



**Rio**

**Flush Fit**

Technical Information

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**Building Solutions**  
Automotive  
Industry



# Rio Flush Fit

## Technical Information - Contents

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# Rio Flush Fit

## Technical Information - General Guidelines

### Product Description

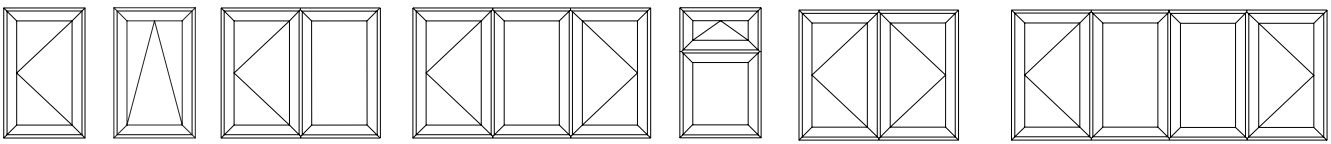
The Rio Flush Fit window gives a traditional appearance to any building and is designed to create maximum lighting effect into the room, whilst offering easy maintenance. The window utilises the TOTAL70 hardware rebate so the same hinge and gearing options are available.

The Rio Flush Fit window is based on an authentic, traditional design, timber window but with all the benefits of modern PVC performance. The styles consist of a casement window side hung, top hung and french window where the sash fits flush into the frame.

The Rio Flush Fit is manufactured with the outer frame profile components from the TOTAL70 system therefore you are able to either manufacture the window with a Chamfered (T70c) or Sculptured (T70s) finish depending on the style of property that the window is being fitted into.

In order to further enhance the traditional timber aesthetics the Heritage vertical sliding bead and Georgian bar system are utilised.

### Window Styles



*\* For authenticity dummy sashes are displayed*

### Storage of PVC-U profiles

For information on storage of profiles please refer to TOTAL70 Manufacturing Recommendations 706.620EN

### Cutting to size

Cutting speed is 50 – 52 m per second and suitably toughened metal fine toothed saw blades should be used. High speed steel blades must be relief ground with no set. It is extremely important that all cutting tools are kept sharp, blunt tools produce excessive friction causing a film of molten material to stick to the saw blade and between its teeth. This adversely affects the cleanliness of cuts and, therefore, the weld. Cut sections should be processed without delay, at most within 2 to 3 days, because of the risk of dirt pick-up in the cut faces and moisture absorption from the air.

Dirt contamination can cause faults in the weld, reducing corner strength.

Cutting of profiles is in accordance with fabrication sizes.

### Milling and drilling

High-speed light metal and woodworking machines are suitable for milling work as well as conventional HSS drilling and milling machines. When drilling (triple boring) simultaneously through PVC and steel in one pass, the drill bits and drilling machine must be compatible and suitable for steel to avoid deflection of the drill or other damage.

### Outer Frame Drainage

Drainage of the outer frame profile is affected by milling slots into the front chamber and routing the water out via either:

- slots or holes milled in the external face and concealed with a plastic cover where face drainage is required, or
- slots milled in the underside of the profile, where concealed drainage is required.

### Sash Drainage and Pressure Equalisation

The glazing rebate must be drained at the bottom via slots into the front chambers 5 x 25 mm long. At least two slots, 70 mm from the corners and a maximum of 600 mm apart should be milled in accordance with the Glazing instructions. The rebate must also be pressure equalised via similar slots placed on the outside of the profile at the top of the jambs.

### Welding

For welding methods and further information please refer to TOTAL70 Manufacturing Recommendations 706.620EN.

### Mechanical Jointing

In addition to welding of profile the system has the option to be mechanically jointed for both the sash and frame; details of which are covered on page 16-17.

**On the bottom, for both the sash and frame, the drainage chamber profile ends require sealing off with silicone.** Transom drainage chambers also require sealing off. For Transom mechanical joints utilise the TOTAL70 standard mechanical joint blocks, Art No. 261209/261199.

### Seals

The weldable corner gasket, Art. No. 328217, are inserted into the sash corners followed by closing seal, Art. No. 329649, between the corner seals. Make sure that there are no gaps and gasket is not stretched. To aid fitting of Art. No. 328217 use hand roller or lubricate. For welded sashes the weld sprue should be removed in the corners before inserting seal. The bead infill gasket, Art. No. 328218, needs to be inserted before the hinges are fitted.



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Use of non-REHAU seals and gaskets will invalidate test certificates, performance data or third party certification applicable to REHAU window systems.

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### Fittings – Hardware

A eurogroove is provided in the sash profile to accommodate espagnolettes and shoot bolts with a 16mm face plate. Availability of specialist keeps should be checked with the fittings suppliers. Fitting and operating instructions plus drilling templates should be obtained from the fittings manufacturers. Permissible sash weight and sash dimensions also depend on the type of fittings used and manufacturer's recommendations should be followed.

Screw fixings should always penetrate two walls of PVC, the reinforcement profile or the specially designed screw ports provided. If holes are pre-drilled, the condition of equipment should be carefully checked, since blunt drill bits can reduce anchor strength substantially. Where self tapping screws are used, it is essential that a precisely shaped cutting bit is employed.

When using electric or pneumatic screw drivers, the clutch mechanism must be adjusted to avoid stripping the threads and the speed should be set to 600-1000 rpm. Higher speeds may cause partial heating of the PVC material, reducing anchorage strength of the screws.

With the fittings in position the sash is able to operate externally to the geometry set by the hinge.

### Application of supplementary profiles

Profile combinations are possible with supplementary profiles from the TOTAL70 Ancillary range. Manufacturing instructions for the individual profiles should be followed.

### Fitting of glazing beads

The glazing beads are snapped into the channels provided in the main sections. Generally all glazing beads should be mitre cut though this presents problems with short lengths due to the inherent rigidity of the beads. When mechanically jointing, ensure that the vertical beads are scribed on to the horizontal beads to prevent ingress of water.

### Repairs

Damage by mechanical means causing holes or cracks can be repaired with welding rods of RAU-PVC 1105 and a hot air welder. Under certain conditions, some damage can be repaired with repair paste.

### Cleaning

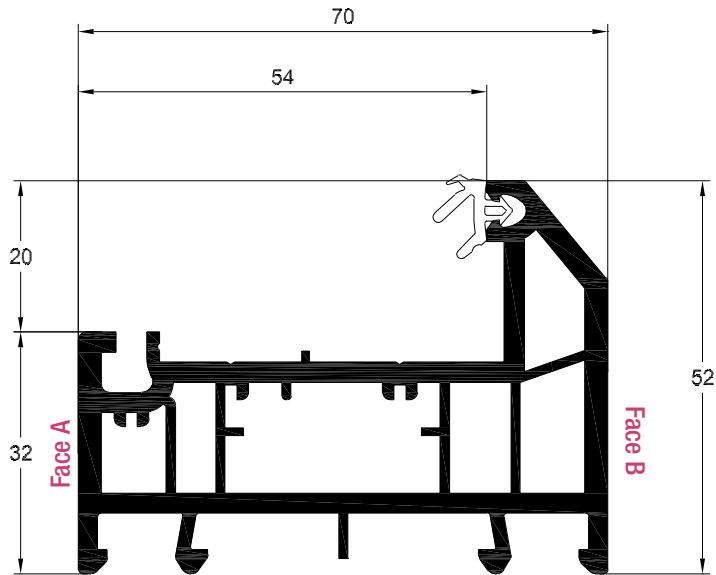
The window can be cleaned using normal washing up liquid and lukewarm water. Gritty and abrasive cleaning agents must not be used. In the event of exceptionally bad soiling, the use of a special cleaning agent is recommended which must be applied to the whole of the frame surface.

### Installation

When fitting the sash to the frame, the visible gap on the outside (5mm nominal) should be no more than 4-6mm.

# Rio Flush Fit

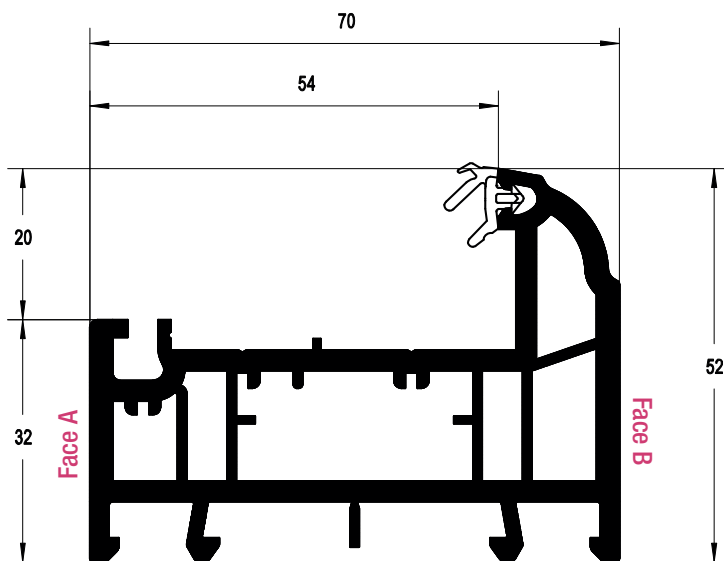
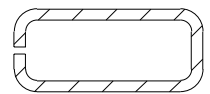
## Technical Information - Profile Print - Outer frames



Slim Outer Frame 52mm  
 White Profile Art. No. 546816  
 Laminated Profile Art. No. 586815/586816

|    | 216391 | 318555 |
|----|--------|--------|
|    | 1.5mm  | 1mm    |
| lx | 0.61   | 0.46   |
| ly | 0.17   | 0.13   |

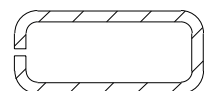
216391 - 25 x 11  
 318555 - 25 x 11



Slim Outer Frame 52mm  
 White Profile Art. No. 546415  
 Laminated Profile Art. No. 586415

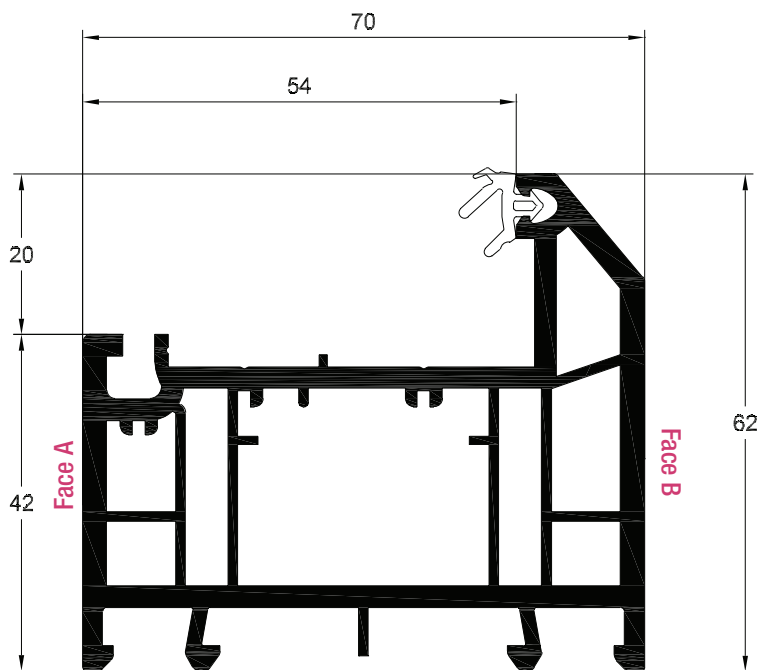
|    | 216391 | 318555 |
|----|--------|--------|
|    | 1.5mm  | 1mm    |
| lx | 0.61   | 0.46   |
| ly | 0.17   | 0.13   |

216391 - 25 x 11  
 318555 - 25 x 11



# Rio Flush Fit

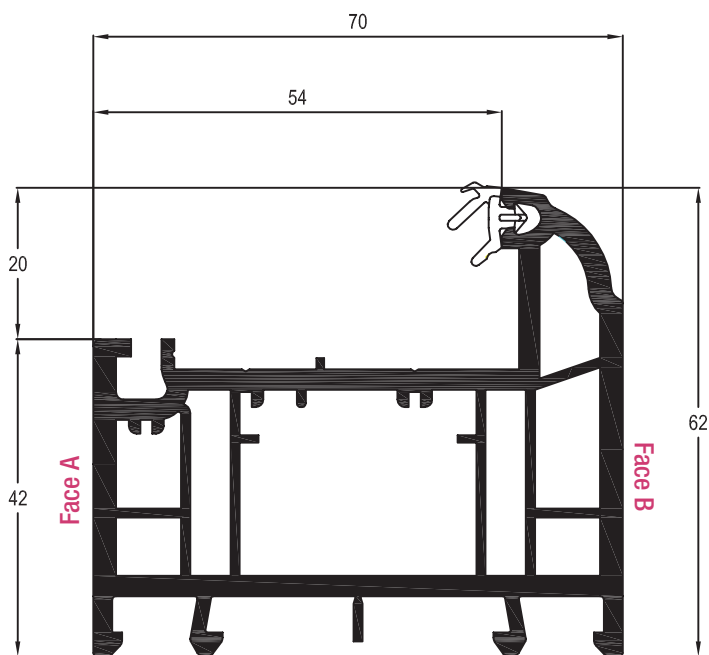
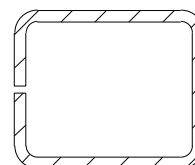
## Technical Information - Profile Print - Outer frames



Intermediate Outer Frame 62mm  
 White Profile Art. No. 546826  
 Laminated Profile Art. No. 586825/586826

|    | 216392 | 318565 |
|----|--------|--------|
|    | 1.5mm  | 1mm    |
| lx | 1.02   | 0.75   |
| ly | 0.79   | 0.58   |

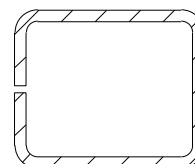
216392 - 25 x 21  
 318565 - 25 x 21



Intermediate Outer Frame 62mm  
 White Profile Art. No. 546425  
 Laminated Profile Art. No. 586425

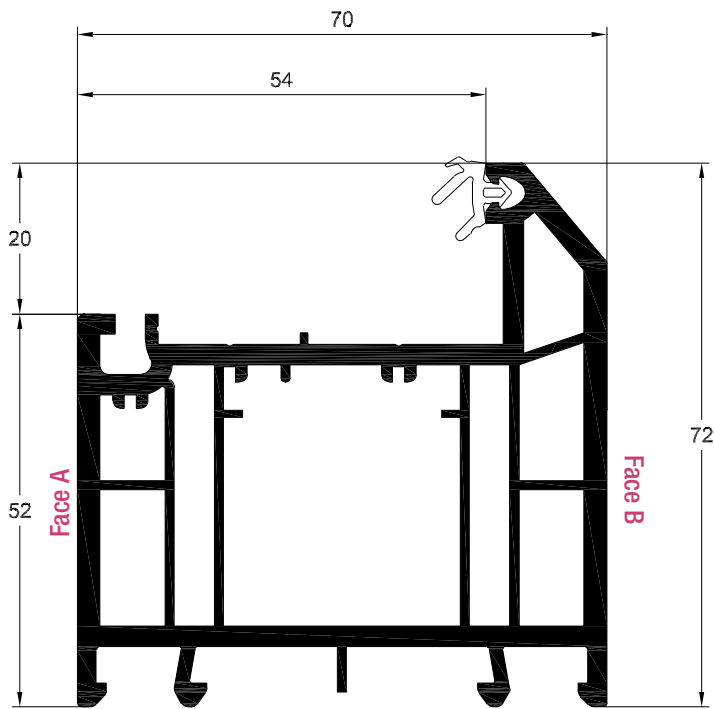
|    | 216392 | 318565 |
|----|--------|--------|
|    | 1.5mm  | 1mm    |
| lx | 1.02   | 0.75   |
| ly | 0.79   | 0.58   |

216392 - 25 x 21  
 318565 - 25 x 21



# Rio Flush Fit

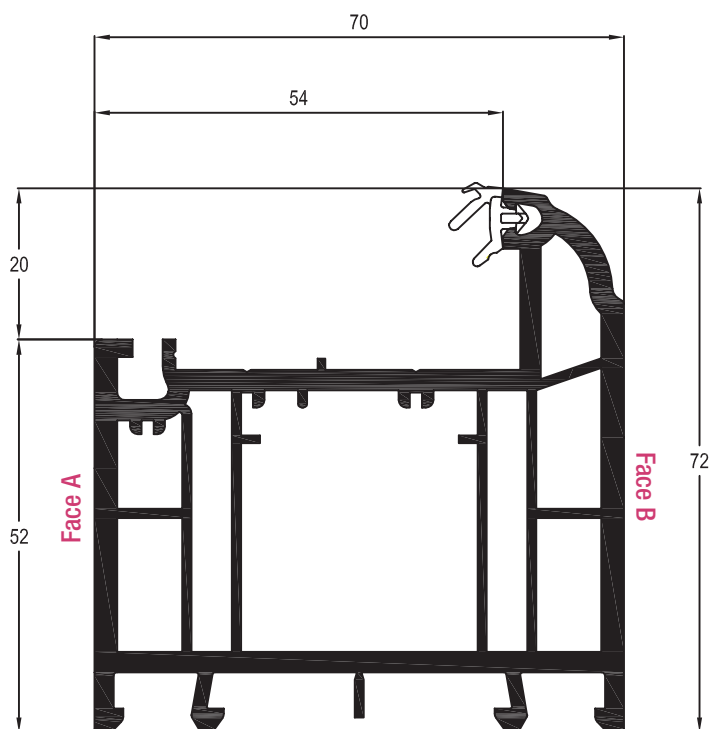
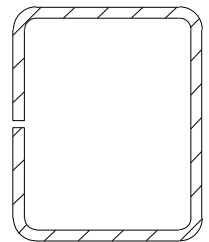
## Technical Information - Profile Print - Outer frames



Universal Outer Frame 72mm  
 White Profile Art. No. 546836  
 Laminated Profile Art. No. 586835/586836

|    | 216393 | 318575 |
|----|--------|--------|
|    | 1.5mm  | 1mm    |
| lx | 2.01   | 1.45   |
| ly | 1.44   | 1.03   |

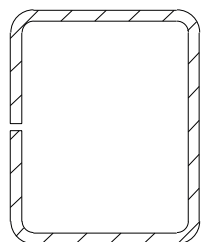
216393 - 25 x 31  
 318575 - 25 x 31



Universal Outer Frame 72mm  
 White Profile Art. No. 546435  
 Laminated Profile Art. No. 586435

|    | 216393 | 318575 |
|----|--------|--------|
|    | 1.5mm  | 1mm    |
| lx | 2.01   | 1.45   |
| ly | 1.44   | 1.03   |

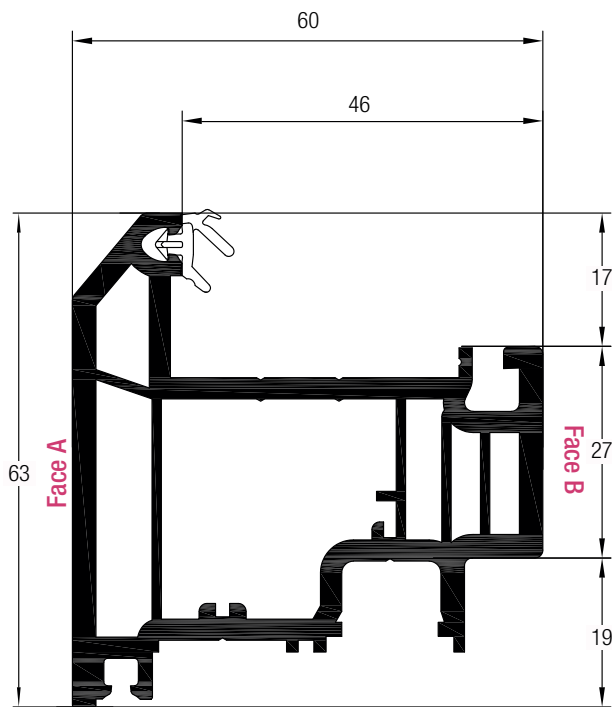
216393 - 25 x 31  
 318575 - 25 x 31





# Rio Flush Fit

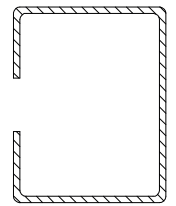
## Technical Information - Profile Print - Sash



63mm Flush Sash  
White Profile Art. No. 546015  
Laminated Profile Art. No. 586015

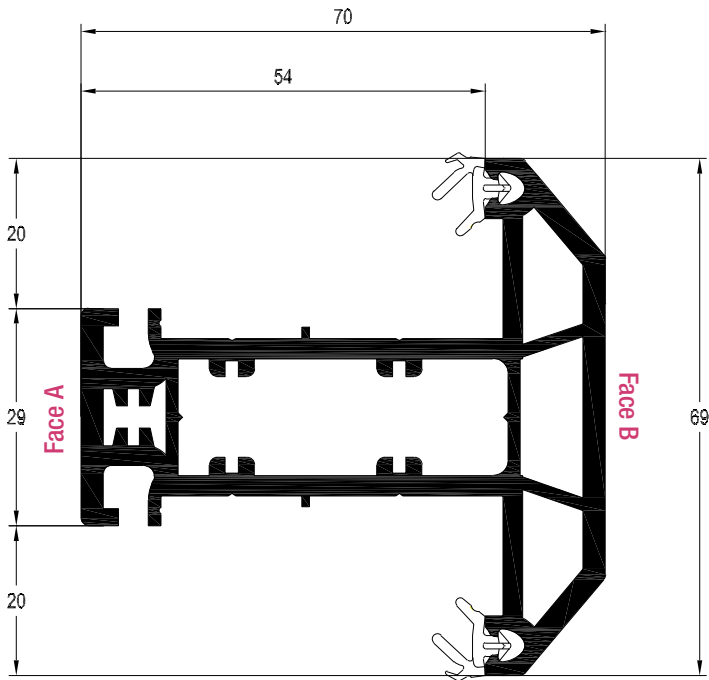
|    |        |
|----|--------|
|    | 328180 |
|    | 0.8mm  |
| lx | 0.58   |
| ly | 0.34   |

328180 - 25 x 19 x 9



# Rio Flush Fit

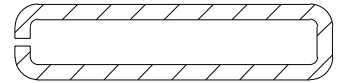
## Technical Information - Profile Print - Transoms



Slim Transom / Mullion T 69mm  
 White Profile Art. No. 546085  
 Laminated Profile Art. No. 576265

|    | 261748 | 249838 | 261948    |
|----|--------|--------|-----------|
|    | 2mm    | 1mm    | Aluminium |
| lx | 3.06   | 1.77   | 4.18      |
| ly | 0.27   | 0.14   | 0.3       |

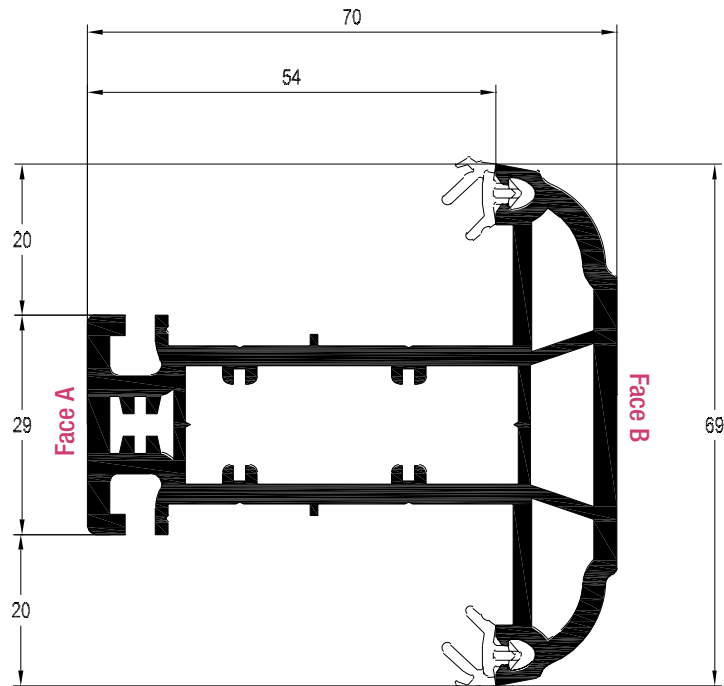
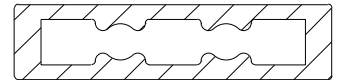
261748 - 42 x 10



249838 - 42 x 10



261948 - 42 x 10



Slim Transom / Mullion T 69mm  
 White Profile Art. No. 546665  
 Laminated Profile Art. No. 576665

|    | 261748 | 249838 | 261948    |
|----|--------|--------|-----------|
|    | 2mm    | 1mm    | Aluminium |
| lx | 3.06   | 1.77   | 4.18      |
| ly | 0.27   | 0.14   | 0.3       |

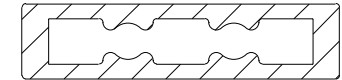
261748 - 42 x 10



249838 - 42 x 10



261948 - 42 x 10

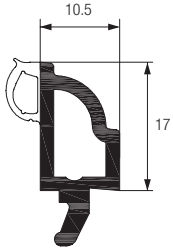


# Rio Flush Fit

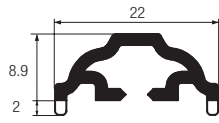
## Technical Information - Profile Print - Ancillaries

### Glazing & Georgian Bars

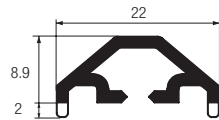
FOR 28MM SEALED UNITS



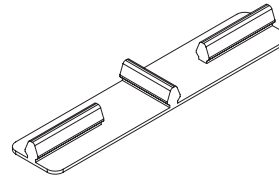
Sculptured Bead - Low Level Co-Ex  
White Profile Art. No. 559600  
Laminated Profile Art. No. 589600



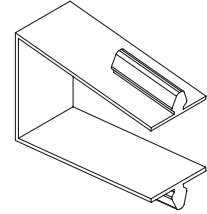
Sculptured Georgian Bar  
White Profile Art. No. 559261  
Laminated Profile Art. No. 589261



Chamfered Georgian Bar  
White Profile Art. No. 559251  
Laminated Profile Art. No. 589251

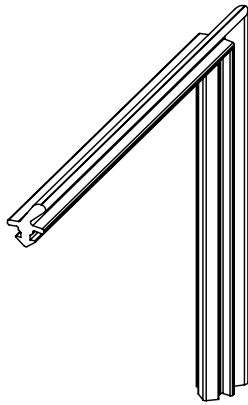


Georgian Bar Cruciform Clip  
Art. No. 200283



Georgian Bar Clip 28mm  
Art. No. 200344

### Gaskets



Weldable Corner Gasket  
Art No. 328217

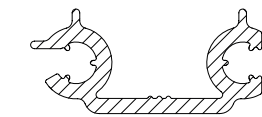
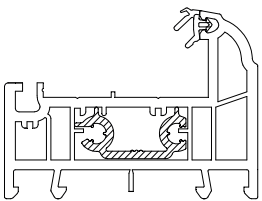


Closing Seal for Art. 546015  
Art No. 329649

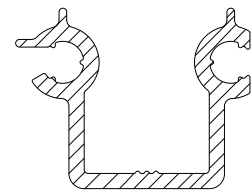
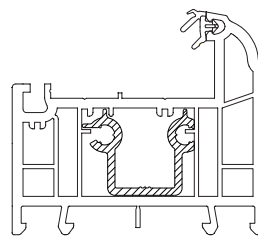


Bead Infill Gasket  
Art No. 328218

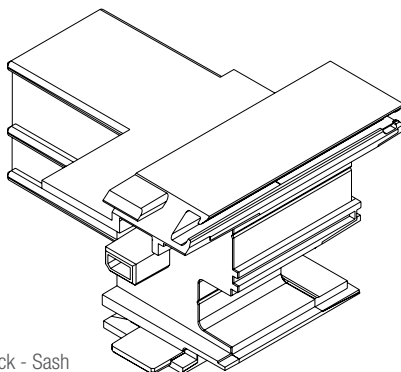
### Mechanical Joint Components



52mm Frame Screwported Aluminium  
Art No. 328219

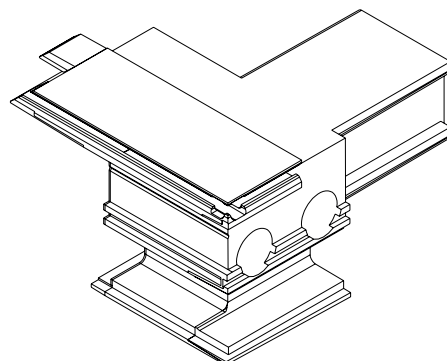


62mm Frame Screwported Aluminium  
Art No. 329891

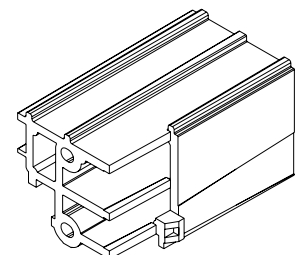


Mechanical Joint Block - Sash  
L & R Handed  
Art No. 328222

Side View



Bottom View



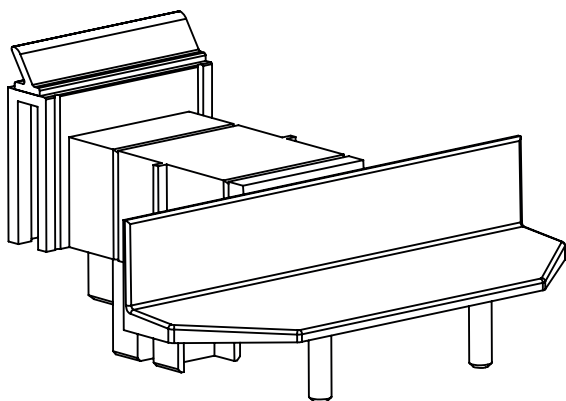
Plug

\* Please note right hand block and left hand plug shown

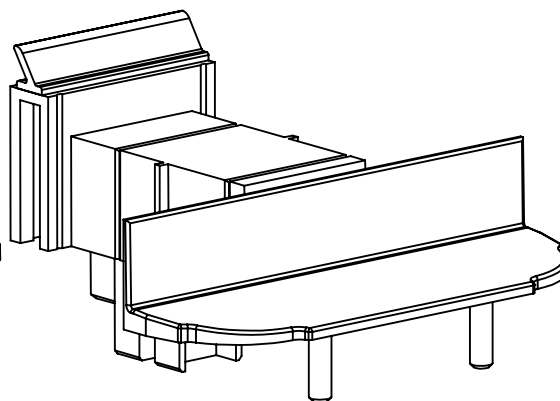
# Rio Flush Fit

## Technical Information - Profile Print - Ancillaries

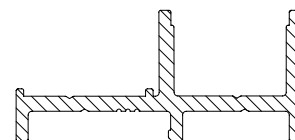
### French Window Components



French Window Dummy Mullion  
End Cap - Chamfered  
Art No. 328224

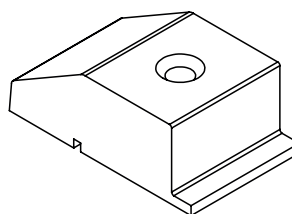


French Window Dummy Mullion  
End Cap - Sculptured  
Art No. 329331

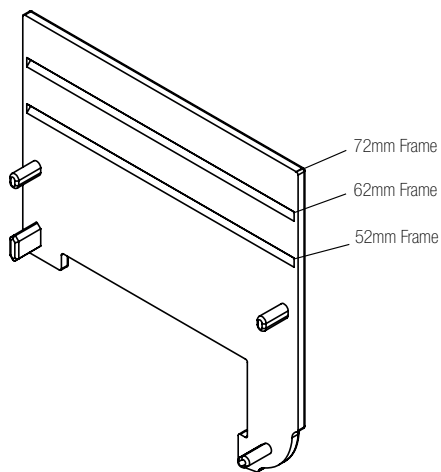
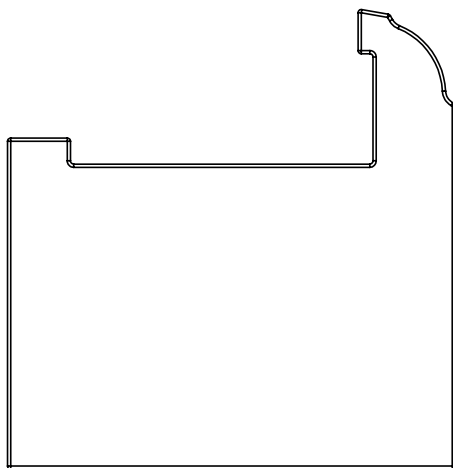


French Window Spacer  
Art No. 328223

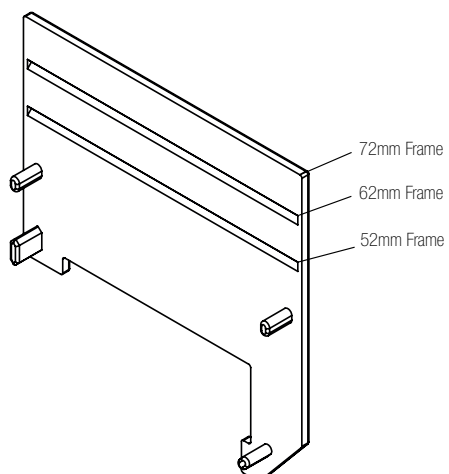
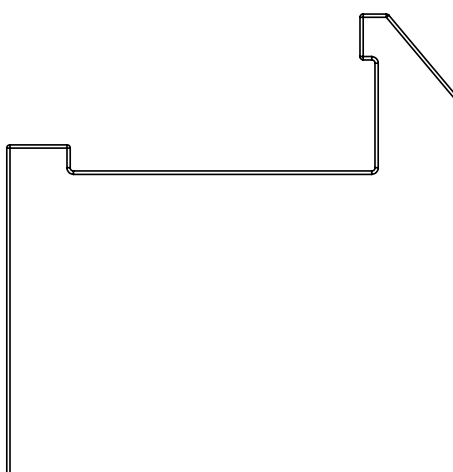
### Additional Mouldings



Sash Riser Block  
Art No. 329648



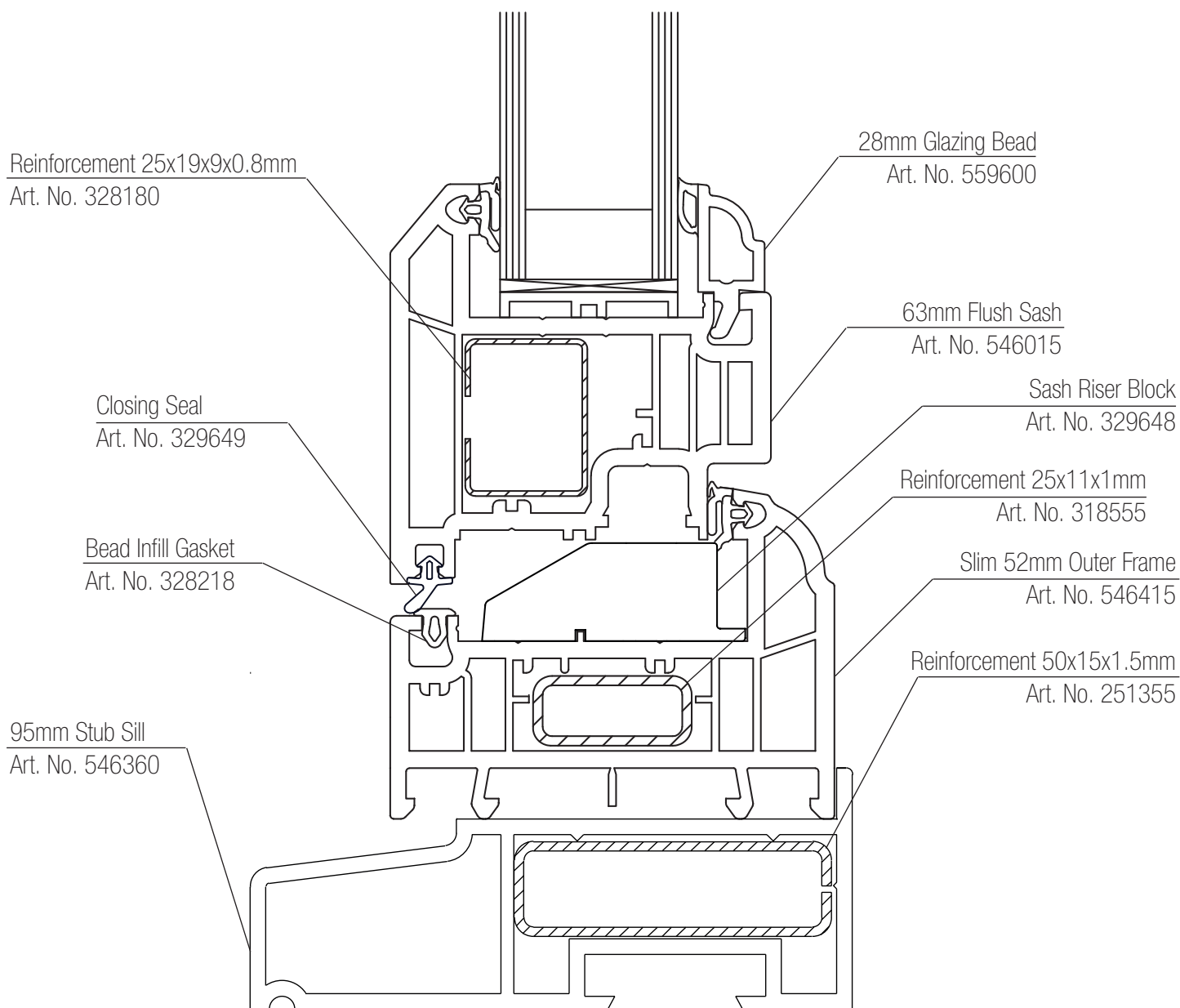
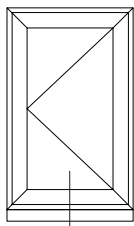
Sculptured Frame Cut & Snap end cap for  
use with 546415, 546425 & 546435  
Art. No. 328221



Chamfered Frame Cut & Snap end cap for  
use with 546816, 546826 & 546836  
Art. No. 329228

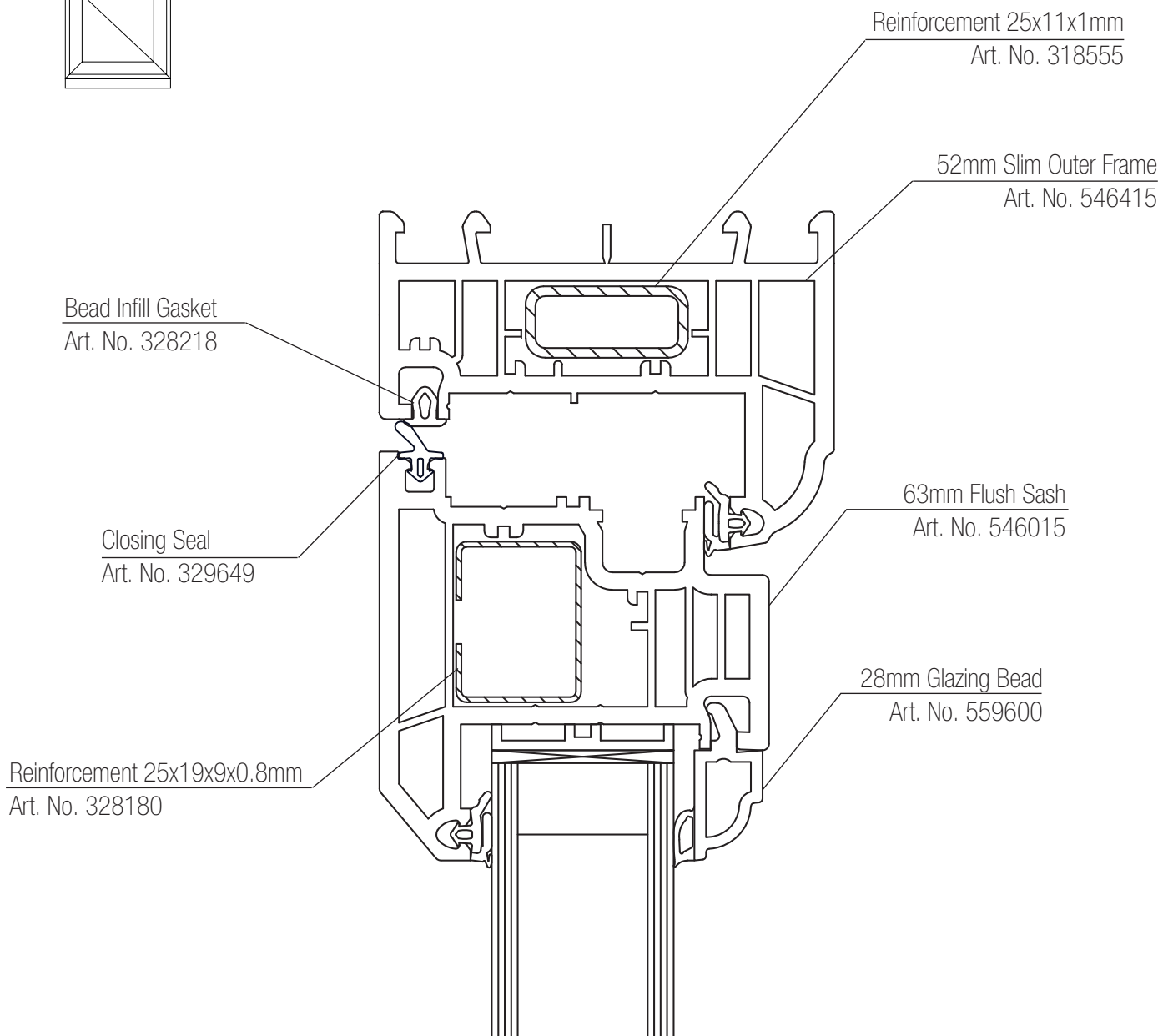
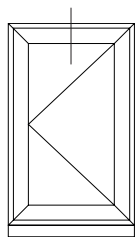
# Rio Flush Fit

## Technical Information - Production Drawings - Sill Detail



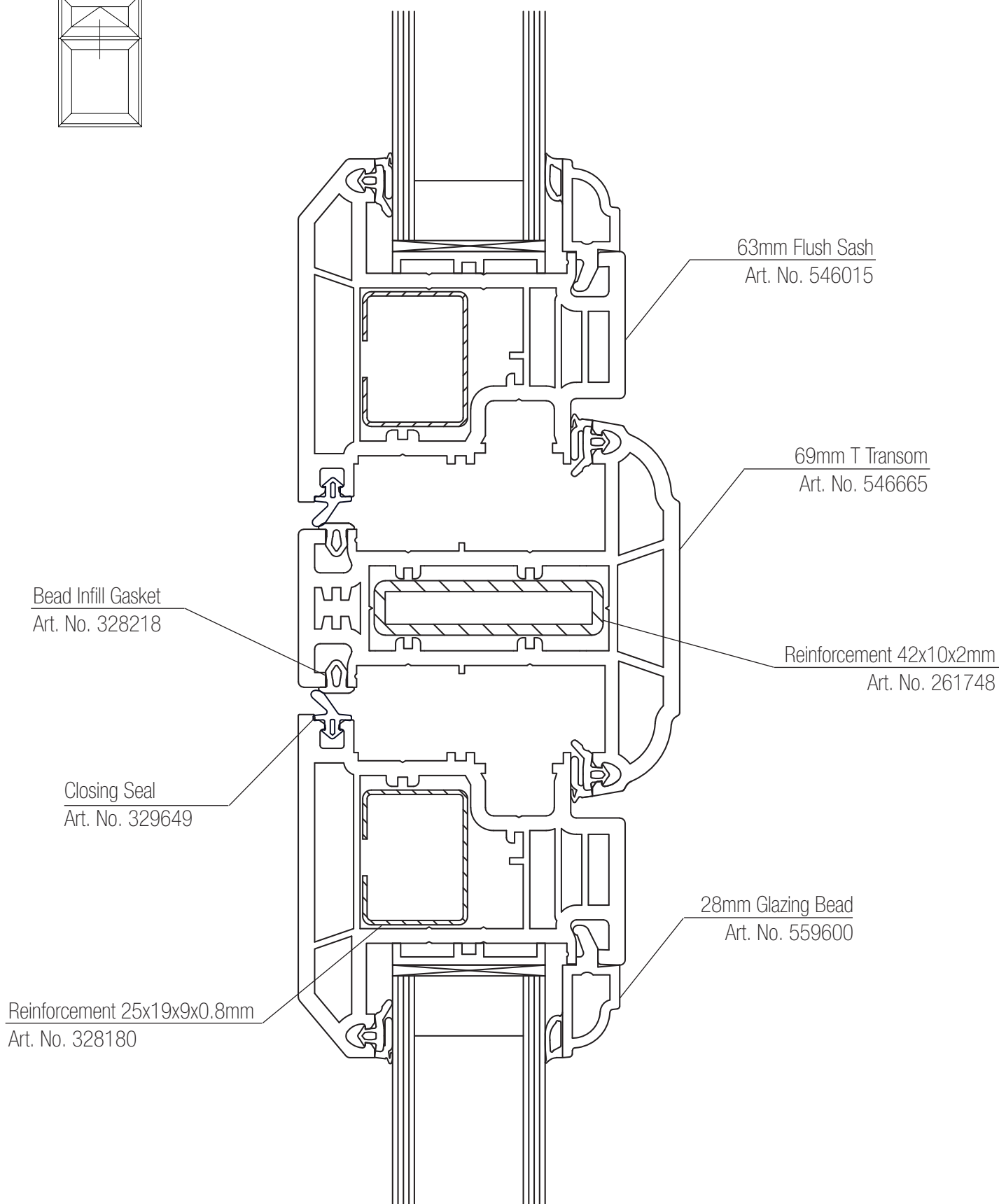
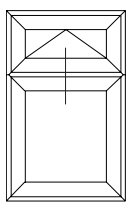
# Rio Flush Fit

## Technical Information - Production Drawings - Head Detail



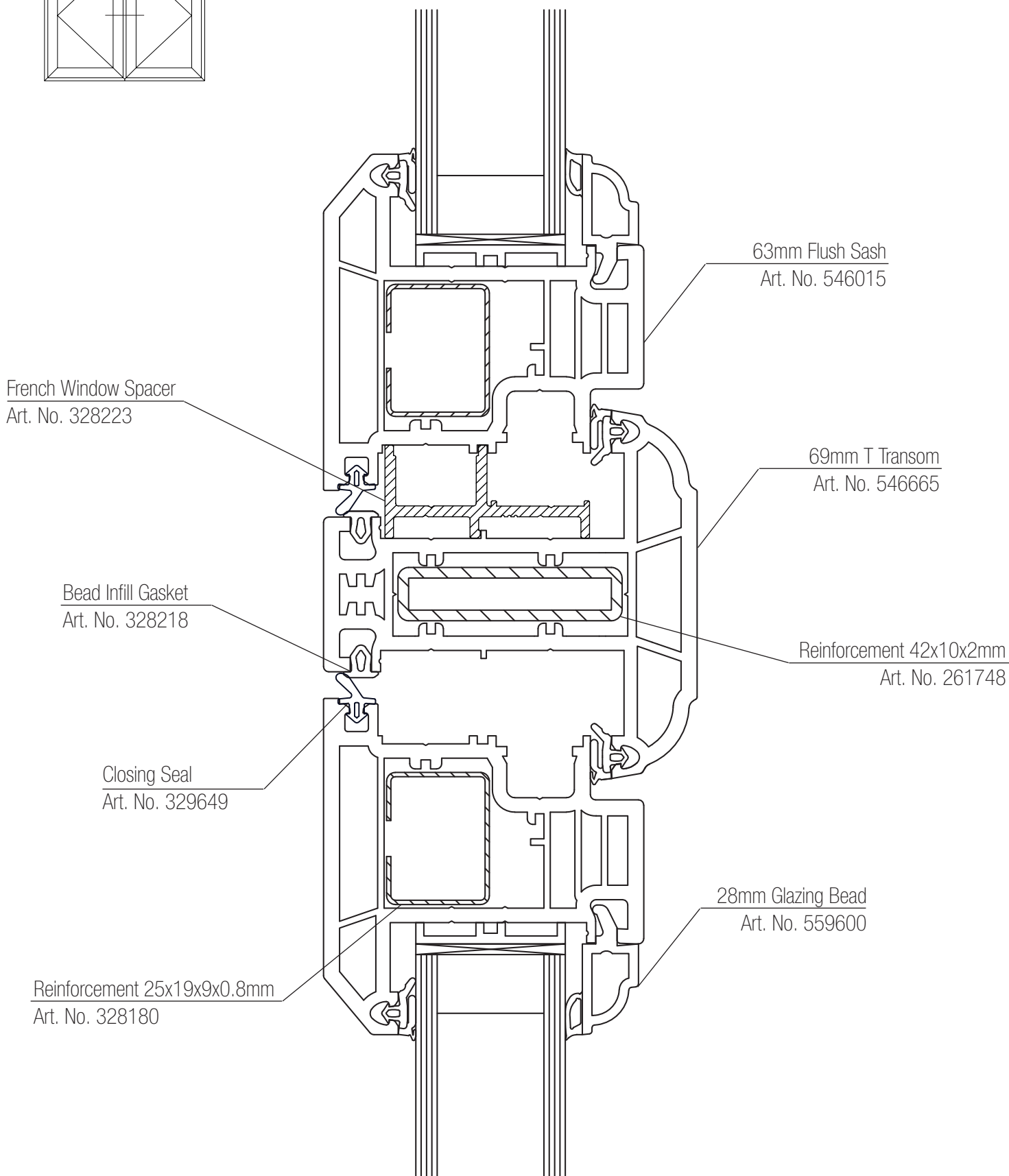
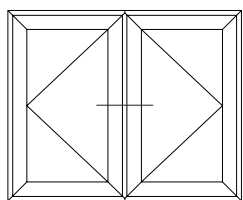
# Rio Flush Fit

## Technical Information - Production Drawings - T Transom Detail



# Rio Flush Fit

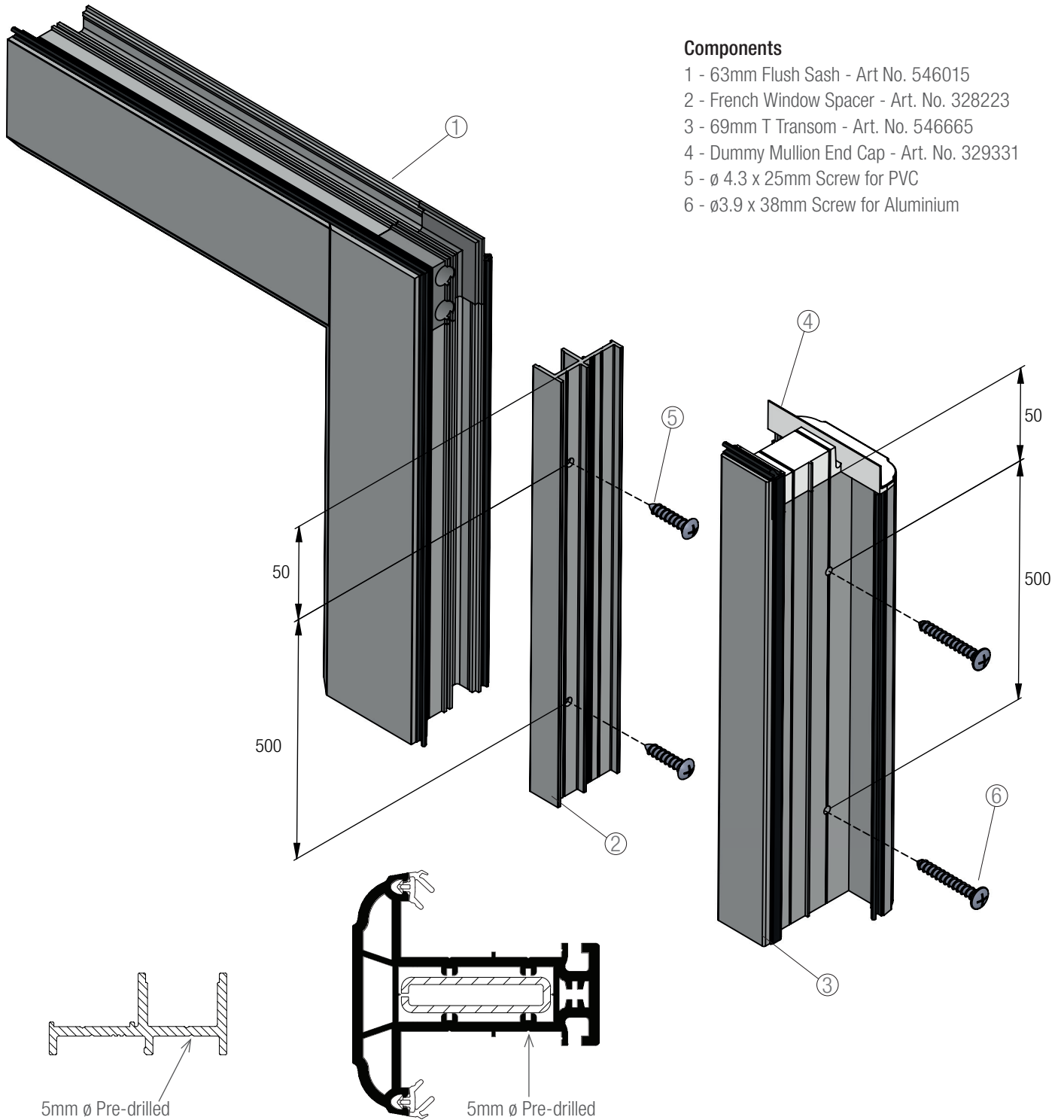
## Technical Information - Production Drawings - French Window Detail





# Rio Flush Fit

## Technical Information - Production Drawings - French Window Spacer Fixing Detail



### Components

- 1 - 63mm Flush Sash - Art No. 546015
- 2 - French Window Spacer - Art. No. 328223
- 3 - 69mm T Transom - Art. No. 546665
- 4 - Dummy Mullion End Cap - Art. No. 329331
- 5 -  $\varnothing$  4.3 x 25mm Screw for PVC
- 6 -  $\varnothing$ 3.9 x 38mm Screw for Aluminium

### Step 1

Cut French Window Spacer, Art. No. 328223, to length: Sash height - 40mm

### Step 2

Pre-drill French Window Spacer as shown above, 5mm diameter clearance holes, 50mm from each end and 500mm centres

### Step 3

Position and screw fix French Window Spacer to sash using 4.3 x 25mm screw for PVC fixing.

### Step 4

Pre-drill Transom, Art. No. 546085/546665, as shown above, 5mm diameter clearance holes, 50mm from each end and 500mm centres

### Step 5

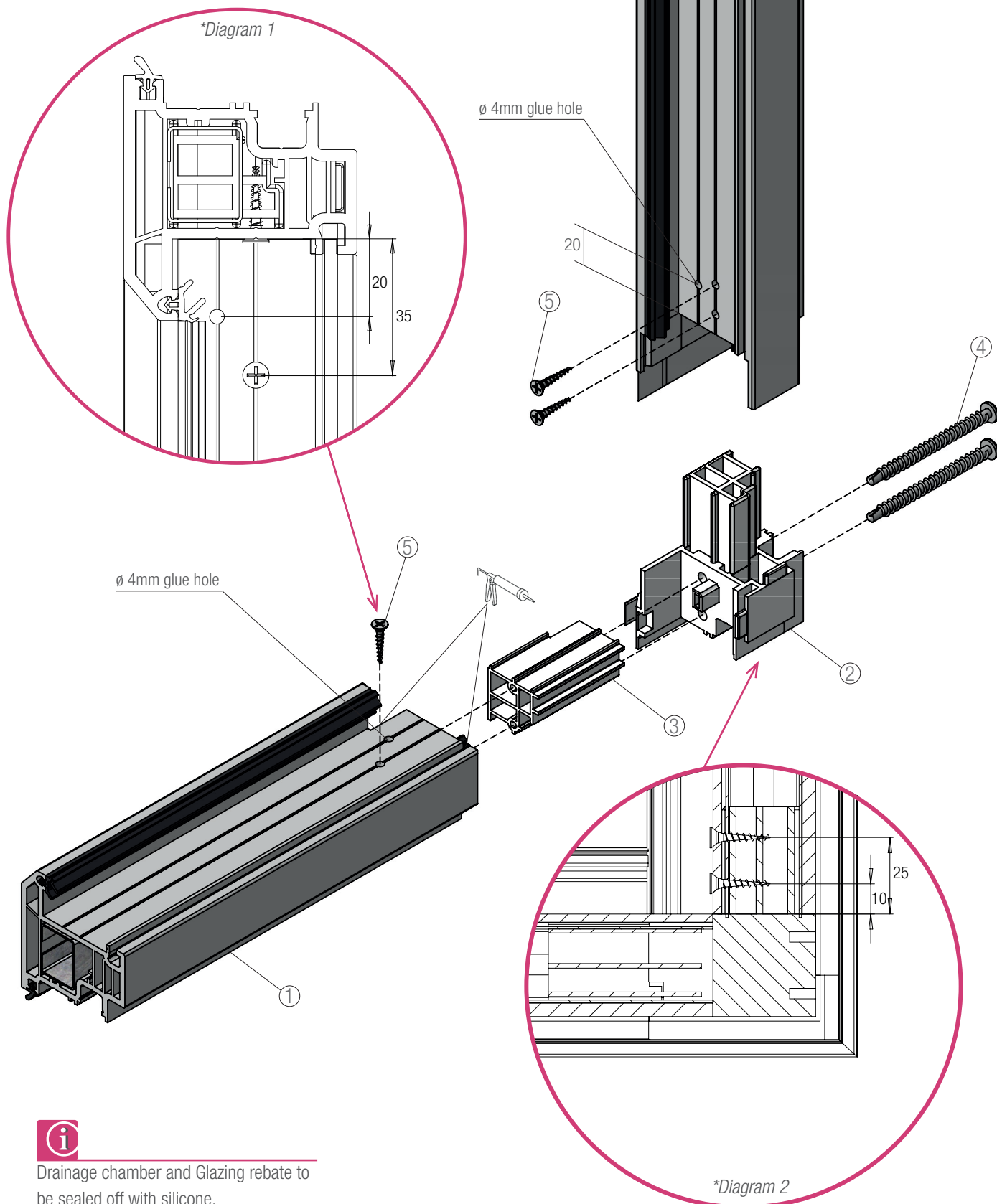
Position Transom to French Window Spacer & Sash assembly. Fix using 3.9 x 38mm screw for aluminium fixing.

# Rio Flush Fit

## Technical Information - Production Drawings - Sash Mechanical Joint

### Components

- 1 - 63mm Flush Sash - Art No. 546015
- 2 - Sash Mechanical Joint Block (Part of Kit) - Art. No. 328222
- 3 - Sash Mechanical Joint Plug (Part of Kit) - Art. No. 328222
- 4 -  $\varnothing$  4.8 x 70mm Mechanical Jointing Screws
- 5 -  $\varnothing$  4.3 x 20mm Screws for PVC



Drainage chamber and Glazing rebate to be sealed off with silicone.

## Technical Information

It is recommended that for additional strength, mechanical joints should be glued in to position.

All instructions are based on 3 pumps of glue at each glue hole using the following components:

- Advanced Adhesives 3290 Structural Acrylic Bonder (50ml)
- Advanced Adhesives Glue Gun
- RS Pro Epoxy Mixer Nozzle 4.03in (Ref 512-825)

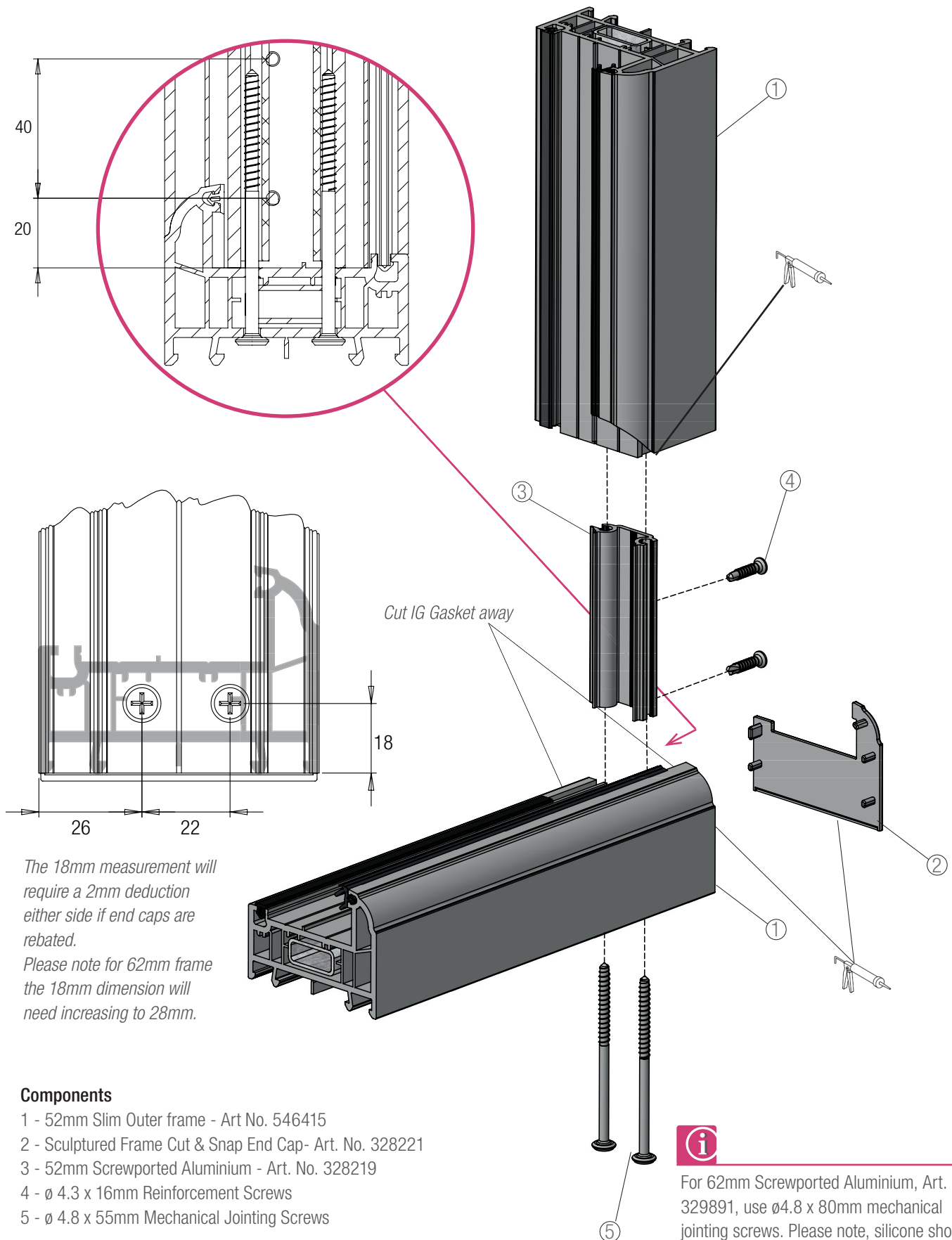
Please read manufacturers instructions prior to using the glue.

### **Mechanical Joint Glue Holes**

1. On both the Jamb and rail drill a  $\varnothing$  4mm hole, 20mm from either end of profile closest to the upstand. Repeat until there are 8 holes drilled. Please see diagram 1 on page 16.
2. Once holes have been drilled clear profile lengths of any swarf to ensure successful glueing.
3. Insert the jamb mechanical joint block and fasten in to position using 2 screws at 10mm & 25mm from profile end on the bead side guideline as per diagram 2 on page 16.
4. Insert the rail plug and fix in to position using 1 screw at 35mm from profile end on the bead side guideline. Please see diagram 1 on page 16.
5. Seal bottom rail drainage chambers at either end.
6. Once fully assembled ensure the mechanical fixing screws are in place then clamp in to position.
7. Using the glue gun, place the nozzle in to the glue holes and use 3 pumps of the glue gun. Repeat at each hole.
8. Once complete visually check that all glue holes are sufficiently filled.
9. Also seal bottom rail join to jambs (glazing rebate) and also in the corner join in the bead groove.
10. After 5 minutes the glue will have set but check glue manufacturer recommendations.
11. Once glue has set then unclamp and ensure that there is no movement in the joint.

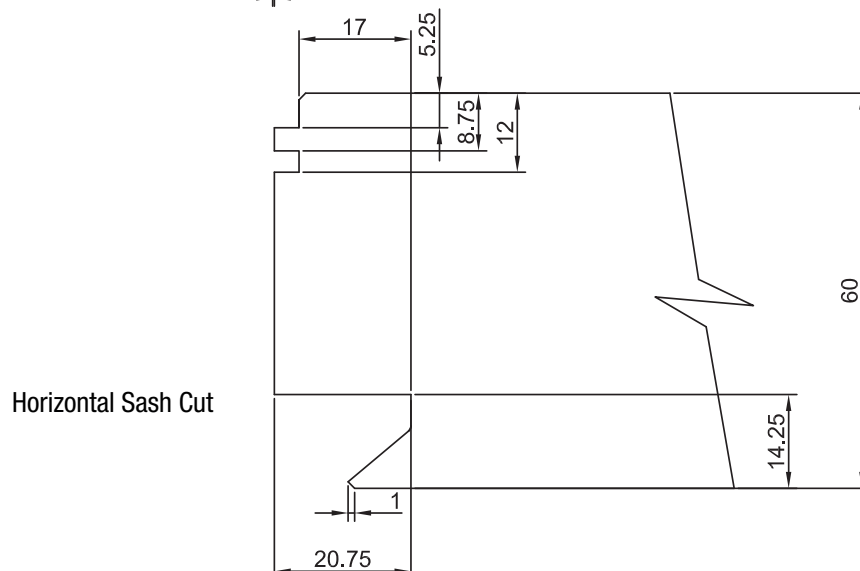
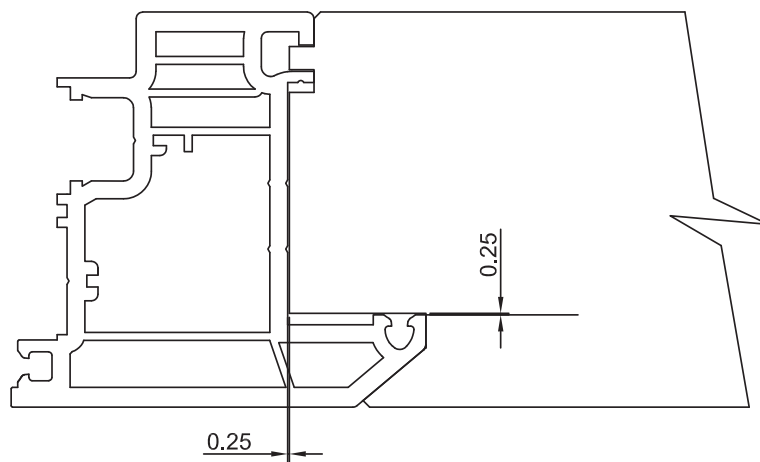
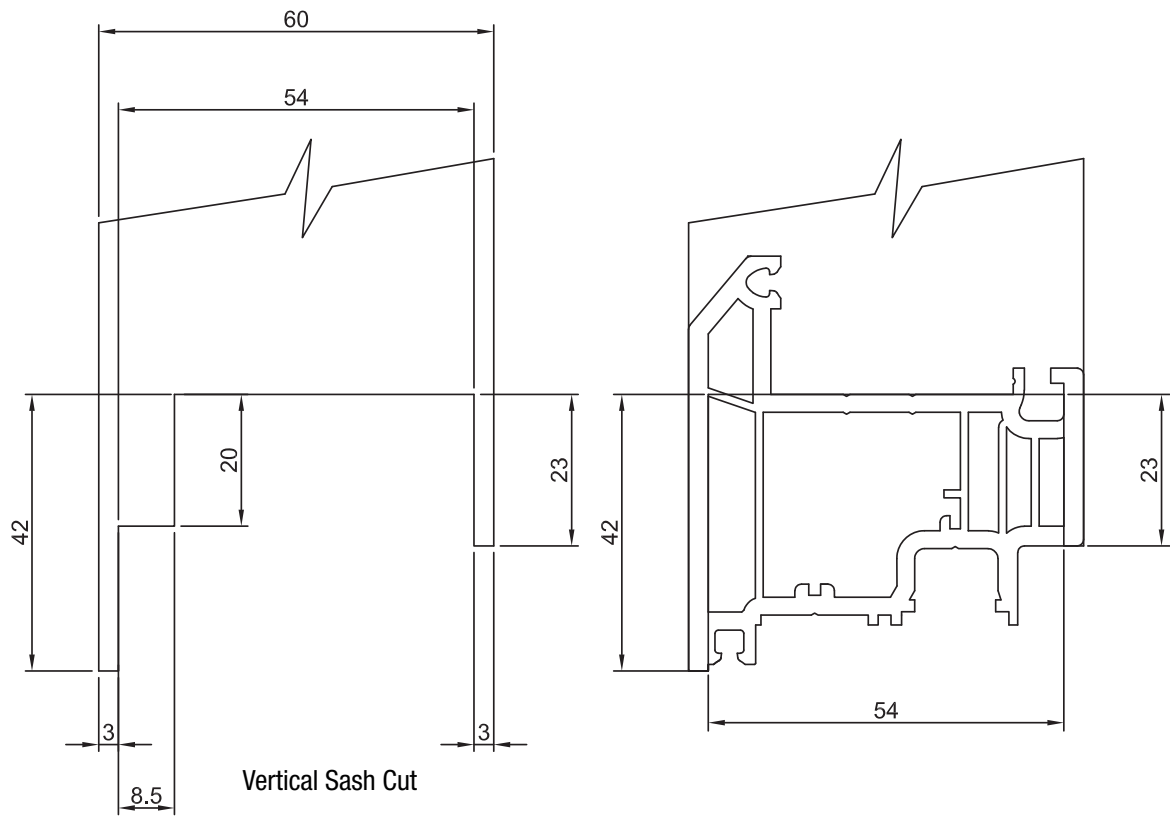
# Rio Flush Fit

## Technical Information - Production Drawings - Frame Mechanical Joint

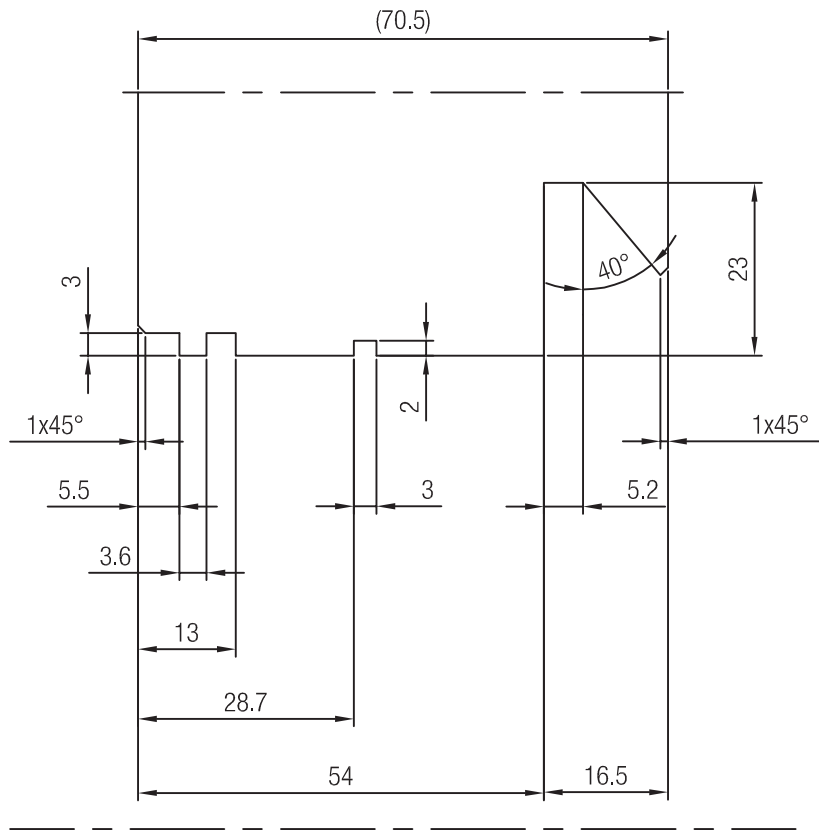


# Rio Flush Fit

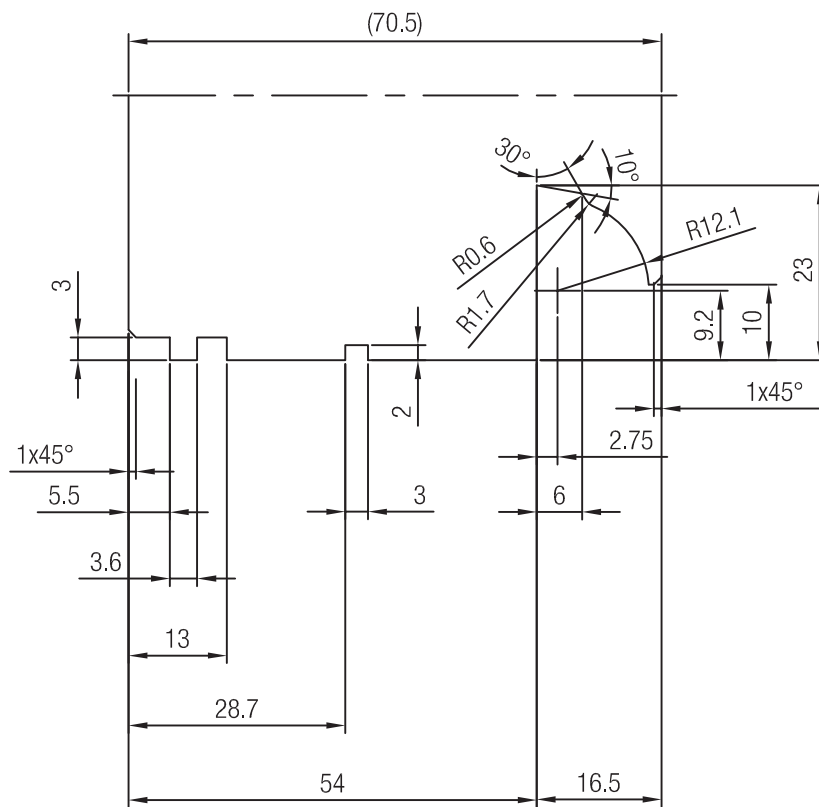
## Technical Information - Production Drawings - Sash Milling Details



TOTAL70c frame milling detail

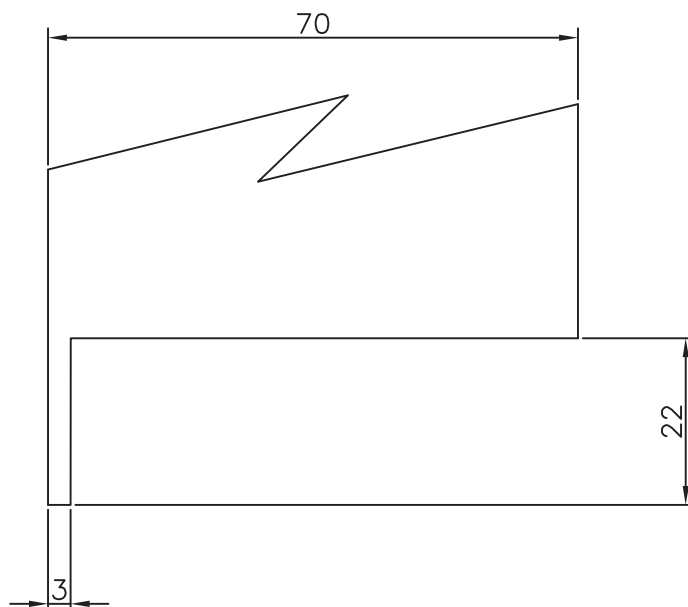
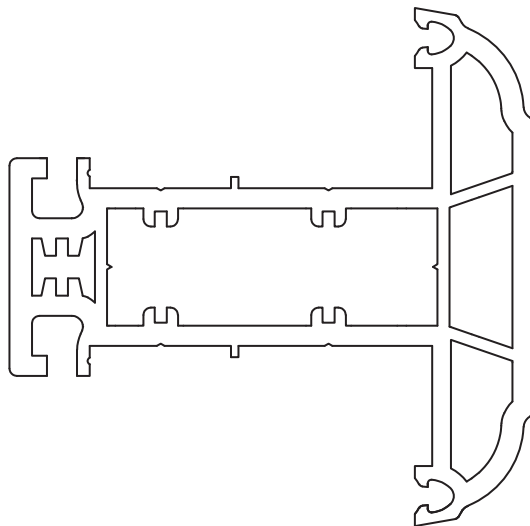
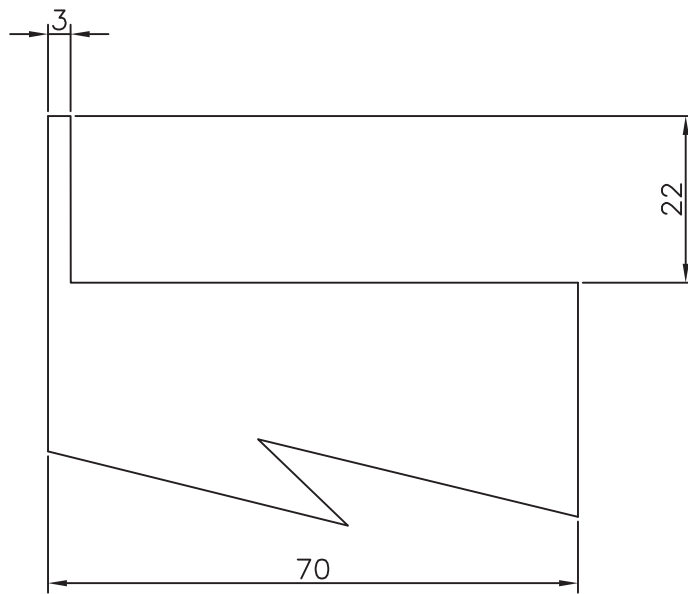


TOTAL70s frame milling detail

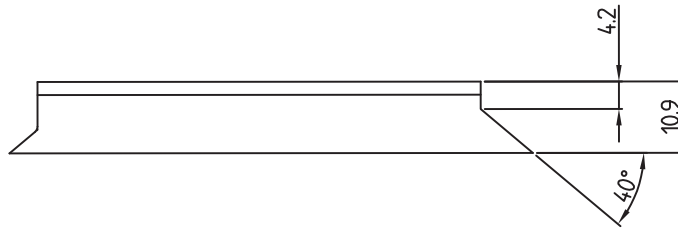


# Rio Flush Fit

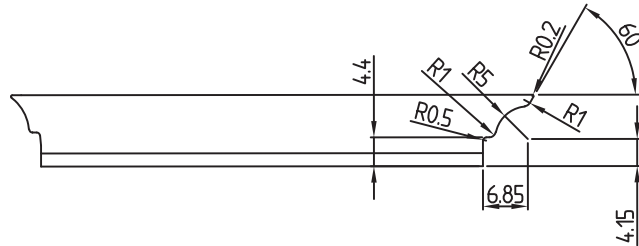
## Technical Information - Production Drawings - Transom Milling Details



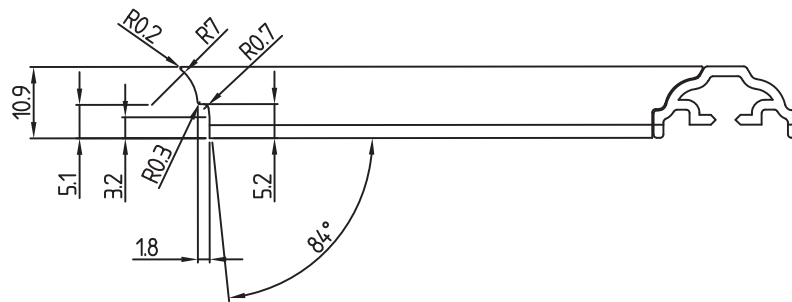
The milling detail is shown with TOTAL70s, the same principle applies for TOTAL70c



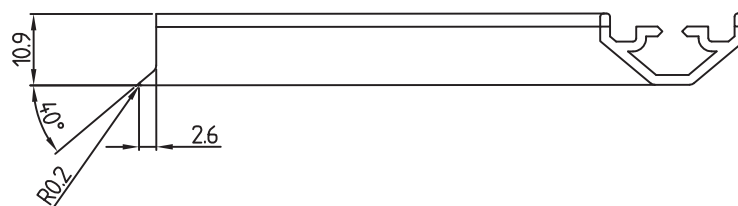
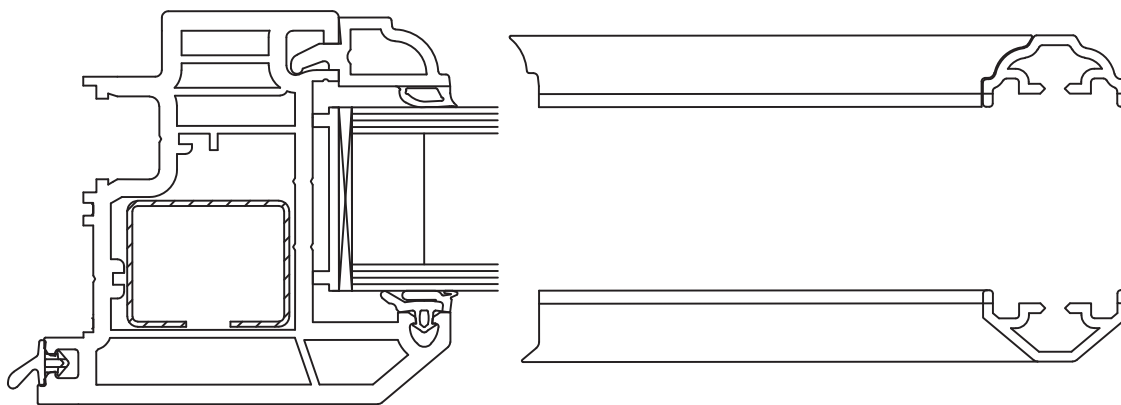
End Mill shape for Art. 559251 28mm Chamfered Georgian Bar



End Mill shape for Art. 559261 28mm Sculptured Georgian Bar



End Mill shape for Art. 559600 28mm Bead

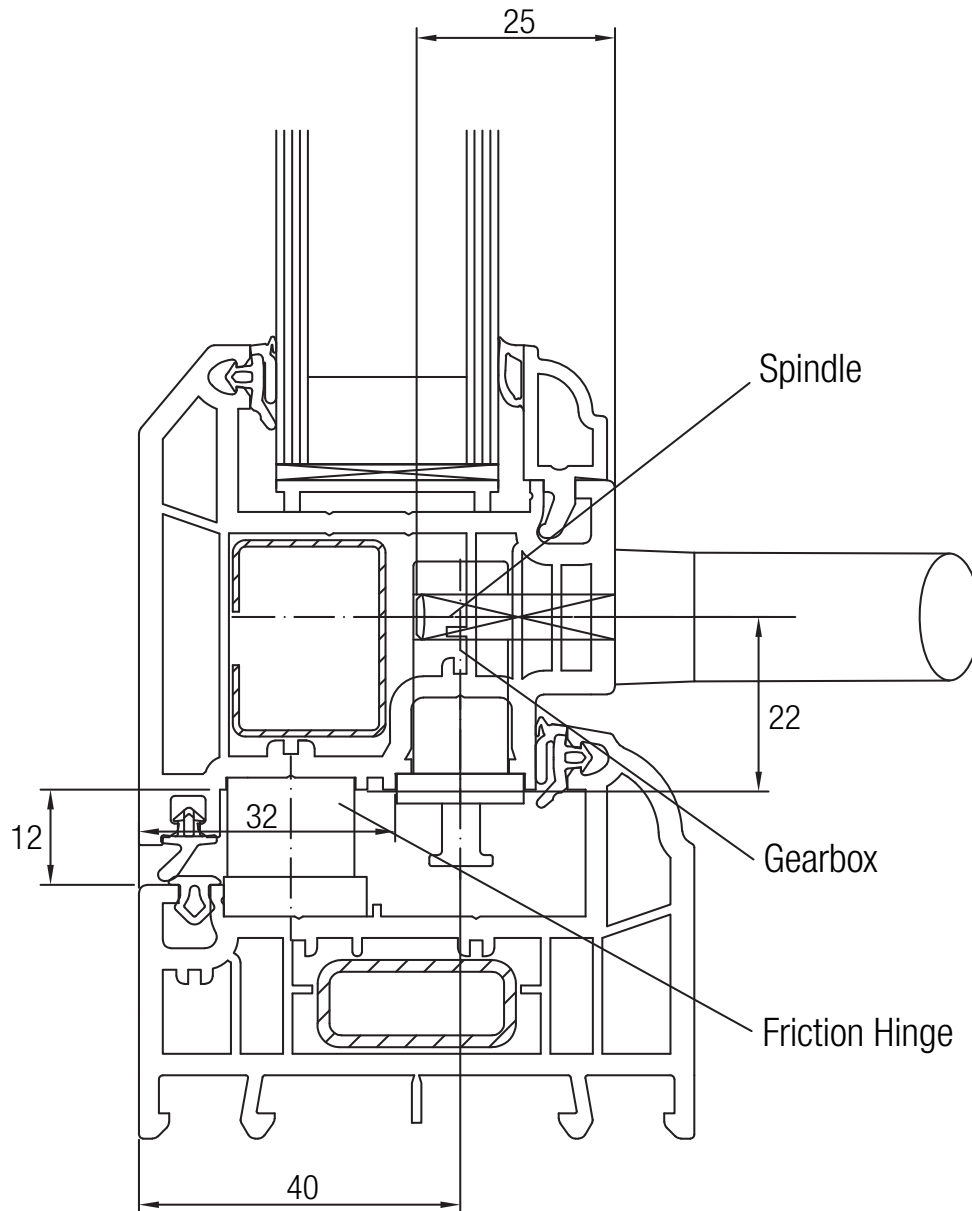


End Mill shape for Art. 546015 63mm Sash



# Rio Flush Fit

## Technical Information - Production Drawings - Hardware Details



### Casement hardware guide

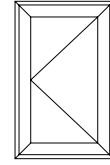
|                    |      |
|--------------------|------|
| Hinge stack height | 17mm |
| Gearbox backset    | 22mm |
| Spindle length     | 25mm |

# Rio Flush Fit

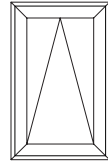
## Technical Information - Production Drawings - Maximum Size Recommendations



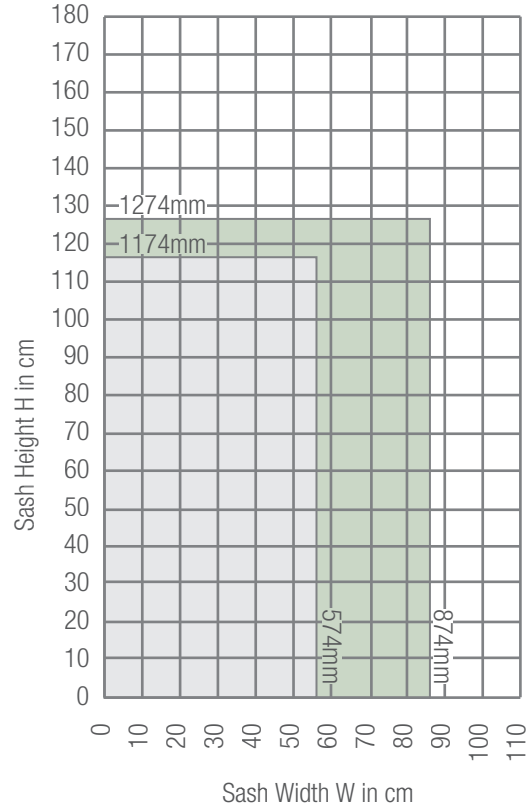
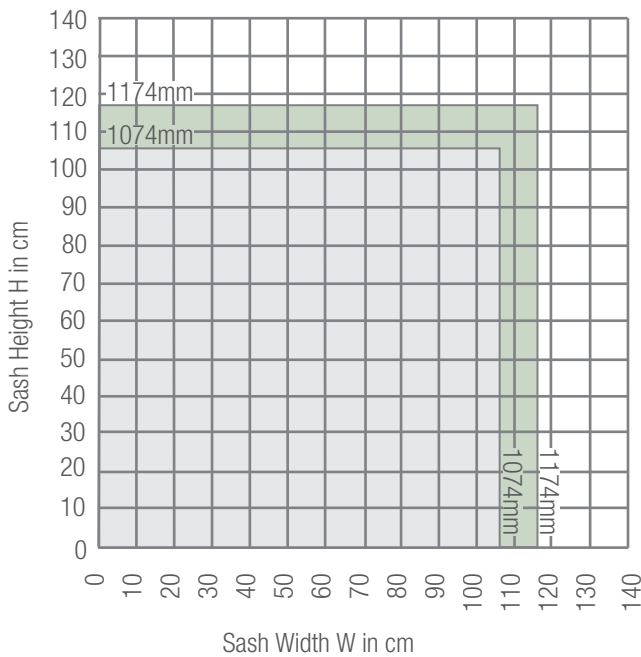
546015  
63mm Sash



Side Hung Configuration



Top Hung Configuration



NOTE: REINFORCEMENT TO FRAME MEMBER IS REQUIRED FOR HARDWARE WHEN SASH IS REINFORCED.

\* 1174mm is the equivalent to 1200mm size of TOTAL70 standard Casement T Sash

|  | Article No.  | Reinforcement | Description         | I-Value  | Fully Welded maximum glass weight | Mechanical Joint maximum glass weight |
|--|--------------|---------------|---------------------|--|-----------------------------------|---------------------------------------|
|  | 328180       |               | 25 x 19 x 9 x 0.8mm | lx 0.58 cm <sup>4</sup><br>ly 0.34 cm <sup>4</sup> | 35kg                              | 30kg                                  |
|  | Unreinforced | -             | -                   | -  | 25kg                              | 20kg                                  |

For top hung dead load deflection see page 28.



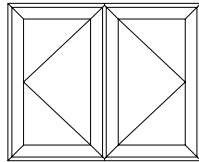
All sizes and weights subject to hardware suppliers recommendations. Maximum sizes are based on a fully welded configuration. Please contact your local sales office regarding mechanically jointed max sizes.

# Rio Flush Fit

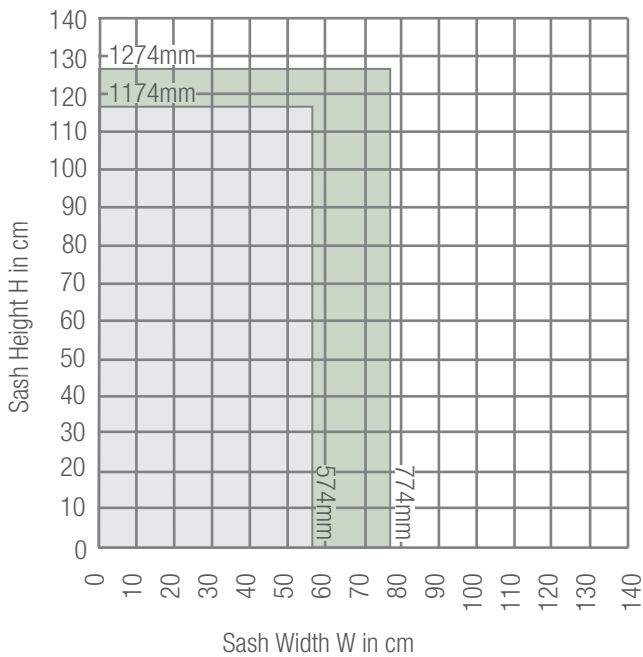
## Technical Information - Production Drawings - Maximum Size Recommendations



546015  
63mm Sash

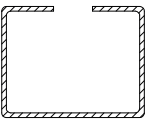


French Window Configuration



NOTE: REINFORCEMENT TO FRAME MEMBER IS REQUIRED FOR HARDWARE WHEN SASH IS REINFORCED.

\* 1174mm is the equivalent to 1200mm size of TOTAL70 standard Casement T Sash

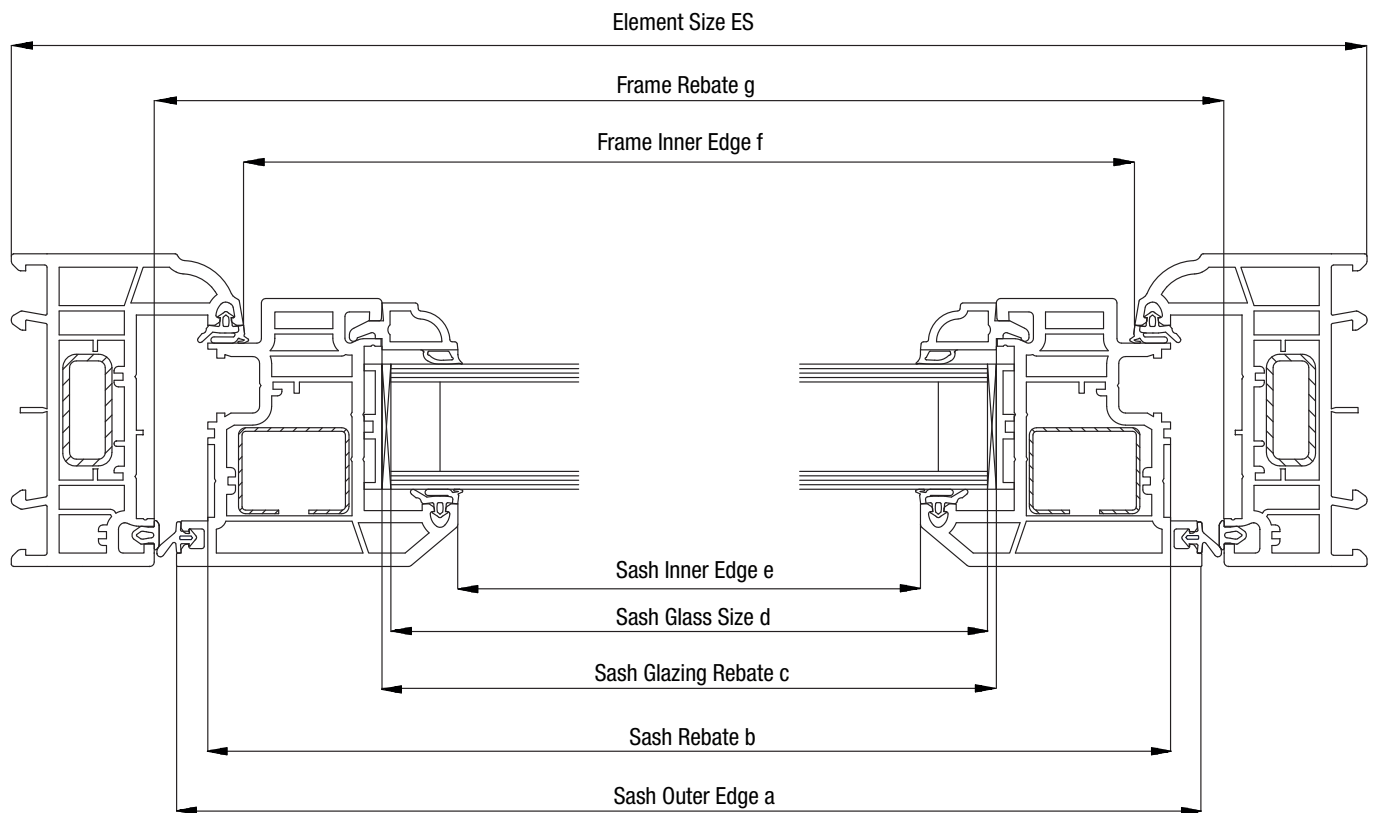
| Article No.  | Reinforcement   | Description         | I-Value  | Fully Welded maximum glass weight | Mechanical Joint maximum glass weight |
|--------------|---|---------------------|--|-----------------------------------|---------------------------------------|
| 328180       |  | 25 x 19 x 9 x 0.8mm | lx 0.58 cm <sup>4</sup><br>ly 0.34 cm <sup>4</sup> | 35kg                              | 30kg                                  |
| Unreinforced | -   | -                   | -  | 25kg                              | 20kg                                  |



All sizes and weights subject to hardware suppliers recommendations. Maximum sizes are based on a fully welded configuration. Please contact your local sales office regarding mechanically jointed max sizes.

# Rio Flush Fit

## Technical Information - Manufacturing Deductions - Single Sash



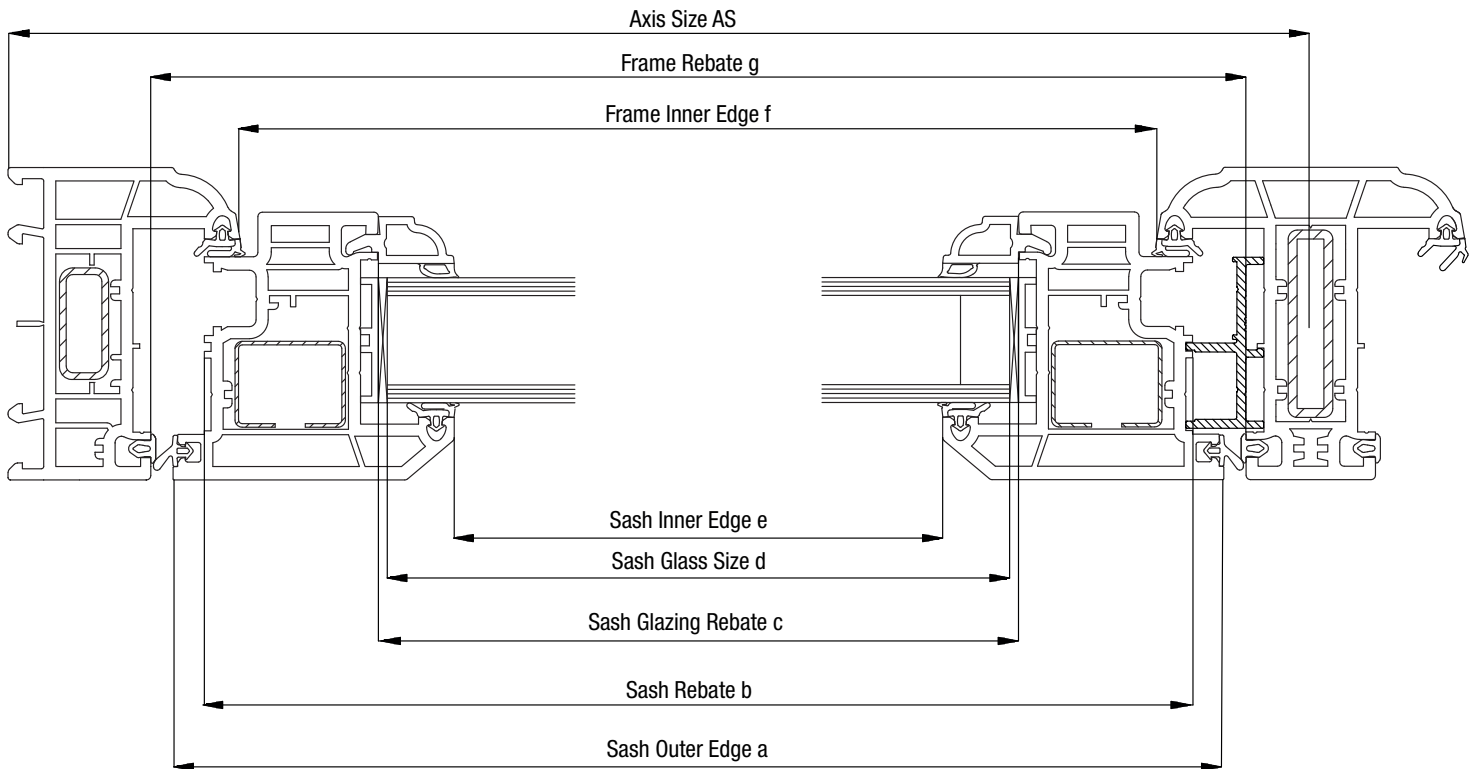
| Deduction           | Outer Frame Size |                         |                      |
|---------------------|------------------|-------------------------|----------------------|
|                     | 52mm Slim Frame  | 62mm Intermediate Frame | 72mm Universal Frame |
| Sash Outer Edge     | $a = ES - 74$    | $a = ES - 94$           | $a = ES - 114$       |
| Sash Rebate         | $b = ES - 88$    | $b = ES - 108$          | $b = ES - 128$       |
| Sash Glazing Rebate | $c = ES - 166$   | $c = ES - 186$          | $c = ES - 206$       |
| Sash Glass Size     | $d = ES - 170$   | $d = ES - 190$          | $d = ES - 210$       |
| Sash Inner Edge     | $e = ES - 200$   | $e = ES - 220$          | $e = ES - 240$       |
| Frame Inner Edge    | $f = ES - 104$   | $f = ES - 124$          | $f = ES - 144$       |
| Frame Rebate        | $g = ES - 64$    | $g = ES - 84$           | $g = ES - 104$       |



If you are fitting the frame end caps please allow a 2mm deduction for each end cap.

# Rio Flush Fit

## Technical Information - Manufacturing Deductions - French Window



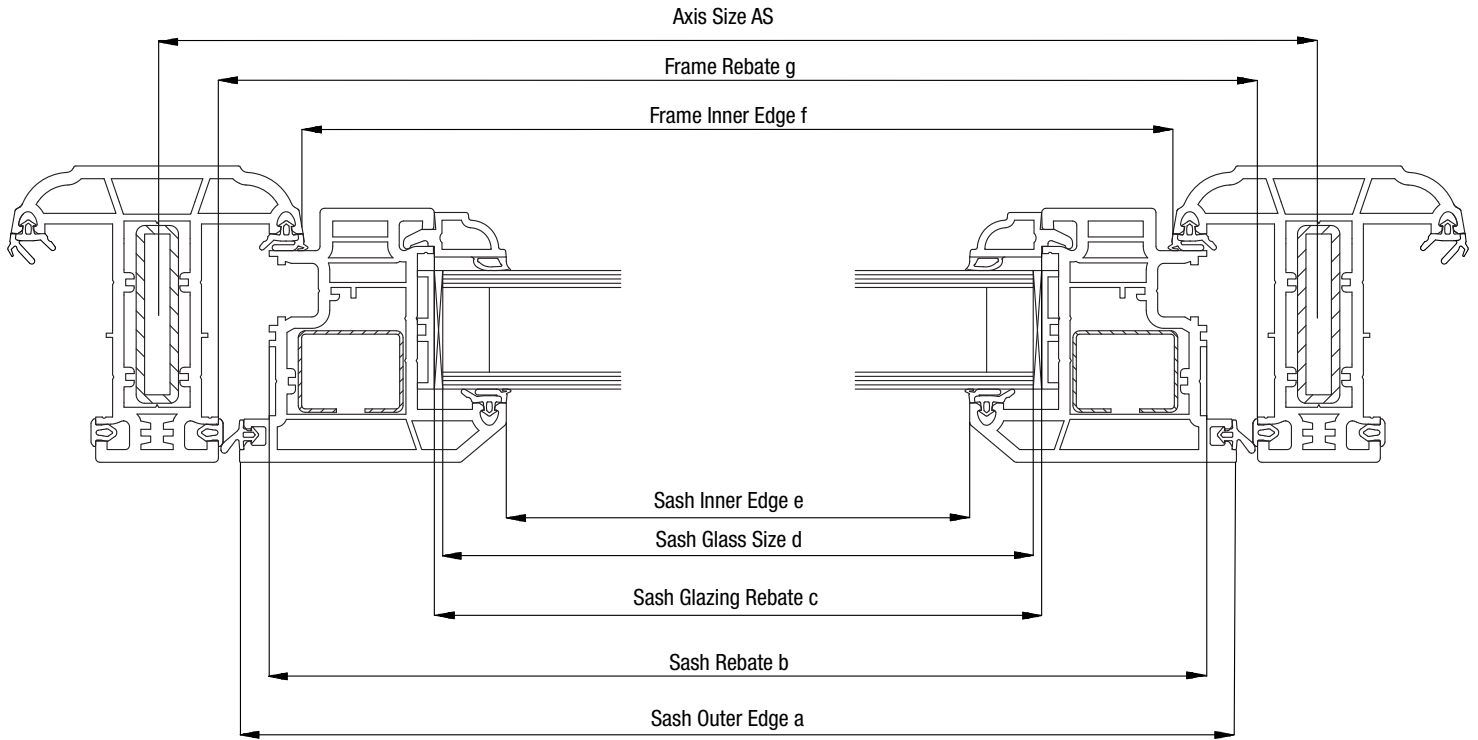
| Deduction              | Outer Frame Size |                         |                      |
|------------------------|------------------|-------------------------|----------------------|
|                        | 52mm Slim Frame  | 62mm Intermediate Frame | 72mm Universal Frame |
| Sash Outer Edge        | $a = AS - 56.5$  | $a = AS - 66.5$         | $a = AS - 76.5$      |
| Sash Rebate            | $b = AS - 70.5$  | $b = AS - 80.5$         | $b = AS - 90.5$      |
| Sash Glazing Rebate    | $c = AS - 148.5$ | $c = AS - 158.5$        | $c = AS - 168.5$     |
| Sash Glass Size        | $d = AS - 152.5$ | $d = AS - 162.5$        | $d = AS - 172.5$     |
| Sash Inner Edge        | $e = AS - 182.5$ | $e = AS - 192.5$        | $e = AS - 202.5$     |
| Frame Inner Edge       | $f = AS - 86.5$  | $f = AS - 96.5$         | $f = AS - 106.5$     |
| Frame Rebate           | $g = AS - 46.5$  | $g = AS - 56.5$         | $g = AS - 66.5$      |
| Dummy Length Deduction | -74              | -94                     | -114                 |



If you are fitting the frame end caps please allow a 2mm deduction for each end cap.

# Rio Flush Fit

## Technical Information - Manufacturing Deductions - Multi Sash



| Deduction           | 69mm T Transom |
|---------------------|----------------|
| Sash Outer Edge     | $a = AS - 39$  |
| Sash Rebate         | $b = AS - 53$  |
| Sash Glazing Rebate | $c = AS - 131$ |
| Sash Glass Size     | $d = AS - 135$ |
| Sash Inner Edge     | $e = AS - 165$ |
| Frame Inner Edge    | $f = AS - 69$  |
| Frame Rebate        | $g = AS - 29$  |



Please note you are able to use the 82mm T Transom where required, please contact your local sales office for deductions.

## Technical Information - Reinforcement Instructions

### Outer frame

- Upper horizontal members to be reinforced if they cannot be adequately anchored to masonry.

### Sash (Art.No. 546015)

- Sash members to be reinforced when over 1074 x 1074mm. Please refer to maximum sash sizes on page 22.

### Sash Deflection

- Calculated glass weight on dead load deflection at the bottom middle of sash (Sash riser block will reduce this in the closed position)
- As a guide maintaining the gap between sash and frame at the bottom of top hung windows the table below shows deflect due to glass weight on the bottom of the sash.
- Please note calculations are based on glazing packer being no more than 100mm from glazing rebate corners.

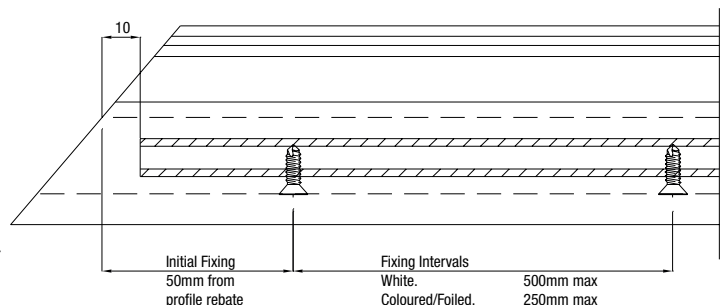
|   |      | Unreinforced Width   |       |       |       |       |       |       |        |        |
|---|------|--|-------|-------|-------|-------|-------|-------|--------|--------|
|   |      | 374mm  | 474mm | 574mm | 674mm | 774mm | 874mm | 974mm | 1074mm | 1174mm |
| Glass Weight  | 5kg  | 0.1  | 0.2   | 0.3   | 0.4   | 0.6   | 0.8   | 1.2   | 1.6    | -      |
|   | 10kg | 0.2  | 0.3   | 0.5   | 0.7   | 1.0   | 1.3   | 1.7   | 2.3    | -      |
|   | 15kg | 0.3  | 0.4   | 0.7   | 1.0   | 1.3   | 1.8   | 2.3   | 3.0    | -      |
|   | 20kg | 0.3  | 0.6   | 0.9   | 1.2   | 1.7   | 2.3   | 2.9   | 3.7    | -      |
|   | 25kg | 0.4  | 0.7   | 1.1   | 1.5   | 2.1   | 2.7   | 3.5   | 4.4    | -      |
| <div style="background-color: #cccccc; width: 100px; height: 10px; display: inline-block;"></div> Please note it is recommended that dead load deflections over 2.1mm require reinforcement in the bottom rail. |      |  |       |       |       |       |       |       |        |        |
|   |      | Reinforced sash width on bottom rail with Article No. 328180 |       |       |       |       |       |       |        |        |
|   |      | 374mm  | 474mm | 574mm | 674mm | 774mm | 874mm | 974mm | 1074mm | 1174mm |
| Glass Weight  | 5kg  | 0.0  | 0.1   | 0.1   | 0.1   | 0.2   | 0.2   | 0.3   | 0.4    | 0.6    |
|   | 10kg | 0.1  | 0.1   | 0.1   | 0.2   | 0.3   | 0.4   | 0.5   | 0.7    | 0.8    |
|   | 15kg | 0.1  | 0.1   | 0.2   | 0.3   | 0.4   | 0.5   | 0.7   | 0.9    | 1.1    |
|   | 20kg | 0.1  | 0.2   | 0.3   | 0.4   | 0.5   | 0.6   | 0.8   | 1.1    | 1.3    |
|   | 25kg | 0.1  | 0.2   | 0.3   | 0.4   | 0.6   | 0.8   | 1.0   | 1.3    | 1.6    |
|   | 30kg | 0.1  | 0.2   | 0.4   | 0.5   | 0.7   | 0.9   | 1.2   | 1.5    | 1.8    |
|   | 35kg | 0.2  | 0.3   | 0.4   | 0.6   | 0.8   | 1.1   | 1.3   | 1.7    | 2.1    |

### Transom

- Transom members to be reinforced as required. Structural calculations and I values should be proven to decide the correct steels for the application.

### General notes

- Reinforcement screw to be located approximately 50mm from each profile end and spaced at approximately 500mm intervals for white profile and 250mm intervals for coloured/foiled, see diagram 1.
- Coloured/foiled profiles must always be reinforced irrespective of size.
- When applying a transom/mullion into a sash it is essential that one piece steel reinforcement section is applied and secured directly after welding. It is unacceptable to insert two lengths either side of the weld joint.



### Mechanical Joint Reinforcement

For the frame mechanical joint, the reinforcement needs to be reduced to allow for the screwported aluminium, Art. No. 328219 (52mm) or Art. No. 329891 (62mm), to be inserted. The screwported aluminium, Art. No. 328219 and Art. No. 329891, is supplied in 75mm pieces. The mechanical joint sash plug moulding will require an allowance of 54mm from each end.

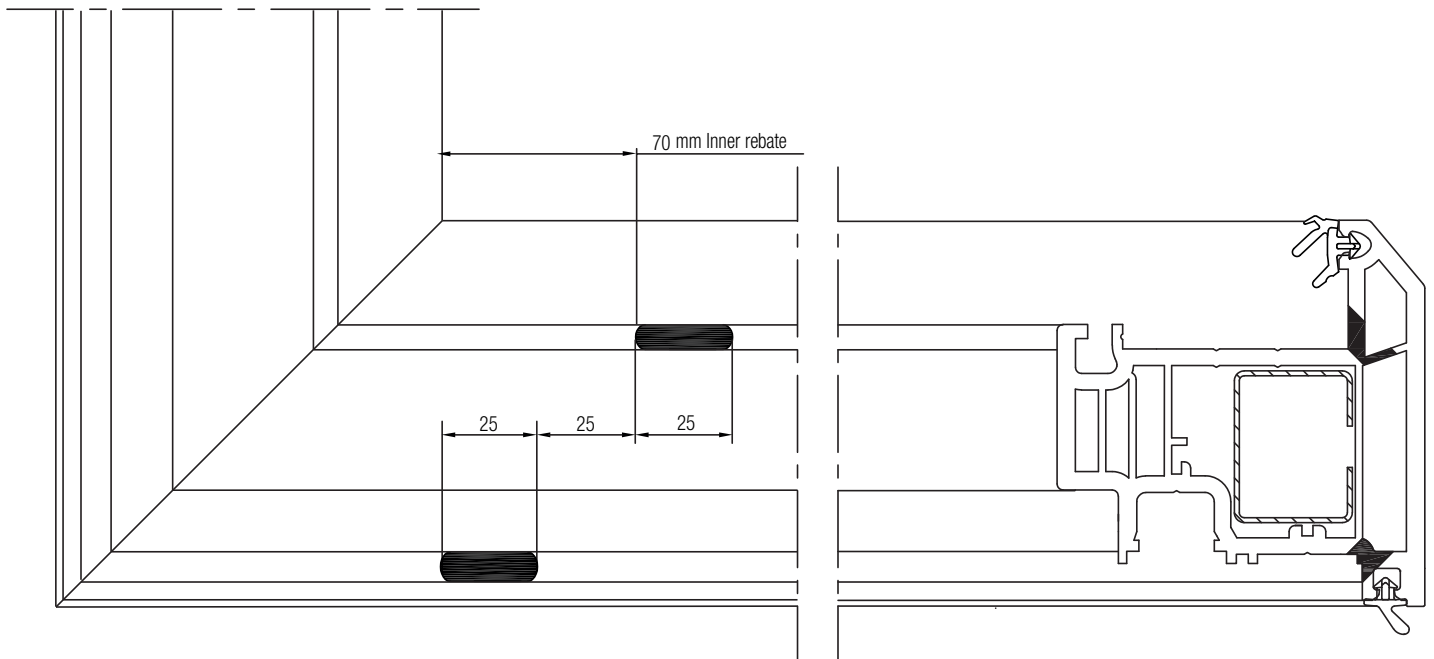


For more detailed information please refer to 700.620 EN/10.09

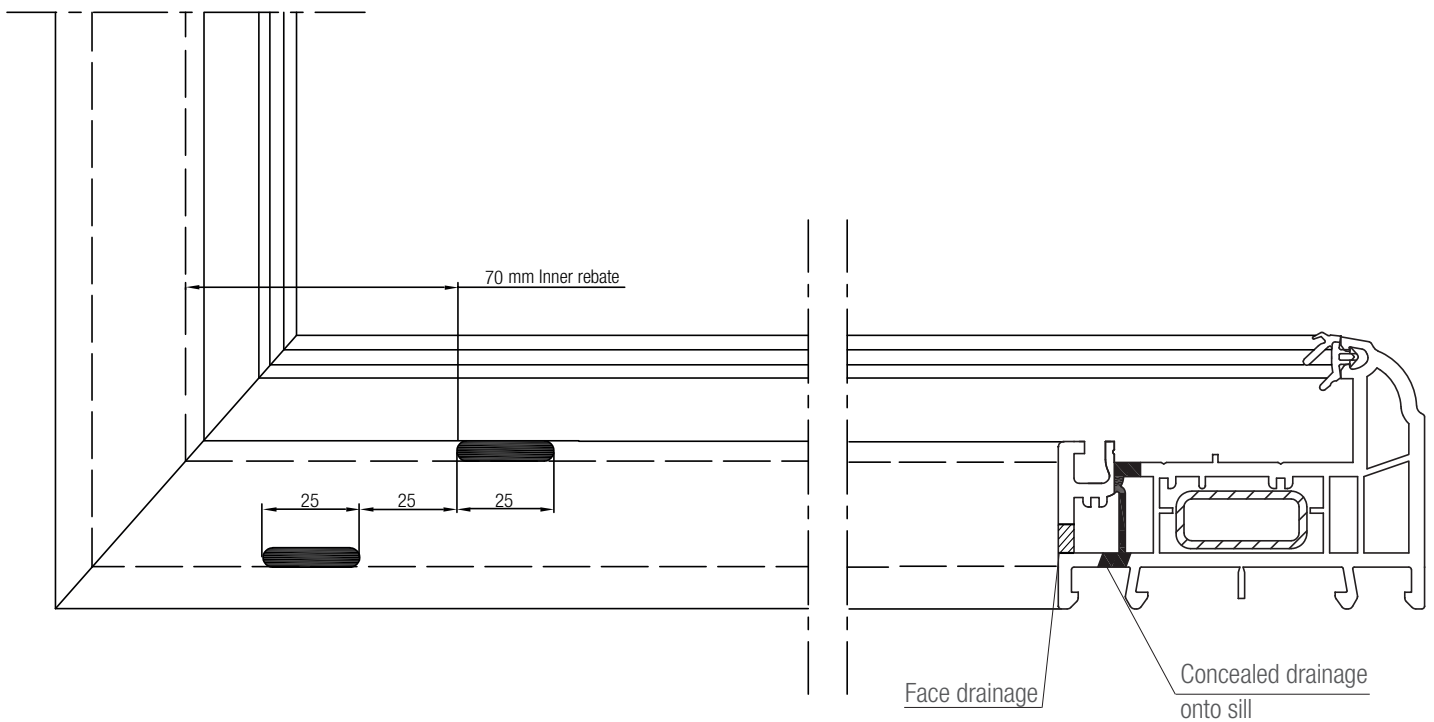
# Rio Flush Fit

## Technical Information - Drainage Details

### 8.1. Sash



### 8.2. Outer Frame





# Rio Flush Fit

## Technical Information - U Value Data

### U-Values

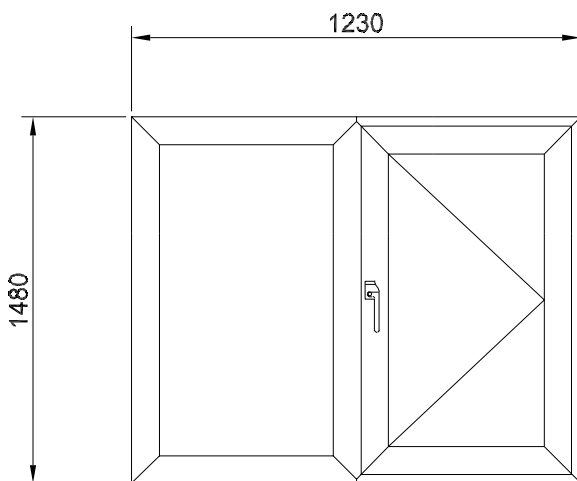
Enhancing the profile selection improves the overall thermal performance of the window not only for WERs, but more importantly the U value - its' ability to retain heat within the building. The aim of which is to achieve a cost saving on energy bills as the amount of heating required will be reduced.

|                            | TOTAL70C           | TOTAL70S           |
|----------------------------|--------------------|--------------------|
| Frame                      | W/m <sup>2</sup> K | W/m <sup>2</sup> K |
| 5 Chamber Fully Reinforced | 1.43               | 1.48               |
| 5 Chamber Unreinforced     | 1.35               | 1.40               |

The above values are based on REHAU approved simulations.

Buildcheck reports based on sample submitted to BSI for testing according to BS 6375 & PAS24, indicate that a u-value of 1.3 W/m<sup>2</sup>K is achievable using TOTAL70s Unreinforced. Based on this, A to A+ WER can be met based on glass specification.

Frame U values are based on the UK standard window 1230 wide x 1480 high, an opening light next to fixed.



## Technical Information - Product Ordering Guide

| Article Number | Variant Number | Description                                      | Finish    | Quantity (metres) | Packaging |
|----------------|----------------|--|-----------|-------------------|-----------|
| 200283         | 001            | Georgian Bar Cruciform Clip                      | White     | 250               | Pieces    |
| 200283         | 002            | Georgian Bar Cruciform Clip                      | Brown     | 250               | Pieces    |
| 200283         | 003            | Georgian Bar Cruciform Clip                      | Acorn     | 250               | Pieces    |
| 200344         | 001            | Georgian Bar Clip 28mm                           | White     | 250               | Pieces    |
| 200344         | 002            | Georgian Bar Clip 28mm                           | Brown     | 250               | Pieces    |
| 200344         | 003            | Georgian Bar Clip 28mm                           | Acorn     | 250               | Pieces    |
| 216391         | 001            | Reinforcement 25 x 11 x 1.5mm                    | Steel     | 6                 | Length    |
| 216392         | 001            | Reinforcement 25 x 21 x 1.5mm                    | Steel     | 6                 | Length    |
| 216393         | 001            | Reinforcement 25 x 31 x 1.5mm                    | Steel     | 6                 | Length    |
| 249838         | 001            | Reinforcement 42 x 10 x 1mm                      | Steel     | 6                 | Length    |
| 261748         | 001            | Reinforcement 42 x 10 x 2mm                      | Steel     | 6                 | Length    |
| 261948         | 001            | Reinforcement 42 x 10                            | Aluminium | 6                 | Length    |
| 318555         | 001            | Reinforcement 25 x 11 x 1mm                      | Steel     | 6                 | Length    |
| 318565         | 001            | Reinforcement 25 x 21 x 1mm                      | Steel     | 6                 | Length    |
| 318575         | 001            | Reinforcement 25 x 31 x 1mm-                     | Steel     | 6                 | Length    |
| 328180         | 001            | Reinforcement 25 x 19 x 9 x 0.8mm                | Steel     | 6                 | Length    |
| 328217         | 001            | Weldable Corner Gasket                           | Black     | 200               | Pieces    |
| 328218         | 001            | Bead Infill Gasket                               | Black     | 400               | Spool     |
| 328219         | 001            | 52mm Frame Screwported Aluminium (75mm)          | Aluminium | 20                | Pieces    |
| 328221         | 001            | Sculptured frame close off end cap               | White     | 50                | Pairs     |
| 328222         | 001            | Mechanical Joint Block - Sash                    | White     | 10                | Kits      |
| 328223         | 001            | French Window Spacer                             | Aluminium | 6                 | Length    |
| 328224         | 001            | French Window dummy mullion end cap - Chamfered  | White     | 20                | Pieces    |
| 328224         | 002            | French Window dummy mullion end cap - Chamfered  | Brown     | 20                | Pieces    |
| 328224         | 003            | French Window dummy mullion end cap - Chamfered  | Acorn     | 20                | Pieces    |
| 328224         | 004            | French Window dummy mullion end cap - Chamfered  | Grey      | 20                | Pieces    |
| 329228         | 001            | Chamfered frame close off end cap                | White     | 50                | Pairs     |
| 329331         | 001            | French Window dummy mullion end cap - Sculptured | White     | 20                | Pieces    |
| 329331         | 002            | French Window dummy mullion end cap - Sculptured | Brown     | 20                | Pieces    |
| 329331         | 003            | French Window dummy mullion end cap - Sculptured | Acorn     | 20                | Pieces    |
| 329331         | 004            | French Window dummy mullion end cap - Sculptured | Grey      | 20                | Pieces    |
| 329648         | 001            | Sash Riser Block                                 | White     | 250               | Pieces    |
| 329648         | 002            | Sash Riser Block                                 | Brown     | 250               | Pieces    |
| 329648         | 003            | Sash Riser Block                                 | Acorn     | 250               | Pieces    |

## Technical Information - Product Ordering Guide







| Article Number | Variant Number | Description                                       | Finish    | Quantity (metres) | Packaging       |
|----------------|----------------|---|-----------|-------------------|-----------------|
| 329648         | 004            | Sash Riser Block                                  | Grey      | 250               | Pieces          |
| 329649         | 001            | Closing Seal gasket                               | Black     | 300               | Spool           |
| 329891         | 001            | 62mm Frame Screwported Aluminium (75mm)           | Aluminium | 20                | Pieces          |
| 546015         | 701            | Flush Sash 63mm                                   | White     | 36 / 576          | Pack / Stillage |
| 546085         | 701 / 901      | Slim Transom / Mullion T 69mm                     | White     | 36 / 624          | Pack / Stillage |
| 546415         | 701 / 901      | Sculptured Casement Slim Outer Frame 52mm         | White     | 48 / 768          | Pack / Stillage |
| 546425         | 701 / 901      | Sculptured Casement Intermediate Outer Frame 62mm | White     | 36 / 576          | Pack / Stillage |
| 546435         | 701 / 901      | Sculptured Casement Universal Outer Frame 72mm    | White     | 36 / 480          | Pack / Stillage |
| 546665         | 701 / 901      | Sculptured Slim Transom / Mullion T 69mm          | White     | 36 / 672          | Pack / Stillage |
| 546816         | 701 / 901      | Chamfered Casement Slim Outer Frame 52mm          | White     | 48 / 768          | Pack / Stillage |
| 546826         | 701 / 901      | Chamfered Casement Intermediate Outer Frame 62mm  | White     | 36 / 576          | Pack / Stillage |
| 546836         | 701 / 901      | Chamfered Casement Universal Outer Frame 72mm     | White     | 36 / 480          | Pack / Stillage |
| 559251         | 701            | Chamfered Georgian Bar                            | White     | 72                | Pack            |
| 559261         | 701            | Sculptured Georgian Bar                           | White     | 72                | Pack            |
| 559600         | 701            | 28mm Sculptured Bead                              | White     | 144               | Pack            |

**Foiled article numbers** - for foil variants and Standard / Non-standard information please see matrix on page 30/31

|               |   |  |      |         |      |
|---------------|---|--|------|---------|------|
| 328222        | - | Mechanical Joint Block - Sash            | Foil | 10      | Kits |
| 576265        | - | Chamfered Slim Transom / Mullion T 69mm  | Foil | 36 / 12 | Pack |
| 576665        | - | Sculptured Slim Transom / Mullion T 69mm | Foil | 36 / 12 | Pack |
| 586015        | - | Flush Sash 63mm                          | Foil | 36 / 12 | Pack |
| 586415        | - | Sculptured Slim Outer Frame 52mm         | Foil | 36 / 12 | Pack |
| 586425        | - | Sculptured Intermediate Outer Frame 62mm | Foil | 36 / 12 | Pack |
| 586435        | - | Sculptured Universal Outer Frame 72mm    | Foil | 36 / 12 | Pack |
| 586815/586816 | - | Chamfered Slim Outer Frame 52mm          | Foil | 36 / 12 | Pack |
| 586825/586826 | - | Chamfered Intermediate Outer Frame 62mm  | Foil | 36 / 12 | Pack |
| 586835/586836 | - | Chamfered Universal Outer Frame 72mm     | Foil | 36 / 12 | Pack |
| 589251        | - | Chamfered Georgian Bar                   | Foil | 72      | Pack |
| 589261        | - | Sculptured Georgian Bar                  | Foil | 36      | Pack |
| 589600        | - | 28mm Sculptured Bead                     | Foil | 36      | Pack |

# Rio Flush Fit

## Technical Information - Foil Matrix

|  |                  |                    | White | Turner Oak on White   | Turner Oak Both Sides on Acorn   | Golden Oak on White   | Golden Oak Both Sides on Acorn  | Rosewood on White   | Rosewood Both Sides on Brown  | Black Brown on White  | Black Brown Both Sides on Brown   | Anthracite Grey (Grained) on White  | Anthracite Grey (Grained) Both Sides on Grey  |
|--|------------------|--------------------|-------|---|--|---|---|---|---|---|---|---|---|
| Description                                      | Article Number   | Pack Size          |       | 2031L   |  | 7512  |   | 168L  |   | 9631  |   | 4443  |   |
|  |                  |                    |       |  |  |  |  |  |  |  |  |  |  |
| Flush Sash 63mm                                  | 546015<br>586015 | 36/12*             | 701   | 335* (A)  | 325* (AB)  | 321 (A)   | 351 (AB)  | 221 (A)   | 251 (AB)  | 760*(A)   | 750* (AB)   | 746* (A)  | 156* (AB)   |
| Sculptured Slim Outer Frame 52mm                 | 546415<br>586415 | 36/12*             | 701   | 335* (A)  | 325* (AB)  | 321 (A)   | 351 (AB)  | 221 (A)   | 251 (AB)  | 760*(A)   | 750* (AB)   | 746* (A)  | 156 (AB)  |
| Sculptured Intermediate Outer Frame 62mm         | 546425<br>586425 | 36/12*             | 701   | 335* (A)  | 325* (AB)  | 321 (A)   | 351 (AB)  | 221 (A)   | 251 (AB)  | 760*(A)   | 750* (AB)   | 746 (A)   | 156 (AB)  |
| Sculptured Universal Outer Frame 72mm            | 546435<br>586435 | 36/12*             | 701   | 335* (A)  | 325* (AB)  | 321 (A)   | 351 (AB)  | 221 (A)   | 251 (AB)  | 760*(A)   | 750* (AB)   | 746 (A)   | 156 (AB)  |
| Sculptured Slim Transom / Mullion T 69mm         | 546665<br>576665 | 36/12*             | 701   | 335* (A)  | 325* (AB)  | 321 (A)   | 351 (AB)  | 221 (A)   | 251 (AB)  | 760*(A)   | 750* (AB)   | 746 (A)   | 156 (AB)  |
| Chamfered Slim Outer Frame 52mm                  | 546816<br>586815 | 36/12*/Pick&Pack** | 701   |   | 325* (AB)  |   | 351 (AB)  |   | 251 (AB)  |   | 750* (AB)   |   | 156** (AB)  |
| Chamfered Slim Outer Frame 52mm                  | 586816           | 36/12*/Pick&Pack** |       | 335* (A)  |  | 321 (A)   |   | 221 (A)   |   | 760*(A)   |   | 746** (A)   |   |
| Chamfered Intermediate Outer Frame 62mm          | 546826<br>586825 | 36/12*/Pick&Pack** | 701   |   | 325* (AB)  |   | 351 (AB)  |   | 251 (AB)  |   | 750* (AB)   |   | 156** (AB)  |
| Chamfered Intermediate Outer Frame 62mm          | 586826           | 36/12*/Pick&Pack** |       | 335* (A)  |  | 321 (A)   |   | 221 (A)   |   | 760*(A)   |   | 746** (A)   |   |
| Chamfered Universal Outer Frame 72mm             | 546836<br>586835 | 36/12*/Pick&Pack** | 701   |   | 325* (AB)  |   | 351 (AB)  |   | 251 (AB)  |   | 750* (AB)   |   | 156** (AB)  |
| Chamfered Universal Outer Frame 72mm             | 586836           | 36/12*/Pick&Pack** |       | 335* (A)  |  | 321 (A)   |   | 221 (A)   |   | 760*(A)   |   | 746** (A)   |   |
| Chamfered Slim Transom / Mullion T 69mm          | 546085<br>576265 | 36/12*/Pick&Pack** | 701   | 335* (A)  | 325* (AB)  | 321 (A)   | 351 (AB)  | 221 (A)   | 251 (AB)  | 760*(A)   | 750* (AB)   | 746** (A)   | 156** (AB)  |
| Chamfered Georgian Bar (All with black flipper)  | 559251<br>589251 | 36                 | 701   |   | 325  |   | 790   |   | 270   |   | 760   |   | 746   |
| Sculptured Georgian Bar (All with black flipper) | 559261<br>589261 | 36                 | 701   |   | 325  |   | 790   |   | 270   |   | 760   |   | 746   |
| 28mm Sculptured Bead (All with black gasket)     | 559600<br>589600 | 72                 | 701   |   | 325  |   | 790   |   | 270   |   | 750   |   | 746   |
| Mechanical Joint Block for Sash                  | 328222           | 10 kits            | 001   |   | 325  |   | 351   |   | 251   |   | 750   |   | 156   |

| Slate Grey (Grained) on White |           | Slate Grey (Grained) Both Sides on Grey |           | Chartwell Green on White |           | Chartwell Green Both Sides on White |           | Pearl Grey on White |           | Pearl Grey Both Sides on White |         | Clotted Cream on White |         | Clotted Cream Both Sides on White |         | Simply White on White |  | Simply White Both Sides on White |  | Elephant Grey on White |  | Smooth Anthracite Grey on White |  | Smooth Anthracite Grey Both Sides on White |  | Smooth Slate Grey on White |  | Smooth Slate Grey Both Sides on White |  | Midnight Black on White |  | Midnight Black Both Sides on Brown |  |
|-------------------------------|-----------|---|-----------|--------------------------|-----------|-------------------------------------|-----------|---------------------|-----------|--------------------------------|---------|------------------------|---------|-----------------------------------|---------|-----------------------|--|----------------------------------|--|------------------------|--|---------------------------------|--|--|--|----------------------------|--|---------------------------------------|--|-------------------------|--|------------------------------------|--|
| 1062L                         |           | 1209L                                   |           | 5855                     |           | 4444                                |           | 9734                |           | 9922                           |         | 930L                   |         | 1364L                             |         | 1980L                 |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |
| 016 (A)                       | 111* (AB) | 277*(A)                                 | 257* (AB) | 018*(A)                  | 077* (AB) | 778*(A)                             | 739* (AB) | 728*(A)             | 134* (AB) | 737* (A)<br>017*(AB)           | 446*(A) | 486* (AB)              | 444*(A) | 454* (AB)                         | 530*(A) | 550* (AB)             |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |
| 016*(A)                       | 111* (AB) | 277*(A)                                 | 257* (AB) | 018*(A)                  | 077* (AB) | 778*(A)                             | 739* (AB) | 728*(A)             | 134* (AB) | 737*(A)<br>017*(AB)*           | 446*(A) | 486* (AB)              | 444*(A) | 454* (AB)                         | 530*(A) | 550* (AB)             |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |
| 016*(A)                       | 111* (AB) | 277*(A)                                 | 257* (AB) | 018*(A)                  | 077* (AB) | 778*(A)                             | 739* (AB) | 728*(A)             | 134* (AB) | 737*(A)<br>017*(AB)            | 446*(A) | 486* (AB)              | 444*(A) | 454* (AB)                         | 530*(A) | 550* (AB)             |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |
| 016*(A)                       | 111* (AB) | 277*(A)                                 | 257* (AB) | 018*(A)                  | 077* (AB) | 778*(A)                             | 739* (AB) | 728*(A)             | 134* (AB) | 737*(A)<br>017*(AB)            | 446*(A) | 486* (AB)              | 444*(A) | 454* (AB)                         | 530*(A) | 550* (AB)             |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |
| 016*(A)                       | 111* (AB) | 277*(A)                                 | 257* (AB) | 018*(A)                  | 077* (AB) | 778*(A)                             | 739* (AB) | 728*(A)             | 134* (AB) | 737*(A)<br>017*(AB)            | 446*(A) | 486* (AB)              | 444*(A) | 454* (AB)                         | 530*(A) | 550* (AB)             |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |
|                               | 111* (AB) |   |           |                          |           |                                     |           |                     |           |                                |         |                        |         |                                   |         | 550* (AB)             |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |
| 016*(A)                       |           | 277*(A)                                 | 257* (AB) | 018*(A)                  | 077* (AB) | 778*(A)                             | 739* (AB) | 728*(A)             | 134* (AB) | 737(A)<br>017*(AB)             | 446*(A) | 486* (AB)              | 444*(A) | 454* (AB)                         | 530*(A) |                       |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |
|                               | 111* (AB) |   |           |                          |           |                                     |           |                     |           |                                |         |                        |         |                                   |         | 550* (AB)             |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |
| 016*(A)                       |           | 277*(A)                                 | 257* (AB) | 018*(A)                  | 077* (AB) | 778*(A)                             | 739* (AB) | 728*(A)             | 134* (AB) | 737(A)<br>017*(AB)             | 446*(A) | 486* (AB)              | 444*(A) | 454* (AB)                         | 530*(A) |                       |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |
|                               | 111* (AB) |   |           |                          |           |                                     |           |                     |           |                                |         |                        |         |                                   |         | 550* (AB)             |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |
| 016*(A)                       |           | 277*(A)                                 | 257* (AB) | 018*(A)                  | 077* (AB) | 778*(A)                             | 739* (AB) | 728*(A)             | 134* (AB) | 737(A)<br>017*(AB)             | 446*(A) | 486* (AB)              | 444*(A) | 454* (AB)                         | 530*(A) |                       |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |
| 016*(A)                       | 111* (AB) | 277*(A)                                 | 257* (AB) | 018*(A)                  | 077* (AB) | 778*(A)                             | 739* (AB) | 728*(A)             | 134* (AB) | 737(A)<br>017*(AB)             | 446*(A) | 486* (AB)              | 444*(A) | 454* (AB)                         | 530*(A) | 550* (AB)             |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |
|                               | 016       |   | 257       |                          | 018       |                                     | 778       |                     | 754       | 795                            |         | 446                    |         | 444                               |         | 550                   |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |
|                               | 016       |   | 257       |                          | 018       |                                     | 778       |                     | 754       | 795                            |         | 446                    |         | 444                               |         | 550                   |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |
|                               | 016       |   | 257       |                          | 018       |                                     | 778       |                     | 754       | 795                            |         | 446                    |         | 454                               |         | 550                   |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |
|                               | 111       |   | 257       |                          | 077       |                                     | 739       |                     | 134       | 017                            |         | 486                    |         | 454                               |         | 550                   |  |                                  |  |                        |  |                                 |  |  |  |                            |  |                                       |  |                         |  |                                    |  |

## NOTES

## NOTES

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