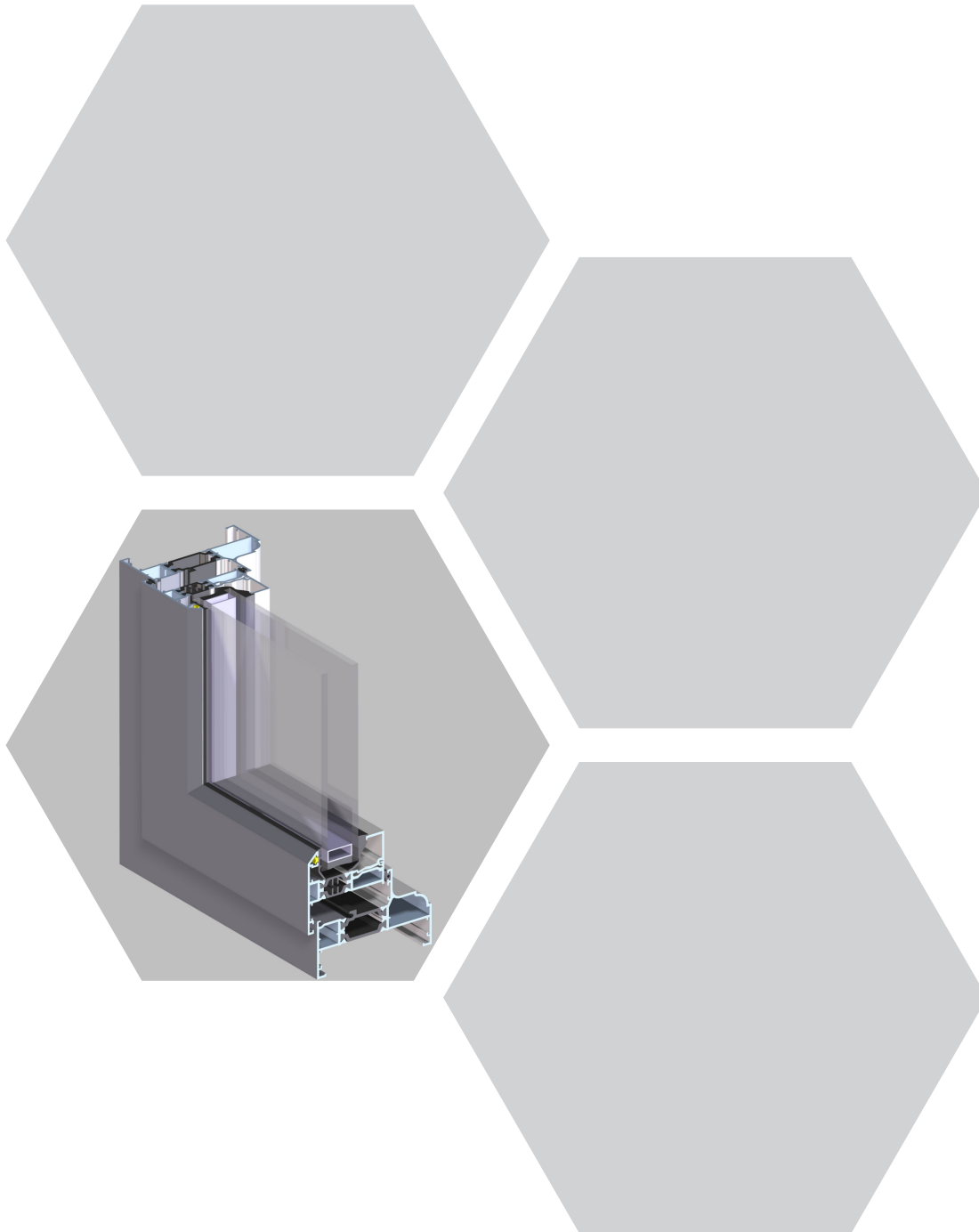


# sapa:

CROWN<sup>®</sup>  
Casement Window

Product Manual  
CWC048



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## Scope of Certification

The products listed and contained in this manual are covered under licenses granted by *The British Standards Institution* (BSI), License No, KM7414 in respect of BS4873 & PAS24.

When manufactured in accordance with this product manual, using profiles, hardware and accessories, by competent personnel, the Crown Casement Window System will meet the requirements of the above certification. The following items are excluded at the time of publication.

- CW318 Saracen Chamfered Vent Frame, including...  
CWP144 Gearbox Pack.  
CWP145 to CWP148 Shoot Rods.
- DFP480 & DFP481 Cockspur Handles.
- CWP117 Egress/Non Locking Handle Adaptor
- CWP168 to CWP179 Espag II Locking Gear & Keeps

PAS 24 security windows must not only be manufactured as previously stated, they must also have the following additional fittings in order to comply.

- CWP115 and CWP116 Riser Blocks.
- DFP1540 Security Hinge Bolts

Please note, in addition to statutory glazing regulations, there are specific Secured by Design requirements for laminated glass satisfying BS EN 356:2000 class P1A. Please check your specific project requirements.

### Important note:-

This certification covers Hydro Building Systems, and Fabricators must themselves enlist with BSI to enable use of the certification for any reason including projects requiring Secured By Design.

Hydro Building Systems are able to assist you through this process - please contact Product Support in the first instance.



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## Specification

### Scope

This specification details materials, construction, finish and size limitations for the Crown Casement window system. This range is designed to meet high performance requirements in a variety of applications. The suite of profiles can be constructed to form fixed lights and top or side hung windows.

### Materials

Aluminium profiles are extruded from aluminium alloy 6063 or 6060 T6 complying with the recommendations of BS EN 755-9:2001. Polyester powder coat finishes are available to BS EN 12206-1:2004 in a wide range of colours.

Weatherstripping is a TPE seal internally and externally, both set in undercut grooves in the sash and frame.

The thermal barrier is achieved using two polyamide extrusions separating the internal and external faces.

### Construction

Frame members are mitre cut at 45°. Corners are reinforced with stainless steel corner ties and a combination of, extruded/pressed aluminium or die cast zinc corner cleats. All joints shall be sealed during fabrication against water entry.

The thermal barrier section is achieved using two separate aluminium extrusions and two polyamide extrusions mechanically jointed to form a single compound profile.

### Assembly and Installation

Detailed instructions are provided in this publication, which must be strictly conformed to. Only parts supplied by Hydro should be used in the manufacture of Crown Windows.

### Thermal Performance

Crown windows can meet and surpass the area weighted average U values stipulated in Part L of the Building Regulations. Lower U-values can be achieved using double glazed units with enhanced thermal insulation, such as 'soft coat' low emissivity glass, argon gas filling and thermally enhanced spacer bar.

### Hardware

Opening lights are hung on concealed, stainless steel variable geometry friction hinges. Espagnolette locking system constructed with stainless steel flush bolts, and zinc plated die cast keeps. Epag II locking system is also available, comprising of bi-directional twin cam and zinc plated die cast keeps. Handles are zinc die castings. Optional hinge bolts must be fitted when enhanced security to PAS24 is required. Cockspur locking also available on a limited number of frame profiles. Saracen vent frame specific locking system is also available, comprising of two end shoot bolts and centre keep locking.

### Glazing

Drainage in accordance with details listed in this manual meets the requirements of "Ventilated and Drained Glazing System", as specified in BS6262. Glass must conform to BS6262 for thickness and type. Insulating glass units of 24mm, 28mm can be accommodated.

Glass is set against co-extruded PVCu / Nitrile gaskets retained in undercut grooves within the aluminium profile. Final retention of the glass is achieved by the application of a co-extruded PVCu / Nitrile wedge gasket between the inner face of the glass and bead or frame.

Compliance with the requirements of all current Regulations and Standards is the responsibility of the manufacturer.

Hydro's policy is one of continual system development and we reserve the right to incorporate design improvements and changes. Every effort is made to ensure that all details are correct at time of publication. However, it is the responsibility of the customer to check the accuracy of the relevant facts and information before entering into any contract or other commitment. Up to date information is freely available from the Hydro Building Systems Technical Support.

All Products and systems which Hydro supply are supplied subject to Hydro's standard Terms and Conditions of Sale current from time to time.

## Specification

### Performance

When tested in accordance with BS6375:Part 1:2009 The products listed in this manual, when manufactured installed and glazed strictly to the enclosed details, will meet UK exposure category 2000.

#### Opening Lights

Water Tightness	Class 9A (600 Pascals)
Air Permeability	Class 3 (600 Pascals)
Wind Resistance	Class B5 (2000 Pascals)**

#### Fixed Lights

Water Tightness	Class 9A (600 Pascals)
Air Permeability	Class 3 (600 Pascals)
Wind Resistance	Class B5 (2000 Pascals)**

\*\* Exposure category varies with Width/Height of window and mullion / transom used, as these are the only unsupported members. An accurate figure can be obtained using BS6399:Part 2 calculations and inertia values given on pages 2-27 & 2-28.

Maximum fixed light area = 5m<sup>2</sup>.

### Size Limitations

#### Note

All sizes given are in millimetres, all vent maximum and minimum sizes relate to the overall size of the vent frame and not the outer frame.

Vent frame = "B" size + 13mm (see page 4-1 for an explanation of "B" size)

#### Fixed Light

Maximum area 5 sq.m

**The sizes listed on this page are used in Sapa Logic, more detailed size/glass weight combinations can be found on the following page.**

#### Side Hung Casement

Stay Size	8"	12"	16"
Max Width	436	636	736
Max Height	1336	1336	1336
Max Weight	18kg	22kg	24kg
Min Width	236	336	436
Min Height	386	386	386

Egress Stays are limited to a minimum vent frame width of 555mm, to comply with approved document **Part B Fire Safety**.

#### Top Hung Casement

Stay Size	6"	8"	10"	12"	16"	20"	24"
Max Width	1200	1200	1200	1200	1200	1200	1200
Max Height	336	386	436	586	816	1136	1336
Max Weight	10kg	12kg	16kg	20kg	21kg	26kg	40kg
Min Width	386	386	386	386	386	386	386
Min Height	236	236	311	386	536	736	886

On some smaller window sizes, alternative crimping methods may be required.

## Specification

Top Hung Casement - 6" Stay			
10kg Max Weight - Min Width 386			
12mm Glazing Thickness		8mm Glazing Thickness	
Height	Width	Height	Width
336	969	336	1200
321	1014	321	1200
306	1064	306	1200
291	1120	291	1200
276	1181	276	1200
261	1200	261	1200
245	1200	245	1200
230	1200	230	1200
215	1200	215	1200
200	1200	200	1200

Top Hung Casement - 8" Stay			
12kg Max Weight - Min Width 386			
12mm Glazing Thickness		8mm Glazing Thickness	
Height	Width	Height	Width
386	1012	386	1200
369	1057	369	1200
353	1107	353	1200
336	1162	336	1200
320	1200	320	1200
303	1200	303	1200
286	1200	286	1200
270	1200	270	1200
253	1200	253	1200
236	1200	236	1200

Top Hung Casement - 10" Stay			
16kg Max Weight - Min Width 386			
12mm Glazing Thickness		8mm Glazing Thickness	
Height	Width	Height	Width
436	1195	436	1200
422	1200	422	1200
408	1200	408	1200
394	1200	394	1200
380	1200	380	1200
367	1200	367	1200
353	1200	353	1200
339	1200	339	1200
325	1200	325	1200
311	1200	311	1200

Top Hung Casement - 12" Stay			
20kg Max Weight - Min Width 386			
12mm Glazing Thickness		8mm Glazing Thickness	
Height	Width	Height	Width
586	1111	586	1200
564	1155	564	1200
542	1200	542	1200
519	1200	519	1200
497	1200	497	1200
475	1200	475	1200
453	1200	453	1200
430	1200	430	1200
408	1200	408	1200
386	1200	386	1200

Top Hung Casement - 16" Stay			
21kg Max Weight - Min Width 386			
12mm Glazing Thickness		8mm Glazing Thickness	
Height	Width	Height	Width
816	838	816	1200
785	871	785	1200
754	907	754	1200
723	946	723	1200
692	988	692	1200
660	1035	660	1200
629	1086	629	1200
598	1143	598	1200
567	1200	567	1200
536	1200	536	1200

Top Hung Casement - 20" Stay			
26kg Max Weight - Min Width 386			
12mm Glazing Thickness		8mm Glazing Thickness	
Height	Width	Height	Width
1136	745	1136	1118
1092	775	1092	1163
1047	808	1047	1200
1003	844	1003	1200
958	883	958	1200
914	926	914	1200
869	974	869	1200
825	1026	825	1200
780	1084	780	1200
736	1150	736	1200

Top Hung Casement - 24" Stay			
40kg Max Weight - Min Width 386			
12mm Glazing Thickness		8mm Glazing Thickness	
Height	Width	Height	Width
1336	975	1336	1200
1286	1013	1286	1200
1236	1053	1236	1200
1186	1098	1186	1200
1136	1146	1136	1200
1086	1199	1086	1200
1036	1200	1036	1200
986	1200	986	1200
936	1200	936	1200
886	1200	886	1200

Side Hung Casement - 8" Stay			
18kg Max Weight - Min Height 386			
12mm Glazing Thickness		8mm Glazing Thickness	
Height	Width	Height	Width
1336	436	1336	436
1336	414	1336	414
1336	392	1336	392
1336	369	1336	369
1336	347	1336	347
1336	325	1336	325
1336	303	1336	303
1336	281	1336	281
1336	258	1336	258
1336	236	1336	236

Side Hung Casement - 12" Stay			
22kg Max Weight - Min Height 386			
12mm Glazing Thickness		8mm Glazing Thickness	
Height	Width	Height	Width
1126	636	1336	636
1188	603	1336	603
1258	569	1336	569
1336	536	1336	536
1336	503	1336	503
1336	469	1336	469
1336	436	1336	436
1336	403	1336	403
1336	369	1336	369
1336	336	1336	336

Side Hung Casement - 16" Stay			
24kg Max Weight - Min Height 386			
12mm Glazing Thickness		8mm Glazing Thickness	
Height	Width	Height	Width
1061	736	1336	736
1112	703	1336	703
1167	669	1336	669
1228	636	1336	636
1296	603	1336	603
1336	569	1336	569
1336	536	1336	536
1336	503	1336	503
1336	469	1336	469
1336	436	1336	436

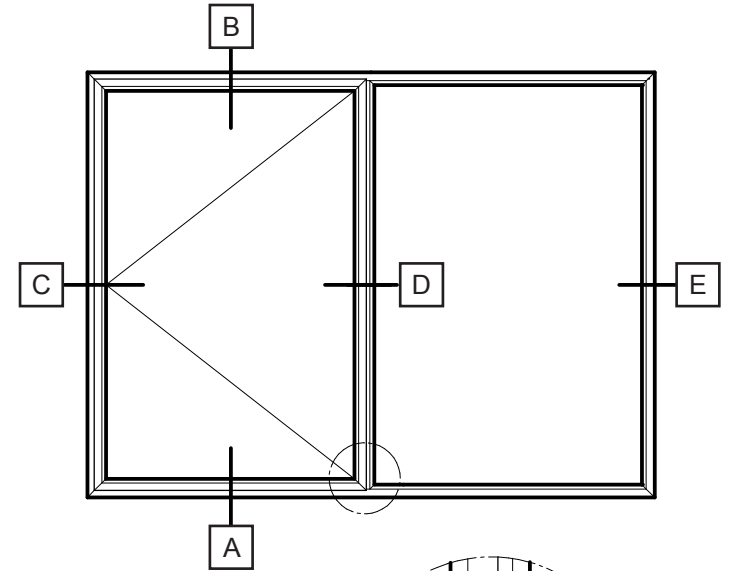
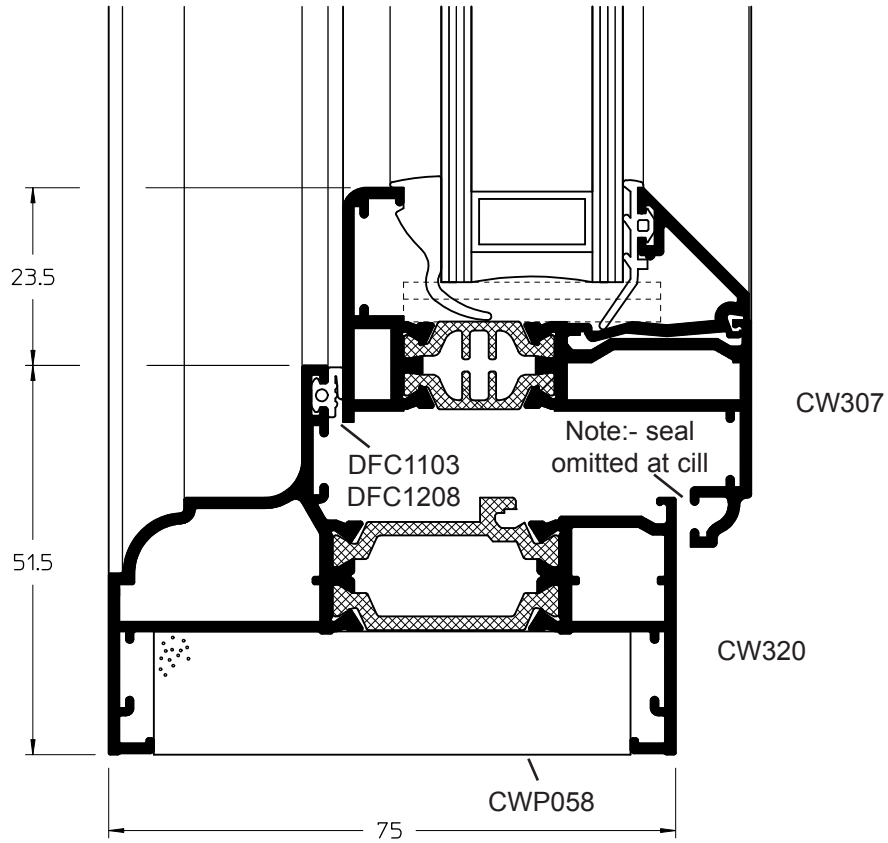
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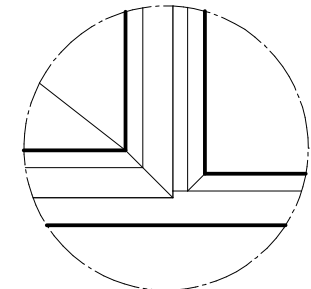
## General Arrangements

### **A** Cill

Standard softline outer frame & softline vent frame.



Typical casement window showing general arrangement reference codes.

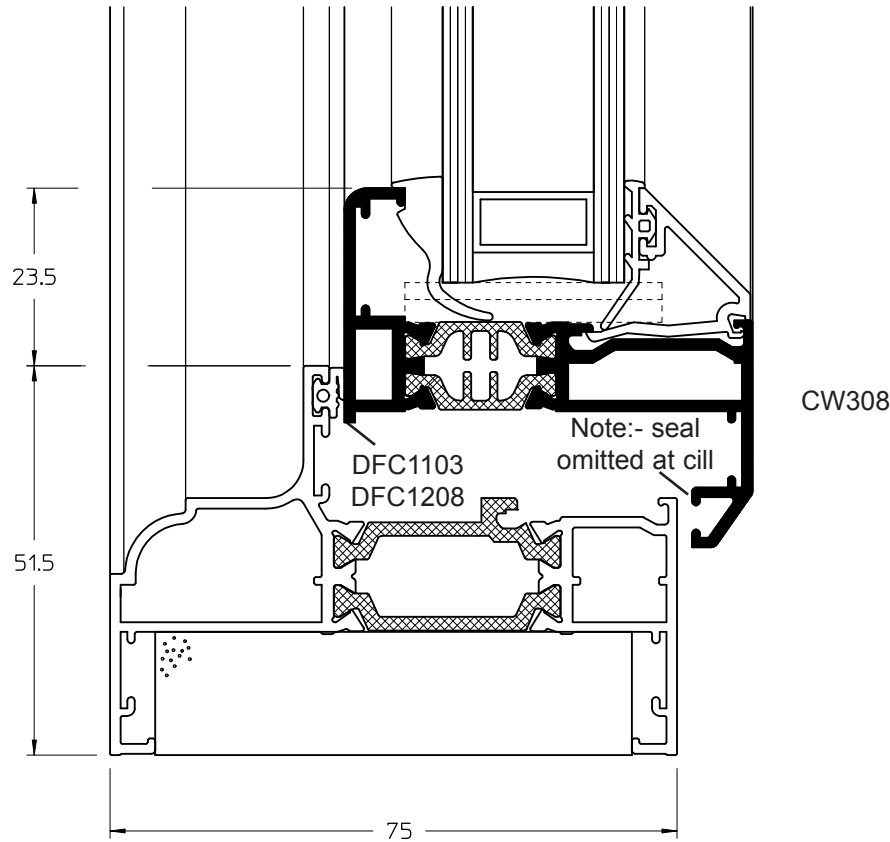


Mullion joint view

## General Arrangements

**A** Cill

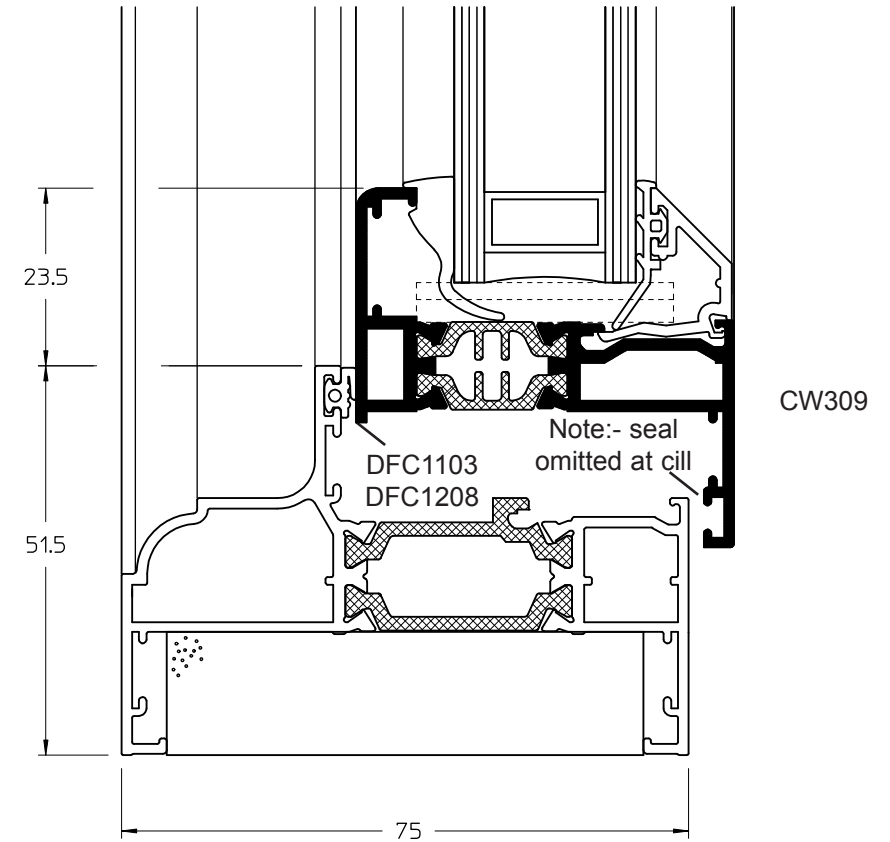
Chamfered vent frame.



**A** Cill

Flat vent frame.

*Note Flat/Saracen vent glazing beads are not compatible with any other profile.*

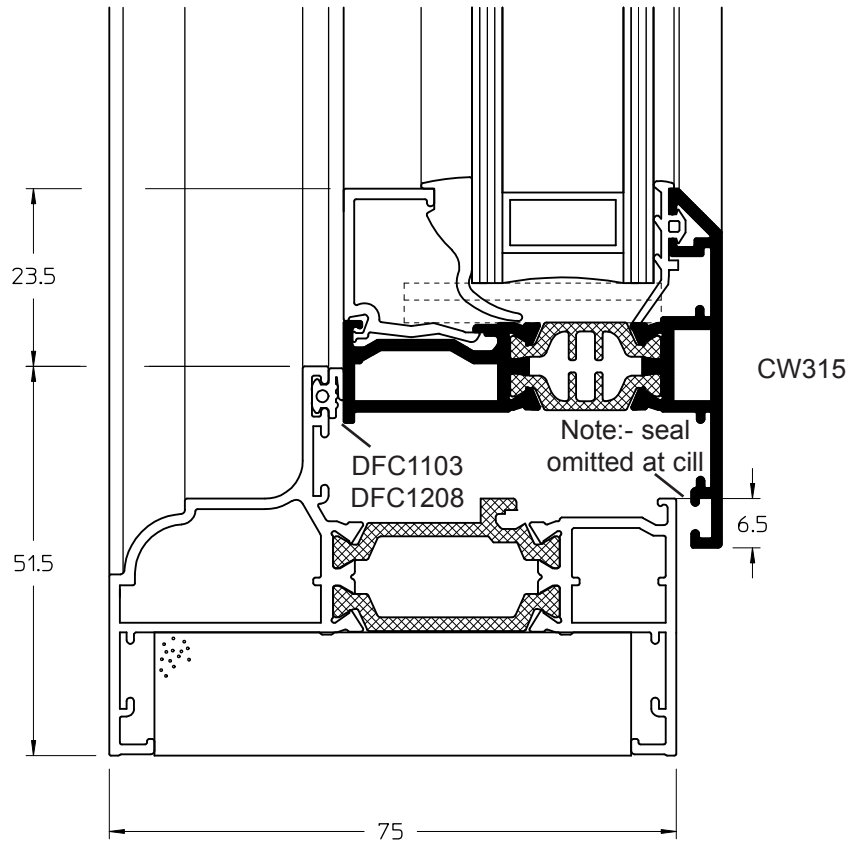




## General Arrangements

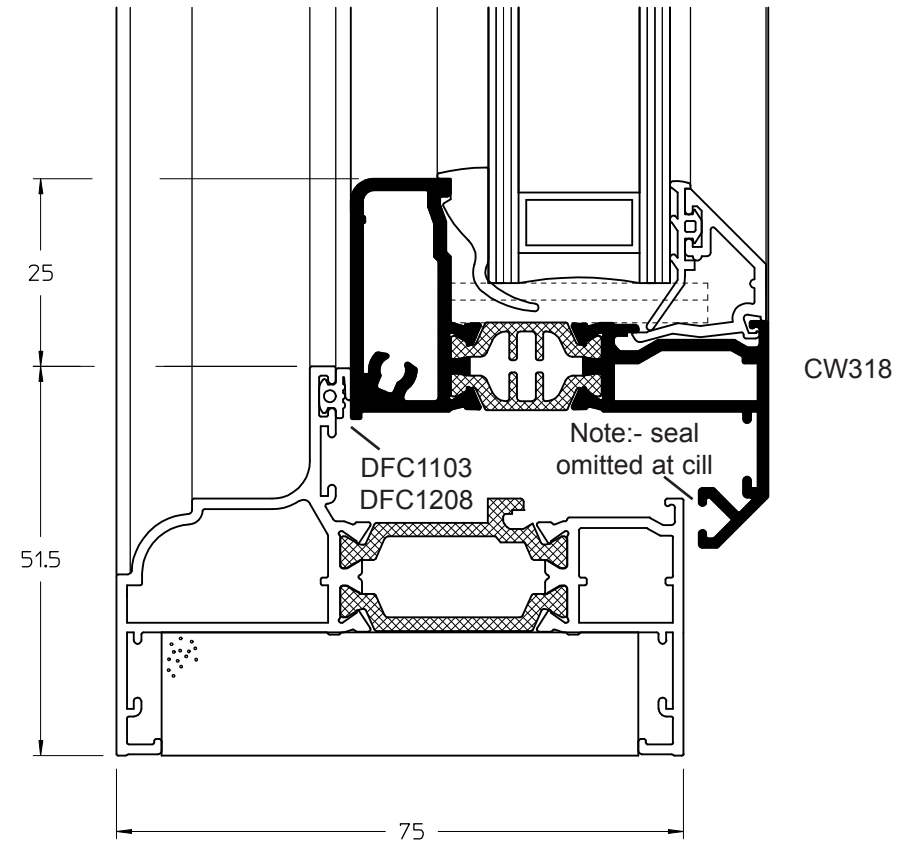
### A Cill

Glaze in vent frame.  
*Note glaze in vent glazing beads are not compatible with any other profile.*



### A Cill

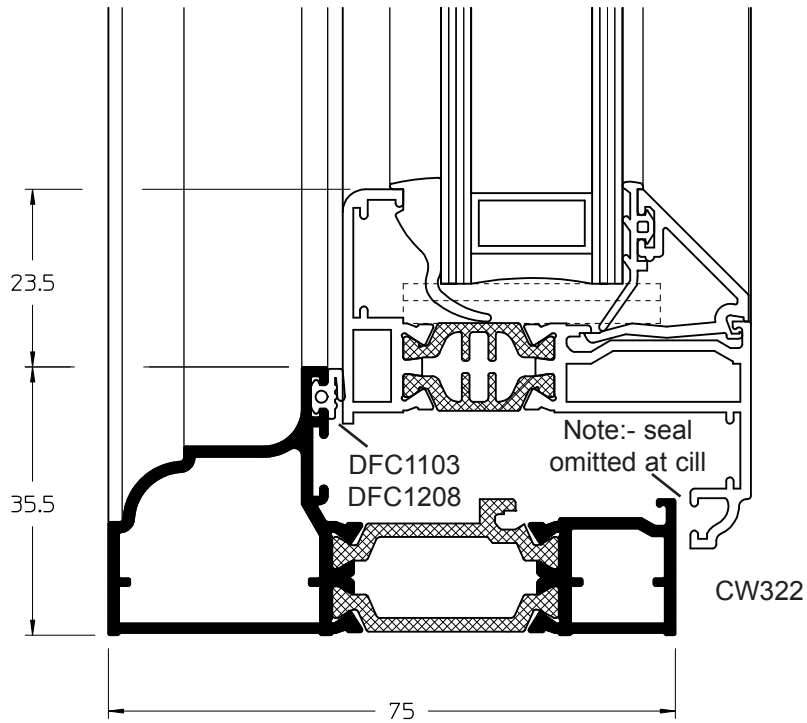
Saracen vent frame.  
*Note Flat/Saracen vent glazing beads are not compatible with any other profile.*



**General Arrangements**

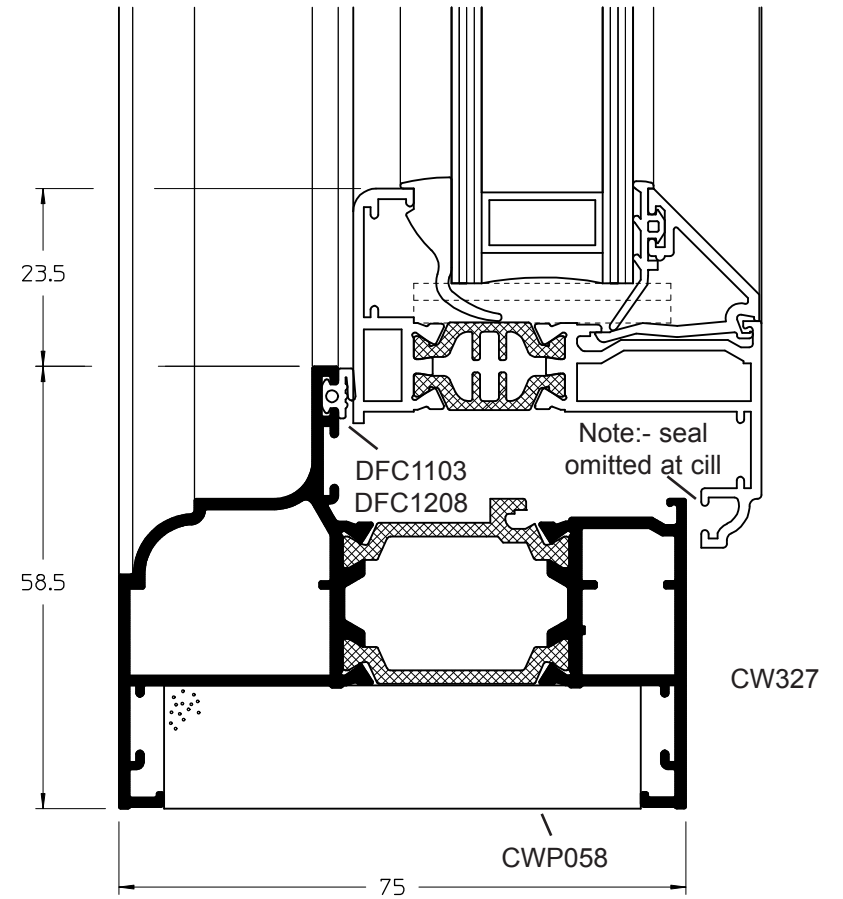
**A** Cill

Slim softline outer frame.



**A** Cill

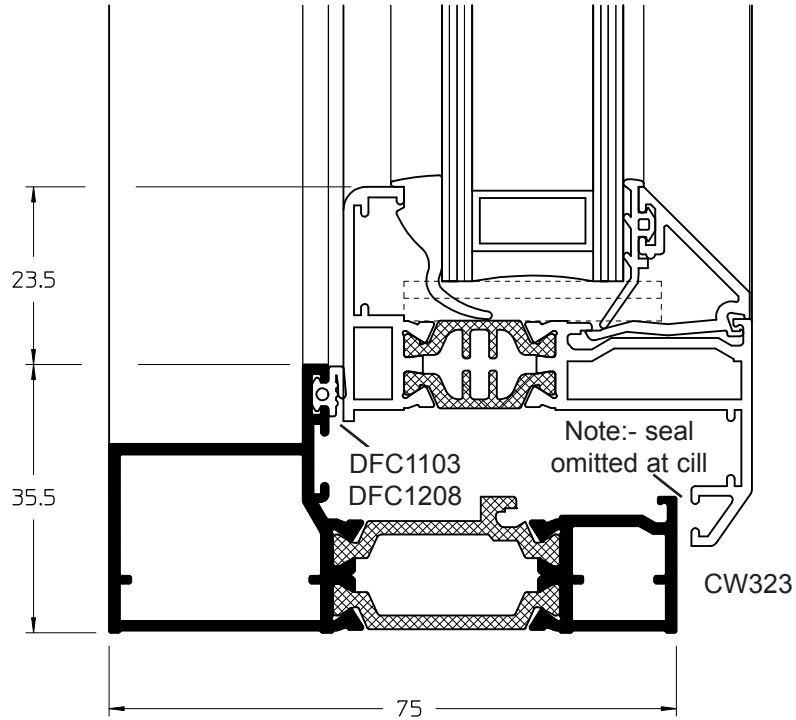
Extended softline outer frame.



**General Arrangements**

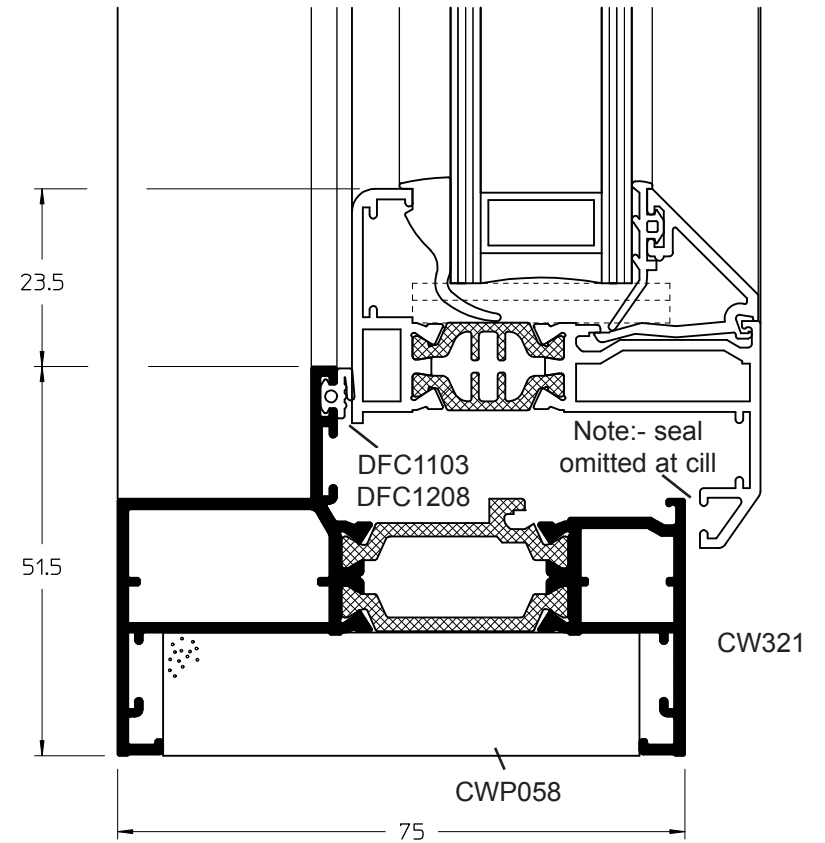
**A** **cill**

Slim square outer frame.



**A** **cill**

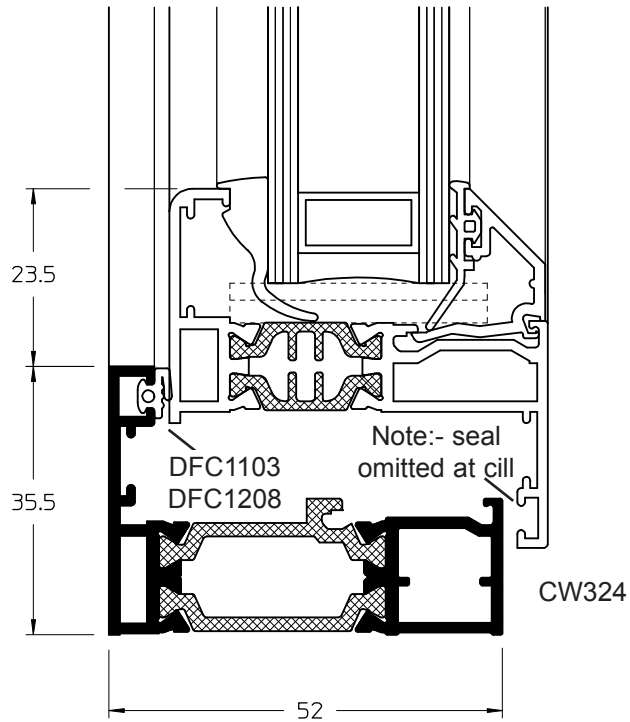
Standard square outer frame.



## General Arrangements

### A Cill

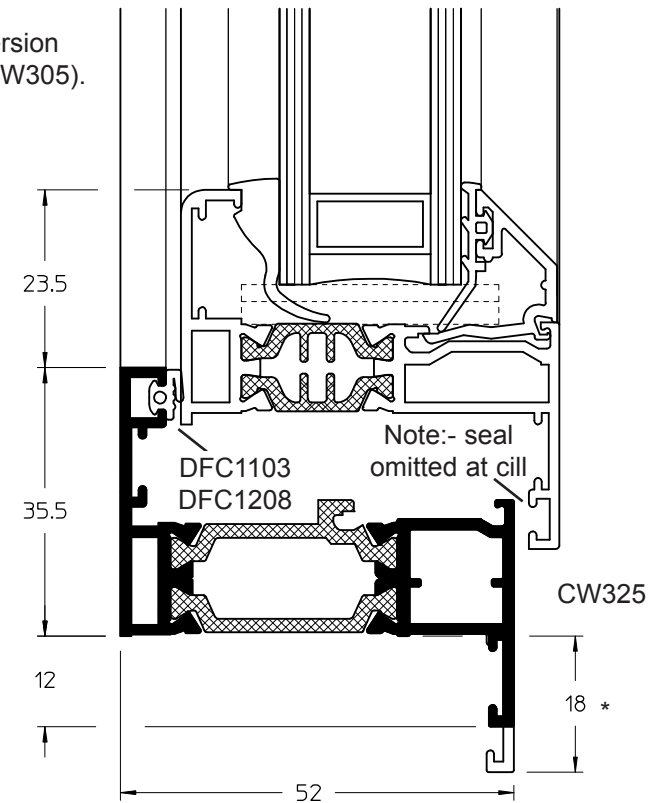
52mm outer frame.  
*All 52mm Frames can be corner jointed with each other*



### A Cill

52mm outer frame (12mm & 18mm) unequal leg.  
*All 52mm Frames can be corner jointed with each other*

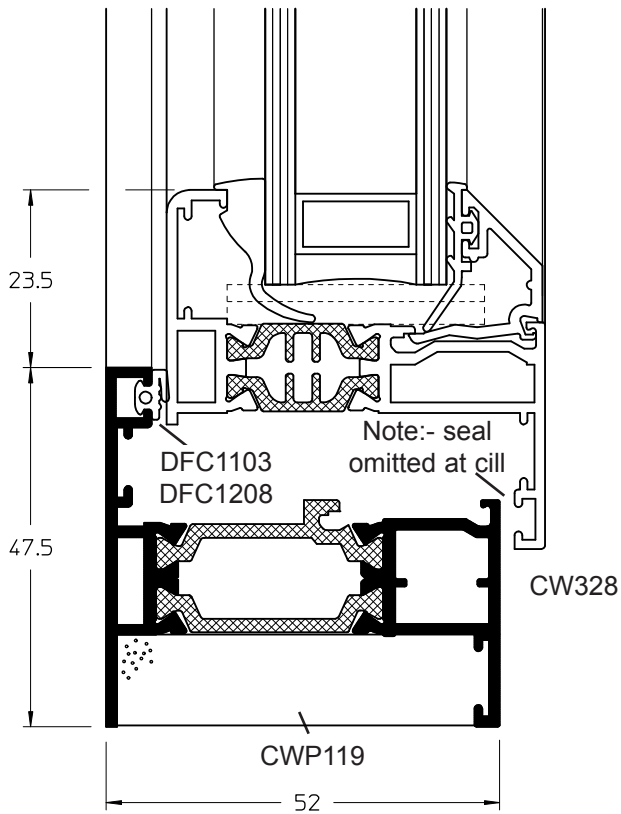
\* 18mm leg version also available (CW305).



## General Arrangements

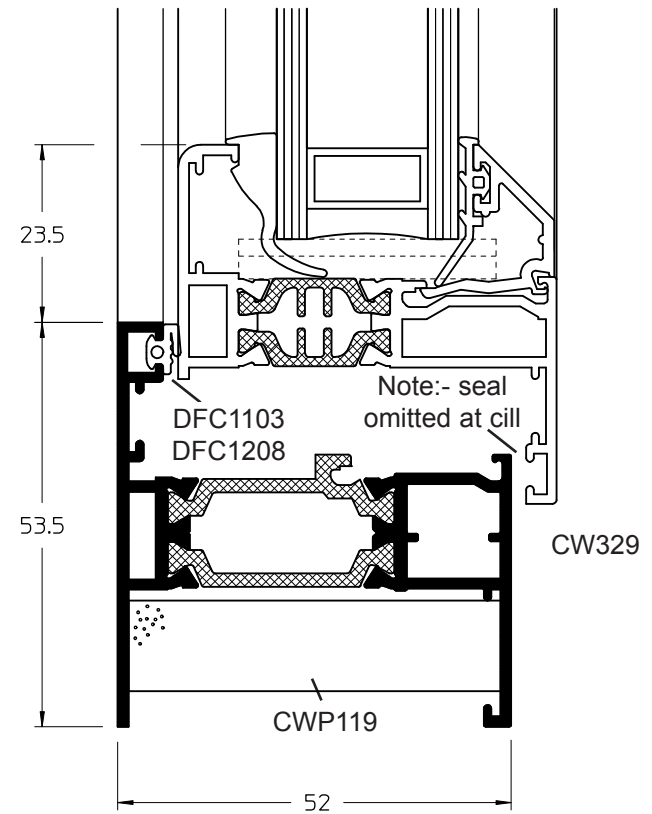
### A cill

52mm outer frame 12mm equal leg.  
 All 52mm Frames can be corner jointed with each other



### A cill

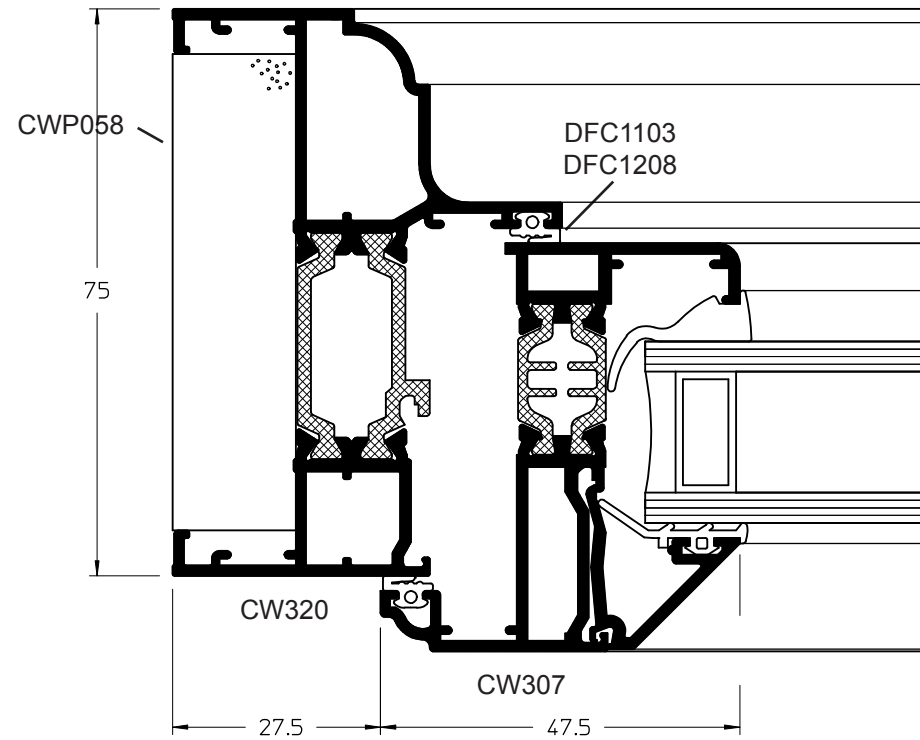
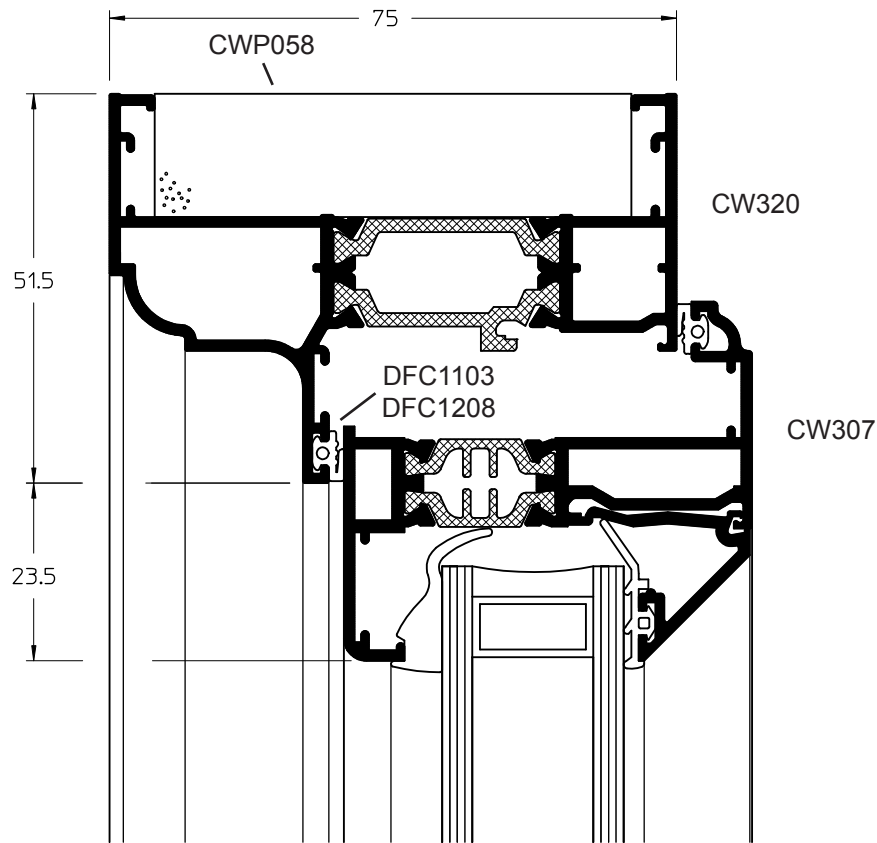
52mm outer frame 18mm equal leg.  
 All 52mm Frames can be corner jointed with each other



**General Arrangements**

**B Head**

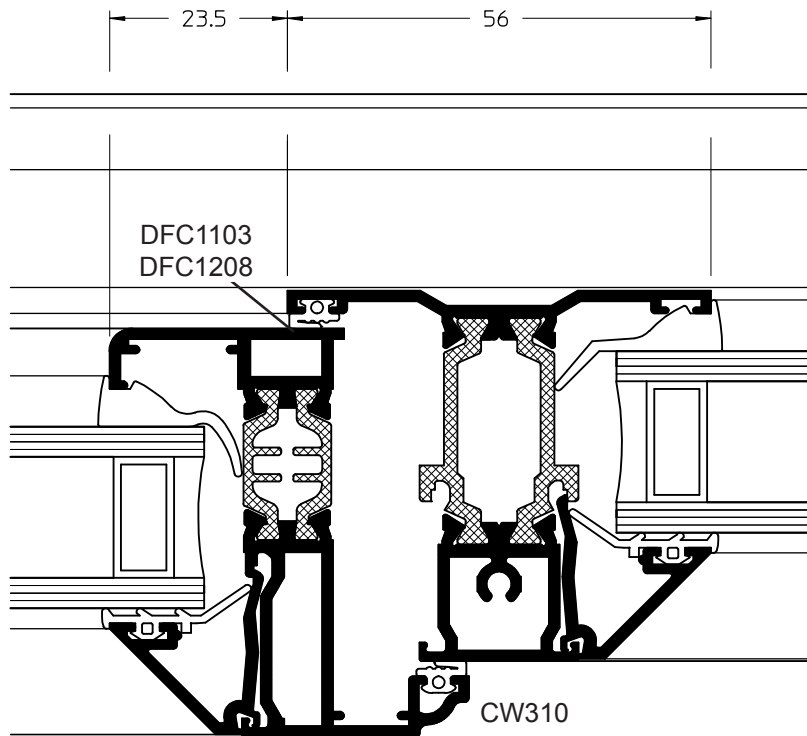
**C Opening Light Jamb**



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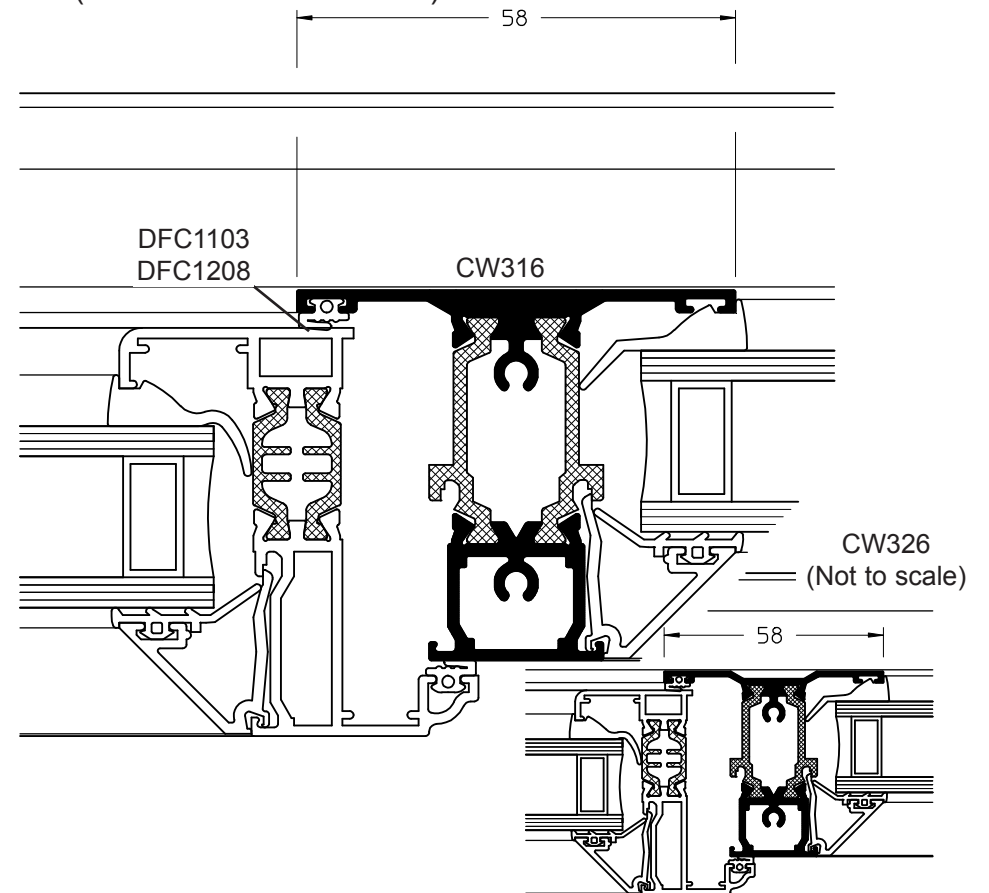
## General Arrangements

### D Mullion / Transom



### D 28mm Mullion / Transom

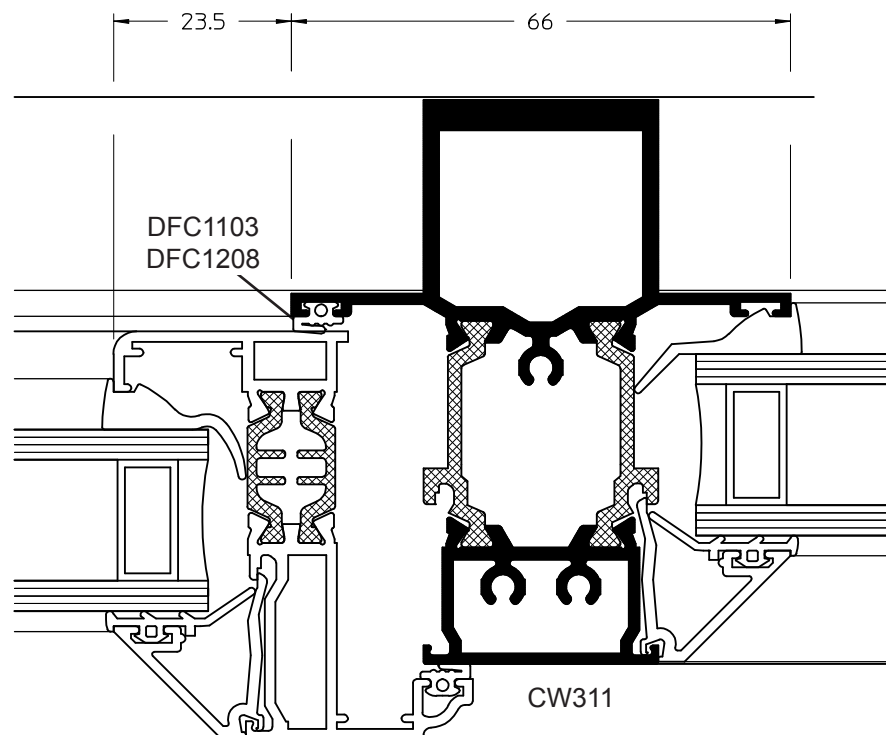
Showing alternative 58mm mullion / transom.  
 (Flat & Recessed versions)



## General Arrangements

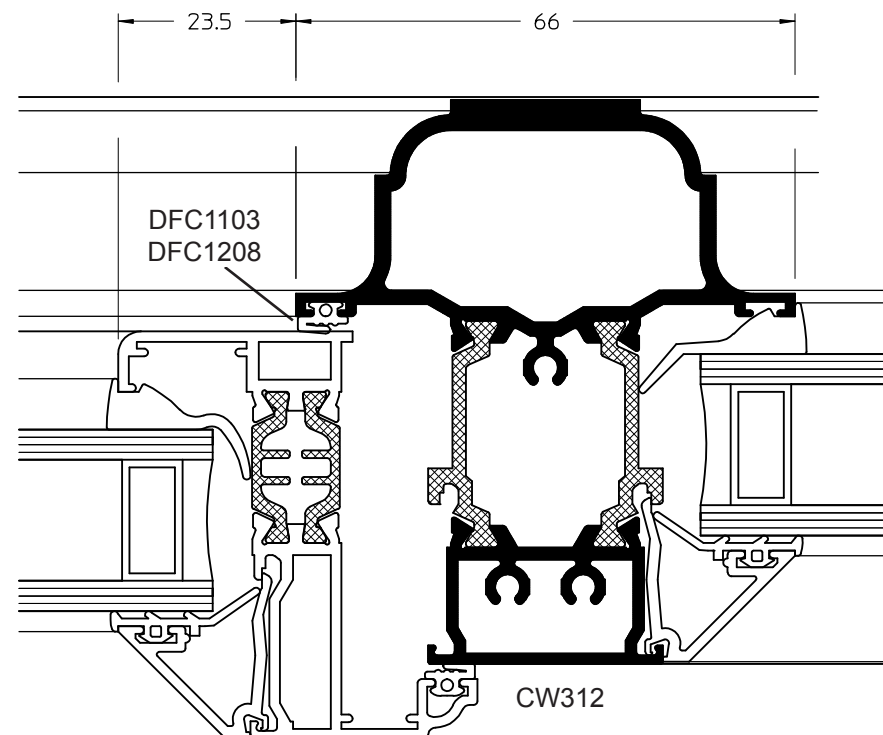
### D HD Square Mullion / Transom

Showing alternative heavy duty square mullion / transom.  
*Do not use with softline outer frames.*



### D HD Softline Mullion / Transom

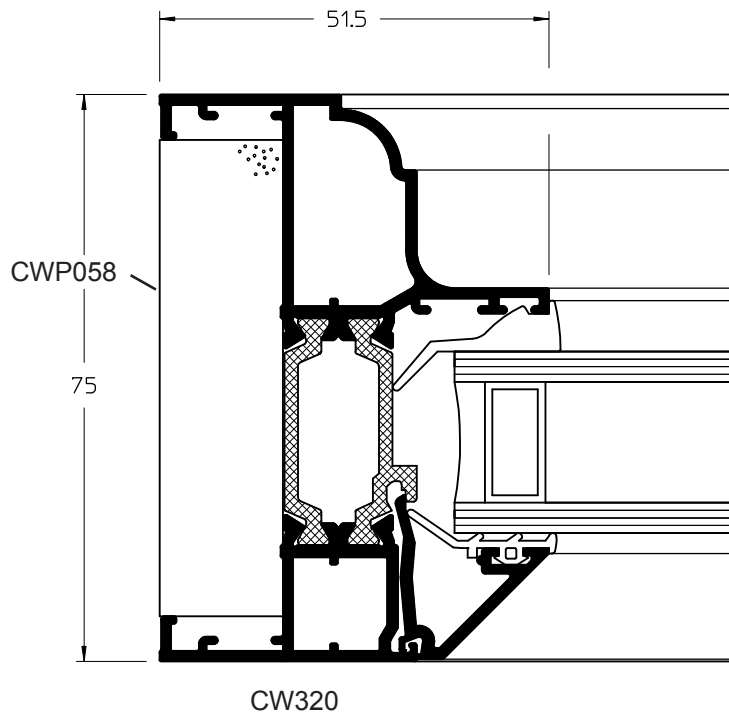
Showing alternative heavy duty softline mullion / transom.





## General Arrangements

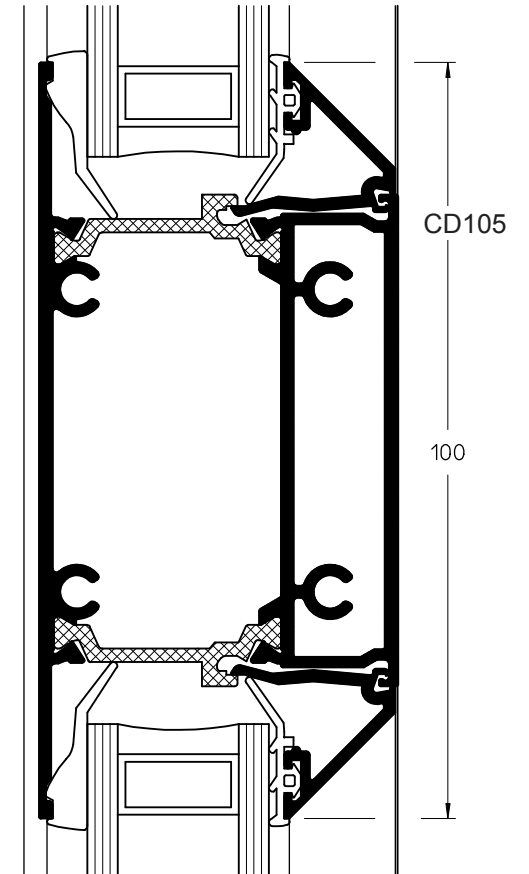
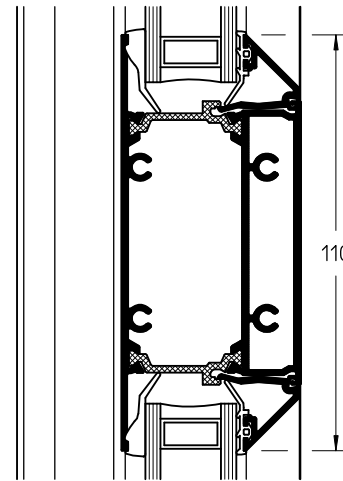
### E Fixed Light Jamb



### Door Midrail (100mm & 110mm versions)

**Note opening lights must not close onto a midrail, and midrails are for horizontal use only.**

CD109  
(Not to scale)



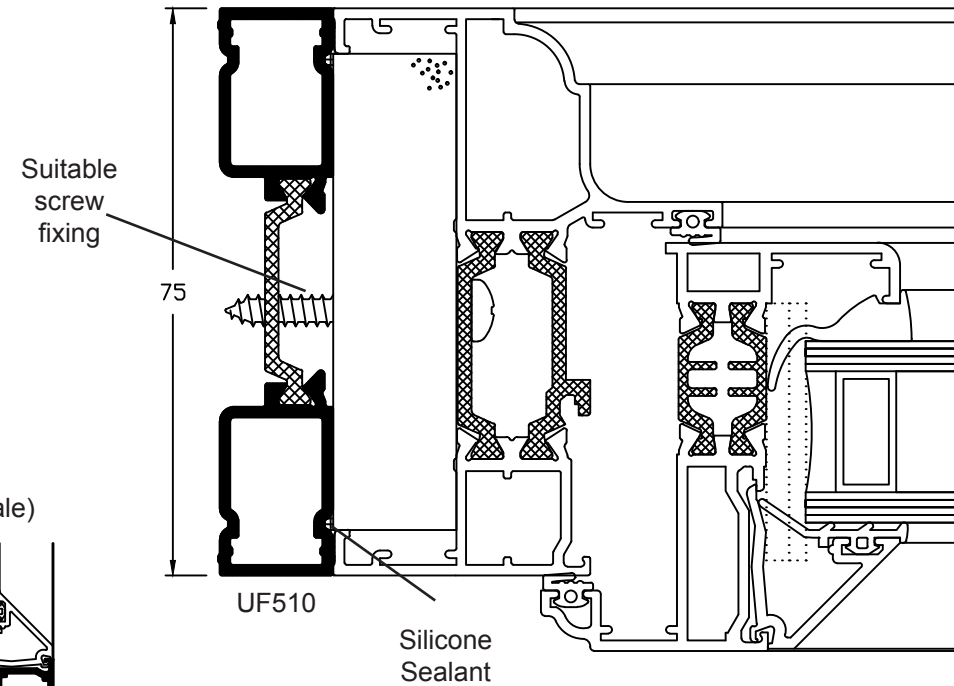
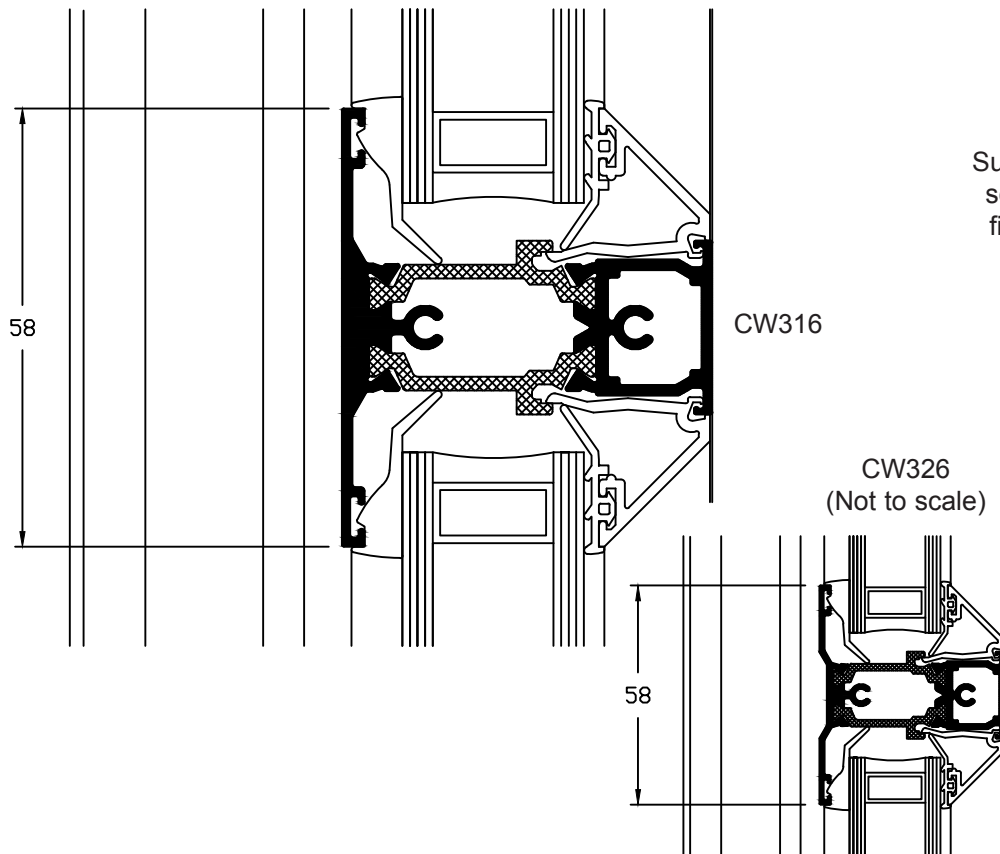
## General Arrangements

### Dummy Mullion/Transom

Only use on CW307 and CW308 vents.  
(Flat & Recessed versions)

### 15mm Frame Extender

UF510 can also be used as a coupler.



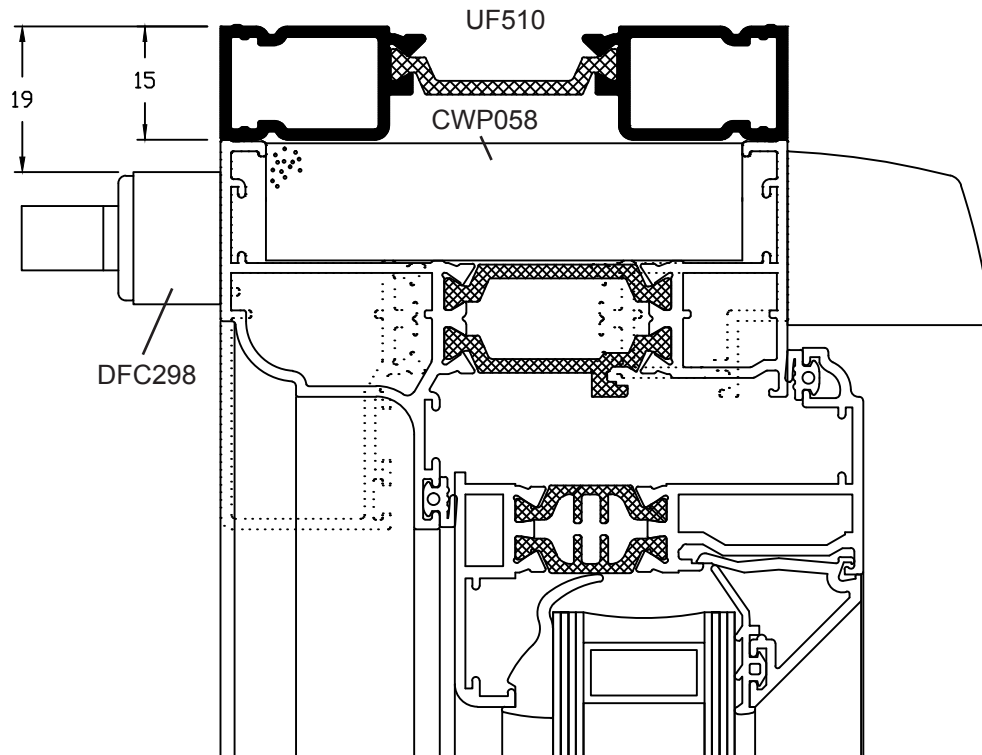
## General Arrangements

### Head Vent

Showing optional trickle vent.

*UF510 15mm frame extender with CW320 frame shown  
(CW335 dotted).*

*CW321, CW327, CW334 and CW335 frame options also available*

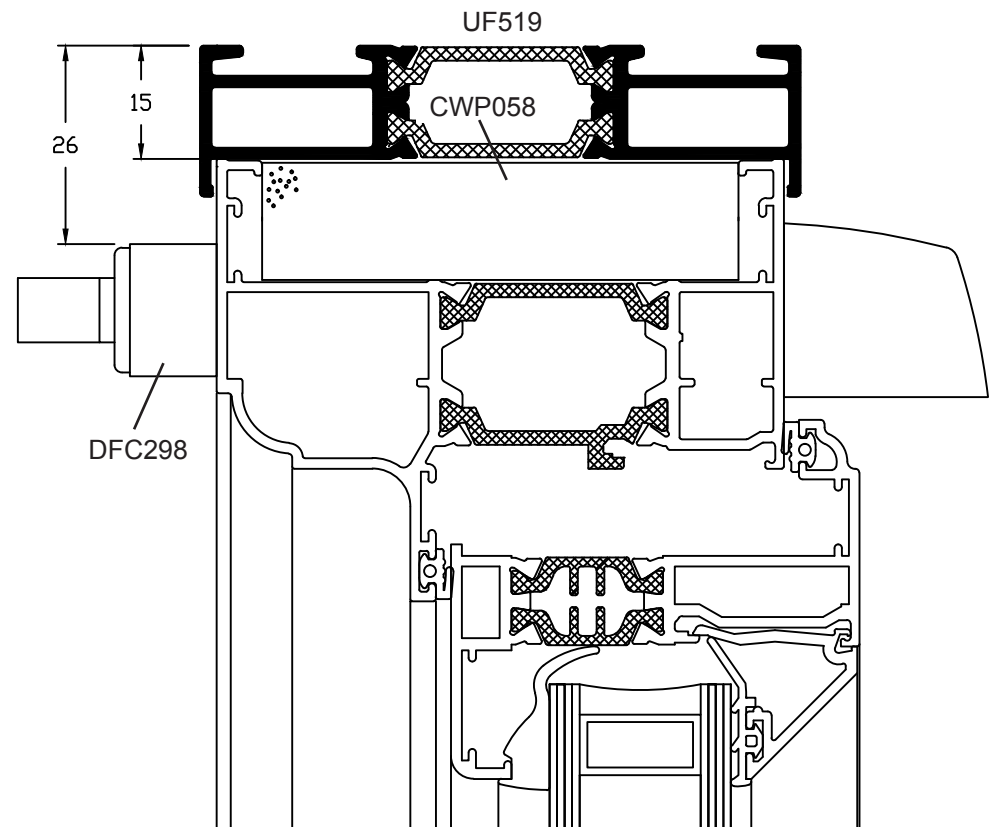


### 15mm Frame Extender with Fixing Lug

Showing optional trickle vent.

*UF519 15mm frame extender and lug fix with CW327 frame shown.*

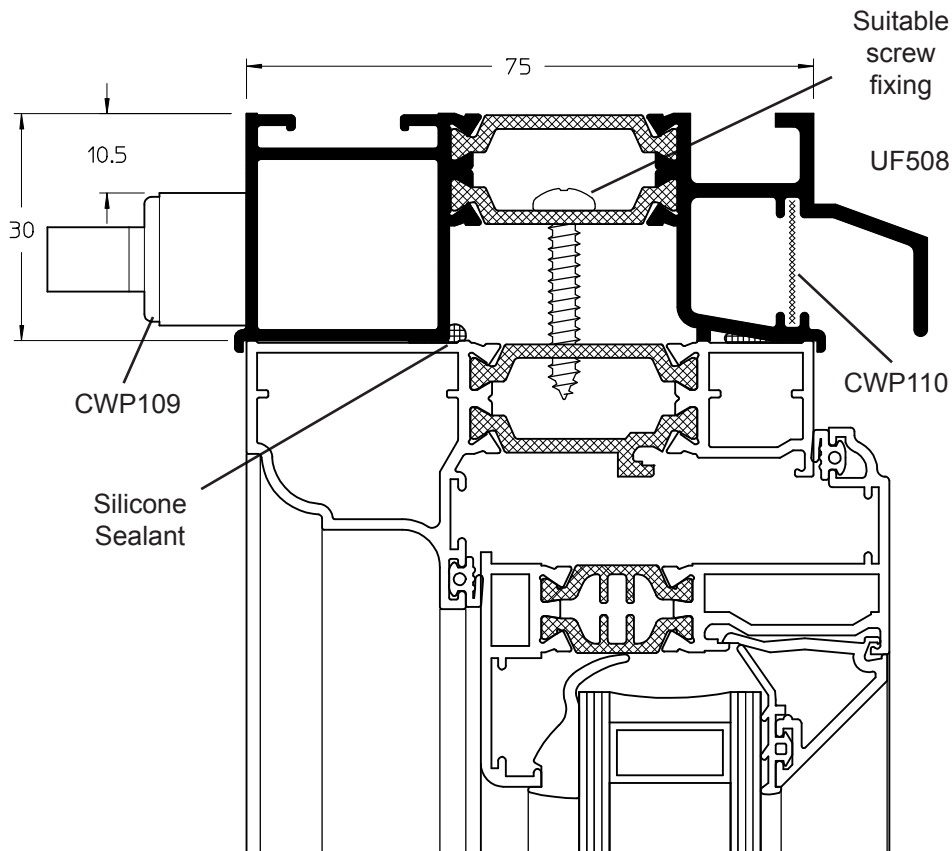
*CW320, CW321, CW334 and CW335 frame options also available  
(trickle vent option not available with CW320, CW321, CW334 and CW335)*



## General Arrangements

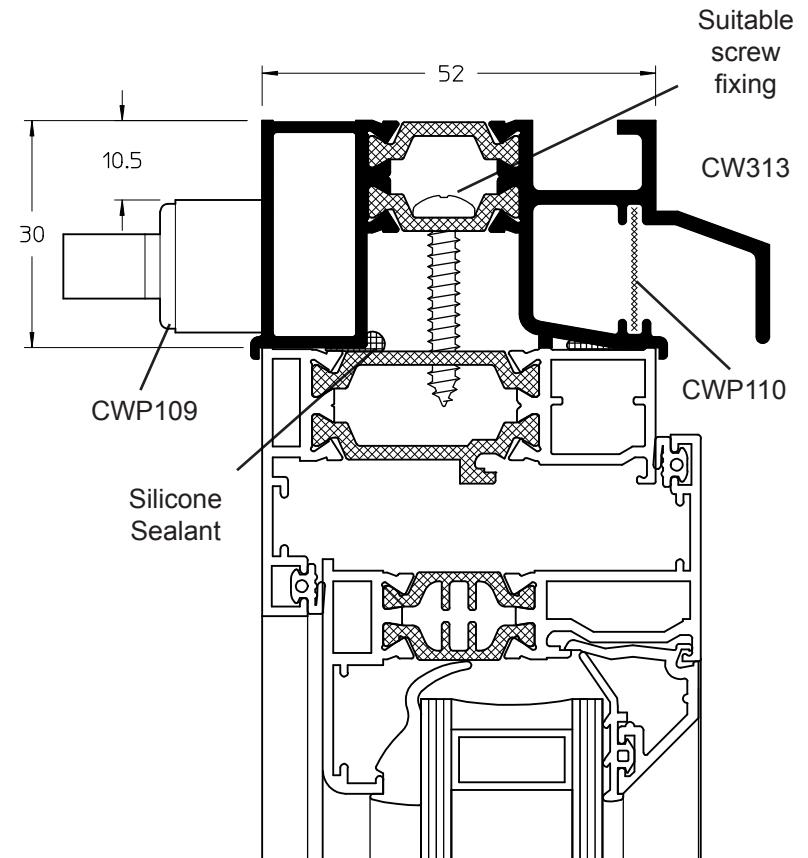
### Head Vent Profile - 75mm Frame

Showing optional trickle vent profile.  
*UF508 with CW322 frame shown.*  
*CW320, CW321, CW323, CW334 & CW335 frame*  
*options also available*



### Head Vent Profile - 52mm Frame

Showing optional trickle vent profile.  
*CW313 with CW324 frame shown.*  
*CW328 & CW329 frame options also available.*



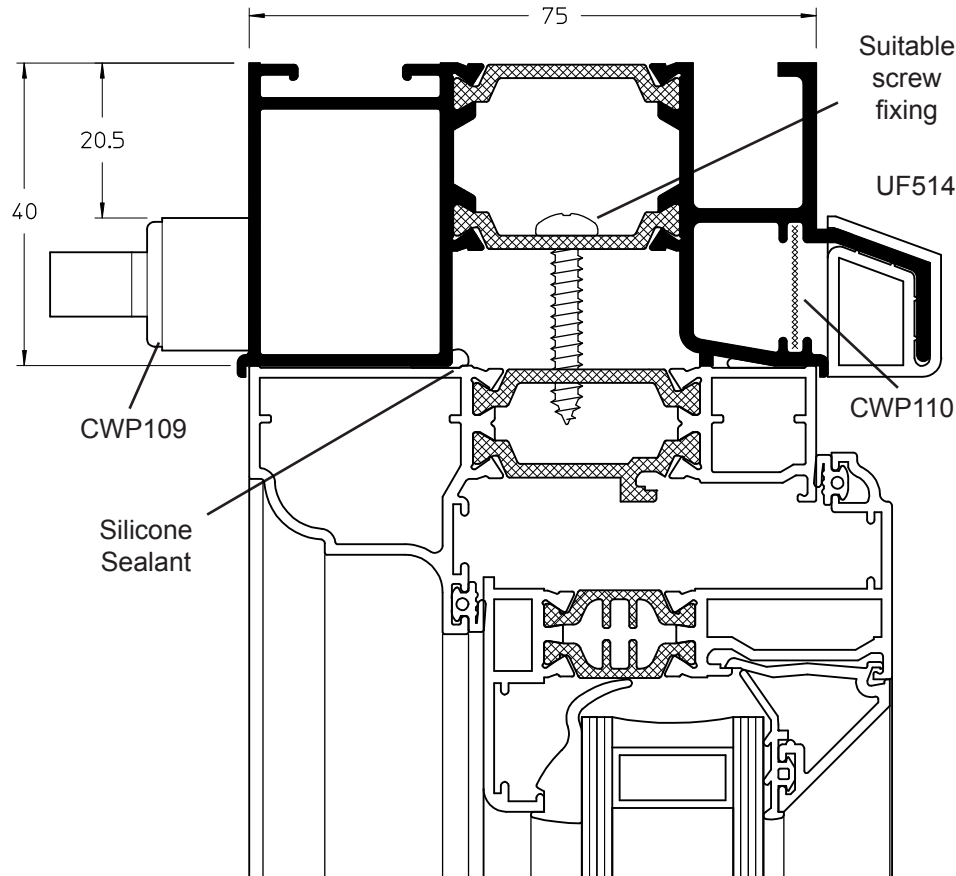
## General Arrangements

### Deep Head Vent Profile - 75mm Frame

Showing optional deep trickle vent profile.

*UF514 with CW322 frame shown.*

*CW320, CW321, CW323, CW334 & CW335 frame options also available*

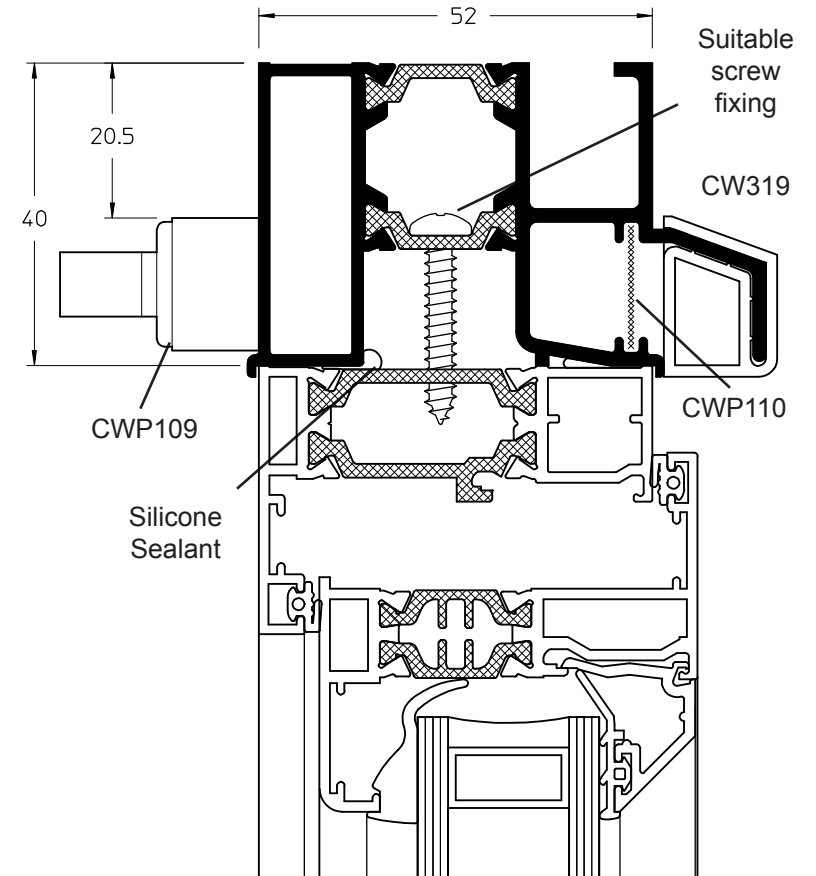


### Deep Head Vent Profile - 52mm Frame

Showing optional deep trickle vent profile.

*CW319 with CW324 frame shown.*

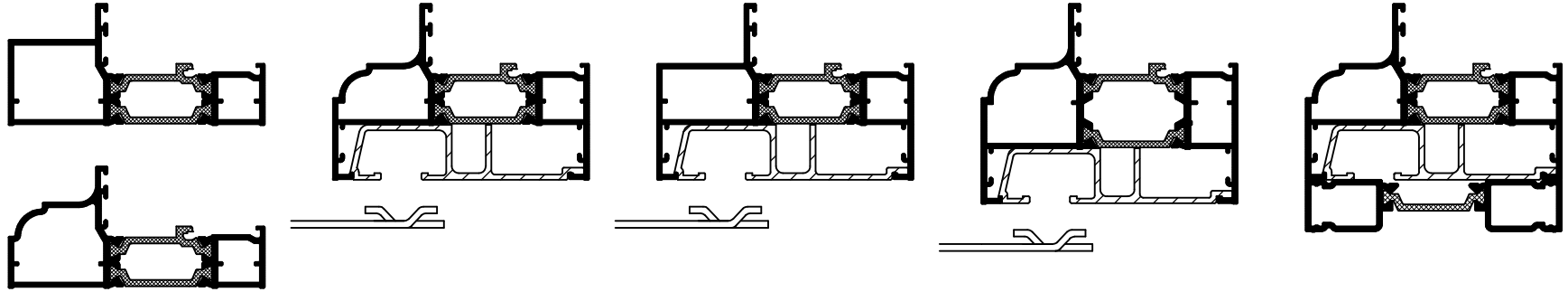
*CW328 & CW329 frame options also available.*



**General Arrangements**

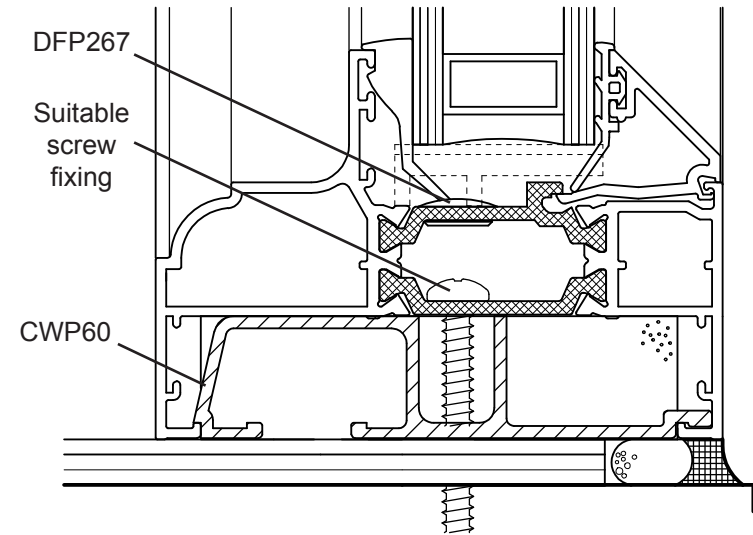
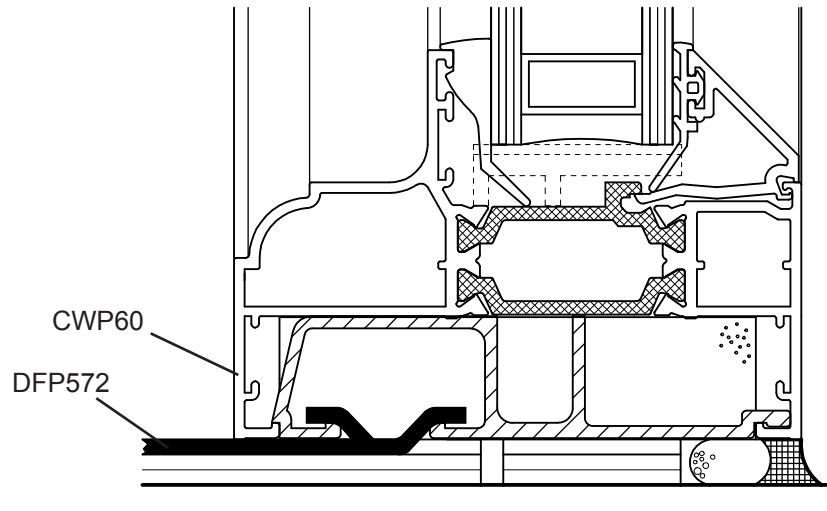
**Frame Fixing**

Typical Frame  
 Fixing Options



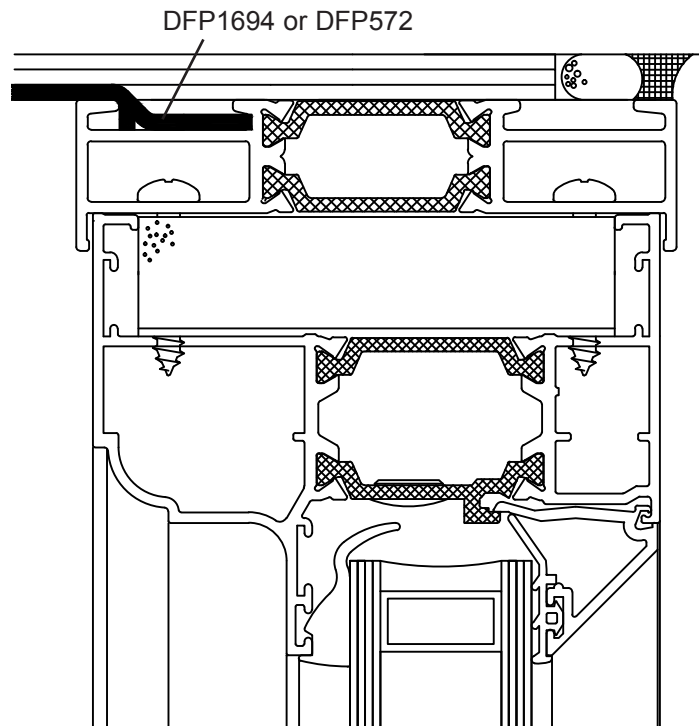
Fixing Lug, CWP060 frame brace and CW320 frame.

Screw fixing, CWP060 frame brace and CW320 frame.

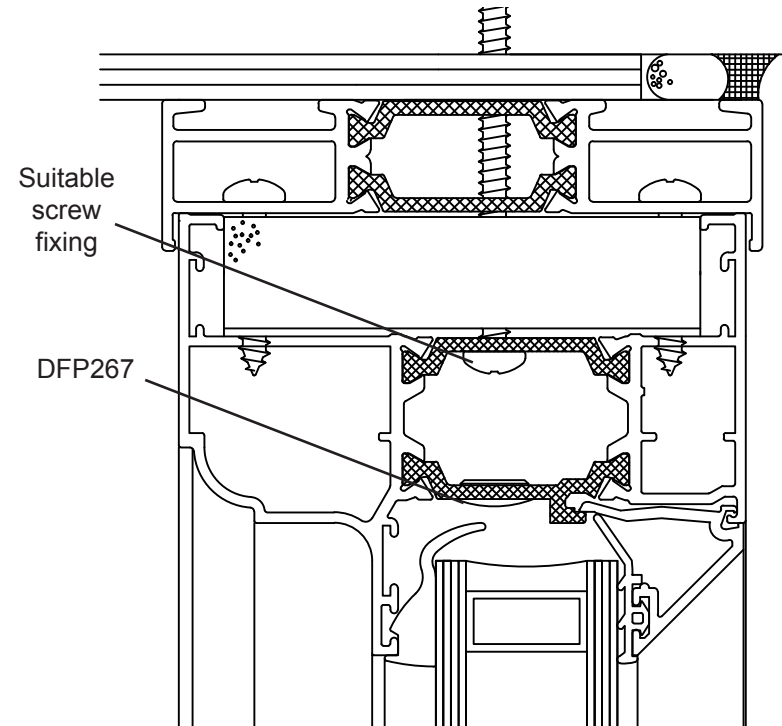


## Frame Extender Fixing

Fixing Lug and frame option



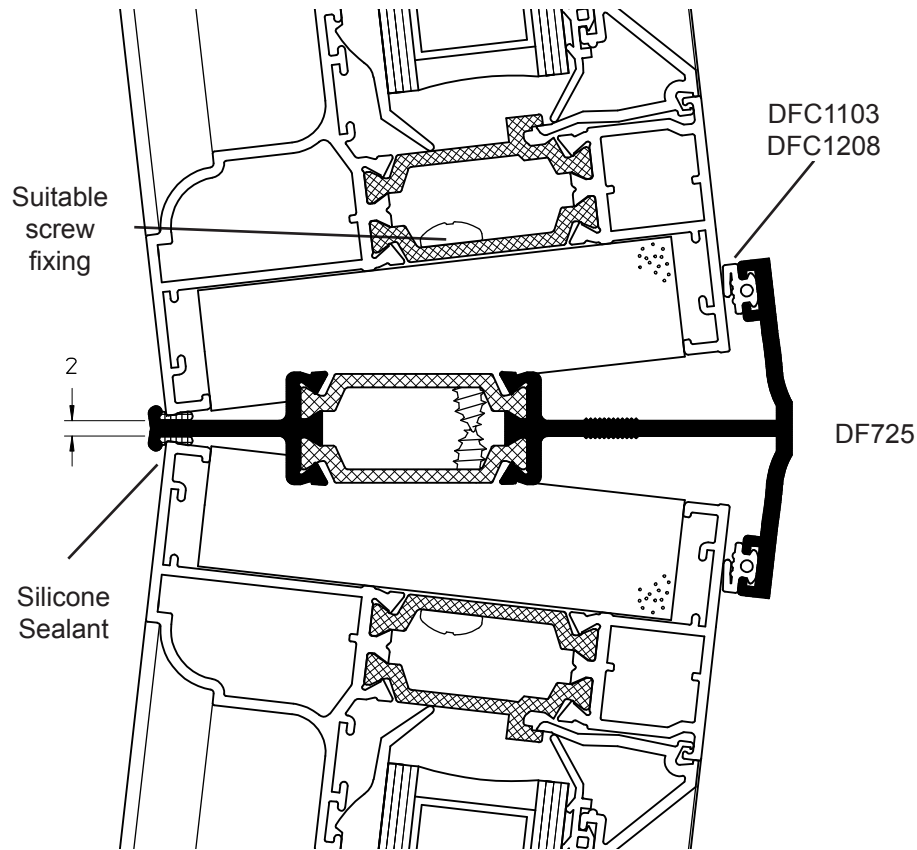
Screw fixing and frame option



## General Arrangements

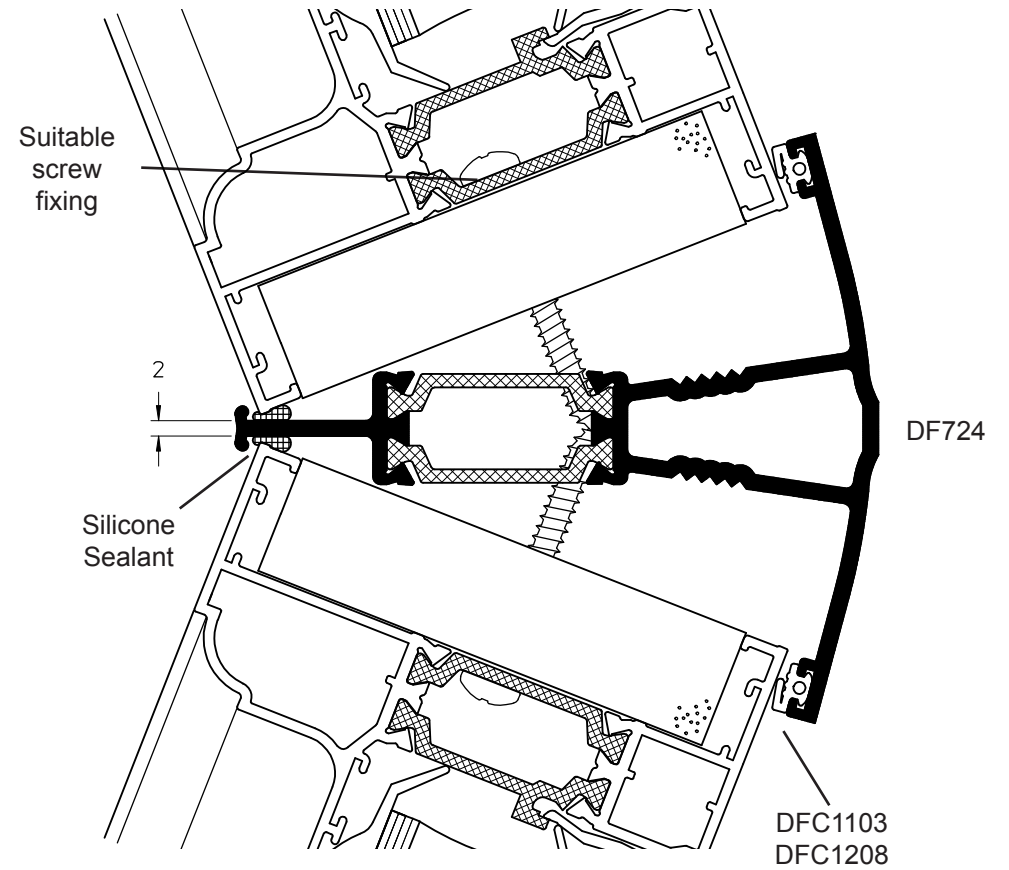
### Variable Bay Pole 162° - 175°

*Do not use with slim outer frames CW322, CW323*



### Variable Bay Pole 133° - 163°

*Do not use with slim outer frames CW322, CW323*



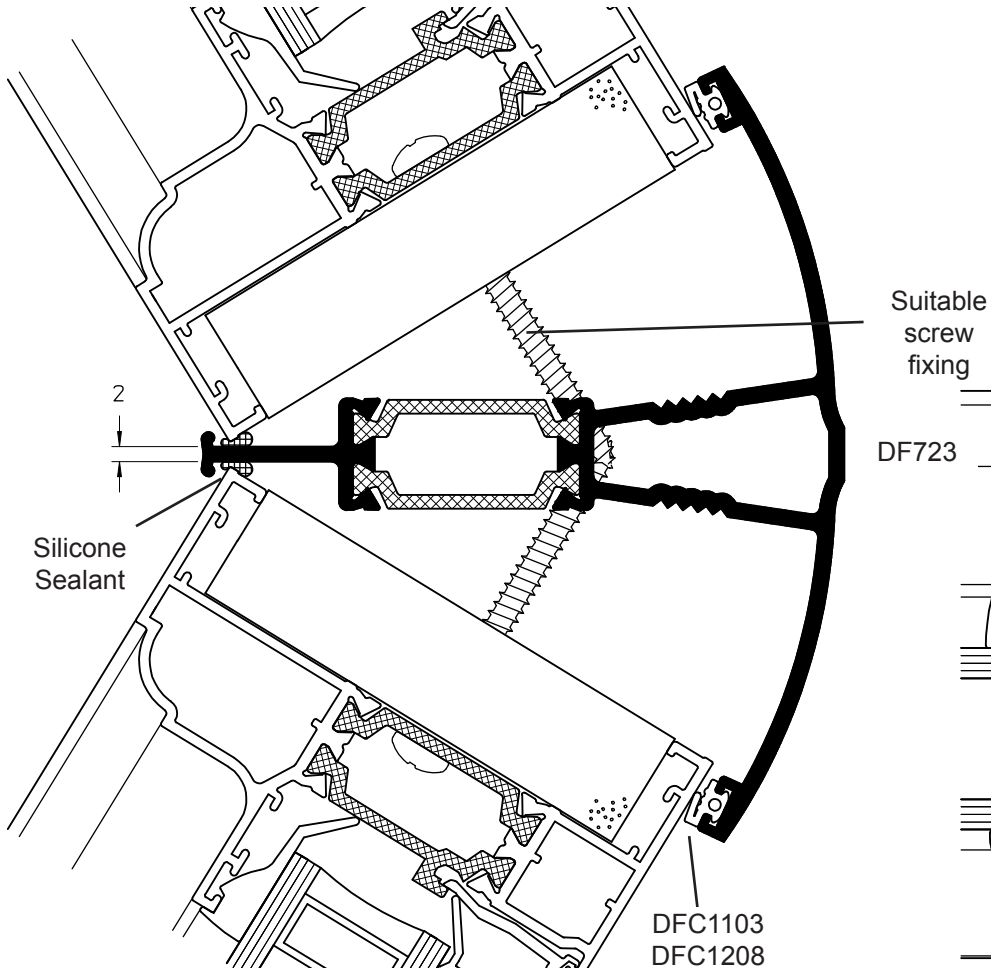
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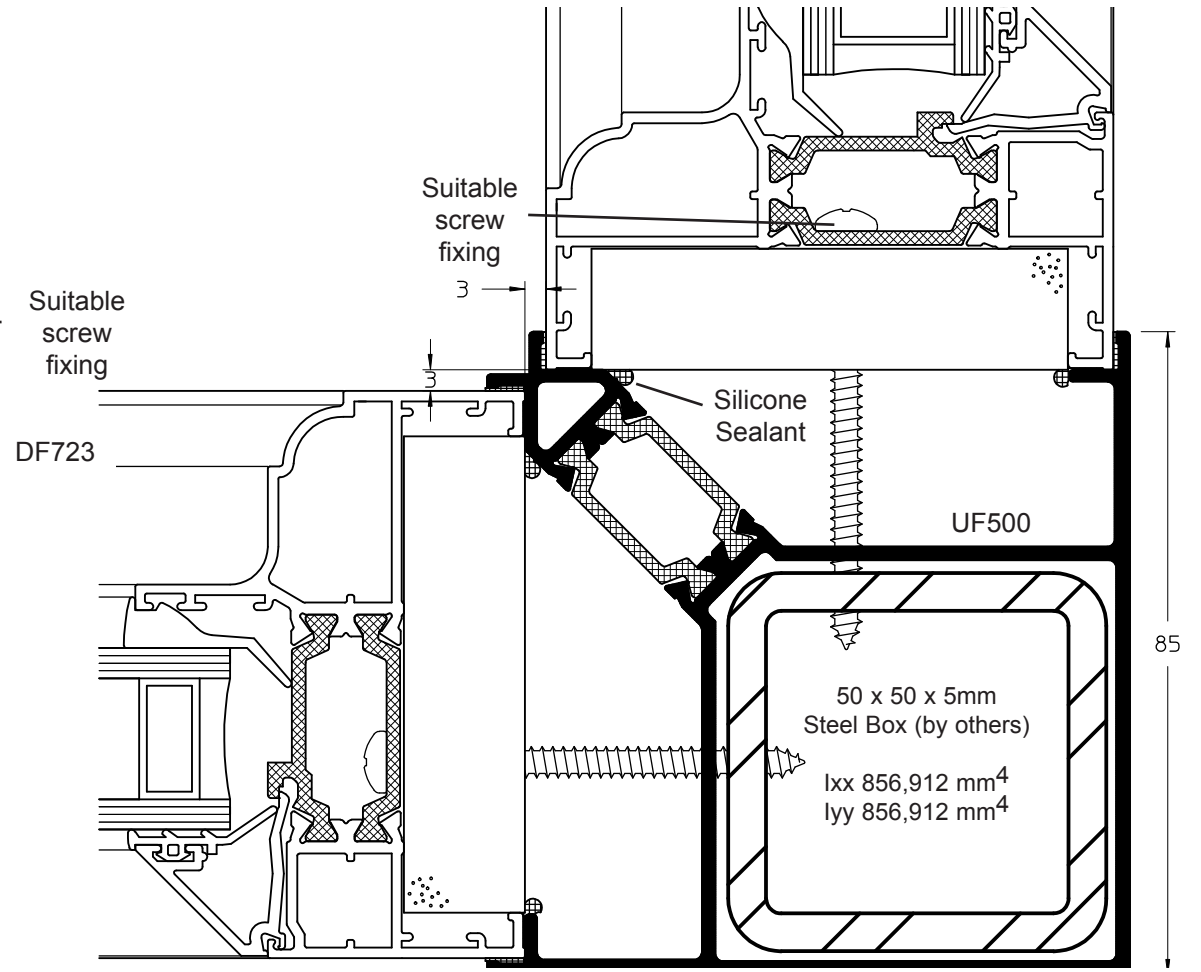
**General Arrangements**

**Variable Bay Pole 115° - 134°**

*Do not use with slim outer frames CW322, CW323*



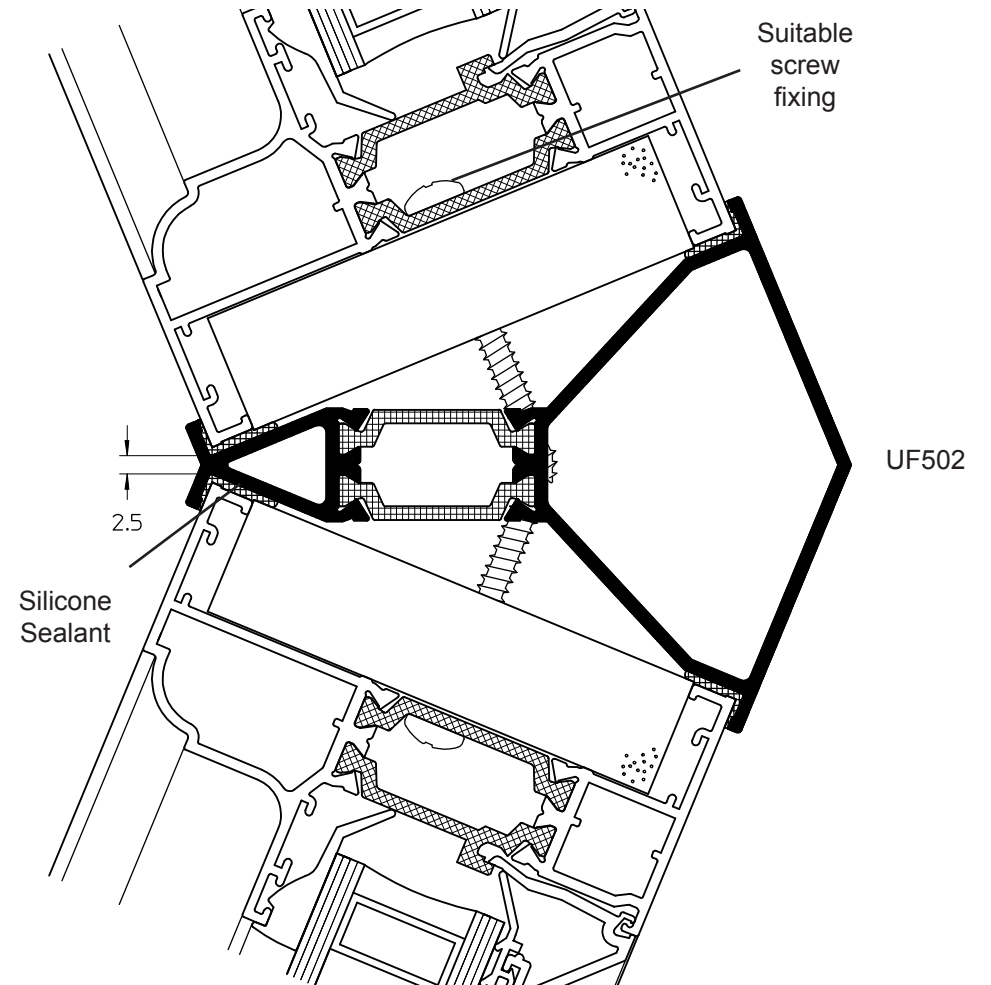
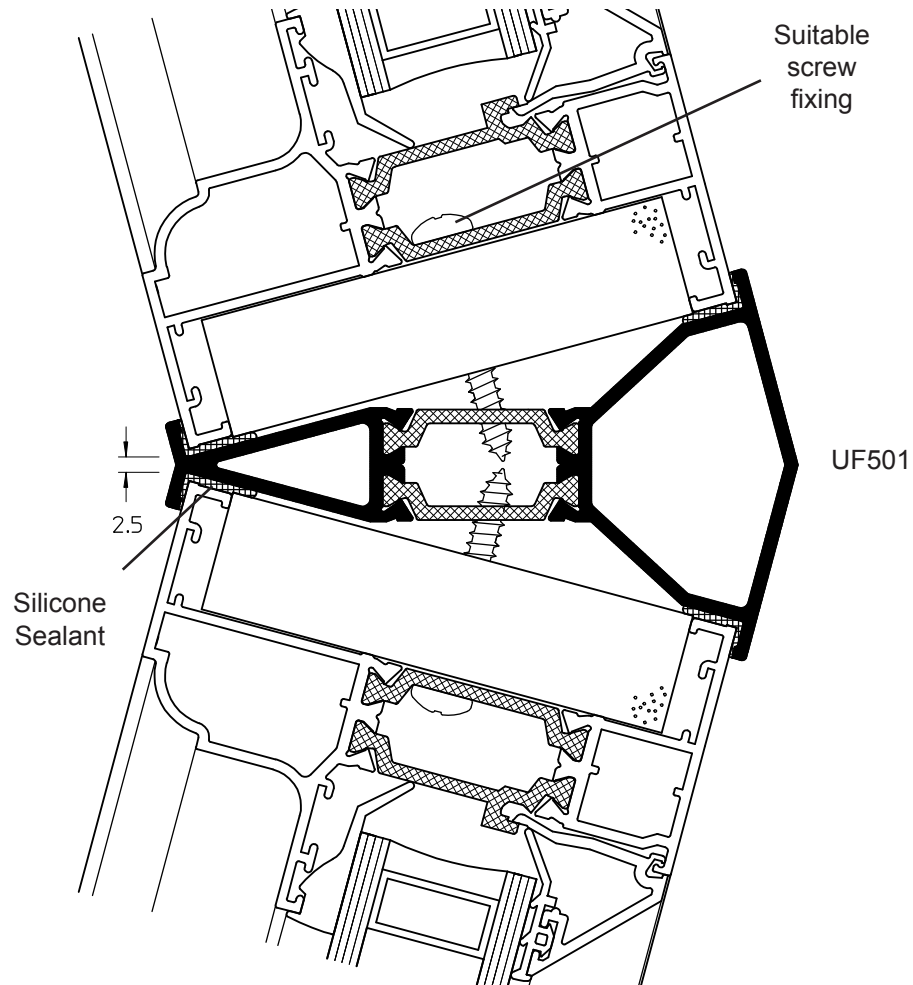
**90° Corner Post**



## General Arrangements

### 150° Bay Pole

### 135° Bay Pole

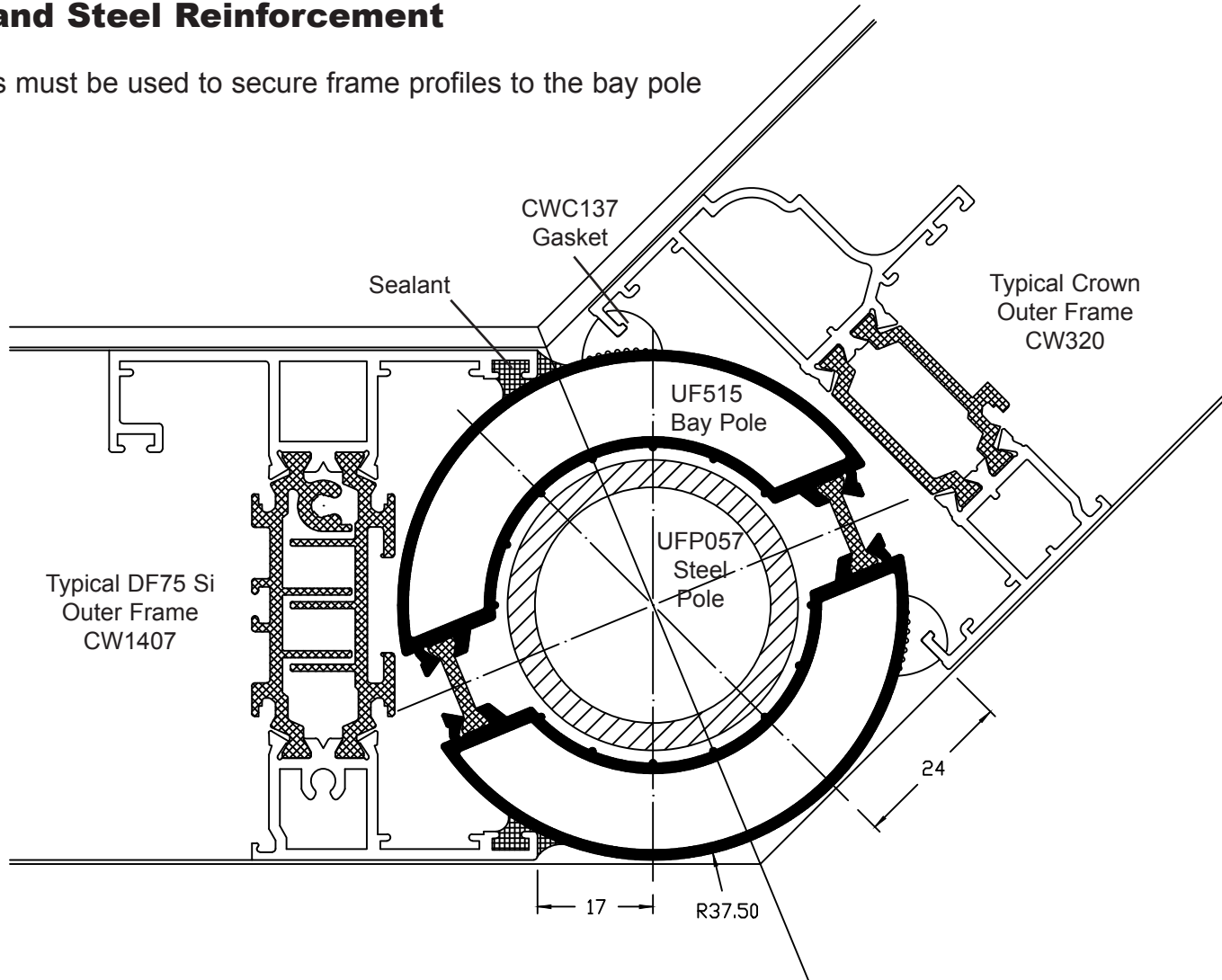


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## General Arrangements

### Bay Pole and Steel Reinforcement

Suitable fixings must be used to secure frame profiles to the bay pole

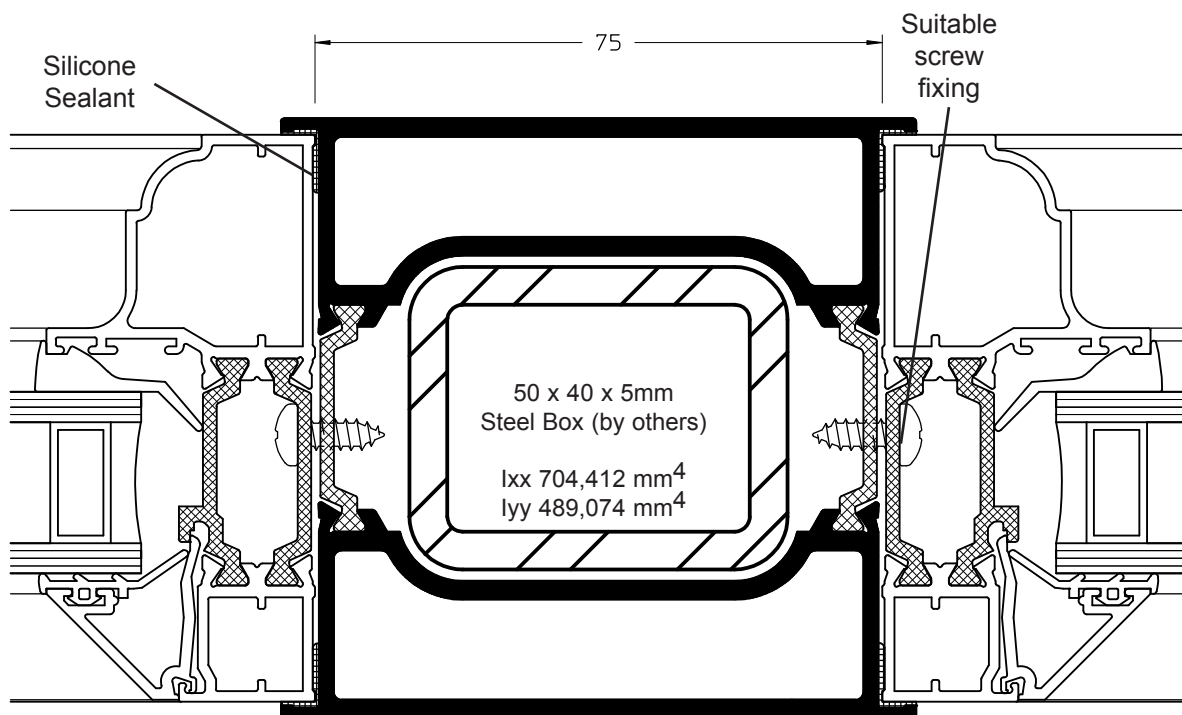


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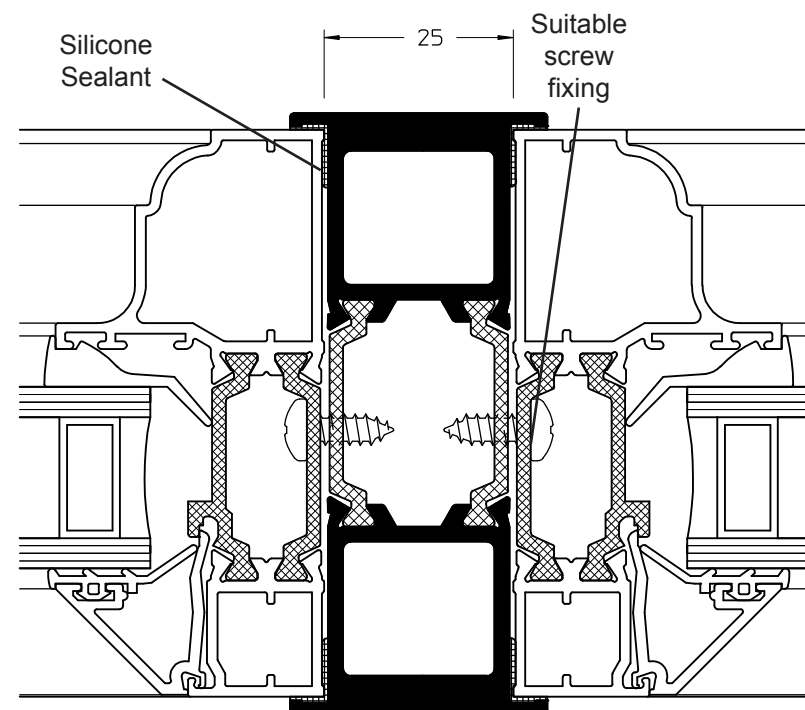
## General Arrangements

### 75mm Heavy Duty Coupler

### 25mm Heavy Duty Coupler



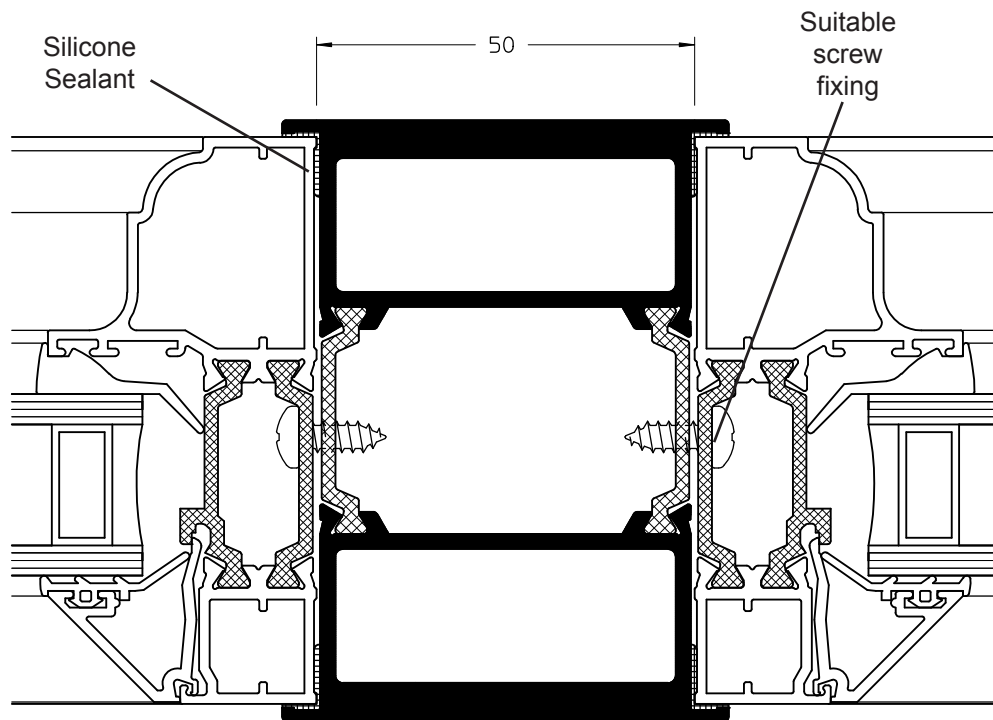
UF503



UF504

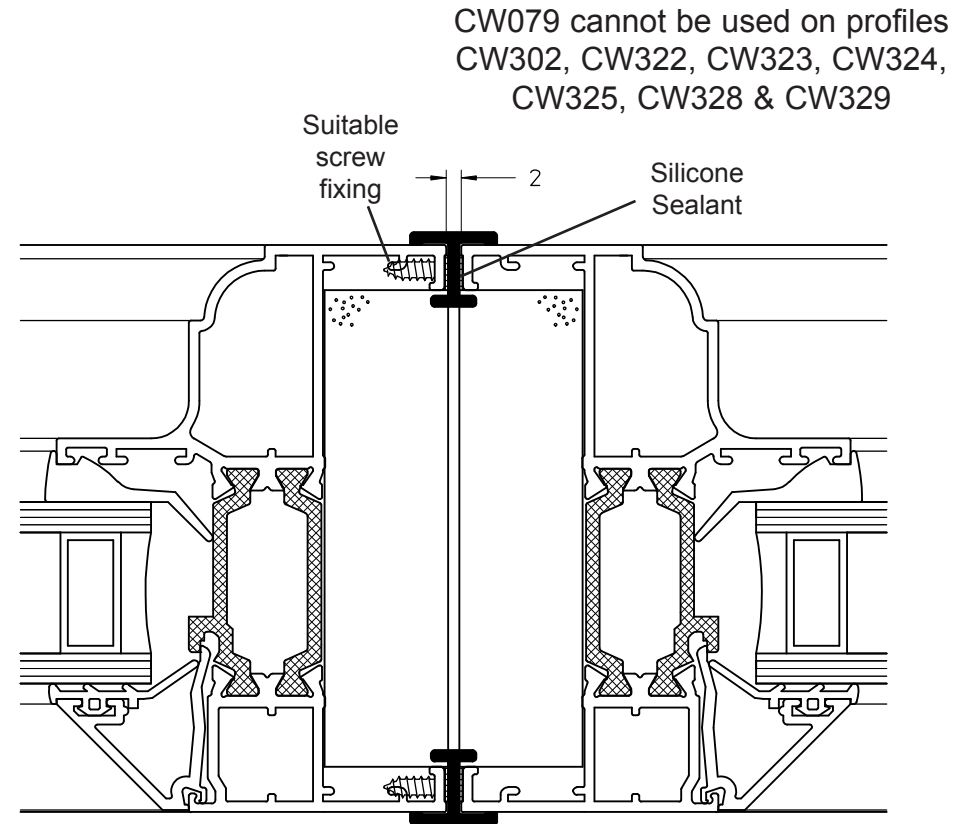
## General Arrangements

### 50mm Heavy Duty Coupler



UF505

### Back To Back Coupler



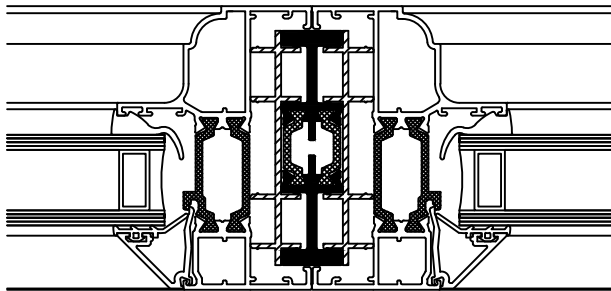
CW079

## General Arrangements

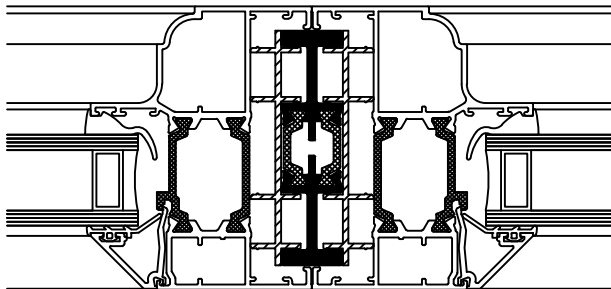
### Concealed Coupler

#### Crown Window to Window

CW320 or CW321

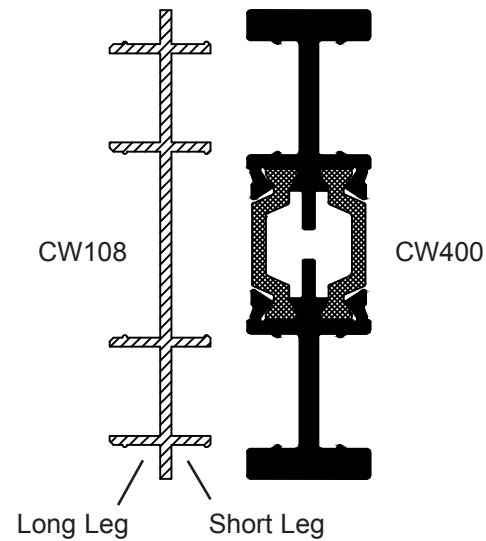


CW327



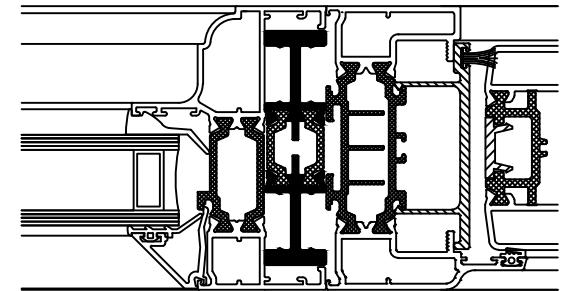
*The concealed coupler can be used with Crown Windows and Crown doors using 75mm outer frame profiles.*

*See various illustrated options.*

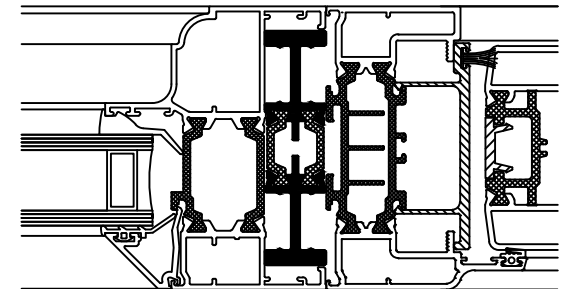


#### Crown Window to Door

CW320 or CD200

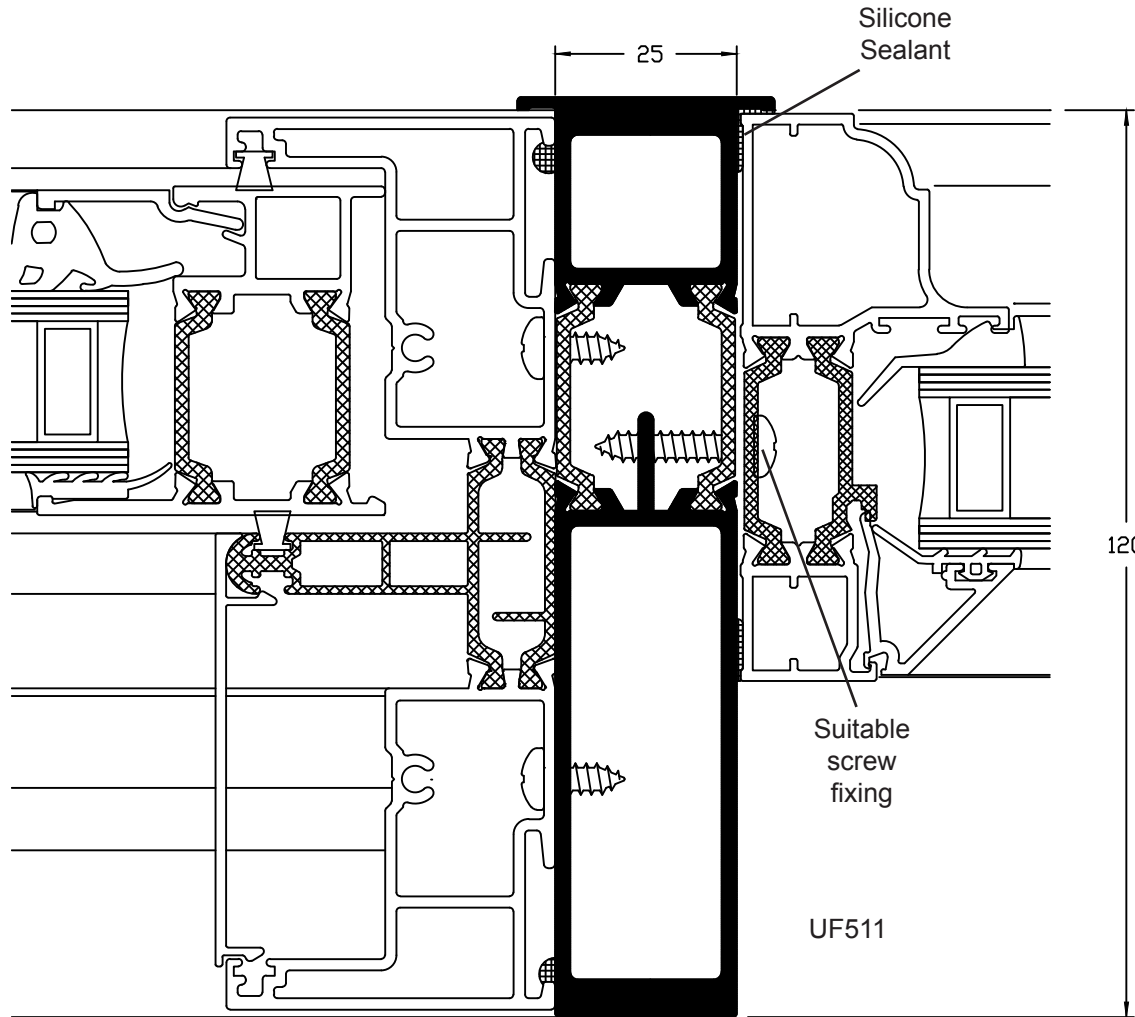


CW327

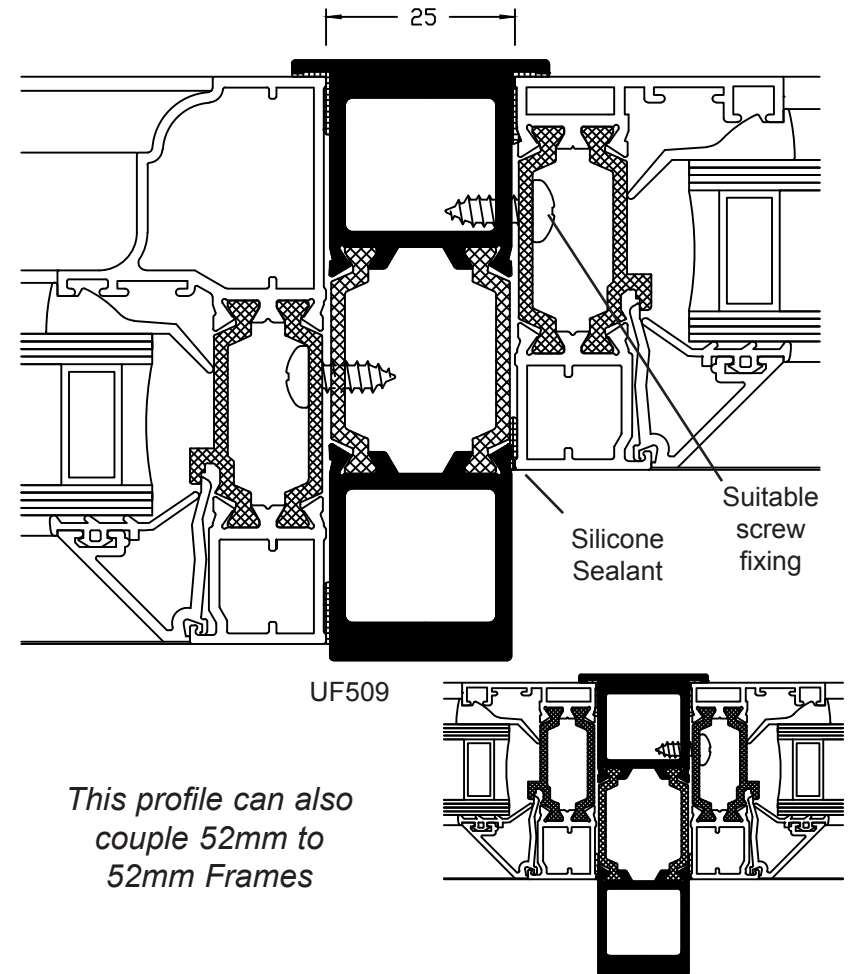


## General Arrangements

### 25mm Patio / Window Coupler



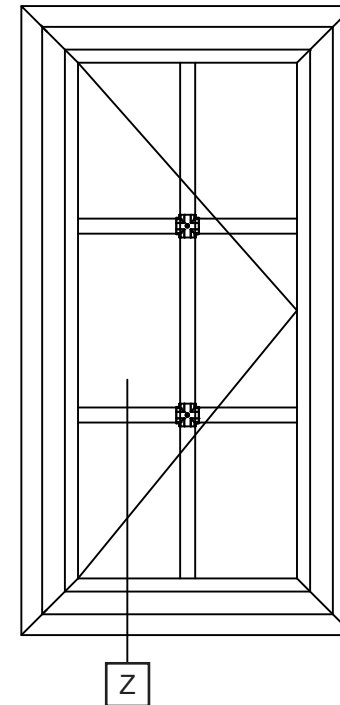
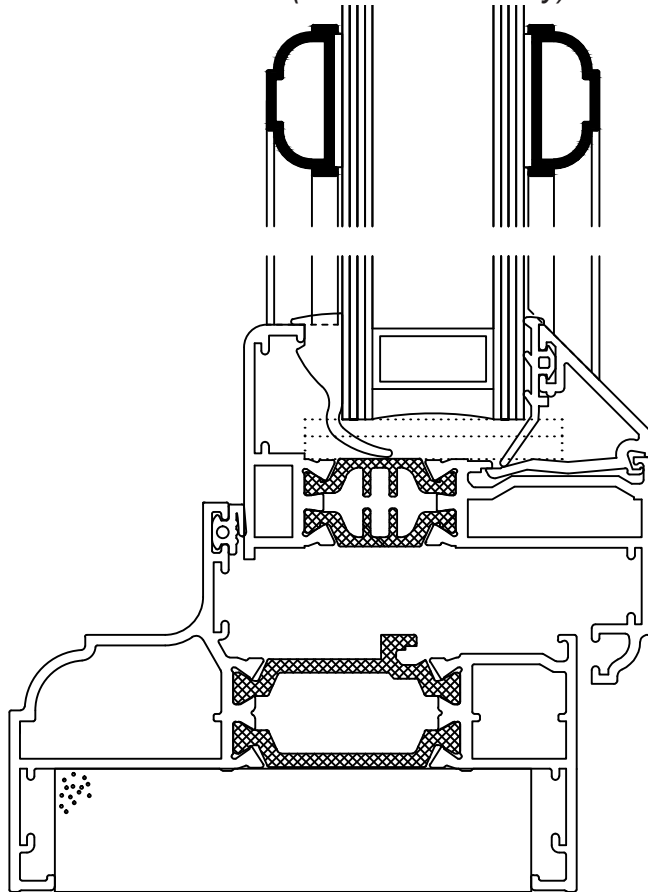
### 75mm to 52mm Coupler



## General Arrangements

### Z Laybar

Laybar in standard softline vent frame  
(24mm Glass Only)



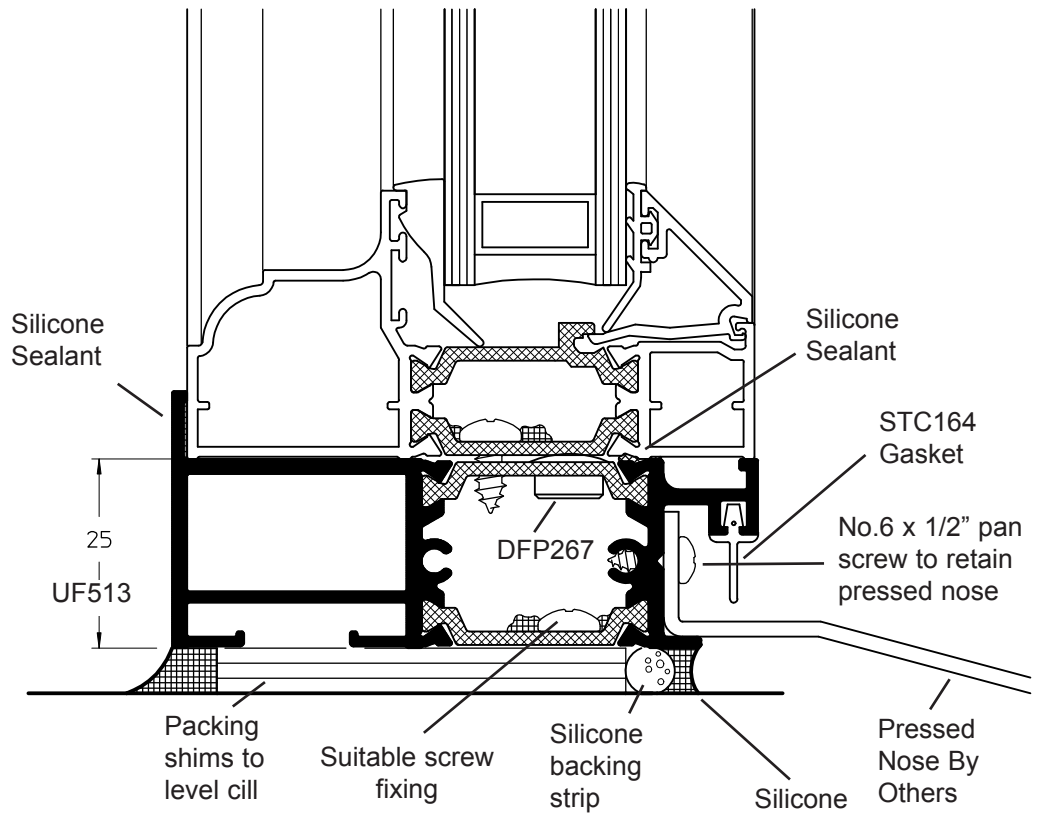
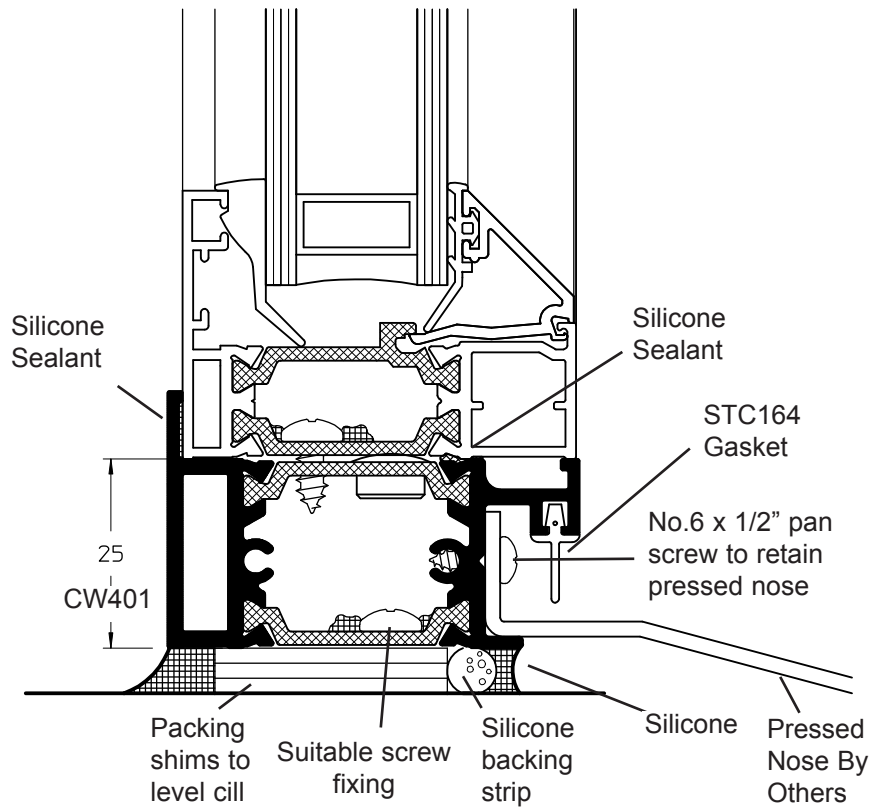


**General Arrangements**

**52mm Frame Sub Cill With Applied Nose**

**75mm Frame Sub Cill With Applied Nose**

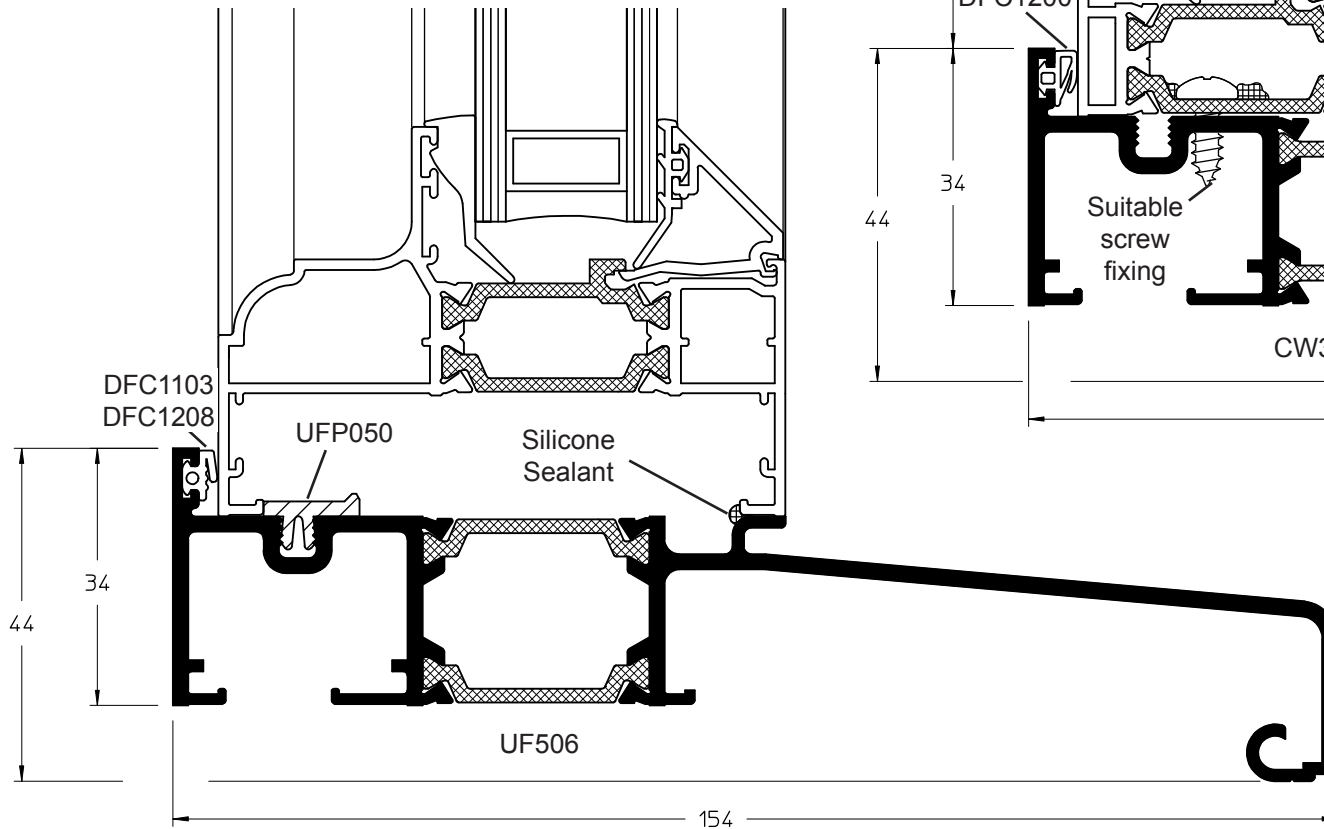
Lug fixing available with this profile



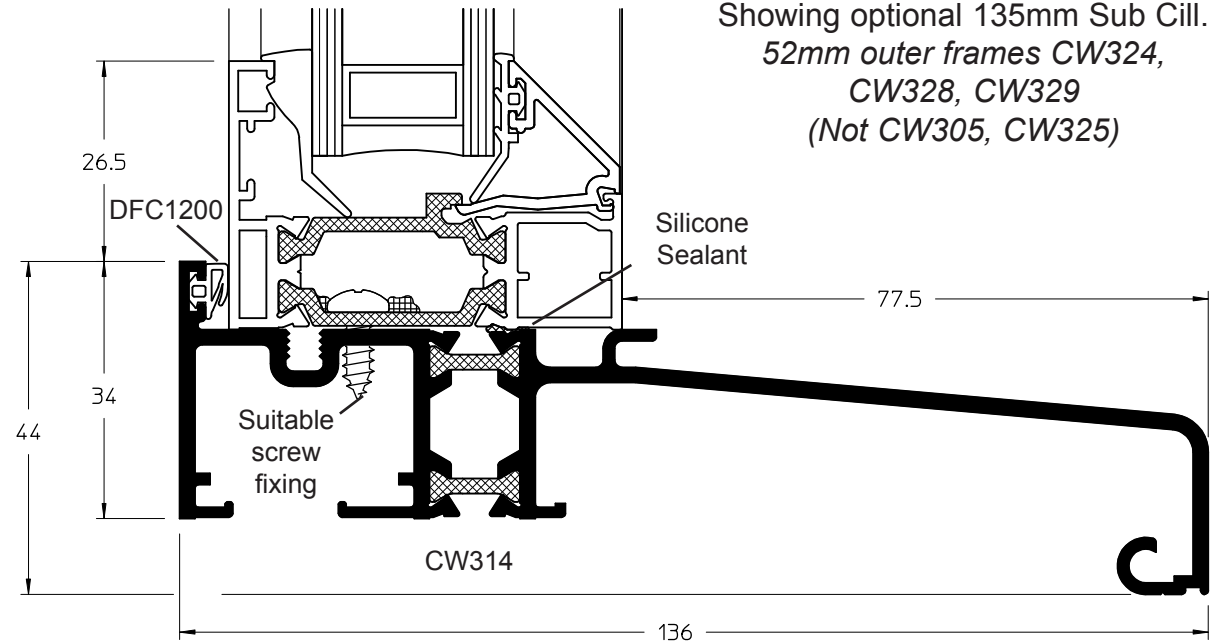
**General Arrangements**

**Sub Cills**

Showing optional 155mm Sub Cill.  
 75mm outer frame.



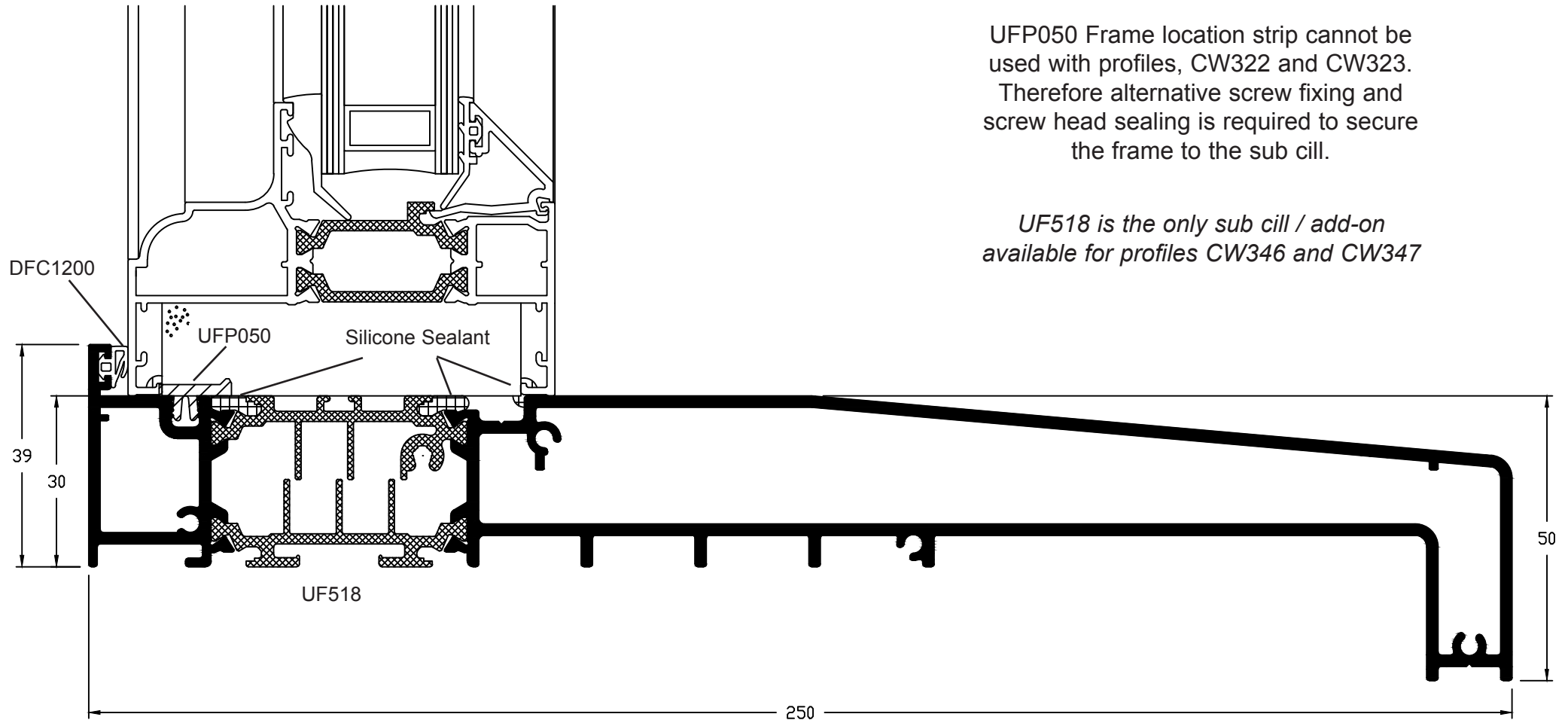
Showing optional 135mm Sub Cill.  
 52mm outer frames CW324,  
 CW328, CW329  
 (Not CW305, CW325)



UFP050 Frame location strip cannot be used with profiles, CW322 and CW323. Therefore alternative screw fixing is required to secure the frame to the sub cill.

## General Arrangements

### Sub Cills



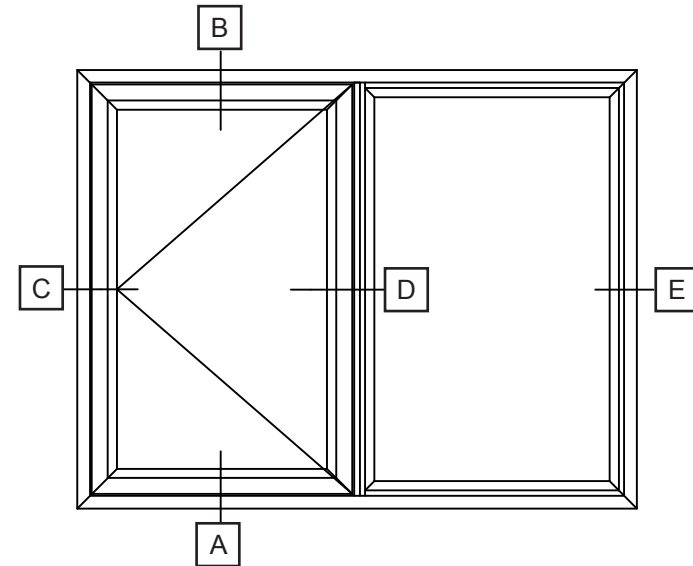
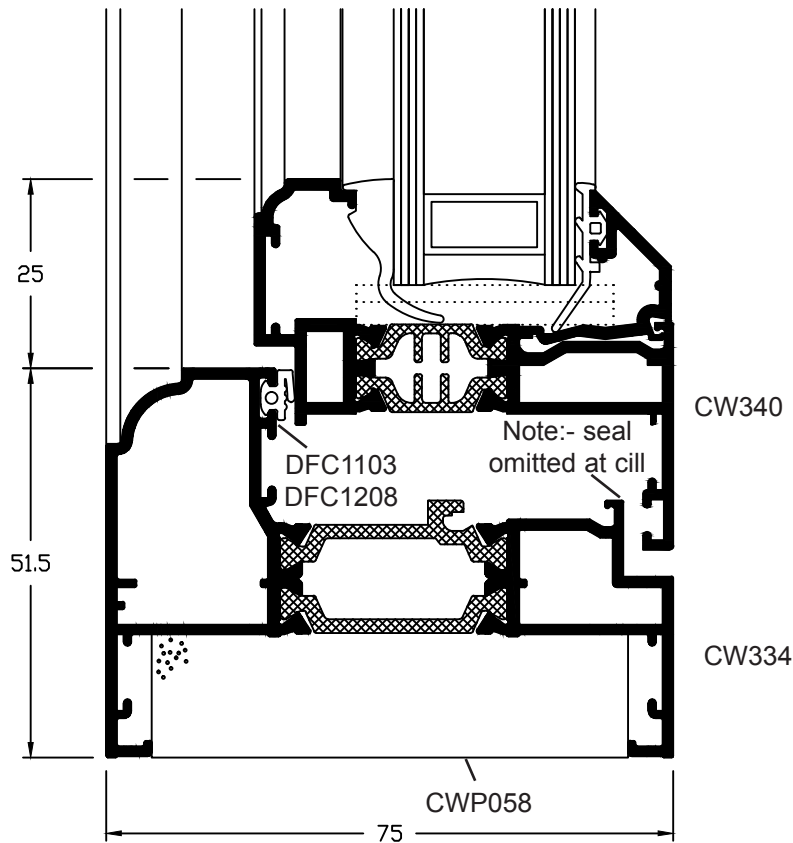
UFP050 Frame location strip cannot be used with profiles, CW322 and CW323. Therefore alternative screw fixing and screw head sealing is required to secure the frame to the sub cill.

*UF518 is the only sub cill / add-on available for profiles CW346 and CW347*

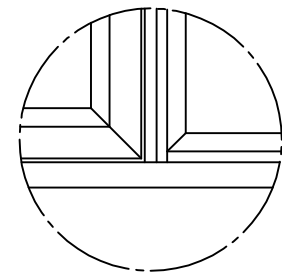
**General Arrangements - Flush Window**

**A** **Cill**

Softline outer frame & softline vent frame



Typical casement flush window showing general arrangement reference codes.

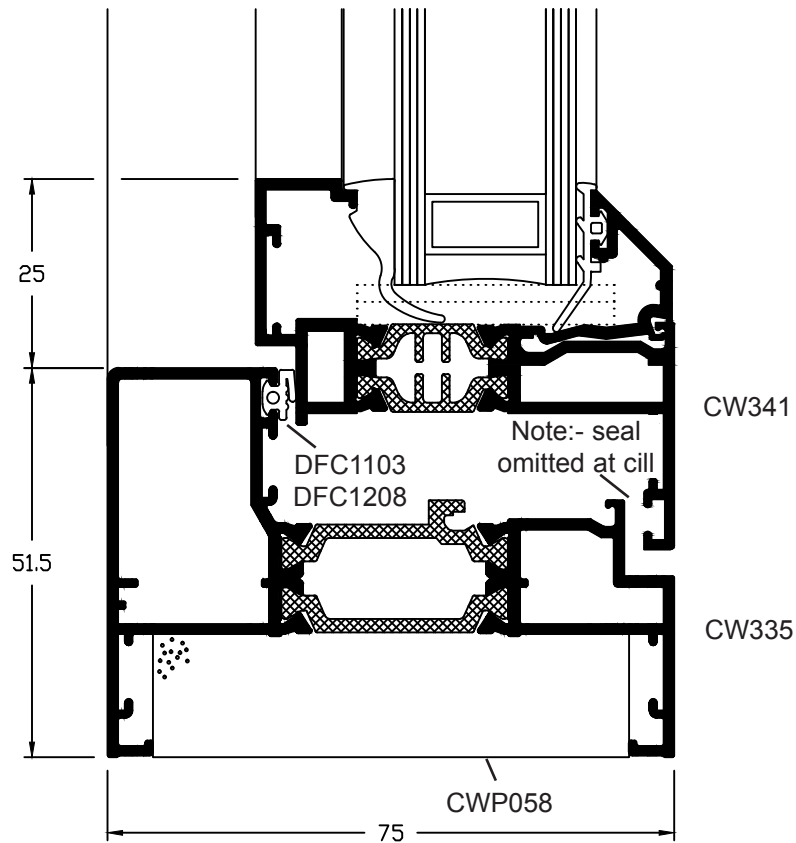


Mullion joint view

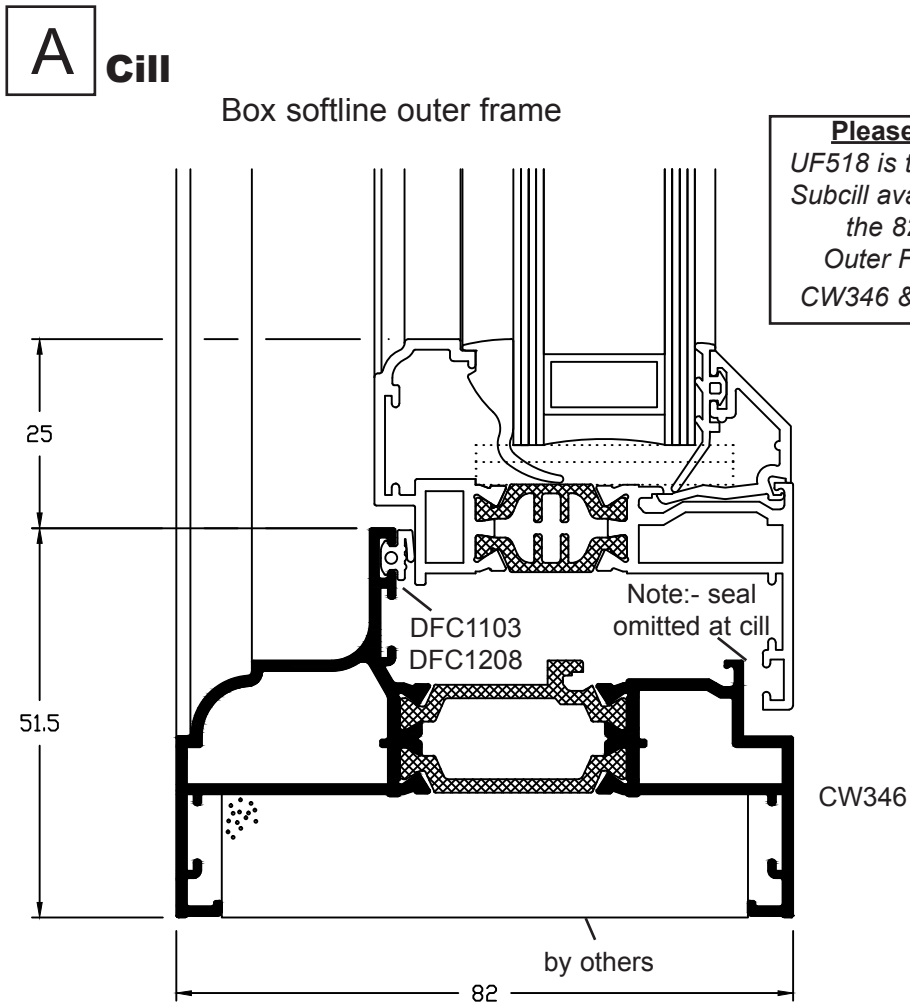
### General Arrangements - Flush Window

#### A Cill

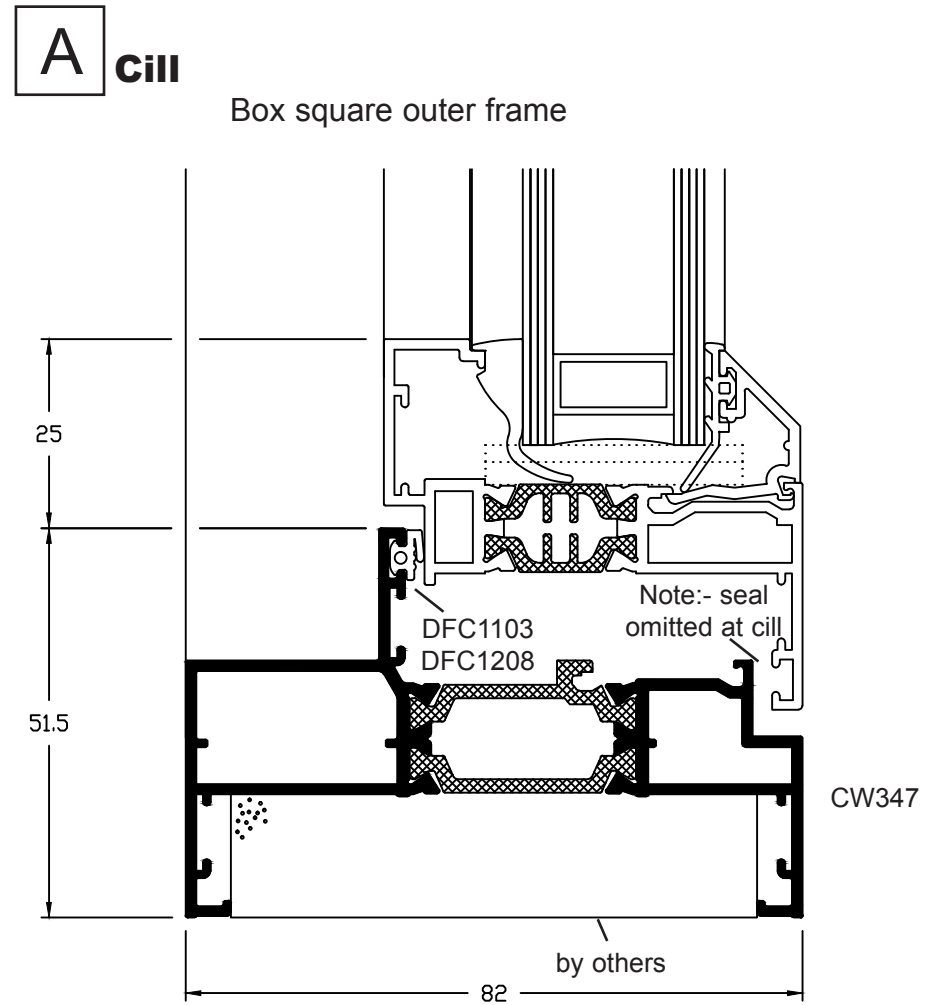
Square outer frame & square vent frame



**General Arrangements - Flush Window**



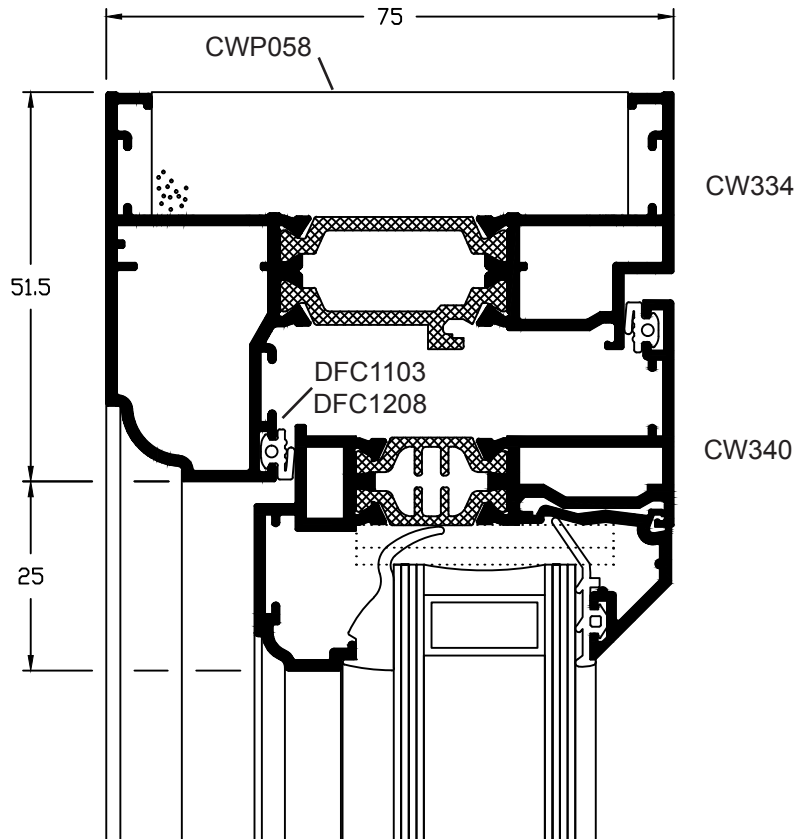
**Please note**  
 UF518 is the **ONLY**  
 Subcill available for  
 the 82mm  
 Outer Frames  
 CW346 & CW347



**General Arrangements - Flush Window**

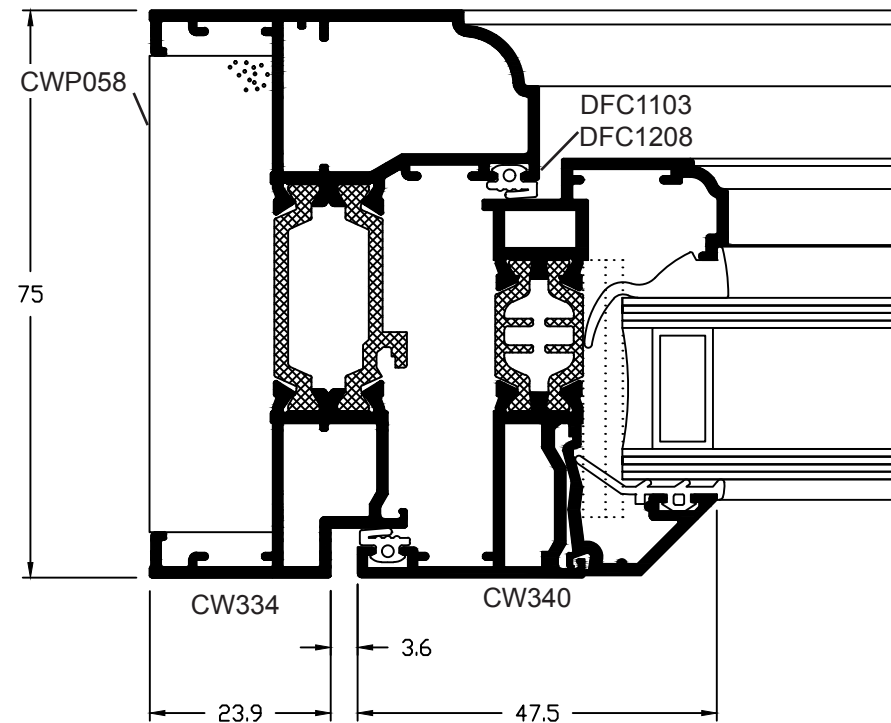
**B Head**

Softline outer frame & softline vent frame.



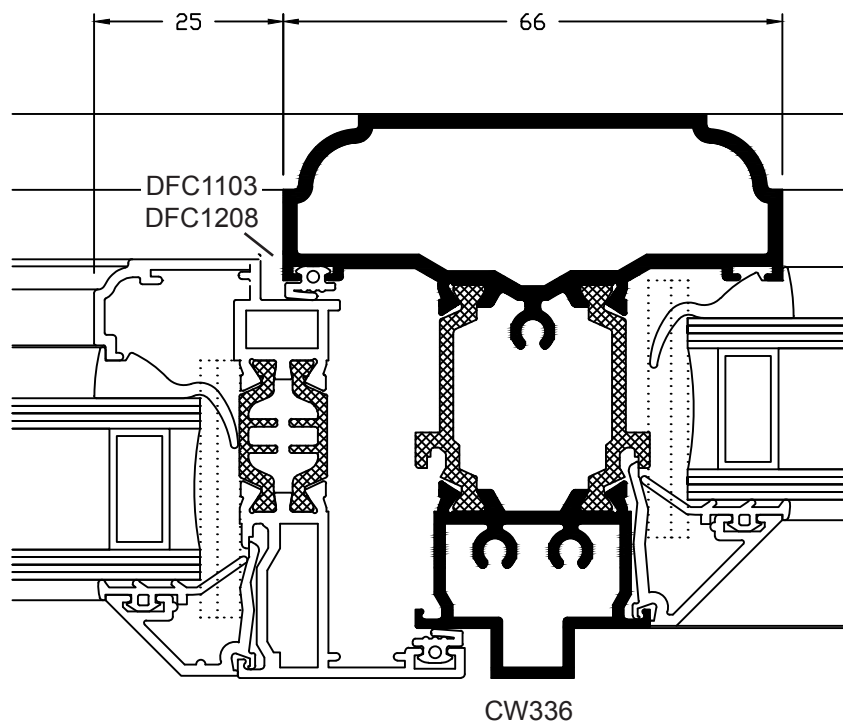
**C Opening Light Jamb**

Softline outer frame & softline vent frame.

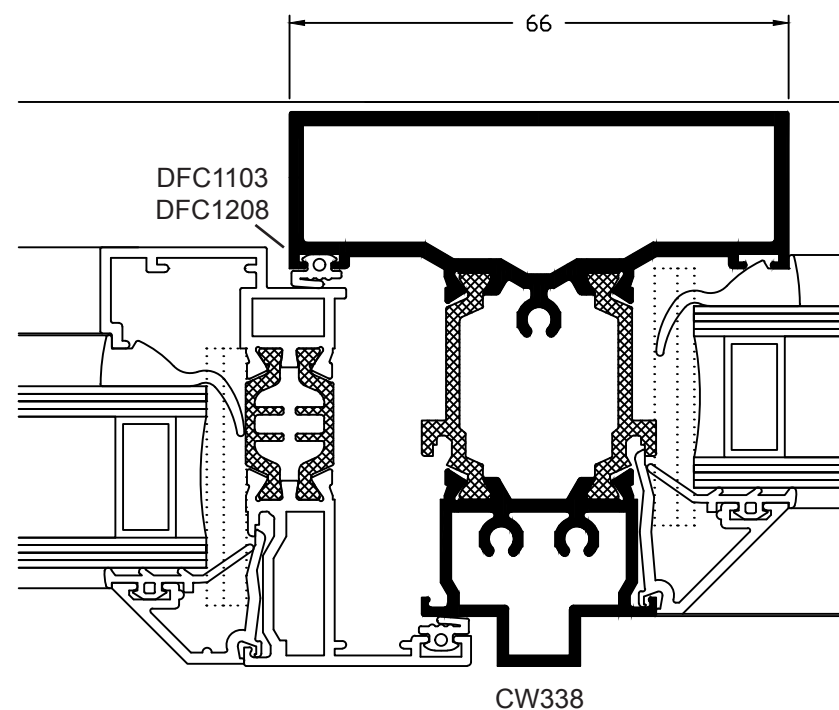


## General Arrangements - Flush Window

**D** **Flush Softline HD Mullion / Transom**  
*Softline vent frame option shown*



**D** **Flush Square HD Mullion / Transom**  
*Square vent frame option shown*

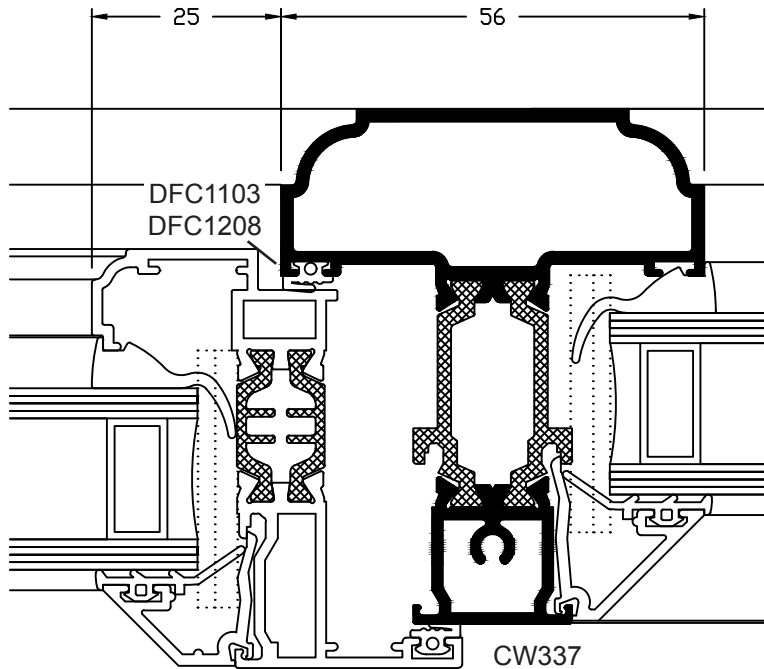




## General Arrangements - Flush Window

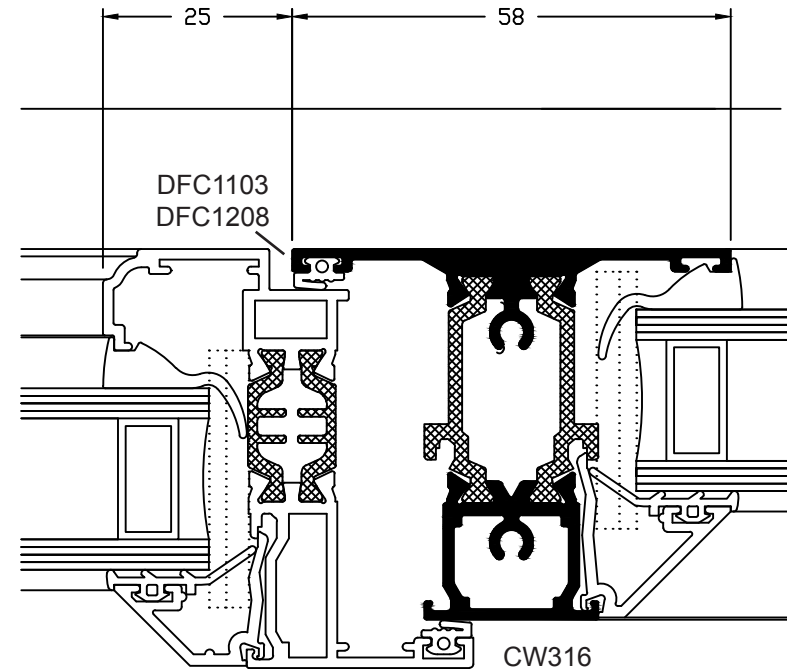
### D Flush Softline Mullion / Transom

*Softline vent frame option shown*



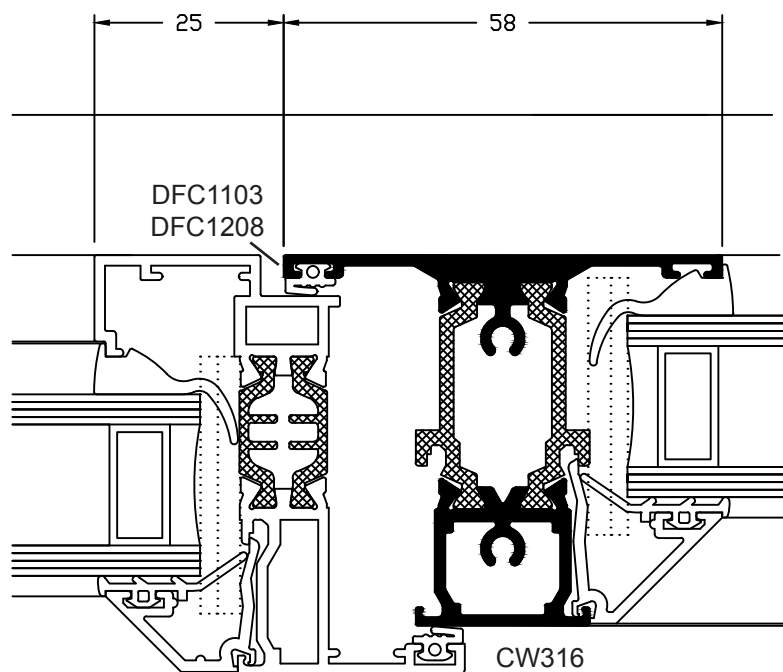
### D Mullion / Transom

*Softline vent frame option shown*

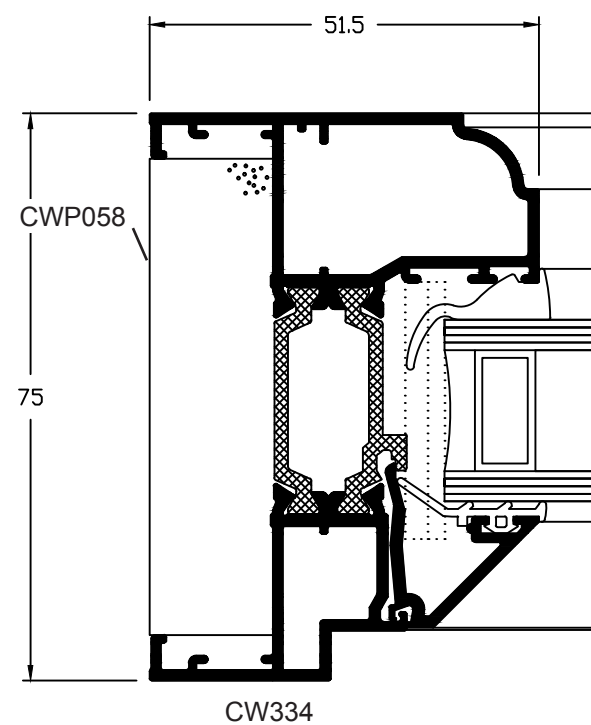


## General Arrangements - Flush Window

**D** Mullion / Transom  
*Square vent frame option shown*



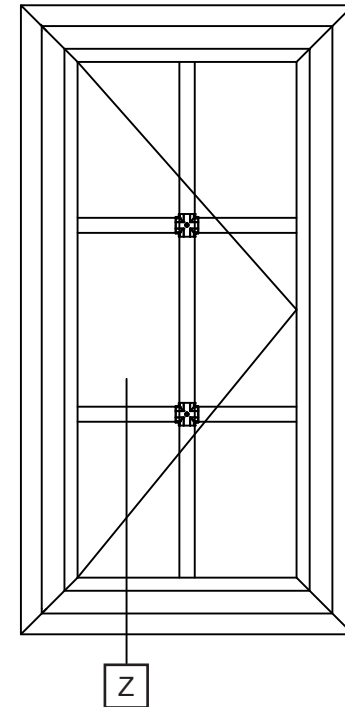
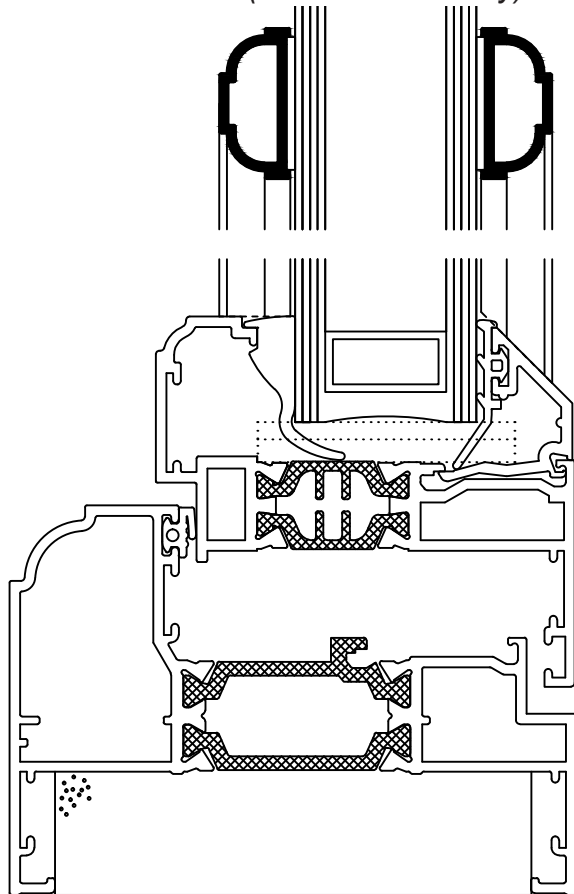
**E** Fixed Light Jamb  
*Softline outer frame*



## General Arrangements - Flush Window

### Z Laybar

Laybar in softline vent frame  
(24mm Glass Only)

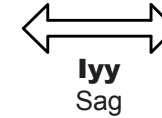


## Profile Inertia Values

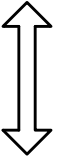
This page gives information on the inertia values of the framing profiles calculated in accordance with :- BS EN 14024 : 2004.  
 BS6399 Part 2 must be used to calculate the inertia value required.

The table gives inertia values for varying spans of profile.  
 Select the nearest span BELOW the actual span and use the value shown to compare against the inertia required.

**Loading shown with orientation of illustrated profiles.**



**l<sub>xx</sub>**  
 Windload



Profile	CD105	CD109	CW305	CW307	CW308	CW309	CW310	CW311	CW312	CW315	CW316	CW318	CW320	CW321	CW322
Values shown are mm <sup>4</sup>															
	Inertia l <sub>xx</sub>	Inertia l <sub>xx</sub>	Inertia l <sub>xx</sub>	Inertia l <sub>xx</sub>	Inertia l <sub>xx</sub>	Inertia l <sub>xx</sub>	Inertia l <sub>xx</sub>	Inertia l <sub>xx</sub>	Inertia l <sub>xx</sub>	Inertia l <sub>xx</sub>	Inertia l <sub>xx</sub>	Inertia l <sub>xx</sub>	Inertia l <sub>xx</sub>	Inertia l <sub>xx</sub>	Inertia l <sub>xx</sub>
Span 750mm	55,220	58,158	47,372	51,840	51,818	42,325	37,875	130,399	128,670	36,282	41,963	53,007	101,672	106,305	80,748
Span 900mm	68,097	71,822	56,918	59,562	59,528	48,917	45,363	151,065	149,144	42,479	51,042	62,529	119,403	124,679	93,807
Span 1050mm	80,646	85,334	65,237	66,266	66,240	54,604	51,816	170,910	168,848	47,905	59,221	71,174	135,555	141,426	105,301
Span 1200mm	92,471	98,253	72,366	71,965	71,930	59,404	57,263	189,363	187,123	52,519	66,417	78,768	149,820	156,245	115,164
Span 1350mm	103,359	110,259	78,331	76,750	76,683	63,402	61,819	206,091	203,753	56,407	72,564	85,368	162,243	169,088	123,527
Span 1500mm	113,094	121,274	83,341				65,575	221,036	218,640		77,879		172,912	180,197	130,603
Span 1650mm	121,912	131,173	87,493				68,746	234,257	231,837		82,340		181,981	189,657	136,523
Span 1800mm	129,708	140,104	91,043				71,355	245,837	243,425		86,180		189,760	197,760	141,464
Span 1950mm	136,552	147,967	94,009				73,515	255,995	253,616		89,458		196,442	204,778	145,670
Span 2100mm	142,651	155,036	96,479				75,321	264,968	262,460		92,221		202,116	210,702	149,245
Span 2250mm	147,996	161,259	98,599				76,911	272,711	270,364		94,581		207,084	215,818	152,221
Span 2400mm	152,662	166,840	100,437				78,254	279,570	277,204		96,702		211,323	220,204	154,878
Inertia l <sub>yy</sub>	298,076	413,934	26,035	19,058	18,972	17,517	30,075	86,357	113,526	23,512	35,946	28,889	42,365	42,808	24,015

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## Profile Inertia Values

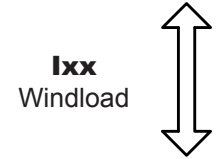
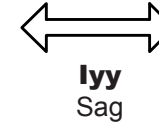
This page gives information on the inertia values of the framing profiles calculated in accordance with :- BS EN 14024 : 2004.

BS6399 Part 2 must be used to calculate the inertia value required.

The table gives inertia values for varying spans of profile.

Select the nearest span BELOW the actual span and use the value shown to compare against the inertia required.

**Loading shown with orientation of illustrated profiles.**



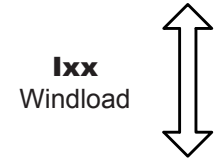
Profile	CW323	CW324	CW325	CW326	CW327	CW328	CW329	CW334	CW335	CW336	CW337	CW338	CW340	CW341	CW346
Values shown are mm <sup>4</sup>															
	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx
Span 750mm	85,650	40,317	45,838	39,341	111,078	47,643	49,986	104,299	106,981	104,646	80,051	105,351	50,048	50,684	116,991
Span 900mm	99,215	48,151	54,994	47,377	130,636	57,471	60,565	124,199	127,326	123,855	94,769	124,874	58,470	59,244	137,760
Span 1050mm	111,186	54,825	62,957	54,504	148,906	66,125	69,916	142,540	146,170	142,389	108,182	143,729	65,927	66,863	156,847
Span 1200mm	121,488	60,408	69,725	60,627	165,376	73,503	77,988	158,982	162,986	159,687	120,093	161,374	72,360	73,407	173,850
Span 1350mm	130,223	65,058	75,429	65,820	180,023	79,764	84,896	173,374	177,769	175,424	130,478	177,427	77,822	78,999	188,790
Span 1500mm	137,569	68,908	80,170	70,257	192,793	85,090	90,688	185,860	190,672	189,554	139,410	191,828			201,690
Span 1650mm	143,730	72,047	84,136	73,944	203,817	89,499	95,634	196,605	201,757	202,101	147,084	204,676			212,843
Span 1800mm	148,938	74,662	87,403	77,090	213,458	93,145	99,804	205,835	211,220	213,081	153,601	215,914			222,386
Span 1950mm	153,307	76,895	90,184	79,674	221,733	96,260	103,307	213,693	219,429	222,824	159,228	225,875			230,593
Span 2100mm	157,059	78,760	92,472	81,992	228,851	98,956	106,236	220,557	226,525	231,374	163,979	234,601			237,655
Span 2250mm	160,223	80,298	94,528	83,890	235,085	101,145	108,760	226,460	232,512	238,819	168,145	242,302			243,674
Span 2400mm	162,935	81,572	96,191	85,493	240,487	103,158	110,956	231,650	237,923	245,378	171,715	249,095			248,970
Inertia Iyy	24,661	17,249	21,623	34,660	69,005	28,151	38,455	57,400	61,500	151,800	83,400	168,000	22,000	23,000	42,500

## Parts List Profile Inertia Values

This page gives information on the inertia values of the framing profiles calculated in accordance with :- BS EN 14024 : 2004.  
 BS6399 Part 2 must be used to calculate the inertia value required.

**Loading shown with orientation of illustrated profiles.**

The table gives inertia values for varying spans of profile.  
 Select the nearest span **BELOW** the actual span and use the value shown to compare against the inertia required.

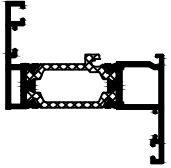
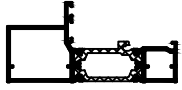
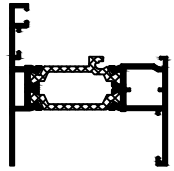
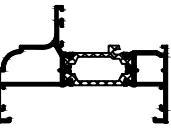
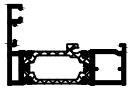
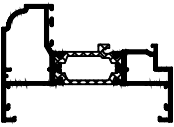
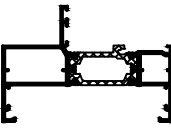
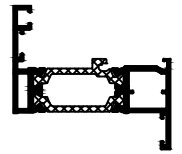
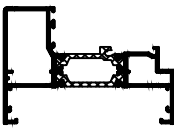
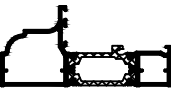
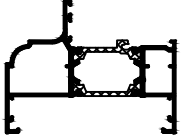
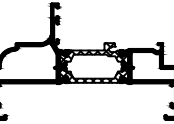
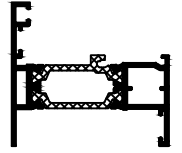


Profile	CW347	CW400	DF723	DF724	DF725	UF500	UF501	UF502	UF503	UF504	UF505	UF509	UF510	UF511	UF515
Values shown are mm <sup>4</sup>															
	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx	Inertia Ixx
Span 750mm	121,830	65,746	135,095	132,038	119,942	430,572	106,019	133,990	193,491	151,916	202,505	147,673	53,148	525,346	113,479
Span 900mm	143,283	75,780	155,099	151,479	137,465	443,678	124,107	153,199	231,827	182,776	242,898	177,507	63,706	586,848	128,623
Span 1050mm	163,012	84,884	172,890	168,705	152,686	455,592	140,612	170,623	272,115	213,008	284,823	206,644	73,791	648,930	143,723
Span 1200mm	180,711	92,905	188,313	183,570	165,603	466,120	155,204	186,001	312,949	241,655	326,878	234,183	83,090	709,302	158,258
Span 1350mm	196,204	99,861	201,448	196,196	176,405	475,214	167,931	199,307	353,151	268,142	368,031	259,502	91,469	766,520	171,879
Span 1500mm	209,601	105,819	212,616	206,820	185,463	483,036	178,830	210,663	392,070	292,195	407,286	282,470	98,966	819,812	184,439
Span 1650mm	221,177	110,900	221,984	215,749	192,941	489,716	188,233	220,425	428,912	313,876	444,199	303,058	105,532	868,625	195,855
Span 1800mm	231,046	115,246	229,894	223,287	199,188	495,414	196,193	228,697	463,643	333,100	478,736	321,368	111,273	913,058	206,177
Span 1950mm	239,576	118,951	236,591	229,692	204,500	500,283	203,027	235,818	496,215	350,141	510,489	337,535	116,309	953,014	215,360
Span 2100mm	246,963	122,117	242,322	235,054	208,926	504,447	208,904	241,887	525,878	365,258	539,567	351,815	120,723	989,047	223,642
Span 2250mm	253,309	124,819	247,181	239,717	212,656	508,007	213,917	247,097	553,554	378,654	566,238	364,409	124,549	1,021,453	230,964
Span 2400mm	258,808	127,172	251,413	243,672	215,937	511,095	218,334	251,559	578,714	390,550	590,683	375,534	127,968	1,050,448	237,529
Inertia Iyy	43,000	5,424				As above			668,873	43,773	261,434	40,563	7,186	61,101	

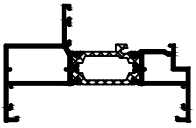

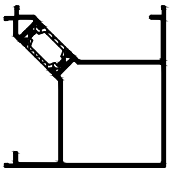

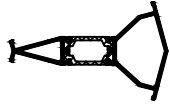

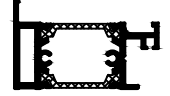
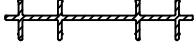
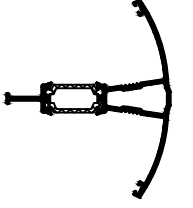
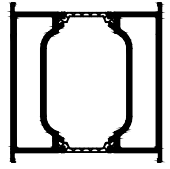

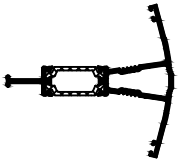

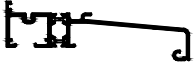
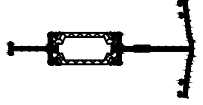

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**Parts List**

Illustration	Part No.	Description	Illustration	Part No.	Description	Illustration	Part No.	Description
<b>Outer Frame Profiles</b>								
	CW305	52mm Outer Frame 18mm Unequal Leg		CW323	Slim Square Outer Frame		CW329	52mm Outer Frame 18mm Equal Leg
	CW320	Standard Softline Outer Frame		CW324	52mm Outer Frame		CW334	Softline Outer Frame
	CW321	Standard Square Outer Frame		CW325	52mm Outer Frame 12mm Unequal Leg		CW335	Square Outer Frame
	CW322	Slim Softline Outer Frame		CW327	Extended Softline Outer Frame		CW346	82mm Box Softline Outer Frame
				CW328	52mm Outer Frame 12mm Equal Leg			

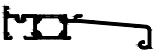
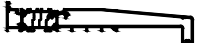
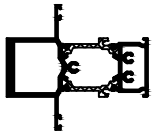



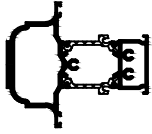

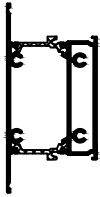
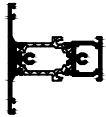

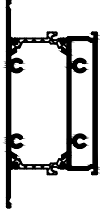
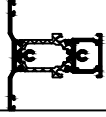
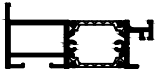
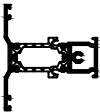
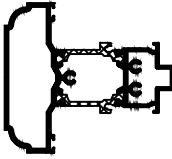
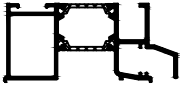
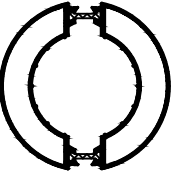
**Parts List**

Illustration	Part No.	Description	Illustration	Part No.	Description	Illustration	Part No.	Description	
	CW347	82mm Box Square Outer Frame		CW319	Deep Trickle Vent Body (52mm Frame)		UF500	90° Corner Post	
<b>Couplers &amp; Misc Profiles</b>				CW400	Concealed Coupler		UF501	150° Baypole	
				CW079	Back to Back Coupler			CW401	Subcill With Applied Nose (52mm Frame)
	CW108	Concealed Coupler Packer		DF723	Variable 115°-134° Baypole			UF503	75mm Heavy Duty Coupler
	CW313	Trickle Vent Body (52mm Frame)		DF724	Variable 133°-163° Baypole		UF504	25mm Heavy Duty Coupler	
	CW314	135mm Subcill (52mm Outer Frame)		DF725	Variable 162°-175° Baypole		UF505	50mm Heavy Duty Coupler	

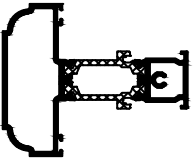
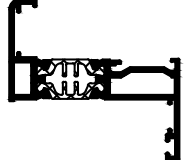
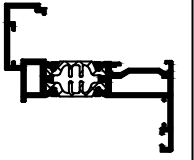
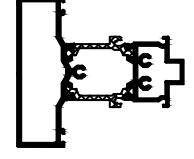
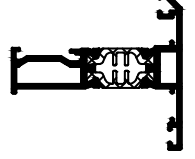
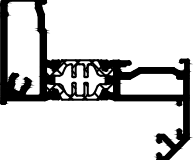
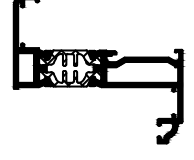
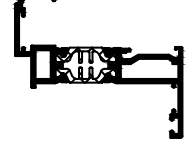
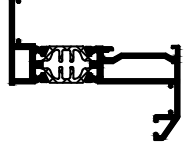
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**Parts List**

Illustration	Part No.	Description	Illustration	Part No.	Description	Illustration	Part No.	Description
	UF506	155mm Subcill (75mm Outer Frame)		UF518	250mm Subcill		CW311	Heavy Duty Square Mullion/Transom
	UF508	Trickle Vent Body (75mm Frame)		UF519	15mm Frame Extender & Lug Fix			
	UF509	(55mm to 75mm) Coupler (25mm)	<b>Mullion &amp; Transom Profiles</b>				CW312	Heavy Duty Softline Mullion/Transom
	UF510	Frame Extender (15mm)		CD105	Mid Rail (100mm)		CW316	58mm Mullion/Transom
	UF511	Window / Patio Coupler (25mm)		CD109	Mid Rail (110mm)		CW326	58mm Mullion/Transom Recessed
	UF513	Subcill With Applied Nose (75mm Frame)		CW310	Mullion/Transom		CW336	Flush Softline HD Mullion/Transom
	UF514	Deep Trickle Vent Body (75mm Frame)						
	UF515	Variable Bay Pole						

**Parts List**

Illustration	Part No.	Description	Illustration	Part No.	Description	Illustration	Part No.	Description
	CW337	Flush Softline Mullion/Transom		CW309	Flat Vent Frame		CW341	Flush Square Vent
	CW338	Flush Square HD Mullion/Transom		CW315	Glaze In Flat Vent Frame	<b>Laybar Profile</b>		
<b>Vent Frame Profiles</b>				CW318	Saracen Chamfered Vent Frame			
	CW307	Softline Vent Frame		CW340	Flush Softline Vent			
	CW308	Chamfered Vent Frame						

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**Parts List**









Illustration	Part No.	Description
<b>Glazing Beads</b>		
	CW068	24mm Bead (CW307, CW308 & all outer frames)
	CW069	28mm Bead (CW307, CW308 & all outer frames)
	CW070	28mm Hooded Bead (CW307, CW308 & all outer frames)
	CW071	<b>Flat/Saracen Vent</b> 24mm Bead (CW309, 318, 340 & 341)
	CW072	<b>Flat/Saracen Vent</b> 28mm Bead (CW309, 318, 340 & 341)
	CW082	24mm Full Sloping Bead (CW307, CW308 & all outer frames)
	CW083	<b>Flat/Saracen Vent</b> 24mm Full Sloping Bead (CW309, 318, 340 & 341)
	CW084	Square 24mm Bead (CW307, CW308 & all outer frames)






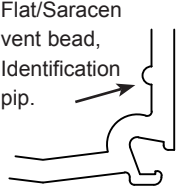
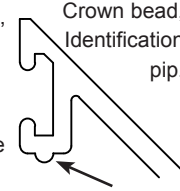
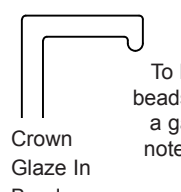
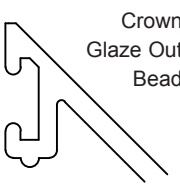


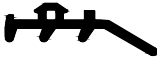







Illustration	Part No.	Description
	CW085	Square 28mm Bead (CW307, CW308 & all outer frames)
	CW088	<b>Glaze In Flat Vent</b> 28mm Bead (CW315)
	CW089	<b>Glaze In Flat Vent</b> 24mm Bead (CW315)
	CW093	24mm Hooded Bead (CW307, CW308 & all outer frames)
	CW097	<b>Flat/Saracen Vent</b> 28mm Square Bead (CW309, 318, 340 & 341)
		To aid with bead identification, all Crown beads have an identification pip under the gasket groove.
		Crown bead, Identification pip.
		Flat/Saracen vent beads have an additional pip above the bead engagement area.
		To help identify Crown glaze in beads, glaze in beads do not have a gasket retaining groove. Also note glaze in beads do not have an identification pip.
		Crown Glaze In Bead
		Crown Glaze Out Bead

Illustration	Part No.	Description
<b>Gaskets &amp; Weatherseals</b>		
	CWC055	2mm Retained Security Gasket (White security pip) (100M)
	CWC070	2mm Retained Security Gasket (Hard Back) (100M)
	CWC137	Bay Pole Gasket (50M)
	DFC1103	Frame/Vent Seal (400M)
	DFC1200	(52mm Frame) Subcill Seal (100M)
	DFC1203	(Nominal) 6-7mm Wedge Gasket With Leg (50M)
	DFC1208	Flipper Seal (Hard Back) (400M)
	DFC1509	(Optional) 4-5mm Wedge Gasket With Leg (50M)

### Parts List

SR = Sash Rebate (O/A vent size - 36mm)

Illustration	Part No.	Description
	DFC1688	Si Frame Membrane (250mm Wide) (20M x 25)
	DFC1689	Si Frame & Subcill Membrane (250mm Wide) (20M x 25)
	STC164	Flipper Gasket (UF513 - CW401) (100M Coil)
<b>Hardware</b>		
	CWP062	Casement Cranked Locking Handle LH (Pack 1 or 25)
	CWP063	Casement Cranked Locking Handle RH (Pack 1 or 25)
	CWP064	Casement Locking Handle (Pack 1 or 25)

Illustration	Part No.	Description
	CWP065	LH Locking Gear & Keeps SR 350 - 409mm (Pack 20)
	CWP066	LH Locking Gear & Keeps SR 410 - 529mm (Pack 20)
	CWP067	LH Locking Gear & Keeps SR 530 - 709mm (Pack 20)
	CWP068	LH Locking Gear & Keeps SR 710 - 944mm (Pack 20)
	CWP069	LH Locking Gear & Keeps SR 945 - 1300mm (Pack 20)
	CWP071	RH Locking Gear & Keeps SR 350 - 409mm (Pack 20)
	CWP072	RH Locking Gear & Keeps SR 410 - 529mm (Pack 20)
	CWP073	RH Locking Gear & Keeps SR 530 - 709mm (Pack 20)
	CWP074	RH Locking Gear & Keeps SR 710 - 944mm (Pack 20)
	CWP075	RH Locking Gear & Keeps SR 945 - 1300mm (Pack 20)

Illustration	Part No.	Description
	CWP127	Cockspur Strike Plate 4-6mm (Pack 100)
	CWP144	Saracen Gearbox Pack (Including Keeps) (Pack 25)
	CWP145	Saracen Shoot Rods SR 350 - 550 (Pack 50)
	CWP146	Saracen Shoot Rods SR 551 - 800 (Pack 50)
	CWP147	Saracen Shoot Rods SR 801 - 1050 (Pack 50)
	CWP148	Saracen Shoot Rods SR 1051 - 1300 (Pack 50)
	CWP152	Lockable Restrictors (Pack 25 pairs)
	CWP165	Monkey Tail Handle LH (Pack of 1 or 25)
	CWP166	Monkey Tail Handle RH (Pack of 1 or 25)
	CWP167	Monkey Tail Dummy Stay Bar (Pack of 1 or 25)

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**Parts List**




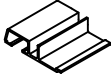



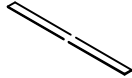
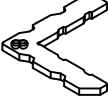















Illustration	Part No.	Description
	CWP168	LH Locking Gear & Keeps SR 405 - 554mm (Pack 20)
	CWP169	LH Locking Gear & Keeps SR 555 - 704mm (Pack 20)
	CWP170	LH Locking Gear & Keeps SR 705 - 854mm (Pack 20)
	CWP171	LH Locking Gear & Keeps SR 855 - 1004mm (Pack 20)
	CWP172	LH Locking Gear & Keeps SR 1005 - 1154mm (Pack 20)
	CWP173	LH Locking Gear & Keeps SR 1155 - 1304mm (Pack 20)
	CWP174	RH Locking Gear & Keeps SR 405 - 554mm (Pack 20)
	CWP175	RH Locking Gear & Keeps SR 555 - 704mm (Pack 20)
	CWP176	RH Locking Gear & Keeps SR 705 - 854mm (Pack 20)
	CWP177	RH Locking Gear & Keeps SR 855 - 1004mm (Pack 20)
	CWP178	RH Locking Gear & Keeps SR 1005 - 1154mm (Pack 20)
	CWP179	RH Locking Gear & Keeps SR 1155 - 1304mm (Pack 20)
	DFP480 *	Cockspur LH Locking Handle (Pack 1 or 50)

Illustration	Part No.	Description
	DFP481 *	Cockspur RH Locking Handle (Pack 1 or 50)
	DFP482	Cockspur Packer Plate CW305, CW324, CW325, CW328, CW329 (Pack 50)
	DFP1213	Casement Locking Handle (Pack 1 or 50)
	DFP1254	12" Friction Stay Set L/H S/H Restricted (Pack 25 pairs)
	DFP1255	12" Friction Stay Set R/H S/H Restricted (Pack 25 pairs)
	DFP1256	16" Friction Stay Set L/H S/H Restricted (Pack 25 pairs)
	DFP1257	16" Friction Stay Set R/H S/H Restricted (Pack 25 pairs)
	DFP1260	Standard 6" Top Hung Friction Stay (Pack 25 pairs)
	DFP1261	Standard 8" Top & Side Hung Friction Stay (Pack 25 pairs)
	DFP1262	Standard 10" Top Hung Friction Stay (Pack 25 pairs)
	DFP1263	Standard 12" Top Hung Friction Stay (Pack 25 pairs)
	DFP1264	Standard 16" Top Hung Friction Stay (Pack 25 pairs)

Illustration	Part No.	Description
	DFP1265	Standard 20" Top Hung Friction Stay (Pack 25 pairs)
	DFP1266	Standard 24" Top Hung Friction Stay (Pack 25 pairs)
	DFP1267	Standard 12" Side Hung Friction Stay (Pack 25 pairs)
	DFP1268	Standard 16" Side Hung Friction Stay (Pack 25 pairs)
	DFP1269	Restrictor 12" Top Hung Friction Stay (Pack 25 pairs)
	DFP1270	Restrictor 16" Top Hung Friction Stay (Pack 25 pairs)
	DFP1271	Restrictor 20" Top Hung Friction Stay (Pack 25 pairs)
	DFP1272	Restrictor 24" Top Hung Friction Stay (Pack 25 pairs)
	DFP1277	Easyclean 12" Side Hung Friction Stay (Pack 25 pairs)
	DFP1278	Egress 16" Side Hung Friction Stay (Pack 25 pairs)

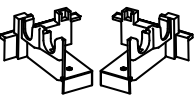
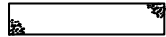
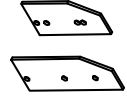

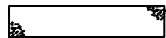
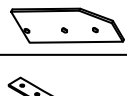
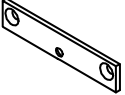


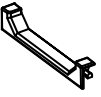

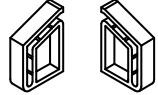

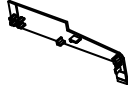









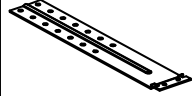
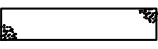

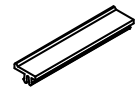

**\*Cockspur handle option not available for CW315, CW320, CW322, CW323, CW327, CW334, CW335 & CW346**

**Parts List**

Illustration	Part No.	Description	Illustration	Part No.	Description	Illustration	Part No.	Description
<b>Accessories</b>				CWP059	Cruciform Bracket 'A' (Pack 50)		CWP116	Outer Frame Riser Block (Pack 50)
	778-500	Eccentric Cam (Pack 100)		CWP060	Frame Brace (CW320, CW321, CW327) (Pack 50)		CWP117	Egress/Non Locking Handle Adaptor (Pack 70)
	AW100	16.3mm Corner Tie (Pack 500)		CWP061	4.7 x 9.27mm Corner Cleat (Pack 50)		CWP118	Glaze In Vent Stay Tapping Plate (Pack 10)
	AW101	9.6mm Corner Tie (Pack 500)						
	AW677	12.6mm Corner Tie (Pack 500)						
	CWP052	3.18 x 11.2mm Corner Cleat (UF510) (Pack 50)		CWP076	Cruciform Bracket 'B' (Pack 25)		CWP119	Foam Infill 51 x 12mm (10M)
		CWP053	22.6 x 4.75mm Corner Cleat (Pack 50)		CWP109			
	CWP054	18.6 x 4.75mm Corner Cleat (Pack 50)		CWP110	Trickle Vent Mesh (3 x 10M)		CWP121	12 x 4.75mm Corner Cleat (Pack 50)
	CWP056	Mullion/Transom Moulding (Pack 25)		CWP111	Trickle Vent Sponge 'A' (Pack 20)		CWP129	Cruciform Bracket 'C' (Pack 50)
	CWP058	Foam Infill 70 x 14mm (10M)		CWP112	Trickle Vent Sponge 'B' (Pack 20)		CWP135	26.1 x 11mm Corner Cleat (Pack 50)
				CWP115	Vent Frame Riser Block (Pack 50)		CWP151	16" Side Hung Friction Stay Packer (Pack 25)

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**Parts List**

Illustration	Part No.	Description	Illustration	Part No.	Description	Illustration	Part No.	Description
	CWP155	Mullion End Moulding (25 Pairs)		CWP186	Non-Combustible Long Leg Frame Filler - 75 x 14mm (10 x 1M)		DFP492	Sub Cill Stop End (CW401) (Pack 50)
	CWP156	Double Cruciform Bracket (Pack 25)		CWP187	Standard Long Leg Frame Filler - 75 x 14mm (10M)		DFP797	Sub Cill Stop End (UF513) (Pack 50)
	CWP157	Wide Cruciform Plate (Pack 25)		DFP134	8.9mm Corner Tie (Pack 500)		DFP572	Frame Fixing Lug (Pack 50)
	CWP158	Drain Notch Liners (Pack 100)		DFP188	Corner Cleat (DFP327) (Pack 50)		DFP664	Trickle Vent End Caps (Pack 25 Pairs)
	CWP159	Cruciform Cover (Pack 50)		DFP206	LH End Cap 135/155mm (Pack 20)		DFP788	14mm Corner Tie (Pack 500)
	CWP160	Spring Clip (Pack 50)		DFP207	RH End Cap 135/155mm (Pack 20)		DFP1071	Drive In Pins (Pack 50)
	CWP163	Flush Vent Gearbox Packer (Pack 50)		DFP226	Fixed Light Glazing Packers (Pack 50)		DFP1540	Security Hinge Bolt (Pack 20)
	CWP184	Non-Combustible Long Leg Frame Filler - 70 x 14mm (10 x 1M)		DFP267	9mm Hole Plug (Pack 1000)		DFP1694	Heavy Duty Fixing Lug (Pack 50)
	CWP185	Non-Combustible Long Leg Frame Filler - 51 x 12mm (10 x 1M)		DFP298	Trickle Vent Pack (Pack 10)		DFP1901	Key to Suit CWP062 & CWP064 (Pack 10)
				DFP324	Vent Frame Glazing Packers (Pack 50)		UFP050	Universal Subcill Frame Location Strip (Pack 20)



**Parts List**




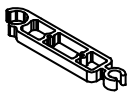

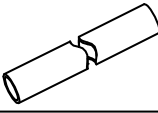
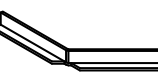
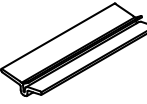
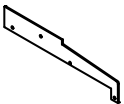
Illustration	Part No.	Description
	UFP051	150° Subcill Nose Joint Bracket (Pack 20)
	UFP052	135° Subcill Nose Joint Bracket (Pack 20)
	UFP053	90° Subcill Nose Joint Bracket (Pack 20)
	UFP054	Universal Subcill Corner Joint Bracket (Pack 20)
	UFP056	Jack Assembly Bracket Pack
	UFP057	Steel Reinforcing Pole (2.5M)
	UFP059	Subcill Joint Inner Bracket (Pack 10)
	UFP060	Subcill Location Strip (Pack 20)
	UFP061	250mm Subcill End Stop (Pack 20)

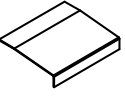
Illustration	Part No.	Description
	UFP063	250mm Subcill Expansion Joint Liner (Pack 10)
	UFP066	Subcill Joint Outer Bracket (Pack 10)
<b>Fixings</b>		
	AF60	No.8 x 3/8" Csk Pozi Self Tap Screw (Pack 100)
	AF192	No.8 x 1" Pan Pozi Self Tap Screw (Pack 500)
	AF301	No.8 x 1.1/4" Pan Pozi Self Tap Screw (Pack 100)
	AF302	No.8 x 3/4" Csk Pozi Self Tap Screw (Pack 100)
	AW331	No.10 x 1.1/2" Pan Pozi Self Tap Screw (Pack 250)
	AW332	No.10 x 1 1/4" Pan Pozi Self Tap Screw (Pack 100)

Illustration	Part No.	Description
	CWP100	No.6 x 1" Pan Pozi Self Tap Screw (Pack 100)
	CWP101	No.6 x 1 1/2" Csk Pozi Self Tap Screw (Pack 100)
	CWP102	No.6 x 1 1/2" Pan Pozi Self Tap Screw (Pack 100)
	CWP103	No.6 x 2" Csk Pozi Self Tap Screw (Pack 100)
	CWP104	No.6 x 60 Pan Pozi Self Tap Screw (Pack 100)
	CWP105	No.6 x 70 Pan Pozi Self Tap Screw (Pack 100)
	CWP107	No.6 x 1" Csk Pozi Self Tap Screw (Pack 100)
	CWP125	No.8 x 3/8" Flange Pozi Self Tap Screw (Pack 100)
	CWP126	No.8 x 1/2" Flange Pozi Self Tap Screw (Pack 100)



## Parts List

Illustration	Part No.	Description
	DFP166	M4 Nutserts
	DFP192	M5 x 20 Csk Pozi Machine Screw (Pack 100)
	DFP507	No.8 x 5/8" Csk Pozi Self Tap Screw (Pack 100)
	DFP620	No.8 x 1.1/4" Csk Pozi Self Tap Screw (Pack 100)
	DFP699	No.8 x 1/2" Csk Pozi Self Tap Screw (Pack 100)
	DFP1026	No.6 x 1/2" Csk Pozi Self Tap Screw (Pack 100)
	DFP1184	M5 x 12 Csk Pozi Machine Screw (Pack 100)
	DFP1185	No.10 x 1 1/4" Csk Pozi Self Tap Screw (Pack 100)
	GFP535	No.10 x 1/2" Csk Pozi Self Tap Screw (Pack 100)

Illustration	Part No.	Description
	STP117	M4 x 12 Csk Pozi Machine Screw (Pack 100)
	STP124	No.6 x 1/2" Pan Pozi Self Tap Screw (Pack 100)
<b>Tooling</b>		
	CWP079	Crimper Head Set CW305, 324, 325, 328, 329
	CWP080	Crimper Head Set CW307, 308, 309, 315, 340, 341
	CWP084	Crimper Anvil Pack CW305, 322, 323, 324, 325, 328, 329
	CWP087	Crimper Anvil Pack CW320, 321, 346, 347
	CWP088	Crimper Anvil Pack CW327
	CWC090	Mullion/Transom Drill Jig

Illustration	Part No.	Description
	CWC091	Cruciform Transom Drill Jig
	CWC094	Vent Frame First Hole Stay Fixing Drill Jig
	CWC095	Handle Drill Jig
	CWC096	90° Int & Ext Subcill Joint Drill Jig
	CWC097	135° & 150° Subcill Joint Drill Jig
	CWC098	Subcill Nose Drill Jig
	CWC099	Crimper Setting Block
	CWP122	3.25 Crimper Packer CW315
	CWP124	Crimper Head Set CW320, 321, 322, 323, 327

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**Parts List**

Illustration	Part No.	Description
	CWC130	Espag End Guide Drill Jig
	CWC131	58mm Mullion/Transom & Door Midrail Drill Jig
	CWC132	Vent Frame Hinge Bolt Drill Jig
	CWC133	Cockspur Handle Drill Jig
	CWC134	Dummy Mullion/Transom Drill Jig
	CWC140	Saracen Vent Frame Handle Drill Jig
	CWC141	Saracen Vent Frame Corner Drill Jig
	CWP142	Saracen Crimper Head Set CW318
	CWP143	Saracen Crimper Anvil Pack CW318


Illustration	Part No.	Description
	CWP161	Crimper Anvil Pack CW334, 335
	CWP183	Crimper Anvil Pack CW307, 308, 309, 315, 340, 341
	DFP235	Base Crimper Set
	UFC064	250mm Subcill Joint Drill Jig
	UFC065	8-15mm Dia. Step Drill

Illustration	Part No.	Description

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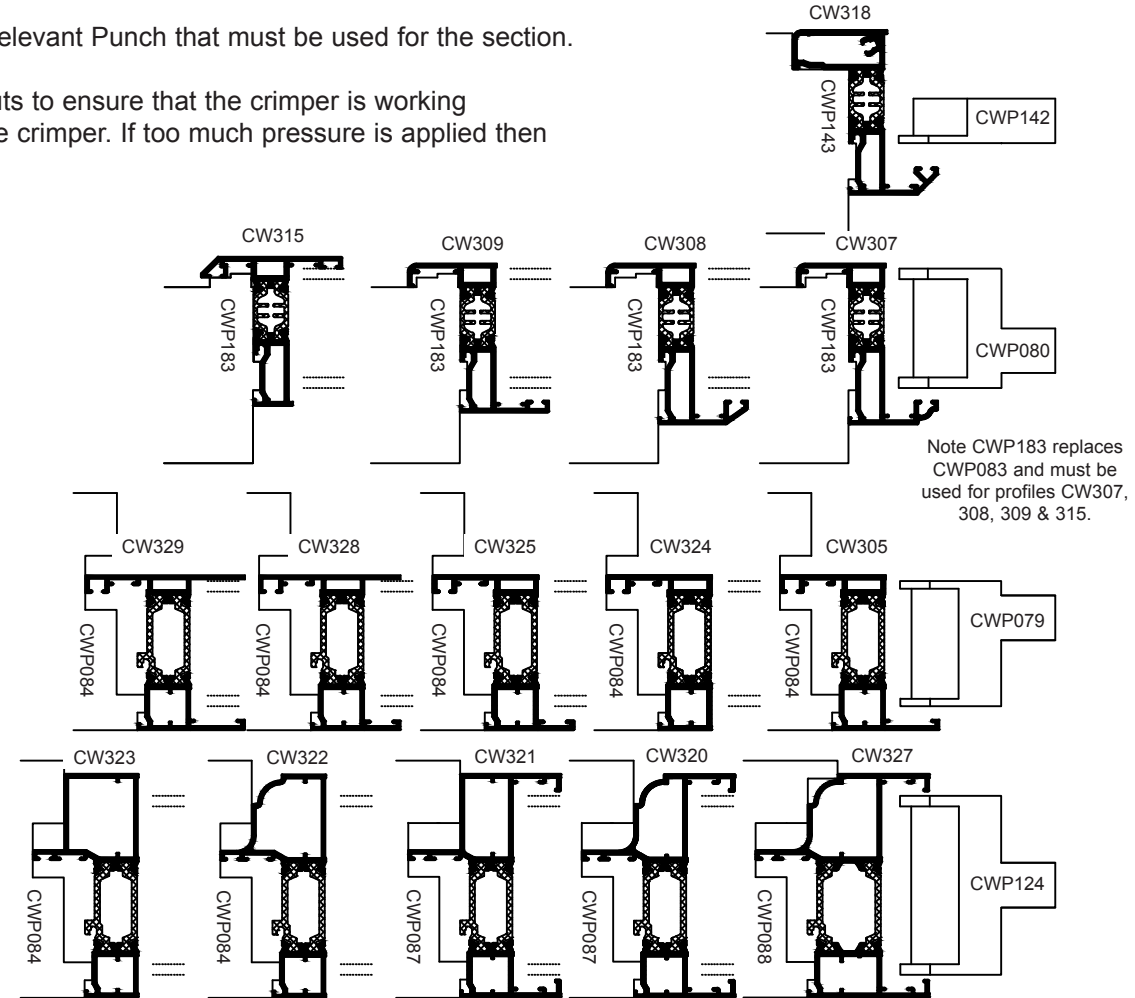
## Crimper Setup

### Crimper Punches & Anvils

This page shows the correct relationships for the Anvil / Section selection and the relevant Punch that must be used for the section.

Prior to beginning crimping the actual windows, trial crimps must be made on off-cuts to ensure that the crimper is working correctly. Care must also be taken with the clamp that holds the section down to the crimper. If too much pressure is applied then the bottom joint will be forced open and a visually poor joint created.

1. Remove head clamp from top of anvil.
2. Fit the required anvil insert into the anvil and tighten the locking bolts.
3. Fit the required punches to both crimper arms ensuring the correct orientation.
4. Slacken off both machine bolts to the top of the anvil, so that they are only just hand tight.
5. Slacken off fully both adjusting nuts (including the locking nuts) to the rear of the anvil.
6. Place the section onto the anvil, and then position the crimper setting block onto the section.
7. Bring both crimper arms in towards the setting block.
8. Adjust the anvil backward or forward as necessary, with the use of the nuts to the rear of the anvil, so that the cutting edge of the crimper punches slide parallel with the setting block crimping notches, just making contact with sides of the notches.
9. Slacken off both crimping arms by releasing both machine bolts securing them to the crimper bed upstand, so that they are only just hand tight.
10. Slacken off both crimping arms depth of crimp bolts, situated at the end of each of the crimper bed upstands.
11. Adjust the crimper arm travel (depth of crimp) so that the crimper arms lock out with the crimper punches just touching the section, and then wind in a further one and a half turns on the arm depth setting bolts, fine tune depth of crimp if necessary. Setting the bite of the crimper punch too deep is to be discouraged and will result in the section being distorted.
12. Fully tighten all nuts and machine bolts, making sure when in pairs that they are tightened together evenly.
13. Replace the head clamp to the anvil and set clamping pressure (a firm two finger pressure) with a sample corner of the section to be crimped. If the head clamp pressure is too strong, distortion of the profile will occur, resulting in a poor crimp.
14. With a short mitred sample consisting of all the correct corner cleats, make a sample crimp.



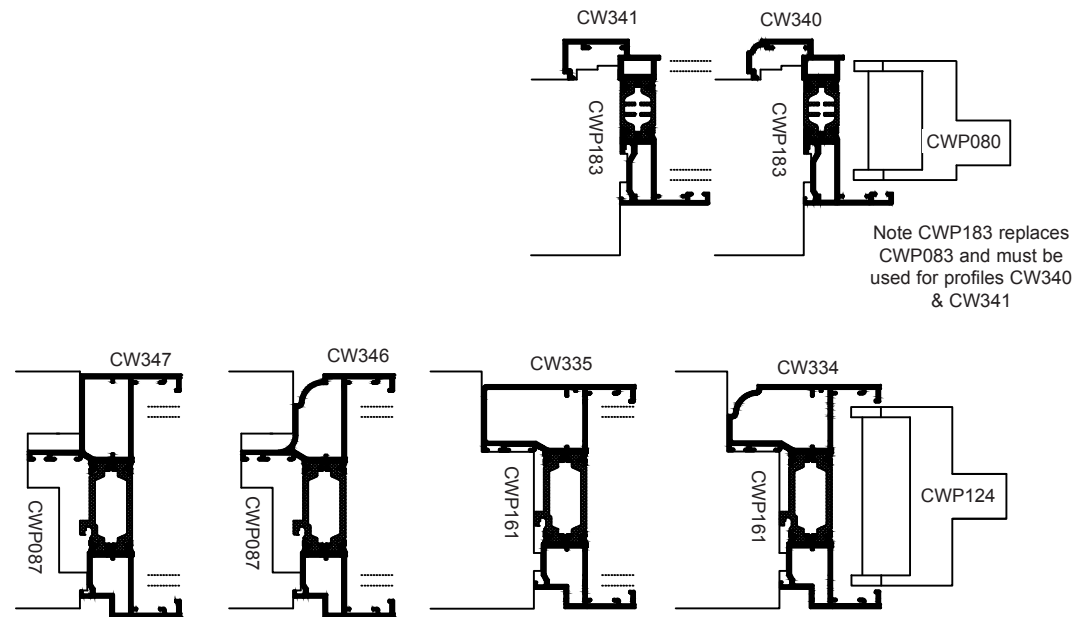
## Crimper Setup - Flush Window

### Crimper Punches & Anvils

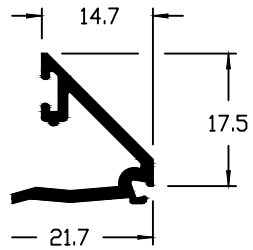
This page shows the correct relationships for the Anvil / Section selection and the relevant Punch that must be used for the section.

Prior to beginning crimping the actual windows, trial crimps must be made on off-cuts to ensure that the crimper is working correctly. Care must also be taken with the clamp that holds the section down to the crimper. If too much pressure is applied then the bottom joint will be forced open and a visually poor joint created.

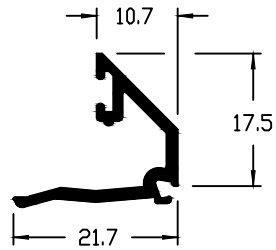
1. Remove head clamp from top of anvil.
2. Fit the required anvil insert into the anvil and tighten the locking bolts.
3. Fit the required punches to both crimper arms ensuring the correct orientation.
4. Slacken off both machine bolts to the top of the anvil, so that they are only just hand tight.
5. Slacken off fully both adjusting nuts (including the locking nuts) to the rear of the anvil.
6. Place the section onto the anvil, and then position the crimper setting block onto the section.
7. Bring both crimper arms in towards the setting block.
8. Adjust the anvil backward or forward as necessary, with the use of the nuts to the rear of the anvil, so that the cutting edge of the crimper punches slide parallel with the setting block crimping notches, just making contact with sides of the notches.
9. Slacken off both crimping arms by releasing both machine bolts securing them to the crimper bed upstand, so that they are only just hand tight.
10. Slacken off both crimping arms depth of crimp bolts, situated at the end of each of the crimper bed upstands.
11. Adjust the crimper arm travel (depth of crimp) so that the crimper arms lock out with the crimper punches just touching the section, and then wind in a further one and a half turns on the arm depth setting bolts, fine tune depth of crimp if necessary. Setting the bite of the crimper punch too deep is to be discouraged and will result in the section being distorted.
12. Fully tighten all nuts and machine bolts, making sure when in pairs that they are tightened together evenly.
13. Replace the head clamp to the anvil and set clamping pressure (a firm two finger pressure) with a sample corner of the section to be crimped. If the head clamp pressure is too strong, distortion of the profile will occur, resulting in a poor crimp.
14. With a short mitred sample consisting of all the correct corner cleats, make a sample crimp.



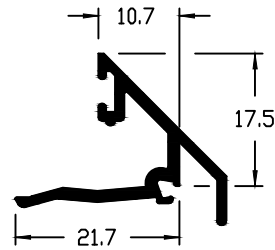
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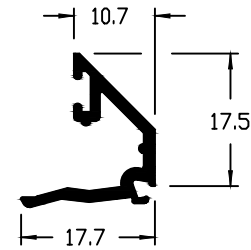
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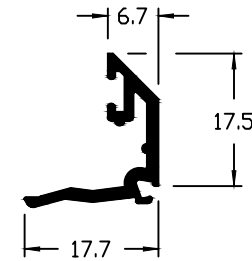
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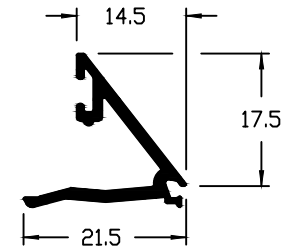
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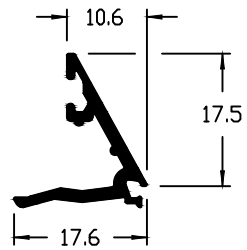
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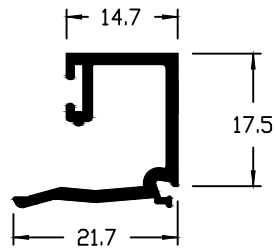
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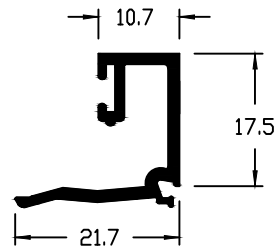
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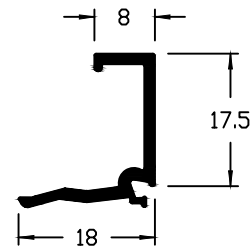
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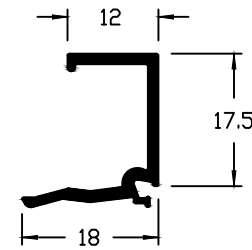
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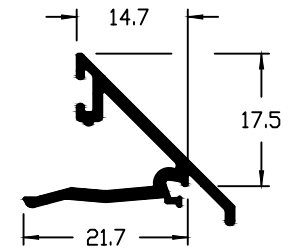
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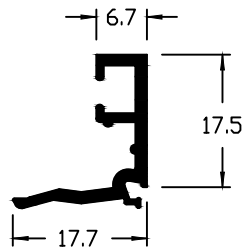
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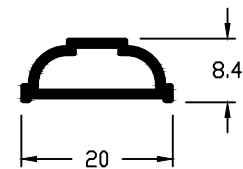
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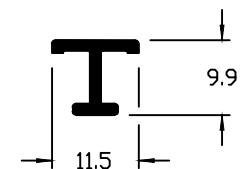
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CW097

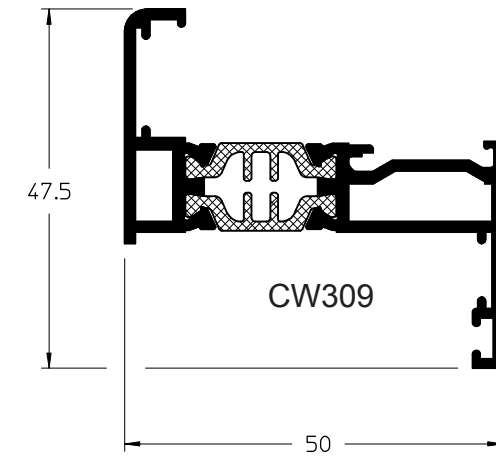
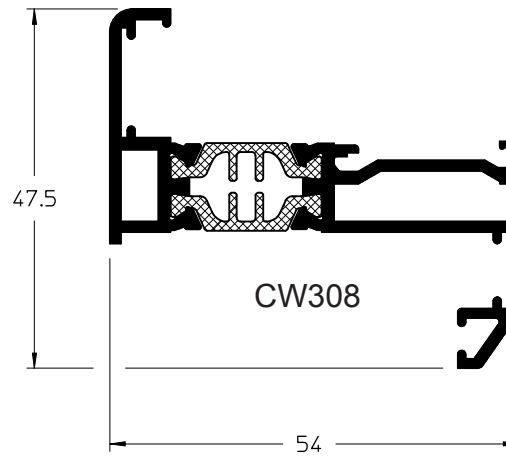
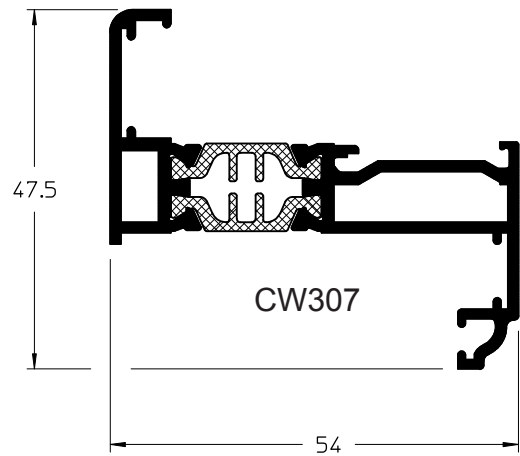
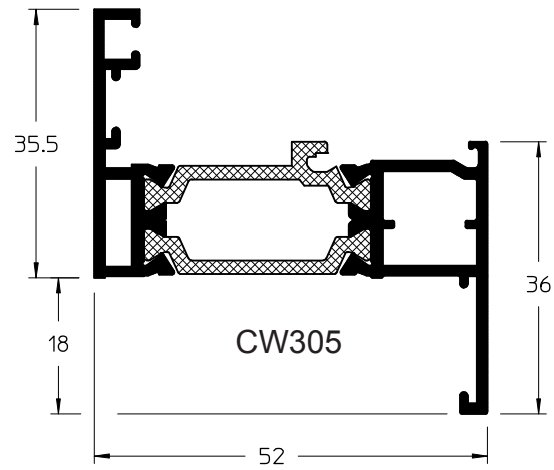


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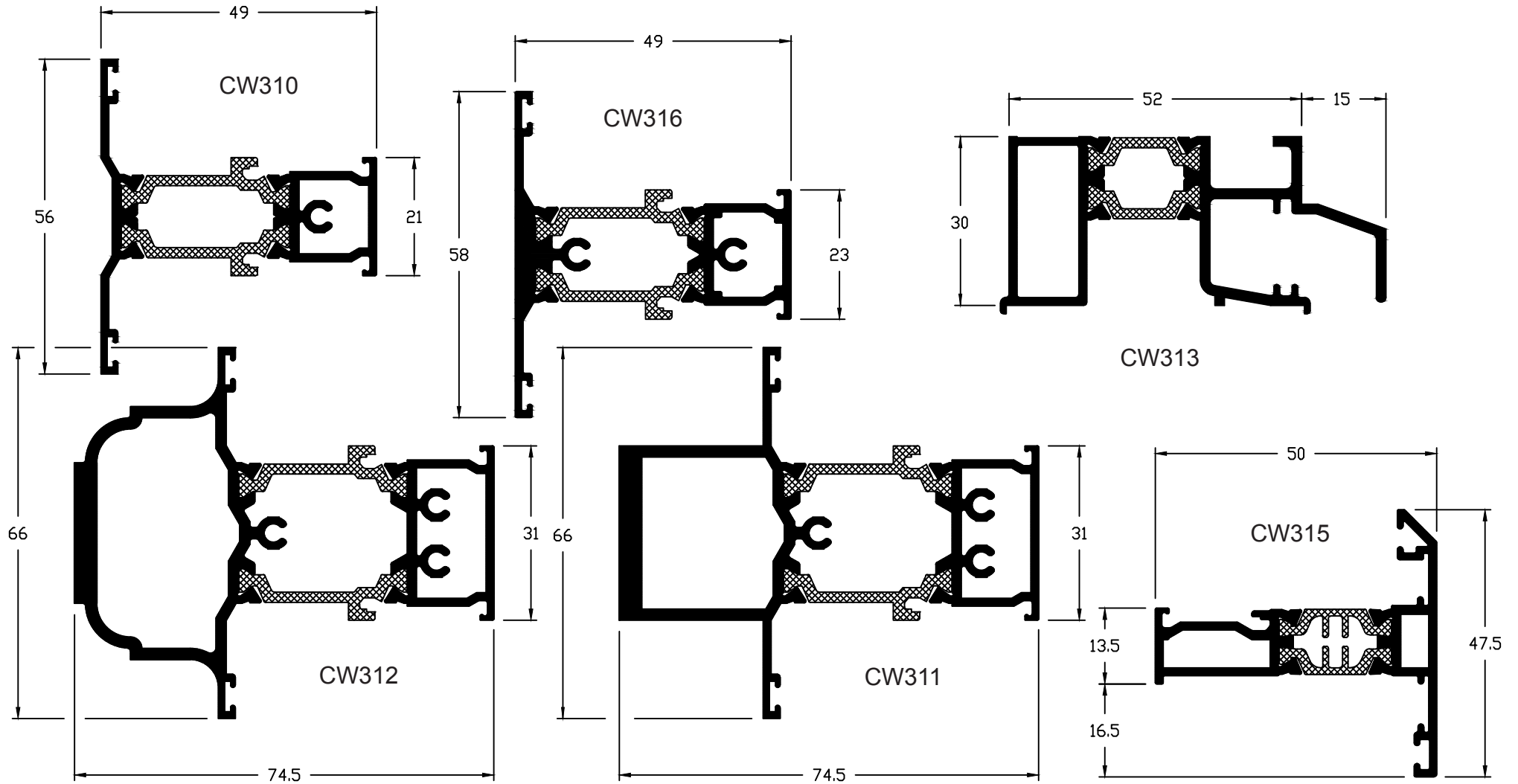


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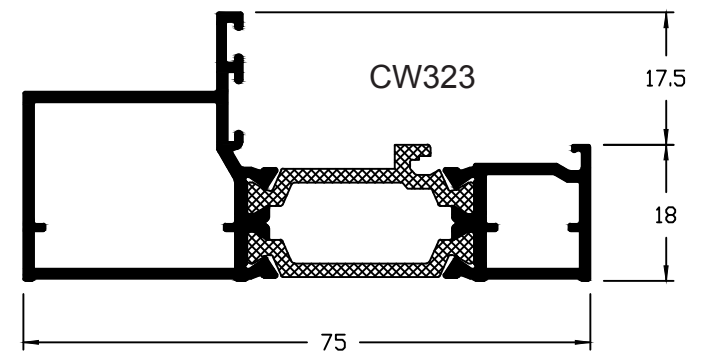
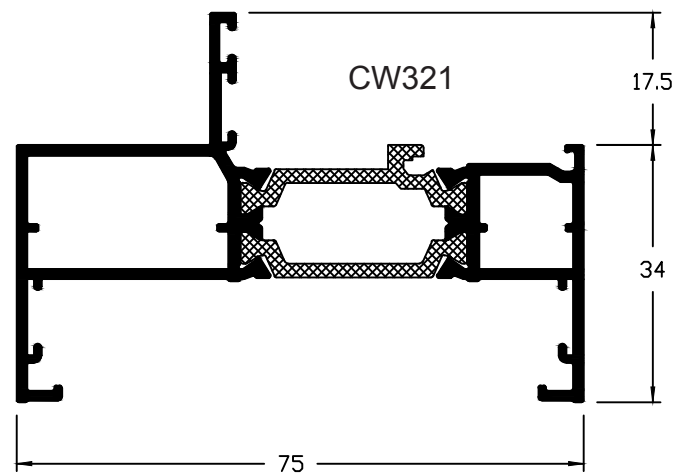
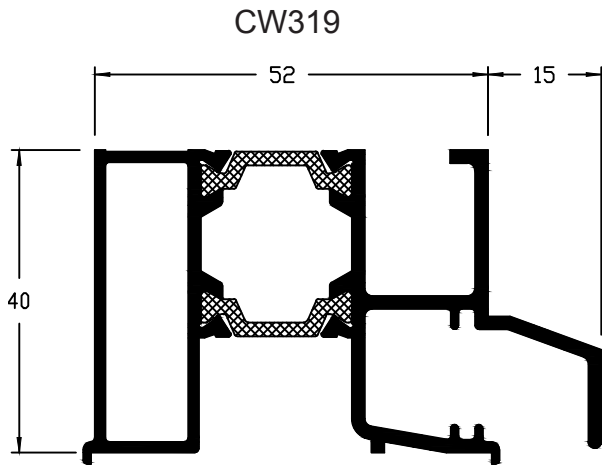
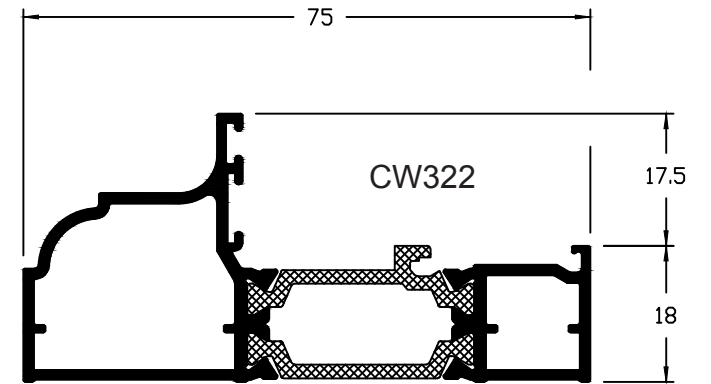
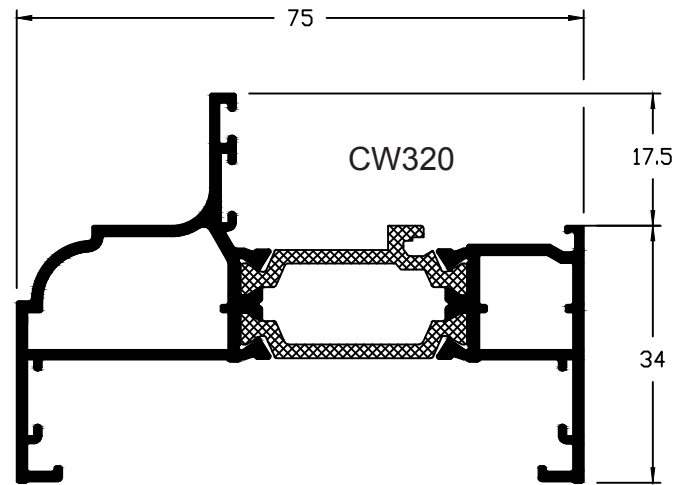
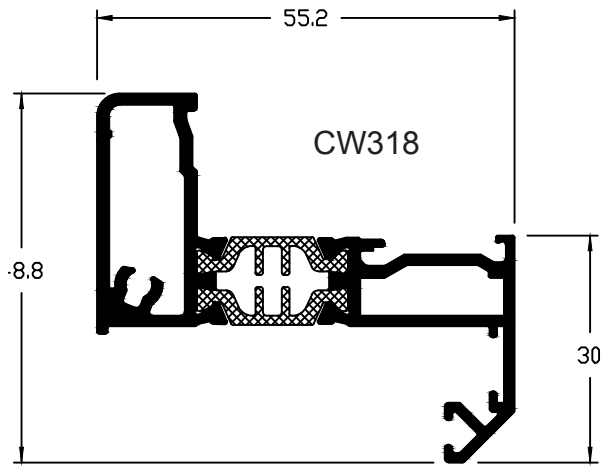
### Profile Identification



### Profile Identification

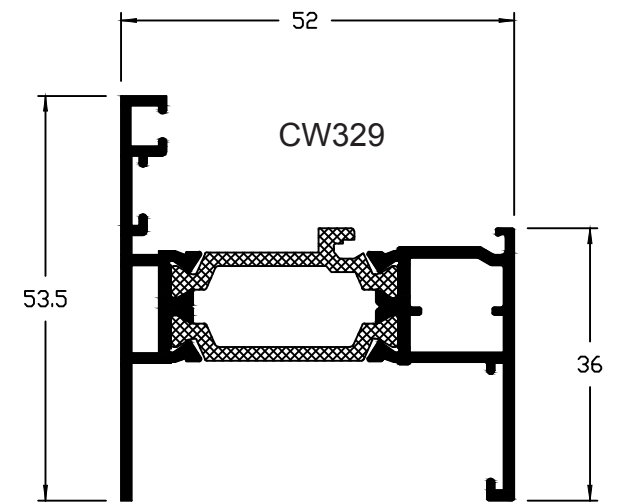
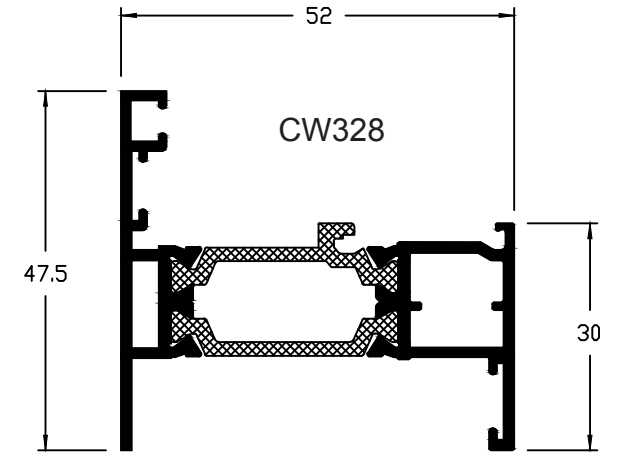
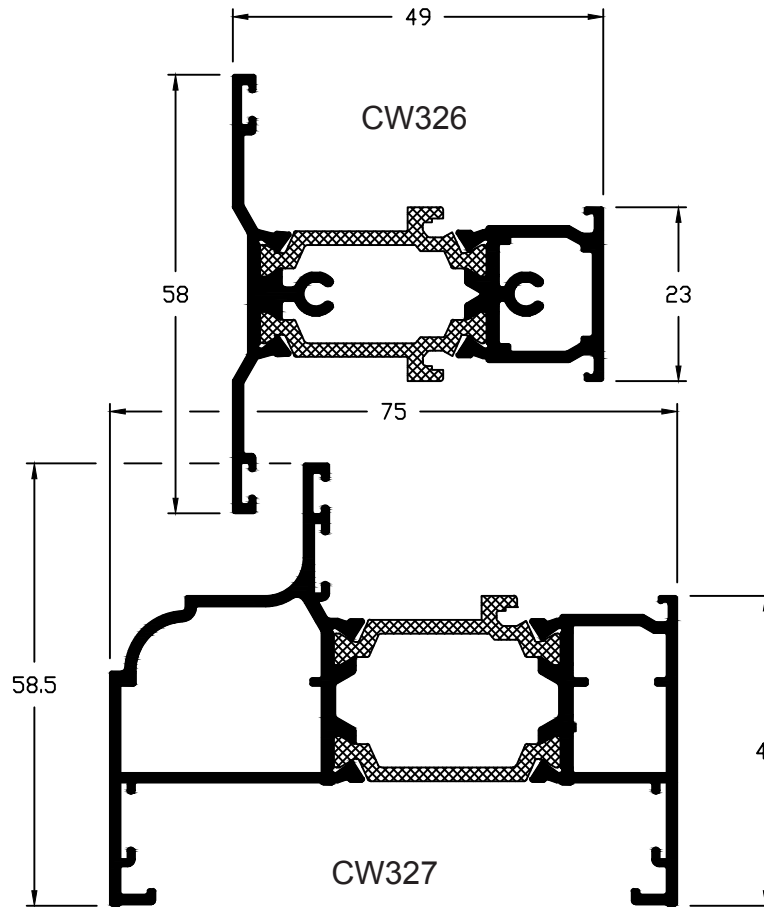
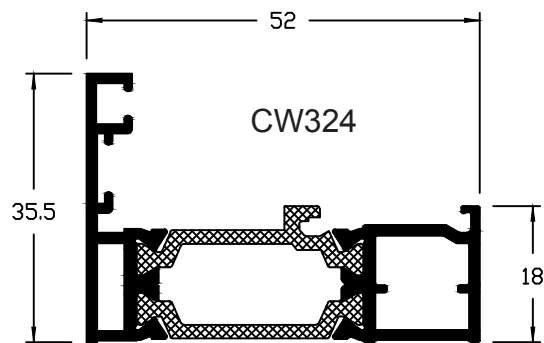
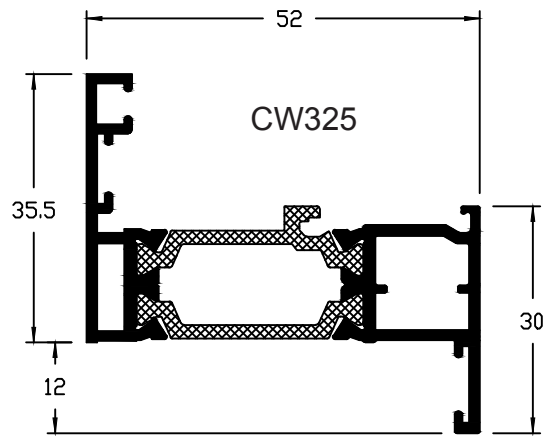


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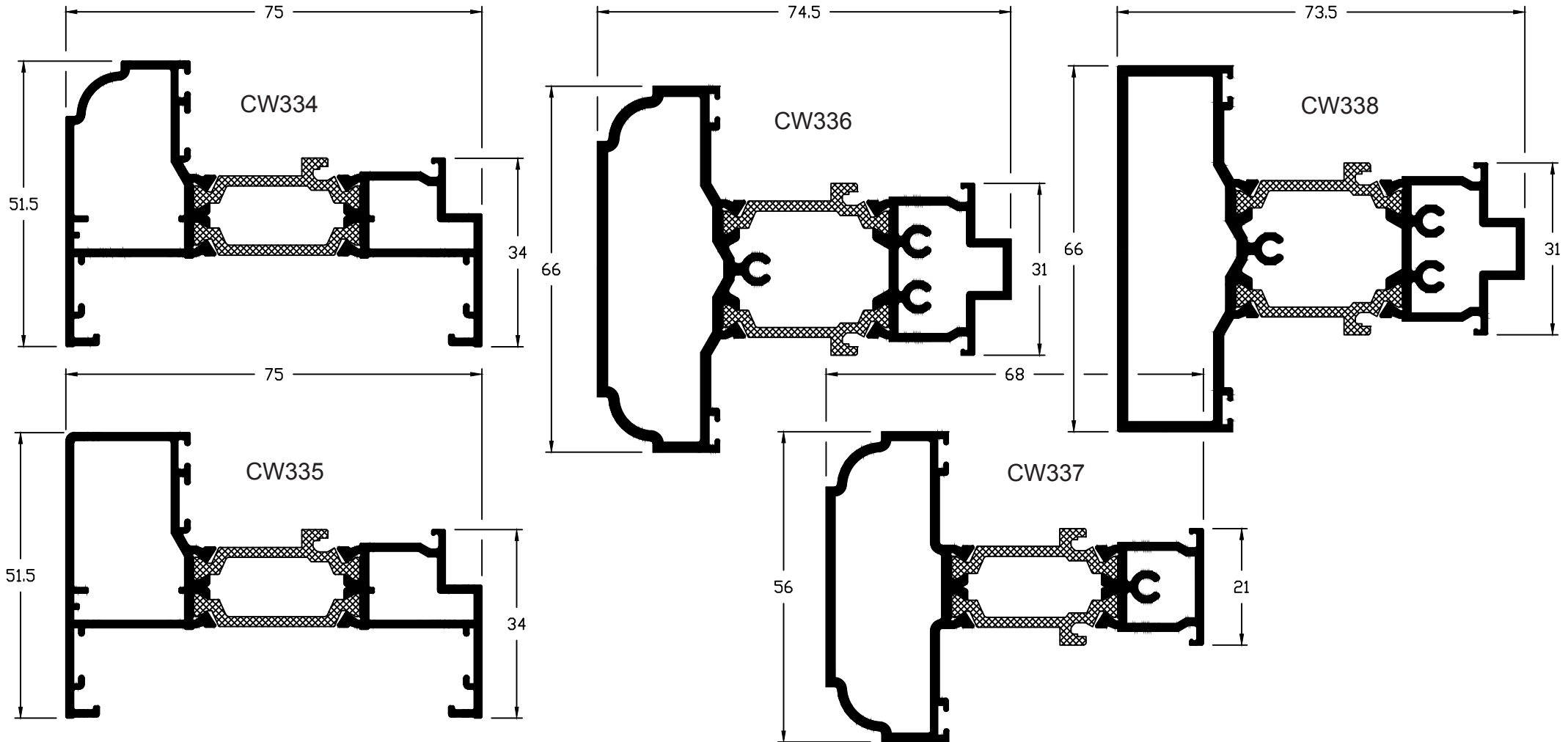




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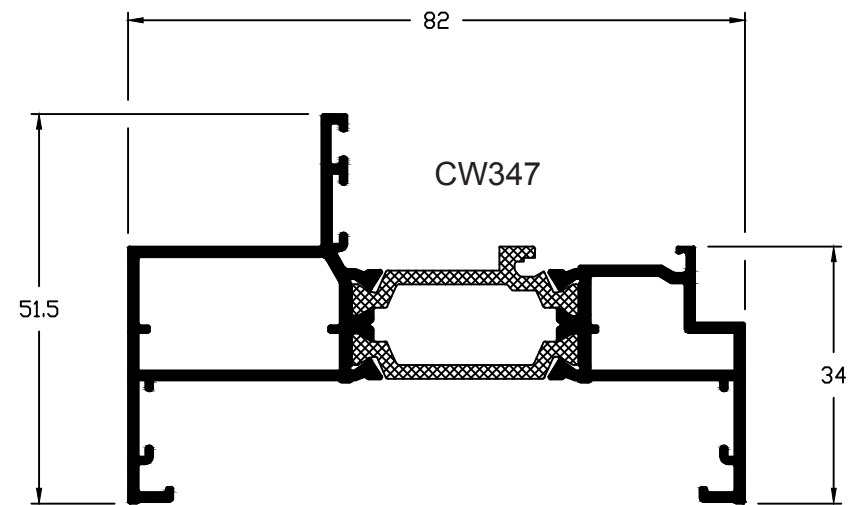
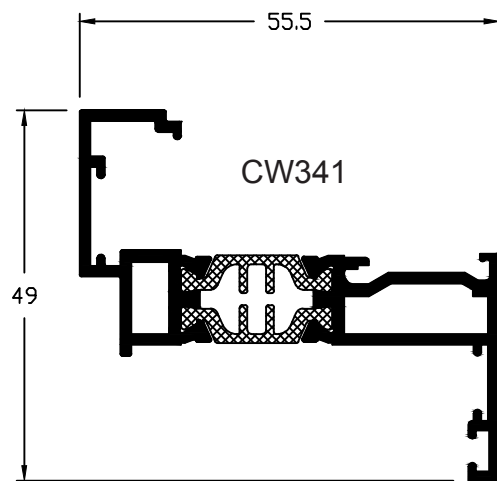
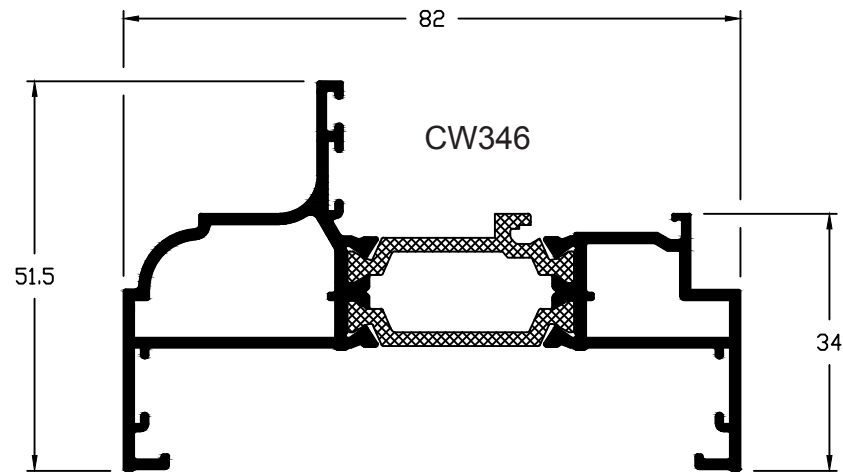
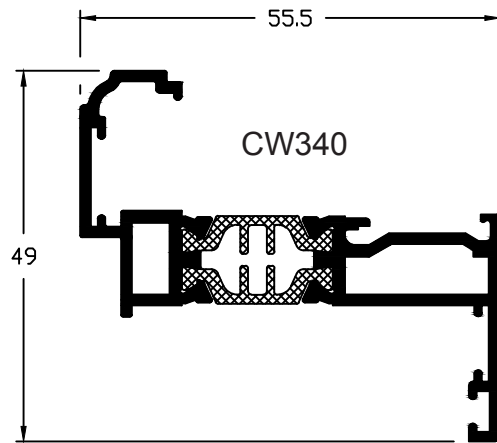


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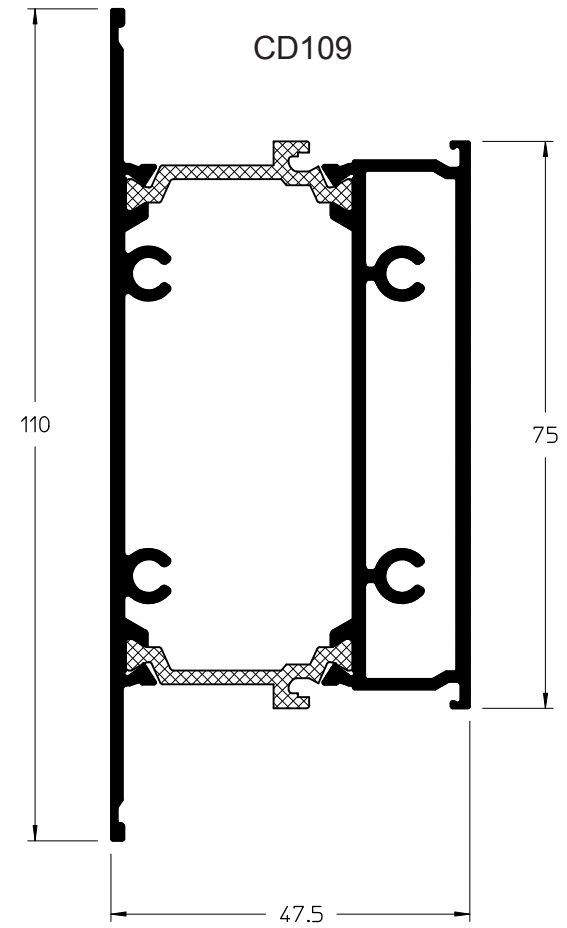
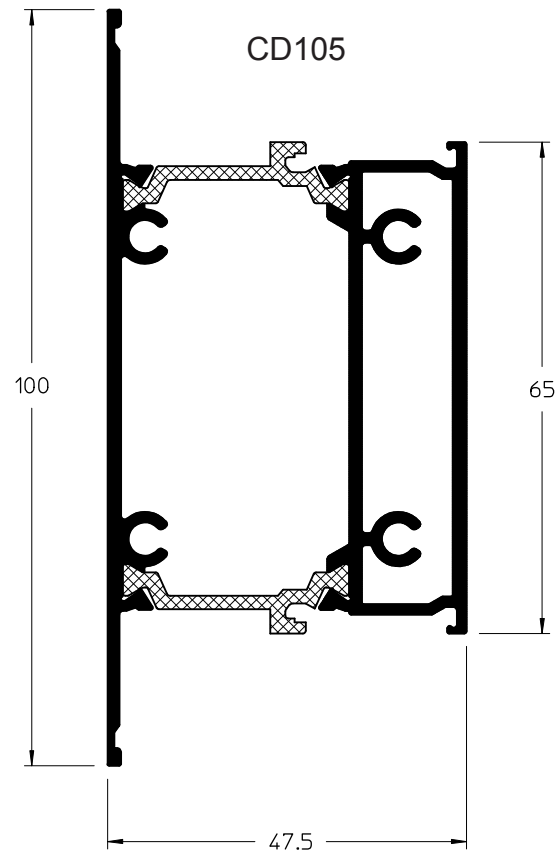


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### Profile Identification - Flush Windows

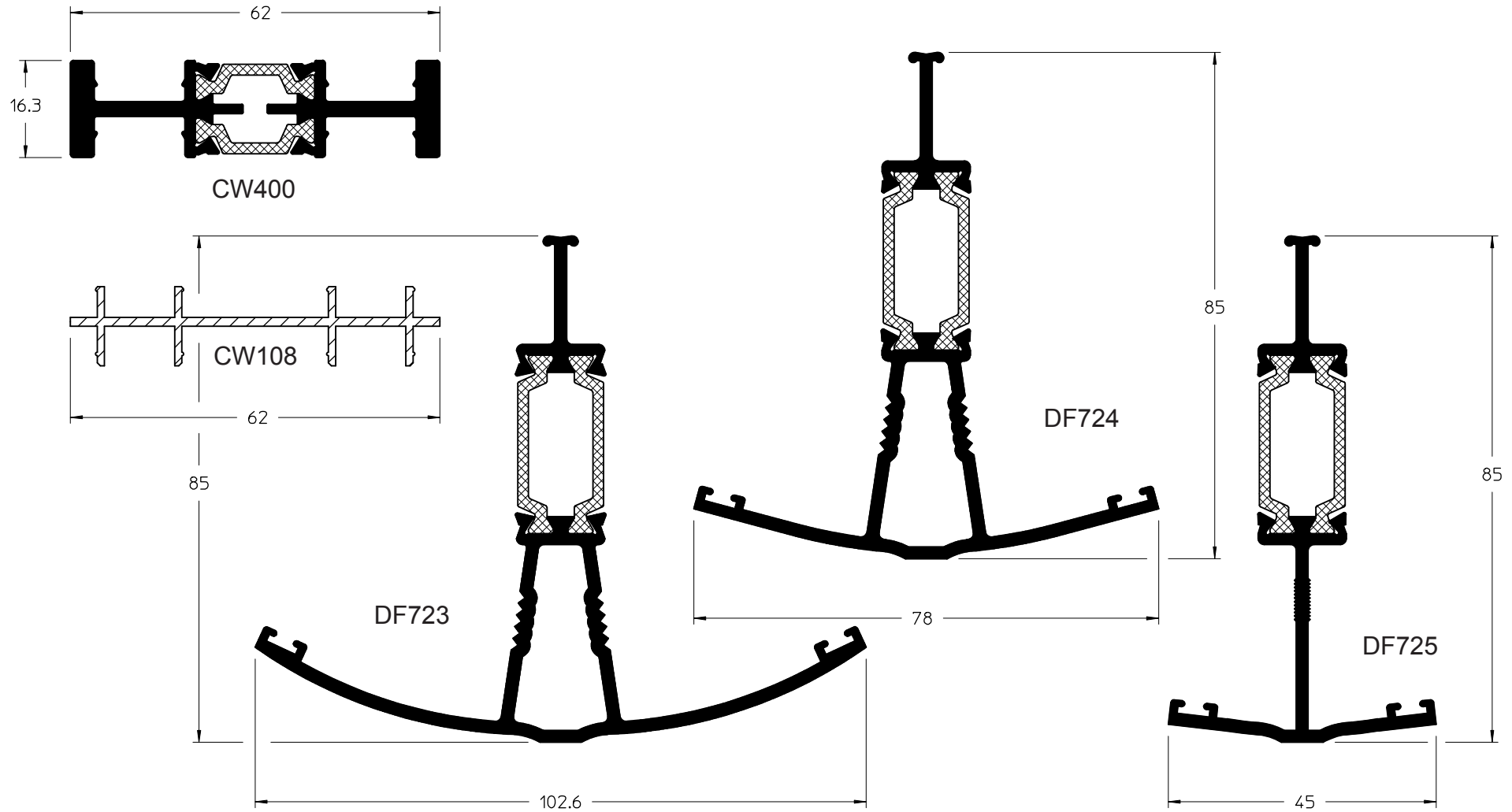


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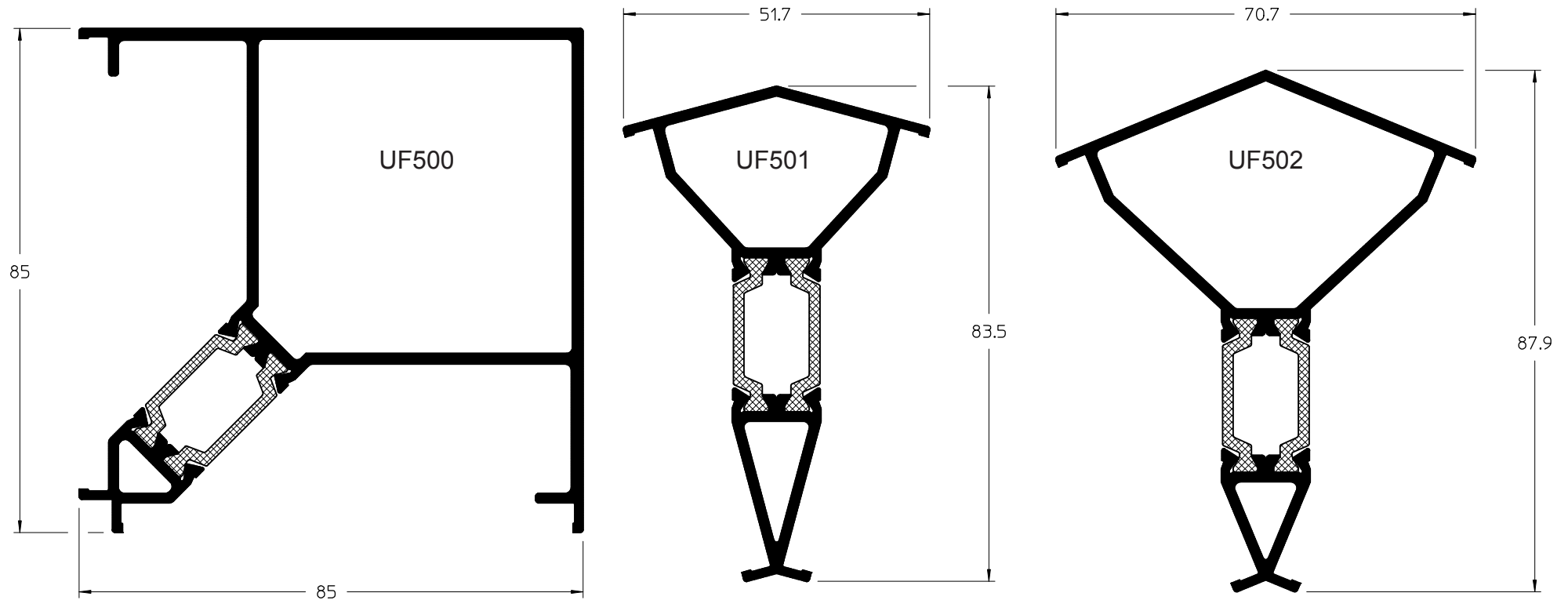


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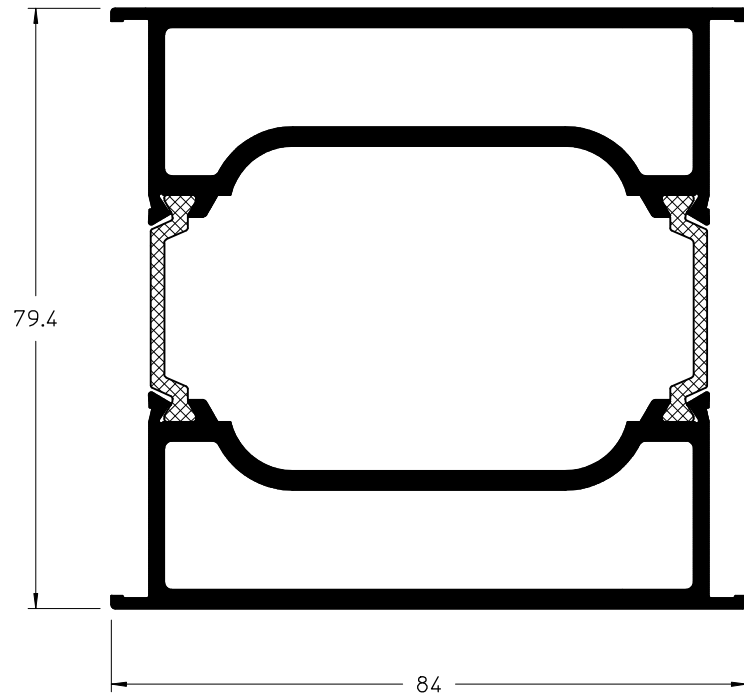


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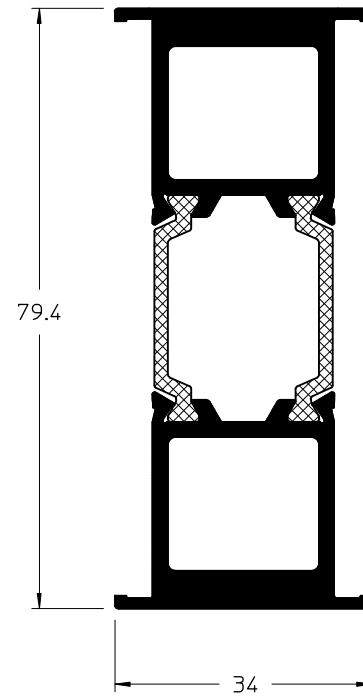


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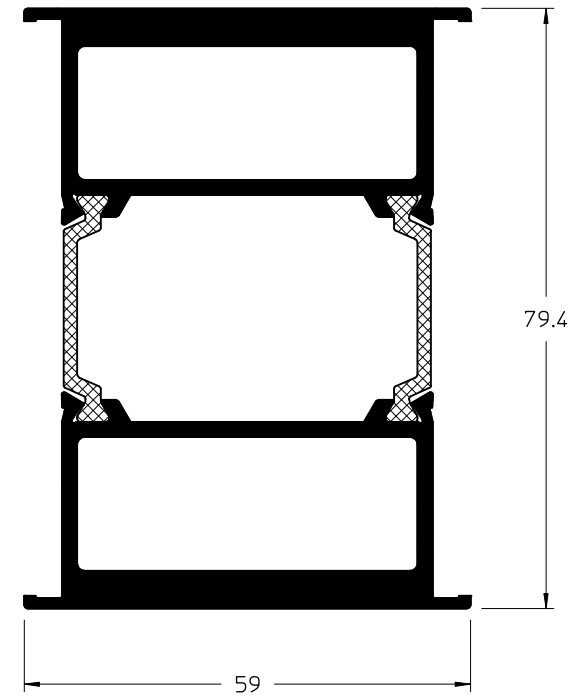
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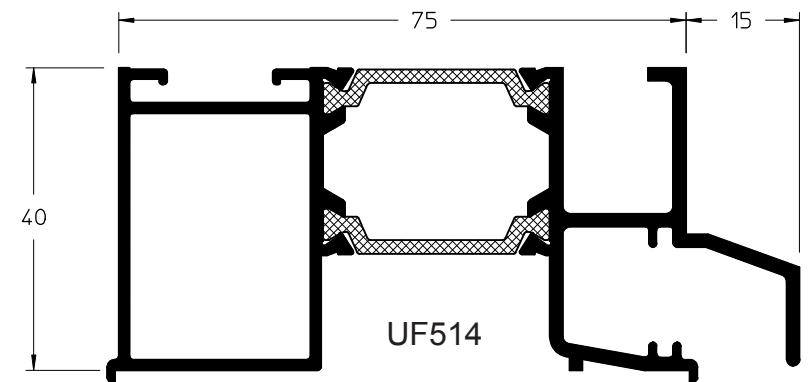
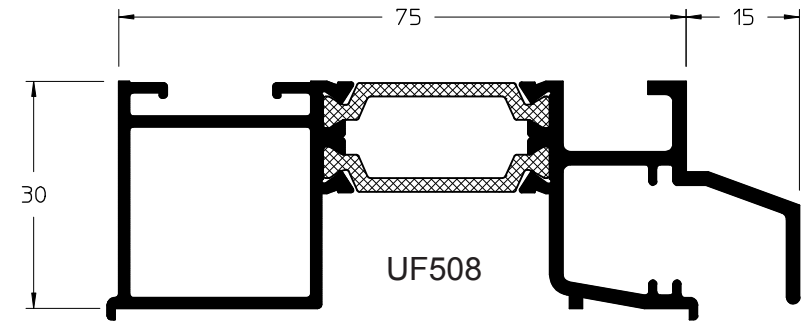
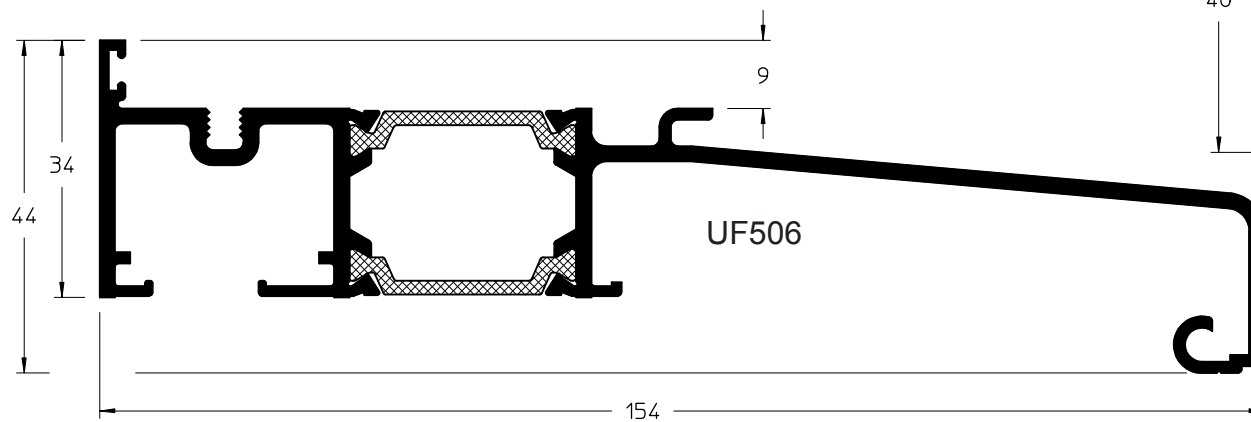
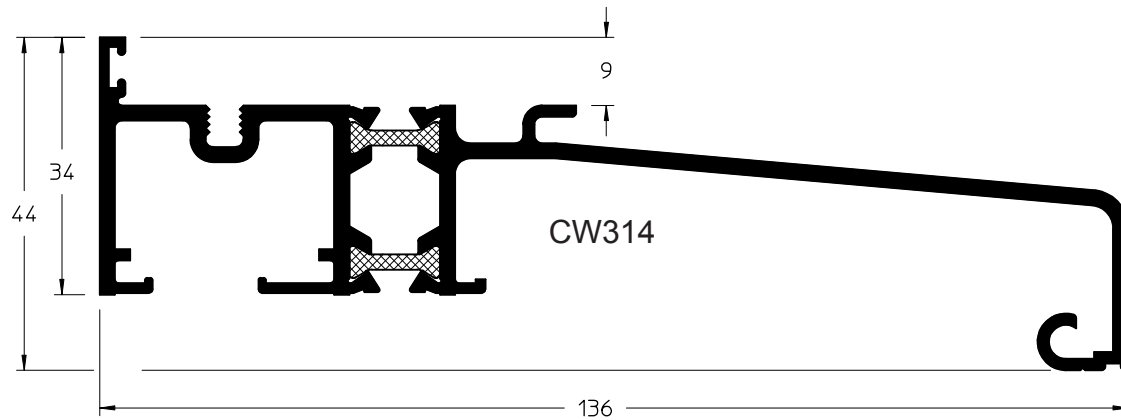
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UF505

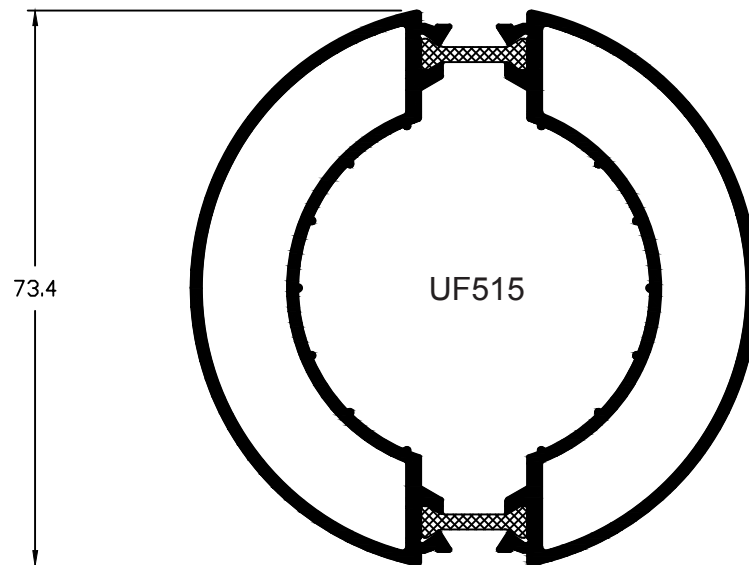
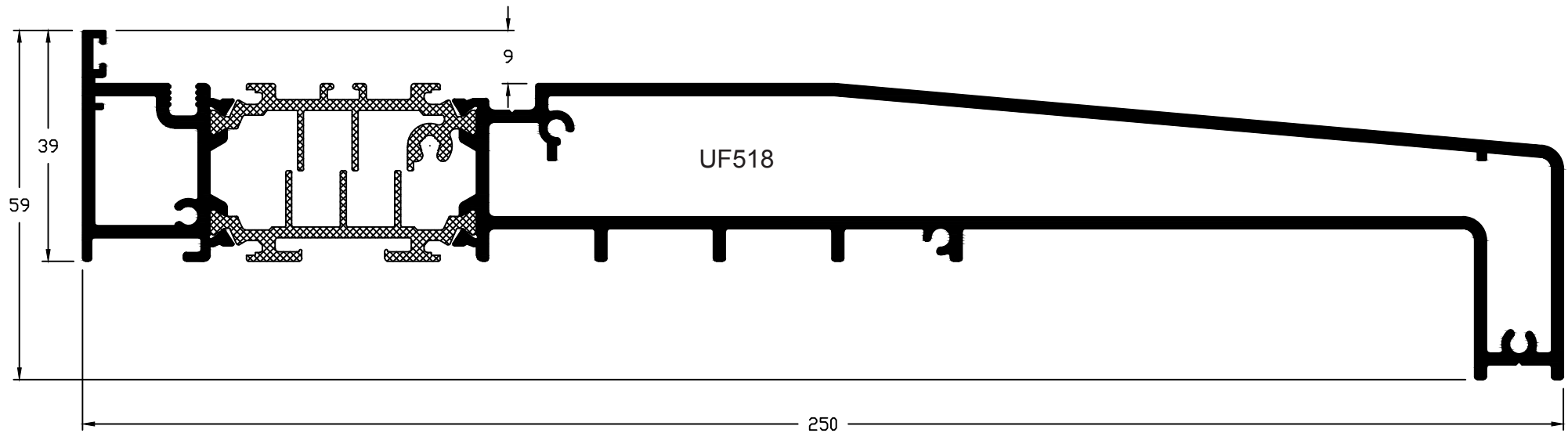


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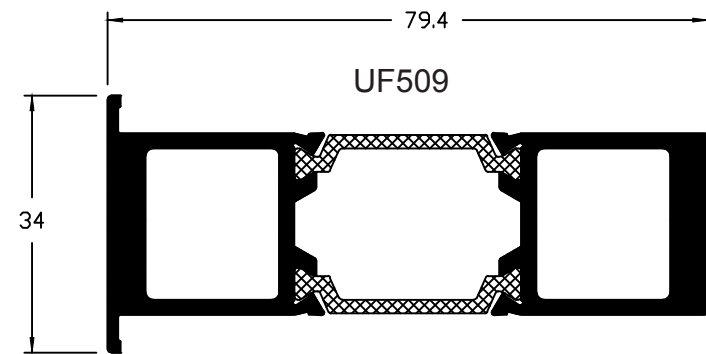
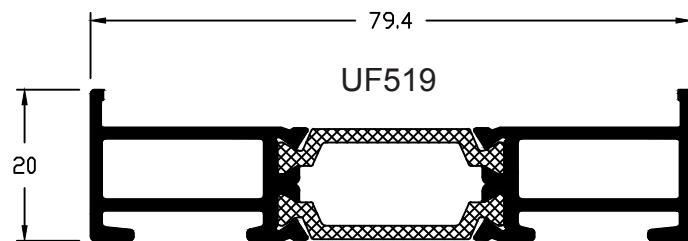
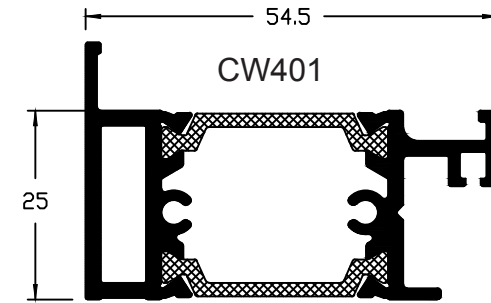
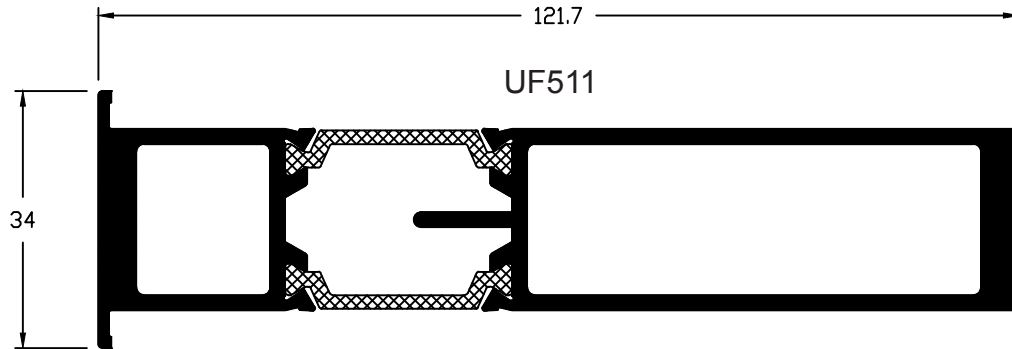
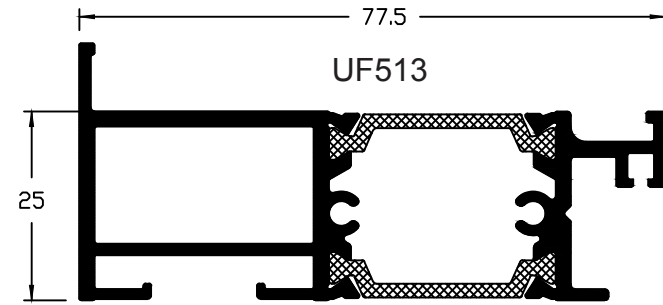
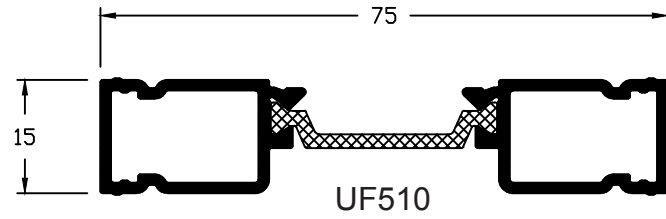


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### Profile Identification



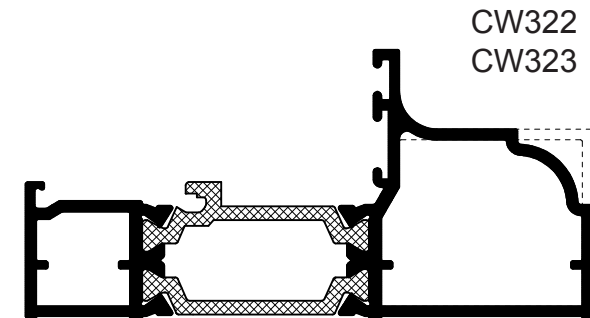
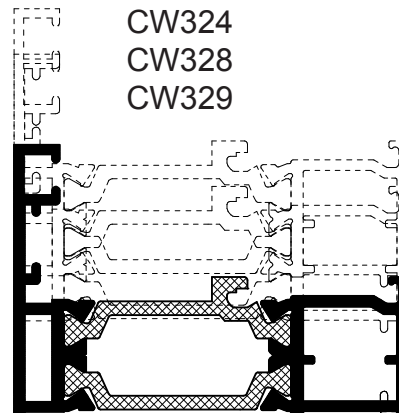
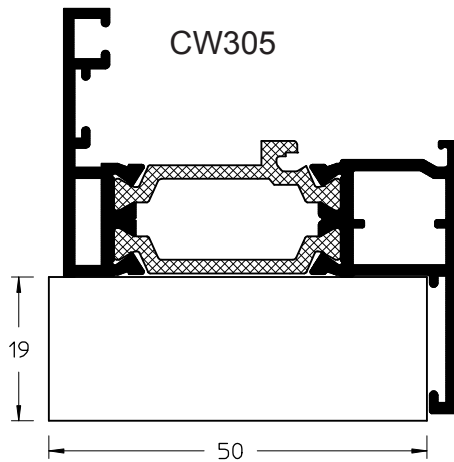
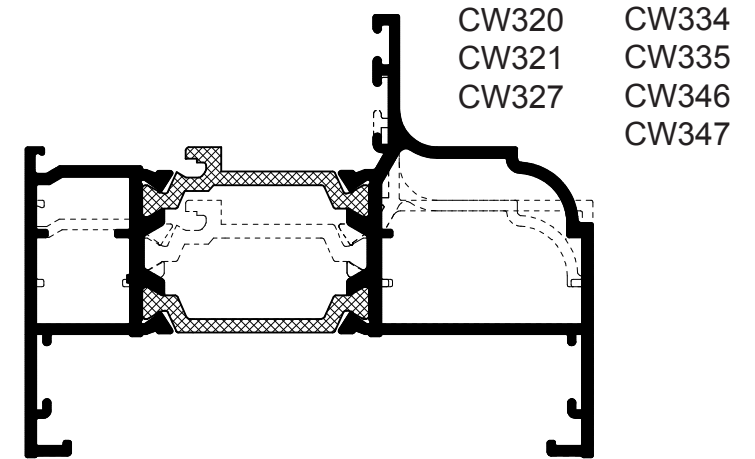
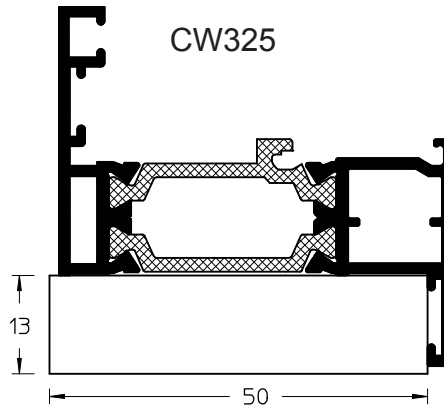
## Clamping Guidance

### Outer Frame Clamping Guidance

Care must be taken when clamping profiles to avoid any possible profile distortion during cutting, and where necessary, appropriate support blocks are to be used.

Due to the variation in manufacturing machinery and the range of available profiles, the typical clamping details shown on this page and the next page are for guidance only.

It is the responsibility of the fabricator to ensure that mitred cuts are acceptable for crimping. When using a section for the first time, cut a sample corner and offer to the crimper anvil using hand pressure to align. The corner can now be checked to see if a satisfactory joint will be achieved when crimped.



## Clamping Guidance

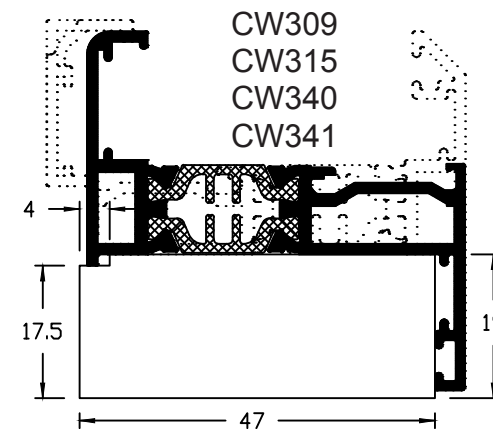
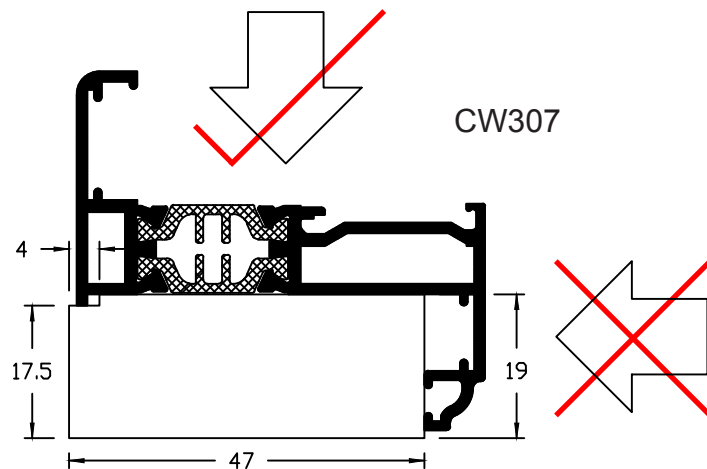
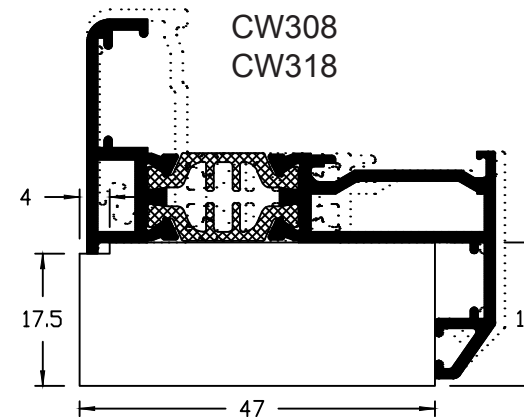
### Vent Frame Clamping Guidance

Care must be taken when clamping profiles to avoid any possible profile distortion during cutting, and where necessary, appropriate support blocks are to be used.

Due to the variation in manufacturing machinery and the range of available profiles, the typical clamping details shown on this page and the previous page are for guidance only.

It is the responsibility of the fabricator to ensure that mitred cuts are acceptable for crimping. When using a section for the first time, cut a sample corner and offer to the crimper anvil using hand pressure to align. The corner can now be checked to see if a satisfactory joint will be achieved when crimped.

Note recommended clamping direction.



## Preparation for Fabrication

### Establishing Dimensions

It is essential that work sizes are based on correct site dimensions and with adequate clearances around the window to allow for correct positioning/fixing. Where separate units are coupled together using a coupling mullion, the relevant gap must be allowed for coupling.

### Preliminaries

Ensure that the window design is within the parameters given in the specification. Ascertain the vertical and horizontal work sizes for each individual window unit. Consideration must be given to any cill conditions which will affect the work size height. Ascertain the basic window design i.e. number and positions of mullions/transoms and opening lights. The correct profile required can be calculated using BS6399:Part 2 and inertia value calculation sheet on pages 2-27 & 2-28. Ascertain the type of outer frame which is needed so that the appropriate profile can be used.

### Metal and Glass Cutting

Refer to the data and diagrams on the subsequent pages to determine all bar lengths and glass sizes.

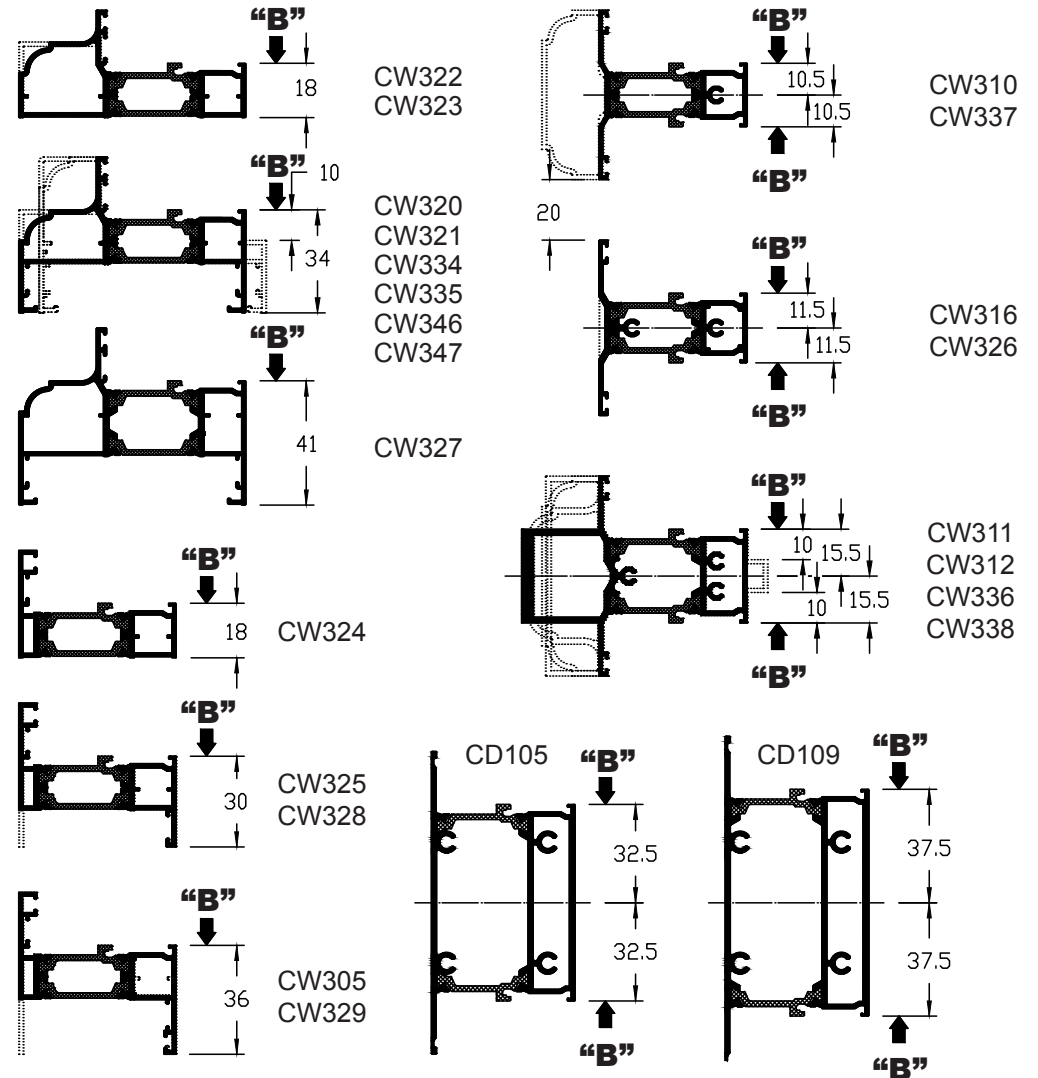
When calculating bar lengths requirements, an allowance of 37mm at each end of the bar must be made for any profile which has powder coat or anodised finish to allow for jig/contact marks. These marks must be removed individually or as part of the first and last cut whether square or mitred.

Details of actual end preparation required, Square/Mitred are fully detailed for individual profiles on the following pages. Also detailed are the position and size of any holes and the appropriate tooling.

### Cutting Calculations

To allow for all possible combinations and simplify calculations, the listed formulae are related to basic dimension 'B' which is arrived at by taking away the allowances detailed opposite from the overall window unit or mullion/transom centre line.

*Metal tolerance of plus or minus 0.5mm - Glass tolerance of plus 0mm, minus 3.0mm.*



## Cutting Sizes

**Metal Sizes**

**Outer Frame** (Sections CW305, CW320, CW321, CW322, CW323, CW324, CW325, CW327, CW328, CW329, CW334, CW335, CW346, CW347)  
O/A Window Mitre/Mitre

**Mullion / Transom** (Sections CW310, CW316, CW326, CW337, CD105, CD109)  
Basic Size "B" Square/Square

*Note that a cruciform joint is not available for CD105 and CD109 profiles.*

**HD Mullion / Transom** (Section CW311)  
Basic Size "B" Square/Square  
To CW305, CW324, CW325 Basic Size "B" plus 18 (one end) Square  
To CW328 Basic Size "B" plus 30 (one end) Square  
To CW329 Basic Size "B" plus 36 (one end) Square

**HD Mullion / Transom** (Section CW312)  
To CW322 Frame Basic Size "B" plus 3 (one end) Shaped  
To CW320 Frame Basic Size "B" plus 10 (one end) Shaped  
To CW327 Frame Basic Size "B" plus 10 (one end) Shaped  
To CW312 Mullion/Transom Basic Size "B" plus 3 (one end) Shaped

*Note that the cutting calculations for HD Mullion/Transom CW312 is for one end only.*

**HD Flush Mullion / Transom** (Section CW336)  
To CW334 Frame Basic Size "B" plus 10 (one end) Shaped  
To CW346 Frame Basic Size "B" plus 10 (one end) Shaped  
*Note that the cutting calculations for HD Mullion/Transom CW336 is for one end only.*

**HD Flush Mullion / Transom** (Section CW338)  
To CW335 Frame Basic Size "B" plus 10 (one end) Shaped  
To CW347 Frame Basic Size "B" plus 10 (one end) Shaped  
*Note that the cutting calculations for HD Mullion/Transom CW336 is for one end only.*

**Vent Frame** (Section CW307, CW308, CW309, CW315, CW318, CW340, CW341)  
Basic Size "B" Plus 13mm Mitre/Mitre

**Dummy Mullion / Transom** (Section CW316, CW326)  
Basic "B" minus 47 (Where each dummy mullion occurs deduct a further 23mm from dummy transoms and divide by number of panes in width)  
*Note dummy mullion / transoms can only be fitted in CW307 & CW308 vent frames.*

*All glazing beads should be cut oversize and then trimmed to suit opening.*

**Glazing Bead** (Section CW068)  
Horizontal Beads (Fxd) Basic Size "B" Square/Square  
Vertical Beads (Fxd) Basic Size "B" minus 7mm Mitre/Mitre  
Horizontal Beads (Vent) Basic Size "B" minus 47mm Square/Square  
Vertical Beads (Vent) Basic Size "B" minus 54mm Mitre/Mitre

**Glazing Bead** (Section CW069)  
Horizontal Beads (Fxd) Basic Size "B" Square/Square  
Vertical Beads (Fxd) Basic Size "B" minus 15mm Mitre/Mitre  
Horizontal Beads (Vent) Basic Size "B" minus 47mm Square/Square  
Vertical Beads (Vent) Basic Size "B" minus 62mm Mitre/Mitre

**Glazing Bead** (Section CW070, CW093) - For drainage bead only  
Horizontal Beads (Fxd) Basic Size "B" Square/Square

**Glazing Bead** (Section CW071) - For use with CW309, CW318, CW340, CW341 only  
Horizontal Beads (Vent) Basic Size "B" minus 47mm Square/Square  
Vertical Beads (Vent) Basic Size "B" minus 62mm Mitre/Mitre

**Glazing Bead** (Section CW072) - For use with CW309, CW318, CW340, CW341 only  
Horizontal Beads (Vent) Basic Size "B" minus 47mm Square/Square  
Vertical Beads (Vent) Basic Size "B" minus 70mm Mitre/Mitre

**Glazing Bead** (Section CW082)  
Horizontal Beads (Fxd) Basic Size "B" Square/Square  
Vertical Beads (Fxd) Basic Size "B" 52°Mitre/52°Mitre  
Horizontal Beads (Vent) Basic Size "B" minus 47mm Square/Square  
Vertical Beads (Vent) Basic Size "B" minus 47mm 52°Mitre/52°Mitre

**Glazing Bead** (Section CW083) - For use with CW309, CW318, CW340, CW341 only  
Horizontal Beads (Vent) Basic Size "B" minus 47mm Square/Square  
Vertical Beads (Vent) Basic Size "B" minus 47mm 61°Mitre/61°Mitre

**Glazing Bead** (Section CW084, CW085)  
Horizontal Beads (Fxd) Basic Size "B" Square/Square  
Vertical Beads (Fxd) Basic Size "B" minus 35 Square/Square  
Horizontal Beads (Vent) Basic Size "B" minus 47mm Square/Square  
Vertical Beads (Vent) Basic Size "B" minus 82mm Square/Square

## Cutting Sizes

**Glazing Bead** (Section CW088, CW089) - For use with CW315 only

Horizontal Beads (Vent)	Basic Size "B" minus 47mm	Square/Square
Vertical Beads (Vent)	Basic Size "B" minus 82mm	Square/Square

***IMPORTANT!** for side hung glaze in windows, see bead note on page 4-24*

**Glazing Bead** (Section CW097) - For use with CW309, CW318, CW340, CW341 only

Horizontal Beads (Vent)	Basic Size "B" minus 47mm	Square/Square
Vertical Beads (Vent)	Basic Size "B" minus 82mm	Square/Square

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### Glass Sizes

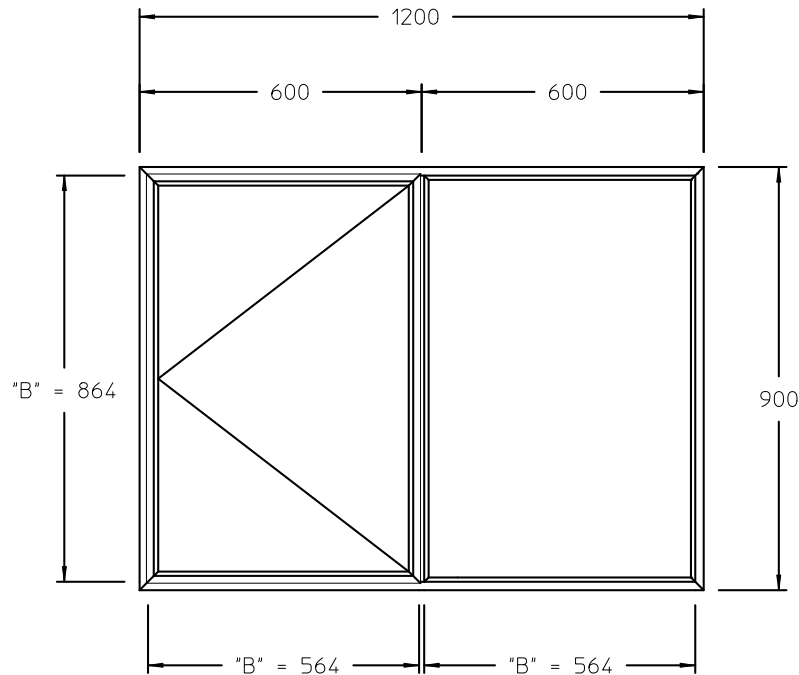
<b>Fixed Light</b>	Basic Size "B" minus 10mm
<b>Opening Light</b>	Basic Size "B" minus 57mm

Where a dummy mullion/transom occurs within an opening light deduct 33mm for each mullion/transom and divide by number of panes)

**--- IMPORTANT!!! SMALL WINDOWS ---**

Window vent sizes under 311mm in width (side hung) or 311mm in height (top hung) are to be reduced by 3mm in width (side hung) or 3mm in height (top hung). Please adjust vent, glazing units and any dummy mullion/transoms sizes accordingly.

## Example Window - Metal/Glass Sizes



### Overall Window Size Adjustments.

Note special considerations should be made when using subcills, extended leg profiles, add on trickle vent body and coupling mullions as these items will affect the overall window size. See general arrangements for size details.

### Metal Sizes

#### Outer Frame

CW322	O/A window width	= 2 x 1200mm	(cut 45° x 45°)
CW322	O/A window height	= 2 x 900mm	(cut 45° x 45°)

#### Mullion

CW310	Basic 'B' (900 - 18 - 18)	= 864mm	(cut 90° x 90°)
-------	---------------------------	---------	-----------------

#### Vent Frame

CW307 (Horz)	Basic 'B' (600 - 18 - 10.5) + 13	= 2 x 584.5mm	(cut 45° x 45°)
CW307 (Vert)	Basic 'B' (900 - 18 - 18) + 13	= 2 x 877mm	(cut 45° x 45°)

#### Glazing Beads for Fixed Light

CW068 (Horz)	Basic 'B' (600 - 18 - 10.5)	= 2 x 571.5mm	(cut 90° x 90°)
CW068 (Vert)	Basic 'B' (900 - 18 - 18) - 7	= 2 x 857mm	(cut 45° x 45°)

#### Glazing Beads for Vent

CW068 (Horz)	Basic 'B' (600 - 18 - 10.5) - 47mm	= 2 x 524.5mm	(cut 90° x 90°)
CW068 (Vert)	Basic 'B' (900 - 18 - 18) - 54	= 2 x 810mm	(cut 45° x 45°)

### Glass Sizes

#### Fixed Light

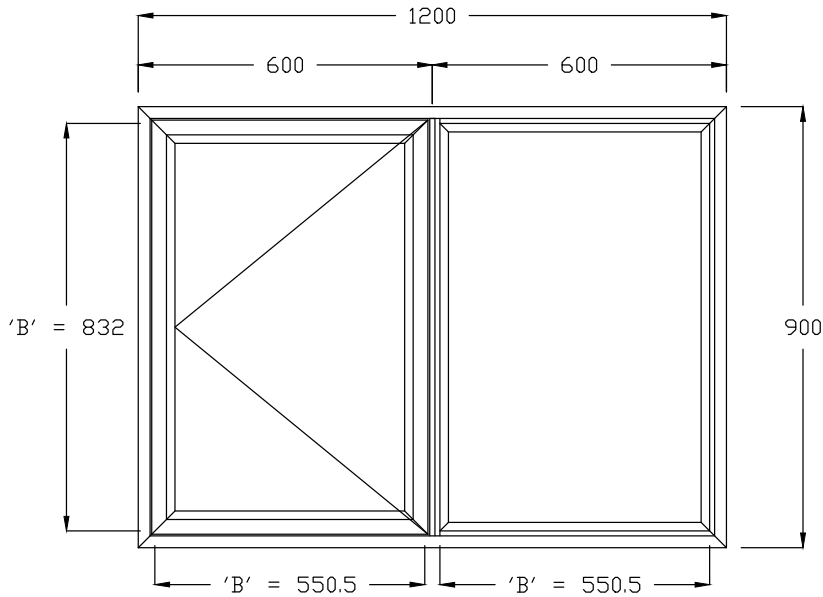
Glass Width	Basic 'B' (600 - 18 - 10.5) - 10	= 561.5mm
Glass Height	Basic 'B' (900 - 18 - 18) - 10	= 854mm

#### Vent Frame

Glass Width	Basic 'B' (600 - 18 - 10.5) - 57	= 514.5mm
Glass Height	Basic 'B' (900 - 18 - 18) - 57	= 807mm



**Example Flush Window - Metal/Glass Sizes**



**Metal Sizes**

**Outer Frame**

CW334	O/A window width	= 2 x 1200mm	(cut 45° x 45°)
CW334	O/A window height	= 2 x 900mm	(cut 45° x 45°)

**Mullion**

CW336	Basic 'B' (900 - 34 - 34) + 20	= 852mm	(cut 90° x 90°)
-------	--------------------------------	---------	-----------------

**Vent Frame**

CW340 (Horz)	Basic 'B' (600 - 34 - 15.5) + 13	= 2 x 563.5mm	(cut 45° x 45°)
CW340 (Vert)	Basic 'B' (900 - 34 - 34) + 13	= 2 x 845mm	(cut 45° x 45°)

**Glazing Beads for Fixed Light**

CW068 (Horz)	Basic 'B' (600 - 34 - 15.5)	= 2 x 550.5mm	(cut 90° x 90°)
CW068 (Vert)	Basic 'B' (900 - 34 - 34) - 7	= 2 x 825mm	(cut 45° x 45°)

**Glazing Beads for Vent**

CW068 (Horz)	Basic 'B' (600 - 34 - 15.5) - 47	= 2 x 503.5mm	(cut 90° x 90°)
CW068 (Vert)	Basic 'B' (900 - 34 - 34) - 62	= 2 x 770mm	(cut 45° x 45°)

**Glass Sizes**

**Fixed Light**

Glass Width	Basic 'B' (600 - 34 - 15.5) - 10	= 540.5mm
Glass Height	Basic 'B' (900 - 34 - 34) - 10	= 822mm

**Vent Frame**

Glass Width	Basic 'B' (600 - 34 - 15.5) - 57	= 493.5mm
Glass Height	Basic 'B' (900 - 34 - 34) - 57	= 775mm

**Overall Window Size Adjustments.**

Note special considerations should be made when using subcills, extended leg profiles, add on trickle vent body and coupling mullions as these items will affect the overall window size. See general arrangements for size details.

## Machining Details - Outer Frame

### Outer Frame Drainage

Profile CW320, CW321, CW322, CW323, CW327, CW334, CW335, CW346, CW347

The preparation shown in the cill, is for fixed and opening lights.

Prepare both ends at dims below.

#### DIM 'X'

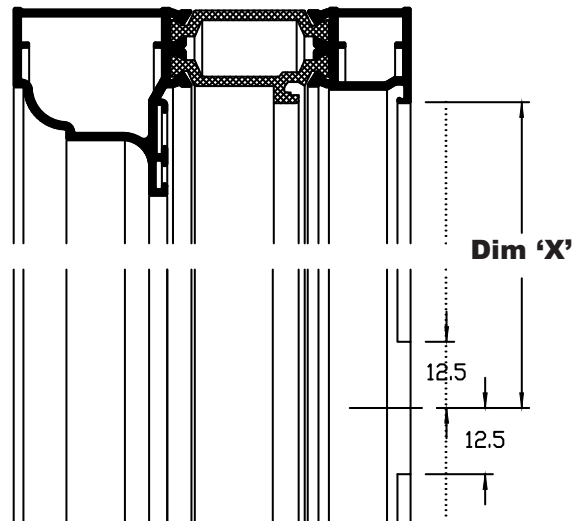
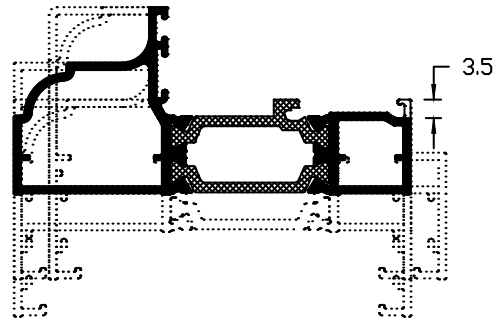
- 48.5mm (Profile CW320)
- 48.5mm (Profile CW321)
- 48.5mm (Profile CW322)
- 48.5mm (Profile CW323)
- 48.5mm (Profile CW327)

#### Each side of mullion/transoms

- 59mm (From centre of CW310)
- 64mm (From centre of CW311)
- 64mm (From centre of CW312)
- 60mm (From centre of CW316)
- 60mm (From centre of CW326)
- 64mm (From centre of CW336)
- 59mm (From centre of CW337)
- 64mm (From centre of CW338)

#### DIM 'X' (If Using Gear Packs CWP168 to CWP179, regardless of profile)

171.5mm (always)



### (52mm) Outer Frame Drainage

Profile CW305, CW324, CW325, CW328, CW329

The preparation shown in the cill, is for fixed and opening lights.

Prepare both ends at dims below.

#### DIM 'X'

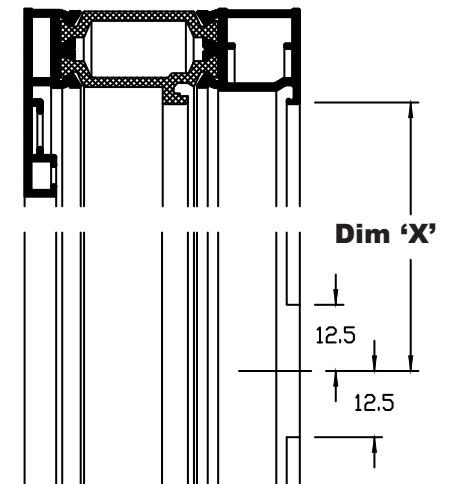
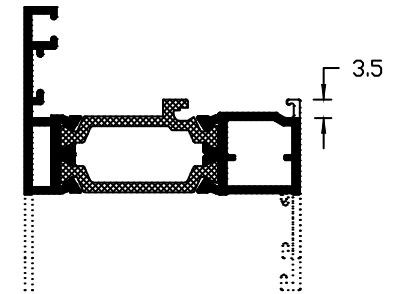
- 48.5mm (Profile CW305)
- 48.5mm (Profile CW324)
- 48.5mm (Profile CW325)
- 48.5mm (Profile CW328)
- 48.5mm (Profile CW329)

#### Each side of mullion/transoms

- 59mm (From centre of CW310)
- 64mm (From centre of CW311)
- 60mm (From centre of CW316)
- 60mm (From centre of CW326)

#### DIM 'X' (If Using Gear Packs CWP168 to CWP179, regardless of profile)

171.5mm (always)



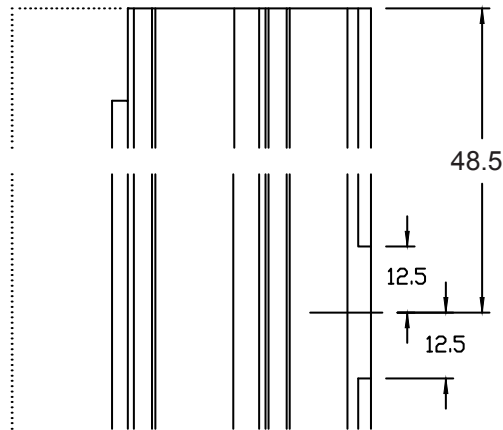
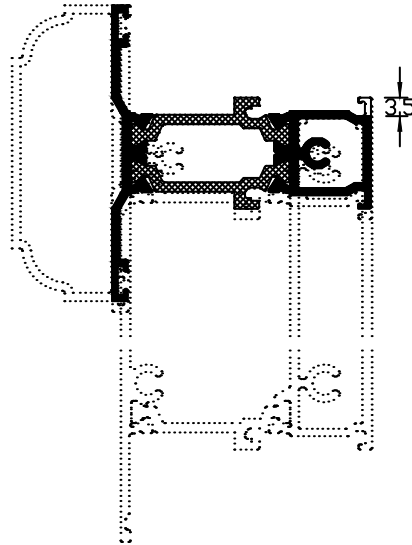
## Machining Details - Outer Frame

### Transom Drainage

Profile CW310, CW316, CW326, CW337  
CD105, CD109

The preparation shown in the transom,  
is for fixed and opening lights.

Prepare both ends of the transom  
as shown.

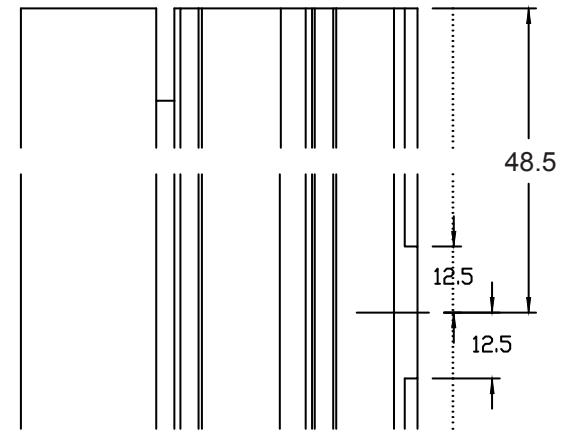
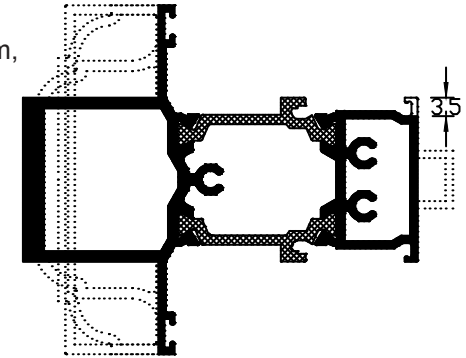


### HD Transom Drainage

Profile CW311, CW312, CW336, CW338

The preparation shown in the transom,  
is for fixed and opening lights.

Prepare both ends of the transom  
as shown.



## Machining Details - Outer Frame

### Outer Frame Drainage Onto Subcill

Profile CW320, CW321, CW322, CW323, CW327, CW334, CW335, CW346, CW347

The preparation shown in the cill, is for when fixed and opening lights are to be drained onto a subcill.

Prepare both ends at dims below.

#### DIM 'X'

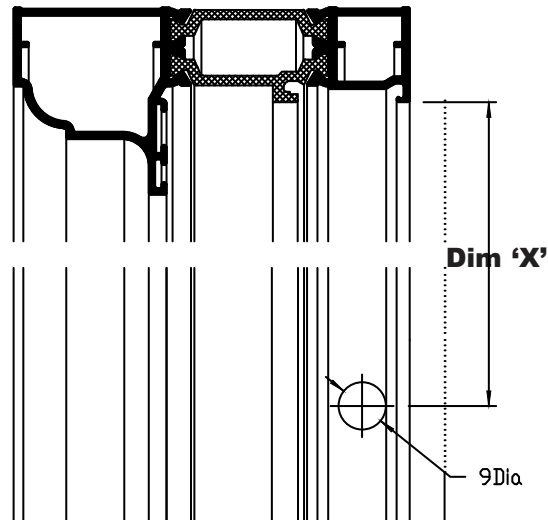
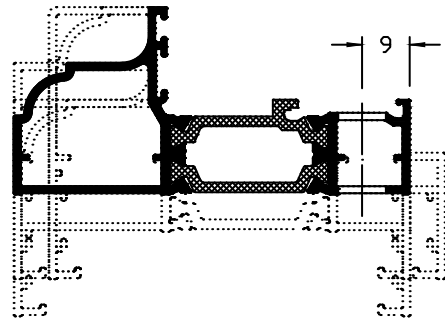
- 128mm (Profile CW320)
- 128mm (Profile CW321)
- 128mm (Profile CW322)
- 128mm (Profile CW323)
- 128mm (Profile CW327)

#### Each side of mullion/transoms

- 138.5mm (From centre of CW310)
- 143.5mm (From centre of CW311)
- 143.5mm (From centre of CW312)
- 139.5mm (From centre of CW316)
- 139.5mm (From centre of CW326)
- 143.5mm (From centre of CW336)
- 138.5mm (From centre of CW337)
- 143.5mm (From centre of CW338)

#### IMPORTANT!

For opening lights, the preparation shown on page 4-6 must also be performed.



### (52mm) Outer Frame Drainage Onto Subcill

Profile CW324, CW328, CW329

The preparation shown in the cill, is for when fixed and opening lights are to be drained onto a subcill.

Prepare both ends at dims below.

#### DIM 'X'

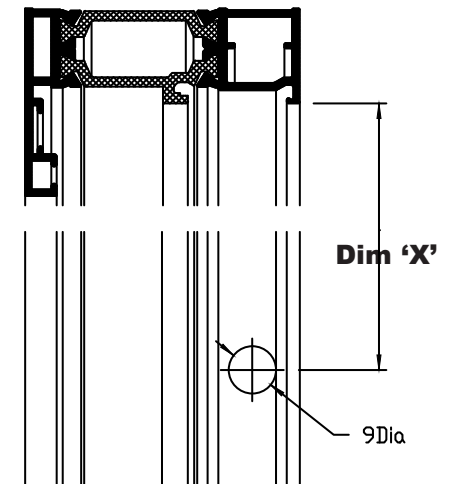
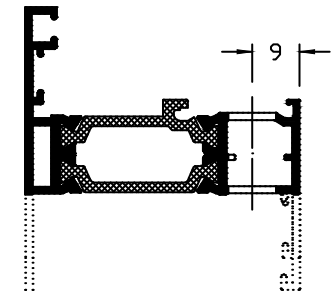
- 128mm (Profile CW324)
- 128mm (Profile CW328)
- 128mm (Profile CW329)

#### Each side of mullion/transoms

- 138.5mm (From centre of CW310)
- 143.5mm (From centre of CW311)
- 139.5mm (From centre of CW316)
- 139.5mm (From centre of CW326)

#### IMPORTANT!

For opening lights, the preparation shown on page 4-6 must also be performed.



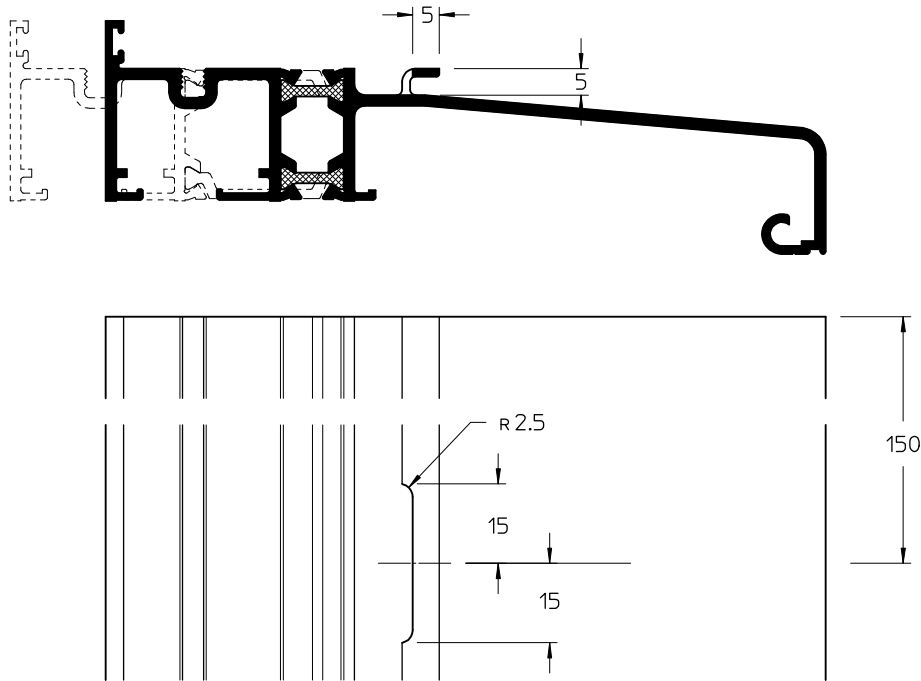
### Machining Details - Outer Frame

#### Subcill Drainage

Profile UF506, CW314

The preparation shown in the subcill, is for when the outer frame is drained onto the subcill, as page 4-8.

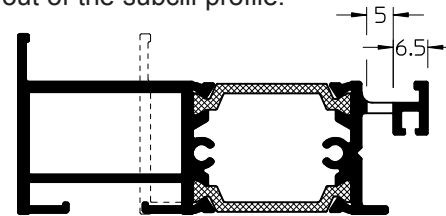
Prepare both ends of the subcill as shown, and then at 600mm maximum centres.



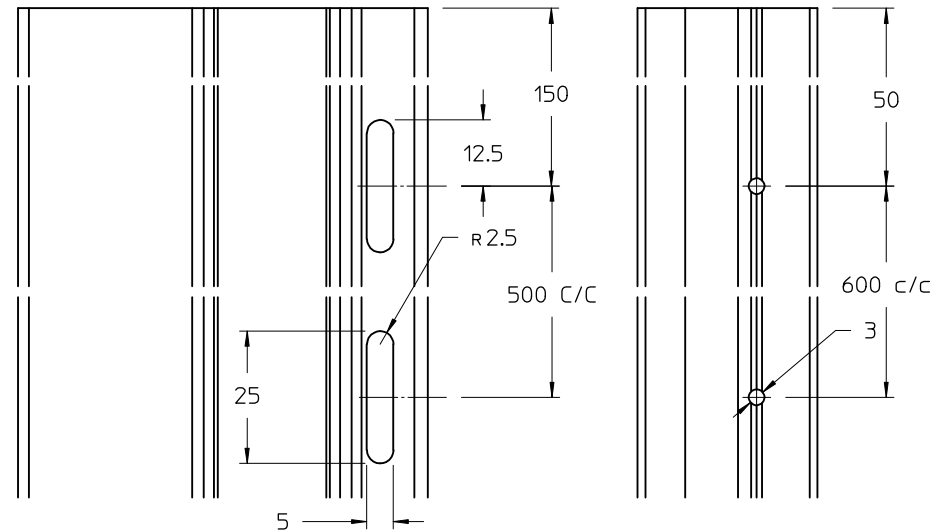
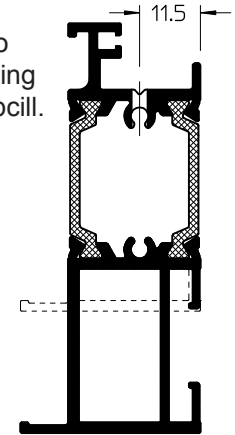
#### Applied Nose Subcill Drainage & Fixing Preparation

Section CW401, UF513

Preparation shown to allow the water in the system to drain out of the subcill profile.



Preparation shown to allow the nose pressing to be fixed to the subcill.



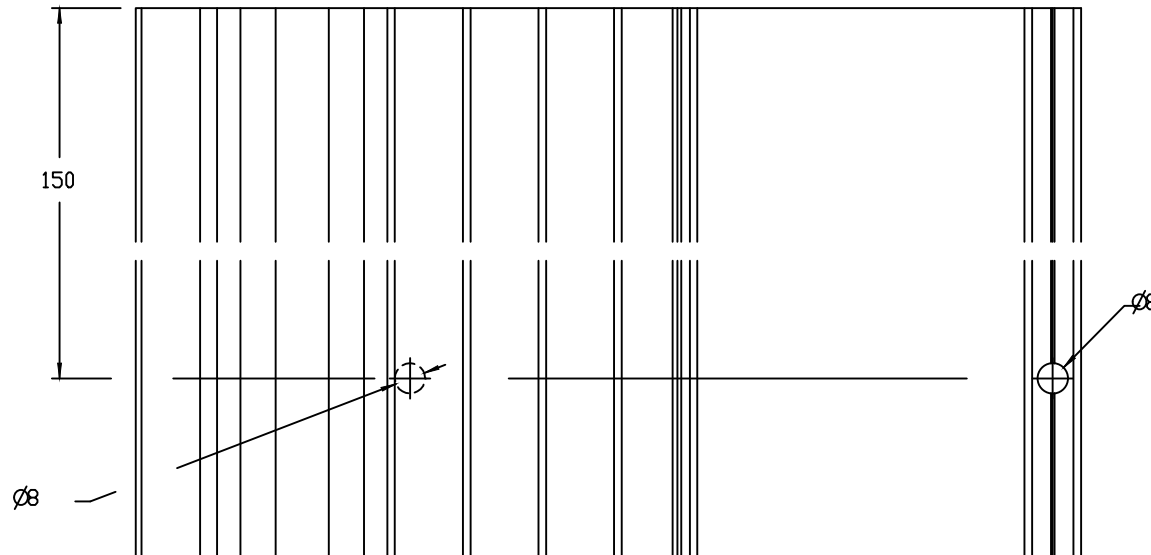
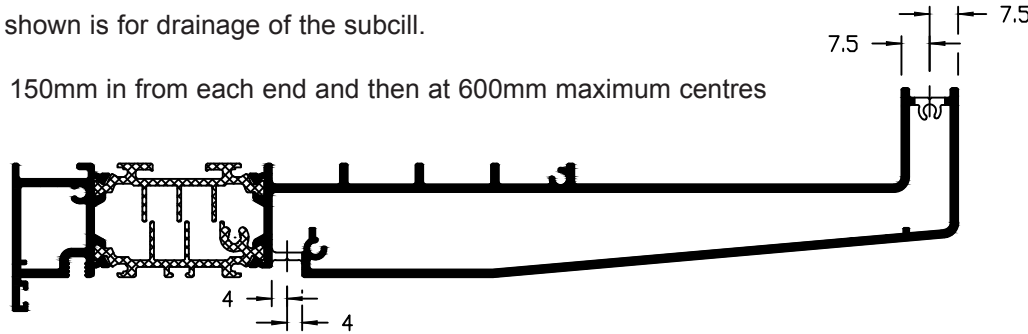
## Machining Details - Outer Frame

### Subcill Drainage

Profile UF518

The preparation shown is for drainage of the subcill.

One preparation 150mm in from each end and then at 600mm maximum centres



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## Machining Details - Outer Frame

### Drainage Bead

Profile CW068, CW069, CW070, CW071, CW072, CW082, CW083, CW084, CW085, CW093, CW097

The preparation shown is to allow water access into the outer frame and vent frame drainage preparations.

Prepare all bottom beads with two notches in line with drainage preparations (see details).

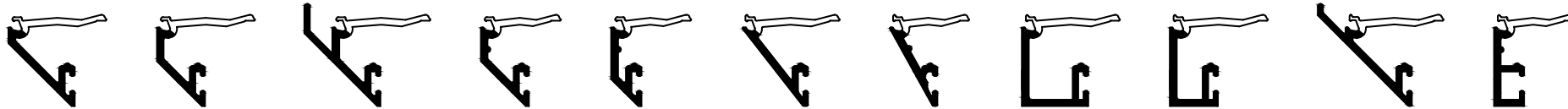
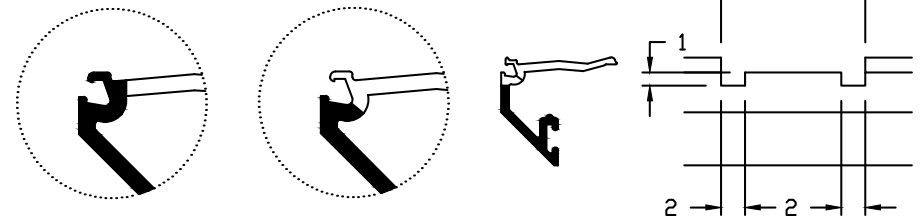
Note beads CW088 & CW089 do not require drainage preps.

Preparations to be in line with outer frame and vent frame drainage.

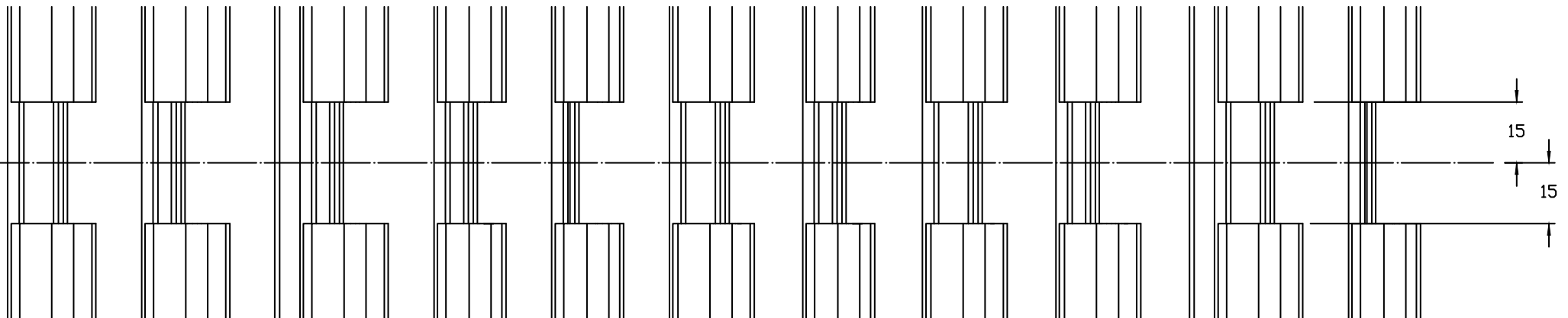
This preparation is for all vent frames, and also for fixed lights being drained through a subcill.

This preparation is for all fixed lights not being drained through a subcill.

This preparation is for all fixed light drainage to accommodate Drain Notch Liner CWC158



CW068 CW069 CW070 CW071 CW072 CW082 CW083 CW084 CW085 CW093 CW097



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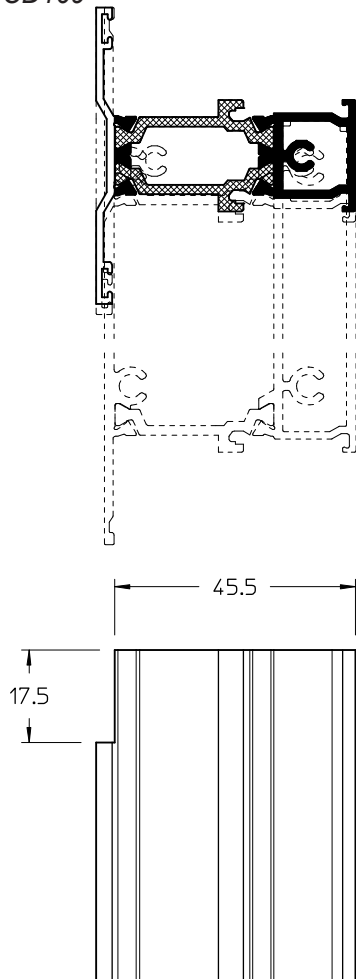
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## Machining Details - Outer Frame

### Mullion/Transom End Preparation

Profile CW310, CW316, CW326, CD105, CD109

The preparation shown is to allow the mullion/transom to be attached to the outer frame or a mullion.



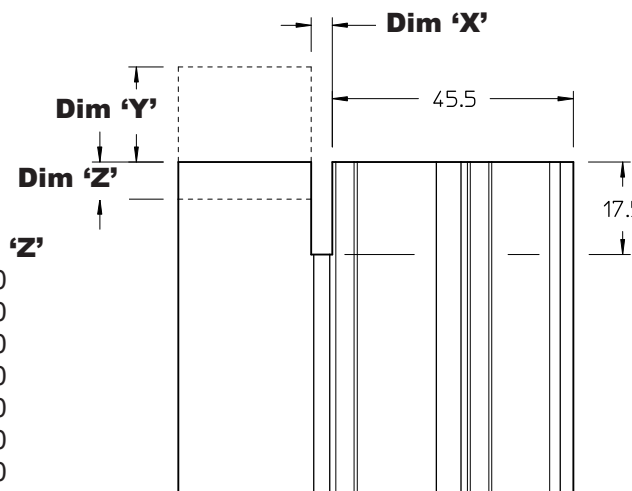
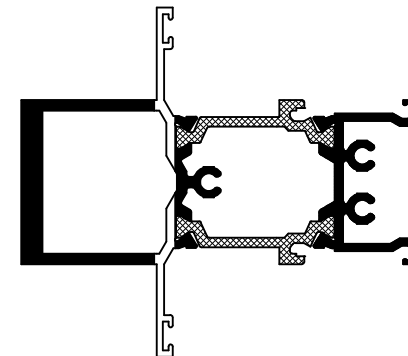
### HD Square Mullion/Transom End Preparation

Profile CW311

The preparation shown is to allow the mullion/transom to be attached to the outer frame or a mullion.

If joining to 52mm outerframes, make any necessary adjustments for subcills.

End machining will vary with profile being joined to, see listed dim chart.



Profile	Dim 'X'	Dim 'Y'	Dim 'Z'
CW311	3.5	0.0	0.0
CW321	4.0	0.0	0.0
CW323	4.0	0.0	7.0
CW305	6.5	18.0	0.0
CW324	6.5	18.0	0.0
CW325	6.5	18.0	0.0
CW328	6.5	30.0	0.0
CW329	6.5	36.0	0.0

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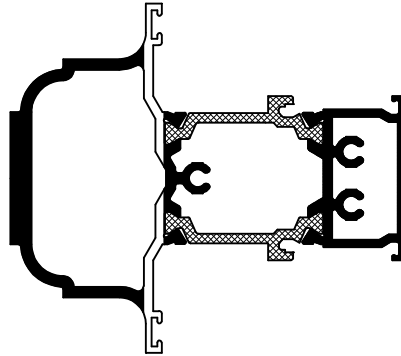
## Machining Details - Outer Frame

### HD Softline Mullion/Transom End Preparation

Profile CW312

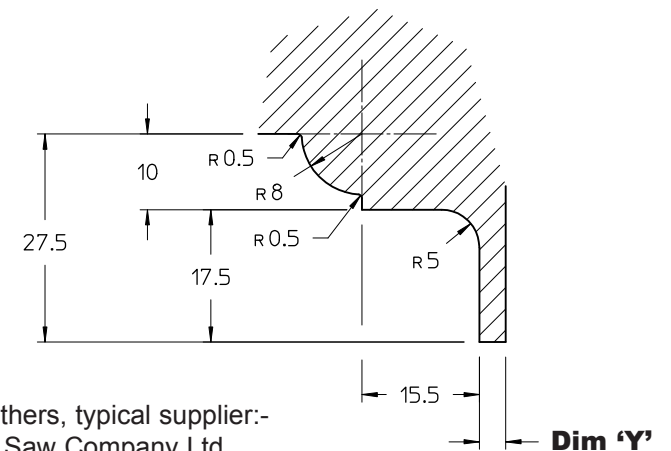
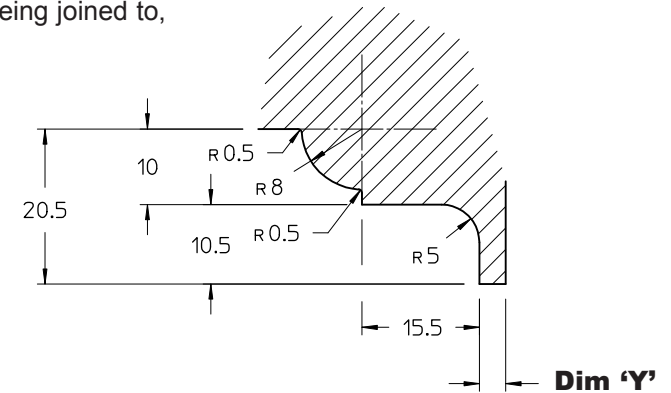
The preparation shown is to allow the mullion/transom to be attached to the outer frame or a mullion.

Note Dim 'X' is variable, depending on which profile is being joined to, see below.

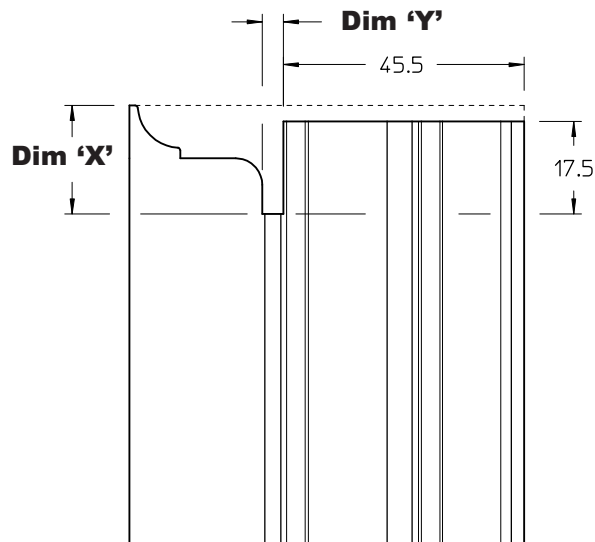


### Full Size Cutter Details

Note differences between cutters are to suit profile being joined to, see note (Dim X).



Cutters by others, typical supplier:-  
 Tewkesbury Saw Company Ltd  
 Newtown Trading Estate, Tewkesbury  
 Gloucestershire, GL20 8JG  
 Tel, 01684 293092



#### Dim 'X'

- 20.5mm (Profile CW312)
- 27.5mm (Profile CW320)
- 20.5mm (Profile CW322)
- 27.5mm (Profile CW327)

#### Dim 'Y'

- 3.5mm (Profile CW312)
- 4.0mm (Profile CW320)
- 4.0mm (Profile CW322)
- 4.0mm (Profile CW327)

## Machining Details - Outer Frame

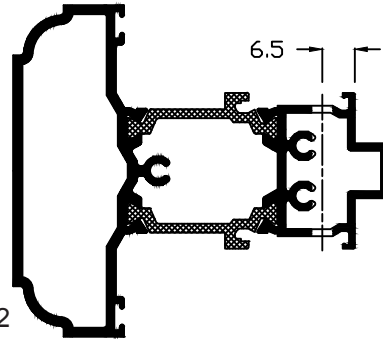
### HD Flush Softline Mullion/Transom End Preparation - Frame/Cruciform

Profile CW336

The preparation shown is to allow the flush mullion/transom to be attached to the flush outer frame (CW334). DO NOT PREP THE 4.2mm HOLE IN THIS SITUATION

For cruciform situations the preparation shown is to allow the flush transom to be attached to the flush mullion (CW336).

\* Note only prepare one transom as shown, the 4.2 dia hole is not required in the other transom.



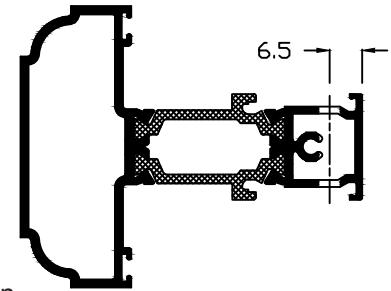
### Flush Softline Mullion/Transom End Preparation - Frame/Cruciform

Profile CW337

The preparation shown is to allow the flush mullion/transom to be attached to the flush outer frame (CW334). DO NOT PREP THE 4.2mm HOLE IN THIS SITUATION

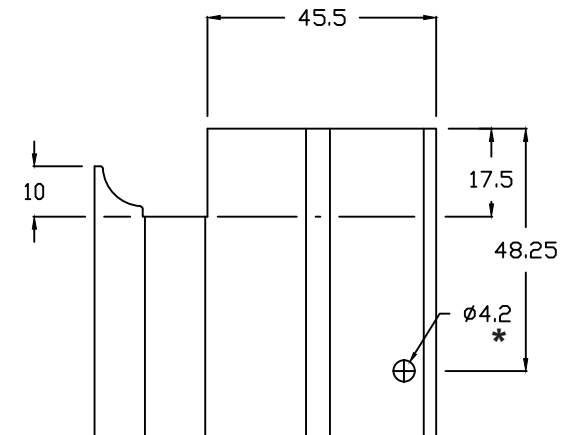
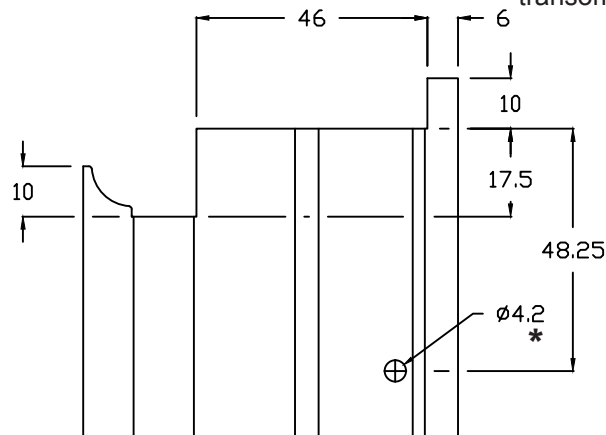
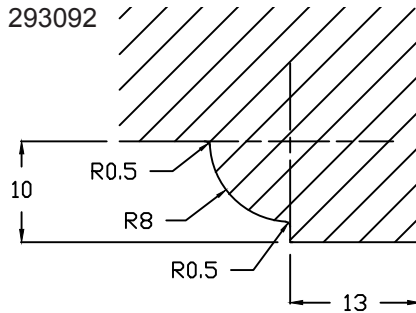
For cruciform situations the preparation shown is to allow the flush transom to be attached to the flush mullion (CW337).

\* Note only prepare one transom as shown, the 4.2 dia hole is not required in the other transom.



### Full Size Cutter Details

Cutters by others, typical supplier:-  
Tewkesbury Saw Company Ltd  
Newtown Trading Estate, Tewkesbury  
Gloucestershire, GL20 8JG  
Tel, 01684 293092



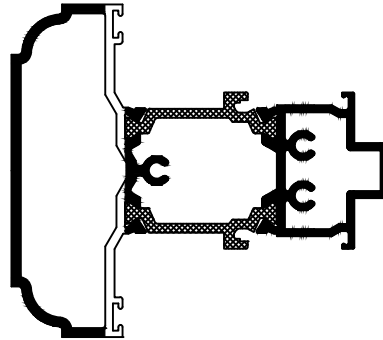
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### Machining Details - Outer Frame

#### HD Flush Softline Mullion/Transom End Preparation - Box Frame

Profile CW336

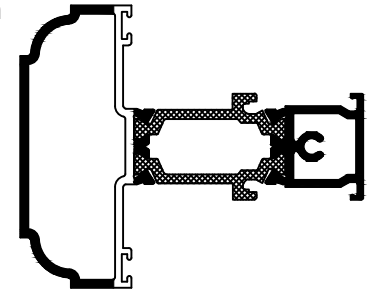
The preparation shown is to allow the flush mullion/transom to be attached to the box flush outer frame (CW346)



#### Flush Softline Mullion/Transom End Preparation - Box Frame

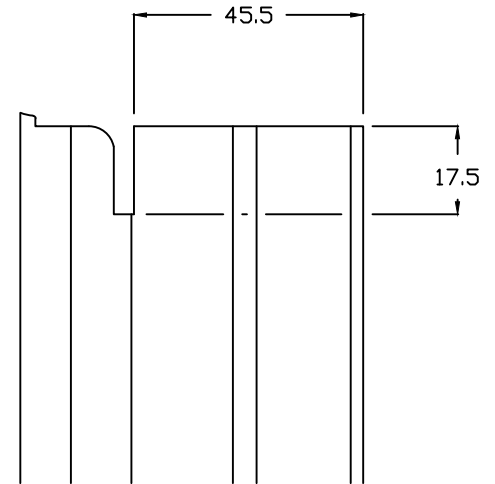
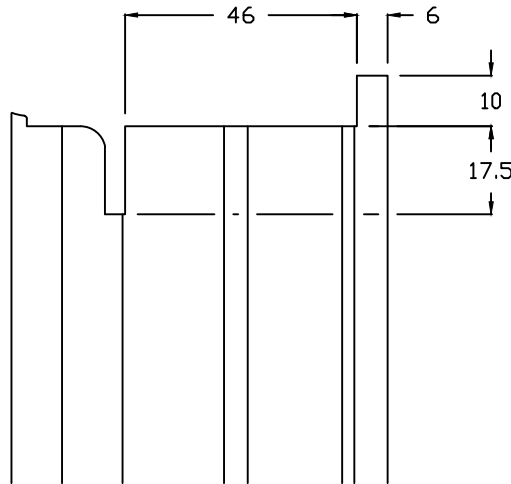
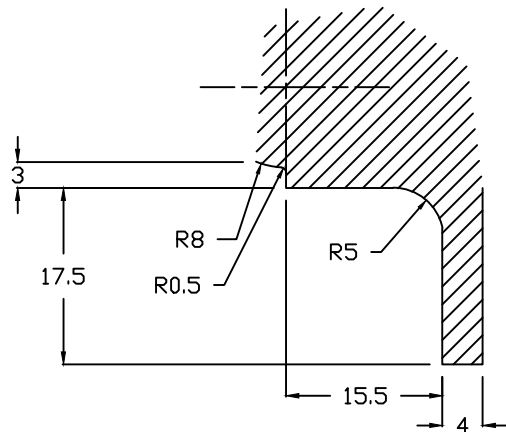
Profile CW337

The preparation shown is to allow the flush mullion/transom to be attached to the box flush outer frame (CW346)



#### Full Size Cutter Details

Cutters by others, typical supplier:-  
Tewkesbury Saw Company Ltd  
Newtown Trading Estate, Tewkesbury  
Gloucestershire, GL20 8JG  
Tel, 01684 293092



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## Machining Details - Outer Frame

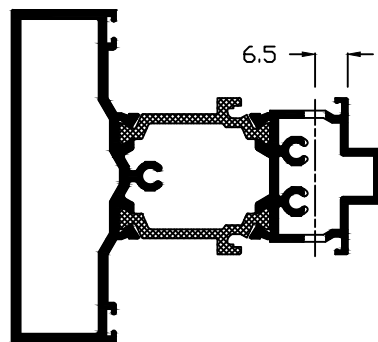
### HD Flush Square Mullion/Transom End Preparation - Frame/Cruciform

Profile CW338

The preparation shown is to allow the flush mullion/transom to be attached to the flush outer frame (CW335). DO NOT PREP THE 4.2mm HOLE IN THIS SITUATION

For cruciform situations the preparation shown is to allow the flush transom to be attached to the flush mullion (CW335).

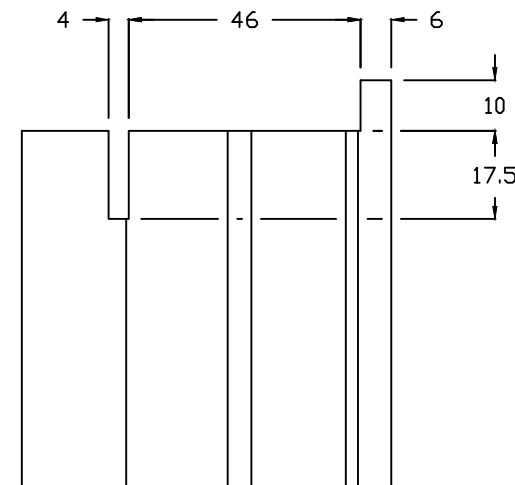
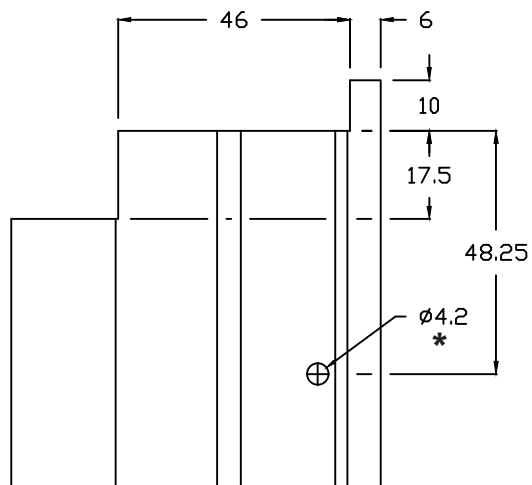
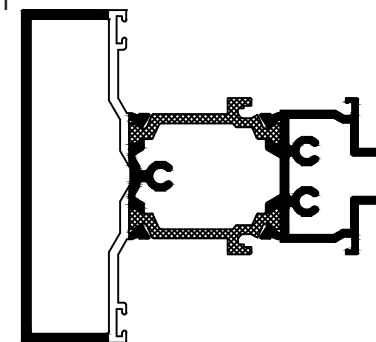
\* Note only prepare one transom as shown, the 4.2 dia hole is not required in the other transom.



### HD Flush Square Mullion/Transom End Preparation - Box Frame

Profile CW338

The preparation shown is to allow the flush mullion/transom to be attached to the box flush outer frame (CW347)



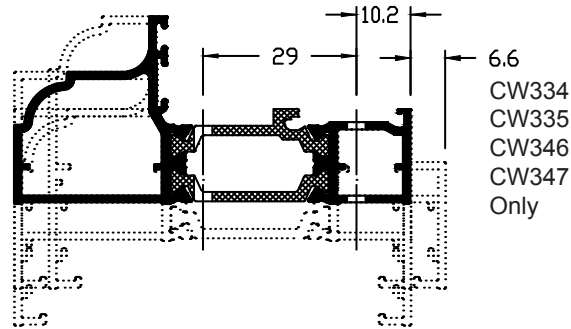
### Machining Details - Outer Frame

#### Outer Frame - Mullion/Transom Preparation

Profile CW320, CW321, CW322, CW323, CW327, CW334, CW335, CW346, CW347  
Drill Jig CWC090

The preparation shown is to allow a standard mullion/transom (CW310) to be attached to the outer frame.

Where necessary, countersink fixings to alleviate any potential clash with subcill, couplers etc.

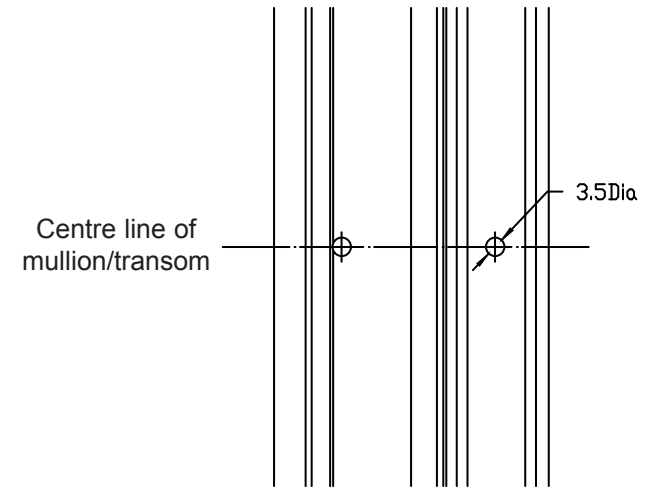
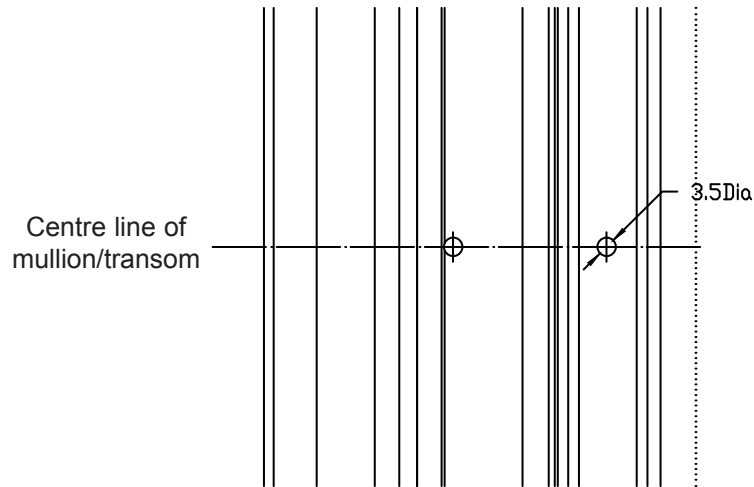
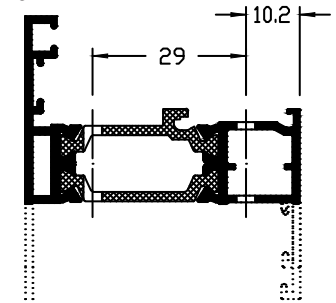


#### 52mm Outer Frame - Mullion/Transom Preparation

Profile CW305, CW324, CW325, CW328, CW329  
Drill Jig CWC090

The preparation shown is to allow a standard mullion/transom (CW310) to be attached to the outer frame.

Where necessary, countersink fixings to alleviate any potential clash with subcill, couplers etc.



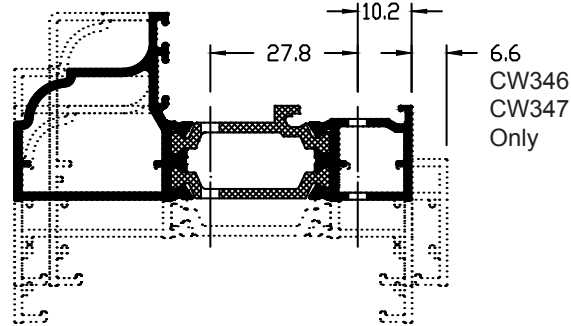
## Machining Details - Outer Frame

### Outer Frame - 58mm Mullion/Transom Preparation

Profile CW320, CW321, CW322, CW323, CW327, CW334, CW335, CW346, CW347  
Drill Jig CWC131

The preparation shown is to allow the 58mm mullion/transom (CW316 & CW326) to be attached to the outer frame.

Where necessary, countersink fixings to alleviate any potential clash with subcill, couplers etc.

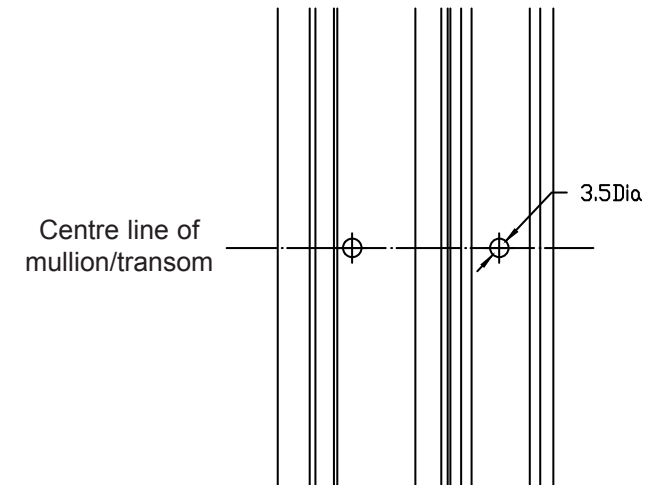
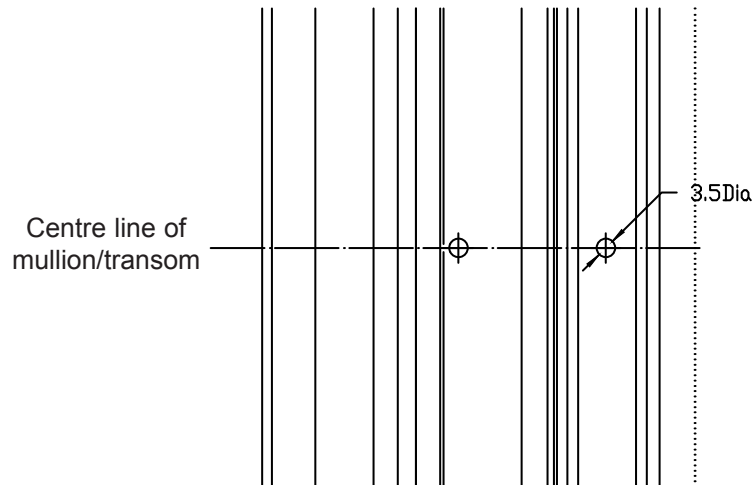
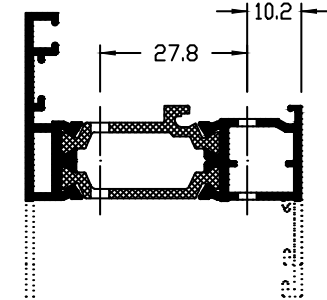


### 52mm Outer Frame - 58mm Mullion/Transom Preparation

Profile CW305, CW324, CW325, CW328, CW329  
Drill Jig CWC131

The preparation shown is to allow the 58mm mullion/transom (CW316 & CW326) to be attached to the outer frame.

Where necessary, countersink fixings to alleviate any potential clash with subcill, couplers etc.



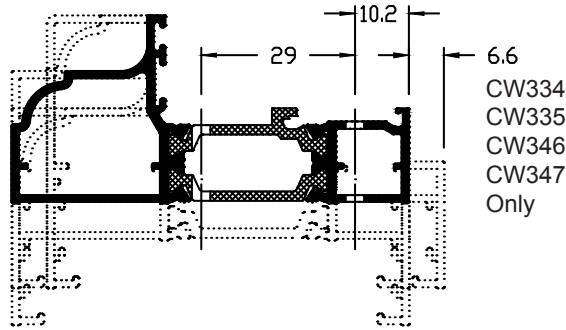
## Machining Details - Outer Frame

### Outer Frame - HD Mullion/Transom Preparation

Profile CW320, CW321, CW322, CW323, CW327, CW334, CW335, CW346, CW347  
Drill Jig CWC090

The preparation shown is to allow a heavy duty mullion/transom (CW311, CW312, CW336 & CW338) to be attached to the outer frame.

Where necessary, countersink fixings to alleviate any potential clash with subcill, couplers etc.

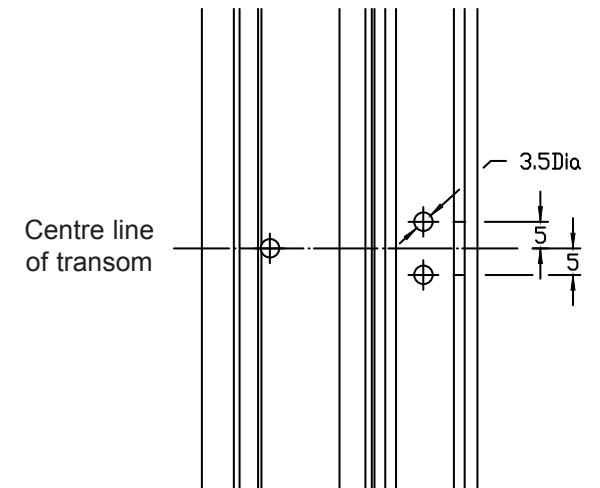
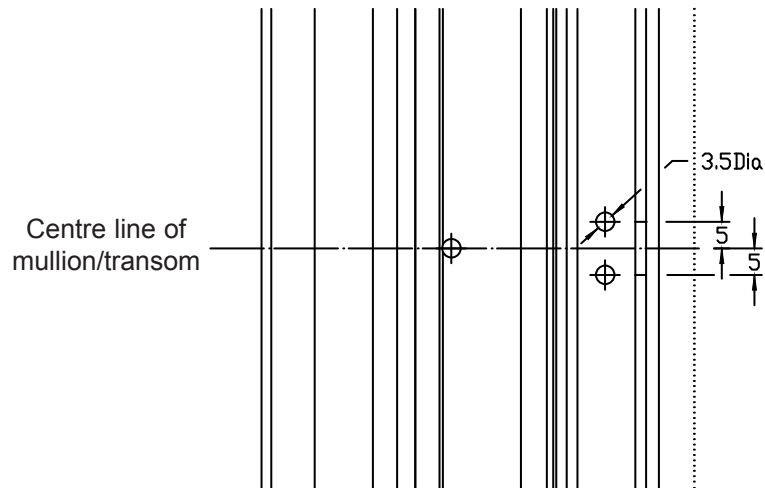
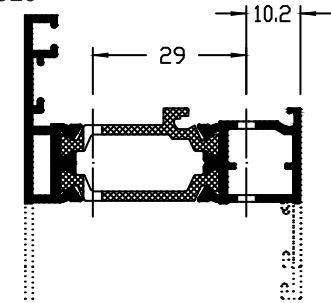


### 52mm Outer Frame - HD Mullion/Transom Preparation

Profile CW305, CW324, CW325, CW328, CW329  
Drill Jig CWC090

The preparation shown is to allow a heavy duty mullion/transom (CW311 & CW312) to be attached to the outer frame.

Where necessary, countersink fixings to alleviate any potential clash with subcill, couplers etc.



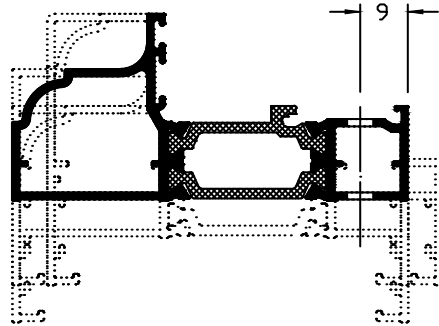
## Machining Details - Outer Frame

### Outer Frame - 100 & 110mm Midrail Preparation

Profile CW320, CW321, CW322, CW323, CW327, CW334, CW335, CW346, CW347  
Drill Jig CWC131

The preparation shown is to allow the midrail to be attached to the outer frame.

Where necessary, countersink fixings to alleviate any potential clash with subcill, couplers etc.

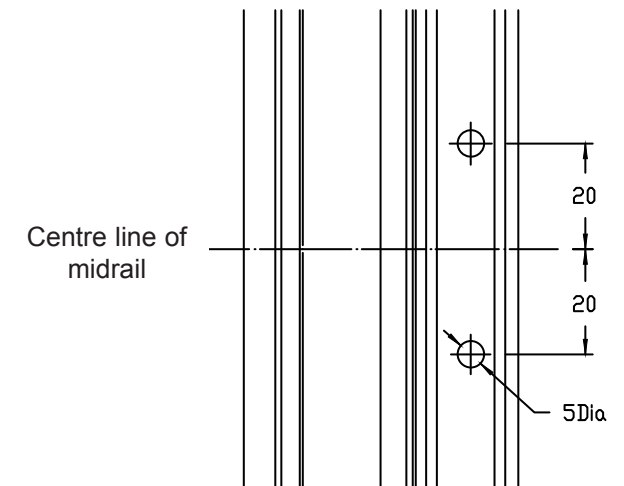
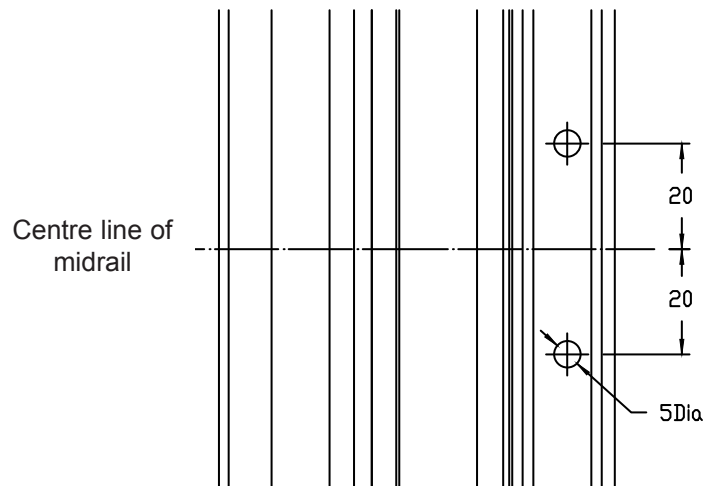
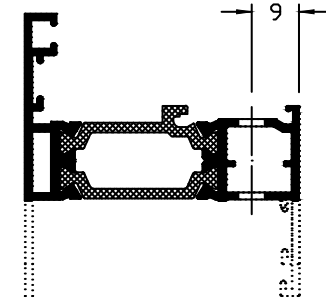


### 52mm Outer Frame - 100 & 110mm Midrail Preparation

Profile CW305, CW324, CW325, CW328, CW329  
Drill Jig CWC131

The preparation shown is to allow the midrail to be attached to the outer frame.

Where necessary, countersink fixings to alleviate any potential clash with subcill, couplers etc.





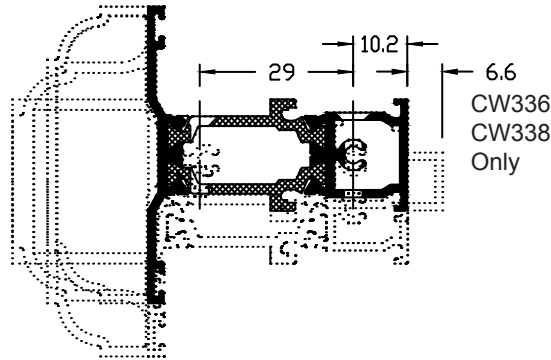
### Machining Details - Outer Frame

#### Mullion/Transom 'T' Joint Preparation

Profile CW310, CW311, CW312, CW316, CW326, CW336, CW337, CW338

Drill Jig CWC090

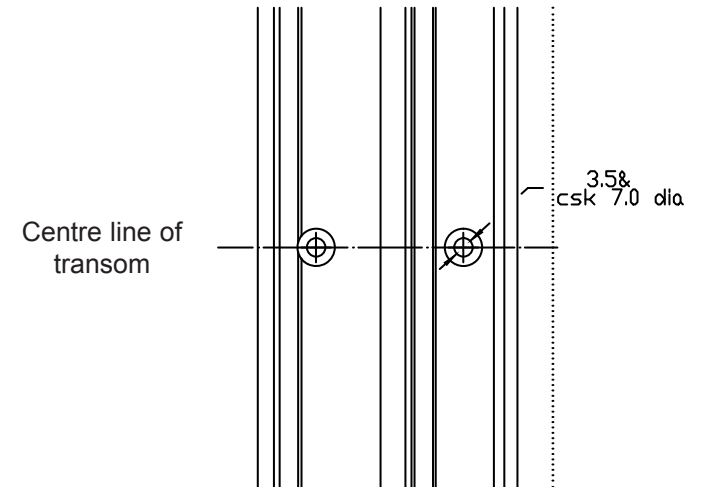
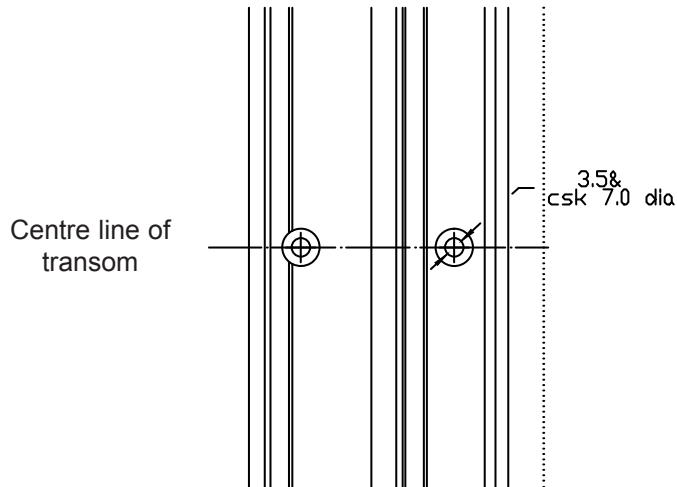
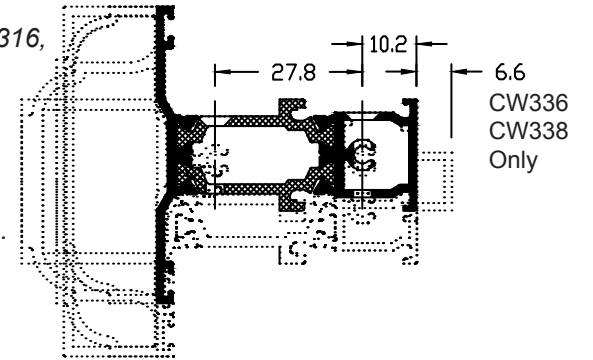
The preparation shown is to allow transom CW310 to be attached to all mullion profiles and CW337 to CW336 and CW337 only.



#### Mullion/Transom 'T' Joint Preparation

Profile CW310, CW311, CW312, CW316, CW326, CW336, CW337, CW338  
Drill Jig CWC131

The preparation shown is to allow the 58mm transom (CW316 & CW326) to be attached to the mullion.

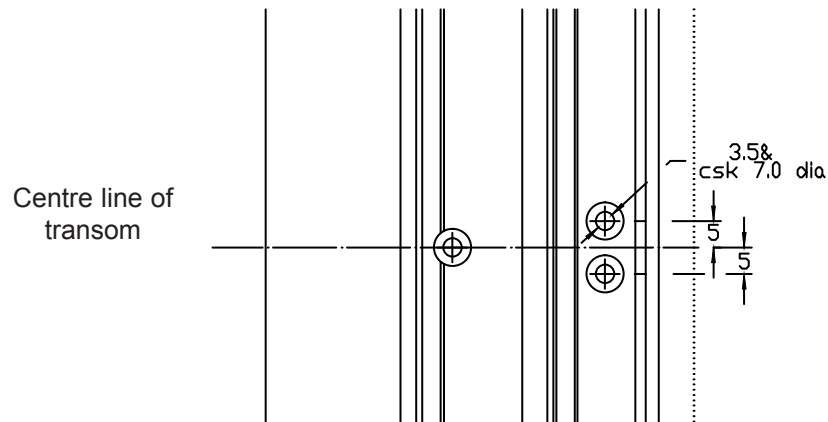
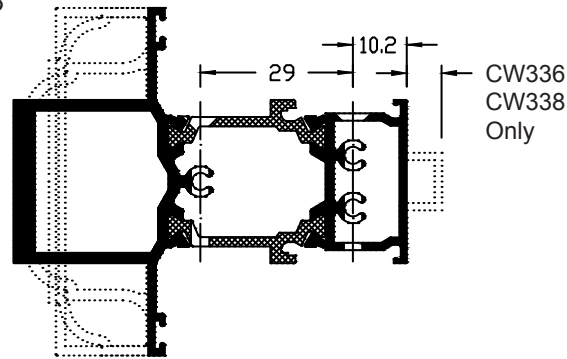


## Machining Details - Outer Frame

### HD Mullion/Transom 'T' Joint / Cruciform Preparation

Profile CW311, CW312, CW336, CW338  
Drill Jig CWC090

The preparation shown is to allow a heavy duty transom (CW311, CW312, CW336, CW338) to be attached to the mullion.



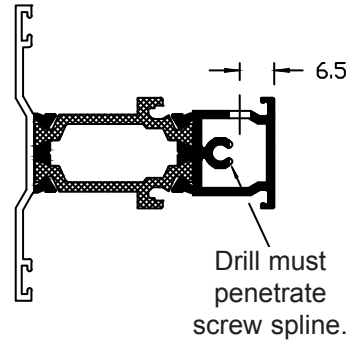
## Machining Details - Outer Frame

### Cruciform Transom End Preparation

Profile CW310  
 Drill Jig CWC091

The preparation shown is to allow the transom to be attached to the mullion in a cruciform configuration.

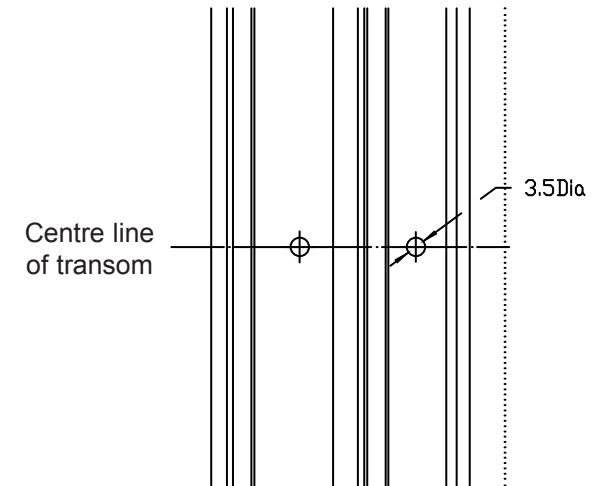
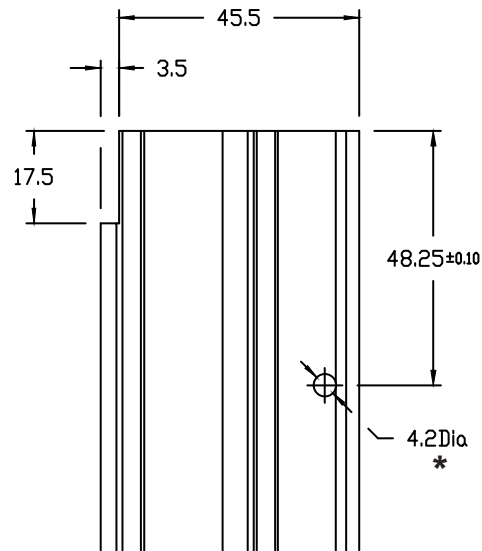
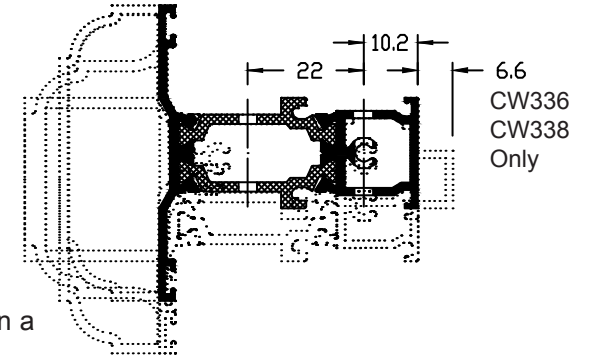
\* Note only prepare one transom as shown, the 4.2 dia hole is not required in the other transom.



### Cruciform Mullion Preparation

Profile CW310, CW311,  
 CW312, CW316, CW326,  
 CW336, CW337, CW338  
 Drill Jig CWC090

The preparation shown is to allow transom CW310 to be attached to all mullion profiles in a cruciform configuration and CW337 to CW336 and CW337 only in a cruciform configuration.



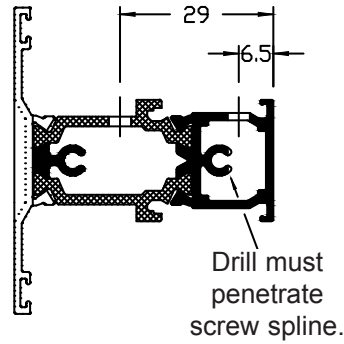
## Machining Details - Outer Frame

### 58mm Cruciform Transom End Preparation

Profile CW316, CW326  
 Drill Jig CWC091

The preparation shown is to allow the transom to be attached to the mullion in a cruciform configuration.

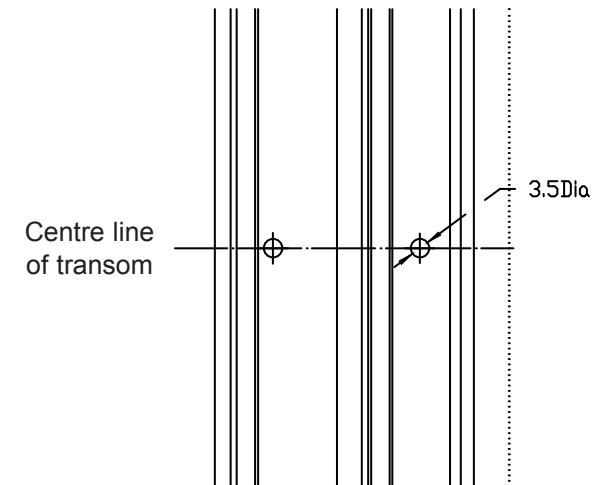
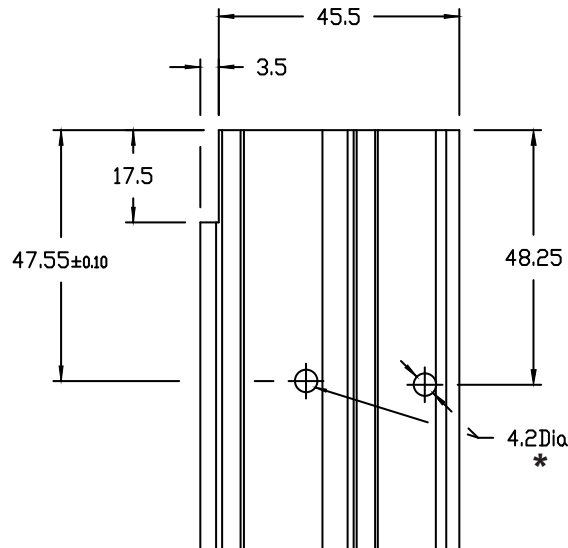
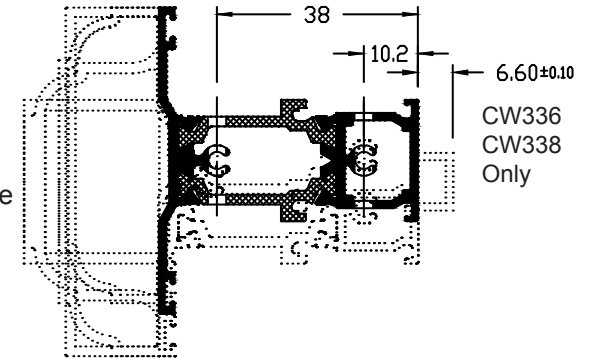
\* Note only prepare one transom as shown, the 4.2 dia holes are not required in the other transom.



### Cruciform Mullion Preparation

Profile CW310, CW311, CW312, CW316, CW326, CW336, CW337, CW338  
 Drill Jig CWC131

The preparation shown is to allow the transoms CW316 and CW326 to be attached to mullions in a cruciform configuration.



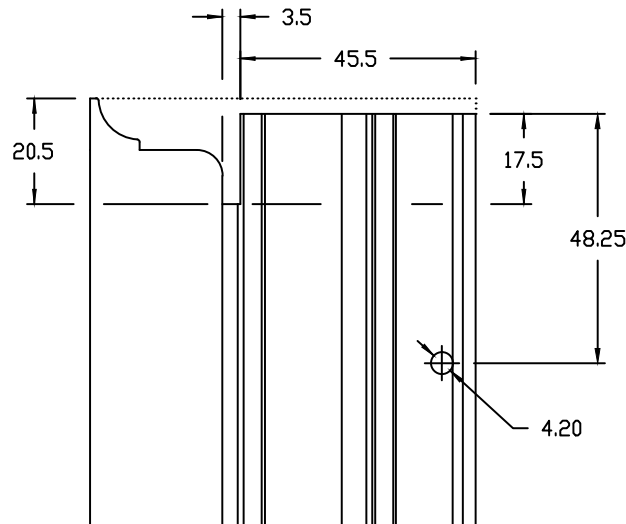
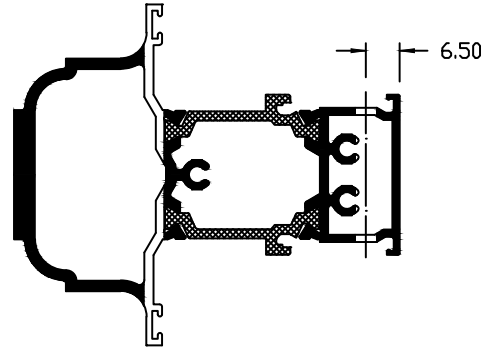
### Machining Details - Outer Frame

#### Softline HD Cruciform Transom End Preparation

Profile CW312  
Drill Jig CWC091

The preparation shown is to allow the transom to be attached to the mullion in a cruciform configuration.

\* Note only prepare one transom as shown, the 4.2 dia hole is not required in the other transom

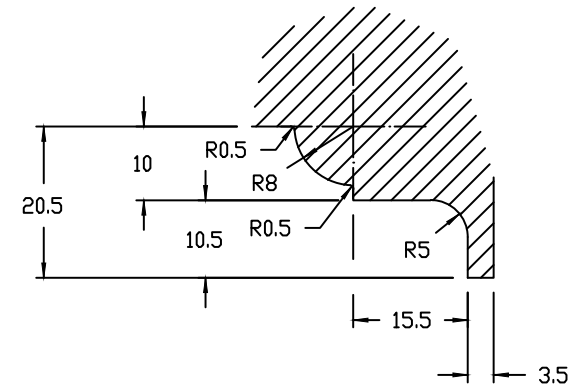


#### Full Size Cutter Detail

Profile CW312

Cutter detail for joining profile CW312 onto profile CW312

Cutters by others, typical supplier:-  
Tewkesbury Saw Company Ltd  
Newtown Trading Estate, Tewkesbury  
Gloucestershire, GL20 8JG  
Tel, 01684 293092



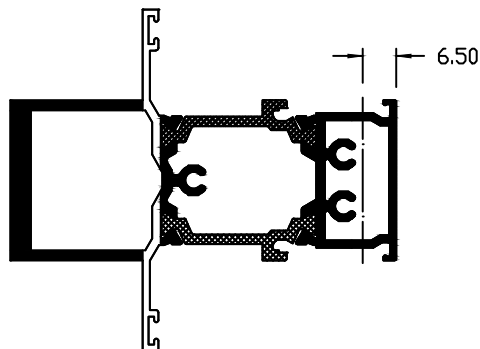
## Machining Details - Outer Frame

### Square HD Cruciform Transom End Preparation

Profile CW311  
 Drill Jig CWC091

The preparation shown is to allow the transom to be attached to the mullion in a cruciform configuration.

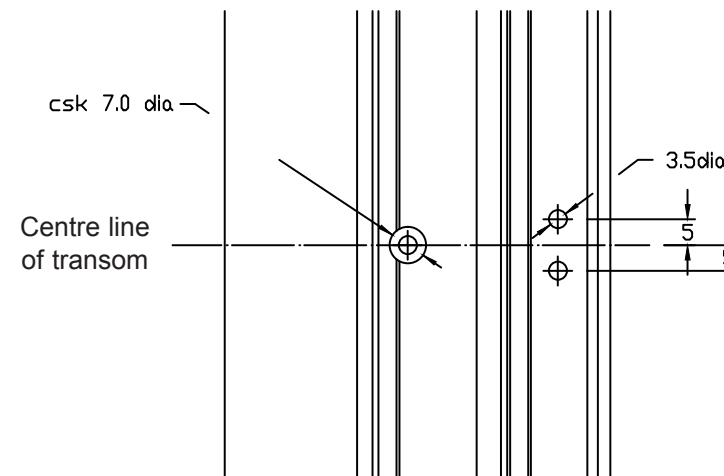
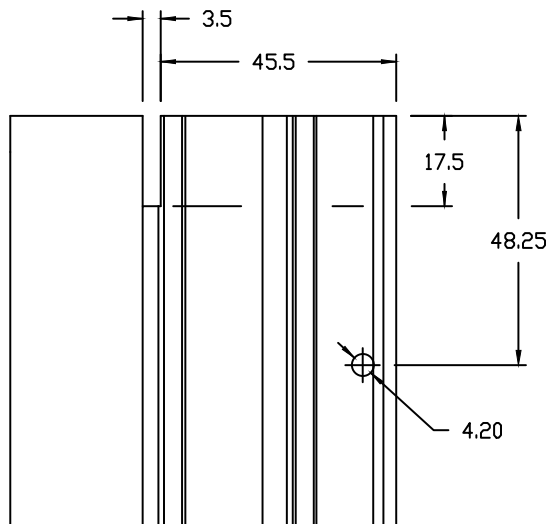
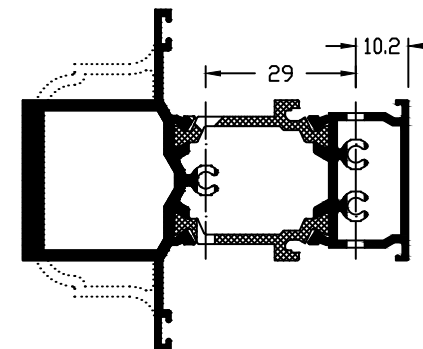
\* Note only prepare one transom as shown, the 4.2 dia hole is not required in the other transom



### HD Cruciform Mullion Preparation

Profile CW311, CW312  
 Drill Jig CWC090

The preparation shown is to allow a heavy duty transom to be attached to the mullion in a cruciform configuration



## Machining Details - Outer Frame

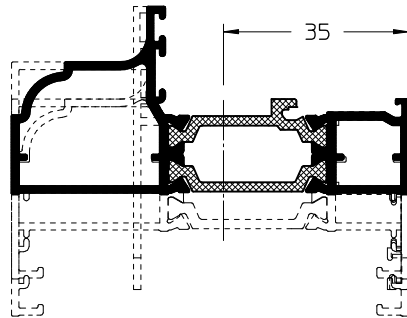
### Outer Frame Fixing

Profile CW305, CW320, CW321, CW322, CW323, CW324, CW325, CW327, CW328, CW329, CW334, CW335, CW346, CW347

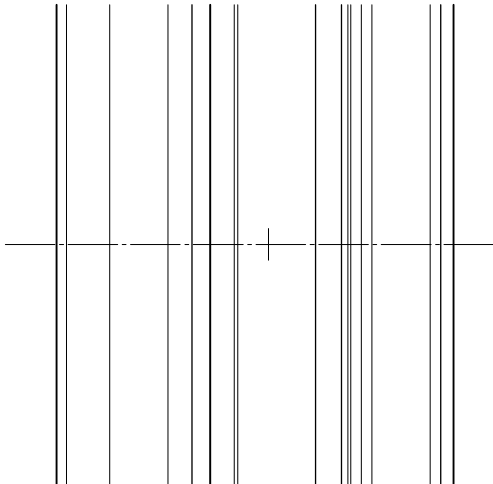
The preparation shown is for direct fixing of the outer frame to the structure or couplers.

Hole centres are job specific along with the hole size.

Alternatively profiles CW320, CW321 & CW327 can be fixed using fixing lugs.



Fixing centres  
job specific

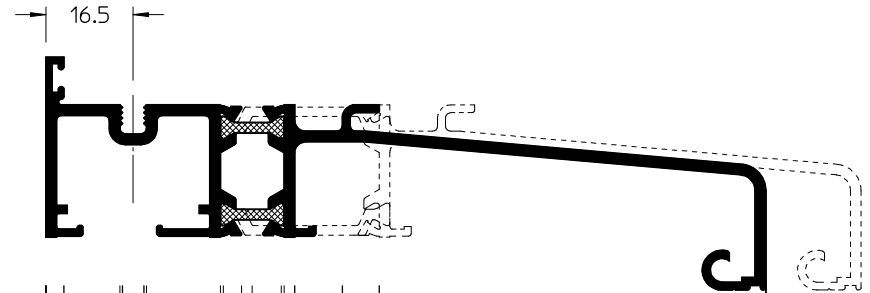


### Subcill Fixing

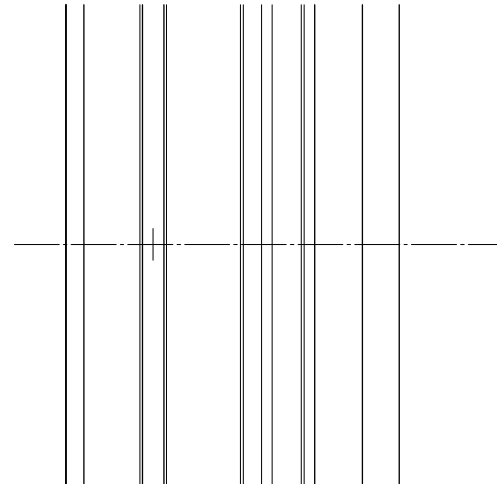
Profile UF506, CW314

The preparation shown is for direct fixing of the subcills to the structure. Hole centres are job specific along with the hole size.

Alternatively these profiles can be fixed using fixing lugs.



Fixing centres  
job specific



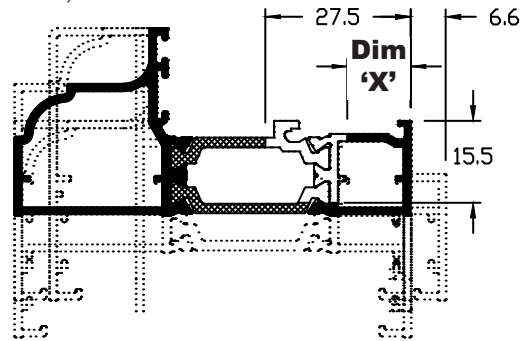
## Machining Details - Outer Frame

### Outer Frame Hinge Bolt Preparation

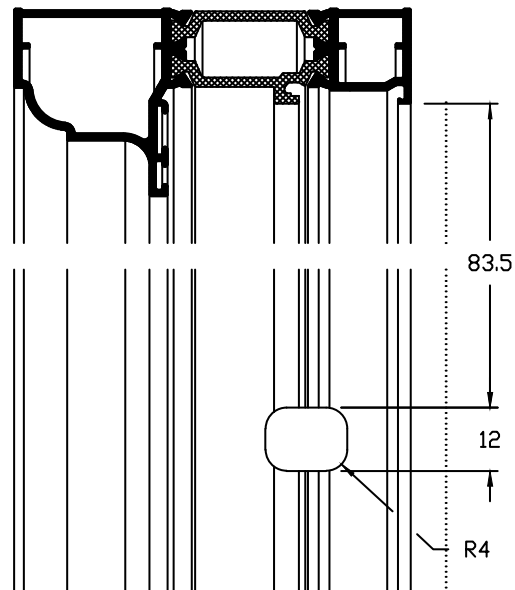
Profile CW305, CW320, CW321, CW322, CW323, CW324, CW325, CW327, CW328, CW329, CW334, CW335, CW346, CW347

When enhanced security is required, the preparation shown is for the hinge bolt, which is fitted above the vent on a top hung window, or on the hinge side of a side hung window.

Prepare for one fitting at each side of the opening light.



**Dim 'X'**  
8mm (Egress Friction Stay)  
12mm (Standard Friction Stay)

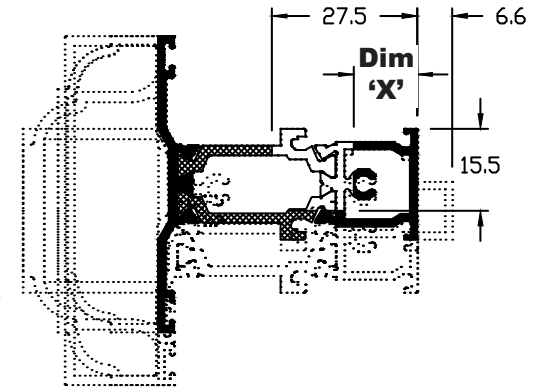


### Mullion/Transom Hinge Bolt Preparation

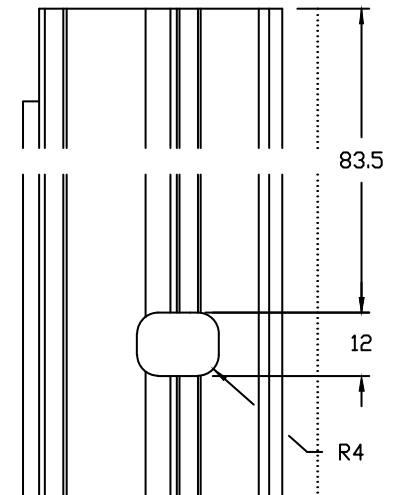
Profile CW310, CW311, CW312, CW316, CW326, CW336, CW337, CW338

When enhanced security is required, the preparation shown is for the hinge bolt, which is fitted above the vent on a top hung window, or on the hinge side of a side hung window.

Prepare for one fitting at each side of the opening light.



**Dim 'X'**  
8mm (Egress Friction Stay)  
12mm (Standard Friction Stay)



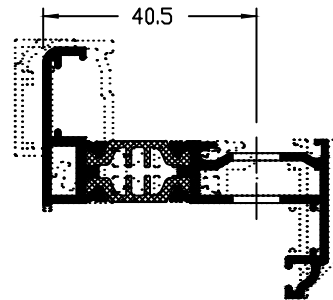


## Machining Details - Vent Frame

### Vent Frame Drainage

Profile CW307, CW308, CW309,  
CW315, CW318, CW340, CW341

The preparation shown is required at both ends of all opening light bottom rails.

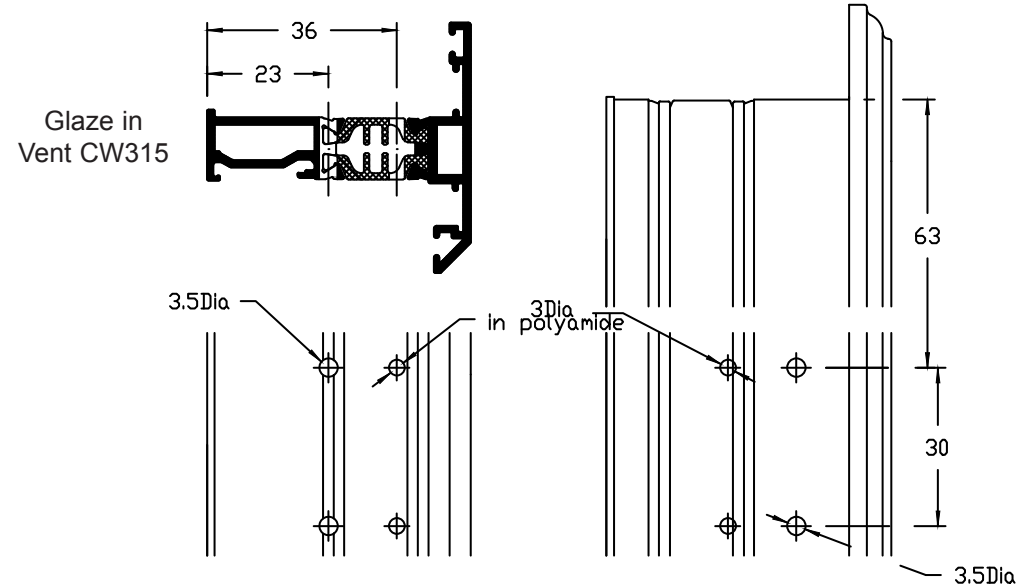
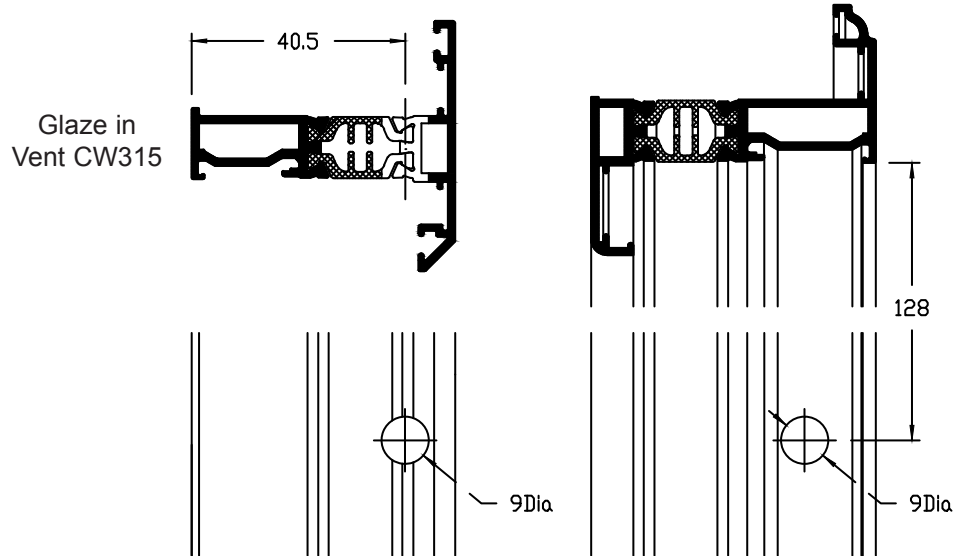
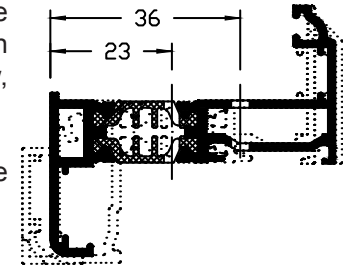


### Vent Frame Hinge Bolt

Profile CW307, CW308, CW309, CW315,  
CW318, CW340, CW341  
Drill Jig CWC132

When enhanced security is required, the preparation shown is for the hinge bolt, which is fitted above the vent on a top hung window, or on the hinge side of a side hung window.

Prepare for one fitting at each side of the opening light.



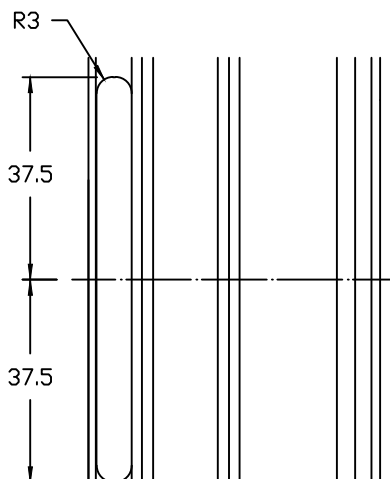
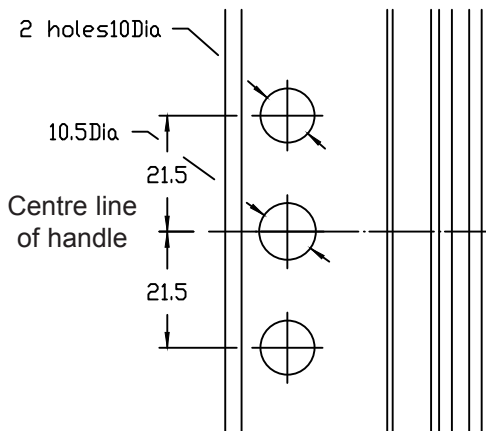
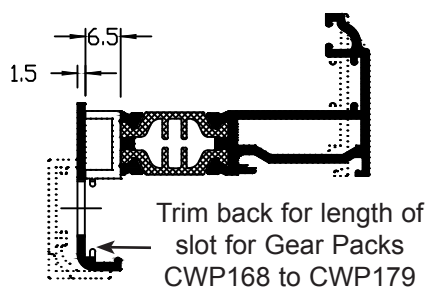
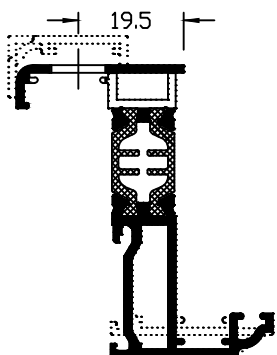
## Machining Details - Vent Frame

### Espagnolete & Handle Preparation (Glaze Out)

Profile CW307, CW308, CW309, CW340, CW341

Drill Jig CWC095

The preparation shown is required on all opening light locking stiles at the handle fixing centre.



### Dummy Mullion/Transom

Profile CW307, CW308, CW340, CW341

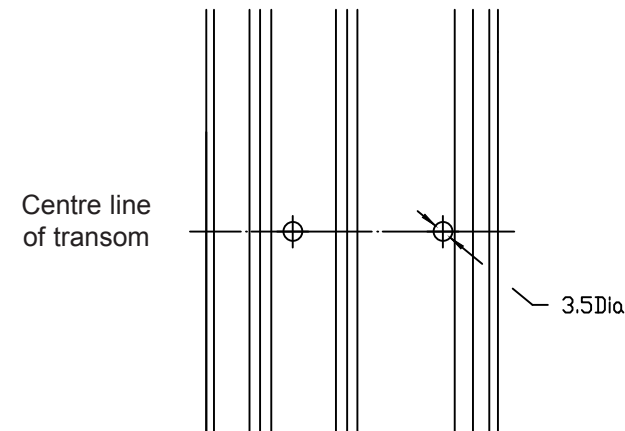
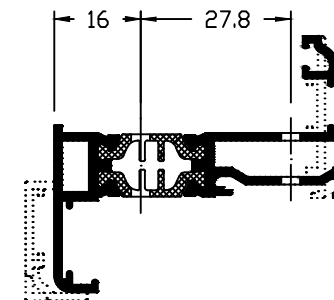
Drill Jig CWC134

The preparation shown is for CW316 & CW326 dummy mullion/transoms in the vent frame.

Note, no drainage preparation to be performed in dummy transoms.

Dummy mullion/transom end preparation as per page 4-12.

Dummy cruciform preparation as per page 4-23.

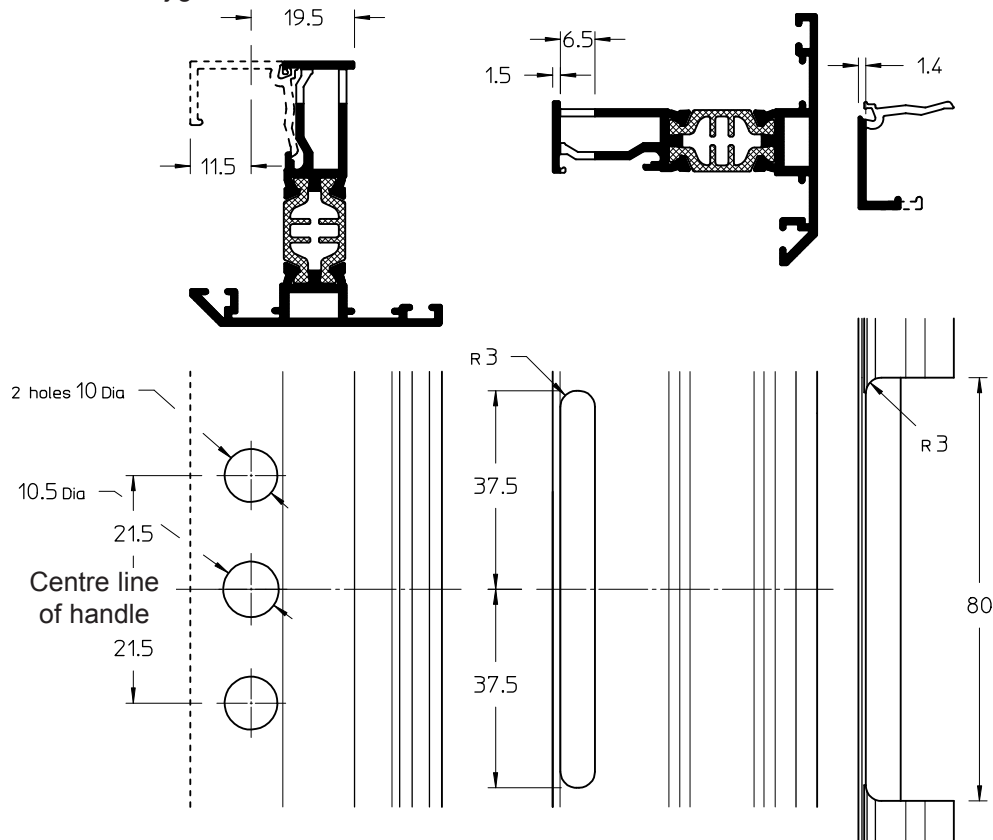


## Machining Details - Vent Frame

### Espagnolette & Handle Preparation (Glaze In)

Profile CW315 with glazing bead CW088 or CW089  
 Drill Jig CWC095

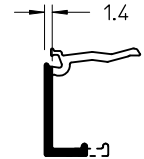
The preparation shown is required on all opening light locking stiles at the handle fixing centre. Drill handle fixing holes after the bead has been fitted during assembly with the drill jig.



### Bead Note For Glaze In Side Hung Windows

Profile CW088 or CW089  
 Drill Jig CWC095

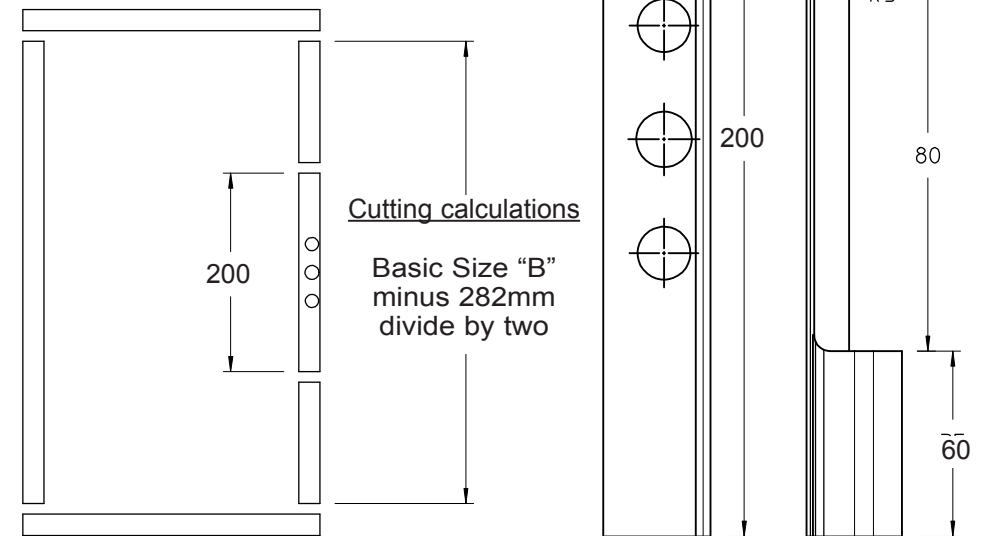
For ease of installation/glazing, the vertical bead on the lock stile of side hung glaze in windows, is cut into three parts.



If this operation is not desired, then the only option is to remove the locking gear prior to glazing, to enable the bead/glass to be fitted.

Drill handle fixing holes after the bead has been fitted during assembly with the drill jig.

The illustration below shows glazing bead layout plus cutting calculations.

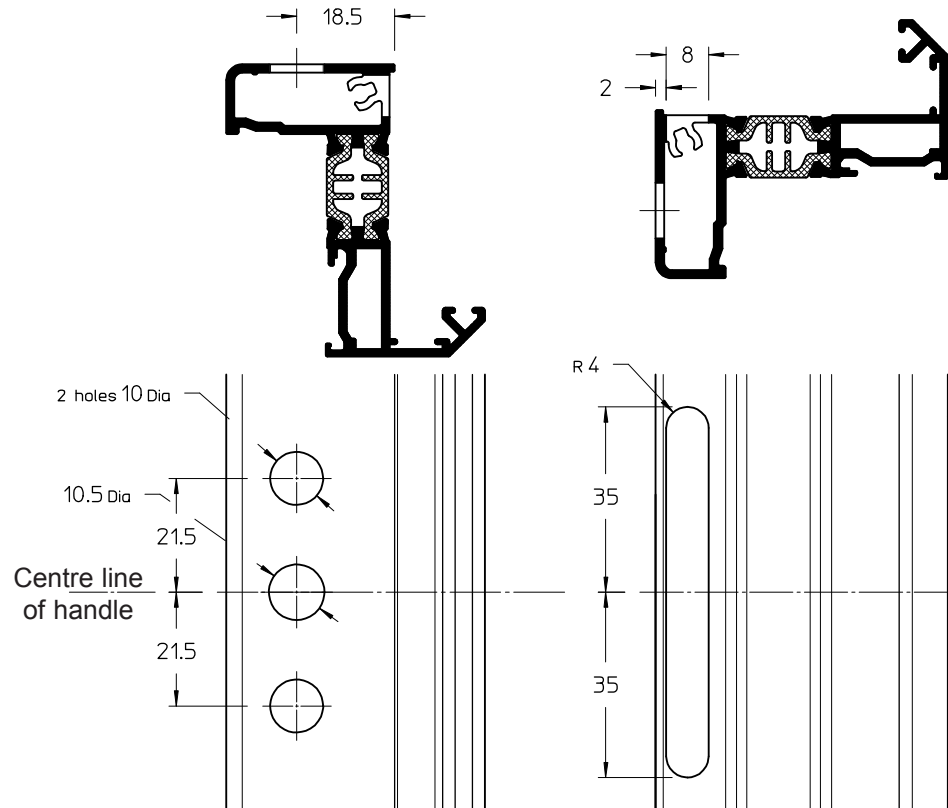


## Machining Details - Vent Frame

### Saracen Gearbox & Handle Preparation

Profile CW318  
 Drill Jig CWC140

The preparation shown is required on all opening light locking stiles at the handle fixing centre.

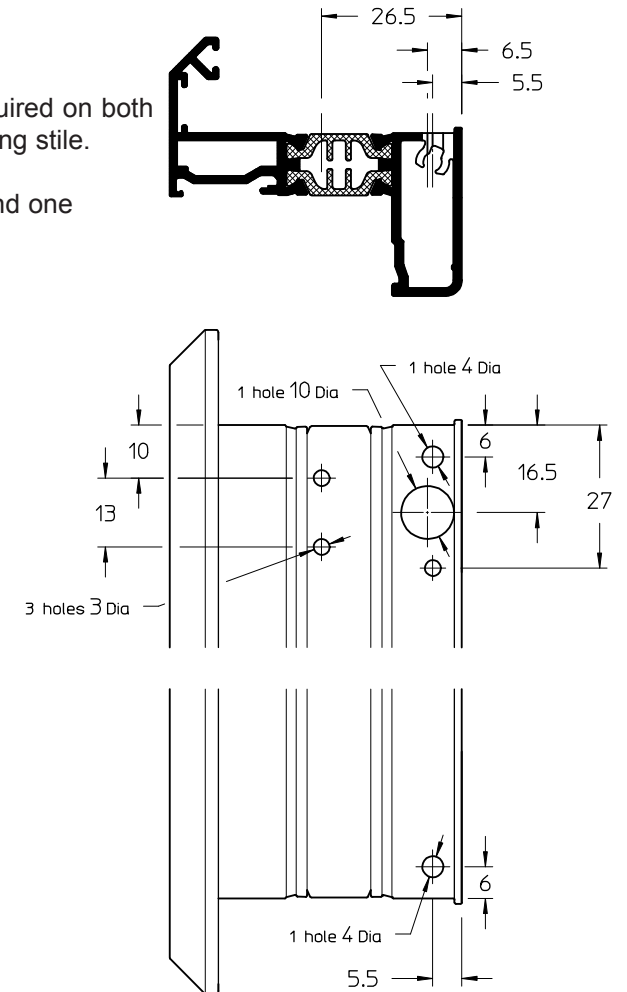


### Saracen Shoot Rod End Guide & Corner Fixing

Profile CW318  
 Drill Jig CWC141

The preparation shown is required on both profiles that join onto the locking stile.

Prepare one stile as shown and one opposite hand.



## Machining Details - Outer & Vent Frame

### Friction Stay Fixing

Profile CW307, CW308, CW309, CW315, CW318, CW340, CW341

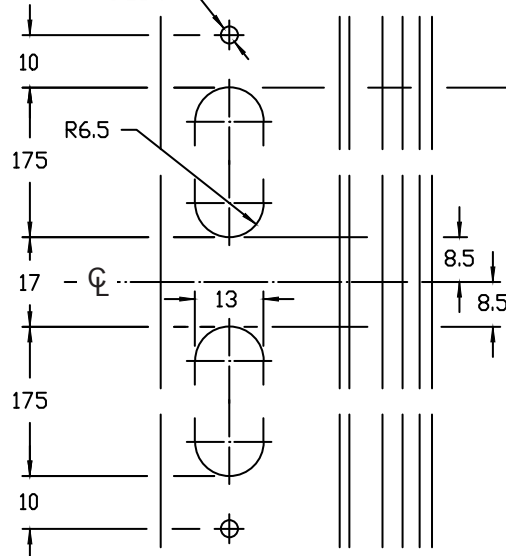
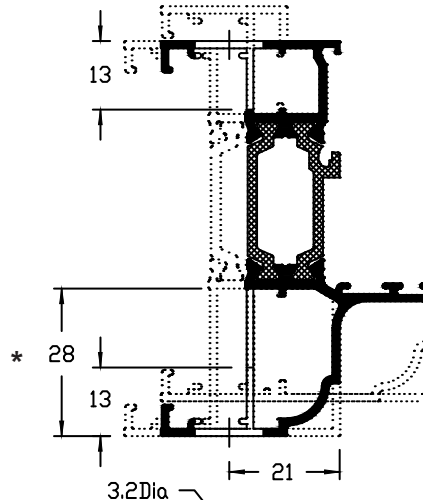
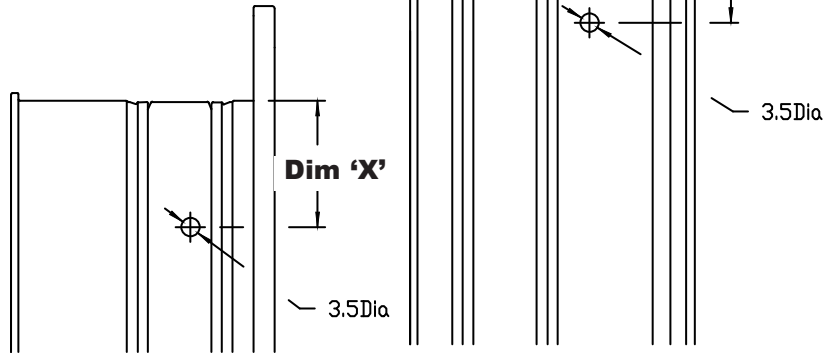
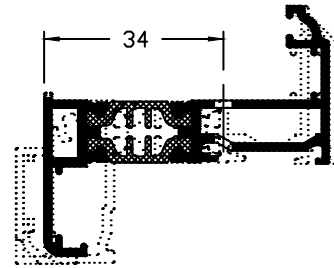
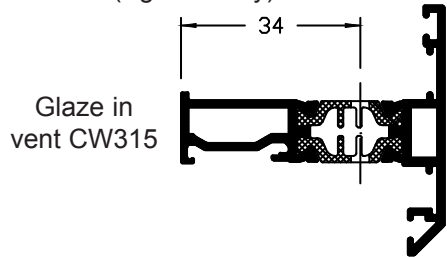
Drill Jig CWC094

The preparation shown is for the first fixing hole in the vent to accept the friction stay. The additional fixing holes are drilled using the stay as a guide.

#### DIM 'X'

24mm (Standard Stay)

19.5mm (Egress Stay)

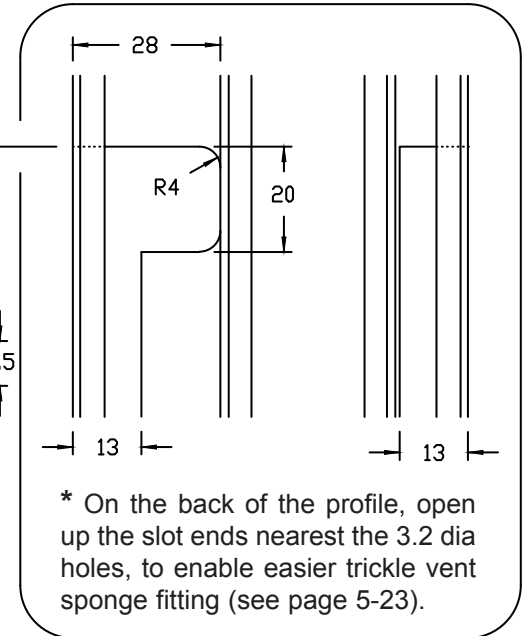


### Head Trickle Vent

Profile CW320, CW321, CW327, CW334, CW335, CW346, CW347

The preparation shown is for trickle vent DFP298, in the outer frame head.

**Note** frame extender profile UF510 is to be used with head trickle vents.



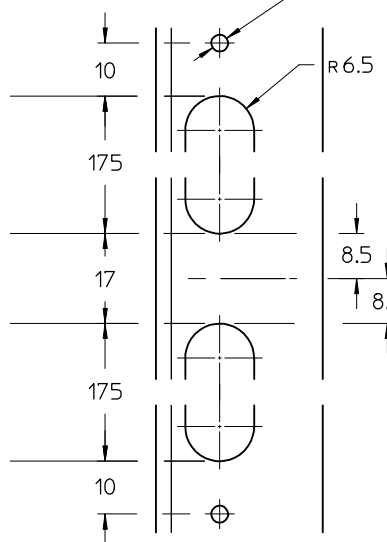
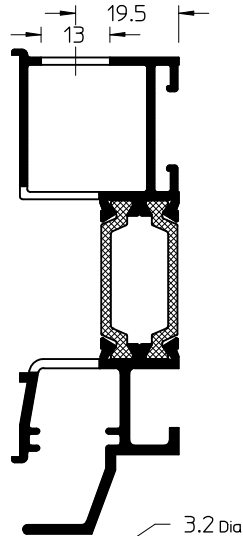
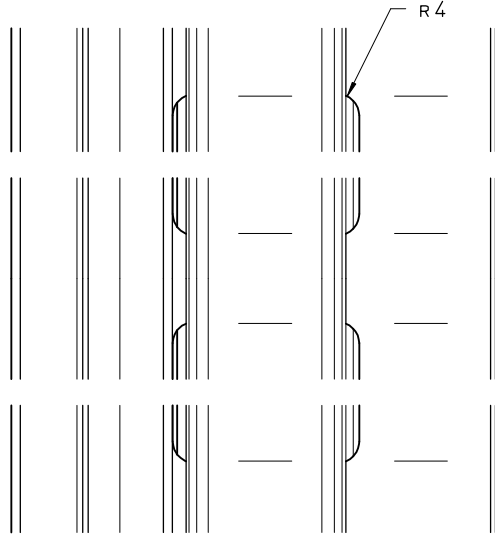
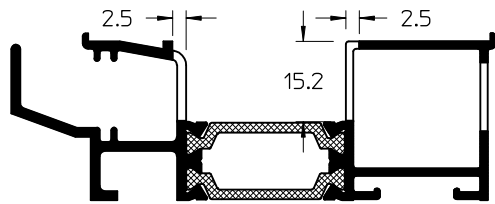
\* On the back of the profile, open up the slot ends nearest the 3.2 dia holes, to enable easier trickle vent sponge fitting (see page 5-23).

**Machining Details - Outer Frame**

**Trickle Vent Profile (75mm)**

Profile UF508

The preparation shown is for trickle vent CWP109, in the trickle vent profile.

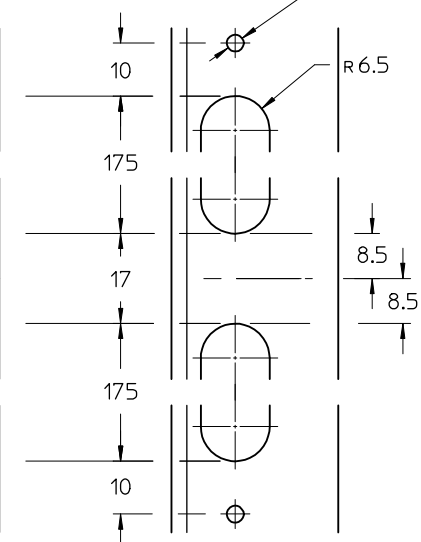
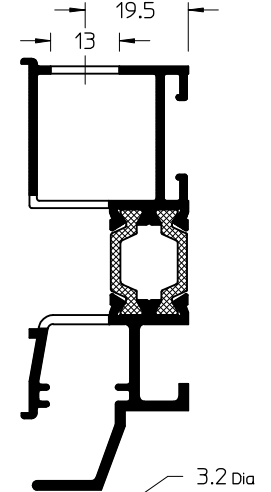
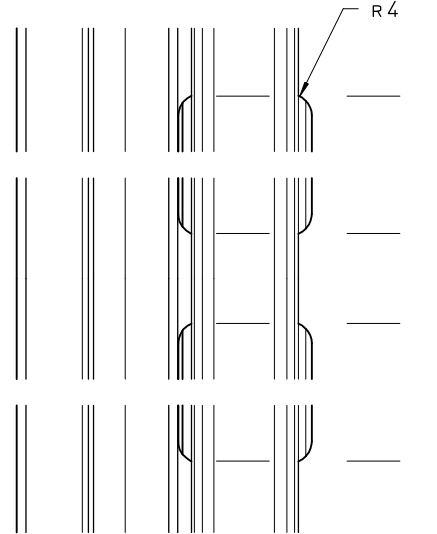
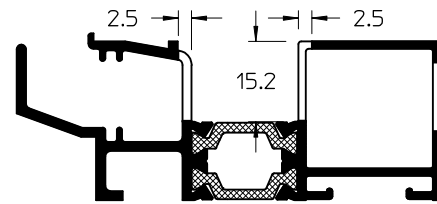


Centre line of trickle vent

**Trickle Vent Profile (52mm)**

Profile CW313

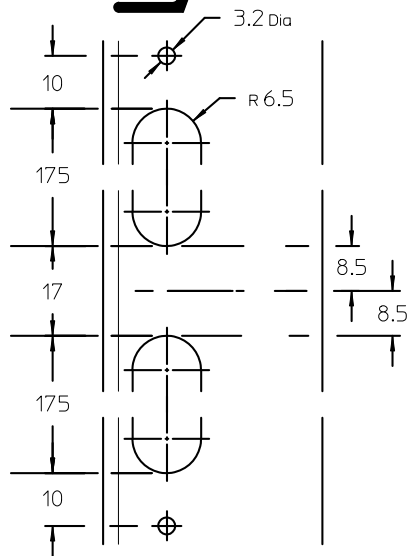
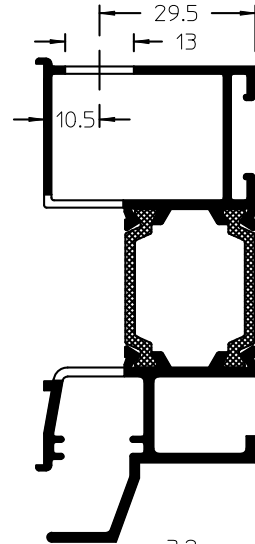
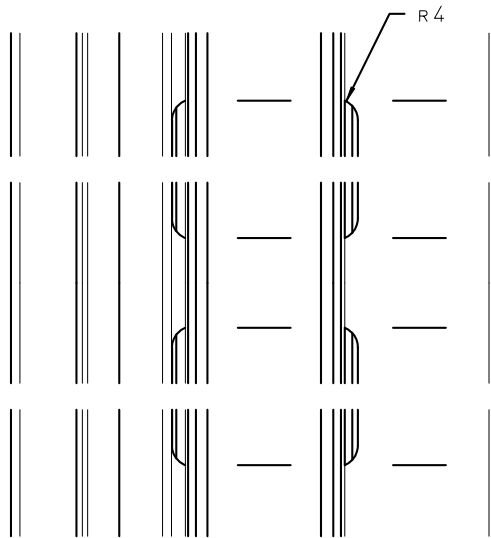
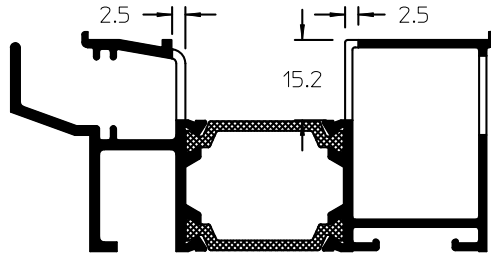
The preparation shown is for trickle vent CWP109, in the trickle vent profile.



**Machining Detail - Outer Frame**

**Deep Trickle Vent Profile (75mm)**  
 Profile UF514

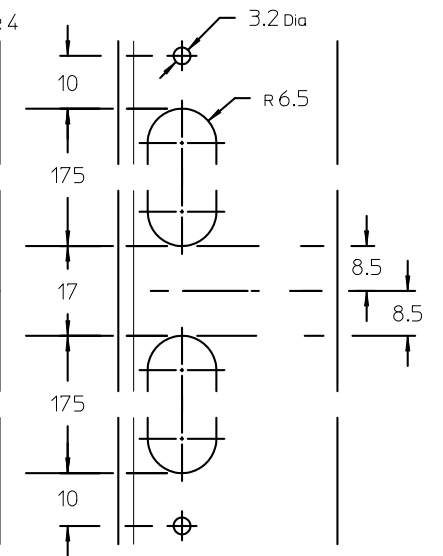
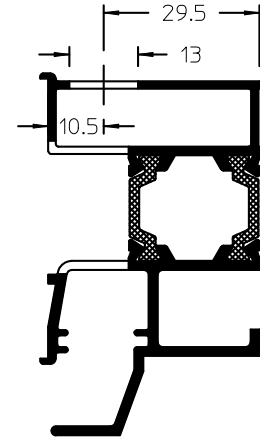
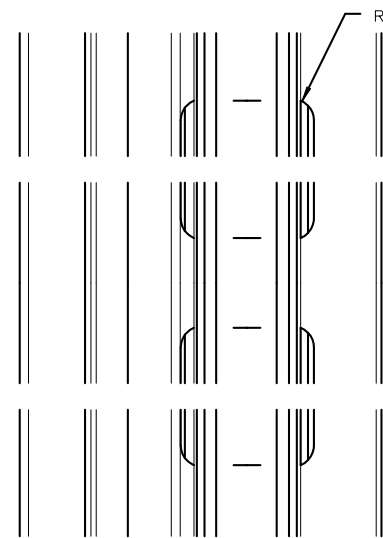
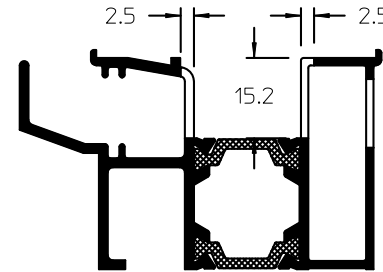
The preparation shown is for trickle vent CWP109, in the trickle vent profile.



Centre line of trickle vent

**Deep Trickle Vent Profile (52mm)**  
 Profile CW319

The preparation shown is for trickle vent CWP109, in the trickle vent profile.

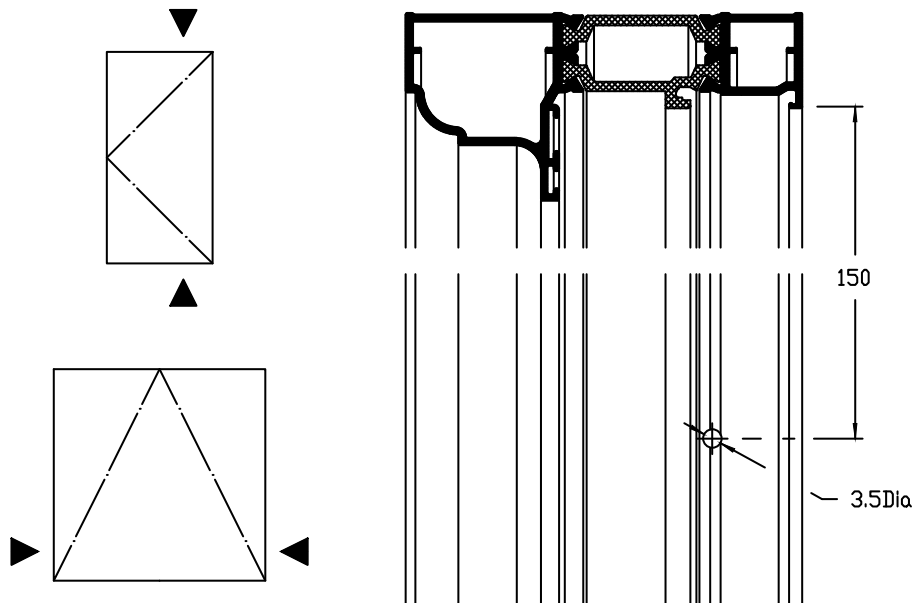
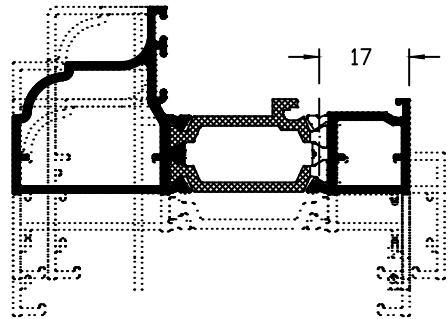


## Machining Details - Outer Frame

### Outer Frame Riser Block Preparation

Profile CW305, CW320, CW321, CW322, CW323, CW324, CW325, CW327, CW328, CW329, CW334, CW335, CW346, CW347

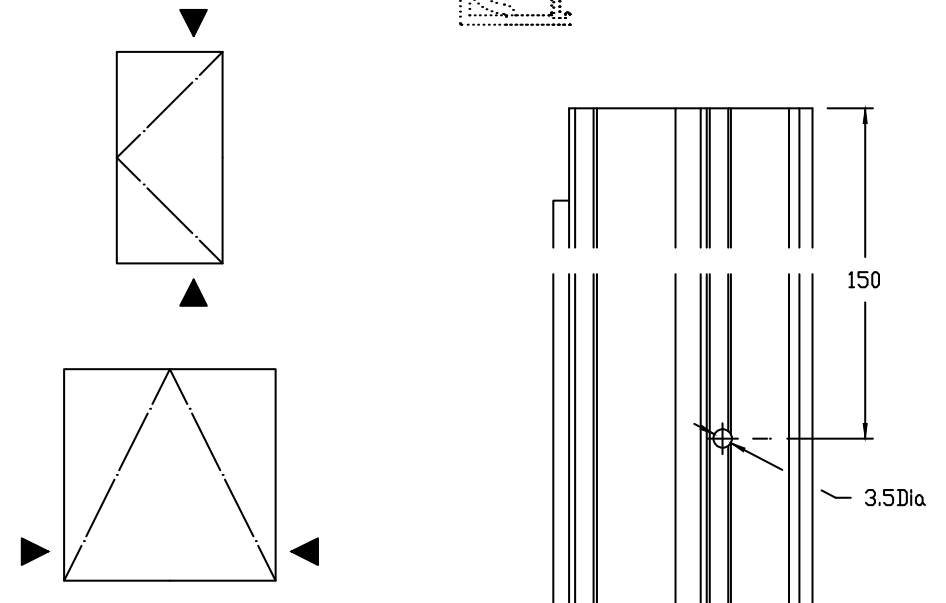
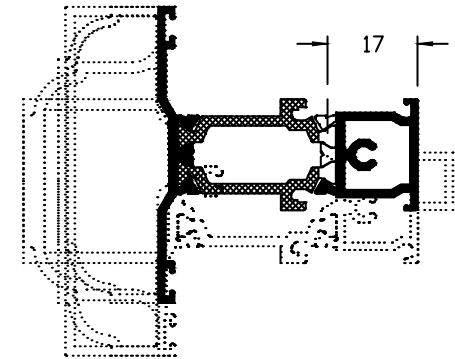
For PAS24 enhanced security, riser blocks are fitted on both sides of an opening light, at the bottom of a top hung window. And at the top and bottom on the locking side, on a side hung window (see diagram).



### Mullion/Transom Riser Block Preparation

Profile CW310, CW311, CW312, CW316, CW326, CW336, CW337, CW338

For PAS24 enhanced security, riser blocks are fitted on both sides of an opening light, at the bottom of a top hung window. And at the top and bottom on the locking side, on a side hung window (see diagram).





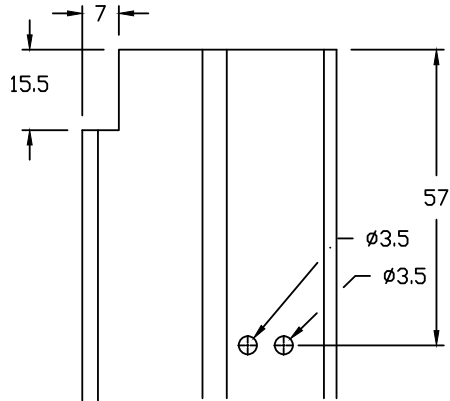
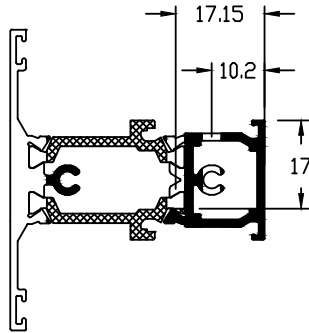
### Machining Details - Outer Frame

#### French Casement Mullion Riser Block Prep

Profile CW316

The preparation shown is to allow the mullion to be attached to the French casement profile.

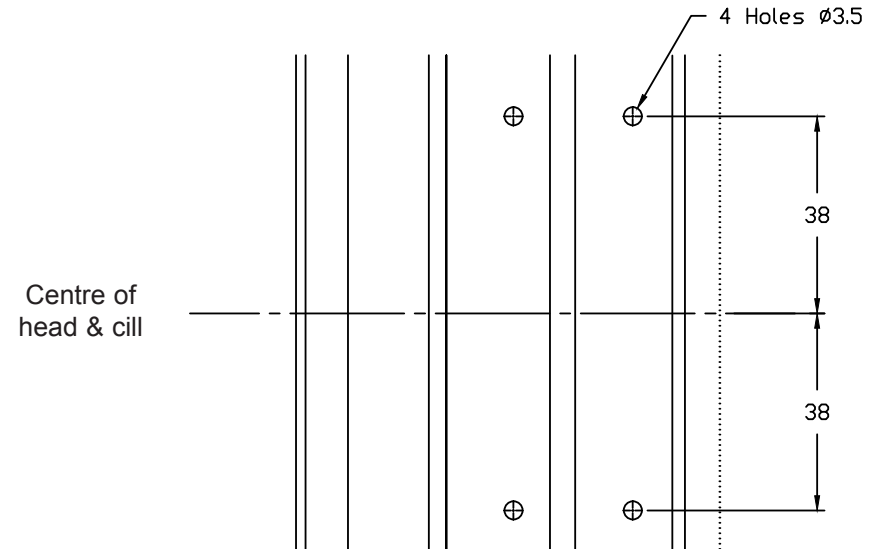
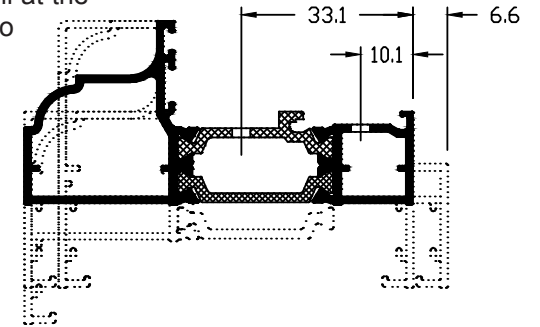
Machine mullion as shown below. Repeat all holes at each end of the bar and at 80mm either side of the centre of each bar.



#### French Casement Shootbolt Keep Prep

Profile CW305, CW320, CW321, CW322, CW323, CW324, CW325, CW327, CW328, CW329, CW334, CW335, CW346, CW347

Prepare outer frame head and cill at the centre of each as shown below to accept shootbolt keeps.

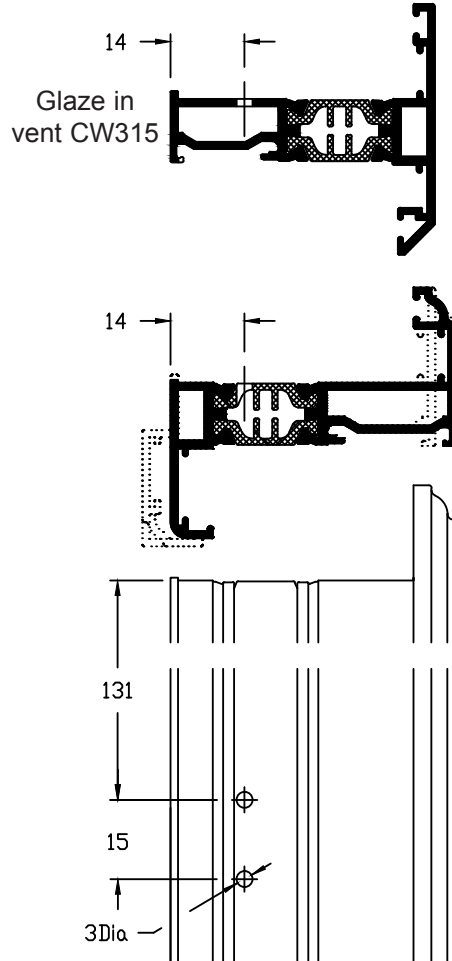
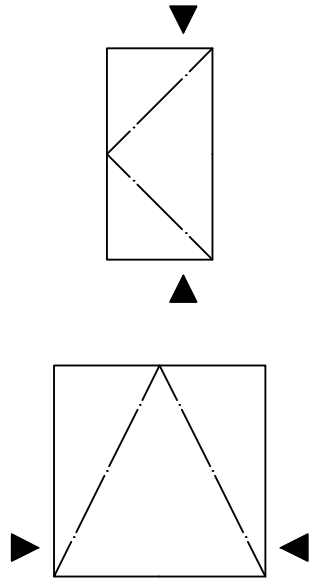


## Machining Details - Outer & Vent Frame

### Vent Frame Riser Block Preparation

Profile CW307, CW308, CW309, CW315, CW318, CW340, CW341

For PAS24 enhanced security, riser blocks are fitted on both sides of an opening light, at the bottom of a top hung window. And at the top and bottom on the locking side, on a side hung window (see diagram).

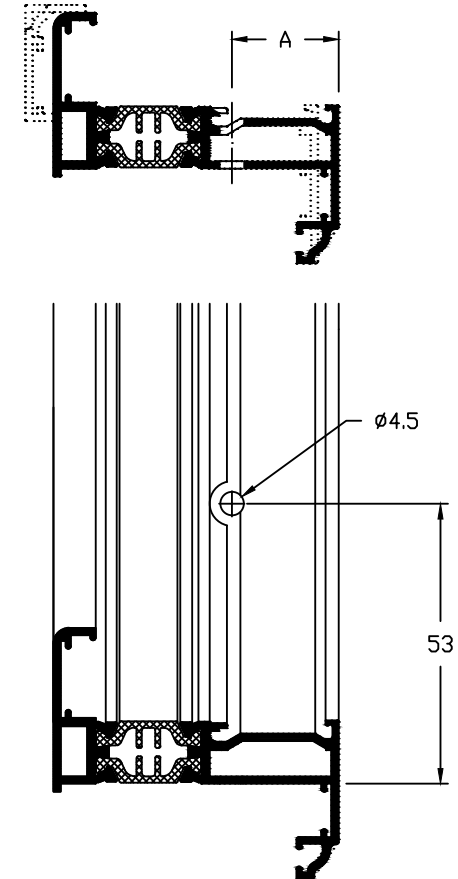


### French Casement Vent Frame Riser Block Prep

Profile CW307, CW309, CW315, CW340, CW341

The preparation shown is to allow the vent to be fixed to the mullion

Machine slave stile of vent as shown below. Repeat all holes at each end of the bar and at 80mm either side of the centre of each bar.



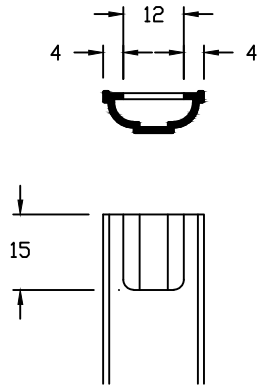
## Machining Details - Laybar

### Laybar End Prep

Profile CW121

The preparation shown is to allow the Laybar to be pushed into position using Spring Clip CWP160.

Notch the end of horizontal and vertical Laybar as shown.

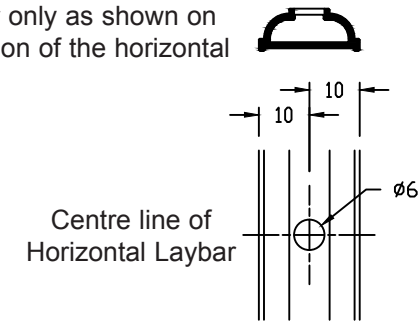


### Laybar Cruciform Prep

Profile CW121

The preparation shown is to allow for Cruciform Cover CWP159 to be fitted.

Prep vertical Laybar only as shown on the centre line position of the horizontal Laybar.



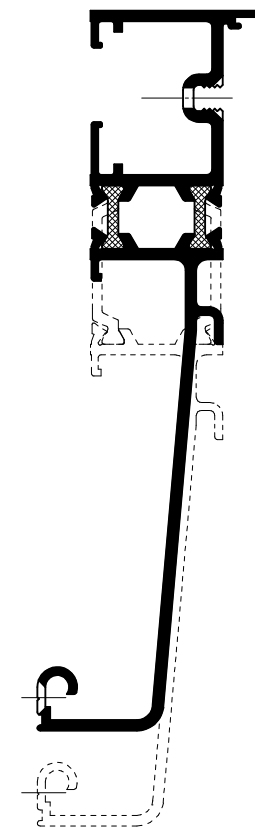
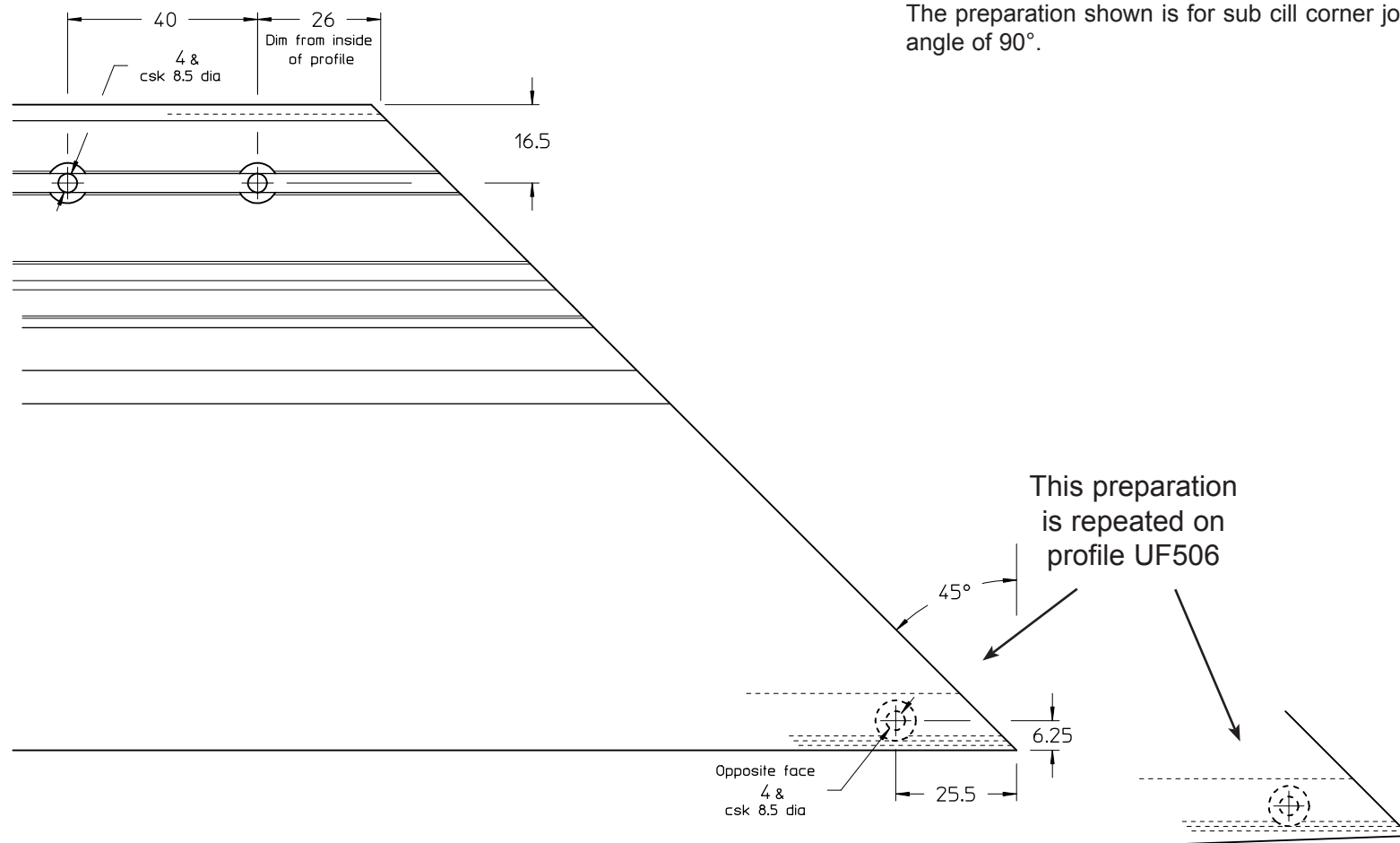
## Machining Details - Sub Cill

### Sub Cill 90° Internal Corner Jointing

Profile UF506, CW314

Drill Jig CWC096 & CWC098

The preparation shown is for sub cill corner joints with an internal angle of 90°.



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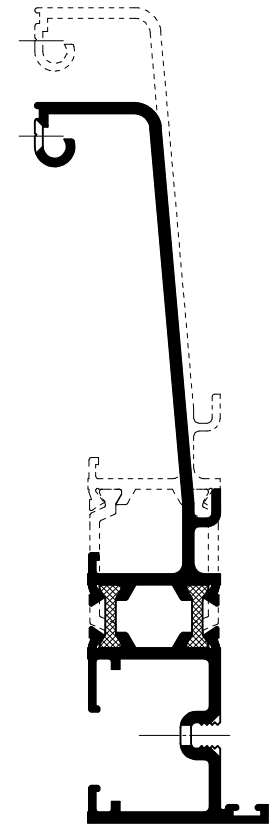
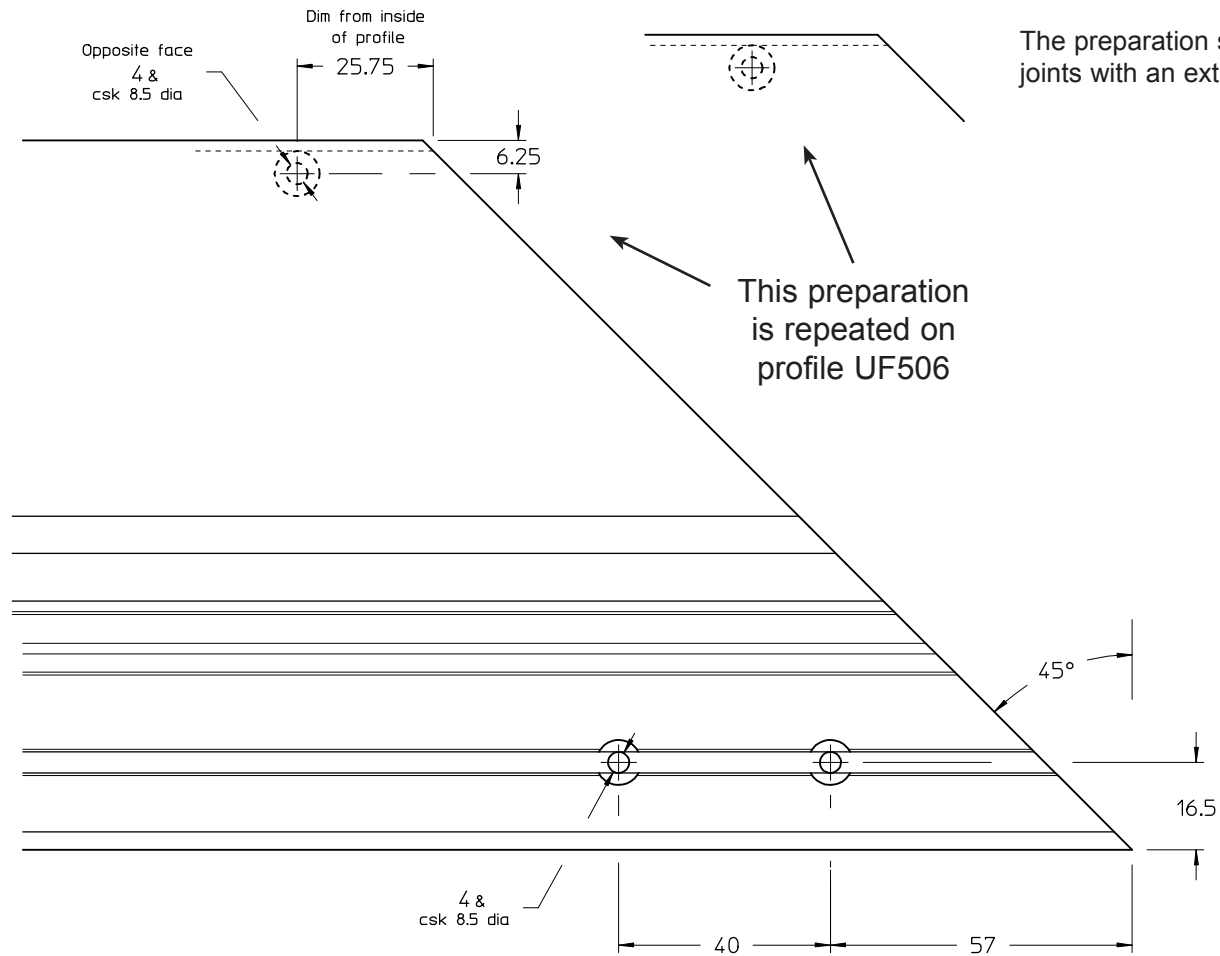
## Machining Details - Sub Cill

### Sub Cill 90° External Corner Jointing

Profile UF506, CW314

Drill Jig CWC096 & CWC098

The preparation shown is for sub cill corner joints with an external angle of 90°.



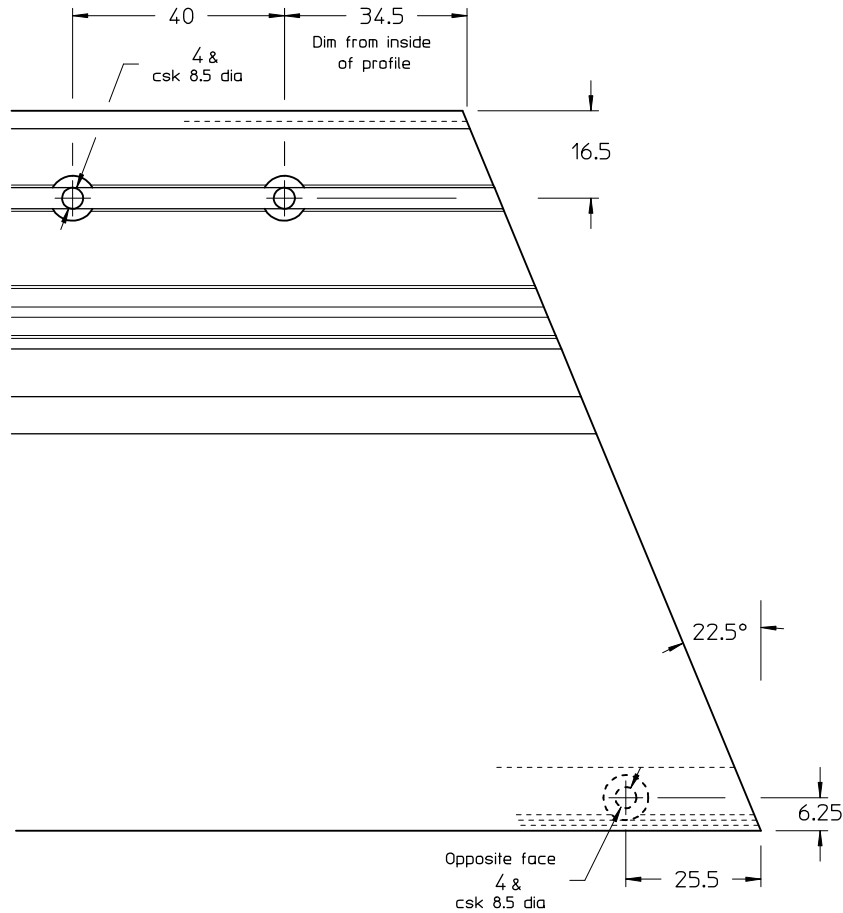
## Machining Details - Sub Cill

### Sub Cill 135° External Corner Jointing

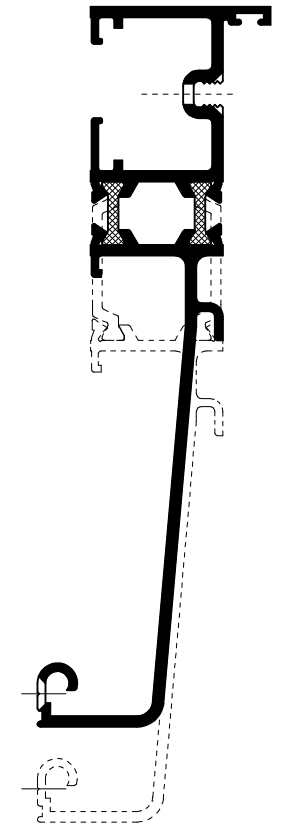
Profile UF506, CW314

Drill Jig CWC097 & CWC098

The preparation shown is for sub cill corner joints with an internal angle of 135°.



This preparation  
is repeated on  
profile UF506



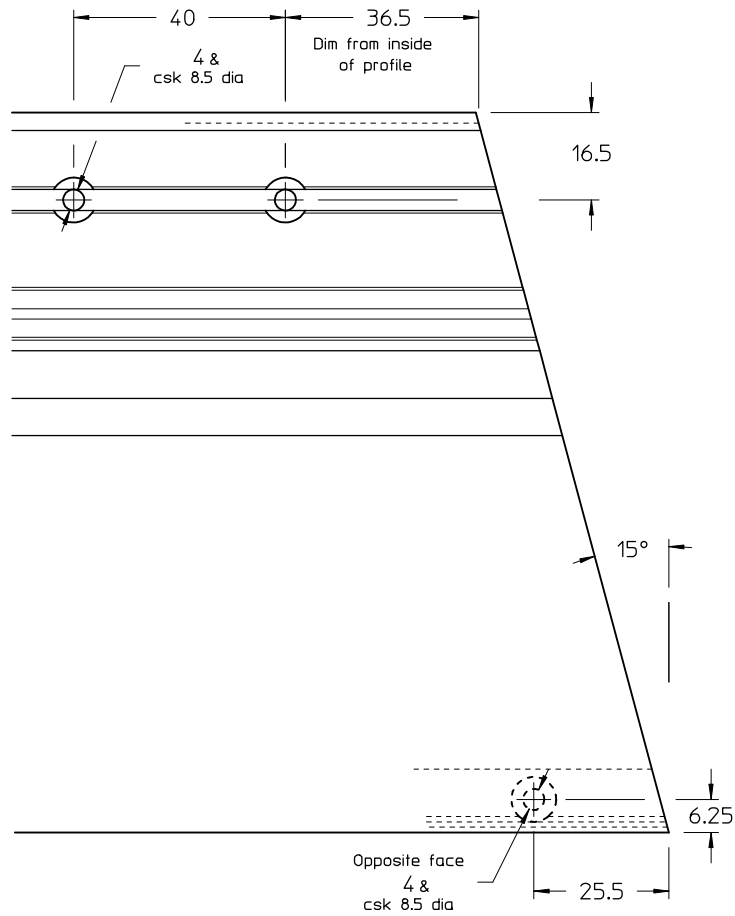
## Machining Details - Sub Cill

### Sub Cill 150° External Corner Jointing

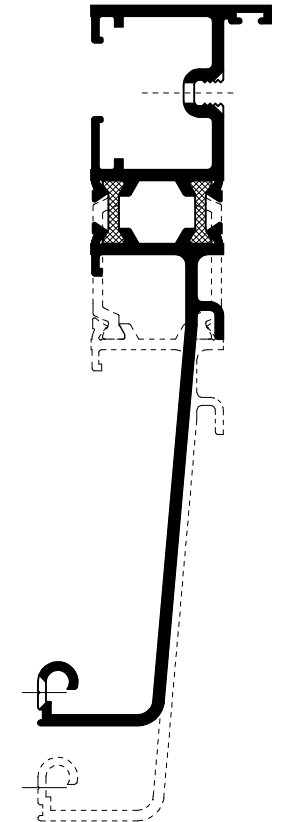
Profile UF506, CW314

Drill Jig CWC097 & CWC098

The preparation shown is for sub cill corner joints with an internal angle of 150°.



This preparation is repeated on profile UF506



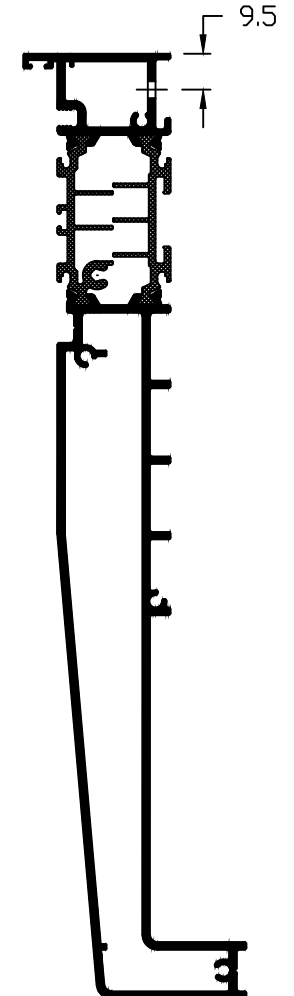
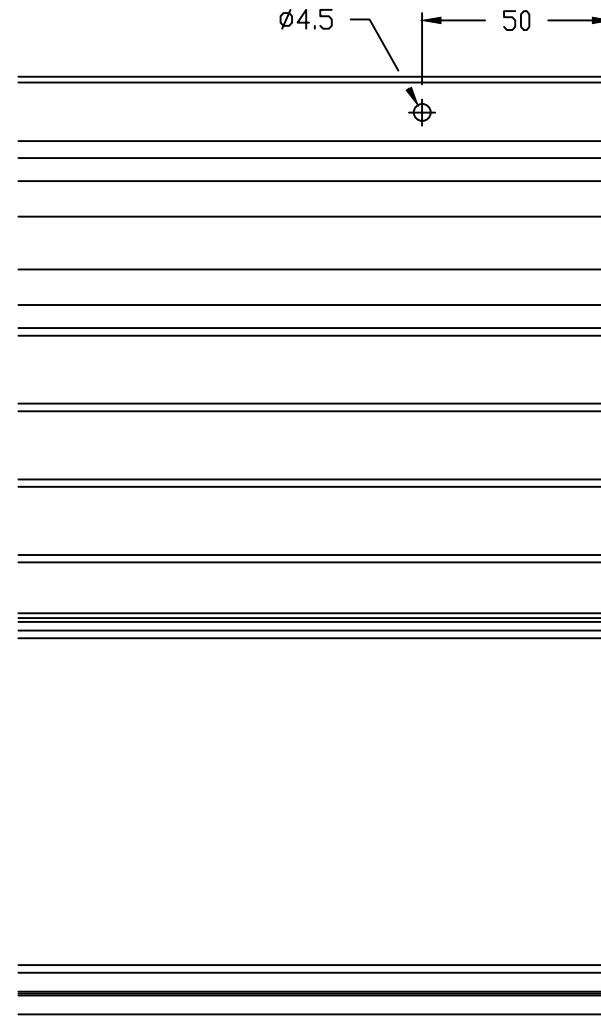
## Machining Details - Sub Cill

sapa:

### 250mm Sub Cill Expansion Joint

Profile UF518

The preparation shown is for the expansion joint between sub cills. Prepare only one sub cill at the expansion joint end





## Machining Details - Sub Cill

### 250mm Sub Cill Corner Joint

Profile UF518  
Drill Jig UFC064  
Step Drill UFC065

UFP059  $\phi 4.5$   
Fixing

The preparation shown is for sub cill corner jointing. Prepare both ends of the sub cill that is to be joined, mirror for opposite hand.

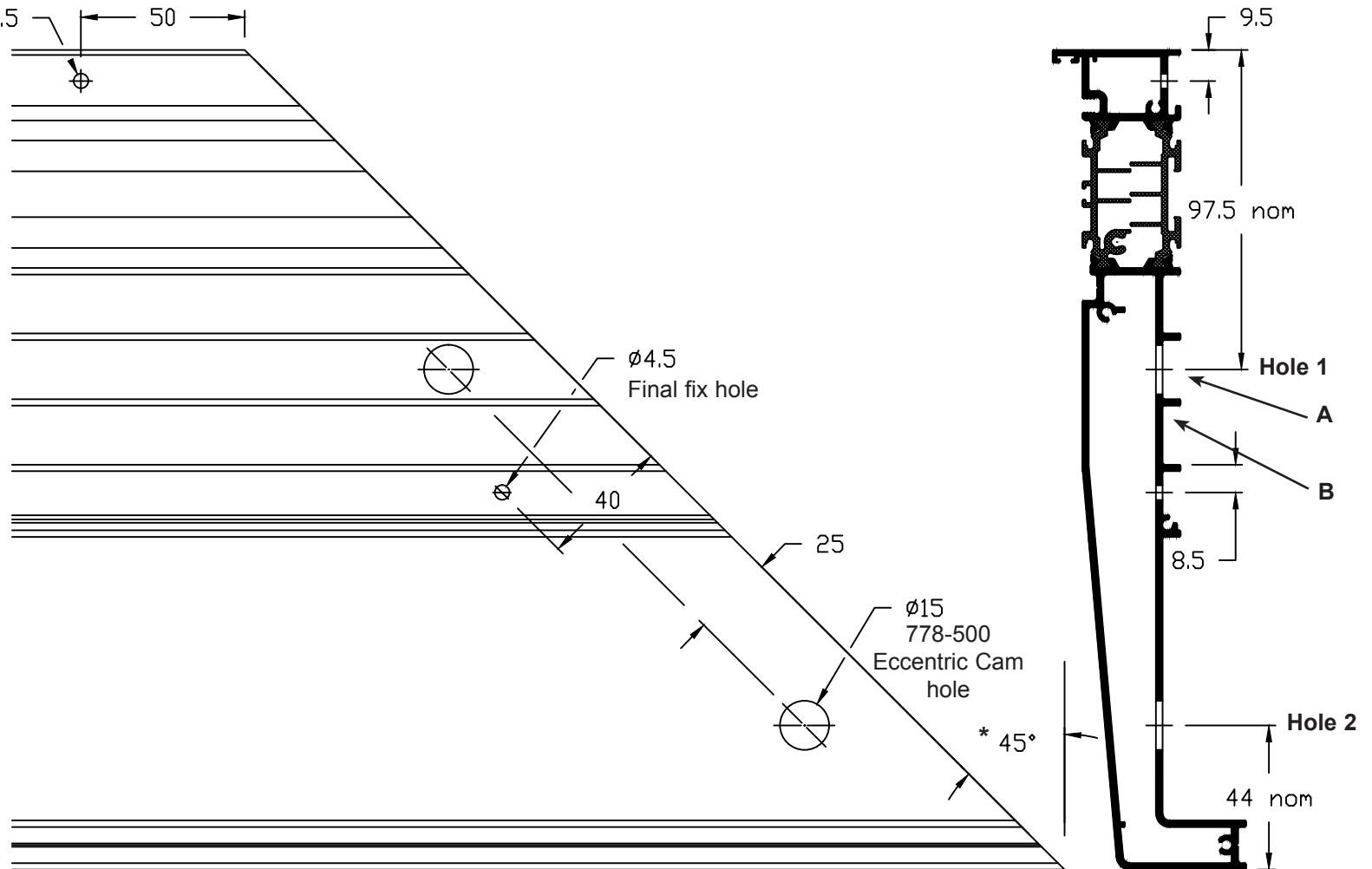
\* This preparation is applicable for angled corner joints from  $90^\circ$  external to  $90^\circ$  internal. Typical  $90^\circ$  external corner joint shown.

#### UFC064 DRILL JIG OPERATION

Locate the drill jig in recess **A** and drill hole 1.  
Locate the drill jig in recess **B** and drill hole 2.

Note: In some instances it will not be possible to locate the drill jig in recess **B** and drill hole 2 because the jig will clash with the profile. When that happens, locate the jig in recess **A** and drill hole 2.

Drill 8.0 dia holes using drill jig then open out to 15.0 dia using UFC065 step drill



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## Assembly - Outer Frame

### Outer Frame Corner Cleat Assembly

Profile CW305, CW320, CW321, CW322, CW323, CW324, CW325, CW327, CW328, CW329, CW334, CW335, CW346, CW347

Before assembly, note parts list for frame being assembled, outer frame CW320 shown.

**Note if used, DFC1208 hard back flipper seal must be fitted to any areas that is to accept an opening light, before the frame can be assembled.**

Coat the mitred ends of the outer frame using:-

- Henkel Terostat 934 (clear)
- Henkel Terostat 939 (Grey, Black or White)

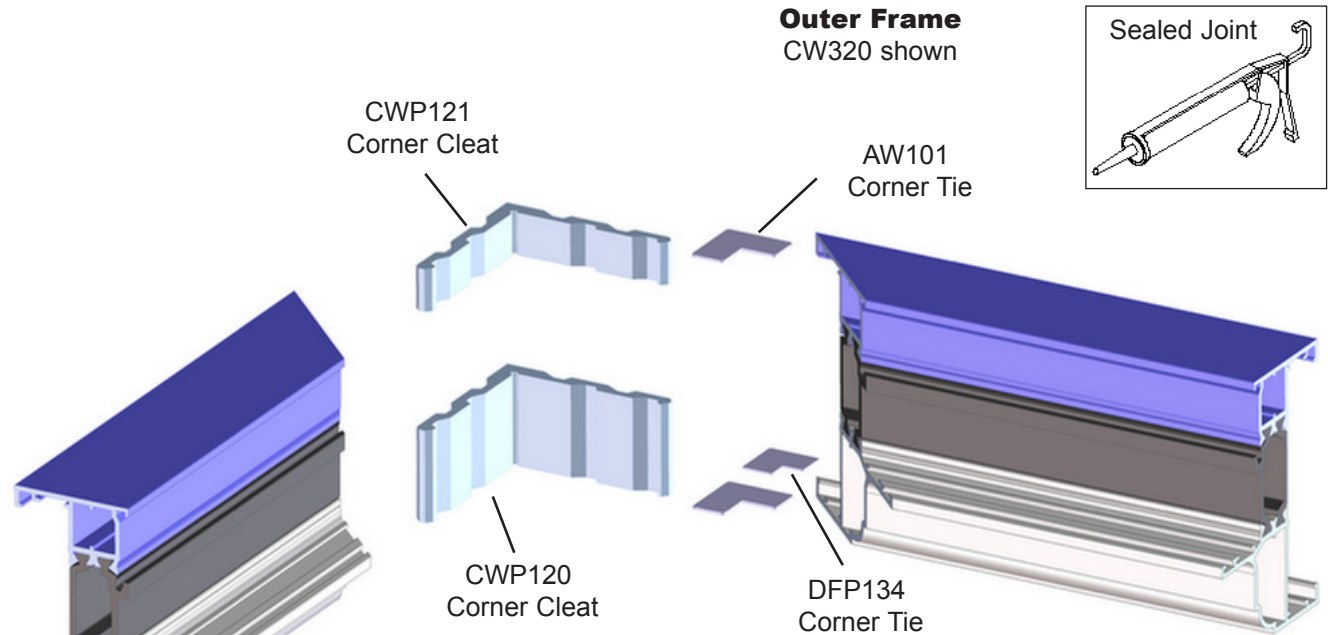
Apply 106/77 two part adhesive to the cleats and profiles using applicator gun and mixing nozzle 106/79.

Insert the cleats and corner ties into the outer frame, ensuring that all cleats are correctly located. Assemble the frame, ensuring that all joints are fully closed and effectively filled with sealant.

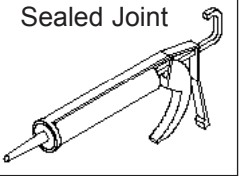
Crimp frame, then clean off any excess sealant from the visible surfaces immediately using :-

Terosan FL Cleaner

To ensure a good quality corner joint is maintained, it is recommended that the frames should not be handled for 24 hours after joining.



Outer Frame  
CW320 shown



#### Parts list per corner

##### Frame - Parts

CW305	- AW100 x 1, DFP134 x 1, CWP052 x 1, CWP121 x 1
CW320	- AW101 x 2, CWP120 x 1, CWP121 x 1, DFP134 x 1
CW321	- AW101 x 2, CWP120 x 1, CWP121 x 1, DFP134 x 1
CW322	- CWP120 x 1, CWP121 x 1, DFP134 x 1
CW323	- CWP120 x 1, CWP121 x 1, DFP134 x 1
CW324	- CWP052 x 1, CWP121 x 1, DFP134 x 1
CW325	- AW101 x 1, CWP052 x 1, CWP121 x 1, DFP134 x 1
CW327	- AW101 x 2, CWP135 x 1, DFP188 x 1, DFP134 x 1
CW328	- AW101 x 1, CWP052 x 1, CWP121 x 1, DFP134 x 1
CW329	- AW100 x 1, AW101 x 1, CWP052 x 1, CWP121 x 1
CW334	- AW101 x 2, CWP054 x 2, DFP134 x 1
CW335	- AW101 x 2, CWP054 x 2, DFP134 x 1
CW346	- AW101 x 2, CWP054 x 1, CWP120 x 1, DFP134 x 1
CW347	- AW101 x 2, CWP054 x 1, CWP120 x 1, DFP134 x 1

Note that unequal sized frames cannot be crimped together, except for 52mm Framing

## Assembly - Outer Frame

### Mullion/Transom To Outer Frame

Profile CW310, CW337

Before assembly, note parts list for frame being assembled, outer frame CW320 and mullion/transom CW310 shown.

**Note if used, DFC1208 hard back flipper seal must be fitted to any areas that is to accept an opening light, before the frame can be assembled.**

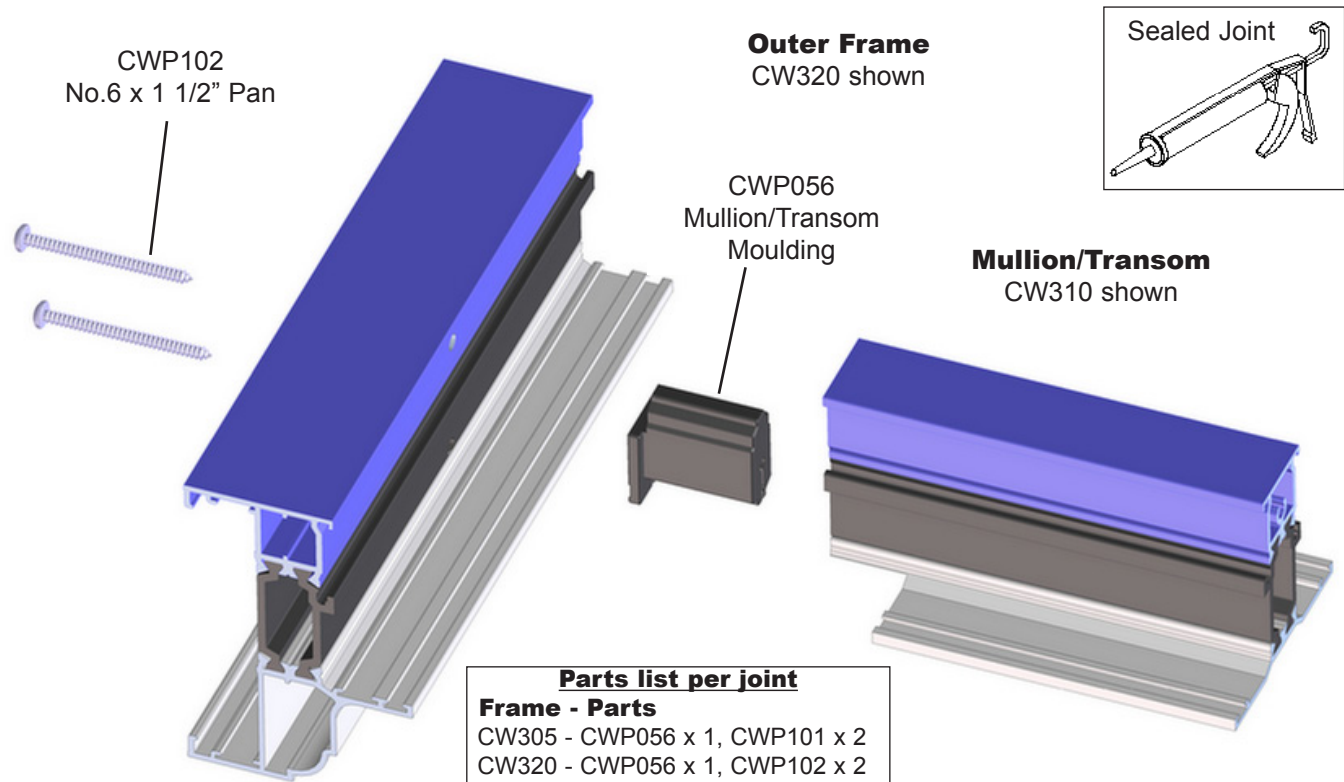
After any cruciform joints are assembled, coat all mating faces that will come into contact with the outer frame using Henkel Terostat 934 or 939.

Sealant must also be applied around the screw clearance holes in the outer frame to prevent water entering into the outer frame. The whole assembly is now offered into the outer frame.

After satisfactory positioning of the assembly, secure in place by driving in No.6 self tap screws into the mullion/transom screw spline and moulding, then clean off any excess sealant from the visible surfaces immediately using Terosan FL.

Finally fill any voids between the mullion/transom and outer frame with sealant to form a watertight joint.

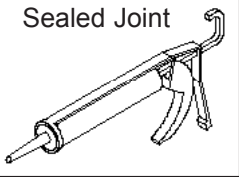
Water ingress from individual apertures must not be allowed to drain into each other, but must be allowed to drain out of the system through the appropriate frame drainage outlets.



**Outer Frame**  
CW320 shown

CWP056  
Mullion/Transom  
Moulding

**Mullion/Transom**  
CW310 shown



#### Parts list per joint

##### Frame - Parts

CW305	-	CWP056	x 1,	CWP101	x 2	
CW320	-	CWP056	x 1,	CWP102	x 2	
CW321	-	CWP056	x 1,	CWP102	x 2	
CW322	-	CWP056	x 1,	CWP101	x 2	
CW323	-	CWP056	x 1,	CWP101	x 2	
CW324	-	CWP056	x 1,	CWP101	x 2	
CW325	-	CWP056	x 1,	CWP101	x 2	
CW327	-	CWP056	x 1,	CWP102	x 2	
CW328	-	CWP056	x 1,	CWP101	x 2	
CW329	-	CWP056	x 1,	CWP101	x 2	
*	CW334	-	CWP056	x 1,	CWP102	x 2
	CW335	-	CWP056	x 1,	CWP102	x 2
*	CW346	-	CWP056	x 1,	CWP102	x 2
	CW347	-	CWP056	x 1,	CWP102	x 2

\* CW337 can only be used with these outer frames

## Assembly - Outer Frame

### 58mm Mullion/Transom To Outer Frame

Profile CW316, CW326

Before assembly, note parts list for frame being assembled, outer frame CW320 and mullion/transom CW316 shown.

**Note if used, DFC1208 hard back flipper seal must be fitted to any areas that is to accept an opening light, before the frame can be assembled.**

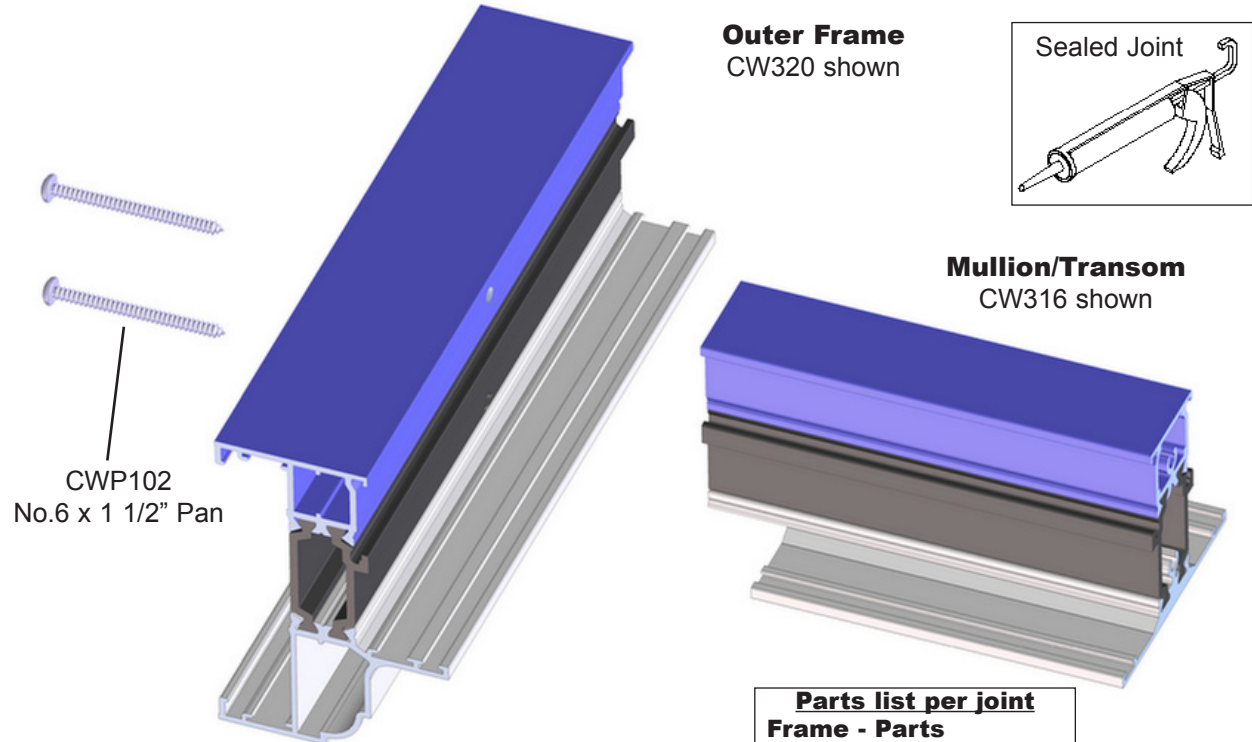
After any cruciform joints are assembled, coat all mating faces that will come into contact with the outer frame using Henkel Terostat 934 or 939.

Sealant must also be applied around the screw clearance holes in the outer frame to prevent water entering into the outer frame. The whole assembly is now offered into the outer frame.

After satisfactory positioning of the assembly, secure in place by driving in No.6 self tap screws into the mullion/transom screw splines, then clean off any excess sealant from the visible surfaces immediately using Terosan FL.

Finally fill any voids between the mullion/transom and outer frame with sealant to form a watertight joint.

Water ingress from individual apertures must not be allowed to drain into each other, but must be allowed to drain out of the system through the appropriate frame drainage outlets.



Outer Frame  
CW320 shown

Sealed Joint

Mullion/Transom  
CW316 shown

CWP102  
No.6 x 1 1/2" Pan

#### Parts list per joint

##### Frame - Parts

CW305 - CWP101 x 2  
 CW307 - CWP101 x 2  
 CW308 - CWP101 x 2  
 CW320 - CWP102 x 2  
 CW321 - CWP101 x 2  
 CW322 - CWP101 x 2  
 CW323 - CWP101 x 2  
 CW324 - CWP101 x 2  
 CW325 - CWP101 x 2  
 CW327 - CWP102 x 2  
 CW328 - CWP101 x 2  
 CW329 - CWP101 x 2  
 CW334 - CWP102 x 2  
 CW335 - CWP102 x 2  
 CW346 - CWP102 x 2  
 CW347 - CWP102 x 2

**Note** this assembly is also applicable to dummy mullion/transoms into CW307 & CW308, with the exception that water MUST be allowed to drain past the ends of transoms.



## Assembly - Outer Frame

### HD Mullion/Transom To Outer Frame

Profile CW311, CW312, CW336, CW338

Before assembly, note parts list for frame being assembled, outer frame CW320 and mullion/transom CW312 shown.

**Note if used, DFC1208 hard back flipper seal must be fitted to any areas that is to accept an opening light, before the frame can be assembled.**

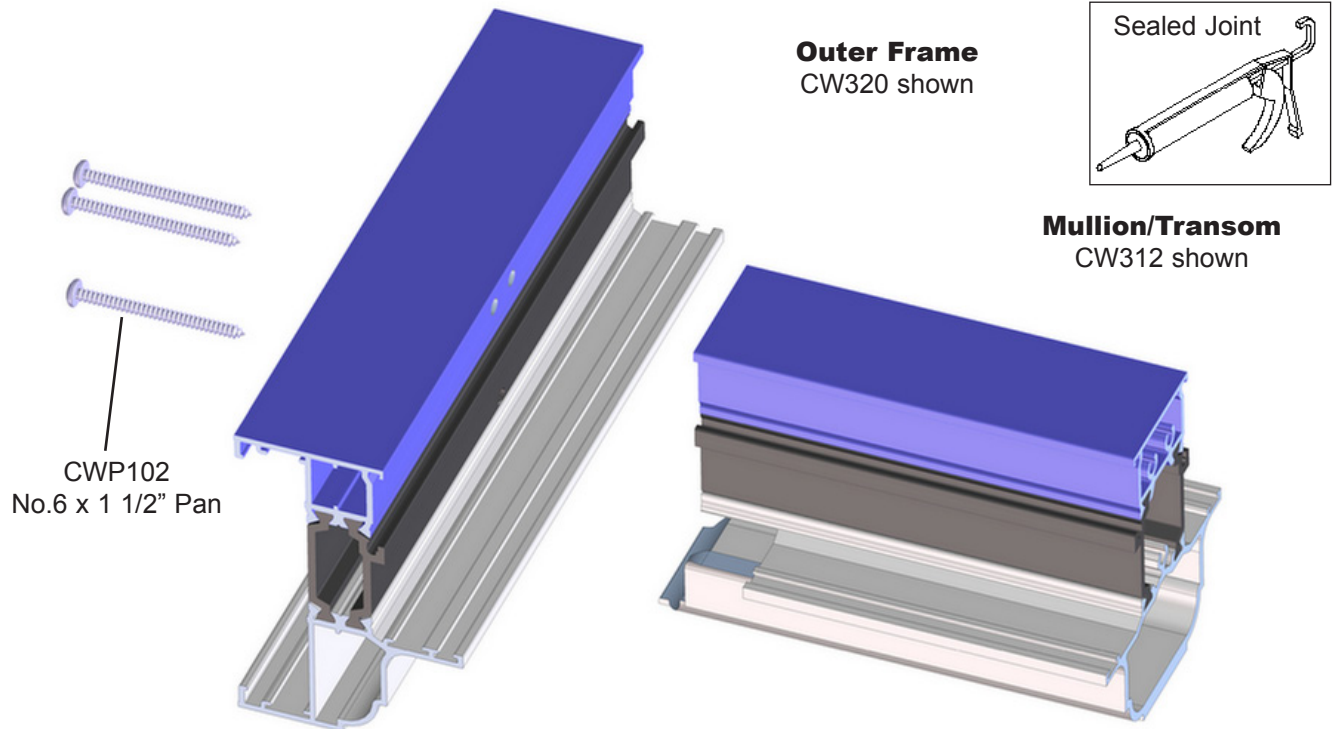
After any cruciform joints are assembled, coat all mating faces that will come into contact with the outer frame using Henkel Terostat 934 or 939.

Sealant must also be applied around the screw clearance holes in the outer frame to prevent water entering into the outer frame. The whole assembly is now offered into the outer frame.

After satisfactory positioning of the assembly, secure in place by driving in No.6 self tap screws into the mullion/transom screw splines, then clean off any excess sealant from the visible surfaces immediately using Terosan FL.

Finally fill any voids between the mullion/transom and outer frame with sealant to form a watertight joint.

Water ingress from individual apertures must not be allowed to drain into each other, but must be allowed to drain out of the system through the appropriate frame drainage outlets.



<b>Parts list per joint</b>	
<b>Outer Frame - Parts</b>	<b>Mullion/Transom</b>
CW305 - CWP102 x 3	CW311 & CW312
CW320 - CWP102 x 3	CW312
CW321 - CWP102 x 3	CW311
CW322 - CWP101 x 3	CW312
CW323 - CWP101 x 3	CW311
CW324 - CWP101 x 3	CW311 & CW312
CW325 - CWP102 x 3	CW311 & CW312

<b>Parts list per joint (cont...)</b>	
<b>Outer Frame - Parts</b>	<b>Mullion/Transom</b>
CW327 - CWP102 x 3	CW312
CW328 - CWP102 x 3	CW311 & CW312
CW329 - CWP102 x 3	CW311 & CW312
CW334 - CWP102 x 3	CW336
CW335 - CWP102 x 3	CW338
CW346 - CWP102 x 3	CW336
CW347 - CWP102 x 3	CW338

Mullion/transoms and outer frames can only join softline to softline or square to square.

## Midrail To Outer Frame

Profile CD105, CD109

Before assembly, note parts list for frame being assembled, outer frame CW320 and midrail CD105 shown.

**Note opening lights must not close onto a midrail, and midrails are for horizontal use only.**

Coat all mating faces that will come into contact with the outer frame using Henkel Terostat 934 or 939.

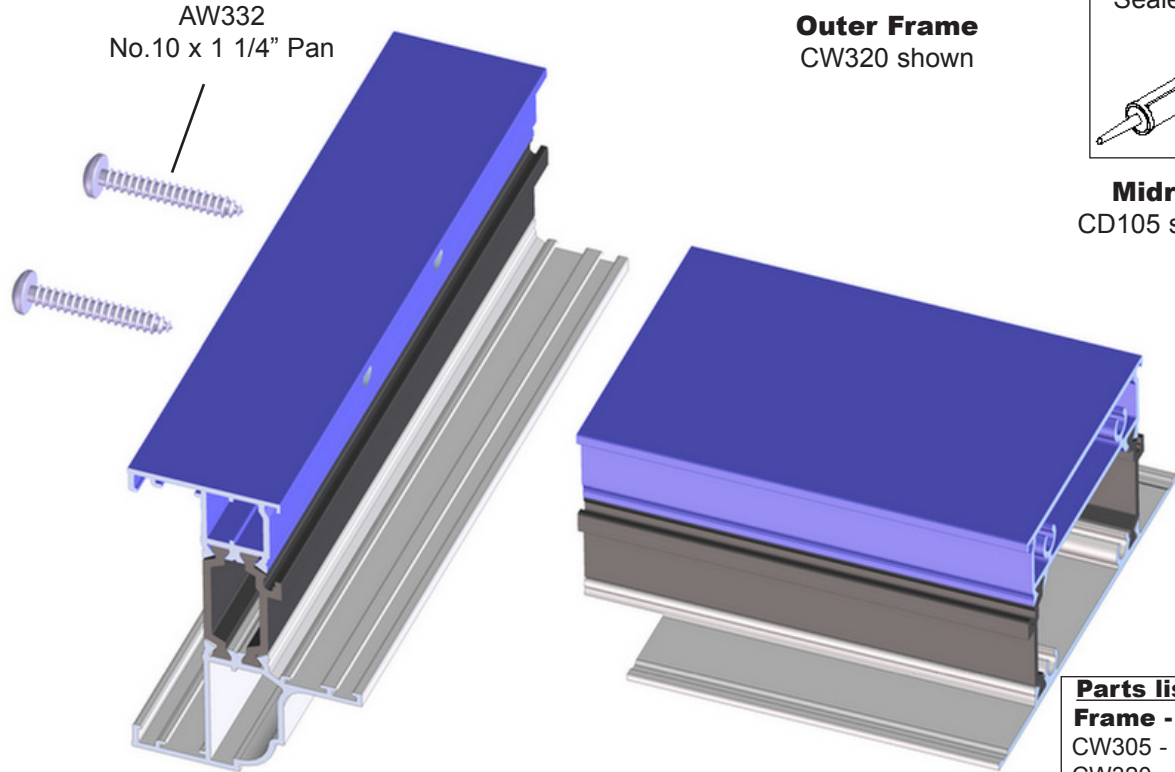
Sealant must also be applied around the screw clearance holes in the outer frame to prevent water entering into the outer frame. The whole assembly is now offered into the outer frame.

After satisfactory positioning of the assembly, secure in place by driving in No.10 self tap screws into the midrail screw splines, then clean off any excess sealant from the visible surfaces immediately using Terosan FL.

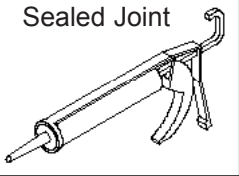
Finally fill any voids between the midrail and outer frame with sealant to form a watertight joint.

Water ingress from individual apertures must not be allowed to drain into each other, but must be allowed to drain out of the system through the appropriate frame drainage outlets.

## Assembly - Outer Frame



**Outer Frame**  
CW320 shown



**Midrail**  
CD105 shown

### Parts list per joint

Frame - Parts	
CW305	- DFP1185 x 2
CW320	- AW332 x 2
CW321	- AW332 x 2
CW322	- DFP1185 x 2
CW323	- DFP1185 x 2
CW324	- DFP1185 x 2
CW325	- DFP1185 x 2
CW327	- AW331 x 2
CW328	- DFP1185 x 2
CW329	- DFP1185 x 2
CW334	- AW332 x 2
CW335	- AW332 x 2
CW346	- AW332 x 2
CW347	- AW332 x 2

## Transom To Mullion 'T' Joint

Profile CW310, CW337

Before assembly, note parts list for frame being assembled, mullion CW310 and transom CW310 shown.

**Note if used, DFC1208 hard back flipper seal must be fitted to any areas that is to accept an opening light, before the frame can be assembled.**

Coat all mating faces that will come into contact with the mullion using Henkel Terostat 934 or 939.

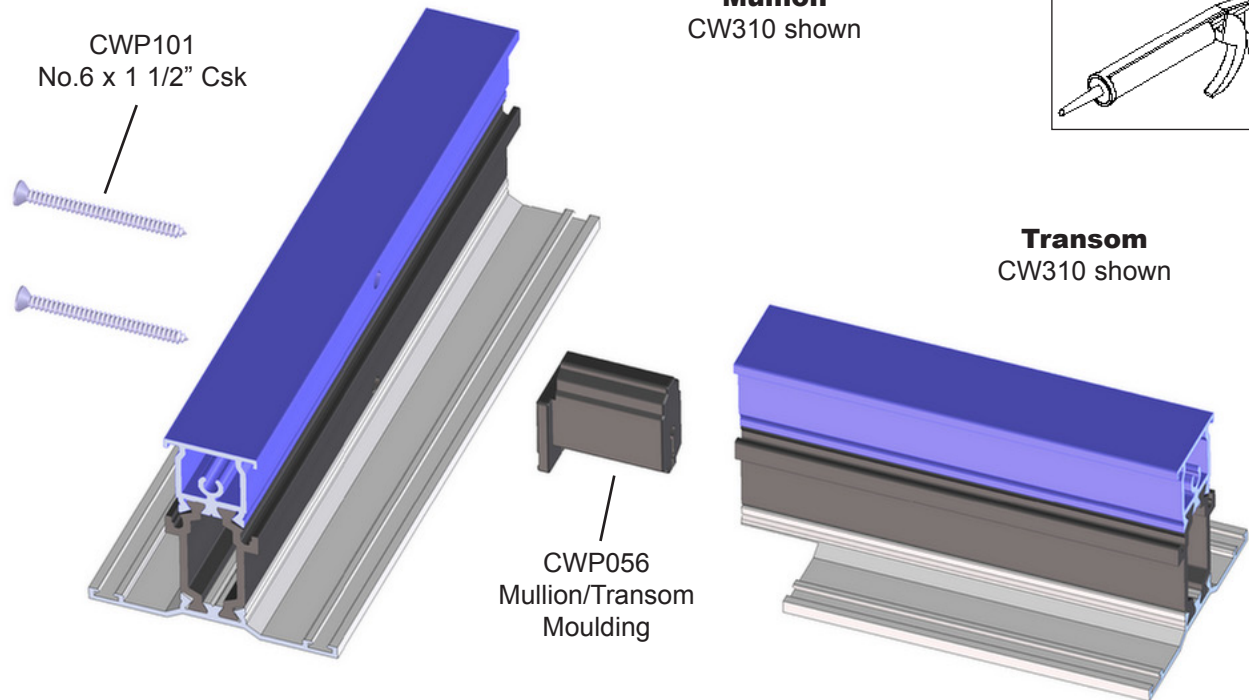
Sealant must also be applied around the screw clearance holes in the mullion to prevent water entering into the mullion.

After satisfactory positioning of the assembly, secure in place by driving in No.6 self tap screws into the mullion/transom screw spline and moulding, then clean off any excess sealant from the visible surfaces immediately using Terosan FL.

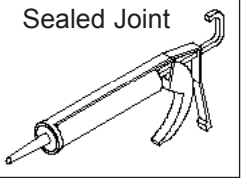
Finally fill any voids between the mullion/transom with sealant to form a watertight joint.

Water ingress from individual apertures must not be allowed to drain into each other, but must be allowed to drain out of the system through the appropriate frame drainage outlets.

## Assembly - Outer Frame



**Mullion**  
CW310 shown



**Transom**  
CW310 shown

\* CW337 can only be used with these mullions/transoms

### Parts list per joint

#### Mullion - Parts

- CW310 - CWP056 x 1, CWP101 x 2
- CW316 - CWP056 x 1, CWP101 x 2
- CW326 - CWP056 x 1, CWP101 x 2
- CW311 - CWP056 x 1, CWP103 x 2
- CW312 - CWP056 x 1, CWP103 x 2
- \* CW336 - CWP056 x 1, CWP101 x 2
- \* CW337 - CWP056 x 1, CWP101 x 2
- CW338 - CWP056 x 1, CWP101 x 2
- HD transoms CW311, CW312, CW336 & CW338 cannot be fitted to CW310 mullion option shown.



### 58mm Transom To Mullion 'T' Joint

Profile CW316, CW326.

Before assembly, note parts list for frame being assembled, mullion CW316 and transom CW316 shown.

**Note if used, DFC1208 hard back flipper seal must be fitted to any areas that is to accept an opening light, before the frame can be assembled.**

Coat all mating faces that will come into contact with the mullion using Henkel Terostat 934 or 939.

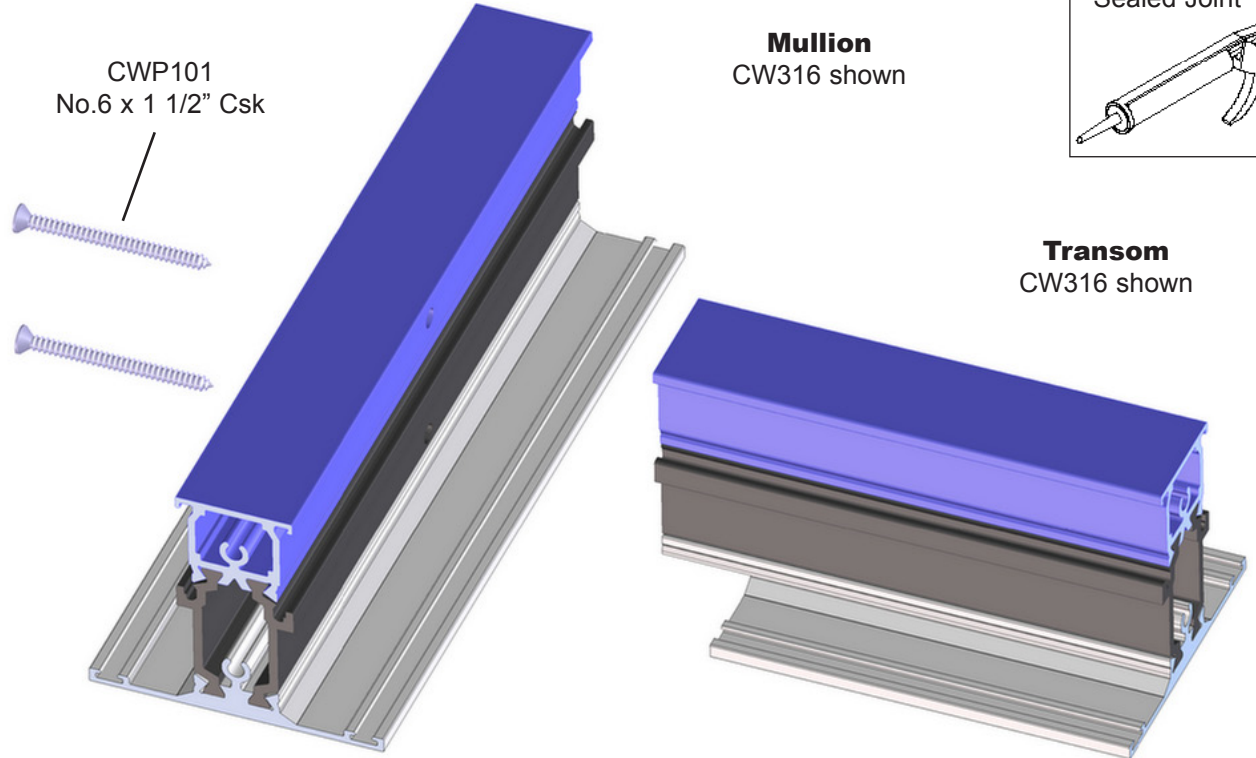
Sealant must also be applied around the screw clearance holes in the mullion to prevent water entering into the mullion.

After satisfactory positioning of the assembly, secure in place by driving in No.6 self tap screws into the mullion/transom screw splines, then clean off any excess sealant from the visible surfaces immediately using Terosan FL.

Finally fill any voids between the mullion/transom with sealant to form a watertight joint.

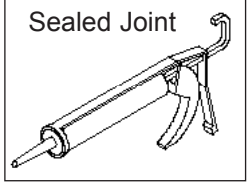
Water ingress from individual apertures must not be allowed to drain into each other, but must be allowed to drain out of the system through the appropriate frame drainage outlets.

### Assembly - Outer Frame



**Mullion**  
CW316 shown

**Transom**  
CW316 shown



Parts list per joint	
<b>Mullion - Parts</b>	
CW310 - CWP101	x 2
CW316 - CWP101	x 2
CW326 - CWP101	x 2
CW311 - CWP103	x 2
CW312 - CWP103	x 2
CW336 - CWP101	x 2
CW337 - CWP101	x 2
CW338 - CWP101	x 2
HD transoms cannot be fitted to CW316 & CW326 mullions.	

## HD Transom To HD Mullion 'T' Joint

Profile CW311, CW312, CW336, CW338

Before assembly, note parts list for frame being assembled, mullion CW312 shown.

**Note if used, DFC1208 hard back flipper seal must be fitted to any areas that is to accept an opening light, before the frame can be assembled.**

Coat all mating faces that will come into contact with the mullion using Henkel Terostat 934 or 939.

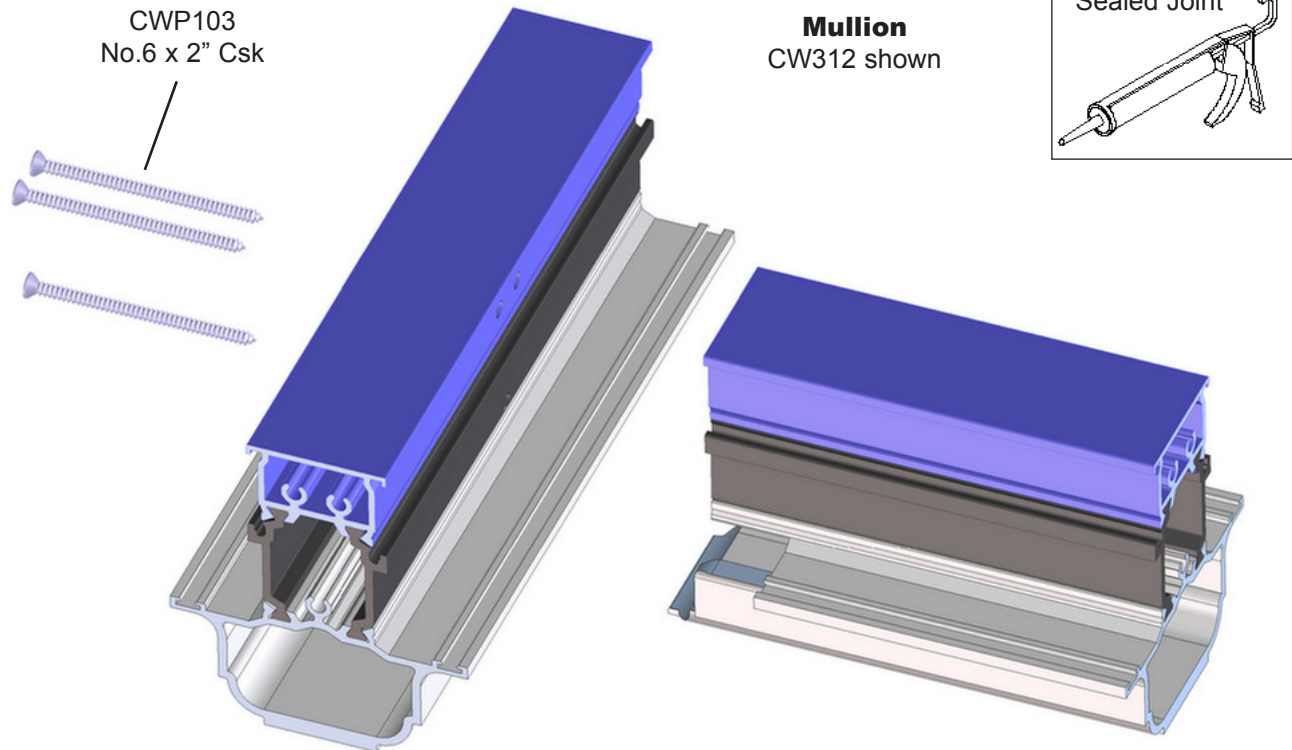
Sealant must also be applied around the screw clearance holes in the mullion to prevent water entering into the mullion.

After satisfactory positioning of the assembly, secure in place by driving in No.6 self tap screws into the mullion/transom screw splines, then clean off any excess sealant from the visible surfaces immediately using Terosan FL.

Finally fill any voids between the mullion/transom with sealant to form a watertight joint.

Water ingress from individual apertures must not be allowed to drain into each other, but must be allowed to drain out of the system through the appropriate frame drainage outlets.

## Assembly - Outer Frame



### Parts list per joint

Mullion - Parts	Transom
CW311 - CWP103 x 3	CW311
CW312 - CWP103 x 3	CW312
CW336 - CWP103 x 3	CW336
CW338 - CWP103 x 3	CW338

CW310, CW316 or CW326 transoms can be fitted to HD mullions, by following assembly details on previous pages and substituting CWP101 screws with CWP103

## Assembly - Outer Frame

### Mullion/Transom Cruciform Joint

Profile CW310, CW337

Before assembly, note parts list for frame being assembled, mullion CW310 shown.

**Note if used, DFC1208 hard back flipper seal must be fitted to any areas that is to accept an opening light, before the frame can be assembled.**

Secure both mouldings to the mullion, using a No.6 self tap screw. This screw will pass through the small moulding plus mullion, then screw into the larger moulding. Check that both mouldings are correctly aligned before final tightening.

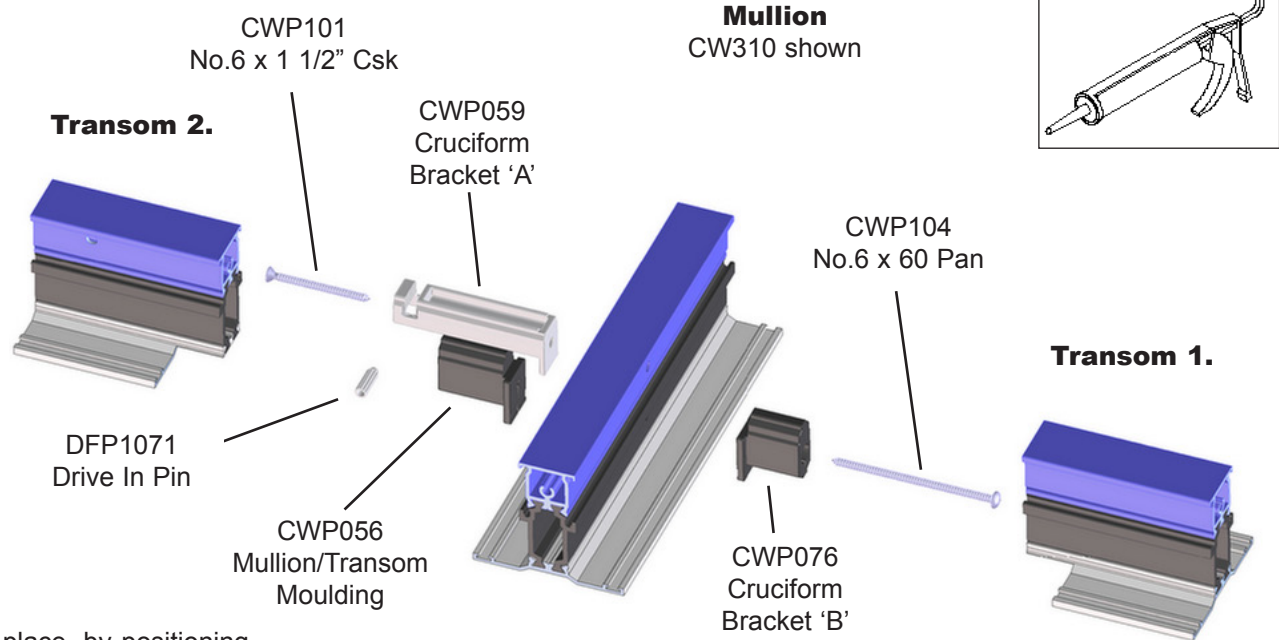
Now coat all mating faces that will come into contact with the mullion using Henkel Terostat 934 or 939. Sealant must also be applied around the screw clearance holes in the mullion to prevent water entering into the mullion.

**1.** Slide the first transom over the small moulding and secure in place, by positioning the cruciform bracket onto the mullion and then driving the No.6 self tap screw into the transom screw spline.

**2.** Slide the second transom over the cruciform bracket and larger moulding, then attach to the mullion with the drive in pin, being driven into the transom bracket. Clean off any excess sealant from the visible surfaces immediately using Terosan FL.

Finally fill any voids between the mullion/transom with sealant to form a watertight joint. \*

Water ingress from individual apertures must not be allowed to drain into each other, but must be allowed to drain out of the system through the appropriate frame drainage outlets.



#### Parts list per joint

##### Mullion - Parts

CW310	- CWP056 x 1, CWP059 x 1, CWP076 x 1, CWP101 x 1, CWP104 x 1, DFP1071 x 1
CW311	- CWP056 x 1, CWP059 x 1, CWP076 x 1, CWP103 x 1, CWP105 x 1, DFP1071 x 1
CW312	- CWP056 x 1, CWP059 x 1, CWP076 x 1, CWP103 x 1, CWP105 x 1, DFP1071 x 1
CW316	- CWP056 x 1, CWP059 x 1, CWP076 x 1, CWP101 x 1, CWP104 x 1, DFP1071 x 1
CW326	- CWP056 x 1, CWP059 x 1, CWP076 x 1, CWP101 x 1, CWP104 x 1, DFP1071 x 1
CW336	- CWP056 x 1, CWP059 x 1, CWP076 x 1, CWP103 x 1, CWP105 x 1, DFP1071 x 1
CW337	- CWP056 x 1, CWP059 x 1, CWP076 x 1, CWP101 x 1, CWP104 x 1, DFP1071 x 1
CW338	- CWP056 x 1, CWP059 x 1, CWP076 x 1, CWP103 x 1, CWP105 x 1, DFP1071 x 1

\* When using CW337 as a Transom it can only be used with CW336 or CW337 mullions

## Assembly - Outer Frame

### 58mm Mullion/Transom Cruciform Joint

Profile CW316, CW326, CW337

Before assembly, note parts list for frame being assembled, mullion CW316 shown.

**Note if used, DFC1208 hard back flipper seal must be fitted to any areas that are to accept an opening light, before the frame can be assembled.**

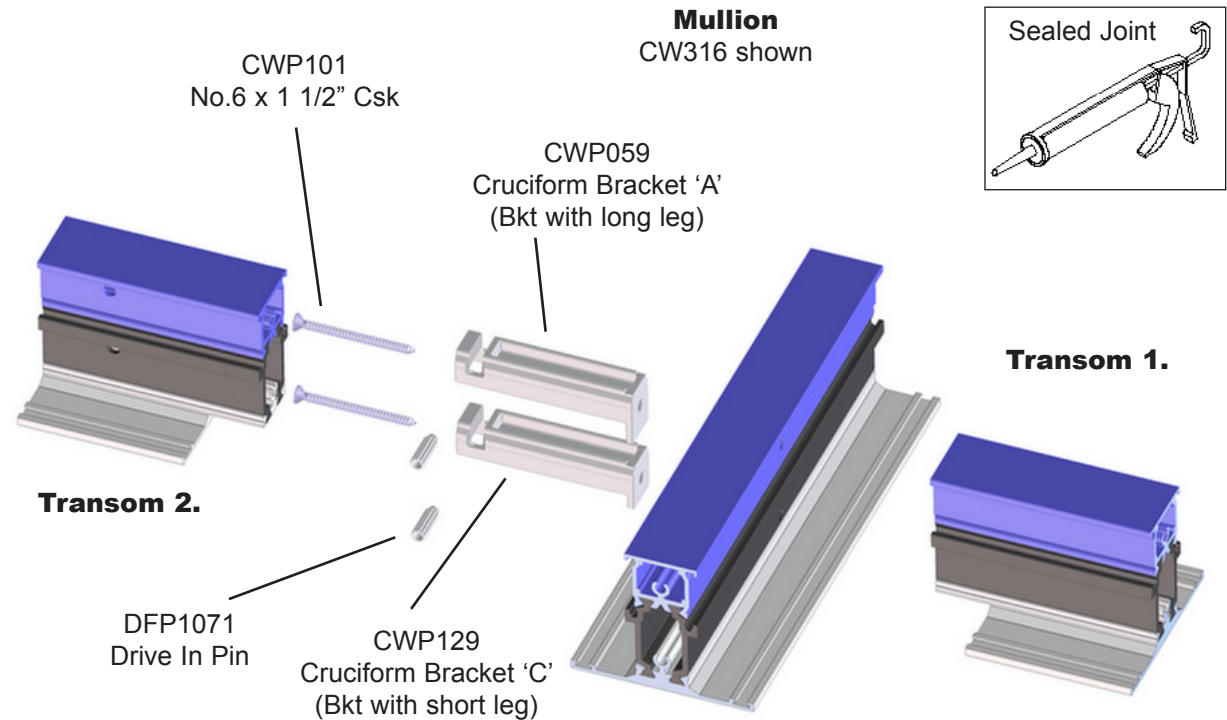
Coat all mating faces that will come into contact with the mullion using Henkel Terostat 934 or 939. Sealant must also be applied around the screw clearance holes in the mullion to prevent water entering into the mullion.

**1.** Position the first transom onto the mullion and then secure in place, by positioning the cruciform bracket onto the mullion and then driving the No.6 self tap screw into the transom screw spline. The second cruciform bracket is also placed onto the mullion and secured in place with another No.6 self tap screw being driven into the remaining transom screw spline.

**2.** Slide the second transom over both cruciform brackets then attach to the mullion with the drive in pins, being driven into the transom brackets. Clean off any excess sealant from the visible surfaces immediately using Terosan FL.

Finally fill any voids between the mullion/transom with sealant to form a watertight joint.

Water ingress from individual apertures must not be allowed to drain into each other, but must be allowed to drain out of the system through the appropriate frame drainage outlets.



Note this assembly is also applicable to dummy mullion/transoms with the exception that water **MUST** be allowed to drain past the ends of mullion/transoms.

Parts list per joint	
<b>Mullion - Parts</b>	
CW310	- CWP059 x 1, CWP101 x 2, CWP129 x 1, DFP1071 x 2
CW311	- CWP059 x 1, CWP103 x 2, CWP129 x 1, DFP1071 x 2
CW312	- CWP059 x 1, CWP103 x 2, CWP129 x 1, DFP1071 x 2
CW316	- CWP059 x 1, CWP101 x 2, CWP129 x 1, DFP1071 x 2
CW326	- CWP059 x 1, CWP101 x 2, CWP129 x 1, DFP1071 x 2
* CW336	- CWP059 x 1, CWP103 x 2, CWP129 x 1, DFP1071 x 2
* CW337	- CWP059 x 1, CWP101 x 2, CWP129 x 1, DFP1071 x 2
CW338	- CWP059 x 1, CWP103 x 2, CWP129 x 1, DFP1071 x 2

\* When using CW337 as a Transom it can only be used with CW336 or CW337 mullions



## Assembly - Outer Frame

### HD Mullion to HD Transom Cruciform Joint

Profile CW311, CW312, CW336, CW338

Before assembly, note parts list for frame being assembled, mullion CW312 shown.

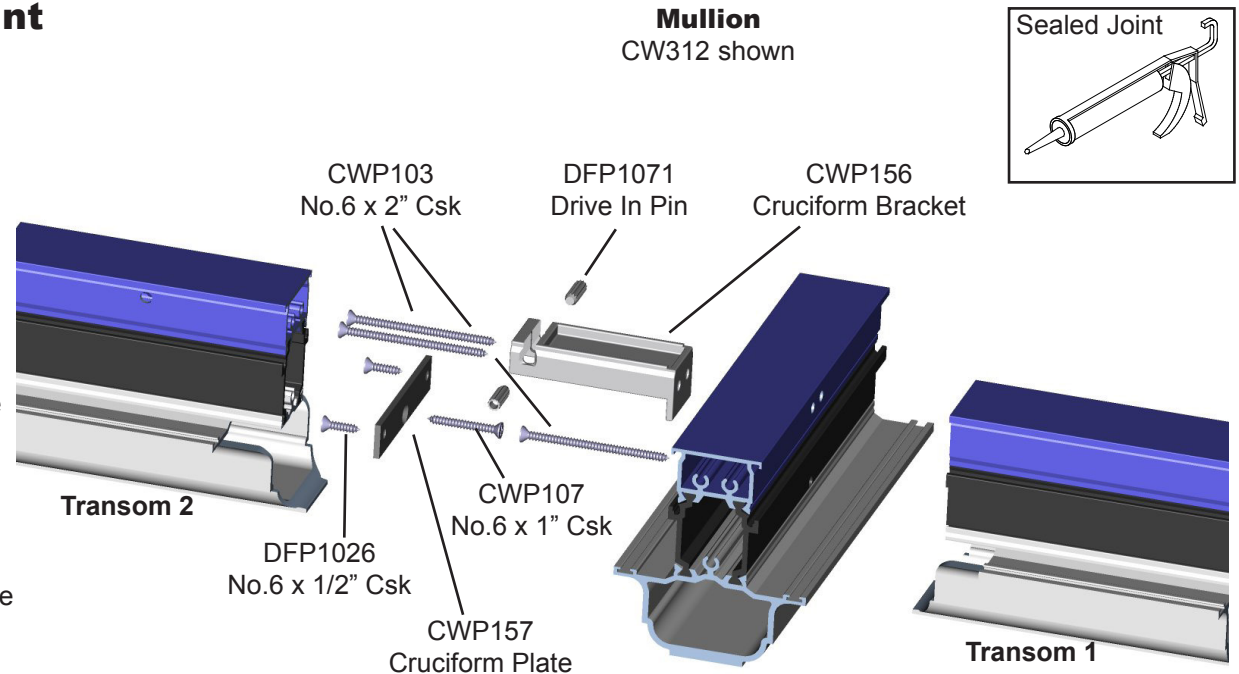
**Note if used, DFC1208 hard back flipper seal must be fitted to any areas that are to accept an opening light, before the frame can be assembled.**

Coat all mating faces that will come into contact with the mullion using Henkel Terostat 934 or 939. Sealant must also be applied around the screw clearance holes in the mullion to prevent water entering into the mullion.

1. Secure the first transom into place by positioning the cruciform bracket onto the mullion and then driving in the No.6 csk head self tap screws into the transom screw splines. Finish assembly of the first transom by securing a further No.6 csk head self tap screw through the mullion and into the remaining transom screw spline.

2. Now secure the cruciform plate onto the end of the second transom with No.6 csk head self tap screw. Slide the transom over the cruciform bracket and attach to the mullion with No.6 csk head self tap screws, spotting through the cruciform plate into the mullion, and drive the pins into the cruciform bracket.

Finally fill any voids between the mullion and transoms to form a watertight joint. Water ingress from individual apertures must not be allowed to drain into each other, but must be allowed to drain out of the system. Clean off any excess sealant from the visible surfaces immediately using Terosan FL.



#### Parts list per joint

##### Mullion - Parts

CW311 - CWP156 x 1, CWP157 x 1 CWP103 x 2, CWP107 x 1, DFP1026 x 2, DFP1071 x 2  
 CW312 - CWP156 x 1, CWP157 x 1 CWP103 x 2, CWP107 x 1, DFP1026 x 2, DFP1071 x 2  
 CW336 - CWP156 x 1, CWP157 x 1 CWP103 x 2, CWP107 x 1, DFP1026 x 2, DFP1071 x 2  
 CW338 - CWP156 x 1, CWP157 x 1 CWP103 x 2, CWP107 x 1, DFP1026 x 2, DFP1071 x 2

**Note CWP157 cruciform plate can interfere with the shootbolt on side hung windows. In this instance one side of the cruciform plate will need to be cut back flush with the side of the transom. This operation is only carried out on the side that the side hung vent is to be fitted.**

## Assembly - Vent Frame

### Vent Frame Corner Cleat Assembly

Profile CW307, CW308, CW309, CW315, CW318, CW340, CW341

Before assembly, note parts list for frame being assembled, vent frame CW307 shown.

**Note if used, DFC1208 hard back flipper seal must be fitted before the vent can be assembled.**

**STOP...CWP118 must be fitted to glaze in vent CW315 before corner jointing, see detail bottom right.**

Coat the mitred ends of the vent frame using:-

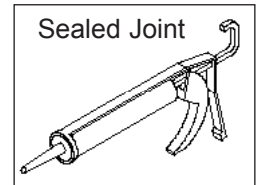
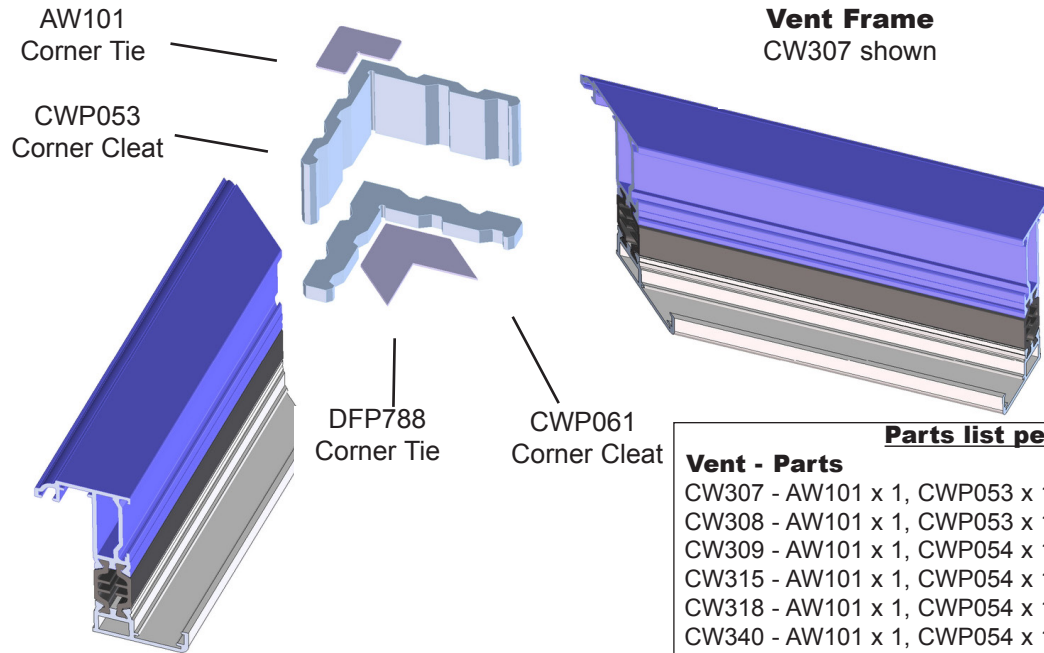
- Henkel Terostat 934 (clear)
- Henkel Terostat 939 (Grey, Black or White)

Apply 106/77 two part adhesive to the cleats and/or profiles using applicator gun and mixing nozzle 106/79.

Insert the cleats and corner ties into the vent frame, ensuring that all cleats are correctly located. Assemble the frame, ensuring that all joints are fully closed and effectively filled with sealant.

Crimp join the frame, and then clean off any excess sealant from the visible surfaces immediately using Terosan FL.

To ensure a good quality corner joint is maintained, it is recommended that the frames should not be handled for 24 hours after joining.



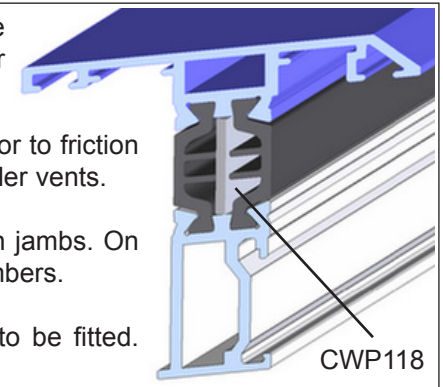
Parts list per corner	
<b>Vent - Parts</b>	
CW307	- AW101 x 1, CWP053 x 1, CWP061 x 1, DFP788 x 1
CW308	- AW101 x 1, CWP053 x 1, CWP061 x 1, DFP788 x 1
CW309	- AW101 x 1, CWP054 x 1, CWP061 x 1, DFP788 x 1
CW315	- AW101 x 1, CWP054 x 1, CWP061 x 1, DFP134 x 1
CW318	- AW101 x 1, CWP054 x 1, AF301 x 1
CW340	- AW101 x 1, CWP054 x 1, CWP061 x 1, AW677 x 1
CW341	- AW101 x 1, CWP054 x 1, CWP061 x 1, AW677 x 1

CWP118 glaze in vent stay tapping plate **MUST** be inserted between the polyamides before corner jointing CW315 vent frame, for secure stay fixing.

Slightly kink the tapping plate prior to assembly in order to aid retention prior to friction stay assembly. If necessary, reduce the length of the tapping plate for smaller vents.

Check handing, for top hung windows, position in the upper corner of both jambs. On side hung windows, position towards the hanging stile of head and cill members.

CWP118 tapping plate **MUST** also be used if DFP1540 hinge bolts are to be fitted. These are positioned in the corners where the hinge bolts go.



## Assembly - Dummy Mullion/Transom

### Dummy Mullion/Transom To Vent Frame

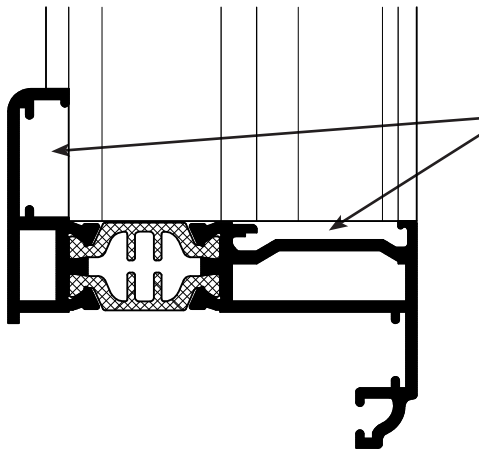
Profile CW316, CW326 (Use with CW307 or CW308 only)

Where a dummy mullion/transom is required into a vent frame, assemble as shown.

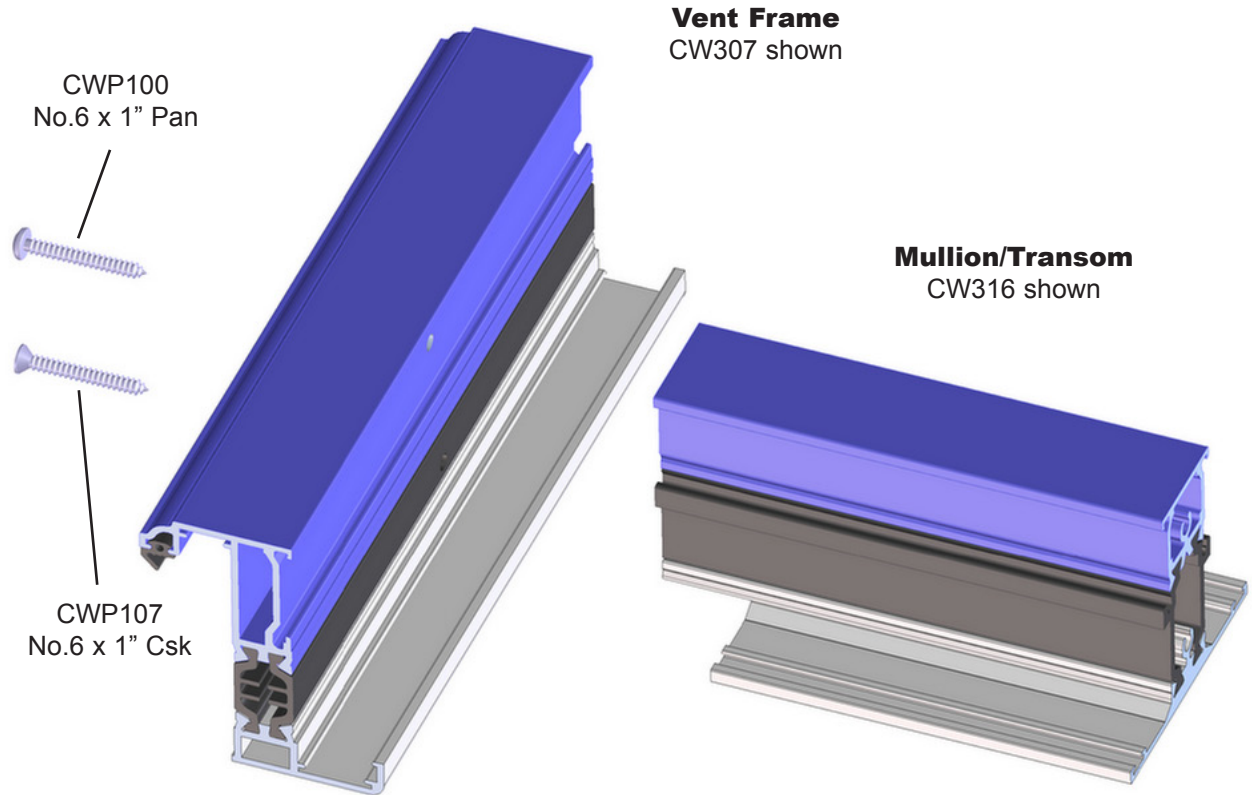
Seal mating faces that will come into contact with the mullion using Henkel Terostat 934 or 939.

After satisfactory positioning of the assembly, secure in place by driving in No.6 self tap screws into the mullion/transom screw splines, then clean off any excess sealant from the visible surfaces immediately using Terosan FL.

Do not seal remaining recesses at the ends of mullion/transom where it meets the vent frame as water **MUST** be allowed to drain past the ends of mullion/transoms.



Do not seal in these areas



Vent Frame  
CW307 shown

Mullion/Transom  
CW316 shown

CWP100  
No.6 x 1" Pan

CWP107  
No.6 x 1" Csk

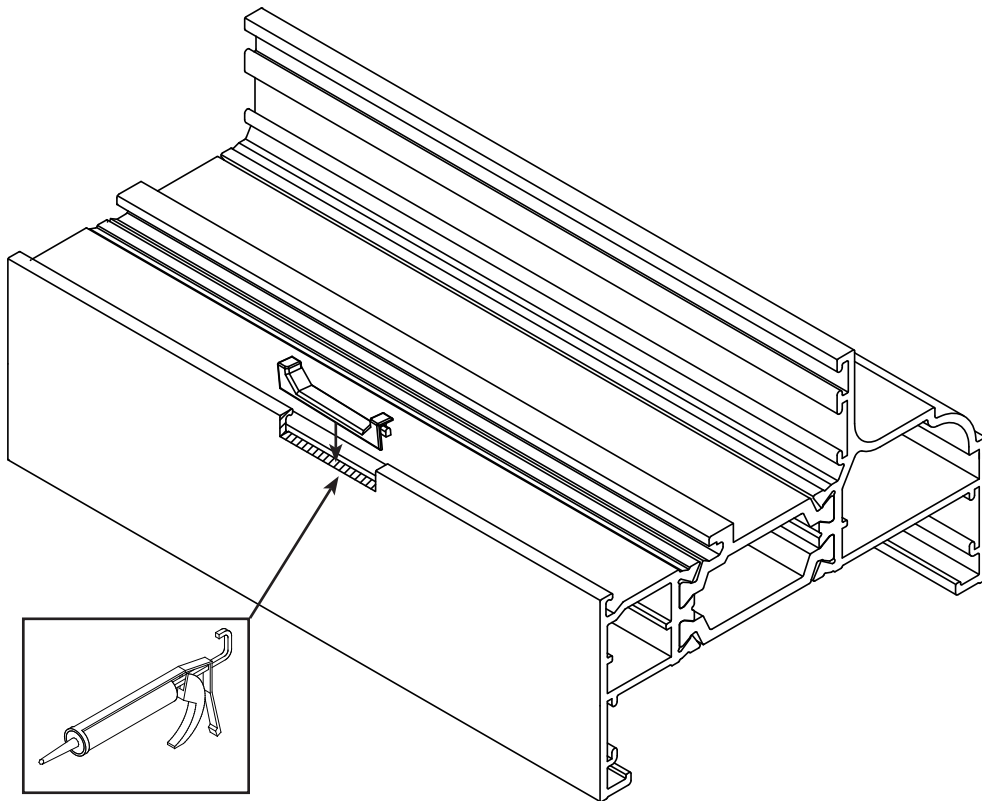
Dummy mullion/transom cruciform joints as per assembly shown on page 5-10, with the exception that water **MUST** be allowed to drain past the ends of mullion/transoms.

## Assembly - Liner

### Outer Frame Drain Notch Liner Assembly

Profile CW320, CW321, CW322, CW323, CW327, CW334, CW335, CW346, CW347

Prior to glazing fixed lights, CWP158 is fitted to the Outer Frame where drainage is present via a push fit into applied sealant.



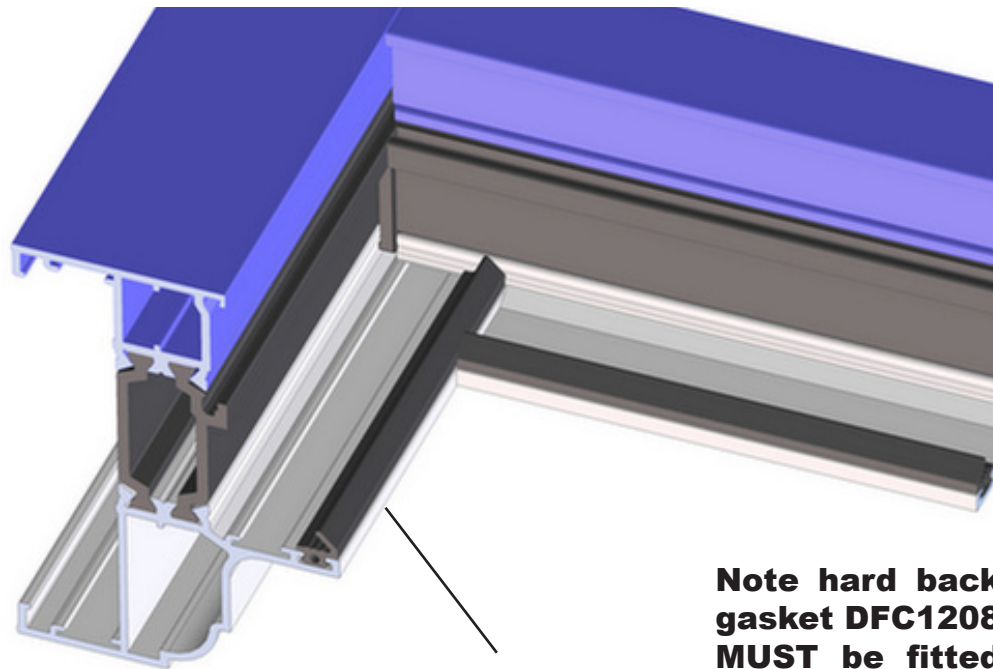


## Assembly - Seals

### Outer Frame Seal

Seal DFC1103, DFC1208

The frame to vent seal is fitted into any area that is to receive an opening light, this seal is fitted to all four sides. Always mitre join if possible at the corners, but where this is not possible eg. mullions/transoms, then run this seal through and butt join. Care should be taken to ensure the seal is not stretched during fitting and Henkel Terostat sealant must be used in all joints.



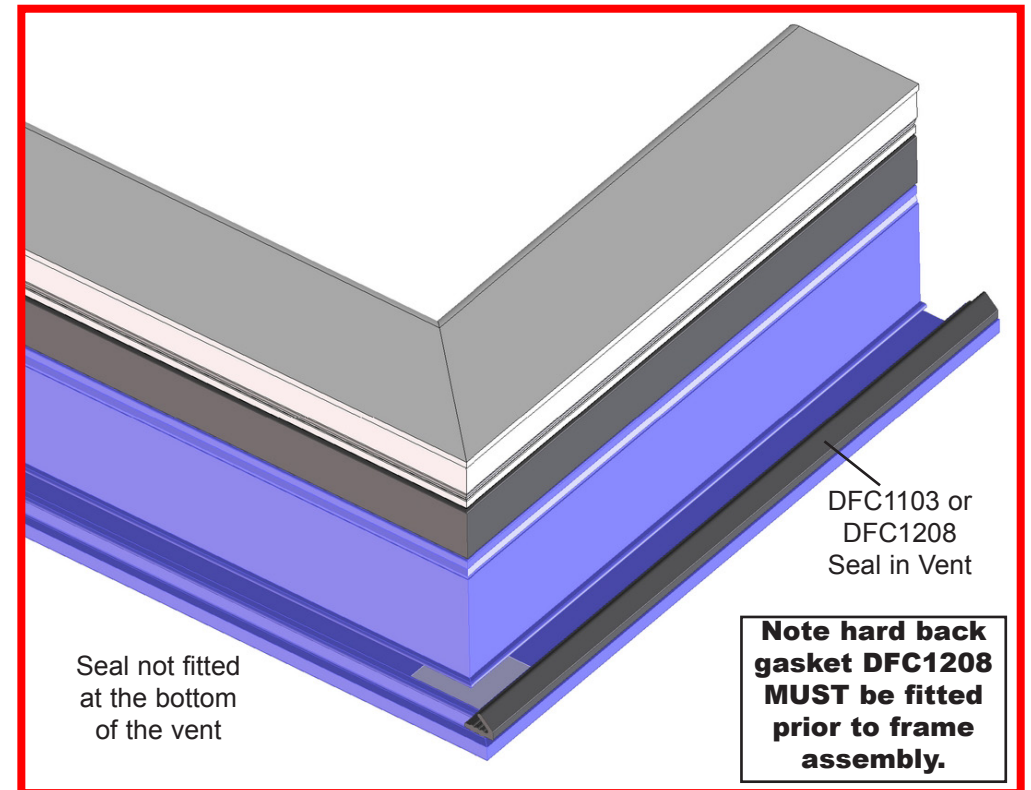
DFC1103 or DFC1208  
Seal in Frame

**Note hard back  
gasket DFC1208  
MUST be fitted  
prior to frame  
assembly.**

### Vent Frame Seal

Seal DFC1103, DFC1208

The vent to frame seal is fitted at the head and jambs of the vent frame but not at the sill. Mitre join at the corners and butt join at the bottom, taking care that the seal is not stretched during fitting. Henkel Terostat sealant must be used in all joints.



DFC1103 or  
DFC1208  
Seal in Vent

Seal not fitted  
at the bottom  
of the vent

**Note hard back  
gasket DFC1208  
MUST be fitted  
prior to frame  
assembly.**

## Assembly - Espag

### Espag Gear Fitting (Glaze out vent)

Profile CW307, CW308, CW309

The gear is assembled in one piece and no cropping is required.

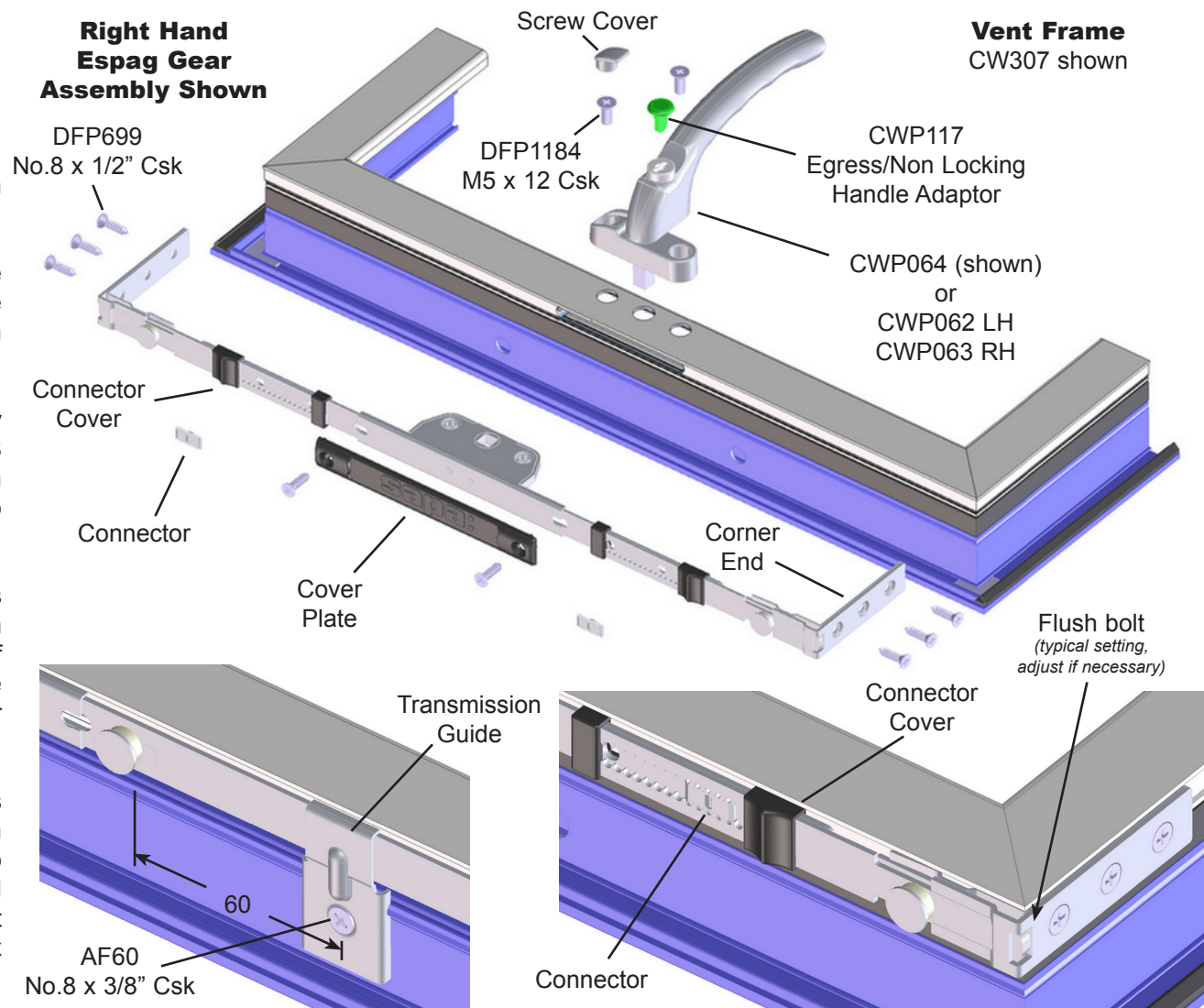
Before fitting the gear, drill the three corner fixing holes at both corners using drill jig CWC130 and 3.5 dia drill.

With the gear in the unlocked position, slide the gearbox into the machined slot in the vent frame, then offer the unlocked handle into the spindle hole in the gearbox. Check handle handing, then secure the handle to the gearbox with M5 csk machine screws.

Slide the corner ends towards the gearbox, until they are firmly located against the vent frame, and attach to the vent with No.8 self tap screws. Position the cover plate on the gearbox, then drill 3.5 dia fixing holes and secure in place with No.8 self tap screws.

As shown in the exploded view, align the end bolt so that it is flush with the corner end, and fit the connector into the arm locating into one of the holes in the arm and the serrations. If necessary slight adjustment may be required to align the serrations up with the connector. Now slide the connector cover over the connector and repeat assembly for the other end.

On large espag assemblies, there are four transmission guides supplied in with the gear. Two guides are positioned 60mm each side of the centre mushrooms as shown, and the remaining two are to be spaced at equal distances between the centre and outer mushrooms (Ensure that the equally spaced guides do not interfere with the locking gear). Guides are attached with No.8 x 3/8" self tap screws with 3.5 dia fixing holes.



## Espag Gear Fitting (Glaze in vent)

Profile CW315

The gear is assembled in one piece and no cropping is required.

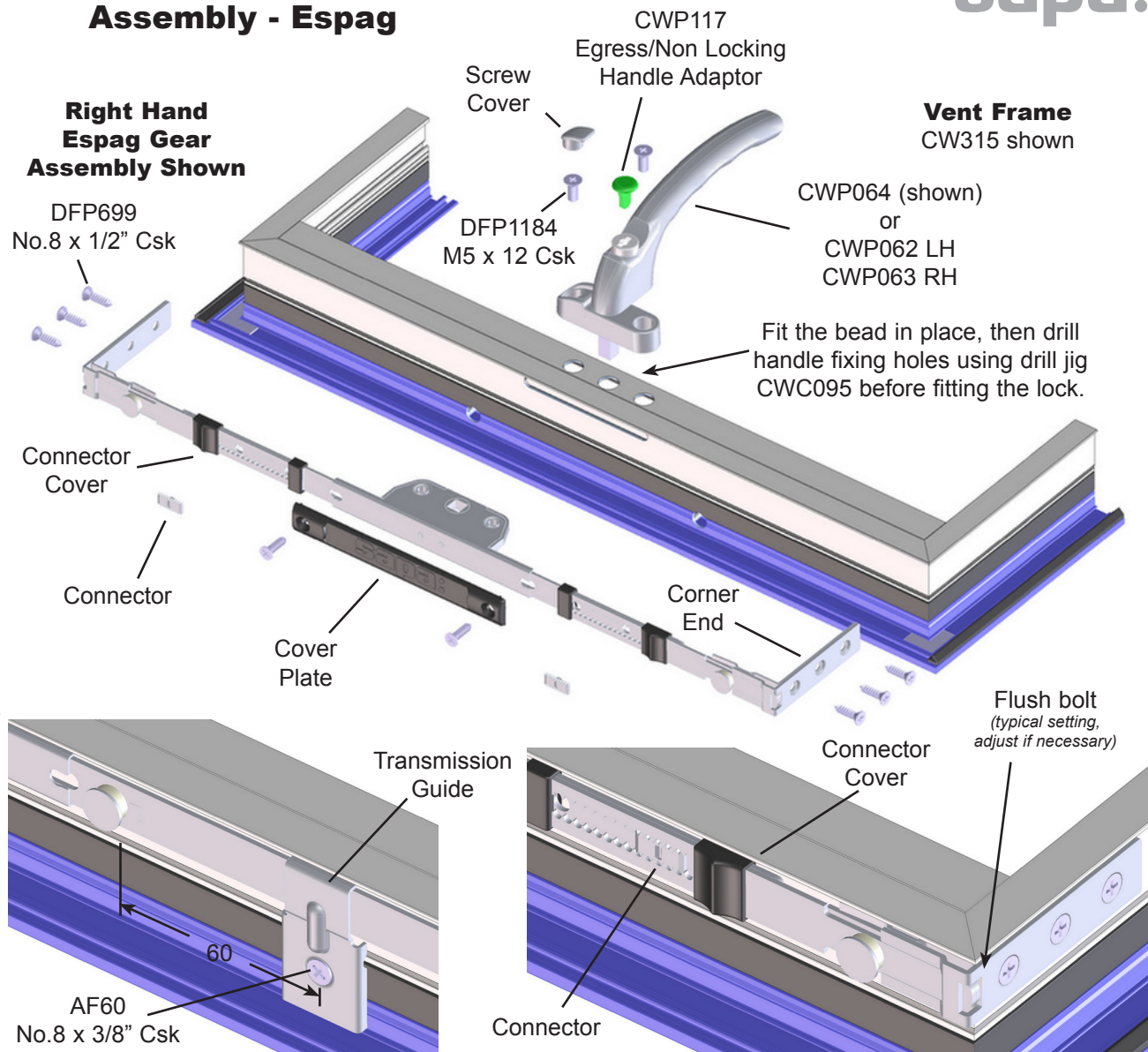
Before fitting the gear, drill the three corner fixing holes at both corners using drill jig CWC130 and 3.5 dia drill. Fit the lock stile glazing bead, then drill the handle fixing holes with drill jig CWC095.

With the gear in the unlocked position, slide the gearbox into the machined slot in the vent frame, then offer the unlocked handle into the spindle hole in the gearbox. Check handle handing, then secure the handle to the gearbox with M5 csk machine screws.

Slide the corner ends towards the gearbox, until they are firmly located against the vent frame, and attach to the vent with No.8 self tap screws. Position the cover plate on the gearbox, then drill 3.5 dia fixing holes and secure in place with No.8 self tap screws.

As shown in the exploded view, align the end bolt so that it is flush with the corner end, and fit the connector into the arm locating into one of the holes in the arm and the serrations. If necessary slight adjustment may be required to align the serrations up with the connector. Now slide the connector cover over the connector and repeat assembly for the other end.

On large espag assemblies, there are four transmission guides supplied in with the gear. Two guides are positioned 60mm each side of the centre mushrooms as shown, and the remaining two are to be spaced at equal distances between the centre and outer mushrooms (Ensure that the equally spaced guides do not interfere with the locking gear). Guides are attached with No.8 x 3/8" self tap screws with 3.5 dia fixing holes.





## Assembly - Espag II

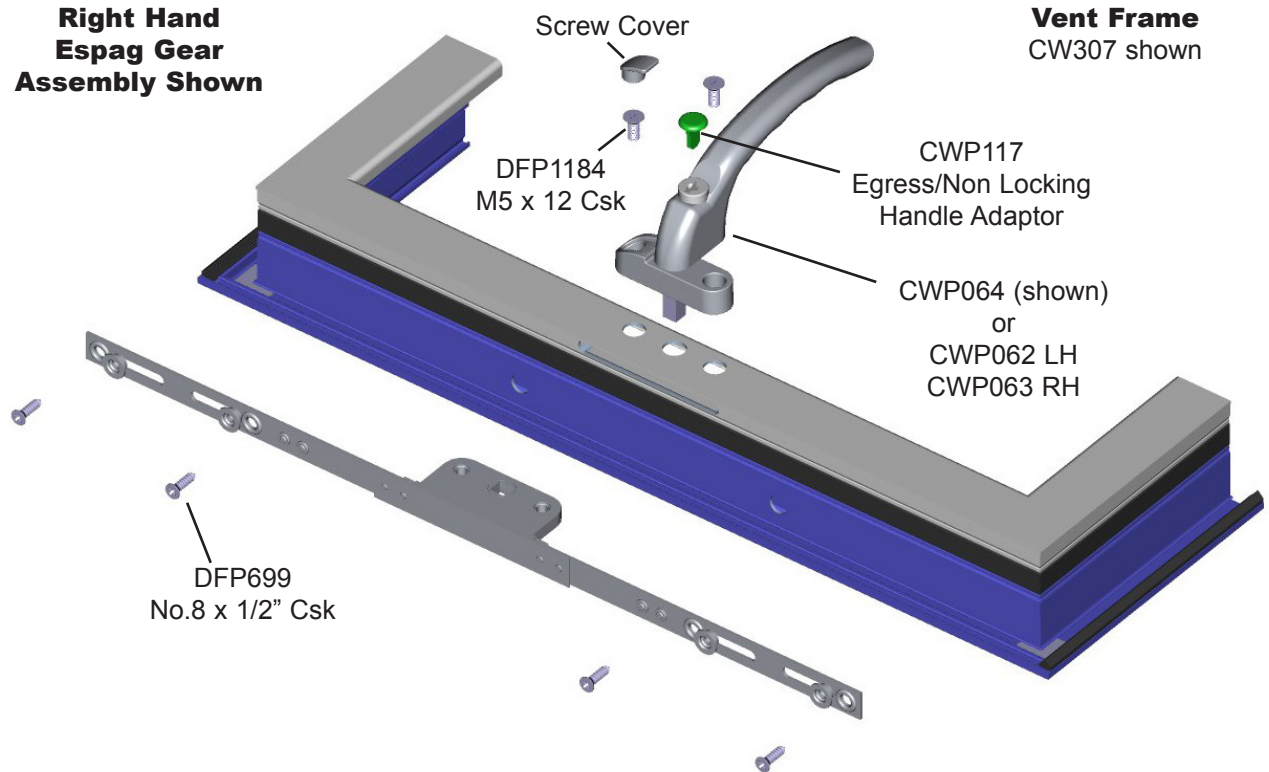
### Espag II Gear Fitting (Glaze out vent)

Profile CW307, CW308, CW309

The gear is assembled in one piece and no cropping is required.

With the gear in the unlocked position, slide the gearbox into the machined slot in the vent frame, then offer the unlocked handle into the spindle hole in the gearbox. Check handle handing, then secure the handle to the gearbox with M5 csk machine screws.

To attach the gearbox, drill 3.5 dia fixing holes and secure in place with No.8 self tap screws.



### Espag II Gear Fitting (Glaze in vent)

Profile CW315

The gear is assembled in one piece and no cropping is required.

Before fitting the gear, fit the lock stile glazing bead, then drill the handle fixing holes with drill jig CWC095.

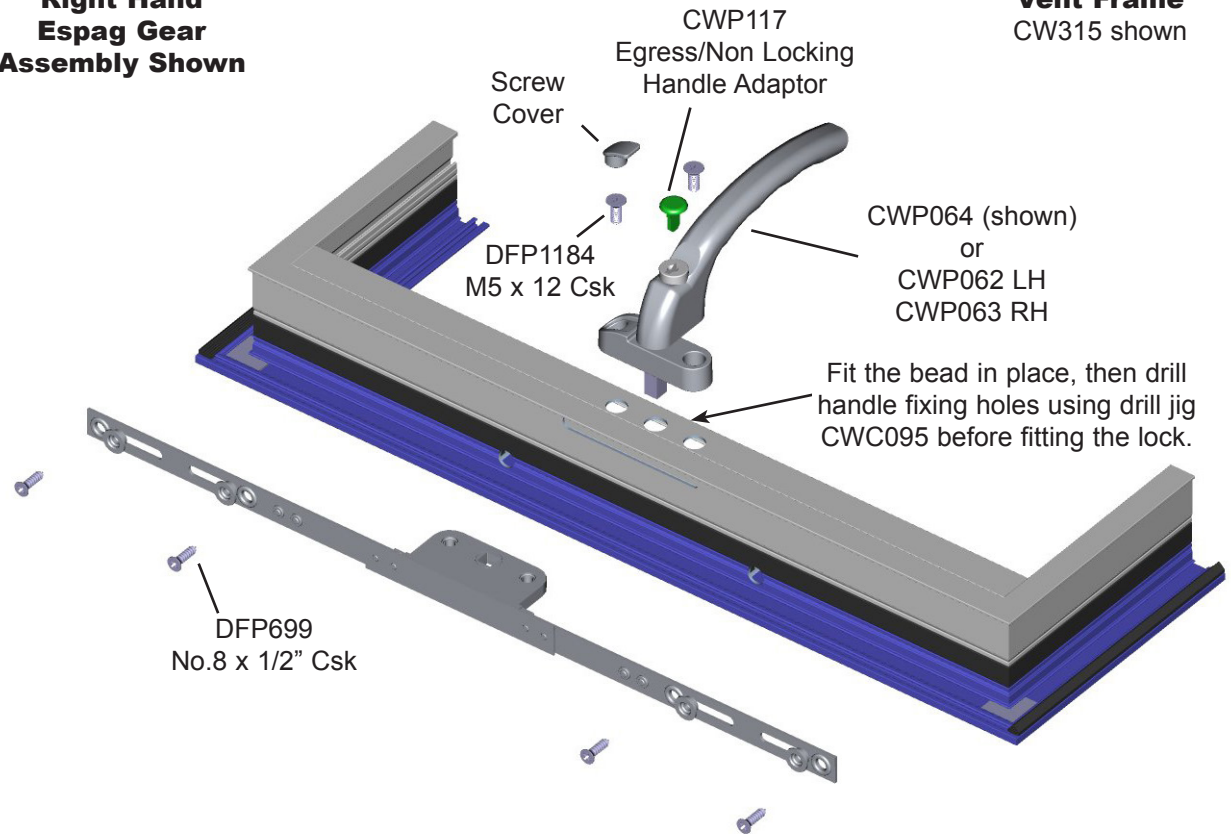
With the gear in the unlocked position, slide the gearbox into the machined slot in the vent frame, then offer the unlocked handle into the spindle hole in the gearbox. Check handle handing, then secure the handle to the gearbox with M5 csk machine screws.

To attach the gearbox, drill 3.5 dia fixing holes and secure in place with No.8 self tap screws.

### Assembly - Espag II

**Right Hand  
Espag Gear  
Assembly Shown**

**Vent Frame  
CW315 shown**



## Assembly - Saracen

### Saracen Gearbox & Shoot Rod

Profile CW318

The gear is assembled in one piece and no cropping is required.

Slide the gearbox into the machined slot in the vent frame, then partially screw in both shoot rods.

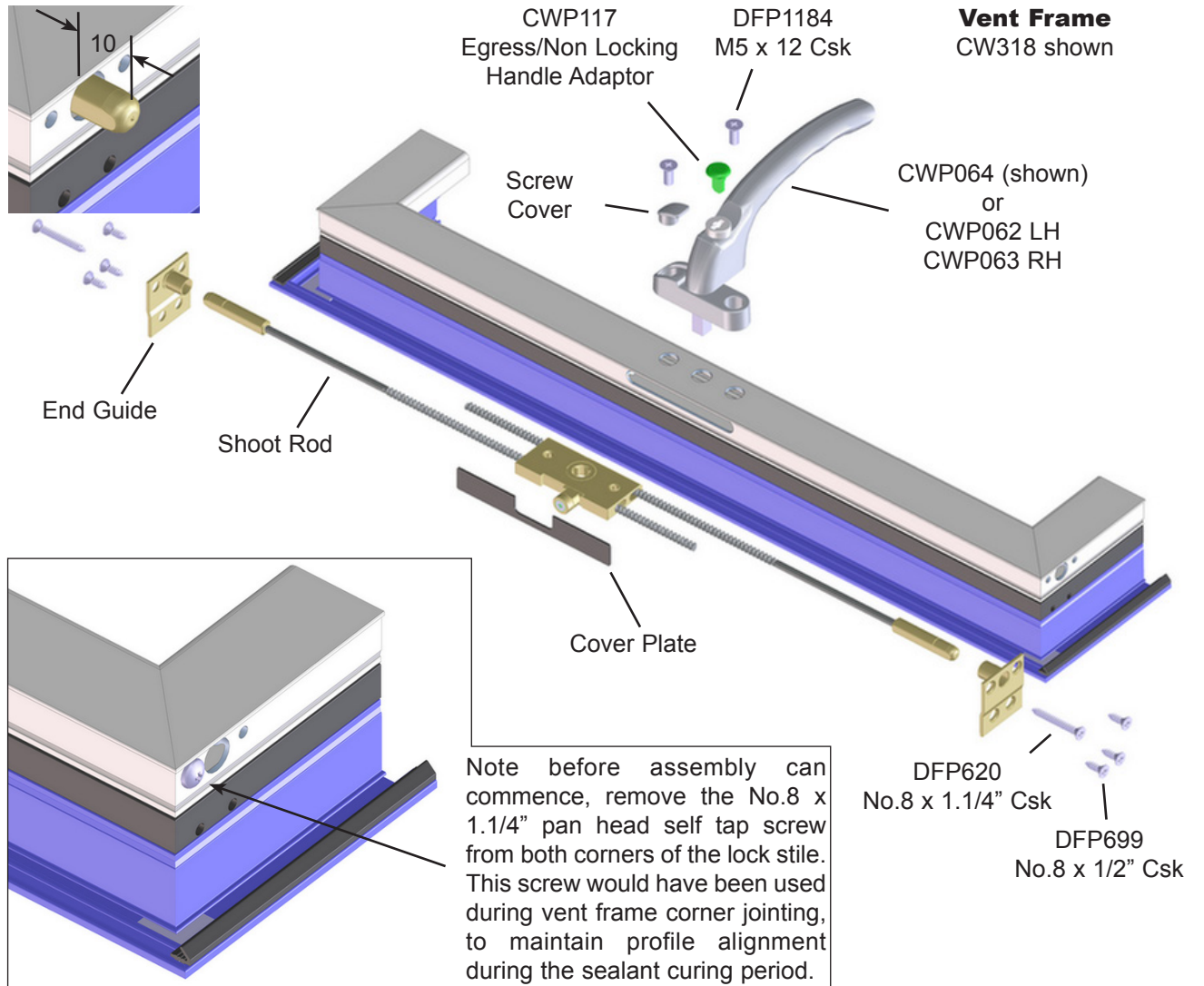
Once the shoot rods are partially fitted, the handle can now be fitted. First ensure that the gear box is in the unlocked position by gripping both protruding rod ends, and pulling away from the gearbox. Now offer the unlocked handle into the spindle hole in the gearbox. Check handle handing, then secure the handle to the gearbox with M5 csk machine screws, and fit screw cover.

Remove the No.8 pan head screw as detailed from both lock stile corners before fitting the end guides.

With the handle in the locked position, adjust the shoot rods so that they protrude 10mm out from the vent section (nominal). Slide the end guides into position and secure with the No.8 csk self tap screws shown.

Peel the backing paper from the self adhesive cover plate, and fit it centrally over the gearbox slot.

Check operation, taking note that minor adjustment might be required to the shoot rod protrusion length, this will be determined after the vent has been fitted to the outer frame.



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## Assembly - Flush Window Espag / Dummy Peg Stay

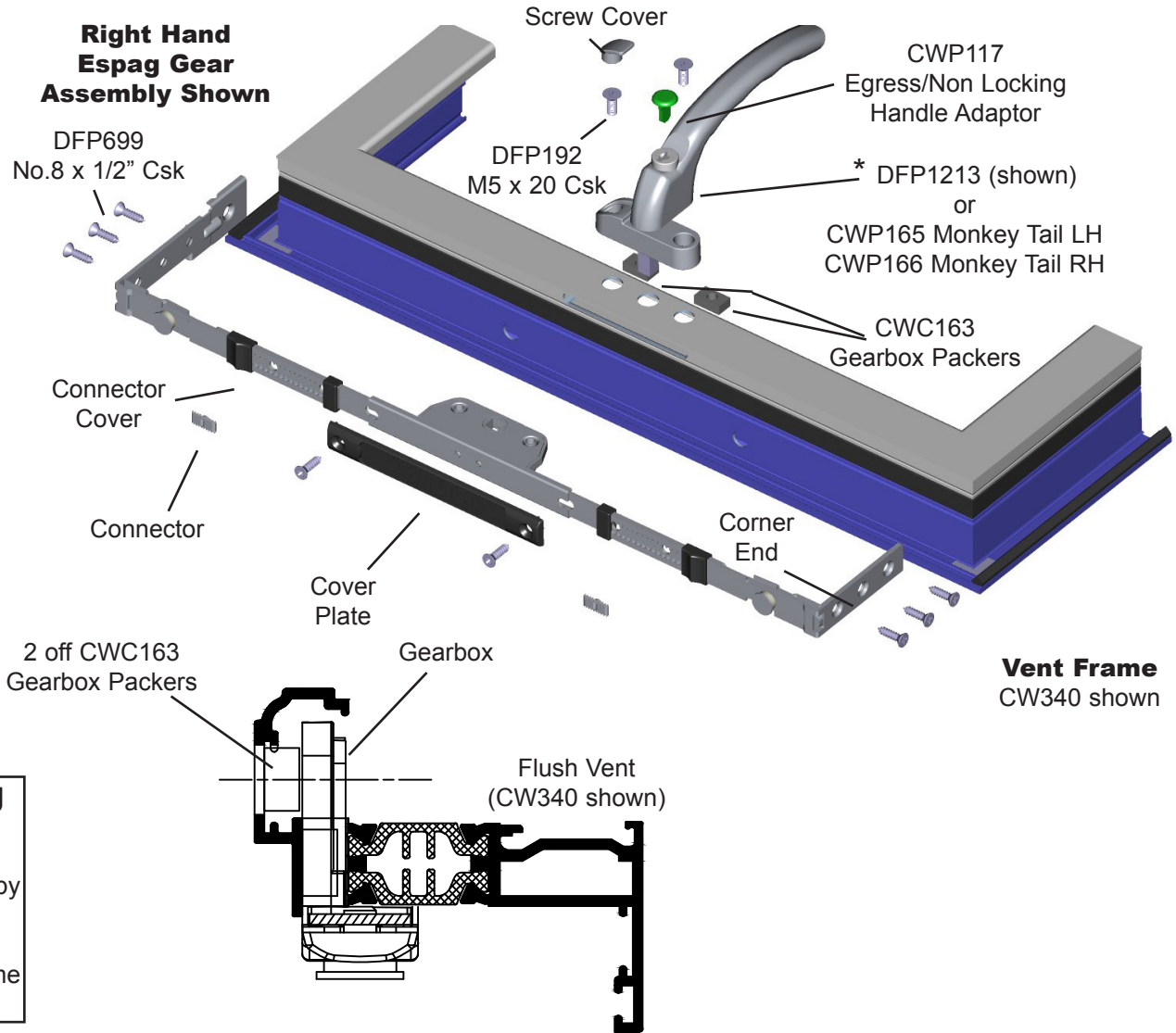
### Espag Gear Fitting (Flush Window)

Profile CW340, CW341

With exception to the part references, fitting is as per Espag Gear Fitting for Glaze out vents (please refer to page 5-16) with the addition of the Flush Vent Gearbox Packers (CWP163).

2 off Flush Vent Gearbox Packers (CWC163) are fitted either side of the handle spindle and between the Espagnolette gearbox and vent rebate before fixing the handle in place. Fix Gearbox Packers CWC163 with a small bead of sealant to prevent them slipping out of position. Clean off any excess.

\* Spindle of handle DFP1213 MUST be cut down to 14mm. When fitting, ensure the spindle protrudes pass the gearbox.



### Monkey Tail Dummy Peg Stay Fitting

Profile CW340, CW341

Position of Dummy Peg Stay (CWP167) is determined by customer preference.

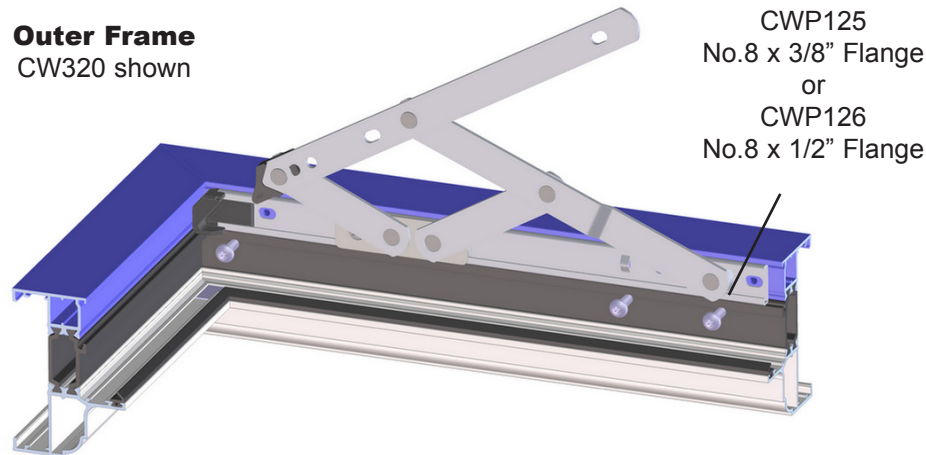
Fit stay in desired position on the inside face of the vent frame with fixings provided in the stay pack



## Assembly - Stays

### Fitting of Stays To Outer Frame

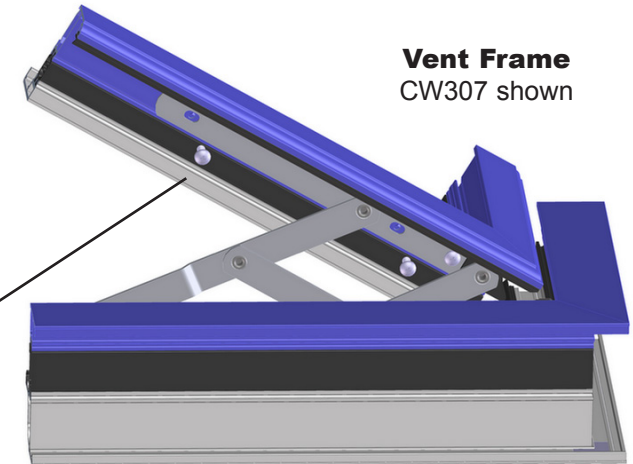
Position the stay track as shown and push until the top of the stay is tight to the frame, now spot through the slotted holes in the stay track with a 3.5mm drill. When drilling, position this hole in the centre of the slotted holes so that the stay can be adjusted up and down, then fix using No.8 flange head self tapping screws.



Note for glaze in vents CW315, all stay fixing holes should be drilled with a 3.0mm drill into tapping plate CWP118, prior to stay fixing. Also note No. 8 x 1/2" flange head self tapping screws must be used with CW315 vents, taking care not to over tighten.

Adjust the closing position of the vent by sliding it up or down until an even overlap is achieved on all four sides of the vent/outer frame. Once an even overlap has been achieved drill through the final fix holes in the stay channel and secure in place.

CWP125  
 No.8 x 3/8" Flange  
 (CW307, CW308, CW309)  
 or  
 CWP126  
 No.8 x 1/2" Flange  
 (CW315)

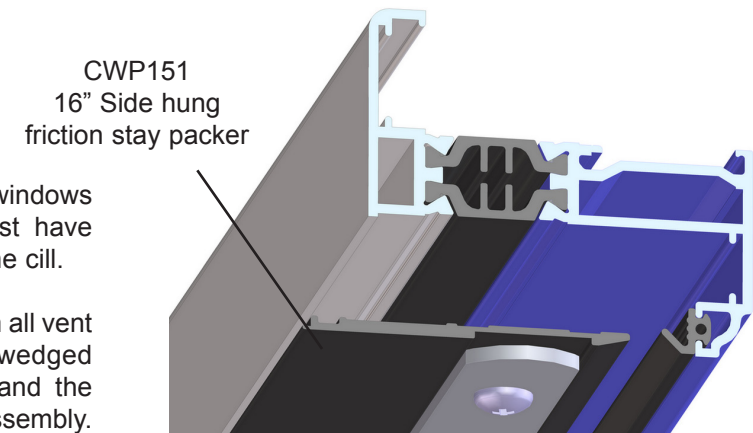


### Fitting of Stays To Vent Frame

Fit the friction stay to the vent frame by using No.8 flange head self tapping screws into the pre-drilled holes in the vent frame, taking care not to over tighten the screw and strip the thread. Once the stay has been secured, position the stay arm so that it is parallel with the edge of the vent frame and spot through the remaining holes in the stay arm using a 3.5mm drill, making sure to penetrate the second wall. Once drilled, finish securing the stay in position and secure the stay in place with the remaining fixings. Repeat this process for the stay on the opposite side of the vent.

Note side hung windows with 16" stays must have CWP151 fitted at the sill.

This item is used on all vent frames and is wedged between the stay and the vent frame during assembly.



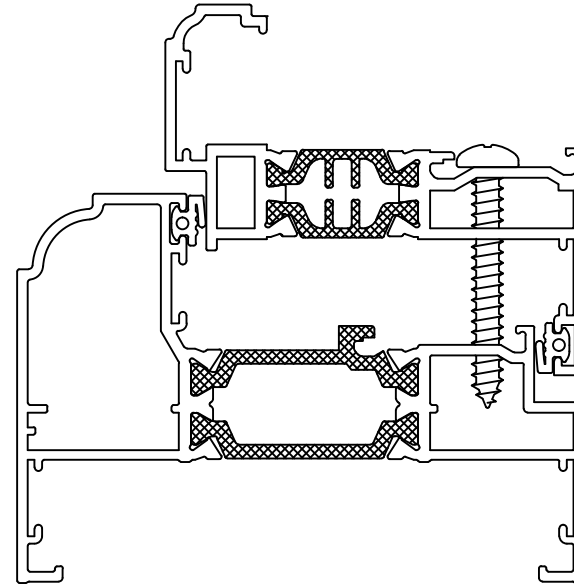


## Assembly - Dummy Sash

### Fitting of Dummy Sash

To position the vent frame correctly within the outer frame, the smallest friction stay can be used as a packer. This would be DFP1260 6" Friction Stay. Fit the friction stay to the vent frame and outer frame as shown on page 5-20. Push the vent frame to close the window. Fix the vent frame to the outer frame by screwing through the glazing groove of the vent frame to the outer frame.

To avoid distortion of the window, do not over tighten the fixings used to screw the window shut



## Assembly - Espag Keeps

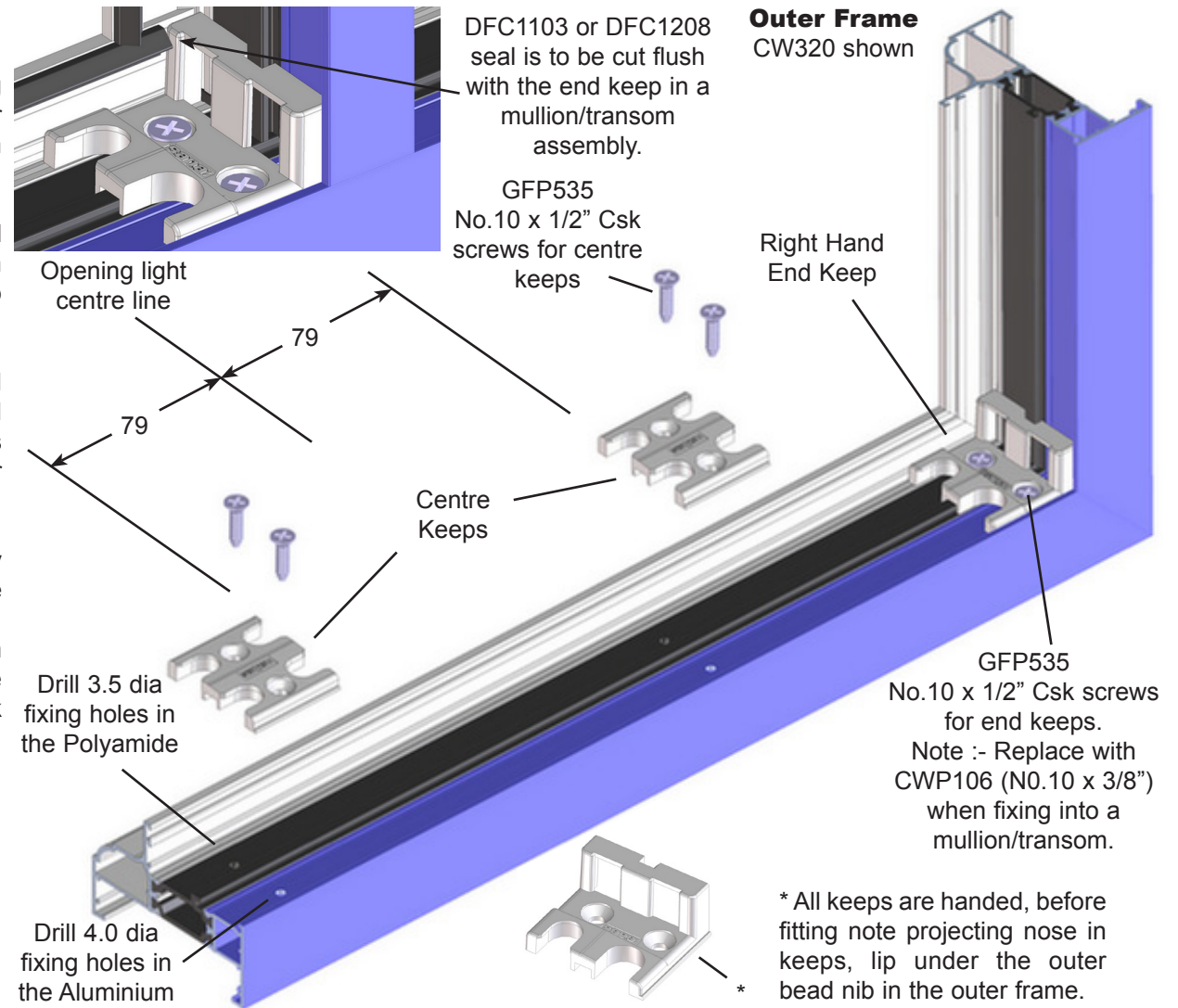
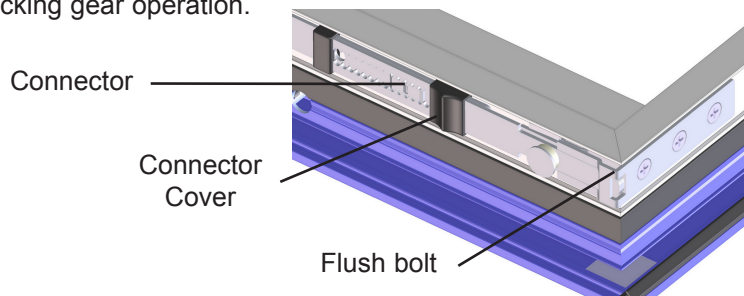
### Espag Strike Fitting

The combination of Espag keeps will vary with window size being constructed. All windows will have left and right end keeps and larger windows will have additional centre keeps. The correct combination of keeps are contained within the Espag gear pack.

The end keeps are positioned fully into the corner of the window, and then fixing holes are spot drilled through the keep (note drill size on illustration). The end keeps are then secured with No.10 self tap screws, taking care not to over tighten fixings.

If supplied, centre keeps are positioned centrally between the end keeps at dimensions shown, and then fixing holes are spot drilled through the keeps (note drill size on illustration). The centre keeps are then secured with No.10 self tap screws, taking care not to over tighten fixings.

The operation of the locking gear should now be checked and any adjustments that need to be made carried out. Should adjustment be required, slide the connector cover and remove the connector. Readjust the length of the end bolt, checking that there is 1mm clearance between the mushroom and the end keeps. Then refit the connector piece and slide the cover back into place, then re-check locking gear operation.



## Assembly - Espag II Keeps

### Espag II Strike Fitting

The combination of Espag II keeps will vary with window size being constructed. All windows will have left and right keeps and larger windows will have an additional off-centre keep. The correct combination of keeps are contained within the Espag II gear pack.

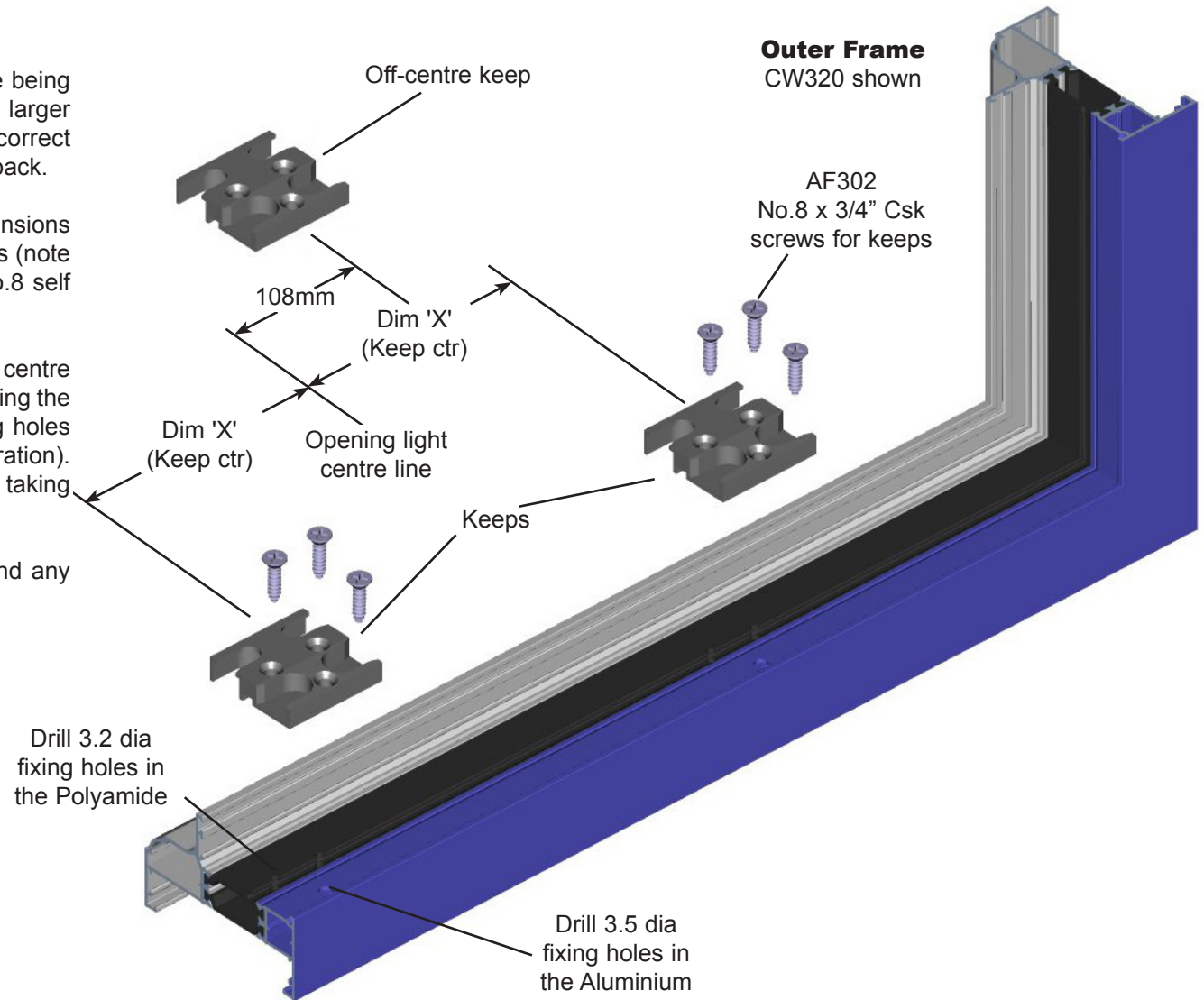
The left and right keeps are positioned centrally at dimensions shown, and then fixing holes are spot drilled through the keeps (note drill size on illustration). The keeps are then secured with No.8 self tap screws, taking care not to over tighten fixings.

If supplied, off-centre keeps are positioned at 108mm from the centre of the opening light to the centre of the keep (as shown), ensuring the keep is positioned on the correct side of the gear box. Fixing holes are then spot drilled through the keep (note drill size on illustration). The centre keeps are then secured with No.8 self tap screws, taking care not to over tighten fixings.

The operation of the locking gear should now be checked and any adjustments that need to be made carried out.

#### Dim 'X'

CWP168 & CWP174 (400mm gear length) = 151.5mm  
 CWP169 & CWP175 (550mm gear length) = 226.5mm  
 CWP170 & CWP176 (700mm gear length) = 301.5mm  
 CWP171 & CWP177 (850mm gear length) = 376.5mm  
 CWP172 & CWP178 (1000mm gear length) = 451.5mm  
 CWP173 & CWP179 (1150mm gear length) = 526.5mm



## Assembly - Espag Keeps

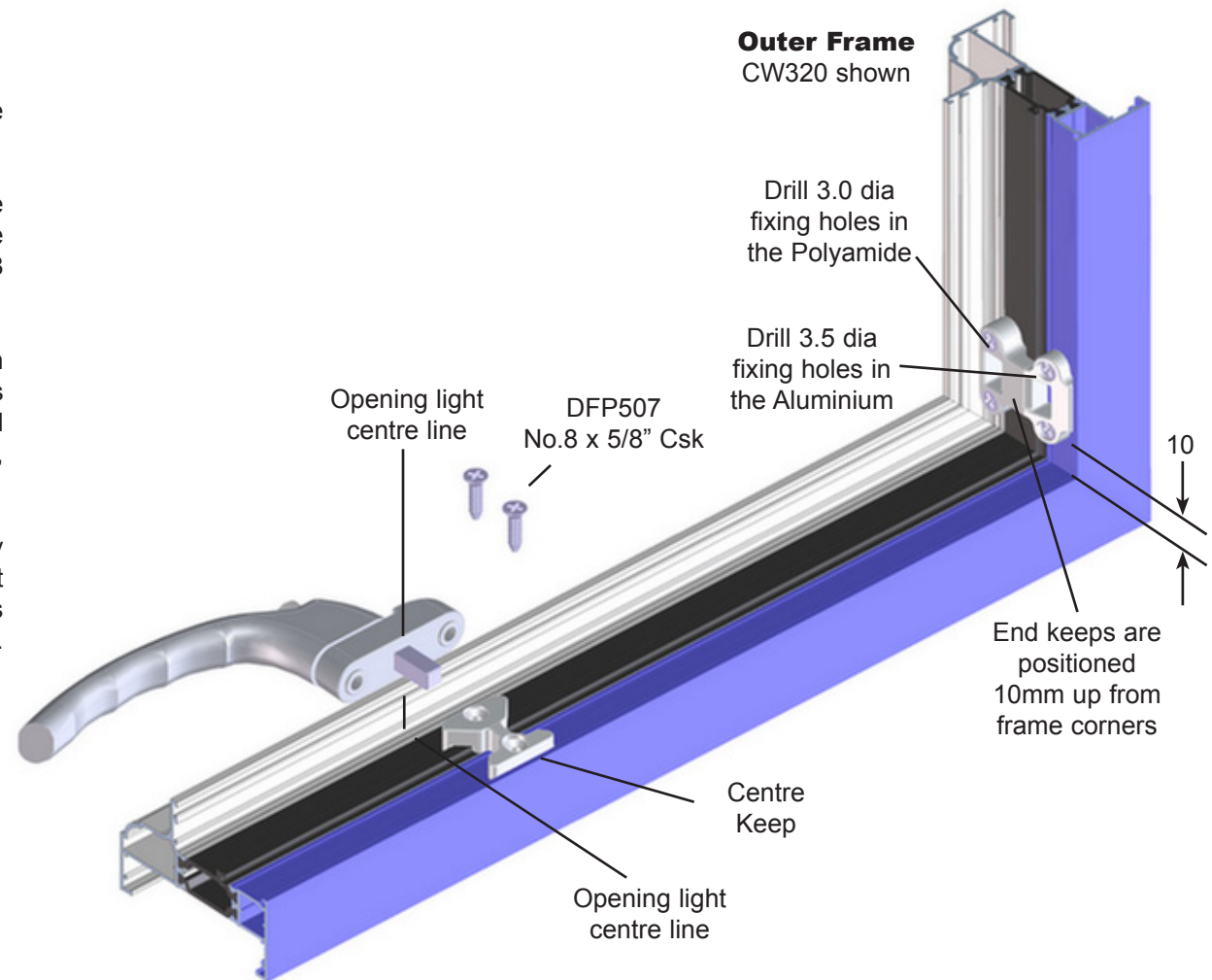
### Saracen Strike Fitting

The combination of Saracen keeps will always consist of a centre keep and two end keeps.

The end keeps are positioned 10mm in from the corner of the window, and then fixing holes are spot drilled through the keep (note drill size on illustration). The end keeps are then secured with No.8 self tap screws, taking care not to over tighten fixings.

Centre keeps are positioned with the side of the keep aligned with the centre line of the opening light, offset from the handle as illustrated. Fixing holes are spot drilled through the keeps (note drill size on illustration), and then secured with No.8 self tap screws, taking care not to over tighten fixings.

The operation of the locking gear should now be checked and any adjustments that need to be made carried out. Should adjustment be required, remove the shoot rod end guide, adjust the shoot rods by screwing in or out, then refit the end guides (see page 5-16). Re-check locking gear and re adjust if necessary.



## Assembly - Cockspur Handle

### Fitting of Cockspur Handles

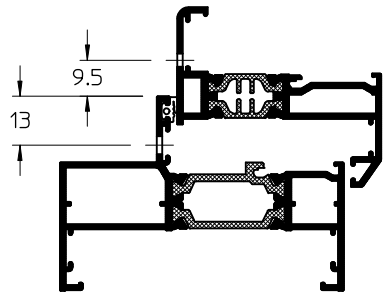
Cockspur handles are fitted after the vent frame has been fitted in the outer frame.

One handle is required for vents up to 900mm in size and two handles over 900mm at 1/4 positions of the vent from the corners.

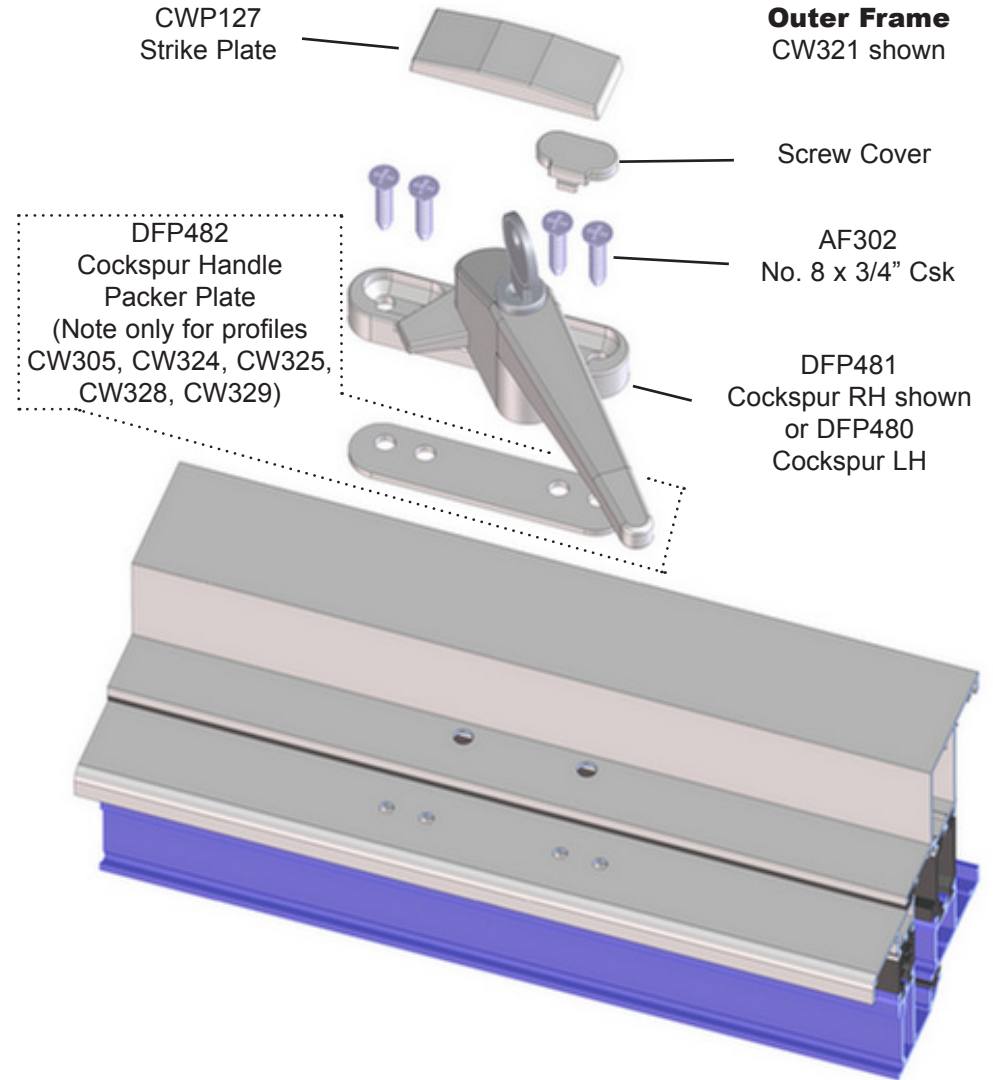
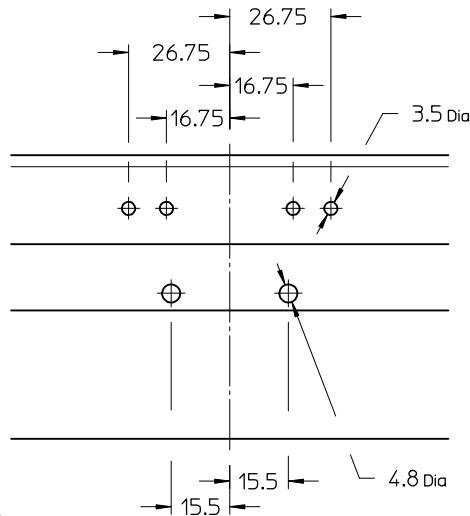
Drill fixing holes as shown using drill jig CWC133. Push fit handle strike into place with a small dab of silicone sealant. Fit handle into place with No 8 x 3/4" csk self tap screws and one screw cover.

Note DFP482 is only required for profiles CW305, CW324, CW325, CW328, CW329.

*Profile CW305, CW307, CW308, CW309, CW310, CW311, CW316, CW321, CW324, CW325, CW326, CW328, CW329.*  
 Drill Jig CWC133



Machining details applicable to either, outer frame and vent or mullion/transom and vent (frame and vent shown).





## Assembly - Hinge Bolt / Riser Block

### Fitting of Hinge Bolt To Vent Frame

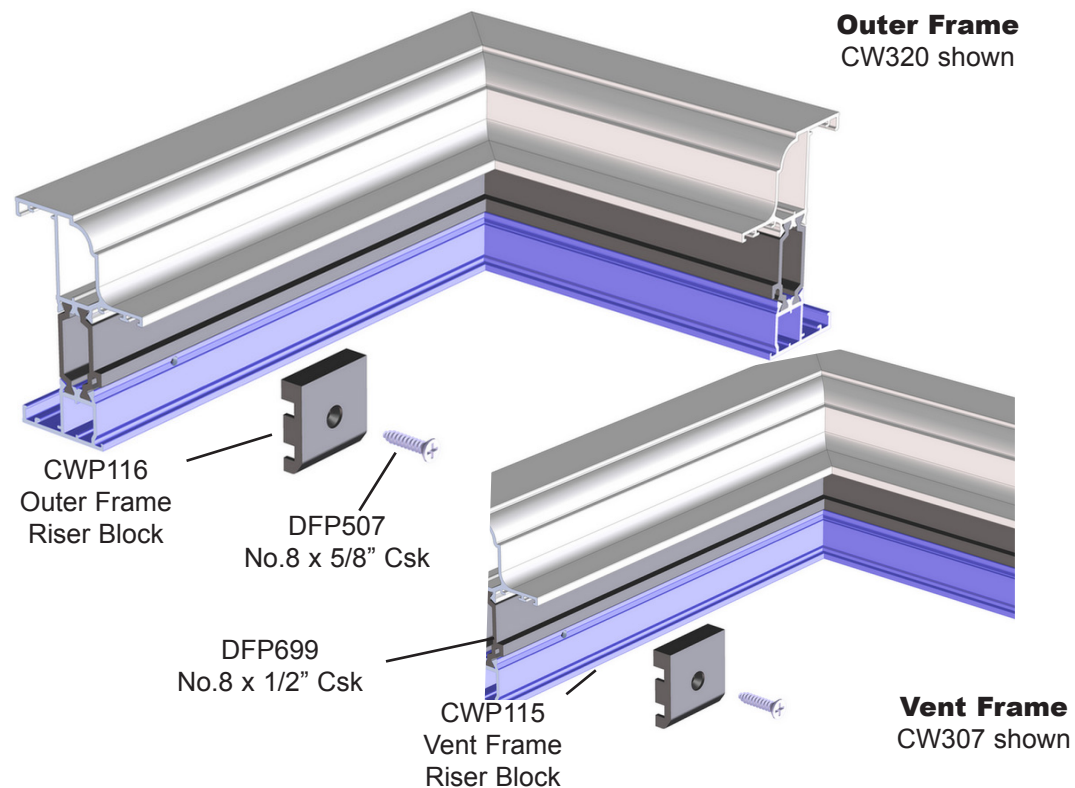
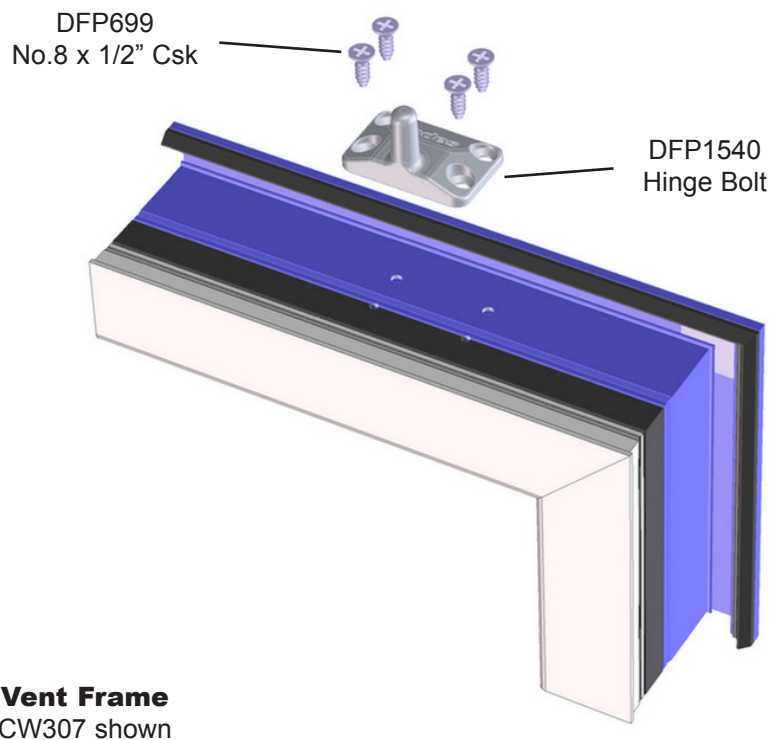
When enhanced security is required, the assembly shown is for the hinge bolt which is fitted above the vent on a top hung window, or on the hinge side of a side hung window.

Secure hinge bolt to the pre-drilled holes in the vent frame with No.8 x 1/2" csk head self tap screws, taking care not to over tighten the screws in the polyamide.

### Fitting of Riser Block

The riser block is fitted to the pre-drilled holes in the outer frame and vent frame. Two pairs of blocks are always fitted to an opening light, one each side of a top hung and one at the top and bottom of a side hung.

Secure to the outer frame with one No.8 x 5/8" csk head self tap screws, and secure to the vent frame with two No.8 x 1/2" csk head self tap screws.

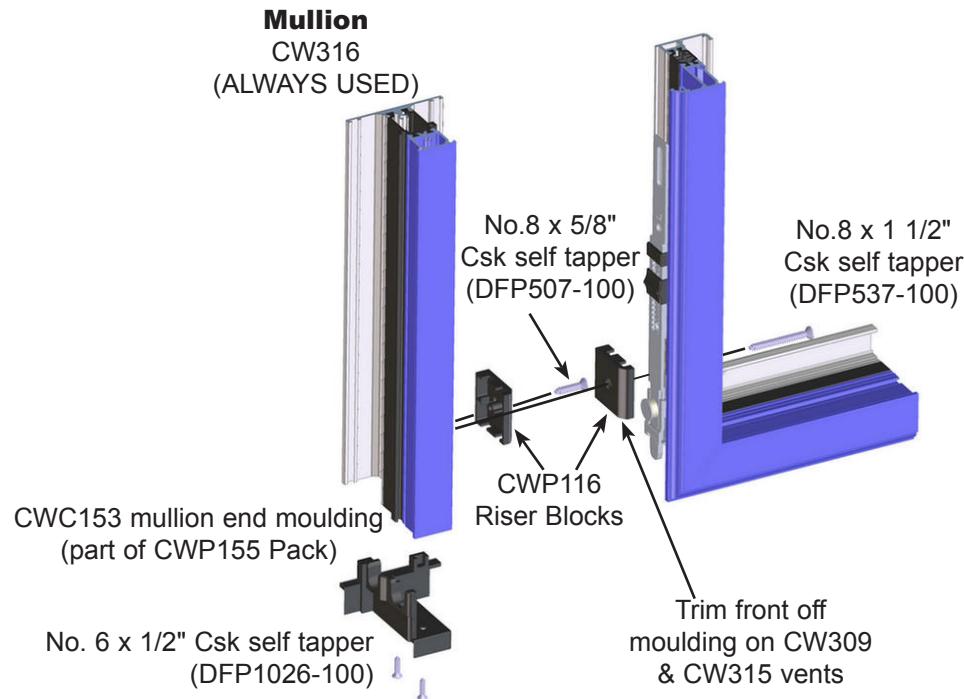


## Assembly - French Casement

### Fitting of Riser Block

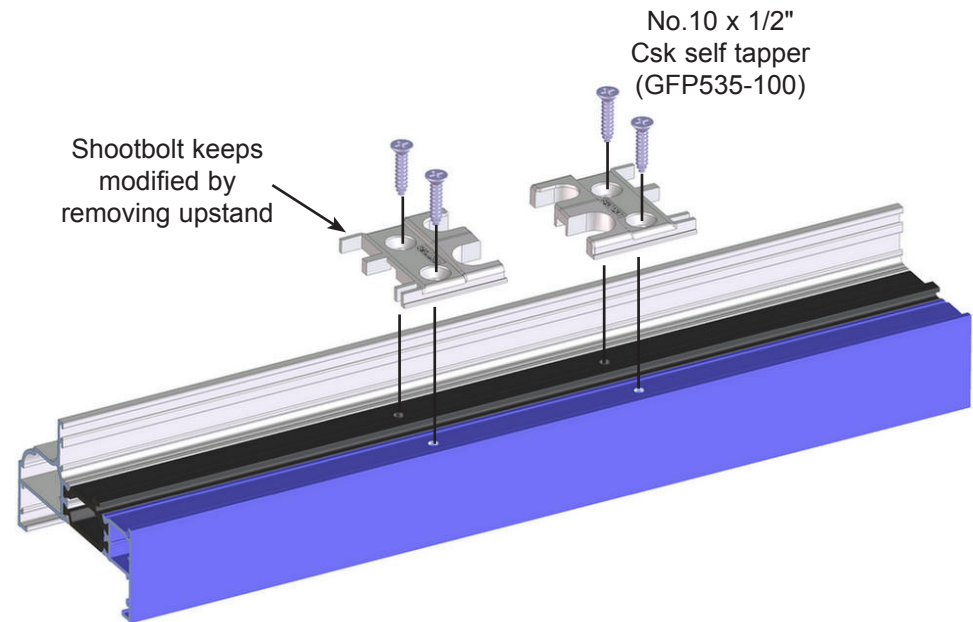
Fit espag locking gear to slave stile in the usual way (as shown on page 5-16). Fit DFC1103 or DFC1208 seal to both grooves in mullion.

Fit CWP116 riser block to mullion in four pre-prepared holes using No. 8 x 5/8" csk self tappers (DFP507). Apply Henkel Terostat sealant to cut ends of mullion, then fit CWC153 & CWC154 (part of CWP155) mullion end mouldings using four No. 6 x 1/2" csk self tappers (DFP1026). Clean off any excess sealant immediately. Using four more CWP116 riser blocks as a spacer, fit mullion to slave stile using four No.8 x 1 1/2" csk self tappers. Note that on CW309 & CW315 vents, the front of the CW116 will need to be trimmed off to sit around the small chevron retaining pip on the vent.



### Fitting of Shootbolt Keep

Modify shootbolt keeps by cutting upstand off and filing smooth as shown in illustration below. Fix into pre-prepared holes in head and cill using No.10 x 1/2" csk self tapper (GFP535)



## Assembly - Restrictors

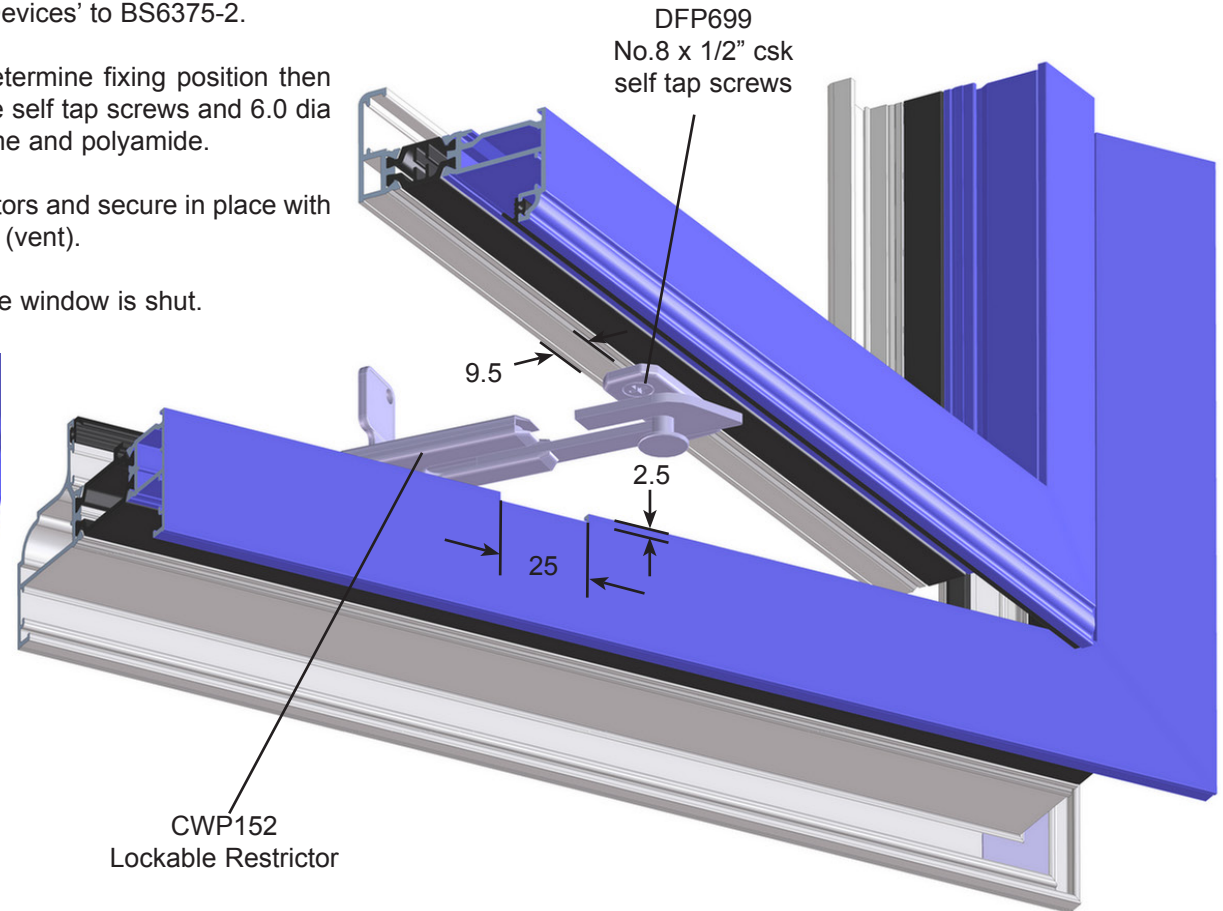
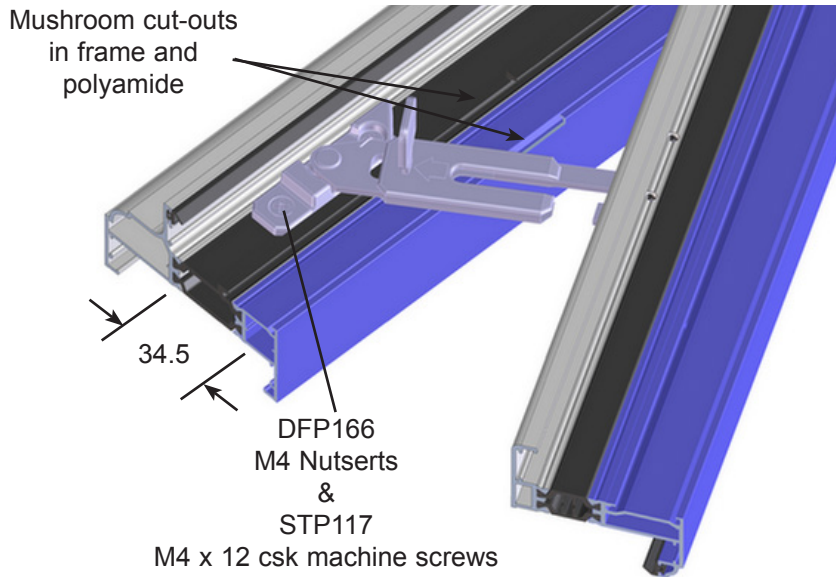
### Lockable Restrictors

The fixing position of the lockable restrictor will depend on the clear opening required, and the fixing position must not interfere with the friction stay. Two restrictors must be fitted to all windows, (top and bottom of side hung and each side of top hung) to meet 'Safety Devices' to BS6375-2.

The restrictors are supplied in pairs, check restrictor handing and determine fixing position then mark the fixing holes and mushroom cut-outs. Drill 3.5dia holes for the self tap screws and 6.0 dia holes for the M4 nutserts. Machine away the cut-outs in the outer frame and polyamide.

Insert the M4 nutserts using 202/161 nutsert tool, reposition the restrictors and secure in place with M4 x 12 Csk machine screws (frame) and No.8 x 1/2" Self tap screws (vent).

Check that the restrictor opens and automatically re-engages when the window is shut.



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## Assembly - Head Trickle Vent

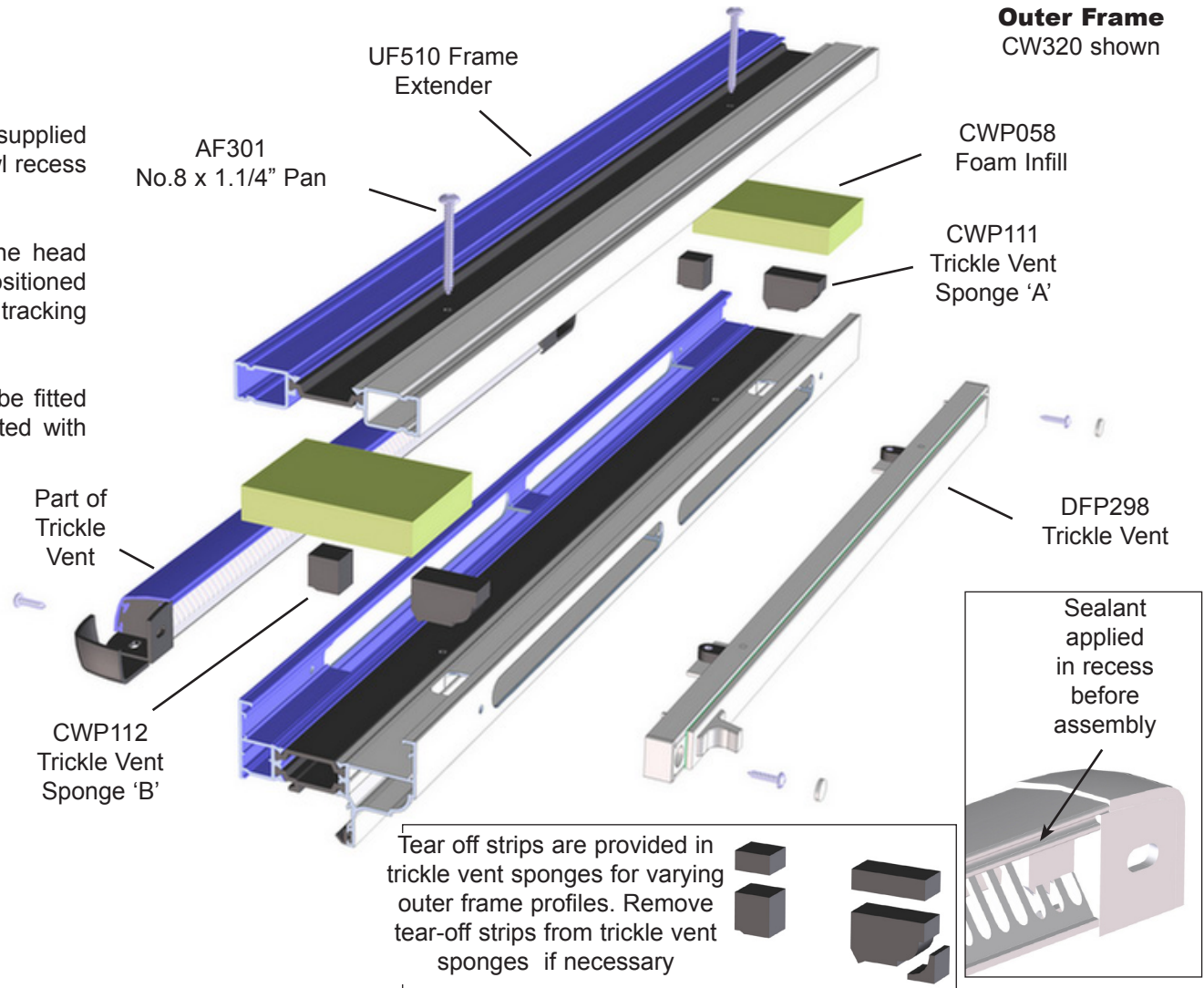
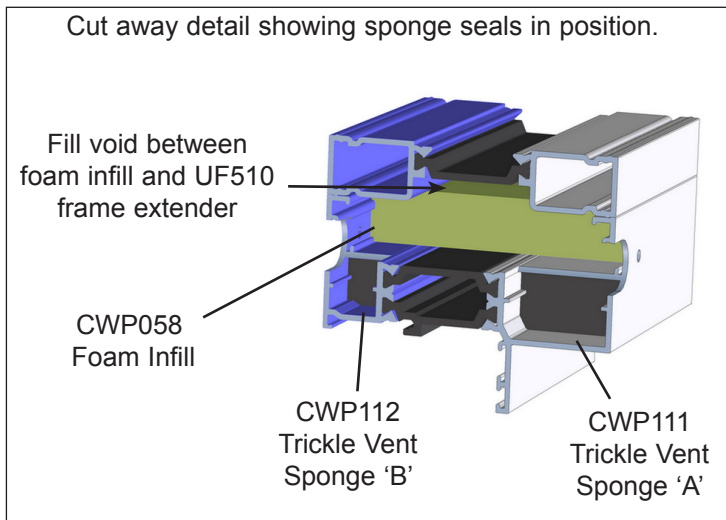
### Head Trickle Vent Assembly

Profile CW320, CW321, CW327

Assemble trickle vent DFP298 as shown, using fixing screws supplied and screw covers. Silicone sealant must be applied in the cowl recess before fitting.

Trickle vent sponges are sealed in the lower recesses of the head profile each side of the trickle vent, and then the foam infill is positioned each side of the trickle vent and sealed to prevent air from tracking along the head profile.

Only deep frame profiles, CW320, CW321 and CW327 can be fitted with integral trickle vents. All outer frame profiles can be fitted with trickle vent profile as shown on the following page.



## Assembly - Trickle Vent

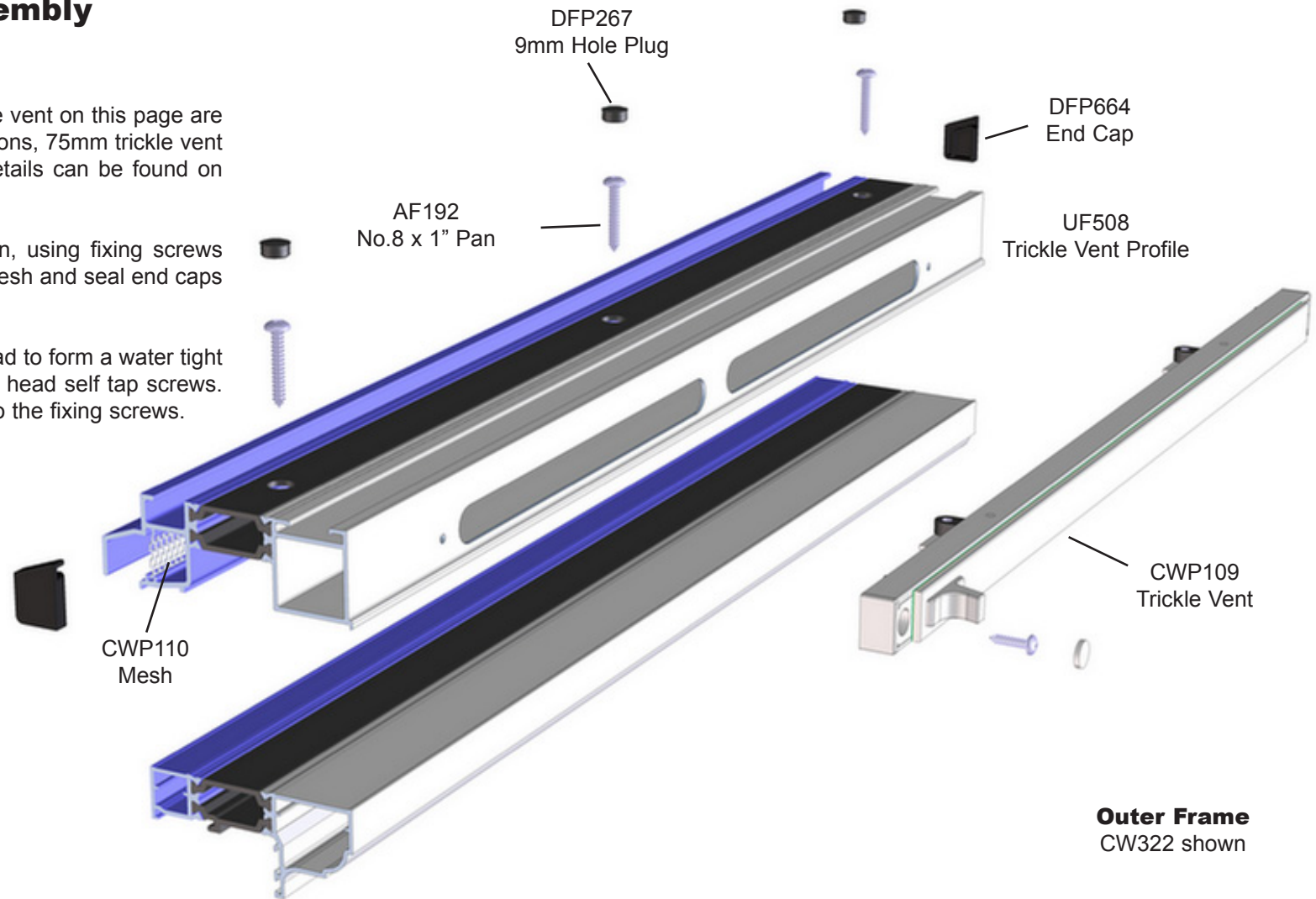
### Trickle Vent Profile Assembly

Profile CW313, CW319, UF508, UF514

The assembly details shown for the trickle vent on this page are applicable to both 75mm and 52mm versions, 75mm trickle vent shown. Alternative integral trickle vent details can be found on the previous page.

Assemble trickle vent CWP109 as shown, using fixing screws supplied and screw covers. Slide in the mesh and seal end caps into place.

The trickle vent profile is sealed to the head to form a water tight joint, and secured in place with No.8 pan head self tap screws. Finish off by inserting 9mm hole plugs into the fixing screws.



## Assembly - Trickle Vent Parts

### (A) Assemble the vent flap (SP Finishes only)

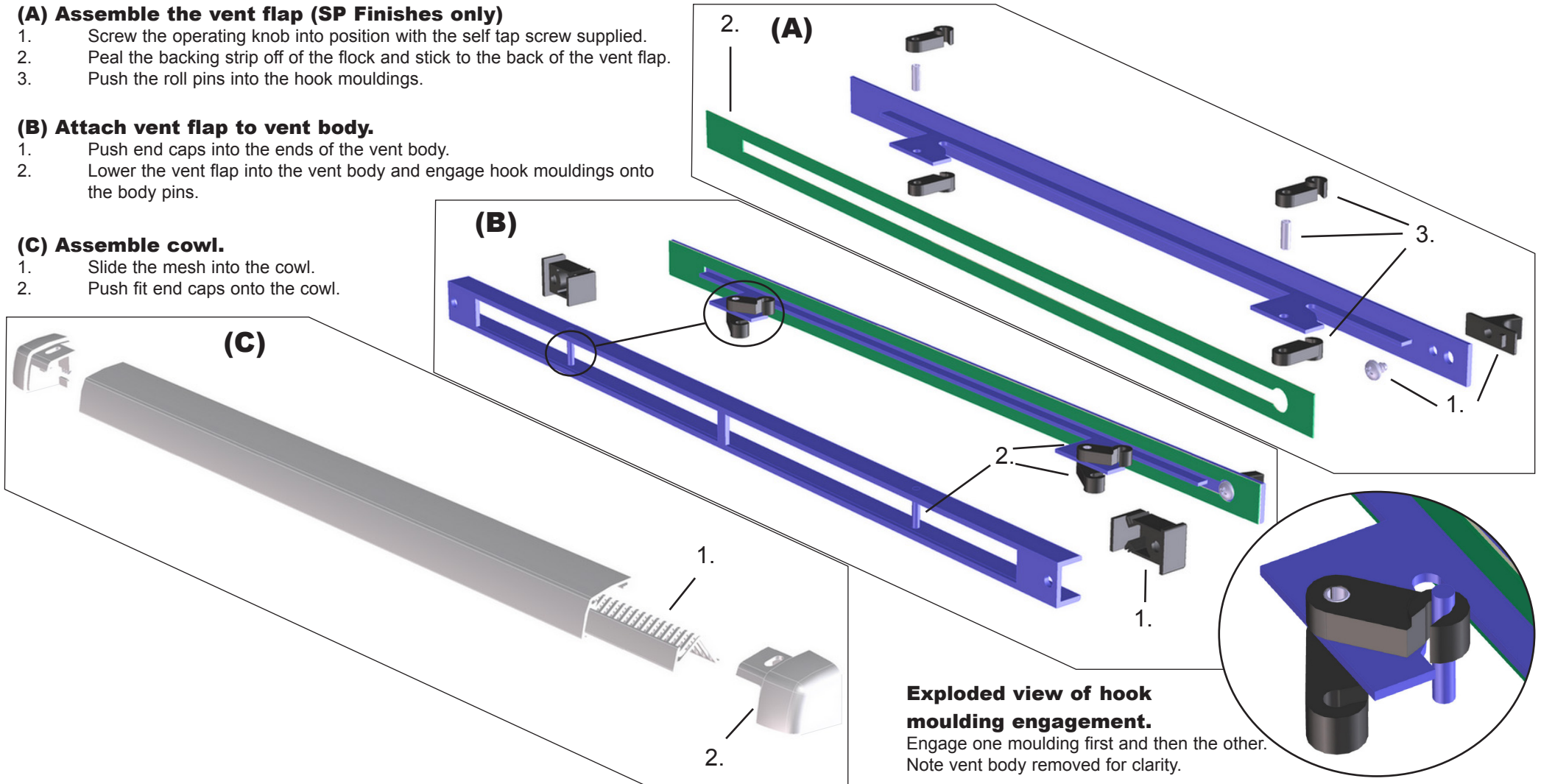
1. Screw the operating knob into position with the self tap screw supplied.
2. Peel the backing strip off of the flock and stick to the back of the vent flap.
3. Push the roll pins into the hook mouldings.

### (B) Attach vent flap to vent body.

1. Push end caps into the ends of the vent body.
2. Lower the vent flap into the vent body and engage hook mouldings onto the body pins.

### (C) Assemble cowl.

1. Slide the mesh into the cowl.
2. Push fit end caps onto the cowl.



## Assembly - Universal Bay Pole

### Universal Bay Pole Assembly

Profile UF515

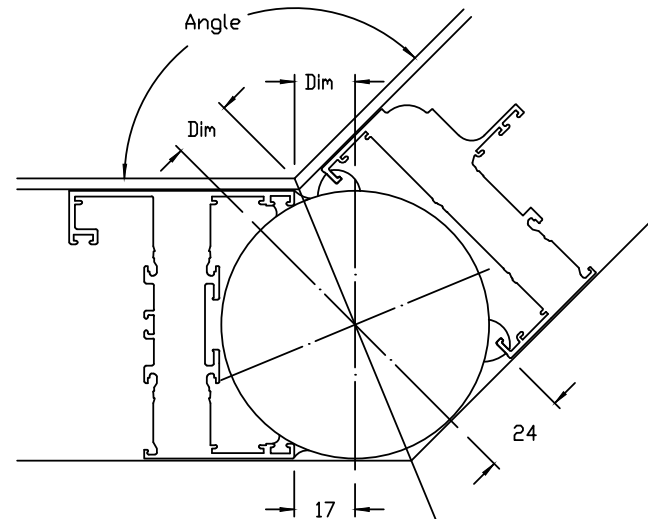
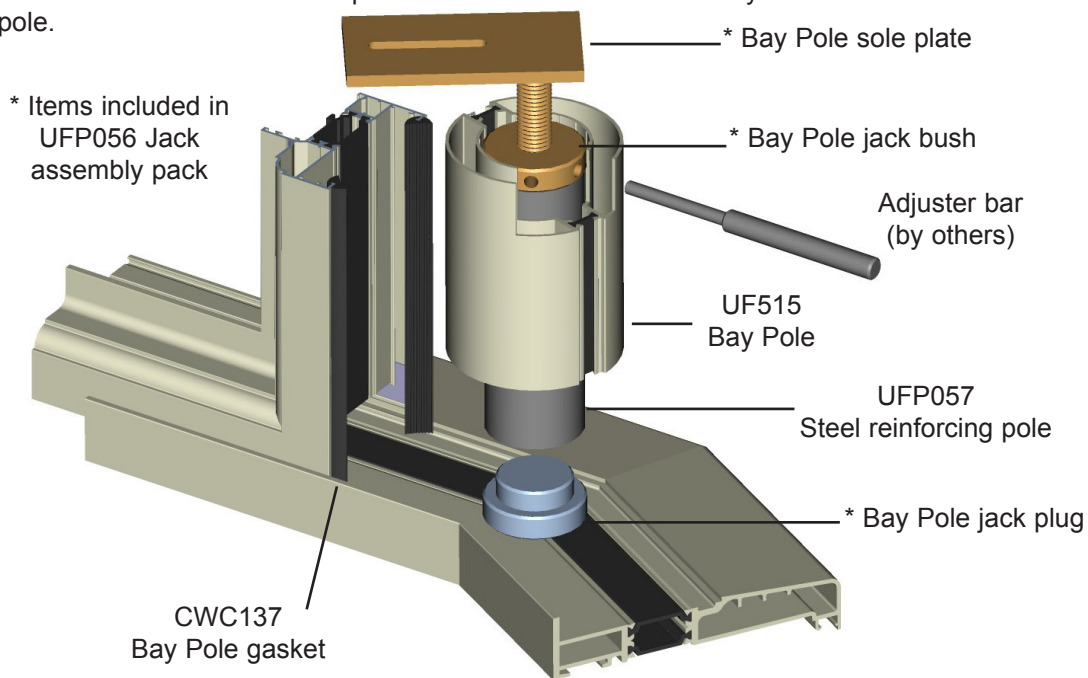
UFP056 Jack Assembly bracket pack is used with the steel reinforcing pole for any load bearing application.

UFP057 steel reinforcing pole is 2.5m long. Coat cut end with suitable rust proof treatment.

CWC137 bay pole gasket is to form a watertight joint with UF515 bay pole. This gasket can only be used with profiles CW320, CW321 and CW327. All other profiles are to be sealed to the bay pole.

Note:- cill profiles must be fully supported to take any loads exerted.

Cutting calculations for UFP057 pole with jacking brackets - O/A window height minus 22mm



Internal Angle	125 °	126 °	127 °	128 °	129 °	130 °	131 °	132 °	133 °	134 °	135 °
Dim (mm)	21.3	20.9	20.4	20.0	19.6	19.1	18.7	18.3	17.8	17.4	17.0
Internal Angle	136 °	137 °	138 °	139 °	140 °	141 °	142 °	143 °	144 °	145 °	146 °
Dim (mm)	16.6	16.2	15.7	15.3	14.9	14.5	14.1	13.7	13.3	12.9	12.5
Internal Angle	147 °	148 °	149 °	150 °	151 °	152 °	153 °	154 °	155 °	156 °	157 °
Dim (mm)	12.1	11.8	11.4	11.0	10.6	10.2	9.8	9.5	9.1	8.7	8.3
Internal Angle	158 °	159 °	160 °	161 °	162 °	163 °	164 °	165 °	166 °	167 °	168 °
Dim (mm)	8.0	7.6	7.2	6.9	6.5	6.1	5.8	5.4	5.0	4.7	4.3
Internal Angle	169 °	170 °	171 °	172 °	173 °	174 °	175 °	176 °	177 °	178 °	179 °
Dim (mm)	3.9	3.6	3.2	2.9	2.5	2.1	1.8	1.4	1.1	0.7	0.4

Internal Angle	125 °	126 °	127 °	128 °	129 °	130 °	131 °	132 °	133 °	134 °	135 °
Dim (mm)	22.6	22.2	21.7	21.2	20.7	20.3	19.8	19.4	18.9	18.5	18.0
Internal Angle	136 °	137 °	138 °	139 °	140 °	141 °	142 °	143 °	144 °	145 °	146 °
Dim (mm)	17.6	17.1	16.7	16.3	15.8	15.4	15.0	14.6	14.1	13.7	13.3
Internal Angle	147 °	148 °	149 °	150 °	151 °	152 °	153 °	154 °	155 °	156 °	157 °
Dim (mm)	12.9	12.5	12.1	11.7	11.2	10.8	10.4	10.0	9.6	9.2	8.9
Internal Angle	158 °	159 °	160 °	161 °	162 °	163 °	164 °	165 °	166 °	167 °	168 °
Dim (mm)	8.5	8.1	7.7	7.3	6.9	6.5	6.1	5.7	5.3	5.0	4.6
Internal Angle	169 °	170 °	171 °	172 °	173 °	174 °	175 °	176 °	177 °	178 °	179 °
Dim (mm)	4.2	3.8	3.4	3.0	2.7	2.3	1.9	1.5	1.1	0.8	0.4

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## Assembly - Glazing

### Frame And Vent Glazing

With Glaze in vents, the locking gear is attached to the glazing bead, glazing can either be performed by removing the locking gear and bead prior to glazing, or by lifting the glass unit over the bead and then glazing the other three sides as normal.

Position the adjustable glazing packers into the opening using packer positions shown for fixed and opening lights. Note that packers can be broken in half where half packers are shown. A small amount of silicone sealant may be used to retain their position, however care must be taken to ensure that the sealant does not obstruct any of the drainage paths.

After the glazing packers have been positioned, the glass is now carefully offered in and the adjustable glazing packers tightened to retain the glass centrally within the opening. Care should be exercised so that the packers are not over tightened and the frame distorted. Once the glass is positioned correctly within the frame and any opening lights checked to ensure that they are square, the beads can be fitted.

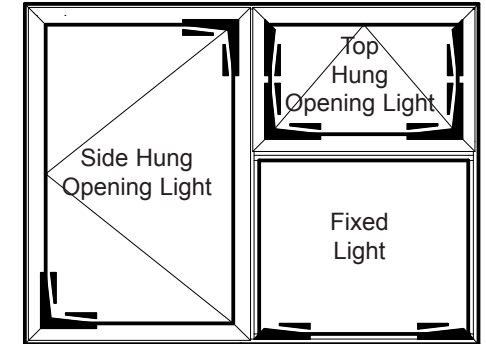
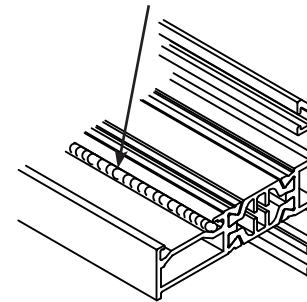
CWC055 or CWC070 retained gasket is inserted into the glazing bead (Glaze out) or vent frame (glaze in), and is cut either square or mitred with the glazing beads/vent frame. Care should be taken to ensure the seal is not stretched during fitting and that the bottom retained gasket is notched in line with drainage preparations, see detail.

Begin by inserting the top and bottom glazing beads, and then the sides. It is very important that the joints between beads are carefully sealed with Henkel Terostat sealant to form an airtight junction. A plastic wedge should be pressed between the glass and the frame rebate on all sides to force the glass forward. This will ease the glazing process as the outer gasket will be slightly compressed.

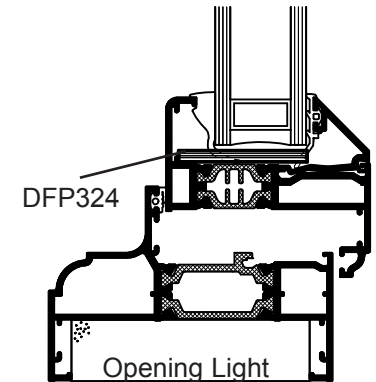
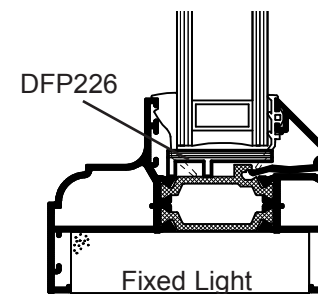
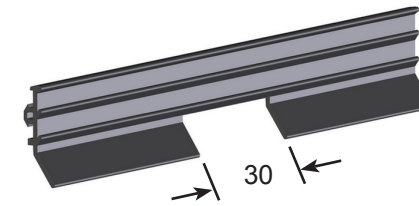
Two wedge gaskets are available DFC1509 or DFC1203, DFC1203 is the recommended gasket but in instances when glazing tolerances are oversize, eg laminated glass, DFC1509 may be used. Hydro recommends practical trials to determine correct wedge gasket prior to installation.

The wedge gasket is now fitted in place starting at one corner in the head, and then completely around the frame in one piece, joining back onto itself. Notch out the back of this gasket to enable the gasket to bend around the corners and mitre the last end to form a neat join. Care should be taken to ensure the seal is not stretched during fitting and Henkel Terostat sealant must be applied to the gasket corners to ensure a good airtight joint is achieved. Note that if the wedge gasket compression is too great, the tear off strip can be removed.

On glaze in vents, gun silicone sealant along the inner bead engagement area at the cill and 100mm up the sides before fitting the bead.



Notch retained gasket in line with drainage preparations in fixed and opening lights.



For Fixed Lights fit CWP158 before glazing. See Si Casement manual (DFC55)

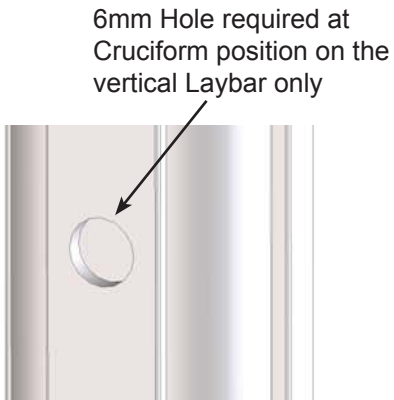
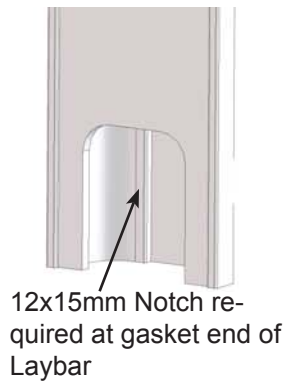
## Laybar Assembly

Profile CW121

Once a Vent has been assembled, the Laybar can be fitted. Firstly, push the plate end of CWP160 Spring Clips between the gasket and glass at the position the laybar is required. Notches are required at the gasket end of the Laybar as well as a hole at cruciform positions (see preparations on page 4-39). Place a bead of sealant along the full length of the flat side of the Laybar. Push the laybar onto the glass on top of the Spring Clip. You should hear a 'click' from the Spring Clip once the Laybar has been securely fitted. Once the Laybar has been fitted, it cannot be adjusted, so ensure the position is accurate before final fitting. Clean off any visible sealant immediately.

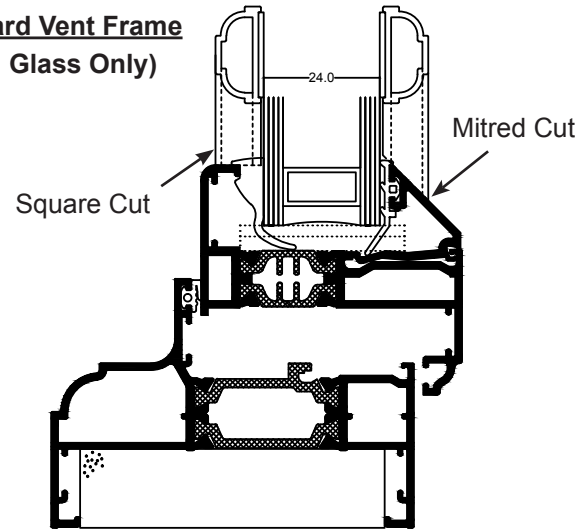
At any cruciform positions fill the hole already prepared with sealant / adhesive. Then push CWP159 Cruciform Cover into place. Clean away any excess sealant and allow to dry.

To improve aesthetics, you may wish to use a glazing unit with Georgian bars within the cavity.

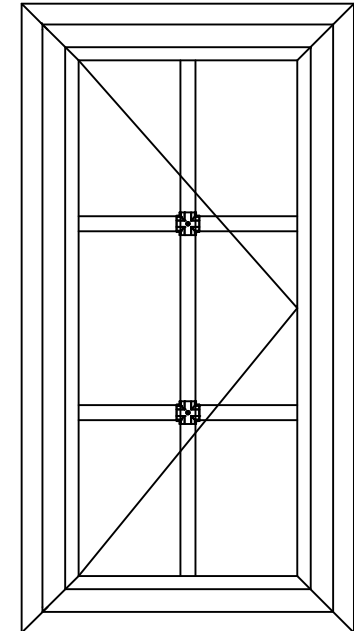
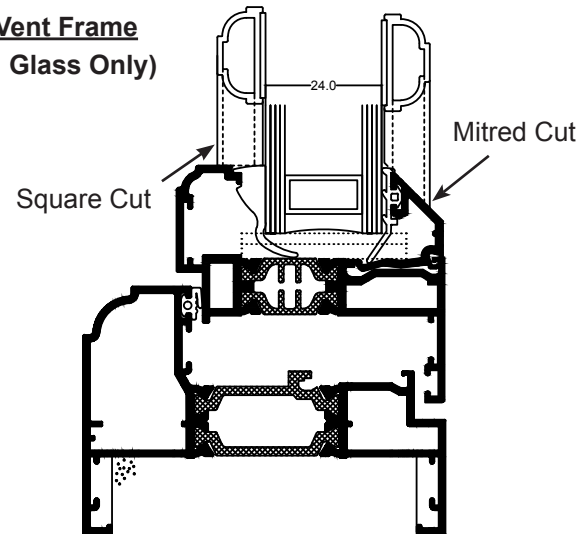


## Assembly - Laybar

**Standard Vent Frame**  
(24mm Glass Only)



**Flush Vent Frame**  
(24mm Glass Only)



Vert. Laybar = Full height  
Horiz. Laybar = Between Vert Laybar and Vent Jambs

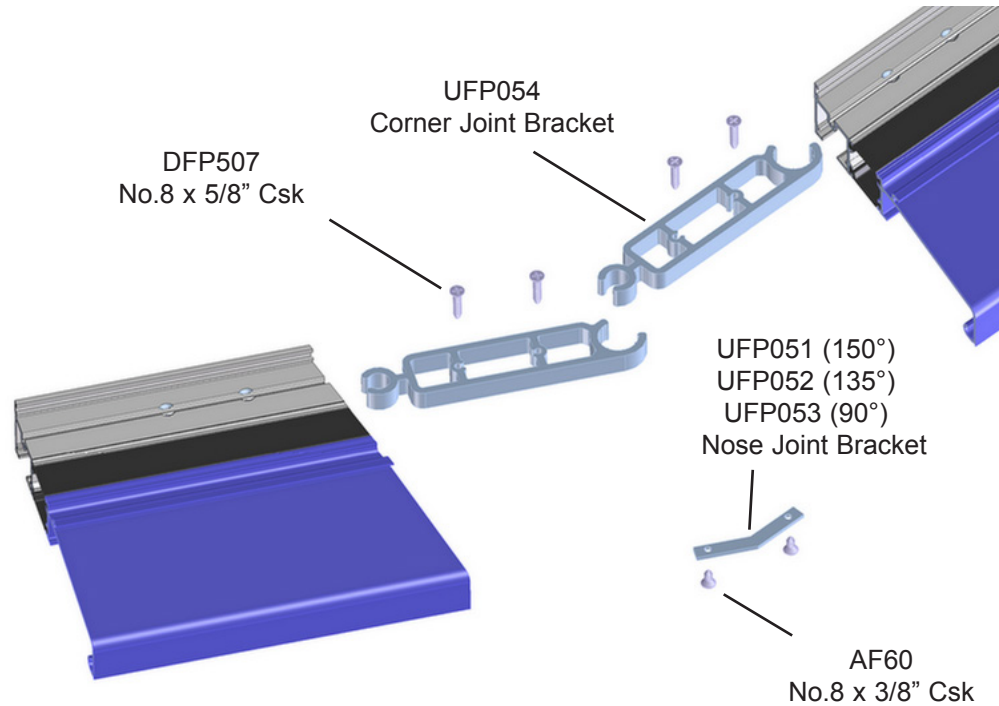
## Installation - Sub Cills

### Sub Cill Corner Joint

Profile UF506, CW314

All sub cill joints must be sealed with silicone sealant. Sealing over the joint again after assembly in the area covered by the framework is recommended. Only clean sealant from surfaces that will be visible.

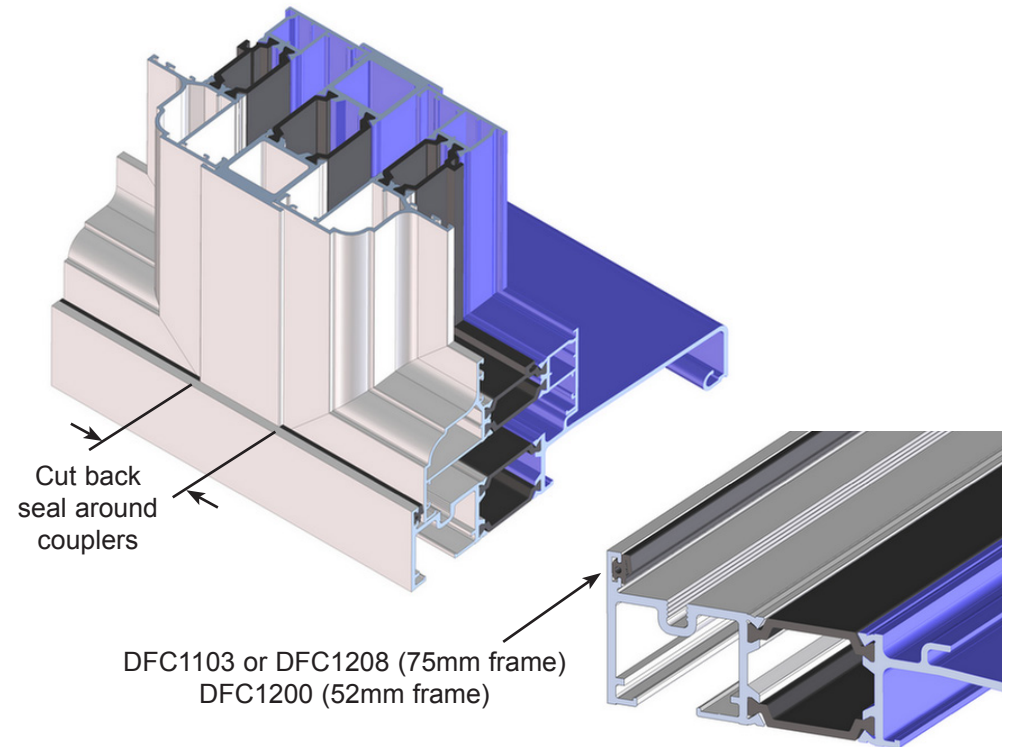
Seal along the mitred ends of the sub cill prior to assembly, then assemble the cill joint using listed brackets and screws. Before final tightening of the fixing screws apply sealant under the screw heads.



### Sub Cill Seal

Profile UF506, CW314

To provide a water barrier between the sub cill and the outer frame, a seal is to be fitted into the sub cill rebate. This seal is to run full length of the sub cill, but in instances where there is a coupler between windows. The seal is cut each side of the coupler and Henkel Terostat 934 or 939 must be used to form a water tight joint between the coupler and the sub cill.



## Installation - Sub Cills

### Fitting Of Sub Cill

Profile UF506, CW314

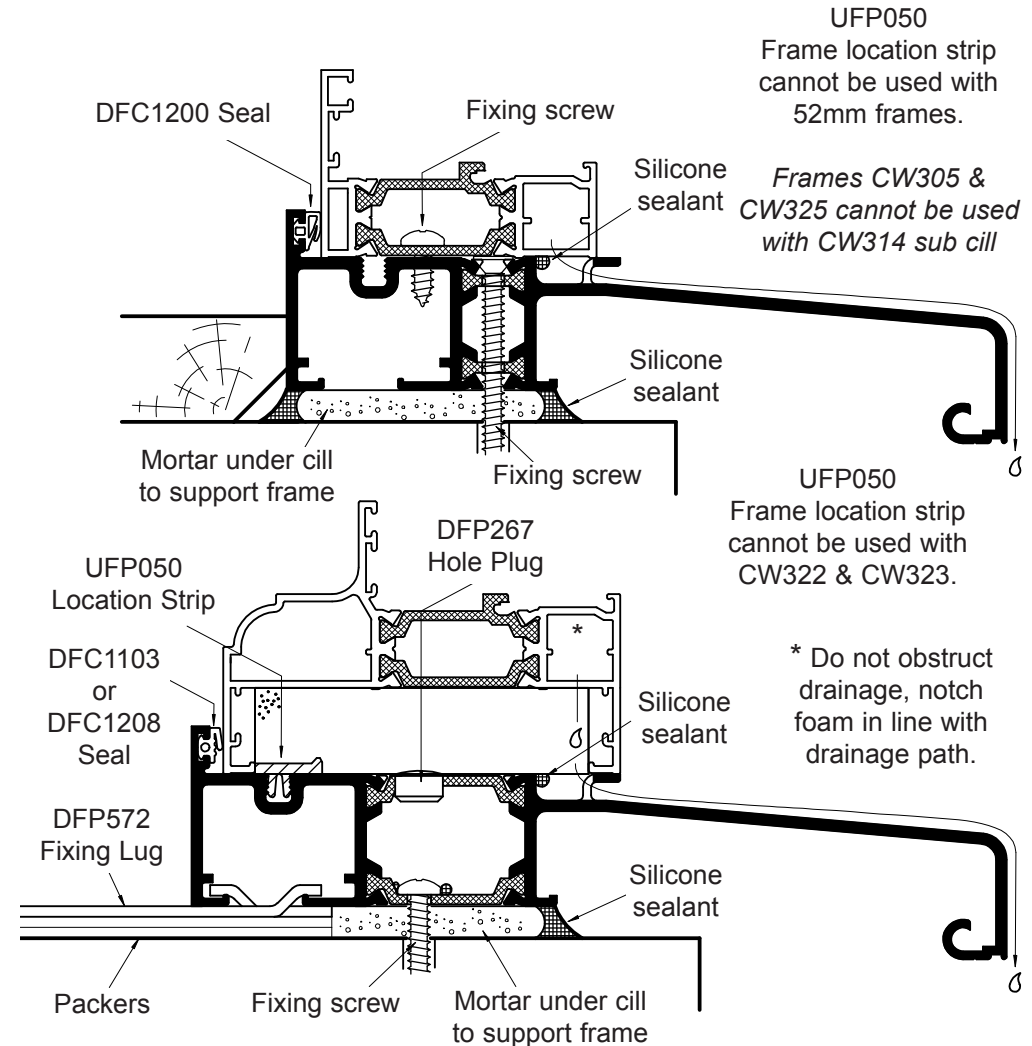
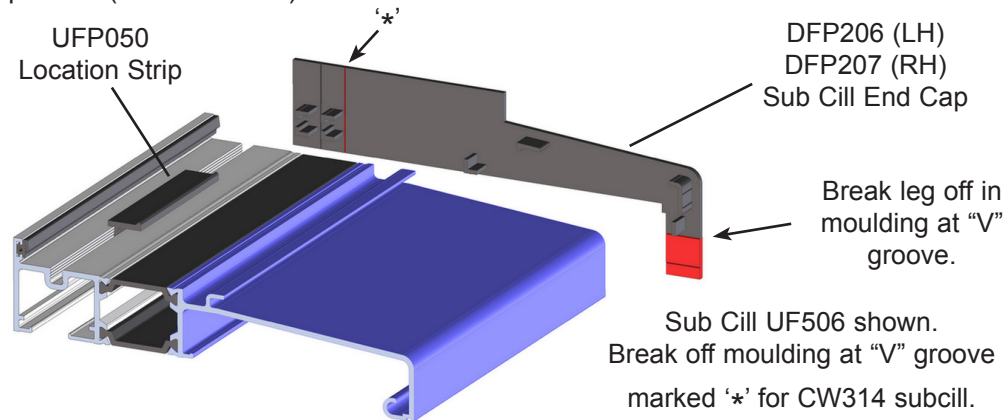
The drainage path through the sub cill can be seen on the illustration alongside, so care must be taken to ensure that it is not obstructed.

Seal under the head of any fixing screws to prevent water ingress and if used, seal DFP267 hole plugs into position.

Sub Cill end caps must be fully sealed then pushed into position (see illustration below)

Before positioning the frame to the sub cill, fit the seal to the cill rebate (see previous page), and apply sealant to areas shown on detail opposite.

75mm frames are held in position on the sub cill by the use of location strips, 52mm frames are screw fixed into position. Location strips are positioned 150mm from the ends and then at 300mm centres. Apply a spot of silicone sealant into the sub cill recess before clip fitting the location strip, checking orientation before clipping into position (see illustration).



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## Installation - Sub Cills

### Sub Cill Expansion Joint

Profile UF518

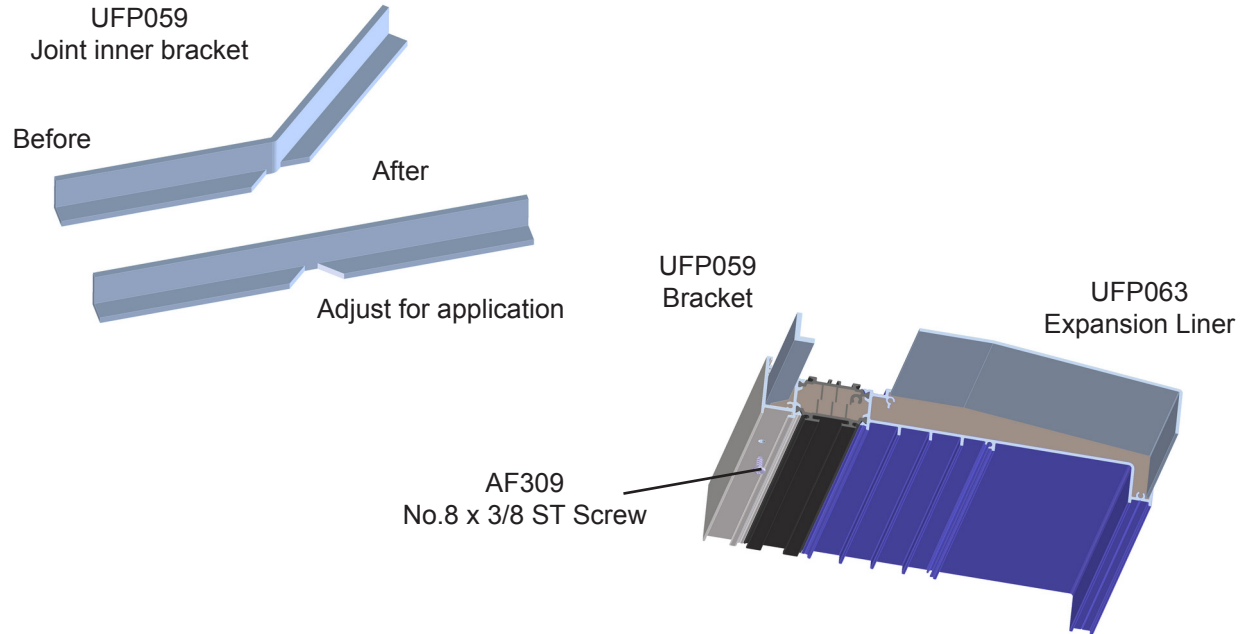
Aluminium cills expand with an increase in temperature, which must be taken care of by the installation techniques.

Wherever a cill exceeds 5m in length, an allowance must be made for thermal expansion. To achieve this, follow the details on this page, allowing an expansion gap of 10mm between sub cill ends.

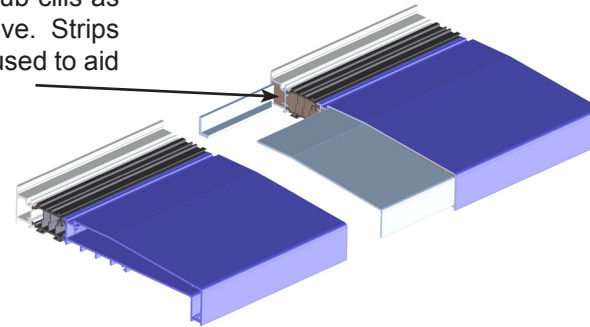
UFP059 Sub Cill joint inner bracket is used in a number of ways and is supplied preformed. This item will need to be tailored for this application, via means of a vice and appropriate tooling.

Insert the sub cill joint bracket 100mm into the cill, spot through cill fixing hole with a 3.5 dia hole and secure with one No. 8 x 3/8" pan self tap screw. This bracket is used to align both subcills when they are positioned in-situ, and is only secured to one sub cill to allow for thermal expansion. Now insert the joint liner 100mm into the cill, and seal the end of the sub cill fully with silicone sealant using a backing strip and allowing the sealant to cure. **DO NOT SEAL THE OPPOSING SUB CILL AT THIS STAGE.**

Just before the sub cills are situated into the structure opening, trim off excess sealant from the end already sealed, to create a fresh surface and using the same sealant, fully seal the unsealed sub cill. Now insert both sub cills together and while maintaining a 10mm gap between both sub cills, silicone seal the joint between both cills and tool to give a smooth appearance.



Fill the ends of the sub cills as per instructions above. Strips of DFP1516 can be used to aid with this operation.



The quality of the seal is of up-most importance and is directly linked to the performance of the joint, and as such the sealant must be used in accordance with manufactures recommendations.

## Installation - Sub Cills

### Sub Cill Corner Joint

Profile UF518

90° External up to 90° internal corner joints can be assembled in the same fashion, 90° external joint shown.

UFP059 Sub Cill joint inner bracket is used in a number of ways and is supplied preformed. In most instances this item will need to be tailored to exact requirements via means of a vice and appropriate tooling.

UFP066 Sub Cill joint outer bracket is pre cut for 90° internal and external corner joints. On internal joints the bracket is inserted opposite to that illustrated below. For non 90° joints, this bracket will need to be machined as detailed on the following page.

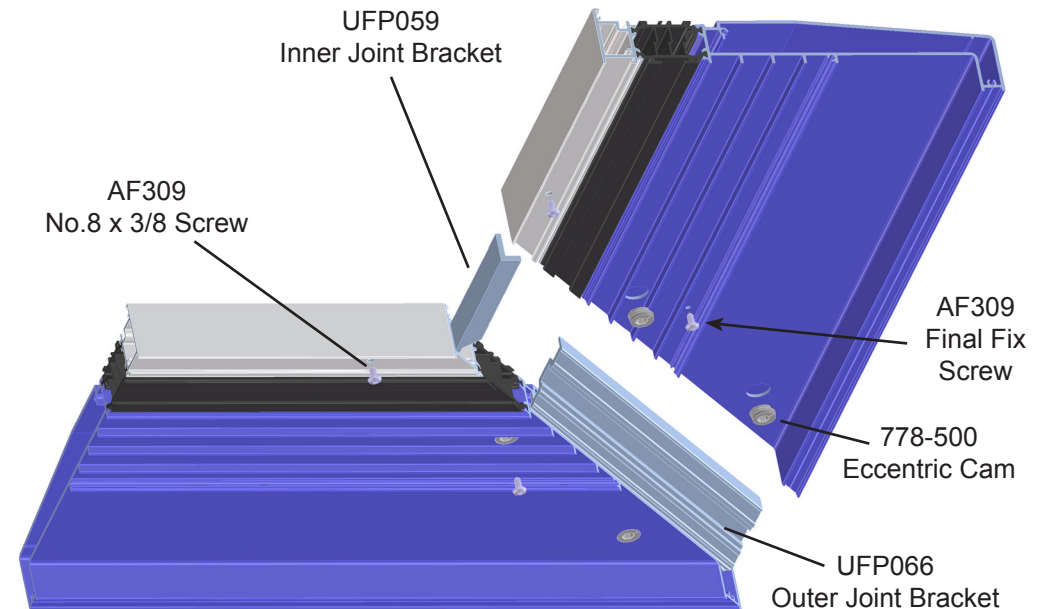
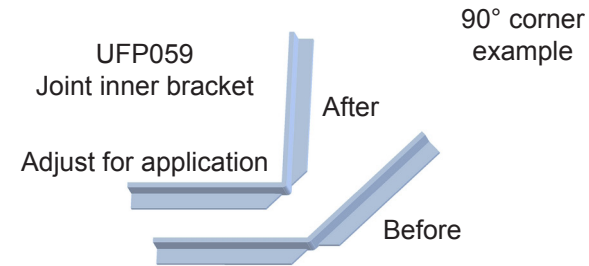
Seal along the mitred ends of the sub cill prior to assembly with Henkel Terostat 934 (clear) or 939 (grey, black or white). Insert illustrated brackets, then seal eccentric cam fixing holes prior to eccentric cam insertion to provide a water barrier.

Insert 778-500 eccentric cams with indicator line facing away from the join. Using a 6mm allen key, turn the cams to draw up the corner tightly then clean off any excess sealant immediately.

Spot through UFP059 fixing holes with a 3.5 dia hole and secure with No. 8 x 3/8" pan self tap screws. Apply sealant under screw heads before final tightening.

Drill through final fixing holes with a 3.5 dia drill into UFP066 bracket and secure with No. 8 x 3/8" pan self tap screws. Apply sealant under screw heads before final tightening.

Sealing over the joint again after assembly in the area covered by the framework is recommended, and only clean excess sealant from surfaces that will be visible..

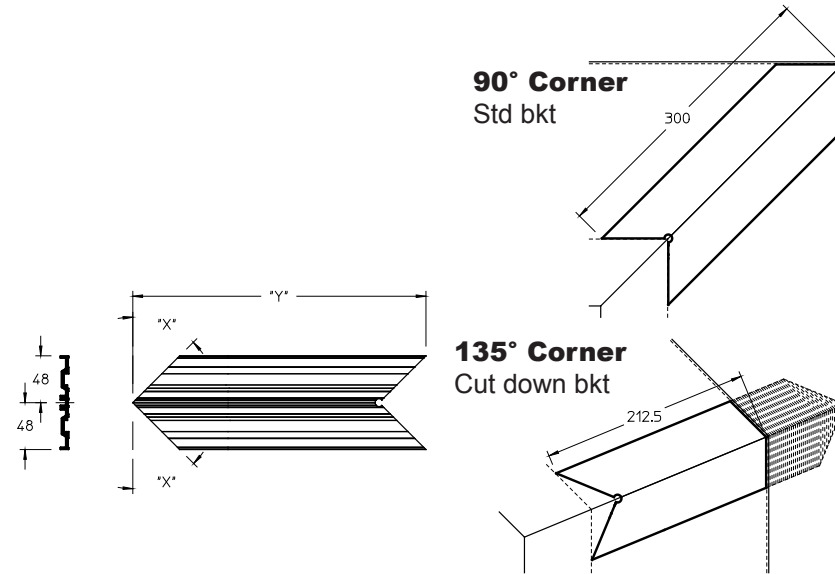


## Installation - Sub Cills

### UFP066 Machining

As stated on the previous page, UFP066 Sub Cill joint outer bracket is pre cut for 90° internal and external corner joints, for non 90° joints, this bracket will need to be cut down.

Using the chart below, determine the length and angle and machine appropriately. Note this bracket is always cut down from the front as per example 135° Corner shown.



UFP066 Subcill Joint Bracket Chart										
Ext/Int Angle	90 °	91 °	92 °	93 °	94 °	95 °	96 °	97 °	98 °	99 °
Angle 'X'	45 °	44.5 °	44 °	43.5 °	43 °	42.5 °	42 °	41.5 °	41 °	40.5 °
Dim 'Y' (mm)	300.0	297.0	294.0	291.0	288.0	285.5	283.0	280.0	277.5	275.0
Ext/Int Angle	100 °	101 °	102 °	103 °	104 °	105 °	106 °	107 °	108 °	109 °
Angle 'X'	40 °	39.5 °	39 °	38.5 °	38 °	37.5 °	37 °	36.5 °	36 °	35.5 °
Dim 'Y' (mm)	272.5	270.5	268.0	265.5	263.5	261.0	259.0	257.0	255.0	253.0
Ext/Int Angle	110 °	111 °	112 °	113 °	116 °	114 °	115 °	116 °	117 °	118 °
Angle 'X'	35 °	34.5 °	34 °	33.5 °	32 °	33 °	32.5 °	32 °	31.5 °	31 °
Dim 'Y' (mm)	251.0	249.0	247.0	245.0	240.0	243.5	241.5	240.0	238.0	236.5
Ext/Int Angle	119 °	120 °	121 °	122 °	123 °	124 °	125 °	126 °	127 °	128 °
Angle 'X'	30.5 °	30 °	29.5 °	29 °	28.5 °	28 °	27.5 °	27 °	26.5 °	26 °
Dim 'Y' (mm)	235.0	233.0	231.5	230.0	228.5	227.0	225.5	224.0	223.0	221.5
Ext/Int Angle	129 °	130 °	131 °	132 °	133 °	134 °	135 °	136 °	137 °	138 °
Angle 'X'	25.5 °	25 °	24.5 °	24 °	23.5 °	23 °	22.5 °	22 °	21.5 °	21 °
Dim 'Y' (mm)	220.0	219.0	217.5	216.0	215.0	213.5	212.5	211.5	210.0	209.0
Internal or external Angles										

## Installation - Sub Cills

### Fitting Of Sub Cill

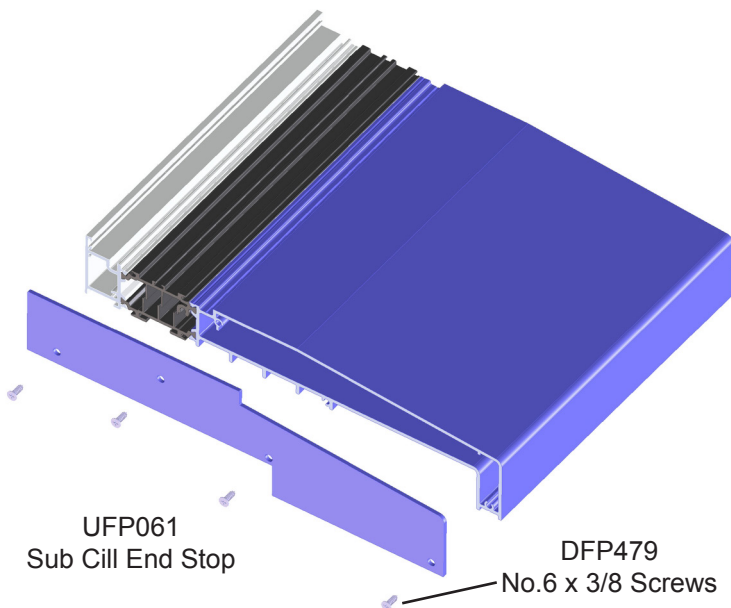
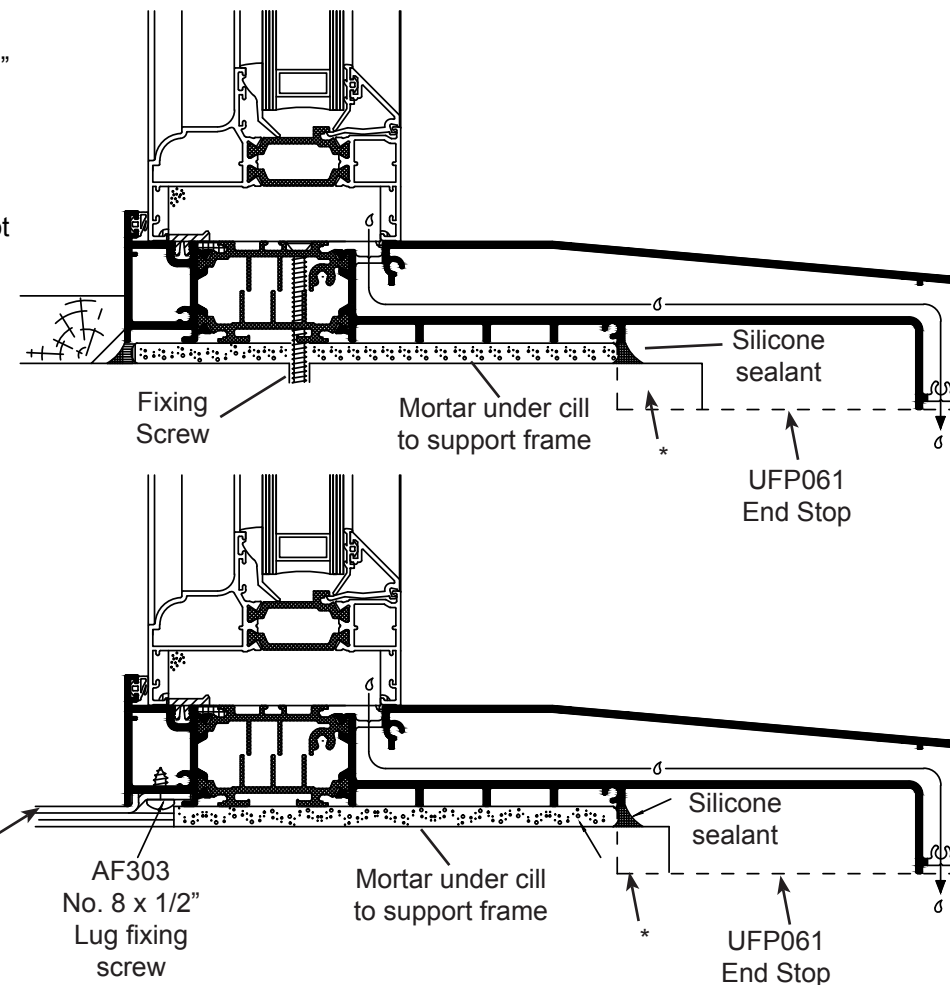
Profile UF518

Sub Cill End Stop UFP061 must be fully sealed and secured into position using No.6 x 3/8" csk self tap screws. Csk end stop fixing holes to 6.0 dia before fitting.

\* Note if necessary cut end cap around structure as required.

Care must be taken to ensure that drainage paths through the sub cill, illustrated, are not obstructed and that screw fixings do not penetrate these areas.

Seal under the head of any fixing screws to prevent water ingress.



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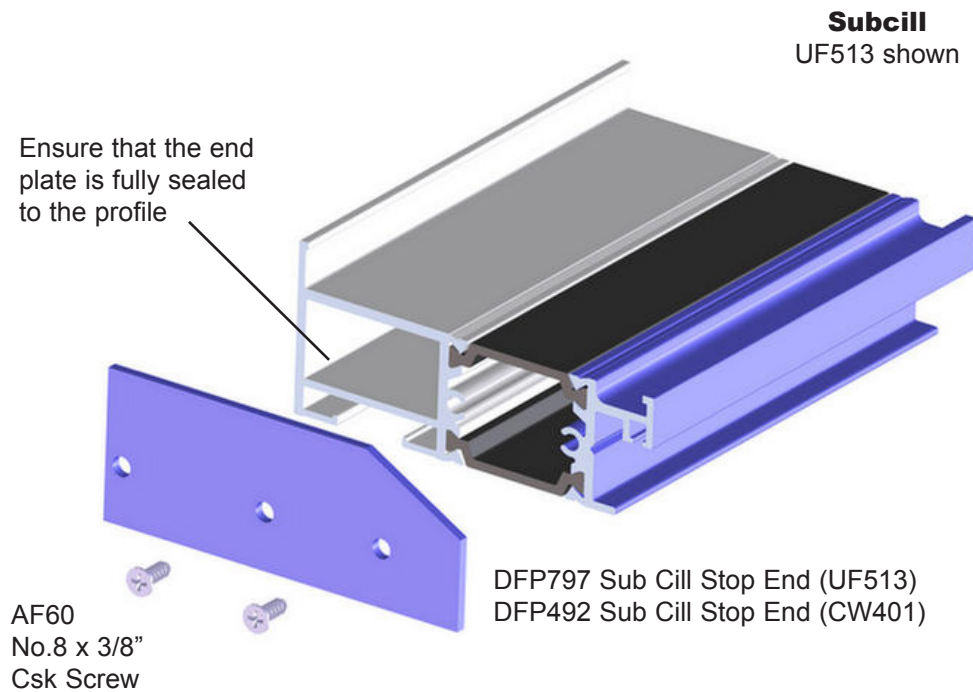
## Installation - Sub Cills

### Assembling the Applied Nose Subcill

Profile CW401, UF513

The applied nose subcill must have an aluminium end plate sealed and screwed to each end of the profile, with 2 off No.8 x 3/8" Csk screws.

Care must be taken to ensure that the end of the subcill is fully sealed to the end plate to prevent any water that enters the subcill penetrating the structure.



## Installation - Sub Cills

### Fitting of Subcill with Applied Nose

Profile CW401, UF513

Drainage paths through the subcill are as shown below right, care must be taken to ensure that they do not become blocked when fitting.

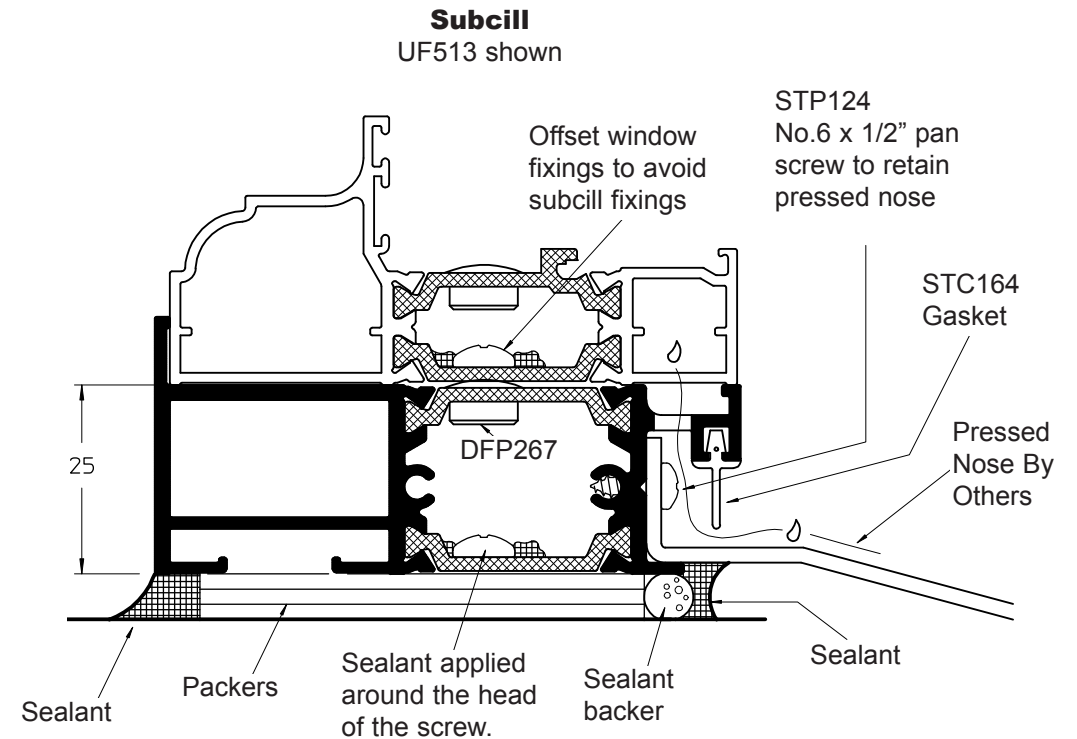
The subcill must be secured to the structure as shown, using suitable fixings, and packed as necessary to ensure it is level.

The subcill must then be silicone sealed to the structure along its length and across its ends. 9.0mm hole plugs must be sealed into the clearance holes in the top of the subcill after it has been secured to the structure.

The pressed nosing should now be offered into position with No.6 x 1/2" Pan head fixing screws at a maximum of 600mm centres. STC164 gasket is now fitted along the full length of the subcill, taking care not to stretch during fitting.

A bead of sealant should then be applied along the ends of the subcill at the point that it abuts the structure. Note that additional packing may be required if the nose pressing is particularly large to prevent sag.

When fitting the frame to the subcill silicone sealant must be gunned as shown alongside to ensure that a watertight joint is created on the inside and outside under the pressed nose.





## Installation - Frame

### Fitting Of Foam Infill

Backing foam infill CWP058, CWP119, CWP184, CWP185, CWP186 or CWP187 must be inserted into the open back of outer frame profiles listed below. This will provide an additional thermal barrier, improving overall window energy ratings (WER), plus window 'U' values.

The foam join at the corners can either be mitre cut or butt jointed as desired.

#### Important!

Frames that are drained onto a subcill, must have appropriate drainage clearance cutouts in the foam. This will allow water access to the drainage paths in the subcill.

#### Frame/Backing Foam Combinations

Frame	-	Foam Part Number
CW305	-	N/A
CW320	-	CWP058 / CWP184
CW321	-	CWP058 / CWP184
CW322	-	N/A
CW323	-	N/A
CW324	-	N/A
CW325	-	N/A
CW327	-	CWP058 / CWP184
CW328	-	CWP119 / CWP185
CW329	-	CWP119 / CWP185
CW334	-	CWP058 / CWP184
CW335	-	CWP058 / CWP184
CW346	-	CWP186 / CWP187
CW347	-	CWP186 / CWP187

### Fitting Frame Into Aperture

It is vitally important that the cill is laid flat and level to achieve good performance. Jambes must be vertical in both planes, and no twist or other distortion allowed in the frame.

Prior to installing the frame, the opening should be checked to ensure that it is free of debris, and that any projecting brickwork has been trimmed back.

Any damaged damp proof membranes should be replaced or additional membranes incorporated.

When the opening was originally measured a suitable gap should have been allowed around the window, this will allow the window to be packed to ensure that it is plumb and square within the opening.

Ideally the frame should be bedded on mortar.

The frame can then be positioned in the opening and held square by packing at the very corners of the frame, taking care not to damage or deform the frame profiles.

To check for squareness, measure the diagonals from corner to corner, these diagonal dimensions should not differ by more than 1 or 2mm, if they do then adjust the packing until the frame is square within the opening.

The lay of the frame in to out can be checked by using a spirit level on the jambes. On replacement applications, the correct position of the frame might not align with the original. This will require some remedial work to make good the plaster reveal around the frame on the inside as well as any render that is present on the outside.

## Installation - Frame

### Fixing Of Frame

Before deciding on the frame fixing method, see example frame profile illustrations and the fixing options available.

### Screw Fixing

The first fixing must always occur within 150mm of the corner of the unit and then at no more than 600mm centres (do not over-tighten fixings), the type and frequency depends on the expected applied loadings. Any fixed lights that have been glazed may need to be deglazed to allow for fixing.

Packing will be required at the fixing points to prevent distortion of the frame. Drilled holes in the frame should be sealed and DFP267 hole plugs fitted.

### Lug Fixing

Lug fixings should be spaced at the same intervals as screw fixings. The fixing lugs are twist fitted to the frame and then screw fixed to the structure.

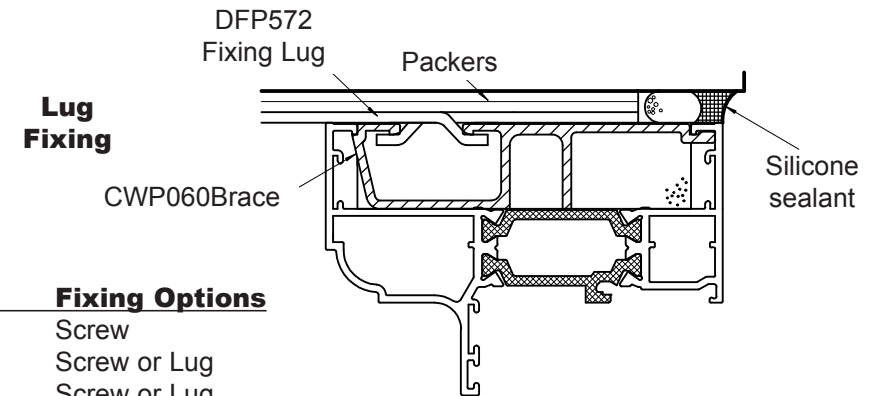
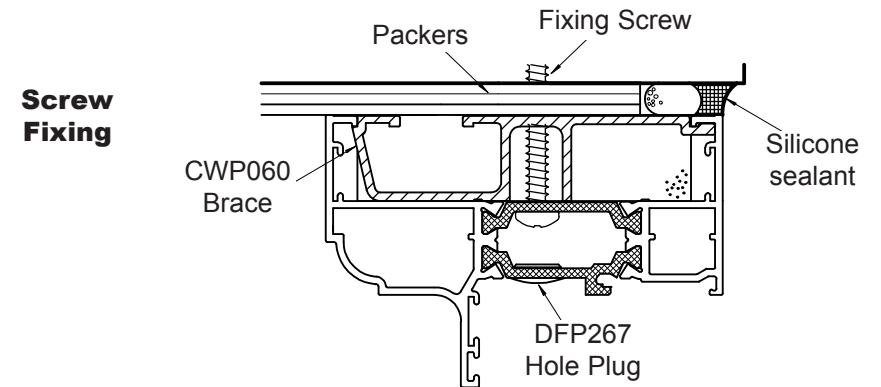
Note that fixing lugs can be twist fitted to both frame braces as well as some outer frame profiles.

Packing the frame about the lug would be advisable to stabilize the frame, and on replacement windows, plaster on the internal reveal will have to be removed in the vicinity of the lug and made good after.

### Foam Fixing

Fixing foam can be used in conjunction with screw and lug fixing, but must not be used as an alternative to mechanical fixing.

Care must be taken not to allow the foam to come into contact with the painted finish, and as such the use of some form of masking tape would be advisable. Permanent staining will be caused if the foam contacts the frame.



Frame	Fixing Options
CW305	Screw
CW320	Screw or Lug
CW321	Screw or Lug
CW322	Screw
CW323	Screw
CW324	Screw
CW325	Screw
CW327	Screw or Lug
CW328	Screw
CW329	Screw

Cut backing foam infill around frame braces



## Finishing Off

### Sealing

The recommended sealant for the exterior is Low Modulous Neutral Cure Silicone Sealant. Backing foam should be used where the perimeter gap is over 5mm. Where the gap is within the 5mm range, a neat application of silicone is all that is required on the outside.

A final check of the internal and external perimeter seals should be undertaken. Any weak spots that are identified should be rectified and tooled to a high visual finish. Any excess sealant must be cleaned off of the finished surfaces using appropriate cleaner.

### Cleaning After Installation

If excess sealant is to be cleaned off. Ensure that any solvent used will not damage any of the metal finishes, synthetic rubbers or plastics which may be present.

### Warning

Take particular care if there is any cement or plaster on the aluminium. It is harmful to the metal finish and should be washed off while still wet. DO NOT RUB or particles of grit will permanently damage the metal or paint finish.

### Routine Cleaning

No aluminium finish is "Maintenance Free" and hence should be cleaned at regular intervals. See surface treatment suppliers literature/website for cleaning and maintenance requirements.

### Maintenance

Periodic maintenance must be carried out on the locking gear at least once a year or more frequently depending upon the hostility of the environment, i.e. coastal regions or dusty environments.

All exposed moving parts and locking points should be greased and checked to see if they are functioning correctly.

### Operating And Safety Instructions

In order to preserve functionality of the window, and to guarantee security, it is imperative the directives listed below are observed.

- *The window sash must not be burdened with additional weight.*
- *Do not place any objects between the sash and frame.*
- *Where small children or mentally handicapped persons have access to the window, the sash is to be safe guarded against opening, for example restrictor friction stays should be used.*
- *Do not leave sashes open during strong winds.*
- *Caution! A slamming sash can lead to injuries while closing. Do not grasp the window between the sash and frame.*