

# Technical Manual

12.09

3000 **zendow**®

**Horizontal Pivot**



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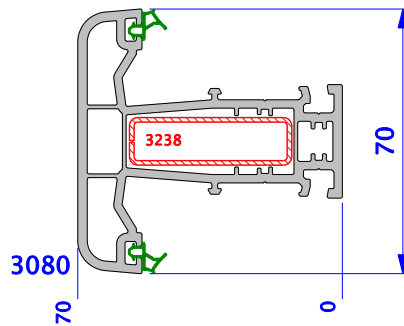
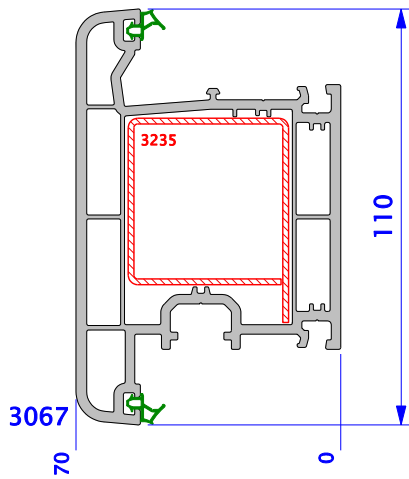
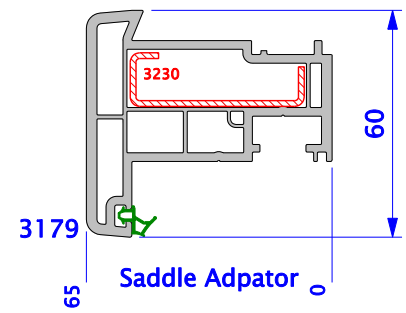
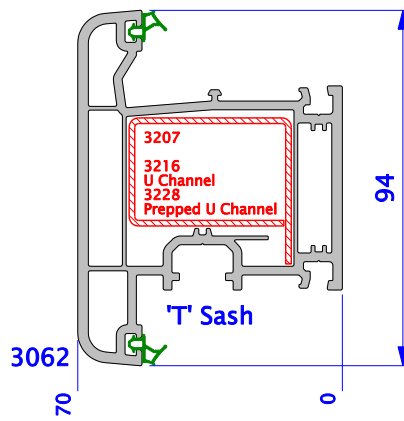
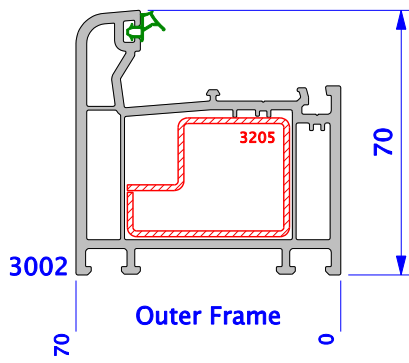
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# GENERAL

MAIN PROFILES  
ACCESSORY PROFILES  
PROFILE SHEET  
WINDOW TYPES

**MAIN PROFILES**  
ACCESSORY PROFILES  
PROFILE SHEET  
WINDOW TYPES

**MAIN PROFILES**



28mm



**3028  
 Standard**



**3029  
 Contemporary**



**3027  
 Retro**

24mm



**3024  
 Standard**



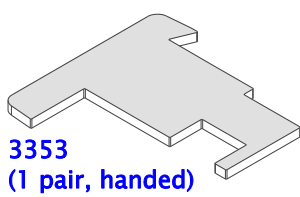
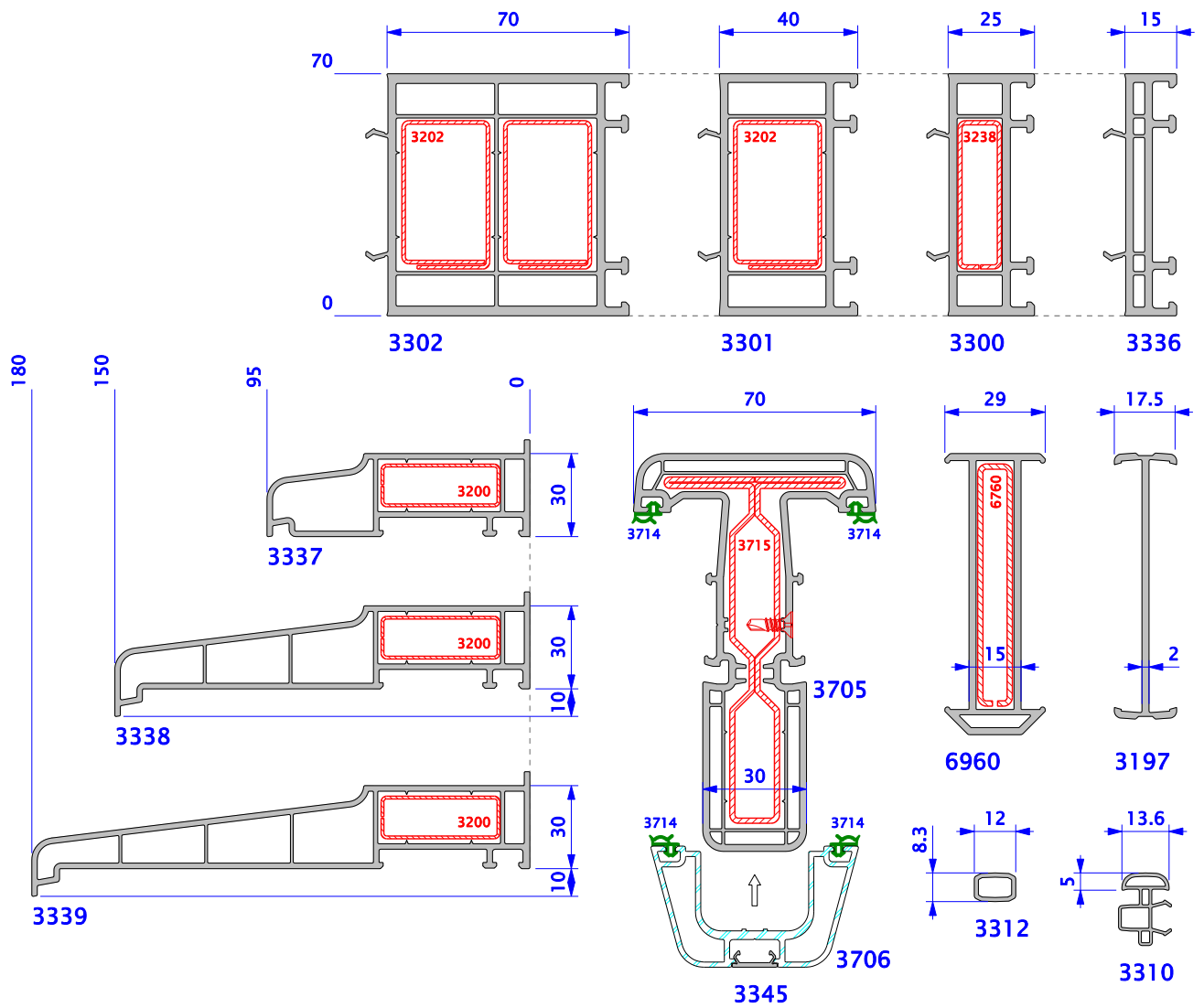
**3034  
 Contemporary**



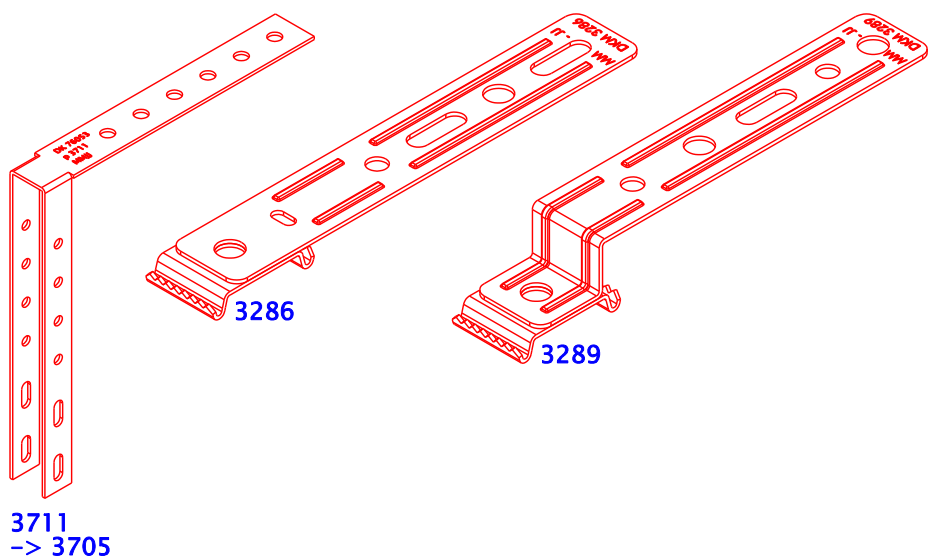
**3033  
 Retro**

MAIN PROFILES  
**ACCESSORY PROFILES**  
PROFILE SHEET  
WINDOW TYPES

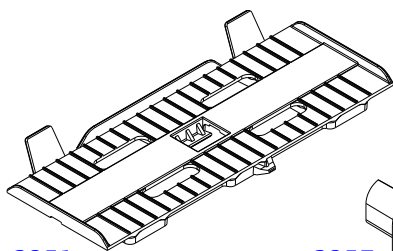
ACCESSORY PROFILES



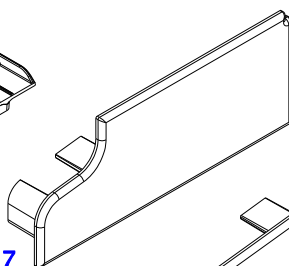
**3353**  
 (1 pair, handed)



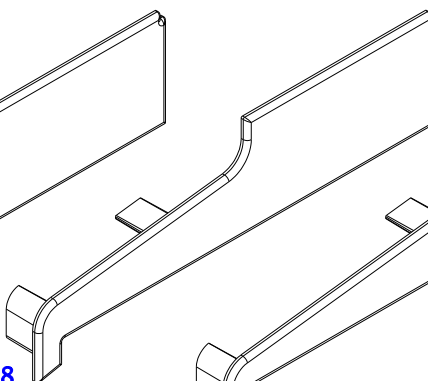
ACCESSORY PROFILES



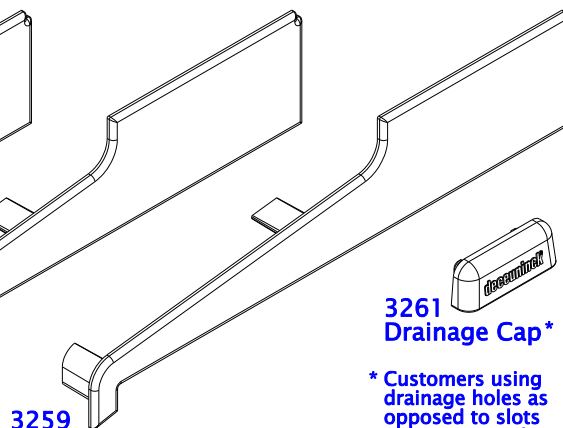
3251  
Glazing Packer



3257  
End Cap 3337



3258  
End Cap 3338



3259  
End Cap 3339



3261  
Drainage Cap\*

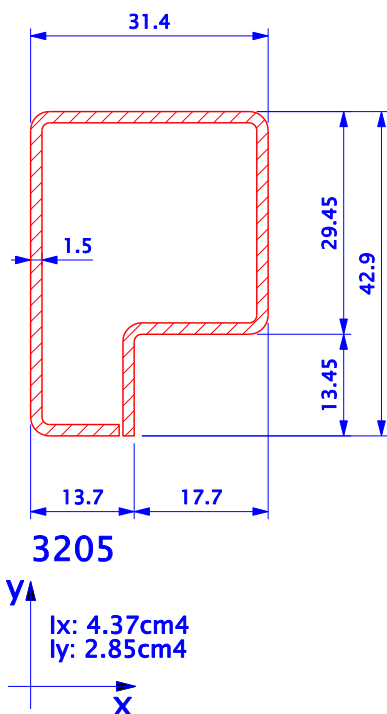
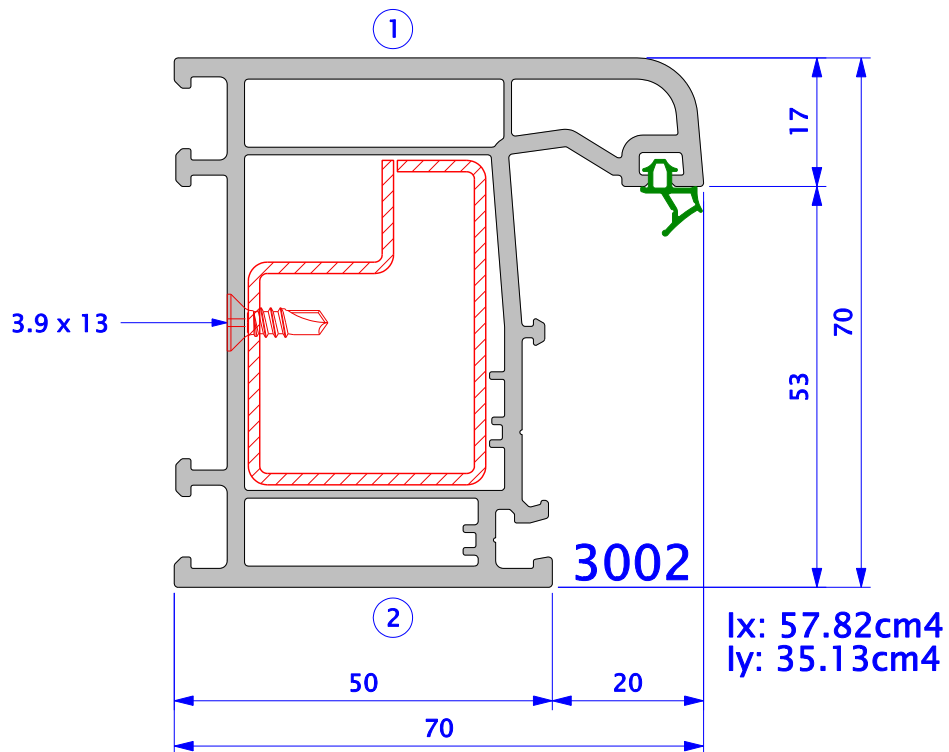
\* Customers using drainage holes as opposed to slots can contact either:

Glazpart 01295 264533  
Ref. 550701  
(Ø9.5mm hole prep)  
or  
S&S Plastics 01623 555501  
Ref. 01485  
(Ø10mm hole prep)

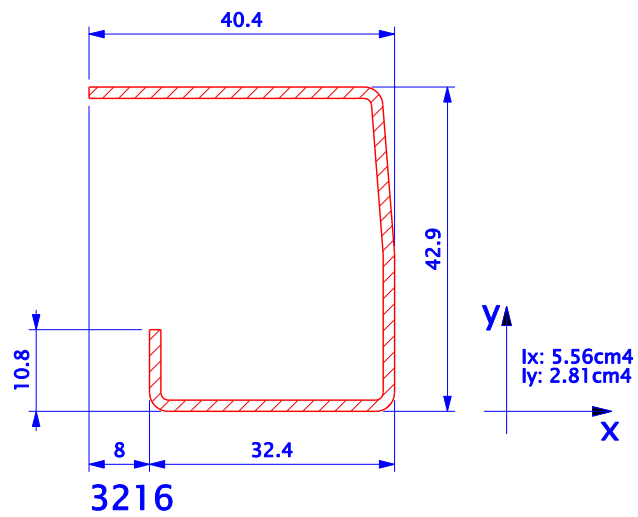
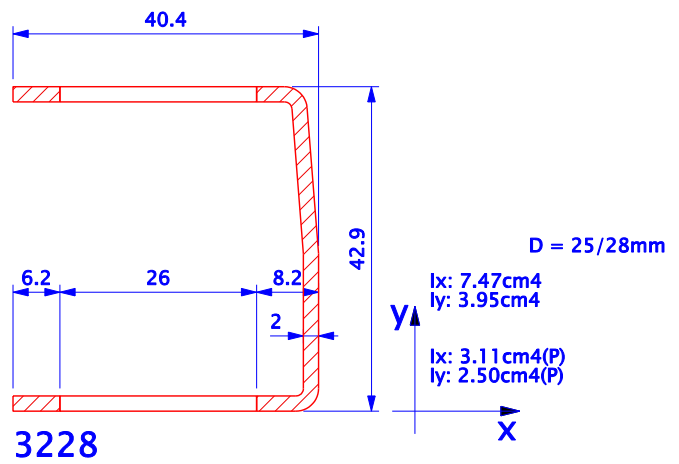
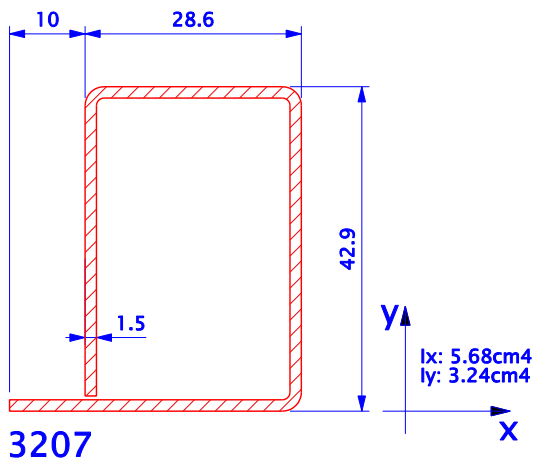
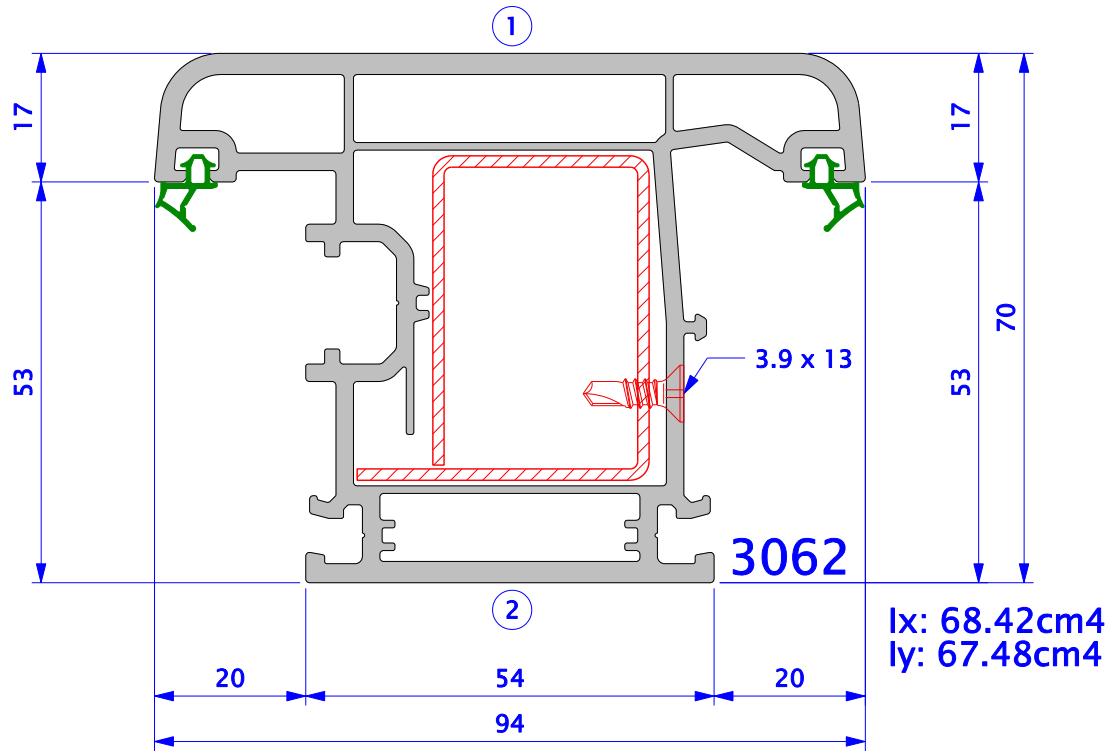


MAIN PROFILES  
ACCESSORY PROFILES  
**PROFILE SHEET**  
WINDOW TYPES

PROFILE SHEET



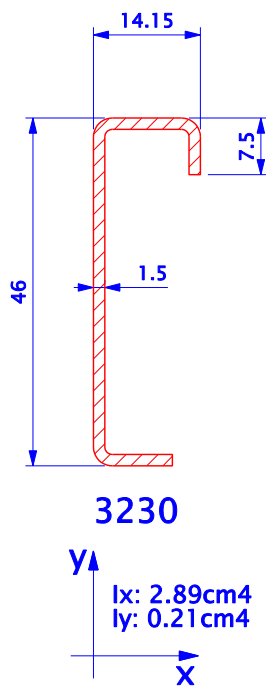
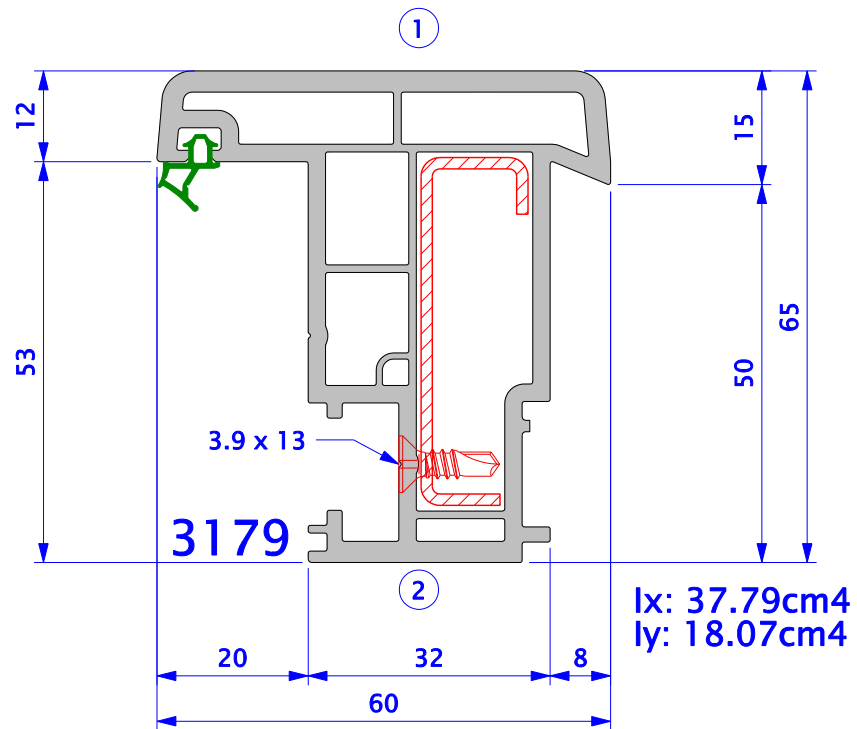
PROFILE SHEET



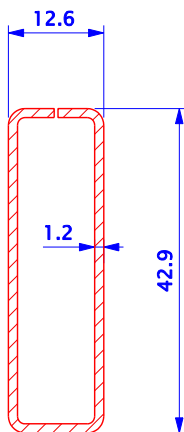
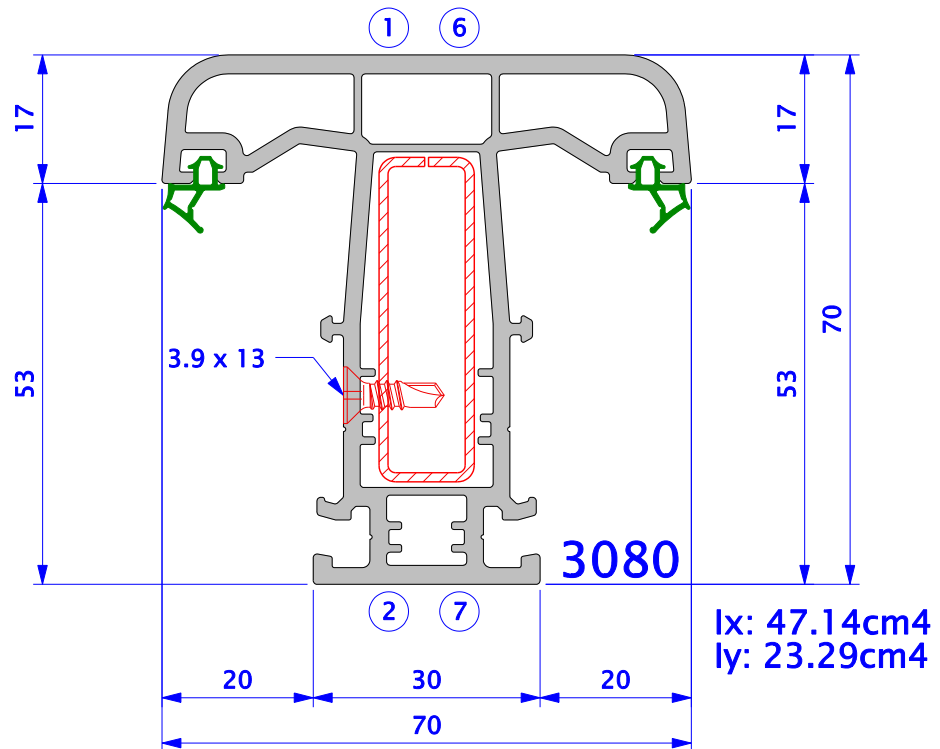
1800mm

3228

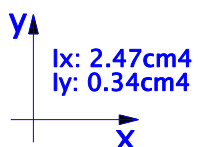
PROFILE SHEET



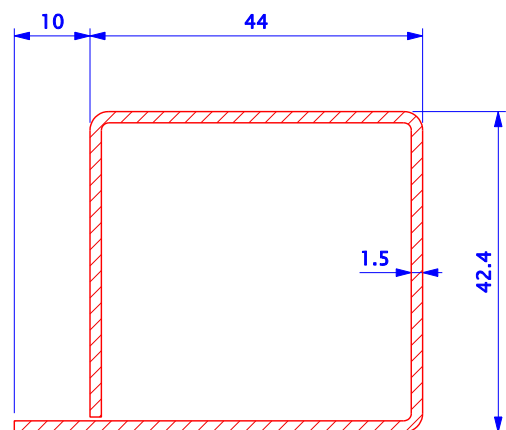
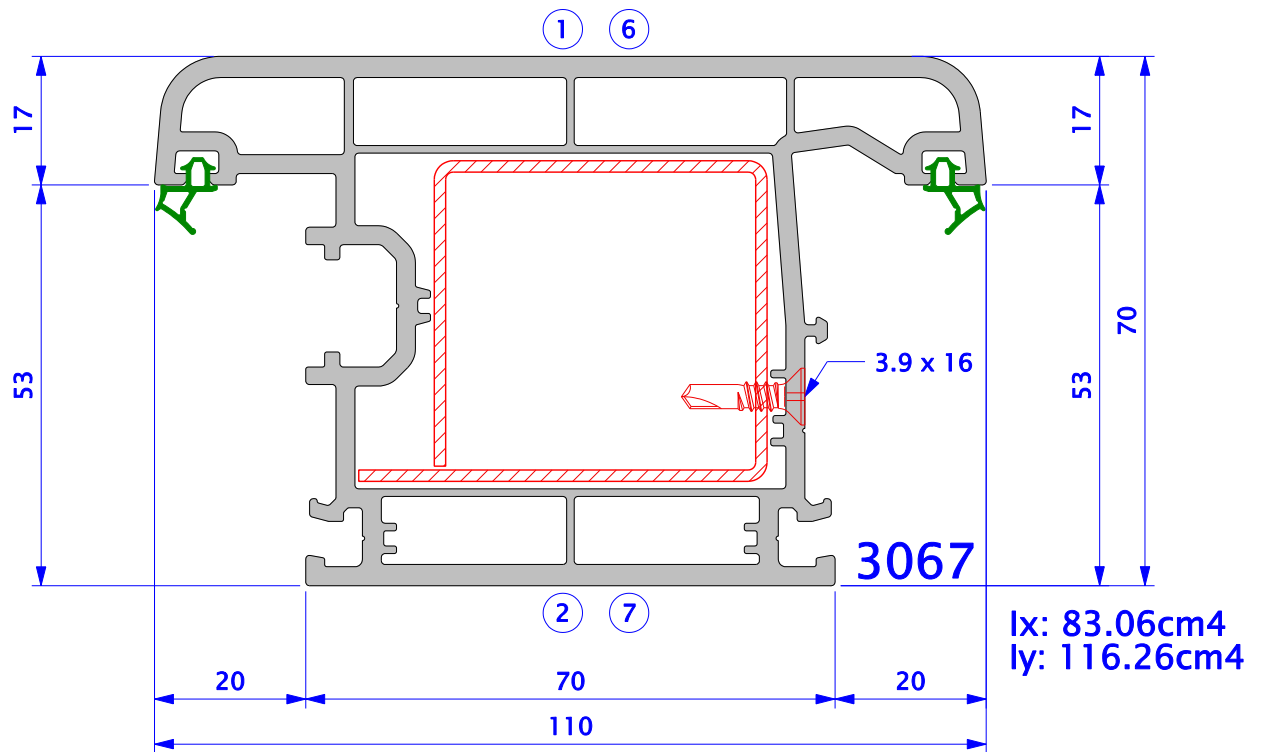
PROFILE SHEET



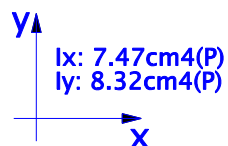
3238



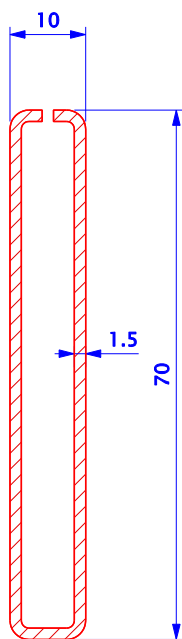
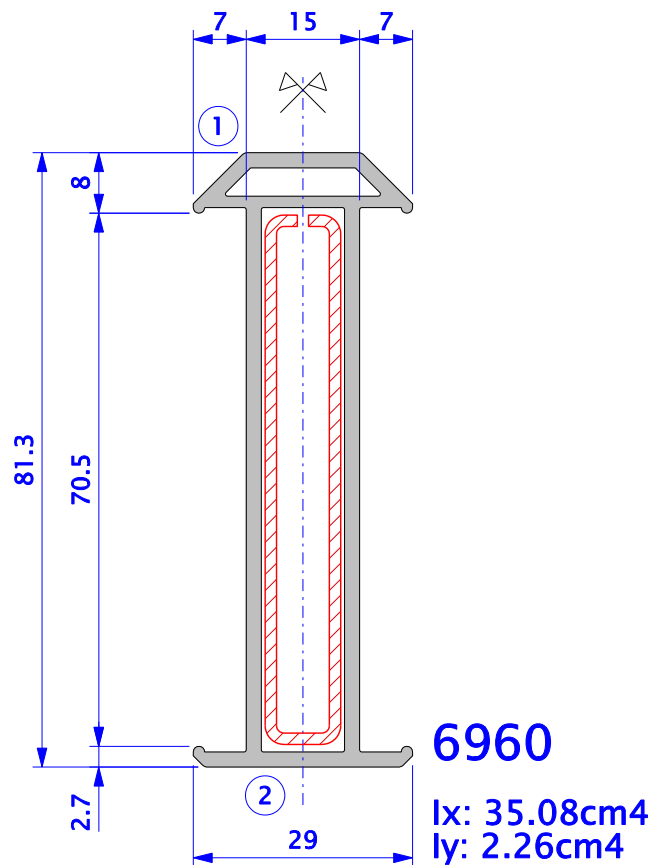
PROFILE SHEET



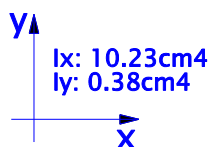
3235



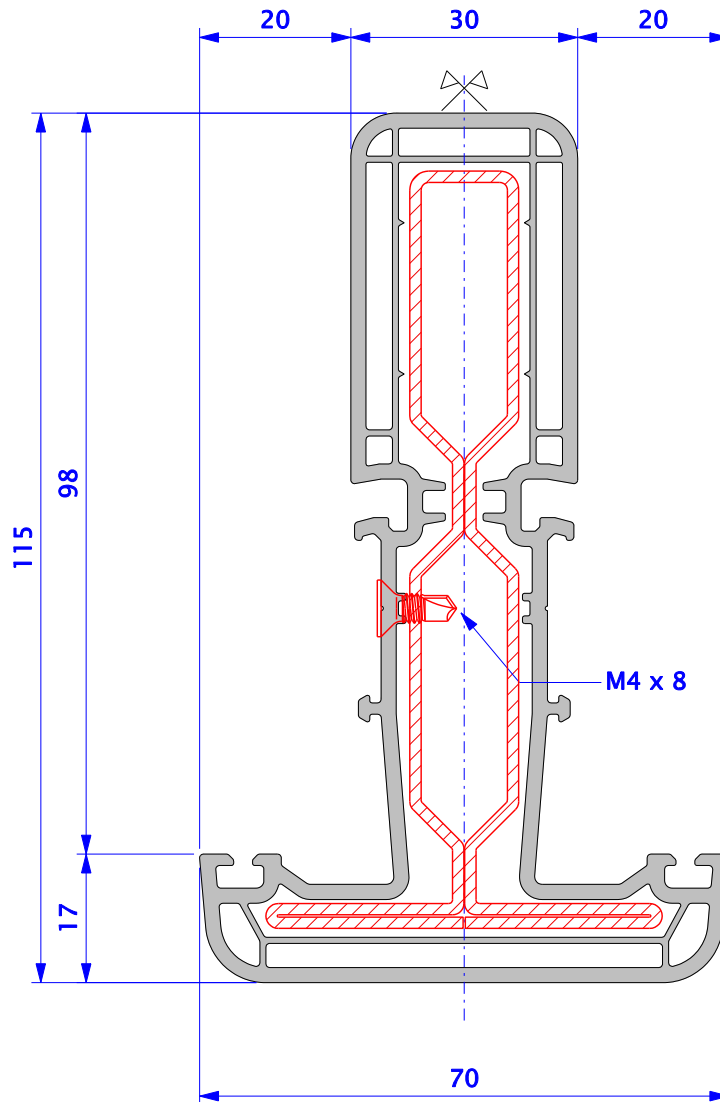
PROFILE SHEET



6760

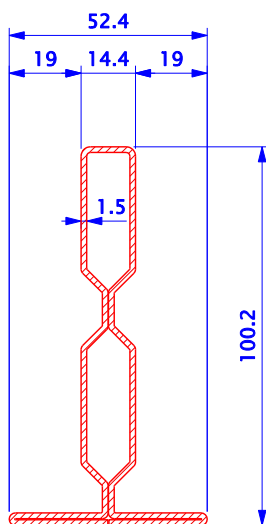


PROFILE SHEET



**3705**

Ix: 151.31cm<sup>4</sup>  
 Iy: 26.97cm<sup>4</sup>



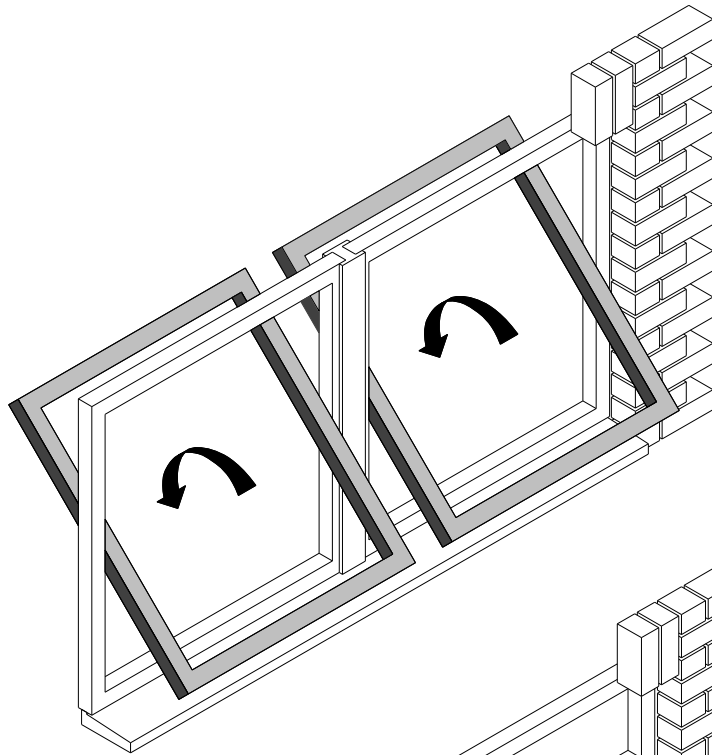
**3715**

Ix: 55.09cm<sup>4</sup>  
 Iy: 4.42cm<sup>4</sup>

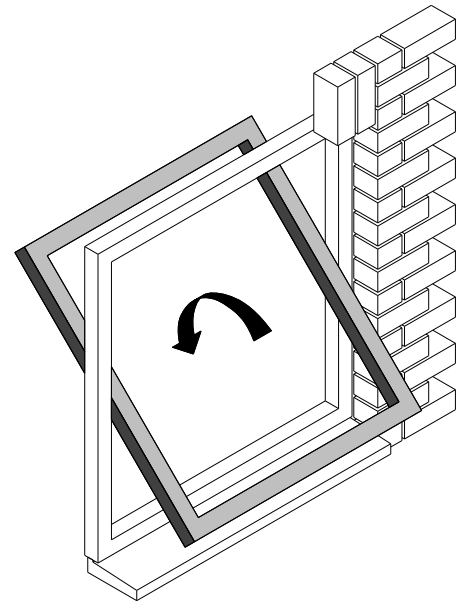


MAIN PROFILES  
ACCESSORY PROFILES  
PROFILE SHEET  
**WINDOW TYPES**

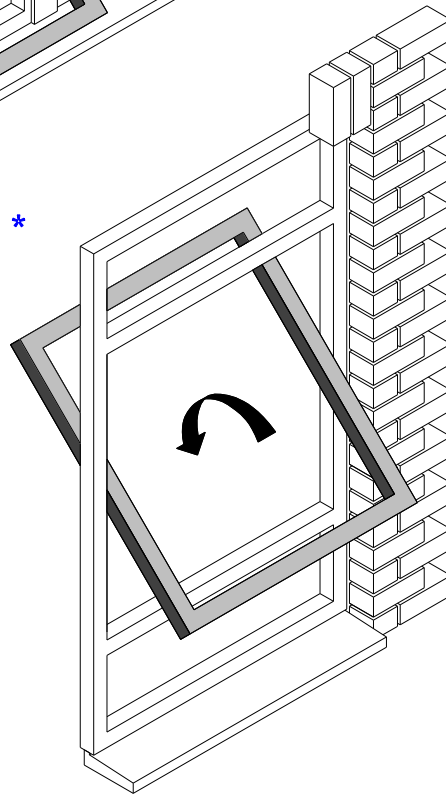
WINDOW TYPES



Coupled Light \*



Single Light



Multi Light

Note.

\* Due to profile configuration opening lights positioned side by side must be coupled

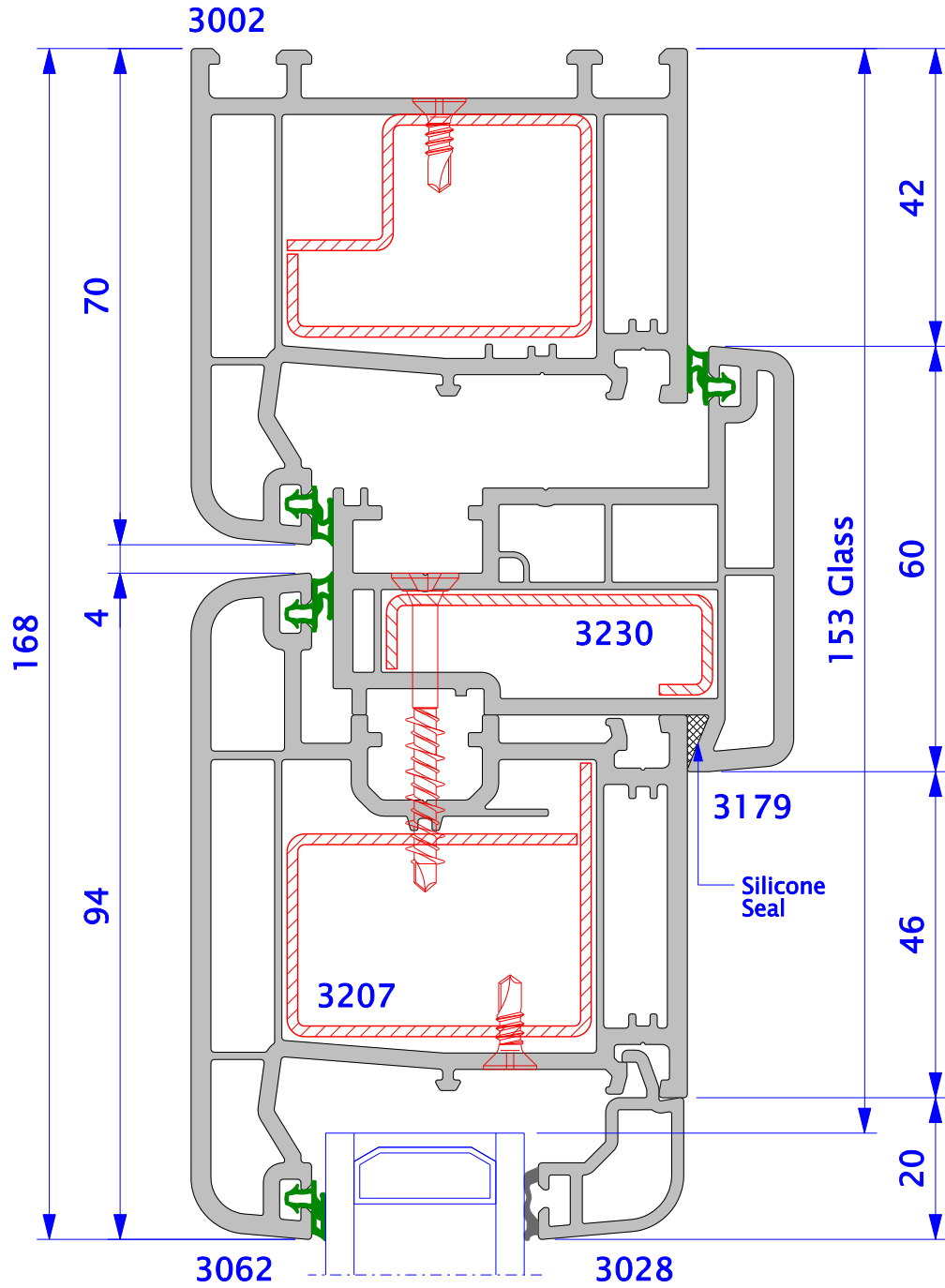
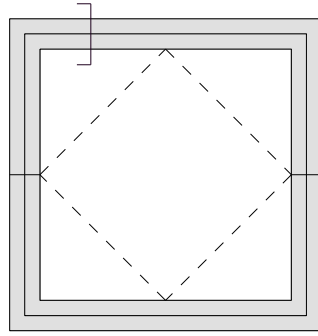
# FABRICATION

PROFILE / WINDOW SECTIONS  
DRAINAGE & DECOMPRESSION  
V-NOTCH WELDING  
HARDWARE  
GLAZING TABLE  
FABRICATION & ASSEMBLY  
FABRICATION TOOLS  
CUTTING SIZES

**PROFILE / WINDOW SECTIONS**  
DRAINAGE & DECOMPRESSION  
V-NOTCH WELDING  
HARDWARE  
GLAZING TABLE  
FABRICATION & ASSEMBLY  
FABRICATION TOOLS  
CUTTING SIZES

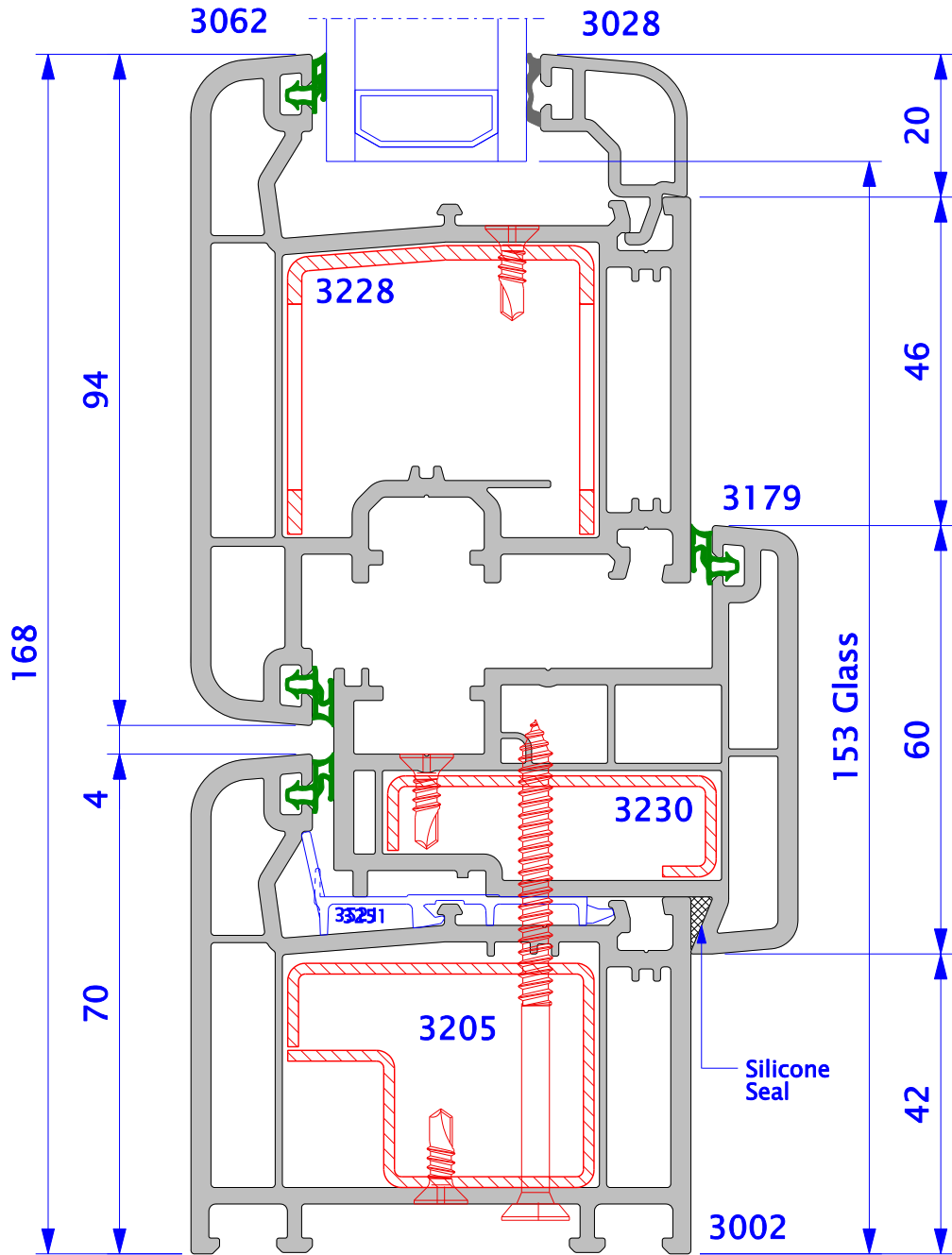
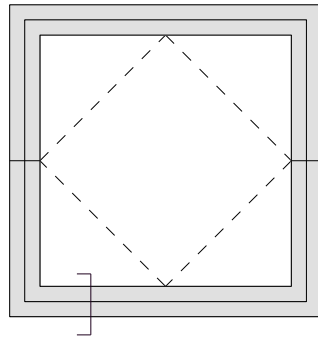
# Single Light Head

## SECTIONS



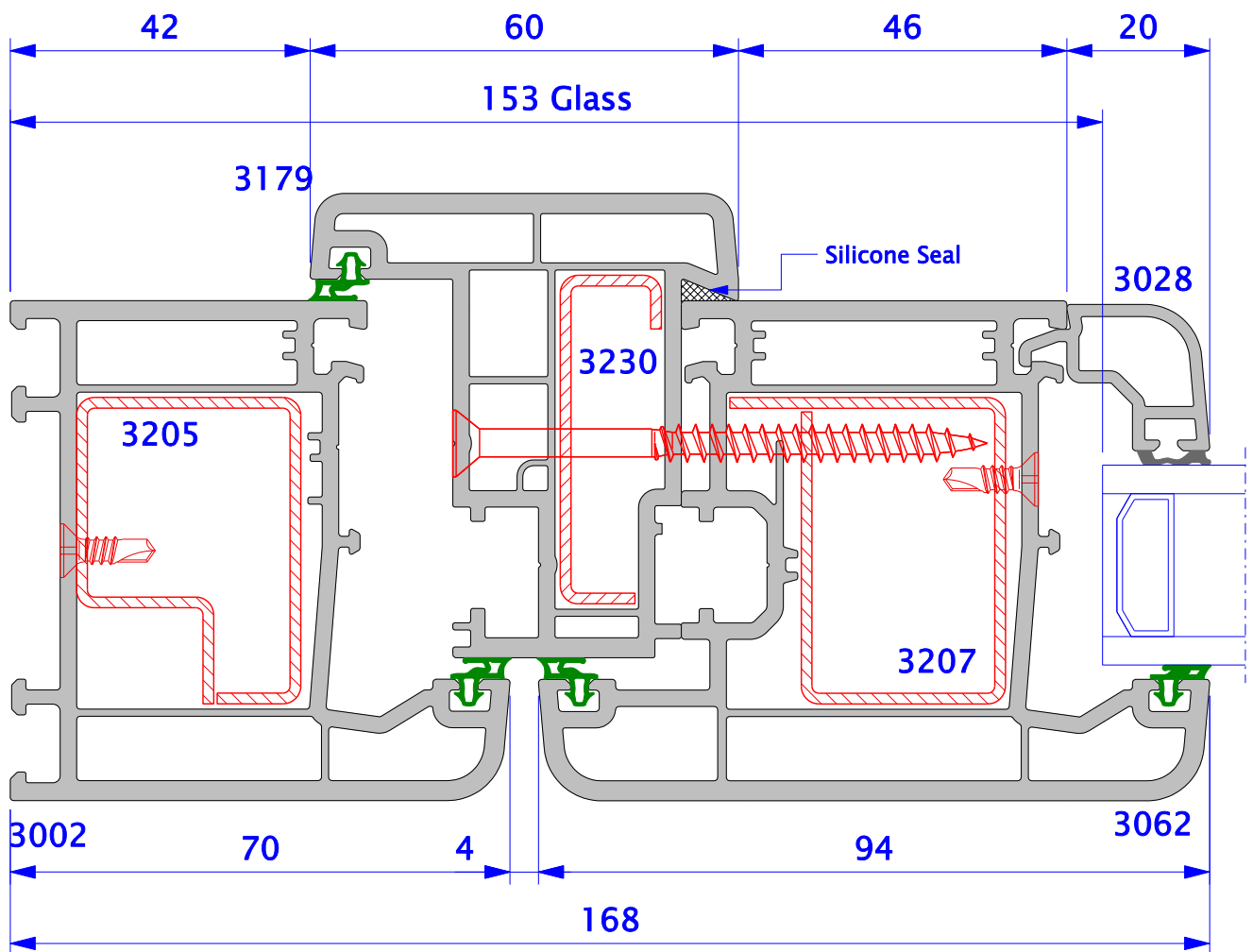
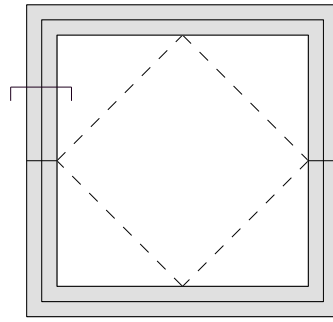
# Single Light Bottom

## SECTIONS



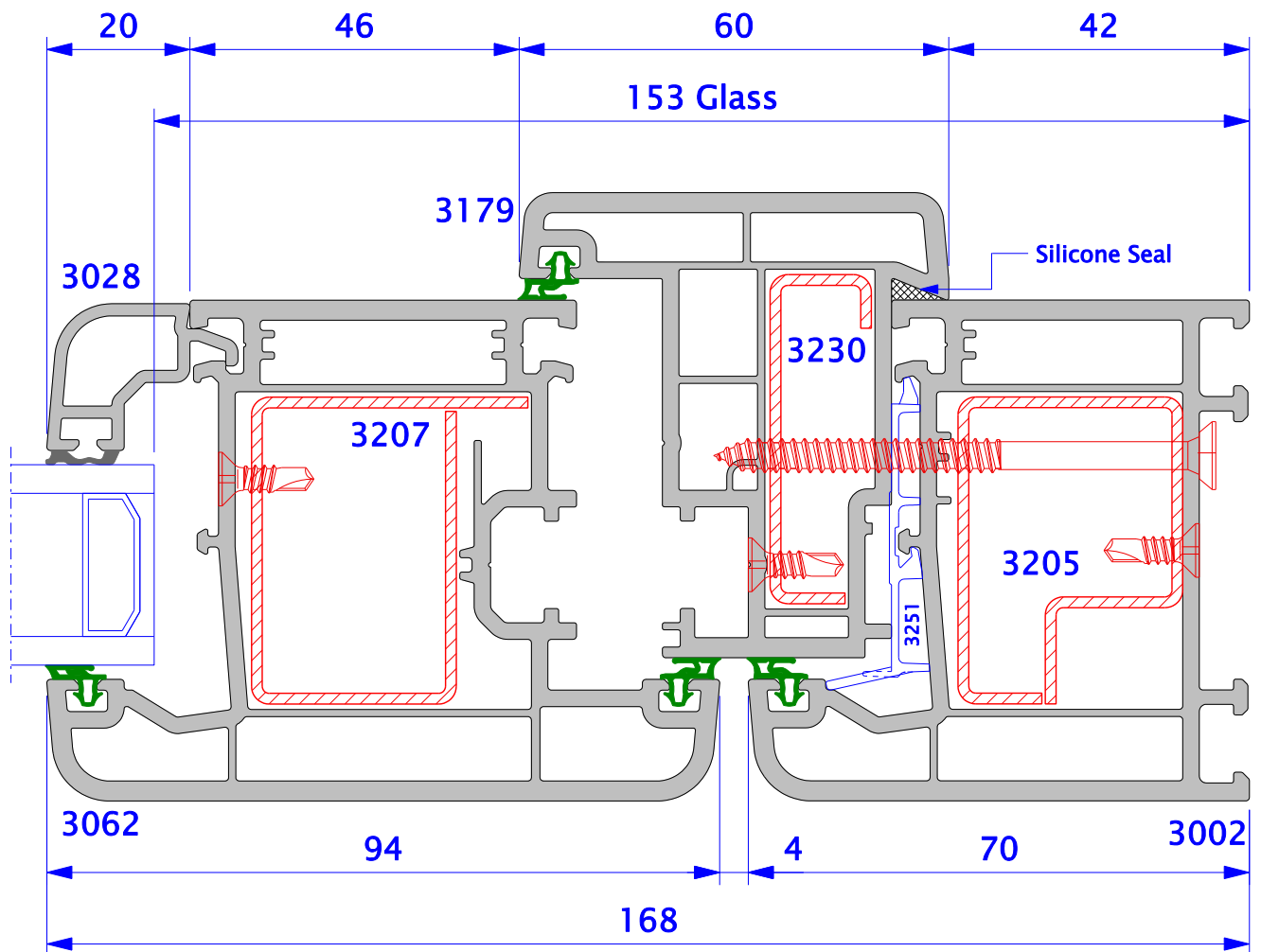
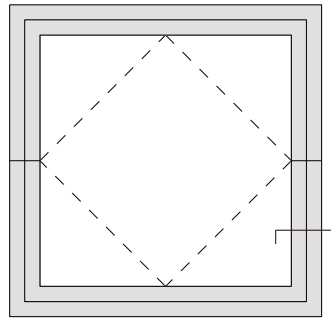
# Single Light Above Pivot Point

## SECTIONS



# Single Light Below Pivot Point

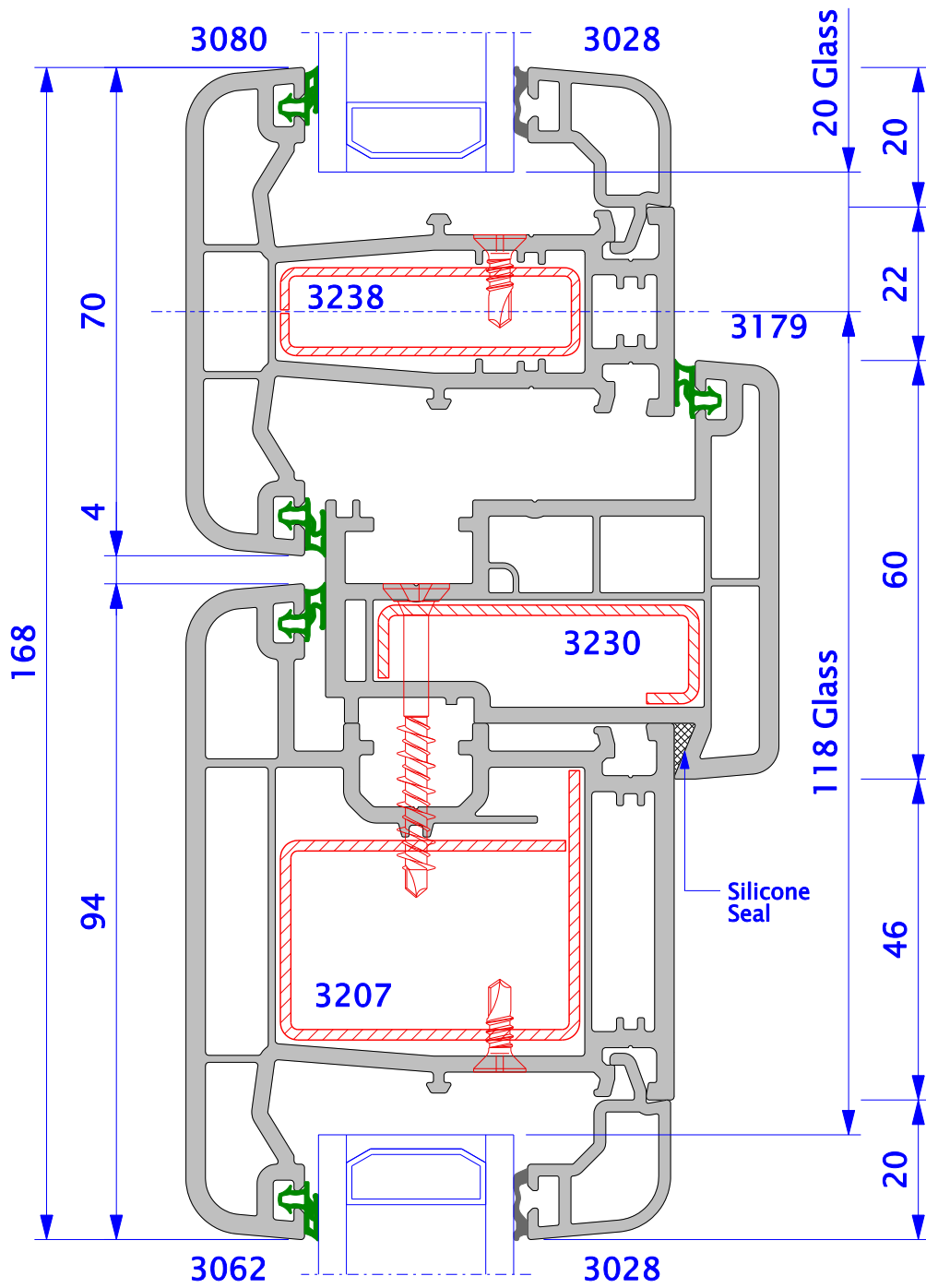
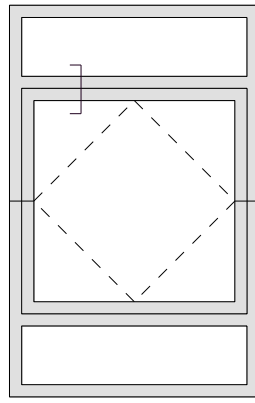
## SECTIONS





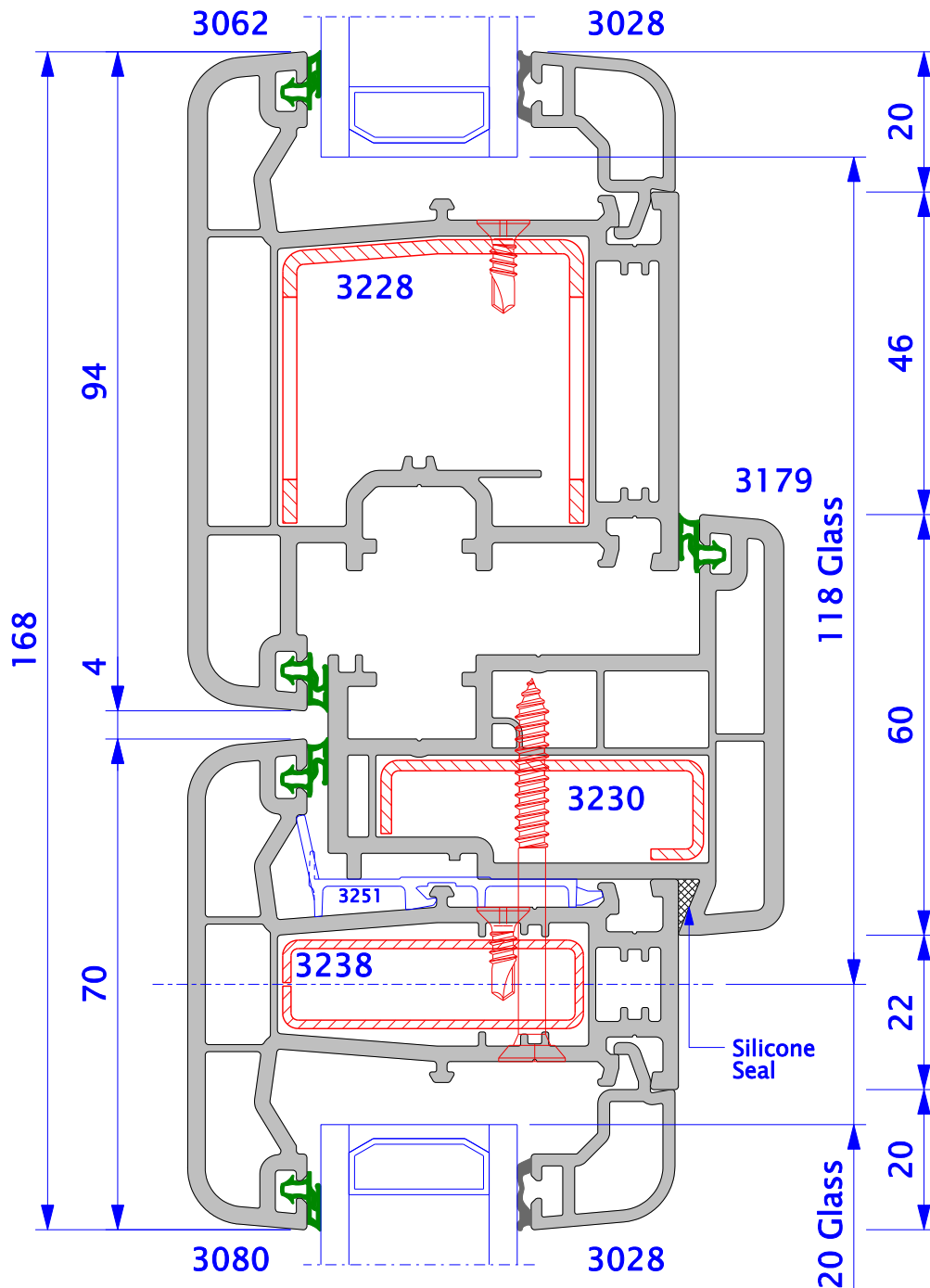
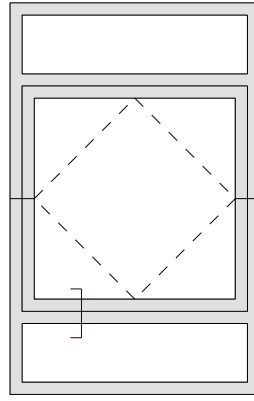
Multi Light  
Top  
Transom 3080

SECTIONS



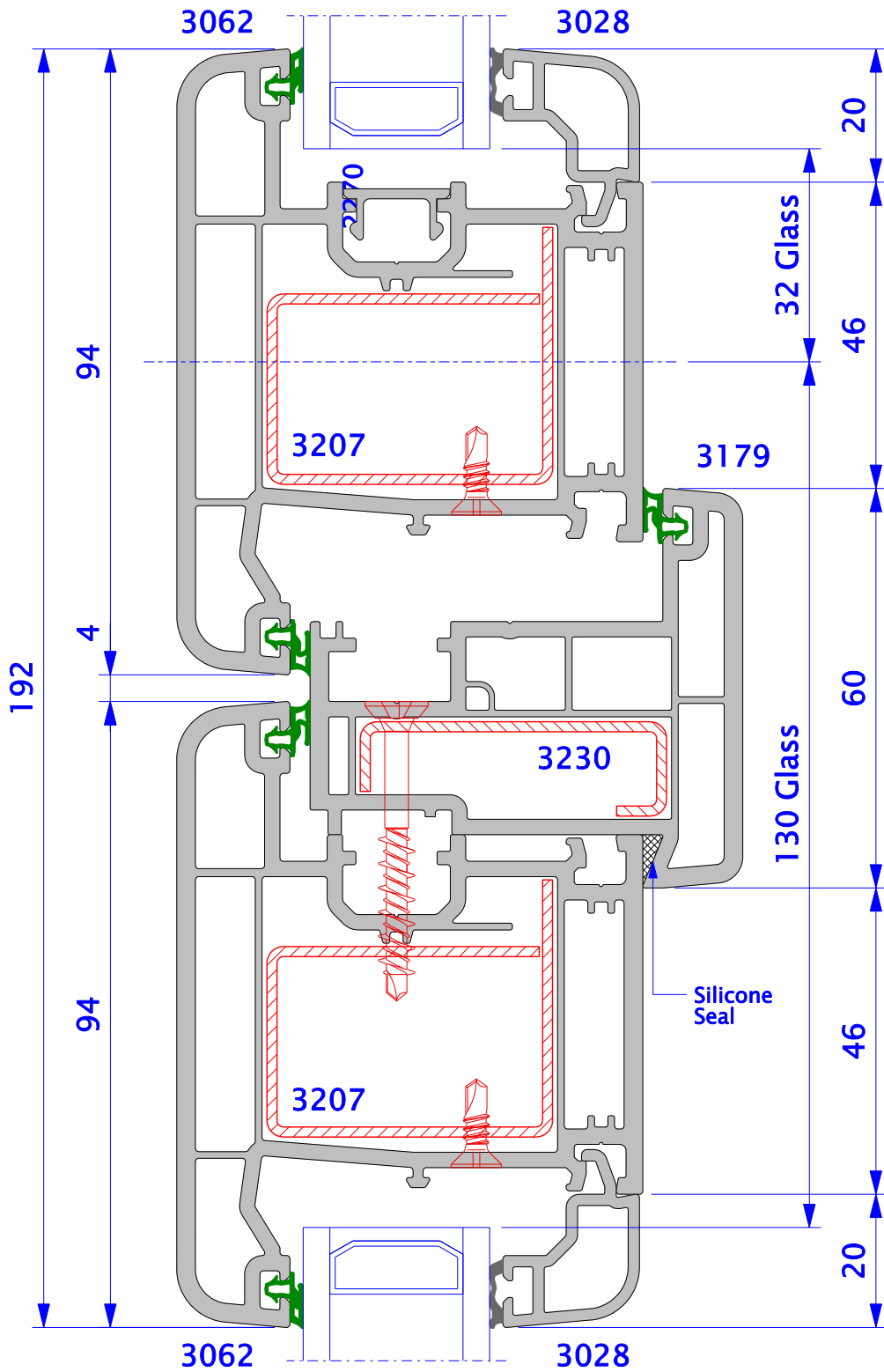
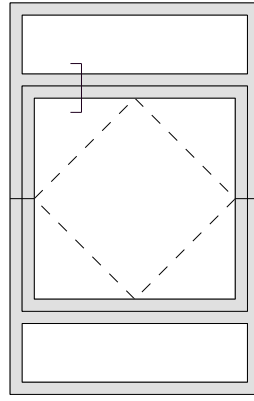
Multi Light  
Bottom  
Transom 3080

SECTIONS



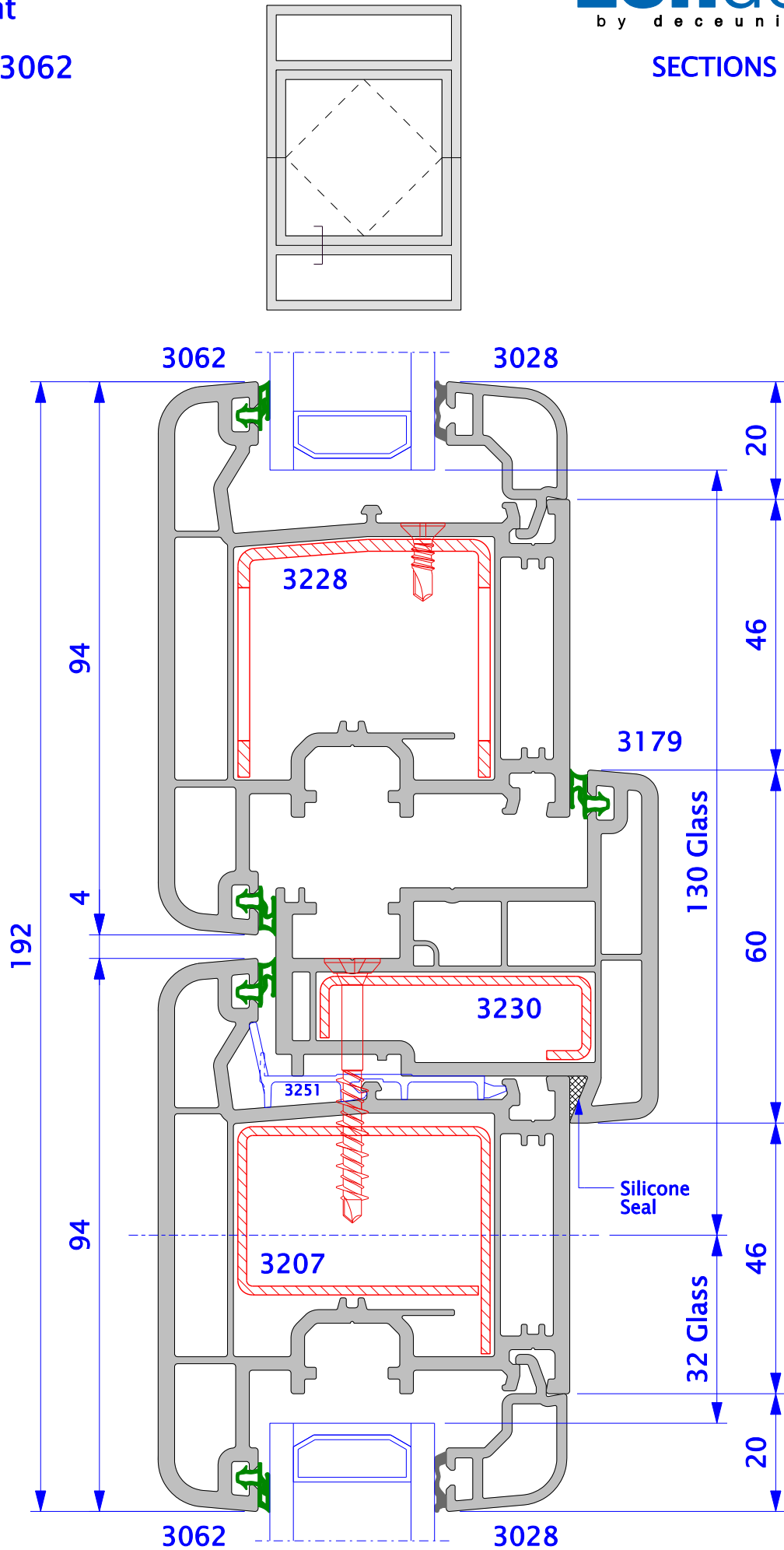
Multi Light  
Top  
Transom 3062

SECTIONS



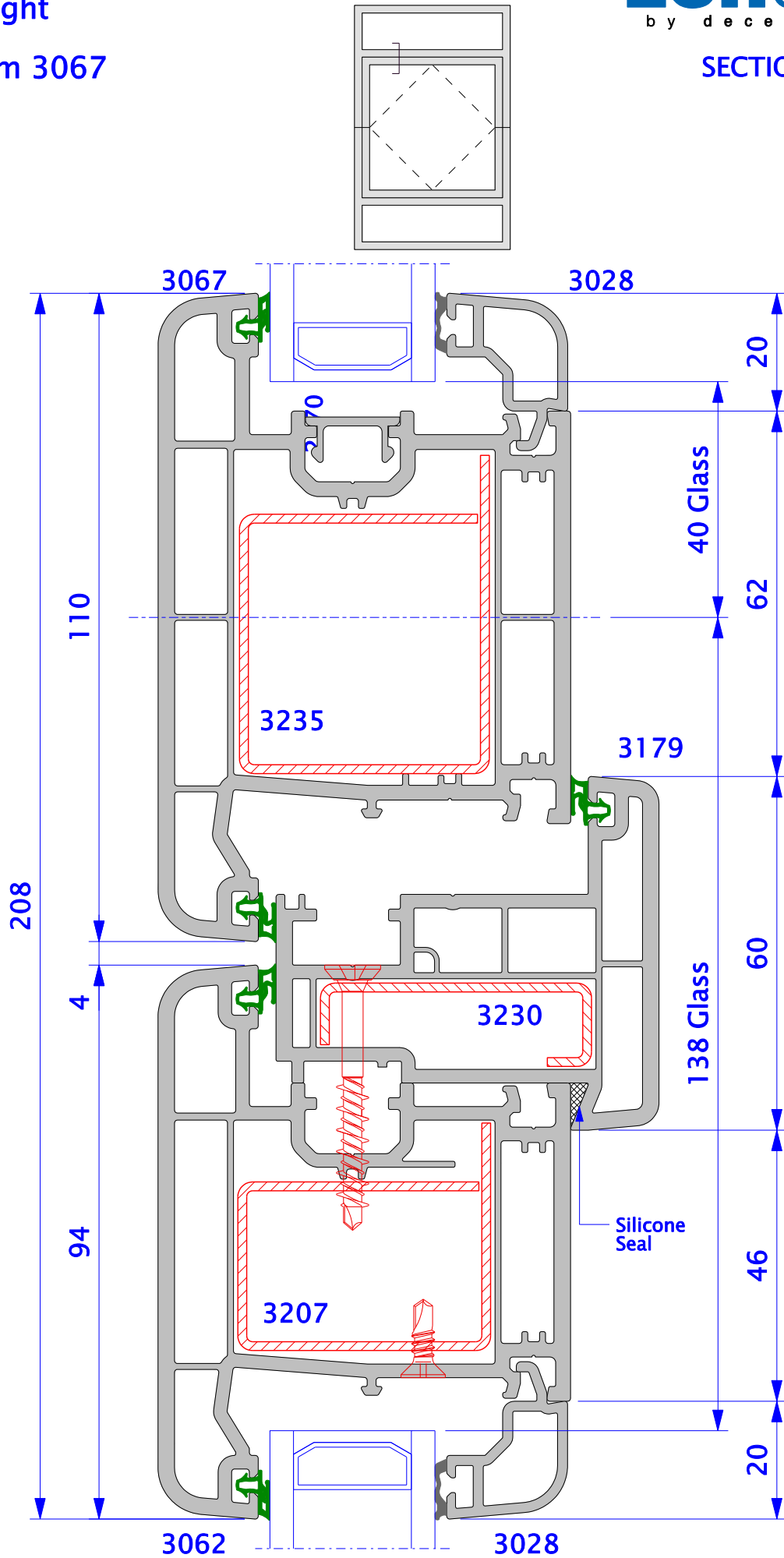
Multi Light  
Bottom  
Transom 3062

SECTIONS



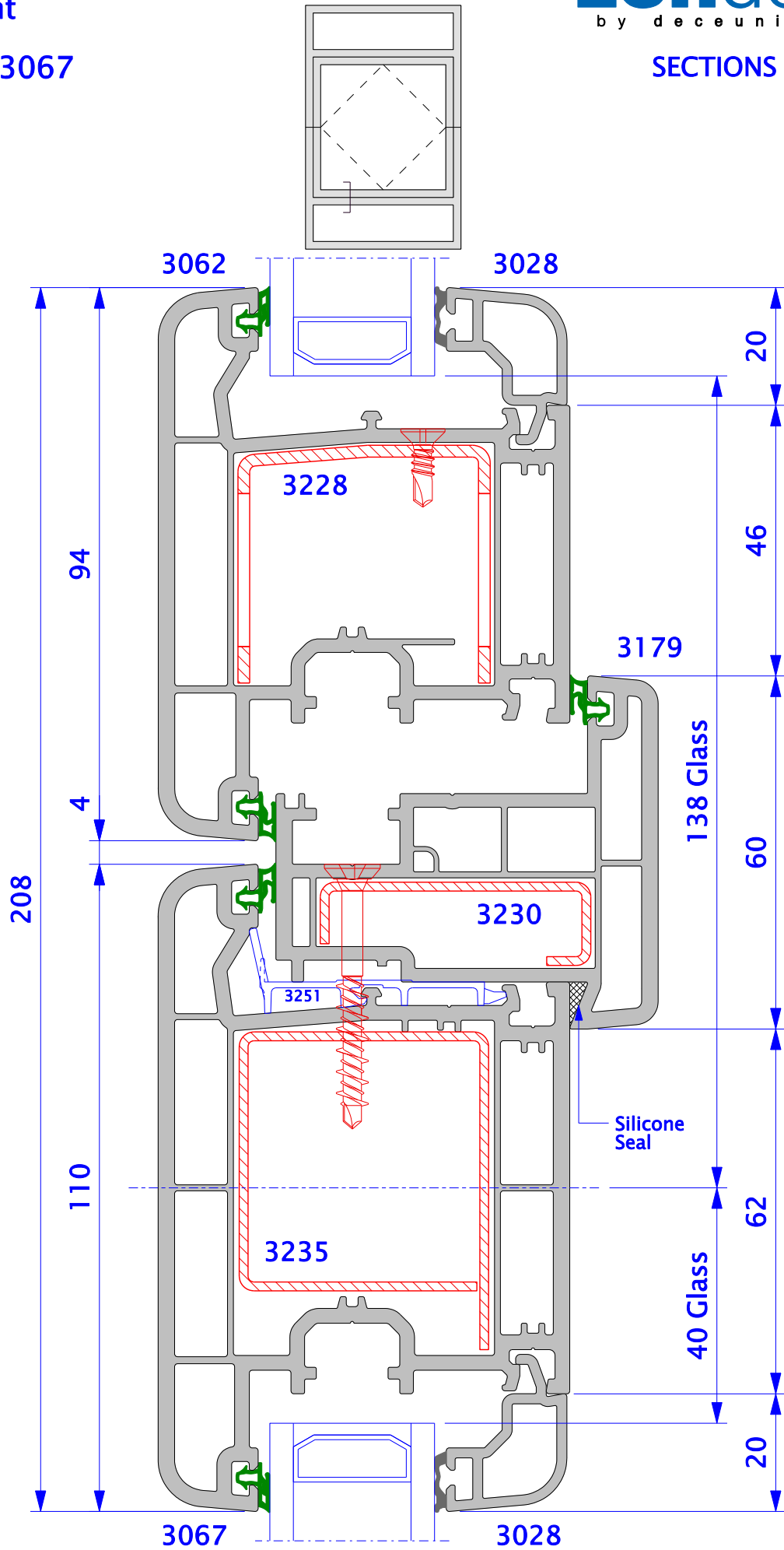
Multi Light  
Top  
Transom 3067

SECTIONS

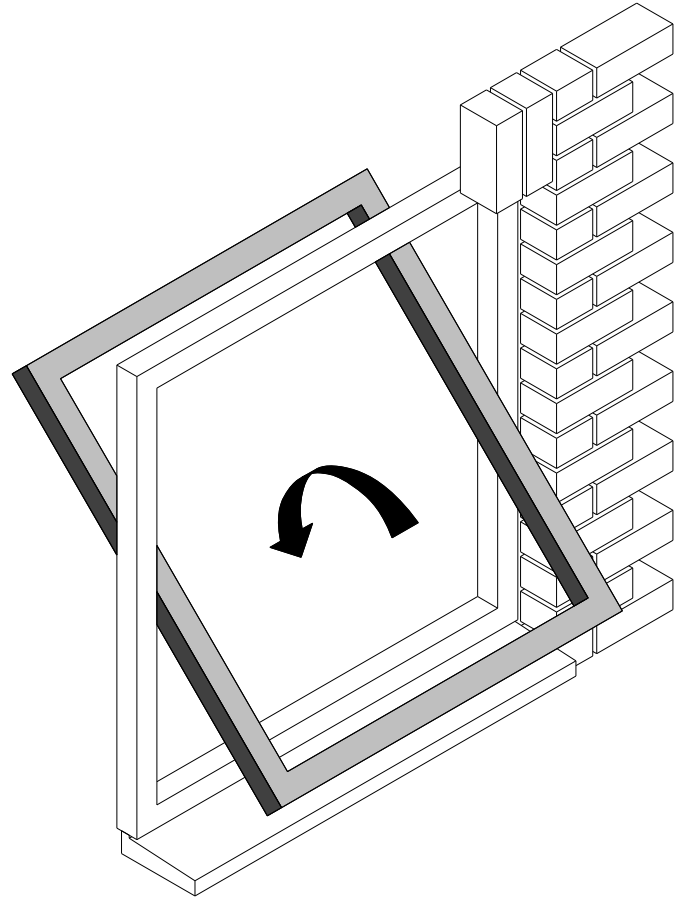
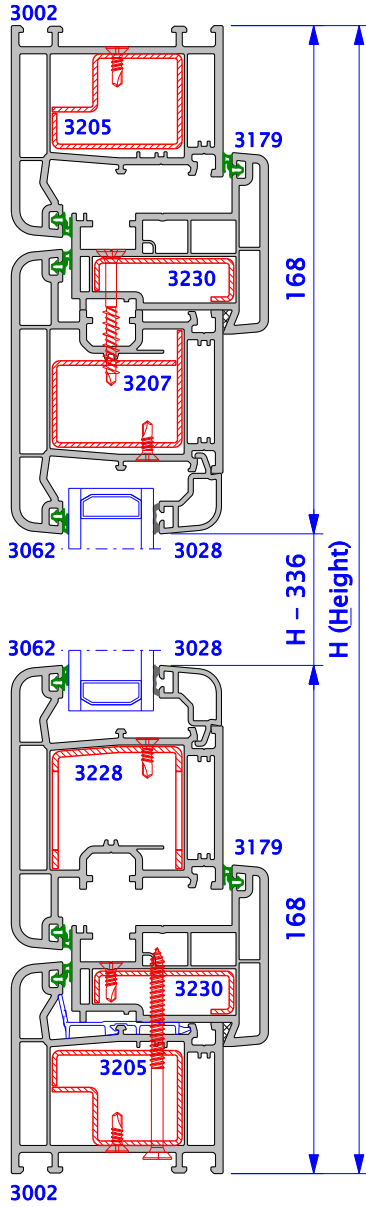


Multi Light  
Bottom  
Transom 3067

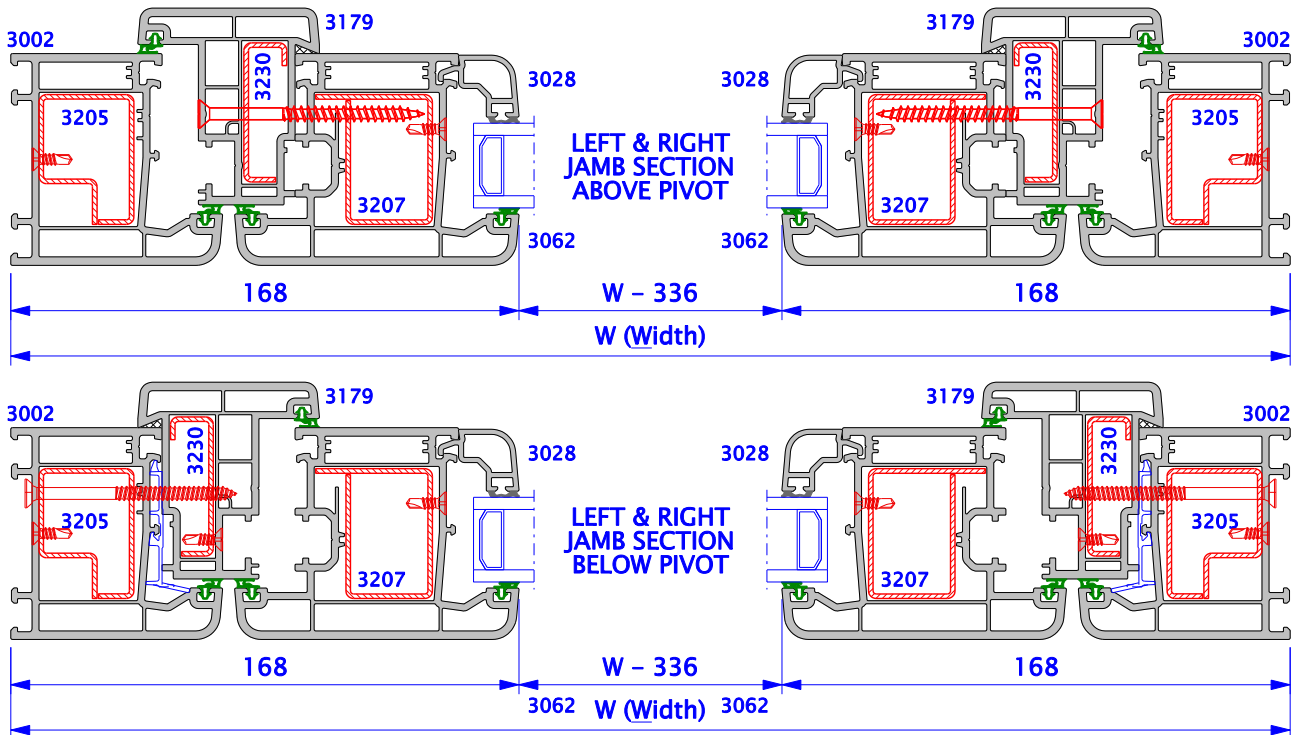
SECTIONS



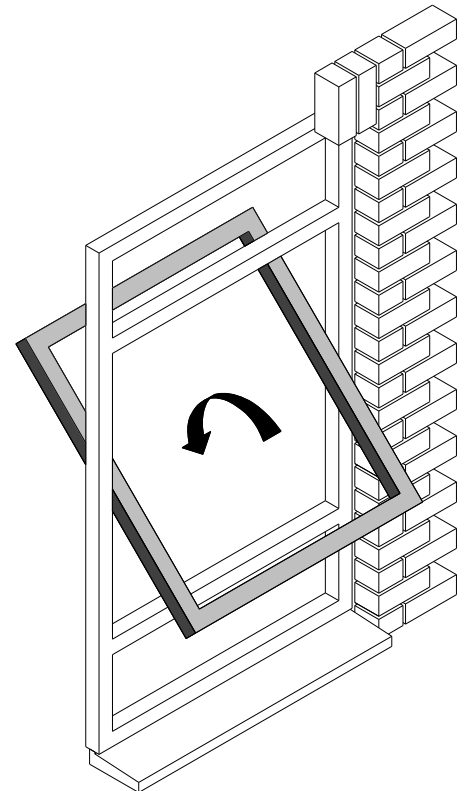
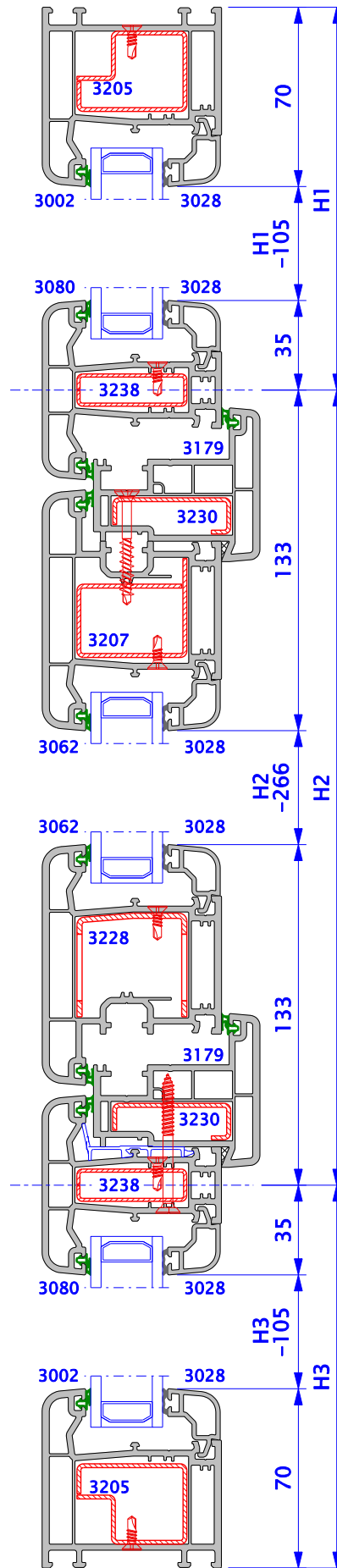
SECTIONS



Single Light



SECTIONS



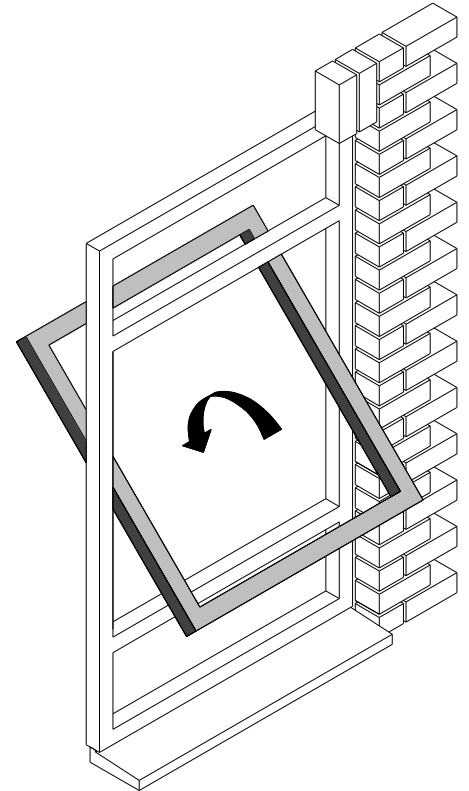
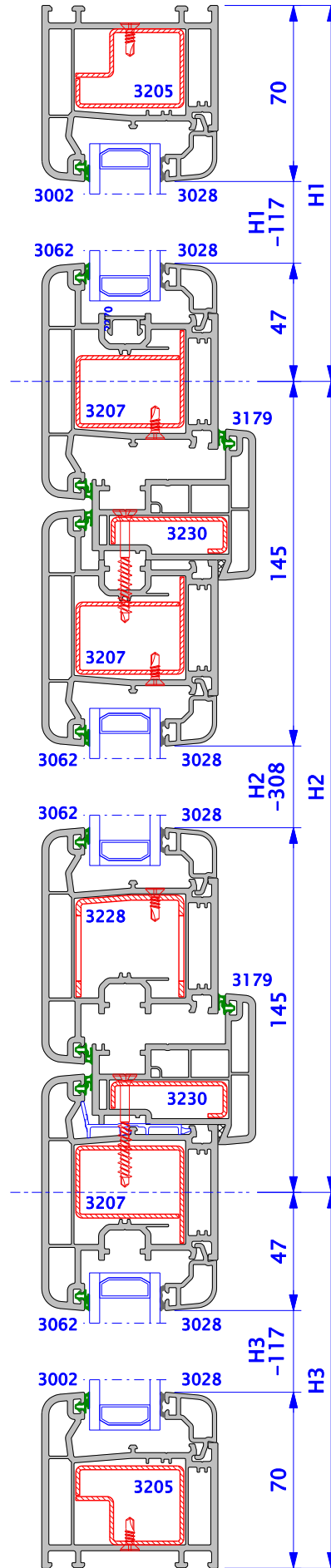
Multi Light

Note.  
 Jamb sections are as shown on Page 9.

Max recommended span for 3080 Transom is 1m.  
 Preferred transom option 3062 (or 3067).



SECTIONS



Multi Light

Note.  
 Jamb sections are as shown on Page 9.

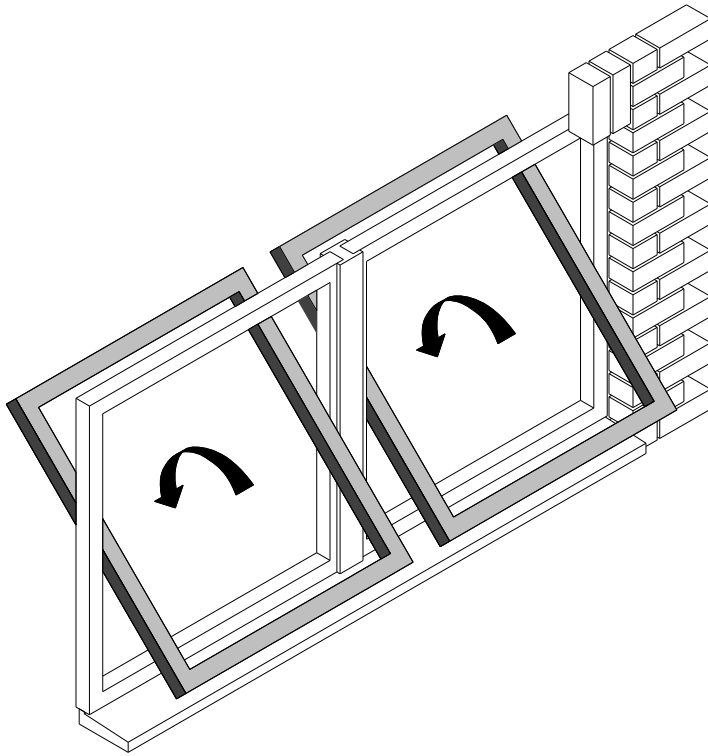
## SECTIONS

### Note

Multiple horizontal pivot windows positioned side by side must be coupled using either of the 2 coupler options shown here.

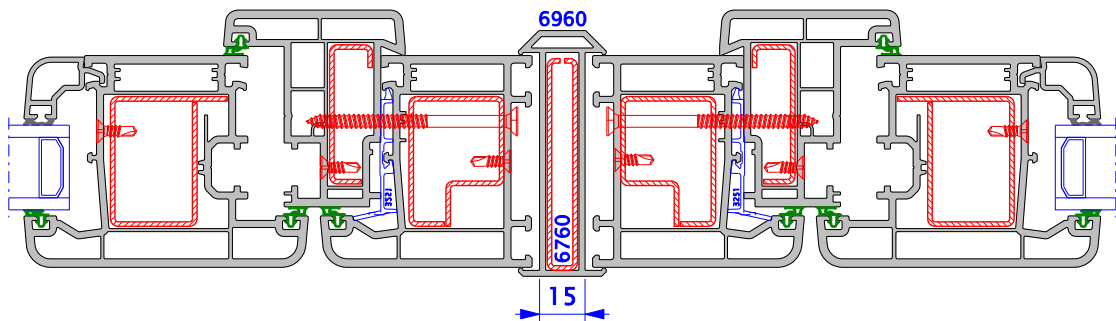
Coupler selection may well be governed by the wind load requirement.

Refer section 3.2 for installation details.

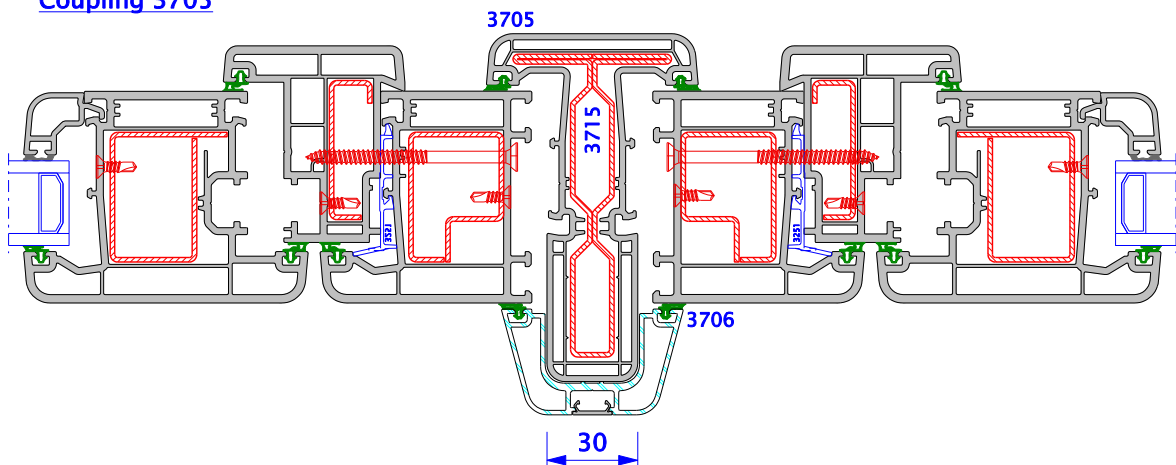


**Coupled Light \***

**Coupling 6960**



**Coupling 3705**

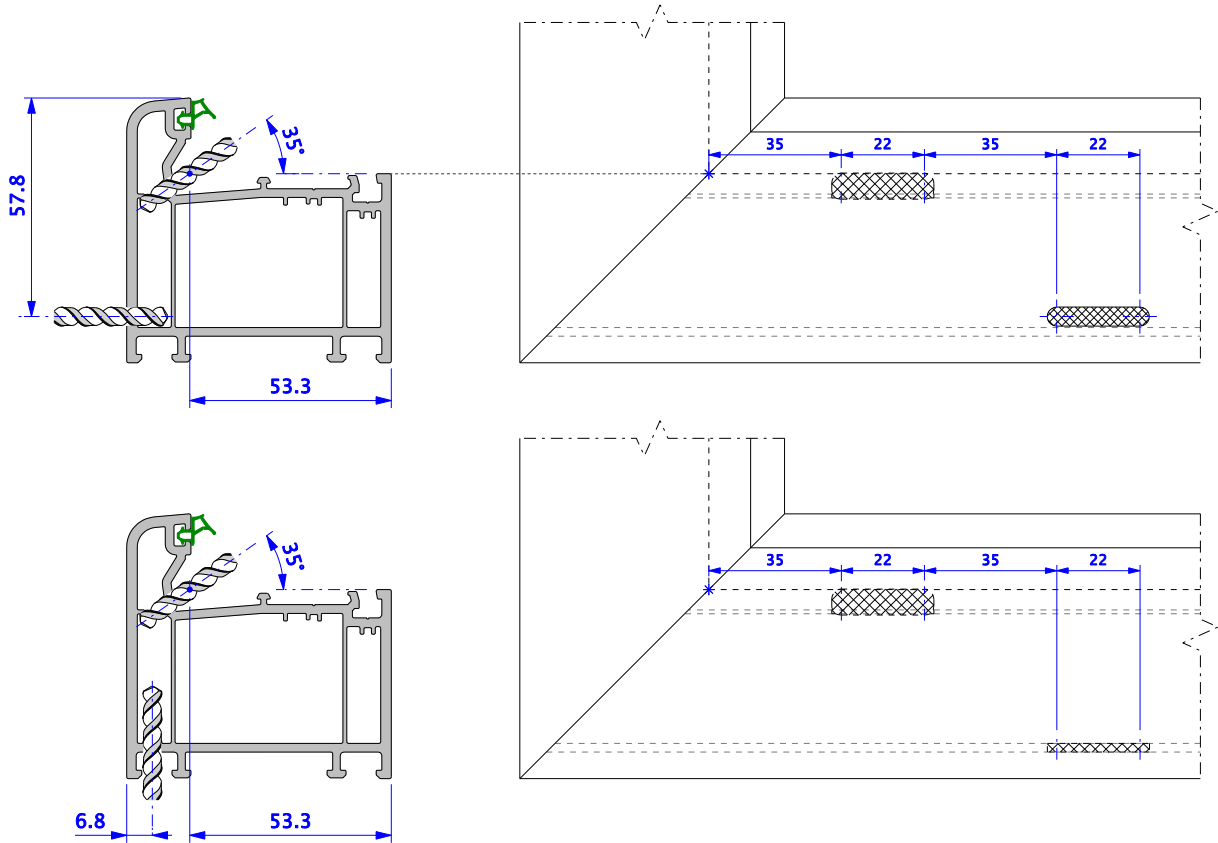


PROFILE / WINDOW SECTIONS  
**DRAINAGE & DECOMPRESSION**  
V-NOTCH WELDING  
HARDWARE  
GLAZING TABLE  
FABRICATION & ASSEMBLY  
FABRICATION TOOLS  
CUTTING SIZES

# Drainage ø5 mm Slot

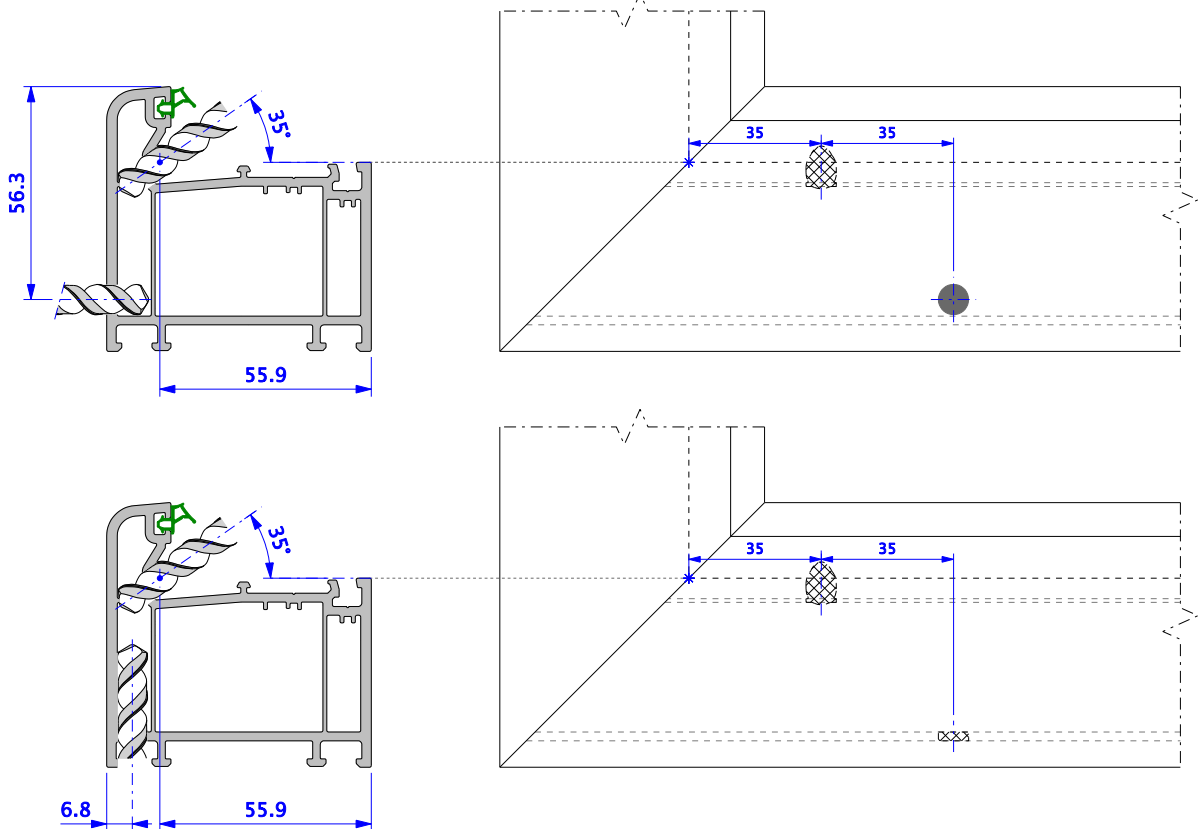
3002

## DRAINAGE



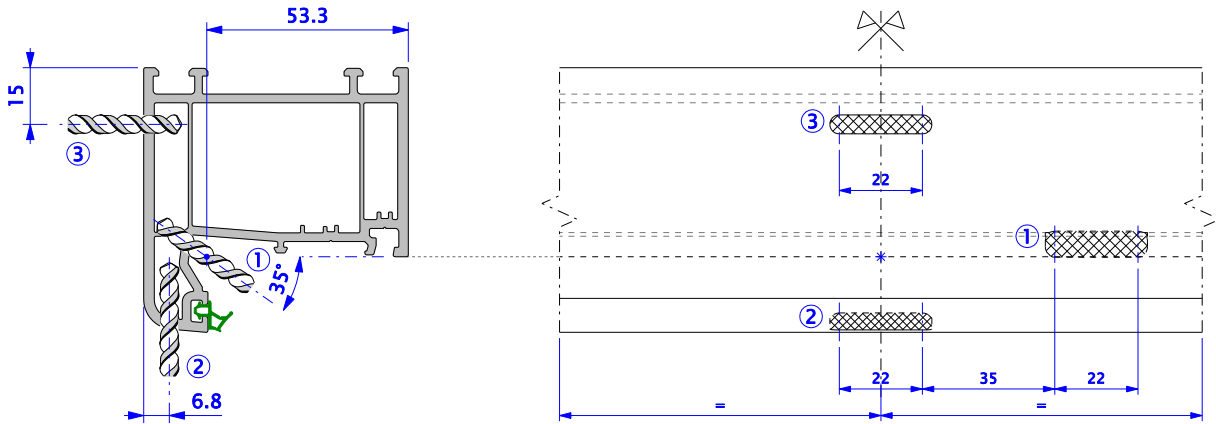
# Drainage Hole (size to suit cover cap)

3002



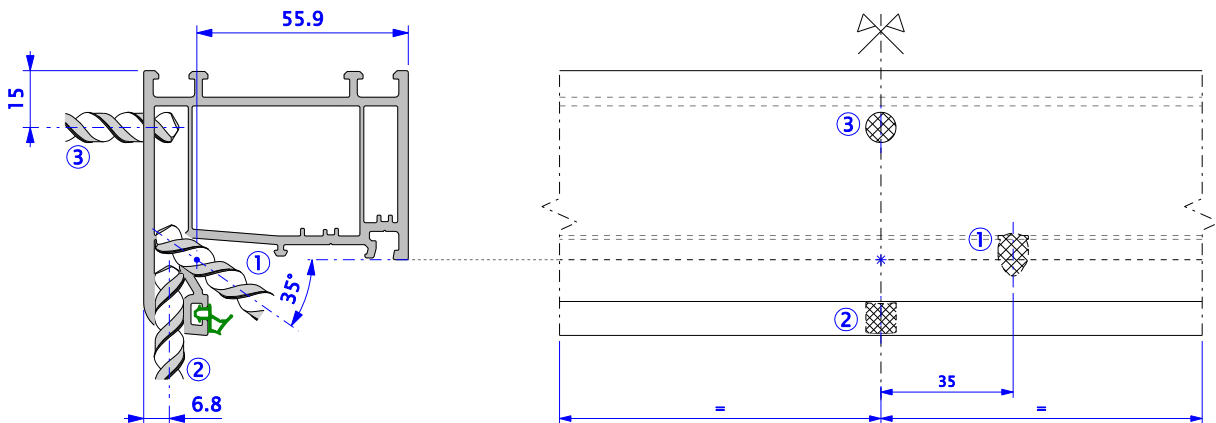
Note. The maximum spacing between 2 drainage slots/holes should never exceed 400mm. Ensure the drainage prep is not obstructed by the striker plate.

decompression ø5mm slot



**IMPORTANT.**  
Either decompression ② OR ③ should be adopted, both are not required. Decompression ① is obligatory.

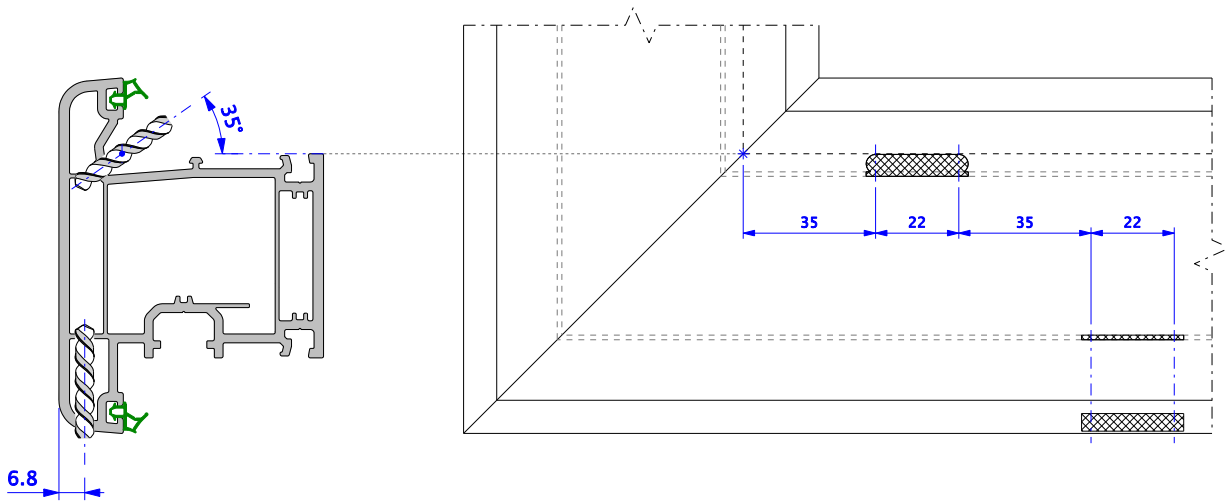
decompression hole (size to suit cover cap)



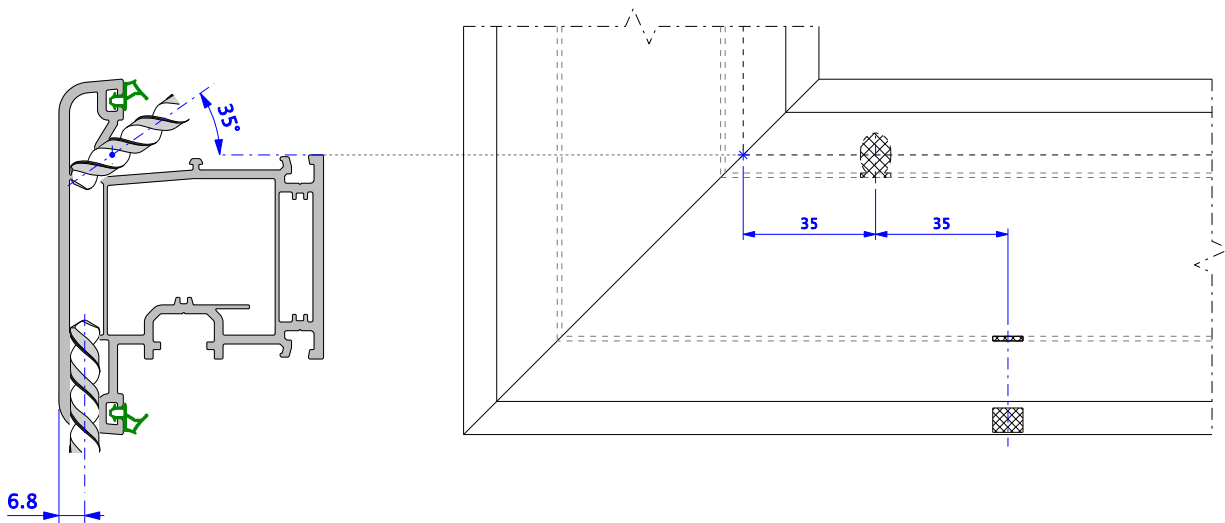
**IMPORTANT.**  
Either decompression ② OR ③ should be adopted, both are not required. Decompression ① is obligatory.

Note. Decompression is a mandatory requirement for all pivot windows

#### drainage $\varnothing$ 5mm slot



#### drainage hole (size to suit cover cap)

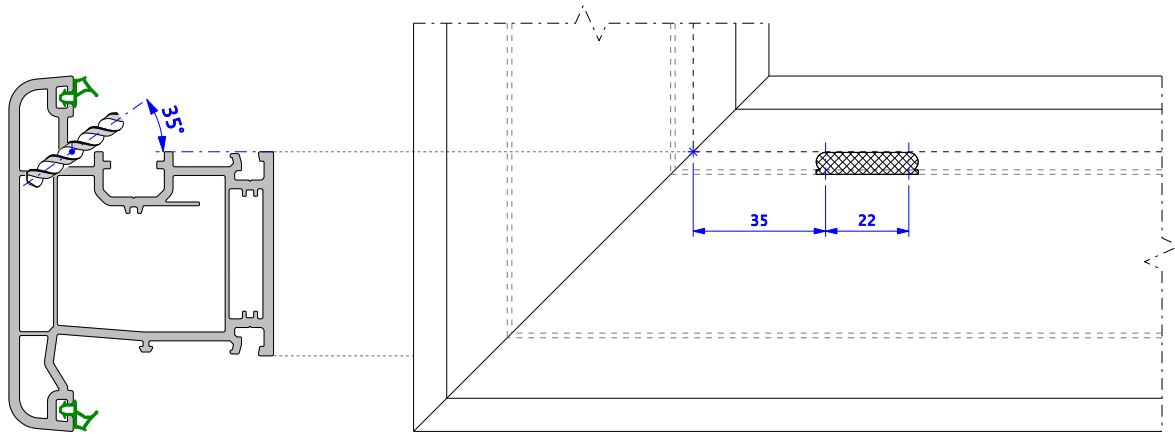


# Drainage $\varnothing$ 5mm Slot & Hole Prep

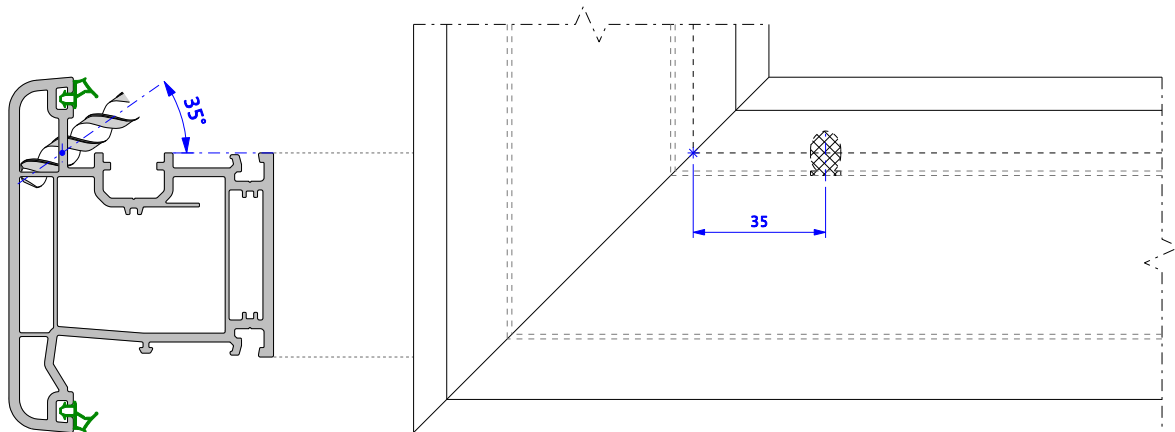
3062\_Top Rail (only if fixed light above)

## DRAINAGE

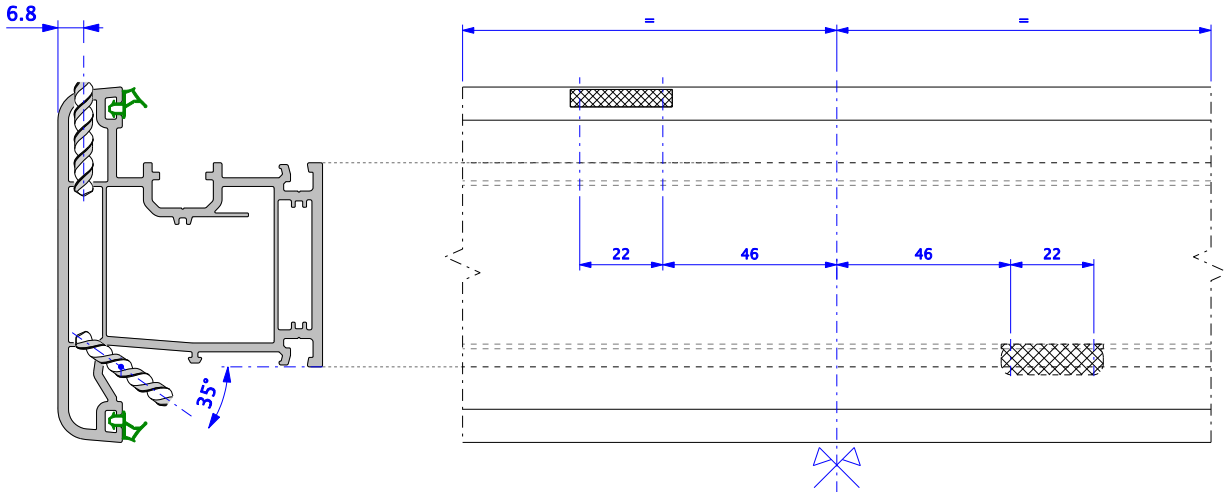
### decompression $\varnothing$ 5mm slot



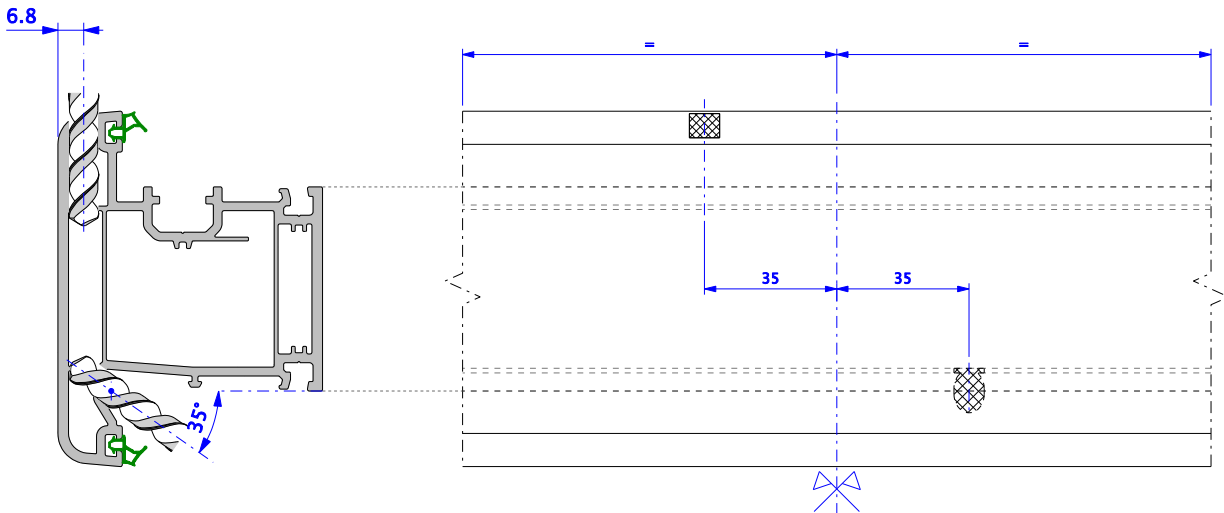
### decompression hole (size to suit cover cap)



#### decompression $\varnothing 5\text{mm}$ slot



#### decompression hole (size to suit cover cap)



Note. Decompression is a mandatory requirement for all pivot windows

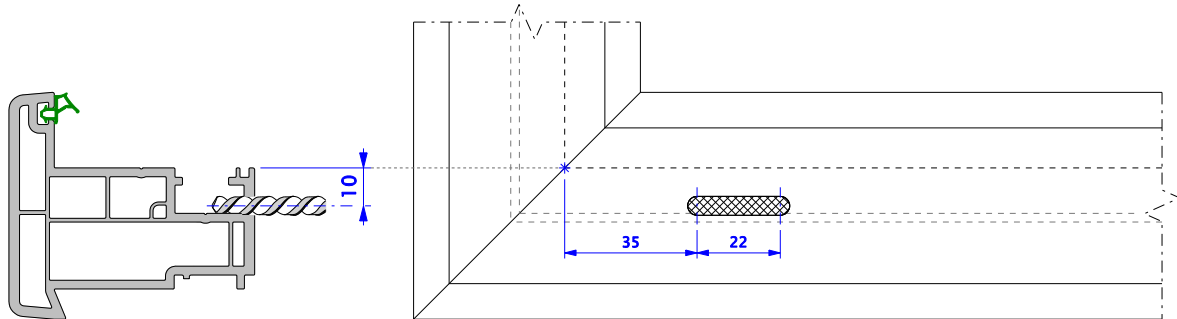


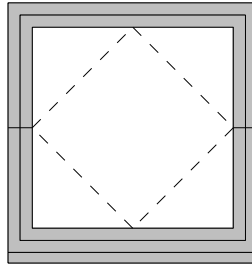
# Drainage ø5mm Slot

3179\_Bottom Rail

## DRAINAGE

drainage ø5mm slot

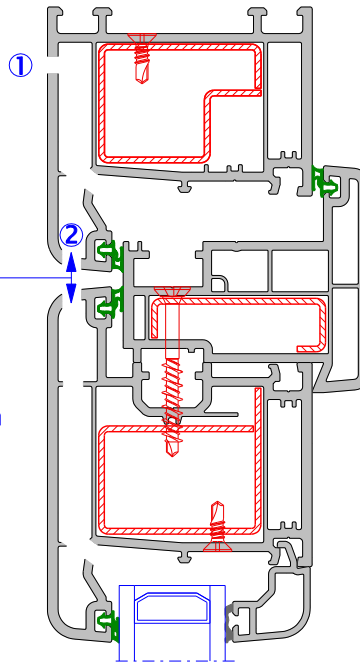




Note.  
Either ① or ② decompression prep  
needs to be adopted, not both.

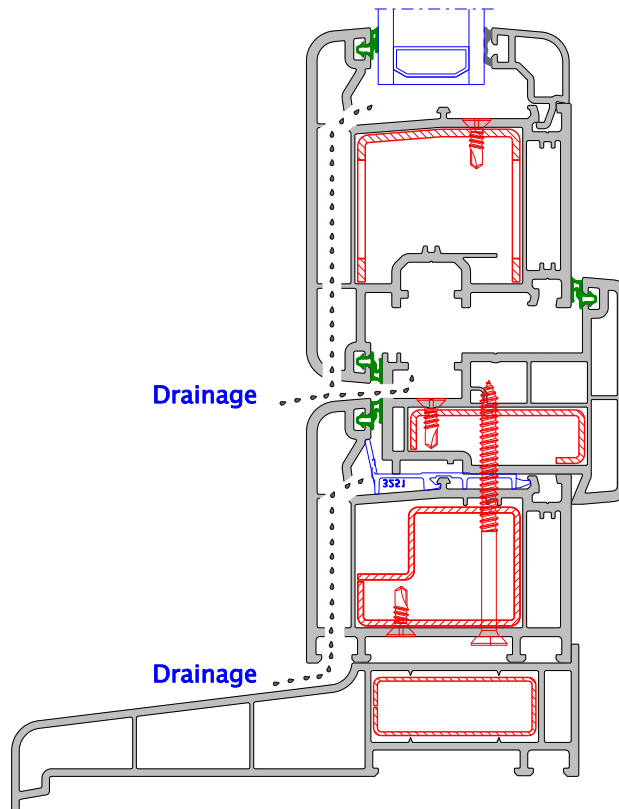
Ensure these  
decompression  
holes are  
staggered

Decompression



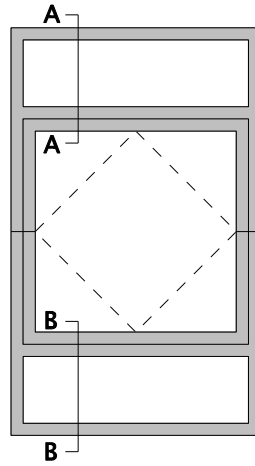
Drainage

Drainage

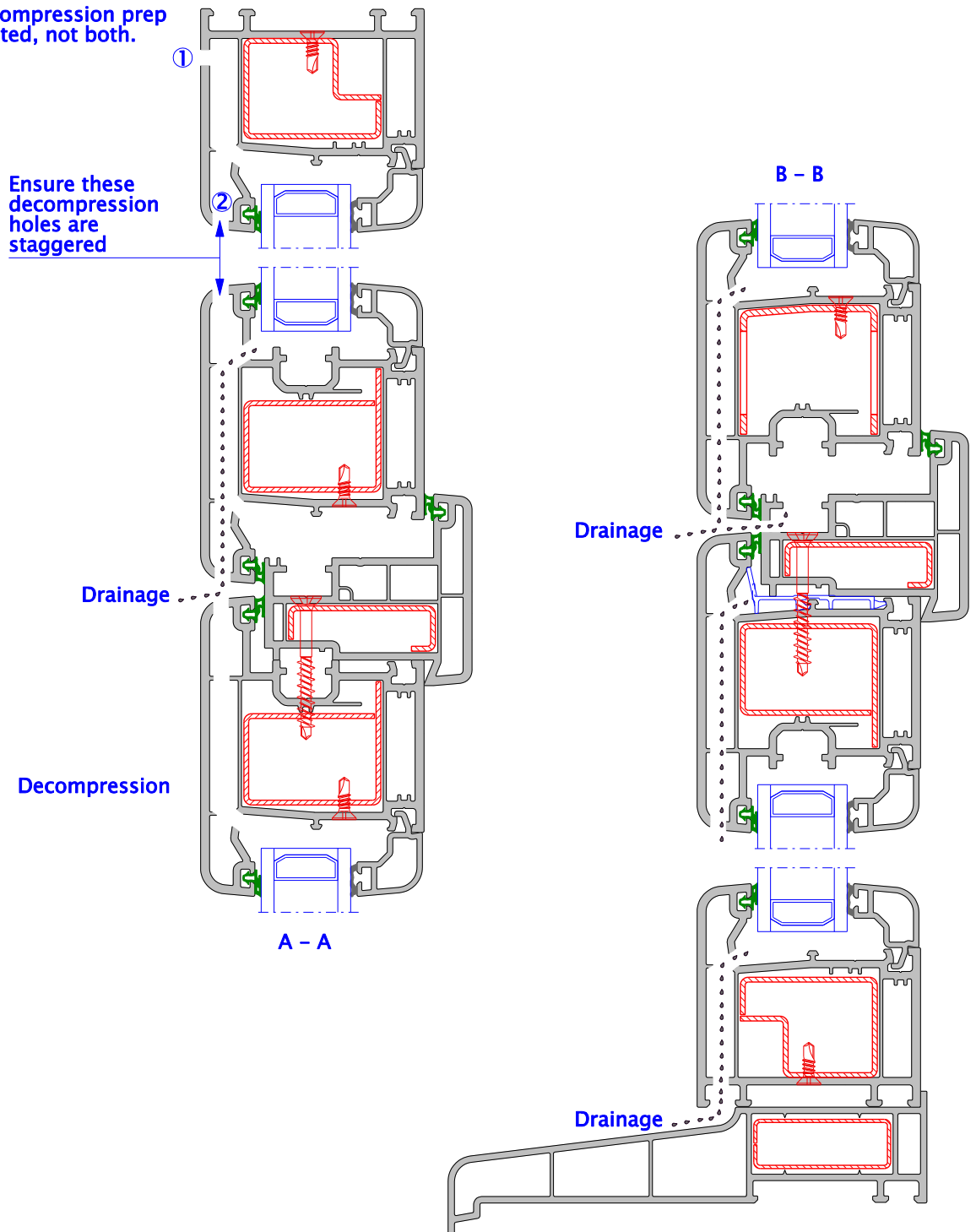


# Multi Lights

## DRAINAGE & DECOMPRESSION



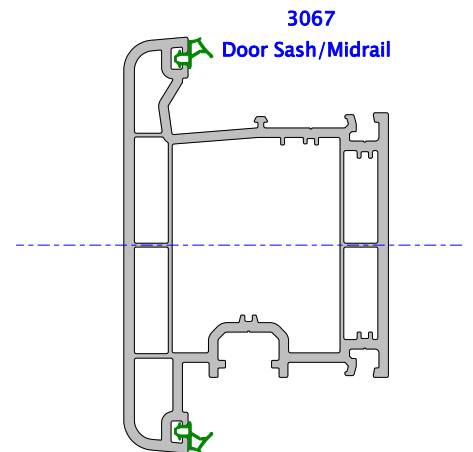
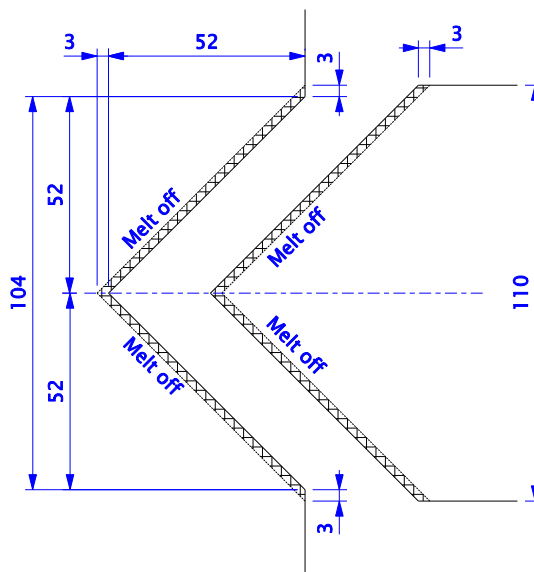
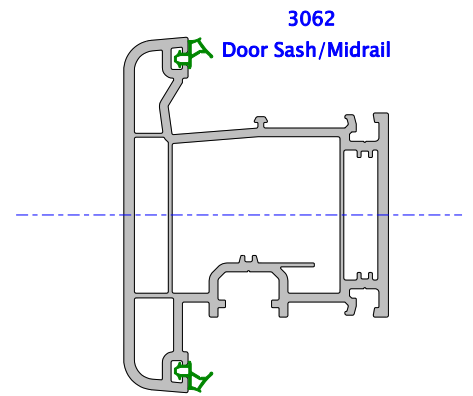
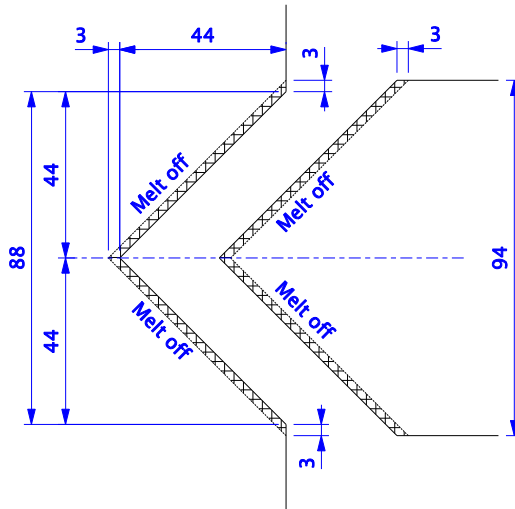
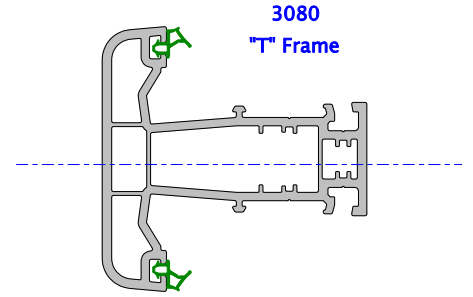
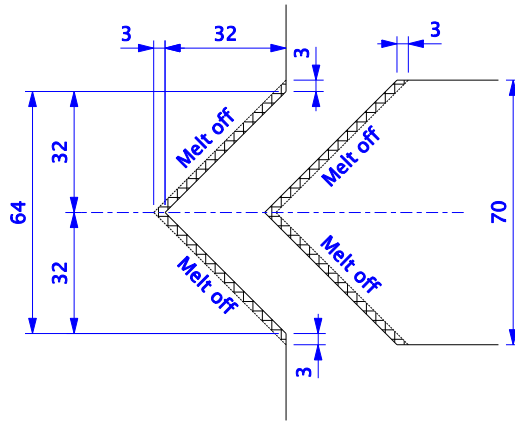
Note.  
Either ① or ② decompression prep  
needs to be adopted, not both.



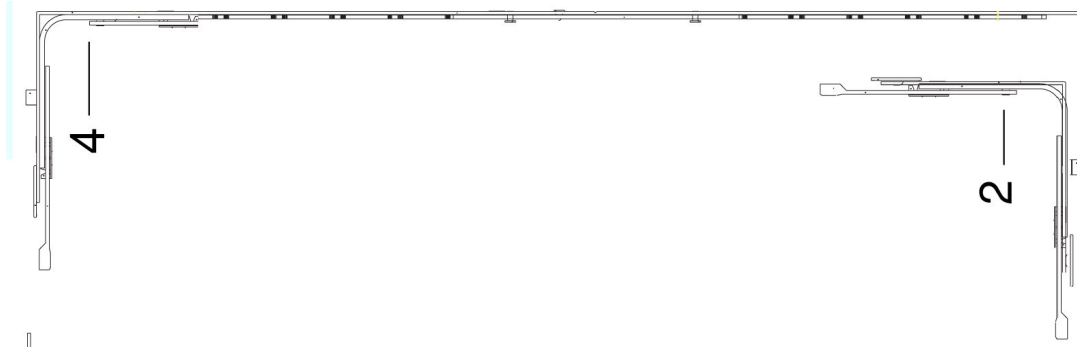
PROFILE / WINDOW SECTIONS  
DRAINAGE & DECOMPRESSION  
**V-NOTCH WELDING**  
HARDWARE  
GLAZING TABLE  
FABRICATION & ASSEMBLY  
FABRICATION TOOLS  
CUTTING SIZES

V-WELDING

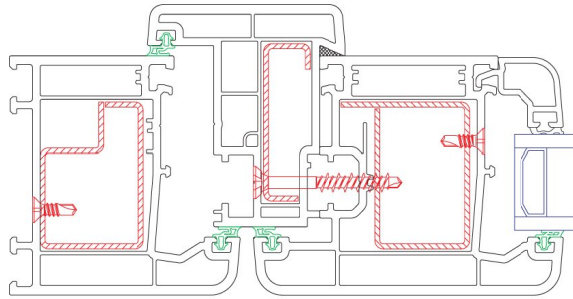
Note :- All V-Notch sizes are based on 3mm Weld Melt off



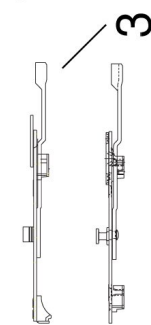
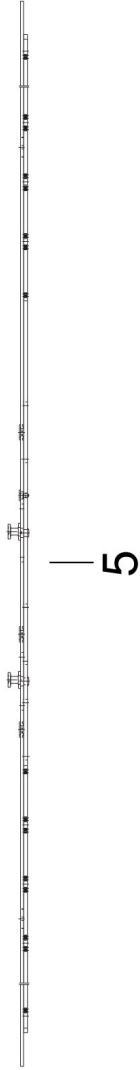
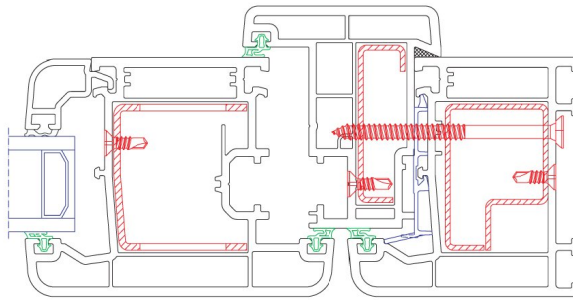
PROFILE / WINDOW SECTIONS  
DRAINAGE & DECOMPRESSION  
V-NOTCH WELDING  
**HARDWARE**  
GLAZING TABLE  
FABRICATION & ASSEMBLY  
FABRICATION TOOLS  
CUTTING SIZES



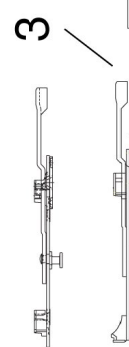
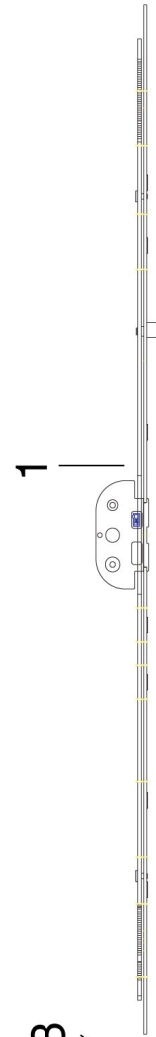
Top Profile Section



Bottom Profile Section



Note:  
 The S-ES locking bolt is recommended for use on sash widths over 1101mm on both corners:



Note:  
 Use S-ES striker A2000 part number 716700 on this bottom corner

SRW\ SWH	Position	555 - 650	Position	651 - 900	Position	901 - 1010
550 - 800	1	715345 Drive DFZ3 25 B/Set	1	715352 Drive DFZ3 25 B/Set	1	715352 Drive DFZ3 25 B/Set
	2	702864 Corner drive VSO	1	702864 Corner drive VSO	2	702864 Corner drive VSO
	3	703229 Slider 180 Deg	2	703229 Slider 180 Deg	3	703229 Slider 180 Deg
	4	FEUL0210-100010 Corner drive VSO	1	FEUL0210-100010 Corner drive VSO	4	FEUL0210-100010 Corner drive VSO
	5	707418 Centre lock S-ES	1	707418 Centre lock S-ES	5	720462 Centre lock S-ES
	6	717554 Striker Plate	2	717554 Striker Plate	6	717554 Striker Plate
	7	711873 Striker Pllate A2000	3	711873 Striker Pllate A2000	7	711873 Striker Pllate A2000
	8	703717 Striker Plate S-ES	2	703717 Striker Plate S-ES	8	703717 Striker Plate S-ES
801 - 1050	1	715345 Drive DFZ3 25 B/Set	1	715352 Drive DFZ3 25 B/Set	1	715352 Drive DFZ3 25 B/Set
	2	702864 Corner drive VSO	1	702864 Corner drive VSO	2	702864 Corner drive VSO
	3	703229 Slider 180 Deg	2	703229 Slider 180 Deg	3	703229 Slider 180 Deg
	4	FEUL0010-100010 Corner drive VSO	1	FEUL0010-100010 Corner drive VSO	4	FEUL0010-100010 Corner drive VSO
	5	707418 Centre lock S-ES	1	707418 Centre lock S-ES	5	720462 Centre lock S-ES
	6	717554 Striker Plate	2	717554 Striker Plate	6	717554 Striker Plate
	7	711873 Striker Pllate A2000	3	711873 Striker Pllate A2000	7	711873 Striker Pllate A2000
	8	703717 Striker Plate S-ES	2	703717 Striker Plate S-ES	8	703717 Striker Plate S-ES
1051 - 1300	1	715345 Drive DFZ3 25 B/Set	1	715352 Drive DFZ3 25 B/Set	1	715352 Drive DFZ3 25 B/Set
	2	702864 Corner drive VSO	1	702864 Corner drive VSO	2	702864 Corner drive VSO
	3	703229 Slider 180 Deg	2	703229 Slider 180 Deg	3	703229 Slider 180 Deg
	4	FEUL0220-100010 Corner drive VSO	1	FEUL0220-100010 Corner drive VSO	4	FEUL0220-100010 Corner drive VSO
	5	707418 Centre lock S-ES	1	707418 Centre lock S-ES	5	720462 Centre lock S-ES
	6	717554 Striker Plate	2	717554 Striker Plate	6	717554 Striker Plate
	7	711873 Striker Pllate A2000	3	711873 Striker Pllate A2000	7	711873 Striker Pllate A2000
	8	703717 Striker Plate S-ES	2	703717 Striker Plate S-ES	8	703717 Striker Plate S-ES

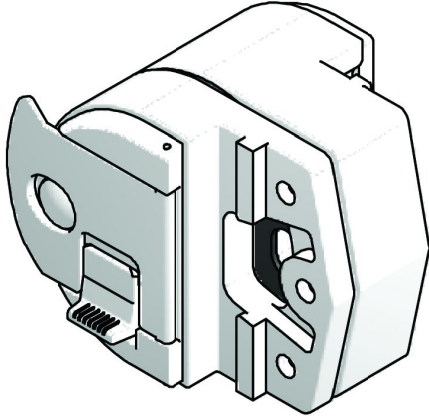


	1011 - 1100				1101 - 1300				1301 - 1480				
550 - 800	1	715352	Drive DFZ3 25 B/Set	1	712894	Drive DFZ3 25 B/Set	1	712894	Drive DFZ3 25 B/Set	1	712894	Drive DFZ3 25 B/Set	1
	2	702864	Corner drive VSO	1	702864	Corner drive VSO	1	702864	Corner drive VSO	1	702864	Corner drive VSO	1
	3	703229	Slider 180 Deg	2	888865	S-ES Slider 180 Deg	2	888865	S-ES Slider 180 Deg	2	888865	S-ES Slider 180 Deg	2
	4	FEUL0210-100010	Corner drive VSO	1	FEUL0210-100010	Corner drive VSO	1	FEUL0210-100010	Corner drive VSO	1	FEUL0210-100010	Corner drive VSO	1
	5	720462	Centre lock S-ES	1	720462	Centre lock S-ES	1	713648	Centre lock S-ES	1	713648	Centre lock S-ES	1
	6	717554	Striker Plate	2	717554	Striker Plate	2	717554	Striker Plate	2	717554	Striker Plate	2
	7	711873	Striker Pllate A2000	3	711873	Striker Pllate A2000	3	711873	Striker Pllate A2000	3	711873	Striker Pllate A2000	3
	8	703717	Striker Plate S-ES	2	703717	Striker Plate S-ES	4	703717	Striker Plate S-ES	4	703717	Striker Plate S-ES	4
801 - 1050	1	715352	Drive DFZ3 25 B/Set	1	712894	Drive DFZ3 25 B/Set	1	712894	Drive DFZ3 25 B/Set	1	712894	Drive DFZ3 25 B/Set	1
	2	702864	Corner drive VSO	1	702864	Corner drive VSO	1	702864	Corner drive VSO	1	702864	Corner drive VSO	1
	3	703229	Slider 180 Deg	2	888865	S-ES Slider 180 Deg	2	888865	S-ES Slider 180 Deg	2	888865	S-ES Slider 180 Deg	2
	4	FEUL0010-100010	Corner drive VSO	1	FEUL0010-100010	Corner drive VSO	1	FEUL0010-100010	Corner drive VSO	1	FEUL0010-100010	Corner drive VSO	1
	5	720462	Centre lock S-ES	1	720462	Centre lock S-ES	1	713648	Centre lock S-ES	1	713648	Centre lock S-ES	1
	6	717554	Striker Plate	2	717554	Striker Plate	2	717554	Striker Plate	2	717554	Striker Plate	2
	7	711873	Striker Pllate A2000	3	711873	Striker Pllate A2000	3	711873	Striker Pllate A2000	3	711873	Striker Pllate A2000	3
	8	703717	Striker Plate S-ES	2	703717	Striker Plate S-ES	4	703717	Striker Plate S-ES	4	703717	Striker Plate S-ES	4



**CALDWELL**  
SOLUTIONS THAT SET NEW STANDARDS

**Introduction to 3000 Pivots**



The Caldwell 3000 Pivot offers a clean design and exceptional finish that will blend neatly and unobtrusively into most window systems.

Pivot or reversible windows allow the sash to turn through approx. 180 degrees. With the pivot window partially open, warm air at the top of the room can exit through the upper opening, whilst cool air replaces it through the lower opening. This creates natural air flow.

Caldwell pivots are always supplied in pairs. This usually comprises of one restricted pivot and one unrestricted pivot. Alternatively two unrestricted pivots can be supplied, it is not possible to supply a pair of two restricted pivots.

A unique feature of the restricted pivot is a security and ventilation restrictor arm which locks to allow ventilation but prevents unauthorised opening beyond an initial vent position of 15° approx. The restrictor mechanism will also operate and hold the window in the fully reversed position to enable the outside to be safely cleaned.

The friction of the pivot is adjustable and controlled by means of an allen screw key.

Custom clamp plates have been designed and manufactured to suit different window systems. Use of location plates provide a 'demountable sash facility'. Therefore the sash can be installed/removed on site offering easy maintenance and installation. Plates also ensure fixings go into reinforcement when used on PVCu systems.

Caldwell recommend the use of polyethelene foam seals. To be coated on one side with a high tack modified acrilic adhesive and the other side to be coated with clear polyester sheet. These should be obtained from system companies or alternatively Caldwell can supply.

Note - Clear polyester sheet prevents pad from bonding to pivots once installed and ensures a smooth sash rotation ensuring a prolonged pad life.

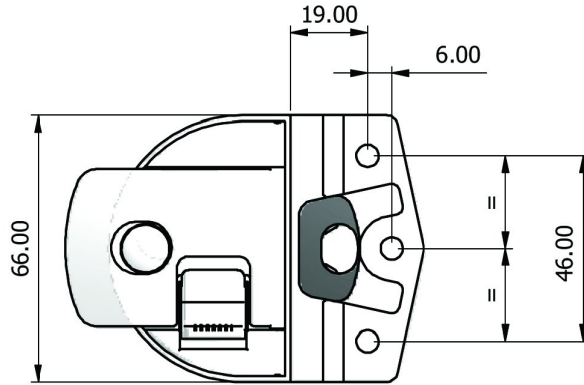
Typical maximum and minimum sizes of a reversible horizontal pivot window					
	Maximum Weight (kg)	Maximum Height (mm)	Maximum Width (mm)	Minimum Height (mm)	Minimum Width (mm)
PVC-U	60	1500	1500	800	800
Sizes assume 2 x 4mm double glazed units are used and may vary depending on the window system chosen. See system manufacturer's details.					

All of the information shown on this data sheet was correct at the time of issue. All information however is subject to change and therefore it is advisable to check with Caldwell Hardware to ensure that you have the latest issue level.

**CALDWELL**

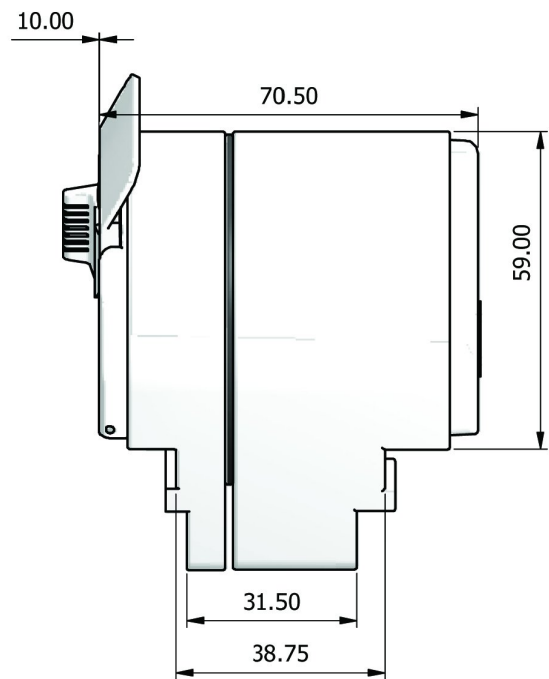
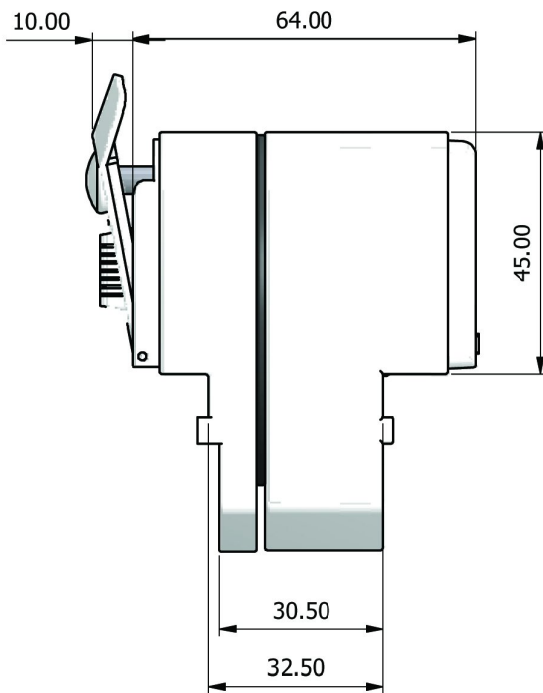
SOLUTIONS THAT SET NEW STANDARDS

**STANDARD DIMENSIONS**



**PE600 BODY**

**PE620 BODY**



**MATERIALS**

PIVOT BODY AND END CAPS - DIE CAST MAZAK 3

TRUST BEARING - NYLON 6

FRICTION BUSH - 15% GLASS FILLED NYLON

TORQUE COLLAR - EXTRUDED ALUMINIUM 6063T6

LOCKING ARM MECHANISM - DIE CAST MAZAK 3

All of the information shown on this data sheet was correct at the time of issue. All information however is subject to change and therefore it is advisable to check with Caldwell Hardware to ensure that you have the latest issue level.

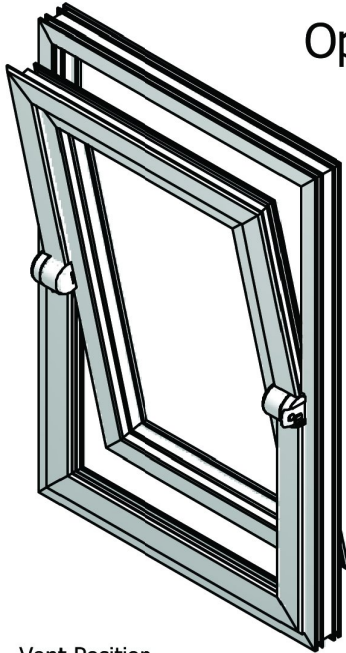
**CALDWELL**

SOLUTIONS THAT SET NEW STANDARDS

Telephone 024 7643 7900

**Operating Instructions for 3000 Series Pivots**

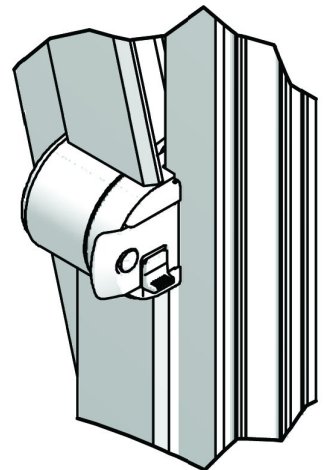
**Opening Window to Vent Position**



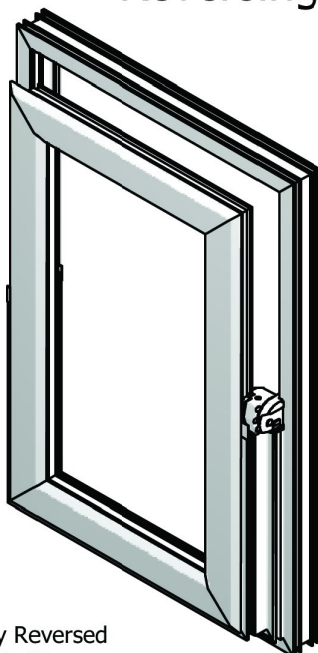
Vent Position

To open window to the vent position simply unlock the vent (turn the window handle until vent is free to open). The vent is then free to be pushed open to the vent position.

No operation of the pivot is required for vent mode.



**Reversing of Window to Fully Reversed Position**

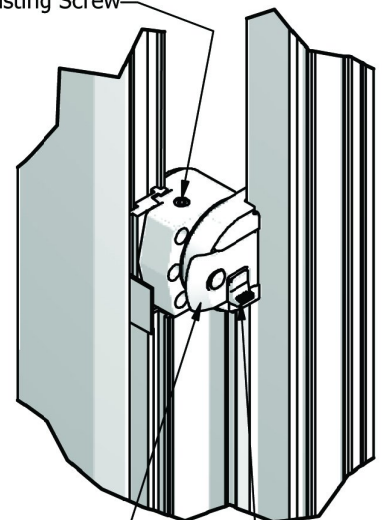


Fully Reversed Position

To fully reverse the vent (for cleaning or adjustment of friction) the pivots restrictor must be released. Push the operating button down and release the operating arm. The vent is then free to be reversed, the pivots restrictor will automatically re-engage once the vent is fully reversed. To adjust tension turn the screw (clockwise to increase tension and anti-clockwise to reduce tension) with a suitable Allen key.

Minimal force should always be used when operating the pivot. Under no circumstances should end caps be removed.  
If in doubt obtain further guidance.

Friction Adjusting Screw



Operating Arm  
(push away from pivot body to release)

Operating Button

All of the information shown on this data sheet was correct at the time of issue. All information however is subject to change and therefore it is advisable to check with Caldwell Hardware to ensure that you have the latest issue level.

# **CALDWELL**

SOLUTIONS THAT SET NEW STANDARDS

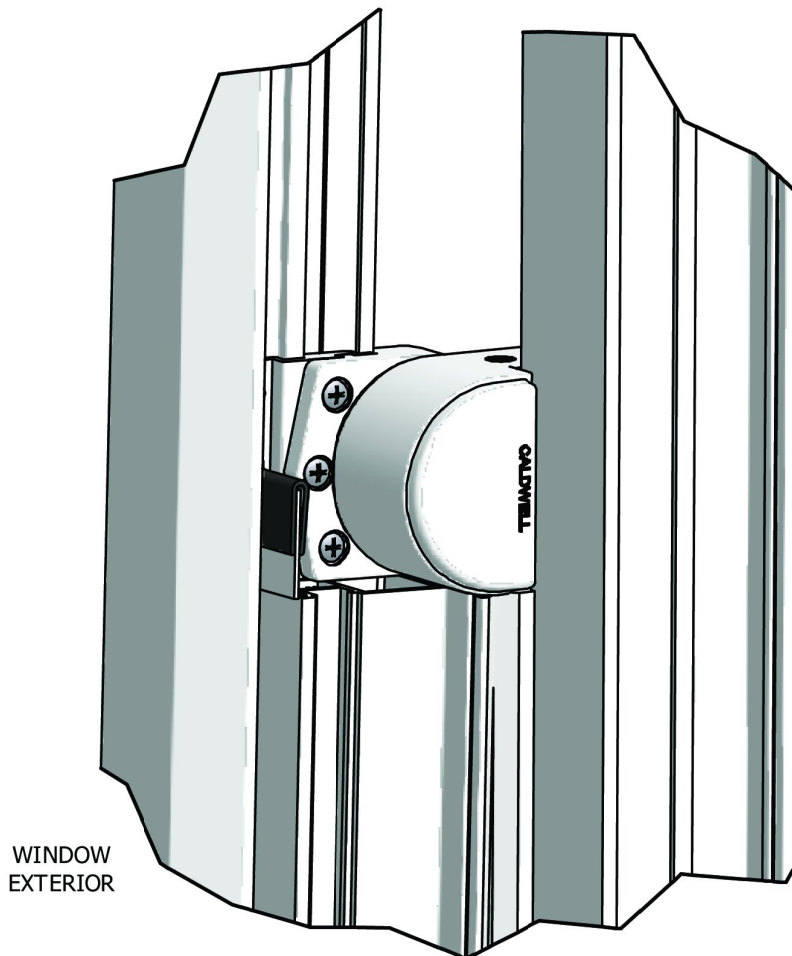
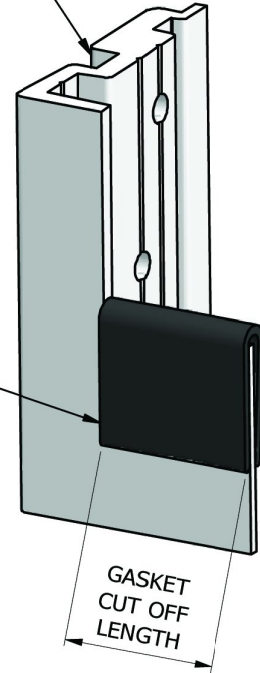
Telephone 024 7643 7900

## Applying Sealing Gasket UK788 on 3000 Pivot

If a length of gasket (part number UK788) has been supplied then it should be cut to length and assembled as shown on this sheet. The sealing gasket is used to enhance the weathering capabilities of the pivot in the closed position.

1. The sealing gasket should be cut to the correct length to suit the frame clamp plates in use.
2. The seal should then be pushed onto the frame clamp plate only during the assembly process.
3. Seal should be applied to both pivots.

TYPICAL FRAME CLAMP PLATE



VIEW SHOWING FRAME CLAMP PLATE  
FIXED TO FRAME PROFILE.  
WINDOW AND PIVOT SHOWN IN  
REVERSE POSITION.

( 1 : 2 )

All of the information shown on this data sheet was correct at the time of issue. All information however is subject to change and therefore it is advisable to check with Caldwell Hardware to ensure that you have the latest issue level.

**CALDWELL**  
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Telephone 024 76437900

## Cleaning Instructions for Decorative Anodised, Powder Coated & Plated finishes



The decorative finishes on Caldwell Hardware products are of a high quality. Please take care when installing, using tools and sealants etc. To keep finishes in good condition clean with a soft damp cloth only.

**ON NO ACCOUNT** should any household bleaches, detergents or abrasive polish etc. be used on Caldwell Hardware products.

If in doubt please contact Caldwell Hardware Technical Services department on 02476 437900.



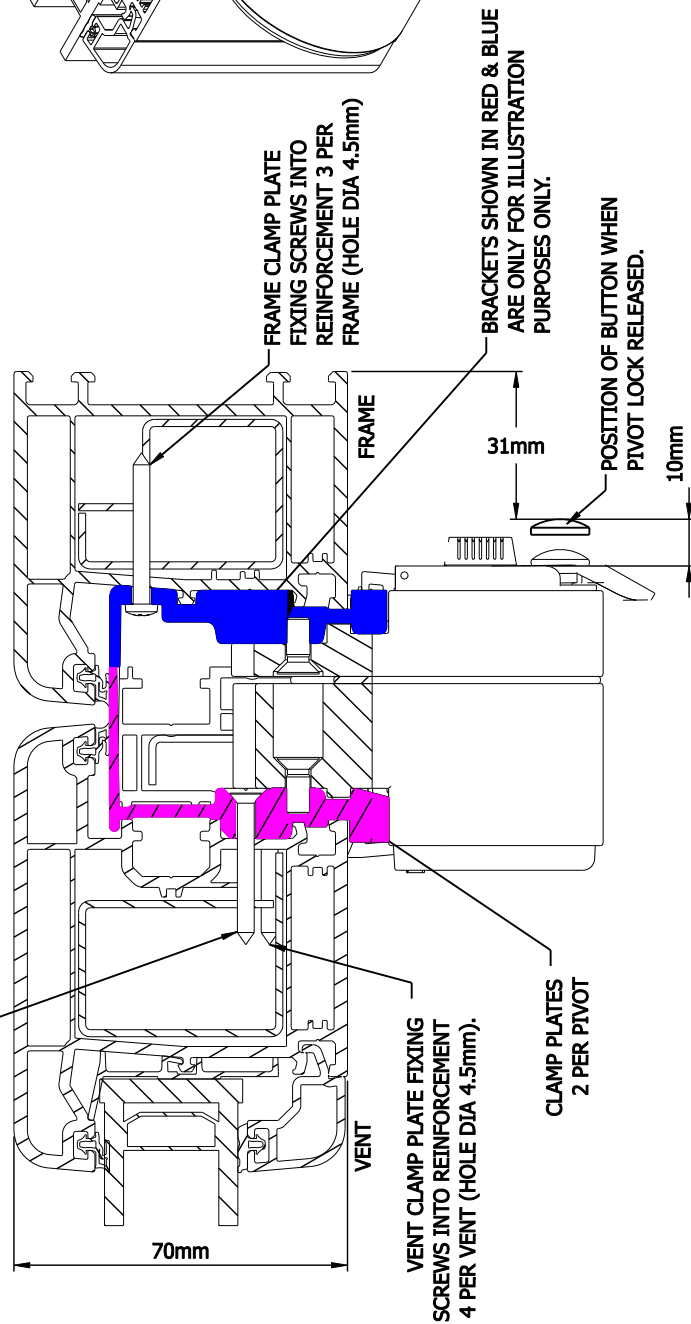
All of the information shown on this data sheet was correct at the time of issue. All information however is subject to change and therefore it is advisable to check with Caldwell Hardware to ensure that you have the latest issue level.

THE SERIES 3000 PIVOT HINGE IS SUITABLE FOR MAXIMUM VENT WEIGHT OF 100KGS IN HORIZONTAL APPLICATIONS AND A MAXIMUM OF 80KGS IN VERTICAL APPLICATIONS

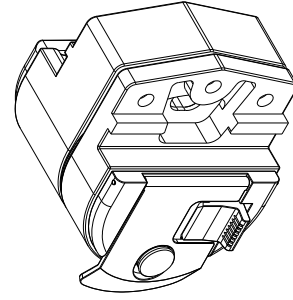
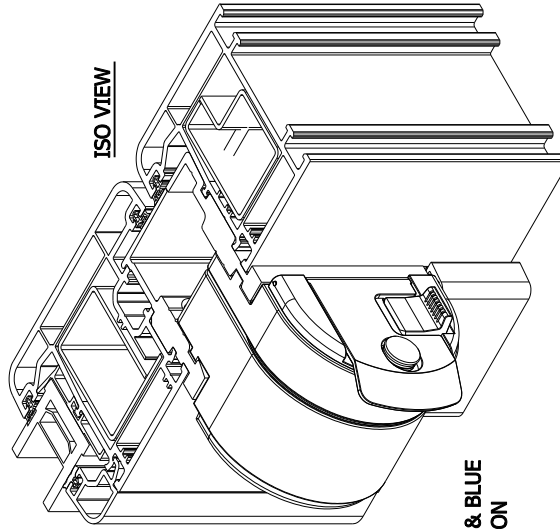
Telephone 024 7643 7900

**DECEUNINCK EUROPEAN 3000 SERIES PIVOT**

**IMPORTANT: ALL CLAMP PLATE FIXING SCREWS MUST GO INTO REINFORCEMENT**



ISO VIEW



ISOMETRIC VIEW OF PIVOT

**\*NOTES\***

R/H RESTRICTED PIVOT PE600 SHOWN VIEWED FROM INSIDE - (L/H PIVOT UNRESTRICTED) PAIR OF PIVOTS, MOUNTING PLATES & SCREWS SUPPLIED IN KIT MOUNTING PLATE FIXING SCREWS NOT SUPPLIED. KIT REFERENCE 369ACFINISH\*FINISH# (\*PIVOT BODY COLOUR#END CAP COLOUR)

All of the information shown on this data sheet was correct at the time of issue. All information however is subject to change and therefore it is advisable to check with Caldwell Hardware to ensure that you have the latest issue level.

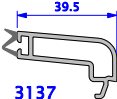
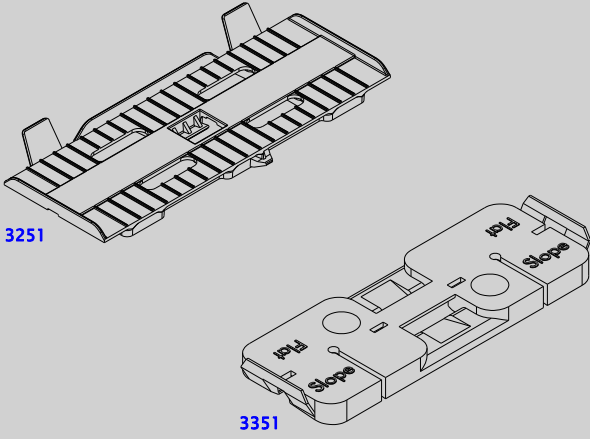
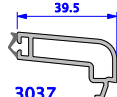
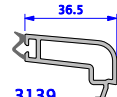
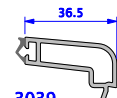
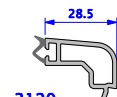
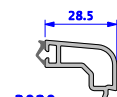
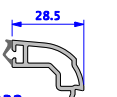
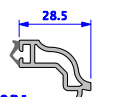
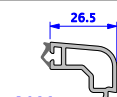
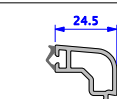
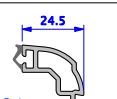
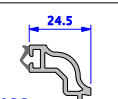

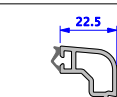
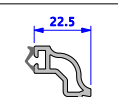
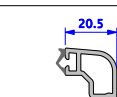
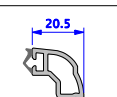
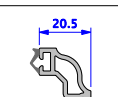
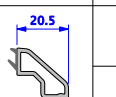

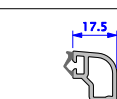
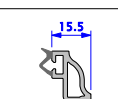
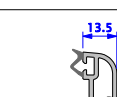
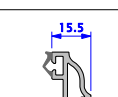

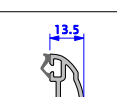
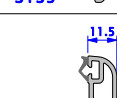
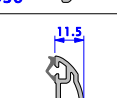
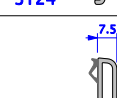
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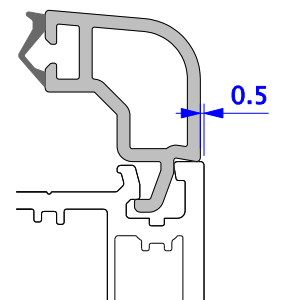
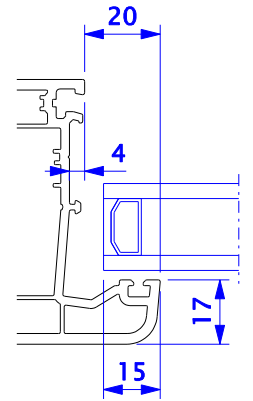
ISSUE LEVEL 03



PROFILE & WINDOW SECTIONS  
DRAINAGE & DECOMPRESSION  
V-NOTCH WELDING  
HARDWARE  
**GLAZING TABLE**  
FABRICATION & ASSEMBLY  
FABRICATION TOOLS  
CUTTING SIZES

**GLAZING TABLE**

STANDARD					
5 6	 3137				
7 8	 3037				
9 10	 3139				
11 12	 3039				
17 18	 3120				
		CONTEMPORARY	RETRO	CHAMFERED	DECORATIVE
19 20	 3020	 3032	 3031		
21 22	 3022				
23 24	 3024	 3034	 3033		 8613
25 26	 3026		 3126		
27 28	 3028	 3029	 3027	 2540	 2840
30 31	 3030		 3130		
32 33	 3133		 3132		
34 35	 3135	 3036			
36 37	 3124	 3134			
40 41	 3038				

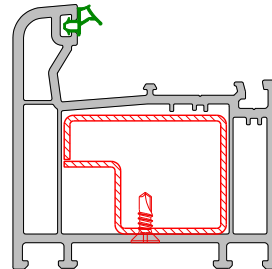


PROFILE / WINDOW SECTIONS  
DRAINAGE & DECOMPRESSION  
V-NOTCH WELDING  
HARDWARE  
GLAZING TABLE  
**FABRICATION & ASSEMBLY**  
FABRICATION TOOLS  
CUTTING SIZES

After cutting the 4 lengths of 3002 outer frame.

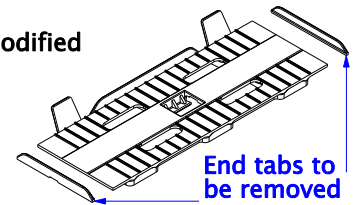
1. Machine drainage and decompression slots or holes (see Section 2.2)
2. Insert and fix reinforcement, ensuring steel orientation is as indicated below and that 3.9 x 13 screws are used

Reinforcing  
Orientation

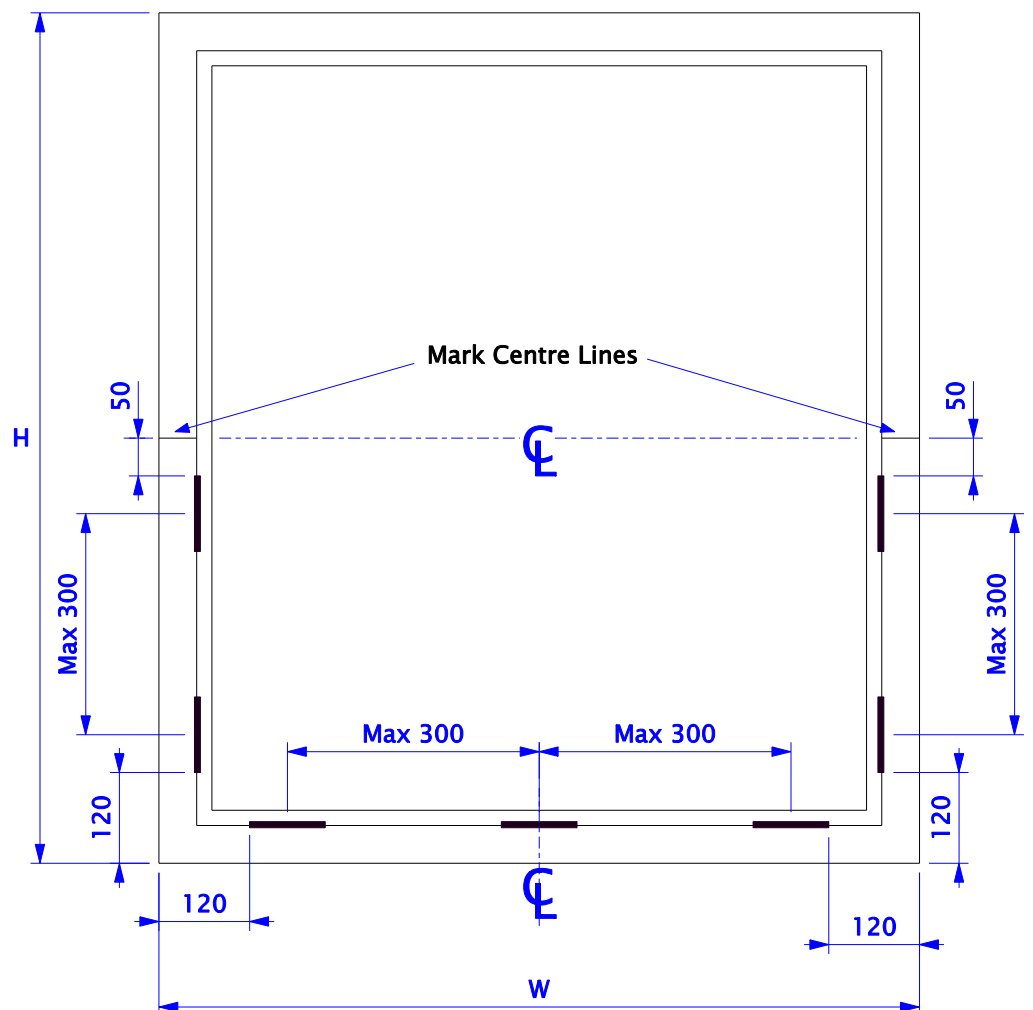


3. Weld and clean the frame
4. Mark the horizontal centre line on frame and position the modified 3251 packers as indicated below

Packer 3251

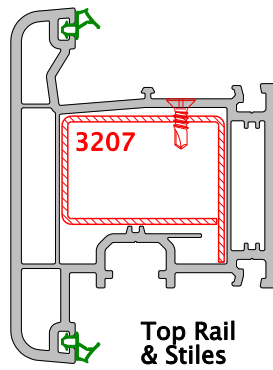


Packer 3251

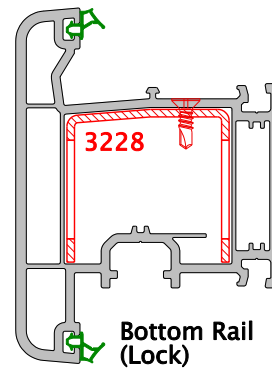


After cutting the 4 lengths of 3062 sash frame.

1. Machine drainage and decompression slots or holes (see Section 2.2)
2. Machine for lock and handle (see detail below)
3. Insert and fix reinforcement, ensuring steel orientation is as indicated below and that 3.9 x 13 screws are used

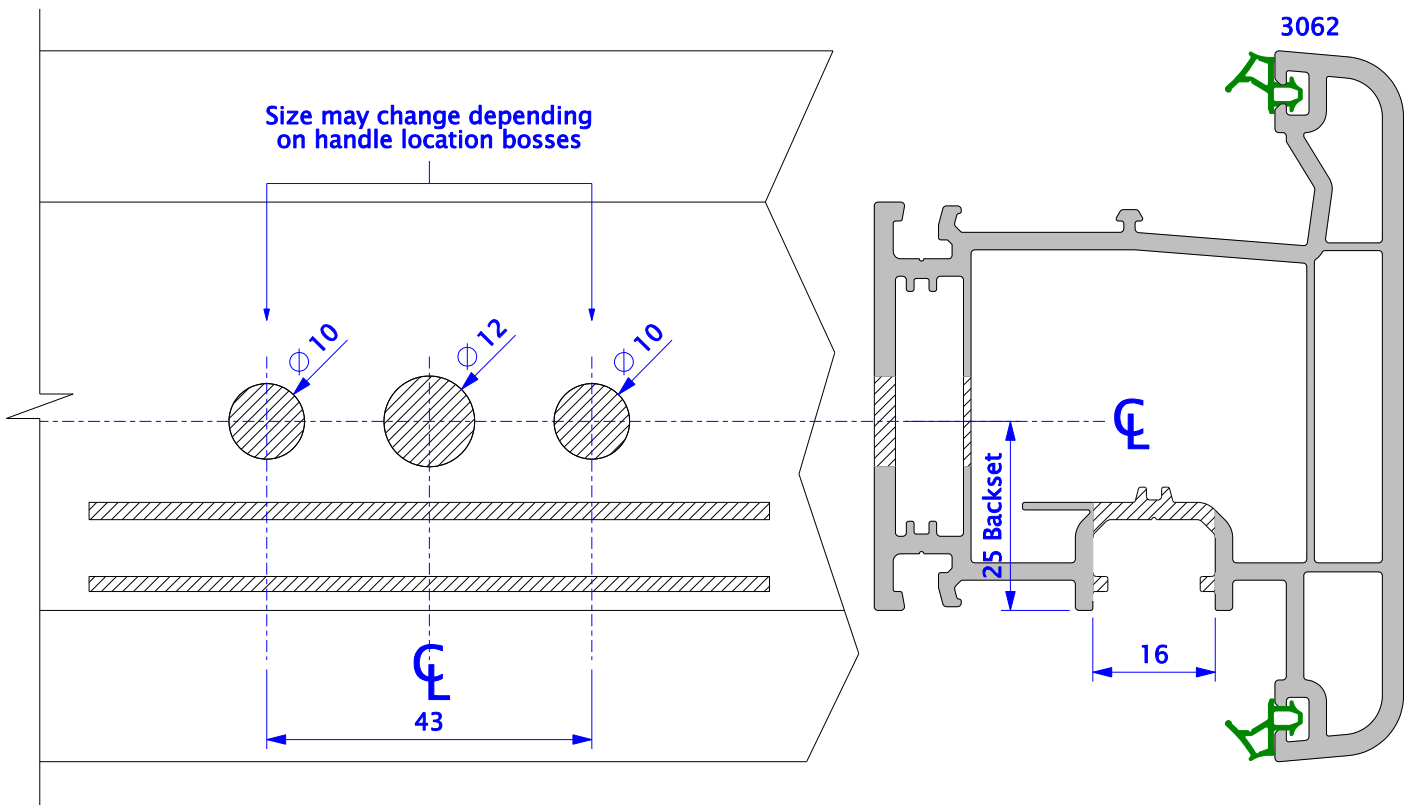


Reinforcing  
 Orientation  
 & Type



4. Weld and clean the frame, paying particular attention to eurogroove detail on all corners
5. Mark the horizontal centre line on frame

Lock & Handle Prep

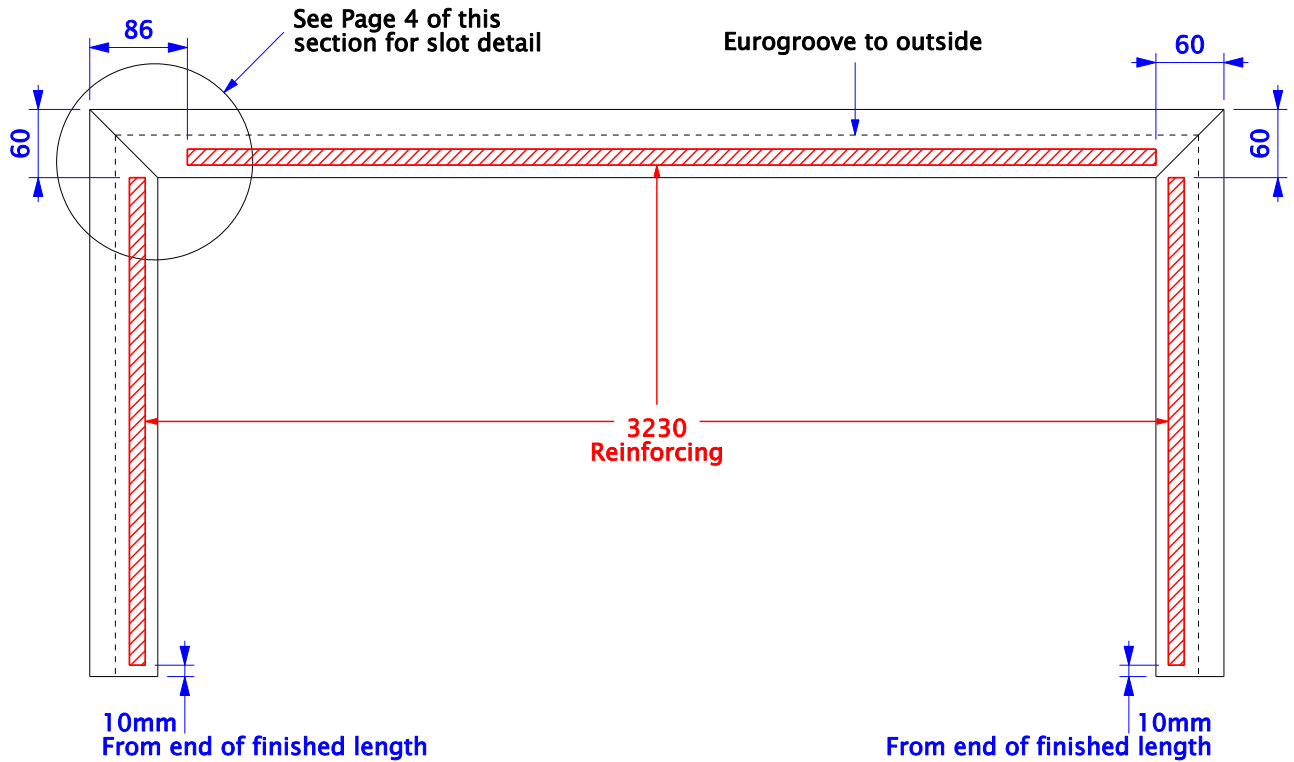


After cutting the 3 lengths of 3179 adaptor.

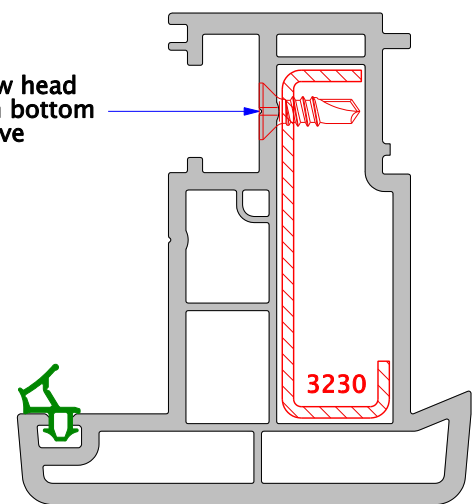
Note.

It may be preferred to cut the vertical members 50mm long and trim to size after welding.

1. Insert and fix reinforcement, ensuring steel orientation is as indicated below and that 3.9 x 13 screws are used
2. Weld and clean the frame



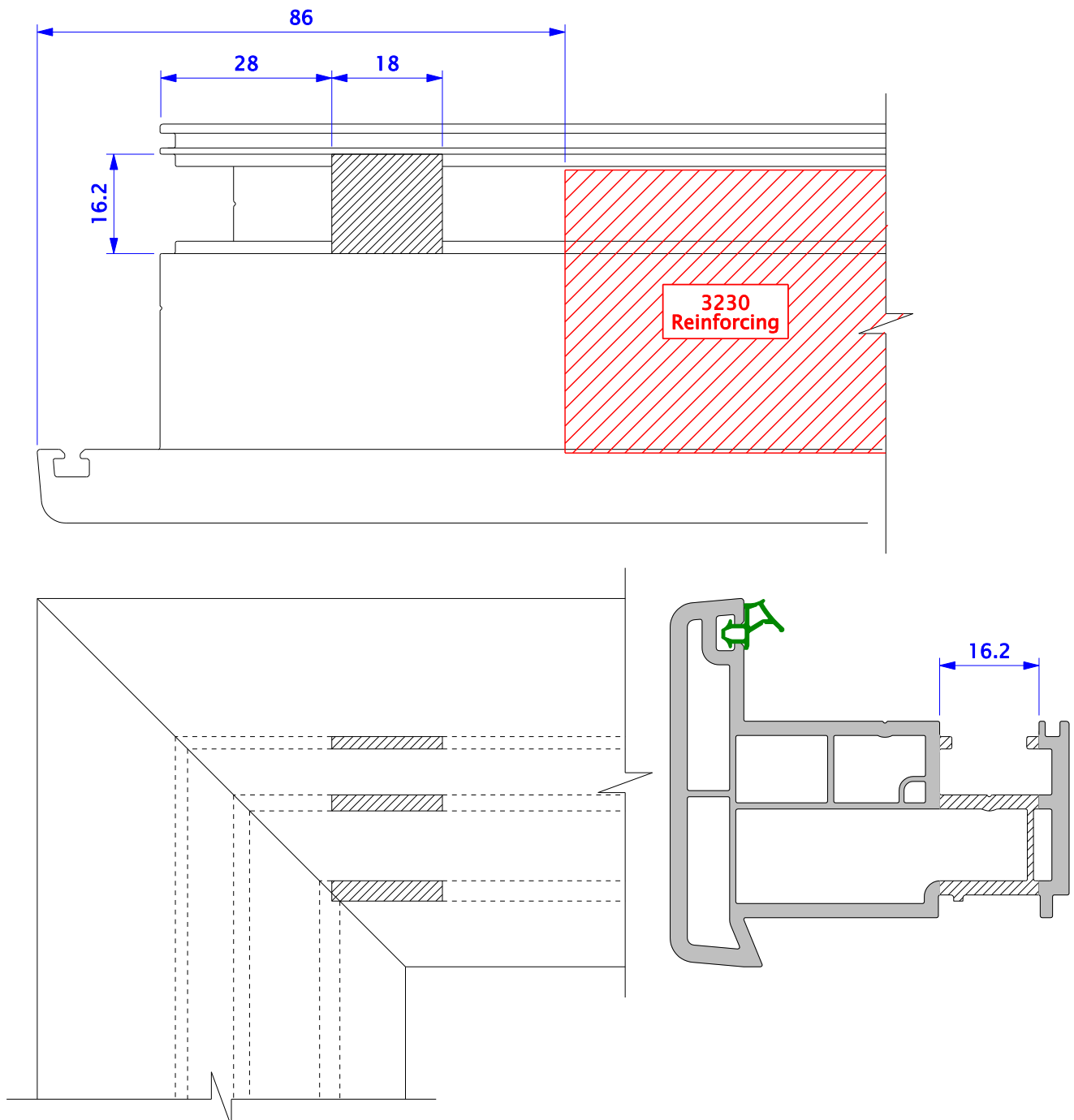
Ensure screw head is flush with bottom of eurogroove



After cutting the 3 lengths of 3179 adaptor.

3. Ensure the eurogroove corners are cleaned thoroughly
4. Machine by drilling/chisle the 18 x 16mm access slot into the top left corner of the 3179 adaptor as shown below.  
The need for the slot is to allow the locking gear corner drive connection through to the sash eurogroove

Note.  
The slot preparation is best carried out after welding due to the close proximity of the slot to the corner joint

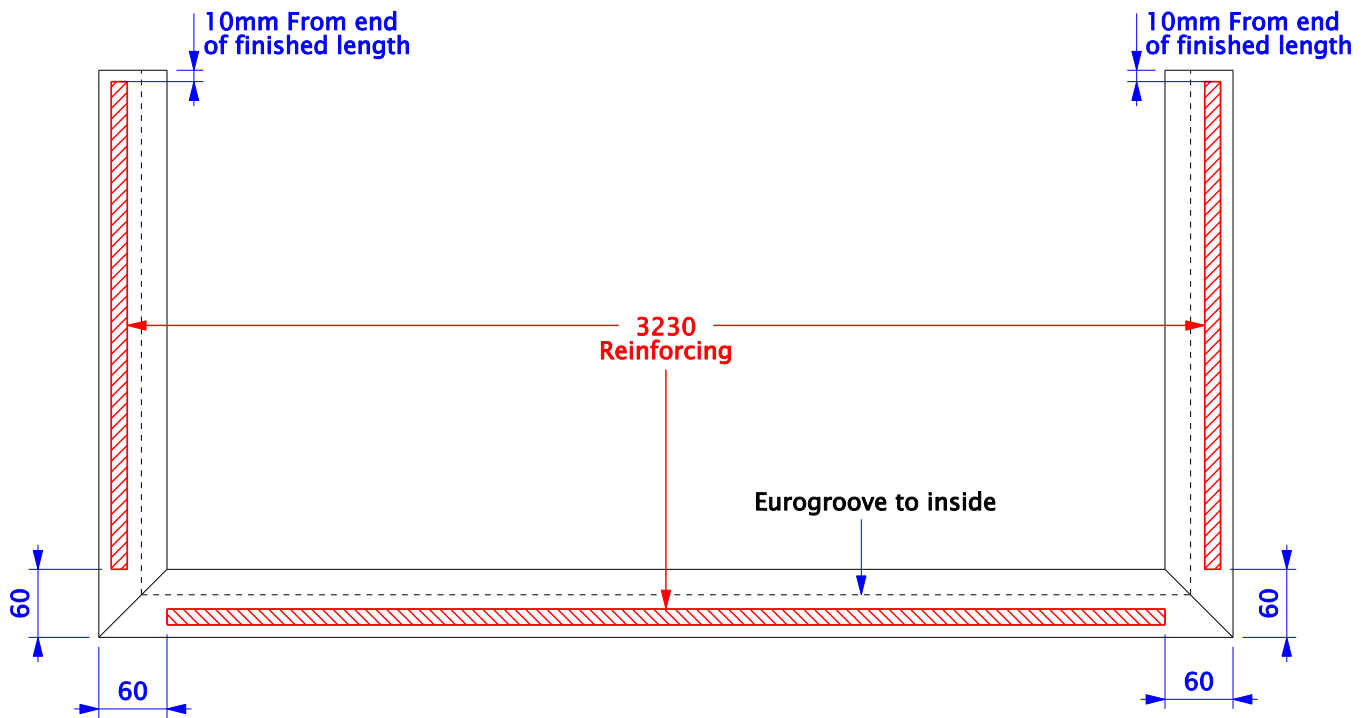


After cutting the 3 lengths of 3179 adaptor

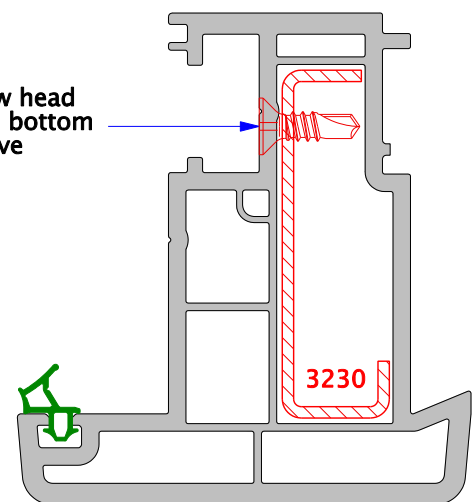
Note.

It may be preferred to cut the vertical members 50mm long and trim to size after welding.

1. Insert and fix reinforcement, ensuring steel orientation is as indicated below and that 3.9 x 13 screws are used
2. Weld and clean the frame



Ensure screw head is flush with bottom of eurogroove

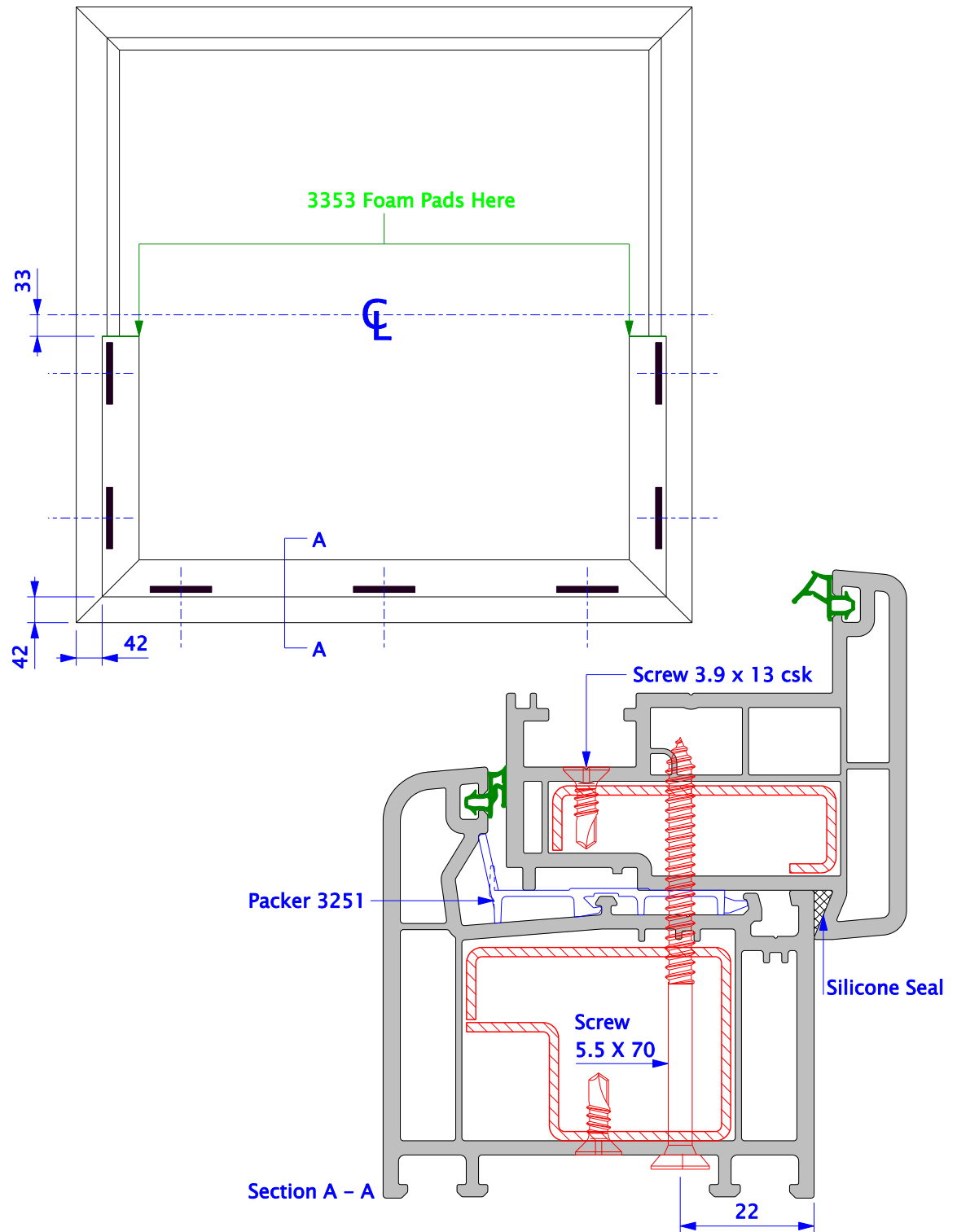




## Assembly – Bottom Saddle To Outer Frame

### FABRICATION & ASSEMBLY

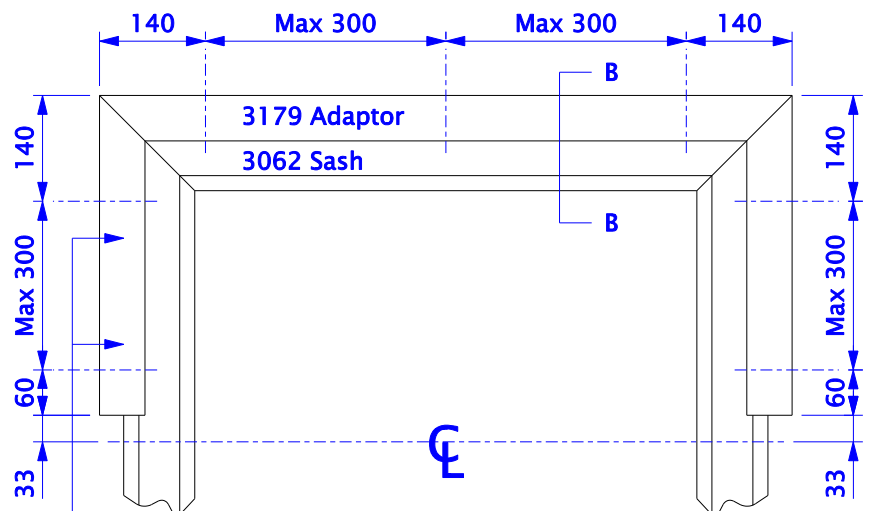
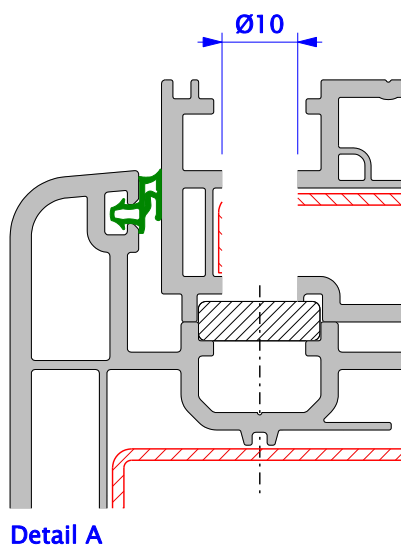
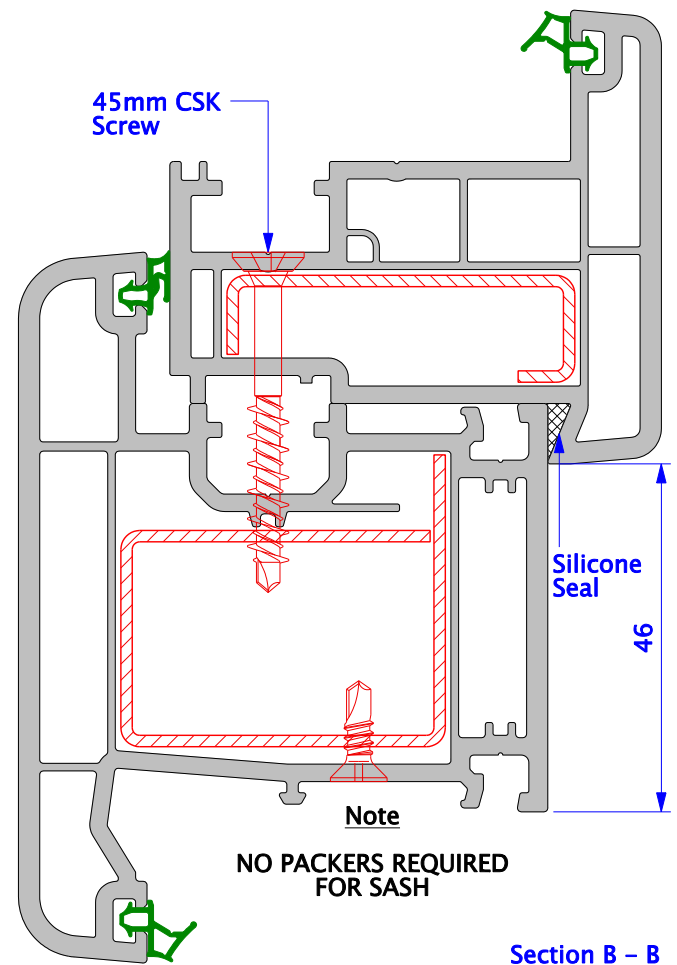
1. Mark the centre line of each packer on the frame
2. Apply silicone sealant to the 3179 adaptor (see detail below)
3. Slide the 3179 adaptor down into the base of the outer frame
4. Fix the 3179 adaptor to the outer frame at the centre line of each packer
5. Beginning with the horizontal elements clamp each joint in turn
6. Check that the 42mm dimension (shown below) is being maintained, use a second clamp to apply compression to the seals
7. The square cut ends of the 3179 adaptor should be 33mm below the horizontal centre line of the outer frame (see detail below)
8. Drill a pilot hole then screw fix from the outside of the outer frame avoiding the eurogroove
9. Apply the self adhesive foam pads to each end of the 3179 adaptor



## Assembly – Top Saddle To Sash Frame

### FABRICATION & ASSEMBLY

1. Mark the centre line for each fixing position on the sash frame
2. Apply silicone sealant to 3179 adaptor (see detail to the right)
3. Slide the 3179 adaptor down over the sash frame
4. The top horizontal part of the 3179 adaptor is fixed to the sash frame  
 \*for vertical sections see Page 8 of this section
5. Beginning with the horizontal elements clamp each joint in turn
6. Check that the 46mm dimension (shown below) is being maintained, use a second clamp to apply compression to the seals
7. The square cut ends of the 3179 adaptor should be 33mm above the horizontal centre line of the sash frame (see detail below)
8. Drill pilot hole then screw fix through the outside of the 3179 adaptor through the euro-groove.



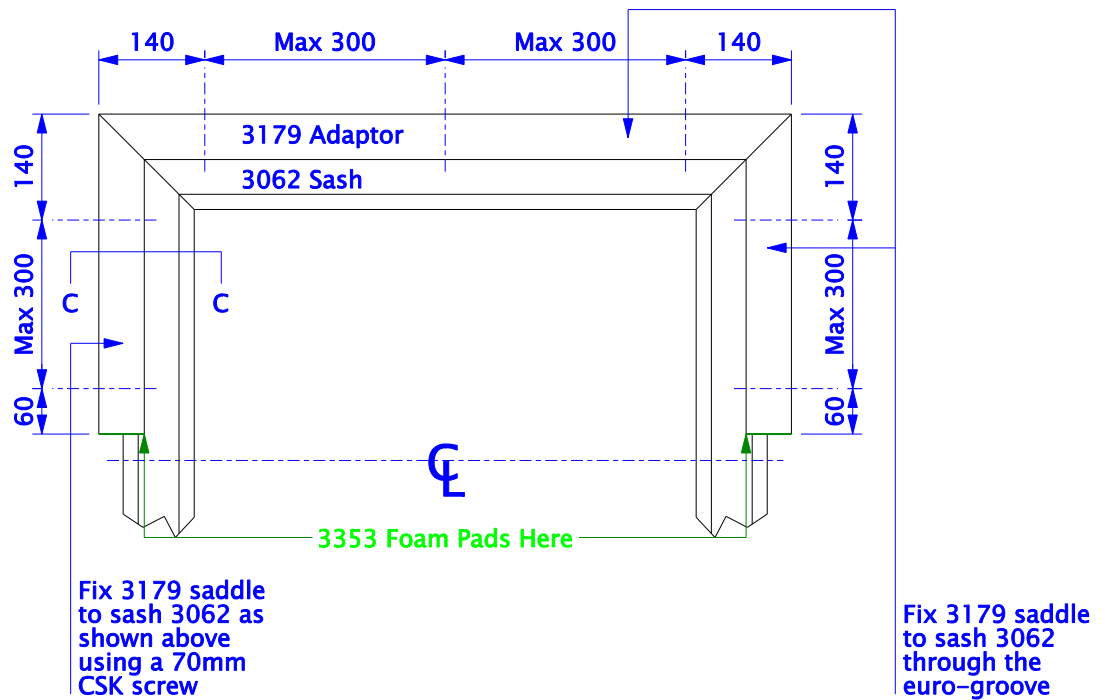
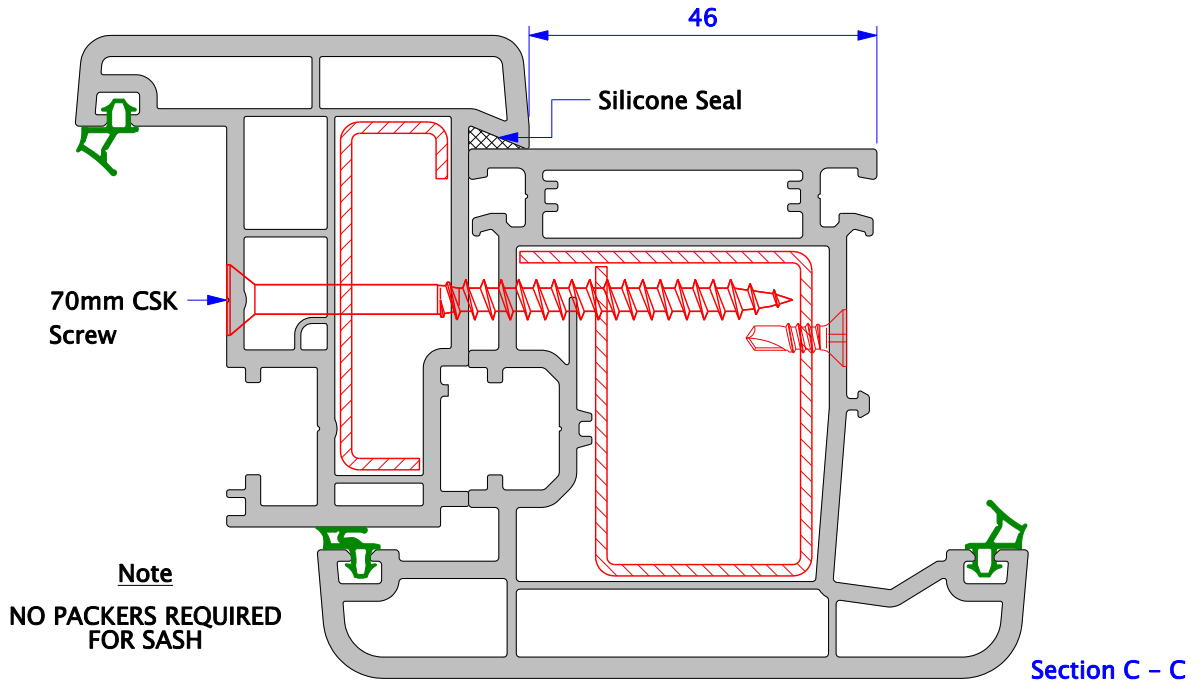
### **IMPORTANT**

2 x 10mm Ø holes drilled through euro-groove to fix hardware (top + side link gear to sash)  
 See detail A

## Assembly – Top Saddle To Sash Frame cont...

### FABRICATION & ASSEMBLY

1. Continue to clamp the vertical members of the 3179 adaptor to sash frame 3062 as per the previous page
2. Check that the 46mm dimension (shown below) is being maintained
3. Drill pilot holes and screw fix in the specified positions (see detail below)
4. Apply the self adhesive foam pads onto the ends of the 3179 adaptor

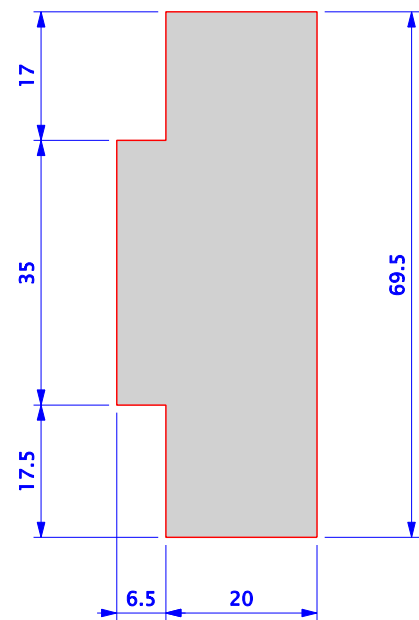
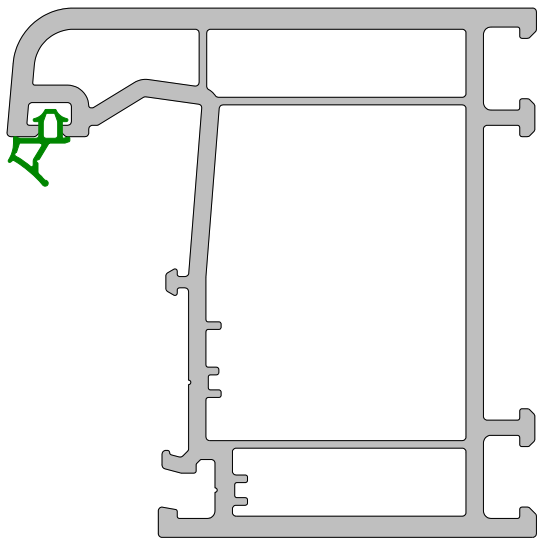


PROFILE / WINDOW SECTIONS  
DRAINAGE & DECOMPRESSION  
V-NOTCH WELDING  
HARDWARE  
GLAZING TABLE  
FABRICATION & ASSEMBLY  
**FABRICATION TOOLS**  
CUTTING SIZES



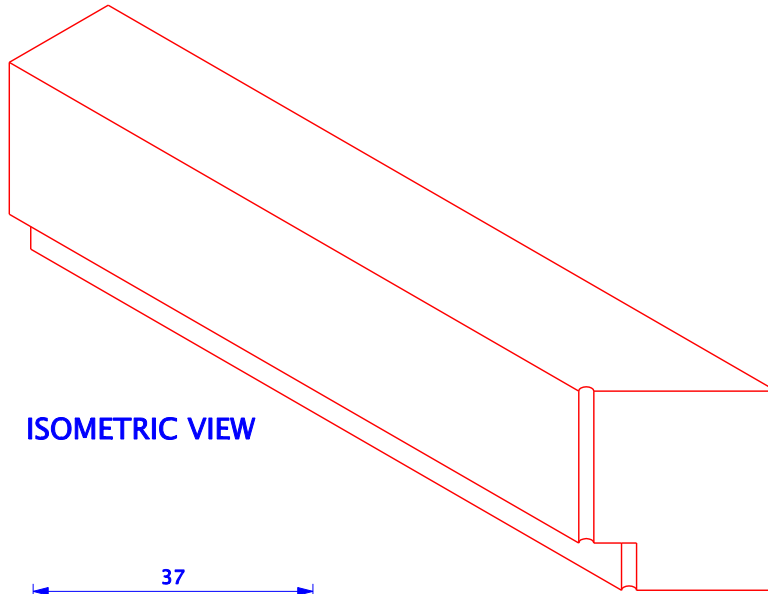
# Welding support block

Frame 3002

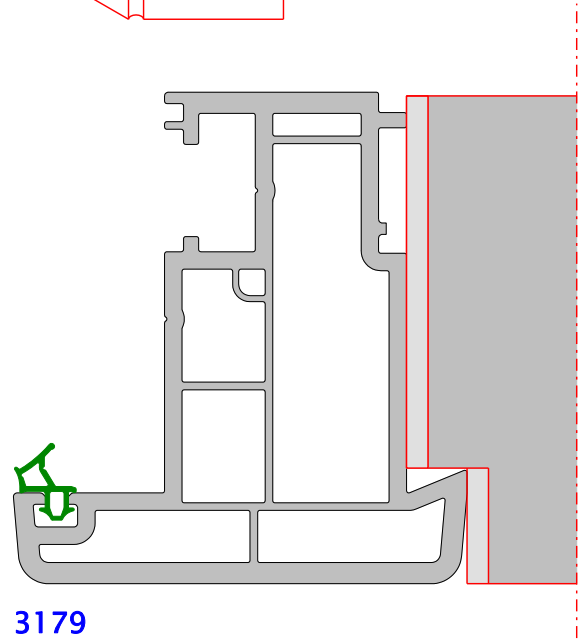
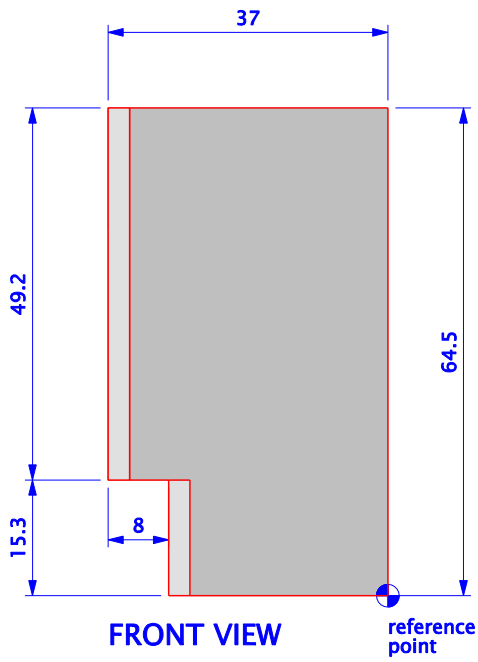


# Welding support blocks

3179\_bottom saddle

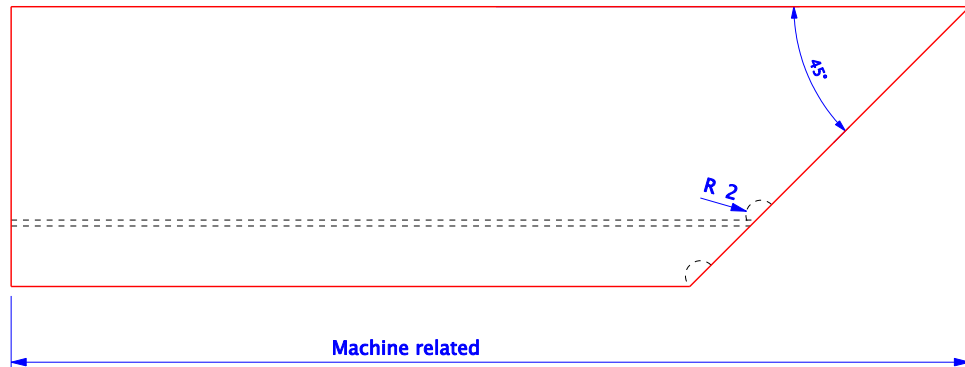


ISOMETRIC VIEW



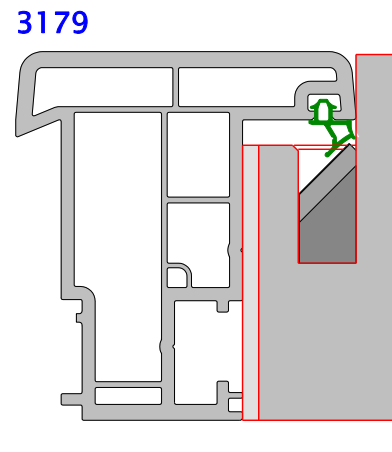
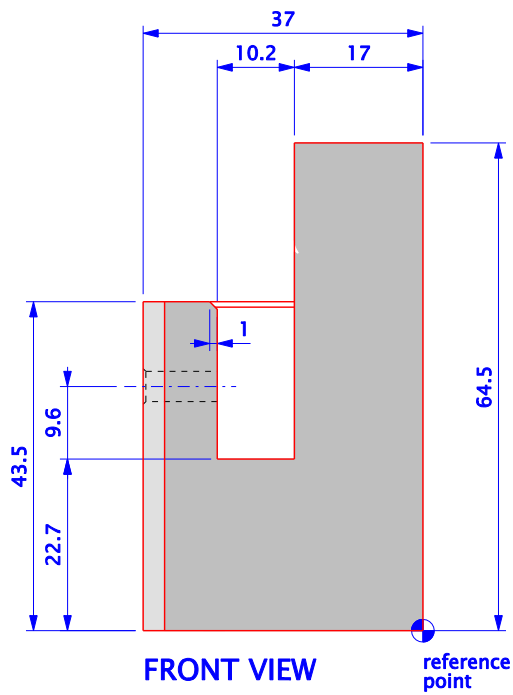
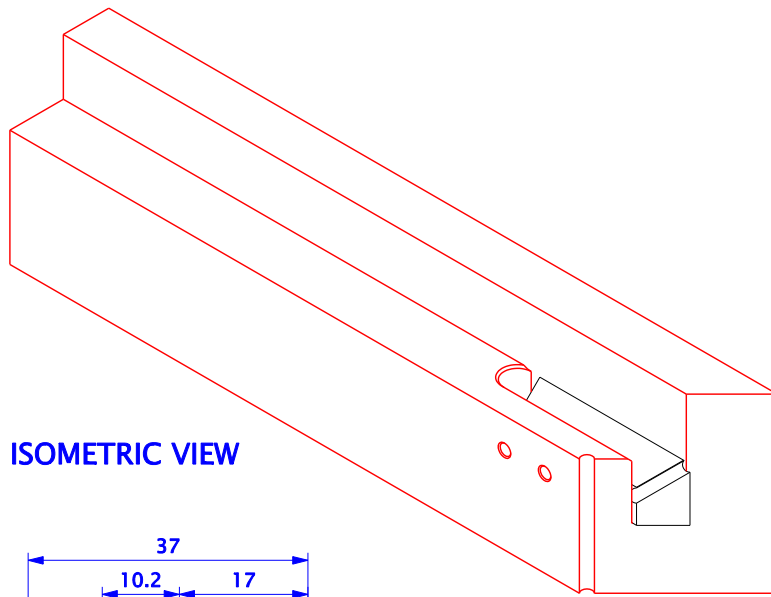
3179

TOP VIEW

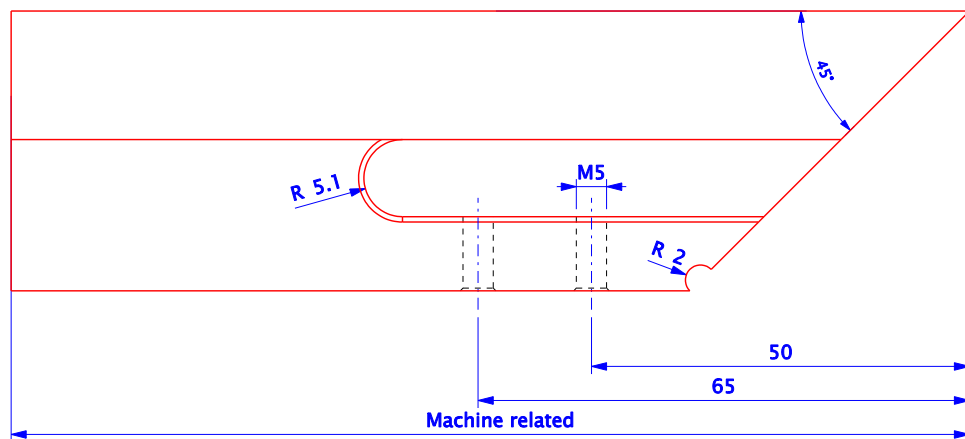


# Welding support blocks

3179\_top saddle



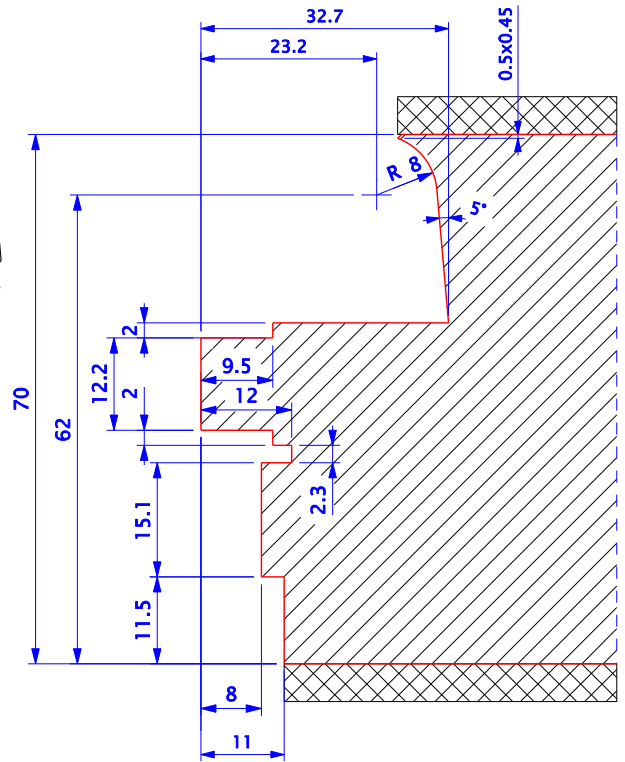
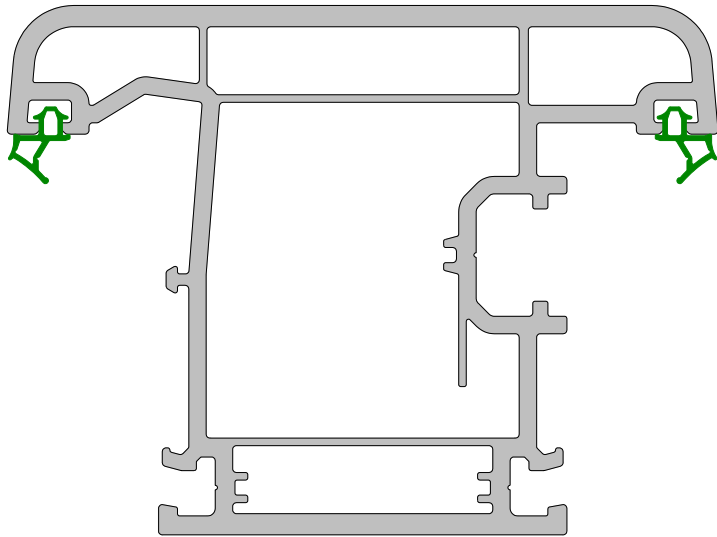
TOP VIEW



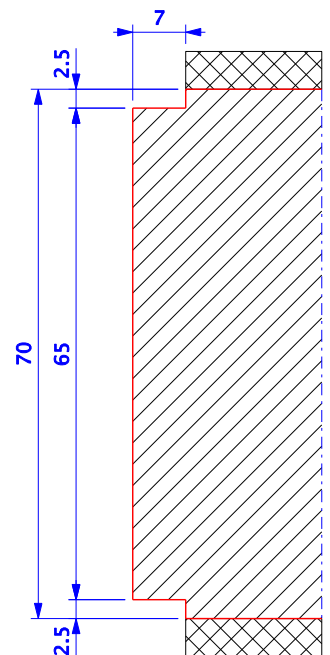
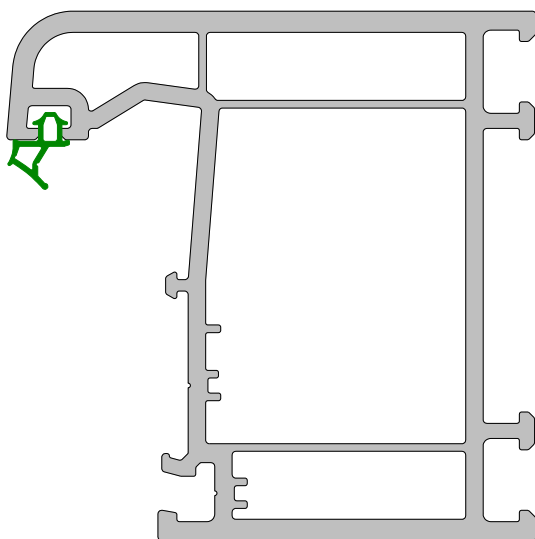


## Corner cleaning

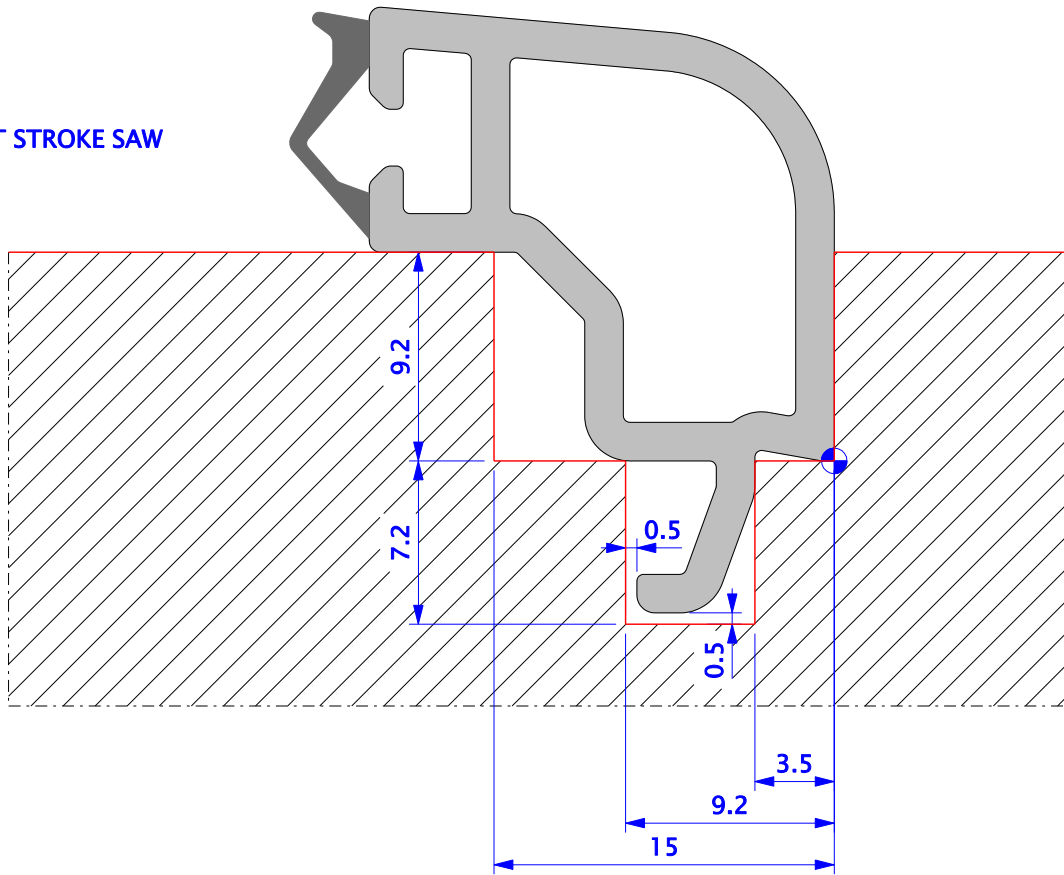
Sash 3062



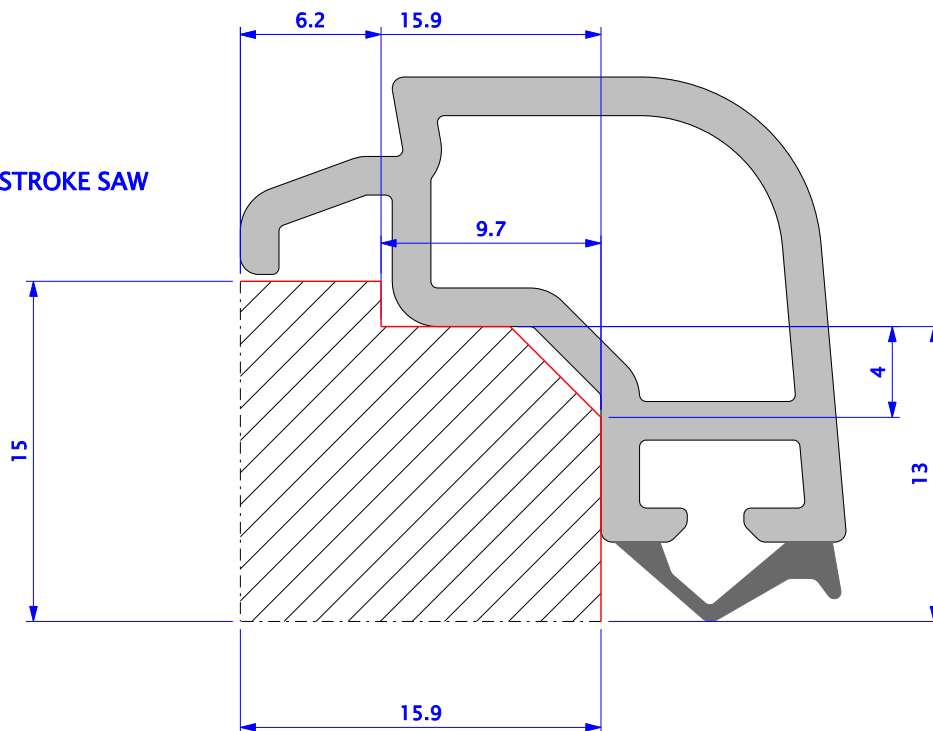
## Frame 3002



OUT STROKE SAW



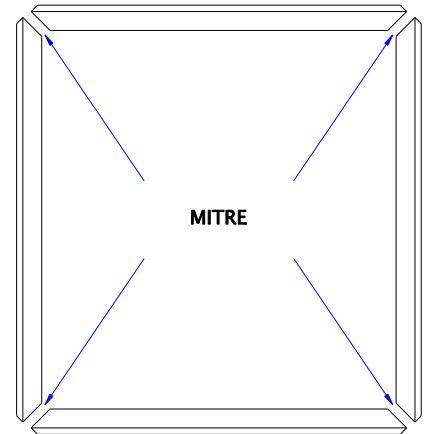
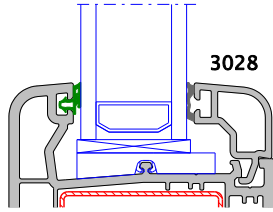
DOWN STROKE SAW



# Beading Mitred

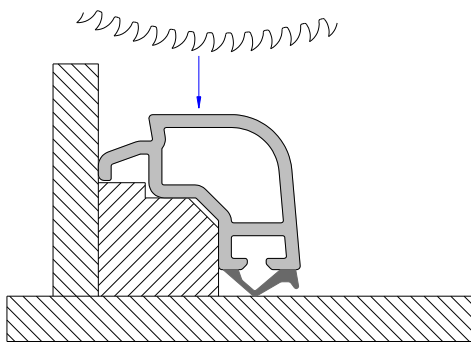
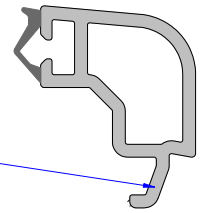
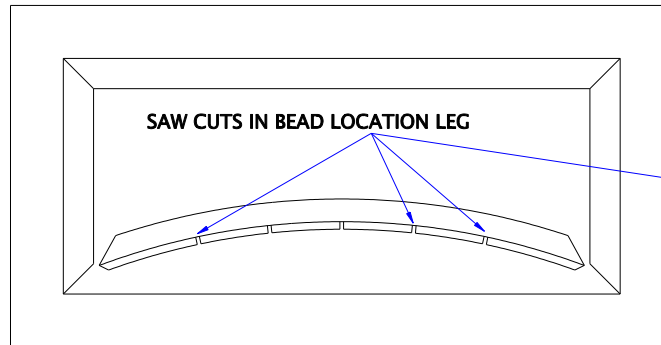
## FABRICATION TOOLS

Guidelines below show typical detail for 28mm glazing beads.

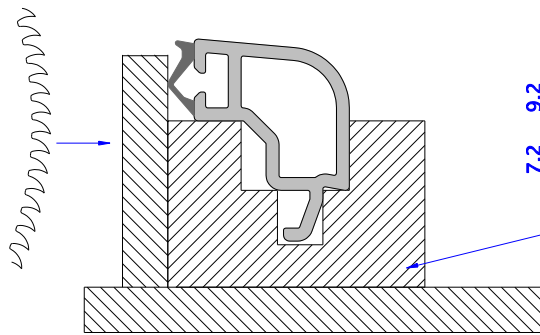


When beading rectangular frames it is always best to leave one of the longest beads until last because this will need to be bent to allow location into the frame, and the longer the bead the easier it will bend.

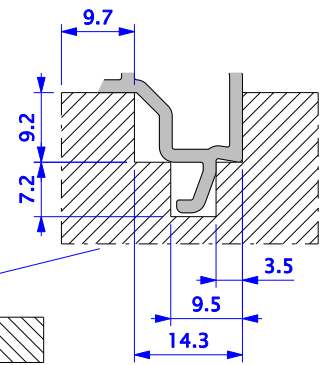
When beading smaller frames it may be necessary to put a series of saw cuts into the last beads location leg, this will allow the bead to bend and make insertion into the frame much easier.



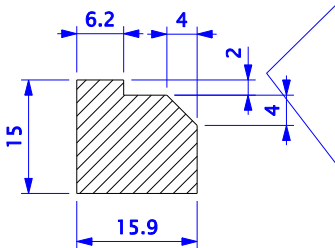
DOWN STROKE SAW



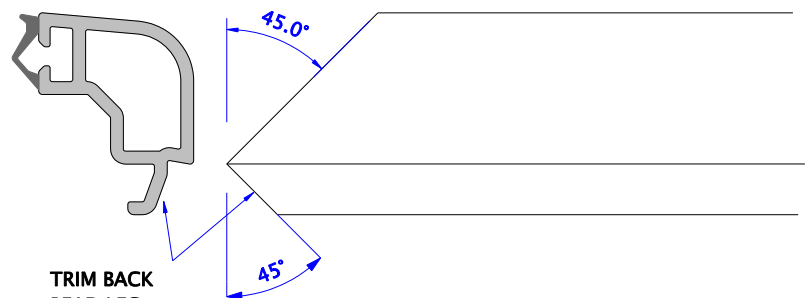
OUT STROKE SAW



SUPPORT BLOCK DETAIL

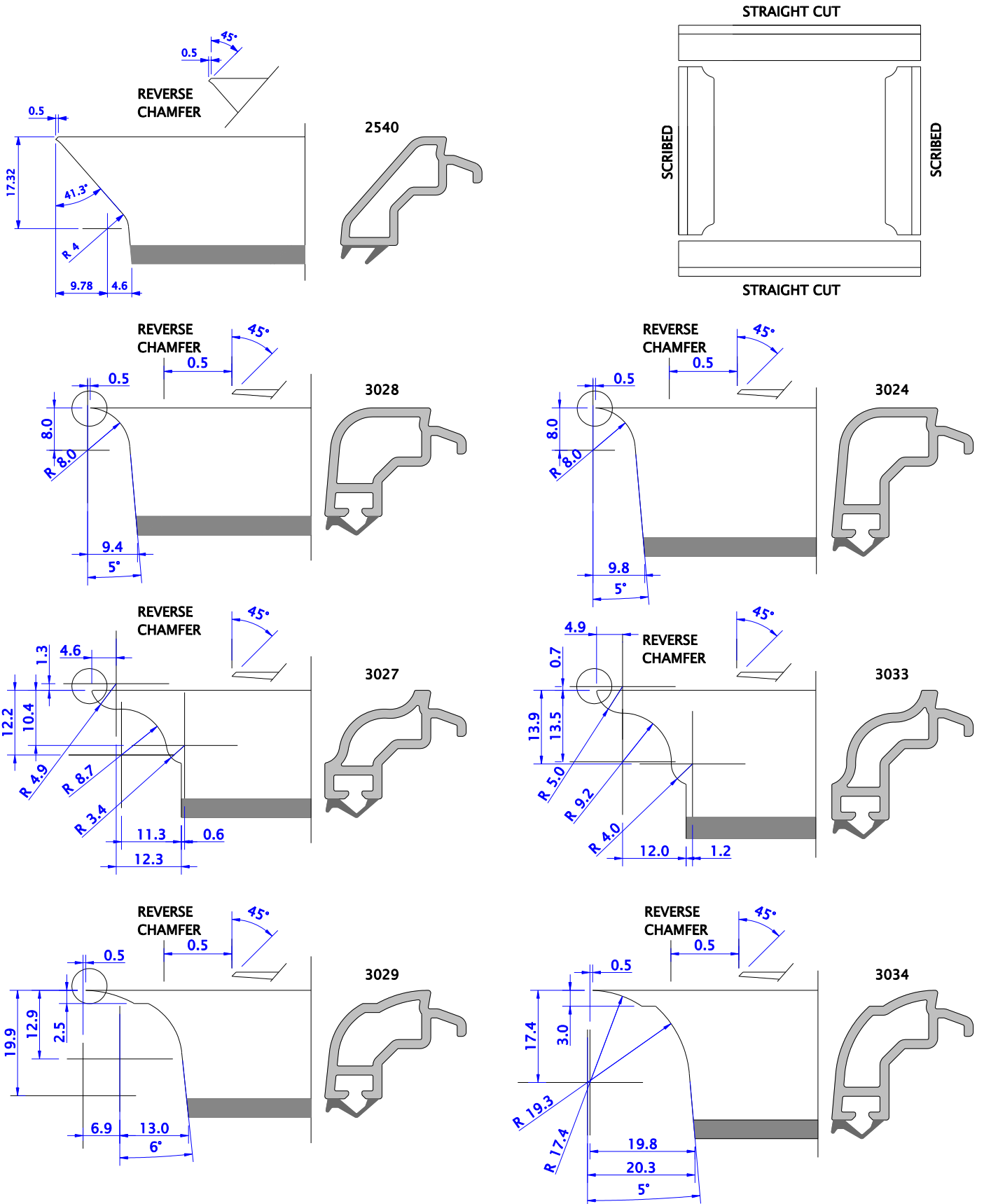


SUPPORT BLOCK DETAIL

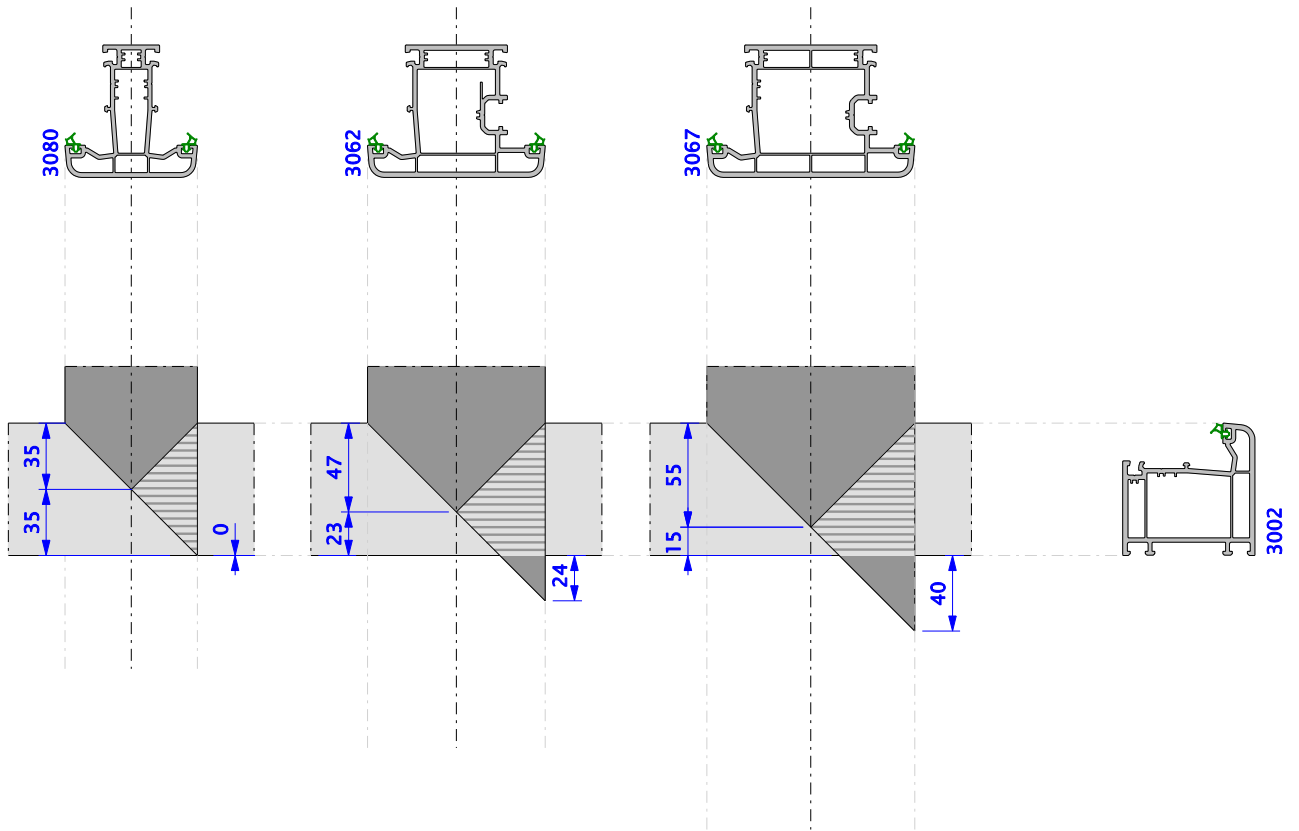


TRIM BACK BEAD LEG

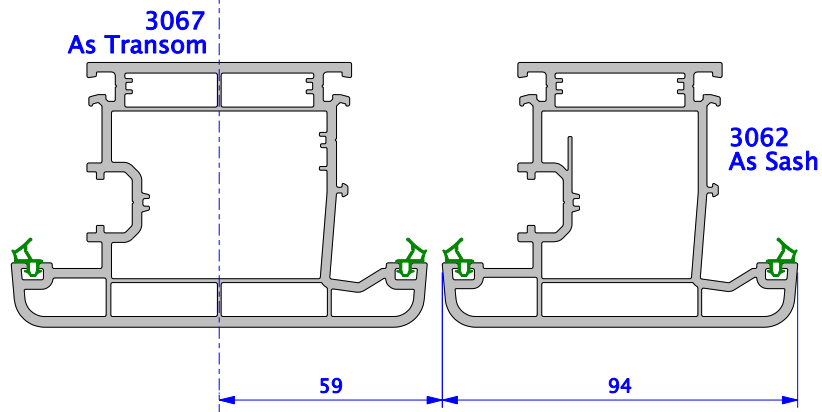
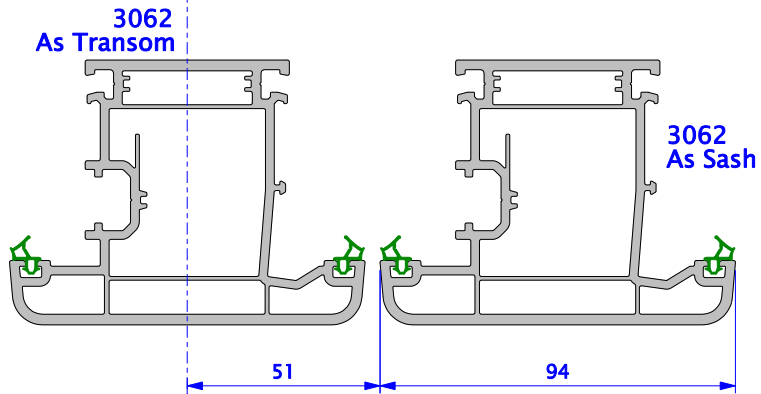
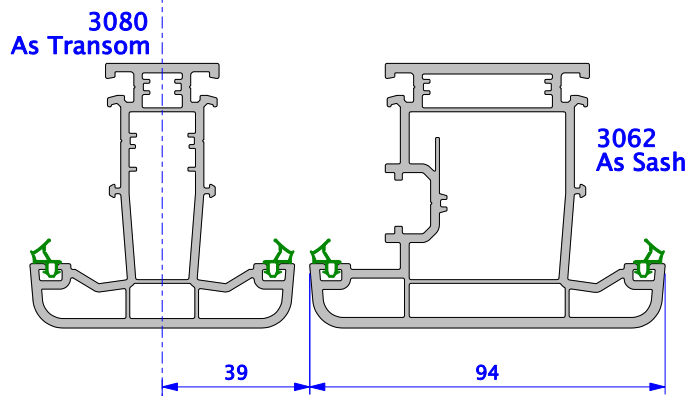
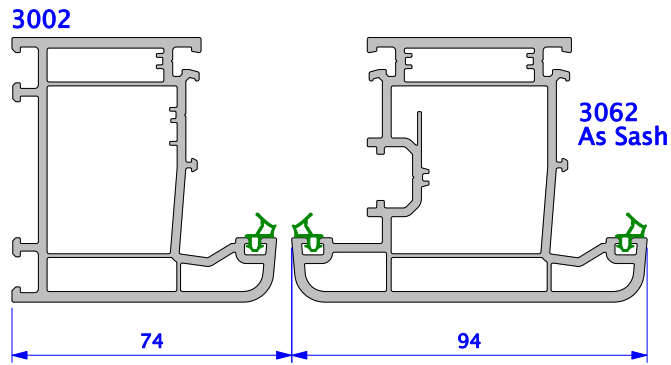
**"IMPORTANT"**



PROFILE / WINDOW SECTIONS  
DRAINAGE & DECOMPRESSION  
V-NOTCH WELDING  
HARDWARE  
GLAZING TABLE  
FABRICATION & ASSEMBLY  
FABRICATION TOOLS  
**CUTTING SIZES**



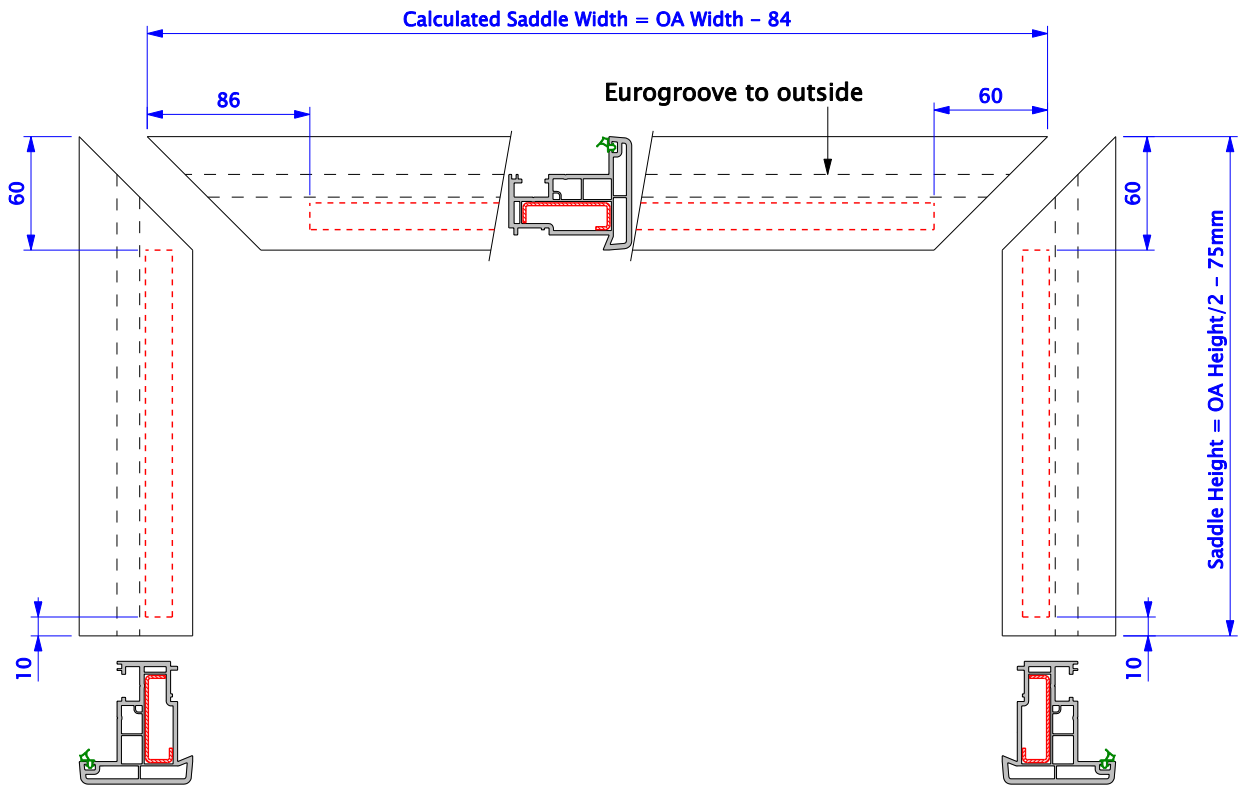
CUTTING SIZES



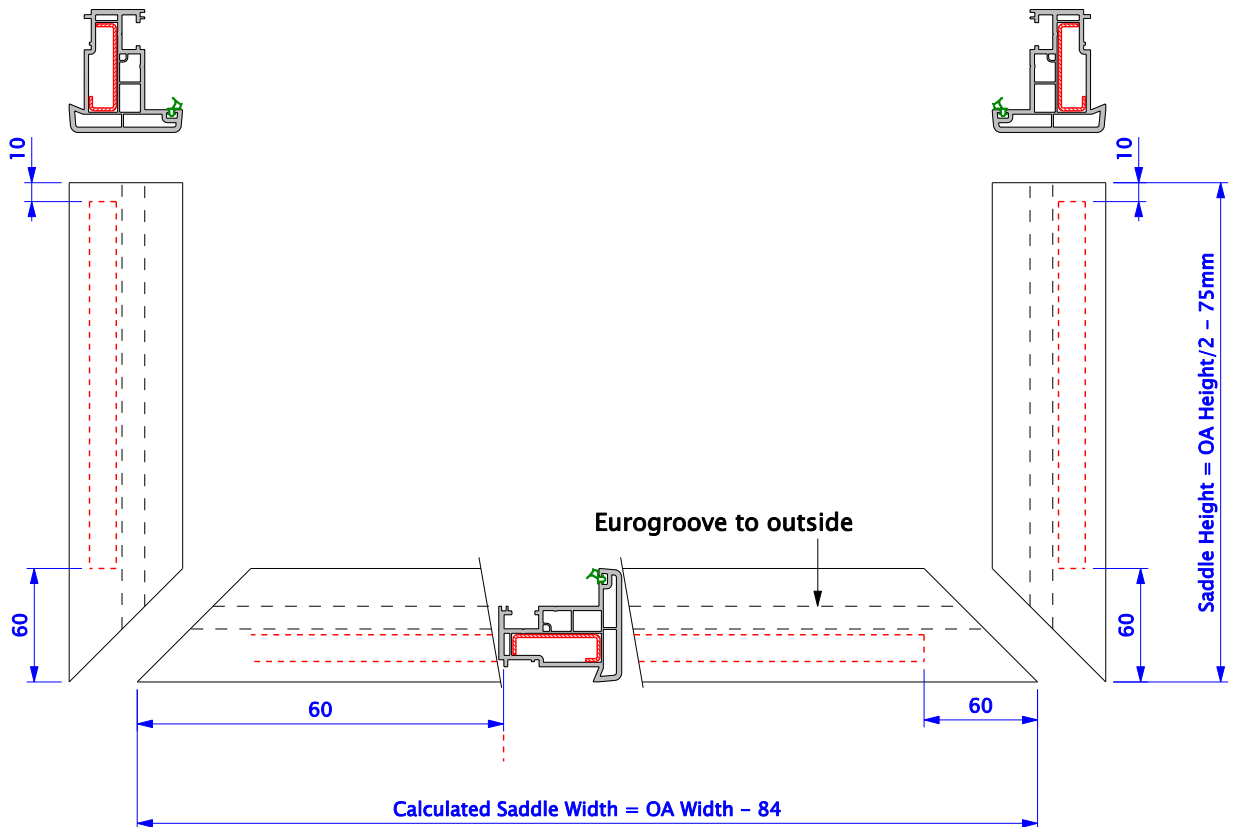
Note. Cutting sizes do not include a weld allowance

**CUTTING SIZES**

Top Saddle for attaching to sash frame.

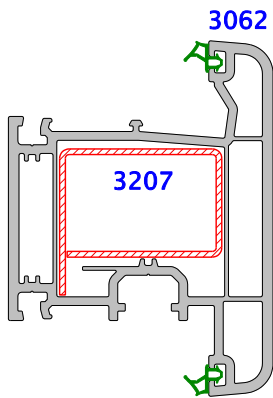
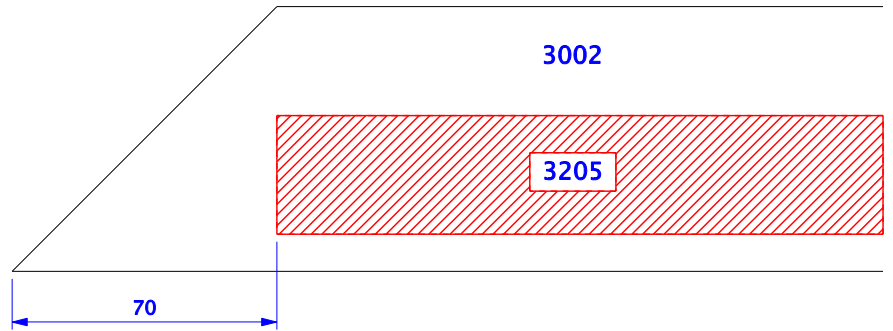
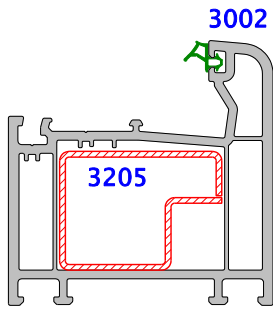


Bottom Saddle for attaching to outer frame.

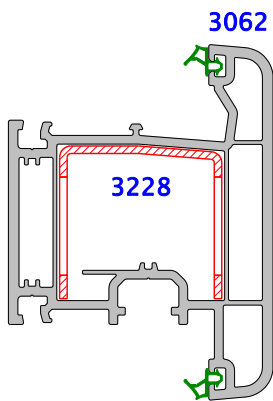
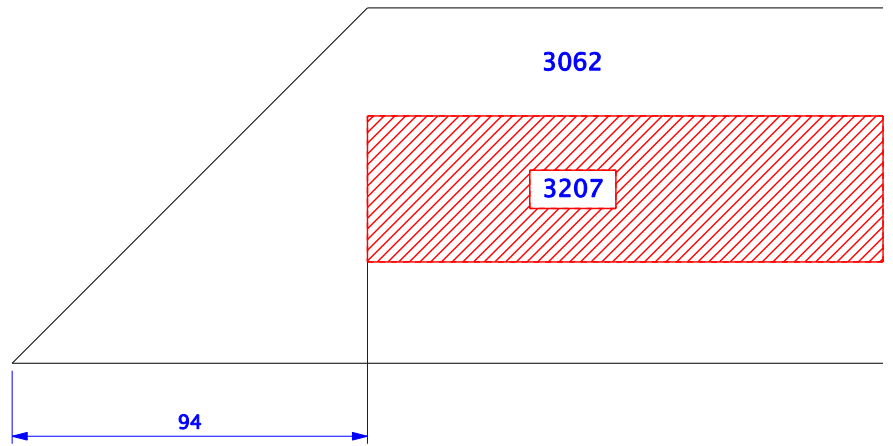


Note. Cutting sizes do not include a weld allowance

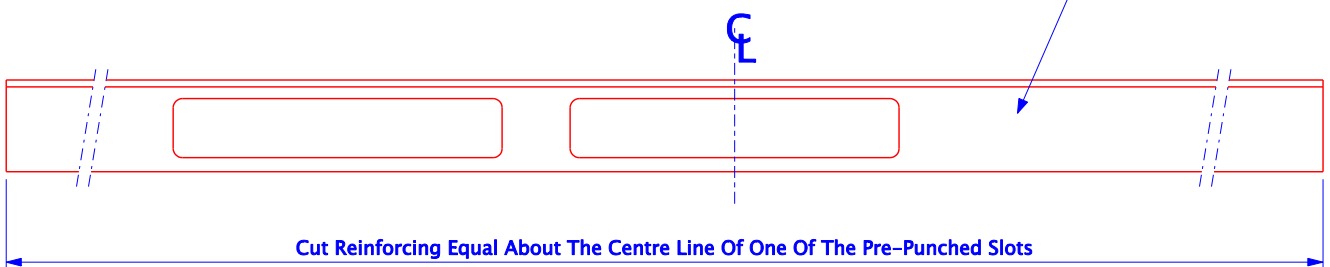
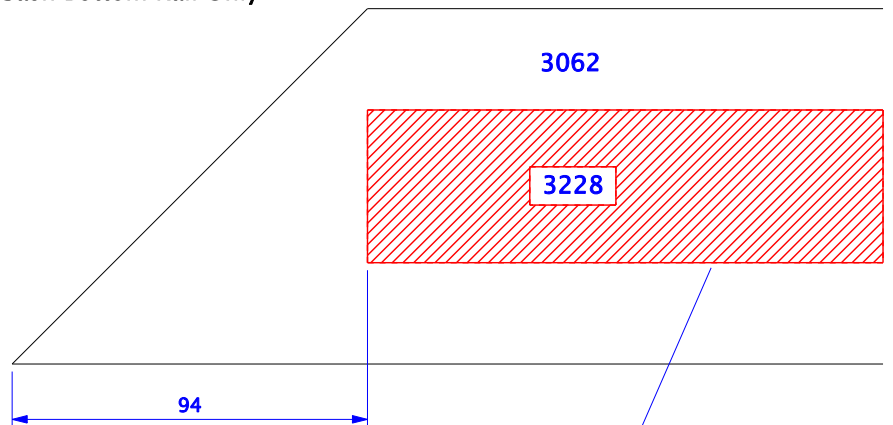


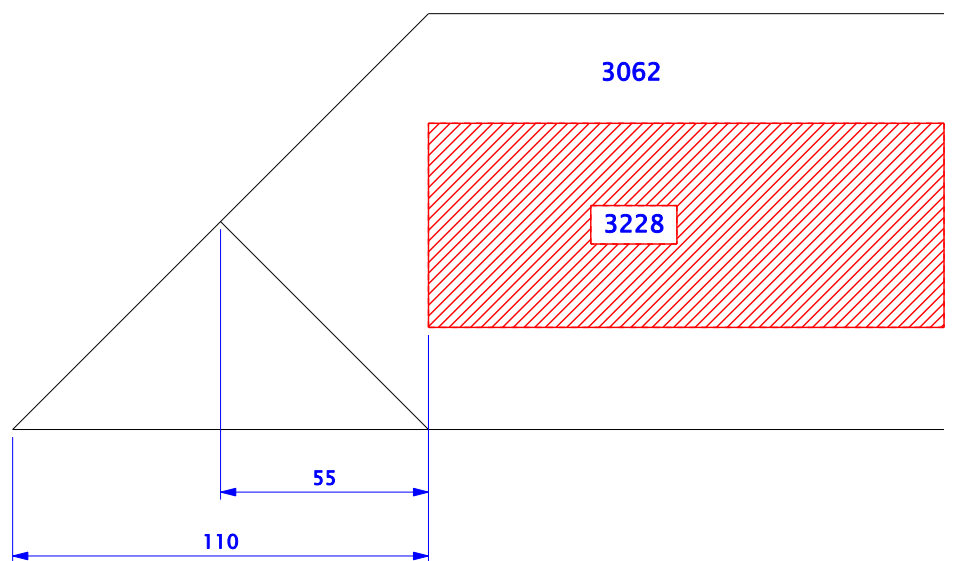
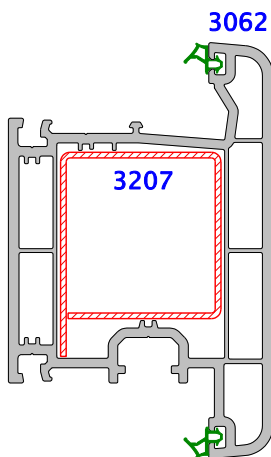
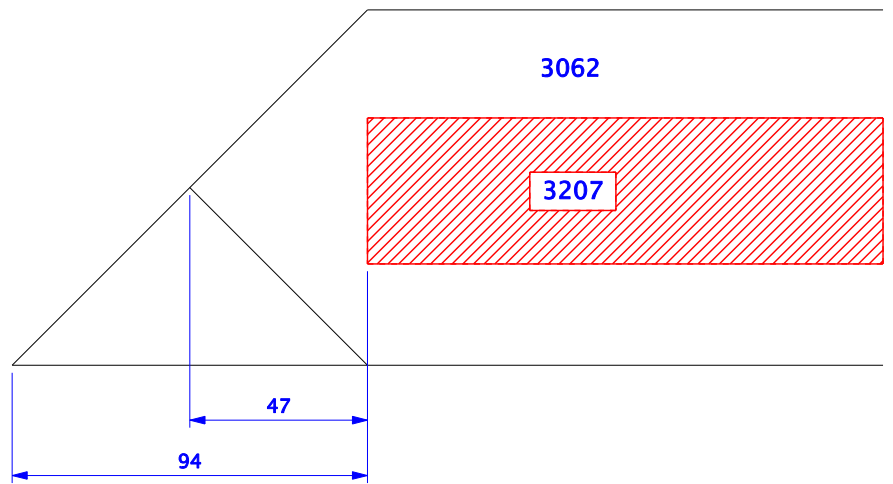
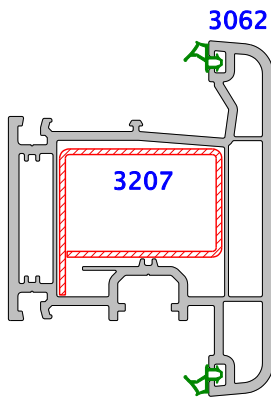
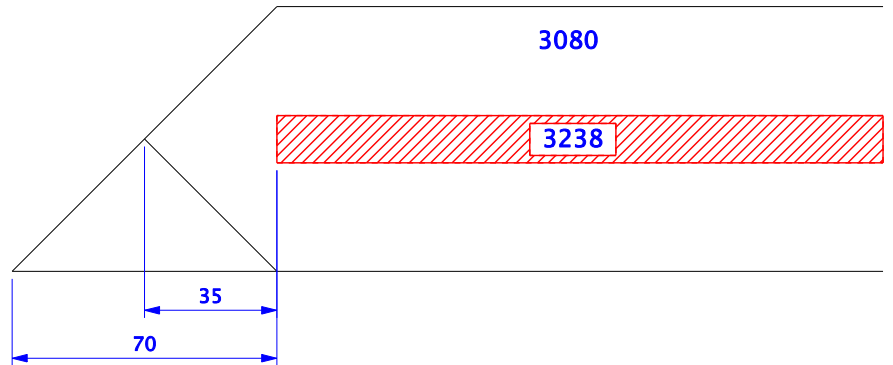
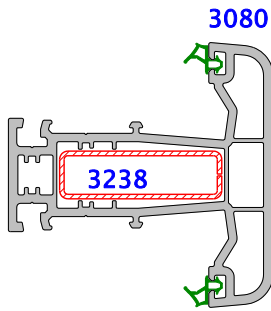


Sash Top Rail & Sides Only



Sash Bottom Rail Only





# INSTALLATION

GENERAL GUIDELINES  
INSTALLATION DETAILS  
SAFETY IN USE

**GENERAL GUIDELINES**  
INSTALLATION DETAILS  
SAFETY IN USE

Check the structure around the openings for any defects such as cracked mortar joints and that suitable lintels are in place. Report any defects to the customer in writing and agree on the method of proceeding.

**NOTE. PVCU windows and doors are not designed to be load bearing**

Check the openings for any service cables (e.g. TV Aerial cables or telephone lines), mark these on the survey and agree with customer on the method of handling.

Determine the exposure category of the site and ensure that the replacement windows and doors are suitable.

Ensure compliance with Building Regulations as these affect replacement products. Particular attention is drawn to the requirements of Approved Documents L (Conservation of Energy), M (Access) and N (safety). Also, the fitting of replacement windows and doors should not worsen the existing provision in respect of Approved Documents F (Ventilation) and B (Egress). Photographic evidence of existing windows and doors should be considered in respect of queries raised by FENSA inspectors etc.

Ensure there are no obstructions, either internally or externally, that will prevent the new windows or doors from functioning correctly (e.g. external rainwater pipes or internal taps).

Check that the design of product falls within the recommended maximum size range, see section 4.3 Size Limitations.

Reference to be made to the hardware supplier to confirm suitability of selected components for the sizes intended.

**INSTALLATION**

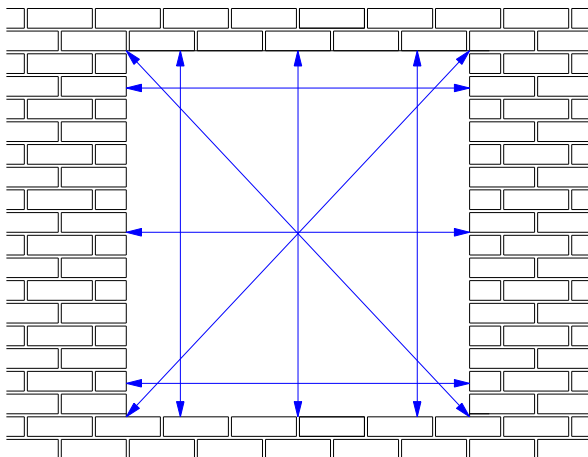


FIG 1

Take measurement of the width,height and diagonals as shown in Fig 1. The smallest measurement taken determines the tight overall width & height sizes.

The deductions shown in Table 1. should then be made all round the perimeter to allow for expansion and contraction, dependant on the size and finish of the new frames.

The sizes left are the manufacturing sizes for the new frames.

Determine if projecting sub-cills are to be fitted and where included ensure that a minimum projection of 25mm is provided beyond the structure.

Measure internal reveal sizes and compare with external opening sizes to ensure that opening lights are not impeded; this is important for inward opening doors and tilt & turn windows in particular. The thickness of external rendering should be checked for clearance of outward opening lights.

The survey should also determine the installation method to be used (e.g. through the frame fixing or with lugs) and ensure compliance with system designer and industry recommendations.

Width/Height of opening	White PVCU	Non White PVCU
Up to 1.5m	5mm	7.5mm
1.5m to 3.0m	5mm	7.5mm
3.0m* to 4.5m	7.5mm	11.0mm
Over 4.5m*	10.0mm	14.0mm

Table 1.

Deductions shown are per side not total.

\* Frames over 3.0m should ideally be coupled.

## Transportation

When transporting glazed or unglazed frames, they should be firmly secured in an upright position on clean resilient packing. This will help prevent scratching of the surface of the profile. Frames stored on site should be treated in the same way and should be carried securely and placed in position without heavy impact. PVCU has a high resistance to weather, corrosion, and most materials found on building sites. However, as PVCU frames are delivered to the installer in a "completely finished" condition, care taken in transport, storage and handling will prove beneficial, thus ensuring a good installed appearance and customer satisfaction.

The protective tape on the PVCU frame(s) should be removed on completion of the installation, prior to final cleaning.

## Protection

**CEMENT, PLASTER AND SAND** will not effect the properties of PVCU and may be easily cleaned from the surface – though care should be taken to avoid scratching. They may block drainage channels and so these should be checked and cleaned carefully before handover. Cement and plaster will corrode and spoil the action of gear and fittings so they should be cleaned off immediately.

**TAR AND BITUMEN** may stain the surface of white PVCU and contact should be avoided during storage and installation

**SILICONE SEALANTS** generally will have no effect on PVCU and may be used with confidence. However, mastic and sealant systems which include solvent based primers must not be used. If you are in doubt, consult the sealant supplier.

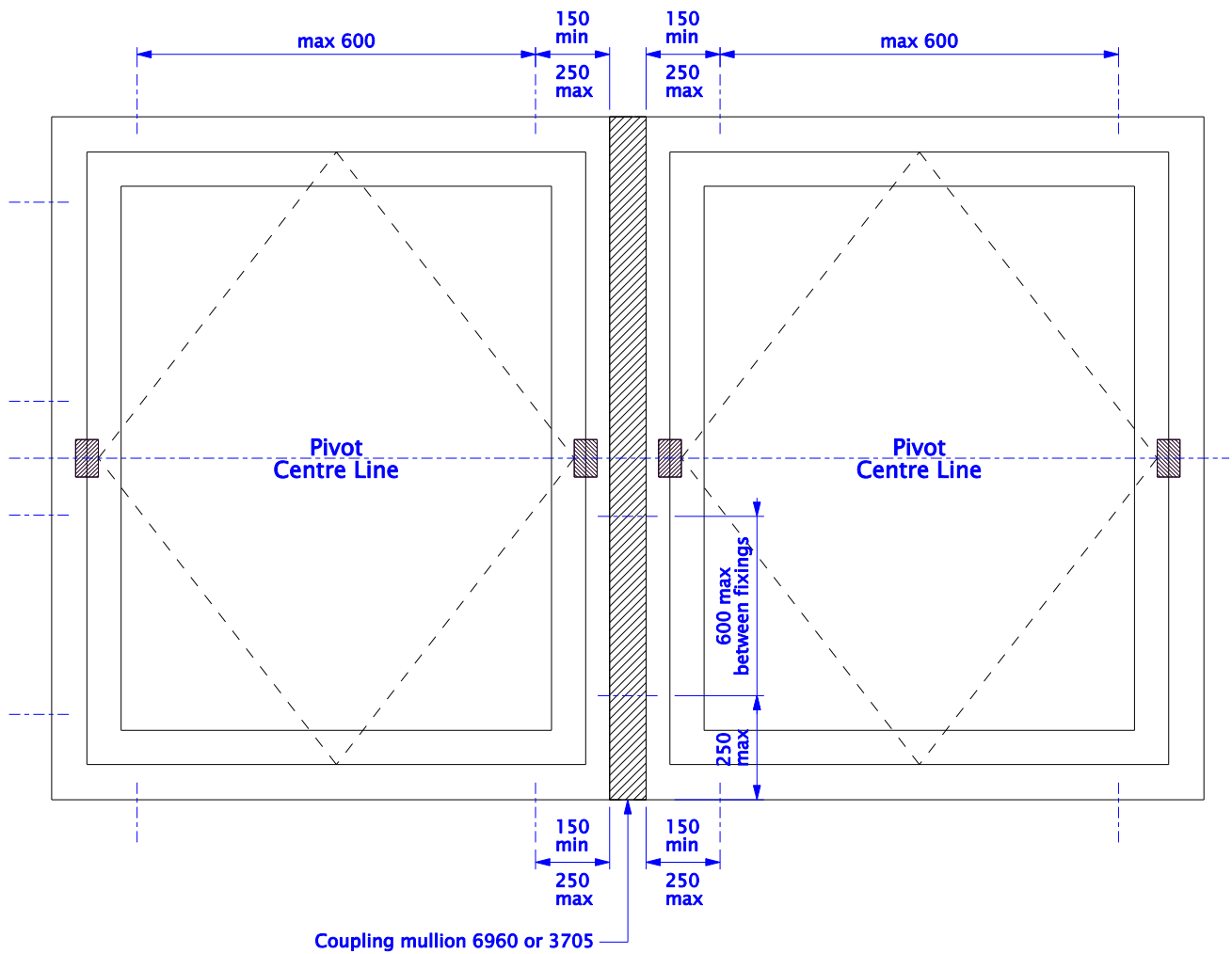
- Before removal of existing windows, it is of extreme importance that the following points are checked:-
  1. Check the structure around the opening for any defects such as cracked mortar joints and report any defects in writing to the customer before proceeding.
  2. Check the new windows have not been damaged in transit and that they have been manufactured in accordance with the customers original order.
  3. Check that the measurements of the new windows are correct so that they will fit into the aperture once the existing windows have been removed.
- Move any items of furniture away from the window aperture in order to avoid damage whilst removing the existing window or installing the new window.
- Cover carpets and soft furnishings with dust sheets so as to minimise the possibility of damage and to facilitate the "cleaning-up operation" after the installation.
- Using a craft knife or similar, score around the perimeter of the existing frame on the inside, where the plaster or wall decoration meets the frame. In most cases this will minimise damage.
- Remove all opening sashes and glass from the main frame
- Saw through any mullions or transoms and break these out of the main frame.
- Saw through verticals of main frame as far as possible without causing damage to internal reveals or structure.
- Protecting plaster and renderings with a bearing block, use a levering bar between the structure and the main vertical frame, to carefully lever the verticals inwards, and then complete the saw cut. Remove the vertical members completely from the aperture.
- Using the same procedure, remove the horizontal members of the outer frame from the aperture.
- Clean the aperture and remove where possible any mastic from the structure.
- Remove all debris from the site.
- Removal of sub-cills  
Sub-cills – and sometimes heads, windowboards and mullions are often 'horned' into the fabric of the aperture. This may conceal damp proof courses and lead to difficulties in removal. Great care must be taken when cutting and levering these items to reduce damage to plaster, renders and brickwork to a minimum. If the DPC is damaged, then it must be replaced.
- Removal of 'Box-Sash' windows  
Most box-sash windows pre-date cavity walls, and are built into the internal reveals of solid brickwork. The sashes are removed fully glazed.
  1. Remove the mitred beading from around the frame.
  2. Cut the sash cords to release the weights.
  3. Remove the bottom sash, then take off the parting bead and take out top sash.
  4. Cut the outer frame from the aperture, leaving the horns in the structure.
  5. Remove the counterweights from the sash box.
  6. Remove the sub-cill, if this is not part of the outer frame.



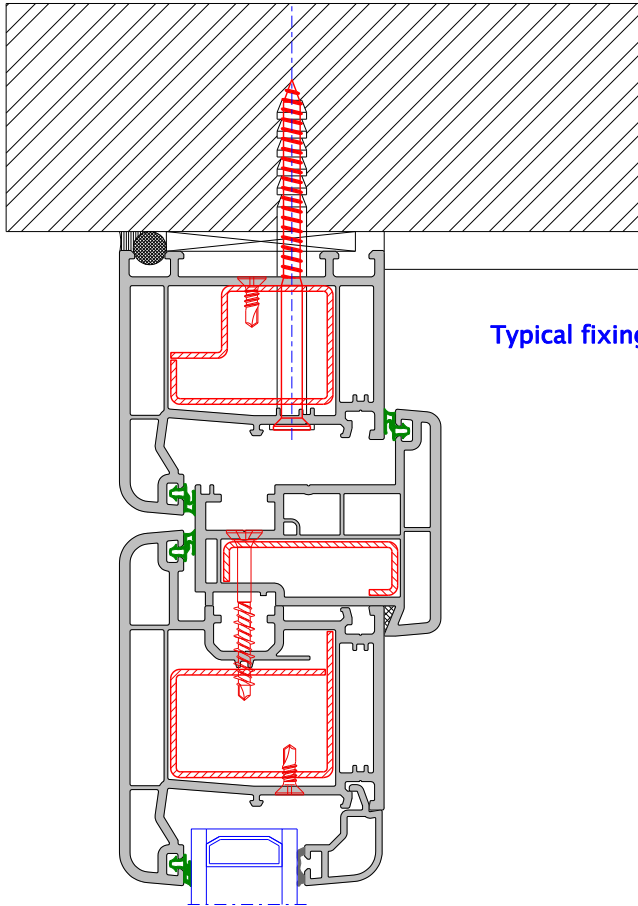


Ideally, coupling mullions used with pivot windows should be separately fixed to the structure at the head and cill to prevent or limit movement caused by the weight of sashes or wind load. Coupler combination 3705/3715 provides such a fixing method.

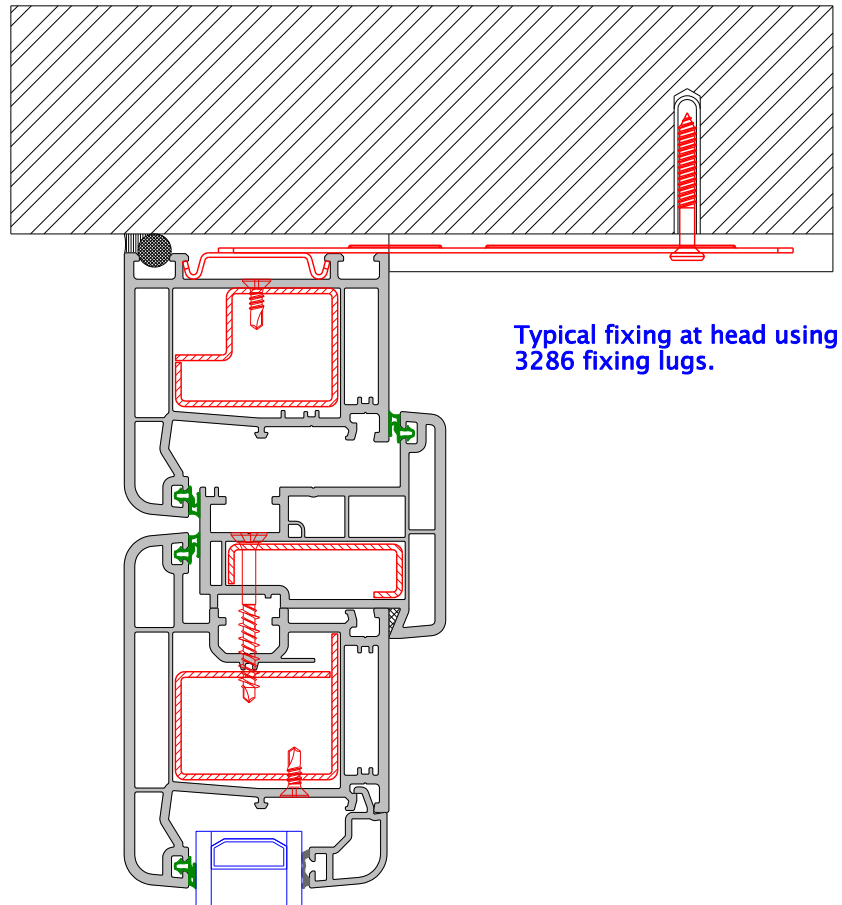
Where this solution is not used, framing adjacent to the coupling mullion must be securely fixed to the structure at the head and cill.



GENERAL GUIDELINES  
INSTALLATION DETAILS  
SAFETY IN USE

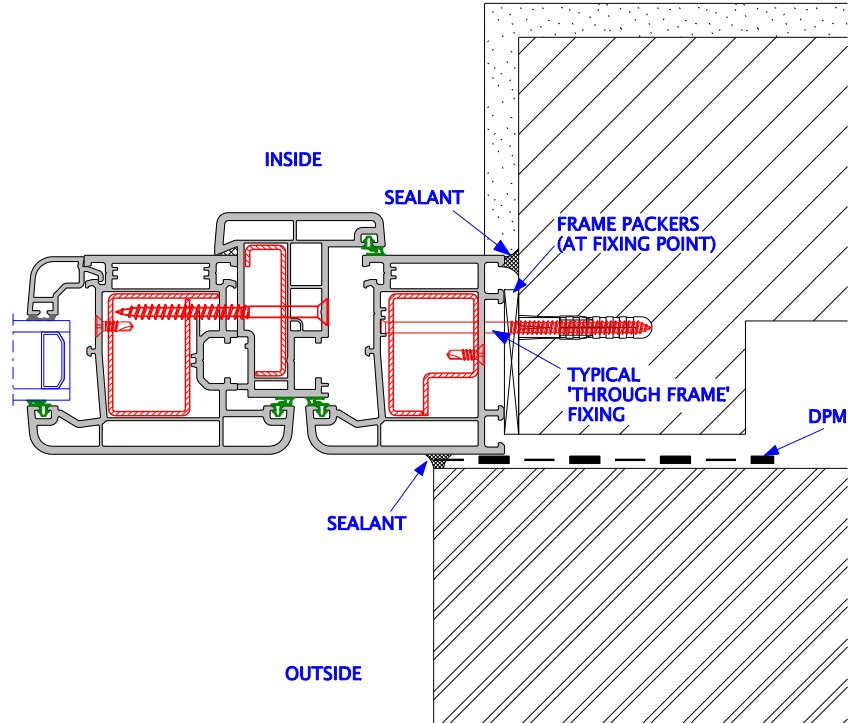


Typical fixing through the head

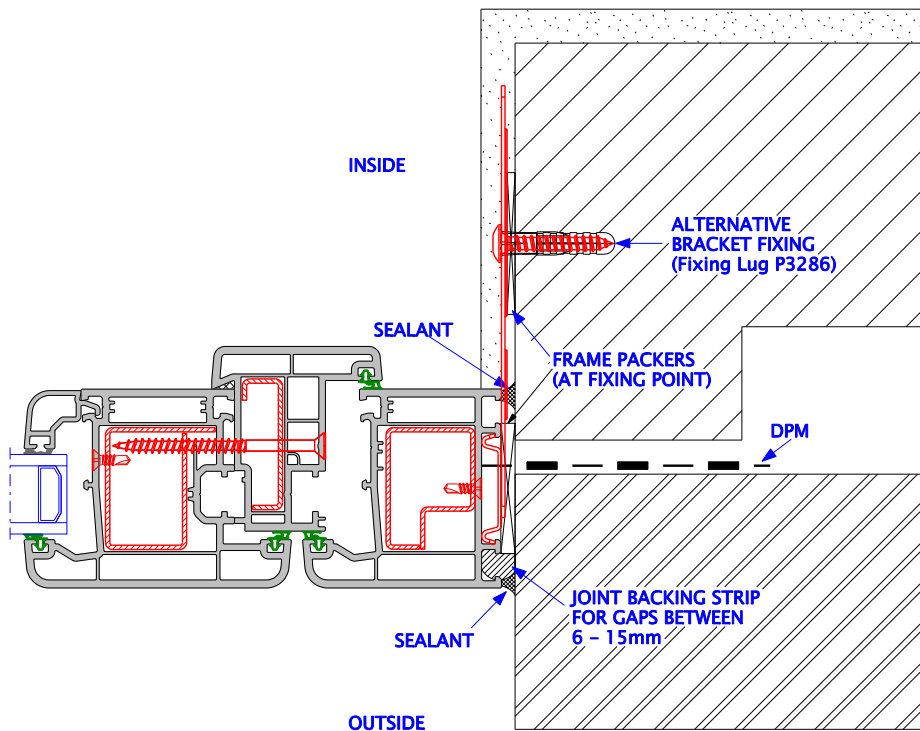


Typical fixing at head using  
3286 fixing lugs.

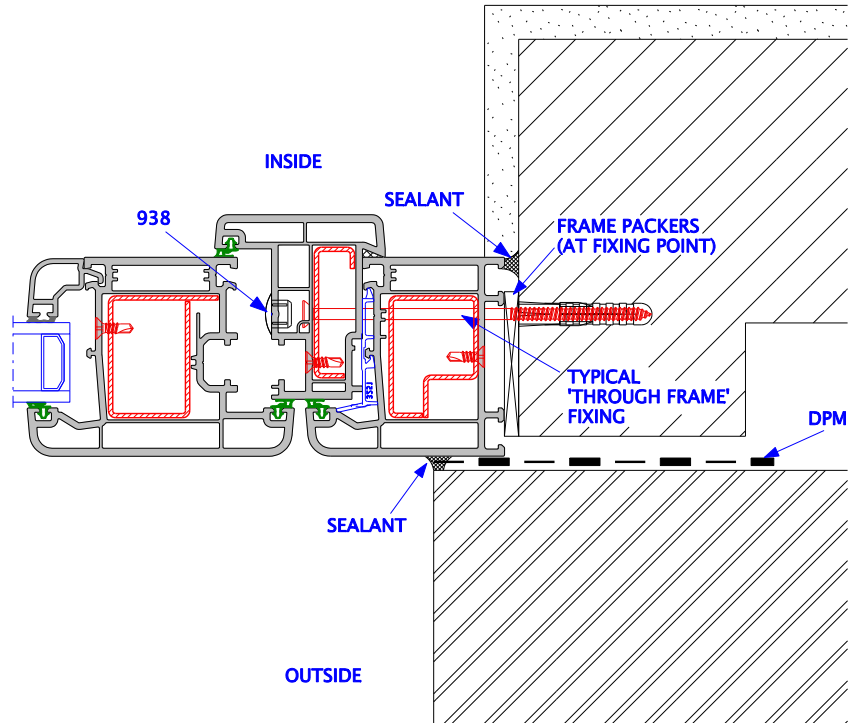
Typical Jamb Detail:  
Section through stepped/rebated reveal:



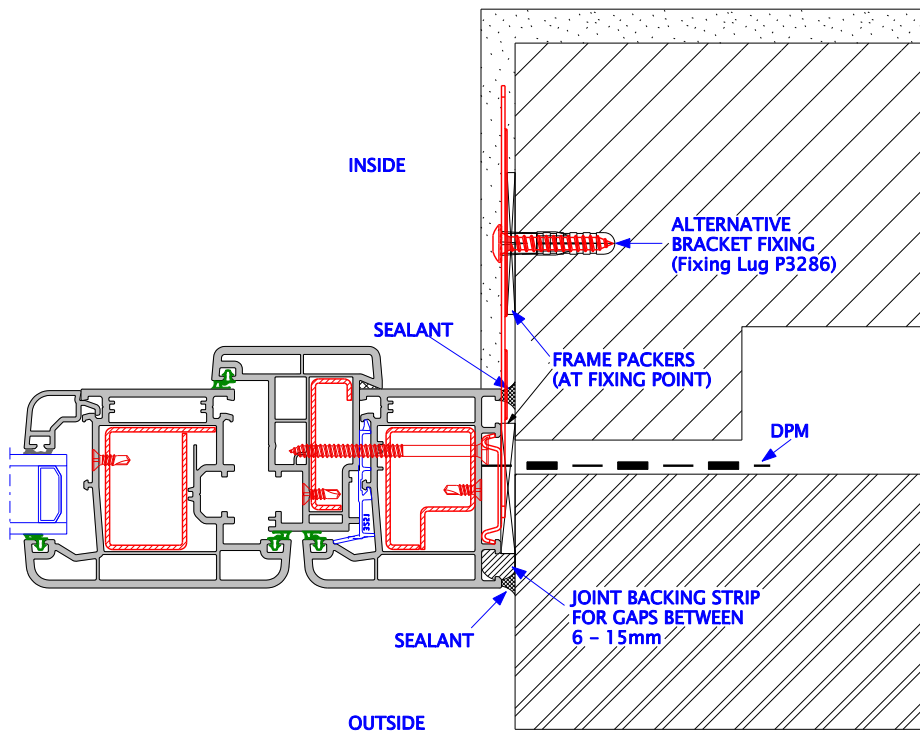
Typical Jamb Detail:  
Section through flush reveal:



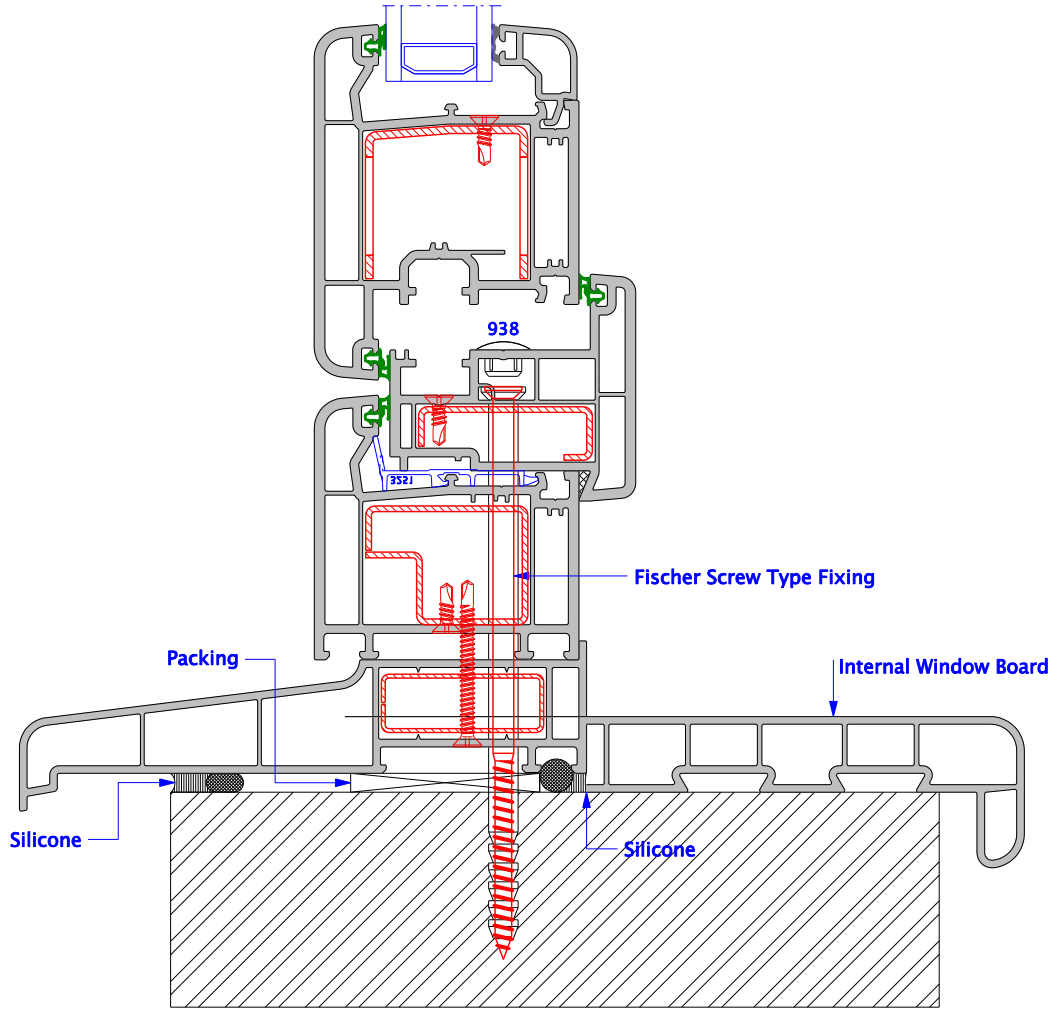
Typical Jamb Detail:  
Section through stepped/rebated reveal:



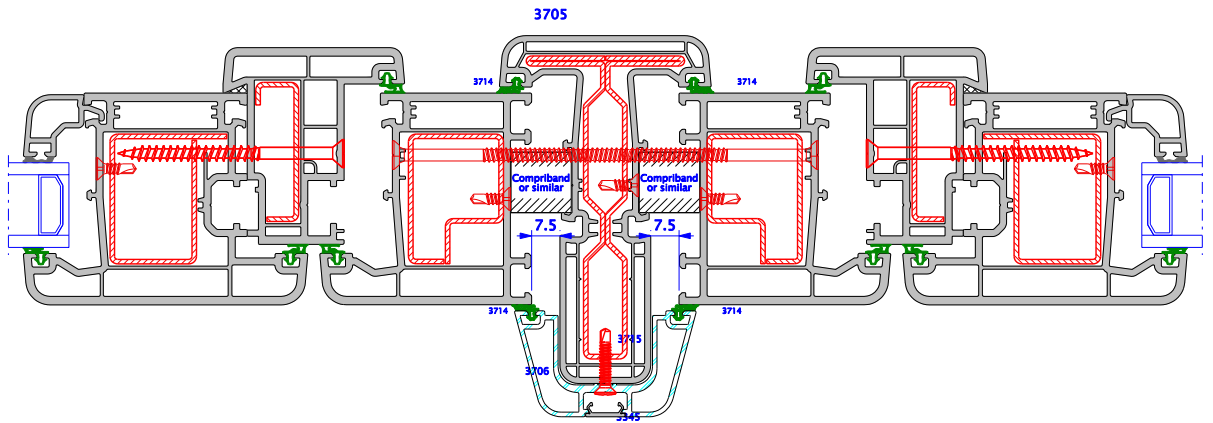
Typical Jamb Detail:  
Section through flush reveal:



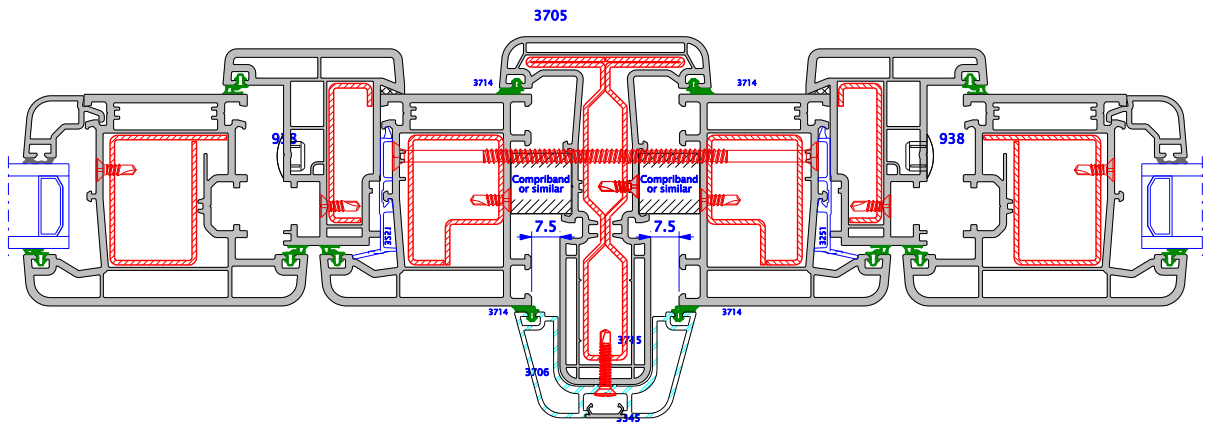
Typical Fixing At Cill



Fixing Above The Pivot



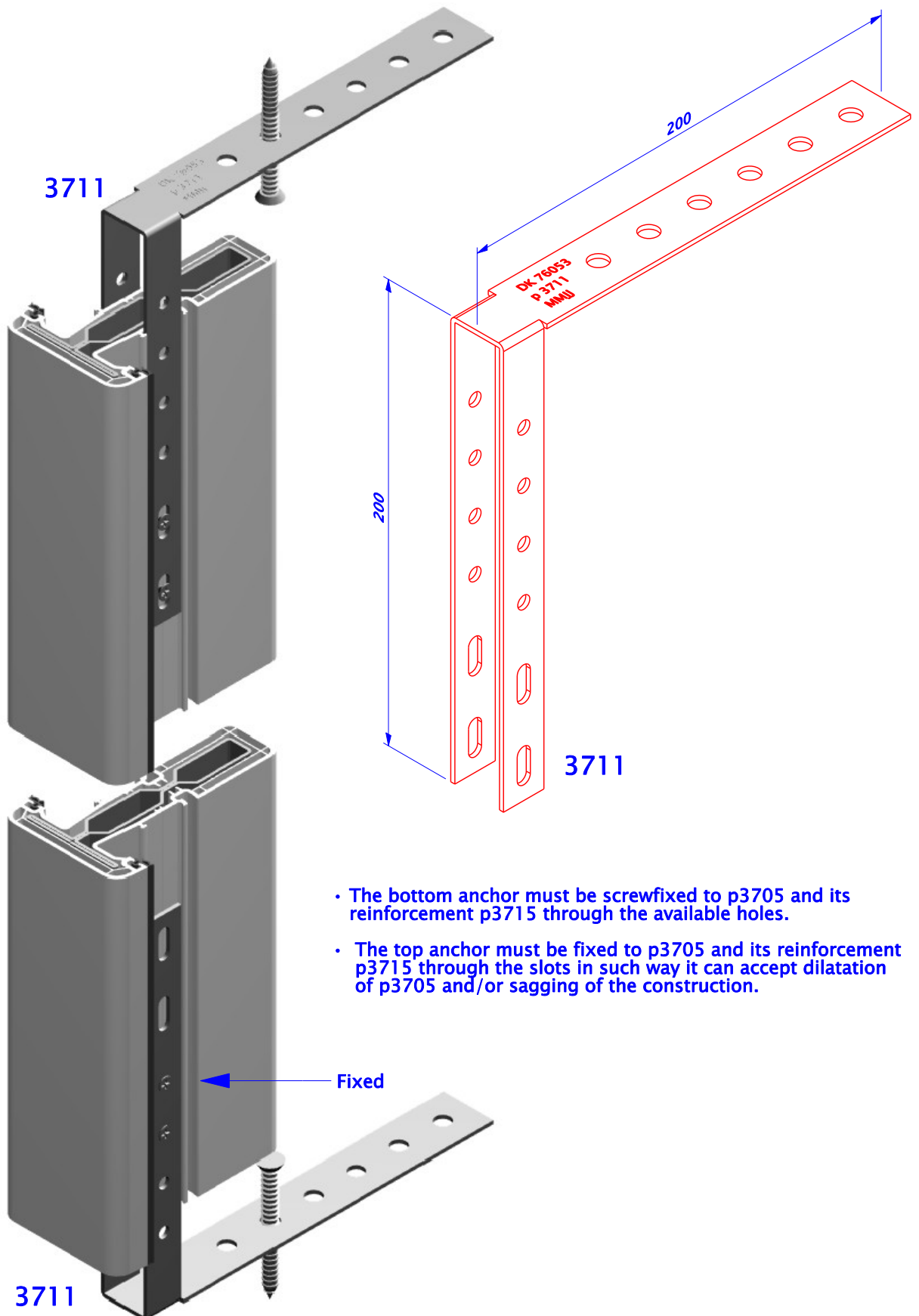
Fixing Below The Pivot





Fixing – 3705/3715 Coupler  
3711 Head & Cill anchor point

INSTALLATION DETAILS



- The bottom anchor must be screwfixed to p3705 and its reinforcement p3715 through the available holes.
- The top anchor must be fixed to p3705 and its reinforcement p3715 through the slots in such way it can accept dilatation of p3705 and/or sagging of the construction.

GENERAL GUIDELINES  
INSTALLATION DETAILS  
**SAFETY IN USE**

**Handles**

- Where suitable, key locking handles are available.

**Notes**

- Compliance with Building Regulations in respect to this should be verified (in particular Approved Document B – Fire Safety).
- Restrictor devices are in accordance with the recommendations detailed in BS 8213-1:2004 'Window, Door & Rooflights – Part 1 – Design for safety in use...'  
Also meets the requirements for threshold value specified in EN 14351-1:2006

# PERFORMANCE

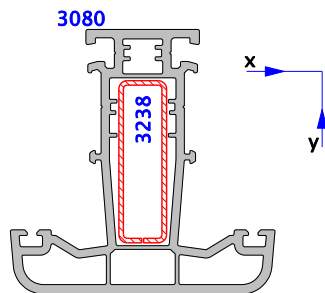
WIND LOADING  
REINFORCEMENT  
SIZE LIMITATIONS  
THERMAL  
POLICY

**WIND LOADING**  
REINFORCEMENT  
SIZE LIMITATIONS  
THERMAL  
POLICY

# Transoms

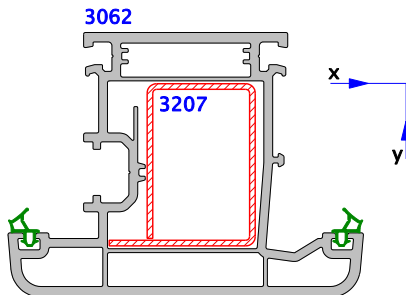
The calculated  $E_i$  values in this section are the true inertia values adjusted with the modulus of elasticity of materials used within our various section, values used are as follows:-

Material	Modulus
PVCU	2,500
Steel	205,000



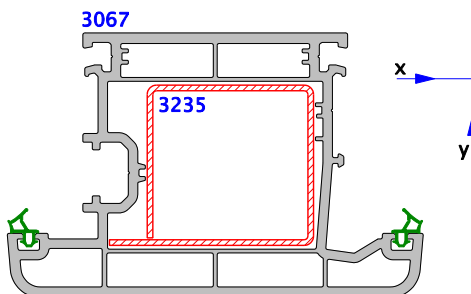
Combined  $E_i$  Values

Profile	Reinforcing	$E_{ix}$ Value ( $\times 10^9$ )	$E_{iy}$ Value ( $\times 10^9$ )
3080	None	1.18	0.58
3080	+ 3238	6.24	1.28



Combined  $E_i$  Values

Profile	Reinforcing	$E_{ix}$ Value ( $\times 10^9$ )	$E_{iy}$ Value ( $\times 10^9$ )
3062	None	1.71	1.69
3062	+ 3207	13.36	8.32



Combined  $E_i$  Values

Profile	Reinforcing	$E_{ix}$ Value ( $\times 10^9$ )	$E_{iy}$ Value ( $\times 10^9$ )
3067	None	2.07	2.90
3067	+ 3235	17.37	19.95

**NOTE**

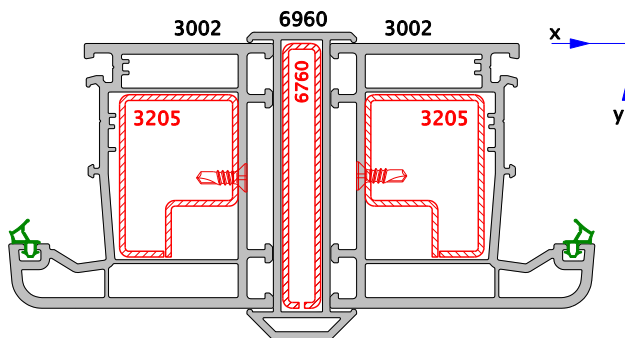
THE POSITIONING OF REINFORCEMENT SCREWS SHOULD BE NO GREATER THAN 300mm CENTRES AND A MAXIMUM OF 100mm IN FROM EACH END.

## Coupled Sections

The calculated  $E_i$  values in this section are the true inertia values adjusted with the modulus of elasticity of materials used within our various section, values used are as follows:-

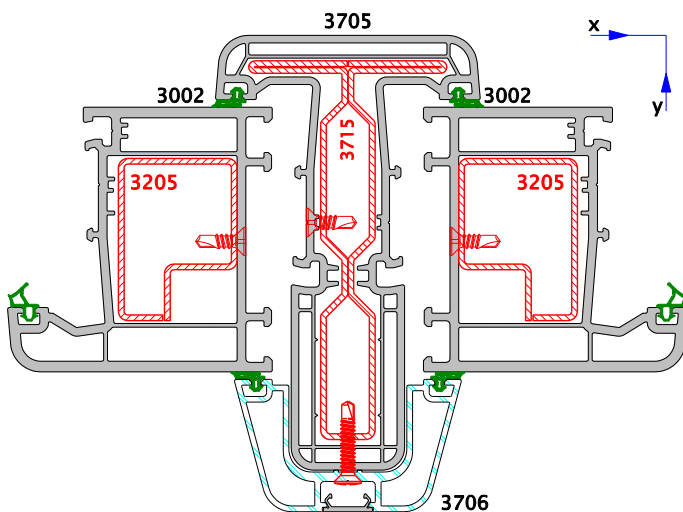
Material	Modulus
PVCU	2,500
Steel	205,000

COUPLED SECTIONS MUST BE SECURED TOGETHER AT MAXIMUM 300mm CENTRES



Combined  $E_i$  Values

Profiles	Coupler	Reinforcings	$E_{ix}$ Value ( $\times 10^9$ )	$E_{iy}$ Value ( $\times 10^9$ )
3002 x 2	6960	3205x2/6760	42.67	14.28



Combined  $E_i$  Values

Profiles	Coupler	Reinforcings	$E_{ix}$ Value ( $\times 10^9$ )	$E_{iy}$ Value ( $\times 10^9$ )
3002 x 2	3705	3205x2/3715	137.5	23.17

NOTE:-THE POSITIONING OF REINFORCEMENT SCREWS SHOULD BE NO GREATER THAN 300mm CENTRES AND A MAXIMUM OF 100mm IN FROM EACH END.

Requests for wind loading / exposure category calculations for windows and doors to the above standard can be dealt with in the following way:

1) Standard Method

Based upon BS 6399, this provides conservative safe results with a minimum of site data required and is particularly suited to smaller projects.

The following data must be supplied:

- a) Site Post Code
- b) Height to the top of the structure (eaves or ridge) containing the highest window
- c) Details of individual window sizes and styles
- d) Colour / finish of the PVC-U profile being used

The programme used will determine the 'Effective Wind Load' for the site to which a safe 'Net Pressure Co-Efficient' factor would be applied in accordance with BS 6375:2004 to provide a maximum wind load value for the windows. The reinforcing requirements of individual windows can then be assessed.

For wind load calculations in line with BS 6399 methods detailed on this page and/or window/scheme design service, please use the blank calculation request form on the following page.

Completed forms should be forwarded for the attention of the Technical Dept:

Fax. 01249 810921

Email. [mark.castle@deceuninck.com](mailto:mark.castle@deceuninck.com)

**PLEASE ENSURE ALL RELEVANT DATA IS SUPPLIED**



**Data for Wind Load Calculation**

Requested by: .....

Client Ref: .....

Date: ...../...../.....

Project Postcode: .....

Height of Building Eaves: .....

Proposed Window Detail(s): (Please identify style, overall size and break sizes)

[Large empty dashed box for window details]

(Please use additional page or your own survey sheet should the space provided not be sufficient to show all window/door styles)

**Data for Scheme Design** (If this service is required, please tick relevant boxes)

Finish: White  Foiled/Decoroc  Note. Coloured profile will require full reinforcement

Glazing Size: 24 mm  28 mm  Other  (Please specify) .....

Glazing Bead Style: Standard  Retro  Contemporary  Chamfered

Sash Style: Standard  Decorative

BS 8213 Compliance: Will window cleaning be carried out by resident? Yes  No   
(If no, a letter confirming this should be supplied by the contractor)

**Data for Deceuninck Records**

Project Size Rating: A < 25  B < 100  C ≥ 100   
(Total No. of windows/doors involved)

NOTE. For calculation to 'Directional/Hybrid method', please also supply the following building details:

- Plan with overall sizes and orientation of the front face (North facing = 0°)
- Elevation(s) with overall height and location of windows

This form must be completed in full to enable an accurate and complete calculation to be made.

WIND LOADING  
**REINFORCEMENT**  
SIZE LIMITATIONS  
THERMAL  
POLICY

## Specification

### ■ STEEL REINFORCING

Is roll formed band-galvanised sheet steel of the type DIN EN 10 142 Fe P02 G.  
Corrosion resistance in accordance with DIN EN 10147.

## Regulations

NOTE :- Please refer to section 4.1 for specific wind load requirements.

### PVCU Profile

Outer Frame 3002

Sash Frame 3062

Adaptor 3179

Transom 3062

Transom 3080

### Regulation

Always reinforce  
All vertical members regardless of span.  
All horizontal members regardless of span.

### ■ IMPORTANT NOTES

All reinforcement cut lengths must be a minimum of 85% of the cut length of the PVCU profile, and must be inserted in one continuous length, not multiples of short pieces.

All profiles must be fully reinforced, regardless of colour or span.

The positioning of reinforcement retaining screws should be no greater than 300mm centres and a maximum of 100mm in from each end.

For enhanced security Deceuninck recommend that all hardware is fixed to reinforcement.

WIND LOADING  
REINFORCEMENT  
**SIZE LIMITATIONS**  
THERMAL  
POLICY

The maximum size of any pivot window will depend greatly on the wind load pressure it is expected to perform to, please see section 4.1 for specific requirements.

The pivot window maximum size will also be controlled by the weight capabilities of the hinges, which are limited to a maximum of 60Kg.

#### MAXIMUM OVERALL SIZES

MAXIMUM WIDTH = 1500 mm  
MAXIMUM HEIGHT = 1500 mm } Single Lights

#### MAXIMUM TRANSOM/MULLION SIZES

3080 LIMITED TO 1000mm

3062 LIMITED TO WIND LOAD CAPABILITIES

3067 LIMITED TO WIND LOAD CAPABILITIES

WIND LOADING  
REINFORCEMENT  
SIZE LIMITATIONS  
**THERMAL**  
POLICY

## Thermal Performance

The 2006 revision to Approved Document L 'Conservation of fuel & power' is split into 4 parts came into effect on the 6th April 2006. A summary of requirements is listed for each:

### ADL1A – new dwellings:

- \* Based on Dwelling Emissions Rate (DER) not exceeding Target Emissions Rate (TER) – SAP calculation method.
- \* Max area rated U value 2.2 W/m<sup>2</sup>K (unchanged)
- \* No solar overheating
- \* Measured air permeability
- \* Owner to be given operating instructions

### ADL1B – existing dwellings: –

- a) Replacement windows
  - \* Max whole window U value 2.0 W/m<sup>2</sup>K
  - \* BRFC Rating of Band E min.
  - \* Centre pane glass U value of 1.20 W/m<sup>2</sup>K
- b) Extensions
  - \* Max whole window U value 1.80 W/m<sup>2</sup>K (max 25% window area)
  - \* BRFC Rating of Band D (max 25% window area)
  - \* Centre pane glass U value of 1.20 W/m<sup>2</sup>K (max 25% window area)
  - \* Trade offs possible
- c) Conservatories
  - \* No specific changes < 30m<sup>2</sup>
  - \* Max whole window U value 2.0 W/m<sup>2</sup>K
  - \* BRFC Rating of Band D min.
  - \* Centre pane glass U value of 1.20 W/m<sup>2</sup>K

### ADL2A – existing buildings (not dwellings)

- \* Buildings Emission Rate (BER) must not exceed Target Emission Rate (TER) – SBEM software calculations used
- \* Max whole window U value 2.20 W/m<sup>2</sup>K
- \* No solar overheating
- \* Measured air permeability
- \* Owner to be given operating instructions

### ADL2B – existing buildings (not dwellings)

- a) Replacement windows
  - \* Max area rated U value 2.2 W/m<sup>2</sup>K
  - \* BRFC Rating of Band E min. (domestic in character)
  - \* Centre pane glass U value of 1.20 W/m<sup>2</sup>K
- b) Extensions
  - \* Extensions over 100m<sup>2</sup> to comply with ADL2A
  - \* Max whole window U value 1.80 W/m<sup>2</sup>K
  - \* BRFC Rating of Band D (domestic in character)
  - \* Centre pane glass U value of 1.20 W/m<sup>2</sup>K
  - \* Trade offs possible
- c) Conservatories
  - \* Max whole window U value 2.0 W/m<sup>2</sup>K
  - \* BRFC Rating of Band E min.
  - \* Centre pane glass U value of 1.20 W/m<sup>2</sup>K

## Notes

- \* Energy Rating for certain building categories has been introduced for the first time as a means of demonstrating compliance with Building Regulations. Please refer to the following page for details of the scheme.

**Energy Rating**

- > Energy Rating of whole windows and doors is an additional means of demonstrating compliance with Building Regulations – refer appropriate sections of Approved Document L of the Building Regulations (effective 6th April 2006)
- > The scheme operates a system of Banding of Energy Rating values from A to G – Band A is the most thermally efficient.
- > Deceuninck products have been simulated for energy efficiency in accordance with standard EN 10077 – 2: 2003 and ratings have been obtained in Bands E through to A\*. Movement between Bands is most easily achieved by varying the specification of the glass unit.
- \*This currently only applies to casement windows, for thermal efficiency data relating to Pivot windows please contact the Deceuninck Technical Dept.
- > The higher energy efficient Bands C, B and A normally require the use of 'warmedge' spacer bar technology within the glass unit.
- > Windows and doors which have an energy rating in Bands C or better can also carry the Energy Efficiency label through the best practice in Housing scheme operated through the Energy Saving Trust on behalf of the UK government.

<b>Energy Window</b>	
Energy Windows Ltd. XYZ 68/abc	
Energy Index (kWh/m <sup>2</sup> /year) <small>(Energy Index certified by BFRC and based on UK standard window. The actual energy consumption for a specific application will depend on the building, the local climate and the indoor temperature)</small>	<b>-15</b>
The climate zone is:	<b>UK</b>
Thermal Transmittance (U <sub>window</sub> )	1.5 W/m <sup>2</sup> .K
Solar Factor (g <sub>window</sub> )	0.41 W/m <sup>2</sup> .K
Effective Air Leakage (L <sub>factor</sub> )	0.02 W/m <sup>2</sup> .K
	Reg. No.: XXX <a href="http://www.bfrc.org">www.bfrc.org</a>
<small>This label is not a statutory requirement. It is a voluntary label provided as a customer service to allow consumers to make informed decisions on the energy performance of competing products.</small>	



The following table is a guide to understanding how different U values can be achieved by using various methods of manufacture for the double glazed unit.

Table A1 Indicative U-Values (W/m<sup>2</sup>K) for windows and rooflights with wood or PVCu frames, and doors

	Gap between panes			Adjustment for rooflights in dwellings <sup>3</sup>
	6mm	12mm	16mm or more	
Single glazing	4.8			+0.3
Double glazing (air filled)	3.1	2.8	2.7	
Double glazing (low-E, n=0.2) <sup>1</sup>	2.7	2.3	2.1	
Double glazing (low-E, n=0.15)	2.7	2.2	2.0	
Double glazing (low-E, n=0.1)	2.6	2.1	1.9	
Double glazing (low-E, n=0.05)	2.6	2.0	1.8	
Double glazing (argon filled) <sup>2</sup>	2.9	2.7	2.6	
Double glazing (low-E, n=0.2, argon filled)	2.5	2.1	2.0	
Double glazing (low-E, n=0.1, argon filled)	2.3	1.9	1.8	
Double glazing (low-E, n=0.05, argon filled)	2.3	1.8	1.7	
Triple glazing	2.4	2.1	2.0	
Triple glazing (low-E, n=0.2)	2.1	1.7	1.6	
Triple glazing (low-E, n=0.1)	2.0	1.6	1.5	
Triple glazing (low-E, n=0.05)	1.9	1.5	1.4	
Triple glazing (argon filled)	2.2	2.0	1.9	
Triple glazing (low-E, n=0.2, argon filled)	1.9	1.6	1.5	
Triple glazing (low-E, n=0.1, argon filled)	1.8	1.4	1.3	
Triple glazing (low-E, n=0.05, argon filled)	1.7	1.4	1.3	
Solid wooden door <sup>4</sup>	3.0			

**Notes**

<sup>1</sup> The emissivities quoted are normal emissivities. (Correct emissivity is used in the calculation of glazing U-values) Uncoated glass is assumed to have a normal emissivity of 0.89.

<sup>2</sup> The gas mixture is assumed to consist of 90% argon and 10% air.

<sup>3</sup> No correction needs to be applied to rooflights in buildings other than dwellings.

<sup>4</sup> For doors which are half-glazed the U-value of the door is the average of the appropriate window U-value and that of the non-glazed part of the door (e.g. 3.0W/m<sup>2</sup>K for a wooden door)

WIND LOADING  
REINFORCEMENT  
SIZE LIMITATIONS  
THERMAL  
**POLICY**

Satisfying customers is our ultimate goal at Deceuninck. This is based on a long-term win-win situation for both customers and Deceuninck. We must therefore do everything in our power to ensure that customers are more than satisfied with our business partnership. As such, every aspect of our customer service must exceed market expectations.

Our products are produced according to the Group's quality standards, which cover all the necessary product characteristics and functionality requirements. Product quality is determined by common methodologies and consistently calibrated test equipment.

We are aware of the importance of quality in its widest sense. Hence we believe in ensuring quality at every step of our business, from the development of compounds right through to the on-time delivery of our products and services to our customers. The Group's quality system exceeds ISO 9001 requirements and is a key factor in increasing the quality awareness of all within the company worldwide.

Deceuninck is a learning organisation: Everyone in the organisation, within his or her own field of responsibility and expertise, will make an active contribution to ensuring consistent improvements in the quality of our products, processes, services and communication. We have a team-oriented culture, we learn from each other and we cooperate via open communication – internally and externally.

The board of Directors, the management and every employee of the Deceuninck Group worldwide commit themselves to every aspect of this policy.

Approval Certificate No. LRQ 0870823

This section outlines the precautions to be taken in handling PVCU profiles manufactured by Deceuninck.

Deceuninck extruded profiles are manufactured from a PVCU composition which is a blend of PVCU and a variety of additives such as stabilisers, fillers, plasticisers and pigments etc.

#### ■ POTENTIAL HAZARDS

##### ■ Toxicity – Inhalation of monomer

A constituency of PVC is VCM which is a carcinogen. However, the release of VCM into the atmosphere in an extrusion plant only produces trace levels considerably lower than require monitoring. Therefore at fabrication stage, where the only application of heat is at welding, the emission can be considered zero.

##### ■ Toxicity – Inhalation of dust

PVC dust is considered a "nuisance dust" defined as producing no irreversible change in living tissues when exposures are kept under reasonable control, e.g. to a hygiene level standard of 10 mg per cubic metre.

As dust in fabrication can only be produced by dry sanding, then this is the only area where there is an element of risk and suitable face masks should be worn

##### ■ Toxicity – Ingestion

In fabrication the only possibility of ingestion is of dust or saw dust. Any toxic ingredients which may be present in raw material are not readily extracted from the fully compounded material from which dust or saw dust at fabrication level is formed. Therefore such material can again only be termed "nuisance dust" and normal precautions should be taken.

##### ■ Toxicity – Dermatology

PVC is not considered a skin irritant or sensitising agent.

##### ■ Toxicity – Fire – Ignition and burning characteristics

Most PVC compositions, under normal conditions of storage and use, are not flammable, but in common with other organic materials they can be consumed by fire. When PVC products are stored it must be recognised that the packages and pallets themselves are a fire risk and are generally a much more likely route for rapid fire spread.

##### ■ Toxicity – Fire – Decomposition products

The major products of combustion/decomposition of PVC compositions are carbon dioxide, carbon monoxide and hydrogen chloride, additionally, many other minor decomposition products have been identified. Carbon monoxide and hydrogen chloride are toxic with threshold limit values–50 ppm and 5ppm respectively, and inhalation must be avoided. In addition hydrogen chloride is corrosive in the presence of moisture. The nature and proportion of such decomposition products will vary according to the formulation, though there will not normally be additional hazard, toxic or corrosive, to that associated with carbon monoxide and hydrogen chloride.

**■ Toxicity – Fire – Decomposition products cont...**

Most available fire extinguishers are effective in fighting fires involving PVC, although due note should be taken of the particular situation (e.g. when live electrical equipment is nearby) which may restrict the use of some media. Advice should be sought from the local fire authority as to the most suitable types of extinguisher to be installed. In the event of small localised fire, immediate action should be taken by personnel in the vicinity using available extinguishers. Care should be taken to avoid inhalation of decomposition fumes. When the fire has been extinguished, ventilation should be increased to clear the fumes as quickly as possible.

It is important to advise the fire fighting personnel, including the fire brigade, to wear acid resistant protective clothing and full face masks. The fire brigade should also be notified that PVC compositions are involved. Suitable breathing equipment should be worn by fire fighters exposed to the products of combustion. Qualified medical aid should be sought in the event of anything more than very temporary irritation to the skin, eyes, throat, etc, is experienced. As highly corrosive hydrogen chloride is given off during the combustion of PVC, directly affected areas should be cleaned down to remove corrosive decomposition on equipment etc, as soon as possible after the fire has been extinguished.

**■ VENTILATION AND EXTRACTION**

Good ventilation should be provided in any working area where PVC is handled. Any activity which can lead to dust or fumes being generated should be dealt with by suitable extraction equipment as far as is reasonably practical.

Extra attention should be paid to the provision of adequate extraction when machinery or parts of machinery are being cleaned.

Compressed air should not be used to avoid the generation of dust.

**■ RECOMMENDED FIRST AID TREATMENT****■ Inhalation of noxious fumes**

The patient should be removed as rapidly as possible into fresh air. Artificial respiration should be applied if necessary. Seek expert medical attention.

**■ Eye injuries**

Dust or swarf should be flushed from the eye by irrigation with water. Seek expert medical attention

**■ Ingestion**

Medical attention should be sought immediately

**■ General**

It is important when summoning medical attention that the doctor or hospital is fully advised in detail of the nature of the product being handled.

## Specification

PVCU profiles are extruded from impact modified unplasticised polyvinyl chloride, tested to BS 2782, profiles are extruded to conform to BS EN 12608.

PVCU compound has a fire resistance to BS 476 Part 7, Class 1. PVCU extruded hollow profile has a fire resistance to BS 476 Part 7, Class 2.

PVCU profiles are multi-chambered and have a main wall thickness of between 2.3mm and 3.0mm.

Gaskets are weldable multifunctional triple hardness Thermoplastic Elastomer.

White PVCU profiles are extruded to RAL No. 9016.

## Storage

The profiles are packed in two ways:-

- a) Loose packed in polyethylene sleeves.
- b) Bulk packed in stillages in polyethylene shrink-wrap

When racked the package should be opened at both ends, to provide ventilation through the profile and prevent condensation.

Profiles should not be stored in the open and protection should be provided from moisture and direct sunlight.

All profiles should be stored fully supported along their length in a flat and straight condition. Uneven support over long periods will lead to sagging and distortion of the profiles.

To avoid damage such as scratching, profiles should be lifted from the stack and NOT dragged along it's full length.

When processed, profiles should be stored at a minimum of 17° c. Profiles stored at lower temperatures should be brought into the work area long enough in advance for the profile to warm through, up to a minimum of 17° c. Welding below the recommended temperature will produce stresses which can lead to cracking.

Stock rotation should be performed on a regular basis to ensure that old profile is not left at the bottom of the stack.

## Waste disposal

Disposal of waste is controlled by the "pollution prevention and control act 1999". Before disposing of contaminated waste compositions, it is recommended that advice be sought from the waste disposal officer of the local authority concerned.

The information contained in this text is to the best of our knowledge true and accurate. However, since the conditions under which our products are used are beyond our control, recommendations are made without warranty or guarantee. This statement does not affect the statutory rights of a consumer.

# GENERAL GUIDELINES

WELDING  
PROCESSING COLOURED PROFILES  
PROCESSING THE ROLLED-IN GASKET  
GLAZING

**WELDING**  
PROCESSING COLOURED PROFILES  
PROCESSING THE ROLLED-IN GASKET  
GLAZING



OBSERVE HEALTH & SAFETY REGULATIONS AT ALL TIMES. USE ANY PROTECTIVE WEAR SUPPLIED TO ENSURE SAFE USE OF MACHINERY FOR YOURSELF AND OTHERS AROUND YOU.

#### ■ STORAGE

Ensure profiles are stored flat to reduce risks of deformation

Allow profile to acclimatise to the manufacturing environment temperature before use

#### ■ SAW

Ensure bed/back fences are clear of swarf

Check profile sits correctly on blocks/machine bed

Check cut size of profile at regular intervals

Keep working area around saw clean & tidy

#### ■ PREPARATION

##### ■ REVERSE BUTT WELDING

Check temperature of heater plate

Ensure back fences are set in-line (180°)

Clean off weld sprue neatly

##### ■ V NOTCHING

Check setting for V notch depth according to profile being welded-in

Ensure any measured lines are correct (measure twice, cut once)

Ensure rebate shoulder alignment is correct

##### ■ REINFORCING

Familiarise yourself with the reinforcing guidelines within the technical manual

All reinforcing to be fitted in one continuous length (wherever possible)

Screw fixing/spacings as specified in the technical manual

##### ■ DRAINAGE

Ensure the correct drainage method is used for the frame type (int/ext bead, etc)

Ensure the area is kept free from swarf

##### ■ ROUTING

Check handing of sashes and door handles prior to routing

##### ■ WELDING

Check daily/periodically:--temperature of heater plates, condition of Teflon, cleanliness of Teflon

Change Teflon as required

During the welding process, make physical checks of the welds including dimensional checks

##### ■ SASHES

Check condition of weld blocks, file off any small burrs that could scratch the sections

Ensure weld blocks are fitted correctly

Check handing to ensure drains are welded correctly

##### ■ FRAMES

Work out the best method for welding the individual frame to allow for any remaining reinforcing to be inserted during welding

Check measurement of frame sections

Butt up any corresponding V notches to ensure they match up

Ensure all fences are set correctly to support the profile

Check the correct sections have been used

Ensure all sections in the welder are the correct way, i.e. large face/small face up, drainage is correct

Remember, "it's not wrong 'til it's welded", so double check before starting the welding process

Insert any remaining reinforcing prior to final weld cool-off, i.e. through mid-rail welds, etc.

■ **CLEANING OFF**

Insert reinforcing screws to remaining sections

Check finished frame size is within manufacturing tolerances

Check all grooves are clean

Chip out weld sprue from any internal edges

■ **HANGING**

Ensure hanging of sashes is correct against work sheet specification

Ensure all keeps are fitted in the correct position

Check operation of locking mechanism within the keeps

■ **BEADING & QUALITY CONTROL**

Check frame for size, square & style, any discrepancies should be reported and rectified

Ensure mitred beads are a snug fit but not too tight as this will damage the ends and make them hard to insert when glazing.

Finally check for smooth operation of all components prior to placing product in the dispatch area

**BE AWARE OF COMPANY HEALTH & SAFETY PROCEDURES ALONG WITH OBSERVING COMPANY QUALITY PROCEDURES**

### ■ 1. IMPORTANCE OF THE WELDING PROCESS

The joining of the corners is one of the most critical operations when manufacturing windows & doors. This takes place in the welding process, in which a number of parameters influence the quality. A good weld is essential for the strength of the frame and should resist minimal forces. Moreover, the welding is also important for obtaining the correct frame dimensions.

### ■ 2. THE WELDING CYCLE

After the correct positioning and clamping (clamping pressure) of the profiles, both are pushed against the heating plate (melting pressure) which reaches a controlled temperature. Firstly, a quantity of the material is melted due to the heat transfer and the movement (melting path) of the welding heads. Because the movement is mechanically restricted, a heat transfer will only take place during a fixed time (heating time) in a second stage. Here the heating plate is retracted (interface), after which the profiles are pressed together with a controlled force (assembly pressure) and over a limited distance (assembly path). The profiles are then kept in this position for a controlled time (assembly time).

### ■ 3. REQUIREMENTS BEFORE WELDING

The profiles must be conditioned for at least 24 hours until the temperature reaches at least 15° C over the entire section. During storage no deformations should take place. This means that the profiles have to be stored horizontally making sure that the distance between the points of support are not longer than 1 metre.

Any packaging should be opened (e.g. at the front), or completely removed to allow any condensation to evaporate. Correct cutting dimensions require special attention when sawing. The saw blade needs to have sufficient and sharp enough cutting teeth, of which the rotation speed and the feed must also be adapted. The welding surface must not be damaged and free from any impurities. It is also imperative to maintain a clean welding surface when inserting the reinforcements, avoiding any dirt build-up caused (e.g. by greasy hands).

### ■ 4. THE WELDING MACHINE

We can distinguish 2 principles depending on how the tables are moving towards each other. When the motion is perpendicular to the heating plate surface, then we talk about a parallel motion, which is mostly the case for single head welding machines. When using multi-head welding machines the movement is at a 45° angle (to the heating plate surface), this is called a diagonal motion. Most machines are equipped with adjustable restrictor knives in the clamping shoes. The distance of the knives is also decisive for the welding quality. The optimum distance can vary between 1 and 2mm in the end position. If the knives are heated, it is very important that the temperature does not exceed 40° C.

### ■ 5. THE WELDING PROCESS, THE WELDING PARAMETERS

#### ■ 5.1. POSITIONING

Both profiles must be positioned correctly in the machine. This implies that the profiles are level and are completely pushed against the profile support blocks. Adapted support blocks are required to avoid deformation during clamping. The pressure of the clamping shoes onto the profiles needs to be sufficiently high to prevent the movement of profiles during welding.

#### ■ 5.2. MELTING

Heated welding plates are used to heat the profiles. The welding plate is equipped with a thermostat and is covered with a Teflon film on the outside. This avoids profiles sticking to the welding plate when contact is made. The thermostat must be attached in such a way that the heat build-up is spread equally over the entire surface and that a minimum power of 2 W/cm one-sided welding surface is guaranteed. An initial temperature of 255–260° C is required for the compound used. We pass into the melting phase when the profiles are pushed against the heating plate. By controlling the melting pressure we create a melting time of between 10 and 12 seconds. This is the time required by the machine to reach the end of the movement, the so-called melting path. This limited movement is a machine setting.

**■ 5.3 HEATING**

The material needs to be sufficiently heated in its depth to obtain a good welded joint. In order to achieve this, the profiles are pushed against the heating plates for a further 20 seconds. There is no further movement in this stage.

**■ 5.4 REPOSITIONING**

Obviously, the removing/release of the welding plate is necessary to obtain a good welded joint of the profiles. The stage, in which this takes place, must be as short as possible. On the other hand this stage should not be forced to quickly. However, if we interrupt the cycle at this point, we obtain a so-called "welding interval". Due to this interval the welding surfaces can be observed and provide us with information concerning the heat transfer.

**■ 5.5 ASSEMBLY & COOLING**

The profiles must be pushed together to reach the ultimate fusion of the profiles. Here another movement takes place, which can be influenced by the machine setting. The profiles are kept in this position for at least 30 seconds. This period is called the assembly phase or the cooling phase.

**■ 5.6 OVERVIEW OF WELDING PARAMETERS****■ 5.6A TEMPERATURE**

Heating plate temperature: 255–260° C

**■ 5.6B PRESSURE**

Clamping pressure: minimum in order to prevent movement of profiles  
maximum so that a deformation does not take place  
In reality this pressure will vary between 4 and 6 bar.

Melting pressure: Adjusted in order to obtain a melting time between 10 and 12 seconds at 255° C – 260° C heating plate temperature.

Assembly pressure: Regulated so that the pressure in the weld reaches 0.85N/mm<sup>2</sup> or between (0.5 and 1.4N/mm<sup>2</sup>)

**■ 5.6C TIME**

Melting time : 10 to 12 seconds

Heating time : 20 seconds

Cooling time : minimum 30 seconds

**■ 5.6D TRAVEL**

Melting travel : 2/3 total travel

Assembly travel : 1/3 total travel

WELDING  
**PROCESSING COLOURED PROFILES**  
PROCESSING THE ROLLED-IN GASKET  
GLAZING

## Processing the coloured profiles.

Following notes have to be followed :

1. All coloured profiles have to be reinforced.
2. Any internal chamber which is sealed, should be vented. This will then have the effect of releasing any air pressure that may have built up within the internal chambers, thereby reducing the possibility of profile deformation.  
As a general guide, with the standard drainage and decompression provision, you achieve this (see Section 2.2 for details). For the remaining unvented chambers a small and discreetly positioned 4 mm hole is sufficient.

For further details refer to our manufacturing guideline supplement;  
'Additional Guidelines for the Manufacture and Installation of non-white Windows and Doors'.  
Please contact the Deceuninck Technical Dept for details.

WELDING  
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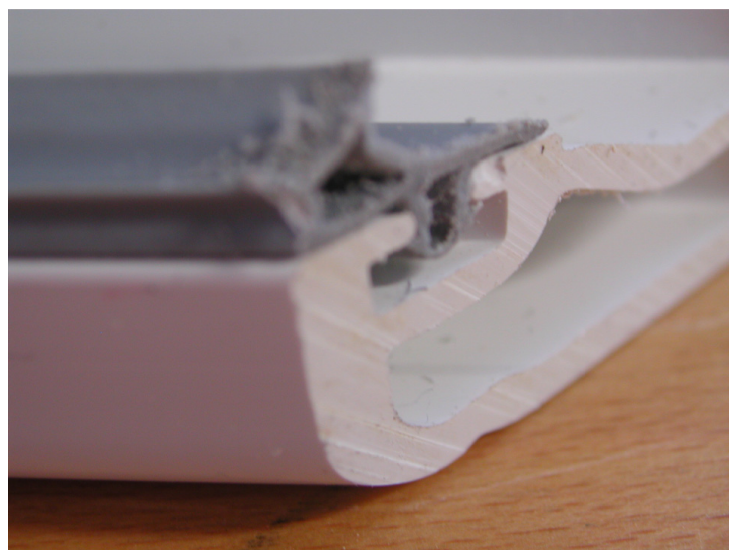
## 1 Introduction

All main profiles are foreseen with an enrolled gasket/seal. Processing a PVCu-profile with prefitted 3299 needs a single adaptation, the special knife which is introduced in the welding block of the sash.

## 2 Cutting

According to the type of saw, the seal could be slightly damaged. However after welding, this socalled damage disappears (due to melt off during welding).

Following pictures indicate a result that will not give any problem after welding = damage smaller than 2 mm.





WELDING  
PROCESSING COLOURED PROFILES  
PROCESSING THE ROLLED-IN GASKET  
GLAZING

