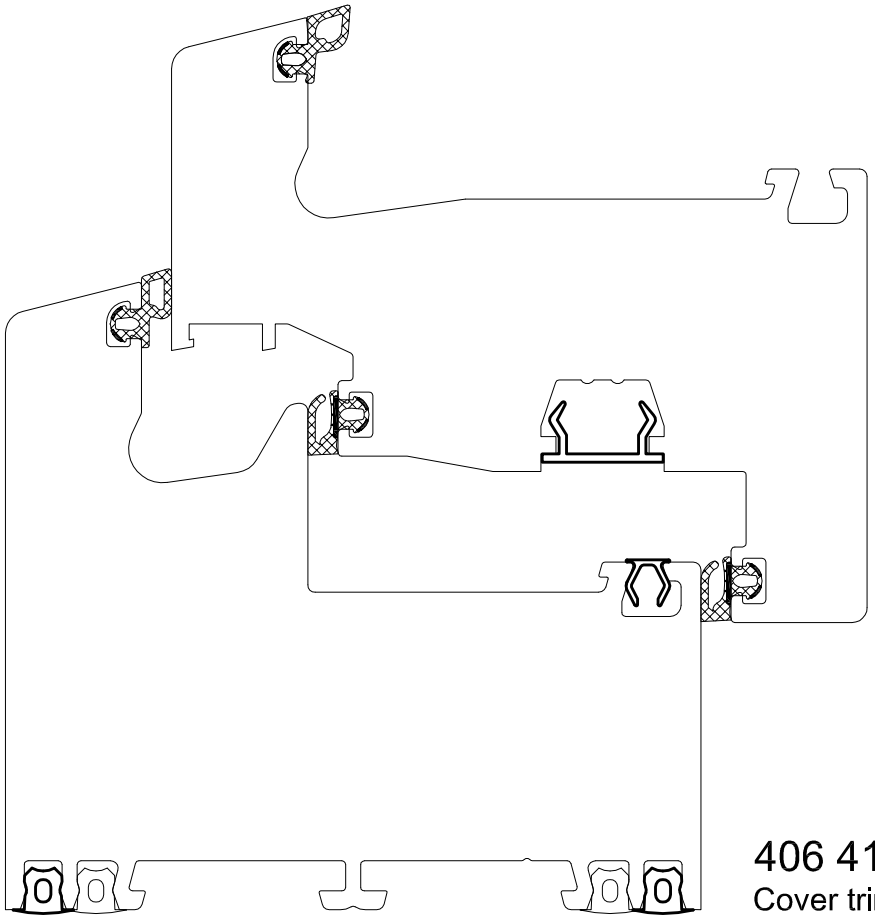

Scale 1:2 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Area of application cover profiles

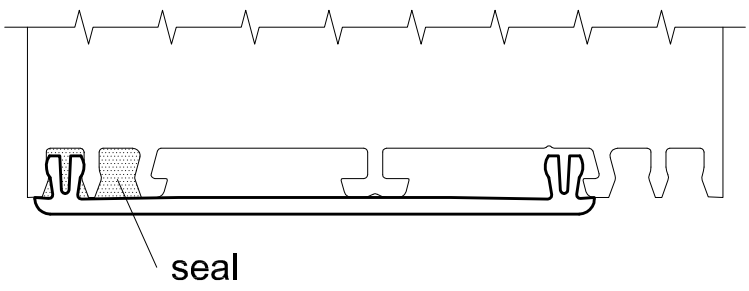
| Clip profile | Groove filling | Cover trim | Cover | bE92 04 |
|---|---|---|---|---|
| **406 391** | **416 390** | **406 410** | **416 180** | **14.1** |



406 391
Clip profile 16 mm

416 390
Groove filling

406 410
Cover trim
(or 416 390)




416 180
Cover

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

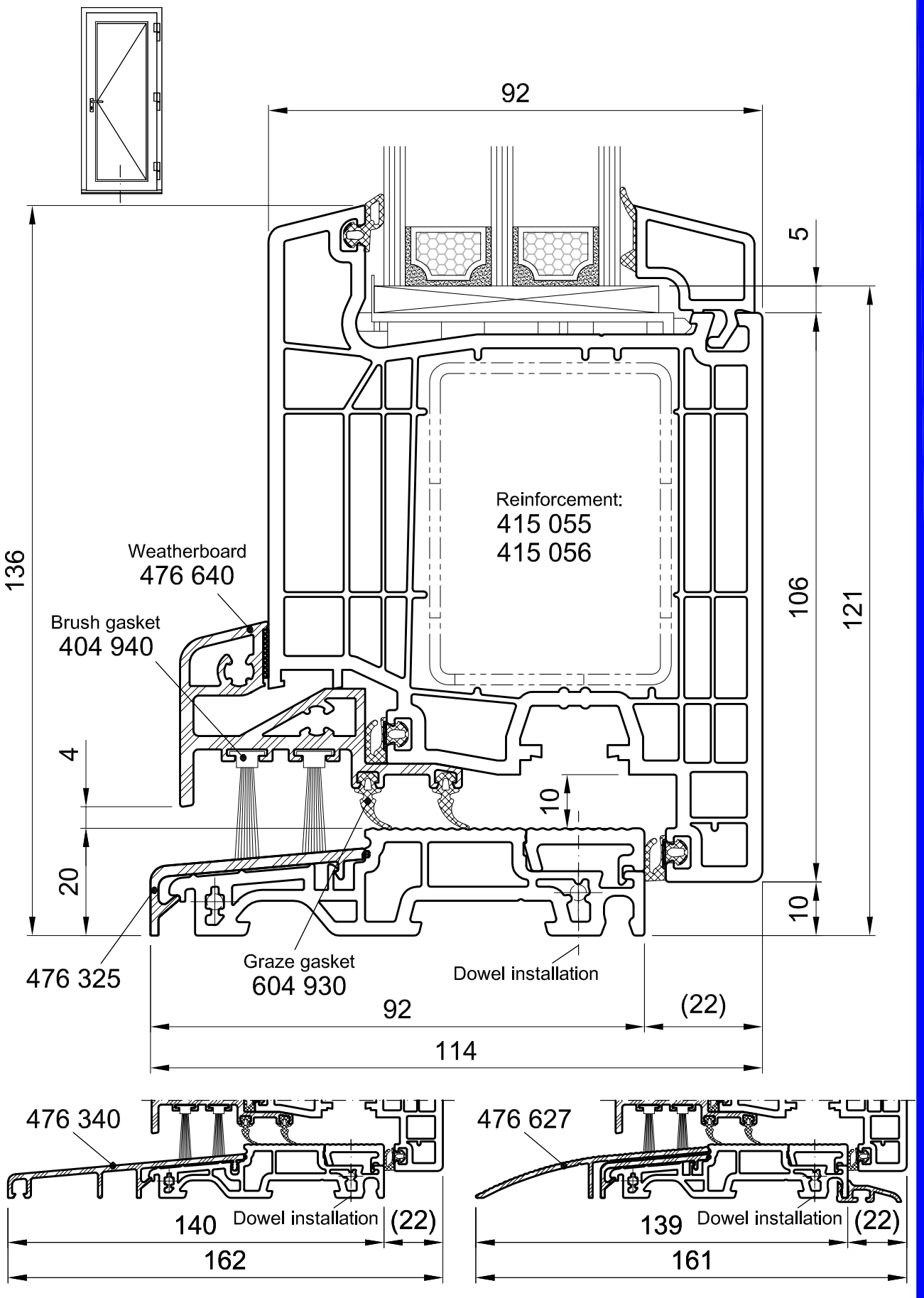
Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Door-threshold

| Threshold | Casement | Adapter profile handicapped accessible | Adapter profile | bE92 04 |
|---|---|---|---|---|
| **476 325, 476 340** | **171 040** | **476 627** | **216 321** | **15.1** |




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

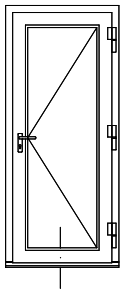
Scale 1:1 (1:2) (or depending on print-out)

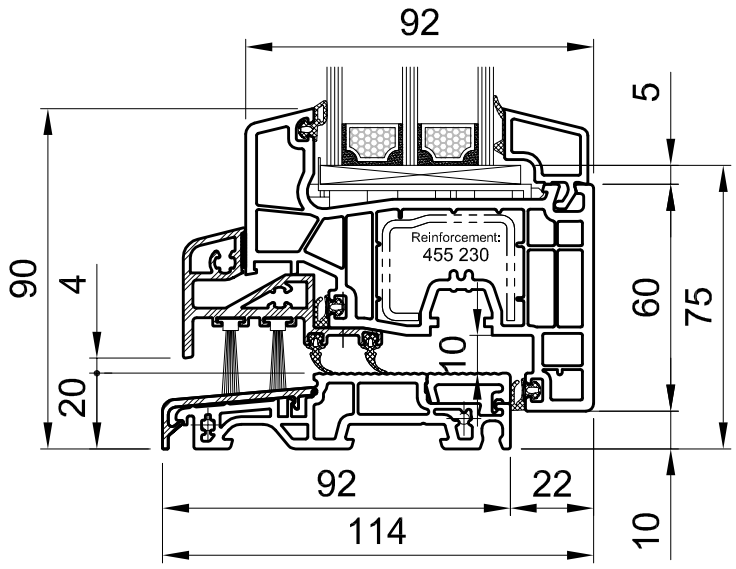
Issue: 11/2015

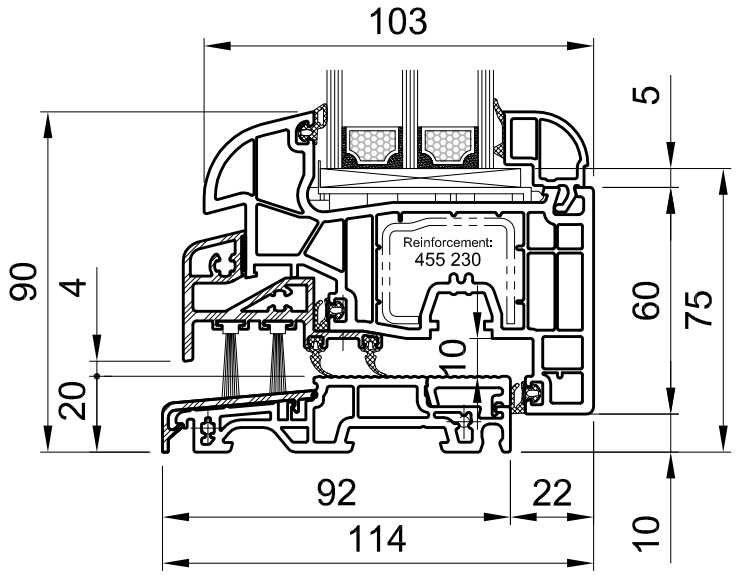
SALAMANDER WINDOW & DOOR SYSTEMS

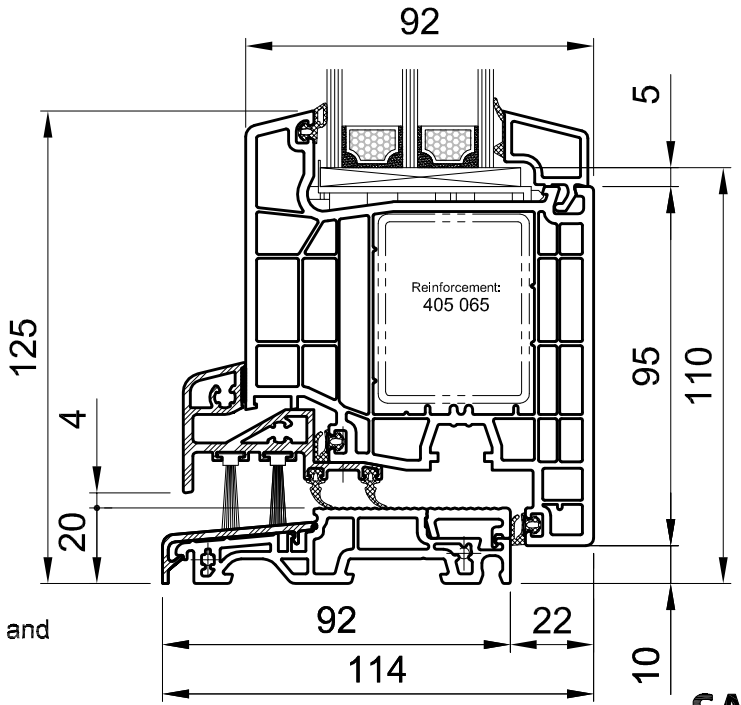
# Door-threshold

| Threshold (adapter profile) | Casement | bE92 04 |
|---|---|---|
| **476 325** | **171 020, 171 226, 171 030** | **15.2** |






Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

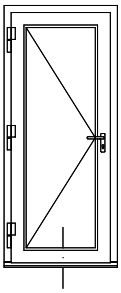
Scale 1:2 (or depending on print-out)

Issue: 11/2015

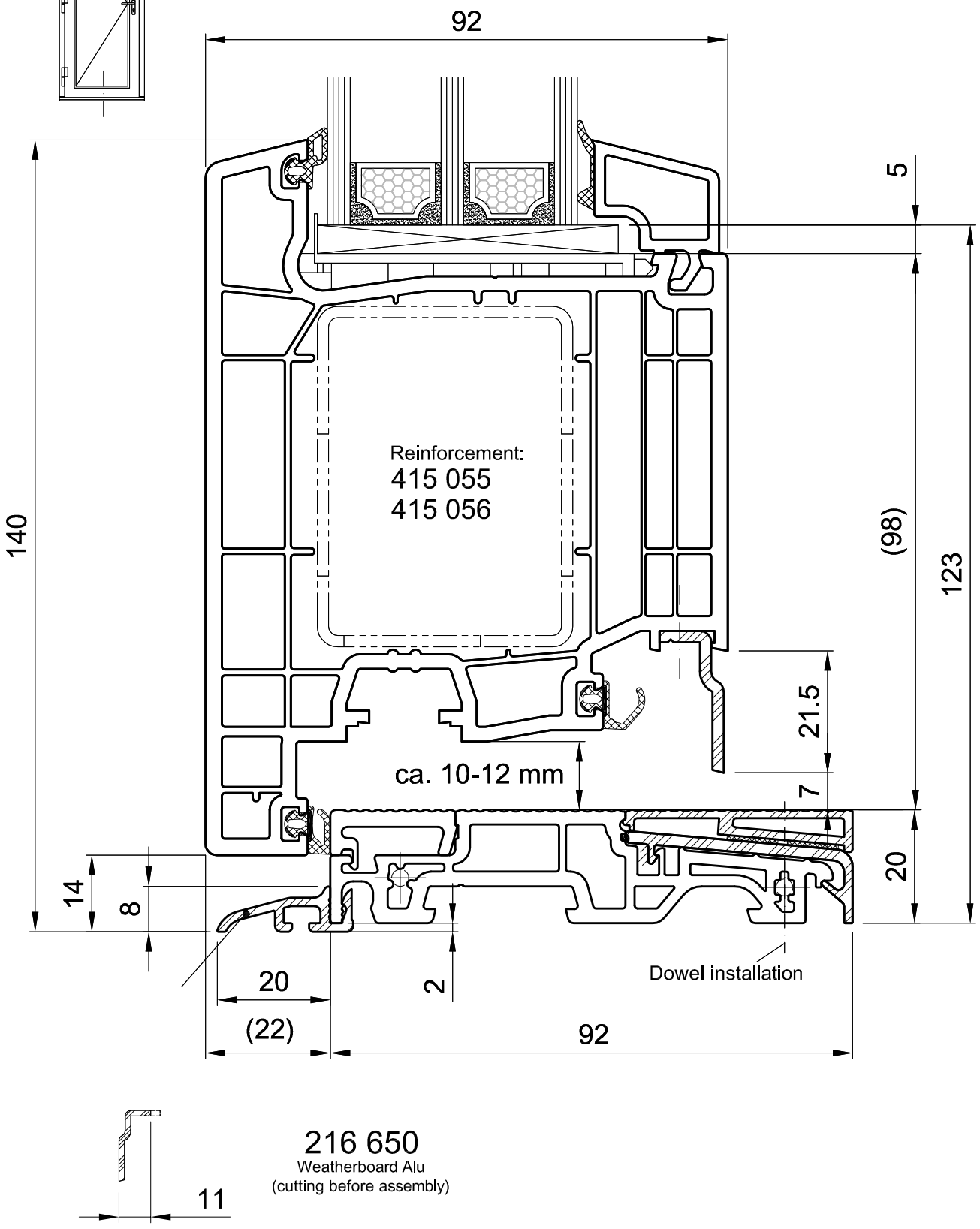
SALAMANDER
WINDOW & DOOR SYSTEMS

# Door-threshold

| Threshold | Casement | Adapter profile opening to the outside | Adapter profile | bE92 04 |
|---|---|---|---|---|
| **476 325** | **371 040** | **476 626** | **216 321** | **15.3** |



Opening to the outside







216 650
Weatherboard Alu
(cutting before assembly)

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

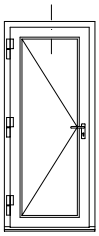
Scale 1:1 (1:2) (or depending on print-out)

Issue: 11/2015

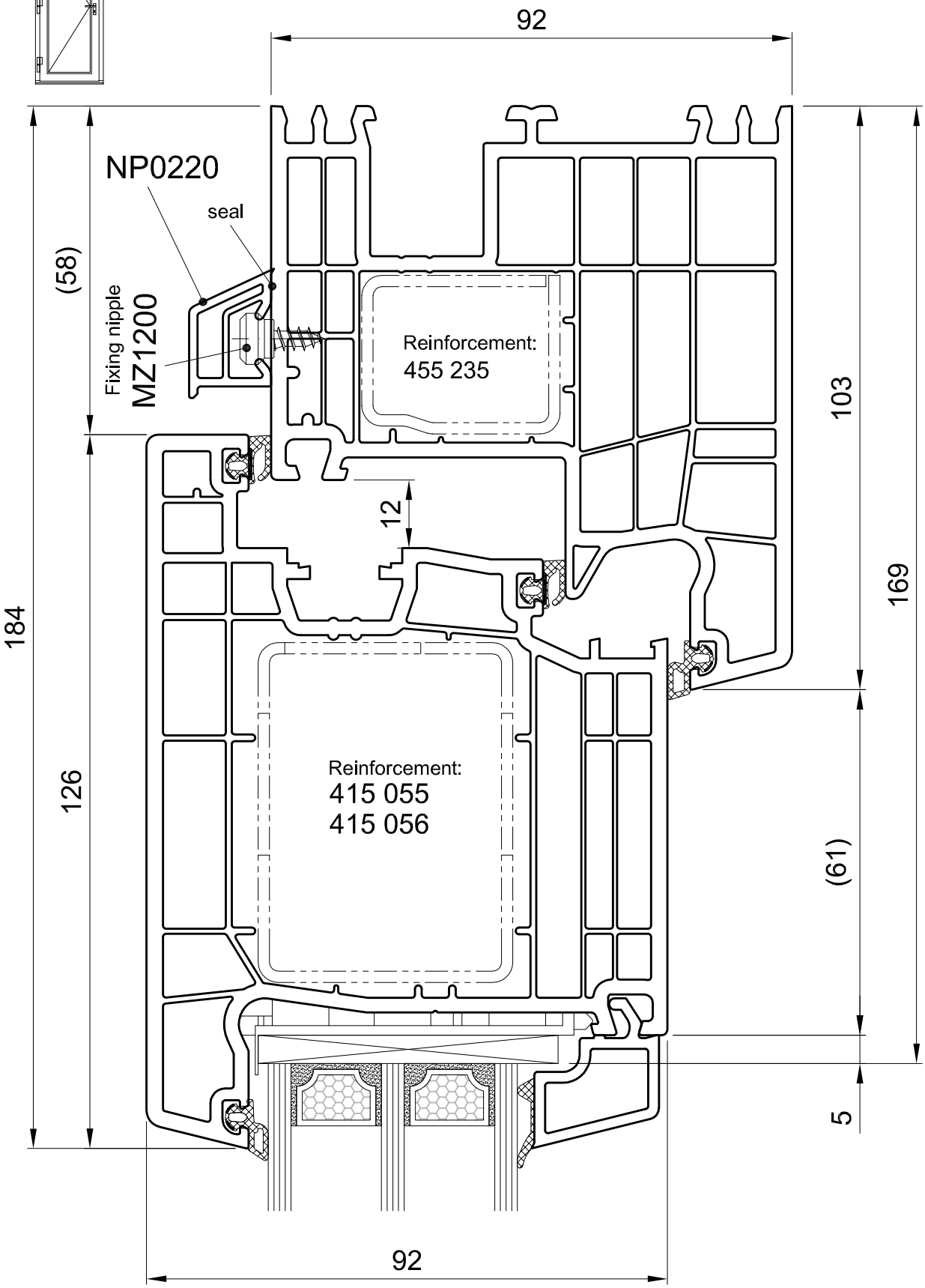
SALAMANDER
WINDOW & DOOR SYSTEMS

# Door-threshold

| Frame | Casement | bE92 04 |
|---|---|---|
| **170 430** | **371 040** | **15.4** |



opening to the outside




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

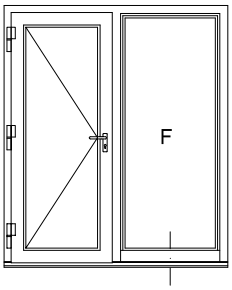
Scale 1:1 (1:2) (or depending on print-out)

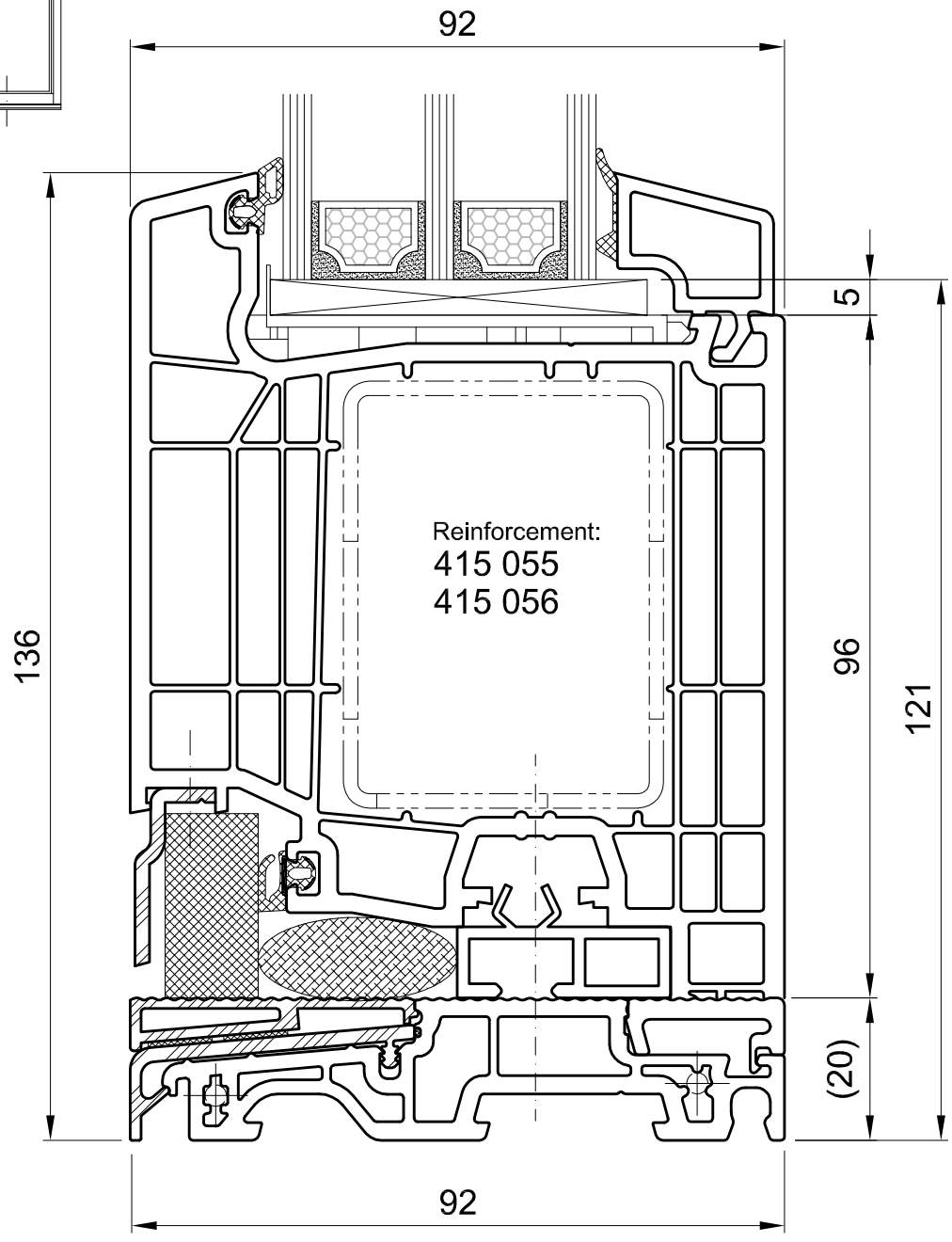
Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

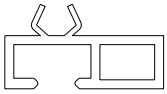
# Fixed part door-threshold

| Threshold | Casement | Adapter profile opening to the outside | bE92 04 |
|---|---|---|---|
| **476 325** | **171 040** | **476 626** | **15.5** |

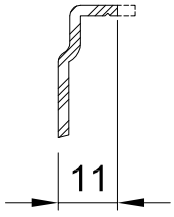



406 066
False edge



216 650
Weatherboard Alu
(cutting before assembly)




Closed-cell round cord ∅20mm

Pre-compressed gasket tape

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

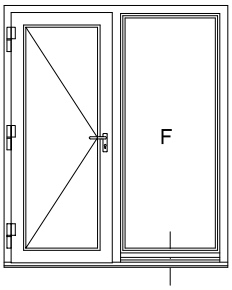
Scale 1:1 (not to scale) (or depending on print-out)

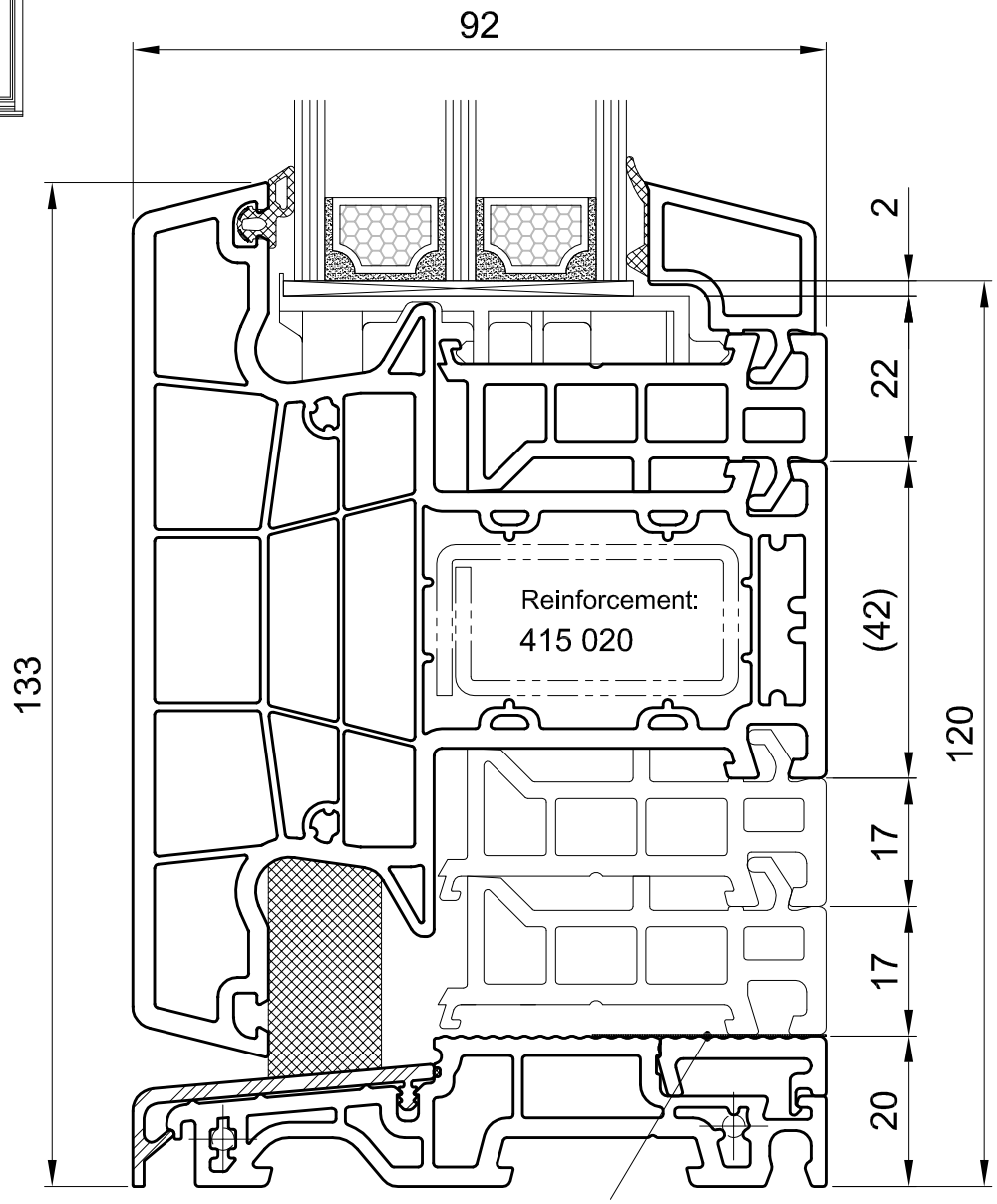
Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Fixed part door-threshold

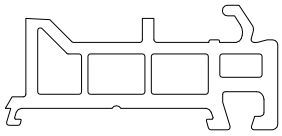
| Threshold | Post | bE92 04 |
|---|---|---|
| **476 325** | **172 420** | **15.6** |




417 740
Sicosil-band

173 415
2x Fixed glazing bar



Pre-compressed gasket tape

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

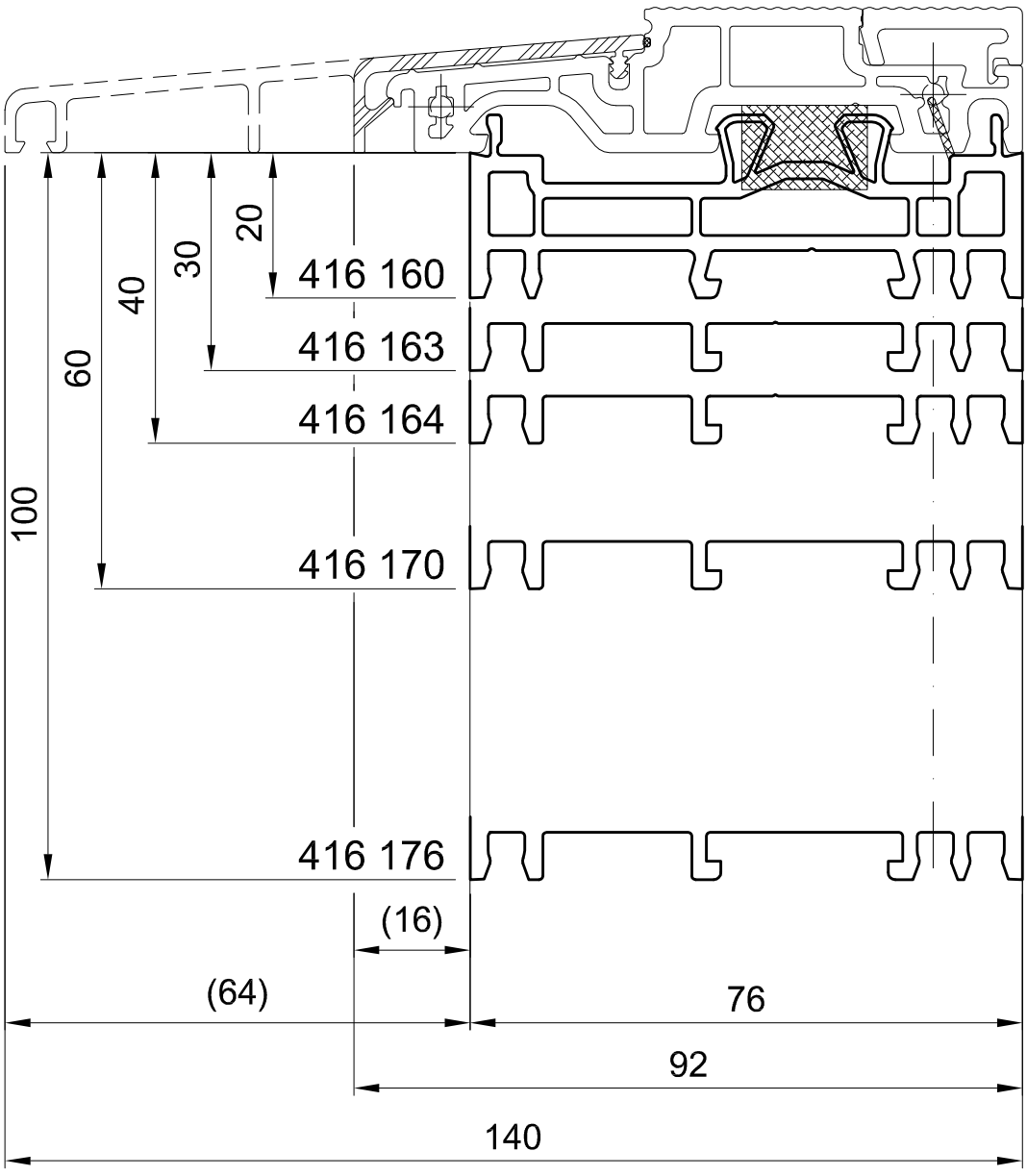
Scale 1:1 (not to scale) (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Threshold

| Threshold | Extension profile | bE92 04 |
|---|---|---|
| **476 325, 476 340** | **416 160, 416 163, 416 164, 416 170, 416 176** | **15.7** |




Note: Profiles can deviate in the evenness to the threshold

Pre-compressed
gasket tape

Seal with permanently elastic, neutrally bonding sealant,
suitable for PVC and galvanized steel.

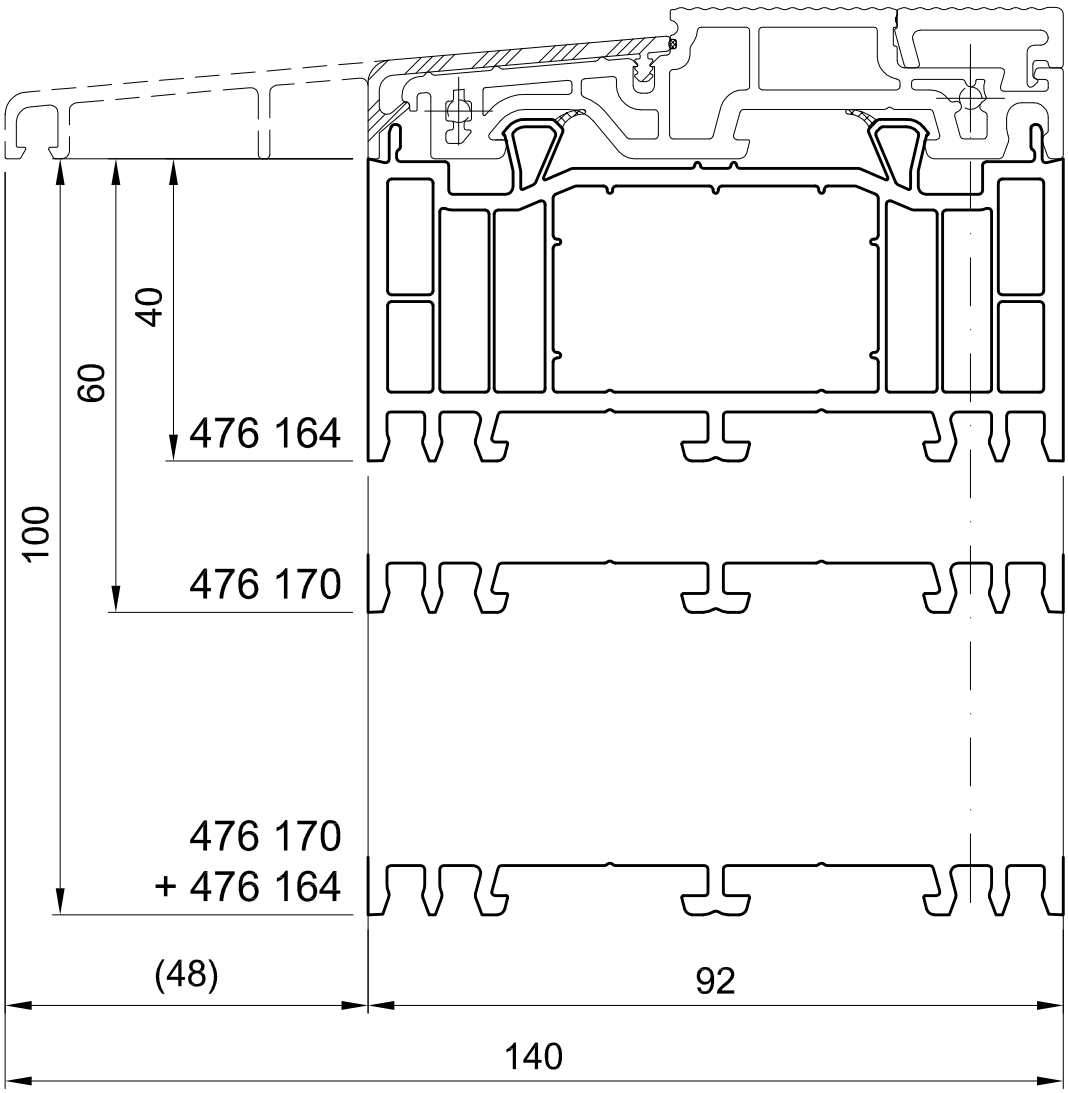
Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

# Threshold

| Threshold | Extension profile | bE92 04 |
|---|---|---|
| **476 325, 476 340** | **476 164, 476 170** | **15.8** |




Note: Profiles can deviate in the evenness to the threshold



Scale 1:1 (or depending on print-out)

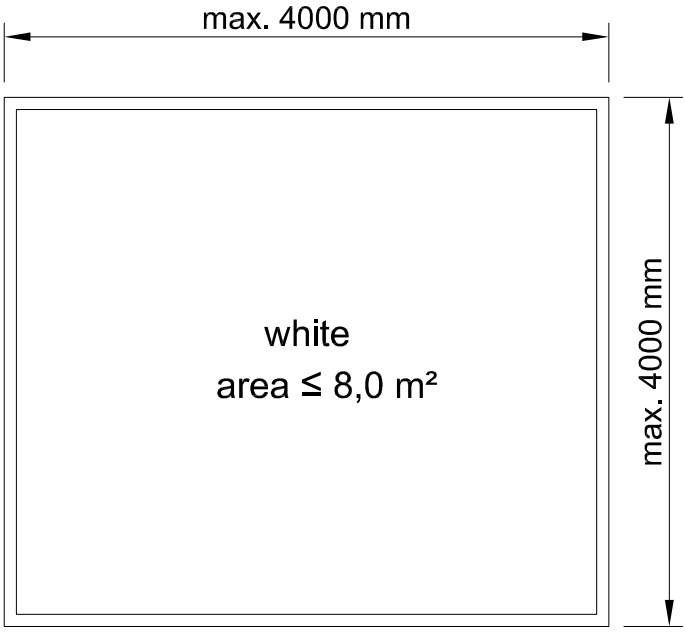
Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

| Designation | Page bE92 05 0... |
|---|---|
| - Max. frame sizes in white & decor | 01.1 |
| - Reinforcement guidelines | 02.1 |
| - Basic principles / definition | 03.1 - 03.3 |
| └► Wind load | 03.1 |
| └► Pelting rain | 03.2 |
| └► Of area | 03.3 |
| - Max. sizes for tilt-and-turn casements / PSK doors | 04.1 - 04.4 |
| └► Casement sizes for tilt-and-turn casements | 04.1 |
| └► Casement sizes for PSK doors | 04.2 - 04.4 |
| - Max. sizes for overlap casements | 05.1 - 05.2 |
| - Reinforcement guidelines (table values) | 06.1 - 06.16 |
| - Reinforcement guidelines - overlap casement variants | 07.1 - 07.11 |
| - Reinforcement guidelines - pilaster strip variants | 08.1 - 08.4 |
| - Reinforcement guidelines - couplings variants | 09.1 - 09.3 |
| - Reinforcement guidelines according to EN 12 210 | 10.1 - 10.6 |

## Max. frame sizes in white & decor

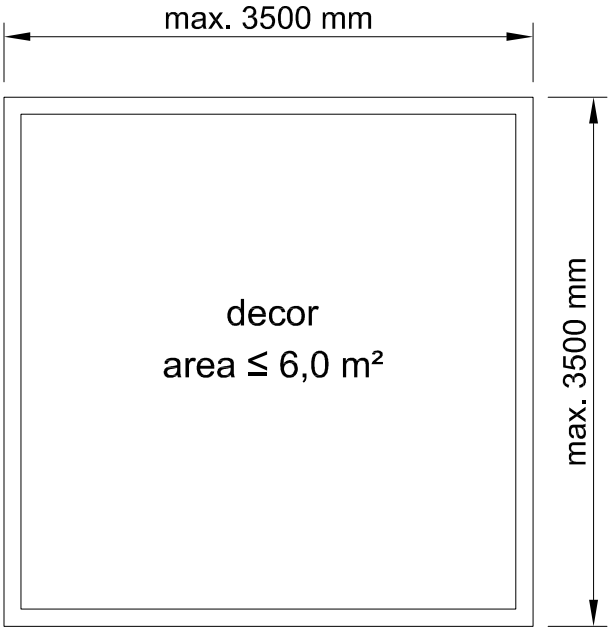
In addition to the maximum dimensions for casement profiles, the maximum frame length must not be exceeded either.




Frame in white:

| | |
|---|---|
| Maximum frame length | ≤ 4000 mm, |
| maximum element area | ≤ 8,0 m² |

Frame fitting and glass statics must be heeded.




Frame in decor:

| | |
|---|---|
| Maximum frame length | ≤ 3500 mm, |
| max. element area | ≤ 6,0 m² |

Frame fitting and glass statics must be heeded.

# General points

Since the bending strength (E* I) of the PVC profiles is much lower than that of steel profiles, these have to be reinforced with suitable reinforcement profiles in many cases. The steel reinforcement to be used depends on size and load.

# Frame

Frames must be reinforced if they cannot be sufficiently attached to the structure in accordance with the assembly guidelines. Examples include the upper cross piece with existing or surface-mounted roller shutter housing, as well as element joints.

## The following must always be reinforced:

- all non-white frames, independent of size, with steel profiles 2 mm thick
- the hinge side where casement weight exceeds 80 kg
- all frame heights greater than 1,50 m
- all frame parts in which a post or bar is attached
- the lower frame on fixed glazing to dissipate the load if the glass pane weighs more than 60 kg
- element joints according to structural requirements
- all frame parts with doors

# Posts / bars / mullion

Post, bar and mullion profiles always have to be reinforced with 2 mm steel, no matter how long they are.

# Casement

The reinforcement guidelines in chapter 05 on pages 03.01 apply for all casements and chapter 06.

# General points

The dimensions given in the "side-hung, turn-and-tilt casement" diagram are outer casement dimensions.

In addition to the size limits shown, the specifications of the fittings manufacturer must be heeded.

The specifications for wind loads and pelting rain resistance as explained in the following chapter apply in Germany. In other countries, these specifications can deviate on account of normative and legal regulations. They must be checked and observed by the processing company.

# Wind loads

In addition to loads caused by pelting rain, climate differences and users, windows, doors and window elements are also subject to wind pressure and wind suction loads.
The wind loads can be assumed according to the simplified method for wind loads in accordance with DIN 1055-4:2005-03. These are applicable for installation heights up to 25 m.

The wind load is the result of the wind pressure acting on the building structure. This is recorded in the form of wind loads which are made up of wind pressure or wind suction and the respective additional values. The wind load is independent of building height, location and shape among other things.
The classification of wind resistance is carried out according to DIN EN 12210.

The objective is to ensure the border of the insulating glass pane (l / 200, max. 15 mm) in order to guarantee a permanently airtight glass edge seal for multiple insulation glazing as well as the reliable function and sufficient airtightness of window elements.
The BF-sheet 002 / 2008 is decisive for the maximum sag values of the insulating glass pane. (www.bundesverband-flachglas.de)
However, restrictions may be issued by the insulating glass manufacturer.

Simplified assumptions for wind loads according to DIN 1055-4: 2005-03

| | Wind load zone | Wind load in kN/m² for building heights within the following limits | | |
|---|---|---|---|---|
| | | h ≤ 10 m | 10 m < h ≤ 18 m | 18 m < h ≤ 25 m |
| 1 | Inland | 0,50 | 0,65 | 0,75 |
| 2 | Inland | 0,65 | 0,80 | 0,95 |
| | Coast and islands in the Baltic Sea | 0,85 | 1,00 | 1,10 |
| 3 | Inland | 0,80 | 0,95 | 1,10 |
| | Coast and islands in the Baltic Sea | 1,05 | 1,20 | 1,30 |
| 4 | Inland | 0,95 | 1,15 | 1,55 |
| | North Sea and Baltic Sea coast and islands in the Baltic Sea | 1,25 | 1,40 | 0,50 |
| | Islands in the North Sea | 1,40 | ---- | ---- |

# Load in pelting rain

Resistance to pelting rain is the ability that a closed and locked window has to resist the penetration of water inside the building or in areas that cannot be drained to the outside, at a given wind force, rain quantity and exposure duration.

For this reason, the location of the building, installation height and installation situation of the window element is decisive for classification according to product standard for windows and doors (DIN EN 14351-1).

For example:

Window elements in exposed locations are subjected to a higher pelting rain load than window elements in protected installation locations.

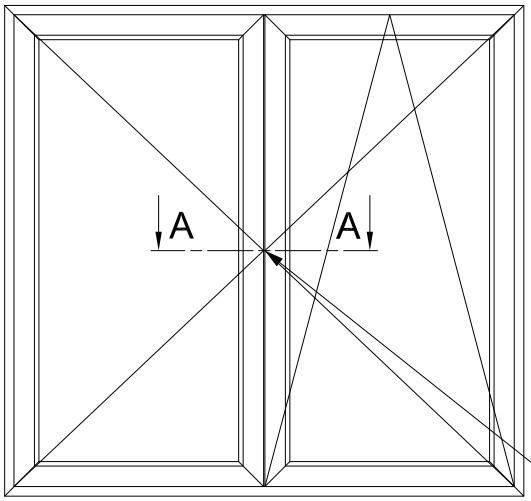
This means that general classification of the pelting rain load cannot be included in the CE mark. The ift guideline FE-05/2 “Recommended use of windows and outside doors” can help here (www.ift-rosenheim.de).

| Load group according to DIN 18055 (old) | Test pressure P max in Pa | Classification test method A |
|---|---|---|
| A | 0 | 1 A |
| | 50 | 2 A |
| | 100 | 3 A |
| B | 150 | 4 A |
| | 200 | 5 A |
| | 250 | 6 A |
| | 300 | 7 A |
| C | 450 | 8 A |
| | 600 | 9 A |
| | > 600 | E xxxx |

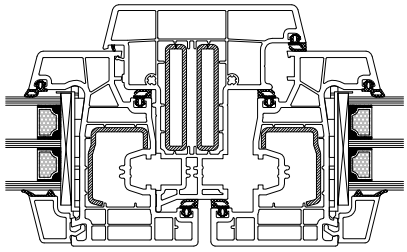
# Application area of the moments of inertia of area

The following moments of inertia of area ($I_{yerf}$) can be used alongside the dimensioning of overlap reinforcement as well as for the structural preliminary dimensioning of e.g. posts, pilaster strips and couplings.
In the case of installation heights over 25 m, dimensioning must be carried out using SIP statics calculator (see chapter on window statics). For this, approval must be granted by the system engineers at Salamander Industrie-Produkte GmbH.

Dimensioning e.g. for overlap steel, couplings, posts, pilaster strips

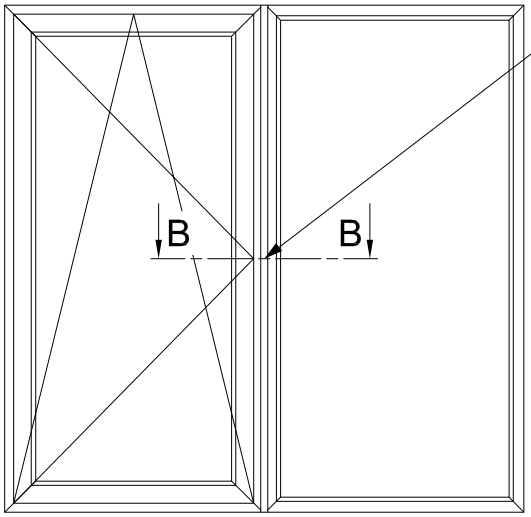



A / A

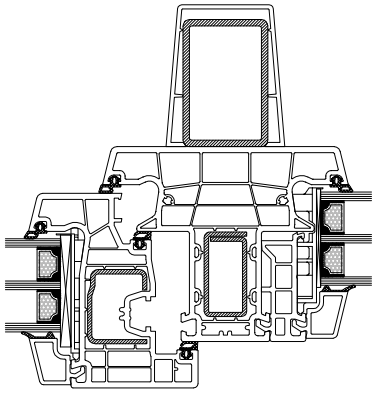


Reinforcement depending on:

- Wind load zone
- Ground category
- Installation height
- Size of element

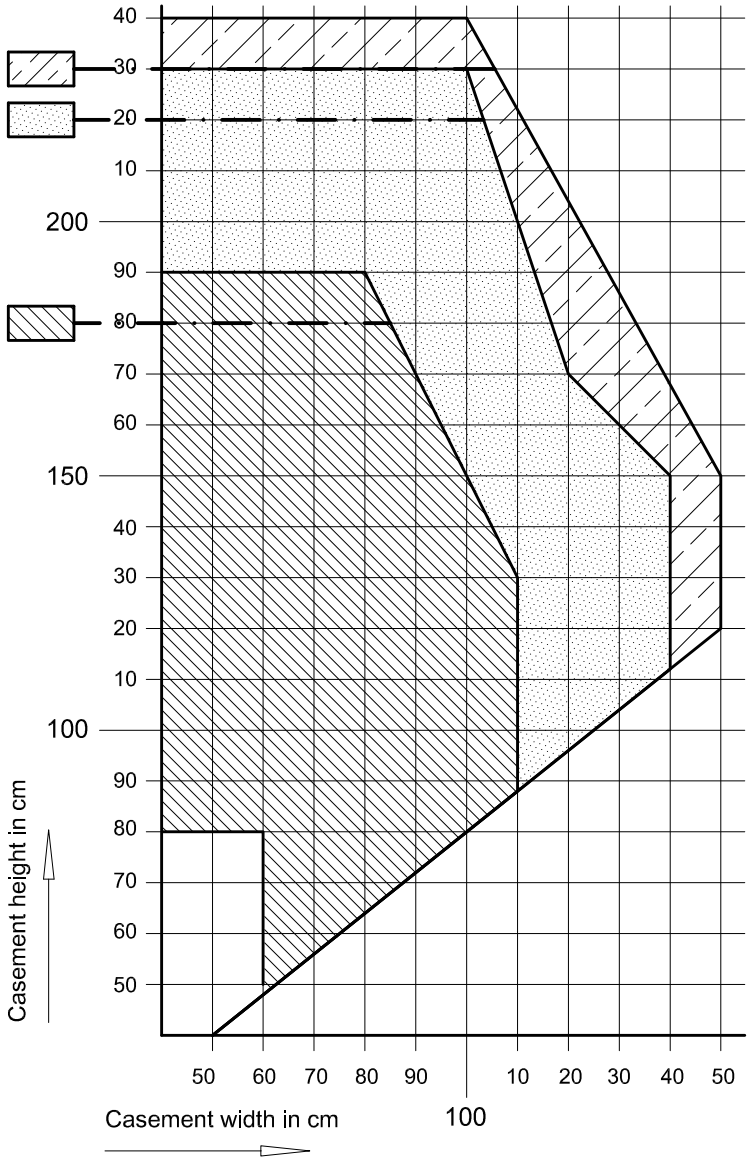


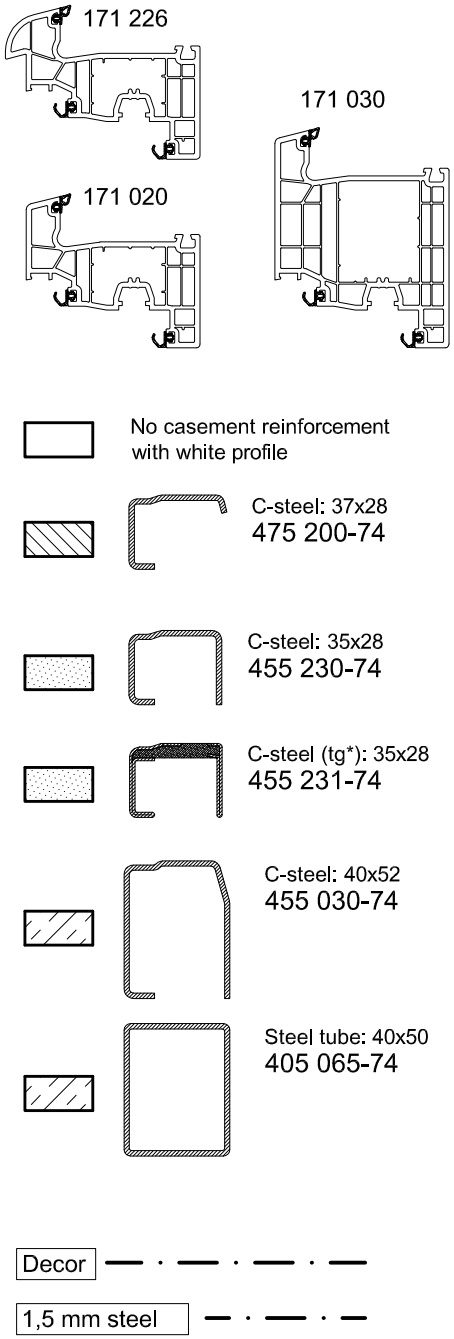

B / B



**Product family side-hung, turn-and-tilt & overlap**

# Side-hung and turn-and-tilt casements:




max. casement weight: The max. casement weight is the outcome of using an area-related filling weight of 40 kg/m² or max. 100 kg/casement. Deviating requirements from the application diagrams provided by fittings manufacturers must be taken into account and applied.
The requirement of the guideline "*Attachment of load-bearing fitting parts of side-hung and turn-and-tilt fittings (TBDK guideline)*" must be observed and proved on own authority.

Centre locking devices: from approx. 700 mm casement width and casement height

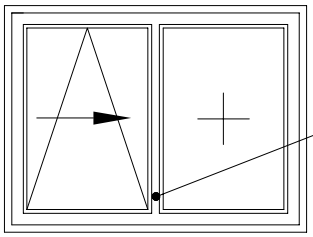
Load class according to valid test report or according to manufacturer's CE marking.

When **steel profiles** with a thickness of **1.5 mm** are used, the casement heights must be reduced by **10 cm**.

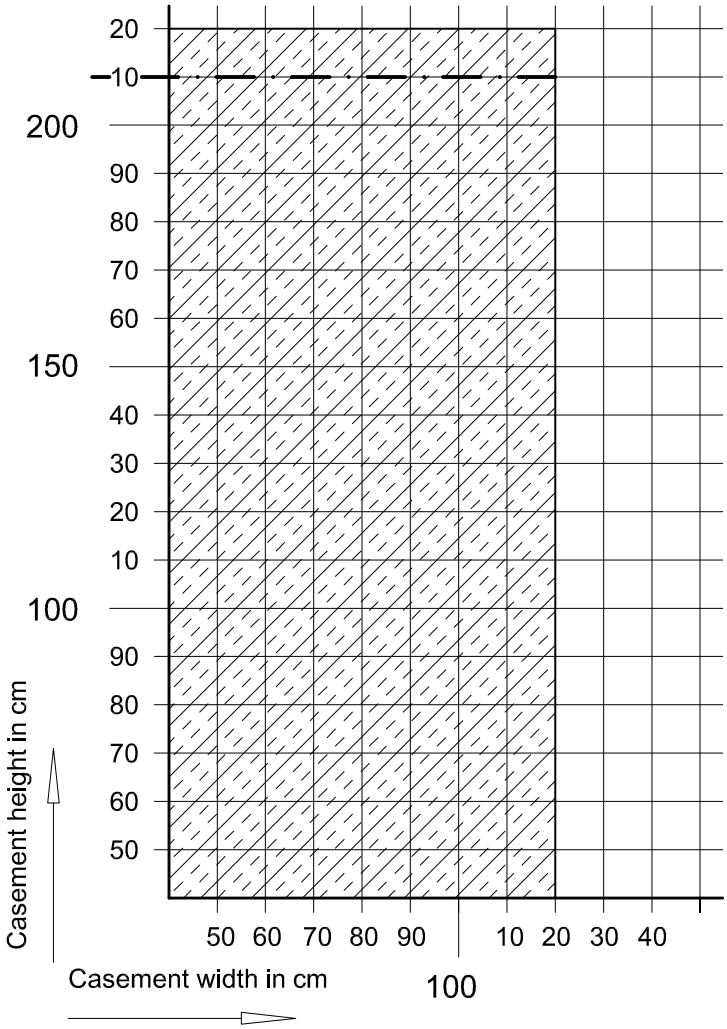
When **decor films** and **coloured coating** are used the max. casement **heights** must be reduced by **10 cm**. The use of steel profiles 2 mm thick is essential in frame and casement profiles.

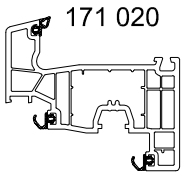
Not to scale

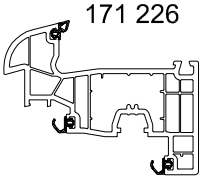
**Product family parallel slide, hopper window (PSK)**

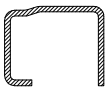


Heed the statics !

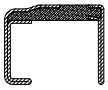


C-steel: 35x28
455 230-74



C-steel (tg*): 35x28
455 231-74

Maximum size for coloured casements (2 mm steel)

max. casement weight: The max. casement weight is the outcome of using an area-related filling weight of 40 kg/m² or max. 100 kg/casement. Deviating requirements from the application diagrams provided by fittings manufacturers must be taken into account and applied.
The requirement of the guideline "*Attachment of load-bearing fitting parts of side-hung and turn-and-tilt fittings (TBDK guideline)*" must be observed and proved on own authority.

Centre locking devices: from approx. 700 mm casement width and casement height

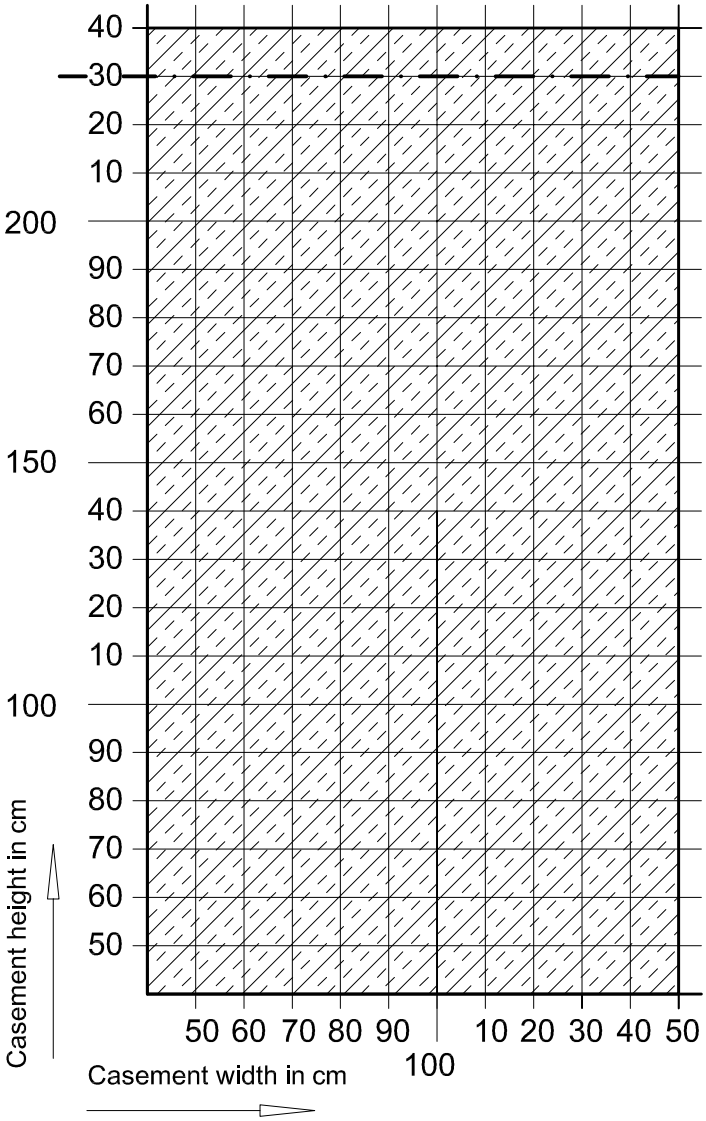
Load class according to valid test report or according to manufacturer's CE marking.

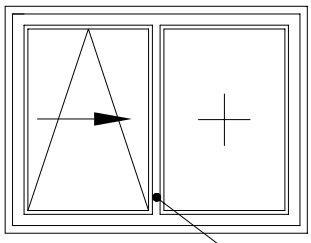
When **steel profiles** with a thickness of **1.5 mm** are used, the casement heights must be reduced by **10 cm**.

When **decor films** and **coloured coating** are used the max. casement **heights** must be reduced by **10 cm**. The use of steel profiles 2 mm thick is essential in frame and casement profiles.

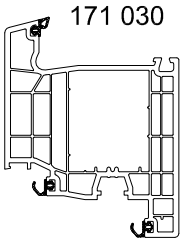
Not to scale

**Product family parallel slide, hopper window (PSK)**

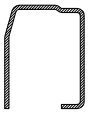


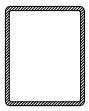
Heed the statics !



171 030



C-steel: 40x52
455 030-74



Steel tube: 40x50
405 065-74

Maximum size for coloured casements (2 mm steel)

max. casement weight: The max. casement weight is the outcome of using an area-related filling weight of 40 kg/m² or max. 100 kg/casement. Deviating requirements from the application diagrams provided by fittings manufacturers must be taken into account and applied.
The requirement of the guideline "*Attachment of load-bearing fitting parts of side-hung and turn-and-tilt fittings (TBDK guideline)*" must be observed and proved on own authority.

Centre locking devices: from approx. 700 mm casement width and casement height

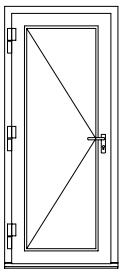
Load class according to valid test report or according to manufacturer's CE marking.

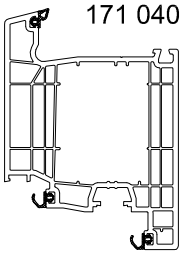
When **steel profiles** with a thickness of **1.5 mm** are used, the casement heights must be reduced by **10 cm**.

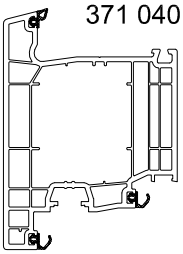
When **decor films** and **coloured coating** are used the max. casement **heights** must be reduced by **10 cm**. The use of steel profiles 2 mm thick is essential in frame and casement profiles.

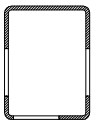
Not to scale

## Casement sizes for entrance door

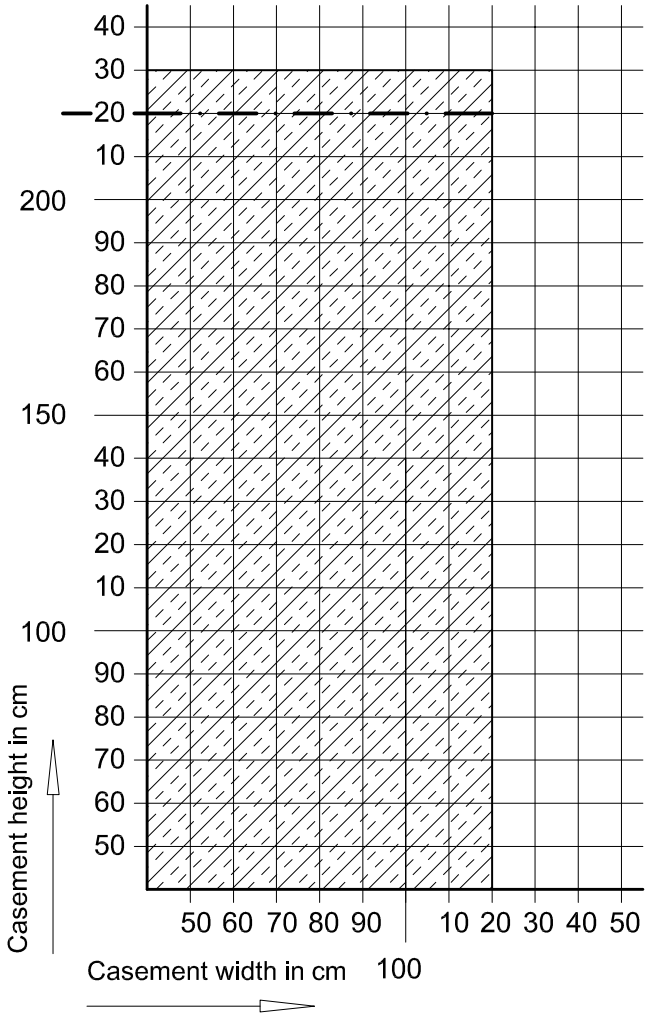




Steel tube: 45x60
415 055-74




Maximum size for coloured casements (2 mm steel)

max. casement weight:

The max. casement weight is the outcome of using an area-related filling weight of 40 kg/m² or max. 100 kg/casement. Deviating requirements from the application diagrams provided by fittings manufacturers must be taken into account and applied.
The requirement of the guideline "*Attachment of load-bearing fitting parts of side-hung and turn-and-tilt fittings (TBDK guideline)*" must be observed and proved on own authority.

(specific glass weight: 1 mm/m² glass thickness ≈ 2,5 kg)

Load class according to valid test report or according to manufacturer's CE marking.

When **steel profiles** with a thickness of **1.5 mm** are used, the casement heights must be reduced by **10 cm**.

When **decor films** and **coloured coating** are used the max. casement **heights** must be reduced by **10 cm**. The use of steel profiles 2 mm thick is essential in frame and casement profiles.

Not to scale

**Max. sizes for overlap casements**

# Overlap casements:

# Reinforcement guidelines for overlap casements

The same size table applies as for side-hung, turn-and-tilt casements with the respective reduction factors when 1.5 mm steel reinforcements and decor films are used.
Since overlap casements do not lock all the way round with the frame, but rather in the centre of the false mullion, care must be taken that the max. permissible sag of the insulating glass pane is observed. This makes sufficient dimensioning of the overlap reinforcement necessary.

## 1. Determining the reference pressure q in kN/m² depending on the wind load zone, installation height h and ground category / mixed profile.

### 1a. Determining the wind load zone

- Using SIP statics calculator (wind load zone must be entered)
- Using wind load zone map (from the chapter on window statics)
- Using DIN EN 1055-4 : 2005-3

### 1b. Determining the installation height

- Division of the installation height into 3 classes
  - Installation height h ≤ 10 m
  - Installation height 10 m < h ≤ 18 m
  - Installation height 18 m < h ≤ 25 m

### 1c. Determining the ground category or mixed profile

- Division of the mixed profiles into 4 categories
  - Inland (most common mixed profile)
  - Coast and islands in the Baltic Sea
  - North Sea and Baltic Sea coast and islands in the Baltic Sea
  - Islands in the North Sea

## 2. Determining overlap reinforcement or max. element size

e.g. wind load zone 2, installation height h < 18 m, mixed profile: inland

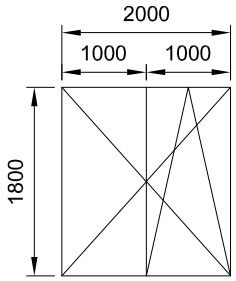
Simplified assumptions for wind loads according to DIN 1055-4 : 2005-03

| Wind load zone | | Wind load in kN/m² for building heights within the following limits | | |
|---|---|---|---|---|
| | | h ≤ 10 m | 10 m < h ≤ 18 m | 18 m < h ≤ 25 m |
| 1 | Inland | 0,50 | 0,65 | 0,75 |
| 2 | Inland | ~~0,65~~ | 0,80 | 0,95 |
| | Coast and islands in the Baltic Sea | 0,85 | 1,00 | 1,10 |

→ $q_{ref}$ = 0,80 kN/m²

**Max. sizes for overlap casements**

## 2. Determining overlap reinforcement or max. casement size




Overall casement dimensions e.g. 1000 mm x 1800 mm (wxh)
→ Overall casement width 2000 mm
Read off the required moment of inertia of area Iy req. from the right table

| Wind load zone | 2 | 3 |
|---|---|---|
| qref in kN/m² | 0,80 | |
| Mixed profile | Inland | |
| Installation height | ≤18 m | ≤ 10 m |
| Beam load in kN/m | 0,50 | |
| Sag | I/200 max.15 mm<br>I/300 max. 8 mm | |

Iy req. for I/200 Iy req. for I/300

9,69/14,55

| | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000 | 1,01/1,53 | 1,09/1,65 | 1,17/1,76 | 1,24/1,87 | 1,31/1,98 | 1,37/2,06 | 1,42/2,14 | 1,47/2,23 | 1,51/2,28 | 1,55/2,33 | 1,58/2,37 |
| 1100 | 1,33/2,00 | 1,44/2,17 | 1,55/2,33 | 1,65/2,48 | 1,74/2,63 | 1,83/2,75 | 1,91/2,87 | 1,98/2,98 | 2,05/3,08 | 2,11/3,17 | 2,16/3,26 |
| 1200 | 1,70/2,56 | 1,85/2,78 | 1,99/3,00 | 2,12/3,19 | 2,25/3,40 | 2,37/3,57 | 2,48/3,74 | 2,59/3,90 | 2,68/4,03 | 2,77/4,16 | 2,85/4,29 |
| 1300 | 2,13/3,21 | 2,32/3,50 | 2,50/3,76 | 2,68/4,03 | 2,85/4,28 | 3,00/4,52 | 3,15/4,75 | 3,29/4,95 | 3,42/5,15 | 2,55/5,34 | 3,66/5,51 |
| 1400 | 2,63/3,95 | 2,87/4,31 | 3,10/4,66 | 3,32/4,98 | 3,53/5,31 | 3,73/5,62 | 3,93/5,90 | 4,11/6,18 | 4,28/6,43 | 4,45/6,68 | 4,60/6,91 |
| 1500 | 3,20/4,82 | 3,48/5,25 | 3,77/5,68 | 4,05/6,08 | 4,31/6,49 | 4,57/6,87 | 4,81/7,24 | 5,04/7,57 | 5,27/7,92 | 5,48/8,23 | 5,68/8,54 |
| 1600 | 3,84/5,78 | 4,19/6,30 | 4,54/6,81 | 4,87/7,31 | 5,20/7,80 | 5,51/8,28 | 5,82/8,73 | 6,11/9,17 | 6,37/9,58 | 6,62/9,96 | 6,86/10,30 |
| 1700 | 4,56/6,86 | 4,98/7,49 | 5,40/8,12 | 5,80/8,71 | 6,20/9,31 | 6,58/9,88 | 6,93/10,40 | 7,27/10,91 | 7,59/11,40 | 7,90/11,86 | 8,20/12,30 |
| 1800 | ~~5,37/8,07~~ | ~~5,87/8,83~~ | ~~6,36/9,57~~ | ~~6,85/10,28~~ | ~~7,31/10,97~~ | ~~7,74/11,61~~ | ~~8,16/12,24~~ | ~~8,56/12,86~~ | ~~8,95/13,44~~ | ~~9,33/14,00~~ | 9,69/14,55 |

Casement height

Total overall casement width

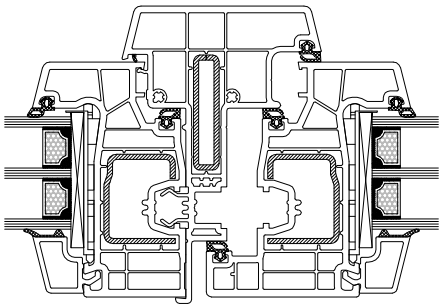
## 3. Moment of inertia of area required:

→ I/200 or max. 15 mm 9,69 $cm^4$

→ I/300 or max. 8 mm 14,55 $cm^4$

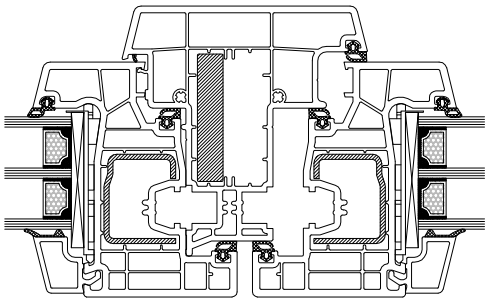
## 4. Select casement profile or overlap reinforcement

e.g. overlap variant I/200



| Casement reinforcement | 2x 455 230-74 | 6,98 $cm^4$ |
|---|---|---|
| Overlap reinforcement | 405 012-74 | 3,88 $cm^4$ |
| Moment of inertia of area Iy total | | 10,86 $cm^4$ |
| Max. casement size Side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor: 1260x1350 / 900x2070 mm | |

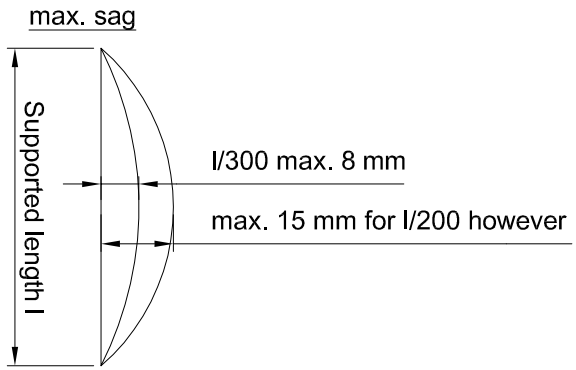
e.g. overlap variant I/300

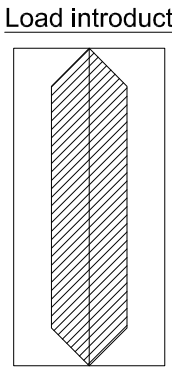


| Casement reinforcement | 2x 455 230-73 | 5,54 $cm^4$ |
|---|---|---|
| Overlap reinforcement | 1x 405 125 | 10,41 $cm^4$ |
| Moment of inertia of area Iy total | | 15,95 $cm^4$ |
| Max. casement size Side-hung, turn-and-tilt casements | white: 1260x1350 / 900x2070 mm | |

Not to scale

| | |
|---|---|
| Wind load zone | 1 |
| qref in kN/m² | 0,50 |
| Mixed profile | Inland |
| Installation height | ≤ 10 m |
| Beam load in kN/m | 0,50 |
| Sag | l/200 max.15 mm<br>l/300 max. 8 mm |




| Width/height | 1000 mm | 1100 mm | 1200 mm | 1300 mm | 1400 mm | 1500 mm | 1600 mm | 1700 mm | 1800 mm | 1900 mm | 2000 mm | 2100 mm | 2200 mm | 2300 mm | 2400 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | |
| 1000 mm | 0,73/1,10 | 0,8/1,21 | 0,87/1,31 | 0,93/1,41 | 0,99/1,50 | 1,06/1,60 | 1,11/1,68 | 1,17/1,77 | 1,23/1,85 | 1,28/1,93 | 1,33/2,00 | 1,38/2,08 | 1,43/2,15 | 1,48/2,22 | 1,53/2,29 |
| 1100 mm | 0,80/1,41 | 1,02/1,53 | 1,10/1,65 | 1,17/1,76 | 1,24/1,87 | 1,32/1,98 | 1,40/2,10 | 1,47/2,21 | 1,54/2,31 | 1,61/2,41 | 1,67/2,51 | 1,74/2,61 | 1,80/2,70 | 1,86/2,79 | 1,92/2,88 |
| 1200 mm | 1,19/1,79 | 1,30/1,95 | 1,40/2,10 | 1,50/2,24 | 1,59/2,38 | 1,68/2,51 | 1,76/2,64 | 1,84/2,75 | 1,91/2,86 | 1,98/2,96 | 2,05/3,07 | 2,19/3,19 | 2,20/3,30 | 2,28/3,41 | 2,35/3,52 |
| 1300 mm | 1,48/2,22 | 1,61/2,42 | 1,74/2,61 | 1,86/2,79 | 1,98/2,97 | 2,1/3,14 | 2,20/3,31 | 2,31/3,46 | 2,40/3,60 | 2,49/3,74 | 2,58/3,86 | 2,65/3,98 | 2,72/4,09 | 2,79/4,18 | 2,84/4,27 |
| 1400 mm | 1,81/2,71 | 1,79/2,95 | 2,13/3,19 | 2,28/3,43 | 2,43/3,65 | 2,58/3,86 | 2,71/4,07 | 2,84/4,27 | 2,97/4,45 | 3,09/4,63 | 3,20/4,80 | 3,30/4,95 | 3,40/5,09 | 3,48/5,22 | 3,56/5,34 |
| 1500 mm | 2,18/3,28 | 2,38/3,58 | 2,57/3,88 | 2,76/4,15 | 2,94/4,42 | 3,12/4,70 | 3,29/4,96 | 3,46/5,20 | 3,61/5,42 | 3,76/5,66 | 3,9/5,86 | 4,03/6,05 | 4,15/6,24 | 4,26/6,40 | 4,37/6,55 |
| 1600 mm | 2,59/3,89 | 2,83/4,25 | 3,07/4,60 | 3,30/4,95 | 3,52/5,28 | 3,74/5,6 | 3,95/5,92 | 4,33/6,50 | 4,33/6,50 | 4,51/6,76 | 4,68/7,02 | 4,84/7,26 | 4,99/7,48 | 5,13/7,70 | 5,27/7,90 |
| 1700 mm | 3,06/4,59 | 3,62/5,02 | 3,63/5,44 | 3,9/5,85 | 4,17/6,25 | 4,43/6,64 | 4,67/7,00 | 4,9/7,35 | 5,12/7,68 | 5,34/8,01 | 5,54/8,31 | 5,74/8,61 | 5,93/8,89 | 6,11/9,16 | 6,27/9,41 |
| 1800 mm | 3,58/5,37 | 3,92/5,88 | 4,25/6,37 | 4,57/6,86 | 4,88/7,32 | 5,18/7,76 | 5,46/8,19 | 5,73/8,60 | 6,00/9,00 | 6,26/9,39 | 6,50/9,76 | 6,74/10,11 | 6,97/10,45 | 7,19/10,78 | 7,39/11,09 |
| 1900 mm | 4,16/6,24 | 4,55/6,82 | 4,94/7,40 | 5,31/7,96 | 5,66/8,49 | 6,00/9,00 | 6,33/9,50 | 6,66/9,98 | 6,97/10,45 | 7,27/10,91 | 7,57/11,35 | 7,85/11,78 | 8,12/12,19 | 8,39/12,58 | 8,64/12,95 |
| 2000 mm | 5,10/7,66 | 5,59/8,38 | 6,06/9,09 | 6,51/9,76 | 6,94/10,42 | 7,37/11,06 | 7,79/11,68 | 8,20/12,30 | 8,59/12,89 | 8,98/13,47 | 9,36/14,04 | 9,72/14,58 | 10,08/15,12 | 10,42/15,63 | 10,75/16,12 |
| 2100 mm | 5,86/8,79 | 6,42/9,63 | 6,94/10,41 | 7,45/11,18 | 7,96/11,94 | 8,45/12,68 | 8,93/13,40 | 9,41/14,11 | 9,87/14,80 | 10,32/15,48 | 10,76/16,13 | 11,18/16,77 | 11,60/17,40 | 12,00/18,00 | 12,39/18,58 |
| 2200 mm | 6,68/10,02 | 7,3/10,95 | 7,89/11,84 | 8,48/12,72 | 9,06/13,58 | 9,62/14,43 | 10,17/15,26 | 10,71/16,07 | 11,24/16,68 | 11,76/17,64 | 12,27/18,40 | 12,76/19,14 | 13,24/19,86 | 13,71/20,57 | 14,16/21,25 |
| 2300 mm | 7,56/11,34 | 8,24/12,37 | 8,92/13,38 | 9,58/14,37 | 10,23/15,35 | 10,87/16,31 | 11,50/17,26 | 12,12/18,18 | 12,73/19,09 | 13,32/19,98 | 13,90/20,85 | 14,46/21,70 | 15,02/22,53 | 15,56/23,33 | 16,08/24,12 |
| 2400 mm | 8,49/12,74 | 9,26/13,89 | 10,02/15,03 | 10,77/16,15 | 11,30/17,26 | 12,23/18,34 | 12,94/19,41 | 13,64/20,46 | 14,32/21,48 | 15,00/22,49 | 15,65/23,48 | 16,30/24,45 | 16,93/25,39 | 17,54/26,31 | 18,14/27,21 |

Casement height

Total overall casement width

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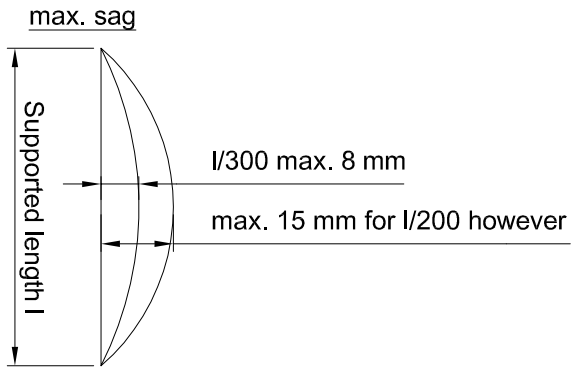
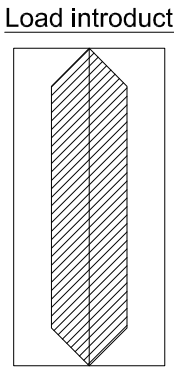
| Wind load zone | 1 | 2 |
|---|---|---|
| qref in kN/m² | 0,65 | |
| Mixed profile | Inland | |
| Installation height | ≤ 18 m | ≤ 10 m |
| Beam load in kN/m | 0,50 | |
| Sag | l/200 max.15 mm<br>l/300 max. 8 mm | |




| Width/height | 1000 mm | 1100 mm | 1200 mm | 1300 mm | 1400 mm | 1500 mm | 1600 mm | 1700 mm | 1800 mm | 1900 mm | 2000 mm | 2100 mm | 2200 mm | 2300 mm | 2400 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | |
| 1000 mm | 0,87/1,31 | 0,94/1,42 | 1,01/1,52 | 1,07/1,61 | 1,13/1,70 | 1,18/1,79 | 1,23/1,85 | 1,27/1,93 | 1,33/2,00 | 1,38/2,08 | 1,43/2,15 | 1,48/2,23 | 1,53/2,30 | 1,58/2,38 | 1,63/2,45 |
| 1100 mm | 1,13/1,70 | 1,23/1,86 | 1,32/1,99 | 1,41/2,13 | 1,49/2,24 | 1,57/2,38 | 1,64/2,48 | 1,71/2,58 | 1,77/2,66 | 1,82/2,74 | 1,86/2,80 | 1,90/2,88 | 1,95/2,94 | 2,01/3,03 | 2,07/3,12 |
| 1200 mm | 1,45/2,18 | 1,57/2,36 | 1,69/2,56 | 1,81/2,73 | 1,92/2,88 | 2,02/3,04 | 2,12/3,20 | 2,21/3,33 | 2,30/3,45 | 2,37/3,58 | 2,44/3,67 | 2,50/3,77 | 2,56/3,86 | 2,60/3,92 | 2,64/3,98 |
| 1300 mm | 1,81/2,72 | 1,97/2,96 | 2,12/3,20 | 2,27/3,43 | 2,41/3,63 | 2,55/3,84 | 2,68/4,03 | 2,80/4,22 | 2,91/4,38 | 3,02/4,55 | 3,12/4,69 | 3,21/4,82 | 3,29/4,94 | 3,36/5,05 | 3,42/5,15 |
| 1400 mm | 2,24/3,34 | 2,42/3,64 | 2,61/3,93 | 2,80/4,20 | 2,98/4,49 | 3,15/4,74 | 3,32/4,99 | 3,48/5,23 | 3,63/5,456 | 3,77/5,66 | 3,90/5,85 | 4,02/6,03 | 4,13/6,21 | 4,23/6,35 | 4,32/6,50 |
| 1500 mm | 2,69/4,05 | 2,93/4,42 | 3,17/4,78 | 3,40/5,11 | 3,63/5,46 | 3,84/5,78 | 4,05/6,10 | 4,25/6,40 | 4,44/6,67 | 4,62/6,94 | 4,79/7,19 | 4,94/7,42 | 5,08/7,63 | 5,22/7,85 | 5,34/8,01 |
| 1600 mm | 3,22/4,84 | 3,51/5,28 | 3,80/5,72 | 4,08/6,14 | 4,36/6,54 | 4,62/6,95 | 4,88/7,34 | 5,13/7,71 | 5,35/8,04 | 5,57/8,36 | 5,77/8,67 | 5,96/8,95 | 6,14/9,23 | 6,32/9,50 | 6,47/9,72 |
| 1700 mm | 3,81/5,73 | 4,16/6,25 | 4,51/6,79 | 4,85/7,30 | 5,18/7,78 | 5,50/8,26 | 5,80/8,71 | 6,08/9,14 | 6,36/9,54 | 6,62/9,93 | 6,87/10,31 | 7,11/10,68 | 7,34/11,02 | 7,55/11,34 | 7,75/11,65 |
| 1800 mm | 4,47/6,72 | 4,89/7,35 | 5,31/7,97 | 5,71/8,58 | 6,10/9,16 | 6,46/9,69 | 6,81/10,23 | 7,15/10,74 | 7,48/11,22 | 7,79/11,71 | 8,10/12,16 | 8,39/12,60 | 8,66/13,01 | 8,93/13,40 | 9,18/13,79 |
| 1900 mm | 5,21/7,84 | 5,70/8,56 | 6,19/9,29 | 6,65/9,99 | 7,09/10,64 | 7,51/11,28 | 7,92/11,90 | 8,33/12,50 | 8,71/13,07 | 9,09/13,64 | 9,45/14,20 | 9,80/14,72 | 10,14/15,23 | 10,46/15,70 | 10,77/16,16 |
| 2000 mm | 6,34/9,52 | 6,94/10,43 | 7,52/11,30 | 8,07/12,12 | 8,61/12,93 | 9,14/13,72 | 9,65/14,48 | 10,15/15,23 | 10,46/15,97 | 11,11/16,68 | 11,57/17,37 | 12,02/18,02 | 12,45/18,68 | 12,86/19,31 | 13,26/19,89 |
| 2100 mm | 7,29/10,96 | 7,99/11,99 | 8,63/12,97 | 9,27/13,92 | 9,89/14,85 | 10,50/15,76 | 11,09/16,64 | 11,67/17,52 | 12,24/18,36 | 12,79/19,21 | 13,33/20,00 | 13,85/20,80 | 14,36/21,54 | 14,85/22,28 | 15,32/22,99 |
| 2200 mm | 8,33/12,51 | 9,10/13,65 | 9,83/14,77 | 10,56/15,85 | 11,27/16,93 | 11,97/17,96 | 12,65/18,98 | 13,32/19,99 | 13,98/20,99 | 14,61/21,94 | 15,24/22,87 | 15,84/23,77 | 16,43/24,66 | 17,00/25,51 | 17,56/26,34 |
| 2300 mm | 9,44/14,18 | 10,30/15,46 | 11,13/16,70 | 11,96/17,95 | 12,77/19,17 | 13,56/20,36 | 14,34/21,53 | 15,10/22,67 | 15,85/23,79 | 16,59/24,89 | 17,30/25,96 | 18,00/27,00 | 18,68/28,03 | 19,34/29,01 | 19,98/29,98 |
| 2400 mm | 10,63/15,96 | 11,59/17,38 | 12,53/18,82 | 13,46/20,22 | 14,38/21,58 | 15,28/22,93 | 16,16/24,26 | 17,03/25,56 | 17,88/26,84 | 18,71/28,08 | 19,53/29,30 | 20,32/30,51 | 21,10/31,67 | 21,86/32,80 | 22,60/33,91 |

Casement height

Total overall casement width

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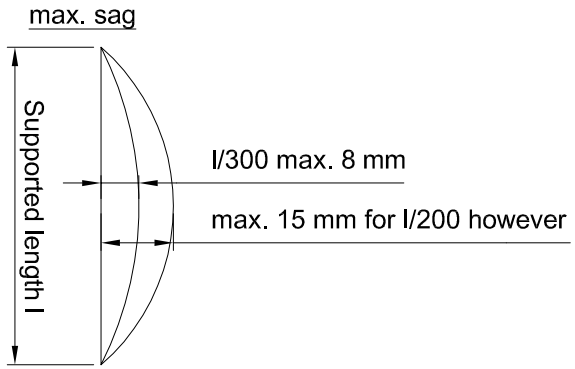
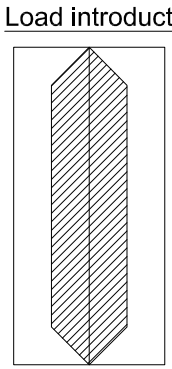
SALAMANDER WINDOW & DOOR SYSTEMS

Not to scale

| | |
|---|---|
| Wind load zone | 1 |
| qref in kN/m² | 0,75 |
| Mixed profile | Inland |
| Installation height | ≤ 25 m |
| Beam load in kN/m | 0,50 |
| Sag | l/200 max.15 mm<br>l/300 max. 8 mm |




| Width/height | 1000 mm | 1100 mm | 1200 mm | 1300 mm | 1400 mm | 1500 mm | 1600 mm | 1700 mm | 1800 mm | 1900 mm | 2000 mm | 2100 mm | 2200 mm | 2300 mm | 2400 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | |
| 1000 mm | 0,96/1,45 | 1,04/1,58 | 1,11/1,68 | 1,18/1,79 | 1,25/1,88 | 1,31/1,98 | 1,36/2,06 | 1,41/2,12 | 1,45/2,17 | 1,48/2,24 | 1,51/2,28 | 1,55/2,34 | 1,60/2,41 | 1,65/2,49 | 1,70/2,56 |
| 1100 mm | 1,26/1,91 | 1,37/2,08 | 1,47/2,21 | 1,57/2,36 | 1,66/2,51 | 1,74/2,63 | 1,82/2,74 | 1,89/2,85 | 1,95/2,94 | 2,01/3,04 | 2,06/3,10 | 2,10/3,16 | 2,13/3,22 | 2,16/3,27 | 2,19/3,31 |
| 1200 mm | 1,62/2,43 | 1,76/2,65 | 1,89/2,84 | 2,02/3,04 | 2,14/3,23 | 2,26/3,40 | 2,36/3,56 | 2,46/3,70 | 2,55/3,84 | 2,64/3,97 | 2,71/4,08 | 2,78/4,18 | 2,83/4,27 | 2,88/4,34 | 2,92/4,40 |
| 1300 mm | 2,02/3,04 | 2,20/3,32 | 2,38/3,57 | 2,54/3,82 | 2,70/4,06 | 2,85/4,29 | 3,00/4,51 | 3,13/4,70 | 3,25/4,88 | 3,37/5,06 | 3,48/5,23 | 3,57/5,36 | 3,66/5,51 | 3,74/5,63 | 3,80/5,71 |
| 1400 mm | 2,49/3,75 | 2,72/4,10 | 2,93/4,41 | 3,14/4,73 | 3,35/5,03 | 3,54/5,32 | 3,72/5,59 | 3,90/5,87 | 4,06/6,11 | 4,22/6,33 | 4,36/6,56 | 4,50/6,75 | 4,62/6,94 | 4,73/7,11 | 4,83/7,25 |
| 1500 mm | 3,03/4,55 | 3,30/4,97 | 3,57/5,38 | 3,83/5,76 | 4,08/6,14 | 4,32/6,50 | 4,56/6,84 | 4,78/7,19 | 4,99/7,50 | 5,19/7,81 | 5,38/8,08 | 5,55/8,33 | 5,71/8,57 | 5,85/8,78 | 5,98/9,00 |
| 1600 mm | 3,63/5,45 | 3,97/5,95 | 4,29/6,45 | 4,61/6,93 | 4,92/7,38 | 5,22/7,83 | 5,50/8,26 | 5,78/8,69 | 6,03/9,06 | 6,27/9,43 | 6,50/9,76 | 6,71/10,08 | 6,92/10,39 | 7,10/10,66 | 7,28/10,92 |
| 1700 mm | 4,31/6,47 | 4,71/7,08 | 5,10/7,66 | 5,49/8,23 | 5,86/8,79 | 6,22/9,34 | 6,55/9,84 | 6,87/10,33 | 7,18/10,79 | 7,47/11,23 | 7,75/11,63 | 8,02/12,05 | 8,28/12,44 | 8,51/12,78 | 8,74/13,11 |
| 1800 mm | 5,07/7,62 | 5,54/8,34 | 6,01/9,04 | 6,47/9,72 | 6,90/10,37 | 7,31/10,99 | 7,71/11,57 | 8,09/12,15 | 8,46/12,70 | 8,81/13,23 | 9,16/13,74 | 9,48/14,24 | 9,79/14,70 | 10,09/15,15 | 10,37/15,58 |
| 1900 mm | 5,91/8,88 | 6,47/9,73 | 7,02/10,54 | 7,54/11,32 | 8,04/12,07 | 8,52/12,78 | 8,99/13,48 | 9,44/14,17 | 9,88/14,84 | 10,30/15,47 | 10,71/16,08 | 11,10/16,66 | 11,48/17,23 | 11,84/17,78 | 12,18/18,29 |
| 2000 mm | 7,16/10,76 | 7,84/11,77 | 8,50/12,76 | 9,12/13,68 | 9,72/14,60 | 10,31/15,48 | 10,89/16,34 | 11,45/17,20 | 12,00/18,01 | 12,53/18,82 | 13,04/19,58 | 13,54/20,33 | 14,02/21,06 | 14,49/21,75 | 14,93/22,41 |
| 2100 mm | 8,25/12,38 | 9,03/13,55 | 9,76/14,65 | 10,47/15,72 | 11,17/16,78 | 11,86/17,80 | 12,53/18,80 | 13,18/19,79 | 13,82/20,74 | 14,44/21,68 | 15,04/22,58 | 15,63/23,45 | 16,20/24,30 | 16,75/25,12 | 17,28/25,93 |
| 2200 mm | 9,43/14,17 | 10,29/15,45 | 11,13/16,70 | 11,95/17,94 | 12,75/19,14 | 13,54/20,31 | 14,31/21,48 | 15,06/22,61 | 15,80/23,71 | 16,52/24,79 | 17,22/25,85 | 17,90/26,87 | 18,56/27,84 | 19,20/28,81 | 19,82/29,75 |
| 2300 mm | 10,70/16,06 | 11,66/17,51 | 12,61/18,92 | 13,54/20,32 | 14,45/21,69 | 15,35/23,03 | 16,23/24,36 | 17,09/25,64 | 17,94/26,91 | 18,76/28,16 | 19,57/29,37 | 20,35/30,54 | 21,12/31,69 | 21,86/32,80 | 22,58/33,88 |
| 2400 mm | 12,05/18,10 | 13,14/19,71 | 14,21/21,33 | 15,26/22,90 | 16,30/24,46 | 17,31/25,98 | 18,31/27,47 | 19,29/28,94 | 20,25/30,39 | 21,19/31,79 | 22,11/33,18 | 23,01/34,53 | 23,88/35,83 | 27,74/37,12 | 25,57/38,36 |

Casement height

Total overall casement width

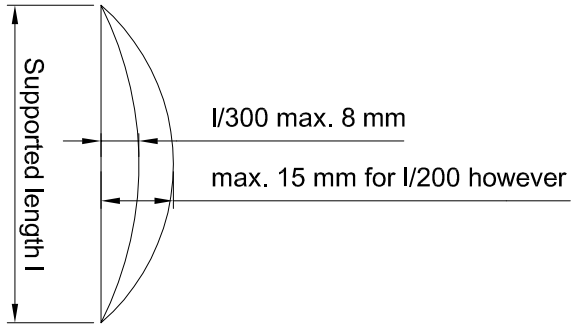
Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

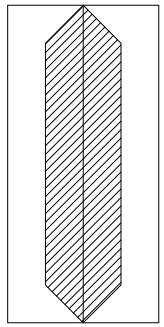
Not to scale

| | | |
|---|---|---|
| Wind load zone | 2 | 3 |
| qref in kN/m² | 0,80 | |
| Mixed profile | Inland | |
| Installation height | ≤ 18 m | ≤ 10 m |
| Beam load in kN/m | 0,50 | |
| Sag | l/200 max.15 mm<br>l/300 max. 8 mm | |

max. sag




Load introduction area



| Width/height | 1000 mm | 1100 mm | 1200 mm | 1300 mm | 1400 mm | 1500 mm | 1600 mm | 1700 mm | 1800 mm | 1900 mm | 2000 mm | 2100 mm | 2200 mm | 2300 mm | 2400 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | |
| 1000 mm | 1,01/1,53 | 1,09/1,65 | 1,17/1,76 | 1,24/1,87 | 1,31/1,98 | 1,37/2,06 | 1,42/2,14 | 1,47/2,23 | 1,51/2,28 | 1,55/2,33 | 1,58/2,37 | 1,60/2,41 | 1,63/2,45 | 1,68/2,53 | 1,73/2,60 |
| 1100 mm | 1,33/2,00 | 1,44/2,17 | 1,55/2,33 | 1,65/2,48 | 1,74/2,63 | 1,83/2,75 | 1,91/2,87 | 1,98/2,98 | 2,05/3,08 | 2,11/3,17 | 2,16/3,26 | 2,20/3,31 | 2,23/3,36 | 2,26/3,41 | 2,29/3,45 |
| 1200 mm | 1,70/2,56 | 1,85/2,78 | 1,99/3,00 | 2,12/3,19 | 2,25/3,40 | 2,37/3,57 | 2,48/3,74 | 2,59/3,90 | 2,68/4,03 | 2,77/4,16 | 2,85/4,29 | 2,92/4,38 | 2,97/4,47 | 3,02/4,54 | 3,06/4,60 |
| 1300 mm | 2,13/3,21 | 2,32/3,50 | 2,50/3,76 | 2,68/4,03 | 2,85/4,28 | 3,00/4,52 | 3,15/4,75 | 3,29/4,95 | 3,42/5,15 | 2,55/5,34 | 3,66/5,51 | 3,76/5,65 | 3,85/5,78 | 3,92/5,89 | 3,99/6,00 |
| 1400 mm | 2,63/3,95 | 2,87/4,31 | 3,10/4,66 | 3,32/4,98 | 3,53/5,31 | 3,73/5,62 | 3,93/5,90 | 4,11/6,18 | 4,28/6,43 | 4,45/6,68 | 4,60/6,91 | 4,74/7,11 | 4,86/7,30 | 4,98/7,48 | 5,08/7,64 |
| 1500 mm | 3,20/4,82 | 3,48/5,25 | 3,77/5,68 | 4,05/6,08 | 4,31/6,49 | 4,57/6,87 | 4,81/7,24 | 5,04/7,57 | 5,27/7,92 | 5,48/8,23 | 5,68/8,54 | 5,85/8,79 | 6,02/9,04 | 6,17/9,26 | 6,30/9,48 |
| 1600 mm | 3,84/5,78 | 4,19/6,30 | 4,54/6,81 | 4,87/7,31 | 5,20/7,80 | 5,51/8,28 | 5,82/8,73 | 6,11/9,17 | 6,37/9,58 | 6,62/9,96 | 6,86/10,30 | 7,09/10,65 | 7,30/10,97 | 7,50/11,26 | 7,68/11,53 |
| 1700 mm | 4,56/6,86 | 4,98/7,49 | 5,40/8,12 | 5,80/8,71 | 6,20/9,31 | 6,58/9,88 | 6,93/10,40 | 7,27/10,91 | 7,59/11,40 | 7,90/11,86 | 8,20/12,30 | 8,48/12,73 | 8,74/13,12 | 9,00/13,50 | 9,23/13,87 |
| 1800 mm | 5,37/8,07 | 5,87/8,83 | 6,36/9,57 | 6,85/10,28 | 7,31/10,97 | 7,74/11,61 | 8,16/12,24 | 8,56/12,86 | 8,95/13,44 | 9,33/14,00 | 9,69/14,55 | 10,03/15,07 | 10,36/15,54 | 10,67/16,03 | 10,97/16,47 |
| 1900 mm | 6,27/9,41 | 6,86/10,29 | 7,44/11,16 | 7,99/11,99 | 8,51/12,78 | 9,02/13,55 | 9,52/14,29 | 9,99/15,00 | 10,46/15,70 | 10,91/16,38 | 11,34/17,02 | 11,75/17,65 | 12,15/18,24 | 12,53/18,81 | 12,89/19,34 |
| 2000 mm | 7,57/11,37 | 8,29/12,44 | 8,99/13,49 | 9,64/14,46 | 10,28/15,43 | 10,90/16,37 | 11,51/17,28 | 12,10/18,17 | 12,68/19,03 | 13,24/19,86 | 13,78/20,68 | 14,31/21,47 | 14,81/22,23 | 15,30/22,97 | 15,77/23,66 |
| 2100 mm | 8,72/13,09 | 9,55/14,33 | 10,32/15,50 | 11,08/16,63 | 11,82/17,74 | 12,54/18,82 | 13,25/19,88 | 13,94/20,93 | 14,61/21,93 | 15,27/22,91 | 15,90/23,88 | 16,52/24,78 | 17,12/25,68 | 17,70/26,55 | 18,25/27,38 |
| 2200 mm | 9,98/14,98 | 10,89/16,35 | 11,77/17,67 | 12,64/18,97 | 13,49/20,24 | 14,32/21,49 | 15,13/22,70 | 15,93/23,90 | 16,71/25,08 | 17,47/26,22 | 18,21/27,32 | 18,92/28,39 | 19,62/29,45 | 20,30/30,46 | 20,95/31,44 |
| 2300 mm | 11,33/17,01 | 12,35/18,53 | 13,35/20,04 | 14,33/21,51 | 15,30/22,96 | 16,25/24,39 | 17,18/25,78 | 18,09/27,14 | 18,98/28,47 | 19,85/29,79 | 20,70/31,06 | 21,53/32,32 | 22,34/33,53 | 23,12/34,70 | 23,88/35,84 |
| 2400 mm | 12,76/19,15 | 13,91/20,89 | 15,05/22,57 | 16,16/24,25 | 17,25/25,90 | 18,33/27,50 | 19,39/29,09 | 20,42/30,65 | 21,44/32,18 | 22,43/33,65 | 23,40/35,11 | 24,35/36,53 | 25,27/37,92 | 26,18/39,28 | 27,05/40,58 |

Casement height

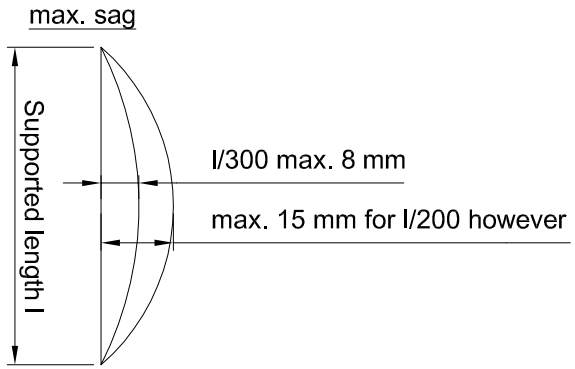
Total overall casement width

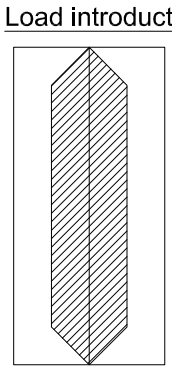
Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

Not to scale

| | |
|---|---|
| Wind load zone | 2 |
| qref in kN/m² | 0,90 |
| Mixed profile | Inland |
| Installation height | ≤ 25 m |
| Beam load in kN/m | 0,50 |
| Sag | l/200 max.15 mm<br>l/300 max. 8 mm |




| Width/height | 1000 mm | 1100 mm | 1200 mm | 1300 mm | 1400 mm | 1500 mm | 1600 mm | 1700 mm | 1800 mm | 1900 mm | 2000 mm | 2100 mm | 2200 mm | 2300 mm | 2400 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | |
| 1000 mm | 1,10/1,67 | 1,19/1,81 | 1,28/1,93 | 1,36/2,04 | 1,43/2,16 | 1,49/2,26 | 1,55/2,33 | 1,60/2,42 | 1,65/2,47 | 1,68/2,54 | 1,71/2,58 | 1,74/2,62 | 1,76/2,65 | 1,78/2,69 | 1,81/2,73 |
| 1100 mm | 1,46/2,21 | 1,58/2,38 | 1,70/2,56 | 1,81/2,72 | 1,91/2,88 | 2,00/3,01 | 2,09/3,15 | 2,17/3,26 | 2,24/3,37 | 2,30/3,47 | 2,35/3,53 | 2,40/3,61 | 2,43/3,66 | 2,46/3,70 | 2,49/3,75 |
| 1200 mm | 1,87/2,83 | 2,03/3,06 | 2,19/3,30 | 2,33/3,52 | 2,47/3,72 | 2,60/3,92 | 2,73/4,10 | 2,84/4,27 | 2,94/4,43 | 3,03/4,56 | 3,12/4,68 | 3,19/4,79 | 3,25/4,89 | 3,30/4,96 | 3,34/5,02 |
| 1300 mm | 2,35/3,55 | 2,56/3,85 | 2,76/4,15 | 2,95/4,45 | 3,13/4,71 | 3,31/4,98 | 3,47/5,22 | 3,62/5,46 | 3,77/5,66 | 3,90/5,85 | 4,02/6,05 | 4,12/6,19 | 4,22/6,35 | 4,30/6,47 | 4,37/6,58 |
| 1400 mm | 2,90/4,36 | 3,16/4,76 | 3,42/5,14 | 3,66/5,51 | 3,89/5,86 | 4,12/6,18 | 4,33/6,50 | 4,53/6,80 | 4,72/7,09 | 4,90/7,35 | 5,06/7,60 | 5,21/7,83 | 5,35/8,03 | 5,47/8,23 | 5,58/8,38 |
| 1500 mm | 3,54/5,32 | 3,86/5,80 | 4,17/6,28 | 4,47/6,72 | 4,77/7,16 | 5,05/7,59 | 5,32/7,98 | 5,57/8,38 | 5,82/8,75 | 6,05/9,08 | 6,27/9,41 | 6,46/9,70 | 6,64/9,96 | 6,80/10,21 | 6,95/10,44 |
| 1600 mm | 4,25/6,39 | 4,64/6,97 | 5,03/7,56 | 5,40/8,12 | 5,76/8,64 | 6,10/9,17 | 6,44/9,67 | 6,76/10,17 | 7,05/10,60 | 7,33/11,00 | 7,59/11,39 | 7,84/11,76 | 8,07/12,12 | 8,29/12,45 | 8,49/12,75 |
| 1700 mm | 5,06/7,60 | 5,53/8,30 | 5,99/8,99 | 6,44/9,66 | 6,87/10,33 | 7,30/10,96 | 7,69/11,54 | 8,06/12,10 | 8,41/12,64 | 8,76/13,15 | 9,08/13,64 | 9,39/14,10 | 9,68/14,54 | 9,96/14,94 | 10,22/15,33 |
| 1800 mm | 5,96/8,97 | 6,52/9,80 | 7,07/10,61 | 7,60/11,42 | 8,12/12,18 | 8,59/12,91 | 9,06/13,60 | 9,50/14,28 | 9,93/14,92 | 10,35/15,54 | 10,75/16,13 | 11,13/16,70 | 11,49/17,25 | 11,83/17,77 | 12,16/18,24 |
| 1900 mm | 6,97/10,47 | 7,63/11,44 | 8,27/12,41 | 8,89/13,35 | 9,47/14,22 | 10,03/15,05 | 10,58/15,87 | 11,11/16,68 | 11,62/17,44 | 12,12/18,19 | 12,60/18,90 | 13,05/19,59 | 13,49/20,26 | 13,91/20,87 | 14,31/21,48 |
| 2000 mm | 8,39/12,61 | 9,19/13,80 | 9,96/14,96 | 10,68/16,03 | 11,39/17,08 | 12,08/18,12 | 12,75/19,15 | 13,40/20,11 | 14,04/21,08 | 14,66/22,00 | 15,26/22,89 | 15,84/23,76 | 16,39/24,61 | 16,93/25,41 | 17,44/26,18 |
| 2100 mm | 9,68/14,59 | 10,60/15,90 | 11,45/17,18 | 12,28/18,43 | 13,10/19,67 | 13,90/20,86 | 14,68/22,04 | 15,45/23,18 | 16,19/24,30 | 16,91/25,39 | 17,62/26,43 | 18,30/27,46 | 18,96/28,44 | 19,59/29,41 | 20,21/30,32 |
| 2200 mm | 11,08/16,63 | 12,06/18,15 | 13,07/19,62 | 14,03/21,06 | 14,97/22,46 | 15,89/23,84 | 16,79/25,20 | 17,67/26,25 | 15,83/27,80 | 19,37/29,06 | 20,18/30,29 | 20,98/31,49 | 21,75/32,63 | 22,50/33,76 | 23,22/34,84 |
| 2300 mm | 12,58/18,88 | 13,71/20,58 | 14,82/22,25 | 15,92/23,89 | 16,99/25,49 | 18,04/27,06 | 19,07/28,61 | 20,08/30,13 | 21,06/31,62 | 22,03/33,05 | 22,97/34,47 | 23,89/35,83 | 24,78/37,19 | 25,65/38,48 | 26,49/39,75 |
| 2400 mm | 14,19/21,30 | 15,47/23,20 | 16,72/25,09 | 17,96/26,95 | 19,17/28,78 | 20,36/30,55 | 21,53/32,31 | 22,68/34,03 | 23,81/35,73 | 24,91/37,37 | 25,98/38,98 | 27,03/40,56 | 28,06/42,09 | 29,05/43,59 | 30,02/45,05 |

Casement height

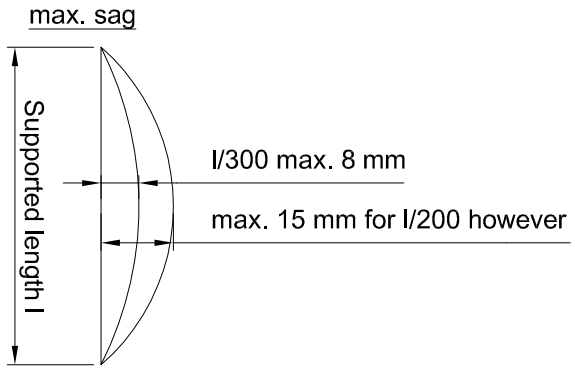
Total overall casement width

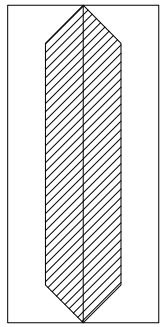
Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

Not to scale

| | |
|---|---|
| Wind load zone | 2 |
| qref in kN/m² | 0,85 |
| Mixed profile | Coast and islands in the Baltic Sea |
| Installation height | ≤ 10 m |
| Beam load in kN/m | 0,50 |
| Sag | l/200 max.15 mm<br>l/300 max. 8 mm |




| Width/height | 1000 mm | 1100 mm | 1200 mm | 1300 mm | 1400 mm | 1500 mm | 1600 mm | 1700 mm | 1800 mm | 1900 mm | 2000 mm | 2100 mm | 2200 mm | 2300 mm | 2400 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | |
| 1000 mm | 1,06/1,60 | 1,14/1,72 | 1,22/1,85 | 1,30/1,96 | 1,37/2,06 | 1,43/2,16 | 1,49/2,25 | 1,54/2,31 | 1,58/2,38 | 1,61/2,43 | 1,64/2,47 | 1,67/2,51 | 1,69/2,55 | 1,72/2,59 | 1,76/2,65 |
| 1100 mm | 1,39/2,10 | 1,51/2,28 | 1,62/2,44 | 1,73/2,60 | 1,83/2,76 | 1,92/2,88 | 2,00/3,02 | 2,08/3,13 | 2,14/3,23 | 2,20/3,33 | 2,25/3,39 | 2,30/3,45 | 2,33/3,50 | 2,36/3,55 | 2,39/3,59 |
| 1200 mm | 1,79/2,70 | 1,94/2,93 | 2,09/3,14 | 2,23/3,35 | 2,36/3,57 | 2,49/3,75 | 2,61/3,92 | 2,71/4,09 | 2,81/4,22 | 2,90/4,37 | 2,98/4,49 | 3,05/4,60 | 3,11/4,67 | 3,16/4,76 | 3,20/4,82 |
| 1300 mm | 2,24/3,38 | 2,44/3,68 | 2,63/3,97 | 2,81/4,23 | 2,99/4,50 | 3,15/4,75 | 3,31/4,99 | 3,46/5,19 | 3,60/5,41 | 3,72/5,59 | 3,84/5,77 | 3,94/5,93 | 4,03/6,06 | 4,11/6,18 | 4,18/6,29 |
| 1400 mm | 2,77/4,17 | 3,02/4,54 | 3,26/4,90 | 3,49/5,25 | 3,71/5,58 | 3,92/5,89 | 4,13/6,20 | 4,32/6,49 | 4,50/6,77 | 4,67/7,03 | 4,83/7,26 | 4,97/7,47 | 5,11/7,67 | 5,23/7,85 | 5,33/8,01 |
| 1500 mm | 3,37/5,07 | 3,67/5,52 | 3,97/5,98 | 4,26/6,41 | 4,54/6,81 | 4,81/7,23 | 5,06/7,61 | 5,31/7,97 | 5,54/8,33 | 5,76/8,66 | 5,97/8,97 | 6,16/9,24 | 6,33/9,51 | 6,48/9,73 | 6,63/9,96 |
| 1600 mm | 4,05/6,09 | 4,42/6,64 | 4,78/7,18 | 5,13/7,71 | 5,48/8,22 | 5,81/8,72 | 6,13/9,20 | 6,43/9,66 | 6,71/10,08 | 6,98/10,47 | 7,23/10,85 | 7,46/11,21 | 7,69/11,54 | 7,89/11,85 | 8,08/12,15 |
| 1700 mm | 4,81/7,23 | 5,26/7,91 | 5,69/8,55 | 6,12/9,18 | 6,54/9,81 | 6,94/10,42 | 7,31/10,98 | 7,66/11,50 | 8,00/12,01 | 8,33/12,50 | 8,64/12,98 | 8,94/13,43 | 9,21/13,83 | 9,48/14,22 | 9,72/14,60 |
| 1800 mm | 5,67/8,51 | 6,20/9,31 | 6,72/10,08 | 7,22/10,86 | 7,71/11,58 | 8,17/12,26 | 8,61/12,93 | 9,03/13,57 | 9,44/14,19 | 9,84/14,77 | 10,22/15,34 | 10,58/15,87 | 10,92/16,41 | 11,25/16,89 | 11,56/17,35 |
| 1900 mm | 6,62/9,94 | 7,24/10,88 | 7,85/11,80 | 8,44/12,68 | 8,99/13,50 | 9,53/14,31 | 10,05/15,08 | 10,55/15,84 | 11,04/16,58 | 11,51/17,28 | 11,97/17,97 | 12,40/18,62 | 12,82/19,25 | 13,22/19,84 | 13,60/20,41 |
| 2000 mm | 7,98/11,98 | 8,74/13,13 | 9,47/14,23 | 10,16/15,24 | 10,83/16,27 | 11,49/17,25 | 12,13/18,21 | 12,75/19,14 | 13,36/20,06 | 13,95/20,93 | 14,52/21,79 | 15,07/22,62 | 15,60/23,42 | 16,11/24,18 | 16,61/24,92 |
| 2100 mm | 9,20/13,81 | 10,08/15,12 | 10,89/16,34 | 11,68/17,53 | 12,46/18,70 | 13,22/19,84 | 13,97/20,96 | 14,69/22,04 | 15,40/23,11 | 16,09/24,15 | 16,76/25,15 | 17,41/26,11 | 18,04/27,06 | 18,64/27,98 | 19,23/28,86 |
| 2200 mm | 10,53/15,81 | 11,49/17,25 | 12,42/18,64 | 13,33/20,01 | 14,23/21,36 | 15,10/22,67 | 15,96/23,95 | 16,80/25,21 | 17,62/26,45 | 18,42/27,65 | 19,19/28,80 | 19,95/29,94 | 20,69/31,03 | 21,40/32,10 | 22,09/33,15 |
| 2300 mm | 11,96/17,94 | 13,03/19,55 | 14,09/21,14 | 15,12/22,70 | 16,14/24,22 | 17,14/25,72 | 18,12/27,19 | 19,08/28,63 | 20,02/30,04 | 20,94/31,42 | 21,84/32,76 | 22,71/34,07 | 23,56/35,35 | 24,38/36,60 | 25,19/37,79 |
| 2400 mm | 13,48/20,23 | 14,69/22,04 | 15,88/23,83 | 17,06/25,59 | 18,21/27,34 | 19,35/29,04 | 20,46/30,70 | 21,35/32,34 | 22,62/33,94 | 23,67/35,51 | 24,69/37,05 | 25,69/38,55 | 26,66/40,01 | 27,61/41,43 | 28,54/42,83 |

Casement height

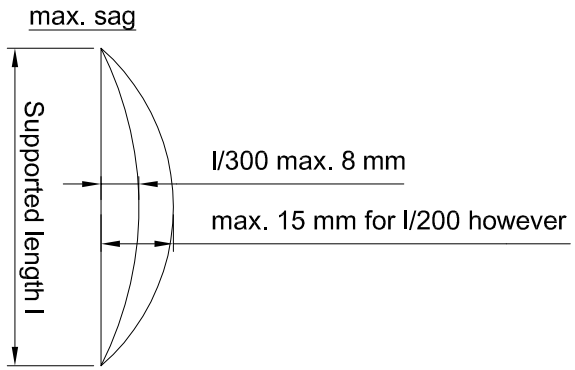
Total overall casement width

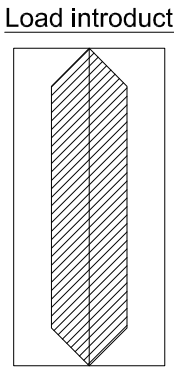
Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

Not to scale

| | |
|---|---|
| Wind load zone | 2 |
| qref in kN/m² | 1,00 |
| Mixed profile | Coast and islands in the Baltic Sea |
| Installation height | ≤ 18 m |
| Beam load in kN/m | 0,50 |
| Sag | l/200 max.15 mm<br>l/300 max. 8 mm |




| Width/height | 1000 mm | 1100 mm | 1200 mm | 1300 mm | 1400 mm | 1500 mm | 1600 mm | 1700 mm | 1800 mm | 1900 mm | 2000 mm | 2100 mm | 2200 mm | 2300 mm | 2400 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000 mm | 1,20/1,80 | 1,30/1,96 | 1,39/2,10 | 1,47/2,22 | 1,55/2,34 | 1,62/2,45 | 1,68/2,54 | 1,73/2,61 | 1,78/2,68 | 1,82/2,74 | 1,85/2,78 | 1,87/2,82 | 1,89/2,85 | 1,92/2,89 | 1,94/2,92 |
| 1100 mm | 1,59/2,40 | 1,72/2,58 | 1,84/2,78 | 1,96/2,96 | 2,07/3,12 | 2,18/3,28 | 2,27/3,41 | 2,35/3,55 | 2,43/3,66 | 2,49/3,76 | 2,55/3,83 | 2,59/3,91 | 2,63/3,96 | 2,66/4,00 | 2,69/4,05 |
| 1200 mm | 2,04/3,08 | 2,22/3,33 | 2,38/3,59 | 2,54/3,83 | 2,70/4,06 | 2,84/4,28 | 2,97/4,46 | 3,09/4,64 | 3,20/4,81 | 3,30/4,97 | 3,39/5,09 | 3,46/5,21 | 3,53/5,31 | 3,58/5,38 | 3,62/5,44 |
| 1300 mm | 2,57/3,86 | 2,80/4,21 | 3,01/4,53 | 3,22/4,84 | 3,42/5,14 | 3,61/5,42 | 3,79/5,70 | 3,95/5,95 | 4,11/6,18 | 4,25/6,38 | 4,38/6,59 | 4,49/6,74 | 4,59/6,90 | 4,68/7,03 | 4,76/7,15 |
| 1400 mm | 3,18/4,78 | 3,46/5,20 | 3,74/5,62 | 4,00/6,03 | 4,26/6,40 | 4,50/6,77 | 4,73/7,12 | 4,95/7,44 | 5,16/7,75 | 5,35/8,05 | 5,53/8,30 | 5,69/8,55 | 5,84/8,78 | 5,97/8,97 | 6,09/9,15 |
| 1500 mm | 3,88/5,84 | 4,23/6,35 | 4,57/6,88 | 4,90/7,37 | 5,22/7,84 | 5,53/8,31 | 5,82/8,75 | 6,10/9,17 | 6,37/9,56 | 6,62/9,94 | 6,86/10,30 | 7,07/10,61 | 7,26/10,90 | 7,43/11,16 | 7,59/11,41 |
| 1600 mm | 4,67/7,01 | 5,10/7,66 | 5,51/8,29 | 5,92/8,90 | 6,32/9,48 | 6,70/10,05 | 7,06/10,60 | 7,41/11,14 | 7,73/11,62 | 8,03/12,07 | 8,32/12,50 | 8,59/12,89 | 8,84/13,27 | 9,07/13,63 | 9,29/13,96 |
| 1700 mm | 5,56/8,36 | 6,08/9,13 | 6,58/9,88 | 7,07/10,62 | 7,55/11,35 | 8,01/12,03 | 8,44/12,67 | 8,85/13,29 | 9,24/13,86 | 9,61/14,43 | 9,97/14,97 | 10,30/15,47 | 10,62/15,94 | 10,92/16,39 | 11,20/16,82 |
| 1800 mm | 6,56/9,84 | 7,17/10,77 | 7,77/11,68 | 8,36/12,56 | 8,93/13,41 | 9,45/14,18 | 9,96/14,94 | 10,45/15,68 | 10,92/16,38 | 11,37/17,07 | 11,81/17,73 | 12,22/18,36 | 12,62/18,94 | 12,99/19,51 | 13,35/20,03 |
| 1900 mm | 7,67/11,52 | 8,39/12,61 | 9,10/13,67 | 9,78/14,68 | 10,42/15,63 | 11,04/16,56 | 11,64/17,47 | 12,22/18,35 | 12,78/19,18 | 13,33/20,00 | 13,85/20,08 | 14,36/21,55 | 14,84/22,27 | 15,30/22,96 | 15,73/23,60 |
| 2000 mm | 9,22/13,84 | 10,09/15,14 | 10,93/16,41 | 11,73/17,59 | 12,50/18,75 | 13,25/19,90 | 13,99/21,01 | 14,71/22,07 | 15,40/23,12 | 16,08/24,12 | 16,73/25,11 | 17,36/26,05 | 19,97/26,97 | 18,56/27,84 | 19,12/28,69 |
| 2100 mm | 10,63/15,96 | 11,64/17,48 | 12,58/18,87 | 13,49/20,24 | 14,39/21,59 | 15,27/22,91 | 16,12/24,20 | 16,96/25,45 | 17,77/26,68 | 18,56/27,86 | 19,33/29,01 | 20,08/30,12 | 20,80/31,20 | 21,49/32,25 | 22,16/33,25 |
| 2200 mm | 12,18/18,27 | 13,29/19,95 | 14,36/21,56 | 15,41/23,13 | 16,44/24,68 | 17,45/26,18 | 18,44/27,67 | 19,41/29,12 | 20,35/30,54 | 21,27/31,92 | 22,16/33,25 | 23,03/34,56 | 23,88/35,82 | 24,69/37,08 | 25,48/38,23 |
| 2300 mm | 13,84/20,76 | 15,08/22,63 | 16,30/24,47 | 17,50/26,25 | 18,68/28,04 | 19,83/29,75 | 20,96/31,44 | 22,07/33,12 | 23,15/37,74 | 24,21/36,33 | 25,24/37,86 | 26,24/39,37 | 27,22/40,85 | 28,17/42,26 | 29,09/43,65 |
| 2400 mm | 15,61/23,44 | 17,02/25,53 | 18,40/27,60 | 19,75/29,65 | 21,09/31,65 | 22,40/33,61 | 23,68/35,54 | 24,94/37,43 | 26,18/39,28 | 27,38/41,09 | 28,56/42,86 | 29,71/44,58 | 30,84/46,27 | 31,93/47,91 | 32,99/49,50 |

Casement height

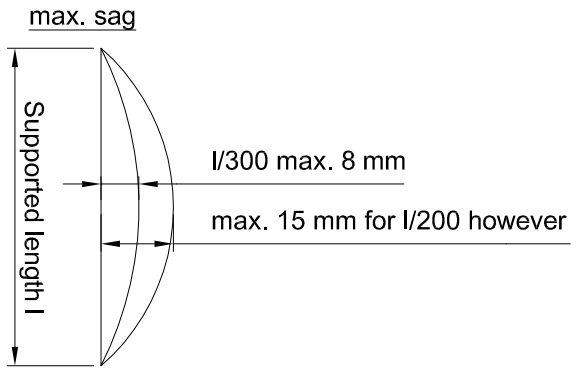
Total overall casement width

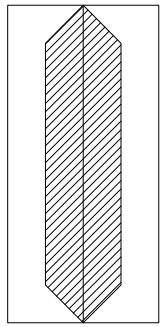
Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

Not to scale

| Wind load zone | 2 | 3 |
|---|---|---|
| qref in kN/m² | 1,10 | |
| Mixed profile | Coast/islands in the Baltic Sea | |
| | Inland (WLZ 3) | |
| Installation height | ≤ 25 m | |
| Beam load in kN/m | 0,50 | |
| Sag | l/200 max.15 mm<br>l/300 max. 8 mm | |




| Width/height | 1000 mm | 1100 mm | 1200 mm | 1300 mm | 1400 mm | 1500 mm | 1600 mm | 1700 mm | 1800 mm | 1900 mm | 2000 mm | 2100 mm | 2200 mm | 2300 mm | 2400 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000 mm | 1,29/1,96 | 1,40/2,12 | 1,50/2,25 | 1,59/2,39 | 1,67/2,52 | 1,74/2,63 | 1,81/2,73 | 1,86/2,82 | 1,91/2,88 | 1,95/2,93 | 1,98/2,99 | 2,00/3,03 | 2,03/3,06 | 2,05/3,10 | 2,08/3,14 |
| 1100 mm | 1,71/2,58 | 1,86/2,80 | 1,99/2,99 | 2,12/3,20 | 2,24/3,37 | 2,35/3,53 | 2,45/3,69 | 2,54/3,81 | 2,62/3,95 | 2,69/4,05 | 2,74/4,12 | 2,79/4,20 | 2,83/4,25 | 2,85/4,30 | 2,88/4,34 |
| 1200 mm | 2,21/3,32 | 2,40/3,61 | 2,58/3,89 | 2,75/4,14 | 2,92/4,38 | 3,07/4,61 | 3,21/4,83 | 3,34/5,02 | 3,46/5,21 | 3,56/5,35 | 3,66/5,50 | 3,74/5,62 | 3,81/5,71 | 3,86/5,79 | 3,90/5,86 |
| 1300 mm | 2,79/4,18 | 3,03/4,57 | 3,27/4,92 | 3,49/5,25 | 3,71/5,58 | 3,91/5,89 | 4,10/6,18 | 4,28/6,44 | 4,45/6,68 | 4,60/6,91 | 4,74/7,13 | 4,86/7,31 | 4,97/7,46 | 5,06/7,61 | 5,14/7,73 |
| 1400 mm | 3,45/5,19 | 3,76/5,66 | 4,06/6,10 | 4,35/6,53 | 4,63/6,95 | 4,89/7,35 | 5,14/7,73 | 5,38/8,09 | 5,60/8,41 | 5,80/8,72 | 6,00/9,01 | 6,17/9,27 | 6,33/9,49 | 6,47/9,71 | 6,59/9,89 |
| 1500 mm | 4,22/6,34 | 4,60/6,90 | 4,97/7,48 | 5,33/8,00 | 5,68/8,53 | 6,01/9,03 | 6,33/9,51 | 6,63/9,96 | 6,92/10,39 | 7,19/10,81 | 7,45/11,19 | 7,67/11,51 | 7,88/11,82 | 8,07/12,12 | 8,24/12,38 |
| 1600 mm | 5,08/7,64 | 5,55/8,33 | 6,00/9,02 | 6,45/9,69 | 6,87/10,32 | 7,29/10,94 | 7,69/11,54 | 8,07/12,11 | 8,41/12,64 | 8,74/13,11 | 9,05/13,59 | 9,34/14,02 | 9,61/14,42 | 9,86/14,80 | 10,09/15,16 |
| 1700 mm | 6,06/9,10 | 6,62/9,95 | 7,17/10,77 | 7,71/11,57 | 8,23/12,36 | 8,73/13,11 | 9,20/13,81 | 9,64/14,48 | 10,06/15,11 | 10,47/15,72 | 10,85/16,29 | 11,22/16,85 | 11,56/17,36 | 11,89/17,85 | 12,19/18,30 |
| 1800 mm | 7,16/10,74 | 7,82/11,76 | 8,48/12,72 | 9,12/13,69 | 9,73/14,62 | 10,30/15,48 | 10,86/16,30 | 11,39/17,10 | 11,90/17,87 | 12,40/18,61 | 12,87/19,31 | 13,32/19,99 | 13,75/20,63 | 14,15/21,25 | 14,54/21,82 |
| 1900 mm | 8,38/12,58 | 9,16/13,76 | 9,94/14,92 | 10,68/16,04 | 11,37/17,06 | 12,04/18,09 | 12,70/19,05 | 13,33/20,02 | 13,95/20,93 | 15,54/21,83 | 15,11/22,67 | 15,66/23,49 | 16,18/24,29 | 16,68/25,04 | 17,15/25,74 |
| 2000 mm | 10,04/15,08 | 10,99/16,50 | 11,91/17,87 | 12,77/19,15 | 13,61/20,42 | 14,43/21,66 | 15,23/22,87 | 16,01/24,03 | 16,76/25,16 | 17,50/26,26 | 18,21/27,32 | 18,89/28,36 | 19,55/29,35 | 20,18/30,29 | 20,79/31,21 |
| 2100 mm | 11,59/17,40 | 12,69/19,05 | 13,70/20,56 | 14,70/22,07 | 15,67/23,52 | 16,63/24,95 | 17,56/26,36 | 18,47/27,72 | 19,35/29,04 | 20,21/30,33 | 21,05/31,58 | 21,86/32,80 | 22,64/33,96 | 23,39/35,01 | 24,12/36,19 |
| 2200 mm | 13,28/19,93 | 14,49/21,74 | 15,66/23,49 | 16,80/25,22 | 17,92/26,90 | 19,02/28,55 | 20,10/30,15 | 21,15/31,74 | 22,17/33,26 | 23,17/34,76 | 24,14/36,23 | 25,09/37,64 | 26,00/39,01 | 26,89/40,35 | 27,75/41,63 |
| 2300 mm | 15,10/22,66 | 16,45/24,67 | 17,78/26,69 | 19,08/28,64 | 20,36/30,56 | 21,62/32,44 | 22,85/34,30 | 24,06/36,09 | 25,23/37,87 | 26,38/39,58 | 27,50/41,26 | 28,60/42,90 | 29,66/44,51 | 30,69/46,04 | 31,69/47,55 |
| 2400 mm | 17,04/25,57 | 18,57/27,86 | 20,07/30,12 | 21,55/32,35 | 23,00/34,53 | 24,43/36,66 | 25,83/38,75 | 27,20/40,81 | 28,55/42,83 | 29,86/44,81 | 31,14/46,74 | 32,40/48,60 | 33,62/50,43 | 34,81/52,23 | 35,96/53,95 |

Casement height

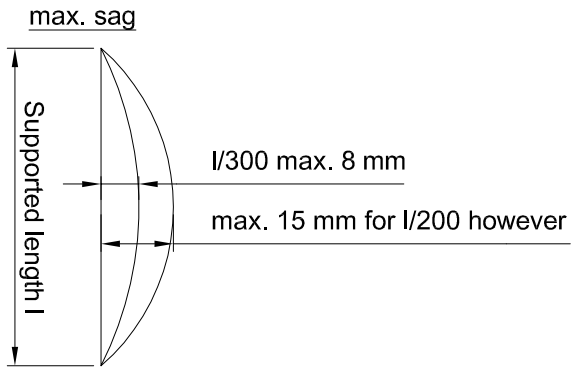
Total overall casement width

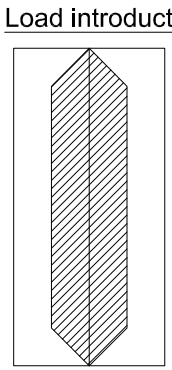
Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

Not to scale

| | | |
|---|---|---|
| Wind load zone | 3 | 4 |
| qref in kN/m² | 0,95 | |
| Mixed profile | Inland | |
| Installation height | ≤ 18 m | ≤ 10 m |
| Beam load in kN/m | 0,50 | |
| Sag | l/200 max.15 mm<br>l/300 max. 8 mm | |




| Width/height | 1000 mm | 1100 mm | 1200 mm | 1300 mm | 1400 mm | 1500 mm | 1600 mm | 1700 mm | 1800 mm | 1900 mm | 2000 mm | 2100 mm | 2200 mm | 2300 mm | 2400 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | |
| 1000 mm | 1,15/1,74 | 1,25/1,89 | 1,33/2,00 | 1,41/2,14 | 1,49/2,24 | 1,56/2,35 | 1,62/2,44 | 1,67/2,52 | 1,71/2,58 | 1,75/2,63 | 1,78/2,69 | 1,80/2,73 | 1,83/2,76 | 1,85/2,80 | 1,88/2,84 |
| 1100 mm | 1,52/2,29 | 1,65/2,49 | 1,77/2,67 | 1,88/2,84 | 1,99/3,00 | 2,09/3,15 | 2,18/3,28 | 2,26/3,40 | 2,33/3,50 | 2,40/3,60 | 2,45/3,69 | 2,49/3,75 | 2,53/3,80 | 2,56/3,84 | 2,59/3,89 |
| 1200 mm | 1,96/2,95 | 2,12/3,19 | 2,29/3,44 | 2,44/3,66 | 2,58/3,89 | 2,72/4,10 | 2,85/4,28 | 2,96/4,456 | 3,07/4,62 | 3,17/4,76 | 3,25/4,90 | 3,33/5,01 | 3,39/5,09 | 3,44/5,18 | 3,48/5,24 |
| 1300 mm | 2,46/3,69 | 2,68/4,03 | 2,89/4,34 | 3,09/4,64 | 3,28/4,93 | 3,46/5,19 | 3,63/5,46 | 3,79/5,70 | 3,94/5,91 | 4,07/6,12 | 4,20/6,31 | 4,31/6,48 | 4,41/6,62 | 4,49/6,76 | 4,57/6,86 |
| 1400 mm | 3,04/4,58 | 3,31/4,97 | 3,58/5,38 | 3,83/5,76 | 4,08/6,12 | 4,31/6,48 | 4,53/6,82 | 4,74/7,13 | 4,94/7,43 | 5,12/7,70 | 5,30/7,95 | 5,45/8,19 | 5,60/8,42 | 5,72/8,60 | 5,84/8,76 |
| 1500 mm | 3,71/5,57 | 4,04/6,09 | 4,37/6,58 | 4,69/7,04 | 4,99/7,51 | 5,29/7,95 | 5,57/8,38 | 5,84/8,76 | 6,09/9,14 | 6,34/9,51 | 6,56/9,86 | 6,76/10,16 | 6,95/10,43 | 7,12/10,69 | 7,27/10,93 |
| 1600 mm | 4,46/6,70 | 4,87/7,23 | 5,27/7,93 | 5,66/8,50 | 6,04/9,06 | 6,40/9,61 | 6,75/10,15 | 7,09/10,65 | 7,39/11,10 | 7,68/11,54 | 7,96/11,96 | 8,21/12,34 | 8,46/12,69 | 8,68/13,04 | 8,89/13,35 |
| 1700 mm | 5,31/7,97 | 5,80/8,71 | 6,28/9,44 | 6,75/10,14 | 7,21/10,83 | 7,66/1,50 | 8,06/12,11 | 8,45/12,69 | 8,83/13,25 | 9,18/13,80 | 9,52/14,30 | 9,85/14,78 | 10,15/15,25 | 10,44/15,67 | 10,71/16,09 |
| 1800 mm | 6,26/9,41 | 6,85/10,28 | 7,42/11,15 | 7,98/12,00 | 8,52/12,81 | 9,02/13,56 | 9,51/14,27 | 9,98/14,97 | 10,43/15,65 | 10,86/16,30 | 11,28/16,92 | 11,67/17,53 | 12,05/18,10 | 12,41/18,63 | 12,75/19,14 |
| 1900 mm | 7,32/10,99 | 8,01/12,02 | 8,69/13,03 | 9,33/14,01 | 9,94/14,93 | 10,53/15,82 | 11,11/16,68 | 11,66/17,51 | 12,20/18,32 | 12,72/19,093 | 13,22/19,85 | 13,70/20,56 | 14,17/21,26 | 14,60/21,92 | 15,02/22,55 |
| 2000 mm | 8,80/13,22 | 9,64/14,47 | 10,45/15,69 | 11,20/16,81 | 11,94/17,92 | 12,67/19,01 | 13,37/20,07 | 14,06/21,10 | 14,72/22,10 | 15,37/23,07 | 15,99/24,01 | 16,60/24,90 | 17,18/25,78 | 17,74/26,63 | 18,28/27,43 |
| 2100 mm | 10,15/15,24 | 11,12/16,70 | 12,01/18,03 | 12,89/19,34 | 13,75/20,63 | 14,58/21,88 | 15,40/23,12 | 16,20/24,31 | 16,98/25,49 | 17,74/26,62 | 18,47/27,73 | 19,19/28,79 | 19,88/29,82 | 20,54/30,82 | 21,18/31,79 |
| 2200 mm | 11,63/17,46 | 12,69/19,05 | 13,72/20,59 | 14,72/22,10 | 15,71/23,58 | 16,67/25,02 | 17,62/26,43 | 18,54/27,83 | 19,44/29,17 | 20,32/30,49 | 21,17/31,78 | 22,01/33,02 | 22,81/34,24 | 23,59/35,40 | 24,35/36,53 |
| 2300 mm | 13,21/19,83 | 14,40/21,60 | 15,56/23,35 | 16,71/25,08 | 17,83/26,75 | 18,93/28,41 | 20,01/30,04 | 21,07/31,62 | 22,11/33,18 | 23,12/34,70 | 24,10/36,16 | 25,06/37,61 | 26,00/39,01 | 26,91/40,38 | 27,79/41,69 |
| 2400 mm | 14,90/22,37 | 16,24/24,38 | 17,56/26,34 | 18,86/28,29 | 20,13/30,21 | 21,38/32,09 | 22,61/33,93 | 23,81/35,72 | 24,99/37,51 | 26,14/39,23 | 27,27/40,93 | 28,37/42,58 | 29,45/44,18 | 30,49/45,75 | 31,51/47,28 |

Casement height

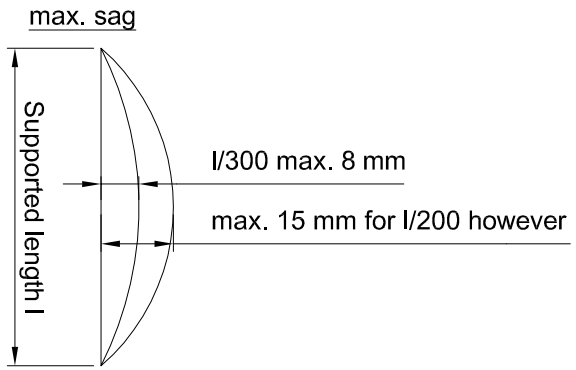
Total overall casement width

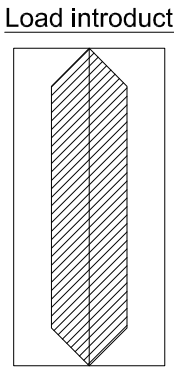
Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

Not to scale

| | |
|---|---|
| Wind load zone | 3 |
| qref in kN/m² | 1,05 |
| Mixed profile | Coast and islands in the Baltic Sea |
| Installation height | ≤ 10 m |
| Beam load in kN/m | 0,50 |
| Sag | l/200 max.15 mm<br>l/300 max. 8 mm |




| Width/height | 1000 mm | 1100 mm | 1200 mm | 1300 mm | 1400 mm | 1500 mm | 1600 mm | 1700 mm | 1800 mm | 1900 mm | 2000 mm | 2100 mm | 2200 mm | 2300 mm | 2400 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | |
| 1000 mm | 1,25/1,53 | 1,35/1,65 | 1,44/1,76 | 1,53/1,87 | 1,61/1,98 | 1,68/2,06 | 1,74/2,14 | 1,80/2,23 | 1,85/2,28 | 1,88/2,33 | 1,91/2,37 | 1,94/2,41 | 1,96/2,45 | 1,99/2,53 | 2,01/2,60 |
| 1100 mm | 1,65/2,00 | 1,79/2,17 | 1,92/2,33 | 2,04/2,48 | 2,16/2,63 | 2,26/2,75 | 2,36/2,87 | 2,45/2,98 | 2,52/3,08 | 2,59/3,17 | 2,65/3,26 | 2,69/3,31 | 2,73/3,36 | 2,76/3,41 | 2,79/3,45 |
| 1200 mm | 2,13/2,56 | 2,31/2,78 | 2,48/3,00 | 2,65/3,19 | 2,81/3,40 | 2,95/3,57 | 3,09/3,74 | 3,21/3,90 | 3,33/4,03 | 3,43/4,16 | 3,52/4,29 | 3,60/4,38 | 3,67/4,47 | 3,72/4,54 | 3,76/4,60 |
| 1300 mm | 2,68/3,21 | 2,91/3,50 | 3,14/3,76 | 3,36/4,03 | 3,56/4,28 | 3,76/4,52 | 3,94/4,75 | 4,12/4,95 | 4,28/5,15 | 4,42/5,34 | 4,56/5,51 | 4,68/5,65 | 4,78/5,78 | 4,87/5,89 | 4,95/6,00 |
| 1400 mm | 3,32/3,95 | 3,61/4,31 | 3,90/4,66 | 4,18/4,98 | 4,44/5,31 | 4,70/5,62 | 4,94/5,90 | 5,16/6,18 | 5,38/6,43 | 5,58/6,68 | 5,76/6,91 | 5,93/7,11 | 6,08/7,30 | 6,22/7,48 | 6,34/7,64 |
| 1500 mm | 4,05/4,82 | 4,41/5,25 | 4,77/5,68 | 5,12/6,08 | 5,45/6,49 | 5,77/6,87 | 6,08/7,24 | 6,37/7,57 | 6,65/7,92 | 6,91/8,23 | 7,15/8,54 | 7,37/8,79 | 7,57/9,04 | 7,75/9,26 | 7,92/9,48 |
| 1600 mm | 4,88/5,78 | 5,32/6,30 | 5,76/6,81 | 6,18/7,31 | 6,59/7,80 | 6,99/8,28 | 7,37/8,73 | 7,74/9,17 | 8,07/9,58 | 8,39/9,96 | 8,68/10,30 | 8,96/10,65 | 9,23/10,97 | 9,47/11,26 | 9,69/11,53 |
| 1700 mm | 5,81/6,86 | 6,35/7,49 | 6,88/8,12 | 7,39/8,71 | 7,89/9,31 | 8,37/9,88 | 8,82/10,40 | 9,24/10,91 | 9,65/11,40 | 10,04/11,86 | 10,41/12,30 | 10,76/12,73 | 11,09/13,12 | 11,41/13,50 | 11,70/13,87 |
| 1800 mm | 6,86/8,07 | 7,50/8,83 | 8,13/9,57 | 8,74/10,28 | 9,33/10,97 | 9,88/11,61 | 10,41/12,24 | 10,92/12,86 | 11,41/13,44 | 11,88/14,00 | 12,34/14,55 | 12,77/15,07 | 13,18/15,54 | 13,57/16,03 | 13,94/16,47 |
| 1900 mm | 8,02/9,41 | 8,78/10,29 | 9,52/11,16 | 10,23/11,99 | 10,89/12,78 | 11,54/13,55 | 12,17/14,29 | 12,78/15,00 | 13,37/15,70 | 13,93/16,38 | 14,48/17,02 | 15,01/17,65 | 15,51/18,24 | 15,99/18,81 | 16,44/19,34 |
| 2000 mm | 6,93/11,37 | 10,54/12,44 | 11,42/13,49 | 12,25/14,46 | 13,05/15,43 | 13,84/16,37 | 14,61/17,28 | 15,36/18,17 | 16,08/19,03 | 16,79/19,86 | 17,47/20,68 | 18,13/21,41 | 18,76/22,23 | 19,37/22,97 | 19,95/23,66 |
| 2100 mm | 11,11/13,09 | 12,16/14,33 | 13,14/15,50 | 14,10/16,63 | 15,03/17,74 | 15,95/18,82 | 16,84/19,88 | 17,71/20,93 | 18,56/21,93 | 19,39/22,91 | 20,19/23,88 | 20,97/24,78 | 21,72/25,68 | 22,44/26,55 | 23,14/27,38 |
| 2200 mm | 12,73/14,98 | 13,89/16,35 | 15,01/17,67 | 16,11/18,97 | 17,18/20,24 | 18,24/21,49 | 19,27/22,70 | 20,28/23,90 | 21,26/25,08 | 22,22/26,22 | 23,15/27,32 | 24,06/28,39 | 24,94/29,45 | 25,79/30,46 | 26,61/31,44 |
| 2300 mm | 14,47/17,01 | 15,76/18,53 | 17,04/20,04 | 18,29/21,51 | 19,52/22,96 | 20,72/24,39 | 21,91/25,78 | 23,06/27,14 | 24,19/28,47 | 25,29/29,79 | 26,37/31,06 | 27,42/32,32 | 28,44/33,53 | 29,43/34,70 | 30,39/35,84 |
| 2400 mm | 16,32/19,15 | 17,79/20,89 | 19,23/22,57 | 20,65/24,25 | 22,05/25,90 | 23,41/27,50 | 24,76/29,09 | 26,07/30,65 | 27,36/32,18 | 28,62/33,65 | 29,85/35,11 | 31,06/36,53 | 32,23/37,92 | 33,37/39,28 | 34,48/40,58 |

Casement height

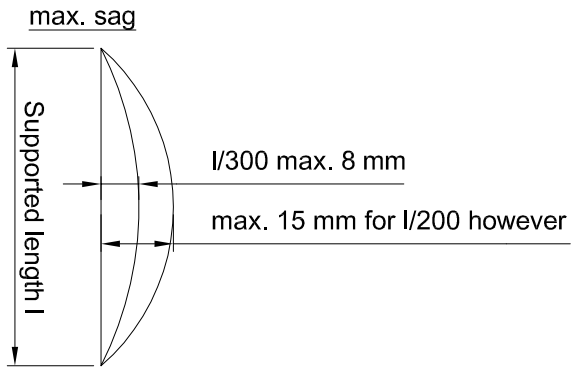
Total overall casement width

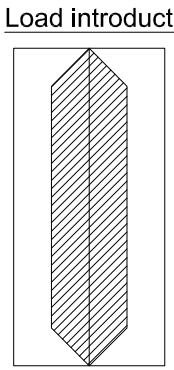
Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

Not to scale

| | |
|---|---|
| Wind load zone | 3 |
| qref in kN/m² | 1,20 |
| Mixed profile | Coast and islands in the Baltic Sea |
| Installation height | ≤ 18 m |
| Beam load in kN/m | 0,50 |
| Sag | l/200 max.15 mm<br>l/300 max. 8 mm |




| Width/height | 1000 mm | 1100 mm | 1200 mm | 1300 mm | 1400 mm | 1500 mm | 1600 mm | 1700 mm | 1800 mm | 1900 mm | 2000 mm | 2100 mm | 2200 mm | 2300 mm | 2400 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | |
| 1000 mm | 1,39/2,09 | 1,50/2,26 | 1,60/2,41 | 1,70/2,57 | 1,79/2,70 | 1,87/2,82 | 1,94/2,92 | 2,00/3,01 | 2,05/3,07 | 2,09/3,15 | 2,12/3,19 | 2,14/3,22 | 2,16/3,26 | 2,19/3,30 | 2,21/3,33 |
| 1100 mm | 1,84/2,77 | 2,00/3,00 | 2,14/3,22 | 2,28/3,43 | 2,41/3,62 | 2,52/3,79 | 2,63/3,95 | 2,72/4,10 | 2,81/4,22 | 2,88/4,32 | 2,94/4,42 | 2,99/4,50 | 3,02/4,55 | 3,05/4,60 | 3,08/4,64 |
| 1200 mm | 2,38/3,57 | 2,58/3,89 | 2,78/4,19 | 2,96/4,45 | 3,14/4,72 | 3,30/4,96 | 3,45/5,19 | 3,59/5,41 | 3,72/5,59 | 3,83/5,76 | 3,93/5,91 | 4,01/6,04 | 4,08/6,14 | 4,14/6,21 | 4,18/6,28 |
| 1300 mm | 3,01/4,52 | 3,27/4,92 | 3,52/5,30 | 3,77/5,66 | 4,00/6,01 | 4,21/6,33 | 4,42/6,63 | 4,61/6,93 | 4,79/7,20 | 4,95/7,44 | 5,10/7,67 | 5,23/7,86 | 5,34/8,03 | 5,44/8,17 | 5,52/8,29 |
| 1400 mm | 3,73/5,61 | 4,06/6,10 | 4,38/6,58 | 4,69/7,06 | 4,99/7,50 | 5,27/7,92 | 5,54/8,33 | 5,80/8,71 | 6,04/9,07 | 6,26/9,39 | 6,46/9,70 | 6,65/9,98 | 6,82/10,24 | 6,97/10,47 | 7,10/10,66 |
| 1500 mm | 4,56/6,86 | 4,97/7,47 | 5,37/8,08 | 5,76/8,65 | 6,13/9,21 | 6,49/9,75 | 6,84/10,26 | 7,16/10,75 | 7,47/11,22 | 7,77/11,66 | 8,04/12,08 | 8,28/12,44 | 8,50/12,77 | 8,70/13,07 | 8,89/13,34 |
| 1600 mm | 5,50/8,26 | 6,00/9,01 | 6,49/9,75 | 6,97/10,47 | 7,43/11,16 | 7,88/11,83 | 8,31/12,48 | 8,72/13,11 | 9,09/13,66 | 9,44/14,18 | 9,78/14,68 | 10,09/15,15 | 10,38/15,59 | 10,65/15,99 | 10,90/16,36 |
| 1700 mm | 6,56/9,86 | 7,17/10,76 | 7,76/11,66 | 8,34/12,53 | 8,90/13,38 | 9,45/14,19 | 9,95/14,94 | 10,43/15,65 | 10,88/16,33 | 11,32/17,00 | 11,74/17,62 | 12,13/18,20 | 12,50/18,76 | 12,85/19,30 | 13,18/19,77 |
| 1800 mm | 7,75/11,64 | 8,48/12,73 | 9,18/13,79 | 9,88/14,83 | 10,54/15,83 | 11,16/16,75 | 11,76/17,59 | 12,33/18,51 | 12,89/19,35 | 13,42/20,13 | 13,93/20,91 | 14,42/21,63 | 14,88/22,32 | 15,32/22,99 | 15,73/23,61 |
| 1900 mm | 9,08/13,62 | 9,93/14,91 | 10,77/16,15 | 11,57/17,37 | 12,32/18,49 | 13,05/19,60 | 13,76/20,66 | 14,45/21,68 | 15,11/22,67 | 15,75/23,64 | 16,37/24,57 | 16,96/25,45 | 17,52/26,29 | 18,06/27,10 | 18,57/27,86 |
| 2000 mm | 10,86/16,30 | 11,89/17,84 | 12,88/19,34 | 13,81/20,74 | 14,72/22,10 | 15,61/23,41 | 16,47/24,73 | 17,31/25,98 | 18,13/27,20 | 18,92/28,38 | 19,68/29,54 | 20,42/30,64 | 21,13/31,70 | 21,81/32,74 | 22,46/33,72 |
| 2100 mm | 12,54/18,83 | 13,73/20,61 | 14,83/22,26 | 15,91/23,88 | 16,96/25,45 | 17,99/26,99 | 19,00/28,51 | 19,98/29,99 | 20,93/31,42 | 21,86/32,80 | 22,76/34,16 | 23,63/35,46 | 24,48/36,72 | 25,29/37,94 | 26,07/39,12 |
| 2200 mm | 14,38/21,57 | 15,69/23,54 | 16,95/25,45 | 18,19/27,30 | 19,40/29,12 | 20,59/30,90 | 21,75/32,64 | 22,89/34,34 | 23,99/36,90 | 25,07/37,62 | 26,12/39,19 | 27,14/40,73 | 28,13/42,19 | 29,09/43,63 | 30,01/45,03 |
| 2300 mm | 16,35/24,53 | 17,82/26,74 | 19,25/28,88 | 20,67/31,02 | 22,05/33,09 | 23,41/35,13 | 24,74/37,13 | 26,04/39,07 | 27,32/40,99 | 28,56/42,86 | 29,77/44,67 | 30,95/46,44 | 32,10/48,17 | 33,21/49,83 | 34,29/51,45 |
| 2400 mm | 18,46/27,71 | 20,12/30,19 | 21,75/32,63 | 23,35/35,04 | 24,92/37,39 | 26,47/39,72 | 27,98/41,98 | 29,46/44,21 | 30,92/46,40 | 32,34/48,52 | 33,73/50,60 | 35,08/52,63 | 36,40/54,61 | 37,68/56,54 | 38,93/58,40 |

Casement height

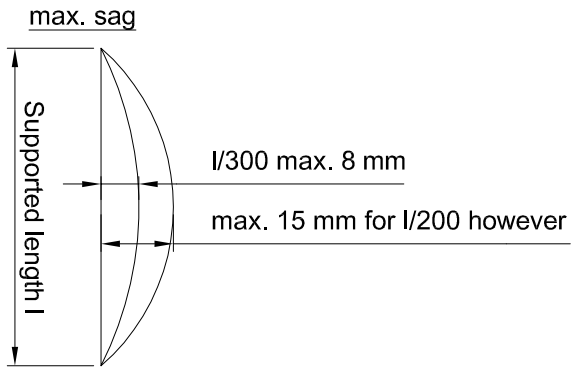
Total overall casement width

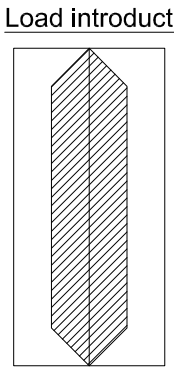
Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

Not to scale

| Wind load zone | 3 | 4 |
|---|---|---|
| qref in kN/m² | 1,30 | |
| Mixed profile | Coast/islands in the Baltic Sea | |
| | Inland (WLZ 4) | |
| Installation height | ≤ 25 m | |
| Beam load in kN/m | 0,50 | |
| Sag | l/200 max.15 mm<br>l/300 max. 8 mm | |




| Width/height | 1000 mm | 1100 mm | 1200 mm | 1300 mm | 1400 mm | 1500 mm | 1600 mm | 1700 mm | 1800 mm | 1900 mm | 2000 mm | 2100 mm | 2200 mm | 2300 mm | 2400 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000 mm | 1,48/2,23 | 1,60/2,42 | 1,71/2,58 | 1,82/2,74 | 1,91/2,88 | 1,99/3,00 | 2,06/3,10 | 2,13/3,20 | 2,18/3,28 | 2,22/3,34 | 2,25/3,38 | 2,27/3,42 | 2,30/3,45 | 2,32/3,49 | 2,35/3,53 |
| 1100 mm | 1,97/2,96 | 2,14/3,22 | 2,29/3,45 | 2,44/3,67 | 2,57/3,86 | 2,70/4,06 | 2,81/4,23 | 2,91/4,38 | 3,00/4,51 | 3,07/4,62 | 3,13/4,71 | 3,18/4,80 | 3,22/4,85 | 3,25/4,89 | 3,28/4,94 |
| 1200 mm | 2,55/3,84 | 2,77/4,16 | 2,98/4,49 | 3,17/4,78 | 3,36/5,04 | 3,53/5,31 | 3,69/5,55 | 3,84/5,78 | 3,97/5,96 | 4,09/6,14 | 4,20/6,30 | 4,29/6,45 | 4,36/6,56 | 4,42/6,63 | 4,46/6,70 |
| 1300 mm | 3,22/4,84 | 3,51/5,26 | 3,78/5,67 | 4,04/6,07 | 4,28/6,44 | 4,52/6,79 | 4,74/7,11 | 4,94/7,44 | 5,13/7,70 | 5,30/7,97 | 5,46/8,21 | 5,60/8,41 | 5,72/8,59 | 5,82/8,75 | 5,90/8,87 |
| 1400 mm | 4,00/6,02 | 4,36/6,56 | 4,71/7,07 | 5,04/7,56 | 5,36/8,04 | 5,66/8,50 | 5,95/8,94 | 6,22/9,35 | 6,47/9,72 | 6,71/10,09 | 6,93/10,40 | 7,13/10,70 | 7,31/10,97 | 7,47/11,21 | 7,60/11,42 |
| 1500 mm | 4,60/7,36 | 5,34/8,03 | 5,77/8,68 | 6,19/9,30 | 6,59/9,90 | 6,97/10,47 | 7,34/11,03 | 7,69/11,56 | 8,02/12,05 | 8,34/12,51 | 8,63/12,95 | 8,89/13,35 | 9,12/13,69 | 9,34/14,03 | 9,53/14,31 |
| 1600 mm | 5,91/8,87 | 6,46/9,70 | 6,98/10,50 | 7,50/11,26 | 7,99/12,00 | 8,47/12,72 | 8,93/13,41 | 9,37/14,08 | 9,77/14,68 | 10,15/15,25 | 10,51/15,77 | 10,84/16,26 | 11,15/16,74 | 11,44/17,18 | 11,70/17,57 |
| 1700 mm | 7,06/10,60 | 7,71/11,58 | 8,35/12,55 | 8,97/13,48 | 9,58/14,38 | 10,17/15,27 | 10,70/16,07 | 11,22/16,84 | 11,71/17,57 | 12,18/18,27 | 12,62/18,94 | 13,04/19,57 | 13,44/20,18 | 13,81/20,74 | 14,16/21,26 |
| 1800 mm | 8,35/12,53 | 9,13/13,70 | 9,89/14,85 | 10,64/15,97 | 11,35/17,04 | 12,01/18,03 | 12,65/19,00 | 13,27/19,93 | 13,87/20,81 | 14,44/21,68 | 14,99/22,49 | 15,51/23,29 | 16,01/24,03 | 16,48/24,73 | 16,92/25,38 |
| 1900 mm | 9,78/14,69 | 10,70/16,06 | 11,60/17,41 | 12,47/18,71 | 13,27/19,92 | 14,06/21,10 | 14,82/22,24 | 15,56/23,35 | 16,27/24,41 | 16,96/25,45 | 17,62/26,45 | 18,26/27,39 | 18,86/28,31 | 19,44/29,18 | 19,99/30,00 |
| 2000 mm | 11,68/17,54 | 12,79/19,20 | 13,86/20,80 | 14,86/22,30 | 15,83/23,77 | 16,78/25,19 | 17,71/26,59 | 18,61/27,94 | 19,49/29,24 | 20,34/30,52 | 21,16/31,75 | 21,95/32,93 | 22,77/34,08 | 23,44/35,16 | 24,14/36,21 |
| 2100 mm | 13,49/20,26 | 14,77/22,17 | 15,96/23,95 | 17,11/25,68 | 18,25/27,39 | 19,35/29,03 | 20,44/30,67 | 21,49/32,24 | 22,51/33,78 | 23,51/35,29 | 24,48/36,73 | 25,41/38,14 | 26,32/39,48 | 27,19/40,80 | 28,03/42,06 |
| 2200 mm | 15,48/23,23 | 16,89/25,34 | 18,24/27,38 | 19,58/29,37 | 20,88/31,34 | 22,16/33,25 | 23,41/35,12 | 24,63/36,96 | 25,82/38,75 | 26,97/40,48 | 28,10/42,17 | 29,20/43,81 | 30,26/45,40 | 31,28/46,93 | 32,27/48,42 |
| 2300 mm | 17,61/26,43 | 19,18/28,79 | 20,73/31,10 | 22,25/33,38 | 23,74/35,62 | 25,20/37,82 | 26,63/39,96 | 28,03/42,06 | 29,40/44,12 | 30,74/46,12 | 32,04/48,08 | 33,31/49,97 | 34,54/51,83 | 35,73/53,61 | 36,89/55,35 |
| 2400 mm | 19,88/29,83 | 21,67/32,50 | 23,42/35,15 | 25,14/37,74 | 26,84/40,26 | 28,50/42,77 | 30,13/45,21 | 31,73/47,60 | 33,29/49,95 | 34,82/52,24 | 36,31/54,48 | 37,76/56,67 | 39,18/58,79 | 40,56/60,86 | 41,90/62,87 |

Casement height

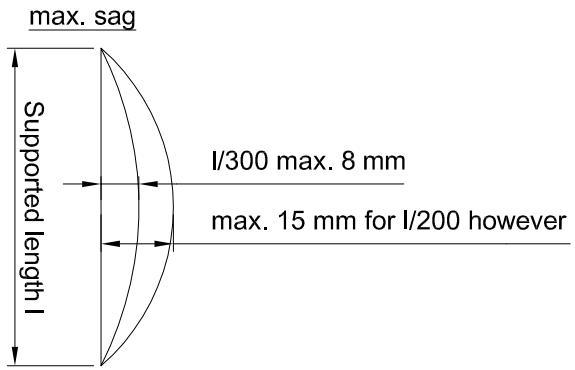
Total overall casement width

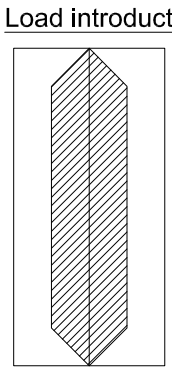
Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

Not to scale

| | |
|---|---|
| Wind load zone | 4 |
| qref in kN/m² | 1,15 |
| Mixed profile | Inland |
| Installation height | ≤ 18 m |
| Beam load in kN/m | 0,50 |
| Sag | l/200 max.15 mm<br>l/300 max. 8 mm |




| Width/height | 1000 mm | 1100 mm | 1200 mm | 1300 mm | 1400 mm | 1500 mm | 1600 mm | 1700 mm | 1800 mm | 1900 mm | 2000 mm | 2100 mm | 2200 mm | 2300 mm | 2400 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | |
| 1000 mm | 1,34/2,03 | 1,45/2,19 | 1,55/2,34 | 1,64/2,49 | 1,73/2,60 | 1,80/2,71 | 1,87/2,81 | 1,93/2,90 | 1,98/2,98 | 2,02/3,04 | 2,05/3,08 | 2,07/3,12 | 2,10/3,15 | 2,12/3,19 | 2,15/3,23 |
| 1100 mm | 1,78/2,69 | 1,93/2,91 | 2,07/3,11 | 2,20/3,32 | 2,32/3,49 | 2,44/3,66 | 2,54/3,82 | 2,63/3,97 | 2,71/4,08 | 2,78/4,19 | 2,84/4,28 | 2,89/4,34 | 2,92/4,39 | 2,95/4,44 | 2,98/4,48 |
| 1200 mm | 2,29/3,45 | 2,49/3,74 | 2,68/4,03 | 2,86/4,30 | 3,03/4,55 | 3,18/4,78 | 3,33/5,01 | 3,47/5,22 | 3,59/5,40 | 3,70/5,57 | 3,79/5,70 | 3,88/5,82 | 3,94/5,92 | 4,00/6,01 | 4,04/6,08 |
| 1300 mm | 2,90/4,35 | 3,15/4,75 | 3,40/5,11 | 3,63/5,46 | 3,85/5,79 | 4,06/6,12 | 4,26/6,42 | 4,45/6,68 | 4,62/6,93 | 4,77/7,16 | 4,92/7,39 | 5,04/7,57 | 5,16/7,75 | 5,25/7,88 | 5,33/8,00 |
| 1400 mm | 3,59/5,39 | 3,91/5,87 | 4,22/6,34 | 4,52/6,79 | 4,81/7,23 | 5,08/7,63 | 5,34/8,03 | 5,59/8,40 | 5,82/8,73 | 6,03/9,07 | 6,23/9,36 | 6,41/9,62 | 6,57/9,87 | 6,72/10,10 | 6,85/10,29 |
| 1500 mm | 4,39/6,59 | 4,78/7,19 | 5,17/7,78 | 5,54/8,33 | 5,90/8,86 | 6,25/9,39 | 6,58/9,89 | 6,90/10,36 | 7,20/10,81 | 7,48/11,23 | 7,74/11,62 | 7,98/11,98 | 8,19/12,30 | 8,39/12,60 | 8,56/12,86 |
| 1600 mm | 5,29/7,95 | 5,78/8,68 | 6,25/9,38 | 6,71/10,07 | 7,15/10,74 | 7,58/11,39 | 8,00/12,01 | 8,39/12,60 | 8,75/13,14 | 9,09/13,65 | 9,41/14,13 | 9,71/14,58 | 10,00/15,01 | 10,26/15,40 | 10,50/15,76 |
| 1700 mm | 6,31/9,47 | 6,90/10,35 | 7,47/11,21 | 8,02/12,05 | 8,57/12,86 | 9,09/13,65 | 9,57/14,36 | 10,03/15,07 | 10,47/15,72 | 10,89/16,35 | 11,29/16,95 | 11,67/17,52 | 12,03/18,07 | 12,37/18,57 | 12,68/19,08 |
| 1800 mm | 7,45/11,20 | 8,15/12,24 | 8,83/13,26 | 9,50/14,25 | 10,14/15,22 | 10,73/16,11 | 11,31/16,97 | 11,86/17,80 | 12,39/18,60 | 12,91/19,38 | 13,40/20,10 | 13,87/20,82 | 14,31/21,48 | 14,73/22,11 | 15,13/22,72 |
| 1900 mm | 8,73/13,11 | 9,55/14,34 | 10,35/15,54 | 11,12/16,70 | 11,85/17,78 | 12,55/18,83 | 13,23/19,86 | 13,89/20,84 | 14,53/21,81 | 15,15/22,74 | 15,74/23,62 | 16,31/24,46 | 16,85/25,28 | 17,37/26,07 | 17,86/26,81 |
| 2000 mm | 10,45/15,69 | 11,44/17,17 | 12,40/18,62 | 13,29/19,96 | 14,17/21,26 | 15,02/22,54 | 15,85/23,79 | 16,66/25,01 | 17,45/26,18 | 18,21/27,33 | 18,94/28,42 | 19,66/29,50 | 20,34/30,51 | 21,00/31,50 | 21,63/32,46 |
| 2100 mm | 12,06/18,11 | 13,21/19,83 | 14,27/21,40 | 15,30/22,97 | 16,32/24,48 | 17,31/25,97 | 18,28/27,43 | 19,22/28,85 | 20,14/30,23 | 21,04/31,58 | 21,90/32,88 | 22,74/34,13 | 23,56/35,34 | 24,34/36,52 | 25,09/37,64 |
| 2200 mm | 13,83/20,76 | 15,09/22,64 | 16,30/24,48 | 17,49/26,25 | 18,66/28,02 | 19,81/29,72 | 20,92/31,39 | 22,02/33,05 | 23,08/34,63 | 24,12/36,19 | 25,13/37,72 | 26,11/39,18 | 27,07/40,61 | 27,99/41,99 | 28,88/43,32 |
| 2300 mm | 15,72/23,60 | 17,13/25,72 | 18,52/27,79 | 19,87/29,83 | 21,21/31,83 | 22,52/33,78 | 23,80/35,70 | 25,05/37,58 | 26,28/39,43 | 27,47/41,23 | 28,64/42,96 | 29,77/44,68 | 30,88/46,33 | 31,95/47,95 | 32,99/49,49 |
| 2400 mm | 17,75/26,64 | 19,34/29,02 | 20,91/31,37 | 22,45/33,68 | 23,96/35,97 | 25,45/38,18 | 26,91/40,37 | 28,33/42,52 | 29,73/44,61 | 31,10/46,66 | 32,44/48,67 | 33,74/50,62 | 35,01/52,52 | 36,25/54,39 | 37,45/56,18 |

Casement height

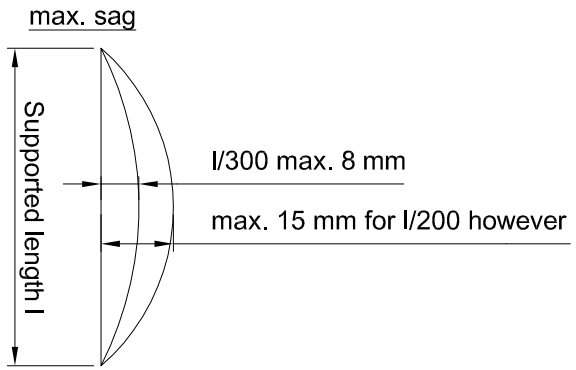
Total overall casement width

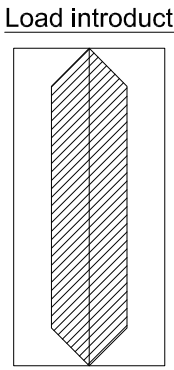
Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

Not to scale

| | |
|---|---|
| Wind load zone | 4 |
| qref in kN/m² | 1,25 |
| Mixed profile | North Sea and Baltic Sea coast and islands in the Baltic Sea |
| Installation height | ≤ 10 m |
| Beam load in kN/m | 0,50 |
| Sag | l/200 max.15 mm<br>l/300 max. 8 mm |




| Width/height | 1000 mm | 1100 mm | 1200 mm | 1300 mm | 1400 mm | 1500 mm | 1600 mm | 1700 mm | 1800 mm | 1900 mm | 2000 mm | 2100 mm | 2200 mm | 2300 mm | 2400 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | |
| 1000 mm | 1,44/2,16 | 1,55/2,33 | 1,66/2,51 | 1,76/2,64 | 1,85/2,78 | 1,93/2,90 | 2,00/3,02 | 2,06/3,10 | 2,11/3,18 | 2,15/3,25 | 2,18/3,29 | 2,21/3,33 | 2,23/3,37 | 2,26/3,41 | 2,28/3,44 |
| 1100 mm | 1,91/2,88 | 2,07/3,11 | 2,22/3,34 | 2,36/3,55 | 2,49/3,74 | 2,61/3,93 | 2,72/4,10 | 2,82/4,23 | 2,90/4,37 | 2,98/4,48 | 3,04/4,58 | 3,09/4,64 | 3,12/4,69 | 3,15/4,74 | 3,18/4,78 |
| 1200 mm | 2,46/3,72 | 2,68/4,03 | 2,88/4,33 | 3,07/4,61 | 3,25/4,89 | 3,42/5,14 | 3,57/5,37 | 3,72/5,59 | 3,85/5,78 | 3,96/5,95 | 4,06/6,11 | 4,15/6,23 | 4,22/6,34 | 4,28/6,43 | 4,32/6,50 |
| 1300 mm | 3,11/4,69 | 3,39/5,10 | 3,65/5,48 | 3,90/5,86 | 4,14/6,21 | 4,37/6,56 | 4,58/6,87 | 4,78/7,17 | 4,96/7,45 | 5,13/7,70 | 5,28/7,93 | 5,41/8,12 | 5,53/8,30 | 5,63/8,46 | 5,71/8,58 |
| 1400 mm | 3,87/5,81 | 4,21/6,33 | 4,54/6,82 | 4,87/7,31 | 5,17/7,78 | 5,47/8,21 | 5,75/8,64 | 6,01/9,02 | 6,25/9,38 | 6,48/9,74 | 6,70/10,05 | 6,89/10,34 | 7,06/10,60 | 7,22/10,84 | 7,35/11,03 |
| 1500 mm | 4,73/7,11 | 5,15/7,74 | 5,57/8,38 | 5,97/8,96 | 6,36/9,56 | 6,73/10,11 | 7,09/10,65 | 7,43/11,15 | 7,75/11,64 | 8,05/12,09 | 8,33/12,51 | 8,58/12,88 | 8,81/13,24 | 9,02/13,55 | 9,21/13,82 |
| 1600 mm | 5,71/8,57 | 6,23/9,35 | 6,74/10,11 | 7,23/10,87 | 7,71/11,58 | 8,18/12,27 | 8,62/12,94 | 9,05/13,59 | 9,43/14,16 | 9,80/14,71 | 10,14/15,22 | 10,46/15,71 | 10,77/16,16 | 11,05/16,59 | 11,30/16,97 |
| 1700 mm | 6,81/10,23 | 7,44/11,17 | 8,06/12,10 | 8,66/13,00 | 9,23/13,88 | 9,81/14,73 | 10,33/15,50 | 10,82/16,24 | 11,30/16,96 | 11,75/17,64 | 12,18/18,28 | 12,59/18,90 | 12,97/19,47 | 13,33/20,02 | 13,67/20,52 |
| 1800 mm | 8,05/12,09 | 8,80/13,22 | 9,54/14,32 | 10,26/15,39 | 10,95/16,43 | 11,59/17,40 | 12,21/18,33 | 12,80/19,22 | 13,38/20,08 | 13,93/20,91 | 14,46/21,70 | 14,96/22,46 | 15,44/23,19 | 15,90/23,85 | 16,32/24,51 |
| 1900 mm | 9,43/14,16 | 10,32/15,49 | 11,19/16,79 | 12,02/18,04 | 12,80/19,21 | 13,56/20,34 | 14,29/21,45 | 15,00/22,51 | 15,69/23,55 | 16,36/24,55 | 16,99/25,50 | 17,61/26,42 | 18,19/27,30 | 18,75/28,13 | 19,28/28,93 |
| 2000 mm | 11,27/16,91 | 12,34/18,53 | 13,37/20,07 | 14,33/21,52 | 15,28/22,93 | 16,20/24,30 | 17,09/25,65 | 17,96/26,95 | 18,81/28,22 | 19,63/29,45 | 20,42/30,63 | 21,18/31,79 | 21,92/32,89 | 22,62/33,95 | 23,30/34,96 |
| 2100 mm | 13,02/19,55 | 14,25/21,39 | 15,39/23,11 | 16,51/24,78 | 17,60/26,41 | 18,67/28,01 | 19,72/29,59 | 20,73/31,12 | 21,72/32,61 | 22,69/34,05 | 23,62/35,43 | 24,52/36,79 | 25,40/38,10 | 26,24/39,37 | 27,05/40,58 |
| 2200 mm | 14,93/22,46 | 16,29/24,44 | 17,60/26,41 | 18,88/28,34 | 20,14/30,24 | 21,37/32,06 | 22,58/33,89 | 23,76/35,65 | 24,90/37,37 | 26,02/39,05 | 27,11/40,68 | 28,17/42,26 | 29,19/43,80 | 30,18/45,29 | 31,14/46,73 |
| 2300 mm | 16,98/25,48 | 18,50/27,76 | 19,99/30,00 | 21,46/32,19 | 22,90/34,36 | 24,31/36,47 | 25,69/38,53 | 27,04/40,57 | 28,36/42,56 | 29,65/44,49 | 30,91/46,37 | 32,13/48,21 | 33,32/49,99 | 34,47/51,73 | 35,59/53,39 |
| 2400 mm | 19,17/28,78 | 20,89/31,35 | 22,58/33,89 | 24,25/36,38 | 25,88/38,82 | 27,48/41,23 | 29,05/43,59 | 30,59/45,90 | 32,10/48,16 | 33,58/50,38 | 35,02/52,53 | 36,42/54,65 | 37,79/56,70 | 39,12/58,70 | 40,42/60,65 |

Casement height

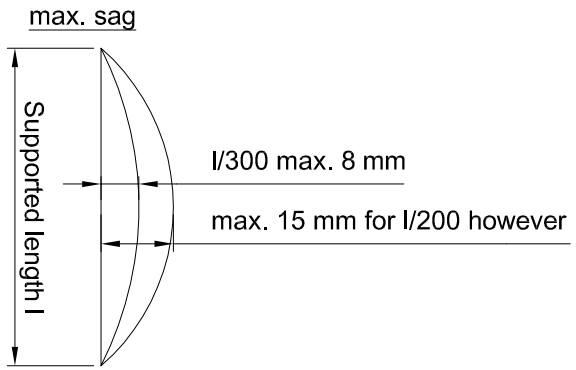
Total overall casement width

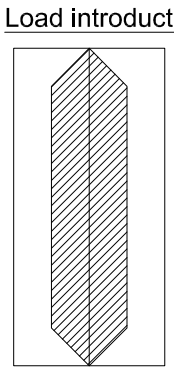
Issue: 11/2015

SALAMANDER
WINDOW & DOOR SYSTEMS

Not to scale

| | |
|---|---|
| Wind load zone | 4 |
| qref in kN/m² | 1,40 |
| Mixed profile | a) North Sea and Baltic Sea coast and islands in the Baltic Sea |
| | b) Islands in the North Sea |
| Installation height | a) ≤ 18 m \| b) ≤ 10 m |
| Beam load in kN/m | 0,50 |
| Sag | l/200 max.15 mm<br>l/300 max. 8 mm |




| Width/height | 1000 mm | 1100 mm | 1200 mm | 1300 mm | 1400 mm | 1500 mm | 1600 mm | 1700 mm | 1800 mm | 1900 mm | 2000 mm | 2100 mm | 2200 mm | 2300 mm | 2400 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1000 mm | 1,58/2,38 | 1,71/2,57 | 1,82/2,75 | 1,93/2,92 | 2,03/3,06 | 2,12/3,19 | 2,19/3,29 | 2,26/3,39 | 2,31/3,48 | 2,35/3,55 | 2,38/3,59 | 2,41/3,63 | 2,43/3,67 | 2,46/3,71 | 2,48/3,74 |
| 1100 mm | 2,10/3,17 | 2,28/3,42 | 2,44/3,68 | 2,59/3,91 | 2,74/4,13 | 2,87/4,31 | 2,99/4,49 | 3,09/4,65 | 3,19/4,80 | 3,26/4,91 | 3,33/5,01 | 3,38/5,08 | 3,42/5,15 | 3,45/5,19 | 3,48/5,24 |
| 1200 mm | 2,72/4,09 | 2,95/4,44 | 3,17/4,78 | 3,38/5,09 | 3,58/5,39 | 3,77/5,67 | 3,94/5,91 | 4,09/6,15 | 4,23/6,36 | 4,36/6,55 | 4,47/6,71 | 4,56/6,87 | 4,64/6,98 | 4,70/7,05 | 4,74/7,12 |
| 1300 mm | 3,44/5,18 | 3,74/5,62 | 4,03/6,07 | 4,31/6,48 | 4,57/6,87 | 4,82/7,23 | 5,05/7,59 | 5,27/7,92 | 5,47/8,22 | 5,65/8,48 | 5,82/8,75 | 5,96/8,95 | 6,09/9,14 | 6,20/9,31 | 6,29/9,44 |
| 1400 mm | 4,28/6,44 | 4,66/7,00 | 5,03/7,55 | 5,38/8,09 | 5,72/8,59 | 6,05/9,07 | 6,35/9,54 | 6,64/9,97 | 6,91/10,38 | 7,16/10,76 | 7,39/11,11 | 7,61/11,42 | 7,80/11,72 | 7,96/11,96 | 8,11/12,17 |
| 1500 mm | 5,24/7,88 | 5,71/8,58 | 6,17/9,28 | 6,62/9,93 | 7,04/10,58 | 7,46/11,20 | 7,85/11,79 | 8,22/12,35 | 8,58/12,89 | 8,91/13,38 | 9,22/13,84 | 9,49/14,25 | 9,74/14,63 | 9,97/14,96 | 10,18/15,27 |
| 1600 mm | 6,33/9,51 | 6,91/10,37 | 7,47/11,23 | 8,02/12,04 | 8,55/12,84 | 9,06/13,61 | 9,56/14,35 | 10,03/15,05 | 10,45/15,70 | 10,86/16,29 | 11,23/16,85 | 11,59/17,39 | 11,92/17,89 | 12,23/18,35 | 12,51/18,77 |
| 1700 mm | 7,56/11,36 | 8,26/12,41 | 8,94/13,42 | 9,61/14,43 | 10,26/15,39 | 10,88/16,34 | 11,46/17,21 | 12,01/18,03 | 12,53/18,82 | 13,03/19,57 | 13,51/20,27 | 13,96/20,95 | 14,38/21,58 | 14,78/22,18 | 15,15/22,74 |
| 1800 mm | 8,94/13,43 | 9,78/14,67 | 10,59/15,90 | 11,39/17,11 | 12,16/18,24 | 12,87/19,32 | 13,55/20,34 | 14,22/21,33 | 14,85/22,30 | 15,46/23,22 | 16,05/24,09 | 16,61/24,92 | 17,14/25,72 | 17,64/26,47 | 18,11/27,17 |
| 1900 mm | 10,48/15,75 | 11,47/17,22 | 12,44/18,66 | 13,36/20,06 | 14,23/21,36 | 15,07/22,61 | 15,88/23,84 | 16,67/25,02 | 17,44/26,18 | 18,17/27,26 | 18,88/28,33 | 19,56/29,35 | 20,21/30,32 | 20,82/31,24 | 21,41/32,12 |
| 2000 mm | 12,50/18,76 | 13,69/20,54 | 14,83/22,27 | 15,90/23,86 | 16,94/25,42 | 17,96/26,95 | 18,95/28,45 | 19,92/29,88 | 20,85/31,29 | 21,76/32,64 | 22,63/33,97 | 23,47/35,22 | 24,29/36,44 | 25,07/37,61 | 25,81/38,73 |
| 2100 mm | 14,45/21,68 | 15,82/23,74 | 17,08/25,64 | 18,32/27,49 | 19,53/29,32 | 20,72/31,10 | 21,87/32,83 | 23,00/34,51 | 24,10/36,16 | 25,16/37,76 | 26,19/39,31 | 27,19/40,80 | 28,16/42,24 | 29,09/43,64 | 29,98/44,99 |
| 2200 mm | 16,58/24,87 | 18,09/27,14 | 19,54/29,31 | 20,96/31,46 | 22,36/33,55 | 23,72/35,59 | 25,06/37,61 | 26,36/39,55 | 27,64/41,47 | 28,88/43,33 | 30,08/45,13 | 31,25/46,88 | 32,38/48,59 | 33,48/50,22 | 34,54/51,82 |
| 2300 mm | 18,86/28,30 | 20,55/30,83 | 22,21/33,32 | 23,83/35,77 | 25,43/38,15 | 26,99/40,49 | 28,52/42,79 | 30,02/45,05 | 31,49/47,24 | 32,92/49,40 | 34,13/51,47 | 35,66/53,51 | 36,98/55,49 | 38,26/57,39 | 39,49/59,25 |
| 2400 mm | 21,31/31,98 | 23,22/34,83 | 25,16/37,66 | 26,94/40,42 | 28,75/43,14 | 30,53/45,80 | 32,28/48,44 | 33,99/51,00 | 35,66/53,50 | 37,29/55,96 | 38,89/58,35 | 40,45/60,69 | 41,96/62,95 | 43,44/65,18 | 44,87/67,32 |

Casement height

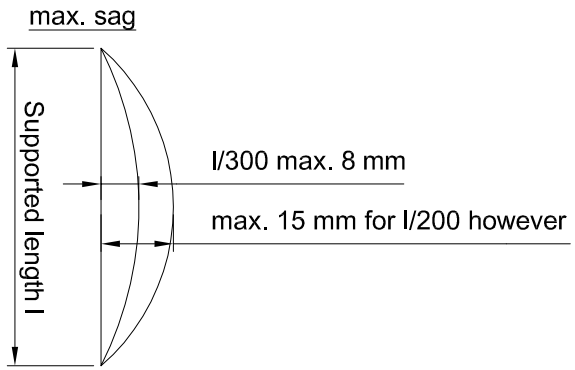
Total overall casement width

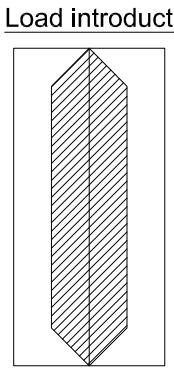
Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS

Not to scale

| | |
|---|---|
| Wind load zone | 4 |
| qref in kN/m² | 1,55 |
| Mixed profile | North Sea and Baltic Sea coast and islands in the Baltic Sea |
| Installation height | ≤ 25 m |
| Beam load in kN/m | 0,50 |
| Sag | l/200 max.15 mm<br>l/300 max. 8 mm |




| Width/height | 1000 mm | 1100 mm | 1200 mm | 1300 mm | 1400 mm | 1500 mm | 1600 mm | 1700 mm | 1800 mm | 1900 mm | 2000 mm | 2100 mm | 2200 mm | 2300 mm | 2400 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | |
| 1000 mm | 1,72/2,59 | 1,86/2,80 | 1,99/3,00 | 2,10/3,17 | 2,21/3,32 | 2,30/3,47 | 2,38/3,58 | 2,45/3,69 | 2,51/3,77 | 2,56/3,86 | 2,59/3,90 | 2,61/3,94 | 2,64/3,97 | 2,66/4,01 | 2,69/4,05 |
| 1100 mm | 2,30/3,45 | 2,48/3,73 | 2,66/4,00 | 2,83/4,27 | 2,99/4,50 | 3,13/4,71 | 3,26/4,90 | 3,37/5,07 | 3,47/5,22 | 3,55/5,34 | 3,62/5,44 | 3,68/5,53 | 3,71/5,58 | 3,74/5,63 | 3,77/5,67 |
| 1200 mm | 2,97/4,47 | 3,23/4,86 | 3,47/5,22 | 3,70/5,56 | 3,91/5,88 | 4,11/6,17 | 4,30/6,45 | 4,47/6,72 | 4,62/6,95 | 4,76/7,15 | 4,87/7,32 | 4,97/7,48 | 5,05/7,59 | 5,12/7,69 | 5,16/7,75 |
| 1300 mm | 3,77/5,66 | 4,10/6,15 | 4,41/6,63 | 4,72/7,09 | 5,00/7,52 | 5,27/7,93 | 5,53/8,30 | 5,76/8,66 | 5,98/8,99 | 6,18/9,29 | 6,36/9,55 | 6,51/9,78 | 6,65/9,98 | 6,77/10,16 | 6,86/10,31 |
| 1400 mm | 4,69/7,05 | 5,11/7,67 | 5,51/8,27 | 5,90/8,86 | 6,27/9,41 | 6,62/9,95 | 6,96/10,45 | 7,27/10,92 | 7,57/11,36 | 7,84/11,78 | 8,09/12,15 | 8,32/12,50 | 8,53/12,81 | 8,71/13,07 | 8,87/13,31 |
| 1500 mm | 5,75/8,63 | 6,27/9,41 | 6,77/10,18 | 7,26/10,91 | 7,73/11,60 | 8,18/12,28 | 8,61/12,93 | 9,02/13,54 | 9,40/14,11 | 9,77/14,66 | 10,11/15,17 | 10,40/15,62 | 10,68/16,02 | 10,92/16,39 | 11,14/16,74 |
| 1600 mm | 6,95/10,43 | 7,59/11,39 | 8,21/12,32 | 8,81/13,23 | 9,39/14,10 | 9,95/14,94 | 10,49/15,75 | 11,01/16,53 | 11,47/17,22 | 11,91/17,89 | 12,33/18,51 | 12,71/19,08 | 1308/19,63 | 13,41/20,13 | 13,72/20,58 |
| 1700 mm | 8,31/12,47 | 9,08/13,63 | 9,83/14,75 | 10,56/15,85 | 11,27/16,93 | 11,96/17,96 | 12,59/18,90 | 13,19/19,79 | 13,76/20,65 | 14,31/21,49 | 14,83/22,25 | 15,33/23,00 | 15,79/23,69 | 16,22/24,35 | 16,63/24,96 |
| 1800 mm | 9,84/14,76 | 10,75/16,15 | 11,65/17,50 | 12,53/18,81 | 13,37/20,08 | 14,15/21,25 | 14,90/22,37 | 15,63/23,47 | 16,33/24,51 | 17,00/25,51 | 17,64/26,47 | 18,25/27,39 | 18,83/28,26 | 19,38/29,07 | 19,89/29,86 |
| 1900 mm | 11,54/17,32 | 12,62/18,94 | 13,69/20,53 | 14,70/22,06 | 15,65/23,48 | 16,58/24,88 | 17,47/26,23 | 18,34/27,53 | 19,18/28,78 | 19,99/30,00 | 20,77/31,17 | 21,51/32,28 | 22,22/33,35 | 22,90/34,36 | 23,54/35,31 |
| 2000 mm | 13,74/20,62 | 15,04/22,57 | 16,29/24,45 | 17,46/26,21 | 18,61/27,92 | 19,73/29,59 | 20,81/31,23 | 21,87/32,81 | 22,89/34,35 | 23,88/35,83 | 24,84/37,28 | 25,77/38,67 | 26,66/39,99 | 27,51/41,27 | 28,32/42,50 |
| 2100 mm | 15,88/23,83 | 17,38/26,08 | 18,77/28,17 | 20,13/30,20 | 21,46/32,21 | 22,76/34,16 | 24,03/36,07 | 25,27/37,92 | 26,47/39,71 | 27,63/41,47 | 28,77/43,16 | 29,86/44,81 | 30,92/26,38 | 31,93/47,91 | 32,91/49,38 |
| 2200 mm | 18,23/27,34 | 19,88/29,84 | 21,48/32,23 | 23,04/34,58 | 24,58/36,87 | 26,08/39,13 | 27,54/41,33 | 28,97/43,46 | 30,37/45,56 | 31,73/47,60 | 33,05/49,58 | 34,33/51,52 | 35,57/53,38 | 36,77/55,18 | 37,93/59,92 |
| 2300 mm | 20,75/31,13 | 22,60/33,91 | 24,42/36,65 | 26,21/39,32 | 27,96/41,96 | 29,68/44,52 | 31,36/47,05 | 33,01/49,52 | 34,61/51,93 | 36,18/54,28 | 37,71/56,57 | 39,20/58,80 | 40,64/60,97 | 42,04/63,08 | 43,40/65,12 |
| 2400 mm | 23,44/35,17 | 25,54/38,32 | 27,61/41,43 | 29,64/44,47 | 31,63/47,45 | 33,58/50,39 | 35,50/53,26 | 37,38/56,09 | 39,21/58,83 | 41,01/61,54 | 42,76/64,16 | 44,47/66,72 | 46,14/69,21 | 47,76/71,64 | 49,33/74,00 |

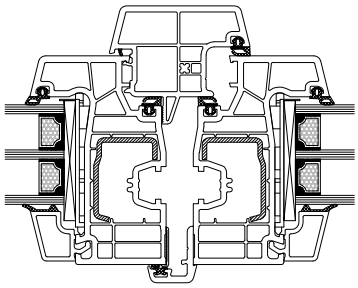
Casement height

Total overall casement width

Issue: 11/2015

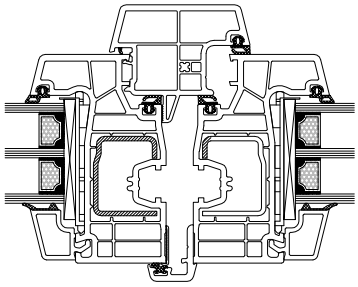
SALAMANDER WINDOW & DOOR SYSTEMS

## Reinforcement guidelines - overlap casement variants



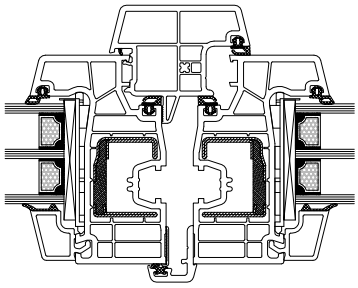
| | | |
|---|---|---|
| Casement reinforcement | 2x 475 200-73 | 3,34 $cm^4$ |
| Moment of inertia of area Iy total | | 7,22 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 990x1170 / 720x1710 mm | |

| | | |
|---|---|---|
| Casement reinforcement | 2x 475 200-74 | 4,16 $cm^4$ |
| Moment of inertia of area Iy total | | 8,04 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1100x1300 / 800x1900 mm<br>decor: 990x1170 / 720x1710 mm | |



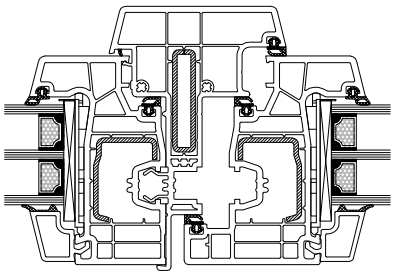
| | | |
|---|---|---|
| Casement reinforcement | 2x 455 230-73 | 5,54 $cm^4$ |
| Moment of inertia of area Iy total | | 9,42 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1260x1350 / 900x2070 mm | |

| | | |
|---|---|---|
| Casement reinforcement | 2x 455 230-74 | 6,98 $cm^4$ |
| Moment of inertia of area Iy total | | 10,86 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor: 1260x1350 / 900x2070 mm | |



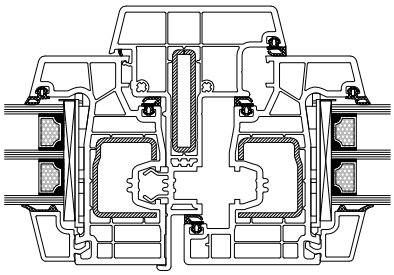
| | | |
|---|---|---|
| Casement reinforcement | 2x 455 231-74 | 9,10 $cm^4$ |
| Moment of inertia of area Iy total | | 12,98 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor: 1260x1350 / 900x2070 mm | |

## Reinforcement guidelines - overlap casement variants



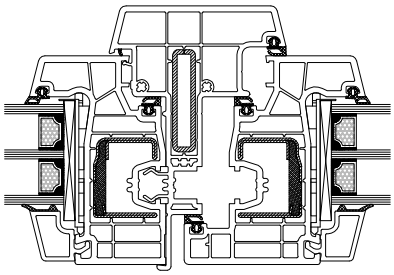
| | | |
|---|---|---|
| Casement reinforcement | 2x 475 200-73 | 3,34 $cm^4$ |
| Overlap reinforcement | 405 012-74 | 3,88 $cm^4$ |
| Moment of inertia of area Iy total | | 7,22 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 990x1170 / 720x1710 mm | |

| | | |
|---|---|---|
| Casement reinforcement | 2x 475 200-74 | 4,16 $cm^4$ |
| Overlap reinforcement | 405 012-74 | 3,88 $cm^4$ |
| Moment of inertia of area Iy total | | 8,04 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1100x1300 / 800x1900 mm<br>decor: 990x1170 / 720x1710 mm | |



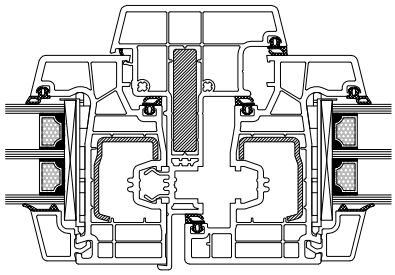
| | | |
|---|---|---|
| Casement reinforcement | 2x 455 230-73 | 5,54 $cm^4$ |
| Overlap reinforcement | 405 012-74 | 3,88 $cm^4$ |
| Moment of inertia of area Iy total | | 9,42 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1260x1350 / 900x2070 mm | |

| | | |
|---|---|---|
| Casement reinforcement | 2x 455 230-74 | 6,98 $cm^4$ |
| Overlap reinforcement | 405 012-74 | 3,88 $cm^4$ |
| Moment of inertia of area Iy total | | 10,86 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor: 1260x1350 / 900x2070 mm | |



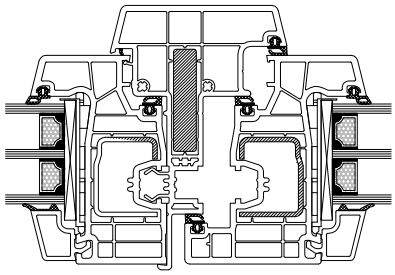
| | | |
|---|---|---|
| Casement reinforcement | 2x 455 231-74 | 9,10 $cm^4$ |
| Overlap reinforcement | 405 012-74 | 3,88 $cm^4$ |
| Moment of inertia of area Iy total | | 12,98 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor: 1260x1350 / 900x2070 mm | |

## Reinforcement guidelines - overlap casement variants



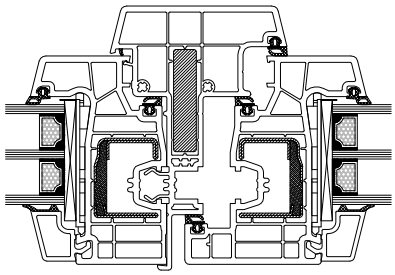
| | | |
|---|---|---|
| Casement reinforcement | 2x 475 200-73 | 3,34 $cm^4$ |
| Overlap reinforcement * | Flat steel 45 x 10 mm | 7,59 $cm^4$ |
| Moment of inertia of area ly total | | 10,93 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 990x1170 / 720x1710 mm | |

| | | |
|---|---|---|
| Casement reinforcement | 2x 475 200-74 | 4,16 $cm^4$ |
| Overlap reinforcement * | Flat steel 45 x 10 mm | 7,59 $cm^4$ |
| Moment of inertia of area ly total | | 11,75 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1100x1300 / 800x1900 mm<br>decor: 990x1170 / 720x1710 mm | |



| | | |
|---|---|---|
| Casement reinforcement | 2x 455 230-73 | 5,54 $cm^4$ |
| Overlap reinforcement * | Flat steel 45 x 10 mm | 7,59 $cm^4$ |
| Moment of inertia of area ly total | | 13,13 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1260x1350 / 900x2070 mm | |

| | | |
|---|---|---|
| Casement reinforcement | 2x 455 230-74 | 6,98 $cm^4$ |
| Overlap reinforcement * | Flat steel 45 x 10 mm | 7,59 $cm^4$ |
| Moment of inertia of area ly total | | 14,57 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor: 1260x1350 / 900x2070 mm | |

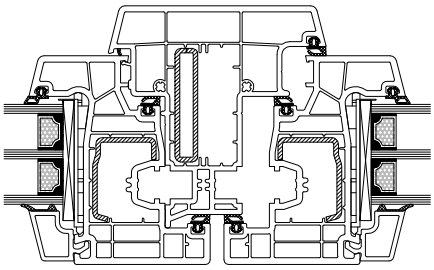


| | | |
|---|---|---|
| Casement reinforcement | 2x 455 231-74 | 9,10 $cm^4$ |
| Overlap reinforcement * | Flat steel 45 x 10 mm | 7,59 $cm^4$ |
| Moment of inertia of area ly total | | 16,69 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor: 1260x1350 / 900x2070 mm | |

* Galvanised flat steel
purchased from steel trade

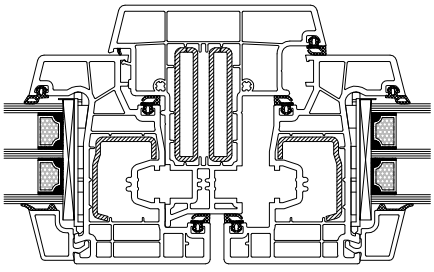
Scale 1:2 (or depending on print-out)

## Reinforcement guidelines - overlap casement variants



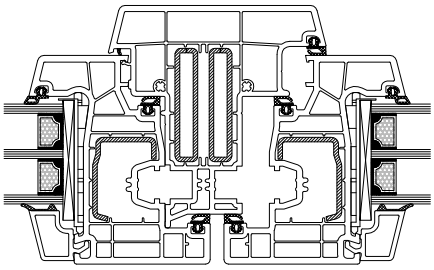
| | | |
|---|---|---|
| Casement reinforcement | 2x 475 200-73 | 3,34 $cm^4$ |
| Overlap reinforcement | 405 015-74 | 5,26 $cm^4$ |
| Moment of inertia of area Iy total | | 8,60 $cm^4$ |
| Casement reinforcement | 2x 475 200-73 | 3,34 $cm^4$ |
| Overlap reinforcement | 405 015-73 | 4,17 $cm^4$ |
| Moment of inertia of area Iy total | | 7,51 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 990x1170 / 720x1710 mm | |

| | | |
|---|---|---|
| Casement reinforcement | 2x 475 200-74 | 4,16 $cm^4$ |
| Overlap reinforcement | 405 015-74 | 5,26 $cm^4$ |
| Moment of inertia of area Iy total | | 9,42 $cm^4$ |
| Casement reinforcement | 2x 475 200-74 | 4,16 $cm^4$ |
| Overlap reinforcement | 405 015-73 | 4,17 $cm^4$ |
| Moment of inertia of area Iy total | | 8,33 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1100x1300 / 800x1900 mm<br>decor: 990x1170 / 720x1710 mm | |

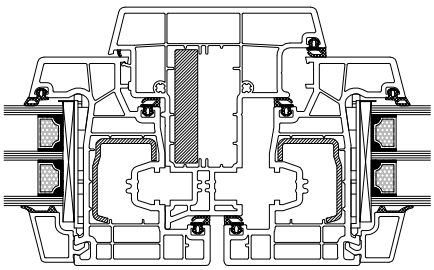


| | | |
|---|---|---|
| Casement reinforcement | 2x 475 200-73 | 3,34 $cm^4$ |
| Overlap reinforcement | 2x 405 015-74 | 10,52 $cm^4$ |
| Moment of inertia of area Iy total | | 13,86 $cm^4$ |
| Casement reinforcement | 2x 475 200-73 | 3,34 $cm^4$ |
| Overlap reinforcement | 2x 405 015-73 | 8,34 $cm^4$ |
| Moment of inertia of area Iy total | | 11,68 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 990x1170 / 720x1710 mm | |

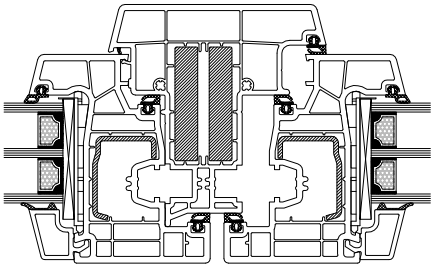
## Reinforcement guidelines - overlap casement variants



| | | |
|---|---|---|
| Casement reinforcement | 2x 475 200-74 | 4,16 $cm^4$ |
| Overlap reinforcement | 2x 405 015-74 | 10,52 $cm^4$ |
| Moment of inertia of area ly total | | 14,68 $cm^4$ |
| Casement reinforcement | 2x 475 200-74 | 4,16 $cm^4$ |
| Overlap reinforcement | 2x 405 015-73 | 8,34 $cm^4$ |
| Moment of inertia of area ly total | | 12,50 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1100x1300 / 800x1900 mm<br>decor: 990x1170 / 720x1710 mm | |



| | | |
|---|---|---|
| Casement reinforcement | 2x 475 200-73 | 3,34 $cm^4$ |
| Overlap reinforcement | 405 125 | 10,41 $cm^4$ |
| Moment of inertia of area ly total | | 13,75 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 990x1710 / 720x1710 mm | |



| | | |
|---|---|---|
| Casement reinforcement | 2x 475 200-74 | 4,16 $cm^4$ |
| Overlap reinforcement | 405 125 | 10,41 $cm^4$ |
| Moment of inertia of area ly total | | 14,57 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1100x1300 / 800x1900 mm<br>decor: 990x1170 / 720x1710 mm | |

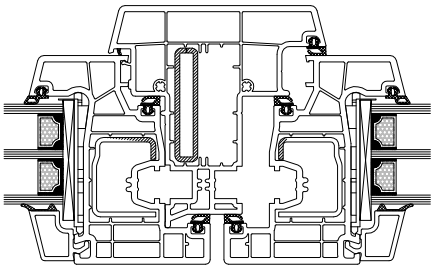


| | | |
|---|---|---|
| Casement reinforcement | 2x 475 200-73 | 3,34 $cm^4$ |
| Overlap reinforcement | 2x 405 125 | 20,82 $cm^4$ |
| Moment of inertia of area ly total | | 24,16 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 990x1170 / 720x1710 mm | |



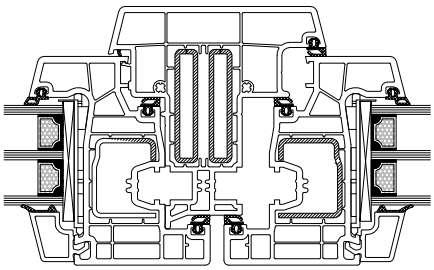
| | | |
|---|---|---|
| Casement reinforcement | 2x 475 200-74 | 4,16 $cm^4$ |
| Overlap reinforcement | 2x 405 125 | 20,82 $cm^4$ |
| Moment of inertia of area ly total | | 24,98 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1100x1300 / 800x1900 mm<br>decor: 990x1170 / 720x1710 mm | |

## Reinforcement guidelines - overlap casement variants



| | | |
|---|---|---|
| Casement reinforcement | 2x 455 230-73 | 5,54 $cm^4$ |
| Overlap reinforcement | 405 015-74 | 5,26 $cm^4$ |
| Moment of inertia of area Iy total | | 10,80 $cm^4$ |
| Casement reinforcement | 2x 455 230-73 | 5,54 $cm^4$ |
| Overlap reinforcement | 405 015-73 | 4,17 $cm^4$ |
| Moment of inertia of area Iy total | | 9,71 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1260x1350 / 900x2070 mm | |

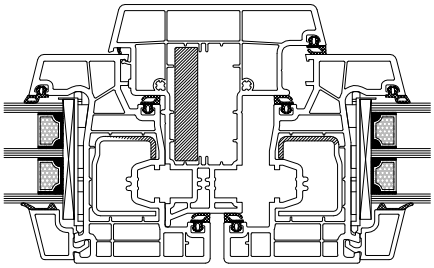
| | | |
|---|---|---|
| Casement reinforcement | 2x 455 230-74 | 6,98 $cm^4$ |
| Overlap reinforcement | 405 015-74 | 5,26 $cm^4$ |
| Moment of inertia of area Iy total | | 12,24 $cm^4$ |
| Casement reinforcement | 2x 455 230-74 | 6,98 $cm^4$ |
| Overlap reinforcement | 405 015-73 | 4,17 $cm^4$ |
| Moment of inertia of area Iy total | | 11,15 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor: 1260x1350 / 900x2070 mm | |



| | | |
|---|---|---|
| Casement reinforcement | 2x 455 230-73 | 5,54 $cm^4$ |
| Overlap reinforcement | 2x 405 015-74 | 10,52 $cm^4$ |
| Moment of inertia of area Iy total | | 16,06 $cm^4$ |
| Casement reinforcement | 2x 455 230-73 | 5,54 $cm^4$ |
| Overlap reinforcement | 2x 405 015-73 | 8,34 $cm^4$ |
| Moment of inertia of area Iy total | | 13,88 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1260x1350 / 900x2070 mm | |

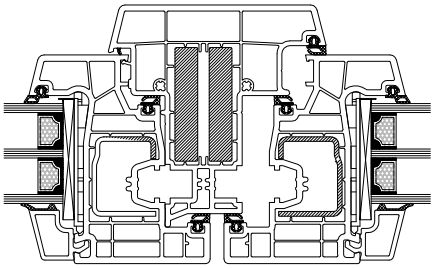
| | | |
|---|---|---|
| Casement reinforcement | 2x 455 230-74 | 6,98 $cm^4$ |
| Overlap reinforcement | 2x 405 015-74 | 10,52 $cm^4$ |
| Moment of inertia of area Iy total | | 17,50 $cm^4$ |
| Casement reinforcement | 2x 455 230-74 | 6,98 $cm^4$ |
| Overlap reinforcement | 2x 405 015-73 | 8,34 $cm^4$ |
| Moment of inertia of area Iy total | | 15,32 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor 1260x1350 / 900x2070 mm | |

## Reinforcement guidelines - overlap casement variants



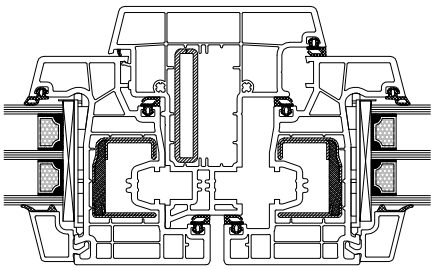
| | | |
|---|---|---|
| Casement reinforcement | 2x 455 230-73 | 5,54 $cm^4$ |
| Overlap reinforcement | 405 125 | 10,41 $cm^4$ |
| Moment of inertia of area Iy total | | 15,95 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1260x1350 / 900x2070 mm | |

| | | |
|---|---|---|
| Casement reinforcement | 2x455 230-74 | 6,98 $cm^4$ |
| Overlap reinforcement | 405 125 | 10,41 $cm^4$ |
| Moment of inertia of area Iy total | | 17,39 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor: 1260x1350 / 900x2070 mm | |



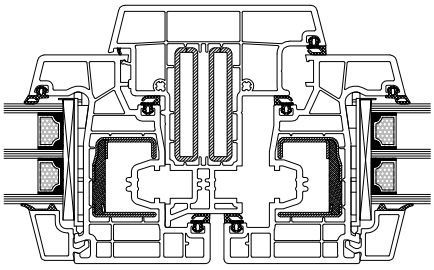
| | | |
|---|---|---|
| Casement reinforcement | 2x 455 230-73 | 5,54 $cm^4$ |
| Overlap reinforcement | 2x 405 125 | 20,82 $cm^4$ |
| Moment of inertia of area Iy total | | 26,36 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1260x1350 / 900x2070 mm | |

| | | |
|---|---|---|
| Casement reinforcement | 2x455 230-74 | 6,98 $cm^4$ |
| Overlap reinforcement | 2x 405 125 | 20,82 $cm^4$ |
| Moment of inertia of area Iy total | | 27,80 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor: 1260x1350 / 900x2070 mm | |

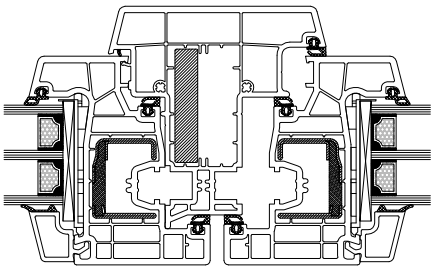


| | | |
|---|---|---|
| Casement reinforcement | 2x 455 231-74 | 9,10 $cm^4$ |
| Overlap reinforcement | 405 015-74 | 5,26 $cm^4$ |
| Moment of inertia of area Iy total | | 14,36 $cm^4$ |
| Casement reinforcement | 2x 455 231-74 | 9,10 $cm^4$ |
| Overlap reinforcement | 405 015-73 | 4,17 $cm^4$ |
| Moment of inertia of area Iy total | | 13,27 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor: 1260x1350 / 900x2070 mm | |

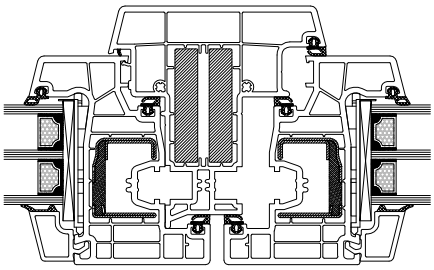
## Reinforcement guidelines - overlap casement variants



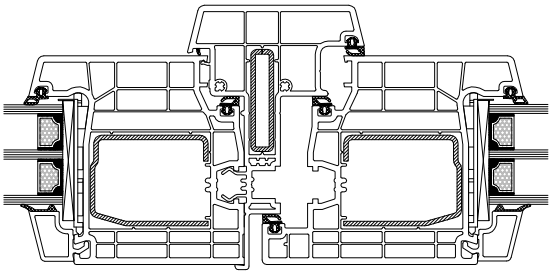
| | | |
|---|---|---|
| Casement reinforcement | 2x 455 231-74 | 9,10 $cm^4$ |
| Overlap reinforcement | 2x 405 015-74 | 10,52 $cm^4$ |
| Moment of inertia of area Iy total | | 19,62 $cm^4$ |
| Casement reinforcement | 2x 455 231-74 | 9,10 $cm^4$ |
| Overlap reinforcement | 2x 405 015-73 | 8,34 $cm^4$ |
| Moment of inertia of area Iy total | | 17,44 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor: 1260x1350 / 900x2070 mm | |



| | | |
|---|---|---|
| Casement reinforcement | 2x 455 231-74 | 9,10 $cm^4$ |
| Overlap reinforcement | 405 125 | 10,41 $cm^4$ |
| Moment of inertia of area Iy total | | 19,51 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor: 1260x1350 / 900x2070 mm | |

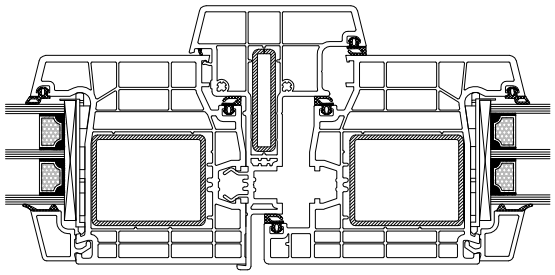


| | | |
|---|---|---|
| Casement reinforcement | 2x 455 231-74 | 9,10 $cm^4$ |
| Overlap reinforcement | 2x 405 125 | 20,82 $cm^4$ |
| Moment of inertia of area Iy total | | 29,92 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor: 1260x1350 / 900x2070 mm | |

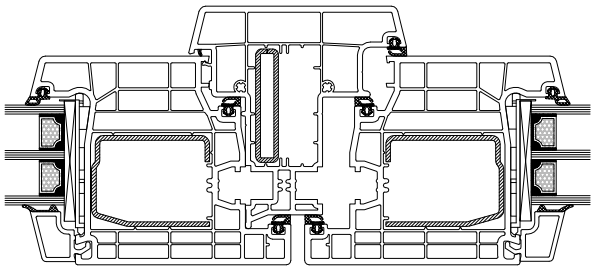


| | | |
|---|---|---|
| Casement reinforcement | 2x 455 030-74 | 15,74 $cm^4$ |
| Overlap reinforcement | 405 012-74 | 3,88 $cm^4$ |
| Moment of inertia of area Iy total | | 19,62 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1200x2400 / 1500x1500 mm<br>decor: 900x2160 / 1350x1350 mm | |

## Reinforcement guidelines - overlap casement variants

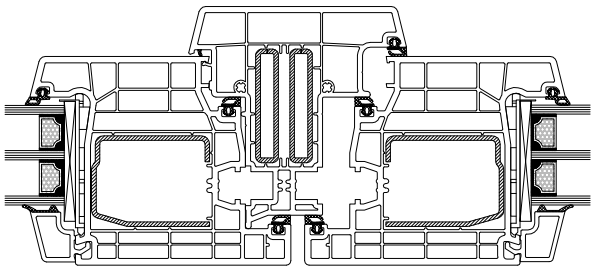


| | | |
|---|---|---|
| Casement reinforcement | 2x 405 065-74 | 17,22 $cm^4$ |
| Overlap reinforcement | 405 012-74 | 3,88 $cm^4$ |
| Moment of inertia of area Iy total | | 21,10 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1200x2400 / 1500x1500 mm<br>decor: 900x2160 / 1350x1350 mm | |

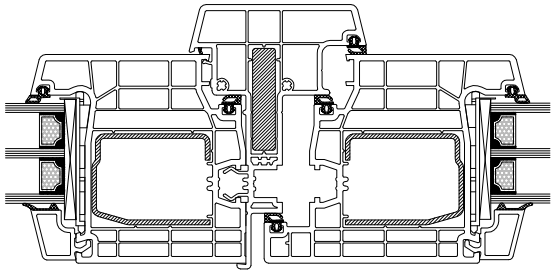


| | | |
|---|---|---|
| Casement reinforcement | 2x 455 030-74 | 15,74 $cm^4$ |
| Overlap reinforcement | 405 015-74 | 5,26 $cm^4$ |
| Moment of inertia of area Iy total | | 21,00 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1200x2400 / 1500x1500 mm<br>decor: 900x2160 / 1350x1350 mm | |

| | | |
|---|---|---|
| Casement reinforcement | 2x 455 030-74 | 15,74 $cm^4$ |
| Overlap reinforcement | 405 015-73 | 4,17 $cm^4$ |
| Moment of inertia of area Iy total | | 19,91 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1200x2400 / 1500x1500 mm<br>decor: 900x2160 / 1350x1350 mm | |



| | | |
|---|---|---|
| Casement reinforcement | 2x 455 030-74 | 15,74 $cm^4$ |
| Overlap reinforcement | 2x 405 015-74 | 10,52 $cm^4$ |
| Moment of inertia of area Iy total | | 26,26 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1200x2400 / 1500x1500 mm<br>decor: 900x2160 / 1350x1350 mm | |

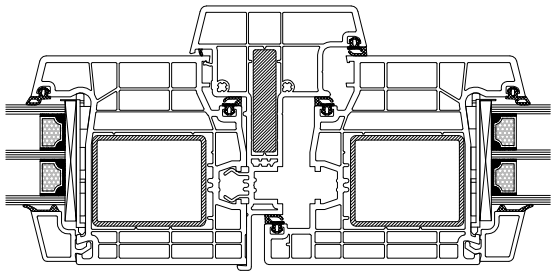


| | | |
|---|---|---|
| Casement reinforcement | 2x 455 030-74 | 15,74 $cm^4$ |
| Overlap reinforcement * | Flat steel 45 x 10 mm | 7,59 $cm^4$ |
| Moment of inertia of area Iy total | | 23,33 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1200x2400 / 1500x1500 mm<br>decor: 900x2160 / 1350x1350 mm | |

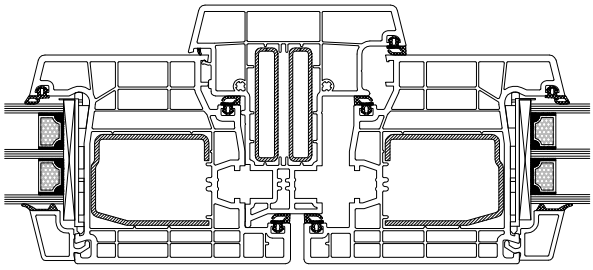
* Galvanised flat steel
purchased from steel trade

Not to scale

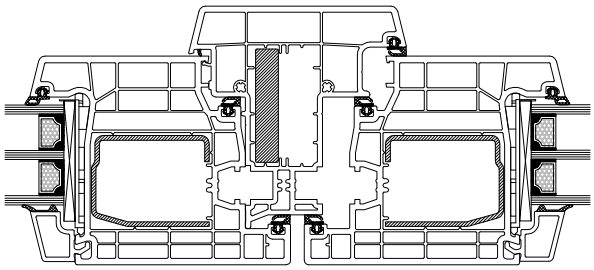
## Reinforcement guidelines - overlap casement variants



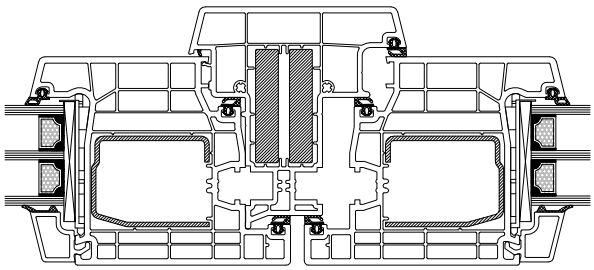
| | | |
|---|---|---|
| Casement reinforcement | 2x 405 065-74 | 17,22 $cm^4$ |
| Overlap reinforcement * | Flat steel 45 x 10 mm | 7,59 $cm^4$ |
| Moment of inertia of area Iy total | | 24,81 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1200x2400 / 1500x1500 mm<br>decor: 900x2160 / 1350x1350 mm | |



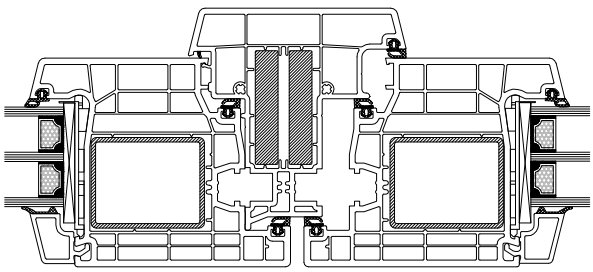
| | | |
|---|---|---|
| Casement reinforcement | 2x 455 030-74 | 15,74 $cm^4$ |
| Overlap reinforcement | 2x 405 015-73 | 8,34 $cm^4$ |
| Moment of inertia of area Iy total | | 24,08 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1200x2400 / 1500x1500 mm<br>decor 900x2160 / 1350x1350 mm | |



| | | |
|---|---|---|
| Casement reinforcement | 2x 455 030-74 | 15,74 $cm^4$ |
| Overlap reinforcement | 405 125 | 10,41 $cm^4$ |
| Moment of inertia of area Iy total | | 26,15 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1200x2400 / 1500x1500 mm<br>decor: 900x2160 / 1350x1350 mm | |



| | | |
|---|---|---|
| Casement reinforcement | 2x 455 030-74 | 15,74 $cm^4$ |
| Overlap reinforcement | 2x 405 125 | 20,82 $cm^4$ |
| Moment of inertia of area Iy total | | 36,56 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1200x2400 / 1500x1500 mm<br>decor: 900x2160 / 1350x1350 mm | |

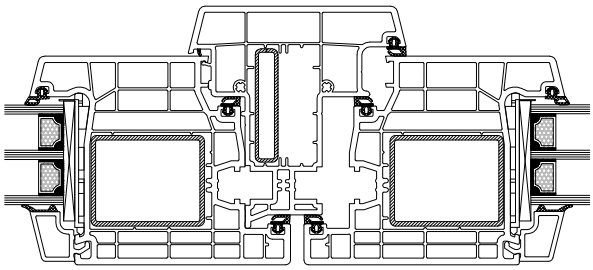


| | | |
|---|---|---|
| Casement reinforcement | 2x 455 065-74 | 17,22 $cm^4$ |
| Overlap reinforcement | 2x 405 125 | 20,82 $cm^4$ |
| Moment of inertia of area Iy total | | 38,04 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1200x2400 / 1500x1500 mm<br>decor: 900x2160 / 1350x1350 mm | |

* Galvanised flat steel
purchased from steel trade

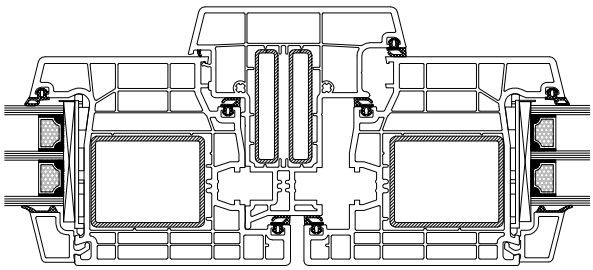
Not to scale

## Reinforcement guidelines - overlap casement variants



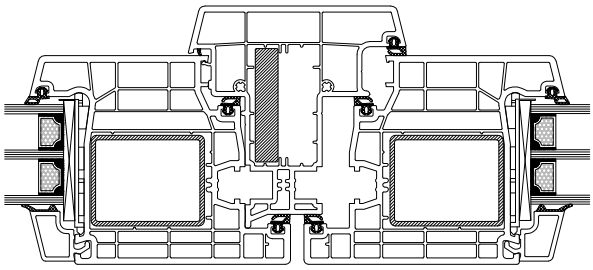
| | | |
|---|---|---|
| Casement reinforcement | 2x 405 065-74 | 17,22 $cm^4$ |
| Overlap reinforcement | 405 015-74 | 5,26 $cm^4$ |
| Moment of inertia of area ly total | | 22,48 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1200x2400 / 1500x1500 mm<br>decor: 900x2160 / 1350x1350 mm | |

| | | |
|---|---|---|
| Casement reinforcement | 2x 405 065-74 | 17,22 $cm^4$ |
| Overlap reinforcement | 405 015-73 | 4,17 $cm^4$ |
| Moment of inertia of area ly total | | 21,39 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1200x2400 / 1500x1500 mm<br>decor: 900x2160 / 1350x1350 mm | |



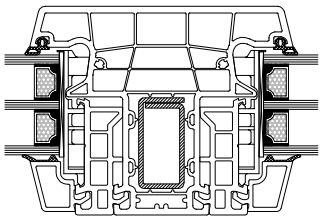
| | | |
|---|---|---|
| Casement reinforcement | 2x 405 065-74 | 17,22 $cm^4$ |
| Overlap reinforcement | 2x 405 015-74 | 10,52 $cm^4$ |
| Moment of inertia of area ly total | | 27,74 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1200x2400 / 1500x1500 mm<br>decor: 900x2160 / 1350x1350 mm | |

| | | |
|---|---|---|
| Casement reinforcement | 2x 405 065-74 | 17,22 $cm^4$ |
| Overlap reinforcement | 2x 405 015-73 | 8,34 $cm^4$ |
| Moment of inertia of area ly total | | 25,56 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1200x2400 / 1500x1500 mm<br>decor: 900x2160 / 1350x1350 mm | |

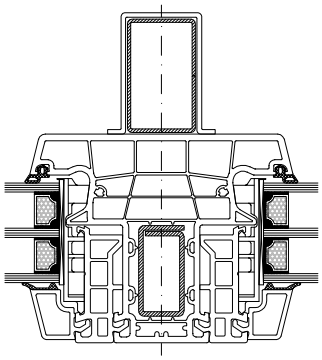


| | | |
|---|---|---|
| Casement reinforcement | 2x 405 065-74 | 17,22 $cm^4$ |
| Overlap reinforcement | 405 125 | 10,41 $cm^4$ |
| Moment of inertia of area ly total | | 27,63 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1200x2400 / 1500x1500 mm<br>decor: 900x2160 / 1350x1350 mm | |

## Reinforcement guidelines - pilaster strip variants



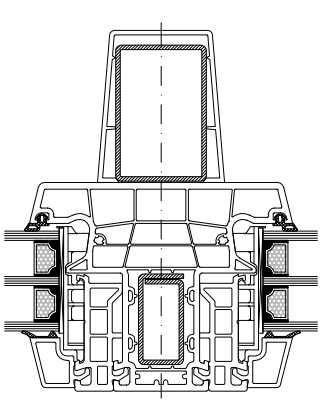
| | | |
|---|---|---|
| Post reinforcement | 415 020-74 | 4,95 $cm^4$ |
| Pilaster strip | ---------- | |
| Moment of inertia of area Iy total | | 4,95 $cm^4$ |



| | | |
|---|---|---|
| Post reinforcement | 415 020-74 | 4,95 $cm^4$ |
| Pilaster strip (Steel tube) | 405 050-73 | 7,61 $cm^4$ |
| Moment of inertia of area Iy total | | 12,56 $cm^4$ |

| | | |
|---|---|---|
| Post reinforcement | 415 020-74 | 4,95 $cm^4$ |
| Pilaster strip (Steel tube)* | 50 x 30 x 3 | 12,83 $cm^4$ |
| Moment of inertia of area Iy total | | 17,78 $cm^4$ |

| | | |
|---|---|---|
| Post reinforcement | 415 020-74 | 4,95 $cm^4$ |
| Pilaster strip (Steel tube)* | 50 x 30 x 4 | 15,25 $cm^4$ |
| Moment of inertia of area Iy total | | 20,20 $cm^4$ |



| | | |
|---|---|---|
| Post reinforcement | 415 020-74 | 4,95 $cm^4$ |
| Pilaster strip (Steel tube) | AR 4630 | 10,03 $cm^4$ |
| Moment of inertia of area Iy total | | 14,98 $cm^4$ |

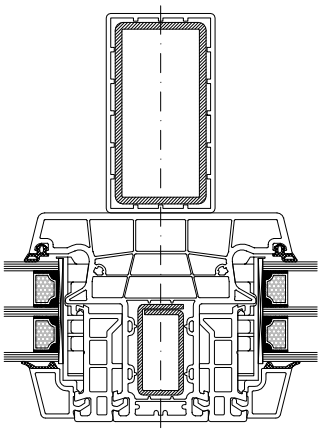
| | | |
|---|---|---|
| Post reinforcement | 415 020-74 | 4,95 $cm^4$ |
| Pilaster strip (Steel tube)* | 60 x 40 x 3 | 25,38 $cm^4$ |
| Moment of inertia of area Iy total | | 30,33 $cm^4$ |

| | | |
|---|---|---|
| Post reinforcement | 415 020-74 | 4,95 $cm^4$ |
| Pilaster strip (Steel tube)* | 60 x 40 x 4 | 30,99 $cm^4$ |
| Moment of inertia of area Iy total | | 35,94 $cm^4$ |

* Galvanised flat steel
purchased from steel trade

Not to scale

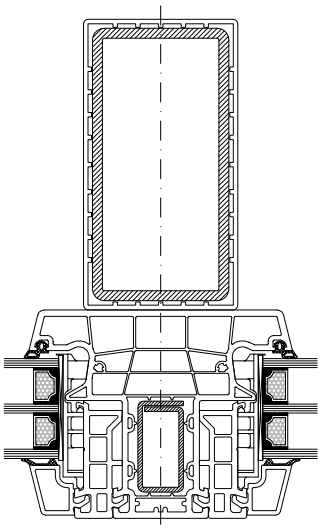
## Reinforcement guidelines - pilaster strip variants



| | | |
|---|---|---|
| Post reinforcement | 415 020-74 | 4,95 $cm^4$ |
| Pilaster strip (Steel tube)* | 80 x 40 x 3 | 52,25 $cm^4$ |
| Moment of inertia of area Iy total | | 57,20 $cm^4$ |

| | | |
|---|---|---|
| Post reinforcement | 415 020-74 | 4,95 $cm^4$ |
| Pilaster strip (Steel tube)* | 80 x 40 x 4 | 64,79 $cm^4$ |
| Moment of inertia of area Iy total | | 69,74 $cm^4$ |

| | | |
|---|---|---|
| Post reinforcement | 415 020-74 | 4,95 $cm^4$ |
| Pilaster strip (Steel tube)* | 80 x 40 x 5 | 75,11 $cm^4$ |
| Moment of inertia of area Iy total | | 80,06 $cm^4$ |



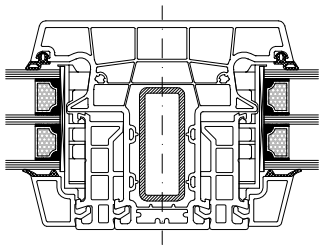
| | | |
|---|---|---|
| Post reinforcement | 415 020-74 | 4,95 $cm^4$ |
| Pilaster strip (Steel tube)* | 120 x 60 x 4 | 248,70 $cm^4$ |
| Moment of inertia of area Iy total | | 253,65 $cm^4$ |

| | | |
|---|---|---|
| Post reinforcement | 415 020-74 | 4,95 $cm^4$ |
| Pilaster strip (Steel tube)* | 120 x 60 x 5 | 299,20 $cm^4$ |
| Moment of inertia of area Iy total | | 304,15 $cm^4$ |

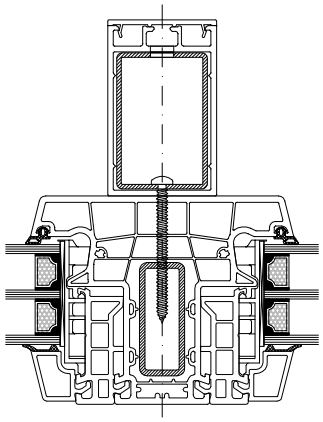
* Galvanised flat steel
purchased from steel trade

Not to scale

## Reinforcement guidelines - pilaster strip variants



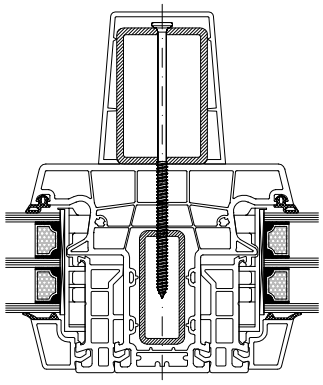
| | | |
|---|---|---|
| Post reinforcement | 475 021-75 | 8,87 $cm^4$ |
| Pilaster strip | ---------- | |
| Moment of inertia of area Iy total | | 8,87 $cm^4$ |



| | | |
|---|---|---|
| Post reinforcement | 475 021-75 | 8,87 $cm^4$ |
| Pilaster strip (Steel tube) | 405 050-73 | 7,61 $cm^4$ |
| Moment of inertia of area Iy total | | 16,48 $cm^4$ |

| | | |
|---|---|---|
| Post reinforcement | 475 021-75 | 8,87 $cm^4$ |
| Pilaster strip (Steel tube)* | 50 x 30 x 3 | 12,83 $cm^4$ |
| Moment of inertia of area Iy total | | 21,70 $cm^4$ |

| | | |
|---|---|---|
| Post reinforcement | 475 021-75 | 8,87 $cm^4$ |
| Pilaster strip (Steel tube)* | 50 x 30 x 4 | 15,25 $cm^4$ |
| Moment of inertia of area Iy total | | 24,12 $cm^4$ |



| | | |
|---|---|---|
| Post reinforcement | 475 021-75 | 8,87 $cm^4$ |
| Pilaster strip (Steel tube) | AR 4630 | 10,03 $cm^4$ |
| Moment of inertia of area Iy total | | 18,90 $cm^4$ |

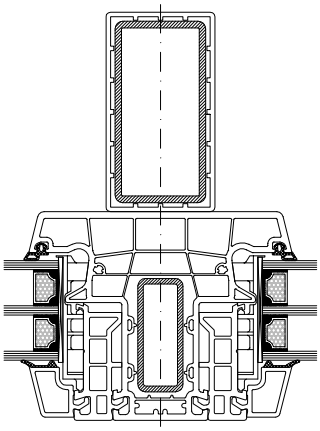
| | | |
|---|---|---|
| Post reinforcement | 475 021-75 | 8,87 $cm^4$ |
| Pilaster strip (Steel tube)* | 60 x 40 x 3 | 25,38 $cm^4$ |
| Moment of inertia of area Iy total | | 34,25 $cm^4$ |

| | | |
|---|---|---|
| Post reinforcement | 475 021-75 | 8,87 $cm^4$ |
| Pilaster strip (Steel tube)* | 60 x 40 x 4 | 30,99 $cm^4$ |
| Moment of inertia of area Iy total | | 39,86 $cm^4$ |

* Galvanised flat steel purchased from steel trade

Not to scale

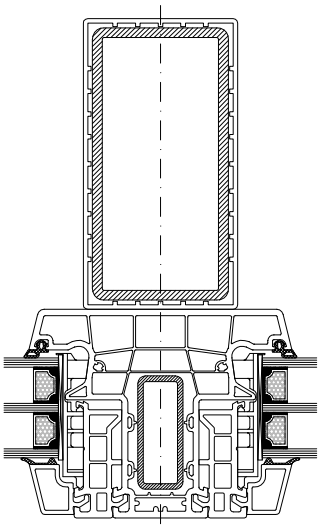
## Reinforcement guidelines - pilaster strip variants



| | | |
|---|---|---|
| Post reinforcement | 475 021-75 | 8,87 $cm^4$ |
| Pilaster strip (Steel tube)* | 80 x 40 x 3 | 52,25 $cm^4$ |
| Moment of inertia of area Iy total | | 61,12 $cm^4$ |

| | | |
|---|---|---|
| Post reinforcement | 475 021-75 | 8,87 $cm^4$ |
| Pilaster strip (Steel tube)* | 80 x 40 x 4 | 64,79 $cm^4$ |
| Moment of inertia of area Iy total | | 73,66 $cm^4$ |

| | | |
|---|---|---|
| Post reinforcement | 475 021-75 | 8,87 $cm^4$ |
| Pilaster strip (Steel tube)* | 80 x 40 x 5 | 75,11 $cm^4$ |
| Moment of inertia of area Iy total | | 83,98 $cm^4$ |



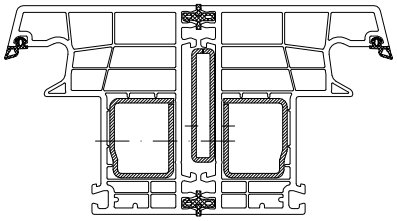
| | | |
|---|---|---|
| Post reinforcement | 475 021-75 | 8,87 $cm^4$ |
| Pilaster strip (Steel tube)* | 120 x 60 x 4 | 248,70 $cm^4$ |
| Moment of inertia of area Iy total | | 257,57 $cm^4$ |

| | | |
|---|---|---|
| Post reinforcement | 475 021-75 | 8,87 $cm^4$ |
| Pilaster strip (Steel tube)* | 120 x 60 x 5 | 299,20 $cm^4$ |
| Moment of inertia of area Iy total | | 308,07 $cm^4$ |

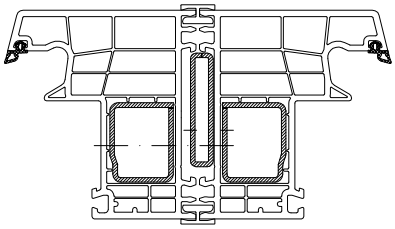
* Galvanised flat steel purchased from steel trade

Not to scale

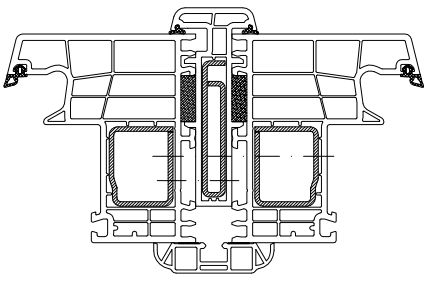
## Reinforcement guidelines - couplings variants



| | | |
|---|---|---|
| Frame reinforcement | 2x 455 235-73 | 5,98 $cm^4$ |
| Coupling steel | 405 015-74 | 5,26 $cm^4$ |
| Moment of inertia of area Iy total | | 11,24 $cm^4$ |
| Frame reinforcement | 2x 455 235-73 | 5,98 $cm^4$ |
| Coupling steel | 405 015-73 | 4,17 $cm^4$ |
| Moment of inertia of area Iy total | | 10,15 $cm^4$ |
| Max. frame length<br>Max. element area | white: ≤ 4000x4000mm / ≤ 8,0 $m^2$<br>decor: ≤ 2500x2500mm / ≤ 5,0 $m^2$ | |



| | | |
|---|---|---|
| Frame reinforcement | 2x 455 235-74 | 7,50 $cm^4$ |
| Coupling steel | 405 015-74 | 5,26 $cm^4$ |
| Moment of inertia of area Iy total | | 12,76 $cm^4$ |
| Frame reinforcement | 2x 455 235-74 | 7,50 $cm^4$ |
| Coupling steel | 405 015-73 | 4,17 $cm^4$ |
| Moment of inertia of area Iy total | | 11,67 $cm^4$ |
| Max. frame length<br>Max. element area | white: ≤ 4000x4000mm / ≤ 8,0 $m^2$<br>decor: ≤ 2500x2500mm / ≤ 5,0 $m^2$ | |



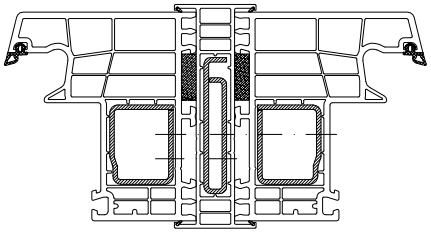
| | | |
|---|---|---|
| Frame reinforcement | 2x 455 235-73 | 5,98 $cm^4$ |
| Coupling steel * | 415 173-74 | 8,31 $cm^4$ |
| Moment of inertia of area Iy total | | 14,29 $cm^4$ |
| Max. frame length<br>Max. element area | white: ≤ 4000x4000mm / ≤ 8,0 $m^2$<br>decor: ≤ 2500x2500mm / ≤ 5,0 $m^2$ | |

| | | |
|---|---|---|
| Frame reinforcement | 2x 455 235-74 | 7,50 $cm^4$ |
| Coupling steel * | 415 173-74 | 8,31 $cm^4$ |
| Moment of inertia of area Iy total | | 15,81 $cm^4$ |
| Max. frame length<br>Max. element area | white: ≤ 4000x4000mm / ≤ 8,0 $m^2$<br>decor: ≤ 2500x2500mm / ≤ 5,0 $m^2$ | |

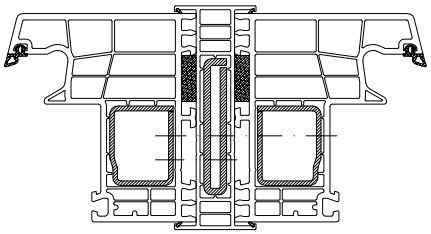
* Galvanised flat steel
purchased from steel trade

Not to scale

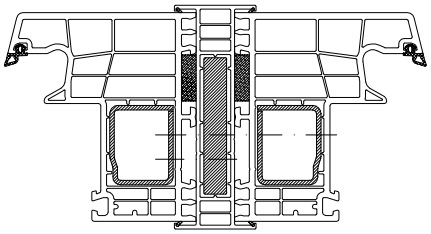
## Reinforcement guidelines - couplings variants



| | | |
|---|---|---|
| Frame reinforcement | 2x 455 235-74 | 7,50 $cm^4$ |
| Coupling steel * | 415 173-74 | 8,31 $cm^4$ |
| Moment of inertia of area Iy total | | 15,81 $cm^4$ |
| Max. frame length<br>Max. element area | white: ≤ 4000x4000mm / ≤ 8,0 $m^2$<br>decor: ≤ 2500x2500mm / ≤ 5,0 $m^2$ | |



| | | |
|---|---|---|
| Frame reinforcement | 2x 455 235-74 | 7,50 $cm^4$ |
| Coupling steel * | VS 0130 (3mm) | 11,59 $cm^4$ |
| Moment of inertia of area Iy total | | 19,09 $cm^4$ |
| Max. frame length<br>Max. element area | white: ≤ 4000x4000mm / ≤ 8,0 $m^2$<br>decor: ≤ 2500x2500mm / ≤ 5,0 $m^2$ | |

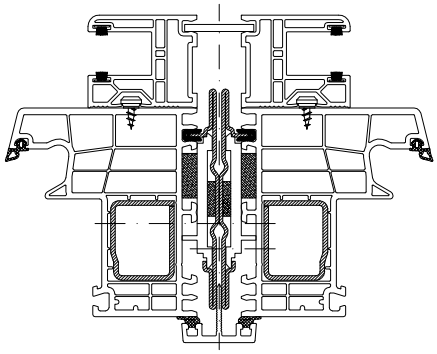


| | | |
|---|---|---|
| Frame reinforcement | 2x 455 235-74 | 7,50 $cm^4$ |
| Coupling steel * | 60 x 10 mm | 17,98 $cm^4$ |
| Moment of inertia of area Iy total | | 25,48 $cm^4$ |
| Max. frame length<br>Max. element area | white: ≤ 4000x4000mm / ≤ 8,0 $m^2$<br>decor: ≤ 2500x2500mm / ≤ 5,0 $m^2$ | |

* Galvanised flat steel
purchased from steel trade

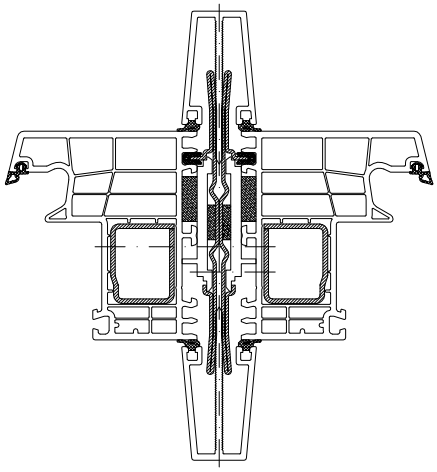
Not to scale

## Reinforcement guidelines - couplings variants



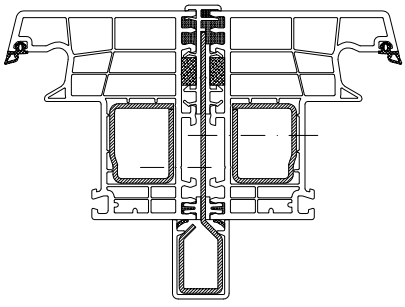
| | | |
|---|---|---|
| Frame reinforcement | 2x 455 235-73 | 5,98 $cm^4$ |
| Coupling steel * | 405 165-73 | 43,03 $cm^4$ |
| Moment of inertia of area Iy total | | 49,01 $cm^4$ |
| Max. frame length<br>Max. element area | white: ≤ 4000x4000mm / ≤ 8,0 $m^2$<br>decor: ≤ 2500x2500mm / ≤ 5,0 $m^2$ | |

| | | |
|---|---|---|
| Frame reinforcement | 2x 455 235-74 | 7,50 $cm^4$ |
| Coupling steel * | 405 165-73 | 43,03 $cm^4$ |
| Moment of inertia of area Iy total | | 50,53 $cm^4$ |
| Max. frame length<br>Max. element area | white: ≤ 4000x4000mm / ≤ 8,0 $m^2$<br>decor: ≤ 2500x2500mm / ≤ 5,0 $m^2$ | |



| | | |
|---|---|---|
| Frame reinforcement | 2x 455 235-73 | 5,98 $cm^4$ |
| Coupling steel * | 405 175-73 | 116,96 $cm^4$ |
| Moment of inertia of area Iy total | | 122,94 $cm^4$ |
| Max. frame length<br>Max. element area | white: ≤ 4000x4000mm / ≤ 8,0 $m^2$<br>decor: ≤ 2500x2500mm / ≤ 5,0 $m^2$ | |

| | | |
|---|---|---|
| Frame reinforcement | 2x 455 235-74 | 7,50 $cm^4$ |
| Coupling steel * | 405 175-73 | 116,96 $cm^4$ |
| Moment of inertia of area Iy total | | 124,46 $cm^4$ |
| Max. frame length<br>Max. element area | white: ≤ 4000x4000mm / ≤ 8,0 $m^2$<br>decor: ≤ 2500x2500mm / ≤ 5,0 $m^2$ | |

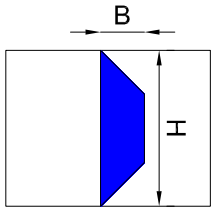


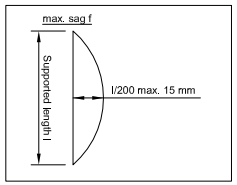
| | | |
|---|---|---|
| Frame reinforcement | 2x 455 235-74 | 7,50 $cm^4$ |
| Coupling steel | 415 167 | 40,38 $cm^4$ |
| Moment of inertia of area Iy total | | 47,88 $cm^4$ |
| max. frame length<br>max. element area | white: ≤ 4000x4000 mm / ≤ 8,0 $m^2$<br>decor: ≤ 2500x2500 mm / ≤ 5,0 $m^2$ | |

* Galvanised flat steel, purchased from steel trade

Not to scale

Not to scale




Issue: 11/2015

| perm. deformation | Group |
|---|---|
| | B |
| H | 200 |
| max | 15 |

| |
|---|
| w = 1,00 kN/m² |
| (1 kN/m2 = 1000 Pa) |
| |
| E = 210 000 N/mm² |
| fyk = 240 N/mm² |
| gF = 1,50 |
| gM = 1,10 |

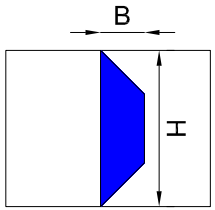
Tab. 1 Necessary moments of inertia [cm$^4$] for trapezoidal loads [l/200] (f max 15 mm)

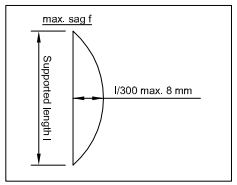
| B [cm] / H [cm] | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **100** | 0,23 | 0,32 | 0,38 | 0,40 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **110** | 0,31 | 0,44 | 0,53 | 0,58 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **120** | 0,41 | 0,58 | 0,71 | 0,79 | 0,82 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **130** | 0,52 | 0,75 | 0,93 | 1,06 | 1,13 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **140** | 0,66 | 0,95 | 1,19 | 1,37 | 1,49 | 1,52 | -- | -- | -- | -- | -- | -- | -- | -- |
| **150** | 0,81 | 1,18 | 1,49 | 1,74 | 1,91 | 2,00 | -- | -- | -- | -- | -- | -- | -- | -- |
| **160** | 0,99 | 1,44 | 1,83 | 2,16 | 2,40 | 2,55 | 2,60 | -- | -- | -- | -- | -- | -- | -- |
| **170** | 1,19 | 1,74 | 2,23 | 2,64 | 2,96 | 3,19 | 3,30 | -- | -- | -- | -- | -- | -- | -- |
| **180** | 1,42 | 2,07 | 2,67 | 3,18 | 3,60 | 3,91 | 4,10 | 4,17 | -- | -- | -- | -- | -- | -- |
| **190** | 1,67 | 2,45 | 3,17 | 3,79 | 4,32 | 4,73 | 5,01 | 5,15 | -- | -- | -- | -- | -- | -- |
| **200** | 1,95 | 2,87 | 3,72 | 4,48 | 5,13 | 5,65 | 6,03 | 6,27 | 6,35 | -- | -- | -- | -- | -- |
| **210** | 2,26 | 3,33 | 4,33 | 5,23 | 6,02 | 6,67 | 7,18 | 7,52 | 7,70 | -- | -- | -- | -- | -- |
| **220** | 2,61 | 3,84 | 5,01 | 6,07 | 7,01 | 7,81 | 8,45 | 8,91 | 9,20 | 9,30 | -- | -- | -- | -- |
| **230** | 2,98 | 4,40 | 5,75 | 6,98 | 8,09 | 9,05 | 9,85 | 10,46 | 10,87 | 11,08 | -- | -- | -- | -- |
| **240** | 3,39 | 5,02 | 6,56 | 7,99 | 9,28 | 10,42 | 11,38 | 12,15 | 12,71 | 13,05 | 13,17 | -- | -- | -- |
| **250** | 3,84 | 5,68 | 7,44 | 9,08 | 10,58 | 11,92 | 13,07 | 14,01 | 14,73 | 15,22 | 15,47 | -- | -- | -- |
| **260** | 4,32 | 6,40 | 8,39 | 10,26 | 11,99 | 13,54 | 14,90 | 16,04 | 16,94 | 17,60 | 18,00 | 18,13 | -- | -- |
| **270** | 4,84 | 7,18 | 9,42 | 11,54 | 13,51 | 15,30 | 16,88 | 18,24 | 19,35 | 20,19 | 20,76 | 21,05 | -- | -- |
| **280** | 5,40 | 8,02 | 10,54 | 12,93 | 15,16 | 17,20 | 19,03 | 20,62 | 21,95 | 23,01 | 23,77 | 24,24 | 24,39 | -- |
| **290** | 6,00 | 8,92 | 11,73 | 14,41 | 16,93 | 19,24 | 21,34 | 23,19 | 24,76 | 26,05 | 27,03 | 27,69 | 28,03 | -- |
| **300** | 6,65 | 9,88 | 13,01 | 16,01 | 18,82 | 21,44 | 23,82 | 25,95 | 27,79 | 29,33 | 30,55 | 31,43 | 31,96 | 32,14 |
| **310** | 7,58 | 11,28 | 14,87 | 18,30 | 21,55 | 24,59 | 27,37 | 29,88 | 32,08 | 33,96 | 35,49 | 36,65 | 37,43 | 37,82 |
| **320** | 8,61 | 12,82 | 16,91 | 20,83 | 24,56 | 28,06 | 31,29 | 34,23 | 36,84 | 39,09 | 40,97 | 42,45 | 43,52 | 44,17 |
| **330** | 9,75 | 14,51 | 19,15 | 23,62 | 27,88 | 31,89 | 35,62 | 39,02 | 42,08 | 44,76 | 47,04 | 48,89 | 50,29 | 51,23 |
| **340** | 10,99 | 16,37 | 21,61 | 26,67 | 31,51 | 36,09 | 40,36 | 44,30 | 47,86 | 51,01 | 53,73 | 56,00 | 57,78 | 59,06 |
| **350** | 12,34 | 18,39 | 24,30 | 30,01 | 35,49 | 40,69 | 45,56 | 50,08 | 54,19 | 57,88 | 61,09 | 63,82 | 66,03 | 67,71 |



SALAMANDER WINDOW & DOOR SYSTEMS

Not to scale




Issue: 11/2015

| perm. deformation | Group |
|---|---|
| | C |
| H | 300 |
| max | 8 |

| |
|---|
| w = 1,00 kN/m² |
| (1 kN/m2 = 1000 Pa) |
| |
| E = 210 000 N/mm² |
| fyk = 240 N/mm² |
| gF = 1,50 |
| gM = 1,10 |

Tab. 2 Necessary moments of inertia [cm$^4$] for trapezoidal loads [l/300] (f max 8 mm)

| B [cm] / H [cm] | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **100** | 0,35 | 0,49 | 0,57 | 0,60 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **110** | 0,47 | 0,66 | 0,80 | 0,87 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **120** | 0,62 | 0,88 | 1,07 | 1,19 | 1,24 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **130** | 0,79 | 1,13 | 1,40 | 1,59 | 1,70 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **140** | 0,99 | 1,43 | 1,79 | 2,06 | 2,24 | 2,29 | -- | -- | -- | -- | -- | -- | -- | -- |
| **150** | 1,22 | 1,77 | 2,24 | 2,61 | 2,87 | 3,00 | -- | -- | -- | -- | -- | -- | -- | -- |
| **160** | 1,49 | 2,16 | 2,75 | 3,24 | 3,61 | 3,83 | 3,91 | -- | -- | -- | -- | -- | -- | -- |
| **170** | 1,79 | 2,61 | 3,35 | 3,96 | 4,45 | 4,79 | 4,96 | -- | -- | -- | -- | -- | -- | -- |
| **180** | 2,13 | 3,11 | 4,01 | 4,78 | 5,41 | 5,87 | 6,16 | 6,26 | -- | -- | -- | -- | -- | -- |
| **190** | 2,51 | 3,68 | 4,76 | 5,69 | 6,49 | 7,10 | 7,52 | 7,73 | -- | -- | -- | -- | -- | -- |
| **200** | 2,93 | 4,31 | 5,58 | 6,72 | 7,70 | 8,48 | 9,05 | 9,41 | 9,53 | -- | -- | -- | -- | -- |
| **210** | 3,40 | 5,00 | 6,50 | 7,85 | 9,04 | 10,01 | 10,77 | 11,29 | 11,55 | -- | -- | -- | -- | -- |
| **220** | 3,92 | 5,77 | 7,52 | 9,11 | 10,52 | 11,72 | 12,68 | 13,37 | 13,81 | 13,95 | -- | -- | -- | -- |
| **230** | 4,48 | 6,61 | 8,63 | 10,48 | 12,14 | 13,58 | 14,78 | 15,69 | 16,31 | 16,62 | -- | -- | -- | -- |
| **240** | 5,09 | 7,53 | 9,84 | 11,99 | 13,93 | 15,64 | 17,08 | 18,23 | 19,07 | 19,58 | 19,76 | -- | -- | -- |
| **250** | 6,00 | 8,88 | 11,63 | 14,19 | 16,54 | 18,63 | 20,42 | 21,90 | 23,02 | 23,79 | 24,18 | -- | -- | -- |
| **260** | 7,02 | 10,41 | 13,64 | 16,68 | 19,49 | 22,01 | 24,21 | 26,07 | 27,53 | 28,61 | 29,26 | 29,47 | -- | -- |
| **270** | 8,17 | 12,12 | 15,90 | 19,48 | 22,80 | 25,82 | 28,49 | 30,78 | 32,65 | 34,08 | 35,04 | 35,53 | -- | -- |
| **280** | 9,46 | 14,04 | 18,45 | 22,63 | 26,53 | 30,10 | 33,30 | 36,09 | 38,42 | 40,27 | 41,60 | 42,42 | 42,69 | -- |
| **290** | 10,88 | 16,17 | 21,27 | 26,12 | 30,69 | 34,88 | 38,68 | 42,03 | 44,89 | 47,22 | 49,00 | 50,19 | 50,81 | -- |
| **300** | 12,47 | 18,53 | 24,40 | 30,02 | 35,30 | 40,21 | 44,67 | 48,66 | 52,12 | 55,00 | 57,29 | 58,94 | 59,93 | 60,27 |
| **310** | 14,22 | 21,16 | 27,88 | 34,32 | 40,41 | 46,11 | 51,33 | 56,03 | 60,16 | 63,68 | 66,54 | 68,72 | 70,18 | 70,92 |
| **320** | 16,15 | 24,04 | 31,71 | 39,06 | 46,06 | 52,62 | 58,68 | 64,19 | 69,08 | 73,30 | 76,82 | 79,60 | 81,61 | 82,82 |
| **330** | 18,28 | 27,21 | 35,91 | 44,29 | 52,28 | 59,80 | 66,79 | 73,17 | 78,91 | 83,93 | 88,20 | 91,67 | 94,30 | 96,06 |
| **340** | 20,61 | 30,70 | 40,52 | 50,01 | 59,09 | 67,67 | 75,68 | 83,07 | 89,74 | 95,65 | 100,75 | 105,00 | 108,34 | 110,75 |
| **350** | 23,14 | 34,49 | 45,56 | 56,27 | 66,55 | 76,30 | 85,43 | 93,90 | 101,61 | 108,53 | 114,55 | 119,67 | 123,81 | 126,96 |

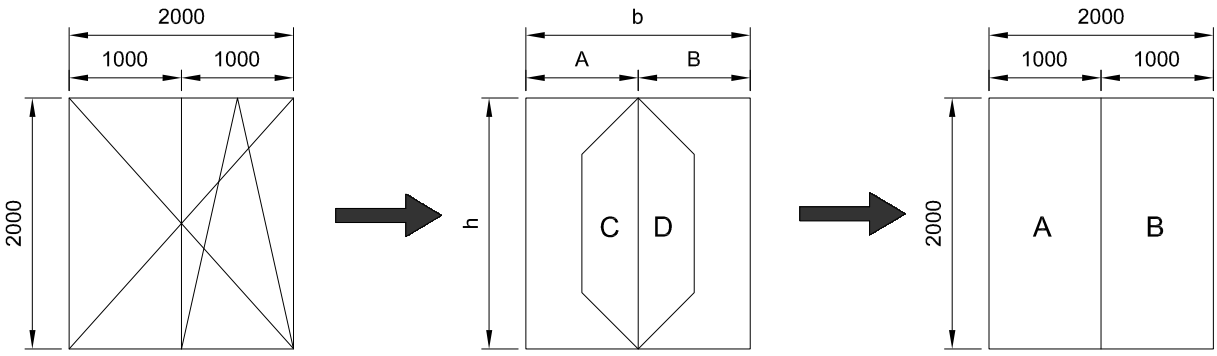


SALAMANDER WINDOW & DOOR SYSTEMS

**Classification according to EN 12 210**

## 1. Determine load field

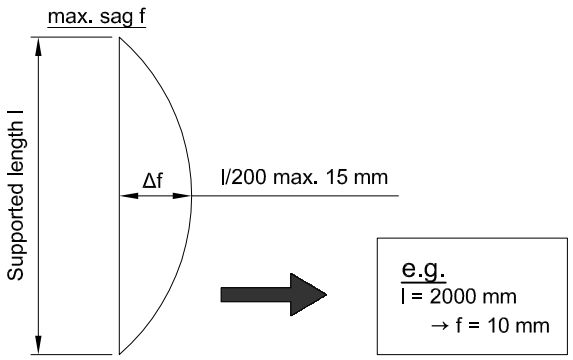
- e.g. Overlap french door turn - tilt-and-turn
- Classification targeted B3



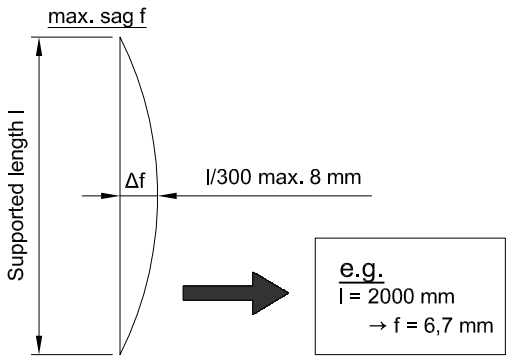

A) Load field 1
B) Load field 2
C) Load introduction area 1
D) Load introduction area 2
b) Element width
h) Element height

## 2. Selection in accordance with the required resistance to wind load in line with EN 12 210

Class B = maximum permissible relative frontal sag l/200




Class C = maximum permissible relative frontal sag l/300




### 2.1 Determine factor

| Class | Pressure [Pa] | Pressure [kN/m²] | Factor |
|---|---|---|---|
| 1 | 400 Pa | 0,4 kN/m² | 0,4 |
| 2 | 800 Pa | 0,8 kN/m² | 0,8 |
| ③ | ~~1200 Pa~~ | ~~1,2 kN/m²~~ → | 1,2 |
| 4 | 1600 Pa | 1,6 kN/m² | 1,6 |
| 5 | 2000 Pa | 2,0 kN/m² | 2,0 |

→ Class 3 = Factor 1,2



Not to scale



SALAMANDER WINDOW & DOOR SYSTEMS

**Classification according to EN 12 210**

## 3. Determine the moment of inertia

- Take values for each load field from the table

e.g. Overlap french door 1000 mm x 2000 mm Class B3
-> 6,35 $cm^4$

Tab. 1 Necessary moments of inertia [$cm^4$] for trapezoidal loads [l/200] (f max 15 mm)

| B [cm] / H [cm] | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 |
|---|---|---|---|---|---|---|---|---|---|---|
| 100 | 0,23 | 0,32 | 0,38 | 0,40 | - - | - - | - - | - - | - - | - - |
| 110 | 0,31 | 0,44 | 0,53 | 0,58 | - - | - - | - - | - - | - - | - - |
| 120 | 0,41 | 0,58 | 0,71 | 0,79 | 0,82 | - - | - - | - - | - - | - - |
| 130 | 0,52 | 0,75 | 0,93 | 1,06 | 1,13 | - - | - - | - - | - - | - - |
| 140 | 0,66 | 0,95 | 1,19 | 1,37 | 1,49 | 1,52 | - - | - - | - - | - - |
| 150 | 0,81 | 1,18 | 1,49 | 1,74 | 1,91 | 2,00 | - - | - - | - - | - - |
| 160 | 0,99 | 1,44 | 1,83 | 2,16 | 2,40 | 2,55 | 2,60 | - - | - - | - - |
| 170 | 1,19 | 1,74 | 2,23 | 2,64 | 2,96 | 3,19 | 3,30 | - - | - - | - - |
| 180 | 1,42 | 2,07 | 2,67 | 3,18 | 3,60 | 3,91 | 4,10 | 4,17 | - - | - - |
| 190 | 1,67 | 2,45 | 3,17 | 3,79 | 4,32 | 4,73 | 5,01 | 5,15 | - - | - - |
| 200 | ~~1,95~~ | ~~2,87~~ | ~~3,72~~ | ~~4,48~~ | ~~5,13~~ | ~~5,65~~ | ~~6,03~~ | ~~6,27~~ | 6,35 | - - |
| 210 | 2,26 | 3,33 | 4,33 | 5,23 | 6,02 | 6,67 | 7,18 | 7,52 | 7,70 | - - |
| 220 | 2,61 | 3,84 | 5,01 | 6,07 | 7,01 | 7,81 | 8,45 | 8,91 | 9,20 | 9,30 |

## 4. Calculation of moment of inertia

- Add the load field values and multiply by the factor from (section 2.1)

**e.g. 1**: Class B3 for 1000 mm x 2000 mm

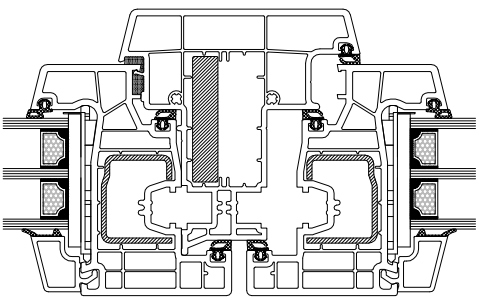
(A + B) x factor = moment of inertia

(6,35 $cm^4$ + 6,35 $cm^4$) x 1,2 = 15,24 $cm^4$

## 5. Select casement profile or overlap reinforcement

Use the result (moment of inertia) from (section 4) for dimensioning the respective element

e.g. Overlap variant I/200



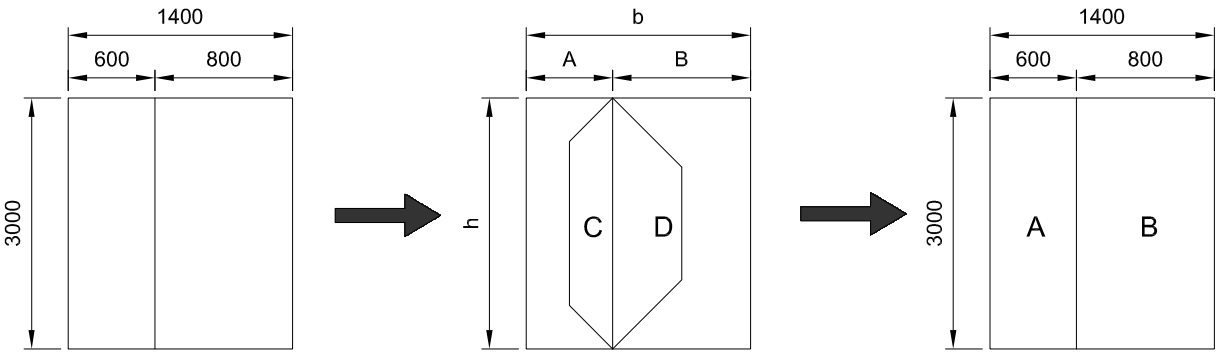
| | | |
|---|---|---|
| Casement reinforcement | 2x 455 230-73 | 5,54 $cm^4$ |
| Overlap reinforcement | 1x 405 125 | 10,41 $cm^4$ |
| Moment of inertia of area Iy total | | 15,95 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor: 1260x1350 / 900x2070 mm | |

Not to scale

**Classification according to EN 12 210**

## 1. Determine load field

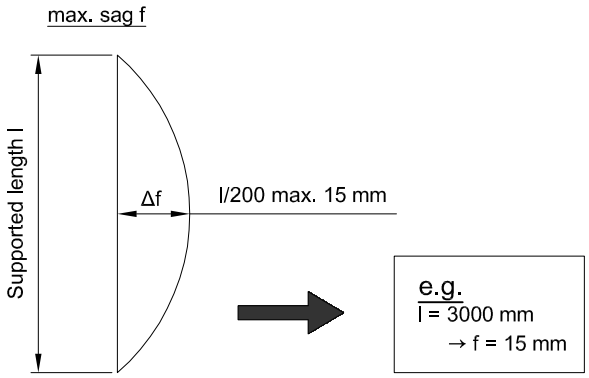
- e.g. Fixed glazing
- Classification targeted C2



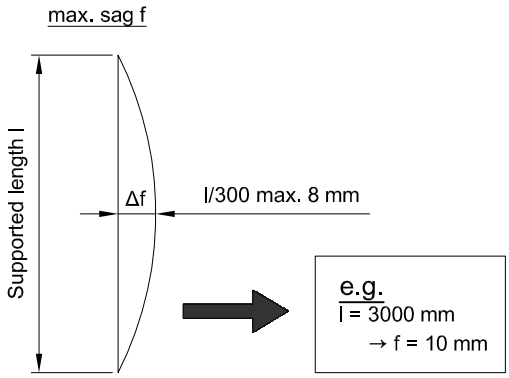

A) Load field 1
B) Load field 2
C) Load introduction area 1
D) Load introduction area 2
b) Element width
h) Element height

## 2. Selection in accordance with the required resistance to wind load in line with EN 12 210

Class B = maximum permissible relative frontal sag l/200




Class C = maximum permissible relative frontal sag l/300




**Note:**
l/300 not permitted,
since f max exceeded!
→ f max = 8 mm

### 2.1 Determine factor

| Class | Pressure [Pa] | Pressure [kN/m²] | Factor |
|---|---|---|---|
| 1 | 400 Pa | 0,4 kN/m² | 0,4 |
| ② | ~~800 Pa~~ | ~~0,8 kN/m²~~ | 0,8 |
| 3 | 1200 Pa | 1,2 kN/m² | 1,2 |
| 4 | 1600 Pa | 1,6 kN/m² | 1,6 |
| 5 | 2000 Pa | 2,0 kN/m² | 2,0 |

→ Class 2 = Factor 0,8



Not to scale



SALAMANDER WINDOW & DOOR SYSTEMS

**Classification according to EN 12 210**

## 3. Determine the moment of inertia

- Take values for each load field from the table

e.g. Fixed glazing 600 mm x 3000 mm; 800 mm x 3000 mm Class C2
-> 18,82 $cm^4$ ; 23,82 $cm^4$

Tab. 1 Necessary moments of inertia [$cm^4$] for trapezoidal loads [l/200] (f max 15 mm)

| B [cm] / H [cm] | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 |
|---|---|---|---|---|---|---|---|---|---|---|
| 180 | 1,42 | 2,07 | 2,67 | 3,18 | 3,60 | 3,91 | 4,10 | 4,17 | - - | - - |
| 190 | 1,67 | 2,45 | 3,17 | 3,79 | 4,32 | 4,73 | 5,01 | 5,15 | - - | - - |
| 200 | 1,95 | 2,87 | 3,72 | 4,48 | 5,13 | 5,65 | 6,03 | 6,27 | 6,35 | - - |
| 210 | 2,26 | 3,33 | 4,33 | 5,23 | 6,02 | 6,67 | 7,18 | 7,52 | 7,70 | - - |
| 220 | 2,61 | 3,84 | 5,01 | 6,07 | 7,01 | 7,81 | 8,45 | 8,91 | 9,20 | 9,30 |
| 230 | 2,98 | 4,40 | 5,75 | 6,98 | 8,09 | 9,05 | 9,85 | 10,46 | 10,87 | 11,08 |
| 240 | 3,39 | 5,02 | 6,56 | 7,99 | 9,28 | 10,42 | 11,38 | 12,15 | 12,71 | 13,05 |
| 250 | 3,84 | 5,68 | 7,44 | 9,08 | 10,58 | 11,92 | 13,07 | 14,01 | 14,73 | 15,22 |
| 260 | 4,32 | 6,40 | 8,39 | 10,26 | 11,99 | 13,54 | 14,90 | 16,04 | 16,94 | 17,60 |
| 270 | 4,84 | 7,18 | 9,42 | 11,54 | 13,51 | 15,30 | 16,88 | 18,24 | 19,35 | 20,19 |
| 280 | 5,40 | 8,02 | 10,54 | 12,93 | 15,16 | 17,20 | 19,03 | 20,62 | 21,95 | 23,01 |
| 290 | 6,00 | 8,92 | 11,73 | 14,41 | 16,93 | 19,24 | 21,34 | 23,19 | 24,76 | 26,05 |
| 300 | 6,65 | 9,88 | 13,01 | 16,01 | 18,82 | 21,44 | 23,82 | 25,95 | 27,79 | 29,33 |

## 4. Calculation of moment of inertia

- Add the load field values and multiply by the factor from (section 2.1)

**e.g. 1**: Class C2 for 600 mm x 3000 mm; 800 mm x 3000 mm

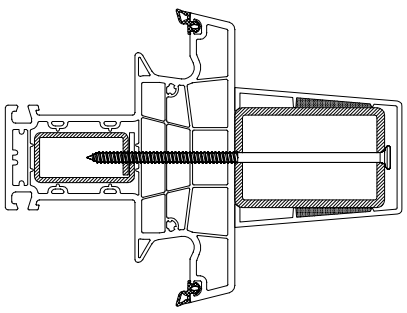
(A + B) x factor = moment of inertia

(6,35 $cm^4$ + 6,35 $cm^4$) x 1,2 = 15,24 $cm^4$

## 5. Select casement profiles or post reinforcement

Use the result (moment of inertia) from (section 4) for dimensioning the respective element

e.g. Fixed glazing with pilaster strip profile I/200



| | | |
|---|---|---|
| Pilaster strip reinforcement | Steel tube 60 x 40 x 3 mm | 31,00 $cm^4$ |
| Post reinforcement | 1x 415 020 | 4,96 $cm^4$ |
| Moment of inertia of area Iy total | | 35,96 $cm^4$ |
| Max. casement size for side-hung, turn-and-tilt casements | white: 1400x1500 / 1000x2300 mm<br>decor: 1260x1350 / 900x2070 mm | |

Not to scale

| Designation | Page bE92 06 0... |
|---|---|
| - Basic principles | 01.1 - 01.16 |
| └► General points / Overview | 01.1 - 01.2 |
| └► Definition and load assumptions | 01.3 - 01.9 |
| └► Element characteristics | 01.10 - 01.11 |
| └► Determining static values | 01.12 - 01.14 |
| └► Selecting the reinforcement | 01.15 |
| └► Static proofs | 01.16 |
| - Static calculator | |
| └► Instructions for static calculation - see SIP static calculation - help | |

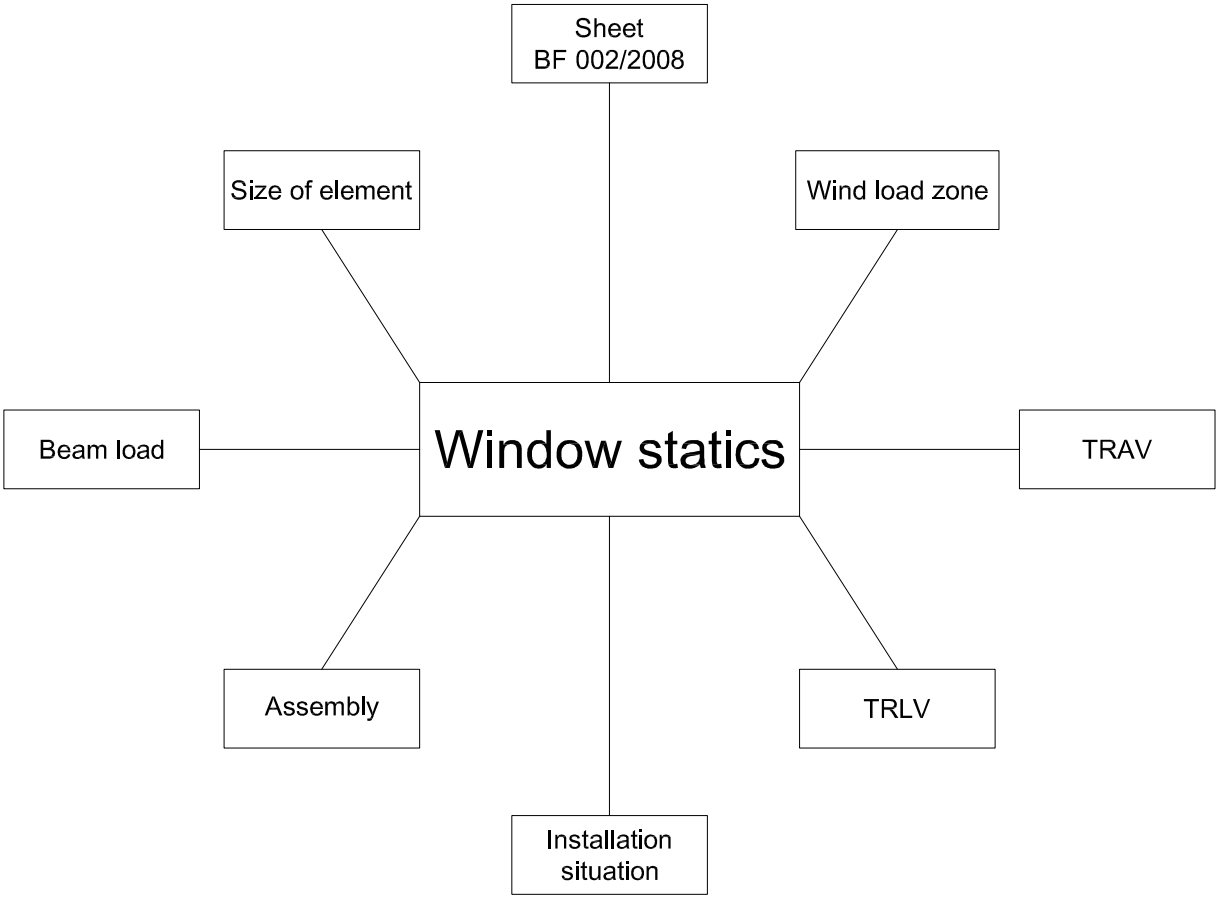
# General points:

The following chapter is intended to help you to carry out static pre-dimensioning of window elements on your own responsibility. Since national standards are being replaced more and more often by European standards, various different parameters must be considered.

The introduction of DIN EN 14351-1 (product standard for windows and doors) has meant that certain performance properties now have to be declared in the CE mark for windows. Among others, wind resistance under wind load (according to DIN EN 12210) is a mandatory property and must be specified in Germany.

With regard to stability and suitability for use, all windows must be sufficiently dimensioned in terms of statics. Since frames are usually fitted to the structure all the way around and the casement sizes are sized by Salamander Industrie-Produkte GmbH, only self-supporting components must be dimensioned statically with regard to stability and suitability for use. Couplings, bars, posts, overlap posts and the upper frame with roller shutter housing must be considered as self-supporting components.

# Overview:



# Procedure:

## 1. Definition and load assumptions

1a) Wind load zone

1b) Peak velocity pressure (terrain category)

1c) Installation height / building height

1d) Beam load

1e) Permissible deformation

## 2. Element characteristic

2a) Element size

2b) Selection of posts and bars

2c) Definition of load introduction area

## 3. Determining static values

3a) Term definition

3b) Using SIP static calculator

3c) Manual procedure

## 4. Selecting the reinforcement

4a) Static values

4b) Determining the moments of inertia of area

4c) Static proofs

4d) Proof of suitability for use

# 1. Definition and load assumptions

## 1a) Wind load zone:

DIN 1055-4: 2005-03

Overview of changes:

- Standardised European calculation rules with special national features
- Characteristic wind speed; exceeding probability within one year of 0,02 (probability once in 50 years)
- Roughness of terrain and topography
- Division into wind zones
- Wind pressure on inside areas
- Reference heights

Wind load is one of the climate-dependent changeable influences on structures or components and the result of pressure distribution around a structure which is exposed to a wind flow.

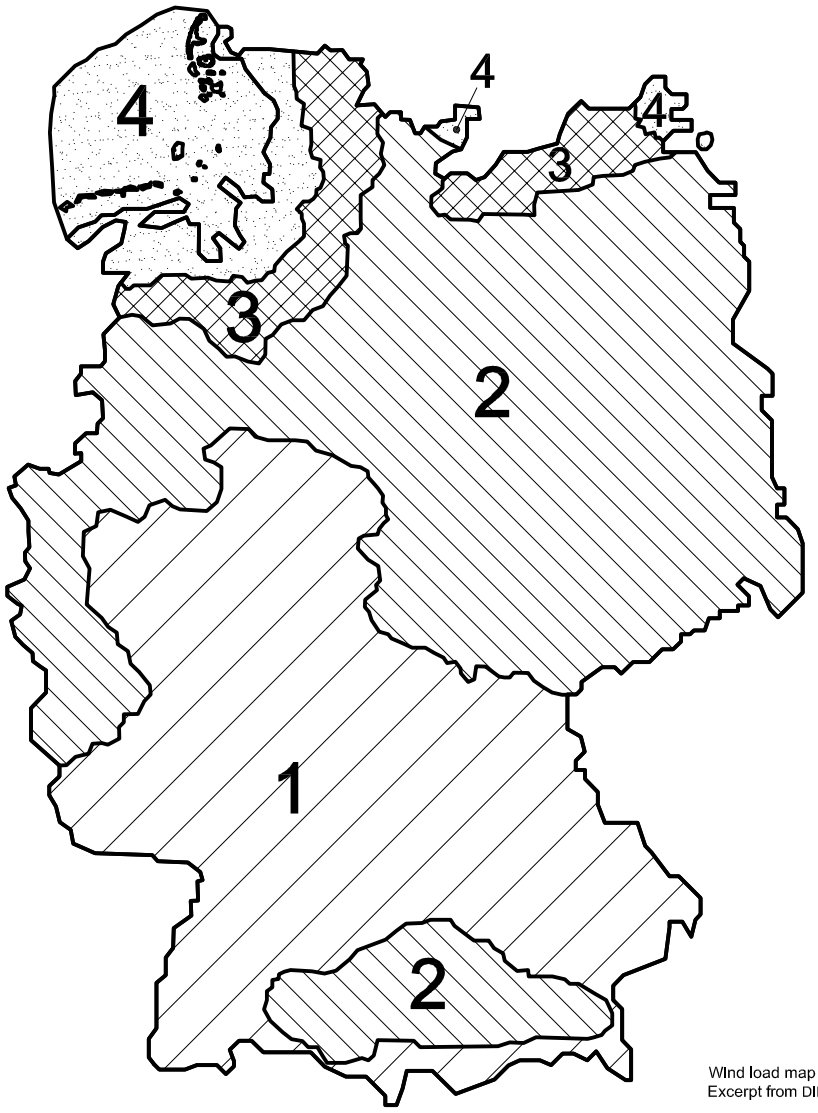
It generally acts as an area load at right angles to the contact surface (= from façade plane) and mainly comprises pressure and suction effects. This means that there is excess pressure on a structure on the areas facing the flow due to flow slowdown. Near the roof and side areas, the air flow is broken at the edges of the building and causes a partial vacuum there (suction). A partial vacuum (suction) is also produced on the back of the building due to the swirl.

In the standards, wind loads are transferred to calculated values to determine the safety of the supporting structure. On account of the great time-related and spatial fluctuations, the distinctive stochastic character is taken into account (probability
1 x in 50 years).

The decisive factors of influence on the magnitude of the wind loads are the location with the local wind climate and the topography. The wind climate is recorded in the standards Eurocode 1 or DIN 1055-4 by means of a wind zone map which specifies average wind speeds measured over time for different geographical regions. The topography and characteristics of the terrain surrounding the building are covered in the standards by terrain categories.

# Wind load zone map

Germany is divided into 4 different wind load zones. Different wind loads are defined depending on the location. Wind loads are specified using the value VREF. VREF specifies the average wind speed in m/s determined over time, with the respective speed pressure qREF in kN/m2. An up-to-date Excel list can be downloaded from the website of the Deutsche Institut für Bautechnik (*German Institute for Structural Engineering*). This classifies the individual wind load zones according to administration zones. www.dibt.de/de/Data/Windzonen_nach_Verwaltungsgrenzen.xls

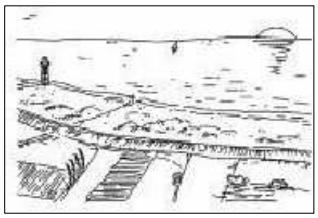



Wind load map according to standard.
Excerpt from DIN 1055-4:2005-03

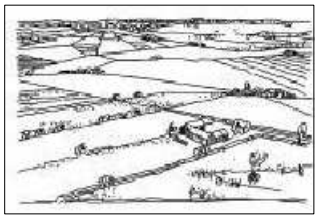
| Wind load zone | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| $v_{REF}$ in m/s | 22,5 m/s | 25,0 m/s | 27,5 m/s | 30,0 m/s |
| $q_{REF}$ in kN/m² | 0,32 kN/m² | 0,39 kN/m² | 0,47 kN/m² | 0,56 kN/m² |
| | | | | |

# 1b) Peak velocity pressure (terrain category)

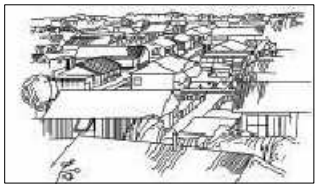
Wind loads depend on wind speed and thus on the geographical position of the building's location, roughness of terrain and height above ground. The influence of the roughness of the terrain and the topography near the building's location is described in Annex B of DIN 1055-4: 2005-03. Wind speeds near the ground are higher near the open sea and in flat countryside without obstacles than in built-up areas. For this reason, a distinction is made between four terrain categories and two mixed profiles. ZO describes the factor for roughness of terrain.



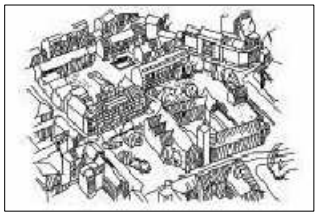
Terrain category I
Open sea, sea with at least 5 km free stretch in the wind direction; smooth flat countryside without obstacles
$z_o$ = 0,01 m



Terrain category II
Terrain with hedges, isolated farmhouses, houses or trees - agricultural area
$z_o$ = 0,05 m



Terrain category III
Suburbs , industrial ot trade estates, woods
$z_o$ = 0,30 m



Terrain category IV
Urban areas where at least 15 % of the area is covered with buildings, the average height of which exceeds 15 m
$z_o$ = 1,00 m

## Mixed profile

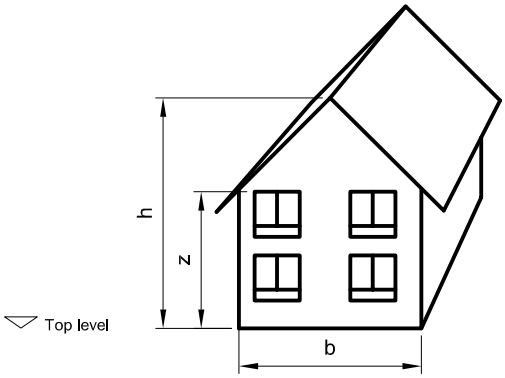
| | |
|---|---|
| Inland | Mixed profile of terrain categories II and III |
| Coast | Mixed profile of the terrain categories I and II for areas near the coasts as well as islands in the Baltic Sea |
| Islands in the North Sea | Terrain category I |

## Influence of sea level

1. The dynamic pressure must be increased if the building is located at a height of more than 800 m above sea level.
2. The increase factor is (0,2 + $H_S$ / 1000), whereby $H_S$ describes sea level in m.
3. Special considerations are required for ridges and peaks in mid-range mountains as well as above $H_S$ = 1100 m.

## 1c) Installation height - building height

Installation height is the distance between the top level of the natural ground and the top level of the window element.




Depending on the installation height, a specific wind pressure acts on the window element. Up to an installation height of 25 m, the wind pressure can be assumed according to the simplified method depending on the wind load zone and terrain category. The installation position in the building is irrelevant in this case.

Simplified assumptions for wind loads according to DIN 1055-4: 2005-03

| Wind load zone | | Wind load in kN/m² for building heights within the following limits | | |
|---|---|---|---|---|
| | | h ≤ 10 m | 10 m < h ≤ 18 m | 18 m < h ≤ 25 m |
| 1 | Inland | 0,50 | 0,65 | 0,75 |
| 2 | Inland | 0,65 | 0,80 | 0,95 |
| | Coast and islands in the Baltic Sea | 0,85 | 1,00 | 1,10 |
| 3 | Inland | 0,80 | 0,95 | 1,10 |
| | Coast and islands in the Baltic Sea | 1,05 | 1,20 | 1,30 |
| 4 | Inland | 0,95 | 1,15 | 1,55 |
| | North Sea and Baltic Sea coast and islands in the Baltic Sea | 1,25 | 1,40 | 0,50 |
| | Islands in the North Sea | 1,40 | --- | --- |

The wind pressure assumption $w_e$ or $w_i$ using the control method always refers to the installation height depending on the wind load zone ($q_{ref}$) and the terrain category.

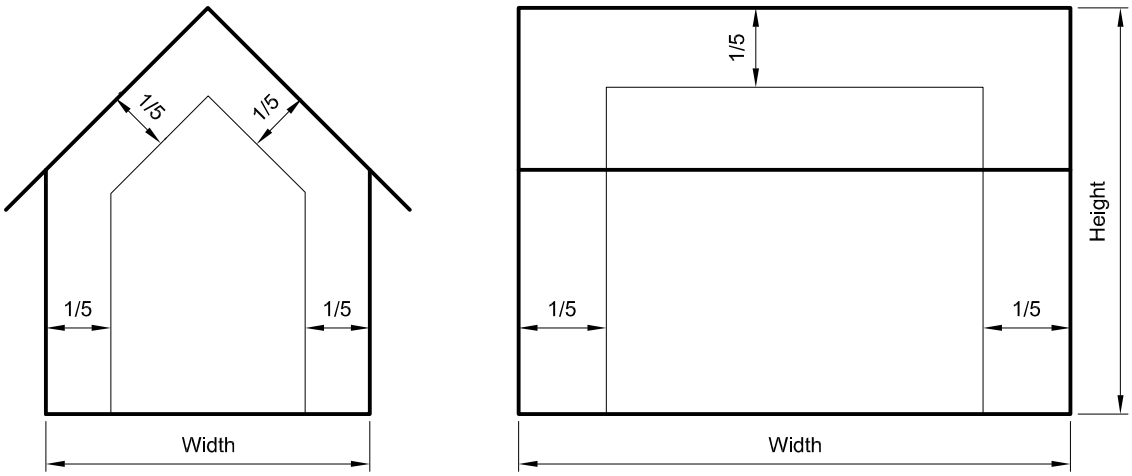
$$W_e = c_{pe} * q\ (z_e)$$

$C_{pe}$ = Aerodynamic coefficient for external pressure
$Z_e$ = Reference height
q = Speed pressure

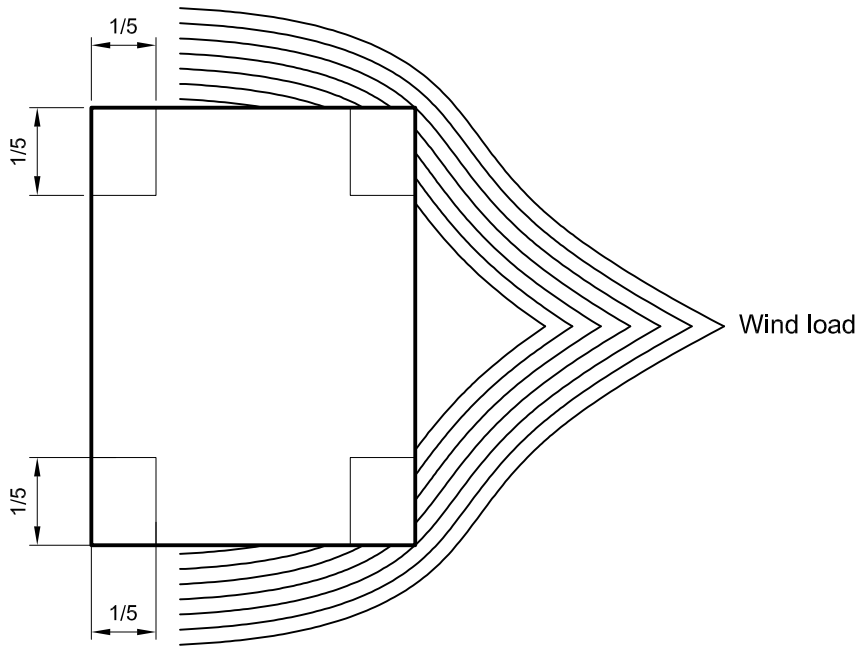
## 1c) Installation height - building height

If the wind pressure is not assumed according to the simplified method, the position of the window element in the building is important. Wind pressures create so-called suction or pressure peaks at the corners of the building. These are caused by the wind being deflected away from the centre of the building. This means that window elements in corner areas are exposed to increased wind loads. The edge area is defined as 1/5 of the respective building width and height.

Edge areas:



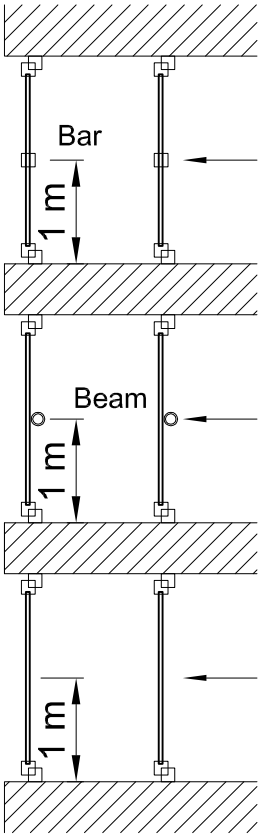

Wind load:



# 1d) Beam load

The beam load is one of the horizontal payloads caused by people on parapets, railings or other structures which serve as barriers. The horizontal payload is assumed according to DIN 1055-3: 2006-03. The calculated force is always assumed 1 m above the top level of the finishing flooring or top level of accessible parapet. The beam loads in window statics must not be confused with the beam load specified in TRAV (Technische Richtlinie für Absturzsichernde Verglasung - *Technical guidelines for the use of accident-proof glazing*) or TRLV (Technische Richtlinie für linienförmige Verglasungen - *Technical guidelines for linear glazing units*).

Points of action




Assumed load

"non-public area"
e.g. apartments, offices

$q_K$ = 0,5 kN/m

"public area with normal crowd gathering"
e.g. retirement hornes, hospitals

$q_K$= 1,0 kN/m

"public area with increased crowd gathering"
e.g. concert halls, railway stations, airports, ...

$q_K$= 2,0 kN/m

## 1e) Permissible deformation

Basically, a distinction is made between deformation out of the façade plane and in the façade plane.

a) Deformation out of the facade plane:

In an installed state, dynamic loads and permanent loads act on the insulating glass / window element.

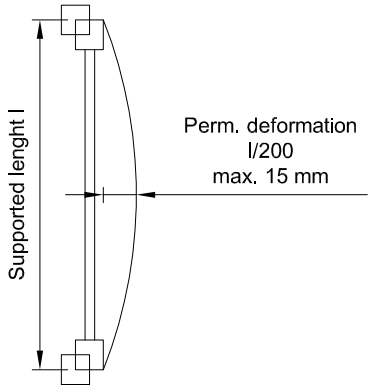
These can include, for example:

- Wind load
- Pelting rain
- Beam load etc.

These loads act on the support profiles (frames), which causes the support frames and the glass edge to sag. This sagging leads to shearing forces at the edge seal of multiple insulating glass. Classification of wind resistance is in accordance with DIN EN 12210. The objective is to ensure the border of the insulating glass pane (l / 200, max. 15 mm) in order to guarantee a permanently airtight glass edge seal for multiple insulation glazing as well as the reliable function and sufficient airtightness of window elements. The BF-sheet 002 / 2008 is decisive for the maximum sag values of the insulating glass pane (www.bundesverband-flachglas.de Status 10.2009, subject to change).

However, restrictions may be issued by the insulating glass manufacturer.

## Example:




This means, for example, that the permissible deformation of an element 2 m high is

2000 mm / 200 = 10 mm.

b) Deformation in the facade plane:

Static loads act on a window element in the installed state. These are usually intrinsic component loads or the support load of glazing near bars. These loads act on the support profiles (bars), which causes the support frames and the glass edge to sag. This sagging leads to shearing forces at the edge seal of multiple insulating glass. This means that bars must also have sufficient structural dimensions.

# 2. Determining element characteristics

## 2a) Element size:

Element size is always defined as the outer dimensions of the frame. Extension profiles are usually neglected, but it must be guaranteed that the forces occurring can be transmitted safely and permanently into the structure. Maximum element size is based on the processing guidelines issued by Salamander Industrie-Produkte GmbH. The maximum outer dimension of the frame is 4000 mm for white profiles and 2500 mm for coloured ones. More detailed information / explanations can be found in the chapter “Reinforcement guidelines”.

## 2b) Determination of posts and bars:

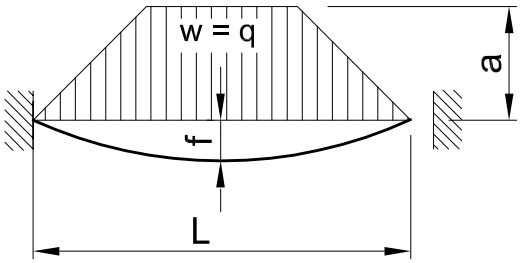
Posts and bars are considered as self-supporting components, since their construction means they do not engage with the frame all the way round, respectively they cannot be connected with the masonry all the way round.

These can be, for example:

- Vertical / horizontal posts
- Bars
- Element couplings

We recommend choosing supported lengths as short as possible for the structure, since the length L is used to the power of 4 in the calculation.

### Basic theoretical principles




$$I_{erf.} = \frac{a \cdot w \cdot L^4 \cdot [\,5 - 20 \cdot (a:L)^3 + 16 \cdot (a:L)^4\,]}{1920 \cdot f_{max.} \cdot E}$$

### Explanation:

| | |
|---|---|
| a | Load width |
| L | Supported lenght |
| w | Assumed load (usually comprising wind and beam load, or intrinsic load) |
| $f_{max}$ | max. permissible sag |
| E | Elasticity module in KN/cm$^2$ |
| $I_{erf}$ | Required moment of inertia of area in cm$^4$ |

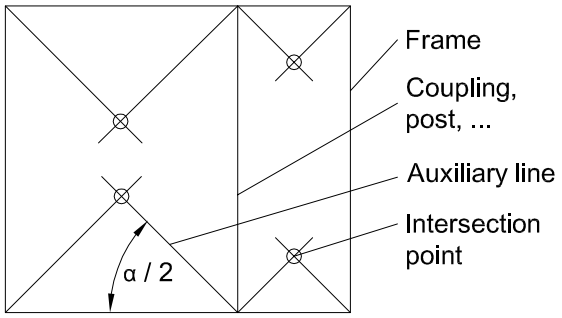
# 2c) Definition of load introduction area:

In order to dimension self-supporting components in terms of statics, the assumed load must be known. This is made up of the load parameter (e.g. wind load in KN/m²) and load area in m². The assumed load is regulated in the respective standards. The load area depends on the structure involved. A distinction is made here between linear load and trapezoidal load. In window statics, trapezoidal load is usually used for calculation.

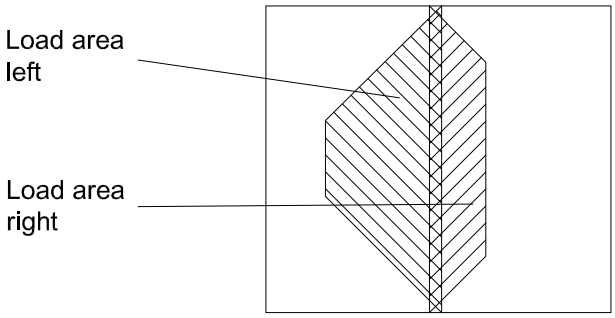
## Determining trapezoidal load:

To determine the area of a trapezoidal load, an angle bisector is always determined at the intersection of the connection post-bar / frame. The load area is restricted at the intersection point of the respective auxiliary lines. Two load areas always have to be determined for posts, bars or couplings. In contrast, only triangular or trapezoidal loads occur for frames.

1. Determining auxiliary lines:



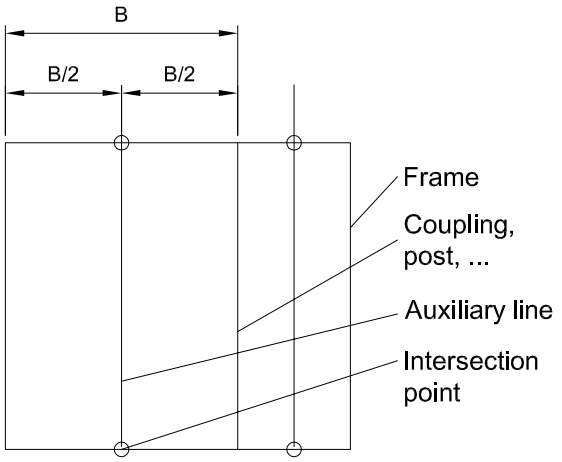

2. Determining load areas:



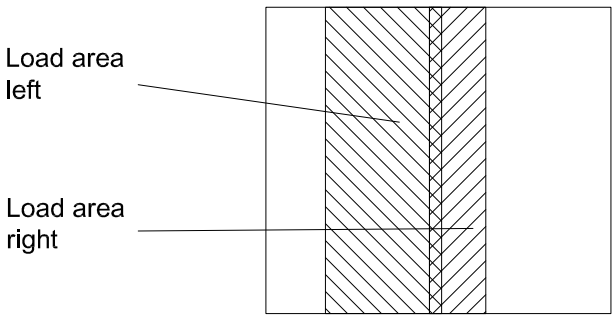

## Determining linear load:

To be able to determine the area of a linear load, a parallel auxiliary line is always drawn in the centre of two vertical or horizontal parts. The load area is restricted at the intersection point of the respective auxiliary lines.

1. Determining auxiliary lines:




2. Determining load areas:



# 3. Determining static values

The first moments of inertia can be calculated using SIP statics calculator or manually. We recommend determination of the moments of inertia using SIP statics calculator as an efficient and safe method.

## 3a) Term definition

The elasticity module:

The elasticity module E (E-module) is a material-specific parameter. It is a measure of resistance of a material against elastic deformation. The smaller the E-module, the softer the material.

| E-modules of different materials: | | | | |
|---|---|---|---|---|
| PVC hard | 2 500 | N/mm² | ≙ | 250 kN/cm² |
| Wood | 10 000 | N/mm² | ≙ | 1 000 kN/cm² |
| Aluminium | 70 000 | N/mm² | ≙ | 7 000 kN/cm² |
| Steel | 210 000 | N/mm² | ≙ | 21 000 kN/cm² |

The moment of inertia of area:

The moment of inertia of area I for sag is a material-independent parameter which only depends on the geometry of the cross-section. The definition results in the unit $mm^4$ or $cm^4$

Bending stiffness:

Profiles with different cross-sections and materials only become comparable when the E-module is multiplied by the moment of inertia of area. This is generally described as bending stiffness = E x I.

The moment of inertia of area $I_{erf}$:

The moment of inertia of area $I_{erf}$ to determine reinforcement is the product of the factors
- Supported lenght
- Load
- Material and
- Geometrical cross-section

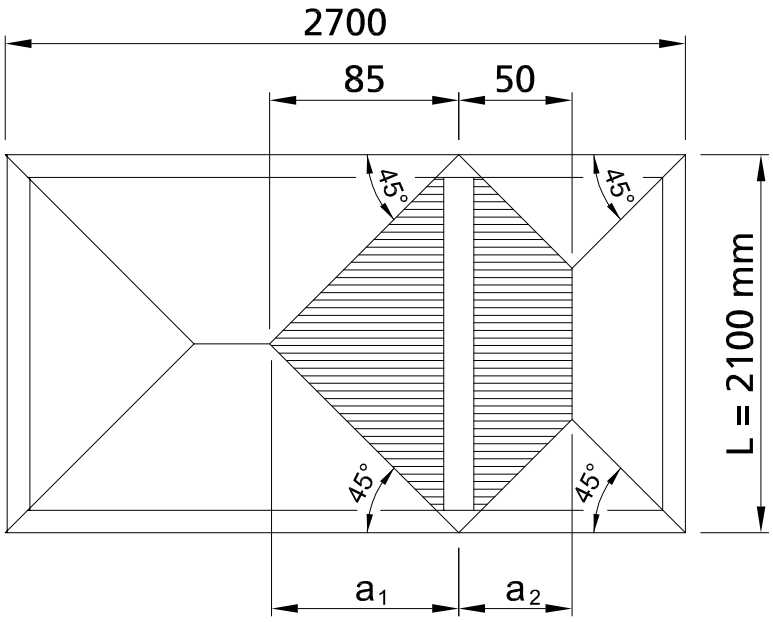
This calculated value can be used for the necessary dimensioning and/or selection of the reinforcement.

## 3b) First moments of inertia using SIP static calculator:

The procedure for determining the first moments of inertia using SIP calculator is explained in detail in the annex to this chapter.

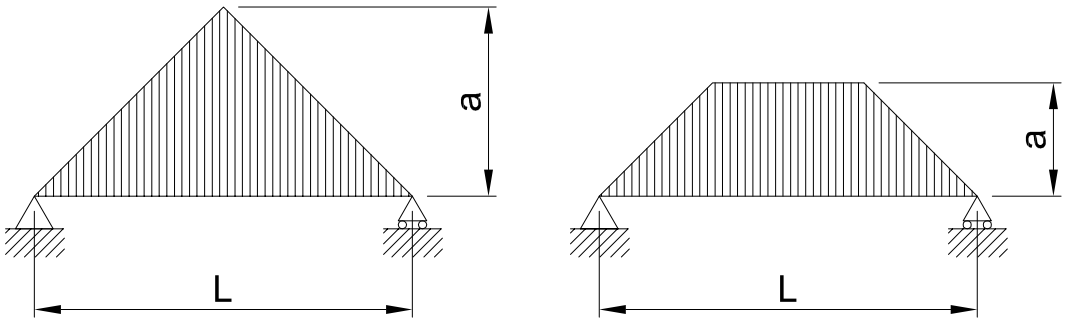
## 3c) Manual procedure:

Example:




$a_1$, $a_2$: Load width
L: Supported lenght

The load case of one carrier on two supports (1x fixed bearing, 1x loose bearing) is almost always assumed as a calculation model (static system) for posts, bars or couplings. This is described as a statically determined system.




The required moment of inertia of area is determined individually for each field. Then these moments of inertia of area are added together. The equation depends on the load picture. Triangular, trapezoidal or uniformly distributed loads are usually used for window statics.

## 3c) Manual procedure:

Left-hand trapezium:

$$I_{erf.1} = \frac{a_1 \cdot w\,(5\,L^2 - 4\,a^2)^2}{1920 \cdot f_{max.} \cdot E} = \frac{85\text{ cm} \cdot 9{,}5 \cdot 10^{-5}\text{kN/m}^2 \cdot [5 \cdot (210\text{ cm})^2 - 4 \cdot (85\text{ cm})^2]^2}{1920 \cdot 1{,}05\text{ cm} \cdot 21\,000\text{ kN / cm}^2}$$

$$I_{erf.1} = 7{,}0\text{ cm}^4$$

Explanation:

| | |
|---|---|
| a | Load width $a_1$ = 85 cm |
| L | Supported lenght L = 210 cm |
| w | Wind load according to DIN 1055-4:2005-03 = 0,95 KN/m² (WLZ 2, h ≤ 25 m), inland |
| $f_{max}$ | Maximum permissible sag $f_{max}$ = L / 200 = 2100 mm / 200 = 10,5 mm |
| E | Elasticity module in KN / cm² for steel E = 21 000 kN / cm² |
| $I_{erf}$ | Required moment of inertia of area in $cm^4$ |

Right-hand trapezium:

$$I_{erf.2} = \frac{a \cdot w\,(5\,L^2 - 4\,a^2)^2}{1920 \cdot f_{max.} \cdot E} = \frac{50\text{ cm} \cdot 9{,}5 \cdot 10^{-5}\text{kN/m}^2 \cdot [5 \cdot (210\text{ cm})^2 - 4 \cdot (50\text{ cm})^2]^2}{1920 \cdot 1{,}05\text{ cm} \cdot 21\,000\text{ kN / cm}^2}$$

$$I_{erf.2} = 4{,}97\text{ cm}^4$$

Explanation:

| | |
|---|---|
| a | Load width $a_2$ = 50 cm |
| L | Supported lenght L = 210 cm |
| w | Wind load according to DIN 1055-4:2005-03 = 0,95 KN/m² (WLZ 2, h ≤ 25 m), inland |
| $f_{max}$ | Maximum permissible sag $f_{max}$ = L / 200 = 2100 mm / 200 = 10,5 mm |
| E | Elasticity module in KN / cm² für steel E = 21 000 kN / cm² |
| $I_{erf}$ | Required moment of inertia of area in $cm^4$ |

⇨ Addition of the moments of inertia = $I_{1erf} + I_{2erf}$ = 7,0 $cm^4$ + 4,69 $cm^4$ = 11,69 $cm^4$

⇨ Result without taking beam loads into account.

# 4. Selecting the reinforcement

## 4a) Static values

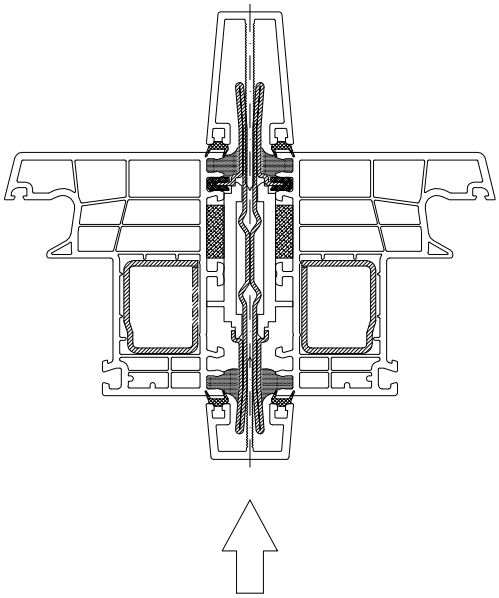
The static values of the respective reinforcement profiles can be taken from the steel posters issued by Salamander Industrie-Produkte GmbH. If deviating reinforcements are to be used, a value must be determined on your own responsibility. A comparison test is recommended. The values can be taken from books of tables or the respectively valid standard for standardised profiles such as rectangular profiles.

## 4b) Determining the moments of inertia of area

Each reinforcement has two moments of inertia of area. These are divided into Ix and If values. The value of the axis under load must always be taken into consideration. The term axis under load is used where force acts at right angles to it. For this reason, the position of the reinforcement in the profile has to be known.

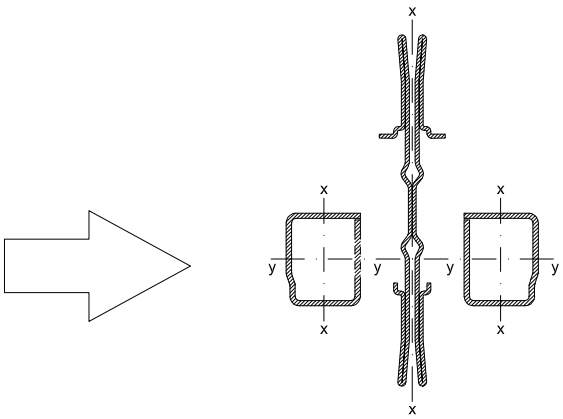
Example: frame with static coupling:

1. Position of reinforcement



Load out of facade plane, e.g. wind load

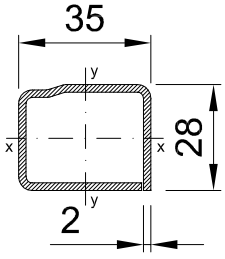
2. Position of axis to load




Load out of facade plane, e.g. wind load

3. Determining the moment of inertia of area

Force acts at right angles to the y-axis. In this case the value Iy is decisive.




**Reinforcement profile**
*35 / 28 / 2,0 mm*
*Galvanised steel*
*Ix= 2,60 cm*
*Iy= 3,75 cm*

## 4c) Static proofs

A distinction is generally made between two different types of proof.

a) Proof of stability

- Proof of structural safety
- Proofs of tension, stability
- Proof of position stability

Proof against lifting, gliding, tilting

→ Proof through structural engineer

b) Proof of suitability

- Deformation
- Sag

→ Proof through SIP statics calculator
"preliminary static dimensioning only"

Proof is not brought in accordance with TRAV (*Technical guidelines for linear glazing units*).

The preliminary static dimensioning prepared using the “SIP statics calculator” can never replace a building-related structural calculation!

## 4d) Proof of suitability for use

To be able to prove suitability for use, all moments of inertia of area for the individual reinforcements must be known. If all Ix or Iy values are known, the values can be added together.

$I_Y$ available = 2* frame steel + 1* static coupling

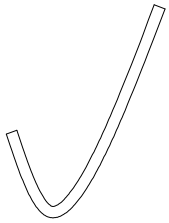
$I_Y$ available = 2* 3,75 $cm^4$ + 1* 15,65 $cm^4$ = 23,15 $cm^4$

⇨ Proof:

$$\frac{I_{Yrequired}}{I_{Yavailable}} \leq 1$$

⇨ Proof:

$$\frac{I_{req} = 11{,}69\ cm^4}{I_{av} = 23{,}15\ cm^4} \leq 1$$



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## Area of validity

These general processing guidelines are applicable for the working and processing of SIP plastic window profiles with white base, without decor. Further, the “Additional processing guidelines for decor profiles” in chapter bE92 07, from page 10.1 - 13.1 apply for decor profiles with white and coloured bases.

The tolerances according to the quality and testing conditions for window profiles in accordance with RAL-GZ 716/1 Section 1 apply for the profile dimensions.
They comply with the latest technical standard. SIP retains the right to adapt all the processing guidelines according to the latest technical knowledge and requirements at any time. The quality of the profiles, their professional working and processing and the professional production of the elements in line with the following guidelines form the basis and pre-condition for high-quality plastic windows made of SIP profiles.

## Area of application

The area of application for white profiles is restricted to Central European climate “M” in accordance with DIN EN 12608:2003.
In order not to forfeit warranty claims, SIP must be consulted if the windows are to be used in other climate areas than the one specified.

## Protection of the profiles

The profiles are delivered in PE film tubes or on pallets protected by PE film. To exclude heat build-up and condensation forming, the recipient must open the PE film on the ends of the packaging units.
The main profiles (frames, casements, posts) and selected profiles from the range of accessories have protective film on the main visible surfaces. This avoids damage to the surface during window production and installation provided the profiles are handled professionally.
The protective film must be removed immediately following installation on site. The backing material of the film may dissolve when exposed to sunlight (UV rays). This can leave residue on the profile surface.

The use of dissolving and aggressive detergents on profiles with protective film is not permitted.
The instructions printed on the protective film must be heeded.

## Storage and transport of the profiles

On arrival, the goods must be checked for completeness, damage to the profiles and intactness of the packaging.
Careful handling of the profiles is essential during transport and during the production process. The profiles must not be thrown or pulled over profile edges, corners and visible surfaces.

Two procedures have proved their worth for storing PVC profiles:

Storage on shelves
Storage is on shelves which are a maximum of one metre apart. The whole surface of the shelf itself must be covered with chipboard, for example. The load-bearing capacity of the shelf units and shelves must correspond to the load stored. The shelves must be free of dirt and humidity.
The maximum stacking height must not exceed one metre.

Storage on the floor
When the profiles are stored on the floor, care must be taken that the contact area is level and has been prepared by the placement of a suitable base, e.g. chipboard. The board surface must be free of dirt and humidity.
The maximum stacking height of one metre must not be exceeded.

Outdoor storage
Outdoor storage must be avoided as far as possible in order to prevent processing difficulties caused by dirt and humidity.

The profiles must always be protected from sunlight. This also applies when they are stored behind glass.
Profile edges must be stored flat over their whole length, individual profiles must be placed inside one another in such a way that no deformation and damage can occur.
If the profiles are stored incorrectly for a longer period, permanent deformation of the profiles will occur.

## Processing temperatures / conditioning

Before processing the profiles must be conditioned for at least 24 hours at a workshop temperature of at least 18°C. As a guide, a cooled profile will usually heat up by one degree Celsius per hour.

The ends of pallet films and tube films must be opened to guarantee even heating of the profiles, refer also to the section on “Protection of the profiles”, chapter bE92 07, page 01.1.

The same guidelines described in the section “Storage and transport of the profiles” applies for storage of the profiles.

It is essential that the profiles are processed at an ambient and profile temperature of at least 15°C.

Pre-cut parts must be stored in such a way that the mitre cuts do not become damaged. Heavy dust, draught and humidity must be avoided. In order to guarantee an optimum welding connection, longer-term storage of the pre-cut profiles must be excluded on account of the risk of humidity absorption and soiling on the cut surfaces.

Welded frames must be allowed to cool for at least 2 minutes before they are trimmed, so that sufficient corner rigidity is achieved and sink marks are avoided.

All profiles, and this includes pre-cut, non-welded rods, must be protected from exposure to heat e.g. fan heaters, radiators etc. or sunlight during the production process.

## Storage and transport of the window and door elements

Special care must be taken when handling the manufacturing elements before and during transport through to installation.

Suitable measures must be taken to protect the finished elements from damage, soiling and sunlight.

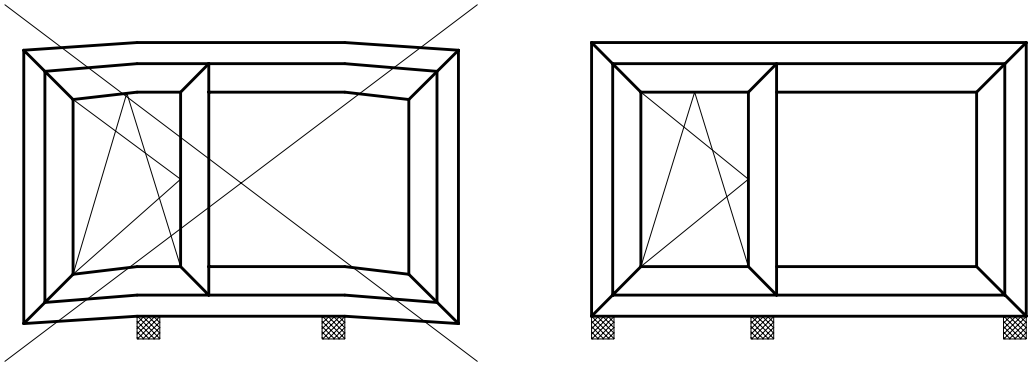
Outdoor storage must be avoided, as must storage behind glass.

Intermediate layers made of suitable materials prevent damage, scratches, pressure and chafe marks.

The elements must be secured against slipping, tilting etc. during transport.

Storage and transport must be carried out on level surfaces. When supports are used, care must be taken that the load is distributed evenly (see illustration below).

If this is not carried out correctly, the elements can bend and become damaged, this will not be covered by any SIP warranty.



## Adhesives and sealants

As a basic principle, only adhesives and sealants whose compatibility with PVC profiles has been proved are permissible. Adhesives containing Thiokol, rubber, bitumen and acetic acid can lead to PVC profiles becoming discoloured.
Details about the compatibility of adhesives and sealants can be found in the manufacturer's processing guidelines. We recommend the use of neutrally bonding adhesives and sealants that have been approved for use with PVC, aluminium and steel profiles.
Before application of adhesives and sealants, the profiles must be cleaned using a suitable agent.

We do not recommend using adhesives and sealants near the edge seal without proof of compatibility!

Information about profiles with decor surfaces can be found in chapter bE92 07, page 13.1.

## General points

In addition to conditioning, see section “Processing temperatures / conditioning” chapter bE92 07, page 01.2, the respective machines/equipment and their suitability, state and cleanliness are of significant importance for professional processing. The equipment must be inspected, adjusted and serviced at regular intervals. The servicing and inspection intervals must be defined by the processing company on its own responsibility in line with the specifications provided by the equipment manufacturers and the production load on the equipment.
This also applies for all the following sections and chapters in these processing guidelines.

## Pre-cutting profiles

All the profiles to be welded are pre-cut using a special machine which is equipped with carbide-tipped saw blades. This machine is to be used exclusively for processing PVC profiles. Steel, aluminium, wood or other materials e.g. GRP products or products made of other plastics must not be machined using this equipment.

The use of double mitre saws or machining centres is sensible for pre-cutting frames and casement profiles, since these allow optimisation of pre-cutting precision.

| | |
|---|---|
| Diameter of saw blade: | > 500 mm |
| Tooth pitch: | 8 - 12 mm |
| Cutting speed: | ca. 50 m/s |

Clamping and cutting profiles at exact angles is the pre-condition for optimum welding quality. The clamping surfaces should be the same ones for cutting and welding. The widest profile surface should be chosen as the support surface. The dimensions set at the machine must be checked regularly and compared with the dimensions of the pre-cut parts (e.g. using a metre rule).

When pre-cutting the profiles for welding, an allowance of between 5 and 6 mm (i.e. 2.5 to 3 mm per weld seam) must be added to the finished dimension to compensate burn-off loss during welding. This welding allowance varies from machine to machine and has to be determined on the basis of tests.

No lubrication may be carried out during profile cutting since residue from oil, grease, water or similar can significantly impair the quality of the weld seam. This also applies to the machining steps drilling and milling.

These days, machining steps during which drilling and milling work have to be carried out are done on the loose profile rod to a major extent, as far as equipment configuration permits.
There is a large variety of drilling and milling machines available on the market. Their usage possibilities and suitability must be agreed with the machine suppliers.

If the drilling work for the mechanical post connections is done on the machining centre, HSS drills should preferably be used (cutting angle ca. 3 - 5 degrees).

All chips resulting from sawing, drilling and milling work must be removed before further processing.

## Pre-cutting / processing reinforcements

In accordance with the static requirements and thermal loads, the SIP plastic window profiles are strengthened using metal reinforcements. Reinforcement is by means of steel profiles, compound steel profiles or aluminium profiles from the SIP product range.

The use of SIP products is absolutely essential since the reinforcements have been optimally matched to the chambers of the SIP grooves.

The reinforcements are not usually cut using a mitre cut like the PVC profiles. They are shortened with stub ends and finish ca. 10 - 25 mm before the inner edge of mitre on the steel groove of the PVC profiles.

If fixed lengths of steel are used, the grid dimension must *not* exceed 50mm. No lubrication may be carried out during the cutting of metal profiles either, since residue from oil, grease, water or cutting emulsions can significantly impair the quality of the weld seam.

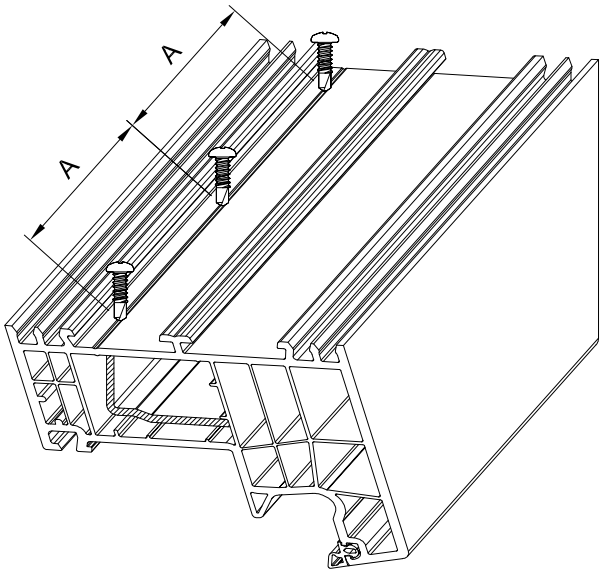
The reinforcements are pushed into the dedicated main profile grooves and screwed in place from the non-visible side of the profile using suitable self-cutting screws. Care must be taken that the right tightening torques and screwing positions are observed.

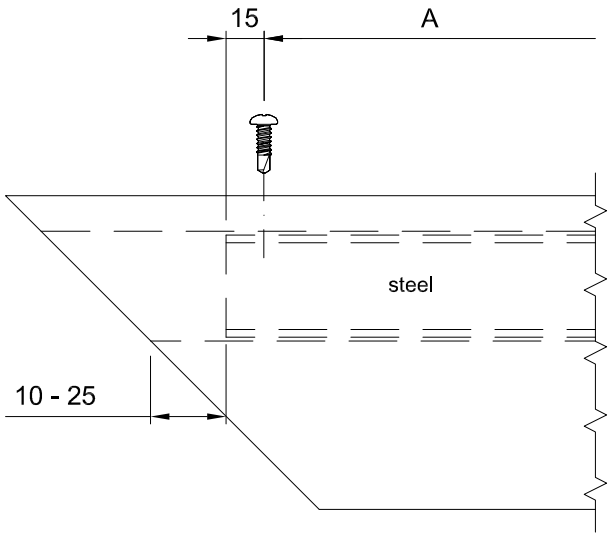
When thermally separated steel reinforcements are used, the use of screws without a drilling point is prescribed where PU compound material is used.

Distance between screws see chapter bE92 07, page 02.3 and 02.4.

**Processing (pre-cutting / processing reinforcements)**

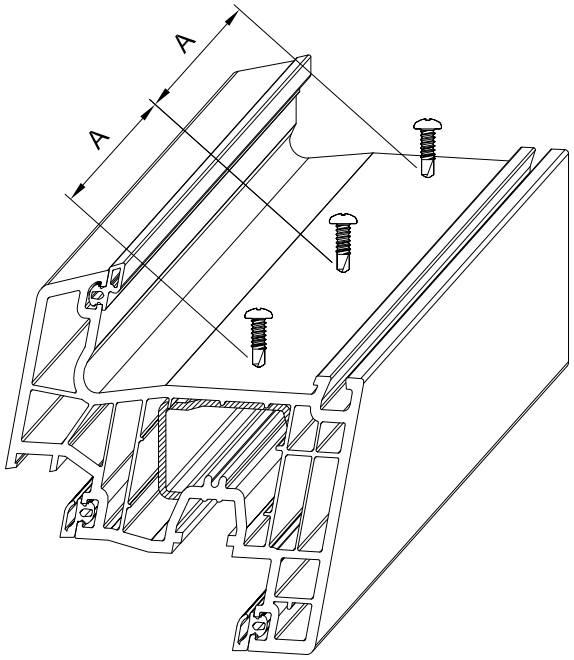
Screw attachment with:
white profiles without decor = max. 350 mm
coloured profiles with decor = max. 250 mm

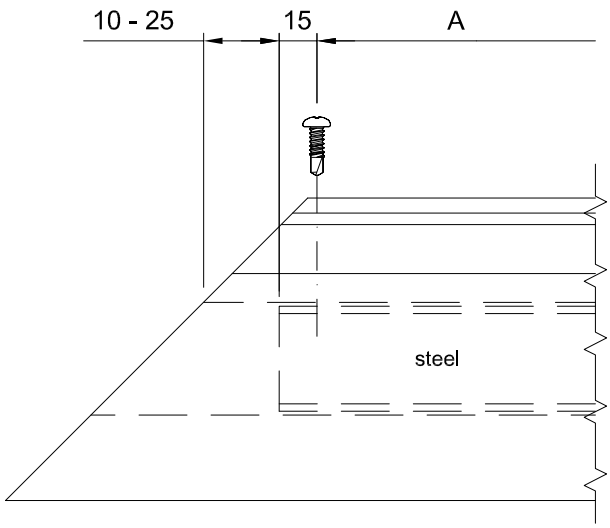



## Frame

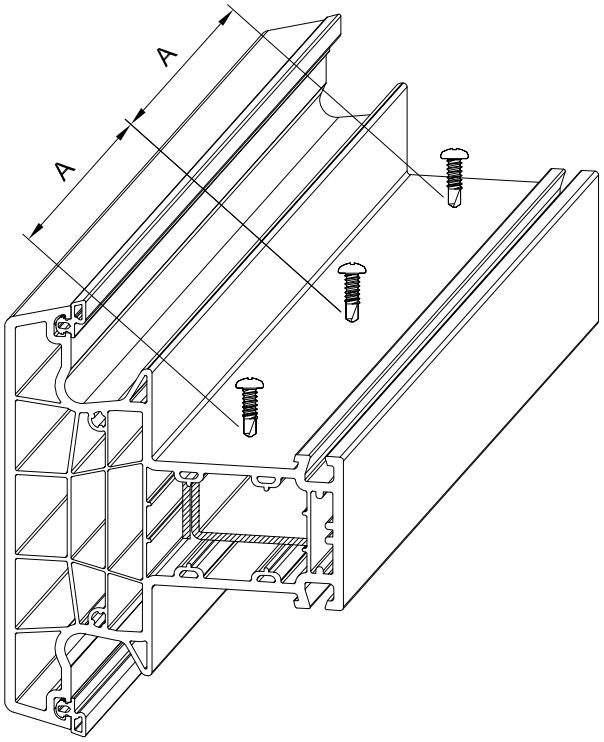
## Casement

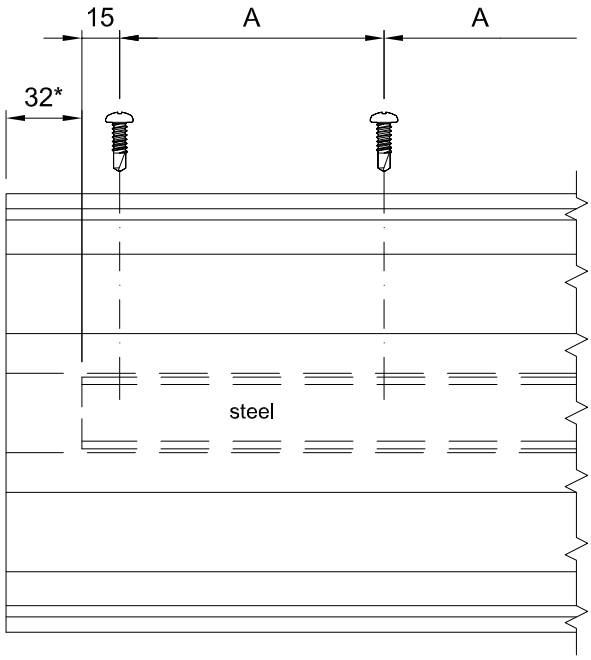


**Processing (pre-cutting / processing reinforcements)**

Screw attachment with:
white profiles without decor = max. 350 mm
coloured profiles with decor = max. 250 mm

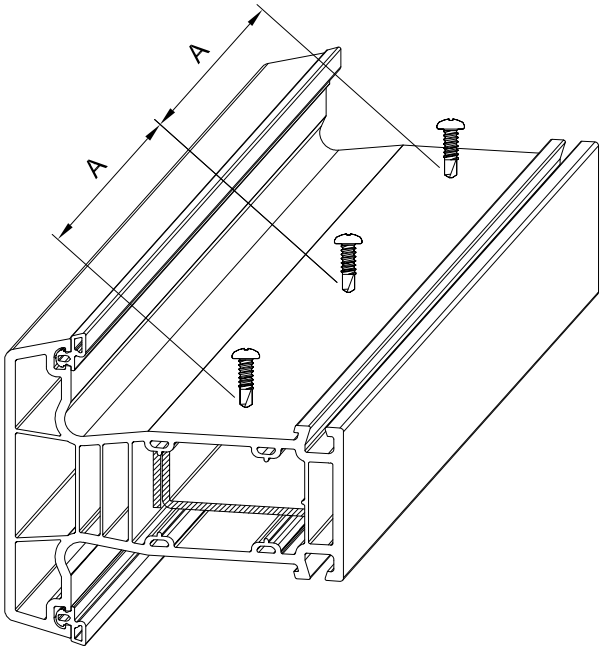


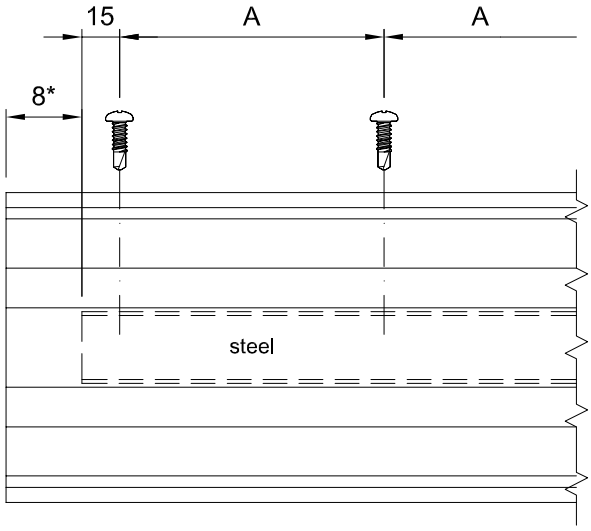




* Mechnical connection
see chapter bE92 07, page 18.2

## Post

## Mullion



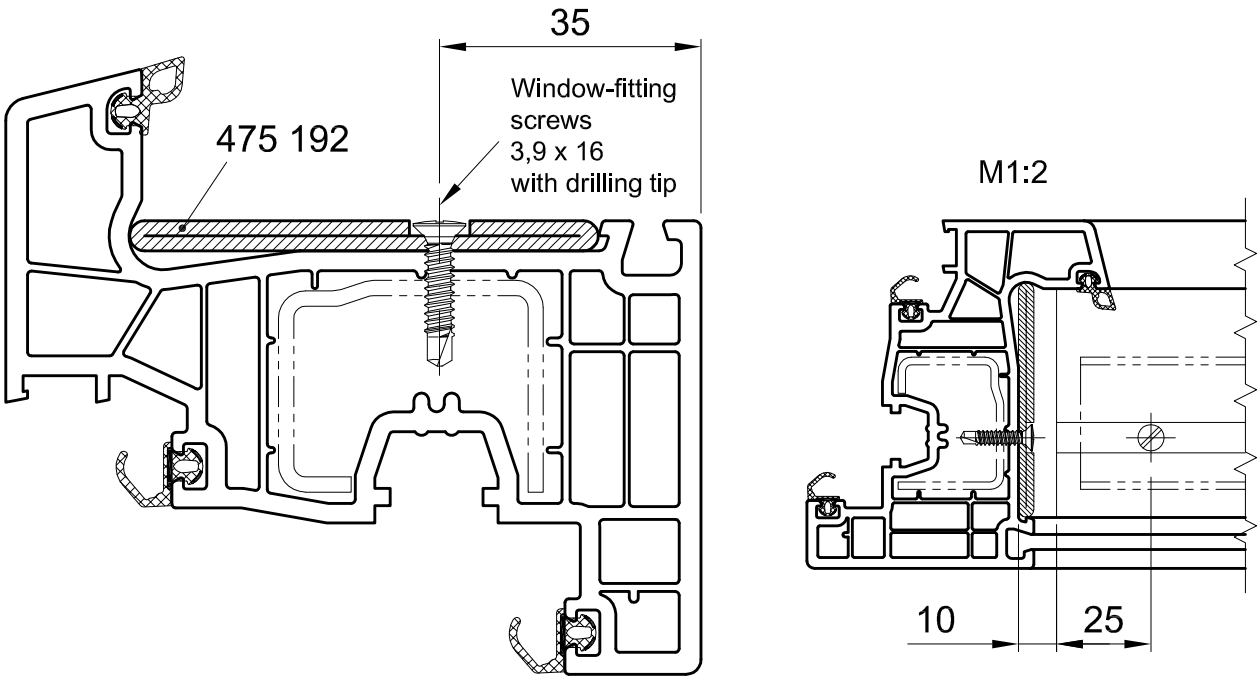




* Mechnical connection
see chapter bE92 07, page 18.2

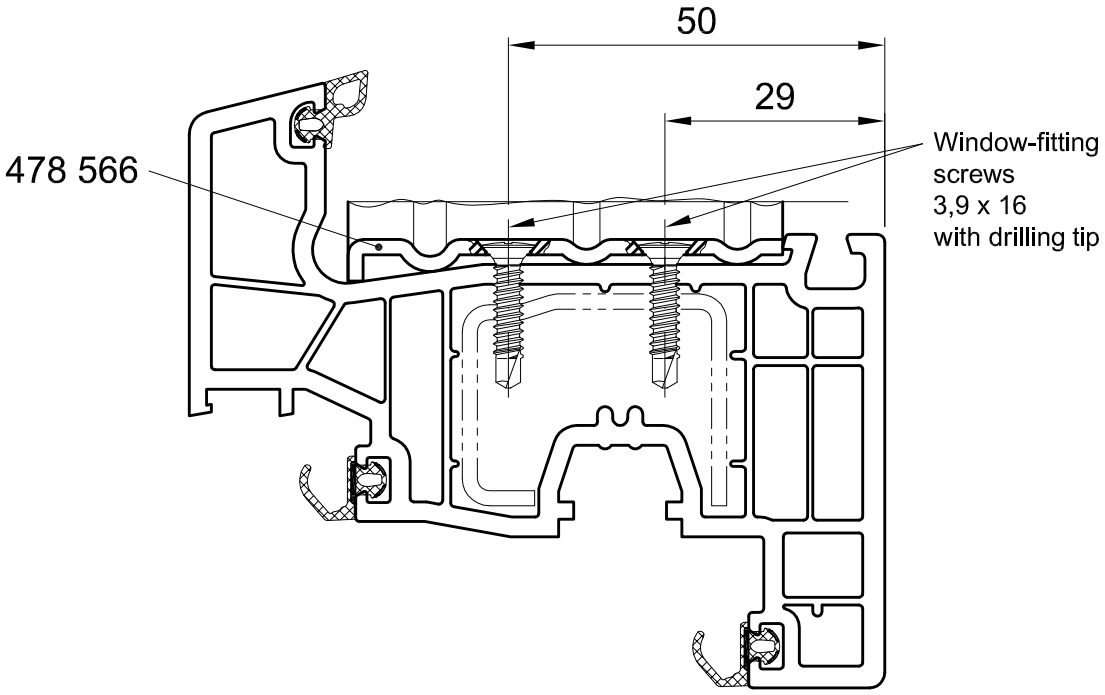
Not to scale

| Rebate reinforcement | Rebate corner | bE92 07 |
|---|---|---|
| **475 192** | **478 566** | **02.5** |

Only vertical installation!
Insert in all casements and mullions possible.




Insert in the corner
of all casements possible.



**Processing (frame drainage and glazing rebate ventilation)**

## Frame - bar drainage

Drainage of the frame and bar rebate takes place via slots and bore holes.

## Rebate drainage

The following specifications are applicable for each casement field. This means that rebate drainage (at least two openings) must be provided per casement field for double or multiple casement windows. Overlap windows must be treated like double-casement windows with posts.

In the rebate, the distance from the opening to the corner should be ca. 10 mm, although the distance between the openings should not exceed 900 mm. When working the openings, care must always be taken not to damage the wall to the steel groove. The openings are executed as slots 5 x 30 mm in size.

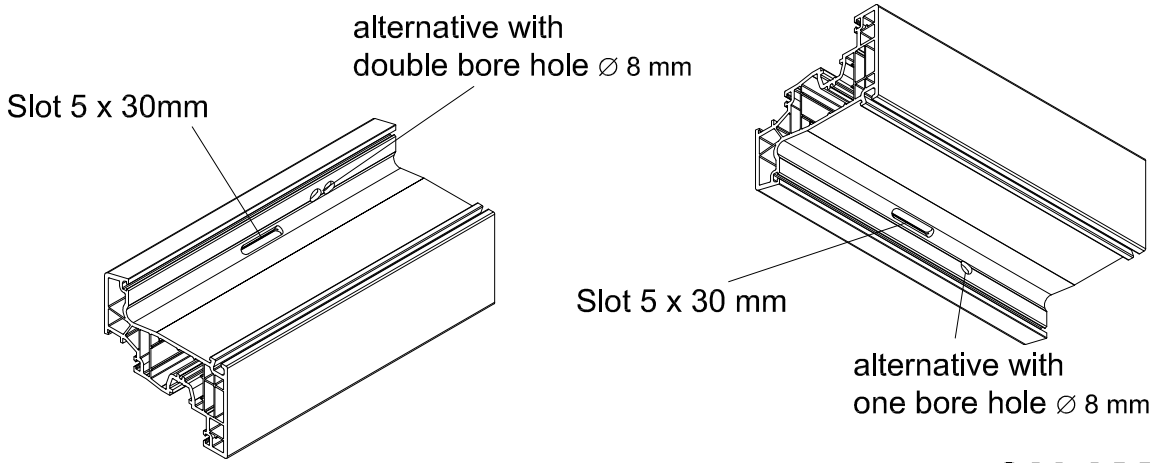
## Exterior drainage

Drainage to the exterior can be concealed facing down or visibly to the front, and must be attached offset by about 50 mm to the rebate opening. The openings are executed as slots 5 x 30 mm in size. At least two openings must be included. From an outer frame dimension (width) > 1500 mm three openings must be included, since the distance between the openings must not exceed 1200 mm.

## Glazing rebate ventilation

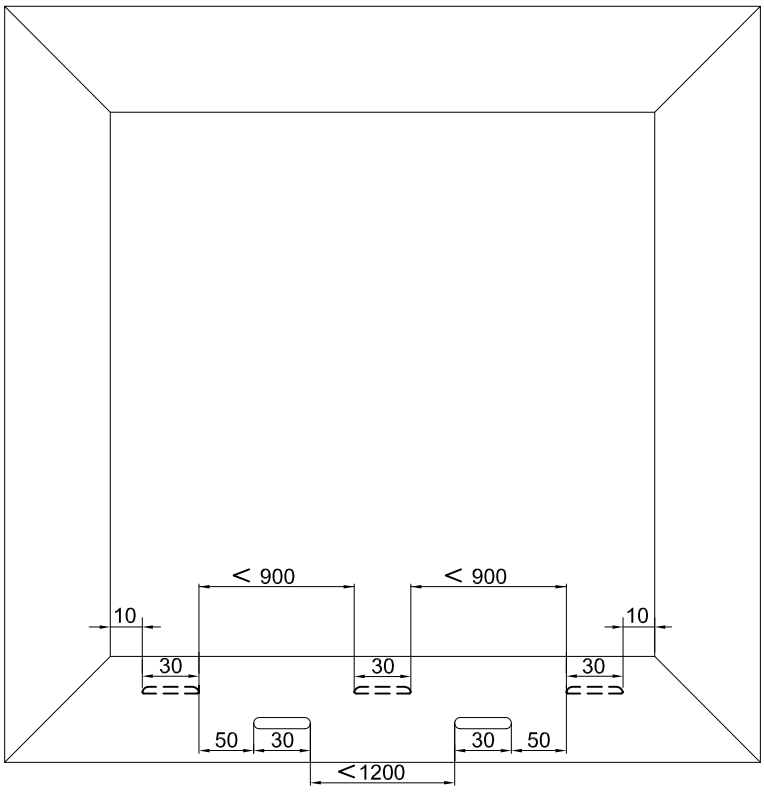
In accordance with the guidelines from insulating glass manufacturers the glass rebate must be ventilated through at least two openings in both the lower and upper cross piece.
Milled slots (5 x 30 mm) with an inner corner size of at least 10 mm must be made for vapour pressure compensation. Vapour pressure compensation to the outside is via the pre-chamber.
Double bore holes (at least Ø 8 mm) or slots 5 x 30 mm must be integrated at the bottom and slots 5 x 30 mm or one bore hole (at least Ø 8 mm) at the top. The openings in the glass rebate must not be covered by bridge setting blocks.

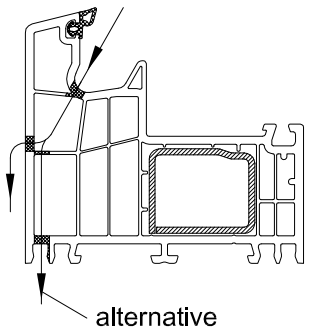
Generally speaking, care must be taken that the outer slots are offset by ca. 50 mm compared with the inner slots so that the necessary differential pressure can be established.

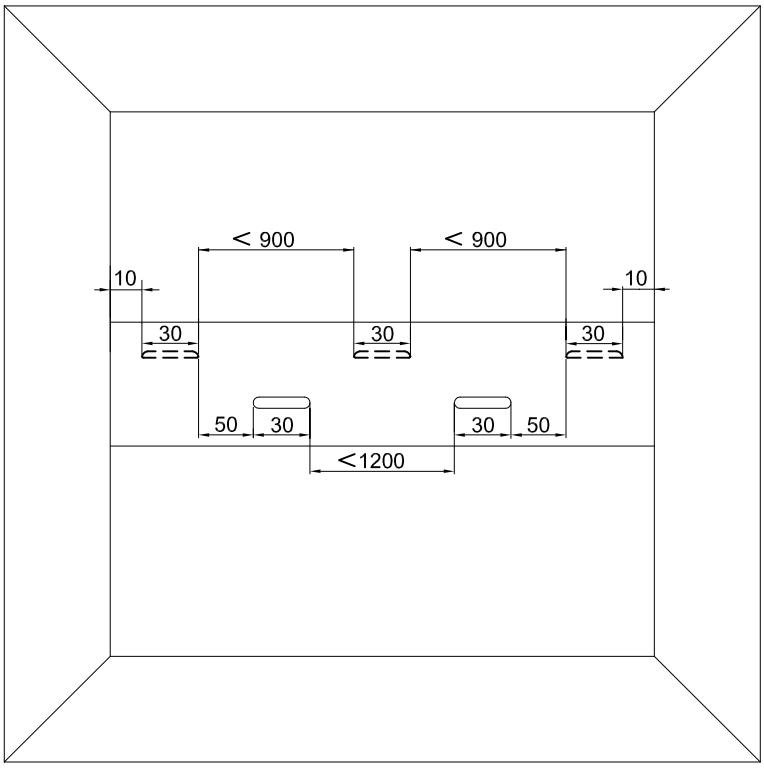


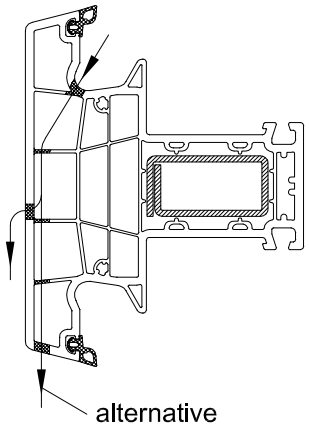

Not to scale

## Processing (drainage frame / post)



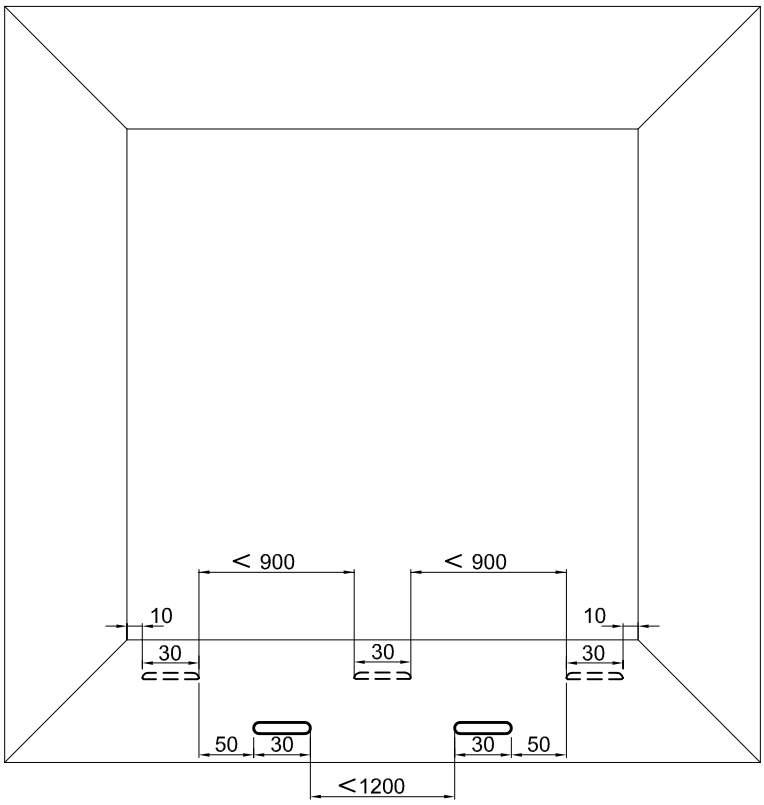



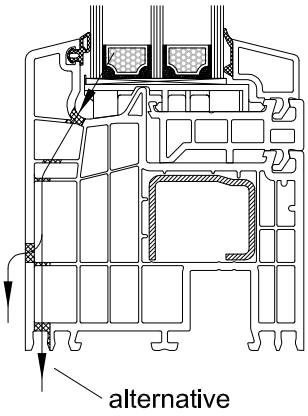



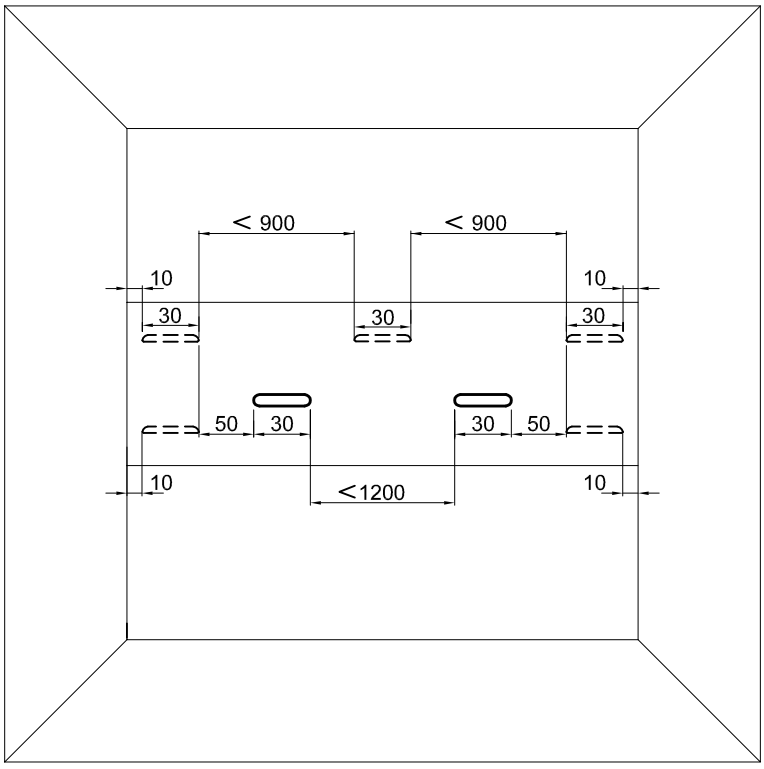

When cover cap 417 022 is used,
a slot length of 30 mm
is always required.

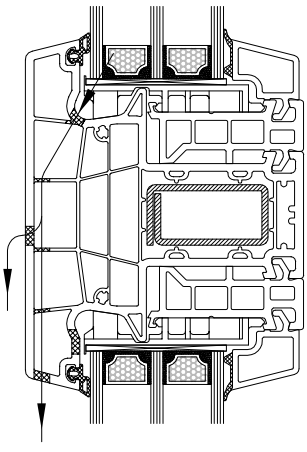
Not to scale

## Processing (drainage / post)



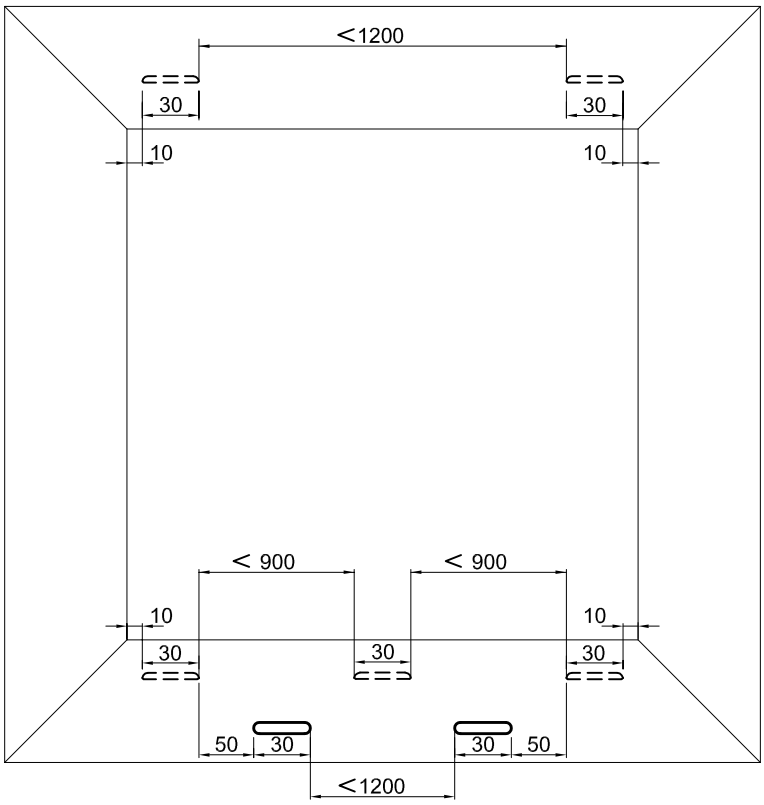



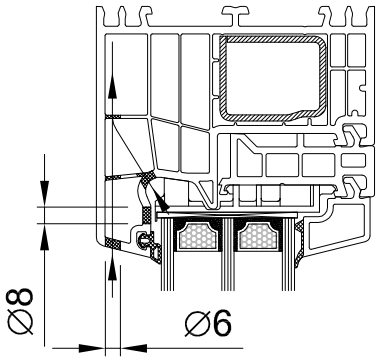



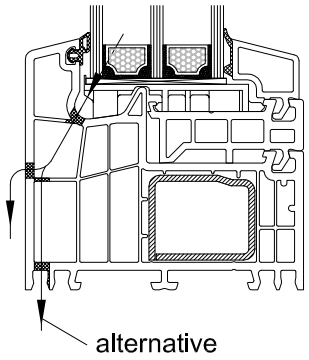

When cover cap 417 022 is used,
a slot length of 30 mm is
always required.

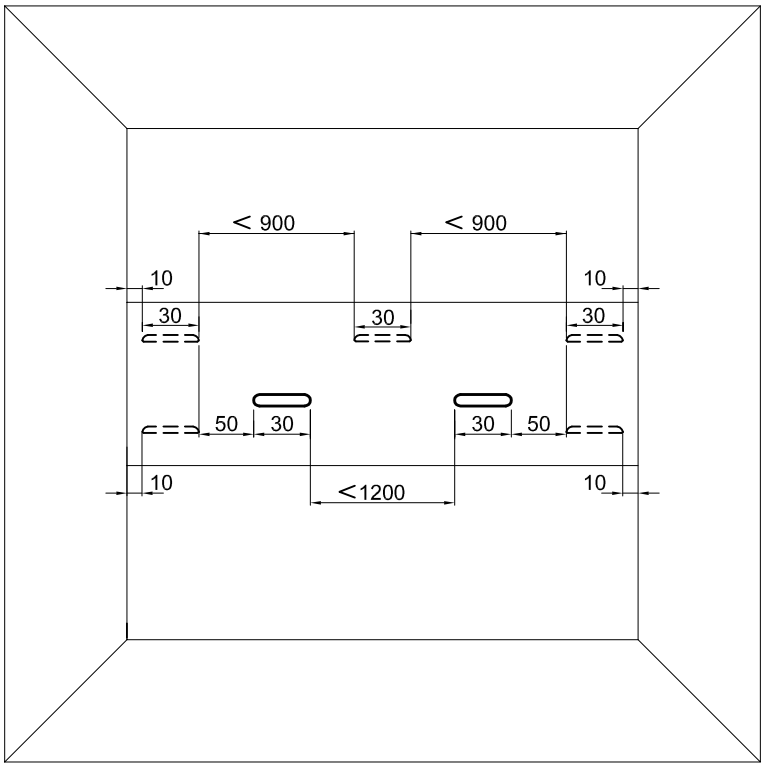
Not to scale

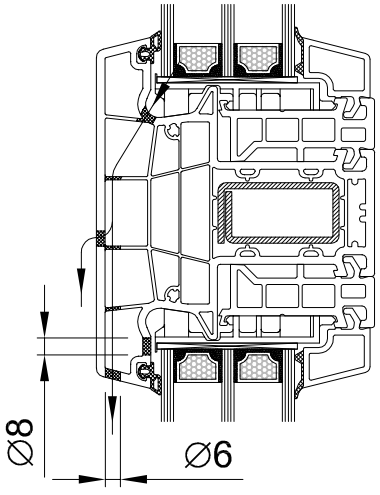
## Processing (drainage frame / post)



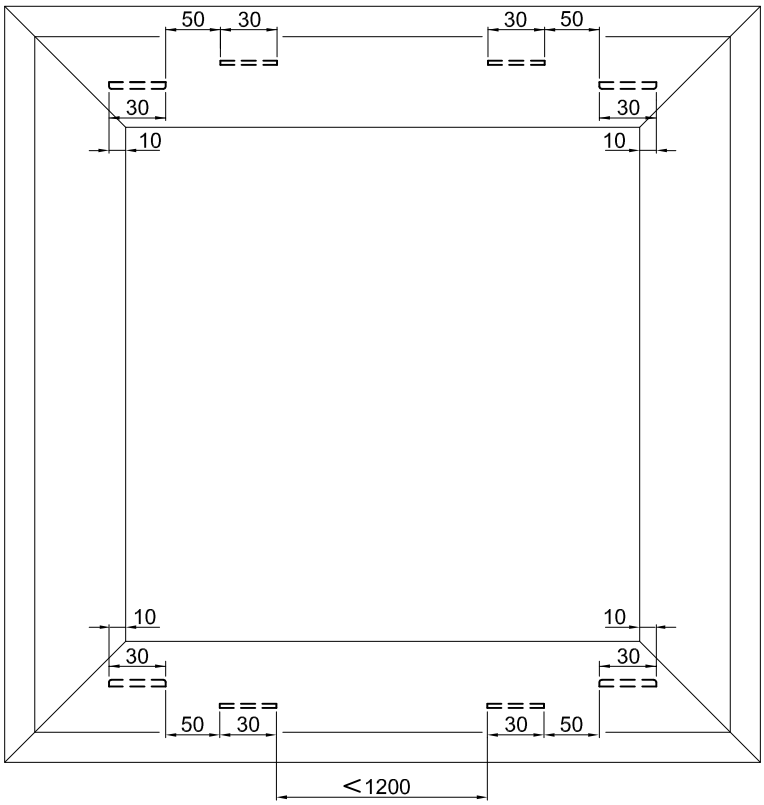



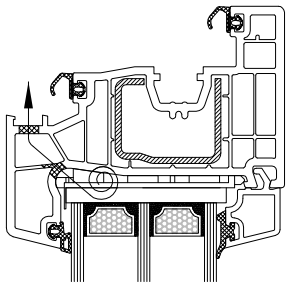



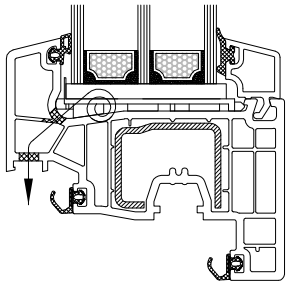

When cover cap 417 022 is used,
a slot length of 30 mm is
always required.

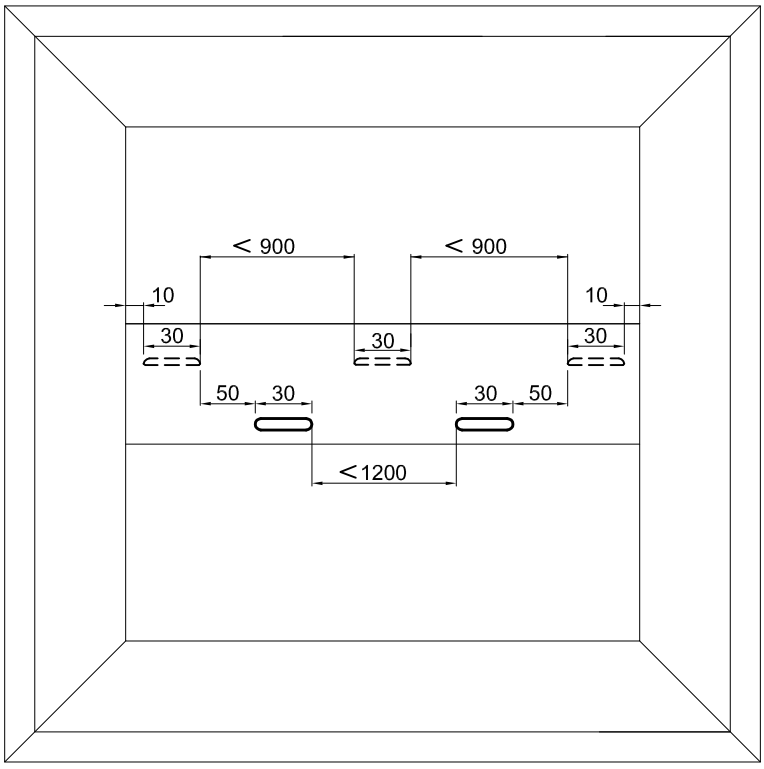
Not to scale

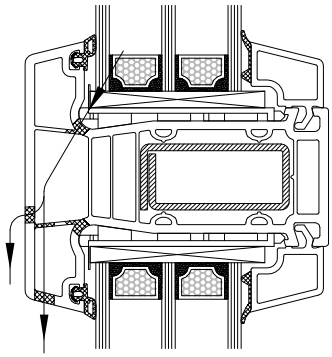
## Processing (ventilation, drainage casement / mullion)







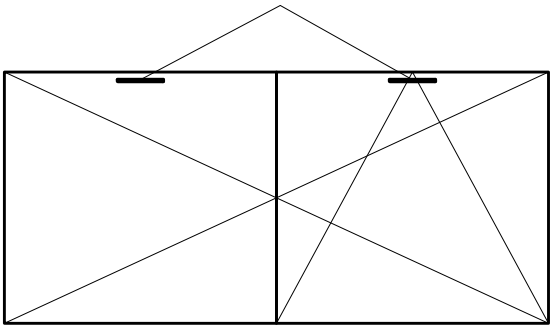



When cover cap 417 022 is used,
a slot length of 30 mm is
always required.

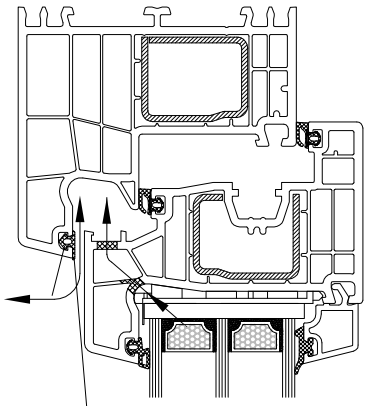
Not to scale

**Processing (drainage, ventilation, pressure compensation)**

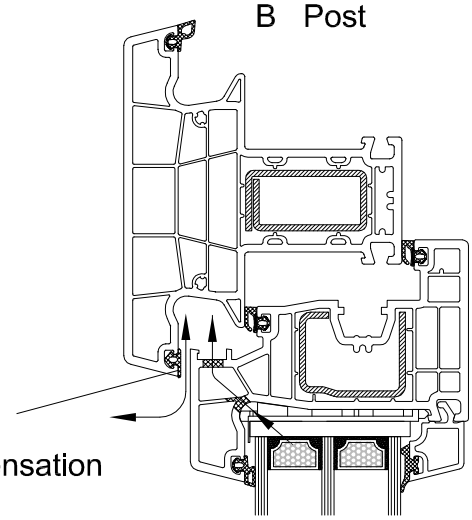
Pressure compensation L = 100 mm
(gaskets fitted in the factory are released)
Alternative pressure compensation gasket 414 023



A Frame



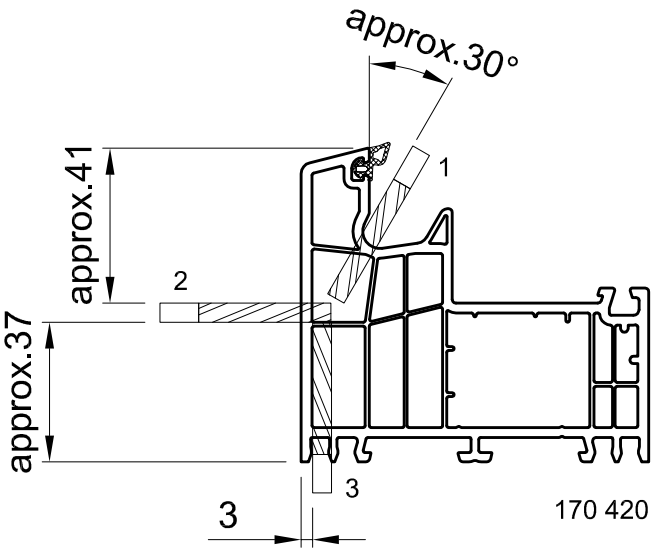
B Post

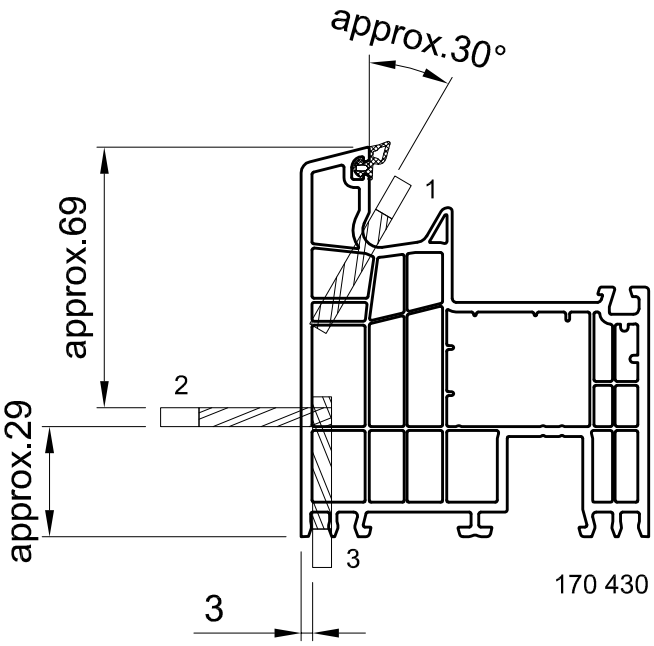


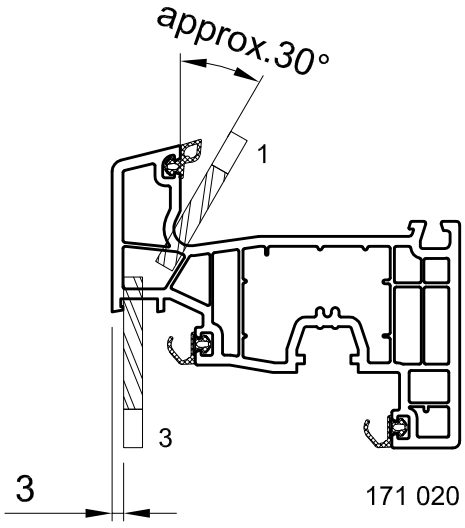
Release 100mm gasket
alternative pressure compensation
gasket
414 023 L = 100 mm

All windows must be fitted with pressure compensation independently of their installation position. The pressure compensation opening is 100 mm long and is inserted in the upper cross piece of the frame (A) or bar (B) between the rebate gasket. Please use one pressure compensation per casement field. The gasket fitted in the factory must be released using our releasing tool.

**Processing (drainage, ventilation)**



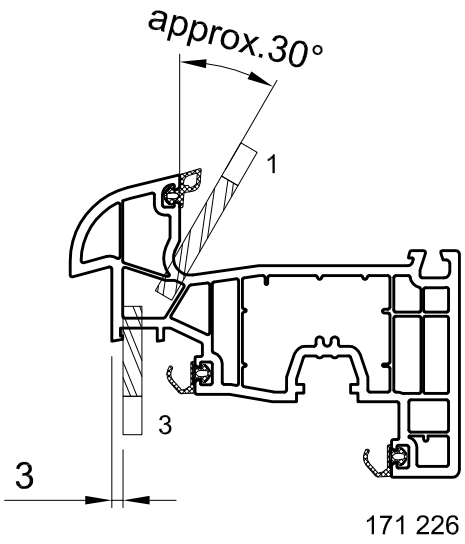



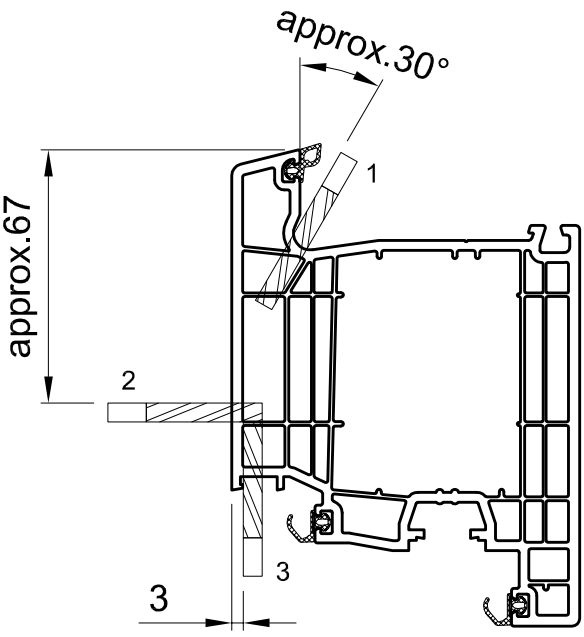

1 = Rebate
2 = Visible to the outside
3 = Invisible to the outside

Scale 1:2 (or depending on print-out)

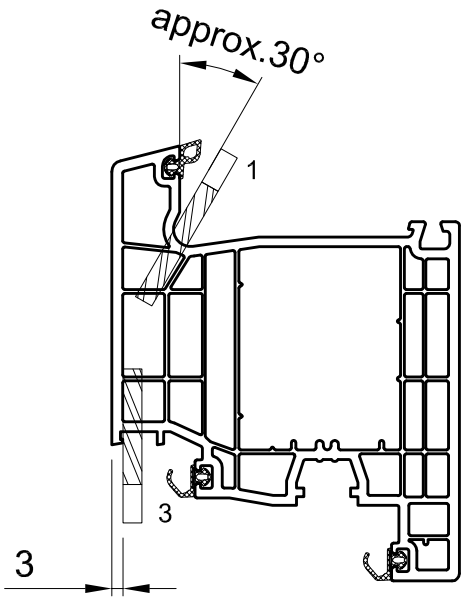
**Processing (drainage, ventilation)**



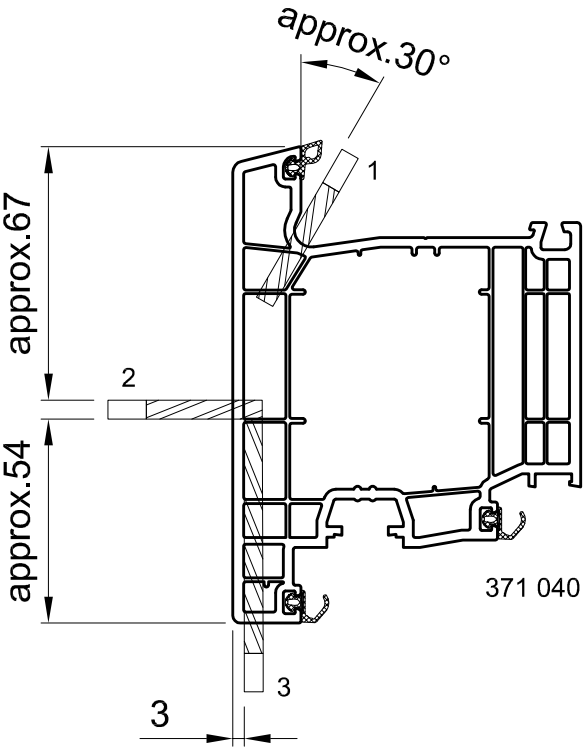

171 226




171 040




171 030

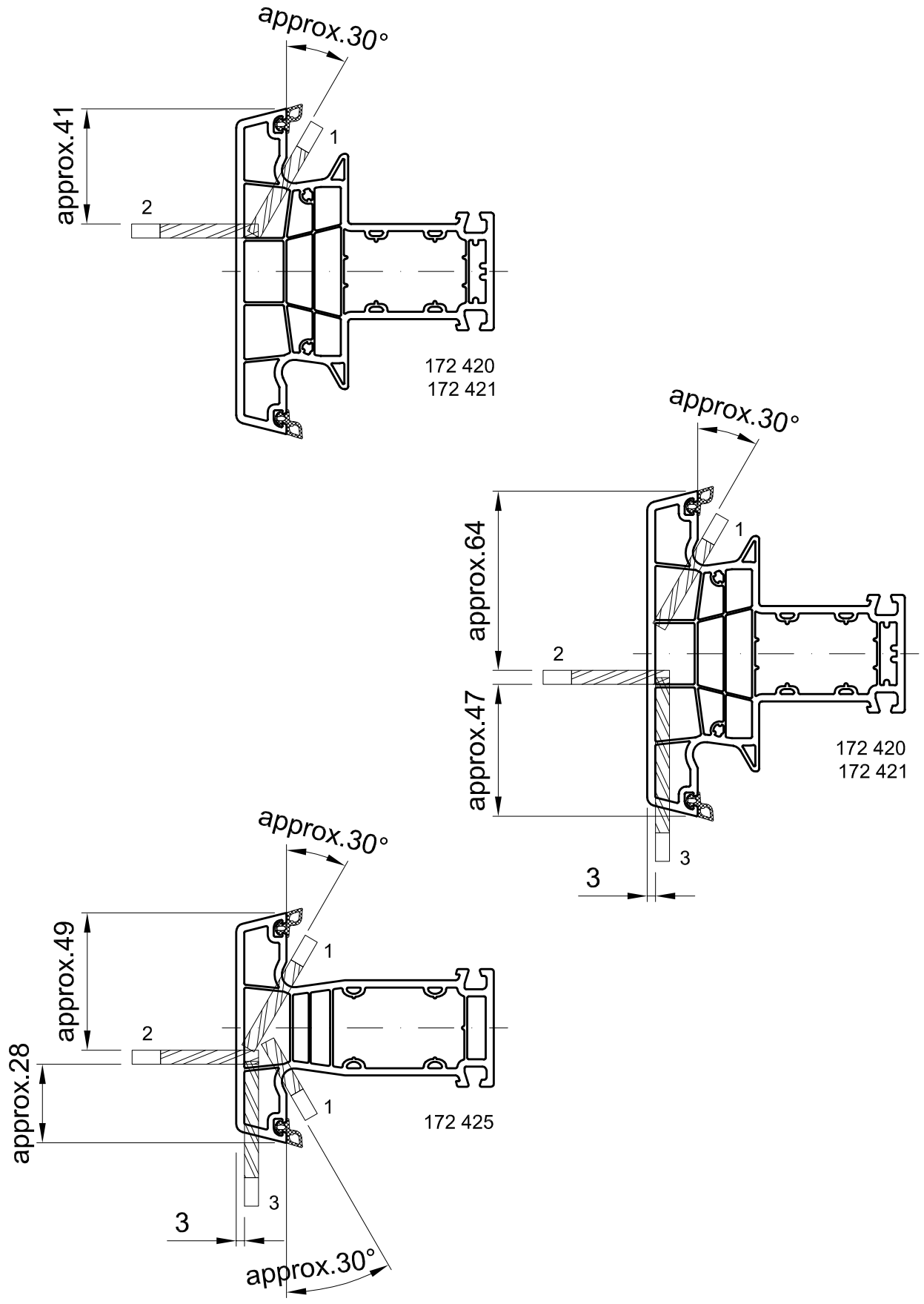



371 040

1 = Rebate
2 = Visible to the outside
3 = Invisible to the outside

Scale 1:2 (or depending on print-out)

**Processing (drainage, ventilation)**




1 = Rebate
2 = Visible to the outside
3 = Invisible to the outside

Scale 1:2 (or depending on print-out)

## Welding

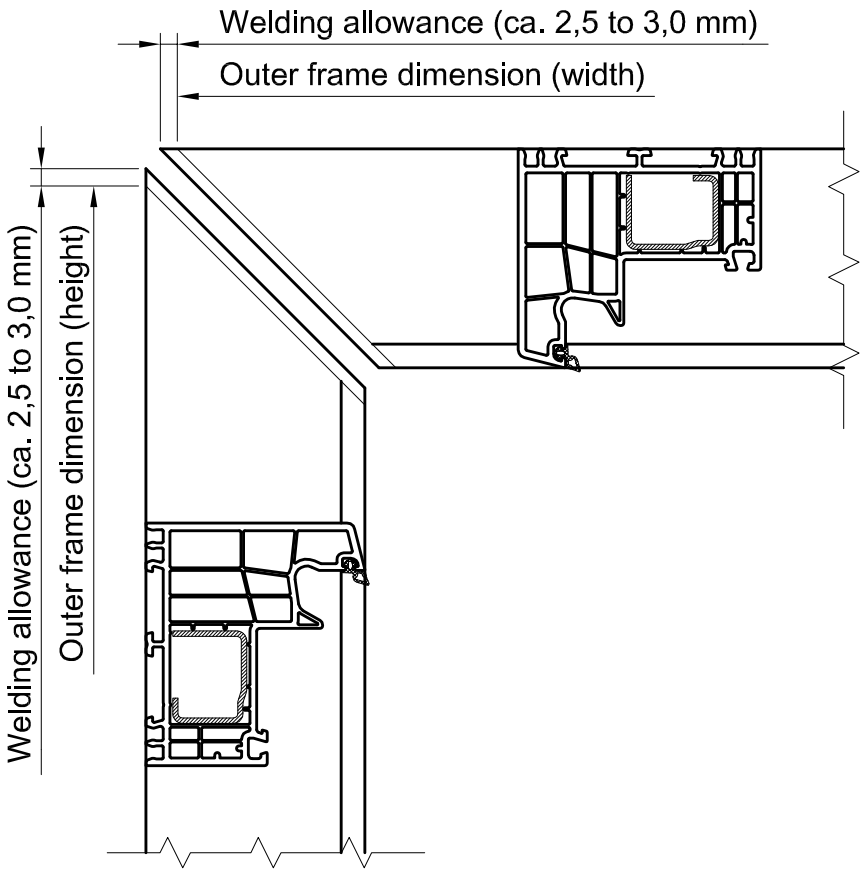
Welding of SIP window profiles must be carried out in accordance with guideline DVS 2207, Part 25, from October 1989.

The welding temperature within the useful area of the heating element must be 255 +/- 5°C. The temperature must be checked regularly using a calibrated temperature measuring device.

The gap width for the welding bead limit should not fall short of 2 mm since corner rigidity decreases rapidly as gap width decreases.

Care must be taken that the set-up location for the welding machine is protected from draughts.

The corner connections of the frame and casement profiles are made using the butt welding method. The welding allowance is usually ca. 2.5 - 3.0 mm per side (see illustration below). It depends on the type of machine used and/or the machine manufacturer and must be determined by trial and error before processing.




Not to scale

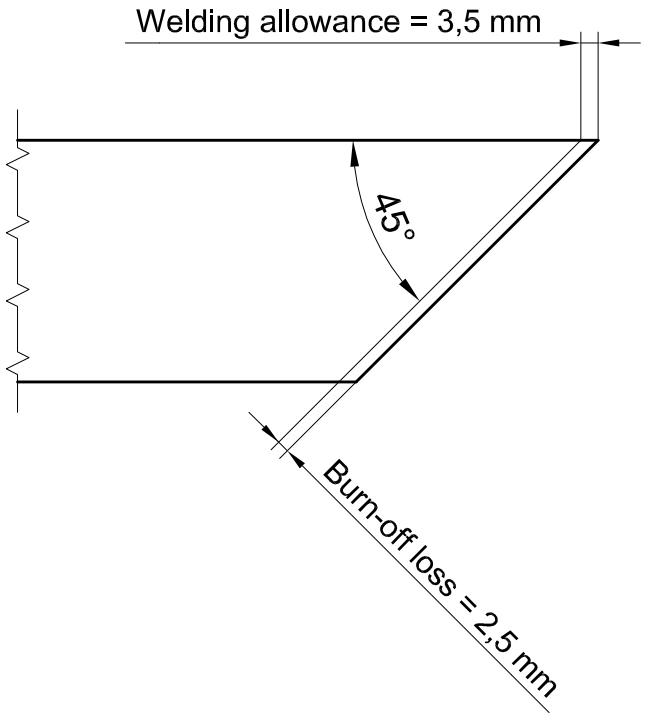
**Processing (welding / trimming)**

When the angle setting is changed the value of the welding allowance also changes of course. The following table shows the change depending on the cutting angle.

This table is based on calculated values and no responsibility is taken for the correctness of the information. In cases of doubt, the specifications provided by the welding machine manufacturer are decisive.

| Welding allowance table | |
|---|---|
| Cutting angle (degrees) | Welding allowance (mm) |
| 65 - 90 | ca. 2,5 |
| 50 - 62,5 | ca. 3,0 |
| 40 - 47,5 | ca. 3,5 |
| 35 - 37,5 | ca. 4,0 |
| 30 - 32,5 | ca. 4,5 |
| 27,5 | ca. 5,0 |
| 25 | ca. 5,5 |
| 22,5 | ca. 6,0 |
| 20 | ca. 7,0 |
| 17,5 | ca. 7,5 |
| 15 | ca. 9,0 |

Example:

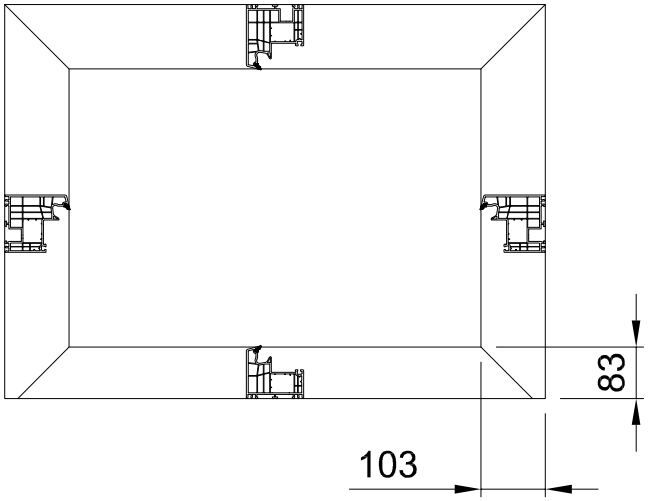



This table is based on a burn-off loss of 2,5 mm per rod side.

**Processing (welding / trimming)**

The welding of different frames for SIP window profiles is possible. The inner chambers of the frames are arranged congruently.
The open chambers on the ends must be sealed using suitable means.

Example:
3-sided frame 170 420
Lower frame 170 430




## Processing the weld seams

Intermediate storage
The blanks must be put into intermediate storage after welding. The welding beads may only be removed after complete cooling to room temperature (at least 2 minutes), so that sink marks and notches are avoided. The cooling process must not be speeded up e.g. by using compressed air.

Trimming the weld seams
The removal of the welding beads is mainly done using automatic corner trimmers which remove the welding bead from the visible surface of the profile with the aid of special grooved knives. Care must be taken that the groove depth is kept as small as possible (max. 0.3 mm).

Depending on the machine type, the outer corners are worked using a contour milling tool or individual milling disc. Welding beads on the inner and outer corners are removed using draw knives and drilling / milling tools. Great care must be taken that the machine is set correctly.

If the weld surplus cannot be removed by machine, it can be chipped away using a 20 mm chisel or a sickle cutter.

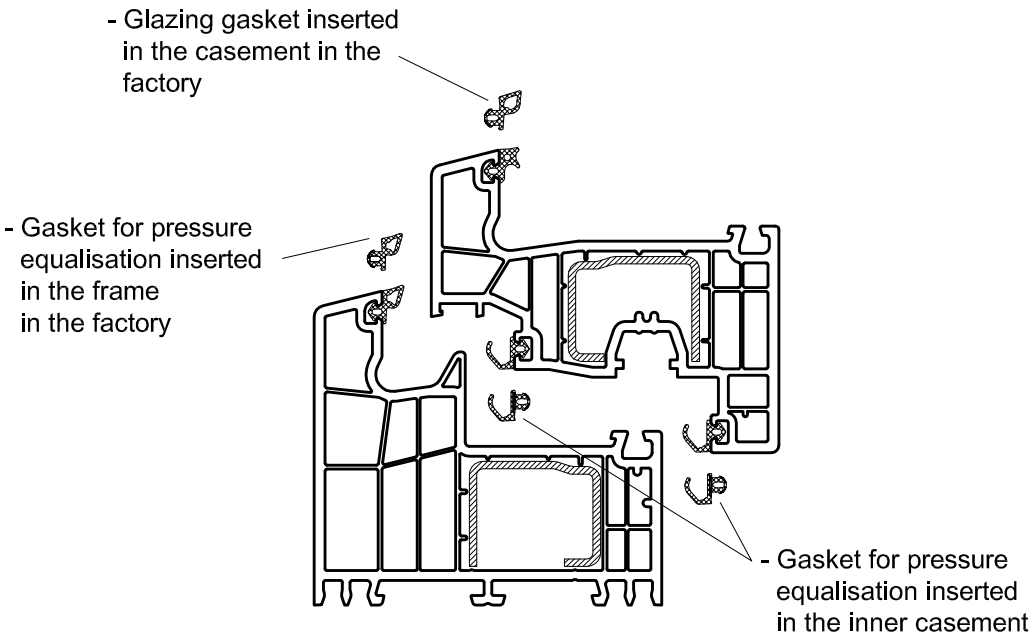
Notches in the inner corners must always be avoided, no matter whether trimming is carried out by machine or by hand, in order to avoid the risk of corners cracking later etc.

**Processing (weldable gaskets)**

## General points

The weldable gaskets inserted in the factory are made of a high-grade thermoplastic elastomer (TPE). This material meets the requirements of the RAL quality and testing conditions RAL-GZ 716/1, Section II, for extruded profiles.

The profiles of the bluEvolution system are supplied as standard with gaskets inserted in the factory. The gaskets are co-extruded from materials of different hardnesses and inserted into the window profiles in the factory. This makes the base of the sale harder, allowing the gasket to fit tightly and with little shrinkage in the window profile. The gasket body and gasket lips are made of soft material of hardness 60° Shore A and thus fulfil the requirements made on window function such as resistance to pelting rain, low joint permeability and good window operability.
Alongside the weldable gaskets fitted in the factory, the range also includes spare and repair gaskets (see below). These are also made of TPE and of the same quality as the gaskets fitted in the factory. They can be fitted by hand and can be welded. The soft base of the spare and repair gasket can lead to slight distortion of the gasket during sawing and welding. The gaskets have to be inserted with an allowance of about 1 - 2%.
TPE gaskets have not been designed for manual installation in finished welded windows.
Our TPE gaskets are excellently suited when dirt-repellent glass (e.g. Pilkington active) is used, since they do not contain either internal lubricants or silicone.




Position of the weldable gaskets inserted in the factory

For material characteristics see chapter bE92 01 page 06.2 - 06.4

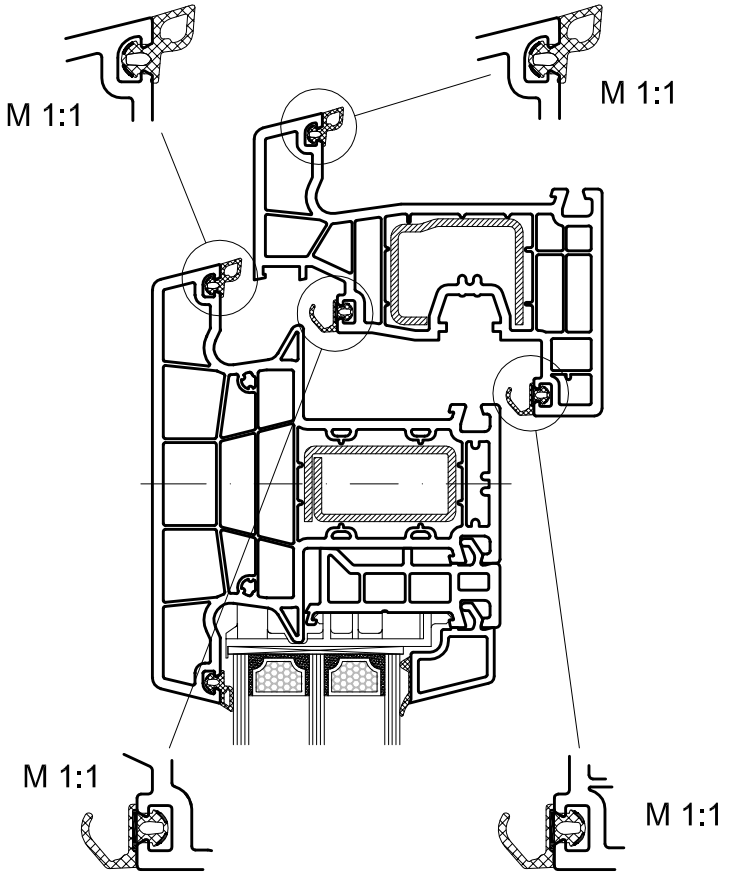
Not to scale



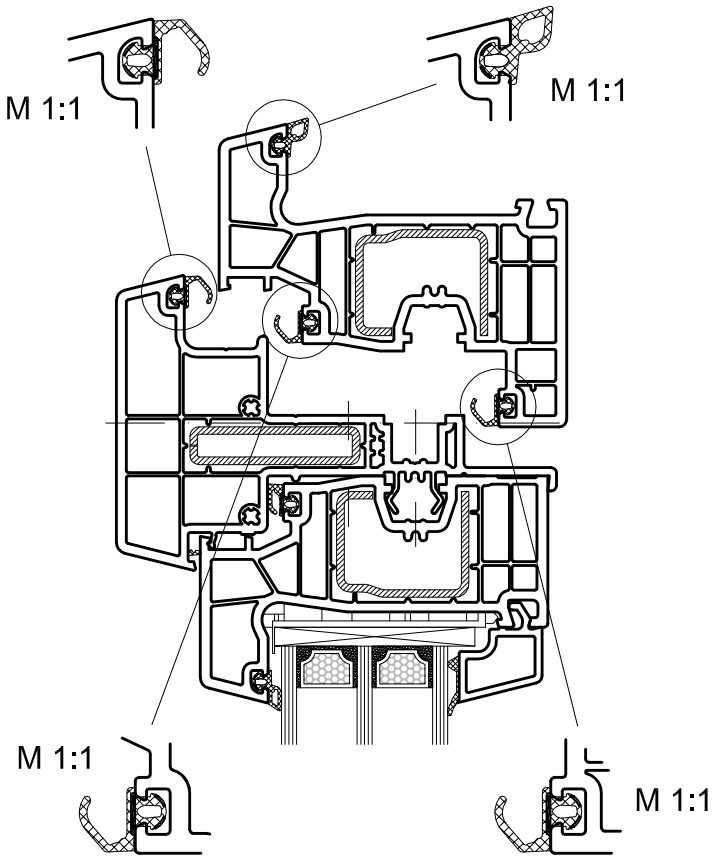
SALAMANDER WINDOW & DOOR SYSTEMS

## TPE-gaskets

Casement **171 020**
Post **172 420**

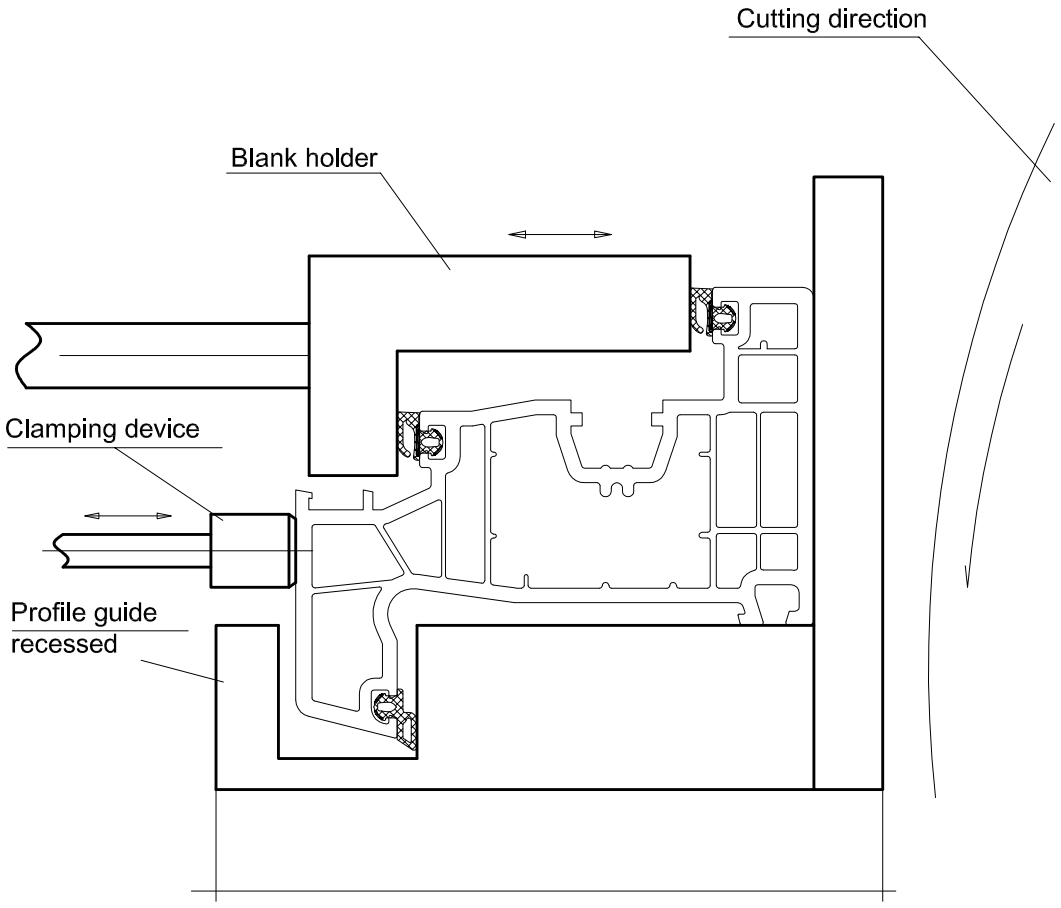



Casement **171 020**
Overlap **176 020**



## Sawing profiles with weldable gaskets

When pre-cutting the gaskets, care must be taken that the gasket tab does not become frayed and frazzled. If this does happen, special sawing allowances and blank holders must be used. These add-on parts press the gasket together during the sawing process. This prevents the gasket tabs fluttering during sawing and being picked up by the saw blade. For a clean cut, the gasket must be pressed as close to the saw blade as possible.



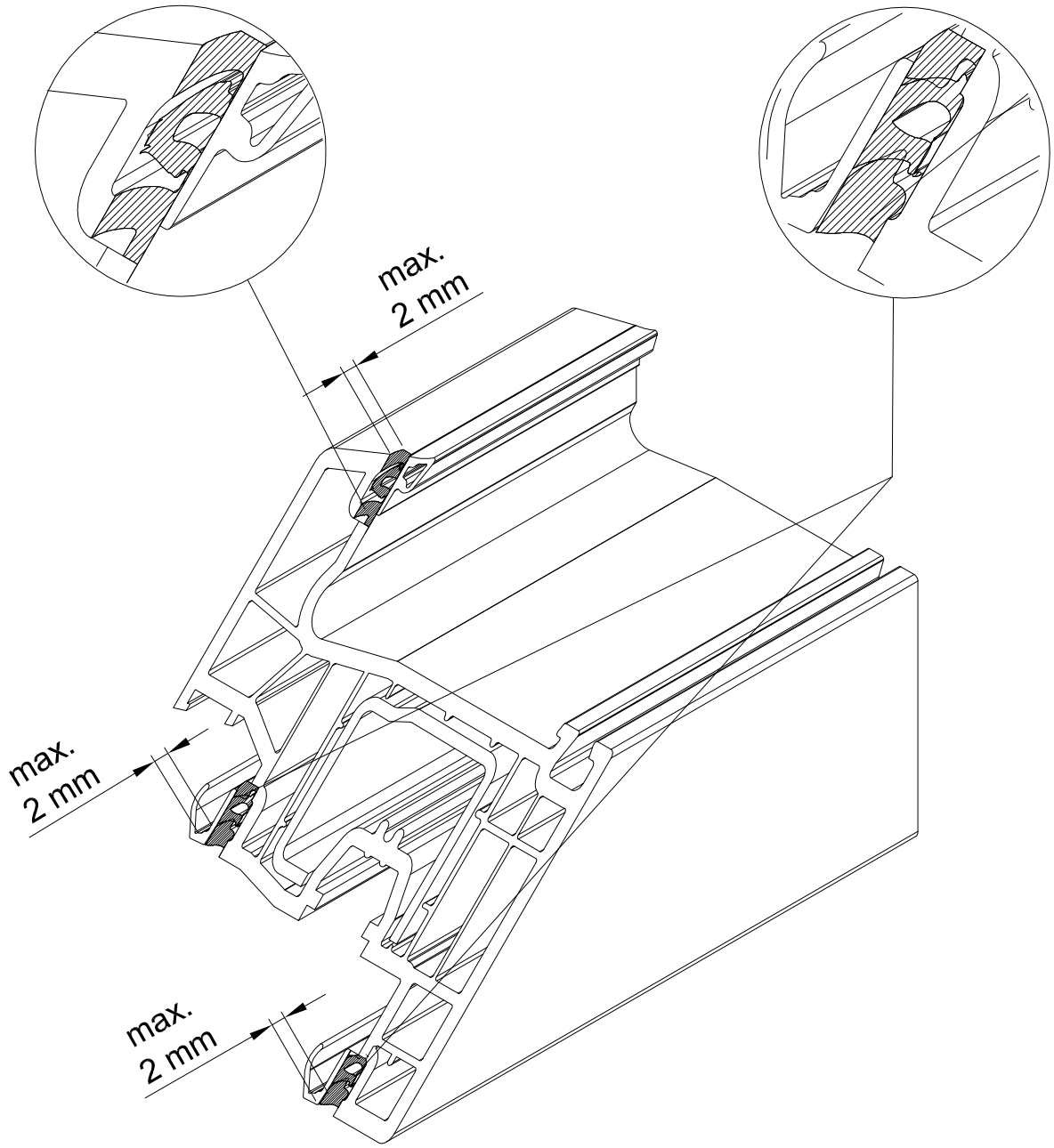

Profile pre-cutting using blank holder and allowance

## Welding profiles with weldable gaskets

For welding the gaskets, the following two methods can be recommended, depending on the finished look required. Both methods serve to eliminate hard PVC from the gasket path.

## Relief milling of the gasket

A milling tool is used to remove material under the gasket near the gasket groove. This means that no hard welding bead can form near the gasket during welding.




Not to scale

## Without relief milling of the gaskets

In the case of gasket welding method 2 the still plastic welding bead of the pressure equalisation and glazing gasket is pressed back using a die directly after the profiles have been jointed.

## Welding the rebate gasket

Welding allowances with blade limit must be used for rational welding of the rebate gasket in the casement.
With 2/10 limit the welding bead produced must be removed using a side cutter.

## Trimming the welded gaskets

The rebate gaskets can be worked by machine. Care must be taken that the trimming machine does not damage the gasket, but rather only mills a chamfer. We recommend milling the gasket groove free. Settings must be determined for the individual machines by trial and error. The glazing gasket does not usually require machining.

## Note on soiling between glass gaskets and insulating glass

Dry glazing is a standardised method used for sealing joints between frame profiles and glass panes. The term used for this is functional joint, which is not absolutely airtight on account of live loads such as wind pressure, pelting rain or the influence of heat. Drainage and pressure compensation openings are milled to avoid water collecting in the rebate. Penetrating water can contain dirt particles which are filtered out near the gasket and remain as a dark-coloured residue. These usually become visible with light-coloured gasket colours (e.g. grey). This does not influence the functional ability of the glazing system in any way whatsoever and is thus not a reason for complaint to Salamander Industrie-Produkte GmbH.

This point should be discussed with the customer in advance and documented in writing.

**This type of soiling is no reason to complain about a fault.**

## INFORMATION about notching tool

In the bluEvolution system the gasket for pressure compensation and post connection is worked using a notching tool.

The cutting width is 51 mm. This makes the notching tool suitable for notching the gasket near the angled hinge scissors and rebate corner hinge.
The notching tool has to be used twice near the post connection.

Part number for the notching tool from Wörle: 603 021 5
If the notching tool is not used, the gasket must be worked using a cutter blade. General care must be taken to cut cleanly.

Source of supply:

Messrs. Herbert Wörle
Oblatterwallstraße 22

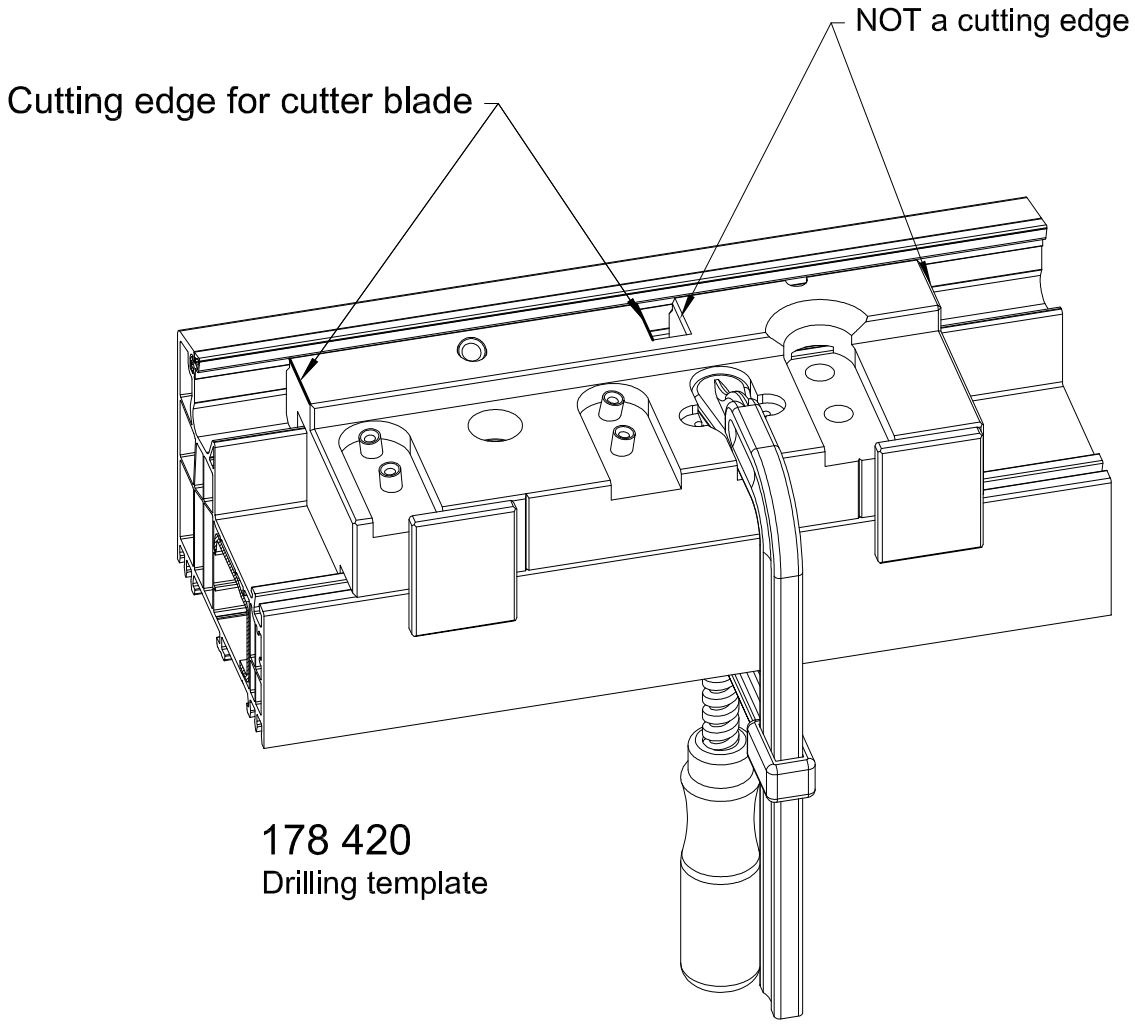
D-86153 Augsburg

Tel.: 0049 0821 / 33 653
Fax.: 0049 0821 / 39 703
e-mail: woerle-augsburg@t-online.de
Internet: www.woerle-augsburg.de

## Gasket cutting gauge

To cut gaskets for post connections more easily, please use the drilling template 178 420.

For further information see chapter bE92 07 from page 25.1 - 25.14 “Mechanical couplers”.



**Blocking**

## General points

The blocking of glazing units has the task of distributing the intrinsic weight of the glazing units within the frame. The frame must bear the unit and absorb additional loads caused by temperature, wind pressure and operation. The forces which occur are to be dissipated permanently via the blocks to the load-bearing fittings and then to the surrounding elements (e.g. frame construction, structure).
The functional ability of the window must be guaranteed. The glass edges must not touch the surrounding frame anywhere. Glazing units must not take over a load-bearing function.

Blocking must be carried out in accordance with the “Technical guidelines for the glazing industry”. These guidelines are published by the:

Bundesinnungsverband des Glashandwerks [German association of glazing guilds]
An der Glasfachschule 6
D-65589 Hadamar

## Terms

Depending on their function, the following are used for blocking glazing units:

Blocking bridges (bridge setting blocks):
These guarantee level rebate support and all-round vapour pressure equalisation.

Load-bearing blocks:
These transfer the weight of the glazing unit to the surrounding frame.

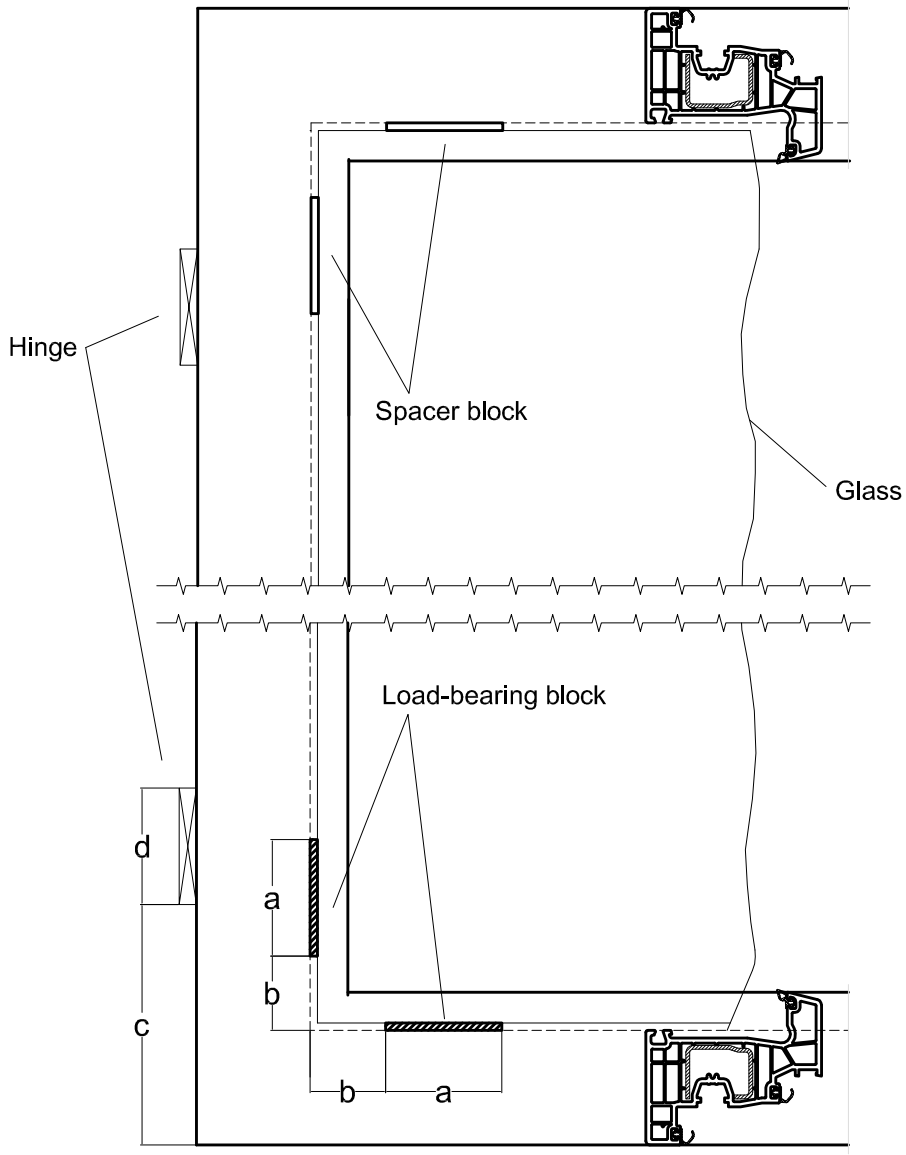
Spacer blocks:
These guarantee the distance between glass edges and bottom of the rebate.

## Material and execution

Material
Only suitable plastics may be used, ones which have sufficient pressure resistance and do not cause panes to splinter.
During glazing the blocks must be secured against movement. Our SIP glass blocks with lug in connection our bridge setting blocks are particularly suitable for this.
Compatibility with edge seal materials must be guaranteed. This is case with SIP products. SIP will not accept any warranty claims when non-tested external products are used.

Execution:
Unless specified otherwise by the manufacturers of certain glass products, load-bearing and spacer blocks must project at least 1 mm beyond the glazing unit at both sides.
The thickness depends on the dimensions of the glazing units, load-bearing capacity of the block material and the pane weight. The distance from the inner corner is usually 80 - 100 mm.
When triple glazing is used, we recommend reducing the distance to min. 30 - 50 mm.

## Blocking




The layout always depends on the type of casement opening involved.

a = Block length: 80 to 100 mm
b = Distance of the blocks from the inner corner:
- generally between 30 and 50 mm
- up to 250 mm for wide fixed glazing;
  in this case the blocks must be over a frame attachment
- from a glass weight of 130 kg two blocks side by side in
  the lower range are necessary

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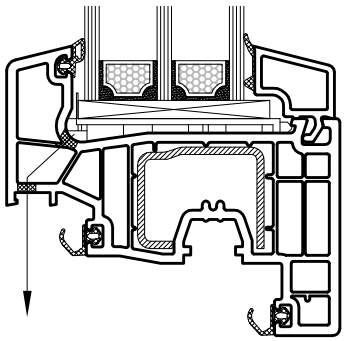
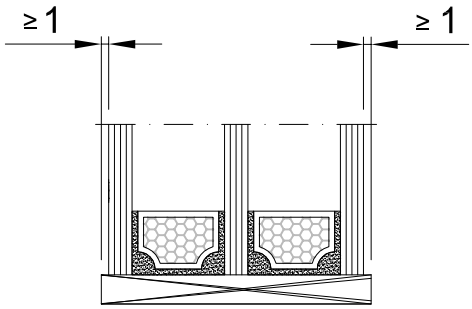
c = maximum hinge distance away from the outer corner: 100 mm
d = hinge height > 80 mm

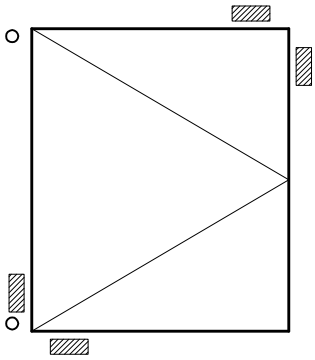
## Blocking



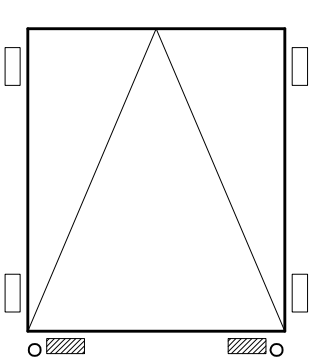
Glass rebate drainage or ventilation must not be covered.



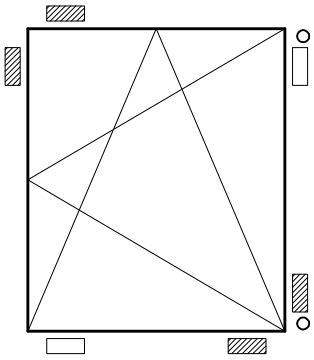

Block width =
Glass thickness + min. 2 mm



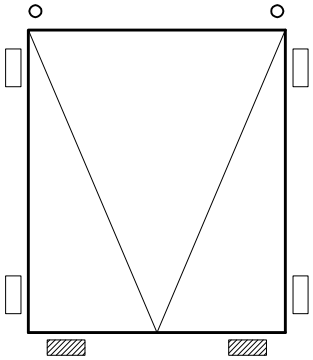
Side-hung casement



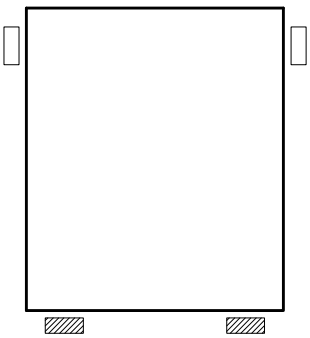
Bottom-hung casement



Turn-and-tilt casement



Top-hung casement



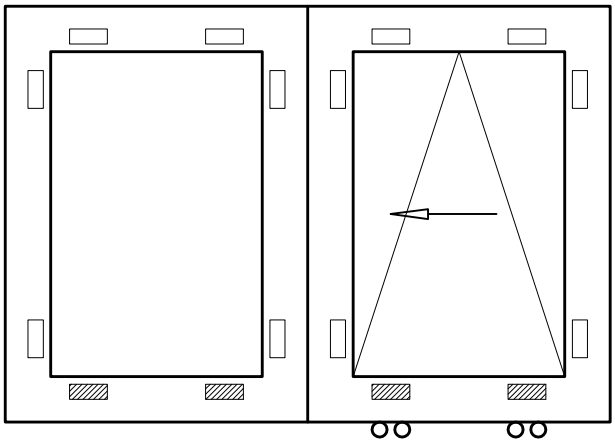
Fixed glazing

▨ = Load-bearing block ▭ = Spacer block ○ = Hinges

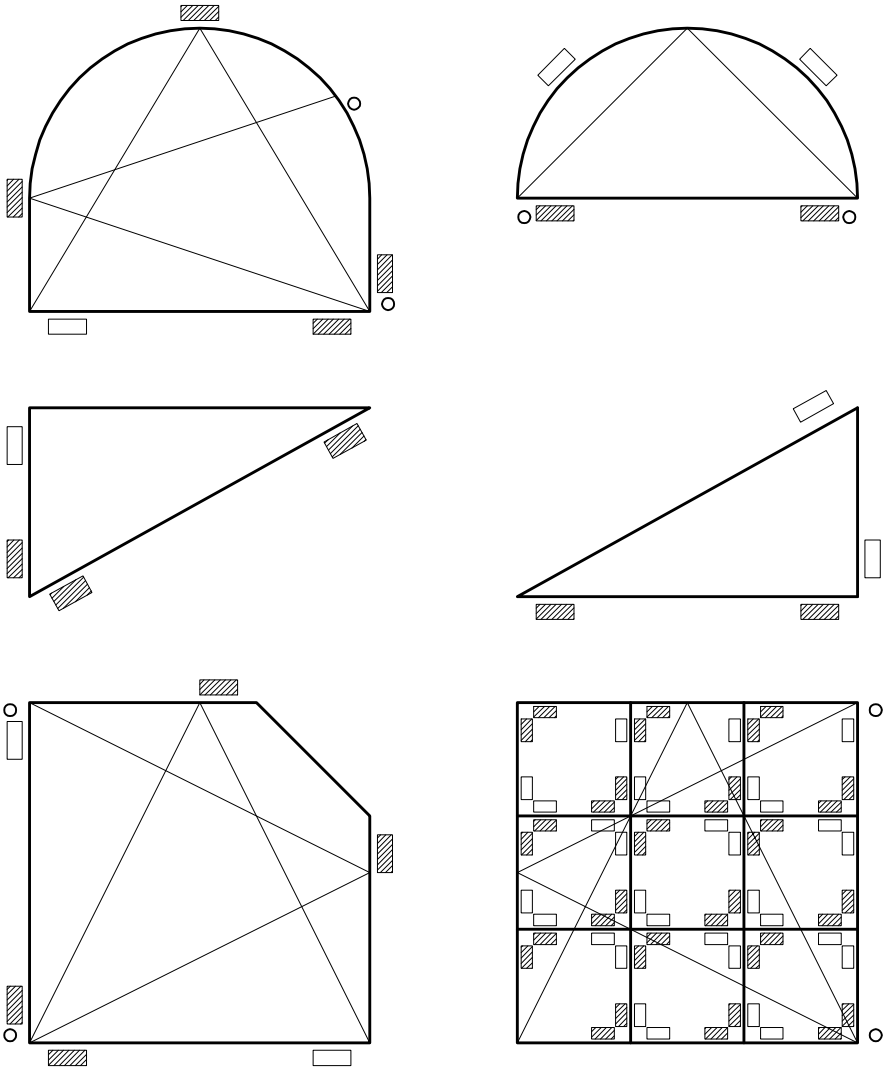
This blocking guideline is not applicable for panes glued all the way round (gluing at the bottom of the rebate).

Not to scale

## Blocking



Dead-bolt slide-and-tilt doors



= Load-bearing block = Spacer block = Hinges

This blocking guideline is not applicable for panes glued all the way round (gluing at the bottom of the rebate.)

Not to scale

**Glazing (general points, glazing work)**

## General points

The long-term functional ability of a window depends on professional blocking and serviceable glass sealing among other things. The following standards, guidelines and technical recommendations are decisive for the execution of glazing work with pre-formed glazing gaskets and sealants.

| | |
|---|---|
| DIN 18 361 | Glazing work |
| DIN 18 545 | Sealing glazing |
| DIN 18 056 | Window walls, dimensions and execution |

Technical guidelines issued by the Bundesinnungsverband des Glashandwerks
65589 Hadamar

| | |
|---|---|
| Script 1 | Sealants for glazing and connection joints |
| Script 3 | Blocking glazing units |
| Script 17 | Glazing using insulating glass |

Tables for determining the load groups for window glazing issued by the Institut für Fenstertechnik e.V. [Institute for window technology], Rosenheim/Germany. Glazing guidelines issued by insulating glass manufacturers. The glazing guidelines issued by the insulating glass manufacturers are decisive for warranty claims related to insulating glass panes. System-related specifications for glazing and blocking must be listed in accordance with the SIP glazing and blocking instructions.

## Glazing work

Openings for glass rebate ventilation must be made in the glass rebates before glazing is carried out. Glazing work should not be done under +5°C, since PVC profiles become brittle at low temperatures and there is a risk of them breaking under impact load.

When processing profiles with gaskets inserted in the factory and glazing bars with extruded gaskets a minimum processing temperature of +10°C must be observed. If the windows are to be fitted with glass on site, the frame must be underpinned, plastered in place and have been approved for glazing by the site supervisor. For optimum casement glazing, we recommend the use of transport protection 13 mm (green) or 14 mm (rot) on the handle side in order to fix the casement in the lower frame rebate area. The transport protection is removed after glazing.

Dry glazing with pre-manufactured glazing gaskets has been used successfully for years for plastic windows made of SIP profiles.

**Glazing (dry glazing)**

## Dry glazing

- acc. to size tables

The respective glazing bar and required gasket thickness can be read off from the glazing tables for the glass thickness selected.

The TPE gaskets fitted in the factory are excellently suited for dry glazing.
EPDM gaskets can also be retrofitted.
The EPDM gaskets have been designed in such a way that they can be routed around corners without clipping being necessary. The joint is in the centre of the upper cross piece and must be glued.
When the gasket is being rolled or pressed in place, care must be taken that it is cut with a length allowance of about 1-2%. This excludes any shrinking.

**Glazing (dry glazing)**

## Casement

In principle, the general reinforcement guidelines apply for all casements.
When decor films are used, the use of steel profiles 2 mm thick is essential.

The max. casement weight is the outcome of using an area-related filling weight of 40 kg/m² or max. 100 kg/casement.
Deviating requirements from the application diagrams provided by fittings manufacturers must be taken into account and applied.
The requirement of the guideline “Attachment of load-bearing fitting parts of side-hung and turn-and-tilt fittings (TBDK guideline)” must be observed and proved on own authority by means of an in-factory production check.

### Higher loads

The max. casement weight is the outcome of using an area-related filling weight of 55 kg/m² or max. 130 kg/casement.
Deviating requirements from the application diagrams provided by fittings manufacturers must be taken into account and applied.
As a supporting measure, we recommend partial gluing of the casement profiles with the filling (see fig. 1/2).

### Partial adhesion

Partial adhesion does not constitute adhesion of the glass edge or casement-rebate base in the terms of RAL-GZ 716, Part II for glued PVC frame constructions. It does not provide any load-bearing, reinforcing or fall-protection function, nor does it accommodate any casement loads that are produced.

Partial adhesion prevents:
- Removal of the casement profile from the glass pane, e.g. in the areas of the finger pull, hinge or lower transverse section
- Unwanted deformation of the casement profiles in the vertical and lower transverse areas
- Lowering of the casement with heavy glazing
- Contact between the striker and the frame profile

The casement format of the elements is decisive for the adhesive position (see fig. 1/2).

Fig. 1: French doors (rectangular)

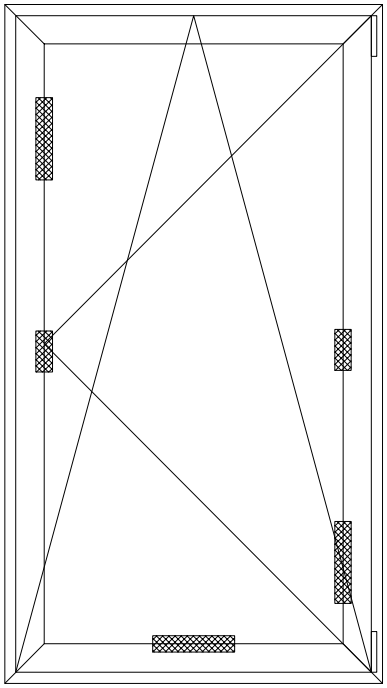
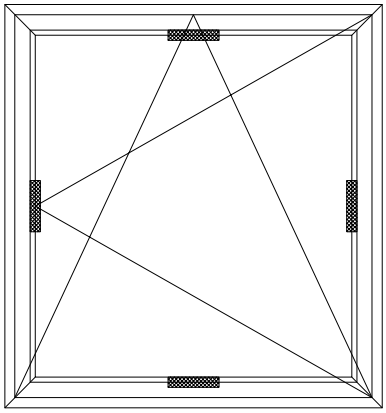


Fig. 2: Windows (square)



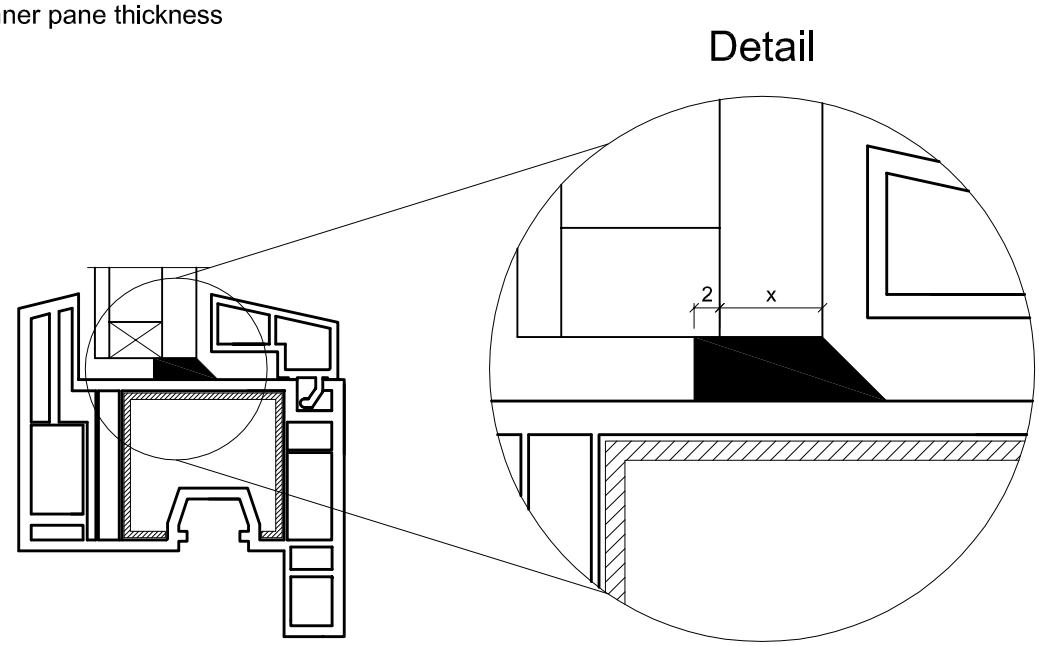
Adhesive position: Length ca. 200 mm each
Adhesive position: Length ca. 100 mm each
Adhesive supplier: Messrs. Otto Chemie
Adhesive type: Ottocoll S 81

Not to scale

**Glazing (dry glazing)**

For partial adhesion, the adhesive beading must be approx. 2 mm above the glass edges of the inner pane to ensure optimum adhesion over the entire area of the glass edge. Processing of the adhesive must be in compliance with the processing regulations provided by the supplier of the adhesive.

x= Inner pane thickness




Care must be taken when ordering and delivering glazing that only edge seal systems approved by the adhesive and sealant supplier are used. Other edge seal systems are not permitted in order to prevent incompatibilities and any damage caused by these.

## Processing instructions for glazing bars

The glazing bars are cut using a mitre cut, the notch bases must be cut back by ca. 3 mm at both ends. The short glazing bars must be inserted first.

Glazing bars may only be cut max. 1‰ longer than the clear dimension!

## Glazing (dry glazing)

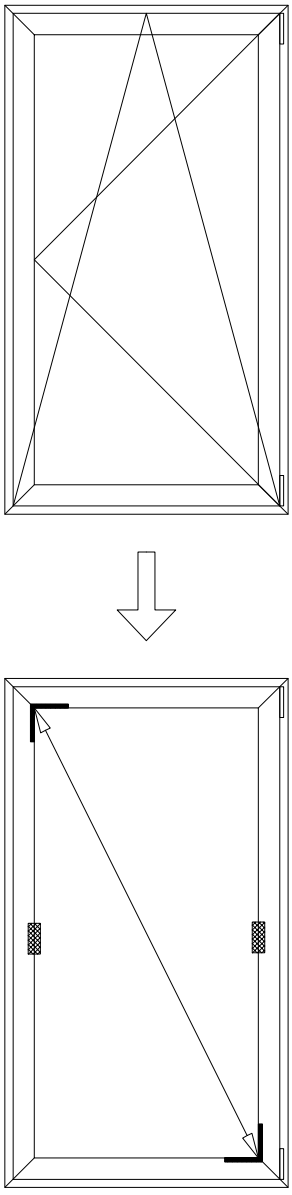
Higher loads
As an alternative to partial adhesion, a rebate corner can be used as a supporting measure.

A rebate corner should:
- guarantee even distribution of load with high casement weights,
- prevent any deformation of the casement profiles,
- prevent the casement lowering

as well as
- prevent the closing pin scraping along the frame profile.

The rebate corner is always inserted in the direction of the blocks (see Fig. 3 / 4)

Fig. 3: French doors (rectangular)



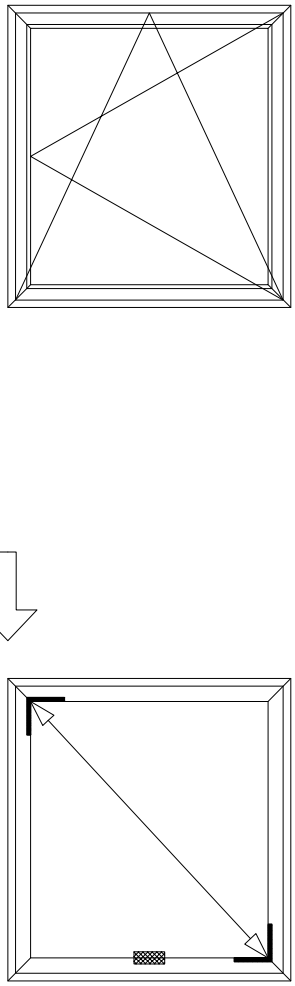
Adhesive position: Length approx. 100 mm

Adhesive supplier: Messrs. Otto Chemie

Adhesive type: Ottocoll S 81

Rebate corner

Fig. 4: Windows (square)



Adhesive position: Length approx. 100 mm

Adhesive supplier: Messrs. Otto Chemie

Adhesive type: Ottocoll S 81

Rebate corner



Not to scale



SALAMANDER WINDOW & DOOR SYSTEMS

## Glass strips cut to size

A glass strip saw is used to cut the glass strips to size accordingly. Glass strips which are too long must never be used since tensions which occur can trigger corner cracks. The tolerances dependent on frame production must be taken into account. For this reason it is vital to cut the glass strip to size and insert it.

Glass strips are cut using a mitre cut (Fig. 1) or can be cut to bevel (Fig. 2). In the case of "to bevel" the horizontal run through. With smaller window sizes, "mitre cuts" are no longer possible, in this case the glass strips must be set to bevel.

Fig. 1: Glass strips cut using a mitre cut

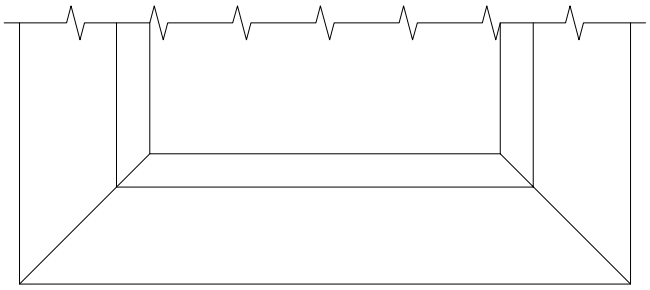
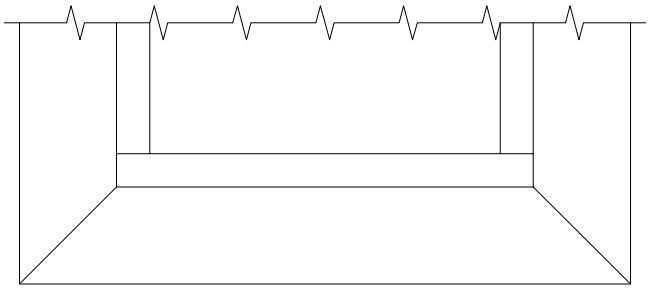


Fig. 2: Glass strips cut using a bevel cut





Delivery options and technical modifications reserved

Not to scale

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SALAMANDER
WINDOW & DOOR SYSTEMS

## Inserting the glass strips

Before the glass strips are inserted check whether the welding beads have been removed from the locking grooves. If not, the notch bases of the glass strip must be released in this area.

A plastic hammer is used to insert glass strips in the locking grooves. The gasket should be pushed against the pane first, so that the notch bases are above the seat groove. Now the glass strip can be hammered in carefully, starting at the ends. Hard and firm impact can lead to cracks forming at the corners and should be avoided.

The butt joints of the glass strips in the corner area can be sealed additionally using a sealing agent if required.

## Removing the glass strips

A broad, sharp-edged painter's spatula can be used to remove the glass strips. The glass strip must be pushed towards the pane so that the spatula can be pushed underneath the glass strip, start in the middle of the longest glass strip. The glass strip can now easily be levered out of the locking groove.
(Fig. 1 and 2).

Fig. 1: Glass strips inserted with mitre cut

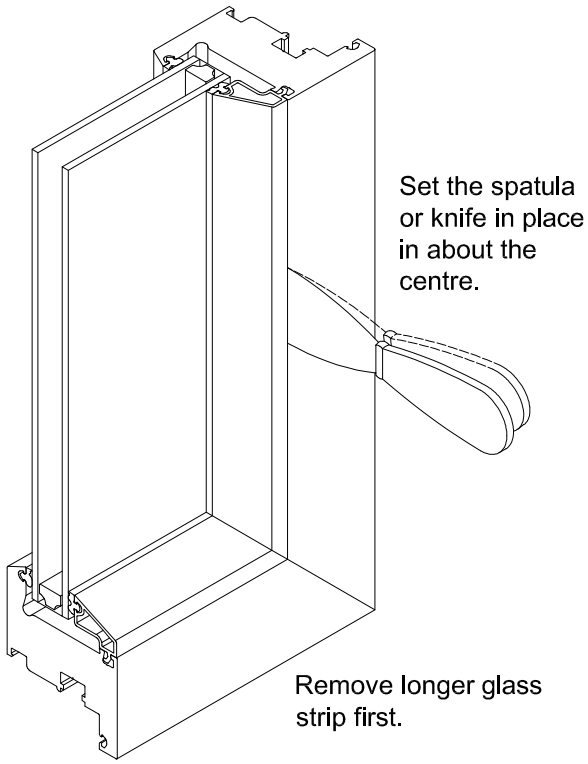
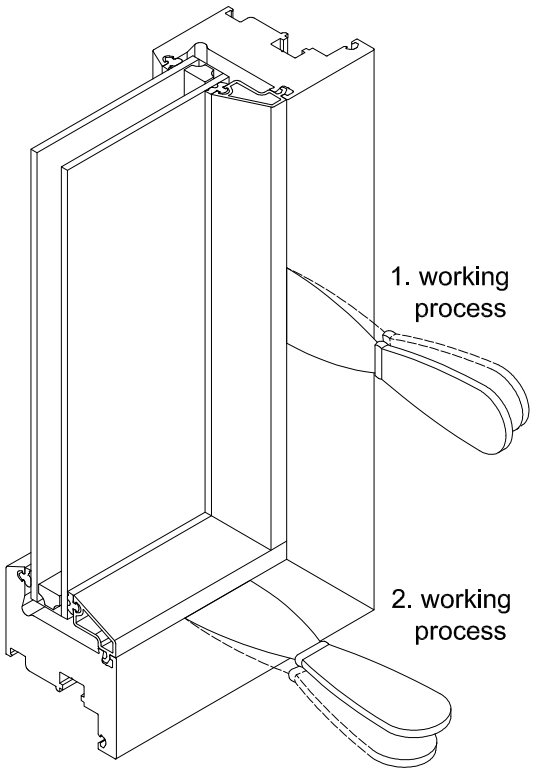



Fig. 2: Glass strips inserted with bevel cut



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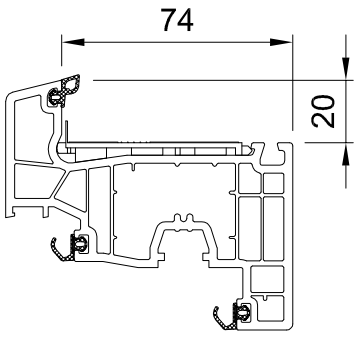
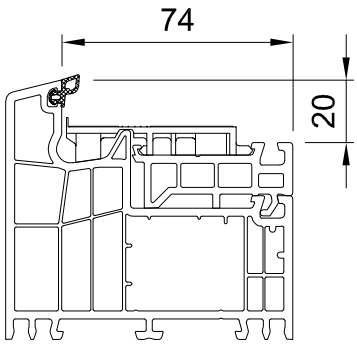
**Glazing (dry glazing table)**

## Frame / casement / post / mullion




| * | TPE WD+A+B | EPDM C |
|---|---|---|
| 9.5 / 20 / 413 809 | 59 - 60 - 61 | 57 - 58 - 59 |
| 13.5 / 20 / 413 813 | 55 - 56 - 57 | 53 - 54 - 55 |
| 17.5 / 20 / 413 717; 17.5 / 20 / 413 817; 17 / 20 / 413 915 | 51 - 52 - 53 | 49 - 50 - 51 |
| 21.5 / 20 / 413 922; 21.5 / 20 / 413 821 | 47 - 48 - 49 | 45 - 46 - 47 |
| 25.5 / 20 / 413 725; 25.5 / 20 / 413 825 | 43 - 44 - 45 | 41 - 42 - 43 |
| 29.5 / 20 / 413 728; 29.5 / 20 / 413 729; 29.5 / 20 / 413 829 | 39 - 40 - 41 | 37 - 38 - 39 |
| 31.5 / 20 / 413 932 | 37 - 38 - 39 | 35 - 36 - 37 |
| 33.5 / 20 / 413 735; 33.5 / 20 / 413 730; 33.5 / 20 / 413 833; 33 / 18 / 413 933 | 35 - 36 - 37 | 33 - 34 - 35 |
| 37.5 / 20 / 413 837 | 31 - 32 - 33 | 29 - 30 - 31 |
| 41.5 / 20 / 413 841 | 27 - 28 - 29 | 25 - 26 - 27 |
| 43.5 / 20 / 413 843 | 25 - 26 - 27 | 23 - 24 - 25 |

Glass thickness in mm

*

WD = Gasket inserted in the factory

A = Repair gasket casement + mullion EPDM 414 566

B = Repair gasket frame + post TPE 474 645 (alternative EPDM 414 566)

C = Special gasket frame + casement + post + mullion EPDM 414 573

This table is based on calculated dimension specifications. Glass thickness and profile tolerances have not been taken into account. For this reason, a glazing test must be carried out before glazing work is performed.

Not to scale

## Storage before fitting

Before fitting, suitable measures must be used to protect the window and door elements from sunlight, damage and soiling.

Outdoor storage should always be avoided, including on the construction site. Handling should be carried out according to the same basic rules as for transport, see chapter bE92 07, page 01.3.

On the construction site in particular, care must always be taken that intermediate storage before fitting is always on a level surface.

## Fitting

Instructions concerning professional fitting can be found chapter bE92 09, page 01.1 to 02.7.

## Surface protection following fitting

As already described on the previous pages, the protective film must be removed immediately after fitting.
Window and glass surfaces must be covered with suitable self-adhesive film, for example, for plastering work. This film must not leave any signs of separation and residue on the surface of the profile.
Its suitability must therefore be checked before the working process.

Window manufacturers should draw the attention of their contractual partners and the building client if appropriate to these processing guidelines so that damage to the window and door elements can be excluded during subsequent work lots.

## Final cleaning of the window and door elements

The final cleaning of the window and door elements should be carried out with the appropriate care.
The use of detergents with dissolving, aggressive and scouring components is not permitted.
Detergents containing acetic acid are also aggressive detergents.

For further instructions on cleaning, care and maintenance see chapter bE92 10, “Maintenance, care and conservation of value”.

Window manufacturers should draw the attention of their contractual partners and the building client to these processing guidelines in writing, too.

## Repairs to the surface of the window and door elements

Slight damage e.g. scratches can be eliminated using suitable means. Respective instructions can be found in chapter bE92 10 “Maintenance, care and conservation of value”.
In the case of any queries, the application technicians at SIP are available as your competent partner.

**Basic decor profiles**
**(area of validity, area of application, protection of the profiles, ...)**



## Area of validity

These additional processing guidelines are applicable for the working and processing of SIP PVC window profiles with white and coloured bases, with decor surfaces. The information contained in "General processing guidelines for profiles" in chapter bE92 07, from page 01.1 - 09.1 are applicable as basic principles. The following pages include information on the processing and handling of profiles with white and coloured bases and decor surfaces that has to be heeded in addition to or deviating from the information about white profiles.
They comply with the latest technical standard. SIP retains the right to adapt all the processing guidelines according to the latest technical knowledge and requirements at any time.
The quality of the profiles, their professional working and processing and the professional production of the elements in line with the following guidelines form the basis and pre-condition for high-quality plastic windows made of SIP profiles.

## Area of application

The area of application for white and coloured bases with decor surfaces is restricted to Central European climate "M" in accordance with DIN EN 12608: 2003.
In order not to forfeit warranty claims, SIP must be consulted if the windows are to be used in other climate areas than the one specified.

## Protection of the profiles

The instructions in chapter bE92 07 , page 01.1 also apply for decor profiles.

## Storage and transport of the profiles

In addition to the instructions in chapter bE92 07, page 01.1, special care and cleanliness is required during the storage and transport of decor profiles, particularly those with fine embossing (orange skin). Decorative profiles must not be pulled over the visible surfaces since surface damage such as scratches, stress and pressure marks etc. show up even more clearly than with white profiles. This damage is often very difficult to eliminate or correct.

Storage outdoors is not permitted. The decor profiles must be protected from short-term exposure to sunlight, particularly behind glass.

## Processing temperatures / conditioning

In addition to the instructions in chapter bE92 07, page 01.2, it must be noted in particular for decor that profiles with decorative film must not be further processed after lamination until after at least 72 hours of storage at > 16°C. This must be taken into account particularly where short processing times and order lead times are involved.

## Storage and transport of the window and door elements

In addition to the instructions in chapter bE92 07, page 01.3, special care and cleanliness is required during the storage and transport of decor profiles for window and door elements, particularly those with fine embossing (orange skin).

Storage outdoors is not permitted.

**Processing decor profiles (information about fine embossing, general points)**

## Information about decor films with fine embossing (orange skin)

Some additional specifications must be heeded for the processing of profiles with decorative films with fine embossing (or orange skin), which we have taken from supplier information and put together for you below.

In addition to the colour, the embossing of a decorative film is a design element. Over the years, embossing a wood structure has become established in our branch.
There are two reasons for this: on the one hand, coloured plastic windows imitate wooden windows and have replaced them to a large extent. On the other, the wood structure embossing is very easy to process and can stand a rougher treatment with profiles.

Not new but still trendy are finely embossed patterns with a sandy structure, since modern architecture requires this surface finish.

Compared with the structure of wood, fine embossing does not have large and flat surfaces, it can be seen under the microscope to have a craggy and hilly structure with fine tips. These embossed finishes do not forgive rough treatment such as impact, pressure and scratches.

For this reason, new benchmarks apply both for laminating the profiles and processing windows and for storage and transport.
During the processing of the profile bars into window elements, they must be handled, transported and processed carefully.
Chips from lock box or copy milling can be seen during tightening. They have to be removed carefully so that no pressure and chafe marks are produced on the decor surfaces even during transport.
The tighteners, screw clamps, idler wheels and contact surfaces on the machines must be clean and level, sharp edges must always be avoided. The clamping jaws of the welding machine and the pressure related to this must be checked and reset if necessary.
Gentle transport in machining centres on suitable brushes or rollers must be tested particularly for heavy window elements.

A modern film is designed to increase the value of the plastic window and reflect its technical performance. This can only work if the surface is protected and treated carefully from production through to fitting of the element.

## General points

If possible, the window elements for one order should be cut from one profile delivery. Deviations in grain and colour are possible on profiles with decorative films. These deviations result from production and must be accepted. We recommend that you point this out in writing to your contractual partners and the building client.

The tolerances according to the quality and testing conditions for window profiles in accordance with RAL-GZ 716/1 Section 1 apply for the profile dimensions. For profiles with decor surfaces, the thickness of the film results in different dimensions than those for profiles without decorative film. The decorative film makes a difference of ca. 0.25 mm per side. These differences in dimension to the profile without decorative film must be taken into particular account during the manufacturing process (e.g. when setting up the corner trimming cutting).

## Pre-cutting the profiles

In addition to the information contained in chapter bE92 07, page 02.1, it must be noted in addition for decor profiles that ca. 10 mm of the profile cannot be used at both ends of the profile bar. This restriction must be taken into account particularly when optimising pre-cutting.

## Pre-cutting / processing reinforcements

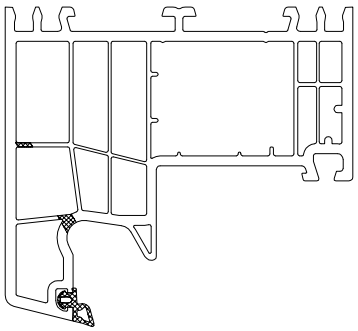
In addition to the information contained in chapter bE92 07, page 02.2, the additional guideline applies for the décor profiles that all main profiles must be reinforced using the necessary reinforcements in accordance with chapter bE92 05 and 06, no matter the dimensions.

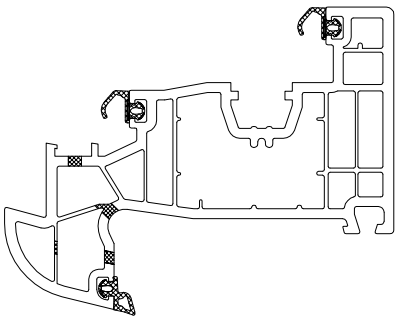
## Ventilation bore holes

In the case of coloured window profiles with decor surfaces, all the pre-chambers of the main and additional profiles must be ventilated.

The surface temperatures of the profiles, and subsequently the temperatures in the pre-chambers, can increase to more than 70° C under extreme conditions. This intense heating on the outside leads to significant excess pressure in the profile chambers. Under extreme conditions, this can lead to bulging and deformation. For this reason, all the outer pre-chambers - whether large or small - must have a pressure compensation bore hole (see example). A drilling diameter of Ø 3 mm is sufficient.
These bore holes must still be free for pressure compensation even after glazing and fitting.

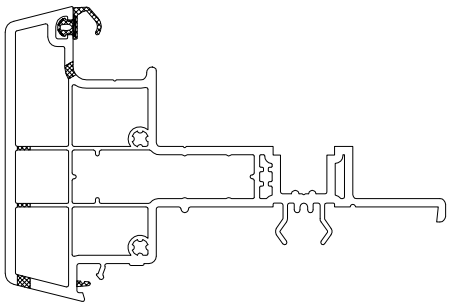
Examples:

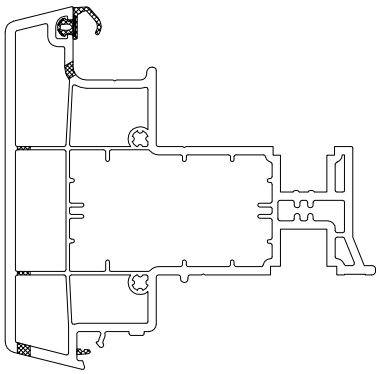


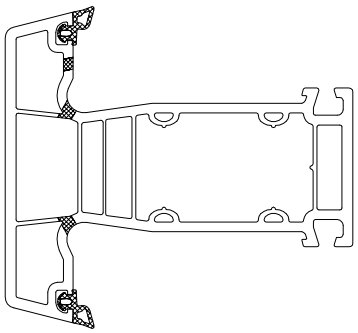


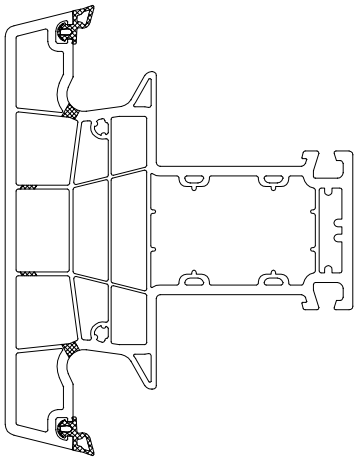
**Processing decor profiles (pre-cutting profiles, processing reinforcement, ventilation)**











**Processing decor profiles (welding, machining weld seams ...)**

## Welding

In addition to the information contained in chapter bE92 07, page 04.1, the additional specification applies for decor profiles that welding machines must be fitted with a welding bead limit of 2.0 mm for décor profiles. An even tighter limit can reduce the corner rigidity of the welded profiles beyond what is permissible.

## Processing the weld seams

The processing of welded profile frames is carried out in accordance with chapter bE92 07, page 04.3. The information for decor profiles contained in this chapter must also be heeded.
Profiles with a decor surface can be processed in the automatic corner trimmer. Special groove blade contours are required for optimum processing of the groove edges near the surfaces. We therefore recommend consulting the machine manufacturers.

When milling discs are used care must be taken to ensure that these are readjusted on account of the film thickness. Damage to the film surface must be excluded. When welding beads are removed from the inner corners, care must be taken that not too much film is removed with them.

The base or flanks of the groove must be worked using a coloured paint stick depending on the base, film surface and colour (see chapter bE92 10, page 01.5).

## Processing instructions for glazing bars

The glazing bars must be selected in accordance with our glazing table in chapter bE92 07, page 08.4. The processing instructions in chapter bE92 07, page 08.3, apply.
An excessively high contact pressure is avoided through the right selection of glazing bars / glazing gasket. If glazing bars are chosen too wide or the wrong gasket is selected, glazing pressure will be too high. This means the profile overlap (glass rebate) can become misshapen.

## Attaching profiles with decor surface

Accessory profiles (e.g. roller shutter guides, cover profiles, chapter bE92 07, page 27.2. to 27.4) with decor surfaces that have to be clicked in place must be fixed in place using the aluminium clamping strip provided. The clamping strips must be screwed in place at a maximum distance of 150 mm apart using a Spax screw Ø 3 x 16 mm.

Fixing nipples are not permissible.

In addition, the profiles must be glued using an approved adhesive and sealant (e.g. on the basis of monomer cyanoacrylates). The adhesive must not visibly spill out.

**Processing decor profiles (gluing additional profiles, bending, cleaning)**

## Gluing additional profiles with decor surfaces

Additional profiles with decor surfaces must not be glued in place using PVC adhesives.
Only adhesives and sealants approved for decor surfaces (e.g. on the basis of monomer cyanoacrylates) may be used. Further information can be found in chapter bE92 07, page 01.3.

The adhesive must not visibly spill out.

Non-permissible products can lead to flaking, bubble formation and destruction of the decor surface, for example.

Damage caused by the use of non-approved adhesives and sealants and improper handling are not covered by SIP warranties.

## Bending profiles with decor surfaces

Profiles laminated with film can become bent when heated. Generally speaking, the processing guidelines contained in chapter bE92 07, page 20.1 to 20.2 “Special elements round / angled” apply.

It must be able to be proved that the décor profiles were stored in a temperate room (temperature min. 16°C) before bending. If the décor profiles are bent before this, bubbles can form on the decor surface. Before bending, sample taking and heating to 130° C must be used to check whether the solvent status allows bending without bubble formation. If bubbles occur, further storage is necessary.

This bending process gives the profiles a higher-gloss finish. When they are welded with straight, non-heated profile rods, there is a difference in glossy finish.
This glossy finish can be harmonised by lightly rubbing the surface of the high-gloss decor profiles in the longitudinal direction using scouring pads wet with water. Then rinse off carefully using clear water. Do not rub or press heavily, as this will damage the décor surface.

## Cleaning profiles with decor surfaces

For information about the cleaning and care of profiles with decor surface see chapter bE92 10, page 01.1 to 01.6.

**Special elements round / angled**

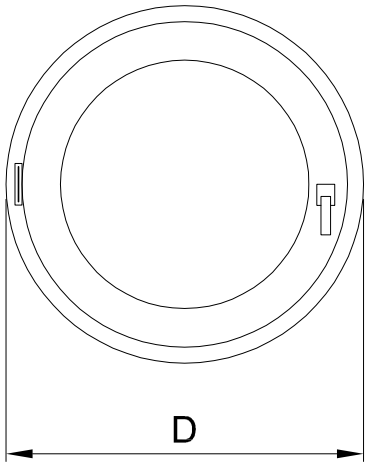
## Pointed-arch window

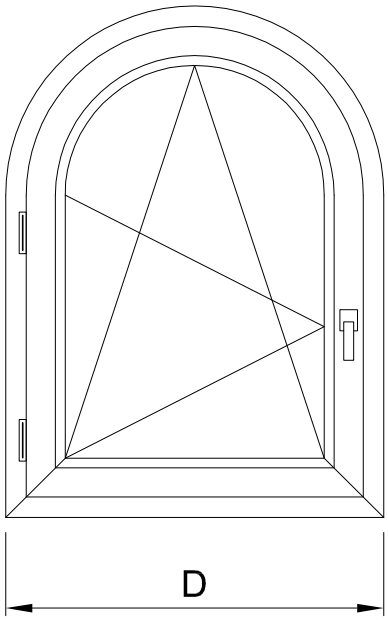
The profiles are bent on special bending machines using hot air or in a special liquid.
The bending diameter depends on the width of the profile visible. Generally speaking, the minimum bending diameter can be calculated using the following rule of thumb:

For white and coloured profiles: D = 10 x visible width of profile

Where profiles with décor surfaces are used, the additional VAR chapter bE92 07, page 10.1, must also be heeded.

If small bending diameters are to be achieved, profiles as narrow as possible should be used. The bending diameters can also be made smaller than calculated using the rule of thumb, but must always be discussed directly with the bending companies.




These general design suggestions are based on experience and theoretical considerations.

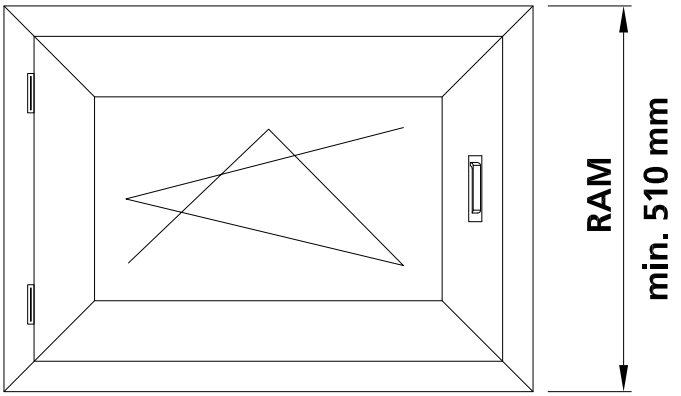
All the specifications are made according to the best of our knowledge, but no responsibility is taken for the correctness of the information!!

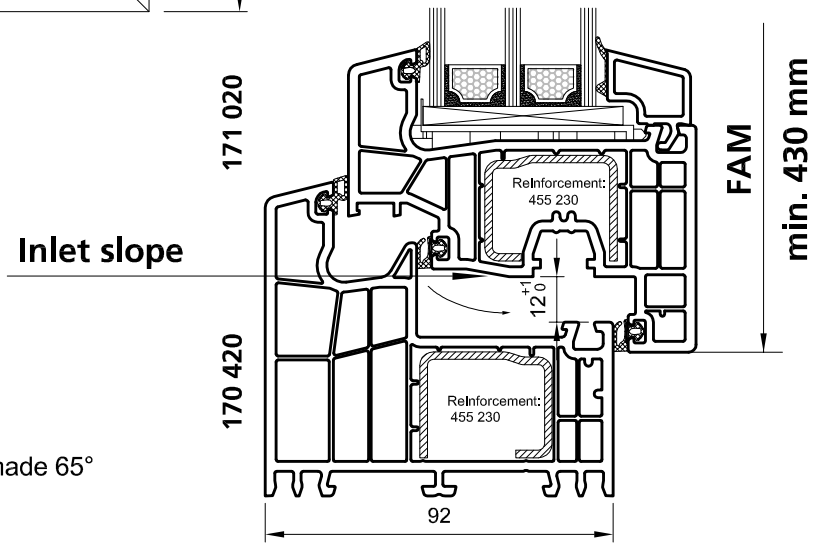
No legal claims can be made against SIP GmbH or its employees on the basis of using these non-binding design suggestions.

**Special elements round / angled**

## Minimum casement dimensions

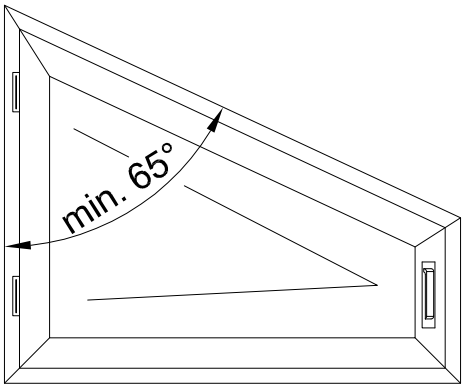
We recommend a window height of at least RAM 510 mm




## Angled window

Minimum corner angle that can be made 65°

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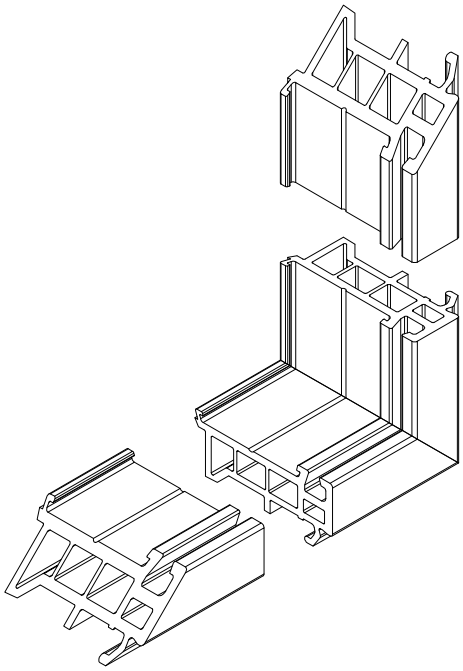
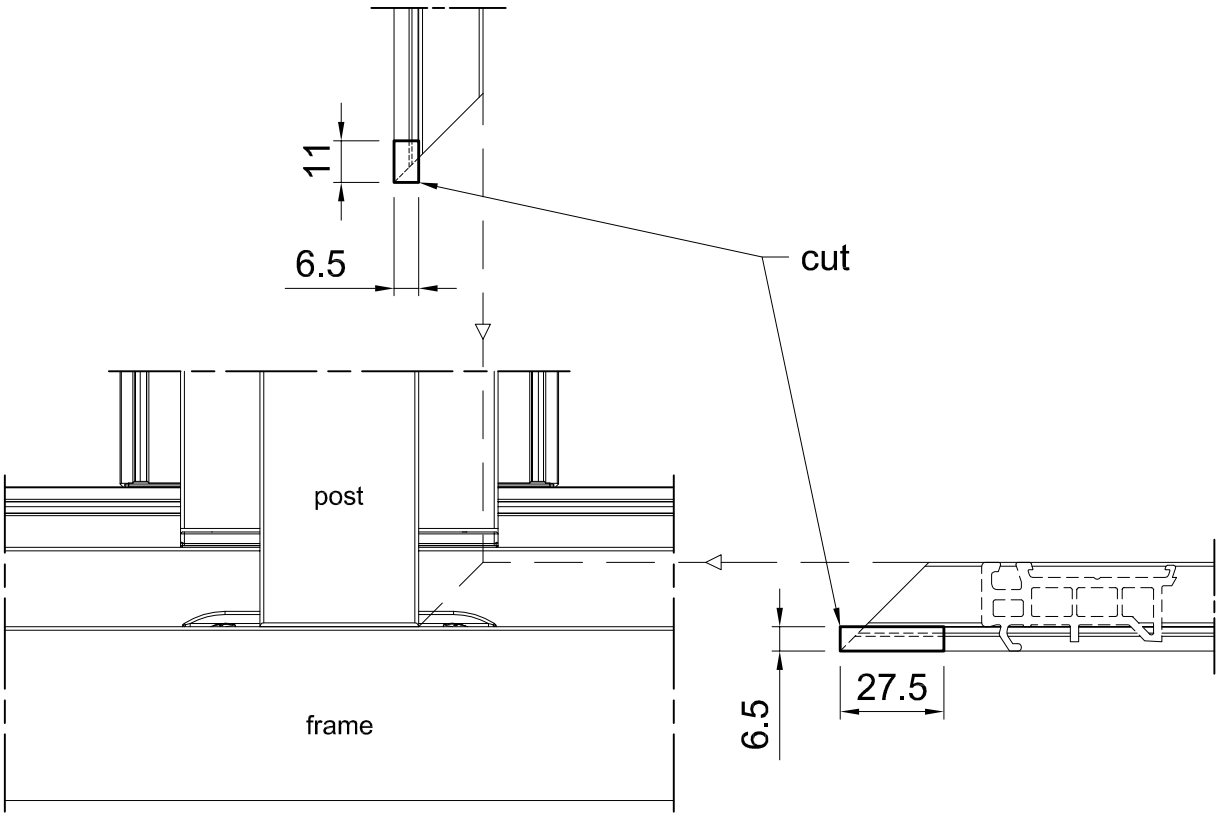
**Fixed glazing**

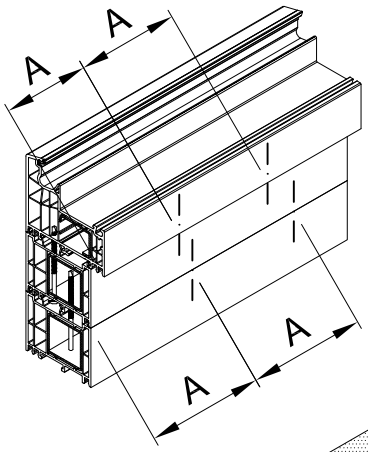
Cut fixed glazing bar 173 415 using a mitre cut.
In the case of single fixed glazing the fixed glazing bar can be welded as an alternative.



Cut the webs back near the post couplers 178 020 and 178 030 (see Fig.).



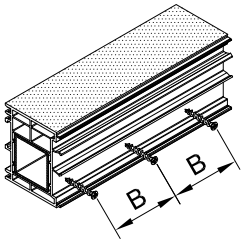
**Extension profile / sill connection**




## Reinforcing extension profiles

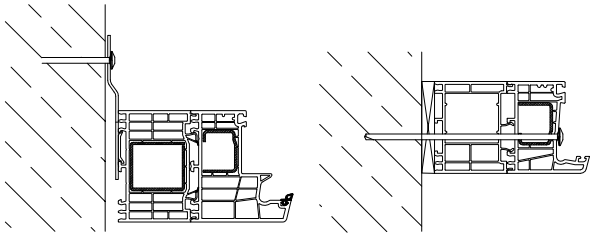
1. Frame extensions must be screwed to the frame every 600 mm for white profiles and every 500 mm for coloured profiles. If several extensions are used on top of one another, they must be screwed together.

A = max. 600 mm for white profiles
A = max. 500 mm for coloured profiles

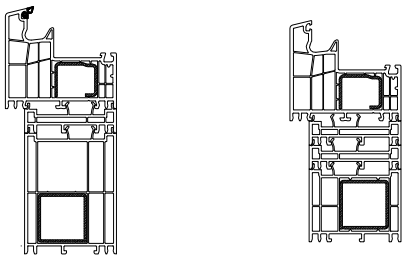



2. Coloured extension profiles, including those that are only coloured on the outer side, must always be reinforced with the respective steels and screwed in place. The distance between the screws must not exceed 250 mm.

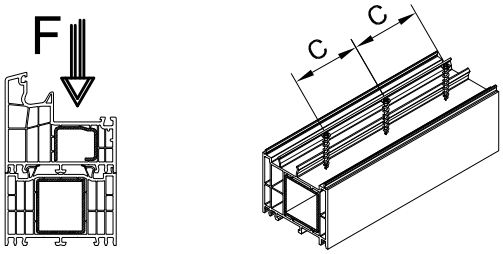
B = max. 250 mm



3. If the fixing brackets are only attached to the extension profiles, the extension profiles must be reinforced. If the frame is attached using screws or dowels through the extension profile, no reinforcement is necessary.

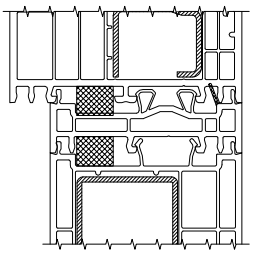


4. If several extension profiles are added, only the outer chamber requires reinforcement.




5. The lower extension profiles must be reinforced on windows more than 1.5 m wide and always on doors. Maximum screw distance: 250 mm.

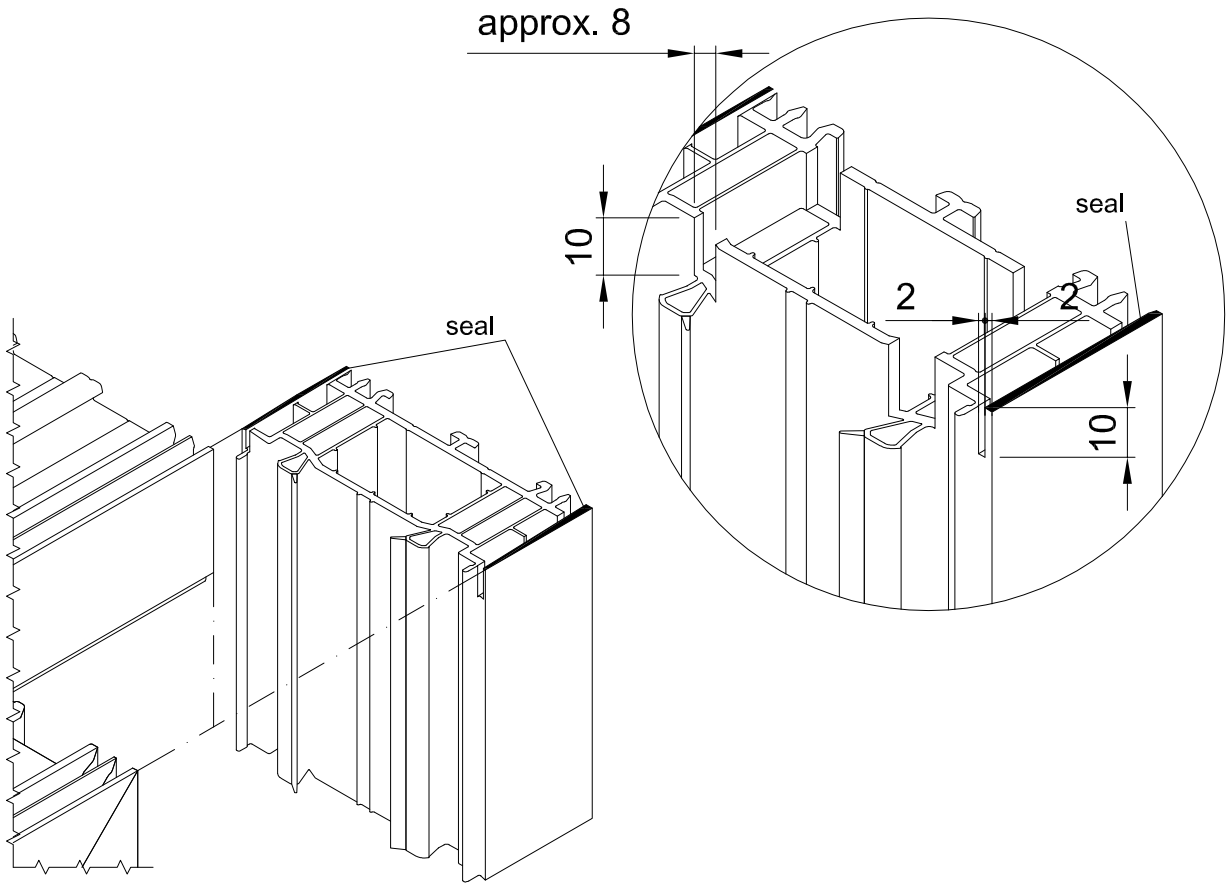
C = max. 250 mm

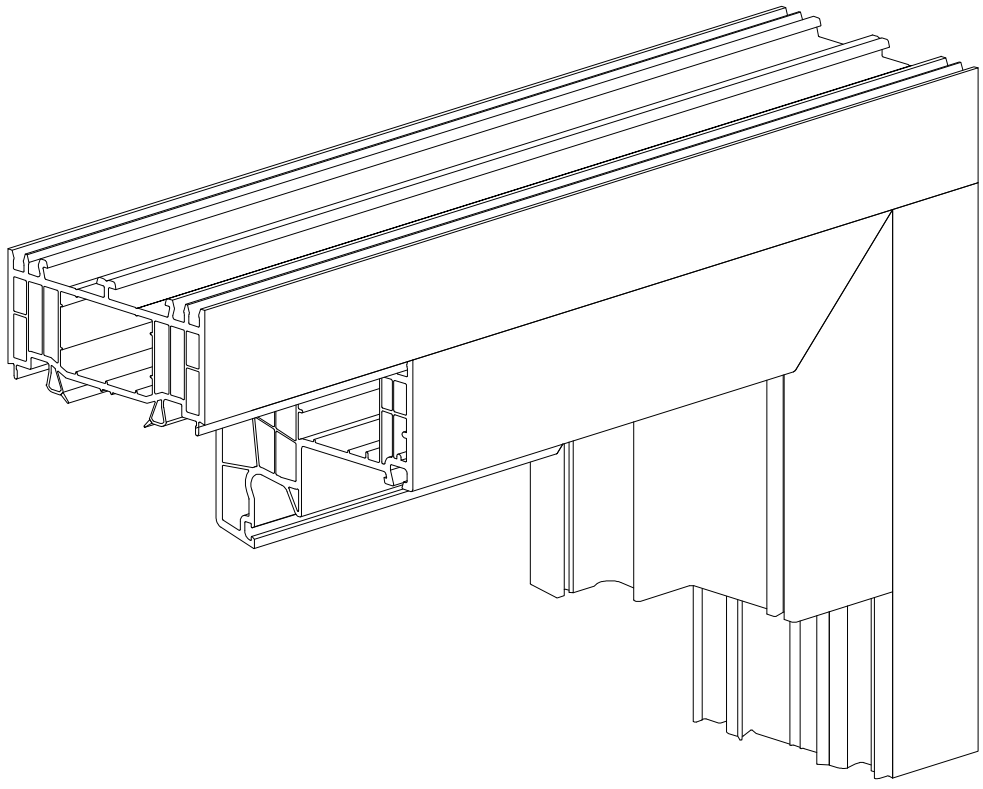


Note: The spaces between the back of the frame and the extension profile and between the extension profiles must be sealed (e.g. using pre-compressed sealing tape). Before inserting horizontal extension profiles, permanently elastic sealant must be sprayed into the inner and outer clip grooves. The inner chambers opened at the sides must be sealed using suitable material.

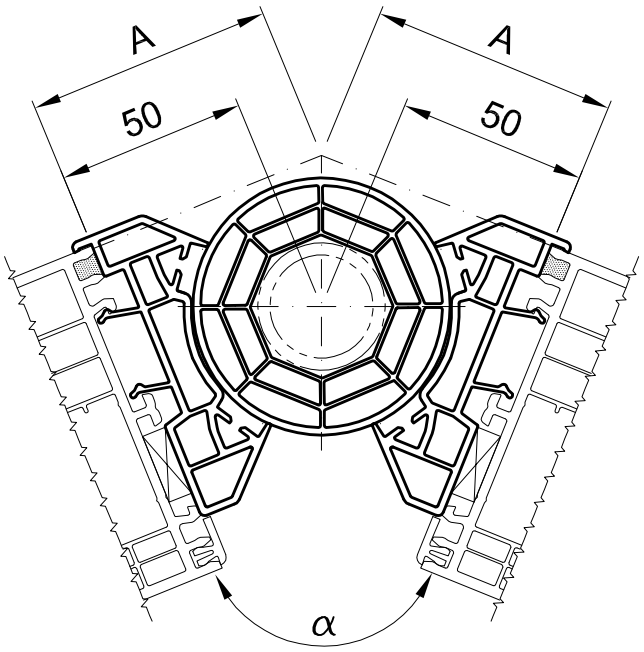
Not to scale

**Processing frame extension - frame extension, corner joint**



## Corner couplings (variable corner connection)



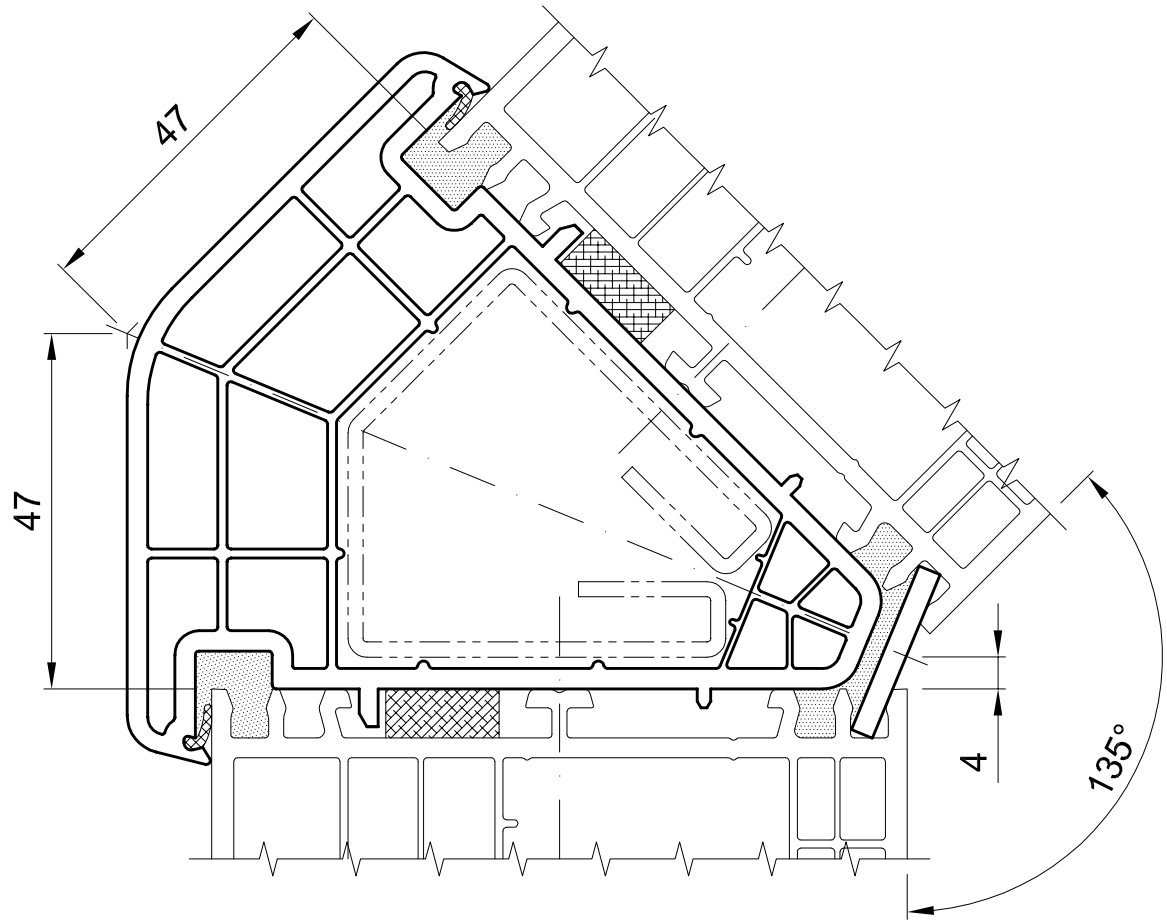

### Deductible dimension A depending on the angle α

| Angle | Dimension A | Angle | Dimension A |
|---|---|---|---|
| 95° | 84,5 mm | 180° | 50,0 mm |
| 100° | 81,6 mm | 185° | 49,4 mm |
| 105° | 78,9 mm | 190° | 45,0 mm |
| 110° | 76,4 mm | 195° | 46,1 mm |
| 115° | 74,0 mm | 200° | 43,4 mm |
| 120° | 71,8 mm | 205° | 41,6 mm |
| 125° | 69,6 mm | 210° | 39,9 mm |
| 130° | 67,6 mm | 215° | 38,1 mm |
| 135° | 65,6 mm | 220° | 36,3 mm |
| 140° | 63,7 mm | 225° | 34,4 mm |
| 145° | 61,9 mm | 230° | 32,4 mm |
| 150° | 60,1 mm | 235° | 30,4 mm |
| 155° | 58,4 mm | 240° | 28,2 mm |
| 160° | 56,7 mm | 245° | 26,0 mm |
| 165° | 54,9 mm | 250° | 23,6 mm |
| 170° | 53,3 mm | 255° | 21,1 mm |
| 175° | 51,7 mm | | |

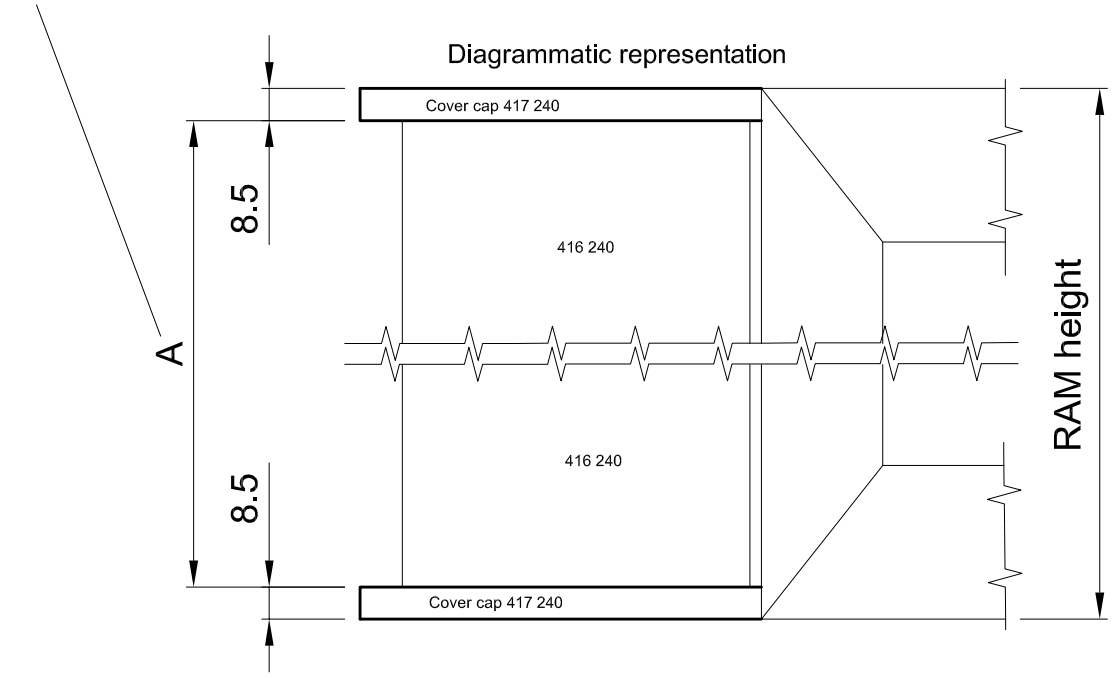
These values were determined without taking tolerances and allowances for expansion into consideration.

No responsibility is taken for the correctness of the specifications!

**Corner couplings (corner connection 135°)**

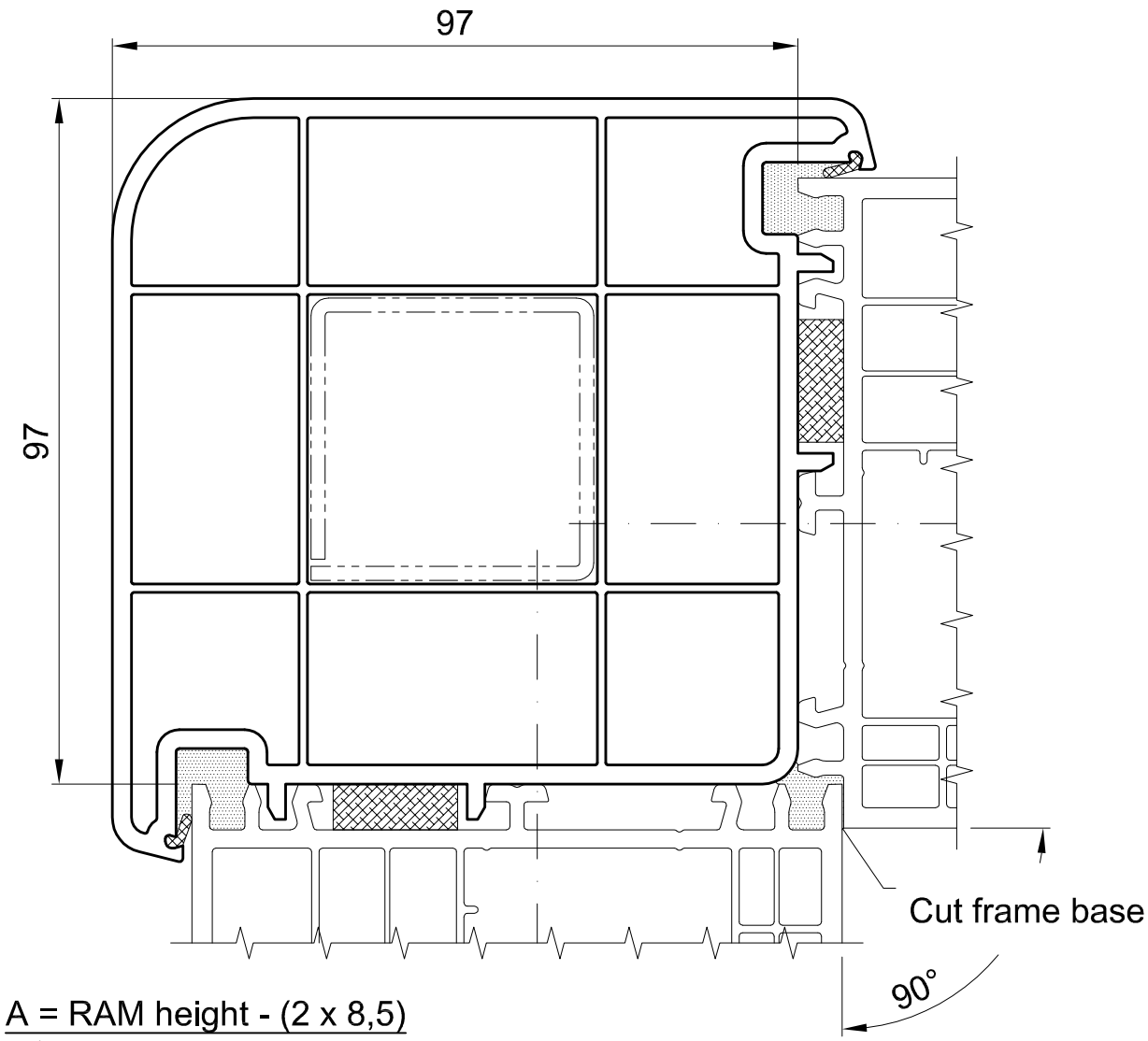



A= RAM height - (2x8,5)

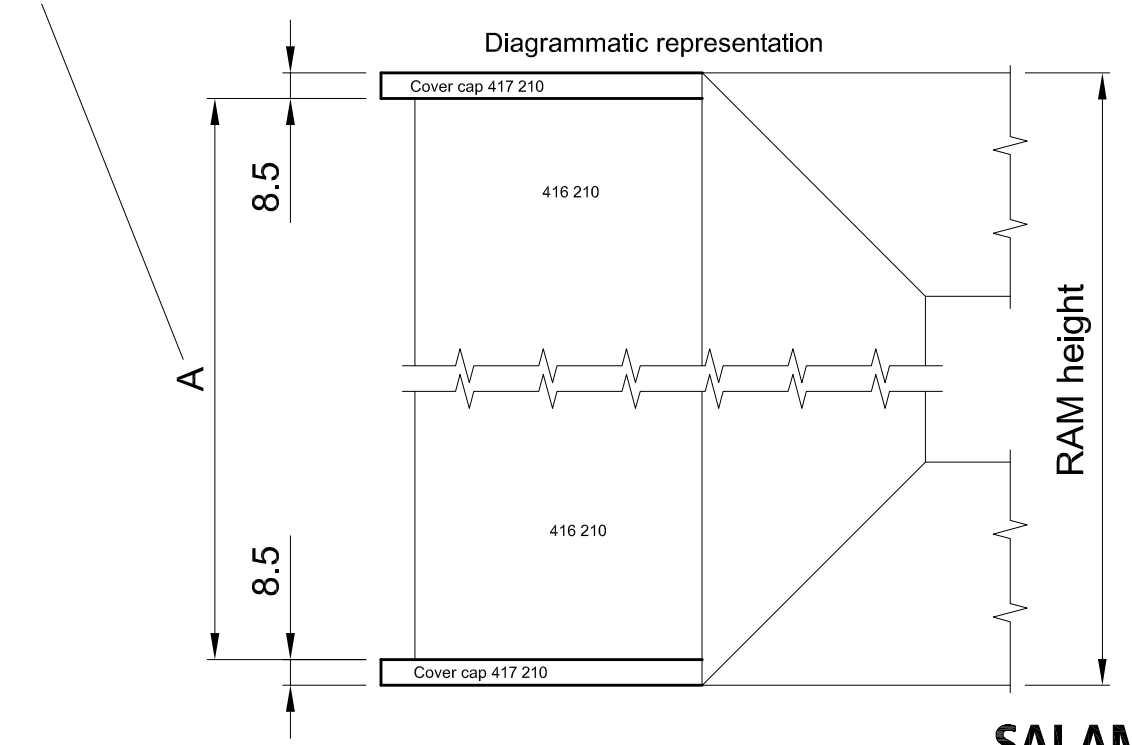



When fixed irons are used, cover cap 417 240 is not required!!!

## Corner couplings (corner connection 90°)




A = RAM height - (2 x 8,5)






Scale 1:1 (1:2) (or depending on print-out)



SALAMANDER WINDOW & DOOR SYSTEMS

# Element coupling

We recommend the following procedure for processing the coupling system:

Preparatory work in the factory

1. Determine the required moment of inertia of area. In accordance with chapter 10.
2. Determine the necessary reinforcement coupling (405 165, 405 175) in accordance with the static requirements (moment of inertia of area)
3. Shorten the reinforcement coupling taking the deductible dimensions for the shear connectors used (407 540 or 497 575) into account.
4. Grease the cutting edges of the reinforcement coupling and protect them against corrosion using a respective paint (e.g. zinc spray, zinc dust spray).
5. Shorten the PVC cover profiles in such a way that they can be fitted on the construction site.

Construction site work

6. Clip the spacers (407 045) according to the hole pattern on one side of the reinforcement coupling, about 150 mm from the ends and every 400 mm.
7. Screw the reinforcement coupling to the frame by hand through the holes and spacers.
8. Drill the free hole pattern to the frame on which the reinforcement coupling is fixed, about 150 mm from the ends and every 400 mm using the reinforcement coupling as a drilling template.
9. Clip the second row of spacers (407 045) to the hole pattern described under section 8.

## Couplings

10. Set the construction element with the reinforcement coupling in the space in the wall, align and dowel in place. The reinforcement couplings have shear connectors (407 540 or 407 575) mounted on the ends and must be riveted by 2 blind rivets 6.6 x 14 mm A2 each after the first construction element has been fitted.

11. Get the second construction element ready, align it and screw through the reinforcement coupling into the second construction element using the coupling screws from the side of the frame already fitted. Only tighten the screw attachment by hand!

12. The steel clamp about 30 mm from the end of the coupling must be opened using a screwdriver.

13. Set up a permanently elastic seal between the construction element and the reinforcement coupling on the inside and outside using a neutrally bonding sealant (suitable for PVC and galvanised steel). This seal is concealed after the PVC cover profile has been added.

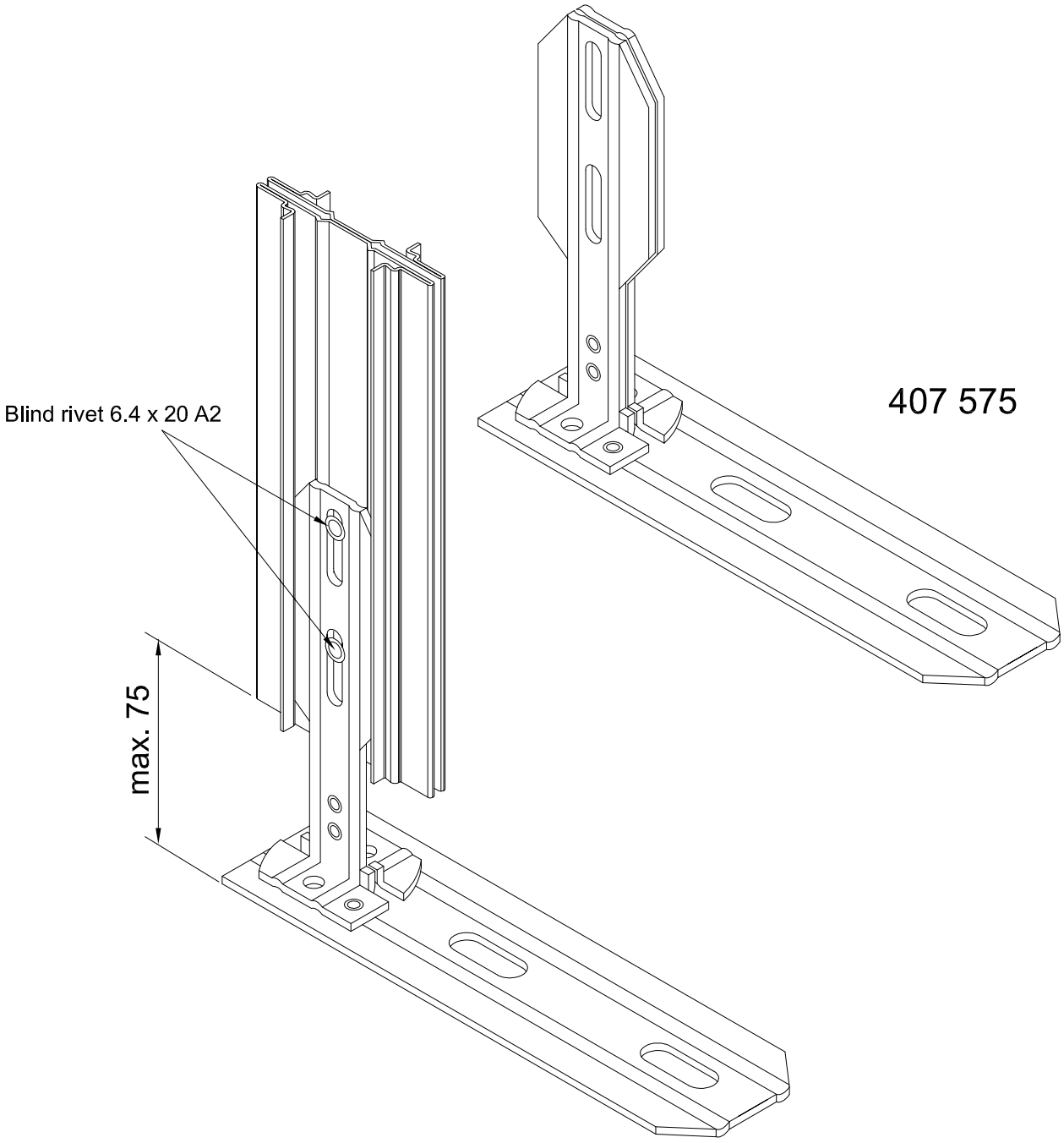
14. Adapt the PVC cover strips to the structure. They are no longer notched at the ends. The cover strips are pushed between the two steel sheets of the reinforcement coupling using a centre bar wedge. The whole cross-section is now permanently clamped.

15. Set up a permanently elastic seal between the ends of the cover strips on the inside and the structure.

16. Add ventilation bore holes Ø 3 mm at the ends of the cover strips on the outside, so that the coupling can be ventilated.

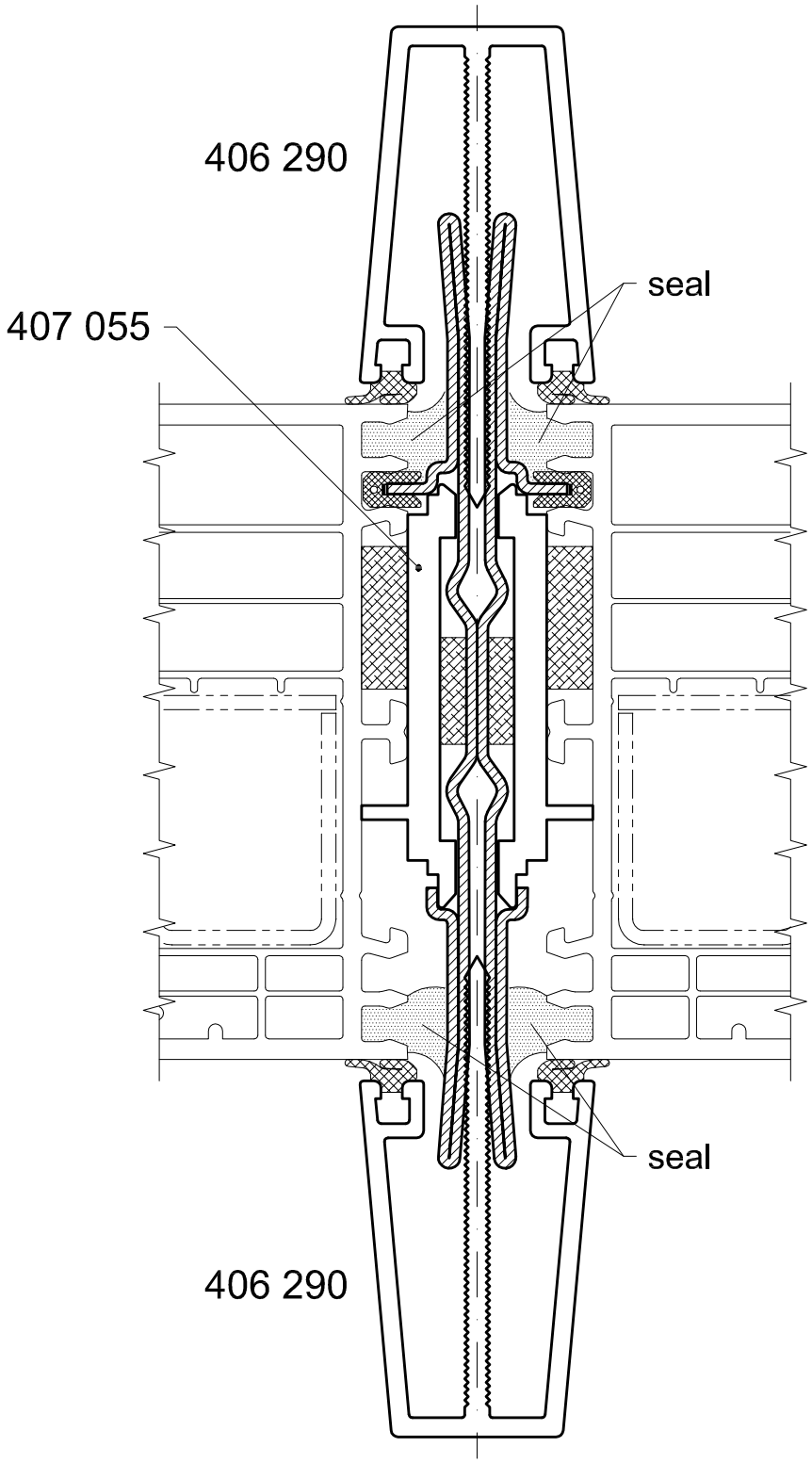
**Couplings**

Couplings:
405 165
405 175




Push shear connector 407 575 over the coupling profile.

## Couplings




= pre-compressed sealing tape

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

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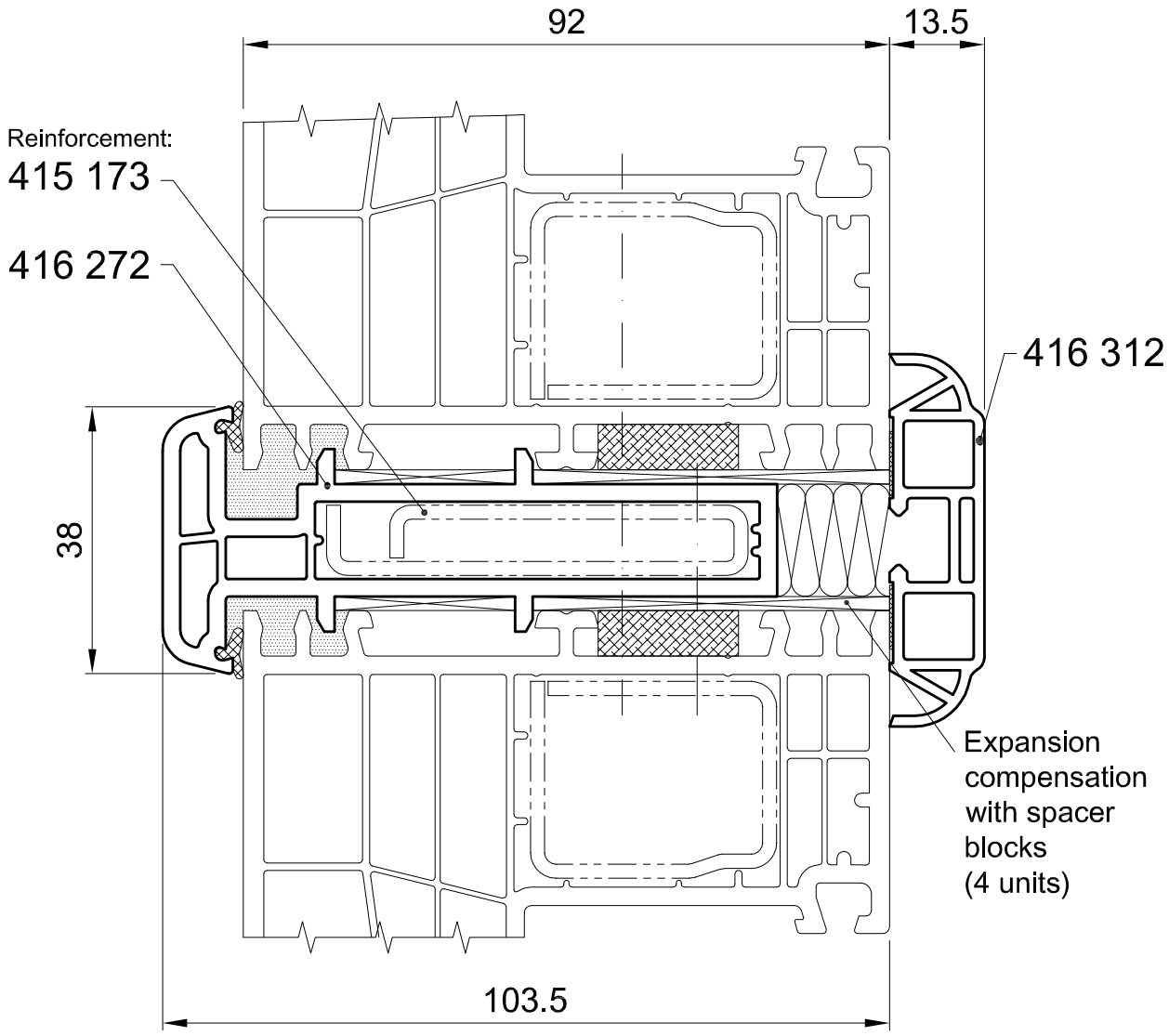
WINDOW & DOOR SYSTEMS

## Couplings




This general design suggestion is based on experience and theoretical considerations. It must be adapted to the circumstances on site and be approved by the structural engineer responsible for the building.
The thermal characteristics of the structure have not been evaluated.

No legal claims can be made against Salamander Industrie-Produkte GmbH or its employees on the basis of using these non-binding design suggestions.

= pre-compressed sealing tape

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

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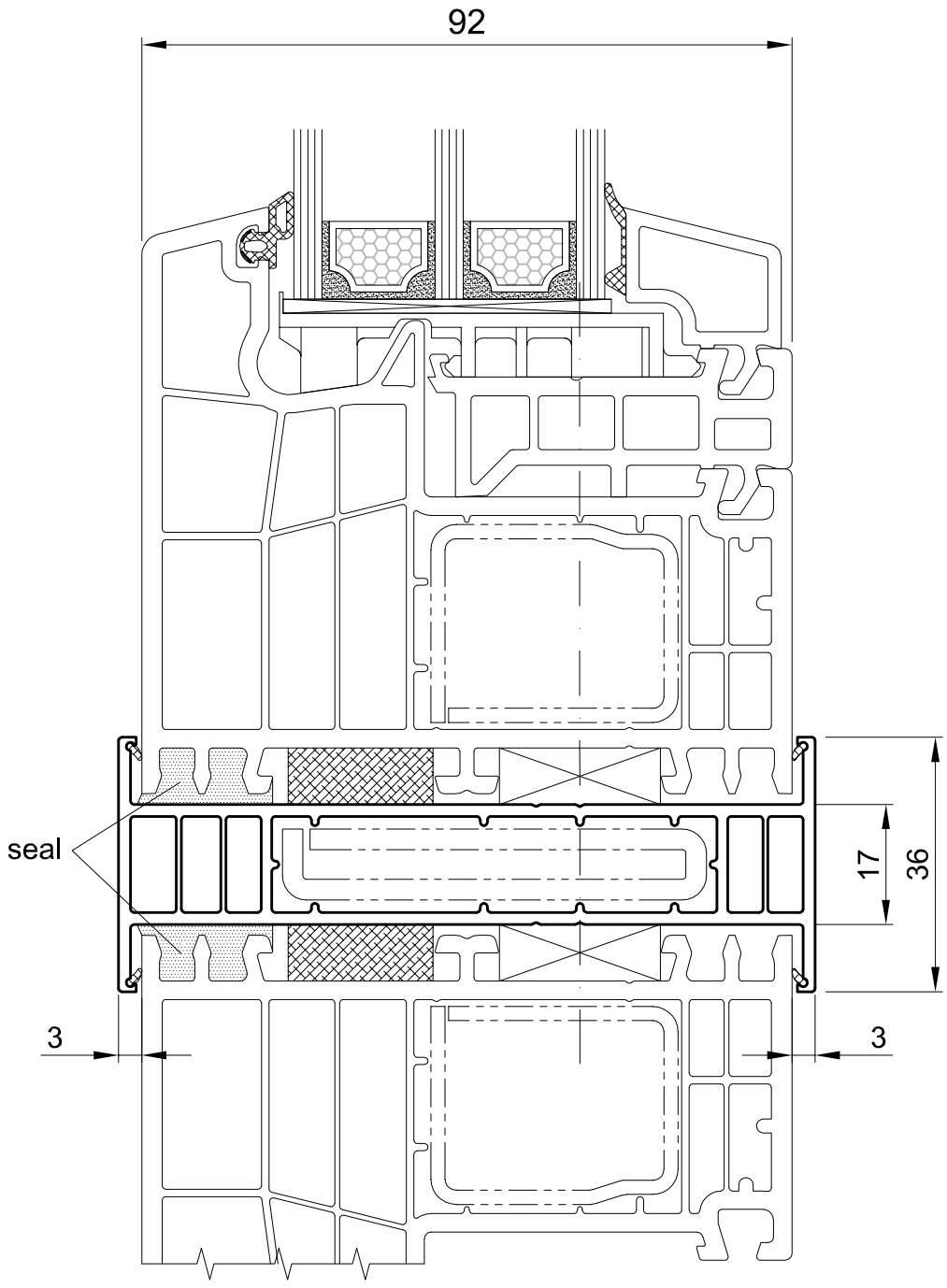
## Couplings (for vertical use)




This general design suggestion is based on experience and theoretical considerations. It must be adapted to the circumstances on site and be approved by the structural engineer responsible for the building.
The thermal characteristics of the structure have not been evaluated.

No legal claims can be made against Salamander Industrie-Produkte GmbH or its employees on the basis of using these non-binding design suggestions.

= pre-compressed sealing tape

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

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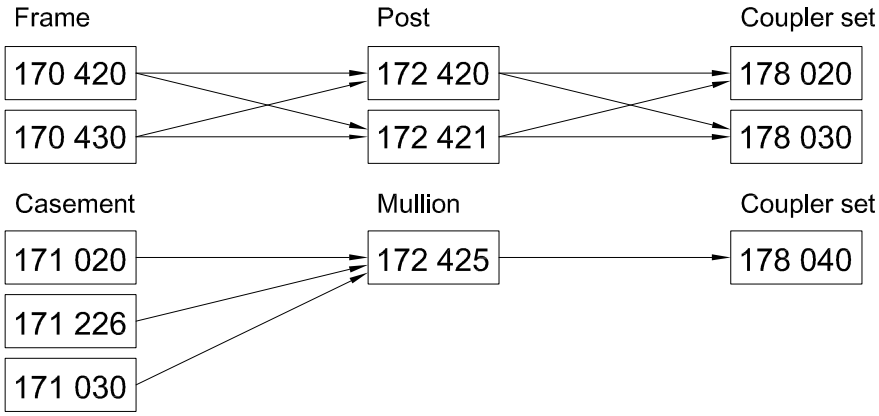
| | | |
|---|---|---|
| Post cruciform coupler | Set no.: | 178 020 |
| Post cruciform coupler, narrow<br>for posts 172420, 172421 | Set no.: | 178 030 |
| Mullion cruciform coupler<br>for mullion 172 425 | Set no.: | 178 040 |

## Combinations




## Machines and tools

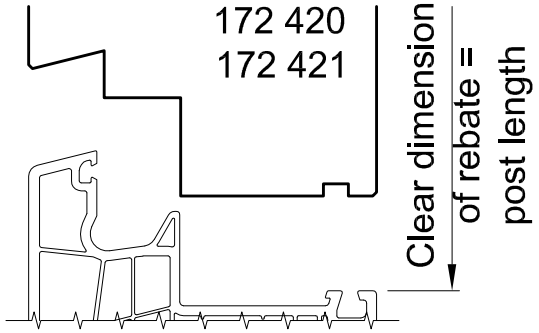
- Notching tool for U profiles made of PVC
- Milling tool for milling pattern:
  - bE/A (172 420, 172 421)
  - bE/B (172 425)
- Drilling template:
  - 178 420 (172 420, 172 421)
  - 178 440 (172 425)
- Notching tool for gaskets
- Twist drills: ∅ 3 mm, ∅ 5 mm, ∅ 10 mm

## Procedure

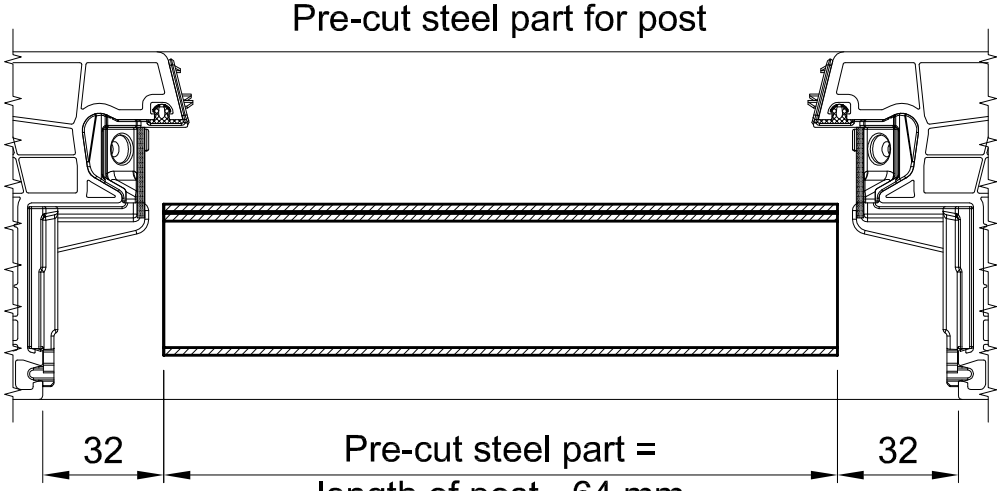
- Cut post / mullion to clear dimension of rebate
- Notch according to respective milling pattern
- Then the projecting ends of the gaskets are cut flush to the post profile
- Pre-cut steel part = Post length - 64 mm
  Mullion length - 15 mm
- Screw steel at intervals of max. 350 mm for white and max. 250 mm for coloured profiles.
- Mark bore holes on the frame / casement in accordance with the respective drilling template
- Clip the gaskets using the drilling template and notch using the notching tool
- Use sealing block (178 820 for posts, 178 840 for mullion)
- Screw post cruciform coupler to post and mullion cruciform coupler to mullion
- Insert post / mullion and screw in place
- Gasket joints are glued after the mechanical connection has been screwed

| Frame | Casement | Post | Mullion | bE92 07 |
|---|---|---|---|---|
| **170 420** | **171 020** | **172 420, 172 421** | **172 425** | **18.2** |

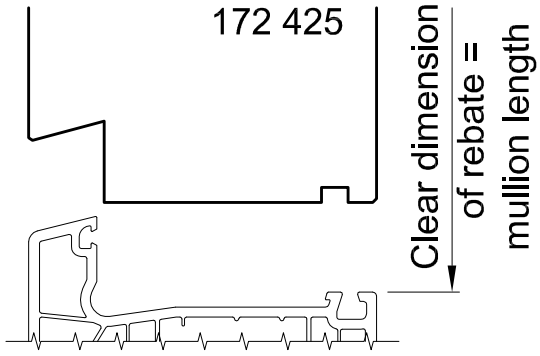
Milling pattern bE/A



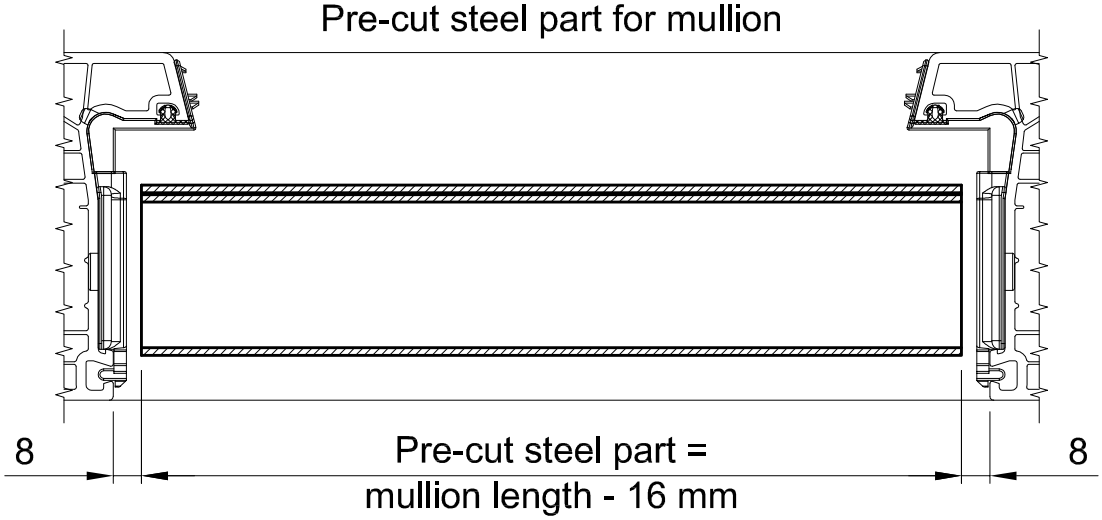

Pre-cut steel part for post




Milling pattern bE/B




Pre-cut steel part for mullion



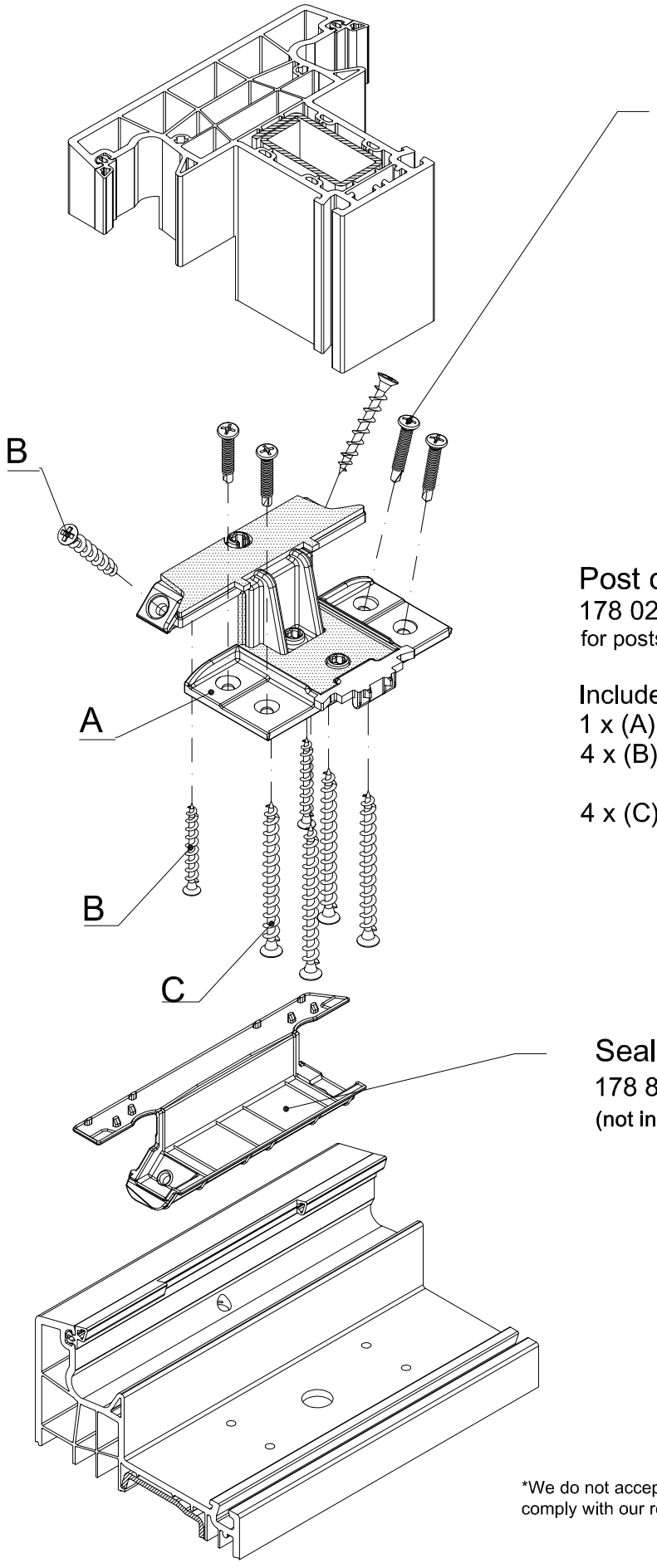

Not to scale



SALAMANDER
WINDOW & DOOR SYSTEMS

# Additional processing guidelines

| Frame | Post | P. cc. set | Sealing block | bE92 07 |
|---|---|---|---|---|
| **170 420** | **172 420** | **178 020** | **178 820** | **18.3** |




NOT included in the set!
We recommend*:
4 x reinforcement screws
3,9 x 25 mm with drill tip

**NOTE!!!**
If thermally separated steel is used in the frame, screws WITHOUT a drill tip must be used!

## Post cruciform coupler set
178 020 (coupler 178 520)
for posts 172 420, 172 421

Included in the set:

| | |
|---|---|
| 1 x (A) | post cruciform coupler |
| 4 x (B) | window-fitting screw 4,3 x 30 mm, A2 |
| 4 x (C) | chipboard screw 4,5 x 60 mm |

## Sealing block
178 820
**(not included in the set)**

*We do not accept any liability for screw connections that do not comply with our recommendation.

Not to scale

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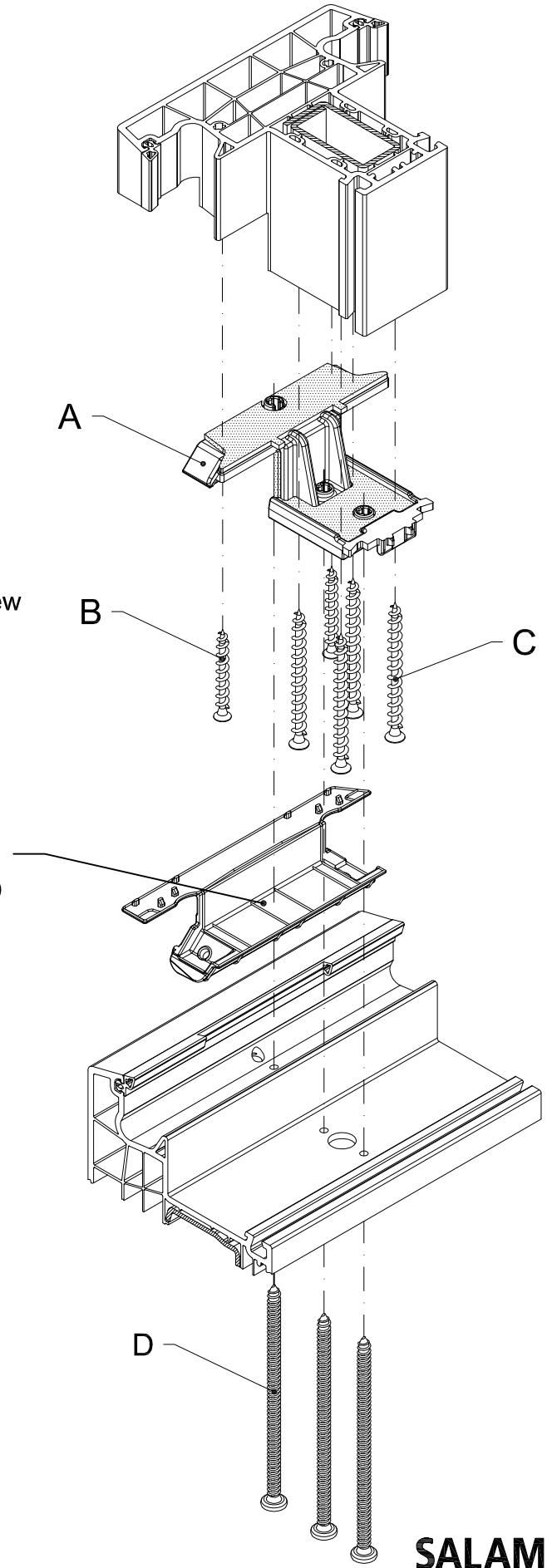
| Frame | Post | Post coupler set | Sealing block | bE92 07 |
|---|---|---|---|---|
| **170 420** | **172 420** | **178 030** | **178 820** | **18.4** |

## Post coupler set
178 030 (coupler 178 530)
for posts 172 420, 172 421

Included in the set:

| | |
|---|---|
| 1 x (A) | post coupler |
| 2 x (B) | window-fitting screw 4,3 x 30 mm, A2 |
| 4 x (C) | chipboard screw 4,5 x 60 mm |
| 3 x (D) | coupling screw 4,8 x 95 mm |

## Sealing block
178 820
(not included in the set)

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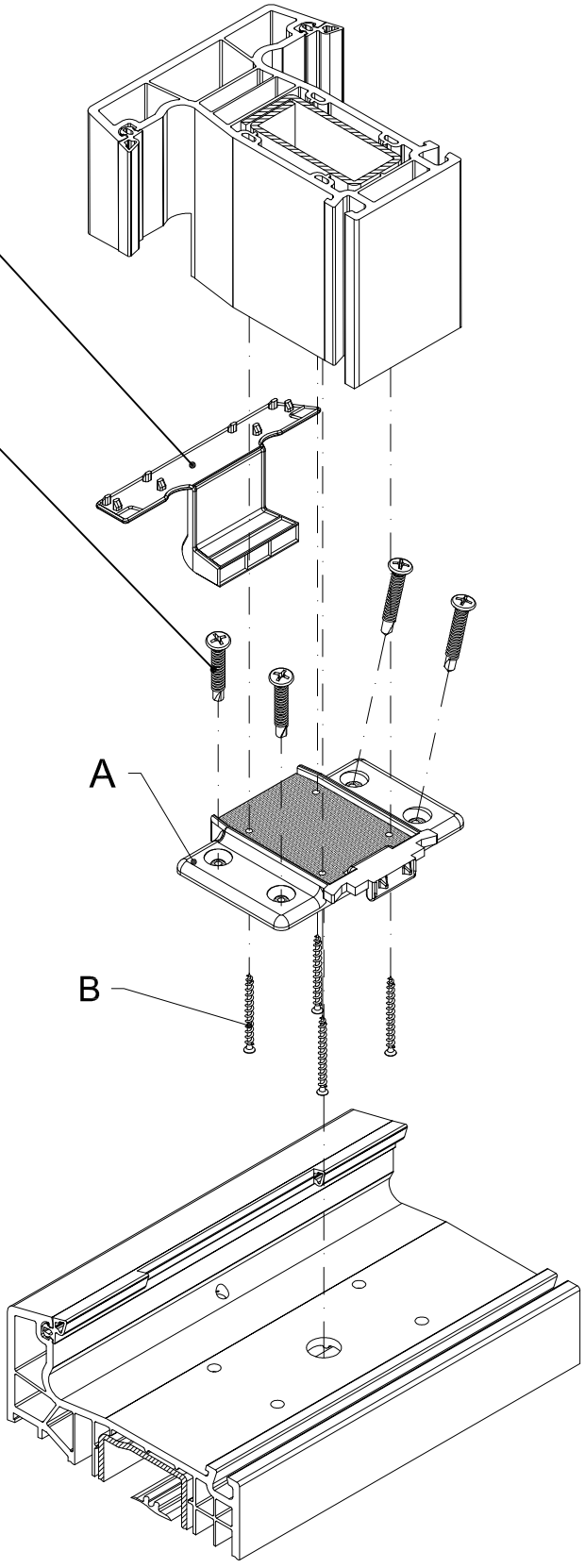
| Frame | Mullion | P. cc. set | Sealing block | bE92 07 |
|---|---|---|---|---|
| **171 020** | **172 425** | **178 040** | **178 840** | **18.5** |

## Sealing block
178 840
**(not included in the set)**

NOT included in the set!
We recommend*:
4 x reinforcement screws
3,9 x 25 mm with drill tip

**NOTE!!!**
If thermally separated steel is used in the frame, screws WITHOUT a drill tip must be used!




## Mullion cruciform coupler set
178 040 (coupler 178 540)
for mullion 172 425

Included in the set:

| | |
|---|---|
| 1Stk. (A) | mullion cruciform coupler |
| 4Stk. (B) | chipboard screw 4,5 x 60 mm |

*We do not accept any liability for screw connections that do not comply with our recommendation.

Not to scale



SALAMANDER
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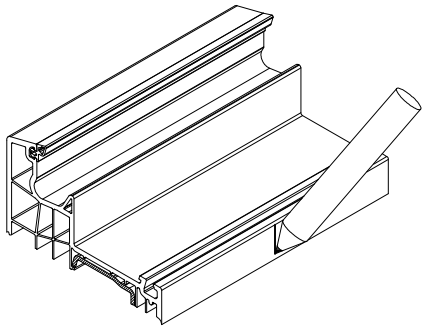
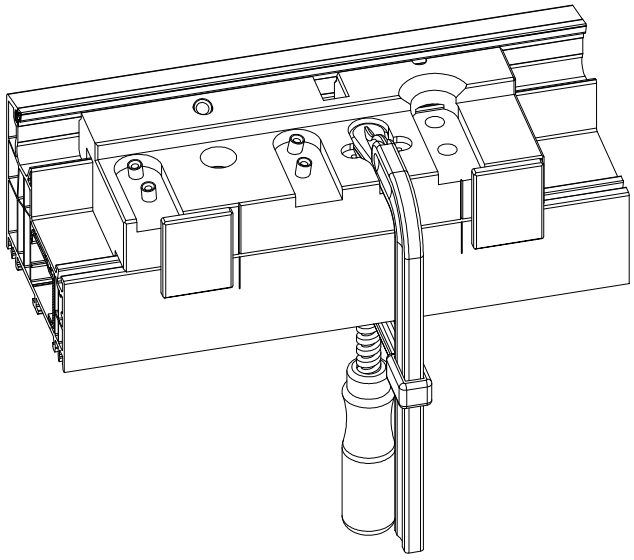
The following illustrations in the “Procedure” section are an example of a post / frame connection, other products will have to be used in part for a mullion / casement connection.

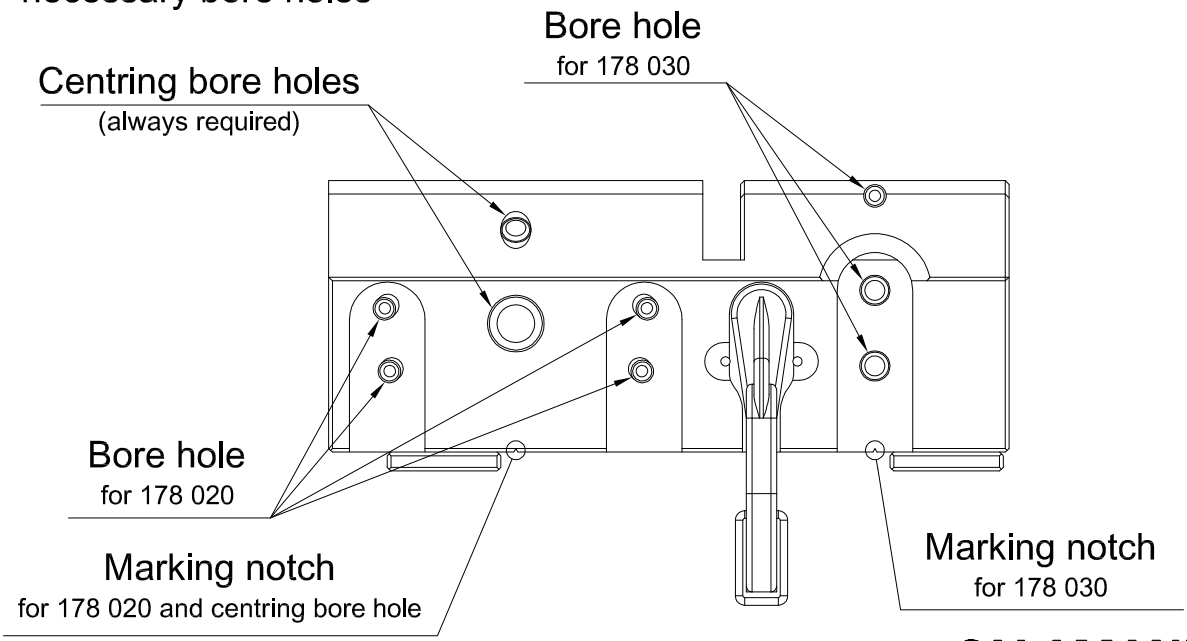
1.
Mark the centre of the post (mullion) on the frame (casement)



2.
Align the drilling template with the aid of the marking notch

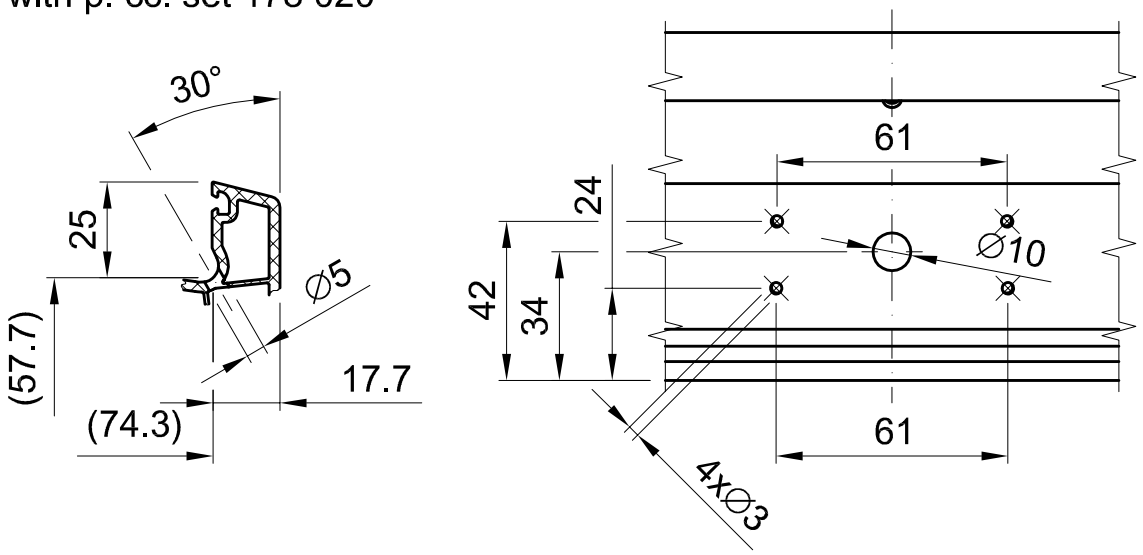


3.
Use the drilling template to make the necessary bore holes

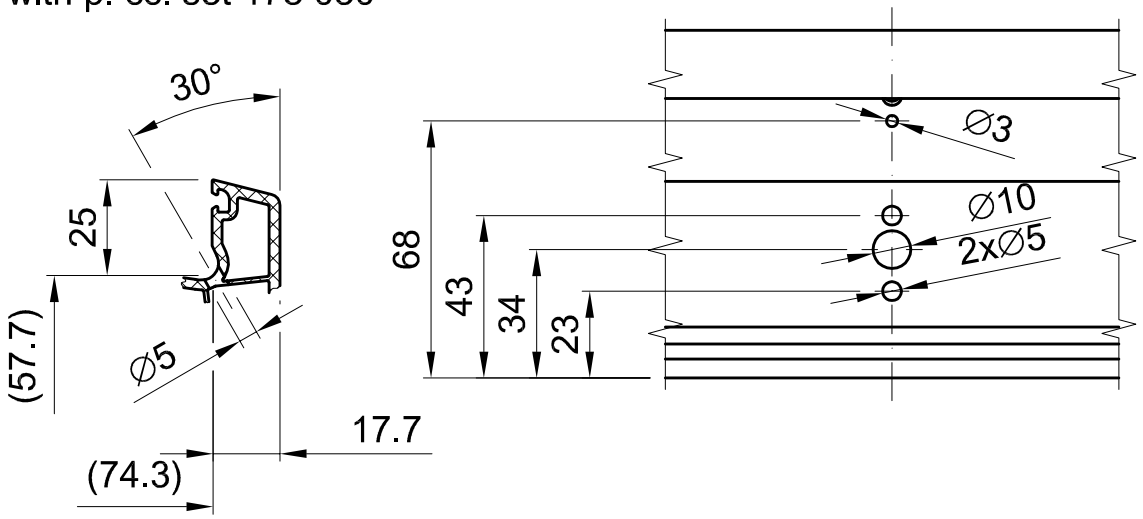



Not to scale

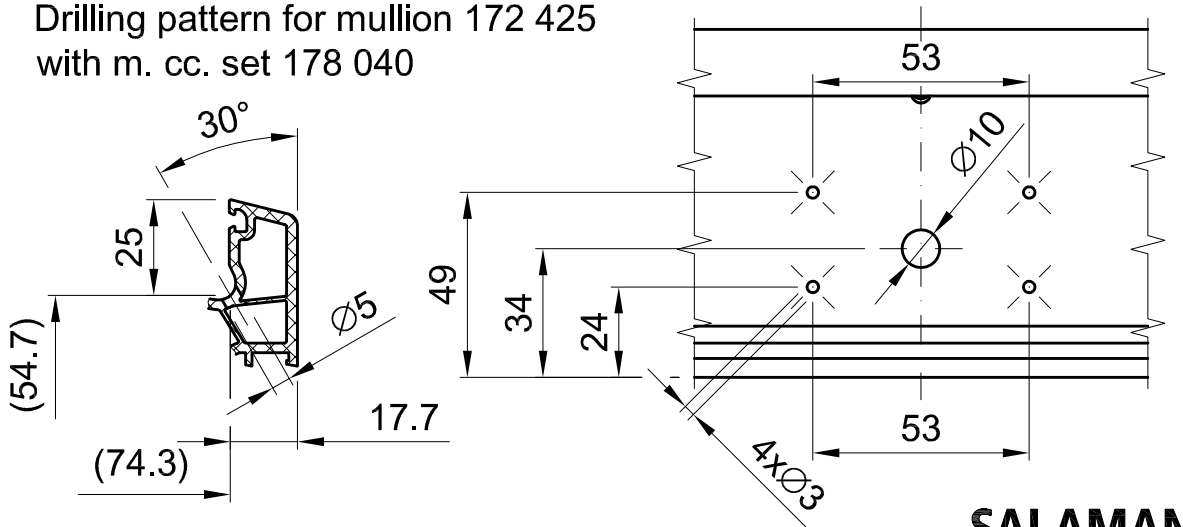
## Drilling pattern for posts 172 420, 172 421 with p. cc. set 178 020



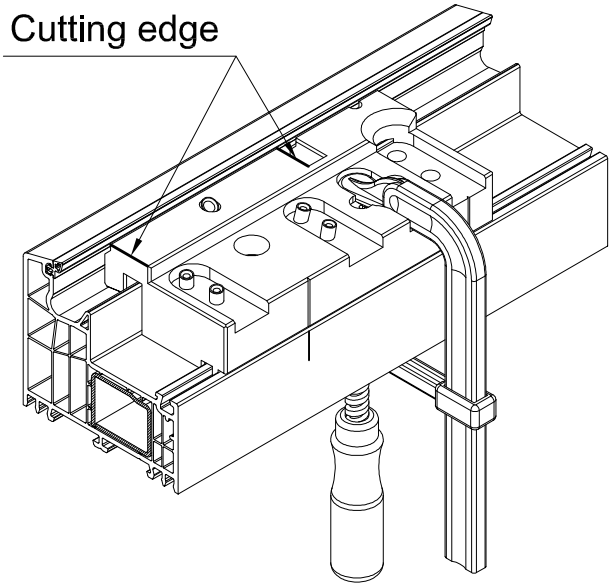

## Drilling pattern for posts 172 420, 172 421 with p. cc. set 178 030

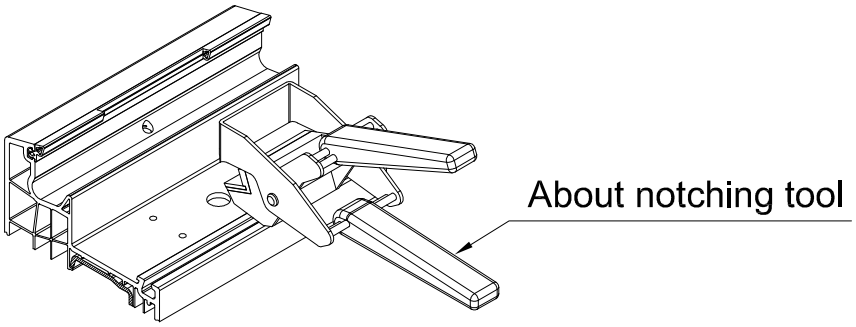



## Drilling pattern for mullion 172 425 with m. cc. set 178 040

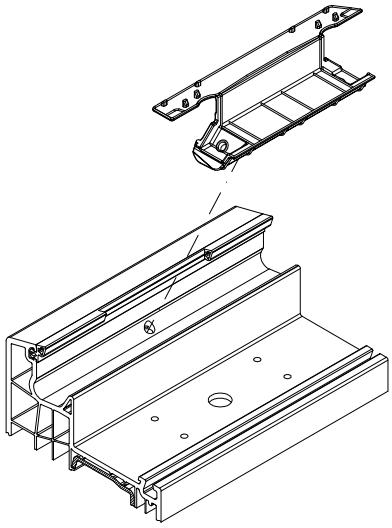


4.
Clip the gasket using the drilling template and notch using the notching tool

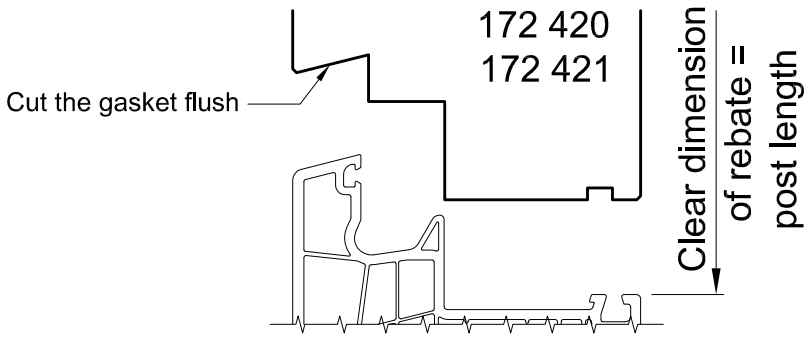


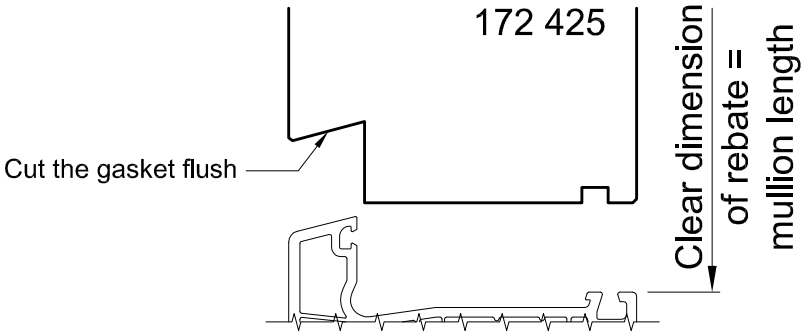

5.
Insert sealing block in frame (casement)



6.
Notch the post (mullion) according to the respective milling pattern




Milling pattern bE/A




Milling pattern bE/B

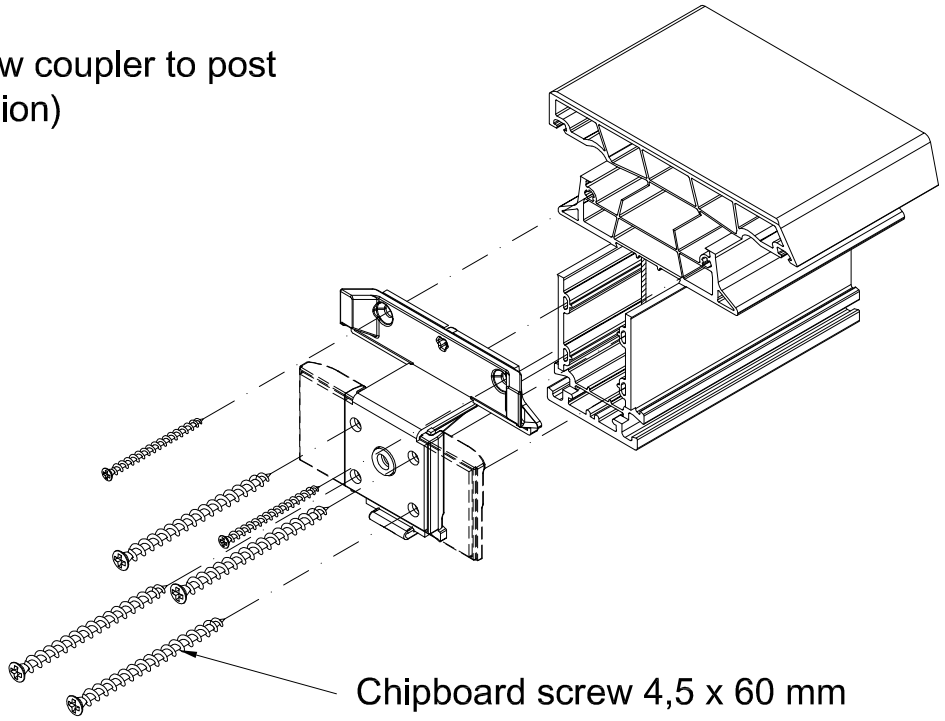
7.
Push steel into post (mullion), centre it and screw in place

Steel length = post length - 64 mm
= mullion length - 15 mm

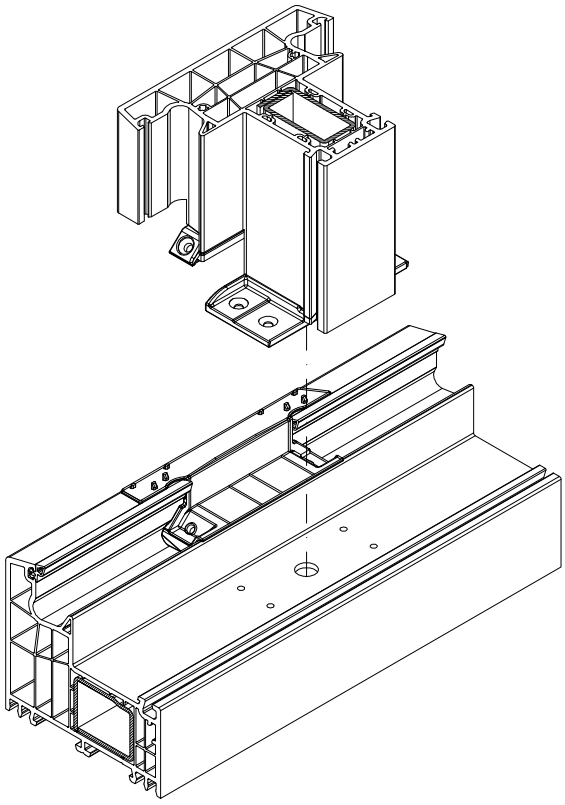
Screw steel at intervals of max. 350 mm for white and max. 250 mm for coloured profiles.

| Frame | Post | P. cc. set | Sealing block | bE92 07 |
|---|---|---|---|---|
| **170 420** | **172 420** | **178 020** | **178 820** | **18.10** |

8.
Screw coupler to post (mullion)




9.
Insert post (mullion) in frame (casement)



| Frame | Post | P. cc. set | Sealing block | bE92 07 |
|---|---|---|---|---|
| **170 420** | **172 420** | **178 020** | **178 820** | **18.11** |

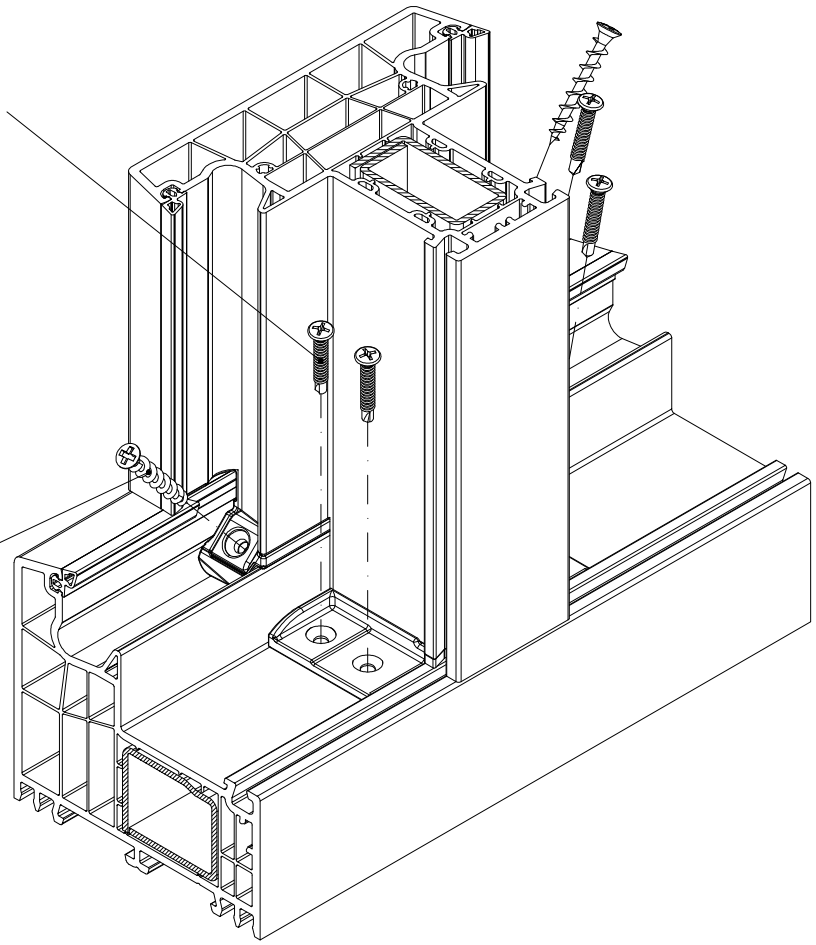
## 10.
## Screw coupler to frame (casement)

### Post cruciform coupler set 178 020

NOT included in the set!
We recommend*:
4 x reinforcement screws
3,9 x 25 mm with drill tip

**NOTE!!!**
If thermally separated steel is used in the frame, screws WITHOUT a drill tip must be used!

Window-fitting screw
4,3 x 30 mm, A2
(2 x included in the set)



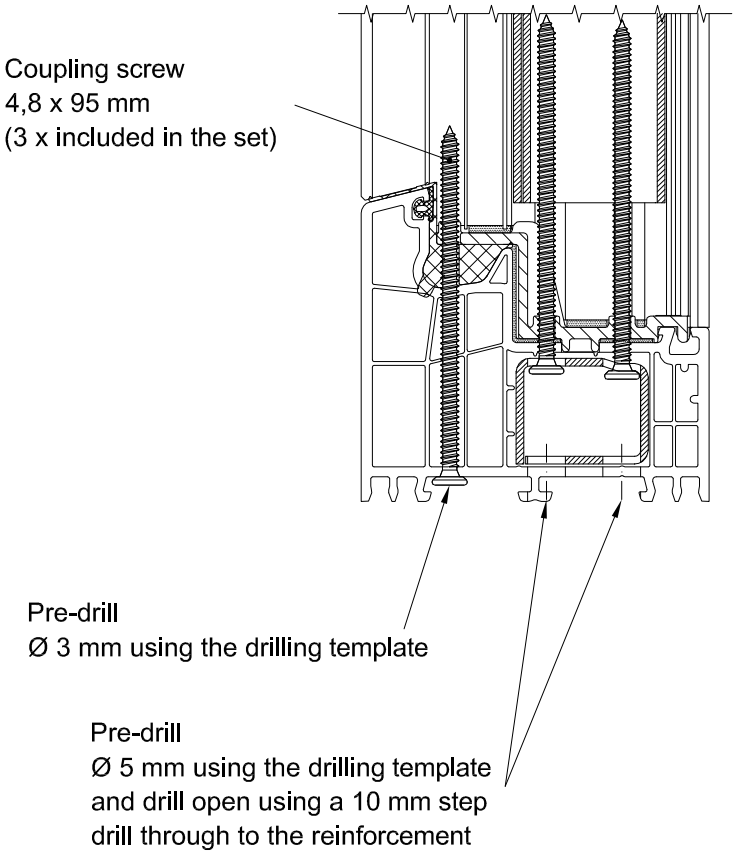
Gasket joints are glued after the mechanical connection has been screwed.

*We do not accept any liability for screw connections that do not comply with our recommendation.

Not to scale

| Frame | Post | Post coupler set | Sealing block | bE92 07 |
|---|---|---|---|---|
| **170 420** | **172 420** | **178 030** | **178 820** | **18.12** |

# Post coupler set 178 030



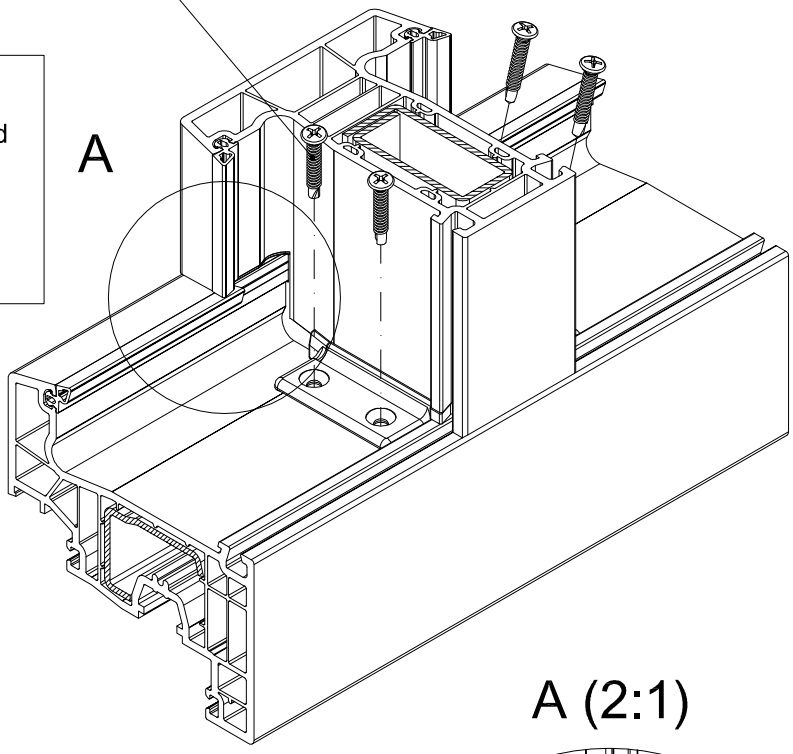

Gasket joints are glued after the mechanical connection has been screwed.

| Casement | Mullion | M. cc. set | Sealing block | bE92 07 |
|---|---|---|---|---|
| **171 020** | **172 425** | **178 040** | **178 840** | **18.13** |

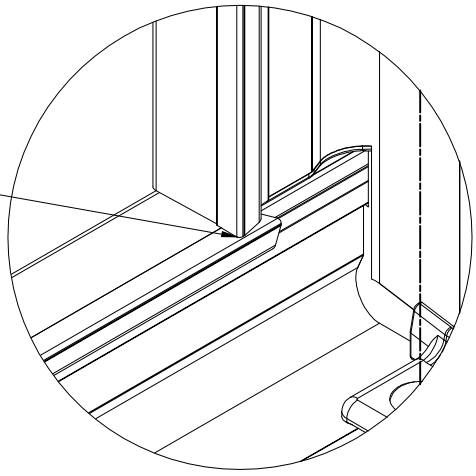
# Mullion cruciform coupler set 178 040

NOT included in the set!
We recommend*:
4 x reinforcement screws
3,9 x 25 mm with drill tip

**NOTE!!!**
If thermally separated steel is used in the casement, screws WITHOUT a drill tip must be used!!




A (2:1)



11.
Seal the gasket joint using cyanoacrylate adhesive

*We do not accept any liability for screw connections that do not comply with our recommendation.

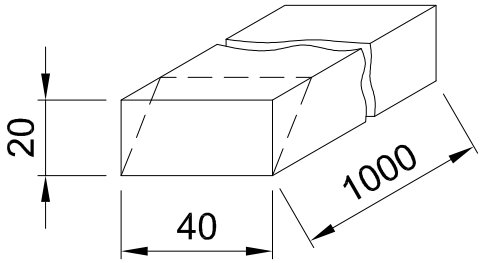
Not to scale

## Universal coupler 208 920

for angled connection with

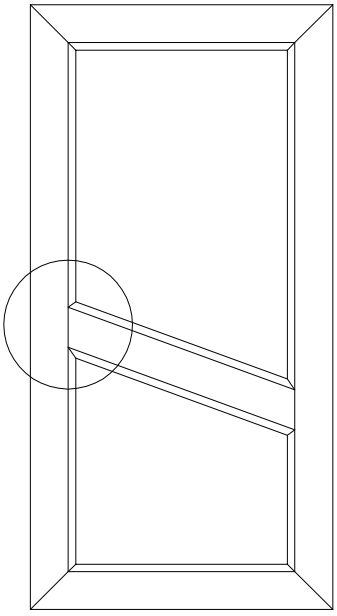
Post: 172 420, 172 421

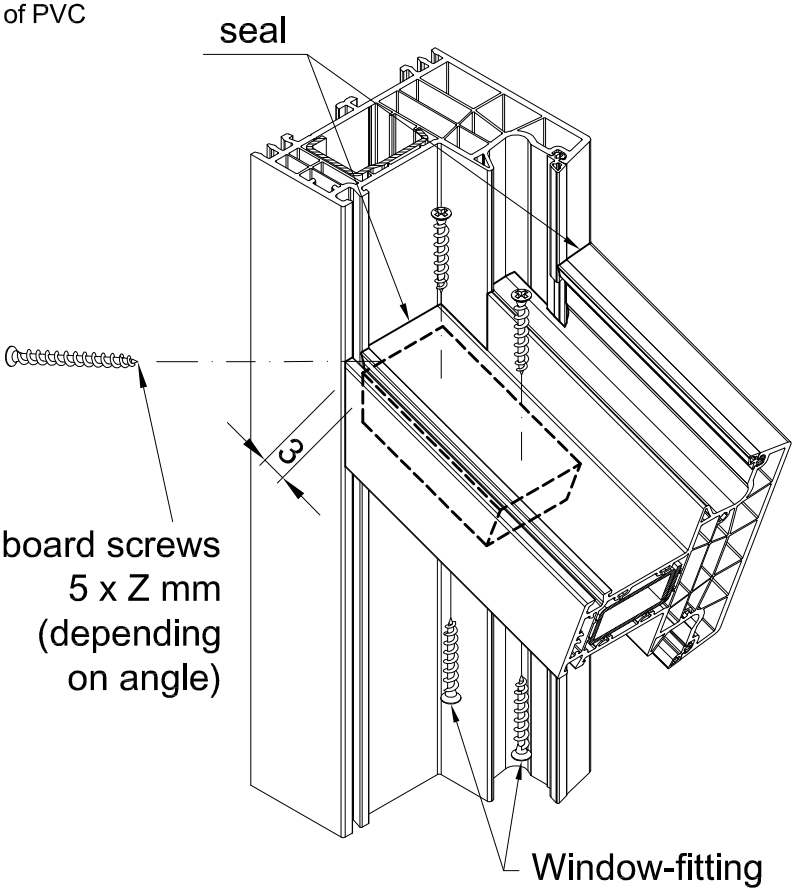
Mullion: 172 425




## Machines and tools

- Notching tool for U profiles made of PVC
- Milling tool for milling pattern
- Mitre saw
- Twist drill Ø 4 mm





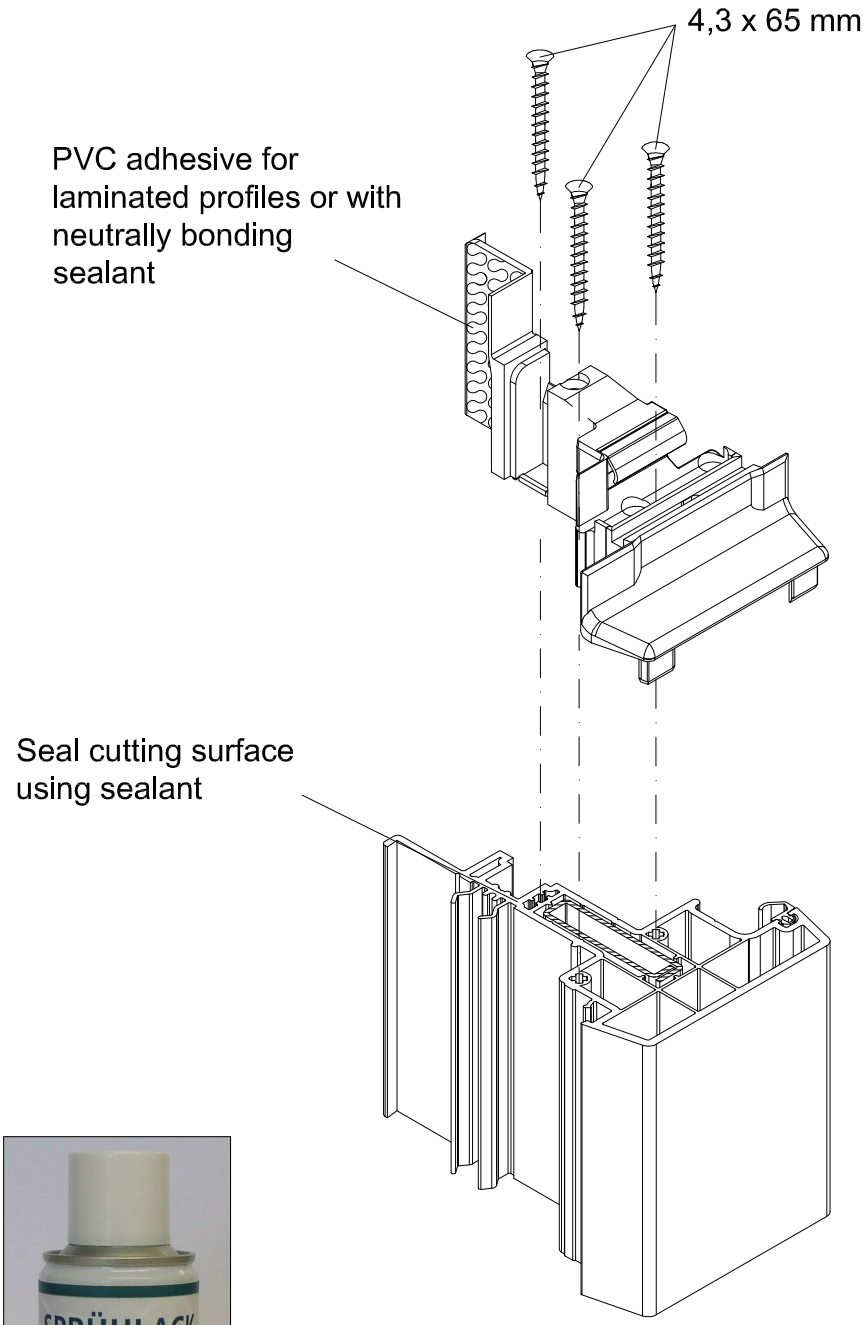

## Procedure

- Cut post / mullion to clear dimension of rebate - angle adapted
- Notch according to milling pattern
- Pre-cut steel part = post / mullion length - min. 210 mm
- Centre the steel and screw at intervals of max. 300 mm for white and max. 250 mm for coloured profiles
- Coupler length min. 100 mm
- Cut the couplers to the required angle and move back ca. 3 mm, screw to the post / mullion on both sides using window-fitting screws 4.3 x 20 mm
- Notch frame or casement gasket near the post / mullion
- Insert the post / mullion and seal the connection using neutrally bonding sealant
- Pre-drill the universal coupler and screw to the frame or casement using a chipboard screw 5 x Z mm (Z = depending on angle)
- Gasket joints are glued after the mechanical connection has been screwed

Seal with permanently elastic, neutrally bonding sealant,
suitable for PVC and galvanized steel.

## Overlap profiles / overlap caps

It must be noted that the end caps of all false mullions and casement strips have to be screwed in place (if there are bore holes in the caps) in addition to being glued!



407 875
Spray paint for overlap end caps
Colours: white / brown / caramel

When elements which are laminated on one side are used, it may be necessary to paint the inner and outer cap separately using our paint spray.

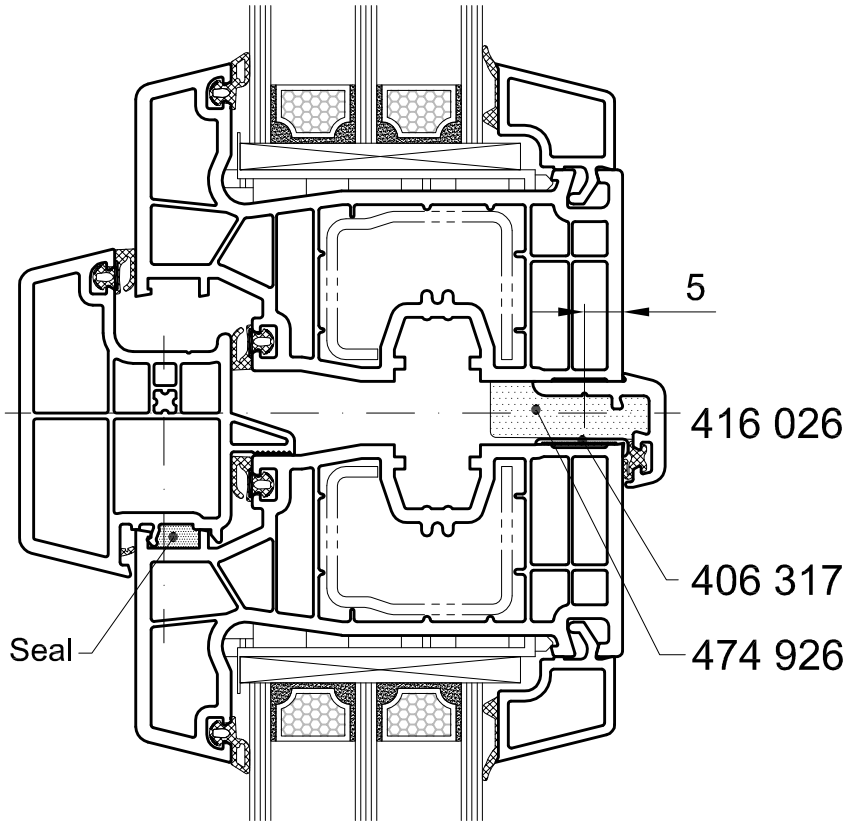
Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Not to scale

# Screwing in place

## Small overlap

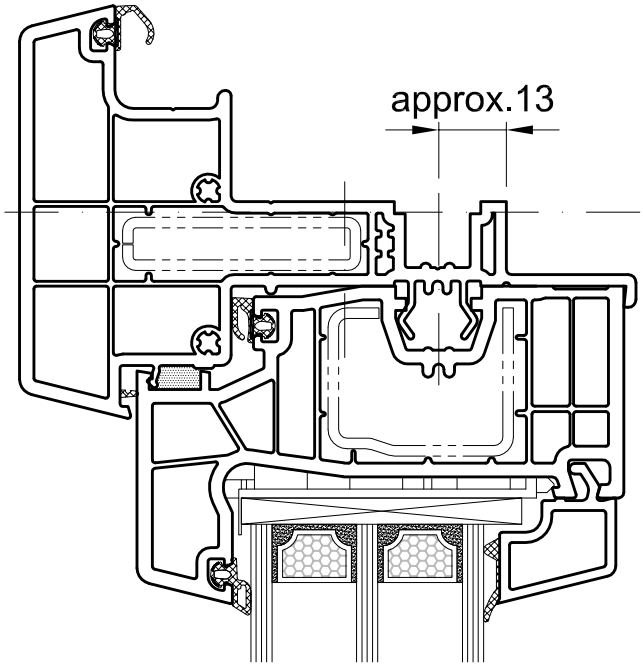
The small overlap 176 010 is still screwed to the casement profiles.
It suffices to screw it to the fitting (screw length min. 60 mm) for attachment.



# Screwing in place

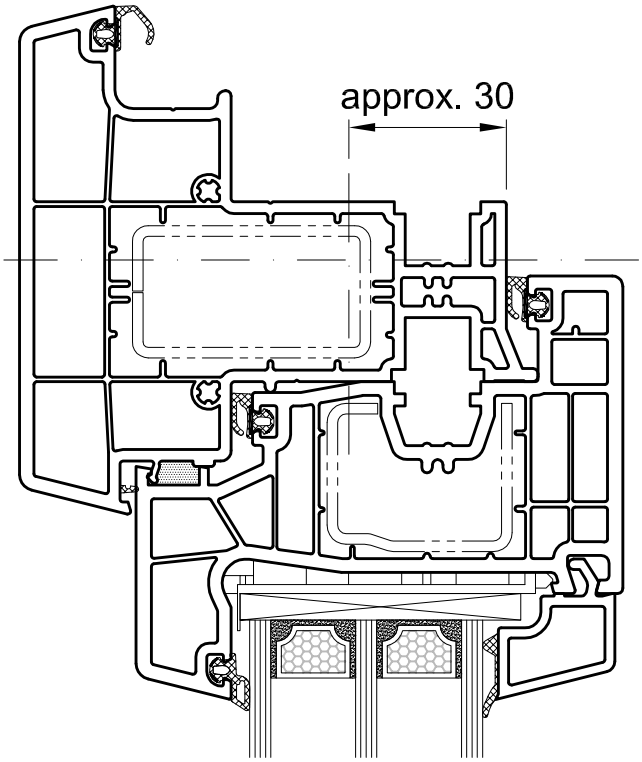
## Narrow overlap

The narrow overlap 176 020 does not necessarily have to be screwed separately to the casement profiles. It suffices to screw it to the fitting (screw length min. 40 mm) for attachment.




## Wide overlap

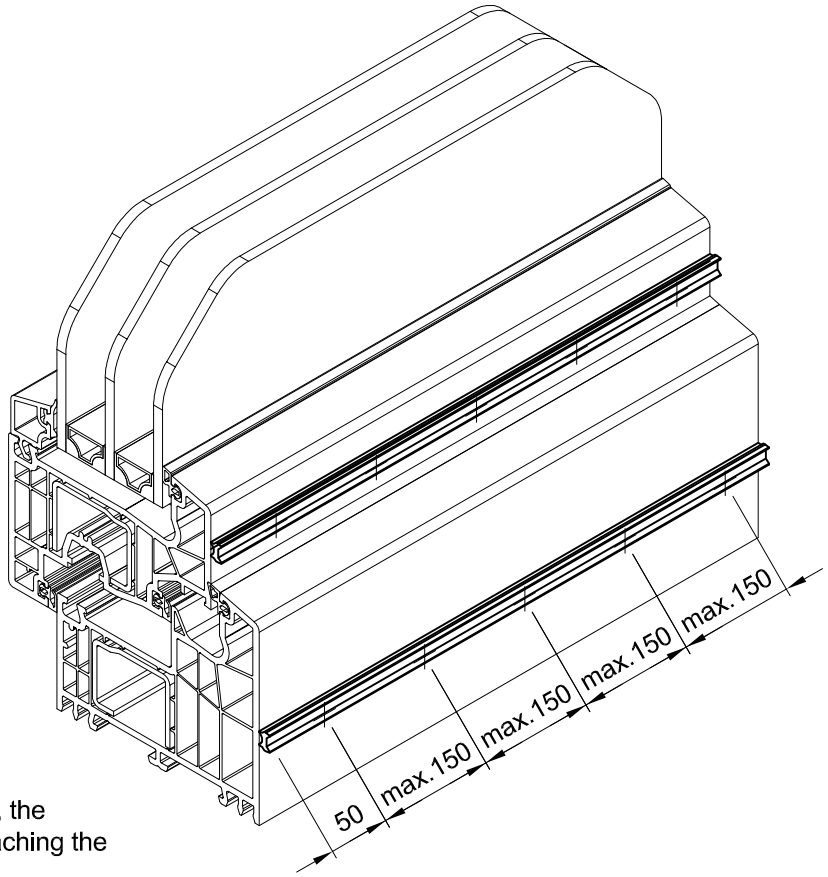
The wide overlap 176 030 is always screwed separately using screws Ø 4.3 x 50 mm. The distance between the screws is max. 350 mm for white and coloured profiles, starting at a distance of 50 mm from the end of the rod.



**Locking the additional profiles in place using fixing nipples / clamping strips**

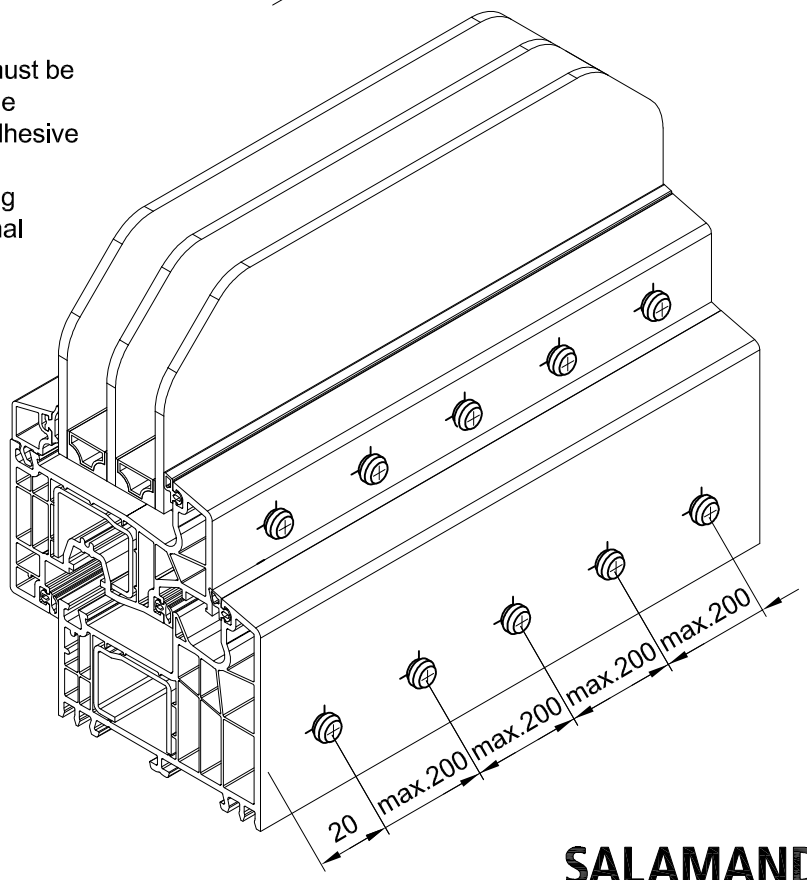
# Fitting the PVC clamping strip (for white profiles only)

The PVC clamping strip must be screwed at a max. distance of 150 mm (screw size Spax 3 x 16 mm).




Alternatively to the clamping strip, the fixing nipples can be used for attaching the additional profiles.

At least 4 fixing nipples per metre must be used for this purpose. In addition, the profiles must be secured by PVC adhesive against sideward movement.
This attachment possibility with fixing nipples is only approved for additional profiles with white base.

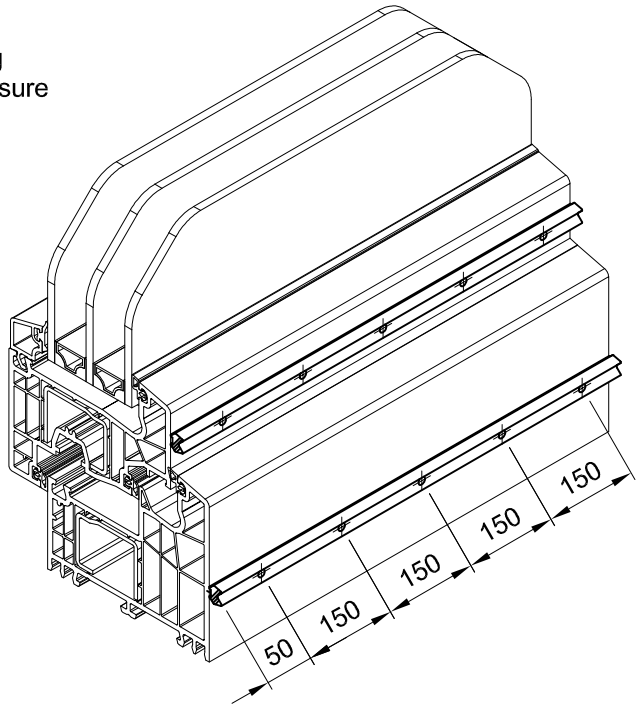



Not to scale

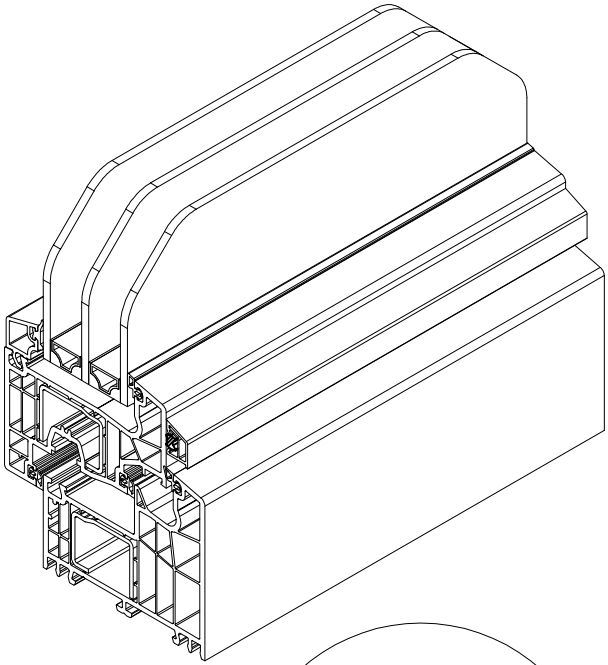
**Locking the additional profiles in place using fixing nipples / clamping strips**

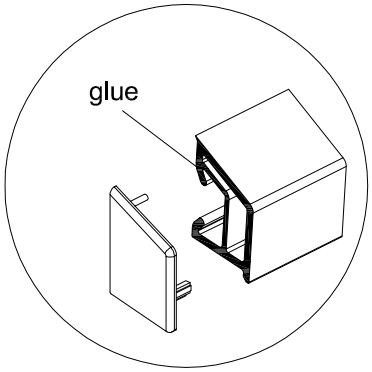
# Fitting the aluminium clamping strip (for decor profiles only)

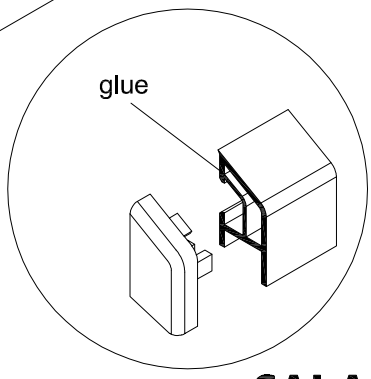
When decor profiles are used (main and secondary profiles), the aluminium clamping strip 406 635 must be used for attaching drip moulds and other additional profiles to prevent the profiles losing shape at higher temperatures caused by exposure to sunlight. The aluminium clamping strip has already been pre-drilled for screws at 150 mm intervals (screw size Spax 3 x 16 mm).




Example with
our drip mould NP0220

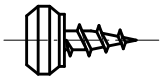





Not to scale

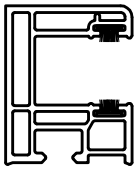
## Locking the additional profiles in place using fixing nipples / clamping strips



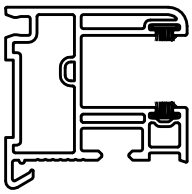
407 900
White only

406 635
Aluminium clamping strip for decor

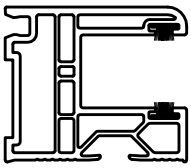
406 335
PVC clamping strip white only



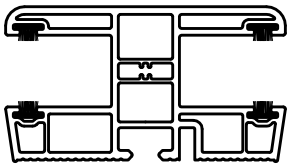
406 073



416 082

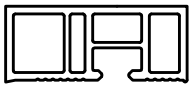


416 086

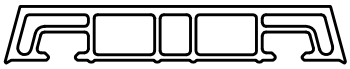


416 096

NP1940
PVC clamping strip



406 081



406 340

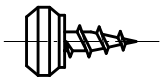
NP0220

ZF1940

NP0230
PVC clamping strip

NP1940
PVC clamping strip

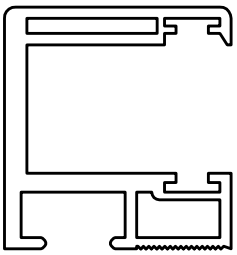
## Locking the additional profiles in place using fixing nipples / clamping strips



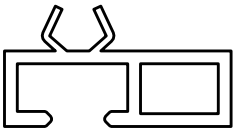
407 965
White only

406 635
Aluminium clamping strip for decor

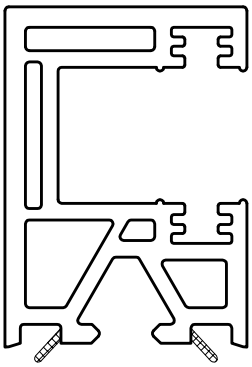
406 335
PVC clamping strip white only



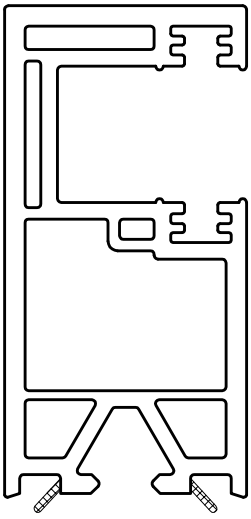
406 065
for decor



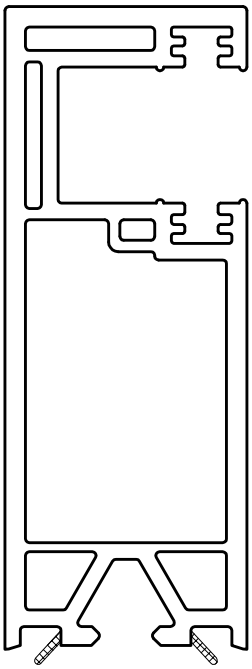
406 066



416 345

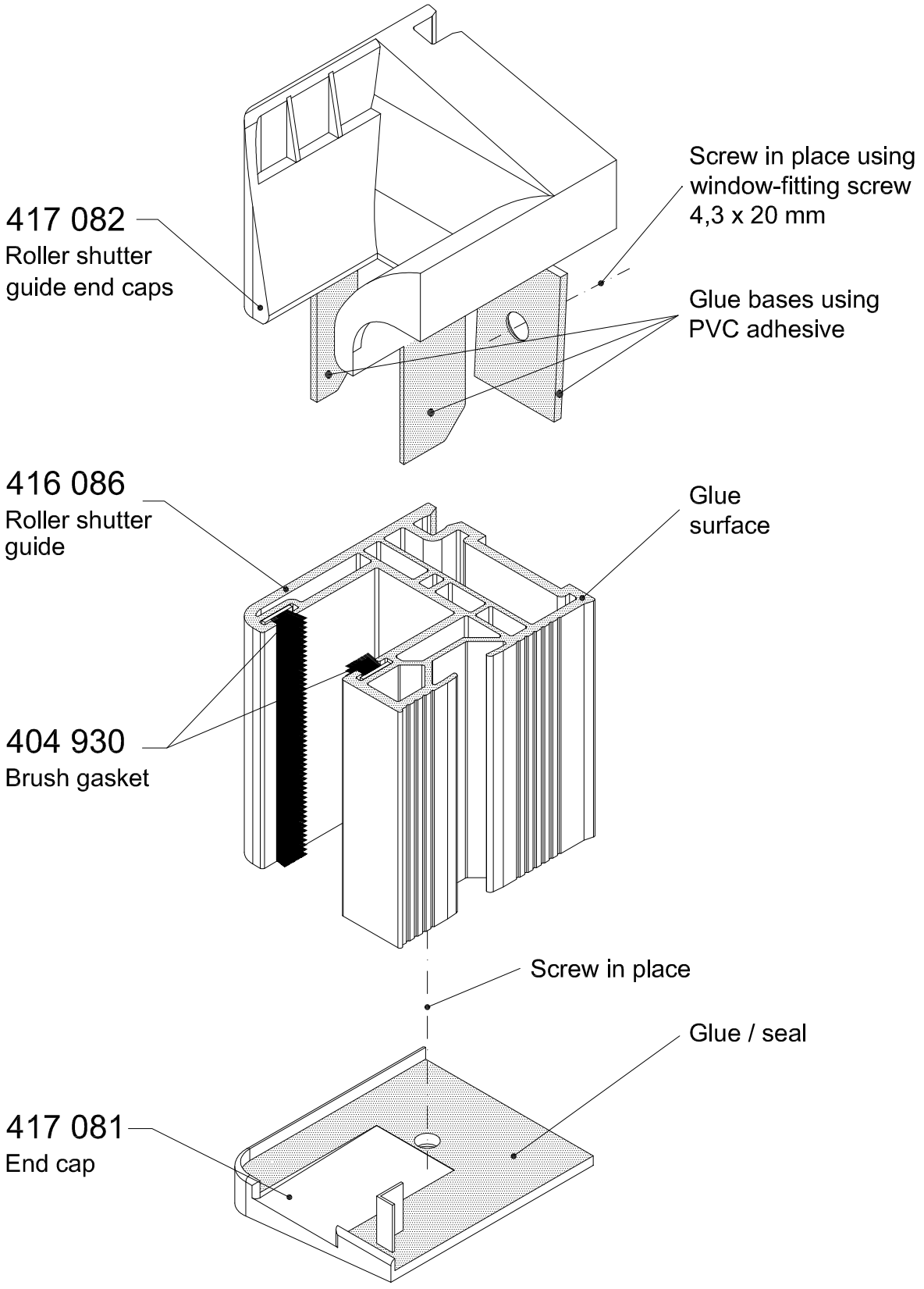


416 365



416 385

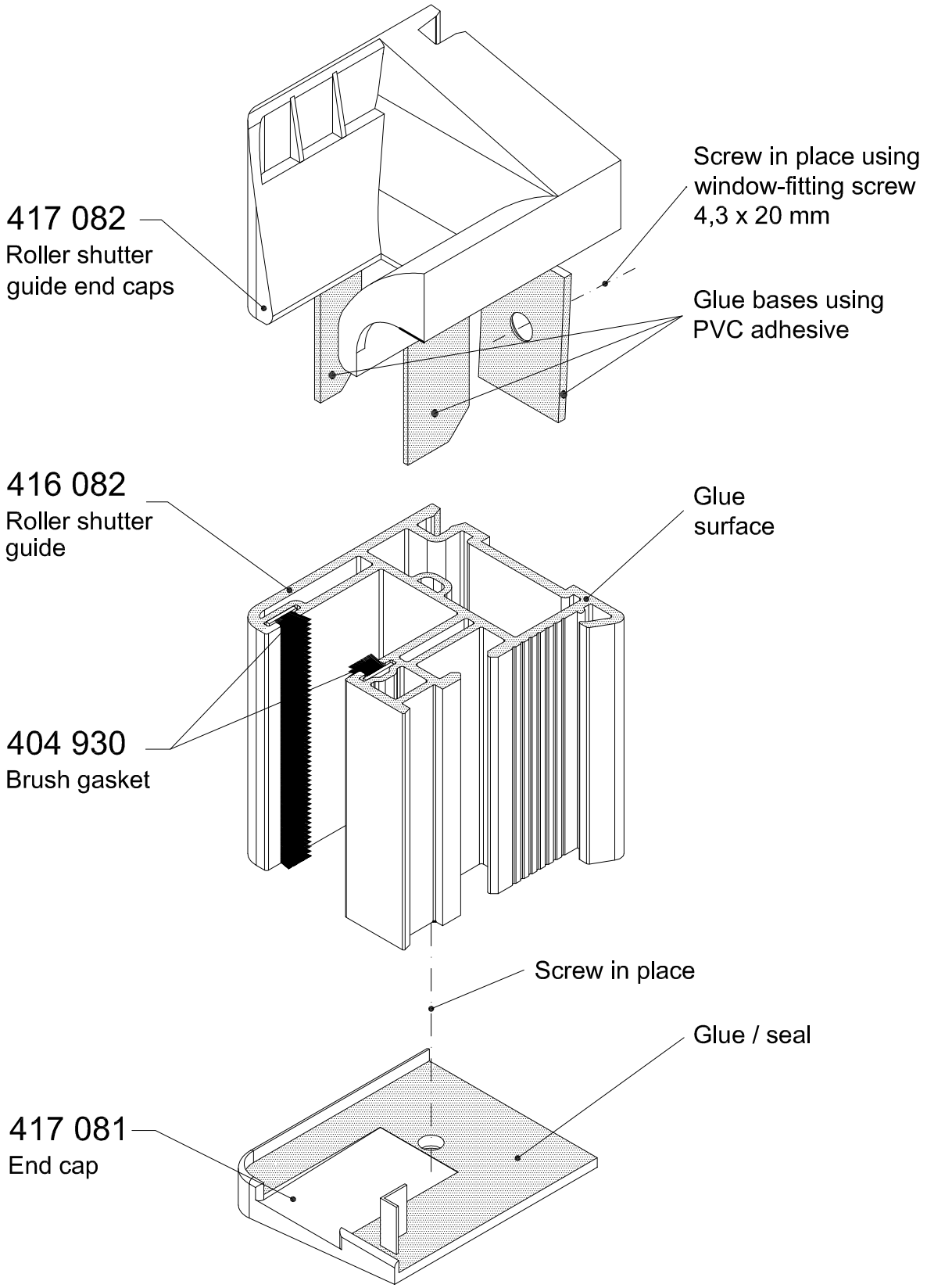
## Roller shutter guide end caps




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Not to scale

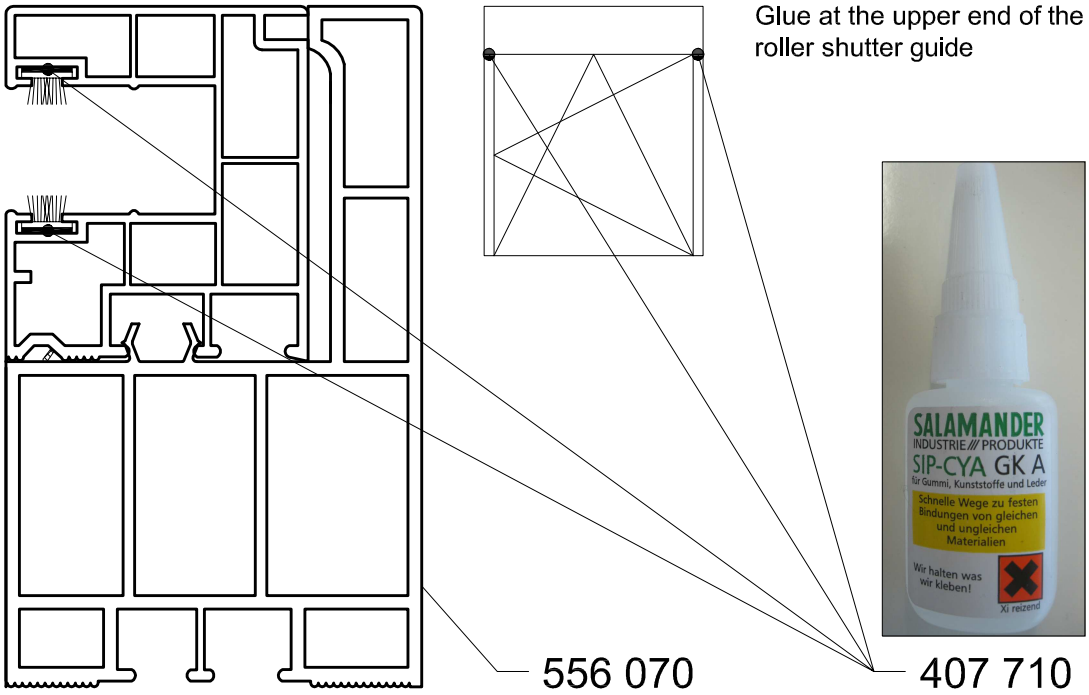
## Roller shutter guide end caps

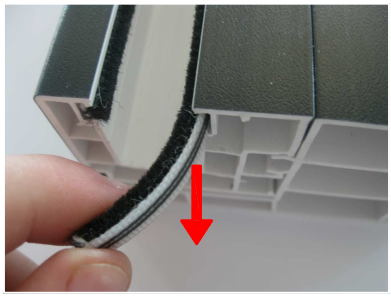



Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

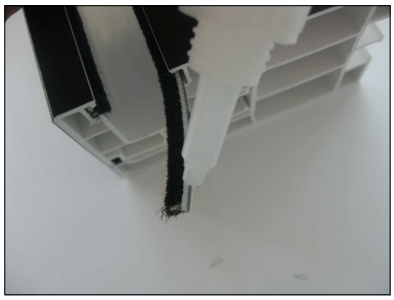
Not to scale

## Roller shutter guide with adapter

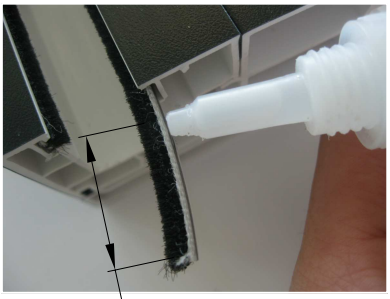


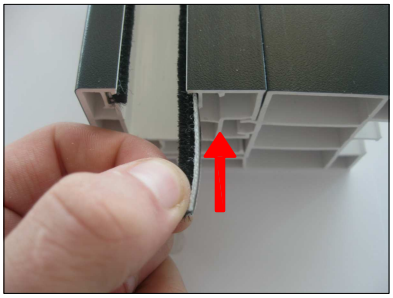



Pull the brush gasket approx. 5 cm in the direction of the arrow out of the groove.

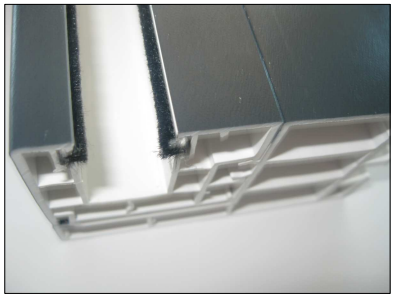


Attach the adhesive approx. 1 - 2 cm on the gasket foot.



Slide the brush gasket in the direction of the arrow flush into the groove.



Attention!
Cyanacrylate.
Bonds skin and eyelids in seconds.



Not to scale

Issue: 11/2015

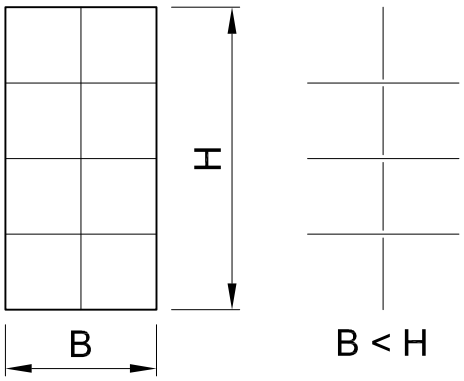
SALAMANDER
WINDOW & DOOR SYSTEMS

## Pre-cut part
## Pane muntin with sealing lip, self adhesive
## 402 016, 402 026

## Processing conditions

The muntins must be mounted on the insulating glass pane in the factory, since a surface temperature of at least 18°C is required for the pane. This guarantees as high an initial adhesion as possible. Final adhesion is achieved after 24 hours. The shorter muntins must always be mounted end-to-end.

## Pre-cut muntin parts

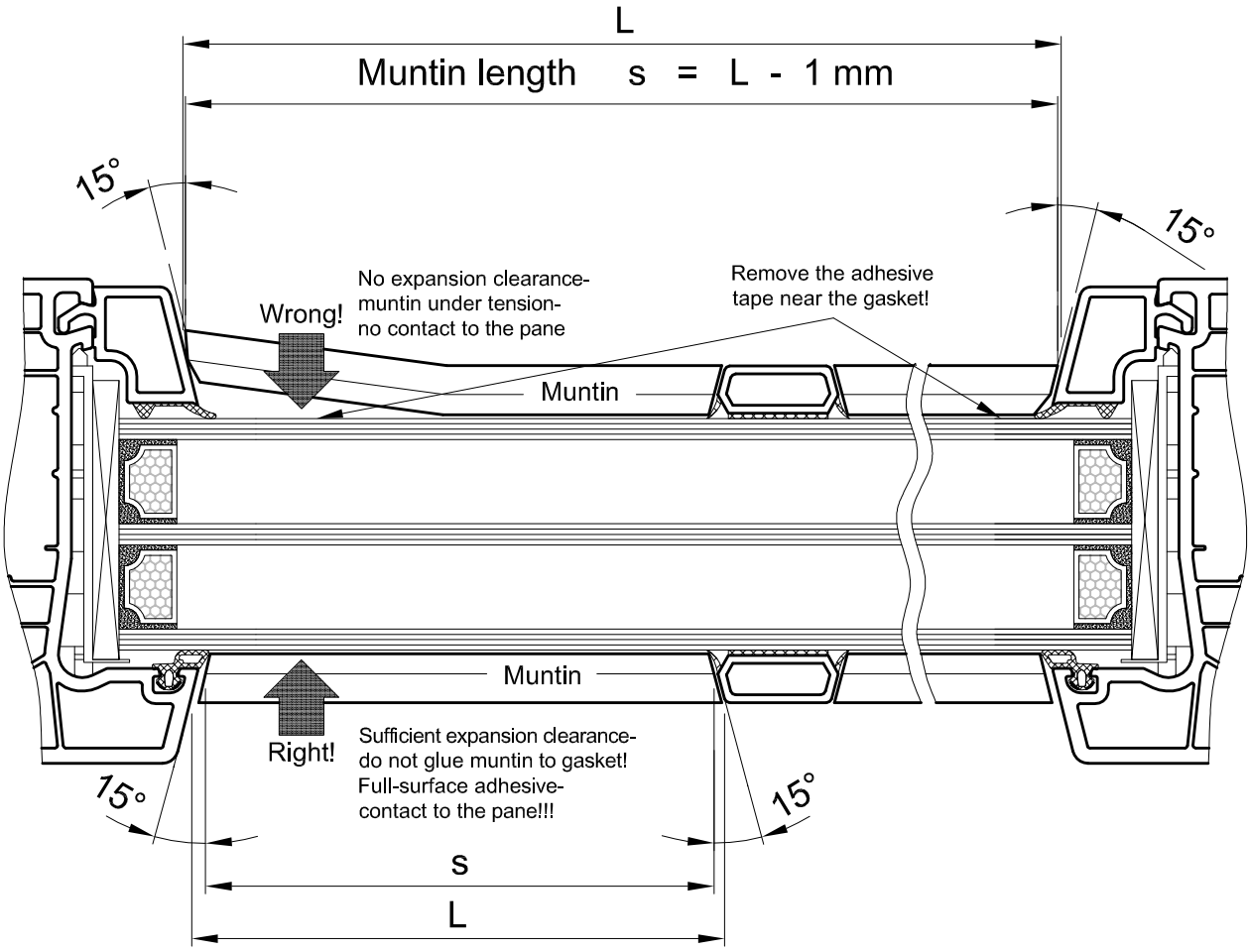



Always ensure the shorter muntins are cut end-to-end!

Maximum muntin length
L = 1,50 m

# Pre-cut pane muntin with sealing lip

## End-to-end muntin




## Fitting

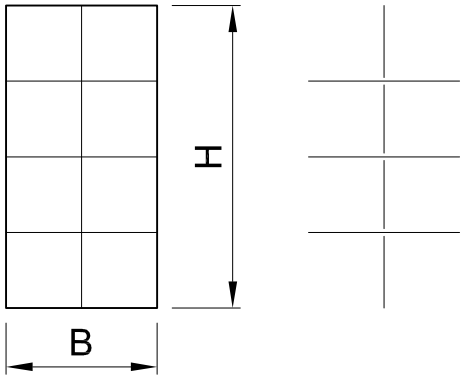
- Clean the glass pane carefully using the muntin primer 407 851.
- Fix axis markings to the window.
- Cut the pane muntins to size: remember the minus allowance to prevent tension when pressing the muntin in place.
- Muntin length: L - 1 mm
- Adapt the muntin ends to the angles of overlap/glass strip.
- Mark the centre of the cut muntins.
- For fitting and alignment, loosen the adhesive tape backing only at the ends of the muntins first, align the muntins and press lightly into place.
- Pull the backing off the pre-glued muntin and press in place along the whole length using the pressing roller so that the whole surface of the adhesive tape is in contact with the glass.
- Once the muntins have been fitted, store the window elements in a heated room for at least 24 hours before delivery at a temperature of at least 18°C.

# Pre-cut part
# Design muntins 412 026
# self-adhesive

## Processing conditions

The muntins must be mounted on the insulating glass pane in the factory, since a surface temperature of at least 18°C is required for the pane. This guarantees as high an initial adhesion as possible. Final adhesion is achieved after 24 hours. The shorter muntins must always be mounted end-to-end.

## Pre-cut muntin parts




Always ensure the shorter muntins are cut end-to-end!

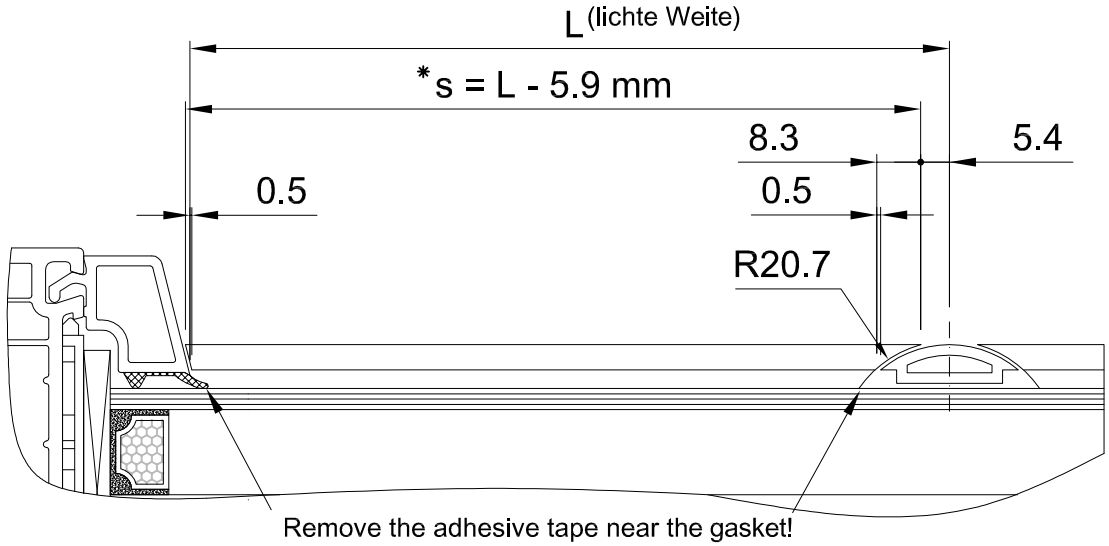
| Maximum muntin length |
| --- |
| L = 1,50 m |

## Fitting

- Clean the glass pane carefully using the muntin primer 407 851.
- Fix axis markings to the window.
- Cut the pane muntins to size: Untermaß beachten, damit beim Andrücken keine Spannungen entstehen.
- Pre-cut part on glass strip side: clear dimension - 1 mm
- Pre-cut part on outer side: clear dimension + 7 mm
- Adapt the muntin ends to the radii of overlap/glass strips.
- Mark the centre of the cut muntins.
- For fitting and alignment, loosen the adhesive tape backing only at the ends of the muntins first, align the muntins and press lightly into place.
- Pull the backing off the pre-glued muntin and press in place along the whole length using the pressing roller so that the whole surface of the adhesive tape is in contact with the glass.
- Once the muntins have been fitted, store the window elements in a heated room for at least 24 hours before delivery at a temperature of at least 18°C.

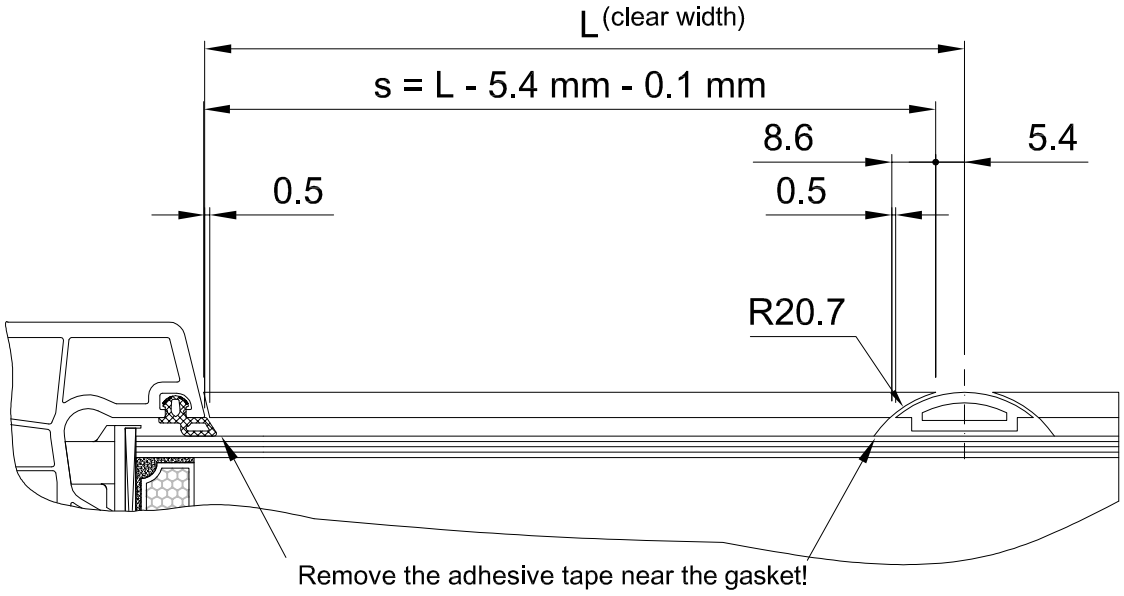
## Pre-cut design muntin (inside)

Non-continuous muntin 412 026




## Pre-cut design muntin (outside)

Non-continuous muntin 412 026



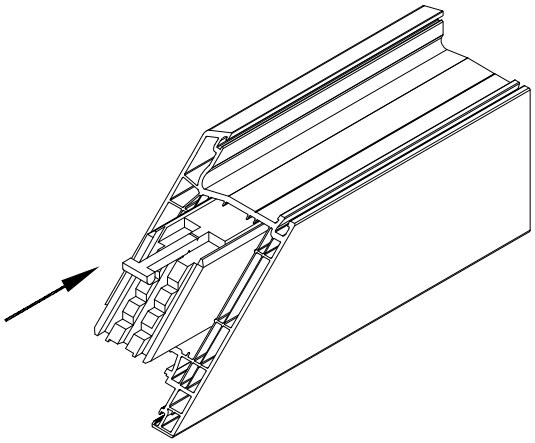

*s = Length of muntin

**Corner cleatting set assembly**

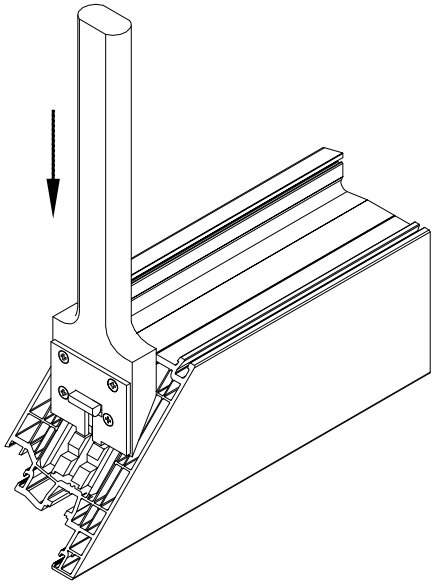
## Weldable corner connector number 217 060

for casement 171 040 and 371 040

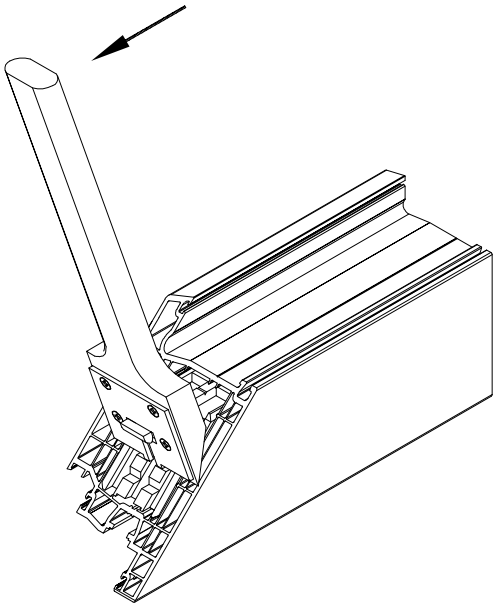
1 Insert the corner cleatting set



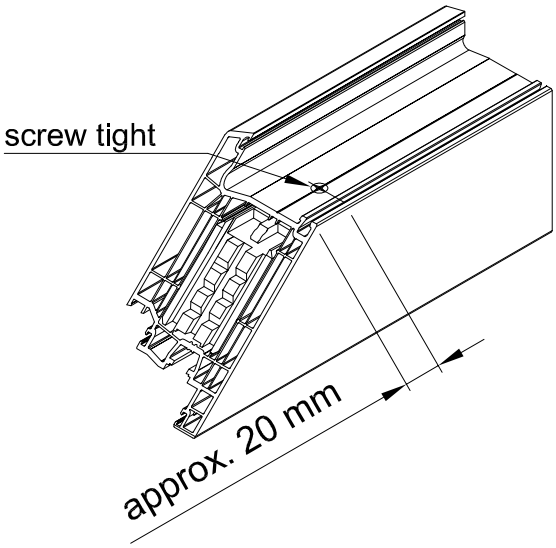
2 Fit the clamping lever in place



3 Tighten the tensioning tongue until it breaks off at the rated break point

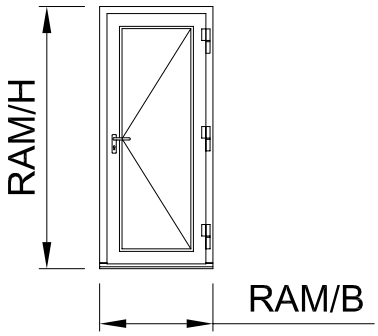


4 Weld as usual



## Deductible dimensions

- Frame height = RAM/H - 22 mm
- Threshold width = RAM/B - 20 mm




## Components required

see page 30.3 - 30.5 and 30.7 - 30.9

## Tools

- Twist drills: HSS ∅ 5 mm and HSS ∅ 6.5 mm

## Gaskets

- For entrance / side entrance doors use insert-type gasket 474 025 (EPDM) for greater quality requirements in the frame leaves and post.

## Procedures, threshold

Threshold coupler 478 520 (478 530) for frame

- Cut the threshold to length and loosen the cover from the threshold
- Use drilling template 478 420 for 478 520 (478 430 for 478 530*) to drill the required bore holes
- Set the threshold coupler on the threshold, seal
- Screw the coupler to the side of the threshold
- Cut the polyamide coupler to length, insert flush in the frame/post and screw in place
- Screw the threshold to the frame
- Cut the threshold cover to the clear dimension and clip into the threshold (for easier assembly on site, the threshold covers can be included loose. Secure with adhesive tape or similar for transport.)
- Seal between wind blocker 474 954 and frame
- Screw the wind blocker to the frame

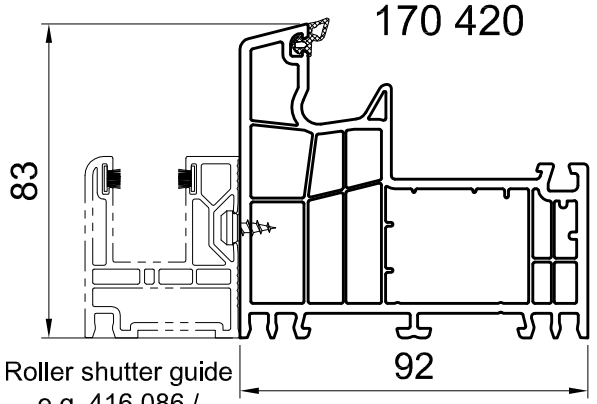
Threshold coupler 478 525 for posts

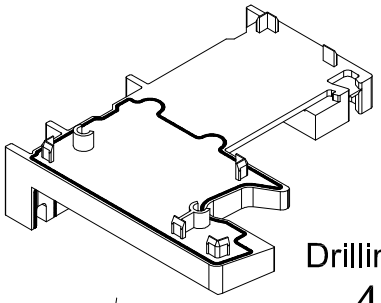
- Use drilling template 478 425 for 172 420 and 172 421 to drill the required bore hole
- Set the threshold coupler on the threshold, seal
- Cut the polyamide coupler to length, insert flush in the frame/post and screw in place
- Screw the threshold to the post
- Cut the threshold cover to the clear dimension and clip into the threshold (for a 2-leaf side-hung/tilt-and-turn door shorten the threshold cover by the width of the threshold strike plates used. Secure with adhesive tape or similar for transport.)
- Seal between wind blocker 474 954 and post
- Screw the wind blocker to the post

## Door-threshold with frame

Frame:
170 420

Threshold connector:
478 520

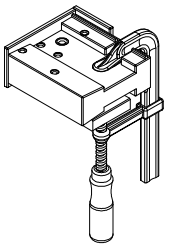


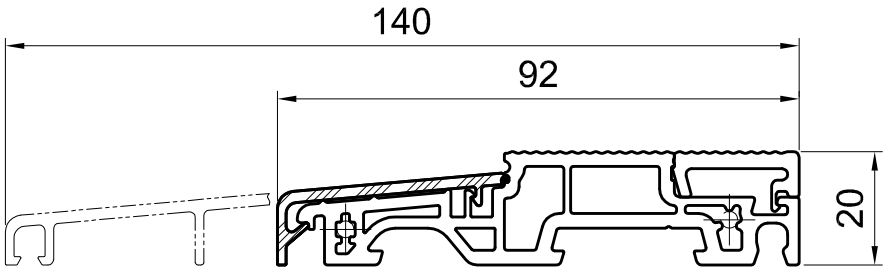



Roller shutter guide
e.g. 416 086 /
417 081
(seal)

For balcony-side entrance- and entrance door

Drilling template:
478 420

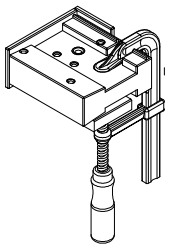





Threshold:
476 340

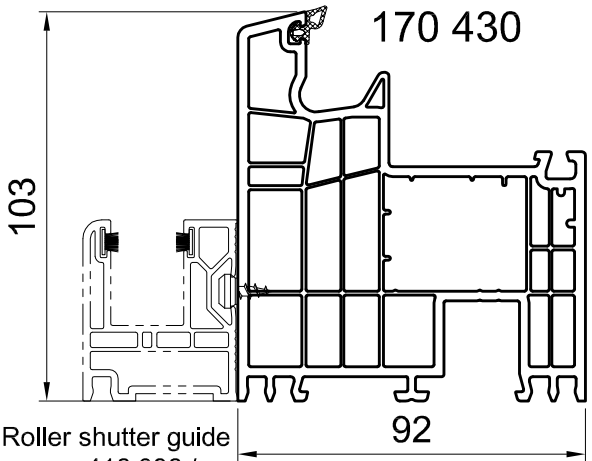
Threshold:
476 325

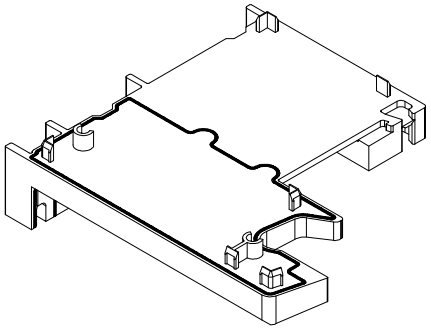
Drilling template:
478 430



Frame:
170 430

Threshold connector:
478 530



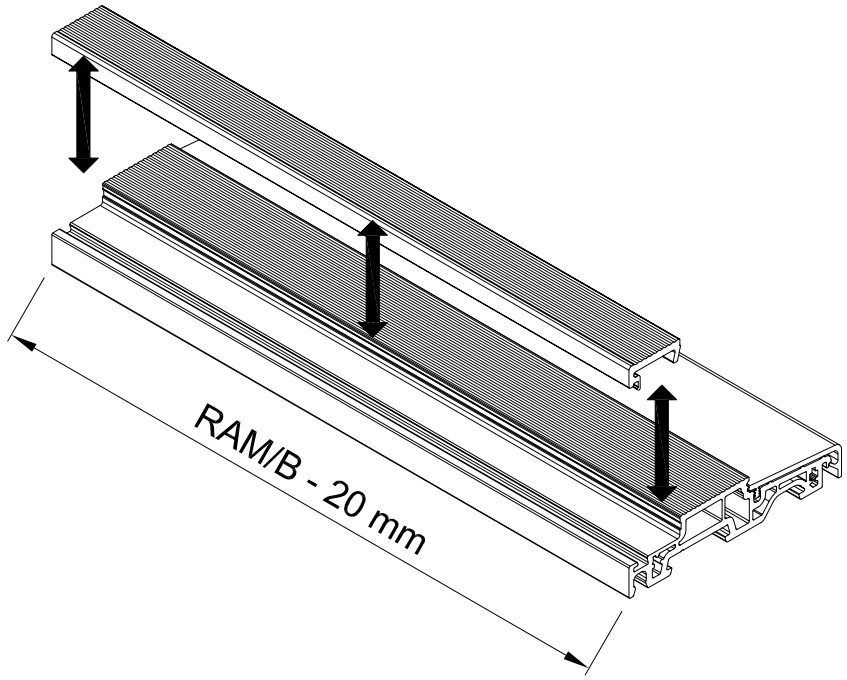
Roller shutter guide
e.g. 416 086 /
417 081
(seal)

For entrance door

Not to scale

**Door threshold with frame**

1.

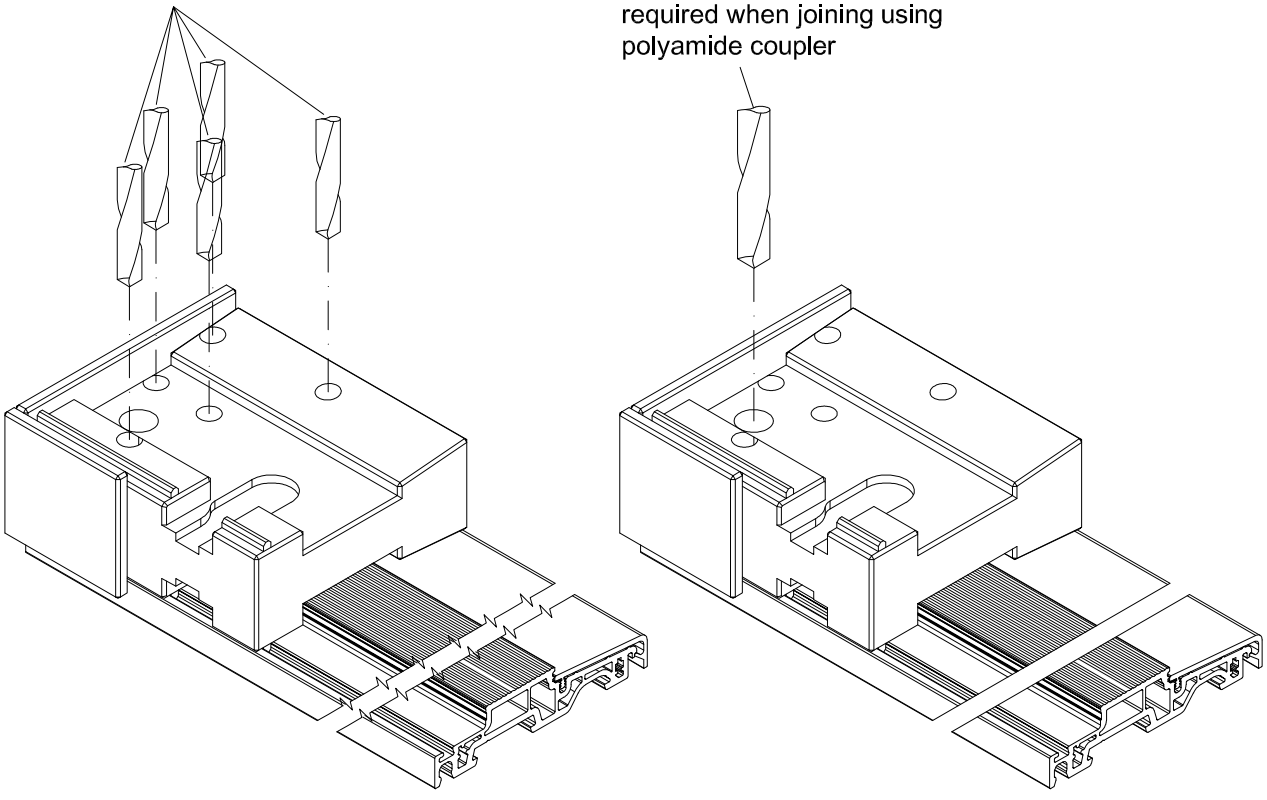



Cut the threshold to the necessary length (RAM - 20 mm) and loosen the cover from the threshold.

2.

Drill ∅ 5 mm

Drill ∅ 6.5 mm
required when joining using
polyamide coupler



Drill the required bore holes using the drilling template.



Not to scale



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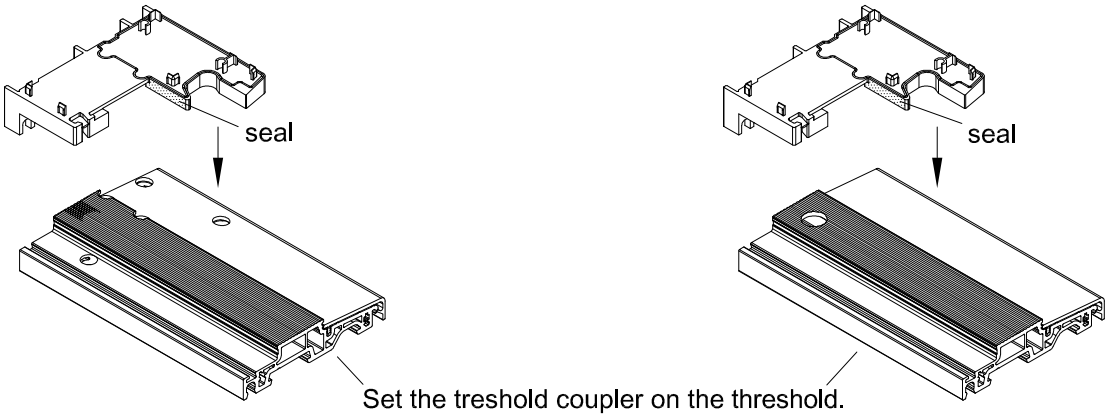
WINDOW & DOOR SYSTEMS

**Door-threshold with frame**

## 3.

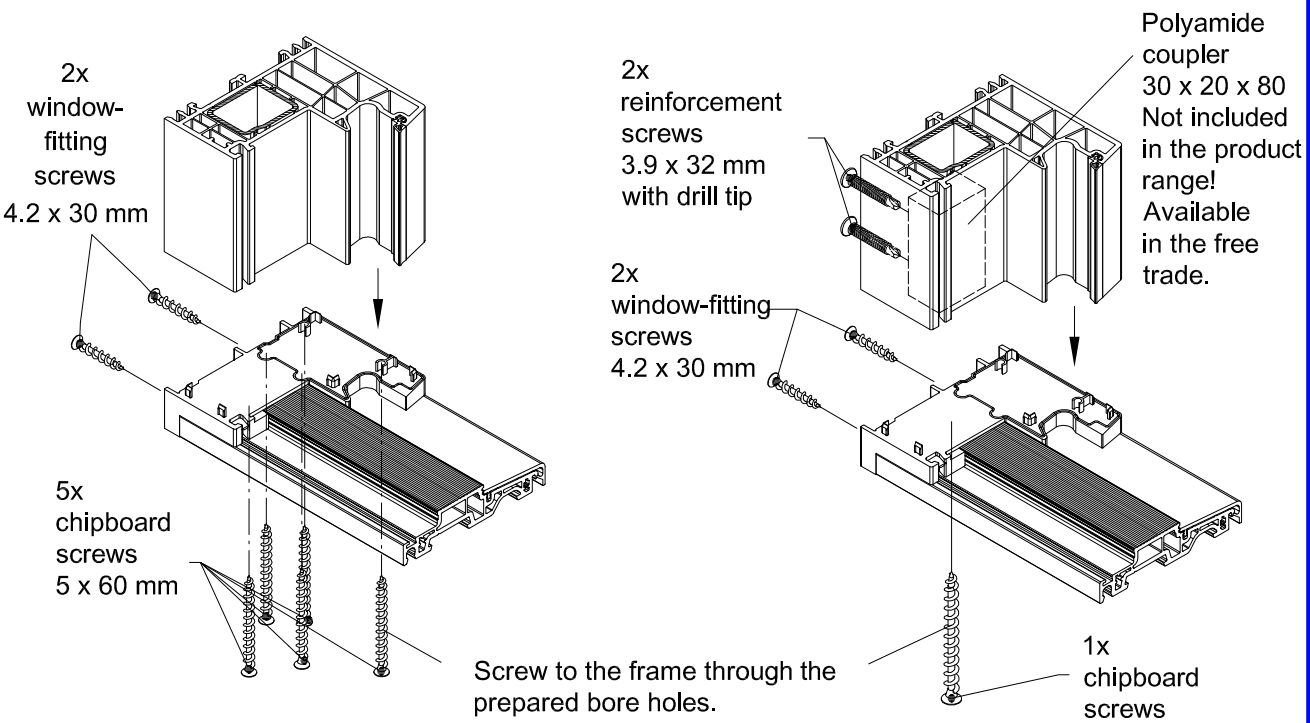
Without polyamide coupler

With polyamide coupler



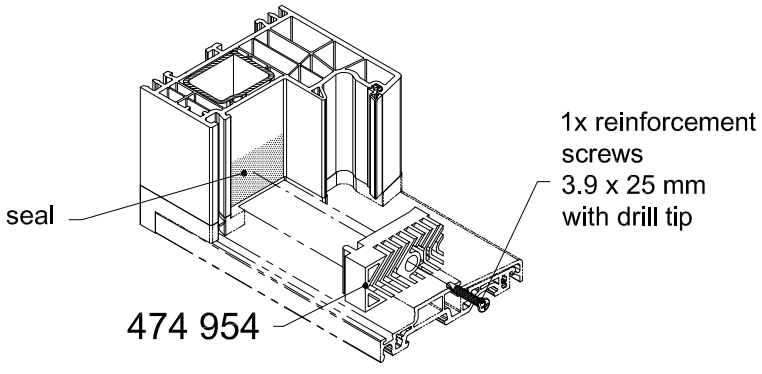

Set the treshold coupler on the threshold.

## 4.




Screw to the frame through the prepared bore holes.

Set the frame on the threshold and screw in place.

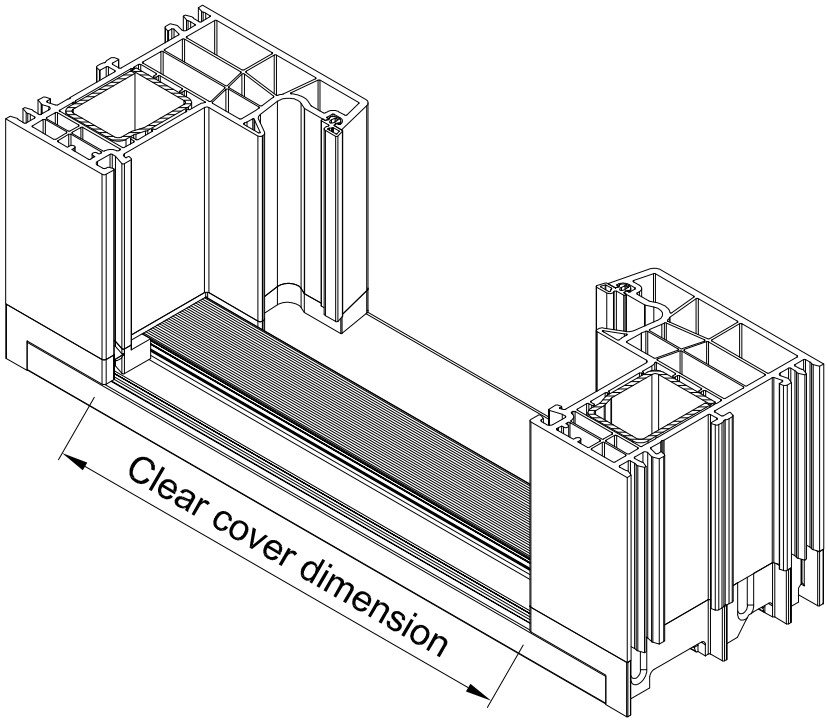



Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Not to scale

**Door-threshold with frame**

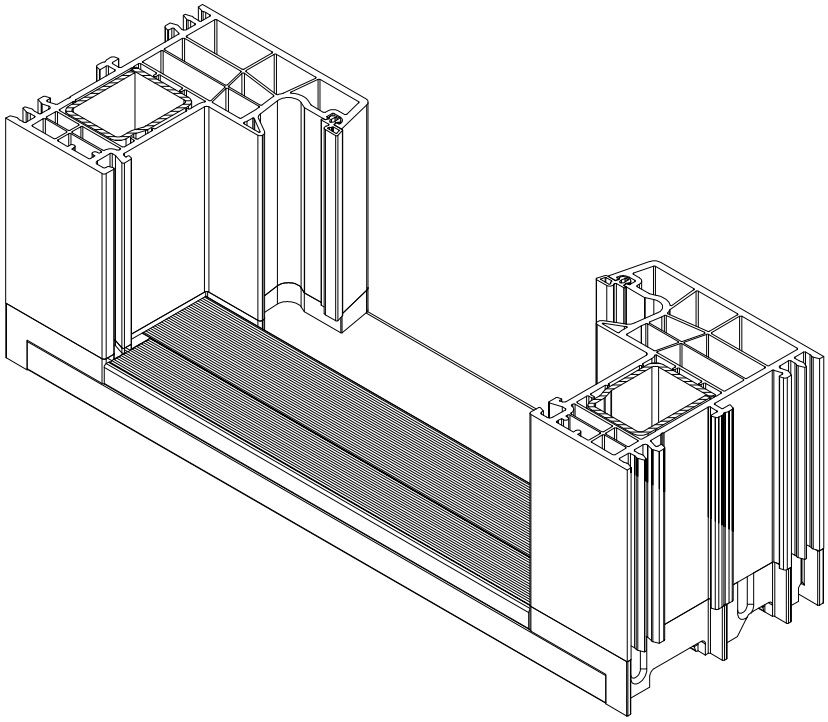
5.



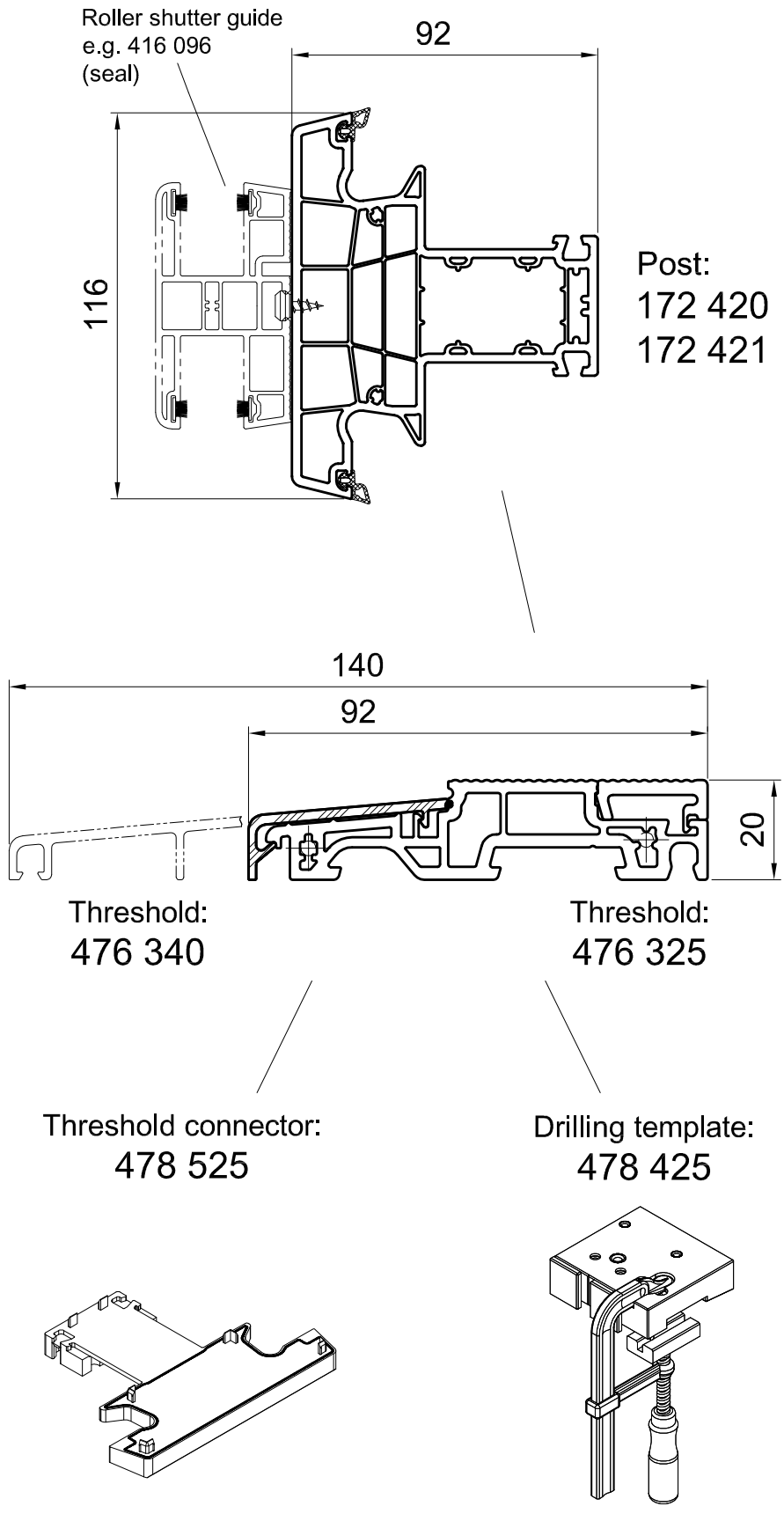

Cut the cover to the clear dimension between the frame linings.
For 2-leaf side-hung/tilt-and-turn doors, shorten by the width of the strike plates used.

6.

Insert the cover into the threshold.

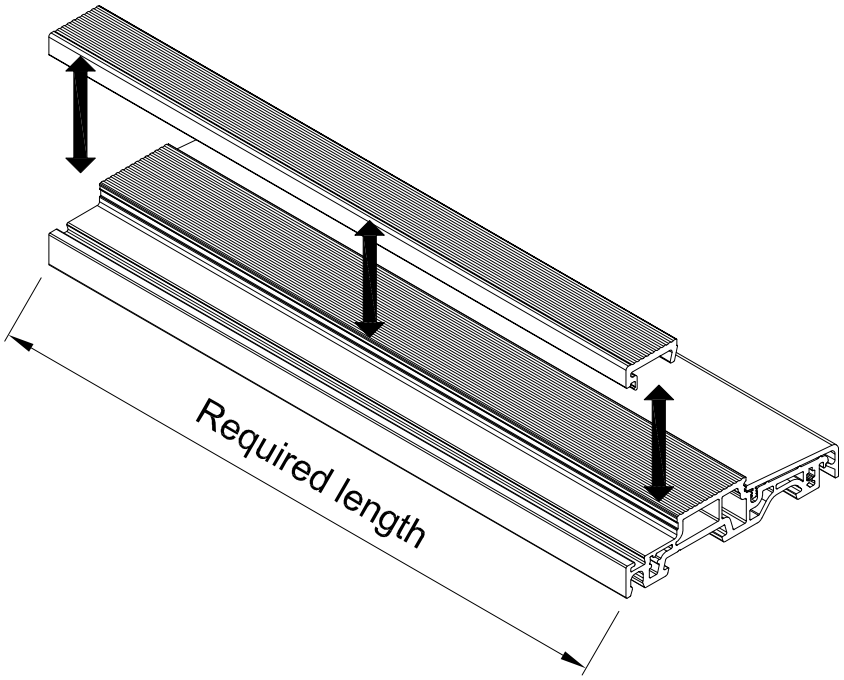


**Door-threshold with post**



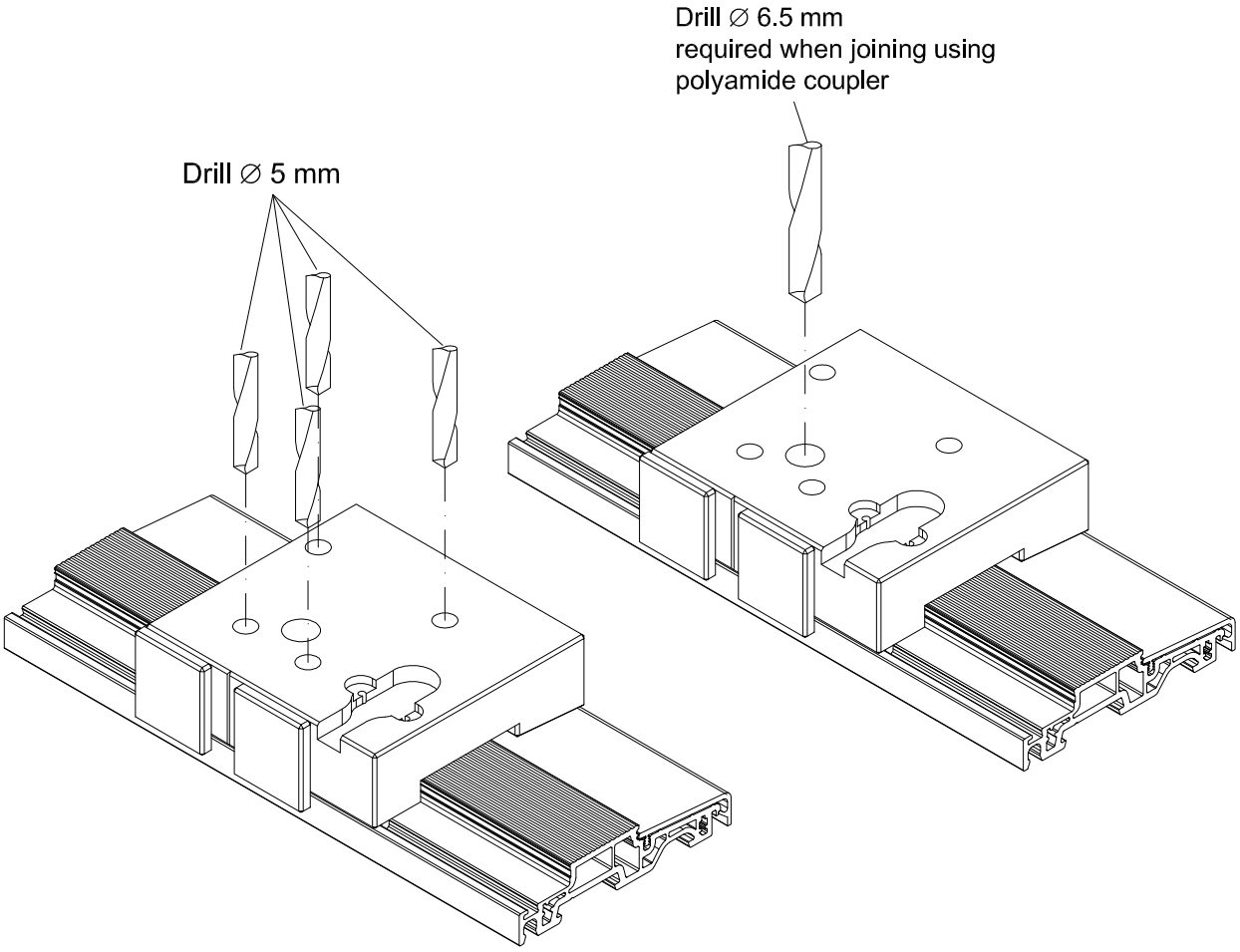
**Door-threshold with post**

1.




Cut the threshold to the required length and loosen the cover from the threshold.

2.




Drill the required bore holes using the drilling template.

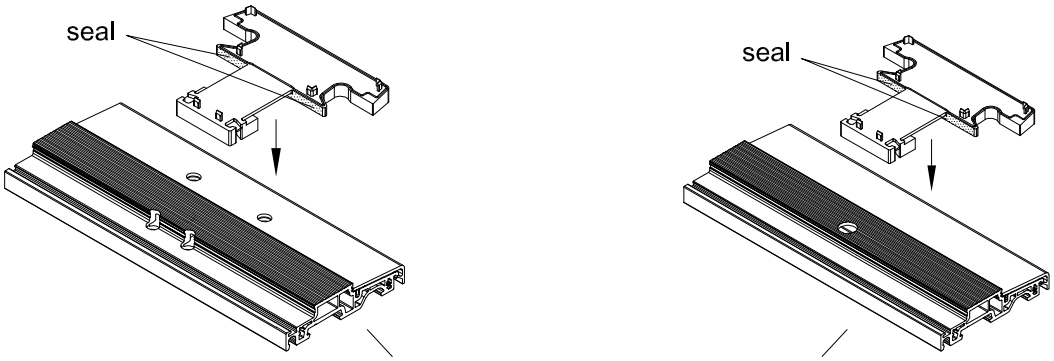
Not to scale

**Door-threshold with post**

## 3.

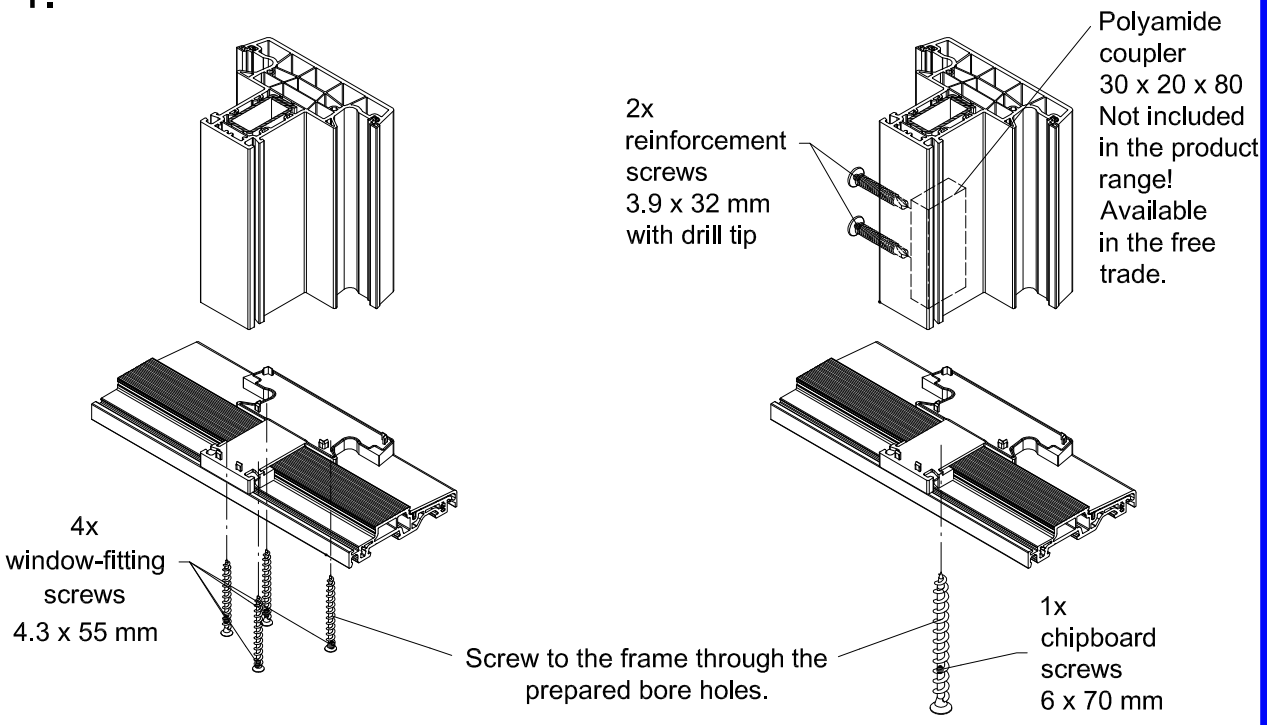
Without polyamide coupler

With polyamide coupler

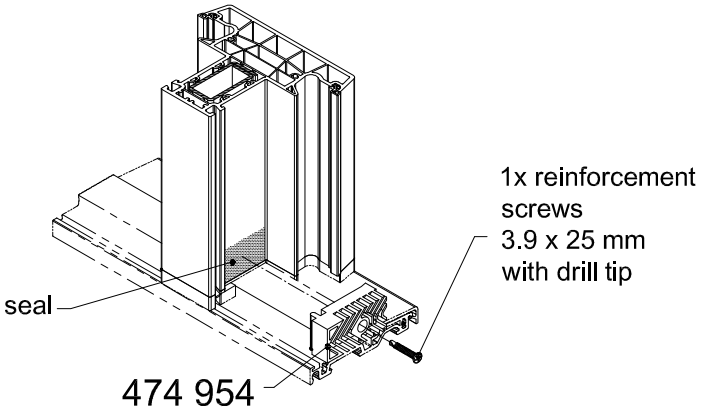



Set the treshold coupler on the threshold.

## 4.




Set the frame on the threshold and screw in place.

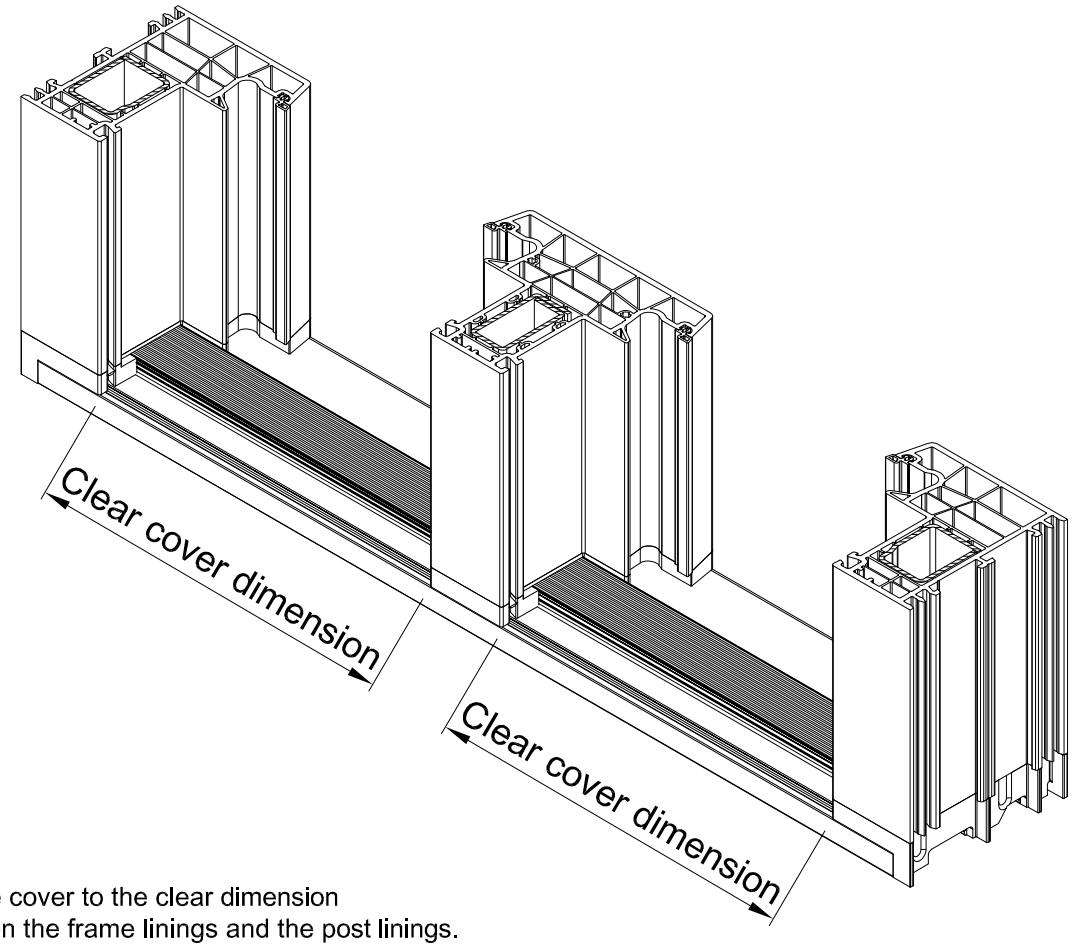



Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Not to scale

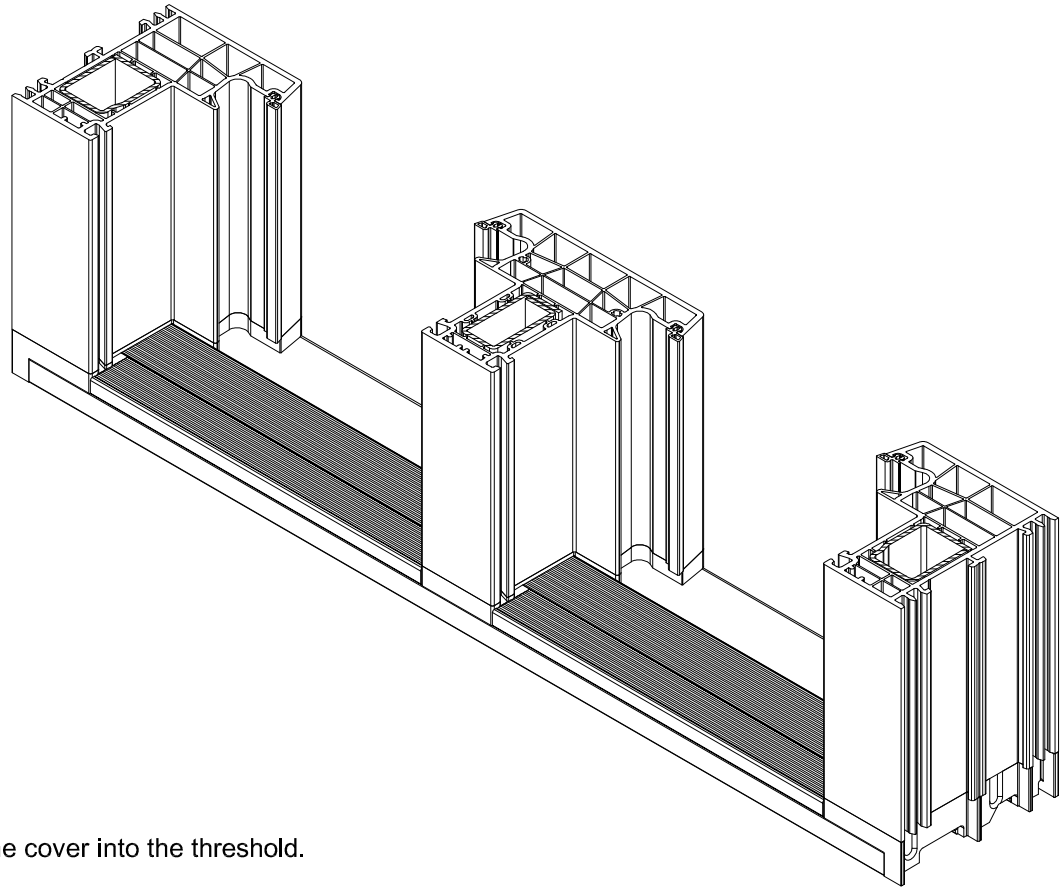
**Door-threshold with post**

5.




Cut the cover to the clear dimension
between the frame linings and the post linings.
For 2-leaf side-hung/tilt-and-turn doors, shorten by the width of the strike pöates used.

6.



Insert the cover into the threshold.



Not to scale



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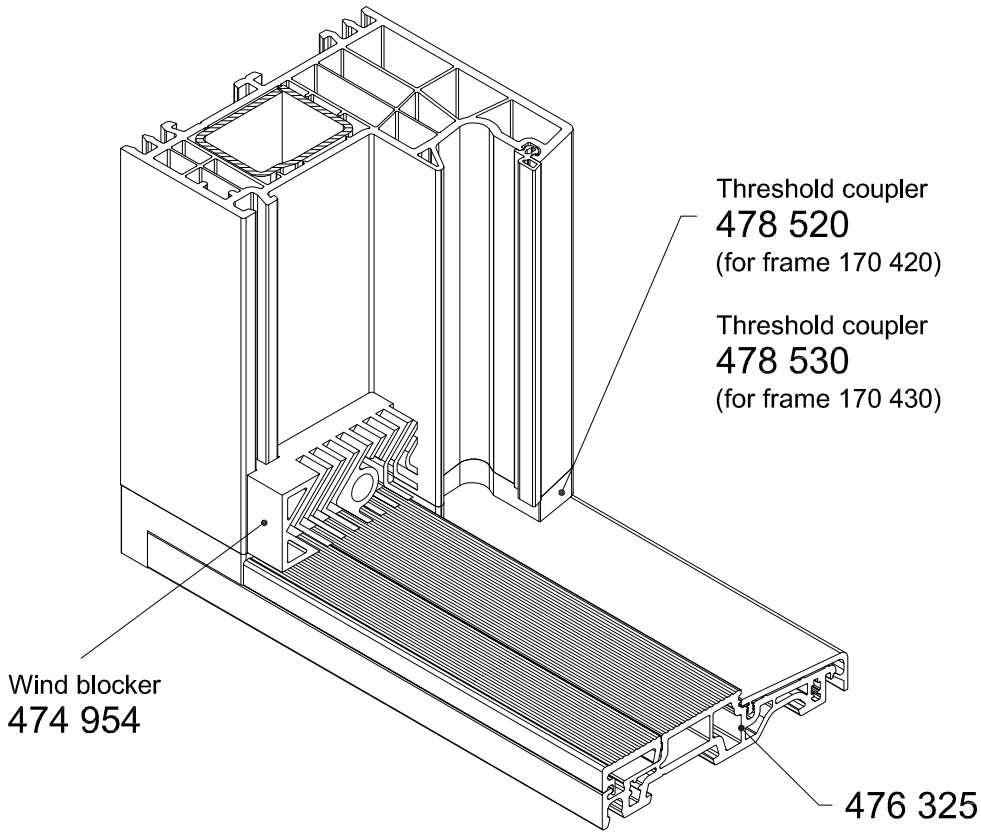
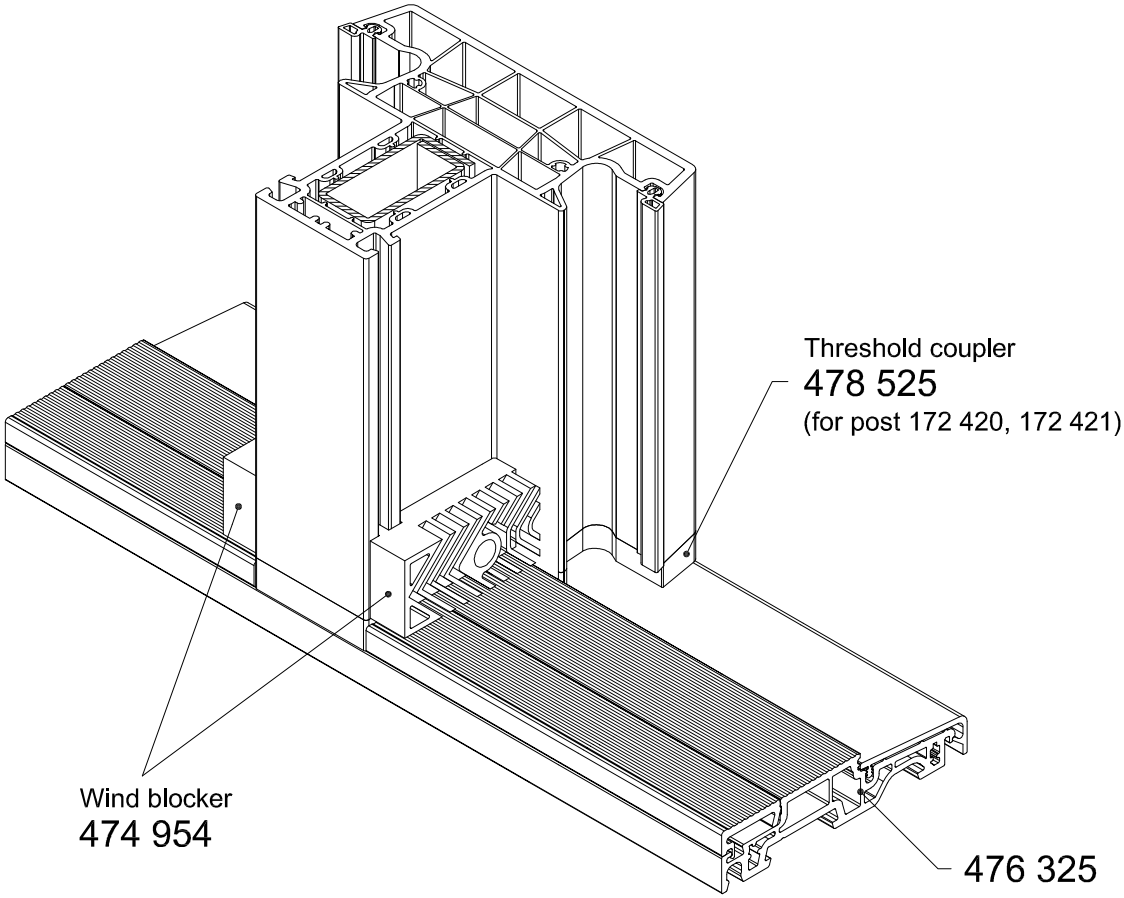
| Threshold | Threshold coupler | Wind blocker | bE92 07 |
|---|---|---|---|
| **476 325** | **478 520, 478 530, 478 525** | **414 954** | **23.11** |

7.




8.




Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

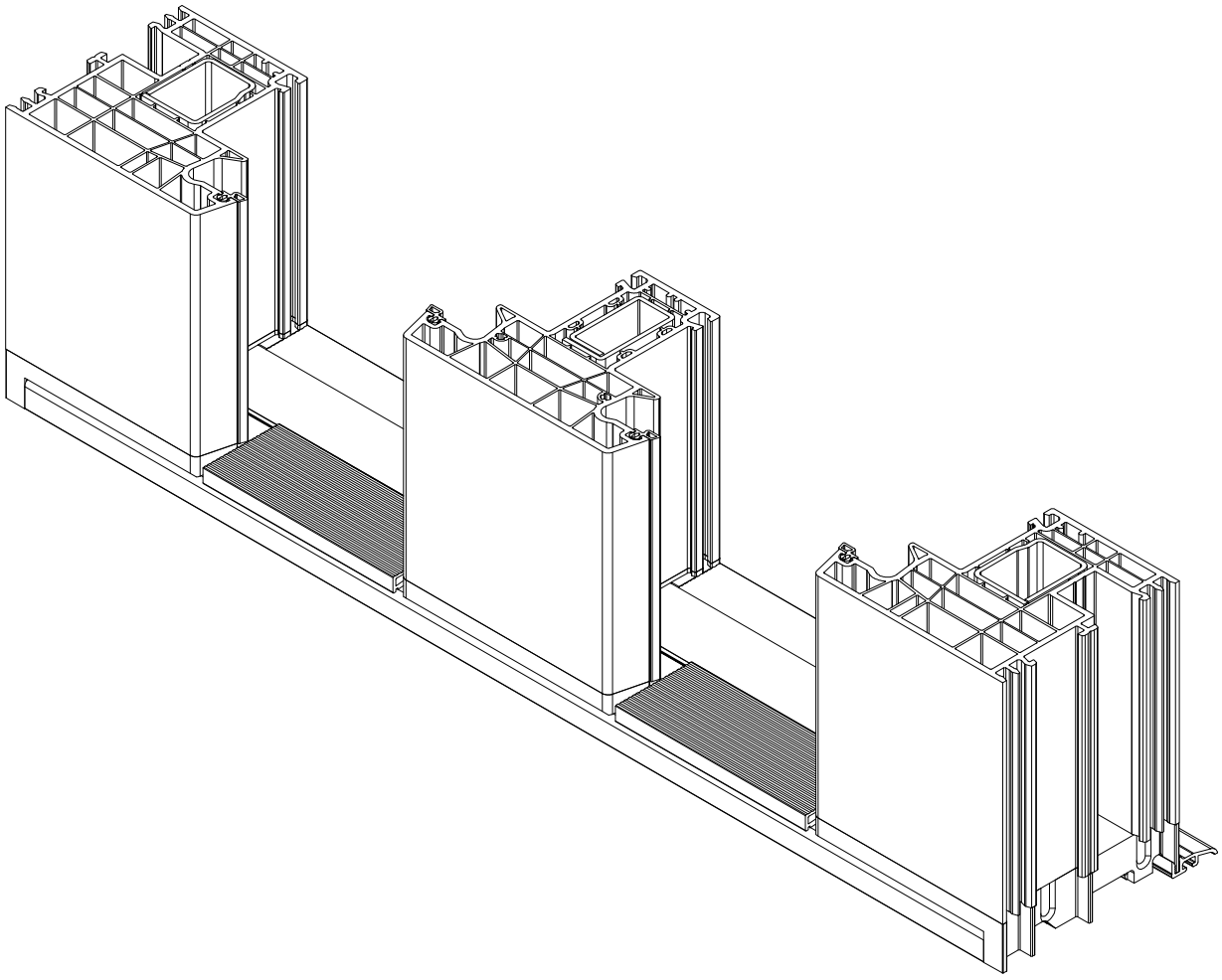
Not to scale

## Door threshold opening to the outside

In addition to the processing described previously, the following steps must be taken:
- Fit a weatherboard on the exterior above the leaf.
  Pre-cut part: RAM/B-90 mm
- Fit adapter profile 216 321 to threshold.
  Pre-cut part width: RAM/B

If necessary:
- Use adapter profile 476 626
  Pre-cut part = clear dimension between the frame or frame/post overlap

Clean the adhesive surface of the threshold using cleaning agent 407 850 (407 895 with decor).
- Pull the protective film off the adhesive tape
- Glue the adapter profile in place (as shown in Chapter bE92 04, Page 15.3)



## Barrier-free threshold

The following accessories make it easier for older people, people who have difficulties walking or use a wheelchair to pass through the French doors.

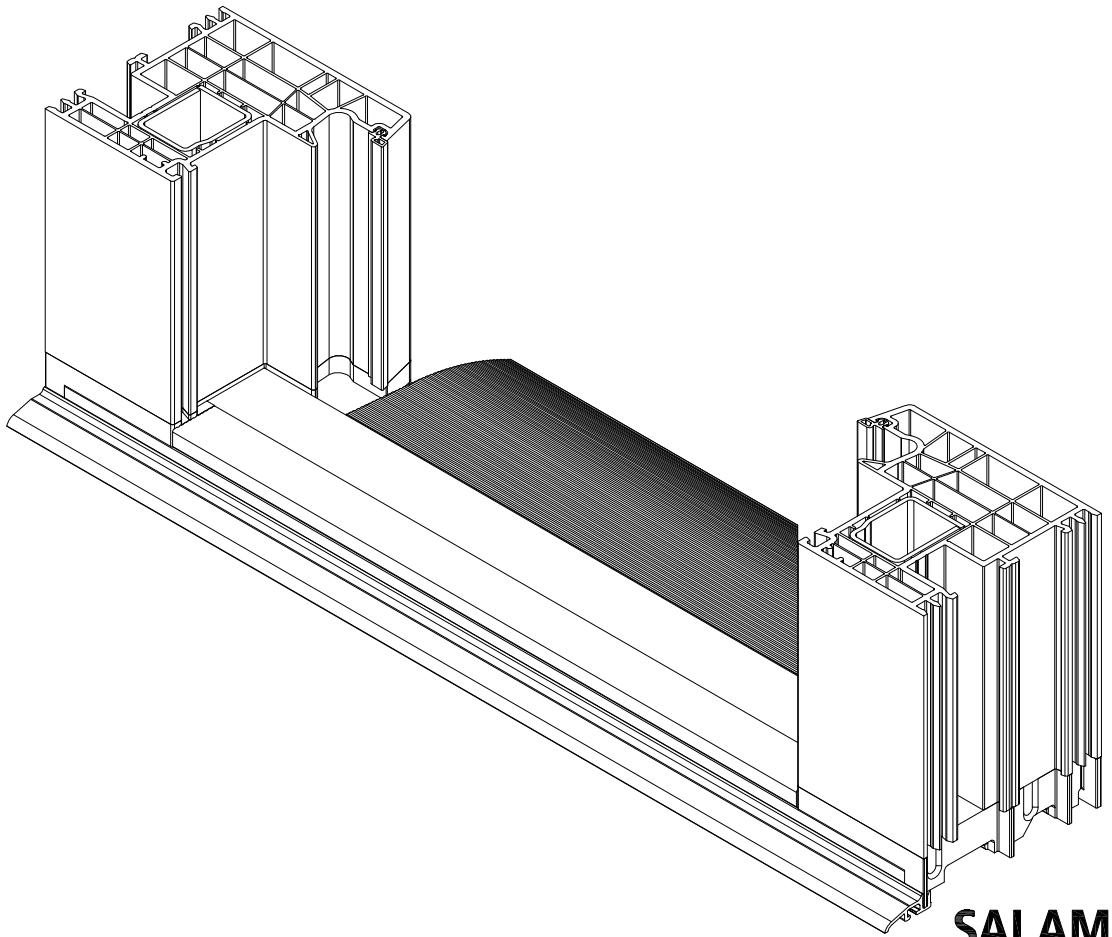
During measuring up and installation, care must be taken that the dimension upper edge threshold to upper edge finished flooring is between min. 15 mm and max. 20 mm.

Clarify the use of high-pile carpets in particular, and take this into account.

In addition to the processing described previously, the following steps must be taken:

- Cut adapter profile 476 627
  Pre-cutting dimensions = Clear dimension between the frame/post overlaps
  Fit the adapter profile when installing the elements.
- Clean the adhesive surface of the threshold using cleaning agent 407 850 (407 895 with decor)
- Pull the protective film off the adhesive tape
- Insert the adapter profile into the front groove of the threshold and glue in place
- Line the adapter profile on site if necessary
- Seal the adapter profile at the sides using neutrally bonding sealant
- Fit adapter profile 216 321 if necessary
  Pre-cutting dimension = RAM/B

Outside, provision must be made on site for drainage through a sufficiently dimensioned drainage channel with drain under the adapter profile 476 627 and protected installation e.g. with porch.



Not to scale

## 1-leaf + 2-leaf side-hung/tilt-and-turn door

Deductible dimensions facing, 2-leaf tilt-and-turn door
Leaf height = FAM/H - 114 mm

Deductible dimensions weatherboard side-hung/tilt-and-turn door
Leaf width = FAM/B - 110 mm

Deductible dimensions weatherboard 2-leaf side-hung/tilt-and-turn door
Leaf width side-hung leaf (with facing) = FAM/B - 90 mm
Leaf width tilt-and-turn leaf (without facing) = FAM/B - 110 mm

## Procedure for facing

- Select the cap for left or right type facing from the end cap set 477 020
- Cut the facing profile to size and fit according to bE92 07 page 19.3
- Fit the top facing cap according to bE92 07 page 19.1
- Bottom facing cap:
    - Remove the front part of the cap and replace by facing cap set 477 020
    - Make sure that the sealing part (474 940) and the rebate gasket are inserted in the front cap.
    - Fit the bottom facing cap according to bE92 07 page 23.20 and screw in place.
- Fit facing

## Procedure for weatherboard 1-leaf side-hung/tilt-and-turn door

- Cut the weatherboard to the required length
- Loosely fit the end cap in place
- Measure up and cut brush seals and gasket strips (for weatherboard and end cap) to size
- Fit one end cap (on the handle side), screw in place and seal
- Clean leaf profile using cleaning agent 407 850 (407 895 for decor) and pull the protective film off the adhesive tape
- Align the weatherboard on the handle side, glue to the leaf and screw in place
- Insert gasket strip(s) and fix in place using adhesive
- Insert brush seal(s) and fix in place using adhesive
- Insert second end cap in gaskets and weatherboard, screw in place and seal
- Fit leaf

**Door threshold**

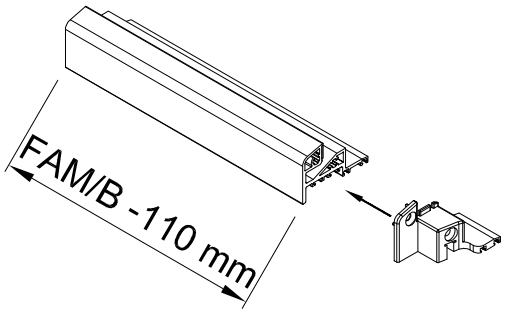
## Procedure for weatherboard 2-leaf side-hung/tilt-and-turn door

- Cut the weatherboard to the required lengths
- Loosely fit end caps for turn-and-tilt leaf
- Loosely fit end cap for side-hung leaf
- Measure up and cut brush seals and gasket strips (for weatherboard, facing cap and end cap) to size
- Fit outer end cap, screw in place and seal
- Clean leaf profile using cleaning agent 407 850 (407 895 for decor) and pull the protective film off the adhesive tape
- Align the weatherboard on the facing side, glue to the leaf and screw in place and seal
- Insert gasket strip(s) and fix in place using adhesive
- Insert brush seal(s) and fix in place using adhesive
- Insert second end cap in gaskets and weatherboard, screw in place and seal
- Fit leaf

**Door threshold**

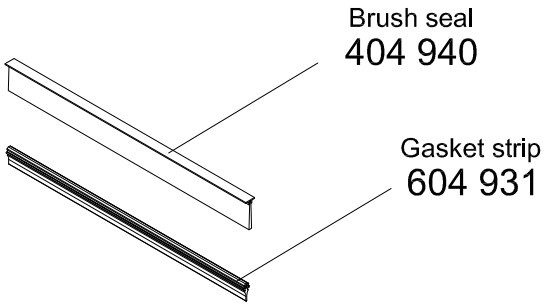
Weatherboard 1-leaf side-hung/tilt-and-turn door + tilt-and-turn casement
(For 2-leaf side-hung/tilt-and-turn door)

1.



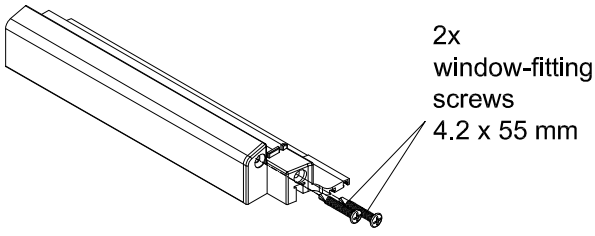

Cut the weatherboard to the required length and loosely fit end caps.

2.




Measure up and cut brush seals and gasket strips (for weatherboard and end cap) to size.

3.

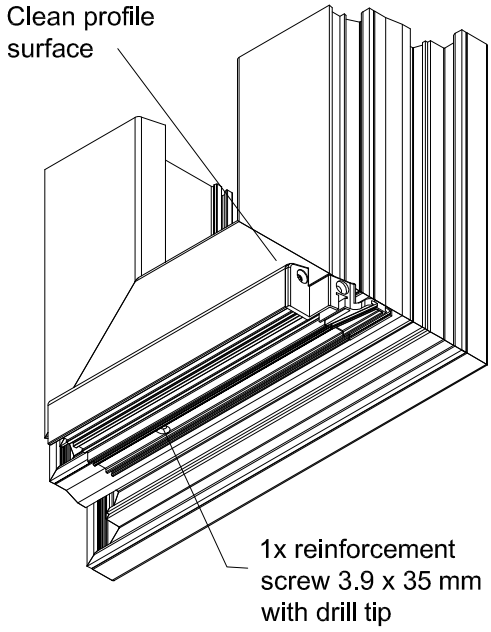


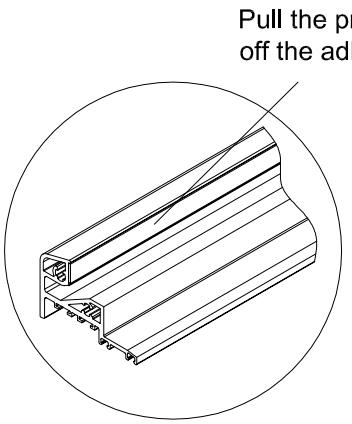

Fit one end cap (on the handle side), screw in place and seal.

Seal with permanently elastic, neutrally bonding sealant,
suitable for PVC and galvanized steel.

Not to scale

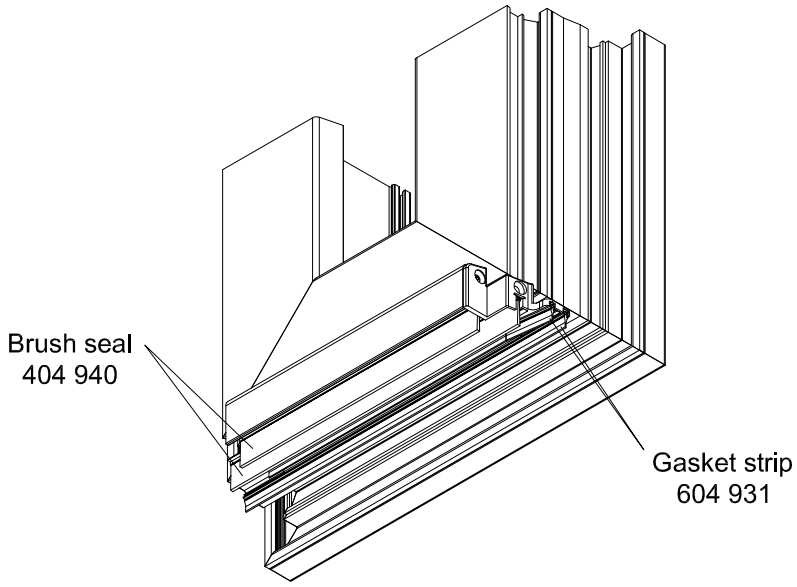
# 4.



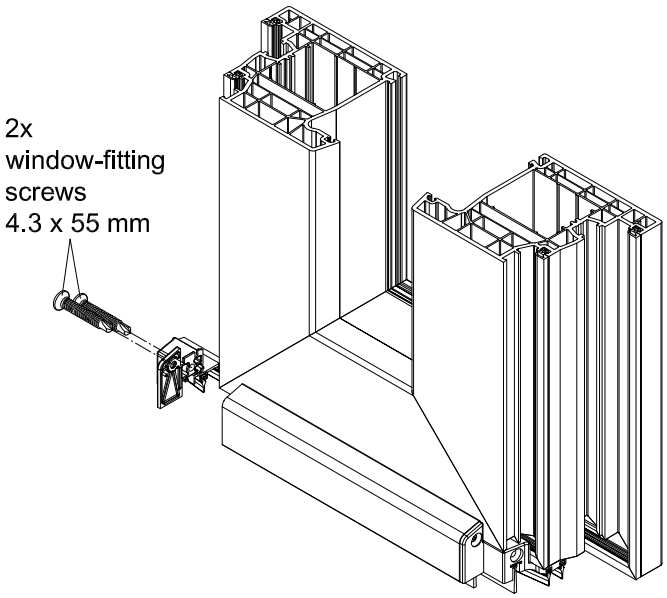

Align the weatherboard on the handle side, glue to the leaf and screw in place every 200 mm/starting at 100 mm.

# 5.




Insert brush seals 404 940 and gasket strips 604 931 and fix in place using adhesive 407 710.

6.




Insert second end cap in gasket and weatherboard, screw in place and seal.

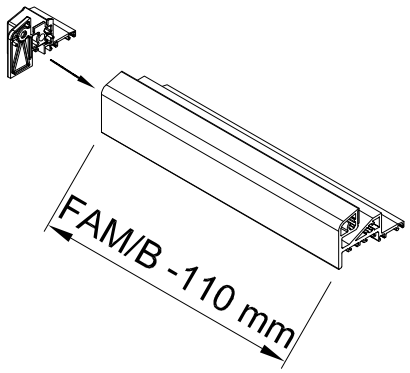
7.

Fit leaf.

**Door threshold**

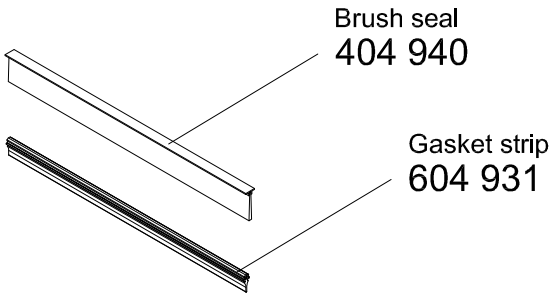
## Weatherboard for side-hung leaf on 2-leaf side-hung/tilt-and-turn door

1.



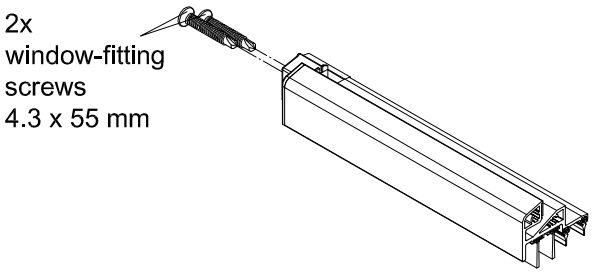

Cut the weatherboard to the required length and loosely fit the outer end caps.
Loosely fit end cap for side-hung leaf.

2.




Measure up and cut brush seals and gasket strips (for weatherboard, facing cap and end cap) to size.

3.



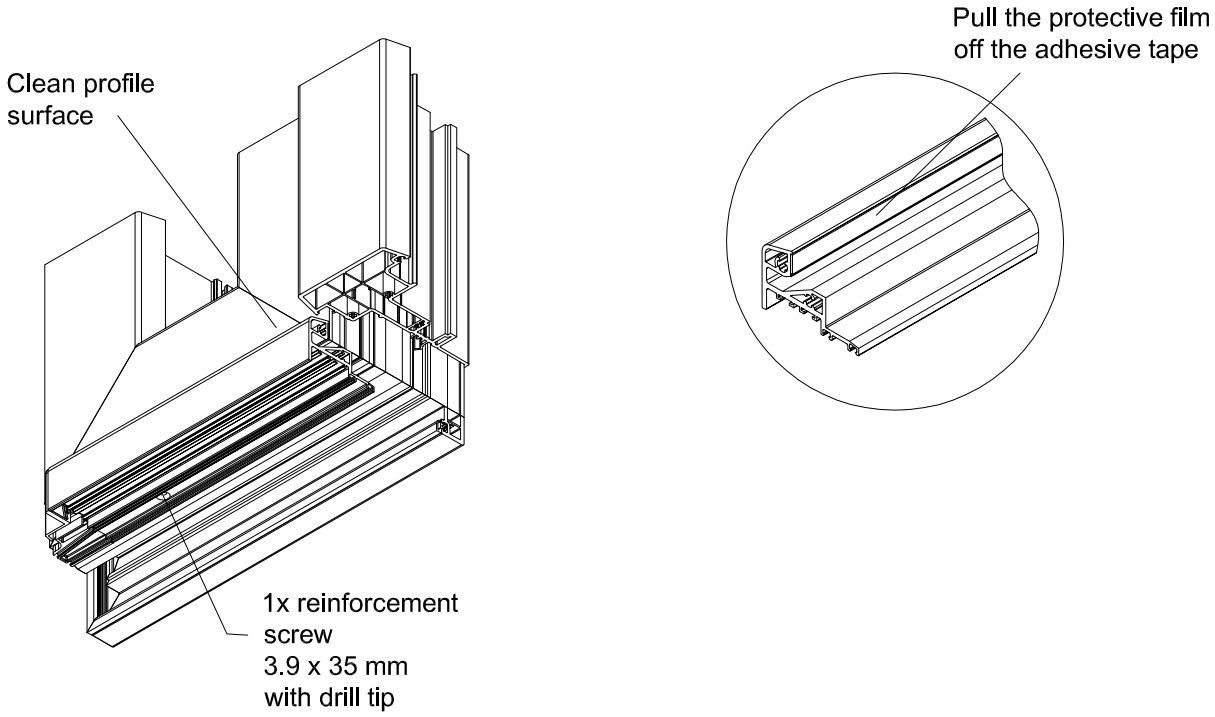

Insert brush seals 404 940 and gasket strips 604 931 and fix in place using adhesive 407 710. Fit outer end cap, screw in place and seal.

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Not to scale

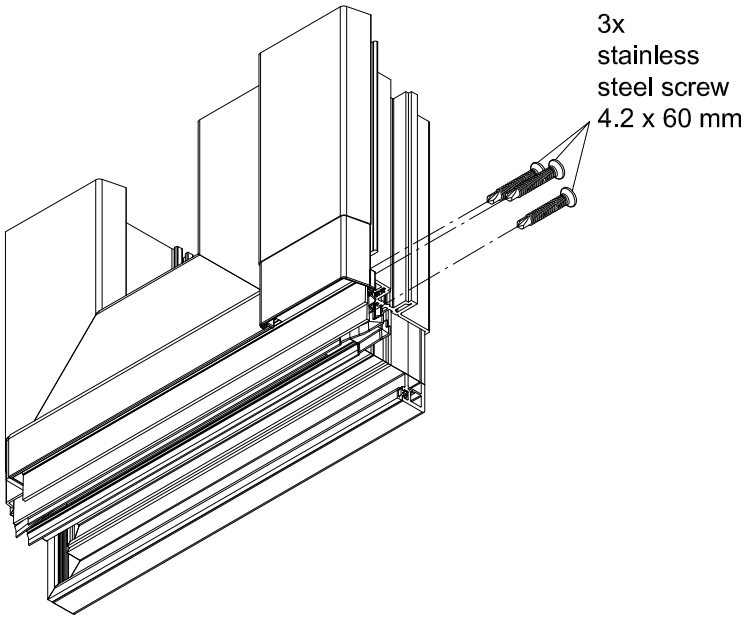
**Door threshold**

4.




Align the weatherboard on the facing, glue to the leaf and screw in place every 200 mm/starting at 100 mm and seal.

5.




Glue facing end cap in place using silicone (in order to be able to remove the end cap again if necessary), fit the facing end cap onto the facing using 3 stainless steel screws 4.2 x 60 mm each.

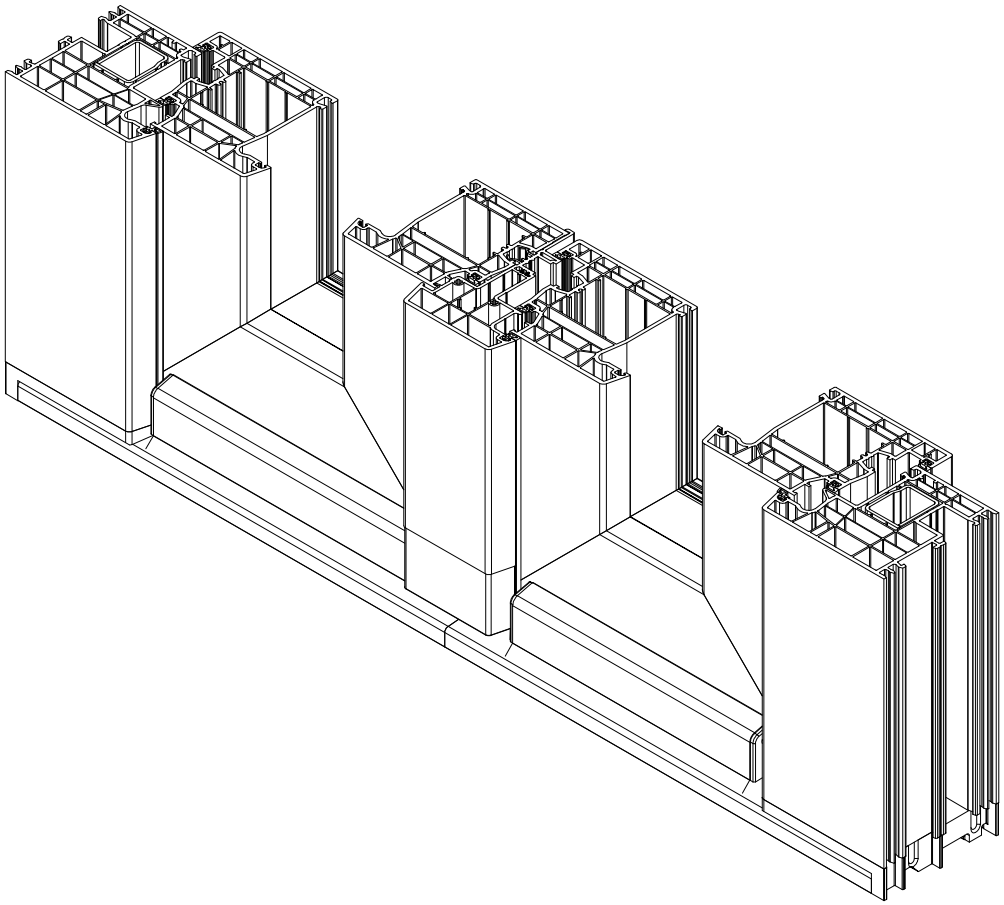
Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Not to scale

6.

Insert sealing block in groove and fix in place.

7.



Fit leaf.

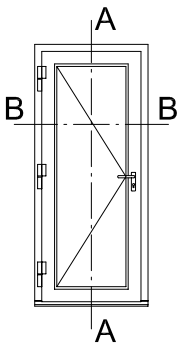
# Deductible dimension

Frame

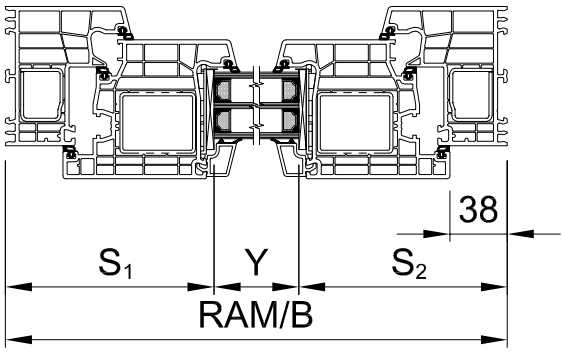
**170 420 / 170 430**

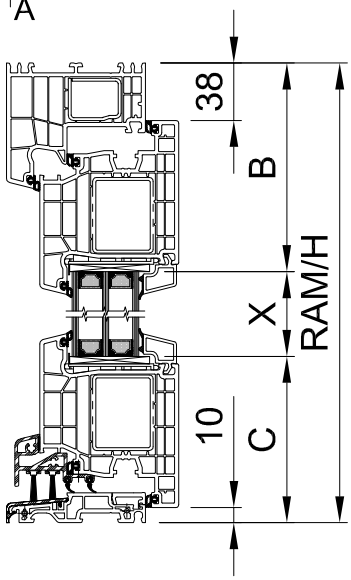
bE92 07

**24.1**




**170 420**

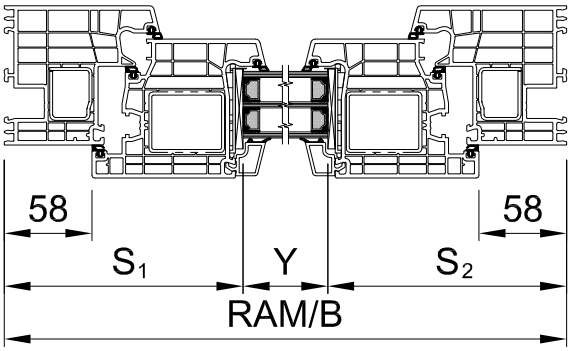


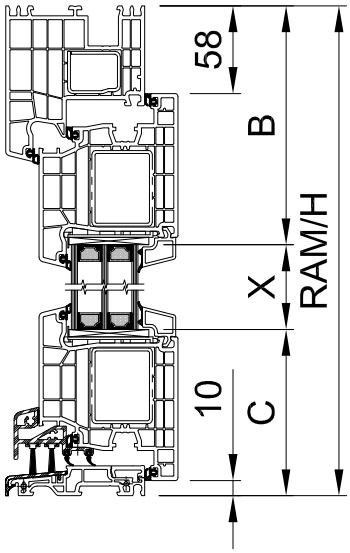




| casement | height "C+B" | width "$S_1$+$S_2$" |
|---|---|---|
| 171 020 | 75+103= _____ | 103+103 = _____ |
| 171 226 | 75+103= _____ | 103+103 = _____ |
| 171 030 | 110+149= _____ | 149+149 = _____ |

height X = RAM/H - "C+B"
width Y = RAM/B - "$S_1$+$S_2$"

**170 430**




| casement | height "C+B" | width "$S_1$+$S_2$" |
|---|---|---|
| 171 020 | 75+123= _____ | 123+123 = _____ |
| 171 226 | 75+123= _____ | 123+123 = _____ |
| 171 030 | 110+158= _____ | 158+158 = _____ |
| 171 040 | 121+169= _____ | 169+169 = _____ |
| 371 040 | 123+169= _____ | 169+169 = _____ |

height X = RAM/H - "C+B"
width Y = RAM/B - "$S_1$+$S_2$"

Not to scale



SALAMANDER WINDOW & DOOR SYSTEMS

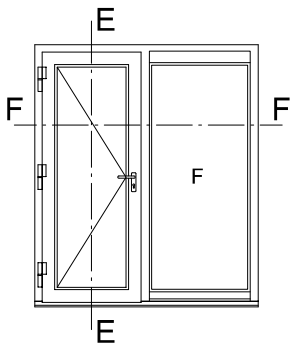
# Deductible dimension

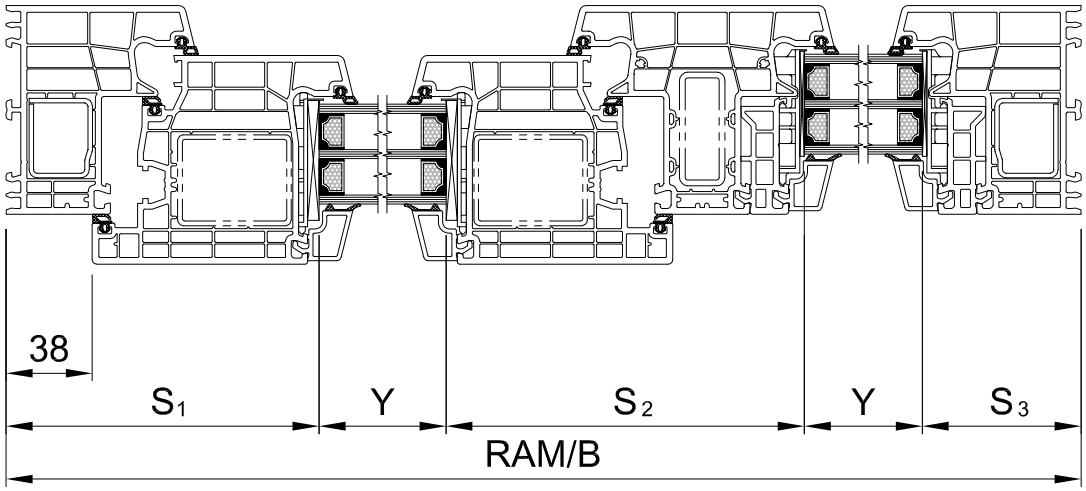
Frame

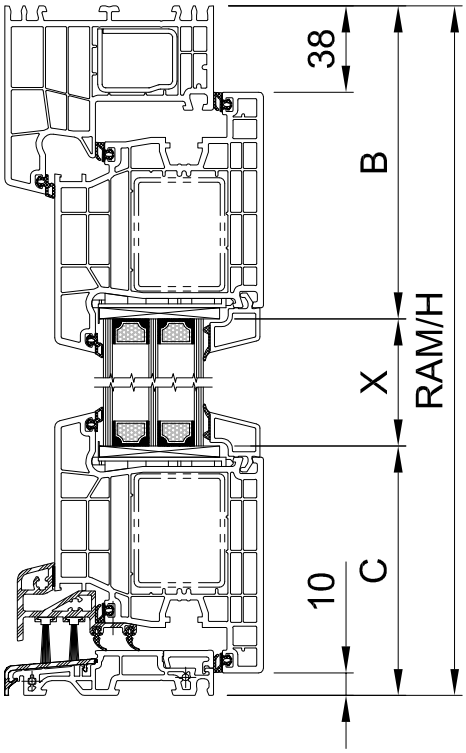
**170 420**

bE92 07

**24.2**




| casement | height "C+B" | width "$S_1$+$S_2$+$S_3$" |
|---|---|---|
| 171 020 | 75+103= _____ | 103+103+70 = _____ |
| 171 226 | 75+103= _____ | 103+103+70 = _____ |
| 171 030 | 110+138= _____ | 138+138+70 = _____ |

height X = RAM/H - "C+B"
width Y x 2 = RAM/B - "$S_1$+$S_2$"

Not to scale

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SALAMANDER WINDOW & DOOR SYSTEMS

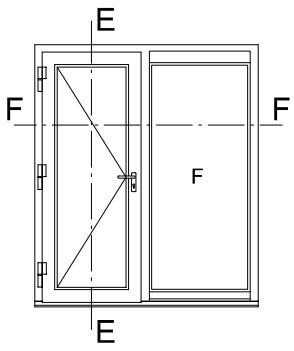
# Deductible dimension

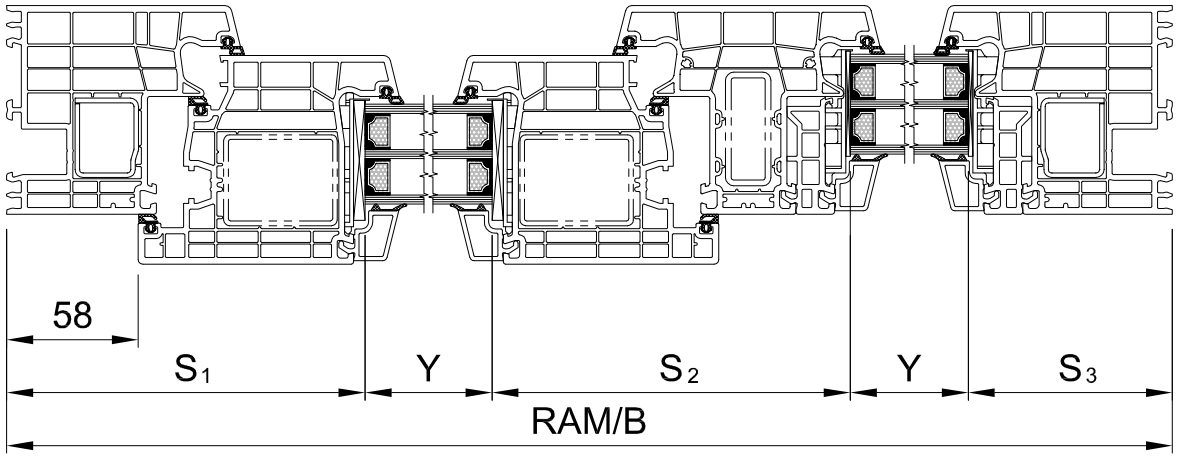
Frame

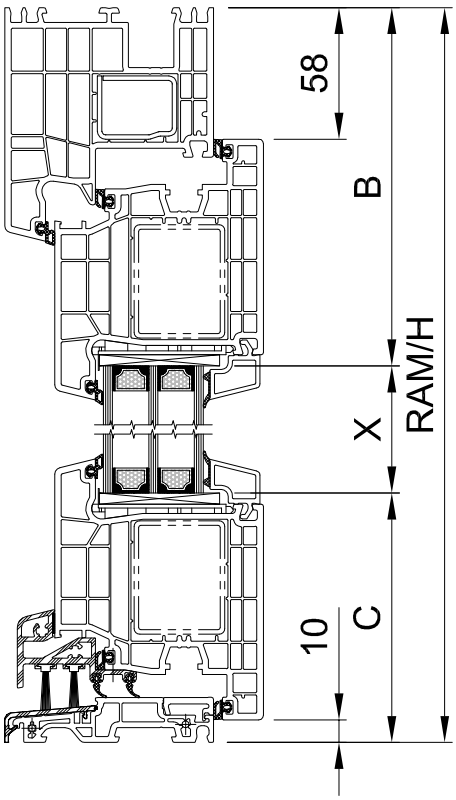
**170 430**

bE92 07

**24.3**




| casement | height "C+B" | width "$S_1+S_2+S_3$" |
|---|---|---|
| 171 020 | 75+123= _____ | 123+123+90 = _____ |
| 171 226 | 75+123= _____ | 123+123+90 = _____ |
| 171 030 | 110+158= _____ | 158+158+90 = _____ |
| 171 040 | 121+169= _____ | 169+169+90 = _____ |
| 371 040 | 121+169= _____ | 169+169+90 = _____ |

height X = RAM/H - "C+B"
width Y x 2 = RAM/B - "$S_1+S_2$"

Not to scale

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| - Fitting | 01.1 - 01.5 |
| └► Basic principles | 01.1 |
| └► Fitting selection | 01.2 |
| └► Capacity of the load-bearing fitting parts | 01.2 |
| └► Screw attachment | 01.2 |
| └► Maximum window size | 01.3 |
| └► Distances between locking mechanisms | 01.3 |
| └► Machining thermally separated steel | 01.3 |
| └► Servicing, care, conservation of value | 01.3 |
| └► Arrangement of locking mechanisms | 01.4 |
| └► TBDK | 01.5 |
| - Tolerances for chamber and overlap dimensions | 02.1 - 02.2 |
| - Plate width | 03.1 - 03.3 |
| - Safety distance between handle and closing edge | 04.1 |

## Basics

Only side-hung, tilt-and-turn, turn-and-tilt fittings that comply with the requirements of EN 13126-8 and EN 1191 and have been certified through a certification programme e.g. by quality assurance for side-hung fittings and turn-and-tilt fittings, RAL-GZ 607/3, QM 328 or similar may be used, or ones that have been approved by the system supplier for use in glued PVC window systems. Quality-approved side-hung fittings and turn-and-tilt fittings which comply with RAL-GZ 607/3 or QM 328 and have been approved by the system supplier may be used and replaced without further suitability testing.

## The following must be specified:

- The permissible casement weights for the fittings

- The distances between the locking mechanisms.

In the case of deviation in attachment from the requirements set out in section III of RAL-GZ 716, separate proof is required and respective measures must be documented in the system description for guaranteed load transmission. Notes on dealing with the TBDK guideline issued by the Gütegemeinschaft Schlösser und Beschläge e.V., Velbert (*Quality association for locks and fittings, Velbert*) (mutually applicable standards and regulations) must be specified according to RAL-GZ 716, section III.

## Fitting selection

In principle, only fittings that have been specially approved for use with PVC window and door systems may be used.
Care must be taken that all the fitting components used are matched to the respective SIP systems.

The fittings must be certified according to RAL 607/3 for turn-and-tilt fittings and QM 328, for example.

The product dokuments e.g. installation drawings "processing guidelines", permissible casement sizes and weights etc. are provided by the respective fittings manufacturer. Drilling templates etc. are a constituent part of the fittings range.

## Capacity of the load-bearing fitting parts

In the case of load-bearing fitting parts, care must be taken that the window loads are not to be absorbed by screws alone. Here, fitting parts must be used that are equipped with additional shear-relief elements (e.g. supporting plates, bearing pins etc.)

The load limits (max. casement weights) specified by the fittings manufacturer must be observed.
More detailed requirements must be clarified with the fittings manufacturer in individual cases and require their approval. Equally, the max. casement sizes permitted by SIP in chapter bE92 05 of our processing guidelines, "Reinforcement guidelines / element sizes" must be heeded.

Hinges and load-bearing fitting parts must be designed in terms of structure and material in such a way that they can bear with the maximum casemebt weights and brief excess loads.

## Screw attachments

The fitting parts must be attached using suitable screws (e.g. window-fitting screws according to DIN EN ISO 7050). The screws used must be sufficiently corrosion-proof.

Screw attachment of load-bearing parts is through two profile walls or through one profile wall with screw ribs. Only corrosion-proof screws may be used for the instalation of fittings.

To guarentee perfect and permanent screw attachment, the individual parameters such as speed, torque and capacity of the tools used (automatic screwdriver, cordless screwdriver) must be matched to one another.

Only screwdrivers with a speed of 800 to 1000 rpm and an adjustable torque setting of 2.5 to 6.5 Nm may be used. There must be no danger of the plastic overheating or the screw overtightening in the PVC.
Drill holes should be around 0.5 mm smaller in metal and 0.8 mm smaller in PVC than the rated diameters of the screw used.

You will find sources of supply for fittings in chapter bE92 11.
The list makes no claim to completenes.

## Maximum window sizes

Maximum window sizes must be heeded, since permanent functional ability can only be guaranteed if this is the case. The specifikations of the fittings manufacturers must be heeded.

## Distances between locking mechanisms

The permissible distance between the locking points is based on the "maximum casement sizes and reinforcement guidelines" or on the specifications made by the fittings manufacturer (see test certificates).

## Machining thermally separated steel

When a thermally separated reinforcement is used, a pocket must be machined for the gear box (with standard mandrel dimensions).

## Servicing, care, conservation of value

Like the windows, fittings are high-quality products.
Since fittings are also subject to wear, they should be serviced regularly. Your fittings supplier will inform you about suitable care and care agents, as well as servicing intervals.

Please also note the instructions in the respective sections of our processing guideline

You will find sources of supply for fittings in chapter bE92 11.
The list makes no claim to completenes.

# Arrangement of locking mechanisms

In order to guarantee the sufficient and permanent airtightness of windows and French doors, care must be taken to ensure the proper arrangement of locking mechanisms. For this, the max. gaps between locking mechanisms specified in the valid test report apply or respectively the prescribed gaps between locking mechanisms prescribed by the fittings manufacturers.

## Replacing fittings in tested systems

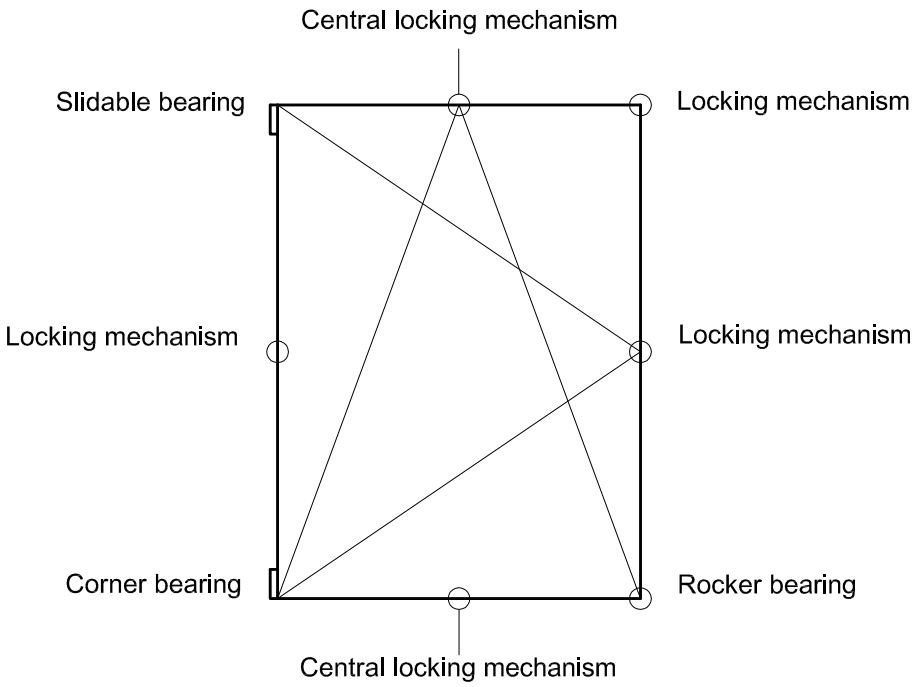
Window manufacturers can benefit from the certification of window fittings in accordance with QM 328. On account of its high quality requirement, the new certificate not only makes a clear statement about the permanent functional ability of the fittings tested. It also represents a decisive simplification of the comparison test when replacing fittings within tested window systems.

In concrete terms, this means: If a window manufacturer would like to use a different fitting in a window system that has already been tested in accordance with DIN EN 1191 (10,000 opening intervals with a RAL system test), there is no longer any need for the permanent function test to be repeated provided a tilt-and-turn fitting certified to QM 328 is used. The test reports issued on the basis of DIN EN 1191 retain their validity.

For DIN EN 14351-1 the following applies: If the window manufacturer uses a different fitting that has been certified to QM 328, internal comparison tests (classes equal or better) are sufficient for retention of its ITT proofs in accordance with DIN EN 14351-1.

The following must be specified:
- the permissible limits of the casement weights for the fittings
- the distances between the locking mechanisms

Tilt-and-turn windows and tilt-and-turn doors



## TBDK

“Guideline regulating the "attachment of load-bearing fitting parts of side-hung and turn-and-tilt fittings"

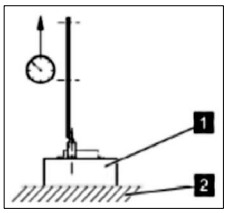
In order to guarantee the permanent funktional ability and thus the operating safety of windows and French doors over their expected service life, attachment of safety-related fitting parts is particularly important. These include load-bearing components such as slidable bearings and corner bearings.

In tables 1 and 2, binding specifications are given for extraction forces for slidable and corner bearings in the installed state which have to be guaranteed when side-hung and turn-and-tilt fittings are used by manufacturers of window and French doors on thier products.

The fittings manufacturer is responsible for ensuring sufficient material strength of the fittings parts.
Responsibility for the professional attachment of the fitting parts on the frame material (casement and frame) and entsuring the requirements listed here are met is with the window and French door manufacturer.

The contens of this guideline must be integrated in the in-plant production inspections carried out by the window and French door manufacturer in order to guarantee long-term adherence to the reguirements listed here. Further notes on in-plant production inspections can be foud in EN 14351-1 for example.

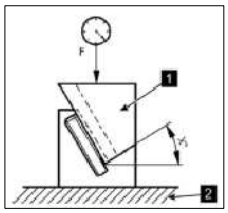
The guideline can be downloaded free of charge from the webside of the specialist association for the lock and fittings industry and the quality association for locks and fittings at www.beschlagindustrie.de.




Legend

1. Frame material - Attachment of the bearing spot in compliance with the window manufacturer's production methods
2. Mounting plate - preferably made of steel

*Fig. 1: Test set-up for the slidable bearing, tensile force F according to Table 1*




Legend

1. Corner area and instalation of the corner bearing in compliance with the window manufacturer's produktion method
2. Mounting plate - preferably made of steel (angle X = 30°)

*Fig. 2: Test set-up for the corner bearing, compressive force F according to Table 2*

**Table 1**

Test with static load for shear forces with slidable bearing load application 90° to the direction of opening acc. to Fig. 1

| max. casement weight kg | Tensile force F N |
|---|---|
| 50 | 1400 |
| 60 | 1650 |
| 70 | 1900 |
| 80 | 2200 |
| 90 | 2450 |
| 100 | 2710 |
| 110 | 3000 |
| 120 | 3250 |
| 130 | 3525 |
| 140 | 3900 |
| 150 | 4200 |
| 160 | 4450 |
| 170 | 4710 |
| 180 | 5000 |
| 190 | 5300 |
| 200 | 5550 |

Load application (tensile force F) with: 10 mm/min

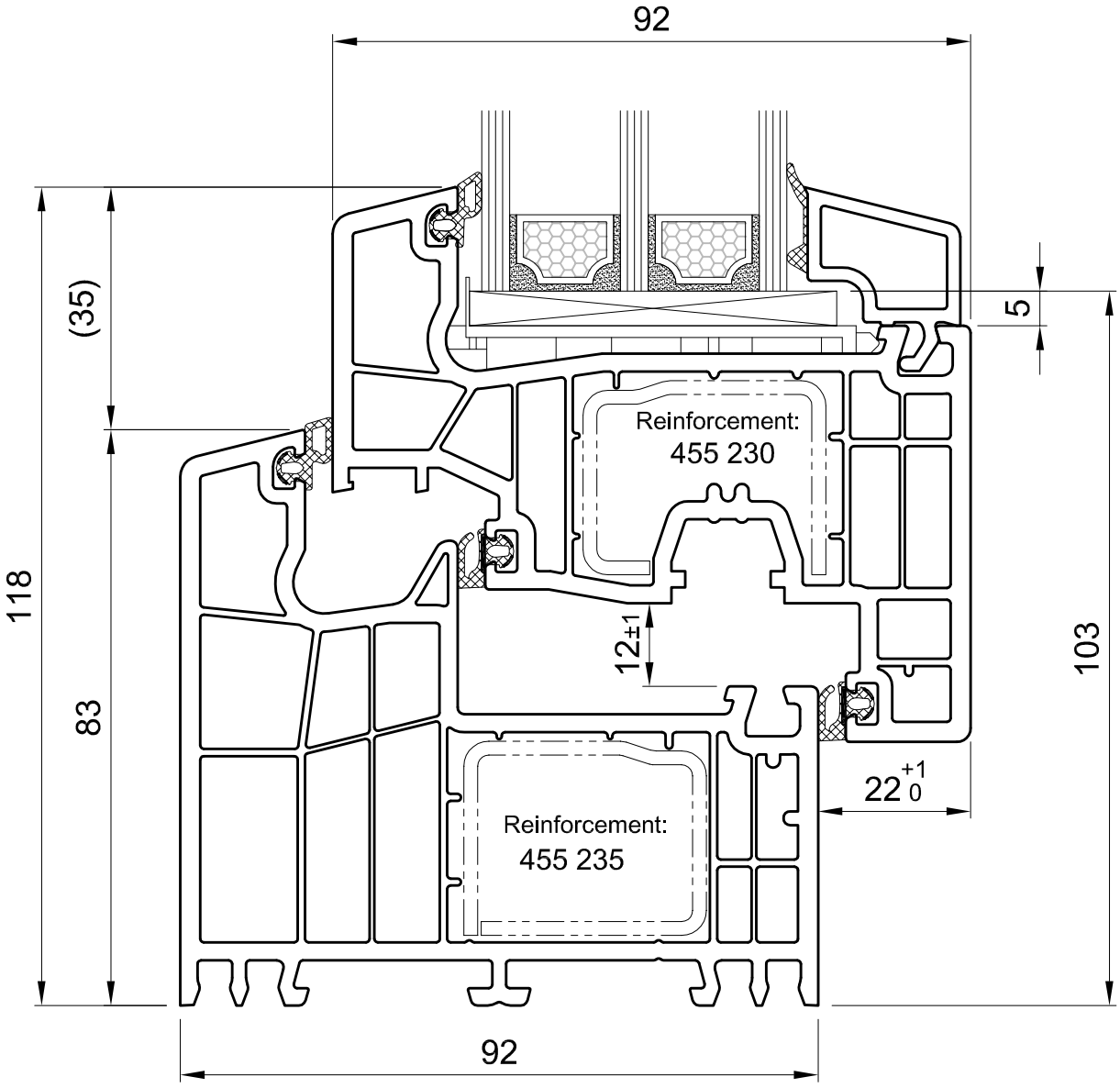
**Table 2**

Load application acc. to Fig. 2

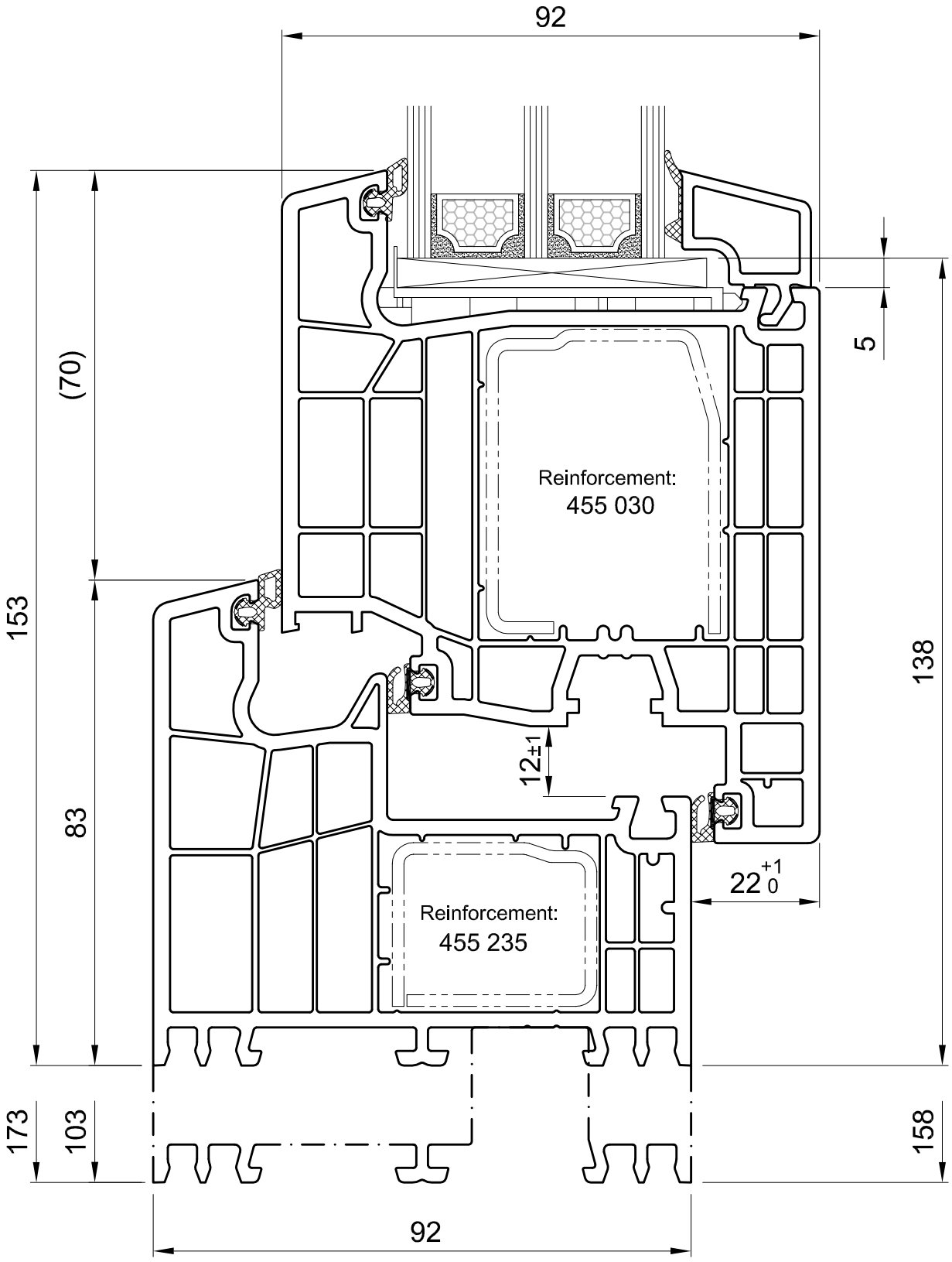
| max. casement weight kg | Compressive force F - N |
|---|---|
| 50 | 1450 |
| 60 | 1740 |
| 70 | 2225 |
| 80 | 2310 |
| 90 | 2600 |
| 100 | 2890 |
| 110 | 3180 |
| 120 | 3470 |
| 130 | 3760 |
| 140 | 4050 |
| 150 | 4340 |
| 160 | 4620 |
| 170 | 4910 |
| 180 | 5200 |
| 190 | 5490 |
| 200 | 5780 |

Load application (compressive firce F) with: 10 mm/min

## Tolerances for chamber and overlap dimensions



## Tolerances for chamber and overlap dimension






Scale 1:1 (or depending on print-out)

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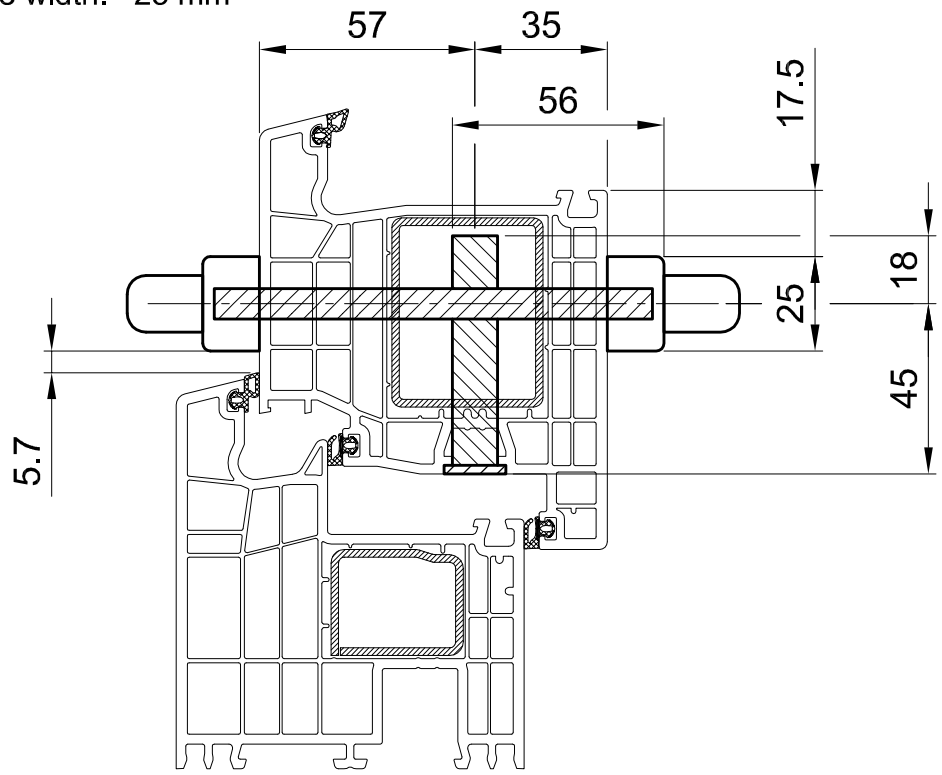
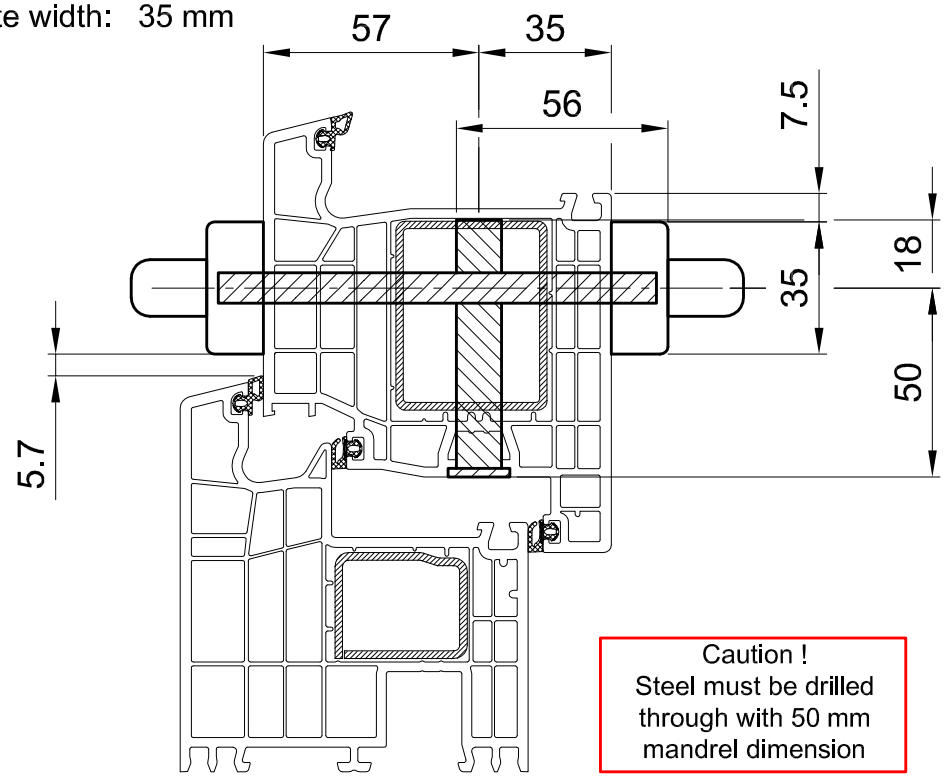
## Plate width

Mandrel dimension: 45 mm
Plate width: 25 mm



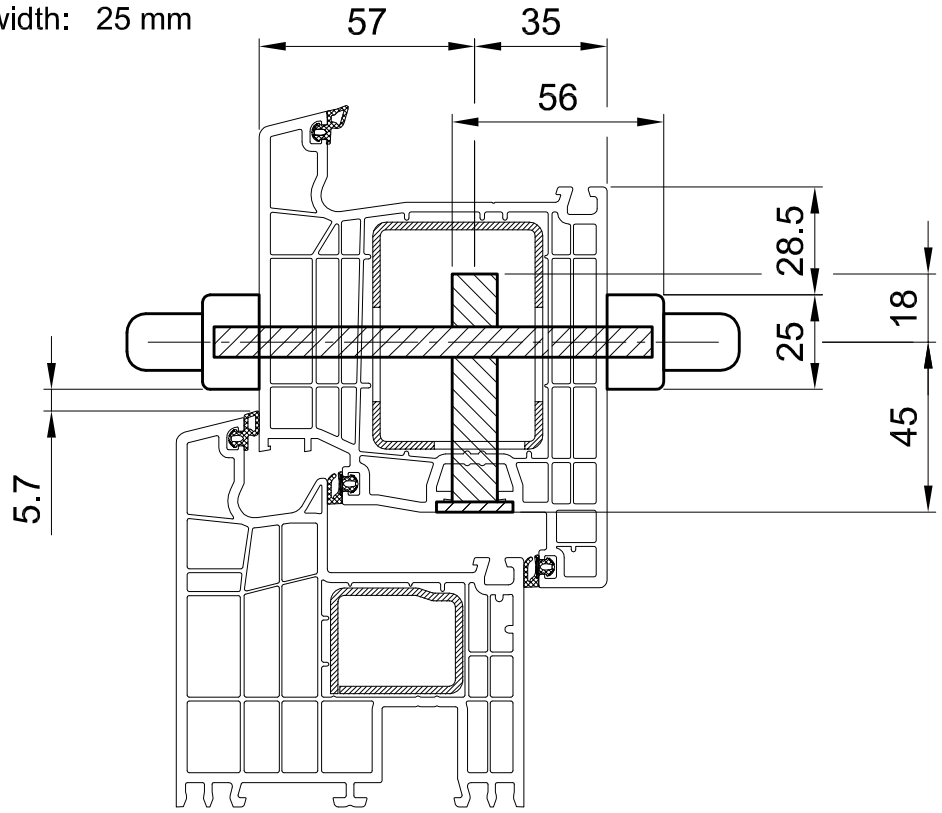

Mandrel dimension: 50 mm
Plate width: 35 mm



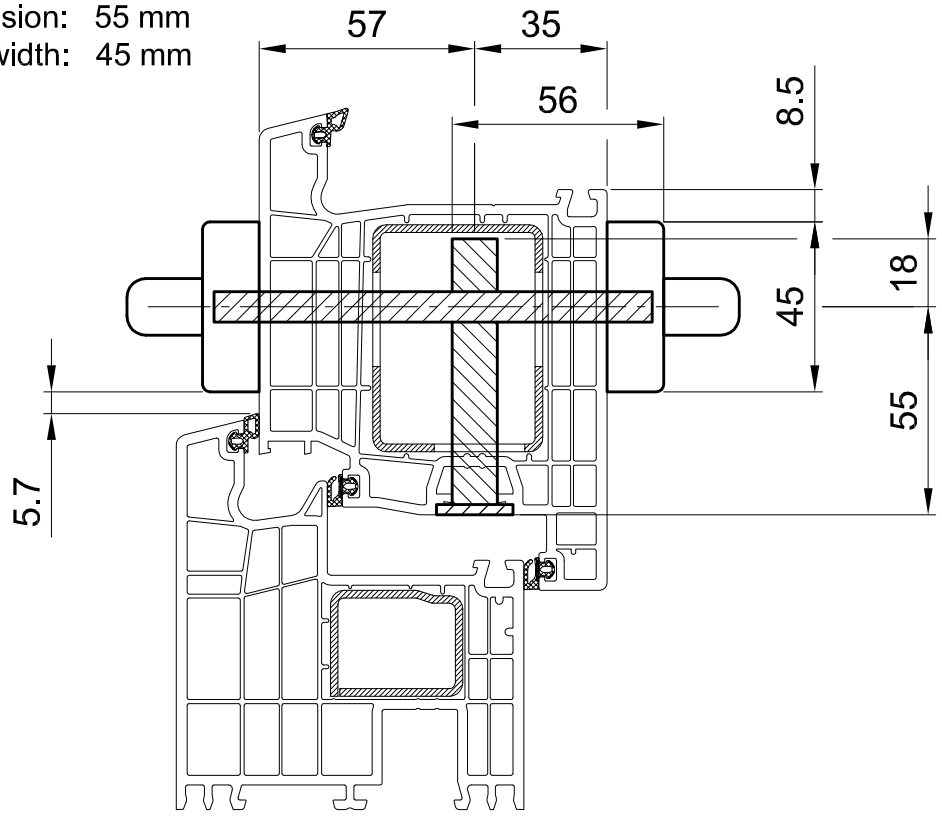

Caution !
Steel must be drilled through with 50 mm mandrel dimension

**Plate width**

Mandrel dimension: 45 mm
Plate width: 25 mm

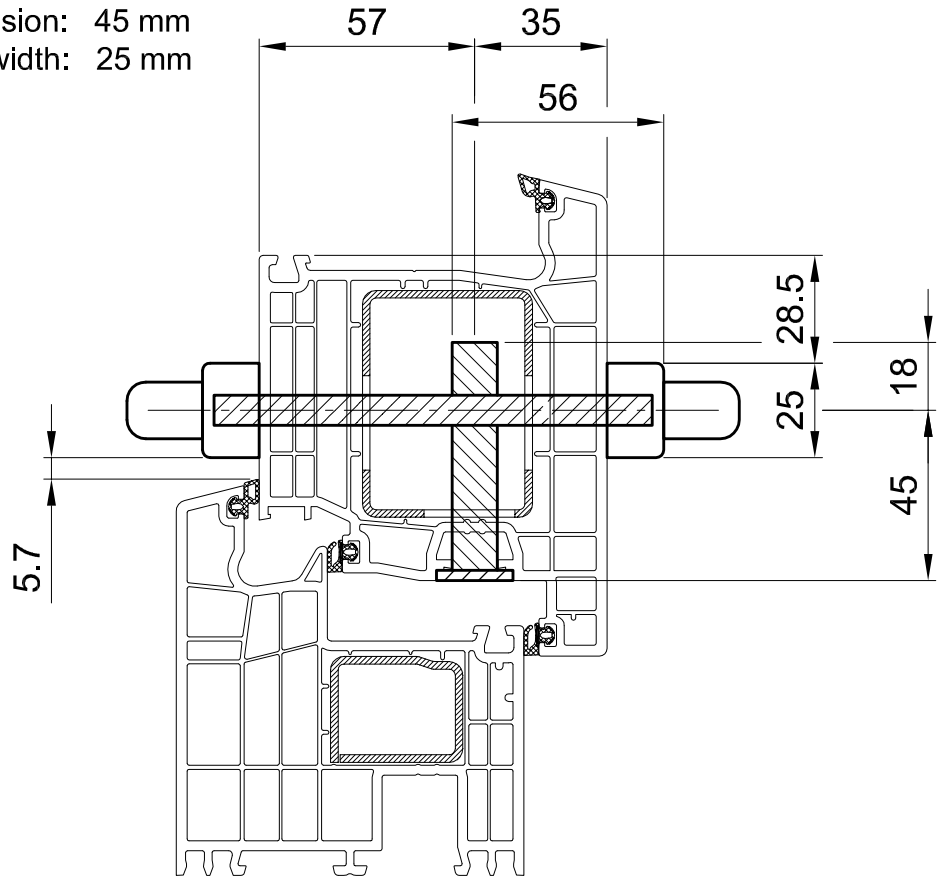



Mandrel dimension: 55 mm
Plate width: 45 mm

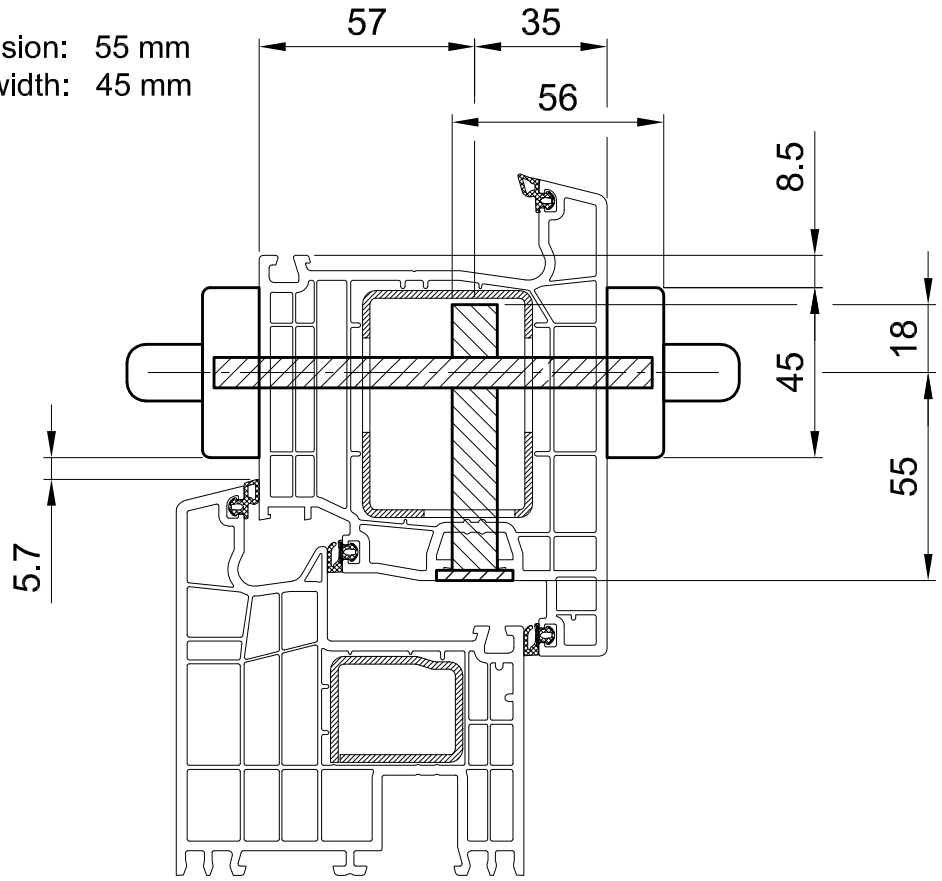


## Plate width

Mandrel dimension: 45 mm
Plate width: 25 mm




Mandrel dimension: 55 mm
Plate width: 45 mm



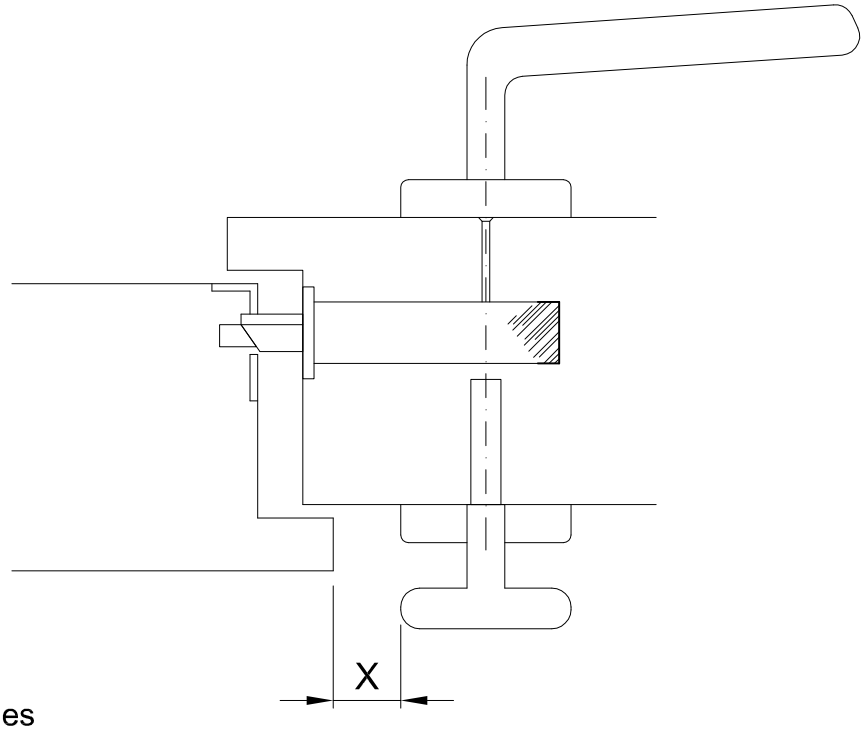
**Safety distance between handle and closing edge**

# How much room must there be between the handle and the closing edge (door frame)?

## The problem

When operating door elements, there is a danger of fingers being jammed (crushed). The distance is often too small, particularly when doors with a double rebate or with a turn handle are to be closed.

Example:




## The limit values

How much room do you need to close the door? There is no standard value available here, two values are known from standards and guidelines, depending on how the door works.

| | |
|---|---|
| manual operation | min. 25 mm |
| power operation | min. 30 mm |

## The rules

These values can be found in numerous rules and standards. These include:

manual operation (mind. 25 mm)
DIN 31001-1, GVU-V S1, GVU-V5

power operation (mind. 30 mm)
GVU-R 1/494, BGR 232

## The remedy

Consider details as early as during the planning phase.

- Selection of suitable handles or handle bars such as angled door handle sets ("leading away from the closing edges"), see section 3.3.6 of VOB Part C, DIN 18360 Metalwork, which states that "door handles and knobs on locks with a mandrel dimension under 55 mm must be angled".
- Use of locks with a suitable mandrel dimension.



Not to scale



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| Designation | Page bE92 09 0... |
|---|---|
| - Installation guidelines | 01.1 - 01.24 |
| - Structural connections | 02.1 - 02.7 |

The following installation guideline is an extract from the

# Guide to planning and carrying out the installation of windows and entrance doors

Issue from March 2010

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| 3.3 | Fasteners | 01.11 - 01.12 |

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| 4.3 | Sealing systems | 01.15 - 01.17 |
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## 6 Planning installation 01.24

# 2. Requirements

## 2.1 Basic principles

Increasing requirements related to thermal insulation, air-tightness of the building shell and an analysis of structural damage near the building shell require the applicable standards to be observed and basic structural principles to be taken into account during the installation of windows and façades.

The construction product laws, construction product guideline and the respective regional construction laws contain the following central requirement:

Construction products may only be used if the structural equipment fulfils the requirements and is suitable for use for the respective purpose over a reasonable period provided correct service and maintenance work is carried out.

To avoid damage in the connection area, the integration of windows and façades in the building shell must be planned. When installed, the component must comply with the requirements set out in Table 2.1.

In addition, all the forces occurring at the window and the façade must be safely dissipated into the structure (Fig. 2.1).

All the requirements and movements in the frame structure and building mentioned so far must be absorbed and compensated by the connection joint.

| Effects | | Rules | |
|---|---|---|---|
| | | Windows, outside doors | Facade |
| - from outside | Rain, wind | EN 12207<br>EN 12208<br>EN 12210<br>EN 1055<br><br>ift guideline FE-05/2 Recommendations for use for windows and outside doors *) | EN 12152<br>EN 12154<br>EN 13051<br>EN 13116 |
| | Change in temperature/humidity<br>Exposure to sunlight<br>Noise (exterior noise)<br><br>poss. mechanical attack in the event of a burglary<br>poss. aggressive environmental influences | EN 13420<br>EN 12219<br>EN 4109 | |
| - from the room side | Room air temperature, room air humidity | DIN 4108 | |
| - from the building structure | Structure movement, tolerances | DIN 18202 | |
| - from the component | Changes in length and shape<br>Forces caused by intrinsic weight | DIN 1055 | |
| - from use | Forces resulting from use<br>Impact loads | EN 13115<br>EN 13049 | EN 14019 |

Table 2.1 Overview of the effects on windows, outside doors and (facades) with important rule references

* Replacement by revised DIN 18055 planned.

To be able to specify the requirements, knowledge about the possible effects on the window as an outside component is required first. These effects are shown in the diagram below.

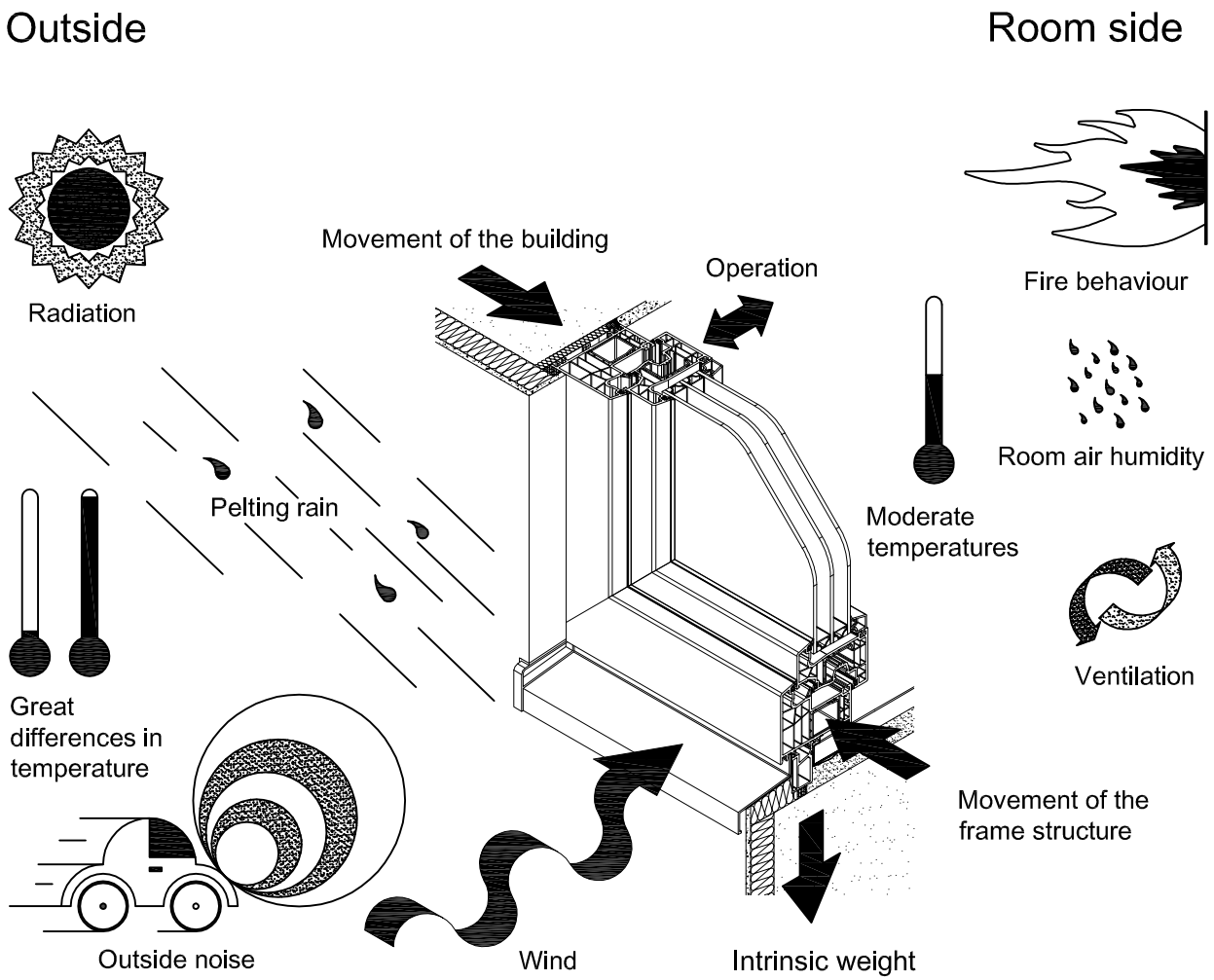



Fig. 2.1 Diagrammatic representation of the effects on the window connection - comparable requirements apply for façades

The professional design of the connection joint, i.e. technical design, joint geometry, attachment, insulation and sealing is extremely important for the above-mentioned requirements to be met. The way the connection is made is the key to the durability and suitability for use of the window and the façade.
The plane model illustrated in Fig. 2.2 is suitable for judging whether and to what extent the window or façade meet the requirements resulting from the environmental influences.

The basic structural requirements are fulfilled on three separate functional planes, the functions in the area between put together and implemented in technical characteristics. These individual planes and the area must be clearly defined in the technical design and be able to be executed.

Plane (1) Break between room and outside climate (air-tightness plane)

This break must take place on a plane where the temperature is above the temperature critical for mould growth (80% air humidity criterion) of the room climate. The plane must be able to be recognised over the whole area of the outside wall and must not be interrupted.

Area (2) Functional area

The weather protection shown fanned out is to illustrate the basic possibility of a structural design and the required humidity balance with the outside climate.

The model described is generally valid for Central European climate conditions and for rooms with a normal indoor climate. In the case of cooled and air-conditioned rooms the system must be checked for the specific building involved. The whole outside wall must be integrated in the considerations and evaluation. The model is not applicable for cold rooms or for buildings in tropical regions.

In order to meet the requirements of suitability for use, the windows and the façade must be installed as follows:

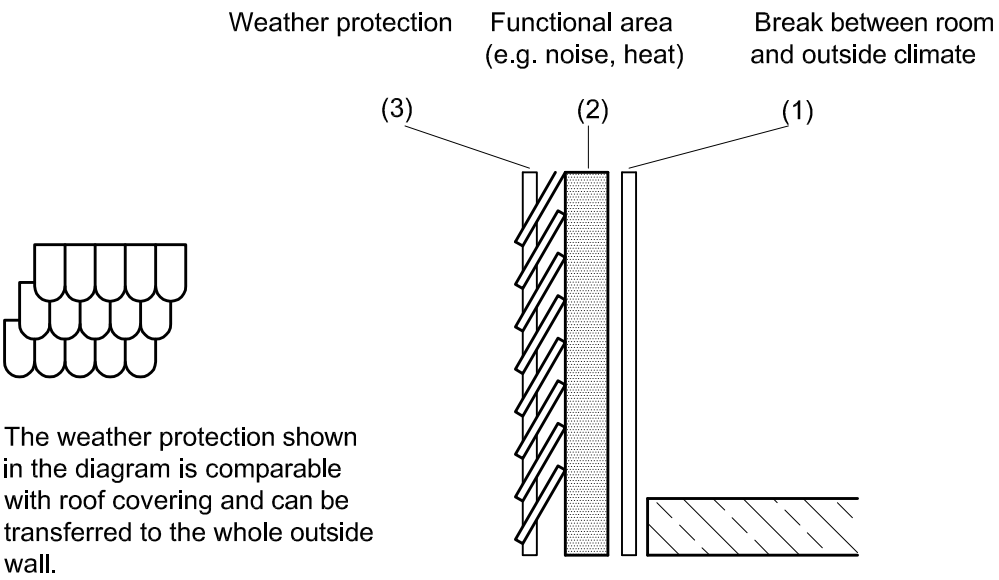
- Clear break between the functional planes and the functional area.
- Protection of the connection joint from loads from outside and from the room side.

The design must be airtight all the way around on the room side (plane (1)).

The break between room and outside climate (plane (1)) must be more vapour-tight than the weather protection (plane (3)).

Area (3) Weather protection

It must be ensured that the outer weather protection plane (plane (3)) is resistant to rain; care must be taken that any humidity that does penetrate can be discharged to the outside again.




The weather protection shown in the diagram is comparable with roof covering and can be transferred to the whole outside wall.

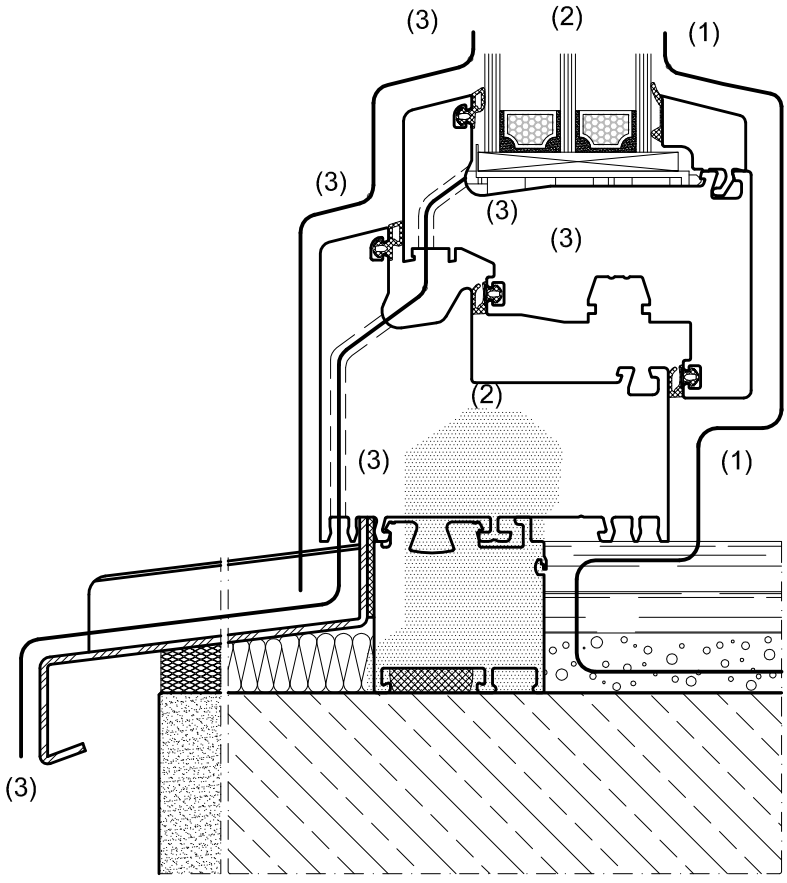



Fig. 2.2 Plane model

## 2.2 Installation planes

Recommendations for installation planes for windows and façades in the reveal area (in line with the respective outside wall systems used).

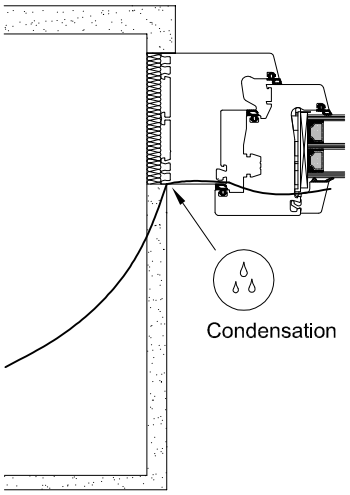
Favourable installation planes for windows and façades in order to avoid condensation and reduce thermal losses are:

- the middle reveal area with monolithic outside walls,

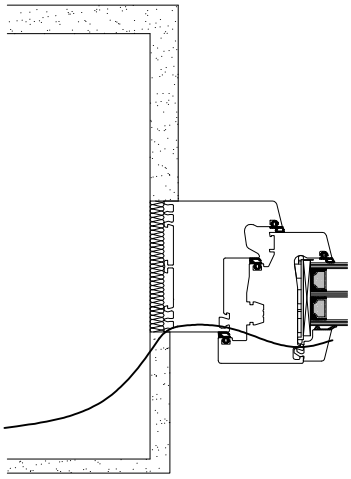
- the insulation layer for thermally insulated outside wall systems.

The temperature curve through the outside wall and the window component are decisive for this (isotherm curve, see diagram below).

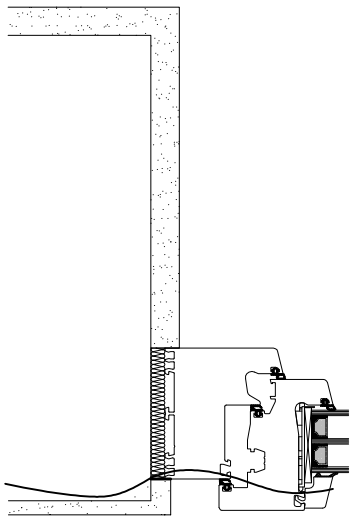
Installation position outer



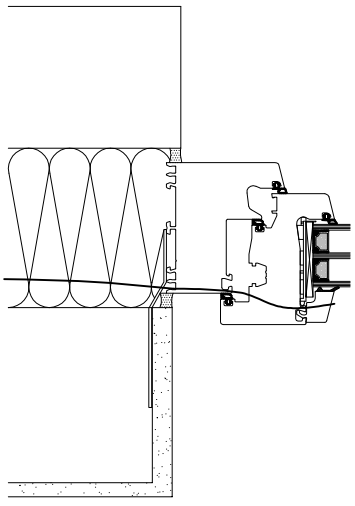

Installation position central



Installation position inner



Installation near the insulation zone



# 3. Fastening and load transfer

The fastening of windows, facades and wall panelling must dissipate all the forces acting on the component safely and permanently into the building structure and ground.

The forces are caused by the following loads:

- Intrinsic load
- Wind load
- Traffic load
- Moving parts (e.g. window casements)

These must be determined in accordance with DIN 1055. Changes in shape caused by temperature, material contraction and creep must be taken into account.

On the basis of the respectively valid regional construction directives, buildings including their components must be planned and erected in such a way that there is no danger to human life and health or hazard to public safety. The fastening of all windows, façades and wall panelling must comply with this basic concept.

## 3.1 Fastening the window in place

Within the context of these installation guidelines, the term windows is used to describe components which are equipped with a pre-fabricated frame all the way around. Porthole windows are usually connected with the building structure all the way round. In the case of glass fronts continuous fastening is carried out on both sides.

The window elements must be fastened in place taking the material-specific key values of the frame and wall materials into account, as well as load transfer and the fasteners to be used.

## 3.2 Fastening façades

Within this guideline, the term façades is used to describe large-scale components at least one storey high. They are either completed in situ from individual components as post-bar structures or installed as pre-fabricated façade elements with a frame all the way round, including all infill work (e.g. window casements). Façades form a light, room-closing shell which fulfils all the normal functions of an outside wall either independently or in connection with the building, but yet does not contribute to the load-bearing characteristics of the building.

For fastening purposes this means that only fastening elements that have been approved for by the building authorities may be used.

The installation plane is usually a room-closing shell in front of the building's load-bearing components.

## 3.2 Load transfer

For set windows, the forces in the window plane (intrinsic load) are discharged via load-bearing blocks into the building structure, they are loaded under pressure. In the case of multi-shell wall systems where the window is located in the insulation zone in front of the load-bearing wall, these forces must be discharged to the load-bearing formwork using metal brackets or consoles (Fig. 3.1).

Dowels, plates, foams and similar are not sufficient for discharging the loads acting on the window plane.

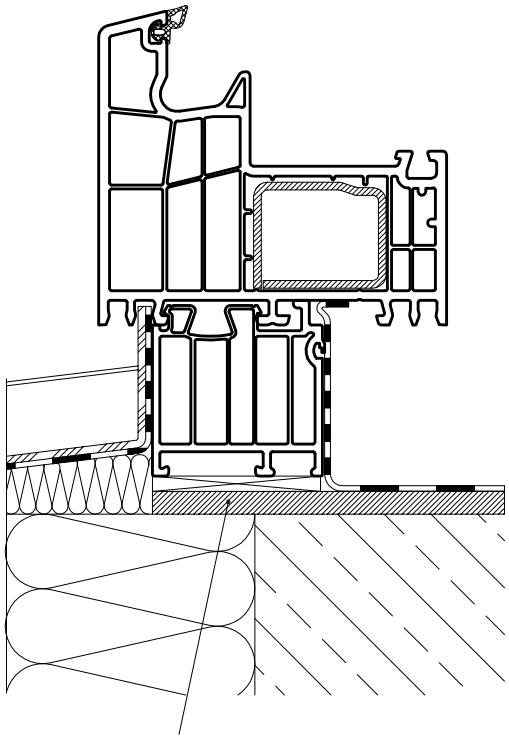



Fig. 3.1 Load transfer with blocks for single and multi-shell wall systems.

The frame profiles must be sufficiently rigid. The load-bearing blocks must be arranged near the frame corners, posts and bars, depending on the type of opening involved. The layout of the blocks and the load-bearing components must be done in such a way that tensioning of the frame is avoided (Fig. 3.2).

The load-bearing blocks must be dimensioned in such a way that the subsequent sealing dimensions can be carried out without any problems. They must be matched to the frame thickness. The material the load-bearing blocks are made of must be permanently dimensionally stable and have low thermal conductivity.

In the case of French doors wider than 1 metre, load-bearing blocks must also be placed in the centre of the lower frame profile.

Care must be taken that frame components are not pushed out of position due to fasteners e.g. screws being over-tightened.

Wedges used as fixing aids during fitting must be removed after fastening work has been completed.

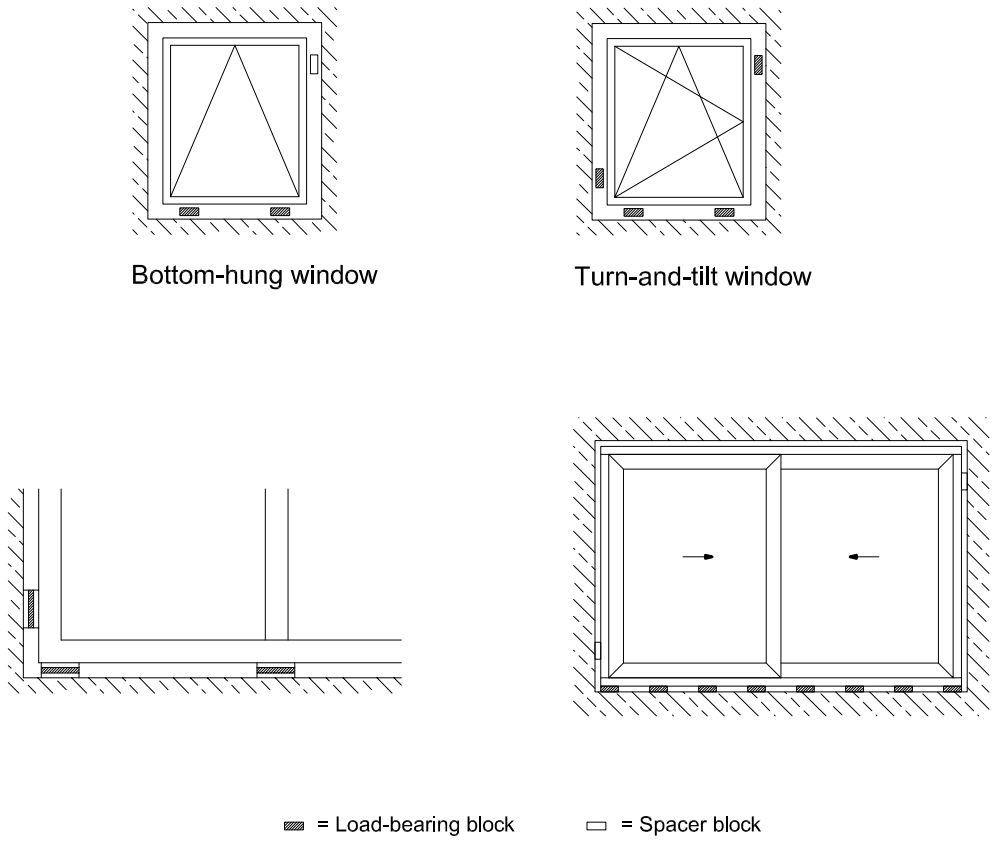



Fig. 3.2 Arrangement of load-bearing and spacer blocks

## 3.3 Fasteners

The criteria according to which a fastener is chosen depend on:

- the wall system
- the building situation (existing / new)
- the frame material
- the load

The following are used:

Frame dowels
Thrust, shearing and bending tension loads act on these. For this reason, there are limits to the use of frame dowels, particularly for heavy loads, on account of the distance required between wall and frame. The manufacturer's specifications must be heeded for selection and dimensioning.

Plates (tie bolts)
Plates are relatively flexible. This means changes in length of the frame materials caused by thermal factors can easily be absorbed. Plates can only absorb loads at right angles to the window plane.

Brackets
Fastening brackets are usually rigid and can thus discharge greater loads into the building (often used for glass fronts, French window systems etc.). They are either fixed by dowels or welded to the metal part integrated in the building.

Consoles
If the window is located in the insulating zone of a multi-shell wall system, supporting structures e.g. consoles are required. Attachment is dimensioned in such a way that the wind load and traffic load to be expected can be absorbed and the intrinsic weight can be discharged at right angles to the window plane even with the casement open.

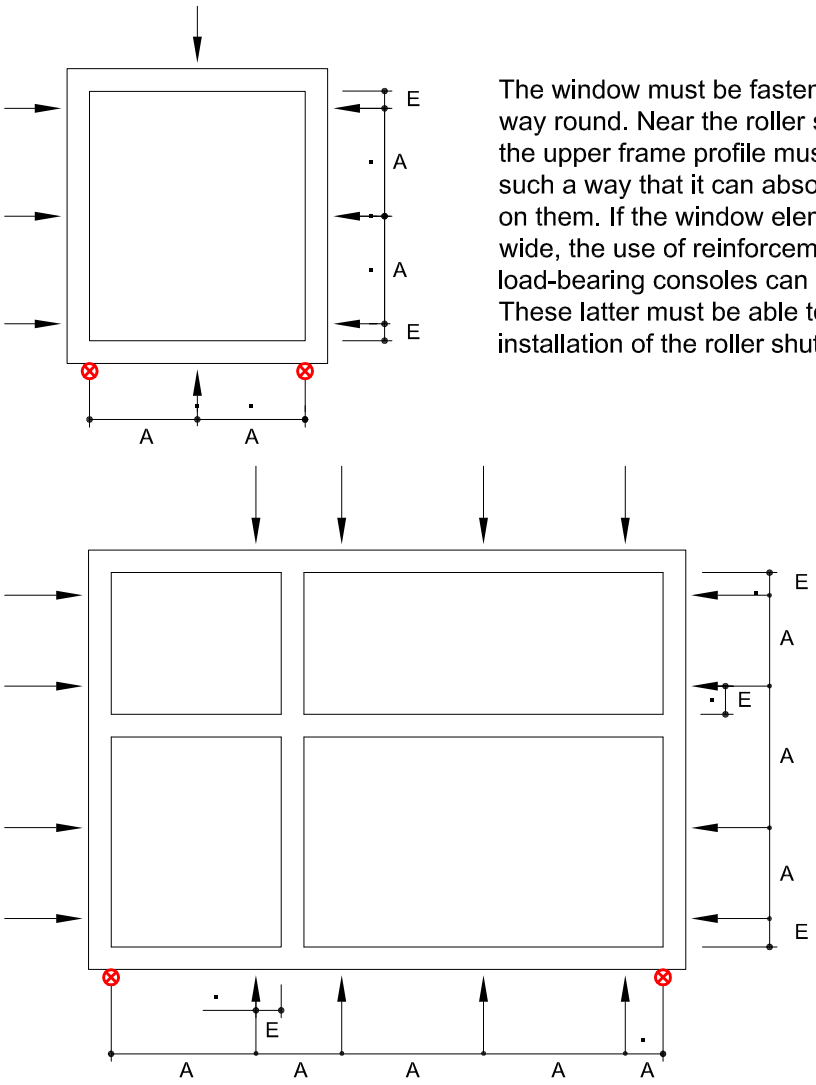
Metal components in the connection joint are always weak spots from a thermal insulation point of view. For this reason, the fasteners must be arranged with the insulating materials in such a way that no thermal bridges occur.

Attachment distances

In order to take the expansion behaviour (change in length) of the frame material into account, the attachment distances shown in Fig. 3.3 must be kept.

Deformation of the rebate and frame areas caused by the installation process must be excluded. When frame dowels or comparable fastening elements are used, care must be taken that the right torque is used. Tension at the frame corners must be avoided, particularly where coloured elements are involved.

Fig. 3.3 Fastening distances




The window must be fastened in place all the way round. Near the roller shutter housings, the upper frame profile must be dimensioned in such a way that it can absorb the forces acting on them. If the window elements used are very wide, the use of reinforcements and load-bearing consoles can be necessary. These latter must be able to be removed for installation of the roller shutters.

↑ - Fastening point

⊗ - Additional fastening point for load bearing on the window plate in place of the load-bearing block with installation projecting beyond the load-bearing wall structure, in the side area depending on the type of opening.

A: Distance between anchors
for PVC windows max. 700 mm

E: Distance from the inner corner
Distance from the inner corner of the frame, and for posts and bars from the inner side of the profile (white) 100 to 150 mm, inner side of the profile (decor) 150 mm.

Not to scale

Change in length of PVC window profiles:

| Window profile material | ε in mm / m |
|---|---|
| PVC hard (white) | 1,6 |
| PVC hard (coloured) a. PMMA (coloured co-extruded) | 2,4 |

Temperature-related change in length ε of different frame materials per joint

# 4. Sealing

The professional sealing of the connection joint of windows and façades to the building guarantees their suitability for use. Poor sealing is usually the reason for building damage. The most important functions of the seal (cf. Fig. 2.2) are:

- Break between room and outside climate - functional plane (1) - vapour barrier, wind barrier and air-tightness
- Sound protection
- Thermal insulation (condensation protection) in the joint - functional area (2)
- Rain barrier - functional plane (3)

Depending on the outside wall system used, there are different connections possible between the component and the wall. With the usual version, there is a joint between the outside wall and the frame structure which has to be sealed both against humidity penetration from both the outside and the room.

## 4.1 Sealing planes

For planning and execution, care must always be taken that the break between room and outside climate is all the way round and permanently more vapour-tight than the weather protection. This also applies when sealing levels are attached.
The penetration of room humidity into the joint must be avoided or any humidity which does penetrate must be able to escape to the outside in a controlled manner.

Sealing against room air humidity must always be installed on the room side. It prevents room air and humidity penetrating into the structure and then condensing into water again in spots whose surface temperatures are below the dew point temperature.

Plane (1) must guarantee this requirement is met.

The weather protection comprises wind and rain barriers. It can be executed either on plane (3) or in combination with plane (1). The type of outside wall system is decisive.

Under the same basic climatic conditions, the humidity content of the joint is determined by the position of the sealing system in the joint.

The airtight seal on plane (1) prevents room air flowing into the joint. The more vapour-tight execution of the inner seal prevents vapour build-up in the connection joint.

If plane (3) were sealed and the joint opened to the room side, room air would penetrate the joint. The humidity content in the joint and the adjacent materials increases. The joint temperature corresponds to the dew point temperature, which means condensation is precipitated (Fig. 4.1).

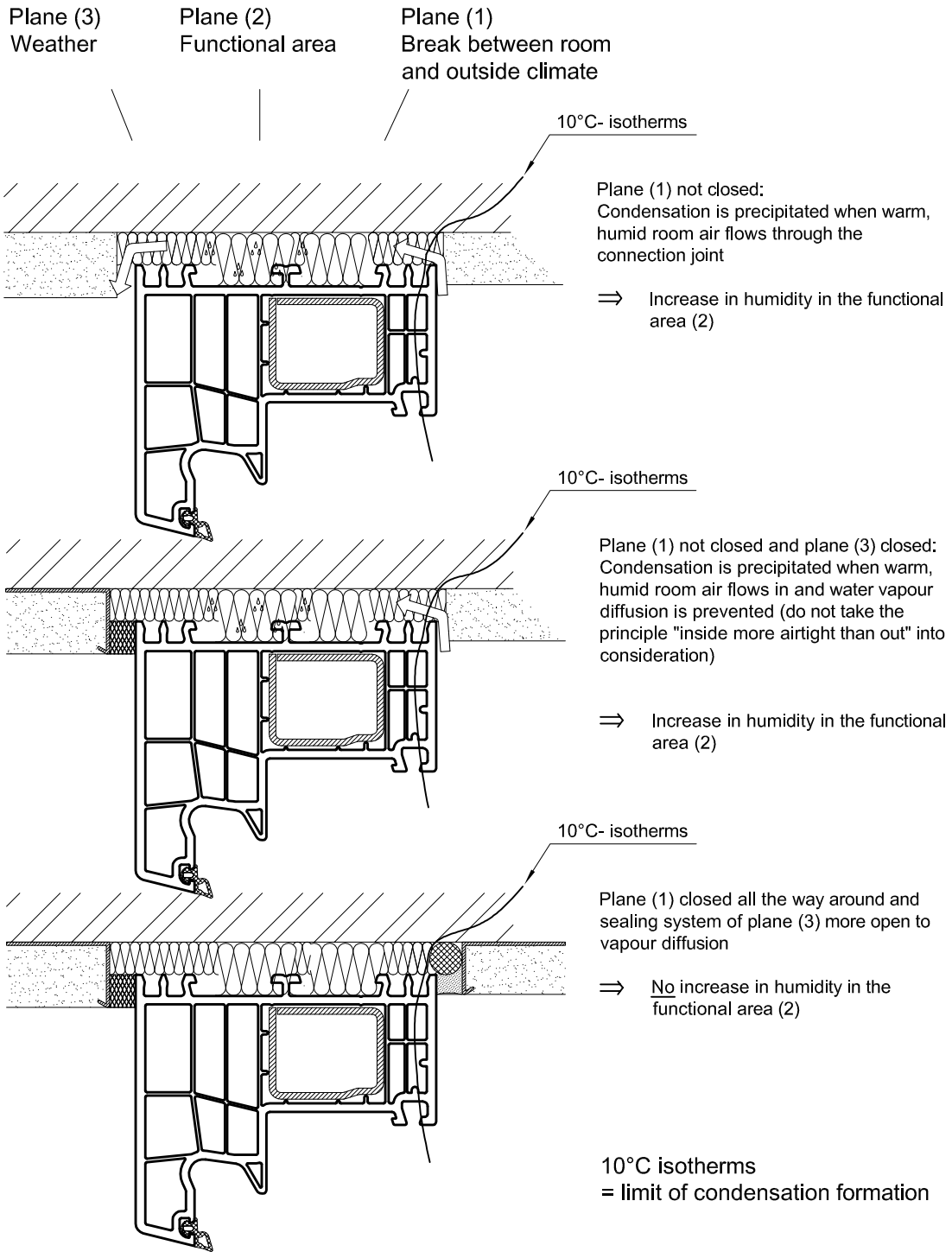
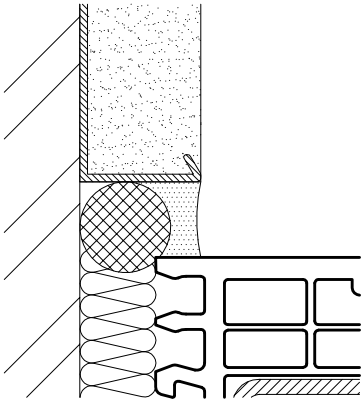



Fig. 4.1 Layout of sealing systems in the connection joint

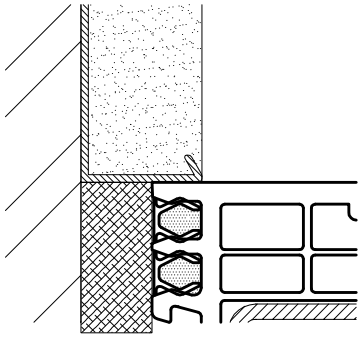
## 4.2 Movement joint

The term movement joints is used to describe joints where changes in joint width are to be expected during use.

These movement joints can be sealed using sealant sprays, impregnated sealing tapes made of foam plastic or film-type sealing systems.



Sealing with sealant between the plaster end profile and the PVC window



Seal with pre-compressed sealing tape with bracing on plaster

## 4.3 Sealing systems

### 4.3.1 Sealants

Processing and selecting sealants is very complex. We will only be going into a few of the most important points below.

The connection joint between the window and the building is a movement joint, and the sealant used has to be suitable for this.

In order to guarantee a permanently functional sealant joint, it is important for the sealant to bond well with the adhesive surfaces. Sealing with sealants on plaster has been done professionally if the following pre-requirements are met:

- A sealant suitable for this area of application must be used. The sealant should have a permissible overall deformation of 25 % and a yield stress value of max. 0.2 N/mm² at a measuring temperature of -10°C.

- The joint cross-section must be dimensioned sufficiently depending on the thermal changes in length of the window profiles or outside window sill that are to be expected (which in turn depend on the material, colouring, length of window profiles or window sill) and the properties of the sealant used.

- The plaster must have sufficient adhesive pull strength to be able to absorb the tensile stress from the sealant without damage.

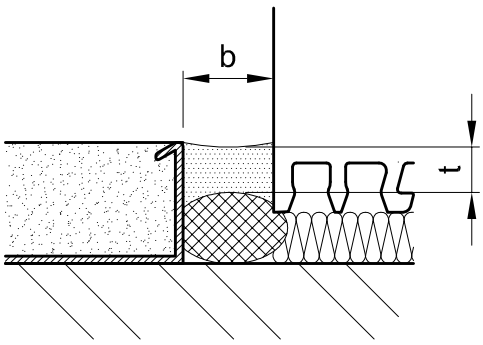
The stresses which occur in the sealant act directly on the adhesive surfaces. If adhesion fails or the sealant becomes brittle, the sealant can no longer discharge the forces which occur to the adhesive surfaces, the joint becomes leaky.

In addition, care must be taken which sealant comes into contact with the different adhesive surfaces. For example, an acidic sealant which separates off acetic acid cannot be used with zinc plate, natural stone or similar material, for example, since the materials are not mutually compatible. Sealants can only be used with a non-absorbent, closed-cell back-filling material. The back-filling material forms the boundary of the joint at the base of the joint. It should result in a depth/width ratio of

$$t = 0{,}5 \times b \geq 6 \text{ mm}$$

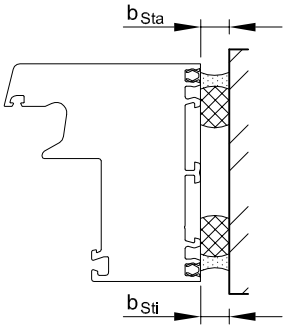
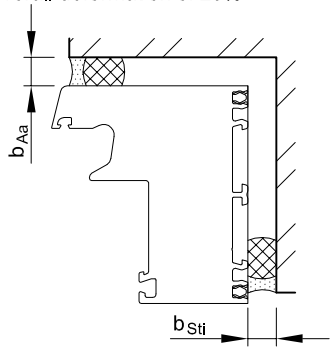
t = Depth of the sealant in the joint

b = Width of the sealant in the joint




Formation of a movement joint with sealant and back-filling material

Table 01 Recommended joint widths b for planning connection joints with sealant

| | $b_{Sta}$ For sealants with a permissible overall deformation of 25%<br>  <br><br>$b_{Sti}$ For sealants with a permissible overall deformation of > 15% | | | | $b_{Aa}$ For sealants with a permissible overall deformation of 25%<br>  <br><br>$b_{Sti}$ For sealants with a permissible overall deformation of > 15% | | |
|---|---|---|---|---|---|---|---|
| | Element lengths in m | | | | | | |
| | Up to 1,5 | Up to 2,5 | Up to 3,5 | Up to 4,5 | Up to 2,5 | Up to 3,5 | Up to 4,5 |
| | Minimum joint width for stub stop $b_{St}$ in mm | | | | Minimum joint width for inner stop $b_A$ in mm | | |
| PVC hard (white) | 10 | 15 | 20 | 25 | 10 | 10 | 15 |
| PVC hard and PMMA (dark, coloured extruded) | 15 | 20 | 25 | 30 | 10 | 15 | 20 |

$b_{Sti}$ Joint width for stub stops, room side
$b_{Sta}$ Joint width for stub stops, outside
$b_{Aa}$ Joint width for inner stops, outside

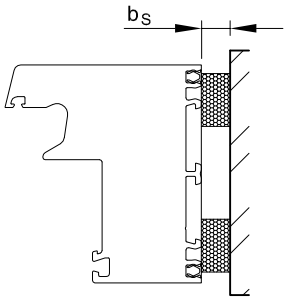
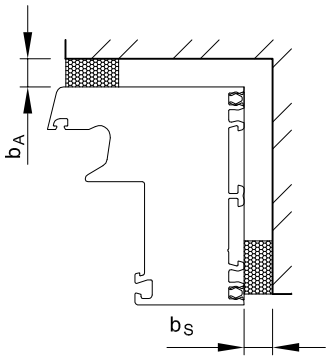
### 4.3.2 Impregnated foam tapes

The term "impregnated foam tapes" is used to describe foam sealing tapes used for sealing building joints. They are referred to as sealing tapes for short in the following. They are mainly made of open-cell polyurethane foam which has been impregnated. The sealing tape is delivered in pre-compressed form.

One of the decisive factors for the effect of sealing tapes is the observance of a sufficient degree of compression in the installed state. Respective tape dimensions are available for the different joint widths. The specifications of the tape manufacturers for the joint widths that may be sealed must neither be exceeded nor undercut, this also applies for non-level spots. Suitable pressing areas must be available both on the building and on the component to be attached. The joint widths shown in the table below are reference values, the manufacturer specifications may have to be taken into consideration.

Sealing tapes have a low water vapour diffusion resistance. This means a good humidity balance of the joint can be set up even though resistance to pelting rain is also achieved. This characteristic can be used when implementing the basic structural principle "inside more airtight than out".

Table 02 Reference values for joint widths b for connection joints with impregnated sealing tapes

| |  | | | |  | | |
|---|---|---|---|---|---|---|---|
| | Element lengths in m | | | | | | |
| | Up to 1,5 | Up to 2,5 | Up to 3,5 | Up to 4,5 | Up to 2,5 | Up to 3,5 | Up to 4,5 |
| | Minimum joint width for stub stop$_{St}$ in mm | | | | Minimum joint width for stub stop$_A$ in mm | | |
| PVC hard (white) | 8 | 8 | 10 | 10 | 8 | 8 | 8 |
| PVC hard and PMMA (dark, coloured extruded) | 8 | 10 | 10 | 12 | 8 | 8 | 8 |
| Impregnated sealing tapes made of foam plastic in accordance with DIN 18542 must be used for these minimum joint widths. Their use must be agreed with the tape manufacturer. | | | | | | | |

### 4.3.3 Sealing films

Sealing films are particularly suitable for larger joints (more than about 20 mm) and for multi-shell building designs. They are able to absorb relatively large movements. On the outside, sealing films mainly serve to control water dissipation.

When sealing films are used, the sd value (= measure of steam permeation) of the systems must be taken into account. On the inside, sealing films are glued both to the frame and to the building so that the joint is closed.

On the outside, sealing films which do not allow water vapour diffusion must not be glued airtight. In the upper section, the film must be glued to the building, it may also require additional mechanical attachment and sealing, depending on the manufacturer's specifications. The connection on the frame must be made in such a way that vapour pressure compensation to the outside is possible (Fig. 1). Fig. 2 shows a variant with permeable film without additional openings.

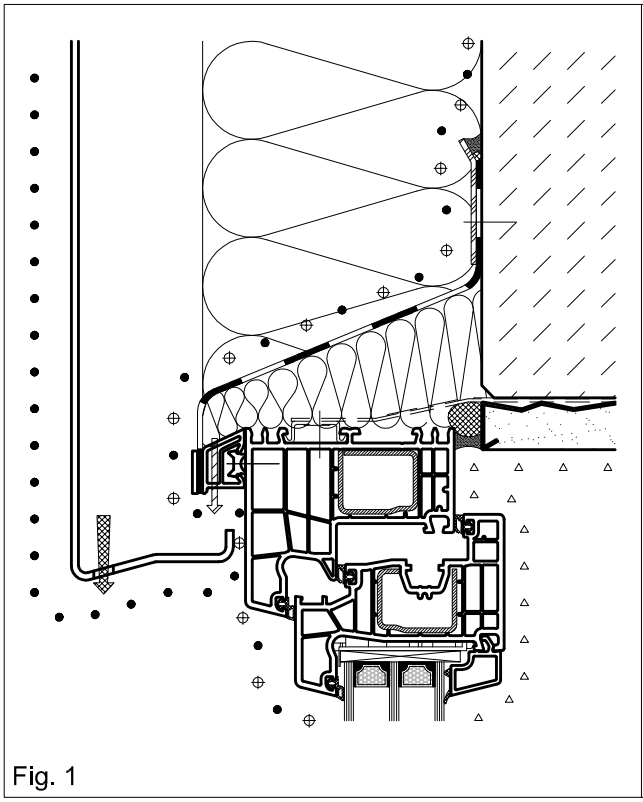


Fig. 1

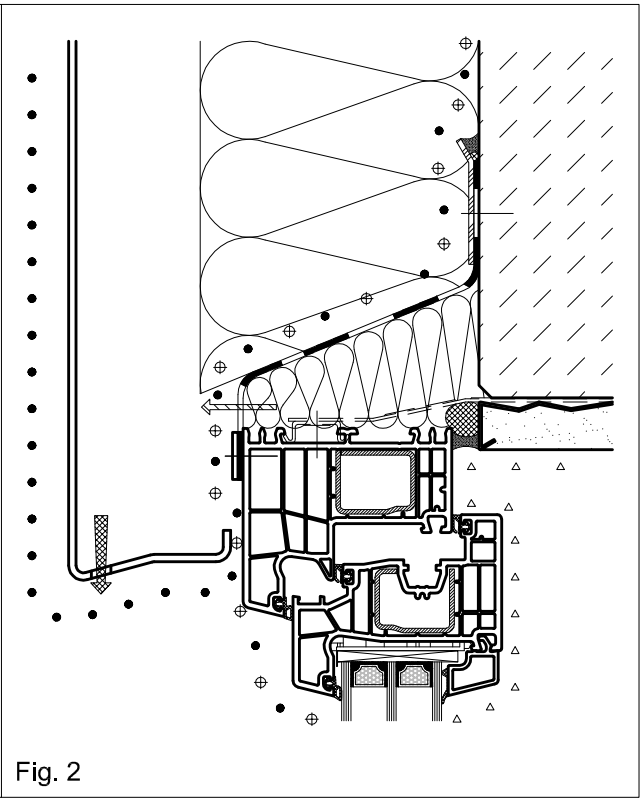


Fig. 2

Rain barrier

Wind barrier

Break plane between room and outside climate

Vapour pressure compensation

Drainage

Not to scale

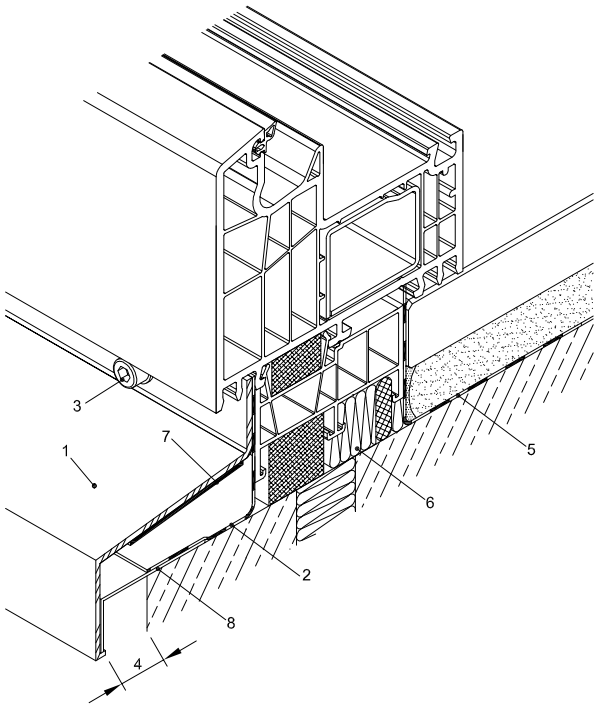
# 5. Practical work

## 5.1 Window sill

### 5.1.1 Structural details

The outer window sill must discharge the surface water running off the window and façade in a controlled way. The details shown in the drawing must be heeded for this. The connection of the window sill to the frame and the reveals must be airtight. Connection to the frame must also be able to glide e.g. by equipping the screw connections with long holes and PVC washers.

If the end caps fitted to the window sill are not resistant to pelting rain, a tray-like sealing strip must be set up underneath the window sill as a second water-routing level. If thermal insulation is attached under the window sill, the sealing strip must be laid on the insulation to protect this from becoming humid.




1 Aluminium window sill, inclination ≥ 5°
2 Sealing film with tray-shaped design at the side
3 Screw attachment (screws must be sealed, fix distance, thermal changes in length must be taken into consideration)
4 Façade overhang ≥ 20 mm (DIN 18339), 30 - 40 mm recommended
5 Break between room and outside climate
6 Insulation between frame and building
7 Anti-resonance (use according to manufacturer's specifications)
8 Additional retention pieces for overhang ≥ 150 at distances of about 90 mm apart (or according to manufacturer's specification)

Example:
Installation situation in multi-shell outside wall with core insulation

Not to scale

The connection of the window sill to the reveal and to the frame must be rainproof. This can be achieved by a tray-shaped sealing strip under the window sill (Fig. 5.2). If there is thermal insulation fitted under the window sill, the sealing strip must be laid on this.

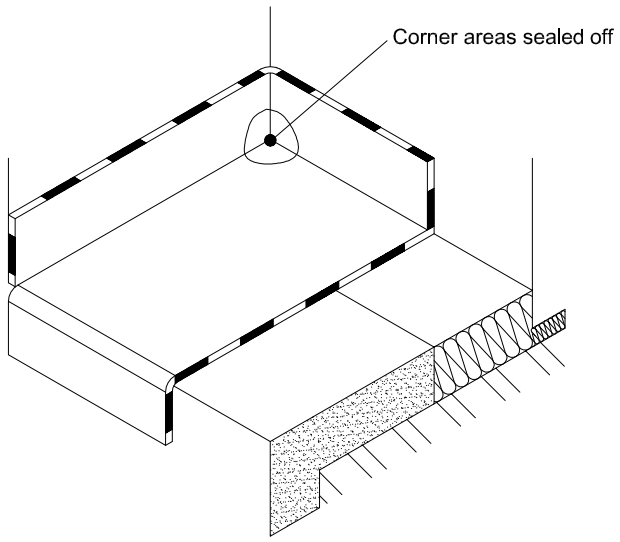



Fig. 5.2 Sealing corner areas of window sills by tray-shaped sealing strips

## 5.1.2 Absorption of changes in length caused by thermal factors

Aluminium window sills must have an expansion joint at least every 3000 mm. Joint overlaps must be designed such that cracking noises caused by changes in length caused by thermal factors is avoided. They have to be formed in such a way that precipitation is discharged to the outside.

## 5.2 Threshold design

Rules which concern sealing the lower connection primarily address the outside wall and demand measures to protect against the penetration of water to avoid damage to the outside wall. A seal height of 150 mm above the water-guiding layer is considered sufficient. At the same time, the exception for the integration of windows and French windows is explicitly pointed out. The following criteria must be considered when integrating windows and French windows:

1. Protection of the outside wall adjacent to the side of the windows and French windows, whereby the connections on the wall must guarantee the seal height.

2. Protection of the outside wall adjacent to the bottom of the windows and French windows, whereby the connections must be permanently airtight.

3. The load of the connection of windows and French windows to be expected through non-pressurised water from precipitation or melt water.

4. The threshold height appropriate for the room's use, taken particular account of use by people in wheelchairs.

This means that is it allowed to fall short of the seal height as described in the rules and indeed that this is sometimes necessary, whereby accompanying measures may be necessary to avoid humidity damage (Table 5.1). In other words, adherence to the seal height is not a sufficient characteristic for an airtight connection.

Different designs are permissible to protect the outside wall against non-pressurised water near the French windows (Table 5.1). When the outside seal is executed professionally, the outside wall is sufficiently protected whatever the design.

The height of the threshold must be agreed in writing with the building client before work is carried out.

Table 03 (Part 1) Requirements on sealing the lower connection area from rules.

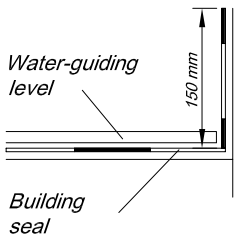
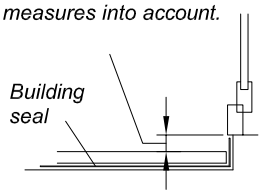
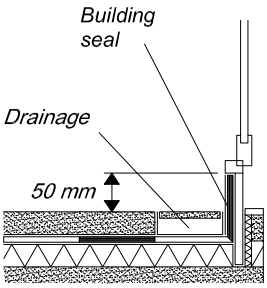
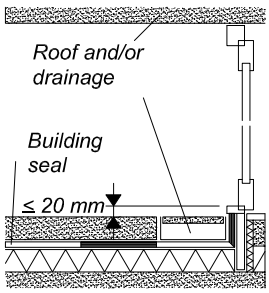
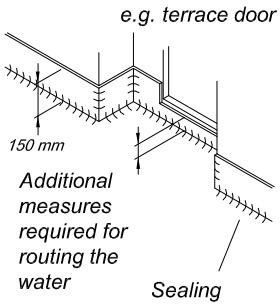
| Possible versions for the lower connection | Requirements on the lower connection according to the respective rules |
|---|---|
|  | DIN 18195 Building seals -<br>Part 9: Ducts, transitions, connections<br><br>*5.4.2 Building plinth for the connection of seals according to DIN 18195-4 and DIN 18195-6, Section 9*<br><br>... In the final state, this value should not fall short of 150 mm.<br><br>*5.4.3 Connections for seals according to DIN 18195-5*<br><br>... the components must be designed in such a way that the seal is formed significantly above the water load which may occur in the worst case from surface water, splashwater or seepage, usually at least 150 mm above the protective layer, the surface of the covering or the cover fill and can be secured and kept against slipping down on a backing surface that is quite smooth, level and can bear a load. |

Table 03 (Part 2) Requirements on sealing the lower connection area from rules.

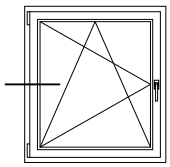
| | |
|---|---|
| *The seal height may be undercut depending on local requirements and taking accompanying measures into account.*<br>  <br> | *5.4.4 Requirement for the sealing of door thresholds*<br><br>... mentioned seal heights cannot be achieved in individual cases (e.g. where building entrances, terrace doors, balcony or roof terraces have to be barrier-free), special measures must be taken to prevent water penetrating or getting behind the seal. Thus, for example, door thresholds and posts must be sealed from behind or their surface designed in such a way that seals can be connected e.g. with clamping profiles.<br>Threshold connections with low or no edges must be provided with additional protection from heavy water loads by means of sufficiently large porches, façade offsets and/or directly drained channels with grates. ... |
|  <br> | Special rules for roofs with seals - guidelines for flat roofs - -<br><br>*5.3 Connection to doors*<br><br>1. The connection height should be 0.15 m above the covering surface or gravel level. ...<br>2. A reduction of connection height is possible provided problem-free water drainage is guaranteed near the door at all times on the basis of the local conditions. This is the case when terrace drains or other drainage possibilities are located directly near the door. In such cases, however, the connection height should be at least 0.05 m (top end of the seal or connection plates under the weather plinth, plinth profile).<br>3. Barrier-free transitions are customised designs. ... |
|  <br> | DIN 18024 Barrier-free construction -<br>Part 2: Public buildings and workplaces, basic planning principles<br><br>DIN 18025 Barrier-free apartments -<br>Part 1: Apartments for wheelchair users, basic planning principles<br>Part 2: Basic planning principles<br><br>Lower door stops and thresholds must always be avoided. If they are absolutely essential from a technical point of view, they must not be higher than 20 mm. |
|  <br> | In the above-mentioned example cases, the seal height may be lower than the required height, and this may indeed by necessary, whereby accompanying measures are necessary to avoid damage caused by damp.<br><br>A roof and/or terrace drains or other drainage possibilities should be arranged directly near the door, for example. |
| Adherence to the seal height is not a sufficient characteristic for an airtight connection. | |

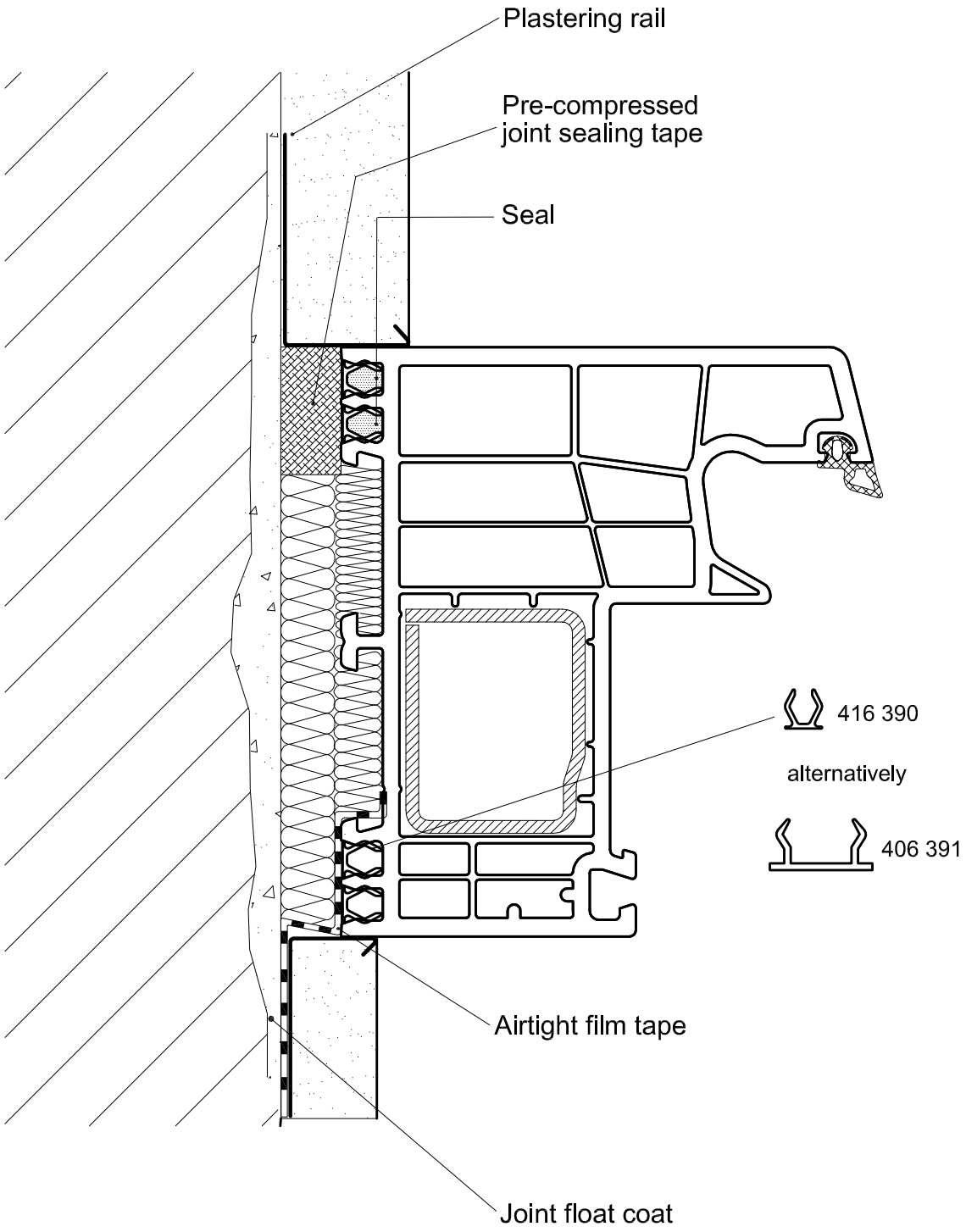
# 6. Planning installation *

The installation of windows, facades and outside doors must be planned. Essential working steps for this are shown in Fig. 1.7.

| | |
|---|---|
| 1 | **Building specifications** (tender)<br>e.g.<br>- Overview/plan of the windows<br>- Types of opening<br>- Planning documents for building design<br>- Reveal design<br>- Stop widths<br>- Thermal and humifity requirements made on the building connection |
| 2 | Determination and implementation of the requirements |
| 3 | **Recording the real building situation**<br>**Connected with obligatory testing and notification according to VOB/B**<br>e.g.<br>- Measurements<br>- Adherence to permissible tolerances of the pre-work<br>- Compliance with planned version<br>- Work on building shell, state of reveals and parapets<br>- Fastening possibilities<br>- Humidity of the building<br>- Height reference points<br>- Servicing possibility |
| 4 | **Clarification and specification of the installation details**<br>e.g.<br>- Design, dimensions, position of the components in relation to one another (installation sequence if appropriate)<br>- Fastening and load transfer<br>- Thermal and noise protection<br>- Connection on the outside and room side (seal)<br>- Additional features if necessary |
| 5 | **Window replacement in an existing building**<br>**Planning and removal**<br>**Planning of disposal**<br>(depending on national and local waste disposal laws) |

* Extract from: Installation guide 2010-1 RAL-Gütegemeinschaft Fenster und Haustüren e.V.



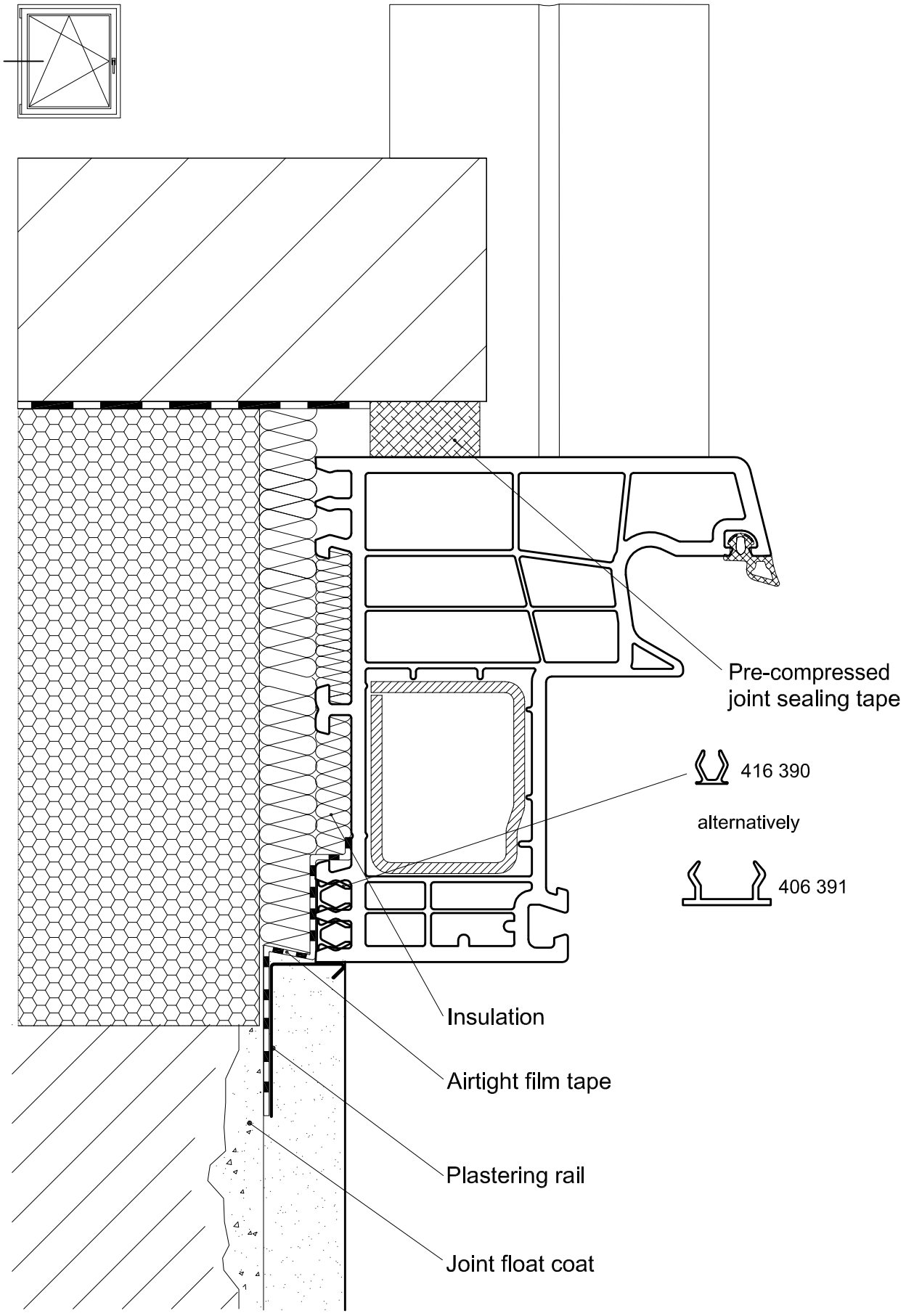


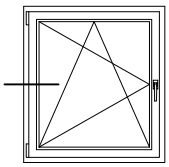

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

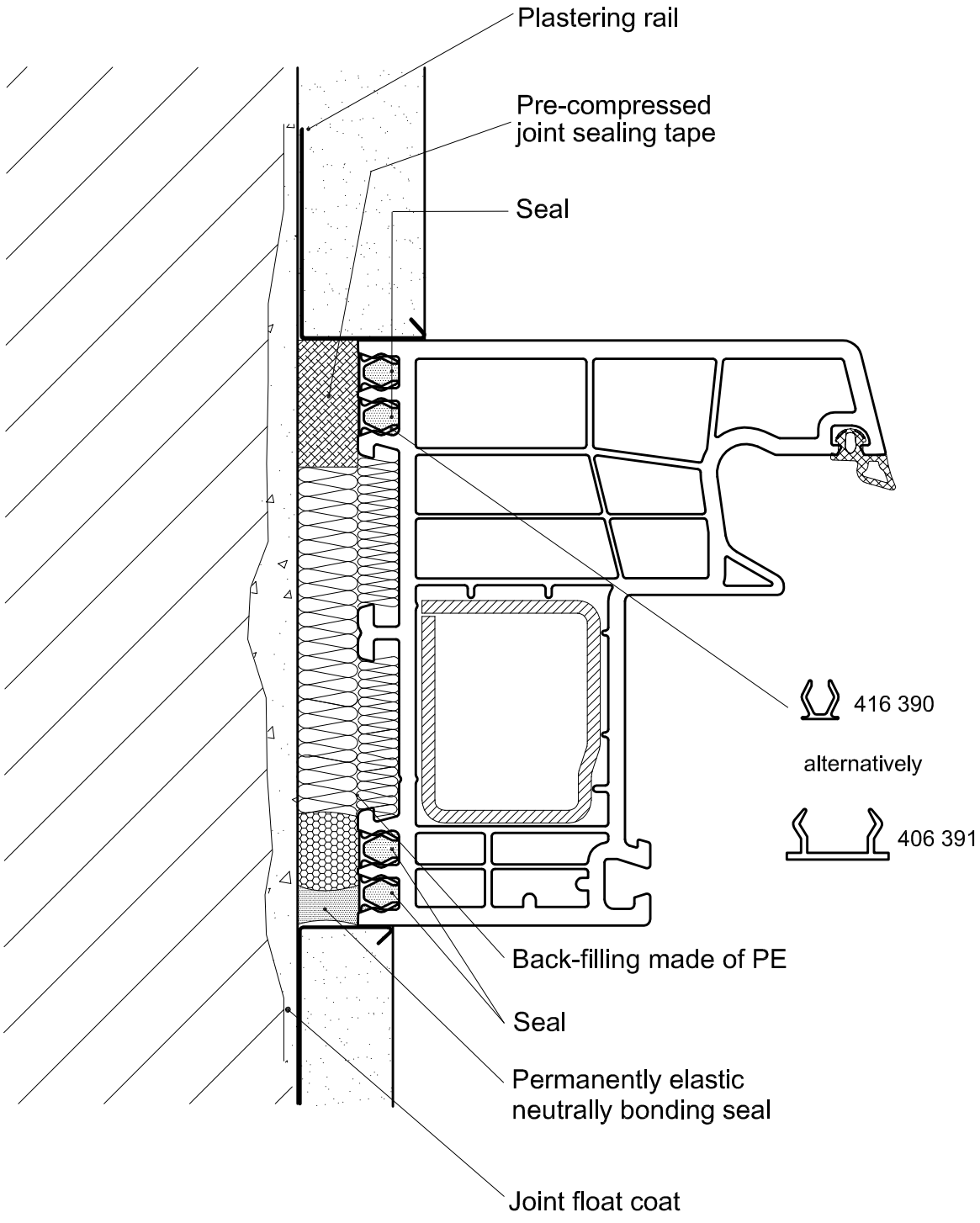
Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS


Pre-compressed
joint sealing tape
416 390
alternatively
406 391
Insulation
Airtight film tape
Plastering rail
Joint float coat



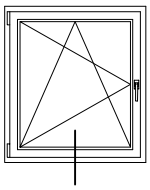


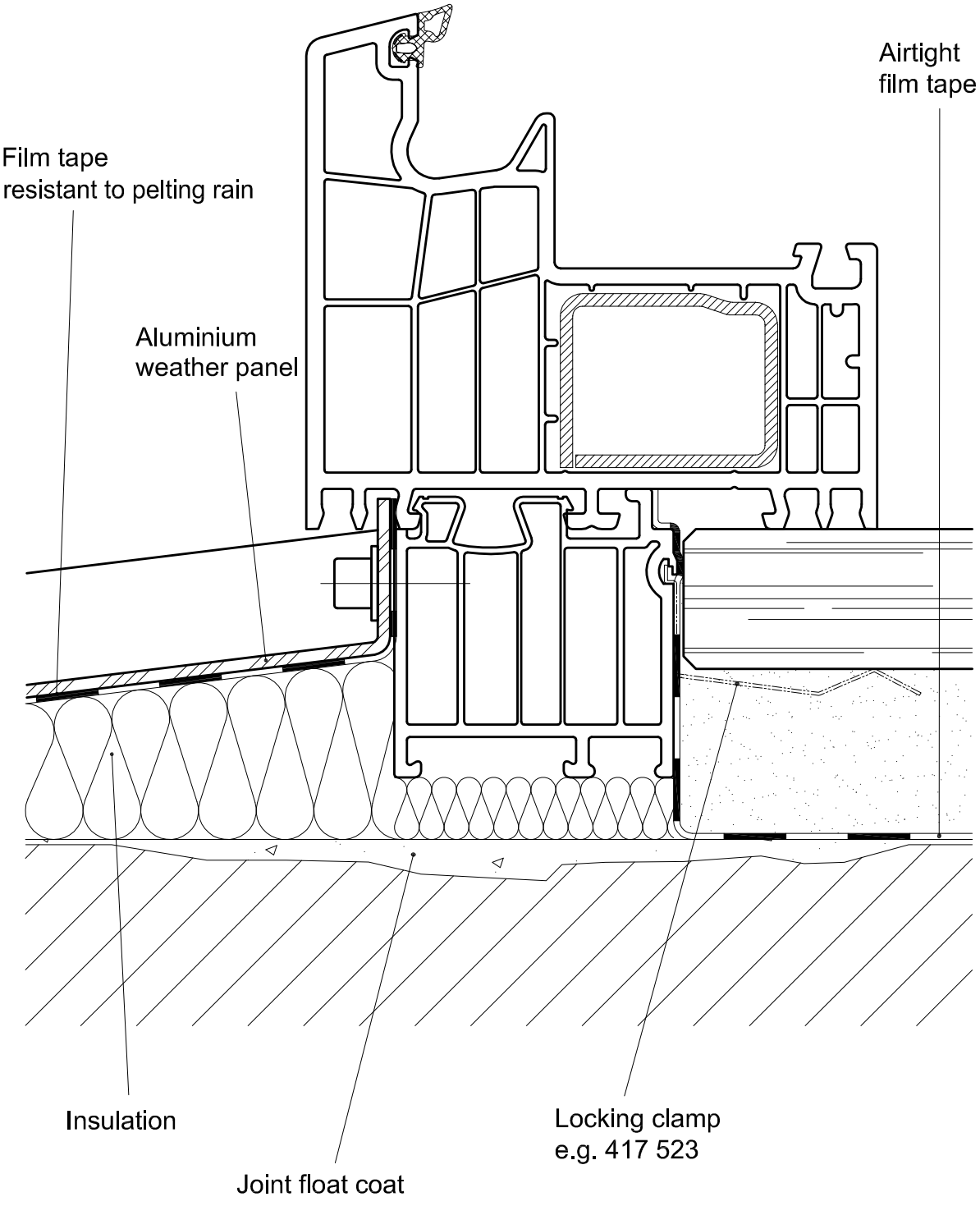

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

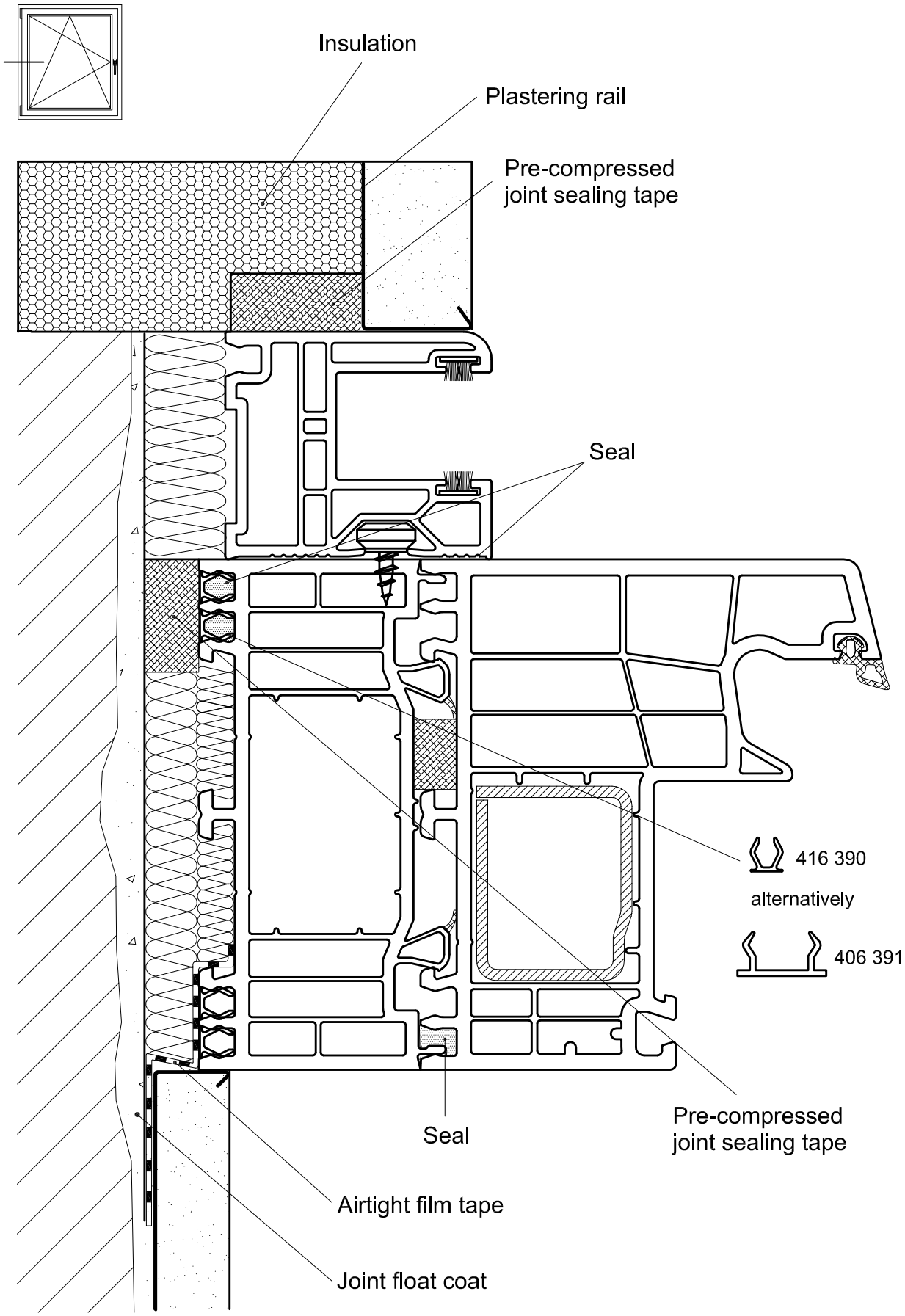
Scale 1:1 (or depending on print-out)

Issue: 11/2015

SALAMANDER WINDOW & DOOR SYSTEMS




Airtight
film tape
Film tape
resistant to pelting rain
Aluminium
weather panel
Insulation
Joint float coat
Locking clamp
e.g. 417 523

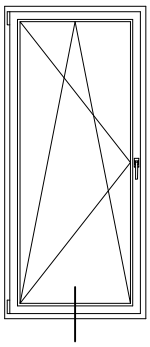


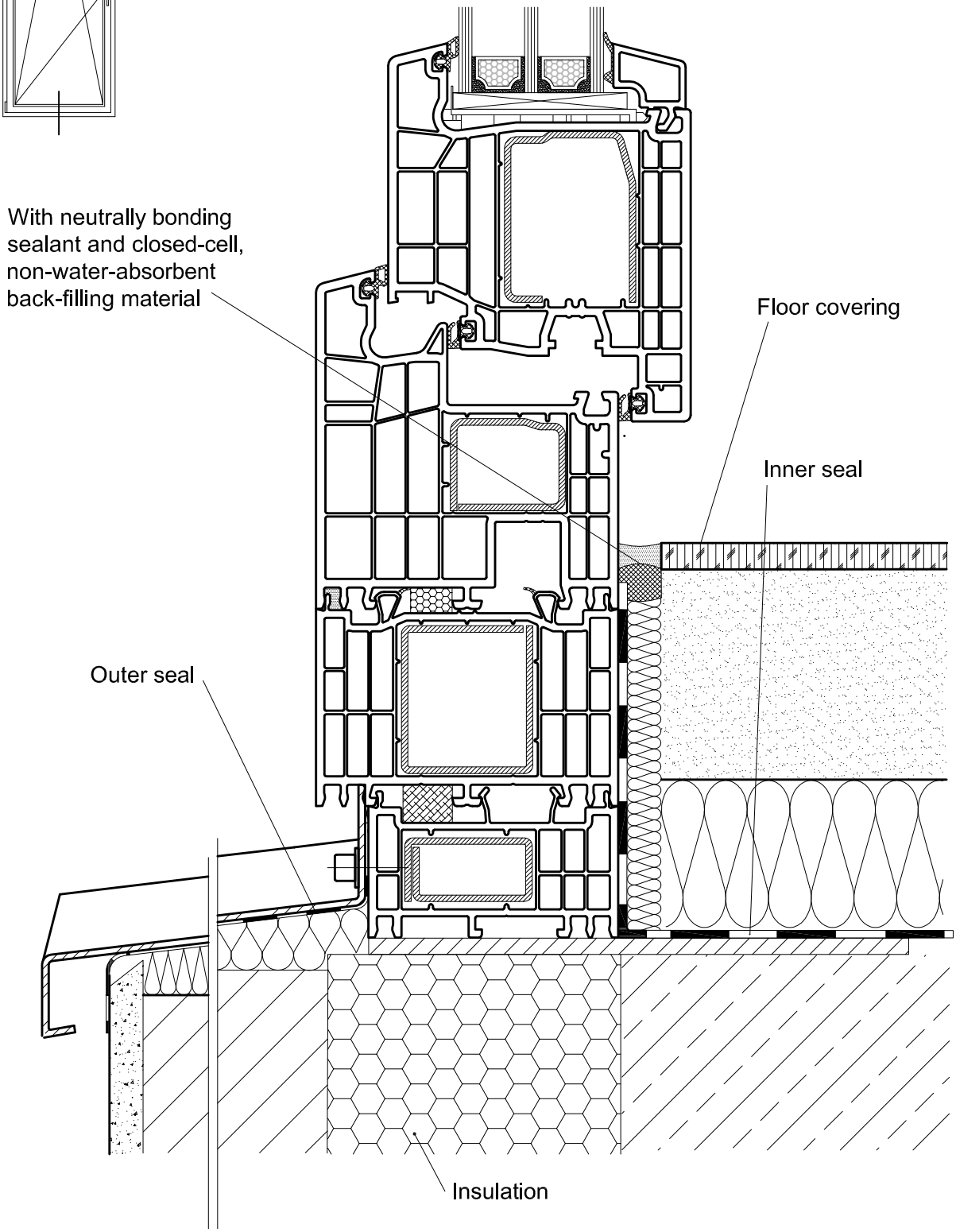

Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Scale 1:1 (or depending on print-out)

Issue: 11/2015

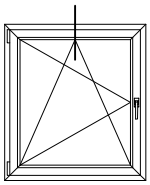
SALAMANDER WINDOW & DOOR SYSTEMS

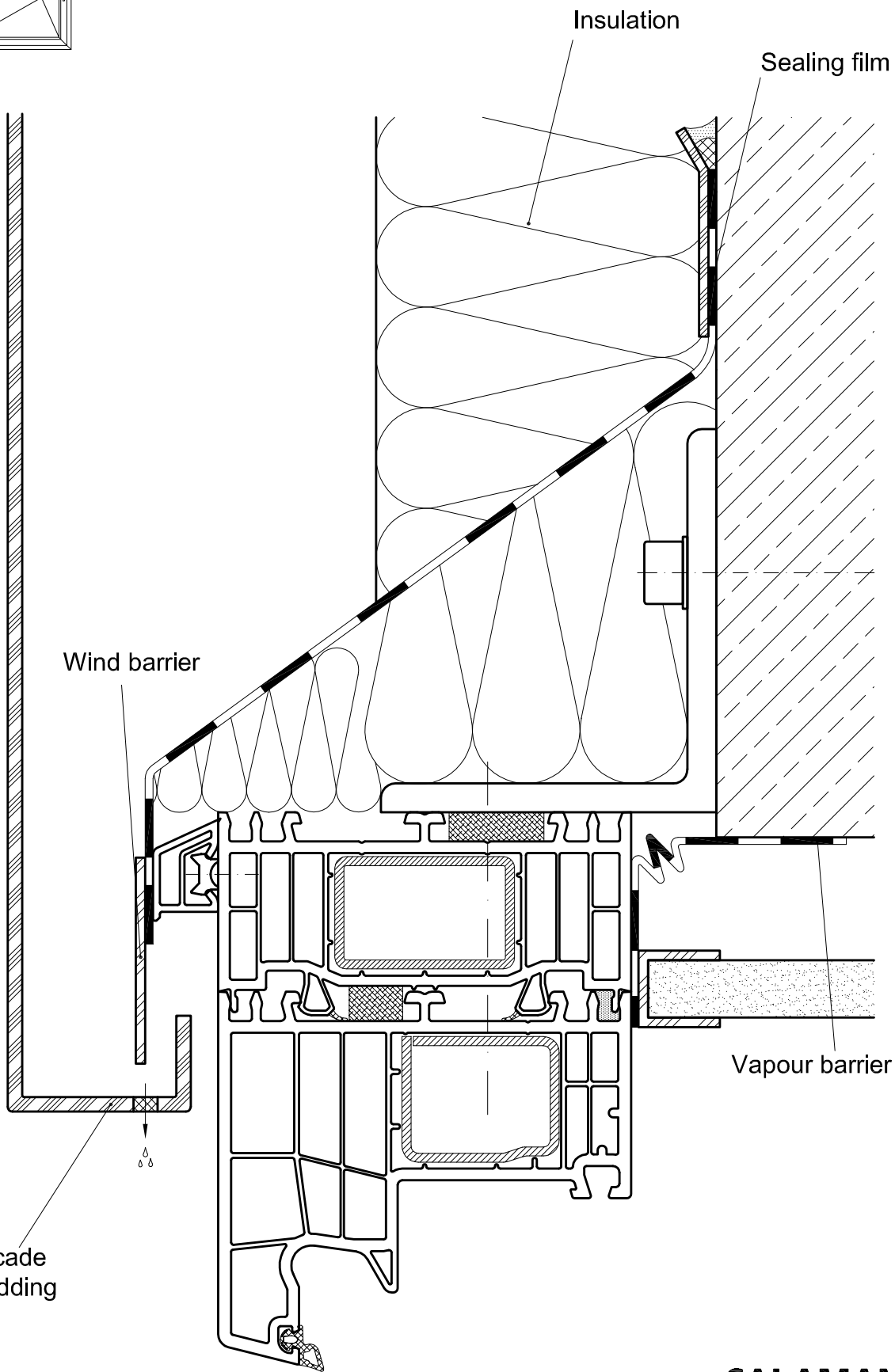





Seal with permanently elastic, neutrally bonding sealant, suitable for PVC and galvanized steel.

Not to scale




Insulation
Sealing film
Wind barrier
Vapour barrier
Facade
cludding

Not to scale

| Designation | Page bE92 10 0... |
|---|---|
| - General points / cleaning and care | 01.1 - 01.3 |
| - Maintenance and care | 01.4 |
| - Conservation of value | 01.5 |
| - Repair | 01.6 - 01.7 |

## General points

In order to conserve the value and guarantee the function of window and door elements made of SIP profiles, the regular care, cleaning of the glass and profile surface and maintenance of the fittings are important.
This guarantees a long element service life.

You should inform your contractual partners, building clients and tenants in writing about the instructions for cleaning, maintenance and conservation of value.

## Cleaning and care

Outer side, inner side and the rebate area should be cleaned regularly. The smooth longlife surface makes the SIP profiles easy and quick to clean. Surface dirt can usually easily be removed using a cloth and a standard mild cleaning agent without any abrasive or scouring additives. A table of information about cleaning PVC windows can be found on page 01.2.

Always rinse off thoroughly with clear water.

The following must not be used:

Chemical solvents, acetic acid, nail polish remover, nitro and paint thinners and similar agents. Even cleaning agents with supposed low shares of these substances must not be used. The high-quality surface can become damaged by scouring household cleaning agents, in the case of decorative surfaces the laminated profiles will be destroyed.

Small surface scratches can be removed using fine steel wool (e.g. Brillo pads) and clear water. The scratches can be removed using light, smooth wiping movements in the longitudinal direction.

Do not rub or press heavily, as this will damage the decor surface in particular and cause matt spots to appear.

Then always rinse off carefully using clear water.

The SIP products listed on page 01.3 guarantee the long-term conservation of value of windows made of SIP profiles.

## Cleaning and care

Table: "Removing soiling from PVC windows made by SIP"

| Soiling | Shift using a medium hard spatula and rub dry | Wipe dry with a cloth | Wash off with water | Clean with intensive cleaning agent for plastics |
|---|---|---|---|---|
| Aluminium abrasion | - | - | - | x |
| Bitumen | - | - | - | x |
| Lead pencil | - | - | - | x |
| Emulsion paint | x | - | - | - |
| Felt tip | - | - | - | x |
| Organic greases | - | - | - | x |
| Inorganic greases | - | - | - | x |
| Plaster | - | - | x | - |
| Rubber | - | - | - | x |
| Heating oil | - | - | - | x |
| Wood stain | - | - | x | - |
| Wood impregnating agent | - | - | - | x |
| Lime mortar | x | - | x | - |
| Putty | - | - | - | x |
| Adhesive | - | - | - | x |
| Ballpoint pen | - | - | x | - |
| Varnish (nitro) | x | - | - | - |
| Linseed oil putty | x | - | - | - |
| Oil chalk | - | - | - | x |
| Oil varnish | - | - | - | x |
| Rust | - | - | - | x |
| Soot | - | - | - | x |
| Ammonium chloride | - | - | x | - |
| Shellac | - | - | - | x |
| Blackboard chalk | - | x | - | - |
| Wax | - | - | - | x |
| Wax crayon | - | - | - | x |
| Water glass | - | x | - | - |
| Cement mortar | x | - | - | - |

This table is based on empirical values and has been prepared according to the best of our knowledge. It does not allow warranty claims to be made against SIP and its employees.

## Intensive cleaning

1. 407 810
   Cleaning agent S10
   very weakly abrasive
   (not suitable for decor)

2. 407 895
   Cleaning agent
   non-abrasive

3. 407 840
   Smoothing and polish agent
   strongly abrasive
   (not suitable for decor)

# Maintenance / care

This information is an important component of the conservation of value of window and door elements and should be communicated by yourselves to your contractual partners, building clients and tenants.

Regular maintenance is the basic pre-requisite for long-term function and keeping the windows in use as long as possible.

This means the following maintenance work has to be carried out once a year on the window.

1. Fittings must be checked for smooth running and operability. Then check for soiling and clean. Soiling on the fittings can be removed using the SIP cleaning and care set 407980. Keep all the moving fitting parts running smoothly using a drop of suitable oil or grease. Check fitting attachment screws, check that the locking plate is screwed firmly in place and carefully tighten screws where necessary.

2. Check seals for damage. Replace any damaged seals. In such cases, please contact your specialist.

3. Check seals for dust / pollen etc. and clean them. The SIP cleaning and care set 407890 is ideally suitable We recommend shortening the maintenance intervals if necessary under certain location conditions. This can be necessary where the elements are installed near for the task.

4. Check drainage outlets (slots and bore holes) for blockages and clean the openings carefully if required.

We recommend shortening the maintenance intervals if necessary under certain location conditions. This can be necessary where the elements are installed near heavy foliage, for example. Deposits of dust / pollen etc. combine with humidity and can lead to the formation of micro-organisms and mould on the seals and in the rebate areas. This is not covered by the SIP warranty.

We recommend the conclusion of a maintenance contract. Sample contracts can be obtained from i.f.t. Rosenheim.

## Conservation of value

Alongside the normal regular care and maintenance of your SIP products, we recommend using our tried-and-trusted care products as value conservation measures:

1. 407 850
   Intensive cleaning agent, special cleaning agent and preservative for white window profiles made of PVC (biologically degradable)

2. 407 895
   Care set for laminated and varnished window profiles, ecological cleaning agent and care varnish

3. 407 890
   Cleaning and care set for white window profiles with PVC fittings and seals

4. 417 850
   Repair agent for white profiles

When used regularly in line with the instructions, all these products contribute to the value conservation of your SIP product, give SIP window profiles a new shine and extend renovation intervals.

# Repair

The following can be used to repair SIP PVC window profiles:

For the repair of white profiles:

## Repair resin SIP - no. 407 852

Resin for filling spots showing signs of heavy damage and incorrectly drilled bore holes. Before use, the two-component resin must be mixed in the right ratio. After curing, the repaired spot must be sanded down. A belt sander or orbital sander can be used for this sanding work. For initial sanding we recommend using sanding paper of grit 240, for intermediate sanding grit 320 and for finishing sanding paper of grit 500 - 800.

Care must be taken during sanding that the surface does not heat up too much. For this reason, the profile surface worked should be allowed sufficient time to cool down after sanding. For the surface to regain its original shine it must be polished using a lambskin or sisal lamella brush.

For the repair of laminated profiles:

## Paint stick (edge fix) - Nr. 407 880

For matching the shade to plastered weld seams. The plastered weld seam is traced using the edge fix stick. The respective colours and article numbers can be found in our price list.

## Film repair set SIP - no. 417 885

For repairing minor damage to the surface of film-laminated profiles on SIP standard decor.

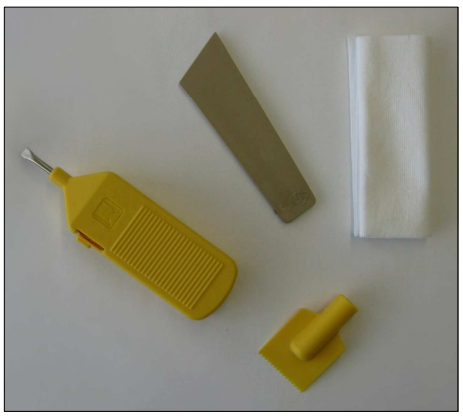
# Repair

## Film repair set SIP - no. 417 986 und 417 886

For repairing surface damage / scratches of film-laminated profiles.

### Mini smelter
### SIP - no. 417 986
(shown without packaging)

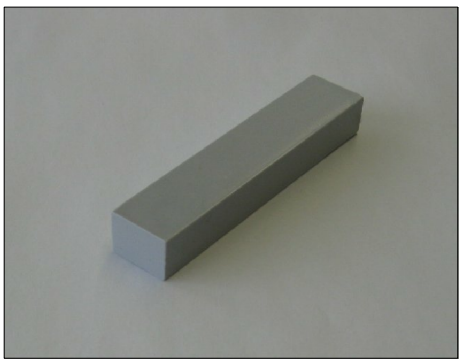
The set contains:
Mini smelter incl. 2 batteries
Jersey for cleaning the smelter tips
Spatula for adding the filler
Instructions for use



### Hard wax for repair set
### SIP - no. 417 886
(shown as an example without packaging)

The packaging contains:
Filler
Instructions for use

Colours acc. to price list



## Procedure:

Deep scratches

Clean profiles thoroughly first.

Work according to the instructions for use.

Detailed working instructions are included with every repair set! If you have any further questions about repairs our SIP application technicians will be happy to help.

| Designation | Page bE92 11 0... |
|---|---|
| - Screws / dowels / cleaning agents | 01.1 |
| - Fillings / panels | 02.1 |
| - Ventilation | 03.1 |
| - Hinges | 04.1 |
| - Turn-and-tilt fittings | 05.1 |
| - Door locks | 06.1 |
| - Machine manufacturers and suppliers | 07.1 - 07.3 |
| - Bending shops and suppliers of arched windows | 08.1 |

# Screws / dowels / cleaning agents

**Berner**
Albert Berner Deutschland GmbH
Bernerstraße 4
D 74653 Künzelsau
Tel.: 0049 7940 / 121-0
Fax.: 0049 7940 / 121-300
Internet: www.berner.de
E-mail: info@berner.de

**Böllhoff**
Wilhelm Böllhoff
GmbH & Co. KG
Geschäftsbereich
Schraubsysteme
Archimedesstraße 1-4
D 33649 Bielefeld
Tel.: 0049 521 / 4482-01
Fax.: 0049 521 / 4493-64
Internet: www.boellhoff.de
E-mail: info@boellhoff.de

**BTI**
BTI Befestigungstechnik
GmbH & Co. KG
Salzstraße 51
D 74653 Ingelfingen
Tel.: 0049 7940 / 141-0
Fax.: 0049 7940 / 141-64
Internet: www.bti.de
E-mail: info@bti.de

**Artur Fischer**
fischerwerke GmbH & Co. KG
Weinhalde 14-18
D 72178 Waldachtal
Tel.: 0049 7443 / 12-0
Fax.: 0049 7443 / 12-4222
Internet: www.fischer.de
E-mail: info@fischer.de

**HECO**
HECO-Schrauben
GmbH & Co. KG
Dr.-Kurt-Steim-Straße 28
D 78713 Schramberg
Tel.: 0049 7422 / 989-0
Fax.: 0049 7422 / 989-200
Internet: www.heco-schrauben.de
E-mail: info@heco-schrauben.de

**Heicko**
Heicko Schrauben
Vertriebs GmbH
Käthe-Kollwitz-Straße 15
D 51545 Waldbröl
Tel.: 0049 2291 / 9084-0
Fax.: 0049 2291 / 9084-50
Internet: www.heicko.de
E-mail: verkauf@heicko.de

**Hilti**
Hilti Deutschland GmbH
Hiltistraße 2
D 86916 Kaufering
Tel.: 0049 800 / 8885522
Fax.: 0049 800 / 8885523
Internet: www.hilti.de
E-mail: de.kundenservice@hilti.com

**Schüring**
Schüring GmbH & Co.
Fenster-Technologie KG
Langbaurghstraße 3
D 53842 Troisdorf-Spich
Tel.: 0049 2241 / 994-0
Fax.: 0049 2241 / 994-283
Internet: www.schuering.de
E-mail: schuering@schuering.de

**SFS**
SFS Stadler GmbH & Co. KG
In den Schwarzwiesen 2
D 61440 Oberursel
Tel.: 0049 6171 / 7002-0
Fax.: 0049 6171 / 7002-46

**Upat**
Upat GmbH & Co.
Freiburger Straße 9
D 79312 Emmendingen
Tel.: 0049 7641 / 456-0
Fax.: 0049 7641 / 456-3357

**Würth**
Adolf Würth GmbH & Co. KG
Reinhold-Würth-Straße 12-17
D 74653 Künzelsau-Gaisbach
Tel.: 0049 7940 / 15-0
Fax.: 0049 7940 / 15-1000
Internet: www.wuerth.de
E-mail: info@wuerth.com

(This list only server as an overview of sources in Germany and does not claim to be complete.
Adresses in export countries have not been taken into consideration.)

# Fillings / panels



DPI
DPI Türdesign GmbH
Am Schornacker 109
D 46485 Wesel
Tel.: 0049 281 / 9524-0
Fax.: 0049 281 / 8519401
Internet: www.dpi-tuerdesign.de
E-mail: dpi@dpi-tuerdesign.de

GÜWA
GÜWA-Produktion
Dekorative Bauelemente
GmbH & Co. KG
Gottlieb-Daimler-Straße 15
D 72202 Nagold
Tel.: 0049 7452 / 65033
Fax.: 0049 7452 / 67560
Internet: www.guewa.de
E-mail: info@guewa.de

Linzmeier
Linzmeier Bauelemente GmbH
Industriestraße 21
D 88499 Riedlingen
Tel.: 0049 7371 / 1806-0
Fax.: 0049 7371 / 1806-95
Internet: www.linzmeier.de
E-mail: info@linzmeier.de

Obuk
OBUK Haustürfüllungen
GmbH & Co. KG
Am Landhagen 96-98
D 59302 Oelde
Tel.: 0049 2522 / 917-0
Fax.: 0049 2522 / 917-166
Internet: www.obuk.de
E-mail: info@obuk.de

Repol
Repol GmbH & Co. KG
Dieselstr. 61-63 / Benzstr. 9-15
D 33442 Herzebrock-Clarholz
Tel.: 0049 5245 / 831-0
Fax.: 0049 5245 / 831-160
E-mail: info@repol.de

Rodenberg
Rodenberg Türsysteme AG
Osterkamp 3
D 32457 Porta Westfalica
Tel.: 0049 5731 / 768-0
Fax.: 0049 5731 / 768-180
Internet: www.rodenbergag.de
E-mail: info@rodenbergmail.de

Stadur
Stadur Produktions
GmbH & Co. KG
Ostereichen 2-4
D 21714 Hammah
Tel.: 0049 4144 / 234-0
Fax.: 0049 4144 / 234-100
Internet: www.stadur.de
E-mail: stadur@stadur.com

Weiss
Weiss Chemie+Technik
GmbH & Co. KG
Hansastraße 2
D 35708 Haiger
Tel.: 0049 2773 / 815-0
Fax.: 0049 2773 / 815-100
Internet: www.weiss-chemie.de

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# Ventilation

Aereco
Aereco GmbH
Mergenthalerallee 19-21
D 65760 Eschborn
Tel.: 0049 6196 / 48774-5
Fax.: 0049 6196 / 44573
Internet: www.aereco.de
E-mail: info@aereco.de

Aldes
Aldes Lufttechnik GmbH
Fanny-Zobel-Straße 5
D 12435 Berlin
Tel.: 0049 30 / 53219000
Fax.: 0049 30 / 53219001
Internet: www.aldes.de
E-mail: aldes@aldes.de

Deflex
Deflex- Dichtsysteme GmbH
Heinrich-Hertz-Straße 18-22
D 47445 Moers
Tel.: 0049 2841 / 8888-0
Fax.: 0049 2841 / 8888-199
Internet: www.deflex.de
E-mail: info@deflex.de

FSB
Franz Schneider Brakel
GmbH & Co. KG
Nieheimer Straße 38
D 33034 Brakel
Tel.: 0049 5272 / 608-0
Fax.: 0049 5272 / 608-300
Internet: www.fsb.de
E-mail: info@fsb.de

AEREX
AEREX Haustechnik Systeme GmbH
Steinkirchring 27
D 78056 Villingen-Schwenningen
Tel.: 0049 7720 / 9 95 88-370
Fax.: 0049 7720 / 9 95 88-174
Internet: www.aerex.de
E-mail: info@aerex.de

GU
Gretsch-Unitas GmbH
Baubeschläge
Johann-Maus-Straße 3
D 71254 Ditzingen
Tel.: 0049 7156 / 301-0
Fax.: 0049 7156 / 301-293
Internet: www.g-u.de
E-mail: vertrieb-inland@g-u.de

Hautau
HAUTAU GmbH
Bahnhofstraße 56-60
D 31691 Helpsen
Tel.: 0049 5724 / 393-0
Fax.: 0049 5724 / 393-125
Internet: www.hautau.de
E-mail: info@hautau.de

Lüftomatic
Lüftomatic GmbH
Industriestraße 1
D 69198 Schriesheim
Tel.: 0049 6203 / 10-21
Fax.: 0049 6203 / 102619

Renson
RENSON WAREGEM
Industriezone 2 Vijverdam
Maalbeekstraat 10
8790 Waregem
Belgien
Tel.: 0032 / 56627111
Fax.: 0032 / 56602851
Internet: www.renson.de
E-mail: info@renson.de

Wallair
Wallair Handel GmbH & Co. KG
Bahnhof 5
D 53945 Blankenheim-Wald
Tel.: 0049 2499 / 9507-0
Fax.: 0049 2499 / 9507-10
Internet: www.wallair.de

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# Hinges

| | |
|---|---|
| Anuba | Anuba AG<br>Donaueschingerstr. 2-6<br>D 78147 Vöhrenbach / Schwarzwald<br>Tel.: 0049 7727 / 920-0<br>Fax.: 0049 7727 / 920-222<br>Internet: www.anuba.de<br>E-mail: vertrieb@anuba.de |
| Haps | HAPS GmbH & Co. KG<br>Langenberger Straße 131-133<br>D 42551 Velbert<br>Tel.: 0049 2051 / 2801-0<br>Fax.: 0049 2051 / 2801-50<br>Internet: www.haps.de<br>E-mail: info@haps.de |
| Dr. Hahn | Dr. Hahn GmbH & Co. KG<br>Trompeterallee 162-170<br>D 41189 Mönchengladbach<br>Tel.: 0049 2166 / 954-3<br>Fax.: 0049 2166 / 954-444<br>Internet: www.hahn-dr.de<br>E-mail: vertrieb@dr-hahn.de |
| Roto | Roto Frank AG<br>Wilhelm-Frank-Platz1<br>D 70771 Leinfelden-Echterdingen<br>Tel.: 0049 711 / 7598-0<br>Fax.: 0049 711 / 7598-253<br>Internet: www.roto-frank.com<br>E-mail: info@roto-frank.com |
| Roto-BKV | Roto Gluske-BKV GmbH<br>Hatzfelderstraße 161-163<br>D 42281 Wuppertal<br>Tel.: 0049 202 / 27057-0<br>Fax.: 0049 202 / 27057-250<br>Internet: www.gluskebkv.de |
| Schüring | Schüring GmbH & Co.<br>Fenster-Technologie KG<br>Langbaurghstraße 3<br>D 53842 Troisdorf-Spich<br>Tel.: 0049 2241 / 994-0<br>Fax.: 0049 2241 / 994-283<br>Internet: www.schuering.de<br>E-mail: schuering@schuering.de |
| Simonswerk | Simonswerk GmbH<br>Bosfelder Weg 5<br>D 33378 Rheda-Wiedenbrück<br>Tel.: 0049 5242 / 413-0<br>Fax.: 0049 5242 / 413-150<br>Internet: www.simonswerk.de<br>E-mail: info@simonswerk.de |
| Elram | Elram GmbH<br>Rudolf-Diesel-Straße 5<br>D 74354 Besigheim / Ottmarsheim<br>Tel.: 0049 7143 / 969090<br>Fax.: 0049 7143 / 9690920<br>Internet: www.elram.de<br>E-mail: info@elram.de |

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# Turn-and-tilt fittings

**Aubi**
Aubi Baubeschläge GmbH
Am Fohlengarten 6
D 54411 Hermeskeil
Tel.: 0049 6503 / 917-0
Fax.: 0049 6503 / 917-100
Internet: www.siegenia-aubi.com
E-mail: post@siegenia-aubi.com

**Fuhr**
CARL FUHR GmbH & Co. KG
Carl-Fuhr-Straße 12
D 42579 Heiligenhaus
Tel.: 0049 2056 / 592-0
Fax.: 0049 2056 / 592-384
Internet: www.fuhr.de
E-mail: info@fuhr.de

**GU**
Gretsch-Unitas GmbH
Baubeschläge
Johann-Maus-Straße 3
D 71254 Ditzingen
Tel.: 0049 7156 / 301-0
Fax.: 0049 7156 / 301-293
Internet: www.g-u.de
E-mail: vertrieb-inland@g-u.de

**Hautau**
HAUTAU GmbH
Baubeschläge
Bahnhofstraße 56-60
D 31691 Helpsen
Tel.: 0049 5724 / 393-0
Fax.: 0049 5724 / 393-125
Internet: www.hautau.de
E-mail: info@hautau.de

**Maco**
Mayer & Co.
Beschläge GmbH
Alpenstraße 173
A-5020 Salzburg
Tel.: 0043 / 662 / 6196-0
Fax.: 0043 / 662 / 6196-101
Internet: www.maco.at
E-mail: maco@maco.at

**Roto**
Roto-Frank AG
Stuttgarter Straße 145-149
D 70771 Leinenfelden-Echterdingen
Tel.: 0049 711 / 7598-0
Fax.: 0049 711 / 7598-253
Internet: www.roto-frank.de
E-mail: info@roto-frank.com

**Schüring**
Schüring GmbH & Co.
Fenster-Technologie KG
Langbaurghstraße 3
D 53842 Troisdorf-Spich
Tel.: 0049 2241 / 994-0
Fax.: 0049 2241 / 994-283
Internet: www.schuering.de
E-mail: schuering@schuering.de

**Selve**
SELVE GmbH & Co. KG
Werdohler Landstraße 286
D 58513 Lüdenscheid
Tel.: 0049 2351 / 925-0
Fax.: 0049 2351 / 925-111
Internet: www.selve.de
E-mail: info@selve.de

**Siegenia**
Siegenia Aubi KG
Industriestrasse 1-3
D 57234 Wilnsdorf-Niederdielfen
Tel.: 0049 271 / 3931-0
Fax.: 0049 271 / 3931-333
Internet:
www.siegenia-aubi.de
E-mail:
post@siegenia-aubi.com

**VBH**
VBH Holding AG
Siemensstraße 38
D 70825 Korntal-Münchingen
Tel.: 0049 7150 / 150
Fax.: 0049 7150 / 15315
Internet: www.vbh.de

**Winkhaus**
Aug. Winkhaus GmbH & Co.KG
August-Winkhaus-Straße 31
D 48291 Telgte
Tel.: 0049 2504 / 921-0
Fax.: 0049 2504 / 921-354
Internet: www.winkhaus.de
E-mail: info@winkhaus.de

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# Door locks

Fliether
KFV Karl Fliether GmbH & Co. KG
Siemensstraße 10
D 42551 Velbert
Tel.: 0049 2051 / 278-0
Fax.: 0049 2051 / 278-33
Internet: www.kfv.de
E-mail: info@kfv.de

Fuhr
Carl Fuhr GmbH & Co. KG
Carl-Fuhr-Straße 12
D 42579 Heiligenhaus
Tel.: 0049 2056 / 592-0
Fax.: 0049 2056 / 592-384
Internet: www.fuhr.de
E-mail: info@fuhr.de

GU
Gretsch-Unitas GmbH
Baubeschläge
Johann-Maus-Straße 3
D 71254 Ditzingen
Tel.: 0049 7156 / 301-0
Fax.: 0049 7156 / 301-293
Internet: www.g-u.de
E-mail: vertrieb-inland@g-u.de

Roto
Roto Frank Austria GmbH
Lapp-Finze-Straße 21
A-8401 Kalsdorf
Tel.: 0043 / 03135 / 504-0
Fax.: 0043 / 03135 / 52-727
Internet: www.roto-frank.com
E-mail: info@roto-frank.com

Schüring
Schüring GmbH & Co.
Fenster-Technologie KG
Langbaurghstraße 3
D 53842 Troisdorf-Spich
Tel.: 0049 2241 / 994-0
Fax.: 0049 2241 / 994-283
Internet: www.schuering.de
E-mail: schuering@schuering.de

WILKA
Wilka Schließtechnik GmbH
Mettmanner Straße 56-64
D 42549 Velbert
Tel.: 0049 2051 / 2081-0
Fax.: 0049 2051 / 2081-151
Internet: www.wilka.de
E-mail: info@wilka.de

Winkhaus
Aug. Winkhaus GmbH & Co. KG
Berkeser Straße 6
D 98617 Meiningen
Tel.: 0049 3693 / 950-0
Fax.: 0049 3693 / 950-134
Internet: www.winkhaus.de
E-mail: tuertechnik@winkhaus.de

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# Machine manufacturers and suppliers

**Alup**
Alup Kompressoren GmbH
Nürtinger Straße 50
D 73253 Köngen
Tel.: 0049 7024 / 9612-100
Fax.: 0049 7024 / 9612-199
Internet: www.alup-kompressoren.de
E-mail: info@alup.com

**Atlas Copco**
Atlas Copco Deutschland
Langemarckstraße 35
D 45141 Essen
Tel.: 0049 201 / 2177-0
Fax.: 0049 201 / 2169-17
Internet: www.atlascopco.com
E-mail: kompressoren@atlascopco.de

**Berchtold**
Rolf Berchtold
Fensterbaumaschinen GmbH
Buchstauden 18
D 78269 Volkertshausen
Tel.: 0049 7774 / 9330-0
Fax.: 0049 7774 / 9330-30
Internet: www.fensterbau-maschinen.de
E-mail: info@berchtold-gmbh.de

**Berg & Schmid**
Berg & Schmid GmbH
Hofener Weg 15
D 71686 Remseck
Tel.: 0049 7146 / 8954-0
Fax.: 0049 7146 / 91830
Internet: www.bergundschmid.de
E-mail: info@bergundschmid.de

**Boge**
Boge Kompressoren
Otto Boge GmbH & Co. KG
Otto-Boge-Straße 1-7
D 33739 Bielefeld
Tel.: 0049 5206 / 601-0
Fax.: 0049 5206 / 601-200
Internet: www.boge.de
E-mail: info@boge.de

**Chiron**
Chiron-Werke GmbH & Co. KG
Kreuzstraße 75
D 78532 Tuttlingen
Tel.: 0049 7461 / 940-0
Tel.: 0049 7461 / 940-8000
Internet: www.chiron.de
E-mail: info@chiron.de

**Clasen**
Holger Clasen GmbH & Co. KG
Alsterdorfer Straße 234
D 22297 Hamburg
Tel.: 0049 40 / 51128-0
Fax.: 0049 40 / 51128-111
Internet: www.holger-clasen.de
E-mail:
info@holger-clasen.de

**Dexion**
Dexion GmbH
Dexionstraße 1-5
D 35321 Laubach
Tel.: 0049 6405 / 800
Fax.: 0049 6405 / 1422
Internet: www.dexion.de
E-mail: kontakt@dexion.de

**Eder & Müller**
Eder & Müller GmbH
Maschinenbau
Fehrbacher Straße 48
D 66954 Pirmasens
Tel.: 0049 6331 / 91041
Fax.: 0049 331 / 94669
Internet: www.ederundmueller.de
E-mail: eder_mueller@t-online.de

**Elektra Beckum**
Elektra Beckum AG
Daimlerstraße 1
D 49716 Meppen
Tel.: 0049 5931 / 8020
Fax.: 0049 5931 / 802275
Internet: www.elektra-beckum.de
E-mail: info@elektra-beckum.de

**Elumatec**
Elumatec GmbH
Pinacher Straße 61
D 75417 Mühlacker-Lomersheim
Tel.: 0049 7041 / 14-0
Fax.: 0049 7041 / 14-280
Internet: www.elumatec.com
E-mail: mail@elumatec.de

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# Machine manufacturers and suppliers

Elvedi
Elvedi GmbH
Aitlingerstraße 18
D 78176 Blumberg
Tel.: 0049 7702 / 4382-0
Fax.: 0049 7702 / 4382-10
Internet: www.elvedi.com
E-mail: info@elvedi.com

Fein
C. u. E. Fein GmbH
Hans-Fein-Straße 81
D 73529 Schwäbisch Gmünd-Bargau
Tel.: 0049 7173 / 183-0
Fax.: 0049 7173 / 183800
Internet: www.fein.de
E-mail: info@fein.de

Festo
Festo AG & Co. KG
Ruiter Straße 82
D 73734 Esslingen
Tel.: 0049 711 / 347-0
Fax.: 0049 711 / 347-2144
Internet: www.festo.de
E-mail: info_de@festo.com

Fezer
Albert Fezer
Maschinenfabrik GmbH
Hauptstraße 37-39
D 73730 Esslingen
Tel.: 0049 711 / 36009-0
Fax.: 0049 711 / 36009-40
Internet: www.fezer.de
E-mail: fezer@fezer.de

Fischer
Fischer GmbH & Co. KG
Lagertechnik+Regalsysteme
Am Hasenbiel 41
D 76297 Stutensee-Blankenloch
Tel.: 0049 7244 / 9642-0
Fax.: 0049 7244 / 9642-77
Internet: www.fischer-lagertechnik.de
E-mail: fischer@fischer-lagertechnik.de

Finke
Finke GmbH
Auf den Kämpen 11
D 59071 Hamm
Tel.: 0049 2388 / 1000
Fax.: 0049 2388 / 1783
Internet: www.finke-maschinen.de
E-mail: info@finke-maschinen.de

Flott
Arnz Flott GmbH
Wergzeugmaschinen
Vieringhausen 131
D 42857 Remscheid
Tel.: 0049 2191 / 979-0
Fax.: 0049 2191 / 979-222
Internet: www.flott.de
E-mail: info@flott.de

Rotox
Rotox GmbH
Am Sportplatz 2
D 56858 Grenderich
Tel.: 0049 2673 / 981-0
Fax.: 0049 2673 / 981-119
Internet: www.rotox.com
E-mail: info@rotox.com

Ruchser
Ruchser GmbH
Fensterbaumaschinen
Bahnhofstraße 49
D 74336 Brackenheim
Tel.: 0049 7135 / 98270
Fax.: 0049 7135 / 982715
Internet: www.ruchser.com
E-mail: info@ruchser.com

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# Machine manufacturers and suppliers

**Schirmer**
Schirmer Maschinen GmbH
Stahlstraße 25
D 33415 Verl
Tel.: 0049 5246 / 9213-0
Fax.: 0049 5246 / 9213-33
Internet: www.schirmer-maschinen.com
E-mail: info@schirmer-maschinen.com

**Schulten**
K. Schulten GmbH & Co. KG
Industriestraße 3-7
D 48488 Emsbüren
Tel.: 0049 5903 / 9390-0
Fax.: 0049 5903 / 9390-93
Internet: www.ksschulten.com
E-mail: info@ksschulten.com

**Schuster**
Schuster GmbH
Werner von Siemens Straße 18
D 30982 Pattensen
Tel.: 0049 5101 / 10088-0
Fax.: 0049 5101 / 10088-88
Internet: www.maschinen-schuster.de
E-mail: info@maschinen-schuster.de

**Schmittecker**
HD Schmittecker GmbH
In der Kühweid 12
D 76661 Philippsburg-Huttenheim
Tel.: 0049 7256 / 9310-0
Fax: 0049 7256 / 9310-22
Internet: www.schmittecker.com
E-mail: info@schmittecker.de

**Stürtz**
Willi Stürtz
Maschinenbau GmbH
Linzer Straße 24
D 53577 Neustadt/ Wied-Rott
Tel.: 0049 2683 / 309-0
Fax.: 0049 2683 / 309-125
Internet: www.stuertz.com
E-mail: mail@stuertz.com

**Witte**
Maschinen-Witte GmbH & Co. KG
Bahnhofstraße 13
D 49176 Hilter a.T.W.
Tel.: 0049 5424 / 3234
Fax.: 0049 5424 / 38232
Internet: www.maschinen-witte.de
E-mail: info@maschinen-witte.de

**Urban**
Urban GmbH & Co.
Maschinenbau KG
Dornierstraße 5
D 87700 Memmingen
Tel.: 0049 8331 / 858-0
Fax.: 0049 8331 / 858-170
Internet: www.u-r-b-a-n.com
E-mail: urban@u-r-b-a-n.com

**Wampfler**
Conductix-Wampfler AG
Rheinstraße 27+33
D 79576 Weil am Rhein-Maerkt
Tel.: 0049 7621 / 662-0
Fax.: 0049 7621 / 662-144
Internet: www.wampfler.com
E-mail: info.de@conductix.com

**Wegener**
Wegener International GmbH
Vaalser Straße 81
D 52074 Aachen
Tel.: 0049 241 / 70522-0
Fax.: 0049 241 / 70522-99
Internet: www.wegenerwelding.de
E-mail: info@wegenerwelding.de

**Wegoma**
Wegoma
Fensterbau-Maschinen GmbH
Kaulbachstraße 48
D 75175 Pforzheim
Tel.: 0049 7231 / 77884-20
Fax.: 0049 7231 / 77884-29
Internet: www.wegoma-d.de
E-mail: info@wegoma-d.de

**Zierke**
Heinz Zierke
Ringstraße 1
D 87751 Heimertingen
Tel.: 0049 8335 / 98677-0
Fax.: 0049 8335 / 9867-2

**Thorwesten**
Thorwesten Maschinenbau GmbH
Daimierring 45
D 59269 Beckum
Tel.: 0049 2521 / 82020
Fax.: 0049 2521 / 820222
Internet: www.thorwesten.net
E-mail: info@thorwesten.net

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# Bending shops and suppliers of arched windows



Gemini
Gemini GmbH
Am Kirschberg 2
D 07570 Burkersdorf
Tel.: 0049 36603 / 558-0
Fax.: 0049 36603 / 558-22
Internet: www.gemini-biegen.de
E-mail: gemini.fenster@t-online.de

KS
KS Biegetechnik GmbH
Industriestraße 9
D 48465 Schüttorf
Tel.: 0049 5923 / 9616-0
Fax.: 0049 5923 / 9616-16
Internet: www.ks-biegetechnik.de
E-mail: info@ks-biegetechnik.de

Rodenberg
Rodenberg Türsysteme AG
Osterkamp 3
D 32457 Porta Westfalica
Tel.: 0049 5731 / 7680
Fax.: 0049 5731 / 768180
Internet: www.rodenberg.ag
E-mail: info@rodenbergmail.de

Rubo
RUBO-Fenster GmbH & Co. KG
Eschweg 7
D 32457 Porta Westfalica
Tel.: 0049 5731 / 7610-0
Fax.: 0049 5731 / 7610-40
Internet: www.rubo.de
E-mail: info@rubo.de

Schock
Schock Fensterwerk GmbH
Keltenstraße 2
D 85095 Denkendorf
Tel.: 0049 8466 / 9500
Fax.: 0049 8466 / 1347
Internet: www.schock-fensterwek.de
E-mail: info@schock-fensterwerk.de

Ventana
Vetana Deutschland GmbH&Co.KG
Max-Planck-Straße 10
D 48691 Vreden
Tel.: 0049 2564 / 9336-0
Fax.: 0049 2564 / 9336-16
Internet:
www.ventana-deutschland.de
E-mail:
info@ventana-deutschland.de

Wolter
Wolter Fenstertechnik
Glienecke / Dorfstraße 19 d
D 14793 Ziesar
Tel.: 0049 33830 / 600-49
Fax.: 0049 33830 / 600-48
Internet:
www.wolter-fenstertechnik.de
E-mail:
kontakt@wolter-fenstertechnik.de

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Adresses in export countries have not been taken into consideration.)