



MANUFACTURE



Issue Date: June 2016

FLUSH SASH

FLUSH SASH



Guide Lines Advice & General Information.

Flush Sash windows are a specialist product, thought needs to be given in regards to manufacture and installation. Tolerances are critical therefore VEKA recommends this product is manufactured on its own line or a specials line and therefore not treated as a main line product.

The profiles and system used within this manual are designed to be internally beaded only.

The Halo Flush Sash profile and associated parts are designed to function with the Halo System 10 and Rustique profile suites. The materials detailed in this manual are used in conjunction with either system unless otherwise stated.

The information provided in this manual should be treated as guidance only. VEKA PLC cannot control how the information is interpreted and therefore cannot be held responsible for any failure. Regulations regarding health and safety of operatives along with relevant building regulations should be strictly adhered to VEKA PLC therefore cannot be held responsible for any failure to comply with them. This statement does not affect the fabricators statutory rights.

Do not scale drawings in this manual. The drawings shown are visual representations only. VEKA PLC has the right to alter the designs, specification & descriptions without prior notice as part of our policy of continuous development and improvement.

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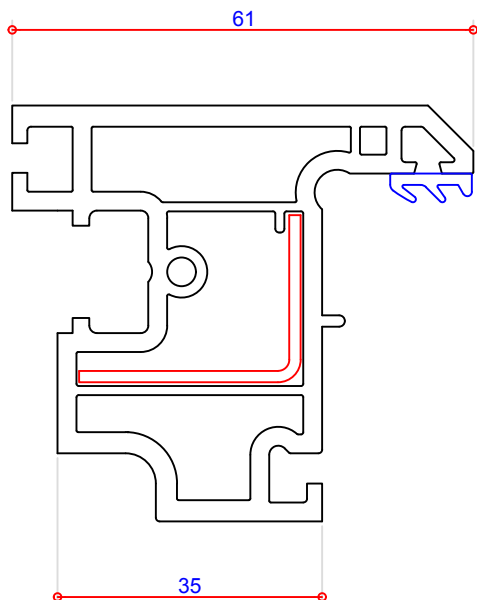
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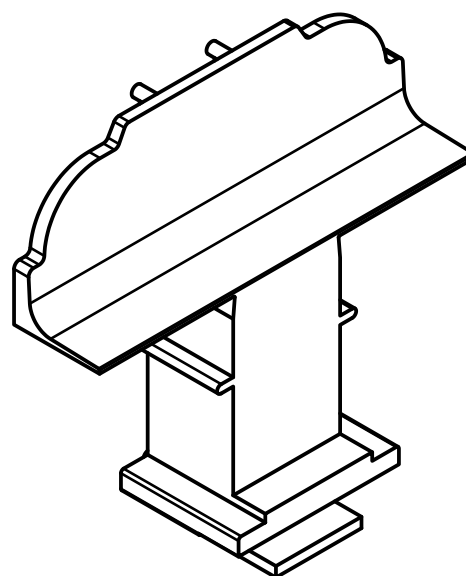
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The HALO Flush Sash profile and associated parts are designed to function with the HALO System 10 and HALO Rustique profile suites. The materials detailed on this page are used in conjunction with either system, for illustration purposes in this manual the HALO System 10 profiles and materials have been used, were details are in any way different when the HALO Rustique system is used this will be highlighted.



703810 (P10527) Flush Sash
 713226 (S00226) Steel Reinforcing
 713227 (S00227) Prepped Steel

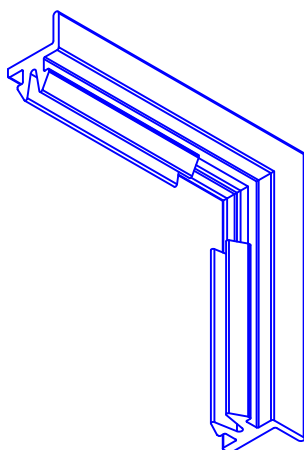


109040 French Mullion End Cap
 For use with 702533 (P10533) only
 (White/Brown/Caramel)

112380 Bead
 Groove Infill
 (White/Black)



712129 (G00129)
 Flush Sash Seal



112472 Gasket Corner

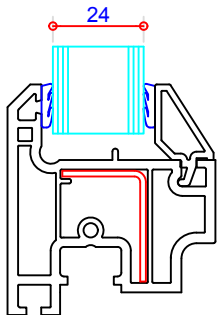


709109 Flush Sash
 Hinge Packer

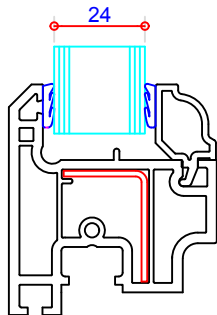


104395 French
 Mullion Adapter

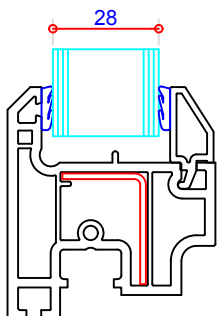
Glazing Options



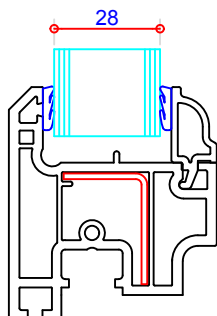
707429 (P10429) 24mm Glazing Bead



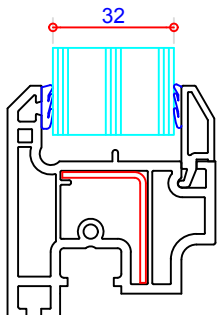
707431 (P10431) 24mm Glazing Bead



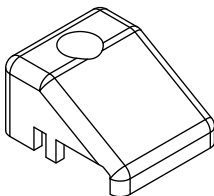
707427 (P10427) 28mm Glazing Bead



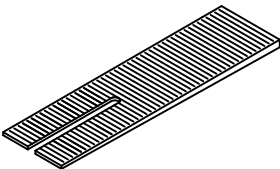
707432 (P10432) 28mm Glazing Bead



707426 (P10426) 32mm Glazing Bead



109029 Run Up Block



709213 (M00213) Clip In Packer
(White)



709824 (P10193) Georgian Bar



109030 Weather Bar
109140 End Cap
(White/Brown/Caramel)



744163 (H00163) Weather Bar Screw
(Nipple Screw)

DESIGNS & STATISTICS

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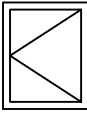
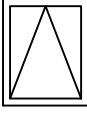
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2.03.1	Triple Glazing Min & Max
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Minimum & Maximum Sizes

- All styles are viewed externally
- Maximum sizes are based on double glazed units, for triple glazing see page 2.03.1.
- The individual friction stay manufacturers weight capabilities should be checked when calculating maximum sash sizes and DGU's.

2

WINDOW STYLE	MINIMUM		MAXIMUM		DESIGN WIND PRESSURE
	OUTERFRAME W	H	OUTERFRAME W	H	
	400	400	700	1350	800 Pa
	400	400	700	1350	1200 Pa
	400	400	700	1350	1600 Pa
	400	400	700	1350	2000 Pa
	400	400	700	1350	2400 Pa
	400	400	1250	1250	800 Pa
	400	400	1250	1250	1200 Pa
	400	400	1250	1250	1600 Pa
	400	400	1250	1250	2000 Pa
	400	400	1250	1250	2400 Pa

WINDOW STYLE			Transom Option & Reinforcing							DESIGN WIND PRESSURE	
			MINIMUM		702503/702506 713187		702503/702506 713155		702504 & 713174 705515 & 713158		
			OUTERFRAME W H		MAXIMUM W H		MAXIMUM W H		MAXIMUM W H		
	400	800	1250	2400	1250	2400	1250	2400	800 Pa		
	400	800	1250	2400	1250	2400	1250	2400	1200 Pa		
	400	800	1250	2400	1250	2400	1250	2400	1600 Pa		
	400	800	1200	2400	1225	2400	1250	2400	2000 Pa		
	400	800	1150	2400	1175	2400	1250	2400	2400 Pa		
	400	800	700	2400	700	2400	700	2400	800 Pa		
	400	800	700	2400	700	2400	700	2400	1200 Pa		
	400	800	700	2400	700	2400	700	2400	1600 Pa		
	400	800	700	2400	700	2400	700	2400	2000 Pa		
	400	800	700	2400	700	2400	700	2400	2400 Pa		
	400	800	1250	2400	1250	2400	1250	2400	800 Pa		
	400	800	1250	2400	1250	2400	1250	2400	1200 Pa		
	400	800	1250	2400	1250	2400	1250	2400	1600 Pa		
	400	800	1200	2400	1225	2400	1250	2400	2000 Pa		
	400	800	1150	2400	1175	2400	1250	2400	2400 Pa		
	400	800	700	2400	700	2400	700	2400	800 Pa		
	400	800	700	2400	700	2400	700	2400	1200 Pa		
	400	800	700	2400	700	2400	700	2400	1600 Pa		
	400	800	700	2400	700	2400	700	2400	2000 Pa		
	400	800	700	2400	700	2400	700	2400	2400 Pa		

Minimum & Maximum Sizes

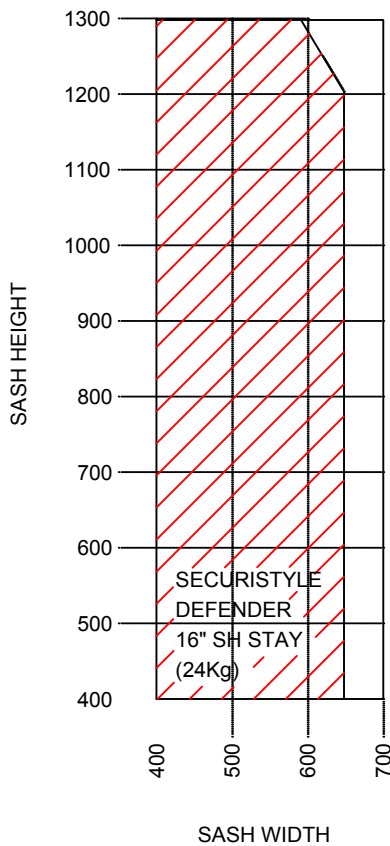
- All styles are viewed externally
- Maximum sizes are based on double glazed units, for triple glazing see page 2.03.1.
- The individual friction stay manufacturers weight capabilities should be checked when calculating maximum sash sizes and DGU's.

WINDOW STYLE			Transom Option & Reinforcing							DESIGN WIND PRESSURE	
			MINIMUM		702503/702506 713187		702503/702506 713155		702504 & 713174 705515 & 713158		
			OUTERFRAME W	H	MAXIMUM W H		MAXIMUM W H		MAXIMUM W H		
	800	400	3600	1250	3600	1250	3600	1250	800 Pa		
	800	400	3600	1250	3600	1250	3600	1250	1200 Pa		
	800	400	3600	1250	3600	1250	3600	1250	1600 Pa		
	800	400	3600	1200	3600	1225	3600	1250	2000 Pa		
	800	400	3600	1150	3600	1175	3600	1250	2400 Pa		
	800	400	3600	1350	3600	1350	3600	1350	800 pa		
	800	400	3600	1350	3600	1350	3600	1350	1200 Pa		
	800	400	3600	1275	3600	1325	3600	1350	1600 Pa		
	800	400	3600	1200	3600	1250	3600	1350	2000 Pa		
	800	400	3600	1150	3600	1200	3600	1350	2400 Pa		
	800	800	1950	1350	1950	1350	1950	1350	800 pa		
	800	800	1950	1350	1950	1350	1950	1350	1200 Pa		
	800	800	1950	1275	1950	1325	1950	1350	1600 Pa		
	800	800	1950	1200	1950	1250	1950	1350	2000 Pa		
	800	800	1950	1150	1950	1200	1950	1350	2400 Pa		
	800	800	3600	1525	3600	1600	3600	1775	800 pa		
	800	800	3600	1375	3600	1425	3600	1600	1200 Pa		
	800	800	3600	1275	3600	1325	3600	1475	1600 Pa		
	800	800	3600	1200	3600	1250	3600	1400	2000 Pa		
	800	800	3600	1150	3600	1200	3600	1350	2400 Pa		
	800	800	1600	2000	1650	2000	1850	2000	800 pa		
	800	800	1450	2000	1500	2000	1675	2000	1200 Pa		
	800	800	1350	2000	1400	2000	1550	2000	1600 Pa		
	800	800	1275	2000	1325	2000	1475	2000	2000 Pa		
	800	800	1200	2000	1250	2000	1400	2000	2400 Pa		
	1200	400	3600	1350	3600	1350	3600	1350	800 pa		
	1200	400	3600	1350	3600	1350	3600	1350	1200 Pa		
	1200	400	3600	1275	3600	1325	3600	1350	1600 Pa		
	1200	400	3600	1200	3600	1250	3600	1350	2000 Pa		
	1200	400	3600	1150	3600	1200	3600	1350	2400 Pa		
	1200	800	3600	1350	3600	1350	3600	1350	800 pa		
	1200	800	3600	1350	3600	1350	3600	1350	1200 Pa		
	1200	800	3600	1275	3600	1325	3600	1350	1600 Pa		
	1200	800	3600	1200	3600	1250	3600	1350	2000 Pa		
	1200	800	3600	1150	3600	1200	3600	1350	2400 Pa		
	1200	800	3600	1525	3600	1600	3600	1775	800 pa		
	1200	800	3600	1375	3600	1425	3600	1600	1200 Pa		
	1200	800	3600	1275	3600	1325	3600	1475	1600 Pa		
	1200	800	3600	1200	3600	1250	3600	1400	2000 Pa		
	1200	800	3600	1150	3600	1200	3600	1350	2400 Pa		

Minimum & Maximum Sizes For Triple Glazing

Side Hung sashes

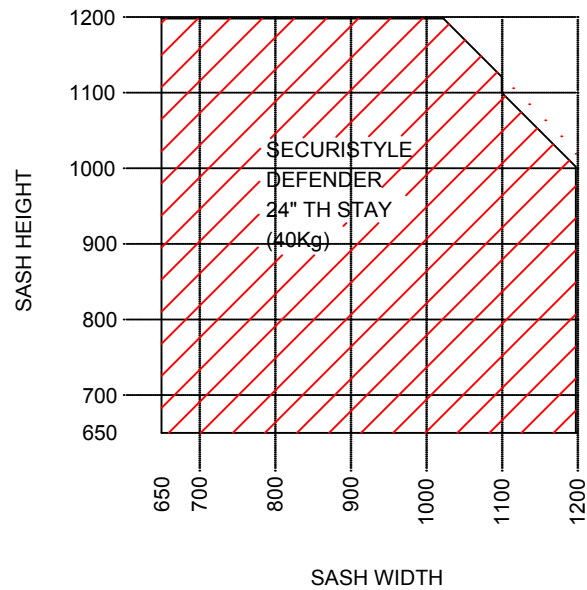
- Maximum sizes are based on triple glazed units 4/10/4/10/4.
- Securistyle Defender 16" side hung stay with a 24Kg weight carrying capacity - minimum width = 450mm.



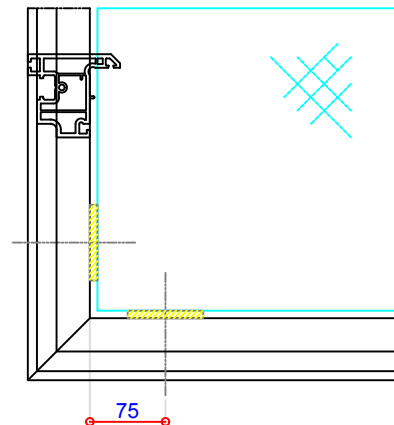
To limit sash deflection due to glass weight glazing packers must be positioned so that the centre of the packer is no more than 75mm from the internal corner of the frame, as shown.

Top Hung sashes

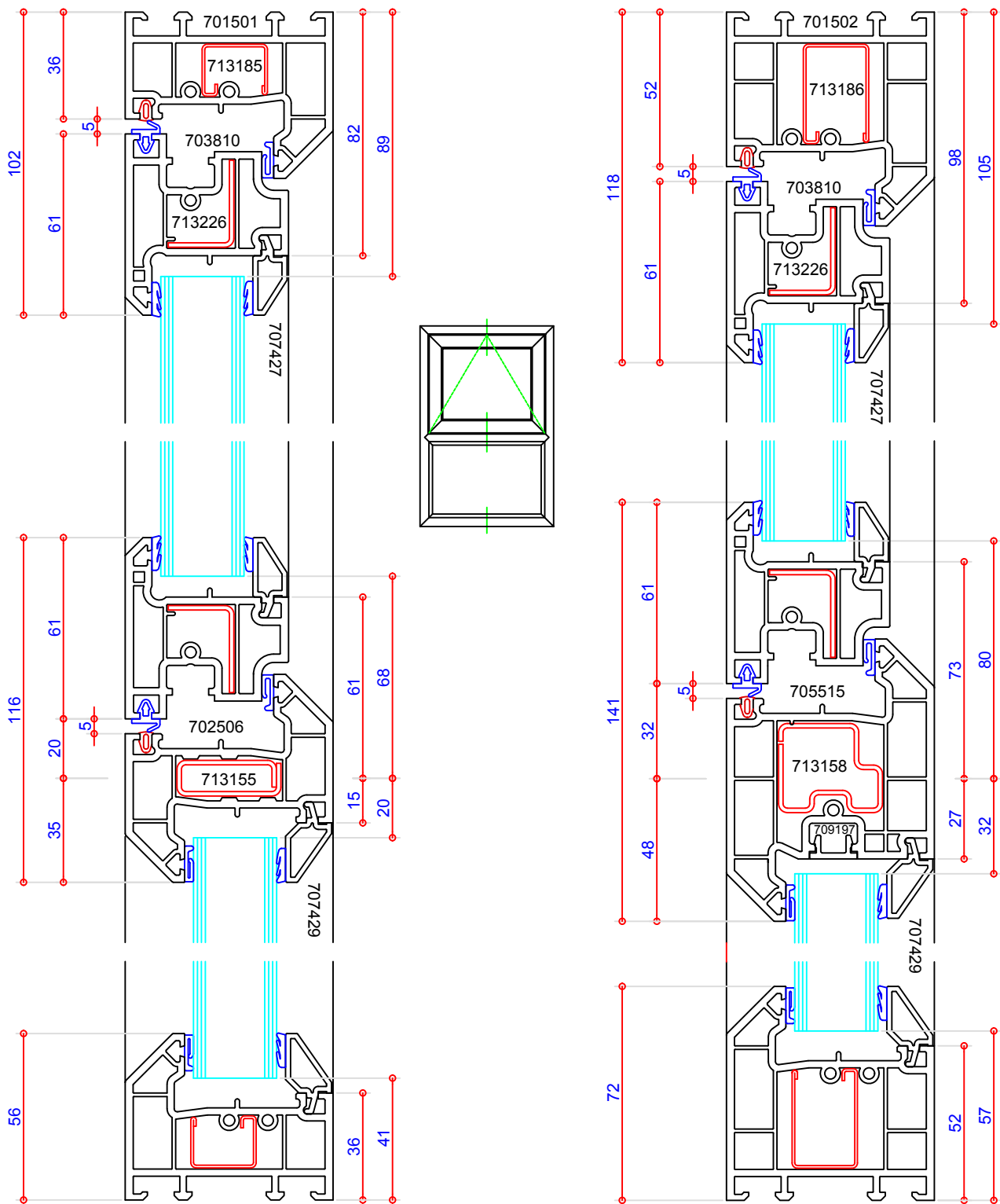
- Maximum sizes are based on triple glazed units 4/10/4/10/4.
- Securistyle Defender 24" top hung stay with a 40Kg weight carrying capacity.



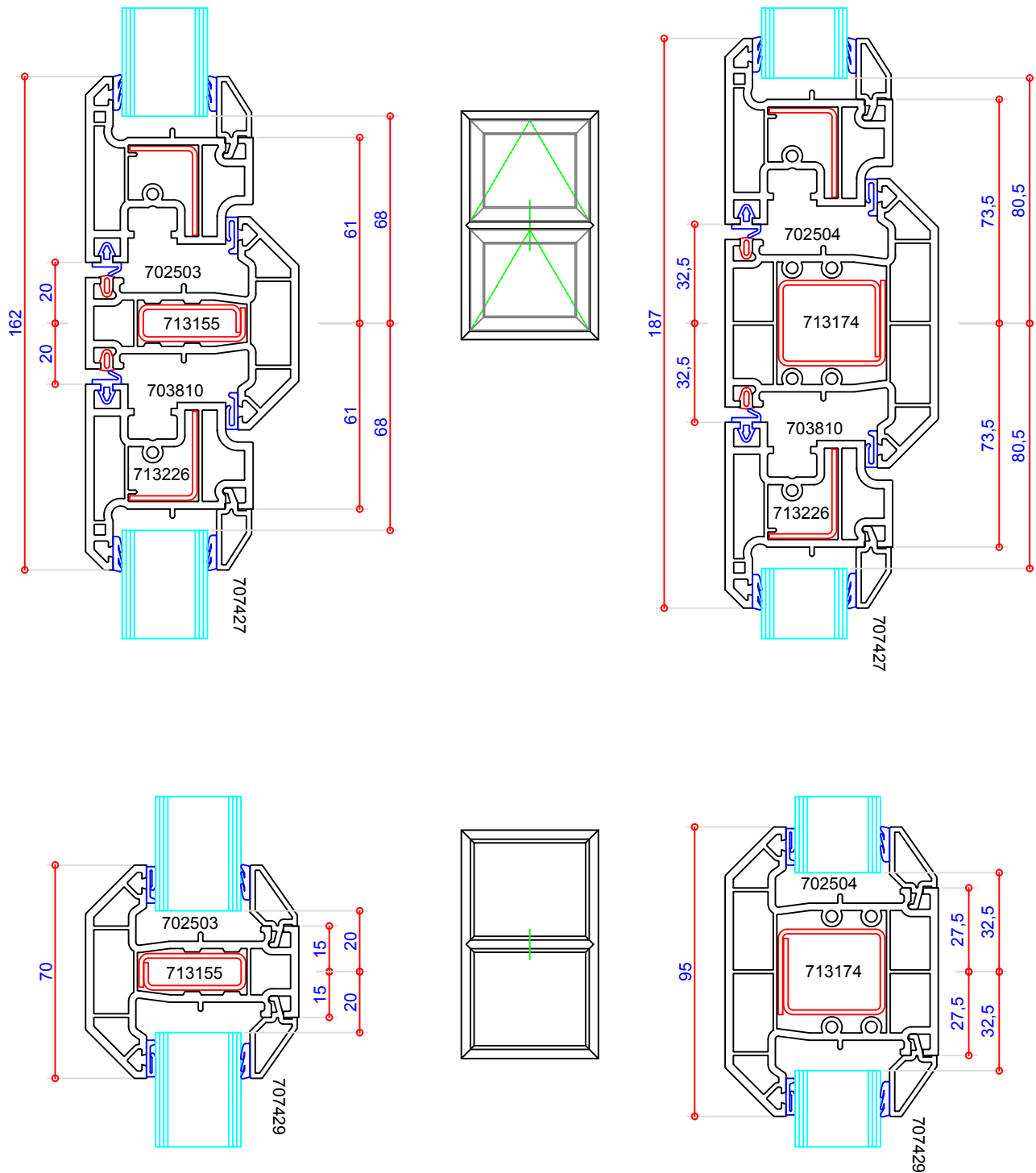
The base member of all triple glazed sashes over 700mm wide must be reinforced.



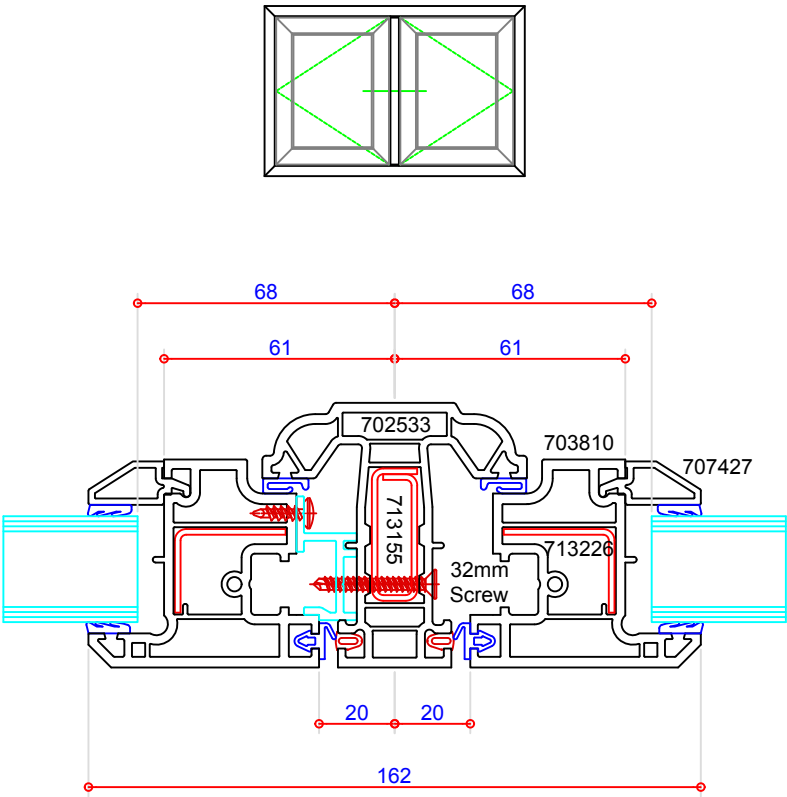
Cross Sections.



Cross Sections.



Cross Sections.



French Mullion height = finished sash height.

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3.10.1	Glass Packer Position
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3.12.1	Weather Bar

Drainage Instructions

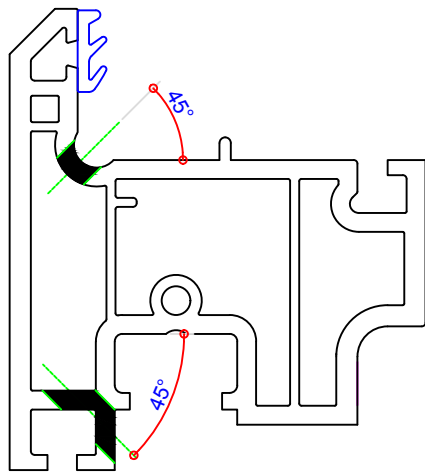
Drainage slots must be offset by 100mm and must not break into reinforcement chambers, slots must also be cleaned out removing all swarf to prevent water build up.

Pressure equalization is recommended especially for non domestic or exposed locations above three stories/floors or 1200pa. This can be achieved by repeating the drainage detail on the top rail of the sashes or by 2.5mm drill holes in each fixed and opening light, 150mm from each top corner.

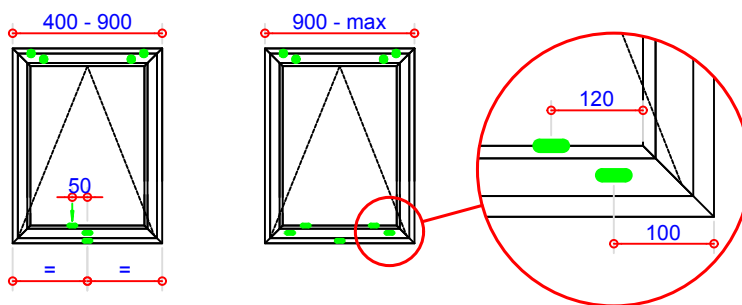
The standard size for drainage slots is 5mm x 30±5mm as it may not be practical to machine large pieces of outer frame profile five adjacent 5mm drill holes can be used instead

Face drainage slots must be drilled at their lowest possible point.

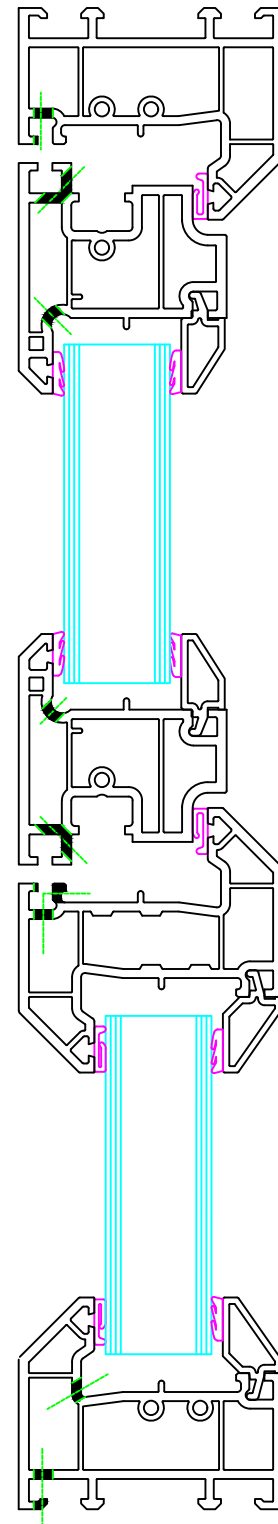
Care should be taken to ensure any gearing does not block or restrict the drainage, if this is the case the drain slot position may need to be moved or additional drainage provided.



Drainage and pressure equalization positions.



- Drainage.
- Pressure equalization.



3

The flush sash seal & bead groove infill have been omitted for clarity

Reinforcement

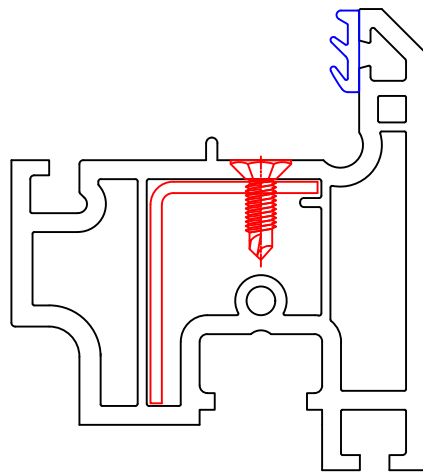
713226 (S00226) Steel L Reinforcement

All dark foiled profiles must be fully reinforced irrespective of size.

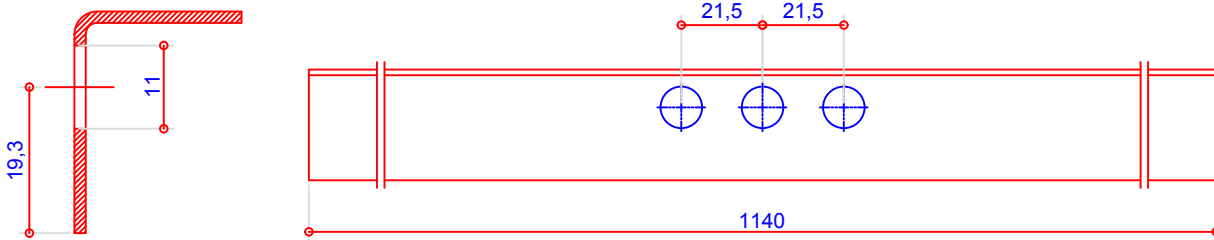
The base member of all triple glazed sashes over 700mm wide must be reinforced.

First screw within 100mm from each end of the section and the screw centre fixing points into reinforcement must not exceed 400mm with a minimum of two screws secured in each bar length using M4 13mm faceted c/sk drill point screws.

3



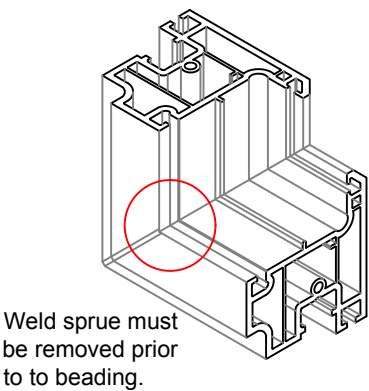
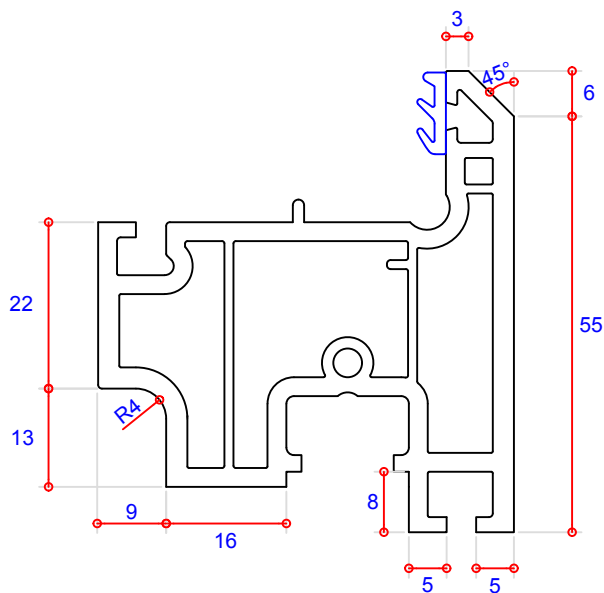
713227 (S00227) Prepped Steel L Reinforcement



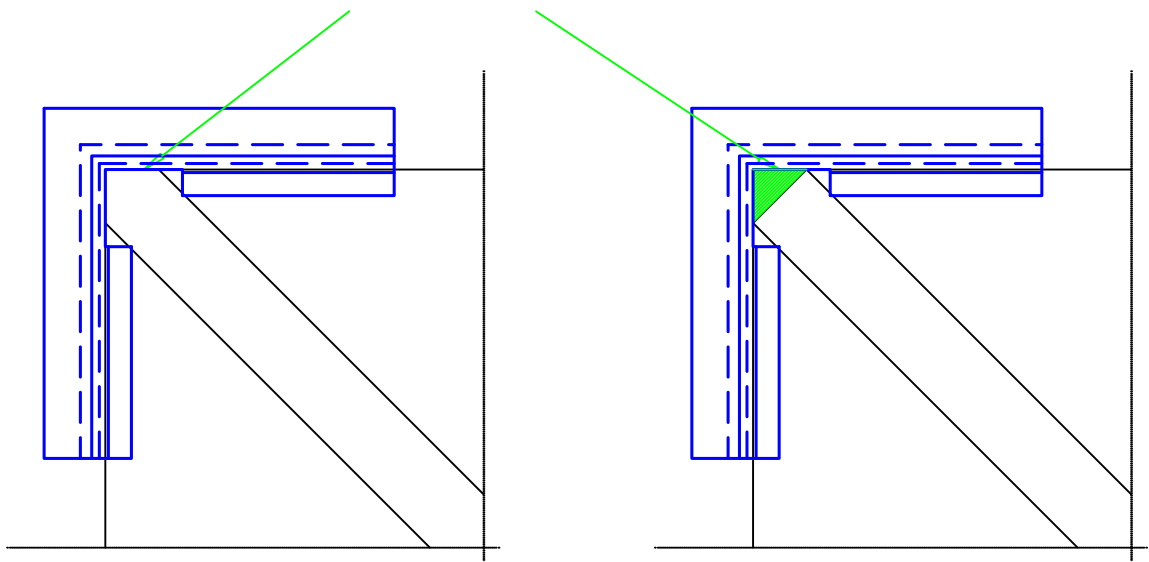
Corner Cleaning

703810 (P10527) Flush Sash

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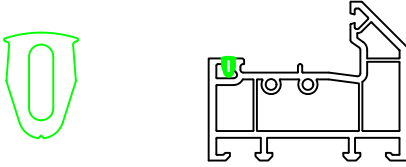


The outside corner of the sash should be left sharp so as to avoid a hole in the corners.

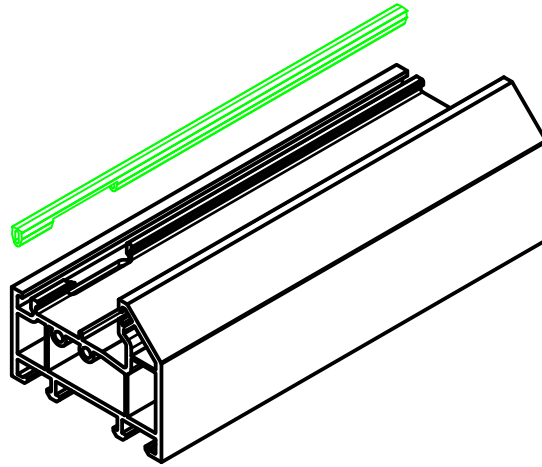


Gaskets

112380 Bead Groove Infill



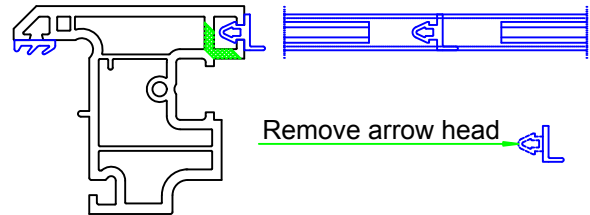
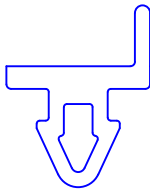
A section of the body of 112380 will need to be cut adjacent to the drainage slots to create a continuous weather seal without hindering the drainage.



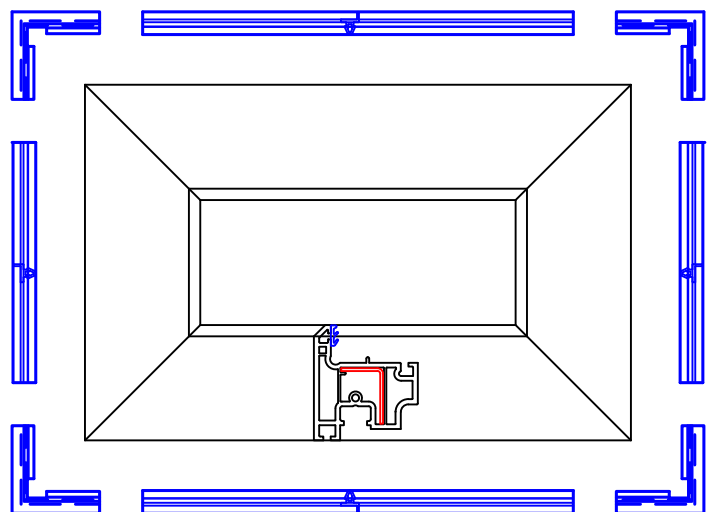
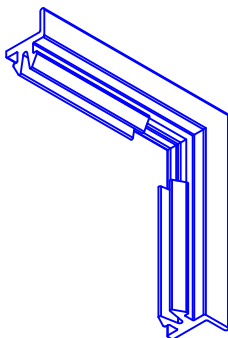
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712129 (G00129) Flush Sash Seal

Locally remove the arrow head from the 712129 (G00129) flush sash seal where the drainage exit slots in the 712129 (P10527) sash are located.

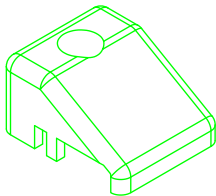


112472 Gasket Corner



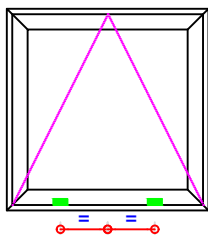
Run Up Block

109029



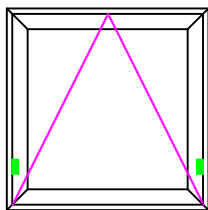
The use of a run up block is not mandatory.

3



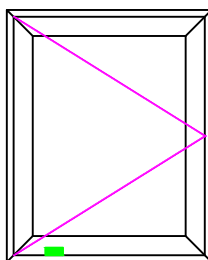
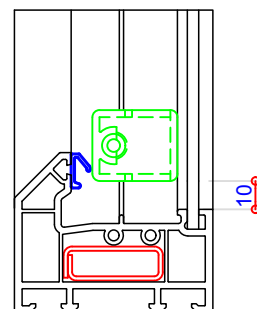
Shootbolt Locking

Run up blocks should be equally positioned either side of the lock gear case, as shown. Care must be taken so that the positioning does not interfere with the operation of the cams.



Espagonolette Locking

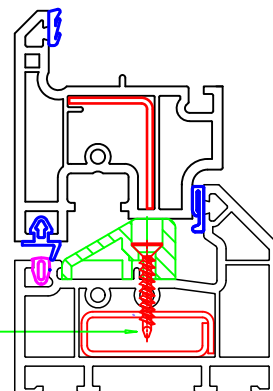
Run up blocks should be positioned as shown. 10mm from the internal corner.



Side opening Shootbolt/Espagonolette Locking

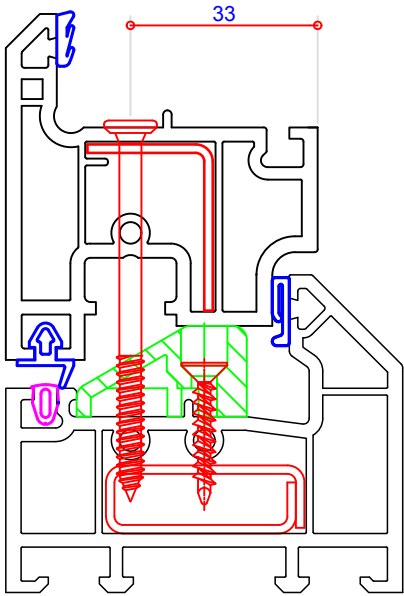
Run up blocks should be positioned on the bottom corner, as shown.

3.9 x 29mm C/SK Drill Point Screw into reinforcing.
4.3 x 29mm C/SK Gimlet Point Screw into PVC-U.

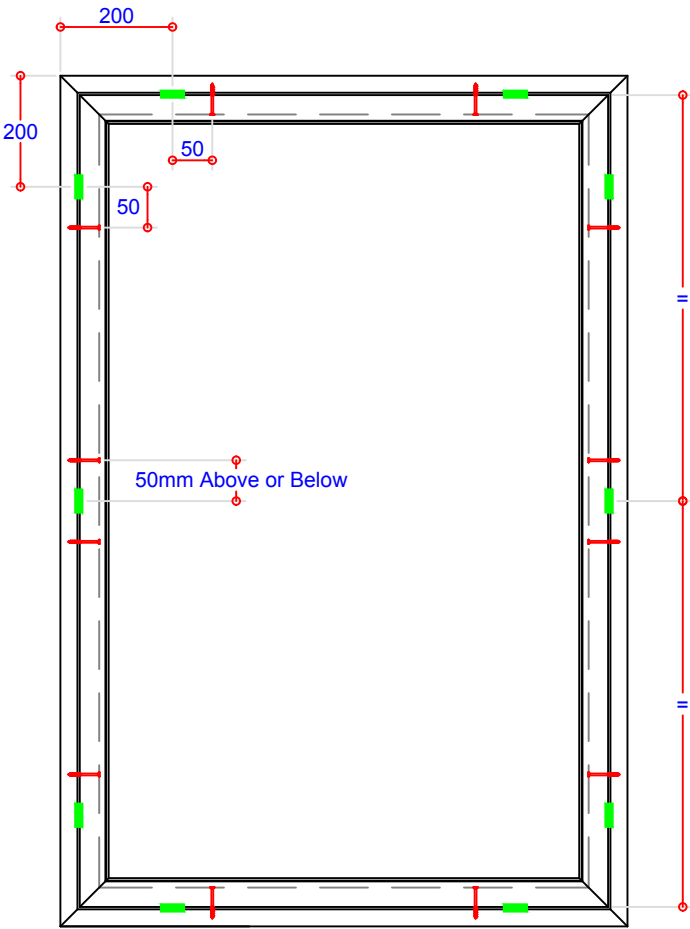


Dummy Sashes

Using 109029 Run Up Block



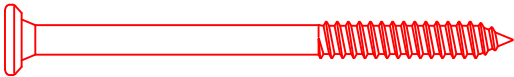
Sash Height/Width	Qty (per side)
Under 1000mm	2
Over 1000mm	3
Over 1500mm	+1 (per 500mm)



Please Note!

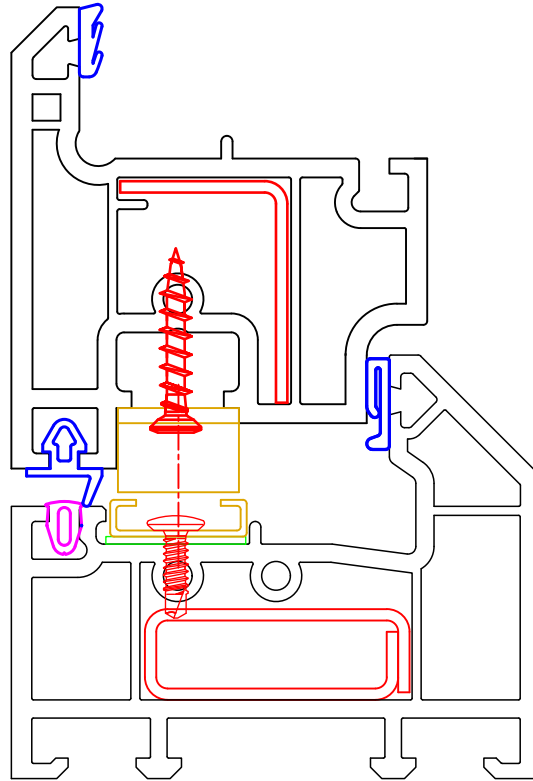
When fixing dummy sashes on both sides of a transom or mullion, frame fixing screws must be staggered to prevent them from interfering with one another.

4.8 x 65mm Gimlet Point Frame Fixing Screw.



1mm Hinge Packer

709109



3

This part has been introduced in response to customer feedback regarding sash to outerframe sightline gaps when using a variety of different friction stays that are currently available.

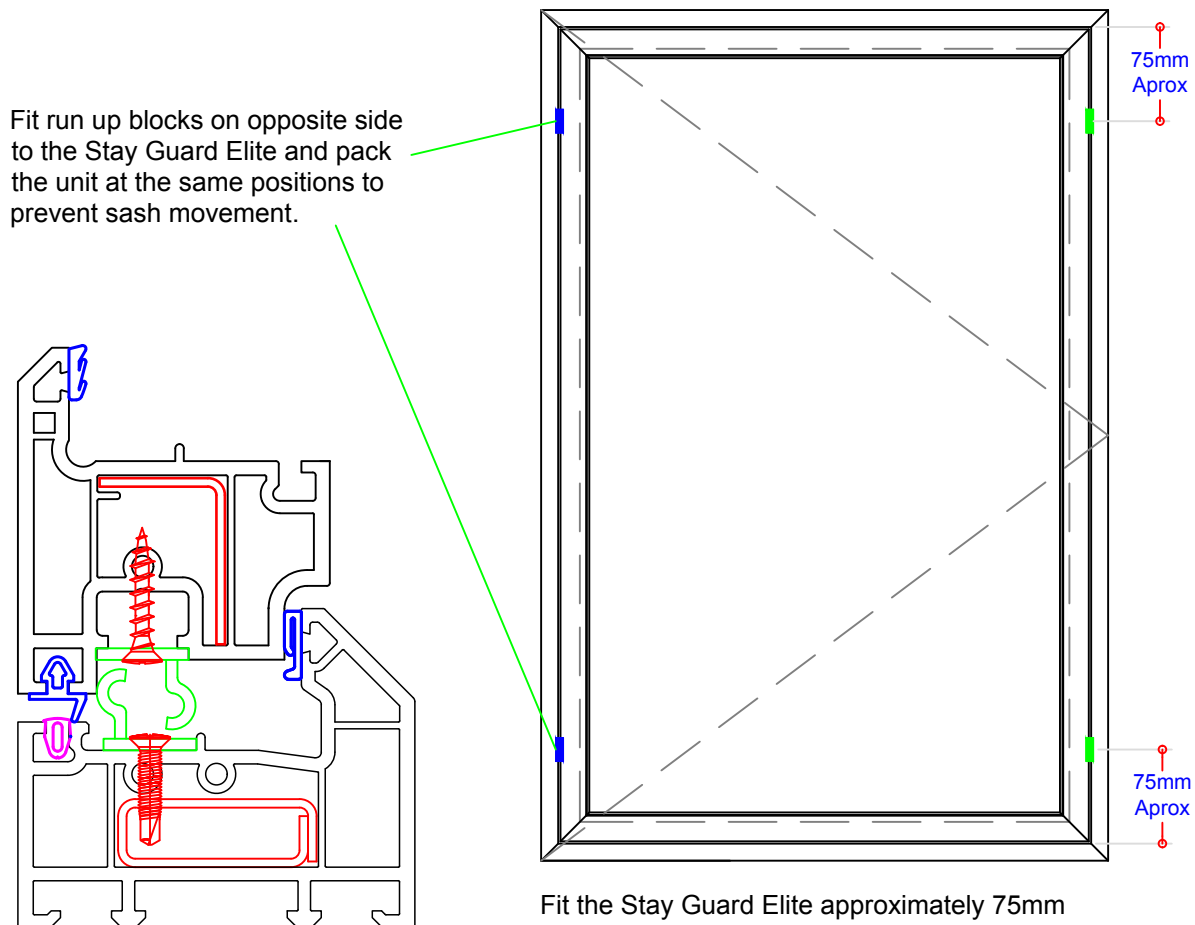
This issue is more visible on this particular product as the sash has no external rebate so the sightline uniformity between sash and outerframe/transom is more critical.

Hinge Protector

GT Stay Guard Elite (Non VEKA Product)

Required to achieve enhanced security accreditation.

3



Fit the Stay Guard Elite approximately 75mm centres from the internal corner. Secure using either 4.8 x 19mm or 4.8 x 25mm carbon steel zinc coated screws.

SG037 - Stay Guard Elite available from:

GT Window Products
Unit 4203 Oakfield Close
Tewkesbury Business Park
Tewkesbury
Gloucestershire
GL20 8PF

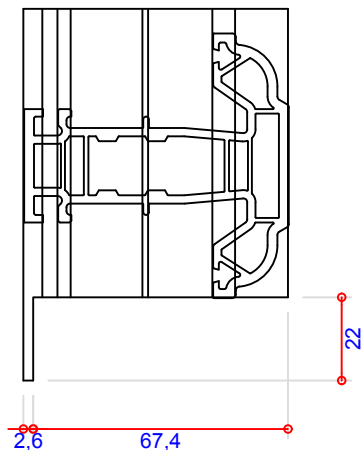
T: 01684 290944
F: 01684 276482
E: sales@gtwindowproducts.co.uk

French Casements

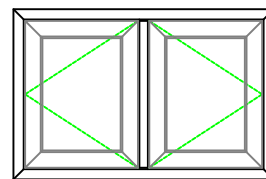
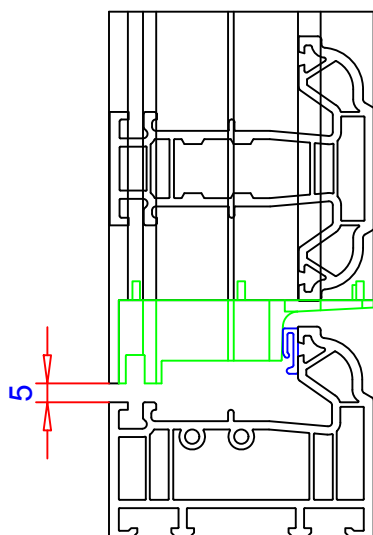
End preparation and False Mullion

109040 French Mullion End Cap For use with 702533
(P10533) 70mm Transom only.

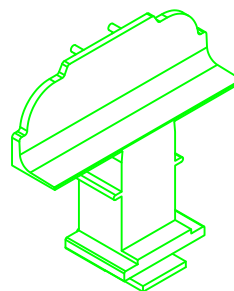
French Mullion height = finished sash height.



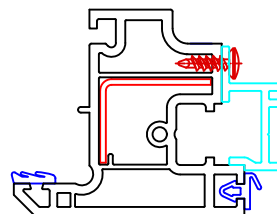
End milling detail for 702533
(P10533) when 109040 French
Mullion end cap is required.



3

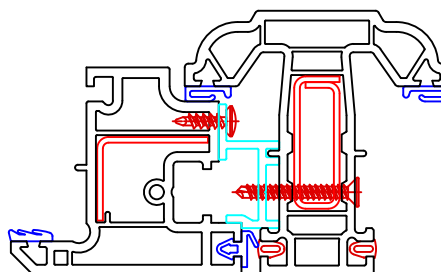


Secure the 104395 French Mullion Adapter
to the slave sash using 3.9 x 16mm gimlet
point screws - maximum 300mm centres.



Glue the 109040 French Mullion End Cap.

Secure the 702533 false mullion to the
104395 French Mullion Adapter using 3.9 x
32mm self tapping screws - maximum
300mm centres.



Glass Packing & Packer Positions

Prior to installing any glass unit or panel, the Clip In Packer, 709213 (M00213) must be fitted into the glazing rebates of the sash wherever the glazing unit has to be packed or spaced.

The Clip In Packer:

- acts as a Bridge Block when used in the bottom rails to allow drainage of the rebate.
- provides a flat surface from which to pack or space the glass.
- prevents the glazing unit standing in water, helping to prolong the integrity of the seals to the glazing unit.

3

Bridge Packer are to used on lower horizontal rails, with a minimum of 2 per rail. Position not to interfere with drain slots.

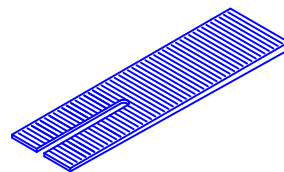
Glazing Packers are used to pack the glass unit into the apertures. These packers are to be position adjacent to locking points, additional glazing packers must be used to support the glass on longer lengths.

Always ensure the packing blocks that are wider than the glass unit or panel, e.g. for a unit 28mm wide, use a packer 30mm wide. If factory glazing, apply a small amount of silicone adhesive to hold the packing blocks in position whilst being transported, but care should be taken this does not interfere with the drainage.

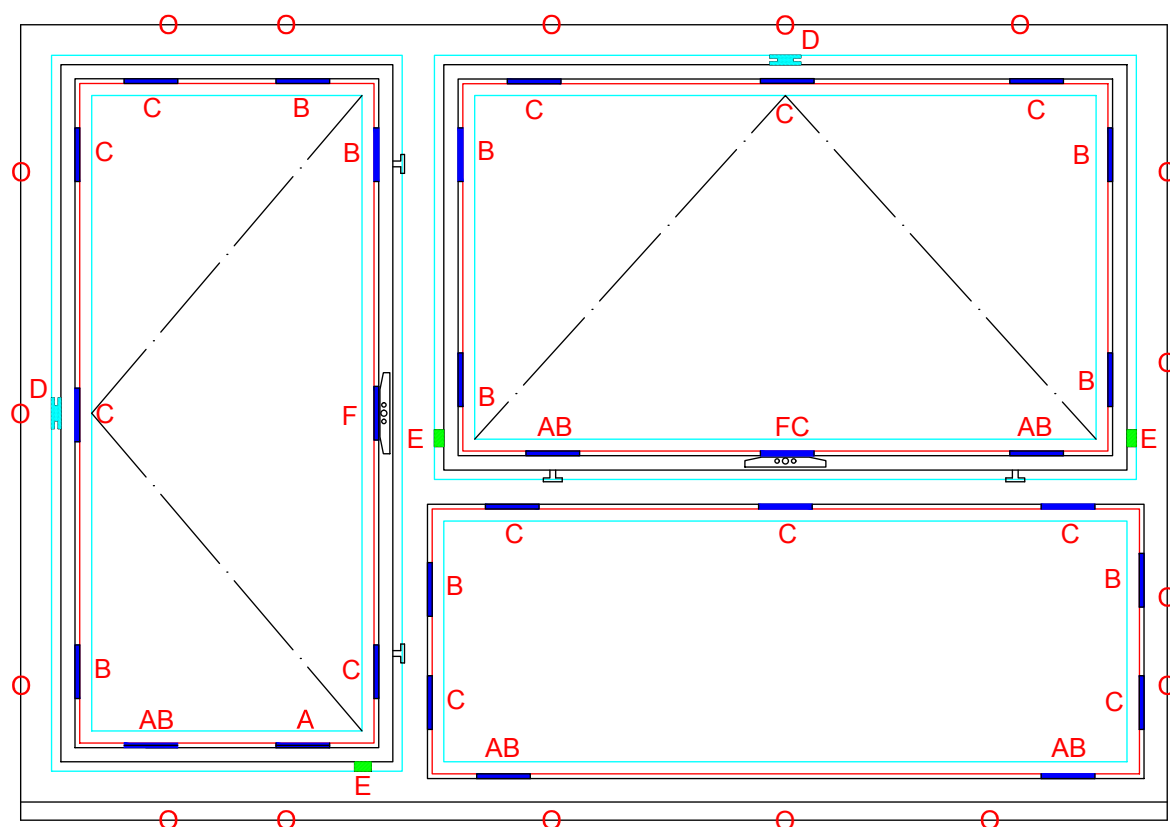
The Clip In Packers must be placed in the appropriate packing positions shown on the diagram on the next page prior to placing the glazing unit or panel into the opening.

Care must be taken to ensure:

- All window frames are fitted squarely.
- All glass should be in accordance with BS6262.



Clip In Packer 709213 (M00213)



3

A = Bridge Packer. Use on lower horizontal rails, min. 2 per rail. Position not to interfere with drain slots. Additional packers are required for lengths greater than 1500mm.

B = Glazing Packer. Use to pack the glass unit into the apertures.

C = Additional glazing Packers. Position adjacent to locking points or cavity locking wedges in sashes and frames, and to space the glass on longer rails.

D = Cavity locking wedges. 1No. pair required for sashes when there length exceeds 800mm. When sash exceeds 1200mm, 2No. pair are required.

E = Run up blocks. Required for side hung sashes, may be fitted to top hung sashes for additional security.

F = Locking Mechanism

O = Fixing Point. Perimeter fixing shall be positioned as follows:

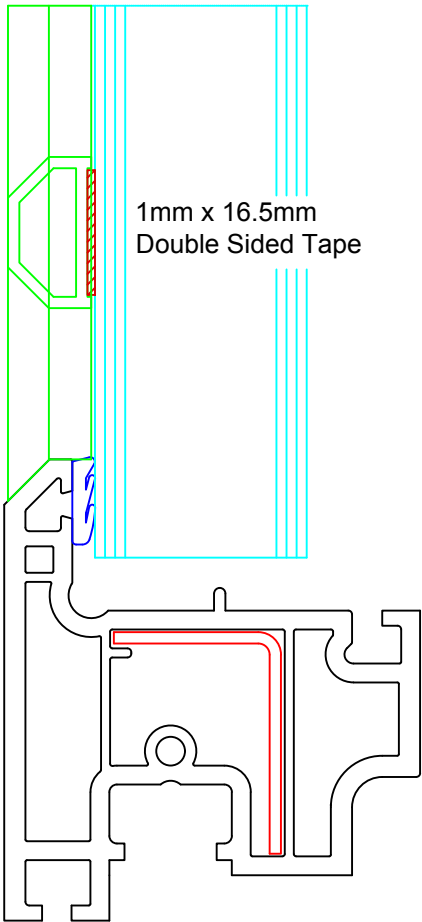
1 No. fixing 150-250mm from a corner both vertically and horizontally (outer edge).

1No. fixing 150-250mm at either side of a transom or mullion where it meets the outer frame.

Fixings shall occur at no more than 600mm centres between the fixings at the corners, transoms and mullions. Where windows are coupled together, through frame fixings at 100mm from each end and at centres not exceeding 400mm are recommended.

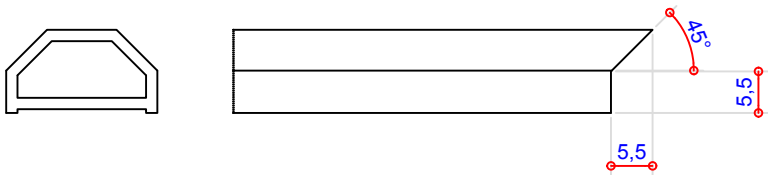
Georgian Bar

709824 Georgian Bar

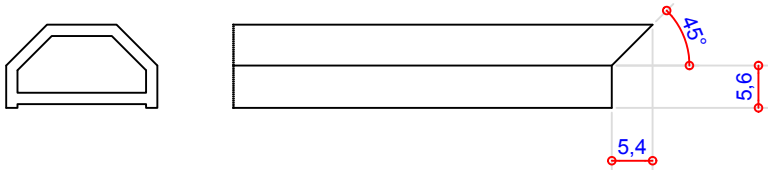


3

End milling detail for 709824 Georgian Bar fitting up to rebate face on 703810 Flush Sash.



End milling detail for 709824 Georgian Bar fitting up to 709824 Georgian Bar.

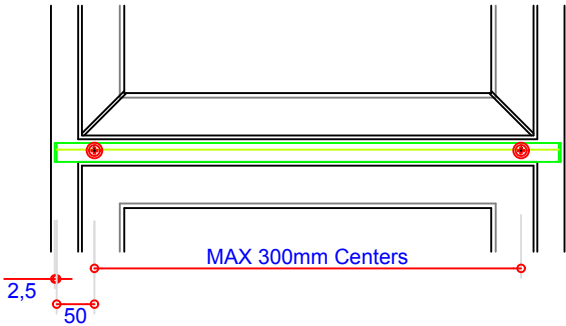


Weather Bar

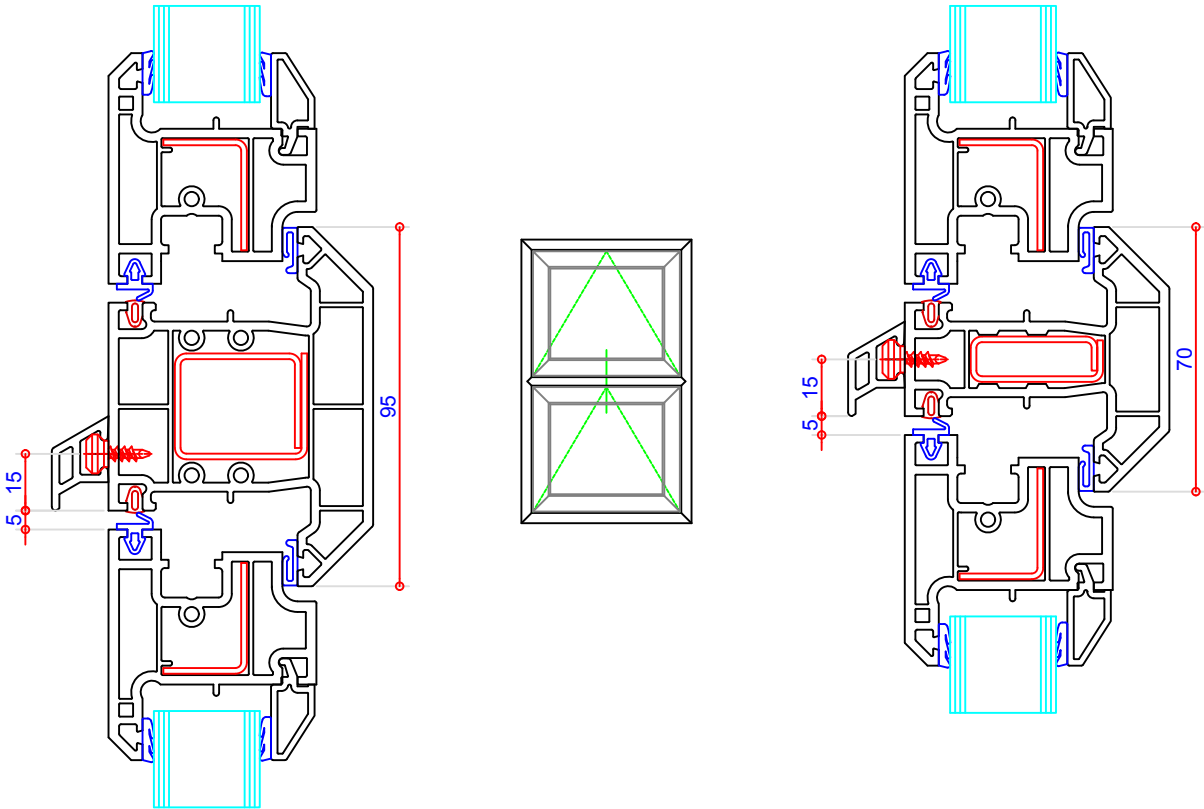
- 

109030 Weather Bar
109140 End Cap
- 

744163 (H00163)
Weather Bar Screw
(Nipple Screw)



3



For exposed locations, optional weather bars may improve weather performance characteristics.

ACCREDITATIONS

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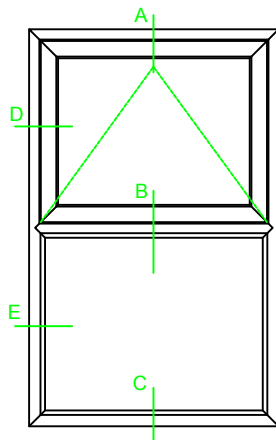
REVISIONS

5

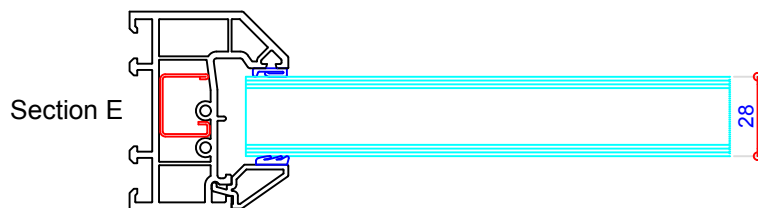
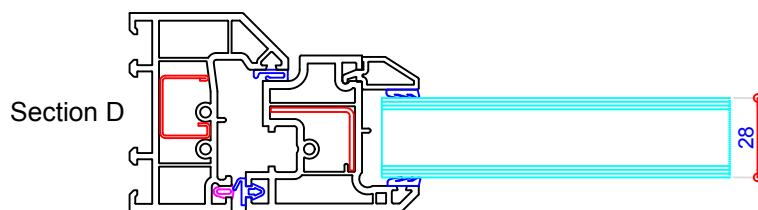
- 4.00.1 This page
- 4.01.1 Typical WER A Specification
- 4.02.1 Kitemark Schedule
- 4.03.1 Weld Test Data

Typical WER A Specification

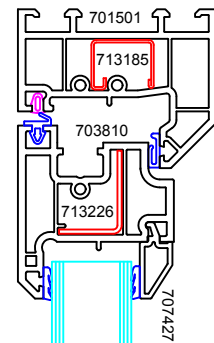
Using System 10 - Results will differ with Rustique profiles



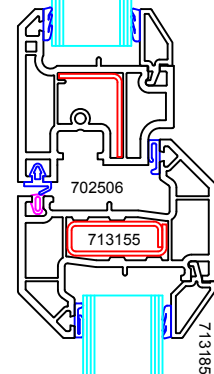
GLASS UNIT THICKNESS	28 mm (4/20/4)
EXTERNAL GLASS PANE THICKNESS	4 mm
EXTERNAL GLASS PANE TYPE	LOW IRON [FLOAT]
GAS FILLING	ARGON
INTERNAL GLASS PANE THICKNESS	4 mm
INTERNAL GLASS PANE TYPE	PLANITHERM TOTAL +
SPACER BAR TYPE	SWISSPACER V
SECONDARY SEALANT MATERIAL & SECONDARY SEALANT DEPTH	POLYSULFIDE/POLYURETHANE 3mm
U VALUE OF GLASS (W/m2K) BS EN 673	1.2
WER & ENERGY INDEX	A +6 [A +4]
U VALUE OF WINDOW (W/m2K) BR 443	1.4 [1.4]
U VALUE OF WINDOW (W/m2K) BS EN 14351-1	1.3 [1.3]



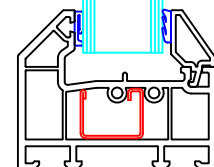
Section A



Section B

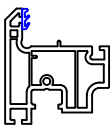


Section C



Kitemark Schedule PAS 24 Licence No. KM 33520

BS 3675-1:2009 Performance of windows and doors.

Symbol	Code	Description	Reinforcement Code
	703810 (P10527)	60mm Flush Sash Casement Sash	Steel 713226 (S00226) 713227 (S00227)

Fabricated and installed in accordance with the latest issue(s) of the VEKA Group - Halo Flush Sash technical manual.

The windows are double glazed, internally or externally beaded*, multipoint locking, with welded transoms/mullions, tee joints and are classified WK or WKT (Flush Sash)
(*Dependant on window type)

4

Hardware Requirements

Securistyle Stays
Maco R.A.I.L. locking (Mushroom bolts)
Key locking handle
1 Pair of 109029 run up blocks per sash
1 Pair of GT Stay-Guard hinge protectors per sash

Fixed Windows

Hardware Fixing Requirements

Stay to frame SSR 3.9 x 19s
Maco rail CFG 4.3 x 30y
Run up blocks CSR 3.9 x 29y
Stay to sash SFG 4.3 x 25s
Keeps to frame CSR 3.9 x 29y
Reinforcement RSR 3.9 x 16z
Available via RapierStar

Multilight windows comprising opening light(s) and/or fixed light(s)

Approved windows are internally glazed with double glazed units

Size Limitations and Performance Characteristics

Window Type	Length (mm) - Maximum	Height (mm) - Maximum	Area (M2) - Maximum	Friction Stays (up to and including)	Transom/Mullion Length (mm) inc frame - Maximum	Air Permeability Classification	Watertightness Classification	Resistance to Wind Classification	Exposure category as given in Table 1 of BS 6375-1:2009
Projecting side hungs Flush Sash	620	1270	-	16"	-	4	9A	4	1600
Fixed Part reinforced	2000	2000	4	-	-	4	E750	4	1600

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- 5.02.1 Amendments 2

[illegible]

Amendments 2

[illegible]

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