

Rio flush fit

Technical information

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01 General guidelines

1.1 Product Description

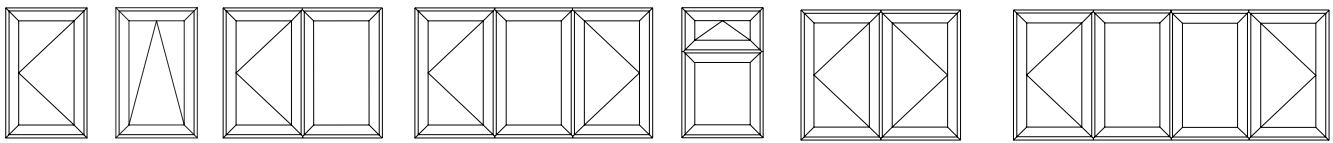
The Rio Flush Fit window gives a traditional appearance to any building and is designed to create maximum lighting effect into the room, whilst offering easy maintenance. The window utilises the TOTAL70 hardware rebate so the same hinge and gearing options are available.

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.

1.2 Window Styles



* For authenticity dummy sashes are displayed

1.3 Storage of PVC-U profiles

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

1.4 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 cleanness 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.

1.5 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.

1.6 Welding

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

01 General guidelines

1.7 Mechanical Jointing

In addition to welding of profile the system has the option to be mechanically jointed for the sash, deep bottom rail (DBR) and frame; details of which are covered on page 19-23

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. Transom mechanical joints utilise the TOTAL70 standard mechanical joint blocks, Art No. 261209/261199.

1.8 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. As an option glue can be added to the foot joint if required. 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.



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

1.9 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.

1.10 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.

1.11 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.

1.12 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.

1.13 Cleaning

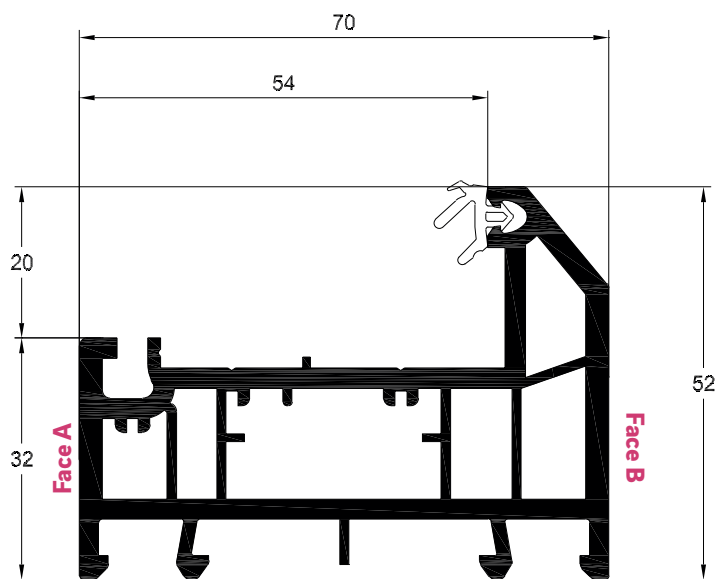
The window can be cleaned using normal washing up liquid and lukewarm water. Gritty and abrasive cleaning agents must not be used. In the event of exceptionally bad soiling, the use of a special cleaning agent is recommended which must be applied to the whole of the frame surface.

1.14 Installation

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

02 Profile print

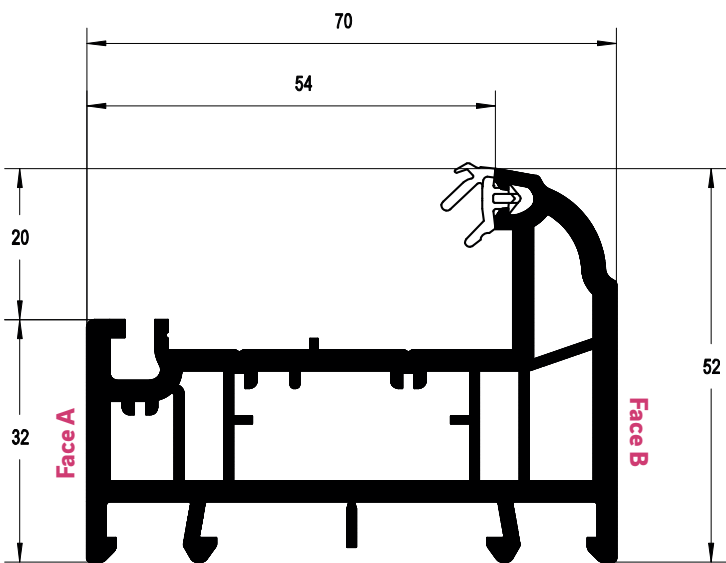
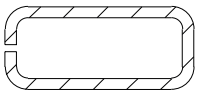
2.1 Frames



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

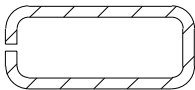
216391 - 25 x 11
318555 - 25 x 11



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

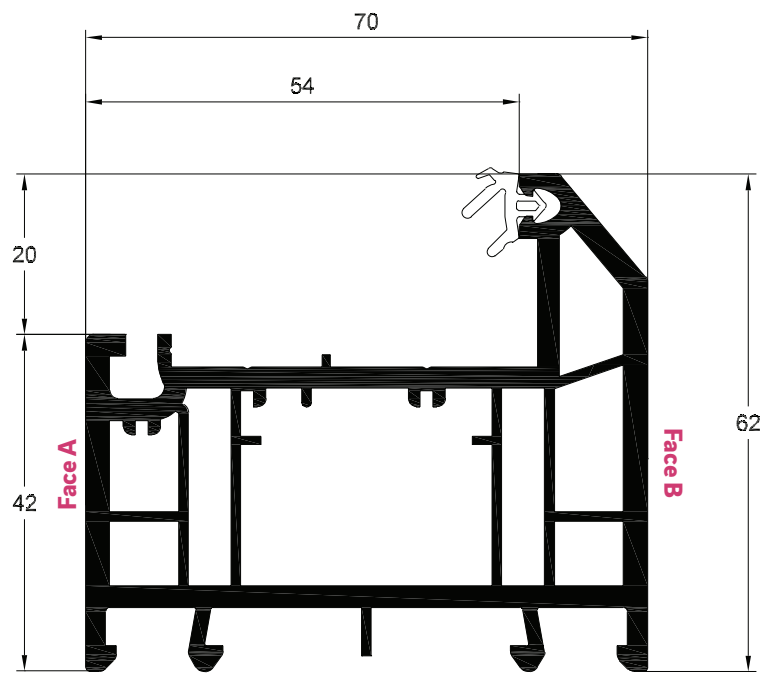
216391 - 25 x 11
318555 - 25 x 11



Note: lx is in windload directon

02 Profile print

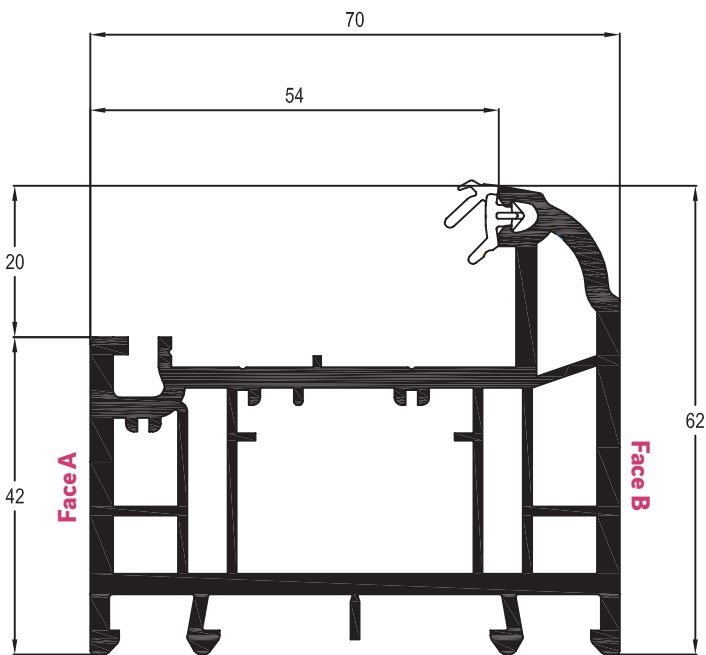
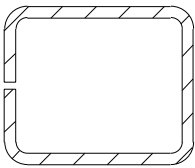
2.1 Frames



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

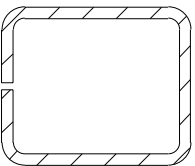
216392 - 25 x 21
318565 - 25 x 21



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

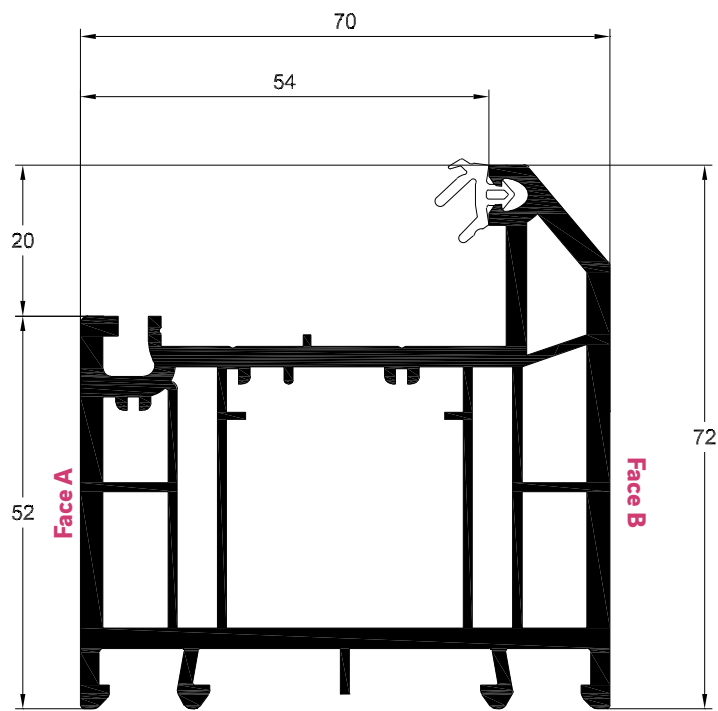
216392 - 25 x 21
318565 - 25 x 21



Note: lx is in windload direction

02 Profile print

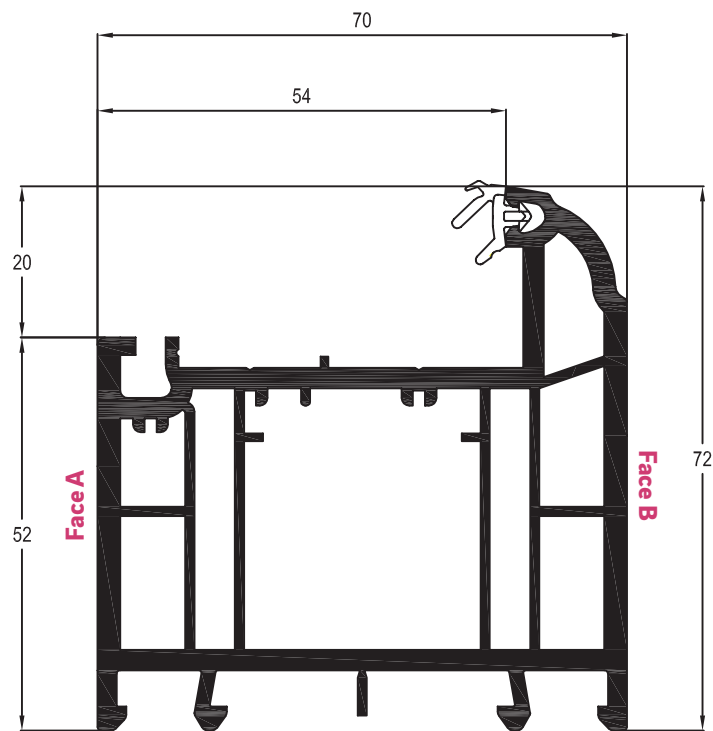
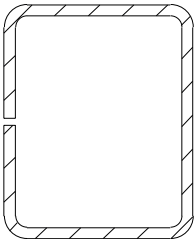
2.1 Frames



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

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

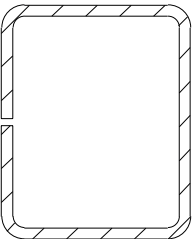
216393 - 25 x 31
 318575 - 25 x 31



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

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

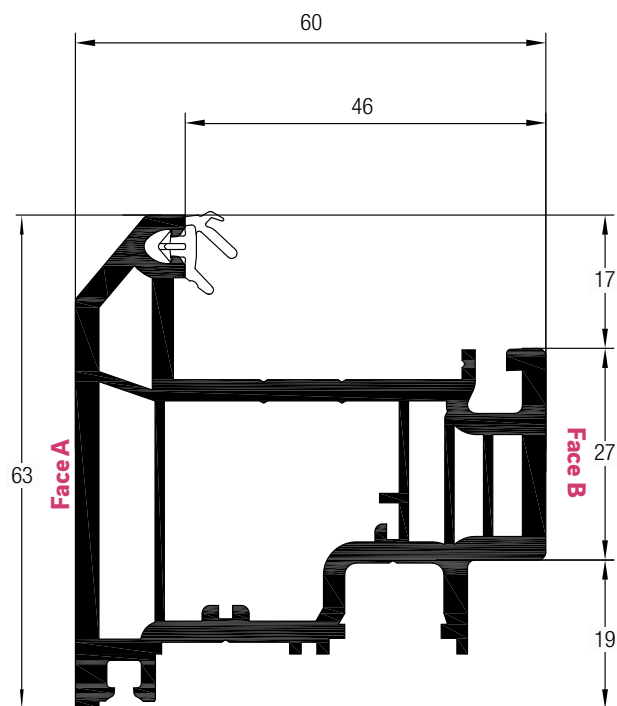
216393 - 25 x 31
 318575 - 25 x 31



Note: lx is in windload directon

02 Profile print

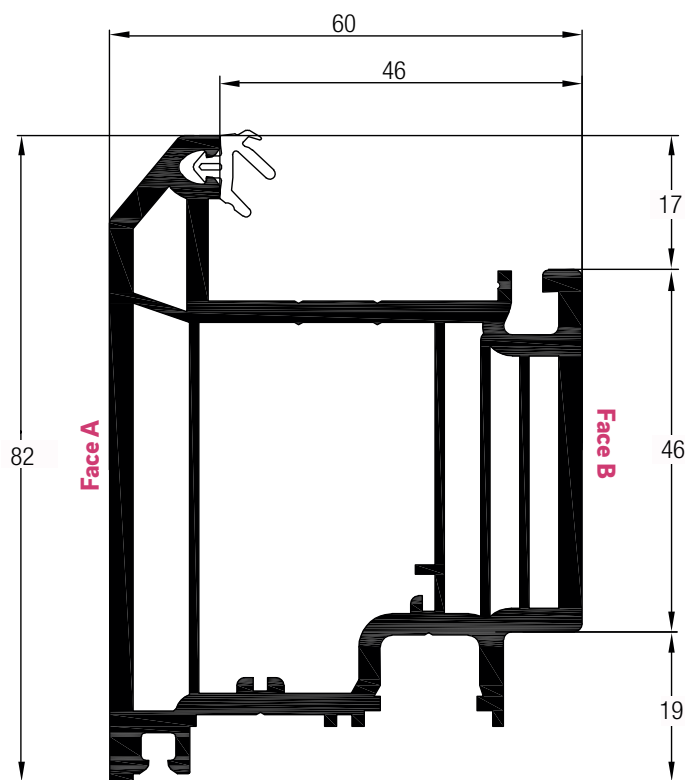
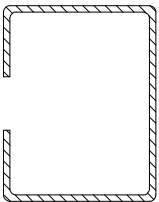
2.2 Sashes



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

	328180
	0.8mm
I _x	0.34
I _y	0.58

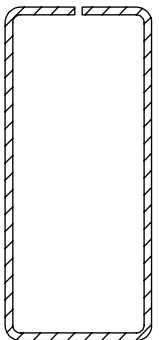
328180 - 25 x 19 x 9



82mm Deep bottom rail
White Profile Art. No. 546025
Laminated Profile Art. No. 586025

	333835
	1mm
I _x	0.79
I _y	2.80

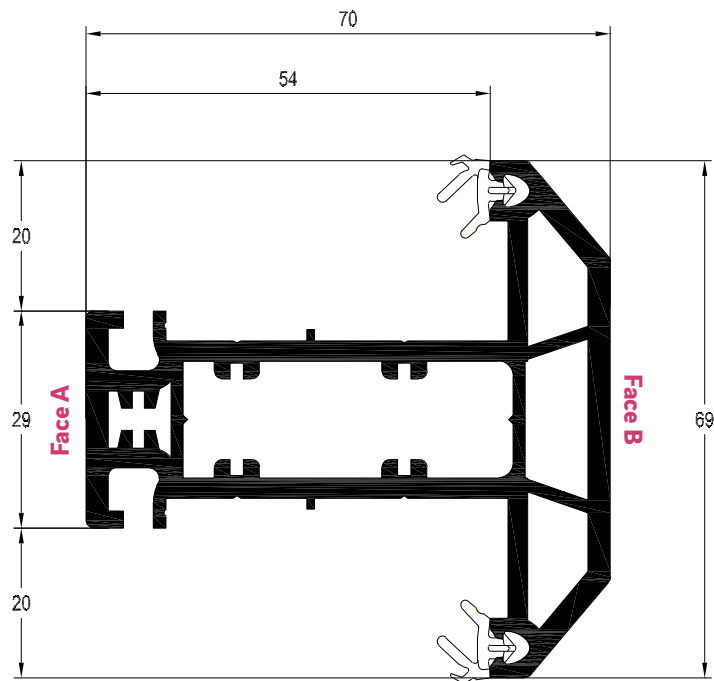
333835 - 43.75 x 19.25



Note: I_x is in windload direction

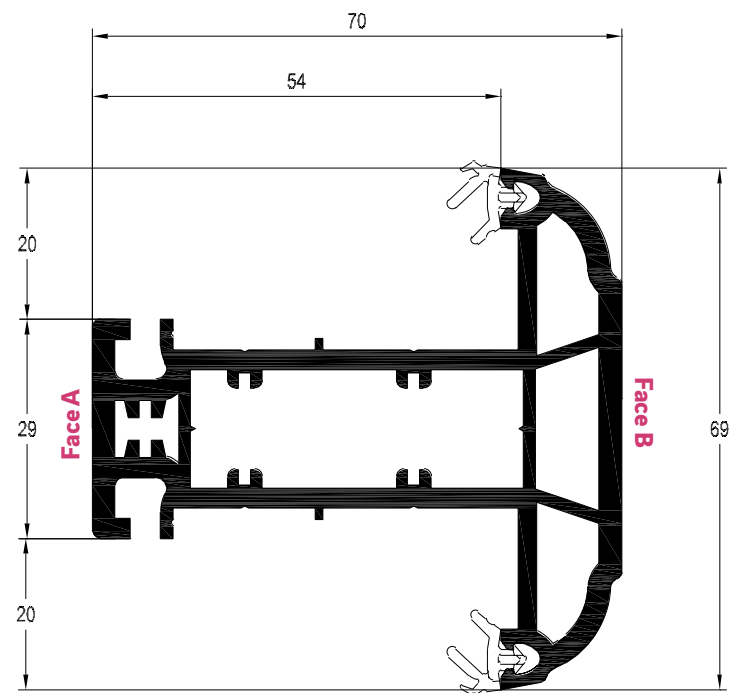
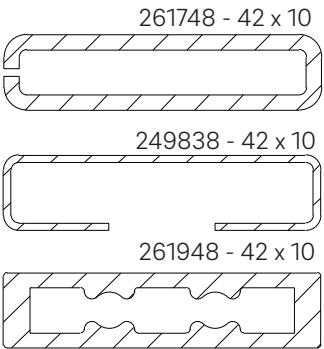
02 Profile print

2.3 Transoms



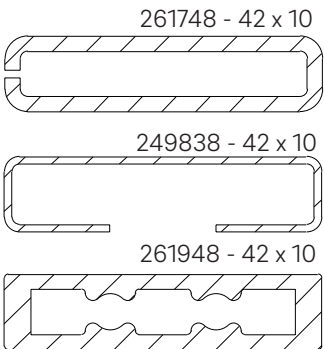
Slim Transom / Mullion T 69mm
 White Profile Art. No. 546085
 Laminated Profile Art. No. 576265

	261748	249838	261948
	2mm	1mm	Aluminium
I _x	3.06	1.77	4.18
I _y	0.27	0.14	0.3



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

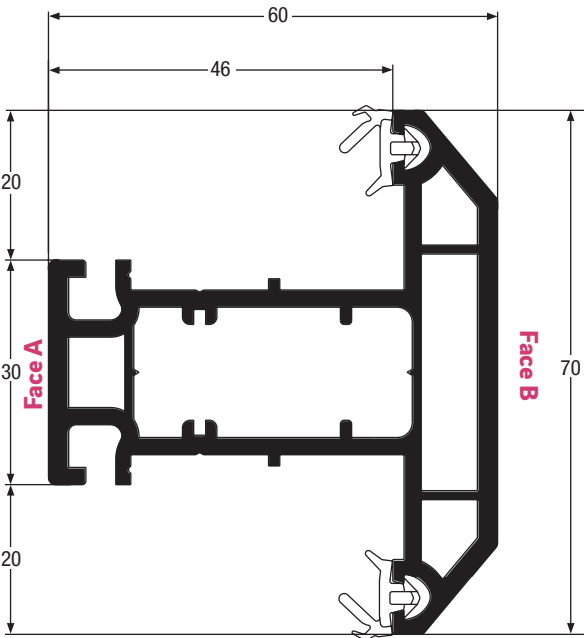
	261748	249838	261948
	2mm	1mm	Aluminium
I _x	3.06	1.77	4.18
I _y	0.27	0.14	0.3



Note: I_x is in windload directon

02 Profile print

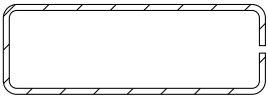
2.3 Transoms



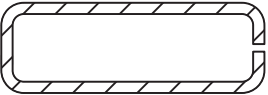
Sash Transom / Mullion T 70mm
White Profile Art. No. 503555
Laminated Profile Art. No. 573555

	287798	233721	200509
	1.5mm	0.8mm	Aluminium
I _x	2.9	1.8	4.6
I _y	1.6	0.9	3.0

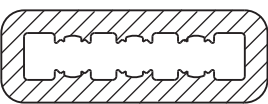
233721 - 35 x 12



287798 - 35 x 12



200509 - 35.2 x 12.2



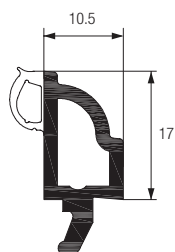
Note: I_x is in windload direction

02 Profile print

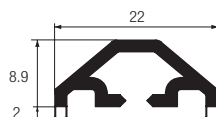
2.4 Ancillaries

Glazing & Georgian Bars

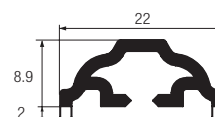
For 28mm Sealed Units



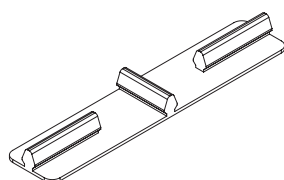
Sculptured Bead - Low Level Co-Ex
White Profile Art. No. 559600
Laminated Profile Art. No. 589600



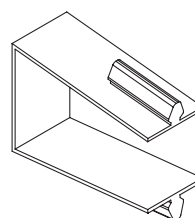
Chamfered Georgian Bar
White Profile Art No. 559251
Laminated Profile Art. No. 589251



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

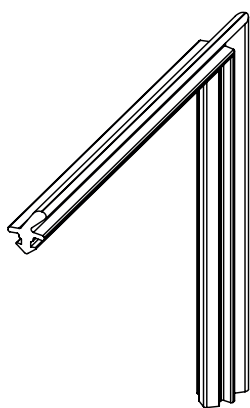


Georgian Bar Cruciform Clip
Art. No. 200283



Georgian Bar Clip 28mm
Art. No. 200344

Gaskets



Weldable Corner Gasket
Art No. 328217



Closing Seal for Art. 546015
& Art. 546025
Art No. 329649

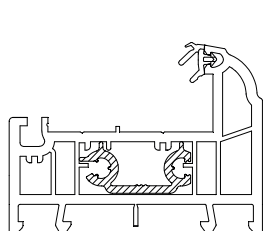


Bead Infill Gasket
Art No. 328218

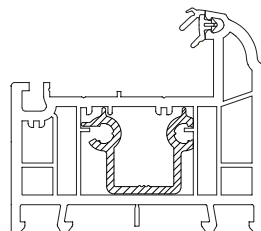
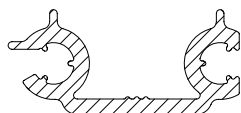
02 Profile print

2.4 Ancillaries

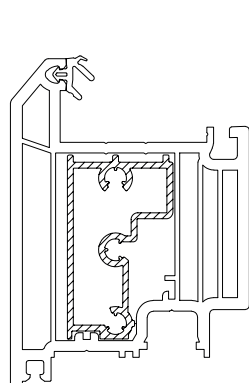
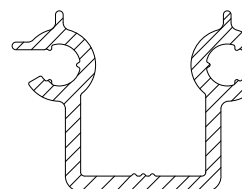
Mechanical Joint Components



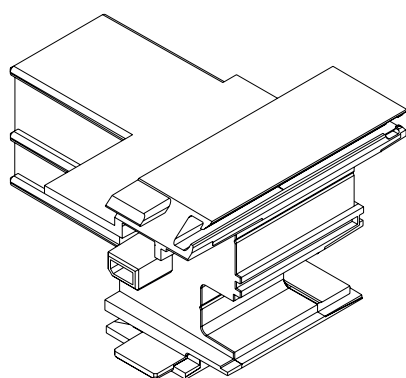
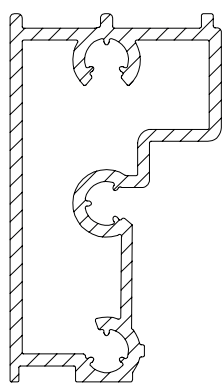
52mm Frame Screwported Aluminium
Art No. 328219



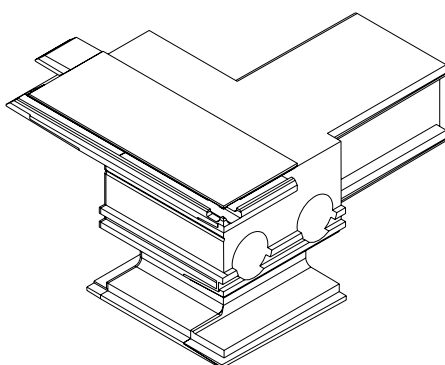
62mm Frame Screwported Aluminium
Art No. 329891



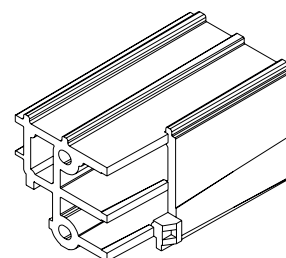
82mm DBR Screwported Aluminium
Art No. 331689



Side View



Bottom View



Plug

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

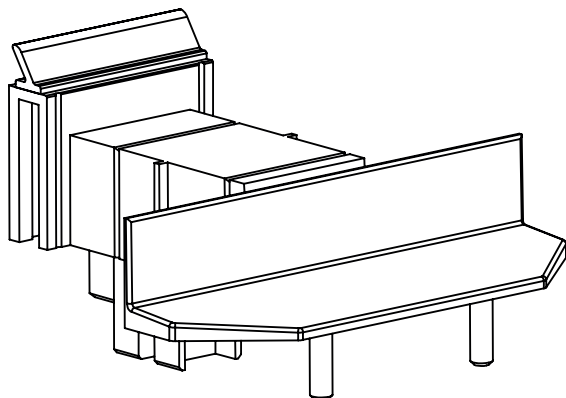
- Please note right hand block and left hand plug shown

Mechanical joint block only - for use with DBR Art. 546025
L&R Handed
Art. No. 328225

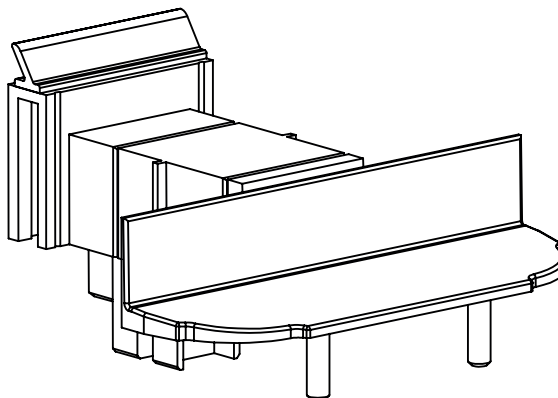
02 Profile print

2.4 Ancillaries

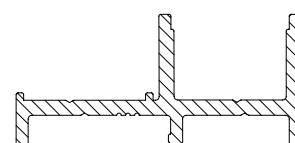
French Window Components



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

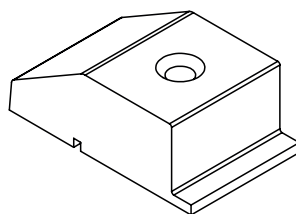


French Window Dummy
Mullion End Cap - Sculptured
Art No. 329331

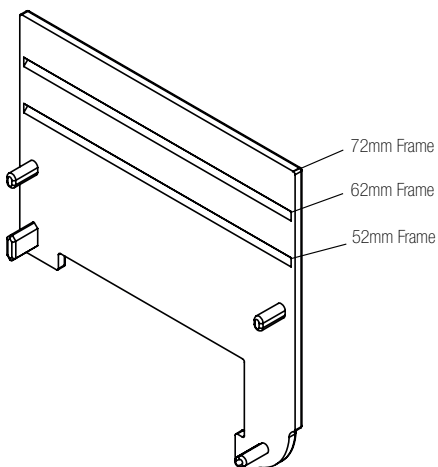
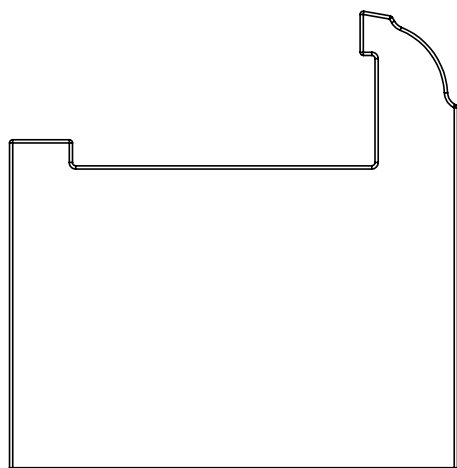


French Window Spacer
Art No. 328223

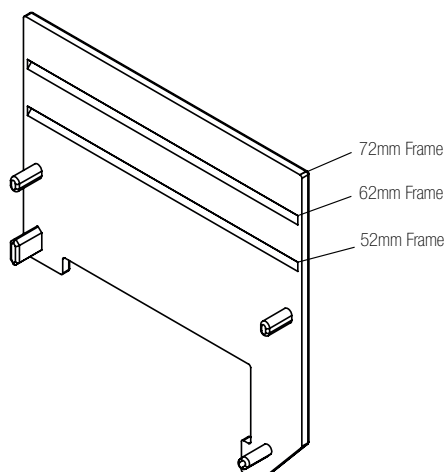
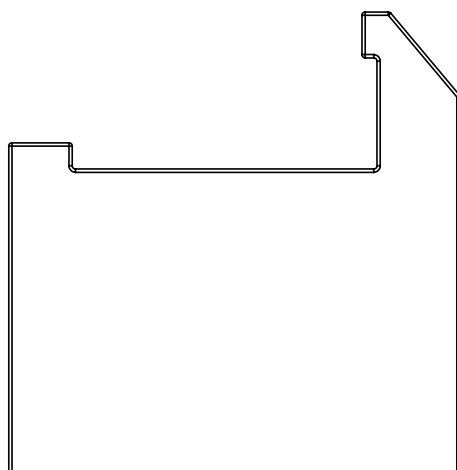
Additional Mouldings



Sash Riser Block
Art No. 329648



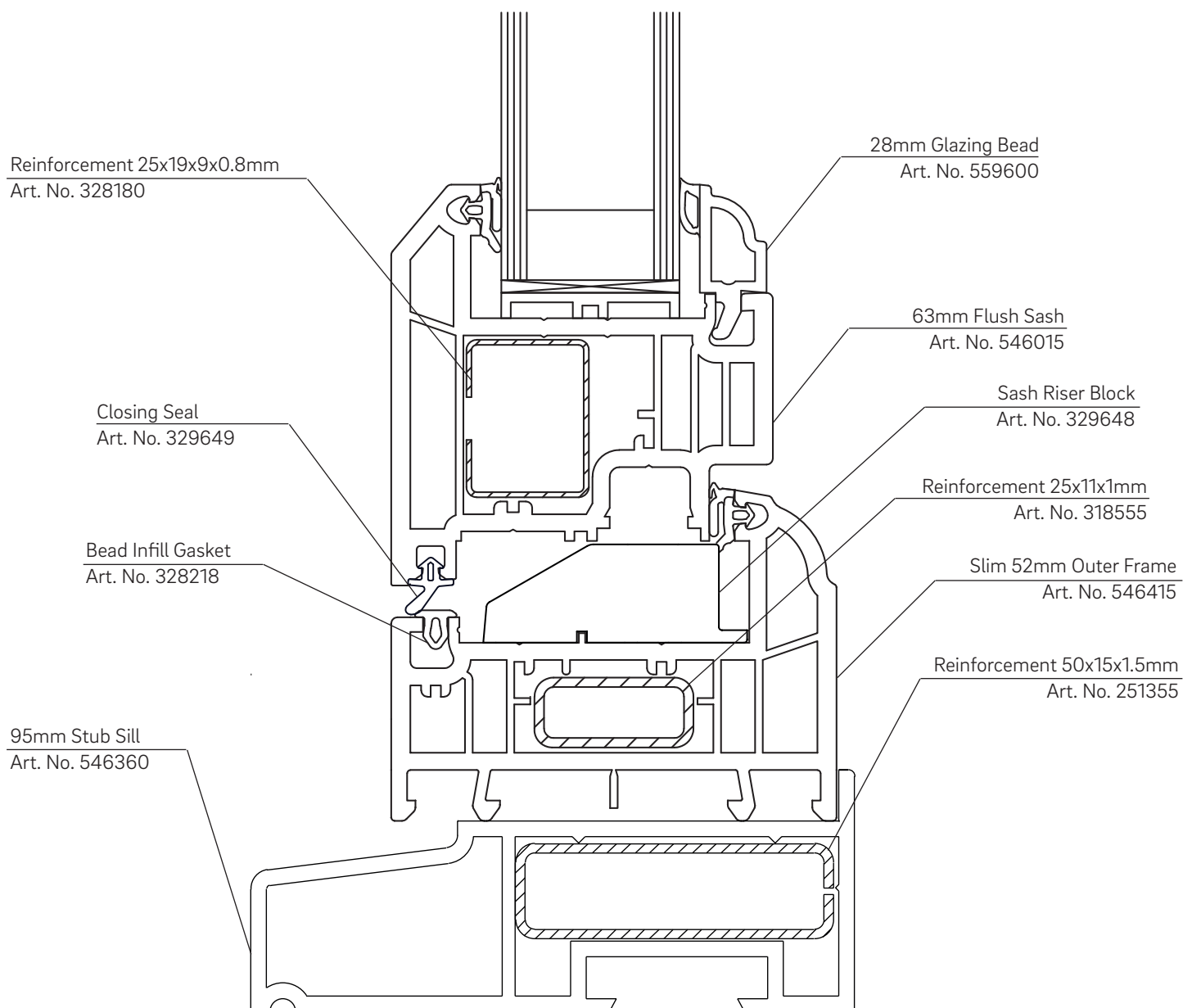
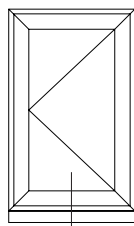
Sculptured Frame Cut & Snap end
cap for use with 546415, 546425
& 546435
Art. No. 328221



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

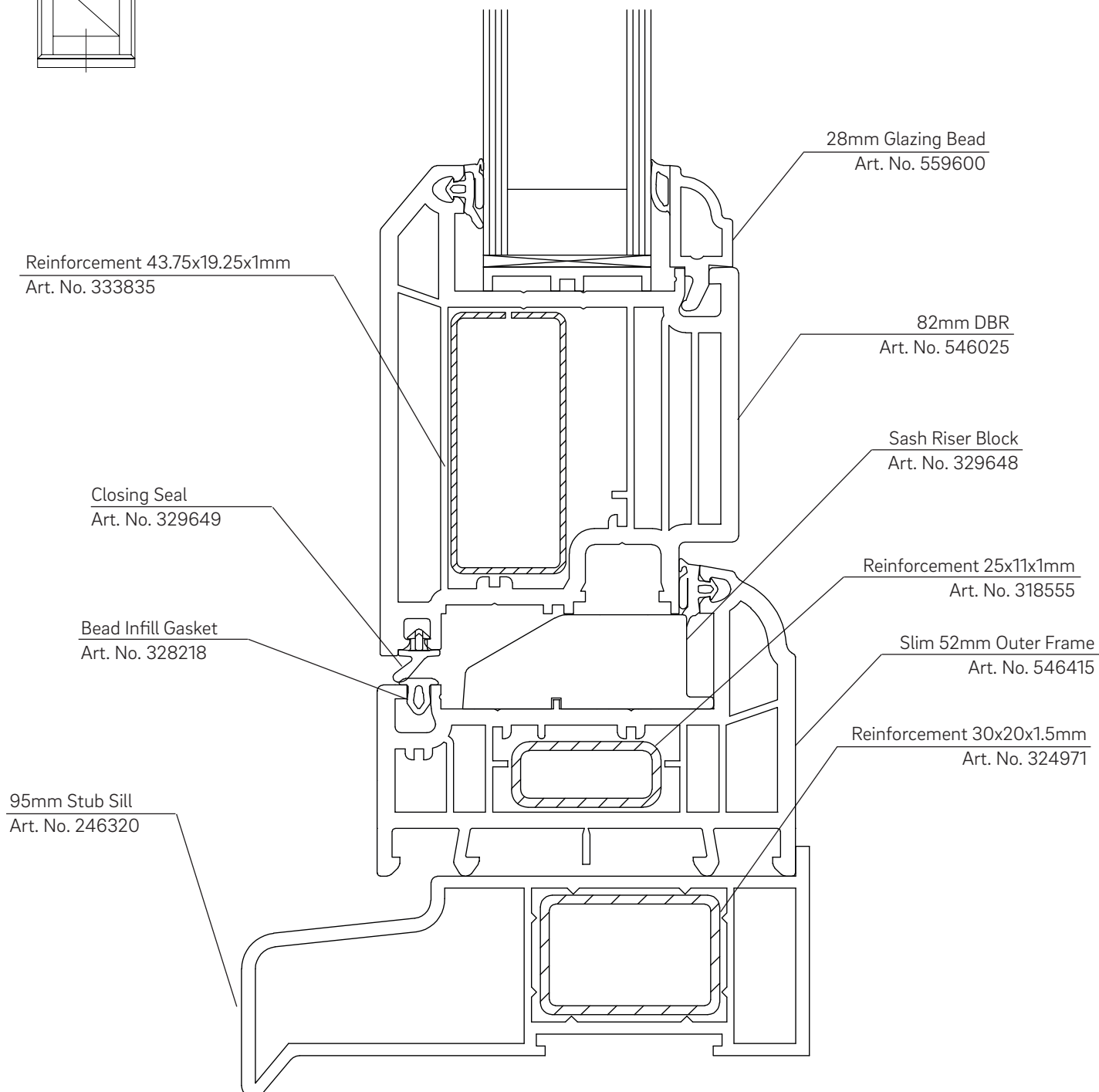
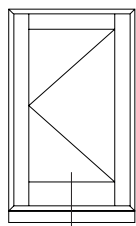
03 Production drawings

3.1 Flush sash sill detail



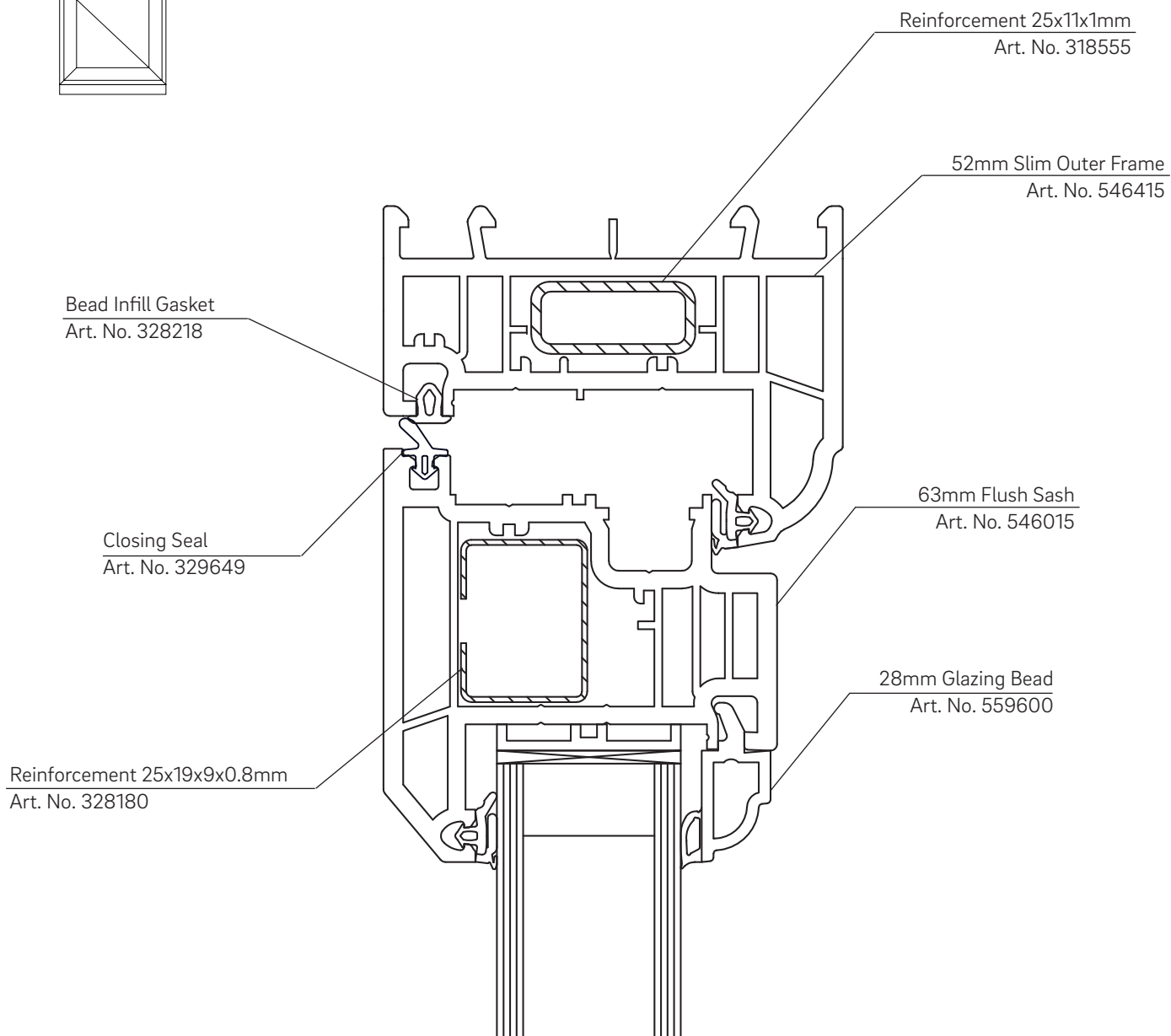
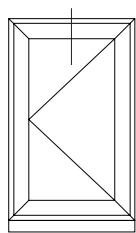
03 Production drawings

3.2 DBR sill detail



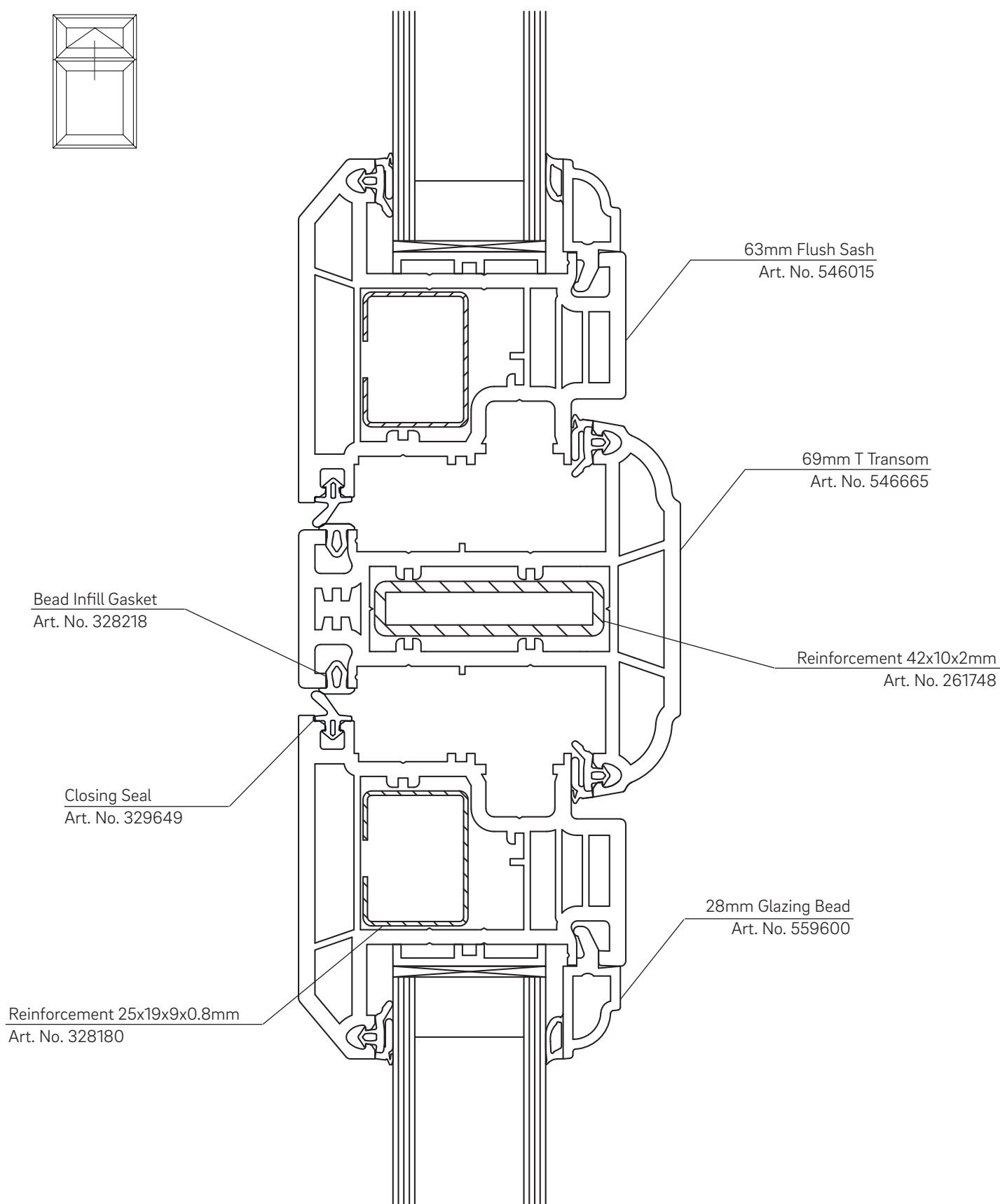
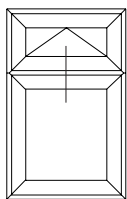
03 Production drawings

3.3 Head detail



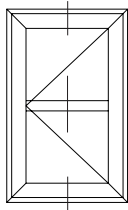
03 Production drawings

3.4 T Transom detail



03 Production drawings

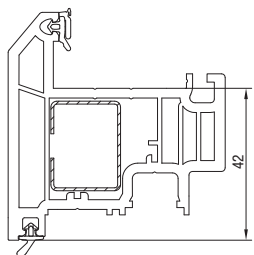
3.5 Tritec transom detail



Closing Seal
Art. No. 329649

63mm Flush Sash
Art. No. 546015

i Deduction for Transom,
Art. No. 503555 is -84
less sash size



Reinforcement 35x12x1.5mm
Art. No. 287798

70mm T Transom
Art. No. 503555

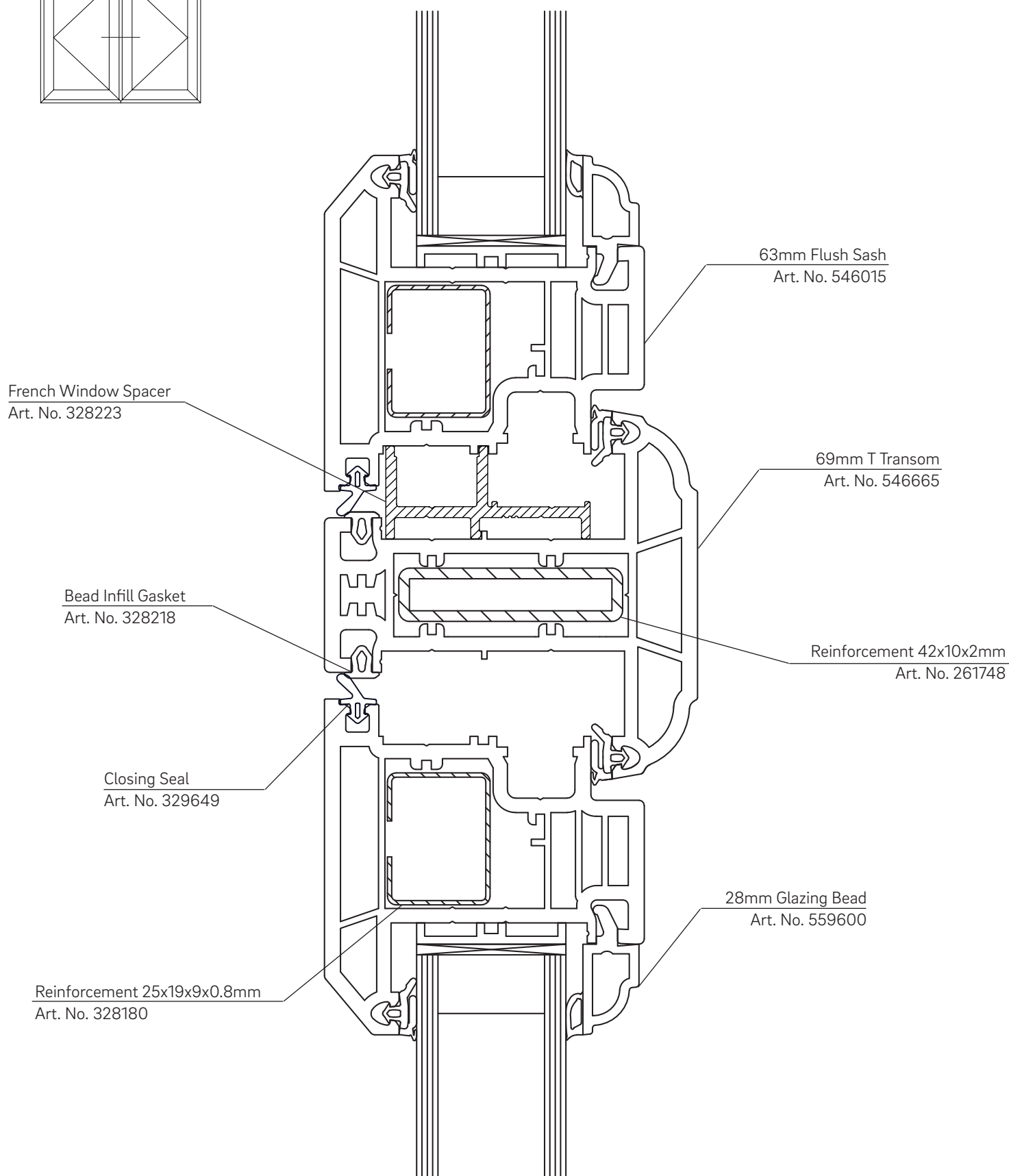
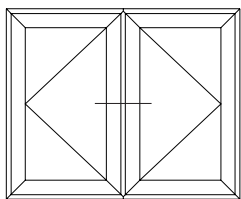
28mm Glazing Bead
Art. No. 559600

Reinforcement 25x19x9x0.8mm
Art. No. 328180

i Transom can be mechanically jointed using
either Mechanical joint block, Art. 232932
or Screwported aluminium, Art. 200509.

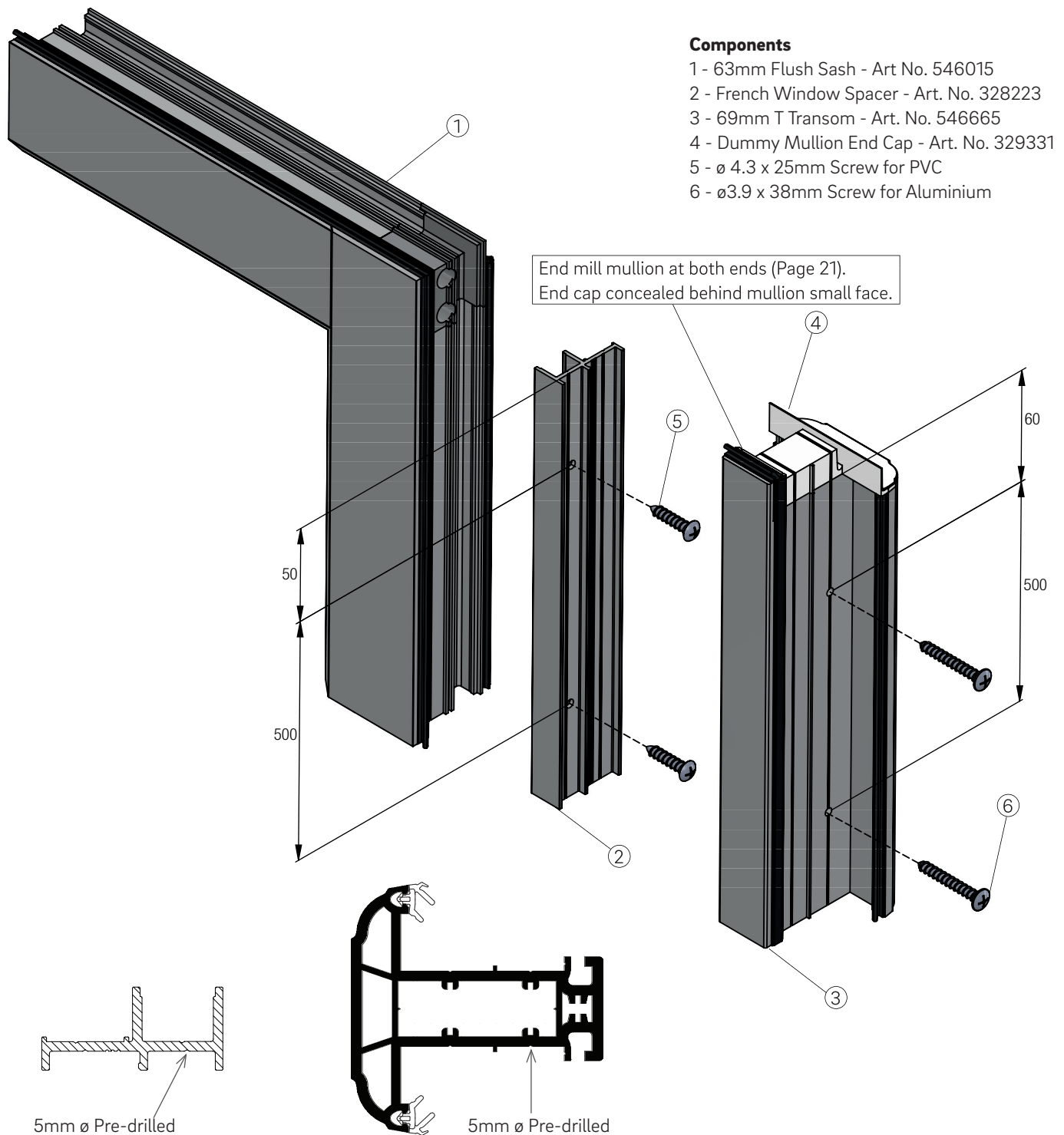
03 Production drawings

3.6 French window detail



03 Production drawings

3.7 French window spacer fixing detail



Step 1

Cut French Window Spacer, Art. No. 328223, to length: Sash height - 18mm.

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, 60mm from each end and 500mm centres.

Step 5

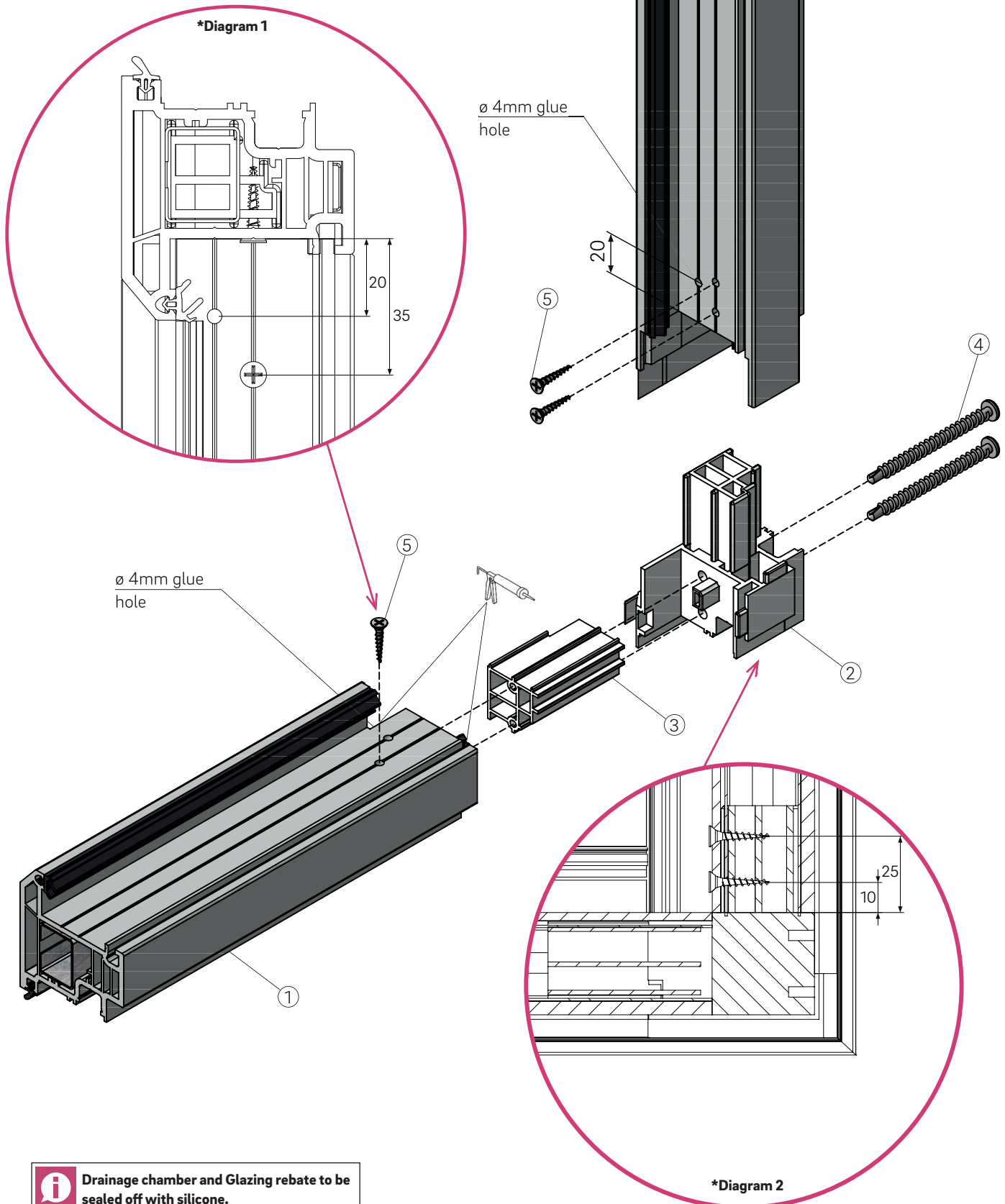
Position Transom to French Window Spacer & Sash assembly. Fix using 3.9 x 38mm screw for aluminium fixing.

03 Production drawings

3.8 Flush 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



03 Production drawings

3.8 Flush sash mechanical joint

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 20.
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 20.
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.

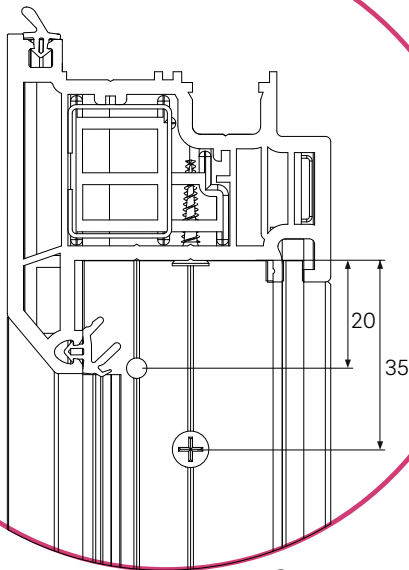
03 Production drawings

3.9 DBR mechanical joint

Components

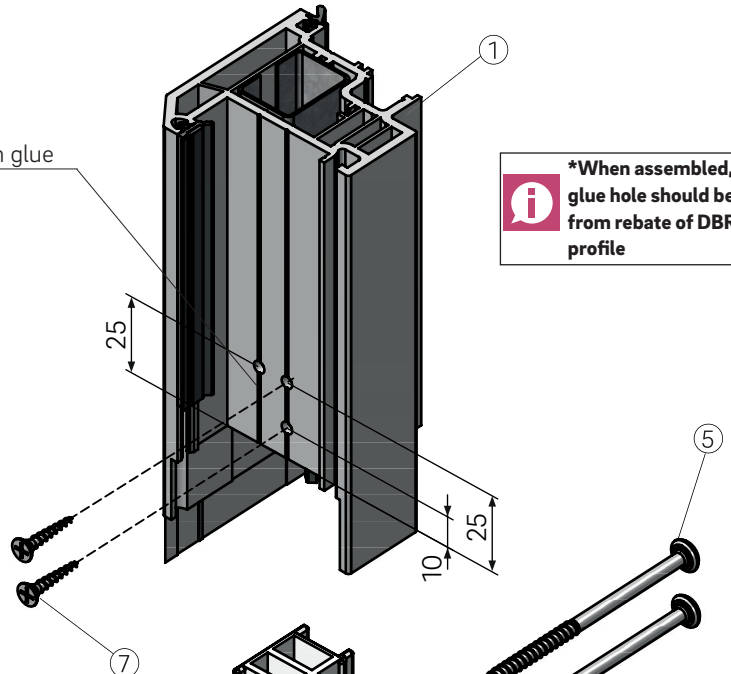
- 1 - 63mm Flush Sash - Art No. 546015
- 2 - 82mm DBR - Art. No. 546025
- 3 - Sash mechanical joint block - Art. No. 328225
- 4 - DBR Flush sash screwported aluminium - Art. 331689
- 5 - $\varnothing$ 4.8 x 70mm Mechanical jointing screws
- 6 - $\varnothing$ 4.3 x 20mm Reinforcement screws
- 7 - $\varnothing$ 4.3 x 20mm Screws for PVC

***Diagram 1**



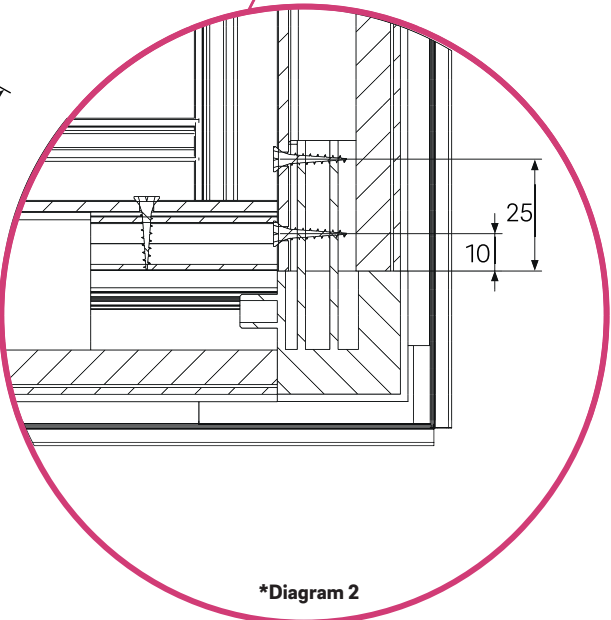
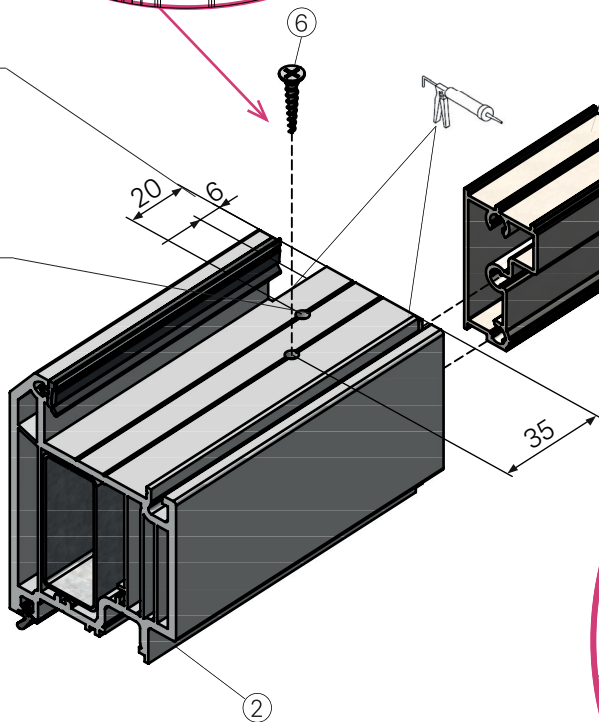
$\varnothing$ 4mm glue hole*

i *When assembled, the glue hole should be 5mm from rebate of DBR profile



Plug to be inserted 6mm in to DBR profile

$\varnothing$ 4mm glue hole



***Diagram 2**

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

03 Production drawings

3.9 DBR mechanical joint

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)



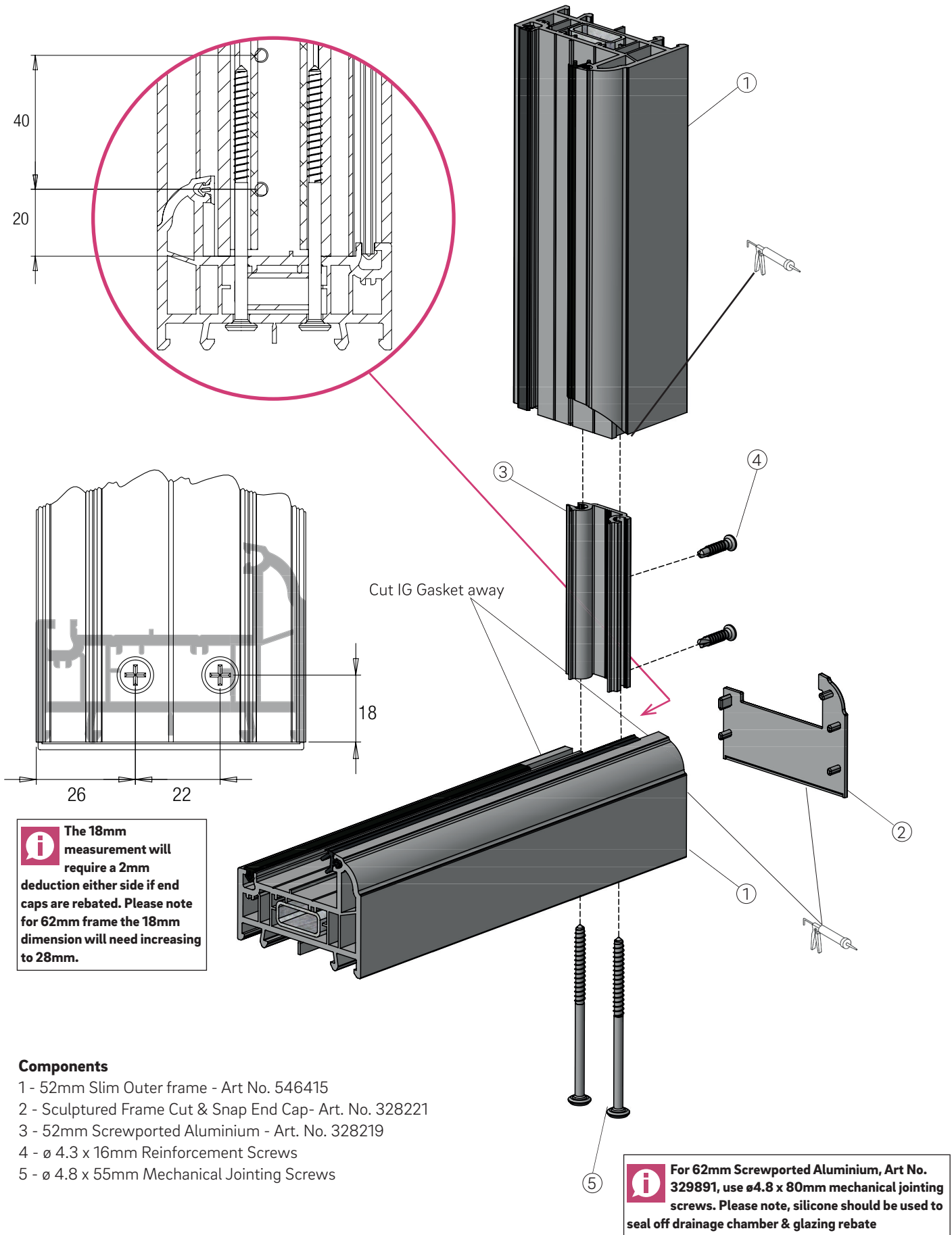
Please read manufacturers instructions prior to using the glue.

Mechanical Joint Glue Holes

1. On both the Jamb and rail drill a $\varnothing$ 4mm hole, 25mm from either end of profile closest to the upstand. Repeat until there are 4 holes drilled. Please see diagram 1 on page 22.
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 22.
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.

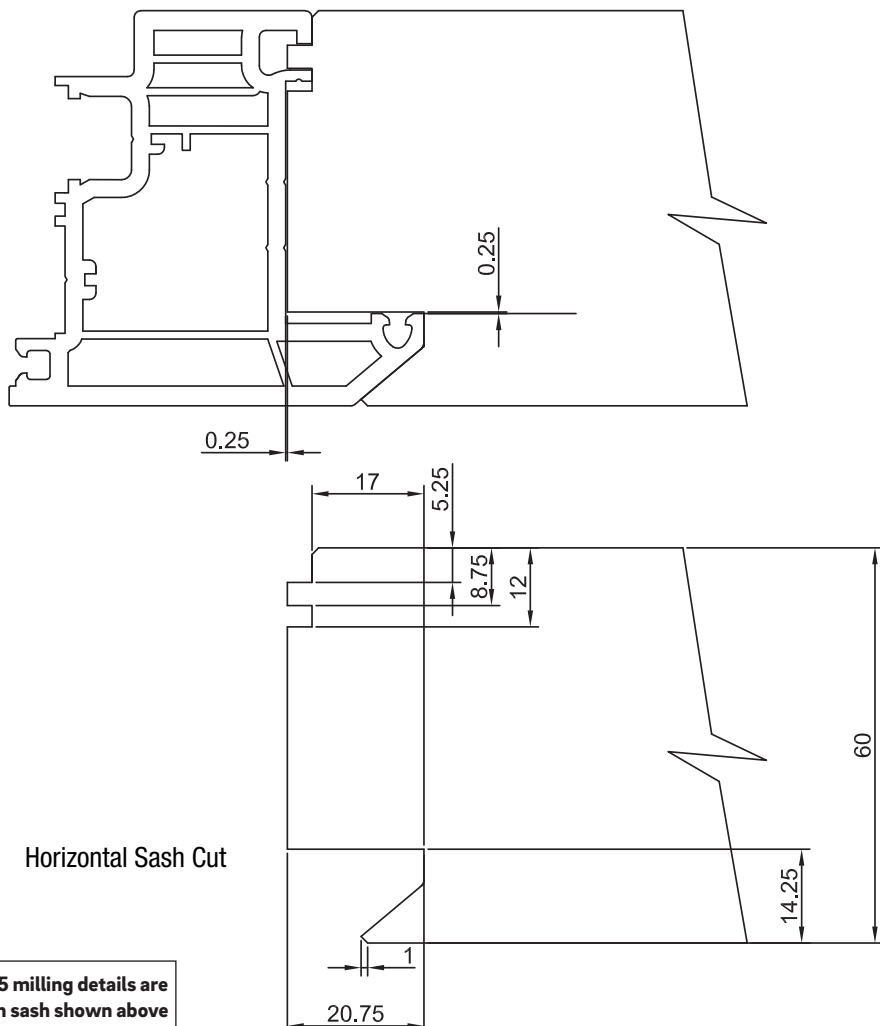
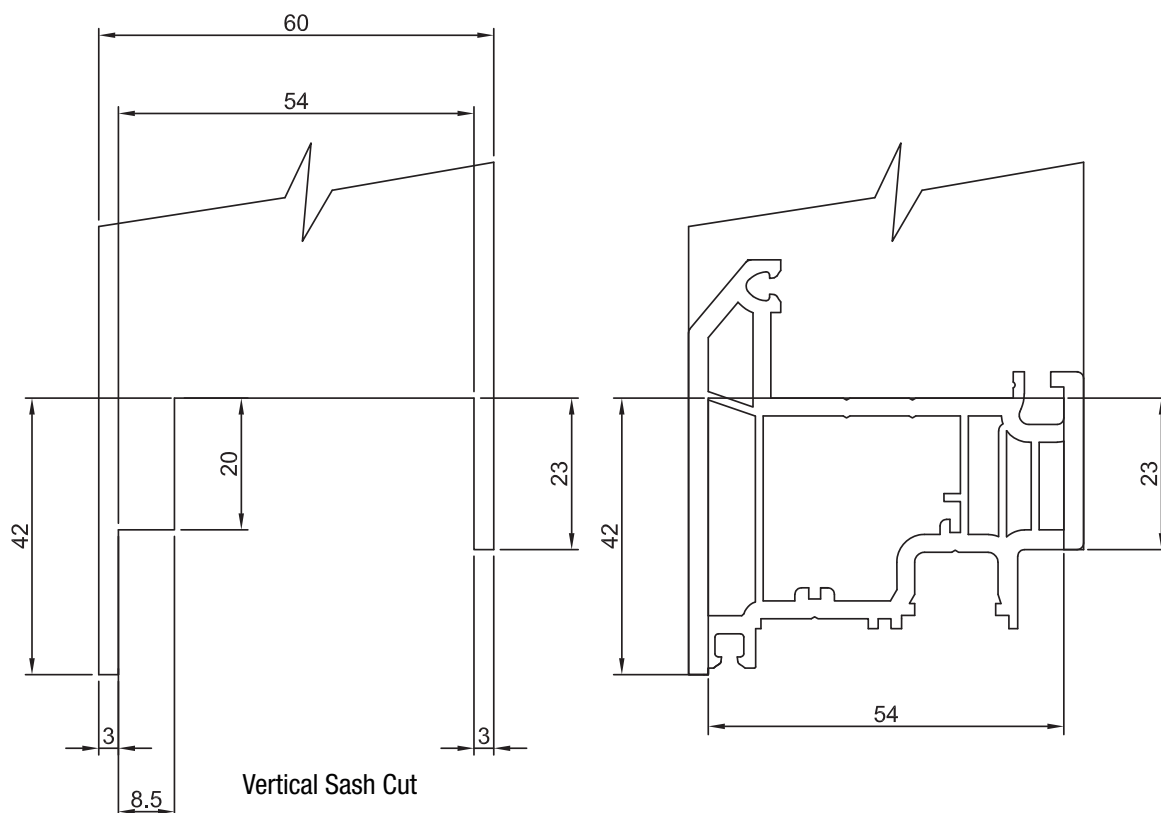
03 Production drawings

3.10 Frame mechanical joint



03 Production drawings

3.11 Flush sash & Deep bottom rail milling details

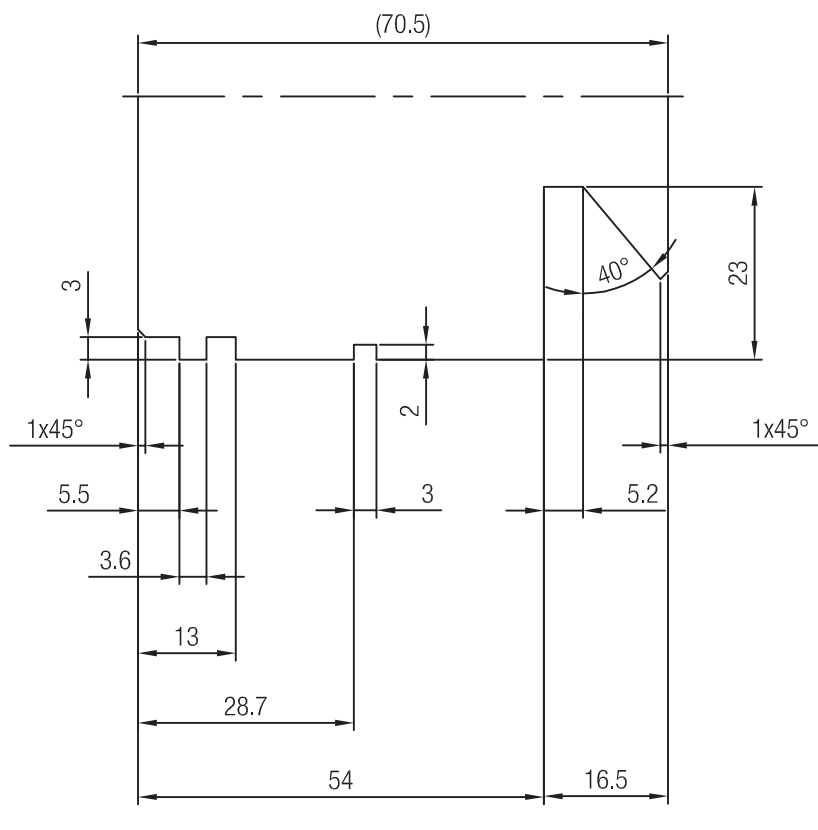


i 82mm DBR, Art. 546025 milling details are the same as 63mm Flush sash shown above

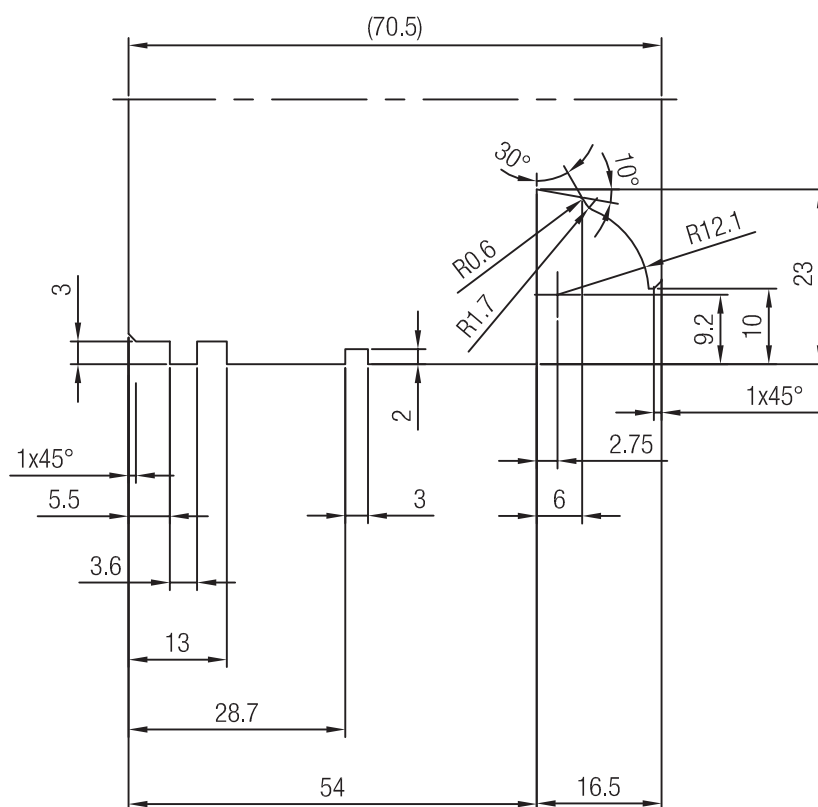
03 Production drawings

3.12 Frame milling details

TOTAL70c frame milling detail

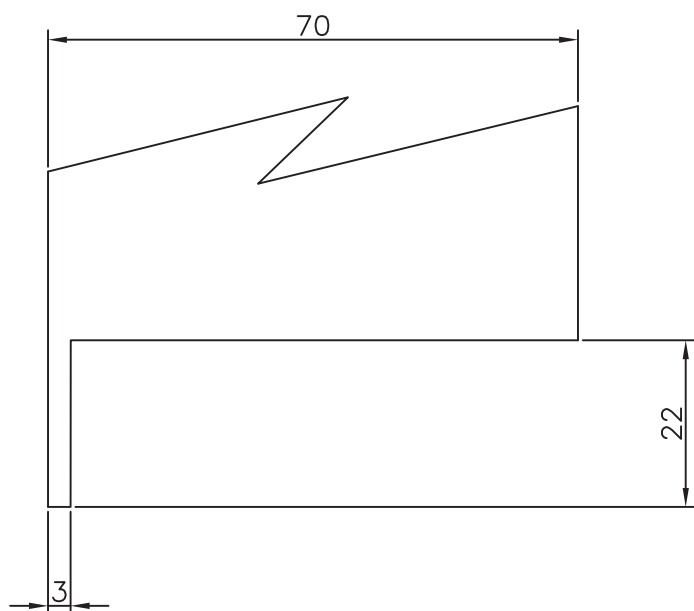
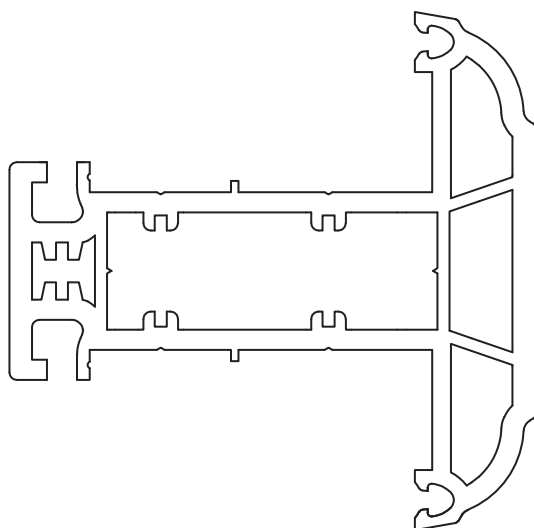
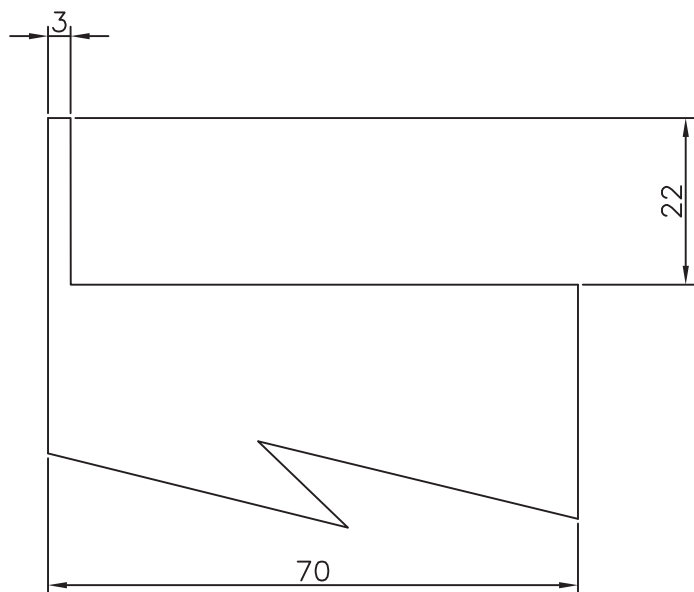


TOTAL70s frame milling detail



03 Production drawings

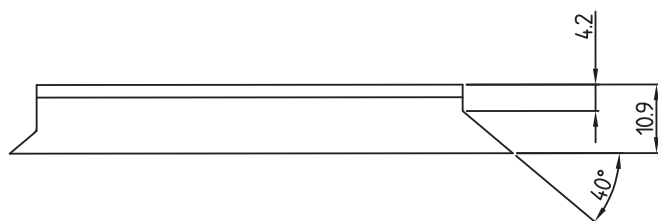
3.13 Dummy mullion milling details



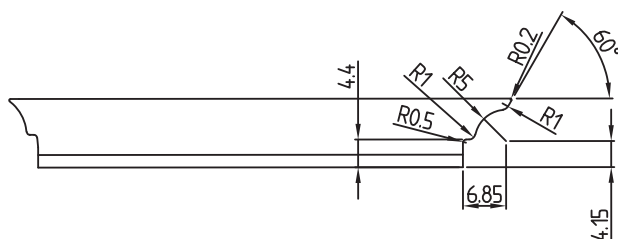
 The milling detail is shown with TOTAL70s, the same principle applies for TOTAL70c

03 Production drawings

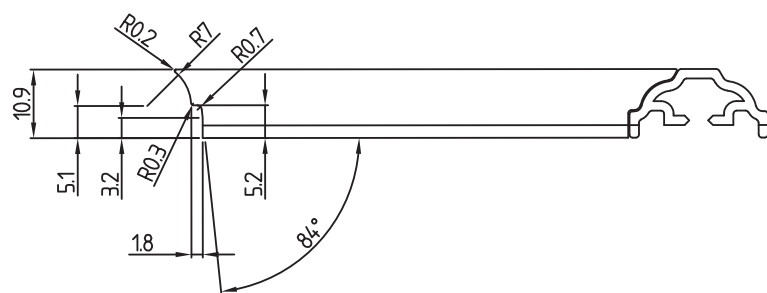
3.14 Georgian bar milling details



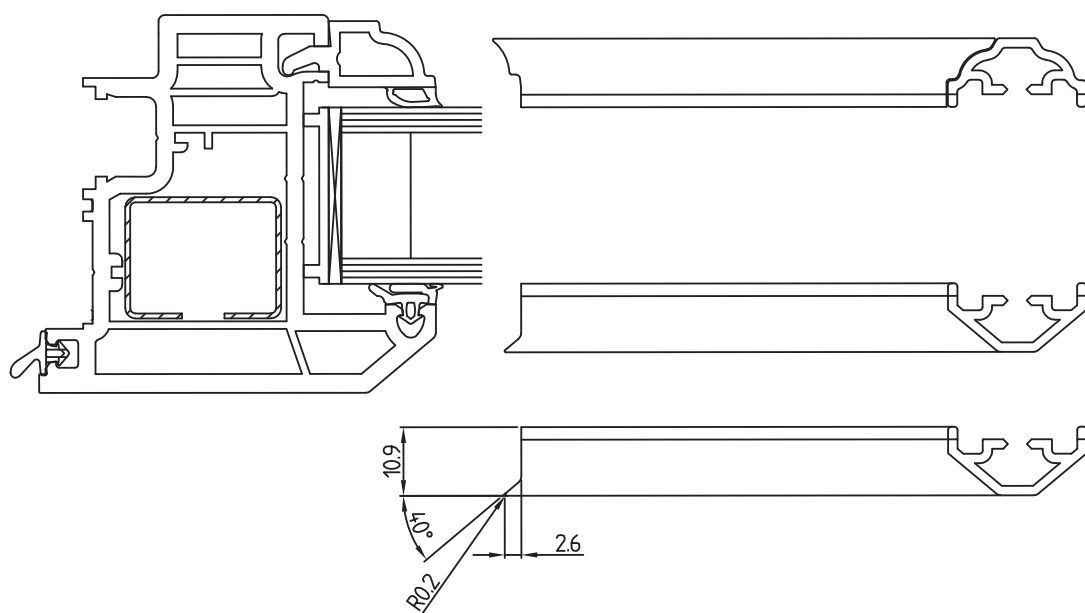
End mill shape for Art. 559251 28mm chamfered georgian bar



End mill shape for Art. 559261 28mm sculptured georgian bar



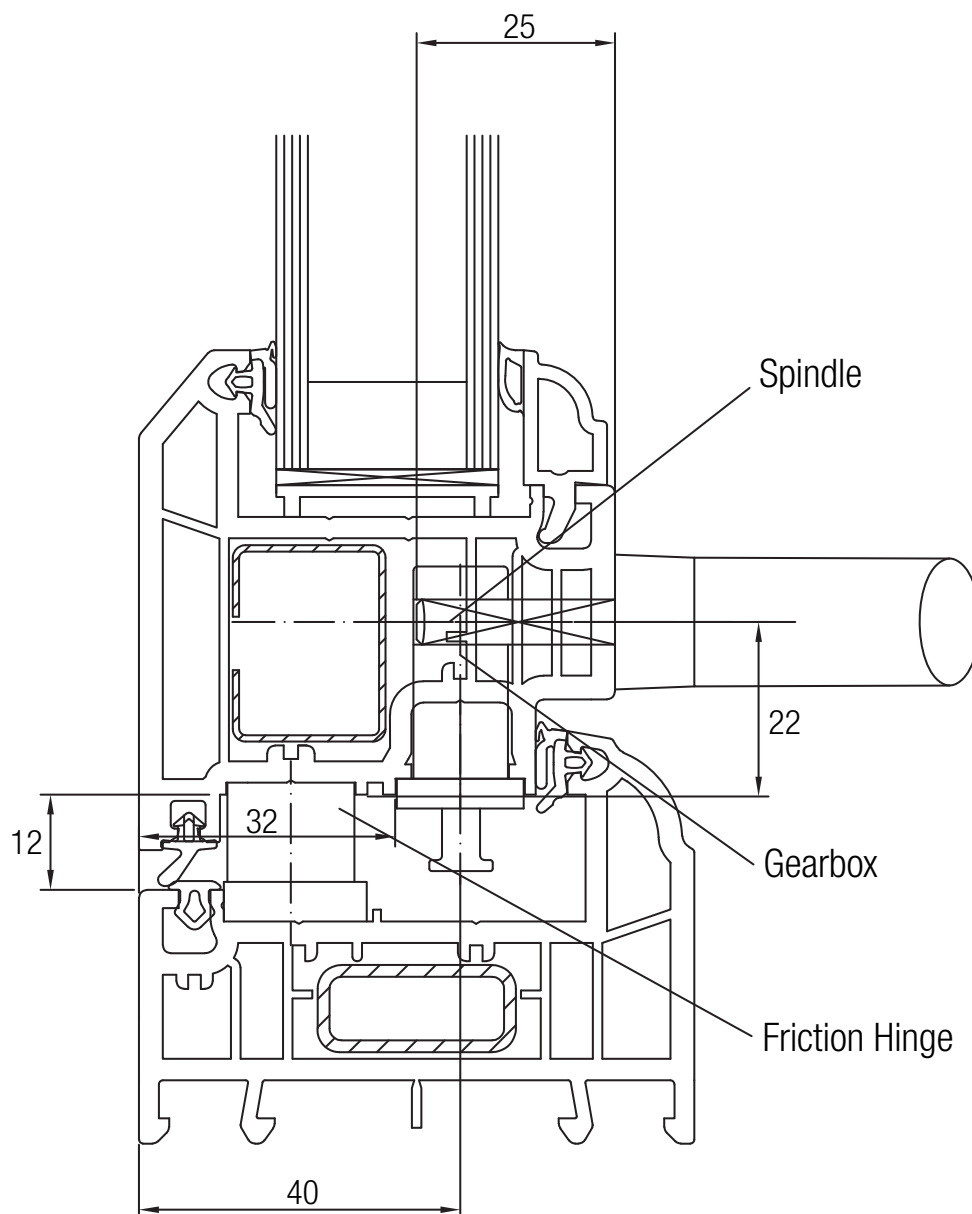
End mill shape for Art. 559600 28mm bead



End Mill shape for Art. 546015 63mm flush sash & Art. 546025 82mm DBR

03 Production drawings

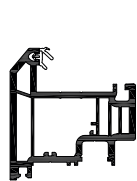
3.15 Hardware details



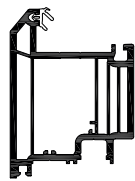
Casement hardware guide

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

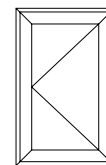
04 Maximum sash size recommendations



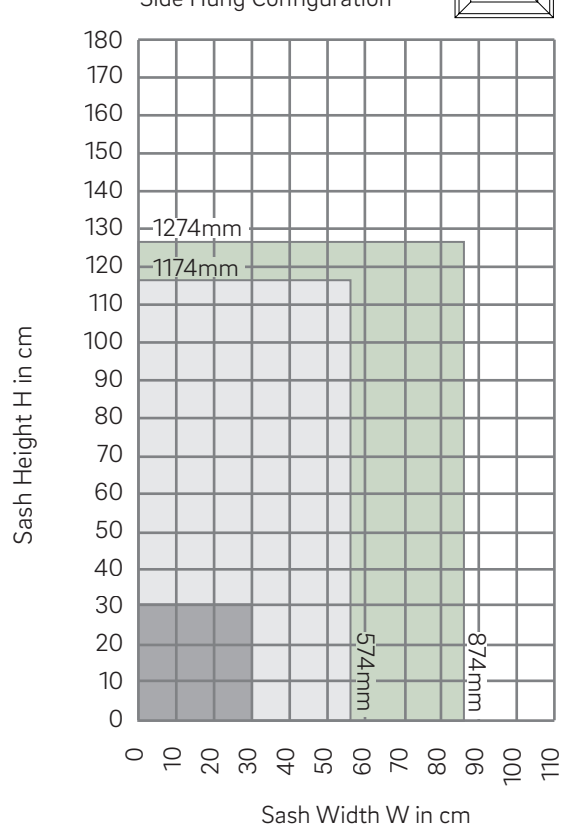
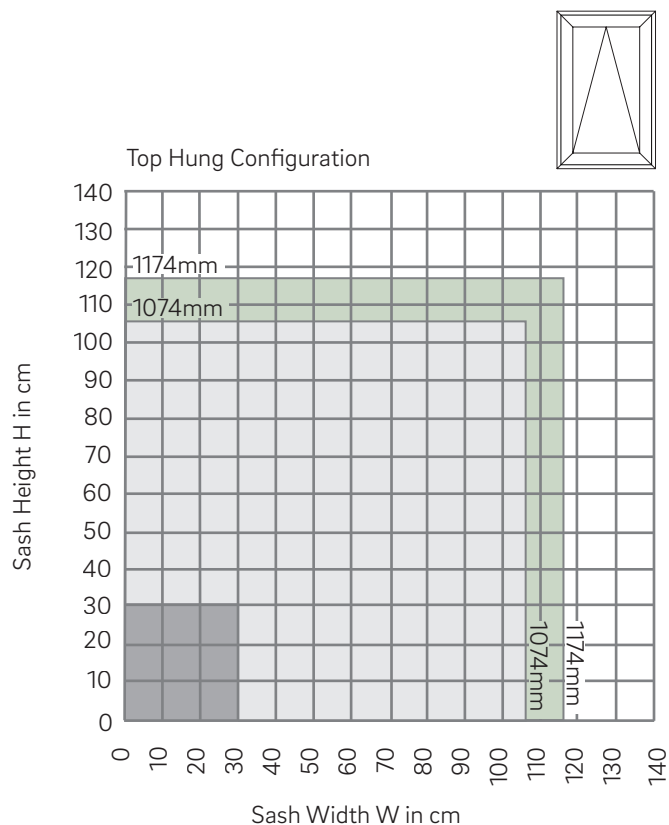
546015
63mm flush sash



546025
82mm DBR



Side Hung Configuration



Size subject to manufacture

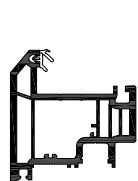
Note: Reinforcement to frame member is required for hardware when sash is reinforced.

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

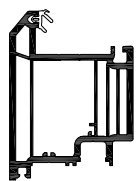
	Article No.	Reinforcement	Description	I-Value	Fully welded maximum glass weight	Mechanical Joint maximum glass weight
	Unreinforced	-	-	-	25kg	20kg
	328180 (For Art. 546015)		25 x 19 x 9 x 0.8mm	lx 0.58 cm ⁴ ly 0.34 cm ⁴	35kg	30kg For top hung dead load deflection see page 30.
	333835 (For Art. 546025)		43.75 x 19.25 x 1mm	lx 0.79 cm ⁴ ly 2.80 cm ⁴	n/a	40kg

i 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.

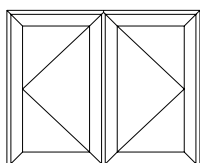
04 Maximum sash size recommendations



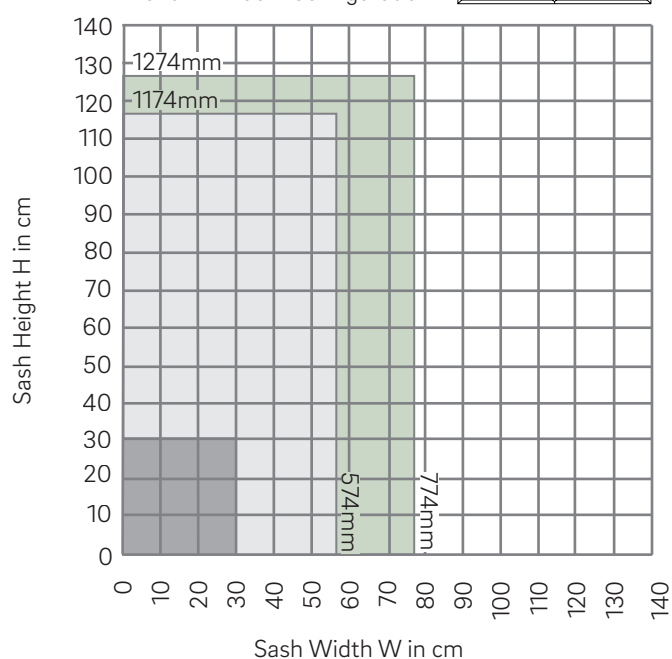
546015
63mm flush sash



546025
82mm DBR



French Window Configuration



Size subject to manufacture

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

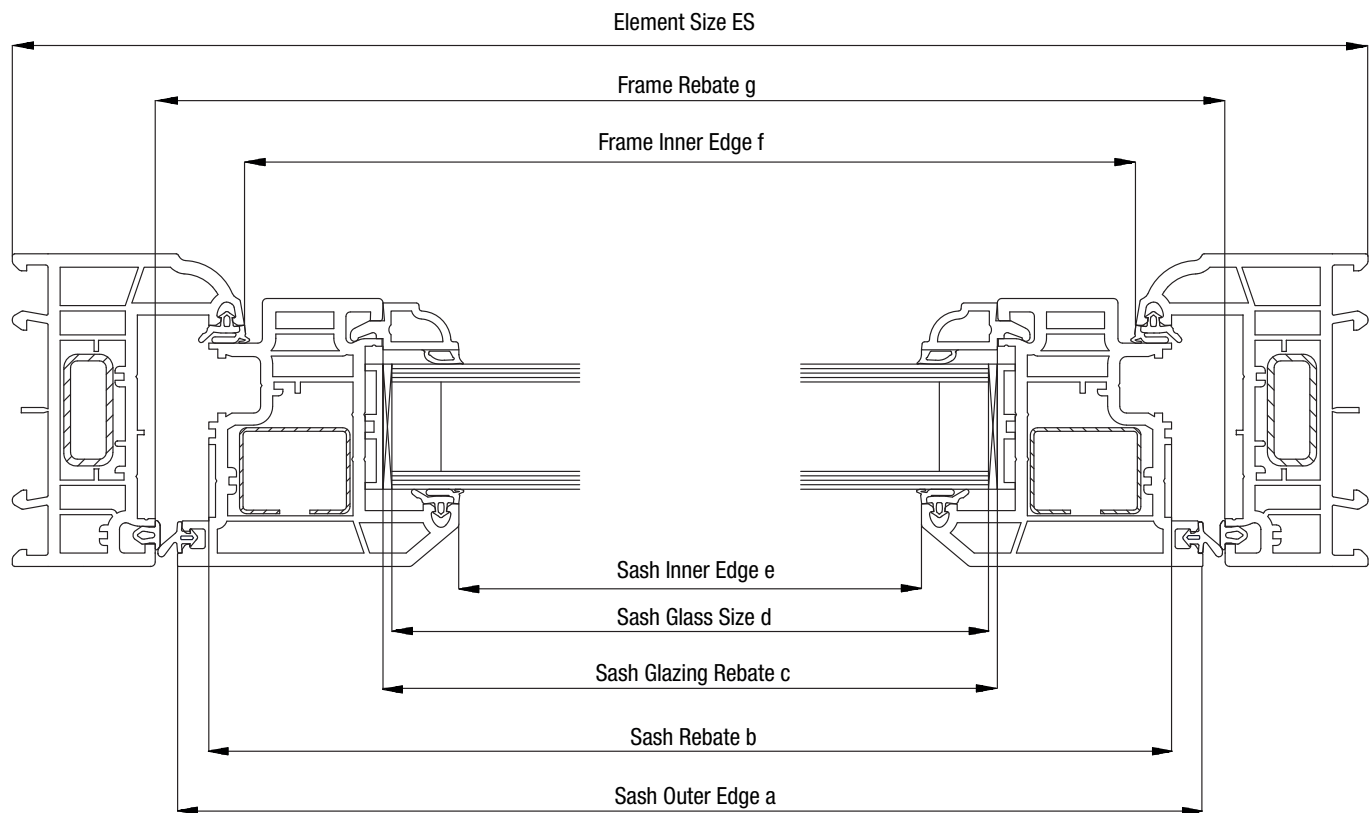
	Article No.	Reinforcement	Description	I-Value	Fully welded maximum glass weight	Mechanical Joint maximum glass weight
	Unreinforced	-	-	-	25kg	20kg
	328180 (For Art. 546015)		25 x 19 x 9 x 0.8mm	lx 0.58 cm ⁴ ly 0.34 cm ⁴	35kg	30kg For top hung dead load deflection see page 30.
	333835 (For Art. 546025)		43.75 x 19.25 x 1mm	lx 0.79 cm ⁴ ly 2.80 cm ⁴	n/a	40kg



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.

05 Manufacturing deductions

5.1 Single sash (welded)



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	$g = ES - 64$	$g = ES - 84$	$g = ES - 104$

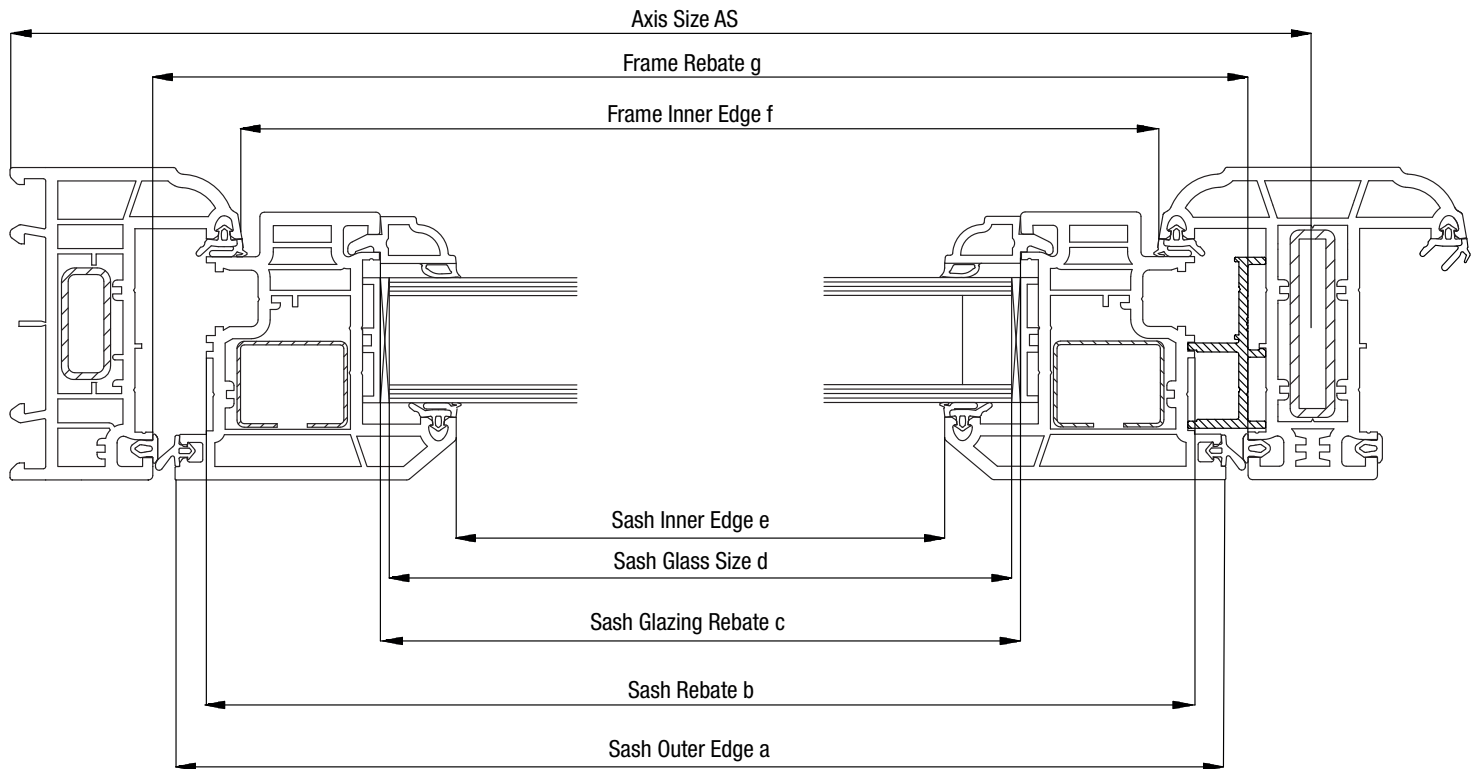
* If Deep bottom rail, Art. 546025, is used the glass size will be reduced by a further 19mm in height



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

05 Manufacturing deductions

5.2 French window (welded & fixed mullion)



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

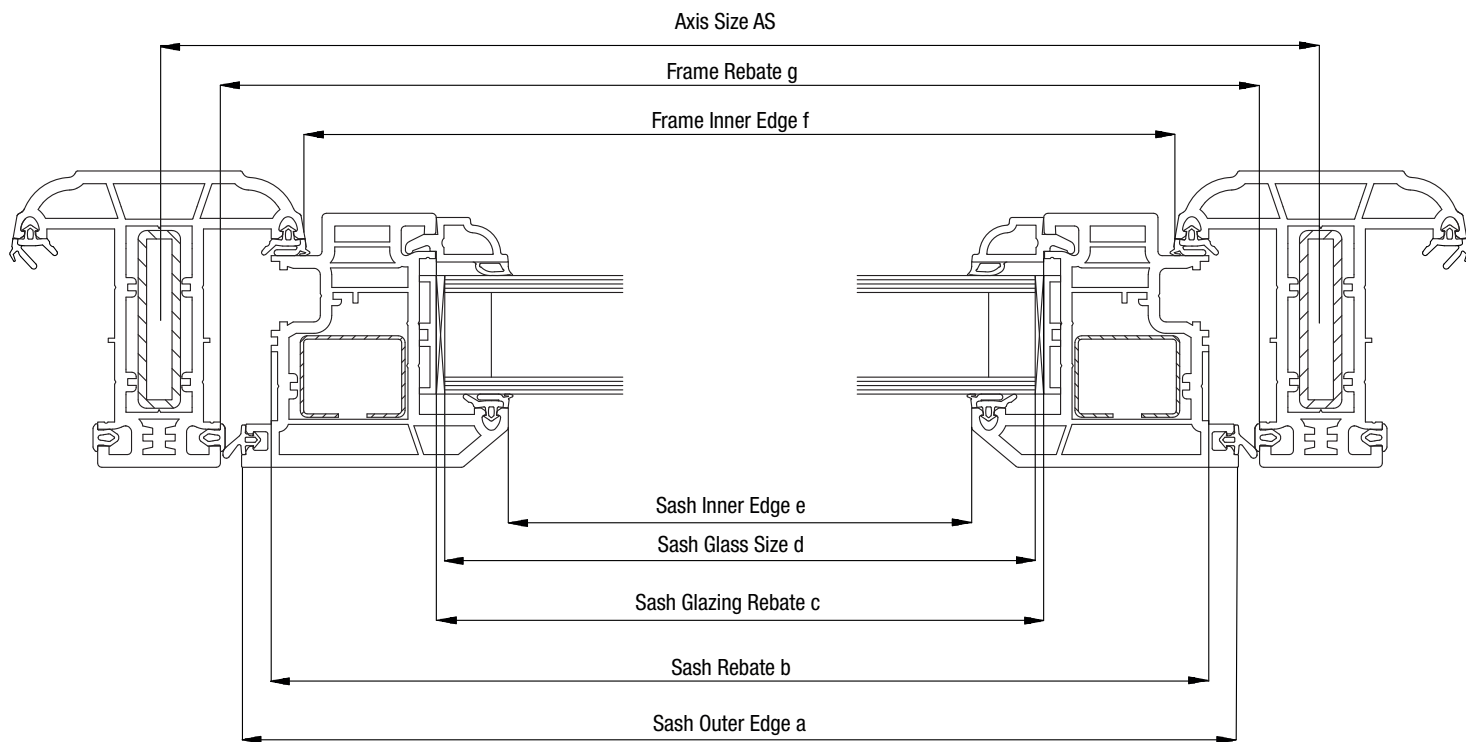
* If Deep bottom rail, Art. 546025, is used the glass size will be reduced by a further 19mm in height



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

05 Manufacturing deductions

5.3 Multi-sash (welded)



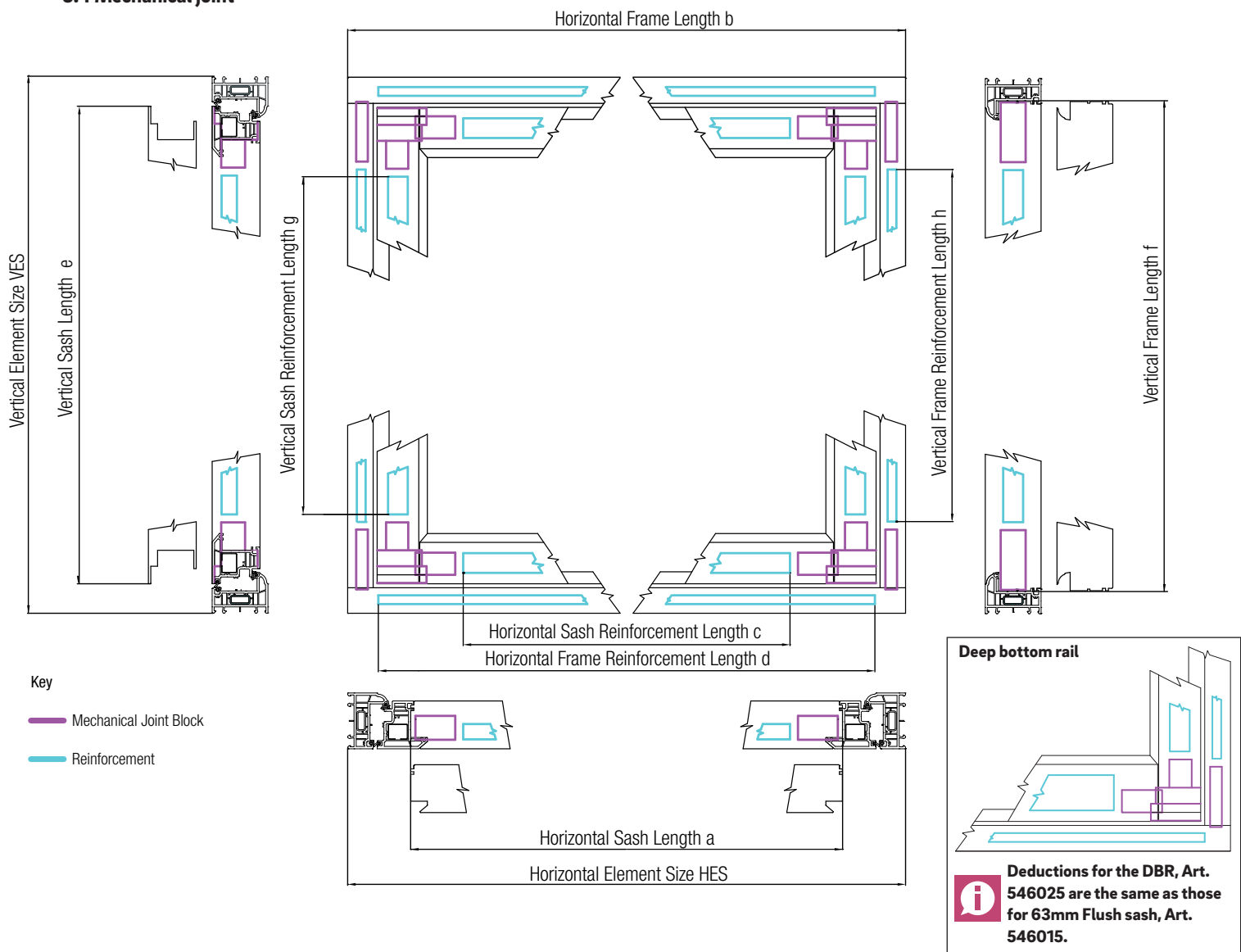
Deduction	69mm T Transom
Sash Outer Edge	$a = AS - 39$
Sash Rebate	$b = AS - 53$
Sash Glazing Rebate*	$c = AS - 131$
Sash Glass Size*	$d = AS - 135$
Sash Inner Edge*	$e = AS - 165$
Frame Inner Edge	$f = AS - 69$
Frame Rebate	$g = AS - 29$

* If Deep bottom rail, Art. 546025, is used the glass size will be reduced by a further 19mm in height

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

05 Manufacturing deductions

5.4 Mechanical joint



Deduction	Horizontal outer frame size		
	52mm Slim Outer Frame	62mm Intermediate Outer Frame	72mm Universal Outer Frame
Horizontal Sash Length	a = HES - 158	a = HES - 178	a = HES - 198
Horizontal Frame Length	b = HES	b = HES	b = HES
Horizontal Sash Reinforcement Length	c = HES - 290	c = HES - 310	c = HES - 330
Horizontal Frame Reinforcement Length	d = HES - 64	d = HES - 84	d = HES - 104

Deduction	Vertical outer frame size		
	52mm Slim Outer Frame	62mm Intermediate Outer Frame	72mm Universal Outer Frame
Vertical Sash Length	e = VES - 74	e = VES - 94	e = VES - 114
Vertical Frame Length	f = VES - 56	f = VES - 76	f = VES - 96
Vertical Sash Reinforcement Length	g = VES - 248	g = VES - 268	g = VES - 288
Vertical Frame Reinforcement Length	h = VES - 230	h = VES - 250	h = VES - 270

i Please note that end mill sizes are without clearances.

06 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.

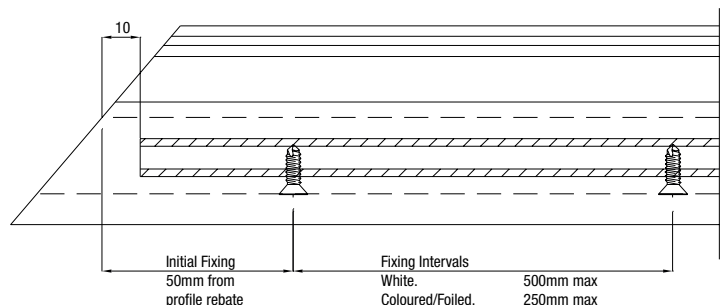
Unreinforced 63mm flush sash width										
		374mm	474mm	574mm	674mm	774mm	874mm	974mm	1074mm	1174mm
Glass Weight	5kg	0.1	0.2	0.3	0.4	0.6	0.8	1.2	1.6	-
	10kg	0.2	0.3	0.5	0.7	1.0	1.3	1.7	2.3	-
	15kg	0.3	0.4	0.7	1.0	1.3	1.8	2.3	3.0	-
	20kg	0.3	0.6	0.9	1.2	1.7	2.3	2.9	3.7	-
	25kg	0.4	0.7	1.1	1.5	2.1	2.7	3.5	4.4	-
Please note it is recommended that dead load deflections over 2.1mm require reinforcement in the bottom rail.										
Reinforced 63mm flush 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
Note: The use of riser blocks, art. 329648, will reduce the above deflection										

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.



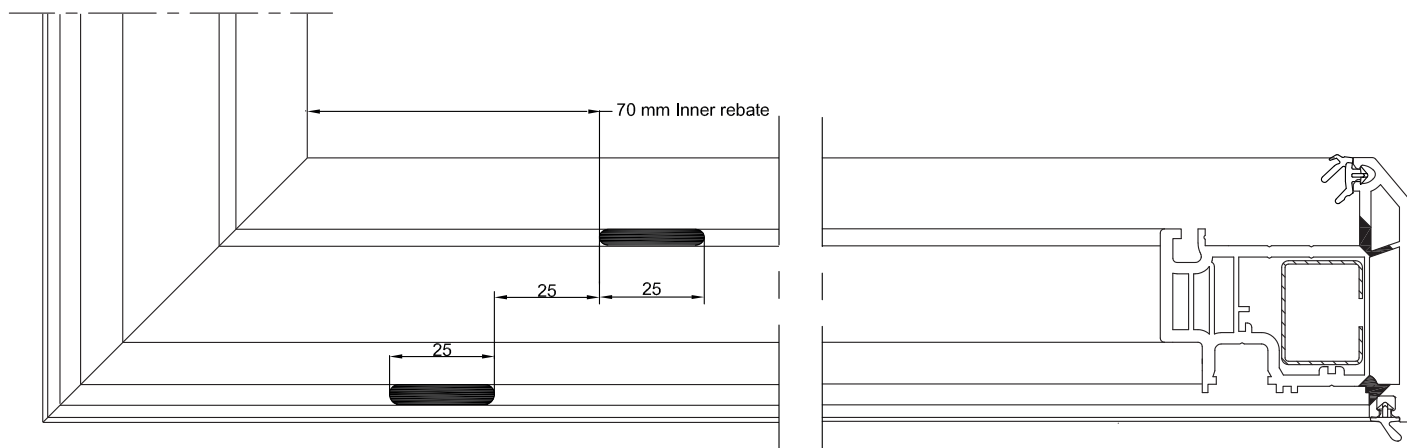
*Diagram 1

Mechanical Joint Reinforcement

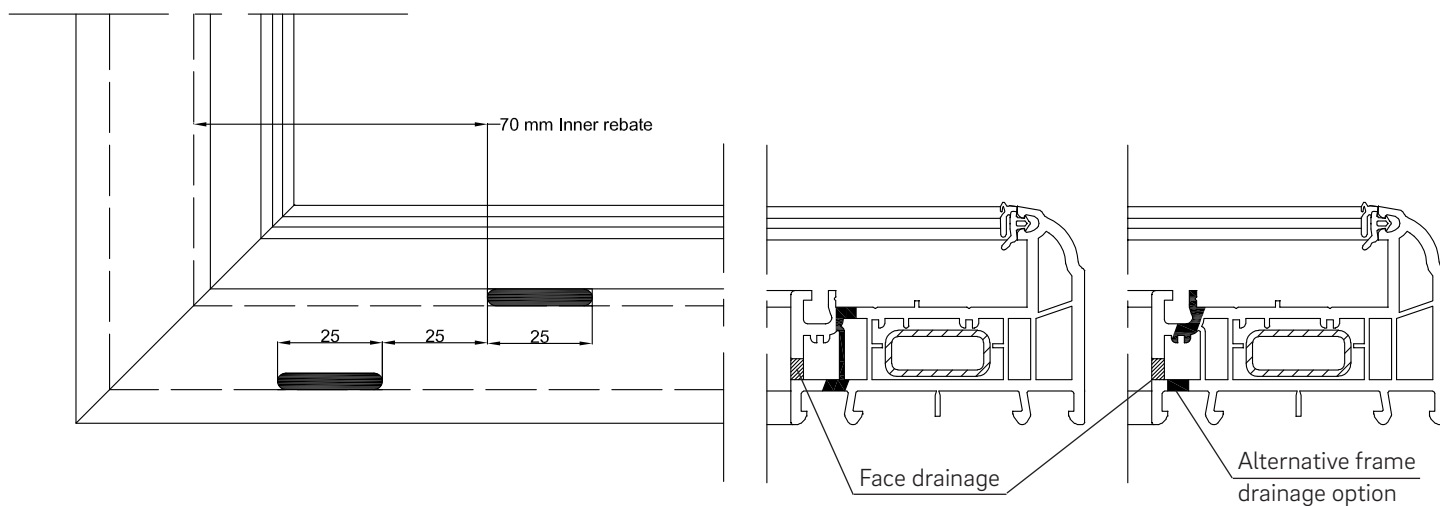
- For the frame mechanical joint, the reinforcement needs to be reduced to allow for the screwported aluminium, Art. No. 328219 (52mm) or Art. No. 329891 (62mm), to be inserted. The screwported aluminium, Art. No. 328219 and Art. No. 329891 is supplied in 75mm pieces.
- The mechanical joint sash and DBR plug moulding will require an allowance of 58mm from each end.

07 Drainage details

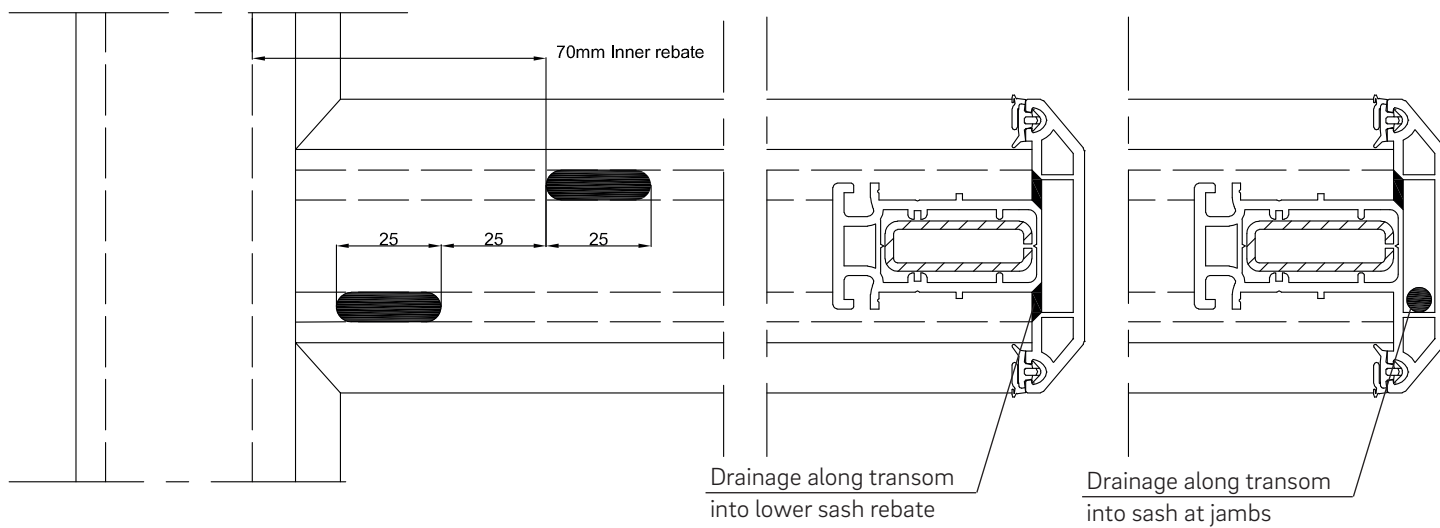
Flush sash & Deep bottom rail drainage option



Frame drainage options



Sash transom drainage options



08 U-value data

U-Values

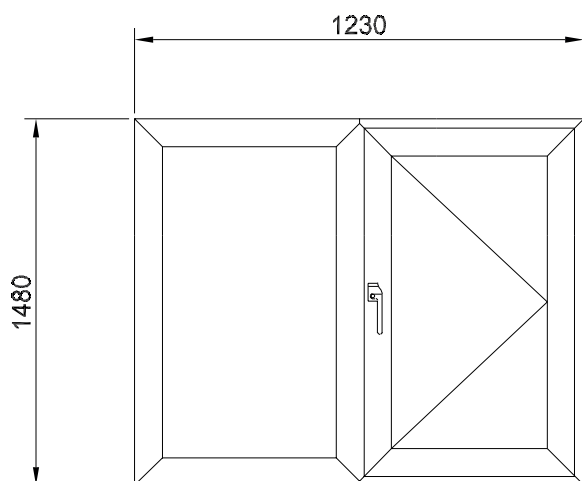
Enhancing the profile selection improves the overall thermal performance of the window not only for WERs, but more importantly the U value - its' ability to retain heat within the building. The aim of which is to achieve a cost saving on energy bills as the amount of heating required will be reduced.

	TOTAL70C	TOTAL70S
Frame	W/m ² K	W/m ² 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/m²K 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.



09 Product ordering table

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 screwported aluminium	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 - flush 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
328225	001	Mechanical joint block - DBR	White	10	Kits
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

09 Product ordering table

Article Number	Variant Number	Description	Finish	Quantity (metres)	Packaging
329648	003	Sash Riser Block	Acorn	250	Pieces
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
331689	001	82mm DBR Screwported Aluminium (50mm)	Aluminium	20	Pieces
333835	001	Reinforcement 43.75 x 19.25 x 1mm	Steel	6	Length
503555	701	Sash Transom / Mullion T 70mm	White	36	Pack
546015	701	63mm Flush sash	White	36 / 576	Pack / Stillage
546025	701	82mm DBR	White	24/480	Pack / Stillage
546085	701 / 901	Slim Transom / Mullion T 69mm	White	36 / 624	Pack / Stillage
546415	701 / 901	Sculptured Slim Outer Frame 52mm	White	48 / 768	Pack / Stillage
546425	701 / 901	Sculptured Intermediate Outer Frame 62mm	White	36 / 576	Pack / Stillage
546435	701 / 901	Sculptured 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 Slim Outer Frame 52mm	White	48 / 768	Pack / Stillage
546826	701 / 901	Chamfered Intermediate Outer Frame 62mm	White	36 / 576	Pack / Stillage
546836	701 / 901	Chamfered 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

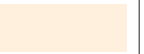
328222	-	Mechanical Joint - flush sash	Foil	10	Kits
328225	-	Mechanical joint block - DBR	Foil	10	Kit
573555	-	Sash Transom / Mullion T 70mm	Foil	12	Pack
576265	-	Chamfered Slim Transom / Mullion T 69mm	Foil	36 / 12	Pack
576665	-	Sculptured Slim Transom / Mullion T 69mm	Foil	36 / 12	Pack
586015	-	63mm Flush Sash	Foil	36 / 12	Pack
586025	-	82mm DBR	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

09 Product ordering table

Article Number	Variant Number	Description	Finish	Quantity (metres)	Packaging
589251	-	Chamfered Georgian Bar	Foil	72	Pack
589261	-	Sculptured Georgian Bar	Foil	36	Pack
589600	-	28mm Sculptured Bead	Foil	36	Pack

10 Foil matrix

			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
Description	Article Number	Pack Size										
			2031L		7512		168L		9631		4443	
63mm Flush Sash	586015	36/12*	335* (A)	325* (AB)	321 (A)	351 (AB)	221 (A)	251 (AB)	760* (A)	750* (AB)	746* (A)	156* (AB)
82mm DBR	586025	36/12*	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	586415	36/12*	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	586425	36/12*	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	586435	36/12*	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	576665	36/12*	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	586815	36/12*/ Pick&Pack**		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	586825	36/12*/ Pick&Pack**		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	586835	36/12*/ Pick&Pack**		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	576265	36/12*/ Pick&Pack**	335* (A)	325* (AB)	321 (A)	351 (AB)	221 (A)	251 (AB)	760* (A)	750* (AB)	746** (A)	156** (AB)
Sash Transom / Mullion T 70mm	573555	12	345 (B)	325 (AB)	163 (B)	153 (AB)	162 (B)	152 (AB)	067 (B)	057 (AB)	087 (B)	650 (AB)
Chamfered Georgian Bar (All with black flipper)	589251	36		325		790		270		760		746
Sculptured Georgian Bar (All with black flipper)	589261	36		325		790		270		760		746
28mm Sculptured Bead (All with black gasket)	589600	72		325		790		270		750		746
Mechanical Joint Block for Sash	328222	10 kits		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	Smooth Anthracite Grey on White	Smooth Anthracite Grey Both Sides on Grey	Elephant Grey 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		930L		9922	1364L		1980L	
016 (A)	111* (AB)	277* (A)	257* (AB)	018* (A)	077* (AB)	778* (A)	739* (AB)	728* (A)	134* (AB)	446* (A)	186* (AB)	737*(A)	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)	446* (A)	186* (AB)	737*(A)	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)	446* (A)	186* (AB)	737*(A)	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)	446* (A)	186* (AB)	737*(A)	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)	446* (A)	186* (AB)	737*(A)	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)	446* (A)	186* (AB)	737*(A)	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)	446* (A)	186* (AB)	737(A)	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)	446* (A)	186* (AB)	737(A)	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)	446* (A)	186* (AB)	737(A)	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)	446* (A)	186* (AB)	737(A)	444* (A)	454* (AB)	530* (A)	550* (AB)
160 (B)	110 (AB)	872 (B)	725 (AB)	190 (B)	770 (AB)	087 (B)	039 (AB)	457 (B)	431 (AB)	784 (B)	681 (AB)	597 (B)	544 (B)	054 (AB)	075 (B)	055 (AB)
	016		257		018		778		754		486	795		444		550
	016		257		018		778		754		446	795		444		550
	016		257		018		778		754		446	795		454		550
	111		257		077		739		134		186	017		454		550

Our verbal and written advice with regard to usage is based on years of experience and standardised assumptions and is provided to the best of our knowledge. The intended use of REHAU products is described comprehensively in the technical product information. The latest version can be viewed at www.rehau.com/ti. We have no control over the application, use or processing of the products. Responsibility for these activities therefore remains entirely with the respective user/processor. Where claims for liability nonetheless arise, they shall be governed exclusively according to our terms and conditions, available at www.rehau.com/conditions, insofar as nothing else has been agreed upon with REHAU in writing. This shall also apply for all warranty claims, with the warranty applying to the consistent quality of our products in accordance with our specifications. Subject to technical changes.

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