System 4-35 Hi/Hi+ Casement Window

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Issue Date: 14/12/2016

Specification

System 4-35 Hi/Hi+

CASEMENT WINDOW

The Metal Technology Thermally-Broken Commercial Casement Window has been designed to offer the specifier the advantages of polyamide thermal break technology in meeting the latest thermal requirements of the current building regulations.

Introduction

Metal Technology 4-35Hi polyamide casement window suite has been developed with a diverse range of profile options. Bespoke thermal isolators and insulation combined with structural mullions, vents, and outer frames offer architects and designers the ability to achieve flexible design solutions.

The 4-35Hi+ range is an adaptation of the 4-35Hi range through the inclusion of additional gaskets and foam inserts which further enhance the system's thermal performance.

As with all Metal Technology systems, the 4-35Hi Casement window is manufactured to exacting standards enabling economy to be combined with strength to give many years of aesthetic, trouble-free operation.

Materials

Aluminium profiles are extruded from aluminium alloy 6060T6, T5 or T4 complying with the recommendations of BS EN 12020-2 / BS EN 755-Parts 1 to 9. Polyamide thermal breaks are produced from glass reinforced nylon sections designed to withstand temperatures in excess of 200°C, allowing the sections to be powder coated after thermally breaking.

Finishes

The range of sections can be provided in either of the following range of finishes:

1. Anodised to BS EN 12373-1 or BS 3987
2. Powder organic coated to BS 6496 or BS EN 12206-1

Where a different colour is required internally and externally, Metal Technology can accommodate this.

Construction

Frame members are mitre cut at 45°, corners are reinforced with extruded aluminium crimping cleats and corner braces, and a secure joint is formed by pneumatically crimping into the extruded crimping cleat. Mullion and transom bars are square cut shaped and fixed securely to the frame by means of stainless steel screws and fixing cleat joints. All frame joints are sealed during construction against entry of water using a suitable sealant. Extruded weatherstrips and glazing gaskets are provided to resist the ingress of water.

Metal Technology recommend that A2 or A4 Austenitic (300 series/class 70) stainless steel fixing screws are used in the assembly of their products.

Glazing

The system can be glazed internally or externally and can accommodate glazing units from 28mm to 47mm. Glass is set against extruded gaskets which are fitted into gasket grooves in the window profile. Clip in beads are then fitted to the frame and the glass secured by means of colour coded wedge gaskets. Standard moulded setting/location blocks are provided to clip into the sections.

Installation

Detailed installation instructions are provided which should be strictly followed.

Security

System 4-35Hi with applicable ironmongery is generally accepted on Secure by Design projects. To conform, the window hardware must be in accordance with the tested samples as detailed in section 3 of this manual. For a summary of results please contact Metal Technology for a test report.

In order to comply with PAS 24 windows should be glazed in accordance with the methods in BS 6262 and BS 8000-7. The units should also be sealed conforming to BS EN 1279 and incorporating glass conforming to BS EN 356 Class P1A minimum.

Security products should be labelled by the fabricator in accordance with BS 4873.

Casement Window Fittings

The sections are designed to suit friction hinges or butt hinges and a variety of handle options. Metal Technology are able to supply a full range of fittings and accessories. See the relevant section of this manual for details of hinge sizes for specific window sizes. Metal Technology should be contacted for any special operating requirements. Metal Technology strongly recommend the use of restrictors to prevent the window opening more than 100mm. All open out windows should be closed during windy conditions.

Where other types of windows are required the Metal Technology System 5-35Hi Tilt and Turn or 7-20Hi+ Pivot Windows should be considered.

Maximum Size Limits Friction Hinges

	Vent Width	Vent Height	Vent Weight
Top Hung Casement	2000mm	2000mm	100 Kg
Side Hung Casement	1000mm	2000mm	60 Kg

Butt Hinges

	Vent Width	Vent Height	Vent Weight
Top Hung Casement	1800mm	1450mm	95 Kg
Side Hung Casement	1000mm	1600mm	90 Kg

Minimum size limits will be determined by the limitations of the fabricators crimper, and the ironmongery requirements.

For complete details of maximum/ minimum size limits see the size limitation charts in Section 3 of this manual.

Performance

Air permeability - BS 6375
test pressure 600 Pa.
Water tightness - BS 6375
test pressure 600 Pa.
Wind resistance - BS 6375
test pressure 2400 Pa.
These levels of performance should be sufficient for any location within the UK and Ireland. However should higher levels of performance be required for any reason, Metal Technology's advice should be sought.

Development

Our policy is to continually research the market for new and improved products. We must therefore retain the right to amend specifications without prior notice. It is recognised at Metal Technology that in some instances special sections may be required for particular projects. When this occurs it may be possible to produce special sections subject to there being sufficient quantity and adequate time.

Specification

System 4-35 Hi/Hi+
CASEMENT WINDOW

Thermal Performance

Metal Technology's THERM.AL range, in conjunction with the correct glass specification, is designed to aid compliance with the latest thermal requirements of the current building regulations.

The extended polyamide thermal break profiles, incorporating integral fins have been specifically designed to minimise heat transfer across the window profiles. This innovative and advanced thermal break technology provides the basis of the 4-35Hi system.

The 4-35Hi+ System further boosts thermal performance through the introduction of specially designed thermal gaskets and foam profiles. These reduce radiation heat loss across the air cavities within the window profiles to provide additional thermal enhancement.

The 4-35Hi and 4-35Hi+ systems offer significantly improved U-frame values over more traditional thermally broken aluminium window systems.

	U-frame values	
	4-35Hi	4-35Hi+
Fixed light outer frame	**1.92W/m²K**	**1.34W/m²K**
Outer frame and glazed out vent	**2.56W/m²K**	**1.69W/m²K**
Outer frame and glazed in vent	**2.57W/m²K**	**1.69W/m²K**

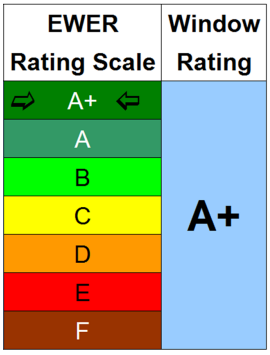
The following table, based on a standard commercial GGF window configuration and warm edge spacers, demonstrates how such improved U-frame values then contribute to improving the overall thermal performance of a complete window.

Achievable whole window U-values	Centre pane U-value	
	1.1W/m²K	0.6W/m²K
4-35Hi glazed out casement	**1.56W/m²K**	**1.25W/m²K**
4-35Hi glazed in casement	**1.62W/m²K**	**1.30W/m²K**
4-35Hi+ glazed out casement	**1.34W/m²K**	**0.98W/m²K**
4-35Hi+ glazed in casement	**1.39W/m²K**	**1.04W/m²K**

Metal Technology can provide tailored U-value calculations using their dedicated estimating software to calculate overall project average window U-values for their full range of systems.

Window Energy Rating

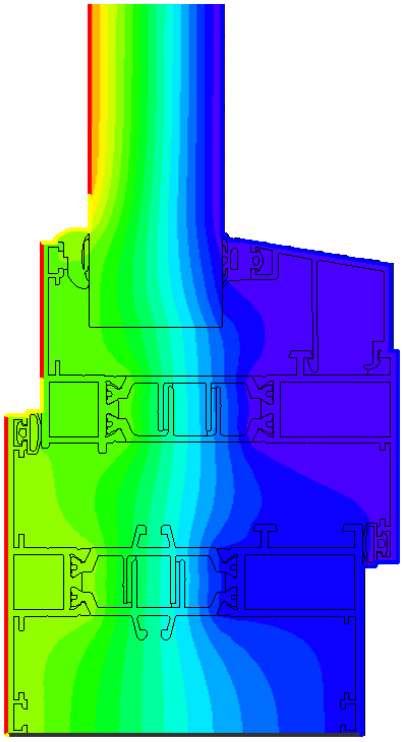
Metal Technology's 4-35Hi+ System has been assessed by an approved simulator in accordance with the BFRC's guidelines, using their official Window Energy Rating software, and has been proven to be capable of achieving an 'A+' rating.



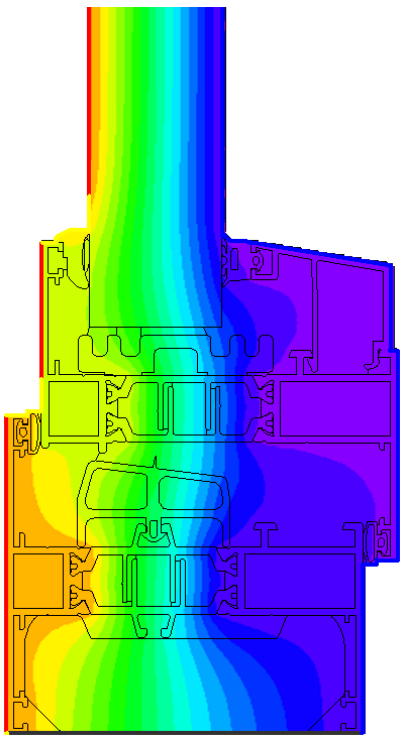
breeam sustainability rating

When assessed in accordance with the profile mass formula, as set out in the BRE's Green Guide for sustainable design and environmental performance, Metal Technology's 4-35Hi and 4-35Hi+ Systems achieved an '**A**' rating in domestic applications and '**A+**' rating in commercial applications.

4-35Hi Casement Window



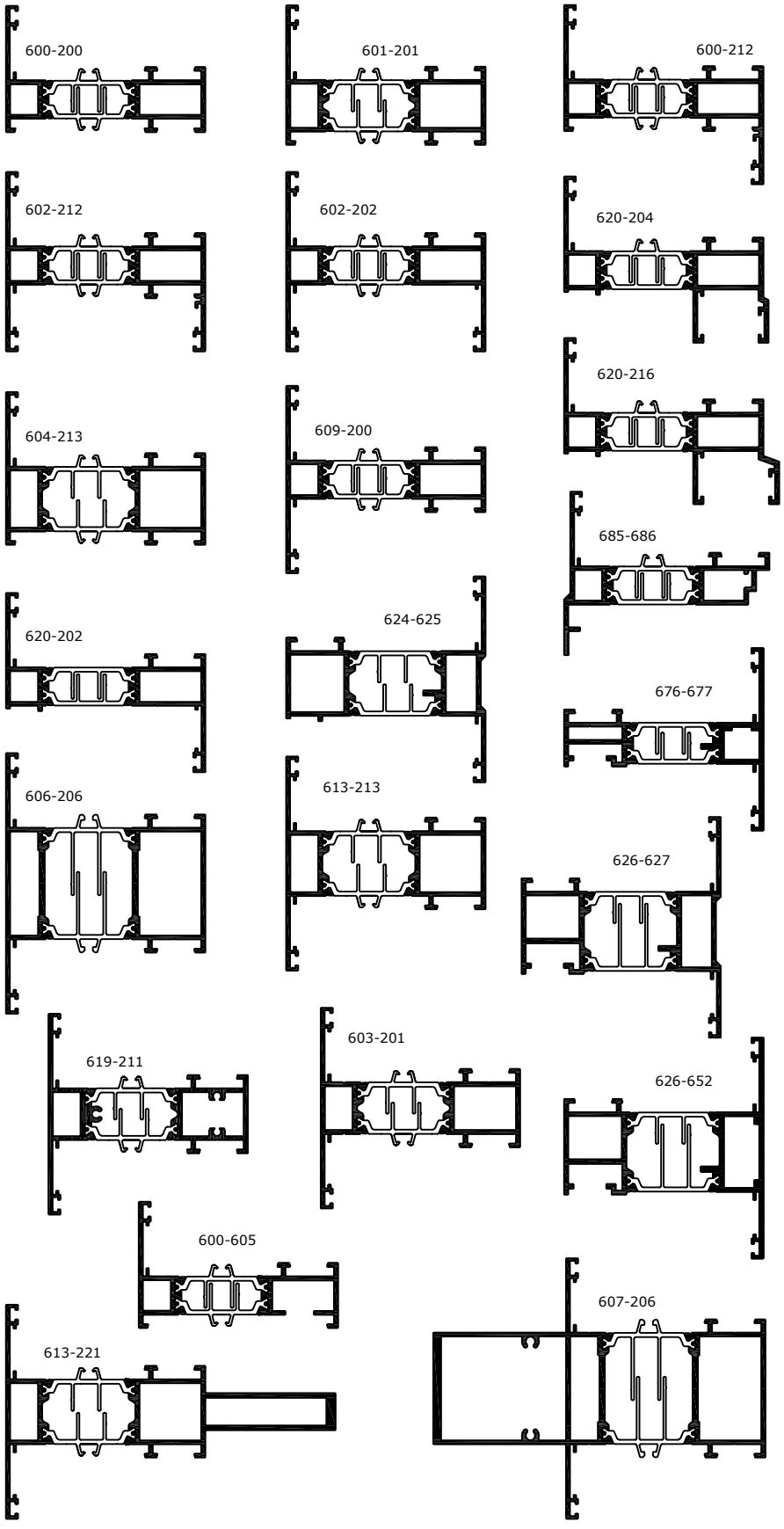
4-35Hi+ Casement Window



Profile Index

System 4-35 Hi/Hi+

CASEMENT WINDOW



PROFILE ILLUSTRATION	SHEET REF NUMBER	COMPUTER REF NUMBER	PERIMETER mm
	435Hi/1/10	600	176
		200	169
	435Hi/1/20	600	176
		212	234
	435Hi/1/150	600	176
		605	204
	435Hi/1/10	601	188
		201	181
	435Hi/1/10	602	237
		202	209
	435Hi/1/20	602	237
		212	234
	435Hi/1/50	603	254
		201	181
	435Hi/1/10	604	199
		213	192
	435Hi/1/50	606	299
		206	228
	435Hi/1/110	607	399
		206	228
	435Hi/1/50	609	243
		200	169
	435Hi/1/50	613	265
		213	192
	435Hi/1/100	613	265
		221	290
	435Hi/1/60	619	265
		211	181
	435Hi/1/40	620	168
		202	209
	435Hi/1/30	620	168
		204	244
	435Hi/1/30	620	168
		216	251
	435Hi/1/40	624	159
		625	275
	435Hi/1/45	626	209
		627	287
	435Hi/1/45	626	209
		652	285
	435Hi/1/45	676	250
		677	170
	435Hi/1/30	685	215
		686	139

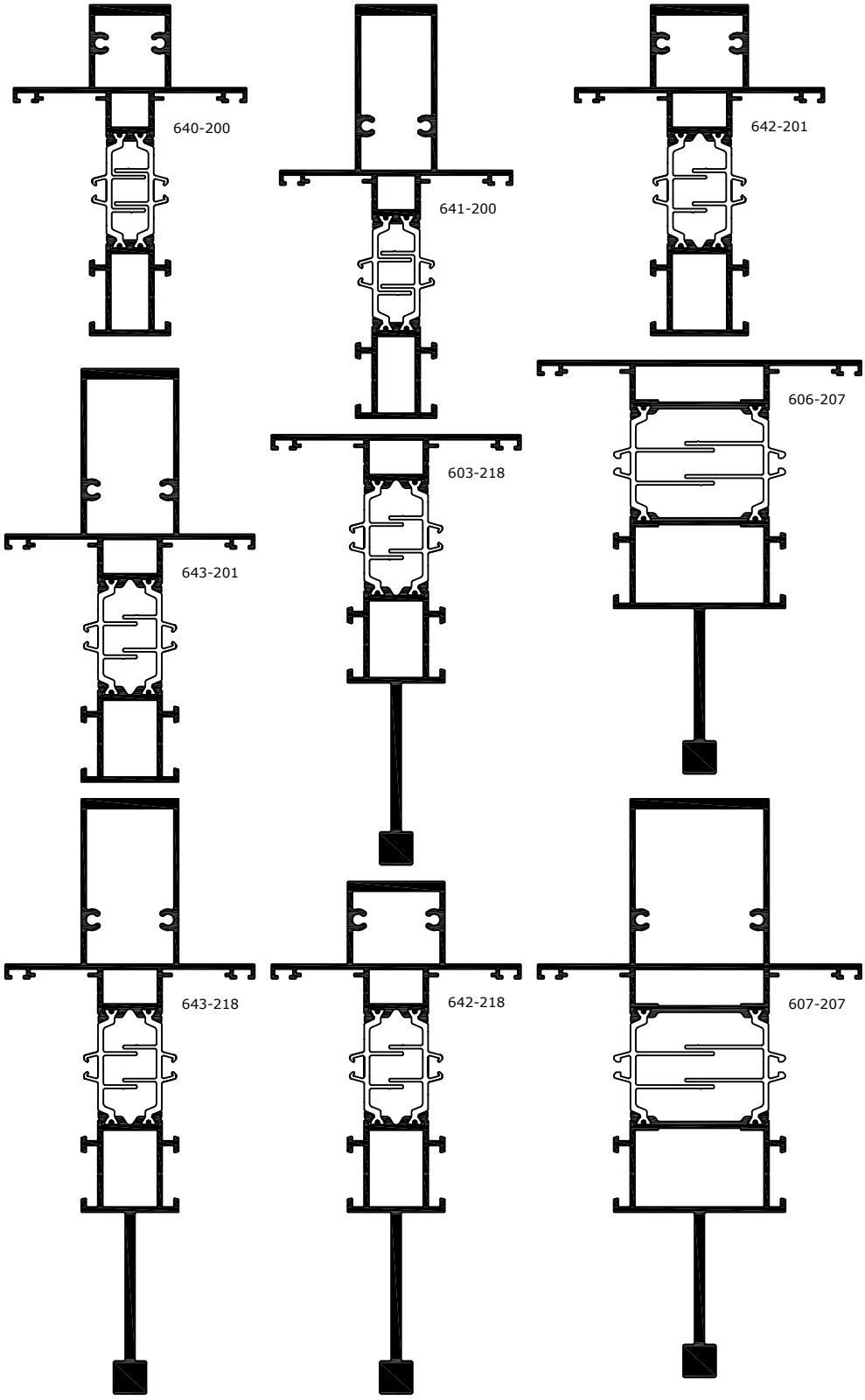
Not to Scale

Profile Index

System 4-35 Hi/Hi+

CASEMENT WINDOW

PROFILE ILLUSTRATION



SHEET REF NUMBER	COMPUTER REF NUMBER	PERIMETER mm
435Hi/1/80	603	254
	218	304
435Hi/1/100	606	299
	207	341
435Hi/1/120	607	399
	207	341
435Hi/1/60	640	292
	200	169
435Hi/1/60	641	342
	200	169
435Hi/1/70	642	304
	201	181
435Hi/1/80	642	304
	218	304
435Hi/1/70	643	354
	201	181
435Hi/1/90	643	354
	218	304

Scale 1:2

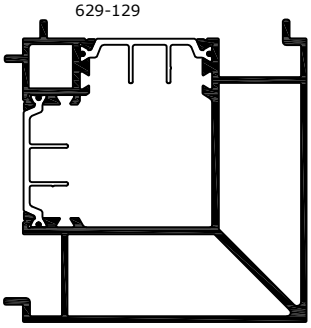
Profile Index

System 4-35 Hi/Hi+

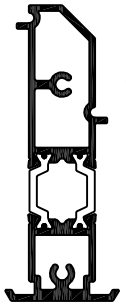
CASEMENT WINDOW

PROFILE ILLUSTRATION

629-129



668-669



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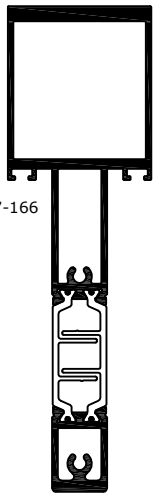

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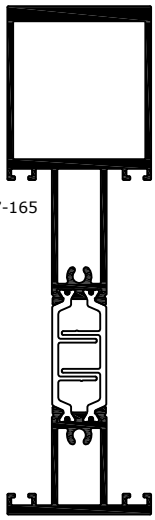

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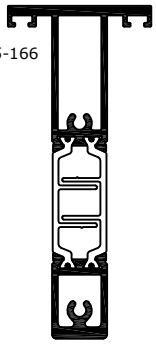
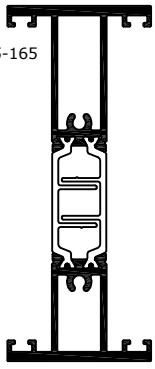


665-165



SHEET REF NUMBER	COMPUTER REF NUMBER	PERIMETER mm
435Hi/1/150	629	418
	129	47
435Hi/1/130	665	201
	165	180
435Hi/1/130	665	201
	166	91
435Hi/1/140	667	282
	165	180
435Hi/1/140	667	282
	166	91
535Hi/1/130	668	131
	669	150

Scale 1:2

Profile Index

System 4-35 Hi/Hi+

CASEMENT WINDOW

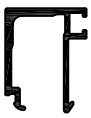
PROFILE ILLUSTRATION	SHEET REF NUMBER	COMPUTER REF NUMBER	PERIMETER mm
650-040	435Hi/1/190	034	516
	435Hi/1/190	035	431
	435Hi/1/190	036	83
650-648	435Hi/1/190	049	614
670-638	435Hi/1/190	050	511
	435Hi/1/160	639	192
		638	164
650-045	435Hi/1/160	650	175
		040	132
	435Hi/1/180	650	175
		045	327
	435Hi/1/170	650	175
		648	207
651-045	435Hi/1/180	651	222
		045	327
	435Hi/1/170	651	222
		648	207
	435Hi/1/160	670	143
		638	164
639-638			
651-648			
036			
049			
034			
035			
050			

Scale 1:2

Profile Index

System 4-35 Hi/Hi+

CASEMENT WINDOW

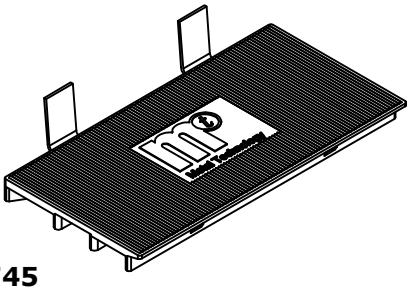
PROFILE ILLUSTRATION	SHEET REF NUMBER	COMPUTER REF NUMBER	PERIMETER mm
007 	435Hi/1/150	007	166
	435Hi/1/150	008	166
 HS103	435Hi/1/150	009	302
008 	435Hi/1/200	623	182
	435Hi/1/200	628	196
 TW05	435Hi/1/200	634	188
009 	435Hi/1/200	635	175
	435Hi/1/200	636	169
	435Hi/1/200	644	159
 628	435Hi/1/200	645	160
 623	435Hi/1/200	646	149
	435Hi/1/200	653	154
 634	435Hi/1/200	654	143
 635	435Hi/1/200	HS103	119
	435Hi/1/200	TW05	80
 636			
 644			
 645			
 646			
 653			
 654			

Scale 1:2

Component Identification

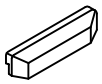
System 4-35 Hi/Hi+

CASEMENT WINDOW

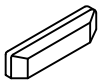


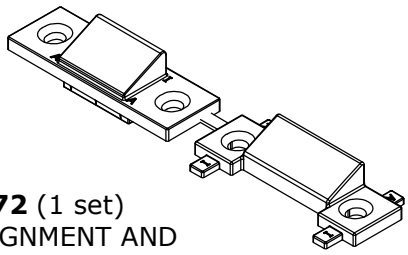
6745
GLAZING SUPPORT BLOCK

774 DRAINAGE CAP
(Stepped for externally beaded applications)

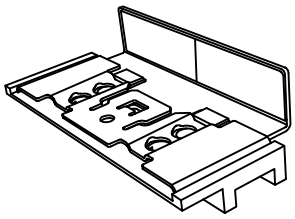


775 DRAINAGE CAP
(Flush for internally beaded applications)

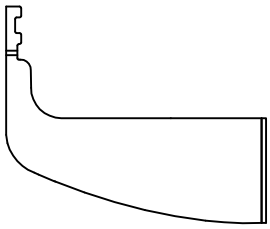




6772 (1 set)
ALIGNMENT AND
INTERLOCKING WEDGES



7092
GLASS SECURITY
CLIP SET



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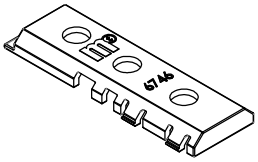
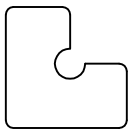
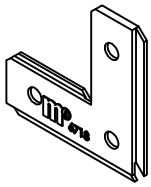
DE-GLAZING TOOL



6746
TRANSOM BRACE

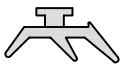


CA23 (Large)
CA24 (Medium)
CORNER BRACES

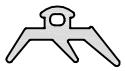


6718
CORNER BRACE

GASKETS



CA25 Red



CA25A Black

CA26 Orange

CA27 White

WEATHERSEAL

060B

PTT36 Red

6080 Purple

6081 Black

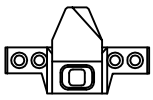
PCD82 Black

Not to Scale

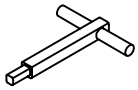
Component Identification

System 4-35 Hi/Hi+
CASEMENT WINDOW

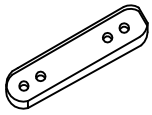
CA45
COCKSPUR HANDLE



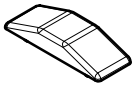
7052
FIREMANS AXE COCKSPUR FITTING



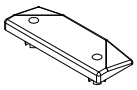
7054
KEY FOR 7052 and 7053



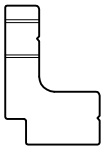
713
HANDLE PACKER



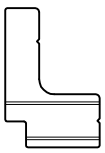
815 WEDGE



733 WEDGE

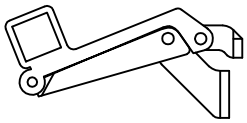


6506
FOLDING OPENER FIXING COMPONENT

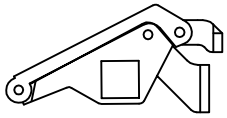


6507
FOLDING OPENER FIXING COMPONENT

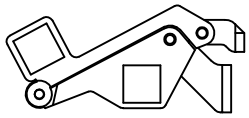
FOLDING OPENERS



773
MANUAL



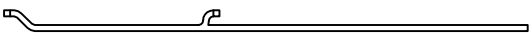
769
POLE OPERATED



771
UNIVERSAL

540 200mm LINK BAR
542 400mm LINK BAR
543 500mm LINK BAR
544 600mm LINK BAR
545 700mm LINK BAR
546 800mm LINK BAR
547 900mm LINK BAR
548 1000mm LINK BAR
549 1100mm LINK BAR
550 1200mm LINK BAR
551 1300mm LINK BAR
552 1400mm LINK BAR
541 1500mm LINK BAR
555 1600mm LINK BAR

CA75 END CAP FOR COUPLING BAR
CA76 SCREW FOR COUPLING BAR
CA77A TANDEM EYE/RING PULL
CA84 LINK BAR PACKER



6739 225mm LONG
6740 173.5mm LONG
FIXING LUGS (Galvanised steel)

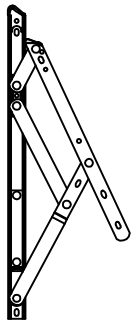
Not to Scale

Component Identification

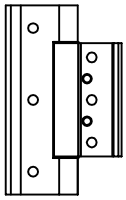
System 4-35 Hi/Hi+

CASEMENT WINDOW

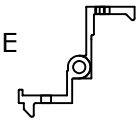
FRICTION HINGES - CASEMENT WINDOW



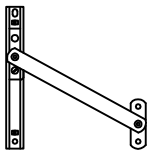
6705	Length	(10")
6706	Length	(16")
6707	Length	(22")
6708	Length	(18")
6709	Length	(26")



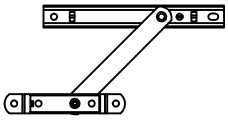
6508
BUTT HINGE



722
HINGE PACKER

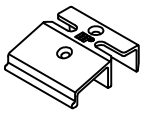


CA36
(6") RESTRICTOR

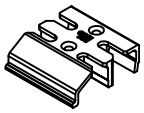


6716
(6") KEY RELEASABLE RESTRICTOR

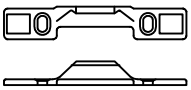
6715
LOCKING KEY



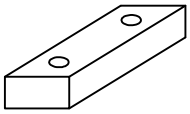
6735
STANDARD/SECURITY COMPRESSION KEEP



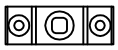
6734
NIGHT VENT COMPRESSION KEEP



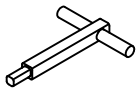
702 (1 set of 4)
ANCILLARY HINGE SECURITY DEVICE



504
HINGE SUPPORT BLOCK



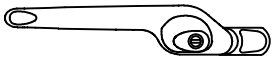
7053
FIREMANS AXE ESPAG FITTING



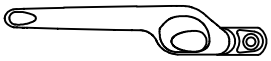
7054
KEY FOR 7052 and 7053

OFFSET EURO ESPAG LOCKING

822 - 6 CAMS - 850mm FACEPLATE
823 - 6 CAMS - 950mm FACEPLATE
824 - 6 CAMS - 1150mm FACEPLATE



825
ESPAG HANDLE AND 2 No. FIXING SCREWS

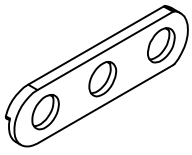


7055
OPERATING HANDLE FOR USE WITH WINDOW PULL

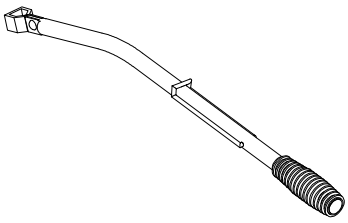
STANDARD EURO ESPAG LOCKING

838A - 4 CAMS - 400mm FACEPLATE
839A - 4 CAMS - 600mm FACEPLATE

840A - 8 CAMS - 800mm FACEPLATE
841A - 8 CAMS - 1000mm FACEPLATE
842A - 8 CAMS - 1200mm FACEPLATE



6771
HANDLE PACKER



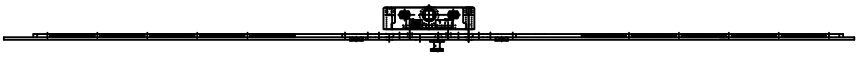
7170/24
24" WINDOW PULL
7170/36
36" WINDOW PULL

Not to Scale

Component Identification

System 4-35 Hi/Hi+

CASEMENT WINDOW

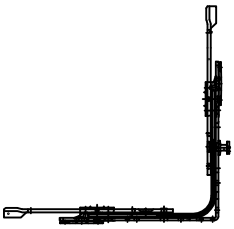


6750
750mm GEAR BOX WITH MUSHROOM SPUD

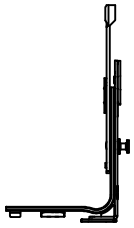
6751
750mm GEAR BOX WITHOUT SPUD

844
CILL ROD

845 ROD



833
EQUAL CORNER DRIVE



834
OFFSET CORNER DRIVE

6767
230mm EXTENSION
ROD WITHOUT SPUD

6764
LINKAGE

6768
EXTENSION ROD

827
JAMB ROD - sash
1001-1250 high

828
JAMB ROD - sash
1251-1500 high

829A
JAMB ROD - sash
1501-2000 high

Not to Scale

Component Identification

System 4-35 Hi/Hi+

CASEMENT WINDOW

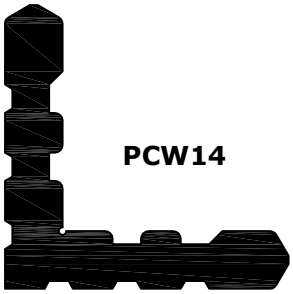
020

CLEAT REF	SIZE	SECTION	741 SCREWS REQUIRED
520	10mm	211	1
521	11mm	200	1
522	16mm	201, 218	1
523	38.5mm	206, 207	2
524	21mm	213	1

6020

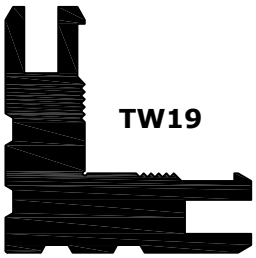
CLEAT REF	SIZE	SECTION	6741 SCREWS REQUIRED
6520	16mm	603, 619, 642, 643	1
6521	11mm	609, 640, 641	1
6523	38.5mm	606, 607	2
6524	21mm	613	1

CORNER CLEATS (CRIMPED JOINT)



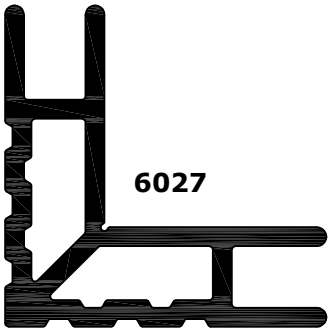
PCW14

516 - Cut @ 22.5mm
6517 - Cut @ 9.7mm
HR5046 - Cut @ 19.6mm



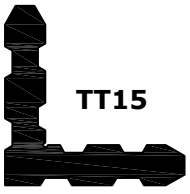
TW19

532 - Cut @ 22.6mm
PCW53 - Cut @ 19.5mm
6533 - Cut @ 9.7mm
6534 - Cut @ 10.8mm



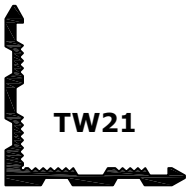
6027

6527 - Cut @ 10.8mm



TT15

511 - Cut @ 22.5mm
6510 - Cut @ 14.6mm
6511 - Cut @ 9.7mm
6515 - Cut @ 12.8mm



TW21

6516 - Cut @ 19.8mm

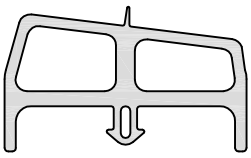
Not to Scale

Component Identification

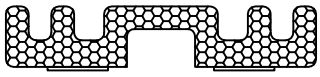
System 4-35 Hi+

CASEMENT WINDOW

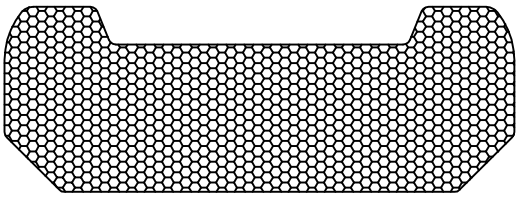
COMPONENTS REQUIRED FOR 4-35 Hi+ VARIATION ONLY



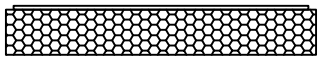
6071
THERMAL CENTRE GASKET



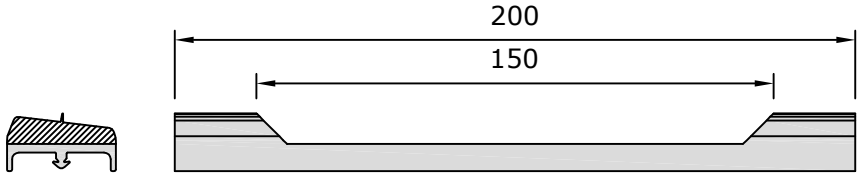
6727
GLAZING UNIT PERIMETER FOAM



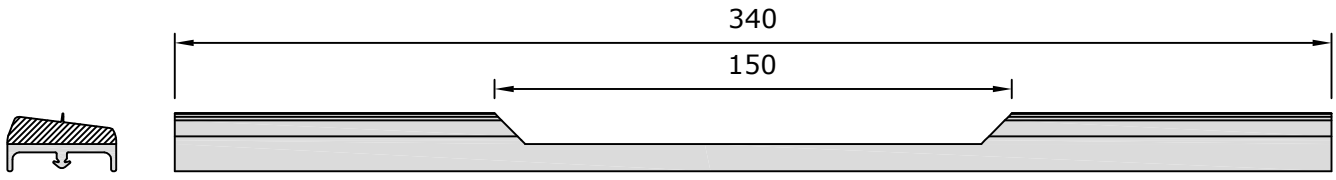
6728
PERIMETER FOAM



6729
LINER BAR FOAM



6721 THERMAL GASKET COMPONENT FOR ESPAG LOCKS 822, 823, 824, 838A, 840A, 841A, 842A



6722 THERMAL GASKET COMPONENT FOR ESPAG LOCK 839A

Not to Scale

Component Identification

System 4-35 Hi/Hi+

CASEMENT WINDOW

723

Threaded bar (brass)
1 Per Fixing

724

Female stud end (aluminium)
2 Per Fixing

741

M5 x 30mm grub screw

746

M5 x 16mm button head machine screw

6741

No 6 x 13mm pan head self tap screw

7200

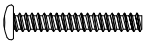
No 6 x 12mm countersunk self tap screw

7208

M5 x 20mm pan head machine screw

7209

M5 countersunk aluminium rivnut

7212

M5 x 35mm pan head machine screw

7216

No 10 x 13mm socket head self tap screw

7217

No 6 x 40mm pan head self tap screw

7220

No 10 x 45mm countersunk self tap screw

7221

No 10 x 70mm countersunk self tap screw

7223

No 7 x 25mm countersunk self drill screw

7224

M5 x 16mm pan head machine screw

7226

M5 x 20mm countersunk machine screw

7227

M5 x 16mm countersunk machine screw

7230

No 8 x 12mm countersunk self tap screw

7231

No 8 x 19mm countersunk self tap screw

7236

No 8 x 19mm pan head self tap screw

7237

No 10 x 32mm countersunk self tap screw

7238

No 6 x 9.5mm countersunk self tap screw

7239

M5 x 10mm hex socket button machine screw

7240

No 6 x 16mm pan head self tap screw

7243

M5 x 30mm pan head machine screw

7244

4.8 x 12.5mm shallow pan head type B self tap screw

7245

4.8 x 18mm shallow pan head type B self tap screw

7248

No 10 x 38mm countersunk self tap screw

7249

No 10 x 50mm countersunk self tap screw

7251

No 4 x 9.5mm pan head self tap screw

7256

No 7 x 16mm countersunk self drill screw

7258

No 6 x 32mm countersunk self tap screw

7259

No 8 x 38mm countersunk self tap screw

7265

No 8 x 9.5mm countersunk type B self tap screw

7271

No 8 x 50mm countersunk self tap screw

7275

No 8 x 32mm countersunk self tap screw

7276

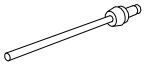
No 7 x 45mm countersunk self tap screw

7300

No 10 x 42mm pan head self tap screw

7326

No 8 x 19mm countersunk Type B point self tap screw

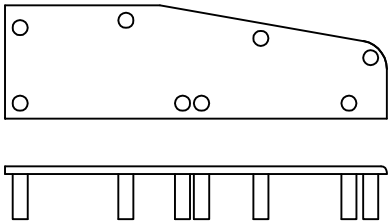
CA15

Pop rivets

Not to Scale

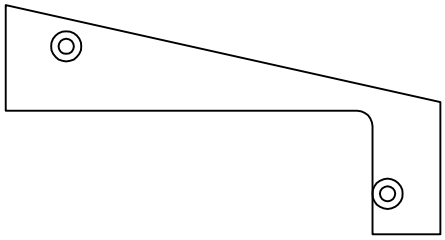
Component Identification

System 4-35 Hi/Hi+

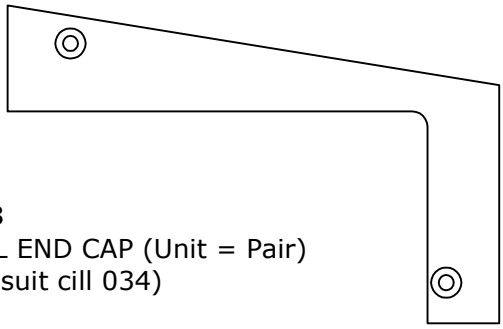
CASEMENT WINDOW



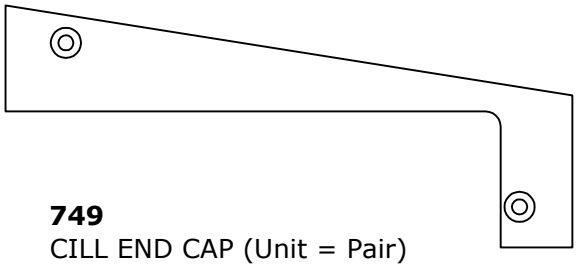
TSF145
uPVC CILL END CAP (Unit = Pair)
(To suit cills 650-045 and 651-045)



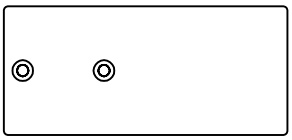
730
CILL END CAP (Unit = Pair)
(To suit cill 035)



748
CILL END CAP (Unit = Pair)
(To suit cill 034)



749
CILL END CAP (Unit = Pair)
(To suit cill 050)



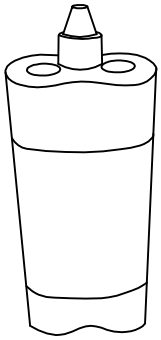
6720
HEAD LINER END CAP (Unit = Each)
(To suit head liner 650-040)

Not to scale

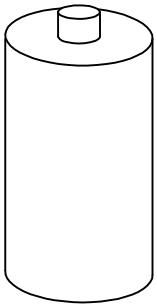
Component Identification

System 4-35 Hi/Hi+

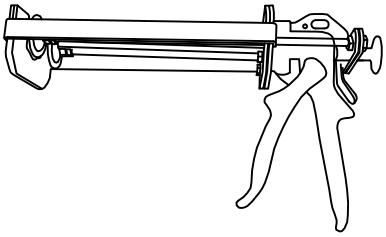
CASEMENT WINDOW



MT1803
2-PART ADHESIVE (grey, white)



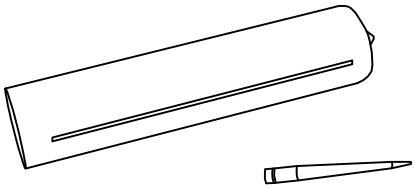
MT60
SURFACE CLEANER



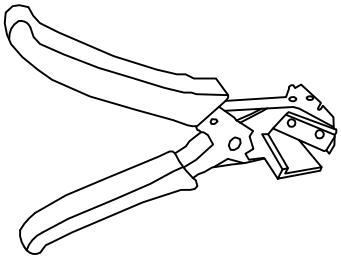
MT900M
MANUAL APPLICATOR GUN
FOR 2-PART ADHESIVE

MT1804
STATIC MIXING TUBE

7400
SILICONE SPRAY



HR50328A
BLACK GASKET ADHESIVE/SEALANT

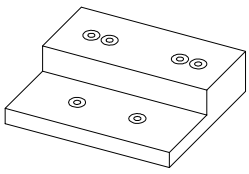


6514
GASKET SNIPS

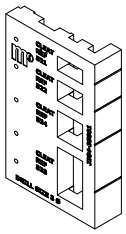
Component Identification

System 4-35 Hi/Hi+

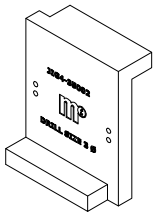
CASEMENT WINDOW



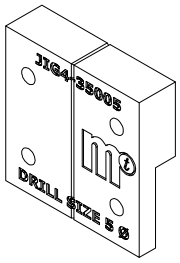
JIG4-20003
COCKSPUR HANDLE JIG



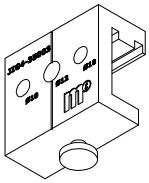
JIG4-35001
MULLION/TRANSOM CLEAT PREP JIG



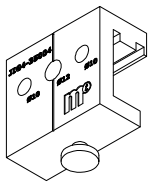
JIG4-35002
MULLION/TRANSOM JIG



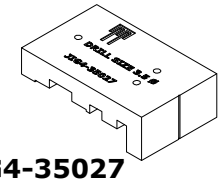
JIG4-35005
FOLDING OPENER JIG



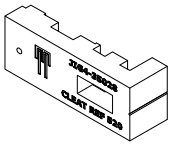
JIG4-35003
STANDARD EURO ESPAG HANDLE JIG FOR SASH 626-627 AND 626-652



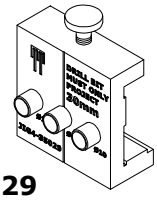
JIG4-35004
3-SIDED EURO ESPAG HANDLE JIG FOR SASH 626-627 AND 626-652



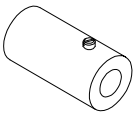
JIG4-35027
PREP JIG FOR 619-211 SCREWPORTED MULLION/ TRANSOM



JIG4-35028
MULLION/TRANSOM CLEAT PREP JIG FOR 619-211

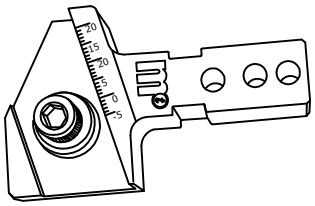


JIG4-35029
EURO ESPAG HANDLE JIG FOR SASH 676-677

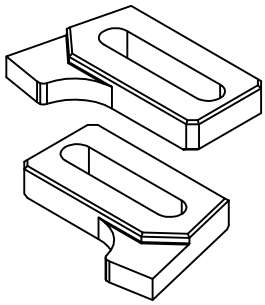


JIG4-35030
COLLAR FOR 10mm ROUTER BIT

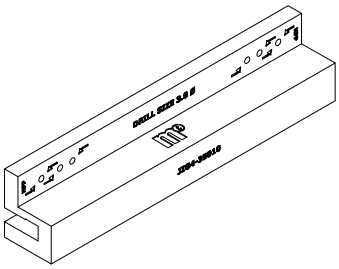
JIG4-35006 - FRICTION HINGE 6705 OUTER FRAME JIG
JIG4-35007 - FRICTION HINGE 6706 OUTER FRAME JIG
JIG4-35008 - FRICTION HINGE 6707 OUTER FRAME JIG
JIG4-35009A - FRICTION HINGE 6709 OUTER FRAME JIG
JIG4-35014 - FRICTION HINGE 6708 OUTER FRAME JIG



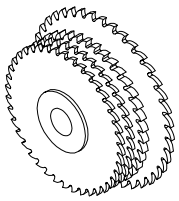
CR124303800/MOD
ADJUSTABLE TOOL HOLDER FOR EP124 CRIMPER



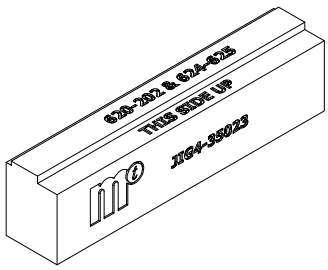
POLSPEC/50
7mm CRIMP KNIVES FOR ADJUSTABLE TOOL



JIG4-35010 - FRICTION HINGE 6705 SASH JIG
JIG4-35011 - FRICTION HINGE 6706 SASH JIG
JIG4-35012 - FRICTION HINGE 6707 SASH JIG
JIG4-35013 - FRICTION HINGE 6709 SASH JIG
JIG4-35015A - FRICTION HINGE 6708 SASH JIG



JIG4-35018
END MILLING BLADES (with 40mm Ø spindle for Elumatic end miller)



JIG4-35021 - SAW BLOCK FOR SECTIONS 620-204, 620-216, 685-686 (bead side up)
JIG4-35022 - SAW BLOCK FOR SECTIONS 600-212, 626-627, 626-652, 676-677 (bead side up)
JIG4-35023 - SAW BLOCK FOR SECTIONS 620-202, 624-625 (bead side up)
JIG5-35002 - BEAD SIDE SUPPORT FOR ALL SECTIONS (bead side down)

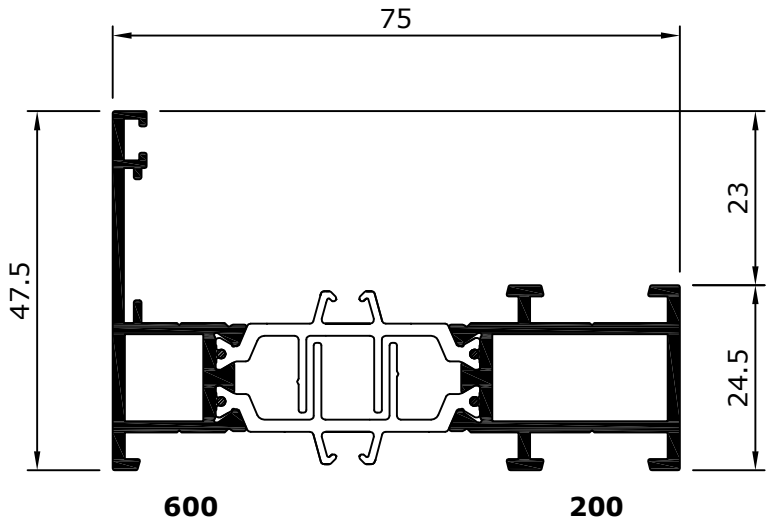
Three of each will be required

Not to scale

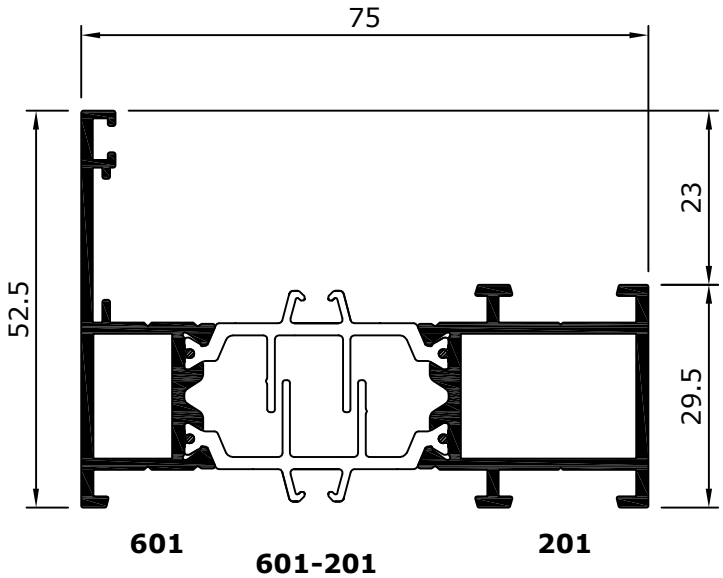
Section Drawings

System 4-35 Hi/Hi+

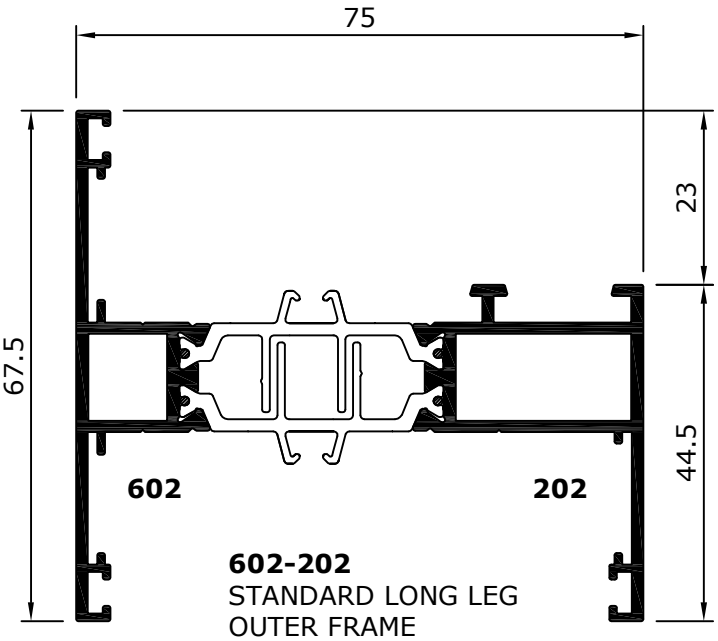
CASEMENT WINDOW



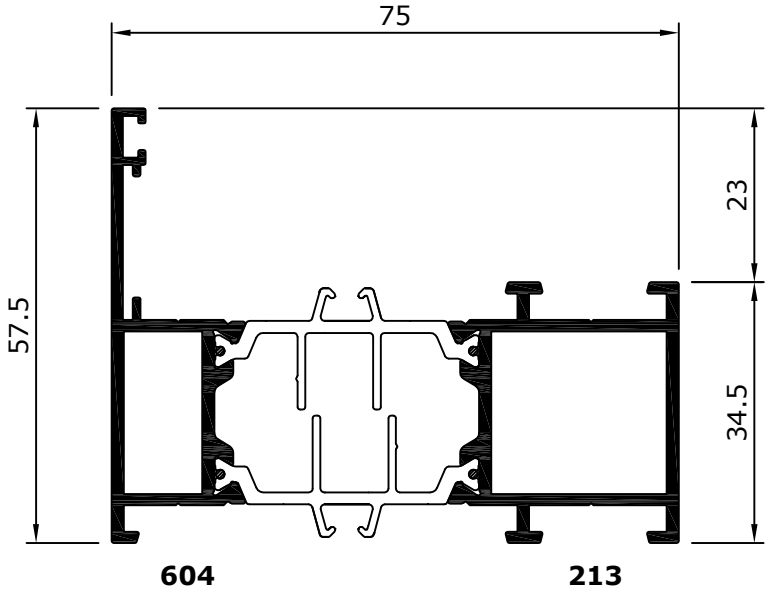
600-200
STANDARD SHORT LEG
OUTER FRAME



601-201
MEDIUM SHORT LEG
OUTER FRAME



602-202
STANDARD LONG LEG
OUTER FRAME



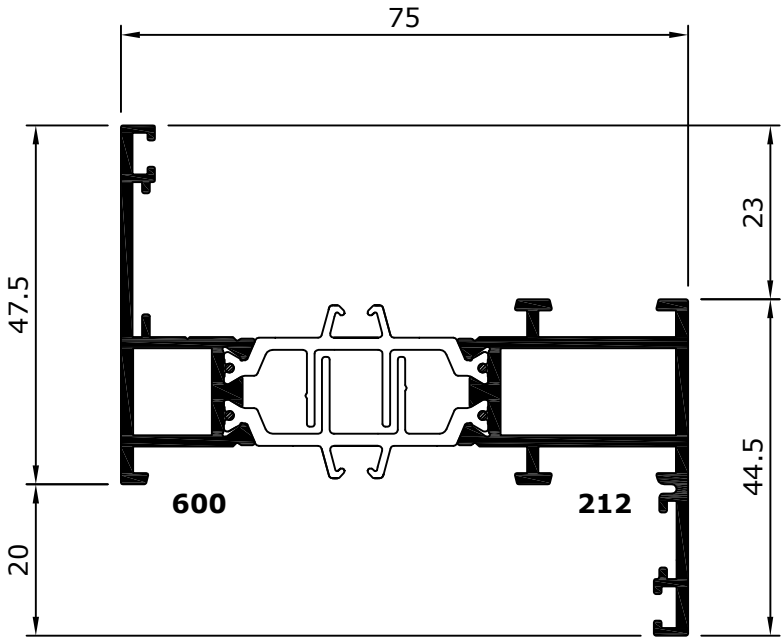
604-213
HEAVY SHORT LEG
OUTER FRAME

Scale 1:1

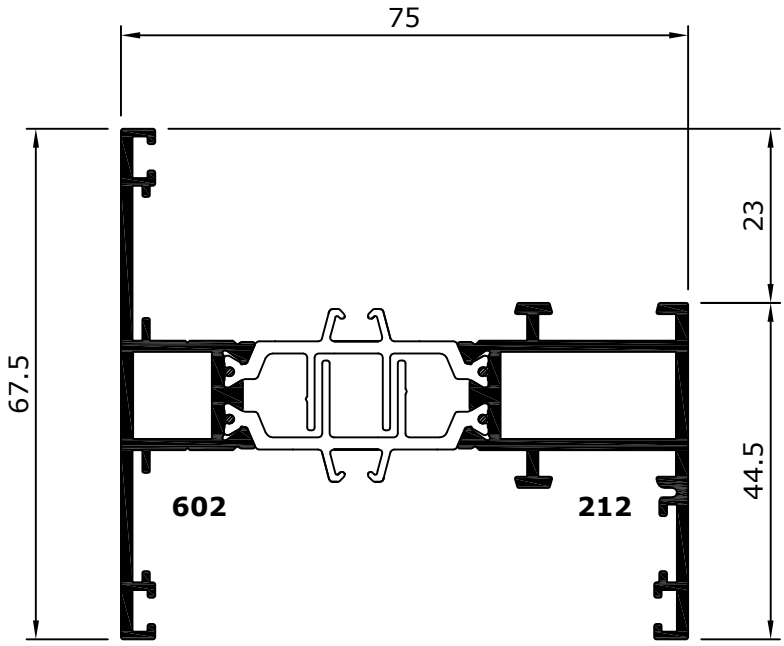
Section Drawings

System 4-35 Hi/Hi+

CASEMENT WINDOW



600-212 *
STANDARD ODD LEG
OUTER FRAME



602-212 *
STANDARD LONG LEG
OUTER FRAME

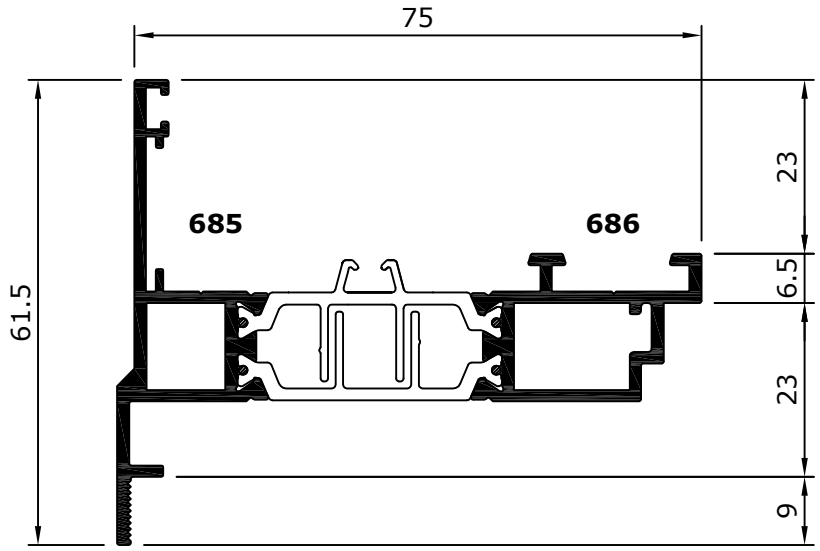
***** THESE PROFILES ARE ONLY COMPATIBLE WITH EACH OTHER.

Scale 1:1

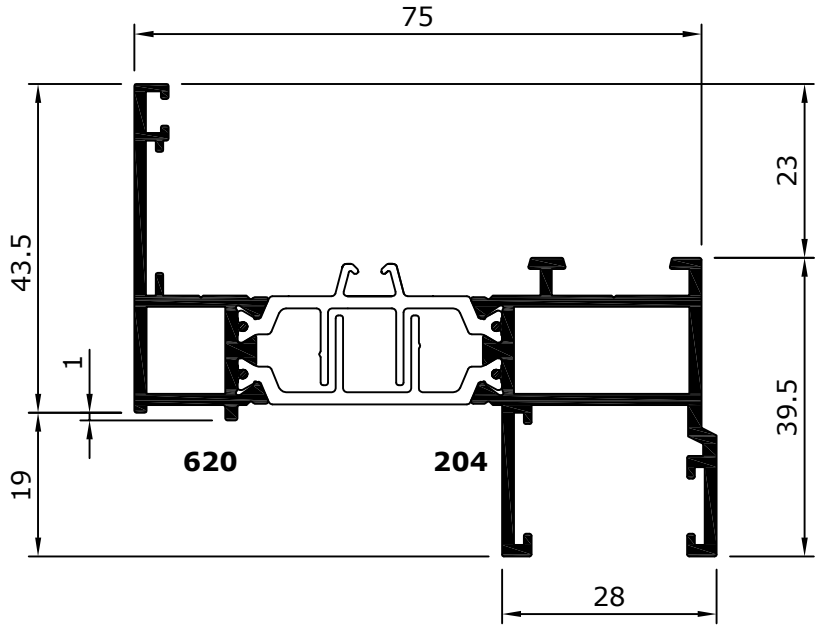
Section Drawings

System 4-35 Hi/Hi+

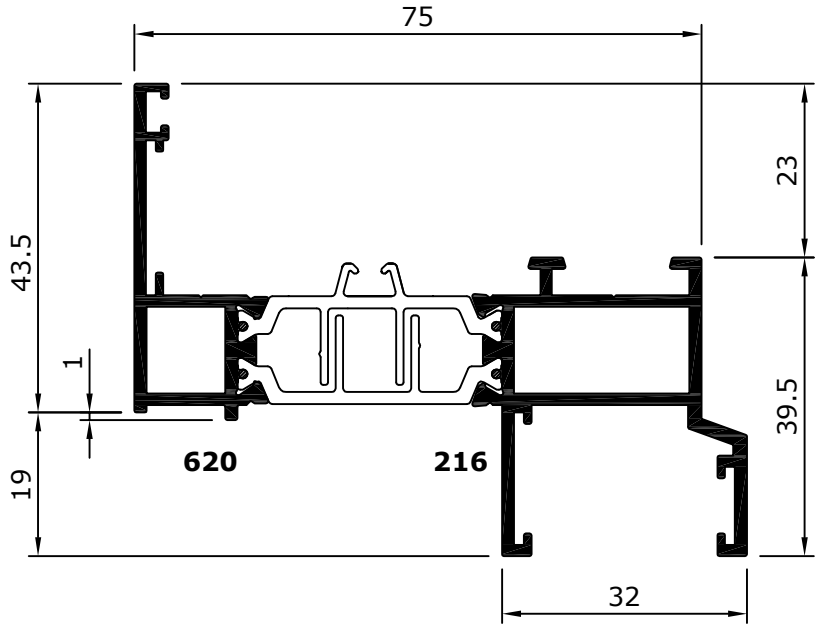
CASEMENT WINDOW



685-686
LINER BAR



620-204
CURTAIN WALLING
FRAME (28mm)



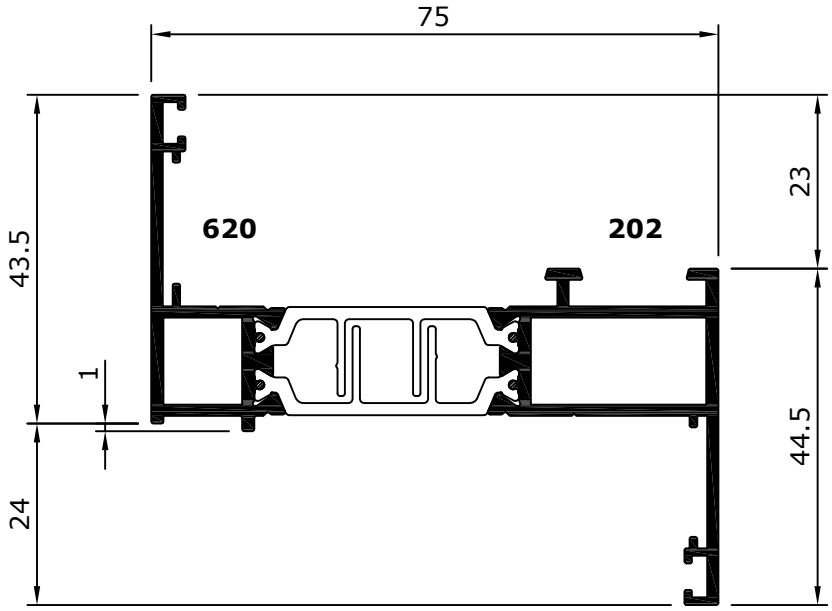
620-216
CURTAIN WALLING
FRAME (32mm)

Scale 1:1

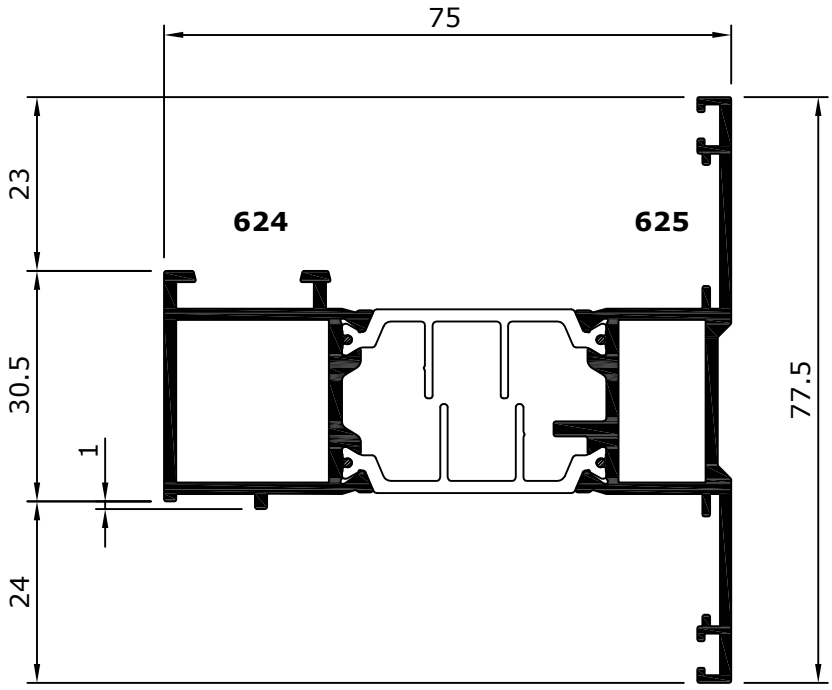
Section Drawings

System 4-35 Hi/Hi+

CASEMENT WINDOW



620-202
STANDARD SASH



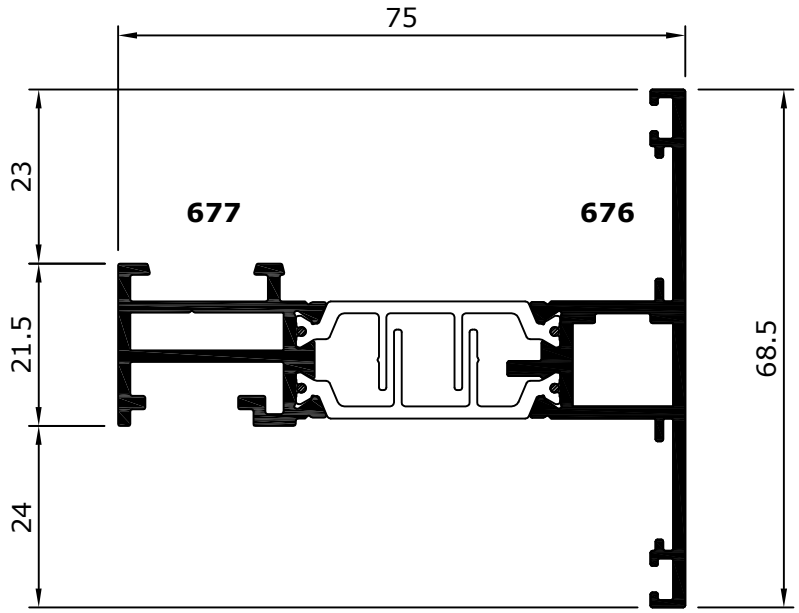
624-625
INSIDE GLAZE SASH

Scale 1:1

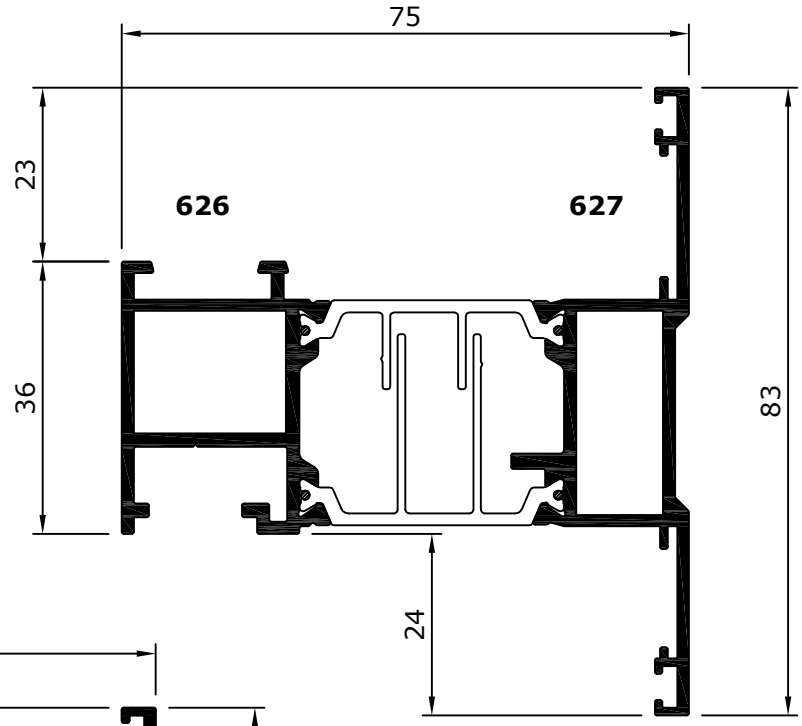
Section Drawings

System 4-35 Hi/Hi+

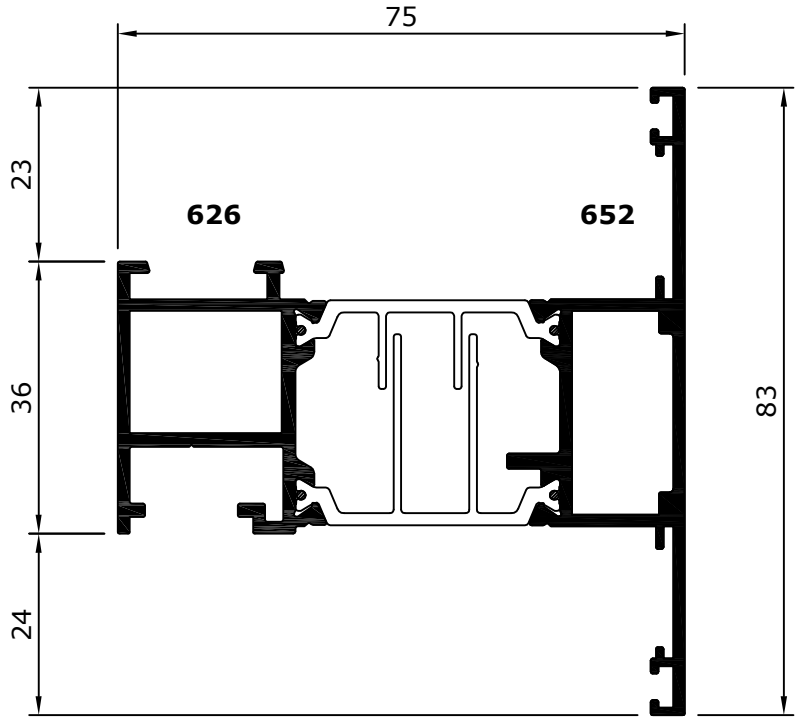
CASEMENT WINDOW



676-677
SLIMLINE EURO GROOVE SASH



626-627
RECESSED EURO GROOVE SASH



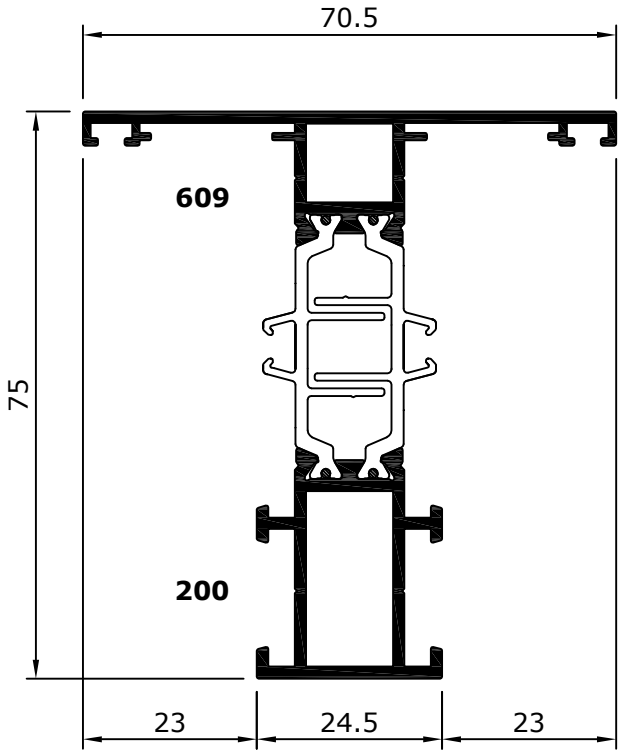
626-652
FLAT EURO GROOVE SASH

Scale 1:1

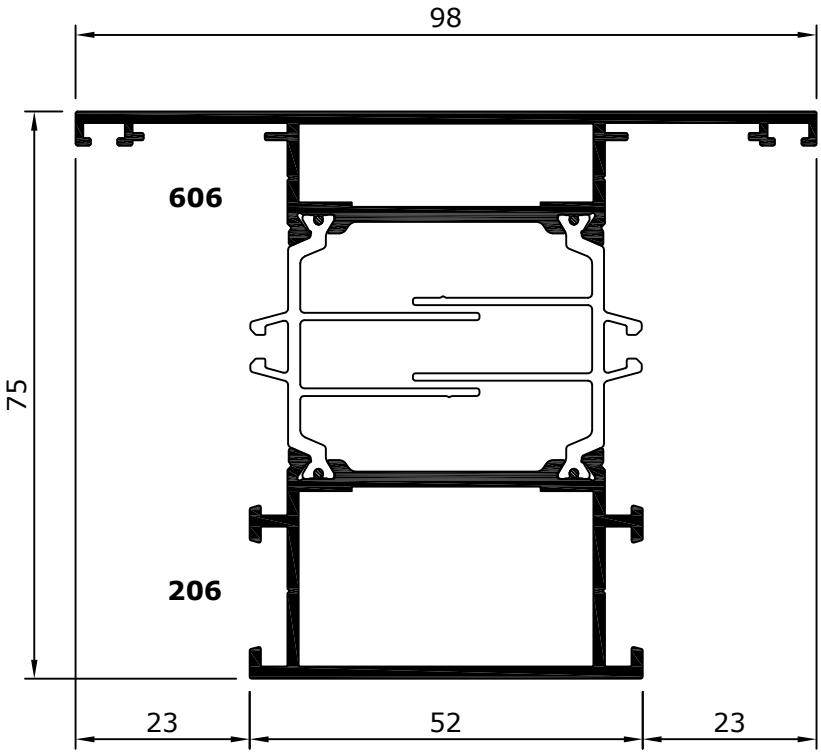
Section Drawings

System 4-35 Hi/Hi+

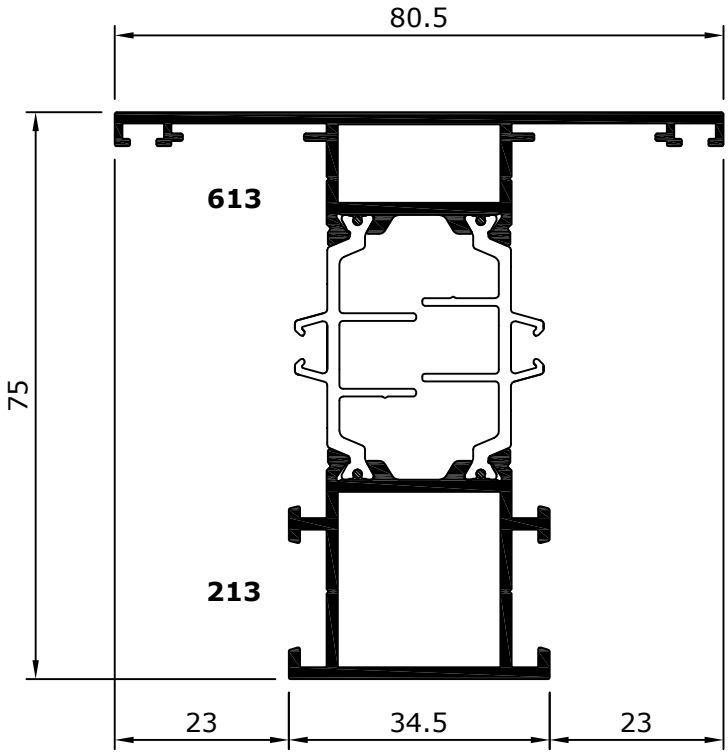
CASEMENT WINDOW



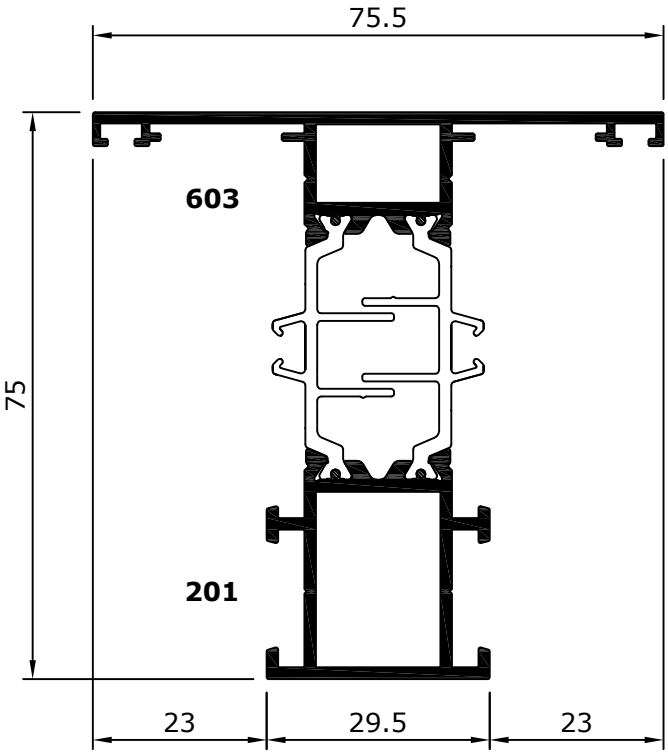
609-200
STANDARD MULLION/TRANSOM



606-206 *
HEAVY DUTY MULLION/TRANSOM



613-213 *
DEEP MULLION/TRANSOM



603-201
MEDIUM MULLION/TRANSOM

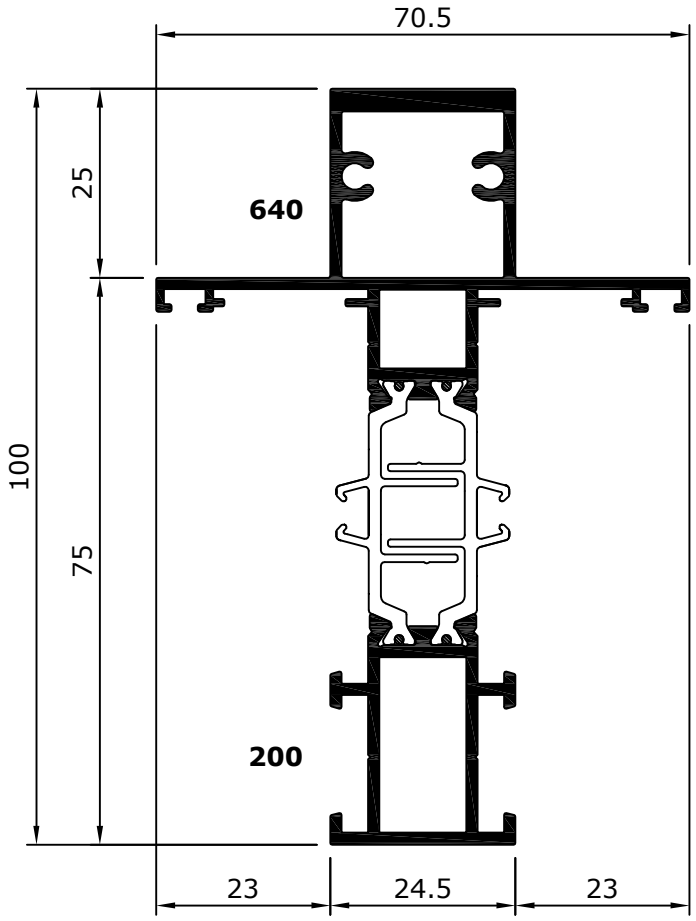
***** THESE SECTIONS TO BE USED FOR VENT OVER VENT APPLICATION TO ALLOW LOCATION OF DRIP RAIL.

Scale 1:1

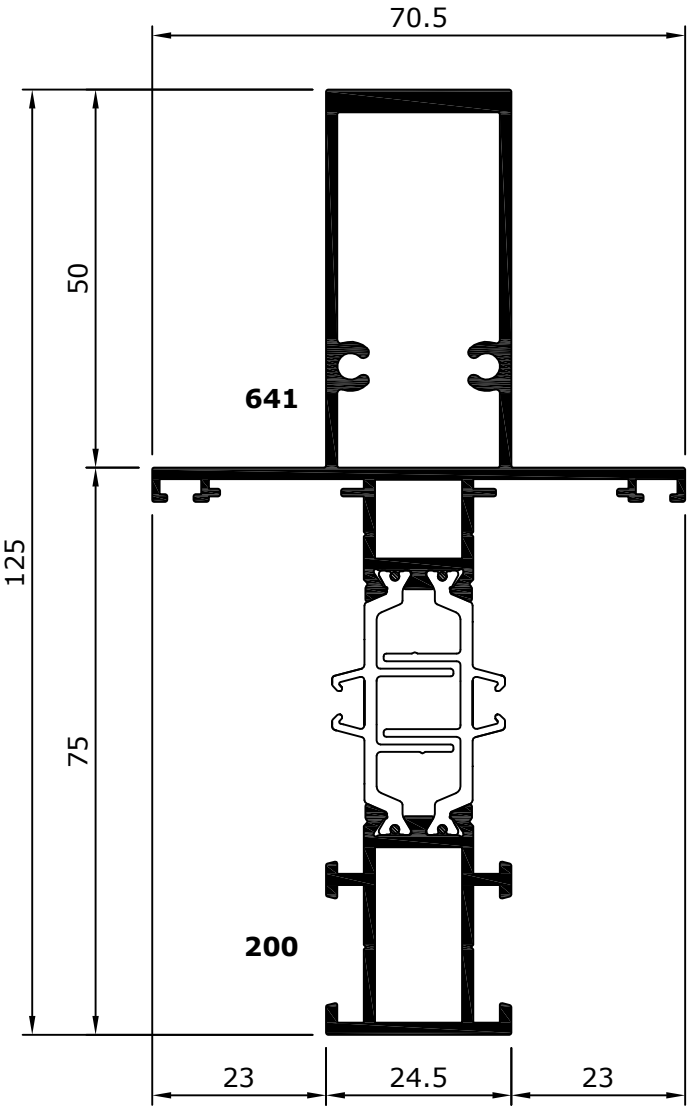
Section Drawings

System 4-35 Hi/Hi+

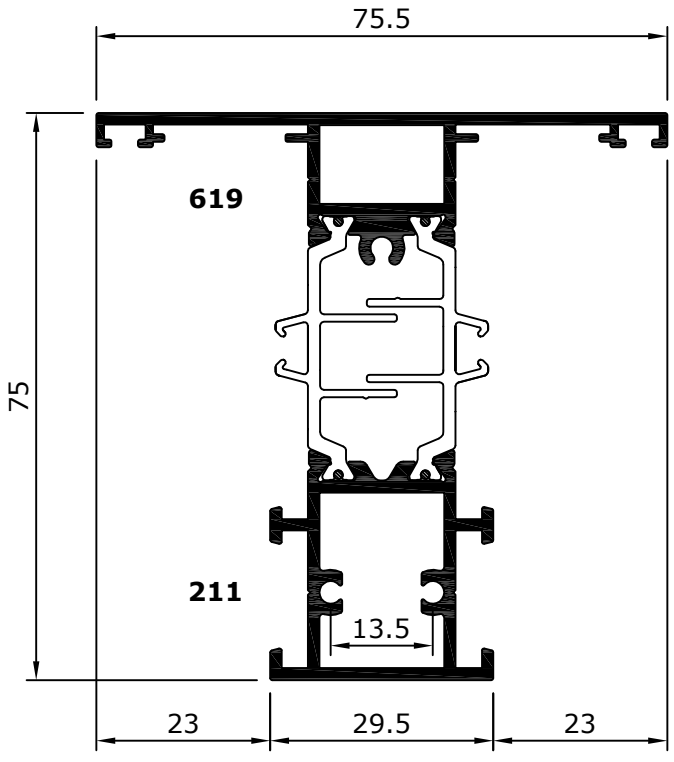
CASEMENT WINDOW



640-200
100mm BOX MULLION
(STANDARD)



641-200
125mm BOX MULLION
(STANDARD)



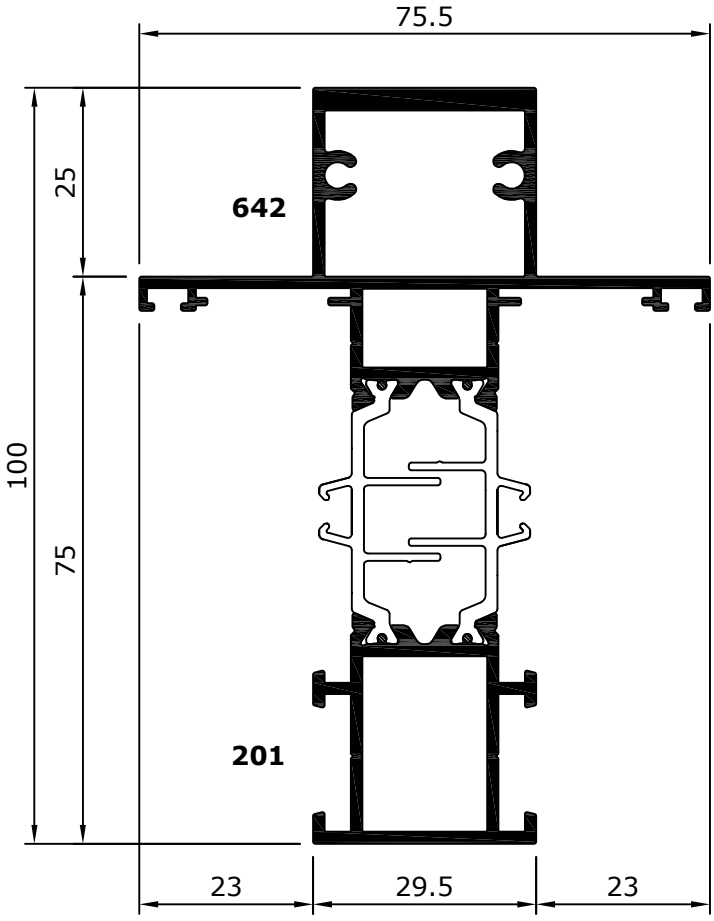
619-211
SCREWPORTED MEDIUM
MULLION/TRANSOM

Scale 1:1

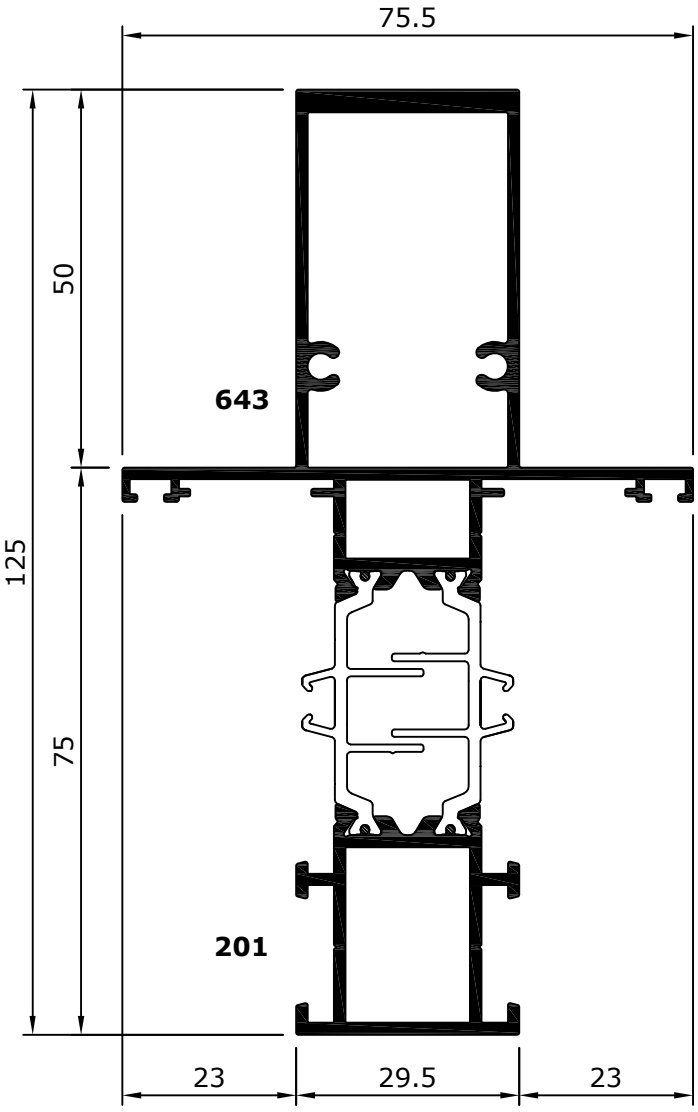
Section Drawings

System 4-35 Hi/Hi+

CASEMENT WINDOW



642-201
100mm BOX MULLION
(MEDIUM)



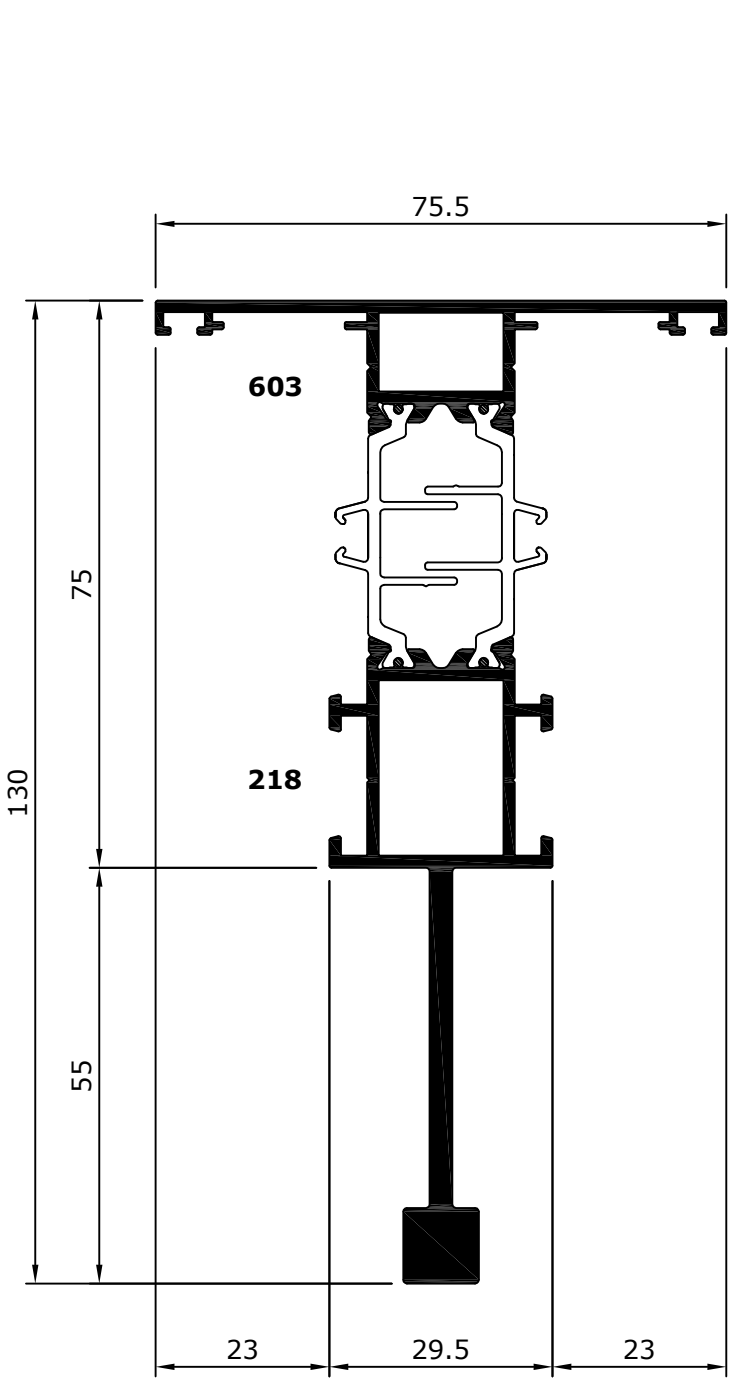
643-201
125mm BOX MULLION
(MEDIUM)

Scale 1:1

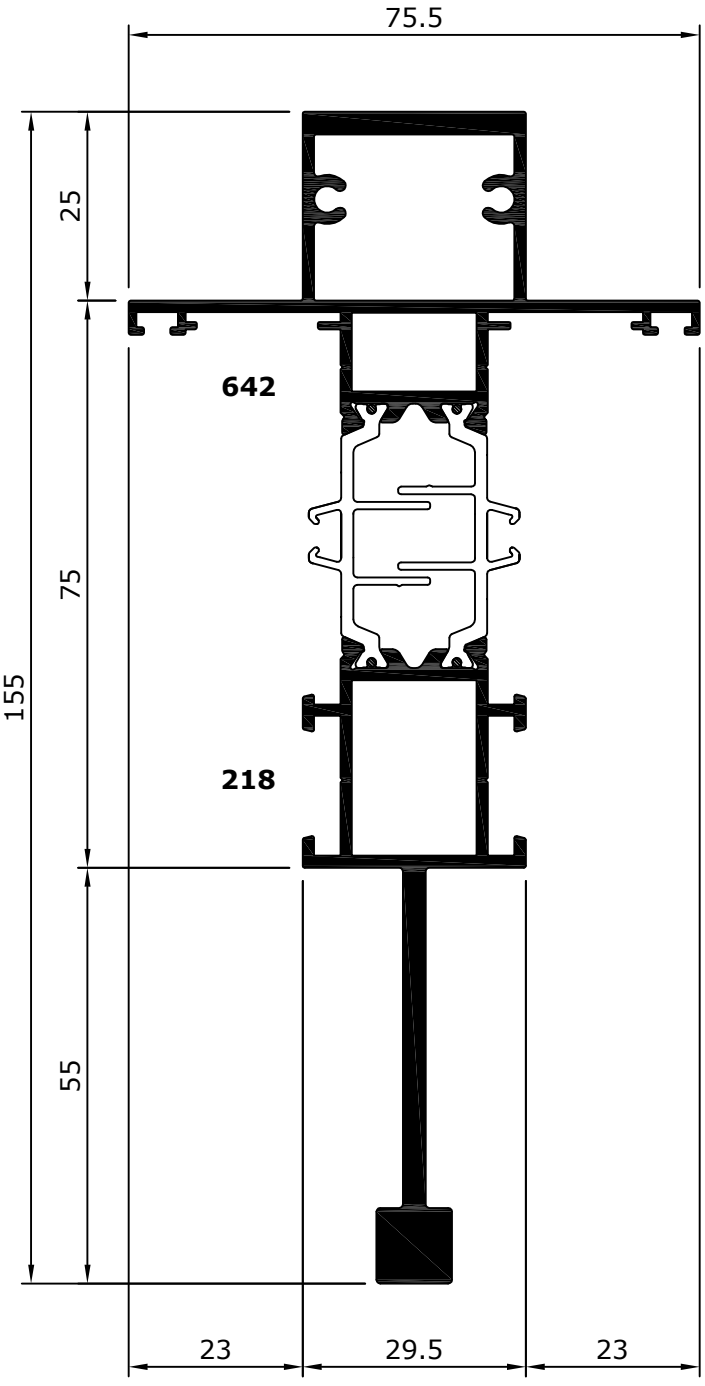
Section Drawings

System 4-35 Hi/Hi+

CASEMENT WINDOW



603-218
130mm MULLION WITH FIN



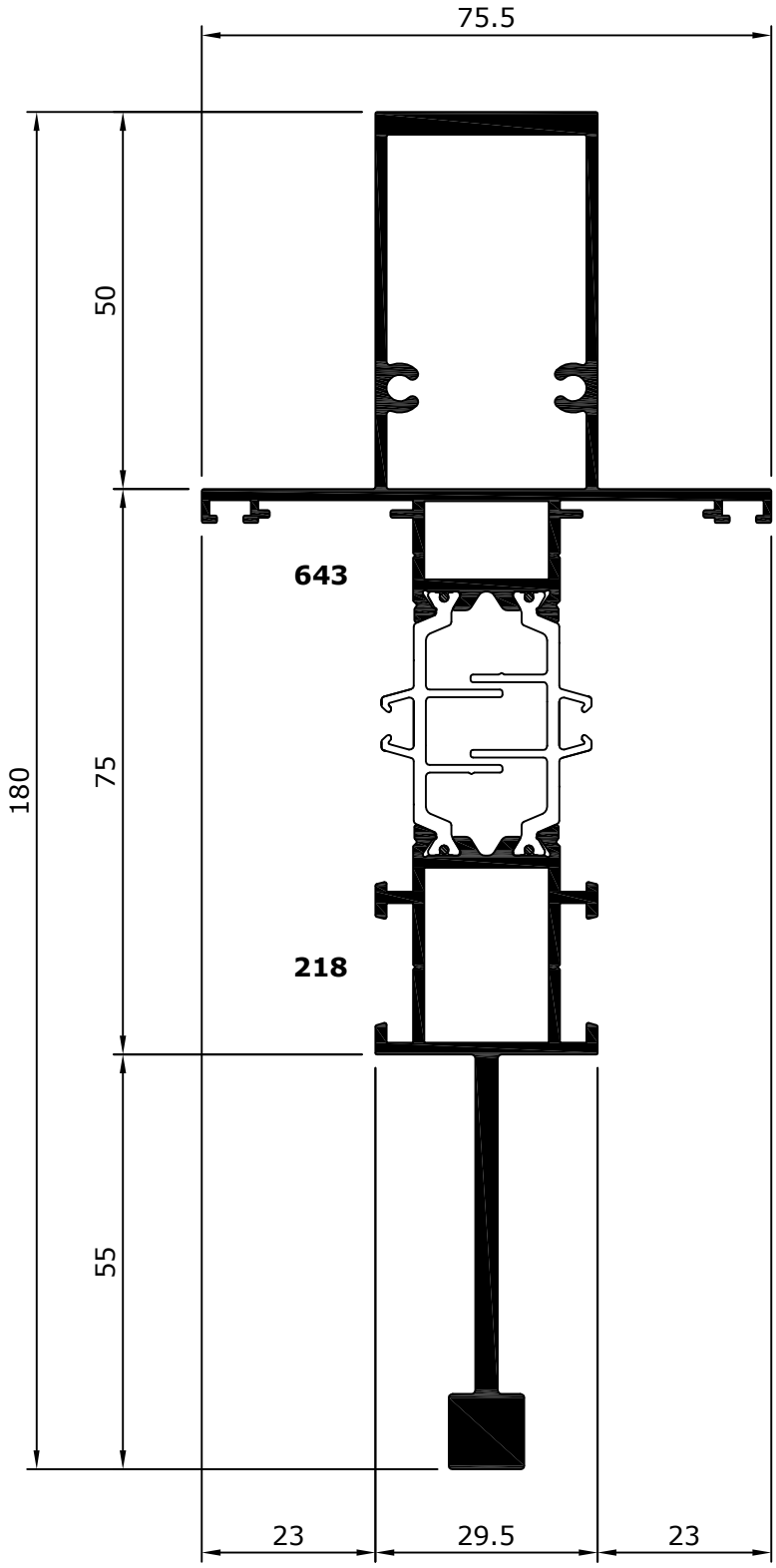
642-218
155mm MULLION WITH FIN
SCREWPORTS AND BOX

Scale 1:1

Section Drawings

System 4-35 Hi/Hi+

CASEMENT WINDOW



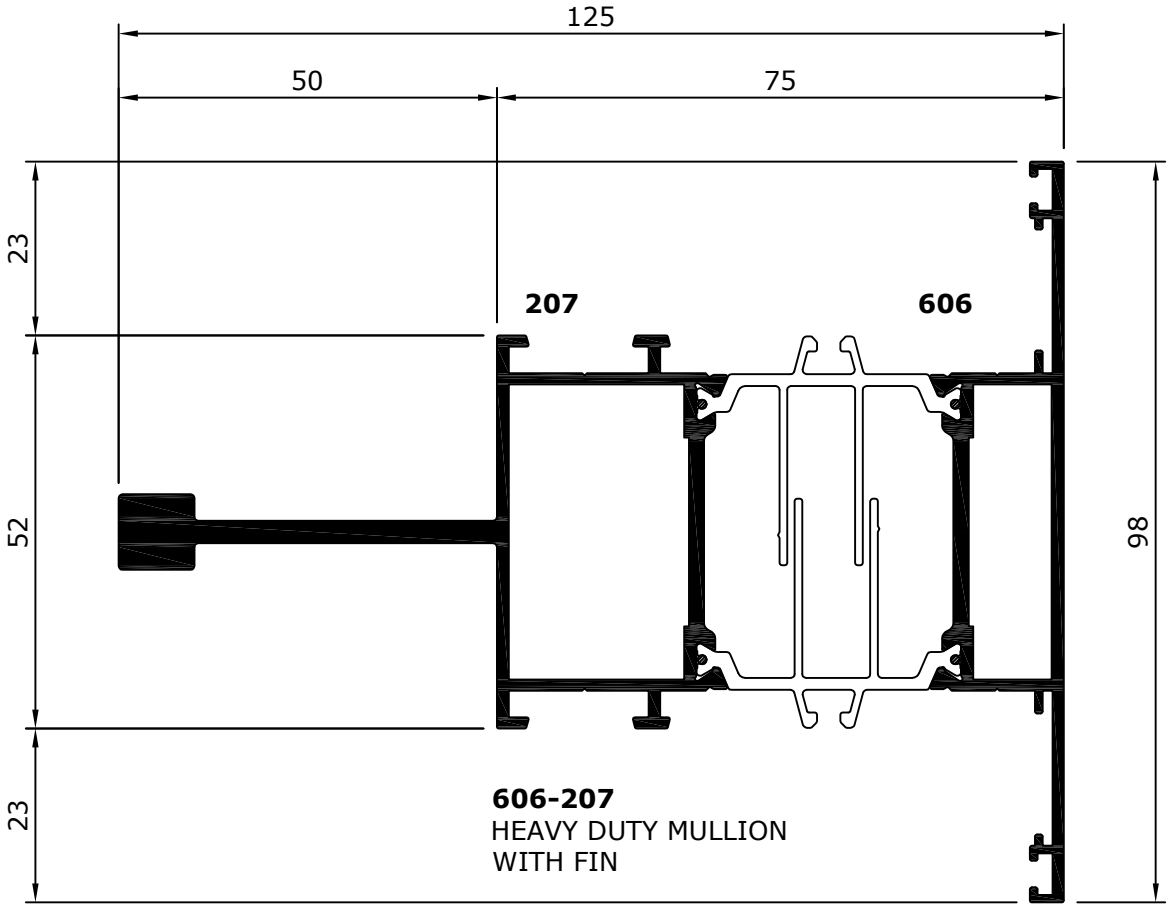
643-218
180mm MULLION WITH FIN
SCREWPORTS AND BOX

Scale 1:1

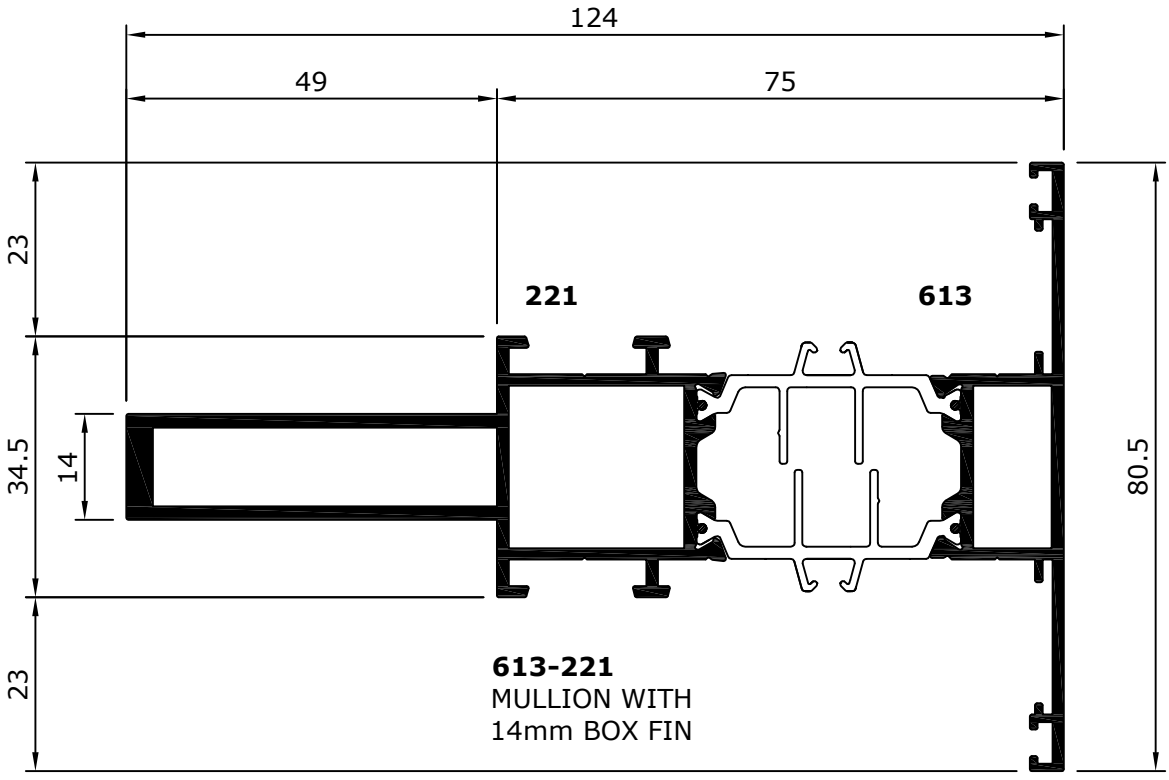
Section Drawings

System 4-35 Hi/Hi+

CASEMENT WINDOW



606-207
HEAVY DUTY MULLION
WITH FIN



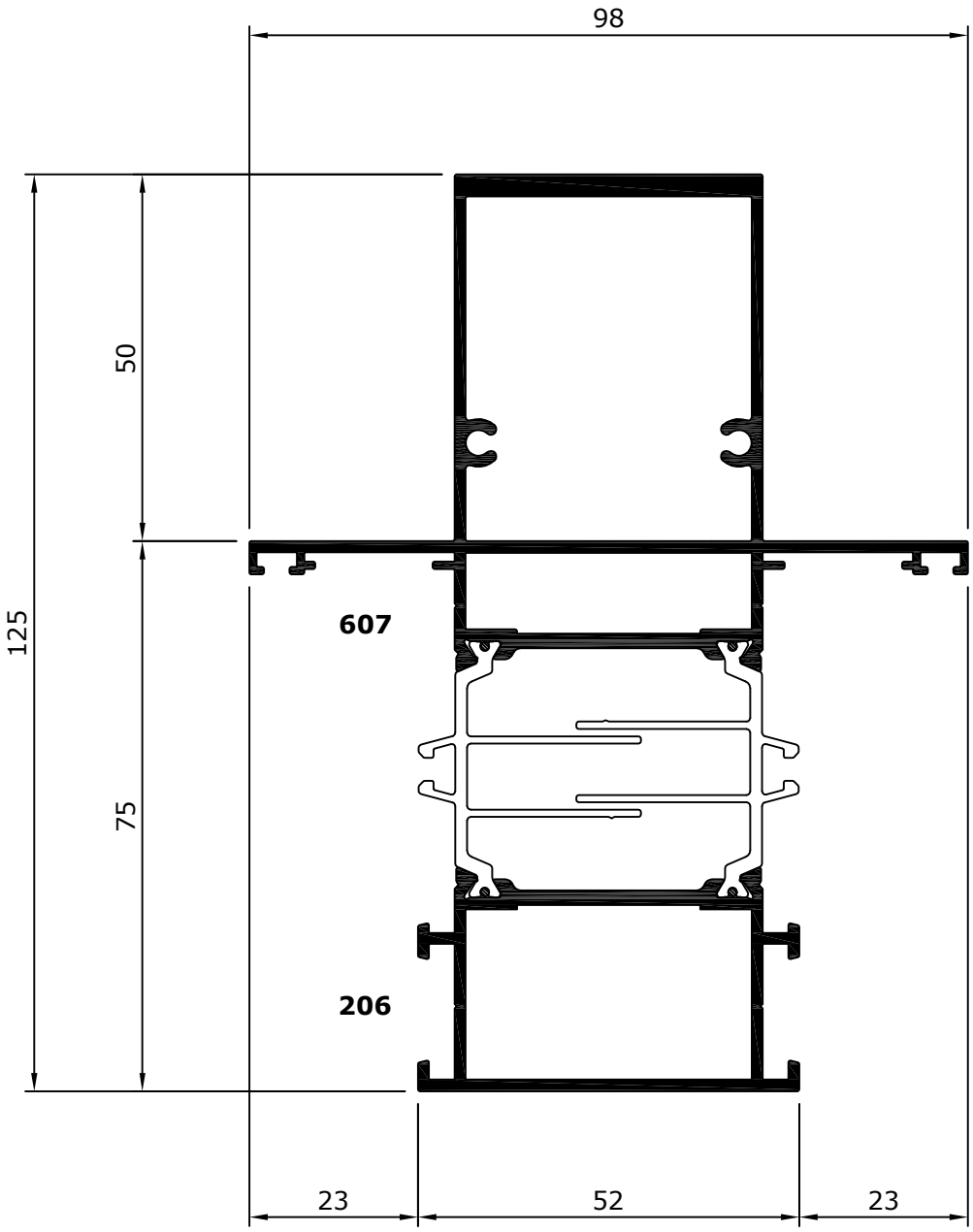
613-221
MULLION WITH
14mm BOX FIN

Scale 1:1

Section Drawings

System 4-35 Hi/Hi+

CASEMENT WINDOW



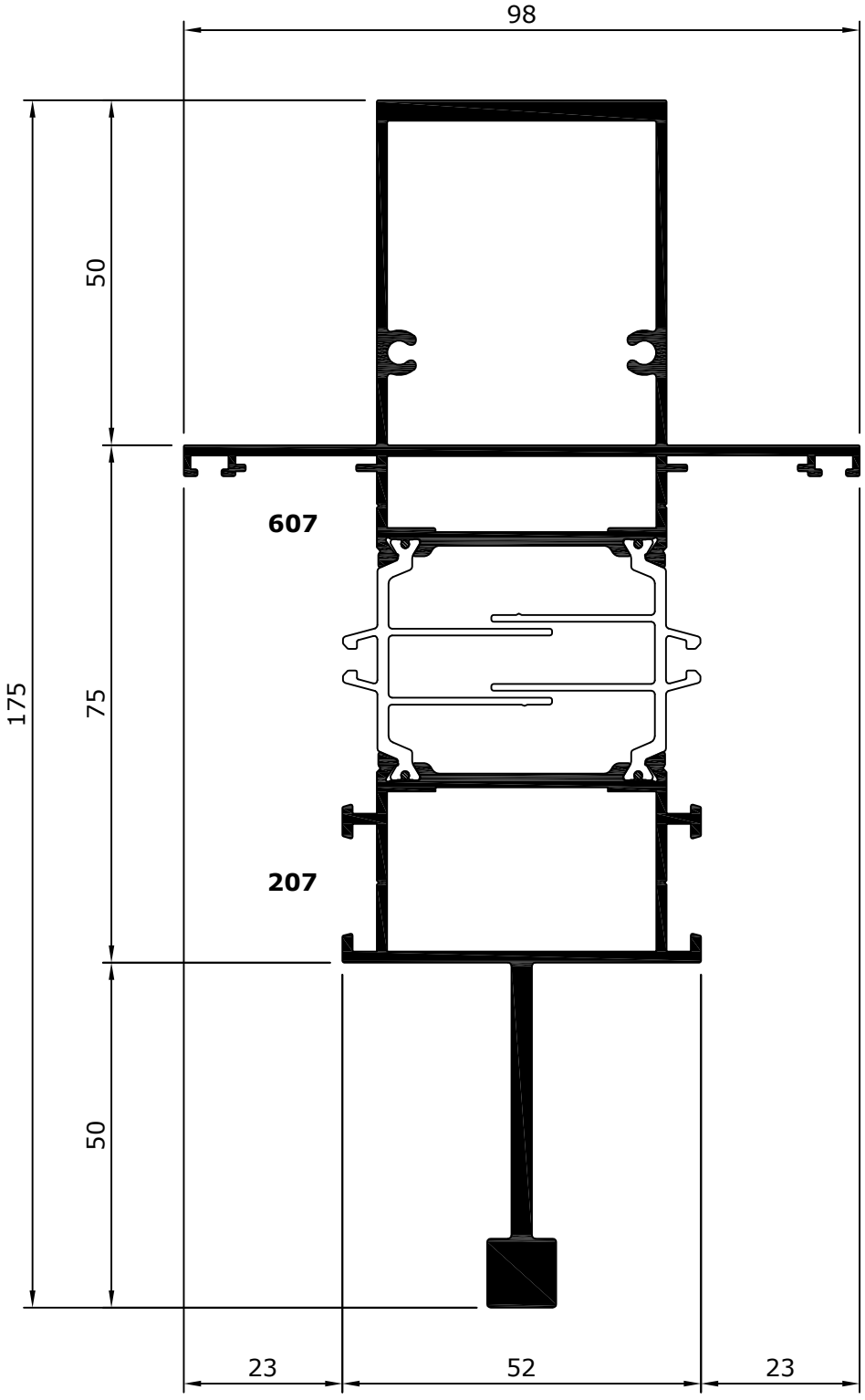
607-206
HEAVY DUTY MULLION WITH BOX

Scale 1:1

Section Drawings

System 4-35 Hi/Hi+

CASEMENT WINDOW



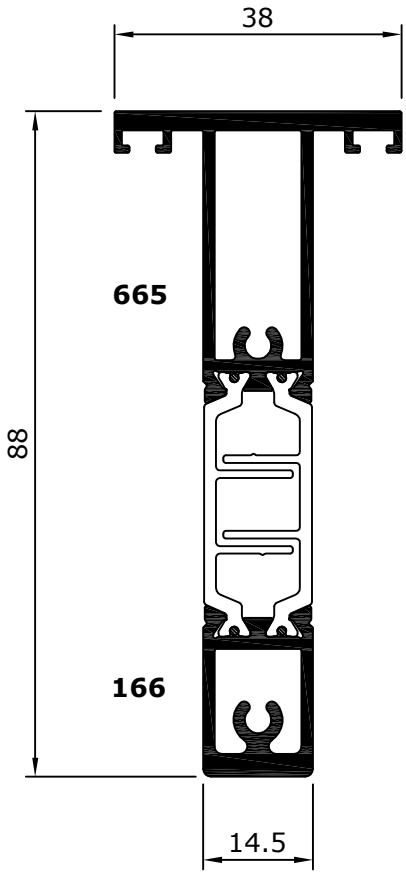
607-207
HEAVY DUTY MULLION WITH FIN AND BOX

Scale 1:1

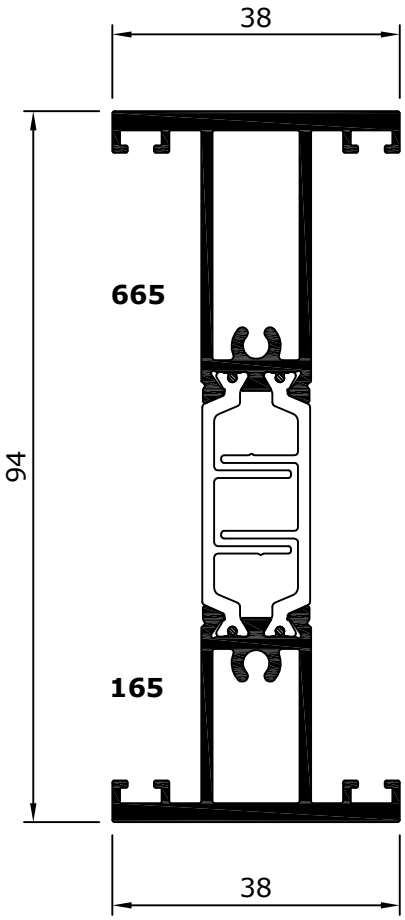
Section Drawings

System 4-35 Hi/Hi+

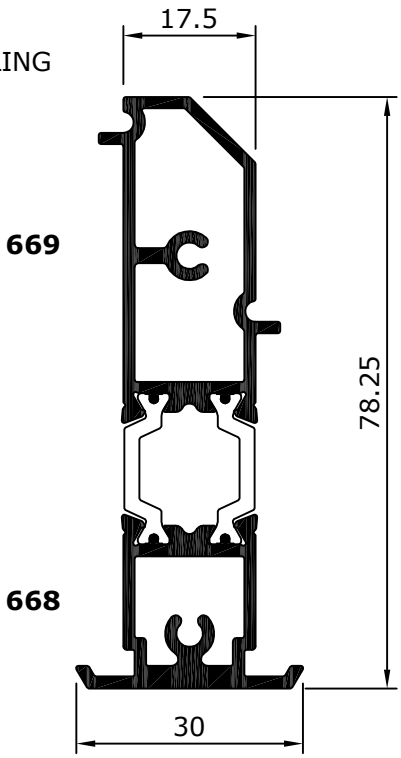
CASEMENT WINDOW



665-166
T-BAR COUPLING
MULLION



665-165
I-BAR COUPLING
MULLION



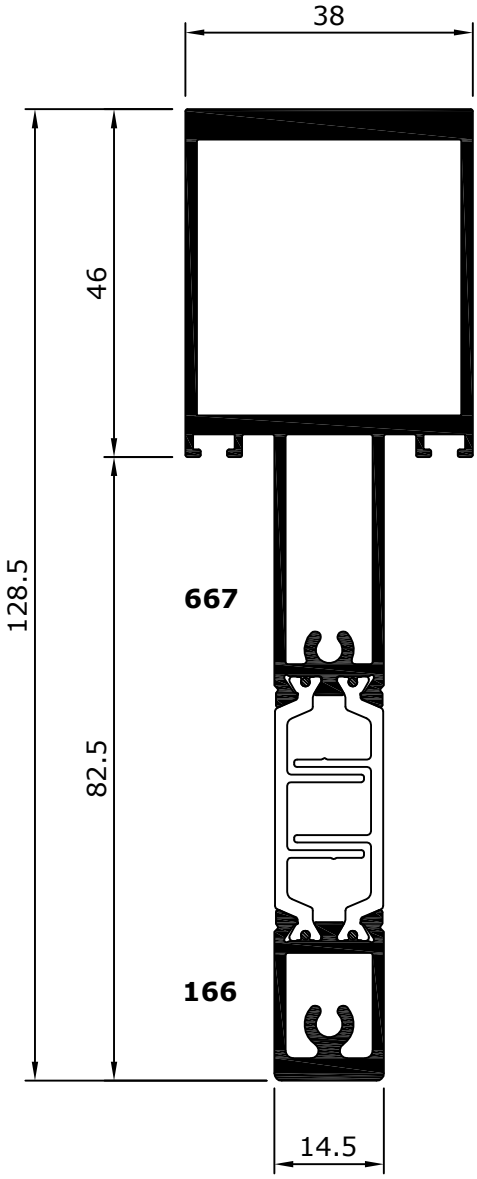
668-669
COUPLING MULLION
ADAPTOR

Scale 1:1

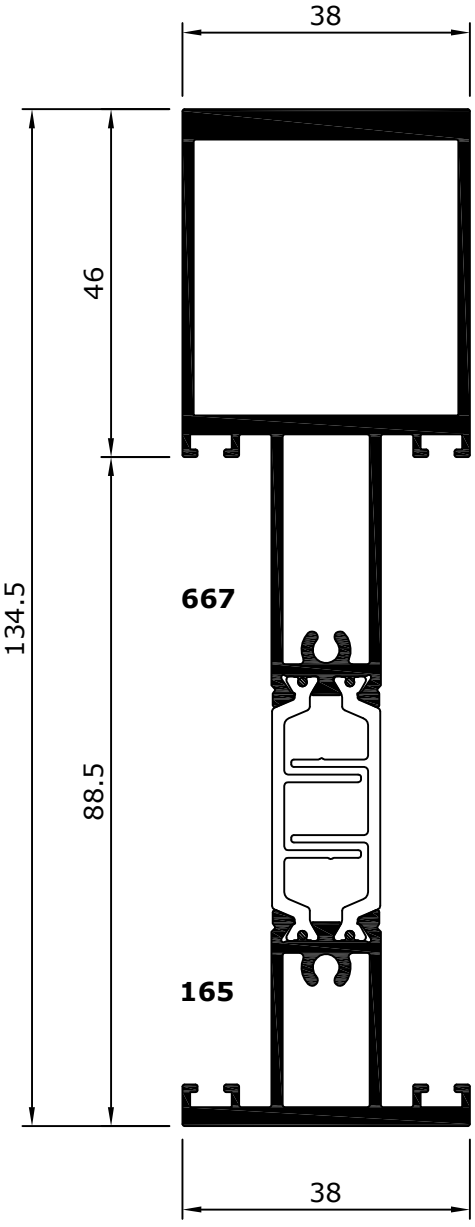
Section Drawings

System 4-35 Hi/Hi+

CASEMENT WINDOW



667-166
BOX T-BAR
COUPLING
MULLION



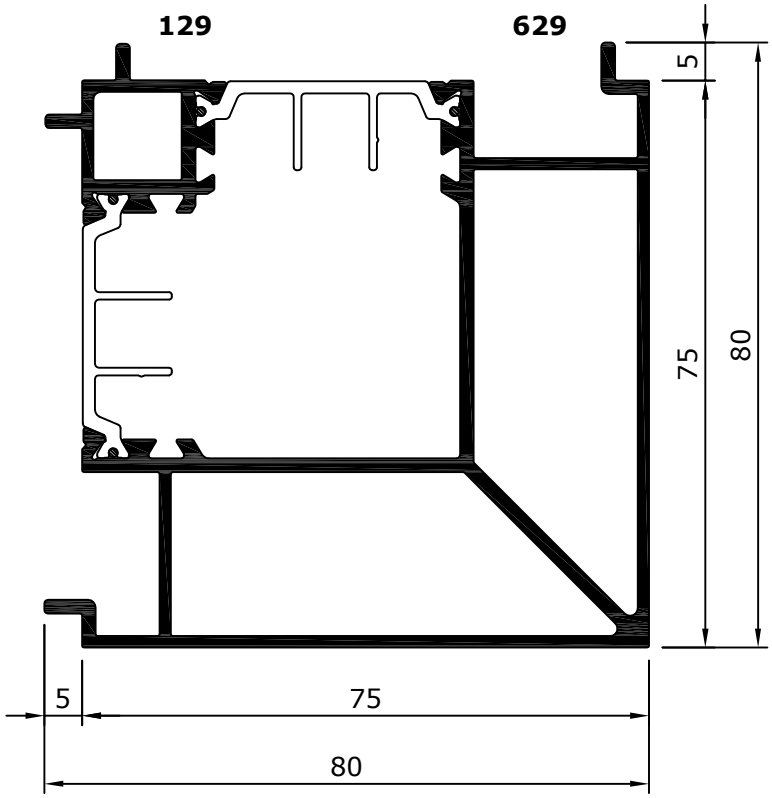
667-165
BOX I-BAR
COUPLING
MULLION

Scale 1:1

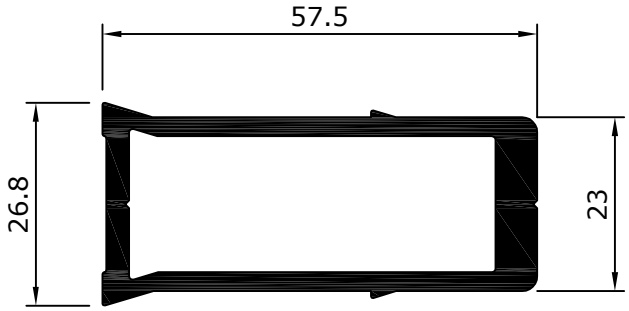
Section Drawings

System 4-35 Hi/Hi+

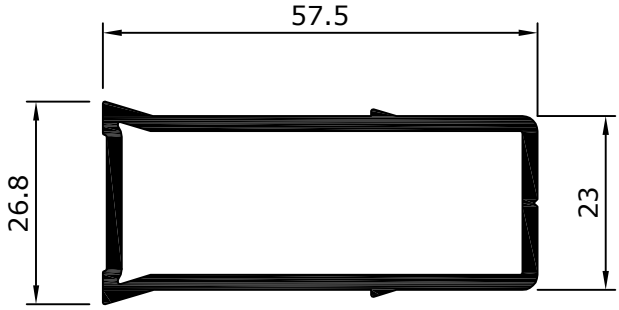
CASEMENT WINDOW



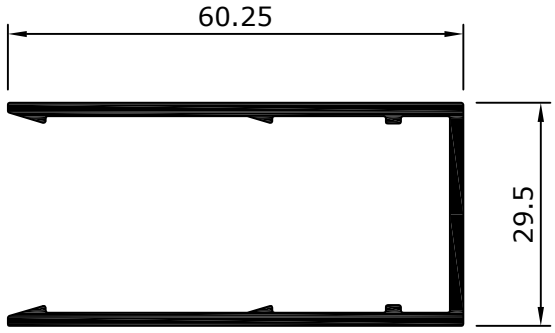
629-129
SQUARE CORNER POST



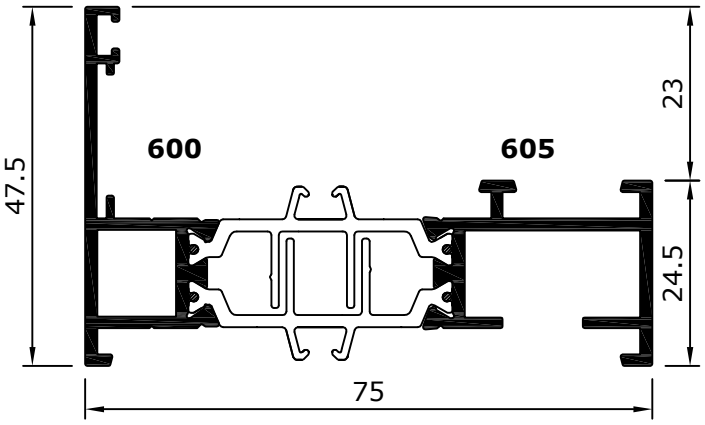
008
LARGE MULLION STIFFENER



007
SMALL MULLION STIFFENER



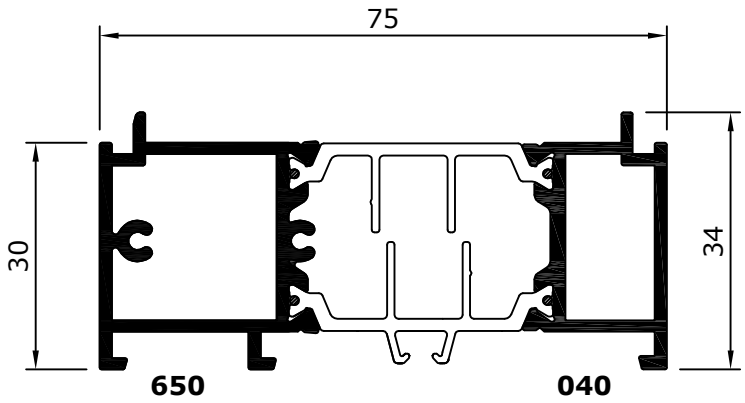
009
MULLION STIFFENER SHEATH



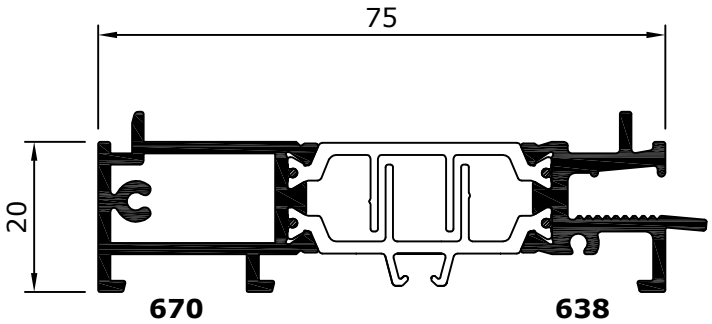
600-605
SHORT LEG OUTER FRAME

Scale 1:1

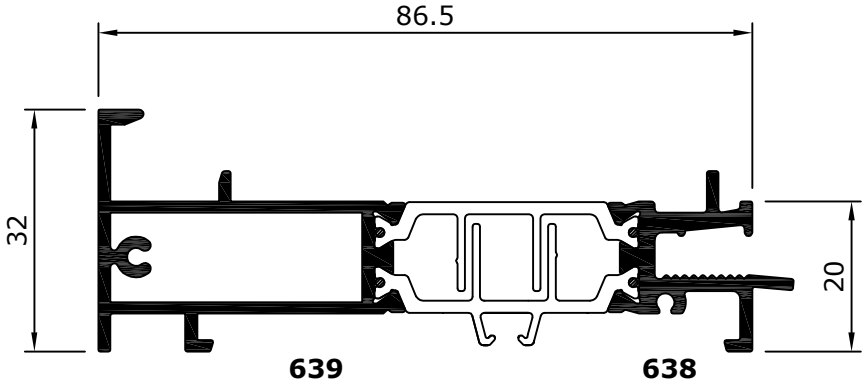
Section Drawings



650-040
FLUSH HEAD LINER
(Not suitable for use with coupling mullions)



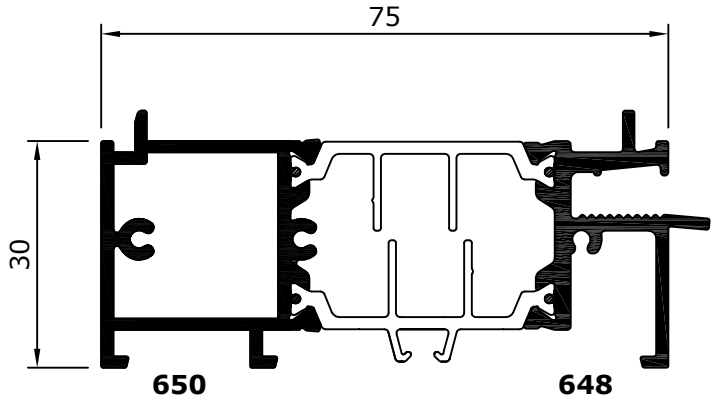
670-638
STANDARD FLUSH CILL LINER
(FOR PRESSED METAL CILL)
(Not suitable for use with coupling mullions)



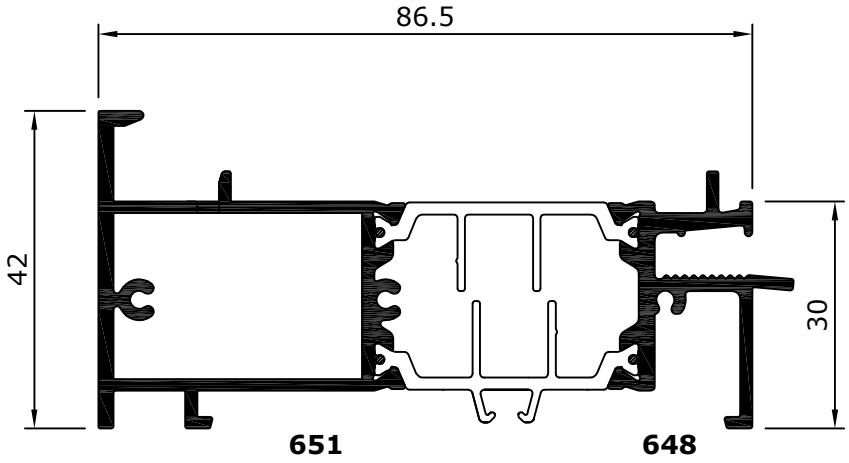
639-638
STANDARD REBATED CILL LINER
(FOR PRESSED METAL CILL)

Scale 1:1

Section Drawings



650-648
MEDIUM FLUSH CILL LINER
(FOR PRESSED METAL CILL)
(Not suitable for use with coupling mullions)



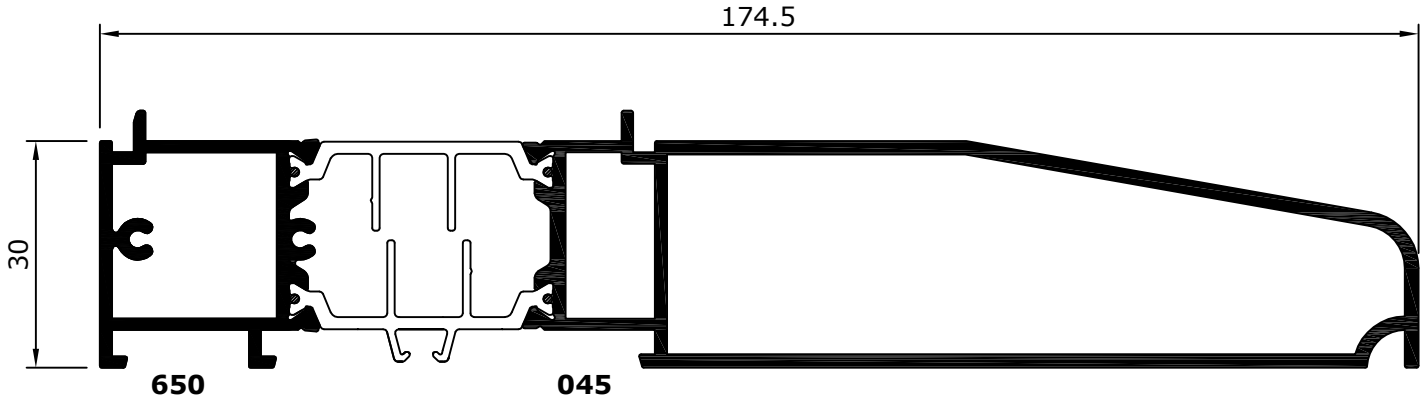
651-648
MEDIUM REBATED CILL LINER
(FOR PRESSED METAL CILL)

Scale 1:1

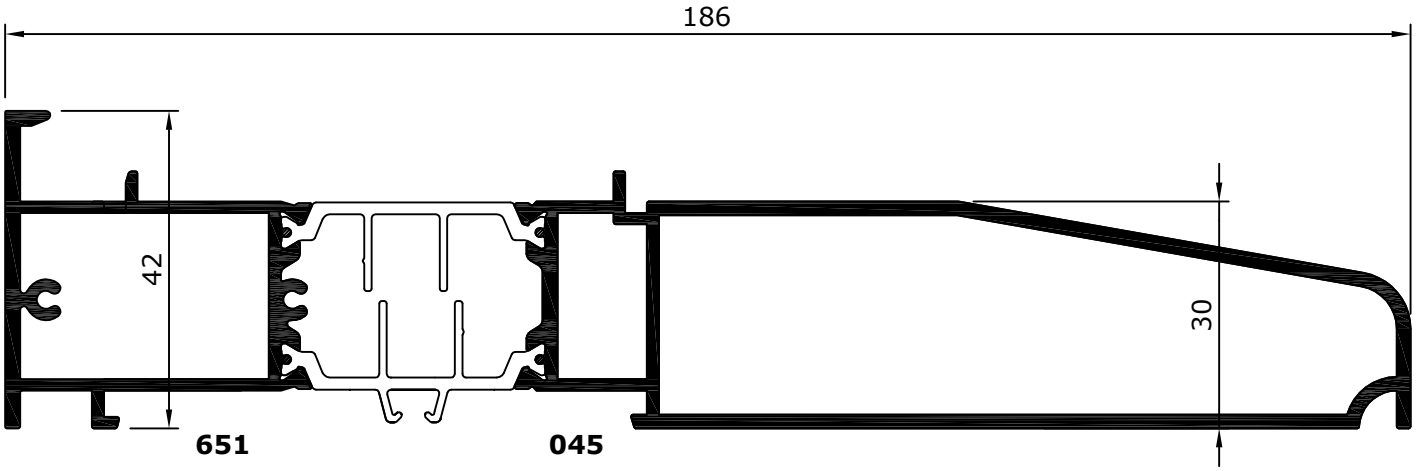
Section Drawings

System 4-35 Hi/Hi+

CASEMENT WINDOW



650-045
FLUSH SUB-CILL
(Not suitable for use with coupling mullions)



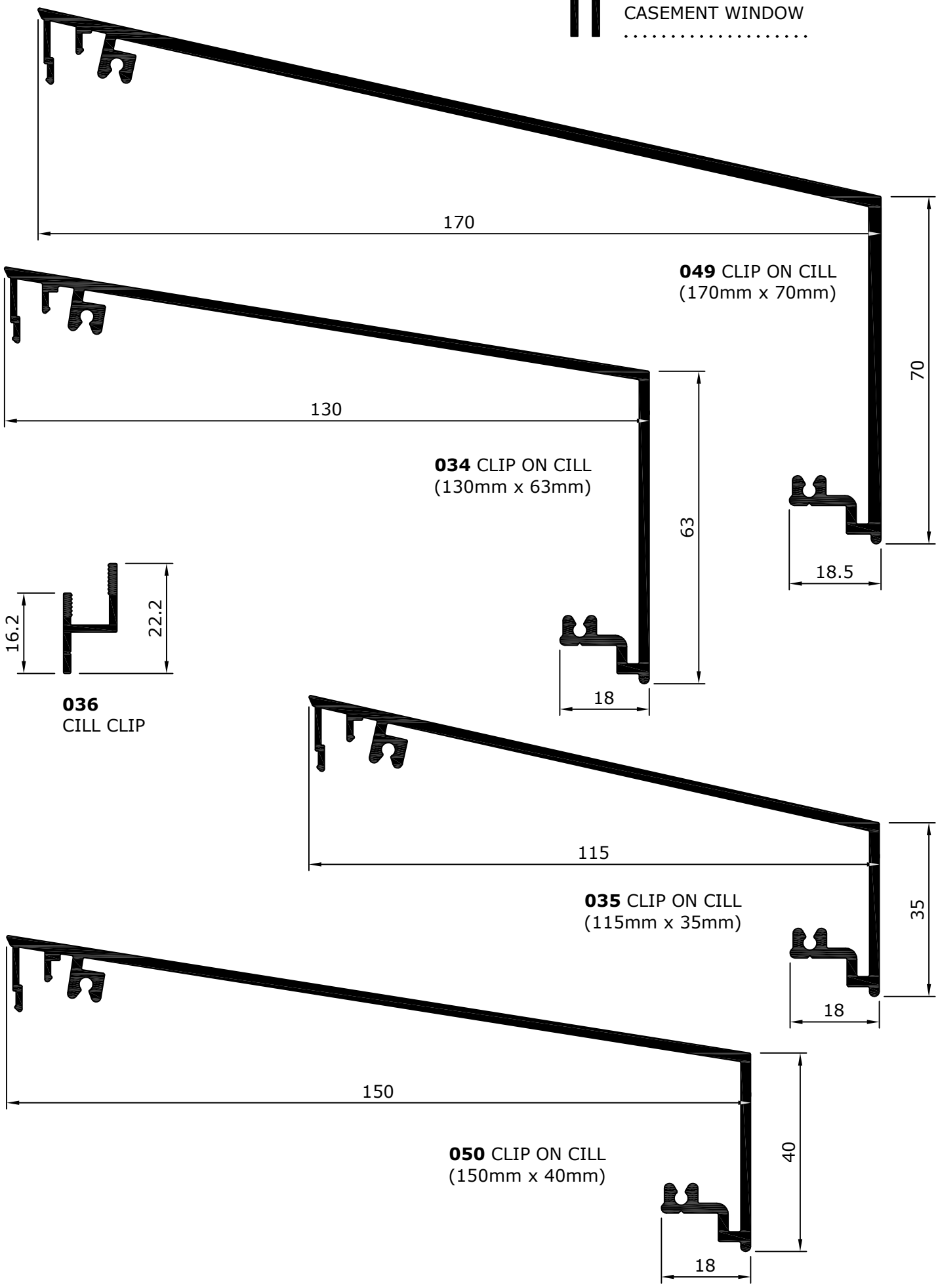
651-045
REBATED SUB-CILL

Scale 1:1

Section Drawings

System 4-35 Hi/Hi+

CASEMENT WINDOW

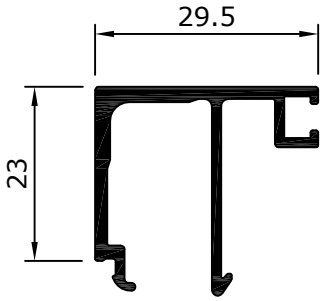


Scale 1:1

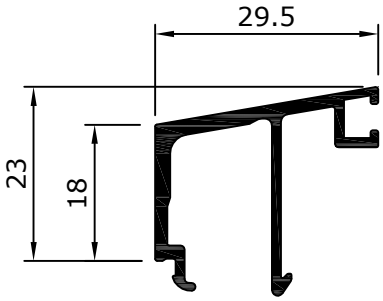
Section Drawings

System 4-35 Hi/Hi+

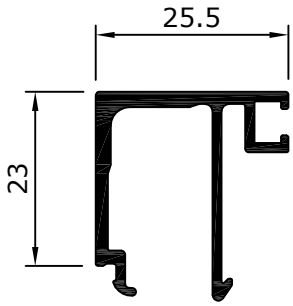
CASEMENT WINDOW



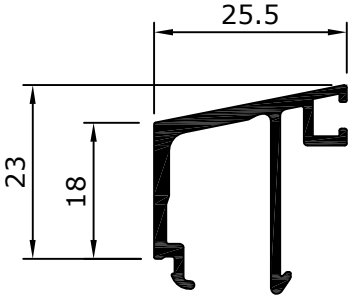
628
28mm/31mm
SQUARE GLAZING BEAD



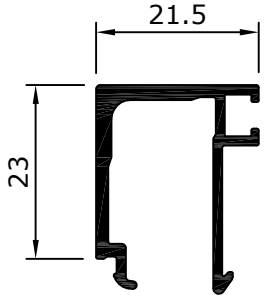
623
28mm/31mm
RAKED GLAZING BEAD



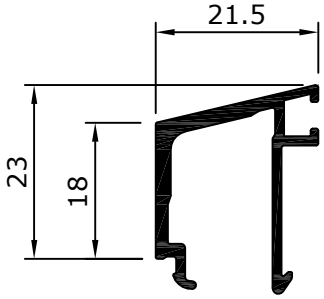
634
32mm/35mm
SQUARE GLAZING BEAD



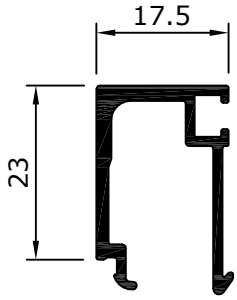
635
32mm/35mm
RAKED GLAZING BEAD



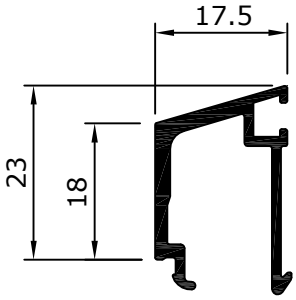
636
36mm/39mm
SQUARE GLAZING BEAD



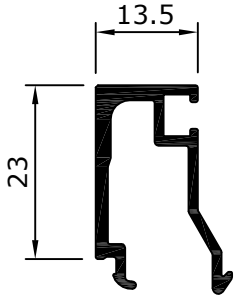
644
36mm/39mm
RAKED GLAZING BEAD



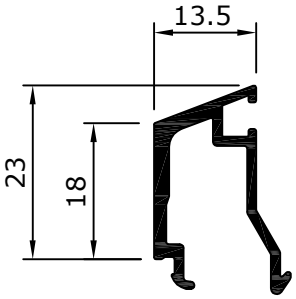
645
40mm/43mm
SQUARE GLAZING BEAD



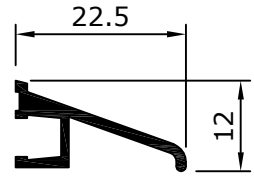
646
40mm/43mm
RAKED GLAZING BEAD



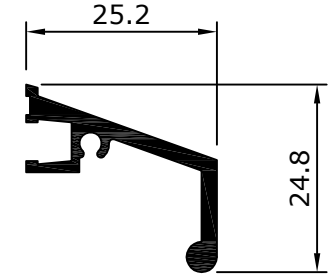
653
44mm/47mm
SQUARE GLAZING BEAD
(not suitable for use with slimline sash 676-677)



654
44mm/47mm
RAKED GLAZING BEAD
(not suitable for use with slimline sash 676-677)



TW05
DRIP RAIL



HS103
DRIP RAIL
(Butt hinged top hung application only)

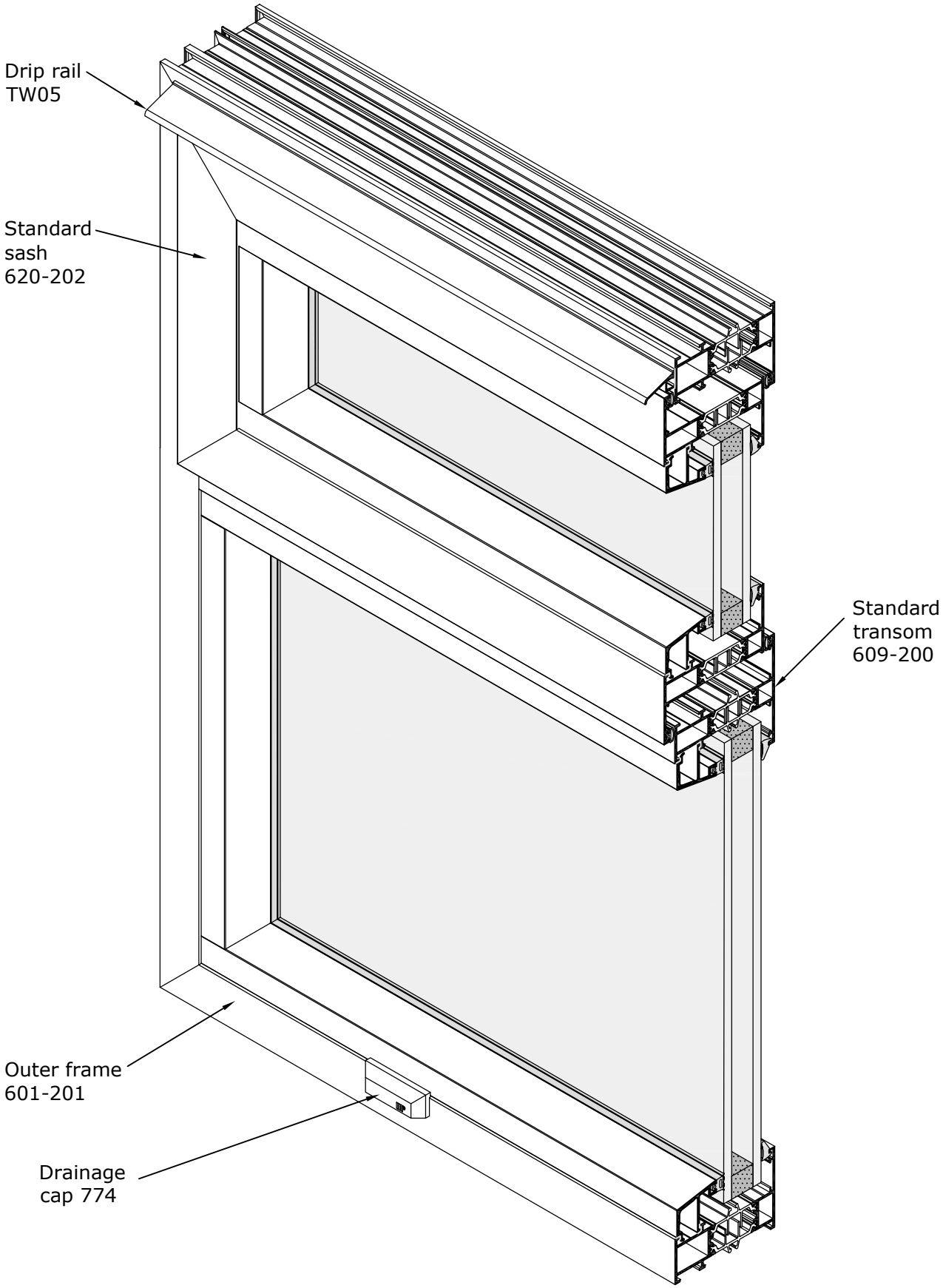
Scale 1:1

General Arrangement

4-35Hi 3-Dimensional Assembly Detail

System 4-35 Hi

CASEMENT WINDOW



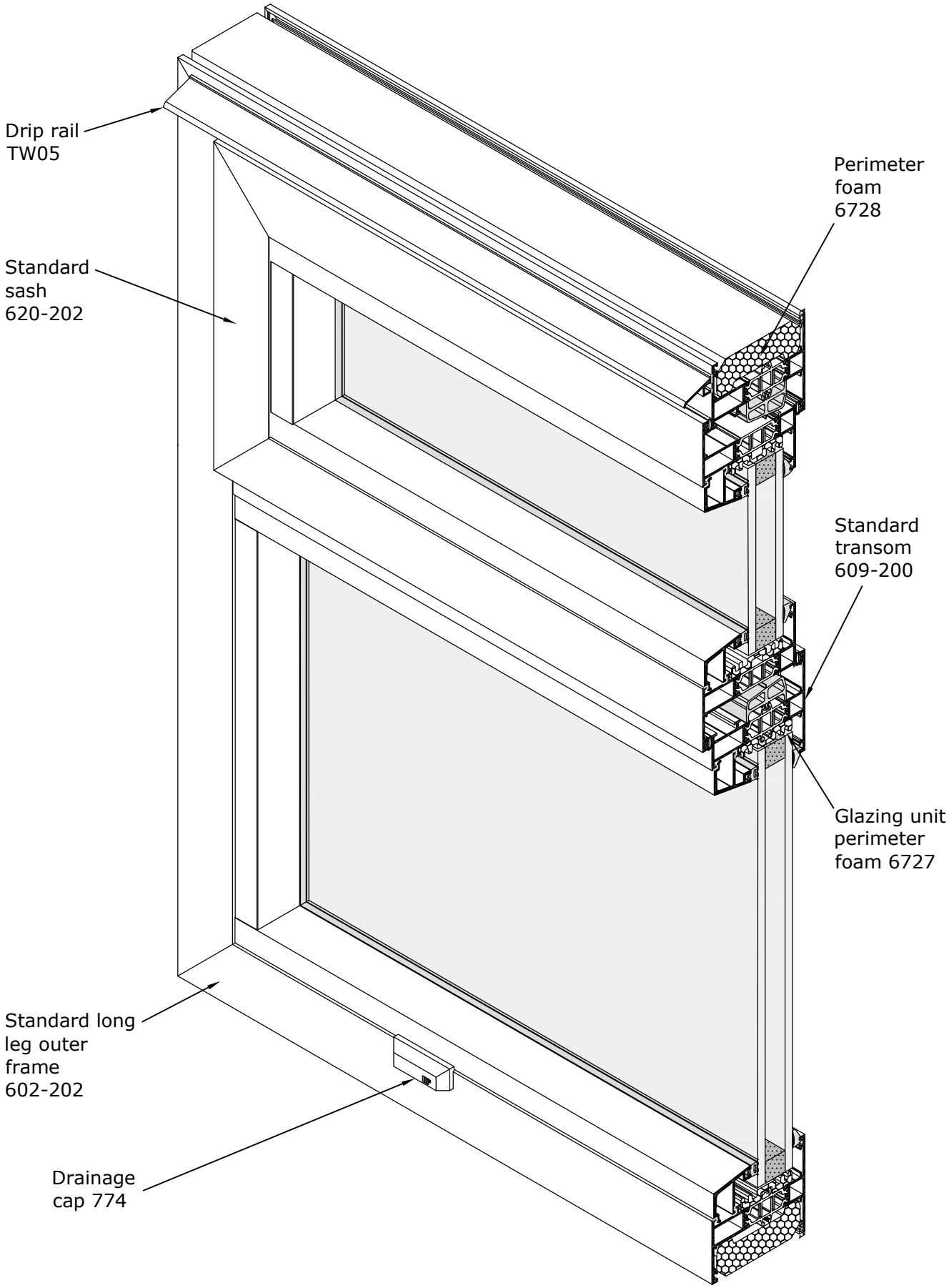
Not to scale

General Arrangement

4-35Hi+ 3-Dimensional Assembly Detail

System 4-35 Hi+

CASEMENT WINDOW

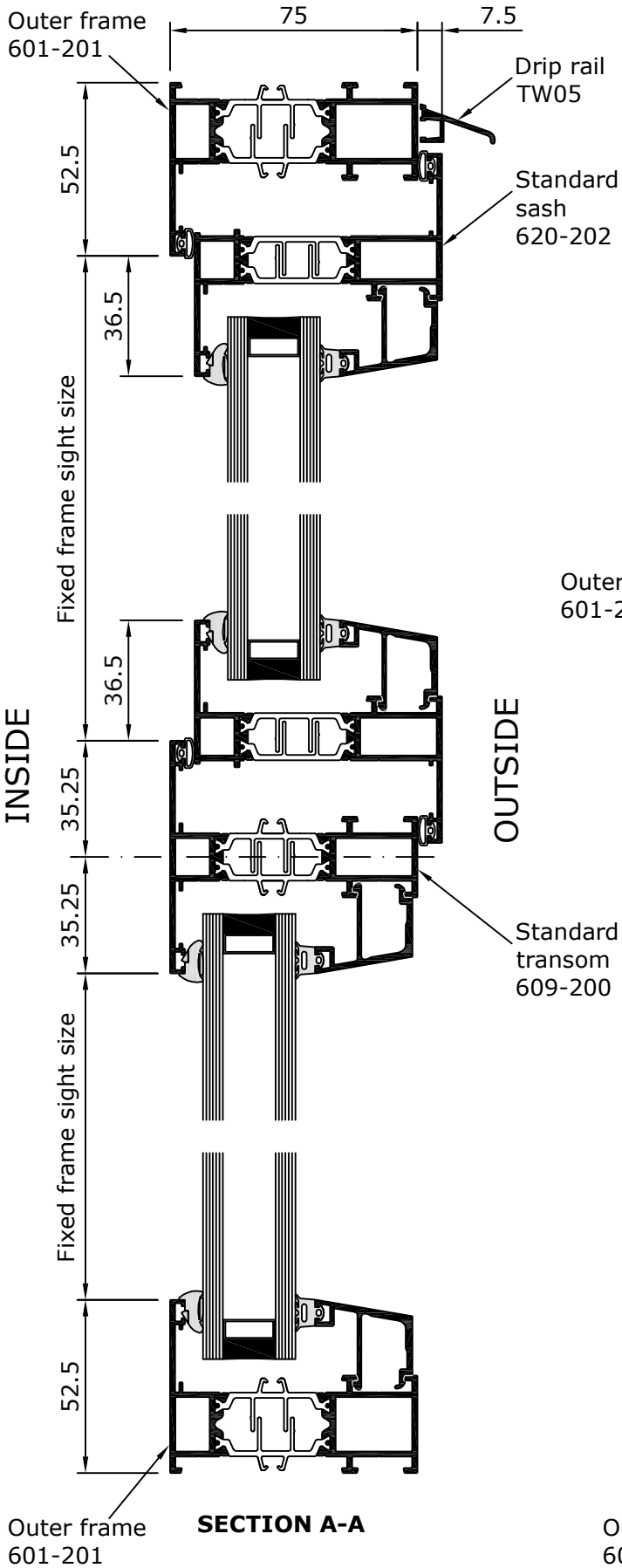


Not to scale

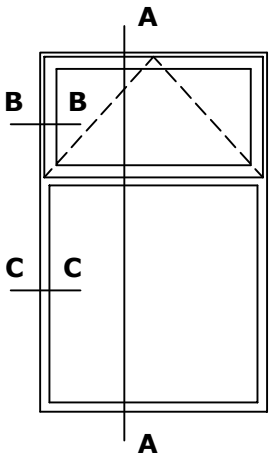
Standard Glaze Out Casement

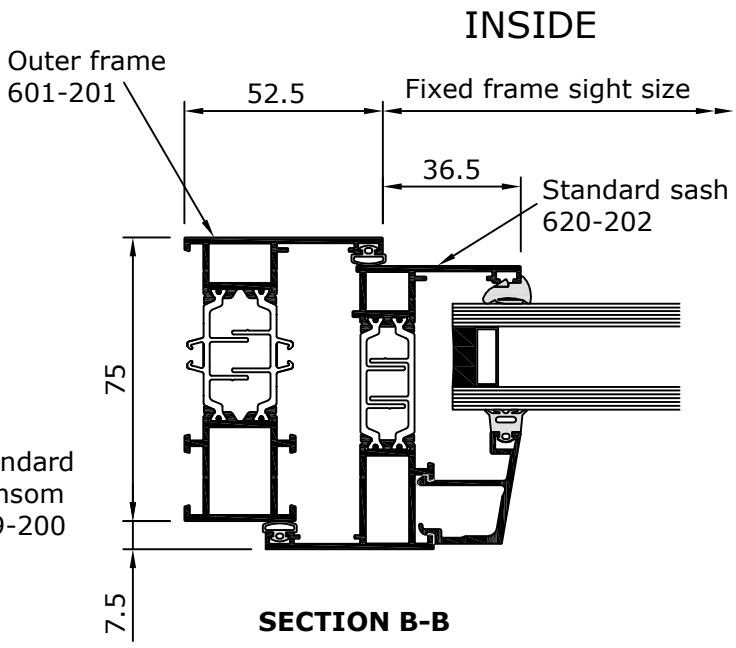
System 4-35 Hi

CASEMENT WINDOW

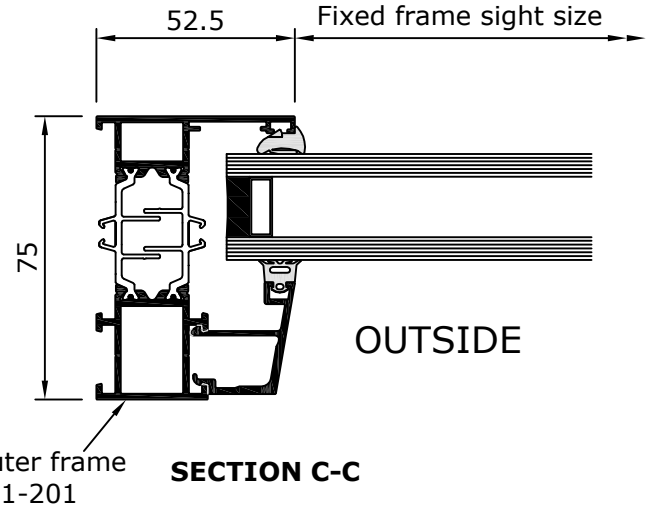


SECTION A-A





SECTION B-B



SECTION C-C

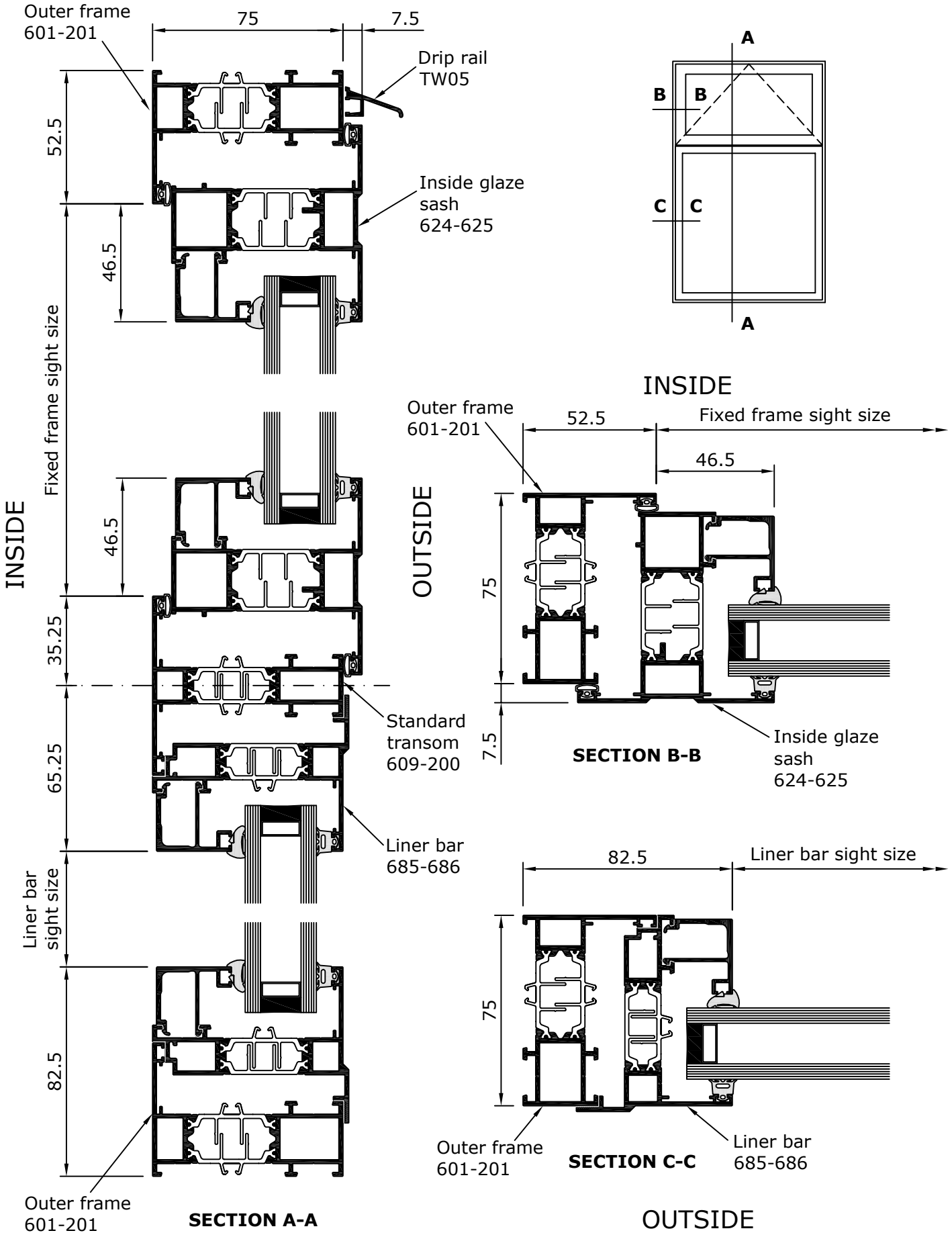
Scale 1:2

Glaze In Casement

Liner Bar to Fixed Lights

System 4-35 Hi

CASEMENT WINDOW

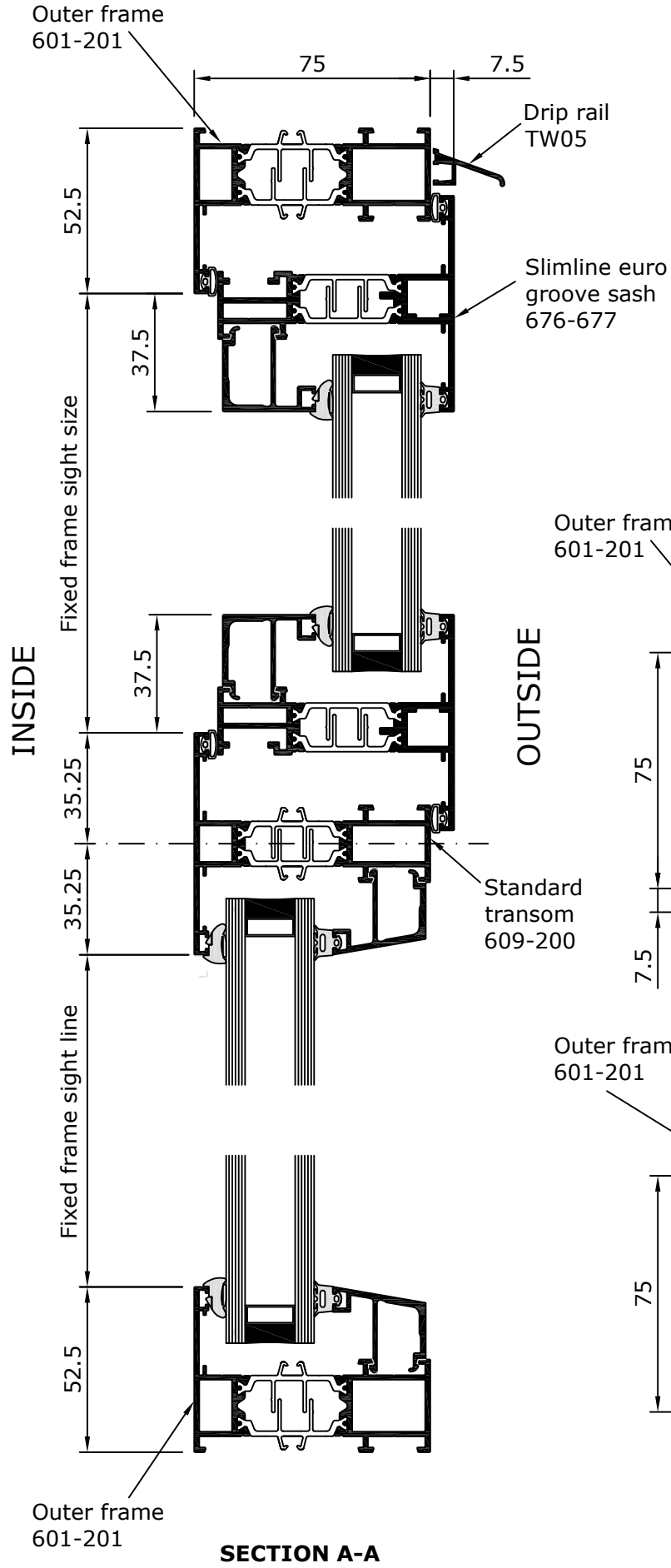


Scale 1:2

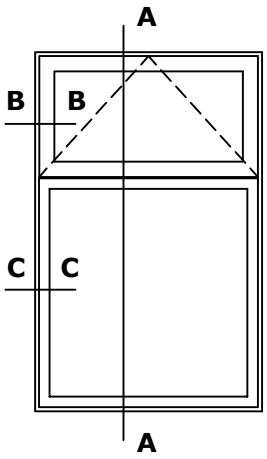
Euro Groove Casement

System 4-35 Hi

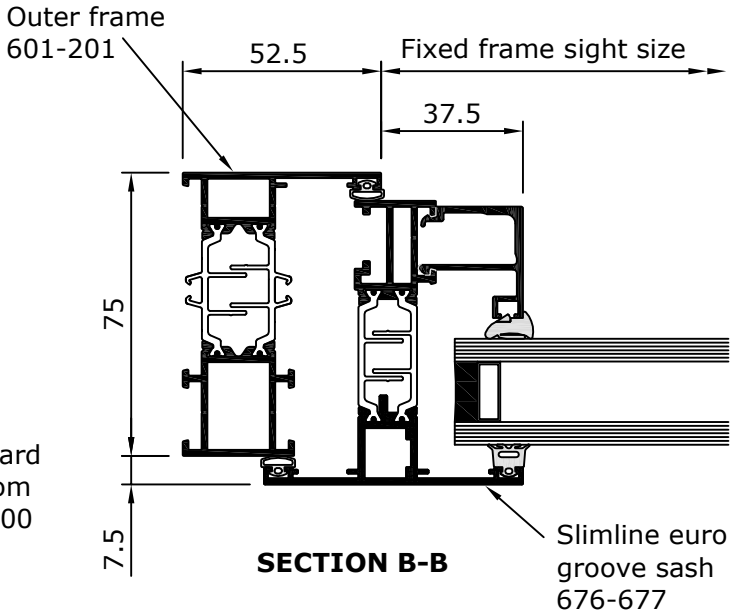
CASEMENT WINDOW



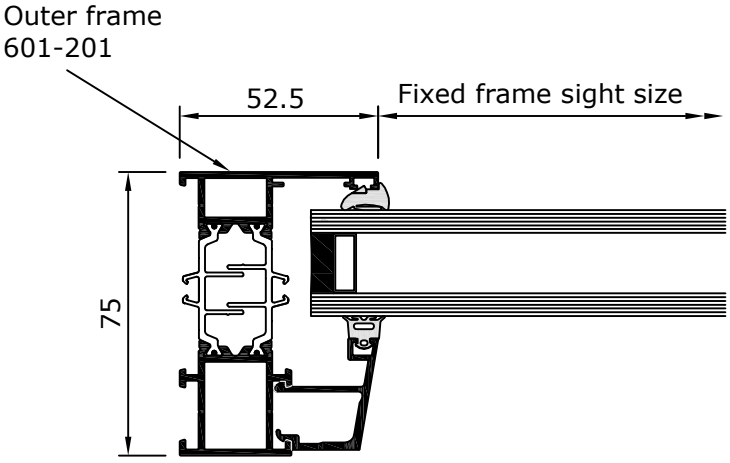
SECTION A-A



INSIDE



SECTION B-B



SECTION C-C

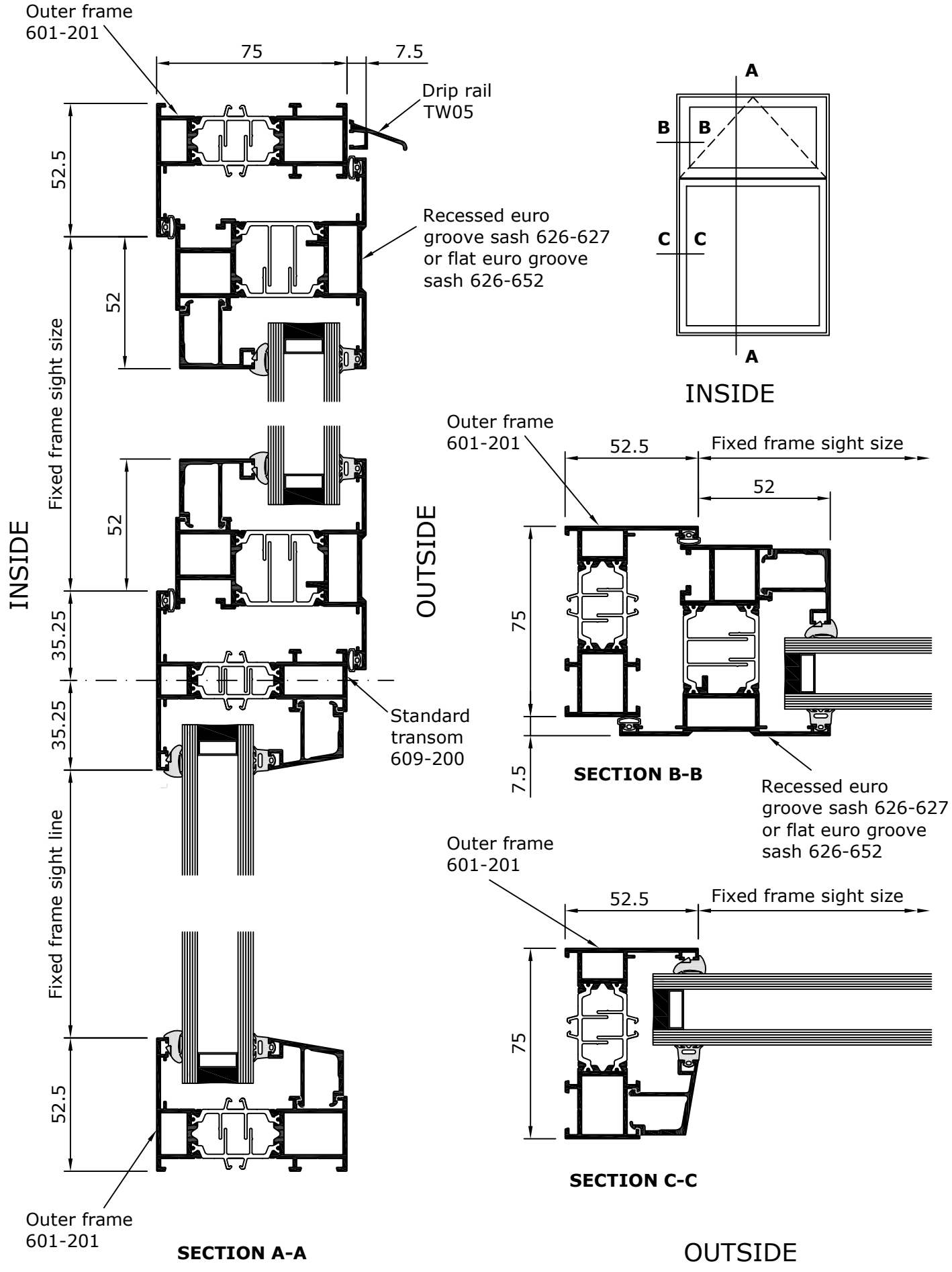
OUTSIDE

Scale 1:2

Euro Groove Casement

System 4-35 Hi

CASEMENT WINDOW



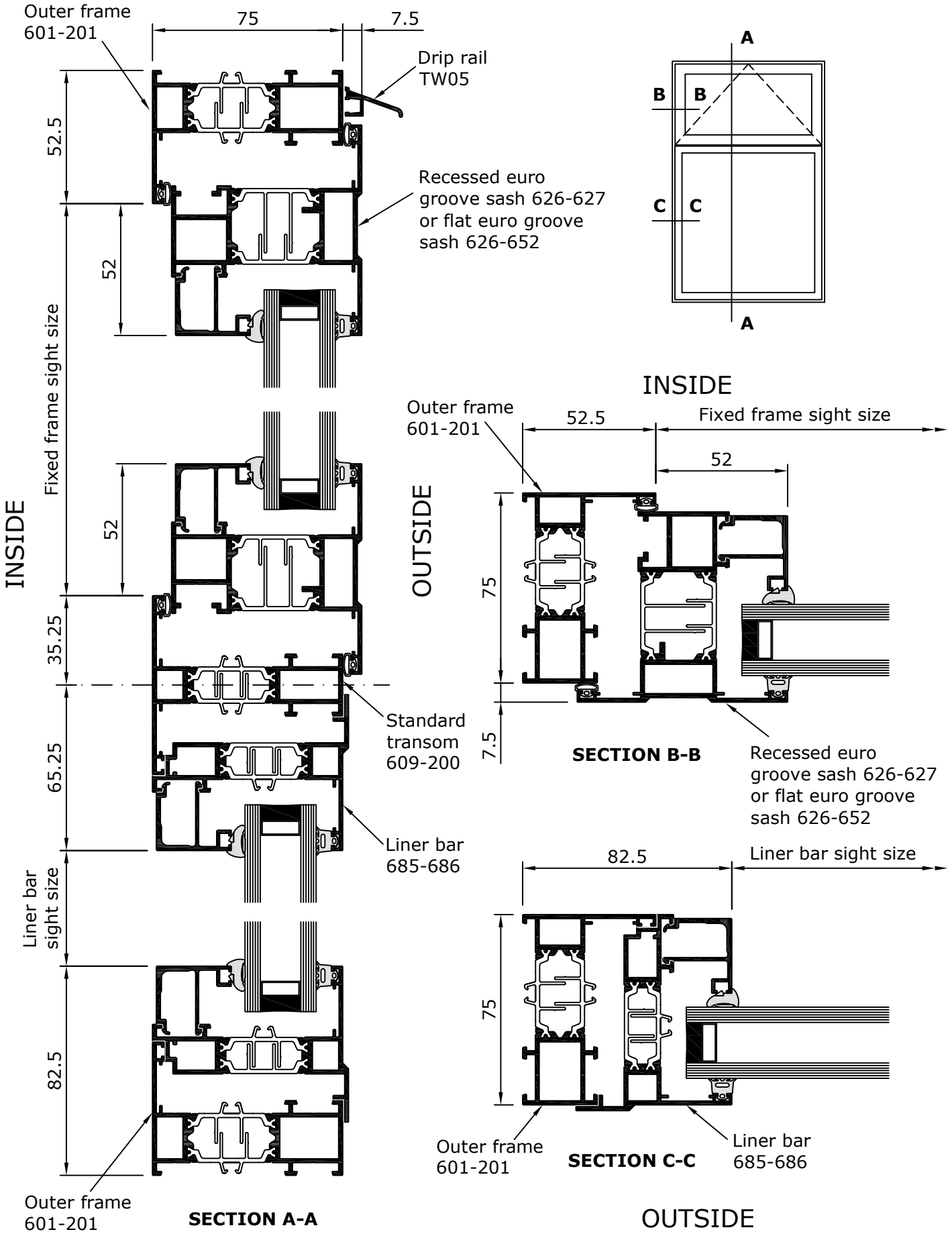
Scale 1:2

Euro Groove Glaze In Casement

Liner Bar to Fixed Lights

System 4-35 Hi

CASEMENT WINDOW



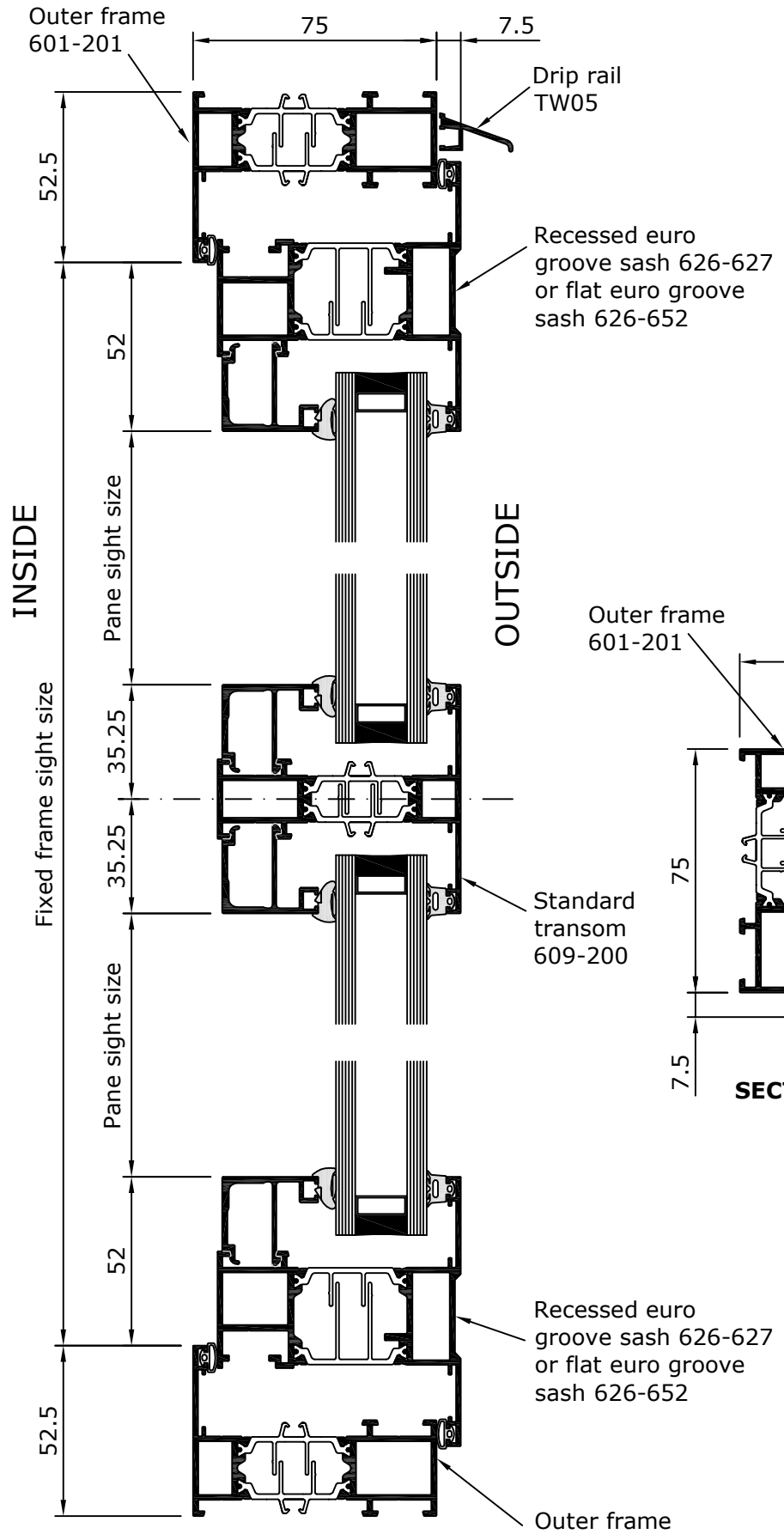
Scale 1:2

Muntin Bar Option

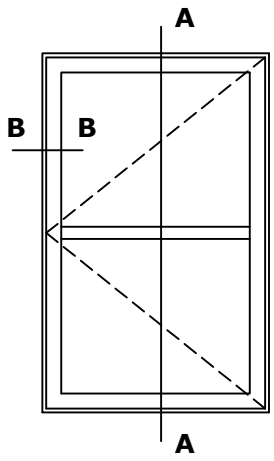
System 4-35 Hi

CASEMENT WINDOW

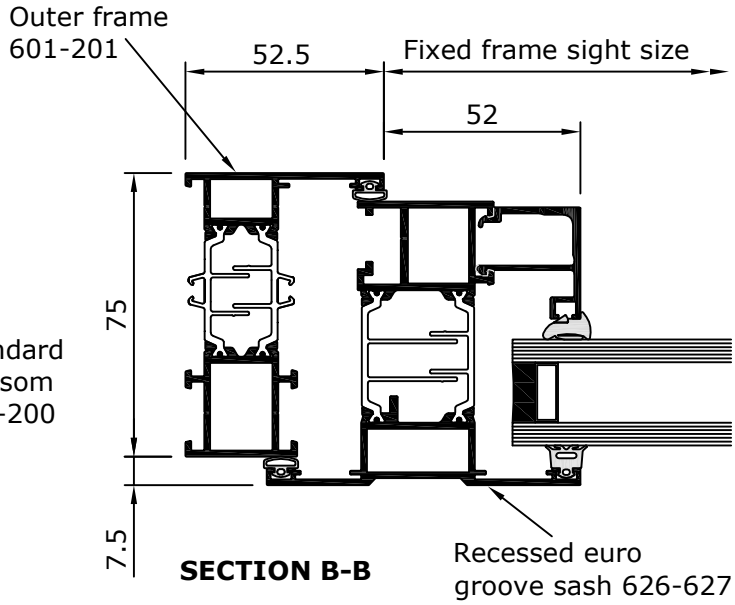
Suitable for use with sashes 620-202, 624-625, 626-627 and 626-652.



SECTION A-A



INSIDE



SECTION B-B

OUTSIDE

Scale 1:2

Coupling Mullions

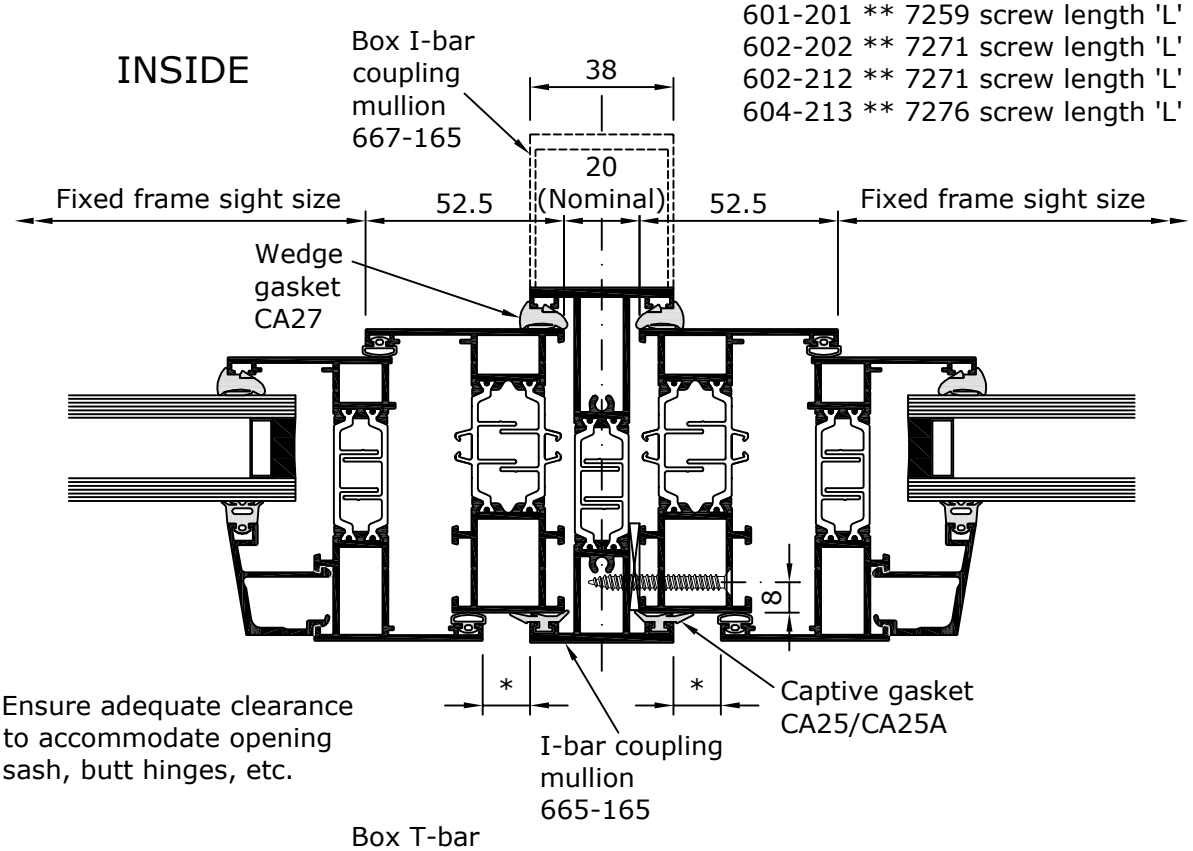
System 4-35 Hi
CASEMENT WINDOW

These profiles were not intended for use as coupling transoms. The fabricator must ensure that the window design and coupling details can adequately accommodate the anticipated expansion and contraction required for the window configuration. For further advice please contact Metal Technology's Technical Department.

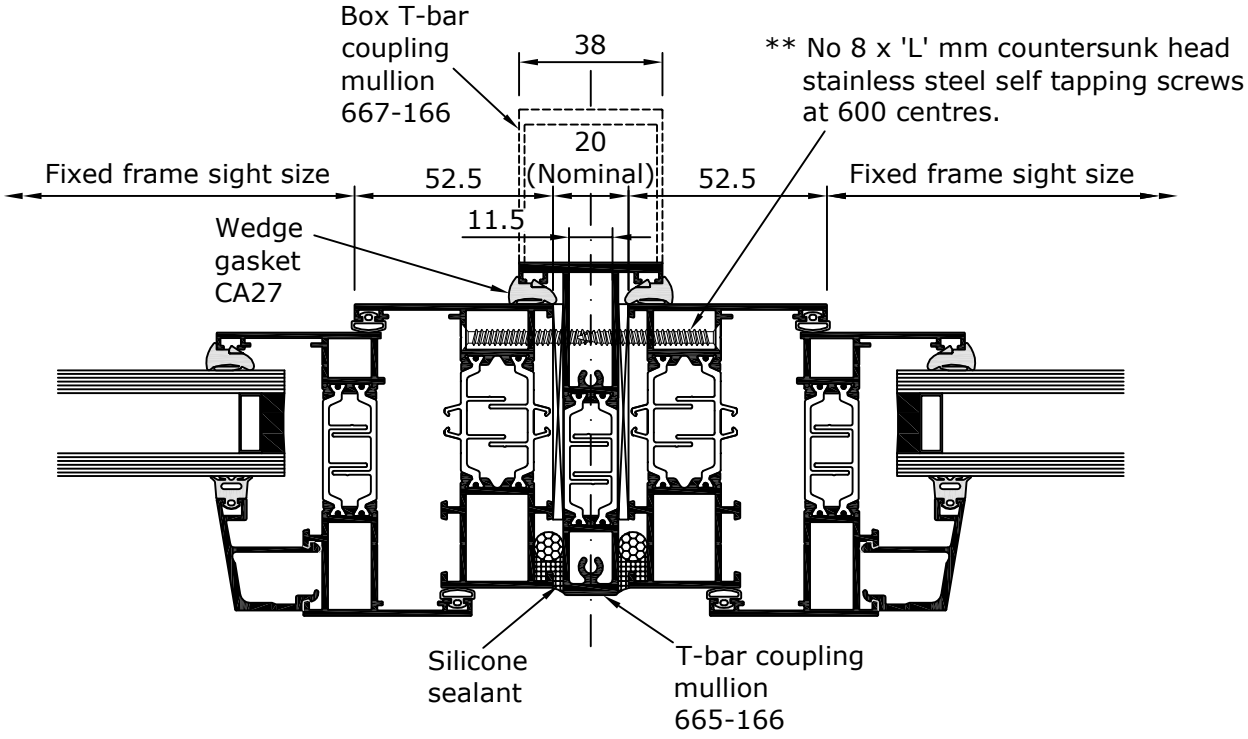
Windows to be screw fixed to coupling mullions at 600mm centres as indicated.

All fixings must be sealed using HR50328A sealant.

Outer frame
600-200 ** 7275 screw length 'L' = 32mm
601-201 ** 7259 screw length 'L' = 38mm
602-202 ** 7271 screw length 'L' = 50mm
602-212 ** 7271 screw length 'L' = 50mm
604-213 ** 7276 screw length 'L' = 45mm



* Ensure adequate clearance to accommodate opening sash, butt hinges, etc.



OUTSIDE

Scale 1:2

90° Corner Post

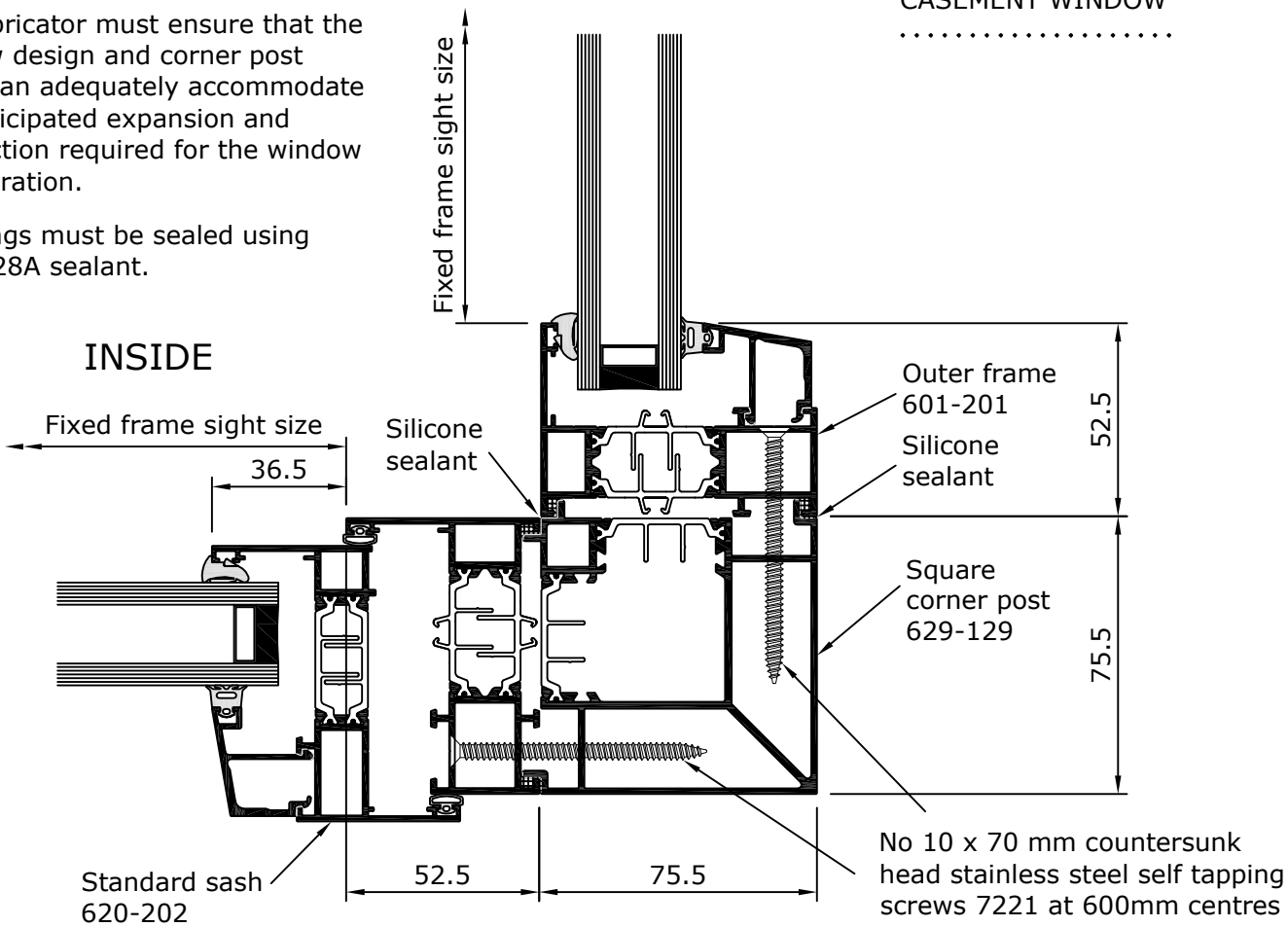
External Corner Details

System 4-35 Hi

CASEMENT WINDOW

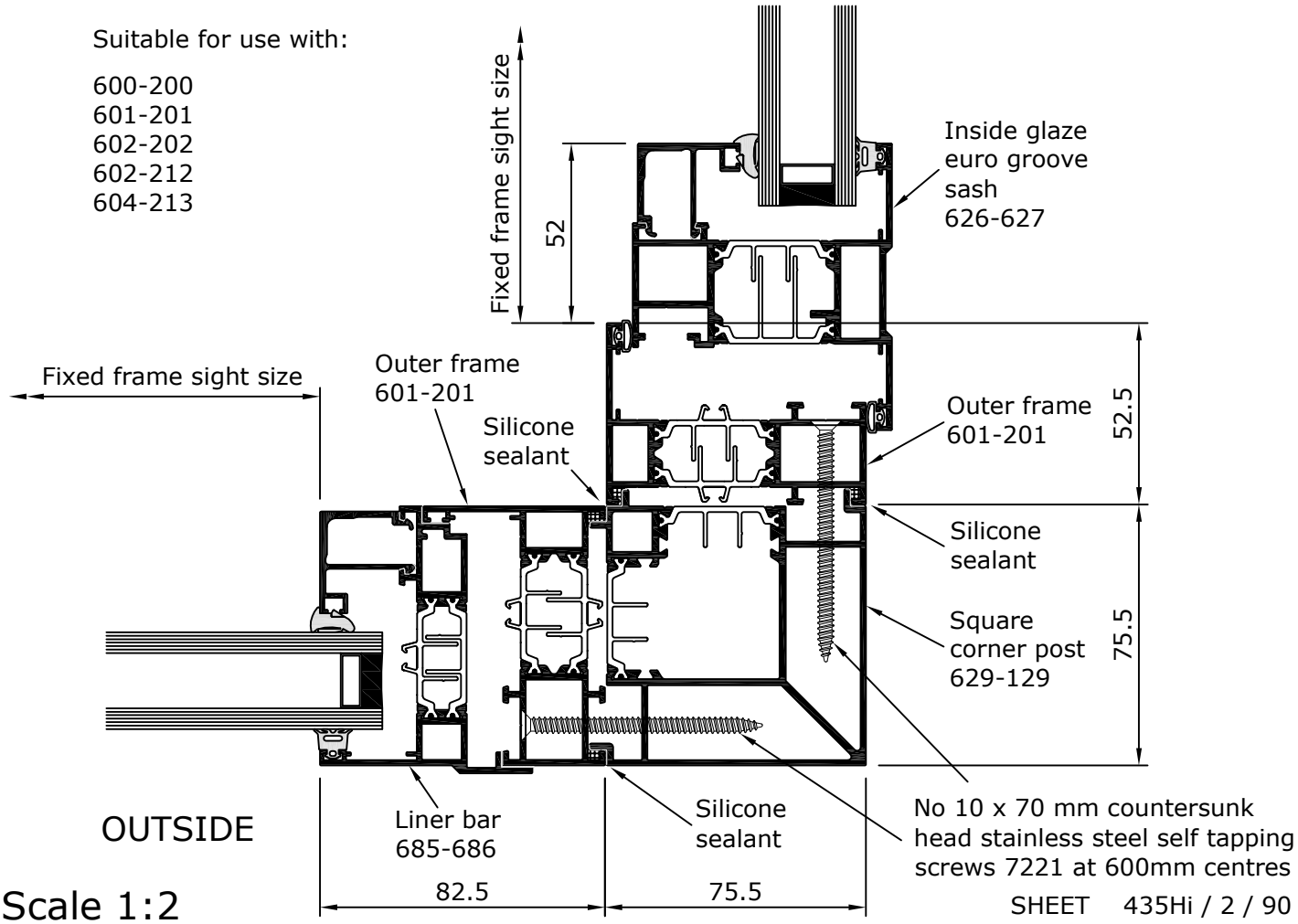
The fabricator must ensure that the window design and corner post detail can adequately accommodate the anticipated expansion and contraction required for the window configuration.

All fixings must be sealed using HR50328A sealant.



Suitable for use with:

600-200
601-201
602-202
602-212
604-213



Scale 1:2

Door Coupling Detail

System 4-35 Hi
CASEMENT WINDOW

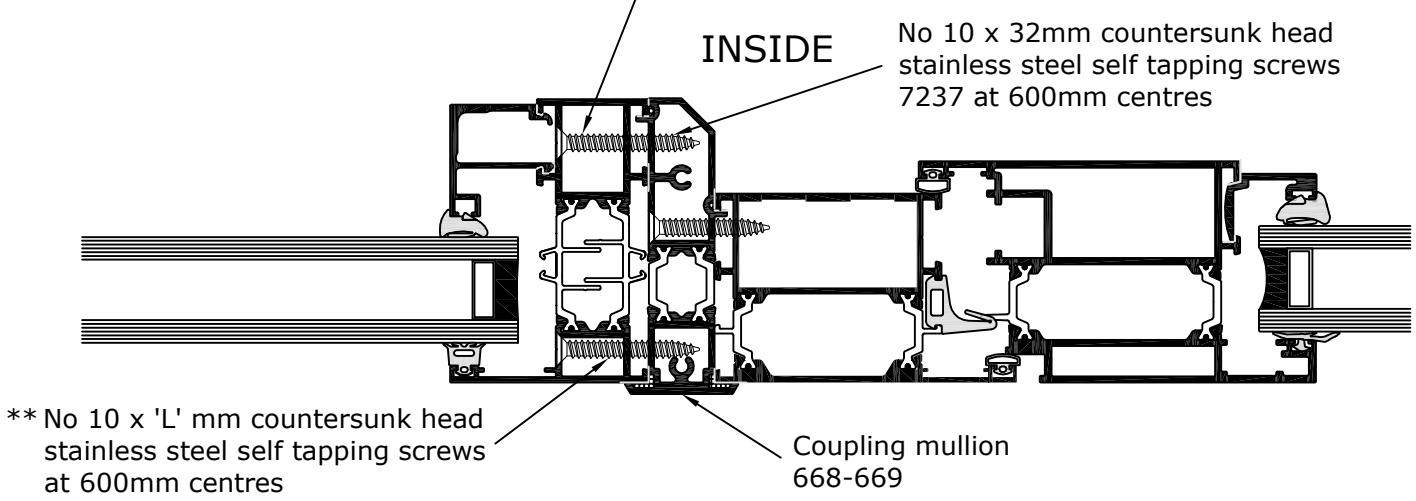
668-669 is not intended for use as a coupling transom. While the fabricator must ensure that the window design can adequately accommodate the anticipated expansion and contraction, this coupling detail does not offer this facility, and provides a tight butt joint only. For further advice please contact Metal Technology's Technical Department.

Windows/doors to be screw fixed to coupling mullion at 600mm centres with additional door fixings 25mm above and below hinge positions. Coupling mullion to be lug fixed back to structure at head and cill using plates/straps (by fabricator) fixed to integral screwports within 668-669 profile. Metal Technology recommend that the 668-669 coupling mullion to be secured to the 105-205FF outer frame, as indicated, prior to installation on site.

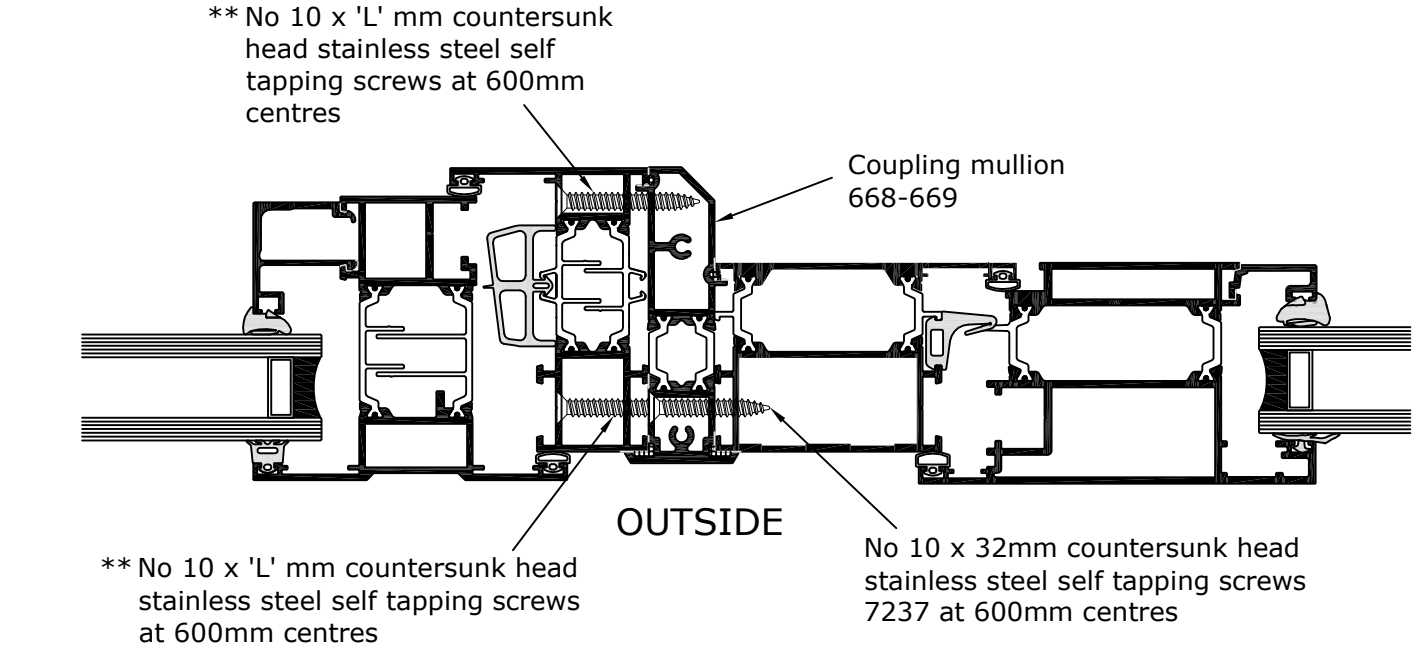
All fixings must be sealed using HR50328A sealant.

OPEN-IN DOOR WITH SYSTEM 4-35 Hi CASEMENT WINDOW

Outerframe
600-200 ** 7237 screw length 'L' = 32mm
601-201 ** 7248 screw length 'L' = 38mm
602-202 ** 7249 screw length 'L' = 50mm
604-213 ** 7220 screw length 'L' = 45mm



OPEN-OUT DOOR WITH SYSTEM 4-35 Hi CASEMENT WINDOW



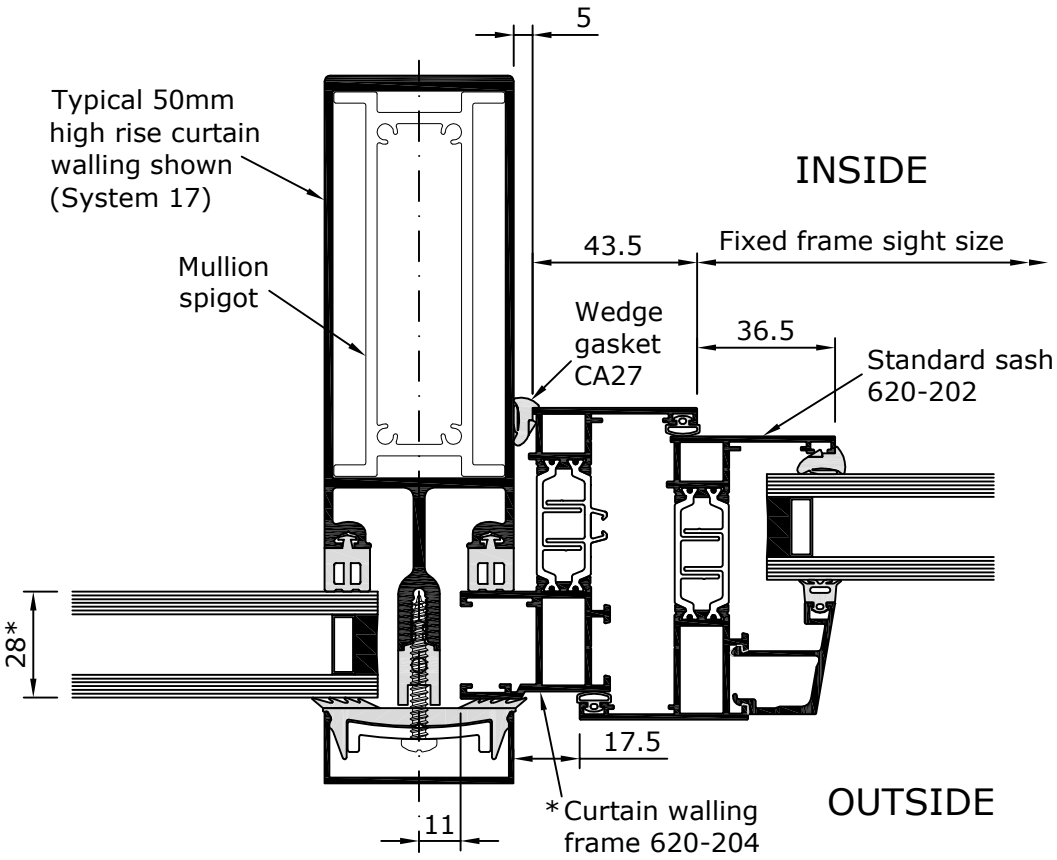
Scale 1:2

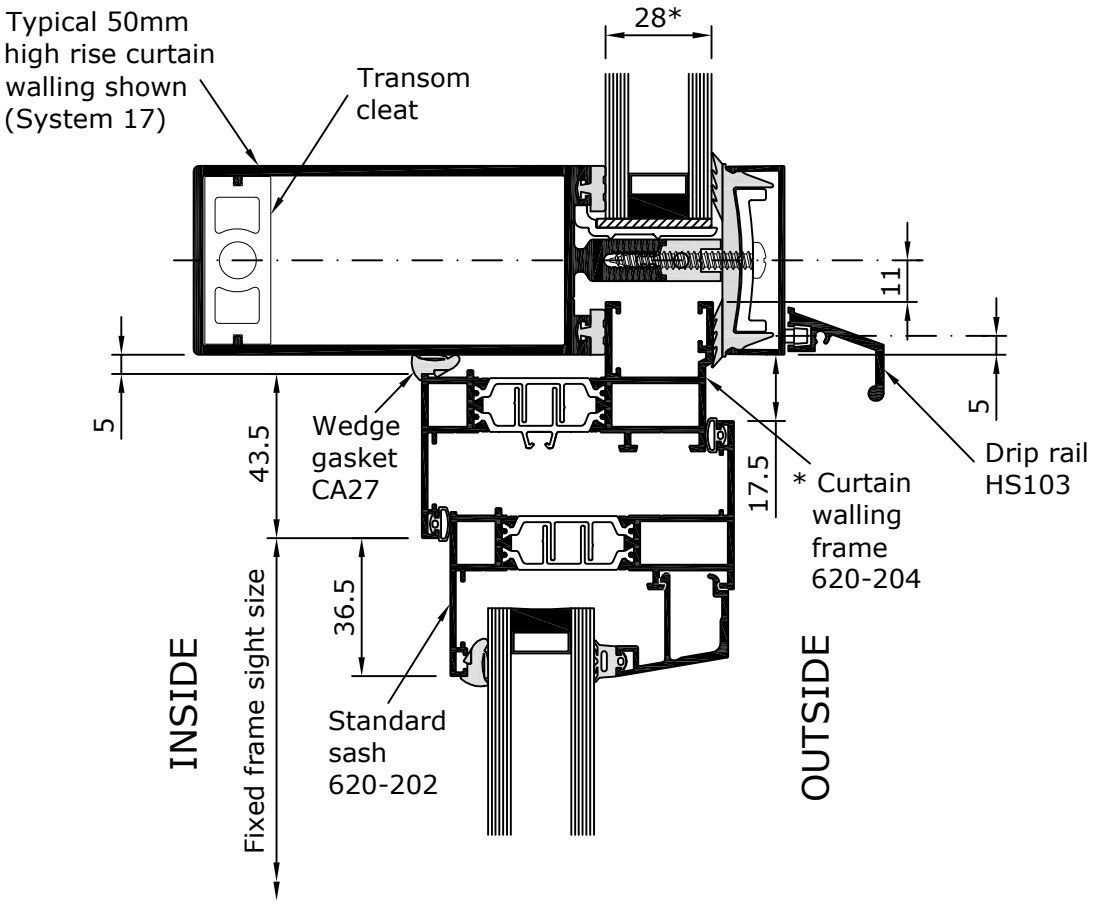
Curtain Wall Insert

System 4-35 Hi

CASEMENT WINDOW

* Alternative glazing thicknesses / outer frames are also available.



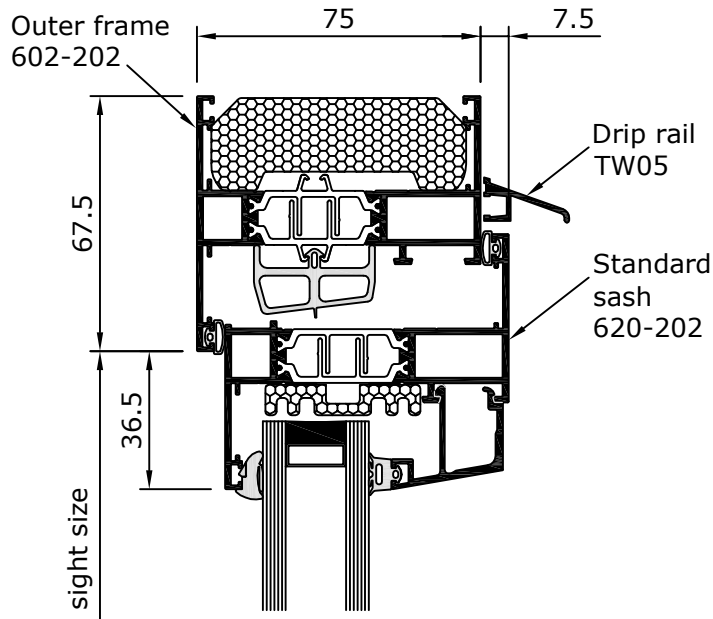


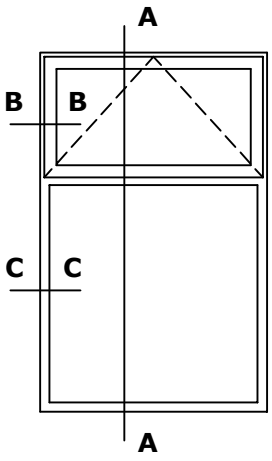
Scale 1:2

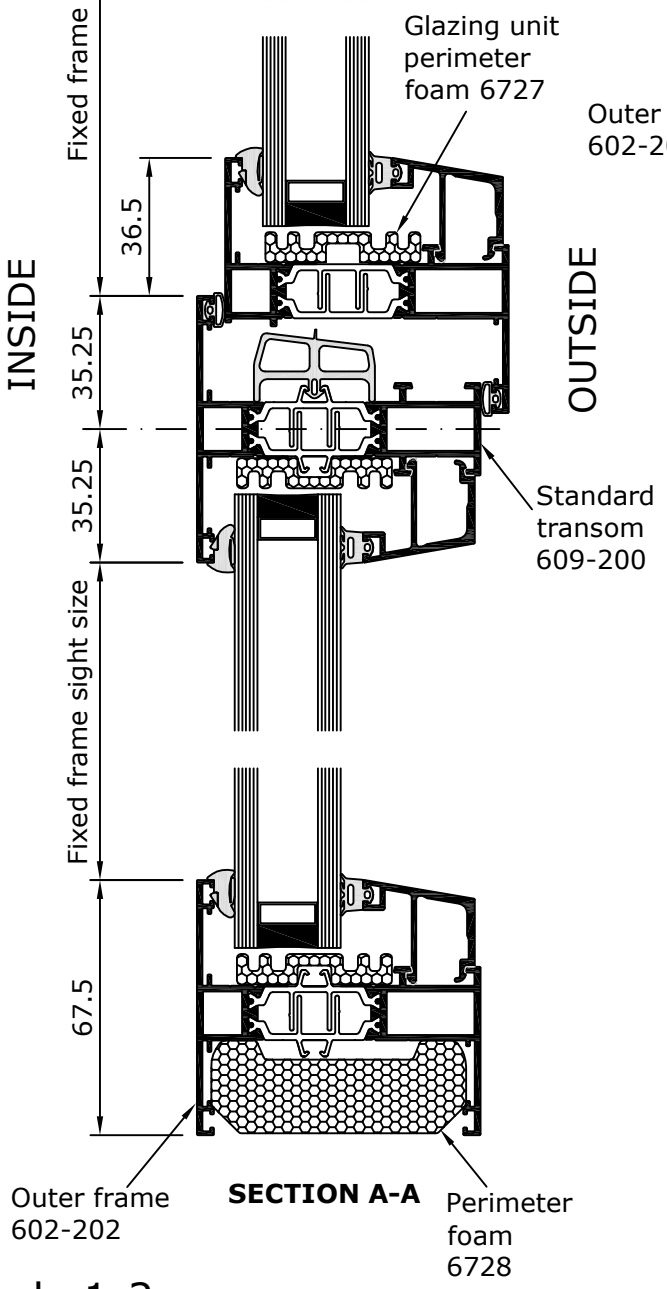
Standard Glaze Out Casement

System 4-35 Hi+

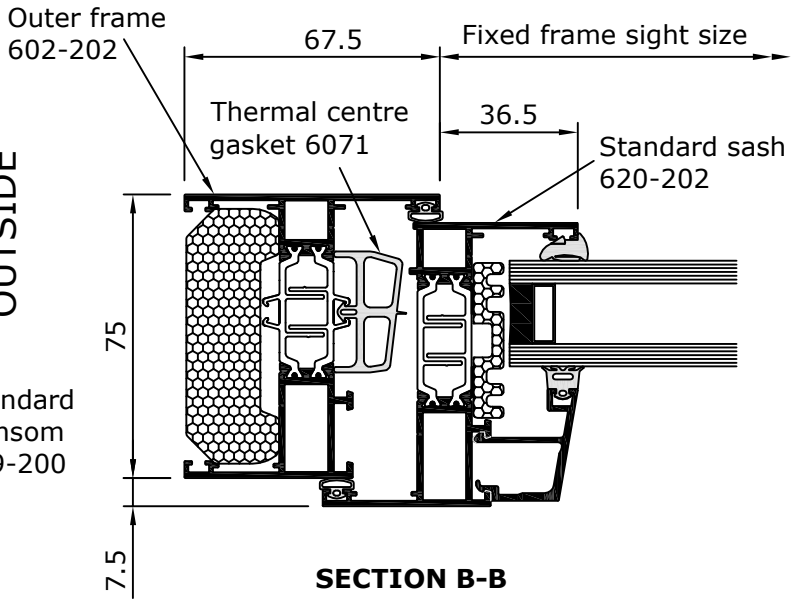
CASEMENT WINDOW



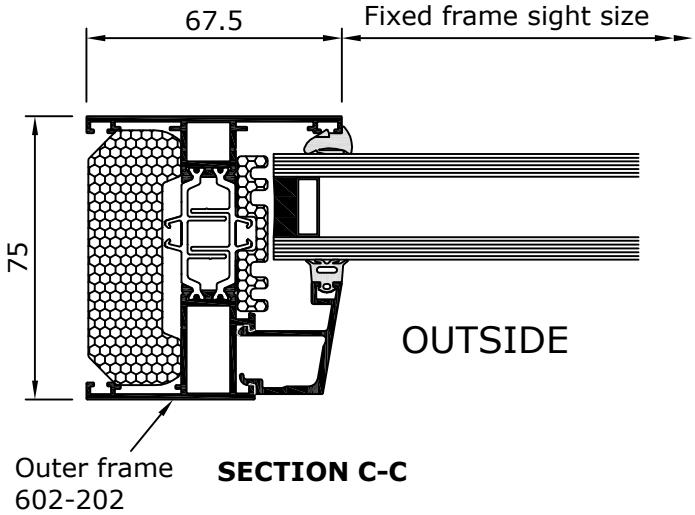




SECTION A-A



SECTION B-B



SECTION C-C

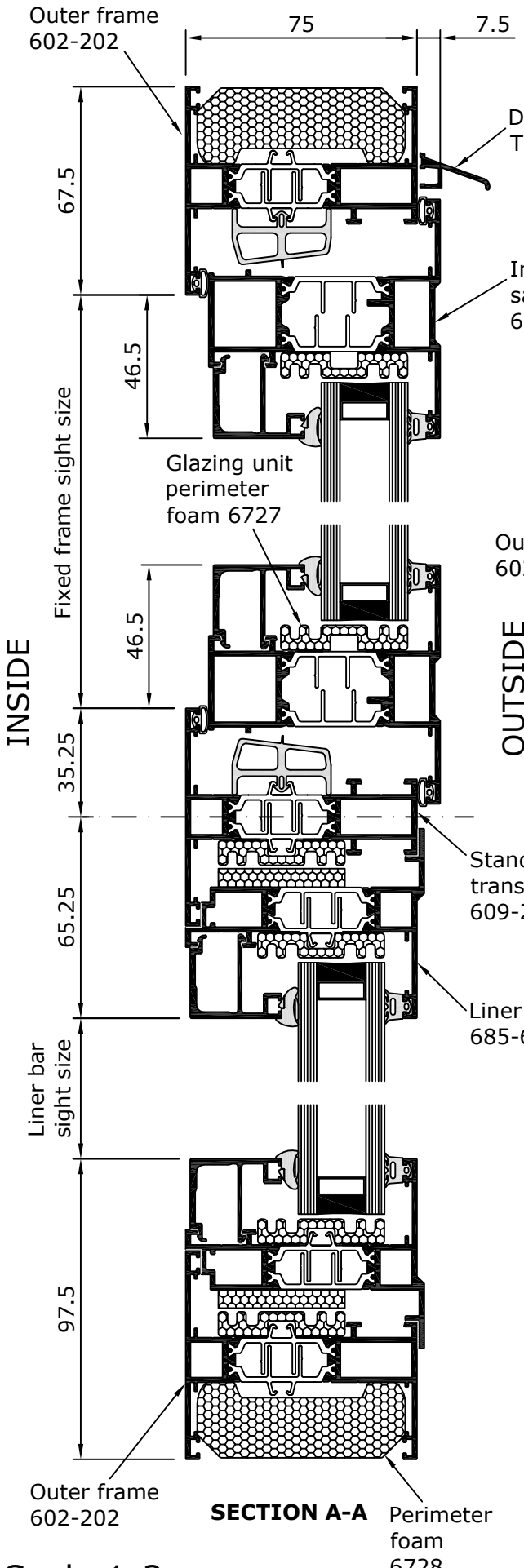
Scale 1:2

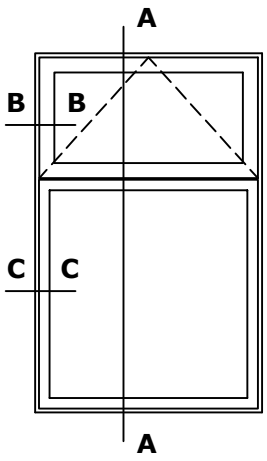
Glaze In Casement

Liner Bar to Fixed Lights

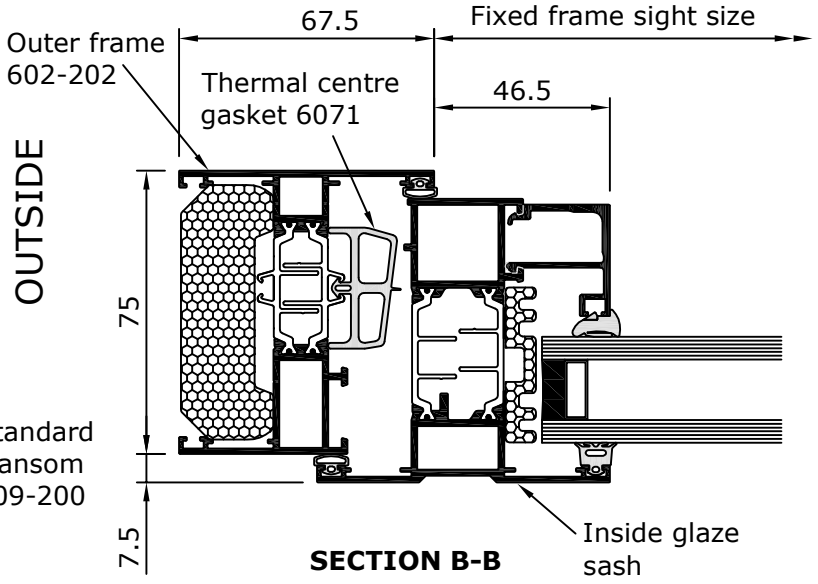
System 4-35 Hi+

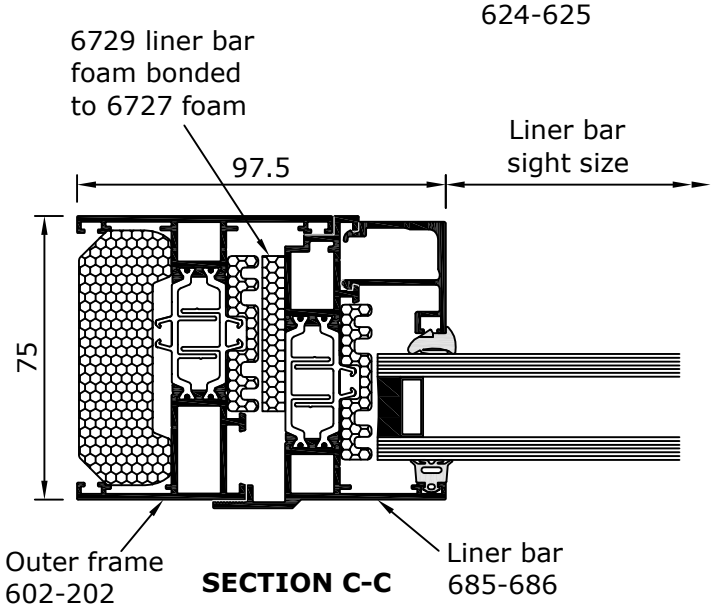
CASEMENT WINDOW





INSIDE





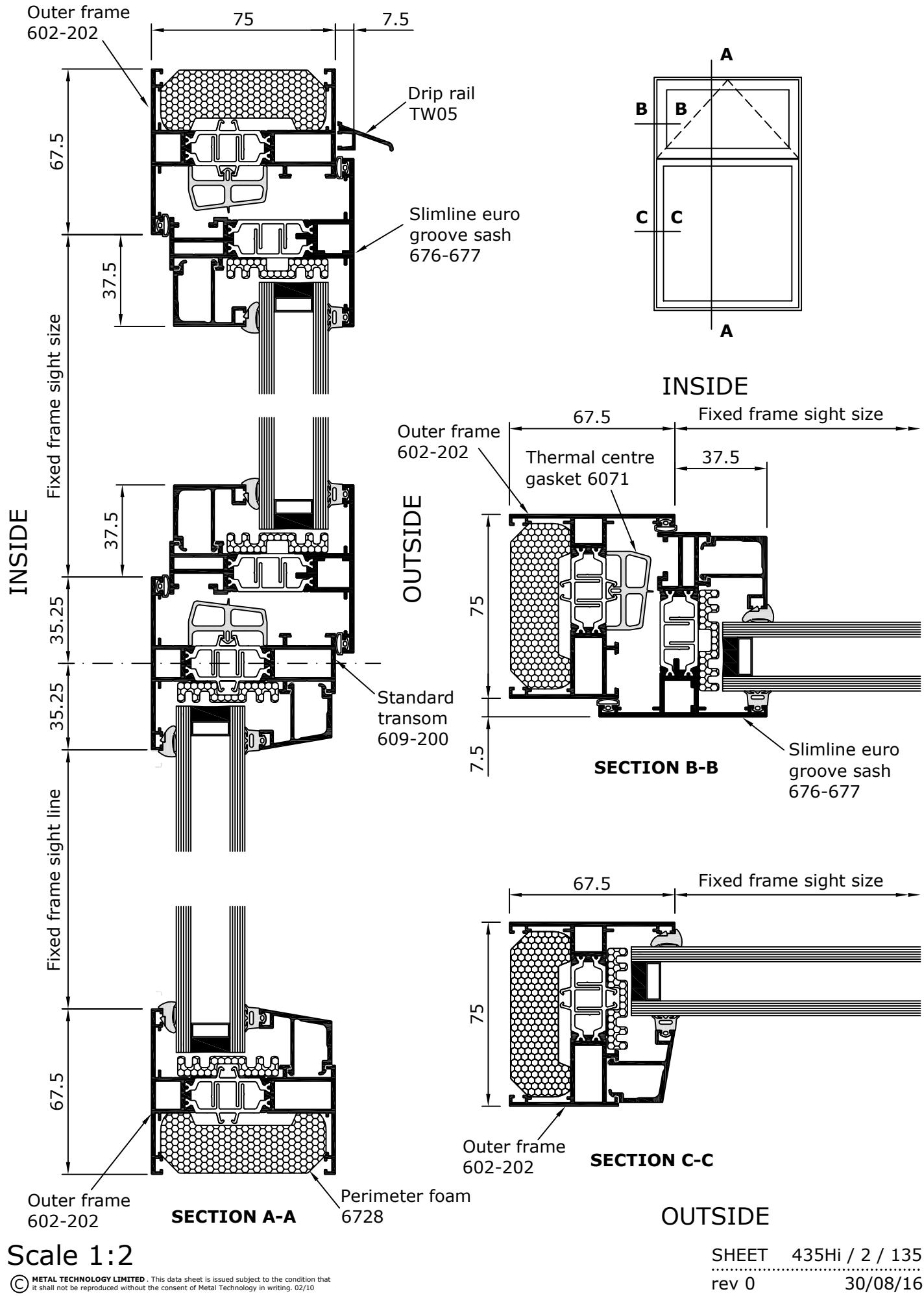
OUTSIDE

Scale 1:2

Euro Groove Casement

System 4-35 Hi+

CASEMENT WINDOW

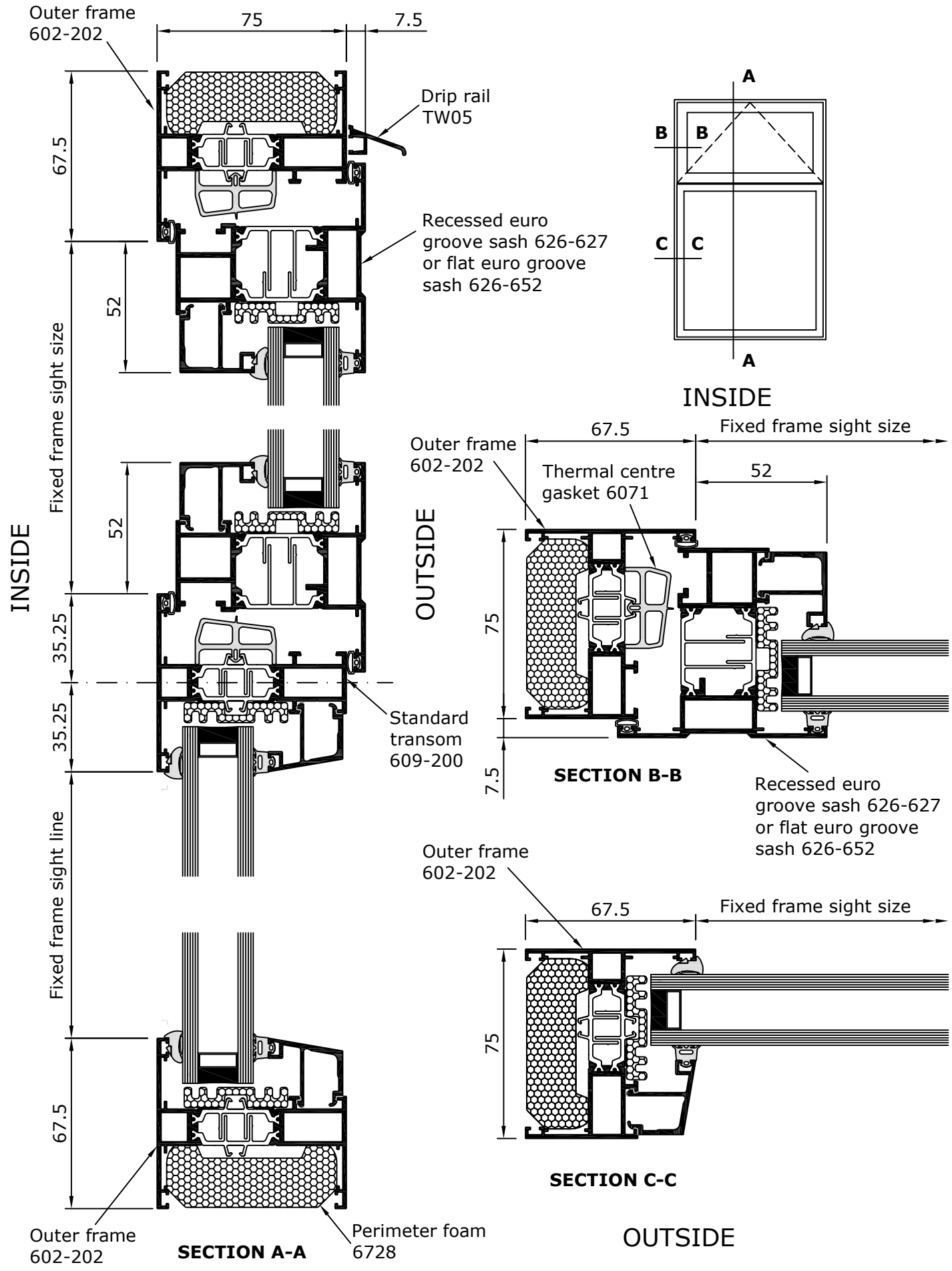


Scale 1:2

Euro Groove Casement

System 4-35 Hi+

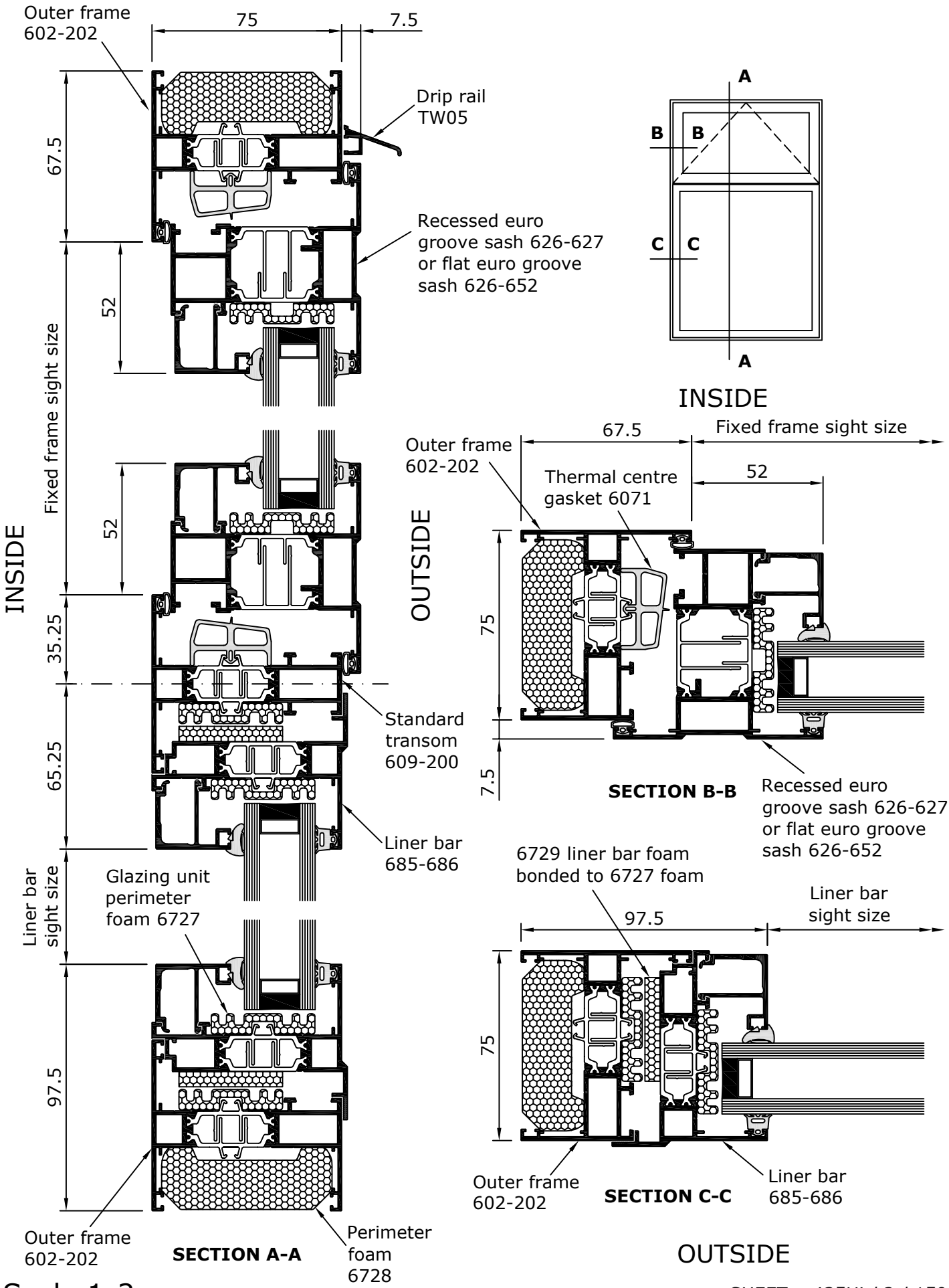
CASEMENT WINDOW



Scale 1:2

Euro Groove Glaze In Casement Liner Bar to Fixed Lights

System 4-35 Hi+
CASEMENT WINDOW



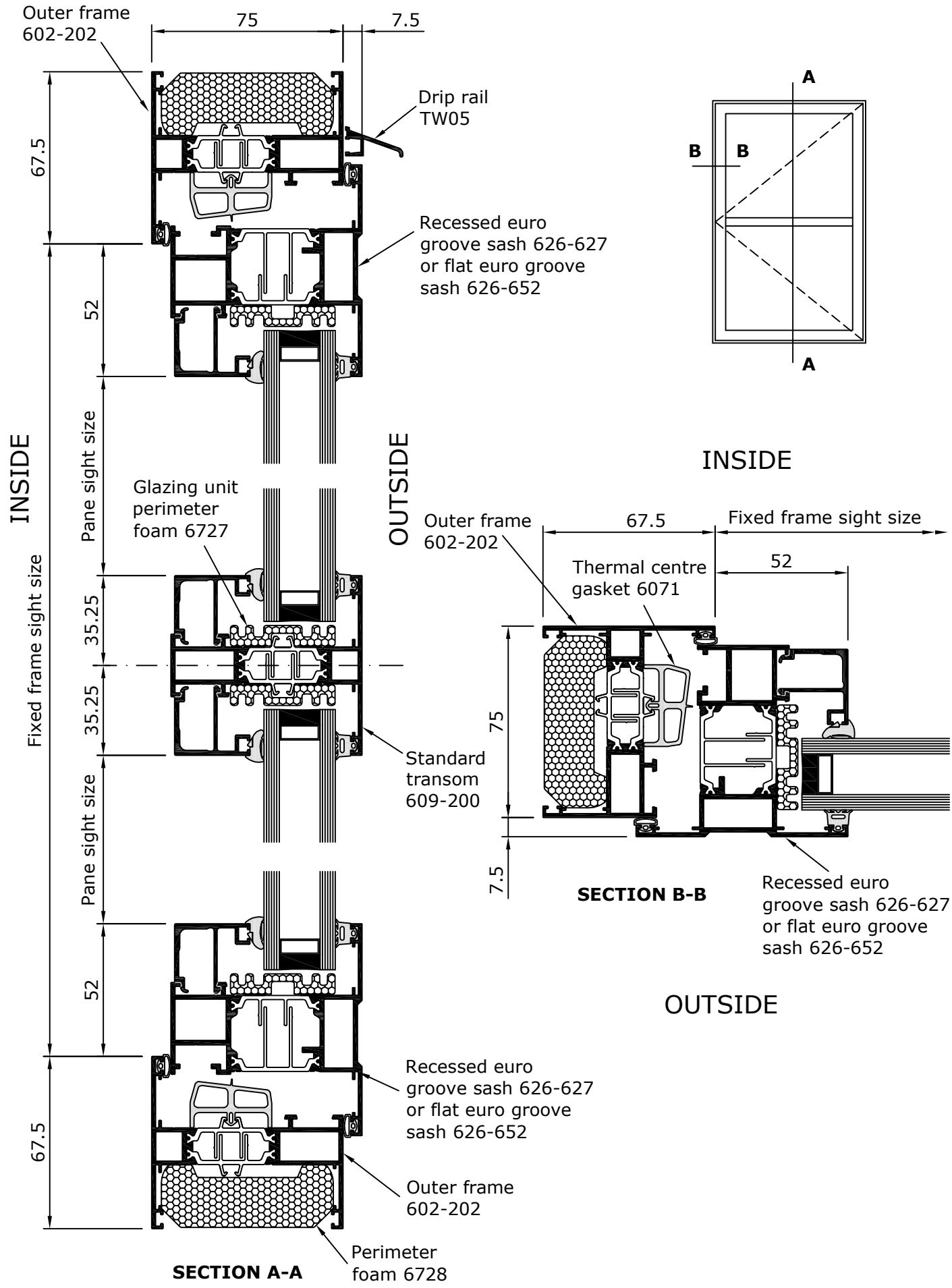
Scale 1:2

Muntin Bar Option

System 4-35 Hi+

CASEMENT WINDOW

Suitable for use with sashes 620-202, 624-625, 626-627 and 626-652.



SECTION A-A

INSIDE

SECTION B-B

OUTSIDE

Scale 1:2

Coupling Mullions

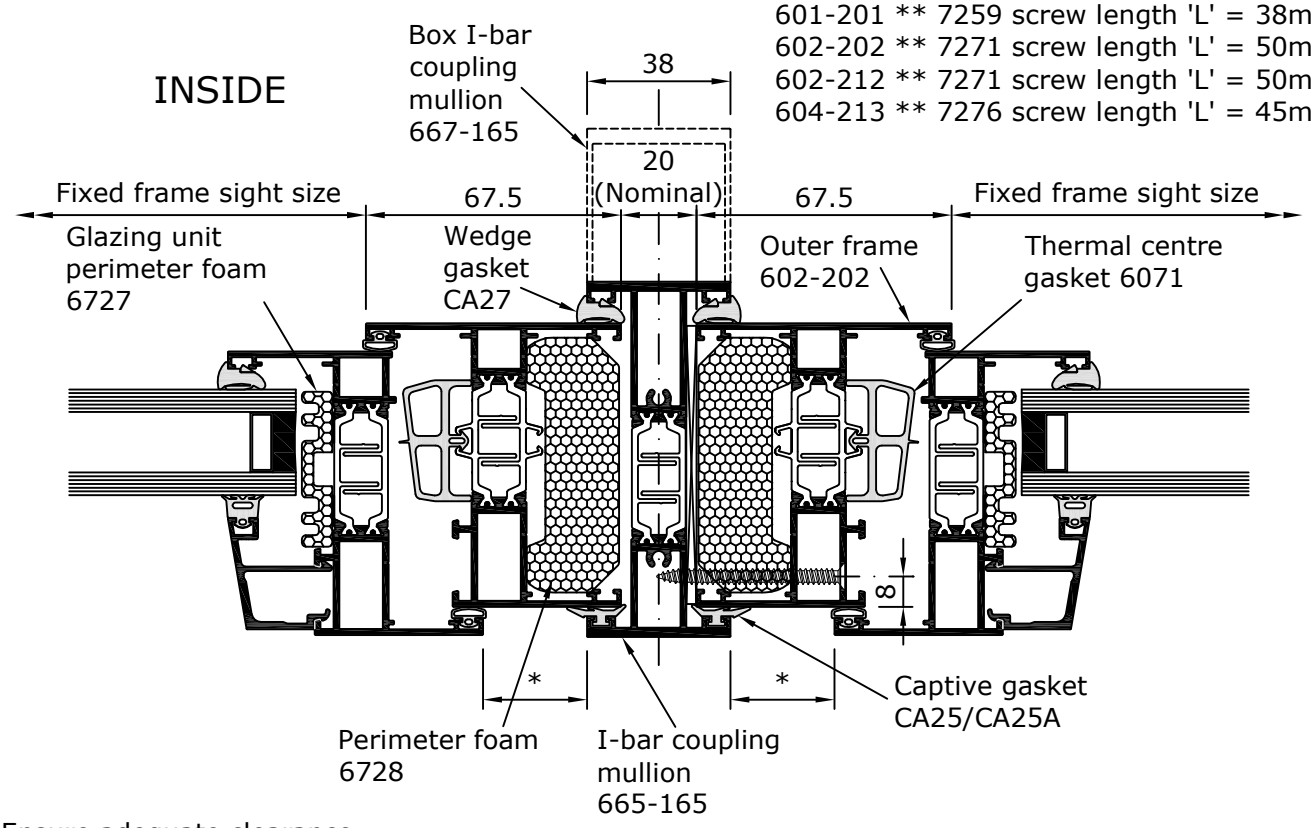
System 4-35 Hi+
CASEMENT WINDOW

These profiles were not intended for use as coupling transoms. The fabricator must ensure that the window design and coupling details can adequately accommodate the anticipated expansion and contraction required for the window configuration. For further advice please contact Metal Technology's Technical Department.

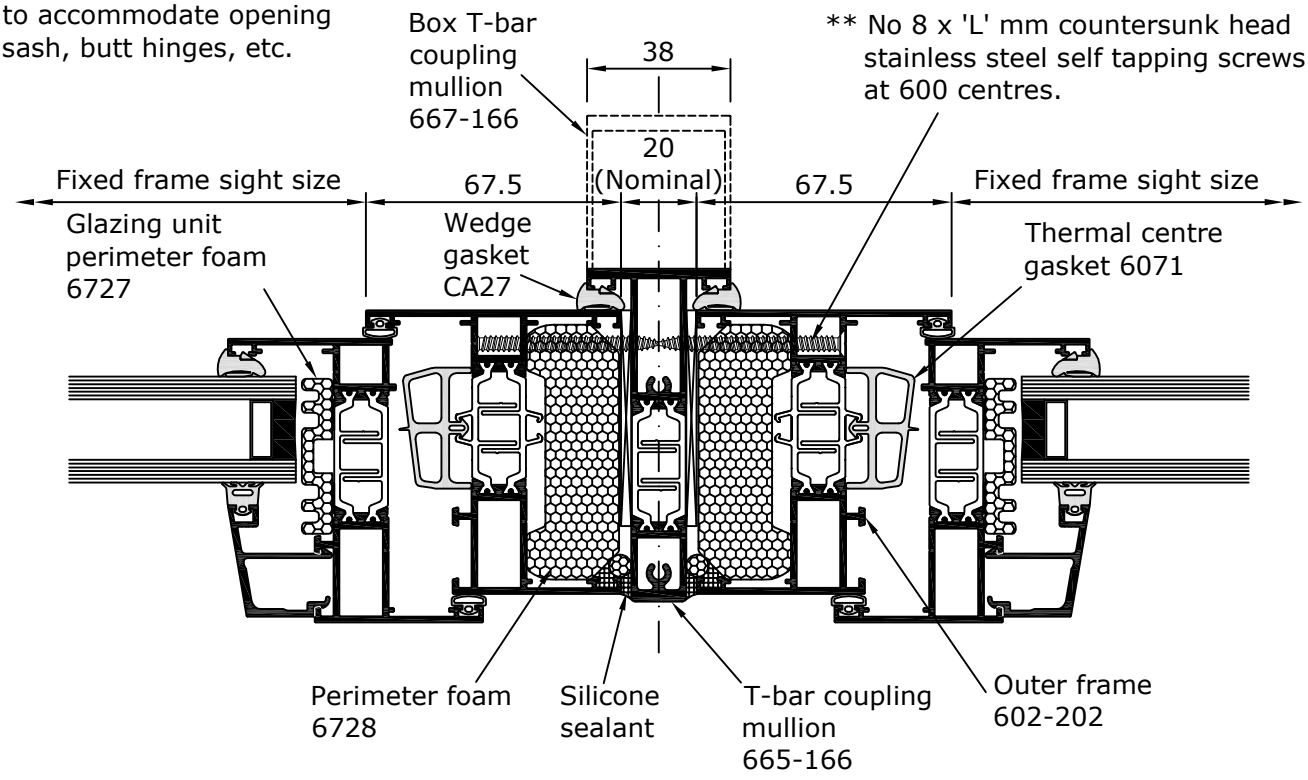
Windows to be screw fixed to coupling mullions at 600mm centres as indicated.

All fixings must be sealed using HR50328A sealant.

Outer frame
600-200 ** 7275 screw length 'L' = 32mm
601-201 ** 7259 screw length 'L' = 38mm
602-202 ** 7271 screw length 'L' = 50mm
602-212 ** 7271 screw length 'L' = 50mm
604-213 ** 7276 screw length 'L' = 45mm



* Ensure adequate clearance to accommodate opening sash, butt hinges, etc.



Scale 1:2

OUTSIDE

90° Corner Post

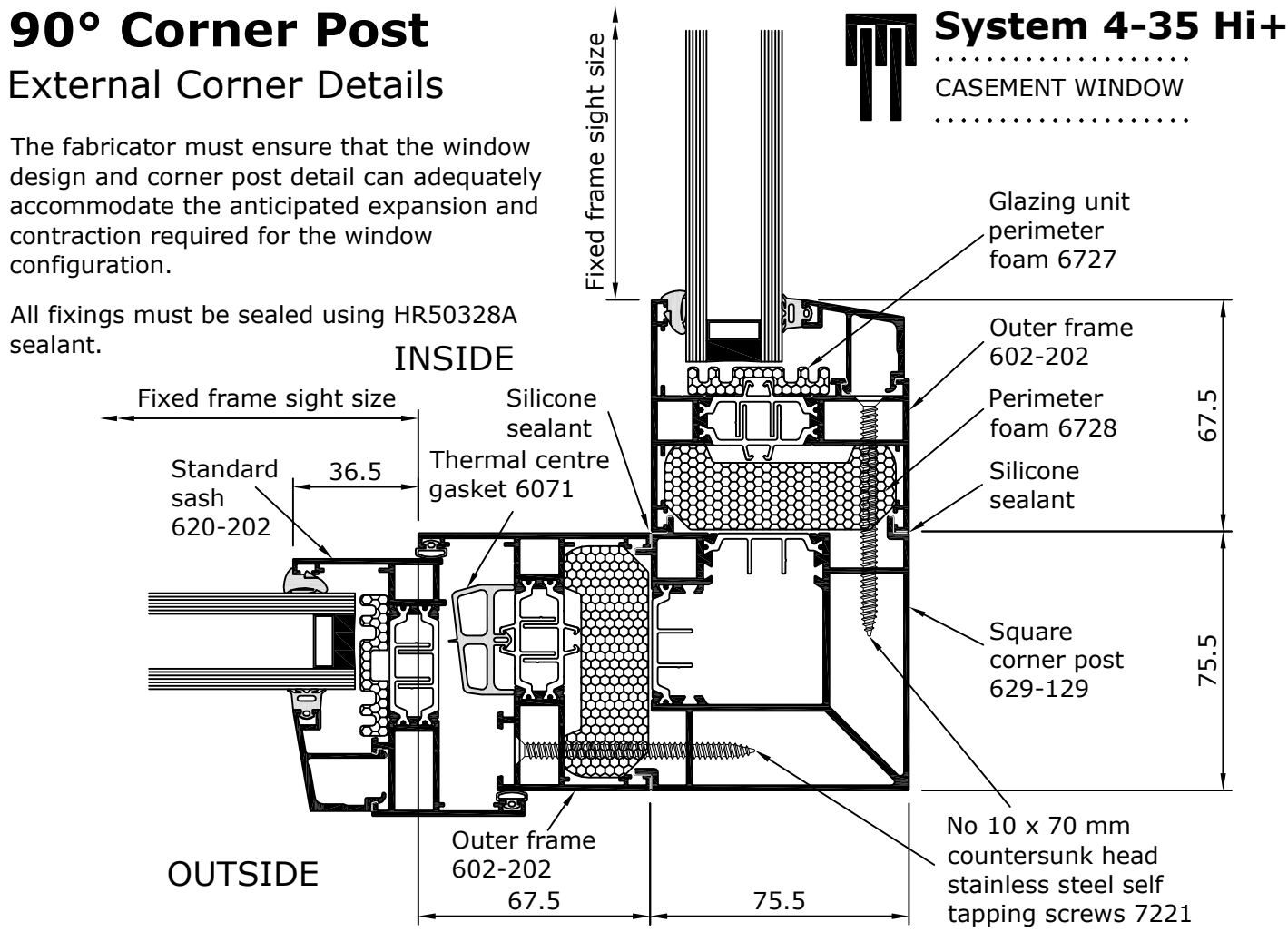
External Corner Details

System 4-35 Hi+

CASEMENT WINDOW

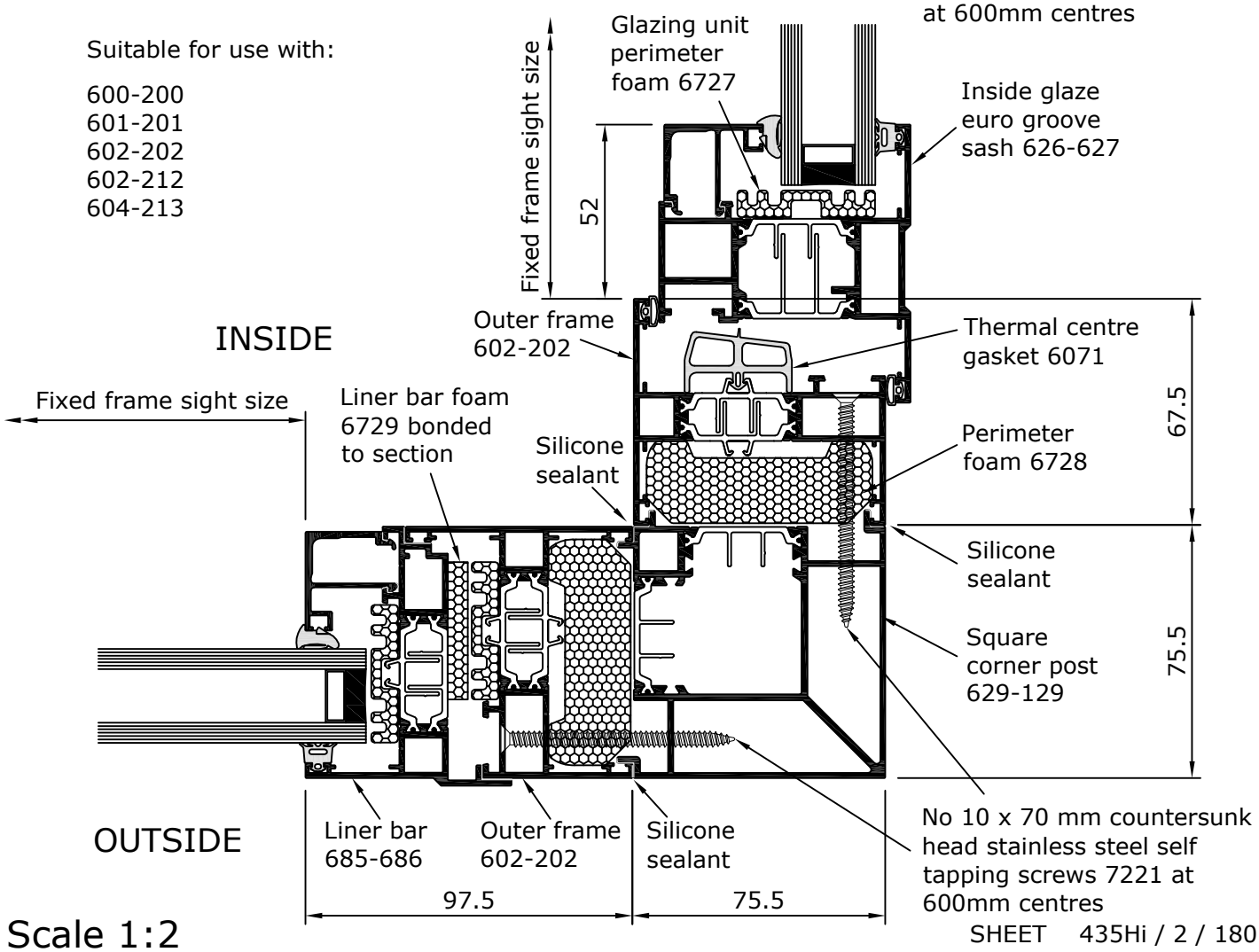
The fabricator must ensure that the window design and corner post detail can adequately accommodate the anticipated expansion and contraction required for the window configuration.

All fixings must be sealed using HR50328A sealant.



Suitable for use with:

600-200
601-201
602-202
602-212
604-213



Scale 1:2

Door Coupling Detail

System 4-35 Hi+
CASEMENT WINDOW

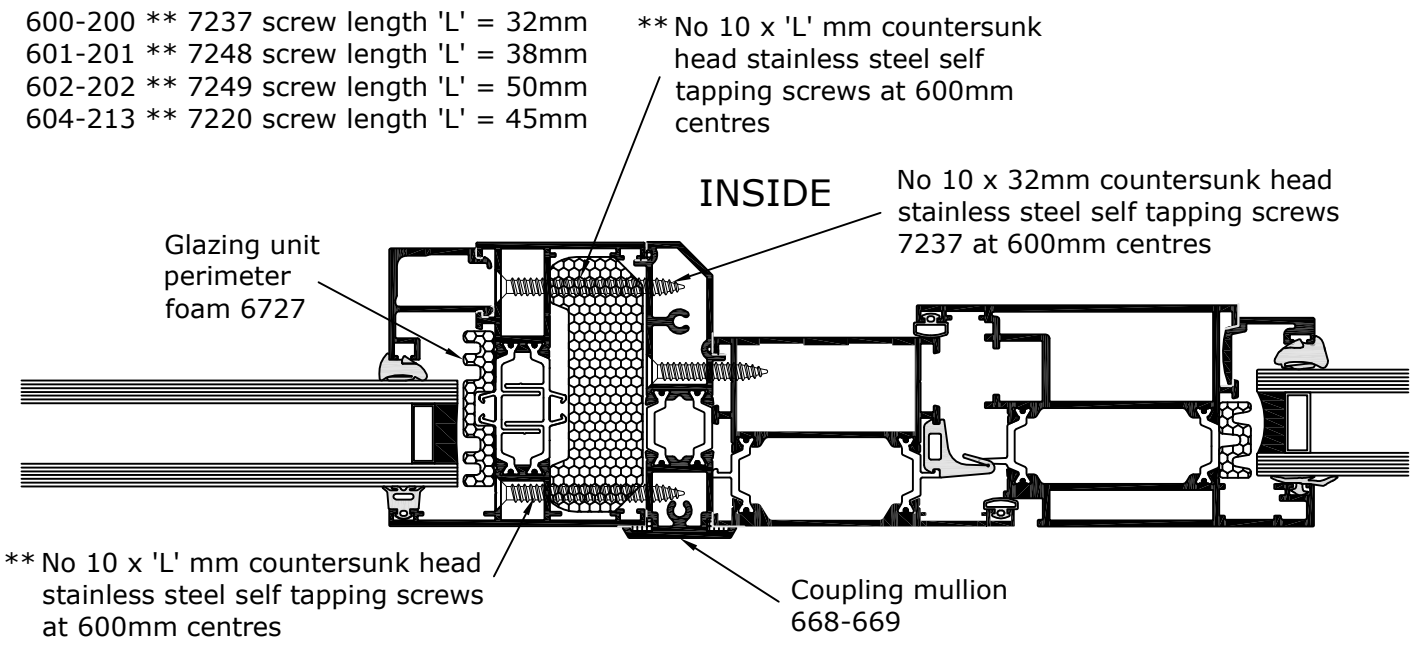
668-669 is not intended for use as a coupling transom. While the fabricator must ensure that the window design can adequately accommodate the anticipated expansion and contraction, this coupling detail does not offer this facility, and provides a tight butt joint only. For further advice please contact Metal Technology's Technical Department.

Windows/doors to be screw fixed to coupling mullion at 600mm centres with additional door fixings 25mm above and below hinge positions. Coupling mullion to be lug fixed back to structure at head and cill using plates/straps (by fabricator) fixed to integral screwports within 668-669 profile. Metal Technology recommend that the 668-669 coupling mullion to be secured to the 105-205FF outer frame, as indicated, prior to installation on site.

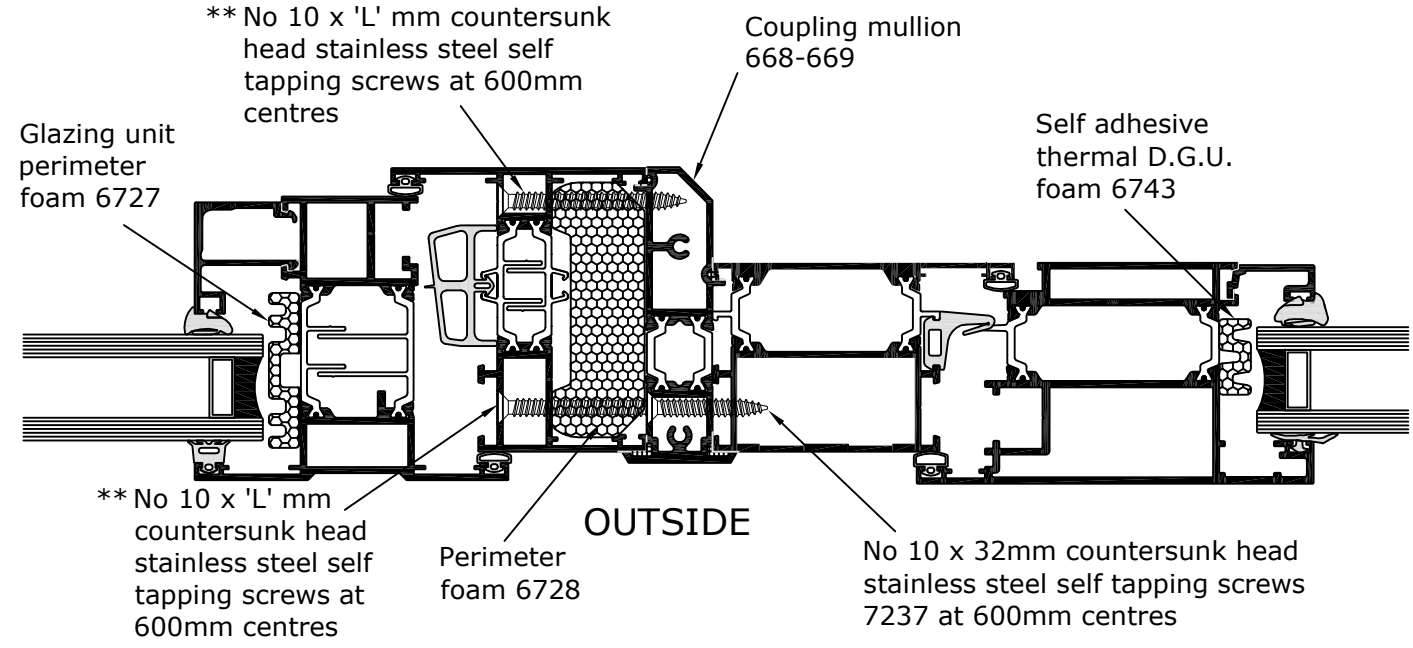
All fixings must be sealed using HR50328A sealant.

OPEN-IN DOOR WITH SYSTEM 4-35 Hi+ CASEMENT WINDOW

Outerframe
600-200 ** 7237 screw length 'L' = 32mm
601-201 ** 7248 screw length 'L' = 38mm
602-202 ** 7249 screw length 'L' = 50mm
604-213 ** 7220 screw length 'L' = 45mm



OPEN-OUT DOOR WITH SYSTEM 4-35 Hi+ CASEMENT WINDOW



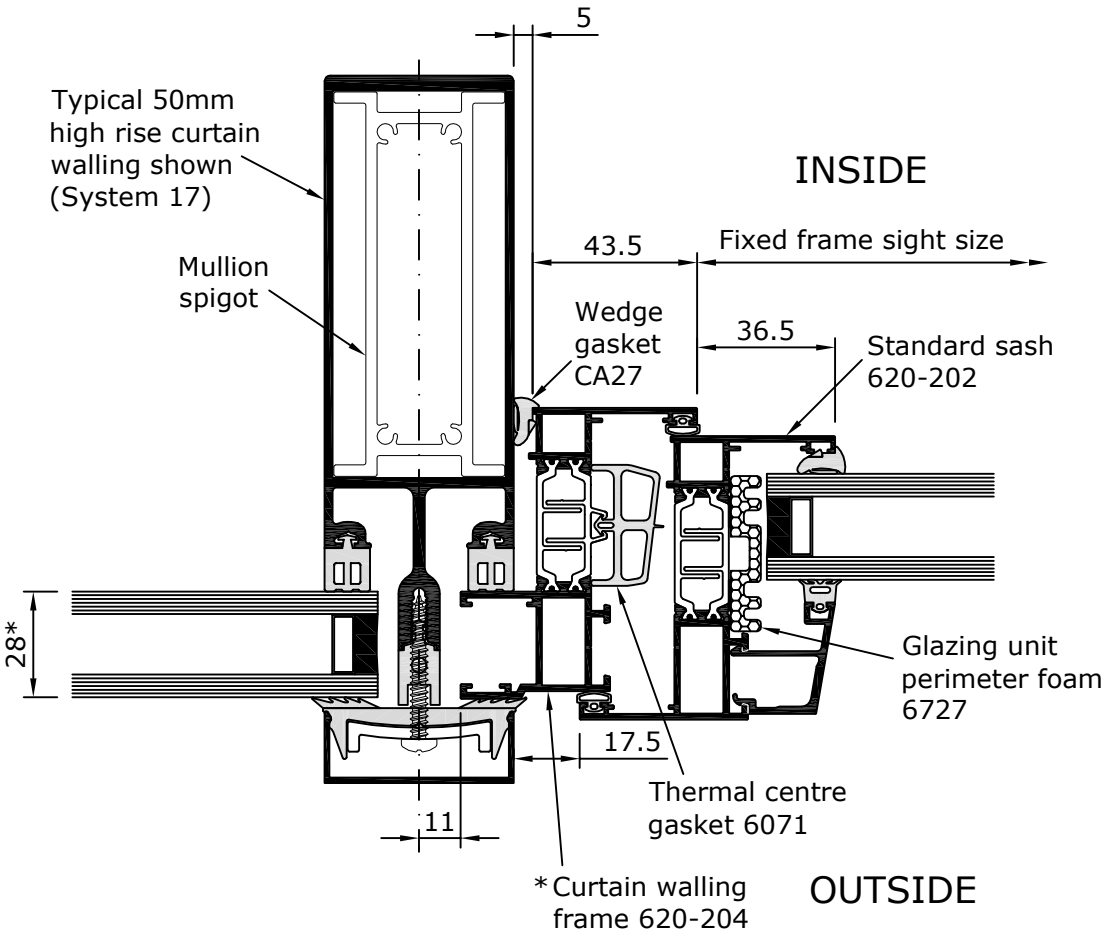
Scale 1:2

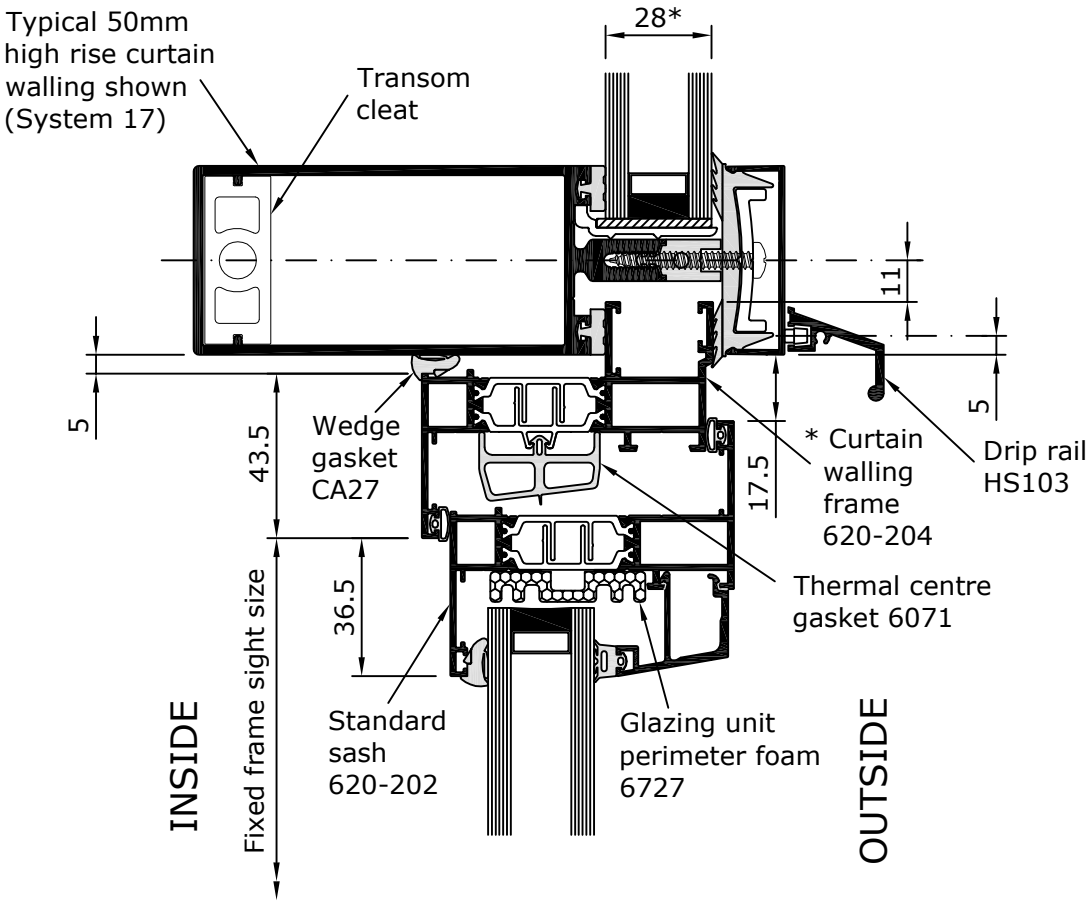
Curtain Wall Insert

System 4-35 Hi+

CASEMENT WINDOW

* Alternative glazing thicknesses / outer frames are also available.





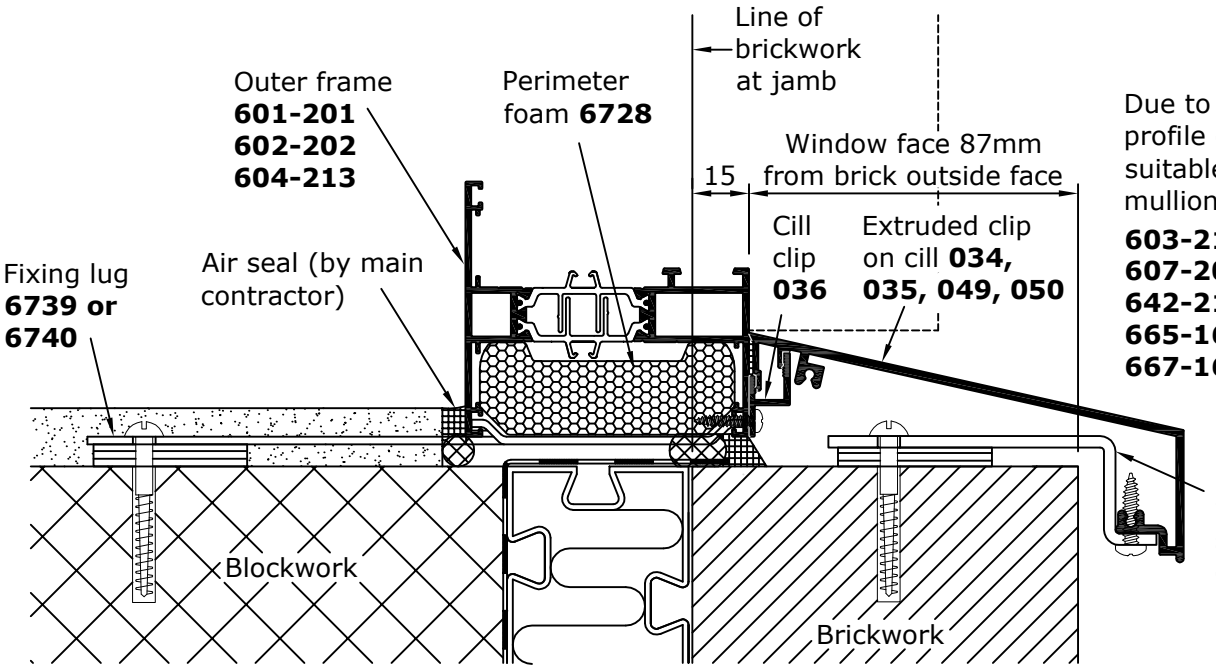
Scale 1:2

Cill Liner Options

Externally Beaded Cill Clip Option

System 4-35 Hi/Hi+

CASEMENT WINDOW



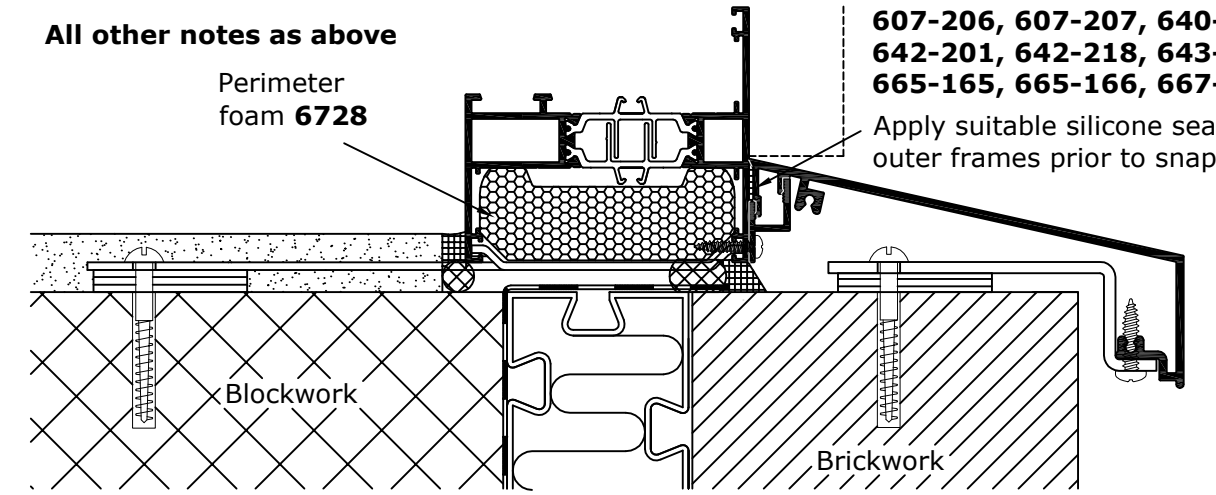
Due to protruding box profile cill clip is not suitable for use with mullions/couplings:

603-218, 606-207
607-207, 613-221
642-218, 643-218
665-165, 665-166
667-166, 667-165

Wind clip (by fabricator) to suit site conditions

Internally Beaded Cill Clip Option

All other notes as above

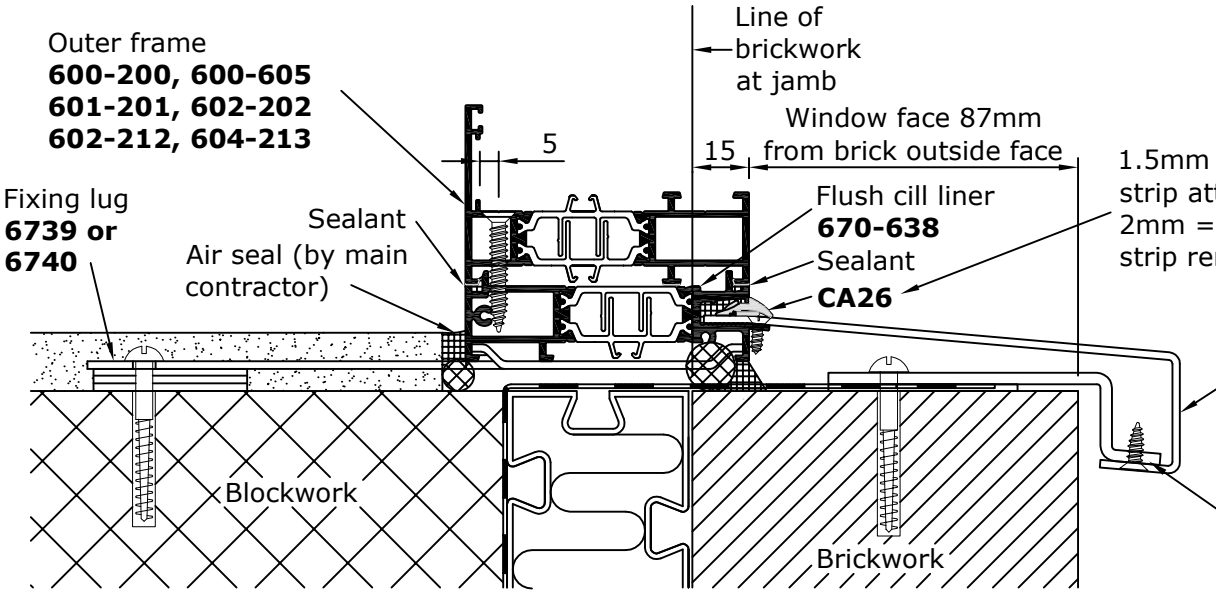


Due to protruding box profile cill clip is not suitable for use with mullions/couplings:

607-206, 607-207, 640-200, 641-201
642-201, 642-218, 643-201, 643-218
665-165, 665-166, 667-166, 667-165

Apply suitable silicone sealant to all outer frames prior to snapping on cill

Externally Beaded Standard Flush Cill Liner Option



1.5mm = CA26 with strip attached
2mm = CA26 with strip removed

1.5mm or 2mm pressed metal cill (by fabricator)

Wind clip (by fabricator) to suit site conditions

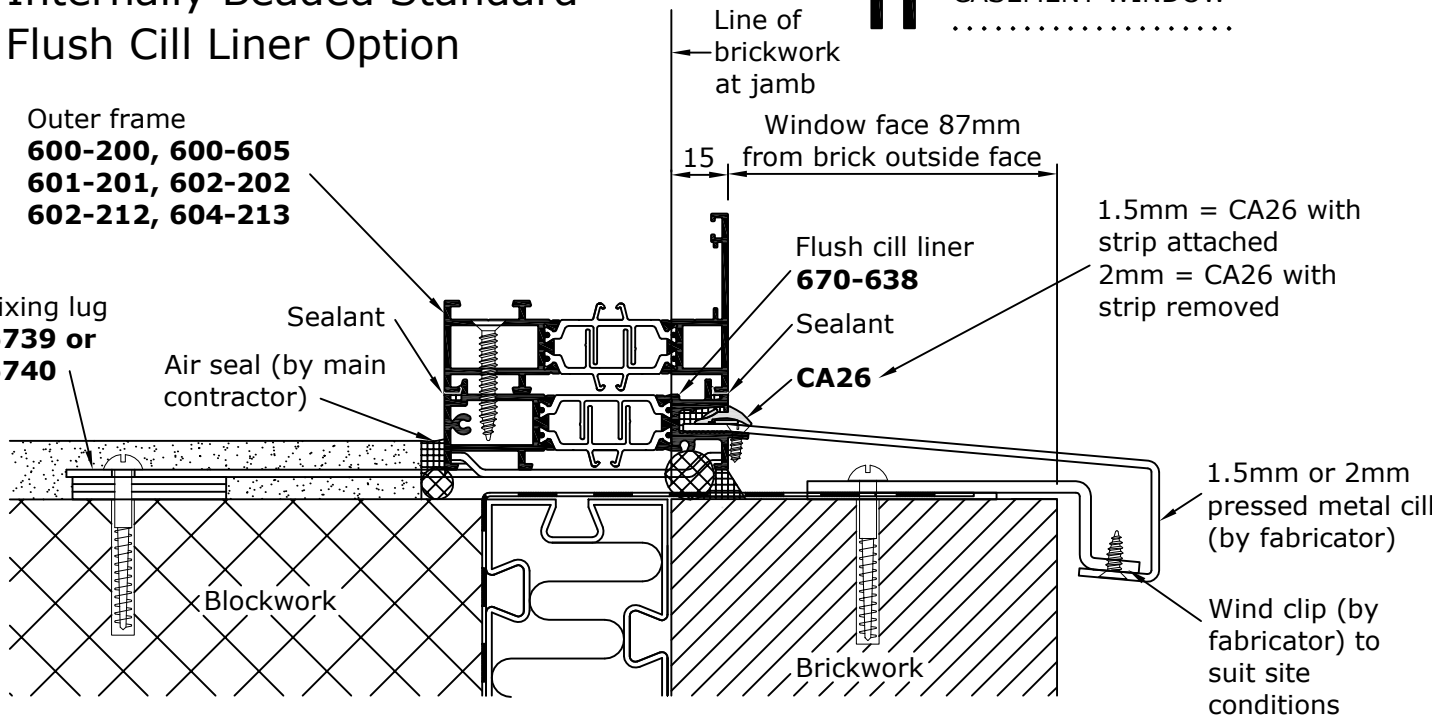
Scale 1:2

Cill Liner Options

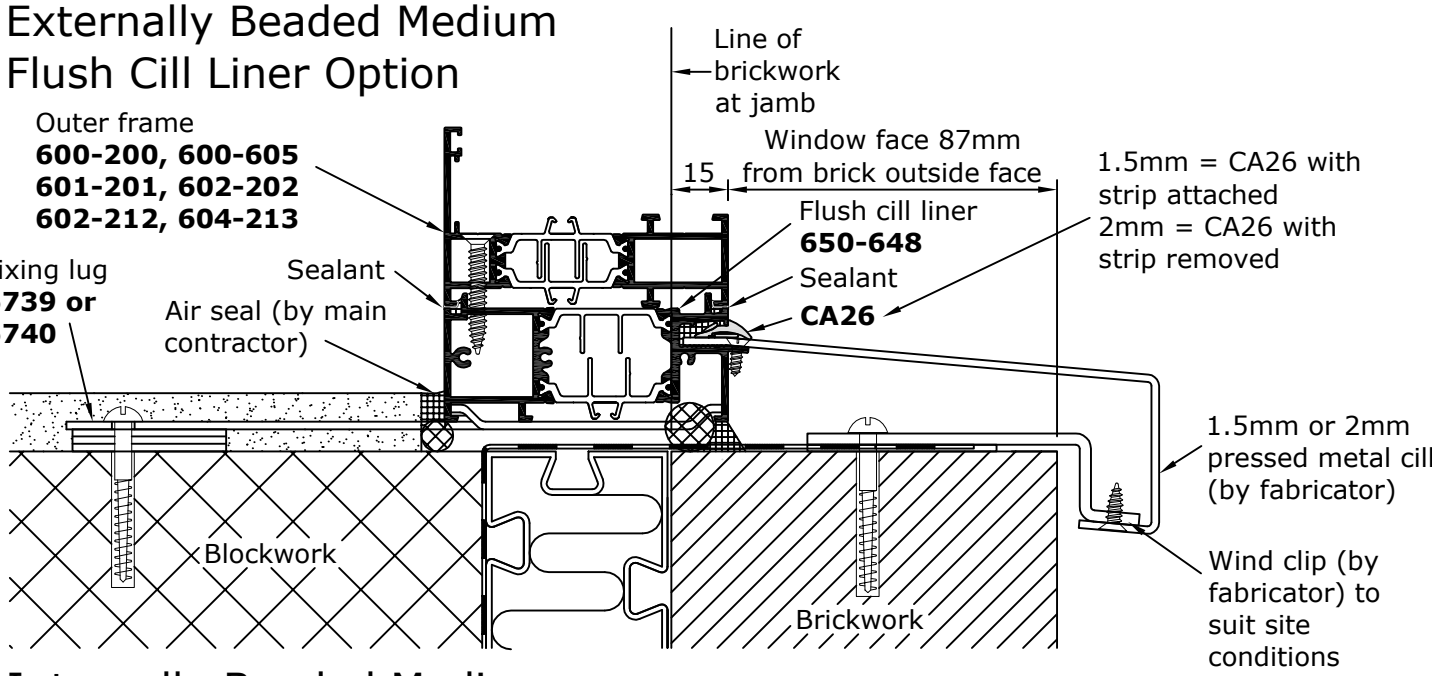
System 4-35 Hi/Hi+

CASEMENT WINDOW

Internally Beaded Standard Flush Cill Liner Option

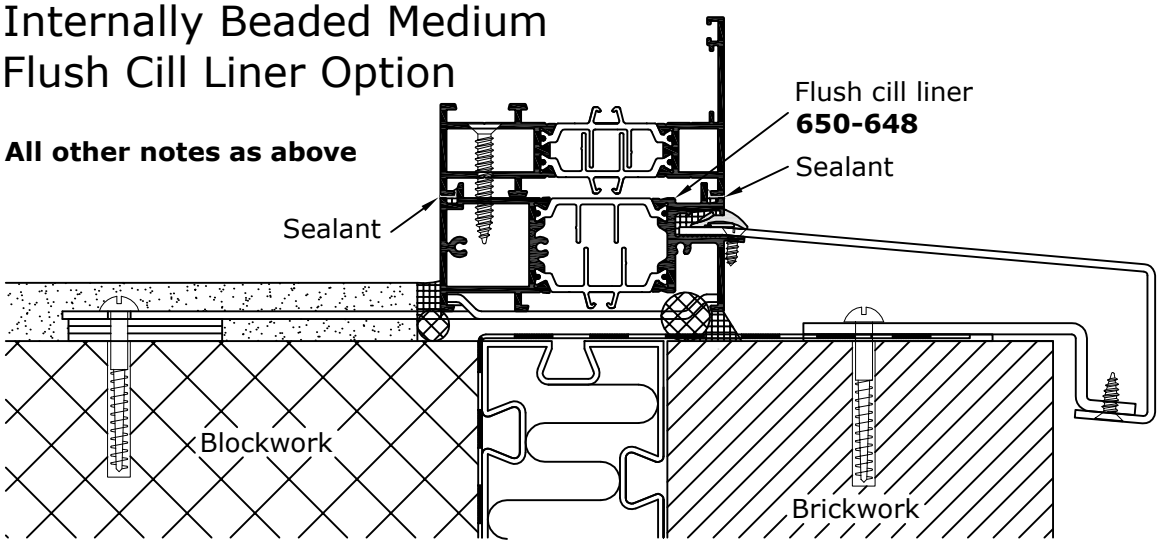


Externally Beaded Medium Flush Cill Liner Option



Internally Beaded Medium Flush Cill Liner Option

All other notes as above



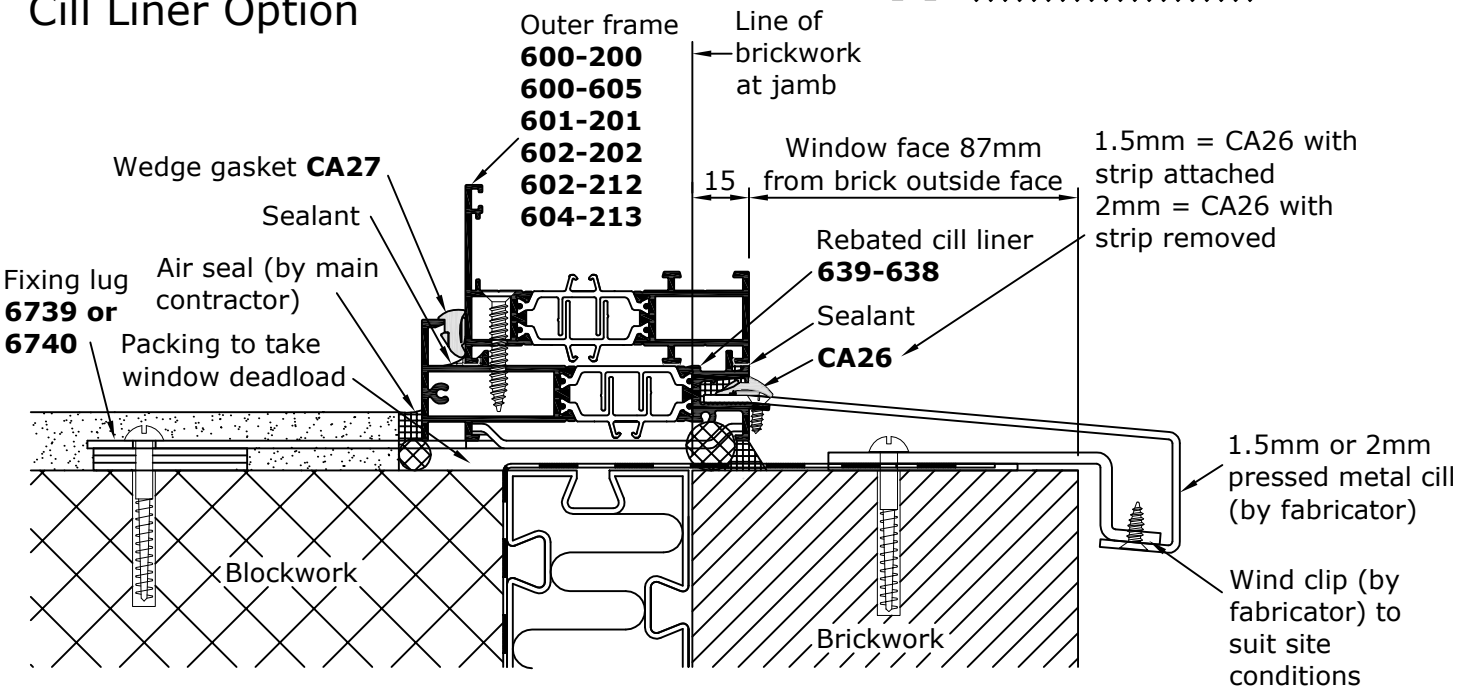
Scale 1:2

Cill Liner Options

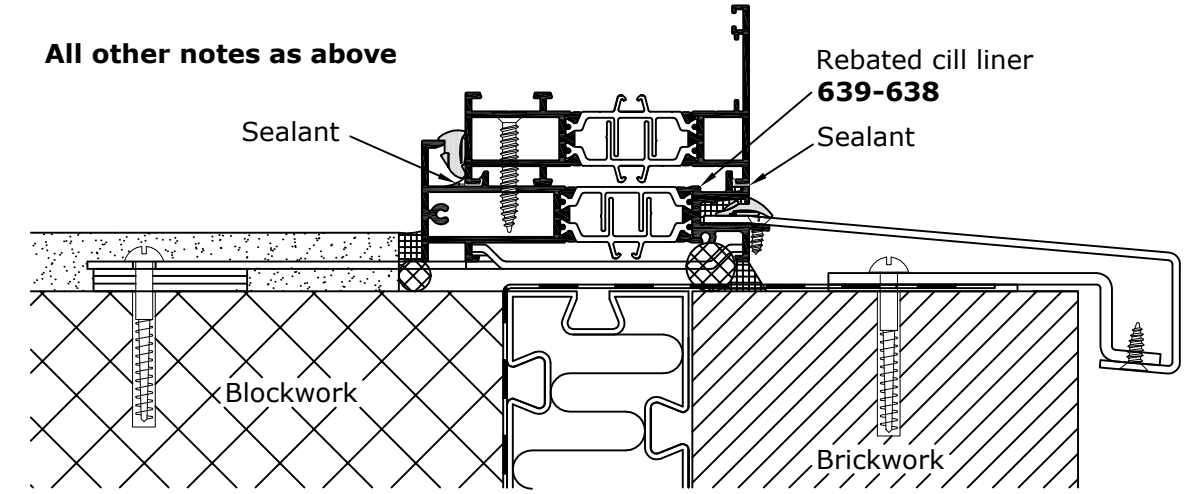
System 4-35 Hi/Hi+

CASEMENT WINDOW

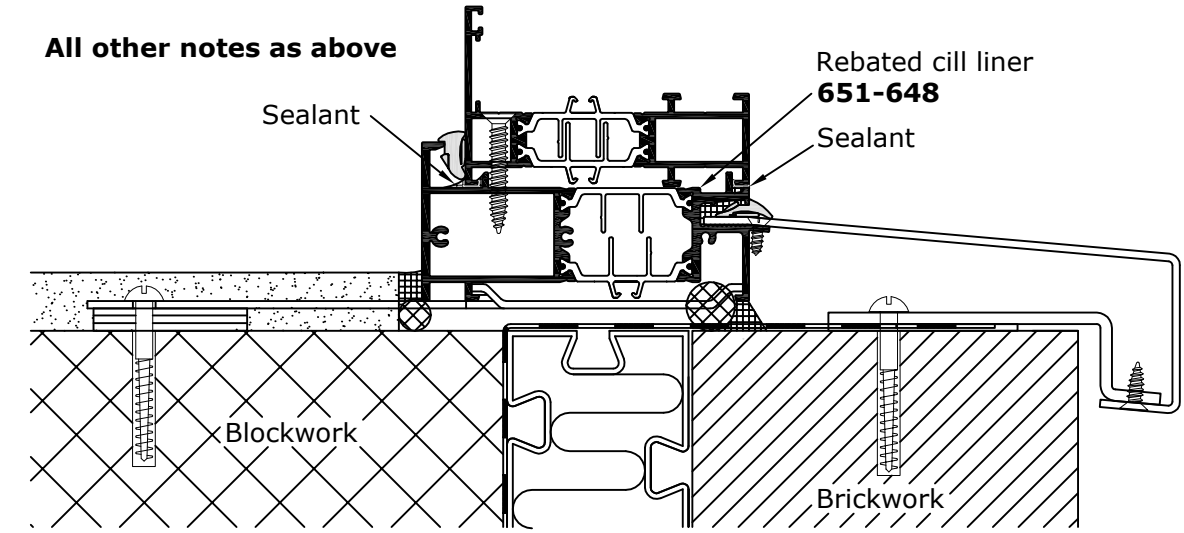
Externally Beaded Standard Rebated Cill Liner Option



Internally Beaded Standard Rebated Cill Liner Option



Externally Beaded Medium Rebated Cill Liner Option



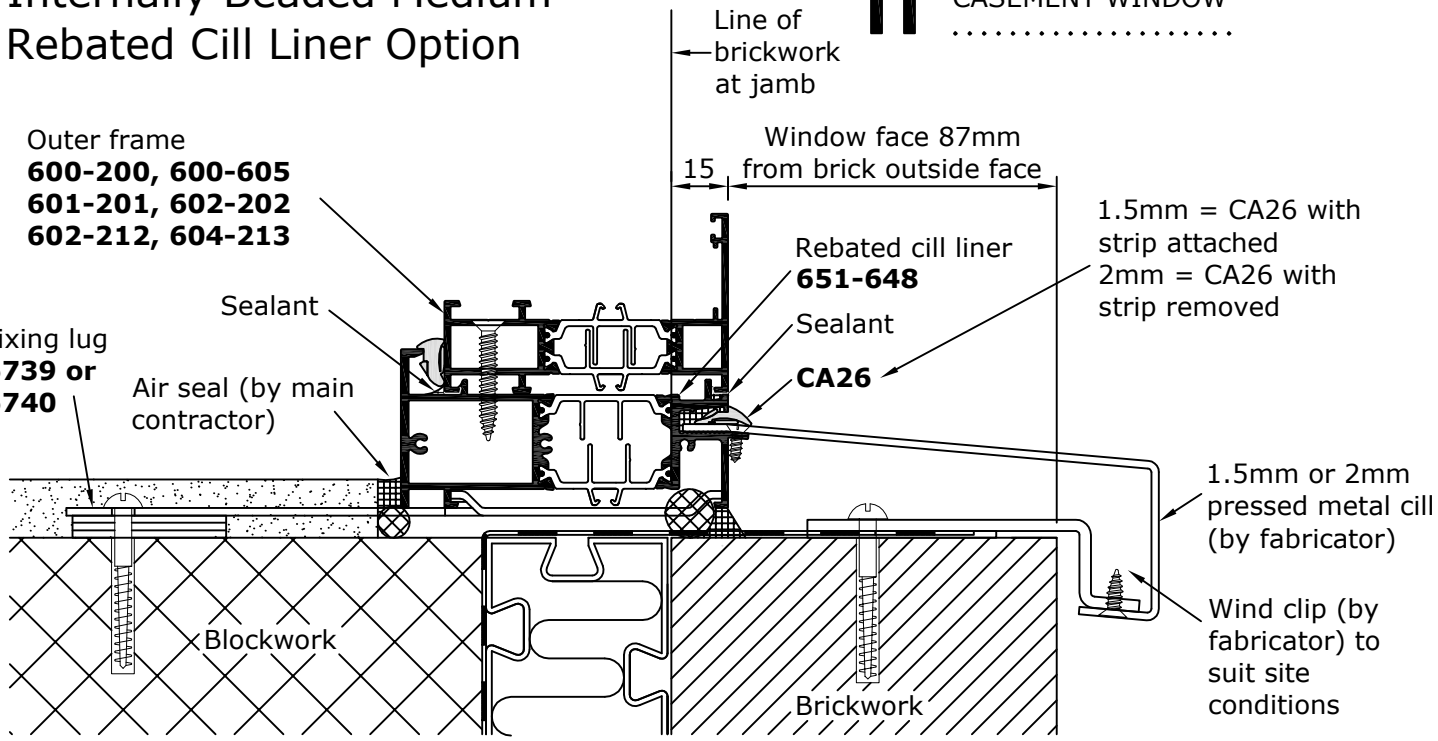
Scale 1:2

Cill Liner Options

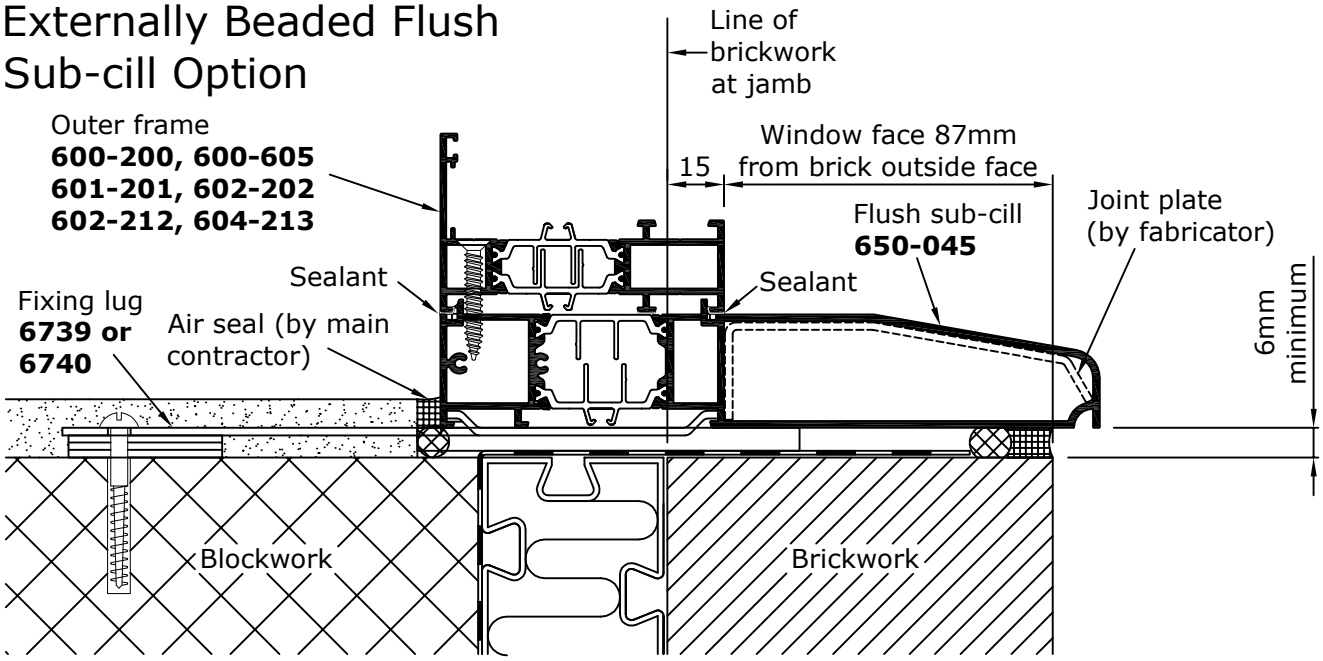
System 4-35 Hi/Hi+

CASEMENT WINDOW

Internally Beaded Medium Rebated Cill Liner Option

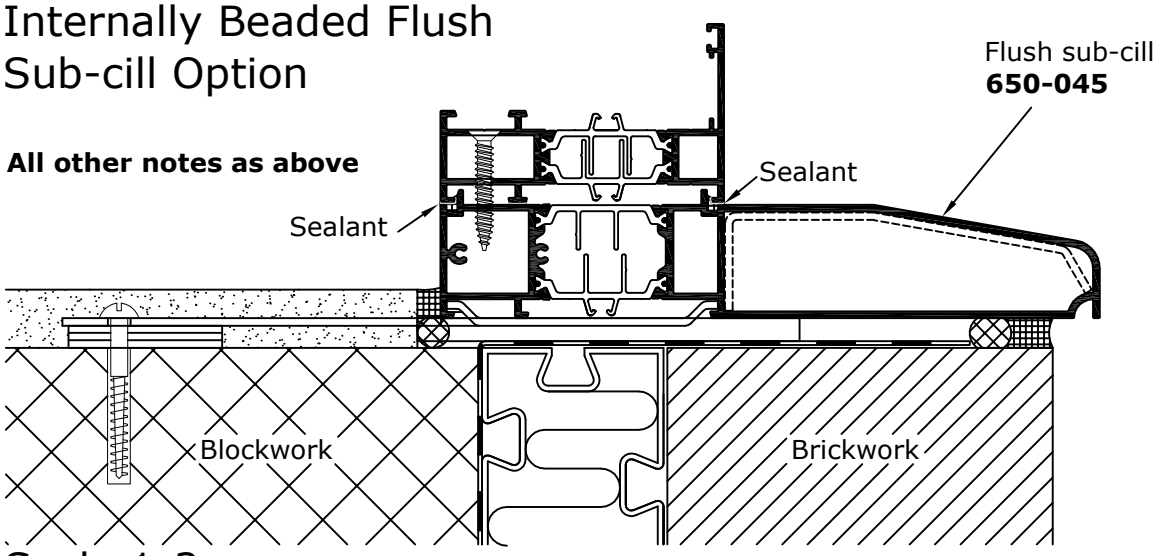


Externally Beaded Flush Sub-cill Option



Internally Beaded Flush Sub-cill Option

All other notes as above



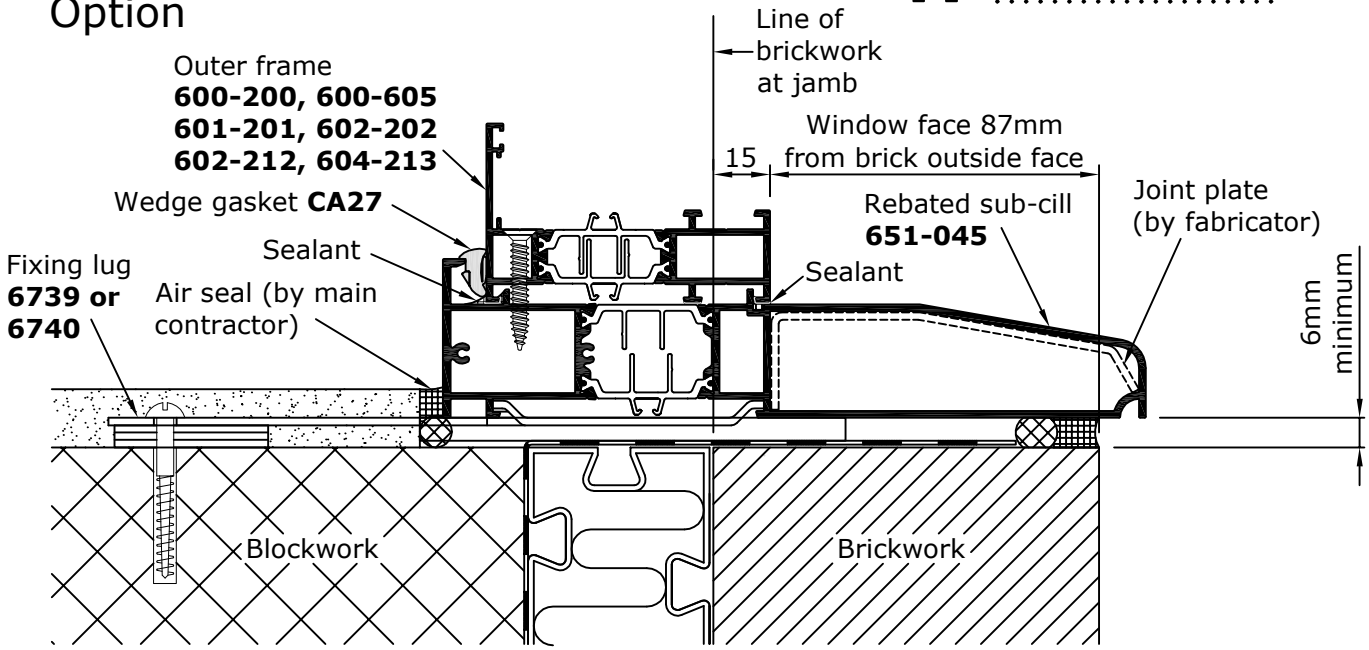
Scale 1:2

Cill and Head Liner Options

System 4-35 Hi/Hi+

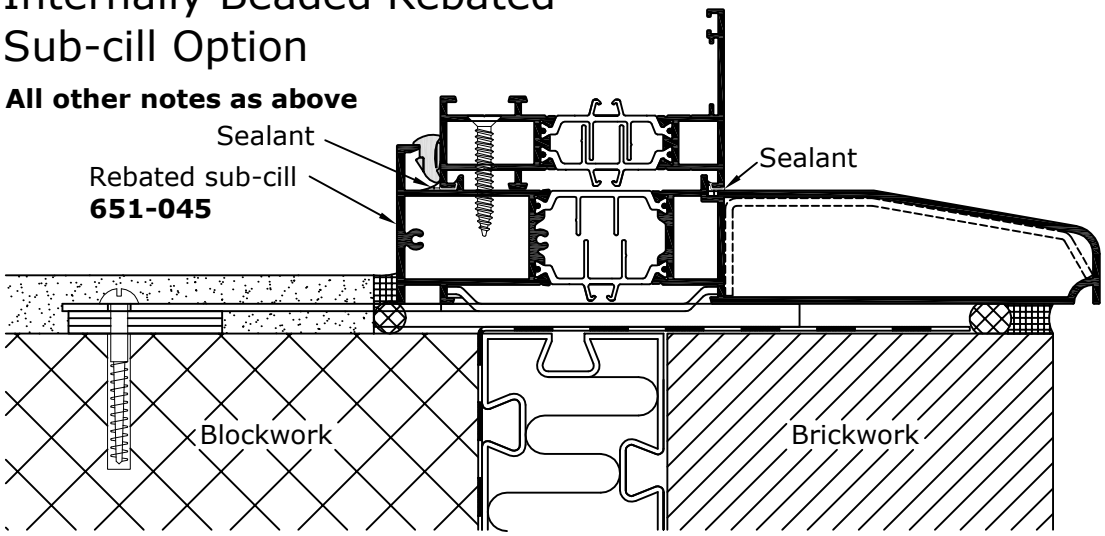
CASEMENT WINDOW

Externally Beaded Rebated Sub-cill Option

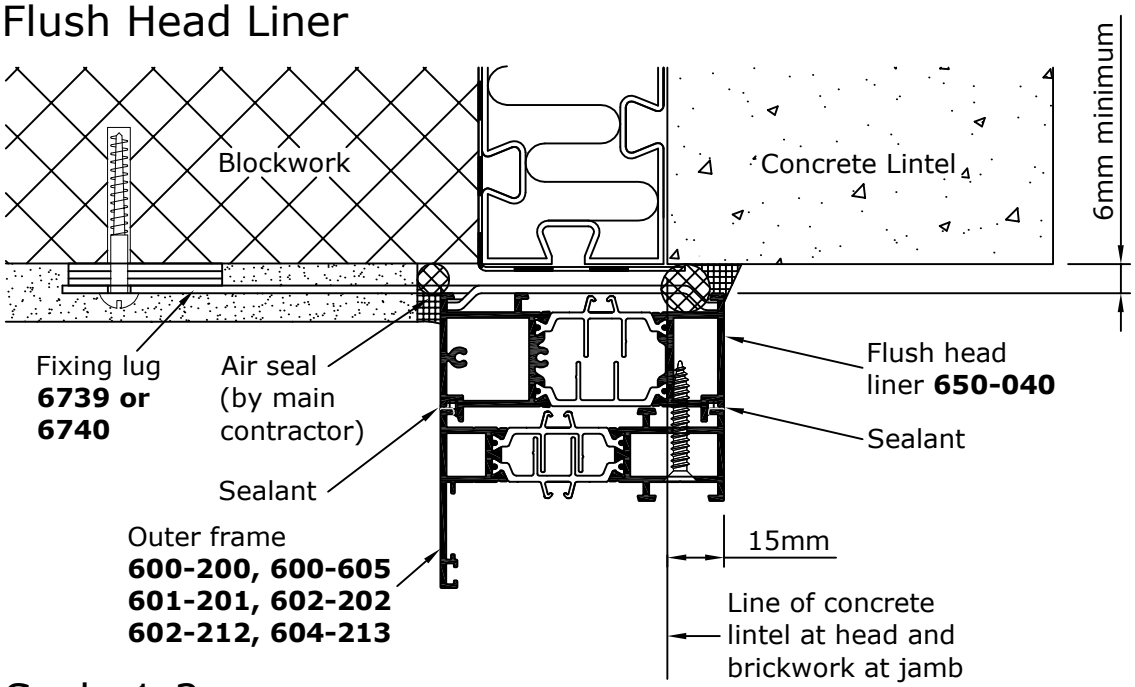


Internally Beaded Rebated Sub-cill Option

All other notes as above



Flush Head Liner



Scale 1:2

Ironmongery
General Cautionary Notes

Sheets labelled Hi / Hi+ are applicable to both variations of the system. Where the details have no impact on the thermal gaskets / foams, these have been omitted for clarity. Where sheets refer to Hi or Hi+ only, details shown apply accordingly.

The fabricator must ensure all windows and opening vents, their operation and all other associated ironmongery are in accordance with the size, weight and opening angle restrictions within this manual and any applicable British and European standards, building regulations, disabled access and Health and Safety requirements.

Fabricators need to consider operation and access to ironmongery (such as handles and releasable restrictors) from finished floor level, and ensure they comply with the relevant building regulations and/or additional project requirements such as "Lifetime Homes", disabled access, Health and Safety, etc.

The ease with which a sash can be operated may be dependent on the handle position relative to finished floor level, and thus the operation of sashes should be subject to client approval. If required, a sample should be manufactured and operational approval obtained taking into account the actual site conditions.

Sashes should not be left unattended other than in their closed and secured position.

When considering multi light applications fabricators should look at each application in relation to the sections used and the ironmongery required in order to determine compatibility (i.e that there is sufficient depth of section to accommodate the combination of profiles in conjunction with the ironmongery, drip rails and drainage requirements). Special and careful consideration should be given to butt hinge applications, applications using the 685-686 liner bar and applications incorporating open-in and open-out vent combinations. When hanging a vent with butt hinges additional loads are applied to the transom. Application-specific structural analysis will therefore be required. Similar consideration should be given to window perimeter structural interface details. Metal Technology recommend that each application is drawn out with all structure, ironmongery and fixing details applied in order to determine compatibility.

Fabricators should be aware that when working with large size windows the maintenance of tight tolerances of ±1mm is critical to maintenance of the correct gasket cover and required ironmongery tolerance around the window. The gasket cover around the sash must be centralized. All fixings must be sealed in place using a suitable sealant. All fixings must be compatible with the materials into which they are fastened. i.e.- when attaching into aluminum, austenitic A2 or A4 x class 70 stainless steel fixings are recommended. Fabricators must ensure that all adhesives, sealants and lubricants are fully compatible with the glass, materials and finish they are to be in contact with. Metal Technology recommend that fabricators sample all proposed adhesives, lubricants and sealants to ensure compatibility on a project-by-project basis. Frames should be set aside after gluing to allow glue to harden.

Ironmongery

Friction Hinges

For further details of maximum/minimum size limits see the Vent Size Limitation Charts.

Metal Technology recommend the following fittings for the system 4-35Hi range of windows:

Top hung casements

Sash height	Hinge reference	Maximum sash weight (kg)	Maximum opening angle (degrees)	722 Hinge packer/track length
300 to 650	6705	50	50	265
300 to 650	6705	40	84	265
651 to 800	6706	100	30	415
651 to 800	6706	55	50	415
651 to 800	6706	50	90	415
801 to 1500	6707	100	20	570
801 to 1500	6707	80	45	570
1501 to 2000	6709	100	20	690

Metal Technology recommend the use of a pair of separate restrictors (CA36 or 6716) per sash.

Whether sashes are unrestricted or fitted with restrictors, hinges must be permanently limited at their "Maximum opening angle", based on the applicable "Maximum sash weight". Where sash weights fall between two "Maximum sash weight" limitations the "Maximum opening angle" at the greater "Maximum sash weight" limitation applies. The "Maximum opening angle" must be set by securing the restrictor plate within the outer frame track of the friction hinge at the appropriate angle.

Side hung casements

Sash width	Hinge reference	Maximum sash weight (kg)	Maximum opening angle (degrees)	722 Hinge packer/track length
300 to 660	6705	34.5	84	265
661 to 762	6706*	42	90	415
763 to 1000	6708	60	15	468
763 to 1000	6708*	43	88	468

Metal Technology recommend the use of a pair of separate restrictors (CA36 or 6716) per sash.

Whether sashes are unrestricted or fitted with restrictors, hinges must be permanently limited at their "Maximum opening angle", based on the applicable "Maximum sash weight". Where sash weights fall between two "Maximum sash weight" limitations the "Maximum opening angle" at the greater "Maximum sash weight" limitation applies. The "Maximum opening angle" must be set by securing the restrictor plate within the outer frame track of the friction hinge at the appropriate angle.

* When fully open, these hinges provide a gap greater than 95mm between the sash and the hinge jamb to facilitate cleaning of the external glass from inside.

Friction Restrictors

Reference	Description
CA36	6" restrictor
6716	6" key releasable restrictor

Butt Hinges - 6508

(see specification for size limits)

Metal Technology recommend the following fittings for the system 4-35Hi range of windows:
When using butt hinges in both top hung and side hung applications the sash must be restrained/controlled when open.
In top hung applications Metal Technology recommends the use of folding openers. Alternatively, in more sheltered locations a pair of friction restrictors (CA36) may be used as long as the sash weight does not exceed 60Kg.
For side hung applications Metal Technology recommends the use of a pair of friction restrictors (CA36).

Top hung sashes 620-202, 624-625, 626-627, 626-652, 676-677

Sash width	Sash height	Quantity hinges	Maximum weight (kg)
300 to 900	300* to 1450	2	65
901 to 1500	300* to 1450	3	80
1501 to 1700	300* to 1450	4	95

* Minimum dimension is subject to ironmongery combinations. Refer to Vent Size Limitation Charts.

Side hung sashes 620-202, 624-625, 626-627, 626-652, 676-677

Sash width	Sash height	Quantity hinges	Maximum weight (kg)	Height/width ratio
400 to 1000	300* to 900	2	60	2/3
400 to 1000	901 to 1500	3	75	2/3
400 to 1000	901 to 1600	4	90	2/3

* Minimum dimension is subject to ironmongery combinations. Refer to Vent Size Limitation Charts.

Cockspur Handles - CA45

Cockspur handles CA45 can be used with sashes 620-202, 624-625, 626-627 and 626-652 in conjunction with 733 wedge and 713 handle packer.
Metal Technology recommend that if one handle is used it should be positioned centrally and if two are used they should be positioned at the 1/4 points of the sash.
For number and position of cockspur handles refer to maximum/minimum size limitation charts.

Espag Handles

Espag handles 825 and 7055 can be used with sashes 626-627, 626-652 and 676-677 in standard euro espag, offset euro espag, and 3-sided euro espag applications.
When using handles 825 and 7055 with sash 676-677, additional handle packer 6771 must also be used.
Note that handles 825 and 7055, and handle packer 6771 are handed items.

Ironmongery

Euro Espag Locking Systems

Standard euro espag locking system for 626-627, 626-652, 676-677 sashes

Gear is provided in sets to suit particular sash frame sizes (cill width for top hung and jamb height for side hung sashes). The espag system is a self-contained unit. Keeps (ref 6735/6734) to be ordered separately.

Sash frame size (mm)	**Espag length** (mm)	**Espag reference**	**Quantity keeps**
465 to 700	400	838A	2
701 to 900	600	839A	2
901 to 1100	800	840A	4
1101 to 1300	1000	841A	4
1301 to 1800	1200	842A	4

Offset euro espag locking system for 626-627, 626-652, 676-677 sashes

Gear is provided in sets to suit particular side hung sash heights. The espag system is a self-contained unit. Keeps (ref 6735/6734) to be ordered separately.

Sash frame size (mm)	**Espag length** (mm)	**Espag reference**	**Quantity keeps**
925 to 1200	850	822	3
1201 to 1500	950	823	3
1501 to 1800	1150	824	3

3-sided euro espag locking system with for 626-627 and 626-652 sashes

Components required:

Description	**Reference**
Gear case	6750
Gear case	6751
Equal corner transmission	833
Offset corner transmission	834
230mm extension rod	6767
Compression keeps	6735
Cill rod	844
Rod	845
Linkage	6764
Jamb rod	827
Jamb rod	828
Jamb rod	829A

For the kitting list refer to "Vent Size Limitation Chart" sheets in Section 3 of this manual.

Ironmongery

Folding Openers

Folding openers may be used in lieu of cockspur handles or espag locking systems with sashes 620-202, 624-625, 626-627 and 626-652. Folding openers are not suitable for use with slimline sash 676-677.

773 Standard folding openers are more suited for lower level windows which can be comfortably manually operated.
769 Pole-operated folding openers may be better suited for higher level windows.
771 Universal folding openers offer the advantage of both manual and pole-operated folding openers.
The fabricator should select the most suitable folding opener for his application, bearing in mind access restrictions.

Folding openers may not be suitable for all applications, subject to window design and access restrictions. Where folding openers do not provide a practical means of opening the window the fabricator should consider an alternative remote operating mechanism.

For additional information on folding openers and Health and Safety, please refer to Metal Technology's Technical Department.

Regardless of the folding opener type the minimum requirement for a top hung sash is:

Sash width (mm)	**Number of openers**	**Link bar length** (mm)	**Link bar reference**
300 to 700	1	0	-
701 to 800	2	400	542
801 to 900	2	500	543
901 to 1000	2	600	544
1001 to 1100	2	700	545
1101 to 1200	2	800	546
1201 to 1300	3	900	547
1301 to 1400	3	1000	548
1401 to 1500	3	1100	549
1501 to 1600	3	1200	550
1601 to 1700	3	1300	551
1701 to 1800	3	1400	552
1801 to 1900	3	1500	541
1901 to 2000	3	1600	555

Link bar length will determine position of folding openers on sash. Where applicable, third folding opener to be fitted centrally.

Where fabricators wish to use 2 no folding openers on sashes between 500mm and 701mm wide, Metal Technology offers a 200mm long link bar (540).

Additional components

End cap to coupling bar - CA75 (two per coupling bar)
Screw for coupling bar - CA76 (one per folding opener, one per tandem eye/ring pull)
Tandem eye / ring pull - CA77A
Link bar packer - CA84 (used with intermediate folding opener, one per tandem eye/ring pull)
Folding opener fixing component - 6506 (one per folding opener to the following profiles only 600-200, 600-212, 601-201, 602-202, 602-212, 603-201, 604-213, 606-206, 609-200, 613-213, 619-211, 620-204, 620-216)
Folding opener fixing component - 6507 (one per folding opener to sash profile 620-202)
Machine screw - 746 (two per folding opener)
Machine screw - 7239 (two per folding opener)
Countersunk rivnut - 7209 (two per folding opener to sash profiles 624-625, 626-627 and 626-652)

Ironmongery

Firemans Axe Fittings

Firemans axe cockspur fitting 7052 can be used on casement sashes 620-202, 626-627 and 626-652 in conjunction with 815 wedge and 7054 key.

Metal Technology recommend that if one fitting is used it should be positioned centrally and if two are used they should be positioned at the 1/4 points of the sash.

For number and position of cockspur fittings refer to maximum/minimum size limitation charts.

Firemans axe espag fitting 7053 can be used on casement sashes 626-627 and 626-652 in conjunction with 7054 key and standard euro espag or 3-sided euro espag gearing.

Alignment and Interlocking Wedges

Alignment wedges - 6772

Alignment wedges must be provided to the lower part of top hung sash and to the leading edge of the side hung sash at the head and cill.
i.e. two pairs per window regardless of the size.
In top hung applications alignment wedges are not required when using espag locking or when using folding openers.

Interlocking wedges - 6772

Interlocking wedges must be provided at the head of top hung sashes and the hinge jamb of side hung sashes (using friction hinges) as indicated below.

	Top hung	**Side hung**
One set	Sash 900 to 1200 wide	Sash 900 to 1200 wide
Two sets	Sash 1201 to 1500 wide	Sash 1201 to 1500 wide

Security Components

Ancillary hinge security device - 702

Where security is required for 626-627, 626-652 and 676-677 sashes 1 set of the 702 ancillary hinge security devices must be used, in conjunction with 2 no 722 hinge packers at 100mm long.

Security compression keep - 6735

In security applications compression keep 6735 must be used.

Vent Size Limitation Chart

Side Hung Vents with Friction Hinges and Cockspur Handles

System 4-35 Hi/Hi+

CASEMENT WINDOW

This chart is applicable for use with the 4-35 Hi and Hi+ systems.

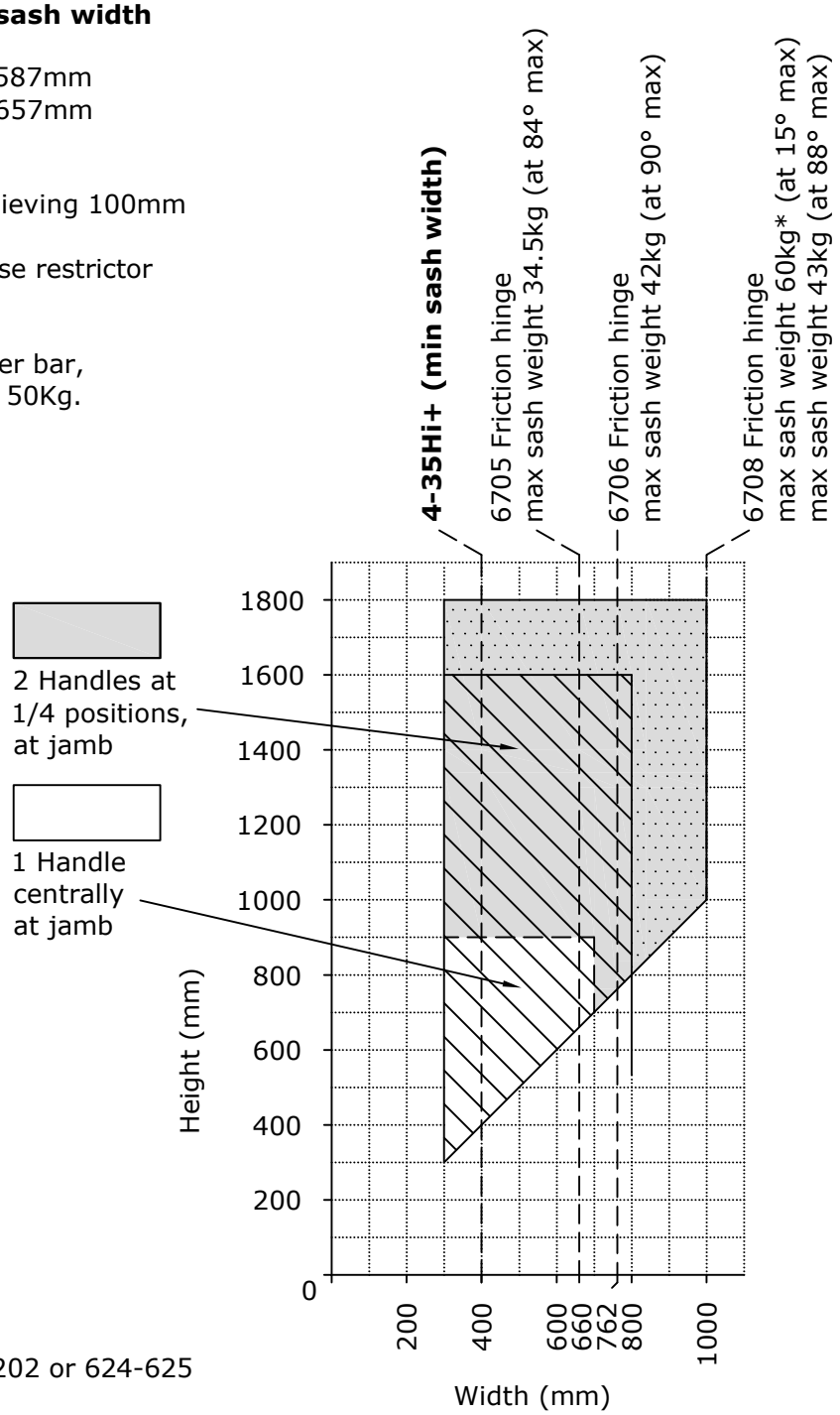
See separate sheet "General Cautionary Notes" regarding friction hinges, and section 7 of this manual for fixing instructions.

Metal Technology recommend the use of a separate pair of restrictors CA36 or 6716 at head and cill.

Reference	Description	Minimum sash width
CA36	6" restrictor	587mm
6716	6" key releasable restrictor	657mm

Minimum sash width is based on achieving 100mm clear opening.
Below these minimum vent widths use restrictor plates within friction hinges.

* When securing sash to 685-686 liner bar, maximum sash weight is limited to 50Kg.



Section 620-202 or 624-625

Section 626-627 or 626-652

Vent Size Limitation Chart

Side Hung Vents with Friction Hinges and Standard Euro Espag Locking

System 4-35 Hi/Hi+
CASEMENT WINDOW

This chart is applicable for use with the 4-35 Hi and Hi+ systems.

In security applications vents should be fitted with 702 ancillary hinge security devices as shown on "Security Requirements" sheet and "Ancillary Hinge Security Device 702" sheet.

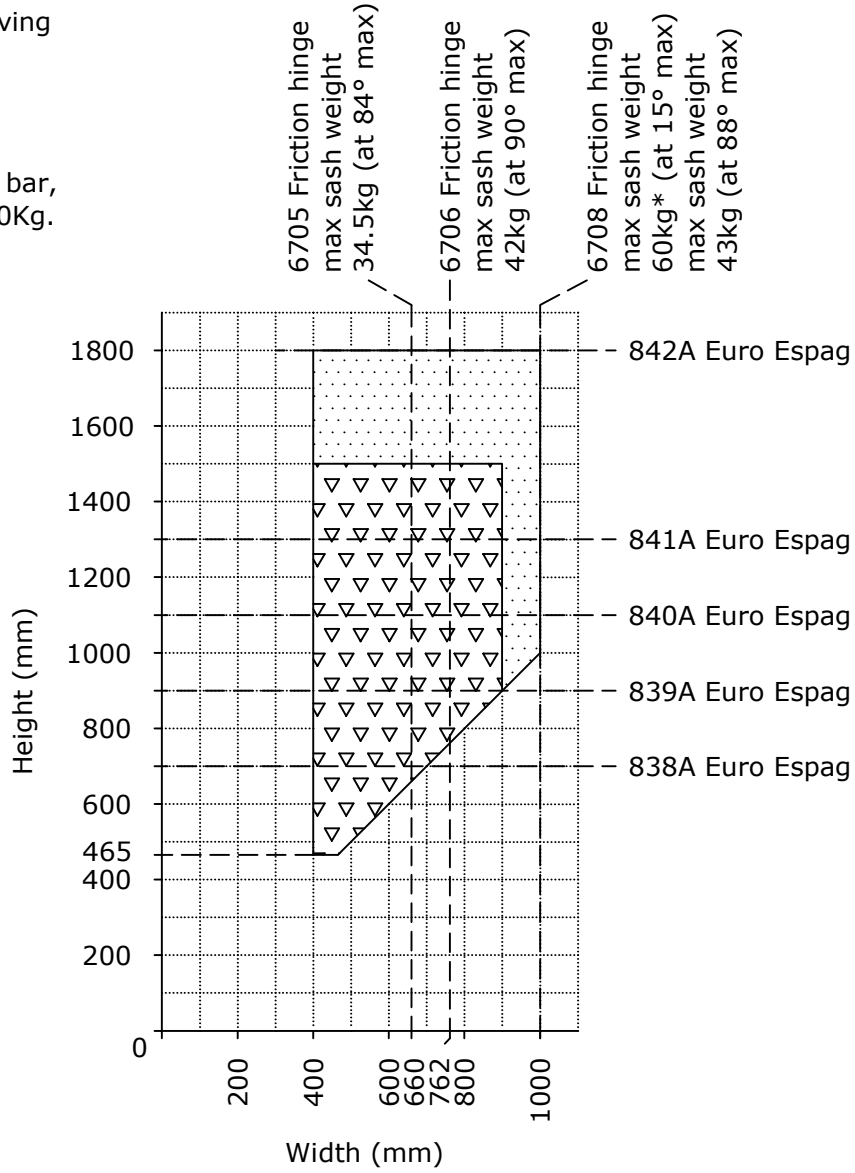
See separate sheet "General Cautionary Notes" regarding friction hinges, and section 7 of this manual for fixing instructions.

Metal Technology recommend the use of a separate pair of restrictors CA36 or 6716 at head and cill.

Reference	Description	Minimum sash width
CA36	6" restrictor	587mm
6716	6" key releasable restrictor	657mm

Minimum sash width is based on achieving 100mm clear opening.
Below these minimum vent widths use restrictor plates within friction hinges.

* When securing sash to 685-686 liner bar, maximum sash weight is limited to 50Kg.



Section 626-627 or 626-652

Section 676-677

Vent Size Limitation Chart

Side Hung Vents with Friction Hinges and Offset Euro Espag Locking

System 4-35 Hi/Hi+

CASEMENT WINDOW

This chart is applicable for use with the 4-35 Hi and Hi+ systems.

In security applications vents should be fitted with 702 ancillary hinge security devices as shown on "Security Requirements" sheet and "Ancillary Hinge Security Device 702" sheet.

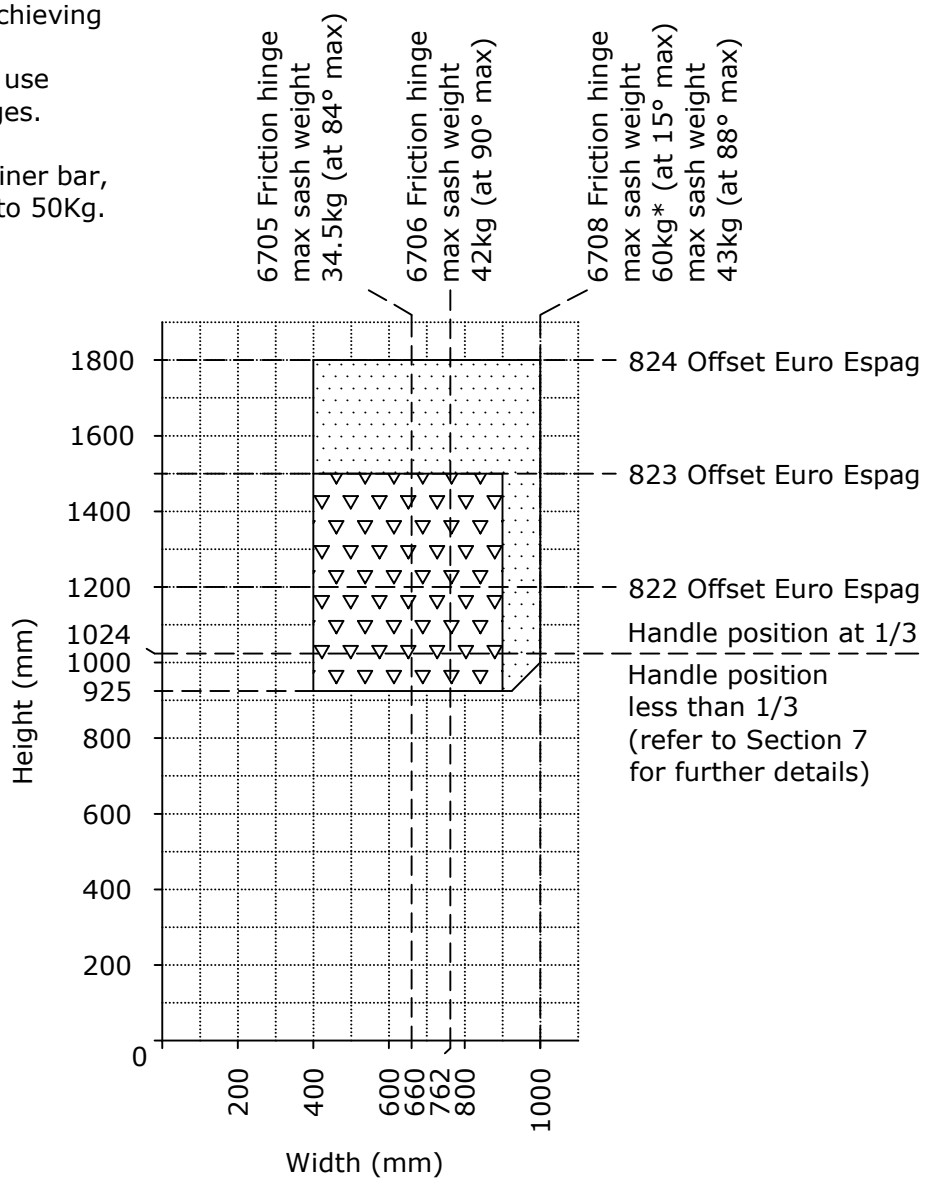
See separate sheet "General Cautionary Notes" regarding friction hinges, and section 7 of this manual for fixing instructions.

Metal Technology recommend the use of a separate pair of restrictors CA36 or 6716 at head and cill.

Reference	Description	Minimum sash width
CA36	6" restrictor	587mm
6716	6" key releasable restrictor	657mm

Minimum sash width is based on achieving 100mm clear opening.
Below these minimum vent widths use restrictor plates within friction hinges.

* When securing sash to 685-686 liner bar, maximum sash weight is limited to 50Kg.



Section 626-627 or 626-652

Section 676-677

Vent Size Limitation Chart

Side Hung Vents with Friction Hinges using 3-sided Euro Espag Locking System

System 4-35 Hi/Hi+

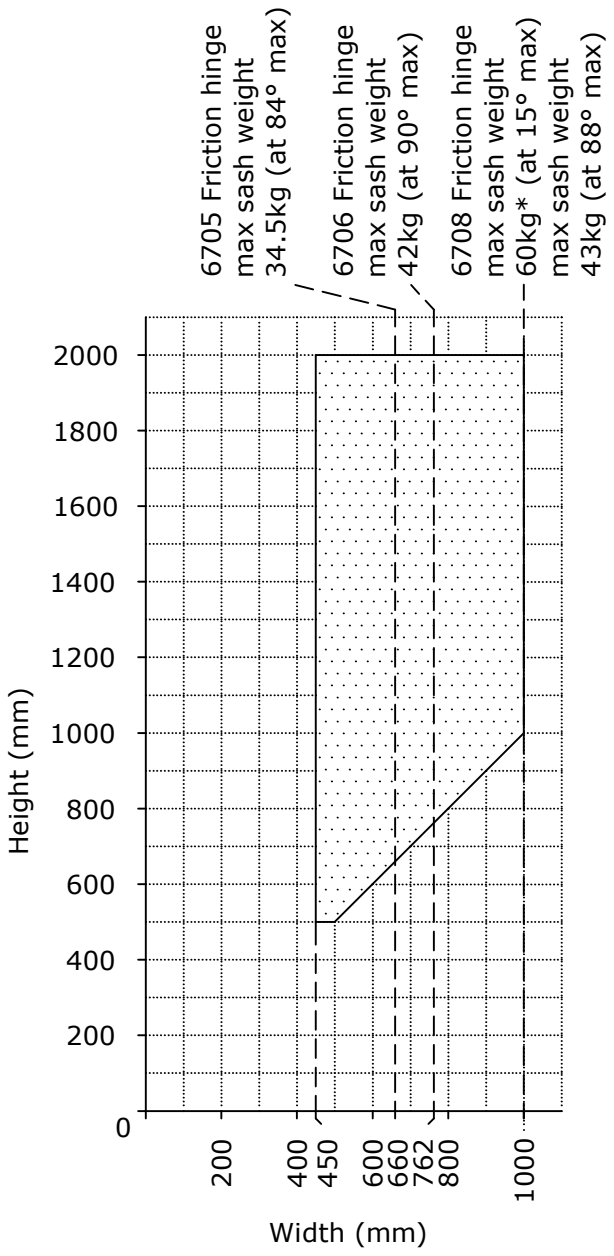
CASEMENT WINDOW

This chart is applicable for use with the 4-35 Hi and Hi+ systems.

See separate sheets "General Cautionary Notes" regarding friction hinges, and section 7 of this manual for fixing instructions.

Metal Technology recommend the use of a separate pair of restrictors CA36 or 6716, fitted at the jamb.

* When securing sash to 685-686 liner bar, maximum sash weight is limited to 50Kg.



Section 626-627 or 626-652

HANDLE AT MID-POINT

Height \ Width	450 to 1000
500 to 677	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6751, 2 No Corner drives 834, 2 No Keeps 6735
678 to 1078	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6751, 2 No Corner drives 833, 2 No Keeps 6735
1079 to 1137	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6750, 2 No Corner drives 834, 2 No Extension rods 6767, 3 No Keeps 6735
1138 to 1538	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6750, 2 No Corner drives 833, 2 No Extension rods 6767, 3 No Keeps 6735
1539 to 2000	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6751, 2 No Corner drives 833, 2 No Rods 844, 2 No Linkages 6764, 4 No Keeps 6735

HANDLE AT 1/3

Height \ Width	450 to 1000
500 to 671	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6750, 1 No Extension rod 6768, 2 No Keeps 6735
672 to 1015	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6750, 1 No Corner drive 834, 1 No Extension rod 6768, 3 No Keeps 6735
1016 to 1303	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6750, 1 No Corner drive 833, 1 No Extension rod 6768, 1 No Extension rod 6767, 3 No Keeps 6735
1304 to 1615	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6750, 1 No Corner drive 833, 1 No Extension rod 6768, 2 No Extension rods 6767, 3 No Keeps 6735
1616 to 1705	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6750, 1 No Corner drive 834, 1 No Extension rod 6768, 1 No Rod 845, 1 No Extension rod 6767, 1 No Linkage 6764, 4 No Keeps 6735
1706 to 2000	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6750, 1 No Corner drive 833, 1 No Extension rod 6768, 1 No Rod 845, 1 No Extension rod 6767, 1 No Linkage 6764, 4 No Keeps 6735

Vent Size Limitation Chart

Side Hung Vents with Butt Hinges and Cockspur Handles

System 4-35 Hi/Hi+

CASEMENT WINDOW

This chart is applicable for use with the 4-35 Hi and Hi+ systems. Where size limitations vary between Hi and Hi+, these are highlighted below.

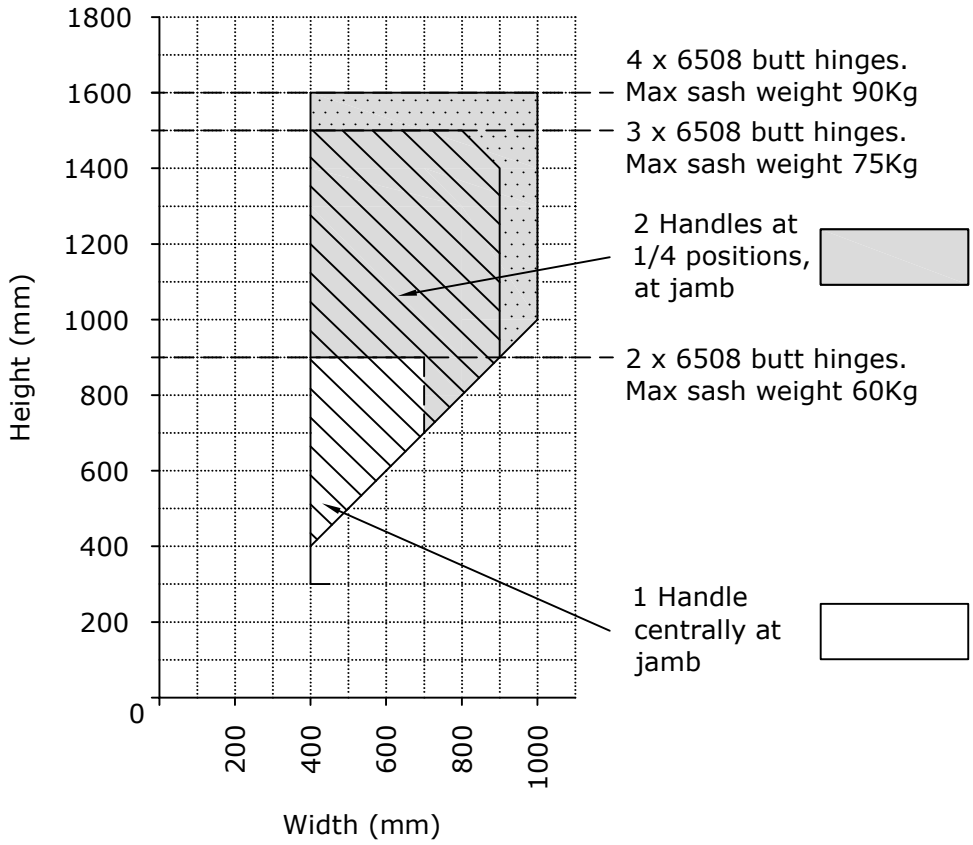
See "General Cautionary Notes" and "Butt Hinges" in Section 3 of this manual. Also section 7 of this manual for fixing instructions.

Metal Technology recommend the use of a separate pair of restrictors CA36 at head and cill.

Reference	Description	Minimum sash width
CA36	6" restrictor	400mm

Minimum sash width is based on achieving 100mm clear opening.

When securing sash to 685-686 liner bar, maximum sash weight is limited to 50Kg.



Section 620-202 or 624-625

Section 626-627 or 626-652

Vent Size Limitation Chart

Side Hung Vents with Butt Hinges and Standard Euro Espag Locking

System 4-35 Hi/Hi+

CASEMENT WINDOW

This chart is applicable for use with the 4-35 Hi and Hi+ systems.

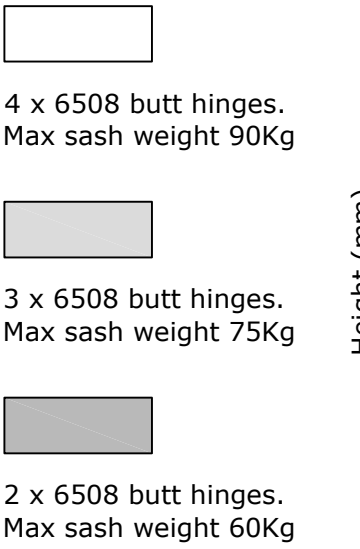
See "General Cautionary Notes" and "Butt Hinges" in Section 3 of this manual. Also section 7 of this manual for fixing instructions.

Metal Technology recommend the use of a separate pair of restrictors CA36 at head and cill.

Reference	Description	Minimum sash width
CA36	6" restrictor	400mm

Minimum sash width is based on achieving 100mm clear opening.

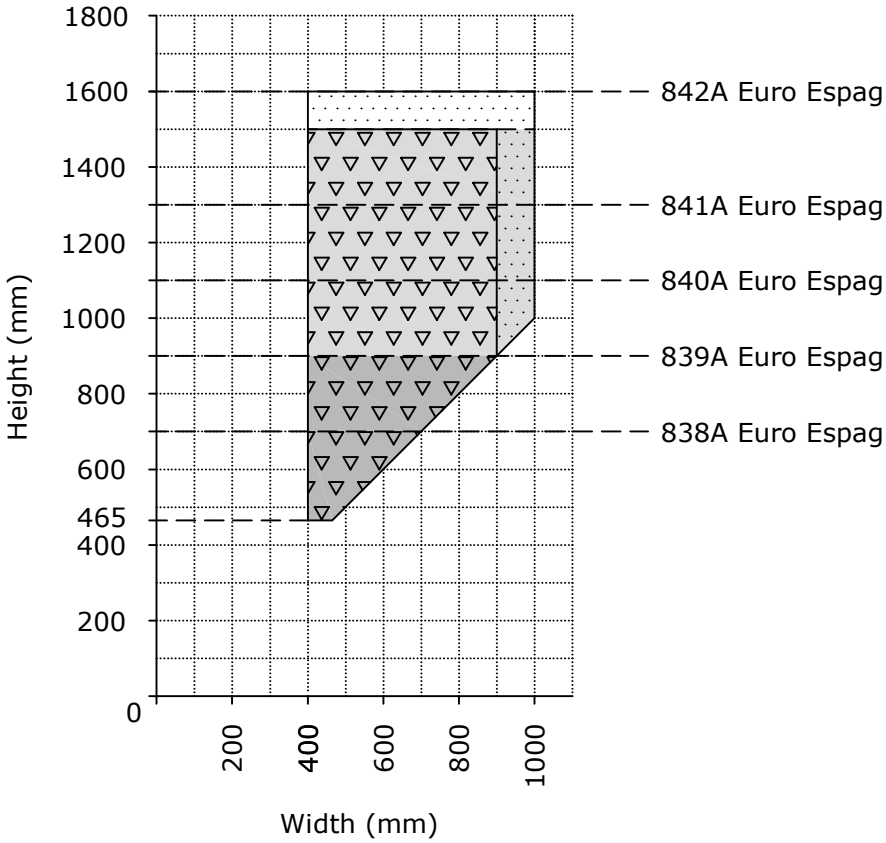
When securing sash to 685-686 liner bar, maximum sash weight is limited to 50Kg.



4 x 6508 butt hinges.
Max sash weight 90Kg

3 x 6508 butt hinges.
Max sash weight 75Kg

2 x 6508 butt hinges.
Max sash weight 60Kg



Section 626-627 or 626-652

Section 676-677

Vent Size Limitation Chart

Top Hung Vents with Friction Hinges and Cockspur Handles

System 4-35 Hi/Hi+
CASEMENT WINDOW

This chart is applicable for use with the 4-35 Hi and Hi+ systems. Where size limitations vary between Hi and Hi+, these are highlighted below.

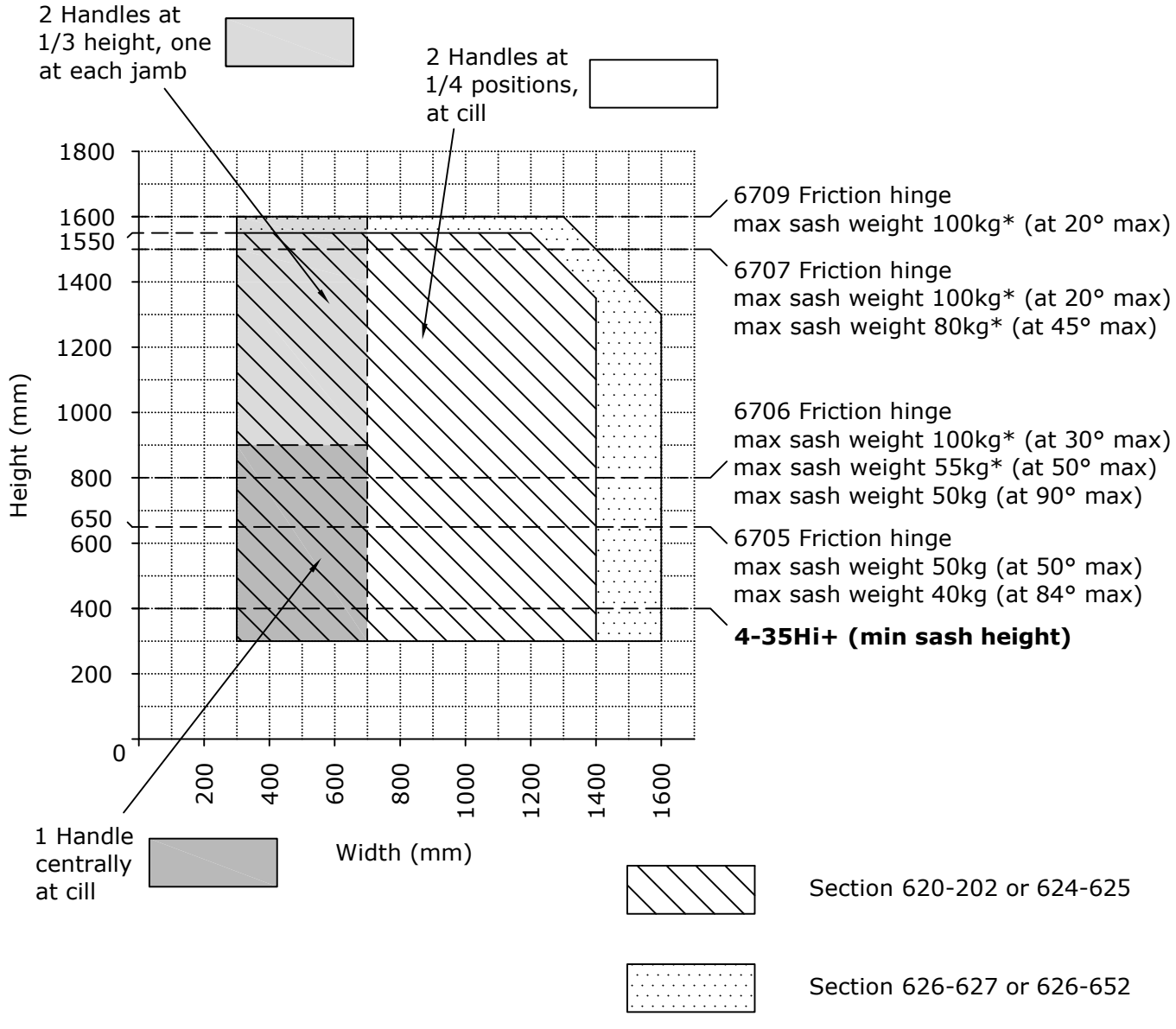
See separate sheet "General Cautionary Notes" regarding friction hinges, and section 7 of this manual for fixing instructions.

Metal Technology recommend the use of a separate pair of restrictors CA36 or 6716 at jambs.

Reference	Description	Minimum sash height
CA36	6" restrictor	587mm
6716	6" key releasable restrictor	657mm

Minimum sash height is based on achieving 100mm clear opening.
Below these minimum vent heights use restrictor plates within friction hinges.

* When securing sash to 685-686 liner bar, maximum sash weight is limited to 50Kg.



Vent Size Limitation Chart

Top Hung Vents with Friction Hinges and Standard Euro Espag Locking

System 4-35 Hi/Hi+

CASEMENT WINDOW

This chart is applicable for use with the 4-35 Hi and Hi+ systems.

In security applications vents should be fitted with 702 ancillary hinge security devices as shown on "Security Requirements" sheet and "Ancillary Hinge Security Device 702" sheet.

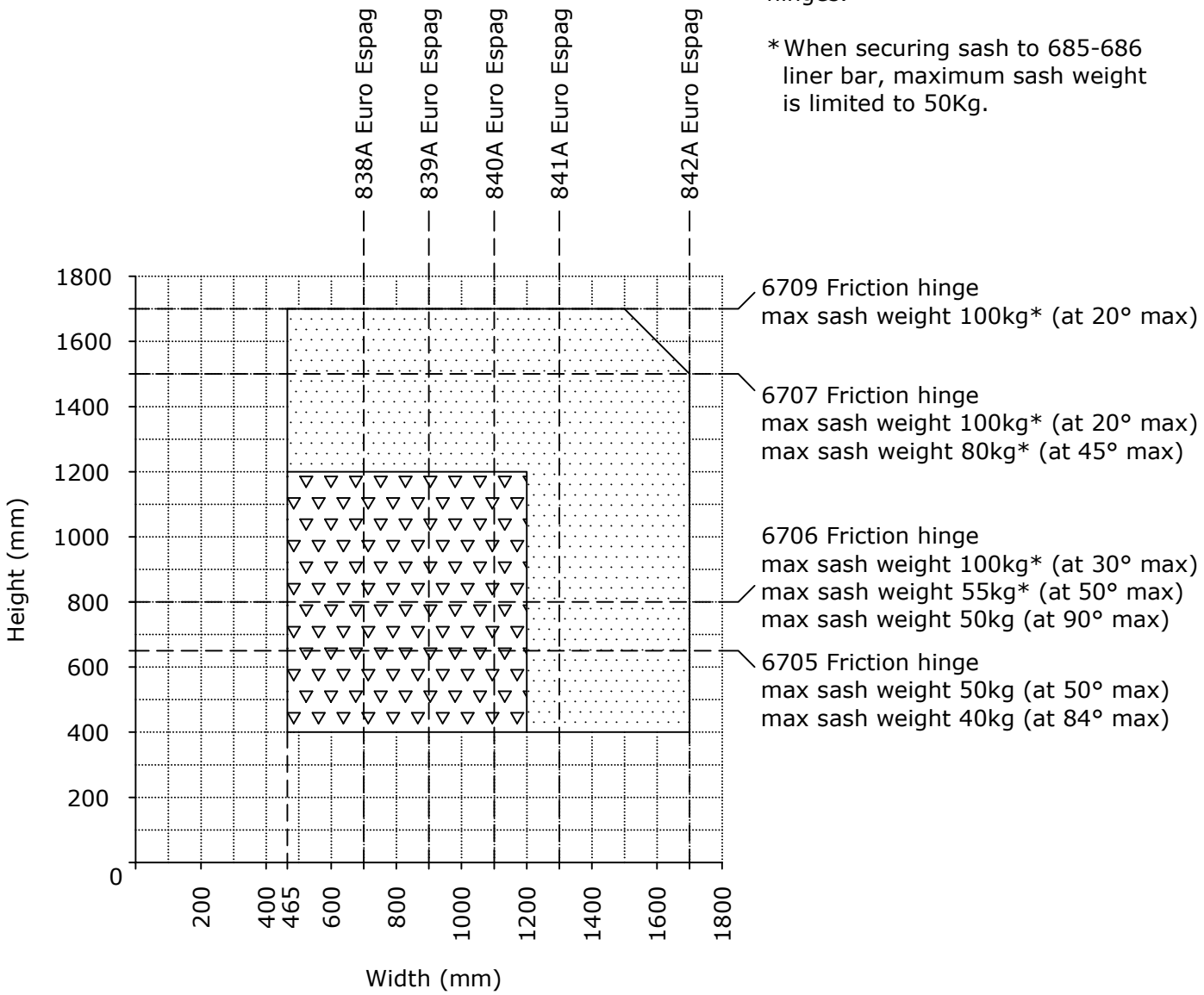
See separate sheet "General Cautionary Notes" regarding friction hinges, and section 7 of this manual for fixing instructions.

Metal Technology recommend the use of a separate pair of restrictors CA36 or 6716 at jambs.

Reference	Description	Minimum sash height
CA36	6" restrictor	587mm
6716	6" key releasable restrictor	657mm

Minimum sash height is based on achieving 100mm clear opening. Below these minimum vent heights use restrictor plates within friction hinges.

* When securing sash to 685-686 liner bar, maximum sash weight is limited to 50Kg.



Section 626-627 or 626-652

Section 676-677

Vent Size Limitation Chart

Top Hung Vents with Butt Hinges and Standard Euro Espag Locking

System 4-35 Hi/Hi+

CASEMENT WINDOW

This chart is applicable for use with the 4-35 Hi and Hi+ systems.

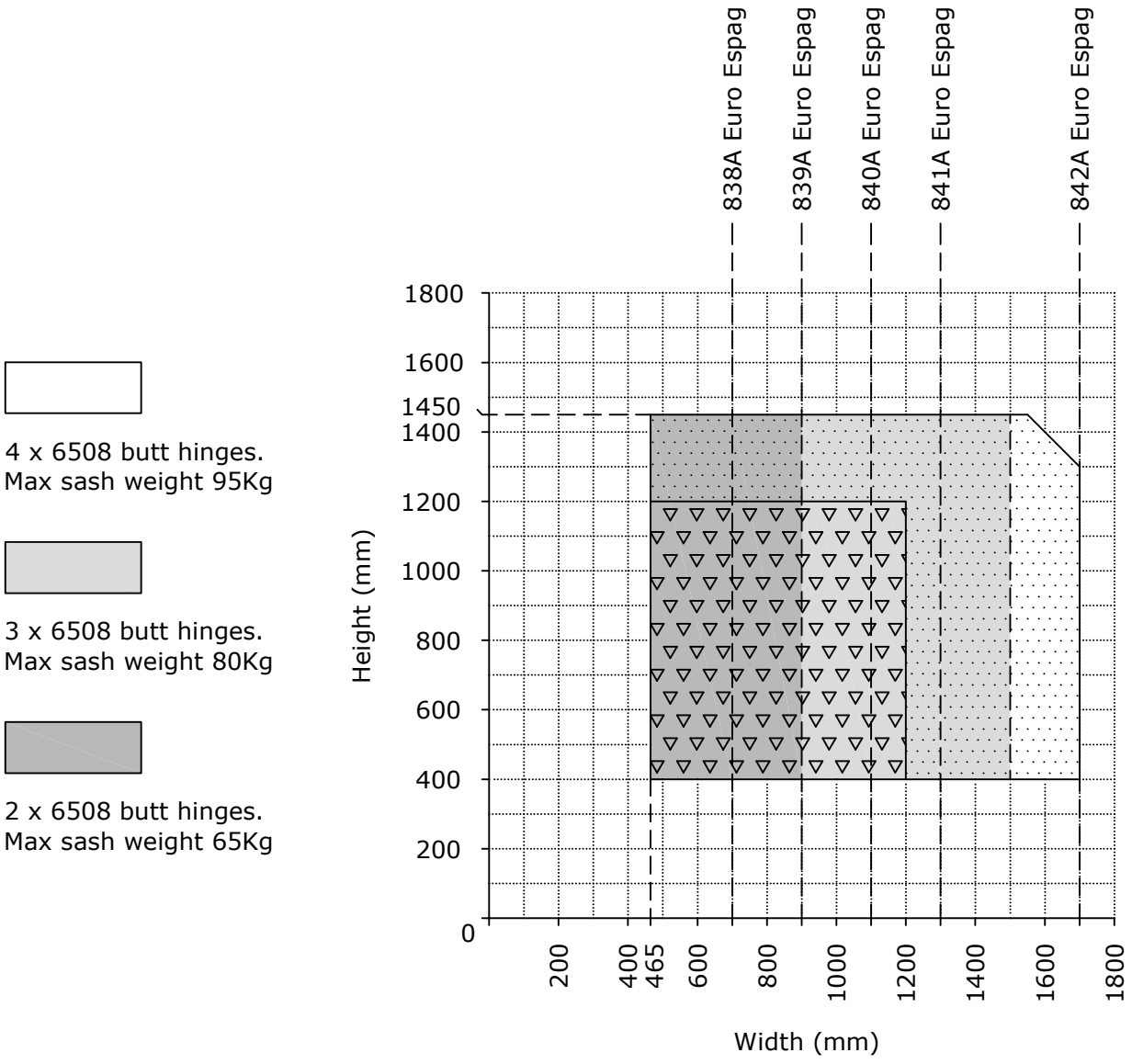
See "General Cautionary Notes" and "Butt Hinges" in Section 3 of this manual. Also section 7 of this manual for fixing instructions.

Metal Technology recommend the use of a separate pair of restrictors CA36 at jambs.

Reference	Description	Minimum sash height
CA36	6" restrictor	400mm

Minimum sash height is based on achieving 100mm clear opening.

When securing sash to 685-686 liner bar, maximum sash weight is limited to 50Kg.



4 x 6508 butt hinges.
Max sash weight 95Kg

3 x 6508 butt hinges.
Max sash weight 80Kg

2 x 6508 butt hinges.
Max sash weight 65Kg

Section 626-627 or 626-652

Section 676-677

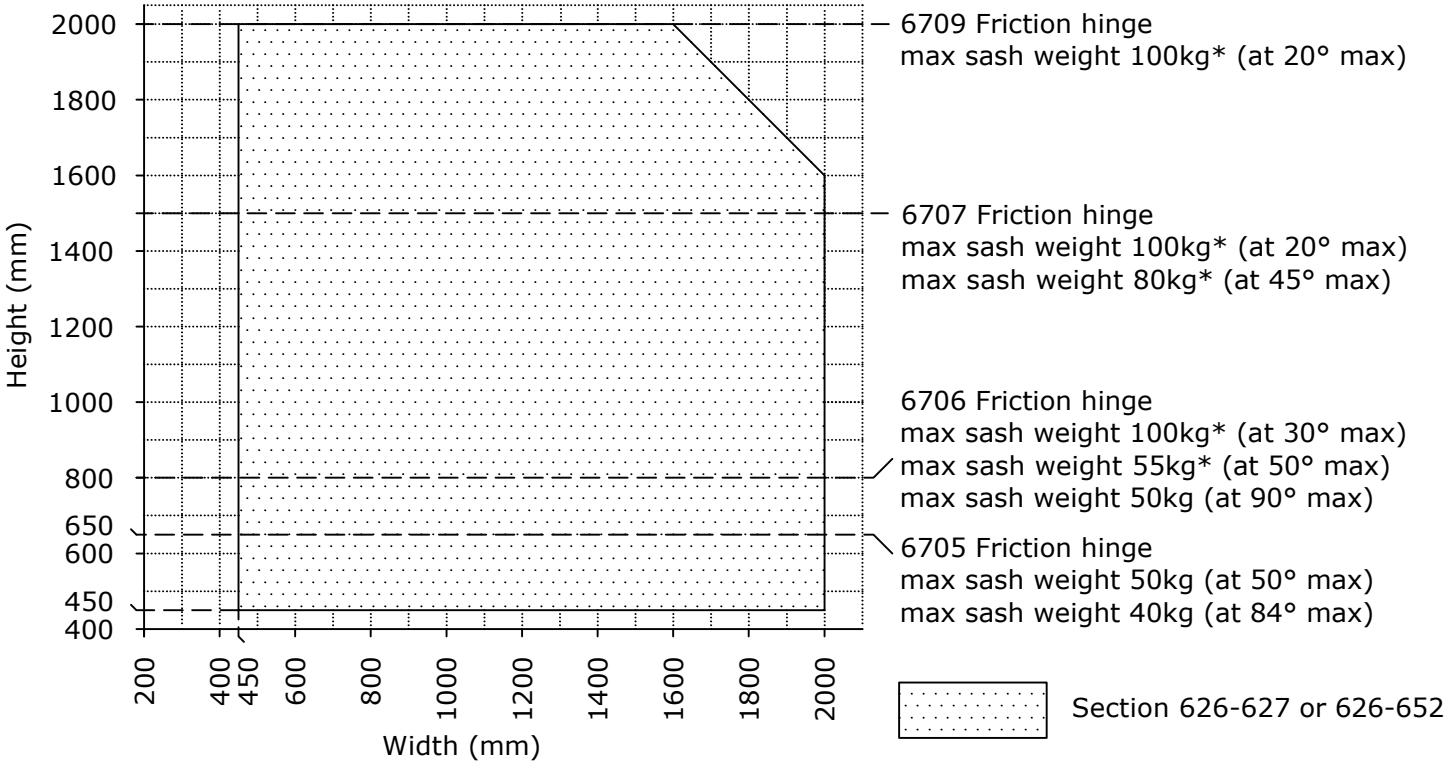
Vent Size Limitation Chart

Top Hung Vents with Friction Hinges using 3-Sided Euro Espag Locking System

System 4-35 Hi/Hi+

CASEMENT WINDOW

This chart is applicable for use with the 4-35 Hi and Hi+ systems.
See separate sheet "General Cautionary Notes" regarding friction hinges, and section 7 of this manual for fixing instructions.
Metal Technology recommend the use of a separate pair of restrictors CA36 or 6716, fitted at the cill.
* When securing sash to 185-686 liner bar, maximum sash weight is limited to 50Kg.



Height \ Width	450 to 677	678 to 1078	1079 to 1137	1138 to 1538	1539 to 2000
450 to 1000	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6751, 2 No Corner drives 834, 2 No Keeps 6735	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6751, 2 No Corner drives 833, 2 No Keeps 6735	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6750, 2 No Corner drives 834, 2 No Extension rods 6767, 3 No Keeps 6735	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6750, 2 No Corner drives 833, 2 No Extension rods 6767, 3 No Keeps 6735	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6751, 2 No Corner drives 833, 2 No Cill rods 844, 2 No Linkages 6764, 4 No Keeps 6735
1001 to 1250	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6751, 2 No Corner drives 834, 2 No Jamb rods 827 4 No Keeps 6735	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6751, 2 No Corner drives 833, 2 No Jamb rods 827 4 No Keeps 6735	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6750, 2 No Corner drives 834, 2 No Extension rods 6767, 2 No Jamb rods 827, 5 No Keeps 6735	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6750, 2 No Corner drives 833, 2 No Extension rods 6767, 2 No Jamb rods 827, 5 No Keeps 6735	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6751, 2 No Corner drives 833, 2 No Cill rods 844, 2 No Jamb rods 827, 2 No Linkages 6764, 6 No Keeps 6735
1251 to 1500	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6751, 2 No Corner drives 834, 2 No Jamb rods 828 4 No Keeps 6735	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6751, 2 No Corner drives 833, 2 No Jamb rods 828 4 No Keeps 6735	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6750, 2 No Corner drives 834, 2 No Extension rods 6767, 2 No Jamb rods 828, 5 No Keeps 6735	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6750, 2 No Corner drives 833, 2 No Extension rods 6767, 2 No Jamb rods 828, 5 No Keeps 6735	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6751, 2 No Corner drives 833, 2 No Cill rods 844, 2 No Jamb rods 828, 2 No Linkages 6764, 6 No Keeps 6735
1501 to 2000	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6751, 2 No Corner drives 834, 2 No Jamb rods 829A 4 No Keeps 6735	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6751, 2 No Corner drives 833, 2 No Jamb rods 829A 4 No Keeps 6735	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6750, 2 No Corner drives 834, 2 No Extension rods 6767, 2 No Jamb rods 829A, 5 No Keeps 6735	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6750, 2 No Corner drives 833, 2 No Extension rods 6767, 2 No Jamb rods 829A, 5 No Keeps 6735	1 No Handle 825/7055, 1 pair Hinges, 1 No Gear case 6751, 2 No Corner drives 833, 2 No Cill rods 844, 2 No Jamb rods 829A, 2 No Linkages 6764, 6 No Keeps 6735

Vent Size Limitation Chart

Top Hung Vents with Friction Hinges and Folding Openers

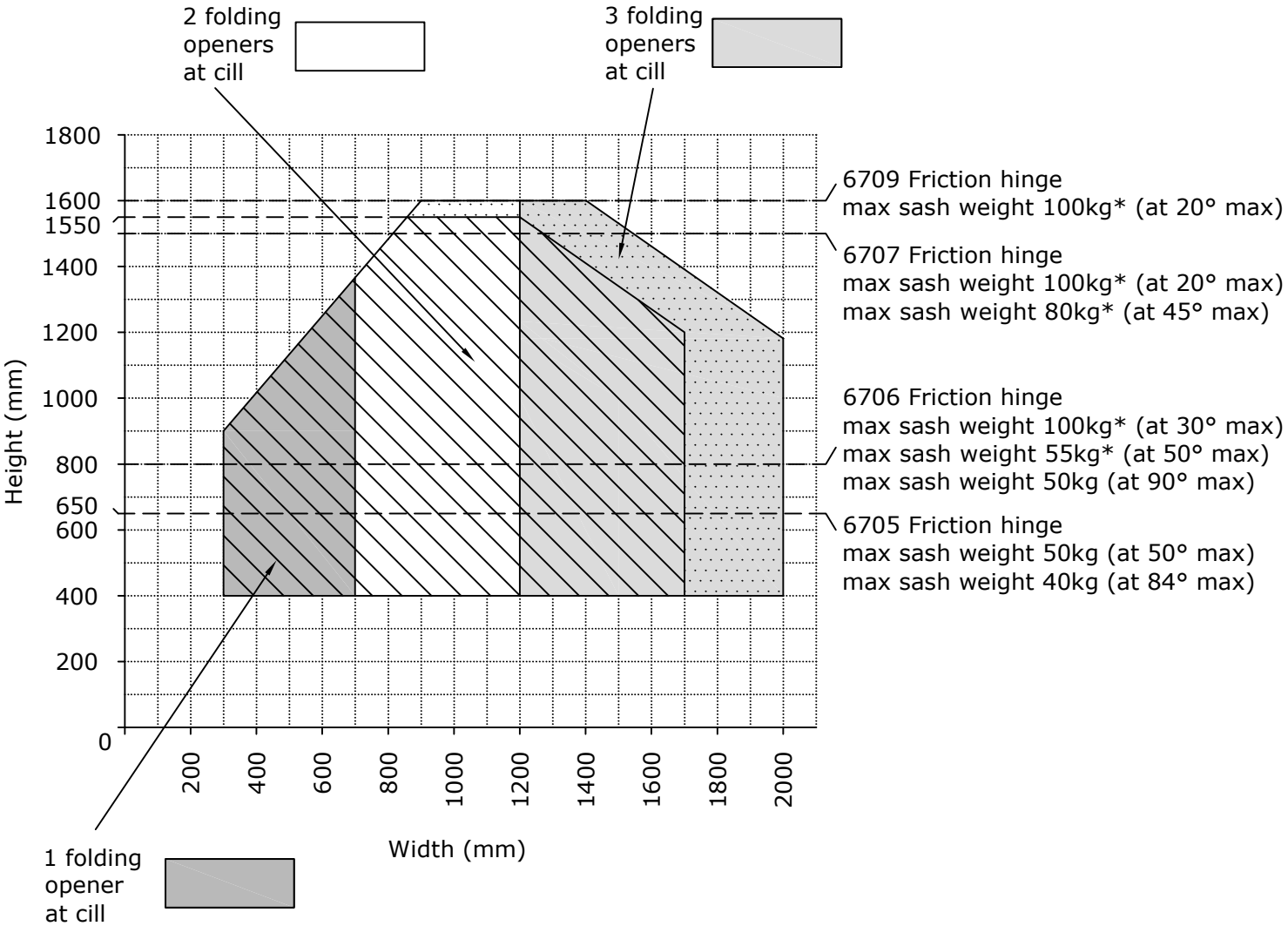
System 4-35 Hi/Hi+

CASEMENT WINDOW

This chart is applicable for use with the 4-35 Hi and Hi+ systems. Where size limitations vary between Hi and Hi+, these are highlighted below.

See seperate sheet "General Cautionary Notes" regarding friction hinges and folding openers, and section 7 of this manual for fixing instructions.

* When securing sash to 685-686 liner bar, maximum sash weight is limited to 50Kg.



Sections 620-202 or 624-625

Section 626-627 or 626-652

Vent Size Limitation Chart

Top Hung Vents with Friction Hinges and Teleflex Gear or Actuators

System 4-35 Hi/Hi+

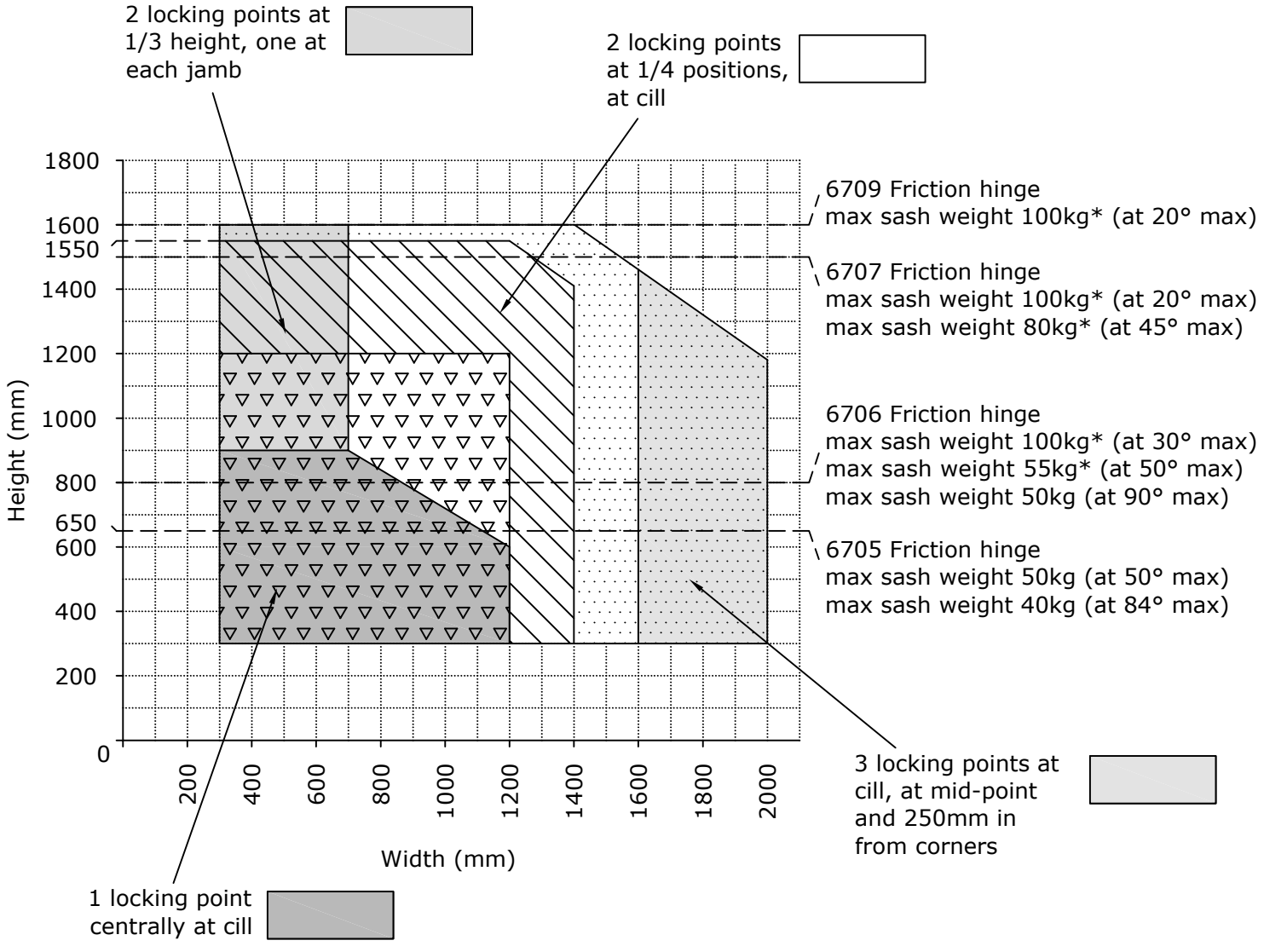
CASEMENT WINDOW

This chart is applicable for use with the 4-35 Hi and Hi+ systems. Where size limitations vary between Hi and Hi+, these are highlighted below.

See separate sheet "General Cautionary Notes" regarding friction hinges, and section 7 of this manual for fixing instructions.

For the purpose of this graph, teleflex and actuator locking points are deemed to provide the same level of compression as a folding opener/cockspur handle. Fabricators must also ensure the size limits indicated on these charts do not conflict with any size restriction or limitations applicable to their choice of teleflex or actuator supplier. Sash opening to be limited in accordance with teleflex/actuator manufacturers recommendations and hinge capabilities.

* When securing sash to 685-686 liner bar, maximum sash weight is limited to 50Kg.



Section 620-202 or 624-625

Section 626-627 or 626-652

Section 676-677

SHEET 435Hi / 3 / 180

rev 6 19/12/16

Vent Size Limitation Chart

Top Hung Vents with Butt Hinges and Cockspur Handles

System 4-35 Hi/Hi+
CASEMENT WINDOW

This chart is applicable for use with the 4-35 Hi and Hi+ systems.
Where size limitations vary between Hi and Hi+, these are highlighted below.

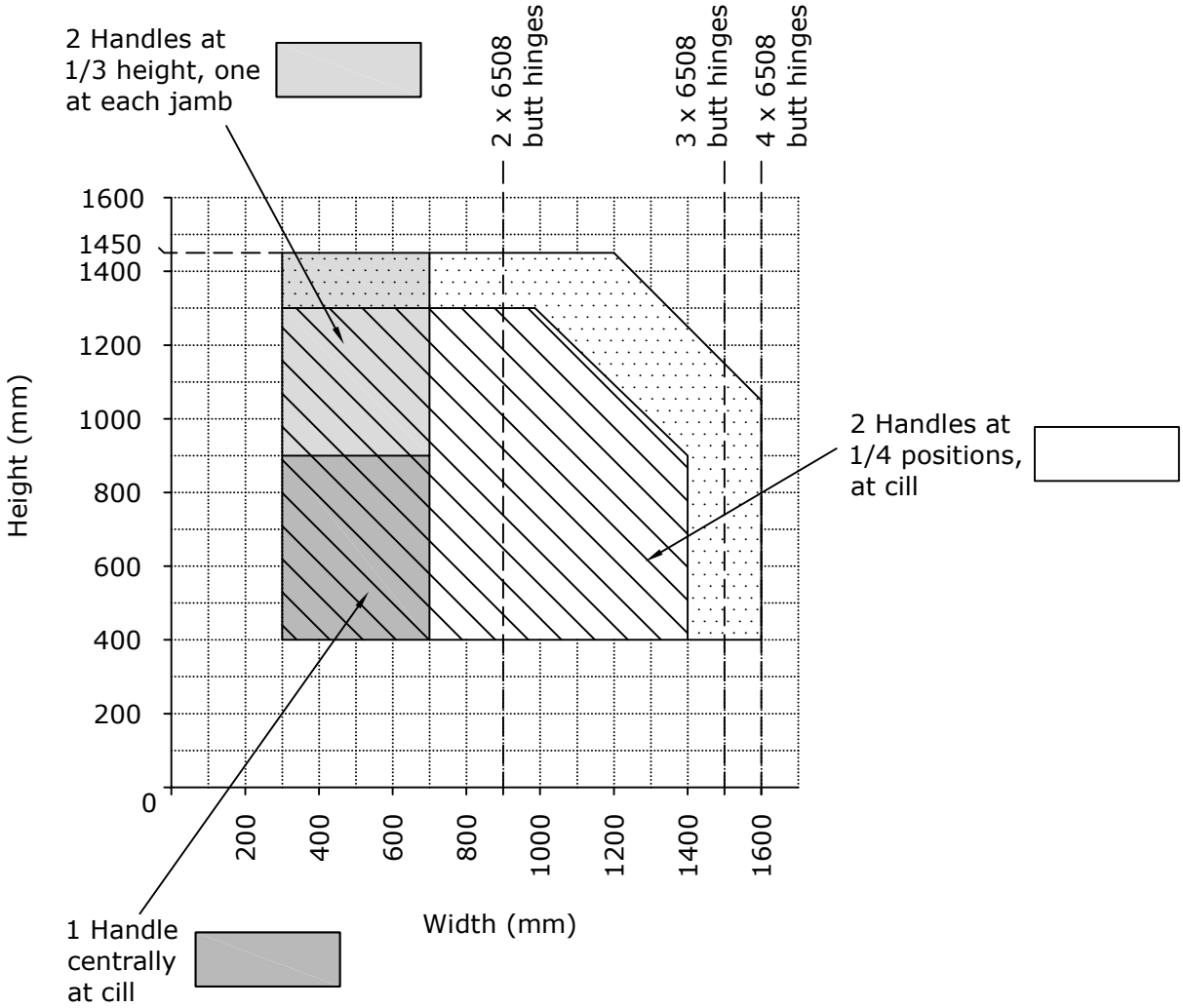
See "General Cautionary Notes" and "Butt Hinges" in Section 3 of this manual. Also section 7 of this manual for fixing instructions.

Metal Technology recommend the use of a separate pair of restrictors CA36 at jambs.

Reference	Description	Minimum sash height
CA36	6" restrictor	400mm

Minimum sash height is based on achieving 100mm clear opening.

When securing sash to 685-686 liner bar, maximum sash weight is limited to 50Kg.



Section 620-202 or 624-625

Section 626-627 or 626-652

Maximum sash weight 60Kg.
(Refer to "Butt Hinges" in Section 3 of this manual)

Vent Size Limitation Chart

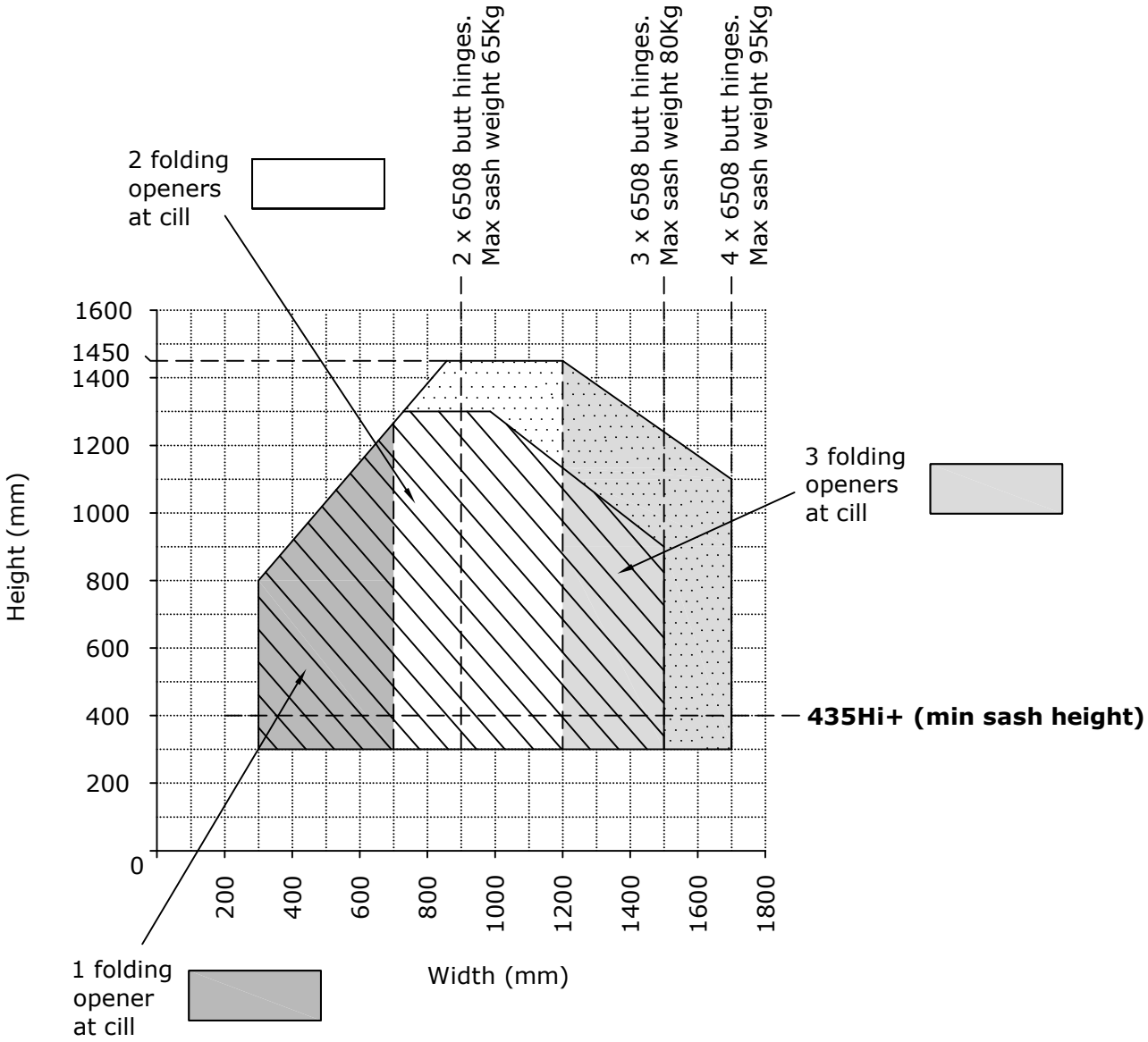
Top Hung Vents with Butt Hinges and Folding Openers

System 4-35 Hi/Hi+

CASEMENT WINDOW

This chart is applicable for use with the 4-35Hi and Hi+ systems. Where size limitations vary between Hi and Hi+, these are highlighted below.

See "General Cautionary Notes" and "Butt Hinges" in Section 3 of this manual. Also section 7 of this manual for fixing instructions.



Section 620-202 or 624-625

Section 626-627 or 626-652

Vent Size Limitation Chart

Top Hung Vents with Butt Hinges and Teleflex Gear or Actuators

System 4-35 Hi/Hi+

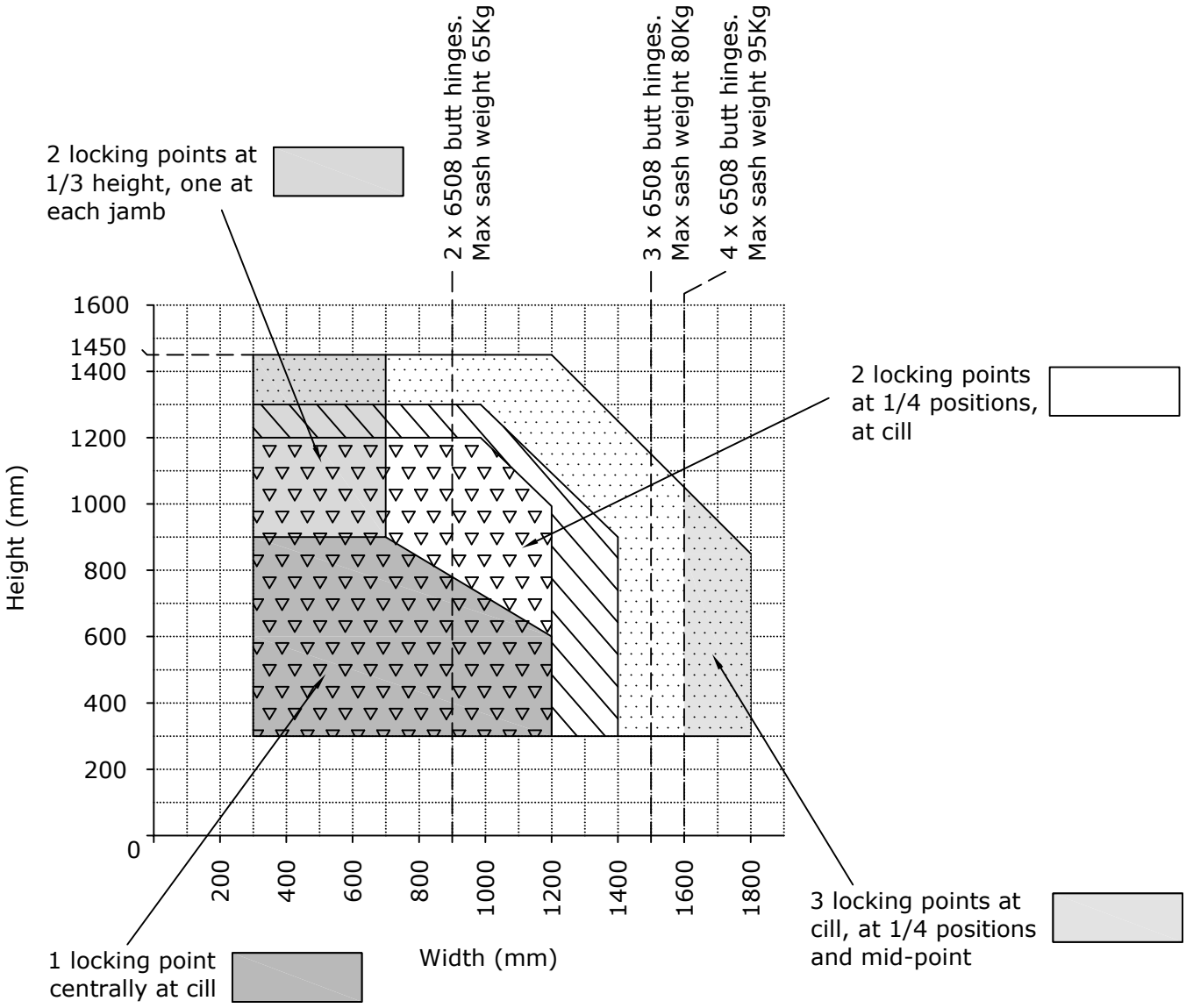
CASEMENT WINDOW

This chart is applicable for use with the 4-35 Hi and Hi+ systems. Where size limitations vary between Hi and Hi+, these are highlighted below.

See separate sheet "Butt Hinges", and section 7 of this manual for fixing instructions.

For the purpose of this graph, teleflex and actuator locking points are deemed to provide the same level of compression as a folding opener/cockspur handle. Fabricators must also ensure the size limits indicated on these charts do not conflict with any size restriction or limitations applicable to their choice of teleflex or actuator supplier. Sash opening to be limited in accordance with teleflex/actuator manufacturers recommendations and hinge capabilities.

When securing sash to 685-686 liner bar, maximum sash weight is limited to 50Kg



Section 620-202 or 624-625

Section 626-627 or 626-652

Section 676-677

SHEET 435Hi / 3 / 210

rev 3 31/08/16

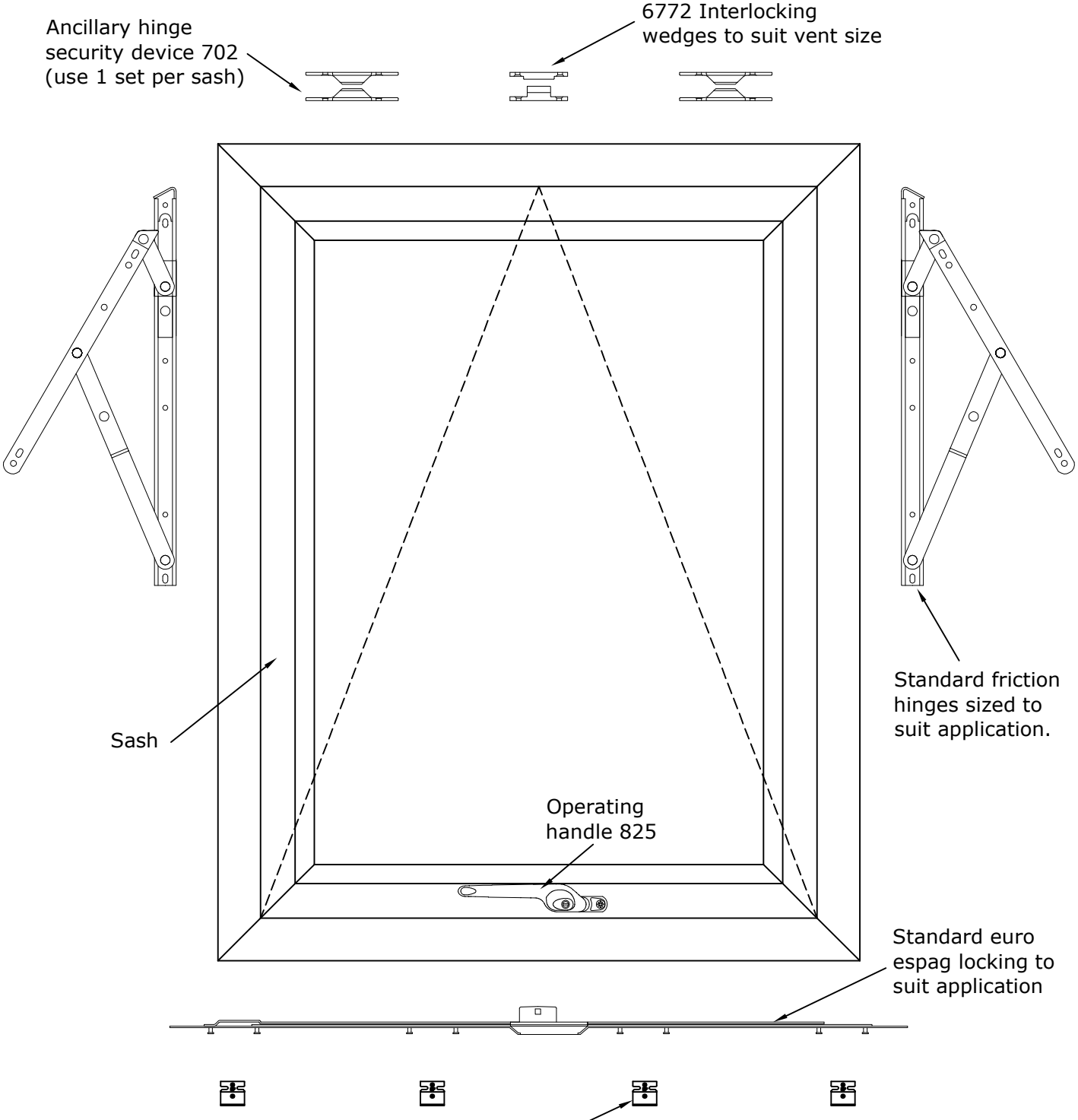
Security Requirements

Euro espag for sashes 626-627 and 626-652

System 4-35 Hi/Hi+

CASEMENT WINDOW

This sheet is applicable for use with the 4-35 Hi and Hi+ systems.
System 4-35 Hi/Hi+, with the applicable ironmongery, has been successfully tested to the relevant standards as generally accepted on Secure by Design projects.
Refer to relevant sheet in manual for further information and details on fitting the ironmongery components. In order to comply with PAS 24, windows should be glazed in accordance with the methods in BS 6262 and BS 8000-7. The units should also be sealed conforming to BS EN 1279 and incorporating glass conforming to BS EN 356 Class P1A minimum.
Security products should be labelled by the fabricator in accordance with BS 4873.
Vent size limitations for security applications are as per Vent Size Limitation Charts for friction hinges and standard euro espag locking in top hung and side hung applications. For SBD projects where vent sizes exceed those of the tested samples further approval may be required from the ALO. Please check applicable test report for sizes tested.

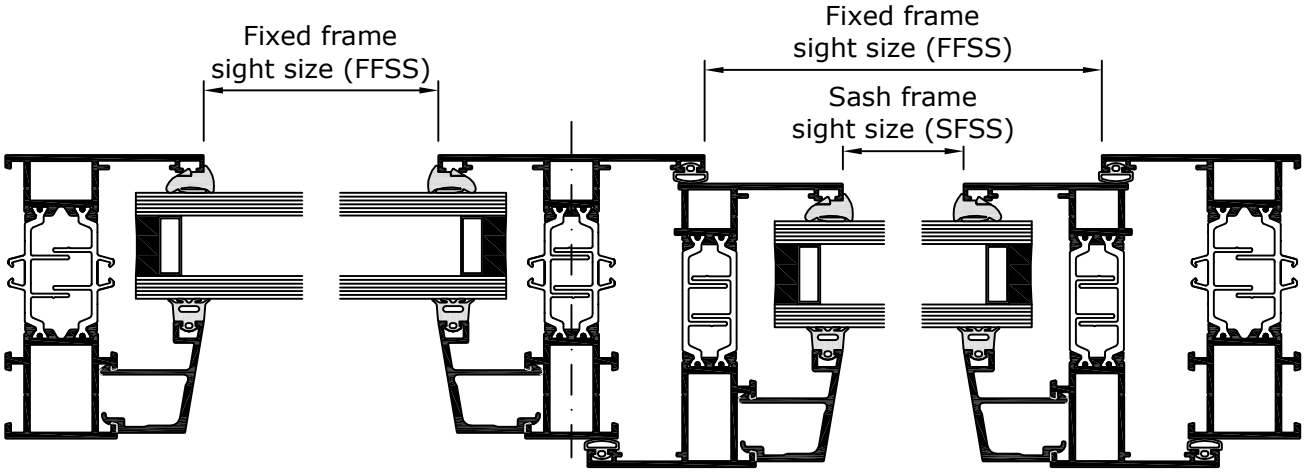


Bar Cutting Sizes

System 4-35 Hi/Hi+

CASEMENT WINDOW

All cutting sizes in this range are calculated from the fixed frame sight sizes. This is the distance measured between the tops of the glazing legs as illustrated below.



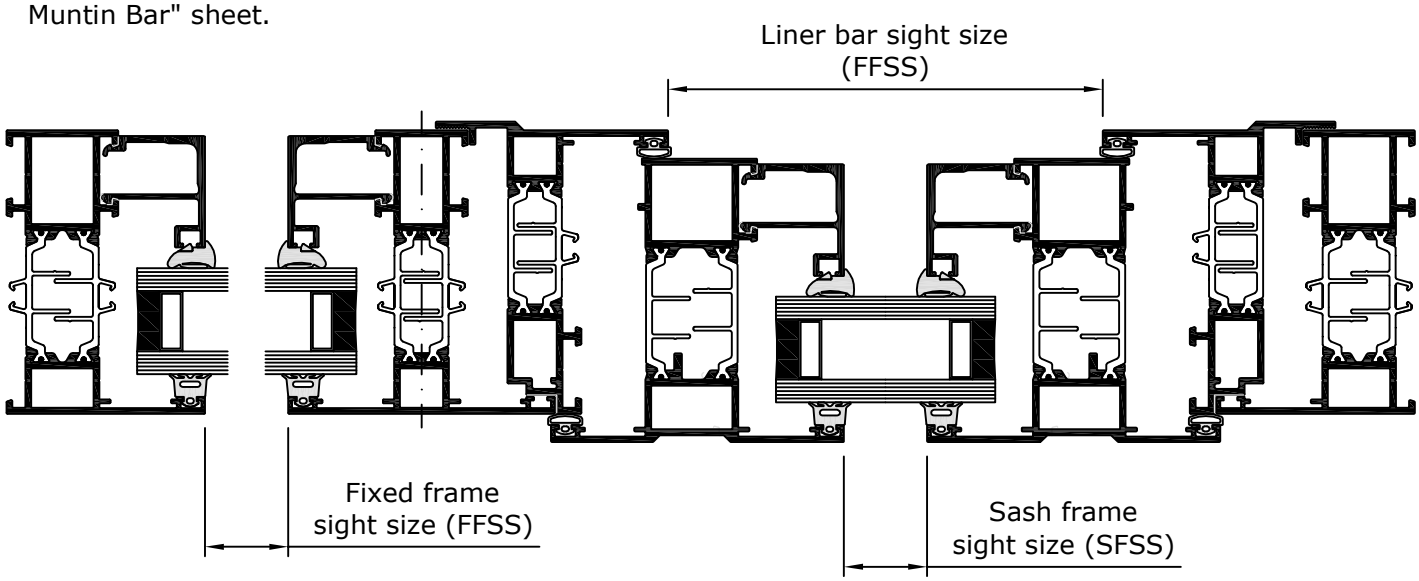
The fixed frame sight size can be calculated from the "Ready Reckoner", the section drawings or dimensioned general arrangement drawings provided.

For the cutting sizes for the fixed light glass and beads see the applicable fabrication sheet entitled "Fabrication and Cutting Sizes - Fixed Light Beads and Glass Sizes", and for the opening vents the drawing specific to the sash section used.

The length of integral mullions or transoms should be calculated on the basis of fixed frame sight size plus 55mm using the end preparation shown on the applicable "Mullion/Transom End Prep" fabrication sheets.

Note: Where the mullions/transoms with extended back boxes are used an appropriate adjustment must be made if the end of the bar is more than 27.5mm beyond the line of the top of the glazing leg. See applicable "Mullion/Transom End Prep" fabrication sheet.

For additional details showing how sashes with muntin bars are calculated see "Bar Cutting Sizes For Muntin Bar" sheet.



When calculating the sash size in liner bar applications the fabrication datum is measured from the "Liner bar sight size" (LBSS) as indicated.

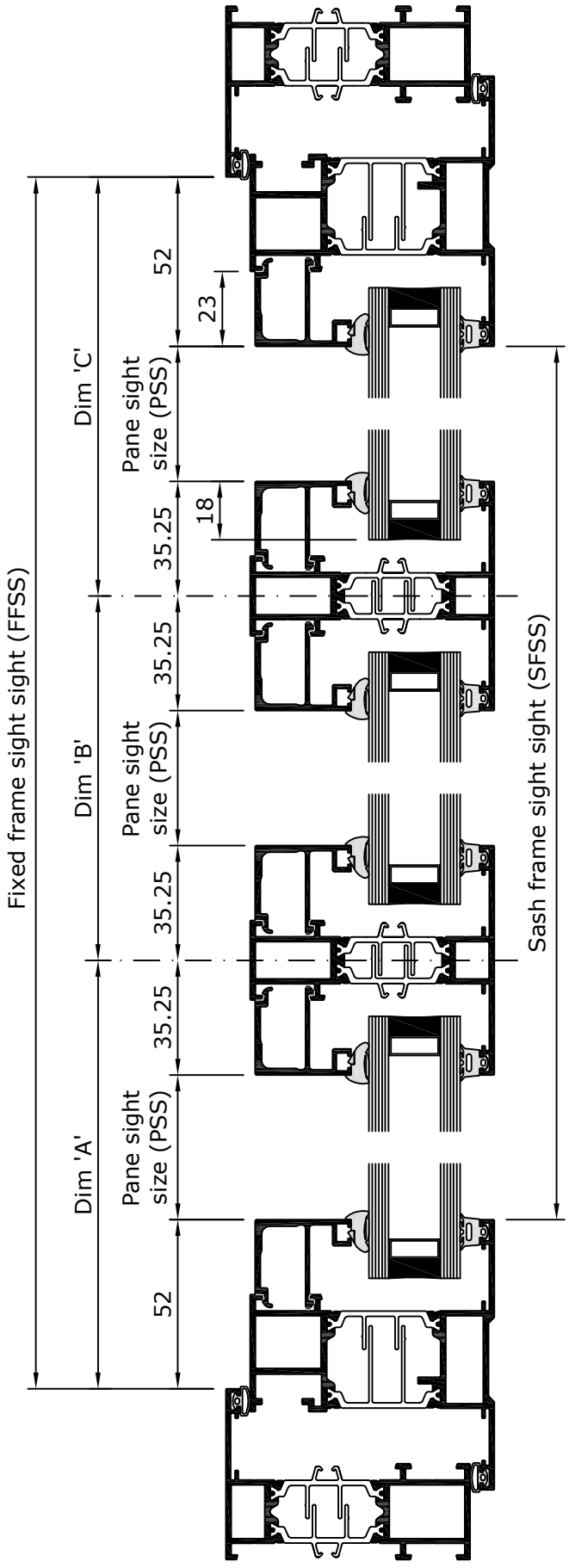
Scale 1:2

Bar Cutting Sizes

For Muntin Bar

System 4-35 Hi/Hi+

CASEMENT WINDOW



All cutting sizes for beads and glass into sashes with muntin bars are to be calculated using pane sight sizes (PSS).

The pane sight sizes are calculated using fixed frame sight sizes and muntin bar centre dimensions 'A', 'B' and 'C' etc.

For the cutting sizes for a single muntin bar, glass and beads see the fabrication sheet entitled "Fabrication and Cutting Sizes - Single Muntin Bar into Casement Vents", and for the opening vents the drawing specific to the sash section used.

The length of a muntin bar should be calculated on the basis of sash frame sight size (SFSS) or pane sight size (PSS) plus 46mm. Alternatively, fixed frame sight size may be used as follows:
FFSS less 27mm for 620-202 standard sash or
FFSS less 47mm for 624-625 glaze in casement sash or
FFSS less 58mm for 626-627 recessed euro groove sash
FFSS less 58mm for 626-652 flat euro groove sash
using the end preparation shown on "Muntin Bar End Prep" fabrication sheet.

Scale 1:2

FFSS Ready Reckoner

(To Calculate Fixed Frame Sight Sizes)

System 4-35 Hi/Hi+

CASEMENT WINDOW

The following grid can be used to calculate the fixed frame sight sizes (FFSS) directly from your fabrication sizes. Select the appropriate sections from the horizontal and vertical axes and read across to their point of intersection on the grid. Subtract the resultant figure from your fabrication size to obtain the appropriate fixed frame sight size (FFSS).
All mullion/transom dimensions are calculated from the section centre line.
When incorporating liner bar 685-686 add 60mm to the dimension stated in the grid and subtract the total from your fabrication size to determine your liner bar sight size (LBSS).

	600-200 600-605	601-201	604-213	600-212 602-202 602-212	620-204 620-216	609-200 640-200 641-200	603-201 603-218 619-211 642-201 642-218 643-201 643-218	606-206 606-207 607-206 607-207	613-213 613-221
613-213 613-221	87.75	92.75	97.75	107.75	102.75	75.5	78	89.25	80.5
606-206 606-207 607-206 607-207	96.5	101.5	106.5	116.5	111.5	84.25	86.75	98	89.25
603-201 603-218 619-211 642-201 642-218 643-201 643-218	85.25	90.25	95.25	105.25	100.25	73	75.5	86.75	78
609-200 640-200 641-200	82.75	87.75	92.75	102.75	97.75	70.5	73	84.25	75.5
620-204 620-216	-	-	-	-	125	97.75	100.25	111.5	102.75
600-212 602-202 602-212	115	-	-	135	-	102.75	105.25	116.5	107.75
604-213	-	-	115	-	-	92.75	95.25	106.5	97.75
601-201	-	105	-	-	-	87.75	90.25	101.5	92.75
600-200 600-605	95	-	-	115	-	82.75	85.25	96.5	87.75

Not to Scale

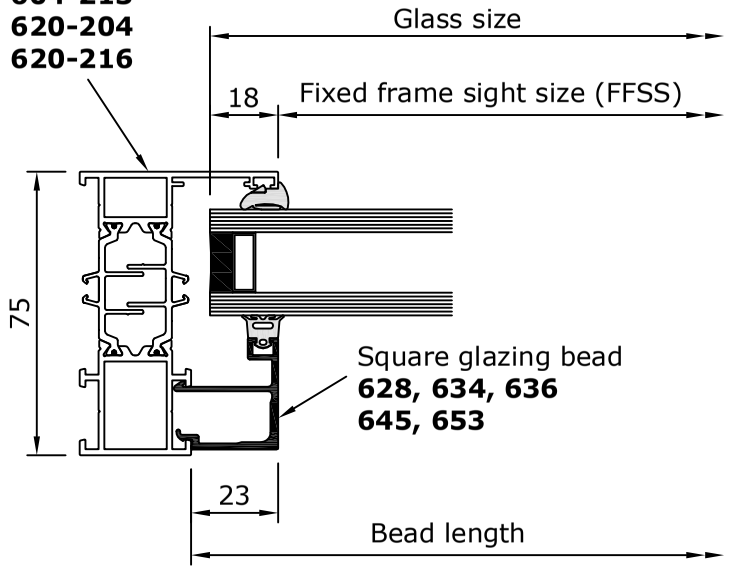
Fabrication and Cutting Sizes

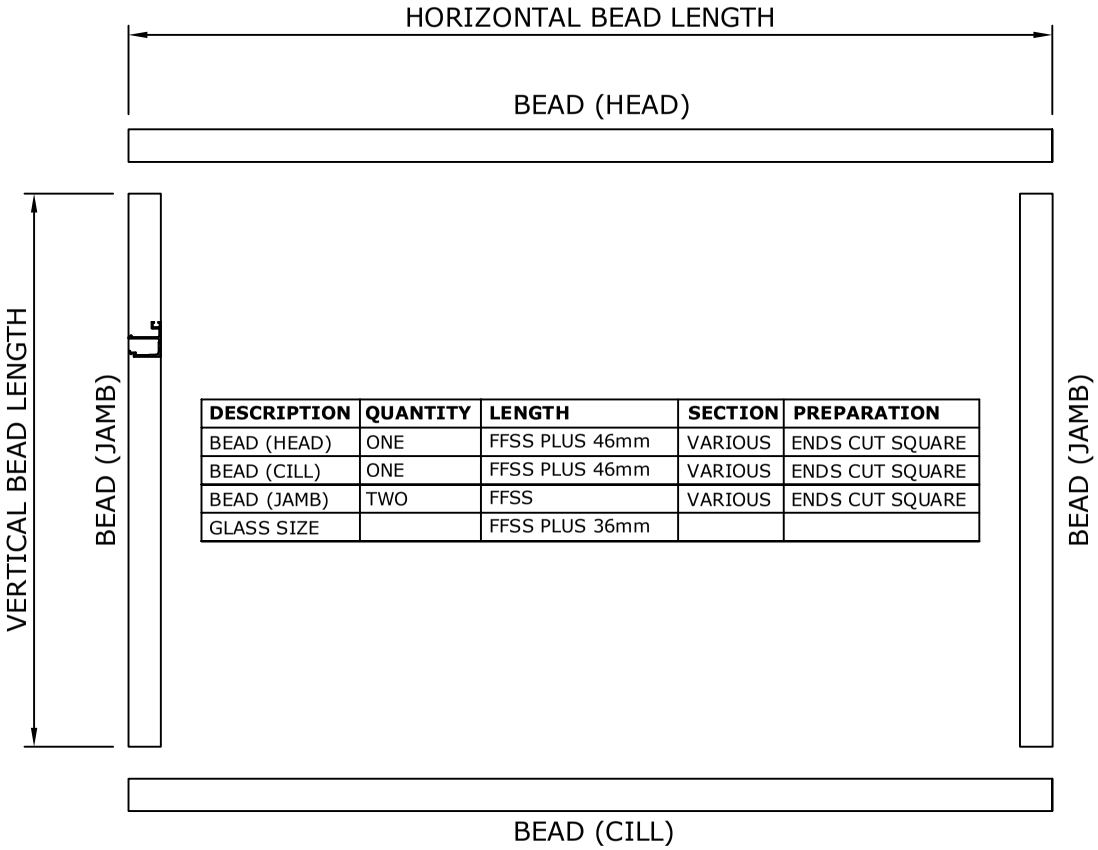
Fixed Light Square Beads and Glass Sizes (Not Including Outer Frame)

System 4-35 Hi/Hi+

CASEMENT WINDOW

Outer frame
600-200
600-212
600-605
601-201
602-202
602-212
604-213
620-204
620-216





DESCRIPTION	QUANTITY	LENGTH	SECTION	PREPARATION
BEAD (HEAD)	ONE	FFSS PLUS 46mm	VARIOUS	ENDS CUT SQUARE
BEAD (CILL)	ONE	FFSS PLUS 46mm	VARIOUS	ENDS CUT SQUARE
BEAD (JAMB)	TWO	FFSS	VARIOUS	ENDS CUT SQUARE
GLASS SIZE		FFSS PLUS 36mm		

Note :-
All bead lengths are tight sizes. Clearance of not more than 0.5mm should be allowed at each end of the glazing bead.

Not to Scale

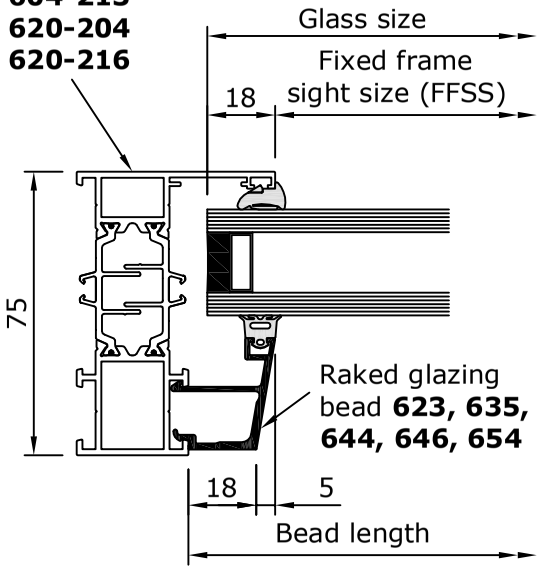
Fabrication and Cutting Sizes

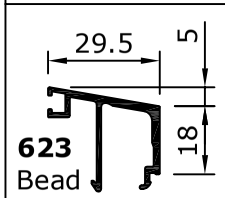
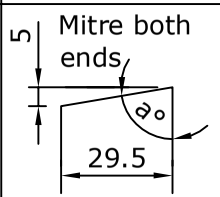
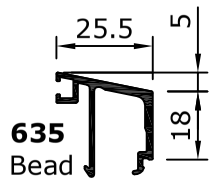
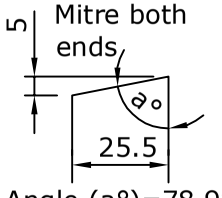
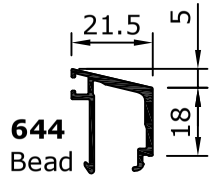
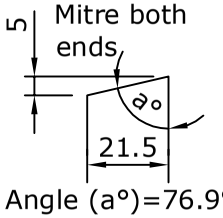
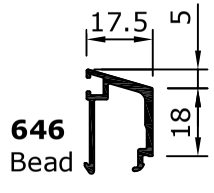
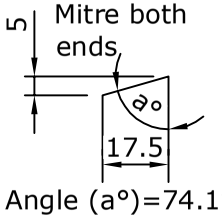
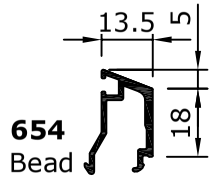
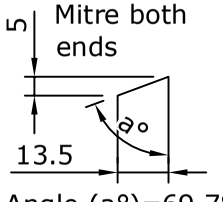
Fixed Light Raked Beads and Glass Sizes (Not Including Outer Frame)

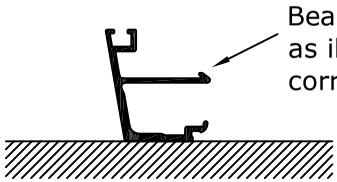
System 4-35 Hi/Hi+

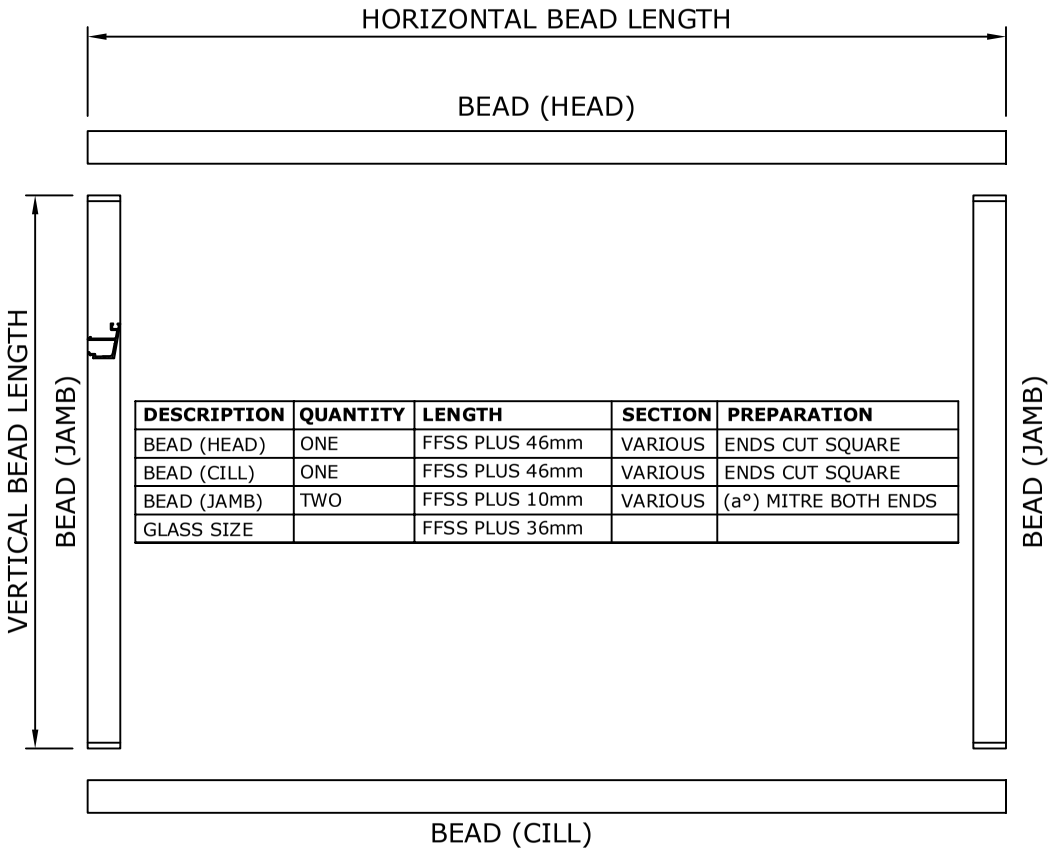
CASEMENT WINDOW

Outer frame
600-200
600-212
600-605
601-201
602-202
602-212
604-213
620-204
620-216



Raked glazing bead options	Jamb bead end preparation
 **623** Bead	 Angle (a°)=80.4°
 **635** Bead	 Angle (a°)=78.9°
 **644** Bead	 Angle (a°)=76.9°
 **646** Bead	 Angle (a°)=74.1°
 **654** Bead	 Angle (a°)=69.7°





DESCRIPTION	QUANTITY	LENGTH	SECTION	PREPARATION
BEAD (HEAD)	ONE	FFSS PLUS 46mm	VARIOUS	ENDS CUT SQUARE
BEAD (CILL)	ONE	FFSS PLUS 46mm	VARIOUS	ENDS CUT SQUARE
BEAD (JAMB)	TWO	FFSS PLUS 10mm	VARIOUS	(a°) MITRE BOTH ENDS
GLASS SIZE		FFSS PLUS 36mm		

Note :-
All bead lengths are tight sizes.
Clearance of not more than 0.5mm should be allowed at each end of the glazing bead.

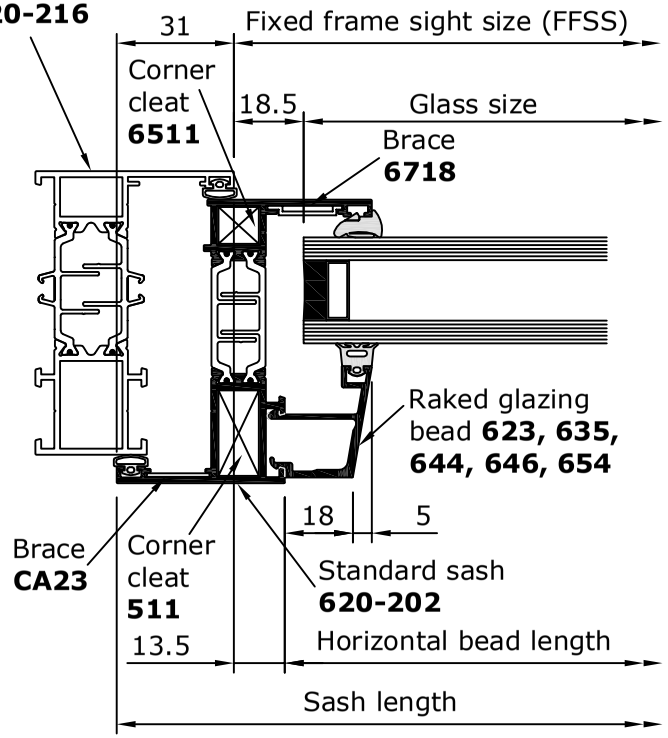
Not to Scale

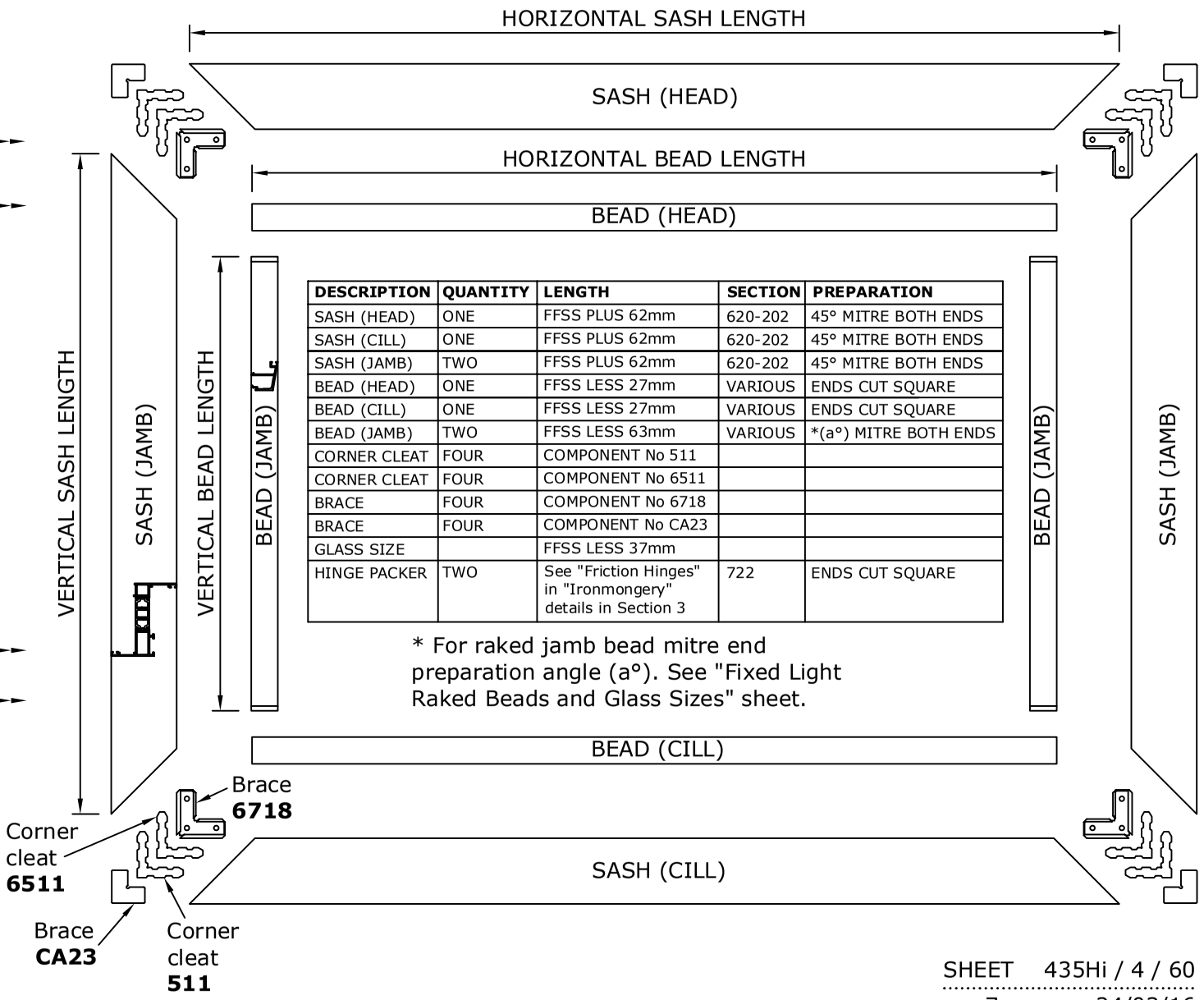
Fabrication and Cutting Sizes

Standard Glaze Out Casement Vent - Window Assembly
(Not Including Outer Frame)

System 4-35 Hi/Hi+
CASEMENT WINDOW

Outer frame
600-200, 600-212
600-605, 601-201
602-202, 602-212
604-213, 620-204
620-216





DESCRIPTION	QUANTITY	LENGTH	SECTION	PREPARATION
SASH (HEAD)	ONE	FFSS PLUS 62mm	620-202	45° MITRE BOTH ENDS
SASH (CILL)	ONE	FFSS PLUS 62mm	620-202	45° MITRE BOTH ENDS
SASH (JAMB)	TWO	FFSS PLUS 62mm	620-202	45° MITRE BOTH ENDS
BEAD (HEAD)	ONE	FFSS LESS 27mm	VARIOUS	ENDS CUT SQUARE
BEAD (CILL)	ONE	FFSS LESS 27mm	VARIOUS	ENDS CUT SQUARE
BEAD (JAMB)	TWO	FFSS LESS 63mm	VARIOUS	*(a°) MITRE BOTH ENDS
CORNER CLEAT	FOUR	COMPONENT No 511		
CORNER CLEAT	FOUR	COMPONENT No 6511		
BRACE	FOUR	COMPONENT No 6718		
BRACE	FOUR	COMPONENT No CA23		
GLASS SIZE		FFSS LESS 37mm		
HINGE PACKER	TWO	See "Friction Hinges" in "Ironmongery" details in Section 3	722	ENDS CUT SQUARE

* For raked jamb bead mitre end preparation angle (a°). See "Fixed Light Raked Beads and Glass Sizes" sheet.

Note :-
All bead lengths are tight sizes. Clearance of not more than 0.5mm should be allowed at each end of the glazing bead.

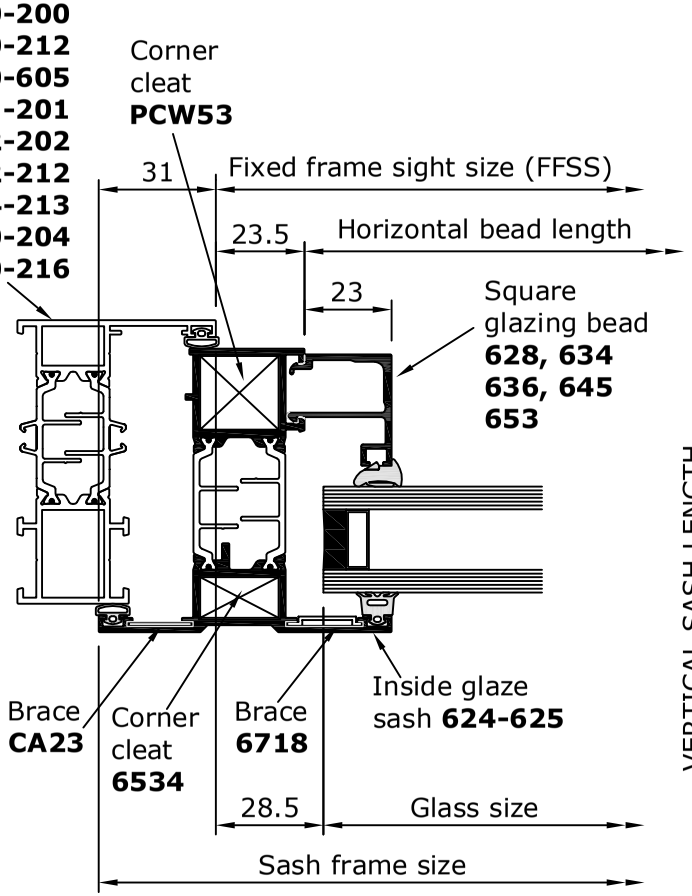
Not to Scale

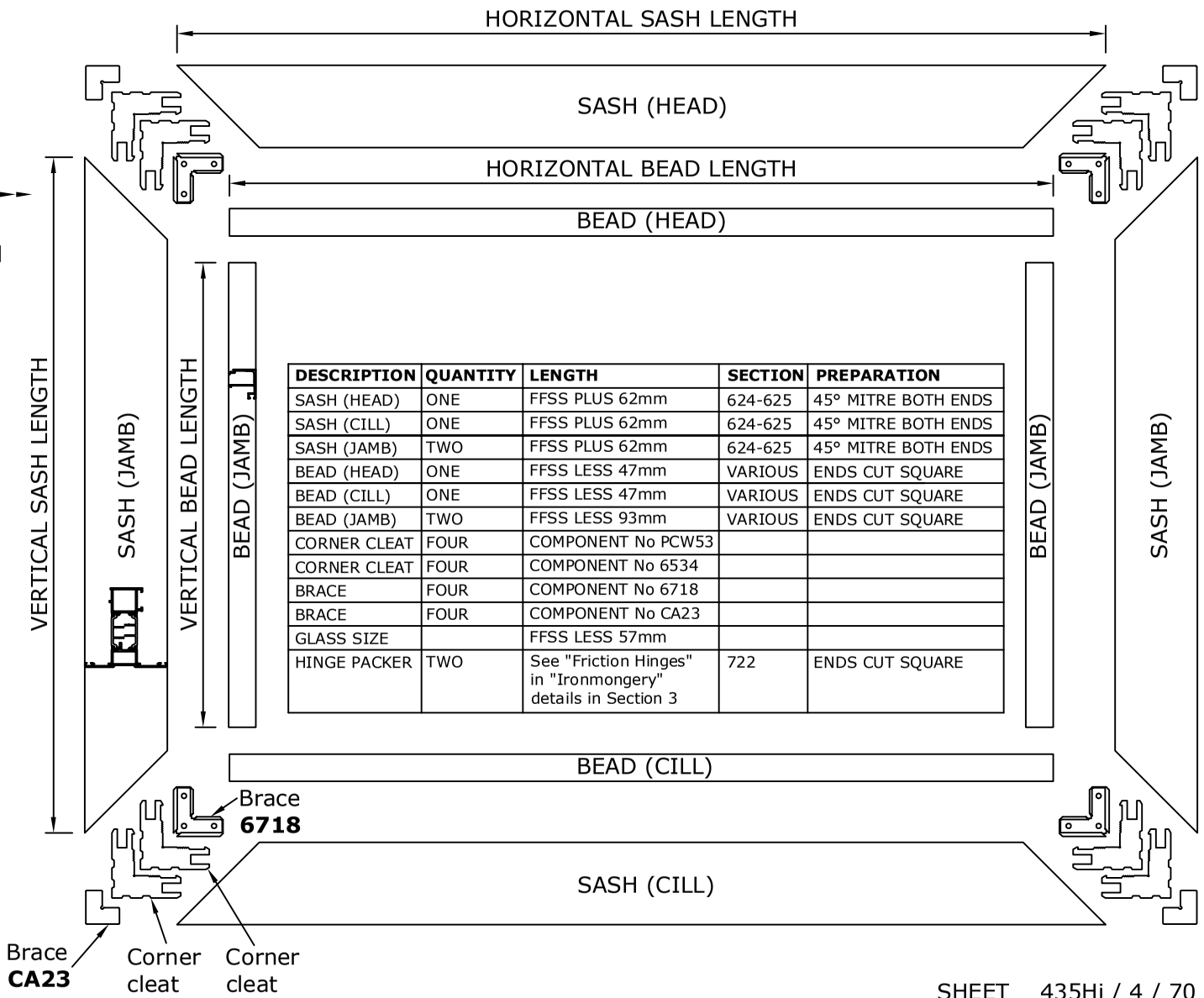
Fabrication and Cutting Sizes

Glaze In Casement Vent - Window Assembly
(Not Including Outer Frame)

System 4-35 Hi/Hi+
CASEMENT WINDOW

Outer frame
600-200
600-212
600-605
601-201
602-202
602-212
604-213
620-204
620-216





DESCRIPTION	QUANTITY	LENGTH	SECTION	PREPARATION
SASH (HEAD)	ONE	FFSS PLUS 62mm	624-625	45° MITRE BOTH ENDS
SASH (CILL)	ONE	FFSS PLUS 62mm	624-625	45° MITRE BOTH ENDS
SASH (JAMB)	TWO	FFSS PLUS 62mm	624-625	45° MITRE BOTH ENDS
BEAD (HEAD)	ONE	FFSS LESS 47mm	VARIOUS	ENDS CUT SQUARE
BEAD (CILL)	ONE	FFSS LESS 47mm	VARIOUS	ENDS CUT SQUARE
BEAD (JAMB)	TWO	FFSS LESS 93mm	VARIOUS	ENDS CUT SQUARE
CORNER CLEAT	FOUR	COMPONENT No PCW53		
CORNER CLEAT	FOUR	COMPONENT No 6534		
BRACE	FOUR	COMPONENT No 6718		
BRACE	FOUR	COMPONENT No CA23		
GLASS SIZE		FFSS LESS 57mm		
HINGE PACKER	TWO	See "Friction Hinges" in "Ironmongery" details in Section 3	722	ENDS CUT SQUARE

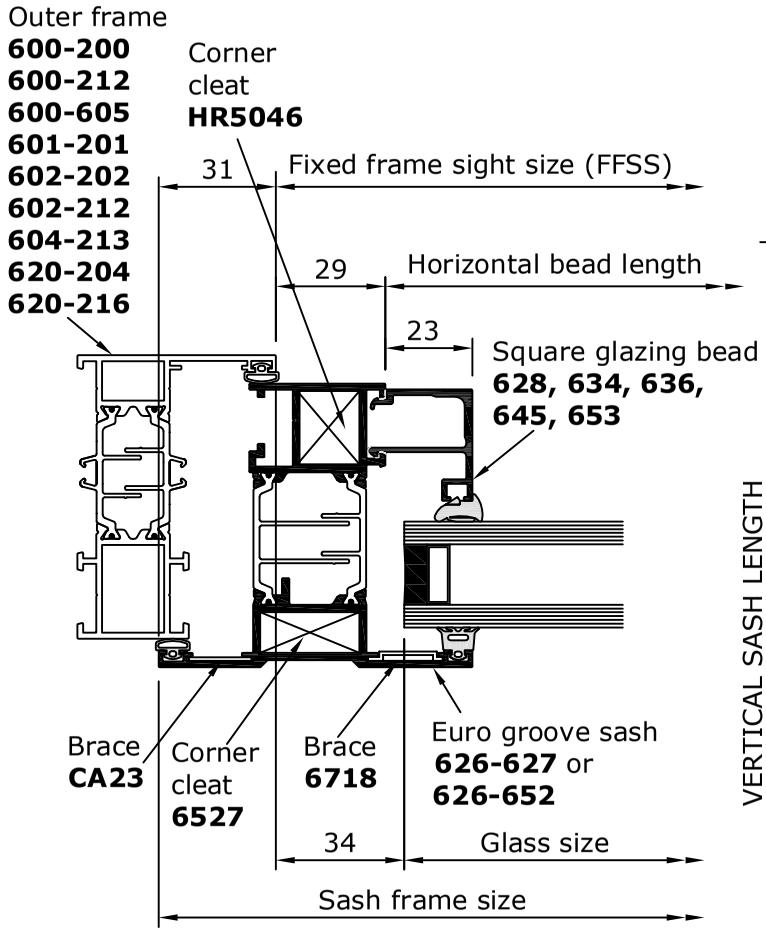
Note :-
All bead lengths are tight sizes.
Clearance of not more than
0.5mm should be allowed at
each end of the glazing bead.

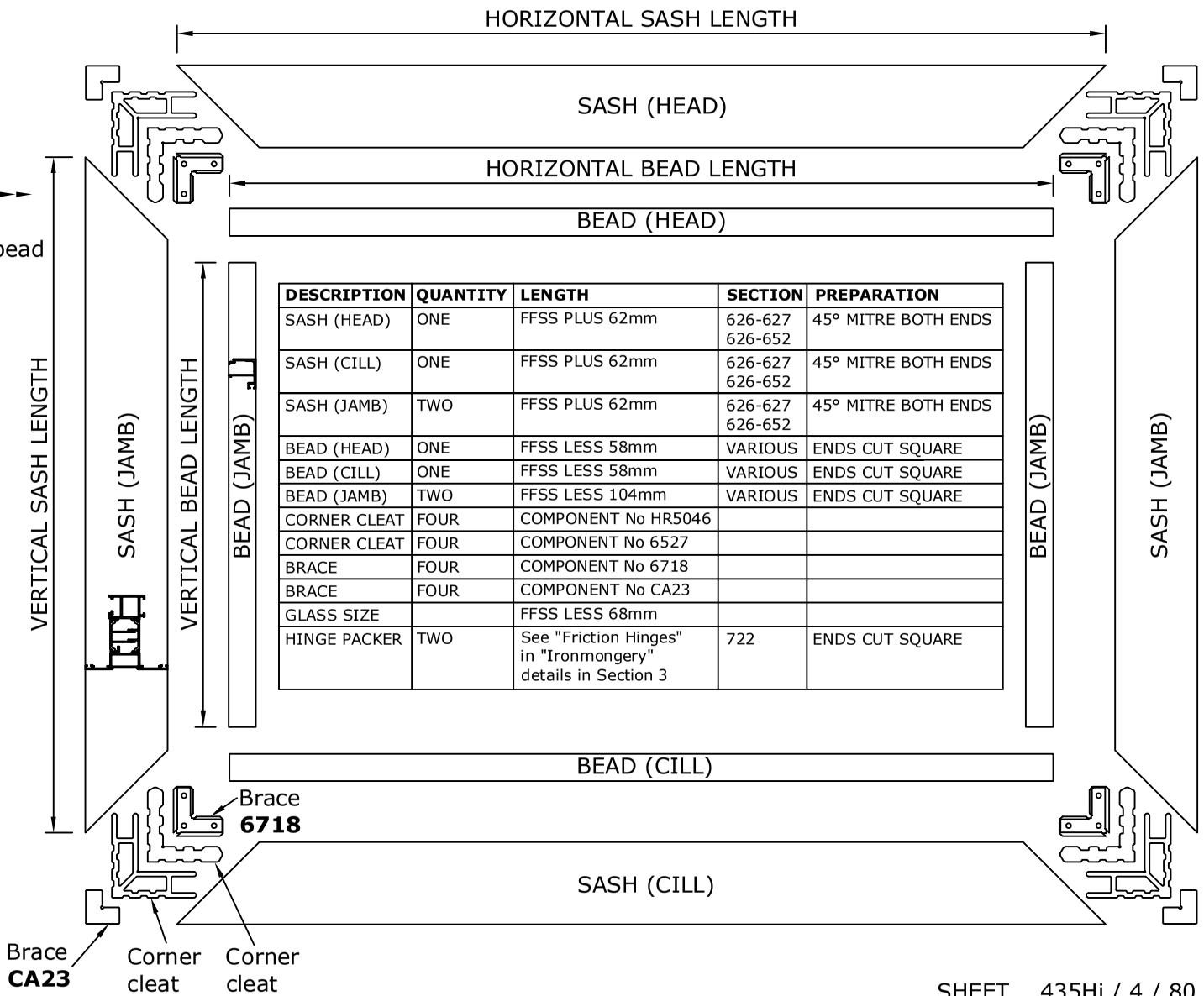
Not to Scale

Fabrication and Cutting Sizes

Euro Groove Casement Vents 626-627 and 626-652 - Window Assembly (Not Including Outer Frame)

System 4-35 Hi/Hi+
CASEMENT WINDOW





DESCRIPTION	QUANTITY	LENGTH	SECTION	PREPARATION
SASH (HEAD)	ONE	FFSS PLUS 62mm	626-627 626-652	45° MITRE BOTH ENDS
SASH (CILL)	ONE	FFSS PLUS 62mm	626-627 626-652	45° MITRE BOTH ENDS
SASH (JAMB)	TWO	FFSS PLUS 62mm	626-627 626-652	45° MITRE BOTH ENDS
BEAD (HEAD)	ONE	FFSS LESS 58mm	VARIOUS	ENDS CUT SQUARE
BEAD (CILL)	ONE	FFSS LESS 58mm	VARIOUS	ENDS CUT SQUARE
BEAD (JAMB)	TWO	FFSS LESS 104mm	VARIOUS	ENDS CUT SQUARE
CORNER CLEAT	FOUR	COMPONENT No HR5046		
CORNER CLEAT	FOUR	COMPONENT No 6527		
BRACE	FOUR	COMPONENT No 6718		
BRACE	FOUR	COMPONENT No CA23		
GLASS SIZE		FFSS LESS 68mm		
HINGE PACKER	TWO	See "Friction Hinges" in "Ironmongery" details in Section 3	722	ENDS CUT SQUARE

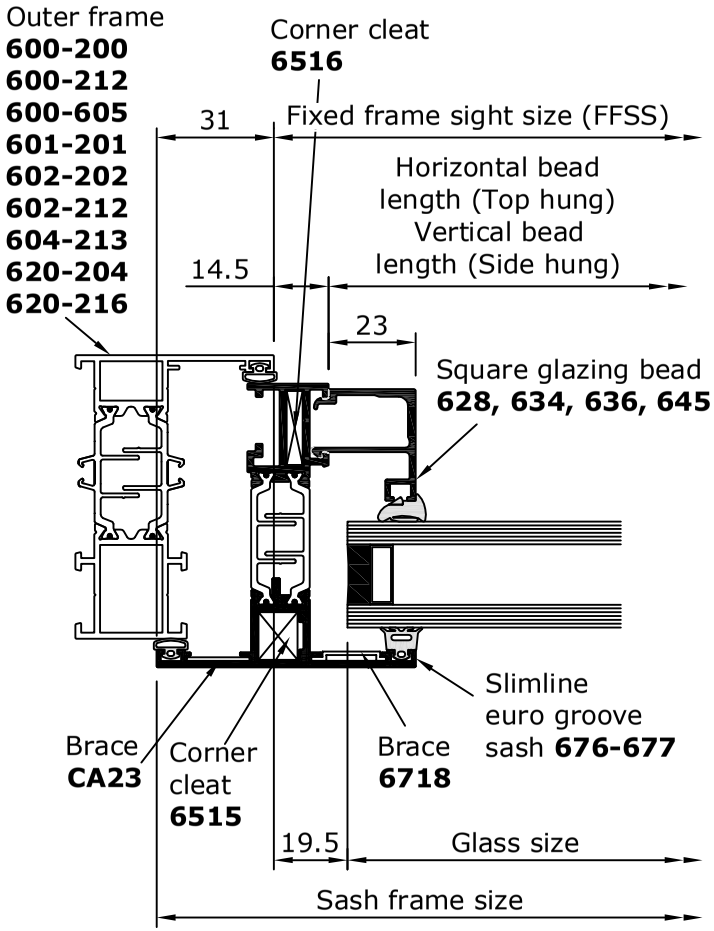
Note :-
All bead lengths are tight sizes.
Clearance of not more than 0.5mm should be allowed at each end of the glazing bead.

Not to Scale

Fabrication and Cutting Sizes

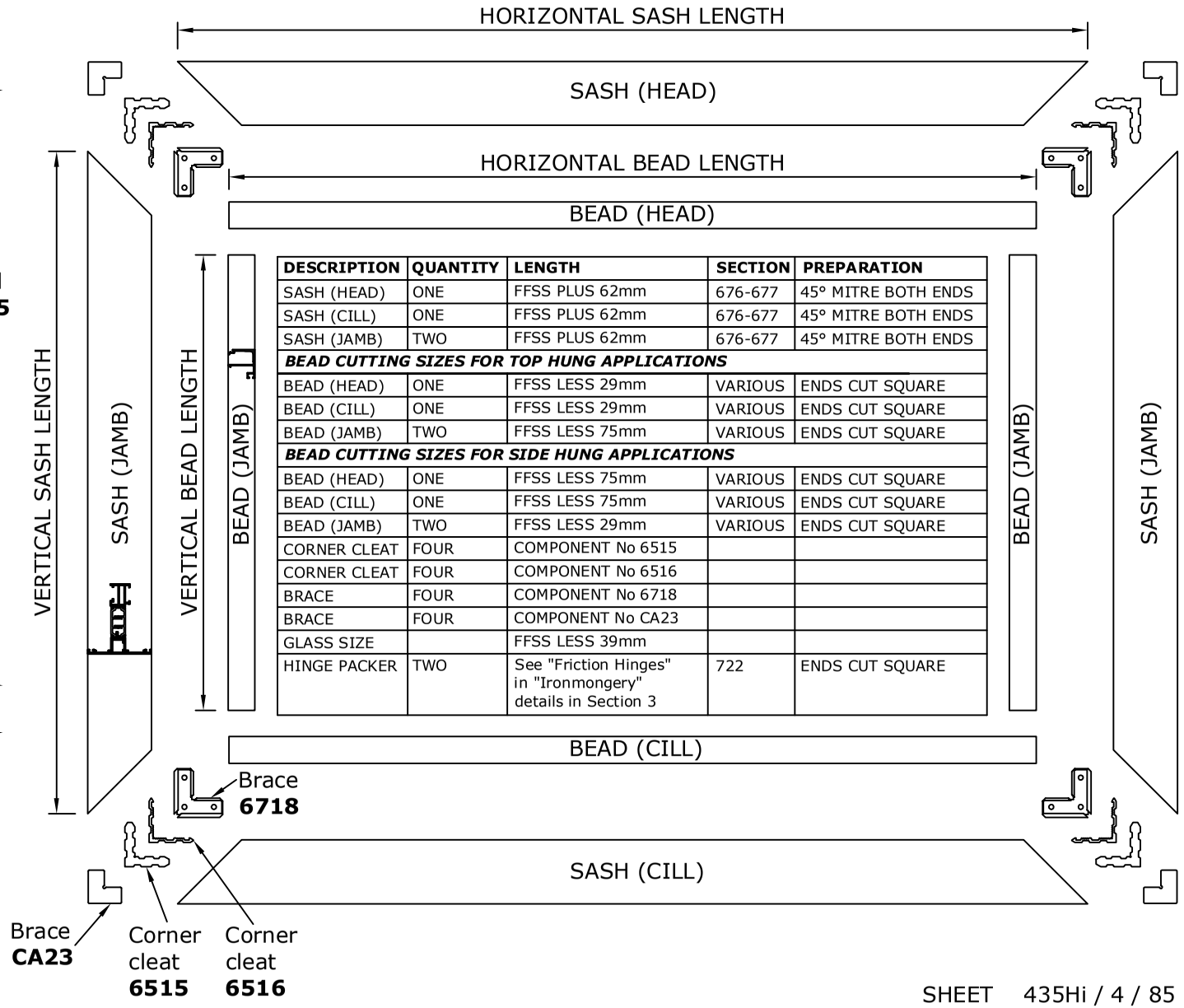
Euro Groove Slimline Casement Vent 676-677 - Window Assembly (Not Including Outer Frame)

System 4-35 Hi/Hi+
CASEMENT WINDOW



Note :-
All bead lengths are tight sizes. Clearance of not more than 0.5mm should be allowed at each end of the glazing bead.
In top hung applications cill and head beads run through but in side hung applications jamb beads run through.

Not to Scale



DESCRIPTION	QUANTITY	LENGTH	SECTION	PREPARATION
SASH (HEAD)	ONE	FFSS PLUS 62mm	676-677	45° MITRE BOTH ENDS
SASH (CILL)	ONE	FFSS PLUS 62mm	676-677	45° MITRE BOTH ENDS
SASH (JAMB)	TWO	FFSS PLUS 62mm	676-677	45° MITRE BOTH ENDS
BEAD CUTTING SIZES FOR TOP HUNG APPLICATIONS				
BEAD (HEAD)	ONE	FFSS LESS 29mm	VARIOUS	ENDS CUT SQUARE
BEAD (CILL)	ONE	FFSS LESS 29mm	VARIOUS	ENDS CUT SQUARE
BEAD (JAMB)	TWO	FFSS LESS 75mm	VARIOUS	ENDS CUT SQUARE
BEAD CUTTING SIZES FOR SIDE HUNG APPLICATIONS				
BEAD (HEAD)	ONE	FFSS LESS 75mm	VARIOUS	ENDS CUT SQUARE
BEAD (CILL)	ONE	FFSS LESS 75mm	VARIOUS	ENDS CUT SQUARE
BEAD (JAMB)	TWO	FFSS LESS 29mm	VARIOUS	ENDS CUT SQUARE
CORNER CLEAT	FOUR	COMPONENT No 6515		
CORNER CLEAT	FOUR	COMPONENT No 6516		
BRACE	FOUR	COMPONENT No 6718		
BRACE	FOUR	COMPONENT No CA23		
GLASS SIZE		FFSS LESS 39mm		
HINGE PACKER	TWO	See "Friction Hinges" in "Ironmongery" details in Section 3	722	ENDS CUT SQUARE

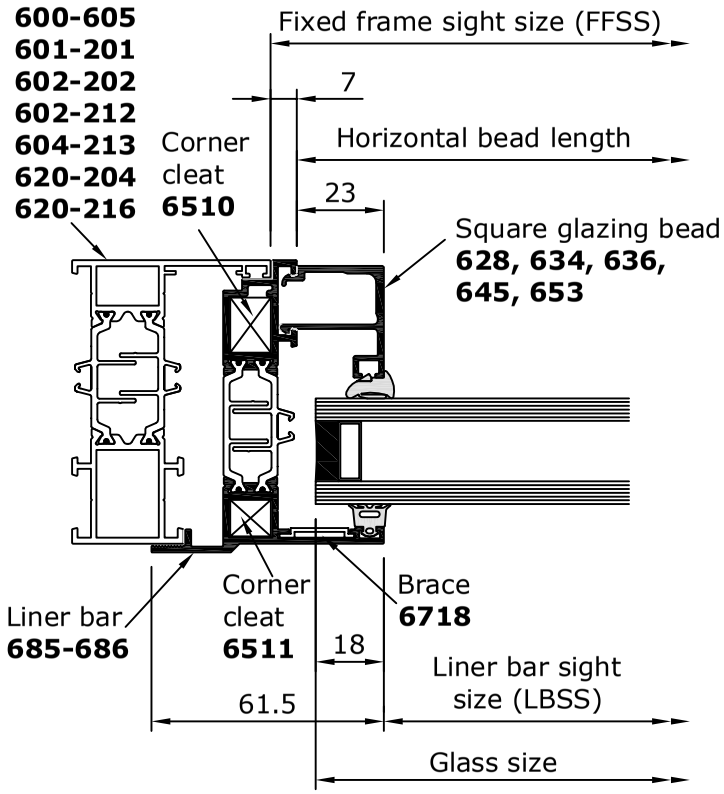
Fabrication and Cutting Sizes

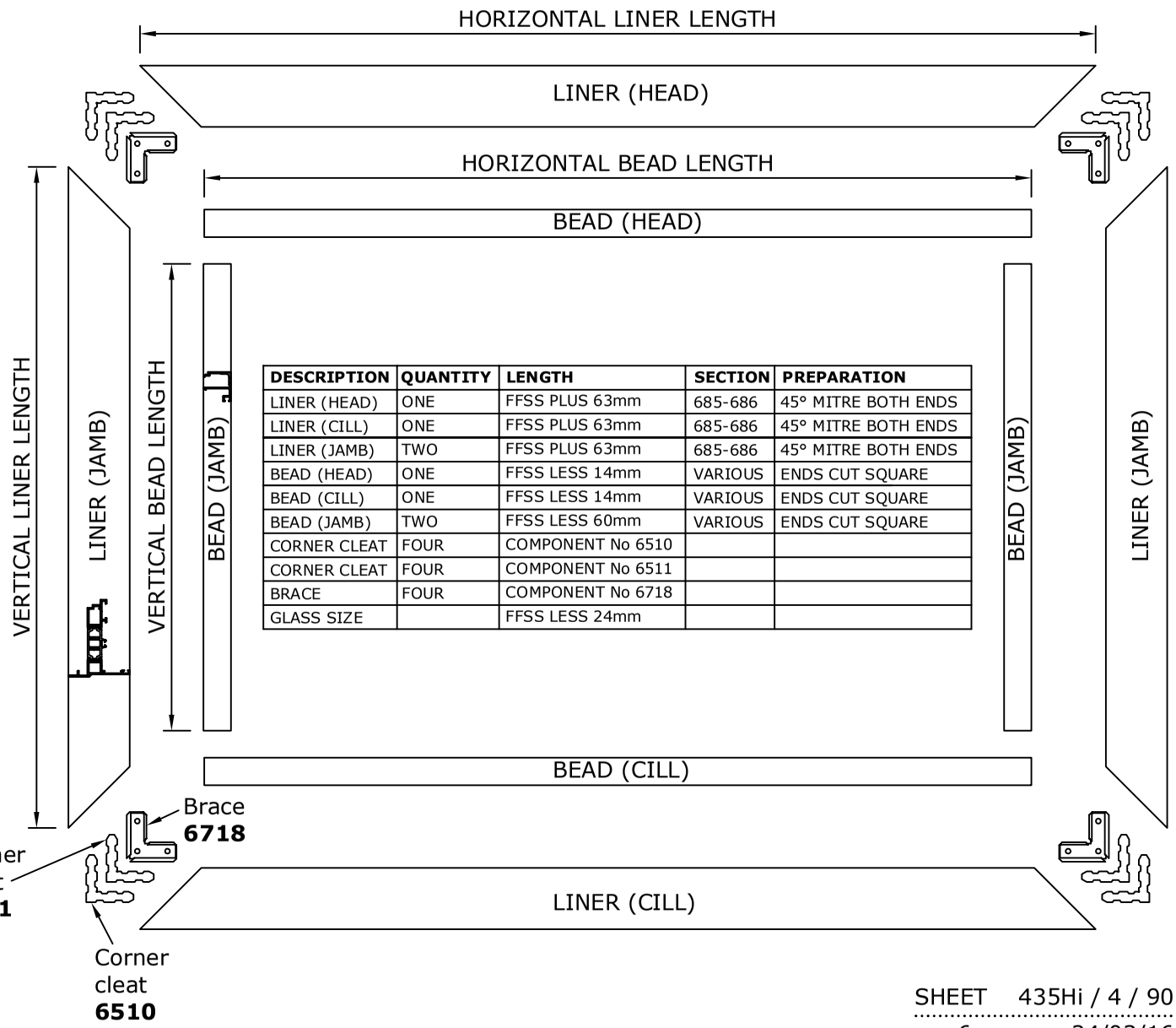
Standard Glaze In Casement Liner - Window Assembly (Not Including Outer Frame)

System 4-35 Hi/Hi+

CASEMENT WINDOW

Outer frame
600-200
600-212
600-605
601-201
602-202
602-212
604-213
620-204
620-216





DESCRIPTION	QUANTITY	LENGTH	SECTION	PREPARATION
LINER (HEAD)	ONE	FFSS PLUS 63mm	685-686	45° MITRE BOTH ENDS
LINER (CILL)	ONE	FFSS PLUS 63mm	685-686	45° MITRE BOTH ENDS
LINER (JAMB)	TWO	FFSS PLUS 63mm	685-686	45° MITRE BOTH ENDS
BEAD (HEAD)	ONE	FFSS LESS 14mm	VARIOUS	ENDS CUT SQUARE
BEAD (CILL)	ONE	FFSS LESS 14mm	VARIOUS	ENDS CUT SQUARE
BEAD (JAMB)	TWO	FFSS LESS 60mm	VARIOUS	ENDS CUT SQUARE
CORNER CLEAT	FOUR	COMPONENT No 6510		
CORNER CLEAT	FOUR	COMPONENT No 6511		
BRACE	FOUR	COMPONENT No 6718		
GLASS SIZE		FFSS LESS 24mm		

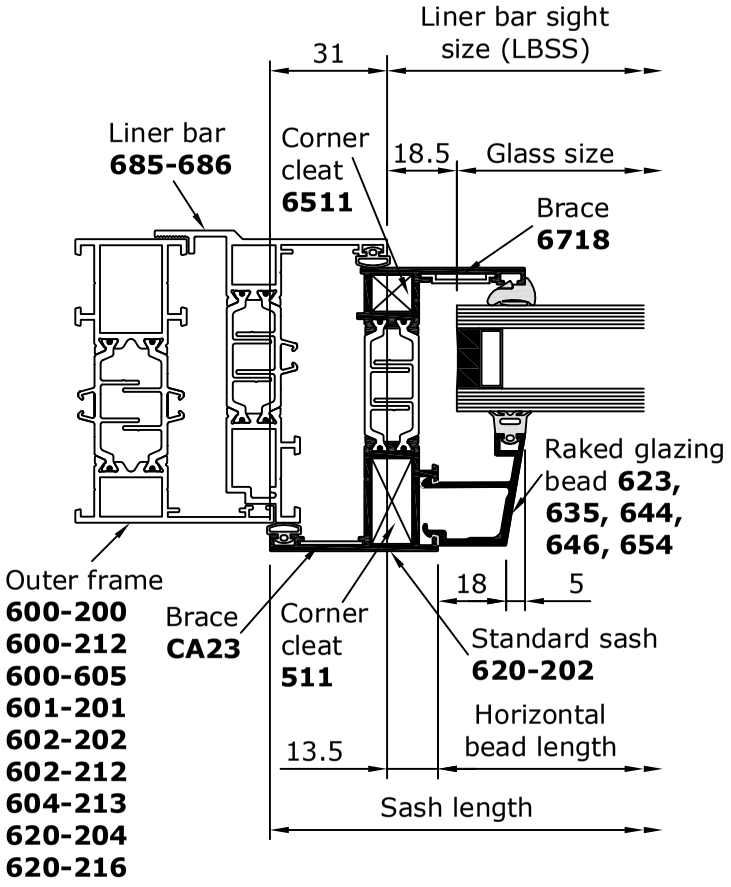
Note :-
All bead lengths are tight sizes.
Clearance of not more than 0.5mm should be allowed at each end of the glazing bead.

Not to Scale

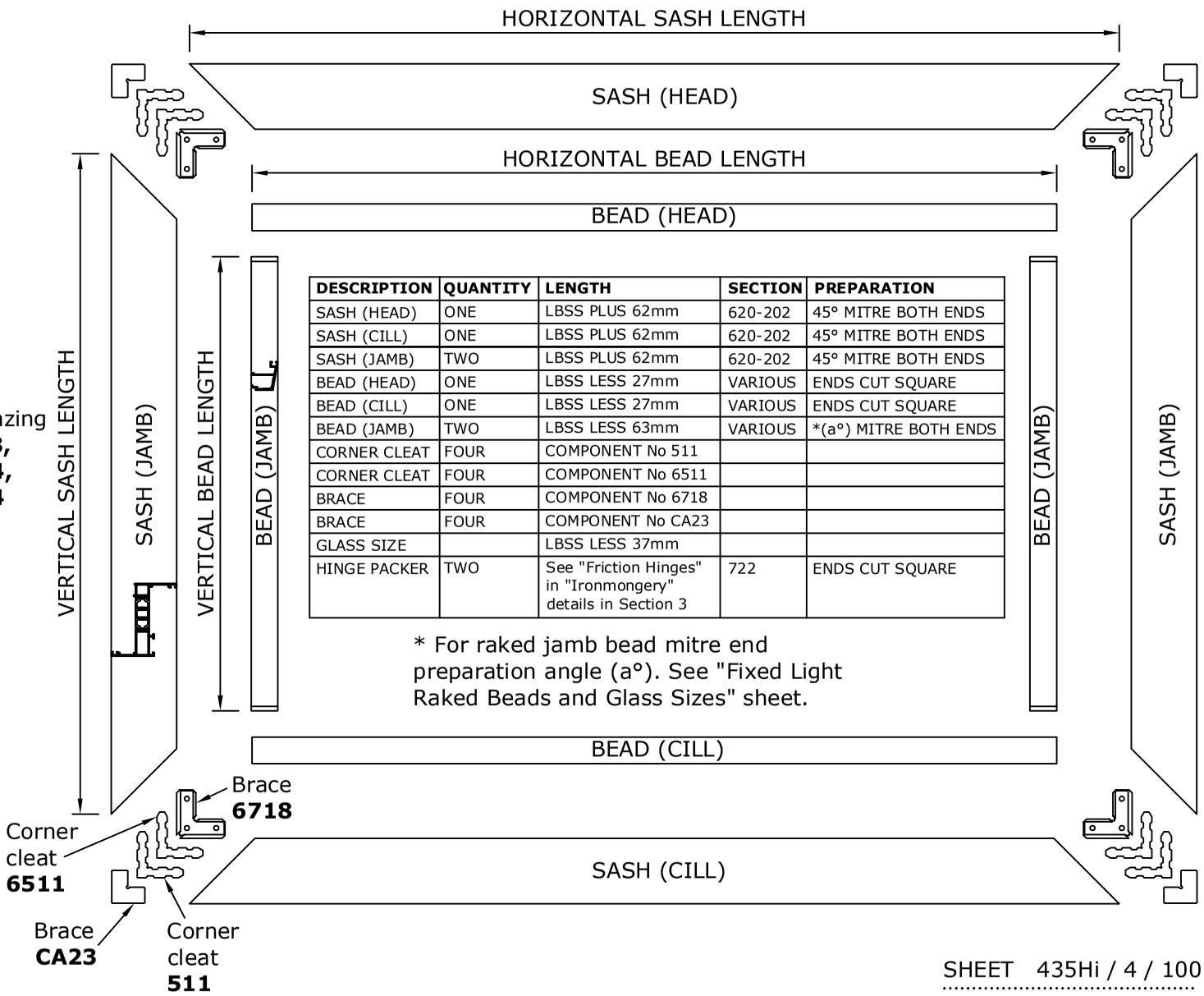
Fabrication and Cutting Sizes

Standard Glaze Out Casement Vent - Window Assembly
(Not Including Outer Frame and Liner Bar)

System 4-35 Hi/Hi+
CASEMENT WINDOW



Note :-
All bead lengths are tight sizes. Clearance of not more than 0.5mm should be allowed at each end of the glazing bead.



DESCRIPTION	QUANTITY	LENGTH	SECTION	PREPARATION
SASH (HEAD)	ONE	LBSS PLUS 62mm	620-202	45° MITRE BOTH ENDS
SASH (CILL)	ONE	LBSS PLUS 62mm	620-202	45° MITRE BOTH ENDS
SASH (JAMB)	TWO	LBSS PLUS 62mm	620-202	45° MITRE BOTH ENDS
BEAD (HEAD)	ONE	LBSS LESS 27mm	VARIOUS	ENDS CUT SQUARE
BEAD (CILL)	ONE	LBSS LESS 27mm	VARIOUS	ENDS CUT SQUARE
BEAD (JAMB)	TWO	LBSS LESS 63mm	VARIOUS	*(a°) MITRE BOTH ENDS
CORNER CLEAT	FOUR	COMPONENT No 511		
CORNER CLEAT	FOUR	COMPONENT No 6511		
BRACE	FOUR	COMPONENT No 6718		
BRACE	FOUR	COMPONENT No CA23		
GLASS SIZE		LBSS LESS 37mm		
HINGE PACKER	TWO	See "Friction Hinges" in "Ironmongery" details in Section 3	722	ENDS CUT SQUARE

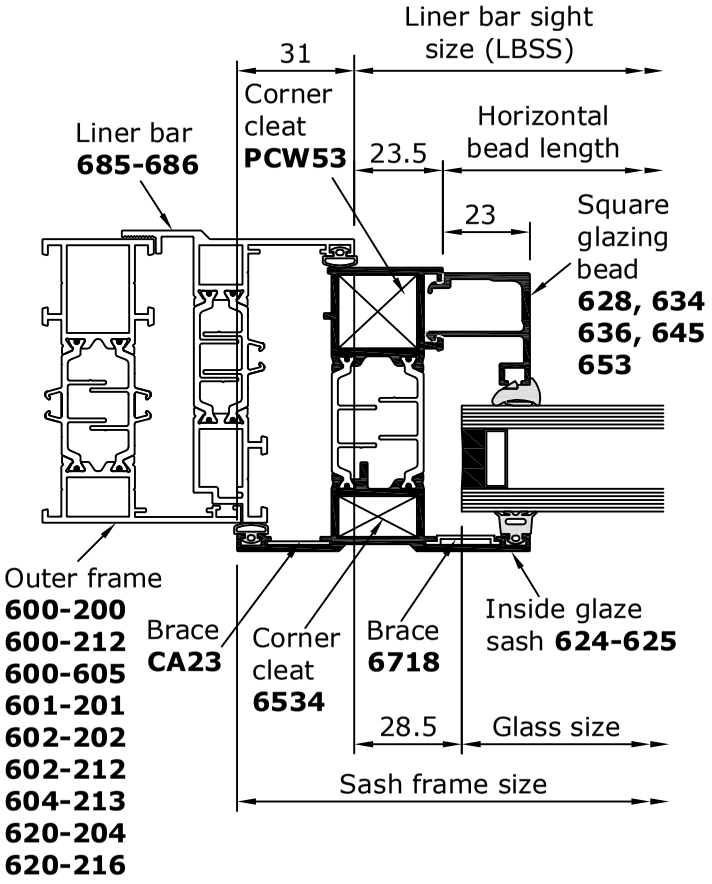
* For raked jamb bead mitre end preparation angle (a°). See "Fixed Light Raked Beads and Glass Sizes" sheet.

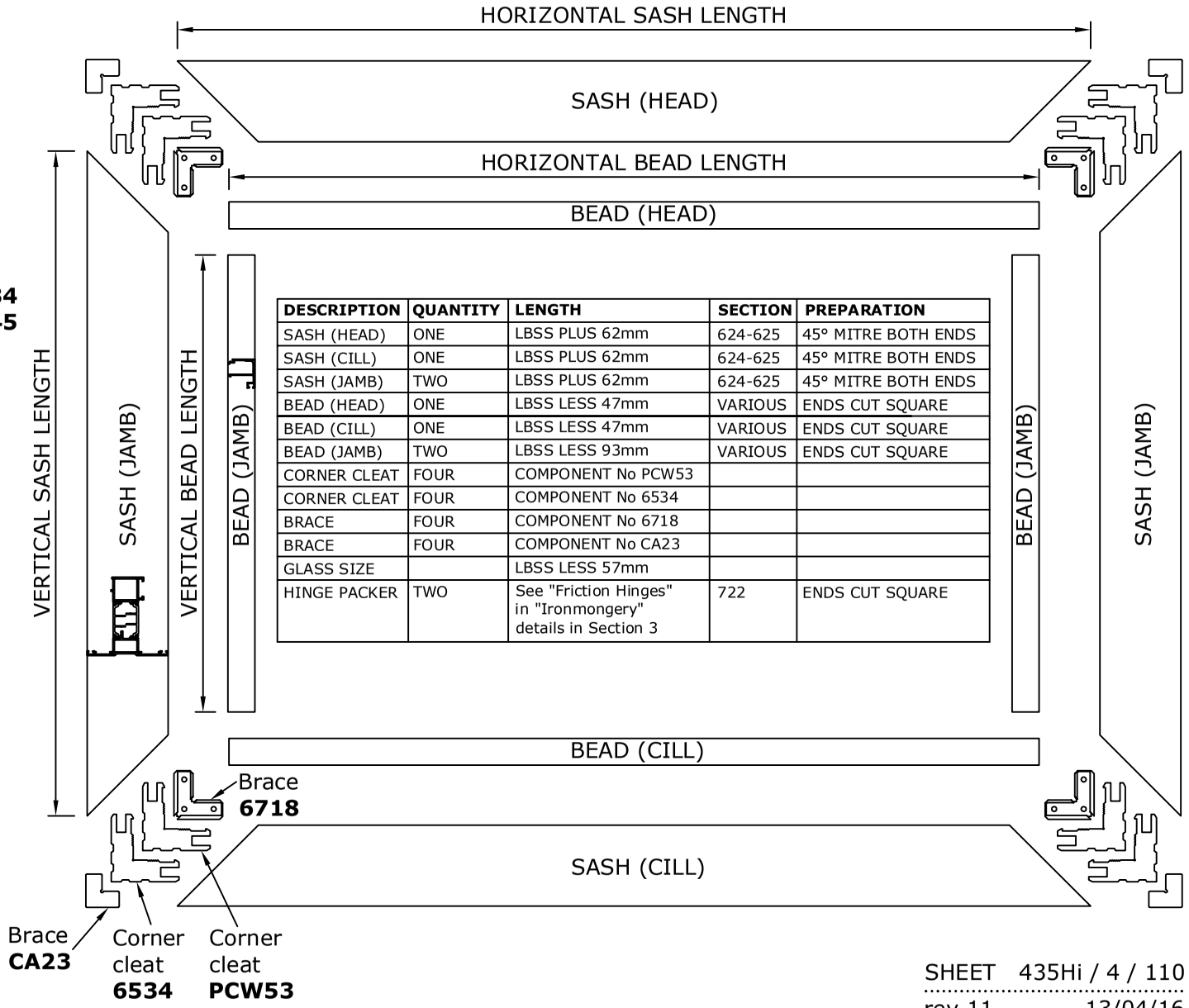
Not to Scale

Fabrication and Cutting Sizes

Glaze In Casement Vent - Window Assembly
(Not Including Outer Frame and Liner Bar)

System 4-35 Hi/Hi+
CASEMENT WINDOW





DESCRIPTION	QUANTITY	LENGTH	SECTION	PREPARATION
SASH (HEAD)	ONE	LBSS PLUS 62mm	624-625	45° MITRE BOTH ENDS
SASH (CILL)	ONE	LBSS PLUS 62mm	624-625	45° MITRE BOTH ENDS
SASH (JAMB)	TWO	LBSS PLUS 62mm	624-625	45° MITRE BOTH ENDS
BEAD (HEAD)	ONE	LBSS LESS 47mm	VARIOUS	ENDS CUT SQUARE
BEAD (CILL)	ONE	LBSS LESS 47mm	VARIOUS	ENDS CUT SQUARE
BEAD (JAMB)	TWO	LBSS LESS 93mm	VARIOUS	ENDS CUT SQUARE
CORNER CLEAT	FOUR	COMPONENT No PCW53		
CORNER CLEAT	FOUR	COMPONENT No 6534		
BRACE	FOUR	COMPONENT No 6718		
BRACE	FOUR	COMPONENT No CA23		
GLASS SIZE		LBSS LESS 57mm		
HINGE PACKER	TWO	See "Friction Hinges" in "Ironmongery" details in Section 3	722	ENDS CUT SQUARE

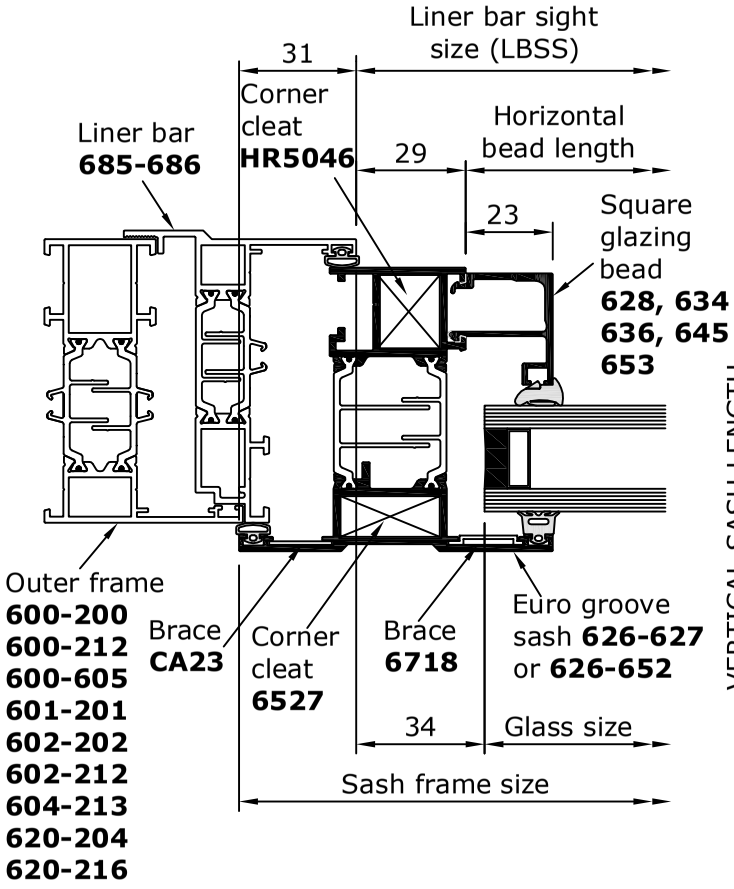
Note :-
All bead lengths are tight sizes.
Clearance of not more than
0.5mm should be allowed at
each end of the glazing bead.

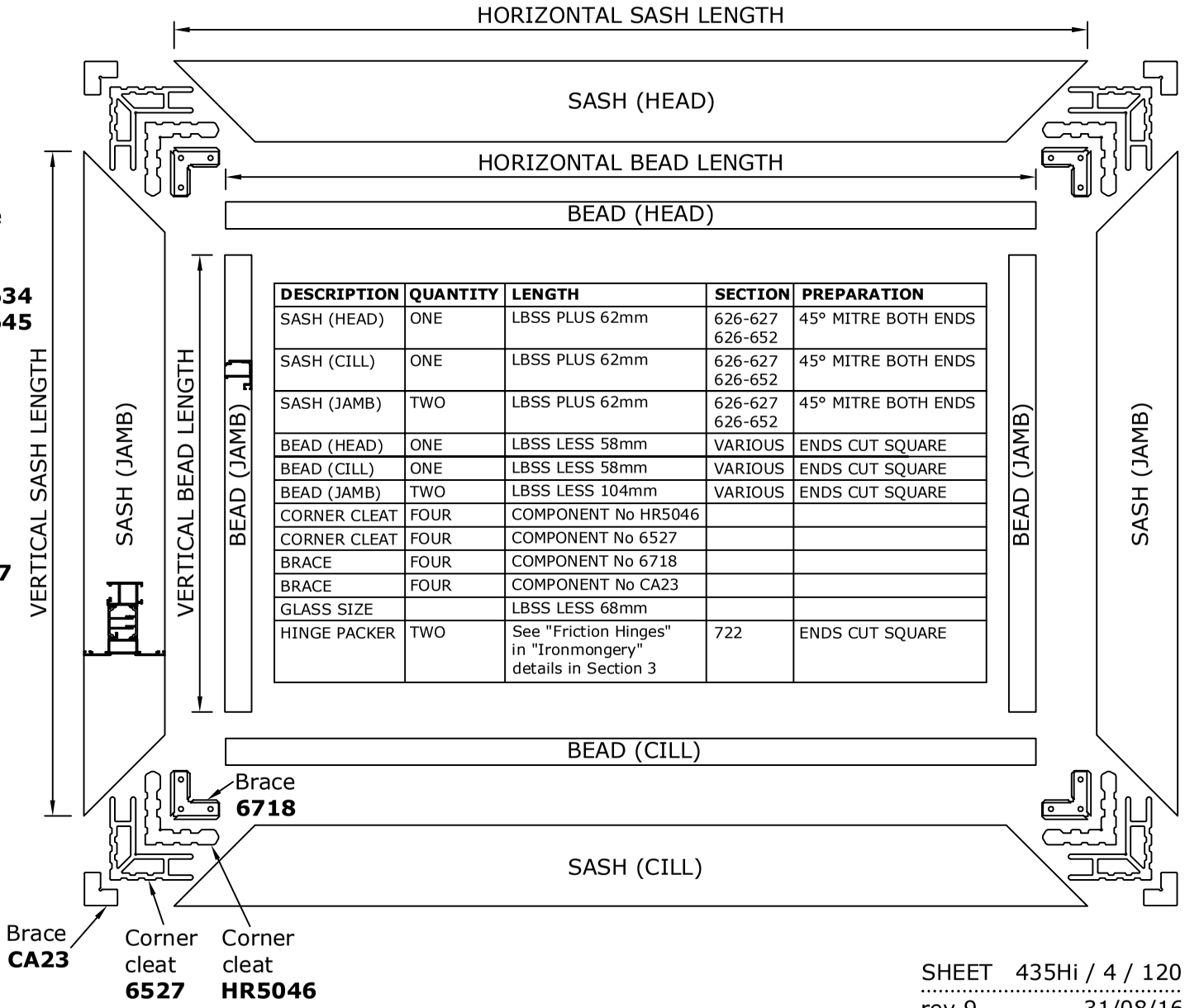
Not to Scale

Fabrication and Cutting Sizes

Euro Groove Casement Vents 626-627 and 626-652 - Window Assembly (Not Including Outer Frame and Liner Bar)

System 4-35 Hi/Hi+
CASEMENT WINDOW





DESCRIPTION	QUANTITY	LENGTH	SECTION	PREPARATION
SASH (HEAD)	ONE	LBSS PLUS 62mm	626-627 626-652	45° MITRE BOTH ENDS
SASH (CILL)	ONE	LBSS PLUS 62mm	626-627 626-652	45° MITRE BOTH ENDS
SASH (JAMB)	TWO	LBSS PLUS 62mm	626-627 626-652	45° MITRE BOTH ENDS
BEAD (HEAD)	ONE	LBSS LESS 58mm	VARIOUS	ENDS CUT SQUARE
BEAD (CILL)	ONE	LBSS LESS 58mm	VARIOUS	ENDS CUT SQUARE
BEAD (JAMB)	TWO	LBSS LESS 104mm	VARIOUS	ENDS CUT SQUARE
CORNER CLEAT	FOUR	COMPONENT No HR5046		
CORNER CLEAT	FOUR	COMPONENT No 6527		
BRACE	FOUR	COMPONENT No 6718		
BRACE	FOUR	COMPONENT No CA23		
GLASS SIZE		LBSS LESS 68mm		
HINGE PACKER	TWO	See "Friction Hinges" in "Ironmongery" details in Section 3	722	ENDS CUT SQUARE

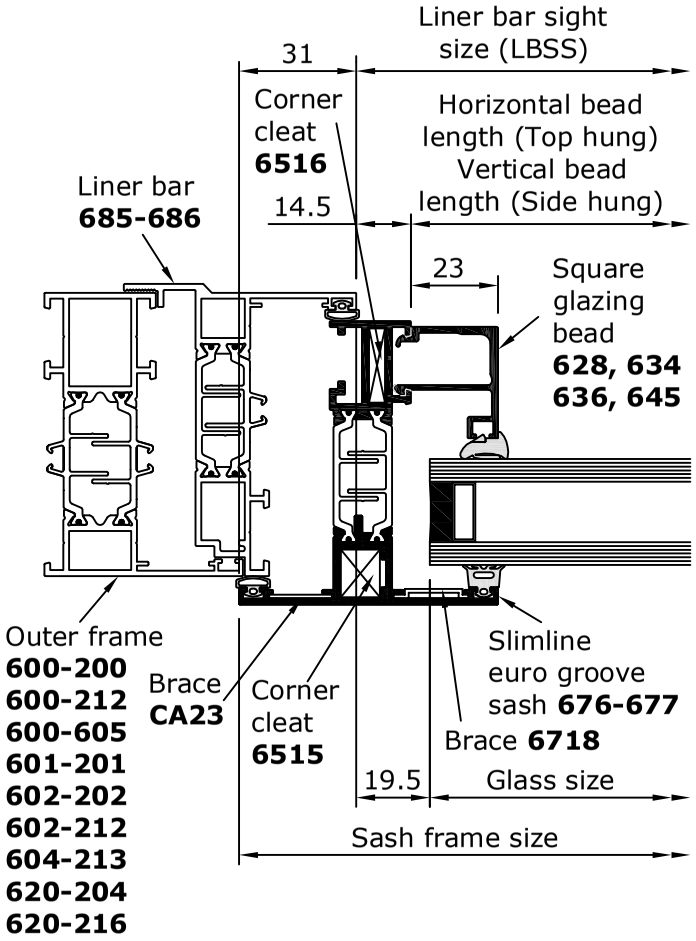
Note :-
All bead lengths are tight sizes.
Clearance of not more than 0.5mm should be allowed at each end of the glazing bead.

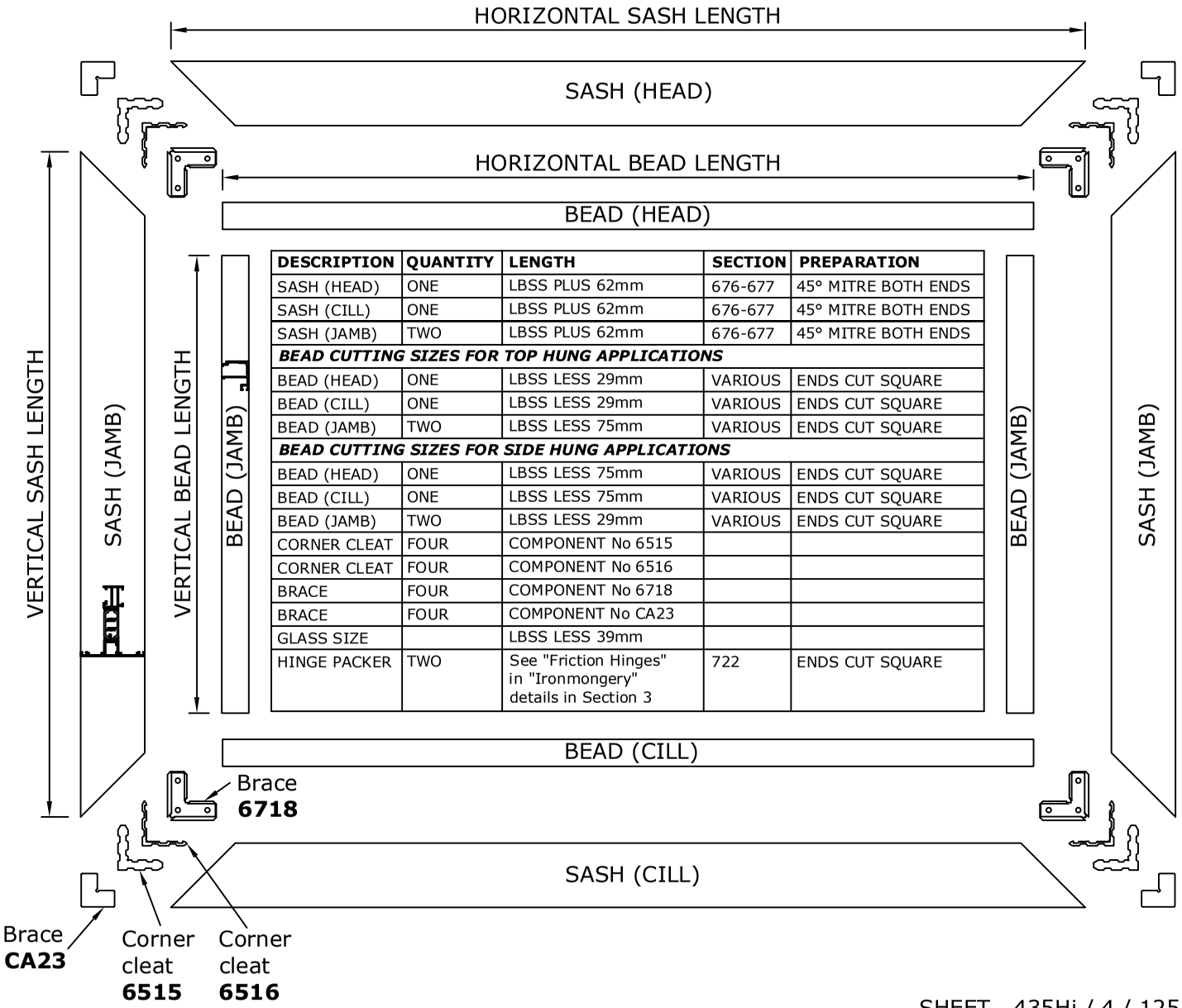
Not to Scale

Fabrication and Cutting Sizes

Euro Groove Slimline Casement Vent 676-677 - Window Assembly (Not Including Outer Frame and Liner Bar)

System 4-35 Hi/Hi+
CASEMENT WINDOW





DESCRIPTION	QUANTITY	LENGTH	SECTION	PREPARATION
SASH (HEAD)	ONE	LBSS PLUS 62mm	676-677	45° MITRE BOTH ENDS
SASH (CILL)	ONE	LBSS PLUS 62mm	676-677	45° MITRE BOTH ENDS
SASH (JAMB)	TWO	LBSS PLUS 62mm	676-677	45° MITRE BOTH ENDS
BEAD CUTTING SIZES FOR TOP HUNG APPLICATIONS				
BEAD (HEAD)	ONE	LBSS LESS 29mm	VARIOUS	ENDS CUT SQUARE
BEAD (CILL)	ONE	LBSS LESS 29mm	VARIOUS	ENDS CUT SQUARE
BEAD (JAMB)	TWO	LBSS LESS 75mm	VARIOUS	ENDS CUT SQUARE
BEAD CUTTING SIZES FOR SIDE HUNG APPLICATIONS				
BEAD (HEAD)	ONE	LBSS LESS 75mm	VARIOUS	ENDS CUT SQUARE
BEAD (CILL)	ONE	LBSS LESS 75mm	VARIOUS	ENDS CUT SQUARE
BEAD (JAMB)	TWO	LBSS LESS 29mm	VARIOUS	ENDS CUT SQUARE
CORNER CLEAT	FOUR	COMPONENT No 6515		
CORNER CLEAT	FOUR	COMPONENT No 6516		
BRACE	FOUR	COMPONENT No 6718		
BRACE	FOUR	COMPONENT No CA23		
GLASS SIZE		LBSS LESS 39mm		
HINGE PACKER	TWO	See "Friction Hinges" in "Ironmongery" details in Section 3	722	ENDS CUT SQUARE

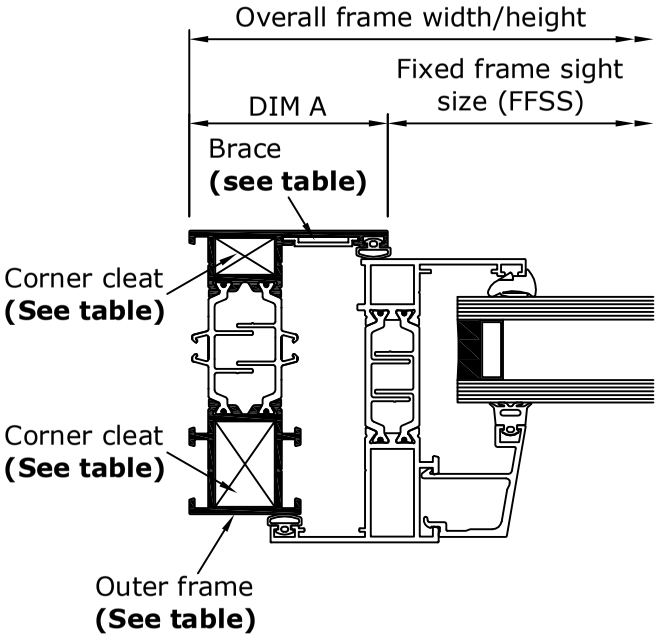
Note :-
All bead lengths are tight sizes. Clearance of not more than 0.5mm should be allowed at each end of the glazing bead.
In top hung applications cill and head beads run through but in side hung applications jamb beads run through.

Not to Scale

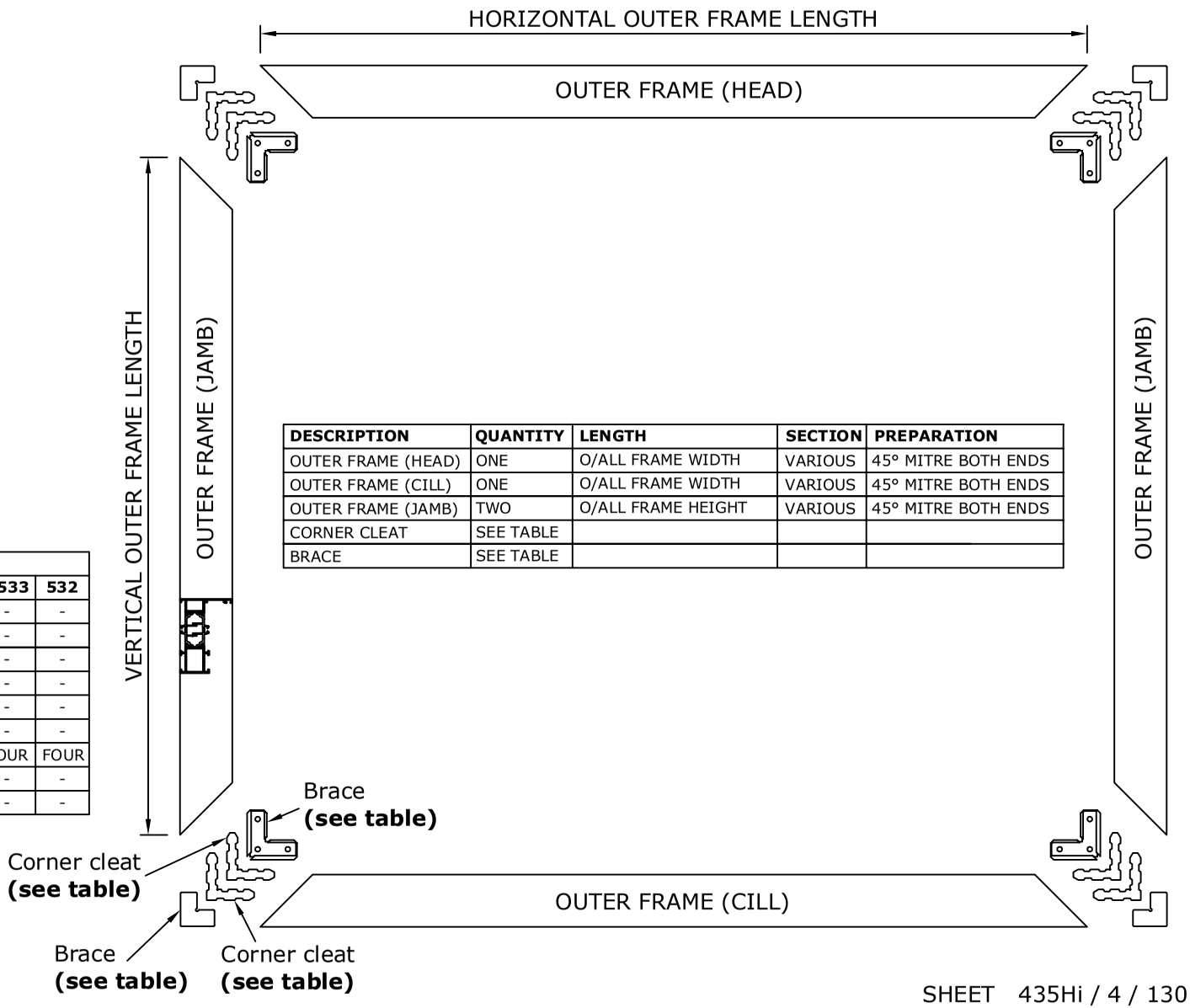
Fabrication and Cutting Sizes

Outer Frame - Window Assembly
(Not Including Casement Vent or Glazing Beads)

System 4-35 Hi/Hi+
CASEMENT WINDOW



OUTER FRAME	DIM A	BRACE			CORNER CLEAT					
		CA23	6718	CA24	6511	511	6517	516	6533	532
600-200	47.5mm	-	FOUR	-	FOUR	FOUR	-	-	-	-
600-212	67.5mm	-	FOUR	FOUR	FOUR	FOUR	-	-	-	-
600-605	47.5mm	-	FOUR	-	FOUR	FOUR	-	-	-	-
601-201	52.5mm	-	FOUR	-	-	-	FOUR	FOUR	-	-
602-202	67.5mm	EIGHT	FOUR	-	FOUR	FOUR	-	-	-	-
602-212	67.5mm	FOUR	FOUR	FOUR	FOUR	FOUR	-	-	-	-
604-213	57.5mm	-	FOUR	-	-	-	-	-	FOUR	FOUR
620-204	62.5mm	FOUR	FOUR	FOUR	FOUR	FOUR	-	-	-	-
620-216	62.5mm	FOUR	FOUR	FOUR	FOUR	FOUR	-	-	-	-



DESCRIPTION	QUANTITY	LENGTH	SECTION	PREPARATION
OUTER FRAME (HEAD)	ONE	O/ALL FRAME WIDTH	VARIOUS	45° MITRE BOTH ENDS
OUTER FRAME (CILL)	ONE	O/ALL FRAME WIDTH	VARIOUS	45° MITRE BOTH ENDS
OUTER FRAME (JAMB)	TWO	O/ALL FRAME HEIGHT	VARIOUS	45° MITRE BOTH ENDS
CORNER CLEAT	SEE TABLE			
BRACE	SEE TABLE			

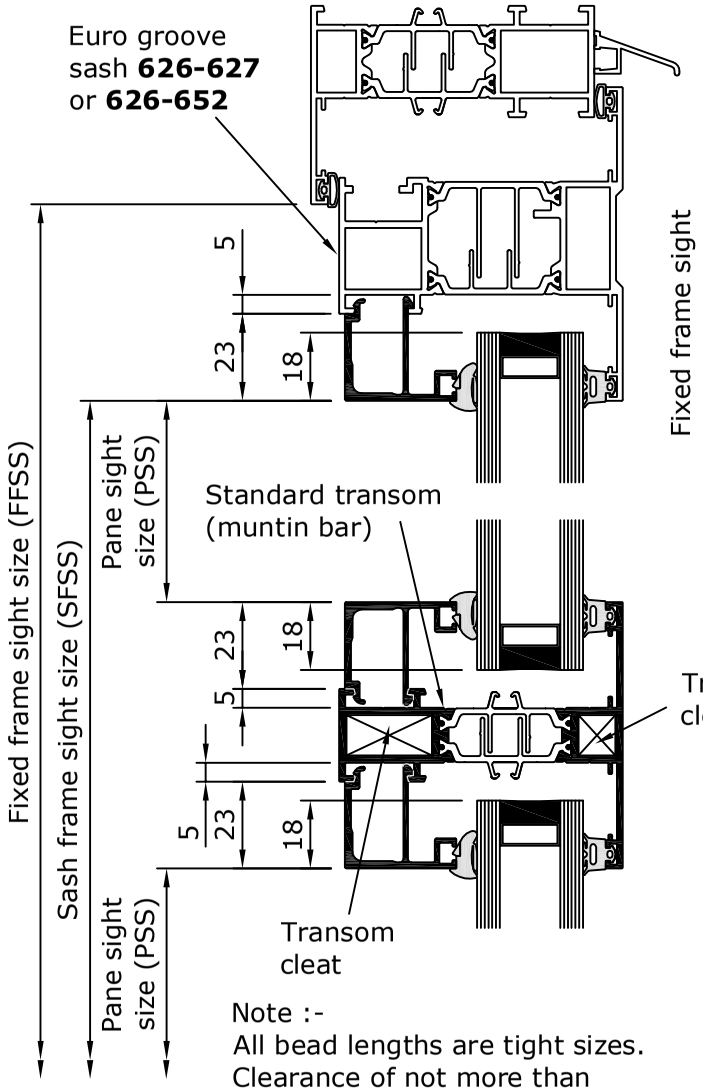
Not to Scale

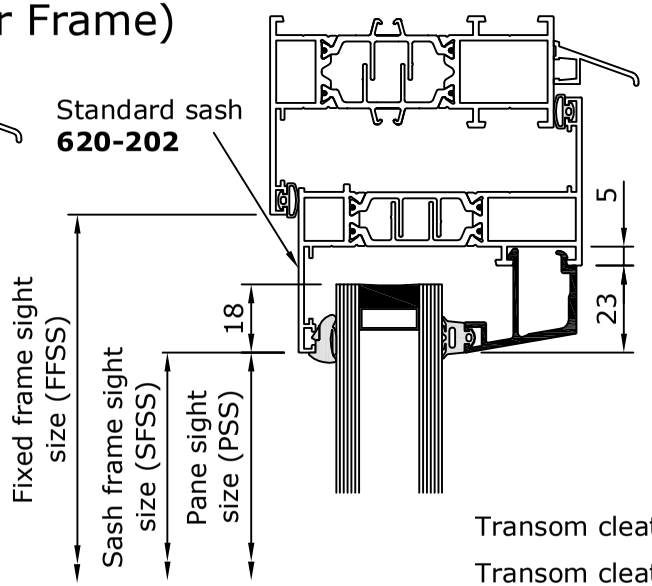
Fabrication and Cutting Sizes

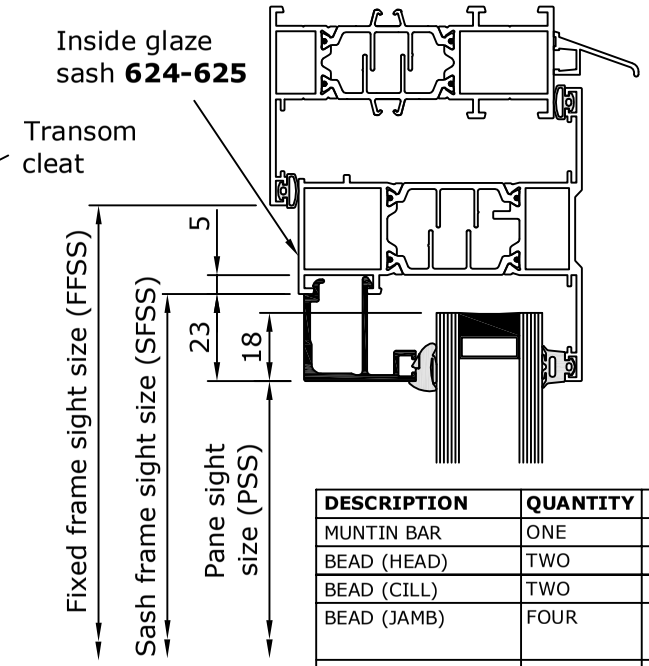
Single Muntin Bar into Casement Vents - Window Assembly (Not Including Sash and Outer Frame)

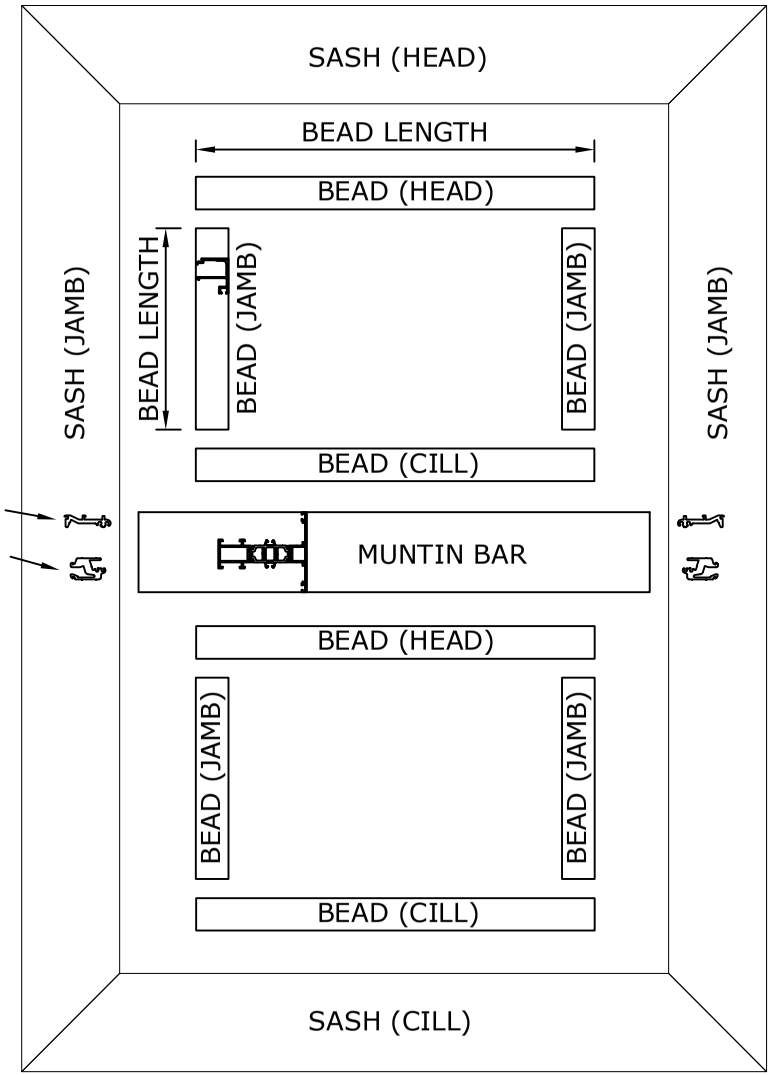
System 4-35 Hi/Hi+

CASEMENT WINDOW









Note :-
All bead lengths are tight sizes. Clearance of not more than 0.5mm should be allowed at each end of the glazing bead.

DESCRIPTION	QUANTITY	LENGTH
MUNTIN BAR	ONE	SFSS or PSS plus 46mm
BEAD (HEAD)	TWO	SFSS or PSS plus 46mm
BEAD (CILL)	TWO	SFSS or PSS plus 46mm
BEAD (JAMB)	FOUR	FOR SQUARE BEADS: SFSS or PSS FOR RAKED BEADS: SFSS or PSS plus 10mm
GLASS SIZE	TWO	SFSS or PSS plus 36mm

Further intergral muntins may be calculated by using the pane sight sizes (PSS)

Not to Scale

Mullion Stiffener Prep

System 4-35 Hi/Hi+

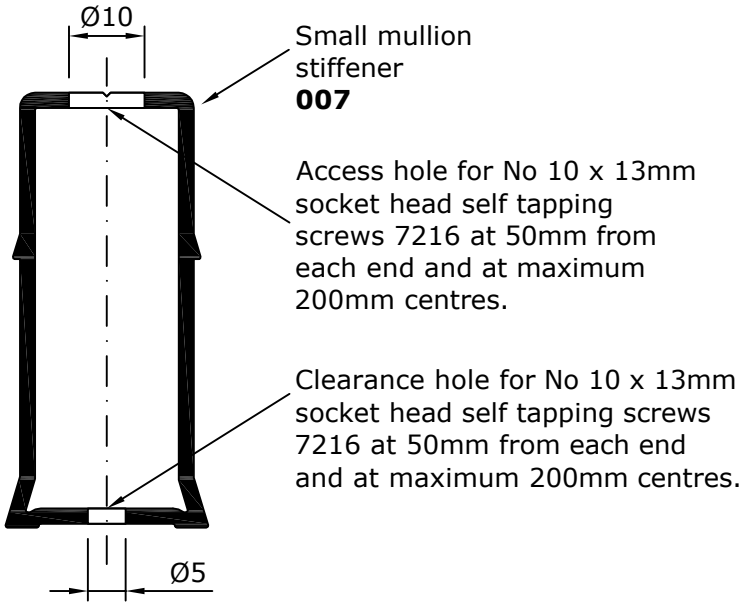
CASEMENT WINDOW

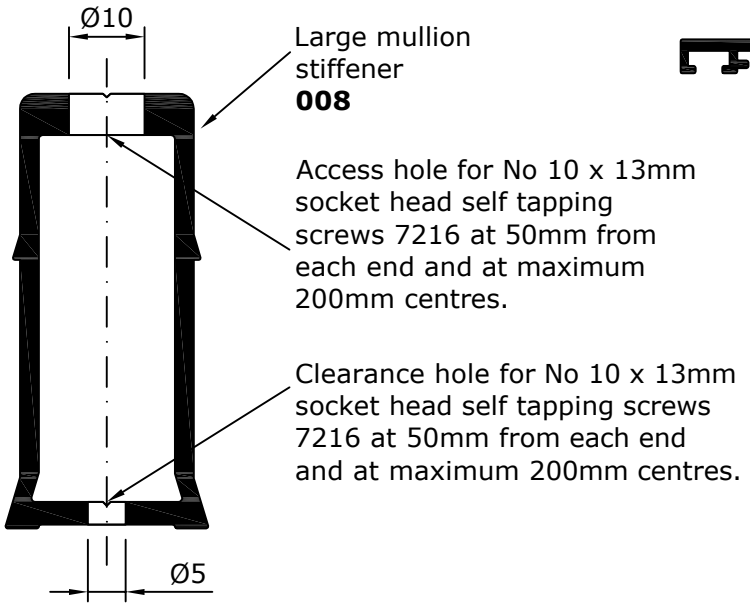
Metal Technology recommend that the No 10 x 13mm socket head self tapping screws 7216 are fixed at 200mm centres and sealed in position using HR50328A sealant. Variation from these centres will affect the structural performance of the combined mullion and must be checked and confirmed by a structural engineer.

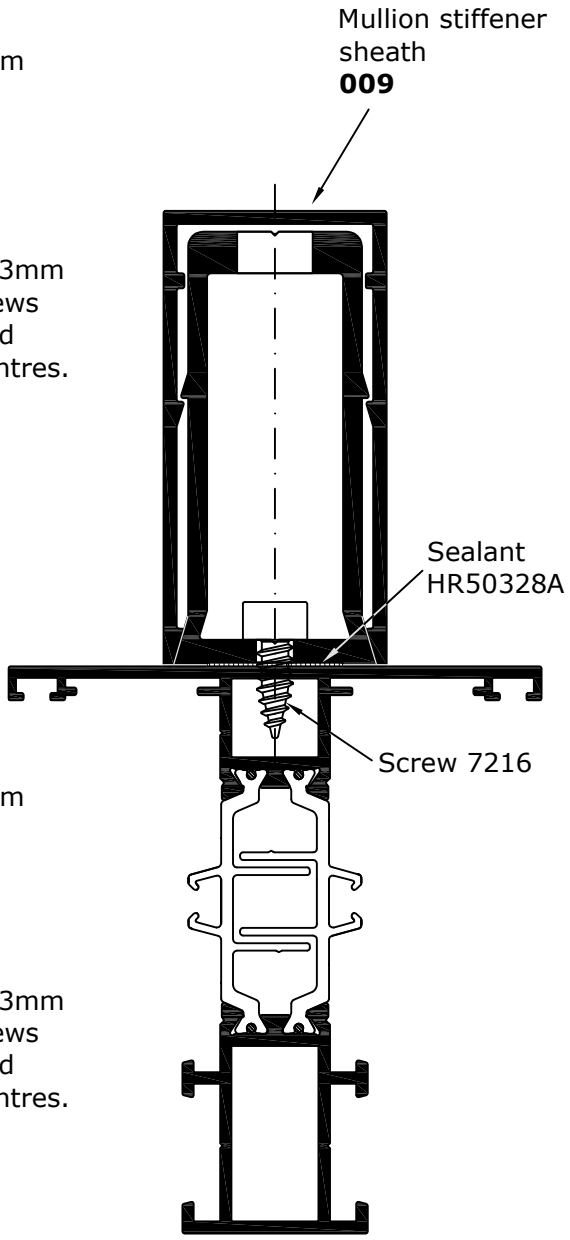
Cutting sizes to be calculated to suit site application.

Care should be taken to accommodate cill and head liner profiles.

These profiles are suitable for use with 603-201, 603-218, 606-206, 606-207, 609-200, 613-213, 613-221 and 619-211, when used as mullions, and should be fixed to profiles 603, 606, 609, 613 and 619 only.







Scale 1:1

Saw Blocks

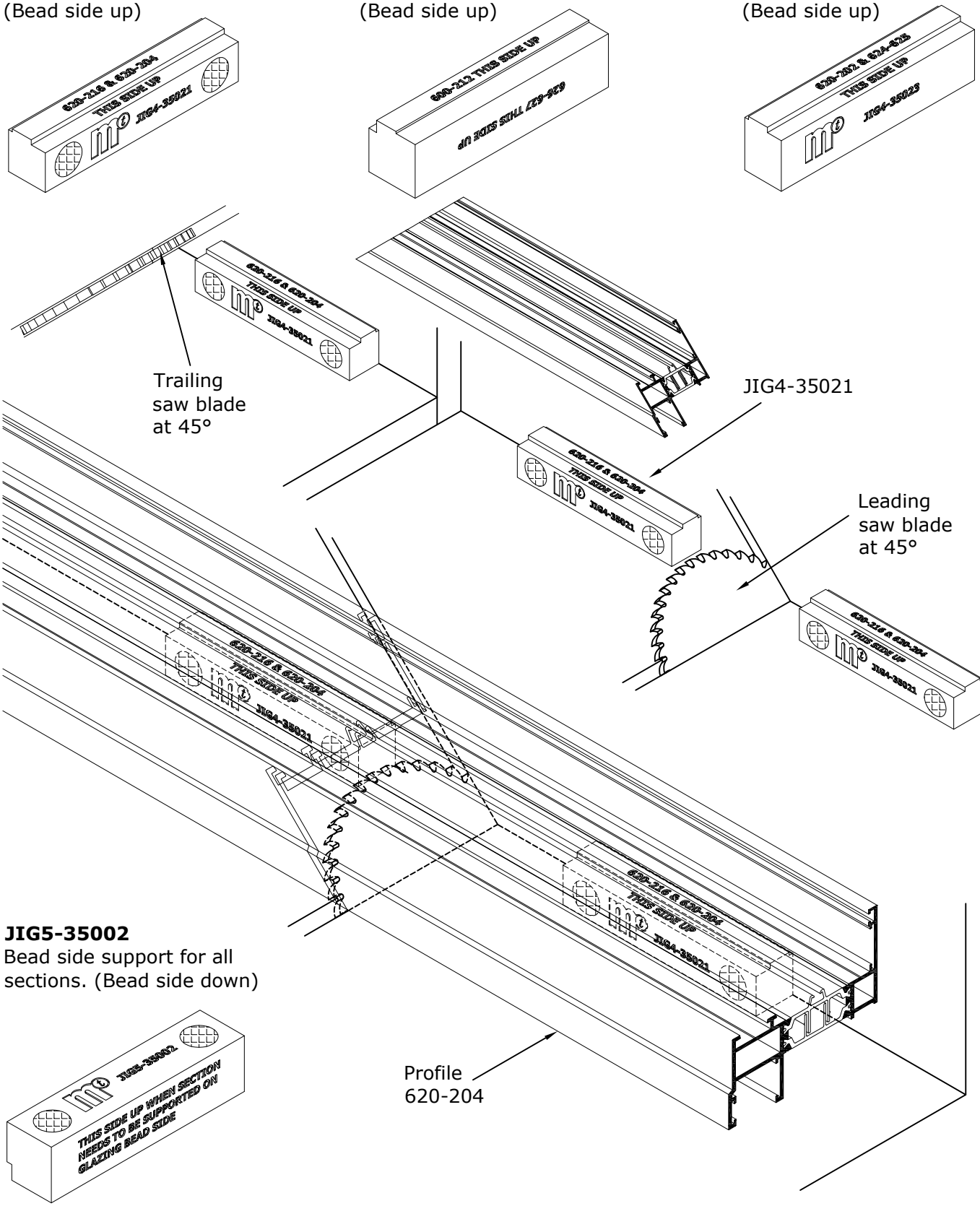
System 4-35 Hi/Hi+
CASEMENT WINDOW

Saw blocks to be used in threes and to be positioned to either side of the leading blade as illustrated below. Each block should be positioned with the applicable profile code facing up and with the writing the correct way around. Blocks incorporate magnetic spuds to help location and should be positioned below clamps.

JIG4-35021
Saw block for sections 620-204, 620-216, 685-686. (Bead side up)

JIG4-35022
Saw block for sections 600-212, 626-627, 626-652, 676-677. (Bead side up)

JIG4-35023
Saw block for sections 620-202, 624-625. (Bead side up)



JIG5-35002
Bead side support for all sections. (Bead side down)

Not to Scale

Mullion / Transom End Prep

System 4-35 Hi/Hi+

CASEMENT WINDOW

Bar length = Fixed frame sight size + 55mm

70.5mm wide section

609-200

75.5mm wide section

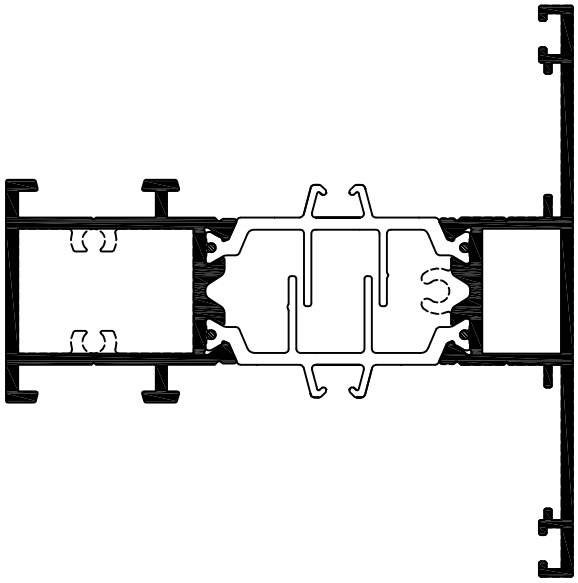
603-201
619-211 (with screwport)

80.5mm wide section

613-213

98mm wide section

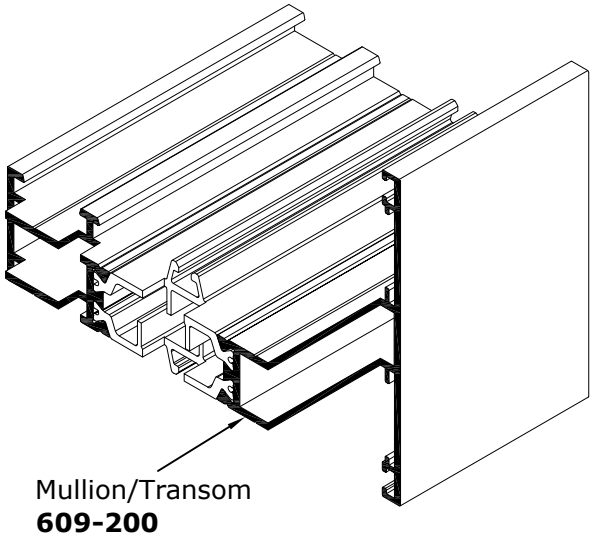
606-206



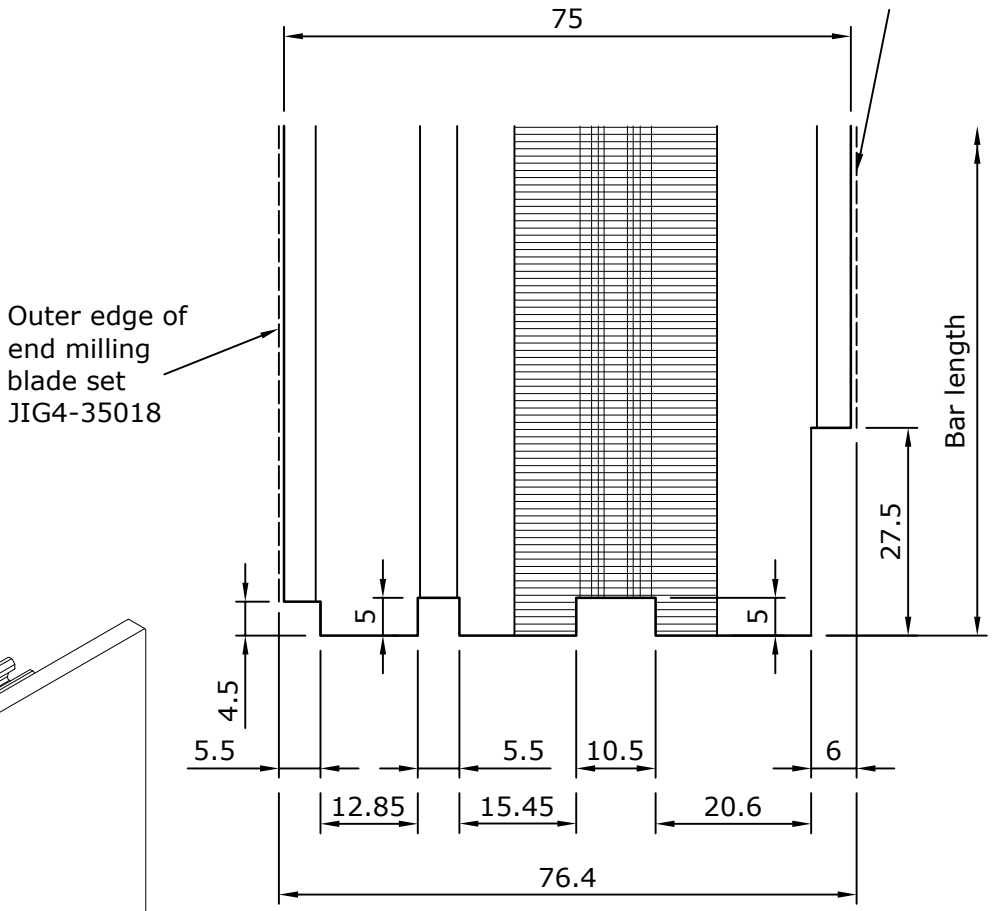
These profiles are suitable for use with the following sections:

Outer frames

600-200
600-212
600-605
601-201
602-202
602-212
604-213
620-204
620-216
685-686



Mullion/Transom
609-200



Scale 1:1

613-221 Mullion End Prep

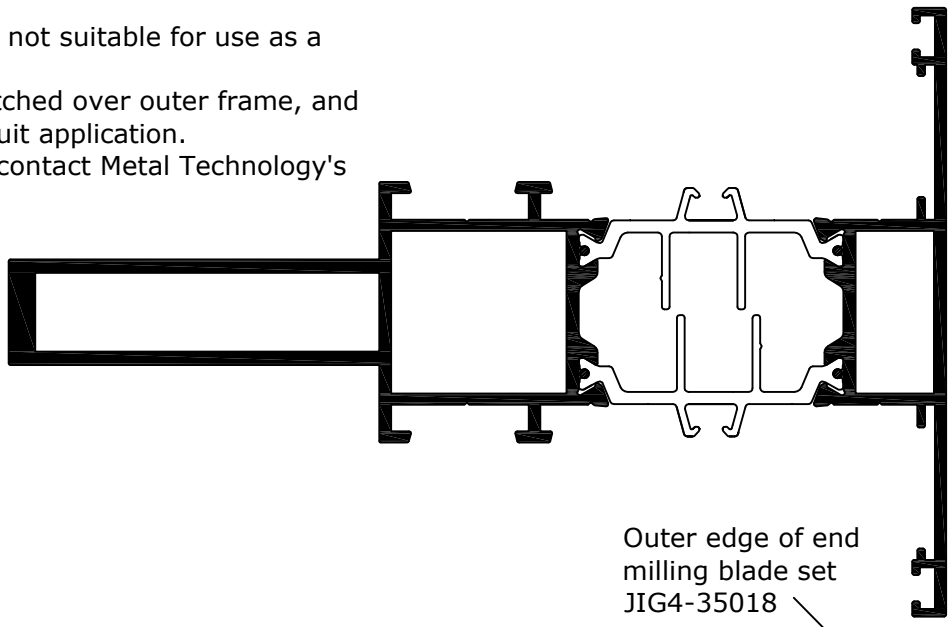
System 4-35 Hi/Hi+

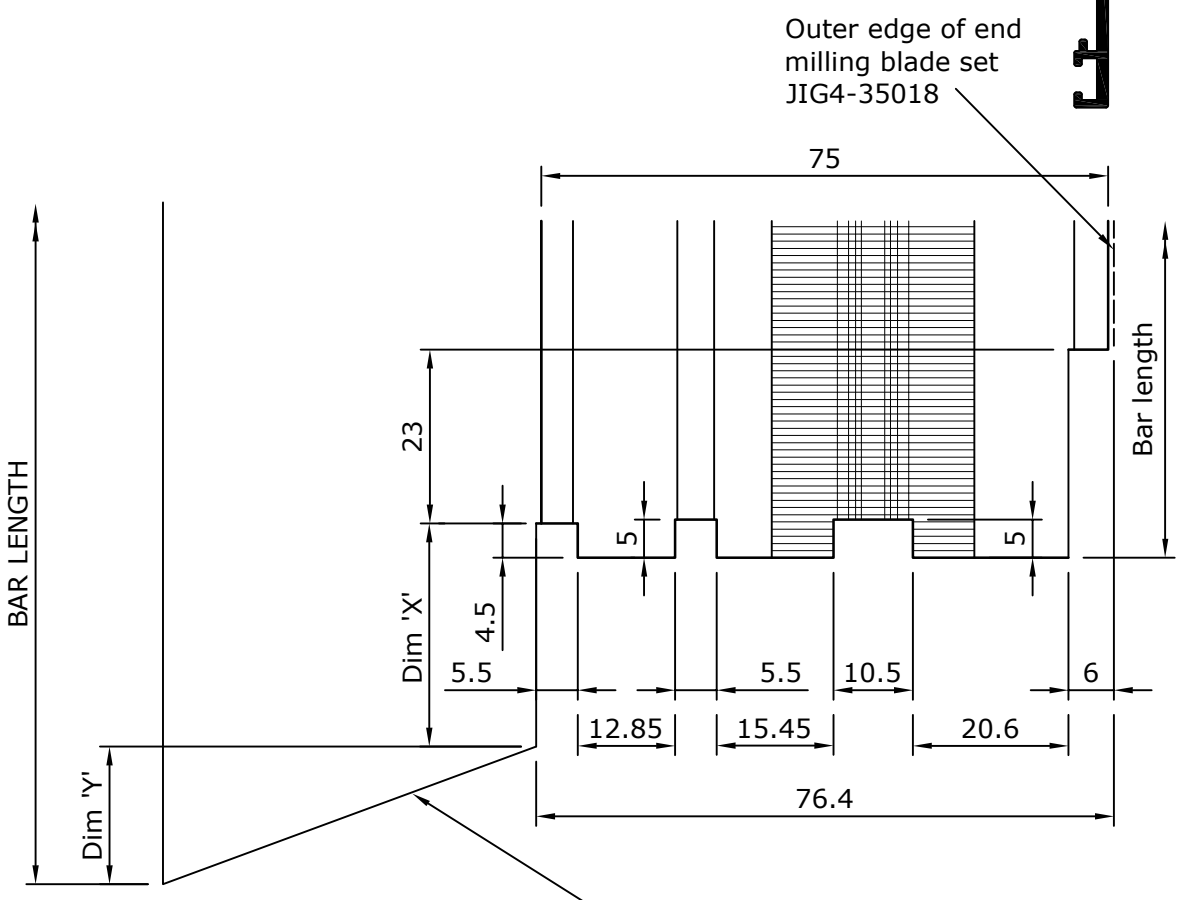
CASEMENT WINDOW

Bar length = Fixed frame sight size + 55mm + dim 'X' and dim 'Y' at head + dim 'X' and dim 'Y' at cill

Notes:

1. Please note this section is not suitable for use as a transom.
2. Box mullion should be notched over outer frame, and cill liner if applicable, to suit application.
3. For further advice please contact Metal Technology's Technical Department.





Section	Dim 'X'	Dim 'Y'
600-200	24.5	as specified by fabricator
600-212	44.5	as specified by fabricator
600-605	24.5	as specified by fabricator
601-201	29.5	as specified by fabricator
602-202	44.5	as specified by fabricator
602-212	44.5	as specified by fabricator
604-213	34.5	as specified by fabricator

If 'Y' is specified as 0, bar will be square ended. Values of 'X' and 'Y' must be provided for both ends of the bar.

Scale 1:1

Mullion End Prep

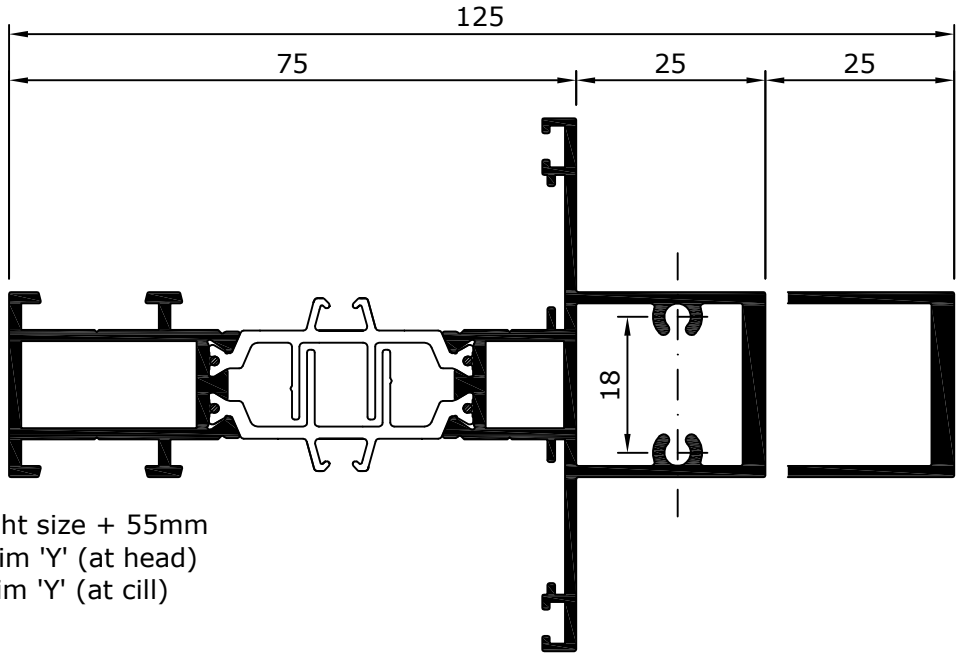
System 4-35 Hi/Hi+
CASEMENT WINDOW

100mm deep sections

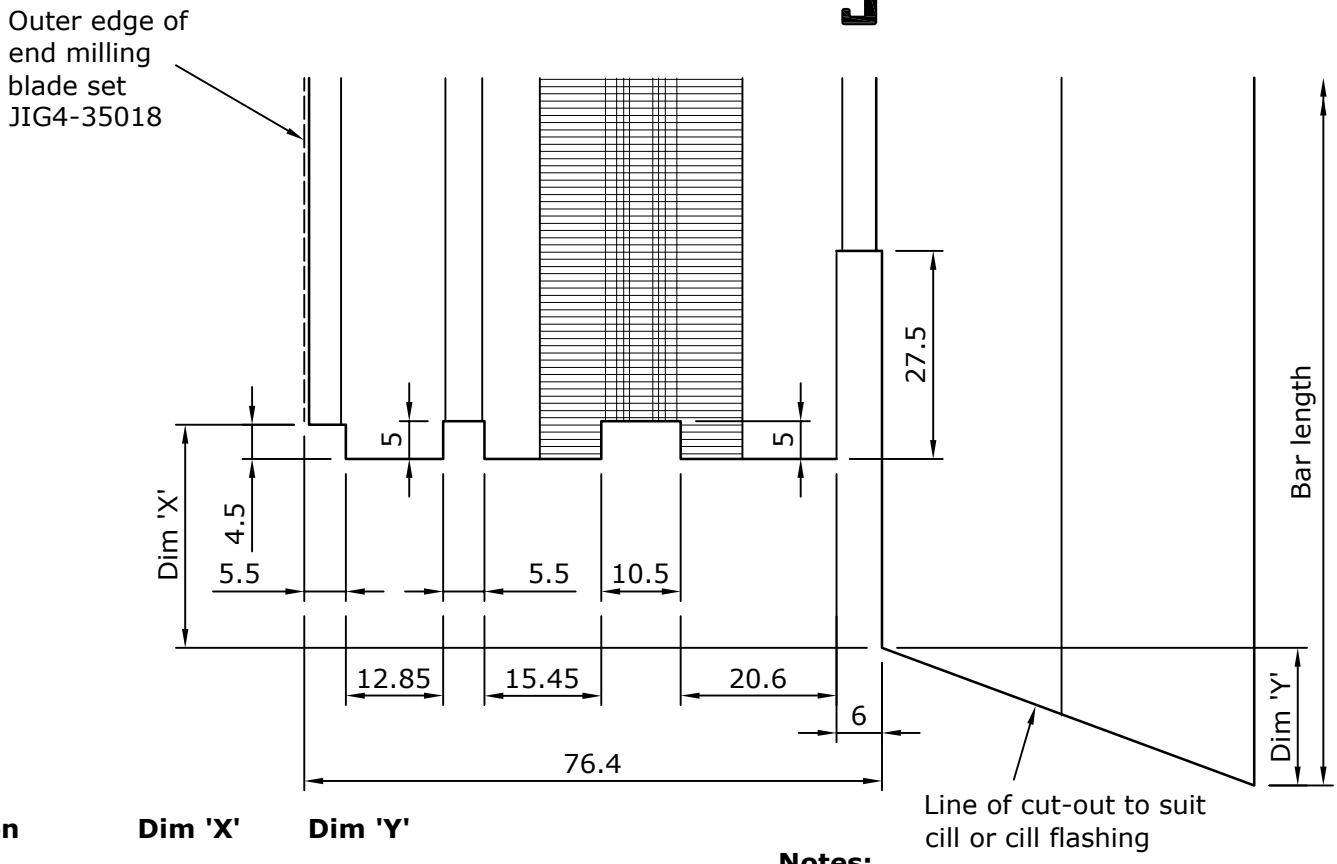
640-200
642-201

125mm deep sections

641-200
643-201
607-206



Bar length = Fixed frame sight size + 55mm
+ dim 'X' and dim 'Y' (at head)
+ dim 'X' and dim 'Y' (at cill)



Section	Dim 'X'	Dim 'Y'
600-200	24.5	as specified by fabricator
600-212	44.5	as specified by fabricator
600-605	24.5	as specified by fabricator
601-201	29.5	as specified by fabricator
602-202	44.5	as specified by fabricator
602-212	44.5	as specified by fabricator
604-213	34.5	as specified by fabricator

If 'Y' is specified as 0, bar will be square ended. Values of 'X' and 'Y' must be provided for both ends of the bar.

Notes:
1. Please note these sections are not suitable for use as transoms.
2. Box mullion should be notched over outer frame, and cill liner if applicable, to suit application.
3. For further advice please contact Metal Technology's Technical Department.

Scale 1:1

Heavy Duty Mullion End Prep

System 4-35 Hi/Hi+

CASEMENT WINDOW

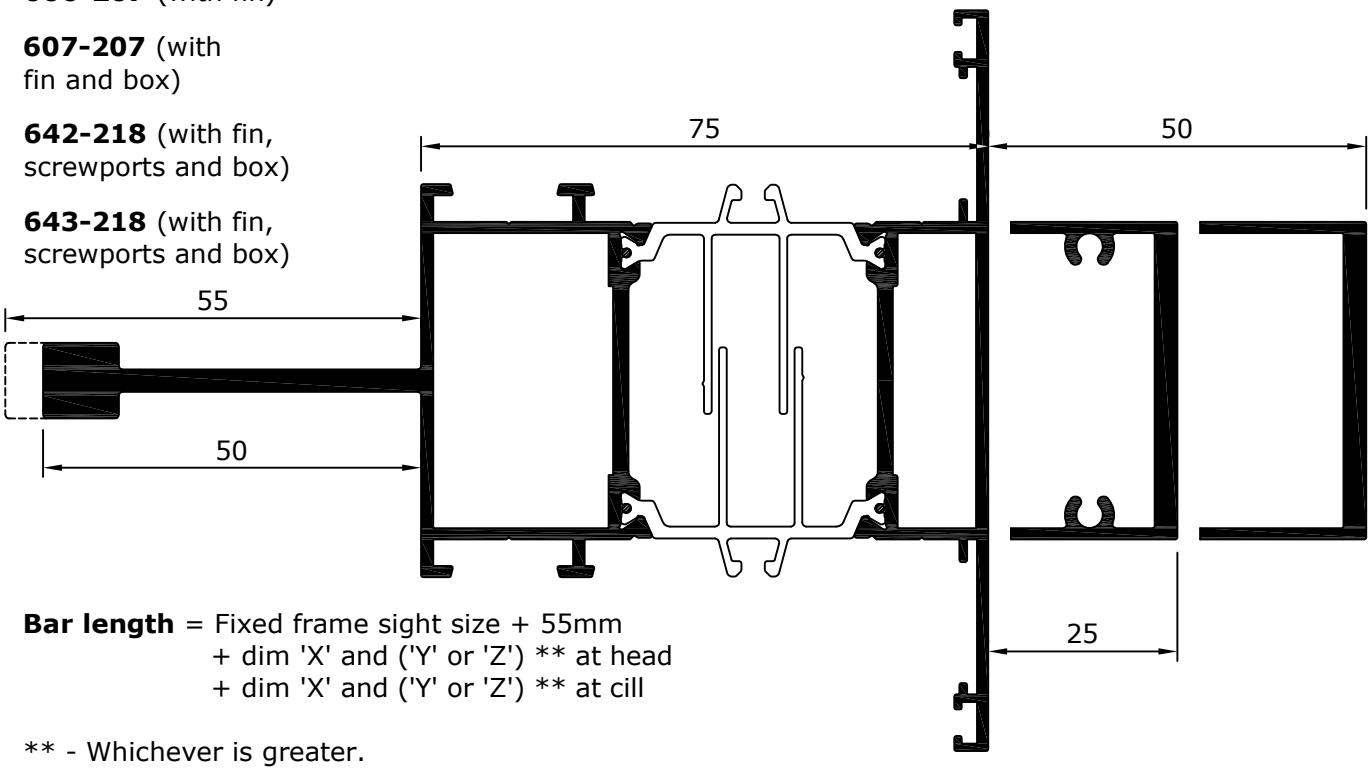
603-218 (with fin)

606-207 (with fin)

607-207 (with fin and box)

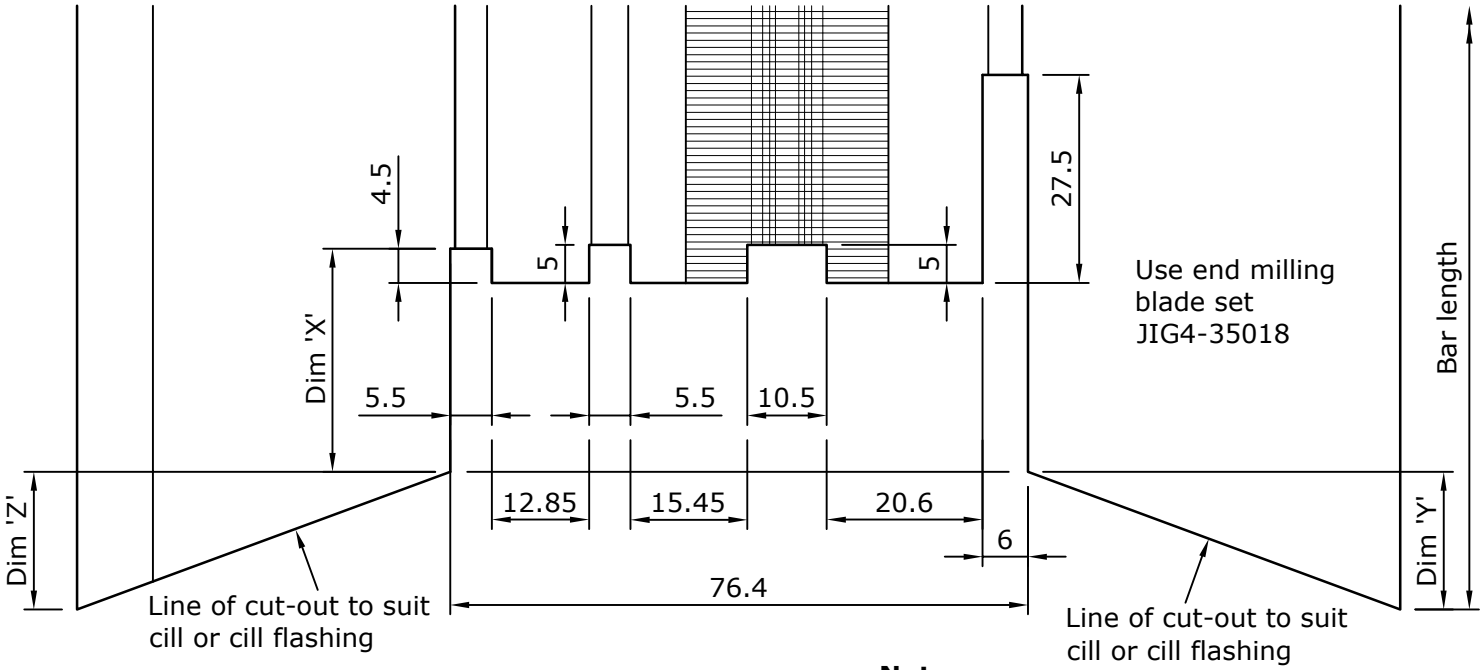
642-218 (with fin, screwports and box)

643-218 (with fin, screwports and box)



Bar length = Fixed frame sight size + 55mm
+ dim 'X' and ('Y' or 'Z') ** at head
+ dim 'X' and ('Y' or 'Z') ** at cill

** - Whichever is greater.



Section	Dim 'X'	Dim 'Y' and Dim 'Z'
600-200	24.5	as specified by fabricator
600-212	44.5	as specified by fabricator
600-605	24.5	as specified by fabricator
601-201	29.5	as specified by fabricator
602-202	44.5	as specified by fabricator
602-212	44.5	as specified by fabricator
604-213	34.5	as specified by fabricator

If 'Y' or 'Z' is specified as 0, bar will be square ended. Values of 'X', 'Y' and 'Z' must be provided for both ends of the bar.

Notes:

1. Please note these sections are not suitable for use as transoms.
2. Box mullion should be notched over outer frame, and cill liner if applicable, to suit application.
3. If using JIG4-35018 end milling blades with 607-207, either box or fin of profile must be trimmed back to suit blades.
4. For further advice please contact Metal Technology's Technical Department.

Scale 1:1

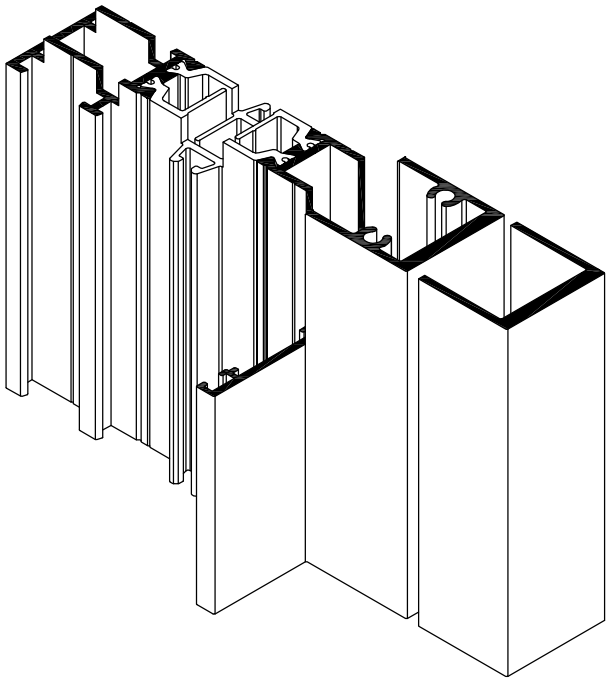
Mullion End Prep

3-Dimensional Views

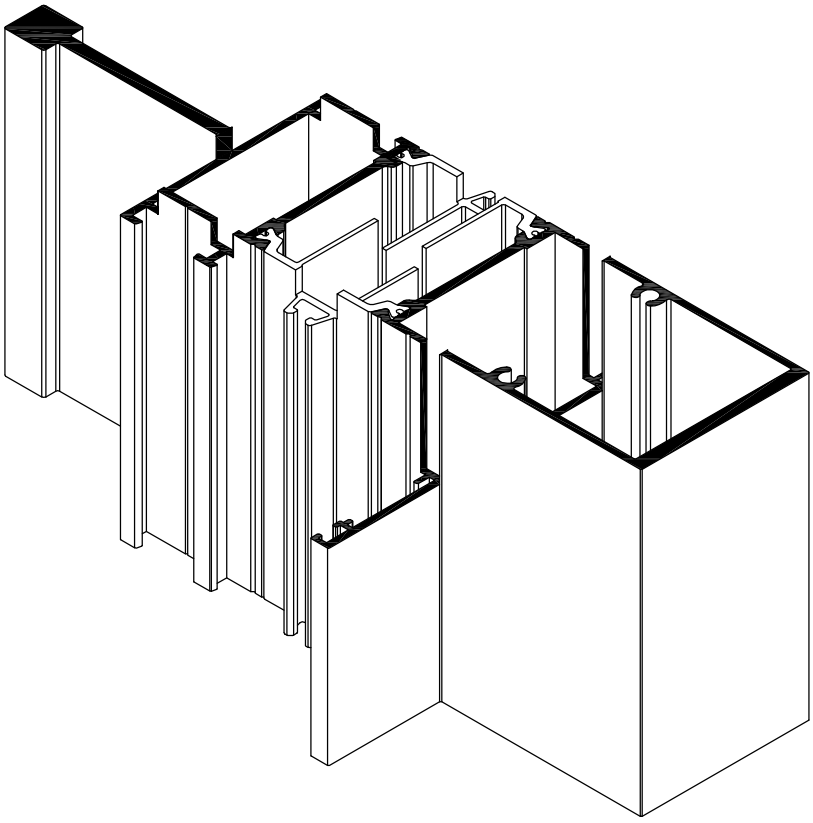
System 4-35 Hi/Hi+

CASEMENT WINDOW

MULLION END PREPARATION



MULLION END PREPARATION



Not to scale

Muntin Bar End Prep

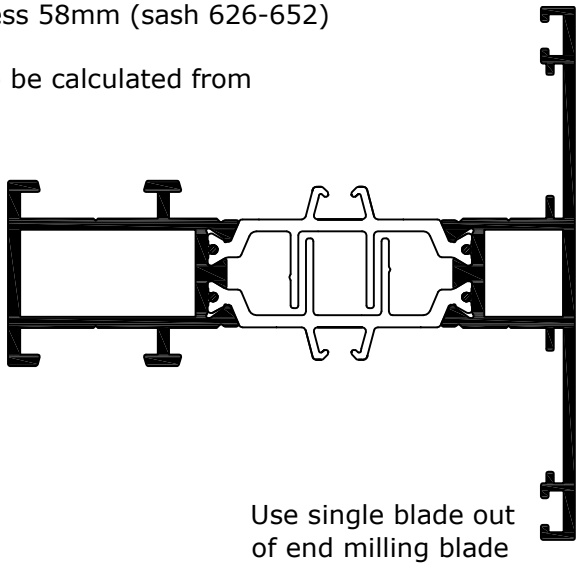
System 4-35 Hi/Hi+

CASEMENT WINDOW

The length of a muntin bar should be calculated on the basis of sash frame sight size (SFSS) or pane sight size (PSS) plus 46mm. Alternatively, fixed frame sight size may be used as follows:

Muntin bar length = Fixed frame sight size (FFSS) less 27mm (sash 620-202)
= Fixed frame sight size (FFSS) less 47mm (sash 624-625)
= Fixed frame sight size (FFSS) less 58mm (sash 626-627)
= Fixed frame sight size (FFSS) less 58mm (sash 626-652)

For bar lengths of multiple muntin bars, these are to be calculated from dimensioned general arrangement drawings.



Standard mullion / transom (muntin bar) options
603-201
606-206
609-200
613-213

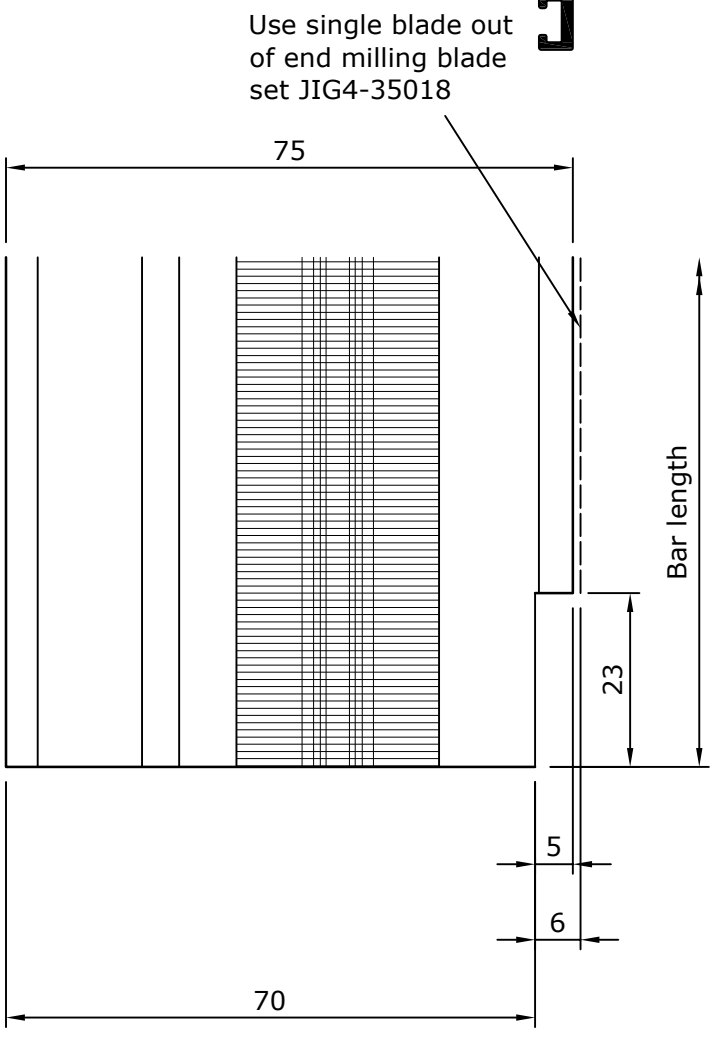
This profile is suitable for use with the following sash sections:

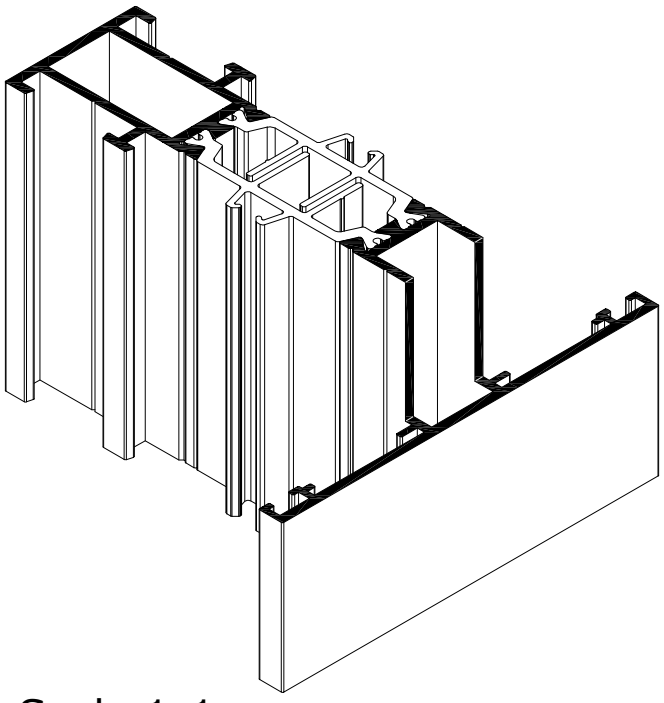
620-202 Standard sash

624-625 Inside glaze sash

626-627 Recessed euro groove sash

626-652 Flat euro groove sash





Scale 1:1

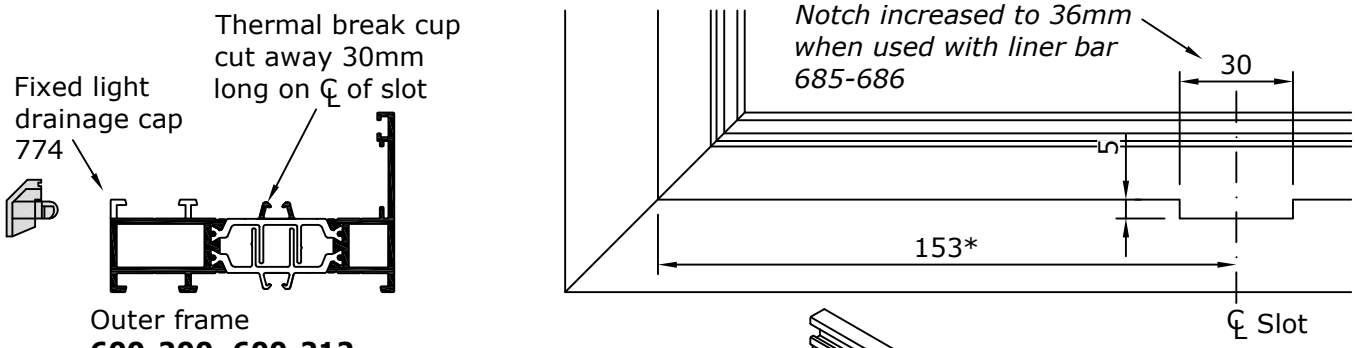
Drainage Details

To suit glaze out outer frame and liner bar

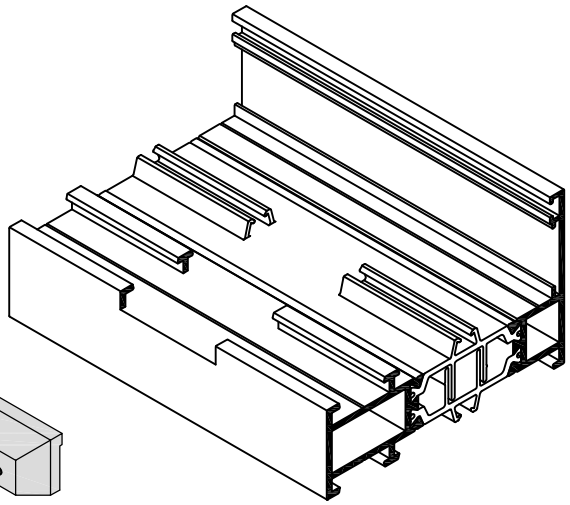
System 4-35 Hi
CASEMENT WINDOW

* Note :

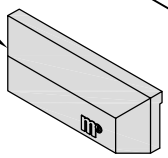
1. Positions of drainage slots may need to vary from positions shown:
   (a) When using euro espag locking, in order to avoid compression keeps the position of the drainage prep should be amended from 153* to 45mm in the opening sash outer frame only.
   (b) To ensure they do not align with butt hinges.
   (c) In fixed lights when the FFSS is between 410mm and 180mm the drainage prep should be amended from 153* to 45mm with the glazing supports positioned centrally, subject to approval by the glass unit supplier. As manufacturing equipment varies, fabricator to ensure that their machinery is capable of crimping the required frame sizes.
2. In opening vent applications edges of drainage slots in outer frame should be filed/rounded.



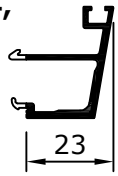
Outer frame
600-200, 600-212
600-605, 601-201
602-202, 602-212
604-213, 620-204
620-216, 685-686

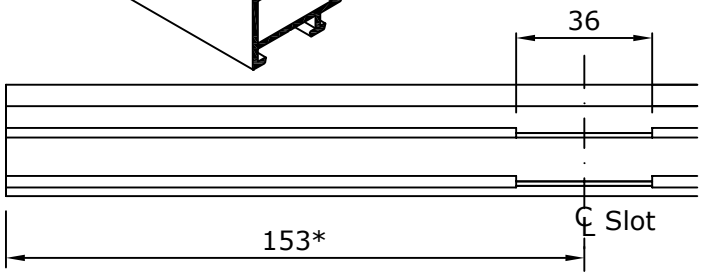


Drainage cap 774
(to fixed light only)

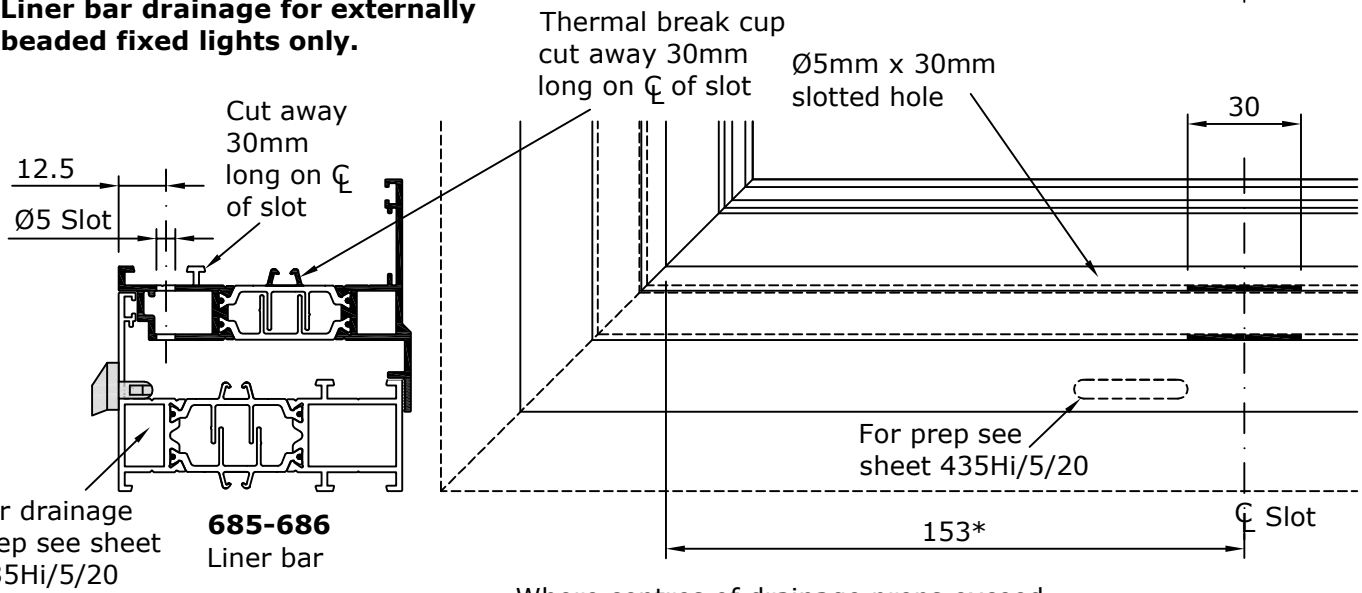


Raked beads
623, 635, 644,
646, 654





Liner bar drainage for externally beaded fixed lights only.



For drainage prep see sheet 435Hi/5/20

685-686
Liner bar

Scale 1:2

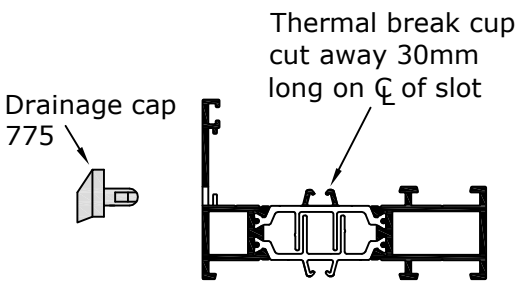
Where centres of drainage preps exceed 1000mm provide an extra central prep.

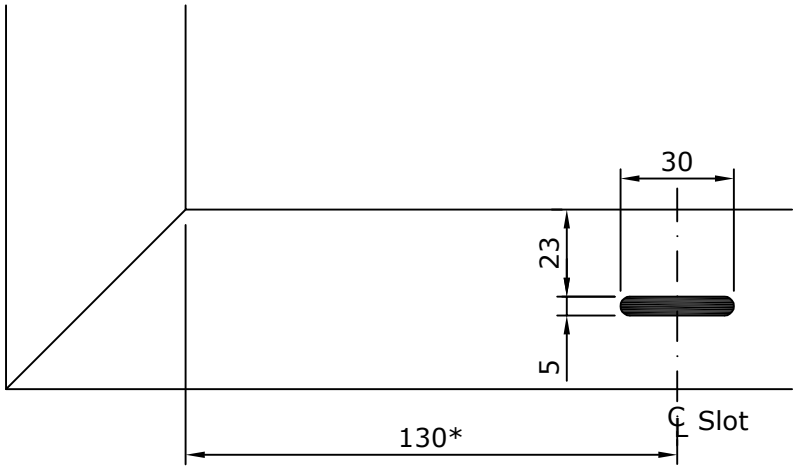
Drainage Details

To suit glaze in outer frame and liner bar

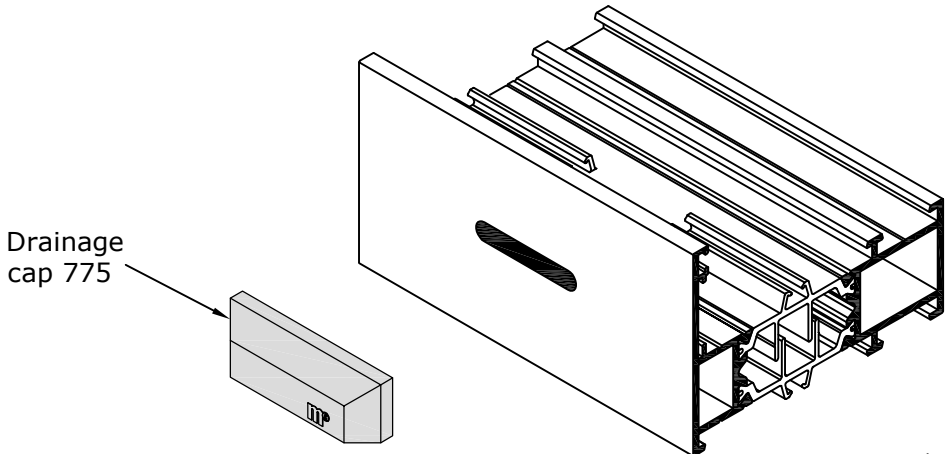
System 4-35 Hi
CASEMENT WINDOW

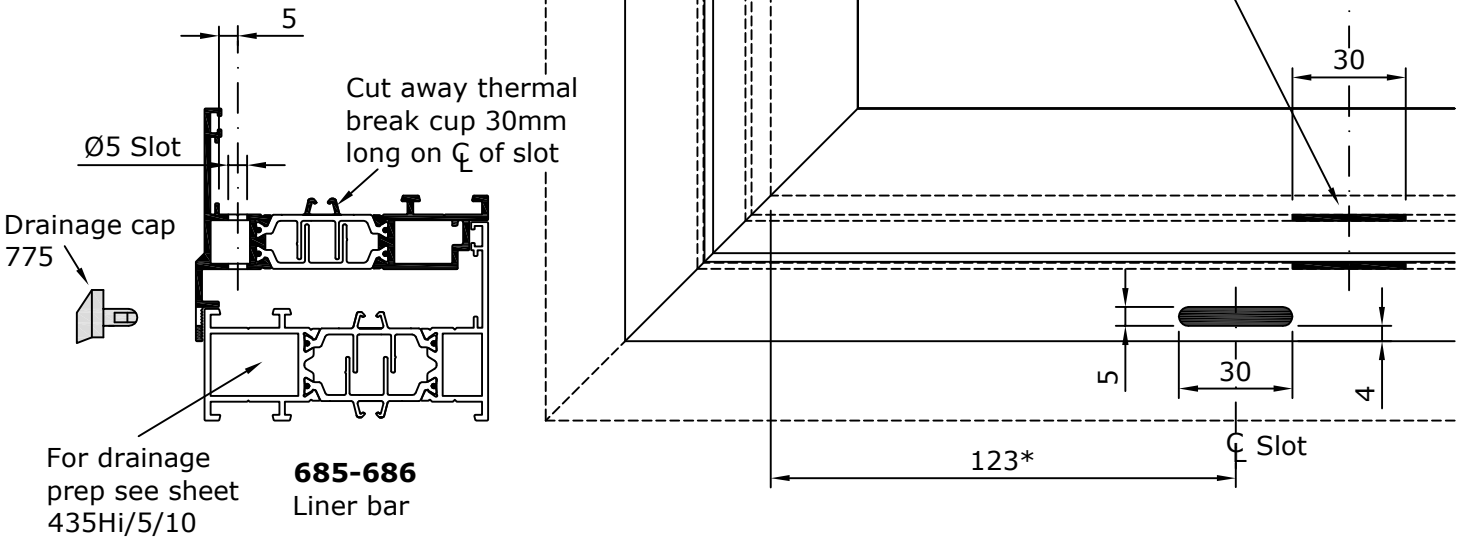
* Note :
Positions of drainage slots may need to vary from positions shown in fixed lights when the FFSS is between 410mm and 180mm. The drainage prep should be amended from 130*/123* to 22mm, and from 153* to 45mm with the glazing supports positioned centrally, subject to approval by the glass unit supplier. As manufacturing equipment varies, fabricator to ensure that their machinery is capable of crimping the required frame sizes.





Fixed light / Outer frame
600-200, 600-212, 600-605
601-201, 602-202, 602-212
604-213, 620-204, 620-216





685-686
Liner bar

Where centres of drainage preps exceed 1000mm provide an extra central prep.

Scale 1:2

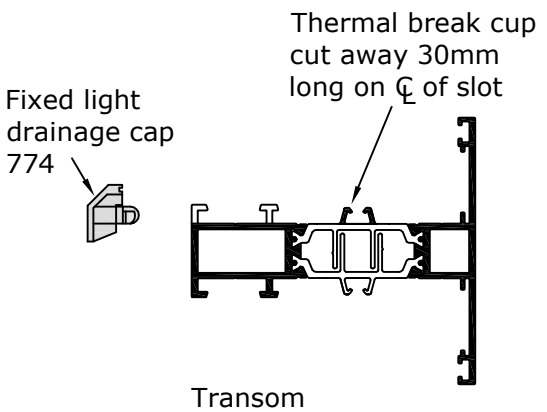
Drainage Details

To suit glaze out transom and liner bar

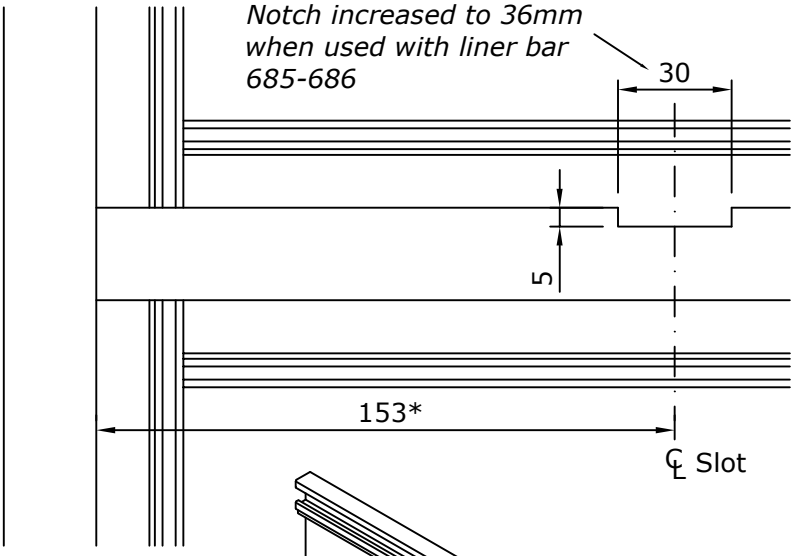
System 4-35 Hi
CASEMENT WINDOW

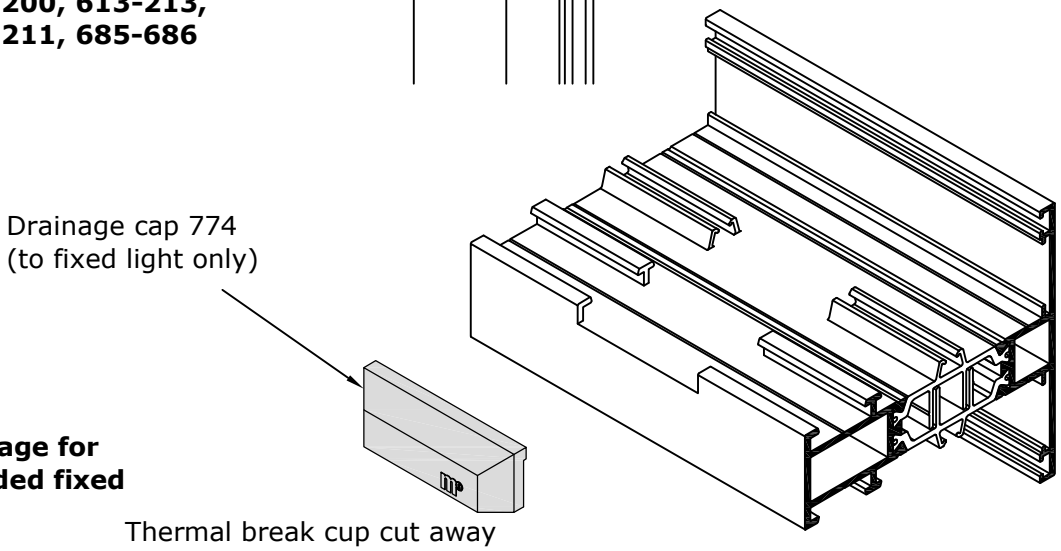
* Note :

1. Positions of drainage slots may need to vary from positions shown:
   (a) When using euro espag locking, in order to avoid compression keeps the position of the drainage prep should be amended from 153* to 45mm in the opening sash outer frame only.
   (b) To ensure they do not align with butt hinges.
   (c) In fixed lights when the FFSS is between 410mm and 180mm the drainage prep should be amended from 153* to 45mm with the glazing supports positioned centrally, subject to approval by the glass unit supplier, and structural analysis of the transom profile. As manufacturing equipment varies, fabricator to ensure that their machinery is capable of crimping the required frame sizes.
2. In opening vent applications edges of drainage slots in outer frame should be filed/rounded.

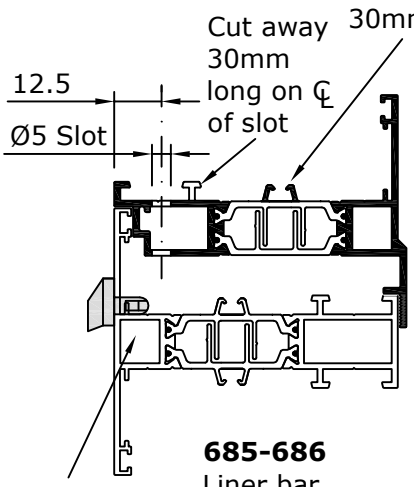


Transom
603-201, 606-206,
609-200, 613-213,
619-211, 685-686

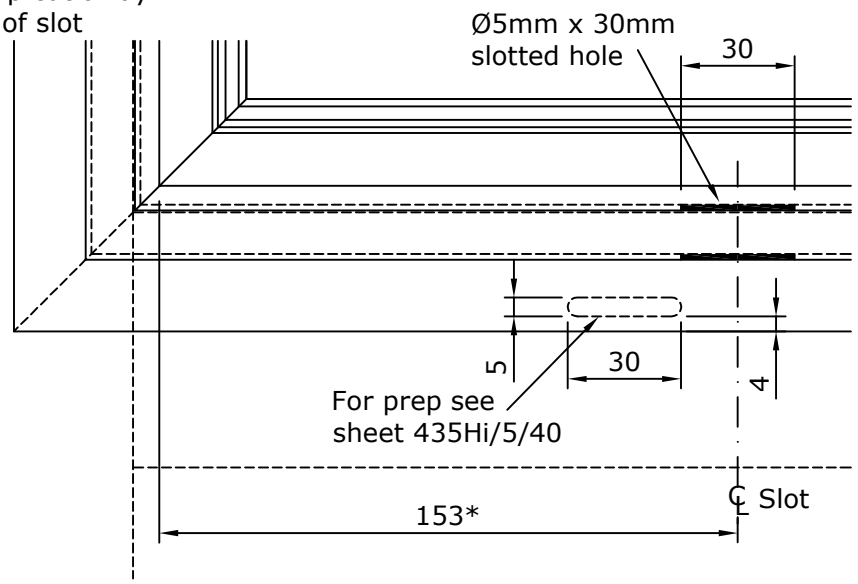




Liner bar drainage for externally beaded fixed lights only.



685-686
Liner bar



Scale 1:2

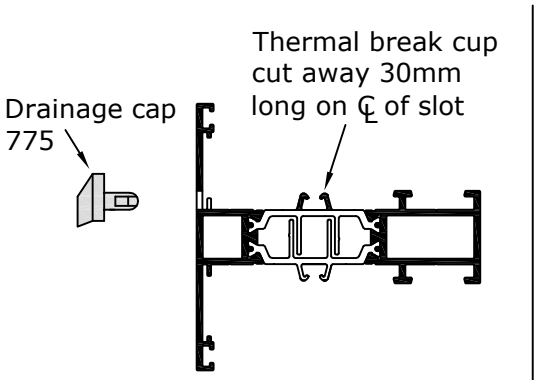
Where centres of drainage preps exceed 1000mm provide an extra central prep.

Drainage Details

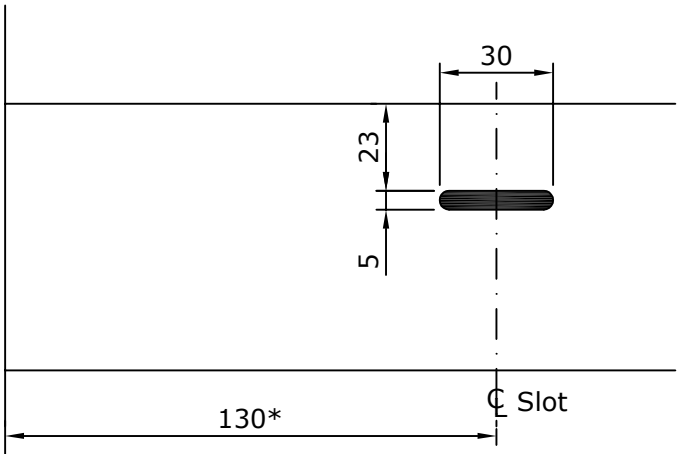
To suit glaze in transom and liner bar

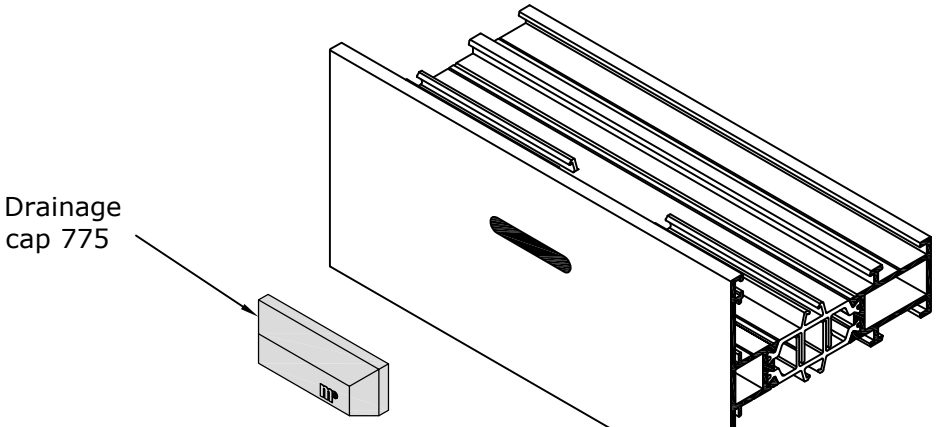
System 4-35 Hi
CASEMENT WINDOW

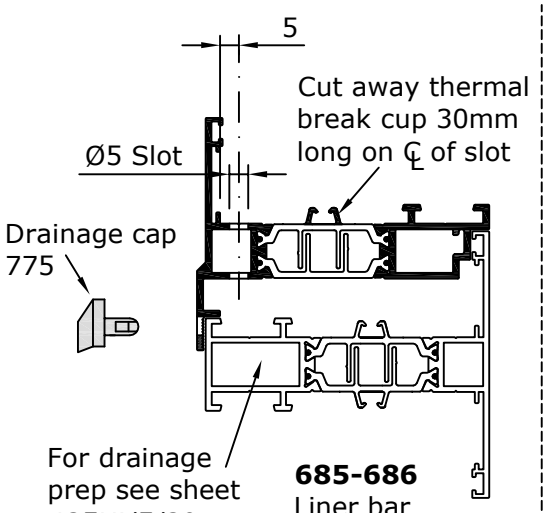
* Note :
Positions of drainage slots may need to vary from positions shown in fixed lights when the FFSS is between 410mm and 180mm. The drainage prep should be amended from 130*/123* to 22mm, and from 153* to 45mm with the glazing supports positioned centrally, subject to approval by the glass unit supplier. As manufacturing equipment varies, fabricator to ensure that their machinery is capable of crimping the required frame sizes.



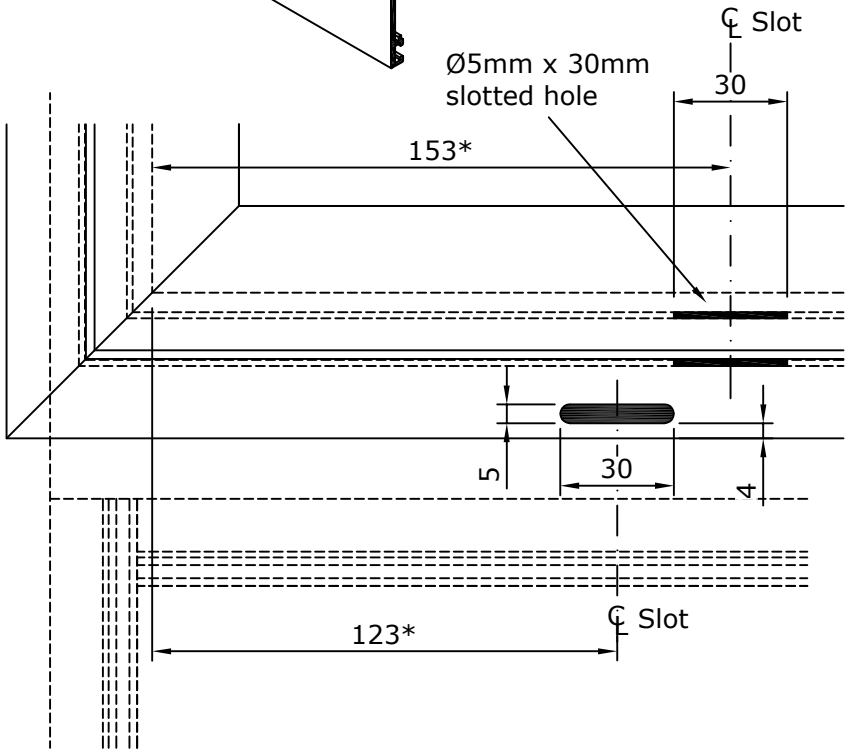
Transom
603-201, 606-206, 609-200, 613-213, 619-211







685-686
Liner bar



Scale 1:2

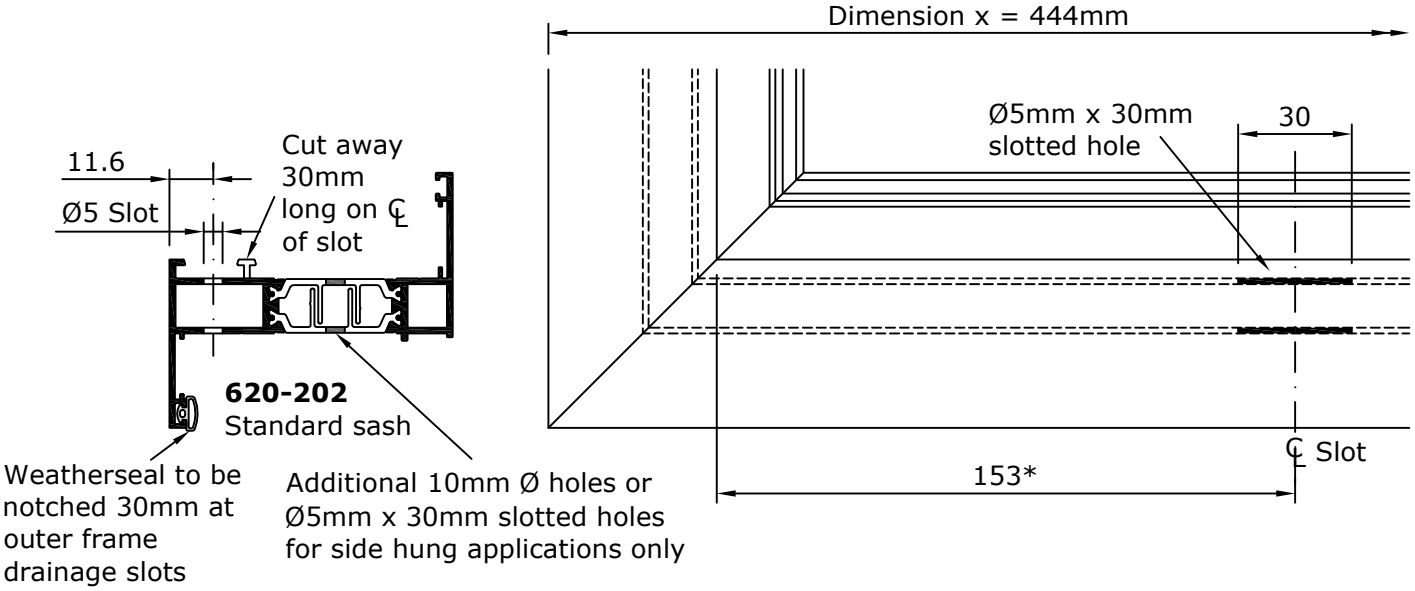
Where centres of drainage preps exceed 1000mm provide an extra central prep.

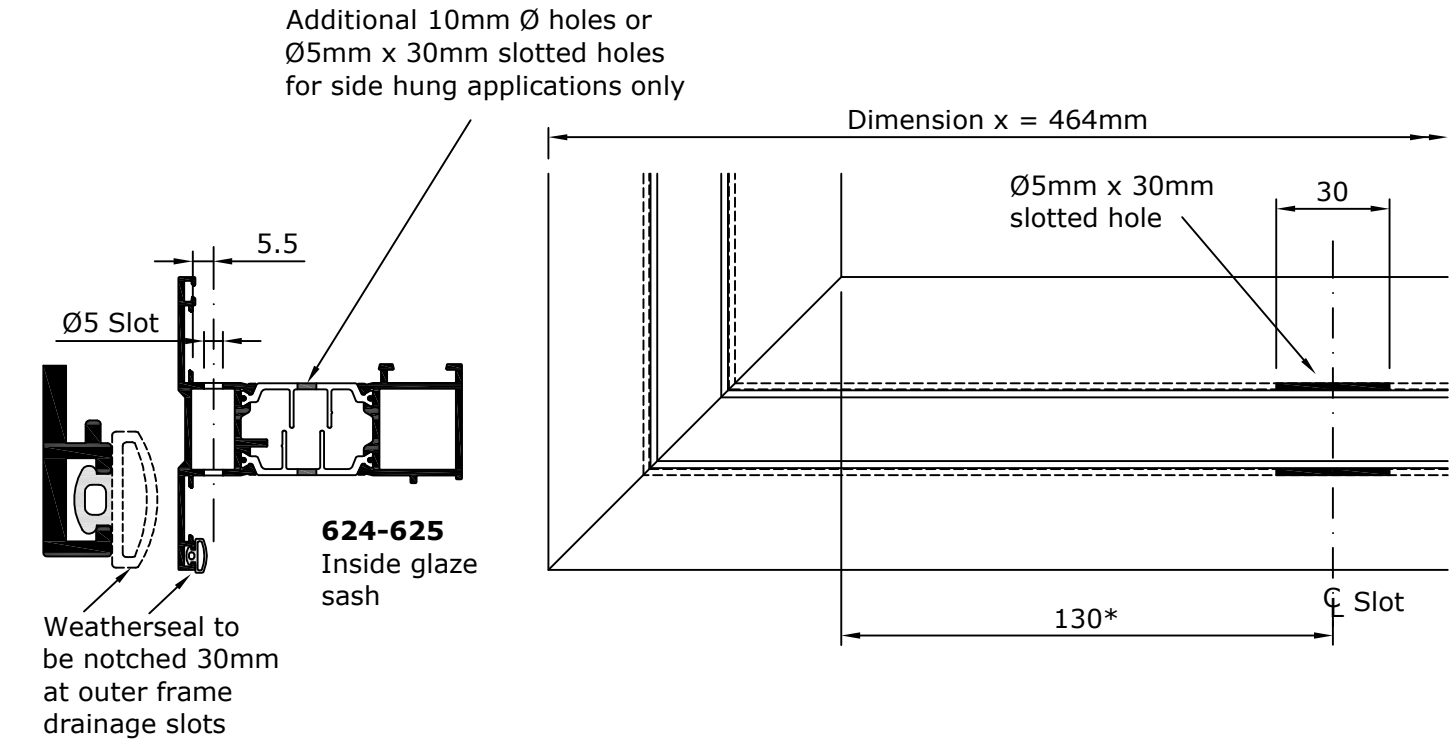
Drainage Details

To suit outside glaze sash 620-202 and inside glaze sash 624-625

System 4-35 Hi
CASEMENT WINDOW

* Positions of drainage preps may need to vary from positions shown to avoid compression keep. When the vent width is less than Dimension x the drainage preps to be at 1/4 positions, also avoiding compression keeps with the glazing supports positioned centrally, subject to approval by the glass unit supplier. As manufacturing equipment varies, fabricator to ensure that their machinery is capable of crimping the required frame sizes.





Where centres of drainage preps exceed 1000mm provide an extra central prep.

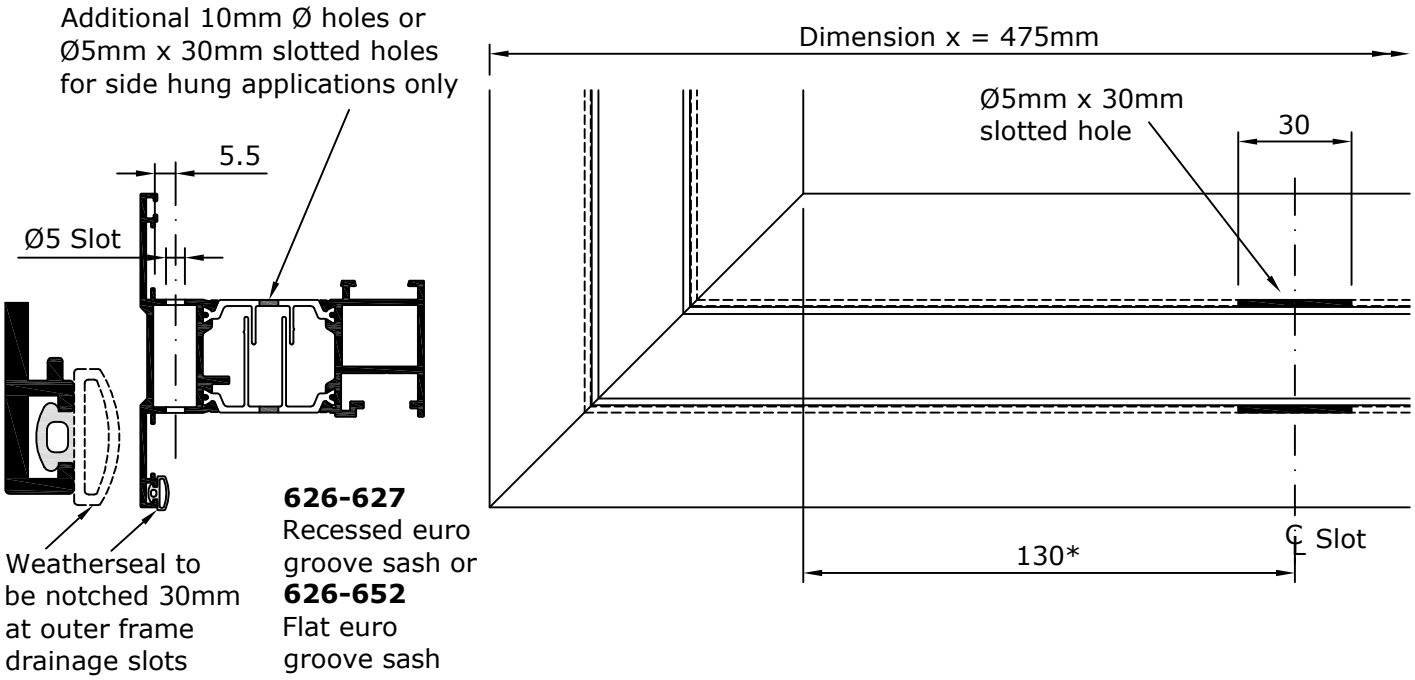
Scale 1:2

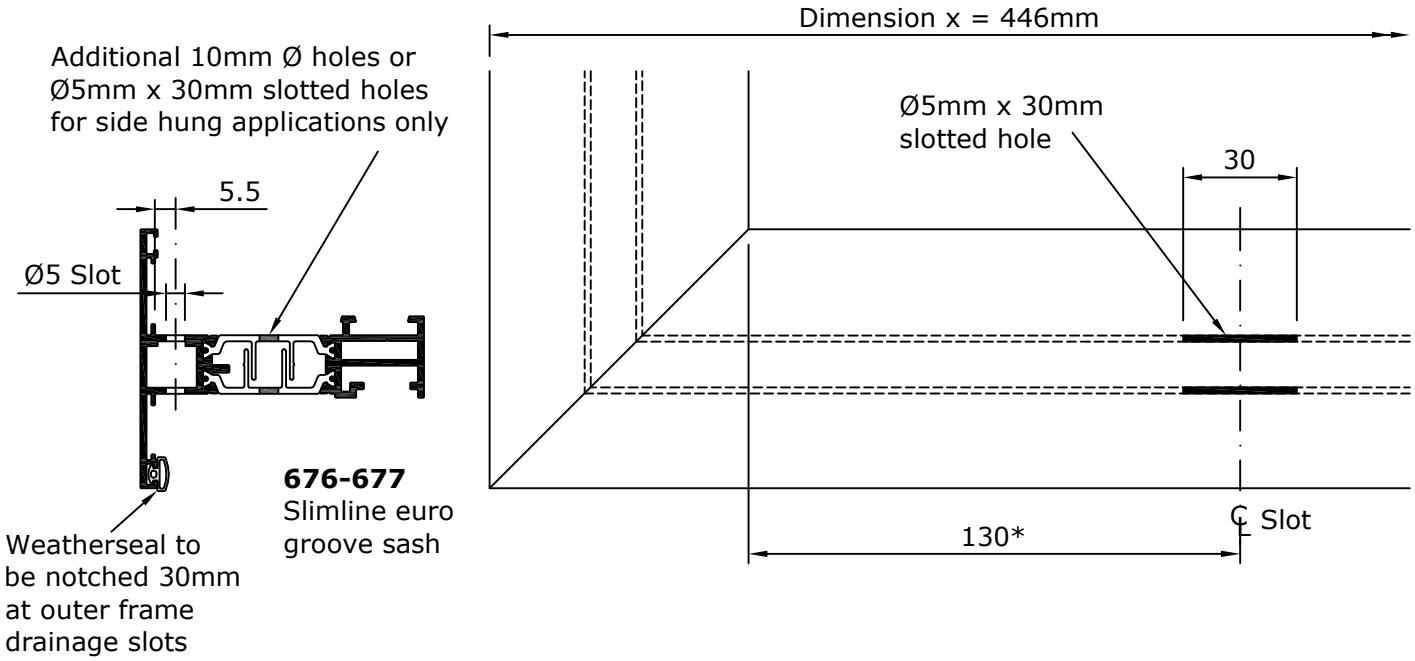
Drainage Details

To suit recessed euro groove sash 626-627, flat euro groove sash 626-652 and slimline euro groove sash 676-677

System 4-35 Hi
CASEMENT WINDOW

* Positions of drainage preps may need to vary from positions shown to avoid compression keep. When the vent width is less than Dimension x the drainage preps to be at 1/4 positions, also avoiding compression keeps with the glazing supports positioned centrally, subject to approval by the glass unit supplier. As manufacturing equipment varies, fabricator to ensure that their machinery is capable of crimping the required frame sizes.





Where centres of drainage preps exceed 1000mm provide an extra central prep.

Scale 1:2

Drainage Details

To suit glaze out outer frame and liner bar

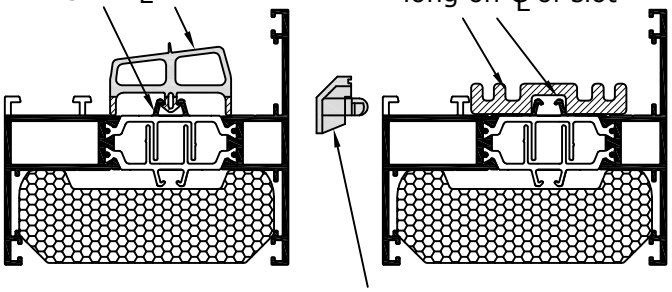
System 4-35 Hi+
CASEMENT WINDOW

* Note :

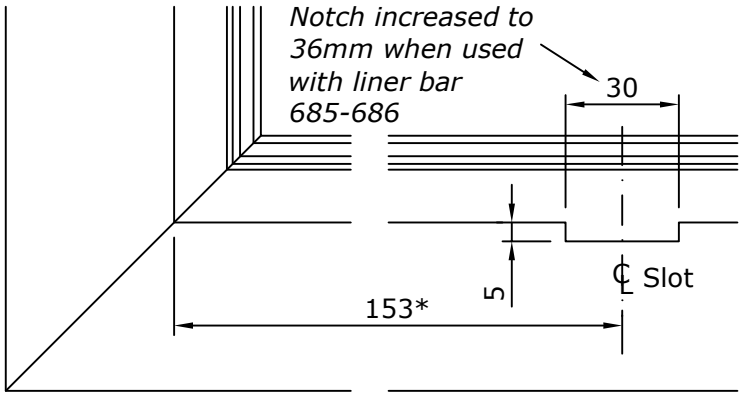
1. Positions of drainage slots may need to vary from positions shown:
   (a) When using euro espag locking, in order to avoid compression keeps the position of the drainage prep should be amended from 153* to 45mm in the opening sash outer frame only.
   (b) To ensure they do not align with butt hinges.
   (c) In fixed lights when the FFSS is between 410mm and 180mm the drainage prep should be amended from 153* to 45mm with the glazing supports positioned centrally, subject to approval by the glass unit supplier. As manufacturing equipment varies, fabricator to ensure that their machinery is capable of crimping the required frame sizes.
2. In opening vent applications edges of drainage slots in outer frame should be filed/rounded.
3. Thermal centre gasket 6071 may be notched using 6514 gasket snips.

Thermal break cup and thermal centre gasket 6071 cut away 30mm long on ℄ of slot

Thermal break cup and dgu foam 6727 cut away 30mm long on ℄ of slot



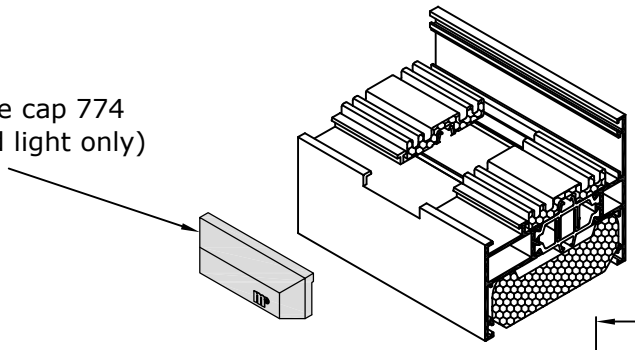
Drainage cap 774



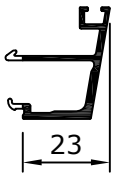
Outer frame
600-200, 600-212
600-605, 601-201
602-202, 602-212
604-213, 620-204
620-216, 685-686**

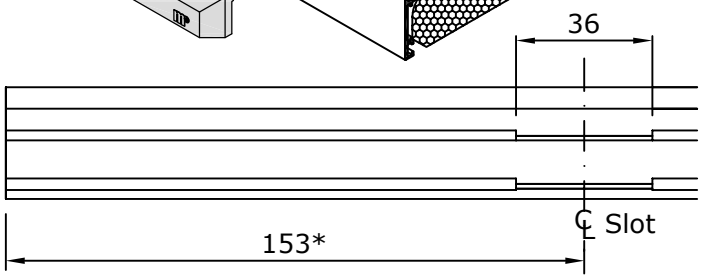
** Opening vent applications only.

Drainage cap 774
(to fixed light only)

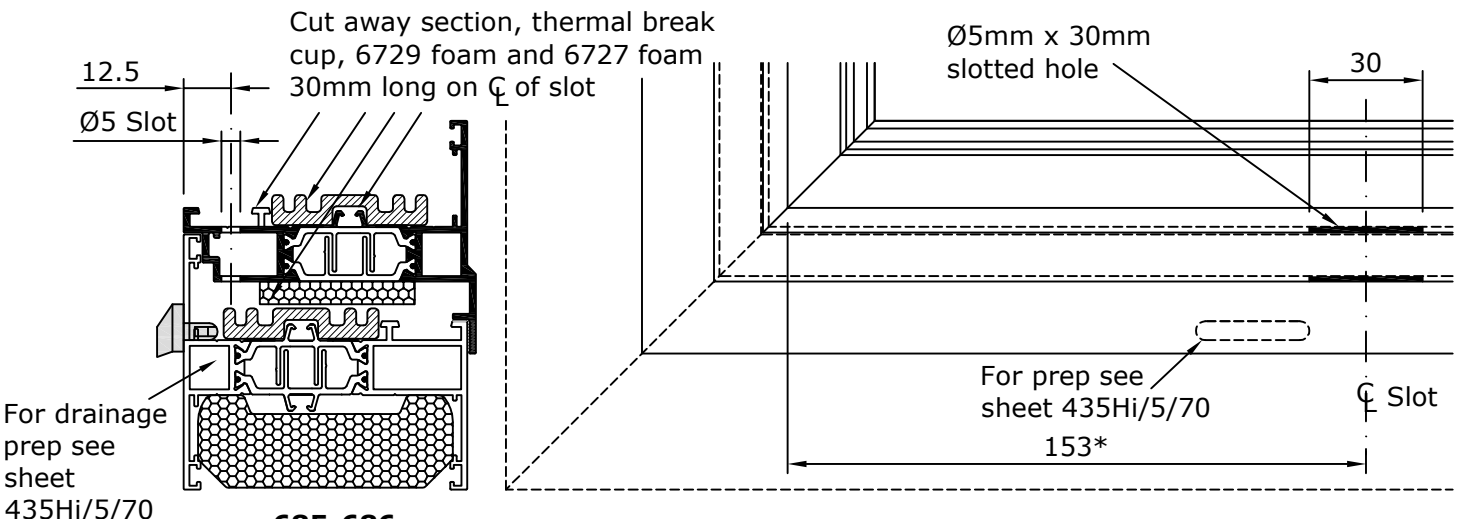


Raked beads
623, 635, 644,
646, 654





Liner bar drainage for externally beaded fixed lights only.



685-686
Liner bar

Where centres of drainage preps exceed 1000mm provide an extra central prep.

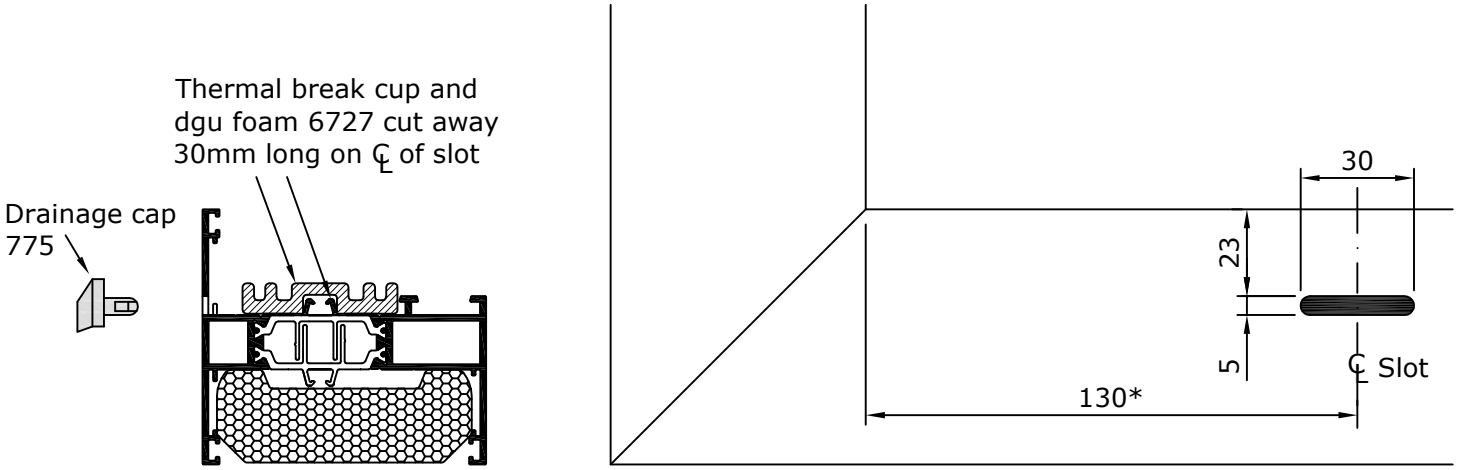
Scale 1:2

Drainage Details

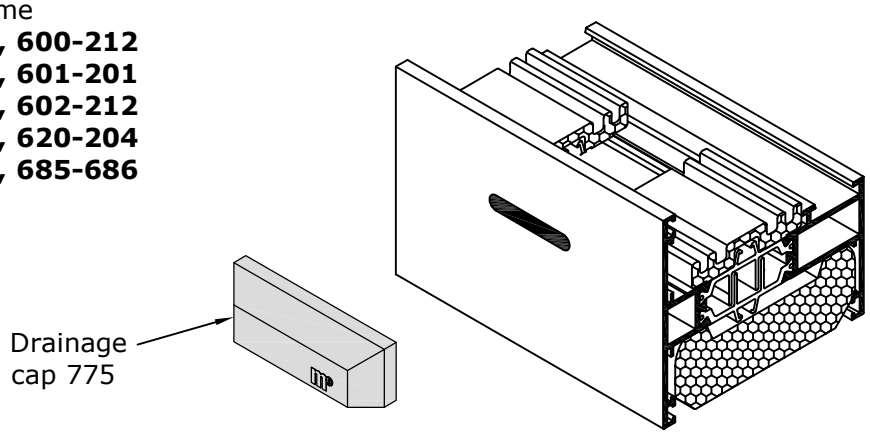
To suit glaze in outer frame and liner bar

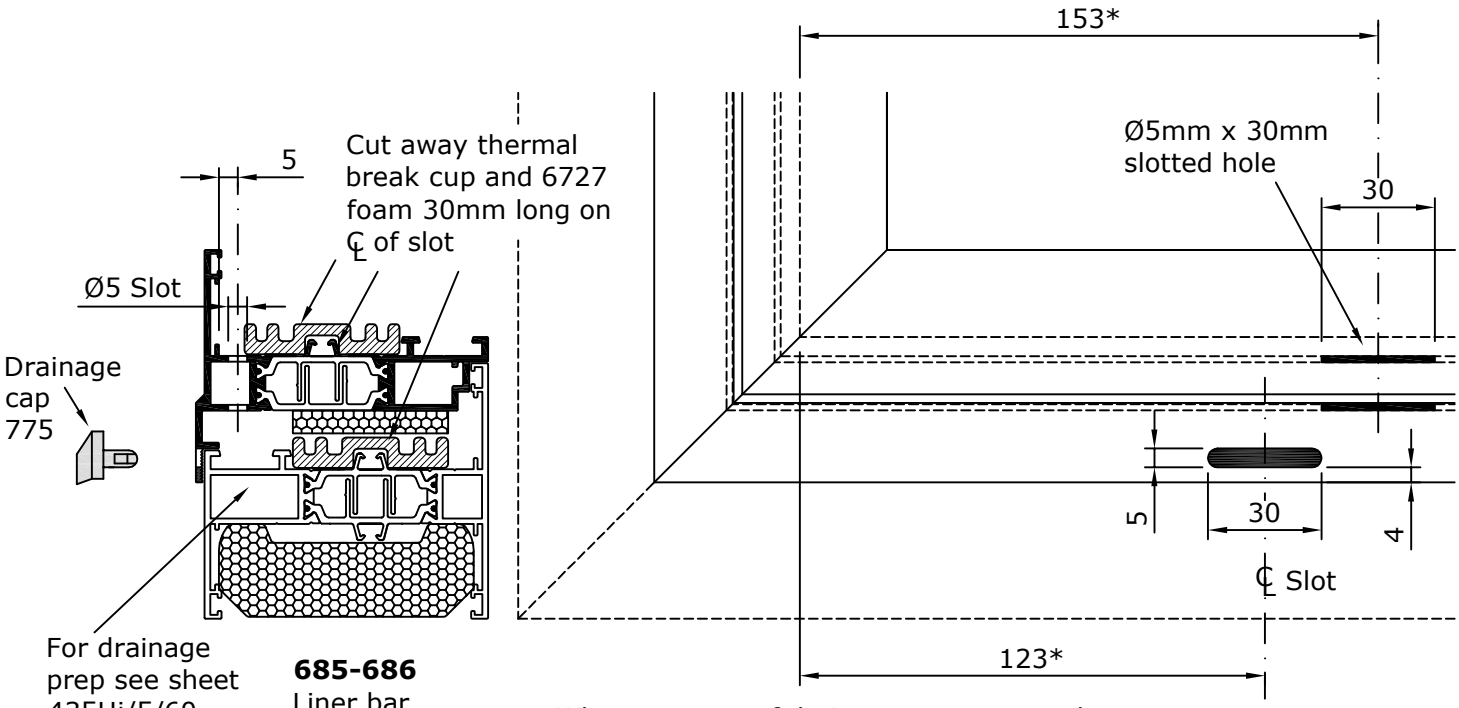
System 4-35 Hi+
CASEMENT WINDOW

* Note :
Positions of drainage slots may need to vary from positions shown in fixed lights when the FFSS is between 410mm and 180mm. The drainage prep should be amended from 130*/123* to 22mm, and from 153* to 45mm with the glazing supports positioned centrally, subject to approval by the glass unit supplier. As manufacturing equipment varies, fabricator to ensure that their machinery is capable of crimping the required frame sizes.



Outer frame
600-200, 600-212
600-605, 601-201
602-202, 602-212
604-213, 620-204
620-216, 685-686





Where centres of drainage preps exceed 1000mm provide an extra central prep.

Scale 1:2

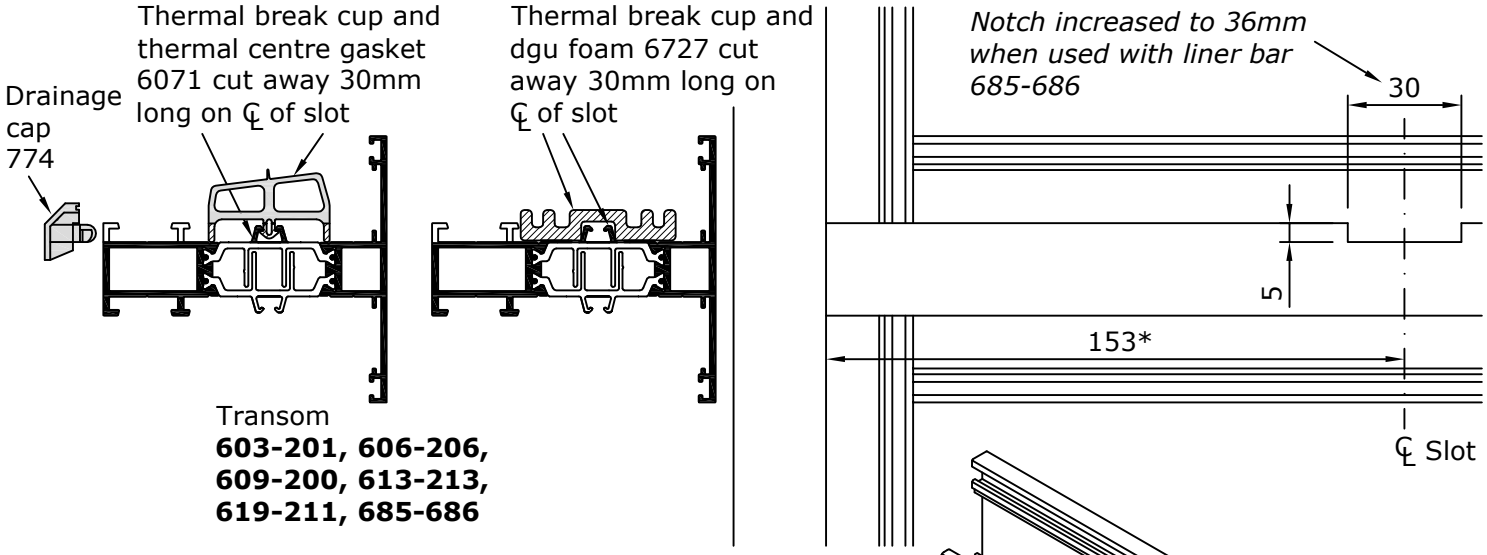
Drainage Details

To suit glaze out transom and liner bar

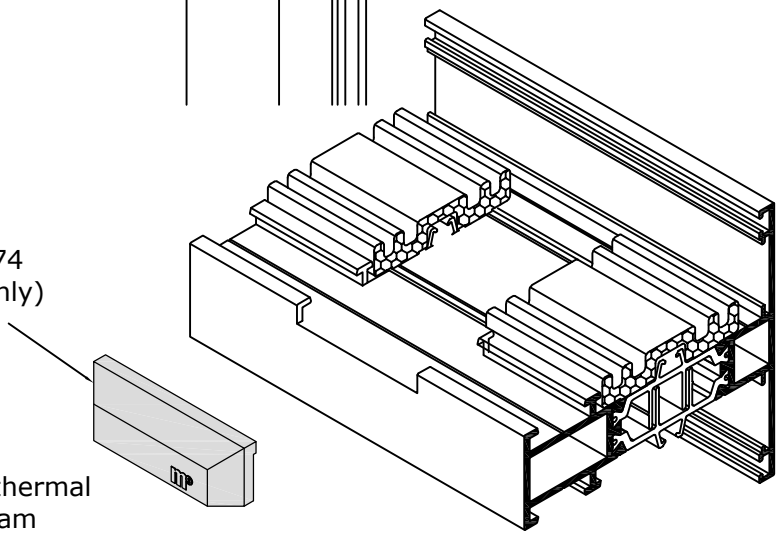
System 4-35 Hi+
CASEMENT WINDOW

* Note :

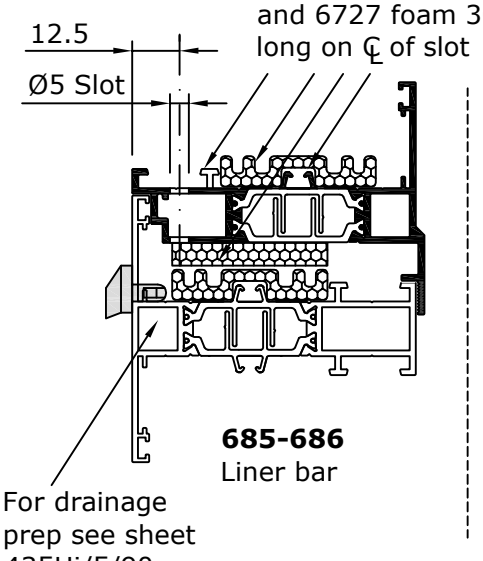
1. Positions of drainage slots may need to vary from positions shown:
   (a) When using euro espag locking, in order to avoid compression keeps the position of the drainage prep should be amended from 153* to 45mm in the opening sash outer frame only.
   (b) To ensure they do not align with butt hinges.
   (c) In fixed lights when the FFSS is between 410mm and 180mm the drainage prep should be amended from 153* to 45mm with the glazing supports positioned centrally, subject to approval by the glass unit supplier, and structural analysis of the transom profile. As manufacturing equipment varies, fabricator to ensure that their machinery is capable of crimping the required frame sizes.
2. In opening vent applications edges of drainage slots in outer frame should be filed/rounded.
3. Thermal centre gasket 6071 may be notched using 6514 gasket snips.

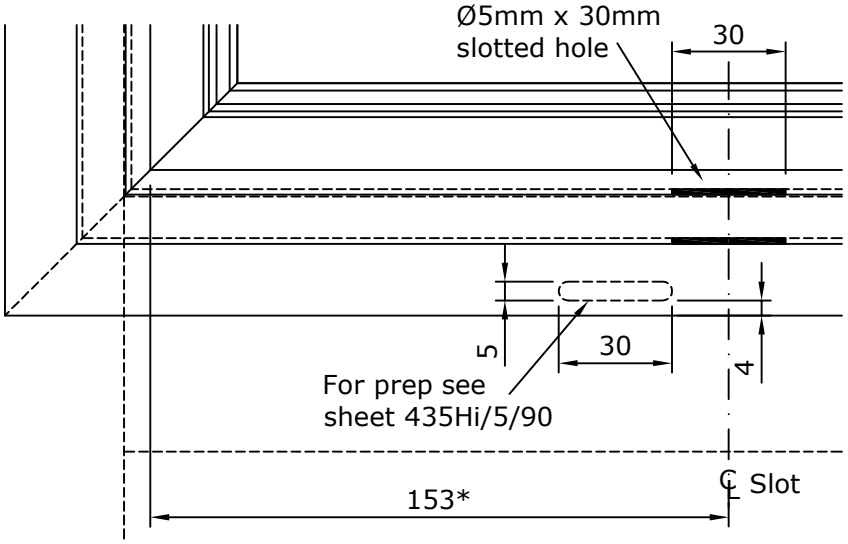


Transom
603-201, 606-206, 609-200, 613-213, 619-211, 685-686



Liner bar drainage for externally beaded fixed lights only.





Where centres of drainage preps exceed 1000mm provide an extra central prep.

Scale 1:2

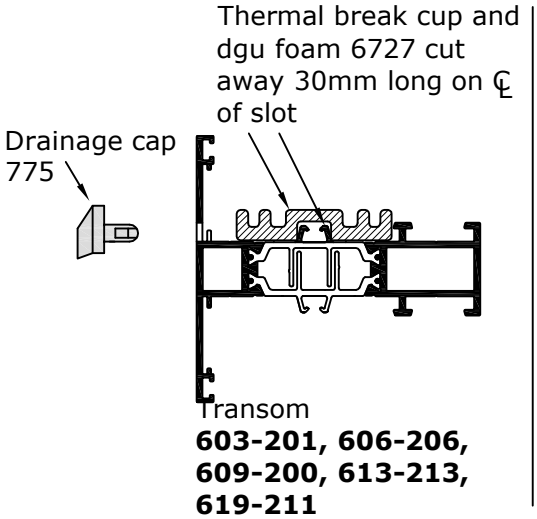
Drainage Details

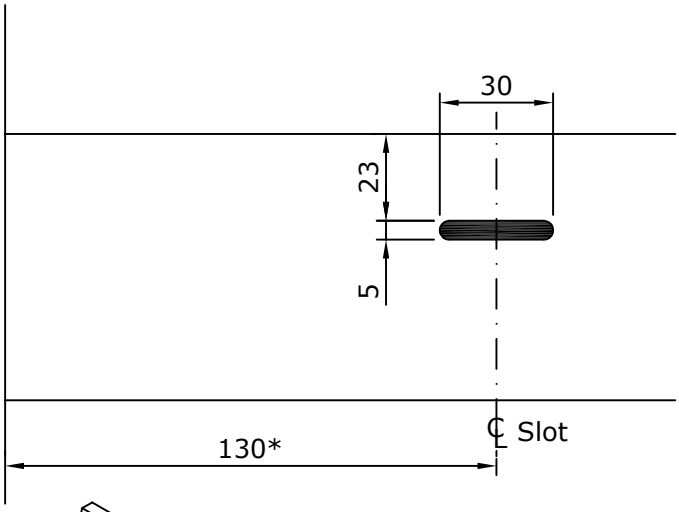
To suit glaze in transom and liner bar

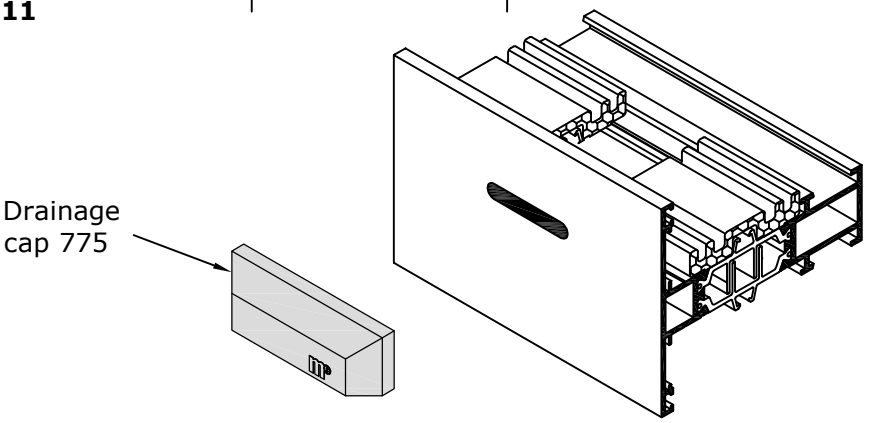
System 4-35 Hi+

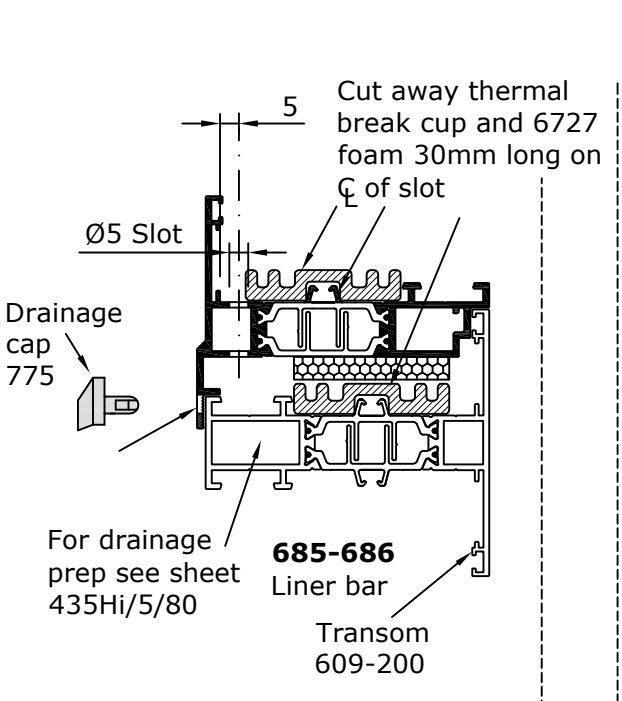
CASEMENT WINDOW

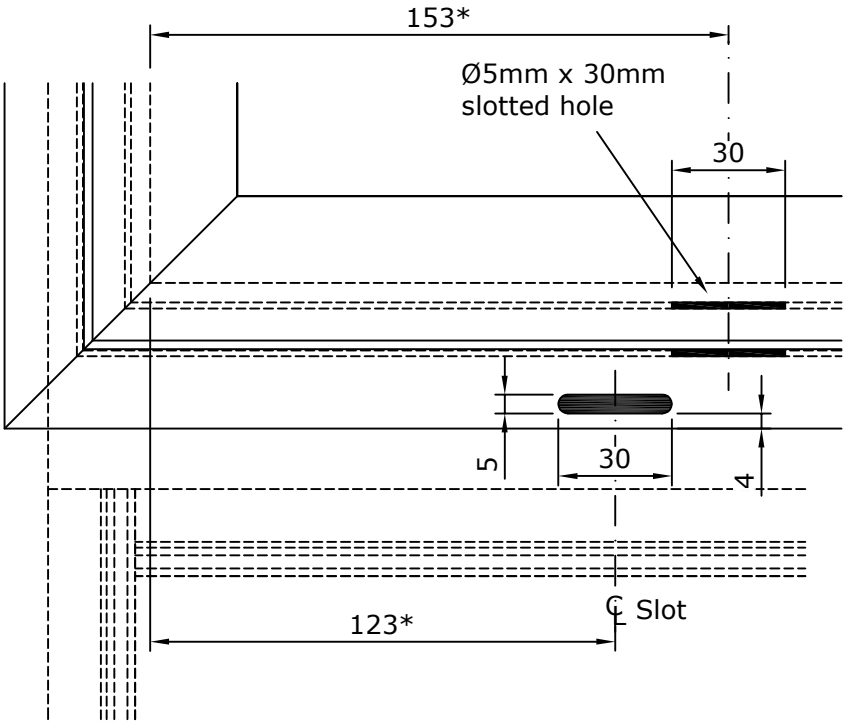
* Note :
Positions of drainage slots may need to vary from positions shown in fixed lights when the FFSS is between 410mm and 180mm. The drainage prep should be amended from 130*/123* to 22mm, and from 153* to 45mm with the glazing supports positioned centrally, subject to approval by the glass unit supplier. As manufacturing equipment varies, fabricator to ensure that their machinery is capable of crimping the required frame sizes.











Where centres of drainage preps exceed 1000mm provide an extra central prep.

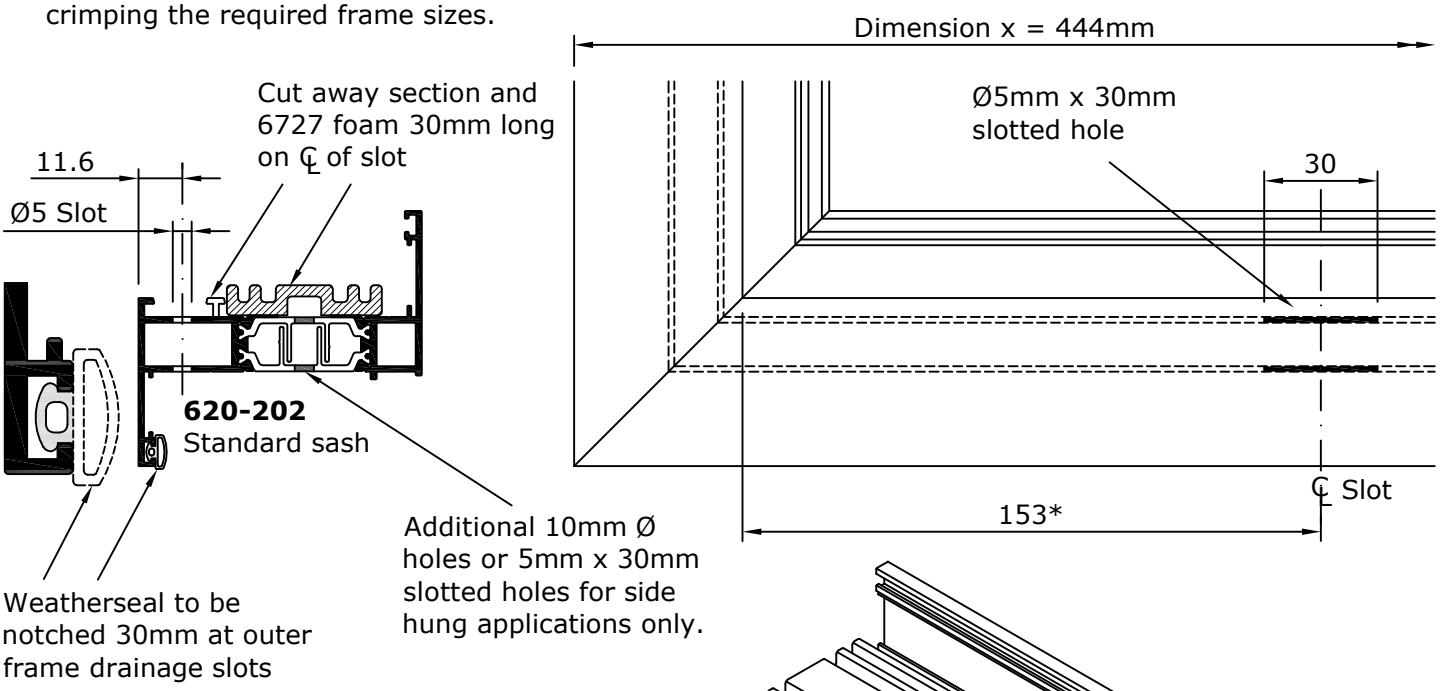
Scale 1:2

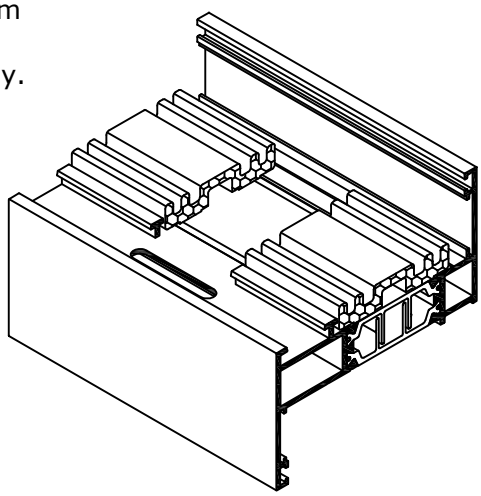
Drainage Details

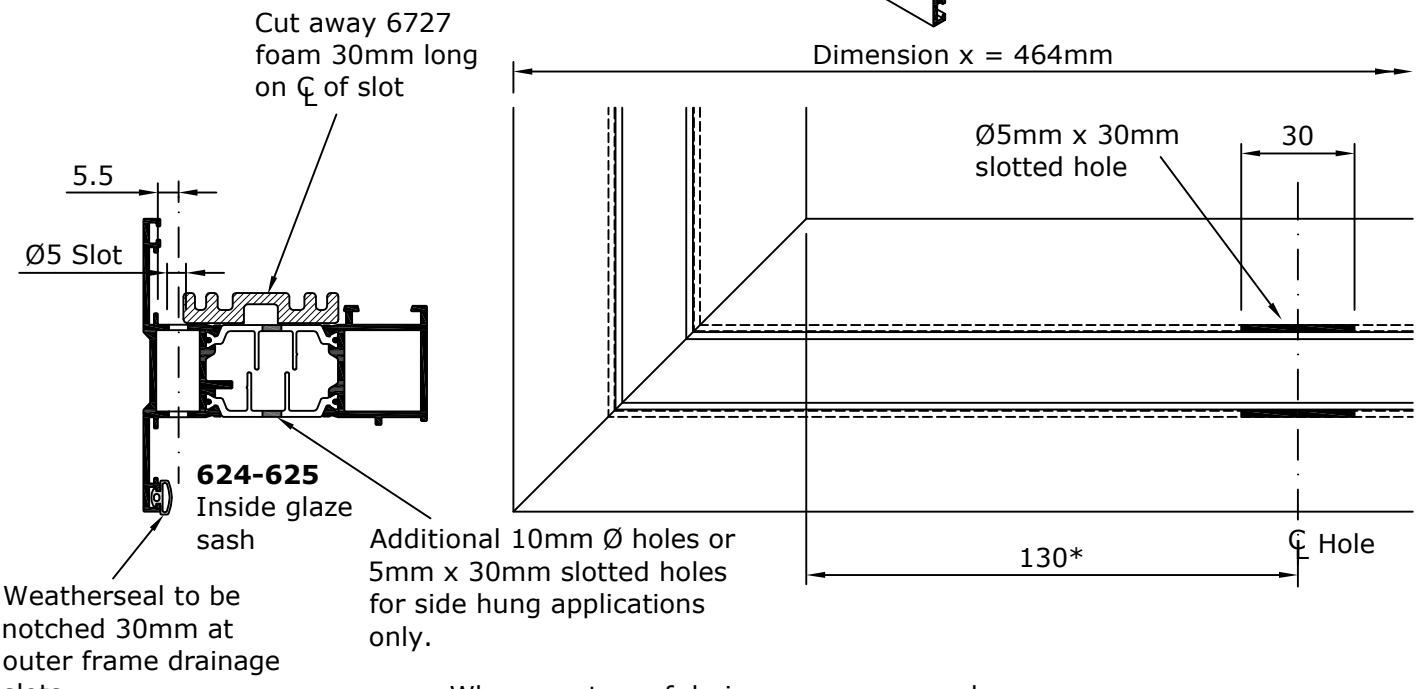
To suit outside glaze sash 620-202 and inside glaze sash 624-625

System 4-35 Hi+
CASEMENT WINDOW

* Positions of drainage preps may need to vary from positions shown to avoid compression keep. When the vent width is less than Dimension x the drainage preps to be at 1/4 positions, also avoiding compression keeps with the glazing supports positioned centrally, subject to approval by the glass unit supplier. As manufacturing equipment varies, fabricator to ensure that their machinery is capable of crimping the required frame sizes.







Where centres of drainage preps exceed 1000mm provide an extra central prep.

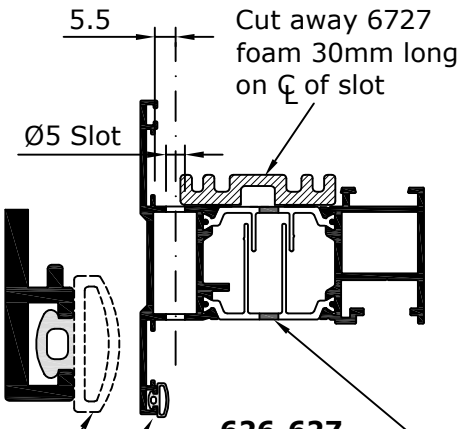
Scale 1:2

Drainage Details

To suit recessed euro groove sash 626-627, flat euro groove sash 626-652 and slimline euro groove sash 676-677

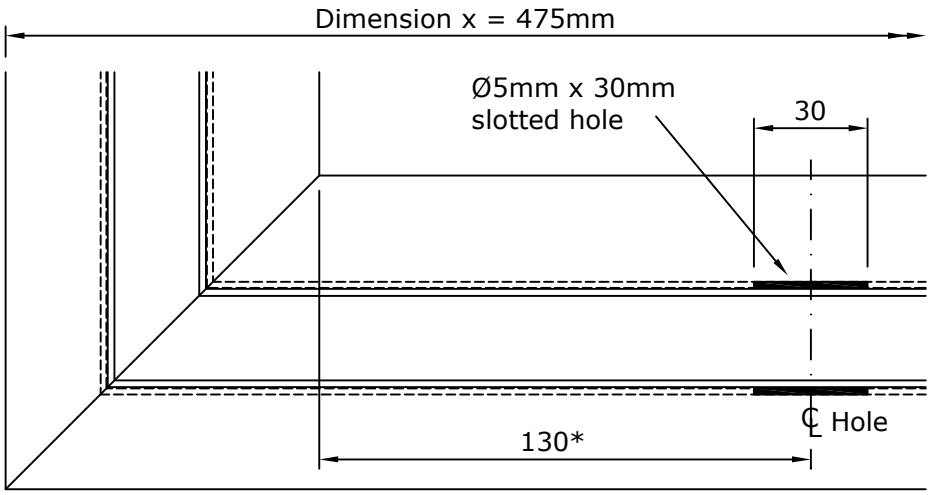
System 4-35 Hi+
CASEMENT WINDOW

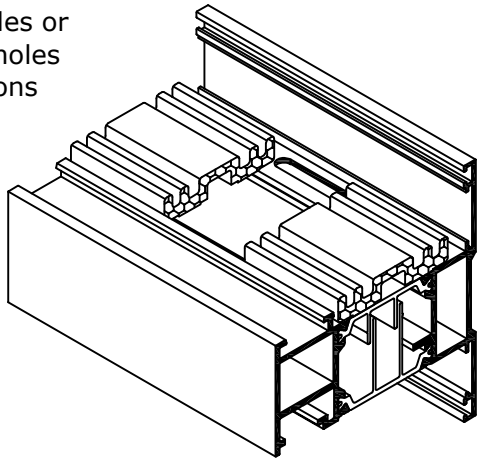
* Positions of drainage preps may need to vary from positions shown to avoid compression keep. When the vent width is less than Dimension x the drainage preps to be at 1/4 positions, also avoiding compression keeps with the glazing supports positioned centrally, subject to approval by the glass unit supplier. As manufacturing equipment varies, fabricator to ensure that their machinery is capable of crimping the required frame sizes.

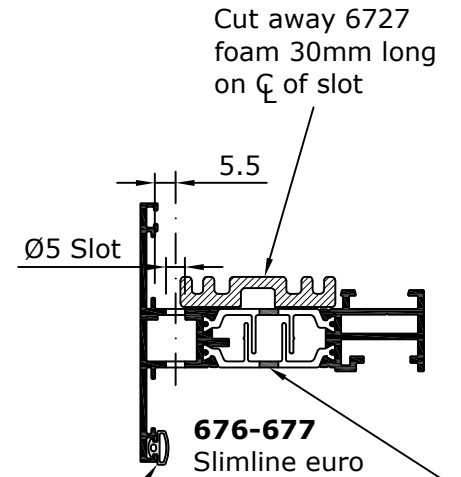


626-627
Recessed euro groove sash or
626-652
Flat euro groove sash

Additional 10mm Ø holes or 5mm x 30mm slotted holes for side hung applications only.



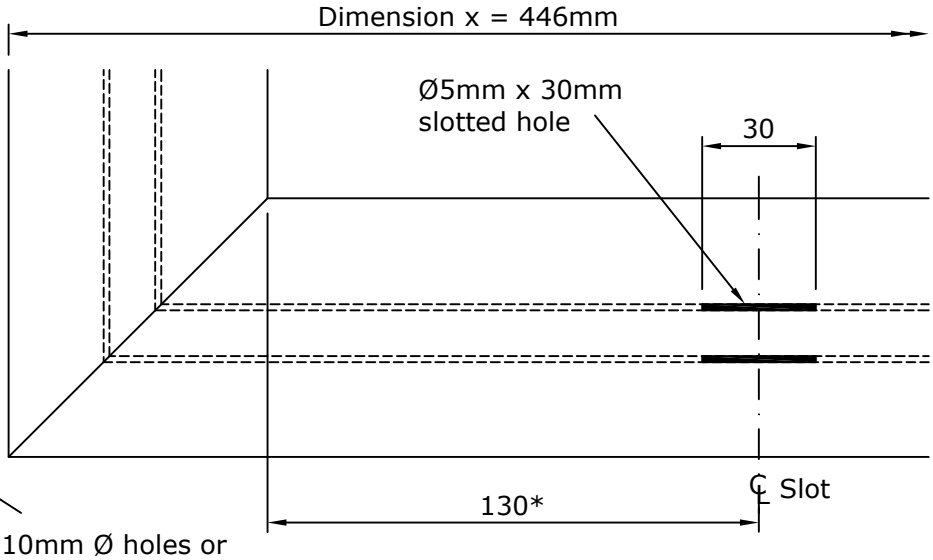




676-677
Slimline euro groove sash

Weatherseal to be notched 30mm at outer frame drainage slots

Additional 10mm Ø holes or Ø5mm x 30mm slotted holes for side hung applications only



Where centres of drainage preps exceed 1000mm provide an extra central prep.

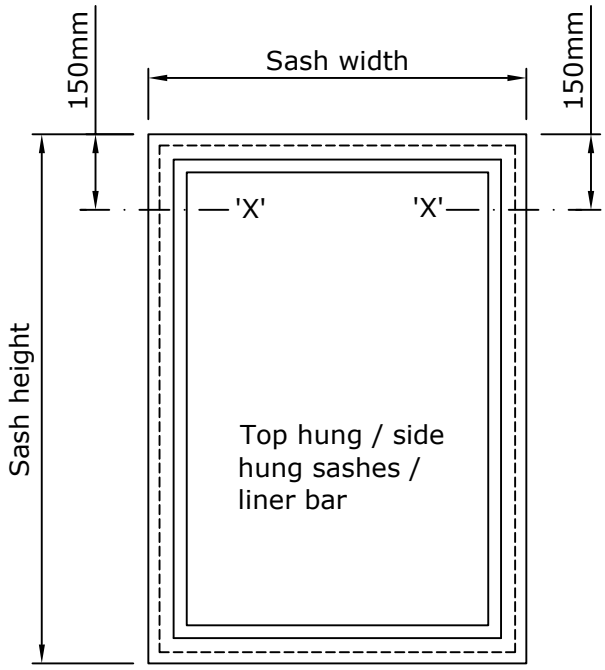
Scale 1:2

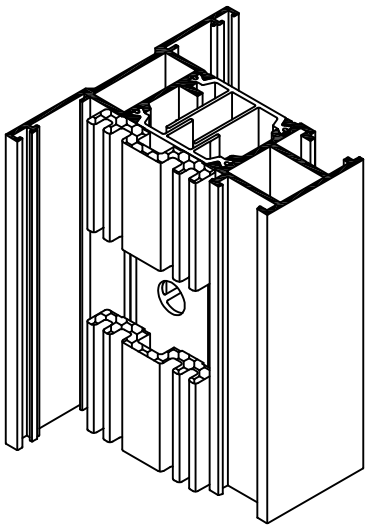
Pressure Equalisation

System 4-35 Hi/Hi+

CASEMENT WINDOW

Omit foams and gaskets for Hi applications only.



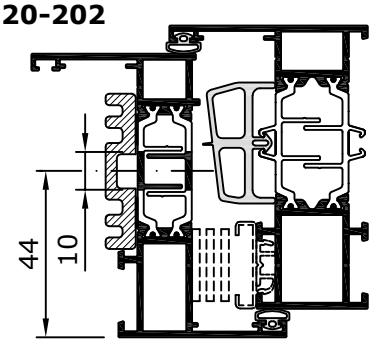


Ø10mm holes to be drilled through thermal breaks at top corners of vent to give pressure equalisation and allow drainage (at positions marked 'X' above)

In Hi+ applications omit foam for 30mm at pressure equalisation positions.

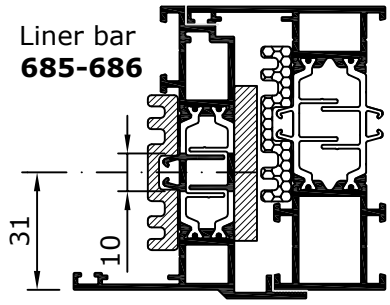
Sash **620-202**

INSIDE



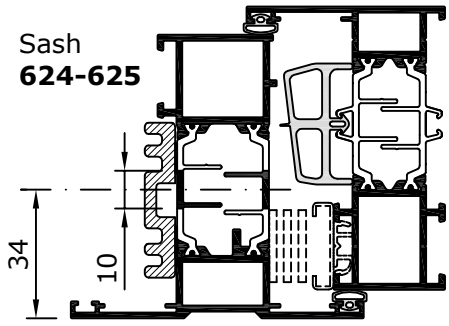
INSIDE

Liner bar **685-686**

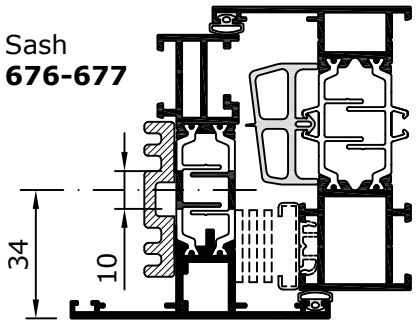


INSIDE

Sash **624-625**

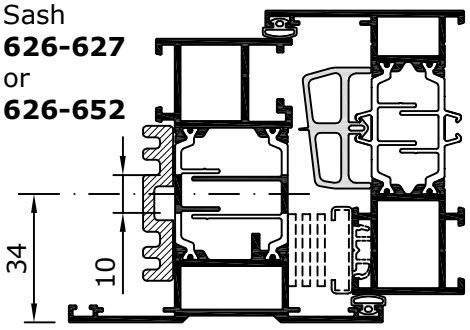


Sash **676-677**



OUTSIDE

Sash **626-627** or **626-652**



OUTSIDE

Scale 1:2

Corner Assembly Details

System 4-35 Hi/Hi+

CASEMENT WINDOW

IMPORTANT: PLEASE READ THESE NOTES BEFORE CORNER ASSEMBLY.

NOTE: Mullions/transoms must be installed before frame corners are crimped.

METAL TECHNOLOGY RECOMMEND THE USE OF PNEUMATIC CRIMPERS, AND MT1803 ADHESIVE TO ENSURE THE STABILITY OF CORNER JOINTS. PARTICULAR ATTENTION SHOULD BE PAID TO THE BONDING OF THE CORNER BRACES TO THE PROFILE.

1. Before applying MT1803 adhesive ensure all surfaces to be glued are free from grease or dust. Clean all aluminium mating surfaces with MT60 surface cleaner and allow to dry. Fabricator must ensure MT60 surface cleaner is fully compatible with surface finish on a project-by-project basis.

2. Apply MT1803 adhesive to the mating surfaces of the mitre cut aluminium and thermal break profiles. Adhesive need only be applied to one side of the mitred joint.

3. Apply MT1803 adhesive to the internal perimeter of the cleat chambers and corner brace grooves of the frame sections. This must be applied to both sides of the mitred joint and to sufficient depth to ensure full bonding/sealing of the cleats and braces.

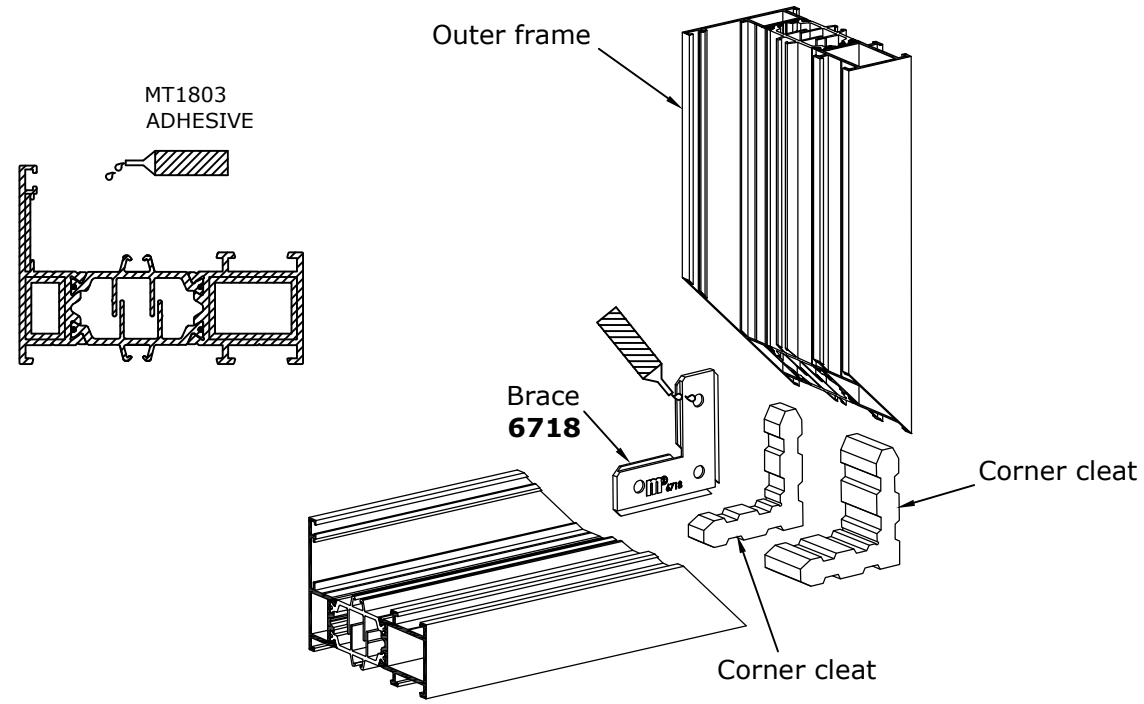
4. Insert corner cleats and braces and push sections together. Ensure mitred joint is aligned and true. Crimp fully assembled mitred corner.

5. Bond and seal the 6718 corner braces into position by injecting MT1803 into the three holes provided.

6. Wipe away any excess adhesive from the mitred joint using MT60 surface cleaner and allow to dry. Ensure all bead and gasket recesses are clear of adhesive.

7. Seal crimps with HR50328A sealant.

8. Check the mitre is tight on both sides and that there is no movement.



MT1803 ADHESIVE SHOULD BE APPLIED TO THE PERIMETER OF THE CLEAT CHAMBER OF THE FRAME SECTION AND THE CORNER BRACE GROOVE.

Not to scale

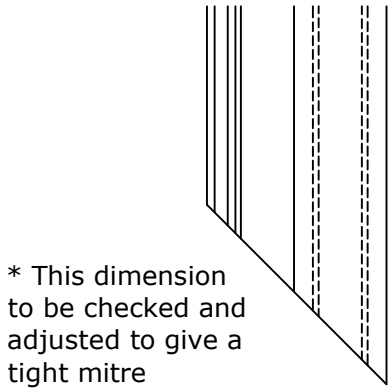
Corner Crimping Detail

Standard and Medium Outer Frames

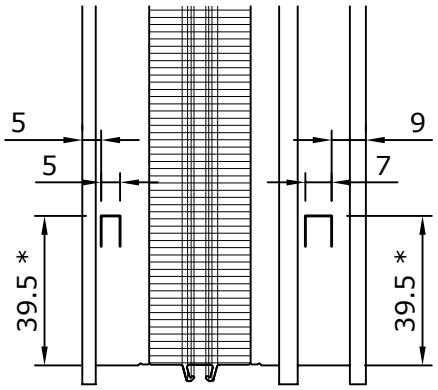
System 4-35 Hi/Hi+

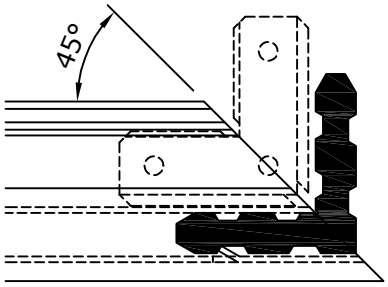
CASEMENT WINDOW

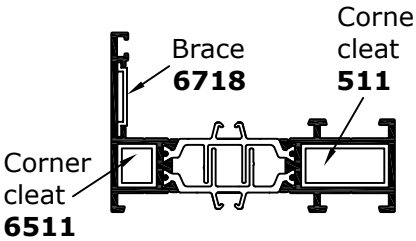
For typical details of corner assembly and adhesive/sealant application see "Corner Assembly Details" sheet.



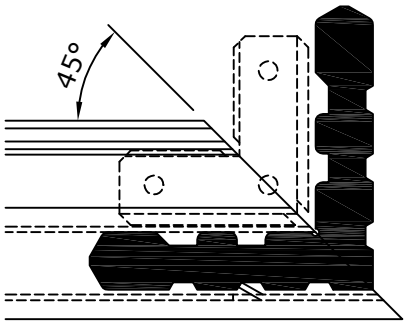
* This dimension to be checked and adjusted to give a tight mitre

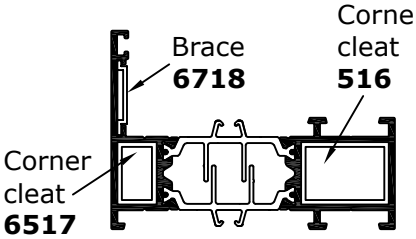




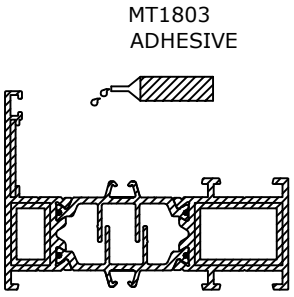


600-200
600-605
Standard short leg outer frame

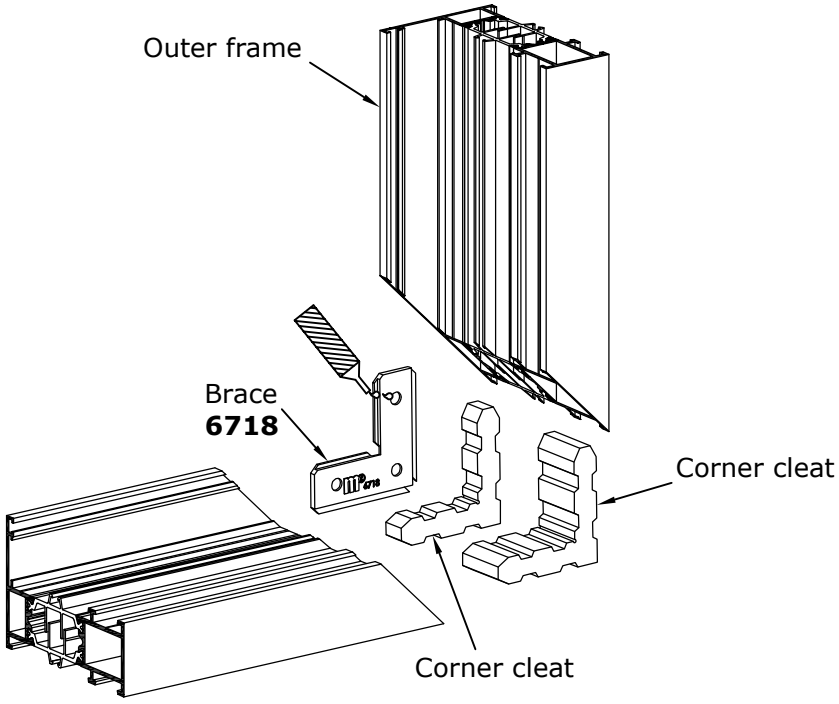




601-201
Medium short leg outer frame



MT1803 ADHESIVE SHOULD BE APPLIED TO THE PERIMETER OF THE CLEAT CHAMBER OF THE FRAME SECTION AND THE CORNER BRACE GROOVE.



Scale 1:2

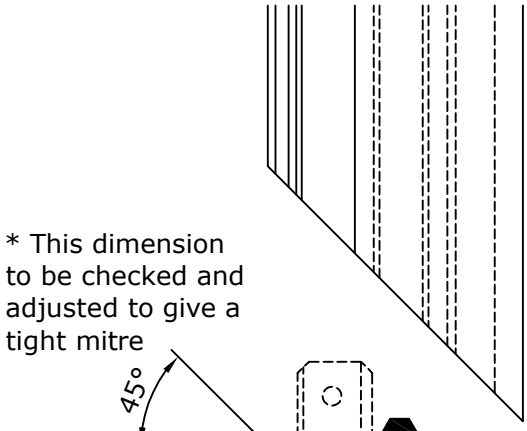
Corner Crimping Detail

Standard Long Leg Outer Frames

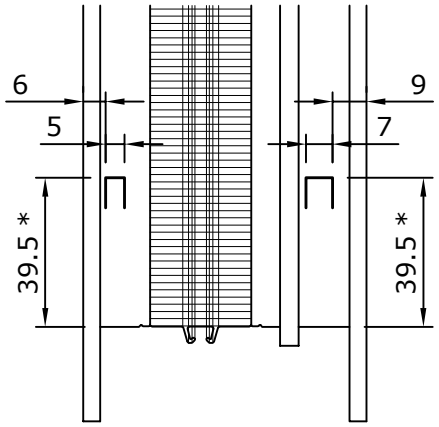
System 4-35 Hi/Hi+

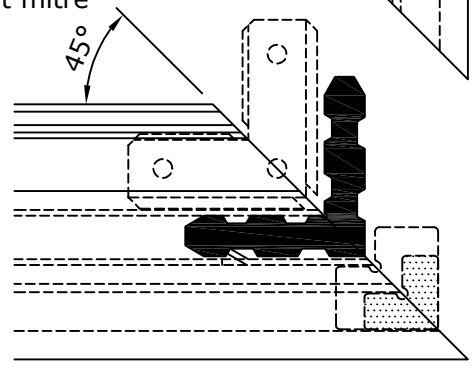
CASEMENT WINDOW

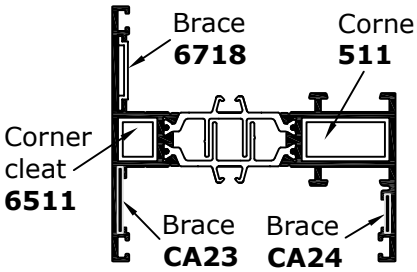
For typical details of corner assembly and adhesive/sealant application see "Corner Assembly Details" sheet.



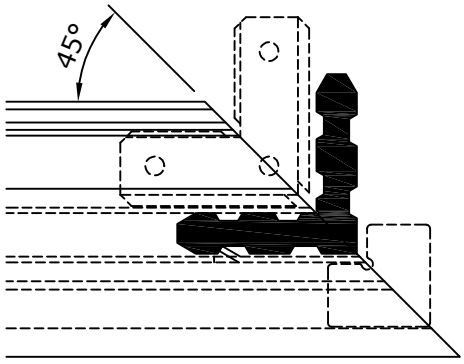
* This dimension to be checked and adjusted to give a tight mitre

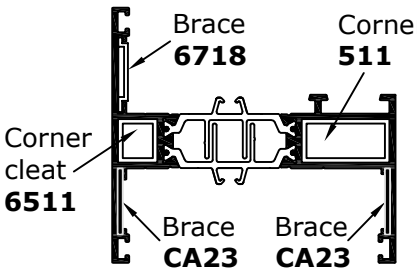




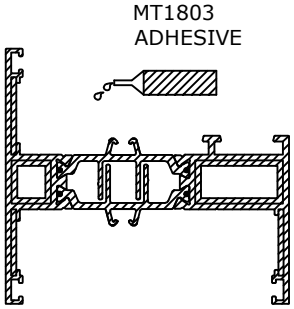


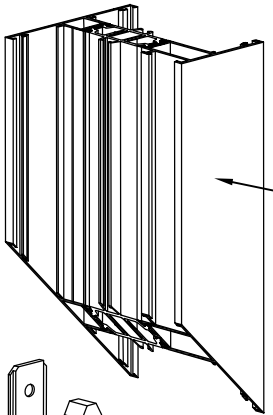
602-212
Standard long leg outer frame



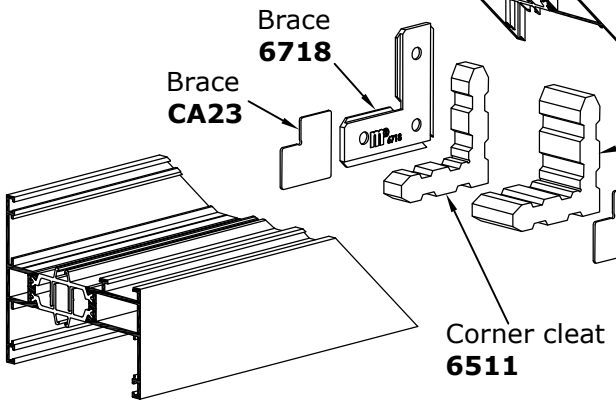


602-202
Standard long leg outer frame





Standard sash
602-202



MT1803 ADHESIVE SHOULD BE APPLIED TO THE PERIMETER OF THE CLEAT CHAMBER OF THE FRAME SECTION AND THE CORNER BRACE GROOVES.

Scale 1:2

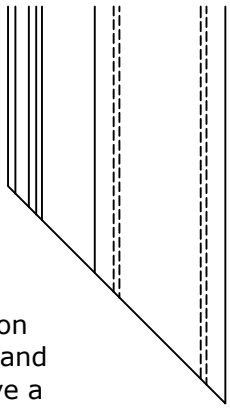
Corner Crimping Detail

Heavy Short Leg Outer Frame

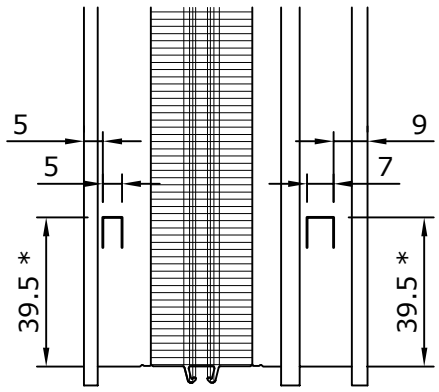
System 4-35 Hi/Hi+

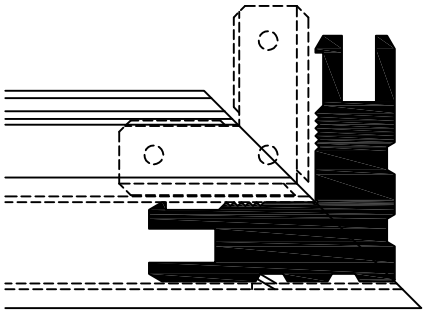
CASEMENT WINDOW

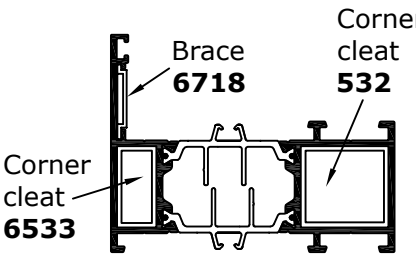
For typical details of corner assembly and adhesive/sealant application see "Corner Assembly Details" sheet.



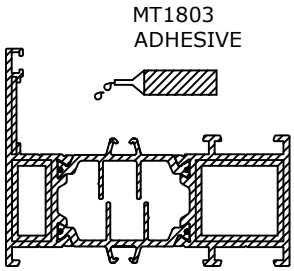
* This dimension to be checked and adjusted to give a tight mitre

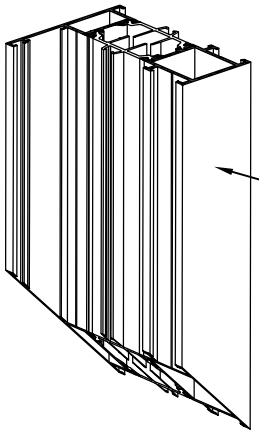




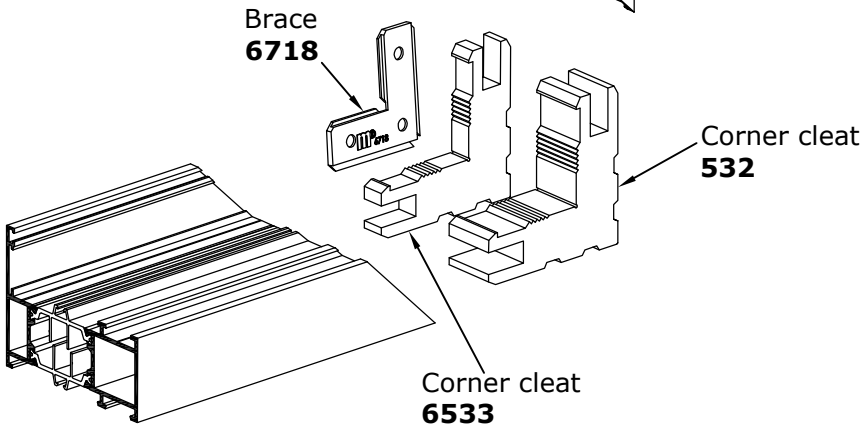


604-213
Heavy short leg outer frame





Heavy short leg outer frame
604-213



MT1803 ADHESIVE SHOULD BE APPLIED TO THE PERIMETER OF THE CLEAT CHAMBER OF THE FRAME SECTION AND THE CORNER BRACE GROOVE.

Scale 1:2

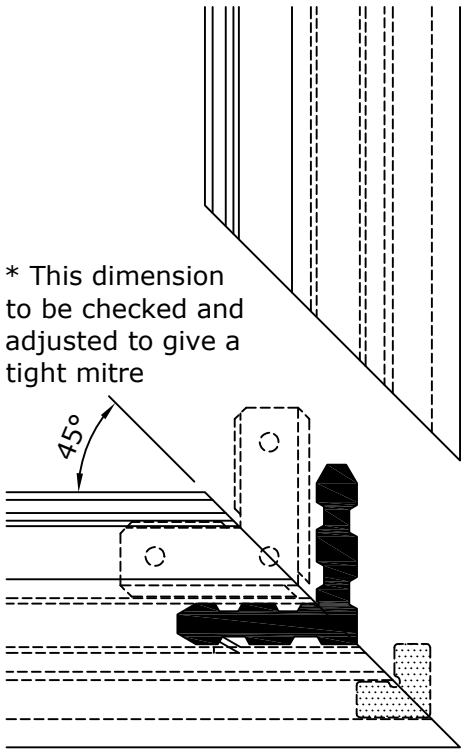
Corner Crimping Detail

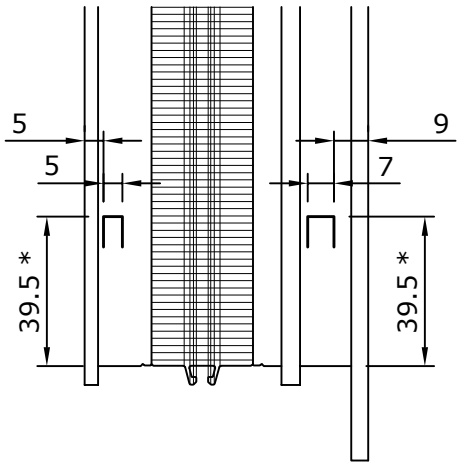
Standard Odd Leg Outer Frame

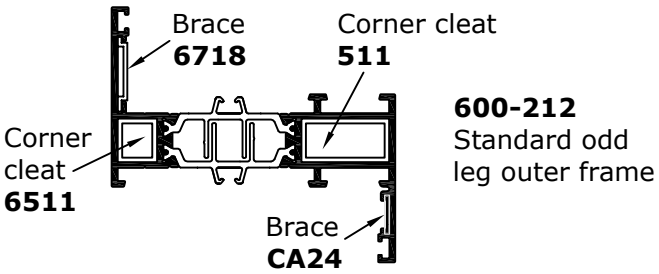
System 4-35 Hi/Hi+

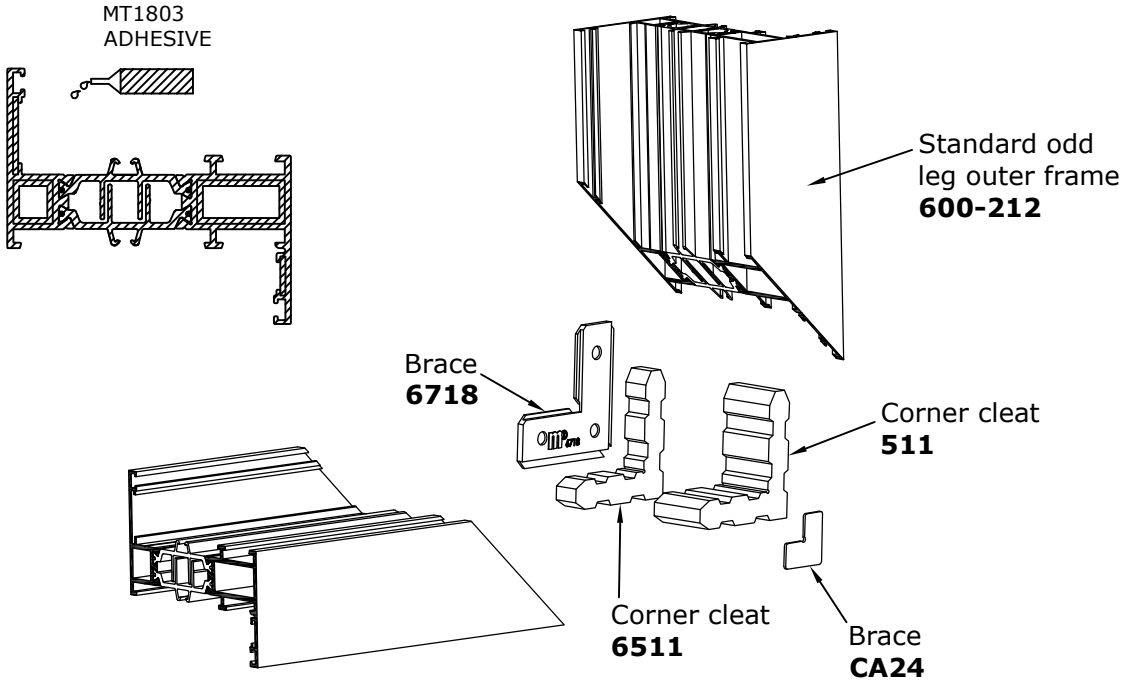
CASEMENT WINDOW

For typical details of corner assembly and adhesive/sealant application see "Corner Assembly Details" sheet.









MT1803 ADHESIVE SHOULD BE APPLIED TO THE PERIMETER OF THE CLEAT CHAMBER OF THE FRAME SECTION AND THE CORNER BRACE GROOVES.

Scale 1:2

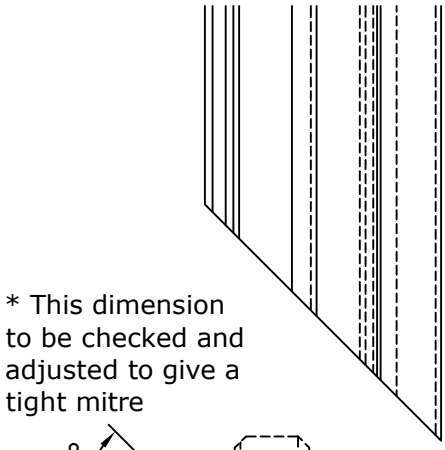
Corner Crimping Detail

Curtain Walling Frames

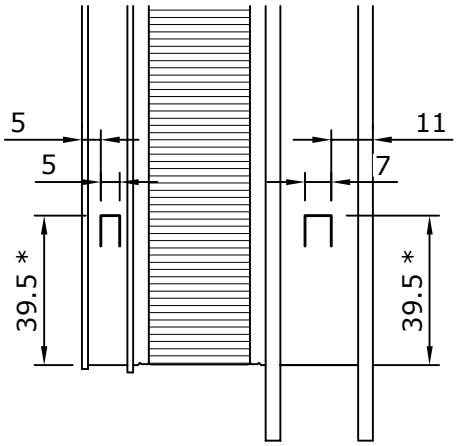
System 4-35 Hi/Hi+

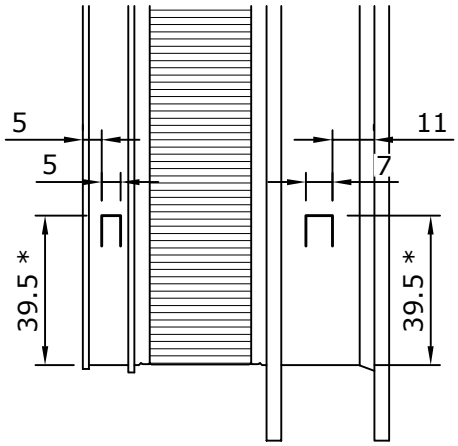
CASEMENT WINDOW

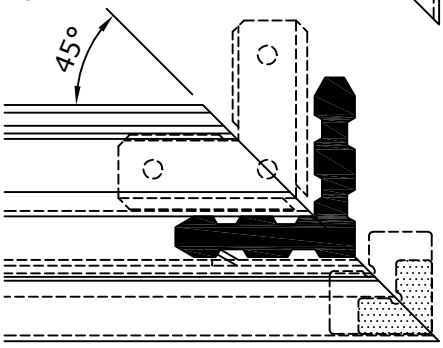
For typical details of corner assembly and adhesive/sealant application see "Corner Assembly Details" sheet.

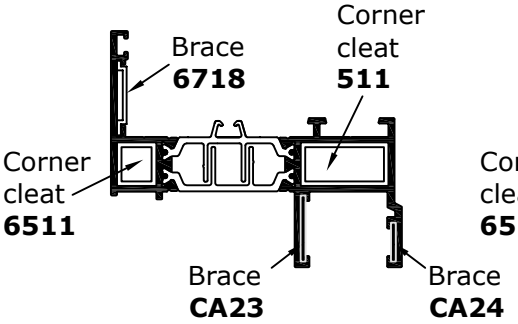


* This dimension to be checked and adjusted to give a tight mitre

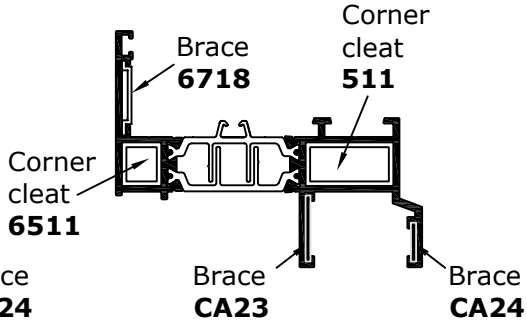




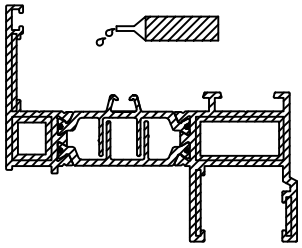


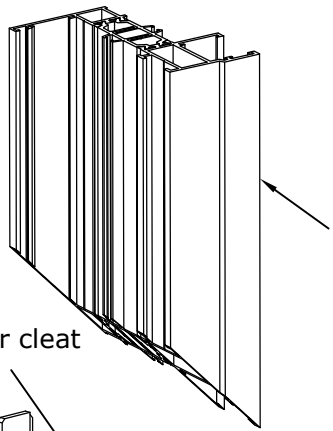


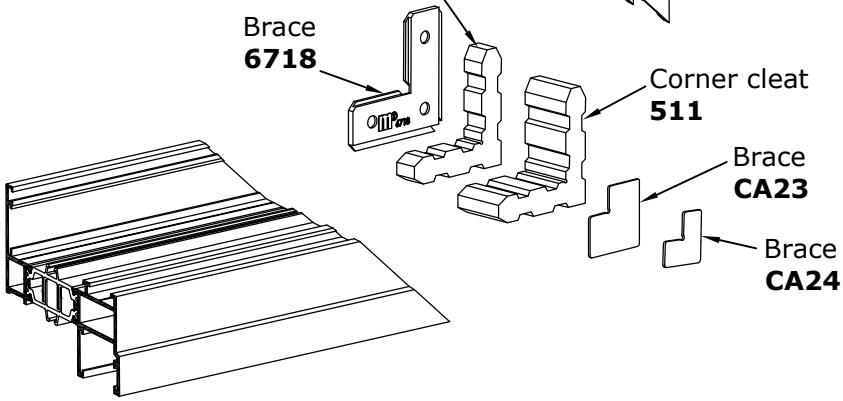
620-204
Curtain walling frame



620-216
Curtain walling frame







MT1803 ADHESIVE SHOULD BE APPLIED TO THE PERIMETER OF THE CLEAT CHAMBER OF THE FRAME SECTION AND THE CORNER BRACE GROOVES.

Scale 1:2

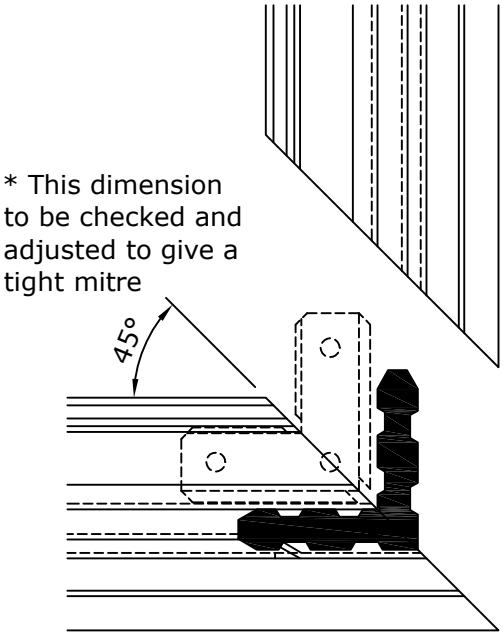
Corner Crimping Detail

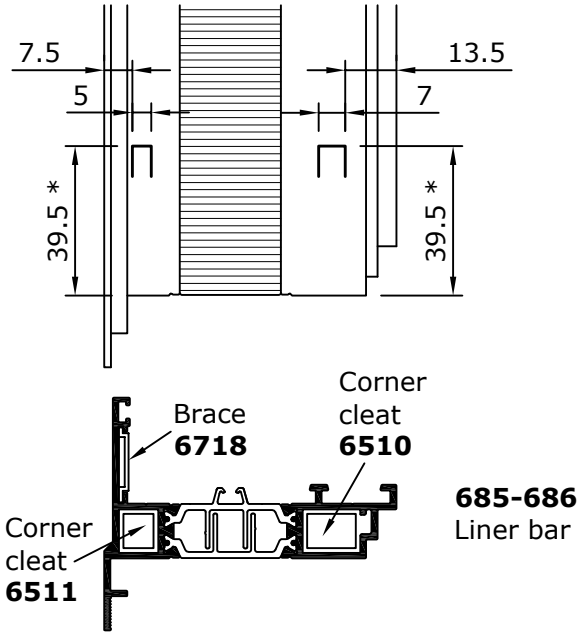
Liner Bar

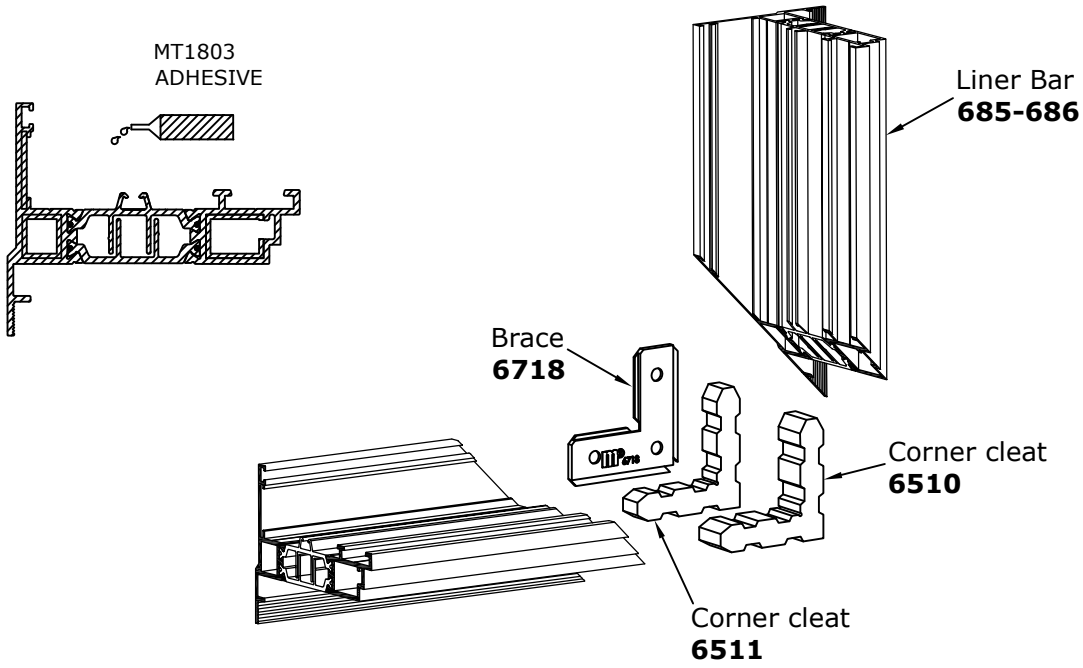
System 4-35 Hi/Hi+

CASEMENT WINDOW

For typical details of corner assembly and adhesive/sealant application see "Corner Assembly Details" sheet.







MT1803 ADHESIVE SHOULD BE APPLIED TO THE PERIMETER OF THE CLEAT CHAMBER OF THE FRAME SECTION AND THE CORNER BRACE GROOVE.

Not to scale

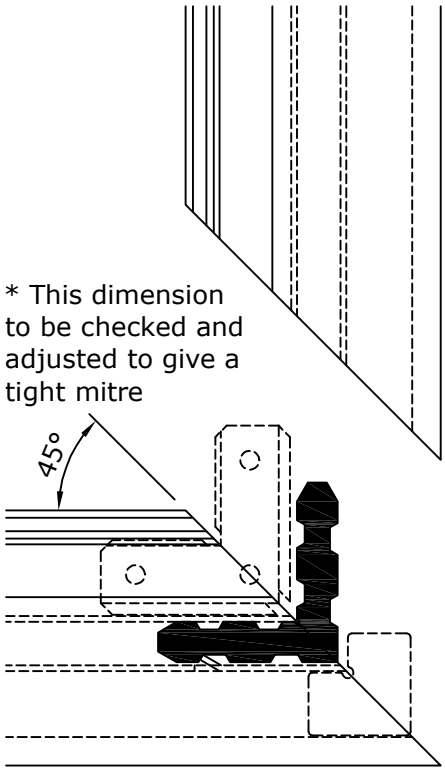
Corner Crimping Detail

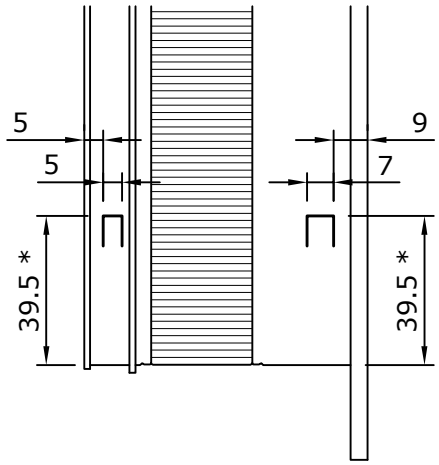
Standard Sash

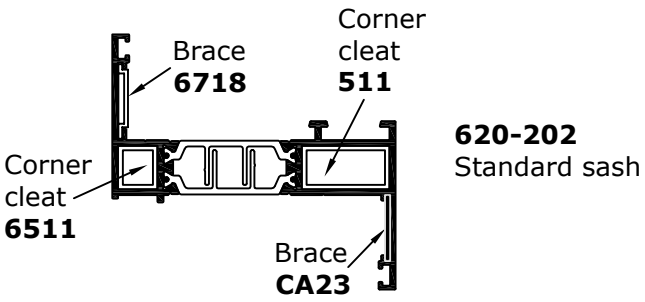
System 4-35 Hi/Hi+

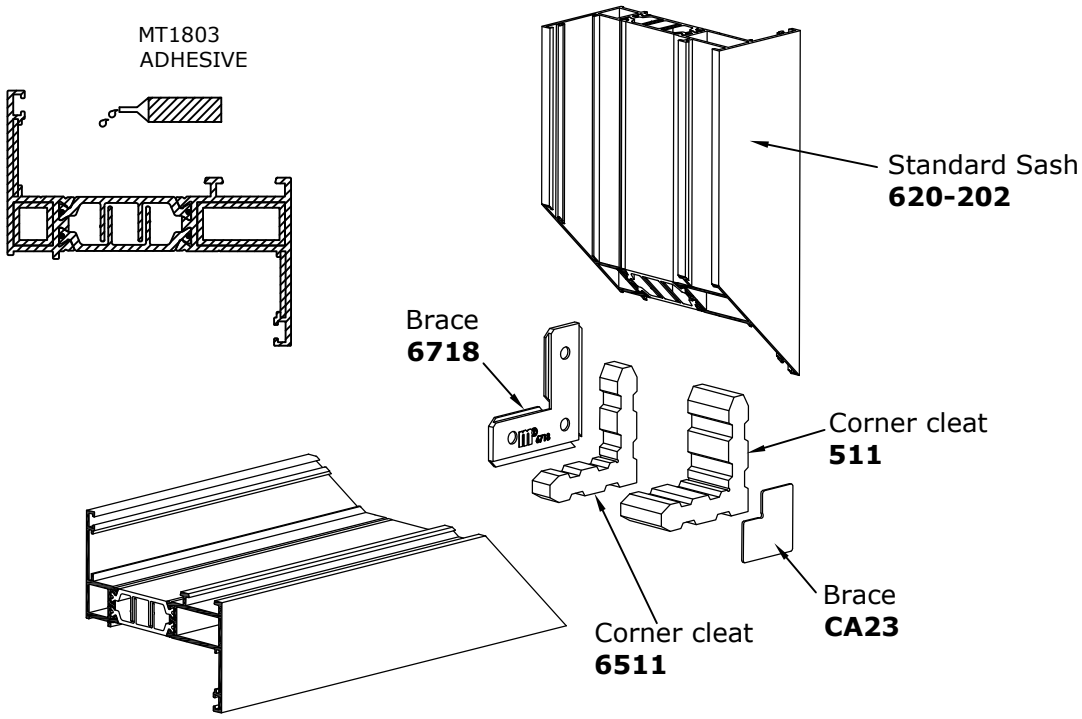
CASEMENT WINDOW

For typical details of corner assembly and adhesive/sealant application see "Corner Assembly Details" sheet.









MT1803 ADHESIVE SHOULD BE APPLIED TO THE PERIMETER OF THE CLEAT CHAMBER OF THE FRAME SECTION AND THE CORNER BRACE GROOVE.

Not to scale

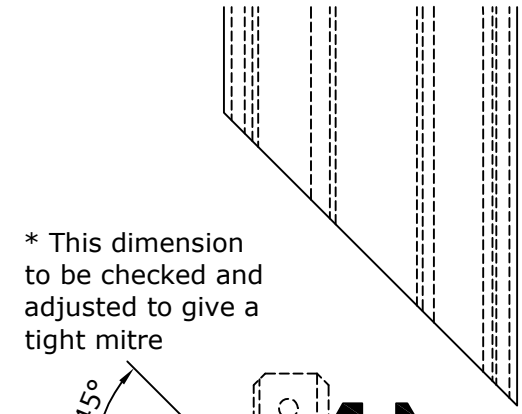
Corner Crimping Detail

Inside Glaze Sash

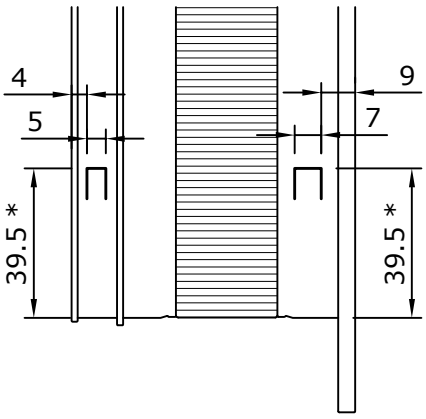
System 4-35 Hi/Hi+

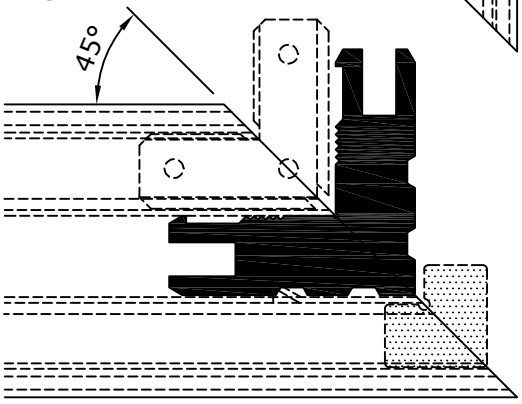
CASEMENT WINDOW

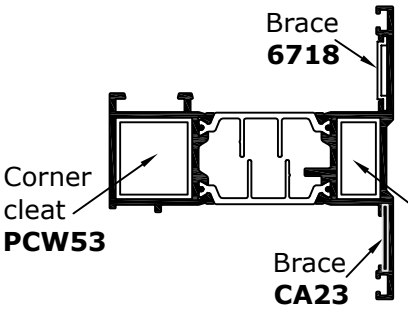
For typical details of corner assembly and adhesive/sealant application see "Corner Assembly Details" sheet.

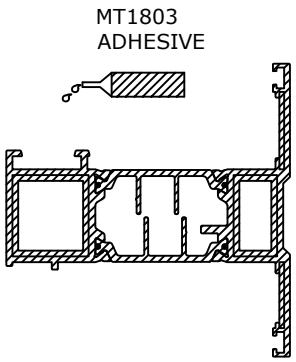


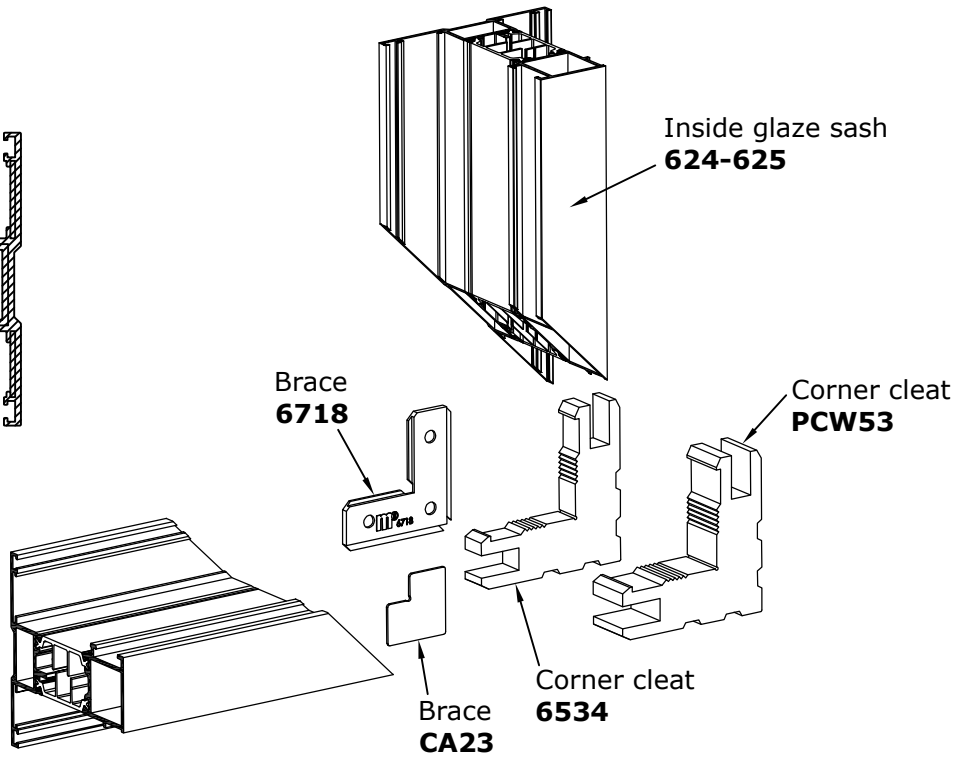
* This dimension to be checked and adjusted to give a tight mitre











MT1803 ADHESIVE SHOULD BE APPLIED TO THE PERIMETER OF THE CLEAT CHAMBER OF THE FRAME SECTION AND THE CORNER BRACE GROOVE.

Not to scale

Corner Crimping Detail

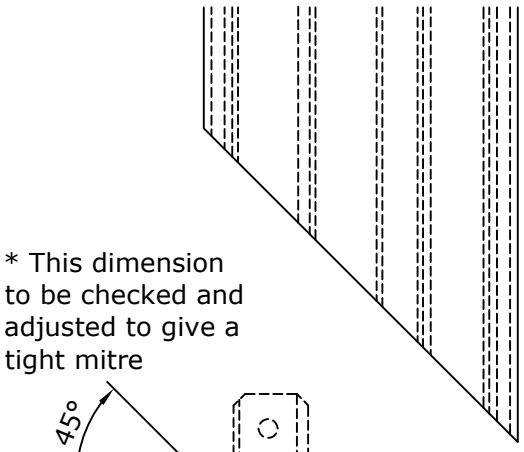
Euro Groove Sashes 626-627 and 626-652

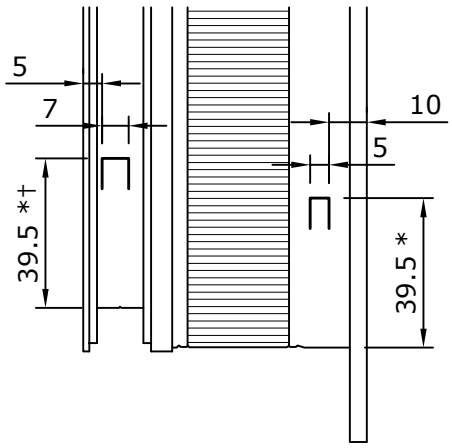
System 4-35 Hi/Hi+

CASEMENT WINDOW

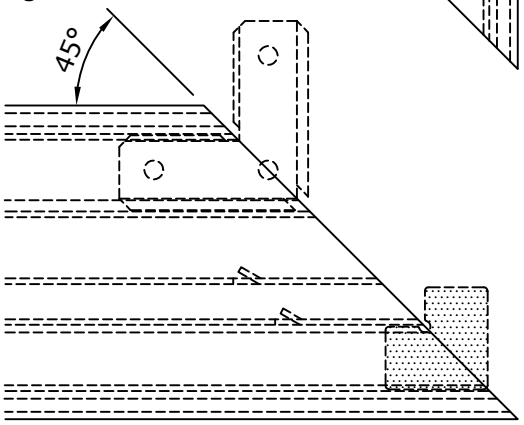
For typical details of corner assembly and adhesive/sealant application see "Corner Assembly Details" sheet.

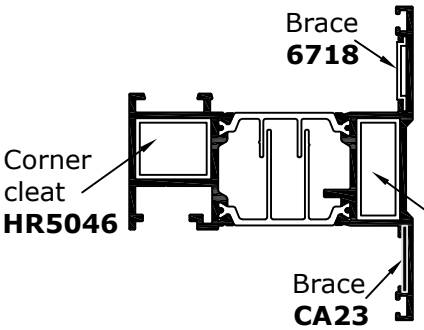
† To achieve the offset crimp shown, Metal Technology offer a pair of 7mm adjustable crimping knives (POLSPEC/50), with adjustable tool holder (CR124303800/MOD)

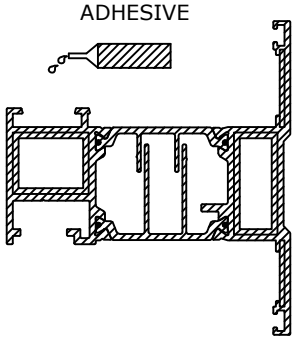


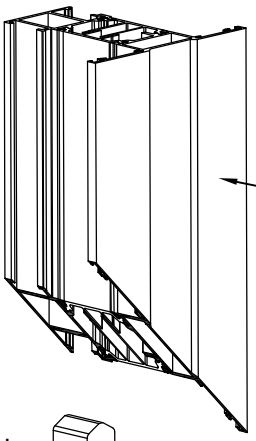


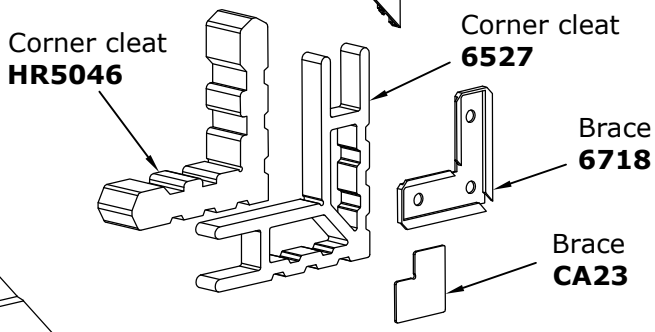
* This dimension to be checked and adjusted to give a tight mitre

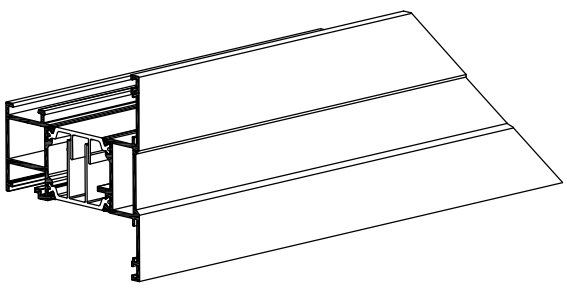












MT1803 ADHESIVE SHOULD BE APPLIED TO THE PERIMETER OF THE CLEAT CHAMBER OF THE FRAME SECTION AND THE CORNER BRACE GROOVE.

Scale 1:2

Corner Crimping Detail

Slimline Euro Groove Sash 676-677

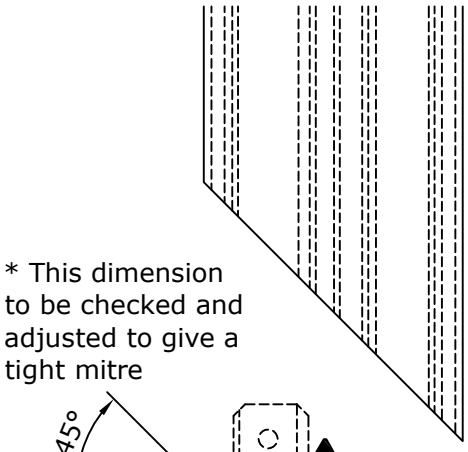
System 4-35 Hi/Hi+

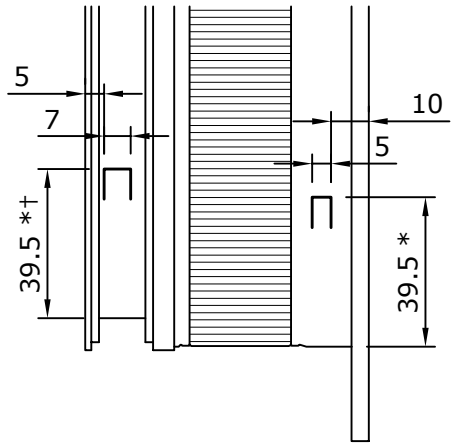
CASEMENT WINDOW

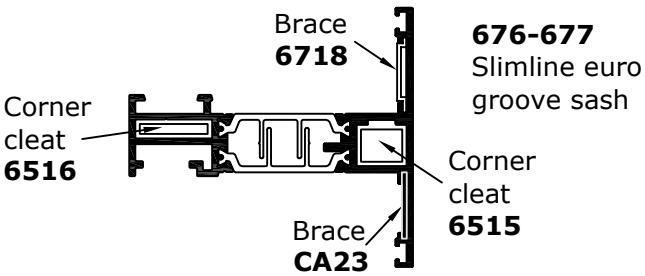
For typical details of corner assembly and adhesive/sealant application see "Corner Assembly Details" sheet.

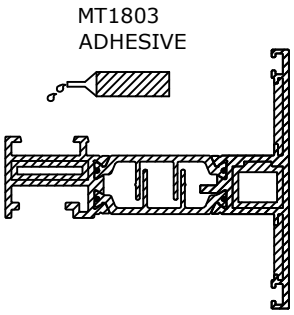
† To achieve the offset crimp shown, Metal Technology offer a pair of 7mm adjustable crimping knives (POLSPEC/50), with adjustable tool holder (CR124303800/MOD)

Ensure 676-677 slimline sash and bead profiles are prepped for euro espag handle prior to crimping. Refer to "Standard and Offset Euro Espag Lock and Handle Prep - Sash 676-677" sheet.

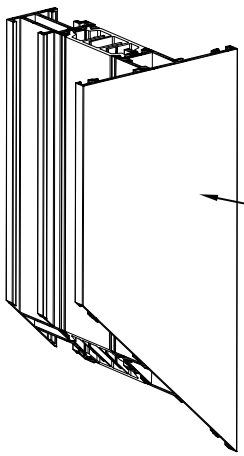


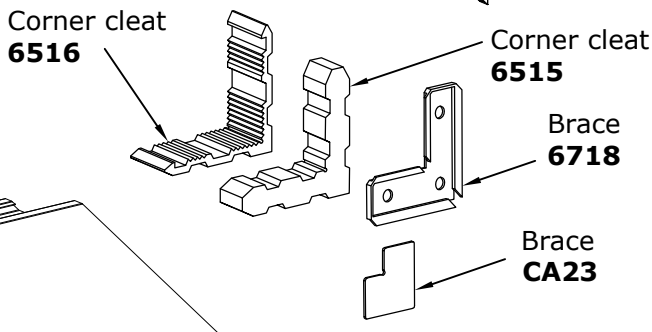


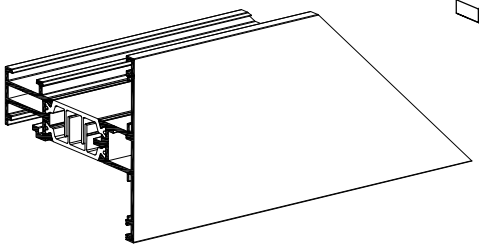




MT1803 ADHESIVE SHOULD BE APPLIED TO THE PERIMETER OF THE CLEAT CHAMBER OF THE FRAME SECTION AND THE CORNER BRACE GROOVE.







Scale 1:2

Mullion/Transom Assembly

Screwported sections

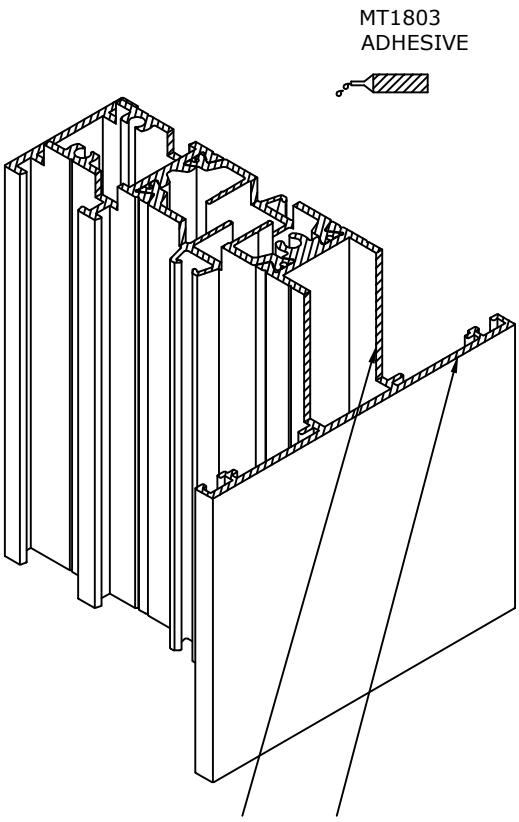
System 4-35 Hi/Hi+

CASEMENT WINDOW

IMPORTANT: PLEASE READ THESE NOTES BEFORE ASSEMBLY.

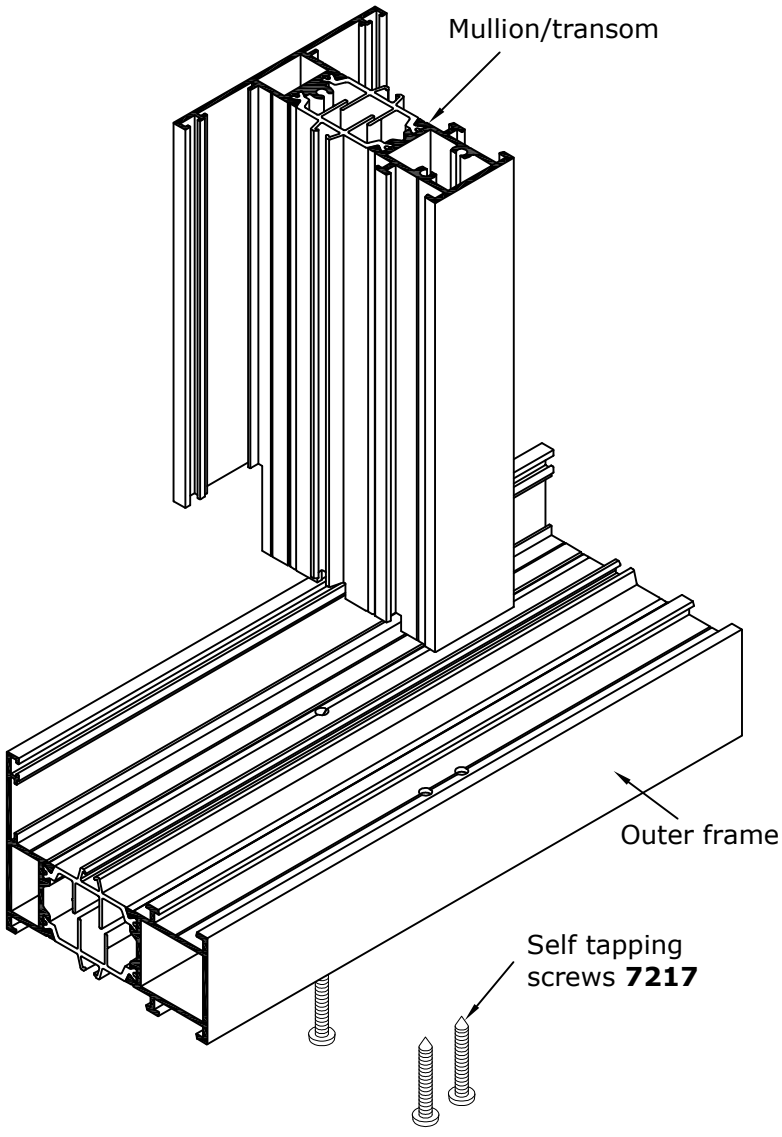
NOTE: Mullions/transoms must be installed before frame corners are crimped.

1. Mark centre line of mullion/transom on outer frame. Place JIG4-35027 on outer frame aligning appropriate centre line with position marked.
2. With JIG4-35027 in position drill Ø3.5mm pilot holes in outer frame.
3. Before applying MT1803 adhesive ensure all surfaces are free from grease or dust. Clean all aluminium mating surfaces with MT60 surface cleaner and allow to dry. Fabricator must ensure MT60 surface cleaner is fully compatible with surface finish on a project-by-project basis.
4. Apply MT1803 adhesive to the mating surfaces of the cut aluminium and thermal break profiles (as shown).
5. Align mullion/transom section over outer frame and screw tightly through pilot holes into screwports using No 6 self-tapping screws 7217, ensuring all screws are bedded and sealed.
6. Wipe away any excess adhesive from the joint using MT60 surface cleaner and allow to dry. Ensure all bead and gasket recesses are clear of adhesive.
7. Check the joint is tight on both sides and that there is no movement.
8. Clip transom braces 6746 into position. Bond and seal as "Transom Brace Application Detail" and "Mullion/Transom Sealing Detail" sheets.



PICTORIAL VIEW OF ADHESIVE APPLICATION TO ALL MULLION/ TRANSOM END PREPS

SCREWPORTED MULLION/TRANSOM TO OUTER FRAME ASSEMBLY



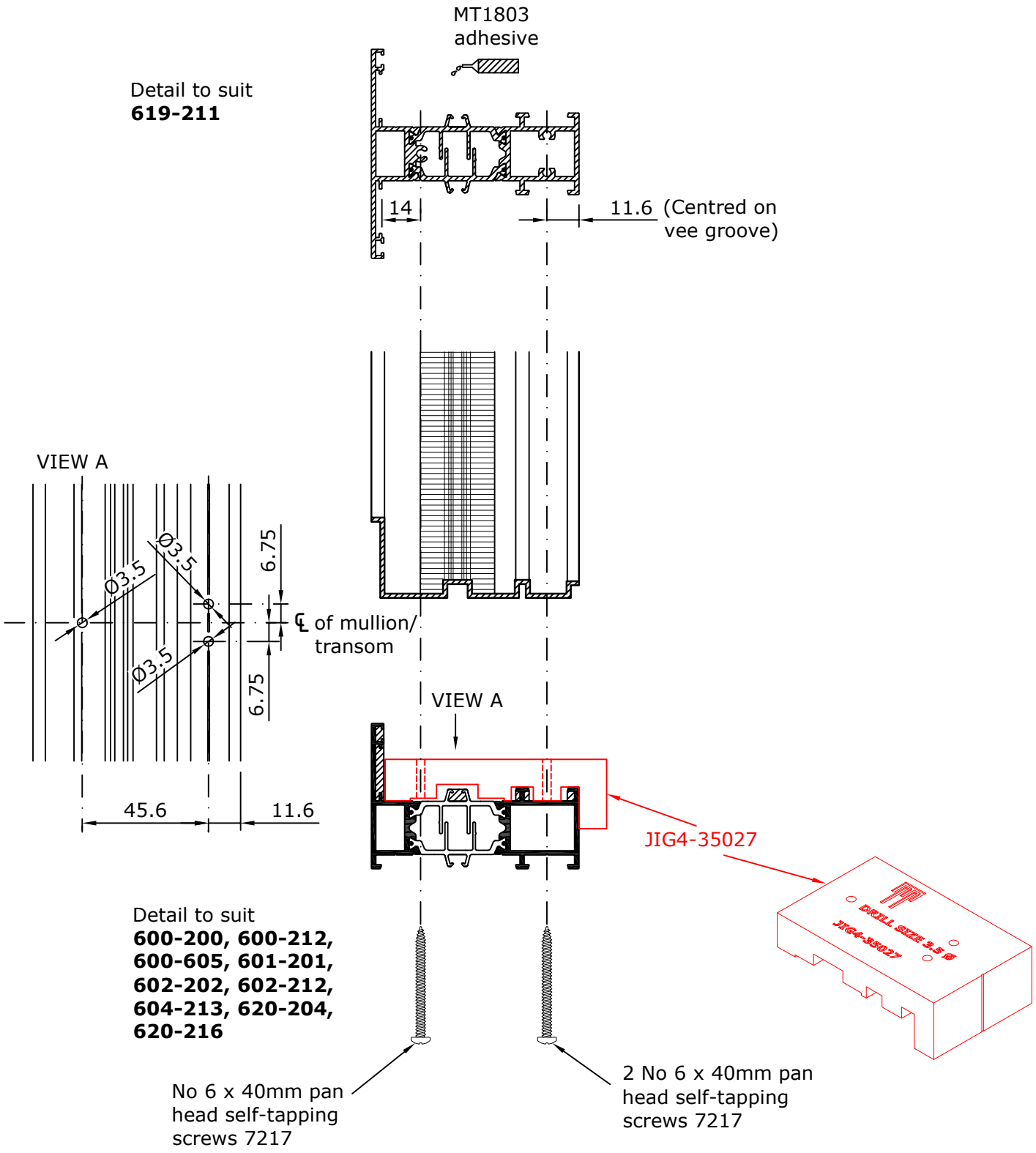
Not to scale

Mullion/Transom Assembly

Screwported sections to outer frames

System 4-35 Hi/Hi+

CASEMENT WINDOW

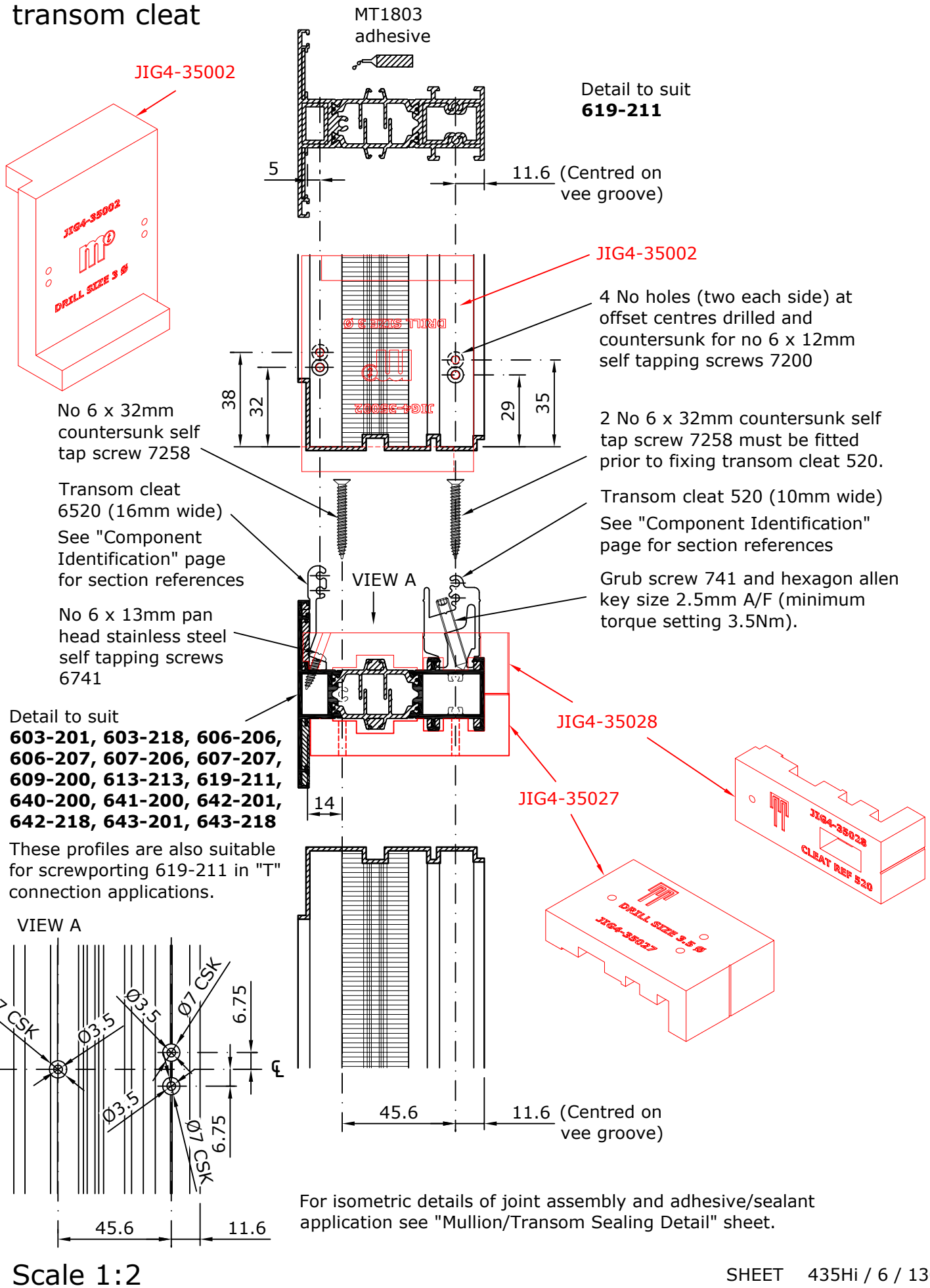


For isometric details of joint assembly and adhesive/sealant application see "Mullion/Transom Sealing Detail" sheet.

Scale 1:2

Mullion/Transom Cruciform Assembly Screwported section with transom cleat

System 4-35 Hi/Hi+
CASEMENT WINDOW



For isometric details of joint assembly and adhesive/sealant application see "Mullion/Transom Sealing Detail" sheet.

Scale 1:2

Mullion/Transom Assembly

Cleated sections

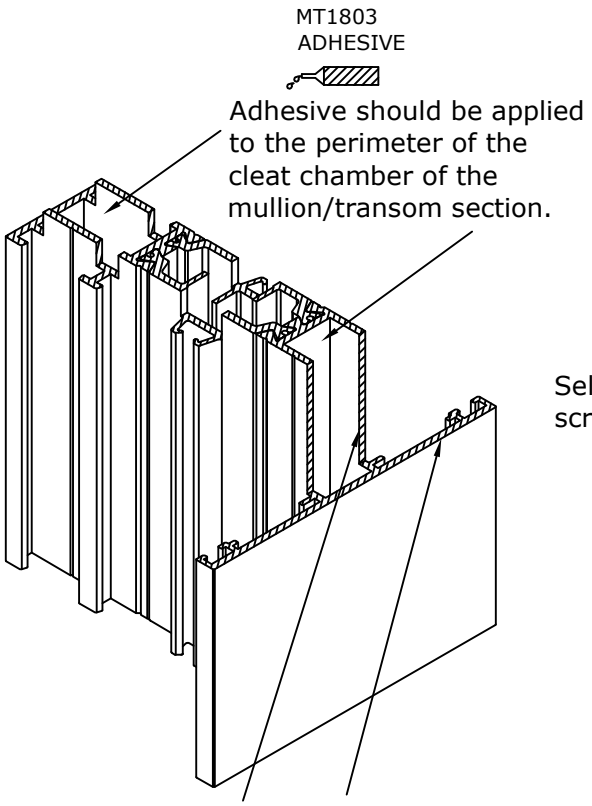
System 4-35 Hi/Hi+

CASEMENT WINDOW

IMPORTANT: PLEASE READ THESE NOTES BEFORE ASSEMBLY.

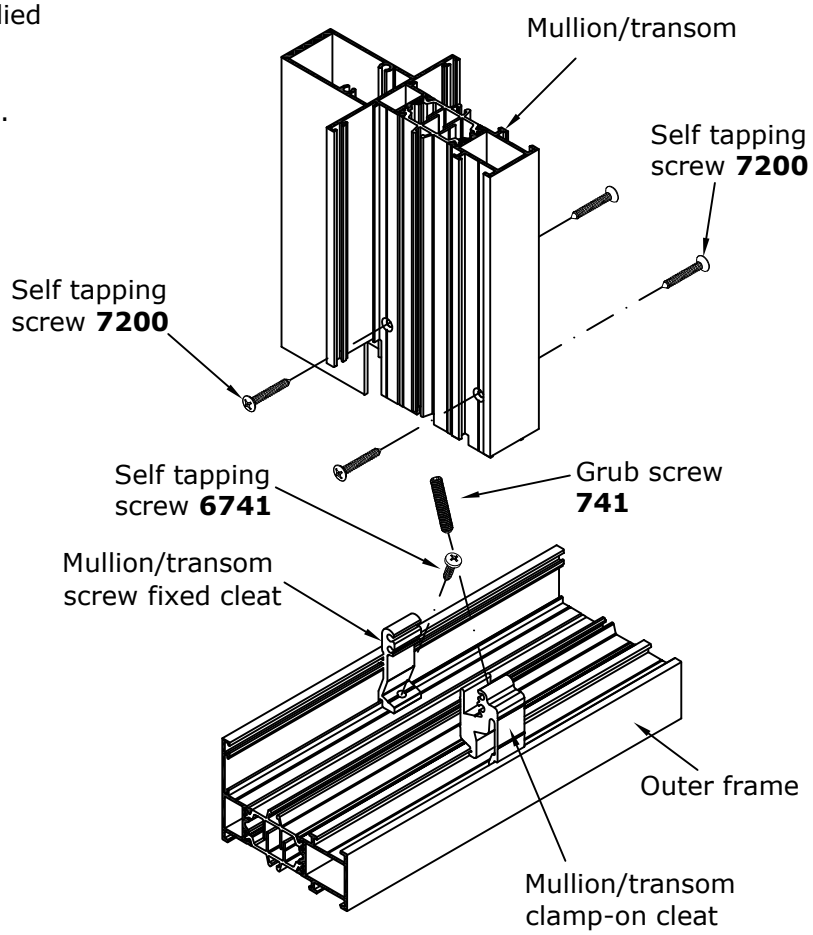
NOTE: Mullions/transoms must be installed before frame corners are crimped.

1. Using JIG4-35002 drill and countersink the offset screw holes in the mullion/transom at the positions shown.
2. Before applying MT1803 adhesive ensure all surfaces are free from grease or dust. Clean all aluminium mating surfaces with MT60 surface cleaner and allow to dry. Fabricator must ensure MT60 surface cleaner is fully compatible with surface finish on a project-by-project basis.
3. Mark centre line of mullion/transom on outer frame. Place JIG4-35001 on outer frame aligning appropriate cleat centre line with position marked.
4. Clip clamp-on cleat onto outer frame through appropriate aperture in jig. Tighten 741 grub screw (minimum torque setting 3.5Nm) and ensure cleat is firmly attached.
5. With JIG4-35001 still in position drill angled hole(s) in outer frame opposite clamp-on cleat.
6. Remove JIG4-35001 and attach screw fixed cleat with 6741 self tapping screw(s).
7. Apply MT1803 adhesive to the mating surfaces of the cut aluminium and thermal break profiles (as shown).
8. Apply MT1803 adhesive to the internal perimeter of the cleat chamber to sufficient depth to ensure full bonding/sealing of the cleat.
9. Align the sections over cleats and screw tightly into the offset screwports using 7200 self-tapping screws, ensuring all screws are bedded and sealed.
10. Wipe away any excess adhesive from the joint using MT60 surface cleaner and allow to dry. Ensure all bead and gasket recesses are clear of adhesive.
11. Check the joint is tight on both sides and that there is no movement.
12. Clip transom braces 6746 into position. Bond and seal as "Transom Brace Application Detail" and "Mullion/Transom Sealing Detail" sheets.



PICTORIAL VIEW OF ADHESIVE APPLICATION TO ALL MULLION/ TRANSOM END PREPS

MULLION/TRANSOM TO OUTER FRAME ASSEMBLY



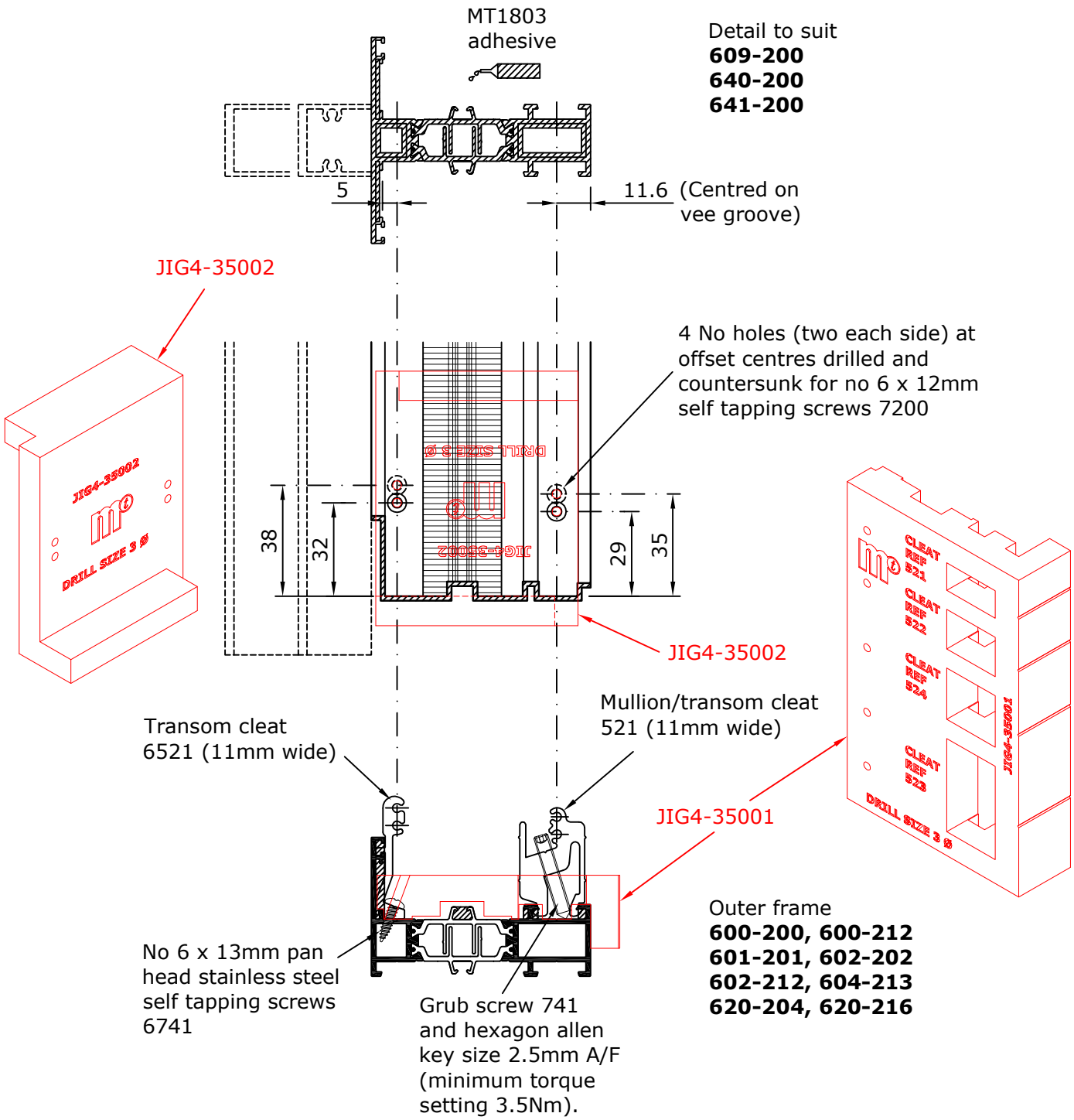
Not to scale

Mullion/Transom Assembly

Cleated sections to outer frames

System 4-35 Hi/Hi+

CASEMENT WINDOW



For isometric details of joint assembly and adhesive/sealant application see "Mullion/Transom Sealing Detail" sheet.

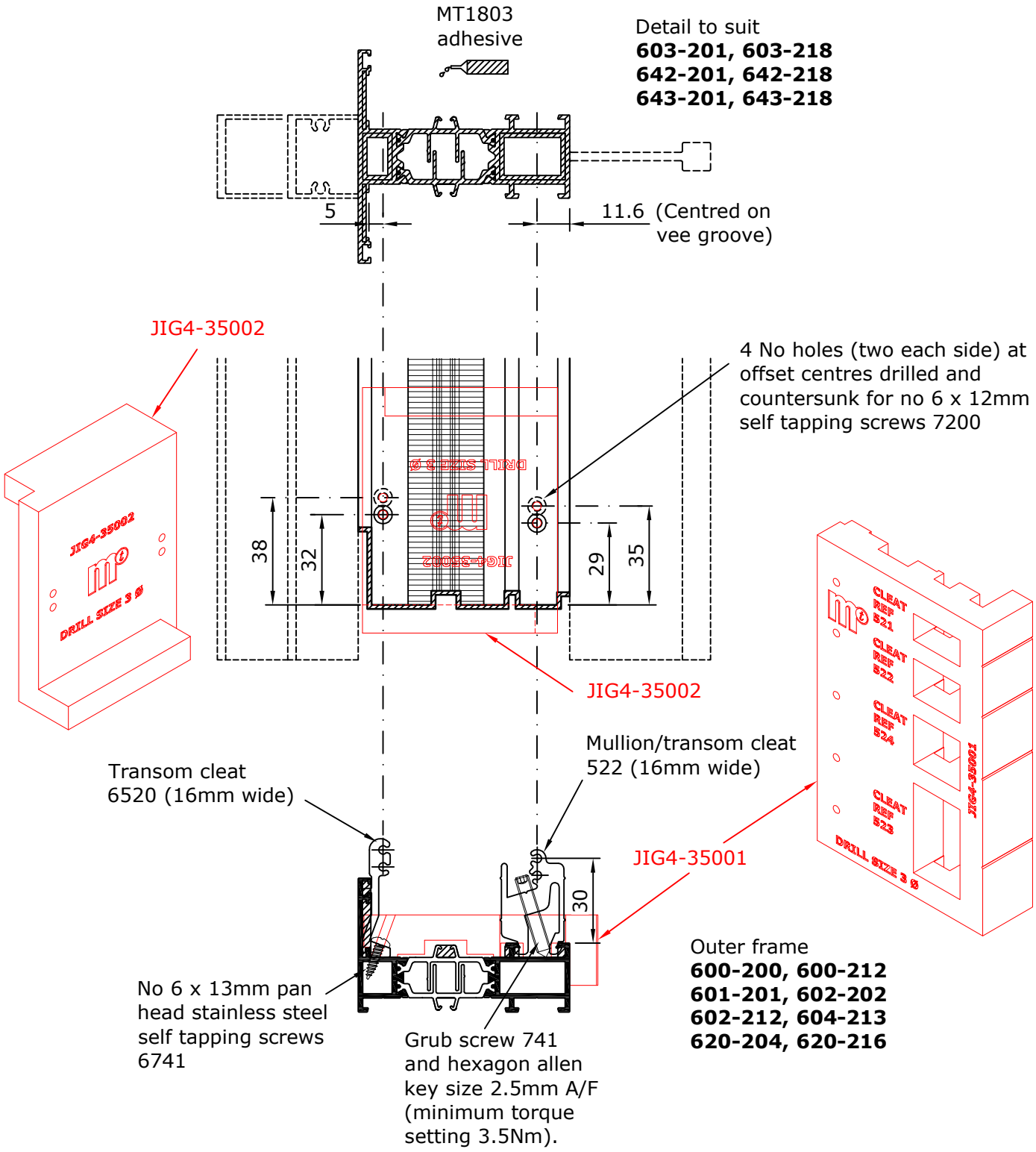
Scale 1:2

Mullion/Transom Assembly

Cleated sections to outer frames

System 4-35 Hi/Hi+

CASEMENT WINDOW



For isometric details of joint assembly and adhesive/sealant application see "Mullion/Transom Sealing Detail" sheet.

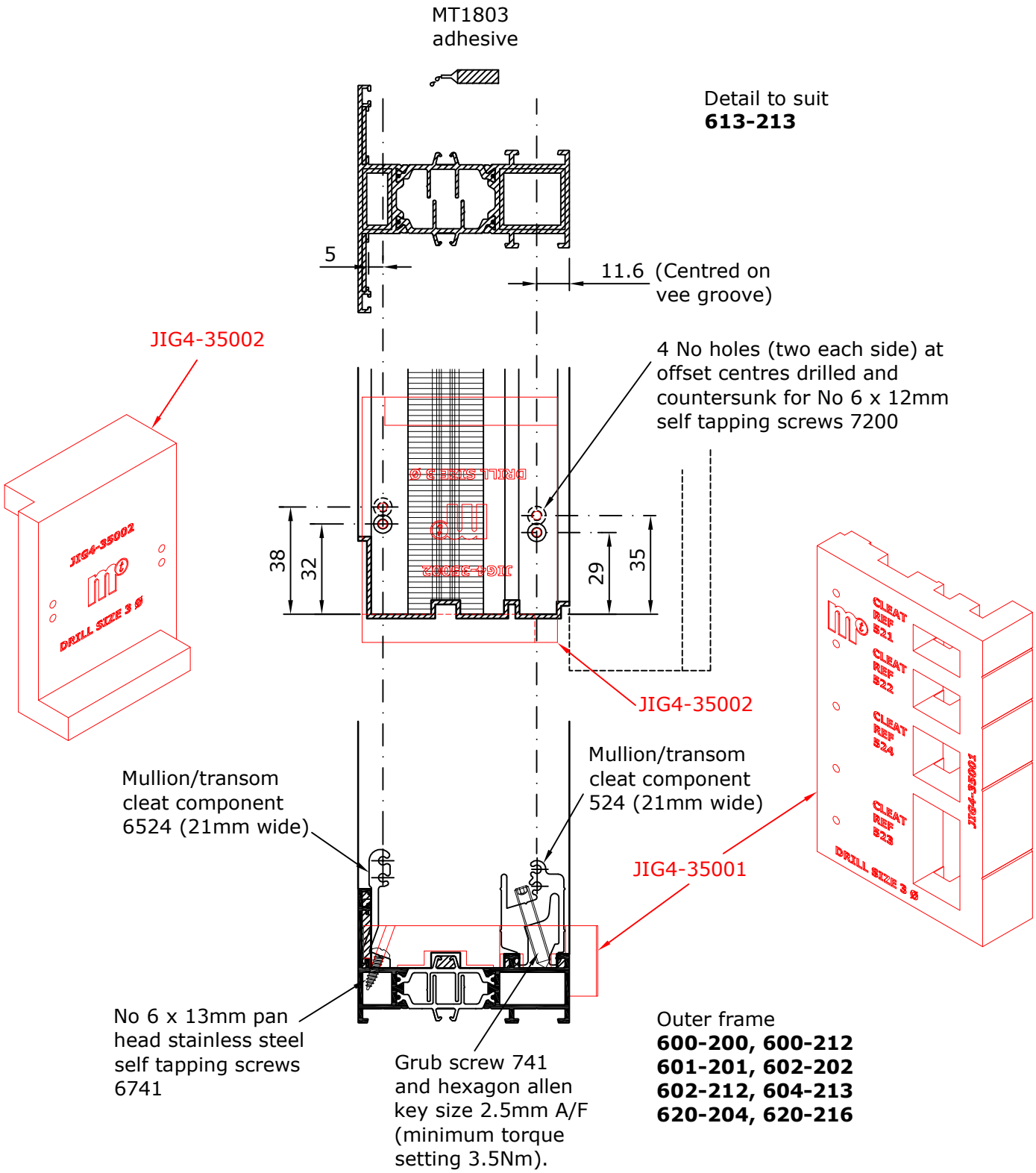
Scale 1:2

Mullion/Transom Assembly

Cleated sections to outer frames

System 4-35 Hi/Hi+

CASEMENT WINDOW



For isometric details of joint assembly and adhesive/sealant application see "Mullion/Transom Sealing Detail" sheet.

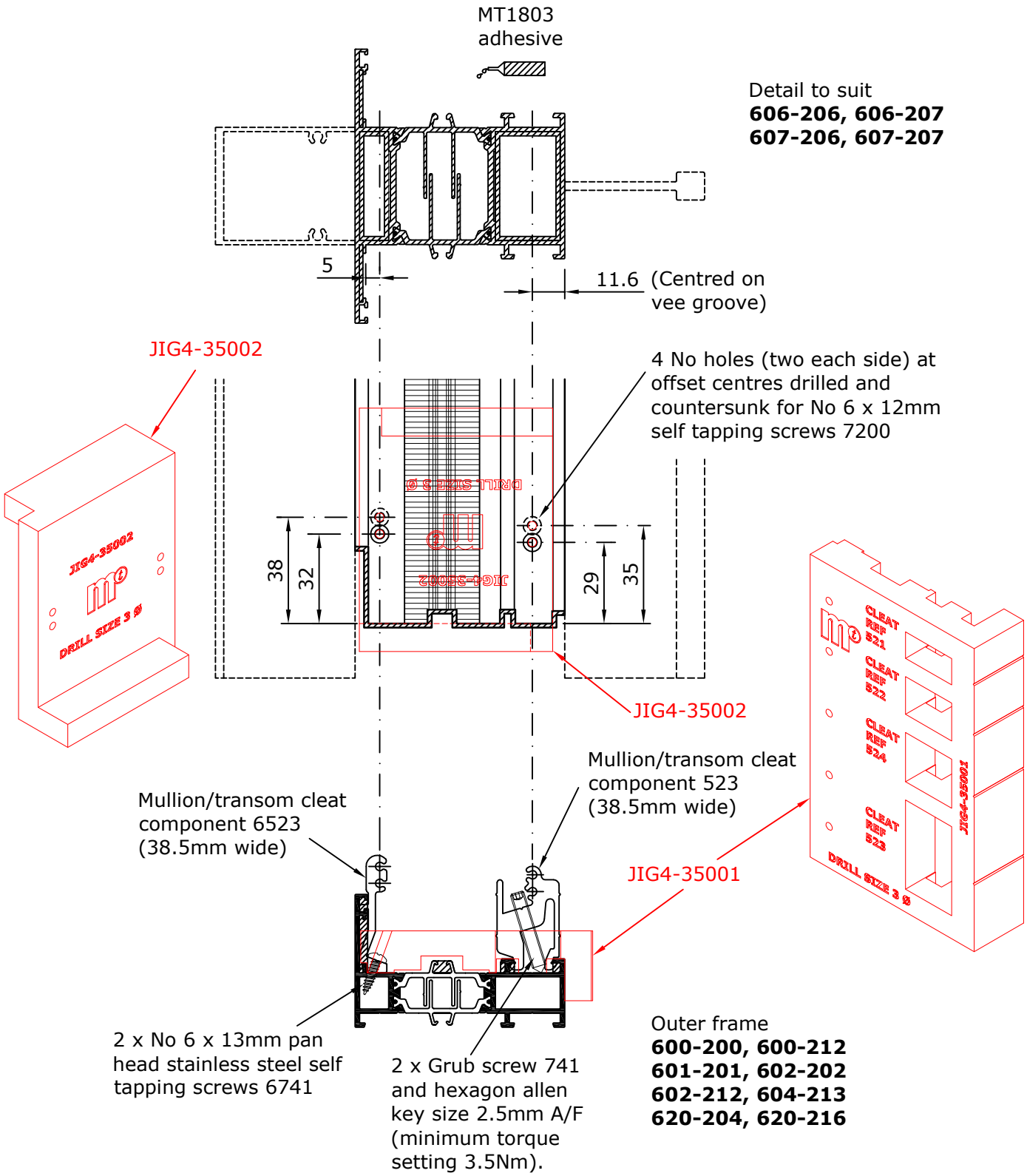
Scale 1:2

Mullion/Transom Assembly

Cleated sections to outer frames

System 4-35 Hi/Hi+

CASEMENT WINDOW



For isometric details of joint assembly and adhesive/sealant application see "Mullion/Transom Sealing Detail" sheet.

Scale 1:2

Mullion/Transom Cruciform Assembly

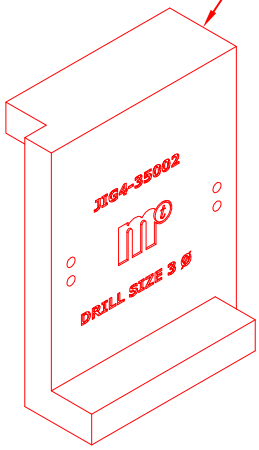
Cleated sections

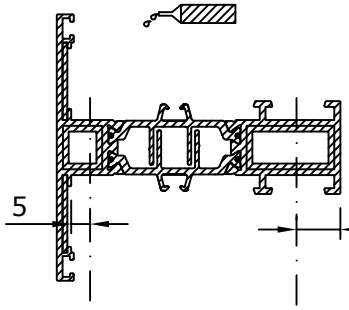
System 4-35 Hi/Hi+

CASEMENT WINDOW

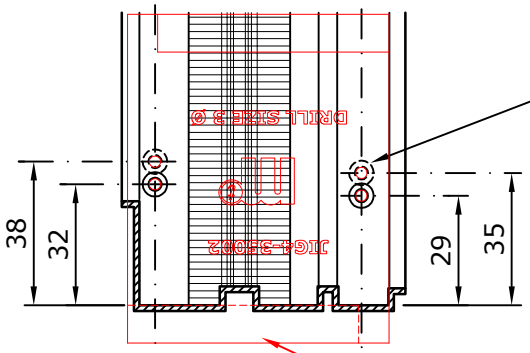
MT1803 adhesive

JIG4-35002





Detail to suit
603-201
606-206
609-200
613-213



4 No holes (two each side) at offset centres drilled and countersunk for no 6 x 12mm self tapping screws 7200

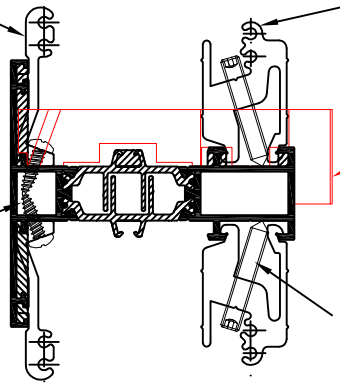
JIG4-35002

Transom cleat
6520 (16mm wide)
6521 (11mm wide)
6523 (38.5mm wide)
6524 (21mm wide)

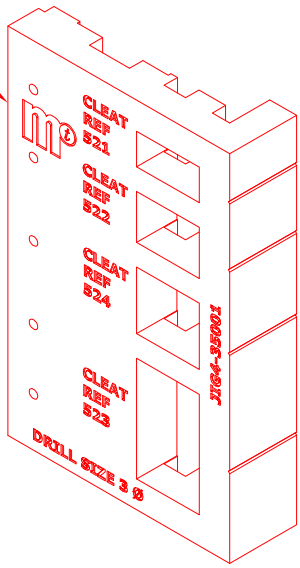
See "Component Identification" page for section references

Transom cleat
521 (11mm wide)
522 (16mm wide)
523 (38.5mm wide)
524 (21mm wide)

See "Component Identification" page for section references



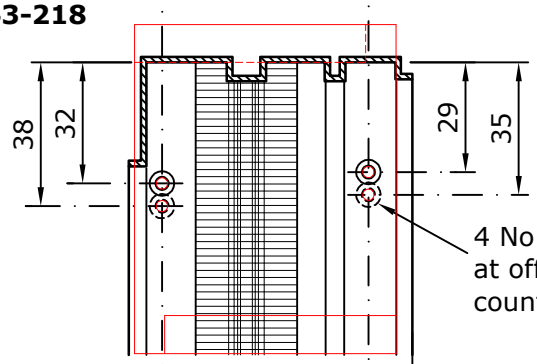
JIG4-35001



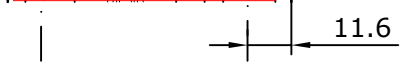
No 6 x 13mm pan head stainless steel self tapping screws 6741

Grub screw 741 and hexagon allen key size 2.5mm A/F (minimum torque setting 3.5Nm).

Detail to suit
603-201, 603-218, 606-206, 606-207, 607-206, 607-207, 609-200, 613-213, 619-211, 640-200, 641-200, 642-201, 642-218, 643-201, 643-218



4 No holes (one each side) at offset centres drilled and countersunk for screw 7200



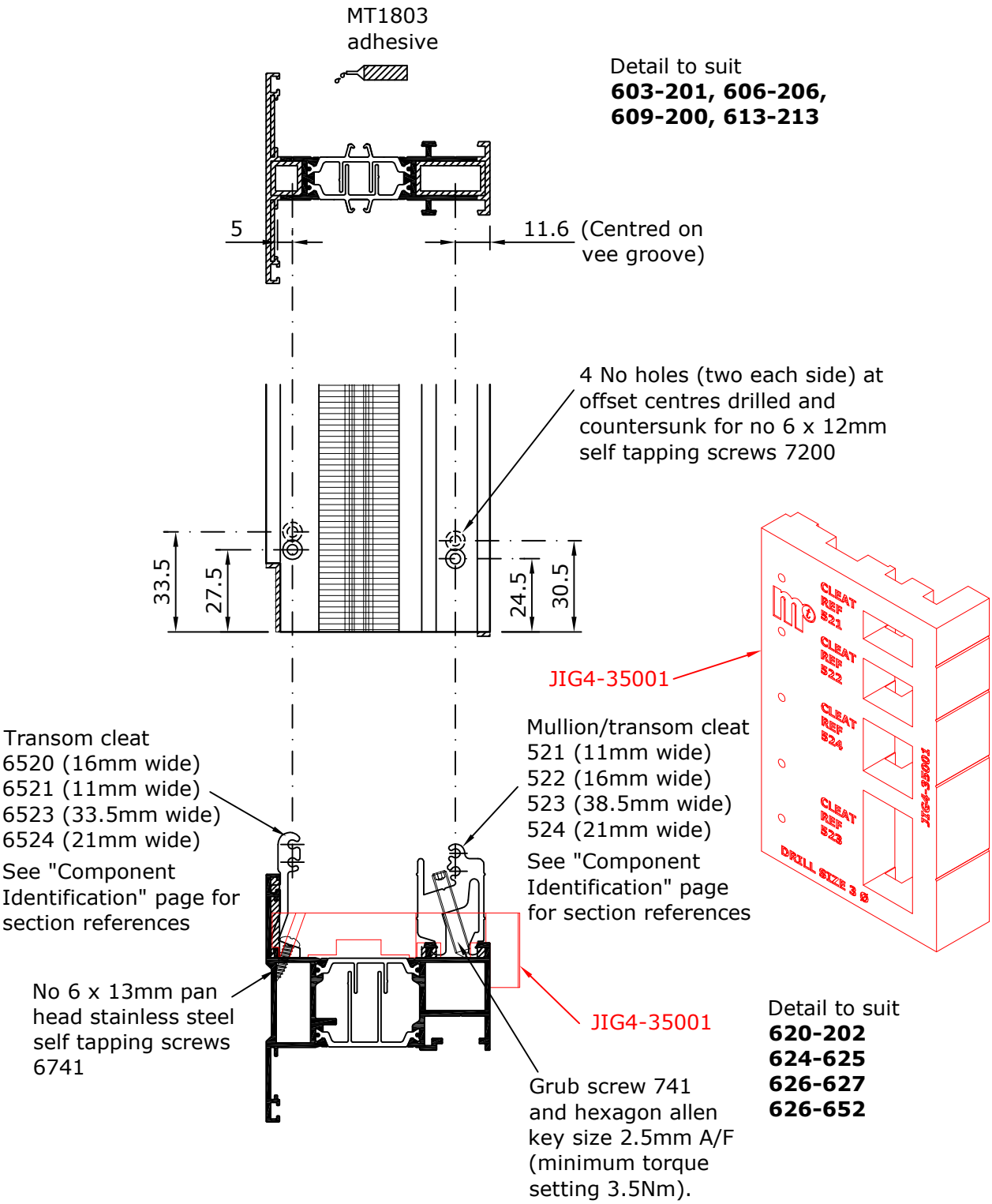
For isometric details of joint assembly and adhesive/sealant application see "Mullion/Transom Sealing Detail" sheet.

Scale 1:2

Muntin Assembly into Sash

System 4-35 Hi/Hi+

CASEMENT WINDOW



For isometric details of joint assembly and adhesive/sealant application see "Mullion/Transom Sealing Detail" sheet.

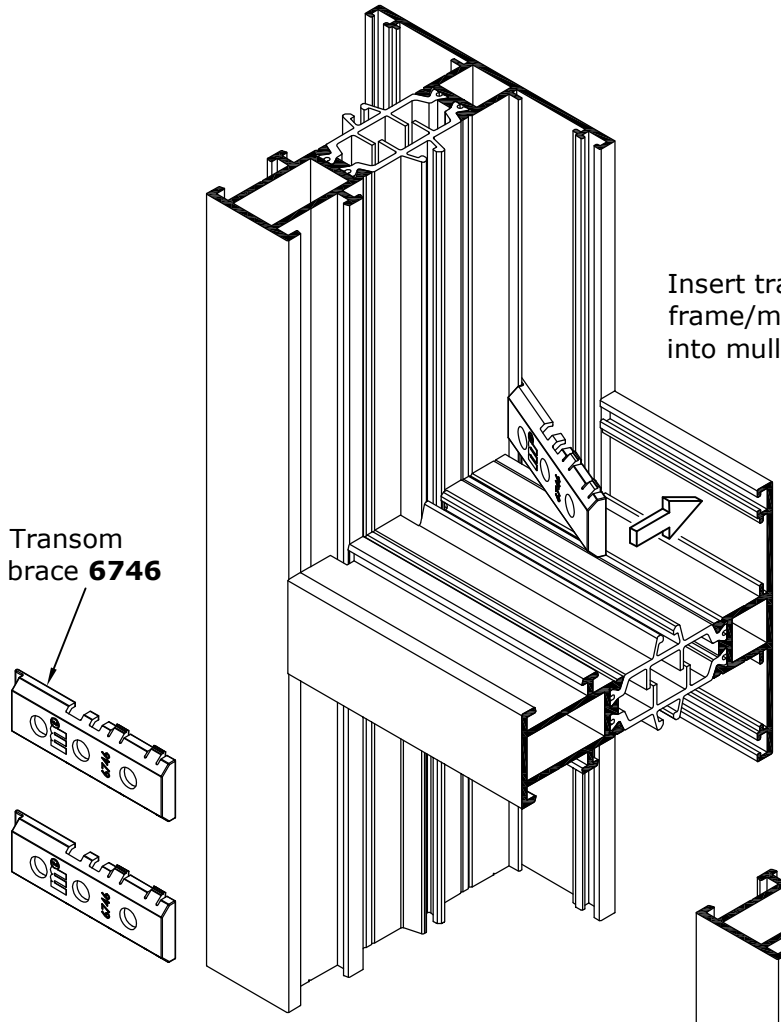
Scale 1:2

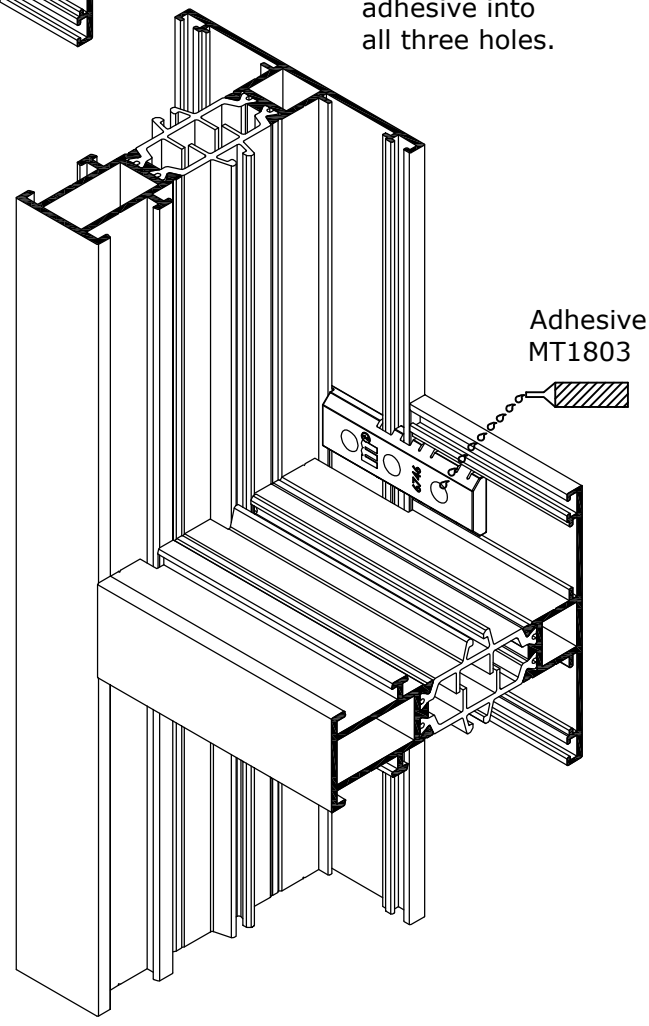
Transom Brace Application Detail

System 4-35 Hi/Hi+

CASEMENT WINDOW

Transom brace 6746 must be used at both ends of all mullions and transoms (including muntin applications) Braces to be securely bonded using MT1803 adhesive.





Fabrication method:

1. Transom joint to be fabricated as per "Mullion/Transom Assembly" sheets.
2. Assemble window frame and crimp corners as per "Corner Assembly Details" sheet.
3. Insert transom braces into outer frame/mullion grooves and clip into mullion/transom as shown above.
4. Bond transom brace into place using MT1803 adhesive injected into all three holes.
5. Complete transom end sealing detail as per sheet "Mullion/Transom Sealing Detail".

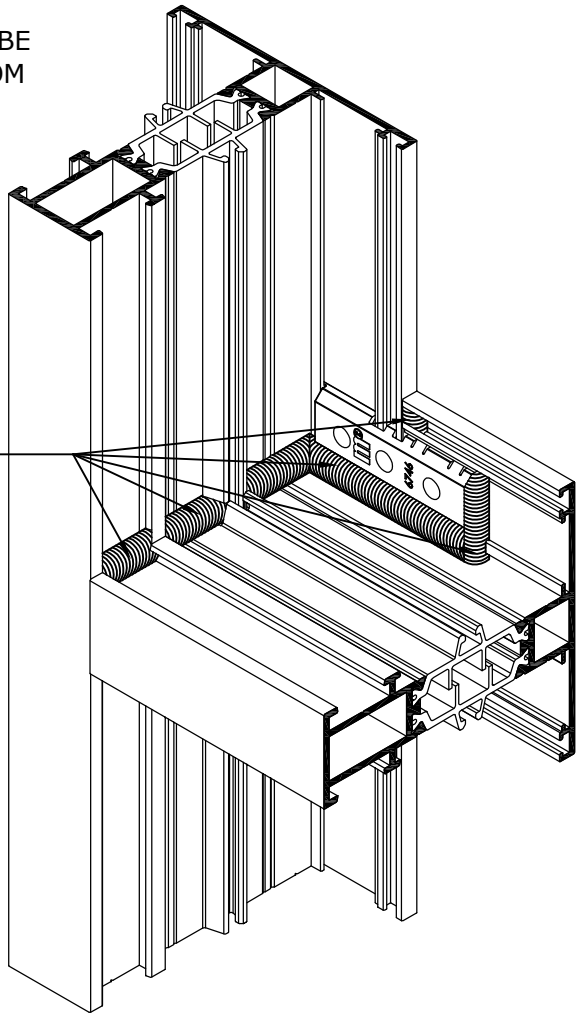
Not to scale

Mullion/Transom Sealing Detail

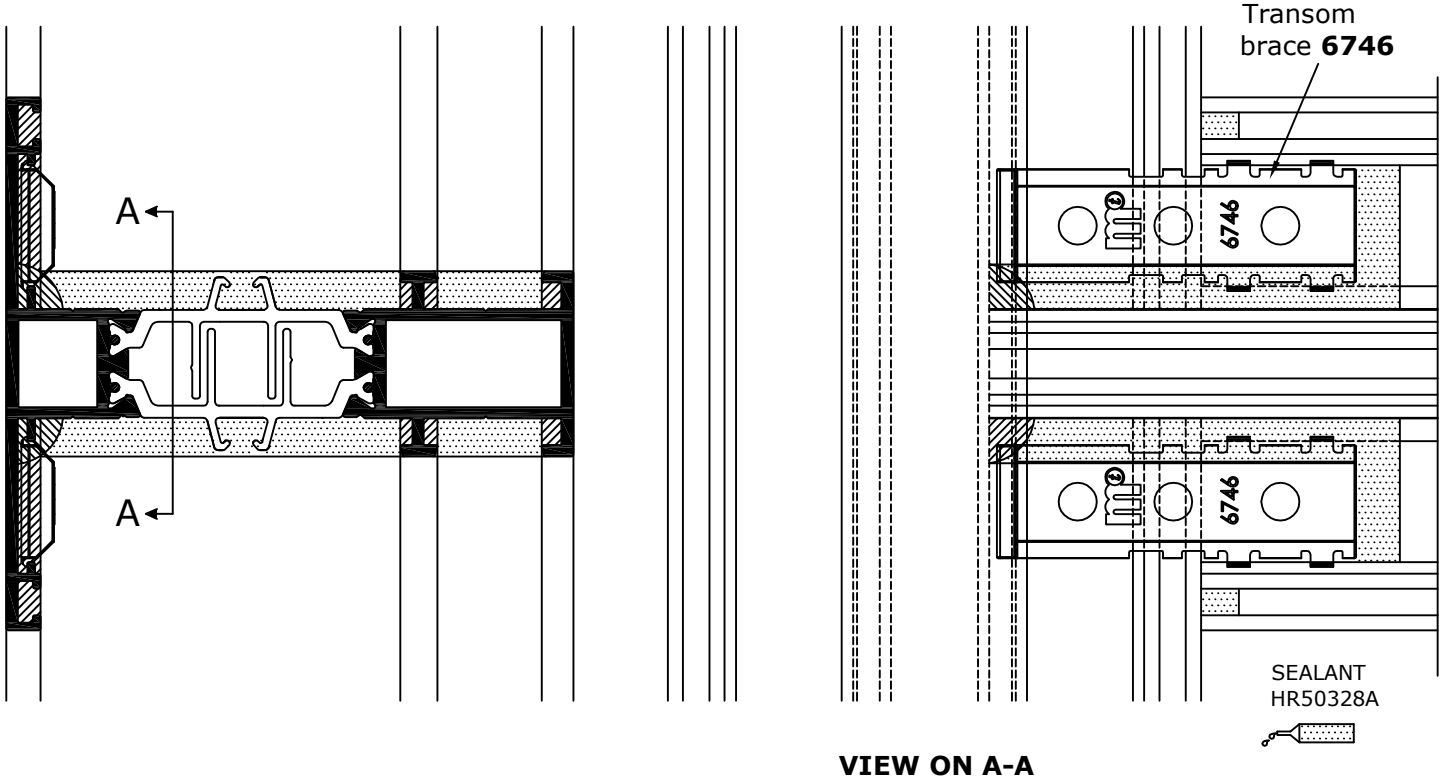
System 4-35 Hi/Hi+

CASEMENT WINDOW

THE FOLLOWING DETAIL SHOULD BE APPLIED TO ALL MULLION/TRANSOM SECTIONS. THESE DETAILS TO BE READ IN CONJUNCTION WITH ASSEMBLY DETAILS



Apply a final fillet of HR50328A sealant to junction of mullion and transom

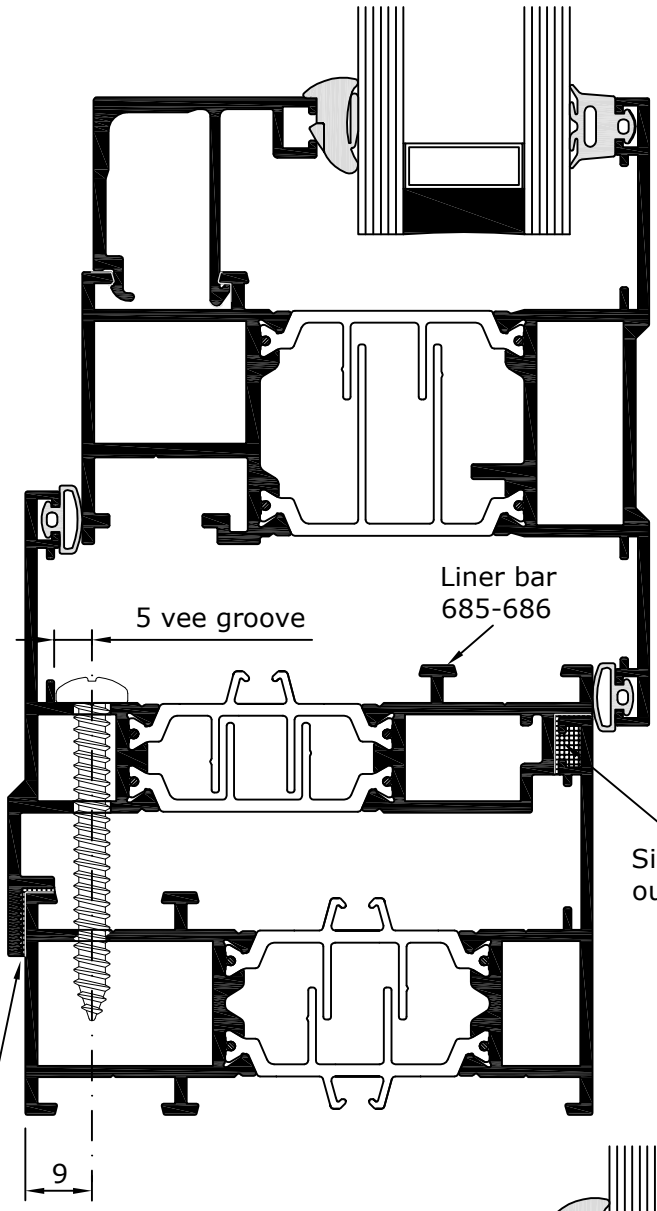


VIEW ON A-A

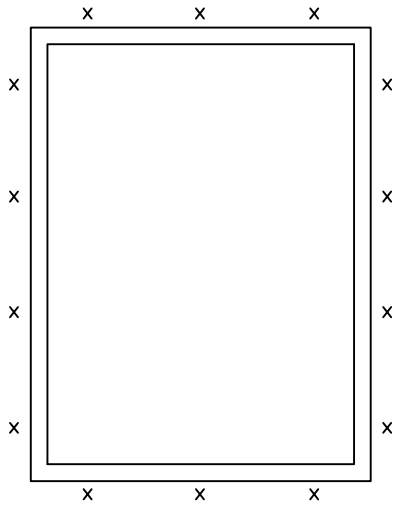
Not to scale

Liner Bar Fixings

All fixings must be sealed using HR50328A sealant.



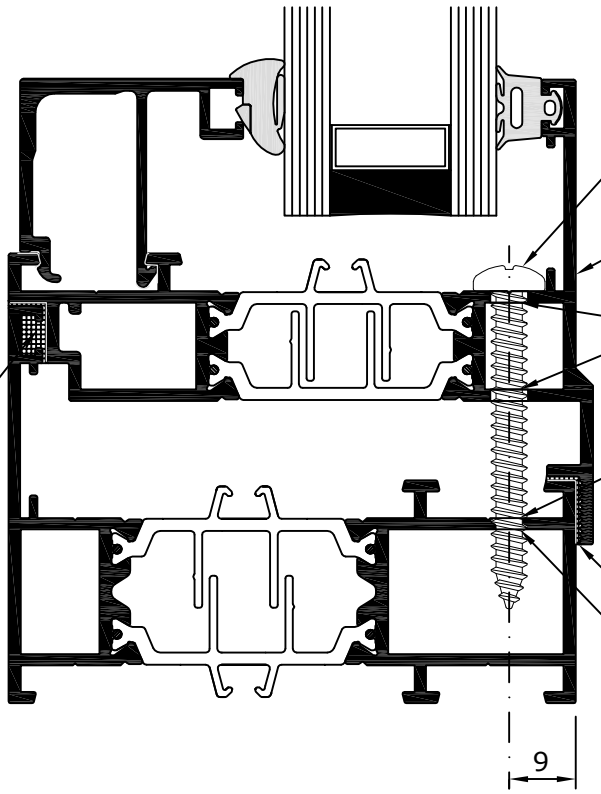
Note:
Liner bar is not suitable
for butt hinge applications.



Positions of
fixings 75mm
from corners
and maximum
250mm centres

Maximum glass weights:

All fixed light and opening inserts = 50Kg



Glazing supports to
be positioned to
avoid screw heads.

For drainage details
refer to section 5 of
this manual

Silicone seal
outside

Scale 1:1

Drip Rails

Preparation Details for Vents Fitted with Friction Hinges

System 4-35 Hi/Hi+

CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

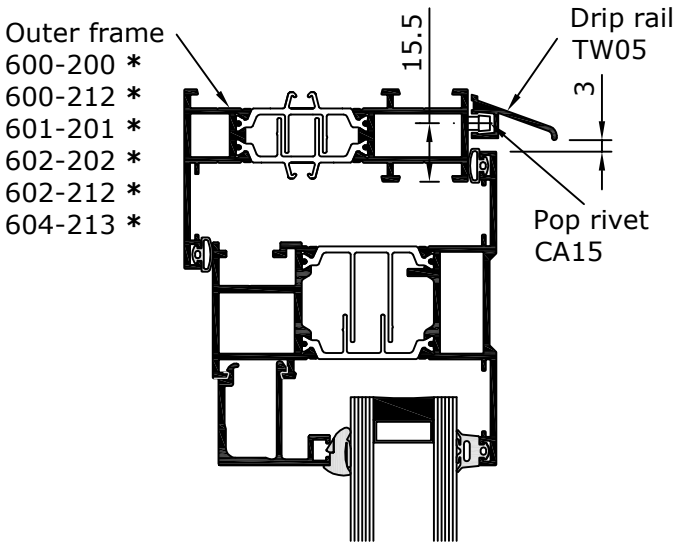
The drip rail should be used in all conditions. A length of drip rail (TW05) should be secured to the frame directly above the casement vent as shown below.

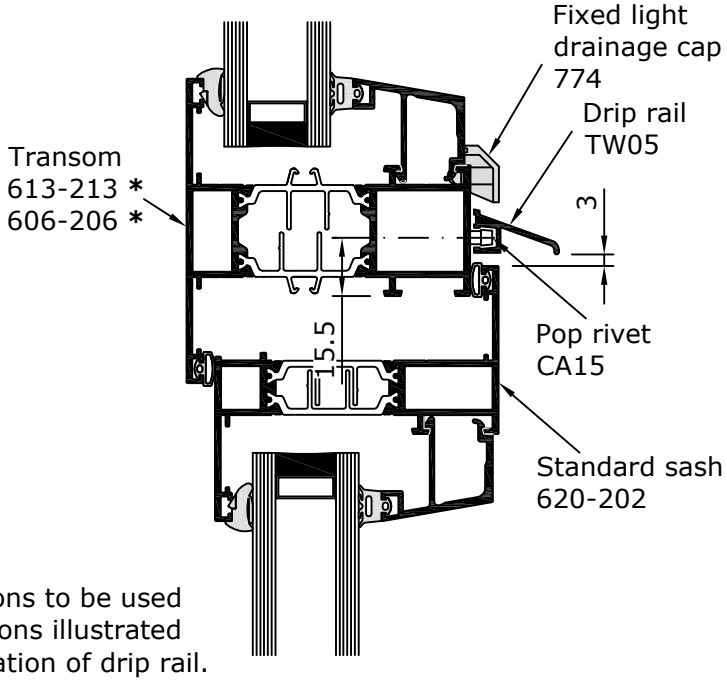
A series of 3mm pilot holes should be drilled, commencing 75mm in from each end and at the required intervals to accept the drip rail rivets (not exceeding 250mm centres).

When the pop rivets are in place a bead of silicone should then be applied to the silicone groove extruded in the drip rail. The drip rail is then push-fitted over the rivets.

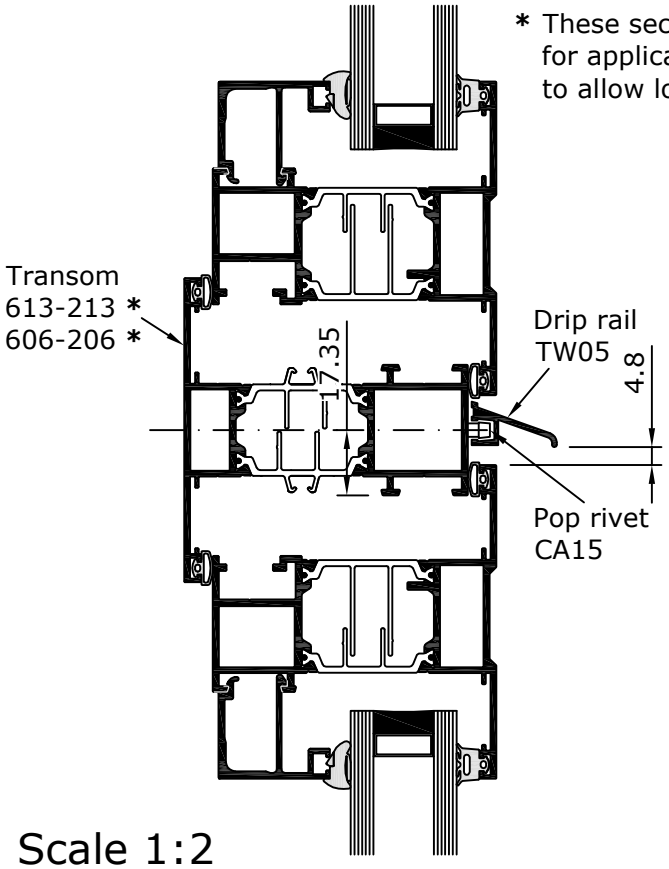
The length of the drip rail should be 20mm greater than the width of the sash and centralised over the sash.

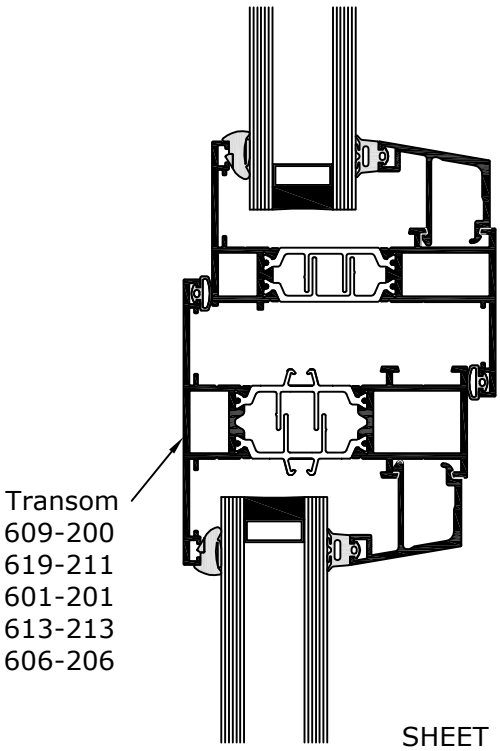
In exposed locations Metal Technology recommend using HS103 in lieu of TW05 in top hung applications.





* These sections to be used for applications illustrated to allow location of drip rail.





Scale 1:2

Drip Rails

Preparation Details for Vents Fitted with Butt Hinges

System 4-35 Hi/Hi+

CASEMENT WINDOW

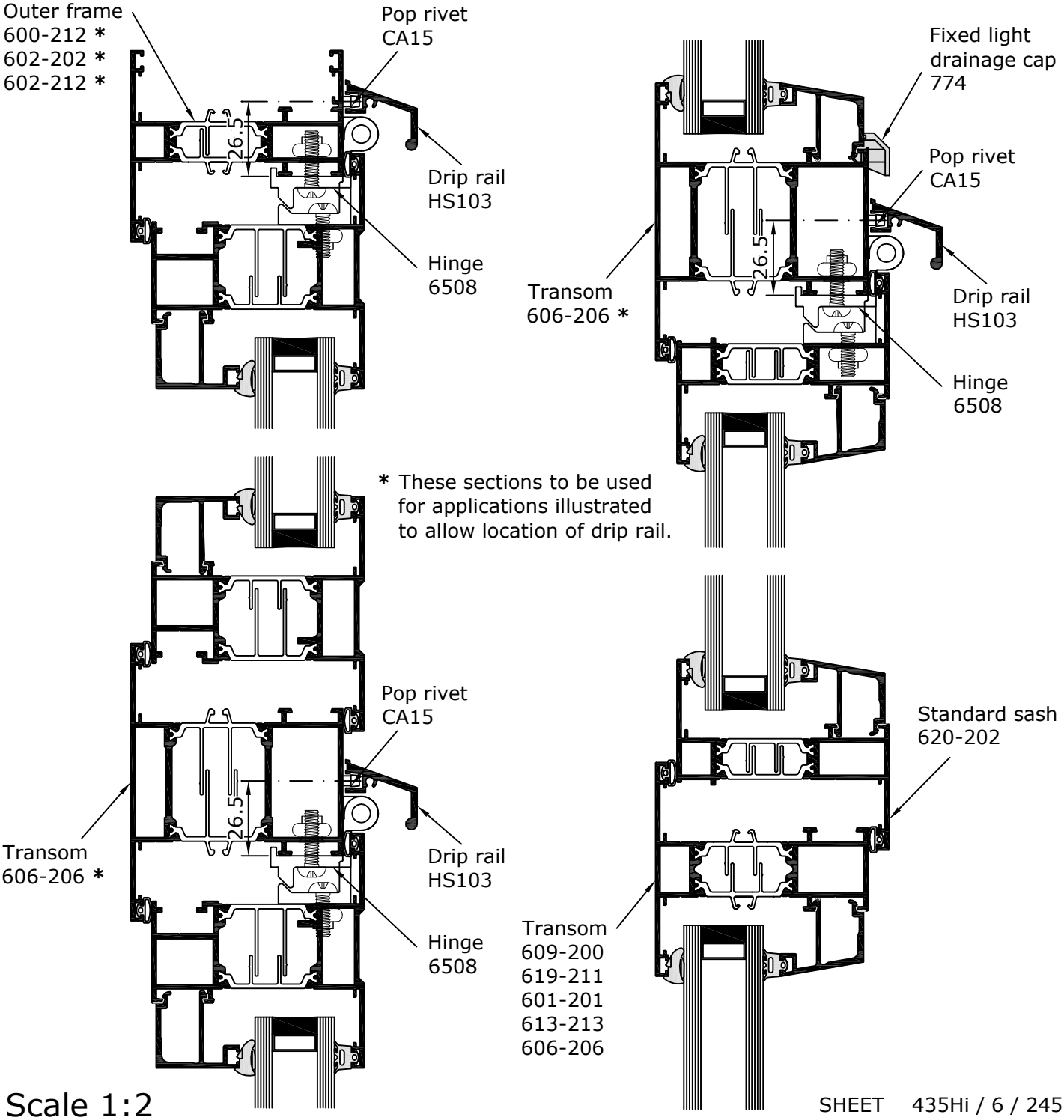
All fixings must be sealed using HR50328A sealant.

The drip rail should be used in all conditions. A length of drip rail (HS103) should be secured to the frame directly above the casement vent as shown below.

A series of 3mm pilot holes should be drilled, commencing 75mm in from each end and at the required intervals to accept the drip rail rivets (not exceeding 250mm centres).

When the pop rivets are in place a bead of silicone should then be applied to the silicone groove extruded in the drip rail. The drip rail is then push-fitted over the rivets.

The length of the drip rail should be 20mm greater than the width of the sash and centralised over the sash.



Scale 1:2

Drip Rails

Transom and Outer Frame Selection Charts and Drip Rail Fixing Details

System 4-35 Hi/Hi+

CASEMENT WINDOW

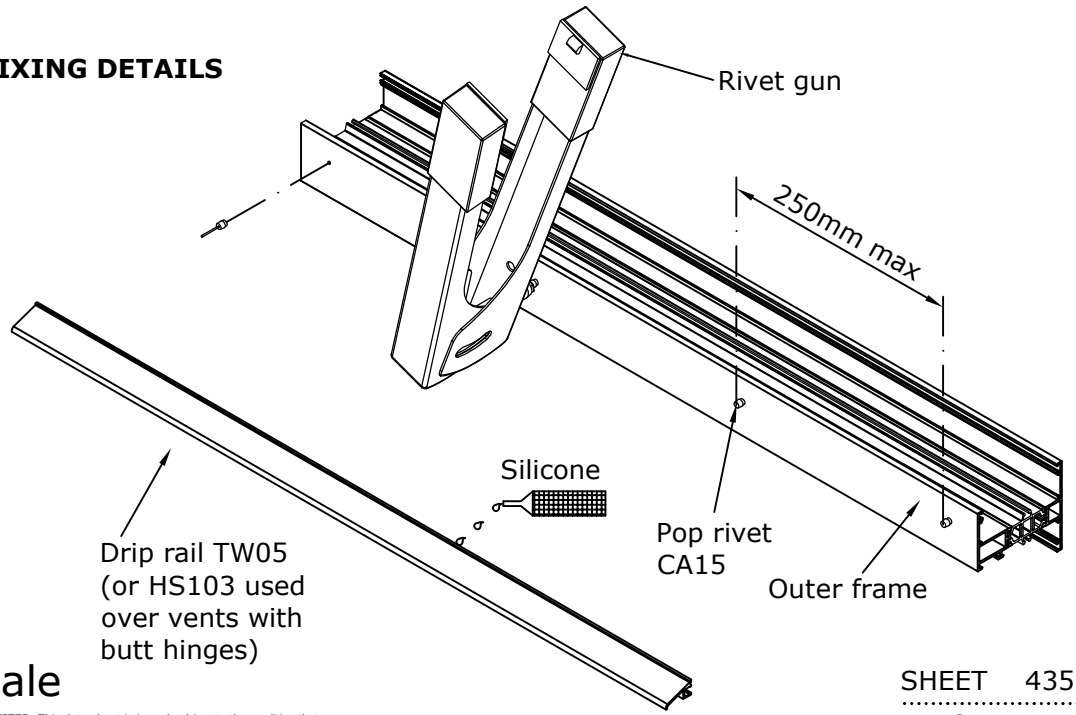
TRANSOM AND OUTER FRAME/DRIP RAIL SELECTION CHARTS - TOP HUNG APPLICATIONS

TRANSOM	**VENT OVER VENT with TW05** (with friction hinges)	**FIXED OVER VENT with TW05** (with friction hinges)	**VENT OVER VENT with HS103** (with butt hinges)	**FIXED OVER VENT with HS103** (with butt hinges)
603-201	✗	✗	✗	✗
606-206	✓	✓	✓	✓
609-200	✗	✗	✗	✗
613-213	✓	✓	✗	✗
619-211	✗	✗	✗	✗

OUTER FRAME	**TW05** (with friction hinges)	**HS103** (with butt hinges)
600-200	✓	✗
601-201	✓	✗
600-212	✓	✓
602-202	✓	✓
602-212	✓	✓
604-213	✓	✗
620-204	✗	Drip rail fixed to transom cap
620-216	✗	Drip rail fixed to transom cap

Where render finishes occur it may be necessary to check against site conditions to ensure that the drip rail can be fitted.

DRIP RAIL FIXING DETAILS



Not to scale

Cockspur Handle

Sashes 620-202, 624-625

System 4-35 Hi/Hi+

CASEMENT WINDOW

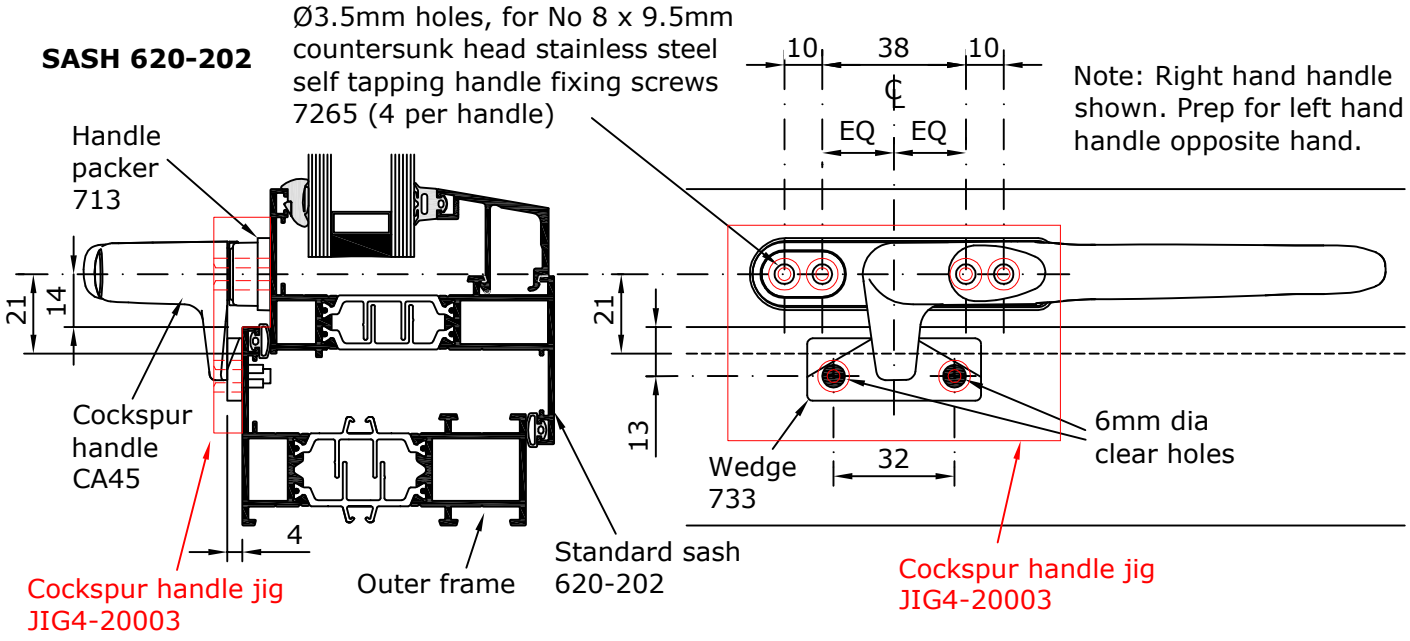
All fixings for handles and strikers must be sealed using HR50328A sealant.

In vulnerable locations or where windows may be subjected to abuse, Metal Technology recommend that the cockspur handles are fitted with M4 rivnuts and stainless steel countersunk machine screws in lieu of the No. 8 x 9.5mm countersunk stainless steel self tapping screws.

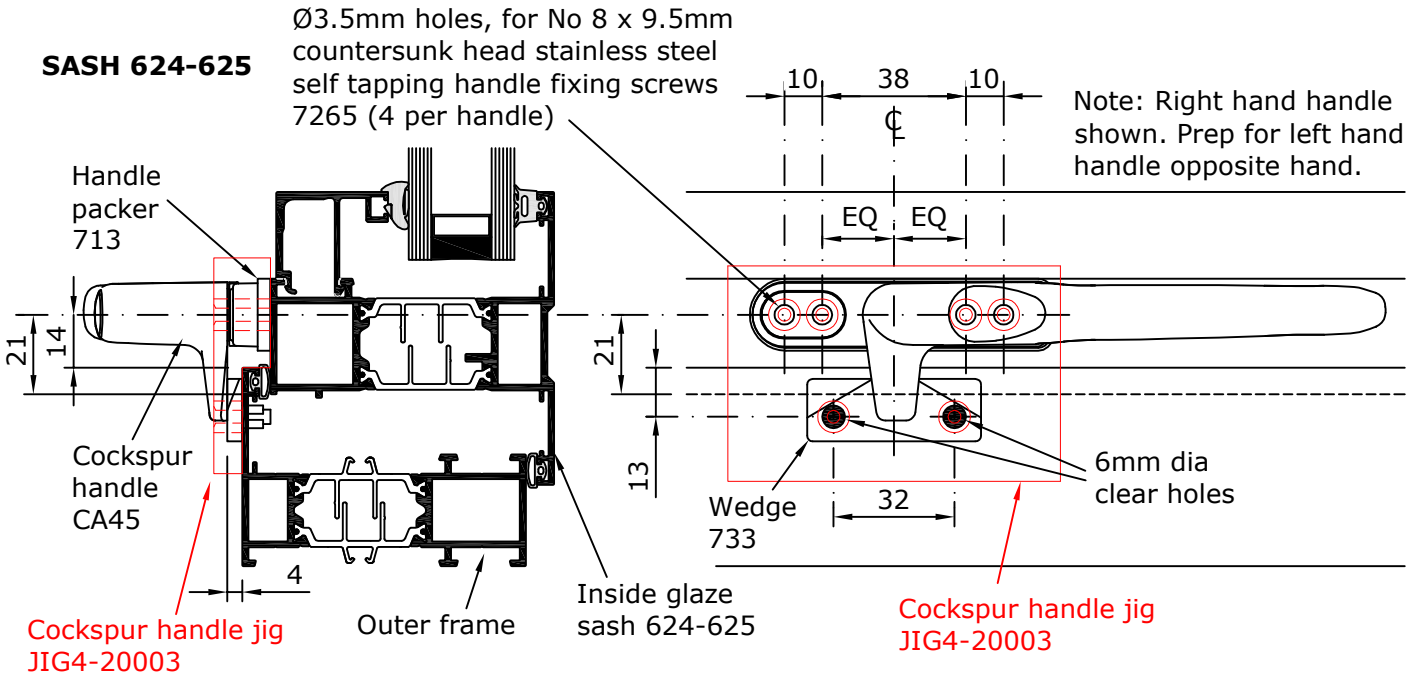
Metal Technology recommend that if one handle is used it should be positioned centrally, and if two are used they should be positioned at the ¼ points of the sash. For number and position of cockspur handles refer to maximum/minimum size limitation charts.

1. When vent is fitted into outer frame offer centre line of JIG4-20003 jig to centre line of handle position.
2. Mark all six hole positions using 3.5mm drill bit.
3. Remove jig and drill out handle holes using 3.5mm drill bit.
4. Drill out wedge holes using 6mm drill bit.

SASH 620-202



SASH 624-625



Scale 1:2

Cockspur Handle

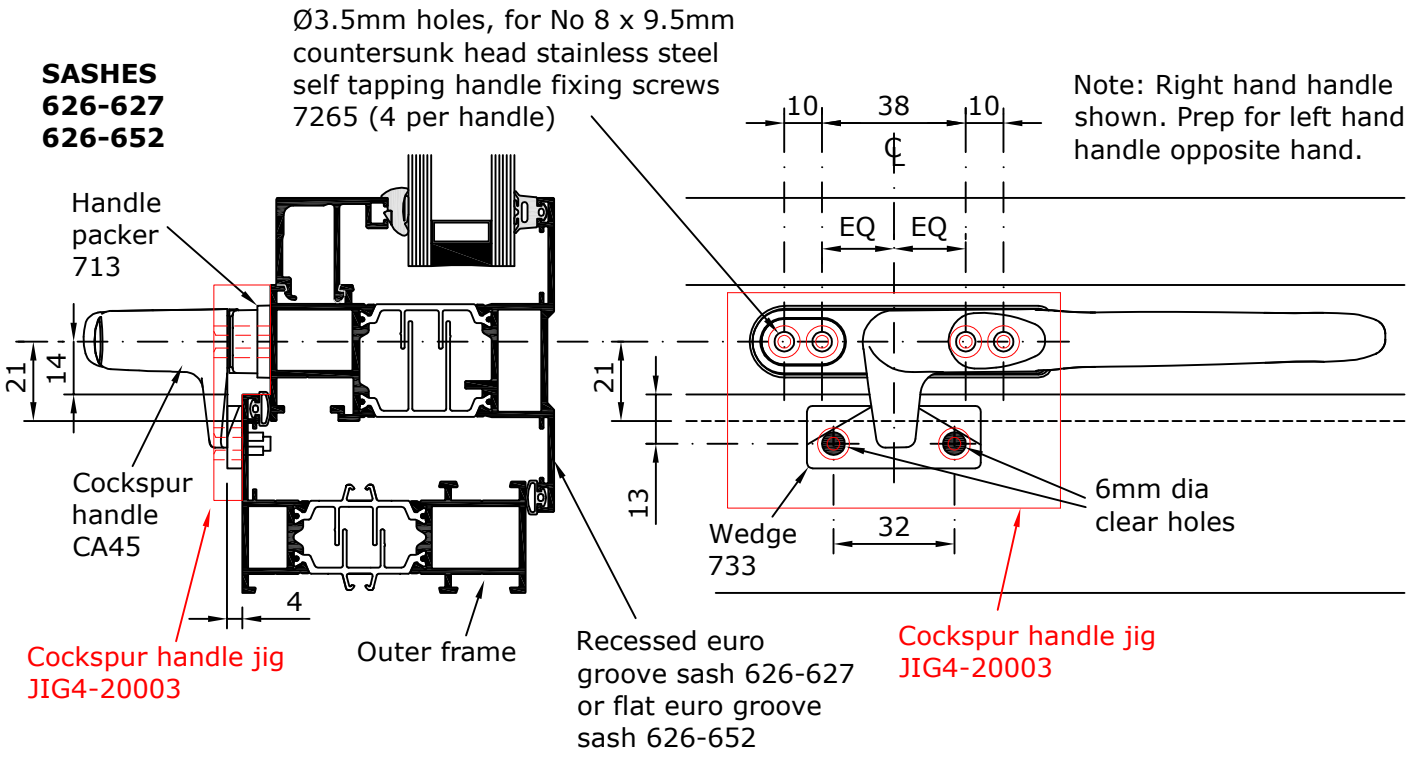
Euro Groove Sashes 626-627 and 626-652

System 4-35 Hi/Hi+

CASEMENT WINDOW

All fixings for handles and strikers must be sealed using HR50328A sealant.

In vulnerable locations or where windows may be subjected to abuse, Metal Technology recommend that the cockspur handles are fitted with M4 rivnuts and stainless steel countersunk machine screws in lieu of the No 8 x 9.5mm countersunk stainless steel self tapping screws.



Scale 1:2

Firemans Axe Cockspur Fitting

Sashes 620-202, 626-627, 626-652

System 4-35 Hi/Hi+
CASEMENT WINDOW

All fixings for handles and strikers must be sealed using HR50328A sealant.

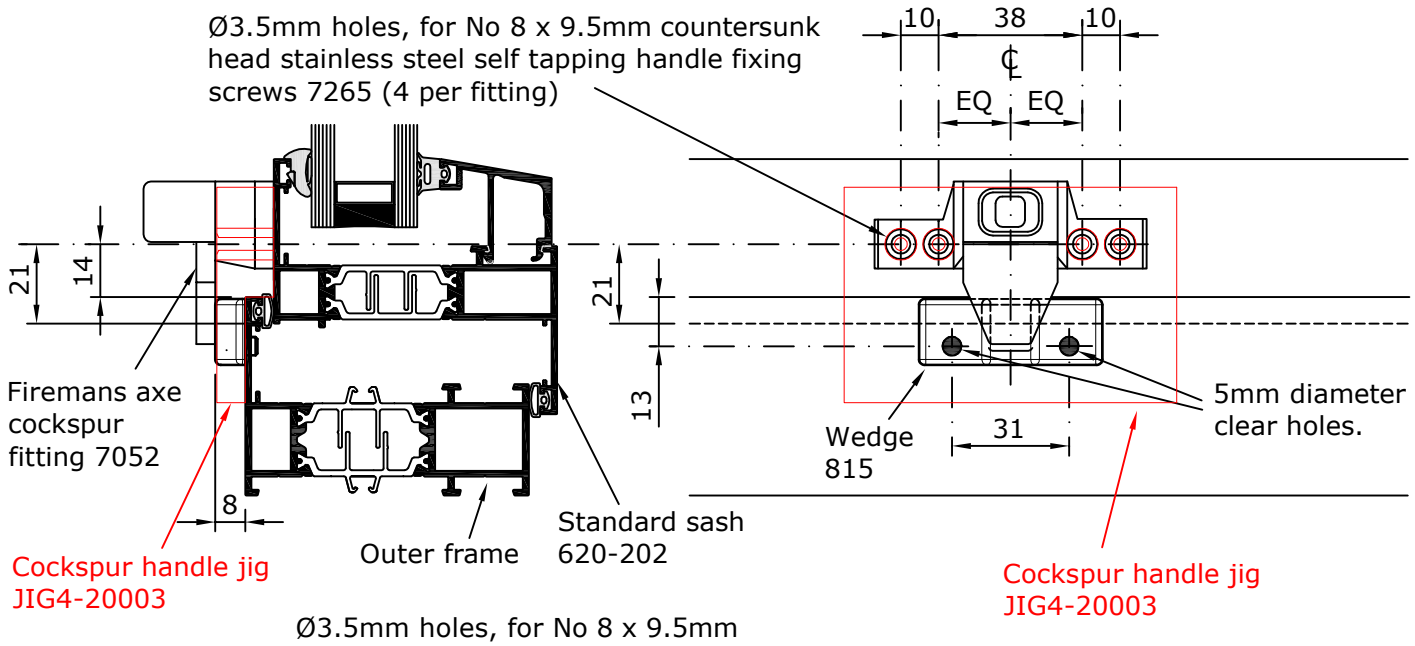
Firemans axe cockspur fitting is not suitable for use with sash 624-625.

In vulnerable locations or where windows may be subjected to abuse, Metal Technology recommend that the firemans axe fittings are fitted with M4 rivnuts and stainless steel countersunk machine screws in lieu of the No. 8 x 9.5mm countersunk stainless steel self tapping screws.

Metal Technology recommend that if one firemans axe fitting is used it should be positioned centrally, and if two are used they should be positioned at the ¼ points of the sash. For number and position of firemans axe fittings refer to maximum/minimum size limitation charts.

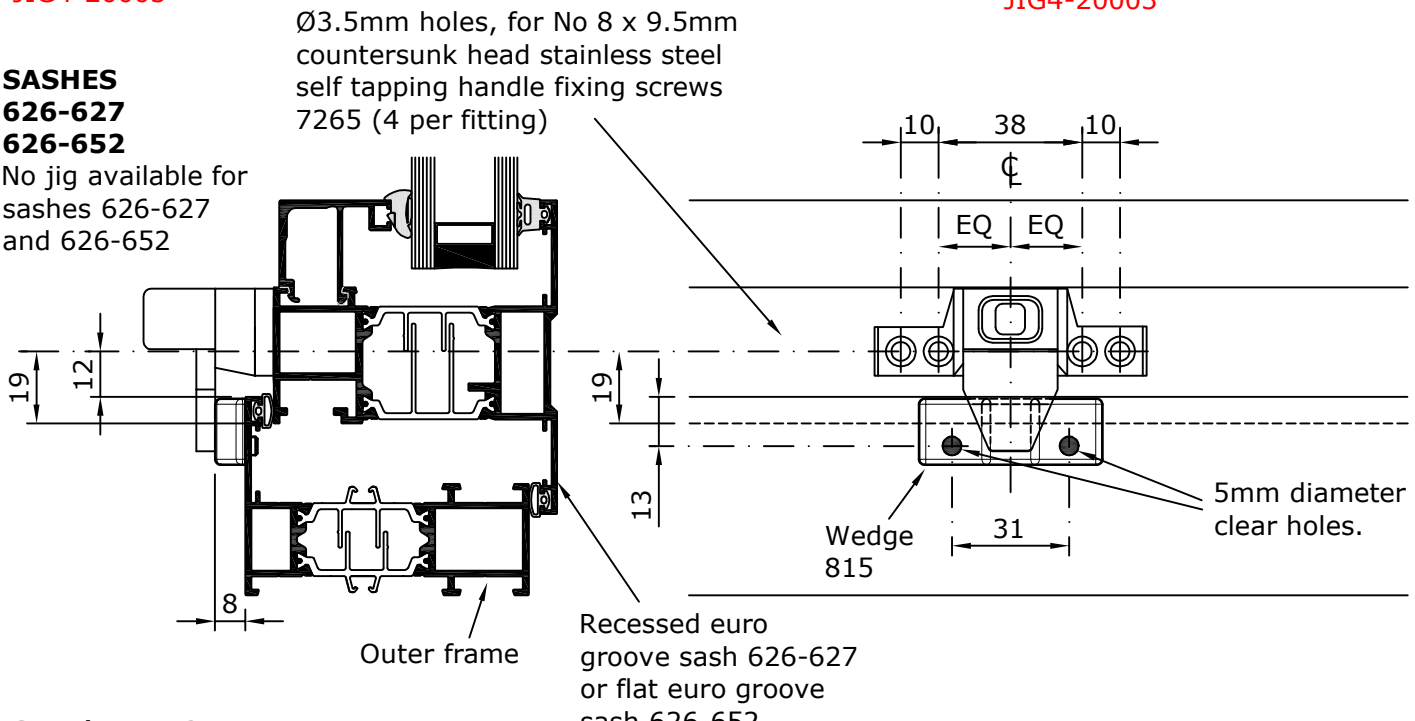
SASH 620-202

1. When vent is fitted into outer frame offer centre line of JIG4-20003 jig to centre line of handle position.
2. Mark four hole positions for firemans axe fitting only using 3.5mm drill bit.
3. Remove jig and drill out four firemans axe fitting holes using 3.5mm drill bit.
4. Do not use jig for wedge holes. Manually mark and drill out wedge holes using 5mm drill bit.



SASHES
626-627
626-652

No jig available for sashes 626-627 and 626-652



Scale 1:2

Standard and Offset Euro Espag Lock and Handle Prep

System 4-35 Hi/Hi+
CASEMENT WINDOW

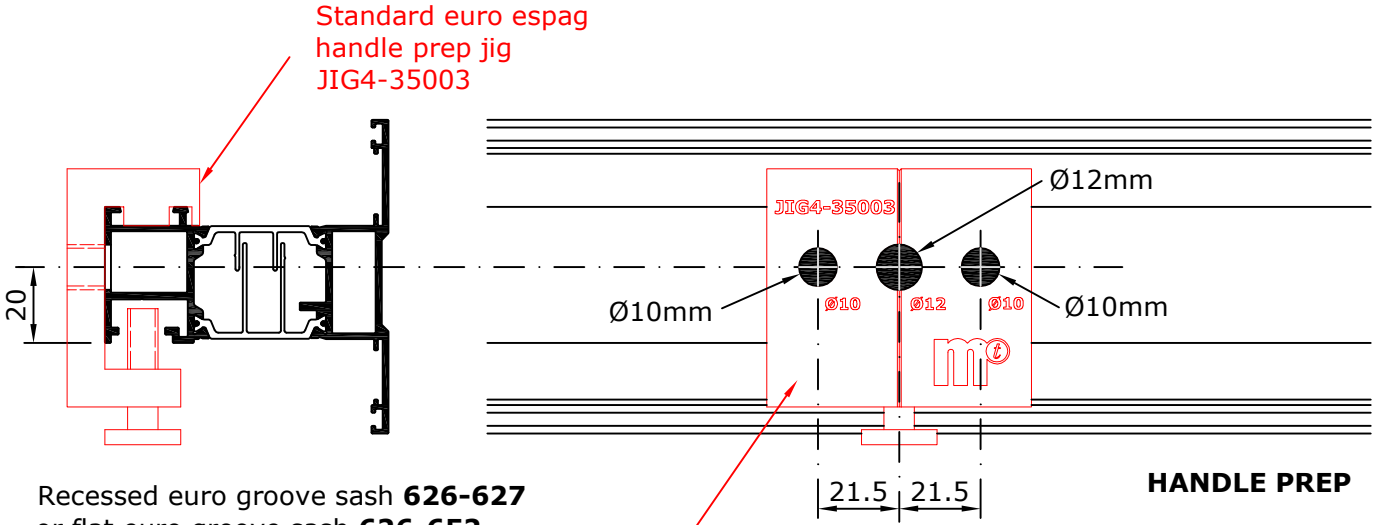
Euro Groove Sashes 626-627 and 626-652

Jig drilling procedure:

1. Prior to routering 65mm x 12.5mm slot offer centre line of JIG4-35003 jig to centre line of handle position, and clamp in place.
2. Drill holes as shown.
3. Remove jig and router 65mm x 12.5mm slot in underside of sash.

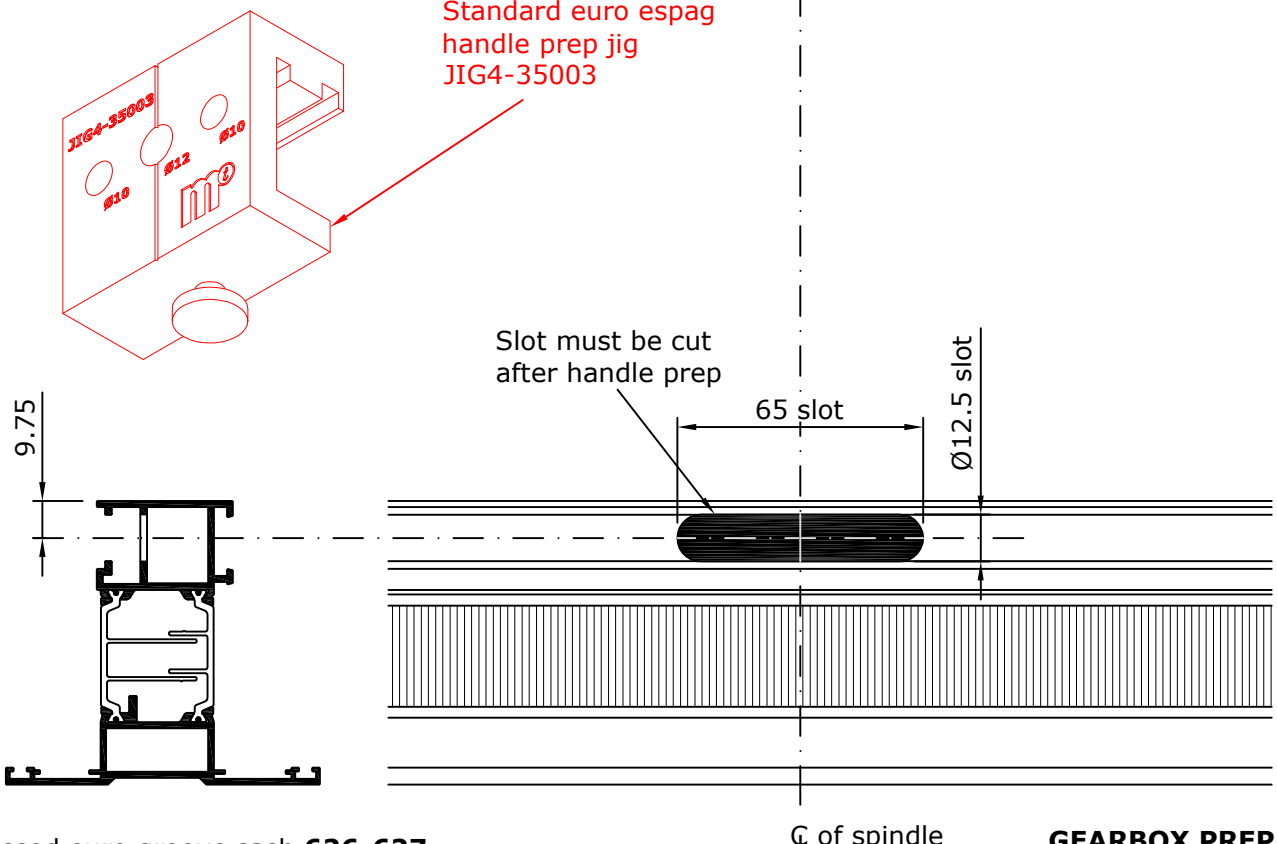
This prep also suits 7053 firemans axe option.

Perimeter of handle must be sealed using HR50328A sealant.



Recessed euro groove sash **626-627**
or flat euro groove sash **626-652**

HANDLE PREP



Recessed euro groove sash **626-627**
or flat euro groove sash **626-652**

GEARBOX PREP

Scale 1:2

Standard and Offset Euro Espag Lock and Handle Prep

Slimline Euro Groove Sash 676-677

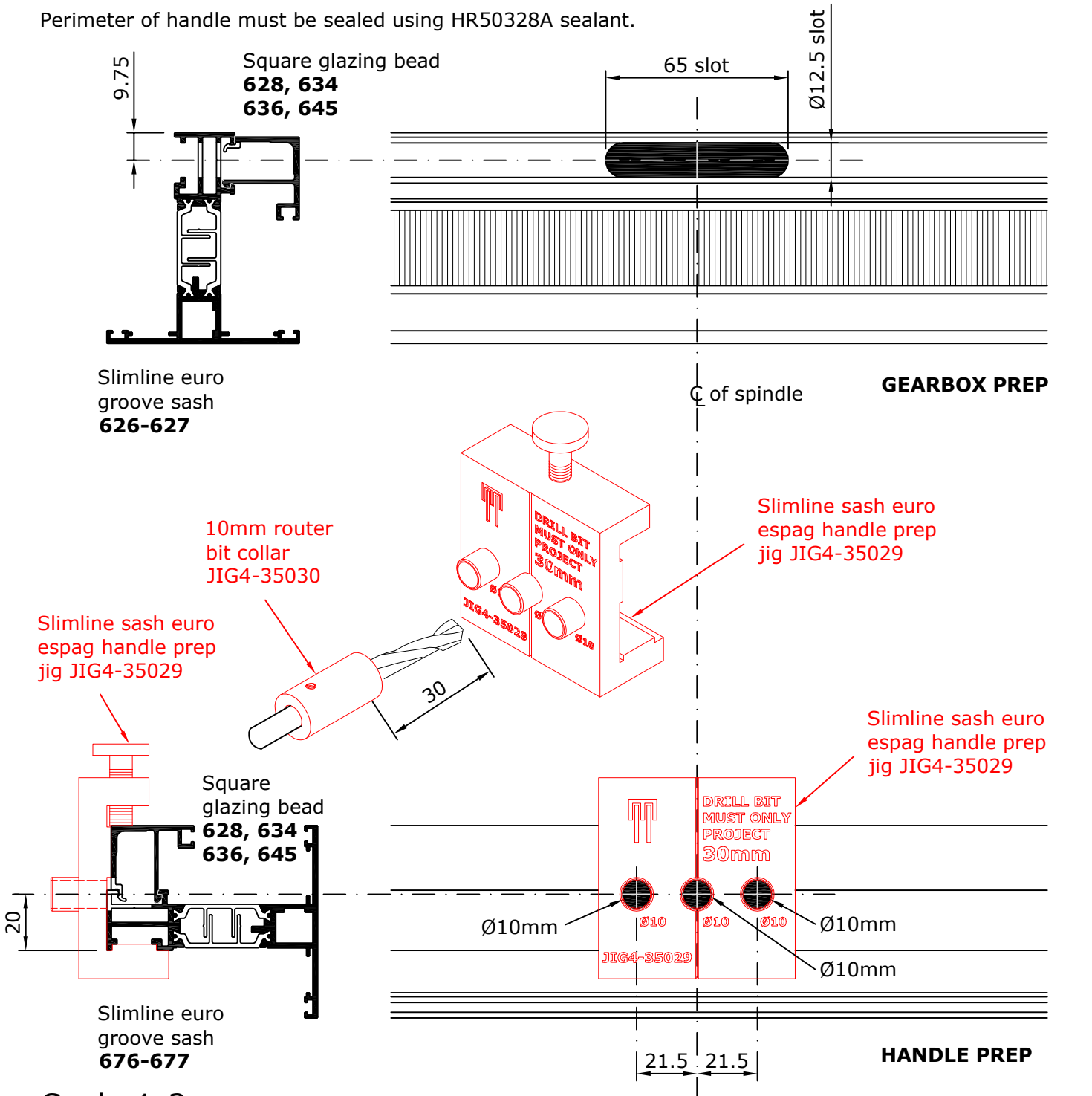
System 4-35 Hi/Hi+
CASEMENT WINDOW

Jig drilling procedure:

1. Clip bead into sash profile ensuring ends of bead align with ends of mitre cut.
2. With bead held firmly in position router 65mm x 12.5mm slot through underside of sash, removing foot of bead as indicated.
3. Remove bead and crimp sash in accordance with "Corner Crimping Detail - Slimline Euro Groove Sash 676-677" sheet. Re-fit bead to sash.
4. Offer centre line of JIG4-35029 jig to centre line of handle position, and clamp in place.
5. Drill holes using 10mm router bit collar JIG4-35030.
6. Remove jig. Temporarily fit 825 or 7055 handle and check operation to ensure there is no interference between profile and chamfered corners of handle spindle.

7053 firemans axe option is not suitable for use with slimline sash 676-677.

Perimeter of handle must be sealed using HR50328A sealant.



Scale 1:2

3-Sided Euro Espag Lock and Handle Prep

System 4-35 Hi/Hi+
CASEMENT WINDOW

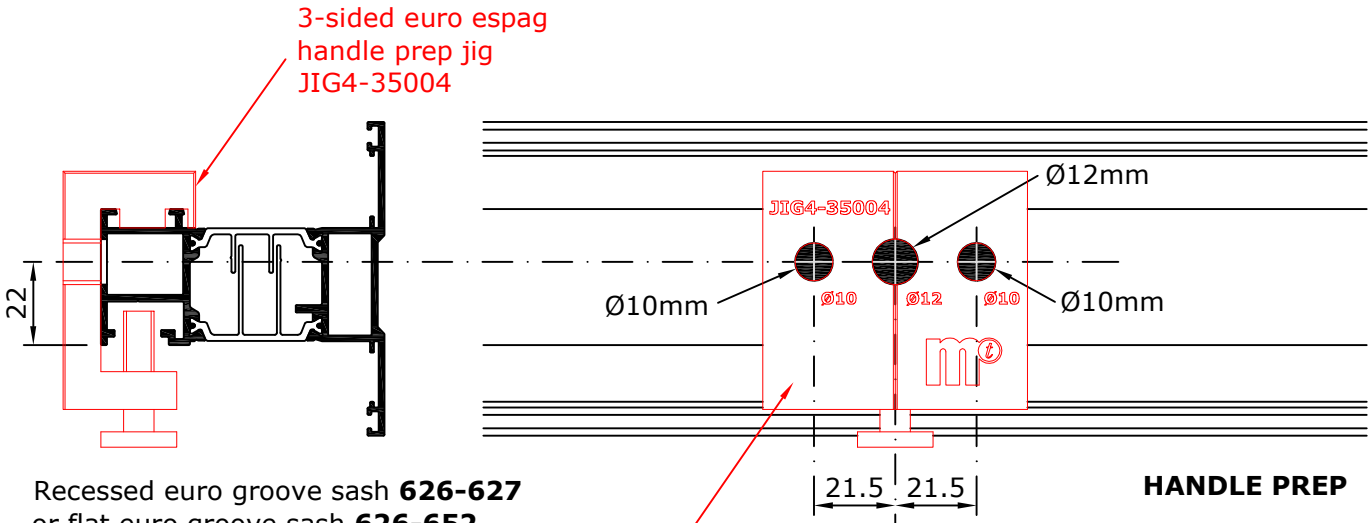
Euro Groove Sashes 626-627 and 626-652

Jig drilling procedure:

1. Prior to routering 85mm x 12mm slot offer centre line of JIG4-35004 jig to centre line of handle position, and clamp in place.
2. Drill holes as shown.
3. Remove jig and router 85mm x 12mm slot in underside of sash.

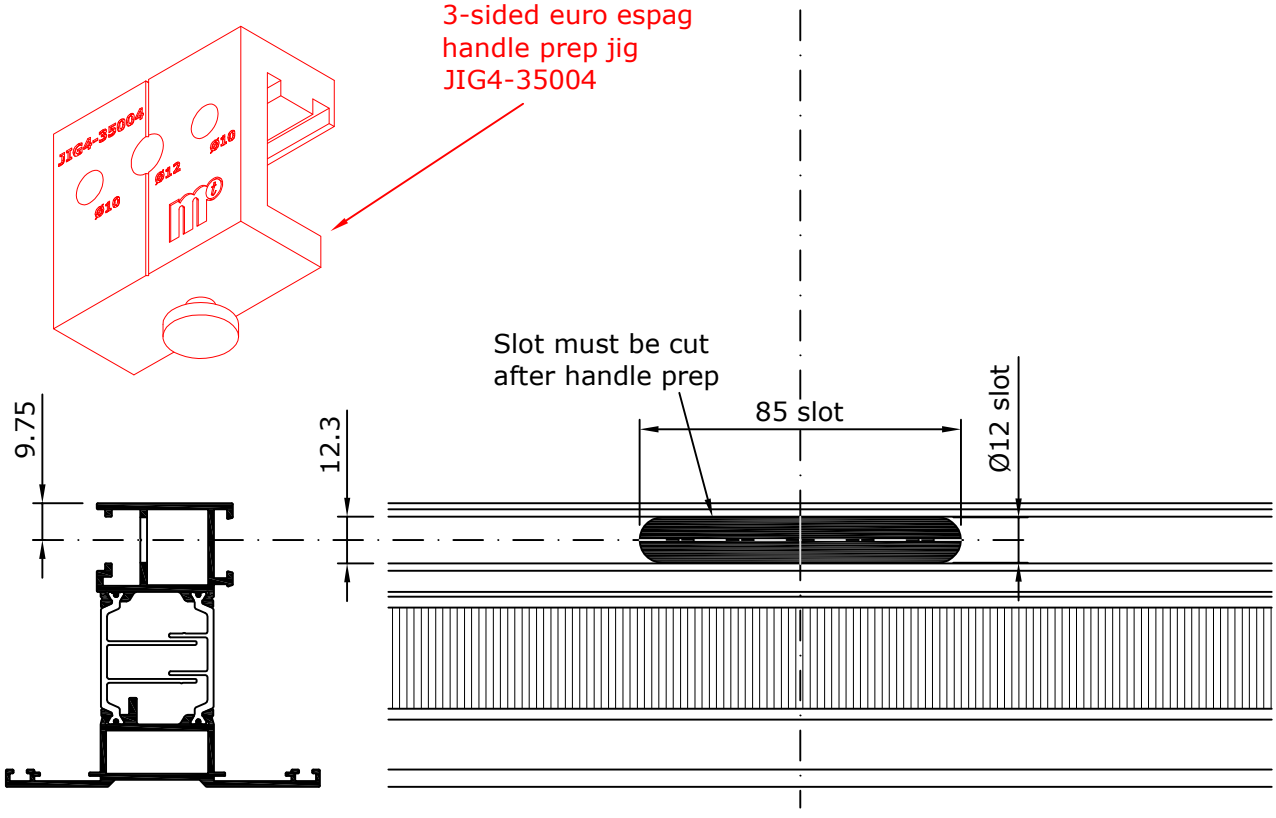
This prep also suits 7053 firemans axe option.

Perimeter of handle must be sealed using HR50328A sealant.



Recessed euro groove sash **626-627** or flat euro groove sash **626-652**

HANDLE PREP



Recessed euro groove sash **626-627** or flat euro groove sash **626-652**

GEARBOX PREP

Scale 1:2

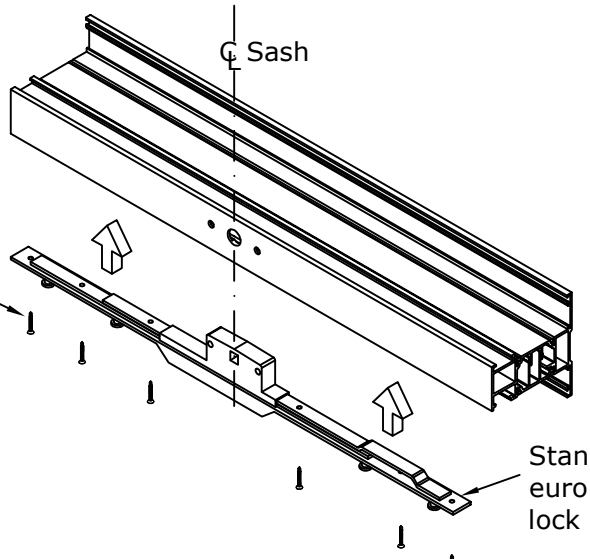
Standard Euro Espag Fixing Details

All fixings must be sealed using HR50328A sealant.

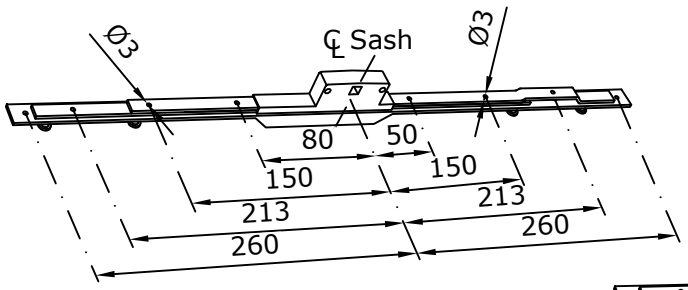
Hole positions on this sheet are based on a right handed handle.
For a left handed handle the espag and hole positions must be reversed.

Espag to sashes 626-627 and 626-652 to be fixed using No 7 x 25mm self-drilling countersunk screws 7223.

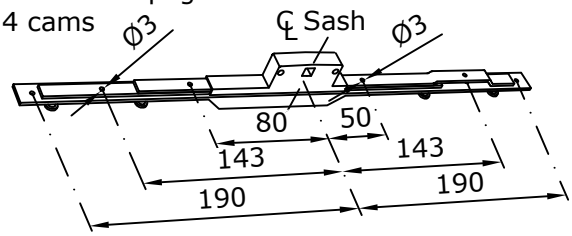
Espag to sash 676-677 to be fixed using No 7 x 16mm self-drilling countersunk screws 7256.

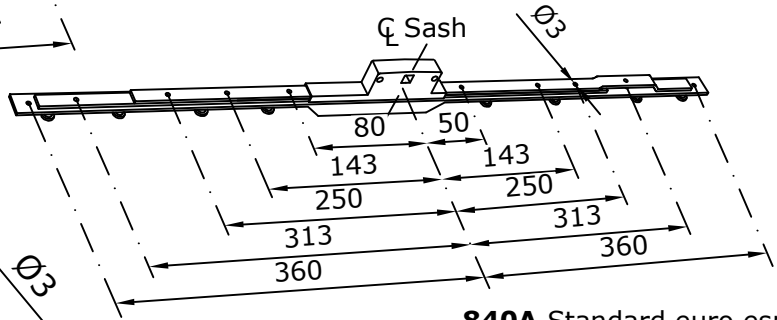


839A Standard euro espag locking with 4 cams



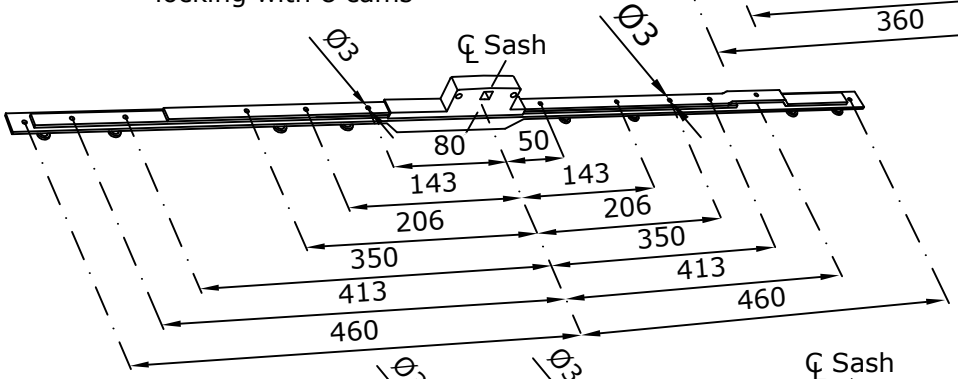
838A Standard euro espag locking with 4 cams



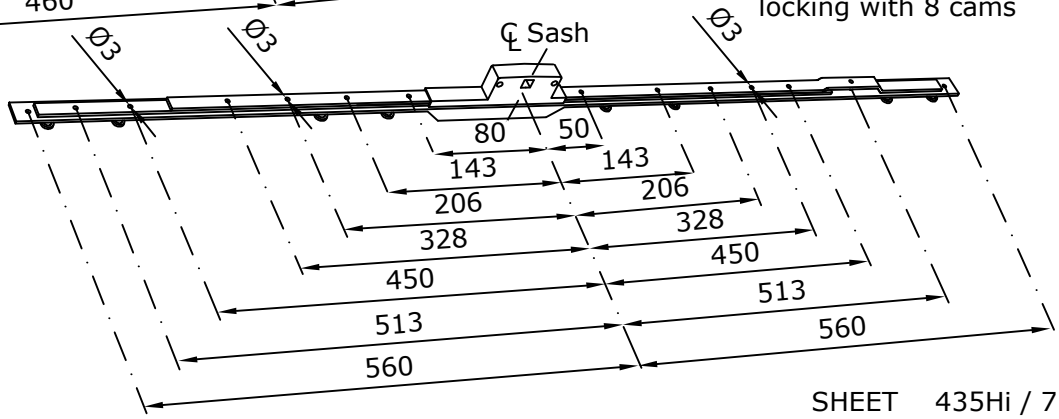


840A Standard euro espag locking with 8 cams

841A Standard euro espag locking with 8 cams



842A Standard euro espag locking with 8 cams



Not to scale

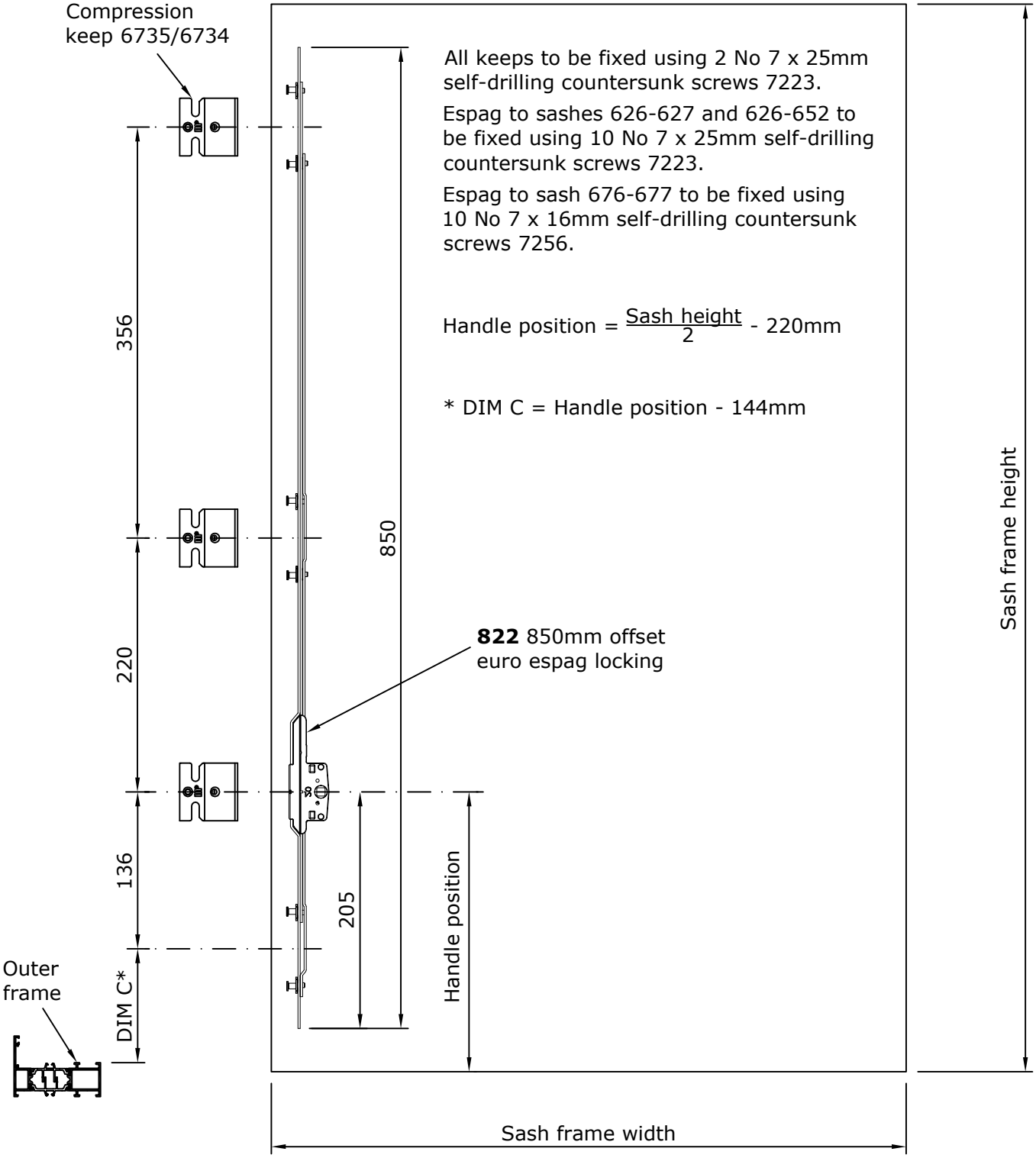
Offset Euro Espag Locking

Side Hung Window Euro Groove Sashes
626-627, 626-652 and 676-677
Sash Heights 925mm to 1024mm

System 4-35 Hi/Hi+
CASEMENT WINDOW

Refer to "Vent Size Limitation Chart - Side Hung Vents with Friction Hinges and Offset Euro Espag Locking" sheet.

All fixings must be sealed using HR50328A sealant.



Scale 1:5

Offset Euro Espag Locking

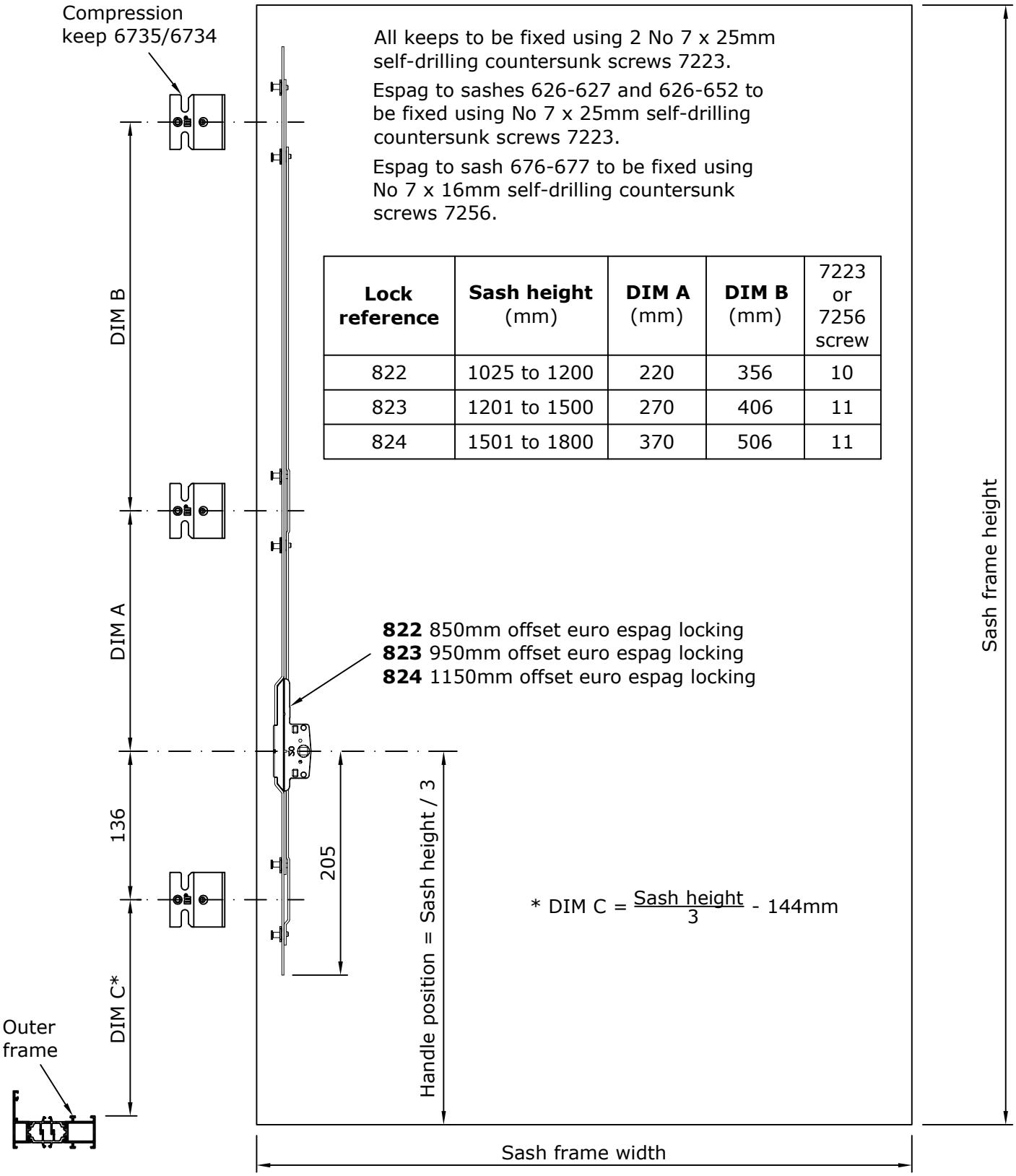
Side Hung Window Euro Groove Sashes
626-627, 626-652 and 676-677
Sash Heights 1025mm to 1800mm

System 4-35 Hi/Hi+

CASEMENT WINDOW

Refer to "Vent Size Limitation Chart - Side Hung Vents with Friction Hinges and Offset Euro Espag Locking" sheet.

All fixings must be sealed using HR50328A sealant.



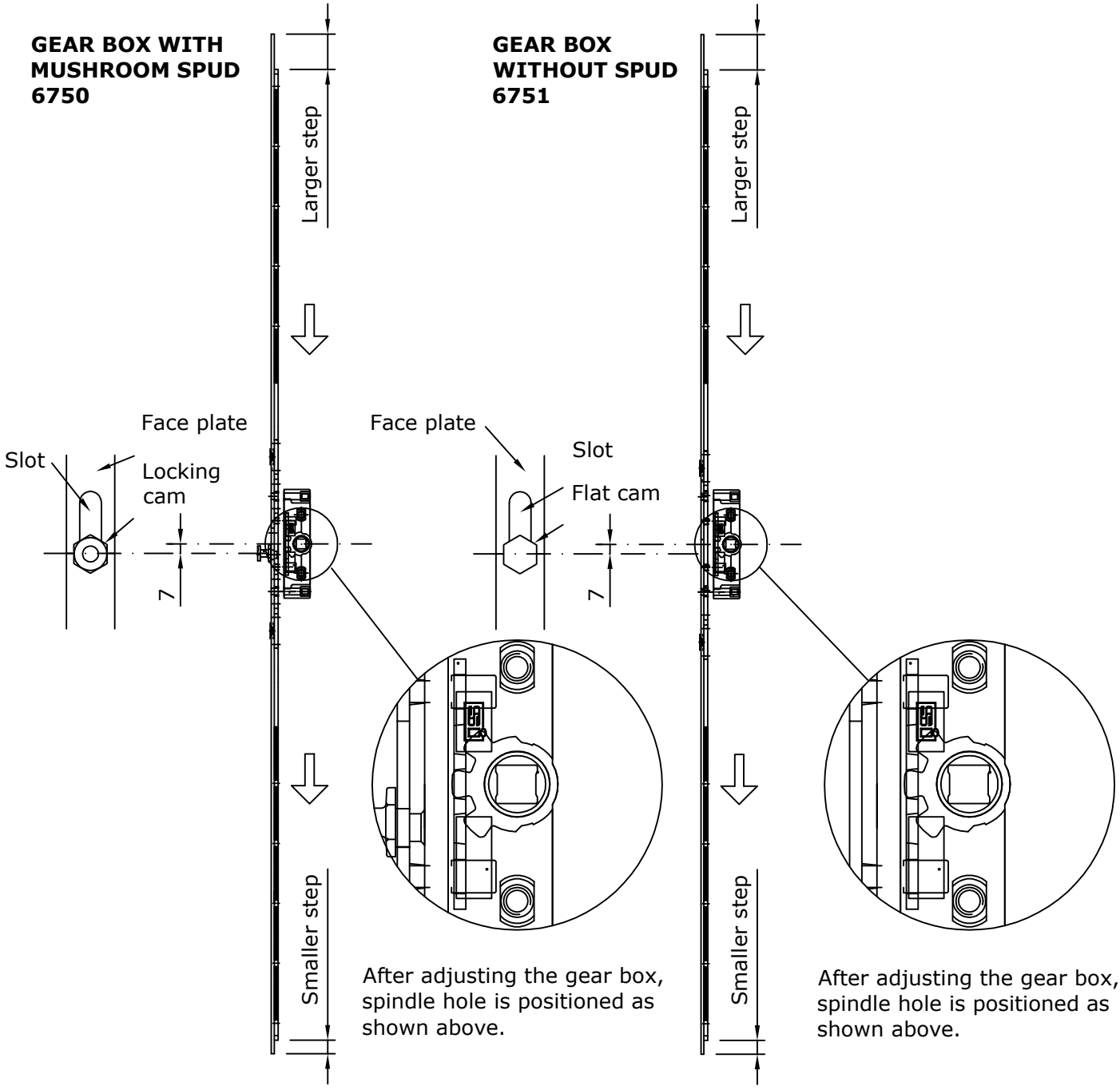
Lock reference	Sash height (mm)	DIM A (mm)	DIM B (mm)	7223 or 7256 screw
822	1025 to 1200	220	356	10
823	1201 to 1500	270	406	11
824	1501 to 1800	370	506	11

Scale 1:5

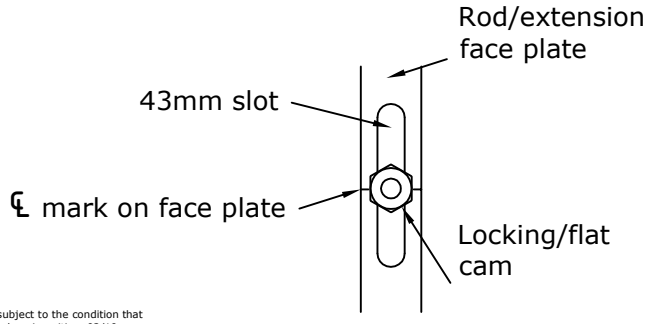
Cropping Details

Position spindle hole so that locking/flat cam is at the bottom of the slot in the face plate, offset by 7mm from centre line of the spindle hole. This will result in a larger step between the face plate and serrated plate at the top than at the bottom.

When cropping (particularly when gear box is not fitted at sash midpoint) and fitting gear boxes consider orientation to ensure locking/flat cam remains positioned at bottom of slot in face plate.



When using rods/extensions 844, 845, 6767, 6768 ensure locking/flat cam is centred in 43mm slot of face plate prior to cropping.



Not to Scale

3-Sided Euro Espag Locking

Side Hung Window Euro Groove Sashes
626-627 and 626-652 Sash Heights
500mm to 677mm with Handle at Mid-point

System 4-35 Hi/Hi+
CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

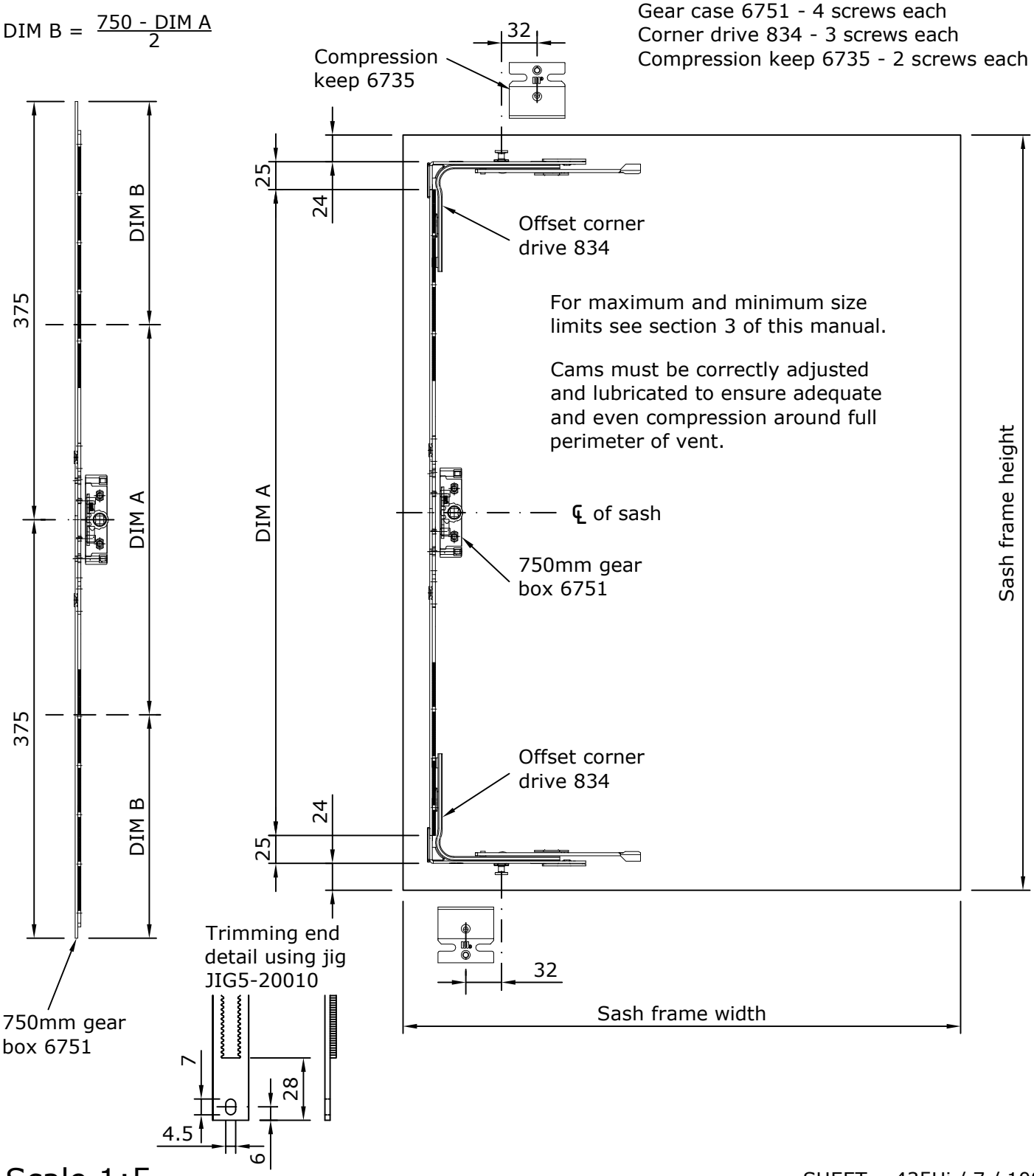
Night vent facility is not available with 3-sided euro espag locking.

CUTTING SIZES FOR GEAR BOX

DIM A = Sash frame width less 98mm

DIM B = $\frac{750 - \text{DIM A}}{2}$

All parts fixed with No 7 x 25mm countersunk stainless steel self drilling screws 7223
Gear case 6751 - 4 screws each
Corner drive 834 - 3 screws each
Compression keep 6735 - 2 screws each



Scale 1:5

3-Sided Euro Espag Locking

Side Hung Window Euro Groove Sashes
626-627 and 626-652 Sash Heights
678mm to 1078mm with Handle at Mid-point

System 4-35 Hi/Hi+
CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

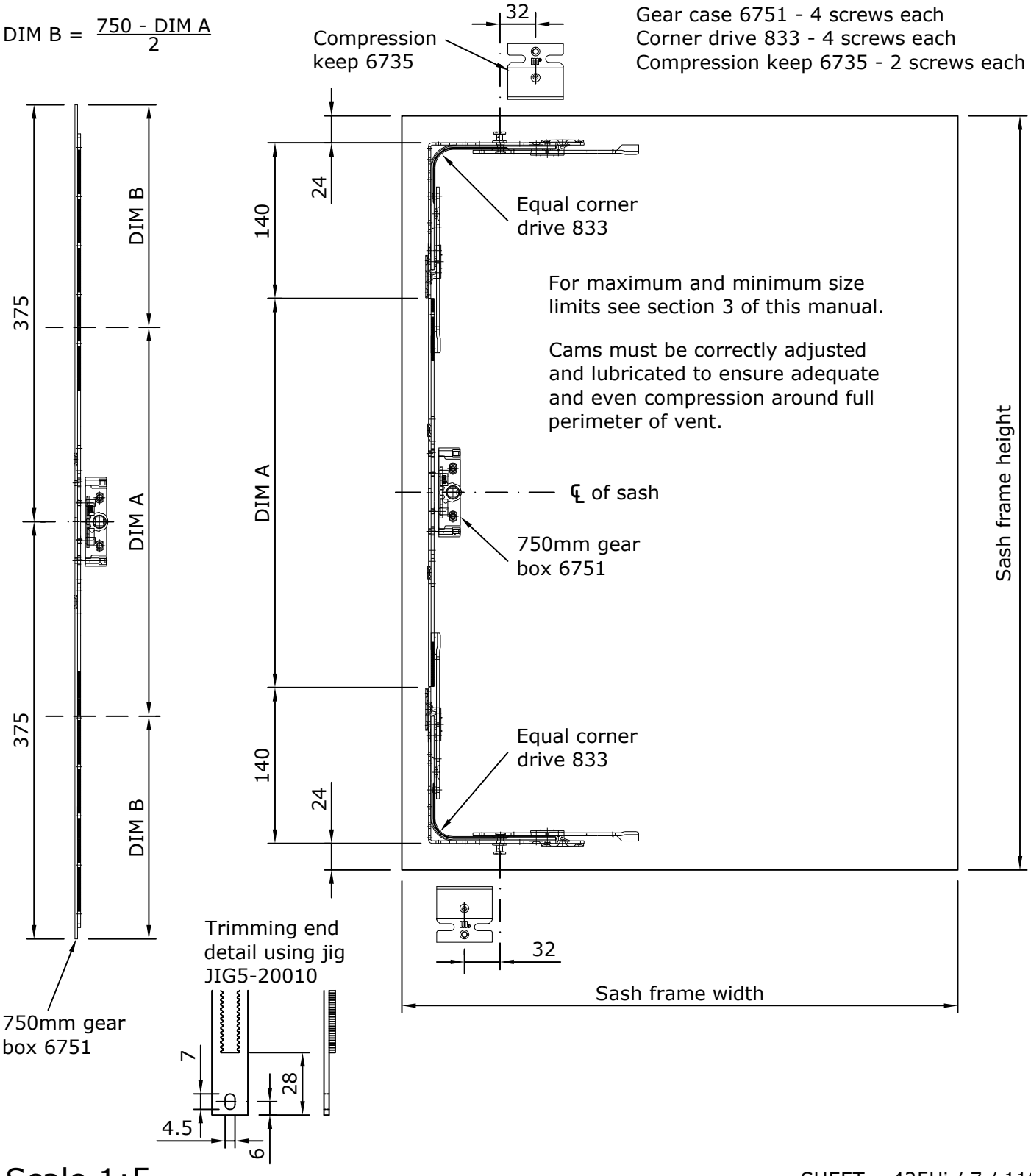
Night vent facility is not available with 3-sided euro espag locking.

CUTTING SIZES FOR GEAR BOX

DIM A = Sash frame width less 328mm

DIM B = $\frac{750 - \text{DIM A}}{2}$

All parts fixed with No 7 x 25mm countersunk stainless steel self drilling screws 7223
Gear case 6751 - 4 screws each
Corner drive 833 - 4 screws each
Compression keep 6735 - 2 screws each



Scale 1:5

3-Sided Euro Espag Locking

Side Hung Window Euro Groove Sashes
626-627 and 626-652 Sash Heights
1079mm to 1137mm with Handle at Mid-point

System 4-35 Hi/Hi+
CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

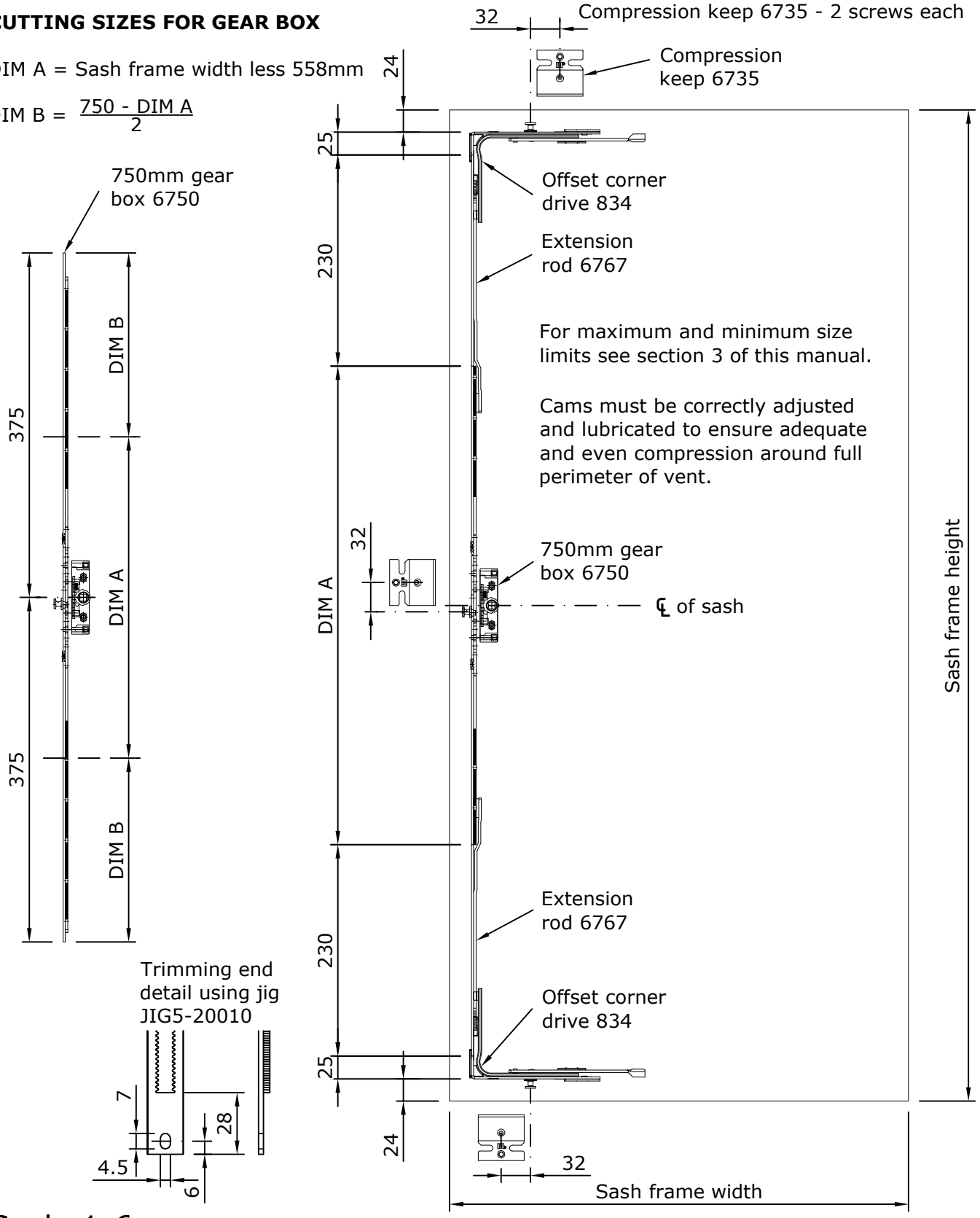
Night vent facility is not available with 3-sided euro espag locking.

All parts fixed with No 7 x 25mm countersunk stainless steel self drilling screws 7223
Gear case 6750 - 4 screws each
Corner drive 834 - 3 screws each
Extension rod 6767 - 3 screws each
Compression keep 6735 - 2 screws each

CUTTING SIZES FOR GEAR BOX

DIM A = Sash frame width less 558mm

DIM B = $\frac{750 - \text{DIM A}}{2}$



Scale 1:6

3-Sided Euro Espag Locking

Side Hung Window Euro Groove Sashes
626-627 and 626-652 Sash Heights
1138mm to 1538mm with Handle at Mid-point

System 4-35 Hi/Hi+
CASEMENT WINDOW

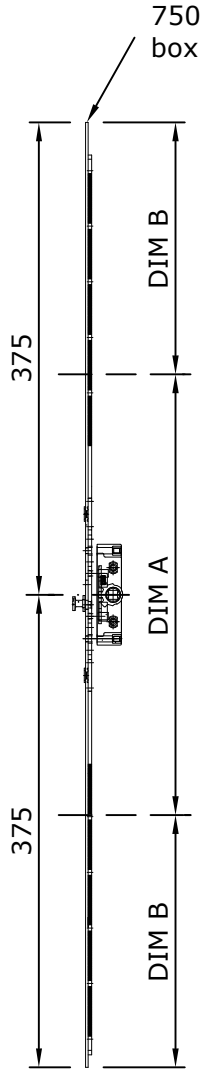
All fixings must be sealed using HR50328A sealant.

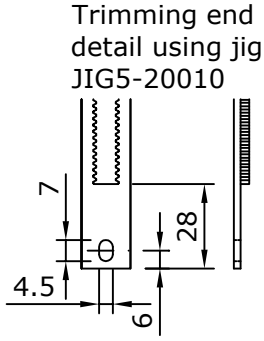
Night vent facility is not available with 3-sided euro espag locking.

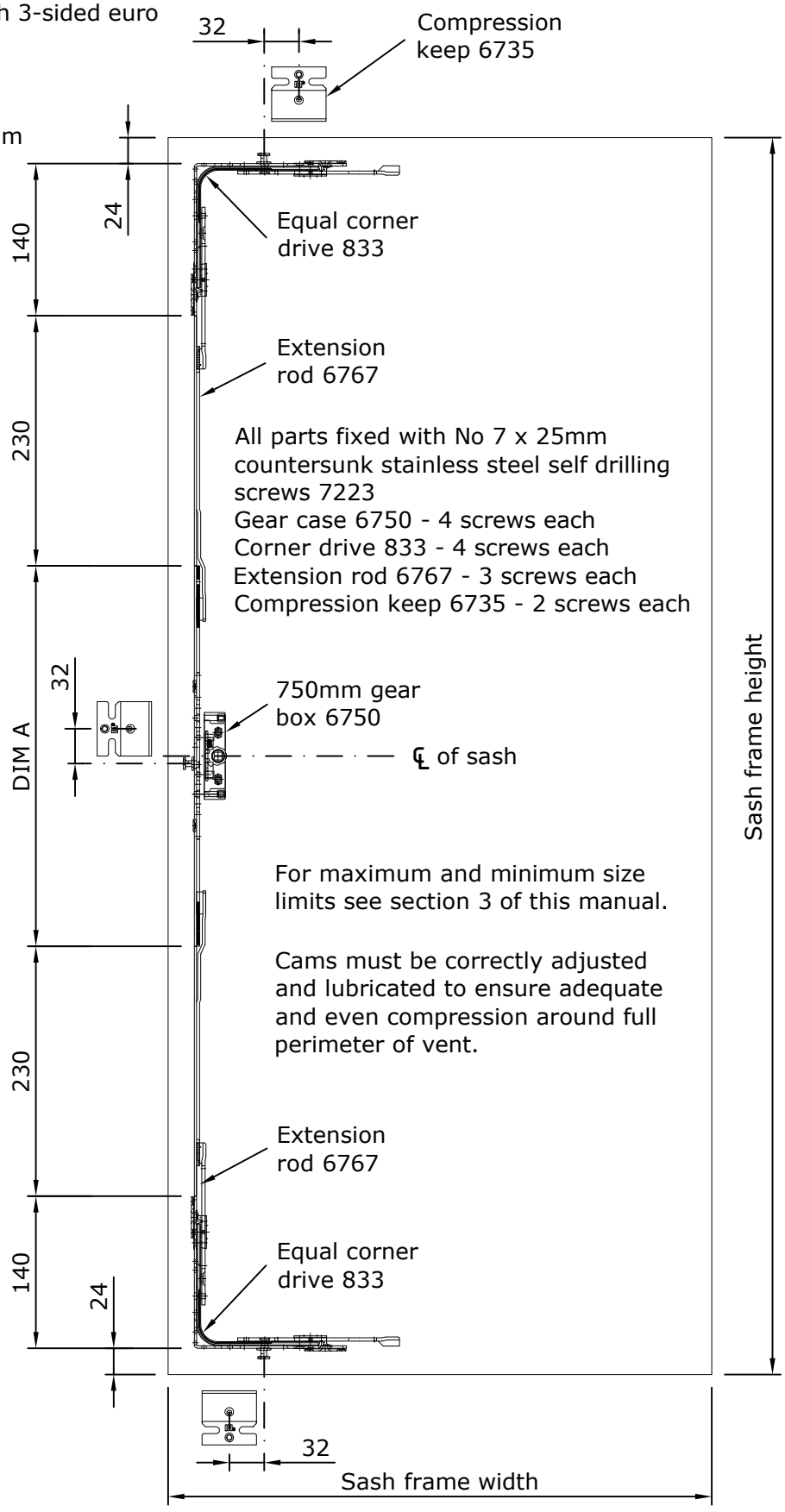
CUTTING SIZES FOR GEAR BOX

DIM A = Sash frame width less 788mm

DIM B = $\frac{750 - \text{DIM A}}{2}$







Scale 1:6

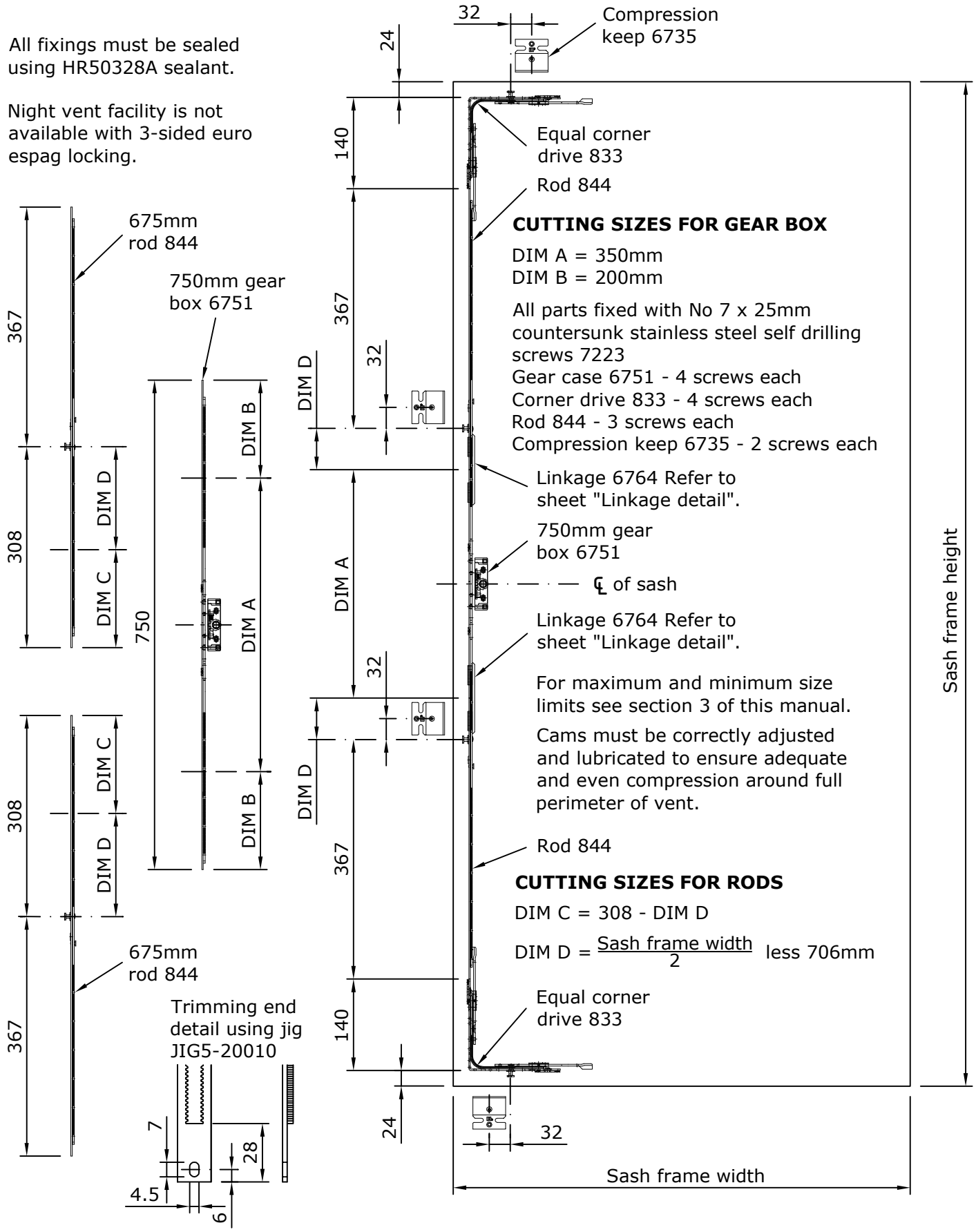
3-Sided Euro Espag Locking

Side Hung Window Euro Groove Sashes
626-627 and 626-652 Sash Heights
1539mm to 2000mm with Handle at Mid-point

System 4-35 Hi/Hi+
CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

Night vent facility is not available with 3-sided euro espag locking.



CUTTING SIZES FOR GEAR BOX

DIM A = 350mm
DIM B = 200mm

All parts fixed with No 7 x 25mm countersunk stainless steel self drilling screws 7223
Gear case 6751 - 4 screws each
Corner drive 833 - 4 screws each
Rod 844 - 3 screws each
Compression keep 6735 - 2 screws each

CUTTING SIZES FOR RODS

DIM C = 308 - DIM D

DIM D = $\frac{\text{Sash frame width}}{2}$ less 706mm

Scale 1:8

3-Sided Euro Espag Locking

Side Hung Window Euro Groove Sashes
626-627 and 626-652 Sash Heights
500mm to 671mm with Handle at 1/3

System 4-35 Hi/Hi+
CASEMENT WINDOW

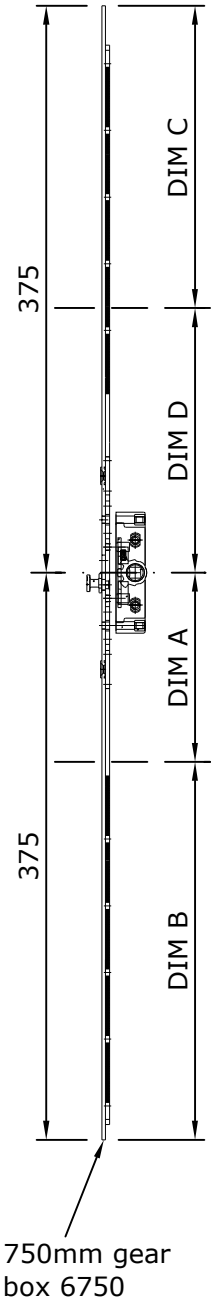
All fixings must be sealed using HR50328A sealant.

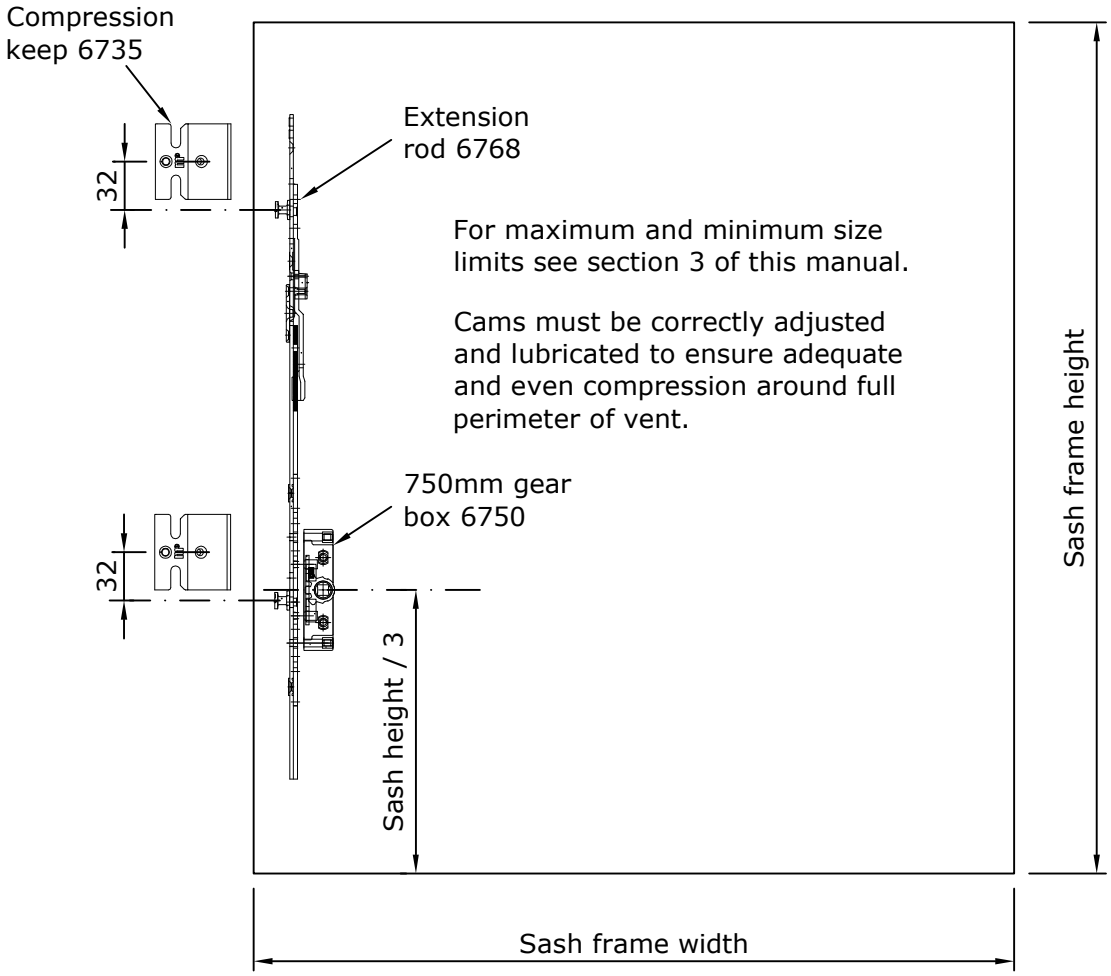
Night vent facility is not available with 3-sided euro espag locking.

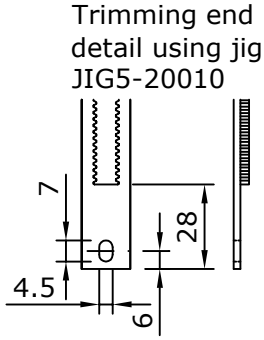
CUTTING SIZES FOR GEAR BOX

DIM A = 125mm
DIM D = 175mm
DIM B = 250mm
DIM C = 200mm

All parts fixed with No 7 x 25mm countersunk stainless steel self drilling screws 7223
Gear case 6750 - 4 screws each
Extension rod 6768 - 3 screws each
Compression keep 6735 - 2 screws each







Scale 1:5

3-Sided Euro Espag Locking

Side Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Heights 672mm to 1015mm with Handle at 1/3

System 4-35 Hi/Hi+
CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

Night vent facility is not available with 3-sided euro espag locking.

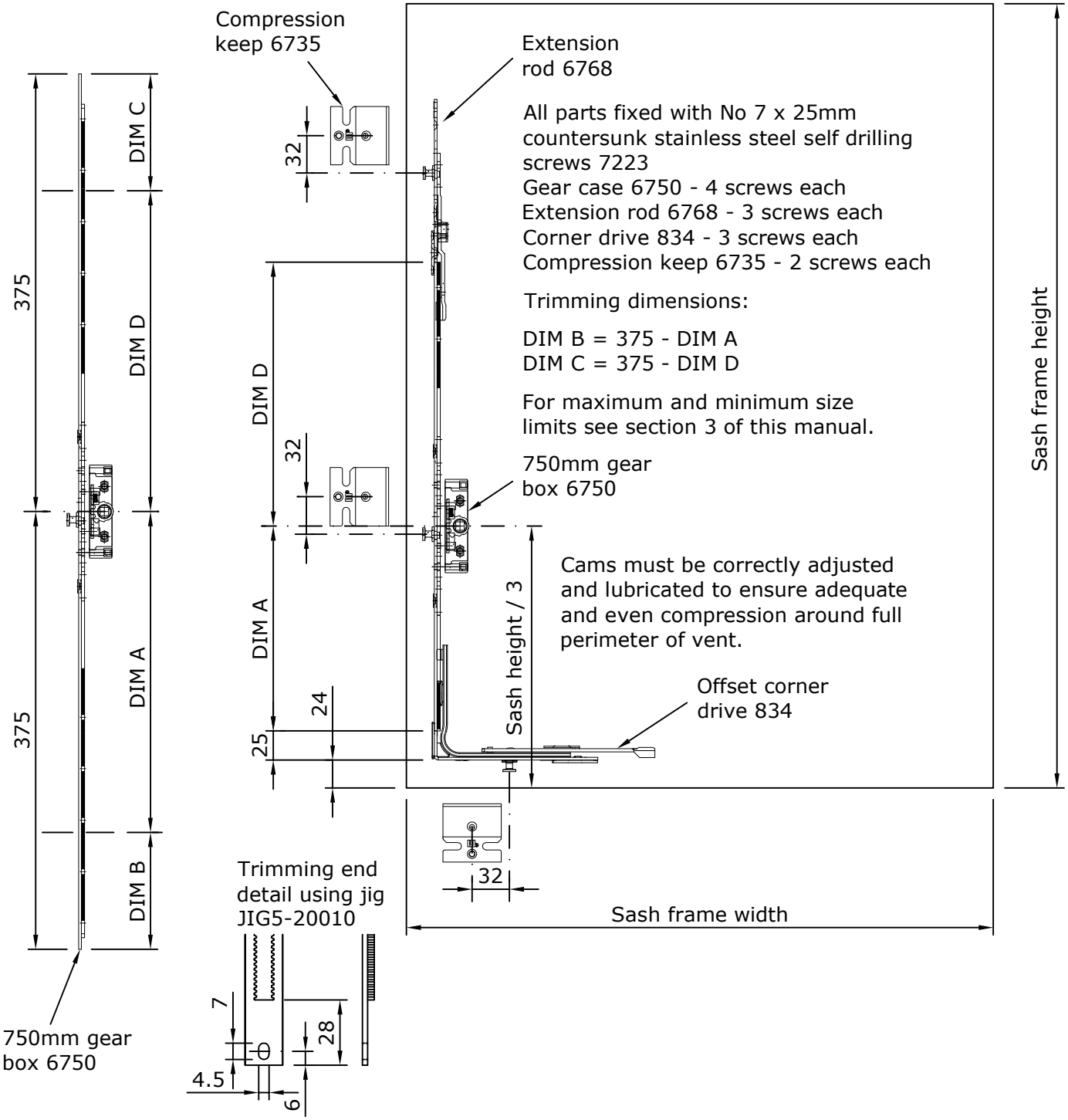
All parts fixed with No 7 x 25mm countersunk stainless steel self drilling screws 7223
Gear case 6750 - 4 screws
Extension rod 6768 - 3 screws
Corner drive 834 - 3 screws

CUTTING SIZES FOR GEAR BOX

DIM A = $\frac{\text{Sash frame height}}{3}$ - 49mm

For sash heights 672 - 894mm : DIM D = $\frac{\text{Sash frame height x 2}}{3}$ - 221.5mm

For sash heights 895 - 1015mm : DIM D = 375mm



Scale 1:5

3-Sided Euro Espag Locking

Side Hung Window Euro Groove Sashes
626-627 and 626-652 Sash Heights
1016mm to 1303mm with Handle at 1/3

All fixings must be sealed using HR50328A sealant.

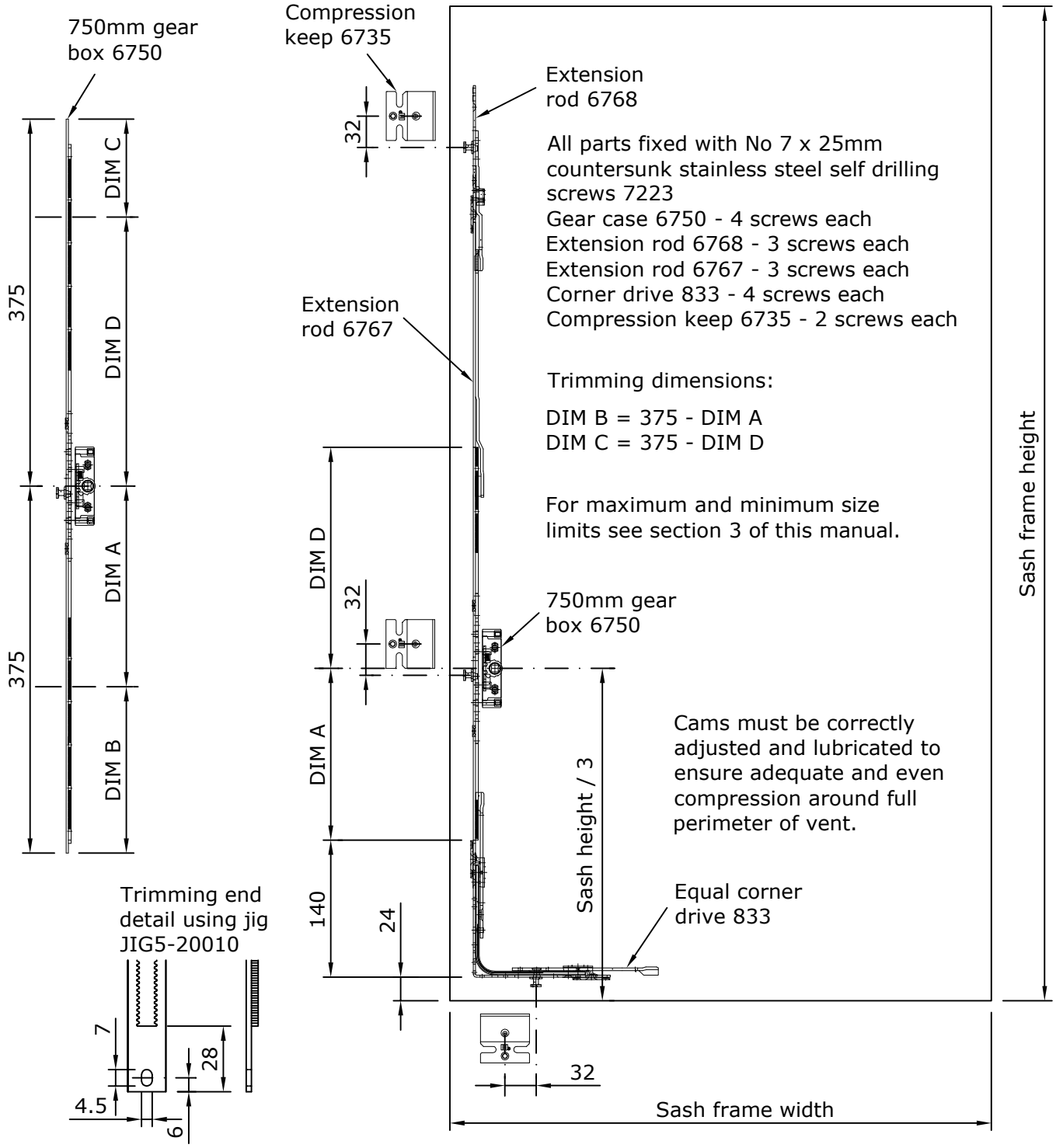
Night vent facility is not available with 3-sided euro espag locking.

CUTTING SIZES FOR GEAR BOX

DIM A = $\frac{\text{Sash frame height}}{3}$ - 164mm

For sash heights 1016 - 1240mm : DIM D = $\frac{\text{Sash frame height x 2}}{3}$ - 451.5mm

For sash heights 1241 - 1300mm : DIM D = 375mm



Scale 1:6

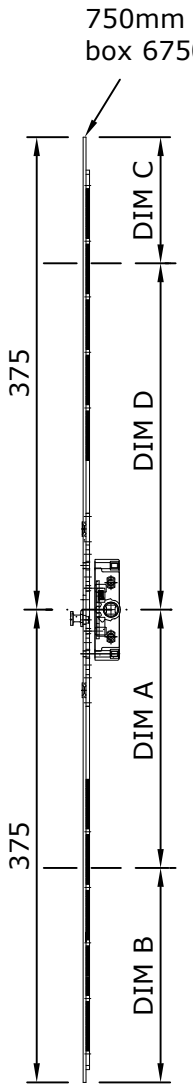
3-Sided Euro Espag Locking

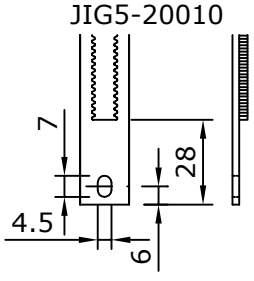
Side Hung Window Euro Groove Sashes
626-627 and 626-652 Sash Heights
1304mm to 1615mm with Handle at 1/3

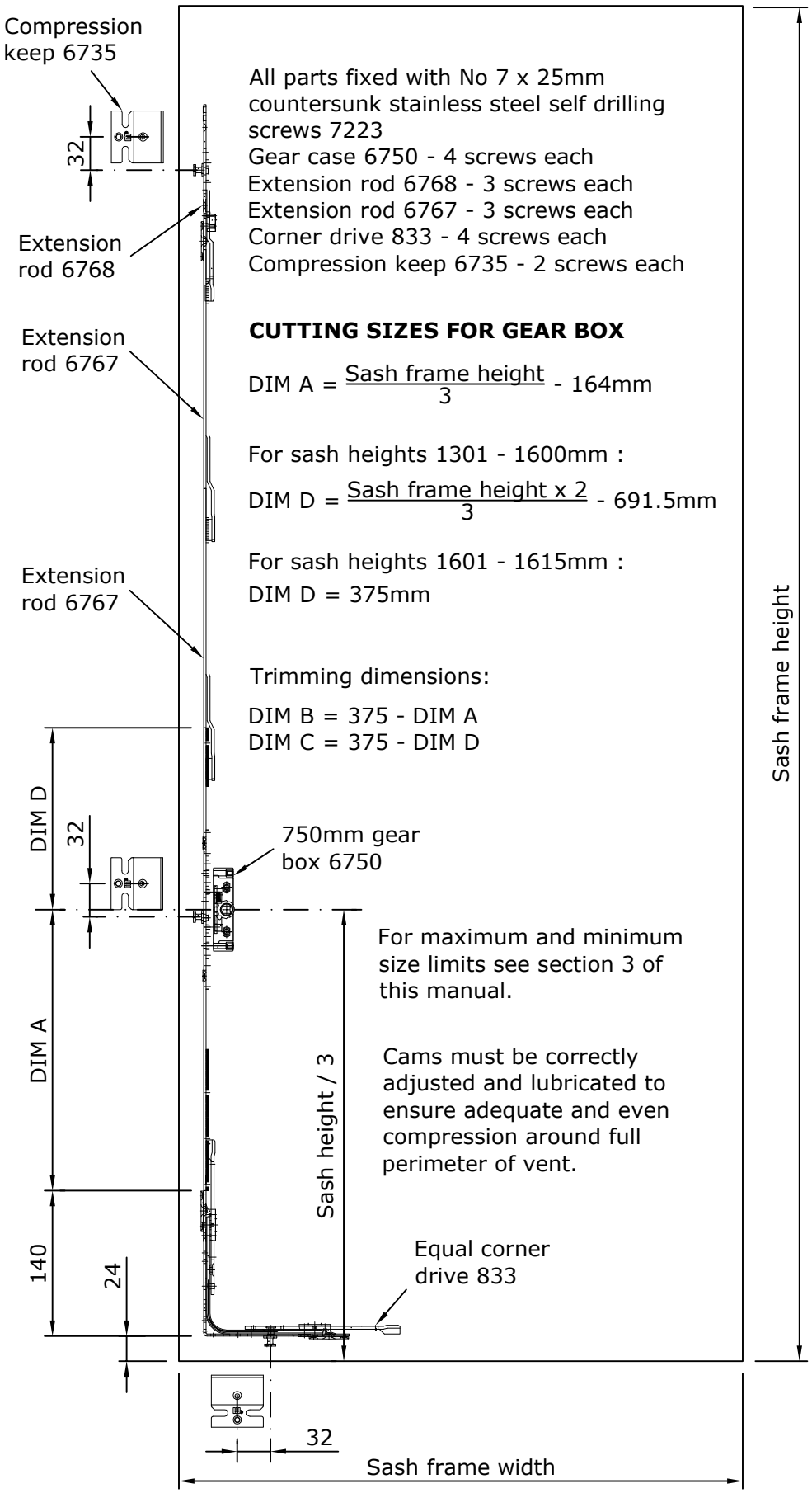
System 4-35 Hi/Hi+
CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

Night vent facility is not available with 3-sided euro espag locking.







Scale 1:6

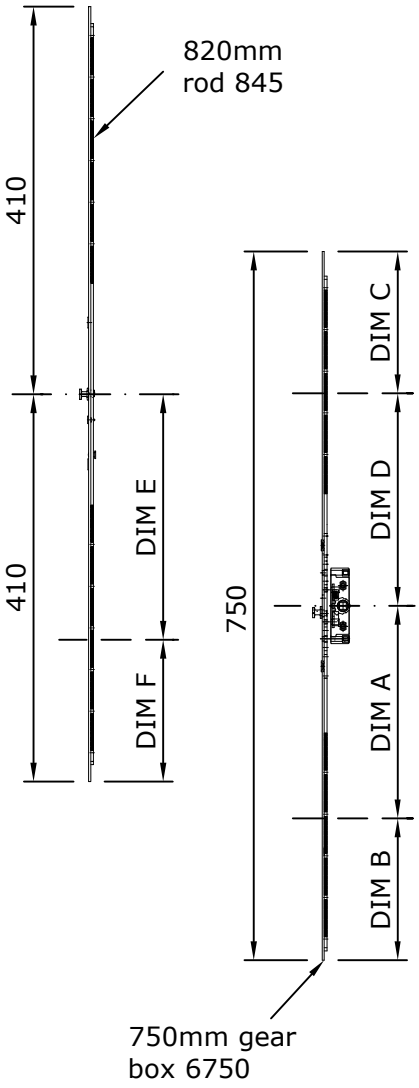
3-Sided Euro Espag Locking

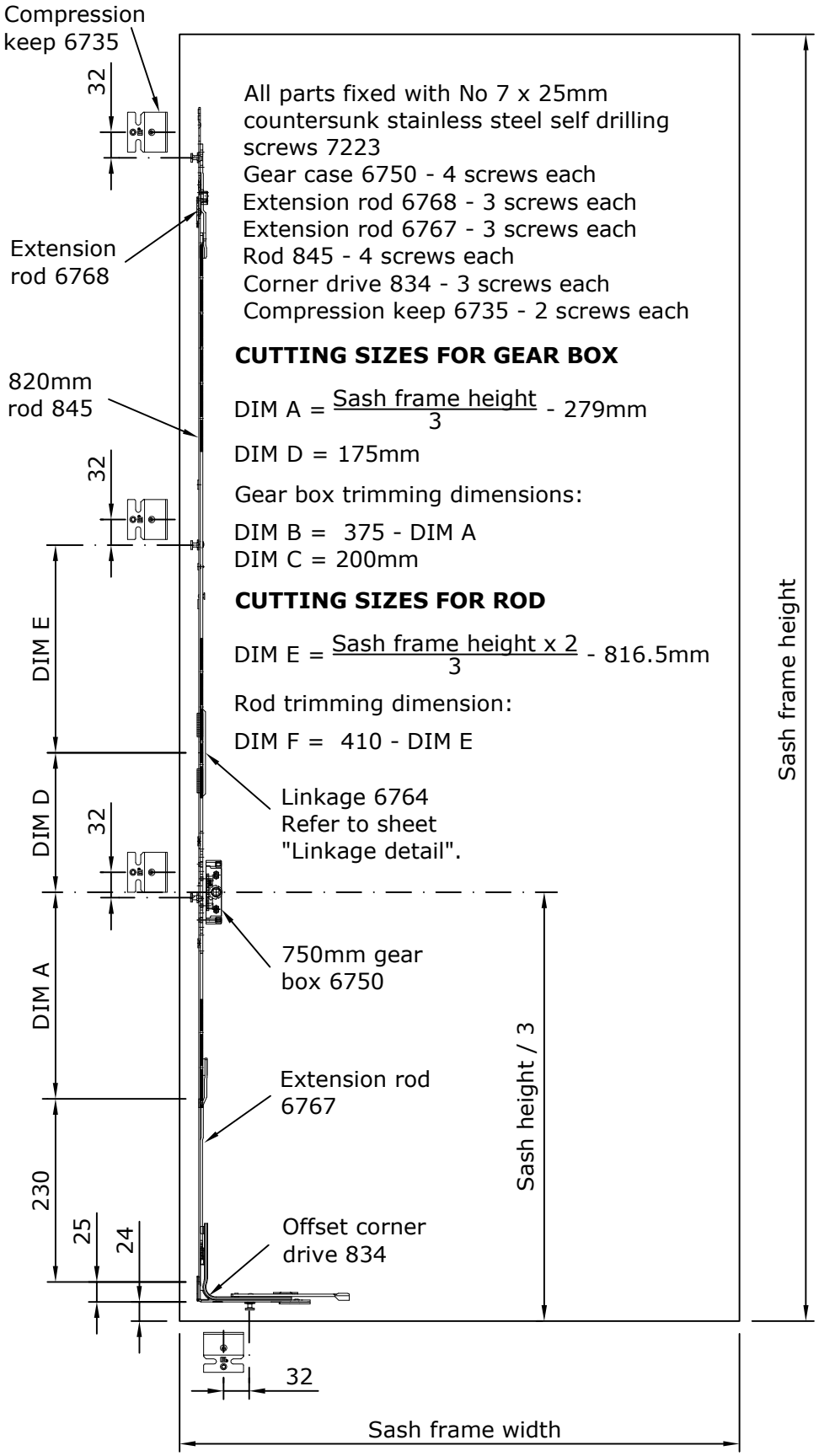
Side Hung Window Euro Groove Sashes
626-627 and 626-652 Sash Heights
1616mm to 1705mm with Handle at 1/3

System 4-35 Hi/Hi+
CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

Night vent facility is not available with 3-sided euro espag locking.





All parts fixed with No 7 x 25mm countersunk stainless steel self drilling screws 7223
Gear case 6750 - 4 screws each
Extension rod 6768 - 3 screws each
Extension rod 6767 - 3 screws each
Rod 845 - 4 screws each
Corner drive 834 - 3 screws each
Compression keep 6735 - 2 screws each

CUTTING SIZES FOR GEAR BOX

$$\text{DIM A} = \frac{\text{Sash frame height}}{3} - 279\text{mm}$$

DIM D = 175mm

Gear box trimming dimensions:

DIM B = 375 - DIM A
DIM C = 200mm

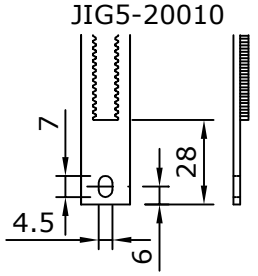
CUTTING SIZES FOR ROD

$$\text{DIM E} = \frac{\text{Sash frame height x 2}}{3} - 816.5\text{mm}$$

Rod trimming dimension:

DIM F = 410 - DIM E

Trimming end detail using jig JIG5-20010



Scale 1:8

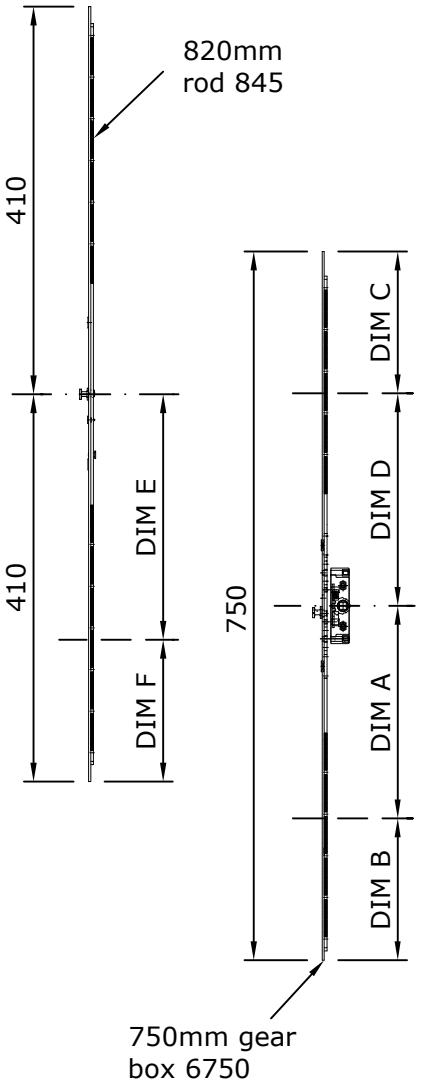
3-Sided Euro Espag Locking

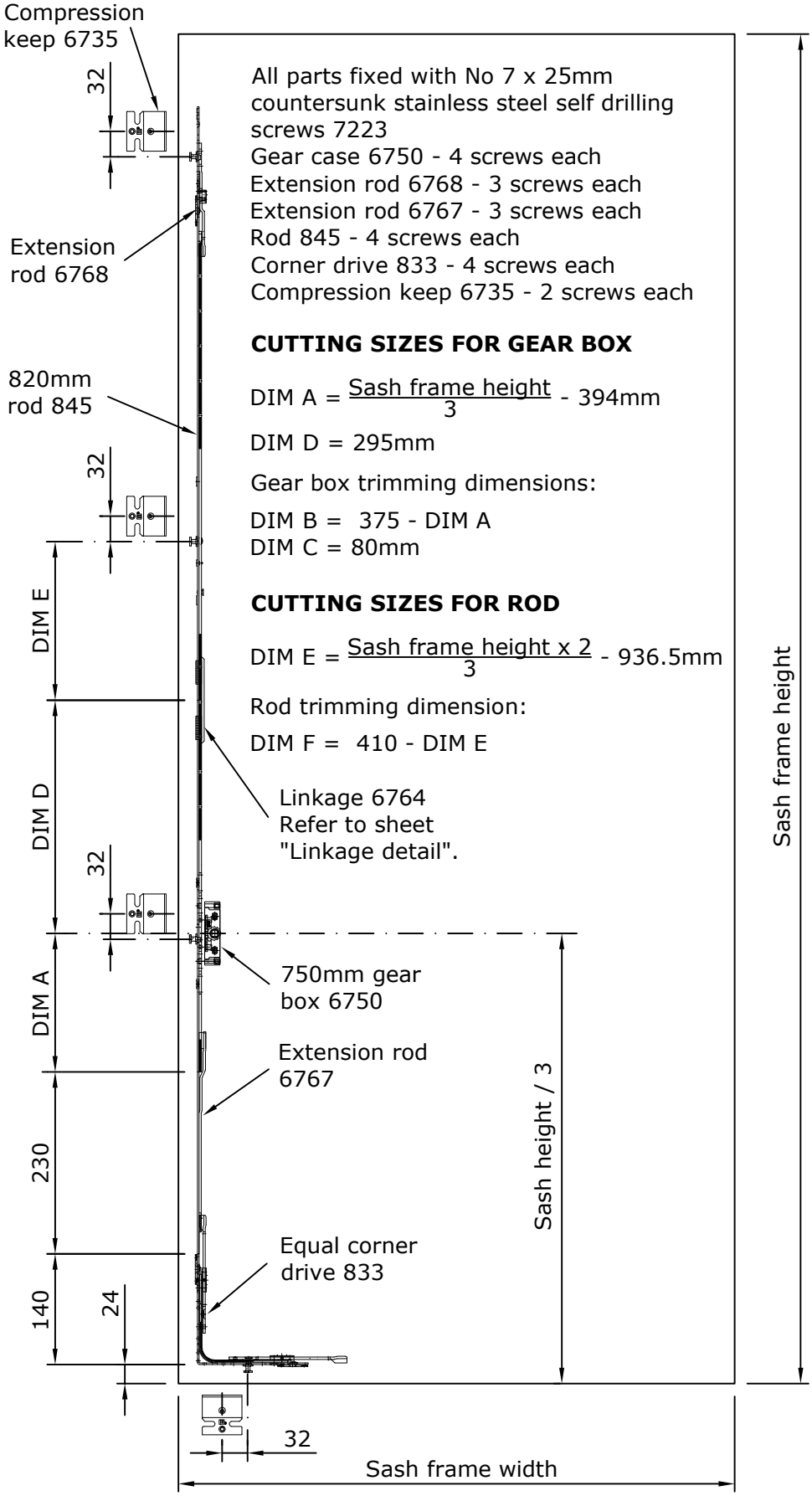
Side Hung Window Euro Groove Sashes
626-627 and 626-652 Sash Heights
1706mm to 2000mm with Handle at 1/3

System 4-35 Hi/Hi+
CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

Night vent facility is not available with 3-sided euro espag locking.





All parts fixed with No 7 x 25mm countersunk stainless steel self drilling screws 7223
Gear case 6750 - 4 screws each
Extension rod 6768 - 3 screws each
Extension rod 6767 - 3 screws each
Rod 845 - 4 screws each
Corner drive 833 - 4 screws each
Compression keep 6735 - 2 screws each

CUTTING SIZES FOR GEAR BOX

DIM A = $\frac{\text{Sash frame height}}{3}$ - 394mm

DIM D = 295mm

Gear box trimming dimensions:

DIM B = 375 - DIM A
DIM C = 80mm

CUTTING SIZES FOR ROD

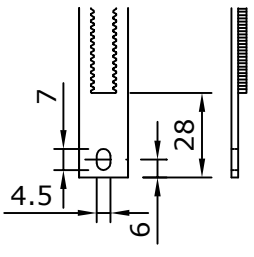
DIM E = $\frac{\text{Sash frame height x 2}}{3}$ - 936.5mm

Rod trimming dimension:

DIM F = 410 - DIM E

Linkage 6764
Refer to sheet
"Linkage detail".

Trimming end detail using jig JIG5-20010



Scale 1:8

3-Sided Euro Espag Locking

Top Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Widths 450mm to 677mm

System 4-35 Hi/Hi+
CASEMENT WINDOW

Compression keep positions on this sheet are based on a right handed handle. For a left handed handle the compression keeps must be 32mm other side of centre line of locking cam. All fixings must be sealed using HR50328A sealant.

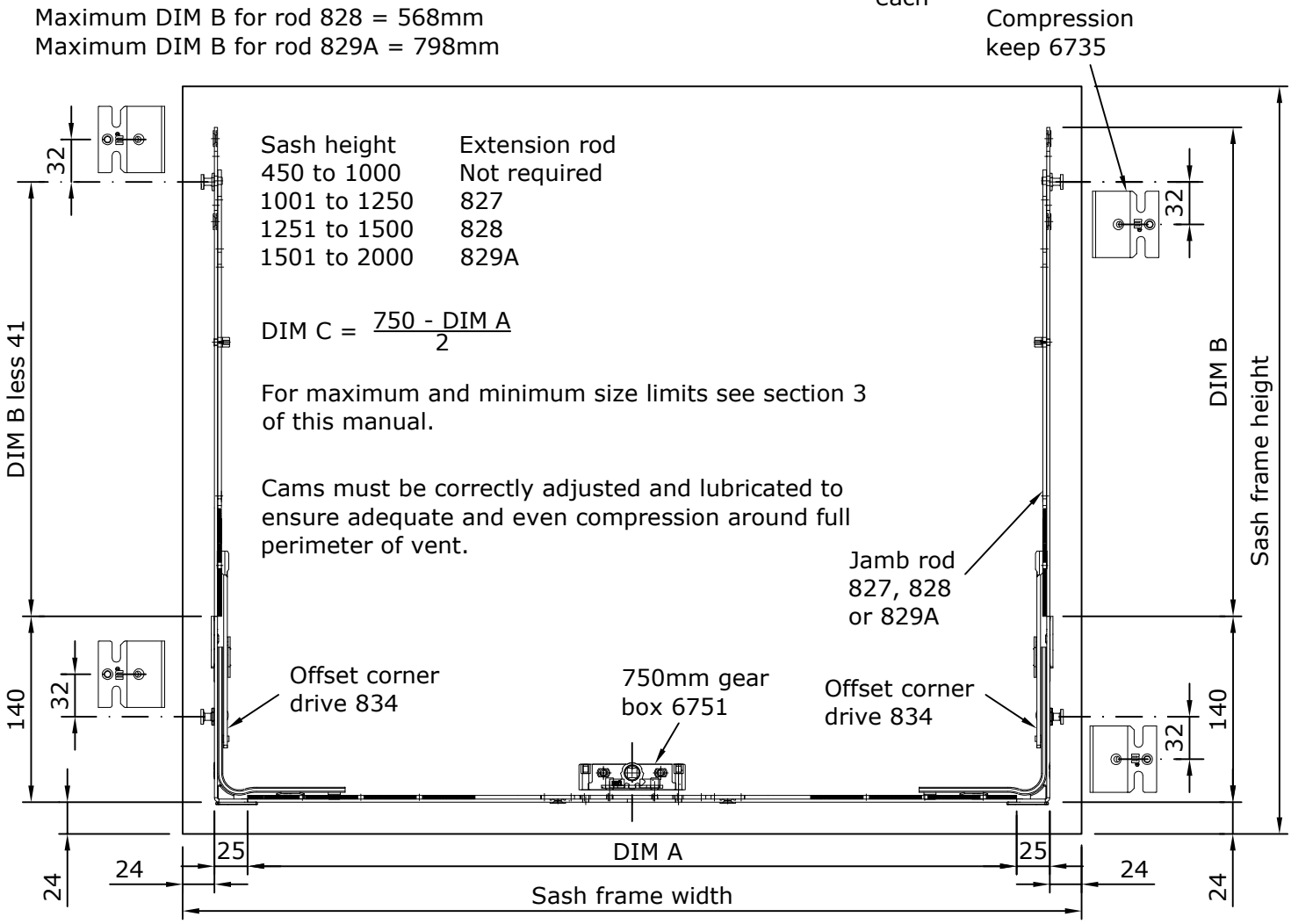
Night vent facility is not available with 3-sided euro espag locking.

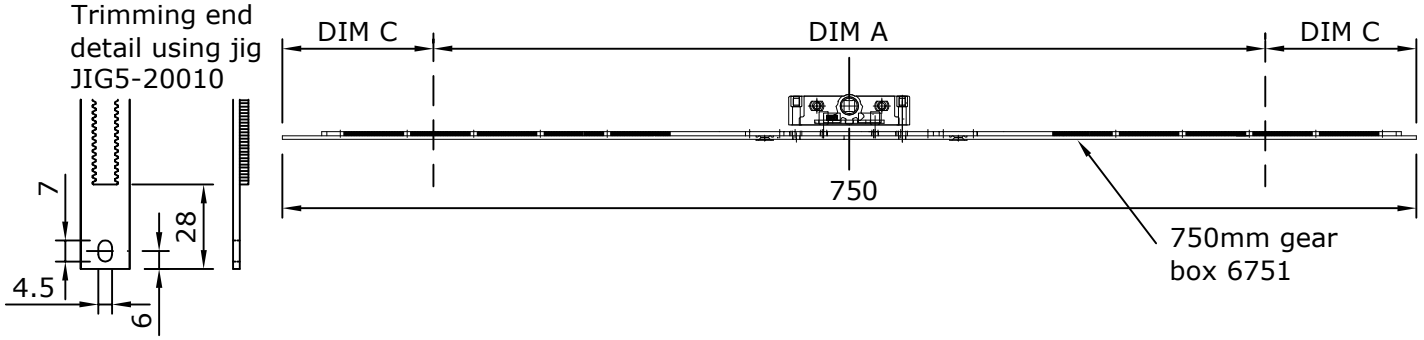
All parts fixed with No 7 x 25mm countersunk stainless steel self drilling screws 7223
Gear case 6751 - 4 screws each
Jamb rod 827 - 3 screws each
Jamb rod 828 - 3 screws each
Jamb rod 829A - 5 screws each
Corner drive 834 - 3 screws each
Compression keep 6735 - 2 screws each

CUTTING SIZES FOR GEAR BOX AND JAMB RODS

DIM A = Sash frame width less 98mm
DIM B = Sash frame height less (Friction hinge track length + 235mm)

Sash heights below 1001mm do not require jamb rods
Maximum DIM B for rod 827 = 435mm
Maximum DIM B for rod 828 = 568mm
Maximum DIM B for rod 829A = 798mm





Scale 1:5

3-Sided Euro Espag Locking

Top Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Widths 678mm to 1078mm

System 4-35 Hi/Hi+
CASEMENT WINDOW

Compression keep positions on this sheet are based on a right handed handle. For a left handed handle the compression keeps must be 32mm other side of centre line of locking cam.

All fixings must be sealed using HR50328A sealant.

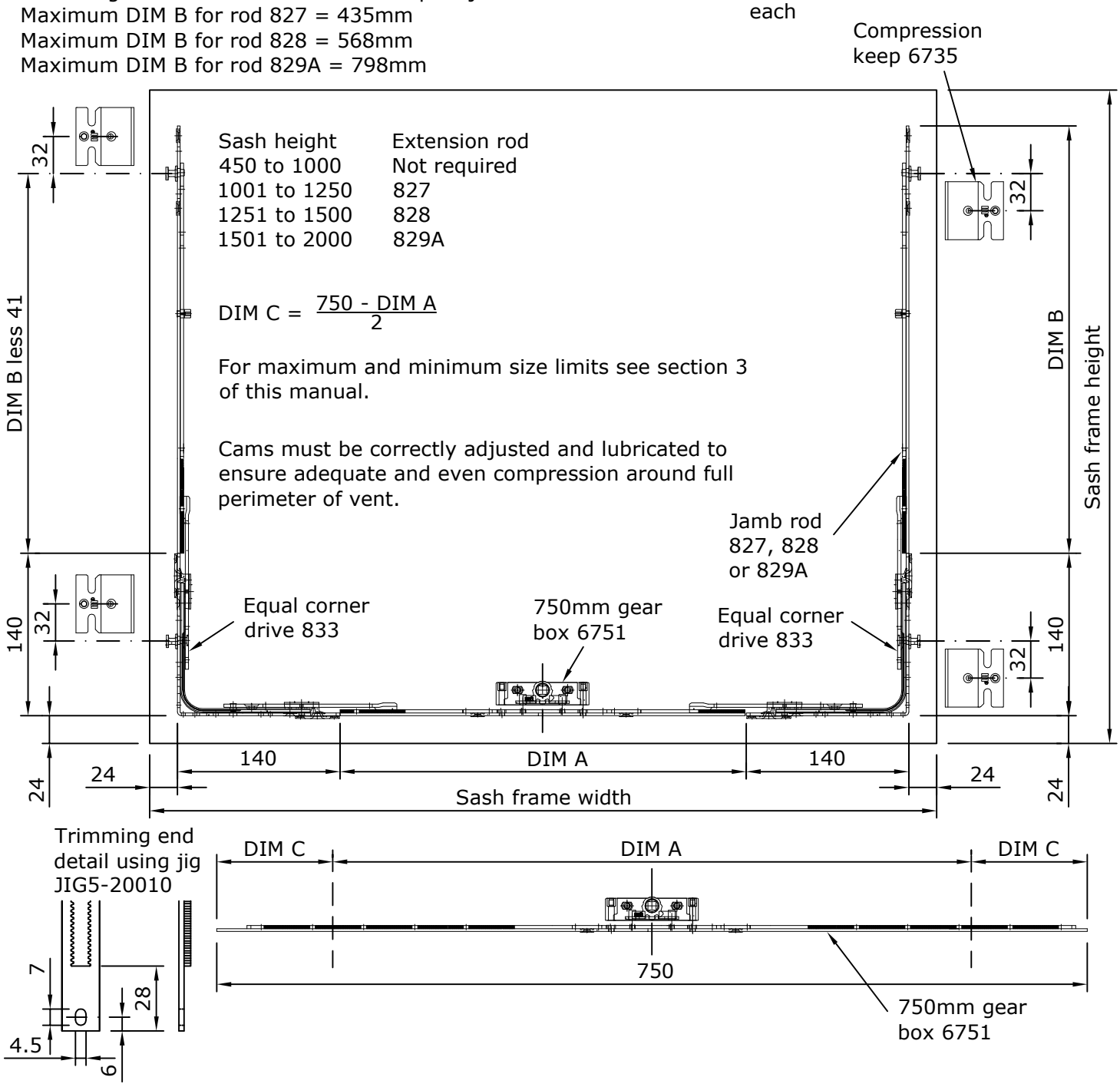
Night vent facility is not available with 3-sided euro espag locking.

All parts fixed with No 7 x 25mm countersunk stainless steel self drilling screws 7223
Gear case 6751 - 4 screws each
Jamb rod 827 - 3 screws each
Jamb rod 828 - 3 screws each
Jamb rod 829A - 5 screws each
Corner drive 833 - 4 screws each
Compression keep 6735 - 2 screws each

CUTTING SIZES FOR GEAR BOX AND JAMB RODS

DIM A = Sash frame width less 328mm
DIM B = Sash frame height less (Friction hinge track length + 235mm)

Sash heights below 1001mm do not require jamb rods
Maximum DIM B for rod 827 = 435mm
Maximum DIM B for rod 828 = 568mm
Maximum DIM B for rod 829A = 798mm



Scale 1:5

3-Sided Euro Espag Locking

Top Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Widths 1079mm to 1137mm

System 4-35 Hi/Hi+
CASEMENT WINDOW

Compression keep positions on this sheet are based on a right handed handle. For a left handed handle the compression keeps must be 32mm other side of centre line of locking cam.

All fixings must be sealed using HR50328A sealant.

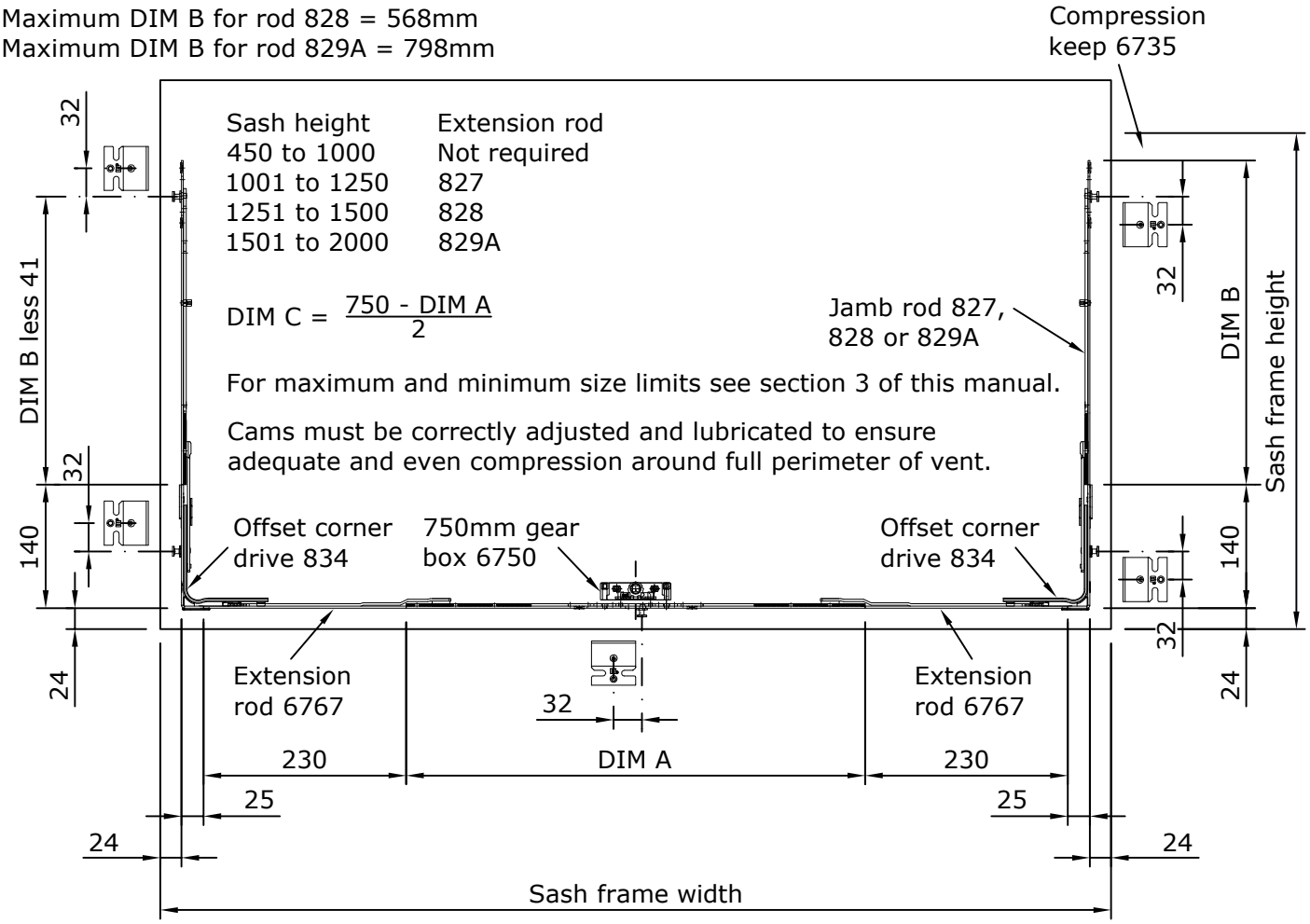
Night vent facility is not available with 3-sided euro espag locking.

All parts fixed with No 7 x 25mm countersunk stainless steel self drilling screws 7223
Gear case 6750 - 4 screws each
Jamb rod 827 - 3 screws each
Jamb rod 828 - 3 screws each
Jamb rod 829A - 5 screws each
Corner drive 834 - 3 screws each
Extension rod 6767 - 3 screws each
Compression keep 6735 - 2 screws each

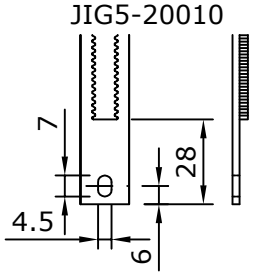
CUTTING SIZES FOR GEAR BOX AND JAMB RODS

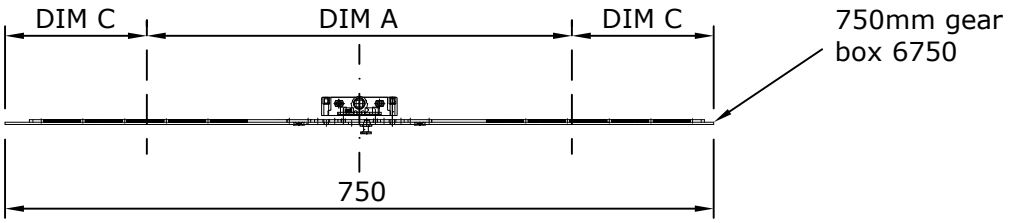
DIM A = Sash frame width less 558mm
DIM B = Sash frame height less (Friction hinge track length + 235mm)

Sash heights below 1001mm do not require jamb rods
Maximum DIM B for rod 827 = 435mm
Maximum DIM B for rod 828 = 568mm
Maximum DIM B for rod 829A = 798mm



Trimming end detail using jig JIG5-20010





Scale 1:8

3-Sided Euro Espag Locking

Top Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Widths 1138mm to 1538mm

System 4-35 Hi/Hi+
CASEMENT WINDOW

Compression keep positions on this sheet are based on a right handed handle. For a left handed handle the compression keeps must be 32mm other side of centre line of locking cam.

All fixings must be sealed using HR50328A sealant.

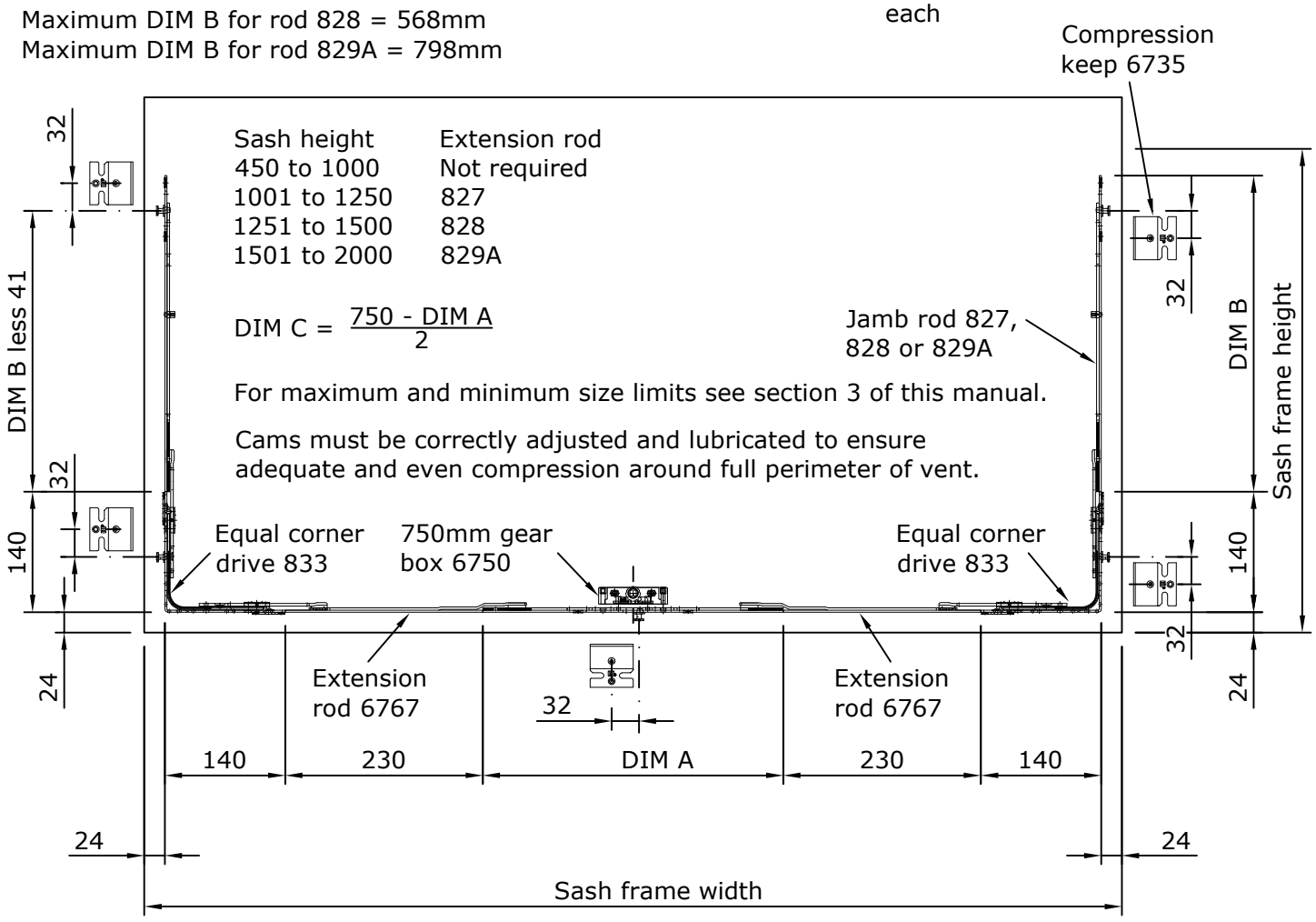
Night vent facility is not available with 3-sided euro espag locking.

CUTTING SIZES FOR GEAR BOX AND JAMB RODS

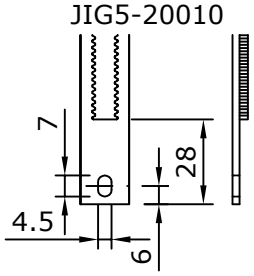
DIM A = Sash frame width less 788mm
DIM B = Sash frame height less (Friction hinge track length + 235mm)

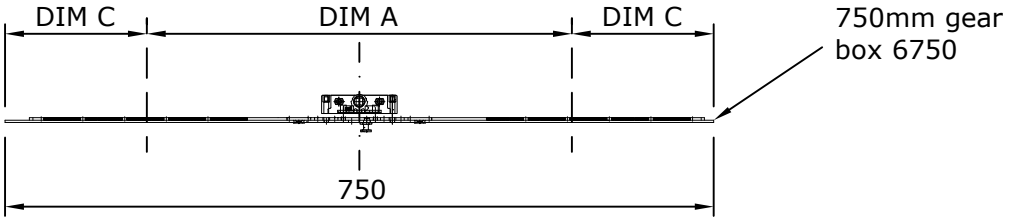
Sash heights below 1001mm do not require jamb rods
Maximum DIM B for rod 827 = 435mm
Maximum DIM B for rod 828 = 568mm
Maximum DIM B for rod 829A = 798mm

All parts fixed with No 7 x 25mm countersunk stainless steel self drilling screws 7223
Gear case 6750 - 4 screws each
Jamb rod 827 - 3 screws each
Jamb rod 828 - 3 screws each
Jamb rod 829A - 5 screws each
Corner drive 833 - 4 screws each
Extension rod 6767 - 3 screws each
Compression keep 6735 - 2 screws each



Trimming end detail using jig JIG5-20010





Scale 1:8

3-Sided Euro Espag Locking

Top Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Widths 1539mm to 2000mm

System 4-35 Hi/Hi+
CASEMENT WINDOW

Compression keep positions on this sheet are based on a right handed handle. For a left handed handle the compression keeps must be 32mm other side of centre line of locking cam.

All fixings must be sealed using HR50328A sealant.

Night vent facility is not available with 3-sided euro espag locking.

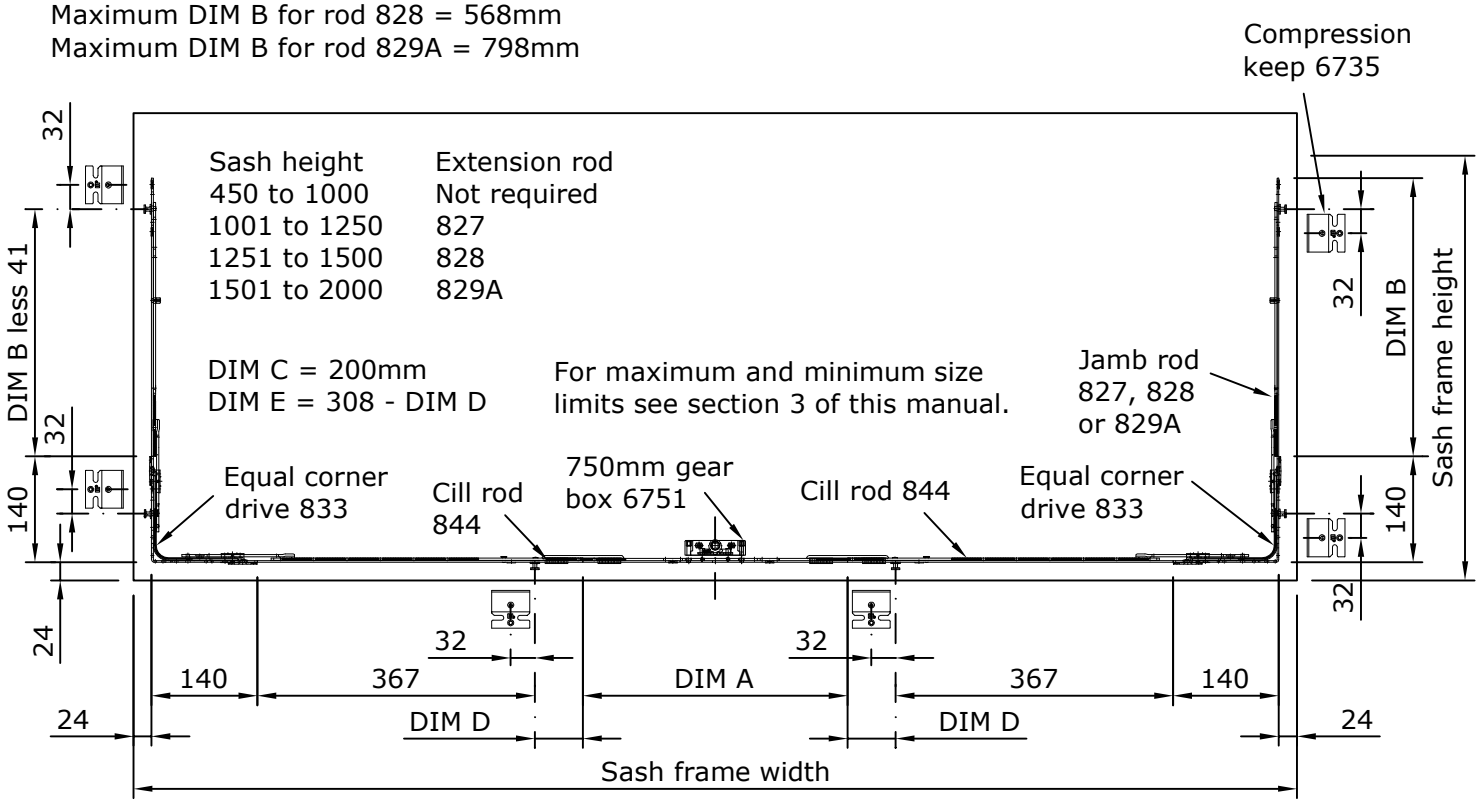
CUTTING SIZES FOR GEAR BOX, CILL AND JAMB RODS

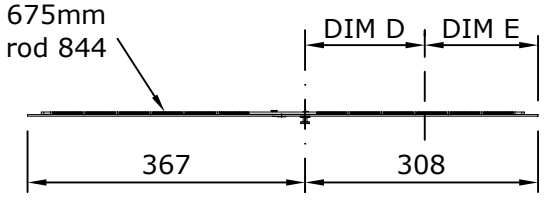
DIM A = 350mm
DIM B = Sash frame height less (Friction hinge track length + 235mm)

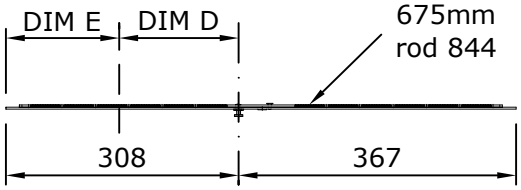
DIM D = $\frac{\text{Sash frame width}}{2}$ less 706mm

Sash heights below 1001mm do not require jamb rods
Maximum DIM B for rod 827 = 435mm
Maximum DIM B for rod 828 = 568mm
Maximum DIM B for rod 829A = 798mm

All parts fixed with No 7 x 25mm countersunk stainless steel self drilling screws 7223
Gear case 6751 - 4 screws each
Cill rod 844 - 3 screws each
Jamb rod 827 - 3 screws each
Jamb rod 828 - 3 screws each
Jamb rod 829A - 5 screws each
Corner drive 833 - 4 screws each
Compression keep 6735 - 2 screws each

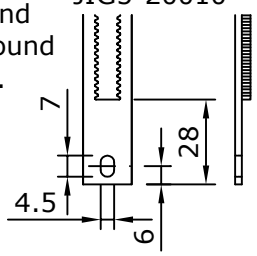


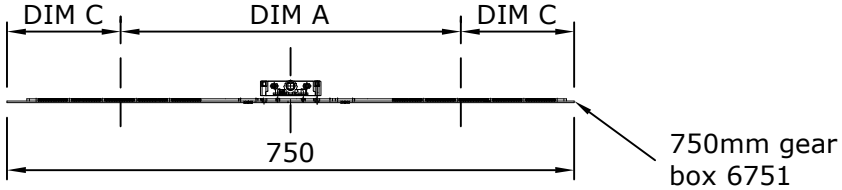




Cams must be correctly adjusted and lubricated to ensure adequate and even compression around full perimeter of vent.

Trimming end detail using jig JIG5-20010





Scale 1:10

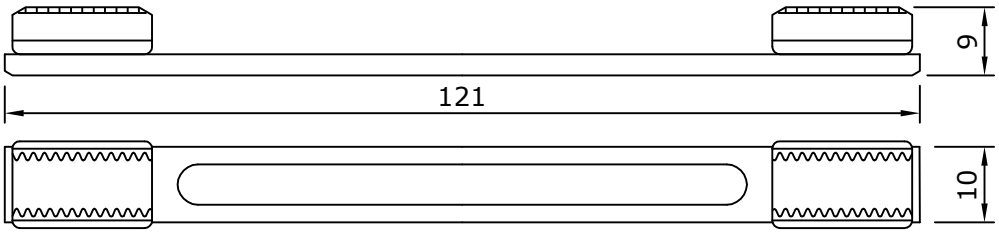
6764 Linkage Detail

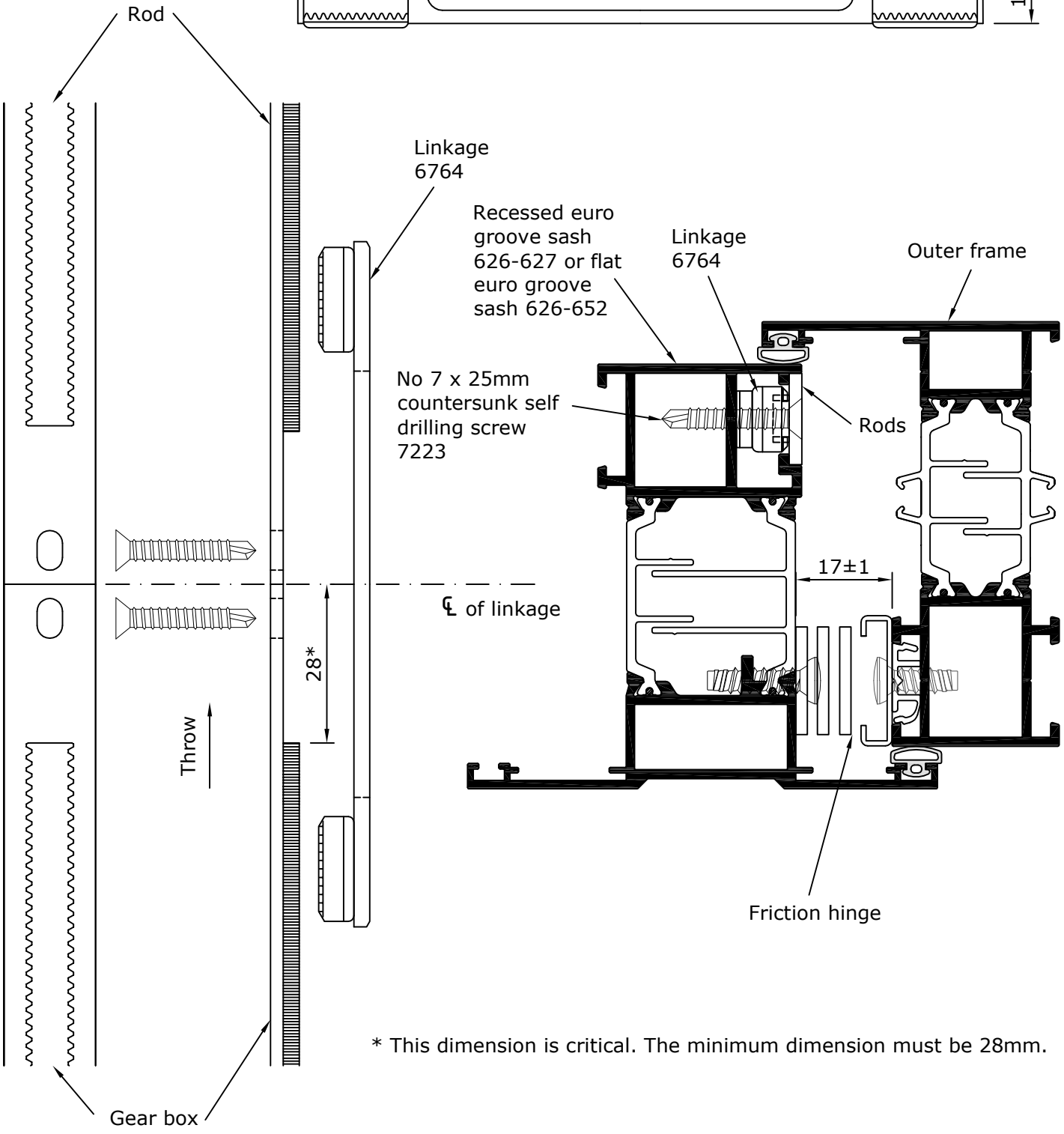
Male to Male Connection

System 4-35 Hi/Hi+

CASEMENT WINDOW

LINKAGE 6764





* This dimension is critical. The minimum dimension must be 28mm.

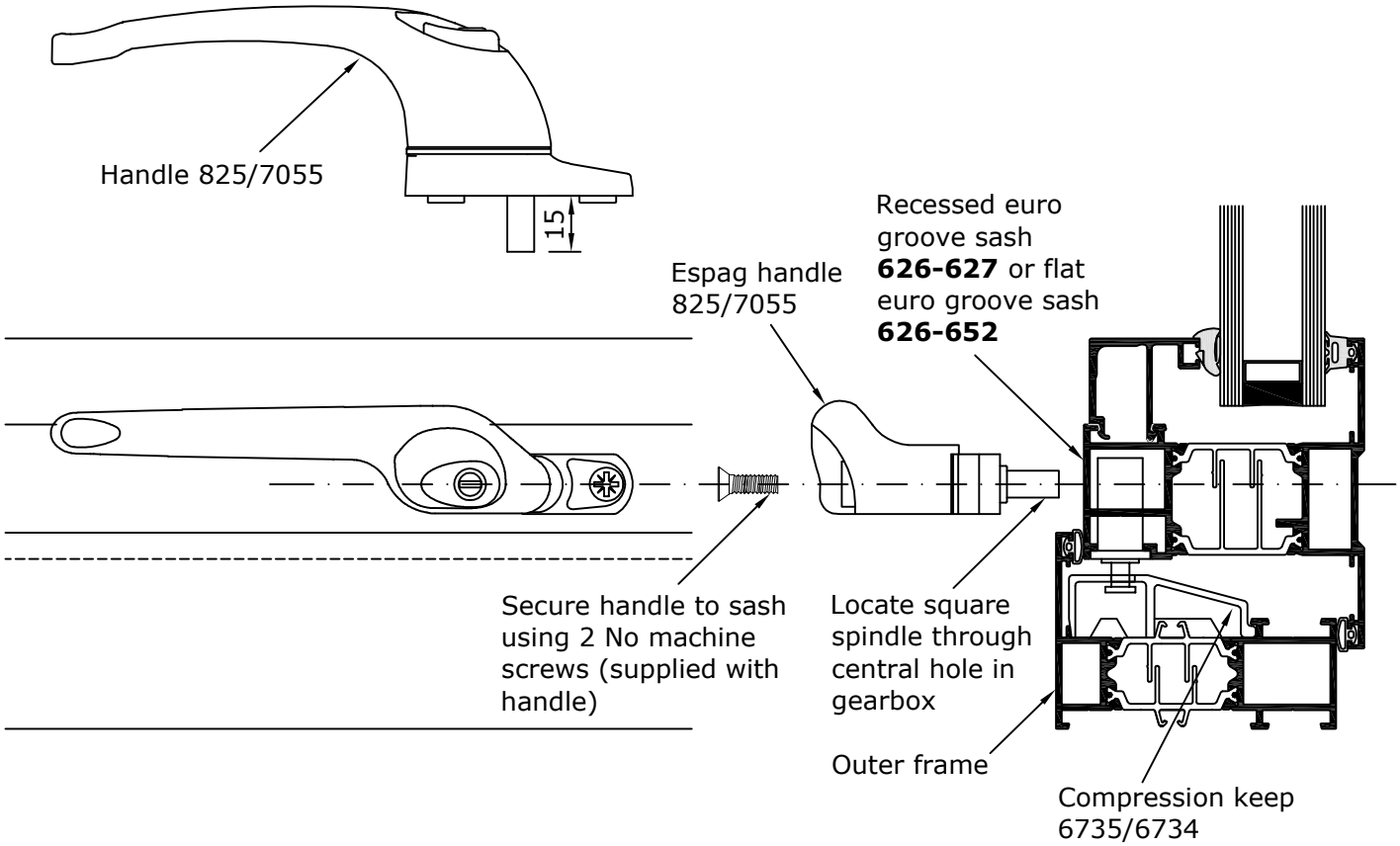
Scale 1:1

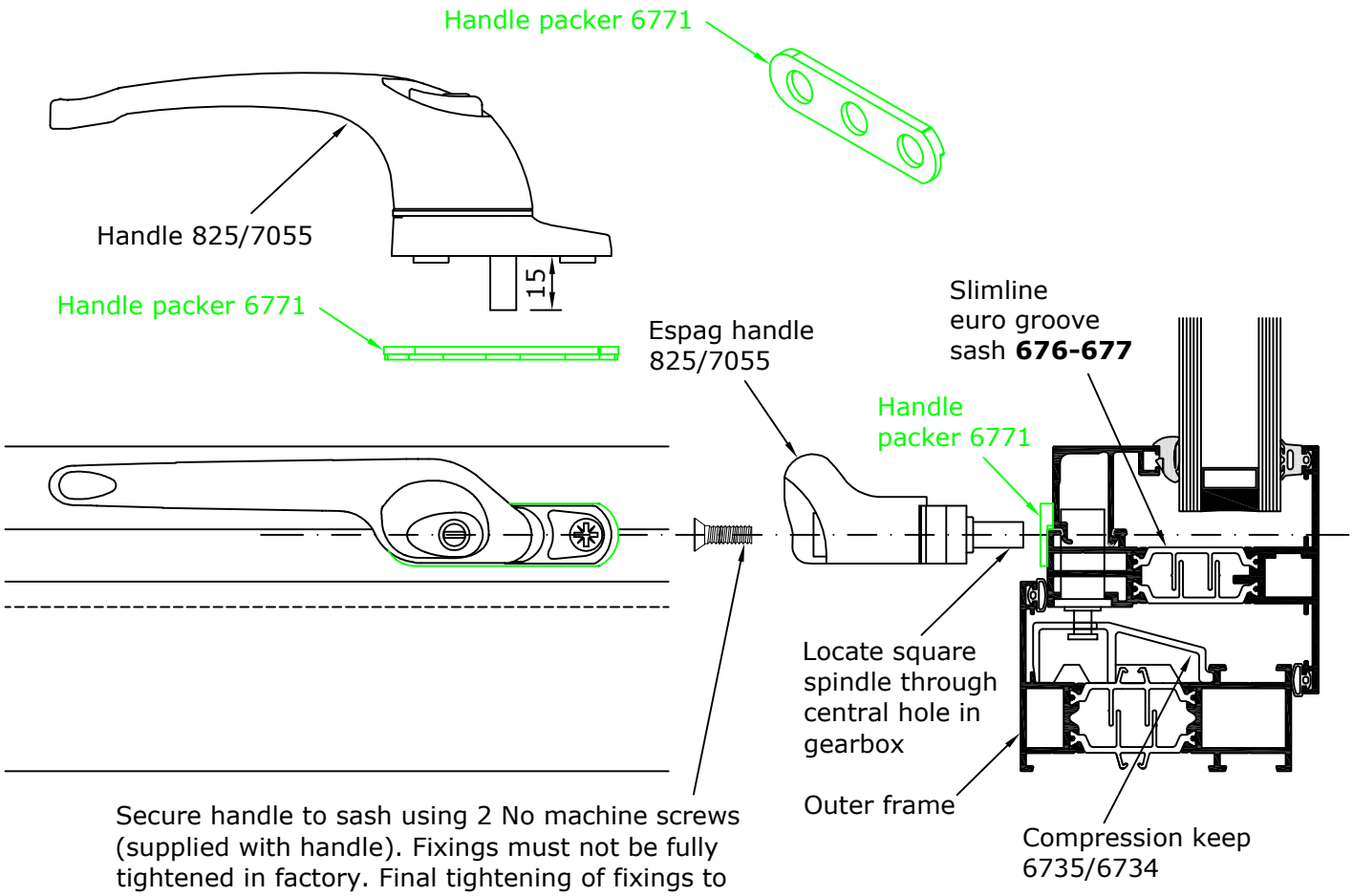
Espag Handle Fixing Detail

All fixings must be sealed using HR50328A sealant.

System 4-35 Hi/Hi+

CASEMENT WINDOW





Secure handle to sash using 2 No machine screws (supplied with handle). Fixings must not be fully tightened in factory. Final tightening of fixings to take place on site after sash has been glazed.

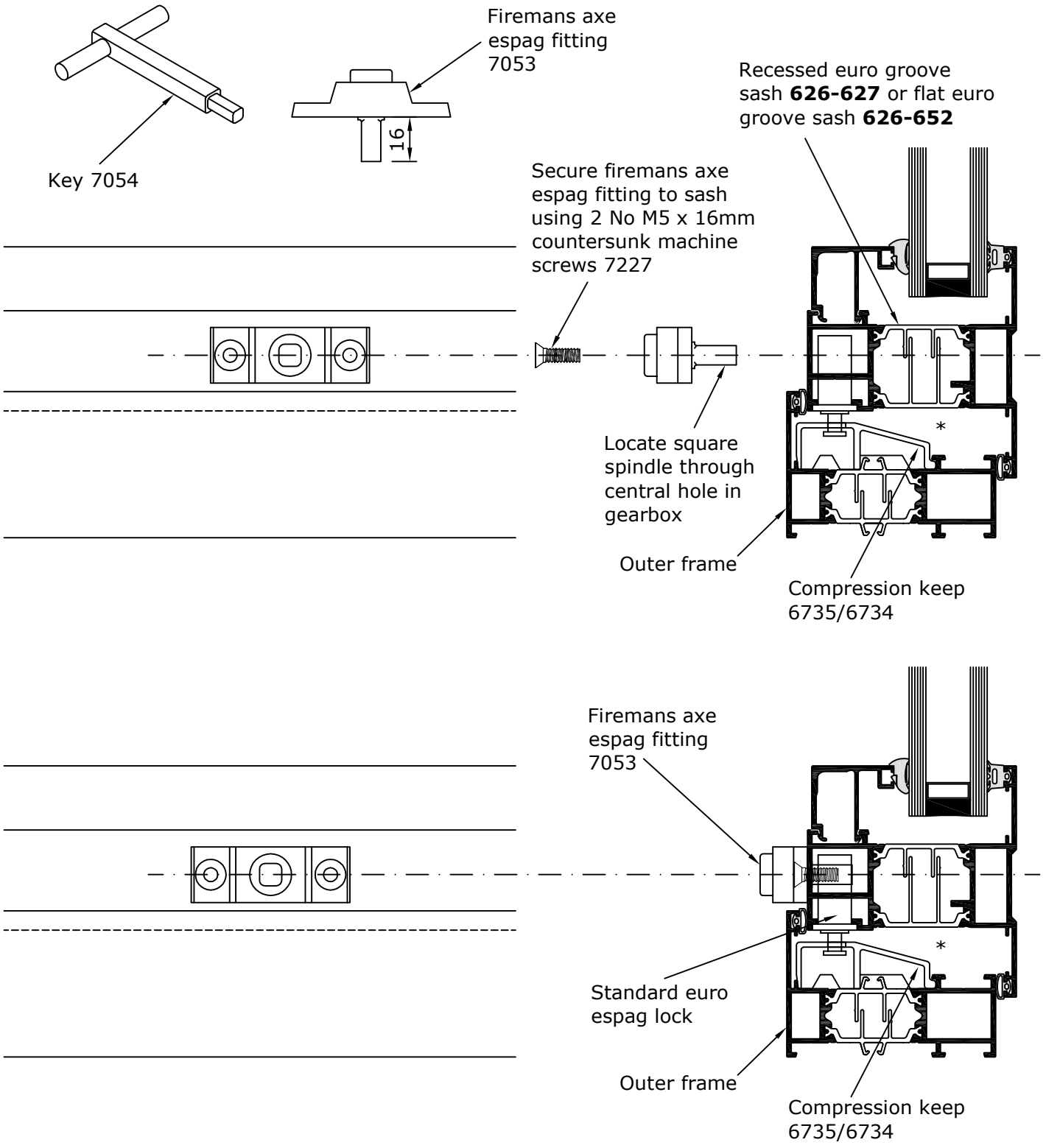
Scale 1:2

Firemans Axe Espag Fitting Detail

System 4-35 Hi/Hi+

CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.



* Centre gaskets omitted for clarity

Scale 1:2

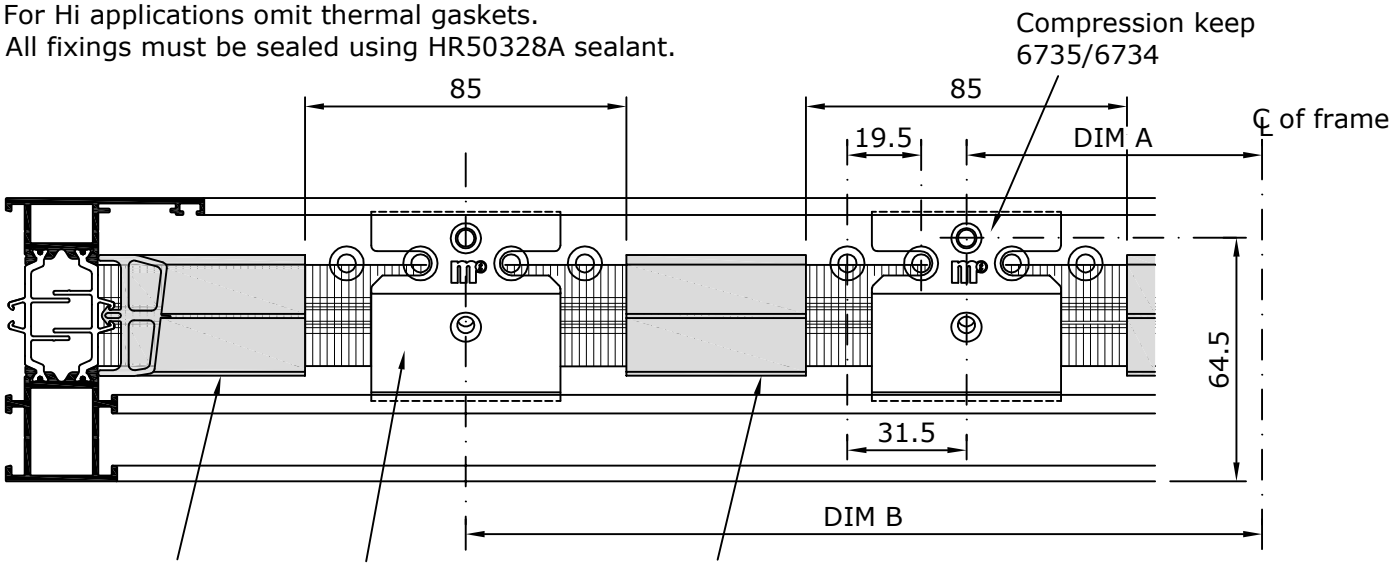
Compression Keep For Standard Euro Espag Locking

Sashes 626-627, 626-652 and 676-677

System 4-35 Hi/Hi+

CASEMENT WINDOW

For Hi applications omit thermal gaskets.
All fixings must be sealed using HR50328A sealant.

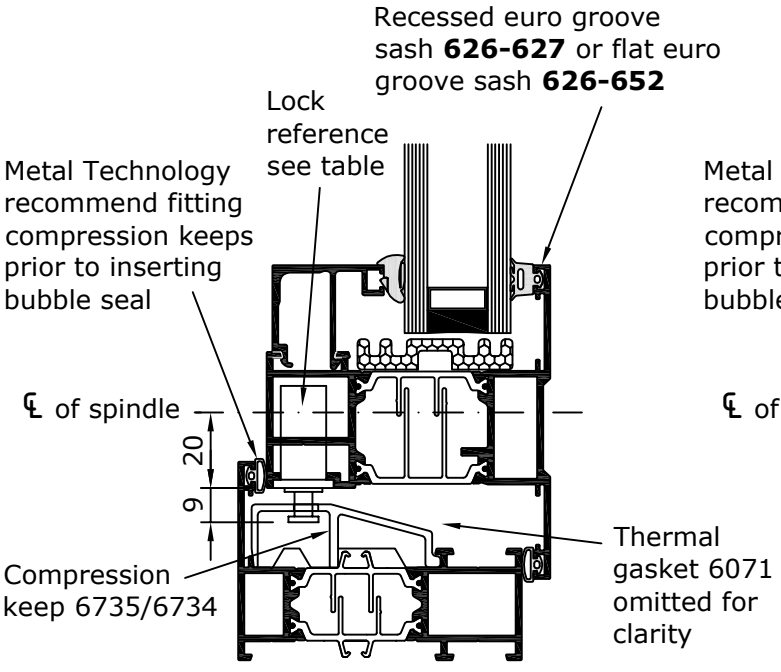


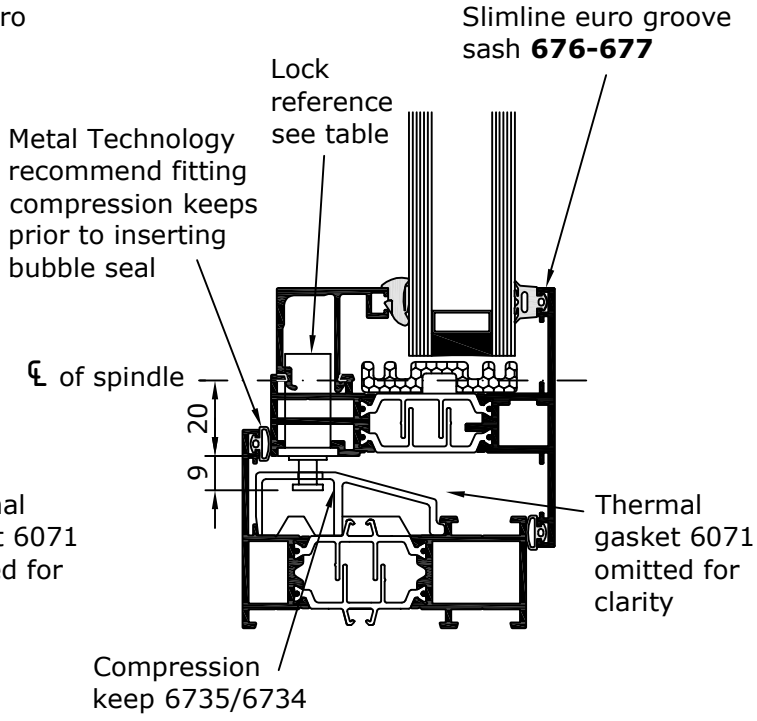
In Hi+ applications omit gasket either side of espag keep as shown

Keeps fitted with two No 7 x 25mm self-drilling countersunk head screws 7223

In Hi+ applications 6071 gasket to be bonded to outer frame using HR50328A sealant

Lock reference	No of keeps	DIM A (mm)	DIM B (mm)
838A	2	143	-
839A	2	213	-
840A	4	143	313
841A	4	143	413
842A	4	143	513





Scale 1:2

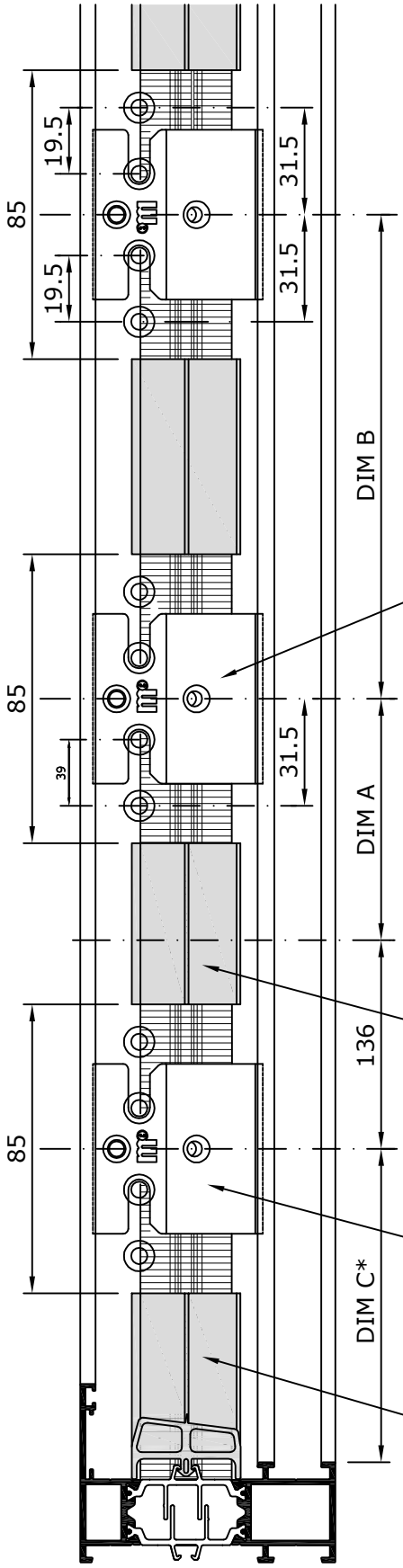
Compression Keep For Offset Euro Espag Locking

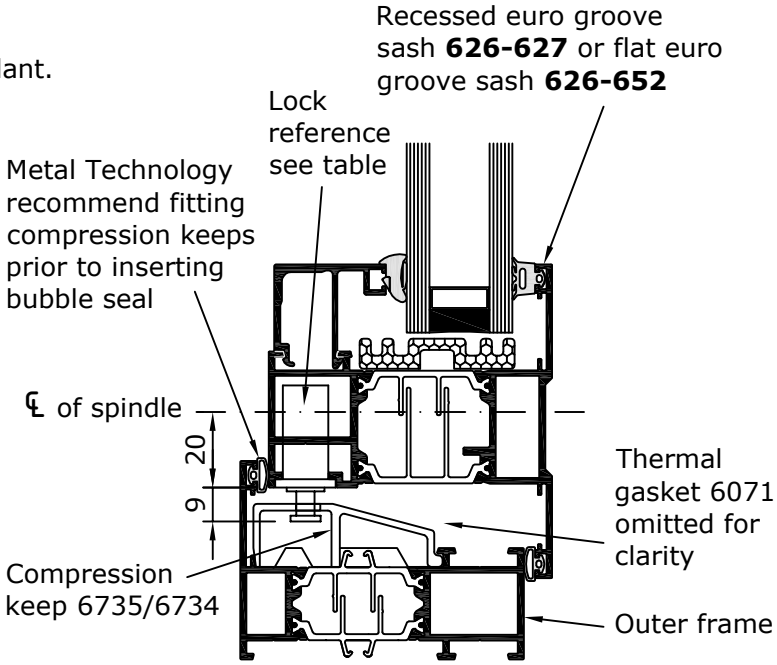
Sashes 626-627, 626-652 and 676-677

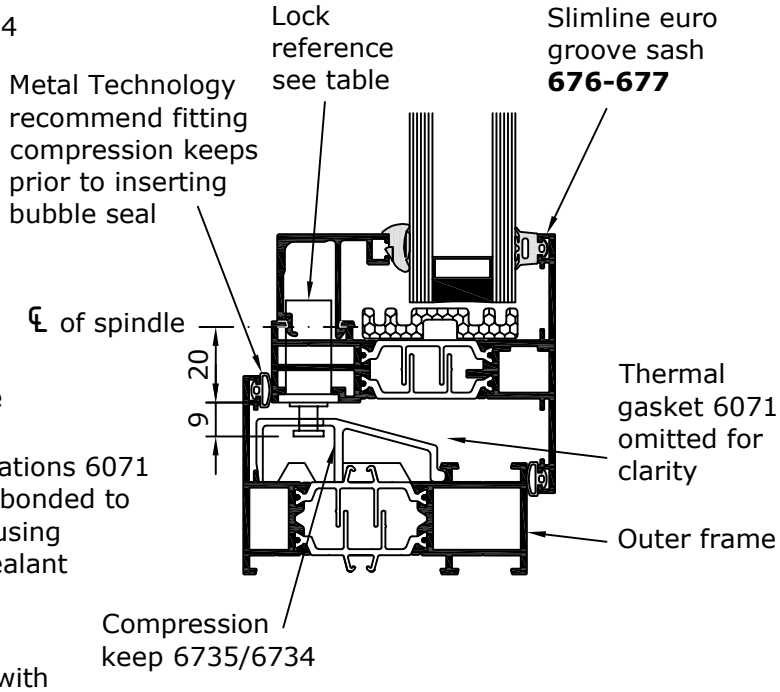
System 4-35 Hi/Hi+

CASEMENT WINDOW

For Hi applications omit thermal gaskets.
All fixings must be sealed using HR50328A sealant.







Lock reference	No of keeps	DIM A (mm)	DIM B (mm)
822	3	220	356
823	3	270	406
824	3	370	506

*See relevant "Offset Euro Espag Locking" sheet for correct dimension.

Not to Scale

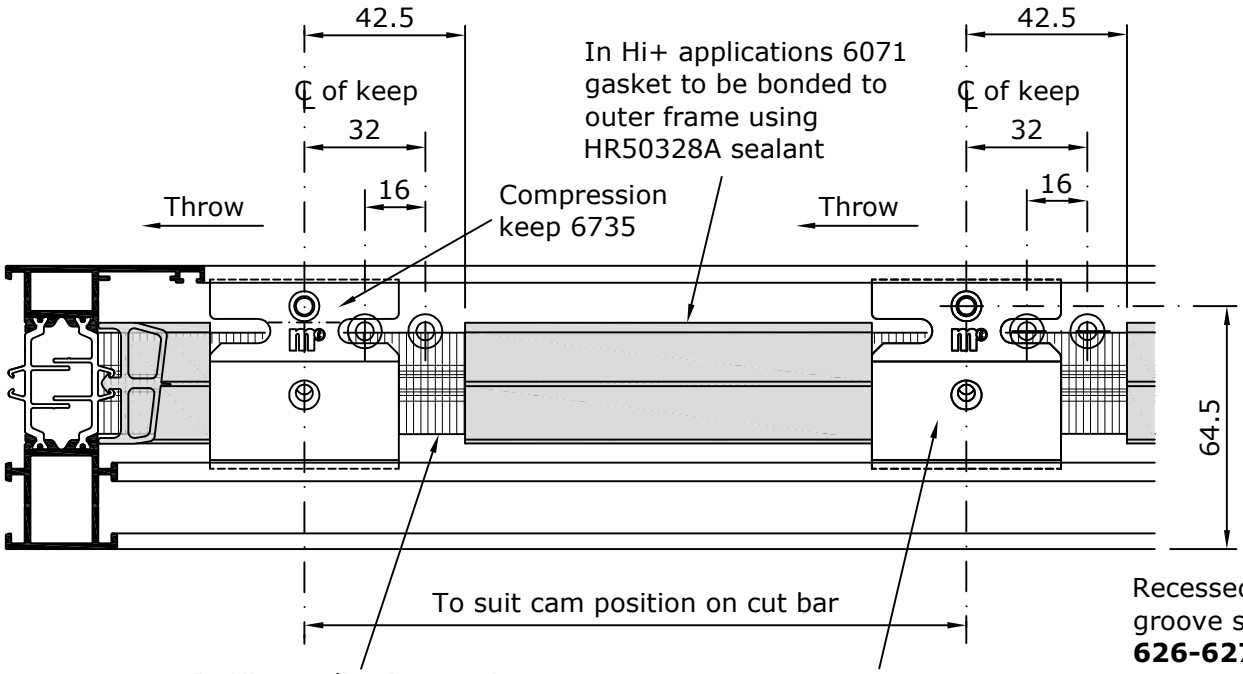
Compression Keep For 3-Sided Euro Espag Locking

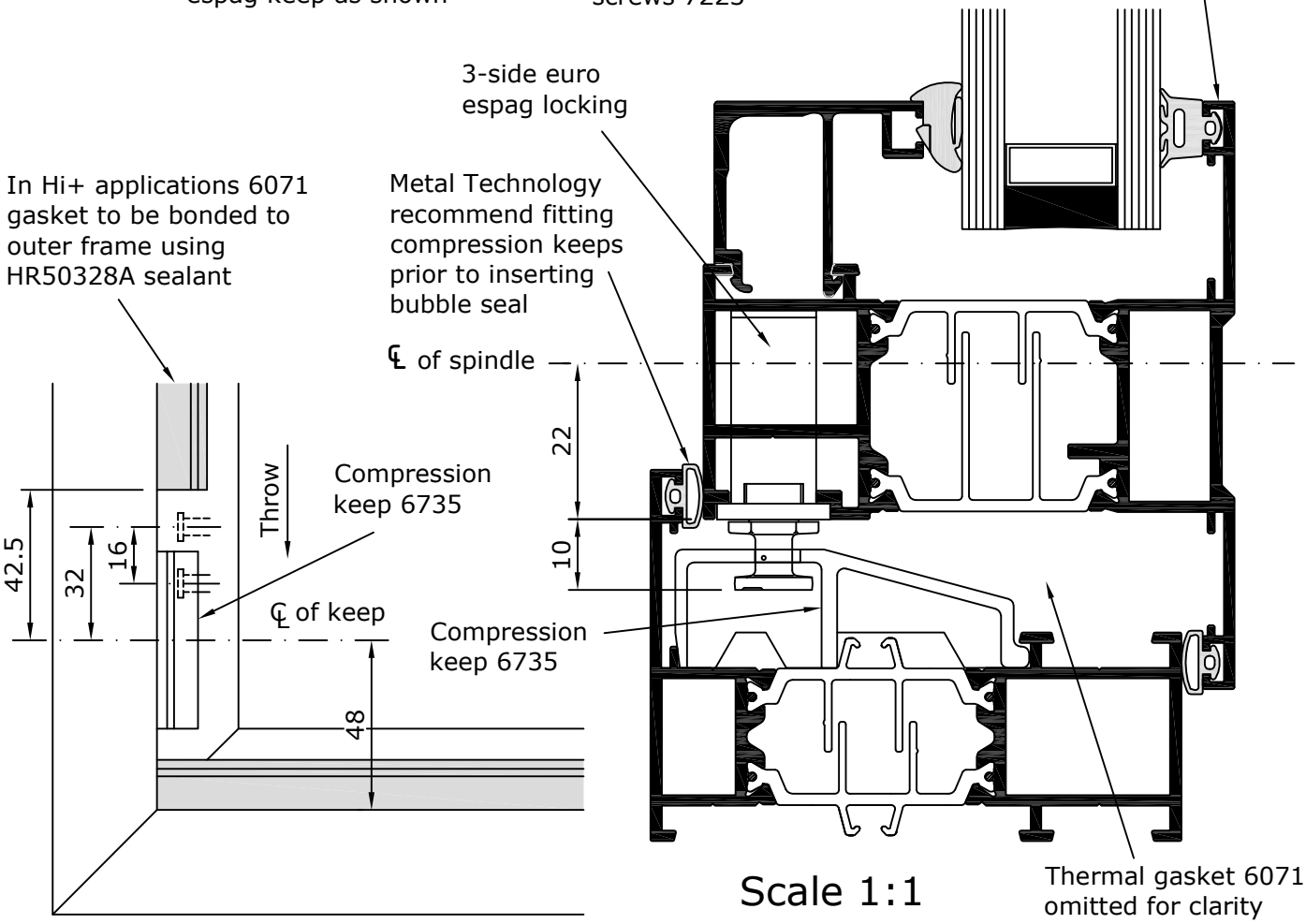
Sashes 626-627 and 626-652

System 4-35 Hi/Hi+

CASEMENT WINDOW

For Hi applications omit thermal gaskets.
All fixings must be sealed using HR50328A sealant.



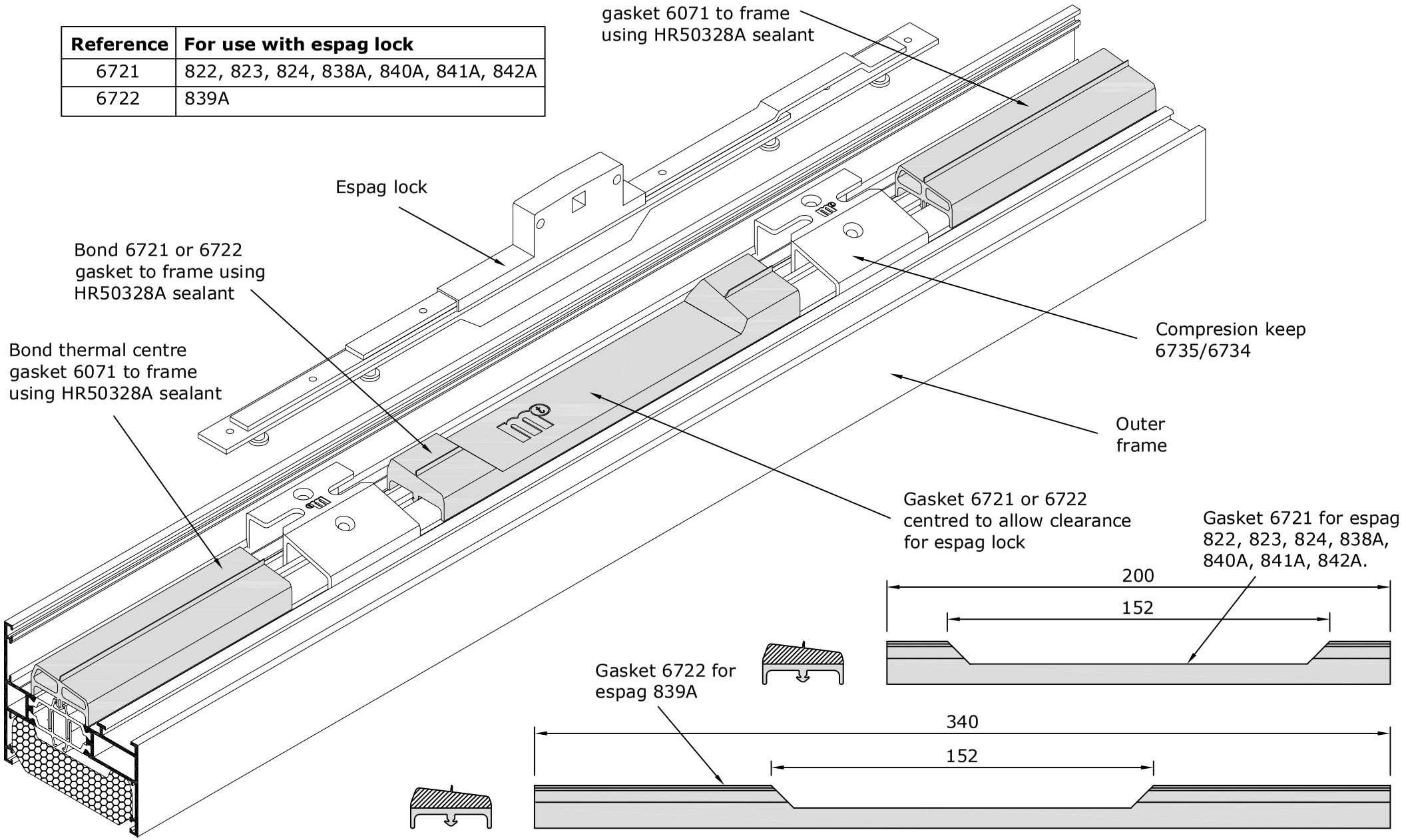


Scale 1:1

Scale 1:2

Centre Gasket Detail for Standard and Offset Espag Lock

Reference	For use with espag lock
6721	822, 823, 824, 838A, 840A, 841A, 842A
6722	839A



Not to scale

Folding Opener

Glaze Out Sash 620-202

System 4-35 Hi/Hi+
CASEMENT WINDOW

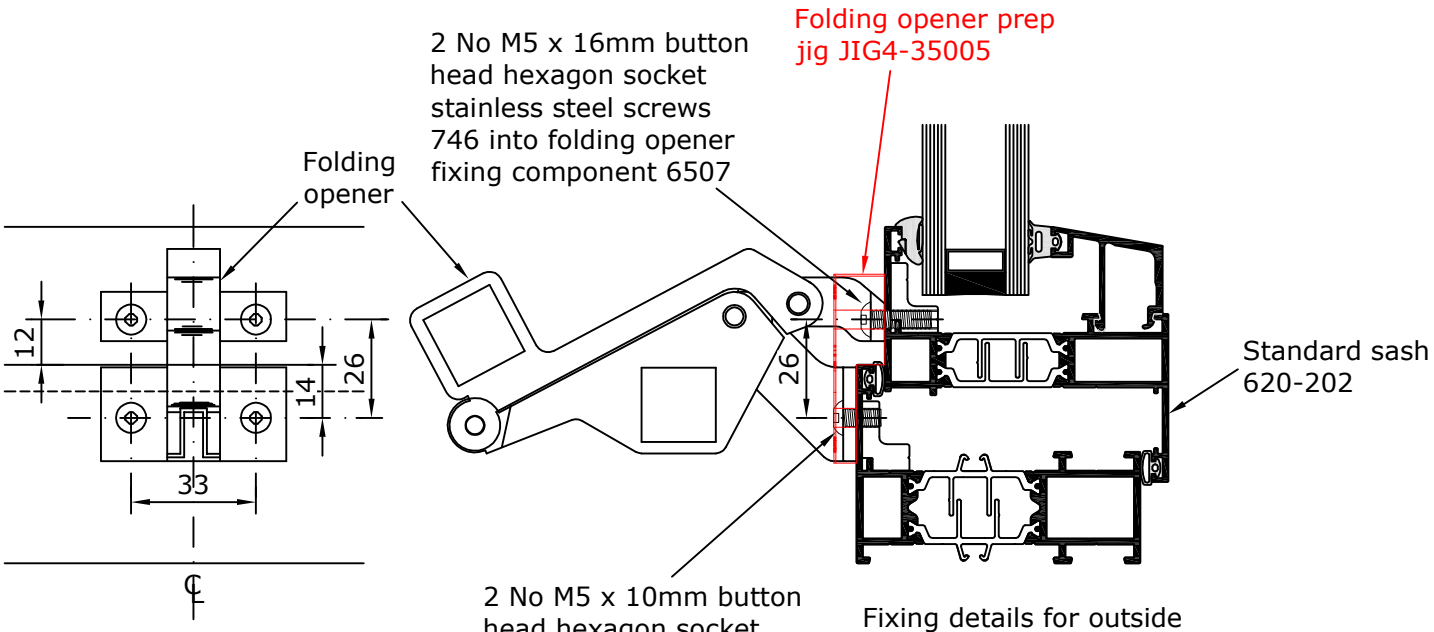
All fixings must be sealed using HR50328A sealant.
Manual folding opener **773**
Pole operated folding opener **769**
Universal folding opener **771**

1. The fabricator should select the most suitable folding opener for his application bearing in mind access restrictions. For further information on folding opener fitting instructions refer to Metal Technology's Technical Department.
2. Ensure all fixings are fully sealed using HR50328A sealant.
3. When fitting folding openers to a transom, ensure only cleated transoms are used, and that cleats are glued in place.
4. 773, 769 and 771 folding openers are designed to suit the following profiles only:
5. Position of folding opener illustrated below in closed position may vary due to fabrication tolerances.

For details of quantities per sash, opener positions and standard link bar lengths see sheet "Folding Openers" in "Ironmongery" details in section 3 of this manual.

600-200
600-212
600-605
601-201
602-202
602-212
603-201
604-213
606-206
609-200
613-213
619-211
620-204
620-216

Jig drilling procedure:
1. When vent is fitted into the outer frame offer centre line of JIG4-35005 jig to centre line of folding opener position.
2. Mark all four hole positions using 5mm drill bit.
3. Remove jig and drill out handle holes using 5mm drill bit.



Fabricator to ensure adequate clearance for folding opener to suit application and site conditions.

Fixing details for outside glaze sash **620-202**

Scale 1:2

Folding Opener

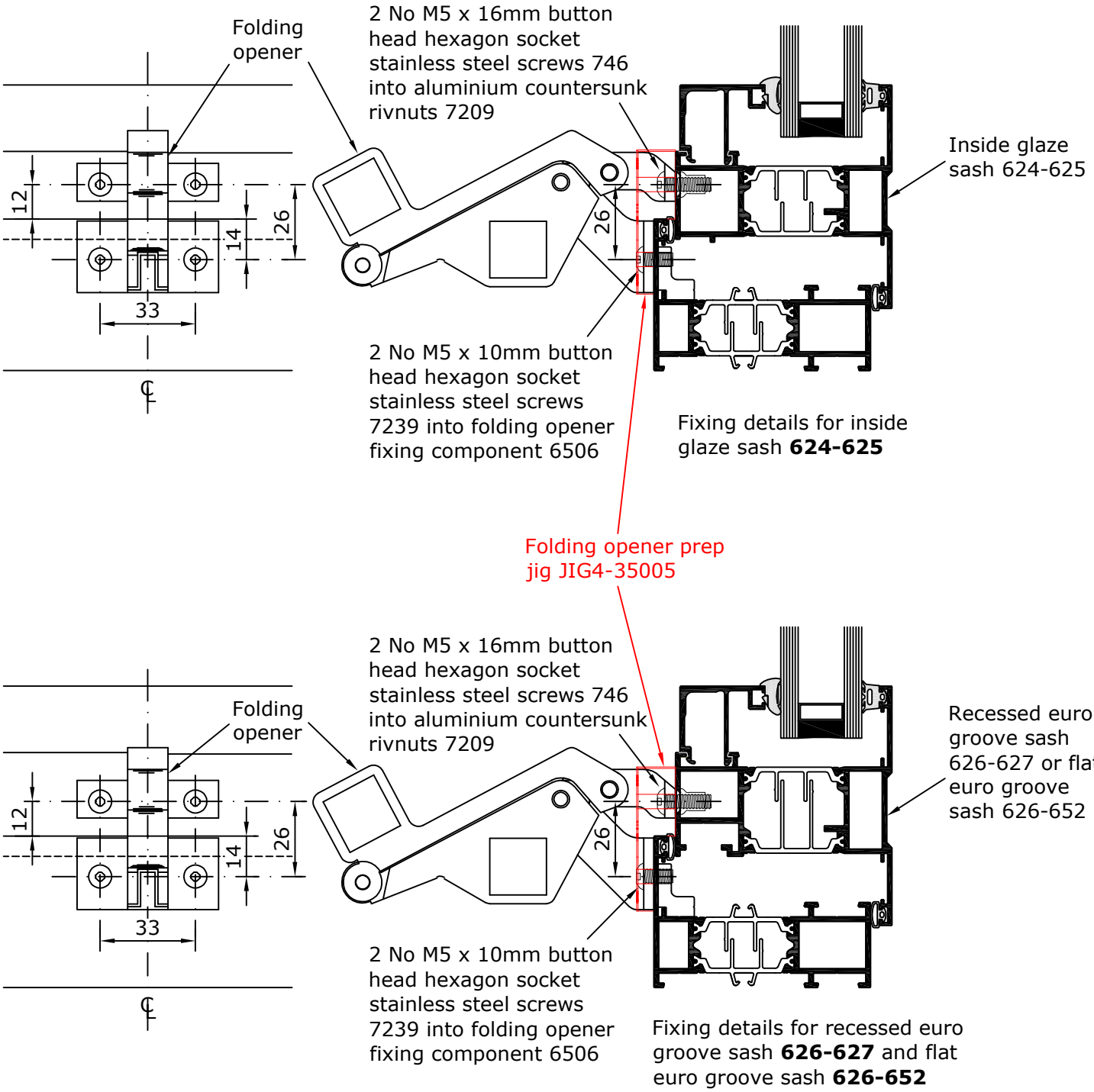
Inside Glaze Sash 624-625 and Euro Groove Sashes 626-627 and 626-652

System 4-35 Hi/Hi+

CASEMENT WINDOW

Continued from previous page.

Fabricator to ensure adequate clearance for folding opener to suit application and site conditions.



Scale 1:2

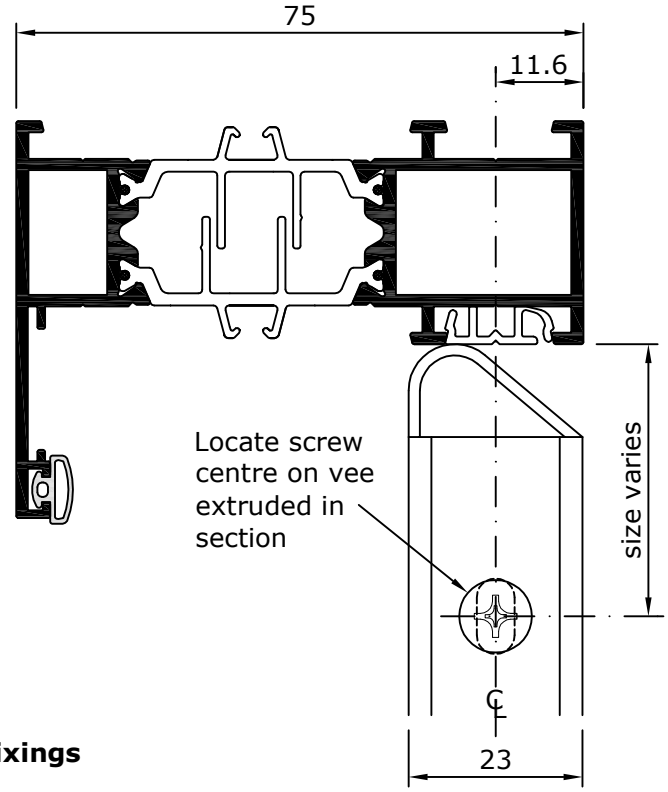
Friction Hinges
General Application

System 4-35 Hi/Hi+
CASEMENT WINDOW

See also "Friction Hinges" in section 3 of this manual.

Fitting position and hinge clearances

1. The hinges must be fitted between two flat and parallel faces. The distance between the two faces must be as shown on the applicable sheets.
2. The hinge must be positioned as shown for optimum performance.
3. The hinge should be fitted with the end cap located as shown against the internal corner of the outer frame. All fixing holes/slots MUST be used. This will ensure optimum performance and weather sealing.
4. All fixings must be sealed using HR50328A sealant.



Fixings

For hinges 6705, 6706, 6707 and 6709 use austenitic stainless steel shallow pan head self tapping screws 7244 and 7245 to fix vent arm and track as shown on the following pages. For hinge 6708 use countersunk screws to vent arm and screw 7244 to track.

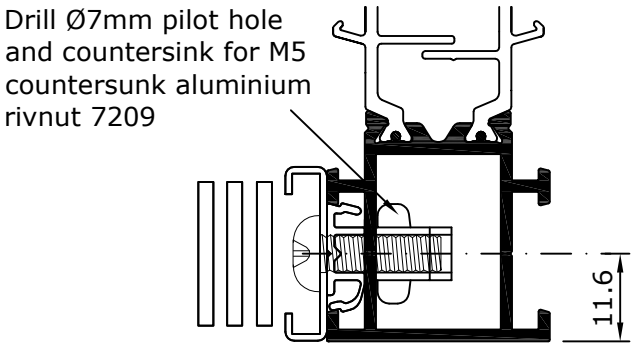
When fixing friction stays into crimping cleats with 7244 / 7245 screws drill 4.2mm diameter pilot holes. All other 7244 / 7245 screw fixings require 3.8mm diameter pilot holes.

When fixing friction stays into crimping cleats with 7231 screws drill 3.8mm diameter pilot holes. All other 7231 fixings require 3.3mm diameter pilot holes.

When fixing into cleated mullions/ transoms, remove lower cleat screw and fix hinge directly into cleat.

For top hung sash weights between 35kg and 50kg hinges to be secured to the outer frame/ mullion using M5 x 16mm pan head stainless steel machine screws 7224, and rivnuts 7209 as shown below or if suitable, for back to back fixing applications use 723 threaded bar with 724 stud ends (except where cleats are behind fixings). Alternatively use hinge support blocks 504 in addition to the standard screw fixings.

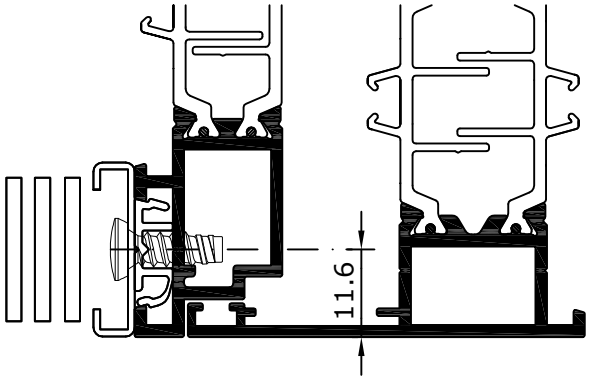
For top hung sash weights over 50kg, hinges to be secured to the outer frame/mullion using M5 x 16mm pan head stainless steel machine screws 7224 and rivnuts 7209 or if suitable, for back to back fixing applications use 723 threaded bar with 724 stud ends (except where cleats are behind fixings), plus 504 hinge support blocks.



Secure restrictor plate within the outer frame track of the friction hinge at the "Maximum opening angle" in accordance with "Friction Hinges - Hinge Restrictor Plate Fixing" sheet.

When fixing top hung sashes of 35kg to 50kg to 685-686 secure hinge to liner bar using 4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244, plus 504 hinge support blocks.

When hinge fixing to liner bar is into a corner cleat, use standard screws 7244 into 4.2mm diameter pilot hole.



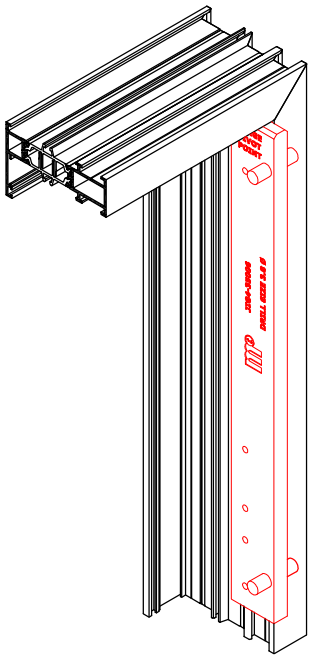
Scale 1:1

Hinge Jig Method Statement

System 4-35 Hi/Hi+

CASEMENT WINDOW

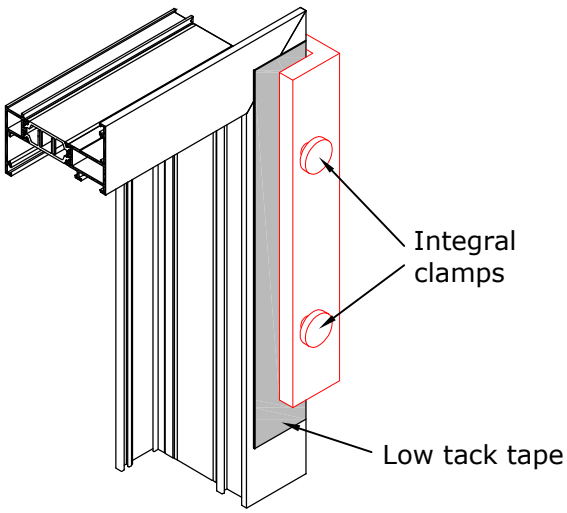
For outer frame

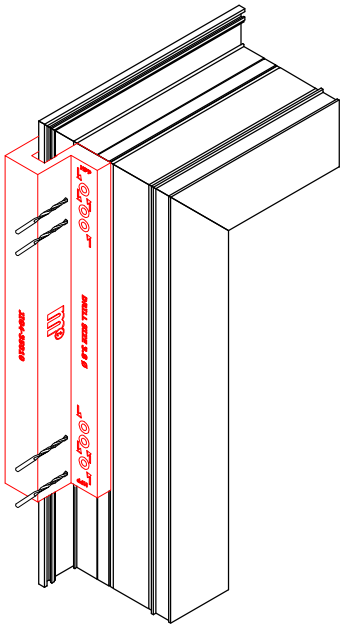


Position outer frame jig with "hinge pivot point" of jig to hinge pivot point of outer frame, and with dowels tight against face of frame.
Drill first three holes for the hinge, and the final two holes if 504 hinge support block is being used.
Remove jig.
If fixing into a corner cleat, hole to to be drilled out to 4.2mm diameter.
Repeat other side.
Secure hinges, and 504 hinge support blocks if used, to outer frame using screws as detailed in this manual.

For Sash

Ensure external surface of sash is protected with a suitable low tack tape. Position sash jig over hinge rebate leg of sash with "hinge pivot point" ("HPP") of jig to hinge pivot point on sash. Ensure hinge pivot point end is aligned with mitred corner of crimp chamber as illustrated.
Secure jig in position using integral clamps. Do not overtighten. Drill appropriate holes as indicated by the arrows pointing downwards, as illustrated.
Remove clamp and repeat on opposite side.
Offer sash to outer frame. Secure hinges to sash using screws as detailed in this manual.





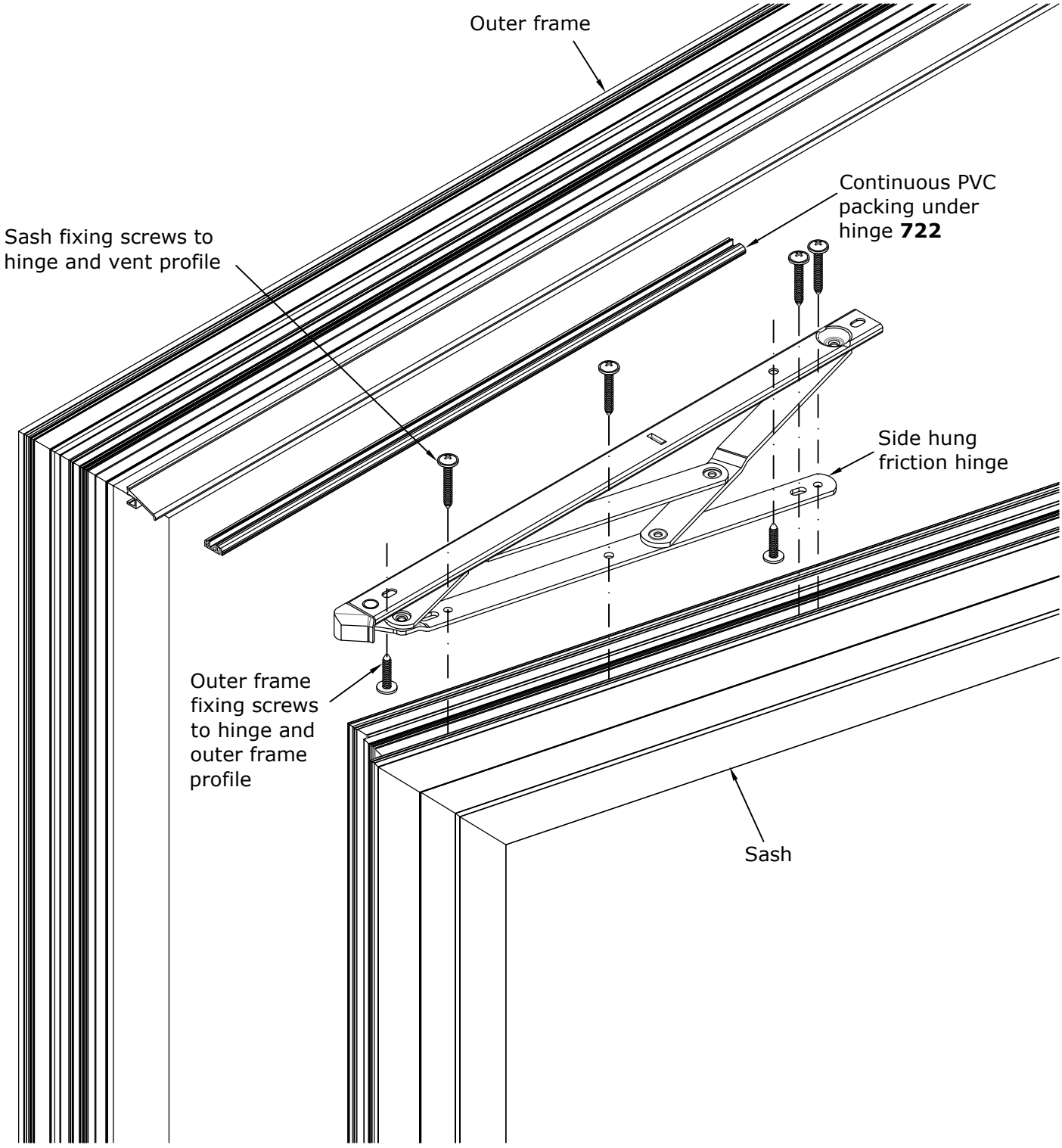
Not to Scale

Hinge Fixing

3-Dimensional View

System 4-35 Hi/Hi+

CASEMENT WINDOW



Not to scale

Friction Hinges

Standard Sash 620-202

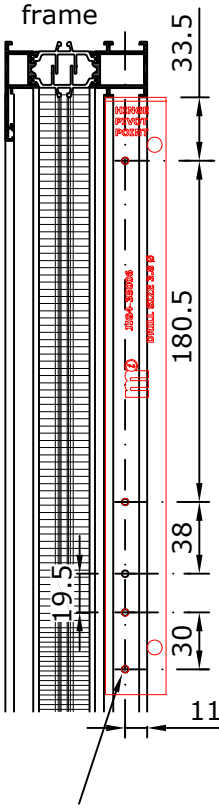
System 4-35 Hi/Hi+
CASEMENT WINDOW

Fixing Positions for 6705, 6706 and 6707 Hinges

All fixings must be sealed using HR50328A sealant.
Refer to "Friction Hinges - General Application" sheet for fixing details based on vent weight criteria. When the "Maximum opening angle" for the applicable sash weight has been determined, secure the restrictor plate within the outer frame track of the hinge at the appropriate angle in accordance with sheet "Friction Hinges - Hinge Restrictor Plate Fixing".

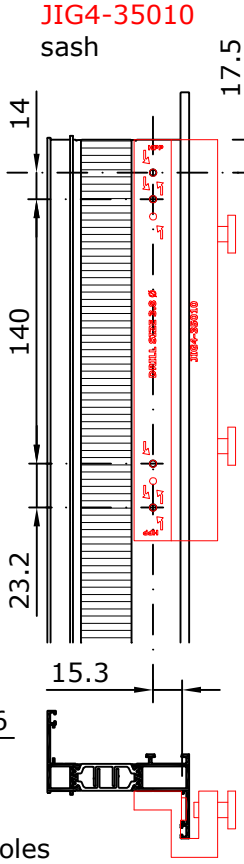
Top hung/side hung hinge 6705

Drill jig JIG4-35006 frame



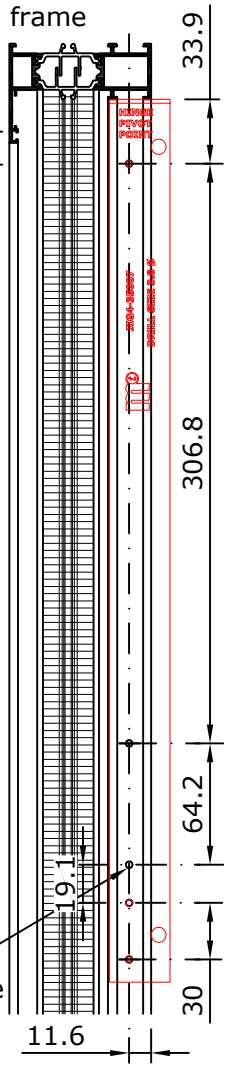
Drill Ø3.8 pilot holes using drill jigs to locate self drilling screws

Drill jig JIG4-35010 sash



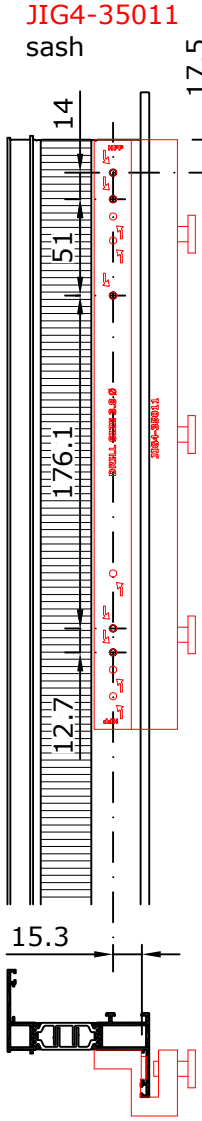
Top hung/side hung hinge 6706

Drill jig JIG4-35007 frame



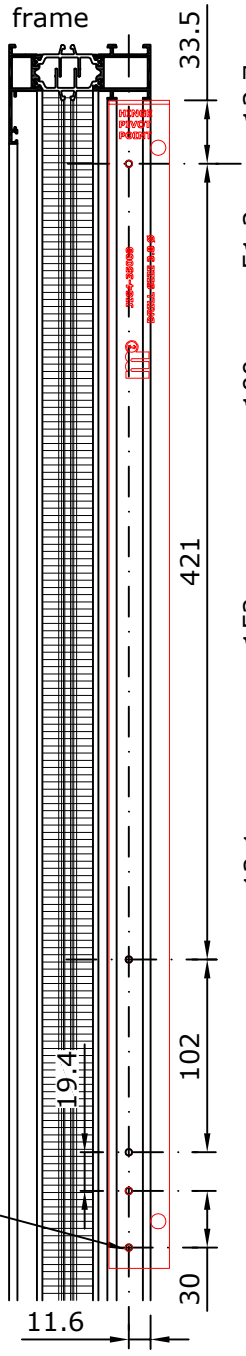
Drill Ø3.8 pilot holes using drill jigs to locate self drilling screws

Drill jig JIG4-35011 sash



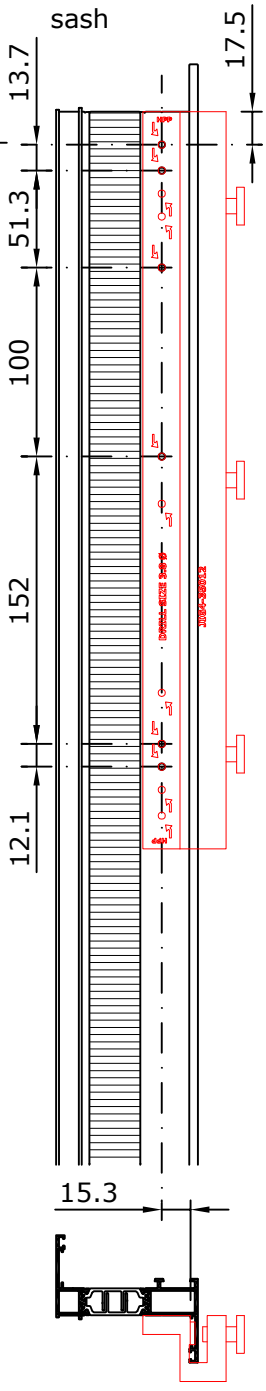
Top hung hinge 6707

Drill jig JIG4-35008 frame

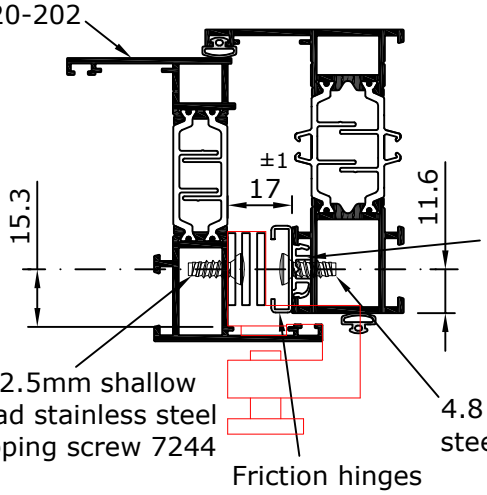


Drill Ø3.8 pilot holes using drill jigs to locate self drilling screws

Drill jig JIG4-35012 sash



Standard sash 620-202



Continuous PVC packing 722 under hinge

4.8 x 12.5mm shallow pan head stainless steel self tapping screw 7244

Friction hinges

4.8 x 12.5mm shallow pan head stainless steel self tapping screw 7244.

Not to scale

Friction Hinges

Inside Glaze Sash 624-625

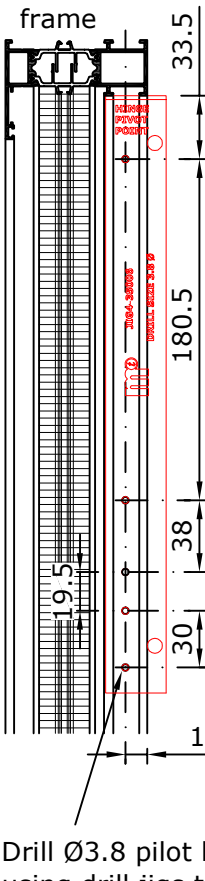
Fixing Positions for 6705, 6706 and 6707 Hinges

System 4-35 Hi/Hi+
CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.
Refer to "Friction Hinges - General Application" sheet for fixing details based on vent weight criteria. When the "Maximum opening angle" for the applicable sash weight has been determined, secure the restrictor plate within the outer frame track of the hinge at the appropriate angle in accordance with sheet "Friction Hinges - Hinge Restrictor Plate Fixing".

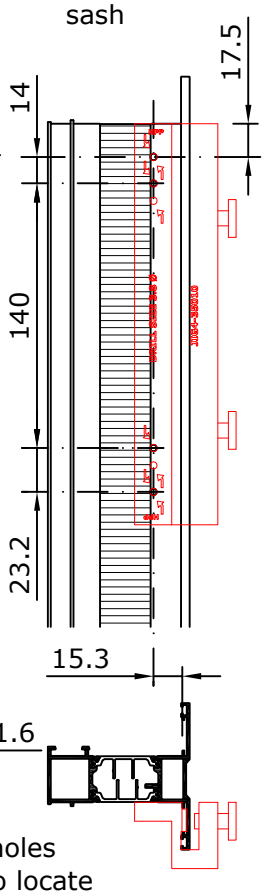
Top hung/side hung hinge 6705

Drill jig JIG4-35006 frame



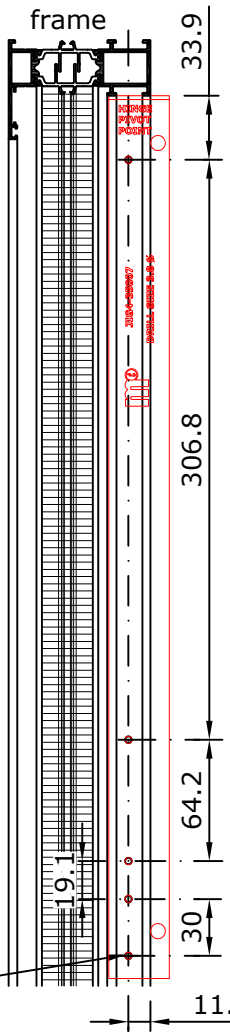
Drill Ø3.8 pilot holes using drill jigs to locate self drilling screws

Drill jig JIG4-35010 sash



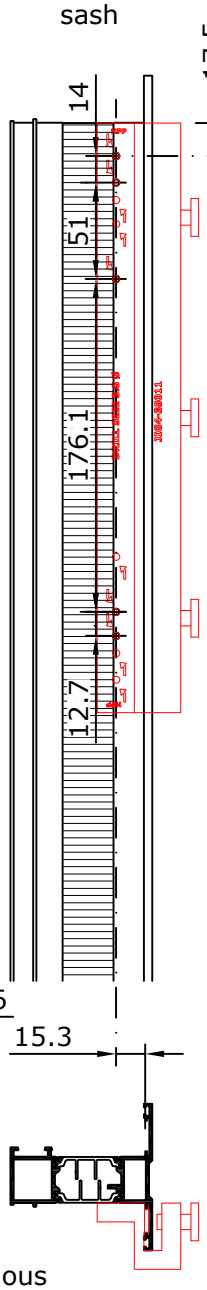
Top hung/side hung hinge 6706

Drill jig JIG4-35007 frame



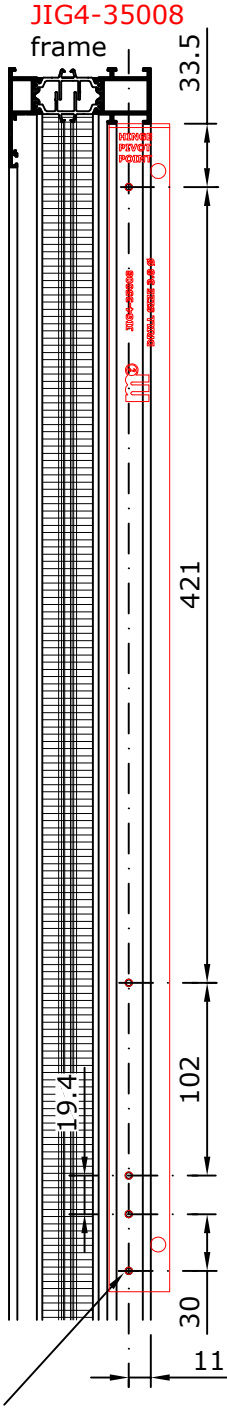
Drill Ø3.8 pilot holes using drill jigs to locate self drilling screws

Drill jig JIG4-35011 sash



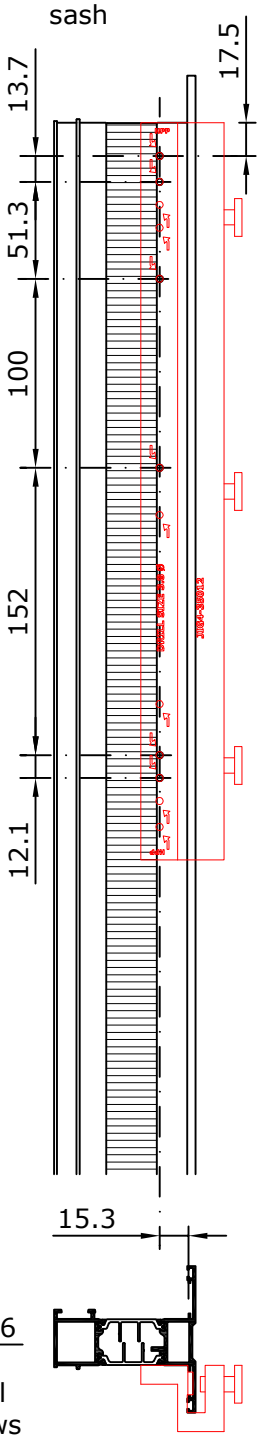
Top hung hinge 6707

Drill jig JIG4-35008 frame



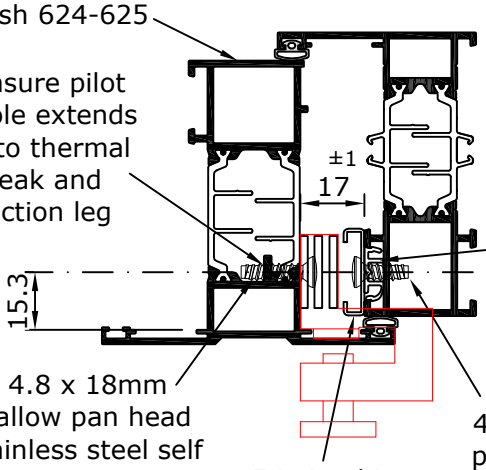
Drill Ø3.8 pilot holes using drill jigs to locate self drilling screws

Drill jig JIG4-35012 sash



Inside glaze sash 624-625

Ensure pilot hole extends into thermal break and section leg



Continuous PVC packing under hinge 722

No 4.8 x 18mm shallow pan head stainless steel self tapping screw 7245

Friction hinges

4.8 x 12.5mm shallow pan head stainless steel self tapping screw 7244

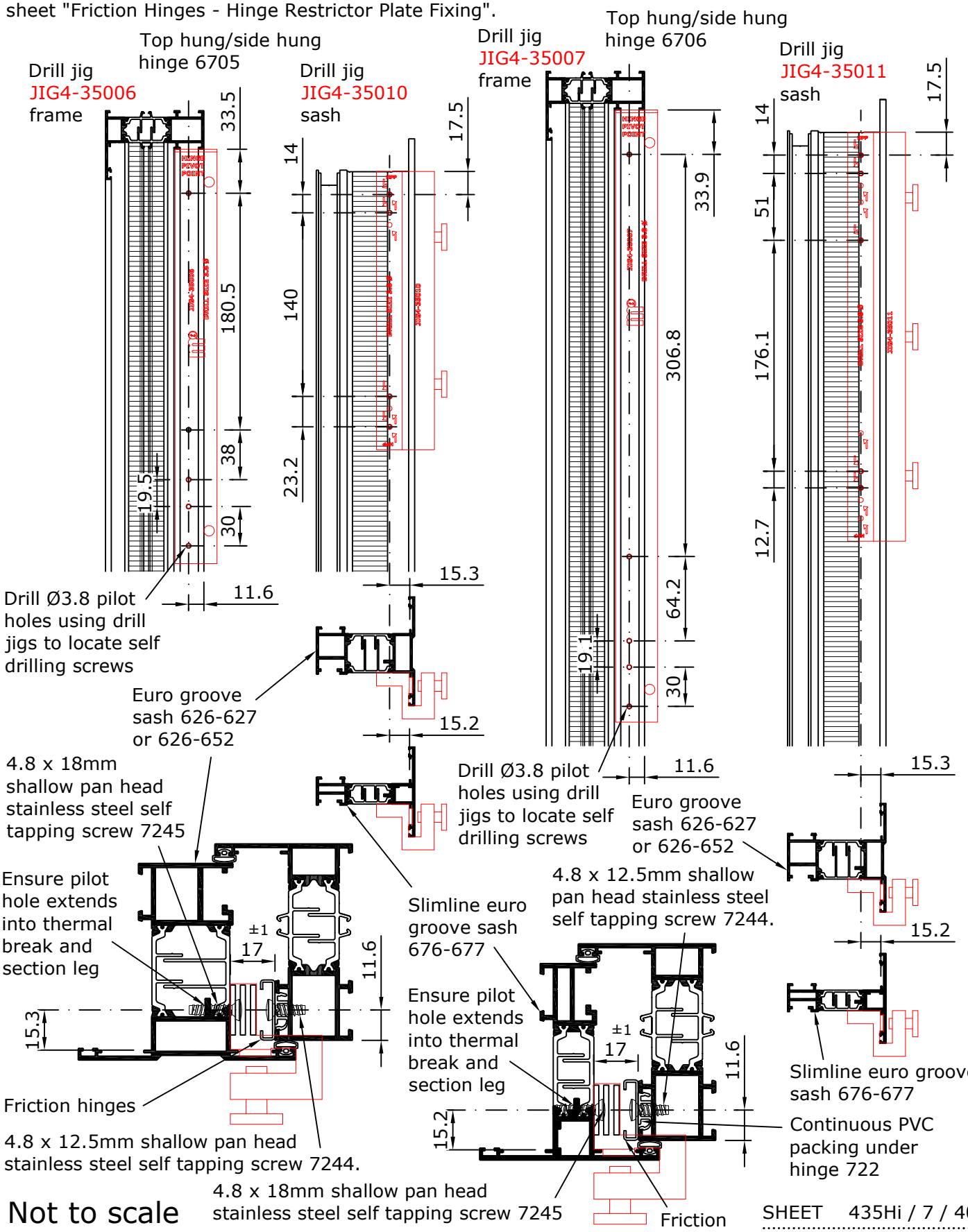
Not to scale

Friction Hinges

Euro Groove Sashes 626-627, 626-652 and 676-677 Fixing Positions for 6705 and 6706 Hinges

System 4-35 Hi/Hi+
CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.
Refer to "Friction Hinges - General Application" sheet for fixing details based on vent weight criteria.
When the "Maximum opening angle" for the applicable sash weight has been determined, secure the restrictor plate within the outer frame track of the hinge at the appropriate angle in accordance with sheet "Friction Hinges - Hinge Restrictor Plate Fixing".

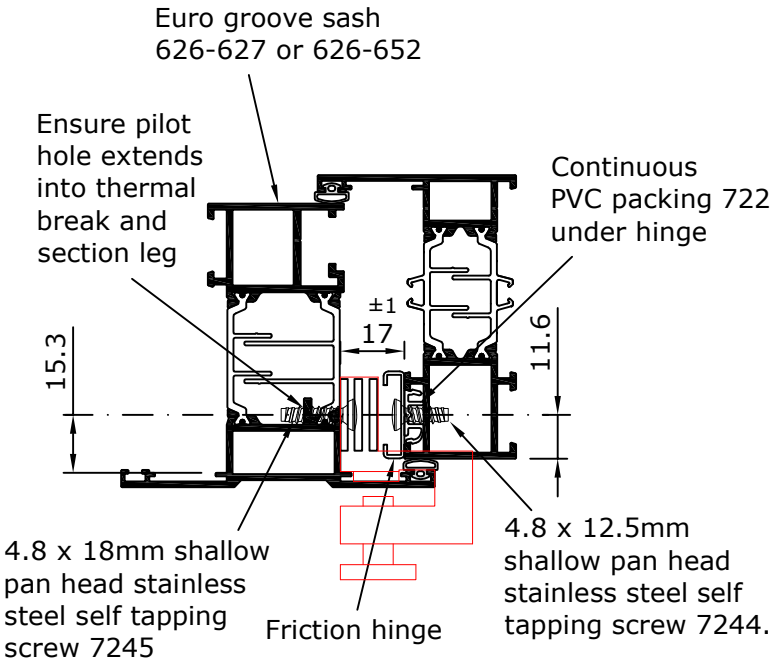


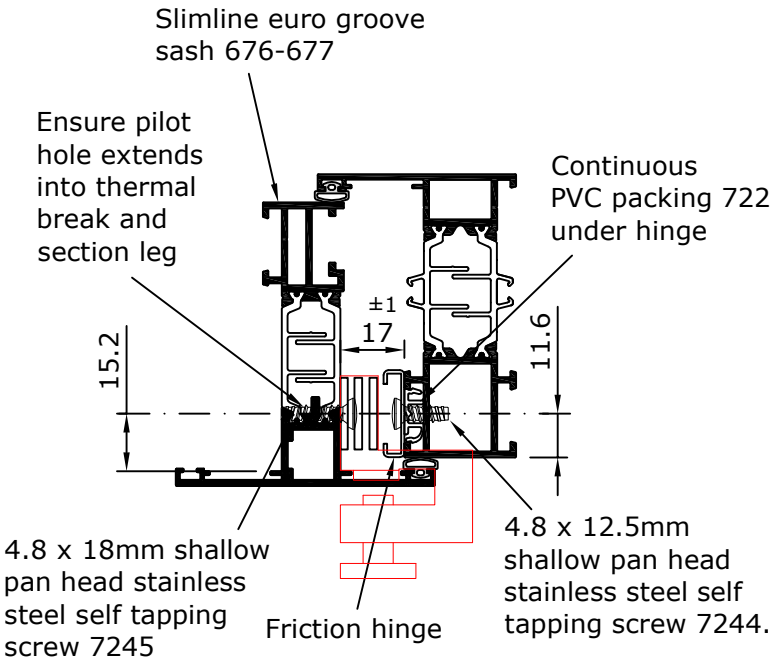
Not to scale

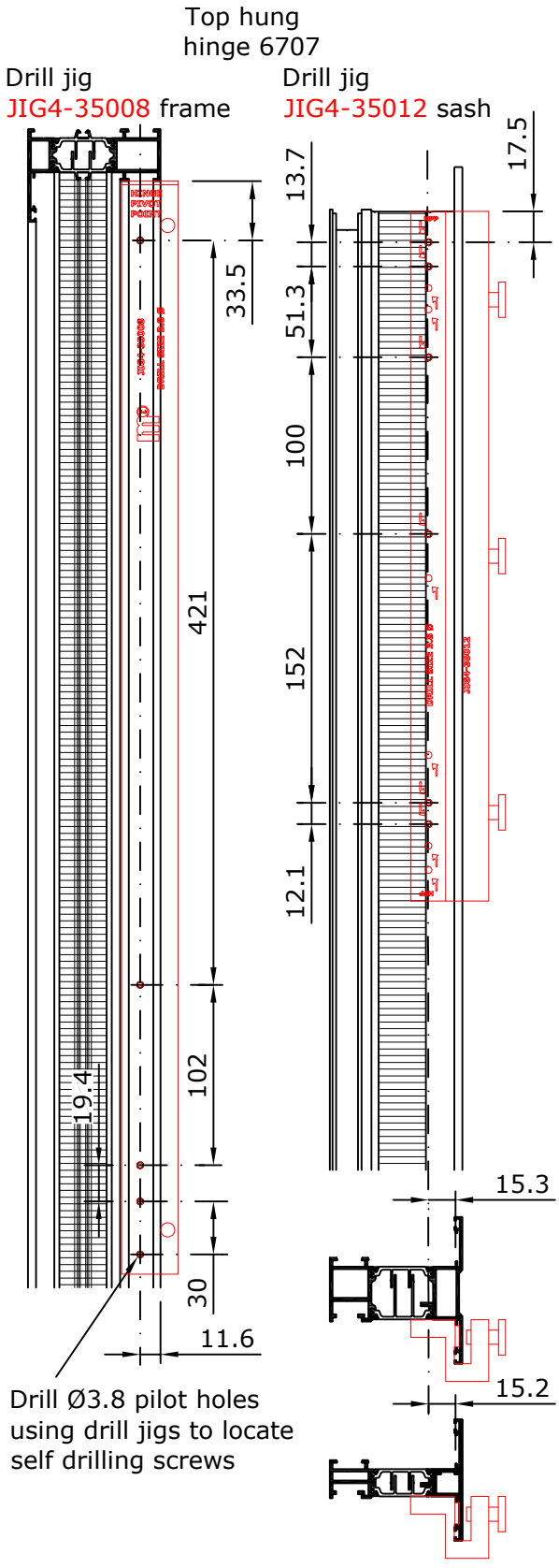
Friction Hinges

Euro Groove Sashes 626-627, 626-652 and 676-677 Fixing Positions for 6707 Hinge

All fixings must be sealed using HR50328A sealant.
Refer to "Friction Hinges - General Application" sheet for fixing details based on vent weight criteria.
When the "Maximum opening angle" for the applicable sash weight has been determined, secure the restrictor plate within the outer frame track of the hinge at the appropriate angle in accordance with sheet "Friction Hinges - Hinge Restrictor Plate Fixing".





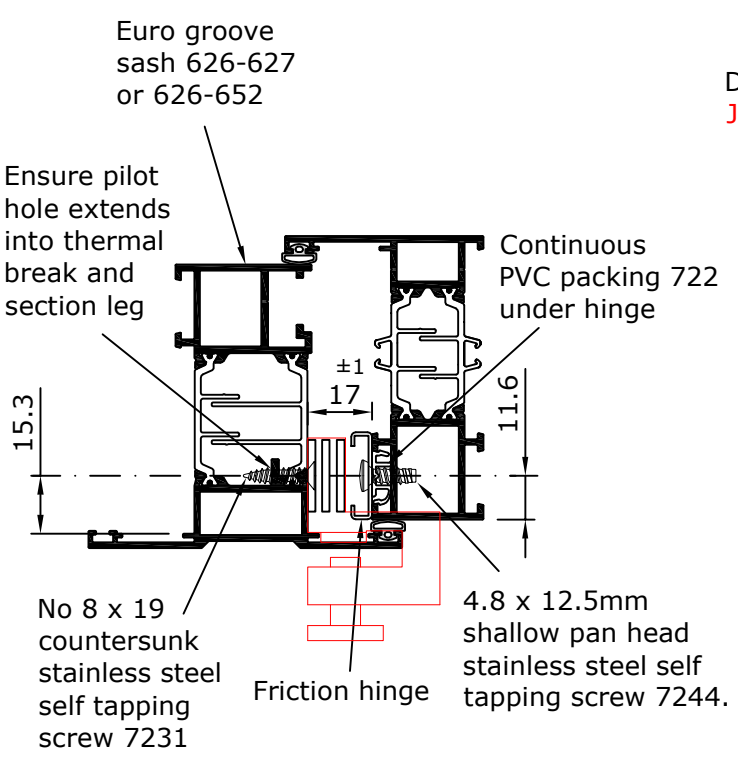


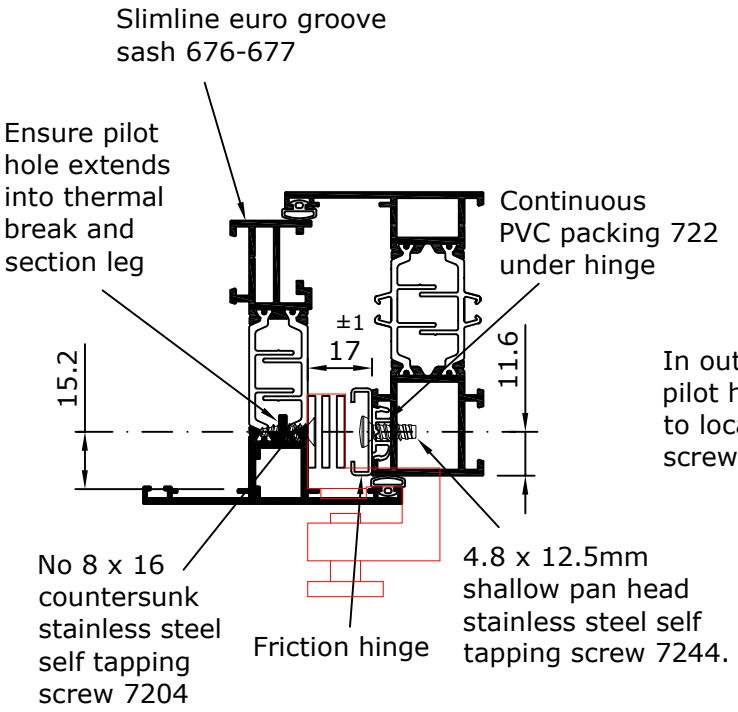
Not to scale

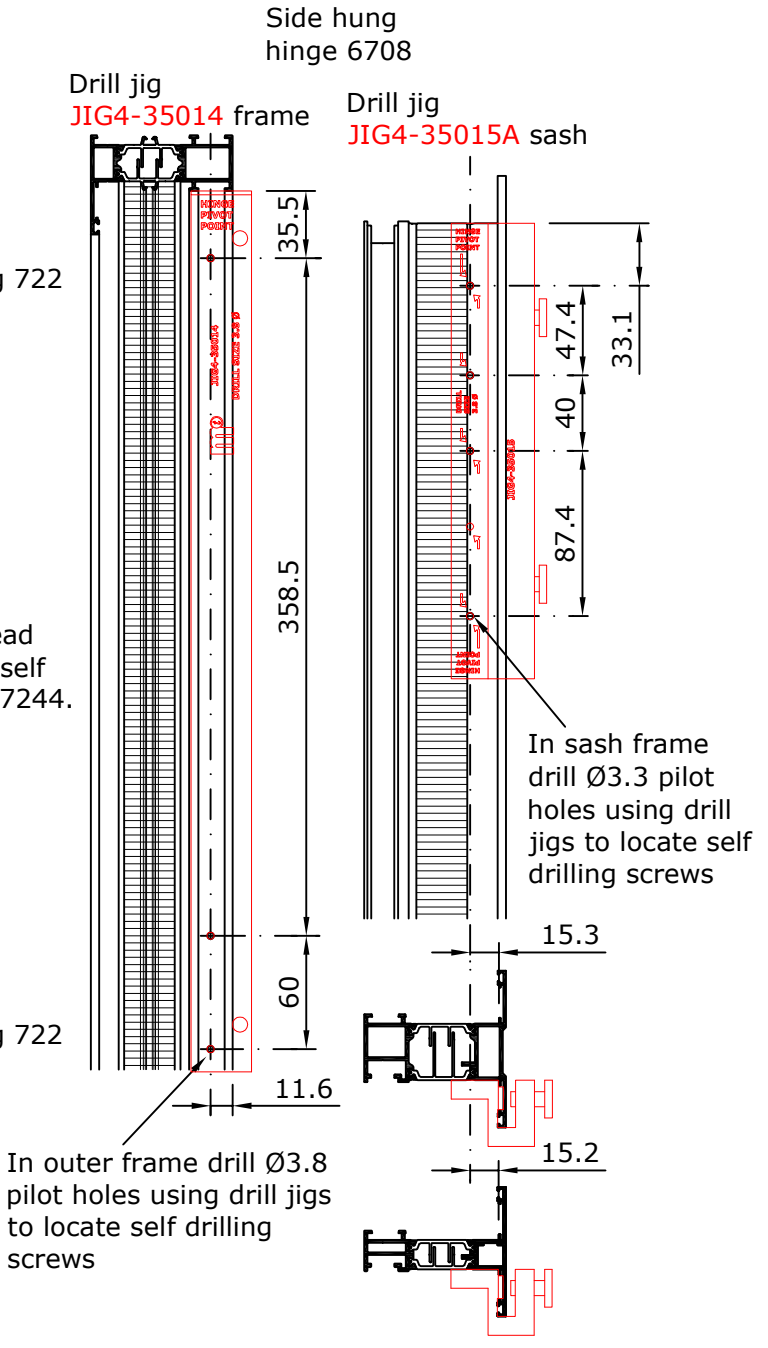
Friction Hinges

Euro Groove Sashes 626-627, 626-652 and 676-677 Fixing Positions for 6708 Hinge

All fixings must be sealed using HR50328A sealant.
Refer to "Friction Hinges - General Application" sheet for fixing details based on vent weight criteria. When the "Maximum opening angle" for the applicable sash weight has been determined, secure a restrictor plate (by fabricator) within the outer frame track of the hinge at the appropriate angle in accordance with sheet "Friction Hinges - Hinge Restrictor Plate Fixing".





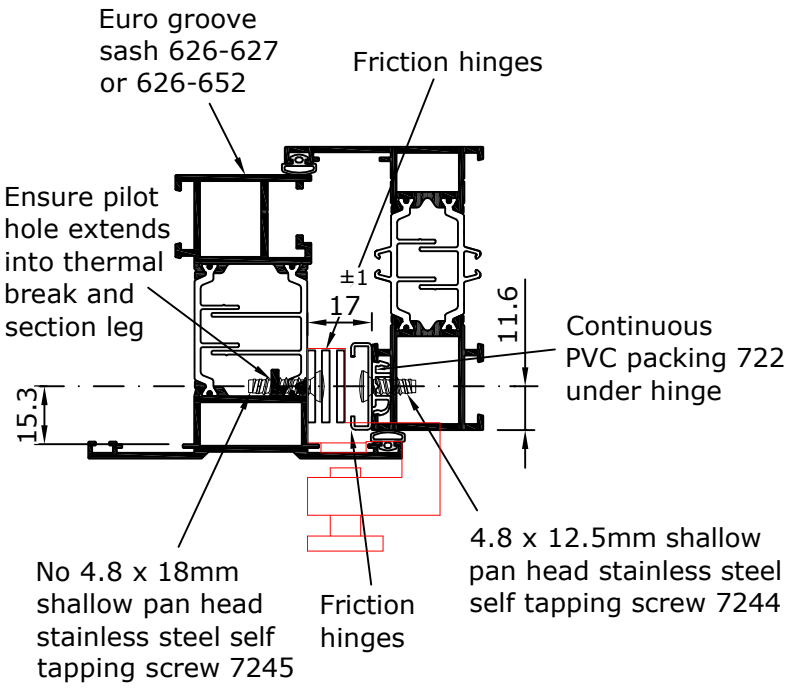


Not to scale

Friction Hinges

Euro Groove Sashes 626-627 and 626-652 Fixing Positions for 6709 Hinges

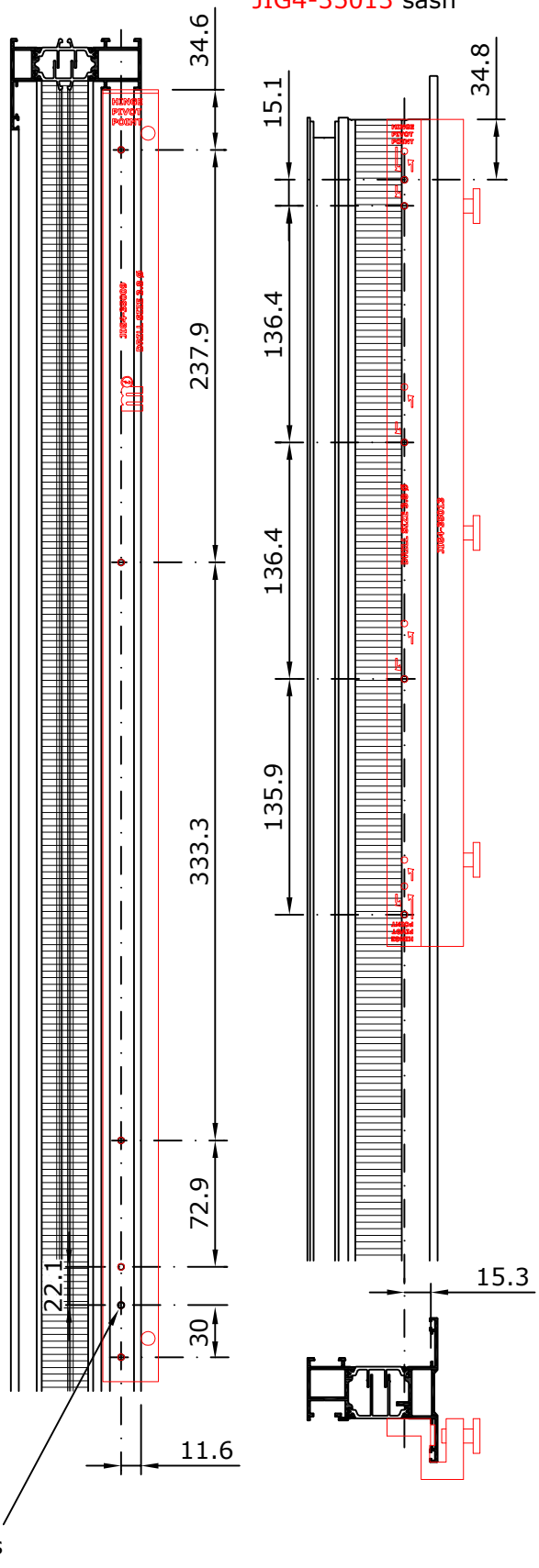
All fixings must be sealed using HR50328A sealant.
Refer to "Friction Hinges - General Application" sheet for fixing details based on vent weight criteria.
When the "Maximum opening angle" for the applicable sash weight has been determined, secure the restrictor plate within the outer frame track of the hinge at the appropriate angle in accordance with sheet "Friction Hinges - Hinge Restrictor Plate Fixing".



Top hung hinge 6709

Drill jig JIG4-35009A frame

Drill jig JIG4-35013 sash



Not to scale

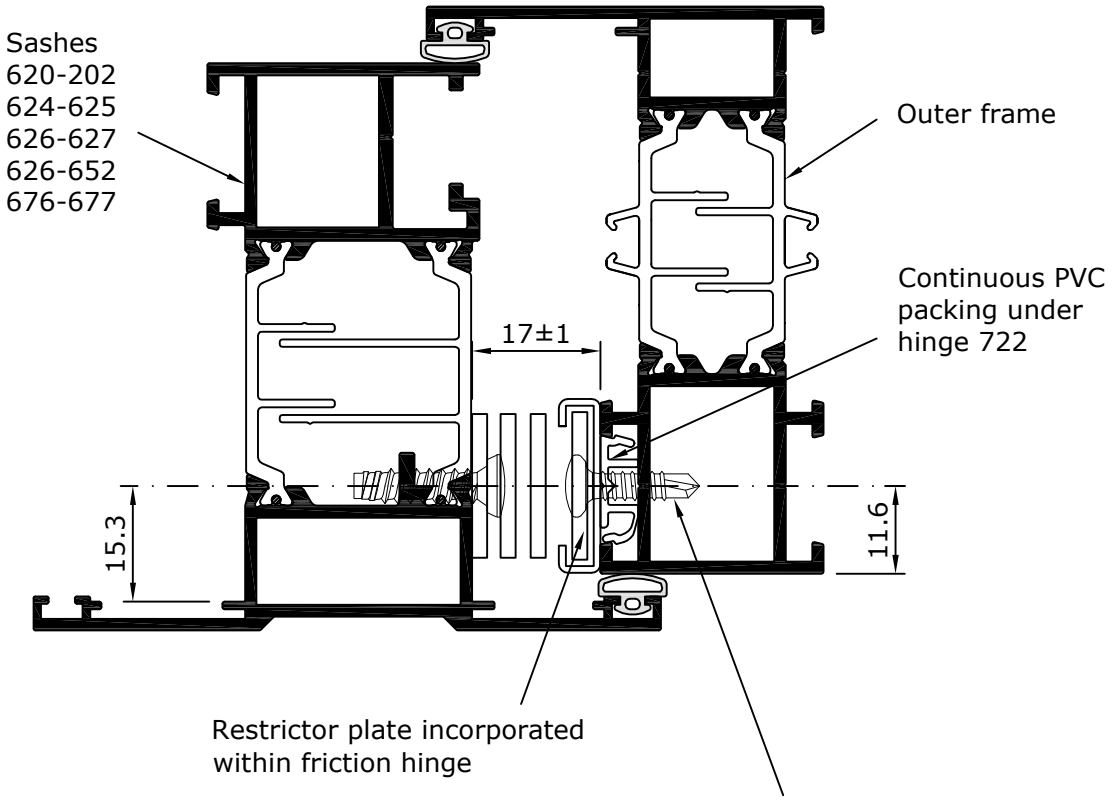
Friction Hinges

Hinge Restrictor Plate Fixing

System 4-35 Hi/Hi+

CASEMENT WINDOW

Whether sashes are unrestricted or fitted with restrictors, hinges must be permanently limited at their "Maximum opening angle", based on the applicable "Maximum sash weight". Where sash weights fall between two "Maximum sash weight" limitations the "Maximum opening angle" at the greater "Maximum sash weight" limitation applies. The "Maximum opening angle" must be set by securing the restrictor plate within the outer frame track of the friction hinge at the appropriate angle.



For hinges 6705, 6706, 6707, 6709 restrictor plates must be secured, through pre-drilled holes in hinge track, using No 7 x 16mm countersunk self drill screws 7256. Restrictor plate position to be determined according to applicable sash weight.

For hinges 6708 in side hung applications, unless otherwise permanently restricted to less than 15°, where sash weight exceeds 43kg, fabricator to manufacture a restrictor plate and secure it within the hinge track to limit the opening to 15°.

Scale 1:1

Friction Hinges

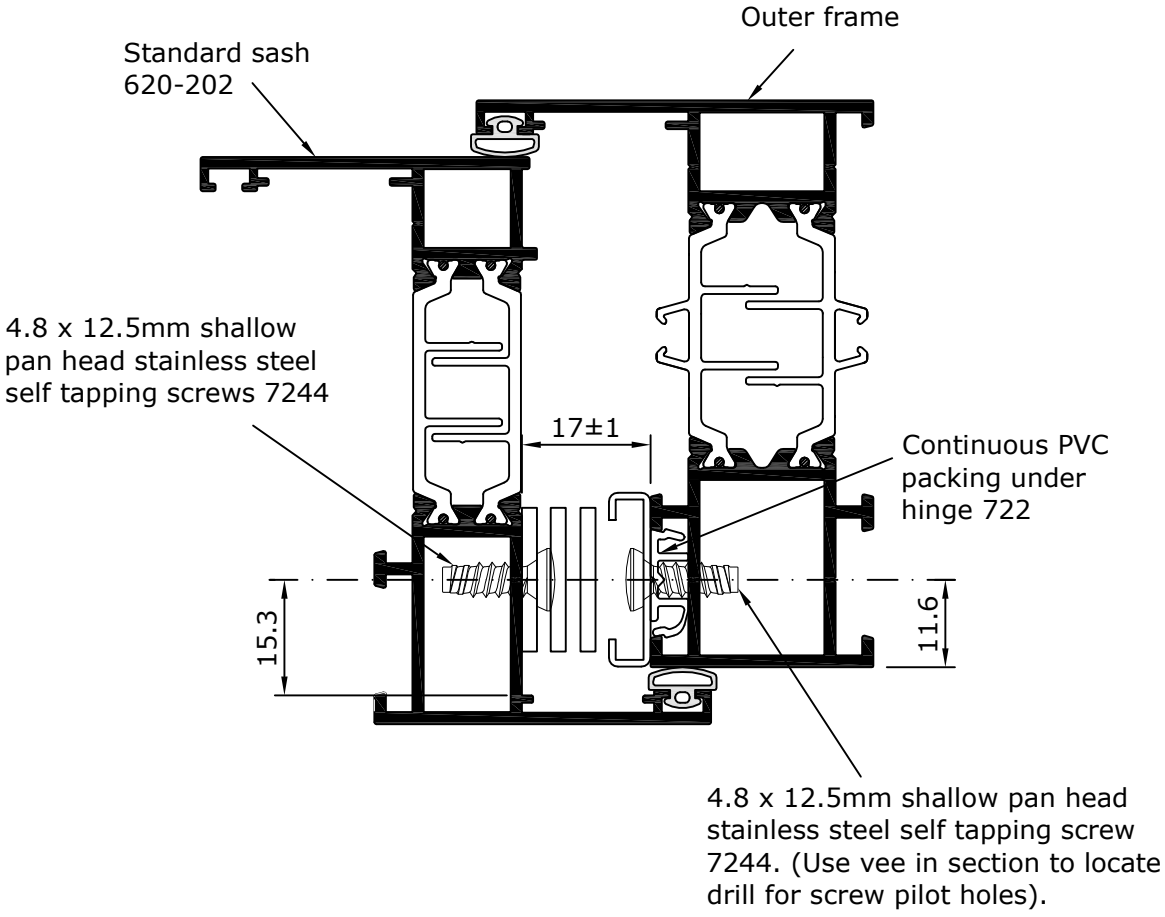
Glaze Out Sash 620-202

System 4-35 Hi/Hi+

CASEMENT WINDOW

Refer to "Friction Hinges - General Application" sheet for fixing details based on vent weight criteria.

All fixings must be sealed using HR50328A sealant.



Scale 1:1

Friction Hinges

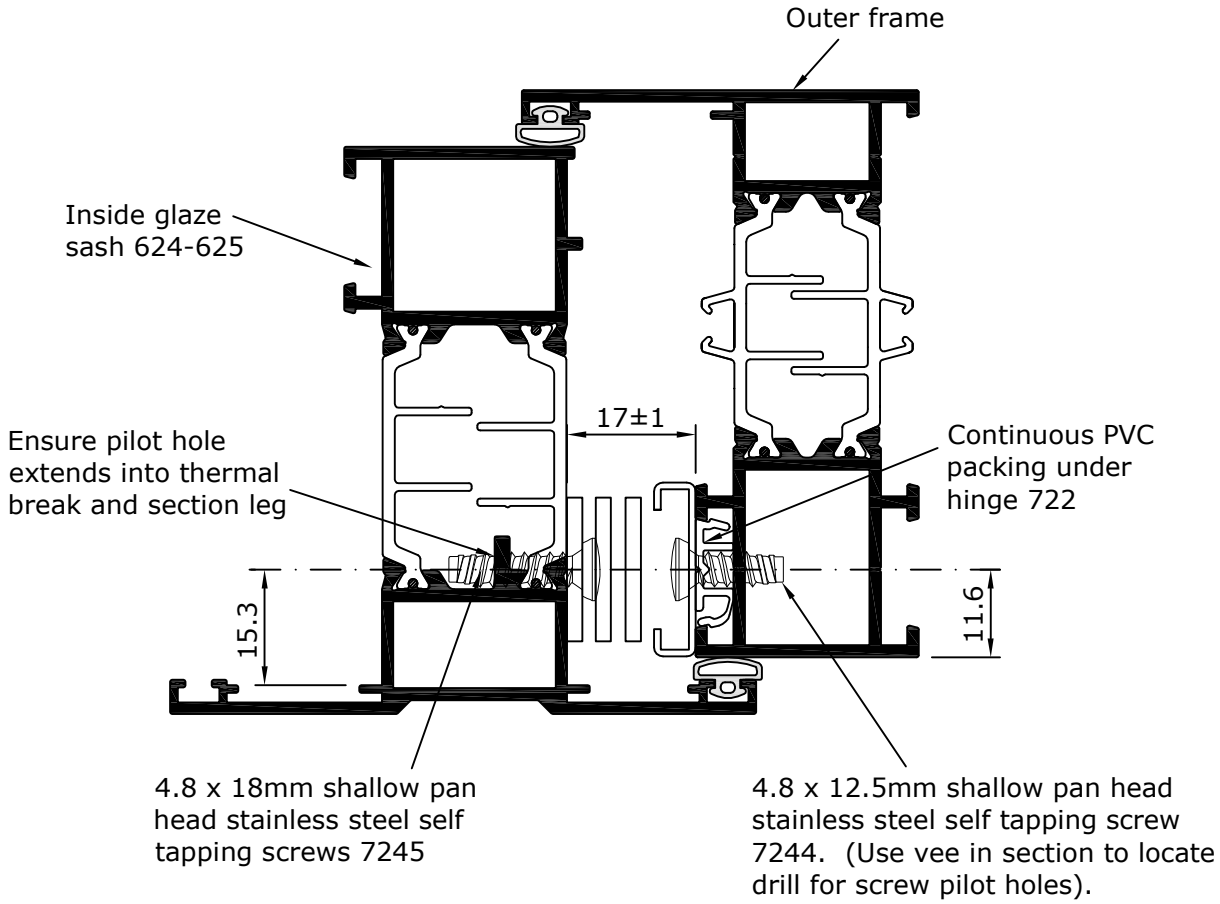
Inside Glaze Sash 624-625

System 4-35 Hi/Hi+

CASEMENT WINDOW

Refer to "Friction Hinges - General Application" sheet for fixing details based on vent weight criteria.

All fixings must be sealed using HR50328A sealant.



Scale 1:1

Friction Hinges

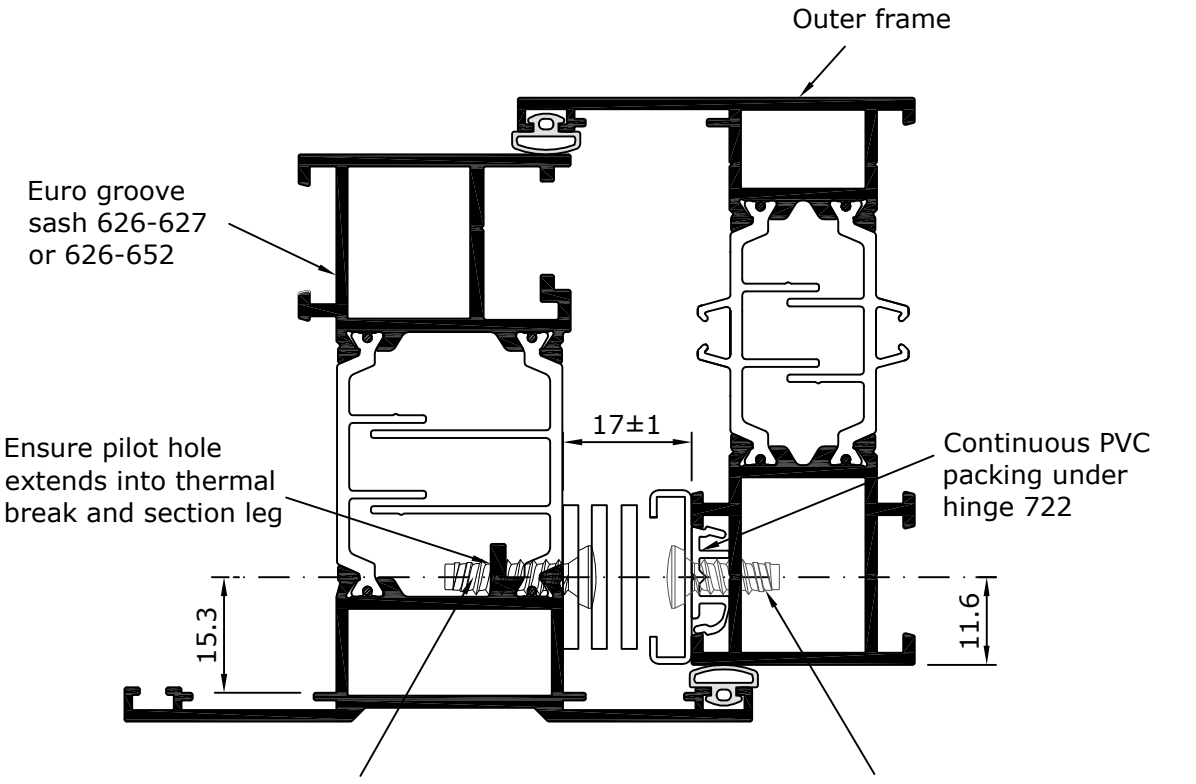
Euro Groove Sashes 626-627, 626-652 and 676-677

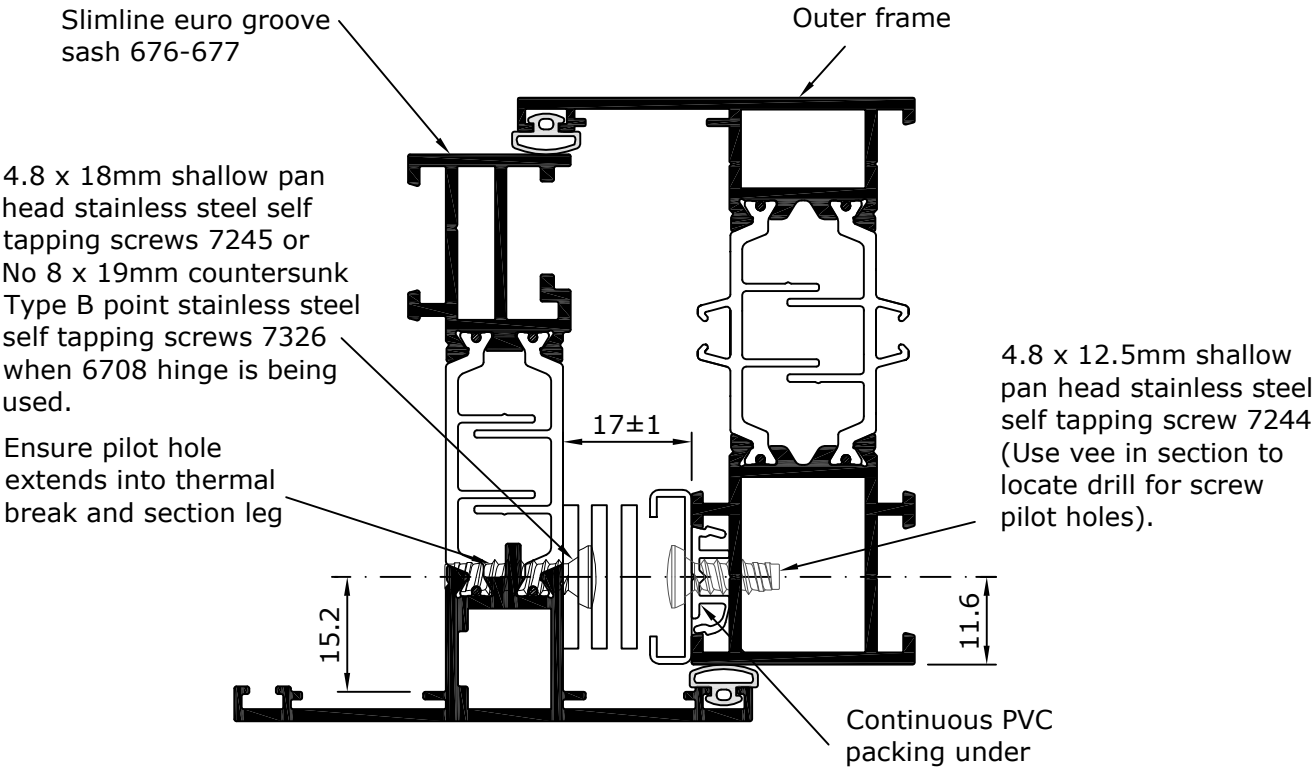
System 4-35 Hi/Hi+

CASEMENT WINDOW

Refer to "Friction Hinges - General Application" sheet for fixing details based on vent weight criteria.

All fixings must be sealed using HR50328A sealant.





Scale 1:1

Friction Hinges

Standard Sash 620-202 and Liner Bar

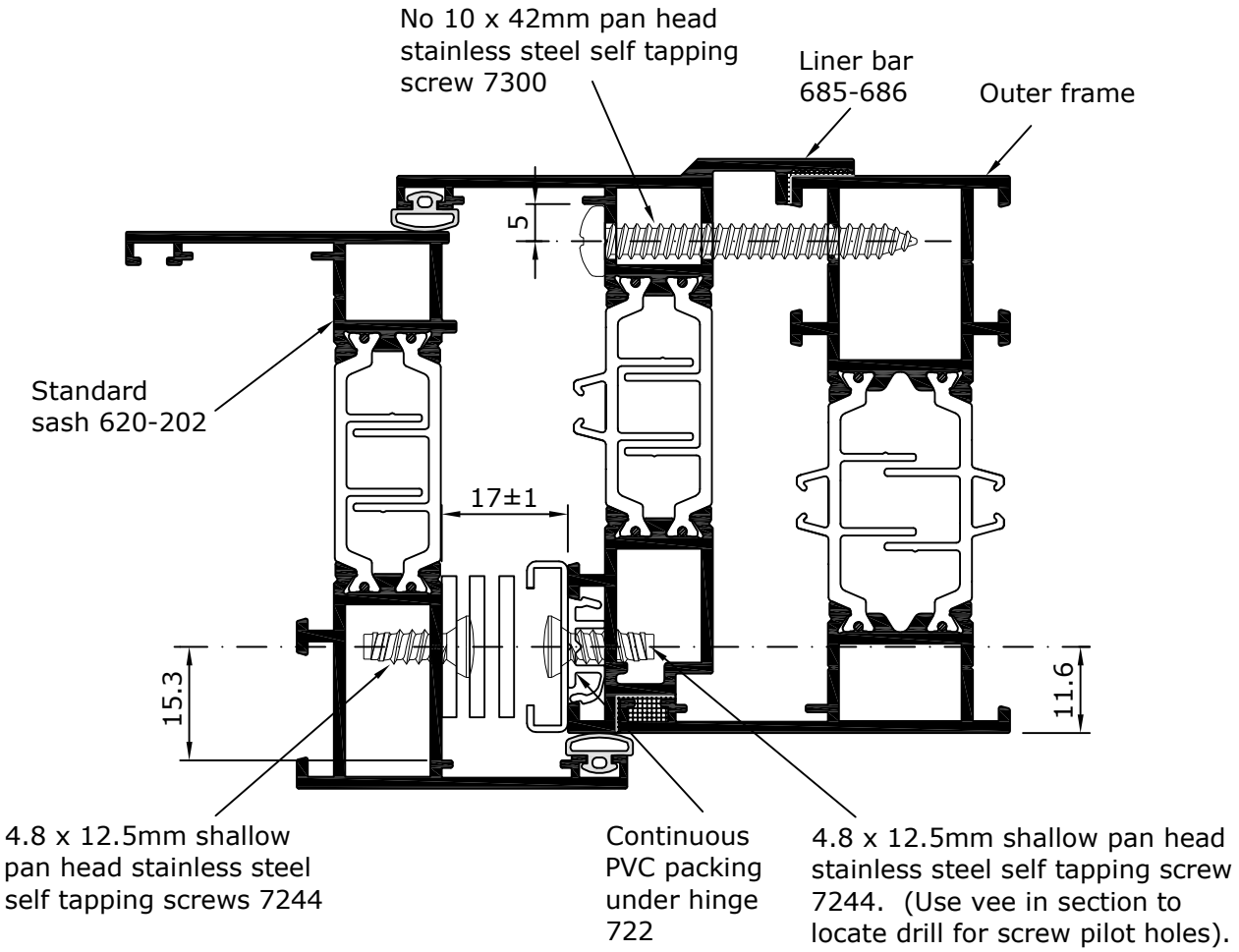
System 4-35 Hi/Hi+

CASEMENT WINDOW

Refer to "Friction Hinges - General Application" sheet for fixing details based on vent weight criteria.

All fixings must be sealed using HR50328A sealant.

For hinge fixing positions on liner bar refer to applicable outer frame fixing positions.



Scale 1:1

Friction Hinges

Inside Glaze Sash 624-625 and Liner Bar

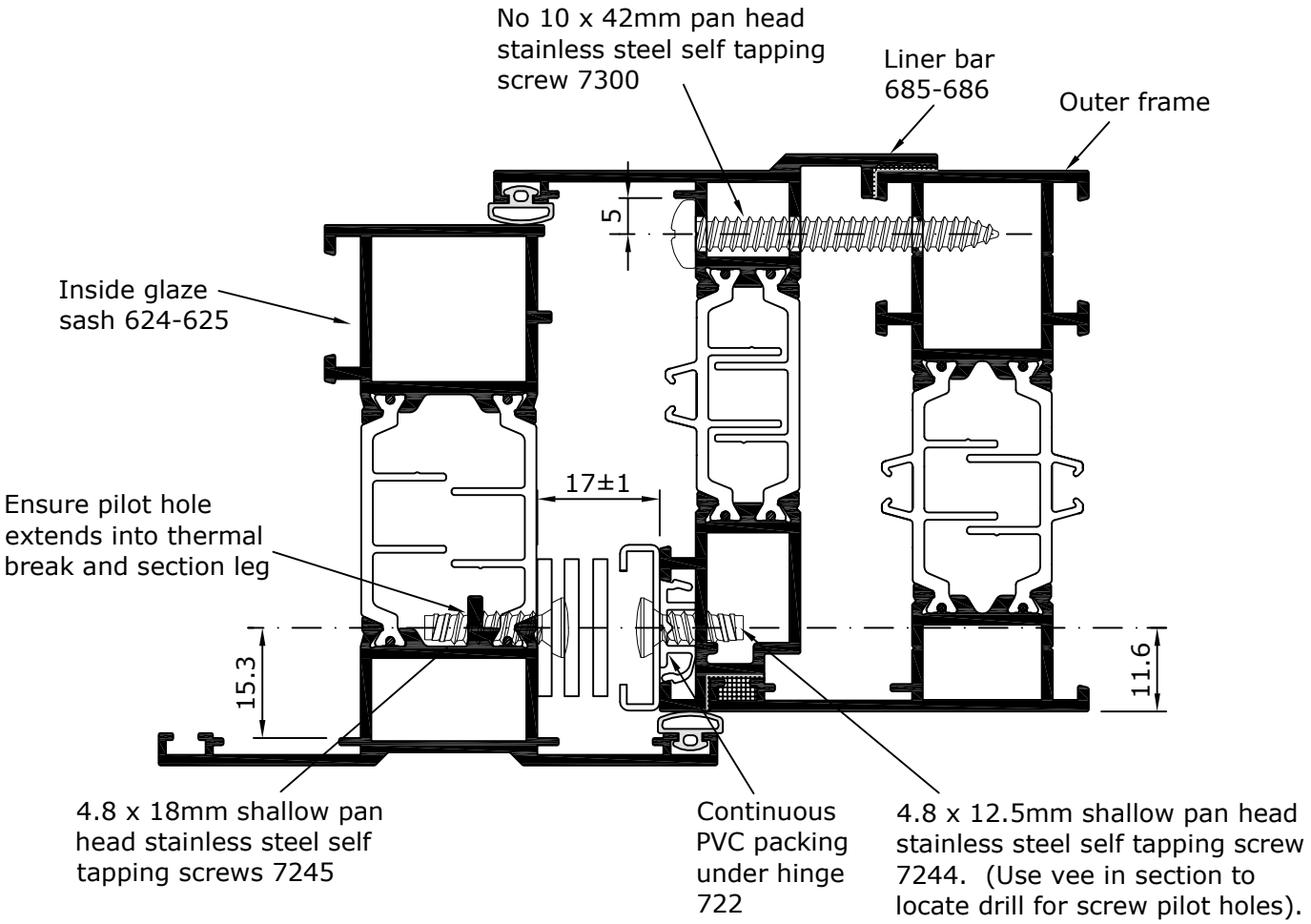
System 4-35 Hi/Hi+

CASEMENT WINDOW

Refer to "Friction Hinges - General Application" sheet for fixing details based on vent weight criteria.

All fixings must be sealed using HR50328A sealant.

For hinge fixing positions on liner bar refer to applicable outer frame fixing positions.



Scale 1:1

Friction Hinges

Euro Groove Sashes 626-627, 626-652 and 676-677 and Liner Bar

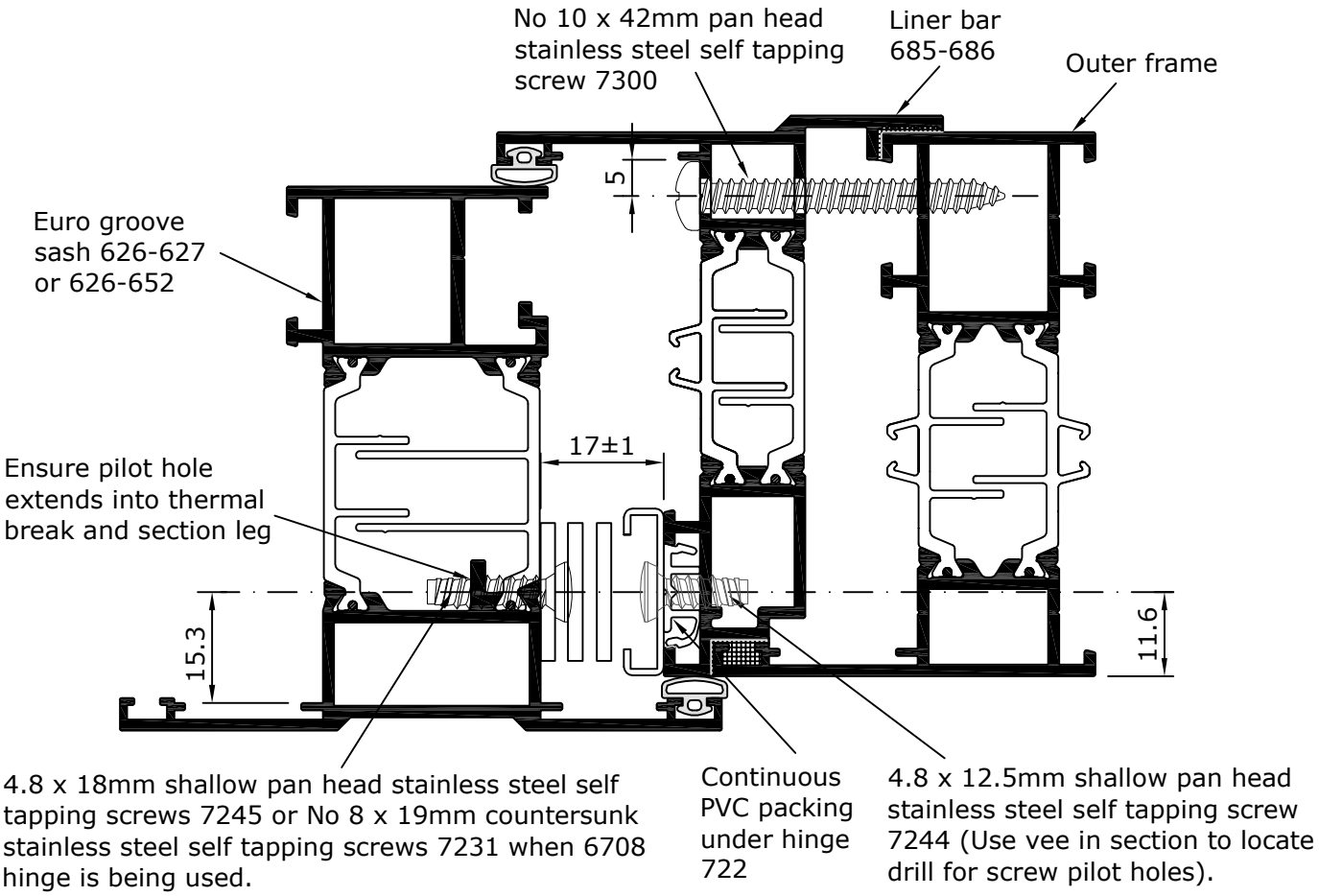
System 4-35 Hi/Hi+

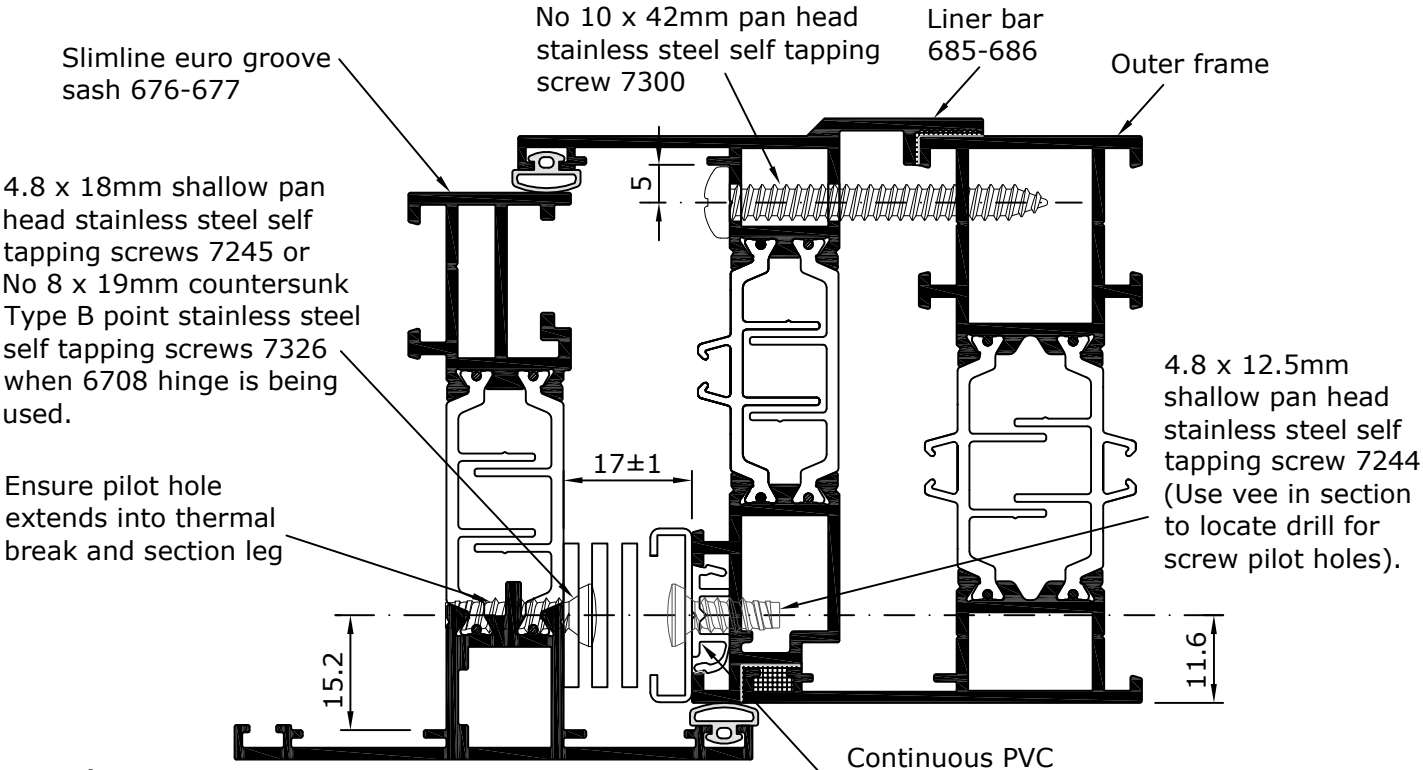
CASEMENT WINDOW

Refer to "Friction Hinges - General Application" sheet for fixing details based on vent weight criteria.

All fixings must be sealed using HR50328A sealant.

For hinge fixing positions on liner bar refer to applicable outer frame fixing positions.





Scale 1:1

Friction Hinges

Back to Back Fixings Using Standard Screws

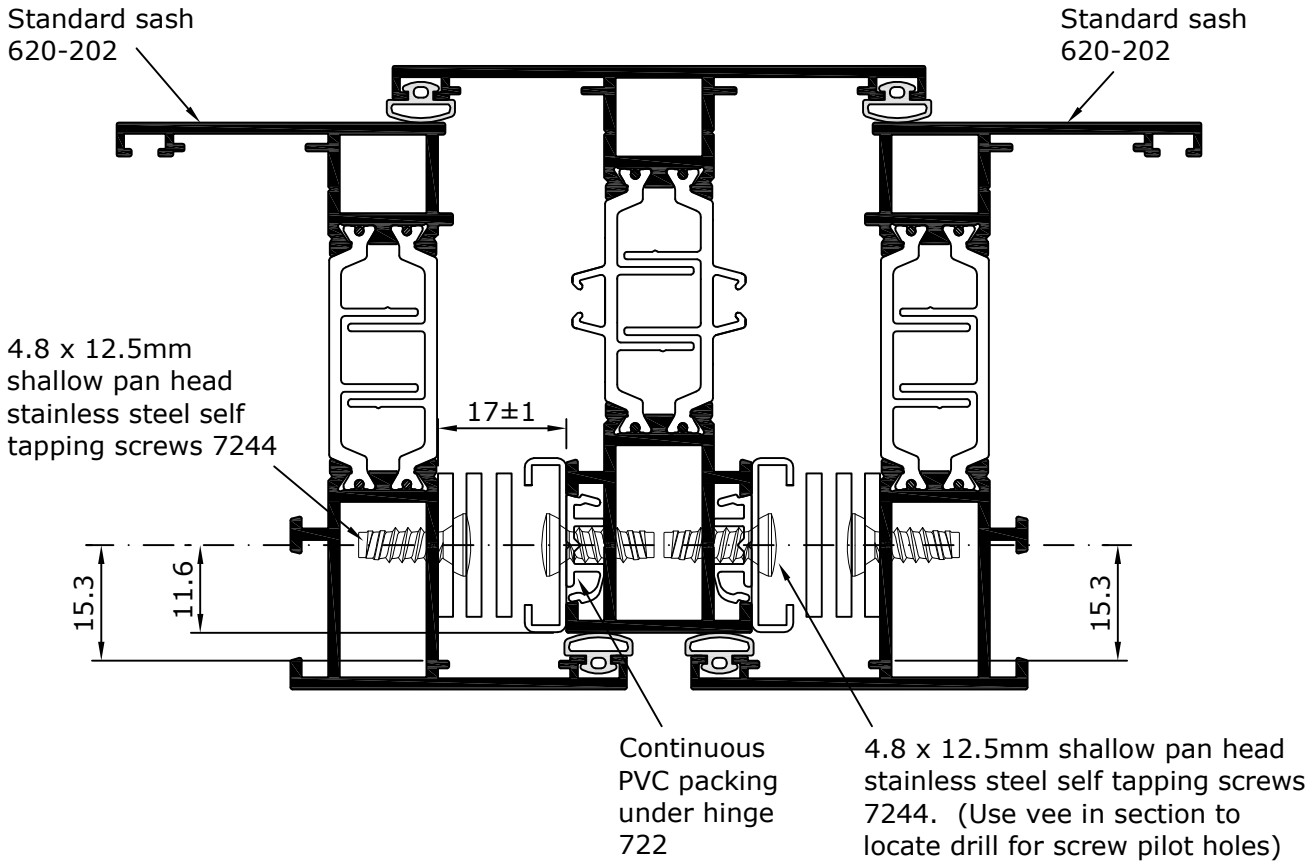
System 4-35 Hi/Hi+

CASEMENT WINDOW

Refer to "Friction Hinges - General Application" sheet for fixing details based on vent weight criteria.

All fixings must be sealed using HR50328A sealant.

For hinge fixing positions to mullion / transom refer to applicable outer frame fixing positions.



Scale 1:1

Friction Hinges

Back to Back Fixings Using 723 Bar with 724 Stud Ends

System 4-35 Hi/Hi+

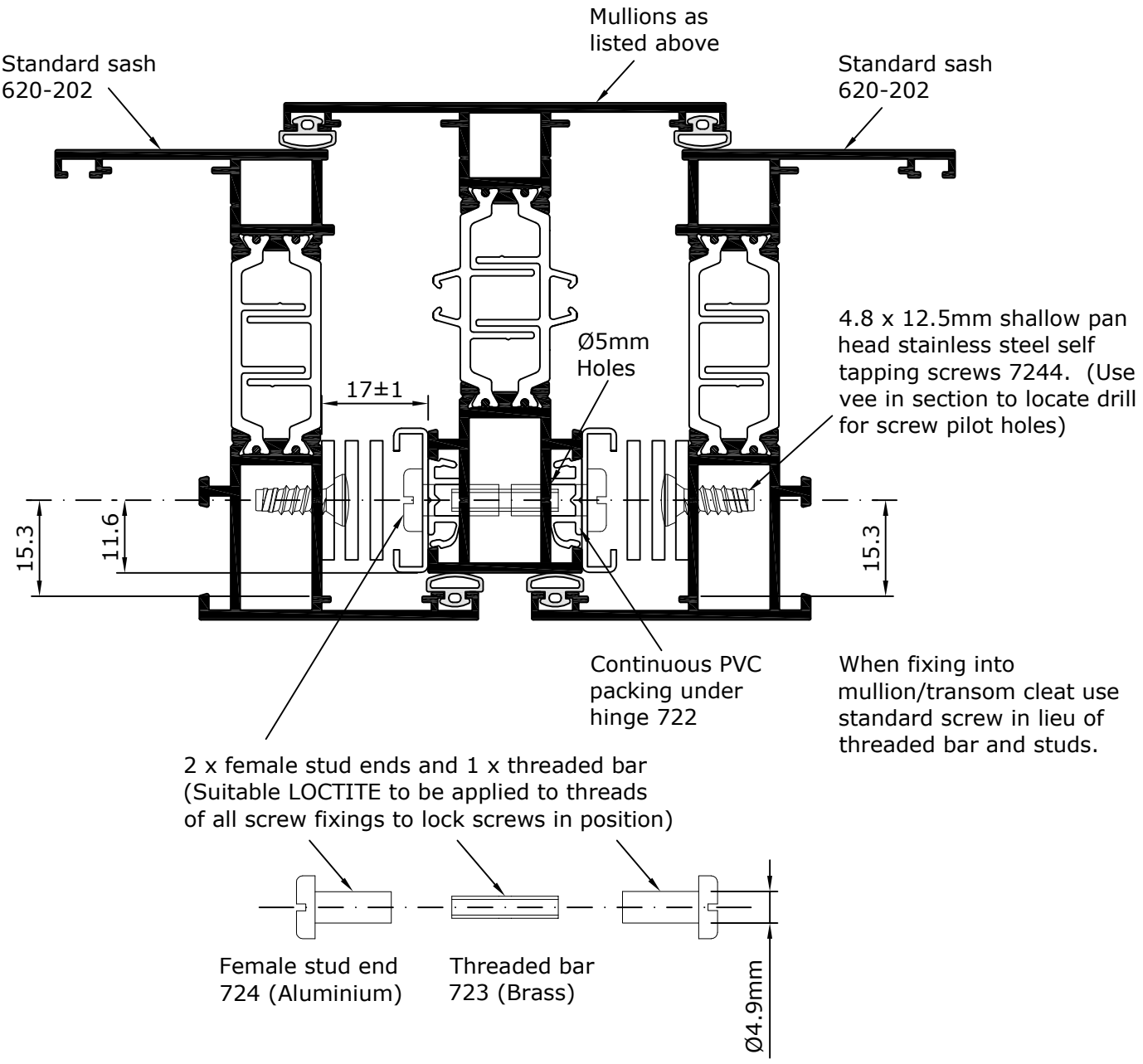
CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

For hinge fixing positions to mullion / transom refer to applicable outer frame fixing positions.

This detail is required in lieu of standard rivnut fixing when using the following mullions: 609-200, 640-200, 641-200.

Refer to "Friction Hinges - General Application" sheet for fixing details based on vent weight criteria.



Scale 1:1

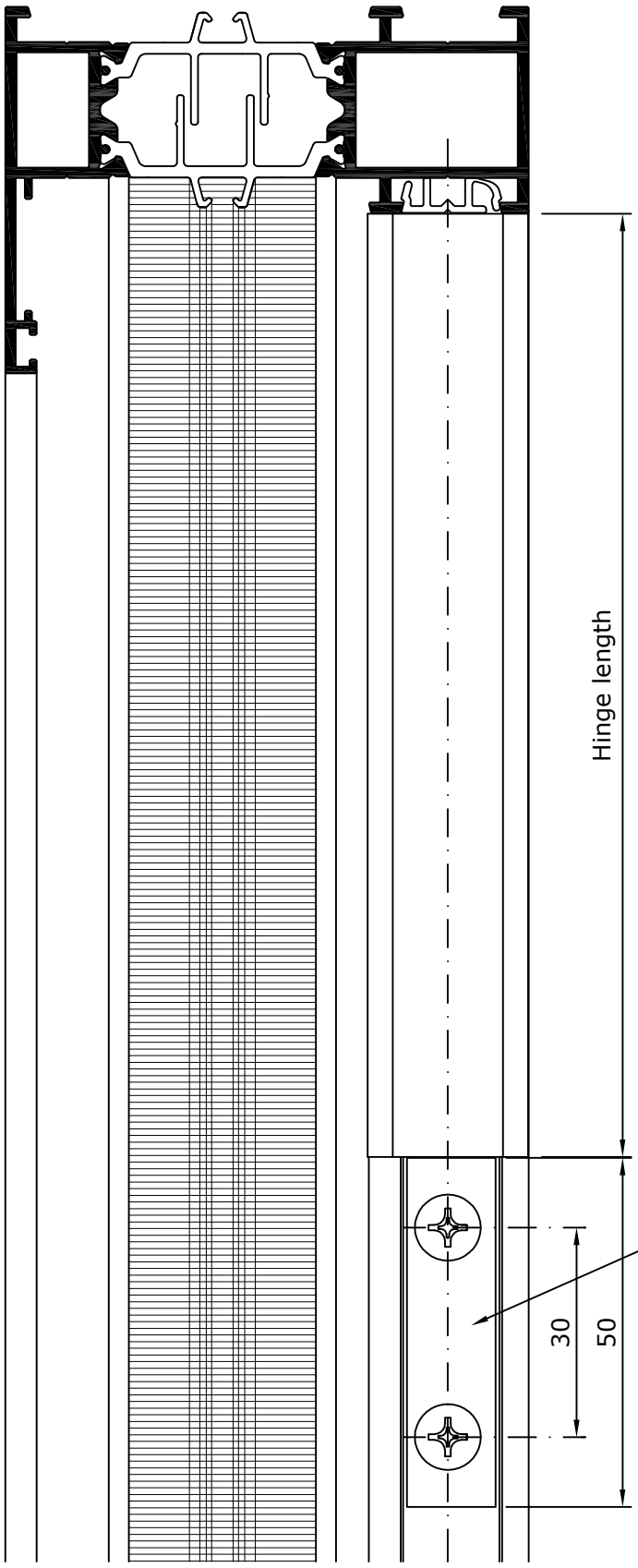
Friction Hinges

Hinge Support Block 504

System 4-35 Hi/Hi+

CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.



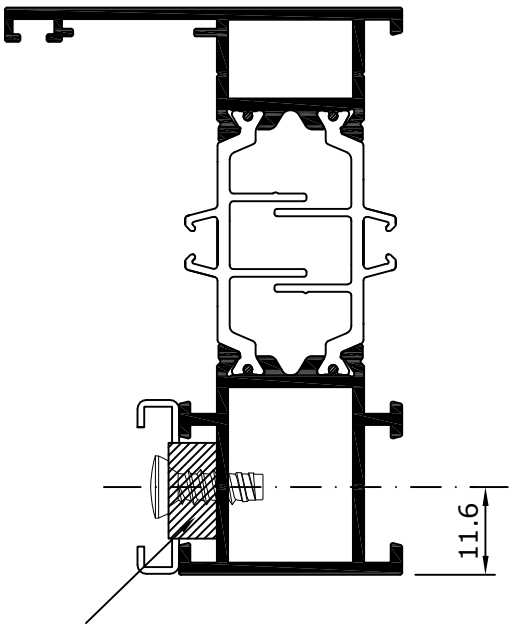
Hinge support blocks must be used for all factory glazed windows to reduce the risk of vents dropping during transportation and installation. They are not a substitute for careful handling.

Hinge support blocks may also be used as an alternative to rivnuts for top hung sashes from 35Kg to 50Kg maximum.

Hinge support blocks must be used in liner bar applications for top hung vent weights from 35kg to 50kg.

Hinge support blocks must be used for all top hung sashes over 50Kg. Refer to sheet "Friction Hinges - General Application" for further information.

Top hung hinge jigs JIG4-35006, JIG4-35007, JIG4-35008, and JIG4-35009A provide pilot holes for location of 504 hinge supports.



2 No hinge supports 504 per pair of jamb hinges, each fixed with 2 No 4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244

Scale 1:1

Ancillary Hinge Security Device 702

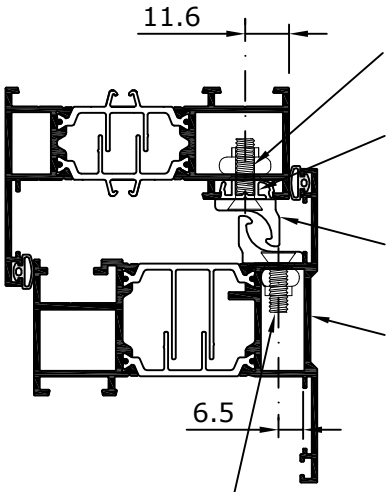
Sashes 626-627, 626-652 and 676-677

System 4-35 Hi/Hi+

CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

Refer to "Security Requirements" sheet for further information on additional ironmongery details.



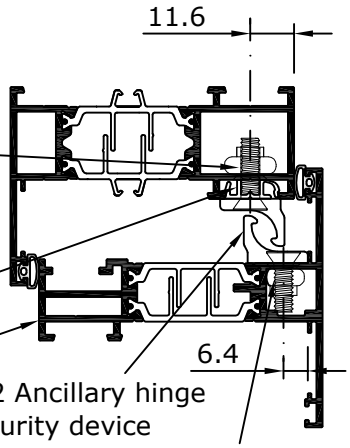
2 No M5 countersunk aluminium rivnuts 7209 with M5 x 16mm stainless steel countersunk machine screws 7227 located at position shown.

2 No M5 countersunk aluminium rivnuts 7209 with M5 x 20mm stainless steel countersunk machine screws 7226 located on vee grooves of profiles.

722 Hinge packer at 100mm long

702 Ancillary hinge security device

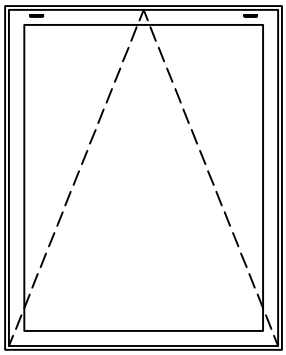
Euro groove sash 626-627 or 626-652

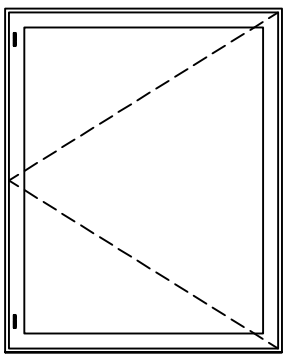


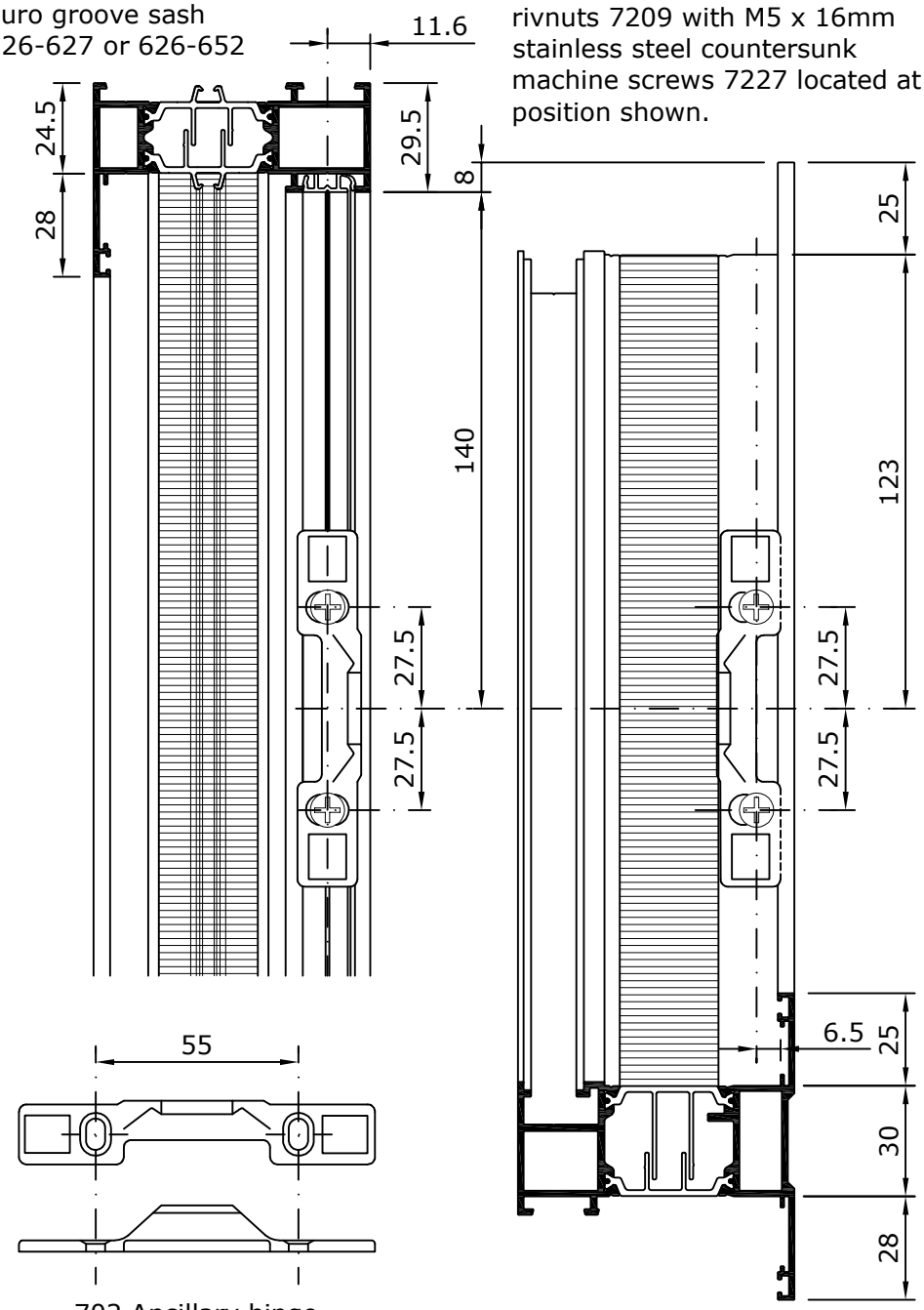
Slimline euro groove sash 676-677

702 Ancillary hinge security device

2 No M5 countersunk aluminium rivnuts 7209 with M5 x 16mm stainless steel countersunk machine screws 7227 located at position shown.







702 Ancillary hinge security device

Scale 1:2

Restrictor Installation CA36

Glaze Out Sash 620-202

System 4-35 Hi/Hi+

CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

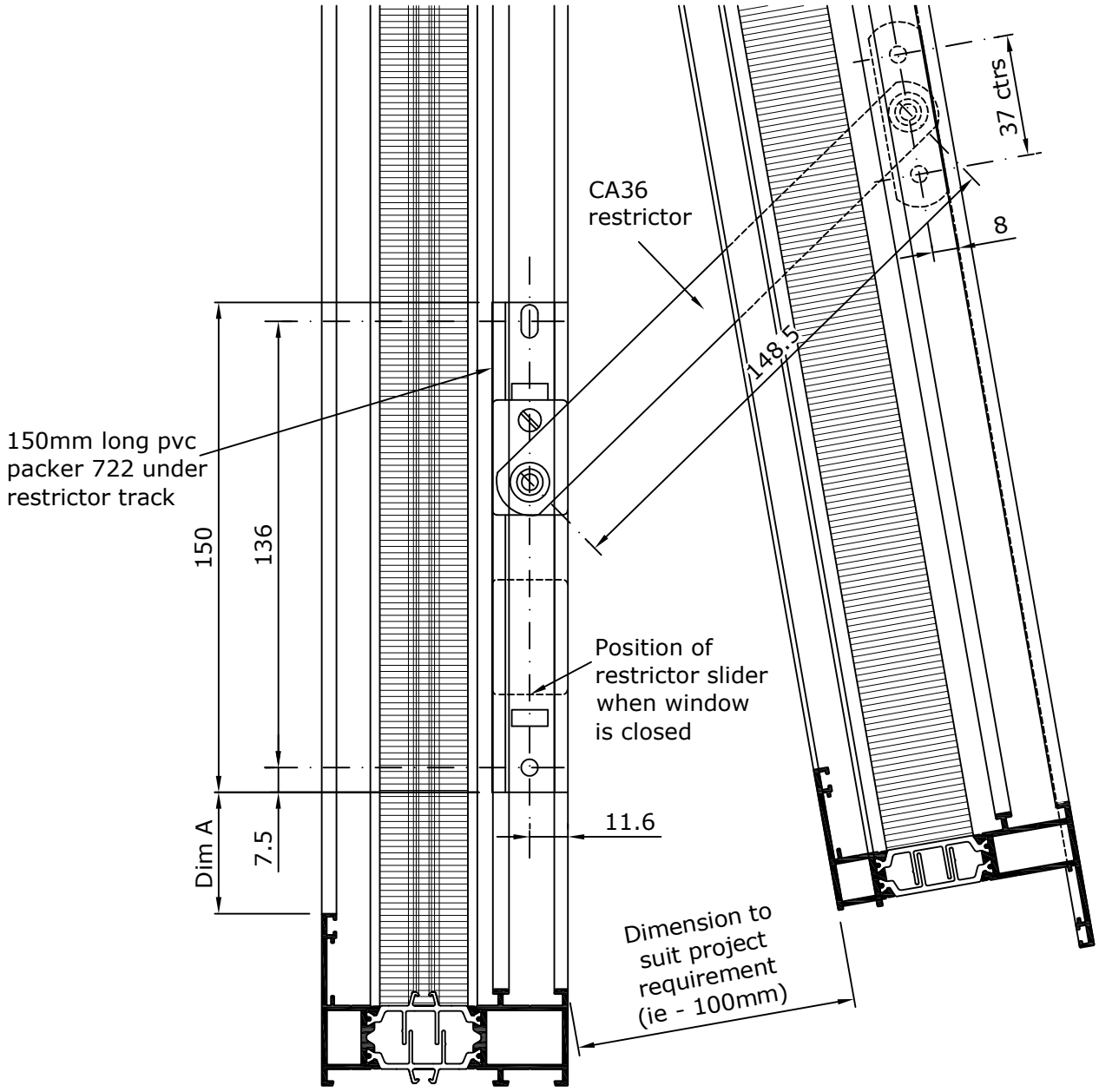
Restrictor (6") CA36 1 pair required per vent, fitted at window jamb.

All restrictor fixings to be 4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244 into sash and outer frame.

When fitting the restrictor ensure that the arm does not finish perpendicular to the outer frame when the sash is in the open position.

Fabricator to ensure there is adequate space between the friction hinge and locking gear (where applicable) to fit the CA36 restrictor. Refer to applicable Vent Size Limitation Chart for minimum sash size when using restrictors.

Dim A to suit sash size and restrict clear opening to suit project requirement (ie - 100mm).



Not to scale

Releasable Restrictor Installation 6716

Glaze Out Sash 620-202

System 4-35 Hi/Hi+
CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

Releasable restrictor (6") 6716 1 pair required per vent, fitted at window jamb.

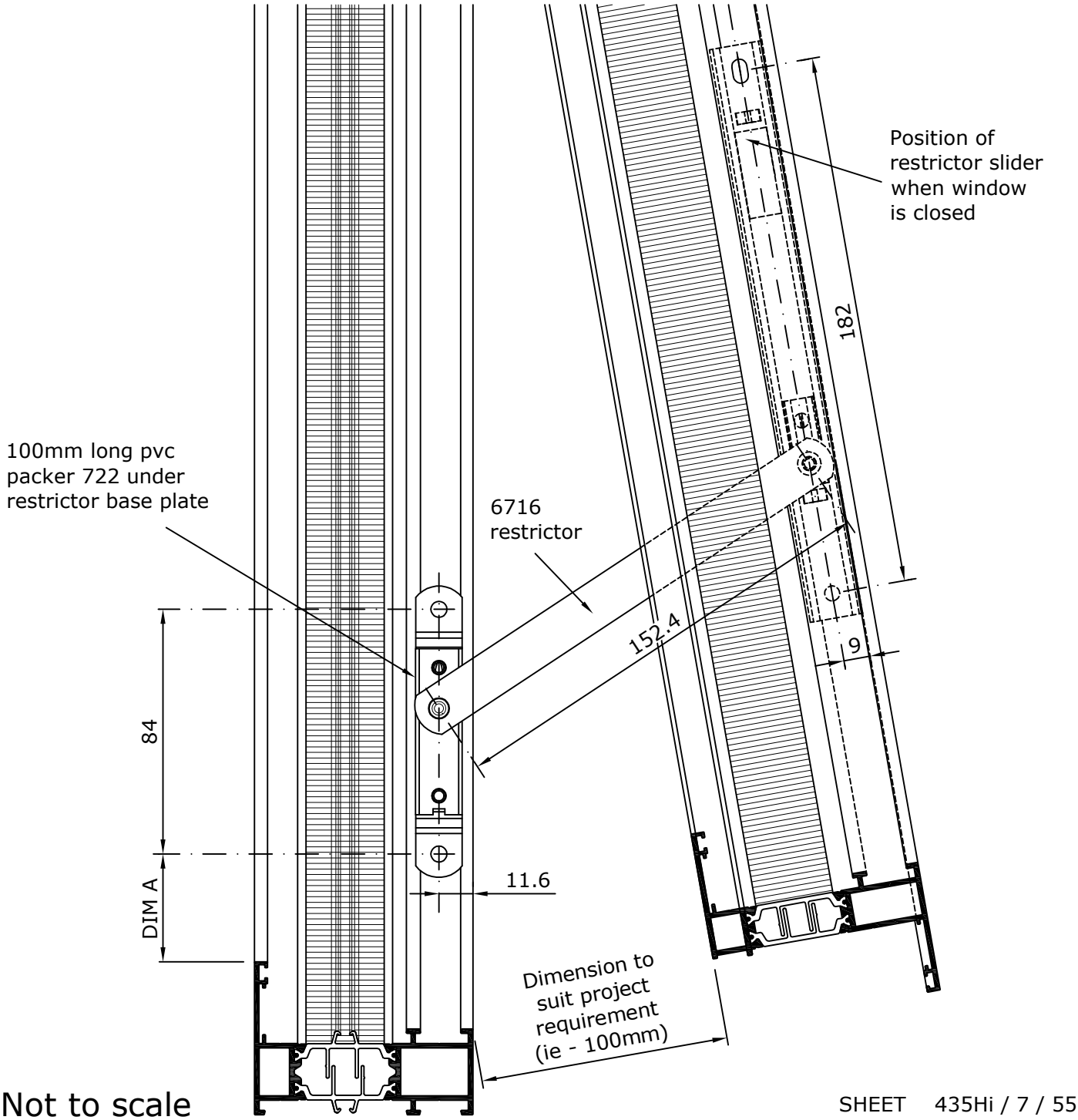
Key for releasable restrictor 6715.

All restrictor fixings to be 4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244 into sash and outer frame.

When fitting the restrictor ensure that the arm does not finish perpendicular to the outer frame when the sash is in the open position.

Fabricator to ensure there is adequate space between the friction hinge and locking gear (where applicable) to fit the 6716 restrictor. Refer to applicable Vent Size Limitation Chart for minimum sash size when using restrictors.

Dim A to suit sash size and restrict clear opening to suit project requirement (ie - 100mm).



Not to scale

Restrictor Installation CA36

Inside Glaze Sash 624-625

System 4-35 Hi/Hi+

CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

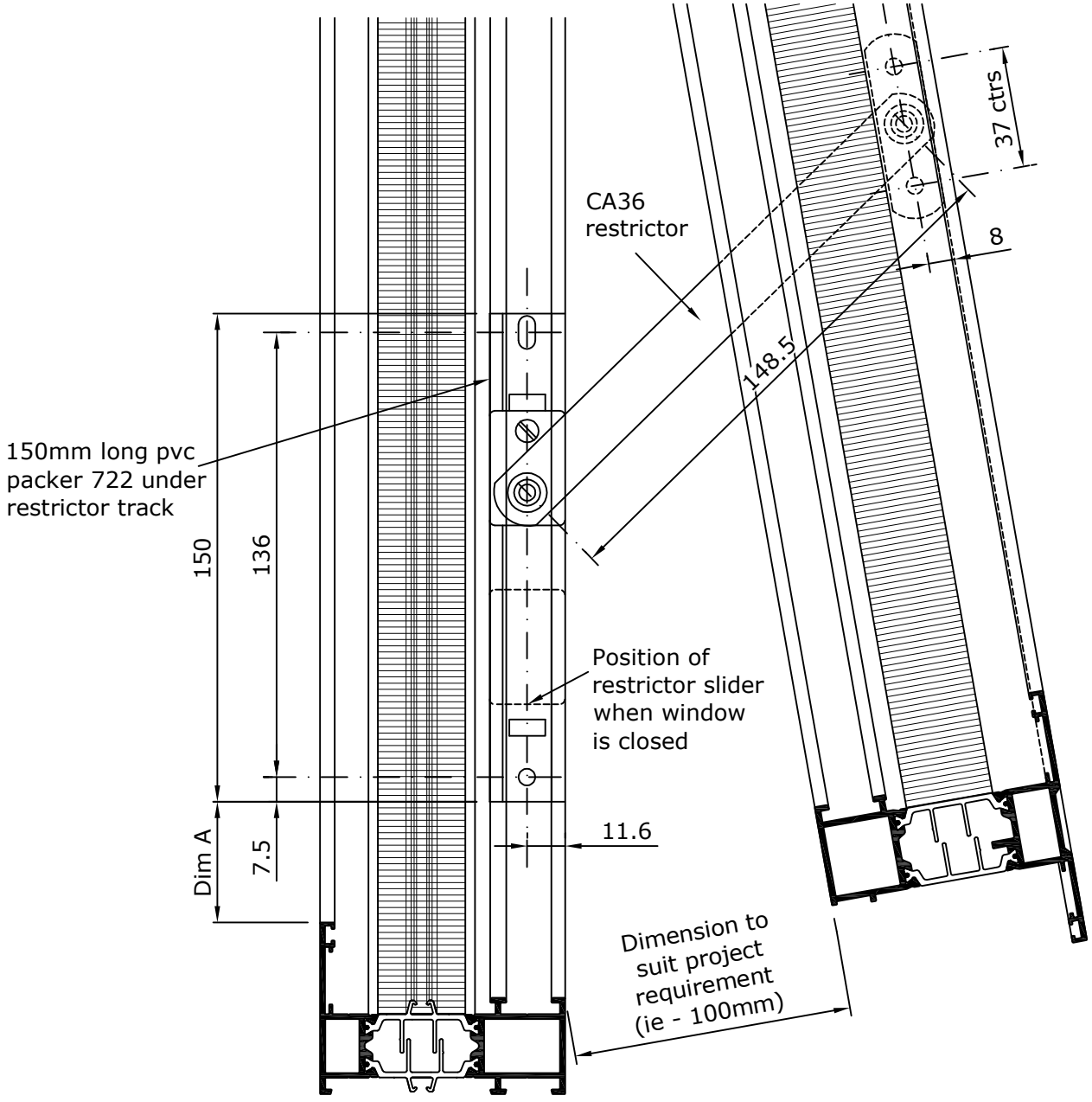
Restrictor (6") CA36 1 pair required per vent, fitted at window jamb.

All restrictor fixings to be 4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244 into sash and outer frame.

When fitting the restrictor ensure that the arm does not finish perpendicular to the outer frame when the sash is in the open position.

Fabricator to ensure there is adequate space between the friction hinge and locking gear (where applicable) to fit the CA36 restrictor. Refer to applicable Vent Size Limitation Chart for minimum sash size when using restrictors.

Dim A to suit sash size and restrict clear opening to suit project requirement (ie - 100mm).



Not to scale

Releasable Restrictor Installation 6716

Inside Glaze Sash 624-625

System 4-35 Hi/Hi+

CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

Releasable restrictor (6") 6716 1 pair required per vent, fitted at window jamb.

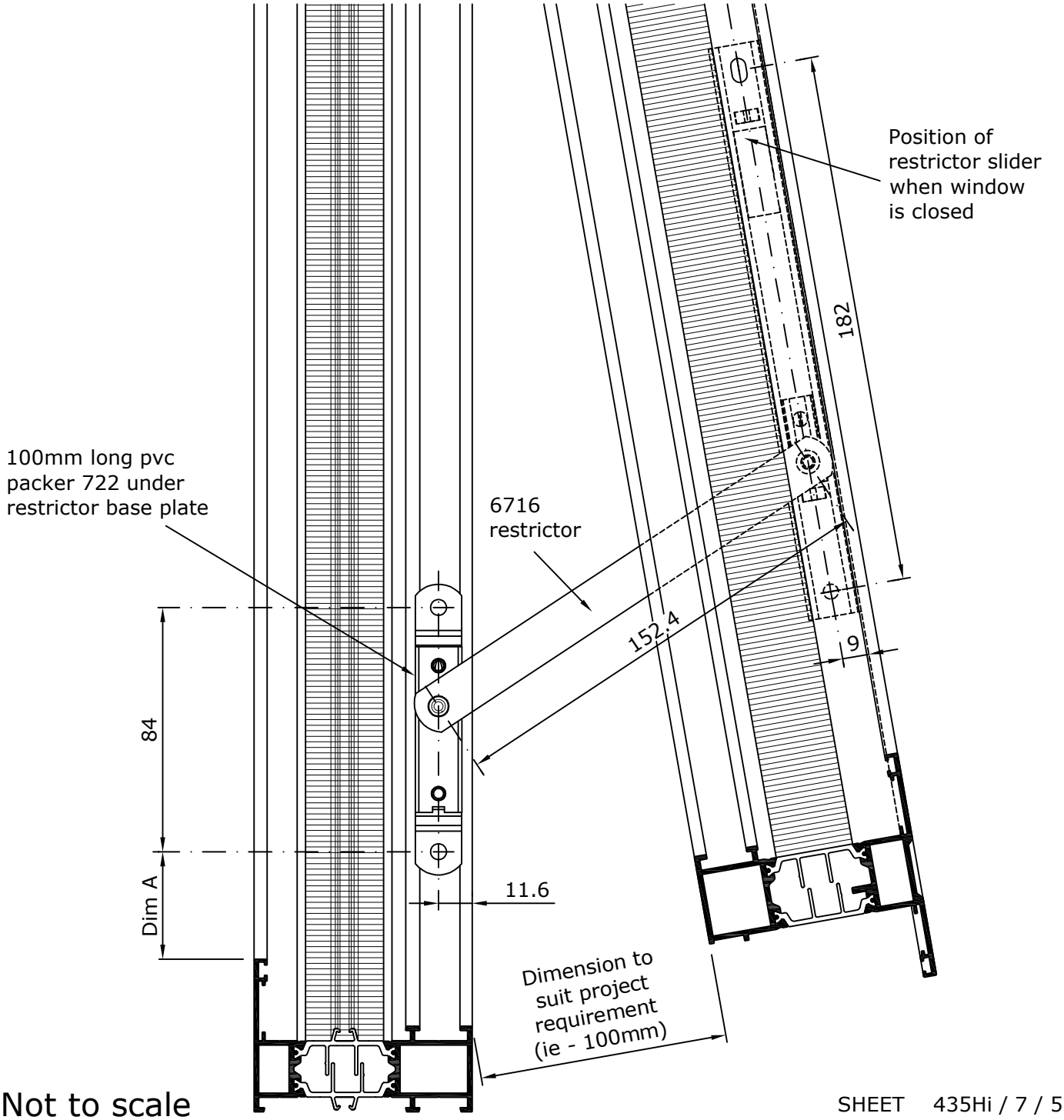
Key for releasable restrictor 6715.

All restrictor fixings to be 4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244 into sash and outer frame.

When fitting the restrictor ensure that the arm does not finish perpendicular to the outer frame when the sash is in the open position.

Fabricator to ensure there is adequate space between the friction hinge and locking gear (where applicable) to fit the 6716 restrictor. Refer to applicable Vent Size Limitation Chart for minimum sash size when using restrictors.

Dim A to suit sash size and restrict clear opening to suit project requirement (ie - 100mm).



Not to scale

Restrictor Installation CA36

Sashes 626-627 and 626-652 Using Cockspur Handles, Standard and Offset Euro Espag Locking

All fixings must be sealed using HR50328A sealant.

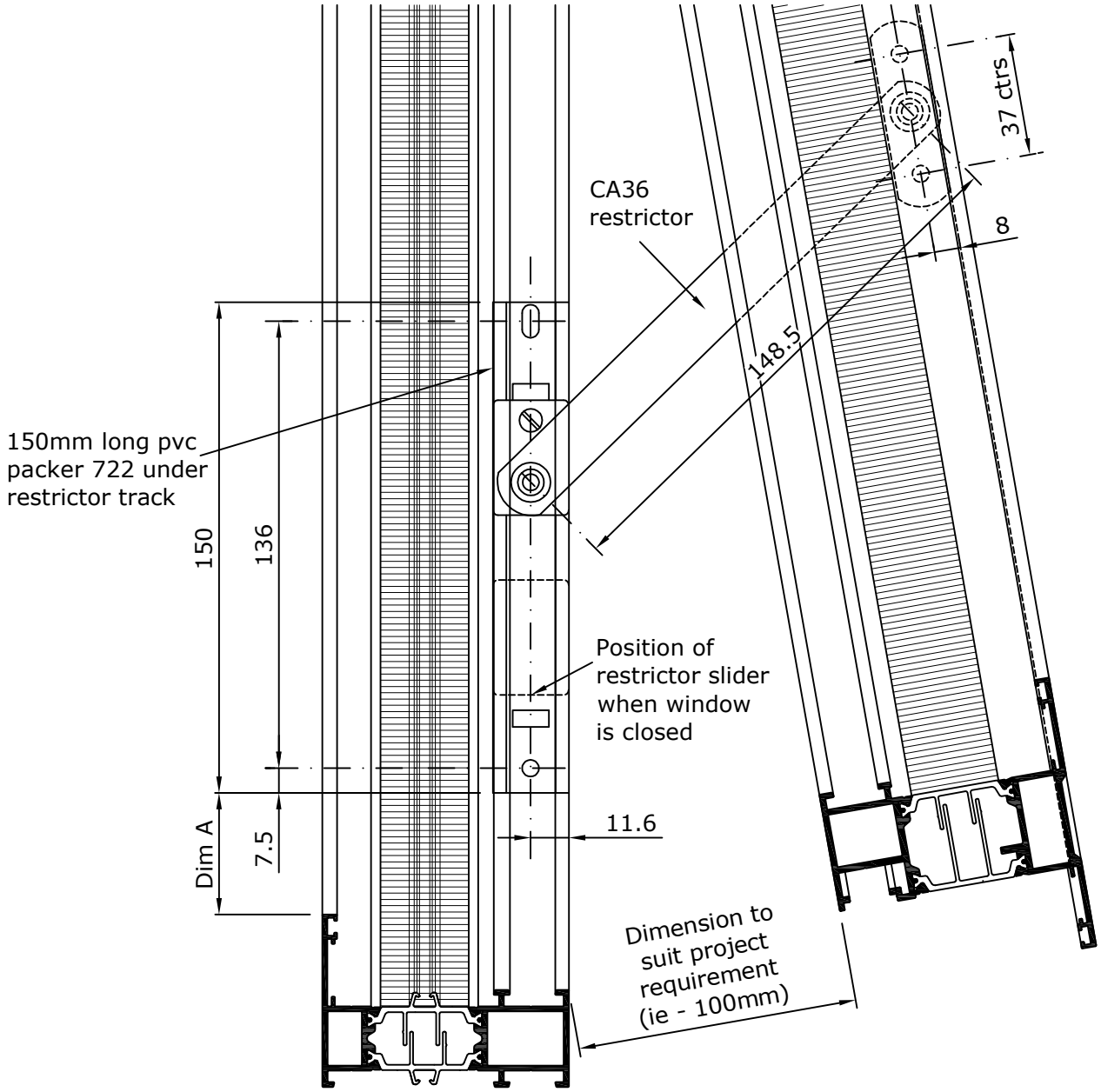
Restrictor (6") CA36 1 pair required per vent, fitted at window jambs of top hung, and head and cill of side hung applications.

All restrictor fixings to be 4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244 into sash and outer frame.

When fitting the restrictor ensure that the arm does not finish perpendicular to the outer frame when the sash is in the open position.

Fabricator to ensure there is adequate space between the friction hinge and locking gear (where applicable) to fit the CA36 restrictor. Refer to applicable Vent Size Limitation Chart for minimum sash size when using restrictors.

Dim A to suit sash size and restrict clear opening to suit project requirement (ie - 100mm).



Not to scale

Restrictor Installation CA36

Slimline Euro Groove Sash 676-677 Using Standard and Offset Euro Espag Locking

System 4-35 Hi/Hi+
CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

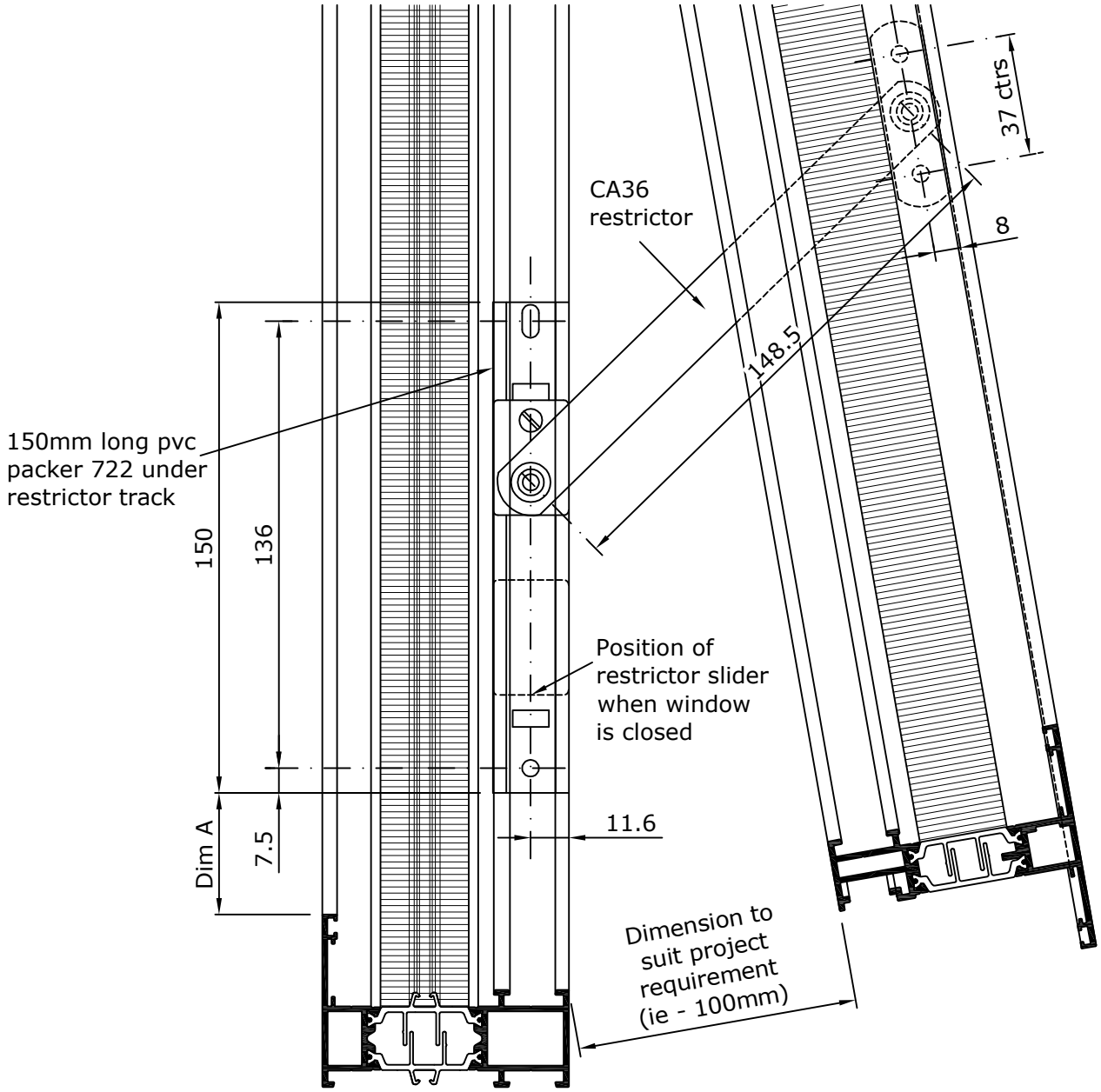
Restrictor (6") CA36 1 pair required per vent, fitted at window jambs of top hung, and head and cill of side hung applications.

All restrictor fixings to be 4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244 into sash and outer frame.

When fitting the restrictor ensure that the arm does not finish perpendicular to the outer frame when the sash is in the open position.

Fabricator to ensure there is adequate space between the friction hinge and locking gear (where applicable) to fit the CA36 restrictor. Refer to applicable Vent Size Limitation Chart for minimum sash size when using restrictors.

Dim A to suit sash size and restrict clear opening to suit project requirement (ie - 100mm).



Not to scale

Releasable Restrictor Installation 6716

System 4-35 Hi/Hi+
CASEMENT WINDOW

Sashes 626-627 and 626-652 Using Cockspur Handles, Standard and Offset Euro Espag Locking

All fixings must be sealed using HR50328A sealant.

Releasable restrictor (6") 6716 1 pair required per vent, fitted at window jambs of top hung, and head and cill of side hung applications.

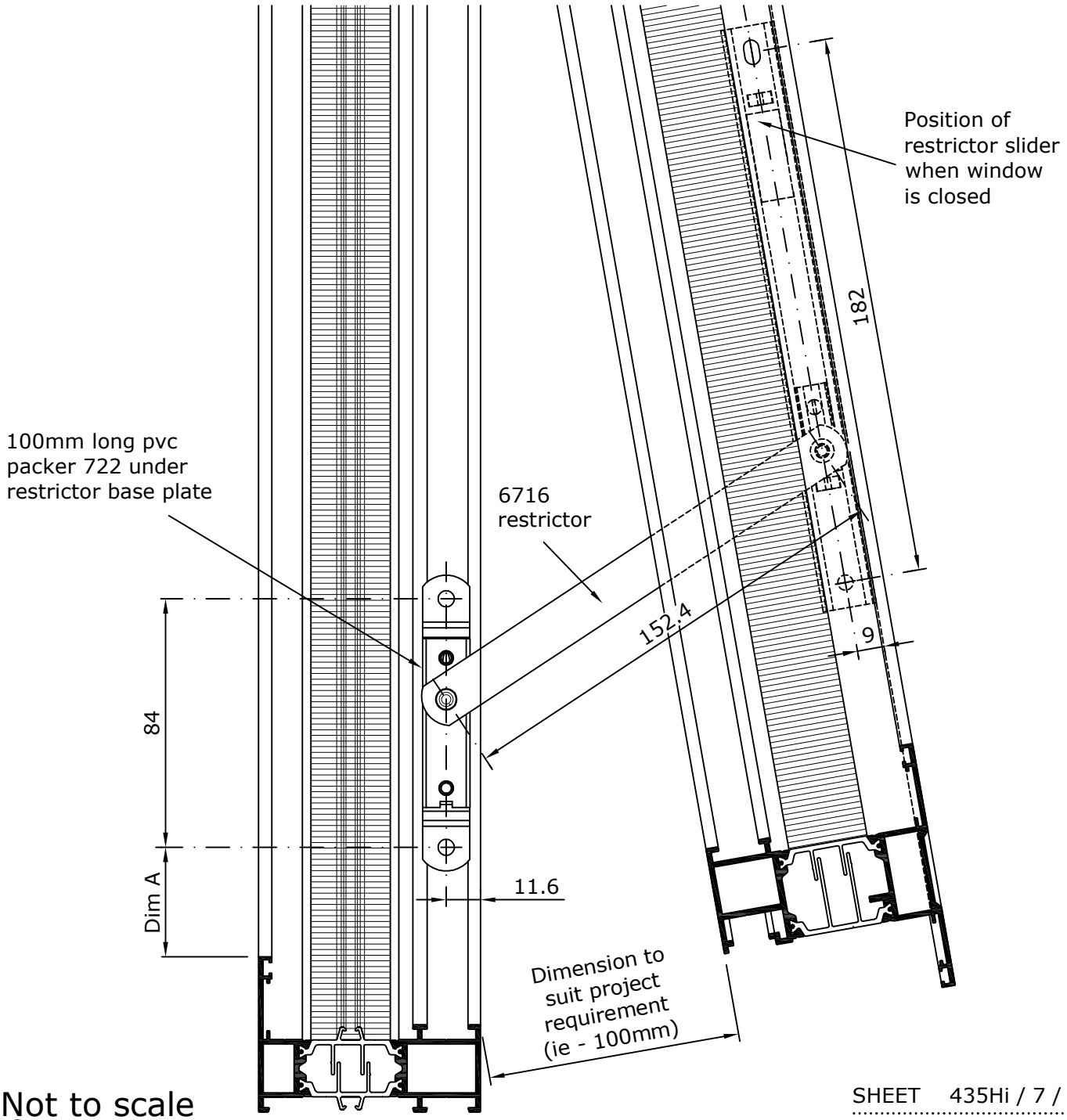
Key for releasable restrictor 6715.

All restrictor fixings to be 4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244 into sash and outer frame.

When fitting the restrictor ensure that the arm does not finish perpendicular to the outer frame when the sash is in the open position.

Fabricator to ensure there is adequate space between the friction hinge and locking gear (where applicable) to fit the 6716 restrictor. Refer to applicable Vent Size Limitation Chart for minimum sash size when using restrictors.

Dim A to suit sash size and restrict clear opening to suit project requirement (ie - 100mm).



Not to scale

Releasable Restrictor Installation 6716

System 4-35 Hi/Hi+

CASEMENT WINDOW

Slimline Euro Groove Sash 676-677 Using Standard and Offset Euro Espag Locking

All fixings must be sealed using HR50328A sealant.

Releasable restrictor (6") 6716 1 pair required per vent, fitted at window jambs of top hung, and head and cill of side hung applications.

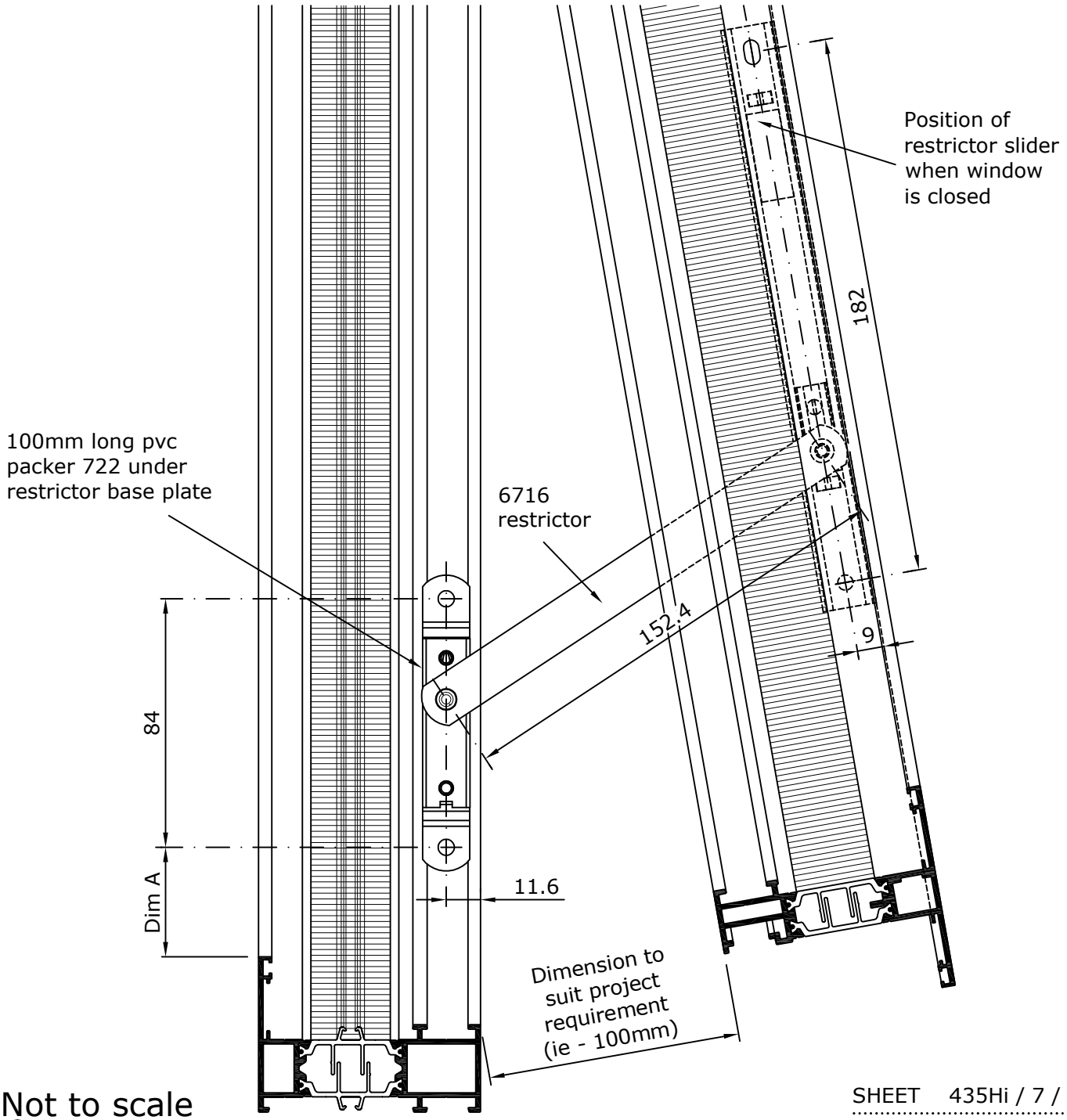
Key for releasable restrictor 6715.

All restrictor fixings to be 4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244 into sash and outer frame.

When fitting the restrictor ensure that the arm does not finish perpendicular to the outer frame when the sash is in the open position.

Fabricator to ensure there is adequate space between the friction hinge and locking gear (where applicable) to fit the 6716 restrictor. Refer to applicable Vent Size Limitation Chart for minimum sash size when using restrictors.

Dim A to suit sash size and restrict clear opening to suit project requirement (ie - 100mm).



Not to scale

Restrictor Installation CA36

For Sashes 620-202, 624-625, 626-627, 626-652 and 676-677

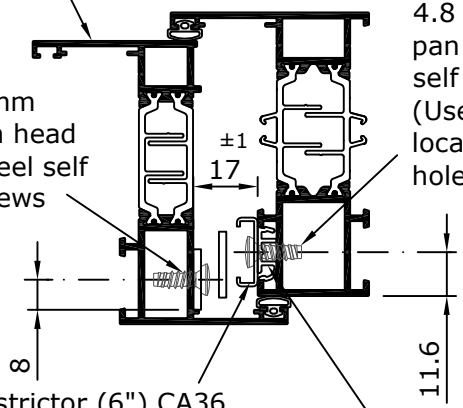
System 4-35 Hi/Hi+

CASEMENT WINDOW

For 3-sided euro espag locking applications refer to "Restrictor Installation CA36 - Sashes 626-627 and 626-652 Using 3-sided Euro Espag Locking" sheet.

All fixings must be sealed using HR50328A sealant.

Standard sash 620-202



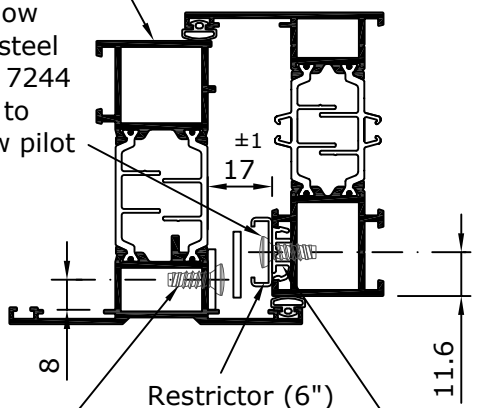
4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244

4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244 (Use vee in section to locate drill for screw pilot holes).

Restrictor (6") CA36. 1 pair required per vent

150mm long PVC packing 722 under restrictor track

Inside glaze sash 624-625

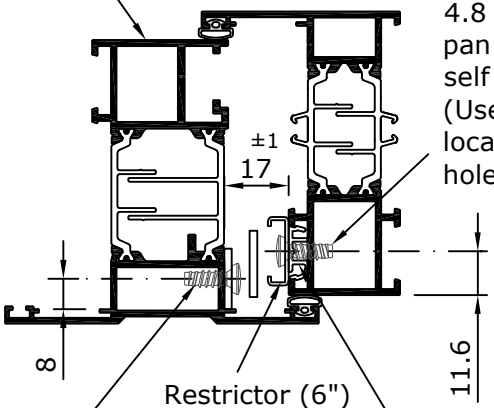


4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244

Restrictor (6") CA36. 1 pair required per vent

150mm long PVC packing 722 under restrictor track

Recessed euro groove sash 626-627 or flat euro groove sash 626-652



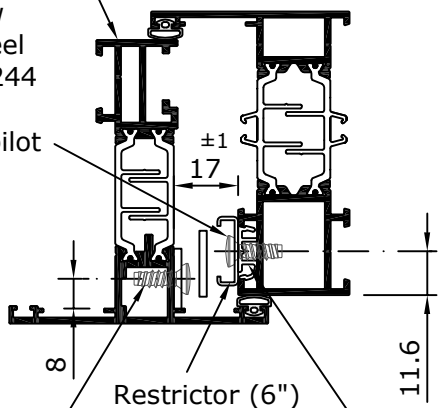
4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244

4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244 (Use vee in section to locate drill for screw pilot holes).

Restrictor (6") CA36. 1 pair required per vent

150mm long PVC packing 722 under restrictor track

Slimline euro groove sash 676-677



4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244

Restrictor (6") CA36. 1 pair required per vent

150mm long PVC packing 722 under restrictor track

See also other "Restrictor Installation CA36" details shown in section 7 of this manual.

Scale 1:2

Releasable Restrictor Installation 6716

For Sashes 620-202, 624-625, 626-627, 626-652 and 676-677

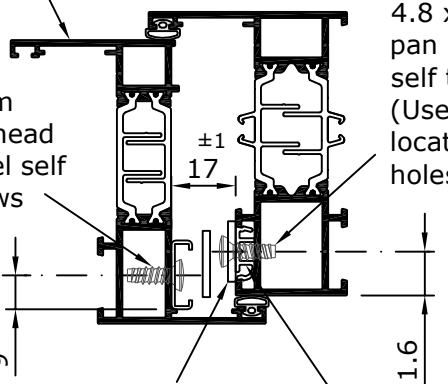
System 4-35 Hi/Hi+

CASEMENT WINDOW

For 3-sided euro espag locking applications refer to "Restrictor Installation CA36 - Sashes 626-627 and 626-652 Using 3-sided Euro Espag Locking" sheet.

All fixings must be sealed using HR50328A sealant.

Standard sash 620-202



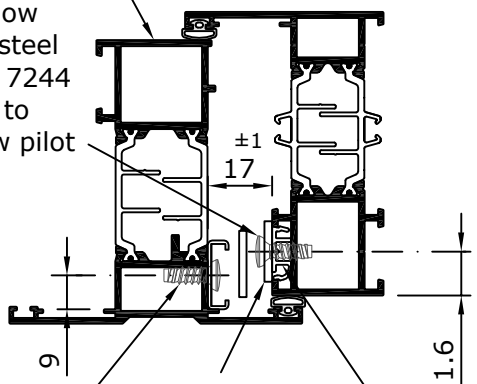
4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244

4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244 (Use vee in section to locate drill for screw pilot holes).

Restrictor (6") 6716. 1 pair required per vent

100mm long PVC packing 722 under restrictor base plate

Inside glaze sash 624-625

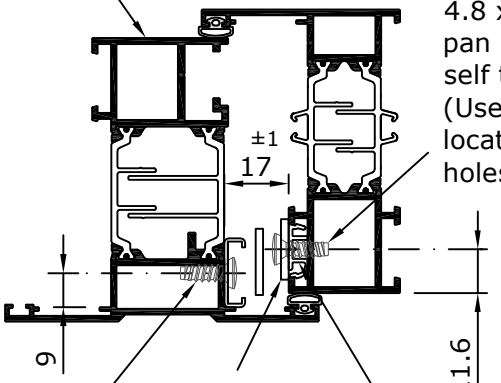


4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244

Restrictor (6") 6716. 1 pair required per vent

100mm long PVC packing 722 under restrictor base plate

Recessed euro groove sash 626-627 or flat euro groove sash 626-652



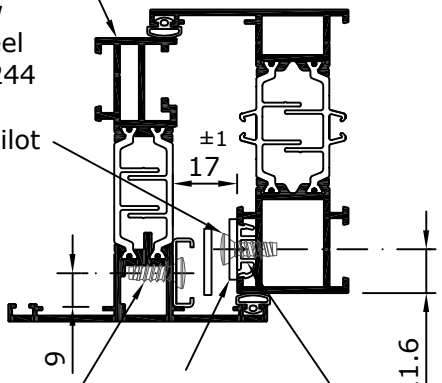
4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244 (Use vee in section to locate drill for screw pilot holes).

4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244

Restrictor (6") 6716. 1 pair required per vent

100mm long PVC packing 722 under restrictor base plate

Slimline euro groove sash 676-677



4.8 x 12.5mm shallow pan head stainless steel self tapping screws 7244

Restrictor (6") 6716. 1 pair required per vent

100mm long PVC packing 722 under restrictor base plate

See also other "Releasable Restrictor Installation 6716" details shown in section 7 of this manual.

Scale 1:2

Restrictor Installation CA36

Sashes 626-627 and 626-652 Using 3-Sided Euro Espag Locking

System 4-35 Hi/Hi+

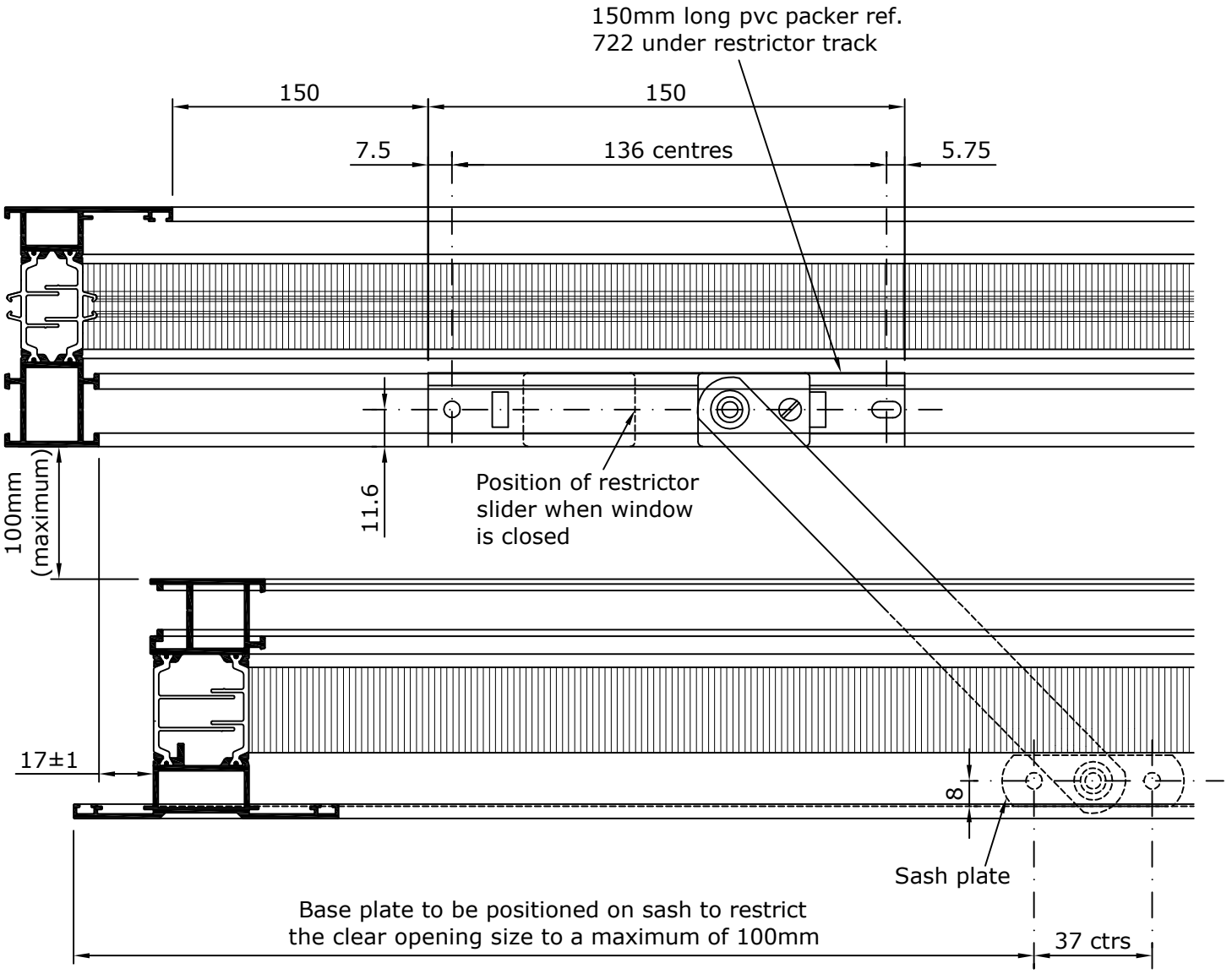
CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

Restrictor (6") CA36 1 pair required per vent, fitted at leading edge of sash.

When fitting the restrictor the arm must not finish perpendicular to the outer frame when the sash is in the open position. Care should be taken to avoid the restrictor track coinciding with the locking keeps.

All restrictor fixings to be 4.8 x 12.5mm shallow pan head stainless steel self tapping fixing screws 7244.



See also other "Restrictor Installation CA36" details shown in section 7 of this manual.

Not to scale

Releasable Restrictor Installation 6716

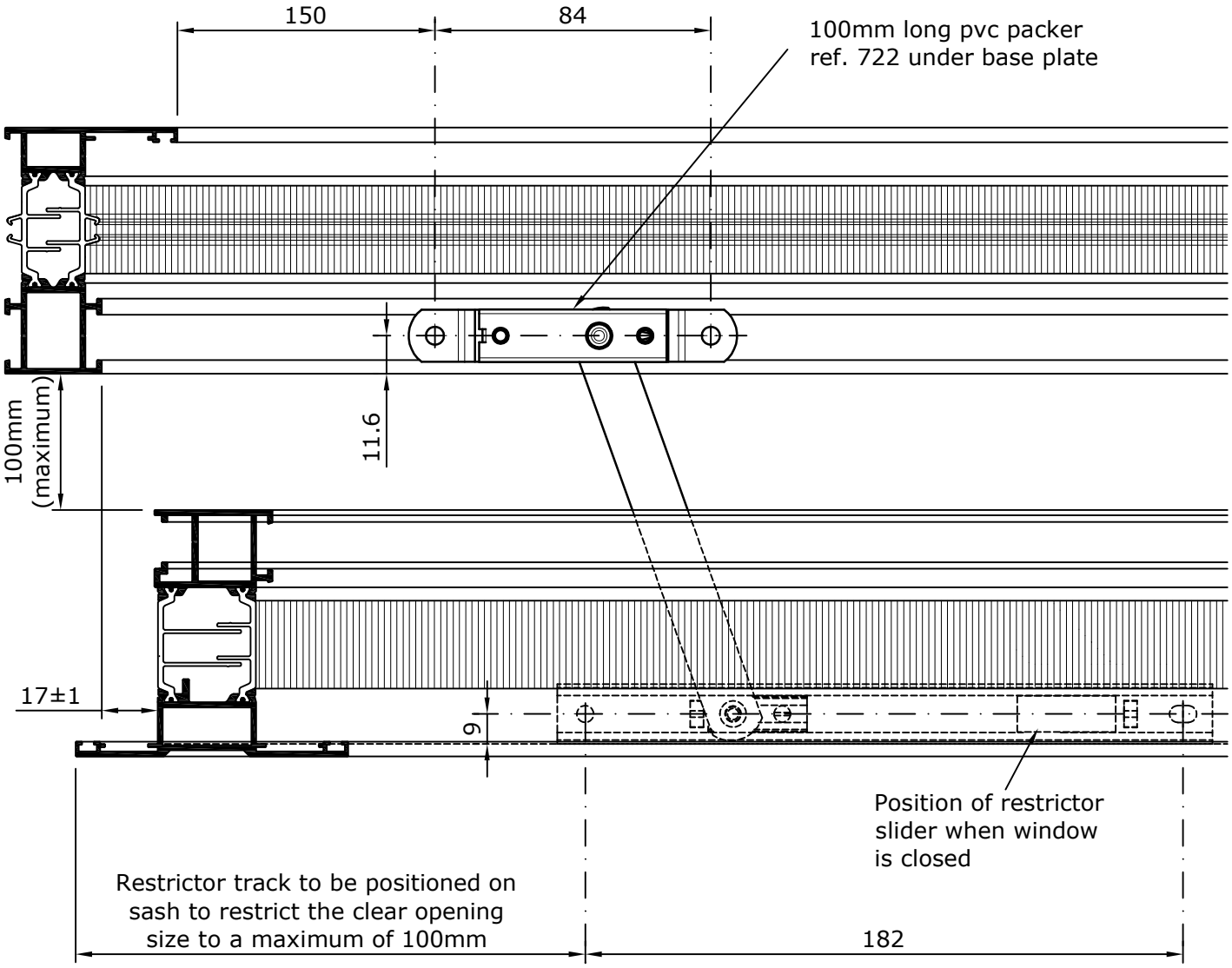
Sashes 626-627 and 626-652 Using 3-Sided Euro Espag Locking

All fixings must be sealed using HR50328A sealant.

Restrictor (6") 6716 1 pair required per vent, fitted at leading edge of sash.

When fitting the restrictor the arm must not finish perpendicular to the outer frame when the sash is in the open position. Care should be taken to avoid the restrictor track coinciding with the locking keeps.

All restrictor fixings to be 4.8 x 12.5mm shallow pan head stainless steel self tapping fixing screws 7244.



See also other "Releasable Restrictor Installation 6716" details shown in section 7 of this manual.

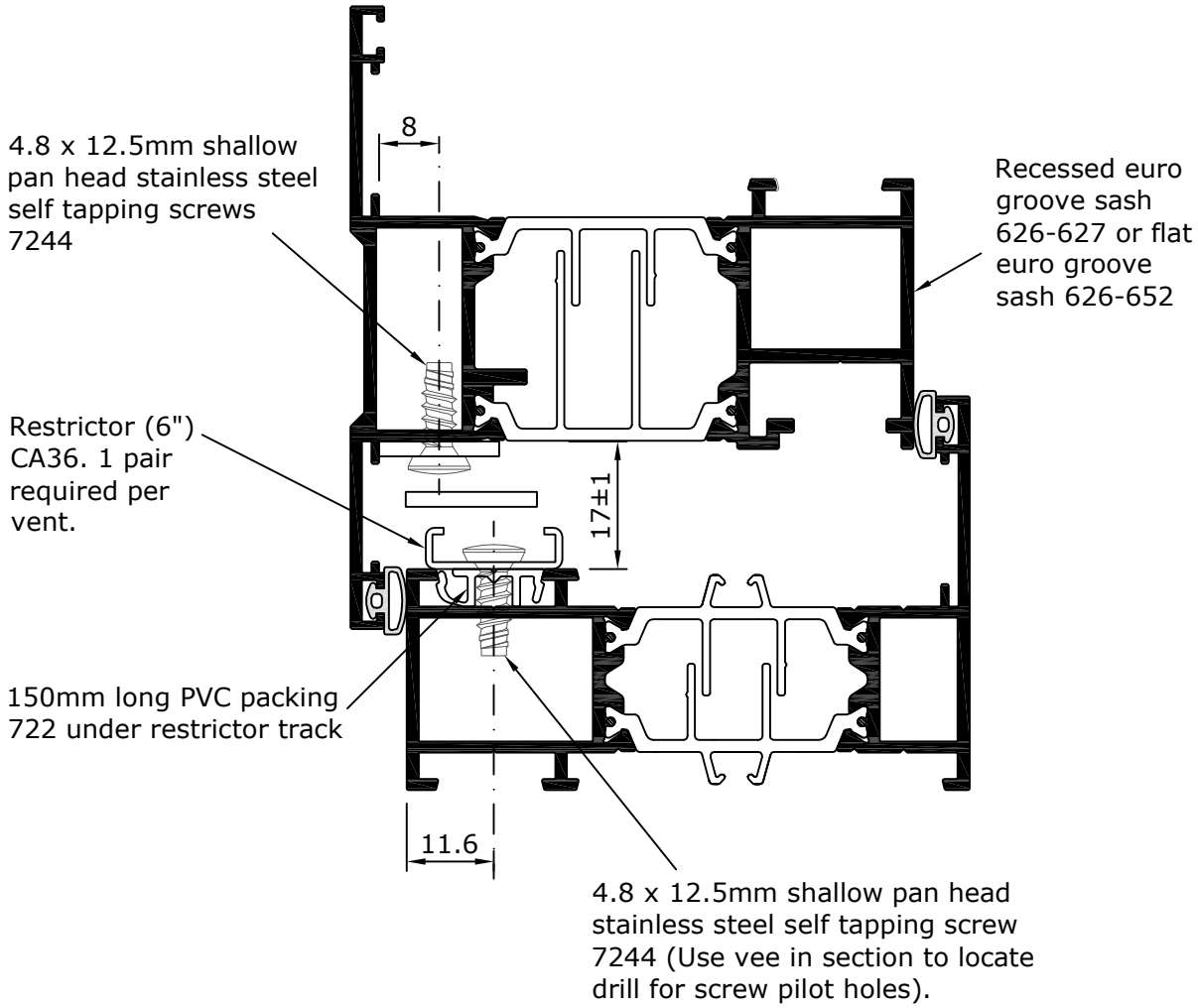
Not to scale

Restrictor Installation CA36

Sashes 626-627 and 626-652 Using
3-Sided Euro Espag Locking

All fixings must be sealed using HR50328A sealant.

SECTION THROUGH LEADING EDGE OF SASH.



See also other "Restrictor Installation CA36" details shown in section 7 of this manual.

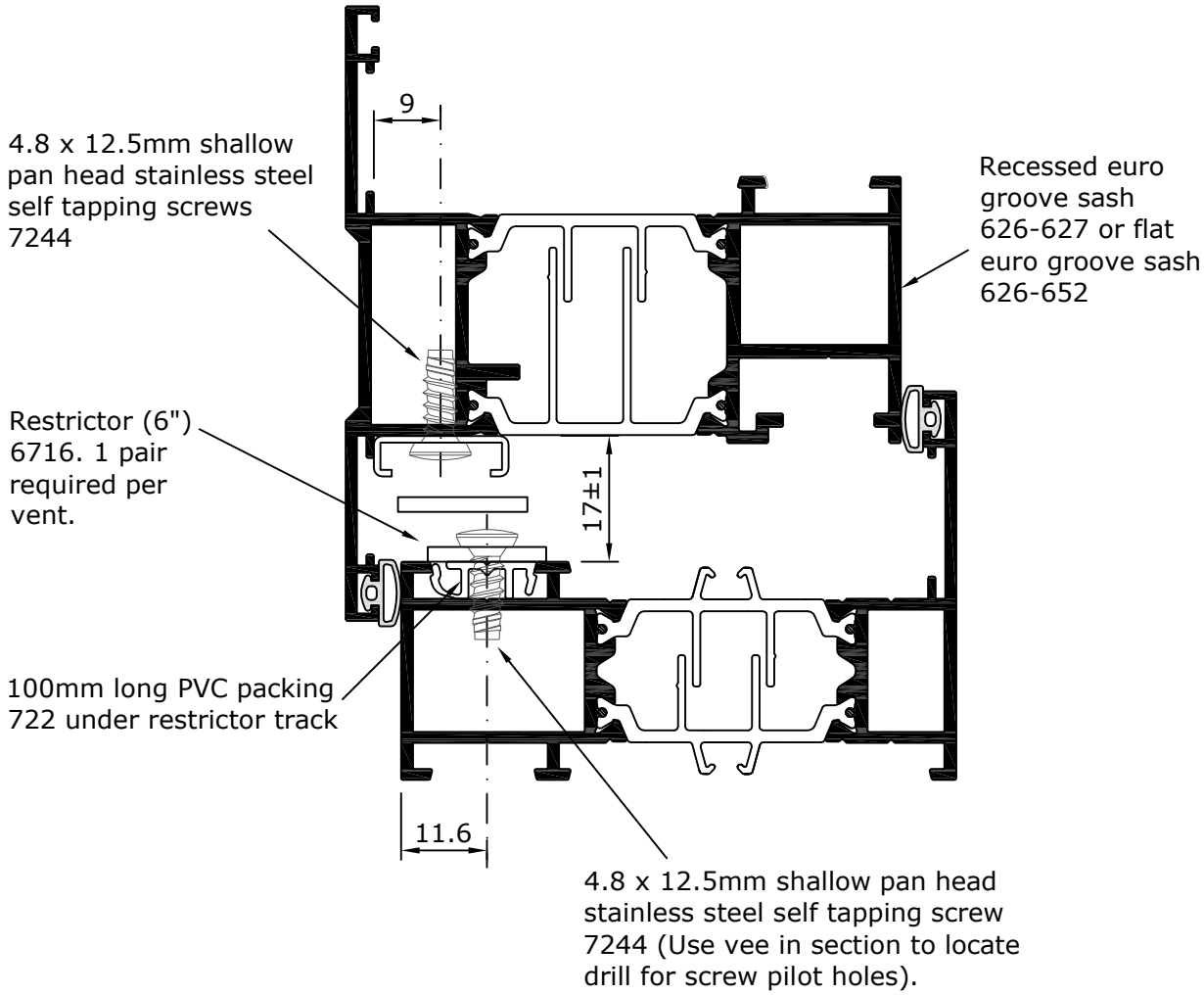
Scale 1:1

Releasable Restrictor Installation 6716

Sashes 626-627 and 626-652 Using 3-Sided Euro Espag Locking

All fixings must be sealed using HR50328A sealant.

SECTION THROUGH LEADING EDGE OF SASH.



See also other "Releasable Restrictor Installation 6716" details shown in section 7 of this manual.

Scale 1:1

Butt Hinge Options

Hinge Preparation Details

System 4-35 Hi/Hi+

CASEMENT WINDOW

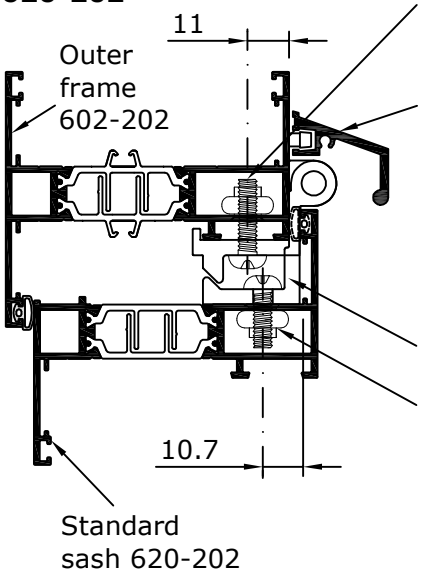
All fixings must be sealed using HR50328A sealant.

Long leg outer frame sections 600-212, 602-212, 602-202, 620-204 or 620-216 must be used with butt hinges. In vent over vent and back to back hinge applications the heavy duty mullion/transom section 606-206, 607-206 must be used.

When hanging a top hung vent with butt hinges additional loads are applied to the transom. Application-specific structural analysis will therefore be required.

Butt hinge positions :
Hinges must be positioned 75mm from outer edge of sash to centreline of hinge for sashes 300mm to 500mm with fixings into/through the corner crimping cleat. For sashes over 500mm hinges to be positioned 150mm from outer edge of sash to centreline of hinge. Where additional hinges are necessary they must be equally spaced.

FOR USE WITH STANDARD SASH 620-202



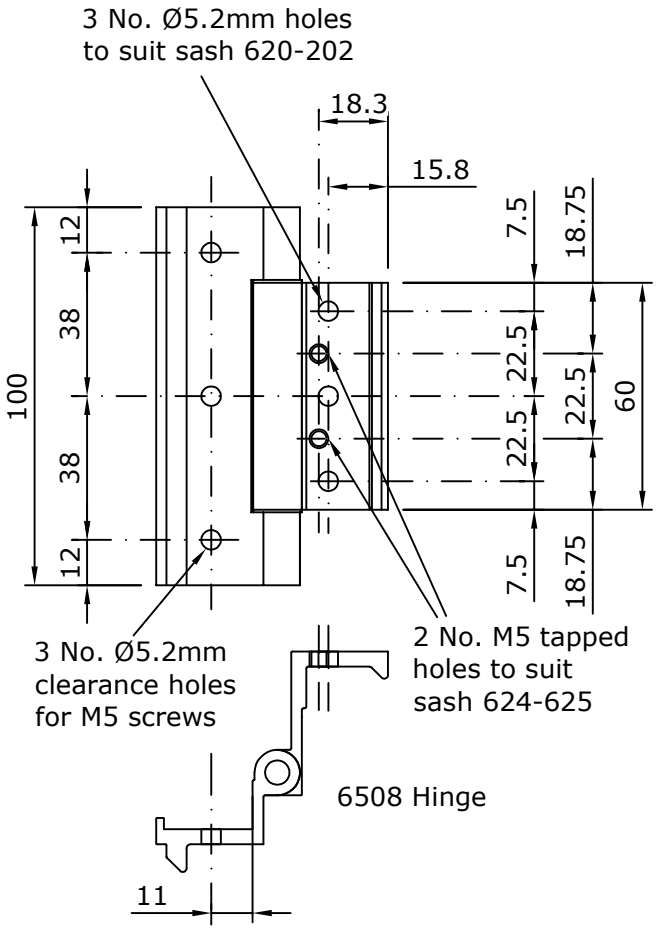
3 No. M5 x 20mm pan head stainless steel fixing screws 7208 into M5 countersunk aluminium rivnuts 7209

Drip rail HS103 (Top hung sash only)

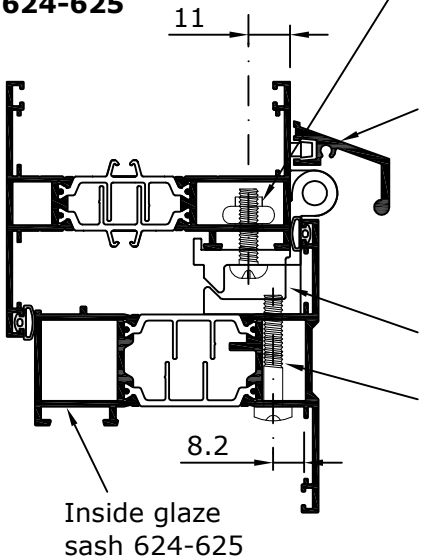
Hinge aligned tightly against sash gasket groove.

6508 Hinge

3 No. M5 x 16mm pan head stainless steel fixing screws 7224 into M5 countersunk aluminium rivnuts 7209



FOR USE WITH INSIDE GLAZE SASH 624-625



3 No. M5 x 20mm pan head stainless steel fixing screws 7208 into M5 countersunk aluminium rivnuts 7209

Drip rail HS103 (Top hung sash only)

Hinge aligned tightly against sash gasket groove.

6508 Hinge

2 No. M5 x 30mm pan head stainless steel fixing screws 7243 applied with loctite

Scale 1:2

Butt Hinge Options

Hinge Preparation Details

System 4-35 Hi/Hi+

CASEMENT WINDOW

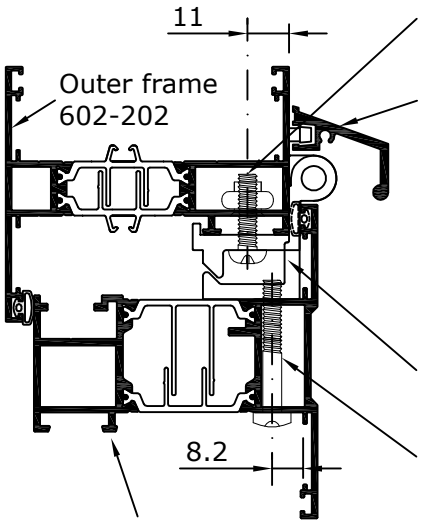
All fixings must be sealed using HR50328A sealant.

Long leg outer frame sections 600-212, 602-212, 602-202, 620-204 or 620-216 must be used with butt hinges. In vent over vent and back to back hinge applications the heavy duty mullion/transom section 606-206, 607-206 must be used.

When hanging a top hung vent with butt hinges additional loads are applied to the transom. Application-specific structural analysis will therefore be required.

Butt hinge positions :
Hinges must be positioned 75mm from outer edge of sash to centreline of hinge for sashes 300mm to 500mm with fixings into/through the corner crimping cleat. For sashes over 500mm hinges to be positioned 150mm from outer edge of sash to centreline of hinge. Where additional hinges are necessary they must be equally spaced.

FOR USE WITH EURO GROOVE SASHES 626-627 and 626-652



Recessed euro groove sash 626-627 or flat euro groove sash 626-652

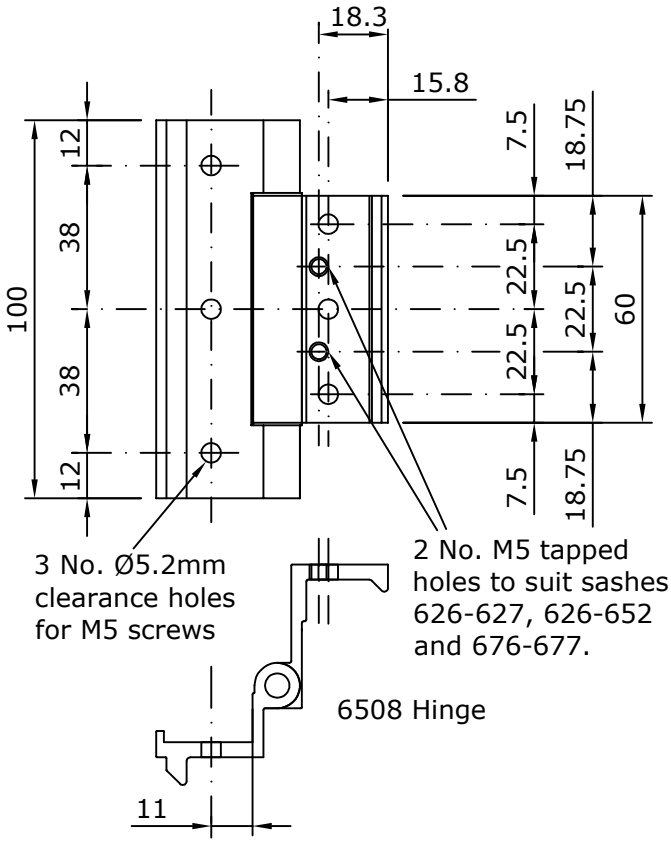
3 No. M5 x 20mm pan head stainless steel fixing screws 7208 into M5 countersunk aluminium rivnuts 7209

Drip rail HS103
(Top hung sash only)

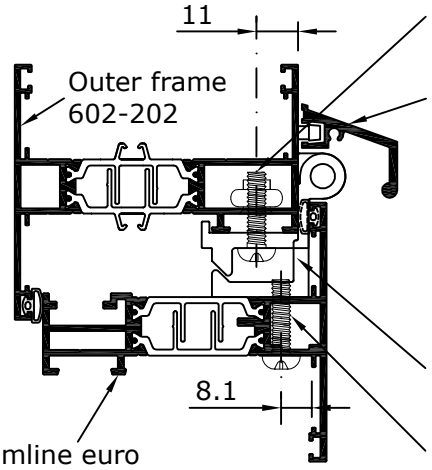
Hinge aligned tightly against sash gasket groove.

6508 Hinge

2 No. M5 x 35mm pan head stainless steel fixing screws 7212 applied with loctite



FOR USE WITH SLIMLINE SASH 676-677



Slimline euro groove sash 676-677

3 No. M5 x 20mm pan head stainless steel fixing screws 7208 into M5 countersunk aluminium rivnuts 7209

Drip rail HS103
(Top hung sash only)

Hinge aligned tightly against sash gasket groove.

6508 Hinge

2 No. M5 x 20mm pan head stainless steel fixing screws 7208 applied with loctite

Scale 1:2

Butt Hinges and Liner Bar

System 4-35 Hi/Hi+

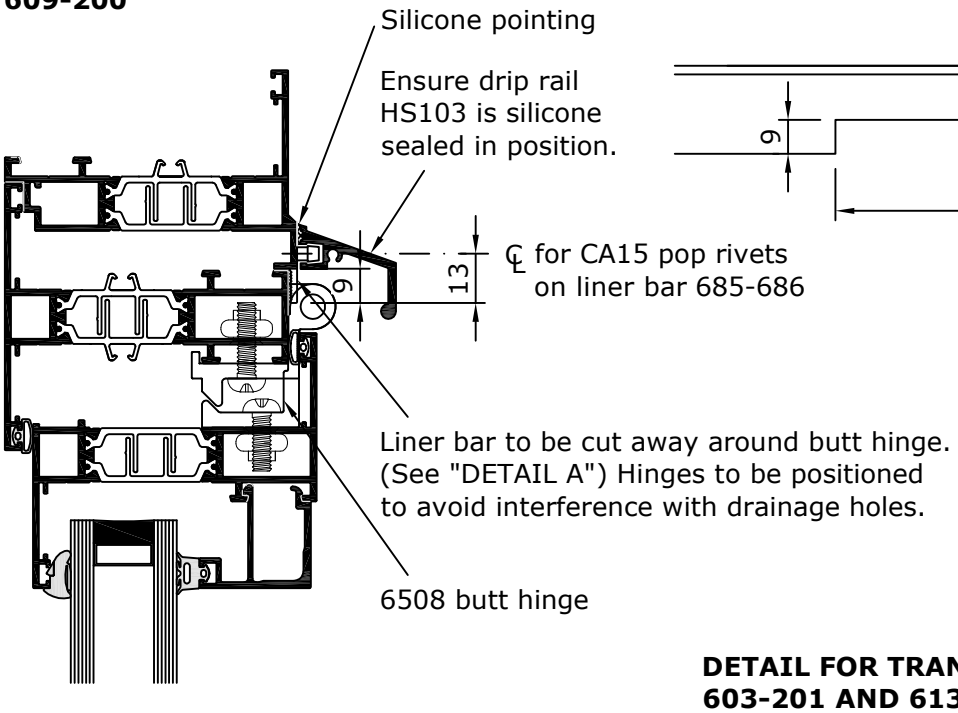
CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

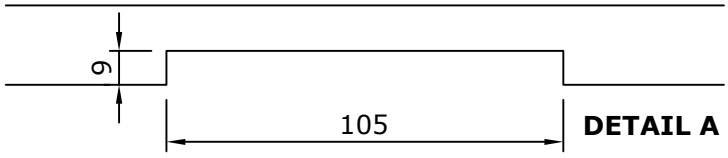
Metal Technology do not recommend fixing butt hung sashes directly to the 685-686 liner bar as the load will be transferred to the thermal break which may fracture.

Transom 619-211 is not suitable for use with 6508 butt hinge as the screwport will prevent rivnut fixing.

DETAIL FOR TRANSOM 609-200

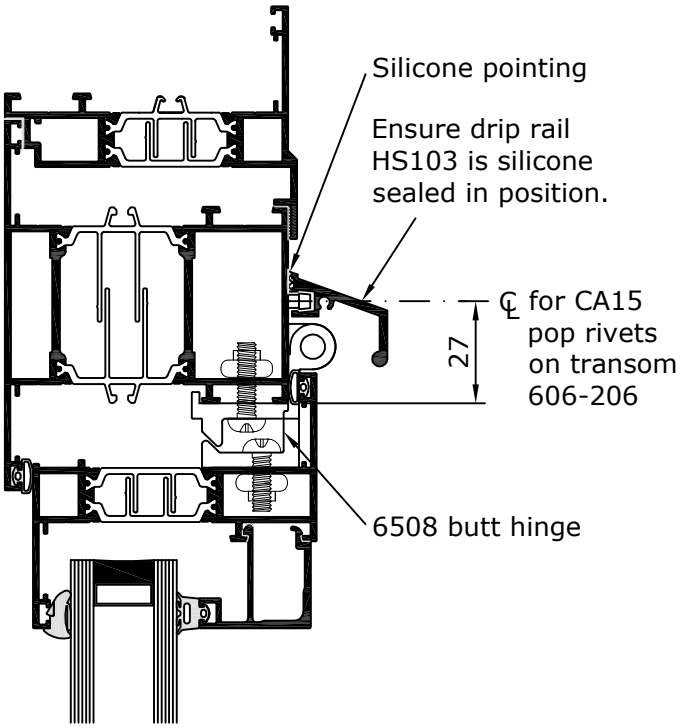


Liner bar **685-686**

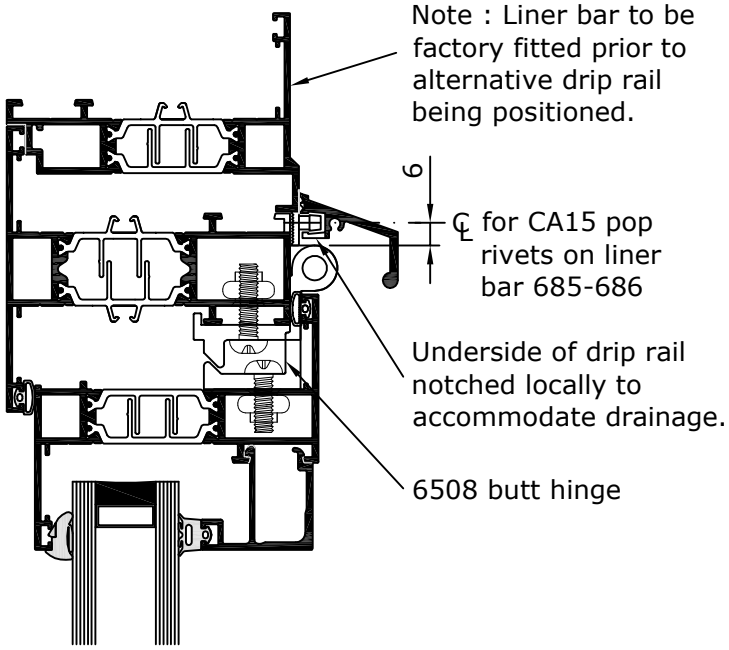


DETAIL A

DETAIL FOR TRANSOM 606-206



DETAIL FOR TRANSOMS 603-201 AND 613-213



Scale 1:2

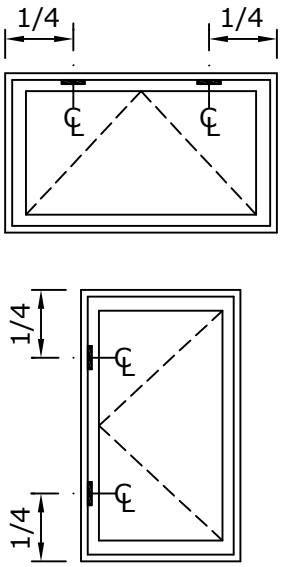
Interlocking Wedges 6772

For Sash 620-202 For Friction Hinge Applications Only

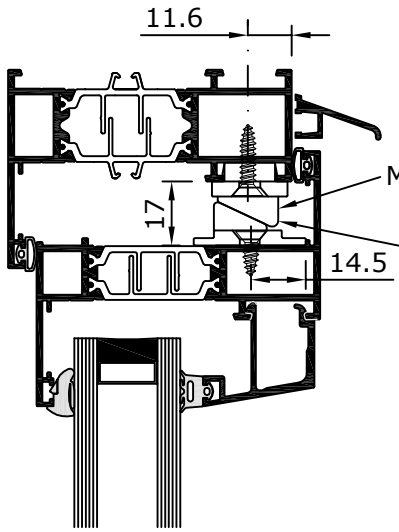
System 4-35 Hi/Hi+
CASEMENT WINDOW

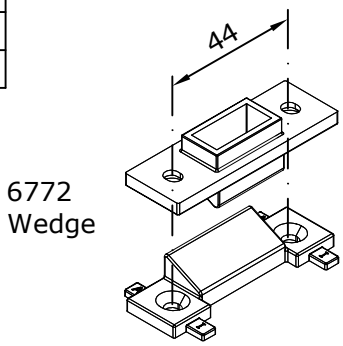
All fixings must be sealed using HR50328A sealant.

	TOP HUNG	SIDE HUNG
ONE SET	Sash 900 to 1200 wide	Sash 900 to 1200 high
TWO SETS	Sash 1201 to 1500 wide	Sash 1201 to 1500 high



When using only one set, mount centrally.





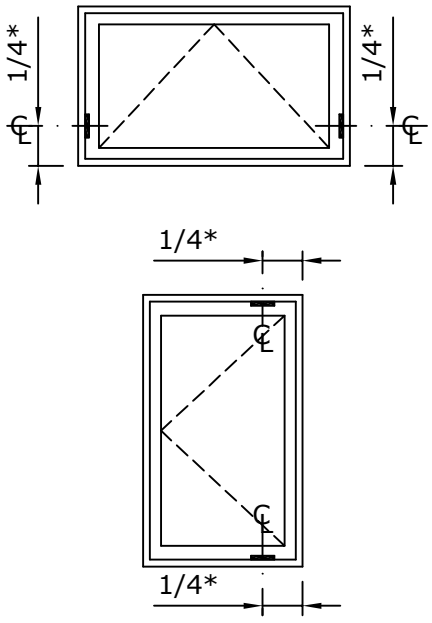
Interlocking wedges 6772 to be provided at head of top hung sash and hinge jamb of side hung sash. To be fixed with 2 No 8 x 19mm countersunk head screws 7231 to outer frame and 2 No 8 x 12mm countersunk head screws 7230 to sash.

Alignment Wedges 6772

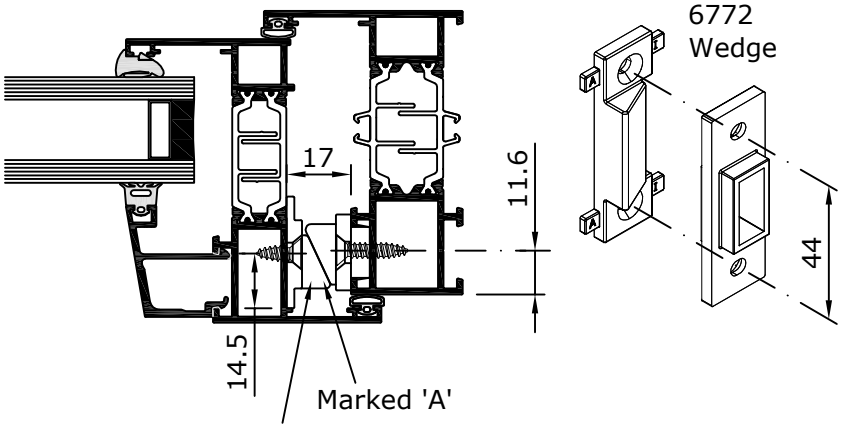
For Sash 620-202 For Friction Hinge and Butt Hinge Applications

All fixings must be sealed using HR50328A sealant.

Ensure interlocking wedges and/or alignment wedges do not interfere with friction hinges or restrictors. Outer frame component locates into bead groove. Sash component to be located against chevron pip.



TWO SETS REQUIRED PER SASH



Alignment wedges 6772 to be provided at jambs of top hung sash and head and cill of side hung sash (near to leading edge). To be fixed with 2 No 8 x 19mm countersunk head screws 7231 to outer frame and 2 No 8 x 12mm countersunk head screws 7230 to sash.

*Position of 6772 alignment wedges may need to be adjusted to avoid other ironmongery components.

Note: Alignment wedges are not required when using folding openers.

Scale 1:2

Interlocking Wedges 6772

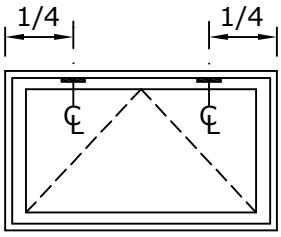
For Sash 624-625 For Friction Hinge Applications Only

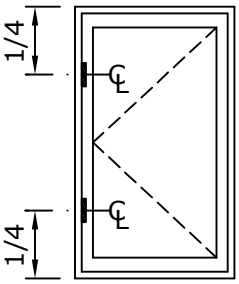
System 4-35 Hi/Hi+

CASEMENT WINDOW

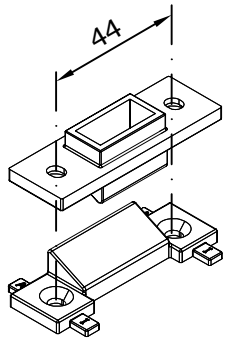
All fixings must be sealed using HR50328A sealant.

	TOP HUNG	SIDE HUNG
ONE SET	Sash 900 to 1200 wide	Sash 900 to 1200 high
TWO SETS	Sash 1201 to 1500 wide	Sash 1201 to 1500 high
THREE SETS	Sash 1501 to max width	Sash 1501 to max height

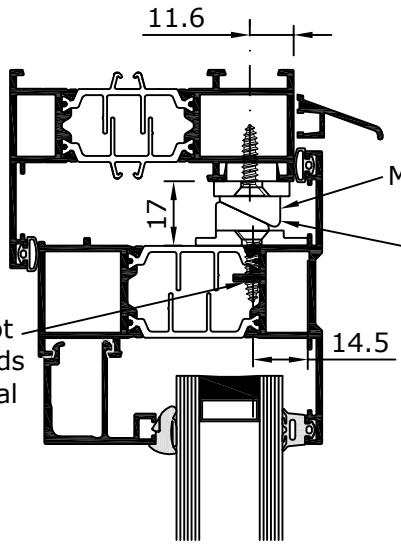




When using only one set, mount centrally.



6772 Wedge



Marked 'I'

Interlocking wedges 6772 to be provided at head of top hung sash and hinge jamb of side hung sash. To be fixed with 2 No 8 x 19mm countersunk head screws 7231 to outer frame and 2 No 8 x 19mm countersunk head screws 7231 to sash.

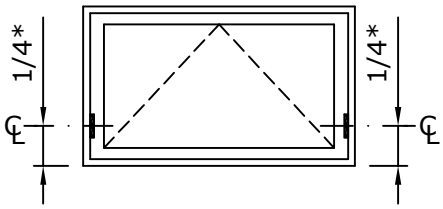
Ensure pilot hole extends into thermal break and section leg

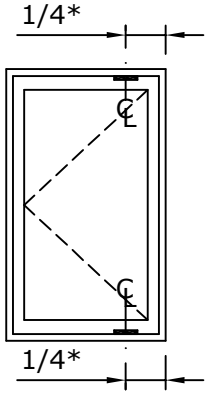
Alignment Wedges 6772

For Sash 624-625 For Friction Hinge and Butt Hinge Applications

All fixings must be sealed using HR50328A sealant.

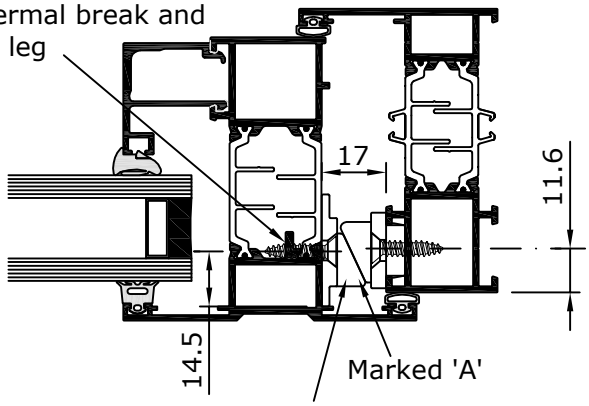
Ensure interlocking wedges and/or alignment wedges do not interfere with friction hinges or restrictors. Outer frame component locates into bead groove. Sash component to be located against chevron pip.





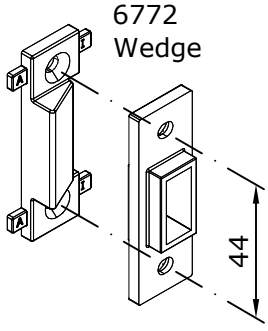
TWO SETS REQUIRED PER SASH

Ensure pilot hole extends into thermal break and section leg



Marked 'A'

6772 Wedge



Alignment wedges 6772 to be provided at jambs of top hung sash and head and cill of side hung sash (near to leading edge). To be fixed with 2 No 8 x 19mm countersunk head screws 7231 to outer frame and 2 No 8 x 19mm countersunk head screws 7231 to sash.

*Position of 6772 alignment wedges may need to be adjusted to avoid other ironmongery components.

Note: Alignment wedges are not required when using folding openers.

Scale 1:2

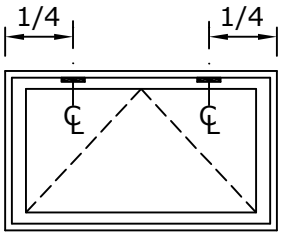
Interlocking Wedges 6772

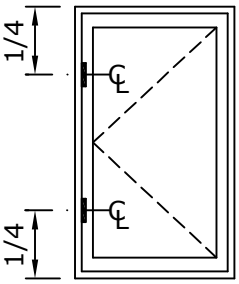
For Sashes 626-627 and 626-652
For Friction Hinge Applications Only

System 4-35 Hi/Hi+
CASEMENT WINDOW

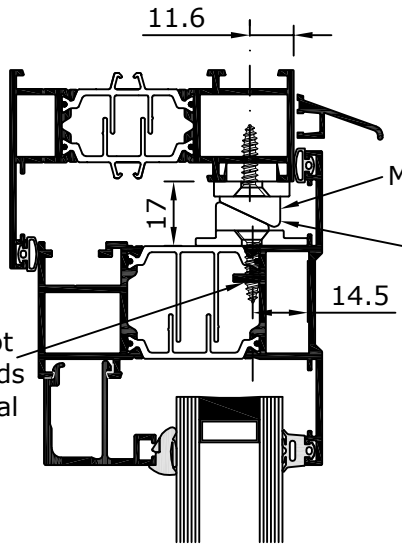
All fixings must be sealed using HR50328A sealant.

	TOP HUNG	SIDE HUNG
ONE SET	Sash 900 to 1200 wide	Sash 900 to 1200 high
TWO SETS	Sash 1201 to 1500 wide	Sash 1201 to 1500 high
THREE SETS	Sash 1501 to max width	Sash 1501 to max height

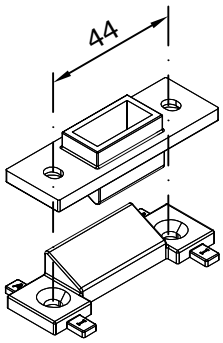




When using only one set, mount centrally.



6772 Wedge



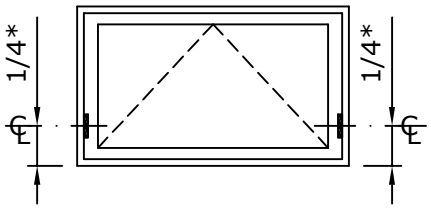
Interlocking wedges 6772 to be provided at head of top hung sash and hinge jamb of side hung sash. To be fixed with 2 No 8 x 19mm countersunk head screws 7231 to outer frame and 2 No 8 x 19mm countersunk head screws 7231 to sash.

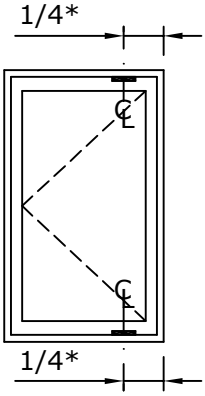
Alignment Wedges 6772

For Sashes 626-627 and 626-652 For Friction Hinge and Butt Hinge Applications

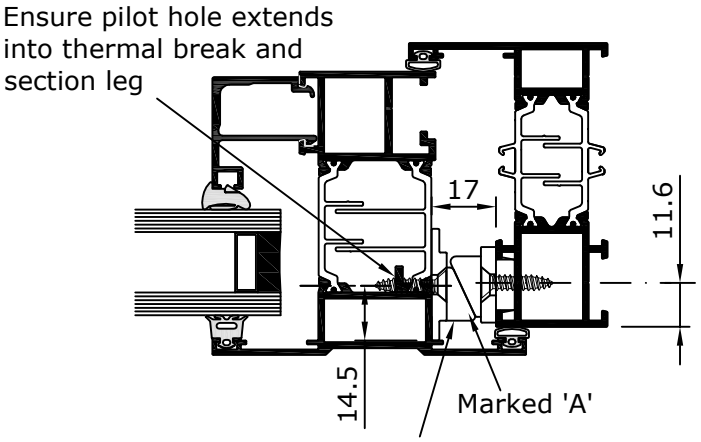
Ensure interlocking wedges and/or alignment wedges do not interfere with friction hinges or restrictors. Outer frame component locates into bead groove. Sash component to be located against chevron pip.

All fixings must be sealed using HR50328A sealant.

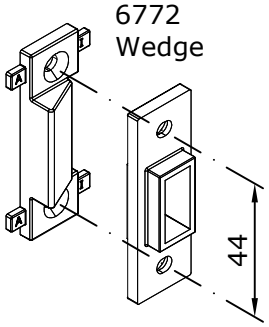




TWO SETS REQUIRED PER SASH



6772 Wedge



Alignment wedges 6772 to be provided at jambs of top hung sash and head and cill of side hung sash (near to leading edge). To be fixed with 2 No 8 x 19mm countersunk head screws 7231 to outer frame and 2 No 8 x 19mm countersunk head screws 7231 to sash.

*Position of 6772 alignment wedges may need to be adjusted to avoid other ironmongery components.

In top hung applications alignment wedges are not required when using folding openers, standard or offset euro espag locking.

Scale 1:2

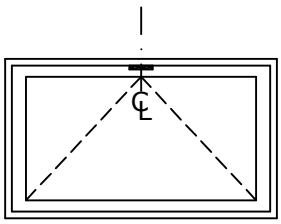
Interlocking Wedges 6772

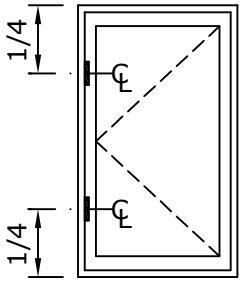
For Slimline Euro Groove Sash 676-677
For Friction Hinge Applications Only

System 4-35 Hi/Hi+
CASEMENT WINDOW

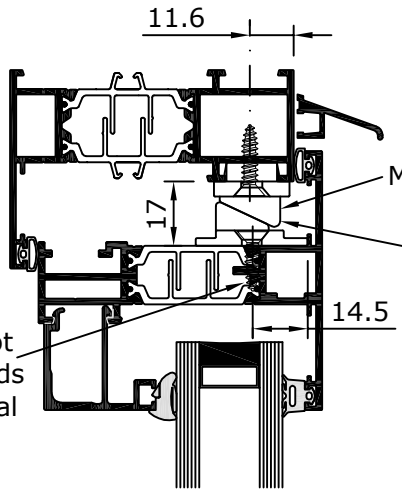
All fixings must be sealed using HR50328A sealant.

	TOP HUNG	SIDE HUNG
ONE SET	Sash 900 to 1200 wide	Sash 900 to 1200 high
TWO SETS	-	Sash 1201 to 1500 high





When using only one set, mount centrally.

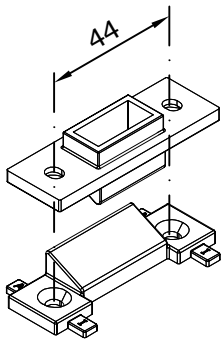


Ensure pilot hole extends into thermal break and section leg

Marked 'I'

Interlocking wedges 6772 to be provided at head of top hung sash and hinge jamb of side hung sash. To be fixed with 2 No 8 x 19mm countersunk head screws 7231 to outer frame and 2 No 8 x 16mm countersunk head screws 7204 to sash.

6772 Wedge

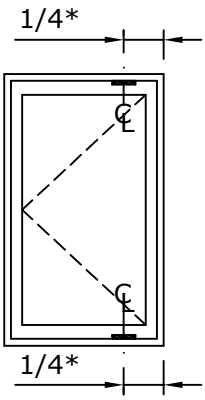


Ensure interlocking wedges and/or alignment wedges do not interfere with friction hinges or restrictors. Outer frame component locates into bead groove. Sash component to be located against chevron pip.

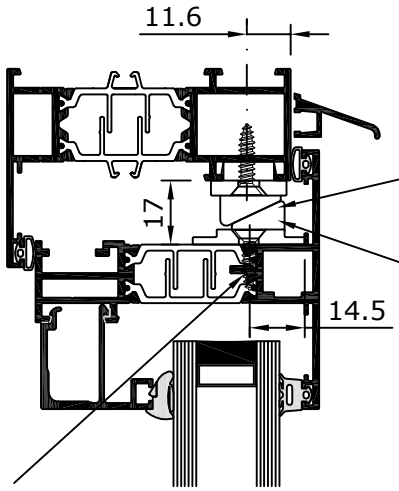
Alignment Wedges 6772

For Slimline Euro Groove Sash 676-677 For Friction Hinge and Butt Hinge Applications

All fixings must be sealed using HR50328A sealant.



TWO SETS REQUIRED PER SASH

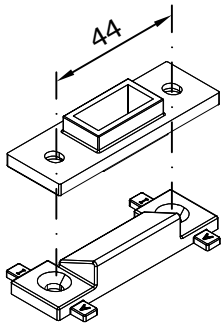


Ensure pilot hole extends into thermal break and section leg

Marked 'A'

Alignment wedges 6772 to be provided at head and cill of side hung sash (near to leading edge). To be fixed with 2 No 8 x 19mm countersunk head screws 7231 to outer frame and 2 No 8 x 16mm countersunk head screws 7204 to sash.

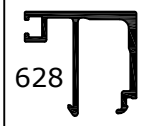
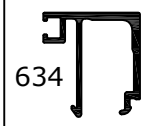
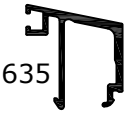
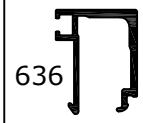
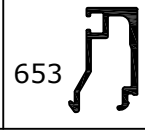
6772 Wedge



*Position of 6772 alignment wedges may need to be adjusted to avoid other ironmongery components. In top hung applications alignment wedges are not required when using standard or offset euro espag locking.

Scale 1:2

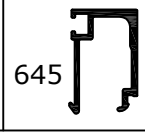
Glazing Bead and Gasket Requirements

Glazing unit size	External gasket	Internal gasket	Glazing bead	
			Square	Raked
28mm 29mm 30mm 31mm	6080 (purple) 6080 (purple) 6081 (black) 6081 (black)	CA27 (white) PTT36 (red) CA27 (white) PTT36 (red)	 628	 623
32mm 33mm 34mm 35mm	6080 (purple) 6080 (purple) 6081 (black) 6081 (black)	CA27 (white) PTT36 (red) CA27 (white) PTT36 (red)	 634	 635
36mm 37mm 38mm 39mm	6080 (purple) 6080 (purple) 6081 (black) 6081 (black)	CA27 (white) PTT36 (red) CA27 (white) PTT36 (red)	 636	 644
40mm 41mm 42mm 43mm	6080 (purple) 6080 (purple) 6081 (black) 6081 (black)	CA27 (white) PTT36 (red) CA27 (white) PTT36 (red)	 645	 646
44mm* 45mm* 46mm* 47mm*	6080 (purple) 6080 (purple) 6081 (black) 6081 (black)	CA27 (white) PTT36 (red) CA27 (white) PTT36 (red)	 653	 654

These unit sizes (i.e. 28mm to 47mm) are based on nominal sizes. Where glazing unit tolerance is at its extreme (±0.5mm) or where alternative glass thicknesses are being considered the gasket/bead/section combination should be physically checked on a sample window.

For thicker glazing unit sizes than those indicated, refer to Metal Technology's technical department.

To suit slimline sash 676-677 only:

Glazing unit size	External gasket	Internal gasket	Glazing bead	
			Square	Raked
44mm	PCD82 (black)	CA27 (white)	 645	 646

* Glazing beads 653 and 654 are not compatible with slimline sash 676-677.

Not to scale

Weatherseal Application Details

Weatherseal 060B

System 4-35 Hi/Hi+

CASEMENT WINDOW

Cut weatherseal into four individual lengths with mitred corners.

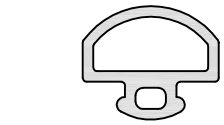
Push fit weatherseal into section grooves. See detail below for fitting direction.

Weatherseals must not be stretched and should be cut 1-3% oversize as required to accommodate shrinkage. When oversizing the gasket to accommodate any anticipated potential shrinkage, fabricators should ensure gasket is not installed so that it remains wrinkled. While it is preferable that gaskets be installed too long, rather than too short, excessive wrinkles or distortion should be avoided once the gasket has had an opportunity to settle into its natural state within its final intended environment.

All corners to be bonded with cyanoacrylate (superglue) adhesive.

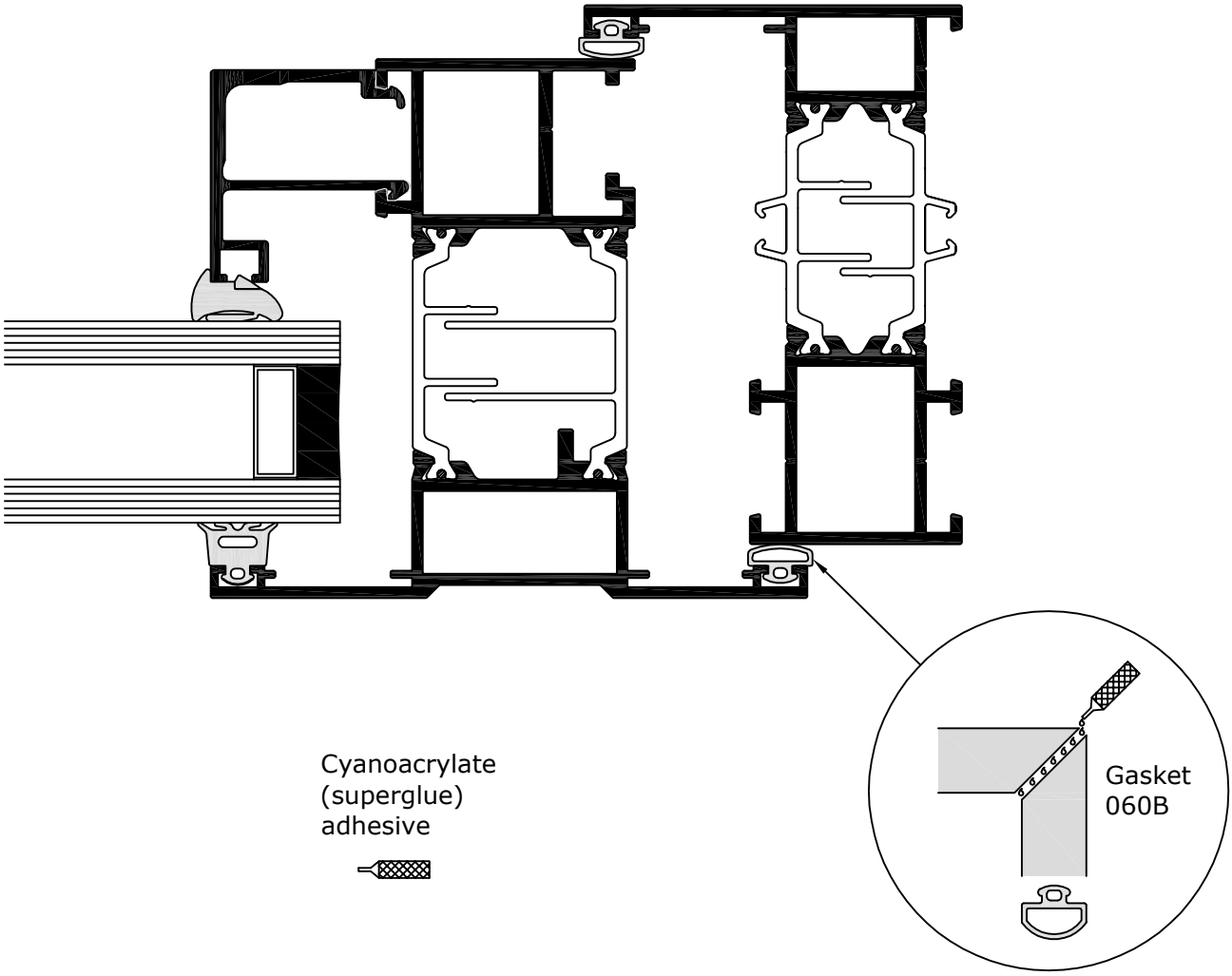
External weatherseal to be notched 30mm locally at outer frame drainage slots.

Where gaskets are supplied in a bag, the bag should be re-sealed to prevent drying out. Should gaskets become dry and difficult to apply, they can be re-lubricated using 7400 silicone spray as they are inserted into the window frames.



Weatherseal gasket 060B

Scale 2:1



Cyanoacrylate (superglue) adhesive

Scale 1:1

Weatherseal Application Details

Gasket 6080, 6081 (Outside)
Wedge CA27, PTT36 (Inside)

System 4-35 Hi/Hi+

CASEMENT WINDOW

Cut 6080 or 6081 gasket into four individual lengths with mitred corners and fit into section grooves. In internally beaded applications factory bond gasket corners using cyanoacrylate (superglue) adhesive.

In externally beaded applications mitred gasket corners may be sealed using HR50328A on site.

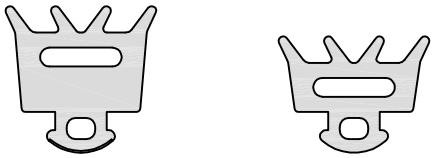
Metal Technology recommend installers apply HR50328A sealant to the mating surface of the retained gasket with the glass, at the mitred corners, on site immediately prior to offering up the glazing unit.

After locating glass and inserting bead, cut wedge gasket into four individual lengths and push fit between profile and glazing unit. Corners and joints to be sealed using HR50328A sealant as indicated.

Gaskets must not be stretched and should be cut 1-3% oversize as required to accommodate shrinkage. When oversizing the gasket to accommodate any anticipated potential shrinkage, fabricators should ensure gasket is not installed so that it remains wrinkled. While it is preferable that gaskets be installed too long, rather than too short, excessive wrinkles or distortion should be avoided once the gasket has had an opportunity to settle into its natural state within its final intended environment.

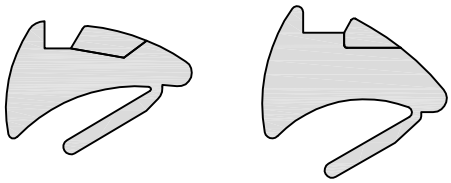
Where gaskets are supplied in a bag, the bag should be resealed to prevent drying out. Should gaskets become dry and difficult to apply, they can be re-lubricated using 7400 silicone spray as they are inserted into the window frames.

Gasket 6080 or 6081 (Outside)



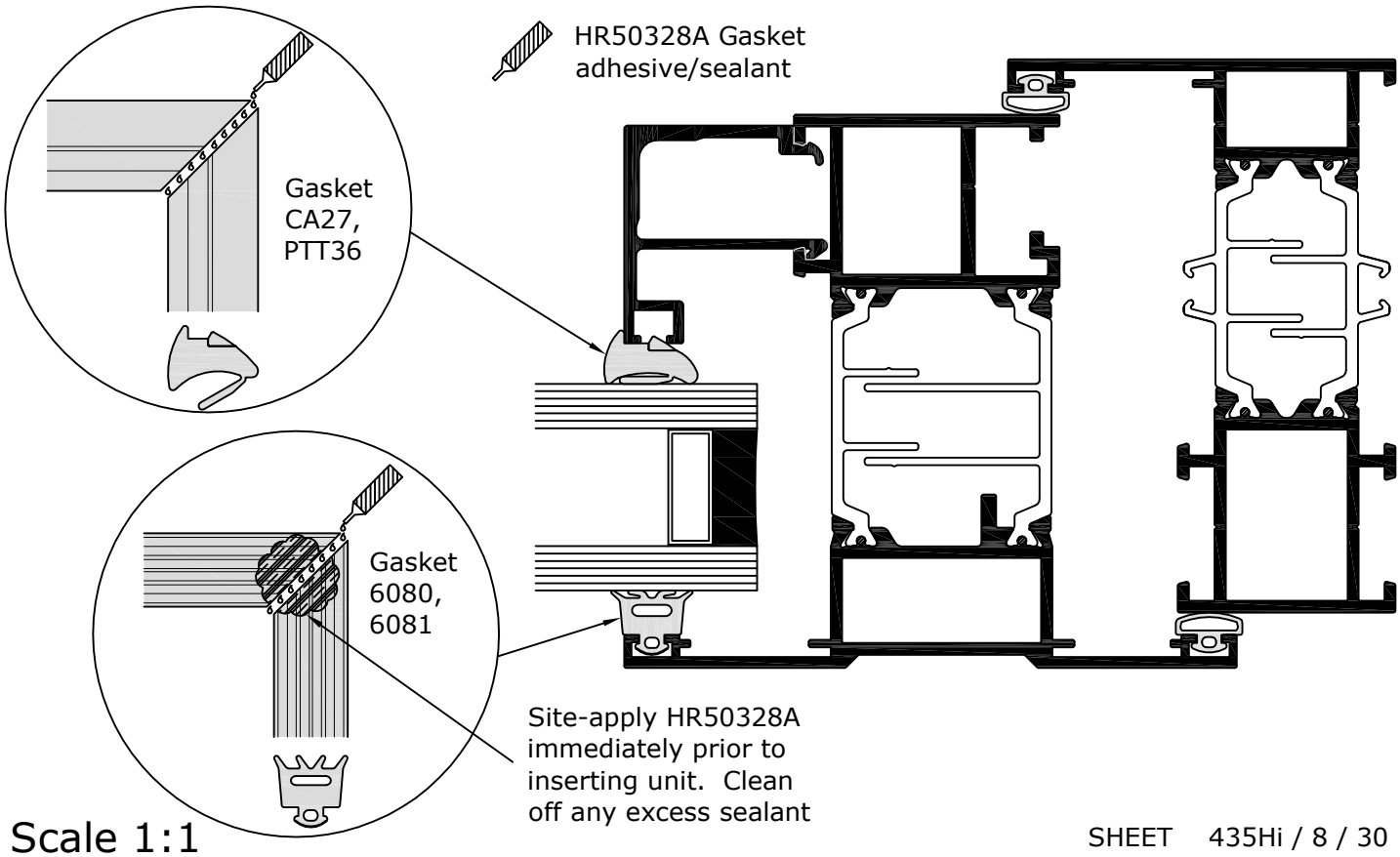
Gasket 6080 | Gasket 6081

Wedge gasket CA27 or PTT36 (Inside)



Gasket PTT36 | Gasket CA27

Scale 2:1



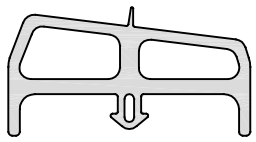
Scale 1:1

Thermal Centre Gasket Application Details

Centre gasket 6071

Cut 6071 thermal centre gasket into four individual lengths with square cut ends.

Push fit gasket into groove in outer frame/transom/mullion to perimeter of sash. Square cut and butt joint gasket at corners and to moulded gasket components 6721 and 6722. Gasket to be omitted at espag keep locations.

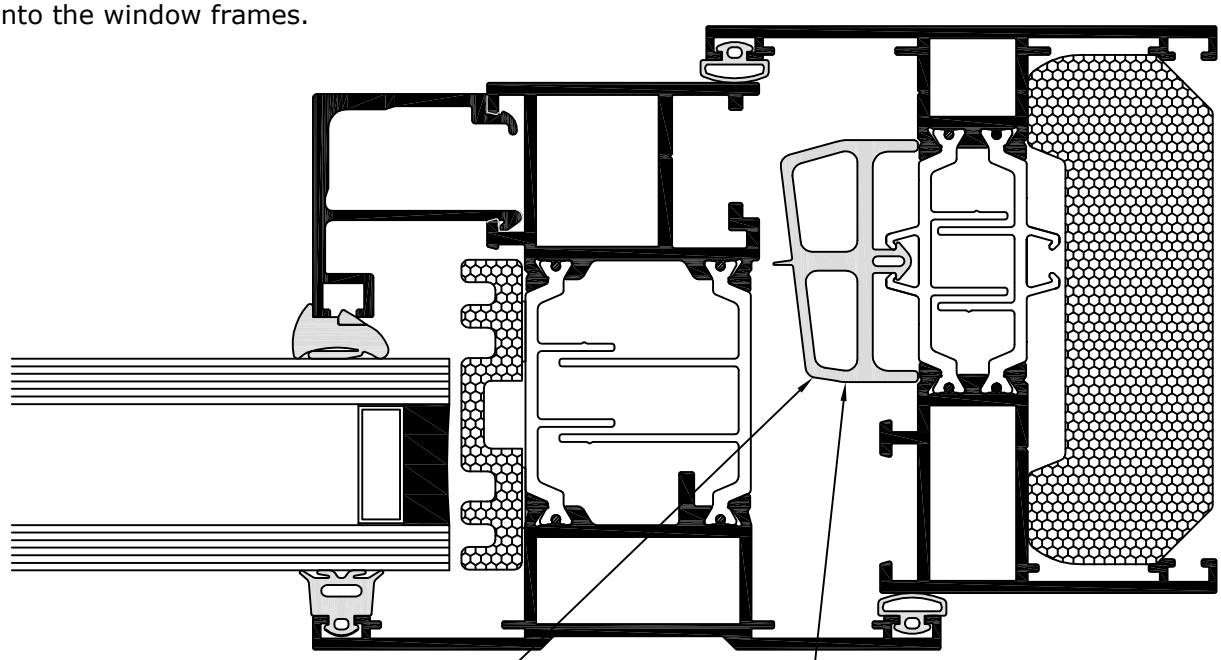


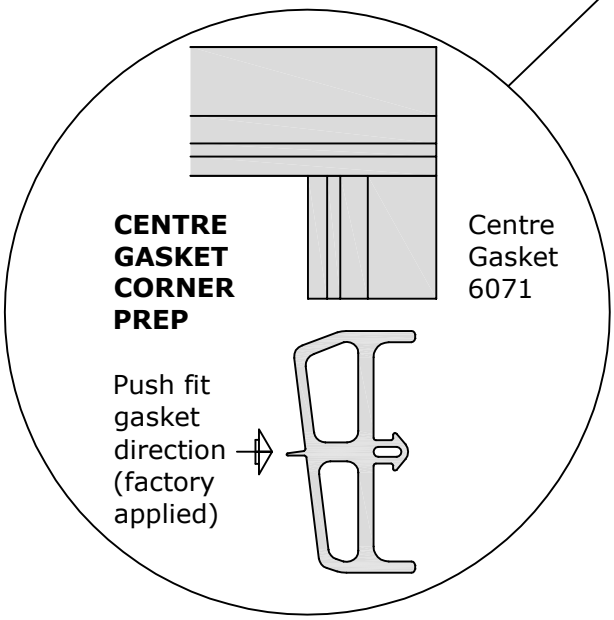
Thermal centre gasket 6071.

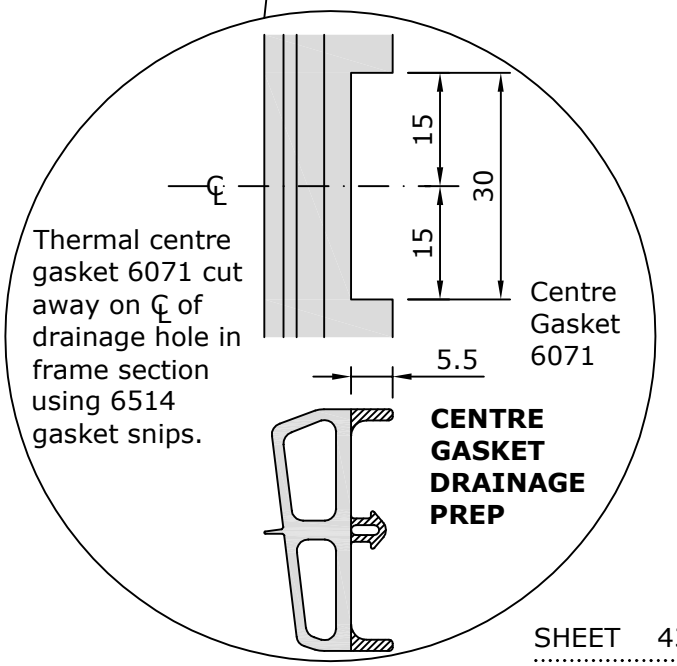
Thermal centre gasket should not be stretched and may be cut 1-3% oversize as required to accommodate shrinkage.

Thermal centre gasket to be notched 30mm locally at outer frame drainage slots.

Where gaskets are supplied in a bag, the bag should be resealed to prevent drying out. Should gaskets become dry and difficult to apply, they can be re-lubricated using 7400 silicone spray as they are inserted into the window frames.







Scale 1:1

Perimeter Foam Application Details

Perimeter Foam 6728

System 4-35 Hi+
CASEMENT WINDOW

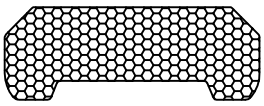
Perimeter foam 6728 may also be used in Hi applications to facilitate perimeter pointing/sealing.

Thermal foams should not be exposed to UV light and must be kept in a clean, dry and dust free environment at between 5° and 35°C. Fabricators should minimise exposure period of the foams to the elements and provide additional on-site protection to prevent depositing of builders debris.

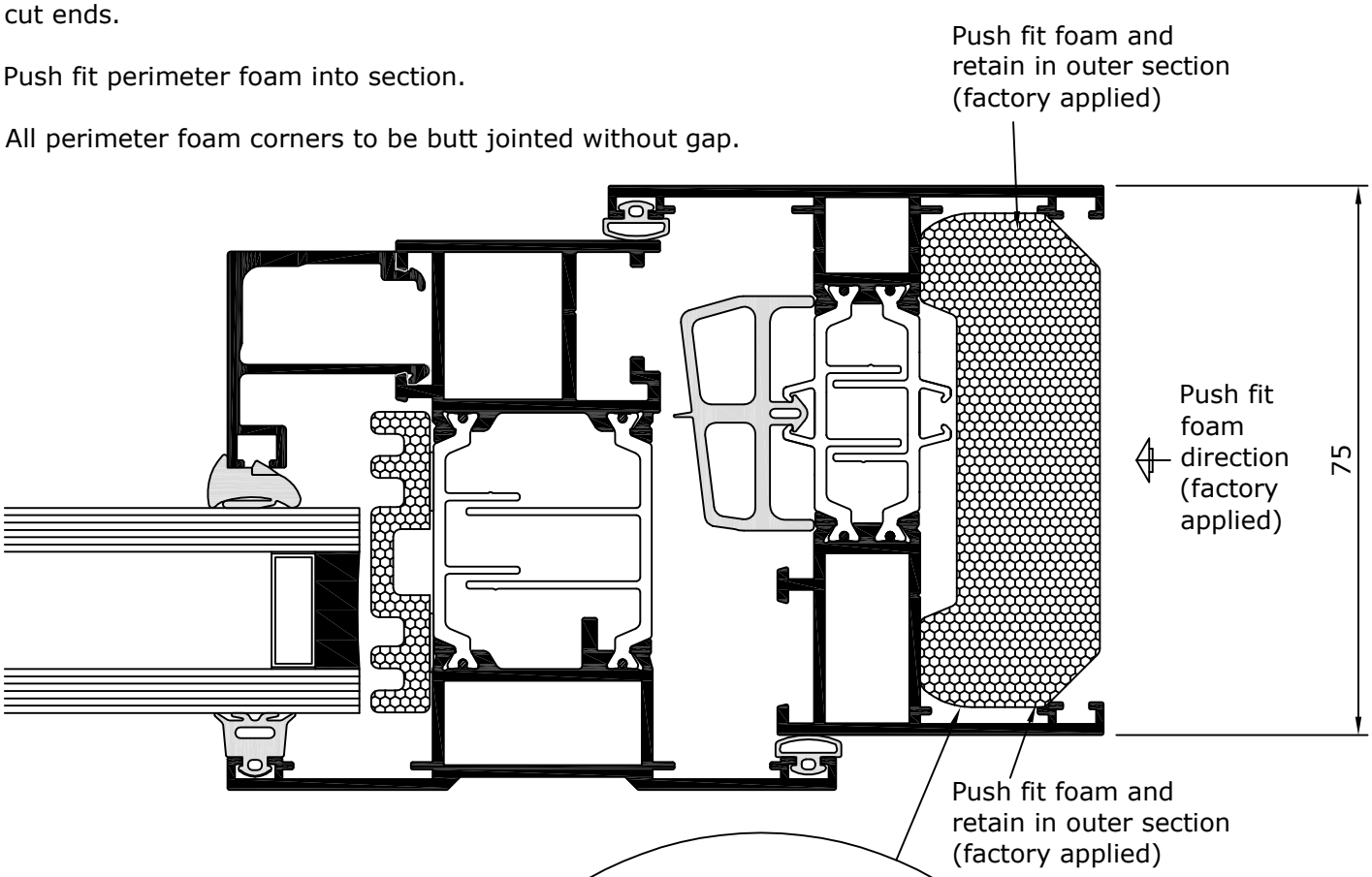
Cut 6728 perimeter foam into four individual lengths with square cut ends.

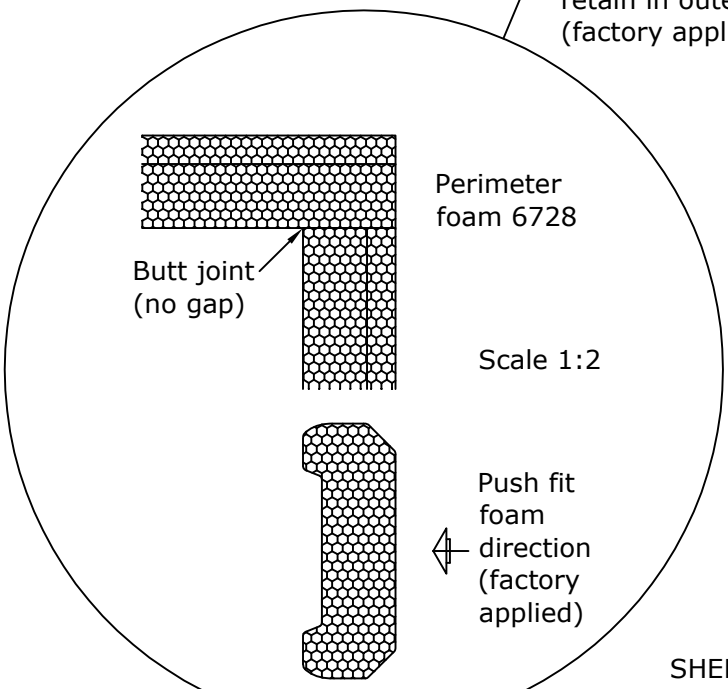
Push fit perimeter foam into section.

All perimeter foam corners to be butt jointed without gap.



Perimeter foam 6728.
Scale 1:2





Scale 1:1

Glazing Unit Perimeter Foam Application Details

System 4-35 Hi+
CASEMENT WINDOW

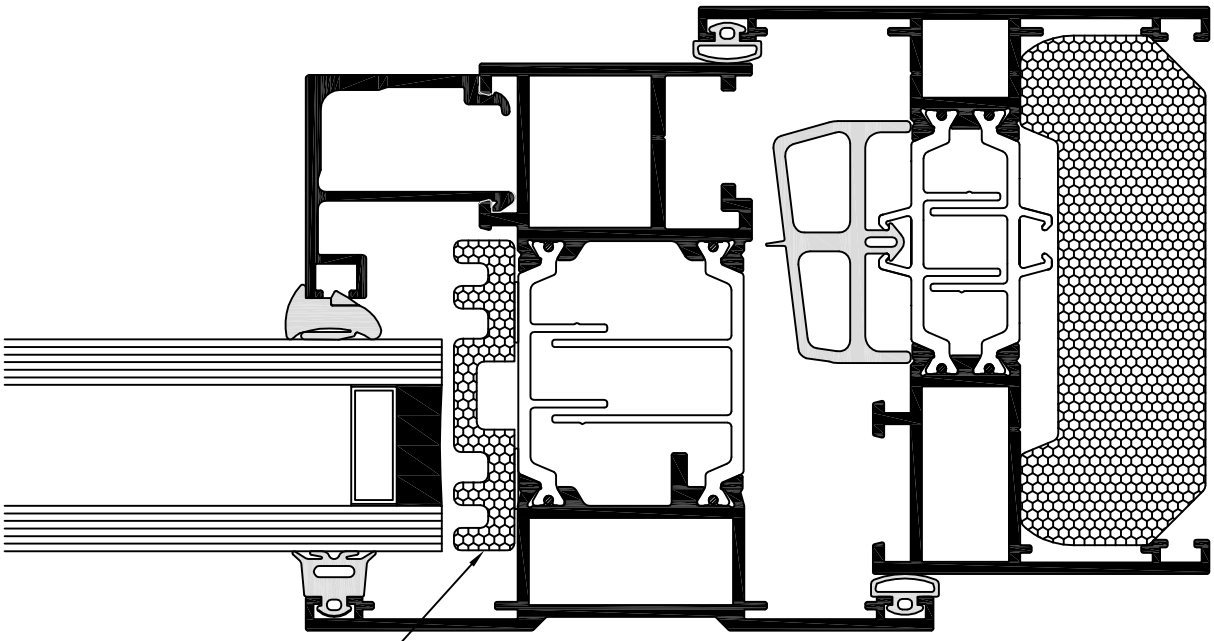
Glazing Unit Perimeter Foam 6727

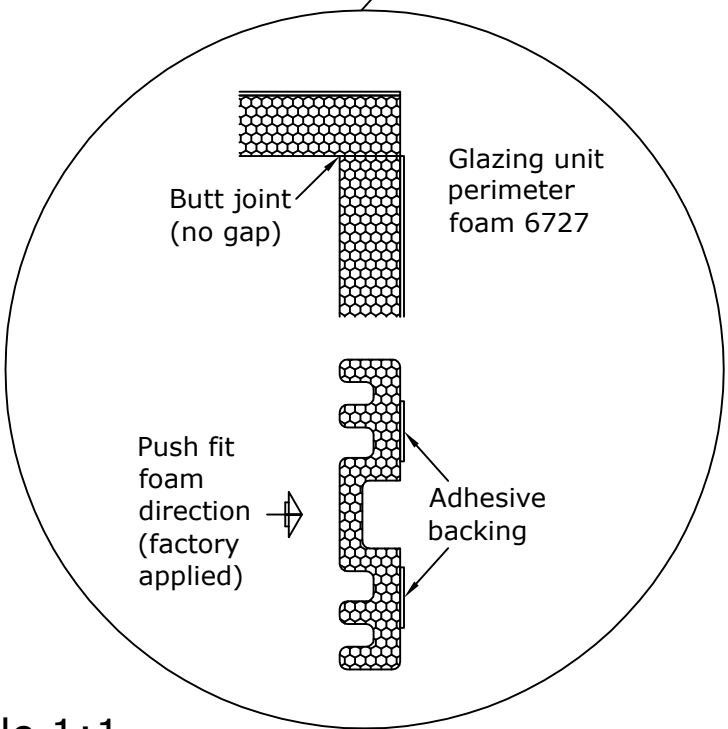
Thermal foams should not be exposed to UV light, and must be kept in a clean, dry, and dust-free environment at between 5° and 35°C. Minimum recommended application temperature for adhesive thermal foams is 20°C and therefore these should be applied in clean, dry, and dust-free factory conditions. Before applying self-adhesive foams ensure all surfaces are free from grease or dust. Clean all mating surfaces with suitable cleaning agent. Fabricators should minimise the exposure period of the foams to the elements and provide additional on-site protection to prevent depositing of builders debris.

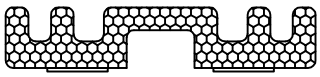
Cut 6727 glazing unit perimeter foam into four individual lengths with square cut ends.

All foam corners to be butt jointed without gap.

Glazing unit perimeter foam to be factory applied to sash/frame where DGUs are to be installed. Remove release strip from rear of foam and bond to frame, omitting foam at glazing support, pressure equalisation and drainage locations.







Glazing unit closed cell foam 6727 bond to section using self-adhesive backing.

Scale 1:1

Liner Bar Foam Application Details

Liner Bar Foam 6729

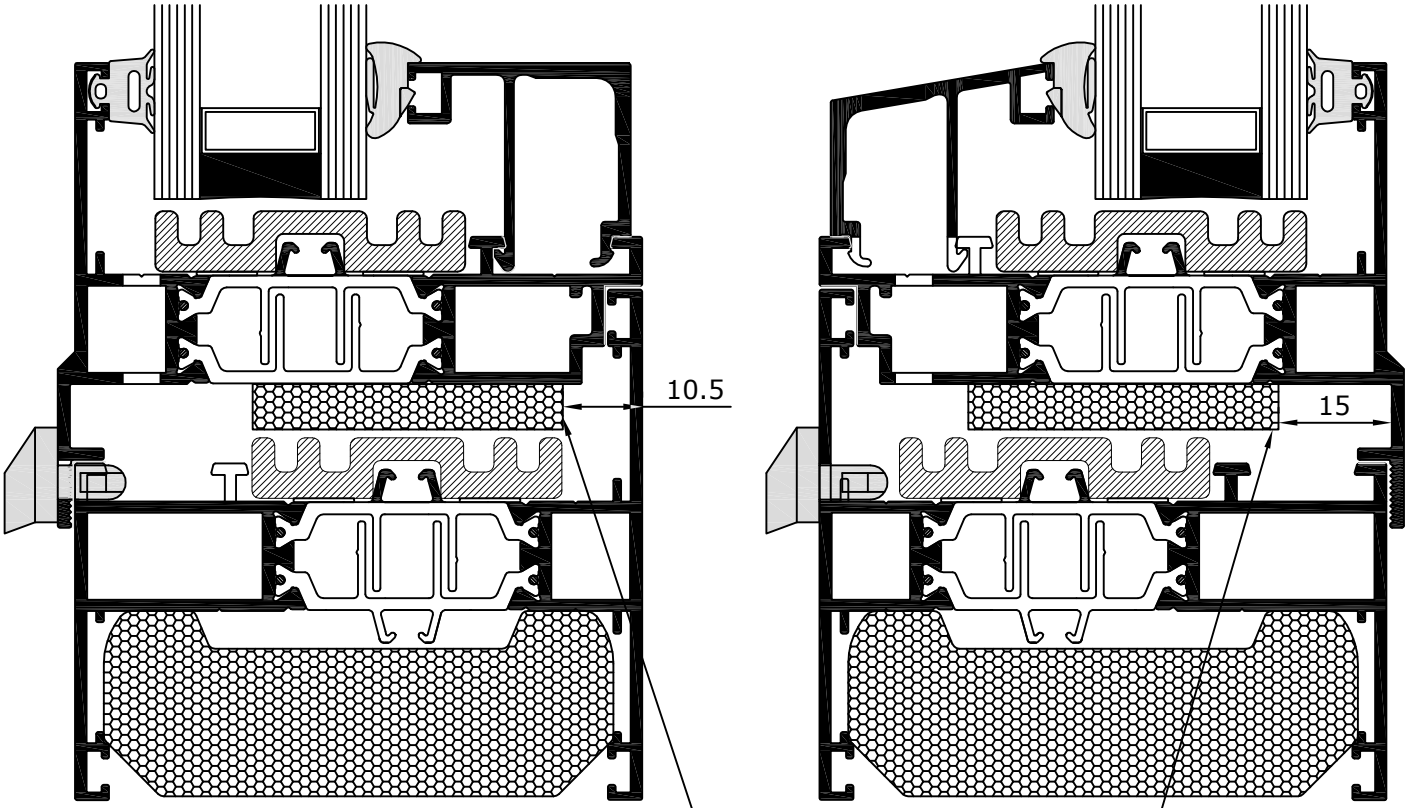
System 4-35 Hi+
CASEMENT WINDOW

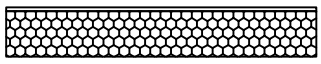
Thermal foams should not be exposed to UV light, and must be kept in a clean, dry, and dust-free environment at between 5° and 35°C. Minimum recommended application temperature for adhesive thermal foams is 20°C and therefore these should be applied in clean, dry, and dust-free factory conditions. Before applying self-adhesive foams ensure all surfaces are free from grease or dust. Clean all mating surfaces with suitable cleaning agent. Fabricators should minimise the exposure period of the foams to the elements and provide additional on-site protection to prevent depositing of builders debris.

Cut 6729 liner bar foam into four individual lengths with square cut ends.

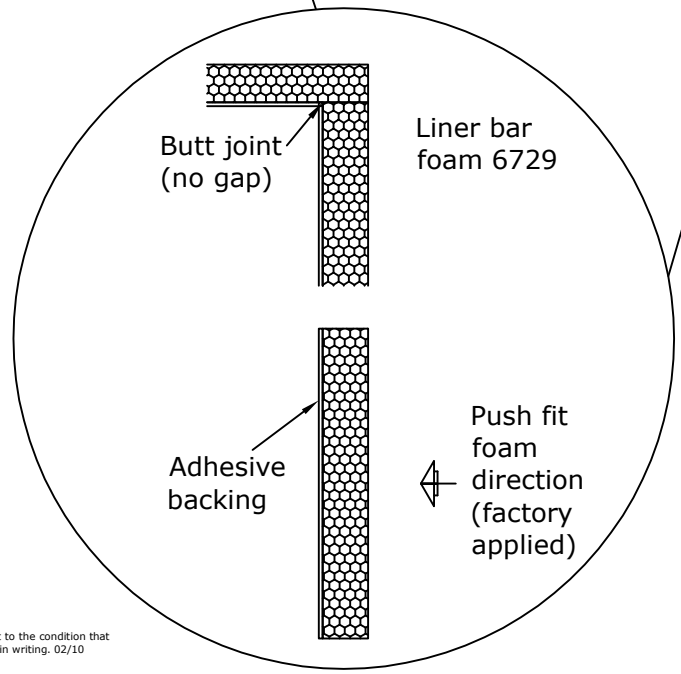
All foam corners to be butt jointed without gap.

Liner bar foam to be factory applied to liner bar. Remove release strip from rear of foam and bond to frame, omitting foam at glazing support, pressure equalisation and drainage locations.





Liner bar foam 6729
bond to section using
self-adhesive backing



Scale 1:1

Installation Procedures

System 4-35 Hi/Hi+

CASEMENT WINDOW

The following instructions are a general guideline and cover the most common conditions. For further information, advice or project specific applications contact Metal Technology's Technical Department.

All windows should be adequately protected against minor scuffs and abrasions during installation. This can be achieved using a suitable low tack tape to all exposed surfaces of the window frame. Low tack tape should be periodically renewed and should not remain on the windows for more than 6 months from the date of application. (This period may vary depending on exposure, application and manufacturers instructions)
LOW TACK TAPE IS NOT A SUBSTITUTE FOR CAREFUL HANDLING.

Ensure that the brickwork opening is the correct size and square, with sufficient clearance to accommodate any expansion, contraction, building movement and the minimum joint width requirement for the applicable sealant.

When using coupling mullions they should be installed so that they provide the required movement facility to accommodate expansion and contraction. Where window units are installed in runs (i.e. ribbon windows etc..) incorporating a sub-cill, this sub-cill should be continuous. Where joints are required within the subcill these should be butt jointed and sealed using a suitable butt strap/splice plate. Where required the joint should be designed to accommodate all applicable movement, expansion and contraction. All subcills should be positioned on top of a continuous EPDM membrane returned upward, behind the sub-cill and sealed and bonded where required. Careful consideration must be given when detailing the interface between head and liners and/or sub-cills with coupling mullion and/or corner posts. Joints within sub-cills should not coincide with coupling mullion positions.

All aluminium should be isolated from direct contact with masonry, concrete and other incompatible materials by means of packing pieces, EPDM membranes, suitable paint or similar materials.

Metal Technology recommend the use of fixing lugs where practical. These should be fitted to the frames prior to offering the window into the opening. The choice of fixing lug will depend on site application (see manual for available options). The number and position of fixing lugs will depend on the window size and applicable loading. General fixing lug locations are 150mm from the corner, 150mm either side of a mullion/transom and at a maximum of 600mm centres (see manual detail for further clarification).

Where required fixing lugs may be cranked to accommodate the gap between the window frame and the structure. This should be done prior to snapping the lug into the frame.

Alternatively, where the gap between the frame and the structure is not suitable for adequately cranking the fixing lug, frame packers may be used.

Where direct 'through the frame' fixing is unavoidable this should be achieved using proprietary window frame anchors to suit application. All through the frame fixings should be suitable and adequate for the application and applied loadings. The number and position of the fixings will depend on window size and applied loads, etc. The general position for 'through the frame' fixing is as per lug fixing stated previously. All fixings should be made through the aluminium portion of the window frame and must be compatible with the window frame and substrate and/or be isolated from any incompatible materials in such a way as to avoid any adverse reaction.

cont...

All 'through the frame' fixings must be adequately sealed in position using a suitable sealant to prevent any water from permeating past the fixing into the cleat chambers, flashing areas and/or surrounding structure and into the building.

Where long equal leg outer frame options are being used the void around the perimeter of the window should be filled with insulation (i.e. 6728 perimeter foam) to provide a surface for locating the backing rod and pointing the sealant against.

Position the frame within the opening ensuring that all exposed aluminium is isolated from any material which may react unfavourably with it. This also applies to the fixings used to secure the windows. Metal Technology recommend that all fastenings to aluminium be Austenitic Stainless Steel A2-A4 grade, aluminium or other such compatible materials.

Suitable proprietary frame packers should be used to ensure the window is plumb, square, level, vertical and centralised within the opening.

Window frames must be adequately packed below the window cill, at the fixing points, to ensure the load is directly transferred to the structure below. Frame packers should not protrude past the external line of the window frame in order not to interfere with sealing the window to the structure.

Fix the window to the opening as required ensuring that the outer frame is not bowed or distorted and that the fixings used are adequate and suitable for the applicable loading conditions and application.

Ensure that the structure to which the window is fixed is sound and capable of adequately accepting the fixings and the subsequent loads transferred by them.

Check the diagonals, plumb, level and verticallity as the frame is finally tightened.

Apply a suitable sealant to the perimeter of the frame as per the sealant manufacturers recommendations and instructions. Any excess sealant should be removed so as not to detract from the finished product/installation.

Cement and plaster can damage the finish of this product if they are not removed promptly. Any such contaminants should be removed using a weak solution of mild detergent in water. (i.e. 5% of Teepol in water)

Finished surfaces should be cleaned with a soft cloth or sponge. Where stubborn marks persist a natural bristle brush may be used with care. Abrasive cleaners, solvents or other cleaning agents should not be used.

For additional information on window installation and glazing refer to BS 6262, other relevant British Standards and/or Metal Technology's Technical Department.

Metal Technology recommend that windows should be installed by experienced and qualifed window installers. All installers should be fully trained and qualified with regard to the relevant Health and Safety requirements for the applicable site operations and should possess a current CSCS card endorsed with a relevant and recognised NVQ or CWCT Window Installers Part 1 qualification.

Typical Fixing Detail

System 4-35 Hi/Hi+

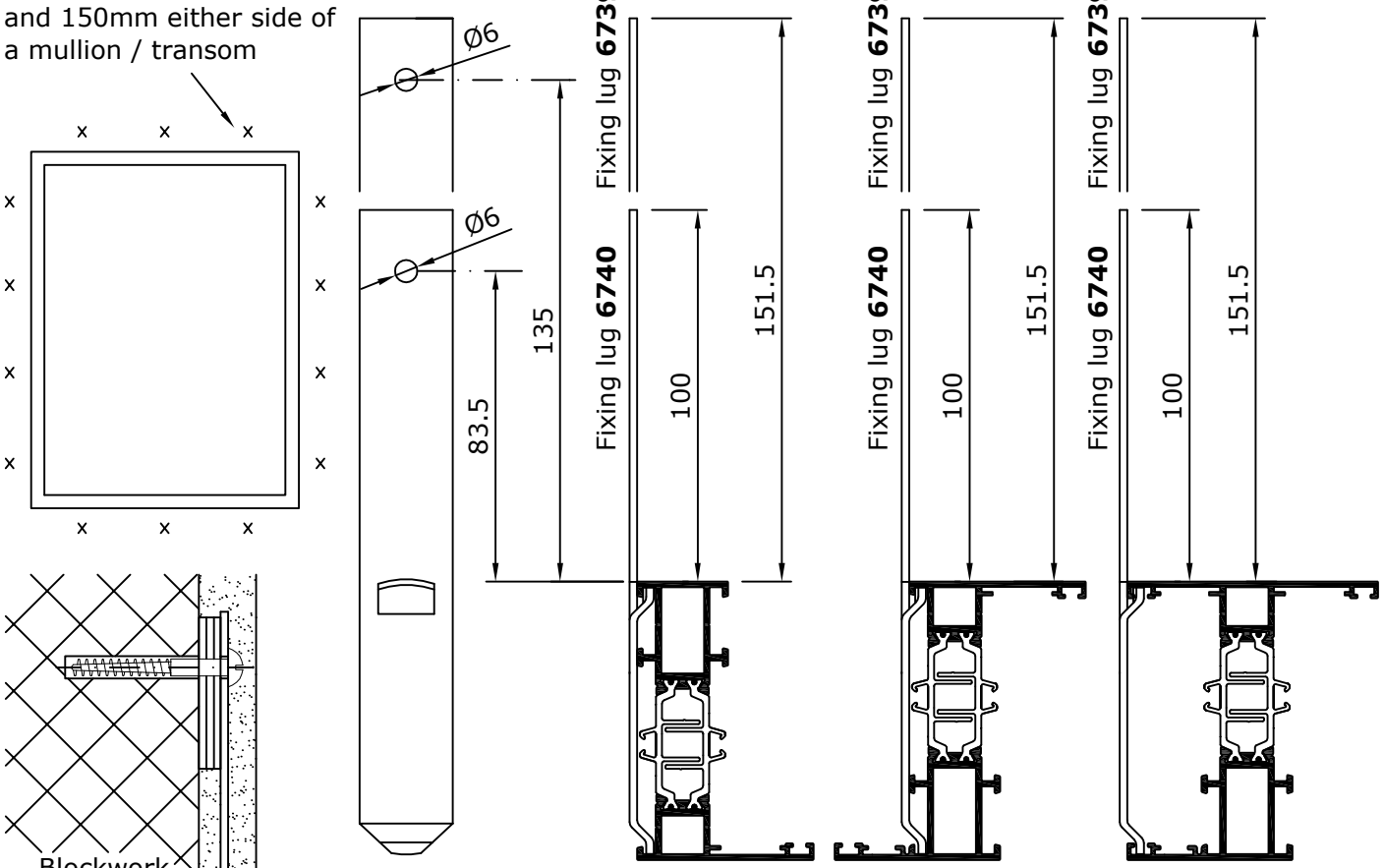
CASEMENT WINDOW

Fixing lugs provide lateral restraint only. Dead load support to be provided by perimeter structure.

All fixings to be adequate and suitable for loading conditions and application.

See sheet "Fixing Lug - Structural Limitations"
Particular consideration should be given to the dead load acting on the fixing lugs which may be cantilevered over the wall cavity at cill level. Additional support may be required.

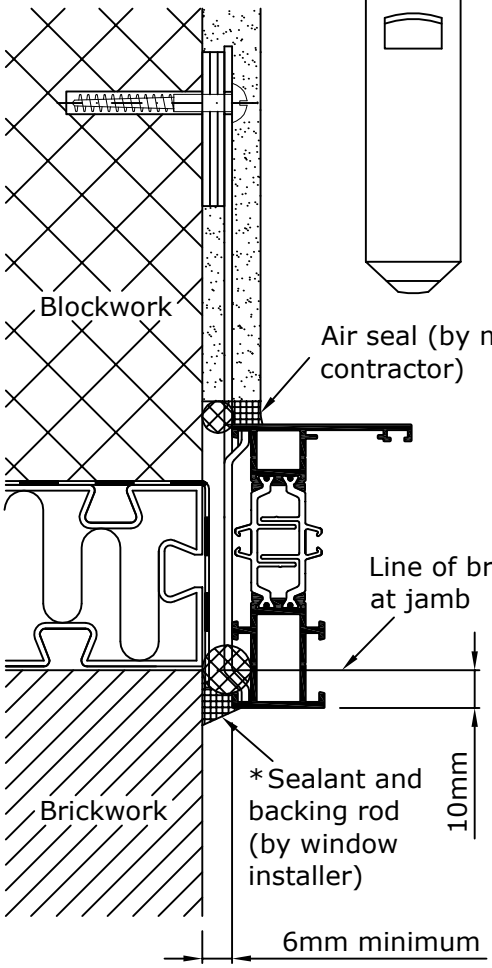
Positions of fixing lugs 150mm from corners and maximum 600mm centres and 150mm either side of a mullion / transom



Section
600-200
600-605
601-201
602-202
602-212
604-213

Section
600-212

Section
600-200
600-605
601-201
602-202
602-212
604-213



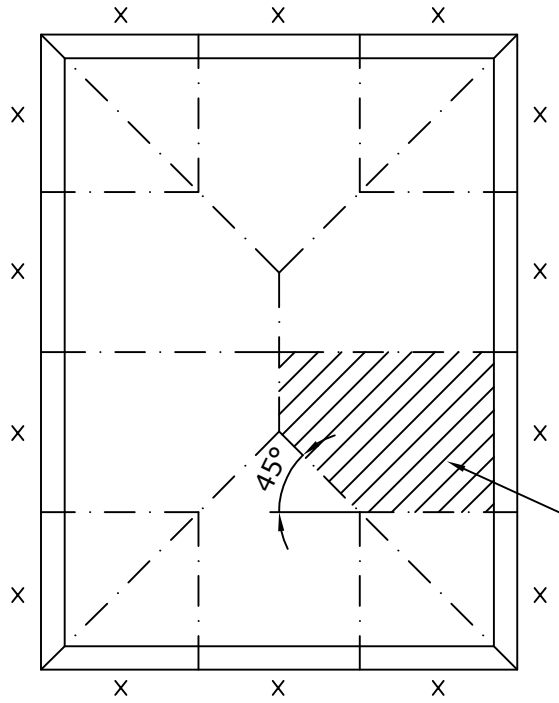
* All sealants to be installed in strict accordance with manufacturers relevant details and BS 6093 to suit site conditions.

Scale 1:2

Fixing Lug - Structural Limitations

Standard Fixing Lugs 6739 and 6740

Fixing lugs provide lateral restraint only. Dead load support to be provided by perimeter structure.

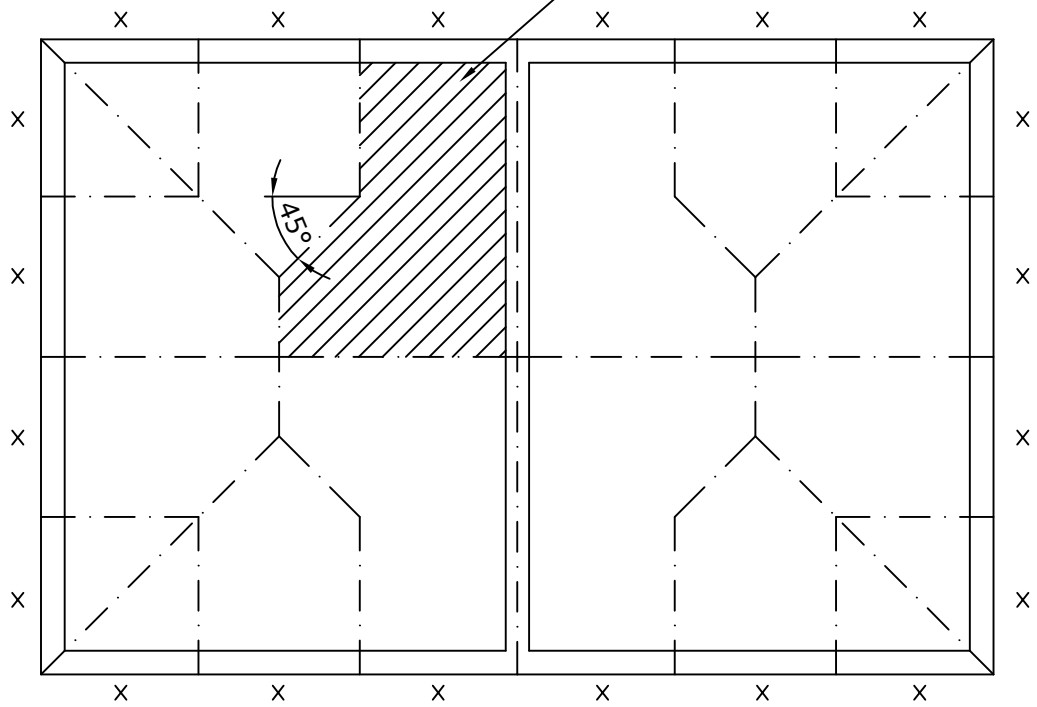


Standard recommended fixing lug locations = 150mm from corners, 150mm either side of a mullion/transom and a maximum of 600mm centres.

Maximum lateral load per fixing lug = 500N

Where lateral load per lug exceeds 500N reduce fixing centres accordingly.

Load per fixing lug = area supported by lug (m^2) x design wind load (N/m^2 or Pa)



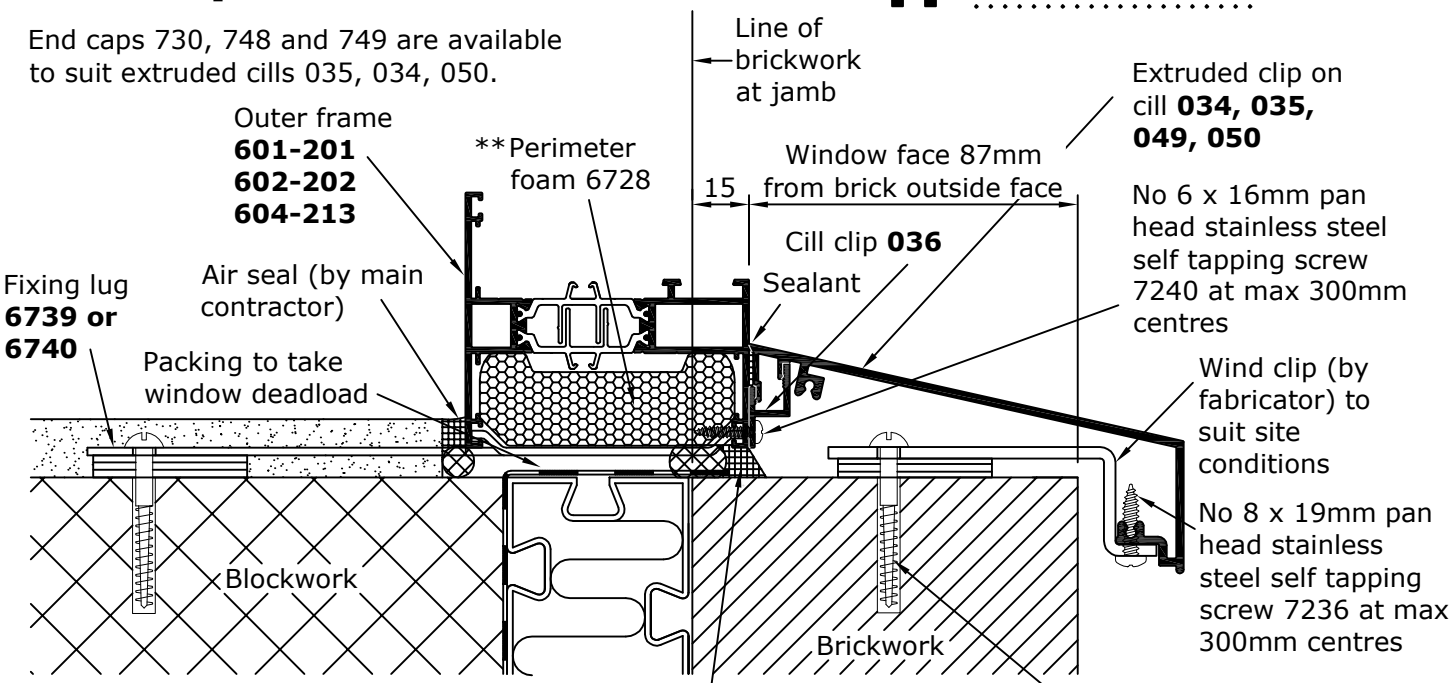
NOTE: Fabricator to ensure that the fixing to the structure and the structure itself is also capable of withstanding the imposed loads (i.e. wind load and dead load).

Extruded Clip on Cill and Cill Clip

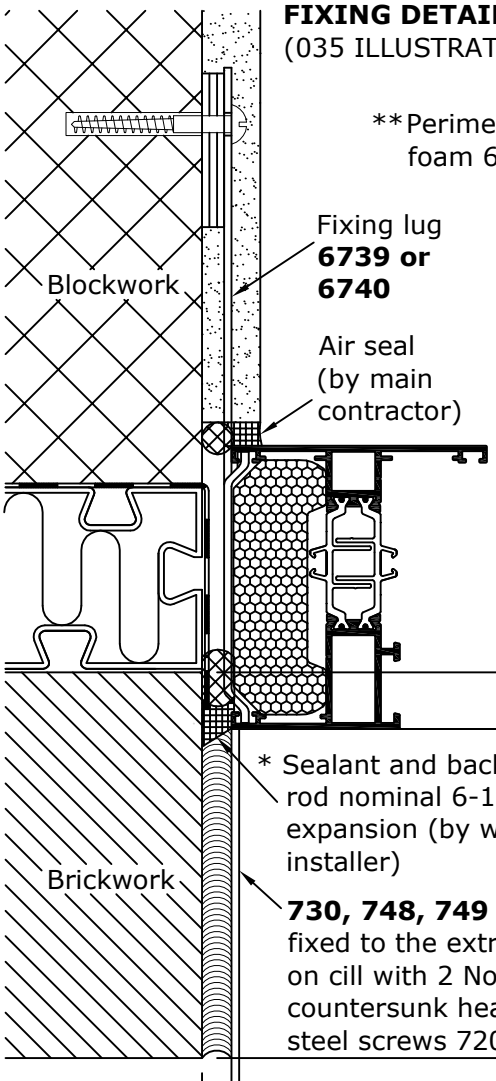
System 4-35 Hi/Hi+

CASEMENT WINDOW

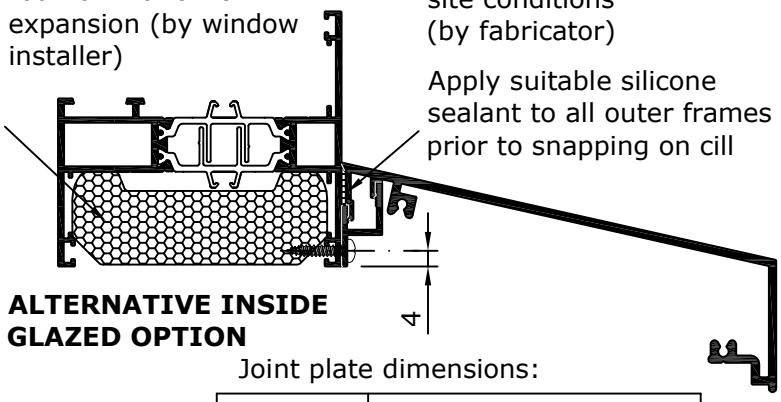
End caps 730, 748 and 749 are available to suit extruded cills 035, 034, 050.



TYPICAL CILL FIXING DETAIL
(035 ILLUSTRATED)



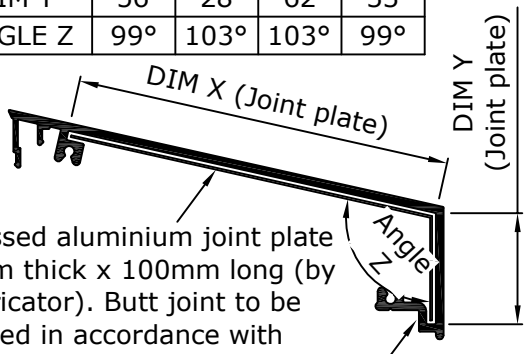
TYPICAL JAMB FIXING DETAIL



ALTERNATIVE INSIDE GLAZED OPTION

Joint plate dimensions:

	Cill reference			
	034	**035**	**049**	**050**
DIM X	112	98	154	133
DIM Y	56	28	62	33
ANGLE Z	99°	103°	103°	99°



Pressed aluminium joint plate 2mm thick x 100mm long (by fabricator). Butt joint to be sealed in accordance with sealant manufacturers recommendations for expansion joints.

Extruded clip on cill **035** illustrated

* All sealants to be installed in accordance with manufacturers relevant details and BS 6093 to suit site conditions.

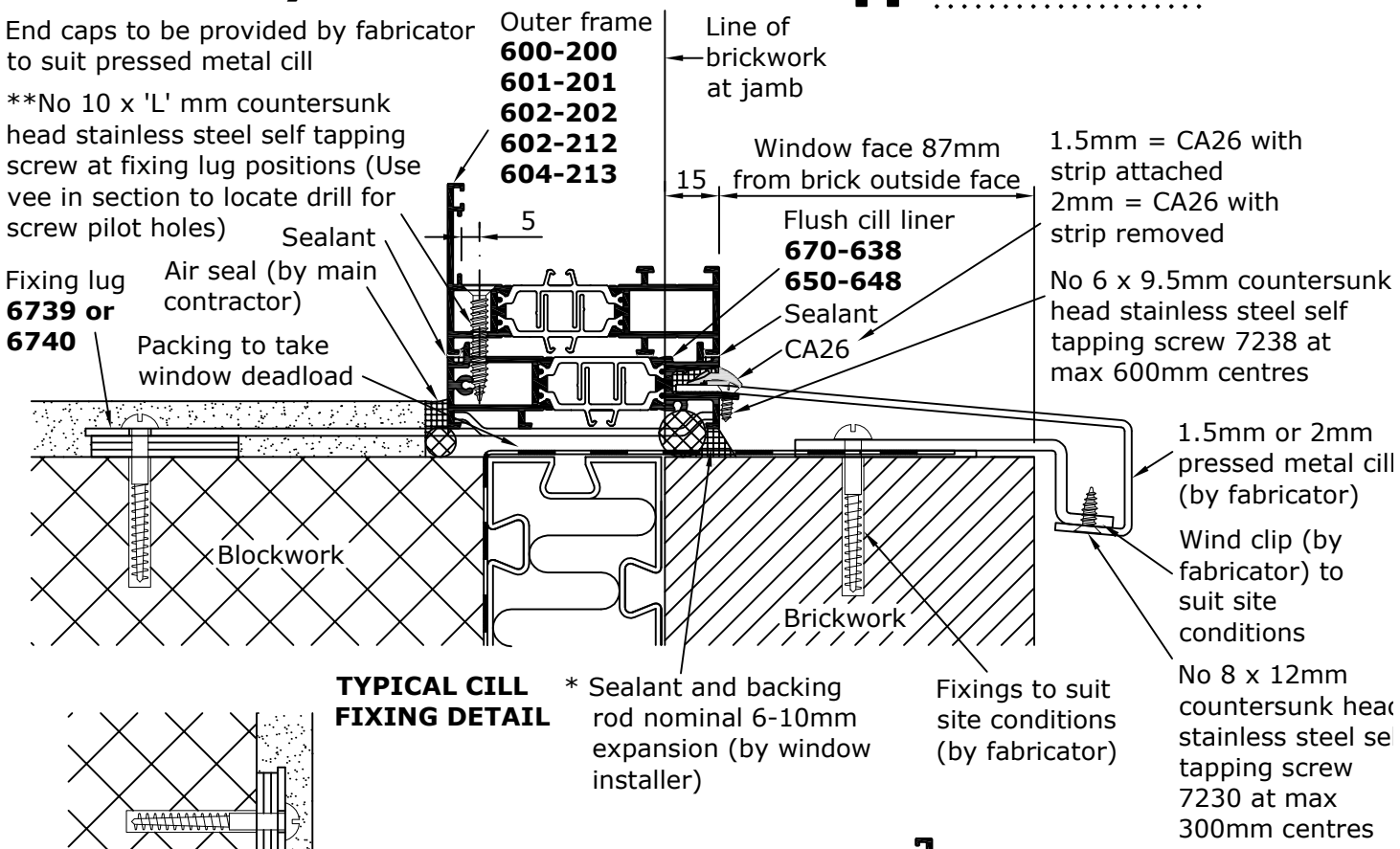
** 6728 perimeter foam may be incorporated in 4-35 Hi to retain backing rod to facilitate silicone pointing.

Scale 1:2

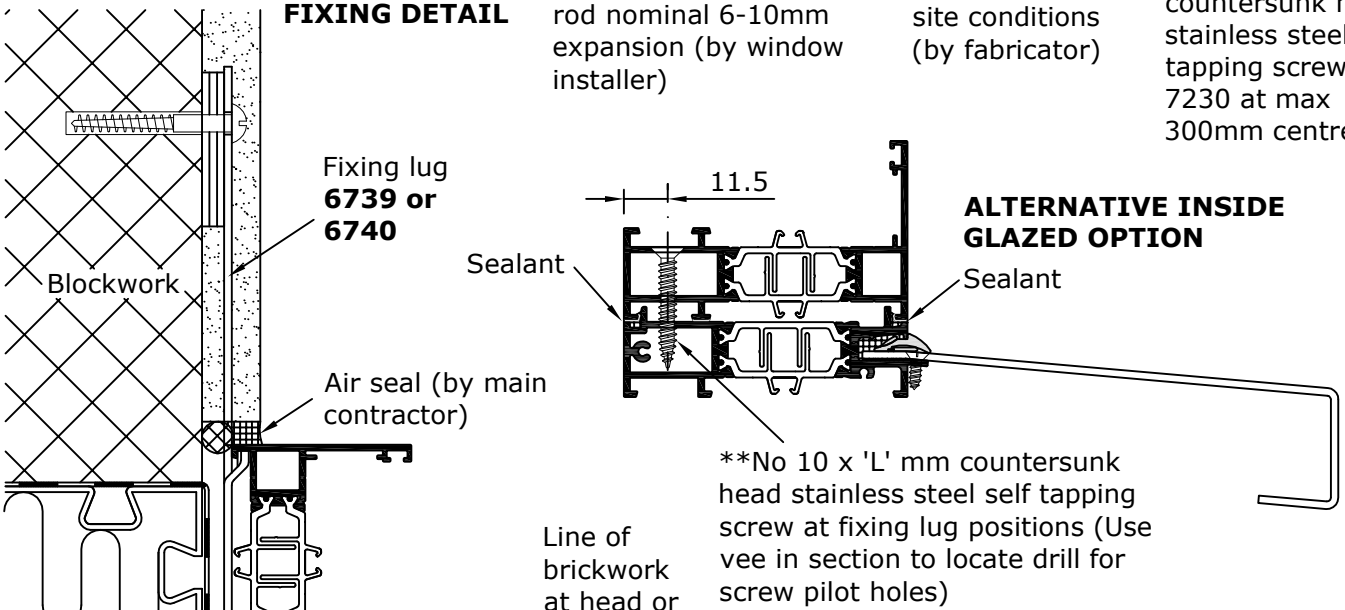
Flush Cill Liners (for pressed metal cill)

System 4-35 Hi/Hi+

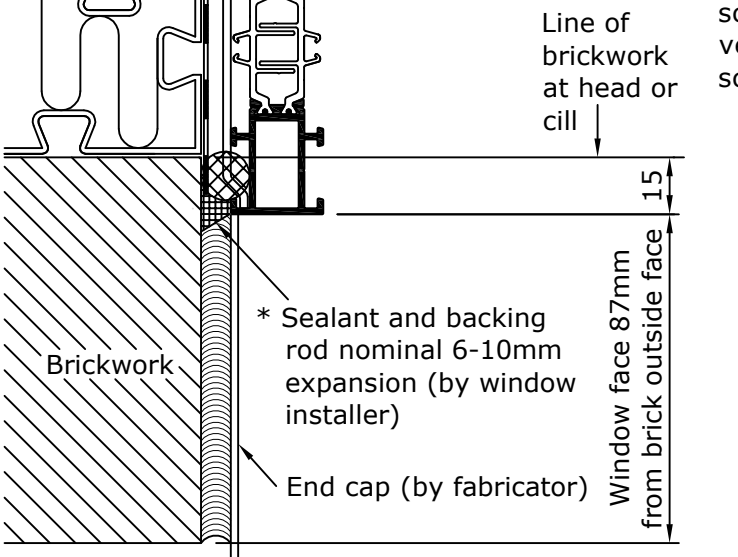
CASEMENT WINDOW



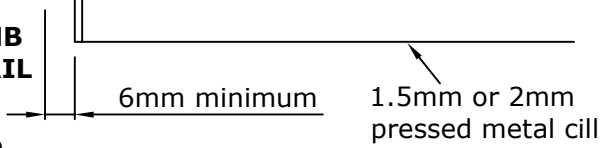
TYPICAL CILL FIXING DETAIL



ALTERNATIVE INSIDE GLAZED OPTION



TYPICAL JAMB FIXING DETAIL



O/frame :-
600-200 **7237 screw length 'L' = 32mm
601-201 **7248 screw length 'L' = 38mm
602-202 **7249 screw length 'L' = 50mm
602-212 **7249 screw length 'L' = 50mm
604-213 **7220 screw length 'L' = 45mm

Cill pressing and CA26 gasket may be bonded to the sub-cill to prevent removal of gasket on site.

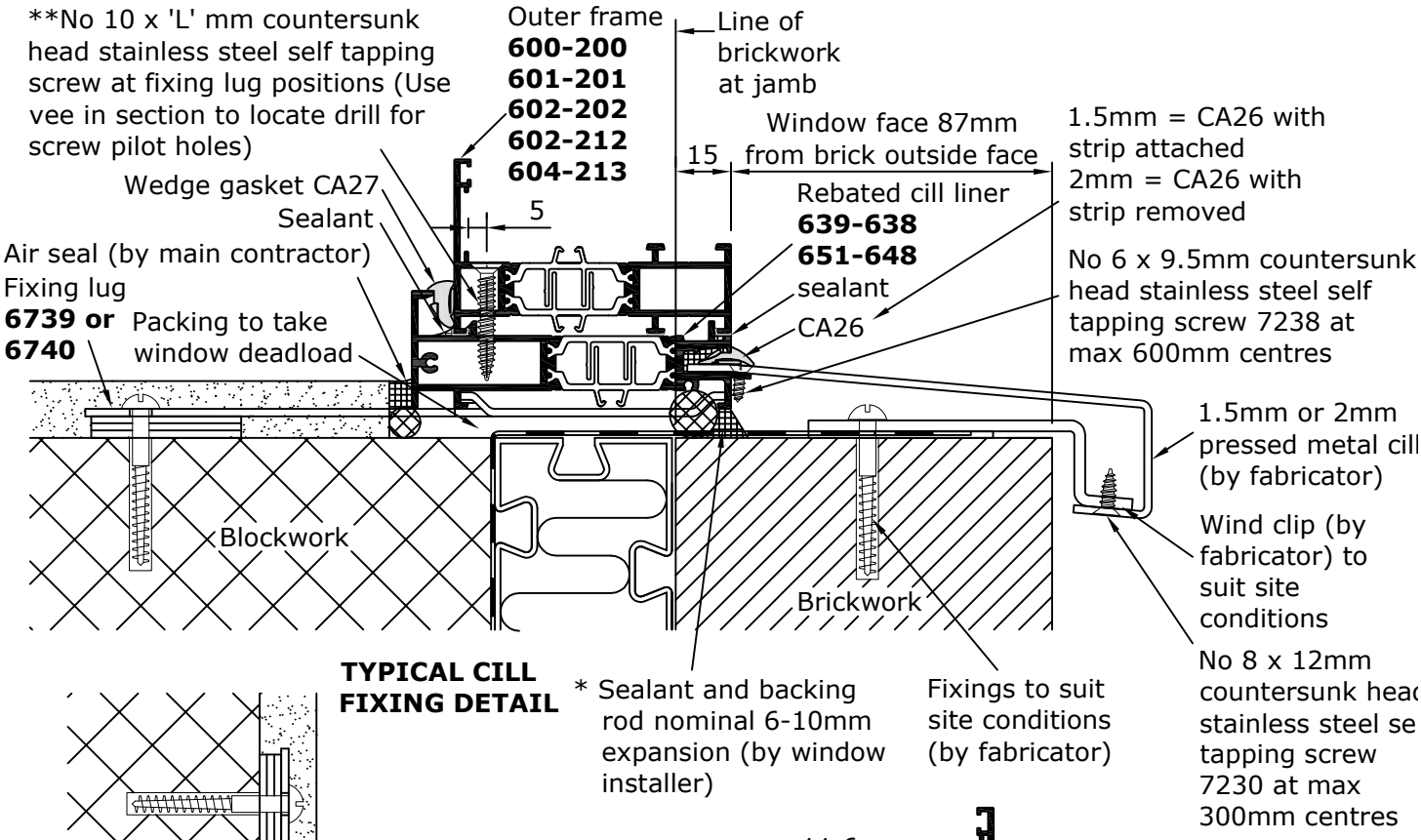
* All sealants to be installed in accordance with manufacturers relevant details and BS 6093 to suit site conditions.

Scale 1:2

Rebated Cill Liners (for pressed metal cill)

System 4-35 Hi/Hi+
CASEMENT WINDOW

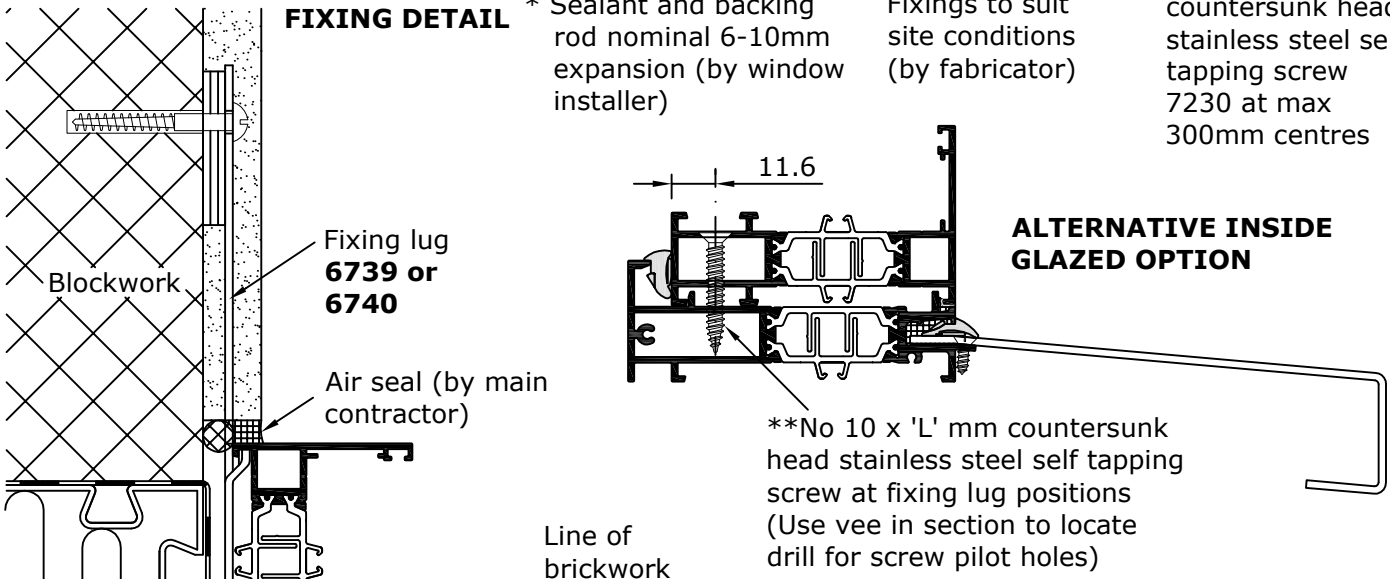
End caps to be provided by fabricator to suit pressed metal cill



TYPICAL CILL FIXING DETAIL

* Sealant and backing rod nominal 6-10mm expansion (by window installer)

Fixings to suit site conditions (by fabricator)



ALTERNATIVE INSIDE GLAZED OPTION

**No 10 x 'L' mm countersunk head stainless steel self tapping screw at fixing lug positions (Use vee in section to locate drill for screw pilot holes)

TYPICAL JAMB FIXING DETAIL

6mm minimum

1.5mm or 2mm pressed metal cill (by fabricator)

O/frame :-
600-200 **7237 screw length 'L' = 32mm
601-201 **7248 screw length 'L' = 38mm
602-202 **7249 screw length 'L' = 50mm
602-212 **7249 screw length 'L' = 50mm
604-213 **7220 screw length 'L' = 45mm

Cill pressing and CA26 gasket may be bonded to the sub-cill to prevent removal of gasket on site.

* All sealants to be installed in accordance with manufacturers relevant details and BS 6093 to suit site conditions.

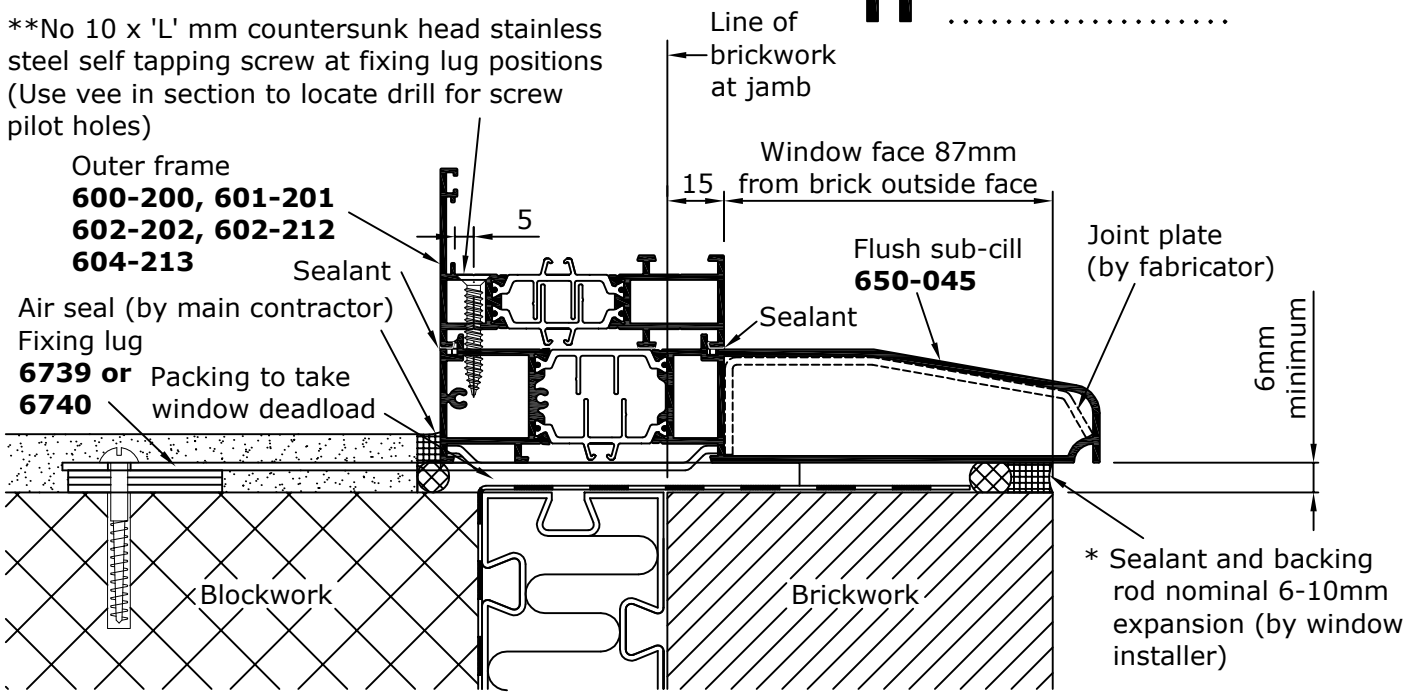
Scale 1:2

Flush Sub-Cill

System 4-35 Hi/Hi+

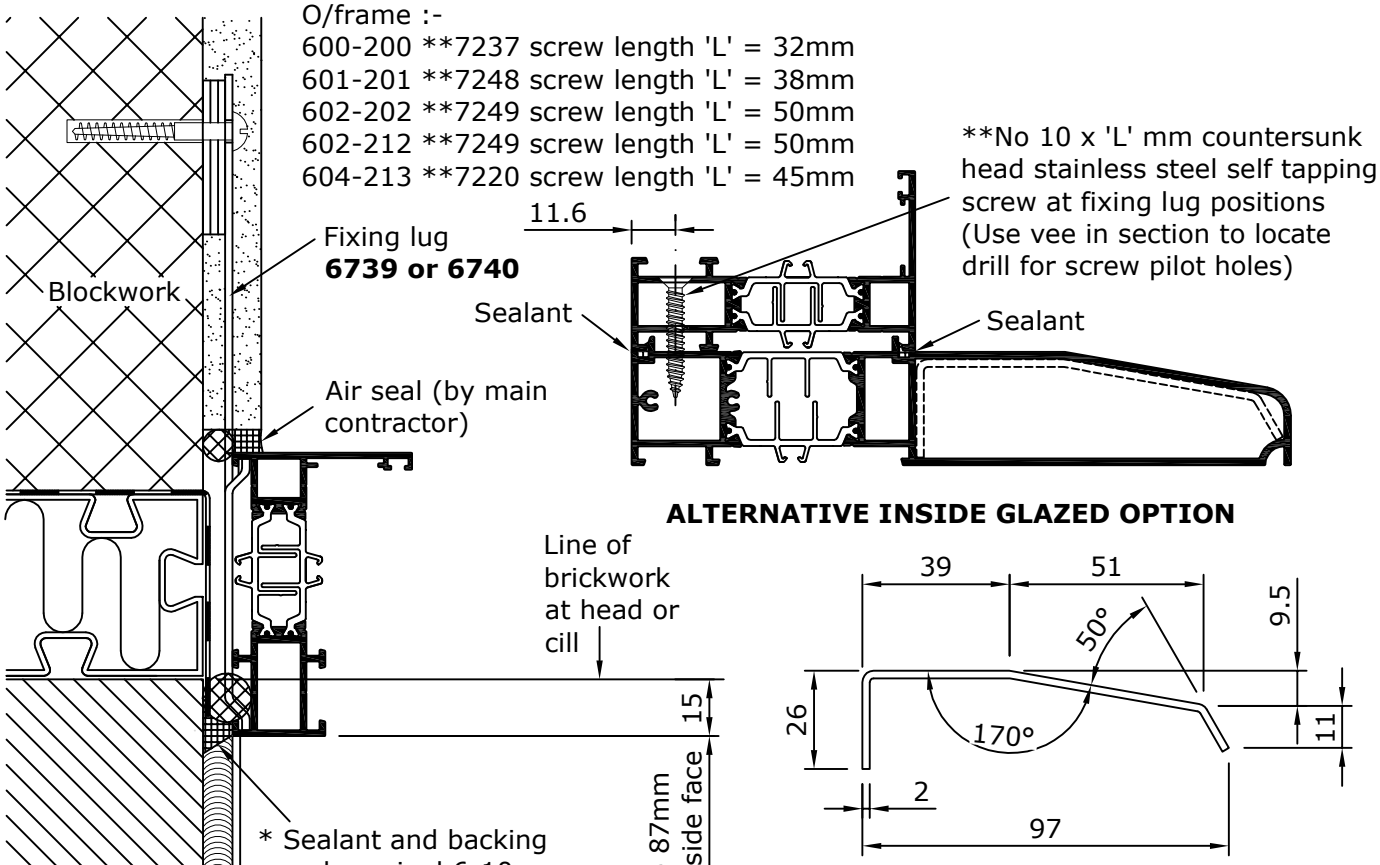
CASEMENT WINDOW

uPVC end caps TSF145 are available to suit cill 650-045.



TYPICAL CILL FIXING DETAIL

O/frame :-
600-200 **7237 screw length 'L' = 32mm
601-201 **7248 screw length 'L' = 38mm
602-202 **7249 screw length 'L' = 50mm
602-212 **7249 screw length 'L' = 50mm
604-213 **7220 screw length 'L' = 45mm



TYPICAL JAMB FIXING DETAIL

ALTERNATIVE INSIDE GLAZED OPTION

Pressed aluminium joint plate 2mm thick x 100mm long (by fabricator). Butt joint to be sealed in accordance with sealant manufacturers recommendations for expansion joints.

* All sealants to be installed in accordance with manufacturers relevant details and BS 6093 to suit site conditions.

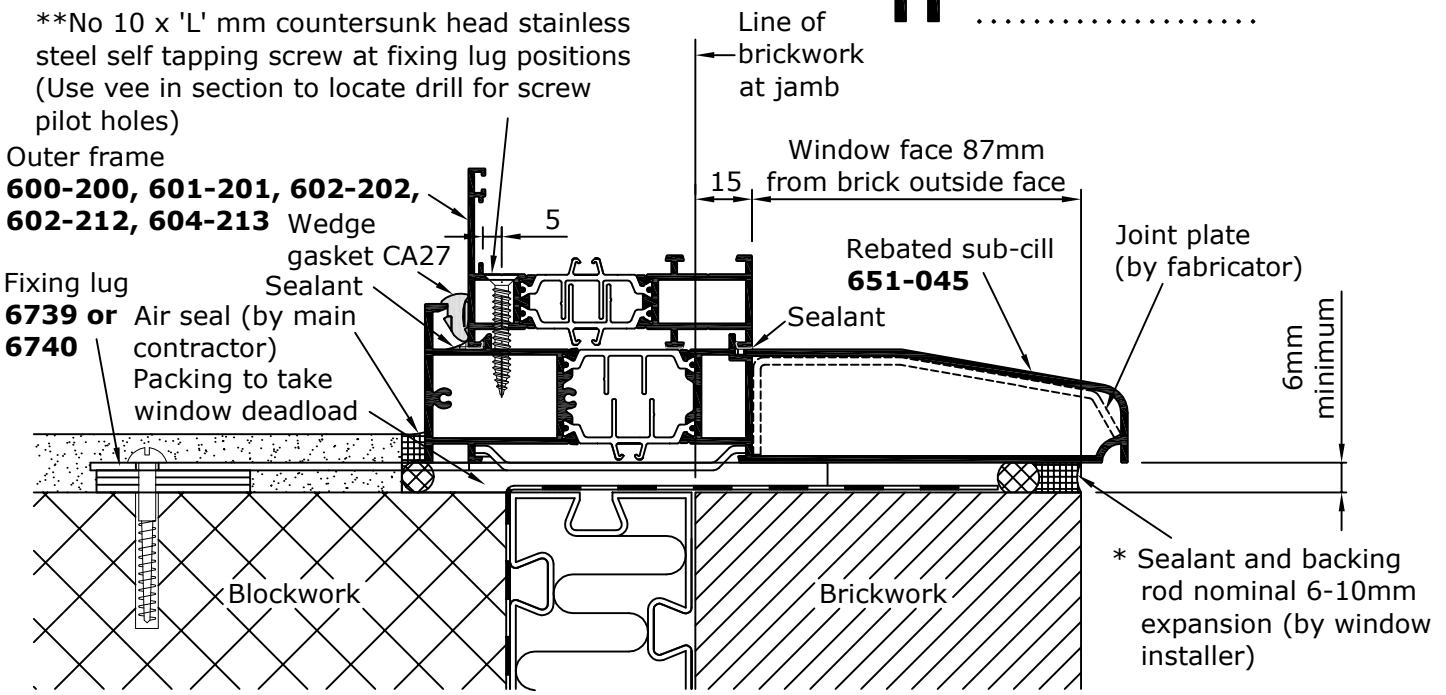
Scale 1:2

Rebated Sub-Cill

System 4-35 Hi/Hi+

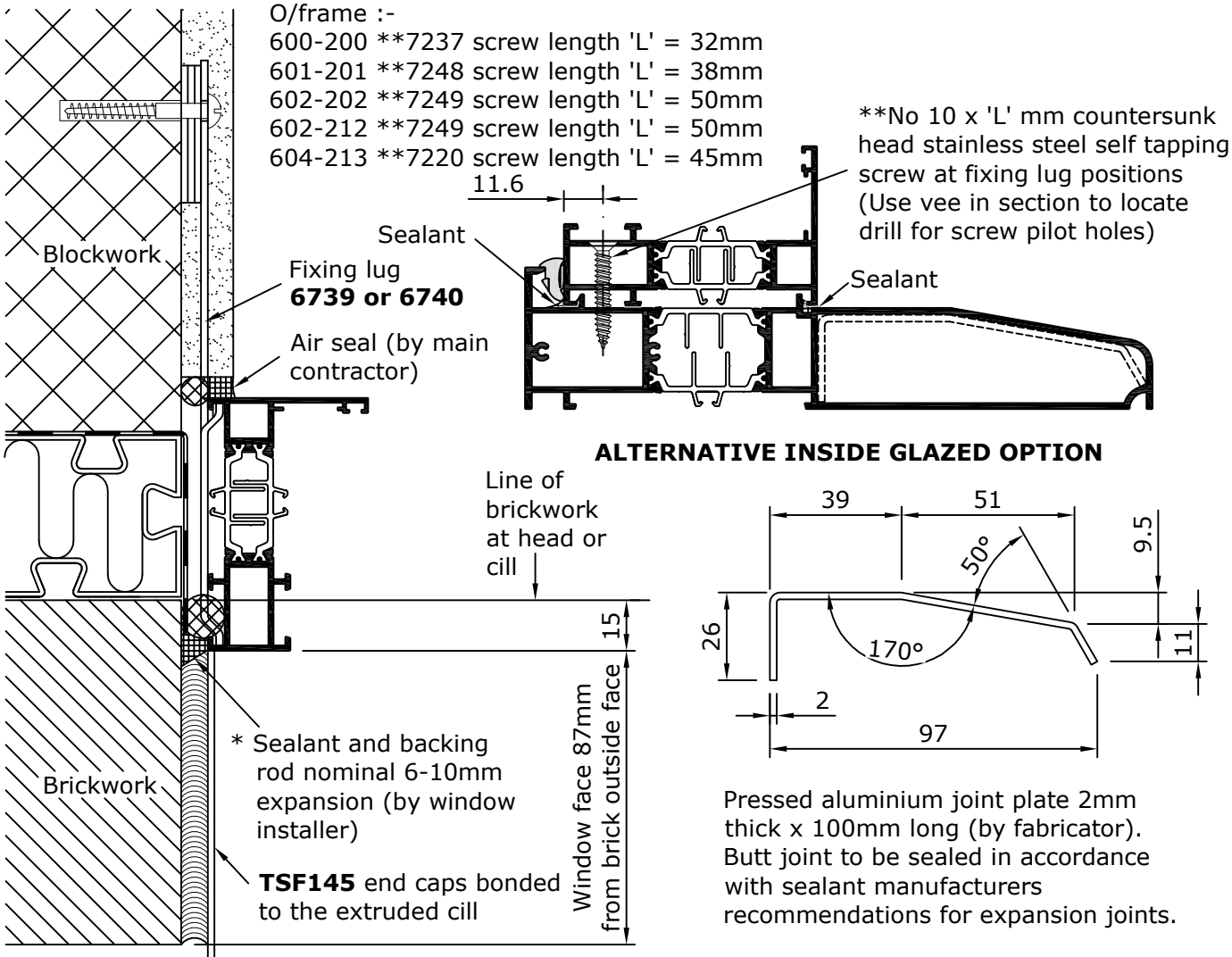
CASEMENT WINDOW

uPVC end caps TSF145 are available to suit cill 651-045.



TYPICAL CILL FIXING DETAIL

O/frame :-
600-200 **7237 screw length 'L' = 32mm
601-201 **7248 screw length 'L' = 38mm
602-202 **7249 screw length 'L' = 50mm
602-212 **7249 screw length 'L' = 50mm
604-213 **7220 screw length 'L' = 45mm



ALTERNATIVE INSIDE GLAZED OPTION

Pressed aluminium joint plate 2mm thick x 100mm long (by fabricator). Butt joint to be sealed in accordance with sealant manufacturers recommendations for expansion joints.

TYPICAL JAMB FIXING DETAIL

* All sealants to be installed in accordance with manufacturers relevant details and BS 6093 to suit site conditions.

Scale 1:2

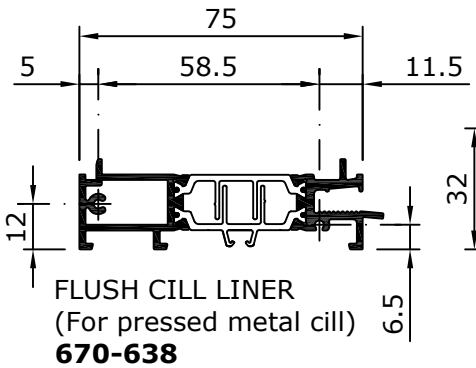
Cill Liner End Plate Details

For Pressed Metal Cills

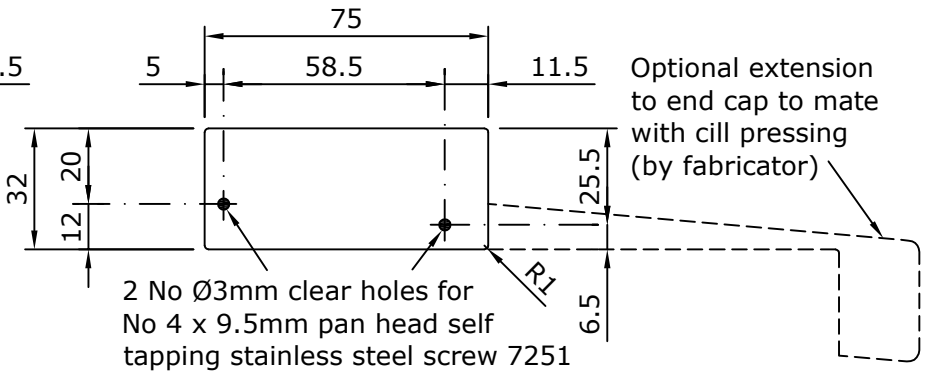
System 4-35 Hi/Hi+

CASEMENT WINDOW

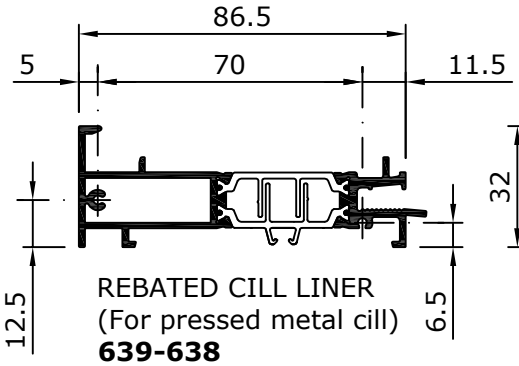
All fixings must be sealed using HR50328A sealant.



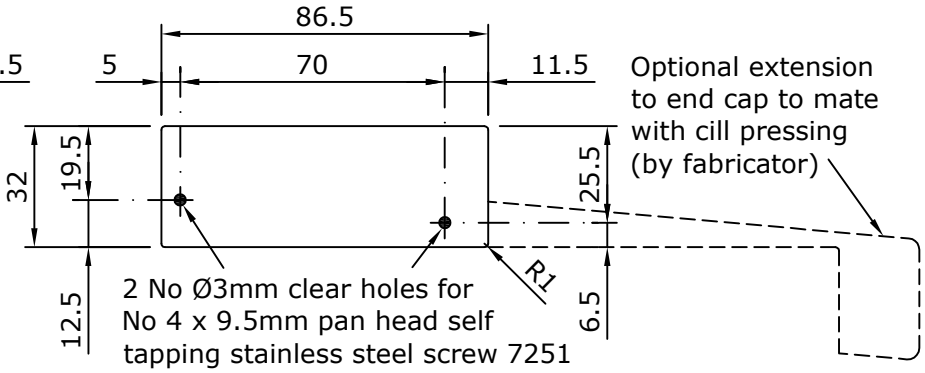
FLUSH CILL LINER
(For pressed metal cill)
670-638



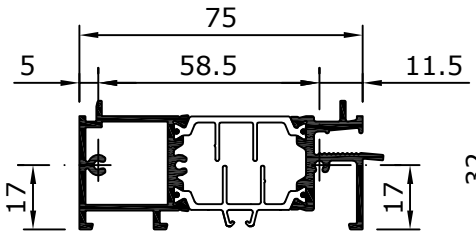
CILL LINER END PLATE
(2mm THICK RIGID PVC) BY FABRICATOR



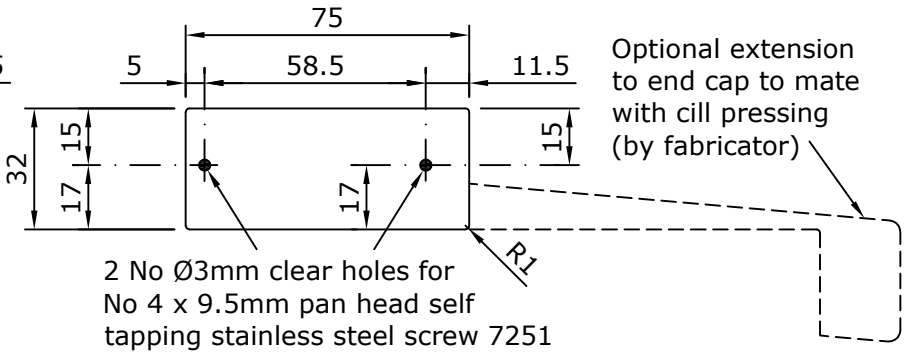
REBATED CILL LINER
(For pressed metal cill)
639-638



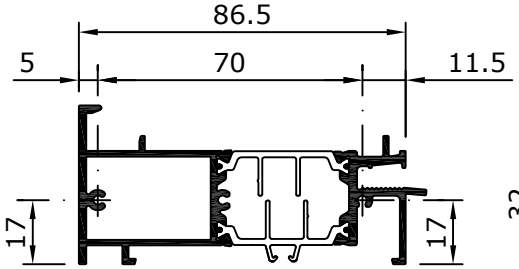
CILL LINER END PLATE
(2mm THICK RIGID PVC) BY FABRICATOR



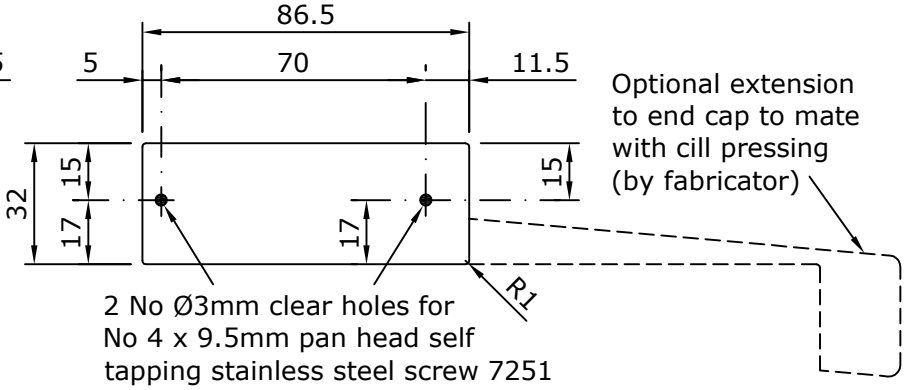
FLUSH CILL LINER
(For pressed metal cill)
650-648



CILL LINER END PLATE
(2mm THICK RIGID PVC) BY FABRICATOR



REBATED CILL LINER
(For pressed metal cill)
651-648



CILL LINER END PLATE
(2mm THICK RIGID PVC) BY FABRICATOR

Scale 1:2

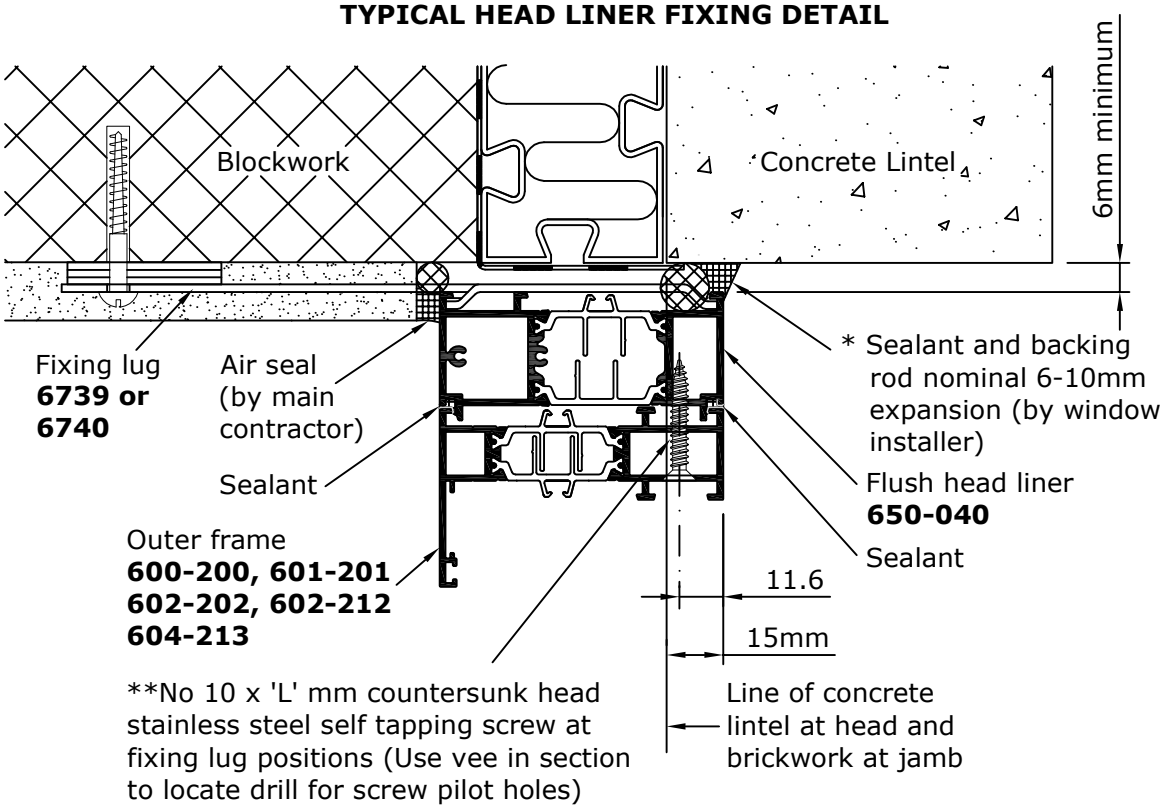
Flush Head Liner and End Plate Details

System 4-35 Hi/Hi+
CASEMENT WINDOW

All fixings must be sealed using HR50328A sealant.

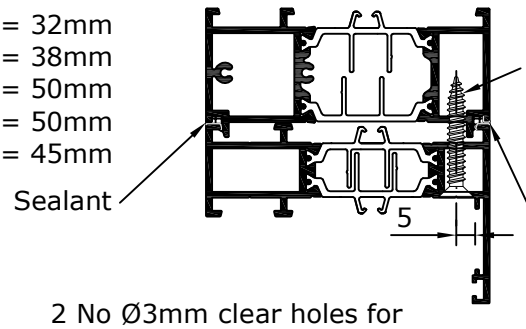
* All sealants to be installed in accordance with manufacturers relevant details and BS 6093 to suit site conditions.

TYPICAL HEAD LINER FIXING DETAIL



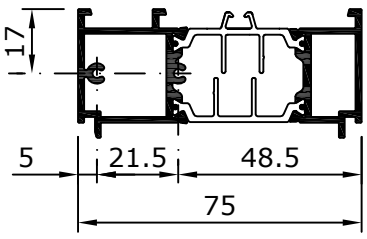
O/frame :-
600-200 **7237 screw length 'L' = 32mm
601-201 **7248 screw length 'L' = 38mm
602-202 **7249 screw length 'L' = 50mm
602-212 **7249 screw length 'L' = 50mm
604-213 **7220 screw length 'L' = 45mm

ALTERNATIVE INSIDE GLAZED OPTION

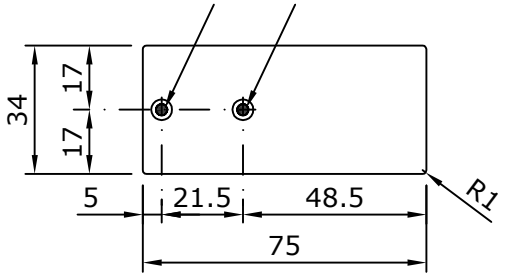


**No 10 x 'L' mm countersunk head stainless steel self tapping screw at fixing lug positions (Use vee in section to locate drill for screw pilot holes)

2 No Ø3mm clear holes for
No 4 x 9.5mm pan head self
tapping stainless steel screw 7251



FLUSH HEAD LINER
650-040



HEAD LINER END CAP 6720
To be sealed in place to full perimeter and webs of head liner bar

Scale 1:2

Glazing Details

System 4-35 Hi/Hi+

CASEMENT WINDOW

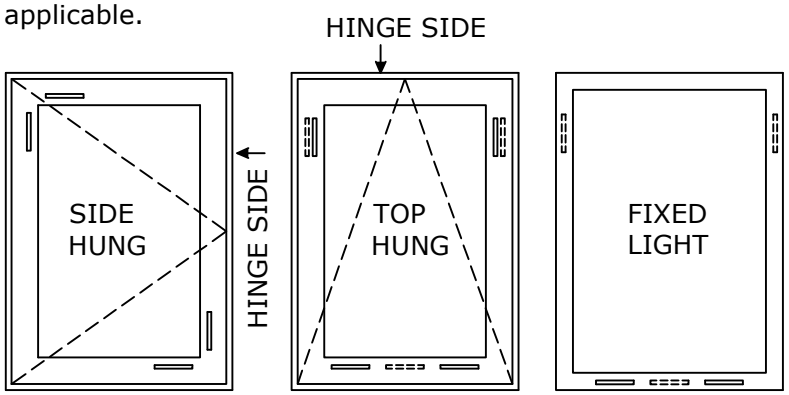
Metal Technology recommend that the maximum size of any fixed pane should not exceed 4m² or 120kg. To be read in conjunction with 4-35Hi/5-35Hi wind and dead loading charts.

Note vent size and weight limitations also apply - see graphs in section 3 of this manual.

Metal Technology suggest that 6745 glazing support/location blocks be fitted during factory fabrication.

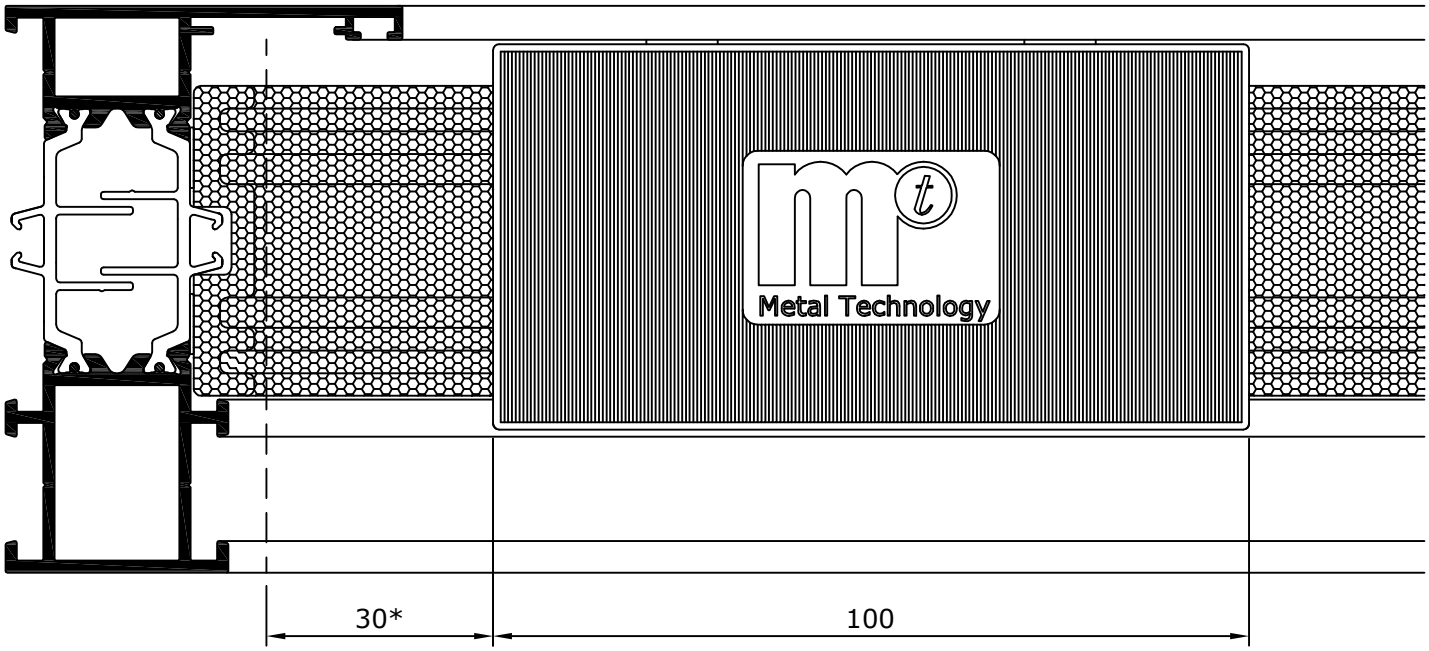
Additional packers** can then be installed on site during glazing.

In opening vents when the vent width is less than Dimension x (Refer to "Drainage Details" sheets), and in fixed lights when the FFSS is between 410mm and 180mm the glazing supports should be positioned as shown ▭▭▭, subject to approval by glass unit supplier, and structural analysis of the transom profile, if applicable.



* Minimum dimension. Setting blocks to be positioned to avoid drainage slots.
** Additional glazing packers by window installer. Approximate thickness 3mm, adjusted to suit glass tolerance.

In Hi+ applications only 6727 glazing unit perimeter foam to abut 6745 glazing support.

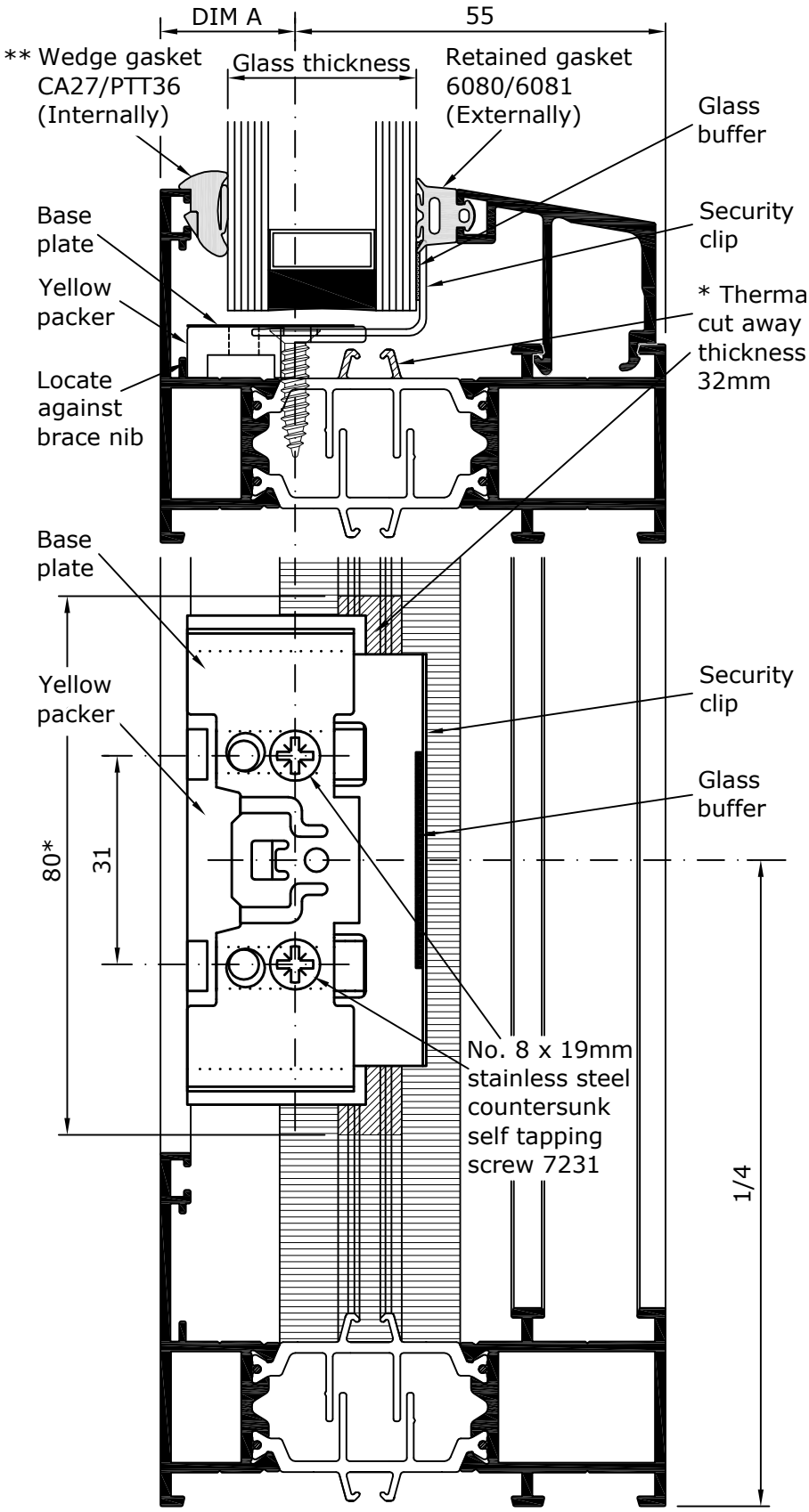


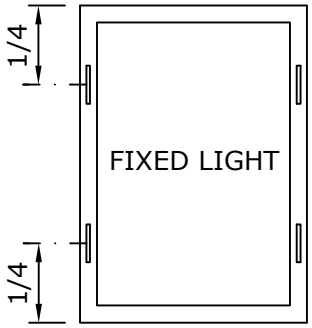
Not to scale

Glass Security Clips 7092

System 4-35 Hi/Hi+

CASEMENT WINDOW





The glass security clip is designed for use in externally beaded applications to provide additional security against the unauthorised removal of the double glazed units. These should be used in conjunction with 6080/6081 captive gasket and the standard glazing support blocks and glass packers as detailed on sheet "Glazing Details" in section 8 of this manual.

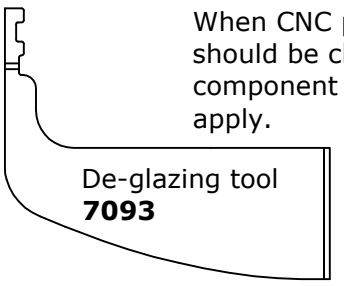
1. Ensure thermal break cup is trimmed to receive the yellow packer and base plate.
2. Assemble the yellow packer and base plate.
3. Position as indicated against brace nib and drill pilot holes for two number No. 8 x 19mm stainless steel self tapping countersunk screws 7231.
4. Secure assembly to outer frame.
5. Once window is installed on site and glass located within the frame push the security clip, with buffer pad applied, into the packer/base plate assembly until it locks into position.
6. Continue to bead and gasket the window as outlined on sheet "Site Glazing Procedures" in section 8 of this manual.

To remove the glass after application use the "7093 de-glazing tool" as indicated below. Fully illustrated instructions on how to disengage the security clip are available from Metal Technology's Technical Department upon request.

When CNC prepping, all dimensions should be checked against an actual component as batch tolerances will apply.

** When using internal gasket **CA27** then DIM A = Glass thickness - 8mm

When using internal gasket **PTT36** then DIM A = Glass thickness - 9mm



Scale 1:1

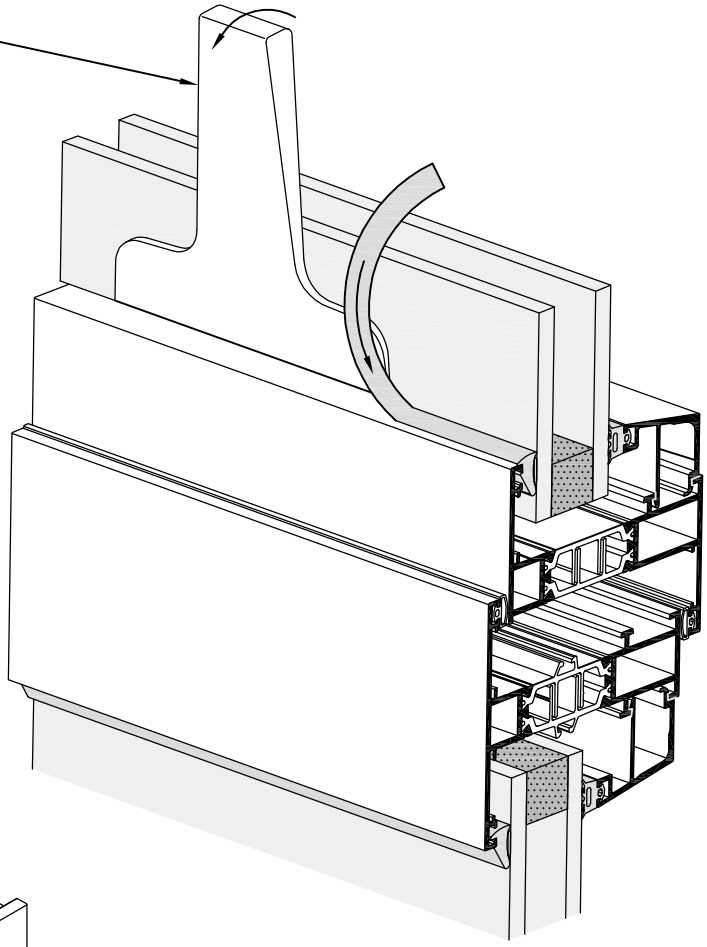
Glazing Procedure

3-Dimensional Details

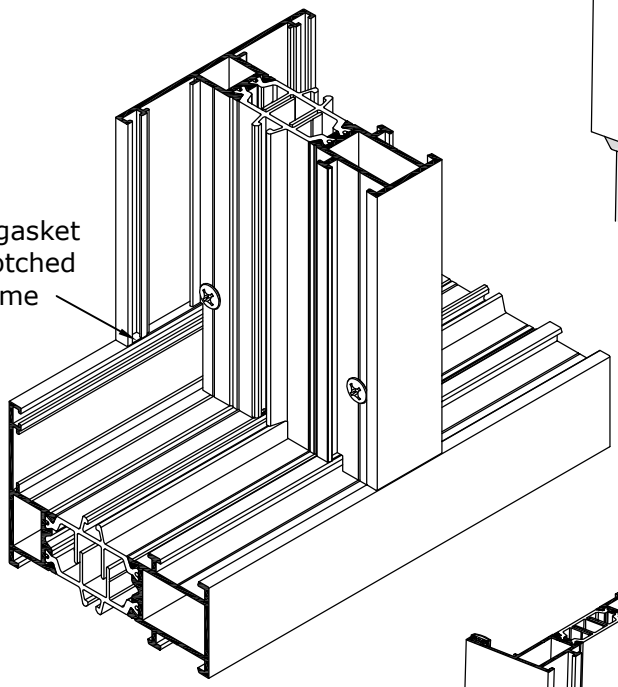
System 4-35 Hi/Hi+

CASEMENT WINDOW

Use glazing paddle to press pane against external retained gasket and insert wedge gasket. To help facilitate installation of glazing gaskets, Metal Technology suggest spraying glass edge with silicone spray 7400 (subject to confirmation of compatibility with glass coatings - ie self-cleaning glass).

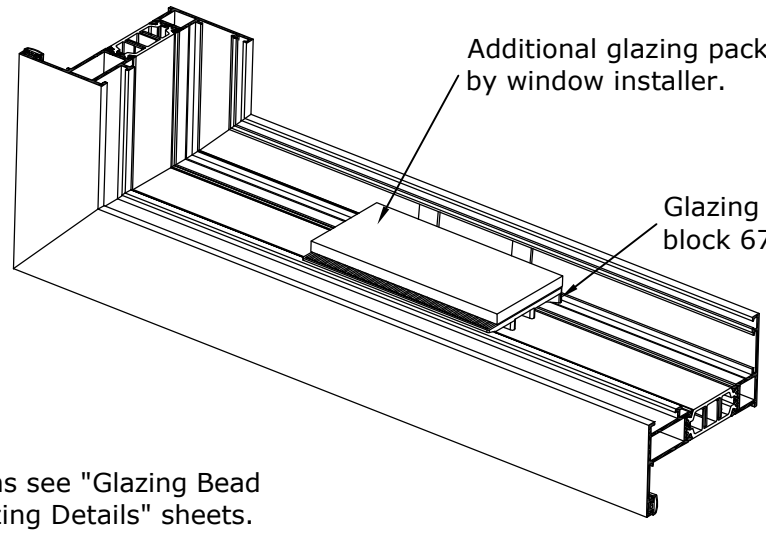


Wedge gasket to be notched over frame



Additional glazing packers by window installer.

Glazing support block 6745



For glazing details and glazing options see "Glazing Bead and Gasket Requirements" and "Glazing Details" sheets.

FOLLOWING CORRECT GLAZING PROCEDURE
ALL VENTS TO BE CHECKED FOR OPERATION.

Not to scale

Site Glazing Procedures

System 4-35 Hi/Hi+

CASEMENT WINDOW

1. Gaskets should be fitted using suitable installation equipment.

2. Clean gasket mounting surfaces and races. Ensure glazing cavity is clean and free from debris and swarf and that all drainage slots are adequate and free of obstruction.

3. Check that the gaskets are clean and in a relaxed condition. If gaskets have been stretched they should be left for a sufficient period to allow them to return to their natural state.

4. If the gaskets show visible imperfections, such as cuts or abrasions, they should be changed.

5. If 6080/6081 retained gasket has not been factory fitted, insert into external gasket race (i.e. outer frame or bead). Refer to "Weatherseal Application Details" sheet.

6. Clean the perimeter of the glass and check for any imperfections and/or damage.

7. If not already factory fitted, place glazing support blocks (6745) in position within the frame ensuring that drainage slots are not obstructed.

8. Apply HR50328A sealant to mating surface of the captive gasket with the glass at the mitred corners, immediately prior to offering up the glazing unit. Refer to "Weatherseal Applicaton Details" sheet.

9. When using slimline sash 676-677 ensure handle bead is fitted to frame prior to inserting glazing unit.

10. Insert the glass and centralise within the frame, with additional glass packers at setting and location block positions as required. See "Glazing Details" sheet. Fit glass security clips 7092 if required. See "Glass Security Clips 7092" sheet.

11. When using slimline sash 676-677 glazing unit to be "shuffle glazed" past handle bead prior to fitting remaining beads. Ensure handle fixings have not been fully tightened. Handle fixings to be loose prior to glazing.

12. Fit the beads to the frame in the following sequence: Head, cill, jambs. In exposed applications seal the ends of beads (i.e. horizontal beads to outer frame; vertical beads to horizontal beads) with a suitable low-modulus silicone sealant (subject to confirmation of compatibility with glass coatings - i.e. self cleaning glass).

13. Mitre cut wedge gasket into four individual lengths. Refer to "Weatherseal Application Details" sheet.

14. Locate wedge gasket between profile and glazing unit. Fit into the corners first, then at the centre and then install the centre of each loop until complete.

15. Seal all gasket corner joints on site using HR50328A sealant.

16. Ensure that the gasket is properly located in the race/nib.

17. Ensure that the wedge gasket forces the glass onto the captive gasket (6080 or 6081). Gaskets should be a tight fit - slack gaskets cause leaks. If lubricant is necessary Metal Technology suggest spraying glass edge with 7400 silicone spray (subject to confirmation of compatibility with glass coatings - i.e. self cleaning glass).

18. Ensure that there are no gaps or overlaps at the corners of the gaskets.

19. When using slimline sash 676-677 fully tighten handle fixings after sash has been glazed.

20. Installers should be aware that opening lights require that the 060B weatherseal be notched at drainage slot positions. If not pre-prepped in the factory, gaskets should be suitably notched on site.

21. For additional information on window installation and glazing refer to BS 6262, other relevant British Standards and/or Metal Technology's Technical Department.

System 4-35 Hi Casement Window

APPENDIX

Section 0: Specification, Profile Index and Component ID

435Hi/0/10 rev 15	Specification Hi/Hi+
435Hi/0/20 rev 6	Specification Hi/Hi+
435Hi/0/30 rev 7	Profile Index Hi/Hi+
435Hi/0/40 rev 7	Profile Index Hi/Hi+
435Hi/0/50 rev 7	Profile Index Hi/Hi+
435Hi/0/60 rev 6	Profile Index Hi/Hi+
435Hi/0/70 rev 5	Profile Index Hi/Hi+
435Hi/0/80 rev 11	Component Identification Hi/Hi+
435Hi/0/90 rev 11	Component Identification Hi/Hi+
435Hi/0/100 rev 11	Component Identification Hi/Hi+
435Hi/0/110 rev 6	Component Identification Hi/Hi+
435Hi/0/120 rev 4	Component Identification Hi/Hi+
435Hi/0/130 rev 5	Component Identification Hi+
435Hi/0/140 rev 11	Component Identification Hi/Hi+
435Hi/0/150 rev 1	Component Identification Hi/Hi+
435Hi/0/160 rev 5	Component Identification Hi/Hi+
435Hi/0/170 rev 7	Component Identification Hi/Hi+

Section 1: Section Drawings

435Hi/1/10 rev 4	Section Drawings Hi/Hi+
435Hi/1/20 rev 3	Section Drawings Hi/Hi+
435Hi/1/30 rev 5	Section Drawings Hi/Hi+
435Hi/1/40 rev 6	Section Drawings Hi/Hi+
435Hi/1/45 rev 1	Section Drawings Hi/Hi+
435Hi/1/50 rev 3	Section Drawings Hi/Hi+
435Hi/1/60 rev 6	Section Drawings Hi/Hi+
435Hi/1/70 rev 3	Section Drawings Hi/Hi+
435Hi/1/80 rev 3	Section Drawings Hi/Hi+
435Hi/1/90 rev 4	Section Drawings Hi/Hi+
435Hi/1/100 rev 5	Section Drawings Hi/Hi+
435Hi/1/110 rev 4	Section Drawings Hi/Hi+

435Hi/1/120 rev 3	Section Drawings Hi/Hi+
435Hi/1/130 rev 4	Section Drawings Hi/Hi+
435Hi/1/140 rev 3	Section Drawings Hi/Hi+
435Hi/1/150 rev 2	Section Drawings Hi/Hi+
435Hi/1/160 rev 6	Section Drawings Hi/Hi+
435Hi/1/170 rev 1	Section Drawings Hi/Hi+
435Hi/1/180 rev 1	Section Drawings Hi/Hi+
435Hi/1/190 rev 1	Section Drawings Hi/Hi+
435Hi/1/200 rev 2	Section Drawings Hi/Hi+

Section 2: General Arrangement Drawings

435Hi/2/10 rev 4	General Arrangement - 4-35 Hi 3-Dimensional Assembly Detail Hi
435Hi/2/20 rev 5	General Arrangement - 4-35 Hi+ 3-Dimensional Assembly Detail Hi+
435Hi/2/30 rev 4	Standard Glaze Out Casement Hi
435Hi/2/40 rev 6	Glaze In Casement - Liner Bar to Fixed Lights Hi
435Hi/2/45 rev 0	Euro Groove Casement Hi
435Hi/2/50 rev 8	Euro Groove Casement Hi
435Hi/2/60 rev 6	Euro Groove Glaze In Casement - Liner Bar to Fixed Lights Hi
435Hi/2/70 rev 7	Muntin Bar Option Hi
435Hi/2/80 rev 7	Coupling Mullions Hi
435Hi/2/90 rev 6	90° Corner Post - External Corner Details Hi
435Hi/2/100 rev 7	Door Coupling Detail Hi
435Hi/2/110 rev 6	Curtain Wall Insert Hi
435Hi/2/120 rev 5	Standard Glaze Out Casement Hi+
435Hi/2/130 rev 8	Glaze In Casement - Liner Bar to Fixed Lights Hi+
435Hi/2/135 rev 0	Euro Groove Casement Hi+
435Hi/2/140 rev 7	Euro Groove Casement Hi+
435Hi/2/150 rev 8	Euro Groove Glaze In Casement - Liner Bar to Fixed Lights Hi+
435Hi/2/160 rev 6	Muntin Bar Option Hi+
435Hi/2/170 rev 6	Coupling Mullions Hi+
435Hi/2/180 rev 2	90° Corner Post - External Corner Details Hi+
435Hi/2/190 rev 4	Door Coupling Detail Hi+
435Hi/2/200 rev 5	Curtain Wall Insert Hi+
435Hi/2/210 rev 7	Cill Liner Options - Externally Beaded Cill Clip Option, Internally Beaded Cill Clip Option, Externally Beaded Standard Flush Cill Liner Option Hi/Hi+
435Hi/2/220 rev 6	Cill Liner Options - Internally Beaded Standard Flush Cill Liner Option, Externally Beaded Medium Flush Cill Liner Option, Internally Beaded Medium Flush Cill Liner Option Hi/Hi+
435Hi/2/230 rev 5	Cill Liner Options - Externally Beaded Standard Rebated Cill Liner Option, Internally Beaded Standard Rebated Cill Liner Option, Externally Beaded Medium Rebated Cill Liner Option Hi/Hi+

435Hi/2/240 rev 2	Cill Liner Options - Internally Beaded Medium Rebated Cill Liner Option, Externally Beaded Flush Sub-cill Option, Internally Beaded Flush Sub-cill Option Hi/Hi+
435Hi/2/250 rev 2	Cill and Head Liner Options - Externally Beaded Rebated Sub-cill Option, Internally Beaded Rebated Sub-cill Option, Flush Head Liner Hi/Hi+

Section 3: Ironmongery Requirements

435Hi/3/10 rev 13	Ironmongery - General Cautionary Notes Hi/Hi+
435Hi/3/20 rev 11	Ironmongery - Friction Hinges and Friction Restrictors Hi/Hi+
435Hi/3/30 rev 15	Ironmongery - Butt Hinges - 6508, Cockspur Handles - CA45, Espag Handles Hi/Hi+
435Hi/3/40 rev 12	Ironmongery - Euro Espag Locking Systems Hi/Hi+
435Hi/3/50 rev 9	Ironmongery - Folding Openers Hi/Hi+
435Hi/3/60 rev 10	Ironmongery - Firemans Axe Fittings, Alignment and Interlocking Wedges and Security Components Hi/Hi+
435Hi/3/70 rev 9	Vent Size Limitation Chart - Side Hung Vents with Friction Hinges and Cockspur Handles Hi/Hi+
435Hi/3/80 rev 9	Vent Size Limitation Chart - Side Hung Vents with Friction Hinges and Standard Euro Espag Locking Hi/Hi+
435Hi/3/90 rev 8	Vent Size Limitation Chart - Side Hung Vents with Friction Hinges and Offset Euro Espag Locking Hi/Hi+
435Hi/3/100 rev 8	Vent Size Limitation Chart - Side Hung Vents with Friction Hinges using 3-sided Euro Espag Locking System Hi/Hi+
435Hi/3/110 rev 8	Vent Size Limitation Chart - Side Hung Vents with Butt Hinges and Cockspur Handles Hi/Hi+
435Hi/3/120 rev 14	Vent Size Limitation Chart - Side Hung Vents with Butt Hinges and Standard Euro Espag Locking Hi/Hi+
435Hi/3/130 rev 13	Vent Size Limitation Chart - Top Hung Vents with Friction Hinges and Cockspur Handles Hi/Hi+
435Hi/3/140 rev 9	Vent Size Limitation Chart - Top Hung Vents with Friction Hinges and Standard Euro Espag Locking Hi/Hi+
435Hi/3/150 rev 13	Vent Size Limitation Chart - Top Hung Vents with Butt Hinges and Standard Euro Espag Locking Hi/Hi+
435Hi/3/160 rev 9	Vent Size Limitation Chart - Top Hung Vents with Friction Hinges using 3-Sided Euro Espag Locking System Hi/Hi+
435Hi/3/170 rev 9	Vent Size Limitation Chart - Top Hung Vents with Friction Hinges and Folding Openers Hi/Hi+
435Hi/3/180 rev 6	Vent Size Limitation Chart - Top Hung Vents with Friction Hinges and Teleflex Gear or Actuators Hi/Hi+
435Hi/3/190 rev 3	Vent Size Limitation Chart - Top Hung Vents with Butt Hinges and Cockspur Handles Hi/Hi+
435Hi/3/200 rev 2	Vent Size Limitation Chart - Top Hung Vents with Butt Hinges and Folding Openers Hi/Hi+
435Hi/3/210 rev 3	Vent Size Limitation Chart - Top Hung Vents with Butt Hinges and Teleflex Gear or Actuators Hi/Hi+
435Hi/3/220 rev 3	Security Requirements - Euro espag for sashes 626-627 and 626-652 Hi/Hi+

Section 4: Profile Cutting and Prepping Details

435Hi/4/10 rev 7	Bar Cutting Sizes Hi/Hi+
435Hi/4/20 rev 7	Bar Cutting Sizes - For Muntin Bar Hi/Hi+
435Hi/4/30 rev 8	FFSS Ready Reckoner (To Calculate Fixed Frame Sight Sizes) Hi/Hi+
435Hi/4/40 rev 5	Fabrication and Cutting Sizes - Fixed Light Square Beads and Glass Sizes (Not Including Outer Frame) Hi/Hi+
435Hi/4/50 rev 7	Fabrication and Cutting Sizes - Fixed Light Raked Beads and Glass Sizes (Not Including Outer Frame) Hi/Hi+
435Hi/4/60 rev 7	Fabrication and Cutting Sizes - Standard Glaze Out Casement Vent - Window Assembly (Not Including Outer Frame) Hi/Hi+
435Hi/4/70 rev 8	Fabrication and Cutting Sizes - Glaze In Casement Vent - Window Assembly (Not Including Outer Frame) Hi/Hi+
435Hi/4/80 rev 8	Fabrication and Cutting Sizes - Euro Groove Casement Vents 626-627 and 626-652 - Window Assembly (Not Including Outer Frame) Hi/Hi+
435Hi/4/85 rev 1	Fabrication and Cutting Sizes - Euro Groove Slimline Casement Vent 676-677 - Window Assembly (Not Including Outer Frame) Hi/Hi+

435Hi/4/90 rev 6	Fabrication and Cutting Sizes - Standard Glaze In Casement Liner - Window Assembly (Not Including Outer Frame) Hi/Hi+
435Hi/4/100 rev 7	Fabrication and Cutting Sizes - Standard Glaze Out Casement Vent - Window Assembly (Not Including Outer Frame and Liner Bar) Hi/Hi+
435Hi/4/110 rev 11	Fabrication and Cutting Sizes - Glaze In Casement Vent - Window Assembly (Not Including Outer Frame and Liner Bar) Hi/Hi+
435Hi/4/120 rev 9	Fabrication and Cutting Sizes - Euro Groove Casement Vents 626-627 and 626-652 - Window Assembly (Not Including Outer Frame and Liner Bar) Hi/Hi+
435Hi/4/125 rev 1	Fabrication and Cutting Sizes - Euro Groove Slimline Casement Vent 676-677 - Window Assembly (Not Including Outer Frame and Liner Bar) Hi/Hi+
435Hi/4/130 rev 6	Fabrication and Cutting Sizes - Outer Frame - Window Assembly (Not Including Casement Vent or Glazing Beads) Hi/Hi+
435Hi/4/140 rev 6	Fabrication and Cutting Sizes - Single Muntin Bar into Casement Vents - Window Assembly (Not Including Sash and Outer Frame) Hi/Hi+
435Hi/4/150 rev 4	Mullion Stiffener Prep Hi/Hi+
435Hi/4/160 rev 7	Saw Blocks Hi/Hi+
435Hi/4/170 rev 3	Mullion/Transom End Prep Hi/Hi+
435Hi/4/180 rev 3	613-221 Mullion End Prep Hi/Hi+
435Hi/4/190 rev 3	Mullion End Prep Hi/Hi+
435Hi/4/200 rev 3	Heavy Duty Mullion End Prep Hi/Hi+
435Hi/4/210 rev 2	Mullion End Prep - 3-Dimensional Views Hi/Hi+
435Hi/4/220 rev 3	Muntin Bar End Prep Hi/Hi+

Section 5: Drainage Details

435Hi/5/10 rev 12	Drainage Details - To suit glaze out outer frame and liner bar Hi
435Hi/5/20 rev 11	Drainage Details - To suit glaze in outer frame and liner bar Hi
435Hi/5/30 rev 13	Drainage Details - To suit glaze out transom and liner bar Hi
435Hi/5/40 rev 12	Drainage Details - To suit glaze in transom and liner bar Hi
435Hi/5/50 rev 10	Drainage Details - To suit outside glaze sash 620-202 and inside glaze sash 624-625 Hi
435Hi/5/55 rev 1	Drainage Details - To suit recessed euro groove sash 626-627, flat euro groove sash 626-652 and slimline euro groove sash 676-677 Hi
435Hi/5/60 rev 11	Drainage Details - To suit glaze out outer frame and liner bar Hi+
435Hi/5/70 rev 11	Drainage Details - To suit glaze in outer frame and liner bar Hi+
435Hi/5/80 rev 12	Drainage Details - To suit glaze out transom and liner bar Hi+
435Hi/5/90 rev 11	Drainage Details - To suit glaze in transom and liner bar Hi+
435Hi/5/100 rev 10	Drainage Details - To suit outside glaze sash 620-202 and inside glaze sash 624-625 Hi+
435Hi/5/110 rev 9	Drainage Details - To suit recessed euro groove sash 626-627, flat euro groove sash 626-652 and slimline euro groove sash 676-677 Hi+
435Hi/5/120 rev 3	Pressure Equalisation Hi/Hi+

Section 6: Assembly Details

435Hi/6/10 rev 8	Corner Assembly Details Hi/Hi+
435Hi/6/20 rev 9	Corner Crimping Detail - Standard and Medium Outer Frames Hi/Hi+
435Hi/6/30 rev 10	Corner Crimping Detail - Standard Long Leg Outer Frames Hi/Hi+
435Hi/6/40 rev 8	Corner Crimping Detail - Heavy Short Leg Outer Frame Hi/Hi+
435Hi/6/50 rev 11	Corner Crimping Detail - Standard Odd Leg Outer Frame Hi/Hi+

435Hi/6/60 rev 12	Corner Crimping Detail - Curtain Walling Frames Hi/Hi+
435Hi/6/70 rev 10	Corner Assembly Detail - Liner Bar Hi/Hi+
435Hi/6/80 rev 9	Corner Assembly Detail - Standard Sash Hi/Hi+
435Hi/6/90 rev 12	Corner Assembly Detail - Inside Glaze Sash Hi/Hi+
435Hi/6/100 rev 12	Corner Crimping Detail - Euro Groove Sashes 626-627 and 626-652 Hi/Hi+
435Hi/6/105 rev 1	Corner Crimping Detail - Slimline Euro Groove Sash 676-677 Hi/Hi+
435Hi/6/110 rev 11	Mullion/Transom Assembly - Screwported sections Hi/Hi+
435Hi/6/120 rev 12	Mullion/Transom Assembly - Screwported sections to outer frames Hi/Hi+
435Hi/6/130 rev 8	Mullion/Transom Cruciform Assembly - Screwported section with transom cleat Hi/Hi+
435Hi/6/140 rev 7	Mullion/Transom Assembly - Cleated sections Hi/Hi+
435Hi/6/150 rev 7	Mullion/Transom Assembly - Cleated sections to outer frames Hi/Hi+
435Hi/6/160 rev 11	Mullion/Transom Assembly - Cleated sections to outer frames Hi/Hi+
435Hi/6/170 rev 6	Mullion/Transom Assembly - Cleated sections to outer frames Hi/Hi+
435Hi/6/180 rev 4	Mullion/Transom Assembly - Cleated sections to outer frames Hi/Hi+
435Hi/6/190 rev 3	Mullion/Transom Cruciform Assembly - Cleated sections Hi/Hi+
435Hi/6/200 rev 4	Muntin Assembly into Sash Hi/Hi+
435Hi/6/210 rev 3	Transom Brace Application Detail Hi/Hi+
435Hi/6/220 rev 4	Mullion/Transom Sealing Detail Hi/Hi+
435Hi/6/230 rev 3	Liner Bar Fixings Hi/Hi+
435Hi/6/240 rev 3	Drip Rails - Preparation Details for Vents Fitted with Friction Hinges Hi/Hi+
435Hi/6/245 rev 0	Drip Rails - Preparation Details for Vents Fitted with Butt Hinges Hi/Hi+
435Hi/6/250 rev 3	Drip Rails - Transom and Outer Frame Selection Charts and Drip Rail Fixing Details Hi/Hi+

Section 7: Ironmongery and Component Assembly

435Hi/7/10 rev 7	Cockspur Handle - Sashes 620-202, 624-625 Hi/Hi+
435Hi/7/20 rev 8	Cockspur Handle - Euro Groove Sashes 626-627 and 626-652 Hi/Hi+
435Hi/7/30 rev 9	Firemans Axe Cockspur Fitting - Sashes 620-202, 626-627, 626-652 Hi/Hi+
435Hi/7/40 rev 7	Standard and Offset Euro Espag Lock and Handle Prep - Euro Groove Sashes 626-627 and 626-652 Hi/Hi+
435Hi/7/45 rev 2	Standard and Offset Euro Espag Lock and Handle Prep - Slimline Euro Groove Sash 676-677 Hi/Hi+
435Hi/7/50 rev 9	3-Sided Euro Espag Lock and Handle Prep - Euro Groove Sashes 626-627 and 626-652 Hi/Hi+
435Hi/7/60 rev 11	Standard Euro Espag Fixing Details Hi/Hi+
435Hi/7/70 rev 15	Offset Euro Espag Locking - Side Hung Window Euro Groove Sashes 626-627, 626-652 and 676-677 Sash Heights 925mm to 1024mm Hi/Hi+
435Hi/7/80 rev 15	Offset Euro Espag Locking - Side Hung Window Euro Groove Sashes 626-627, 626-652 and 676-677 Sash Heights 1025mm to 1800mm Hi/Hi+
435Hi/7/90 rev 7	Cropping Details Hi/Hi+
435Hi/7/100 rev 11	3-Sided Euro Espag Locking - Side Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Heights 500mm to 677mm with Handle at Mid-point Hi/Hi+
435Hi/7/110 rev 13	3-Sided Euro Espag Locking - Side Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Heights 678mm to 1078mm with Handle at Mid-point Hi/Hi+

435Hi/7/120 rev 14	3-Sided Euro Espag Locking - Side Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Heights 1079mm to 1137mm with Handle at Mid-point Hi/Hi+
435Hi/7/130 rev 9	3-Sided Euro Espag Locking - Side Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Heights 1138mm to 1538mm with Handle at Mid-point Hi/Hi+
435Hi/7/140 rev 10	3-Sided Euro Espag Locking - Side Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Heights 1539mm to 2000mm with Handle at Mid-point Hi/Hi+
435Hi/7/150 rev 10	3-Sided Euro Espag Locking - Side Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Heights 500mm to 671mm with Handle at 1/3 Hi/Hi+
435Hi/7/160 rev 11	3-Sided Euro Espag Locking - Side Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Heights 672mm to 1015mm with Handle at 1/3 Hi/Hi+
435Hi/7/170 rev 10	3-Sided Euro Espag Locking - Side Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Heights 1016mm to 1303mm with Handle at 1/3 Hi/Hi+
435Hi/7/180 rev 10	3-Sided Euro Espag Locking - Side Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Heights 1304mm to 1615mm with Handle at 1/3 Hi/Hi+
435Hi/7/190 rev 11	3-Sided Euro Espag Locking - Side Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Heights 1616mm to 1705mm with Handle at 1/3 Hi/Hi+
435Hi/7/200 rev 10	3-Sided Euro Espag Locking - Side Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Heights 1706mm to 2000mm with Handle at 1/3 Hi/Hi+
435Hi/7/210 rev 10	3-Sided Euro Espag Locking - Top Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Widths 450mm to 677mm Hi/Hi+
435Hi/7/220 rev 14	3-Sided Euro Espag Locking - Top Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Widths 678mm to 1078mm Hi/Hi+
435Hi/7/230 rev 11	3-Sided Euro Espag Locking - Top Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Widths 1079mm to 1137mm Hi/Hi+
435Hi/7/240 rev 11	3-Sided Euro Espag Locking - Top Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Widths 1138mm to 1538mm Hi/Hi+
435Hi/7/250 rev 12	3-Sided Euro Espag Locking - Top Hung Window Euro Groove Sashes 626-627 and 626-652 Sash Widths 1539mm to 2000mm Hi/Hi+
435Hi/7/260 rev 5	6764 Linkage Detail - Male to Male Connection Hi/Hi+
435Hi/7/270 rev 9	Espag Handle Fixing Detail Hi/Hi+
435Hi/7/280 rev 5	Firemans Axe Espag Fitting Detail Hi/Hi+
435Hi/7/290 rev 6	Compression Keep for Standard Euro Espag Locking - Sashes 626-627, 626-652 and 676-677 Hi/Hi+
435Hi/7/300 rev 5	Compression Keep for Offset Euro Espag Locking - Sashes 626-627, 626-652 and 676-677 Hi/Hi+
435Hi/7/310 rev 5	Compression Keep for 3-Sided Euro Espag Locking - Sashes 626-627 and 626-652 Hi/Hi+
435Hi/7/320 rev 5	Centre Gasket Detail for Standard and Offset Espag Lock Hi+
435Hi/7/330 rev 4	Folding Opener - Glaze Out Sash 620-202 Hi/Hi+
435Hi/7/340 rev 7	Folding Opener - Inside Glaze Sash 624-625 and Euro Groove Sashes 626-627 and 626-652 Hi/Hi+
435Hi/7/350 rev 7	Friction Hinges - General Application Hi/Hi+
435Hi/7/360 rev 6	Hinge Jig Method Statement Hi/Hi+
435Hi/7/370 rev 8	Hinge Fixing - 3-Dimensional View Hi/Hi+
435Hi/7/380 rev 8	Friction Hinges - Standard Sash 620-202 Fixing Positions for 6705, 6706 and 6707 Hinges Hi/Hi+
435Hi/7/390 rev 9	Friction Hinges - Inside Glaze Sash 624-625 Fixing Positions for 6705, 6706 and 6707 Hinges Hi/Hi+
435Hi/7/400 rev 10	Friction Hinges - Euro Groove Sashes 626-627, 626-652 and 676-677 Fixing Positions for 6705 and 6706 Hinges Hi/Hi+
435Hi/7/410 rev 10	Friction Hinges - Euro Groove Sashes 626-627, 626-652 and 676-677 Fixing Positions for 6707 Hinge Hi/Hi+
435Hi/7/420 rev 10	Friction Hinges - Euro Groove Sashes 626-627, 626-652 and 676-677 Fixing Positions for 6708 Hinge Hi/Hi+
435Hi/7/430 rev 10	Friction Hinges - Euro Groove Sashes 626-627 and 626-652 Fixing Positions for 6709 Hinges Hi/Hi+
435Hi/7/435 rev 2	Friction Hinges - Hinge Restrictor Plate Fixing Hi/Hi+
435Hi/7/440 rev 5	Friction Hinges - Glaze Out Sash 620-202 Hi/Hi+
435Hi/7/450 rev 4	Friction Hinges - Inside Glaze Sash 624-625 Hi/Hi+

435Hi/7/460 rev 7	Friction Hinges - Euro Groove Sashes 626-627, 626-652 and 676-677 Hi/Hi+
435Hi/7/470 rev 5	Friction Hinges - Standard Sash 620-202 and Liner Bar Hi/Hi+
435Hi/7/480 rev 5	Friction Hinges - Inside Glaze Sash 624-625 and Liner Bar Hi/Hi+
435Hi/7/490 rev 7	Friction Hinges - Euro Groove Sashes 626-627, 626-652 and 676-677 and Liner Bar Hi/Hi+
435Hi/7/500 rev 3	Friction Hinges - Back to Back Fixings Using Standard Screws Hi/Hi+
435Hi/7/510 rev 4	Friction Hinges - Back to Back Fixings Using 723 Bar with 724 Stud Ends Hi/Hi+
435Hi/7/520 rev 3	Friction Hinges - Hinge Support Block 504 Hi/Hi+
435Hi/7/530 rev 4	Ancillary Hinge Security Device 702 - Sashes 626-627, 626-652 and 676-677 Hi/Hi+
435Hi/7/540 rev 3	Restrictor Installation CA36 - Glaze Out Sash 620-202 Hi/Hi+
435Hi/7/550 rev 3	Releasable Restrictor Installation 6716 - Glaze Out Sash 620-202 Hi/Hi+
435Hi/7/560 rev 3	Restrictor Installation CA36 - Inside Glaze Sash 624-625 Hi/Hi+
435Hi/7/570 rev 3	Releasable Restrictor Installation 6716 - Inside Glaze Sash 624-625 Hi/Hi+
435Hi/7/580 rev 4	Restrictor Installation CA36 - Sashes 626-627 and 626-652 Using Cockspur Handles, Standard and Offset Euro Espag Locking Hi/Hi+
435Hi/7/585 rev 1	Restrictor Installation CA36 - Slimline Euro Groove Sash 676-677 Using Standard and Offset Euro Espag Locking Hi/Hi+
435Hi/7/590 rev 4	Releasable Restrictor Installation 6716 - Sashes 626-627 and 626-652 Using Cockspur Handles, Standard and Offset Euro Espag Locking Hi/Hi+
435Hi/7/595 rev 1	Releasable Restrictor Installation 6716 - Slimline Euro Groove Sash 676-677 Using Standard and Offset Euro Espag Locking Hi/Hi+
435Hi/7/600 rev 4	Restrictor Installation CA36 - For Sashes 620-202, 624-625, 626-627, 626-652 and 676-677 Hi/Hi+
435Hi/7/610 rev 4	Releasable Restrictor Installation 6716 - For Sashes 620-202, 624-625, 626-627, 626-652 and 676-677 Hi/Hi+
435Hi/7/620 rev 4	Restrictor Installation CA36 - Sashes 626-627 and 626-652 Using 3-Sided Euro Espag Locking Hi/Hi+
435Hi/7/630 rev 4	Releasable Restrictor Installation 6716 - Sashes 626-627 and 626-652 Using 3-Sided Euro Espag Locking Hi/Hi+
435Hi/7/640 rev 4	Restrictor Installation CA36 - Sashes 626-627 and 626-652 Using 3-Sided Euro Espag Locking Hi/Hi+
435Hi/7/650 rev 3	Releasable Restrictor Installation 6716 - Sashes 626-627 and 626-652 Using 3-Sided Euro Espag Locking Hi/Hi+
435Hi/7/660 rev 3	Butt Hinge Options - Hinge Preparation Details Hi/Hi+
435Hi/7/665 rev 1	Butt Hinge Options - Hinge Preparation Details Hi/Hi+
435Hi/7/670 rev 2	Butt Hinges and Liner Bar Hi/Hi+
435Hi/7/680 rev 1	Interlocking Wedges 6772 - For Sash 620-202 For Friction Hinge Applications Only Hi/Hi+ Alignment Wedges 6772 - For Sash 620-202 For Friction Hinge and Butt Hinge Applications Hi/Hi+
435Hi/7/690 rev 1	Interlocking Wedges 6772 - For Sash 624-625 For Friction Hinge Applications Only Hi/Hi+ Alignment Wedges 6772 - For Sash 624-625 For Friction Hinge and Butt Hinge Applications Hi/Hi+
435Hi/7/700 rev 2	Interlocking Wedges 6772 - For Sashes 626-627 and 626-652 For Friction Hinge Applications Only Hi/Hi+ Alignment Wedges 6772 - For Sashes 626-627 and 626-652 For Friction Hinge and Butt Hinge Applications Hi/Hi+
435Hi/7/705 rev 1	Interlocking Wedges 6772 - For Slimline Euro Groove Sash 676-677 For Friction Hinge Applications Only Hi/Hi+ Alignment Wedges 6772 - For Slimline Euro Groove Sash 676-677 For Friction Hinge and Butt Hinge Applications Hi/Hi+

Section 8: Gaskets, Foams, Glazing, and Installation

435Hi/8/10 rev 8	Glazing Bead and Gasket Requirements Hi/Hi+
435Hi/8/20 rev 7	Weatherseal Application Details - Weatherseal 060B Hi/Hi+
435Hi/8/30 rev 8	Weatherseal Application Details - Gasket 6080, 6081 (Outside), Wedge CA27, PTT36 (Inside) Hi/Hi+
435Hi/8/40 rev 9	Thermal Centre Gasket Application Details - Centre gasket 6071 Hi+
435Hi/8/50 rev 8	Perimeter Foam Application Details - Perimeter Foam 6728 Hi+

435Hi/8/60 rev 7	Glazing Unit Perimeter Foam Application Details - Glazing Unit Perimeter Foam 6727 Hi+
435Hi/8/70 rev 5	Liner Bar Foam Application Details - Liner Bar Foam 6729 Hi+
435Hi/8/80 rev 3	Installation Procedures Hi/Hi+
435Hi/8/90 rev 3	Installation Procedures Hi/Hi+
435Hi/8/100 rev 9	Typical Fixing Detail Hi/Hi+
435Hi/8/110 rev 6	Fixing Lug - Structural Limitations - Standard Fixing Lugs 6739 and 6740 Hi/Hi+
435Hi/8/120 rev 6	Extruded Clip on Cill and Cill Clip Hi/Hi+
435Hi/8/130 rev 6	Flush Cill Liners (for pressed metal cill) Hi/Hi+
435Hi/8/140 rev 4	Rebated Cill Liners (for pressed metal cill) Hi/Hi+
435Hi/8/150 rev 3	Flush Sub-Cill Hi/Hi+
435Hi/8/160 rev 3	Rebated Sub-Cill Hi/Hi+
435Hi/8/170 rev 3	Cill Liner End Plate Details - For Pressed Metal Cills Hi/Hi+
435Hi/8/180 rev 3	Flush Head Liner and End Plate Details Hi/Hi+
435Hi/8/190 rev 6	Glazing Details Hi/Hi+
435Hi/8/200 rev 5	Glass Security Clips 7092 Hi/Hi+
435Hi/8/210 rev 5	Glazing Procedure - 3-Dimensional Details Hi/Hi+
435Hi/8/220 rev 6	Site Glazing Procedures Hi/Hi+