CONTROLLED DOCUMENT

Aluna+ Window APW

Technical Manual

Document ID: **APW-D-200**

Date: March '26 Version: 2

Section:

Manufacture

The overall height and width of an assembled frame must not differ from the required dimensions by more than ±3mm when measured at 20(±5)ºC.

Glazing

All glazing should be in accordance with BS 6262 glazing for buildings & BS 6206 for safety glazing.
The **ALUNA+** system accepts 28mm (±1mm) double glazed & 40mm (±1mm) triple glazed configurations

Thermal Performance

ALUNA+ Thermal performance values may be accessed via our "APX-D-400 Aluna+ U-value Calculator".

Installation

Adequate fixing may be achieved by through frame fixing or fixing straps fixing.

Installation packers are used at points adjacent to fixings and must span the full depth of the profile to avoid distortion of the frame member, packers should be resistant to rot and compression. See APX-D-201 Installation manual.

For further details please refer to:
BS 8213-4:2016 - Code of Practice for the Survey & Installation of Windows & External Doorsets.

3rd Party Optional Extras

Any 3rd party optional extras such a blinds, curtain poles or safety barriers must not be directly fixed to **ALUNA+** products.

Materials

ALUNA+ window systems are manufactured in accordance with the following Material/Standard.

	Material / Specification	Standard
Extruded Aluminium	6060 T66	BS EN 755-9
Thermal Breaks	Polyamide 6.6 25% GF	N/A
Anodising	AA15	BS 3987
Powder Coating	N/A	Qualicoat 60 microns
Gaskets	TPE	BS 3734
Extruded Plastic	PVC	BS EN 12608

Testing

Products are tested in accordance with:

Security:	PAS24:2022
Weather testing:	BS6375-1
Air permeability:	EN12207

Sash Type:	Air Permeability	Water Tightness	Wind Resistance
Top Hung	**300** Pa Class 2	**300** Pa Class 7a	**1600** Pa Class C4
Side Hung	**300** Pa Class 2	**300** Pa Class 7a	**1600** Pa Class C4
Tilt Turn	**600** Pa Class 4	**50** Pa Class 2a	**1600** Pa Class C4

Wind Load EN 12211 (Safety Gust): 2400Pa

Size Limitations

Size limitations may vary, the maximum sizes stated below are based on Alunet System's test evidence.

Type:	**Width** (mm)		**Height** (mm)	
	(max)	(min)	(max)	(min)
Top Hung	**1500**	400	**1500**	400
Side Hung	**950**	400	**1500**	400
Tilt Turn	**1500**	500	**2500**	500
Fixed Pane	**1500**	200	**2500**	200

All transoms and mullions should be checked for Ixx value suitability to loadings specified or to BS EN 1991 Part 1-4:2005.

We assume that adequate care regarding the location and exposure of the product is taken by the fabricator.

ALUNA+ windows should not be installed in situations where any part of the frame subjected to load, other than the environmental forces such as wind loadings or unguarded barrier loadings.

Any designs requiring structural calculations must be performed by a structural engineer.

Face Identification

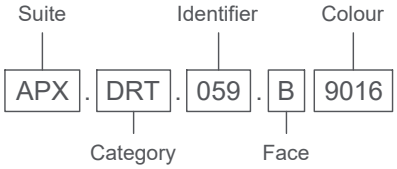
Profile faces are identified by the following prefixes to help with coloured face identification:

B - Both faces
S - Small face
L - Large face
X - Universal face

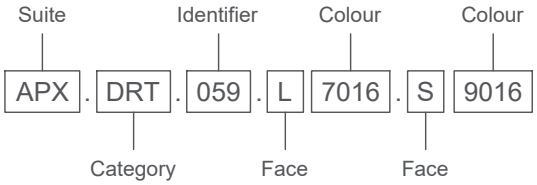
Product Codes

Order codes are an accumulation of part codes, faces and colour. For example:

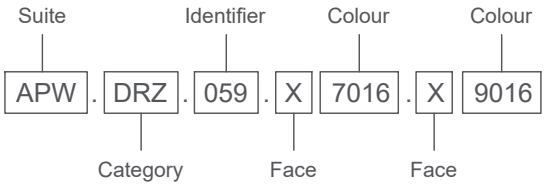
Single colours:
eg. APX.DRT.059.B9016



Dual colours:
eg. APX.DRT.059.L7016.S9016

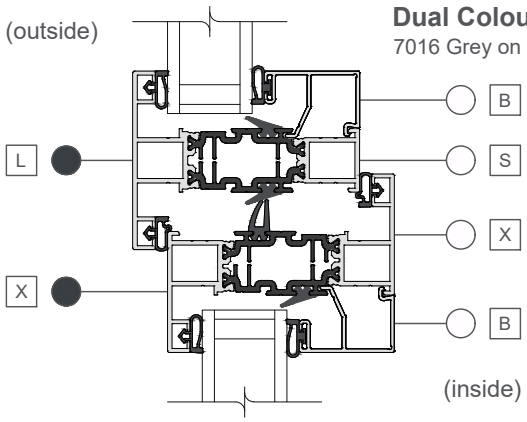


eg. APW.DRZ.059.X7016.X9016



For special order colours, substitute the RAL colour within the order code.

Example



Transom: APW.DRZ.059.**X7016.X9016**
Sash: APX.DRT.059.**L7016.S9016**
Bead: APX.GLB.011.**B9016**

Standard Colours

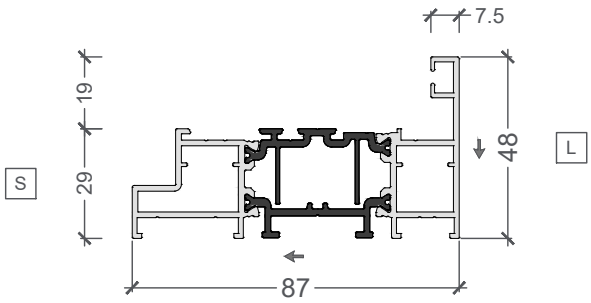
Non Painted Products	Gloss level	Ref
Mill finish	N/A	0000

Painted (Single) Colours	Gloss level	RAL
Grey	30%	7016
Black	30%	9005
White	80%	9016

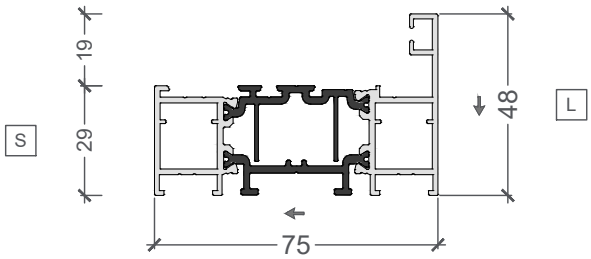
Painted (Dual) Colours	Gloss level	RAL
Grey / White	30% | 80%	7016 / 9016
Black / White	30% | 80%	9005 / 9016

ALUNA+ windows are available in any RAL colour upon request.

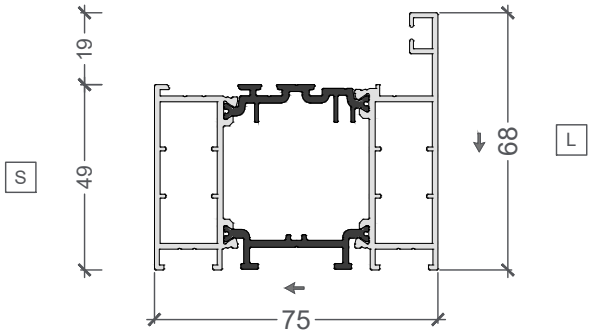
Surfaces and lighting can affect the finished colour to the naked eye.



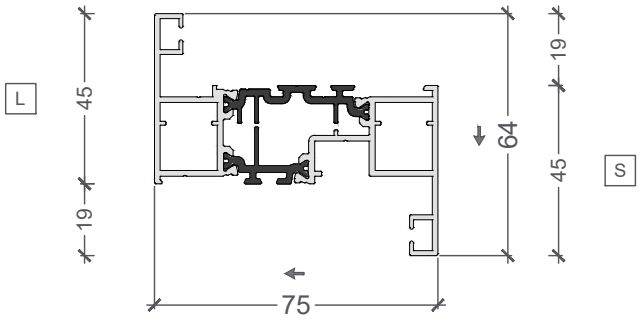
ID Ref: **APW.SRF.048**
Description: 48MM SINGLE REBATE FLUSH
Ixx ↓ : 5.53cm^4 EIxx ↓ : 3.87E+9Nmm²
Iyy ← : 39.40cm^4 EIyy ← : 27.58E+9Nmm²
Total Perimeter: 442mm
Perimeter [S]: 131mm
Perimeter [L]: 178mm



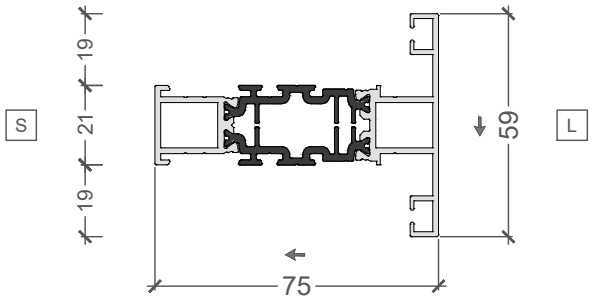
ID Ref: **APX.SRS.048**
Description: 48MM SINGLE REBATE STANDARD
Ixx ↓ : 5.26cm^4 EIxx ↓ : 3.68E+9Nmm²
Iyy ← : 30.56cm^4 EIyy ← : 21.39E+9Nmm²
Total Perimeter: 419mm
Perimeter [S]: 108mm
Perimeter [L]: 178mm



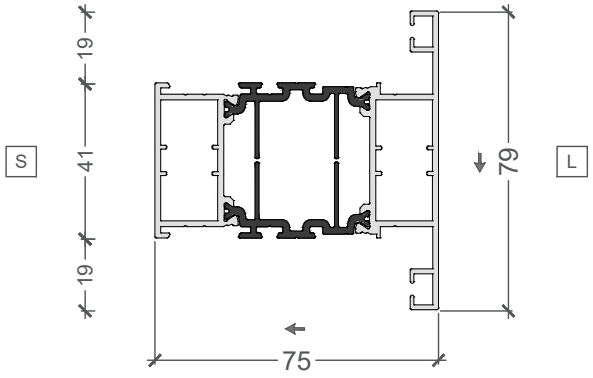
ID Ref: **APX.SRS.068**
Description: 68MM SINGLE REBATE STANDARD
Ixx ↓ : 16.82cm^4 EIxx ↓ : 4.96E+9Nmm²
Iyy ← : 11.78cm^4 EIyy ← : 29.37E+9Nmm²
Total Perimeter: 459mm
Perimeter [S]: 128mm
Perimeter [L]: 198mm



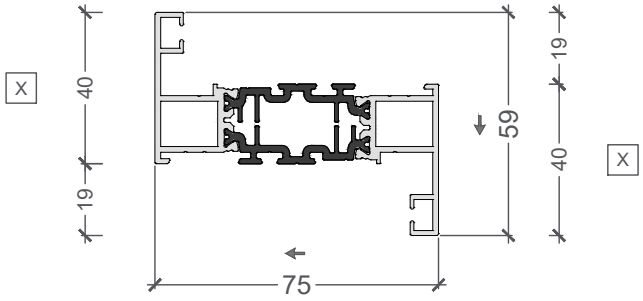
ID Ref: **APW.TTS.064**
Description: 64MM TILT TURN SASH
Ixx ← : 8.21cm^4 EIxx ↓ : 5.74E+9Nmm²
Iyy ↑ : 35.49cm^4 EIyy ← : 24.84E+9Nmm²
Total Perimeter: 448mm
Perimeter [S]: 196mm
Perimeter [L]: 156mm



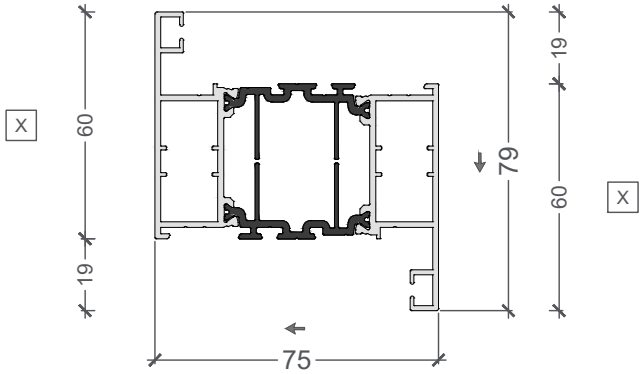
ID Ref: **APX.DRT.059**
Description: 59MM DOUBLE REBATE T
Ixx ↓ : 5.95cm^4 EIxx ↓ : 4.16E+9Nmm²
Iyy ← : 29.30cm^4 EIyy ← : 20.51E+9Nmm²
Total Perimeter: 439mm
Perimeter [S]: 86mm
Perimeter [L]: 227mm



ID Ref: **APX.DRT.079**
Description: 79MM DOUBLE REBATE T
Ixx ← : 17.41cm^4 EIxx ↓ : 12.19E+9Nmm²
Iyy ↑ : 27.29cm^4 EIyy ← : 29.60E+9Nmm²
Total Perimeter: 479mm
Perimeter [S]: 106mm
Perimeter [L]: 247mm

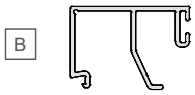


ID Ref: **APW.DRZ.059**
Description: 59MM DOUBLE REBATE Z
Ixx ↓ : 5.92cm^4 EIxx ↓ : 4.14E+9Nmm²
Iyy ← : 32.69cm^4 EIyy ← : 22.88E+9Nmm²
Total Perimeter: 438mm
Perimeter [X]: 157mm

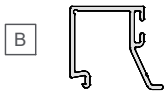


ID Ref: **APW.DRZ.079**
Description: 79MM DOUBLE REBATE Z
Ixx ← : 12.38cm^4 EIxx ↓ : 12.17E+9Nmm²
Iyy ↑ : 44.44cm^4 EIyy ← : 31.10E+9Nmm²
Total Perimeter: 479mm
Perimeter [X]: 177mm

GLAZING BEADS



ID Ref: **APX.GLB.011**
Description: GLAZING BEAD 1
Perimeter: 196mm



ID Ref: **APX.GLB.021**
Description: GLAZING BEAD 2
Perimeter: 153mm

GASKETS

ID Ref: **APX.GAS.011**
Description: BUBBLE GASKET 1

ID Ref: **APX.GAS.012**
Description: BUBBLE GASKET 2

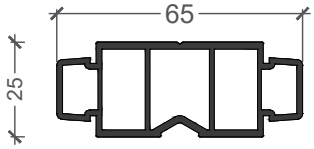
ID Ref: **APX.GAS.020**
Description: SHORT FLIPPER

ID Ref: **APX.GAS.030**
Description: LONG FLIPPER

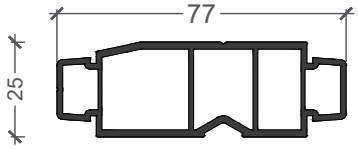
ID Ref: **APX.GAS.041**
Description: WEDGE GASKET

ID Ref: **ACW585**
Description: EPDM CHORD

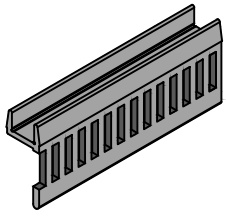
PVC ANCILLARIES



ID Ref: **APX.ANC.061**
Description: THERMAL CORE 1

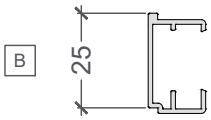


ID Ref: **APX.ANC.062**
Description: THERMAL CORE 2

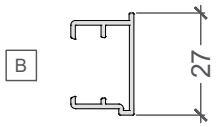


ID Ref: **APX.ANC.102**
Description: Vent Grill

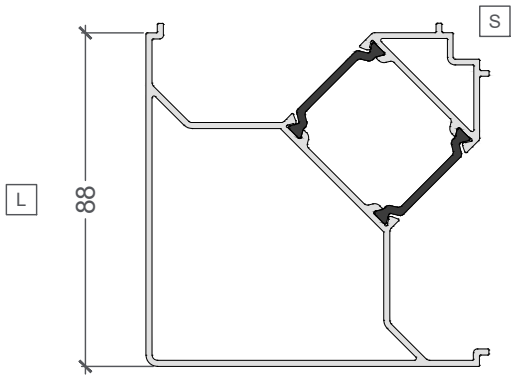
ID Ref: **APX.ANC.131**
Description: DRAINAGE GUIDE



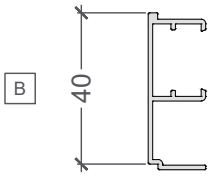
ID Ref: **APX.ANC.071**
Description: 25MM CLIP ON TRIM
Perimeter: 135mm



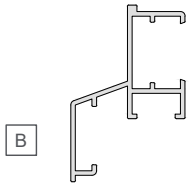
ID Ref: **APX.ANC.072**
Description: 25MM CLIP ON TRIM (UPSTAND)
Perimeter: 138mm



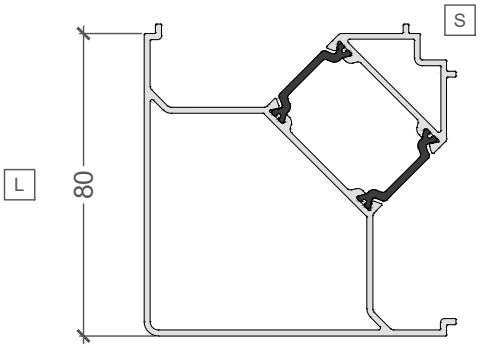
ID Ref: **ACW81.771**
Description: CORNER POST
Total Perimeter: 460mm
Perimeter [S]: 82mm
Perimeter [L]: 317mm



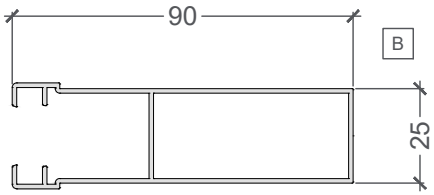
ID Ref: **APX.ANC.081**
Description: 40MM CLIP ON TRIM
Perimeter: 180mm



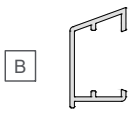
ID Ref: **APX.ANC.101**
Description: VENT HOOD
Perimeter: 276mm



ID Ref: **ACW81.776**
Description: CORNER MULLION
Total Perimeter: 421mm
Perimeter [S]: 82mm
Perimeter [L]: 289mm

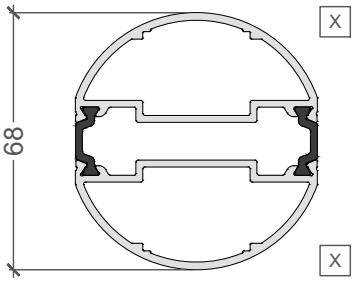


ID Ref: **APX.ANC.091**
Description: HD BOLSTER
Perimeter: 345mm



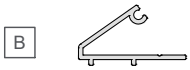
ID Ref: **APX.ANC.111**
Description: DRIP BAR
Perimeter: 119mm

ID Ref: **APX.ANC.150**
Description: T COUPLER
Perimeter: 65mm

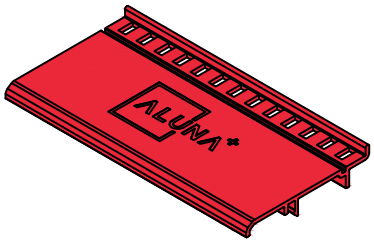


ID Ref: **APCW81.772**
Description: BAY POLE (UNIVERSAL)
Perimeter: 240mm
Perimeter [X]: 104mm

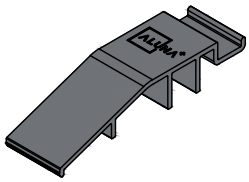
ID Ref: **APW.BAY.021**
Description: BAY POLE NEST (STANDARD)
Perimeter: 100mm



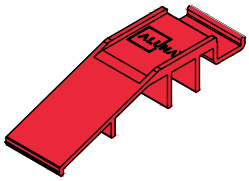
ID Ref: **APW.BAY.022**
Description: BAY POLE NEST (FLUSH)
Perimeter: 117mm



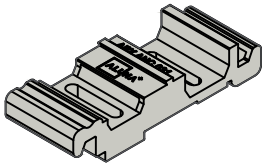
ID Ref: **APX.ANC.011**
Description: GLAZING PLATFORM



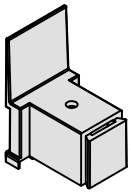
ID Ref: **APX.ANC.021**
Description: RUN UP RAMP



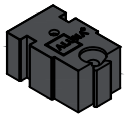
ID Ref: **APW.ANC.011**
Description: DUMMY SASH PACKER



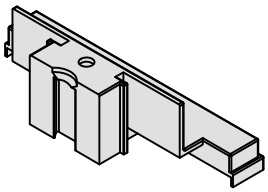
ID Ref: **APX.ANC.031**
Description: FRENCH MULLION PACKER



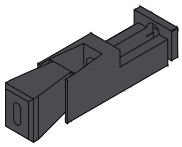
ID Ref: **APX.ANC.041**
Description: FRENCH MULLION END CAP (SMALL SIDE)



ID Ref: **APX.ANC.042**
Description: FRENCH MULLION END CAP (CORE)



ID Ref: **APX.ANC.043**
Description: FRENCH MULLION END CAP (LARGE SIDE)

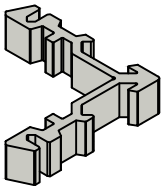


ID Ref: **APX.ANC.051**
Description: SCREW FIXING INSERT

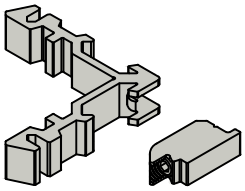
ID Ref: **APX.ANC.112**
Description: DRIP BAR END CAP

ID Ref: **APX.ANC.121**
Description: BUTTON

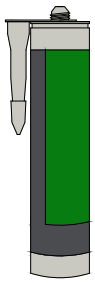
ID Ref: **APX.ANC.160**
Description: DRAINAGE CAP



ID Ref: **APX.CLE.01C**
Description: CLEAT (CRIMP)

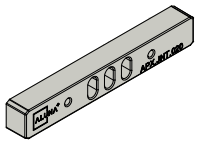


ID Ref: **APX.CLE.01M**
Description: CLEAT (MECHANICAL)

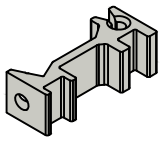


ID Ref: **APX.CON.001**
Description: SMALL GAP SEALANT

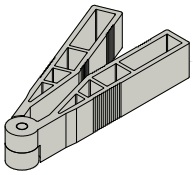
ID Ref: **APX.JNT.010**
Description: CHEVRON



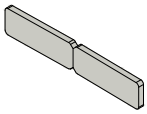
ID Ref: **APX.JNT.020**
Description: REVERSE JOINTER



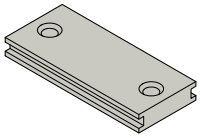
ID Ref: **APX.JNT.030**
Description: CRUCIFORM JOINTER



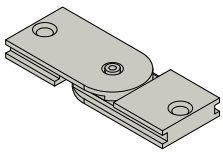
ID Ref: **APX.JNT.050**
Description: FRAME JOINTER (FLIEXIBLE)



ID Ref: **APX.JNT.060**
Description: CILL JOINTER (FRONT)

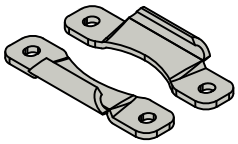


ID Ref: **APX.JNT.070**
Description: CILL JOINTER (REAR)

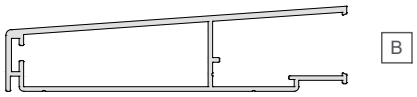


ID Ref: **APX.JNT.080**
Description: CILL ANGLE JOINTER (REAR)

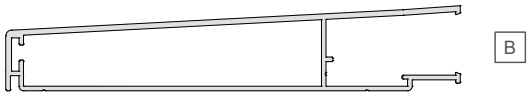
ID Ref: **APX.JNT.090**
Description: CONNECTOR BLOCK



ID Ref: **APW.HAR.901**
Description: HINGE PROTECTOR



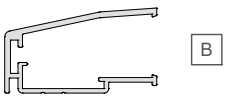
ID Ref: **APX.CIL.150**
Description: 150MM CILL NOSE
Perimeter: 331mm



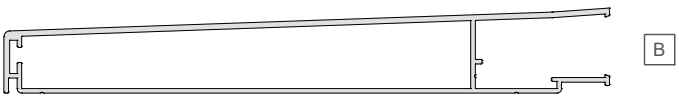
ID Ref: **APX.CIL.180**
Description: 180MM CILL NOSE
Perimeter: 371mm

ID Ref: **APX.CEC.150**
Description: 150MM CILL END CAPS

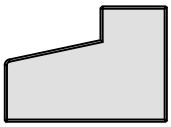
ID Ref: **APX.CEC.180**
Description: 180MM CILL END CAPS



ID Ref: **APX.CIL.100**
Description: 100MM CILL NOSE
Perimeter: 223mm

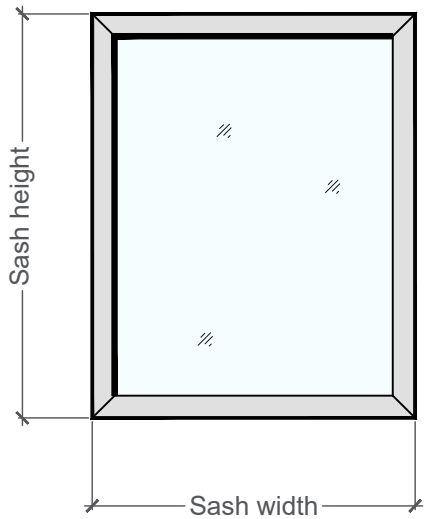


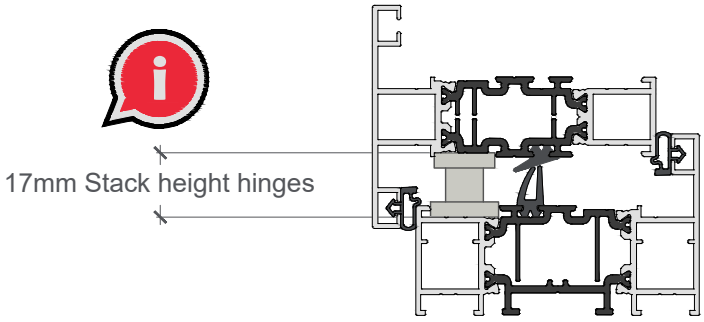
ID Ref: **APX.CIL.220**
Description: 220MM CILL NOSE
Perimeter: 451mm

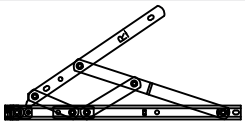


ID Ref: **APX.CEC.100**
Description: 100MM CILL END CAPS

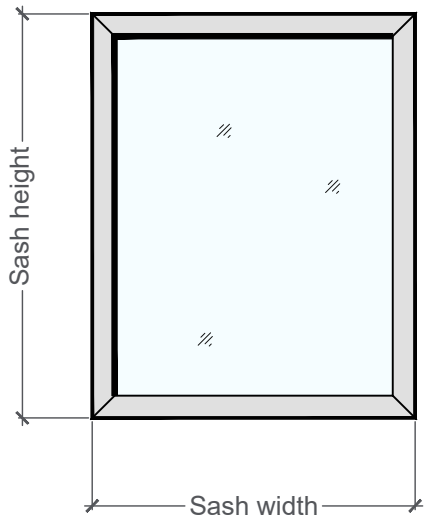
ID Ref: **APX.CEC.220**
Description: 220MM CILL END CAPS

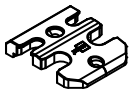


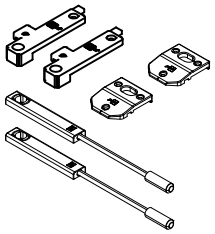


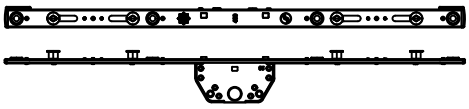
Product ID		Sash Size (min)	Sash Size (max)	Max Weight (Kg)	Feature: Operating Angle	Feature: Egress	Feature: Easy Clean	Feature: Restrictor
APW.HIN.110	Pair Friction Stay - 10" Top Hung	**281**	**400**	**16**	**58** (±2.5°)	✕	✕	✕
APW.HIN.112	Pair Friction Stay - 12" Top Hung	**401**	**550**	**20**	**65** (±2.5°)	✕	✕	✕
APW.HIN.116	Pair Friction Stay - 16" Top Hung	**551**	**650**	**21**	**52** (±2.5°)	✕	✕	✕
APW.HIN.124	Pair Friction Stay - 24" Top Hung	**651**	**1500**	**35**	**38** (±2.5°)	✕	✕	✕
APW.HIN.308	Pair Friction Stay - 8" Egress Side Hung	**281**	**350**	**18**	**60** (±2.5°)	✓	✕	✕
APW.HIN.412	Pair Friction Stay - 12" EasyClean Side Hung	**351**	**450**	**22**	**81** (±2.5°)	✓	✓	✕
APW.HIN.416	Pair Friction Stay - 16" EasyClean Side Hung	**451**	**600**	**24**	**84** (±2.5°)	✓	✓	✕
APW.HIN.516	Pair Friction Stay - 16" HD Side Hung	**451**	**1100**	**40**	**60** (±2.5°)	✓	✕	✕

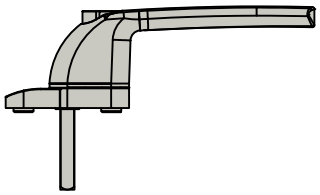
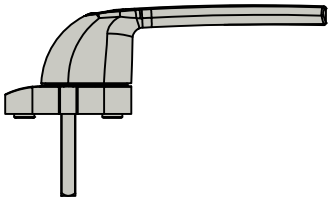
Custom sash weights can be calculated by taking the overall area (in m^2) of the sash and multiplying it be the weight per m^2 of the required glazed unit. See section 6.06



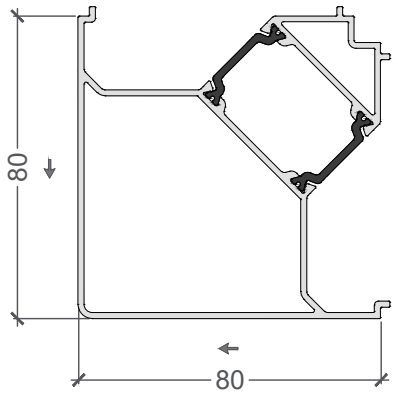
APW.ESP.901	Keep	

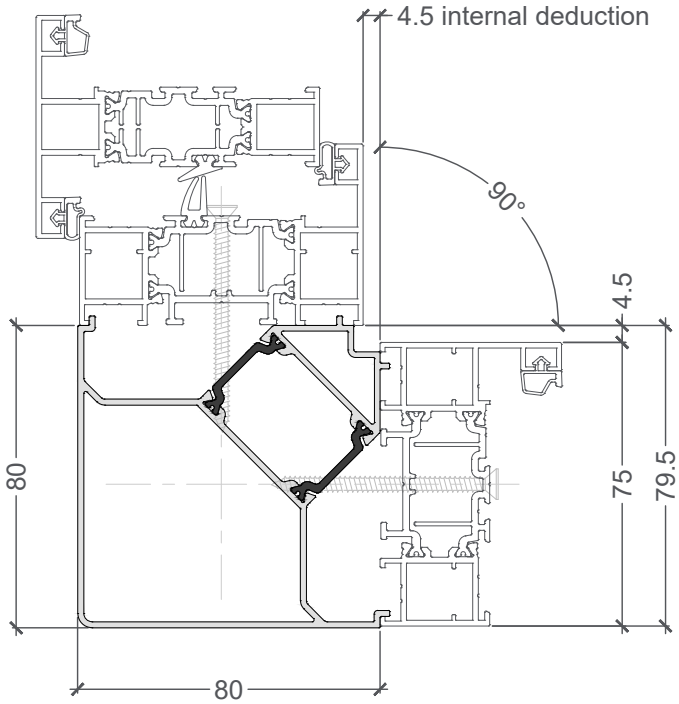
APW.ESP.902	Espag Shootbolt Kit	

Product ID				Sash Size (min)	Sash Size (max)
APW.ESP.R02	Espag RH	200mm	(Right Hand)	**378**	**477**
APW.ESP.L02	Espag LH	200mm	(Left Hand)		
APW.ESP.R03	Espag RH	300mm	(Right Hand)	**478**	**577**
APW.ESP.L03	Espag LH	300mm	(Left Hand)		
APW.ESP.R04	Espag RH	400mm	(Right Hand)	**578**	**727**
APW.ESP.L04	Espag LH	400mm	(Left Hand)		
APW.ESP.R05	Espag RH	550mm	(Right Hand)	**728**	**927**
APW.ESP.L05	Espag LH	550mm	(Left Hand)		
APW.ESP.R07	Espag RH	750mm	(Right Hand)	**928**	**1127**
APW.ESP.L07	Espag LH	750mm	(Left Hand)		
APW.ESP.R09	Espag RH	950mm	(Right Hand)	**1128**	**1327**
APW.ESP.L09	Espag LH	950mm	(Left Hand)		
APW.ESP.R11	Espag RH	1150mm	(Right Hand)	**1328**	**1558**
APW.ESP.L11	Espag LH	1150mm	(Left Hand)		

Product ID	
APW.HCS.010 Casement Handle	
APW.HTT.010 Tilt & Turn Handle	

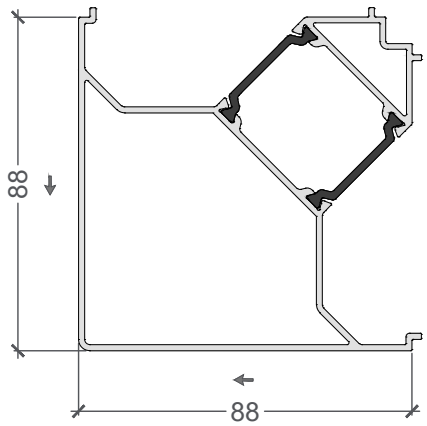
Corner Post for APW.SRS.048 Single Rebate Standard

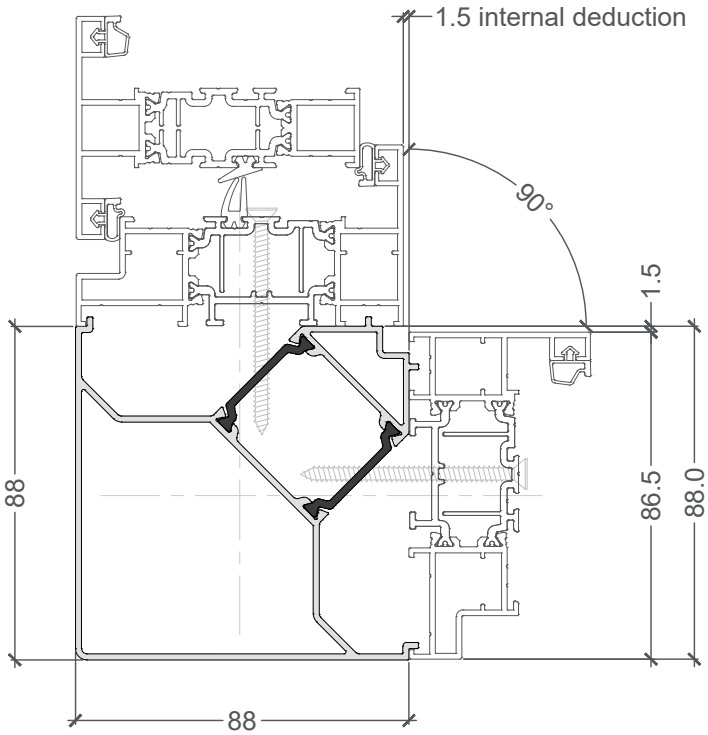




ID Ref: **ACW81.776**
Description: CORNER MULLION
EIxx ← : 50.34cm^4 EIxx ↓ : 35.24E+9Nmm²
EIyy ↑ : 50.34cm^4 EIyy ← : 35.24E+9Nmm²

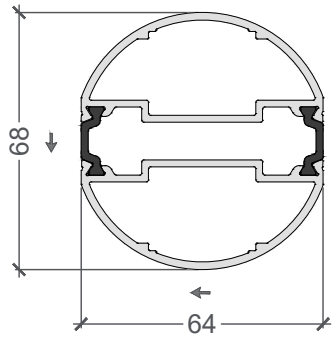
Corner Post for APW.SRF.048 Single Rebate Flush



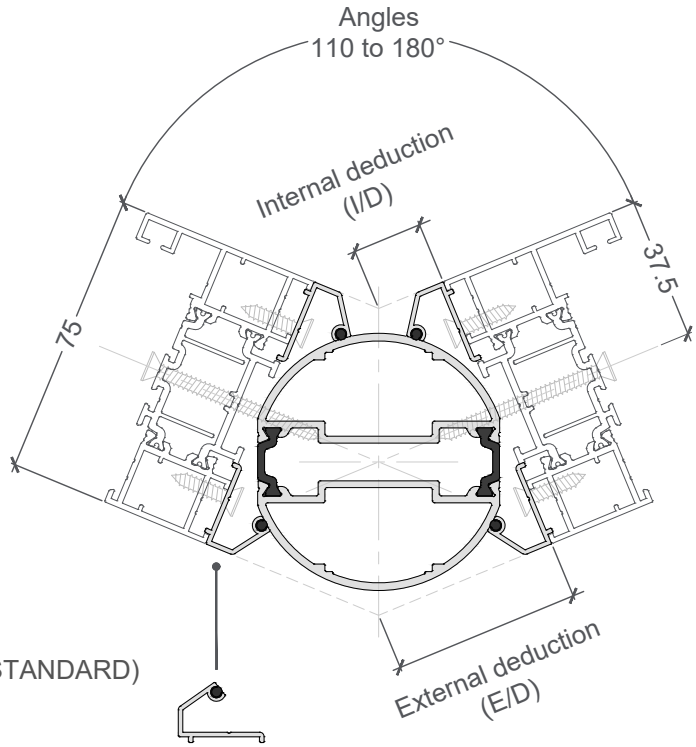


ID Ref: **ACW81.771**
Description: CORNER POST
EIxx ← : 66.68cm^4 EIxx ↓ : 46.68E+9Nmm²
EIyy ↑ : 66.68cm^4 EIyy ← : 46.68E+9Nmm²

Baypole for APW.SRS.048 Single Rebate Standard



ID Ref: **ACW81.772**
Description: BAY POLE (UNIVERSAL)
Ixx ← : 25.20cm^4 EIxx ↓ : 17.64E+9Nmm²
Iyy ↑ : 26.52cm^4 EIyy ← : 18.56E+9Nmm²



ID Ref: **APW.BAY.021**
Description: BAY POLE NEST (STANDARD)

ID Ref: **ACW585**
Description: EPDM CHORD

Frame deduction per side

Angle	I/D	E/D
180°	**34**	**34**
175°	**32.4**	**35.6**
170°	**30.7**	**37.3**
165°	**29.1**	**38.9**
160°	**27.4**	**40.6**
155°	**25.7**	**42.3**
150°	**24**	**44**
145°	**22.2**	**45.8**
140°	**20.4**	**47.6**
135°	**18.5**	**49.5**
130°	**16.5**	**51.5**
125°	**14.5**	**53.5**
120°	**12.3**	**55.6**
115°	**10.1**	**57.9**
110°	**7.7**	**60.2**

Angle	I/D	E/D
179°	33.7	34.3
174°	32	36
169°	30.4	37.6
164°	28.7	39.3
159°	27	40.9
154°	25.3	42.7
149°	23.6	44.4
144°	21.8	46.2
139°	20	48
134°	18.1	49.9
129°	16.1	51.9
124°	14.1	53.9
119°	11.9	56.1
114°	9.6	58.3

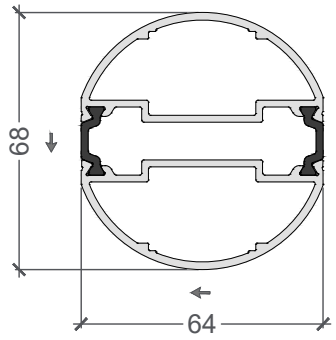
Angle	I/D	E/D
178°	33.3	34.7
173°	31.7	36.3
168°	30.1	37.9
163°	28.4	39.6
158°	26.7	41.3
153°	25	43
148°	23.2	44.7
143°	21.5	46.5
138°	19.6	48.4
133°	17.7	50.3
128°	15.7	52.3
123°	13.6	54.3
118°	11.5	56.5
113°	9.2	58.8

Angle	I/D	E/D
177°	33	35
172°	31.4	36.6
167°	29.7	38.4
162°	28.1	39.9
157°	26.4	41.6
152°	24.6	43.3
147°	22.9	45.1
142°	21.1	46.9
137°	19.2	48.8
132°	17.3	50.7
127°	15.3	52.7
122°	13.2	54.8
117°	11	57
112°	8.7	59.3

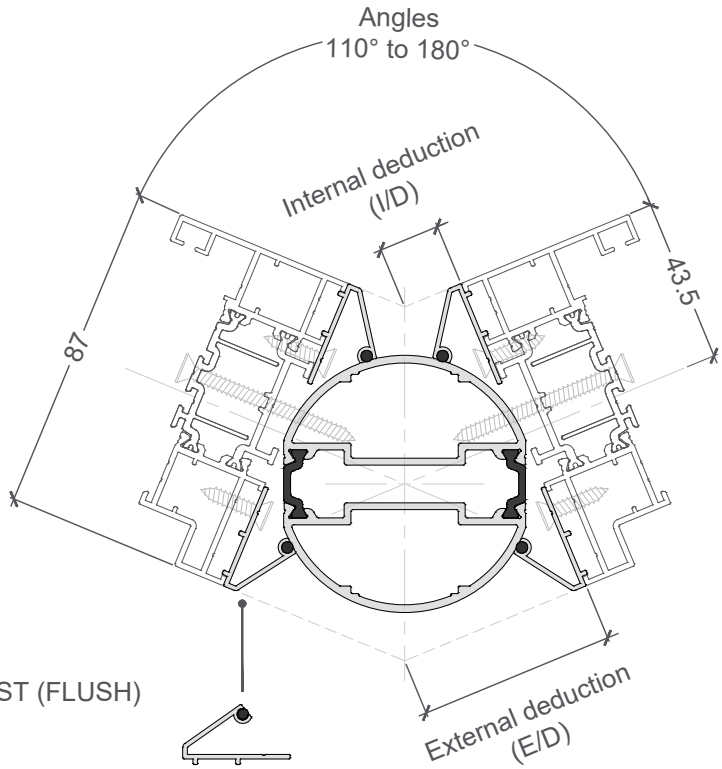
Angle	I/D	E/D
176°	32.7	35.3
171°	31	36.9
166°	29.4	38.6
161°	27.7	40.3
156°	26	42
151°	24.3	43.7
146°	22.5	45.5
141°	20.7	47.3
136°	18.8	49.1
131°	16.9	51.1
126°	14.9	53.1
121°	12.8	55.2
116°	10.6	57.4
111°	8.2	59.8

Note : Angles between 91° to 109° are NOT feasible!

Baypole for APW.SRS.048 Single Rebate Flush



ID Ref: **ACW81.772**
Description: BAY POLE (UNIVERSAL)
Ixx ← : 25.20cm^4 EIxx ↓ : 17.64E+9Nmm²
Iyy ↑ : 26.52cm^4 EIyy ← : 18.56E+9Nmm²



ID Ref: **APW.BAY.022**
Description: BAY POLE NEST (FLUSH)

ID Ref: **ACW585**
Description: EPDM CHORD

Frame deduction per side

Angle	I/D	E/D
180°	**34**	**34**
175°	**32.2**	**35.9**
170°	**30.3**	**37.8**
165°	**28.4**	**39.7**
160°	**26.4**	**41.7**
155°	**24.5**	**43.6**
150°	**22.5**	**45.6**
145°	**20.4**	**47.7**
140°	**18.3**	**49.8**
135°	**16.1**	**52**
130°	**13.9**	**54.2**
125°	**11.5**	**56.6**
120°	**9.1**	**59**
115°	**6.5**	**61.6**
110°	**3.8**	**64.3**

Angle	I/D	E/D
179°	33.7	34.4
174°	31.8	36.3
169°	29.9	38.2
164°	28	40.1
159°	26	42.1
154°	24.1	44
149°	22.1	46
144°	20	48.1
139°	17.9	50.2
134°	15.7	52.4
129°	13.4	54.7
124°	11.1	57
119°	8.6	59.5
114°	6	62.1

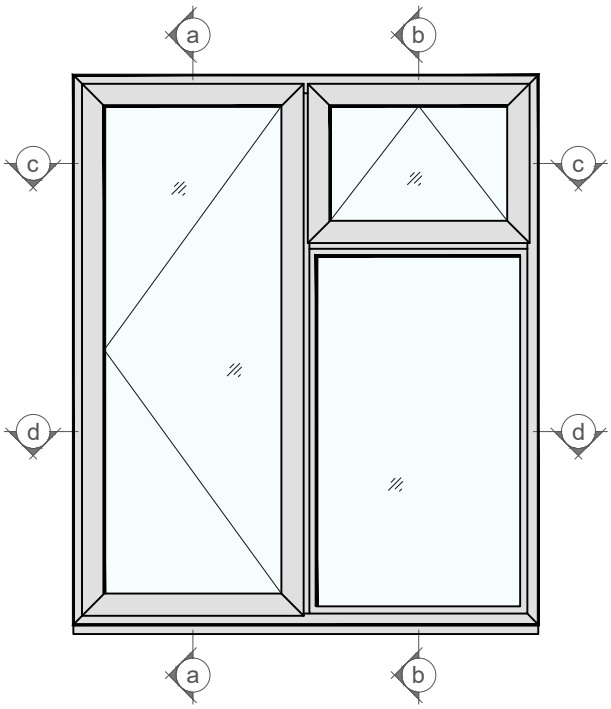
Angle	I/D	E/D
178°	33.3	34.8
173°	31.4	36.7
168°	29.5	38.6
163°	27.6	40.5
158°	25.6	42.5
153°	23.7	44.4
148°	21.6	46.4
143°	19.6	48.5
138°	17.4	50.6
133°	15.2	52.8
128°	13	55.1
123°	10.6	57.5
118°	8.1	60
113°	5.4	62.7

Angle	I/D	E/D
177°	32.9	35.2
172°	31	37.1
167°	29.1	39
162°	27.2	40.9
157°	25.2	42.8
152°	23.3	44.8
147°	21.2	46.9
142°	19.2	48.9
137°	17	51.1
132°	14.8	53.3
127°	12.5	55.6
122°	10.1	58
117°	7.5	60.5
112°	4.9	63.2

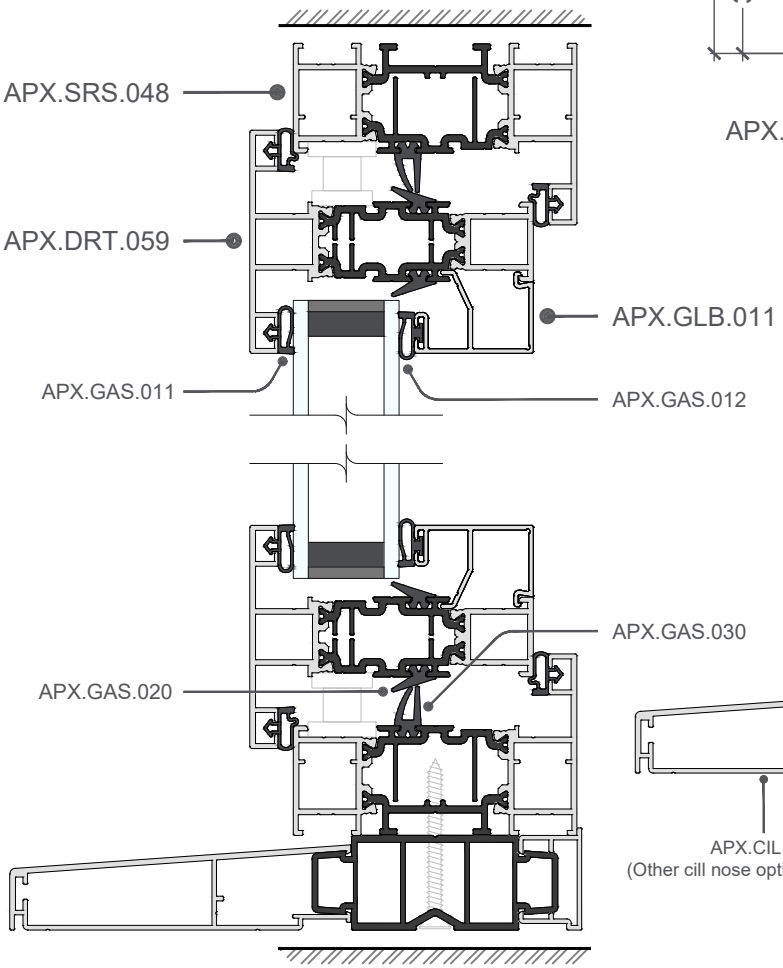
Angle	I/D	E/D
176°	32.5	35.6
171°	30.6	37.5
166°	28.7	39.4
161°	26.8	41.3
156°	24.9	43.2
151°	22.9	45.2
146°	20.8	47.3
141°	18.7	49.4
136°	16.6	51.5
131°	14.3	53.7
126°	12	56.1
121°	9.6	58.5
116°	7	61.1
111°	4.3	63.8

Note : Angles between 91° to 109° are NOT feasible!

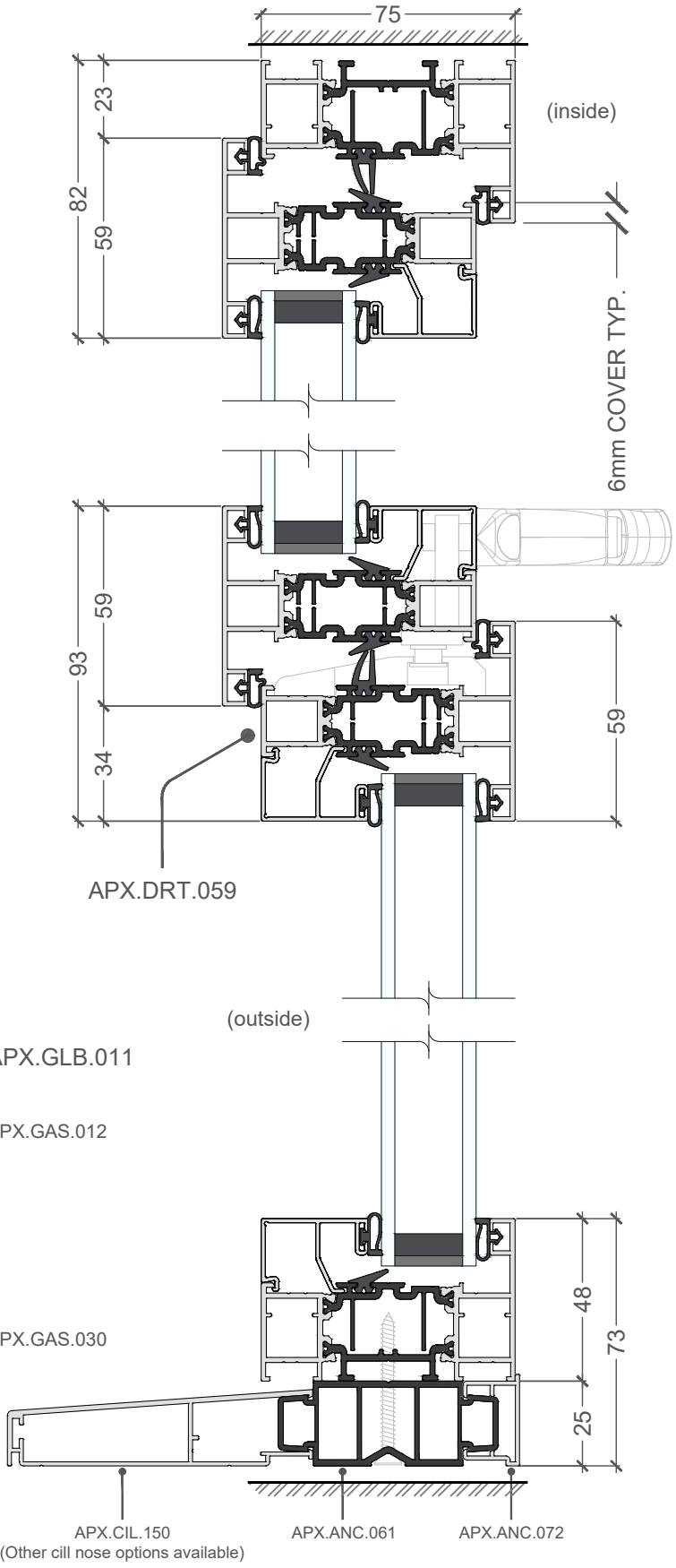
Assemblies
Externally Glazed Casement



Typical Elevation
(viewed from outside - NTS)

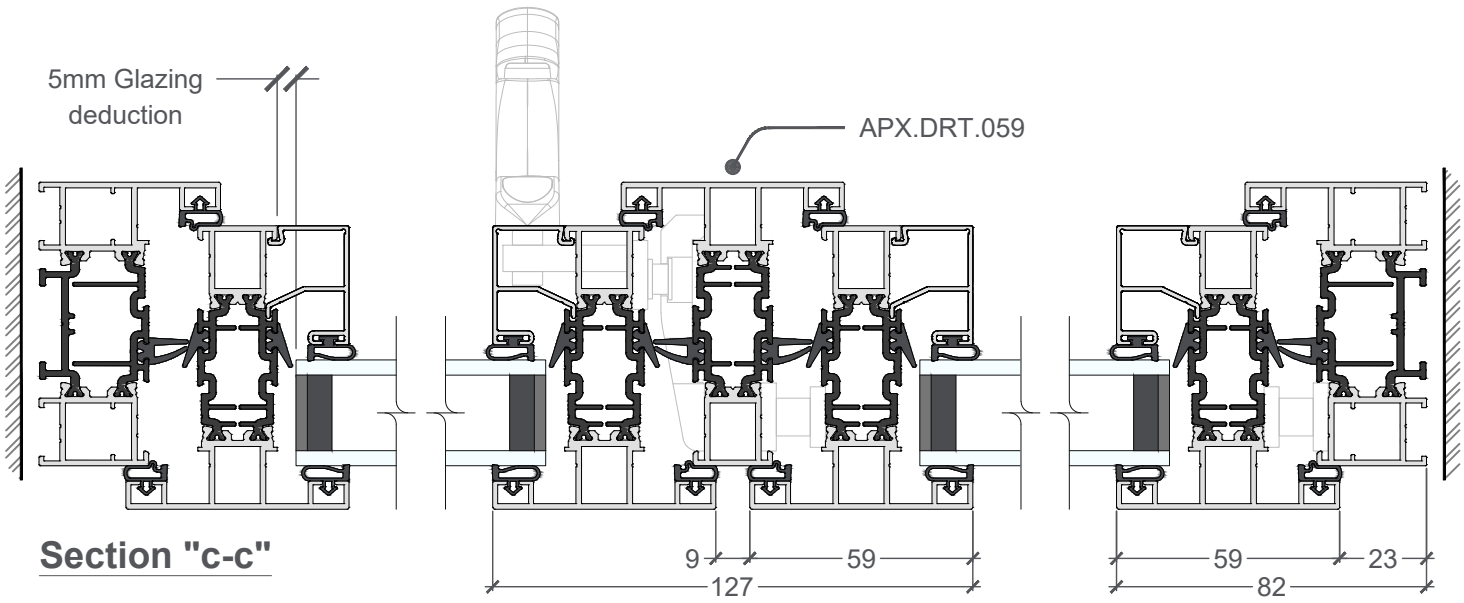


Section "a-a"

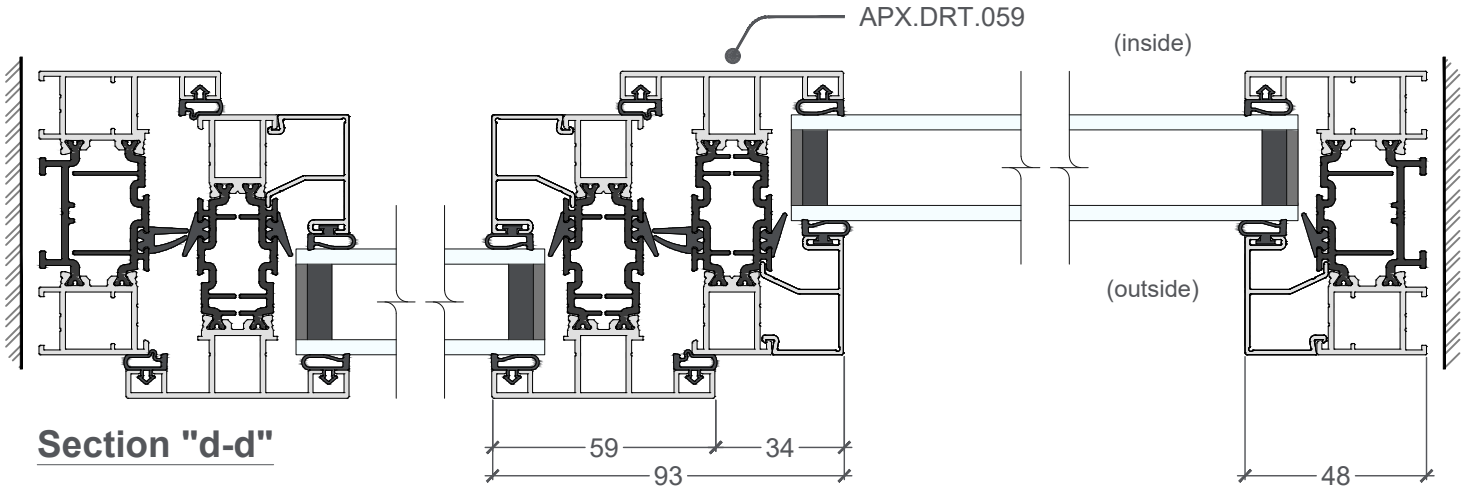


Section "b-b"

Section: 3.01

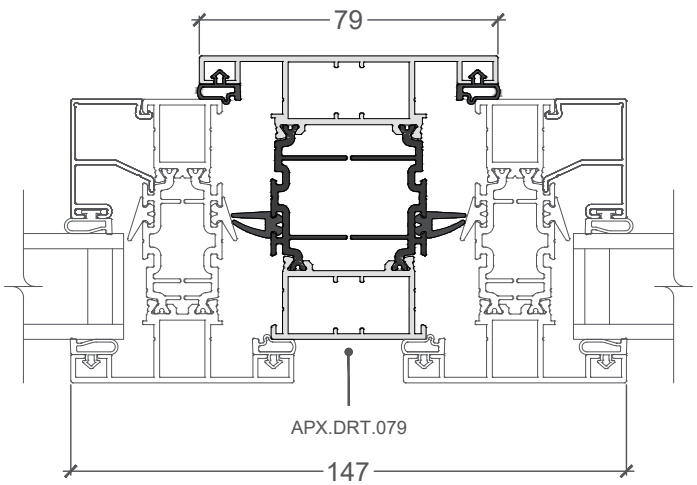


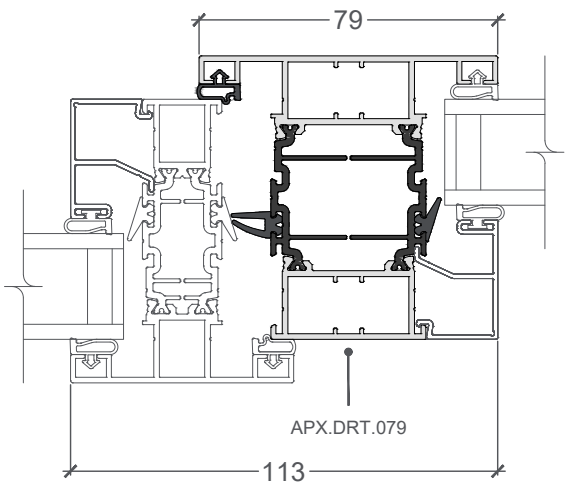
Section "c-c"



Section "d-d"

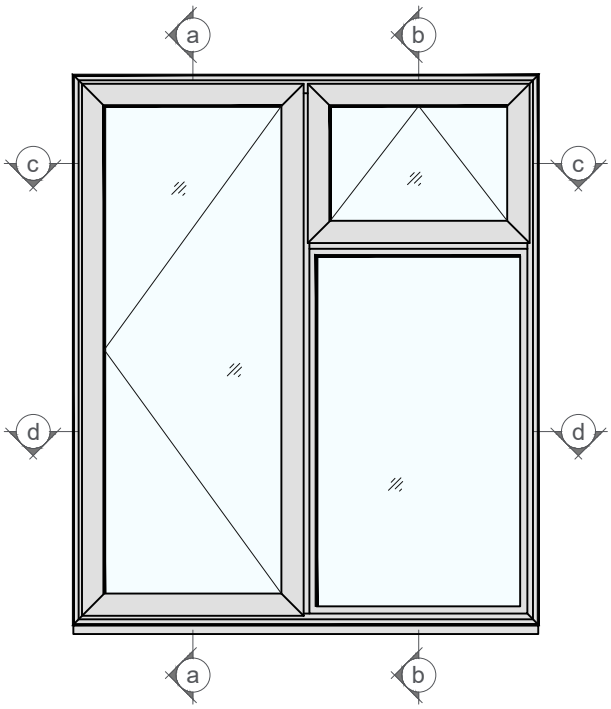
ALTERNATIVE 79MM REBATED OPTIONS



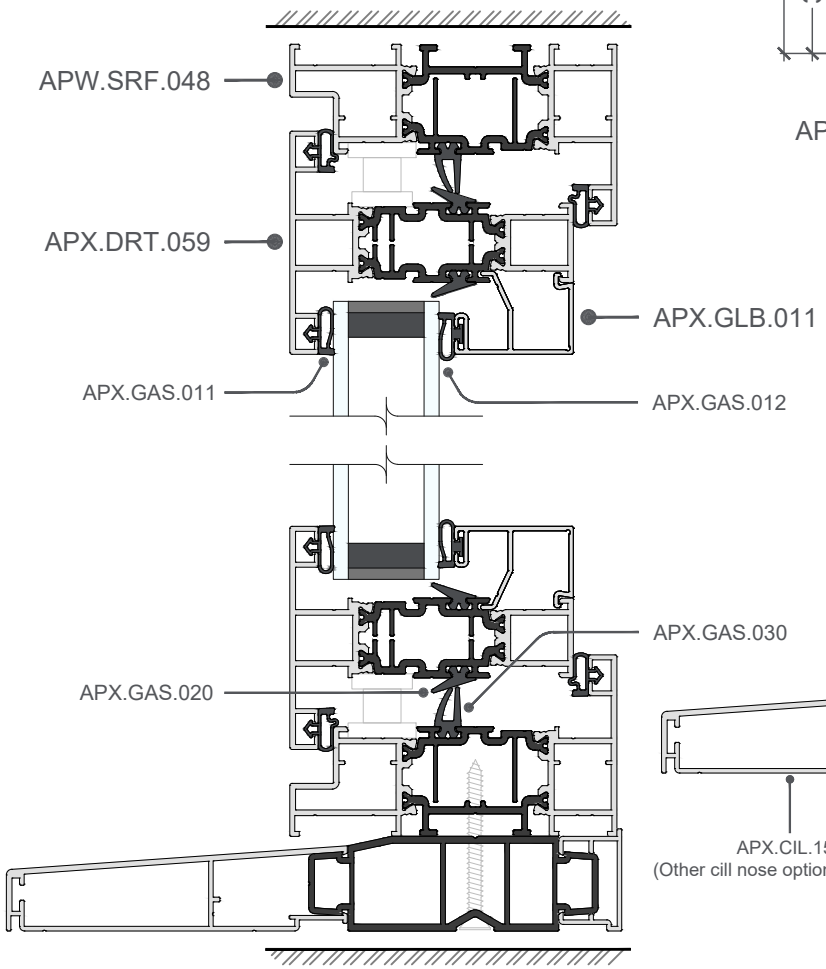


See Section 6 "Glazing" for alternative glazing options

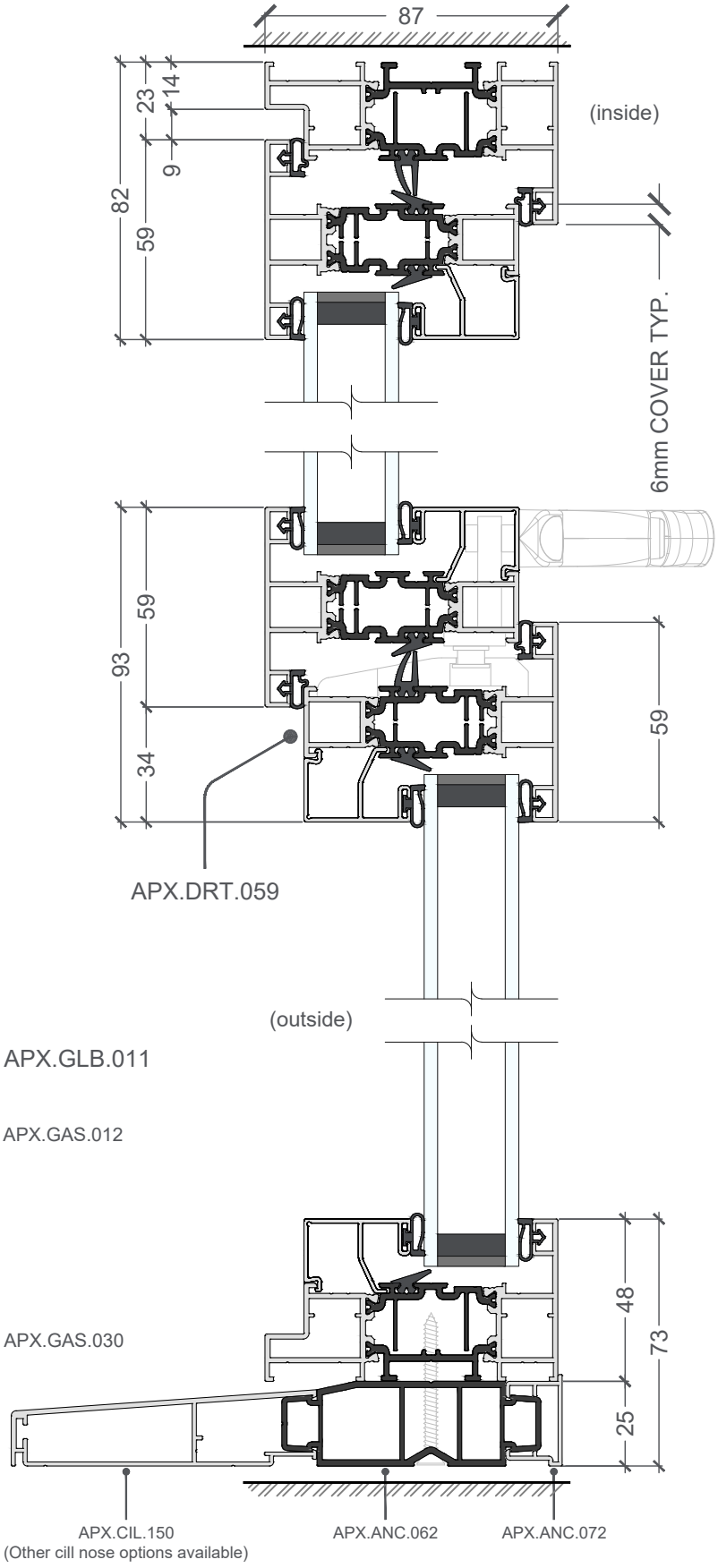
Assemblies
Externally Glazed Flush Casement



Typical Elevation
(viewed from outside)

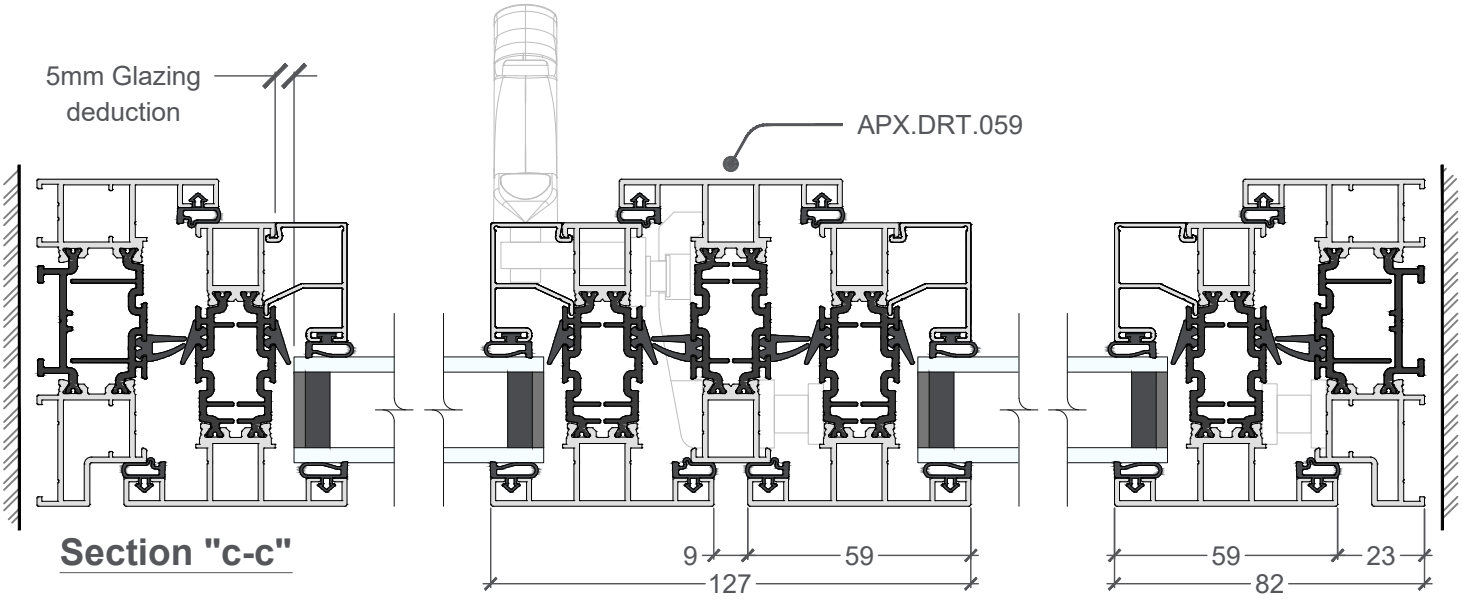


Section "a-a"

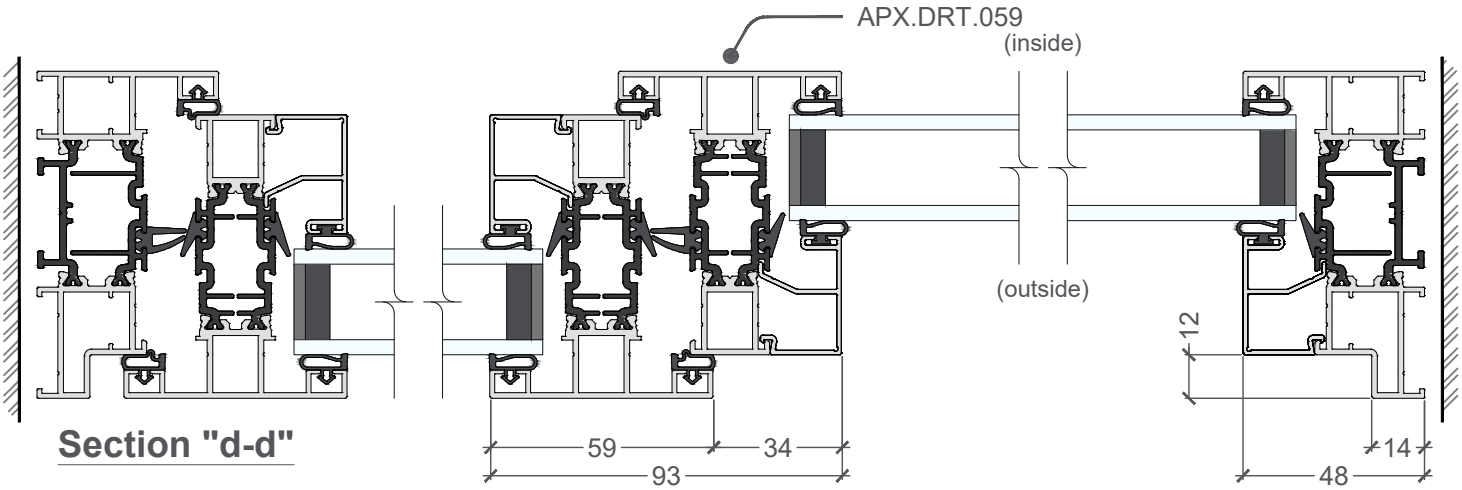


Section "b-b"

Section: 3.03

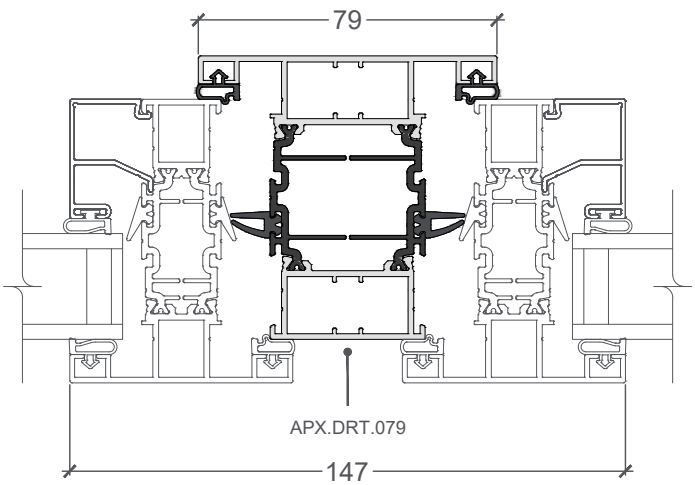


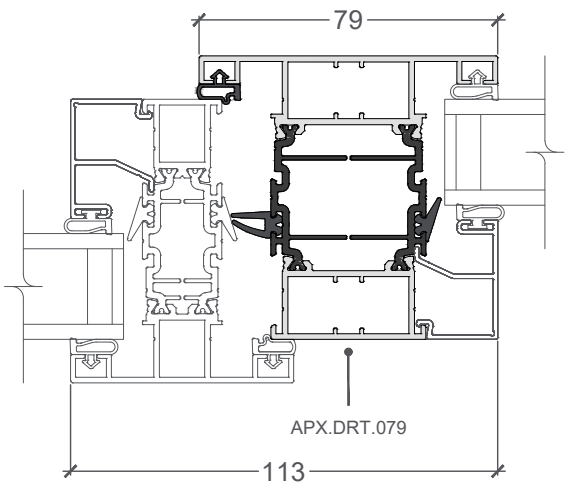
Section "c-c"



Section "d-d"

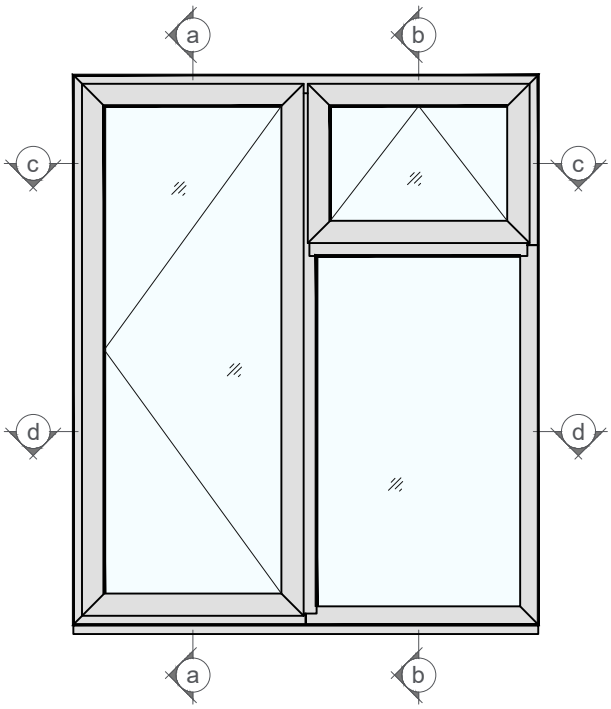
ALTERNATIVE 79MM REBATED OPTIONS



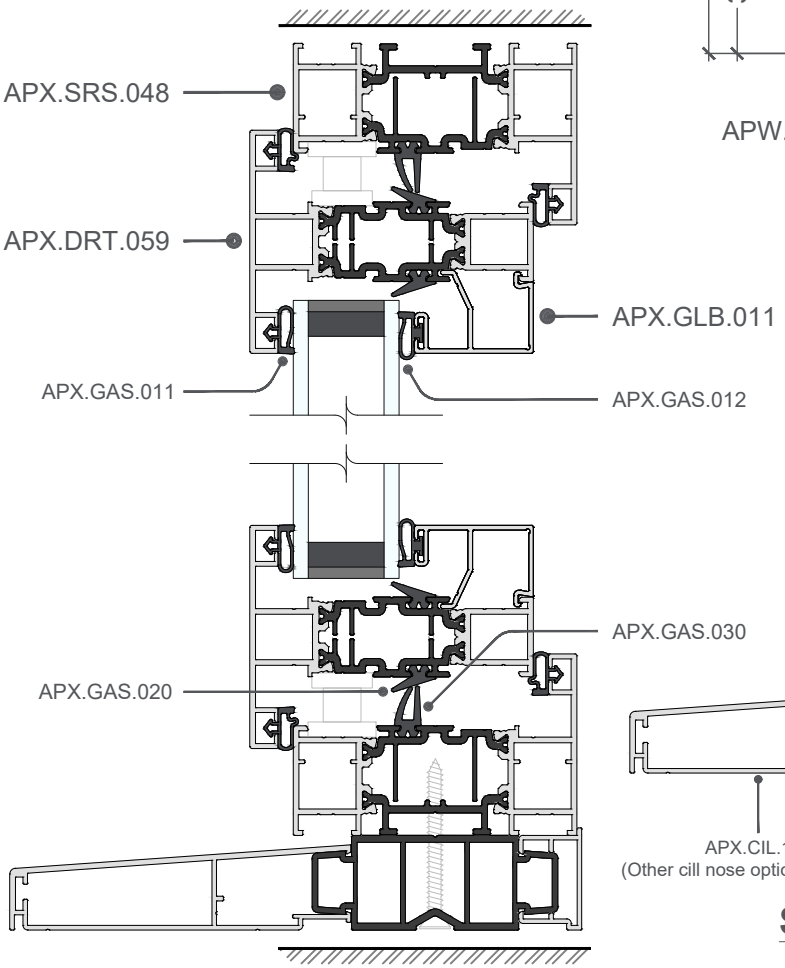


See Section 6 "Glazing" for alternative glazing options

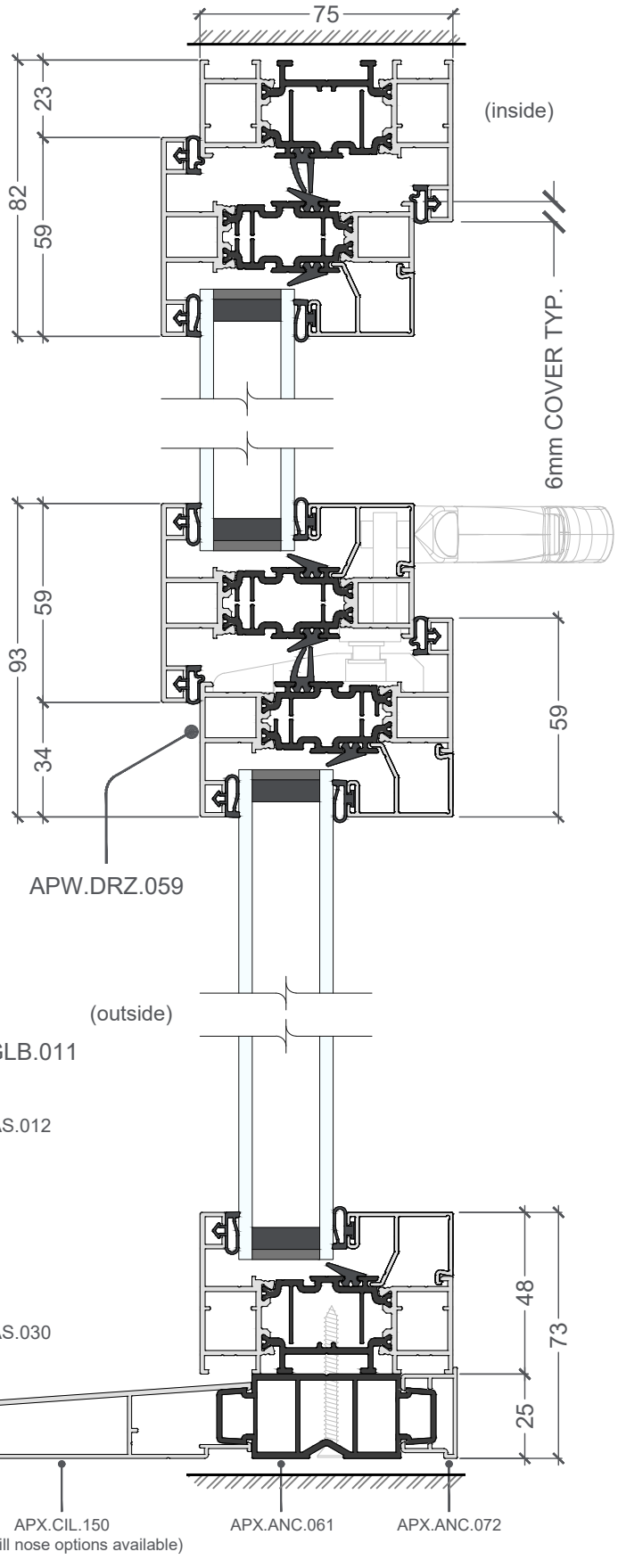
Assemblies
Internally Glazed Casement



Typical Elevation
(viewed from outside)

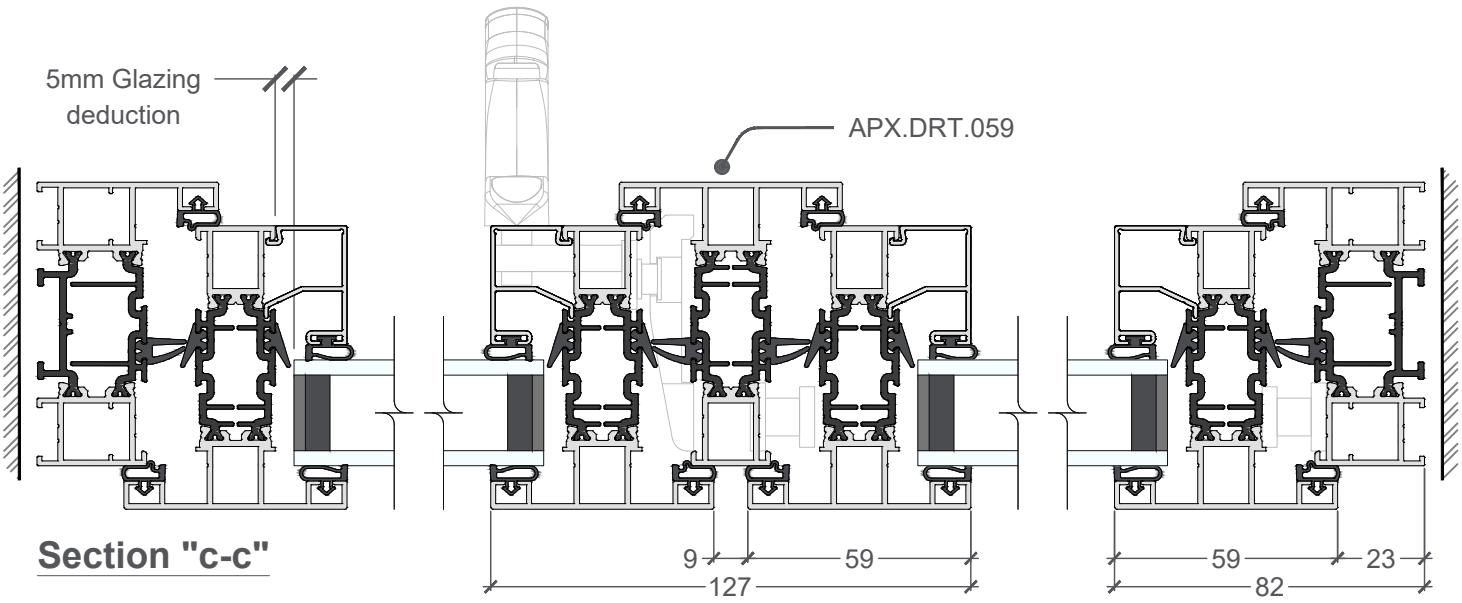


Section "a-a"

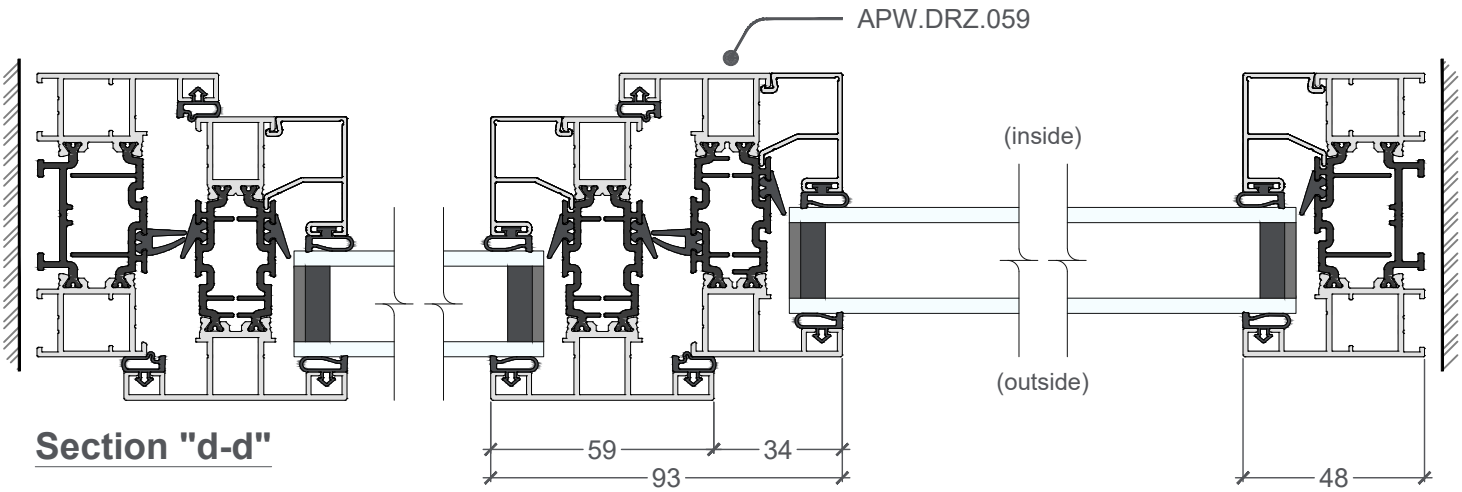


Section "b-b"

Section: 3.05

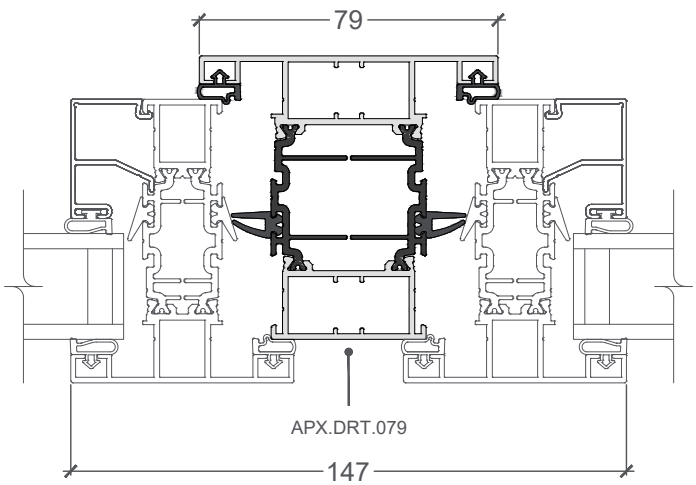


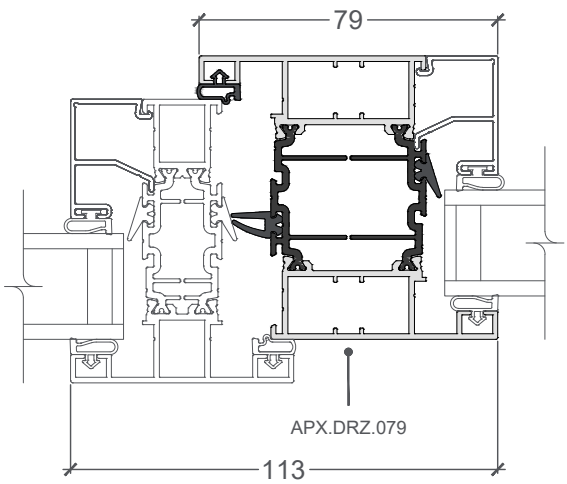
Section "c-c"



Section "d-d"

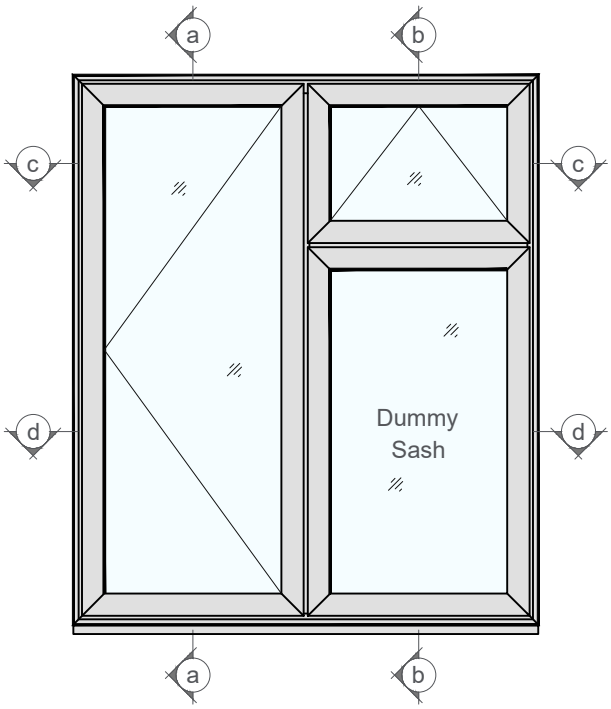
ALTERNATIVE 79MM REBATED OPTIONS



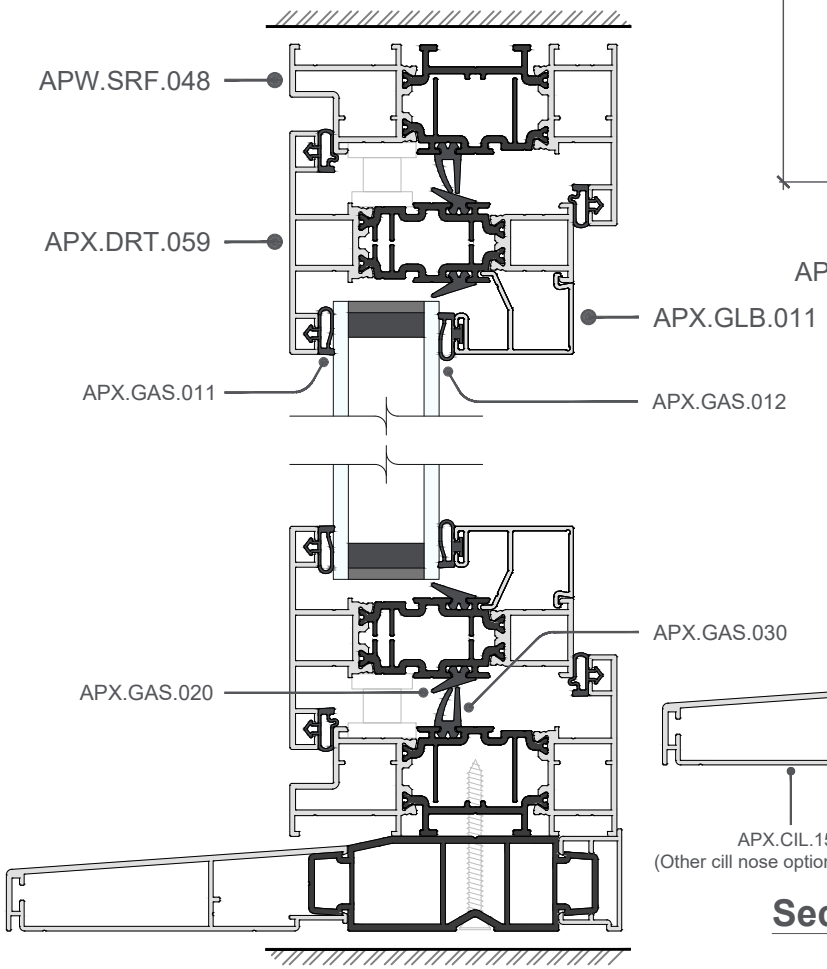


See Section 6 "Glazing" for alternative glazing options

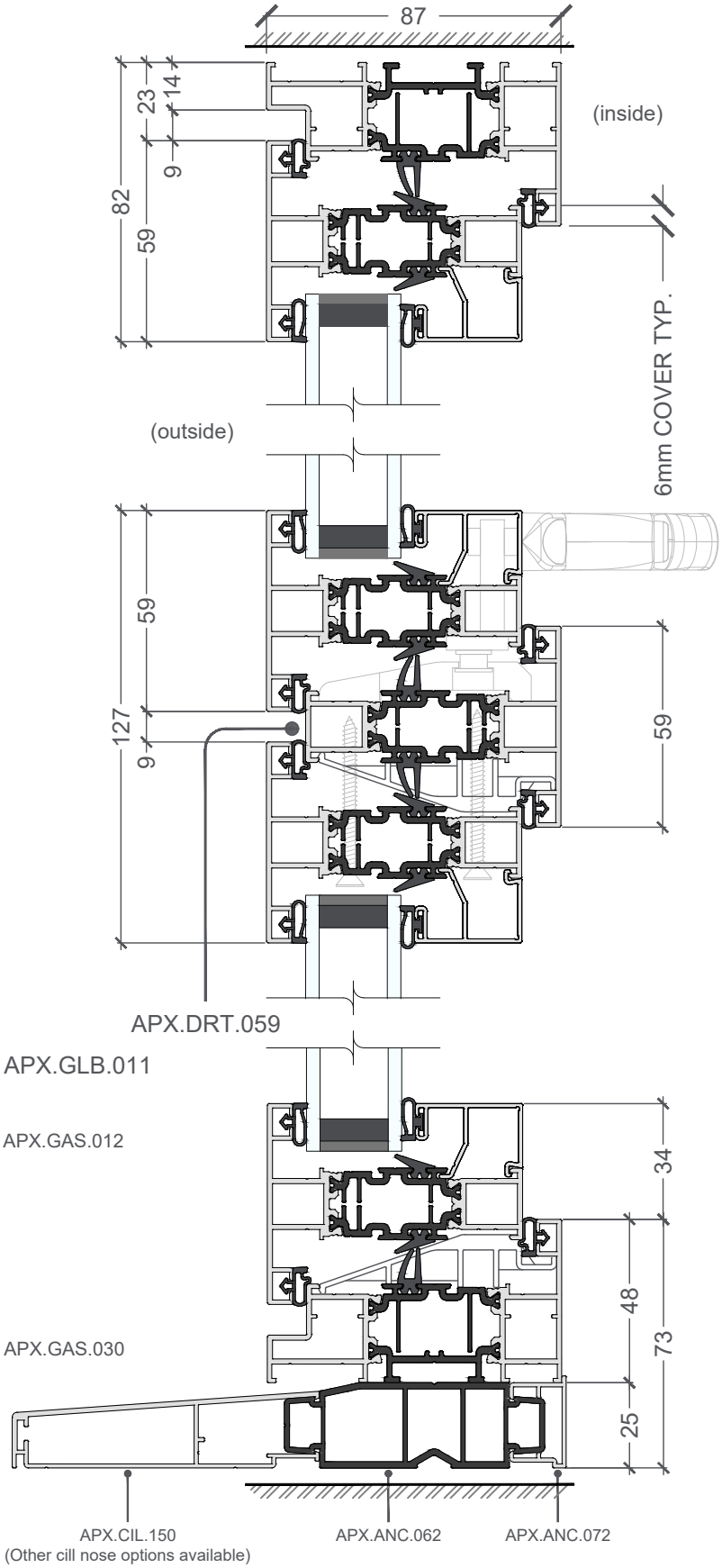
Assemblies
Flush Casement with Dummy Sash



Typical Elevation
(viewed from outside)

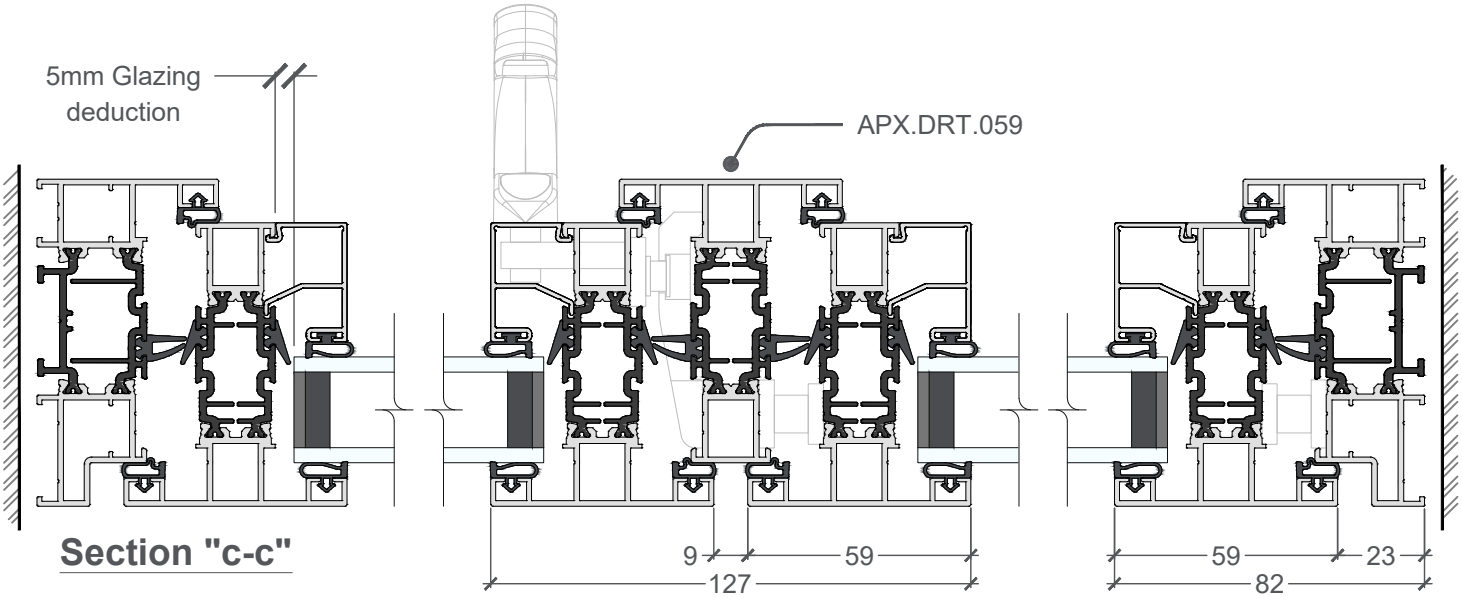


Section "a-a"

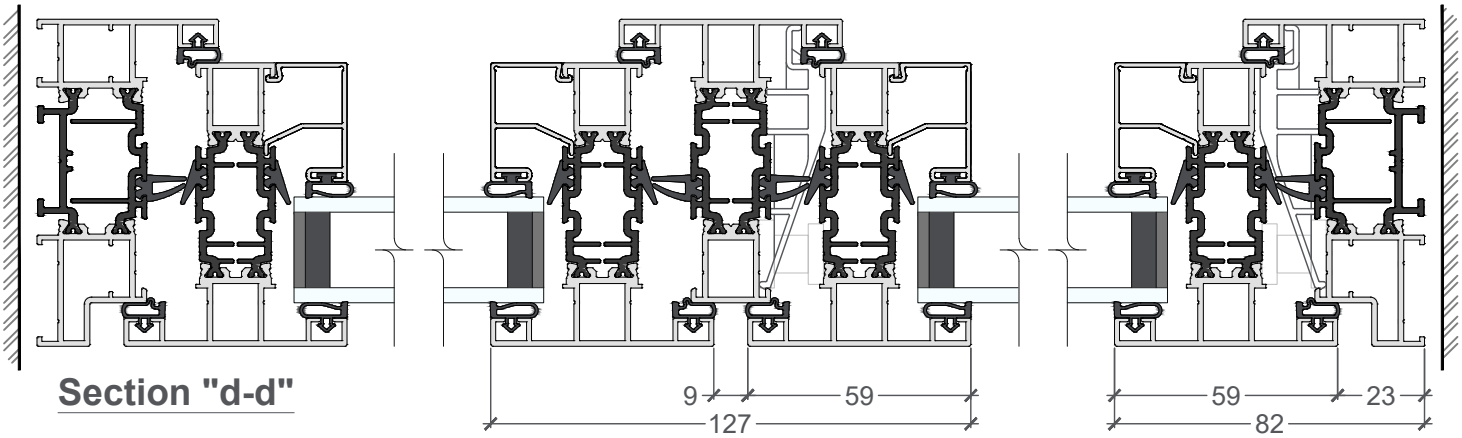


Section "b-b"

Section: 3.07

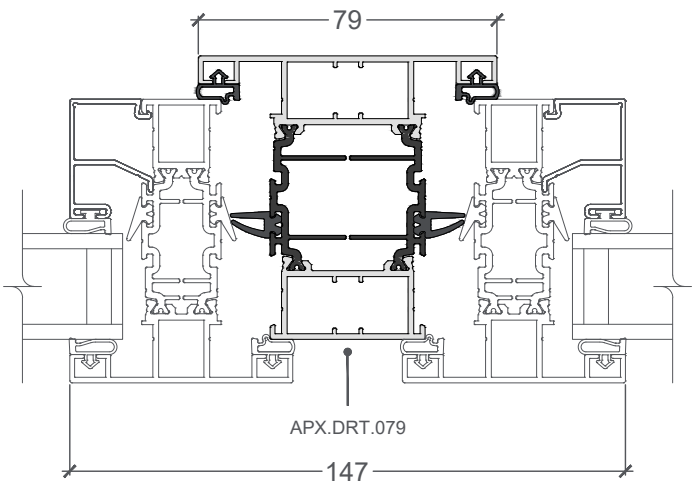


Section "c-c"



Section "d-d"

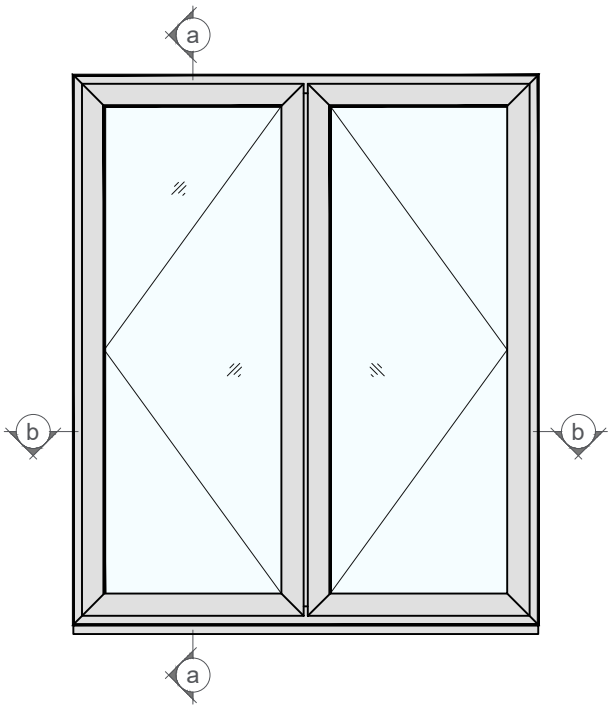
ALTERNATIVE 79MM REBATED OPTIONS



See Section 6 "Glazing" for alternative glazing options

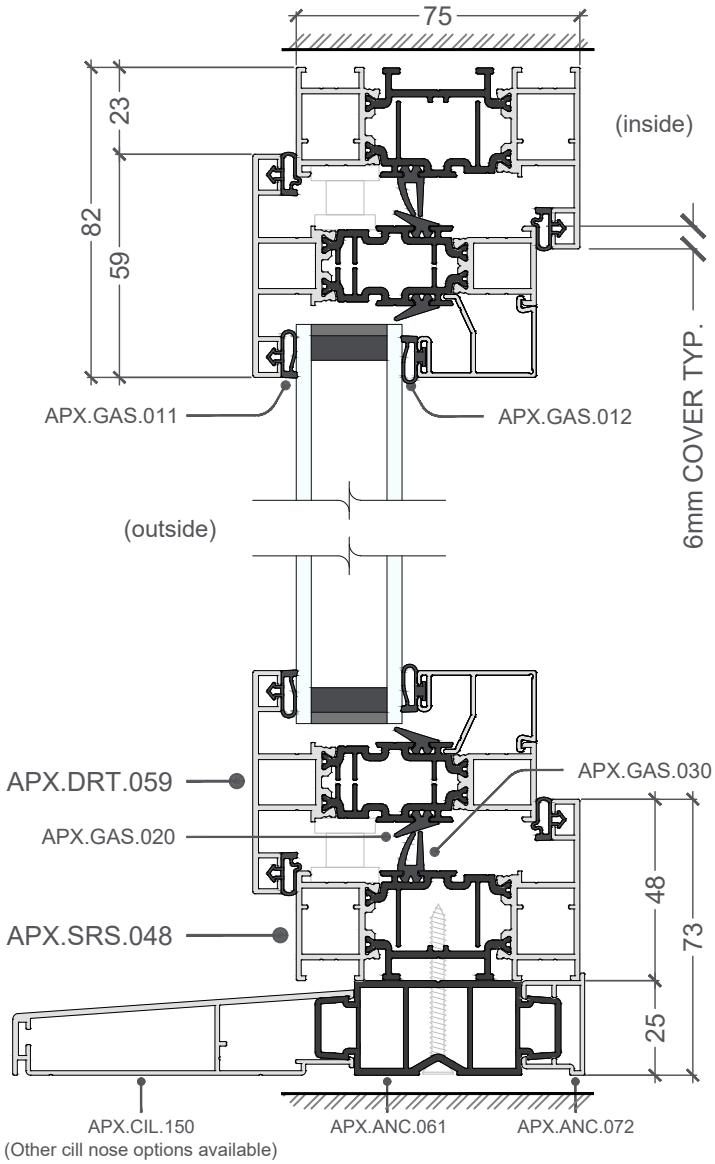
Assemblies

Internally Glazed French Window Casement

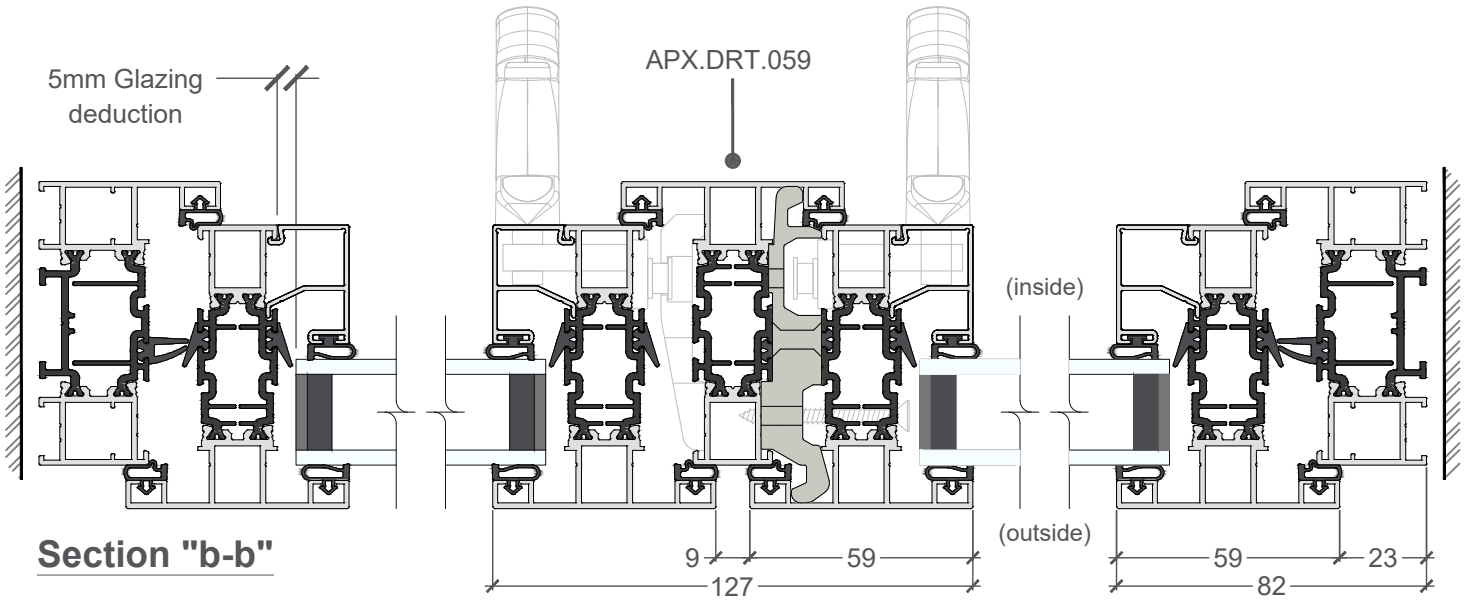


Typical Elevation

(viewed from outside)



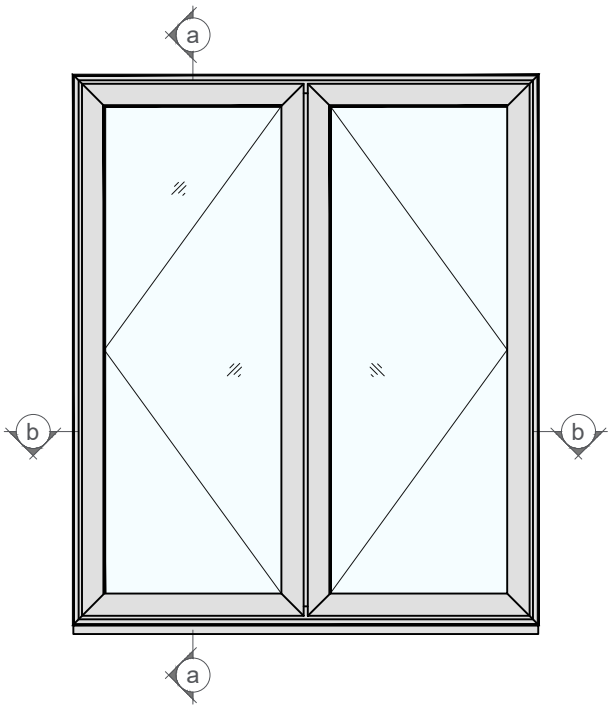
Section "a-a"



Section "b-b"

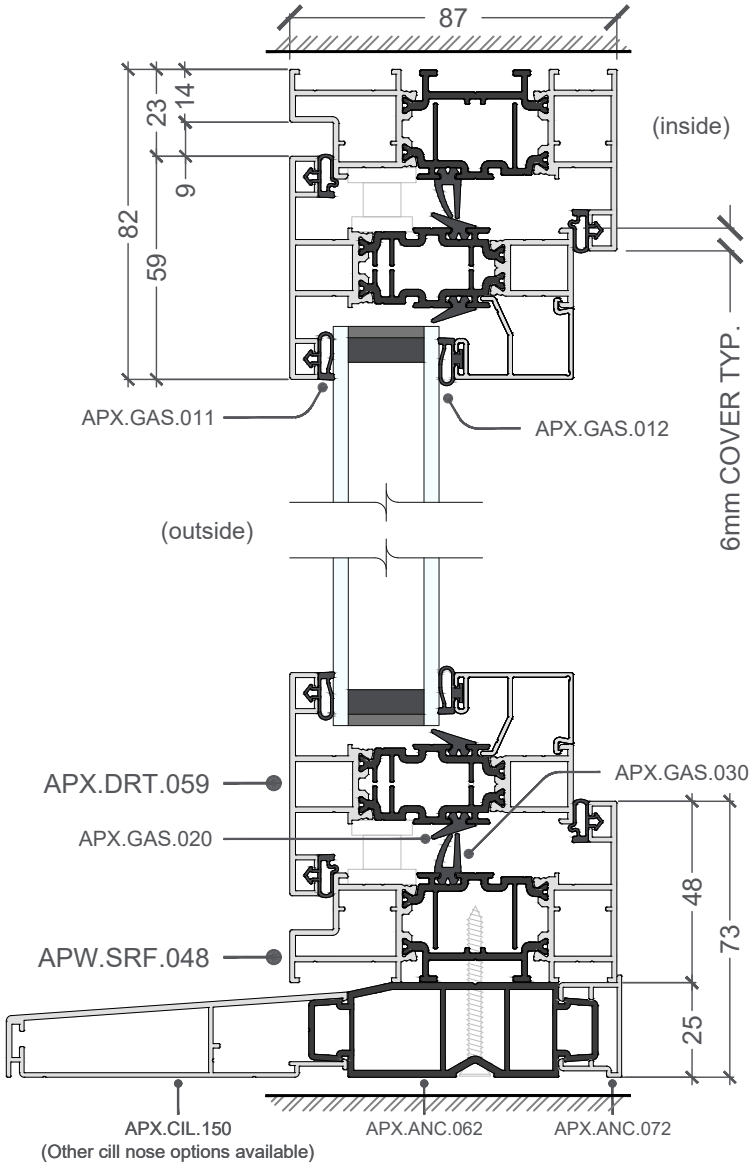
Assemblies

Internally Glazed French Window Flush Casement

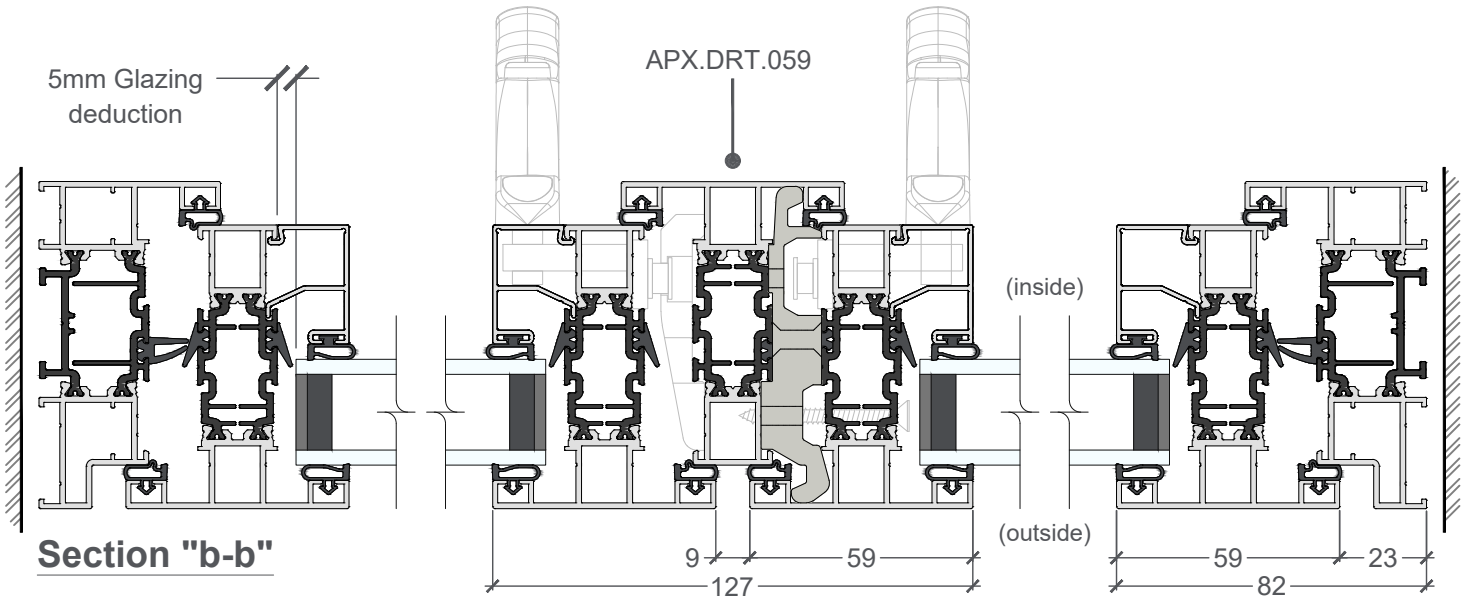


Typical Elevation

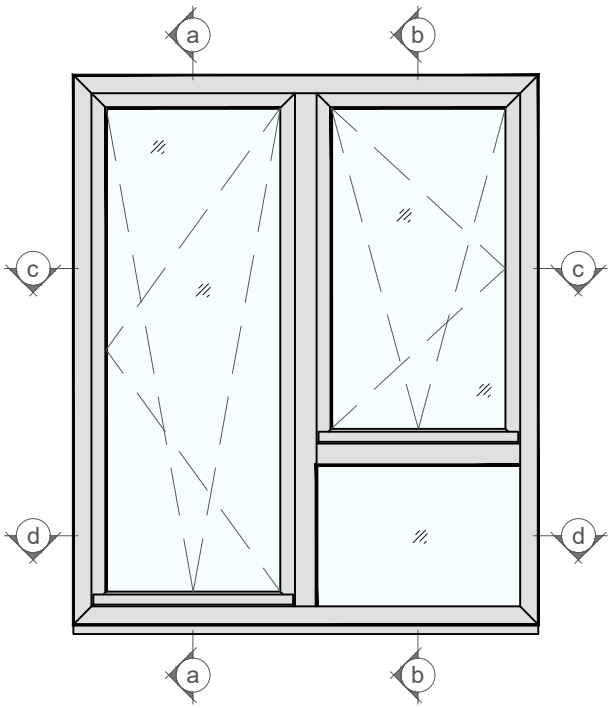
(viewed from outside)



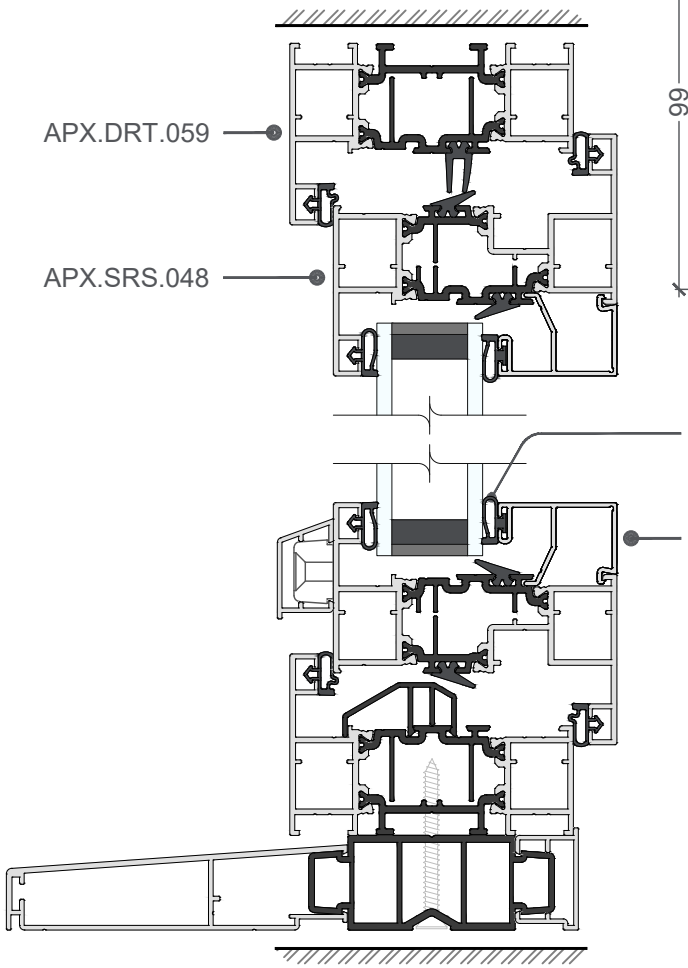
Section "a-a"



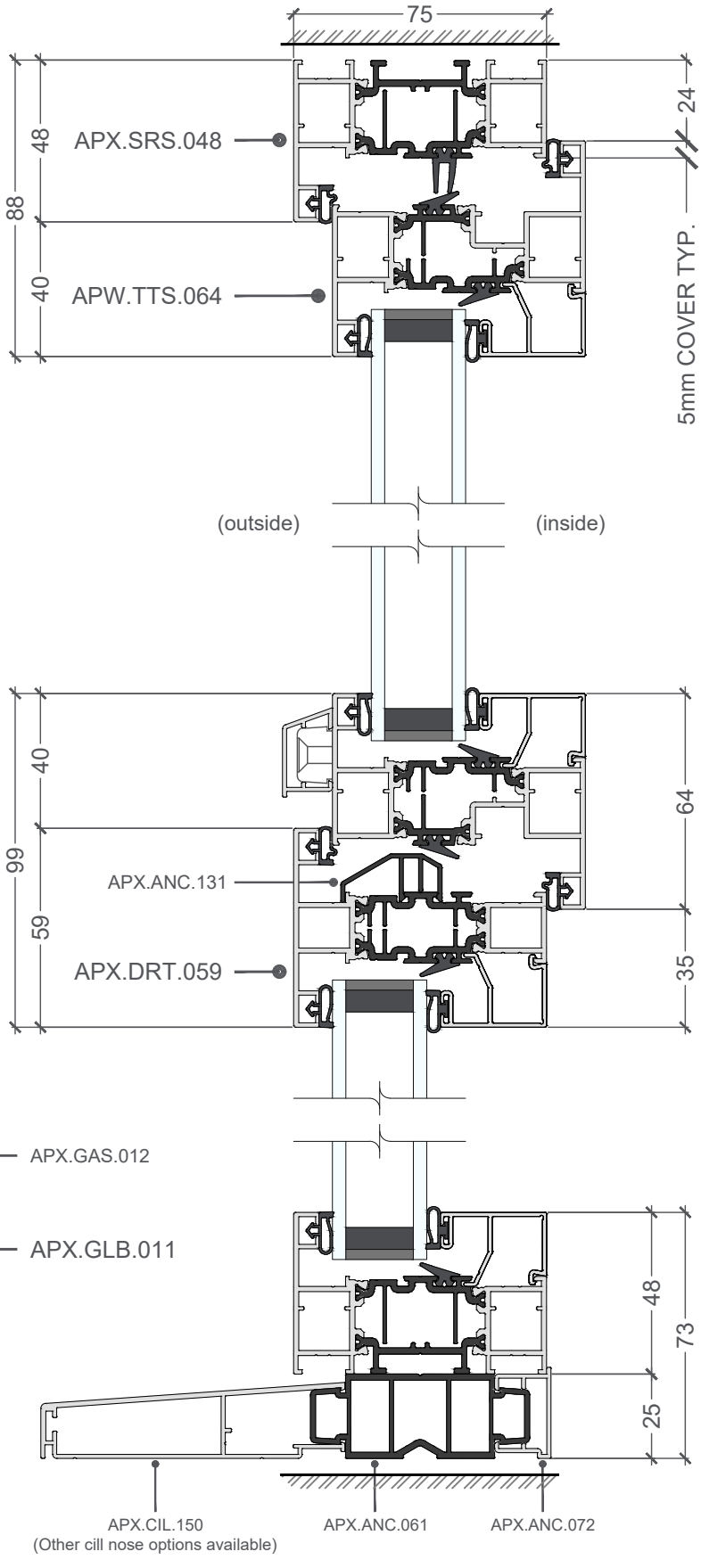
Section "b-b"



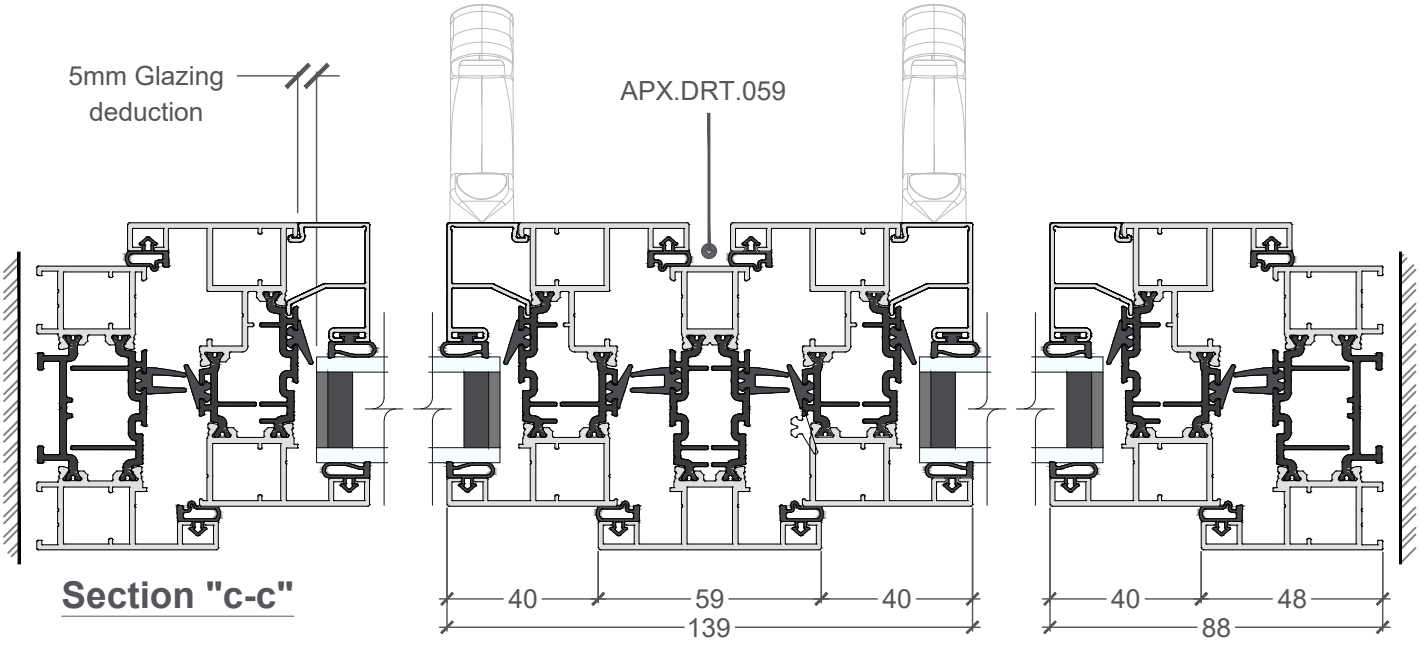
Typical Elevation
(viewed from outside)



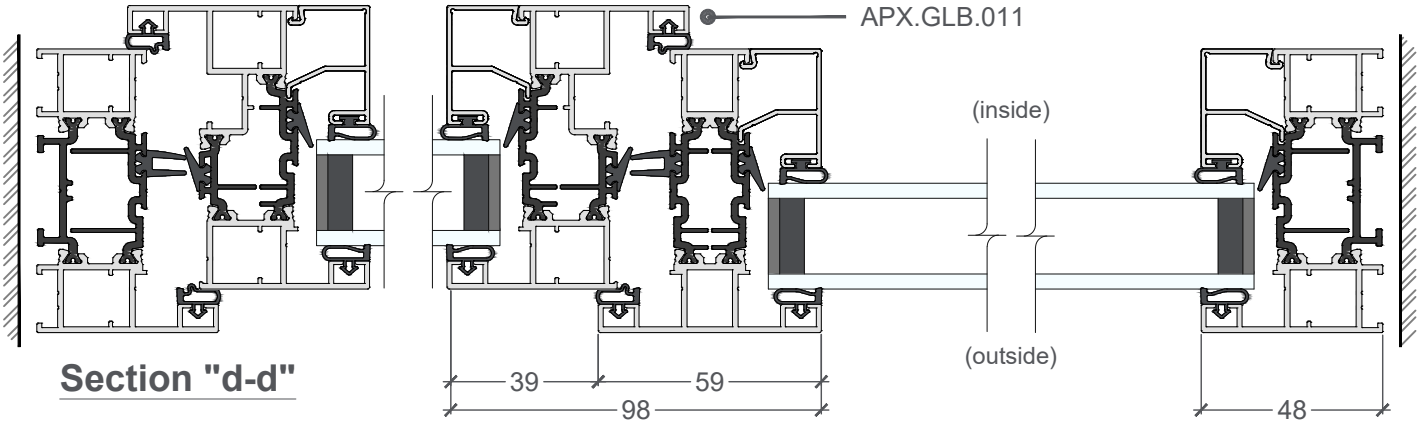
Section "a-a"



Section "b-b"

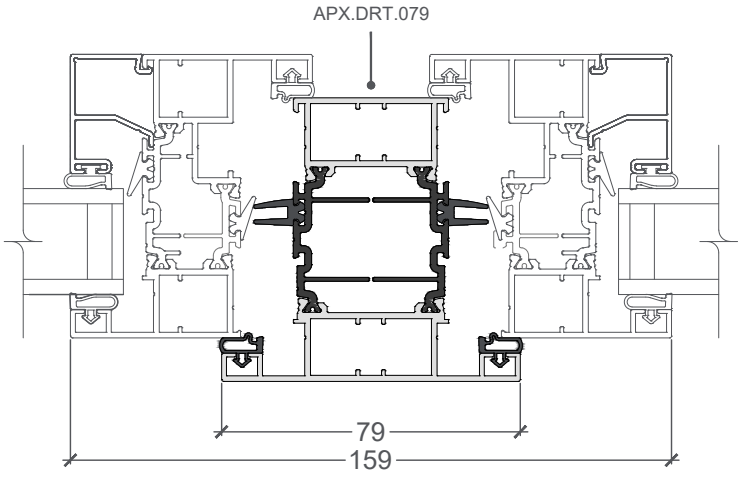


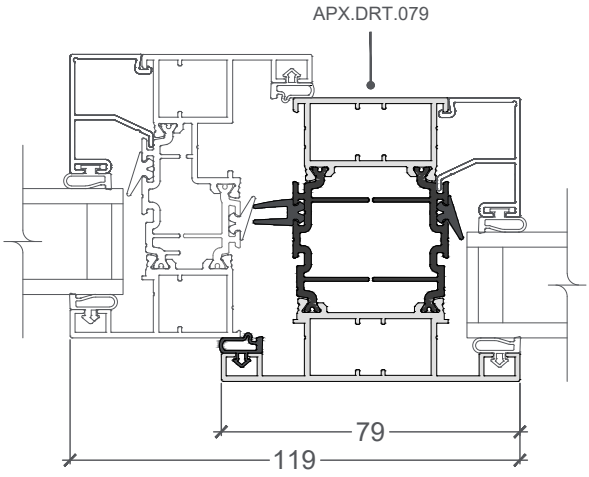
Section "c-c"



Section "d-d"

ALTERNATIVE 79MM REBATED OPTIONS



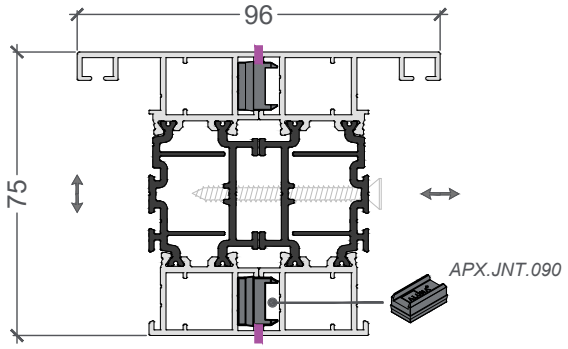


See Section 6 "Glazing" for alternative glazing options

Coupled Frames

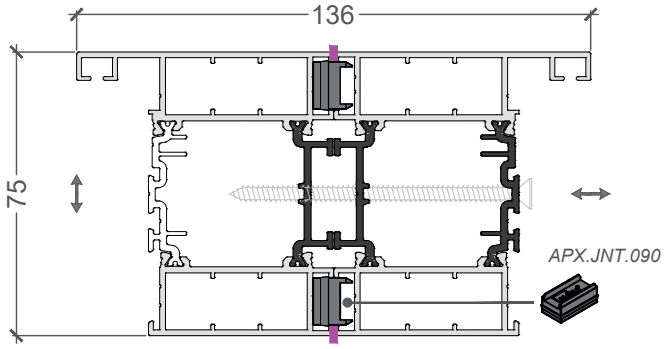
Blocks fitted max 300 from edge, and not more than 400mm crs

Assembly with APW.SRS.048 Frames



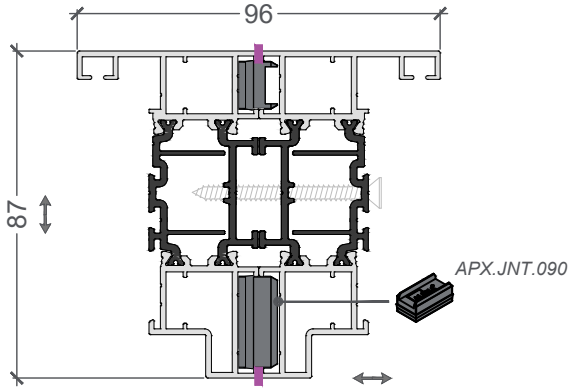
Ixx ↔ : 35.96cm^4 EIxx ↔ : 25.14E+9Nmm²
Iyy ↕ : 61.12cm^4 EIyy ↕ : 42.78E+9Nmm²

Assembly with APW.SRS.068 Frames



Ixx ↔ : 114.77cm^4 EIxx ↔ : 80.34E+9Nmm²
Iyy ↕ : 83.92cm^4 EIyy ↕ : 58.75E+9Nmm²

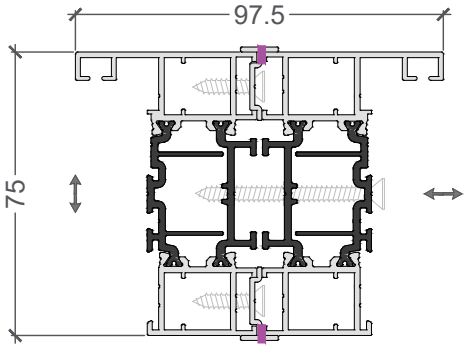
Assembly with APW.SRF.048 Frames



Ixx ↔ : 36.68cm^4 EIxx ↔ : 25.68E+9Nmm²
Iyy ↕ : 78.81cm^4 EIyy ↕ : 55.17E+9Nmm²

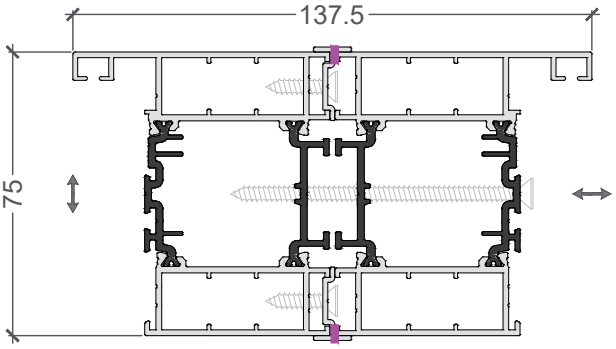
T Coupler

APX.ANC.150 assembly with APW.SRS.048 Frames

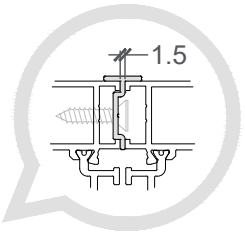


Ixx ↔ : 37.82cm^4 EIxx ↔ : 26.48E+9Nmm²
Iyy ↕ : 69.63cm^4 EIyy ↕ : 48.74E+9Nmm²

APX.ANC.150 assembly with APW.SRS.068 Frames



Ixx ↔ : 118.57cm^4 EIxx ↔ : 83.00E+9Nmm²
Iyy ↕ : 92.37cm^4 EIyy ↕ : 64.66E+9Nmm²



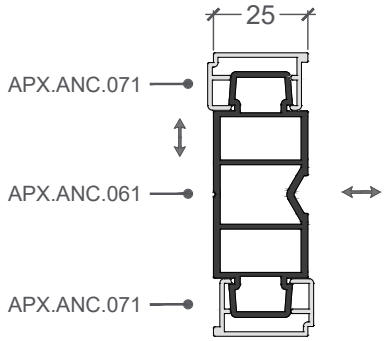
Allow 1.5mm deductions between frame for APX.ANC.150

Note applies to all sections: Apply small gap sealant on face of one profile prior to coupling assembly. (▬ denotes sealant) Wipe away excessive.

See section 5 for max deflection displacement charts

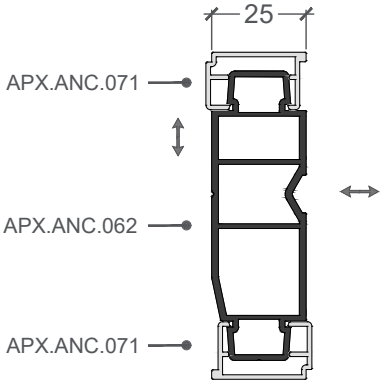
25mm Coupler

Coupler ONLY



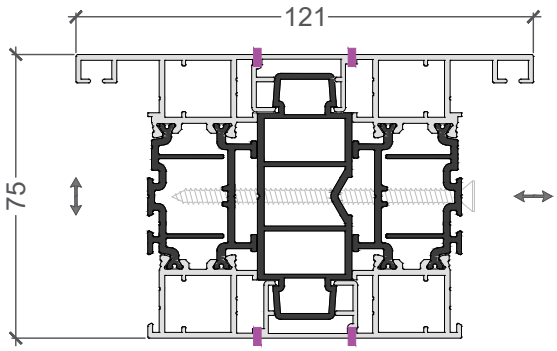
Ixx ↔ : 1.65cm^4 EIxx ↔ : 1.16E+9Nmm²
Iyy ↕ : 17.18cm^4 EIyy ↕ : 12.03E+9Nmm²

Coupler ONLY



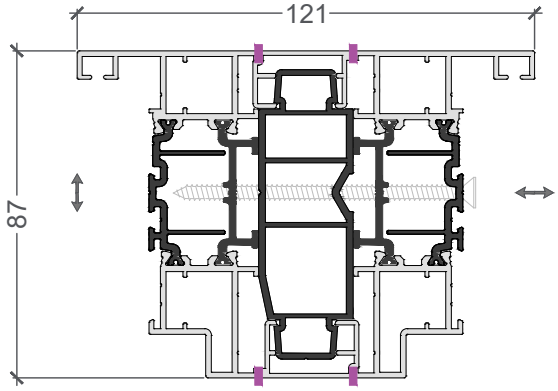
Ixx ↔ : 1.65cm^4 EIxx ↔ : 1.16E+9Nmm²
Iyy ↕ : 23.76cm^4 EIyy ↕ : 16.63E+9Nmm²

APX.ANC.071/APX.ANC.061/APX.ANC.071
assembly with APW.SRS.048 Frames



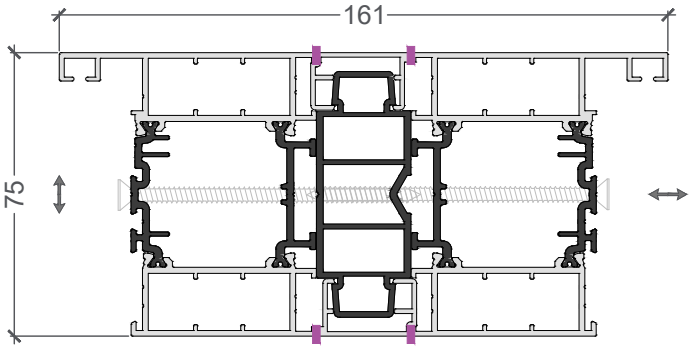
Ixx ↔ : 83.92cm^4 EIxx ↔ : 58.74E+9Nmm²
Iyy ↕ : 78.59cm^4 EIyy ↕ : 55.01E+9Nmm²

APX.ANC.071/APX.ANC.062/APX.ANC.071
assembly with APW.SRF.048 Frames



Ixx ↔ : 87.33cm^4 EIxx ↔ : 61.13E+9Nmm²
Iyy ↕ : 103.06cm^4 EIyy ↕ : 72.14E+9Nmm²

APX.ANC.071/APX.ANC.061/APX.ANC.071
assembly with APW.SRS.068 Frames



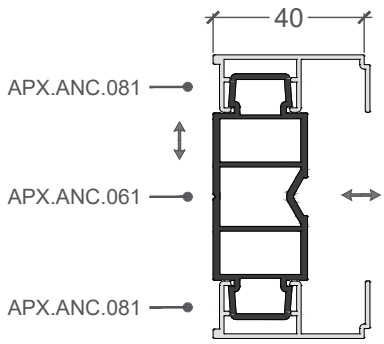
Ixx ↔ : 203.81cm^4 EIxx ↔ : 142.67E+9Nmm²
Iyy ↕ : 101.27cm^4 EIyy ↕ : 70.89E+9Nmm²

Note applies to all sections: Apply small gap sealant on face of one profile prior to coupling assembly. (▬ denotes sealant) Wipe away excessive.

See section 5 for max deflection displacement charts

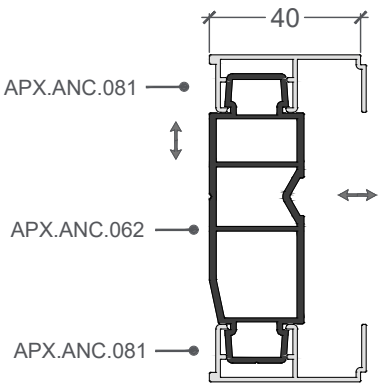
40mm Coupler

Coupler ONLY



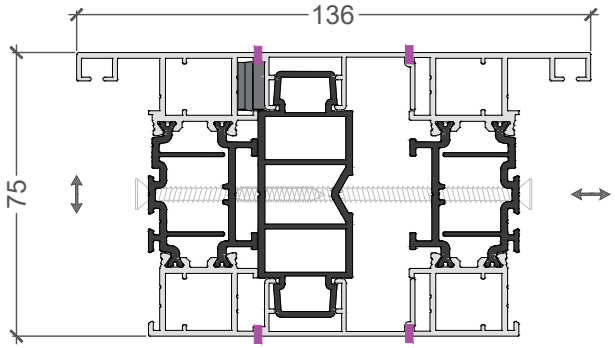
Ixx ⟷ : 4.26cm^4 EIxx ⟷ : 2.99E+9Nmm²
Iyy ↕ : 23.88cm^4 EIyy ↕ : 16.72E+9Nmm²

Coupler ONLY



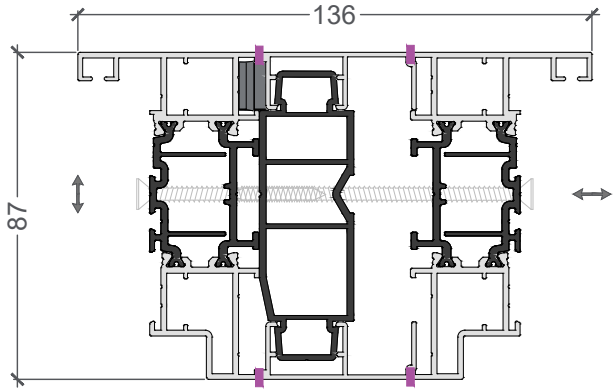
Ixx ⟷ : 4.26cm^4 EIxx ⟷ : 2.99E+9Nmm²
Iyy ↕ : 32.82cm^4 EIyy ↕ : 22.98E+9Nmm²

APX.ANC.081/APX.ANC.061/APX.ANC.081
assembly with APW.SRS.048 Frames



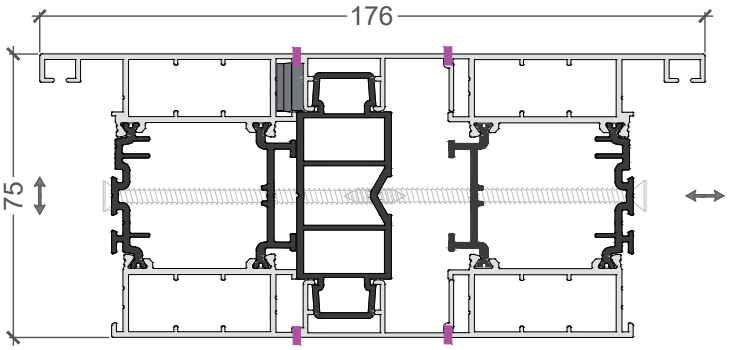
Ixx ⟷ : 125.58cm^4 EIxx ⟷ : 87.91E+9Nmm²
Iyy ↕ : 85.37cm^4 EIyy ↕ : 59.76E+9Nmm²

APX.ANC.081/APX.ANC.062/APX.ANC.081
assembly with APW.SRF.048 Frames

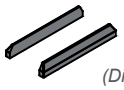


Ixx ⟷ : 131.62cm^4 EIxx ⟷ : 92.13E+9Nmm²
Iyy ↕ : 112.25cm^4 EIyy ↕ : 78.57E+9Nmm²

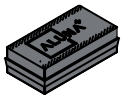
APX.ANC.081/APX.ANC.061/APX.ANC.081
assembly with APW.SRS.068 Frames



Ixx ⟷ : 274.02cm^4 EIxx ⟷ : 191.81E+9Nmm²
Iyy ↕ : 108.02cm^4 EIyy ↕ : 75.61E+9Nmm²



(Discard legs)



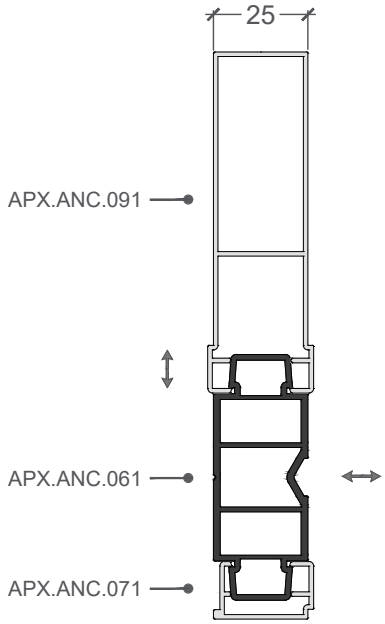
Remove legs of APX.JNT.090 connector block, blocks are used as a guide to align frame & 40mm clip

Note applies to all sections: Apply small gap sealant on face of one profile prior to coupling assembly. (▬ denotes sealant) Wipe away excessive.

See section 5 for max deflection displacement charts

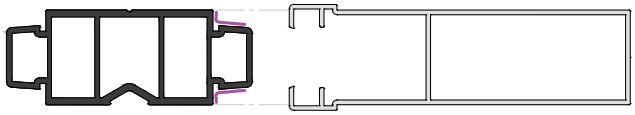
HD Coupler

Coupler ONLY

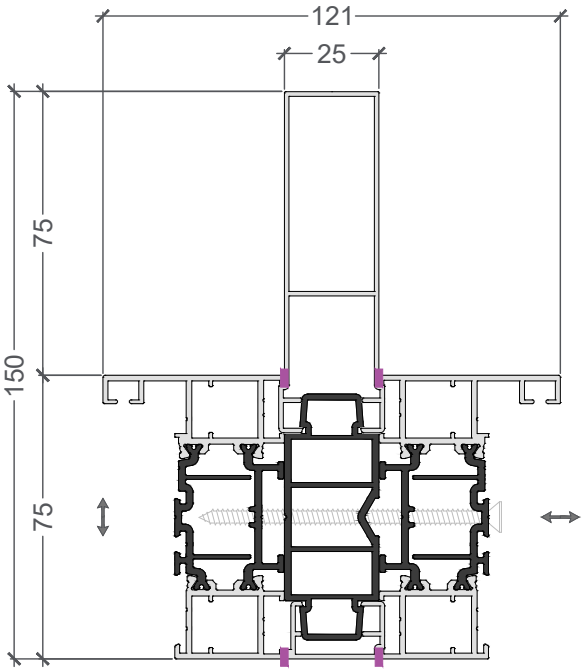


Ixx ↔ : 4.52cm^4 EIxx ↔ : 3.17E+9Nmm²
Iyy ↕ : 87.99cm^4 EIyy ↕ : 61.59E+9Nmm²

Note applies to all sections: Apply small gap sealant on face of one profile prior to coupling assembly. (▬ denotes sealant) Wipe away excessive.

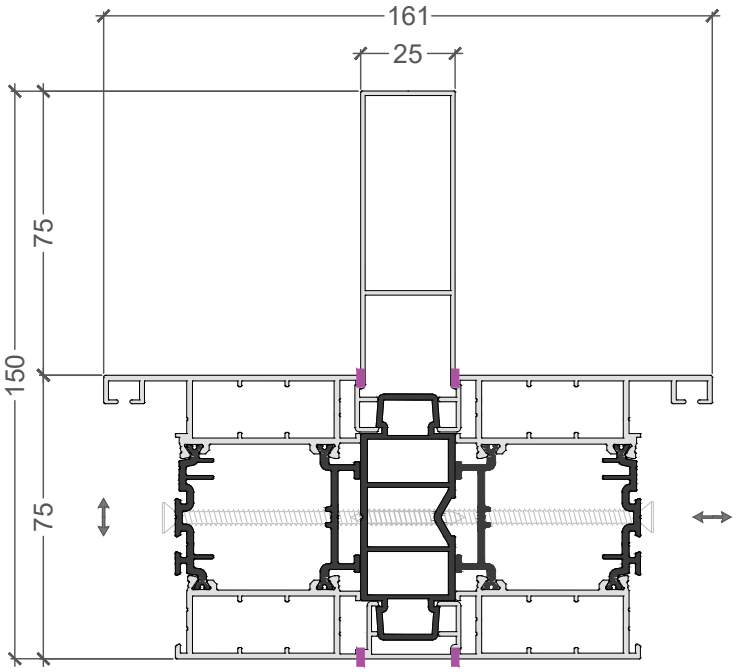


APX.ANC.091/APX.ANC.061/APX.ANC.071
assembly with APW.SRS.048 Frames



Ixx ↔ : 86.79cm^4 EIxx ↔ : 60.75E+9Nmm²
Iyy ↕ : 213.21cm^4 EIyy ↕ : 149.24E+9Nmm²

APX.ANC.091/APX.ANC.061/APX.ANC.071
assembly with APW.SRS.068 Frames

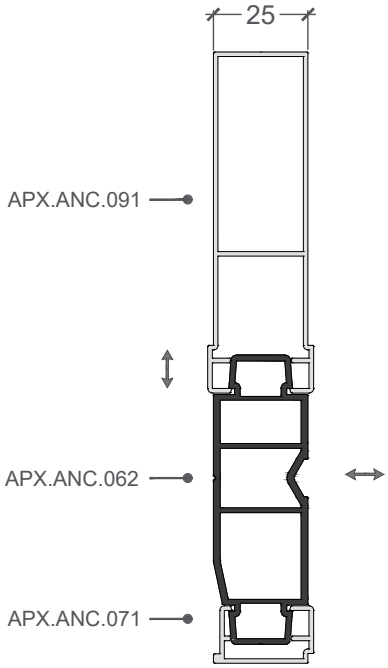


Ixx ↔ : 206.68cm^4 EIxx ↔ : 144.68E+9Nmm²
Iyy ↕ : 238.76cm^4 EIyy ↕ : 167.13E+9Nmm²

See section 5 for max deflection displacement charts

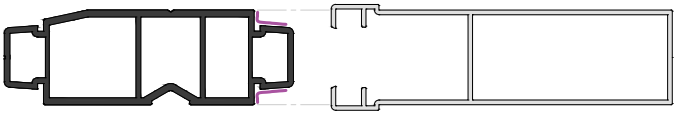
HD Coupler

Coupler ONLY

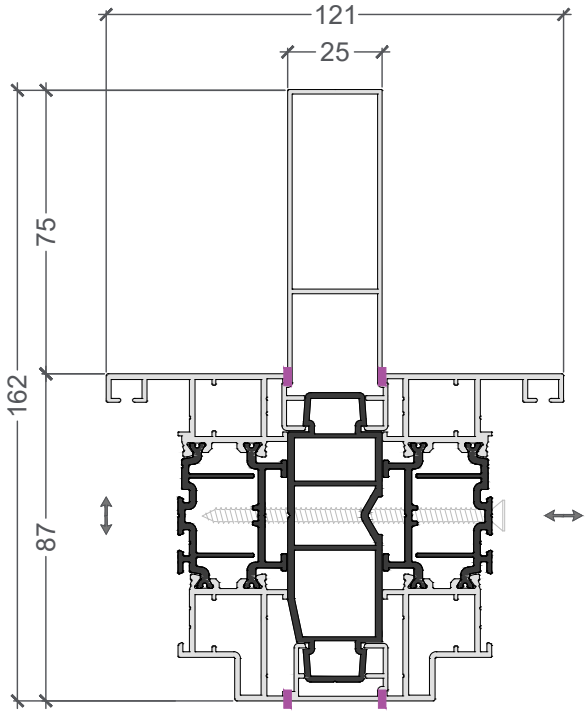


Ixx ↔ : 4.52cm^4 EIxx ↔ : 3.17E+9Nmm²
Iyy ↕ : 103.55cm^4 EIyy ↕ : 72.48E+9Nmm²

Note applies to all sections: Apply small gap sealant on face of one profile prior to coupling assembly. (▬ denotes sealant) Wipe away excessive.



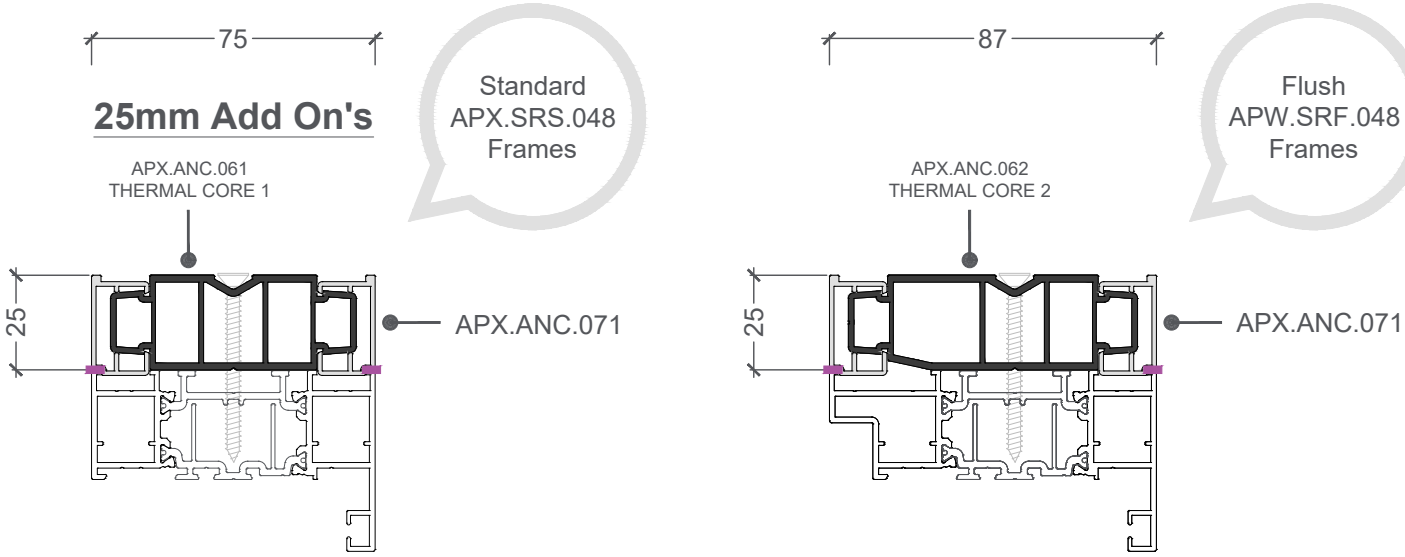
APX.ANC.091/APX.ANC.062/APX.ANC.071 assembly with APW.SRF.048 Frames



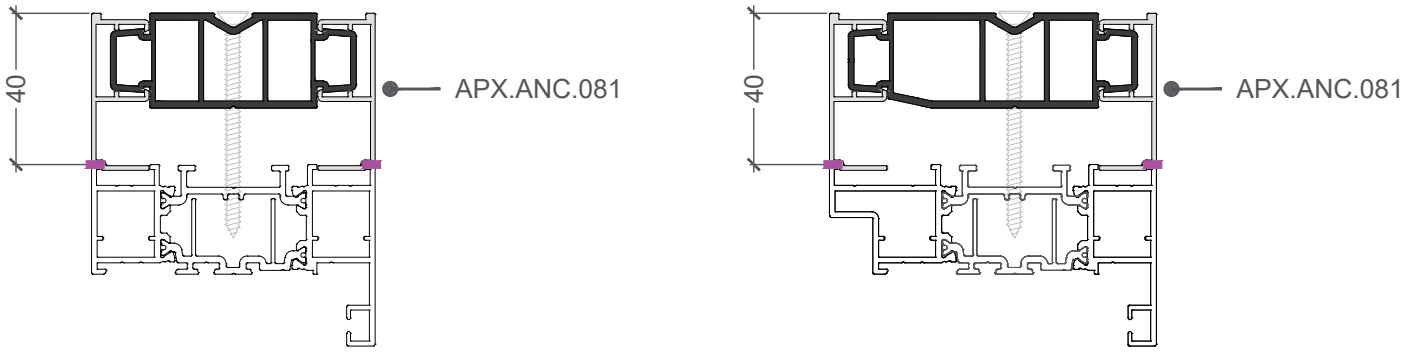
Ixx ↔ : 90.20cm^4 EIxx ↔ : 61.14E+9Nmm²
Iyy ↕ : 230.41cm^4 EIyy ↕ : 161.29E+9Nmm²

See section 5 for max deflection displacement charts

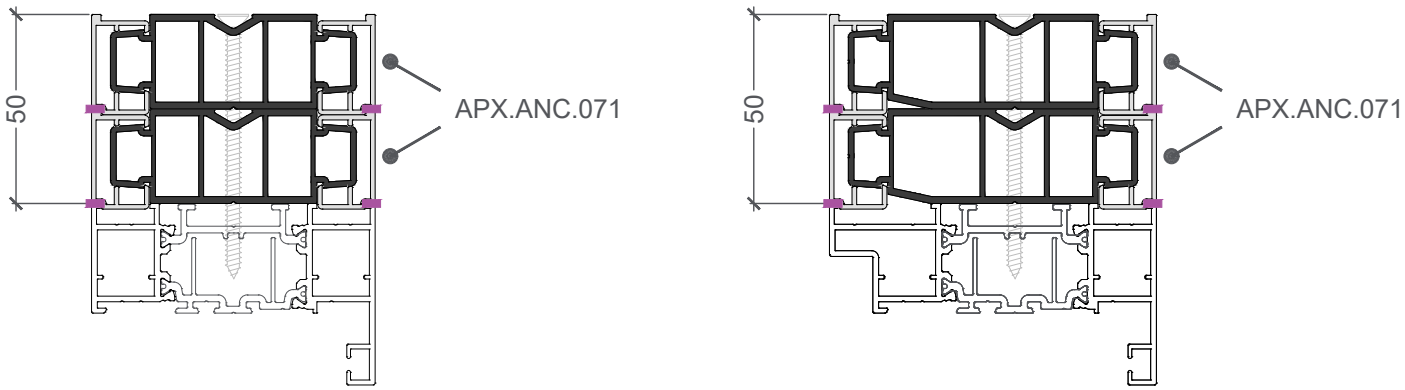
25mm Add On's



40mm Add On's



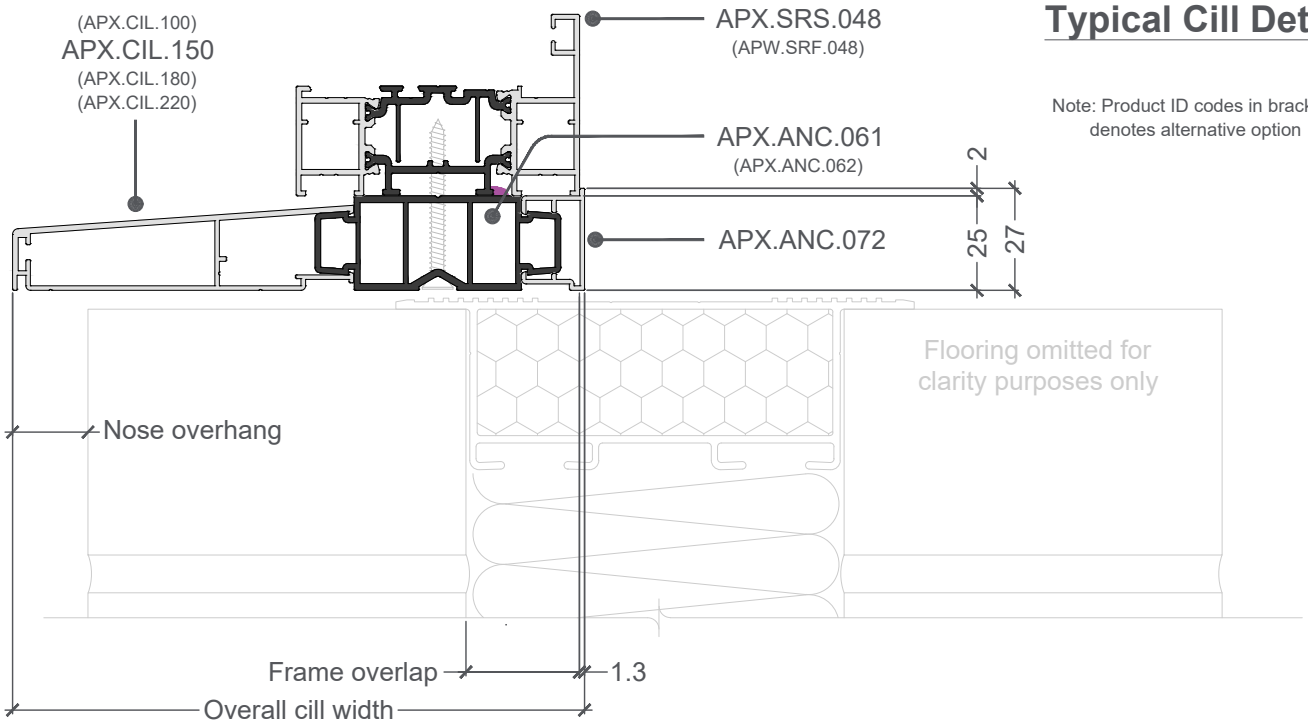
Stackable Add On's

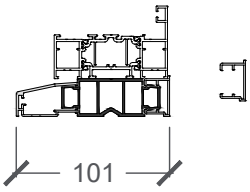
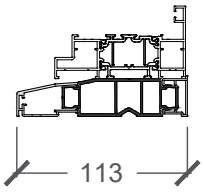
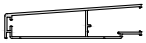
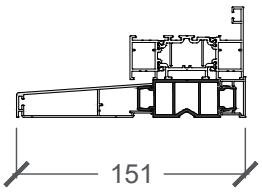
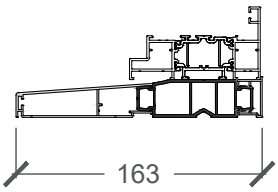
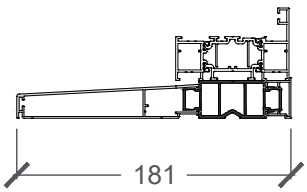
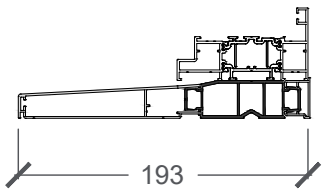
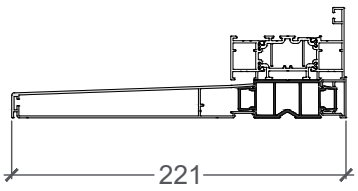
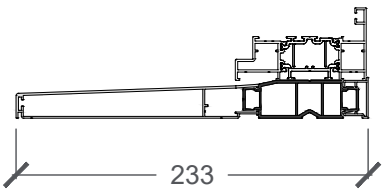


Note applies to all sections: Apply small gap sealant on face of one profile prior to coupling assembly. (▬ denotes sealant) Wipe away excessive.

Typical Cill Detail

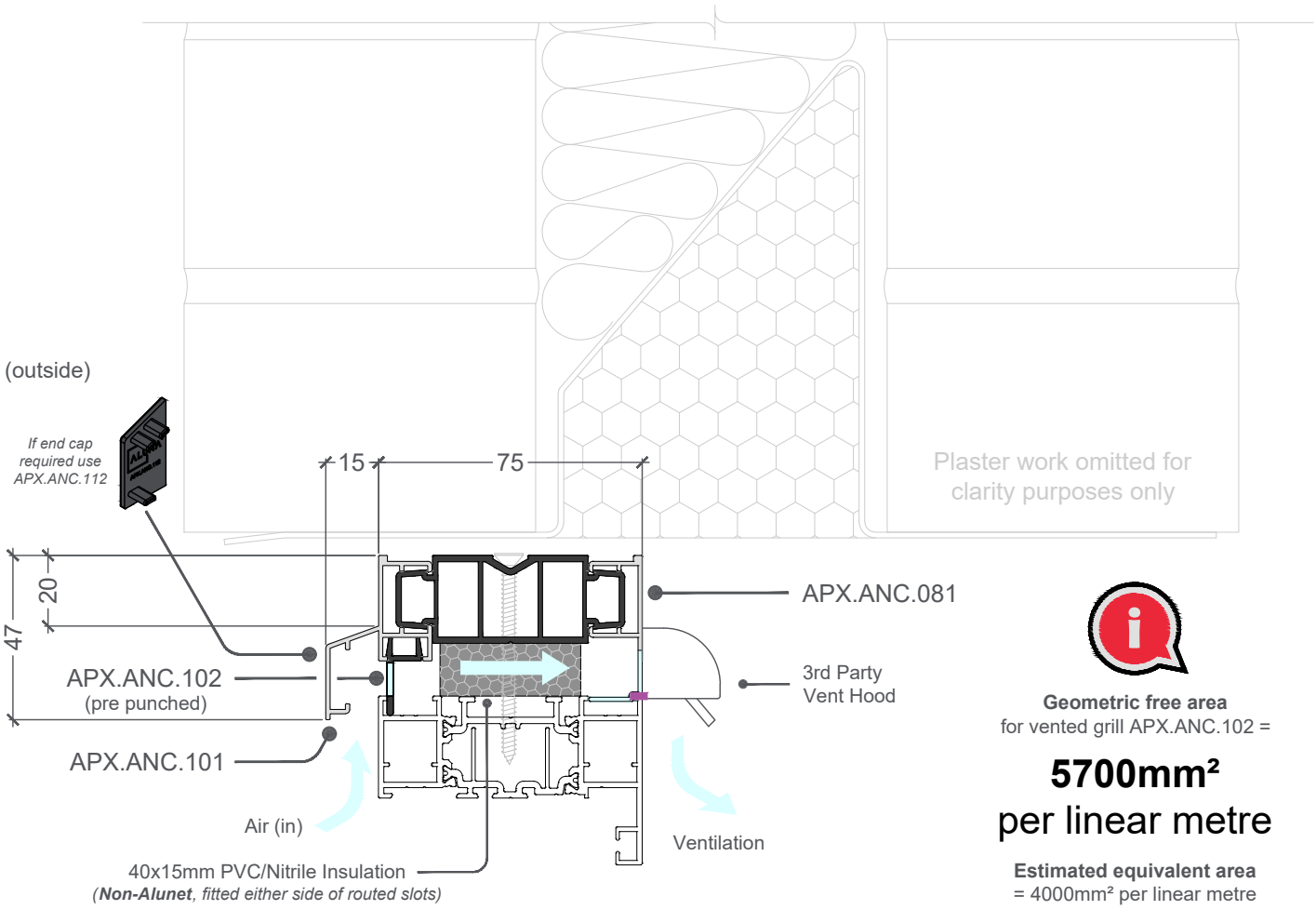
Note: Product ID codes in brackets denotes alternative option



Nose Detail	Standard APX.SRS.048/068 Frames	Flush APW.SRF.048 Frames
APX.CIL.100 		
APX.CIL.150 		
APX.CIL.180 		
APX.CIL.220 		

Note applies to all sections: Apply small gap sealant on face of one profile prior to coupling assembly. (▬ denotes sealant) Wipe away excessive.

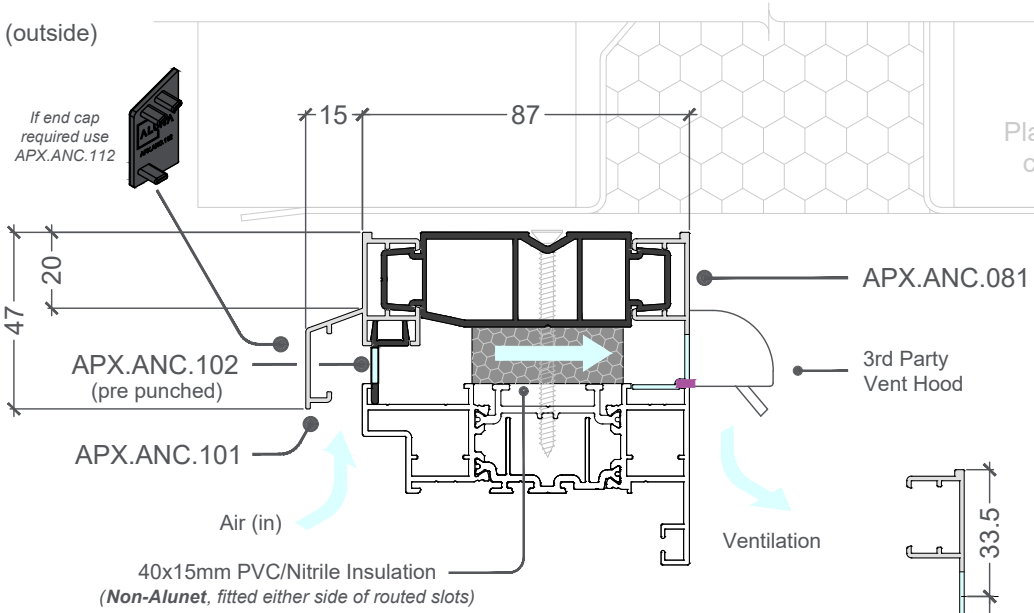
Typical Head Detail - Vent Hood



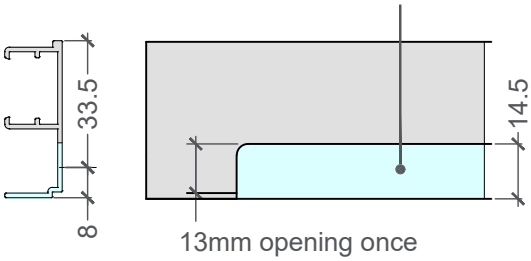
Geometric free area
for vented grill APX.ANC.102 =

5700mm²
per linear metre

Estimated equivalent area
= 4000mm² per linear metre

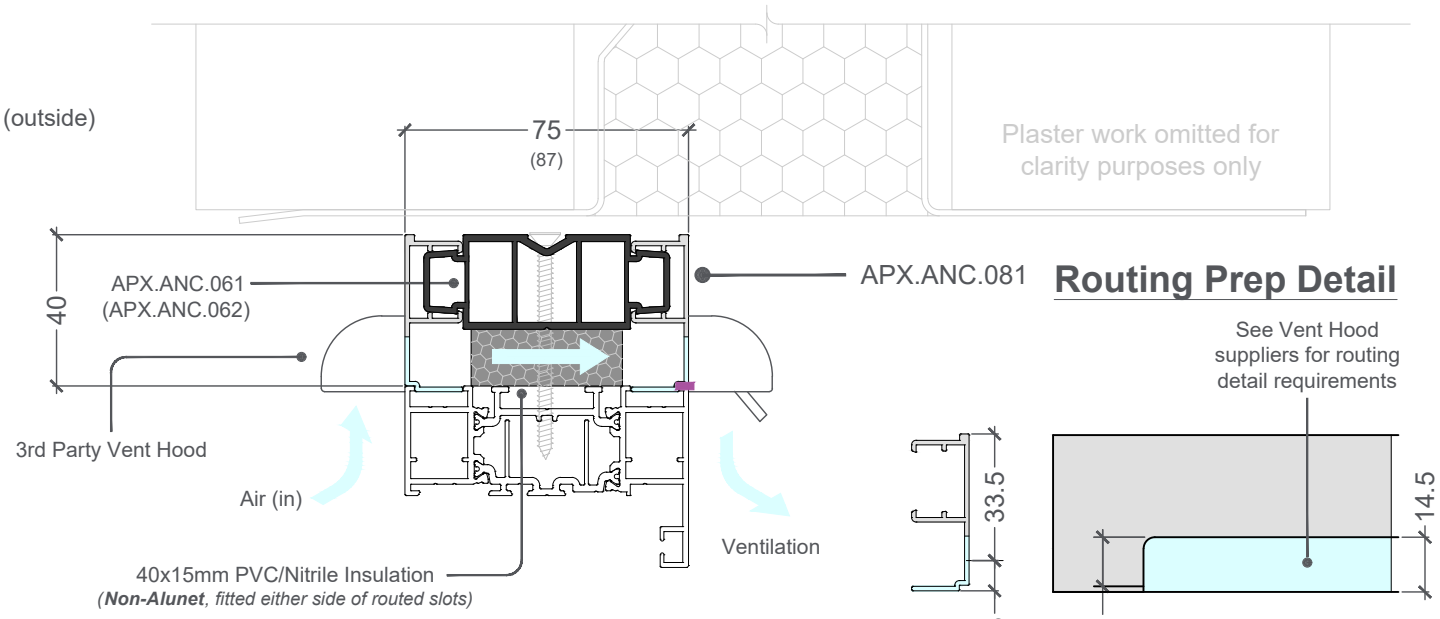


Routing Prep Detail

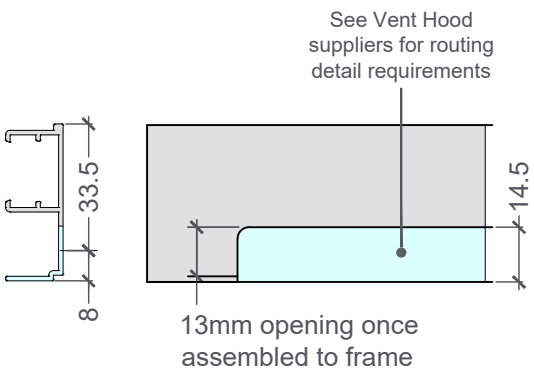


Note applies to all sections: Apply small gap sealant on face of one profile prior to coupling assembly.
(▬ denotes sealant) Wipe away excessive.

Typical Head Detail - 40mm Clip On Trim



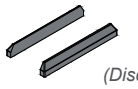
Routing Prep Detail

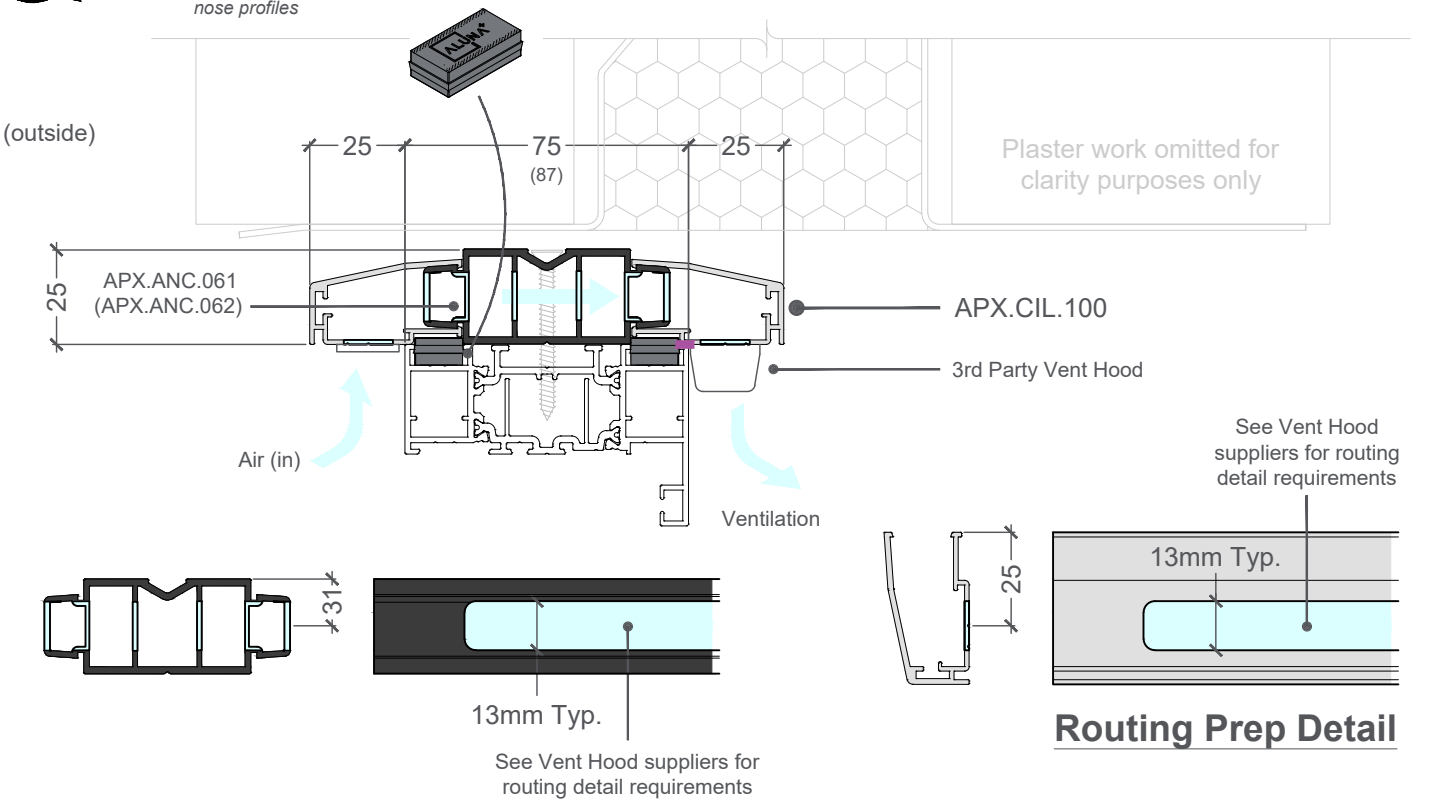


Note: Product ID codes in brackets denotes alternative option

Typical Head Detail - Clip On Nose

Remove legs of APX.JNT.090 connector block, blocks are used as a guide to align frame & clip on nose profiles



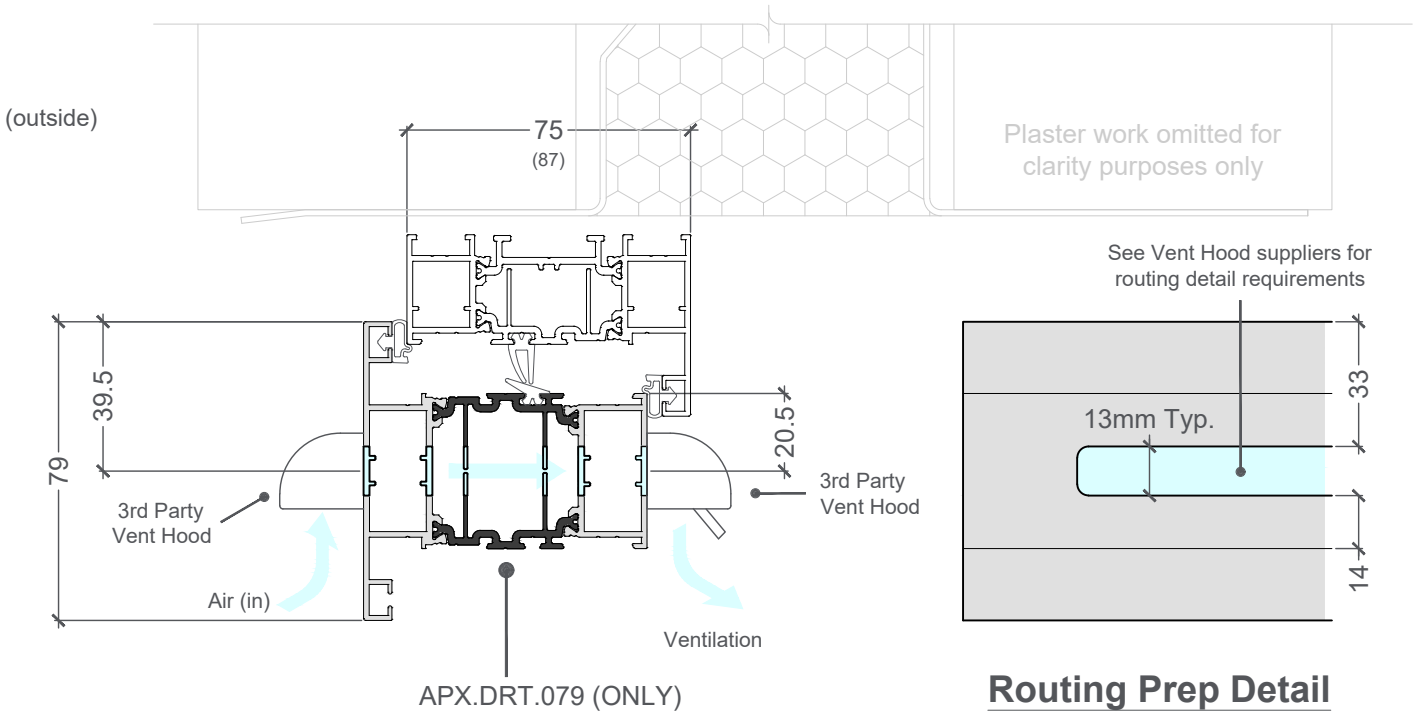


Routing Prep Detail

Note: Product ID codes in brackets denotes alternative option

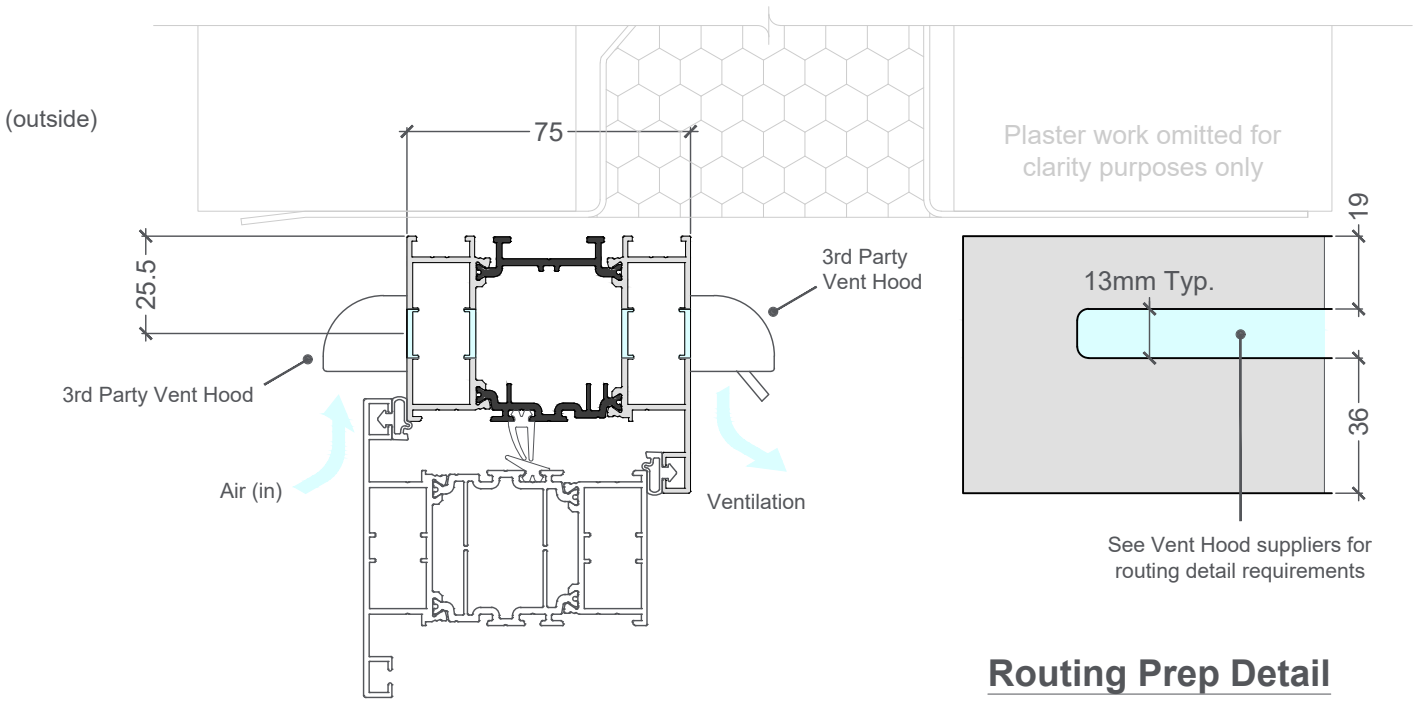
Note applies to all sections: Apply small gap sealant on face of one profile prior to coupling assembly. (– denotes sealant) Wipe away excessive.

Typical Thro' Double Rebate Detail



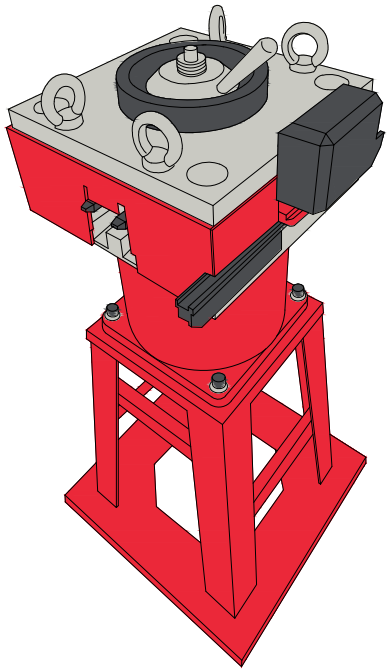
Routing Prep Detail

Typical Head Detail - 68mm Frame

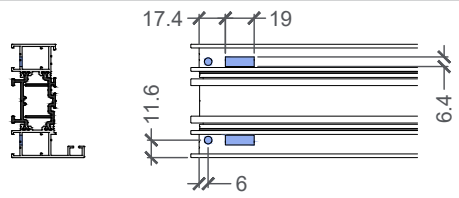
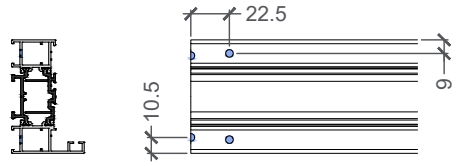
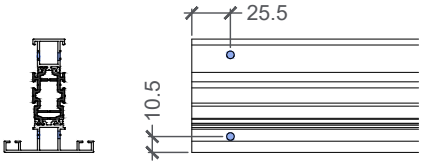
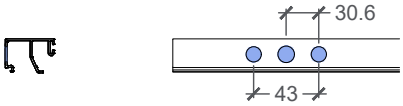
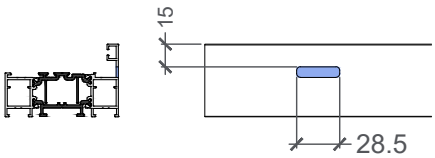


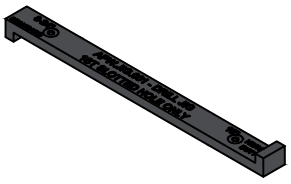
Routing Prep Detail

Note applies to all sections: Apply small gap sealant on face of one profile prior to coupling assembly. (– denotes sealant) Wipe away excessive.

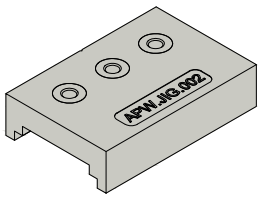


ID Ref: **APP1**
Description: ALUNA+ PUNCH TOOL 1

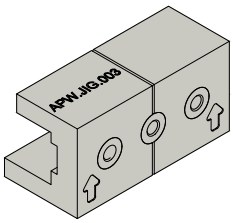
Position	Application	Prep Type
P1	APX.SRS.048 APW.SRF.048 APX.SRS.068 APX.DRT.059 APW.DRZ.059 APX.DRT.079 APW.DRZ.079 APW.TTS.064	
P2	APX.SRS.048 APW.SRF.048	
P3	APX.DRT.059 APW.DRZ.059 APX.DRT.079 APW.DRZ.079	
P4	APX.GLB.011 APX.GLB.021	
P5	APX.SRS.048 APW.SRF.048 APX.DRT.059 APW.DRZ.059 APX.DRT.079 APW.DRZ.079 APW.TTS.064	



ID Ref: **APW.JIG.001**
Description: FRICTION HINGE POSITIONING JIG

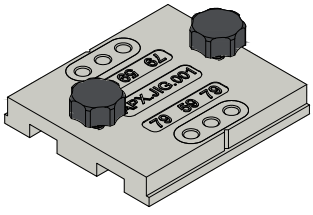


ID Ref: **APW.JIG.002**
Description: HANDLE POSITIONING JIG (79MM SASH)



ID Ref: **APW.JIG.003**
Description: HANDLE POSITIONING JIG (GLAZING BEAD)

ID Ref: **APW.JIG.004**
Description: DRIP BAR POSITIONING JIG



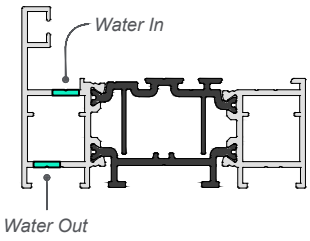
ID Ref: **APX.JIG.001**
Description: TRANSOM POSITIONING JIG

CONCEALED DRAINAGE HOLES (7mm Ø) - FRAMES, SASHES & TRANSOMS

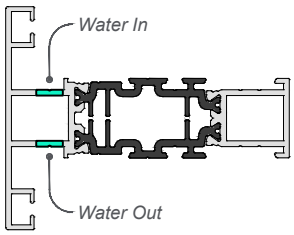
Prep options:
- CNC / Router
- Hand drill

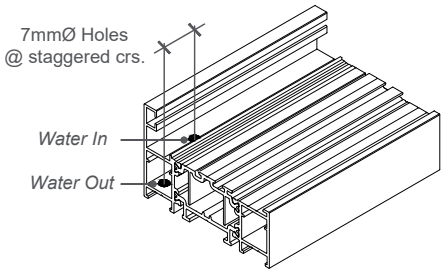
Note: First drainage holes (7mmØ) should be no further than 100mm from each corner.
Water in and water hole holes must be staggered by 30mm.
Additional hole crs. must not exceed 600mm.

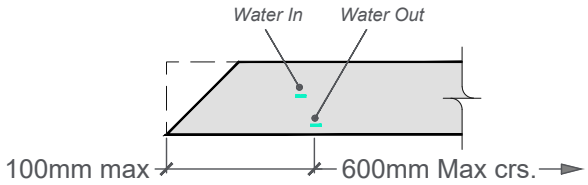
Single Rebates



Double Rebates







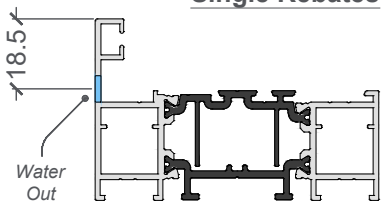
FACE DRAINAGE SLOTS (7x29mm) - FRAMES, SASHES & TRANSOMS

Prep options:
- CNC / Router
- Punched

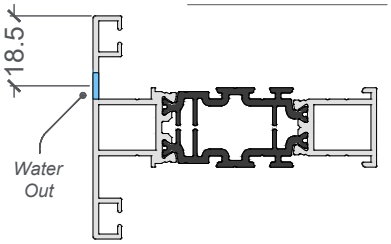
Note: First drainage slot (29x7mm) should be no further than 100mm from each corner.

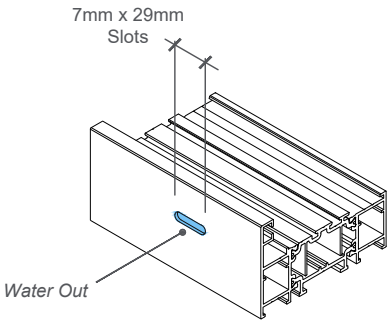
Slot crs. must not exceed 600mm.

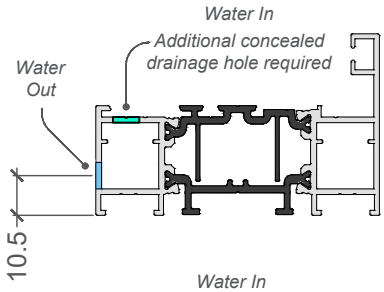
Single Rebates

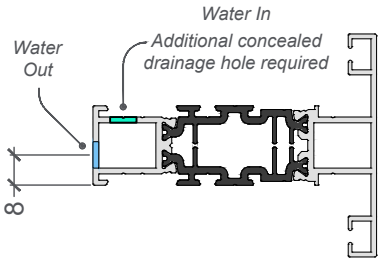


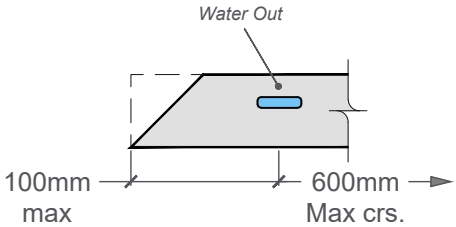
Double Rebates

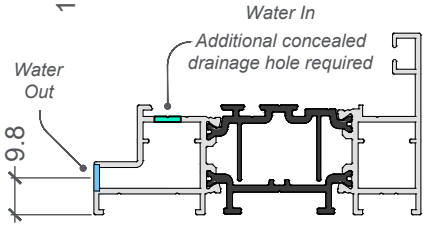










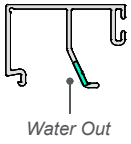


Note: Although face drain frames are possible, we recommend concealed drainage of SRF profiles.

GLAZING BEAD DRAINAGE HOLES (7mm ∅) - (Externally Beaded)

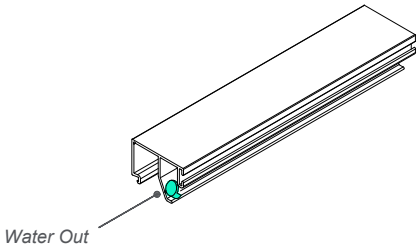
Prep options:
- Hand drill

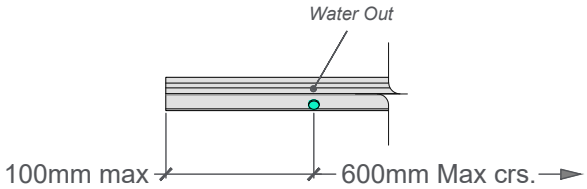
Note: First drainage holes (7mmØ) should be no further than 100mm from each end.
Additional hole crs. must not exceed 600mm.



Doubling Glazing

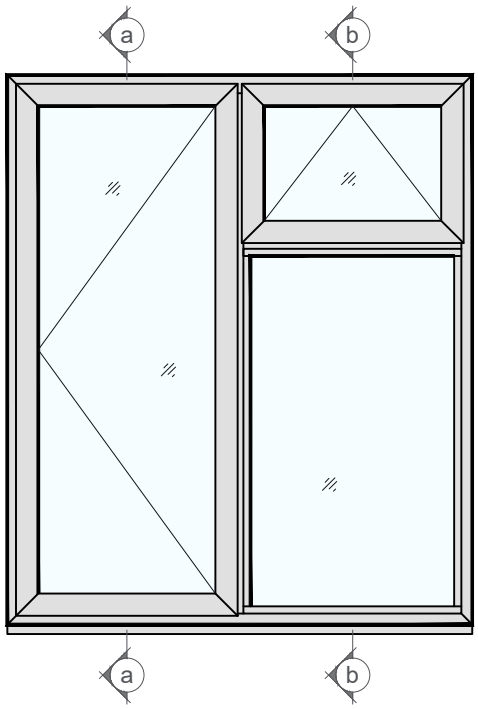
Triple Glazing





Fabrication

Drainage - Externally Glazed Casement



This page details both concealed and face drain options.

Select which option you require and follow the preps for either route "c" or "f"

Key

c

Concealed drainage

Drainage hole

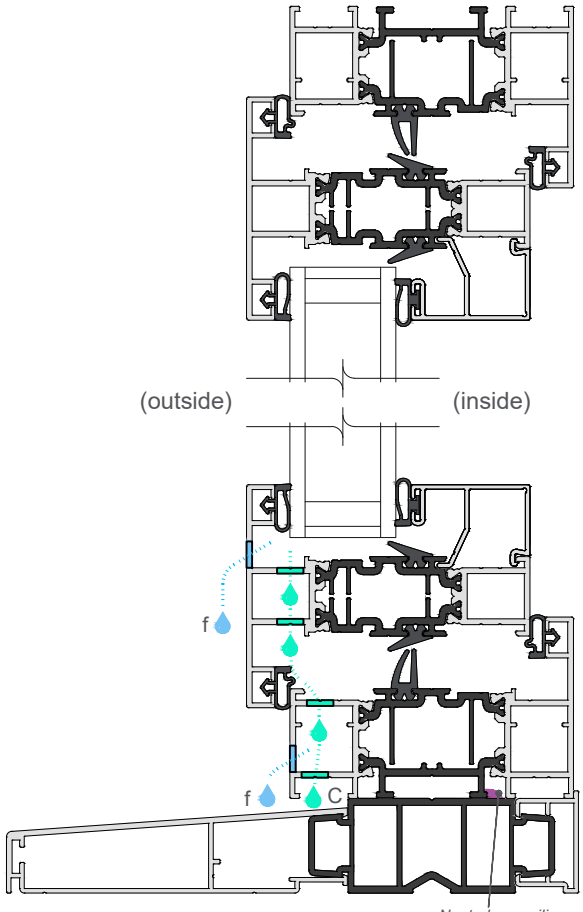
7mm Ø

f

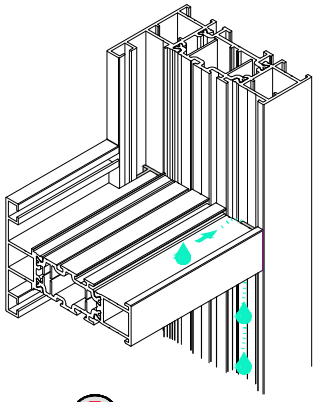
Face drainage option

Drainage slot

29x7mm

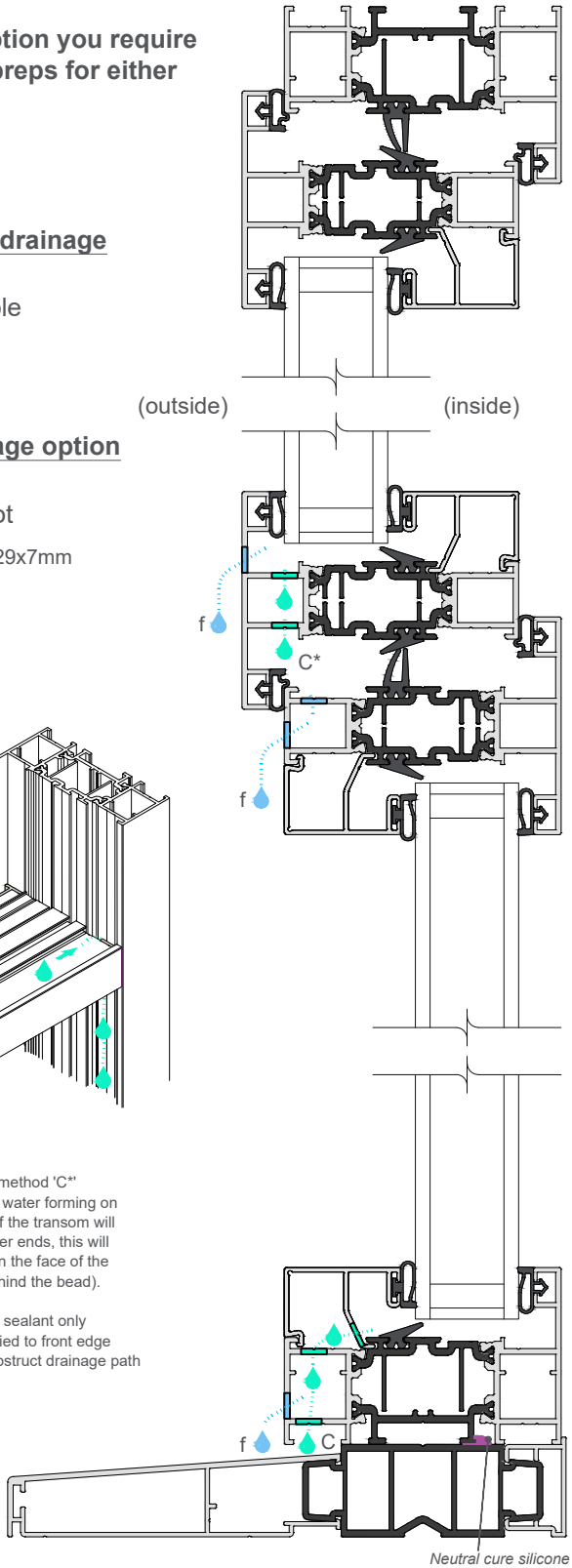


Section "a-a"



Drainage method 'C*'
Note: Any water forming on top face of the transom will run to either ends, this will drain down the face of the frame (behind the bead).

Small gap sealant only to be applied to front edge and not obstruct drainage path

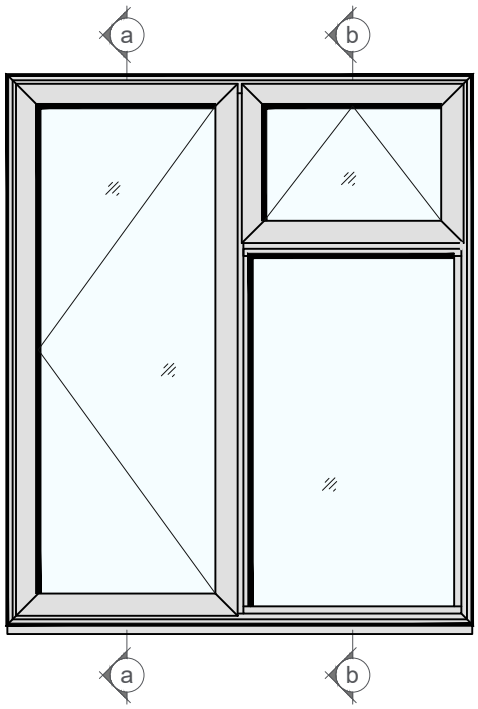


Section "b-b"

Section: 4.04

Fabrication

Drainage - Externally Glazed Flush Casement



This page details both concealed and face drain options.

Select which option you require and follow the preps for either route "c" or "f"

Key

c

Concealed drainage

Drainage hole

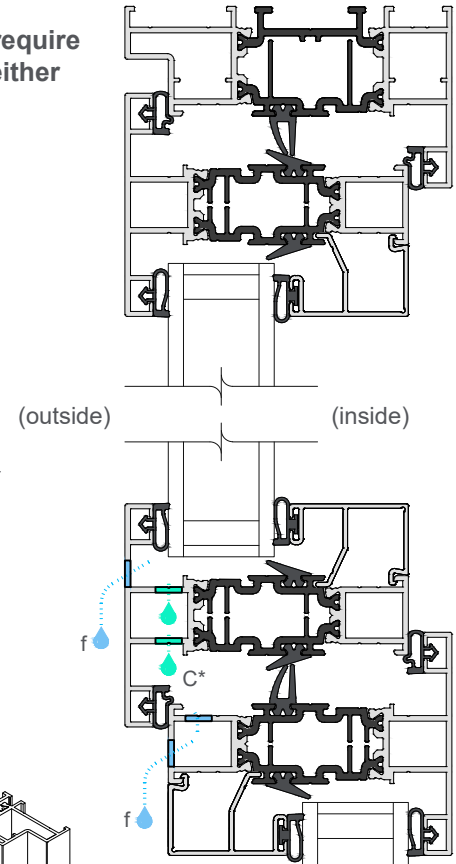
7mm Ø

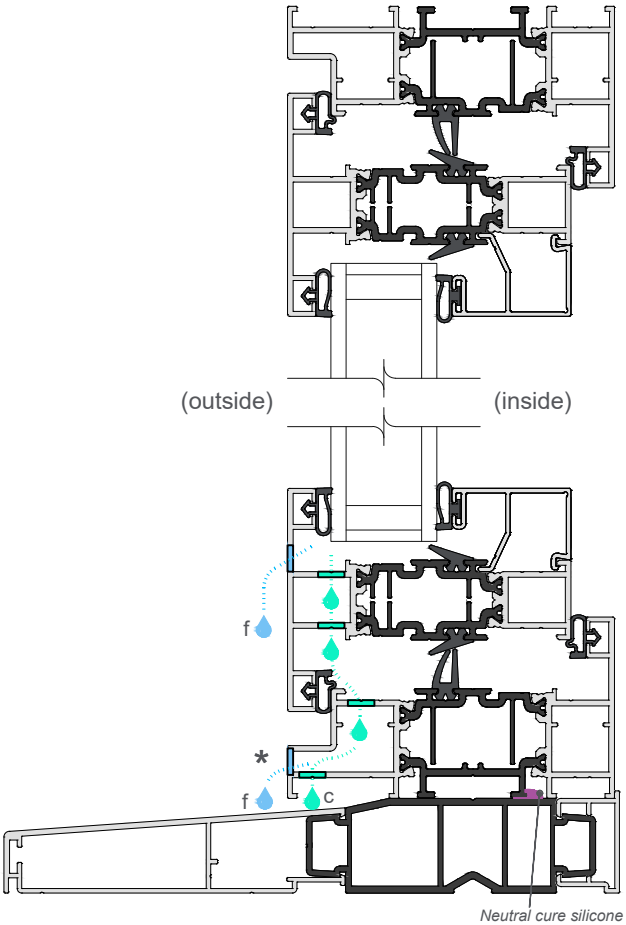
f

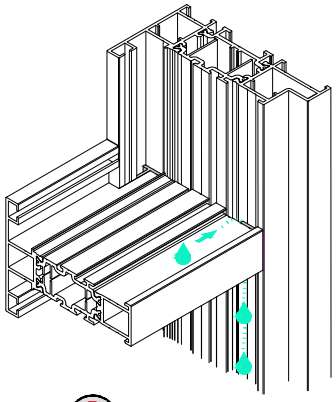
Face drainage option

Drainage slot

29x7mm

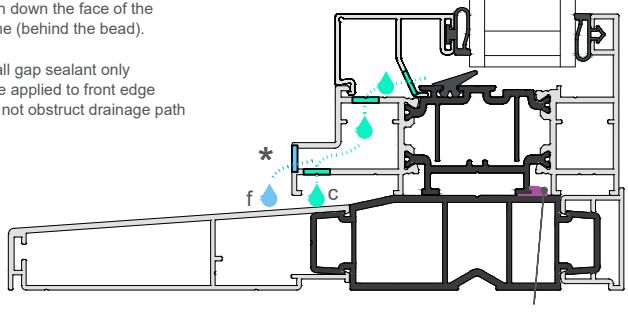






Drainage method 'C*'
Note: Any water forming on top face of the transom will run to either ends, this will drain down the face of the frame (behind the bead).

Small gap sealant only to be applied to front edge and not obstruct drainage path



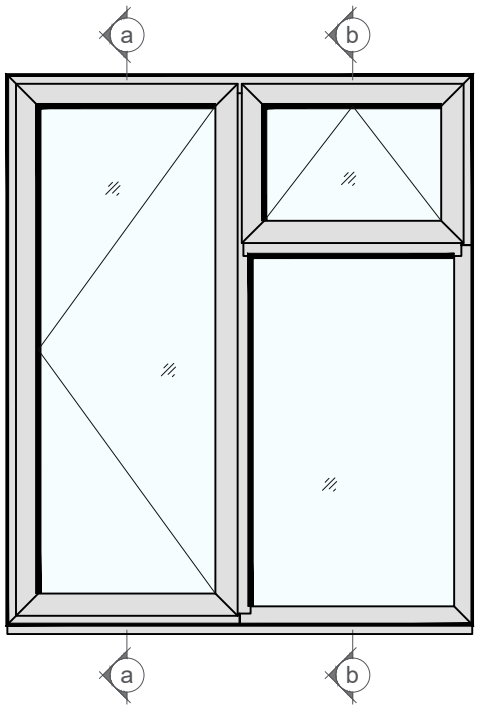
Section "a-a"

Section "b-b"

* Note: Although face drain frames are possible, we recommend concealed drainage of SRF frames

Fabrication

Drainage - Internally Glazed Casement



This page details both concealed and face drain options.

Select which option you require and follow the preps for either route "c" or "f"

Key

c **Concealed drainage**

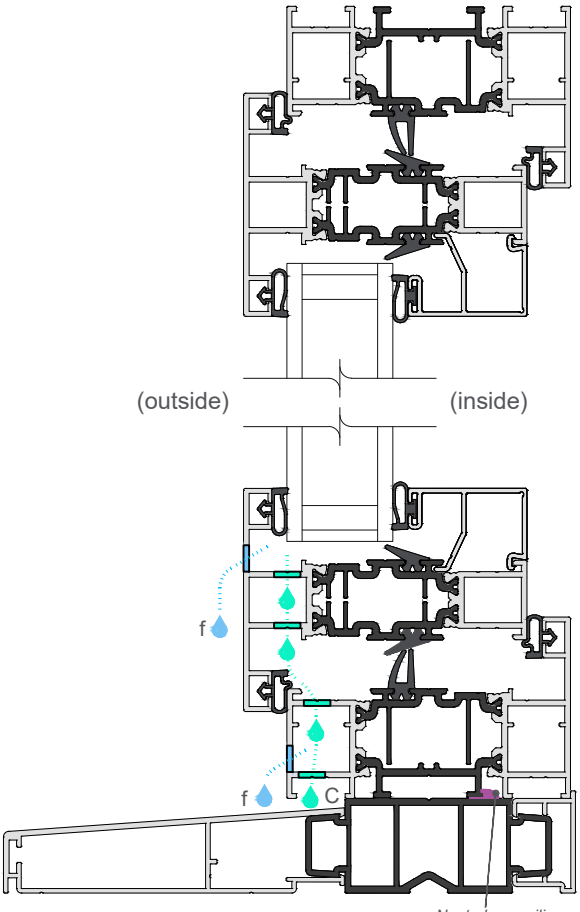
Drainage hole

7mm Ø

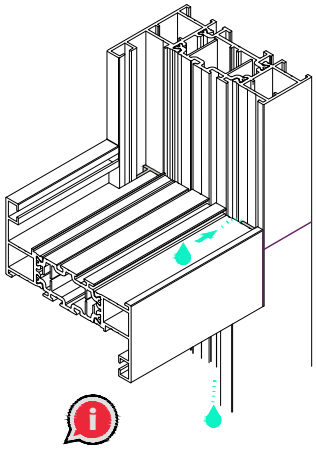
f **Face drainage option**

Drainage slot

29x7mm

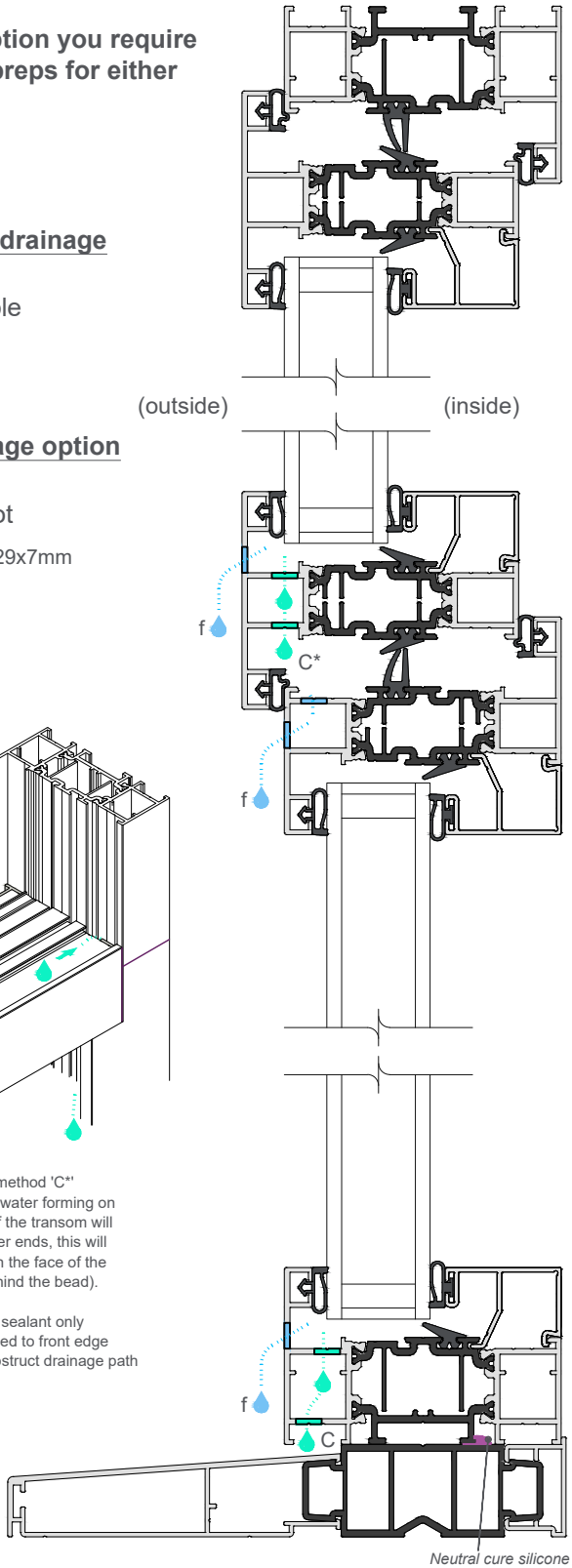


Section "a-a"



Drainage method 'C*'
Note: Any water forming on top face of the transom will run to either ends, this will drain down the face of the frame (behind the bead).

Small gap sealant only to be applied to front edge and not obstruct drainage path

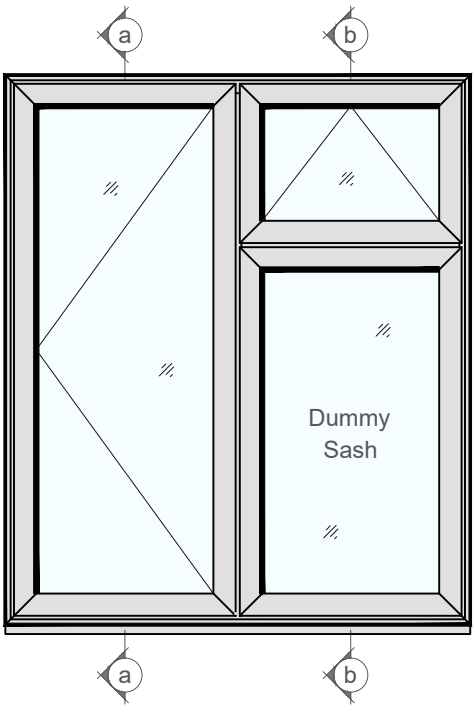


Section "b-b"

Section: 4.06

Fabrication

Drainage - Flush Casement with Dummy Sash



This page details both concealed and face drain options.

Select which option you require and follow the preps for either route "c" or "f"

Key

c **Concealed drainage**

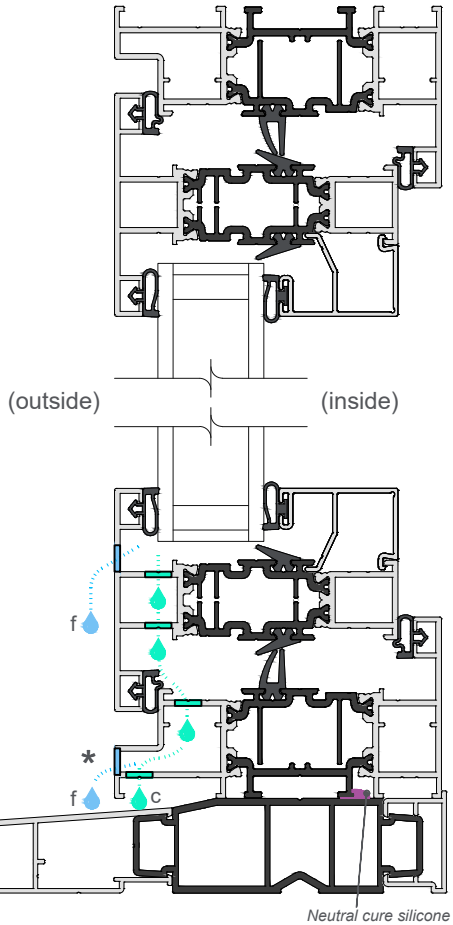
Drainage hole

7mm Ø

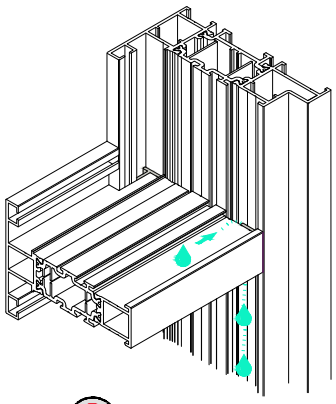
f **Face drainage option**

Drainage slot

29x7mm

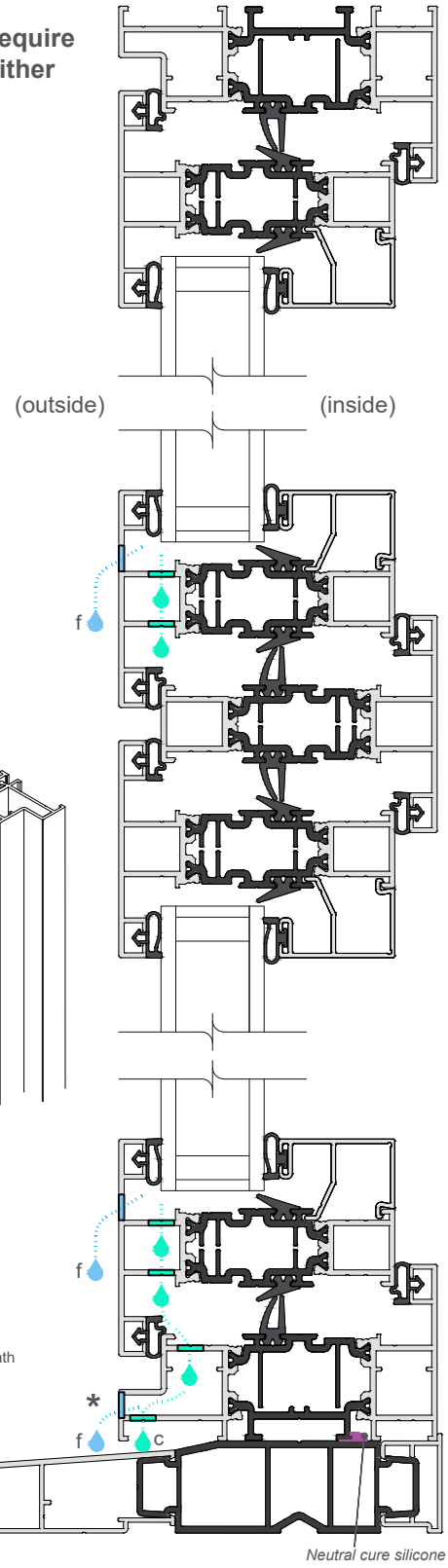


Section "a-a"



Drainage method 'C*'
Note: Any water forming on top face of the transom will run to either ends, this will drain down the face of the frame (behind the bead).

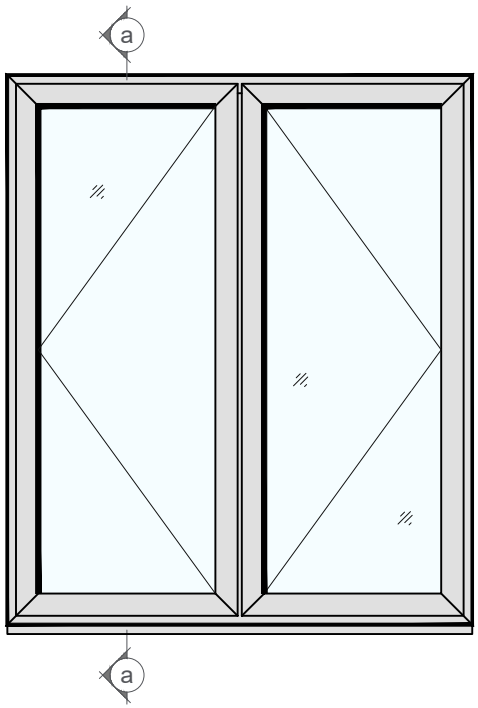
Small gap sealant only to be applied to front edge and not obstruct drainage path



Section "b-b"

* Note: Although face drain frames are possible, we recommend concealed drainage of SRF frames

Section: 4.07



This page details both concealed and face drain options.

Select which option you require and follow the preps for either route "c" or "f"

Key

c **Concealed drainage**

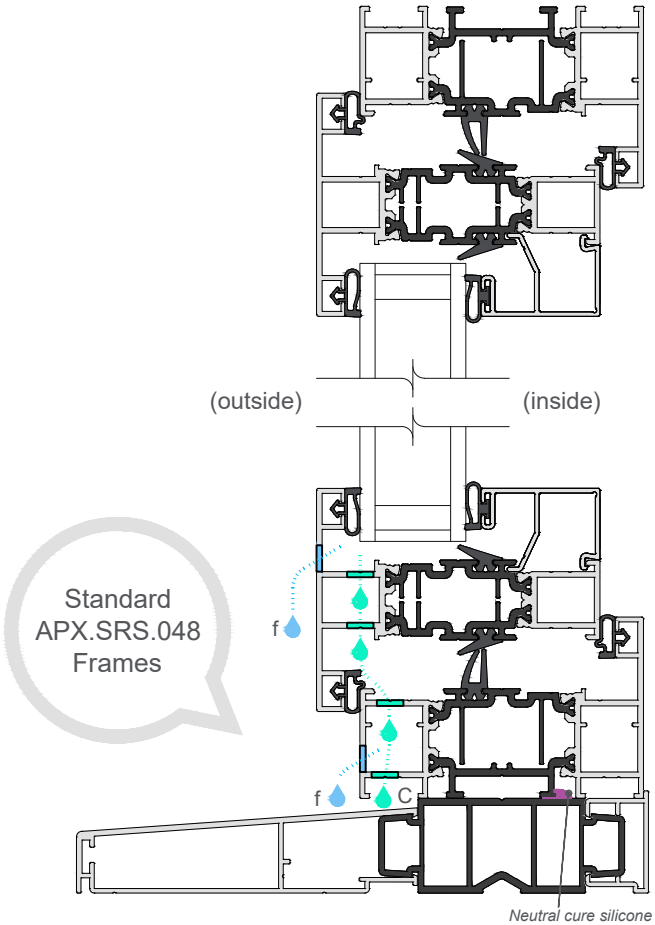
Drainage hole

7mm Ø

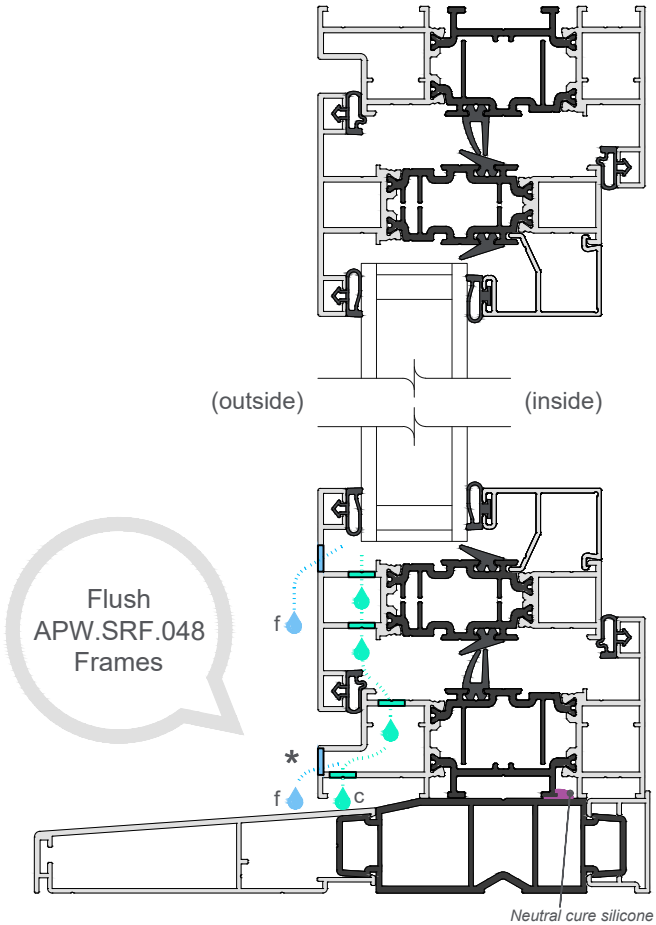
f **Face drainage option**

Drainage slot

29x7mm

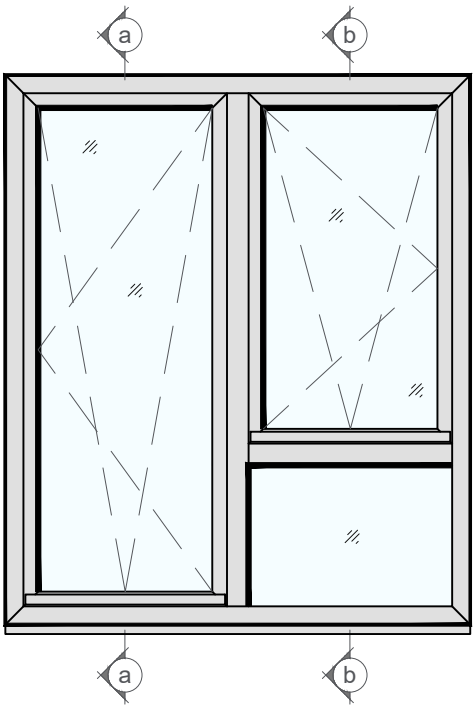


Section "a-a"



Section "a-a"

* Note: Although face drain frames are possible, we recommend concealed drainage of SRF frames



This page details both concealed and face drain options.

Select which option you require and follow the preps for either route "c" or "f"

Key

c

Concealed drainage

Drainage hole

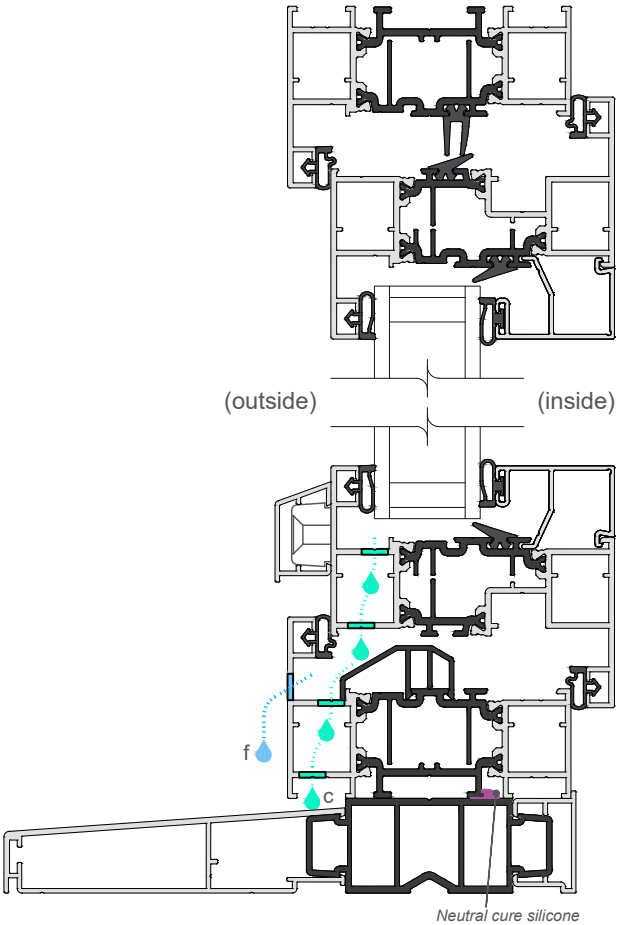
7mm Ø

f

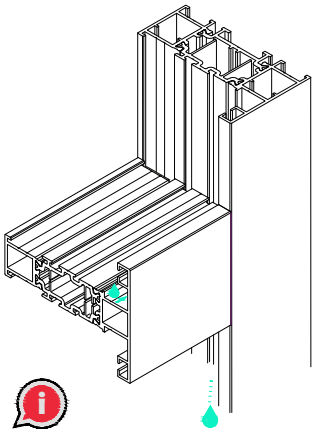
Face drainage option

Drainage slot

29x7mm

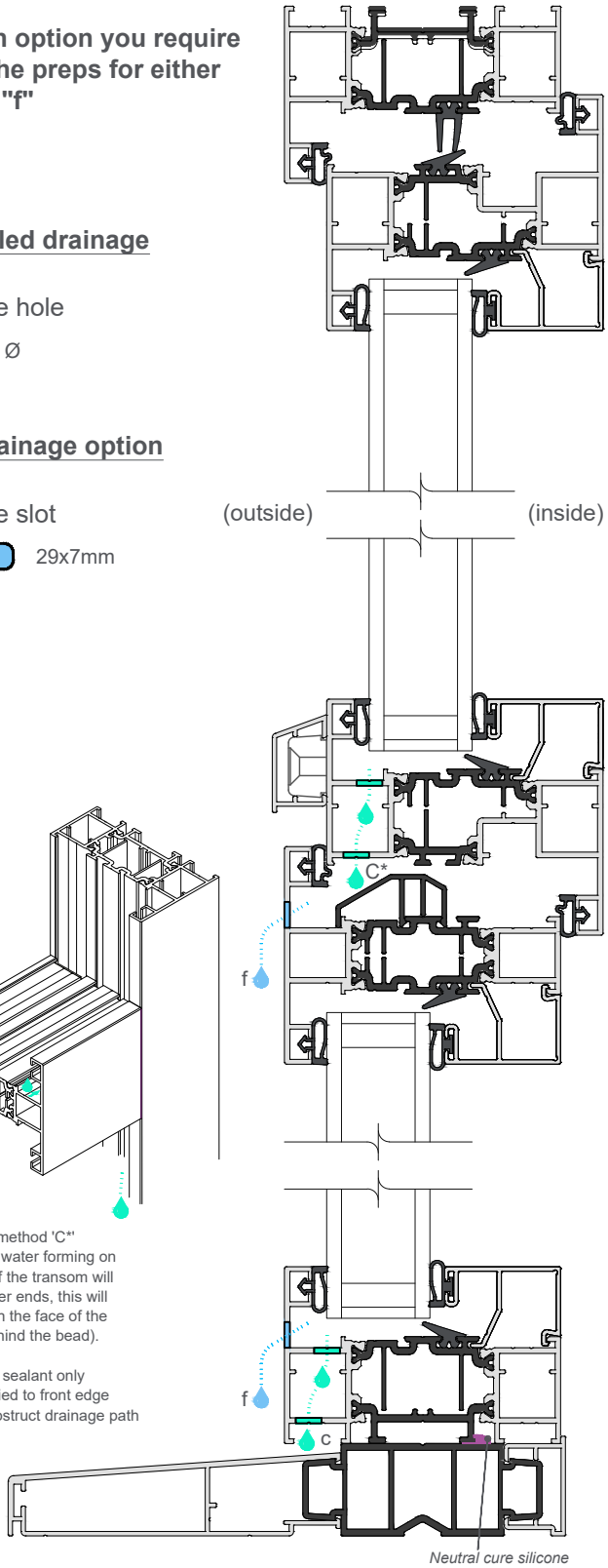


Section "a-a"

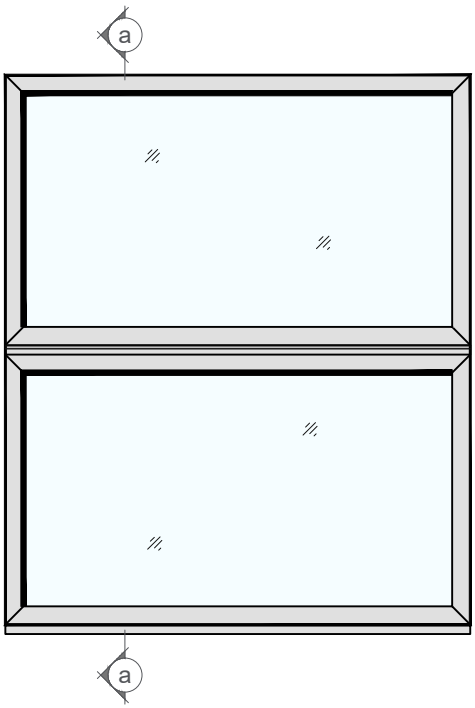


Drainage method 'C*'
Note: Any water forming on top face of the transom will run to either ends, this will drain down the face of the frame (behind the bead).

Small gap sealant only to be applied to front edge and not obstruct drainage path



Section "b-b"



This page details both concealed and face drain options.

Select which option you require and follow the preps for either route "c" or "f"

Key

c **Concealed drainage**

Drainage hole

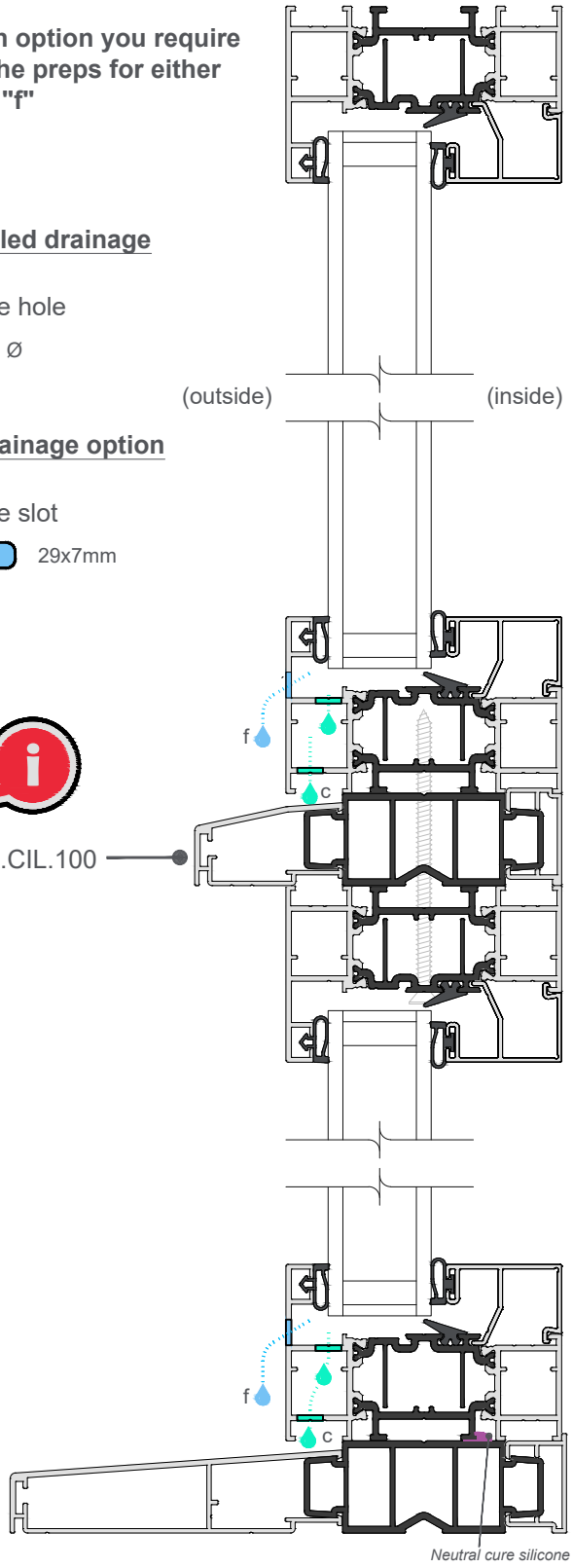
7mm Ø

f **Face drainage option**

Drainage slot

29x7mm

If concealed draining upper frame, APX.CIL.100 **MUST** be used to drain onto

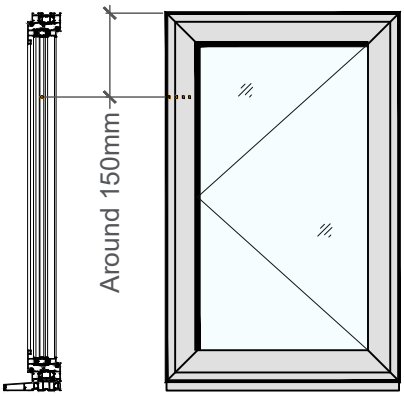


Section "a-a"

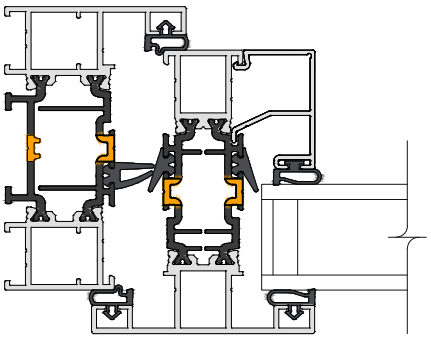
PRESSURE EQUALISATION (7mm Ø) - FRAMES & SASHES

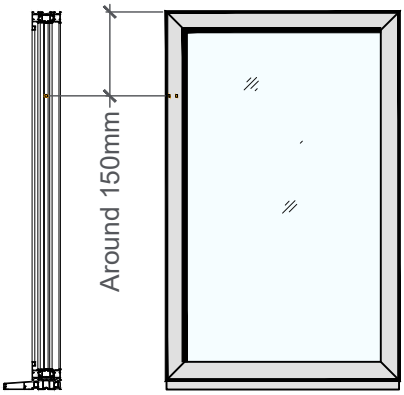
The purpose of pressure equalisation is to prevent water ingress to the internal face of window and door systems and to allow water to drain effectively to the external faces of the system. Pressure equalisation works by balancing atmospheric pressure through the use of inlet and outlet drainage slots, enabling quicker removal of water the drainage chambers. Water ingress may occur due to weather conditions or moisture present within the internal chambers of the profile. For this reason, the use of pressure equalisation holes is recommended for all window and door systems.

Required: 1x 7mmØ hole through side of frame and sash (if applicable) around 150mm down from top of product

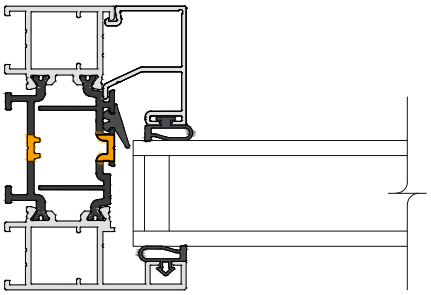


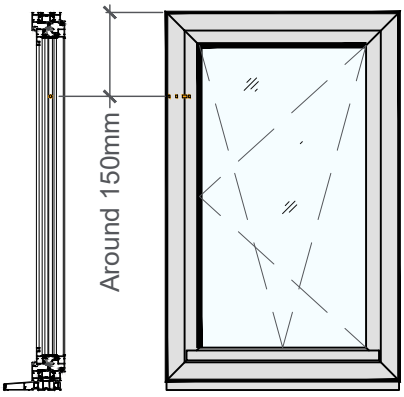
Casement sash



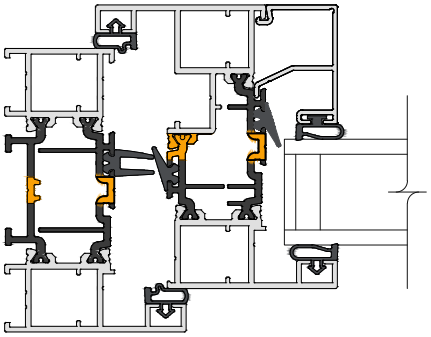


Fixed lights





Tilt Turn sash



Key

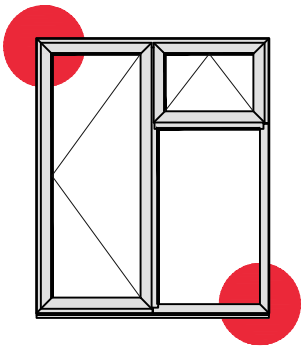
Pressure equalisation hole

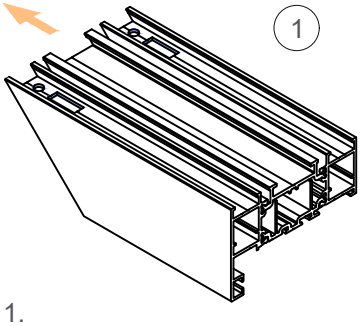
7mm Ø

Note: Air pressure equalisation holes are only required to be drilled on one side of the frame/sash.

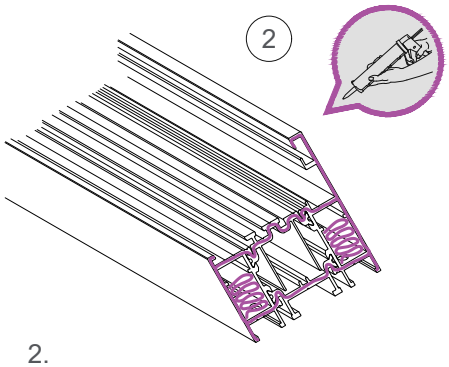
For mitred corners **we would recommend an anti corrosion primer for aluminium for any installations less then 1km from the sea**

Fabrication
Corner Jointing

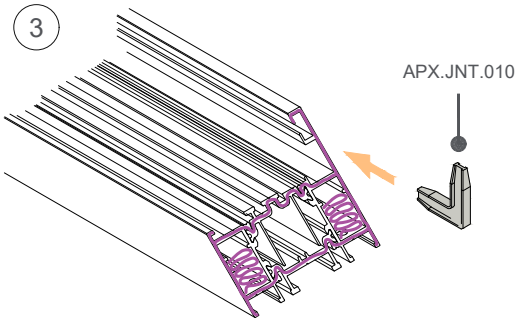




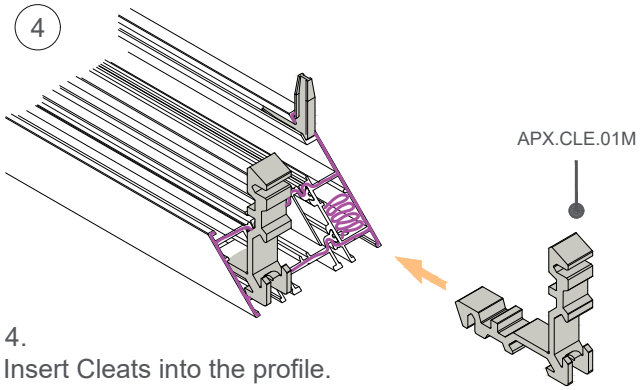
1.
Insert profile into punch tool (P1). Repeat process for the mating profile.



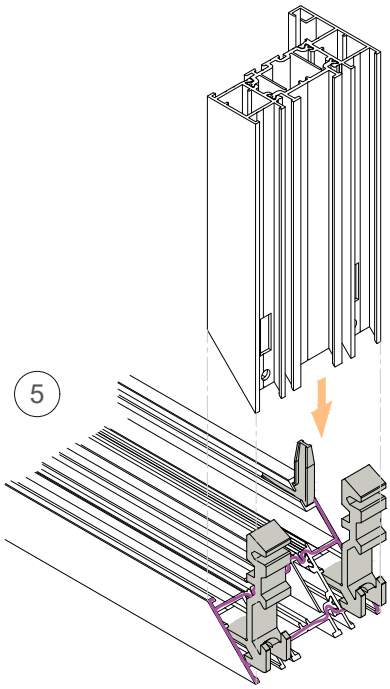
2.
Apply small gap sealant (APX.CON.001) to perimeter of one profile and into cleat pockets of BOTH profiles.



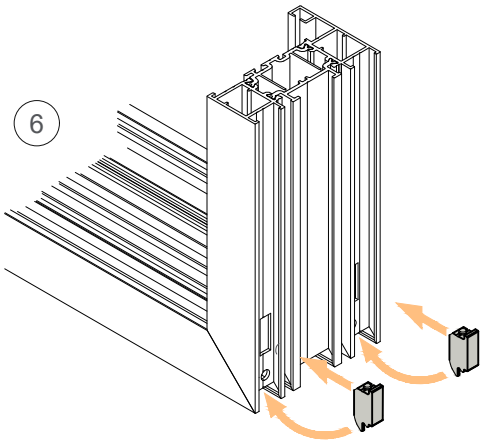
3.
Insert Chevron into end of rebate groove.



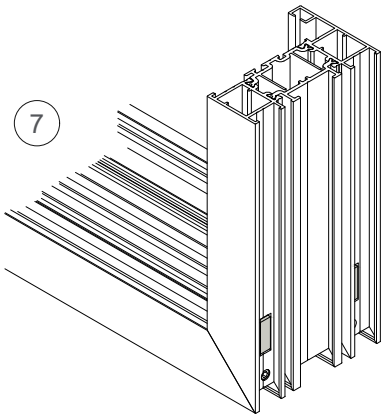
4.
Insert Cleats into the profile.



5.
Bring profiles together.



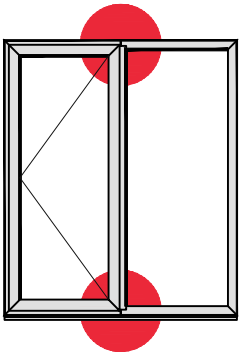
6.
Insert tension blocks (x4).

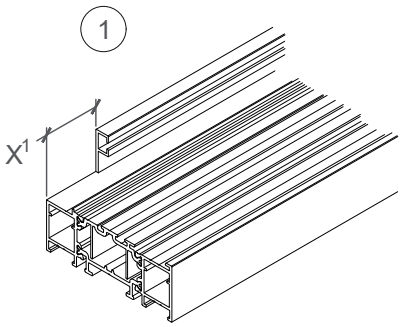


7.
Tighten tension screws (2.5mm allen key), alternating from side to side until the corner is aligned correctly.

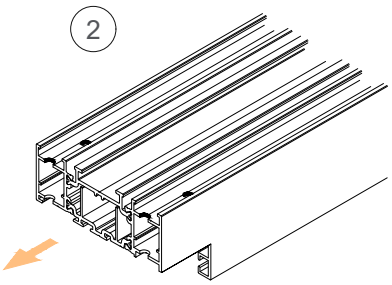
Wipe away excess of small gap sealant.

Fabrication
Reverse Jointing

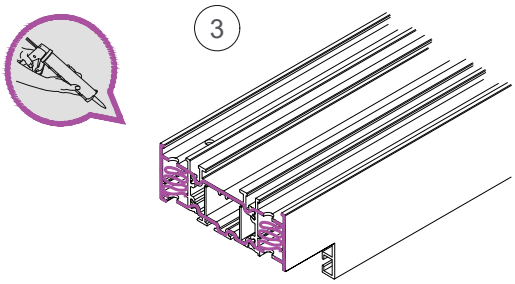




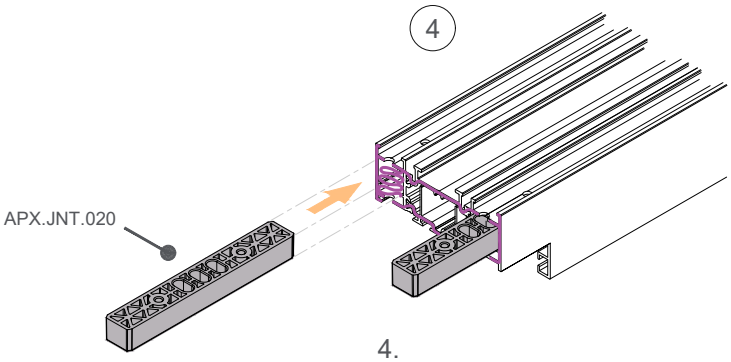
1.
End mill 2x frames.



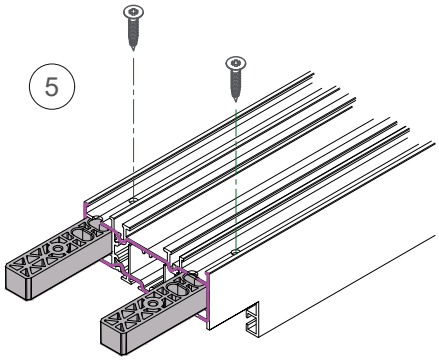
2.
Insert both profiles
into punch tool (P2).



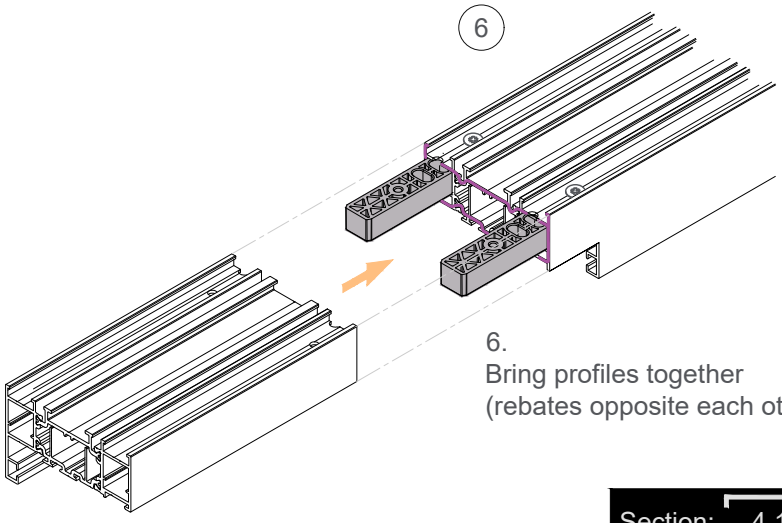
3.
Apply small gap sealant (APX.CON.001)
around perimeter of one profile and into
cleat pockets of BOTH profiles.



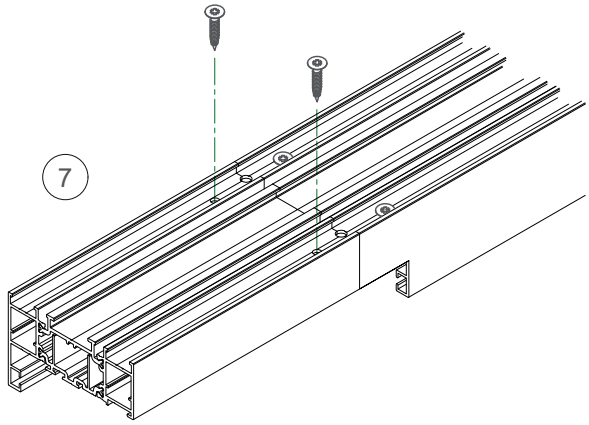
4.
Slide Reverse Jointer into
cleat pockets of one profile.



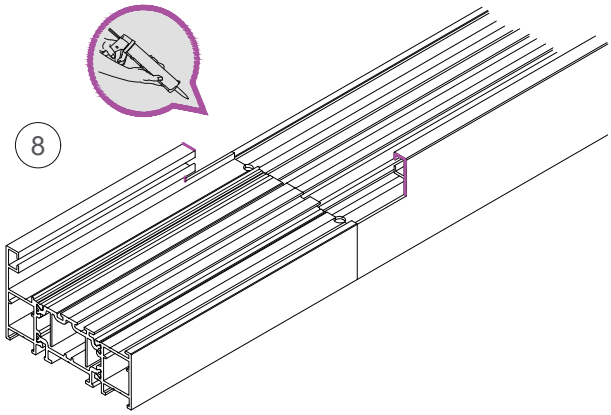
5.
Fix with fixings supplied.



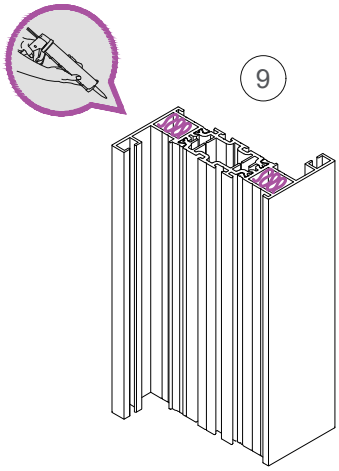
6.
Bring profiles together
(rebates opposite each other).



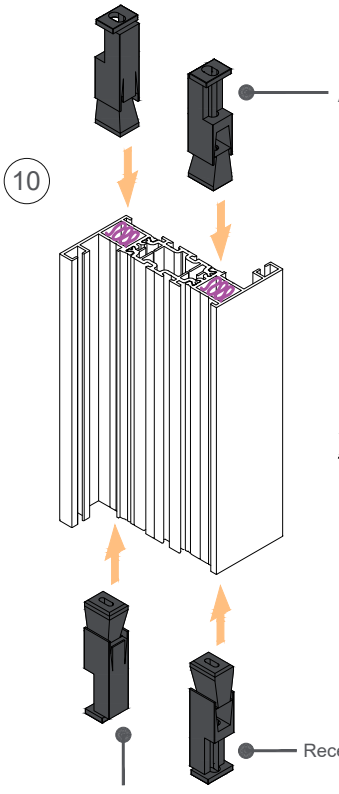
7.
Fix with fixings supplied.



8.
Apply small gap sealant (APX.CON.001) on end milled ends of both rebates.

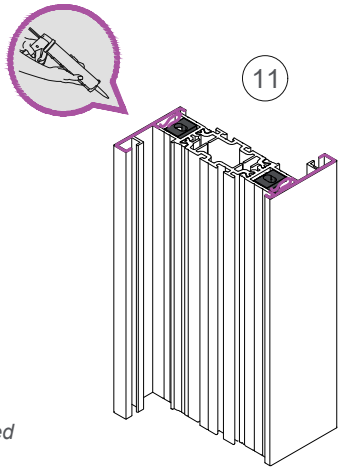


9.
Apply small gap sealant (APX.CON.001) tinto screw fixing insert pockets.

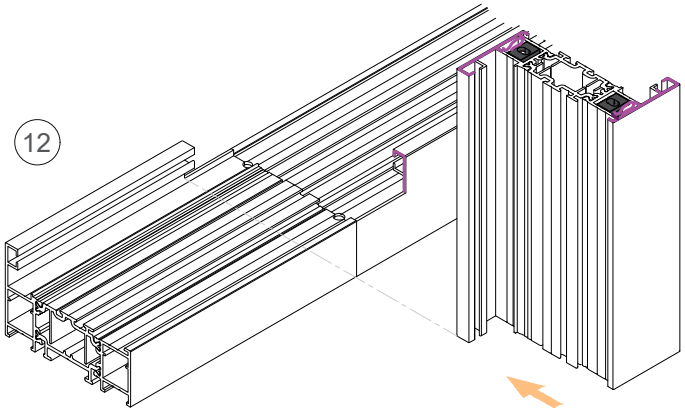


10.
Insert APX.ANC.051 screw fixing Inserts into cleat pockets.

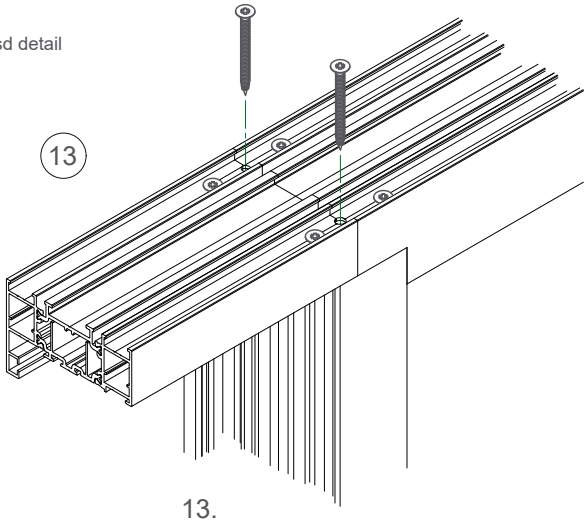
Note: correct orientation of screw fixing inserts, recessed detail point outwards.



11.
Apply small gap sealant (APX.CON.001) to faces.

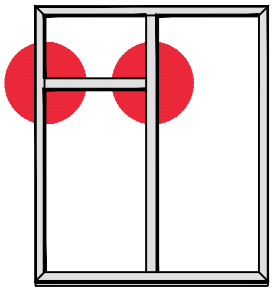


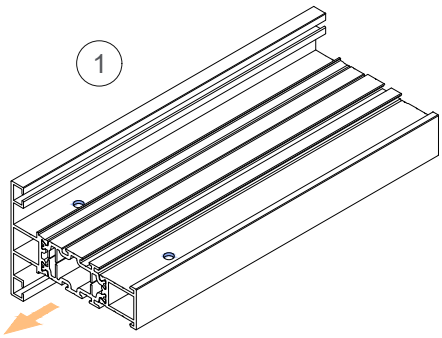
12.
Insert profile between frames.



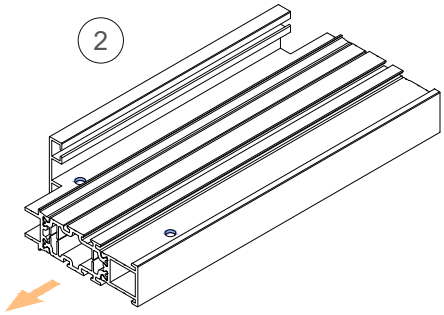
13.
Fix using fixings supplied.

Fabrication
'T' Jointing

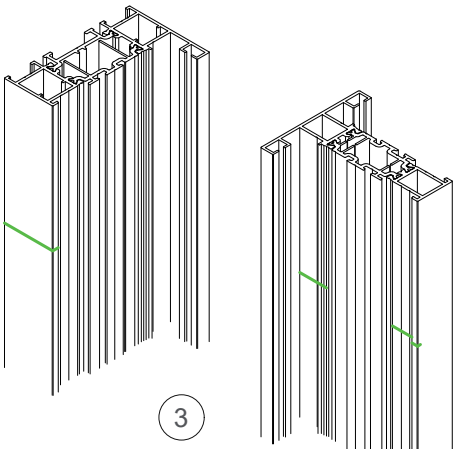




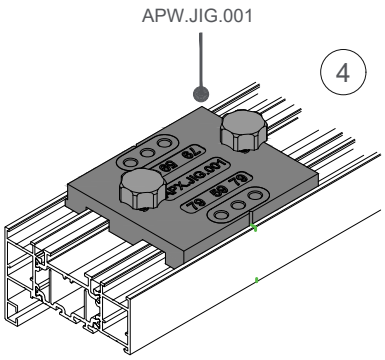
1.
Insert profile into punch tool (P3). Punch cruciform end.



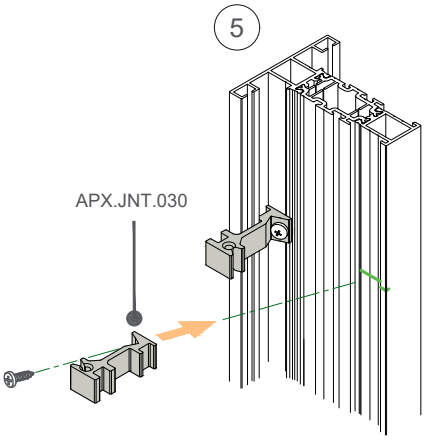
2.
End mill profile at both ends. Insert profile into punch tool (P3) for cruciform end.



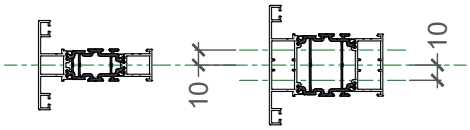
3.
Mark transom position on frame and mullion.



4.
Place jig onto the rear of frame, align with centre mark and drill 5mmØ holes through the jig.

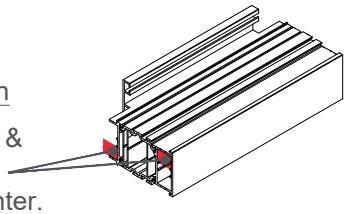


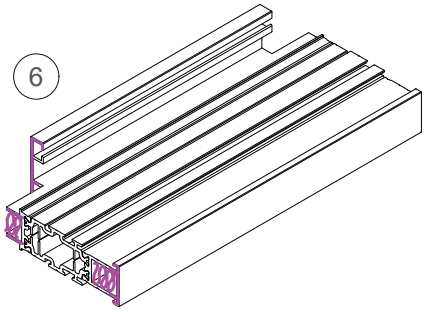
5.
Fix Cruciform Jointer in position x2 using 3.9x16mm pan head drill point.



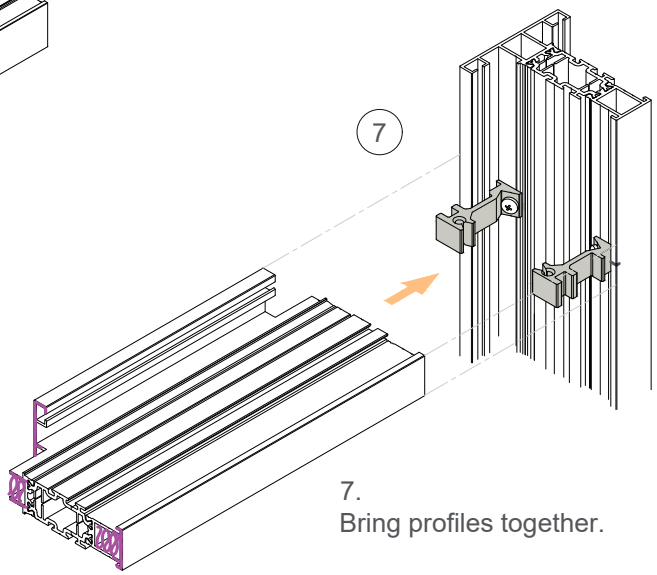
79mm Rebate Option

Stagger screw inserts & cruciform jointers 10mm either side of center.

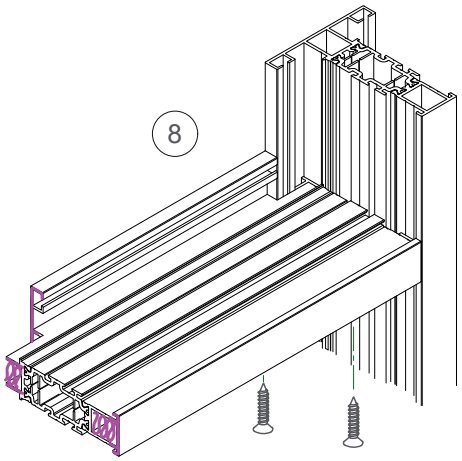




6.
Apply small gap sealant (APX.CON.001) on both ends profile.

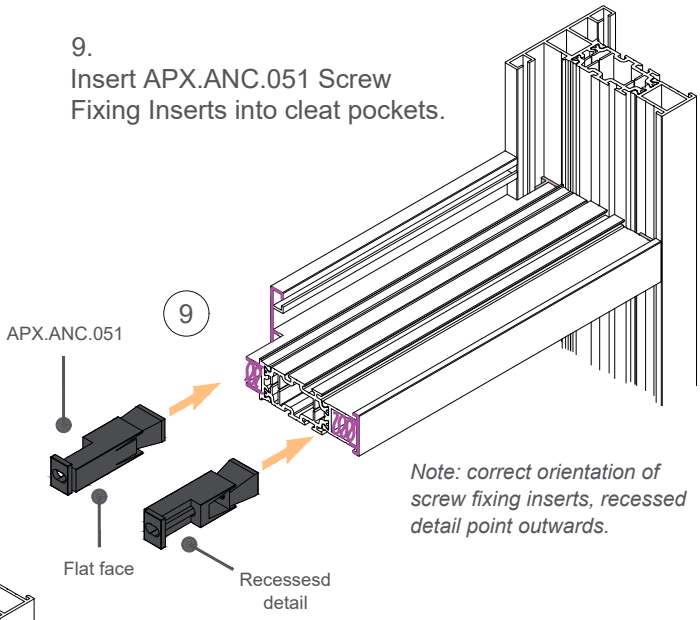


7.
Bring profiles together.

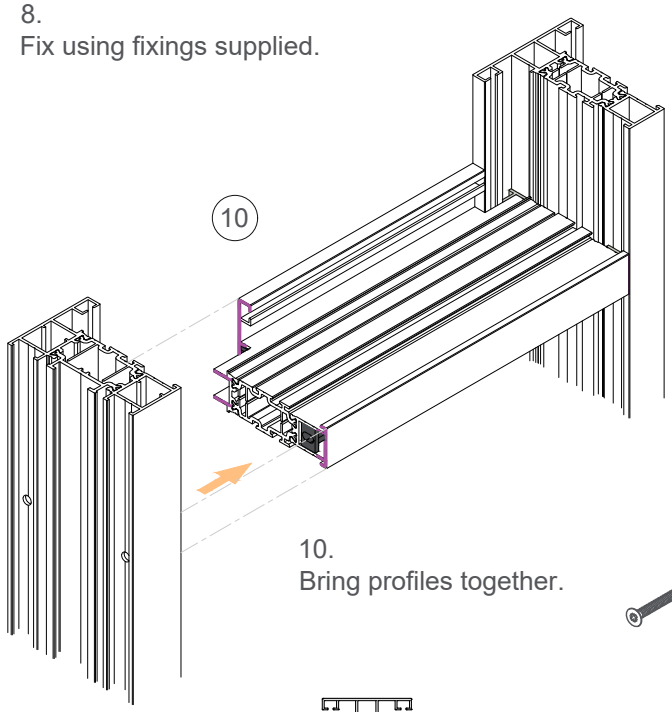


8.
Fix using fixings supplied.

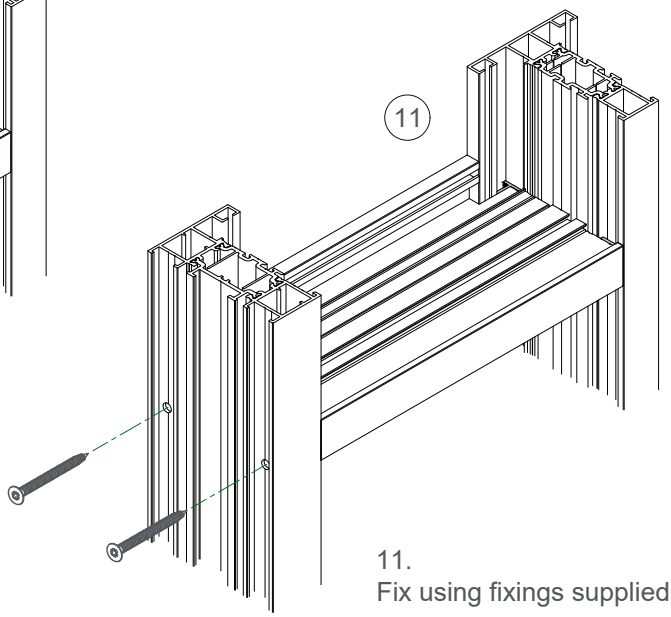
9.
Insert APX.ANC.051 Screw Fixing Inserts into cleat pockets.



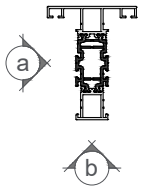
Note: correct orientation of screw fixing inserts, recessed detail point outwards.



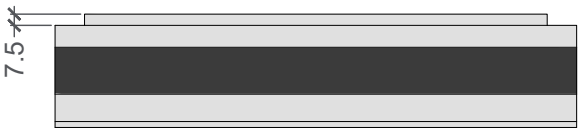
10.
Bring profiles together.



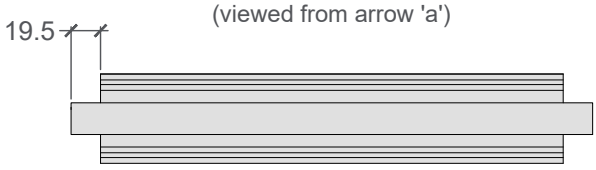
11.
Fix using fixings supplied.



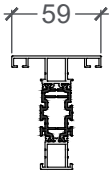
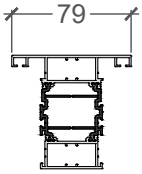
Rebate T



(viewed from arrow 'a')

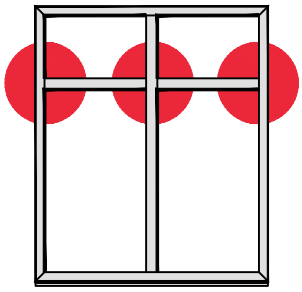


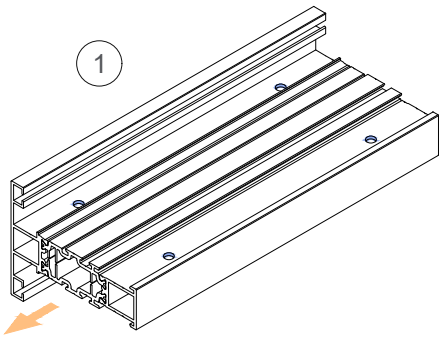
(viewed from arrow 'b')

Rebate T Profiles	
	

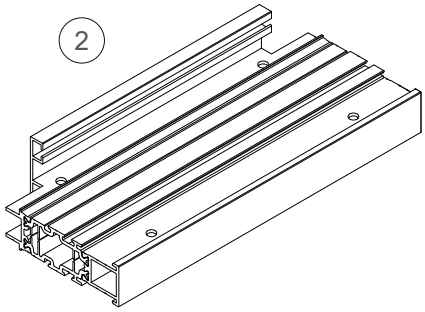
Wipe away excess of small gap sealant.

Fabrication
Cruciform 'T' Jointing

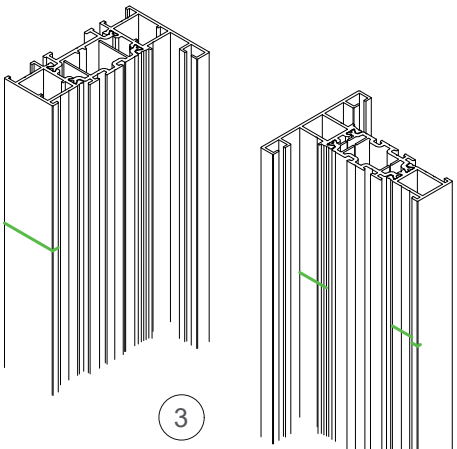




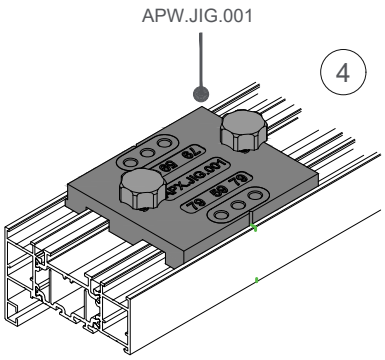
1.
Insert profile into punch tool (P3). Punch both ends.



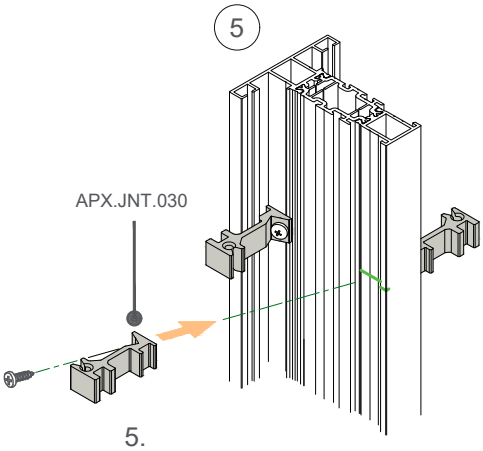
2.
End mill profile at both ends.



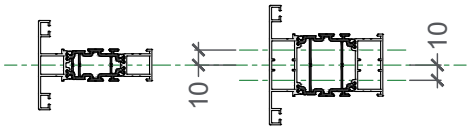
3.
Mark transom position on frame and mullion.



4.
Place jig onto the rear of frame, align with centre mark and drill 5mmØ holes through the jig.

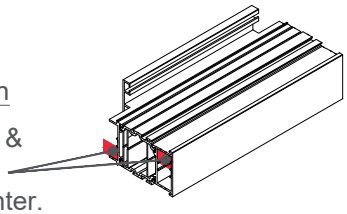


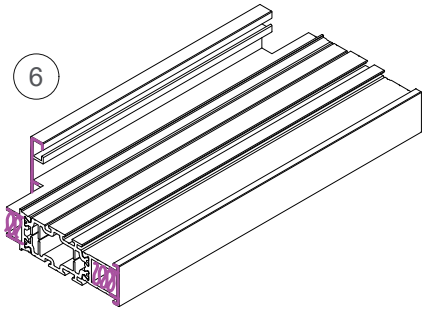
5.
Fix Cruciform Jointer in position x4 using 3.9x16mm pan head drill point.



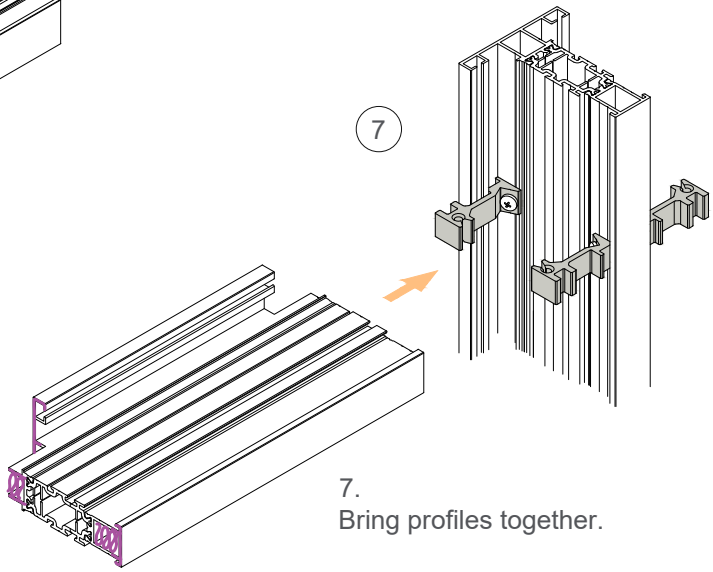
79mm Rebate Option

Stagger screw inserts & cruciform jointers 10mm either side of center.

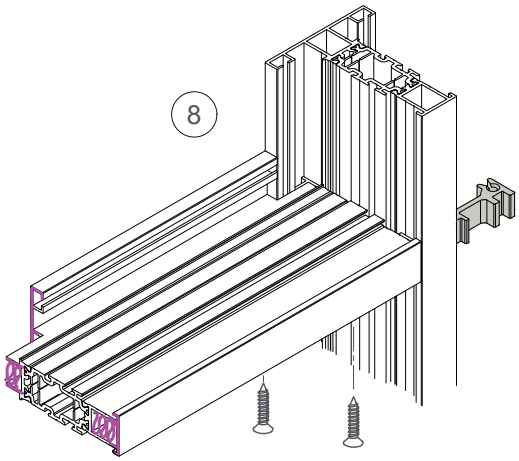




6.
Apply small gap sealant (APX.CON.001) on both ends profile.

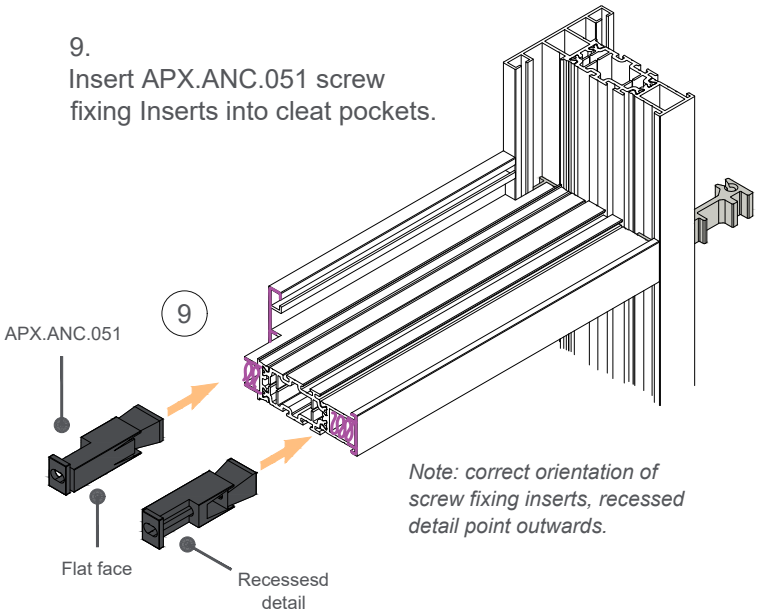


7.
Bring profiles together.

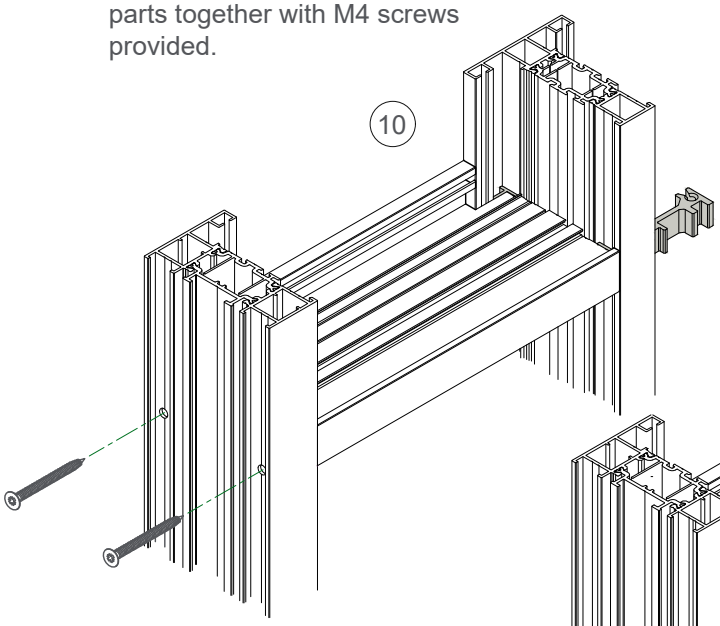


8.
Align jointing member and frame holes, tighten both parts together with M4 screws provided.

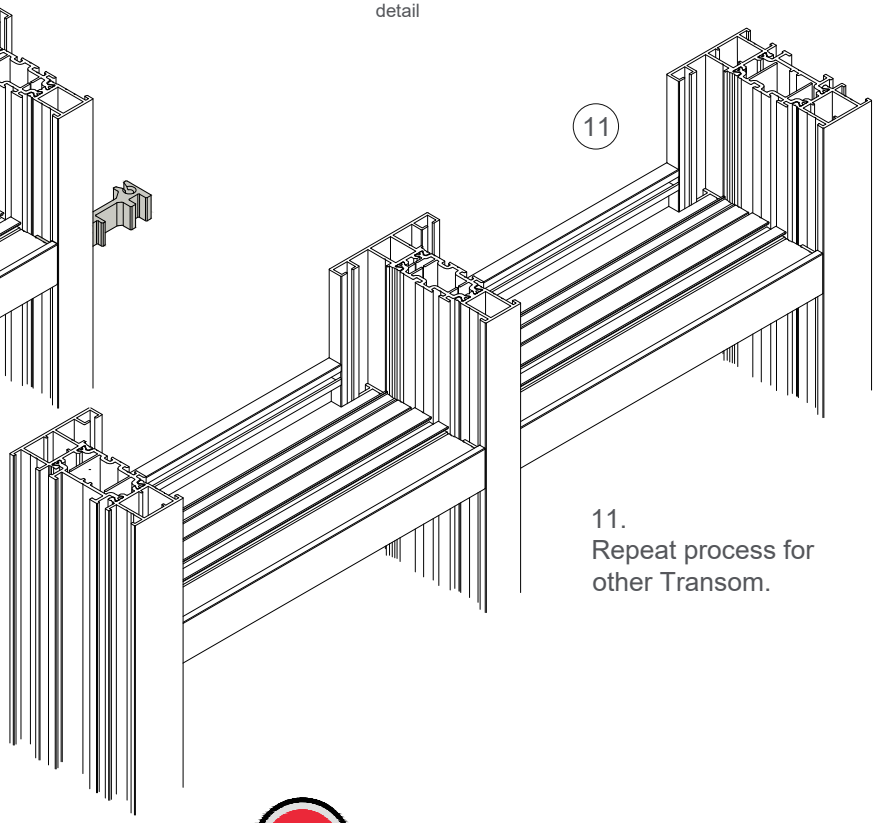
9.
Insert APX.ANC.051 screw fixing Inserts into cleat pockets.



Note: correct orientation of screw fixing inserts, recessed detail point outwards.

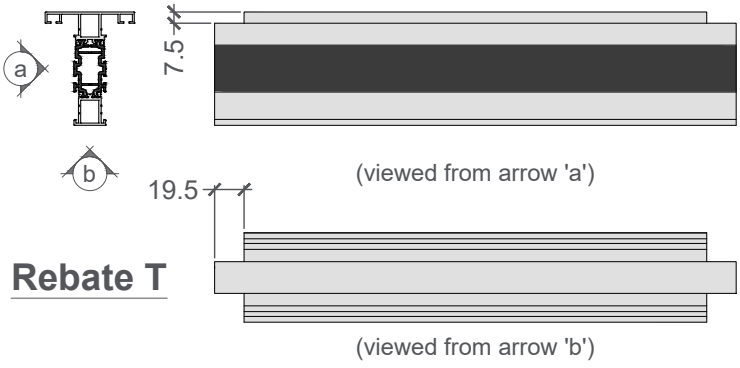


10.
Bring profiles together and tighten parts together (4.8 x 90mm). Ensure joint is flush and fully sealed.



11.
Repeat process for other Transom.

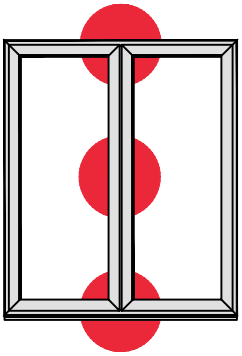
Wipe away excess of small gap sealant.



Rebate T

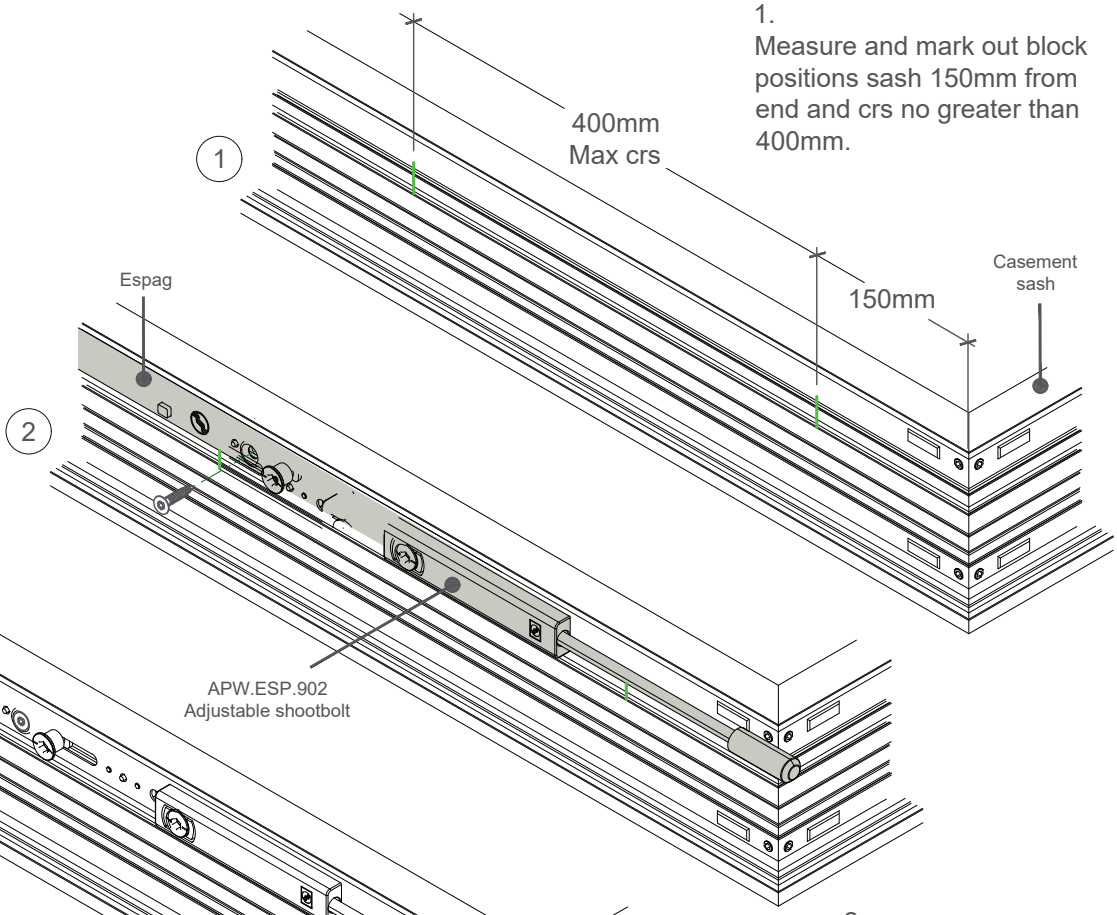
Rebate T Profiles	
59	79

Fabrication
French Window Meeting Stile



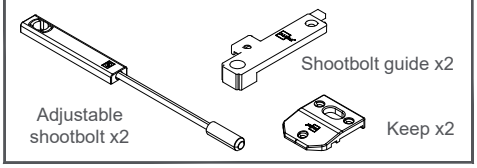
Handing on the slave lock will be the same as the master.
i.e. if master requires 'RH' lock, the slave lock will also be 'RH'!

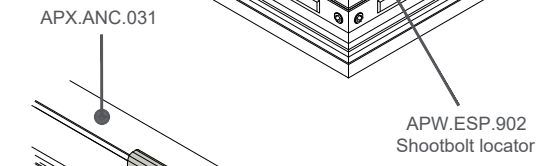
1.
Measure and mark out block positions sash 150mm from end and crs no greater than 400mm.



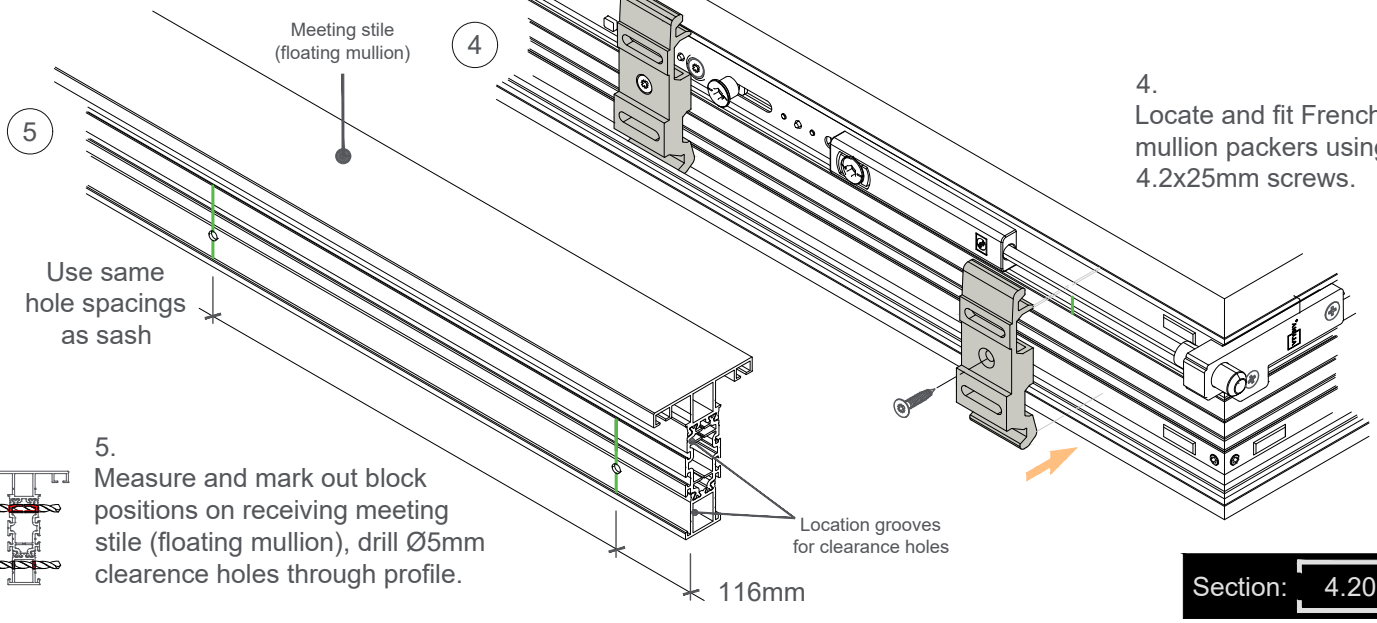
2.
Locate & screw Espag in position using 4.2x19mm countersunk screws. Fit Ajustable shootbolt onto Espag.

APW.ESP.902 Kit
Use one kit per slave lock, the kit contains:

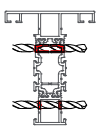




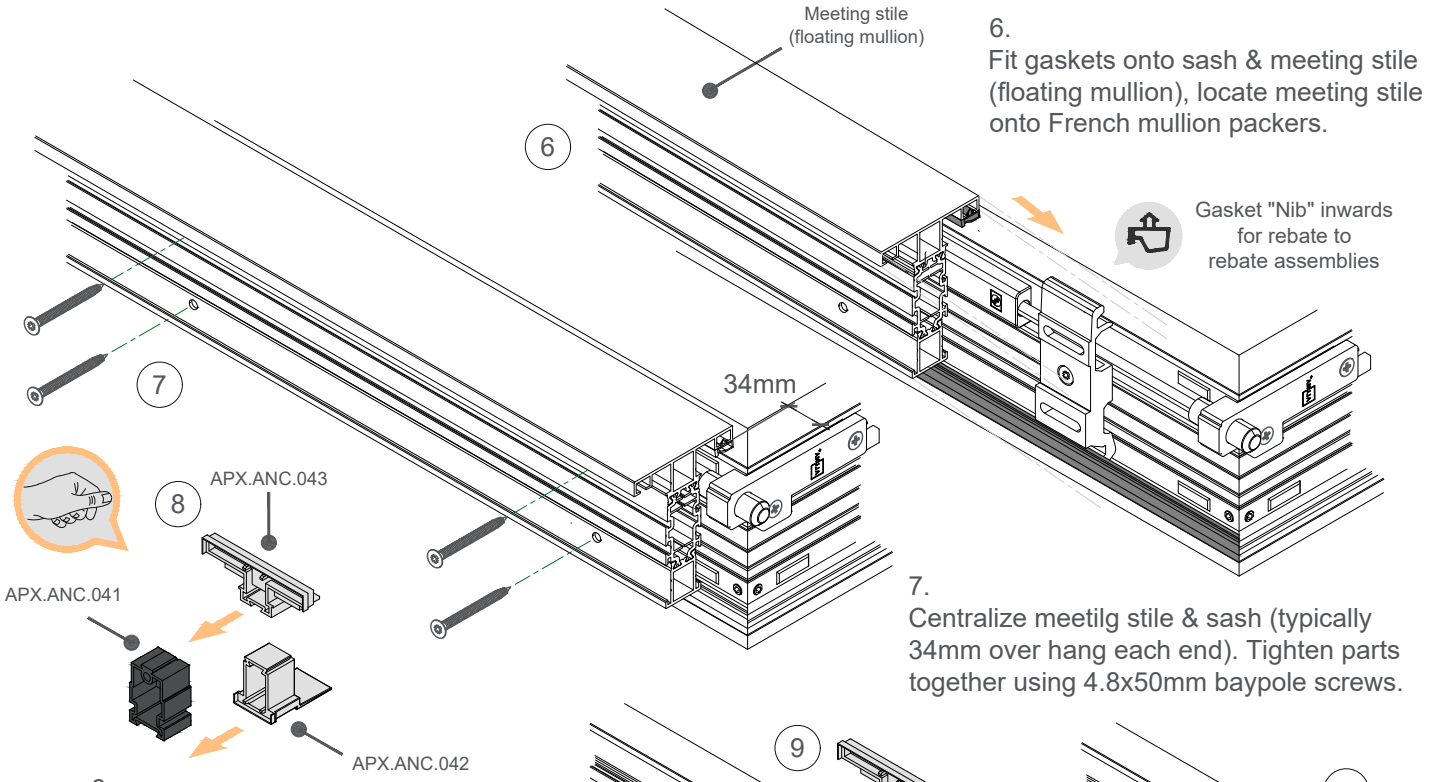
3.
Fit shootbolt locators with screws provided.



4.
Locate and fit French mullion packers using 4.2x25mm screws.



5.
Measure and mark out block positions on receiving meeting stile (floating mullion), drill Ø5mm clearence holes through profile.

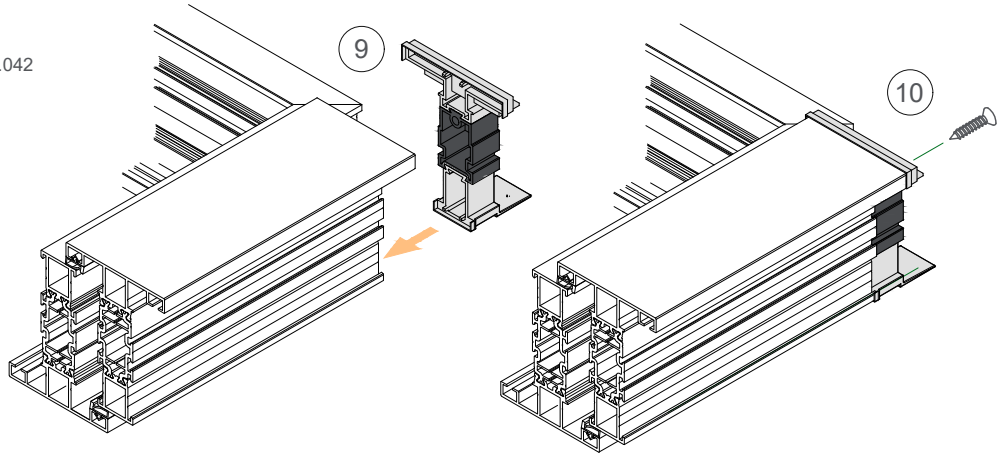


6.
Fit gaskets onto sash & meeting stile (floating mullion), locate meeting stile onto French mullion packers.

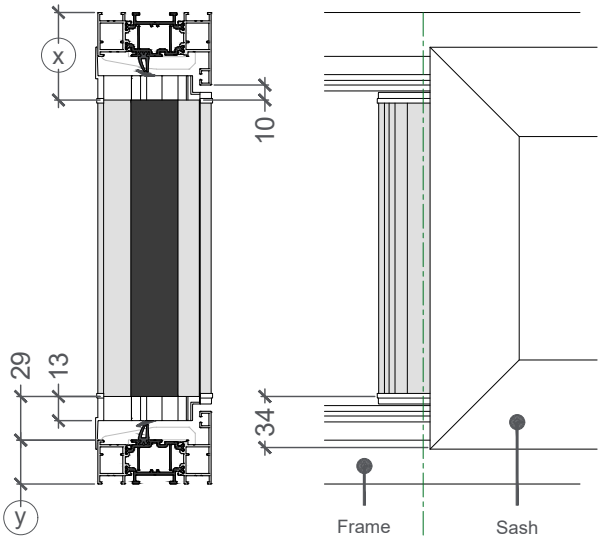
7.
Centralize meetilg stile & sash (typically 34mm over hang each end). Tighten parts together using 4.8x50mm baypole screws.

8.
Connect the French Mullion End Cap Small & Large Sides to the Core

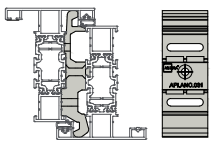
9.
Connect the French Mullion End Cap Assembly on to the end of the Meeting Stile (Floating Mullion)

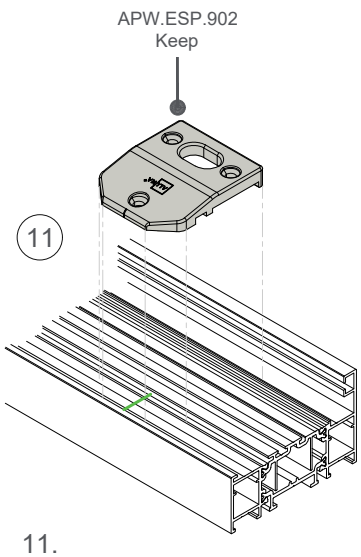


10.
Fix with self tapping screws. Repeat process at other end.

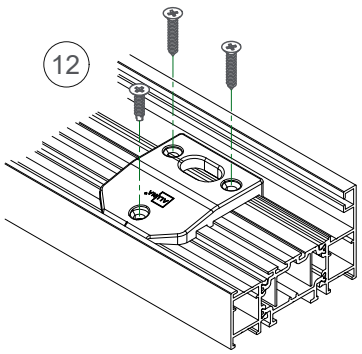


Ref	Frame	Dim
x	AP#.SR#.048	58
	APX.SRS.068	78
y	AP#.SR#.048	29
	APX.SRS.068	49



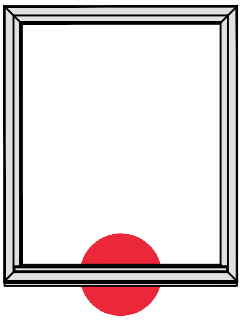


11.
Mark out the centre of the horizontal frame members and insert keep.

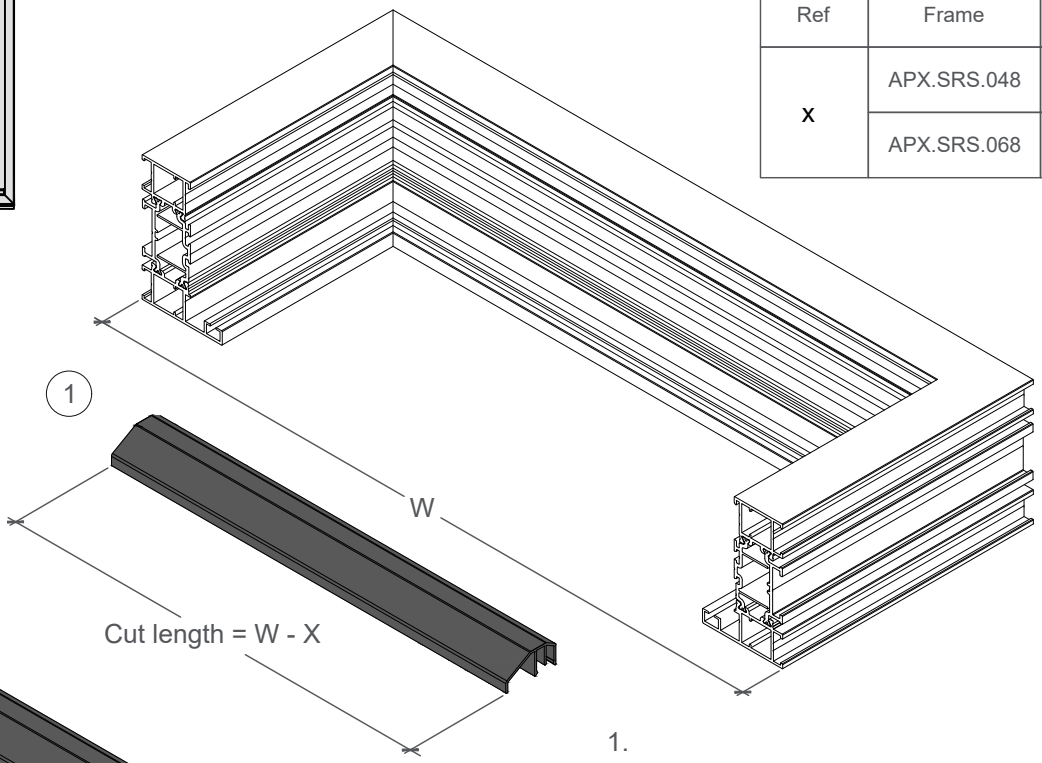


12.
Secure with 4.2x19mm screws provided.

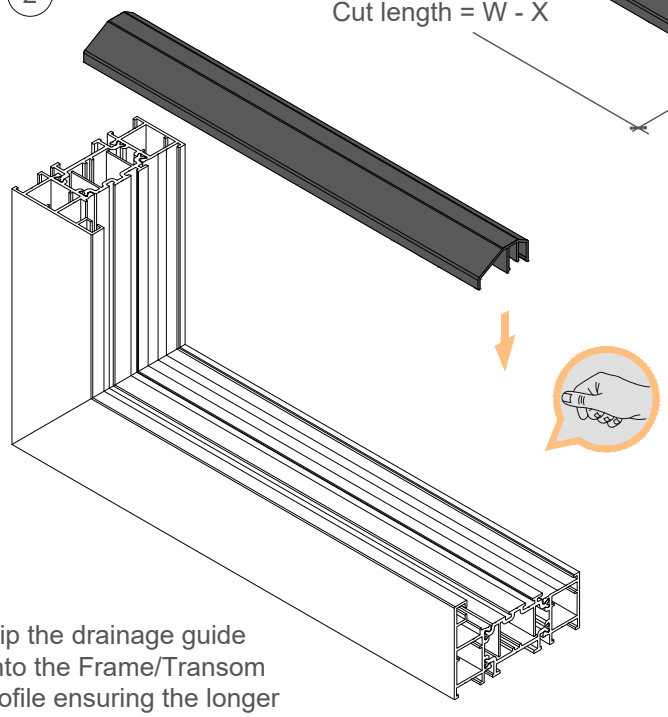
Fabrication
Tilt Turn Drainage Guide



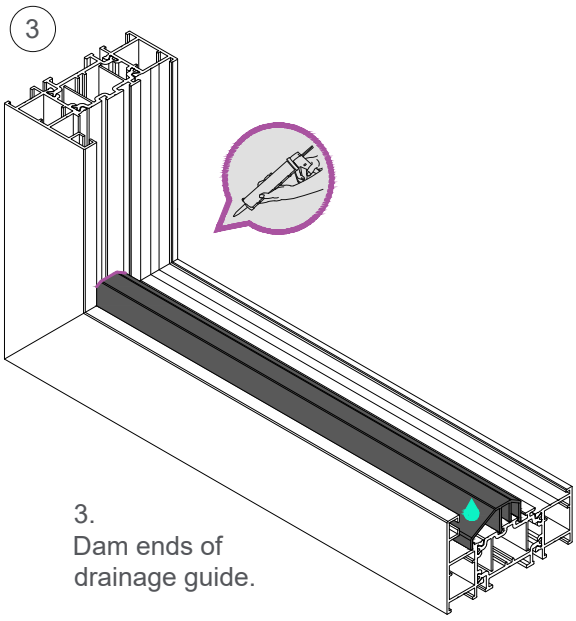
Ref	Frame	Dim
x	APX.SRS.048	60
	APX.SRS.068	80



1.
Measure and cut Drainage Guide to required length.



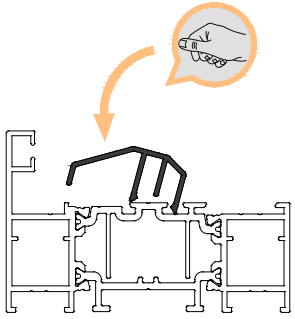
2.
Clip the drainage guide onto the Frame/Transom profile ensuring the longer slope is fitting to the rebate side of the main profile.



3.
Dam ends of drainage guide.

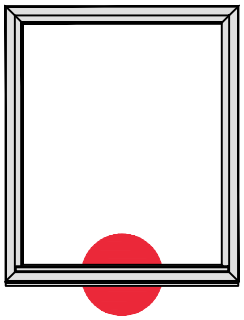
Drainage Guide Fitting Method

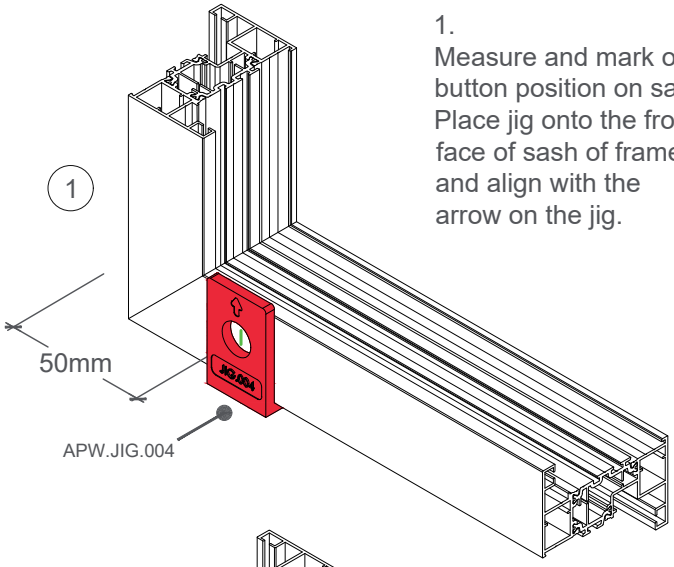
Locate and rotate into position, push and click to fit.



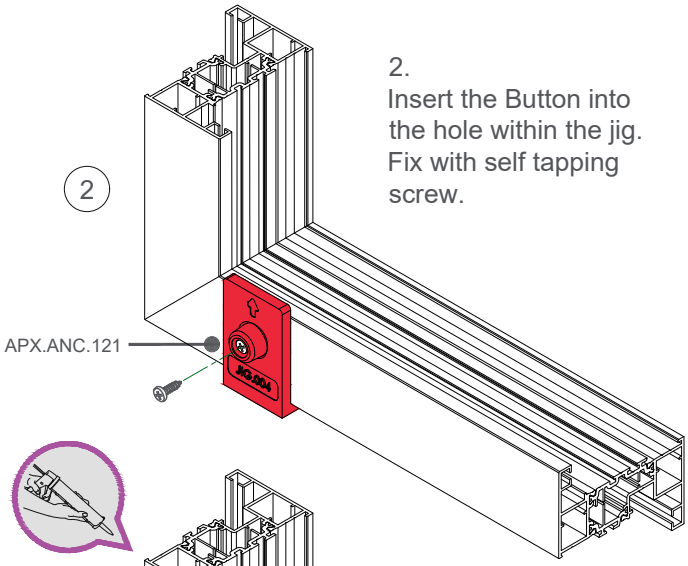
Section: 4.22

Fabrication
Tilt Turn Drip Bar

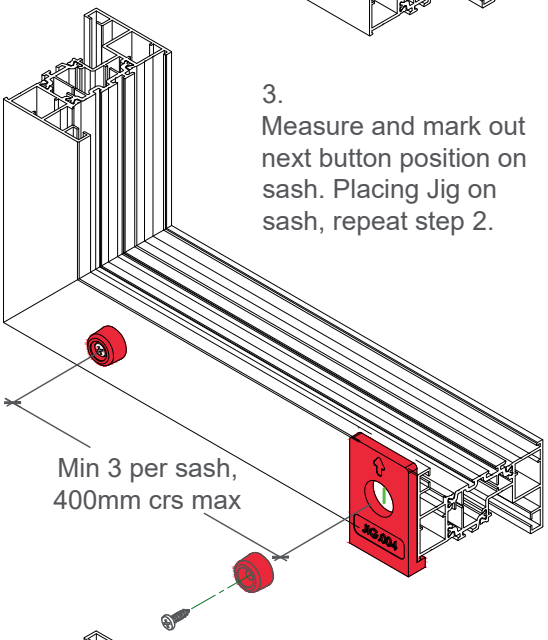




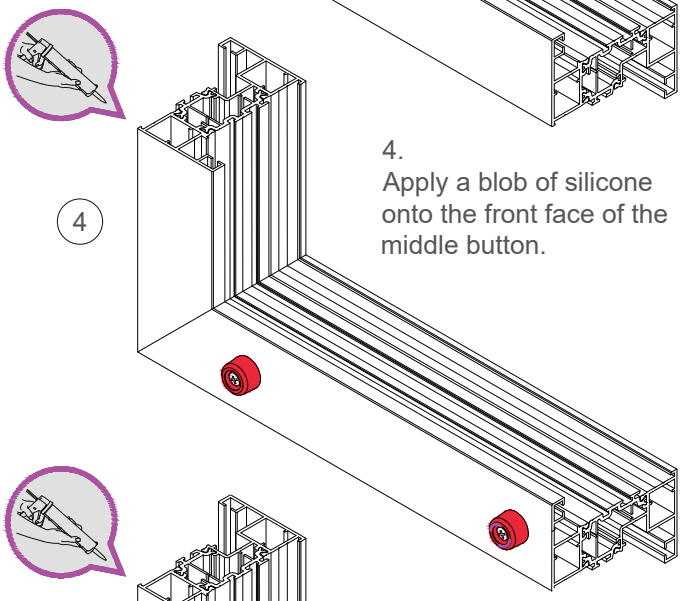
1.
Measure and mark out button position on sash. Place jig onto the front face of sash of frame and align with the arrow on the jig.



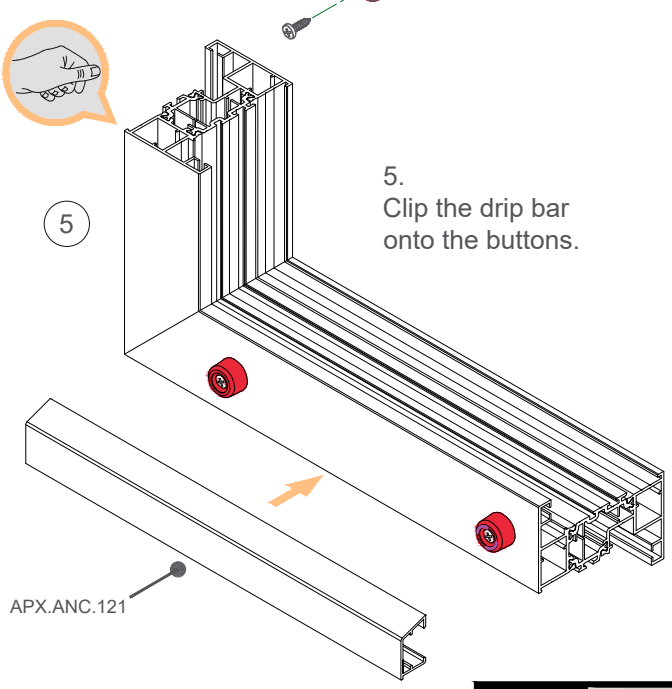
2.
Insert the Button into the hole within the jig. Fix with self tapping screw.



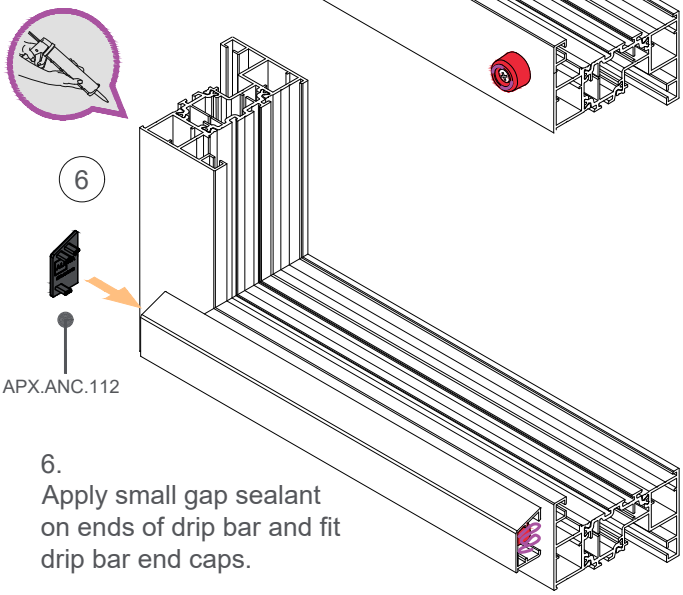
3.
Measure and mark out next button position on sash. Placing Jig on sash, repeat step 2.



4.
Apply a blob of silicone onto the front face of the middle button.



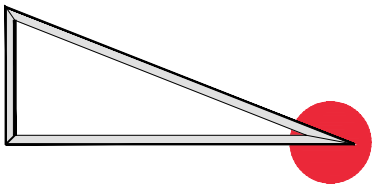
5.
Clip the drip bar onto the buttons.



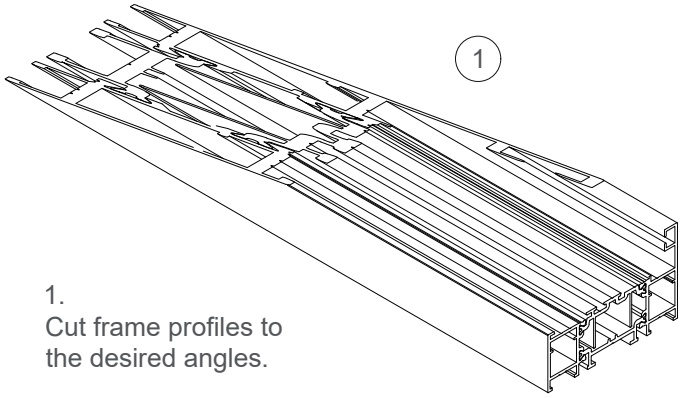
6.
Apply small gap sealant on ends of drip bar and fit drip bar end caps.

Section: 4.23

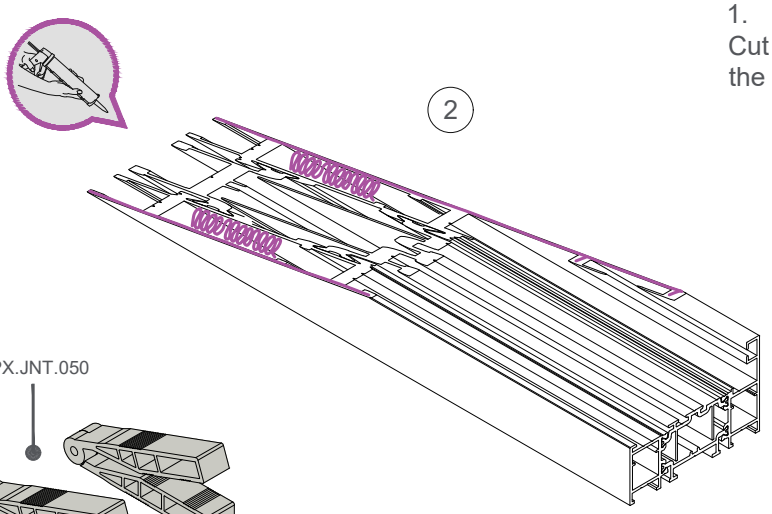
Fabrication
Raked Frame Corner Jointing



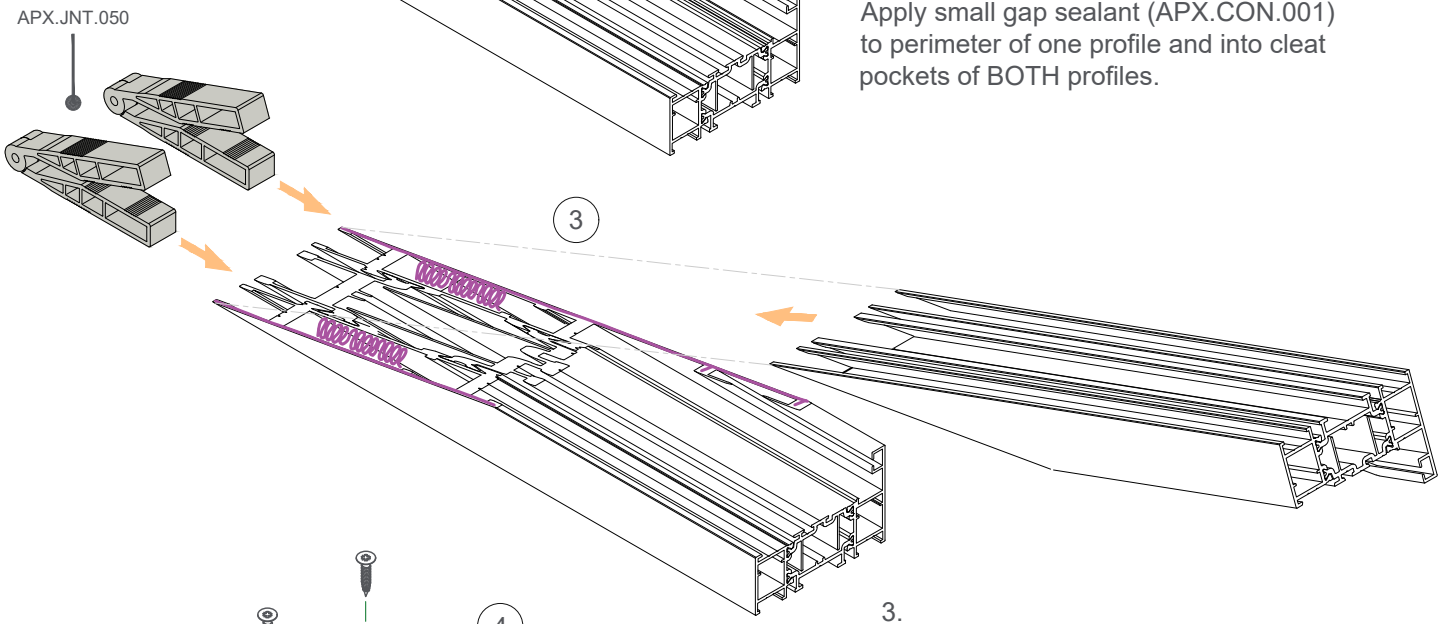
For mitred corners **we would recommend an anti corrosion primer for aluminium for any installations less then 1km from the sea**



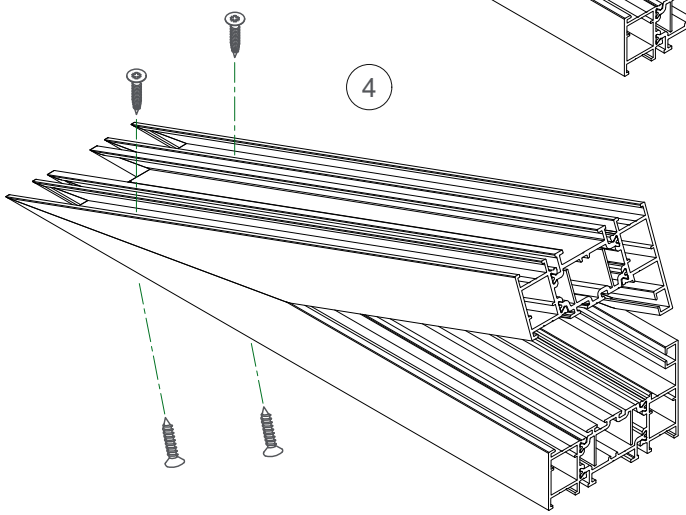
1.
Cut frame profiles to the desired angles.



2.
Apply small gap sealant (APX.CON.001) to perimeter of one profile and into cleat pockets of BOTH profiles.



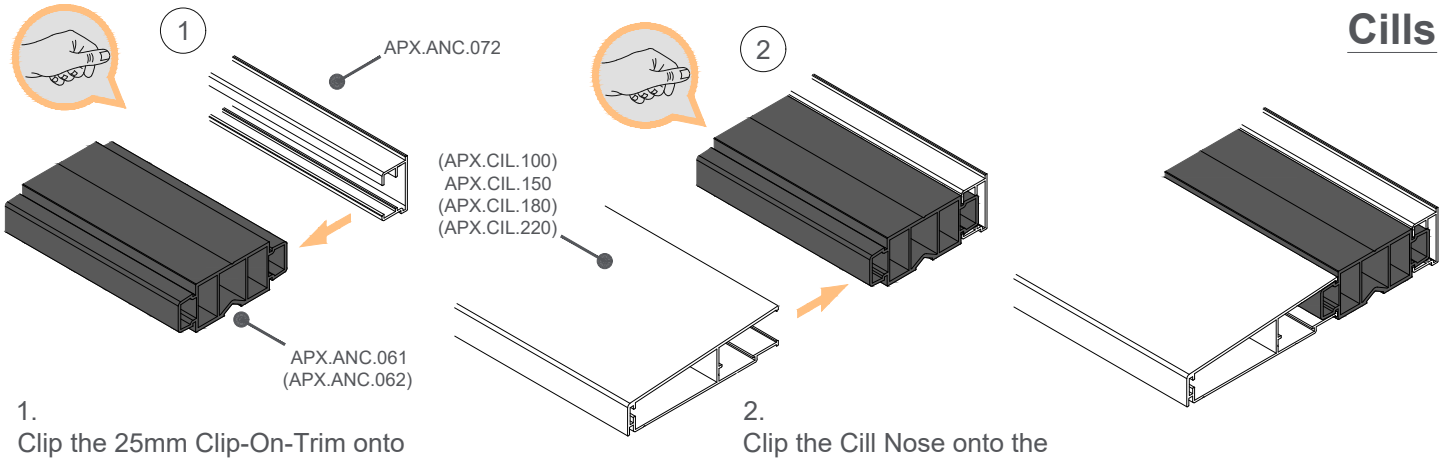
3.
Insert Frame Jointer (flexible) into the ends of the frames and fit adjoing frame member.



4.
Fix assembly with self tapping screws.

Wipe away excess of small gap sealant.

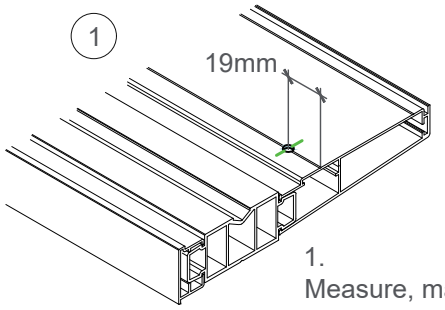
Cills



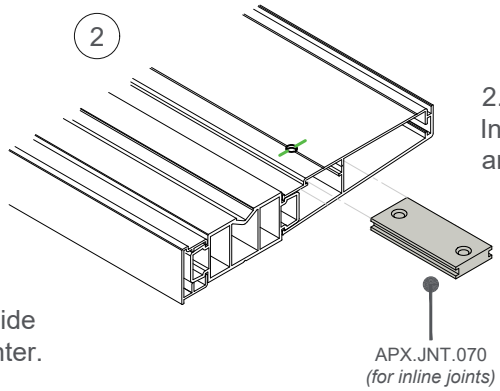
1.
Clip the 25mm Clip-On-Trim onto the rear of the Thermal Core.

2.
Clip the Cill Nose onto the front of the Thermal Core.

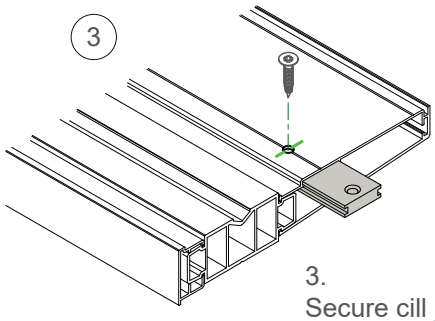
Cill Jointer



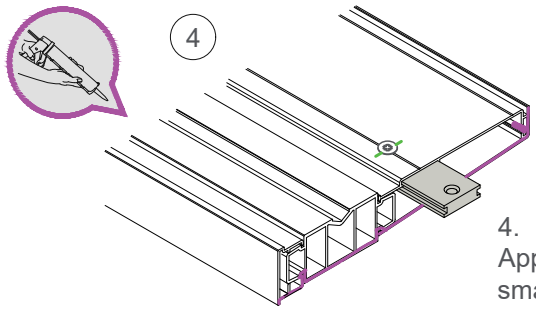
1.
Measure, mark out & drill clearance hole to the underside of the cill nose for the cill jointer.



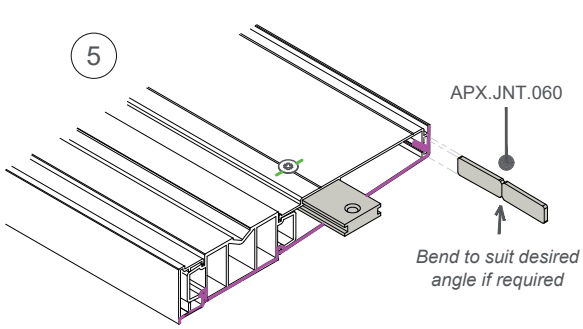
2.
Insert the cill jointer and align holes.



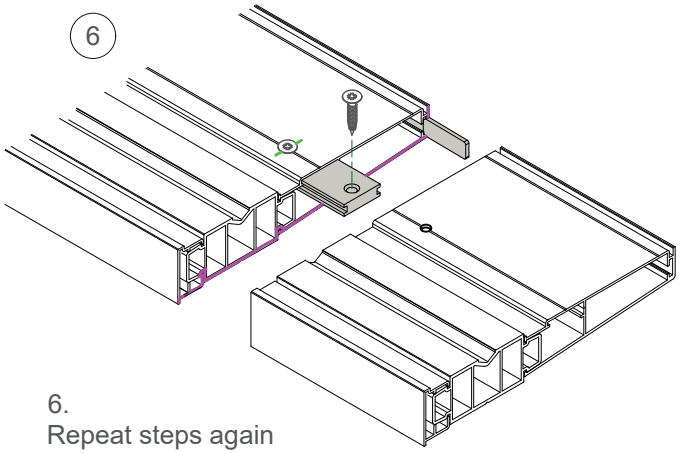
3.
Secure cill jointer.



4.
Apply continuous bead of small gap sealant on the face of the cill & front channel.



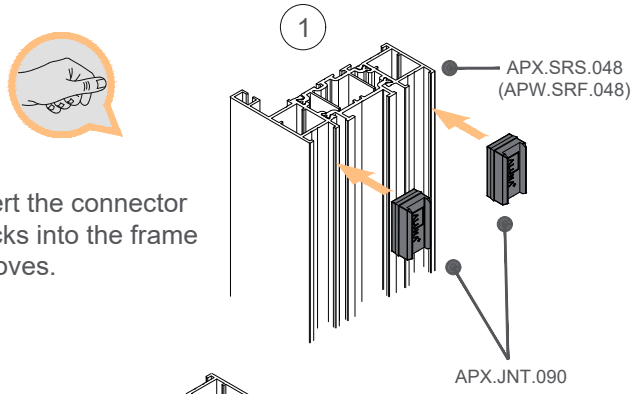
5.
Insert cill jointer (front) into the front of the cill nose.



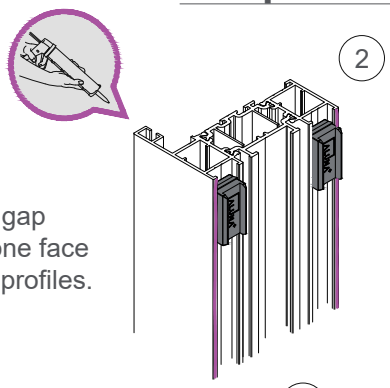
6.
Repeat steps again for adjoining cill profile & bring together.

Wipe away excess of small gap sealant.

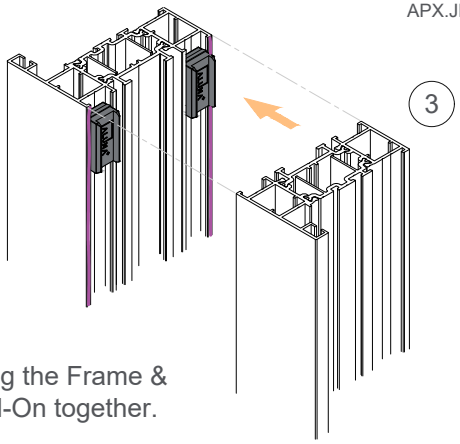
Coupled Frames



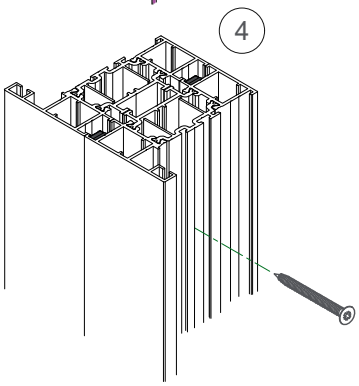
1.
Insert the connector blocks into the frame grooves.



2.
Apply small gap sealant on one face of adjoining profiles.

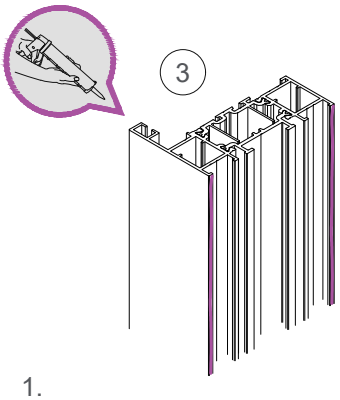


3.
Bring the Frame & Add-On together.

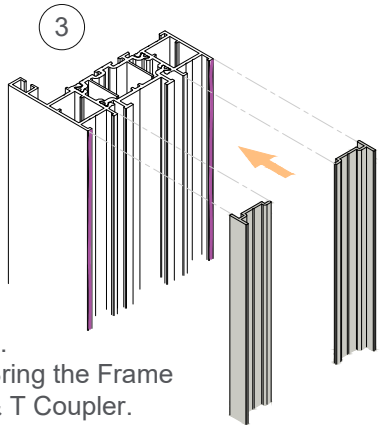


4.
Tighten Assembly together & wipe away excess gap sealant.

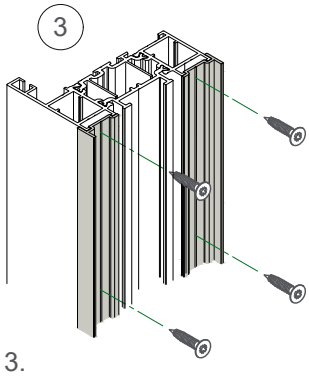
T Coupler



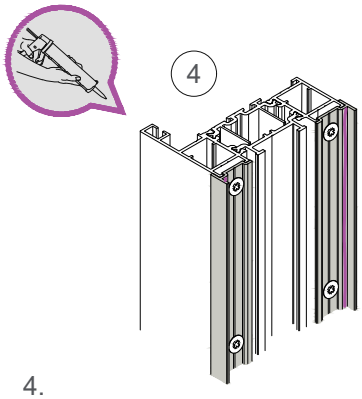
1.
Apply small gap sealant on one face of adjoining profiles.



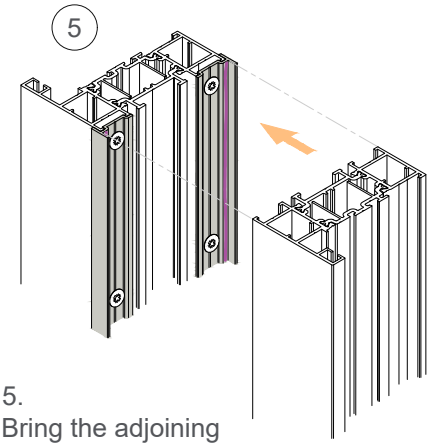
2.
Bring the Frame & T Coupler.



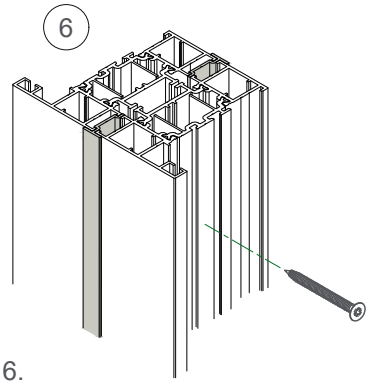
3.
Tighten assembly together.



4.
Apply small gap sealant on inside face of T Couplers.

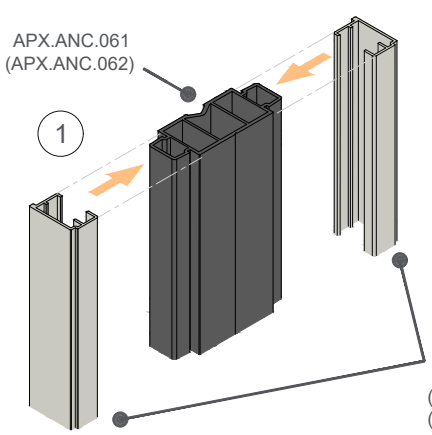


5.
Bring the adjoining Frame together.

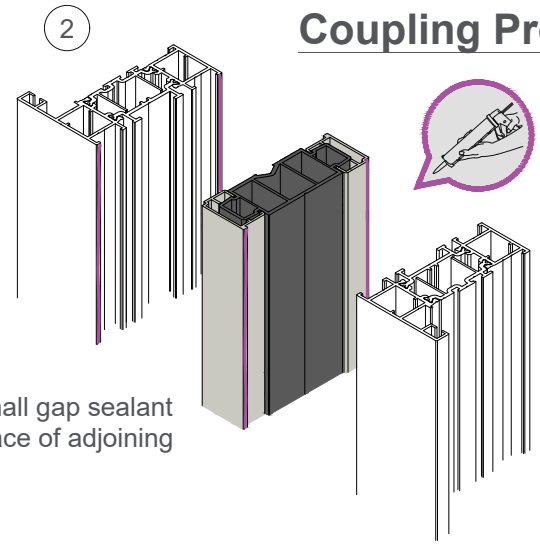


6.
Tighten Assembly together & wipe away excess gap sealant.

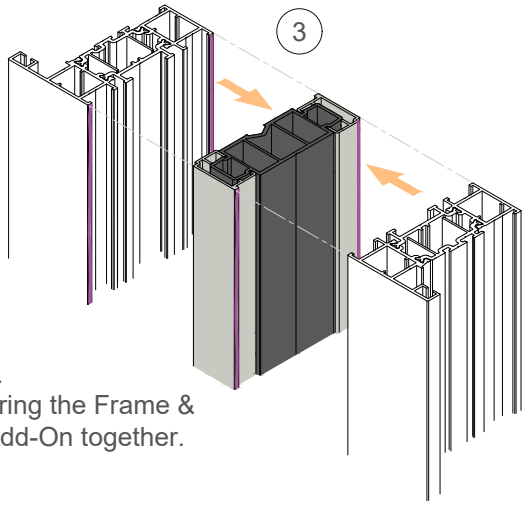
Coupling Profiles



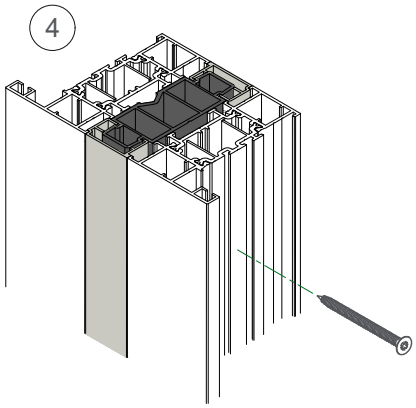
1.
Clip the Clip-On-Trim on to the Thermal Core.



2.
Apply small gap sealant on one face of adjoining profiles.

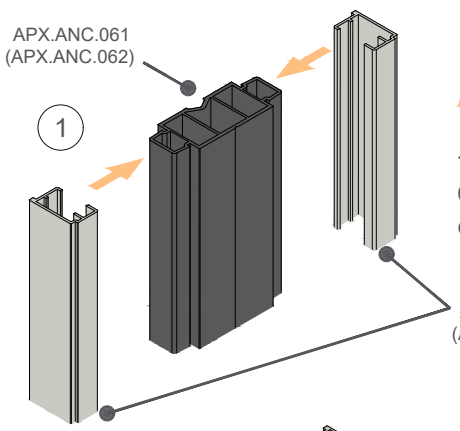


3.
Bring the Frame & Add-On together.

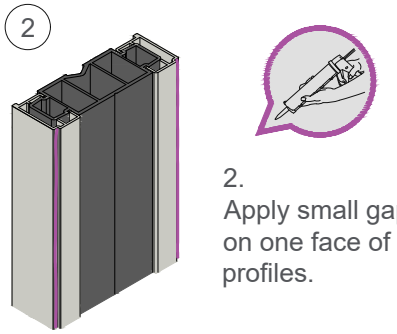


4.
Tighten Assembly together & wipe away excess gap sealant.

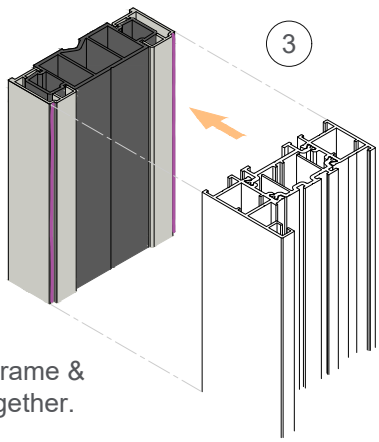
Extension Profiles



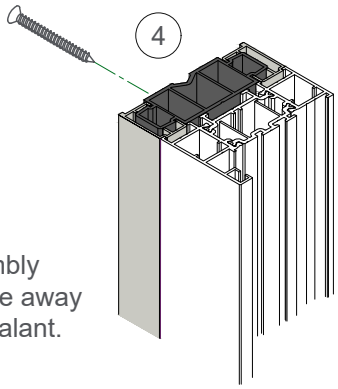
1.
Clip the Clip-On-Trim on to the Thermal Core.



2.
Apply small gap sealant on one face of adjoining profiles.



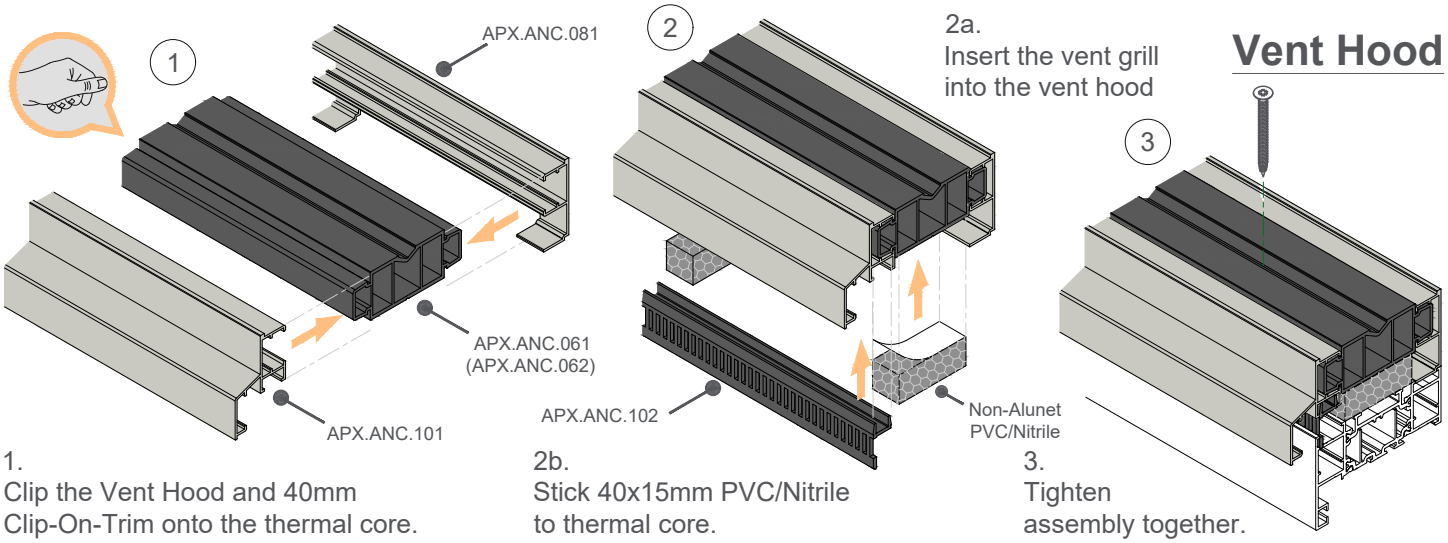
3.
Bring the Frame & Add-On together.



4.
Tighten Assembly together & wipe away excess gap sealant.

Fabrication
Modular Ancillaries - Ventilation

Vent Hood

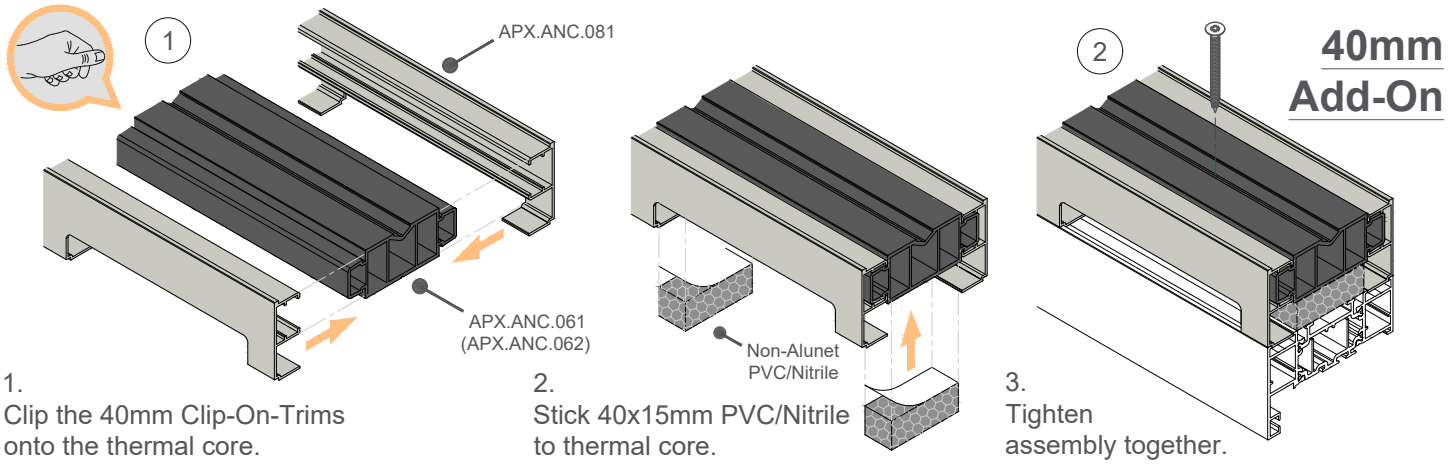


1.
Clip the Vent Hood and 40mm Clip-On-Trim onto the thermal core.

2b.
Stick 40x15mm PVC/Nitrile to thermal core.

3.
Tighten assembly together.

40mm Add-On

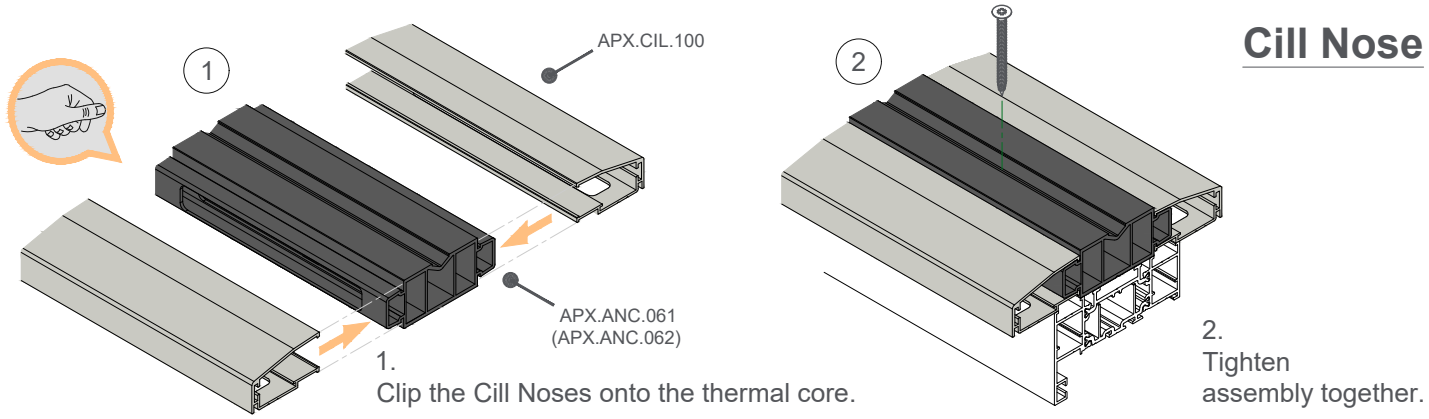


1.
Clip the 40mm Clip-On-Trims onto the thermal core.

2.
Stick 40x15mm PVC/Nitrile to thermal core.

3.
Tighten assembly together.

Cill Nose



1.
Clip the Cill Noses onto the thermal core.

2.
Tighten assembly together.

Ventilation

Room Type	Equivalent Area
Habitable	8000 mm²
Kitchen	8000 mm²
Bathroom	4000 mm²

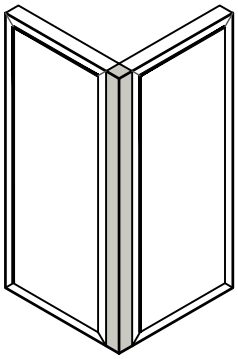
Part F of the Building Regulations outlines the requirements for background ventilation – in short, adequate ventilation needs to be provided to prevent excess condensation build up which could damage the structure of a property.

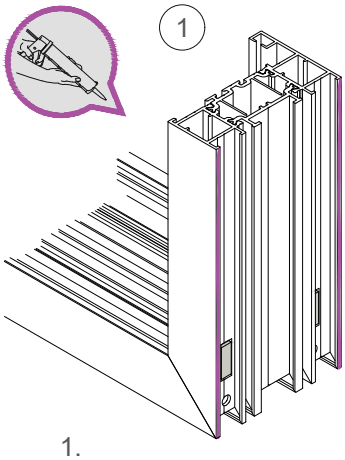
Building regulations state trickle vents will be required by law in the majority of situations. There are exemptions to the rule (eg listed buildings and conservation areas). Regulations establish the minimum amount of ventilation that buildings must meet. This can be achieved in a variety of ways, including with trickle vents in windows and doors.

The minimum equivalent area for trickle vents has been increased from 2500mm² to 8000mm² per habitable room – basically any room used or intended to be used for sleeping or living, but not solely for cooking.

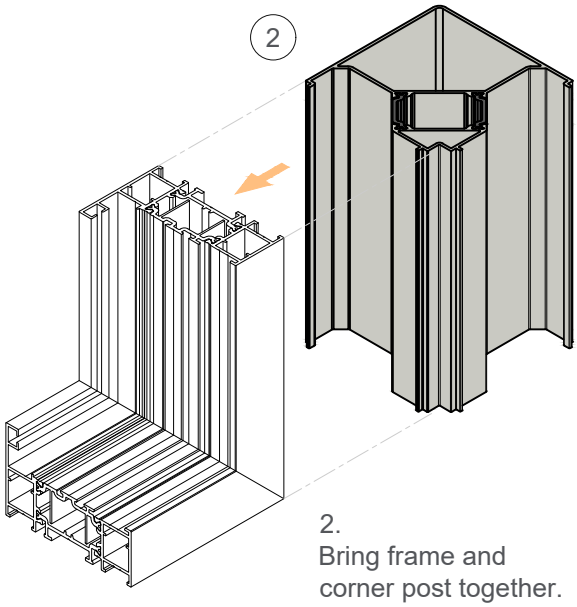
Different rooms may require different levels of ventilation, so it's important to understand the specific needs of each space.

Fabrication
Corner Post

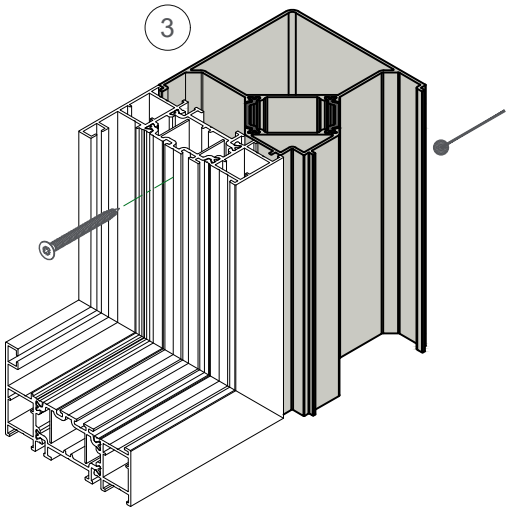




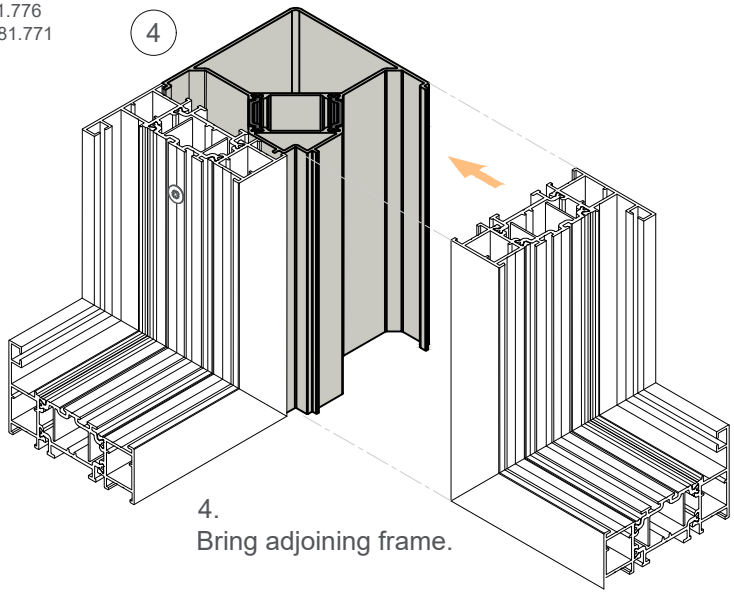
1.
Apply small gap sealant on frame profiles.



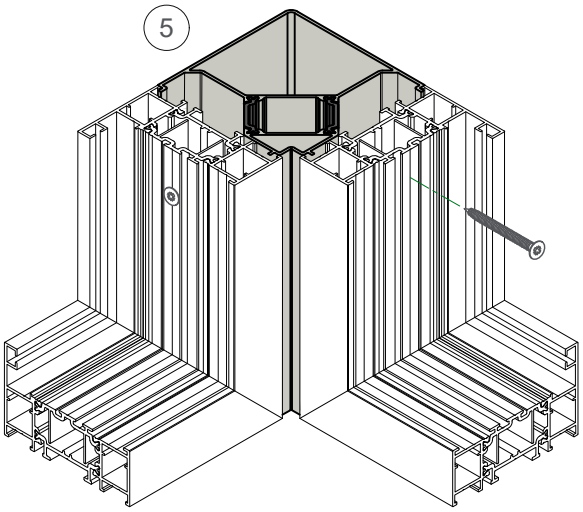
2.
Bring frame and corner post together.



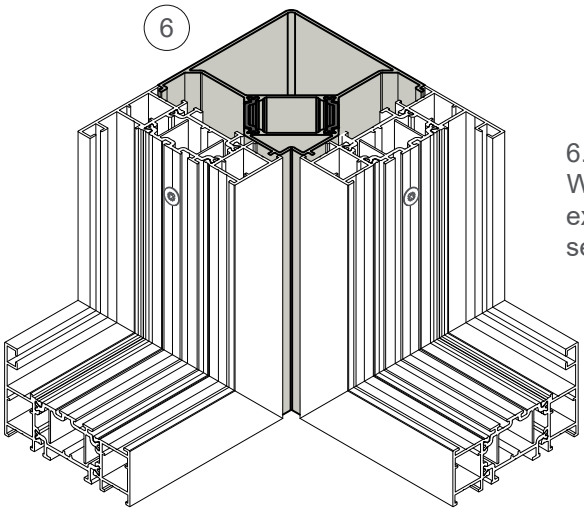
3.
Tighten Assembly together.



4.
Bring adjoining frame.

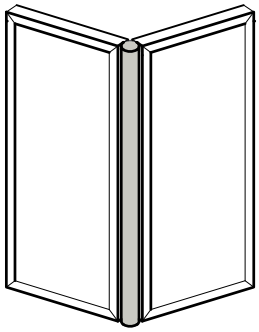


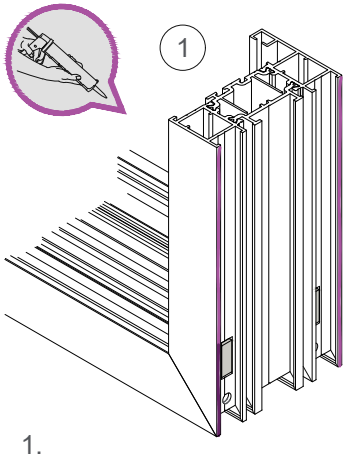
5.
Tighten Assembly together.



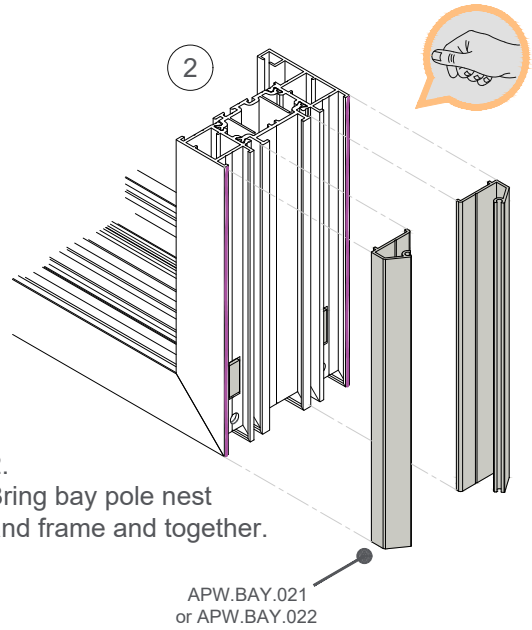
6.
Wipe away excess ga sealant.

Fabrication
Bay Pole

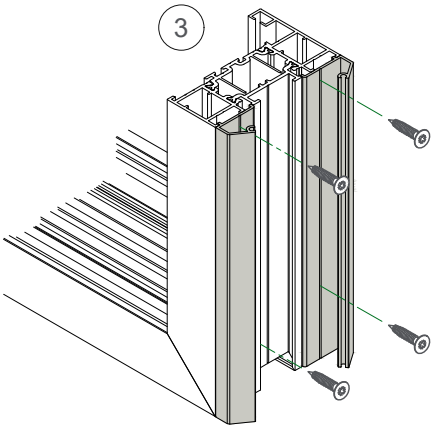




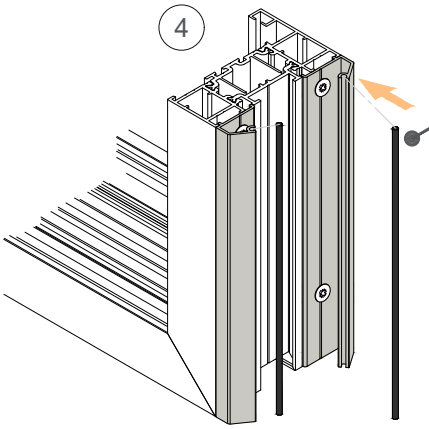
1.
Apply small gap sealant on frame profiles.



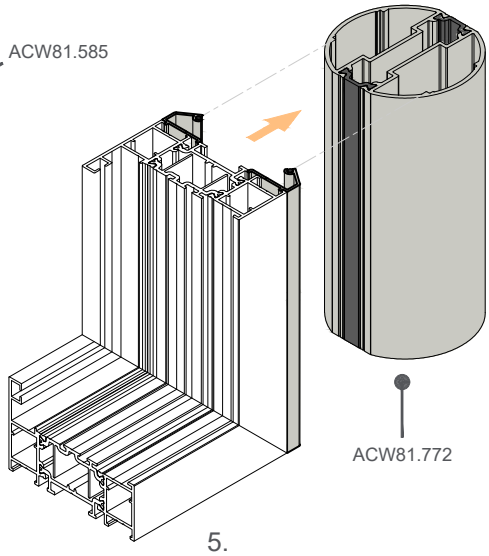
2.
Bring bay pole nest and frame and together.



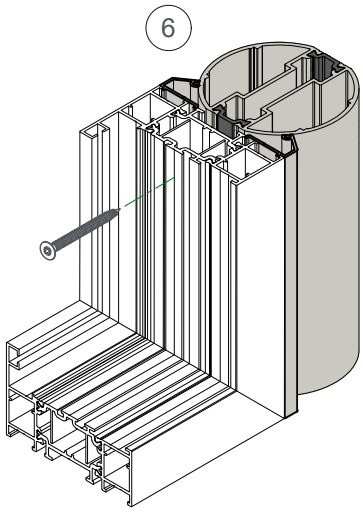
3.
Tighten Assembly together.



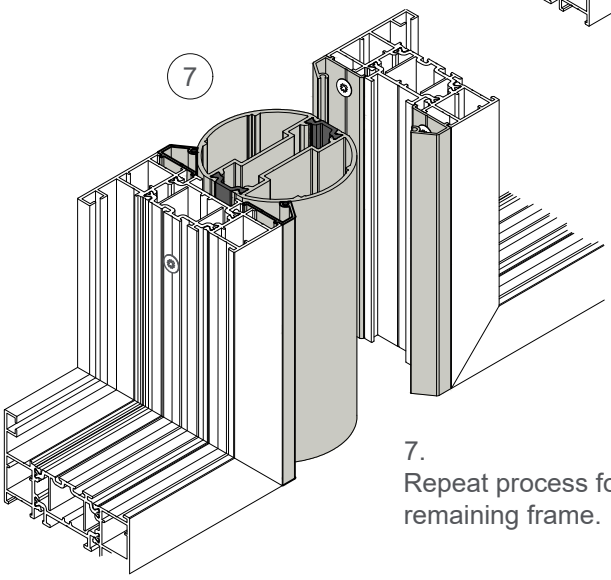
4.
Fit EPDM chord into channels of bay pole nest.



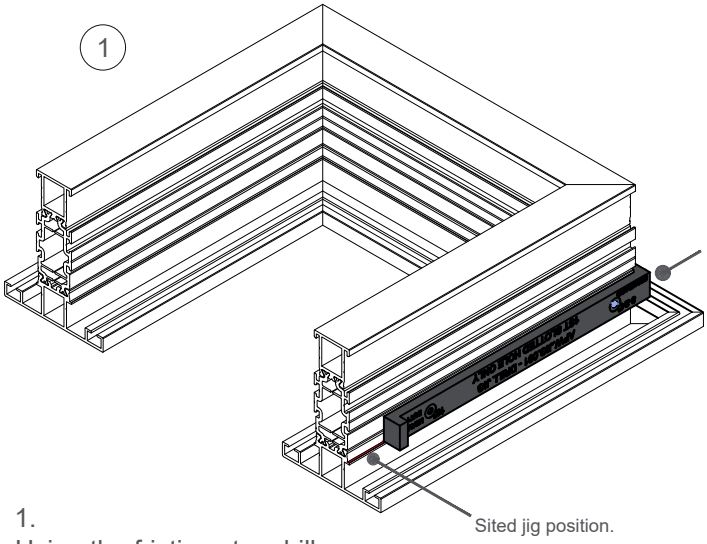
5.
Bring frame and bay pole together.



6.
Tighten Assembly together.



7.
Repeat process for remaining frame.

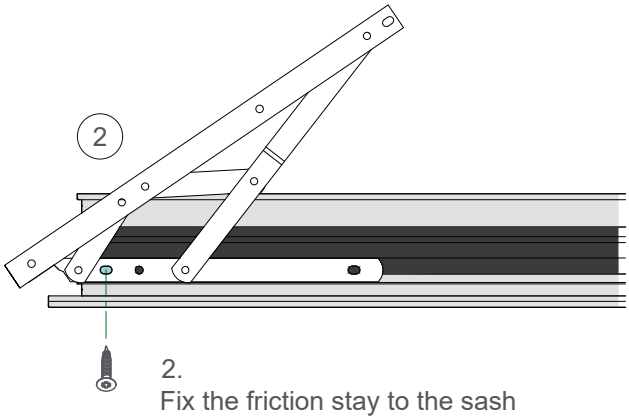


1.
Using the friction stay drill jig, drill a Ø2.5mm hole through the external skin.

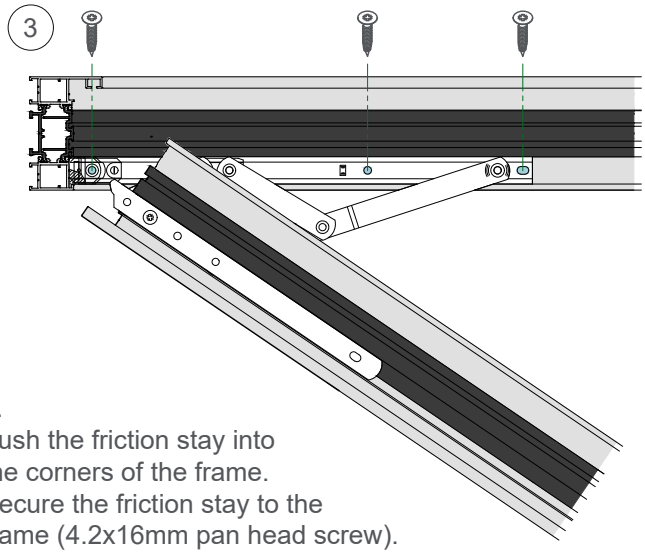
APW.JIG.001
Check reference on jig for correct friction hinge hole position.

Always use the largest friction stay that you can fit on your sash in order to distribute the weight evenly.

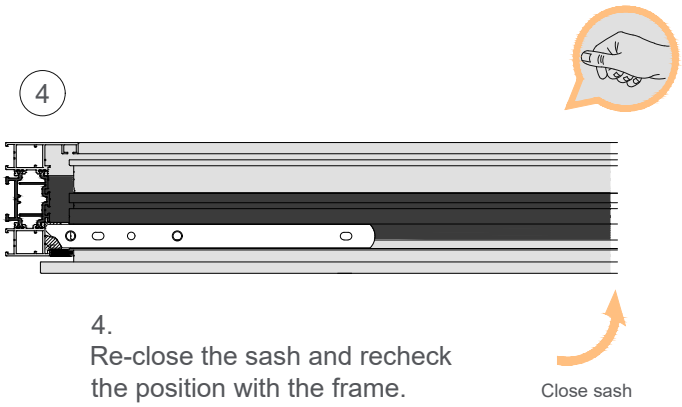
Ensure correct orientation of jig is established before drilling sash profile.



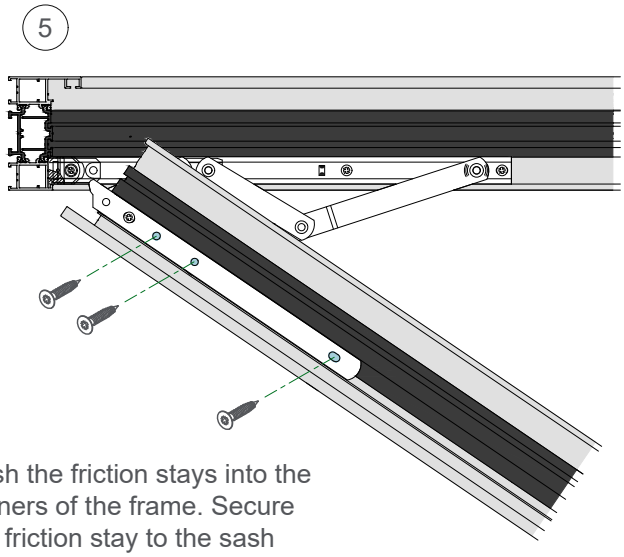
2.
Fix the friction stay to the sash (4.2x16mm pan head screw) through the slotted hole only at this stage.



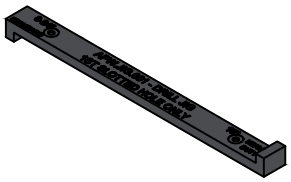
3.
Push the friction stay into the corners of the frame. Secure the friction stay to the frame (4.2x16mm pan head screw).



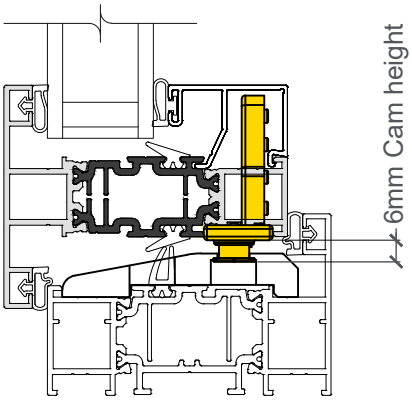
4.
Re-close the sash and recheck the position with the frame.



5.
Push the friction stays into the corners of the frame. Secure the friction stay to the sash with the remaining screws.



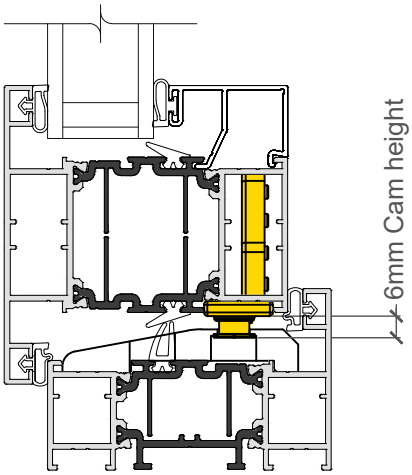
APW.JIG.001



59mm Double Rebate T

Prep options:

- Router
- CNC

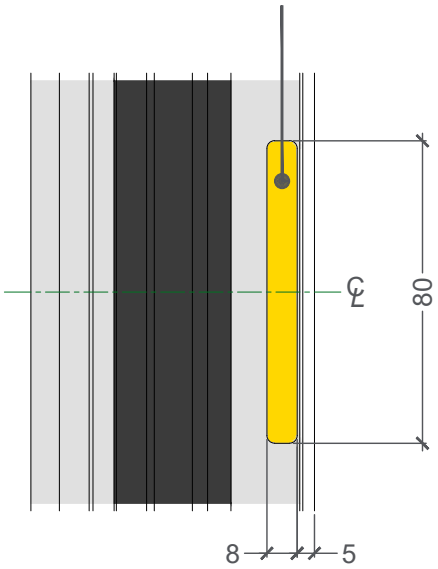


79mm Double Rebate T

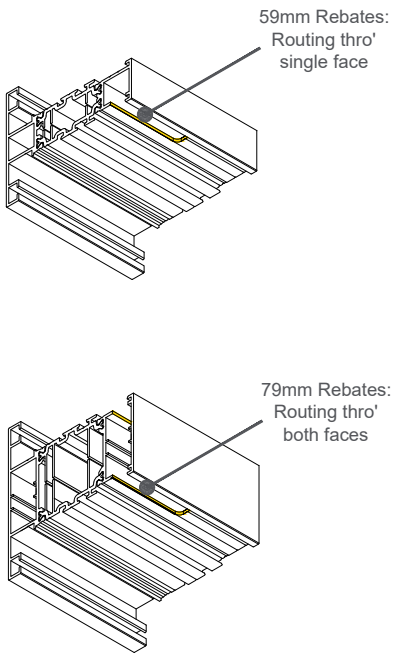
Prep options:

- Router
- CNC

Router out an 80x8mm slot for the gearbox in the sash.

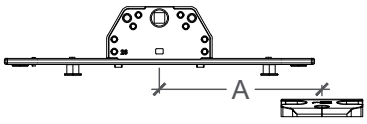


Lock Routing Prep

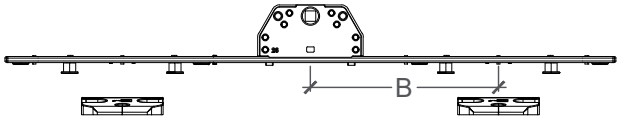


6mm Cam Height, 17mm Stack Height

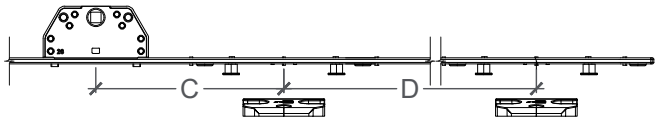
Screw Espags in position using 4.2x19mm countersunk screws.



				Sash Rebate Size (min)	Sash Rebate Size (max)	Sash Size (min)	Sash Size (max)	No. of Keeps APX.ESP.901	Dim A
APW.ESP.R02	Espag RH	200mm	(Right Hand)	**340**	**439**	**378**	**477**	**1**	**107**
APW.ESP.L02	Espag LH	200mm	(Left Hand)						
APW.ESP.R03	Espag RH	300mm	(Right Hand)	**440**	**539**	**478**	**577**	**2**	**159**
APW.ESP.L03	Espag LH	300mm	(Left Hand)						

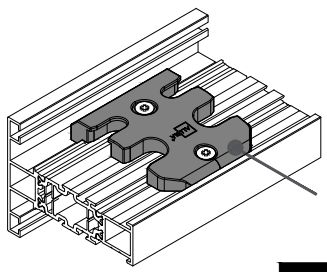


				Sash Rebate Size (min)	Sash Rebate Size (max)	Sash Size (min)	Sash Size (max)	No. of Keeps APX.ESP.901	Dim B
APW.ESP.R04	Espag RH	400mm	(Right Hand)	**540**	**689**	**578**	**727**	**2**	**125**
APW.ESP.L04	Espag LH	400mm	(Left Hand)						
APW.ESP.R05	Espag RH	550mm	(Right Hand)	**690**	**889**	**728**	**927**	**2**	**200**
APW.ESP.L05	Espag LH	550mm	(Left Hand)						
APW.ESP.R07	Espag RH	750mm	(Right Hand)	**890**	**1089**	**928**	**1127**	**2**	**300**
APW.ESP.L07	Espag LH	750mm	(Left Hand)						
APW.ESP.R09	Espag RH	950mm	(Right Hand)	**1090**	**1289**	**1128**	**1327**	**2**	**400**
APW.ESP.L09	Espag LH	950mm	(Left Hand)						



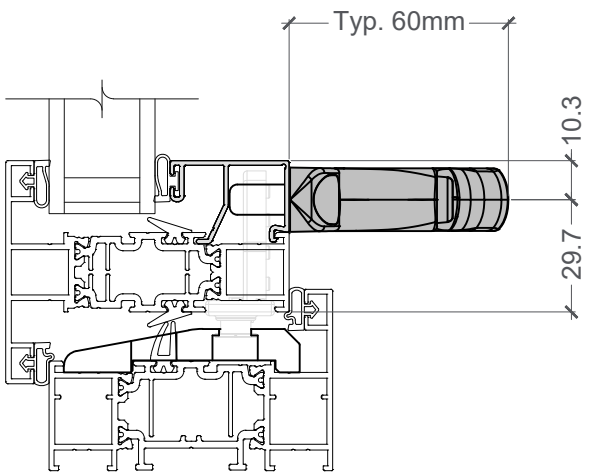
				Sash Rebate Size (min)	Sash Rebate Size (max)	Sash Size (min)	Sash Size (max)	No. of Keeps APX.ESP.901	Dim C	Dim D
APW.ESP.R11	Espag RH	1150mm	(Right Hand)	**1290**	**1520**	**1328**	**1558**	**4**	**125**	**375**
APW.ESP.L11	Espag LH	1150mm	(Left Hand)							

Screw keep in position x2 (3.9x19mm countersunk).



APX.ESP.901
Keep

6mm Cam Height, 17mm Stack Height



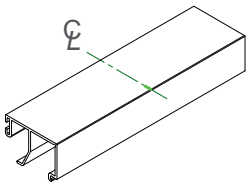
59mm Double Rebate T

Prep options:

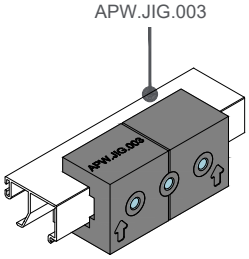
- Jig (APW.JIG.003)
- Punch Tool

Glazing Bead Prep

Mark the centre of the bead.

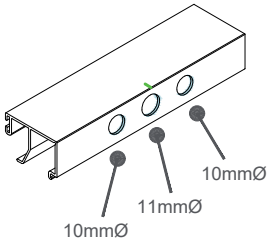


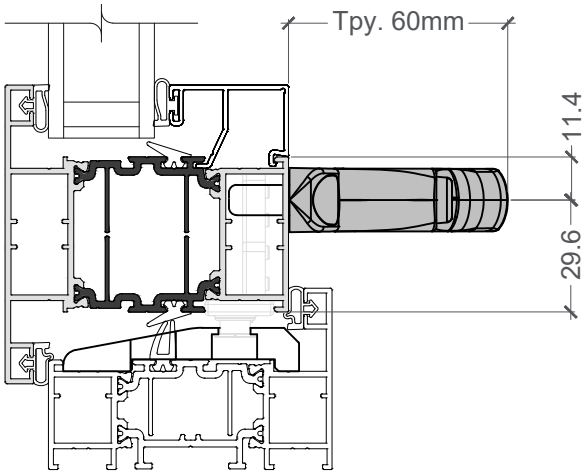
APW.JIG.003



Place the jig onto the bead and align with the centre mark on the jig and drill 5mmØ holes through the jig (one skin of aluminium).

Take off the jig and open up holes to 10mmØ, 11mmØ & 10mmØ





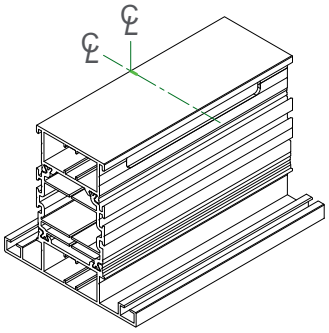
79mm Double Rebate T

Prep options:

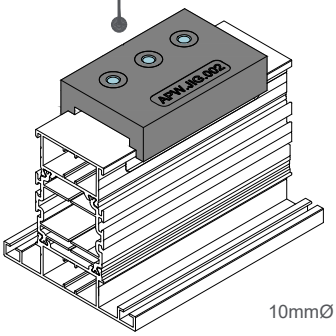
- Jig ONLY (APW.JIG.002)

Glazing Bead Prep

Mark the centre of the sash.

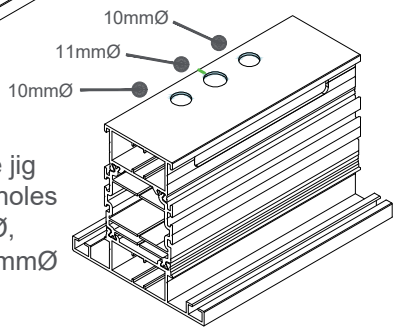


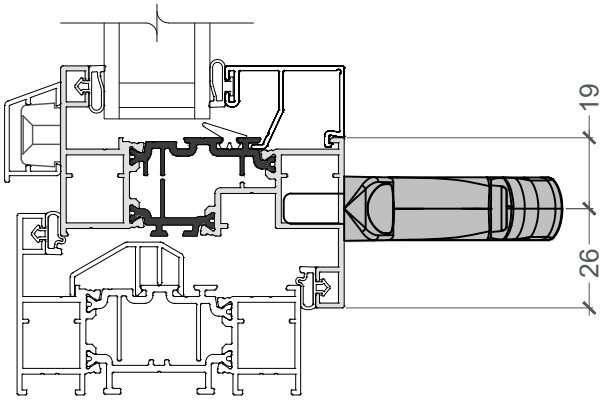
APW.JIG.002

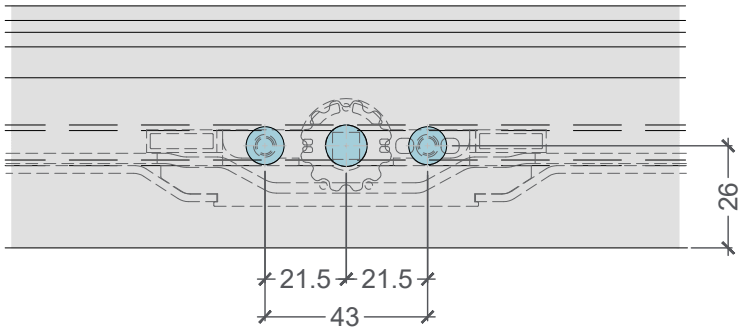


Place jig onto the sash and align with the centre mark on the jig and drill 5mmØ holes through the jig (one skin of aluminium).

Take off the jig and open up holes to 10mmØ, 11mmØ & 10mmØ



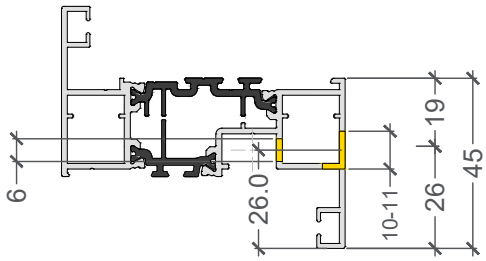




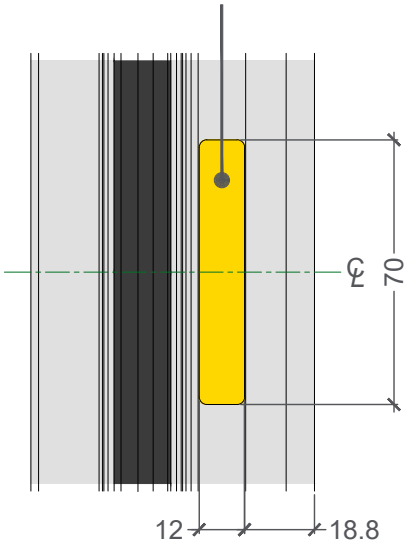
Tilt Turn Sash

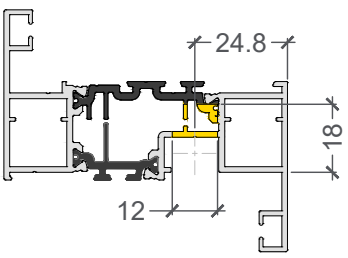
Prep options:

- By hand



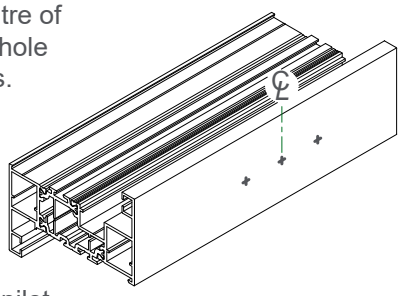
Router out an 70x12mm slot for the gearbox in the sash.



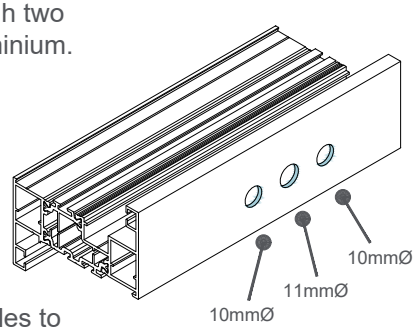


Tilt Turn Sash Prep

Mark the centre of the sash & hole positions.



Drill 6mmØ pilot holes through two skins of aluminium.



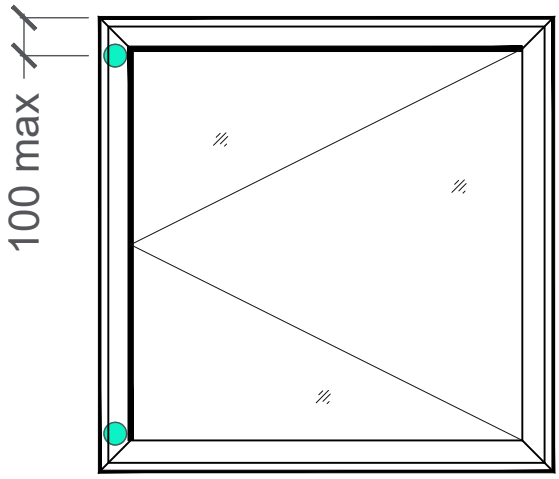
Open up holes to 10mmØ, 11mmØ & 10mmØ on external skin of aluminium

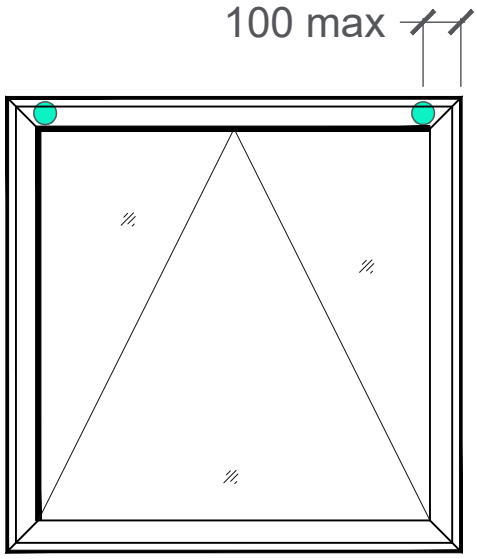
Fabrication

Hinge Protector required for PAS24

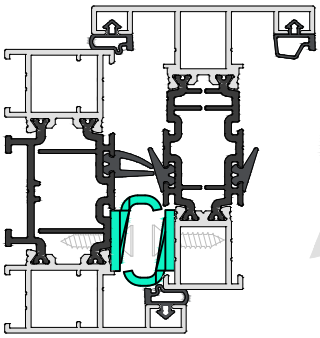
Key

Hinge Protector: APW.HAR.901

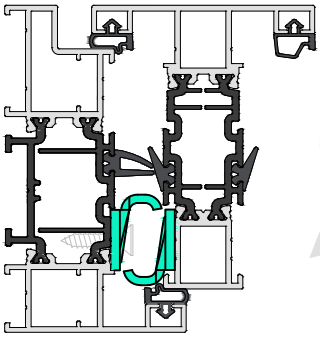




Side Hung

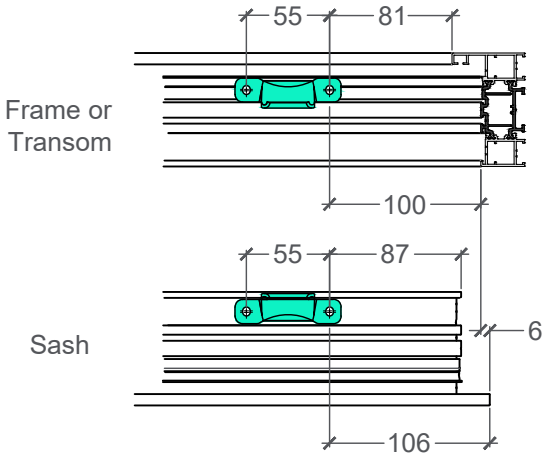


Standard
APX.SRS.048
APX.SRS.068
Frames

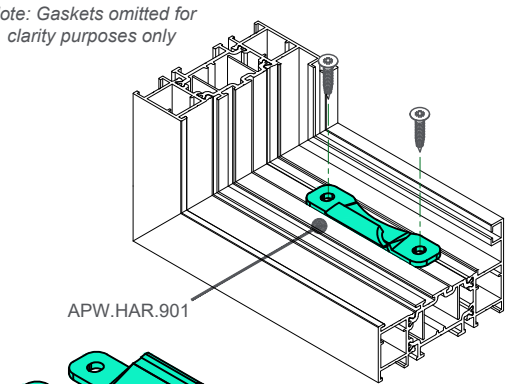


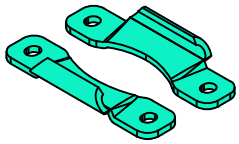
Flush
APW.SRF.048
Frames

Top Hung



Note: Gaskets omitted for clarity purposes only





APW.HAR.901

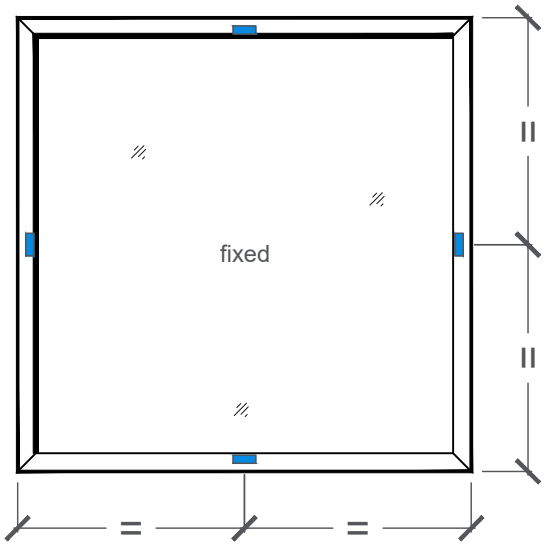
Screw hinge protectors (anti jemmy hooks) to the sash and hinged side profile with 4.2x16mm Countersunk screws

Fabrication

External Glazing Component required for PAS24

Key

GT Windows Securi Clip

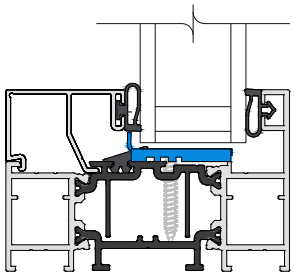


Note: None Alunet component, contact GT Window Products Ltd.

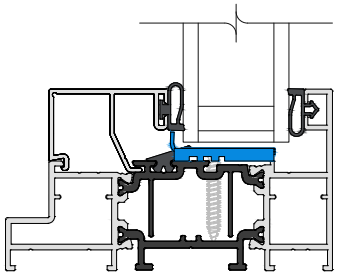
Unit 4203
Oakfield Close,
Tewkesbury
Business Park, Tewkesbury,
Glos GL20 8P

01684 290944

sales@gtwindowproducts.co.uk
support@gtwindowproducts.co.uk



Standard
APX.SRS.048
APX.SRS.068
Frames



Flush
APW.SRF.048
Frames

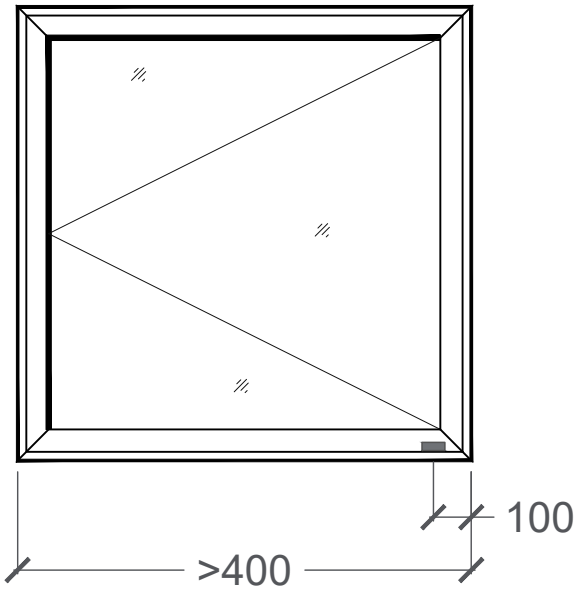
GT Windows Securi Clip

Baseplate: SB000
Clip: SC126
Packer: GT005

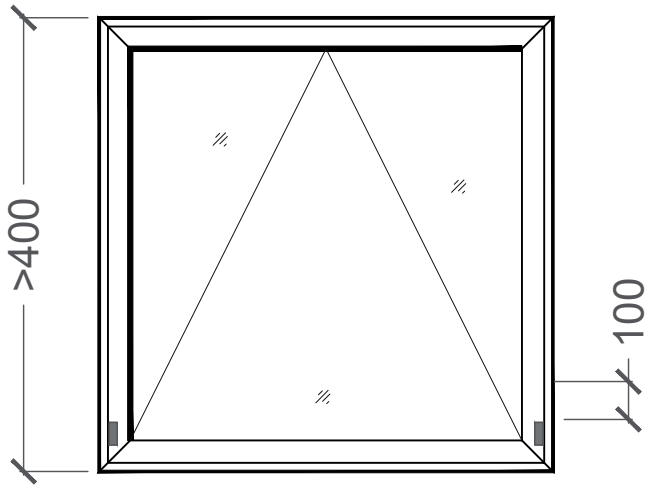
Fabrication
Run-Up Ramp Positioning

Key

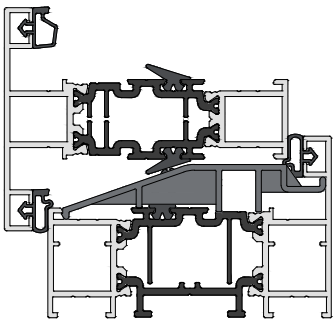
Run-up Ramp Positioning: APX.ANC.021



Side Hung

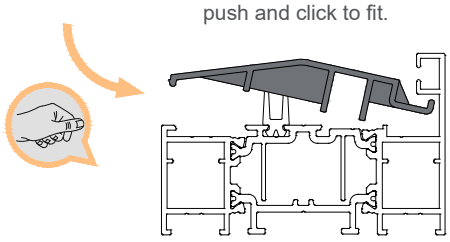


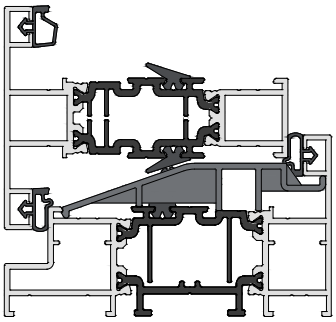
Top Hung



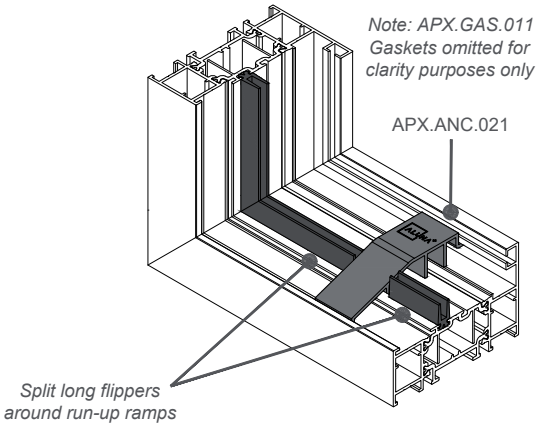
Standard
APX.SRS.048
APX.SRS.068
Frames

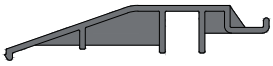
Locate and rotate into position, push and click to fit.





Flush
APW.SRF.048
Frames



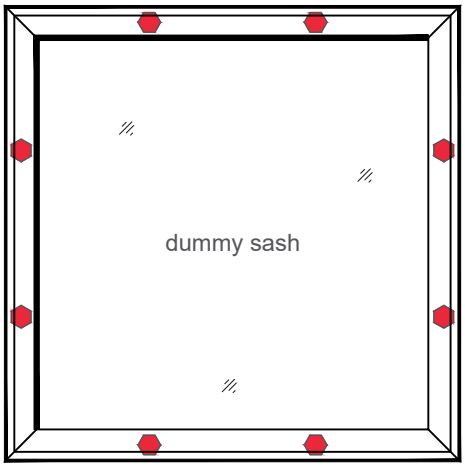


APX.ANC.021

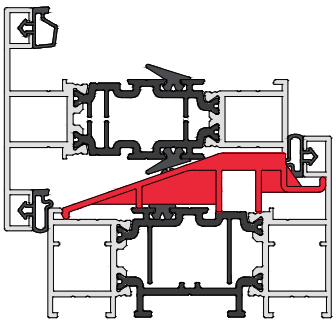
Fabrication
Dummy Sash Packer

Key

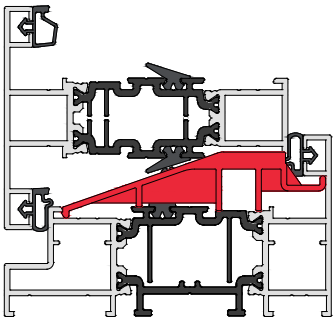
Dummy Sash Packer Positioning: APW.ANC.011



Dummy Sash

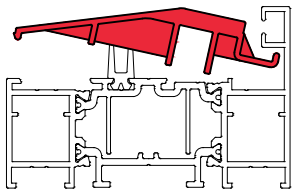


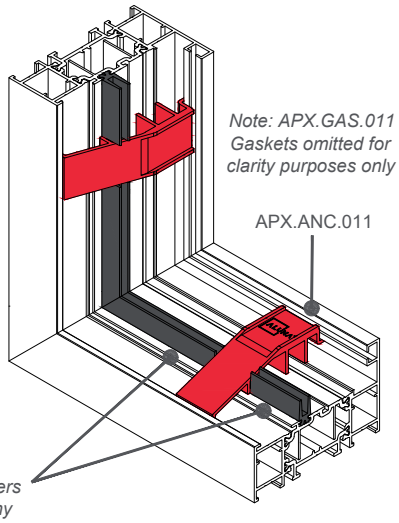
Standard
APX.SRS.048
APX.SRS.068
Frames



Flush
APW.SRF.048
Frames

Locate and rotate into position, push and click to fit.

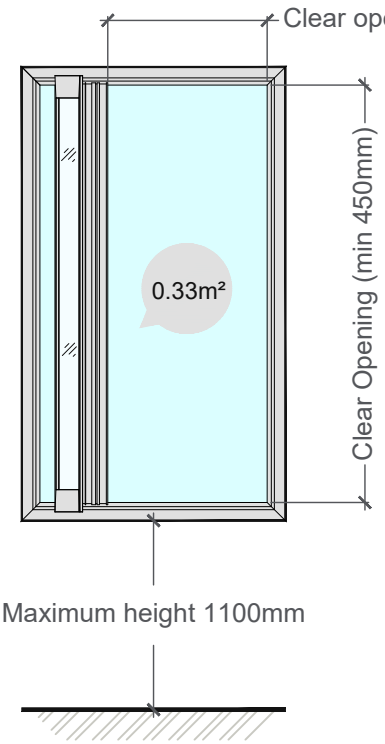




APW.ANC.011

Section: 4.39

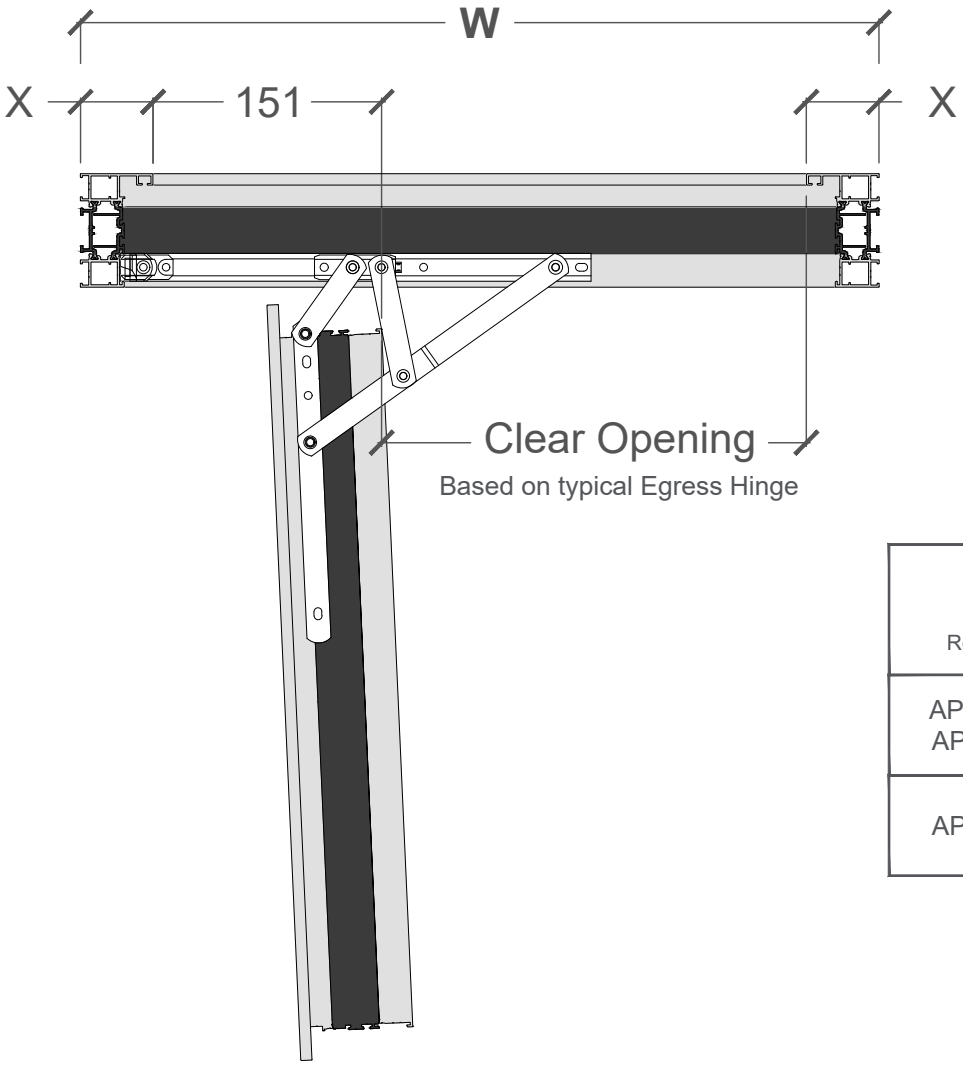
TECHNICAL
Clear Opening Widths - Casements



Means of escape Guidance:

Part B of the Building Regulations outlines the requirements for fire safety in buildings – in short, new and replacement windows in habitable rooms must have suitably sized window openings to provide emergency escape.

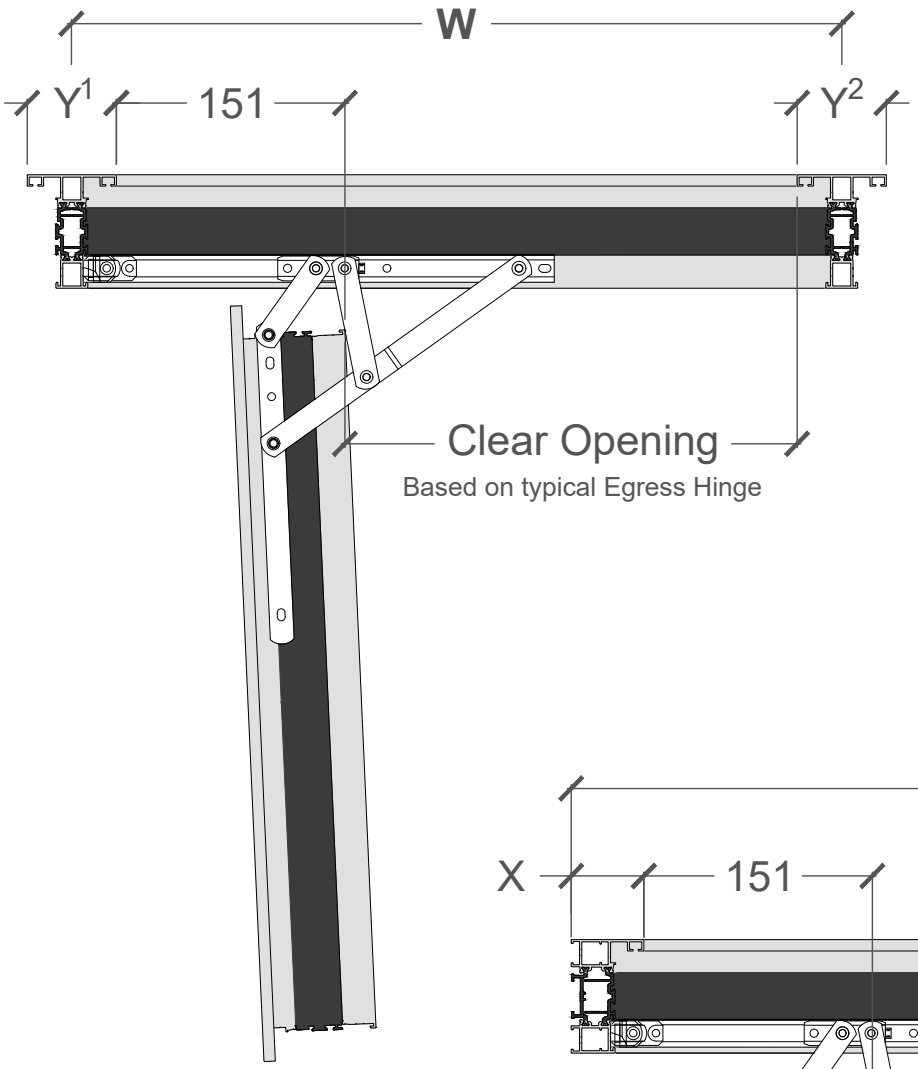
The openable area in such a window must be at least 0.33 m² and at least 450 mm high or wide.



Clear Opening Between Frames

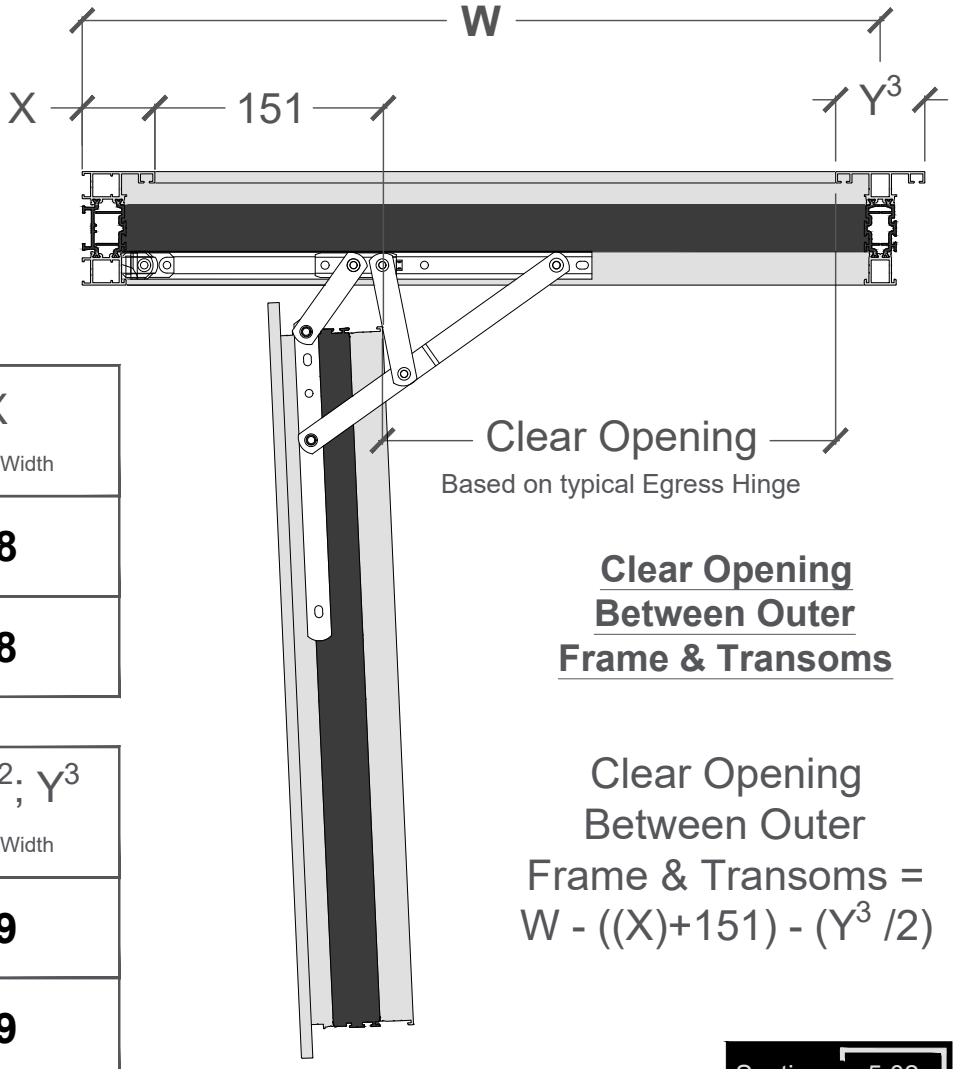
Clear Opening Between Outer Frames = W - ((X)+151) - (X)

Rebate Profile	X Frame Width
APW.SRF.048 APX.SRS.048	**48**
APX.SRS.068	**68**



Clear Opening Between Transoms

Clear Opening Between Transoms = $W - ((Y^1/2)+151) - (Y^2/2)$



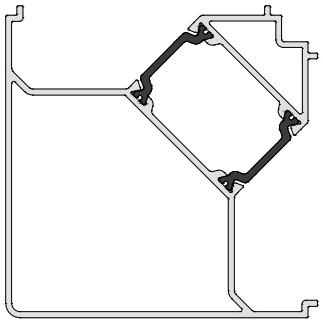
Rebate Profile	X Frame Width
APW.SRF.048 APX.SRS.048	**48**
APX.SRS.068	**68**

Rebate Profile	Y^1; Y^2; Y^3 Frame Width
APX.DRT.059	**59**
APX.DRT.079	**79**

Clear Opening Between Outer Frame & Transoms

Clear Opening Between Outer Frame & Transoms = $W - ((X)+151) - (Y^3/2)$

TECHNICAL
End Loading Calculations - Corner Post



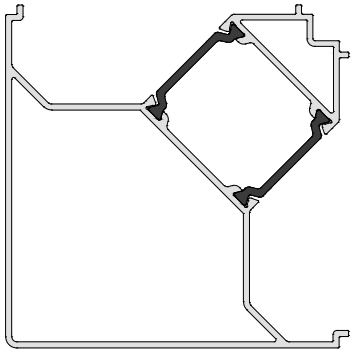
ID Ref: **ACW81.776**
Description: CORNER MULLION

Area: 630.7mm²

Least radius of gyration: 28.2521mm

Max allowable stress: 24N/mm²

Pole length	Effective length (70%)	Slenderness ratio	Max stress	Load	
1500 mm	**1050** mm	**37**	**73.2** N/mm²	**46169** N	**4.71** Tonnes
1600 mm	**1120** mm	**40**	**72.4** N/mm²	**45665** N	**4.66** Tonnes
1700 mm	**1190** mm	**42**	**70.8** N/mm²	**44656** N	**4.55** Tonnes
1800 mm	**1260** mm	**45**	**69.6** N/mm²	**43899** N	**4.48** Tonnes
1900 mm	**1330** mm	**47**	**67.8** N/mm²	**42763** N	**4.36** Tonnes
2000 mm	**1400** mm	**50**	**66.6** N/mm²	**42007** N	**4.28** Tonnes
2100 mm	**1470** mm	**52**	**65.2** N/mm²	**41124** N	**4.19** Tonnes
2200 mm	**1540** mm	**55**	**64.4** N/mm²	**40619** N	**4.14** Tonnes
2300 mm	**1610** mm	**57**	**63.6** N/mm²	**40114** N	**4.09** Tonnes
2400 mm	**1680** mm	**59**	**62.4** N/mm²	**39357** N	**4.01** Tonnes
2500 mm	**1750** mm	**62**	**61.5** N/mm²	**38790** N	**3.96** Tonnes
2600 mm	**1820** mm	**64**	**60** N/mm²	**37844** N	**3.86** Tonnes
2700 mm	**1890** mm	**67**	**59** N/mm²	**37213** N	**3.79** Tonnes
2800 mm	**1960** mm	**69**	**57.5** N/mm²	**36267** N	**3.70** Tonnes
2900 mm	**2030** mm	**72**	**55.6** N/mm²	**35636** N	**3.63** Tonnes
3000 mm	**2100** mm	**74**	**55** N/mm²	**34690** N	**3.54** Tonnes



ID Ref: **ACW81.771**
Description: CORNER POST

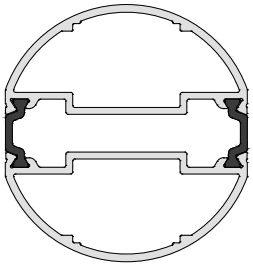
Area: 677.1mm²

Least radius of gyration: 31.3816mm

Max allowable stress: 24N/mm²

Pole length	Effective length (70%)	Slenderness ratio	Max stress	Load	
1500 mm	**1050** mm	**33**	**74.8** N/mm²	**50648** N	**5.16** Tonnes
1600 mm	**1120** mm	**36**	**74** N/mm²	**50106** N	**5.11** Tonnes
1700 mm	**1190** mm	**38**	**73.2** N/mm²	**49564** N	**5.05** Tonnes
1800 mm	**1260** mm	**40**	**72** N/mm²	**48752** N	**4.97** Tonnes
1900 mm	**1330** mm	**42**	**70.8** N/mm²	**47939** N	**4.89** Tonnes
2000 mm	**1400** mm	**45**	**69.6** N/mm²	**47127** N	**4.81** Tonnes
2100 mm	**1470** mm	**47**	**68.4** N/mm²	**46314** N	**4.2** Tonnes
2200 mm	**1540** mm	**49**	**66.6** N/mm²	**45095** N	**4.6** Tonnes
2300 mm	**1610** mm	**51**	**65.6** N/mm²	**44418** N	**4.53** Tonnes
2400 mm	**1680** mm	**54**	**64.8** N/mm²	**43877** N	**4.47** Tonnes
2500 mm	**1750** mm	**56**	**64** N/mm²	**43335** N	**4.42** Tonnes
2600 mm	**1820** mm	**58**	**63.2** N/mm²	**42793** N	**4.36** Tonnes
2700 mm	**1890** mm	**60**	**62** N/mm²	**41981** N	**4.28** Tonnes
2800 mm	**1960** mm	**62**	**61** N/mm²	**41304** N	**4.21** Tonnes
2900 mm	**2030** mm	**65**	**60** N/mm²	**40627** N	**4.14** Tonnes
3000 mm	**2100** mm	**67**	**59** N/mm²	**39949** N	**4.07** Tonnes

TECHNICAL
End Loading Calculations - Bay Pole



ID Ref: **APW.BAY.011**
Description: BAY POLE 1

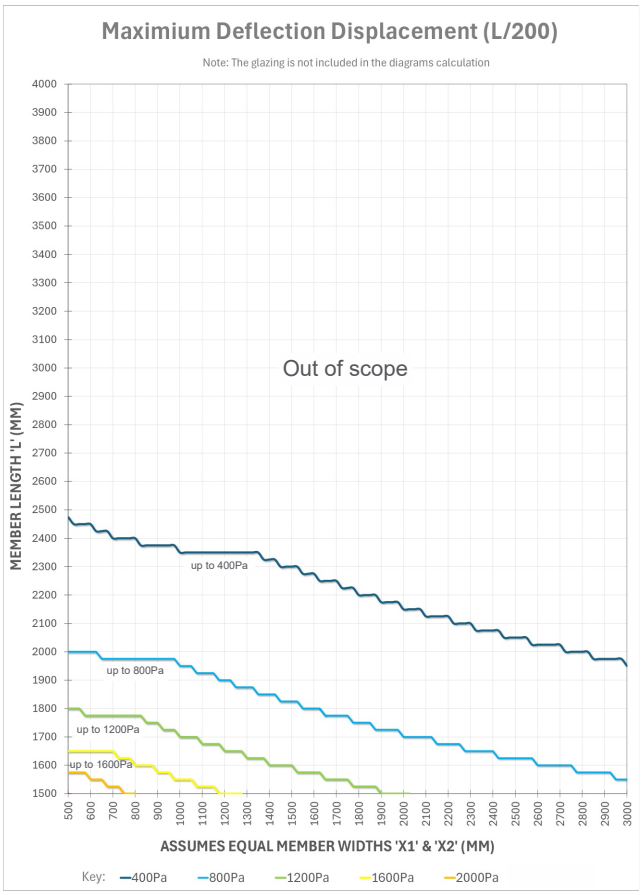
Area: 651.3mm²

Least radius of gyration: 19.6687mm

Max allowable stress: 24N/mm²

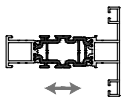
Pole length	Effective length (70%)	Slenderness ratio	Max stress	Load	
1500 mm	**1050** mm	**53**	**64.8** N/mm²	**42203** N	**4.3** Tonnes
1600 mm	**1120** mm	**57**	**63.6** N/mm²	**41421** N	**4.22** Tonnes
1700 mm	**1190** mm	**61**	**62** N/mm²	**40379** N	**4.12** Tonnes
1800 mm	**1260** mm	**64**	**60** N/mm²	**39077** N	**3.98** Tonnes
1900 mm	**1330** mm	**68**	**58.5** N/mm²	**38100** N	**3.88** Tonnes
2000 mm	**1400** mm	**71**	**56.5** N/mm²	**36797** N	**3.75** Tonnes
2100 mm	**1470** mm	**75**	**55** N/mm²	**35820** N	**3.65** Tonnes
2200 mm	**1540** mm	**78**	**53** N/mm²	**34518** N	**3.52** Tonnes
2300 mm	**1610** mm	**82**	**51** N/mm²	**33215** N	**3.39** Tonnes
2400 mm	**1680** mm	**85**	**47** N/mm²	**30610** N	**3.12** Tonnes
2500 mm	**1750** mm	**89**	**44** N/mm²	**28656** N	**2.92** Tonnes
2600 mm	**1820** mm	**93**	**40.4** N/mm²	**26311** N	**2.68** Tonnes
2700 mm	**1890** mm	**96**	**37.2** N/mm²	**24227** N	**2.47** Tonnes
2800 mm	**1960** mm	**100**	**34.8** N/mm²	**22664** N	**2.31** Tonnes
2900 mm	**2030** mm	**103**	**32.5** N/mm²	**21166** N	**2.16** Tonnes
3000 mm	**2100** mm	**107**	**31** N/mm²	**20189** N	**2.06** Tonnes

TECHNICAL
Max Deflection Displacement - 59mm Rebates



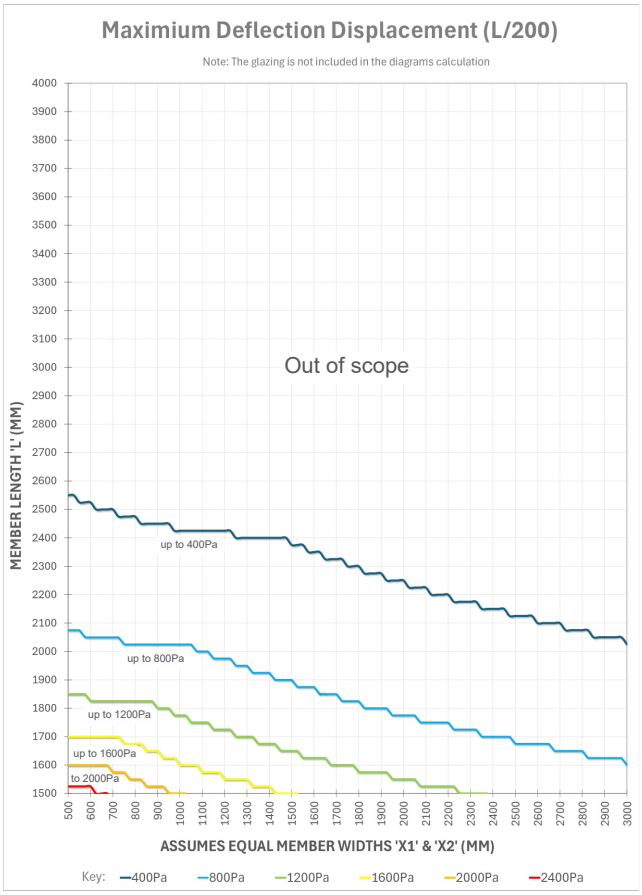
APX.DRT.059

ID Ref: **APX.DRT.059**
Description: 59MM DOUBLE REBATE T



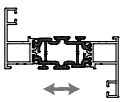
Iyy ← : 29.30cm^4 Elyy ← : 20.51E+9Nmm²

Wind loading graphs are for guidance purposes only, use Manufacturing Software for Structural analysis! Graphs show typical maximum lengths (with equal loading widths) in upto 6 diferent wind loading zone catagories. Note, glazing is not included in diagram calculations.



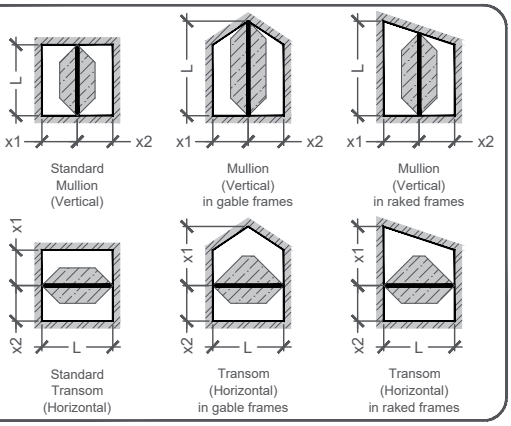
APW.DRZ.059

ID Ref: **APW.DRZ.059**
Description: 59MM DOUBLE REBATE Z



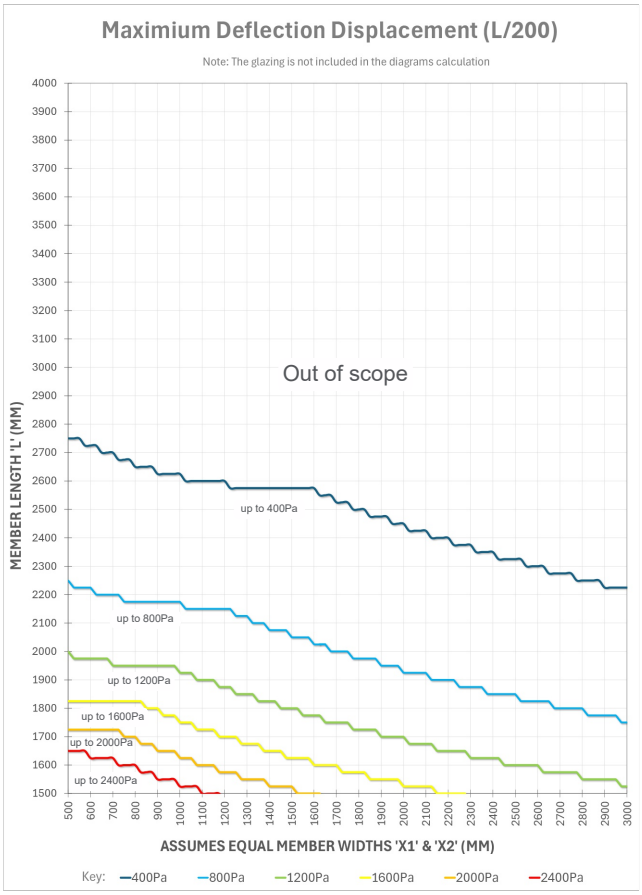
Iyy ← : 32.69cm^4 Elyy ← : 22.88E+9Nmm²

Assumed assessment methods



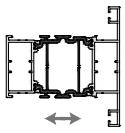
Section: 5.05

TECHNICAL
Max Deflection Displacement - 79mm Rebates



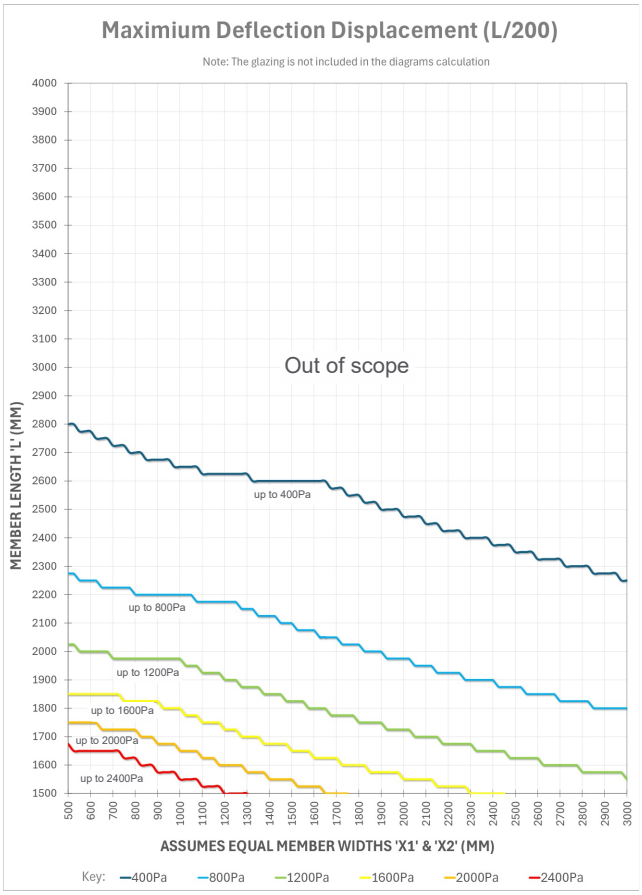
APX.DRT.079

ID Ref: **APX.DRT.079**
Description: 79MM DOUBLE REBATE T



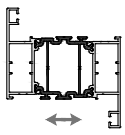
Iyy ← : 42.29cm^4 Elyy ← : 29.60E+9Nmm²

Wind loading graphs are for guidance purposes only, use Manufacturing Software for Structural analysis! Graphs show typical maximum lengths (with equal loading widths) in upto 6 diferent wind loading zone catagories. Note, glazing is not included in diagram calculations.



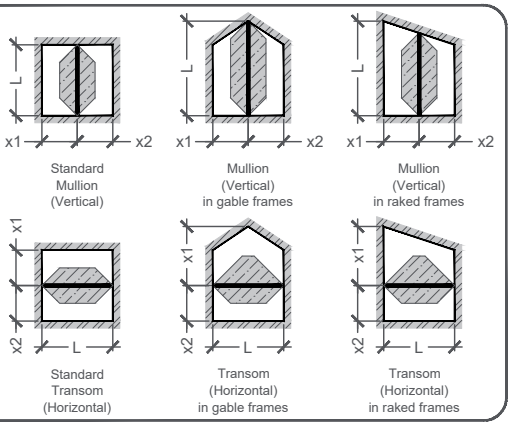
APW.DRZ.079

ID Ref: **APW.DRZ.079**
Description: 79MM DOUBLE REBATE Z



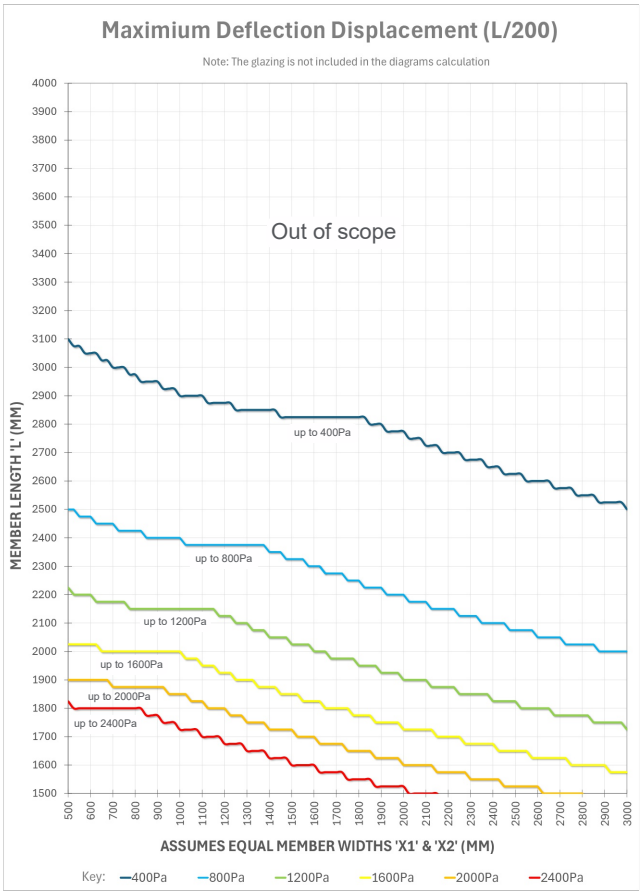
Iyy ← : 44.44cm^4 Elyy ← : 31.10E+9Nmm²

Assumed assessment methods



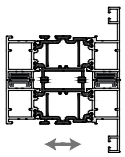
Section: 5.06

TECHNICAL
Max Deflection Displacement - Coupled Frames



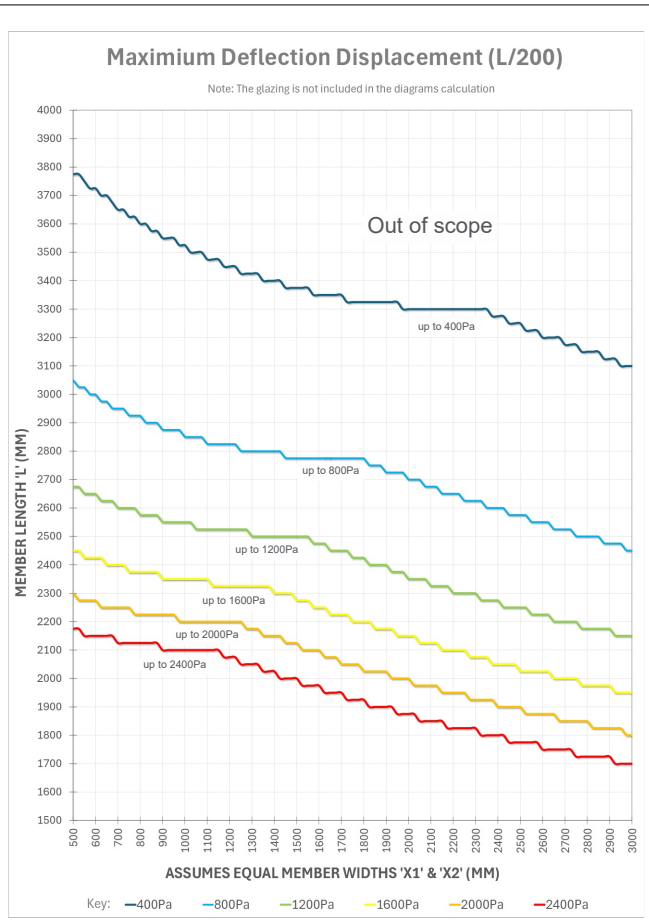
Coupled APX.SRS.048 frames

ID Ref: **APX.JNT.090**
Description: Connector block with APX.SRS.048 frames



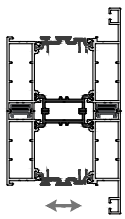
Iyy ← : 61.12cm^4 Elyy ← : 42.78E+9Nmm²

Wind loading graphs are for guidance purposes only, use Manufacturing Software for Structural analysis! Graphs show typical maximum lengths (with equal loading widths) in upto 6 diferent wind loading zone catagories. Note, glazing is not included in diagram calculations.



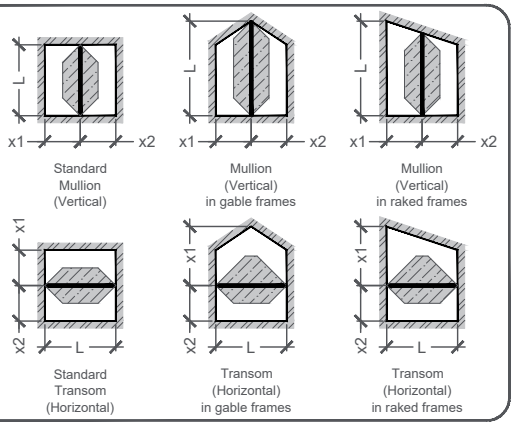
Coupled APX.SRS.068 frames

ID Ref: **APX.JNT.090**
Description: Connector block with APX.SRS.068 frames



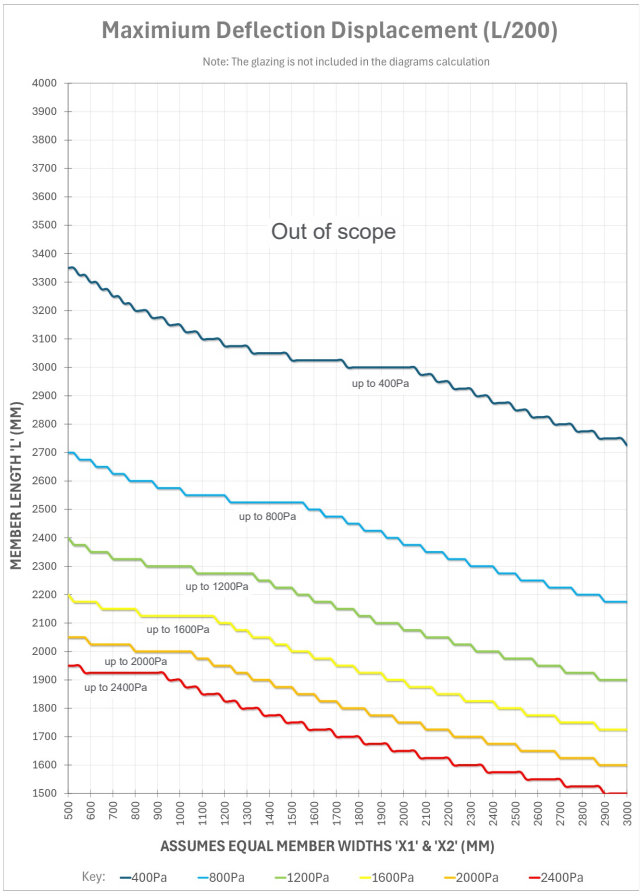
Iyy ← : 83.92cm^4 Elyy ← : 58.75E+9Nmm²

Assumed assessment methods



Section: 5.07

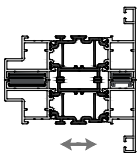
TECHNICAL
Max Deflection Displacement - Coupled Frames



Coupled APW.SRF.048 frames

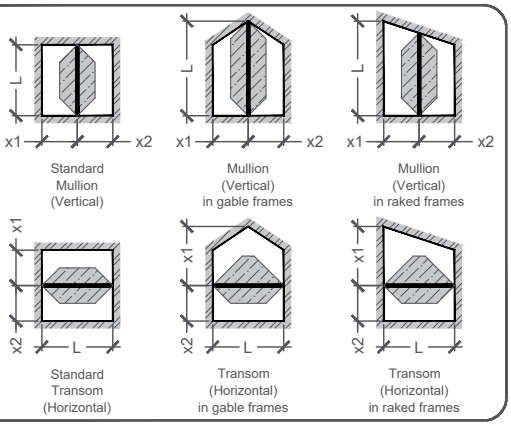
Wind loading graphs are for guidance purposes only, use Manufacturing Software for Structural analysis! Graphs show typical maximum lengths (with equal loading widths) in upto 6 diferent wind loading zone catagories. Note, glazing is not included in diagram calculations.

ID Ref: **APX.JNT.090**
Description: Connector block with APW.SRF.048 frames



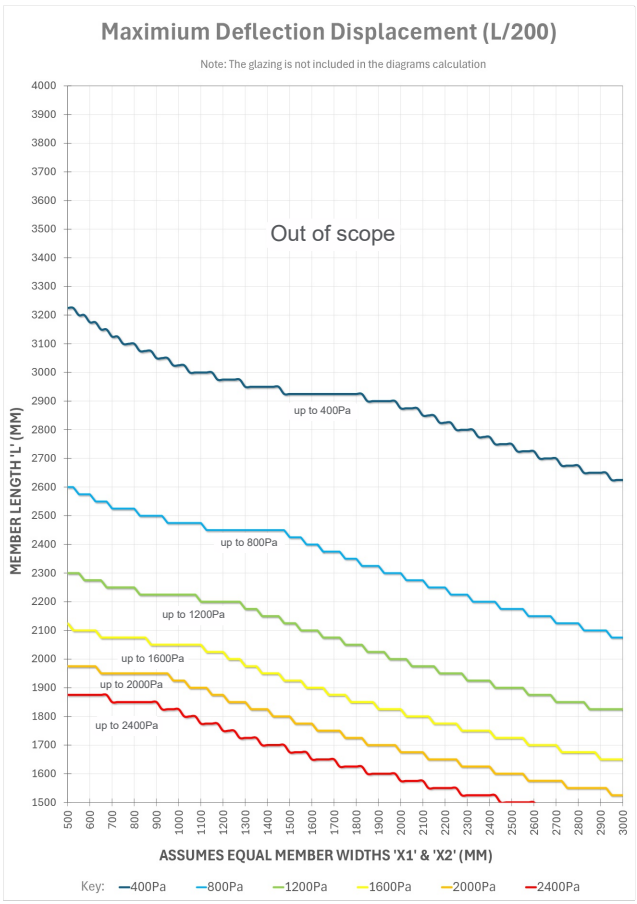
Iyy ← : 78.81cm^4 Elyy ← : 55.17E+9Nmm²

Assumed assessment methods



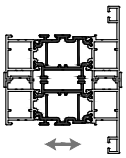
Section: 5.08

TECHNICAL
Max Deflection Displacement - T Coupler



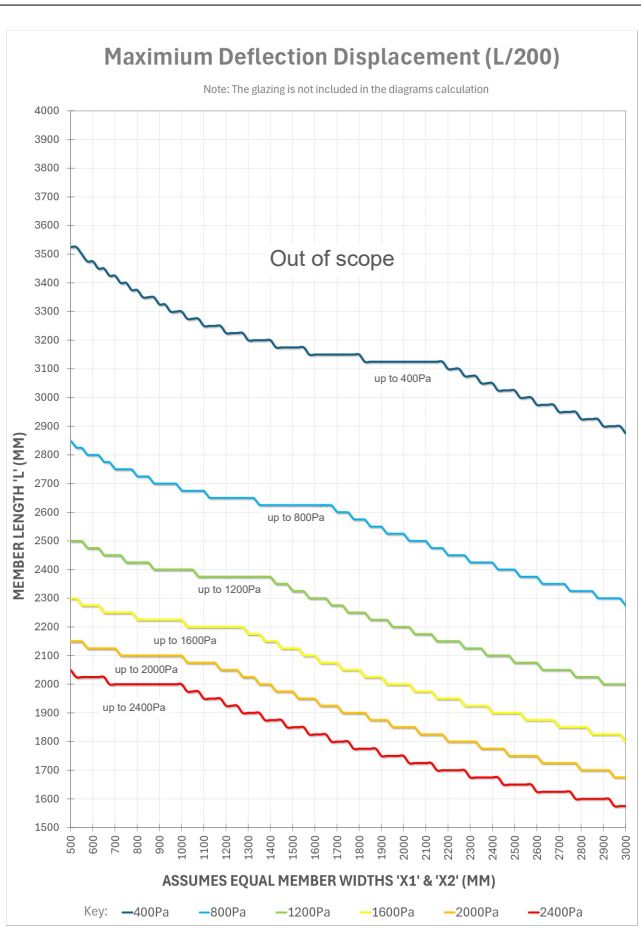
T Coupler with APX.SRS.048 frames

ID Ref: **APX.JNT.090**
Description: Connector block with APX.SRS.048 frames



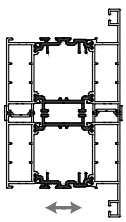
Iyy ← : 69.63cm^4 Elyy ← : 48.74E+9Nmm²

Wind loading graphs are for guidance purposes only, use Manufacturing Software for Structural analysis! Graphs show typical maximum lengths (with equal loading widths) in upto 6 diferent wind loading zone catagories. Note, glazing is not included in diagram calculations.



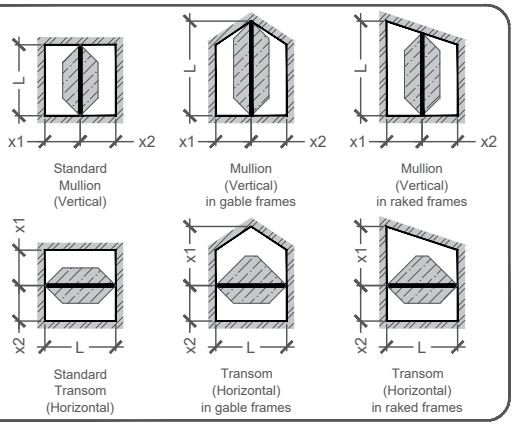
T Coupler with APX.SRS.068 frames

ID Ref: **APX.JNT.090**
Description: Connector block with APX.SRS.068 frames



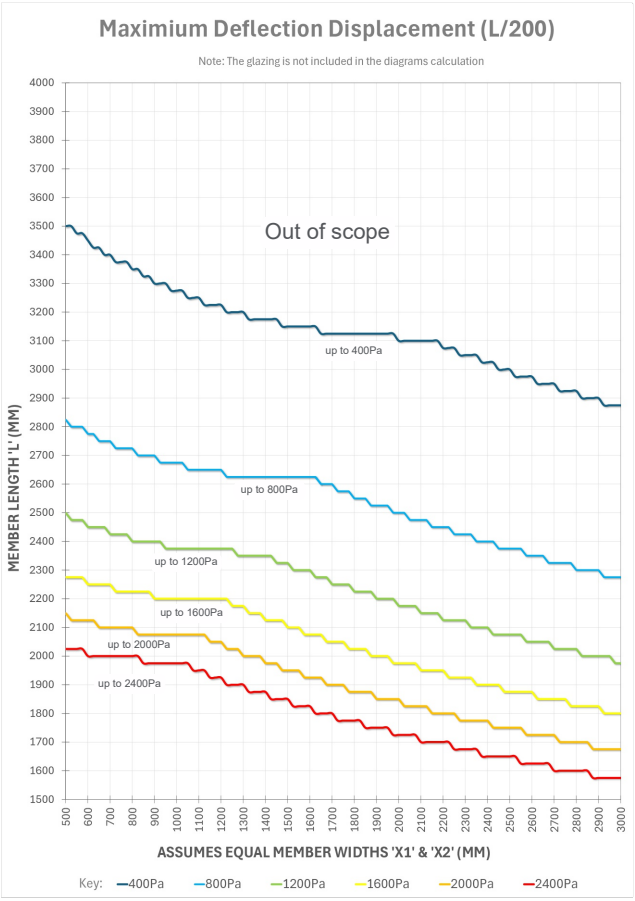
Iyy ← : 92.37cm^4 Elyy ← : 64.66E+9Nmm²

Assumed assessment methods



Section: 5.09

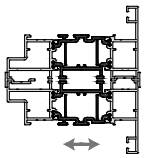
TECHNICAL
Max Deflection Displacement - T Coupler



T Coupler with APW.SRF.048 frames

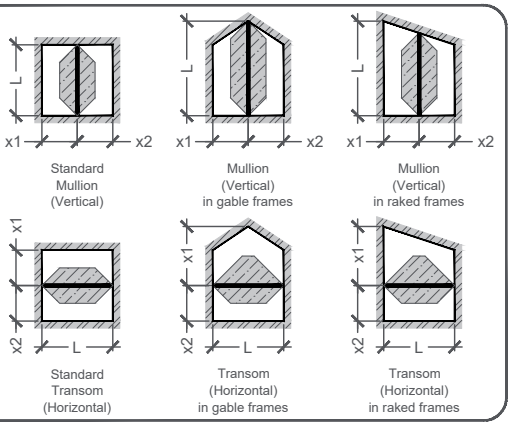
Wind loading graphs are for guidance purposes only, use Manufacturing Software for Structural analysis! Graphs show typical maximum lengths (with equal loading widths) in upto 6 diferent wind loading zone catagories. Note, glazing is not included in diagram calculations.

ID Ref: **APX.JNT.090**
Description: Connector block with APW.SRF.048 frames



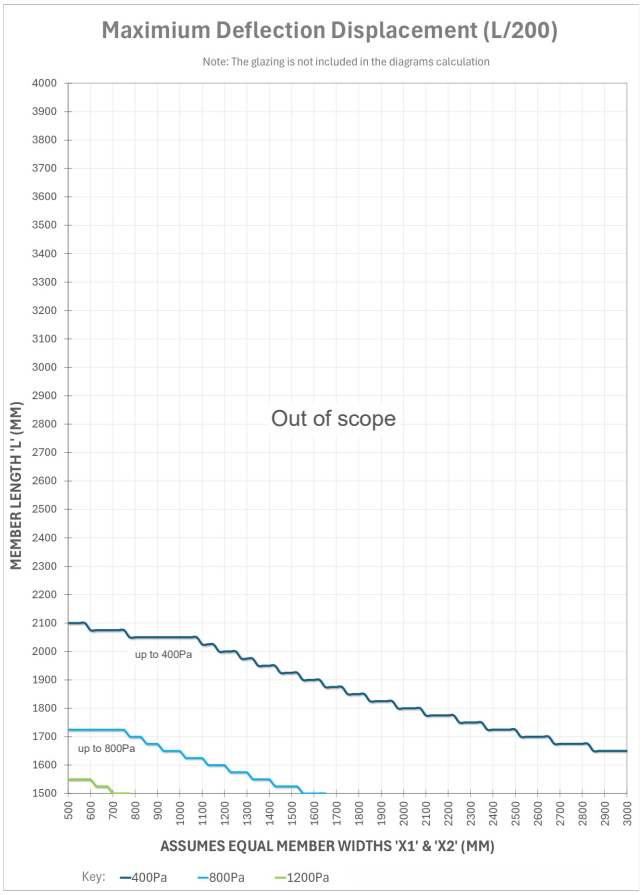
Iyy ← : 90.62cm^4 Elyy ← : 63.43E+9Nmm²

Assumed assessment methods



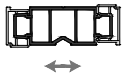
Section: 5.10

TECHNICAL
Max Deflection Displacement - 25mm Coupler



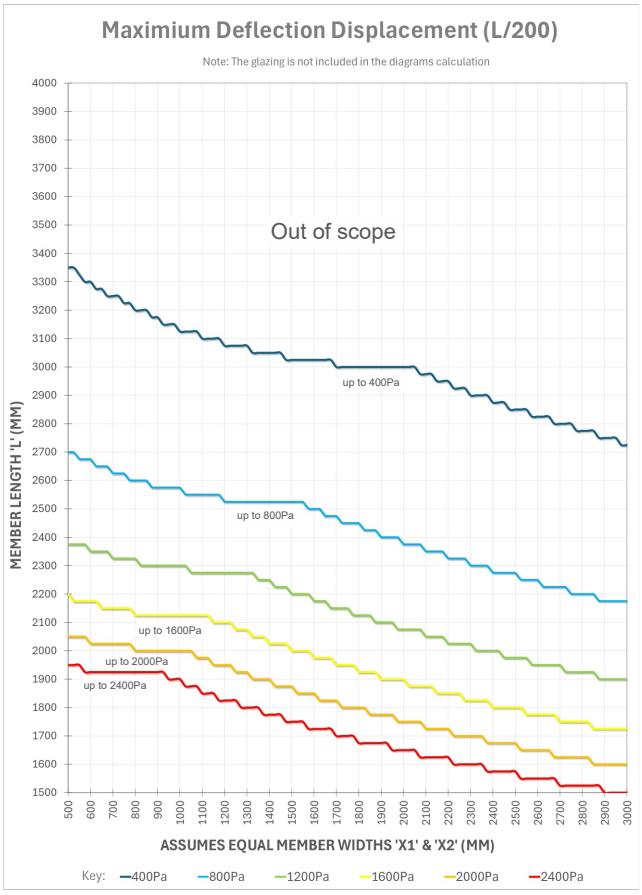
25mm Coupler (Thermal Core 1 - NO frames)

ID Ref: **APX.ANC.071 + APX.ANC.061 + APX.ANC.071**
Description: 25mm Coupler



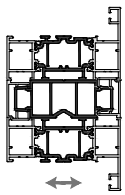
Iyy ← : 17.18cm^4 Elyy ← : 12.03E+9Nmm²

Wind loading graphs are for guidance purposes only, use Manufacturing Software for Structural analysis! Graphs show typical maximum lengths (with equal loading widths) in upto 6 diferent wind loading zone catagories. Note, glazing is not included in diagram calculations.



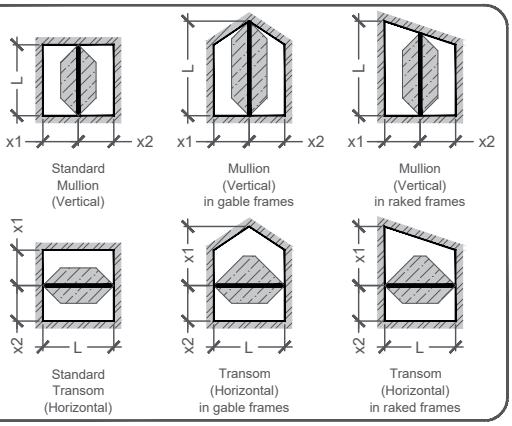
25mm Coupler with APX.SRS.048 frames

ID Ref: **APX.ANC.071 + APX.ANC.061 + APX.ANC.071**
Description: 25mm Coupler with APX.SRS.048 frames



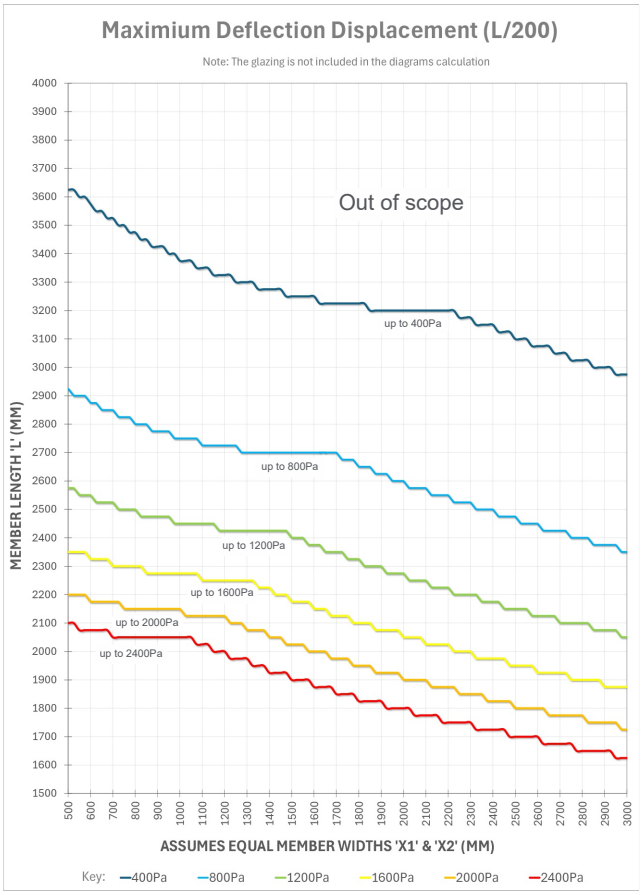
Iyy ← : 78.59cm^4 Elyy ← : 55.01E+9Nmm²

Assumed assessment methods



Section: 5.11

TECHNICAL
Max Deflection Displacement - 25mm Coupler

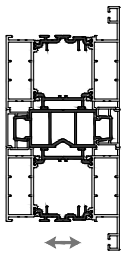


25mm Coupler with APX.SRS.068 frames

Wind loading graphs are for guidance purposes only, use Manufacturing Software for Structural analysis! Graphs show typical maximum lengths (with equal loading widths) in upto 6 diferent wind loading zone catagories. Note, glazing is not included in diagram calculations.

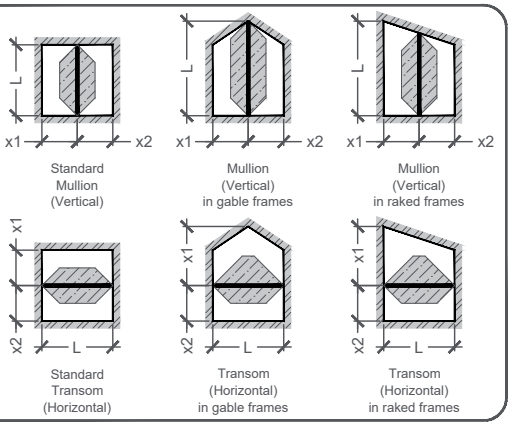
ID Ref: **APX.ANC.071 + APX.ANC.061 + APX.ANC.071**

Description: 25mm Coupler with APX.SRS.068 frames



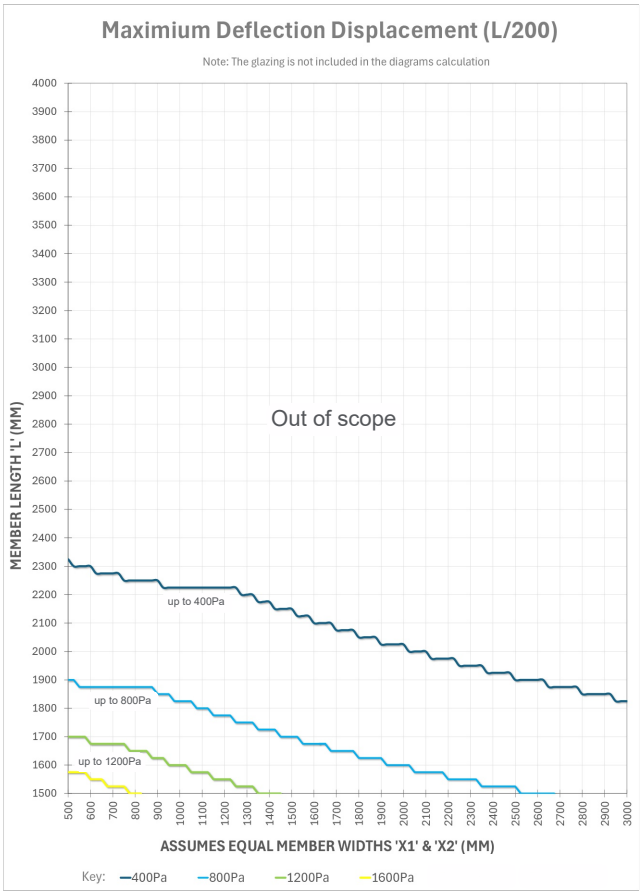
Iyy ← : 101.27cm^4 EIyy ← : 70.89E+9Nmm²

Assumed assessment methods



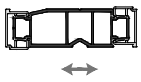
Section: 5.12

TECHNICAL
Max Deflection Displacement - 25mm Coupler



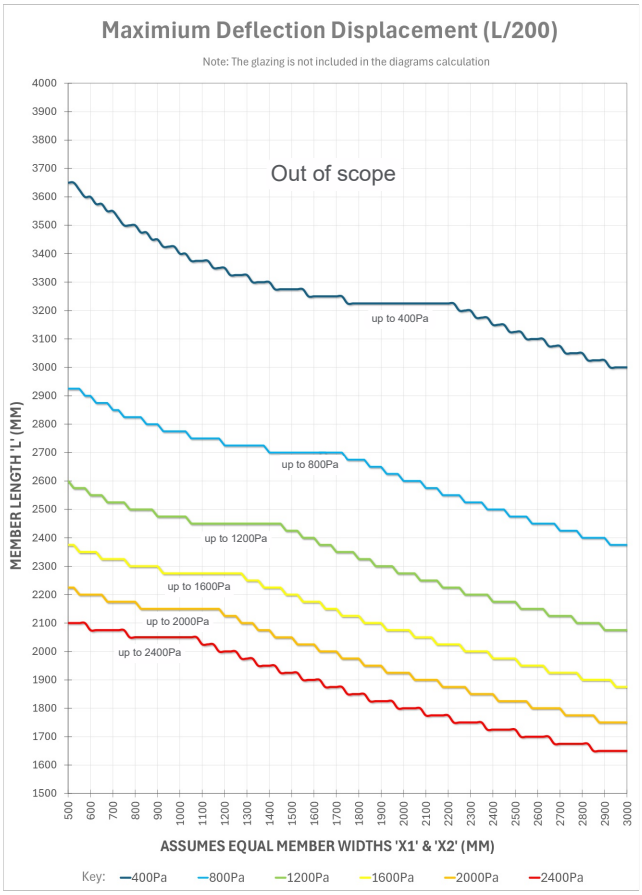
25mm Coupler (Thermal Core 2 - NO frames)

ID Ref: **APX.ANC.071 + APX.ANC.062 + APX.ANC.071**
Description: 25mm Coupler



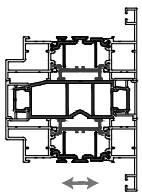
Iyy ← : 23.76cm^4 Elyy ← : 16.63E+9Nmm²

Wind loading graphs are for guidance purposes only, use Manufacturing Software for Structural analysis! Graphs show typical maximum lengths (with equal loading widths) in upto 6 diferent wind loading zone catagories. Note, glazing is not included in diagram calculations.



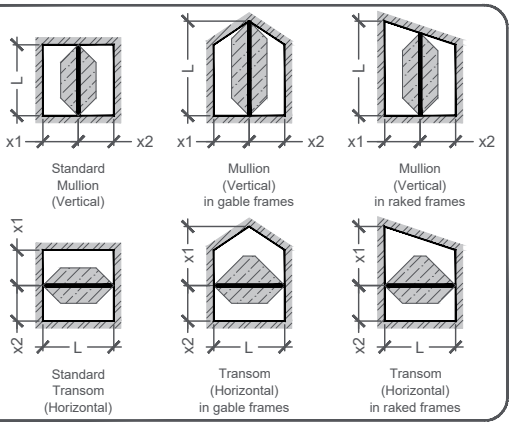
25mm Coupler with APW.SRF.048 frames

ID Ref: **APX.ANC.071 + APX.ANC.062 + APX.ANC.071**
Description: 25mm Coupler with APW.SRF.048 frames



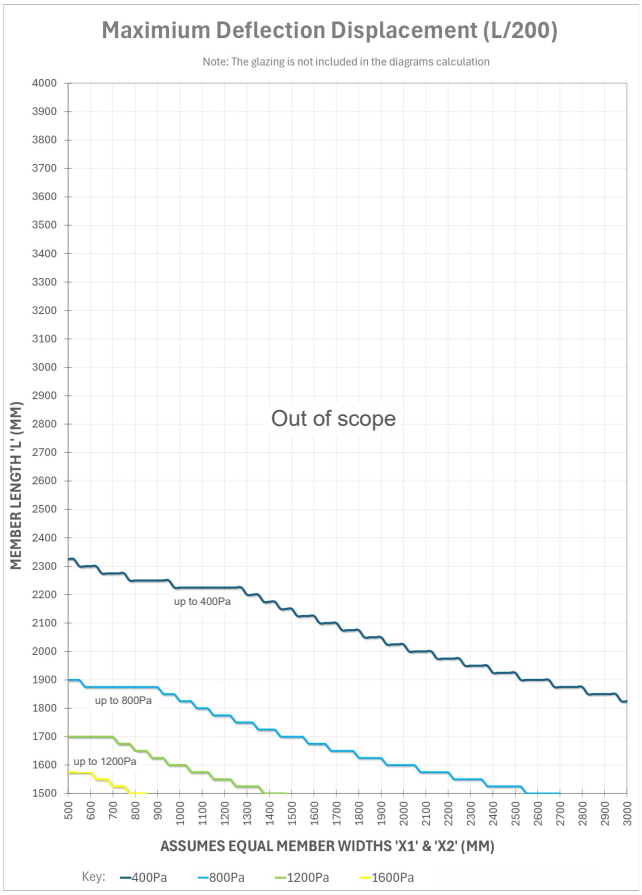
Iyy ← : 103.06cm^4 Elyy ← : 72.14E+9Nmm²

Assumed assessment methods



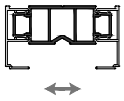
Section: 5.13

TECHNICAL
Max Deflection Displacement - 40mm Coupler



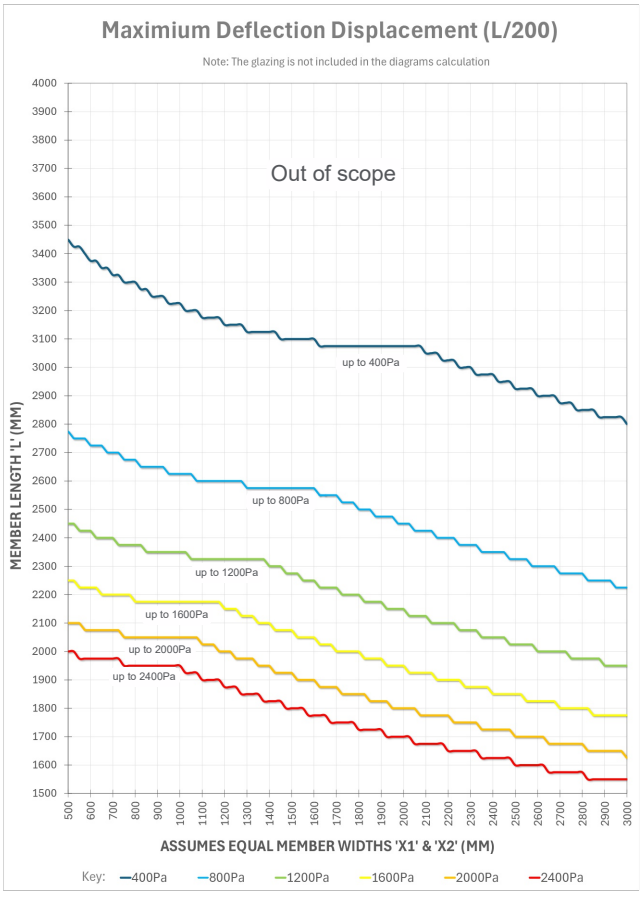
40mm Coupler (Thermal Core 1 - NO frames)

ID Ref: **APX.ANC.081 + APX.ANC.061 + APX.ANC.081**
Description: 40mm Coupler



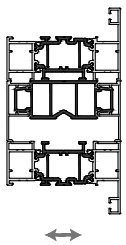
Iyy ← : 23.88cm^4 Elyy ← : 16.72E+9Nmm²

Wind loading graphs are for guidance purposes only, use Manufacturing Software for Structural analysis! Graphs show typical maximum lengths (with equal loading widths) in upto 6 diferent wind loading zone catagories. Note, glazing is not included in diagram calculations.



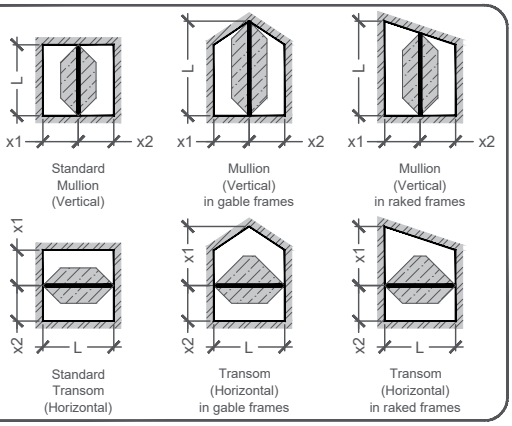
40mm Coupler with APX.SRS.048 frames

ID Ref: **APX.ANC.081 + APX.ANC.061 + APX.ANC.081**
Description: 40mm Coupler with APX.SRS.048 frames



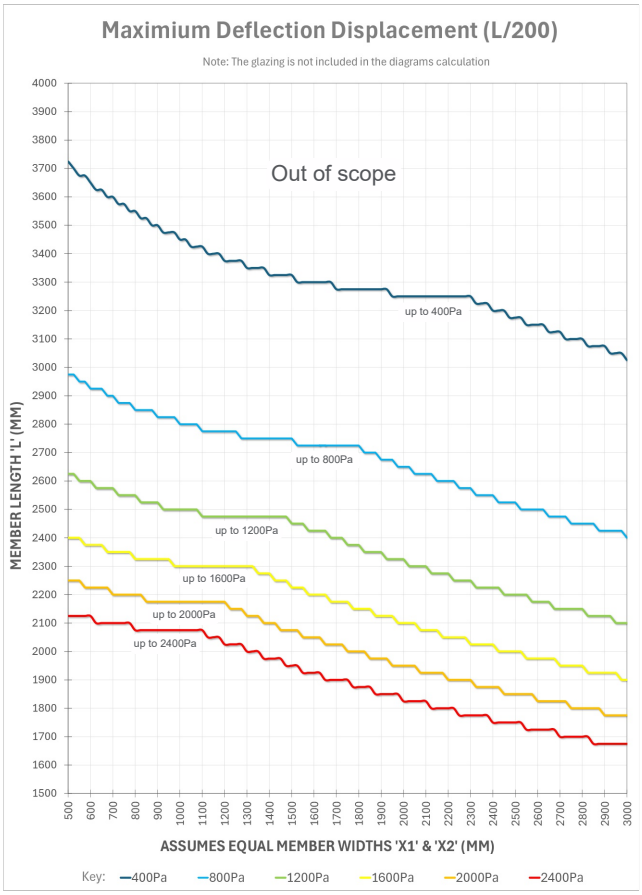
Iyy ← : 85.37cm^4 Elyy ← : 59.76E+9Nmm²

Assumed assessment methods



Section: 5.14

TECHNICAL
Max Deflection Displacement - 40mm Coupler

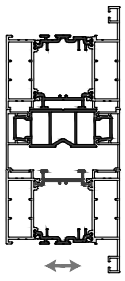


40mm Coupler with APX.SRS.068 frames

Wind loading graphs are for guidance purposes only, use Manufacturing Software for Structural analysis! Graphs show typical maximum lengths (with equal loading widths) in upto 6 diferent wind loading zone catagories. Note, glazing is not included in diagram calculations.

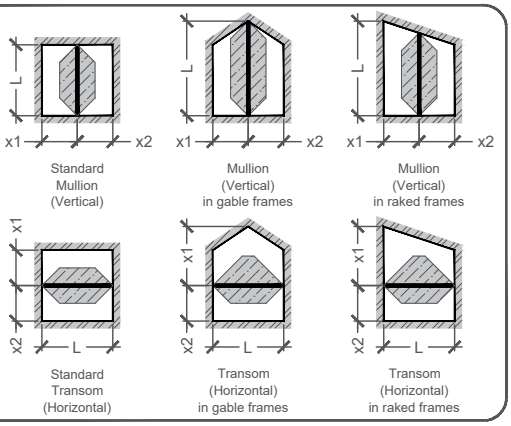
ID Ref: **APX.ANC.081 + APX.ANC.061 + APX.ANC.081**

Description: 40mm Coupler with APX.SRS.068 frames



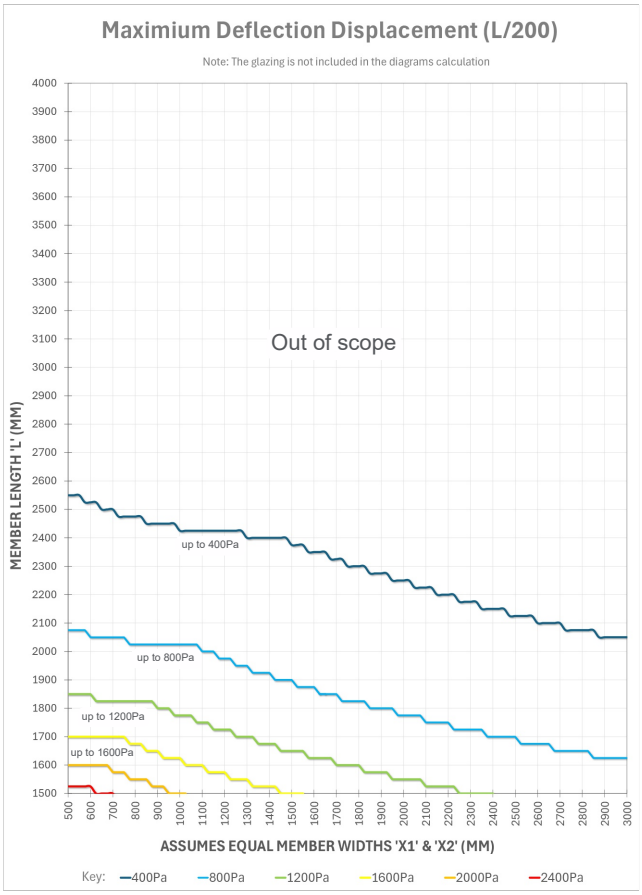
Iyy ← : 108.02cm^4 Elyy ← : 75.61E+9Nmm²

Assumed assessment methods



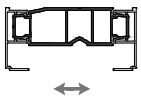
Section: 5.15

TECHNICAL
Max Deflection Displacement - 40mm Coupler



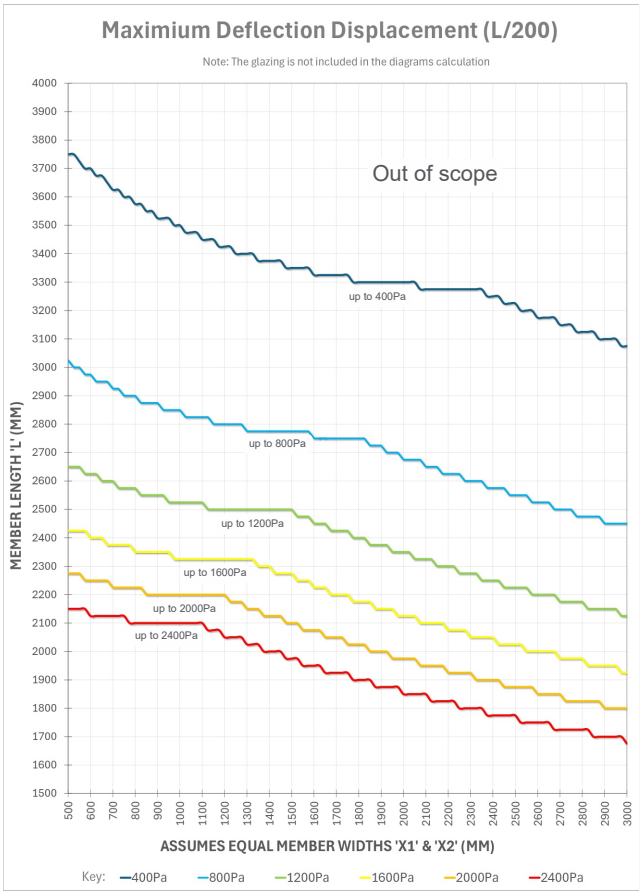
40mm Coupler (Thermal Core 2 - NO frames)

ID Ref: **APX.ANC.081 + APX.ANC.062 + APX.ANC.081**
Description: 40mm Coupler



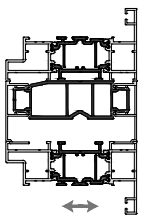
Iyy ← : 32.82cm^4 Elyy ← : 22.98E+9Nmm²

Wind loading graphs are for guidance purposes only, use Manufacturing Software for Structural analysis! Graphs show typical maximum lengths (with equal loading widths) in upto 6 diferent wind loading zone catagories. Note, glazing is not included in diagram calculations.



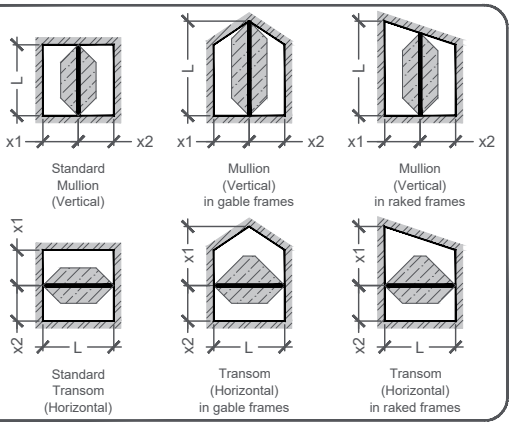
40mm Coupler with APW.SRF.048 frames

ID Ref: **APX.ANC.081 + APX.ANC.062 + APX.ANC.081**
Description: 40mm Coupler with APW.SRF.048 frames



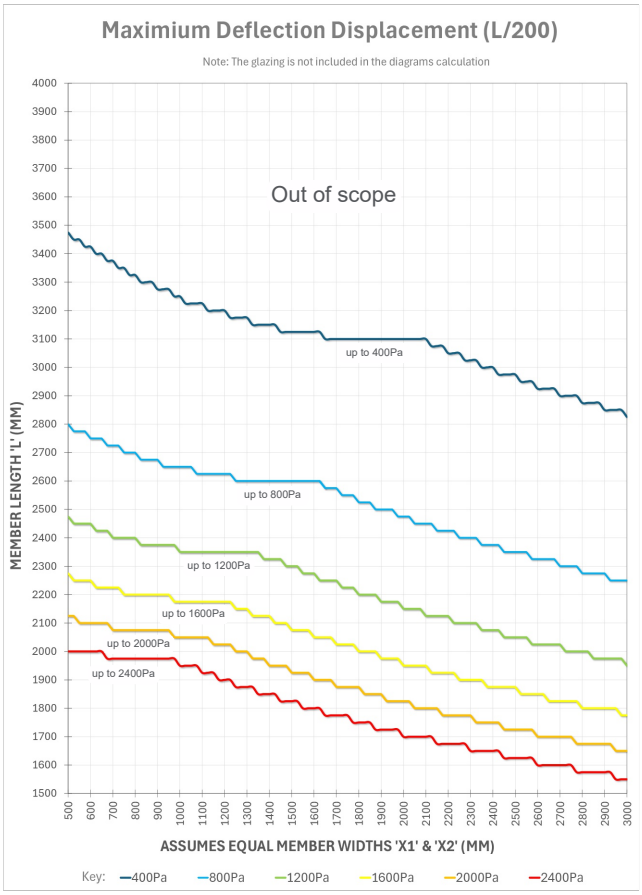
Iyy ← : 112.25cm^4 Elyy ← : 78.57E+9Nmm²

Assumed assessment methods



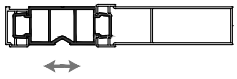
Section: 5.16

TECHNICAL
Max Deflection Displacement - HD Coupler



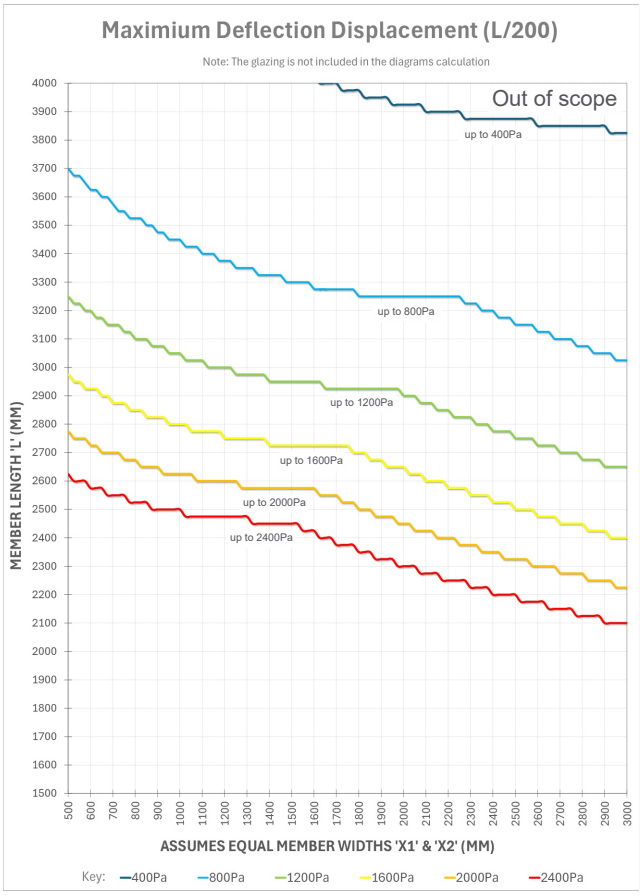
HD Coupler (Thermal Core 1 - NO frames)

ID Ref: **APX.ANC.071 + APX.ANC.061 + APX.ANC.091**
Description: HD Coupler



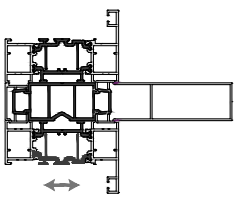
Iyy ← : 87.99cm^4 Elyy ← : 61.59E+9Nmm²

Wind loading graphs are for guidance purposes only, use Manufacturing Software for Structural analysis! Graphs show typical maximum lengths (with equal loading widths) in upto 6 diferent wind loading zone catagories. Note, glazing is not included in diagram calculations.



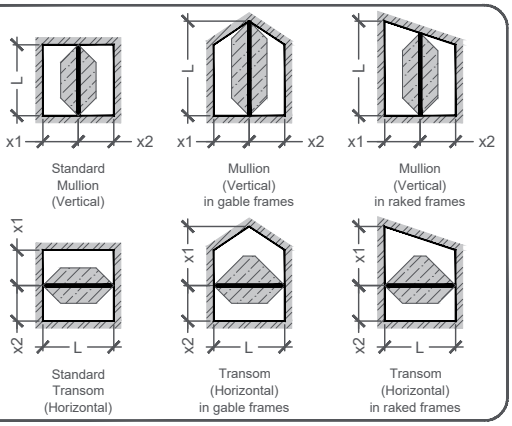
HD Coupler with APX.SRS.048 frames

ID Ref: **APX.ANC.071 + APX.ANC.061 + APX.ANC.091**
Description: HD Coupler with APX.SRS.048 frames



Iyy ← : 213.21cm^4 Elyy ← : 149.24E+9Nmm²

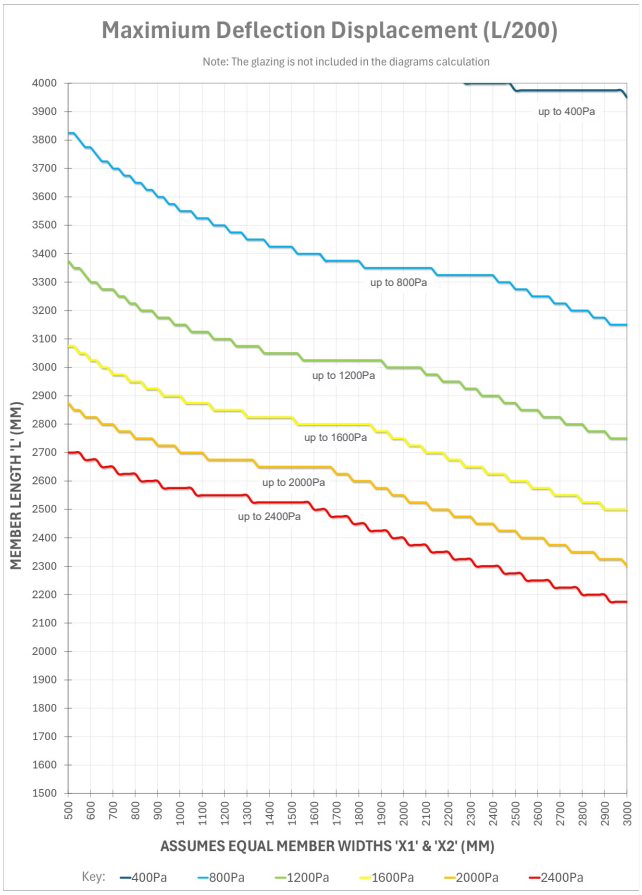
Assumed assessment methods



Section: 5.17

TECHNICAL

Max Deflection Displacement - HD Coupler

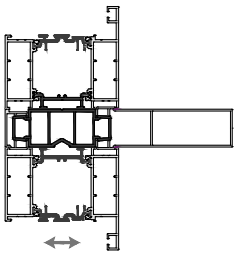


HD Coupler with APX.SRS.068 frames

Wind loading graphs are for guidance purposes only, use Manufacturing Software for Structural analysis! Graphs show typical maximum lengths (with equal loading widths) in upto 6 diferent wind loading zone catagories. Note, glazing is not included in diagram calculations.

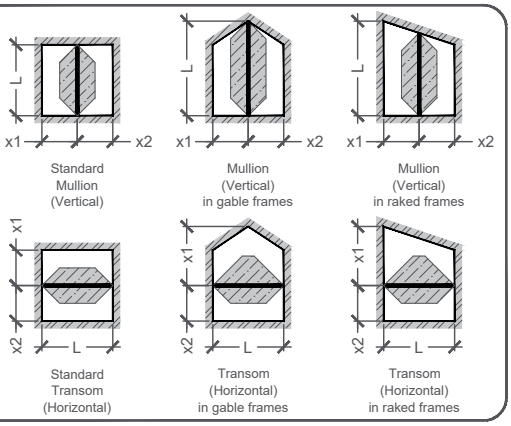
ID Ref: **APX.ANC.071 + APX.ANC.061 + APX.ANC.091**

Description: HD Coupler with APX.SRS.068 frames

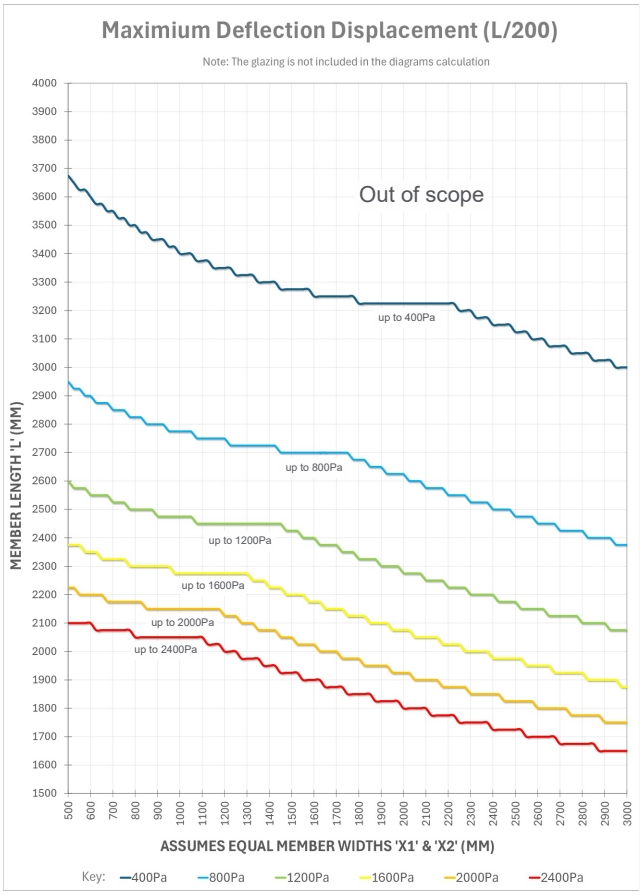


Iyy ← : 238.76cm^4 EIyy ← : 167.13E+9Nmm²

Assumed assessment methods

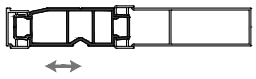


TECHNICAL
Max Deflection Displacement - HD Coupler



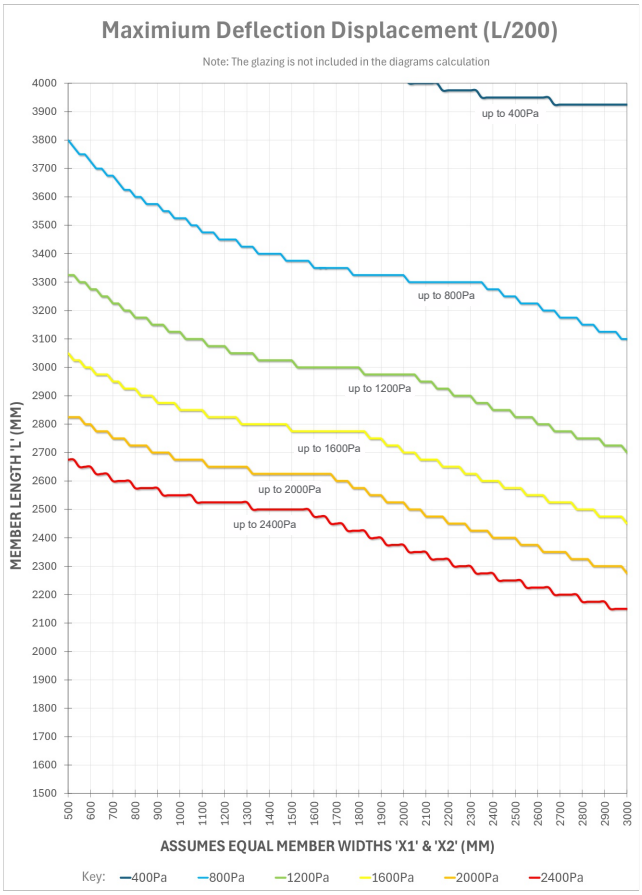
HD Coupler (Thermal Core 2 - NO frames)

ID Ref: **APX.ANC.071 + APX.ANC.062 + APX.ANC.091**
Description: HD Coupler



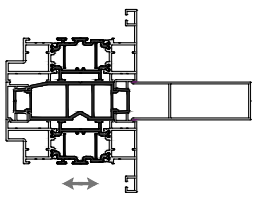
Iyy ← : 103.55cm^4 Elyy ← : 72.48E+9Nmm²

Wind loading graphs are for guidance purposes only, use Manufacturing Software for Structural analysis! Graphs show typical maximum lengths (with equal loading widths) in upto 6 diferent wind loading zone catagories. Note, glazing is not included in diagram calculations.



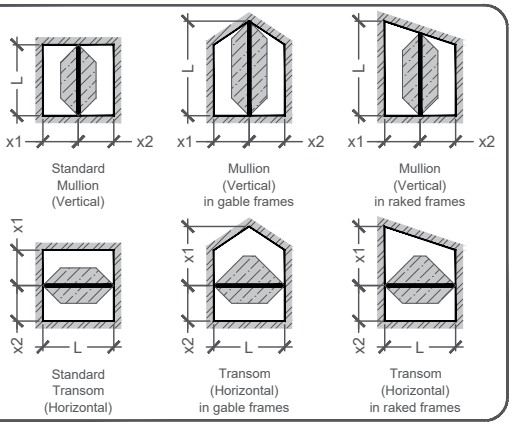
HD Coupler with APW.SRF.048 frames

ID Ref: **APX.ANC.071 + APX.ANC.062 + APX.ANC.091**
Description: HD Coupler with APW.SRF.048 frames



Iyy ← : 230.41cm^4 Elyy ← : 161.29E+9Nmm²

Assumed assessment methods



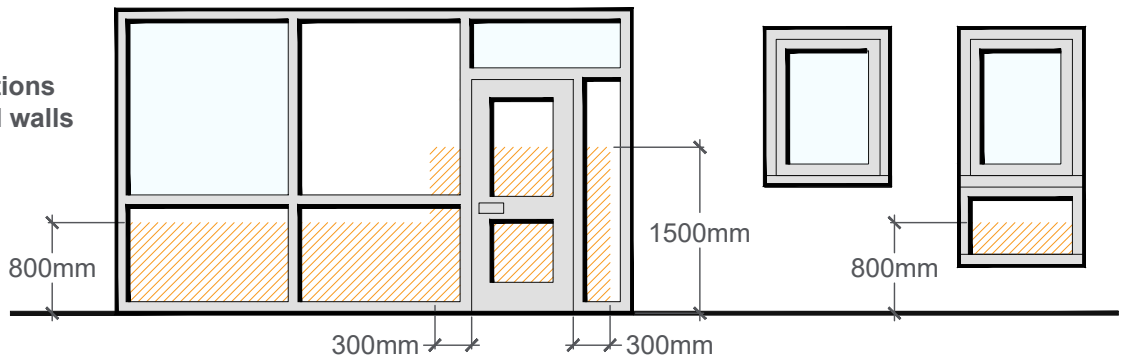
Section: 5.19

Section 6
Glazing

Safety Glazing

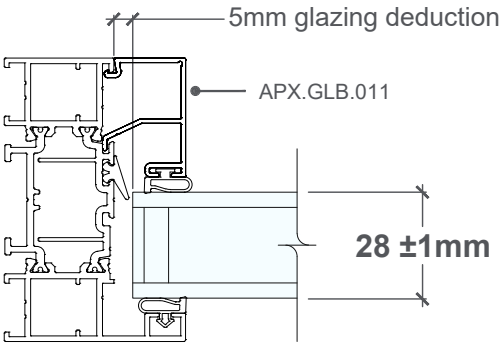
Safety glazing should be installed in critical locations. Low level glazing areas within 800mm of floor level, glazing in doors and within 300mm of door edges less than 1500mm above floor level should generally be of a type so that if broken, it will break safely. **In practice this means such glazing should be either laminated or toughened.** Ordinary glazing can still be used in small pane sizes however, provided the glass is sufficiently strong to resist breakage.

Critical glazing locations for Internal & External walls

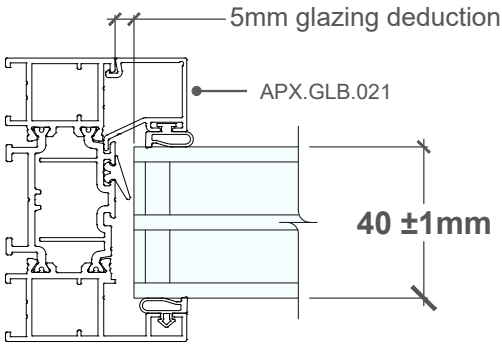


Glazed Unit Tolerances

Double Glazed Units

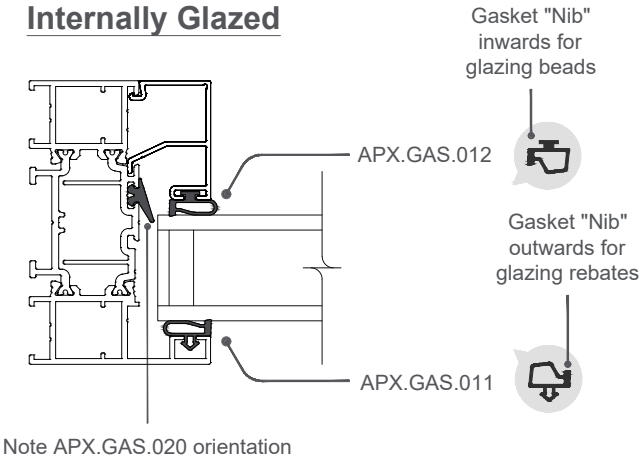


Triple Glazed Units

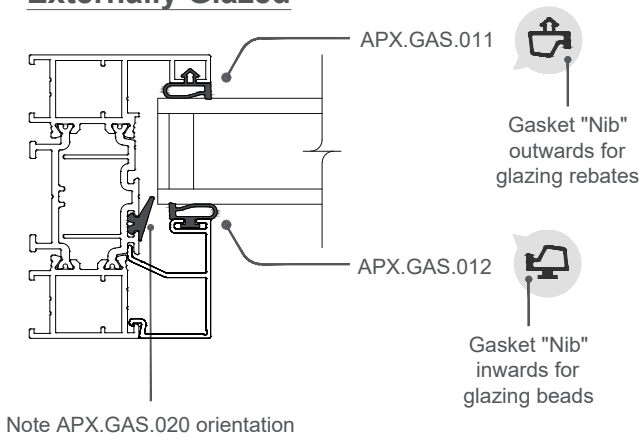


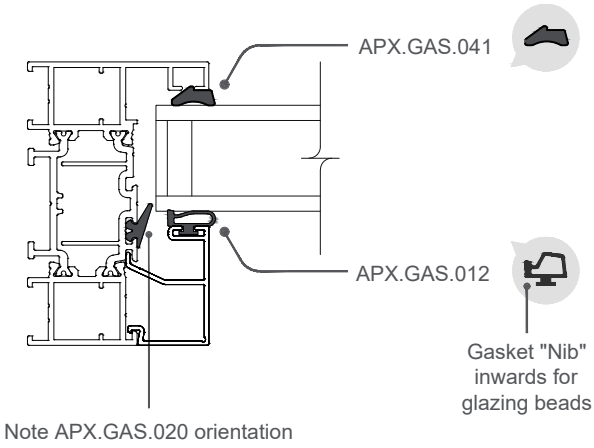
Glazing tolerance rules apply to all glazing applications

Internally Glazed

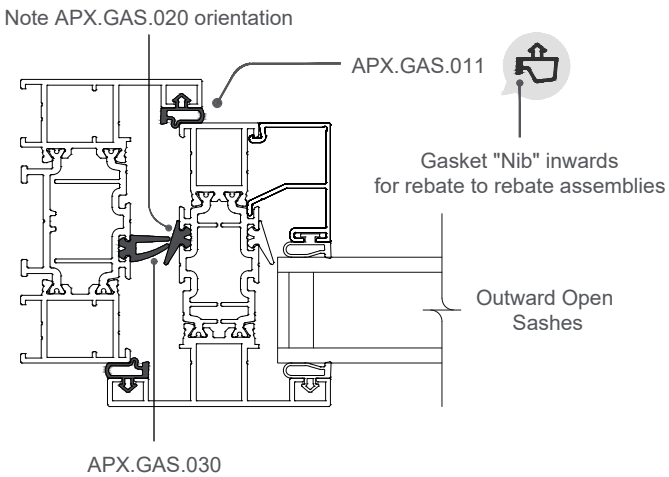


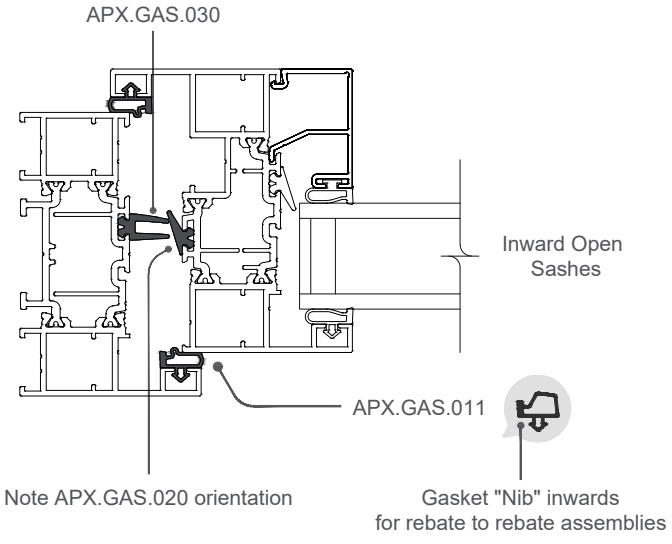
Externally Glazed



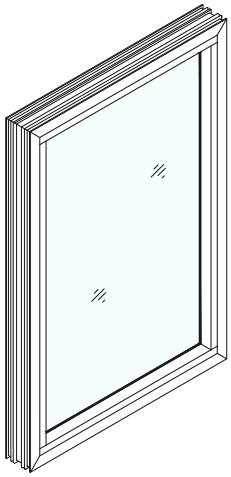


Rebated Profiles

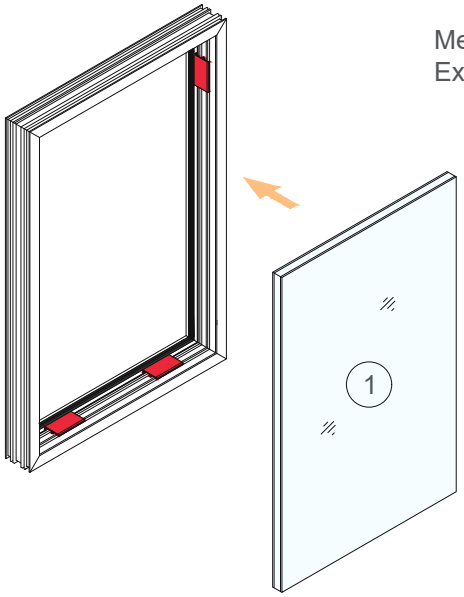




Glazing Practice, Bead Fitting & De-Glazing



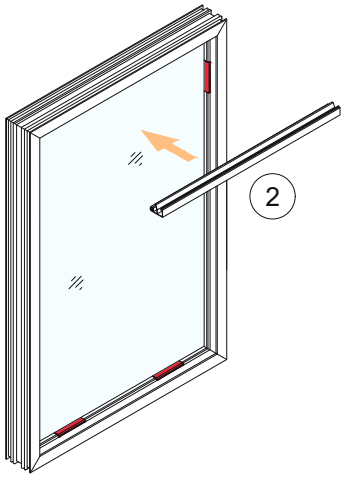
Recommended Glazing Practice



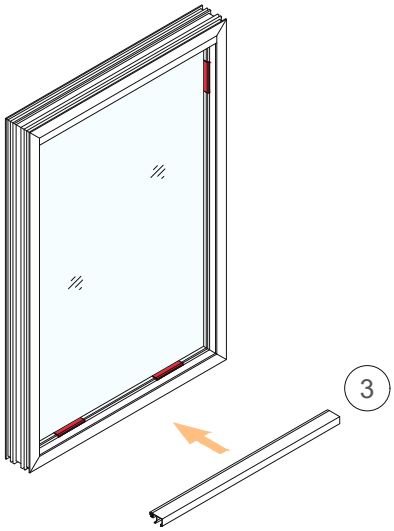
Method applies to Internally & Externally beaded applications

1.
Insert glazed unit into frame or sash.

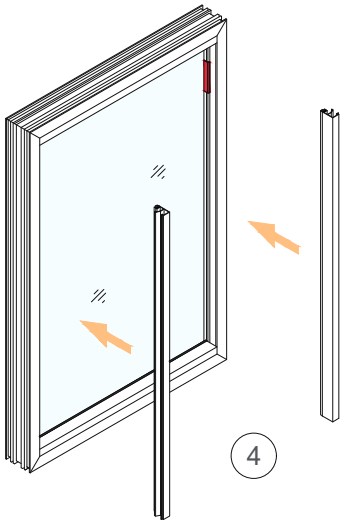
Spray around the edge perimeter of the unit with glass clear or mild soapy solution to assist beading applications.



2.
Fit top horizontal bead.

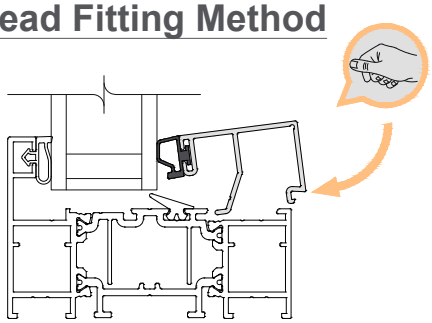


3.
Fit bottom horizontal bead (this bead will have drainage holes if externally beaded!).



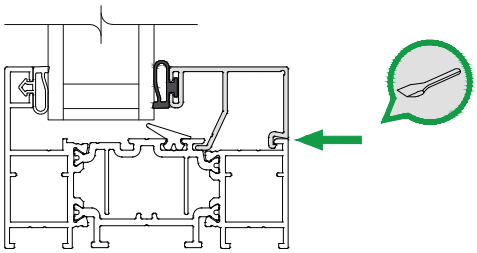
4.
Fit vertical beads.

Bead Fitting Method



Locate and rotate into position, push and click to fit.

De-Glazing Method

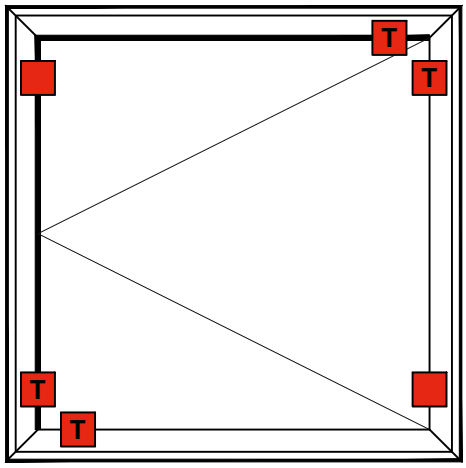


Using a plastic glazing spade, apply pressure between the bead and frame, remove bead and repeat process.

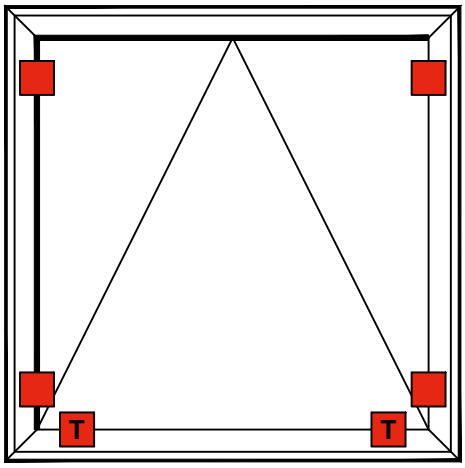
Glazing Platform Positioning for Toe & Heeling

Key

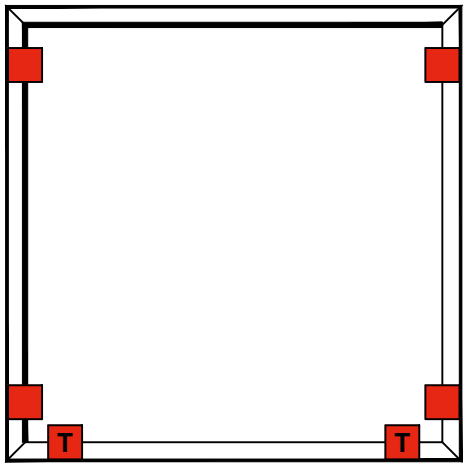
- Glazing Packer
- T Glazing Packer for Toe & Heeling Requirements



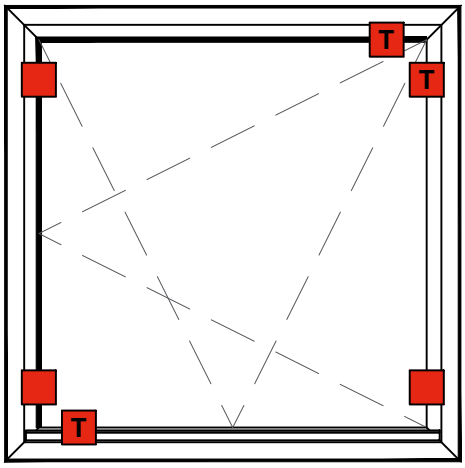
Side Hung



Top Hung

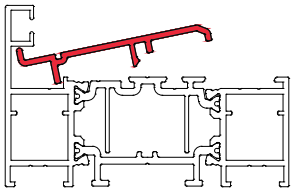


Fixed

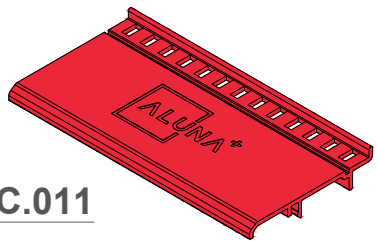


Tilt & Turn

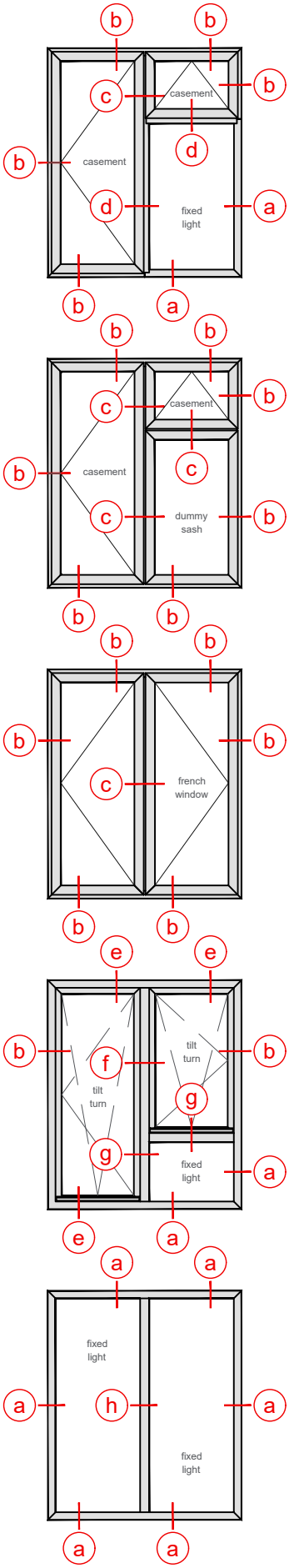
Packer Fitting Method



Locate and rotate into position, push and click to fit.



APX.ANC.011

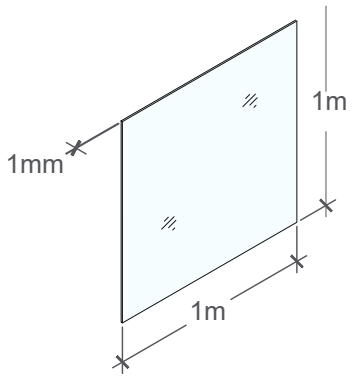


Glazing deductions

Ref ID	Drawing	Frame or Transom	Sash	Profile Sight line	Glazing Deduction
a	glass deduction / sight line	APW.SRF.048 APX.SRS.048	-	48	(48-14) 34
		APX.SRS.068	-	68	(68-14) 54
b	glass deduction / sight line	APW.SRF.048 APX.SRS.048	APX.DRT.059 APX.DRZ.059	(23+59) 82	(82-14) 68
			APX.DRT.079 APX.DRZ.079	(43+59) 102	(102-14) 88
		APX.SRS.068	APX.DRT.059 APX.DRZ.059	(43+59) 102	(102-14) 88
			APX.DRT.079 APX.DRZ.079	(63+59) 122	(122-14) 108
c	glass deduction / sight line	APX.DRT.059 APX.DRZ.059	APX.DRT.059 APX.DRZ.059	(59+9+59) 127	99
			APX.DRT.079 APX.DRZ.079	(79+9+79) 167	139
		APX.DRT.079 APX.DRZ.079	APX.DRT.059 APX.DRZ.059	(59+29+59) 147	119
			APX.DRT.079 APX.DRZ.079	(79+29+79) 187	159
d	glass deduction / sight line	APX.DRT.059 APX.DRZ.059	APX.DRT.059 APX.DRZ.059	(34+59) 93	(93-(14+14)) 65
			APX.DRT.079 APX.DRZ.079	(34+79) 113	85
		APX.DRT.079 APX.DRZ.079	APX.DRT.059 APX.DRZ.059	(54+59) 113	85
			APX.DRT.079 APX.DRZ.079	(54+79) 123	105
e	glass deduction / sight line	APW.SRF.048 APX.SRS.048	APW.TTS.064	(48+39) 87	(87-14) 73
		APX.SRS.068	APW.TTS.064	(68+39) 107	(107-14) 93
f	glass deduction / sight line	APX.DRT.059	APW.TTS.064	(39+59+39) 136	108
		APX.DRT.079	APW.TTS.064	(39+79+39) 156	128
g	glass deduction / sight line	APX.DRT.059	APW.TTS.064	(59+39) 98	(98-(14+14)) 70
		APX.DRT.079	APW.TTS.064	(79+39) 118	(118-(14+14)) 90
h	glass deduction / sight line	APX.DRT.059 APX.DRZ.059	-	59	(59-(14+14)) 31
		APX.DRT.079 APX.DRZ.079	-	79	(79-(14+14)) 51

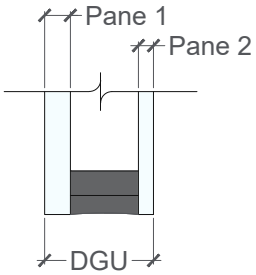
Custom Sash Weight Calculation

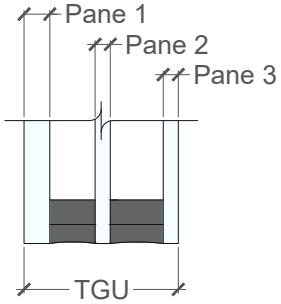
Custom sash weights are typically calculated by taking the overall area of the sash width & height, simply assuming that it was made entirely of glass.



To calculate the **Glazed Unit Weight** per m²:
Multiply the total glass thickness in mm's x 2.5kg/m²

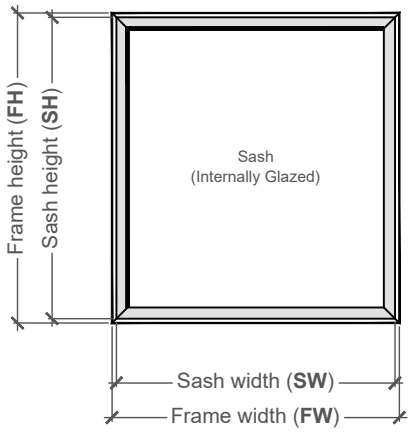
The **Total Glass Thickness** is simply the sum of ALL the glazing panes...

Double Glazed Unit Weights	DGU Glass thickness	Glass unit Weight
 *For example:* *A Typical Double glazed unit spec (eg 6.8/18/4mm)* *Pane 1 = 6.8mm* *Pane 2 = 4mm* *Total glass = 6.8 + 4 = 10.8mm* *Unit weight = 10.8 * 2.5 = 27kg/m²*	**4**-20-**4**	**20** kg/m²
	6-18-**4**	**25** kg/m²
	6.4-18-**4**	**26** kg/m²
	6.8-18-**4**	**27** kg/m²
	6-16-**6**	**30** kg/m²
	8-16-**4**	**30** kg/m²
	8.4-16-**4**	**31** kg/m²
	8.8-16-**4**	**32** kg/m²
	8-14-**6**	**35** kg/m²

Triple Glazed Unit Weights	TGU Glass thickness	Glass unit Weight
 *For example:* *A Typical Triple glazed unit spec (eg 6.8/12/4/14/4mm)* *Pane 1 = 6.8mm* *Pane 2 = 4mm* *Pane 3 = 4mm* *Total glass = 6.8 + 4 + 4 = 14.8mm* *Unit weight = 14.8 * 2.5 = 37kg/m²*	**4**-14-**4**-14-**4**	**30** kg/m²
	6-12-**4**-14-**4**	**35** kg/m²
	6.4-12-**4**-14-**4**	**36** kg/m²
	6.8-12-**4**-14-**4**	**37** kg/m²

To calculate the **Sash area** (m²):
Multiply the Sash Width (m) x Sash Height (m)

For example:
A Typical casement spec (eg 1000x1000mm overall frame dimensions)
*Sash width (**SW**) = 954mm*
*Sash height (**SH**) = 954mm*
*Total sash area = 0.954 * 0.954 = 0.910116m*



To calculate the total **Sash Weight** (kg/m²):
Multiply the Sash Area (m²) x glazed unit weight (kg/m²)

For example:
A Typical casement spec
(eg Sash area @ 0.910116m & Double glazed unit weight @ 27kg/m²)
*Sash weight = 0.910116 * 27 = 24.57 kg/m²*

(eg Sash area @ 0.910116m & Triple glazed unit weight @ 37kg/m²)
*Sash weight = 0.910116 * 37 = 33.67 kg/m²*

For guidance purposes only, use Manufacturing Software for Sash weights and hardware requirements!