Main Index

VS Index **Index** ..... A01 - A02

A VS **Profiles**

Specification Pages ..... A03 - A06
Technical Information ..... A07 - A09
Scale Profile Drawings ..... A10 - A20

B VS **Accessories**

Photos & Drawings ..... B01 - B20

C VS **Sections**

Scale Elevations ..... C01 - C12

D VS **Statics** ..... D01 - D02

E VS **Construction Drawings**

Outer Frame Preparation E03
Cill to Jamb Assembly E04
Head to Jamb Assembly E05
Sash Crimping Details E06
Drainage E07
Spring Balances ..... E08 - E09
Travel Stops E10
Top Sash Details E11
Bottom Sash Details E12
Pivot Arm Details E13
Locking E14
Bar Tilt Restrictor E15
Handles E16
Inserting Sashes E17
Glazing ..... E18 - E21
VS445 Coupler E22
VS448 90° Corner Post E23
Fixing Straps E24
Trickle Vent Assembly E25
ERA Hardware Overview E26

F VS **Sawing Tables**

Standard Setup F02
PAS24 Setup F03

Updates

DATE	PAGE	DESCRIPTION

Specification

GENERAL DESCRIPTION

The "VS400" vertical sliding window system described in this manual is suitable for domestic or commercial applications as replacement windows for existing buildings, and for installation into new buildings.

The system incorporates square cut assembly, concealed drainage, internally beaded vent frames and tilt-in facility for cleaning the external surface from inside the building.

The extended polyamide thermal breaks help to provide excellent U Values and Window Energy Rating capable of achieving 1.4W/m²K or a 'C' Rating when used in conjunction with the correct double glazed unit. Please refer to the WER calculator for guidance.

Corner assembly of VS400 sashes is crimping only.

PROFILE SPECIFICATION

The window frame are constructed of aluminium alloy extrusion to BS EN 755-9 and BS EN 12020, extruded to 6063 T6 alloy. The internal and external extrusions are separated with a polyamide thermal break.

The external aluminium alloy extrusion is pre-treated and finished either:-

a) Anodised to BS 3987: 1987, grade AA25 to a natural self colour.

b) Polyester powder organic coating to BS 6496. Dual colour is not available due to the additional thermal break in VS412.

RECOMMENDED DESIGN LIMITATIONS

Maximum Width: 1600mm (see below table)
Minimum Width: 426mm
Maximum Overall Height: 2800mm (based on equal split)
Minimum Overall Height: 725mm (based on equal split)
Maximum Weight: 50kg (per sash)

Outer Frame Width	Maximum Outer Frame Height
750	2800
800	2800
850	2800
900	2800
950	2800
1000	2800
1050	2800
1100	2800
1150	2800
1200	2800
1250	2800
1300	2500
1350	2200
1400	2000
1450	1800
1500	1600
1550	1400
1600	1300

The above calculations are based on 6/16/6 units (30kg/m) packed no more than 75mm in from each upright.
The system is designed to be glazed with 28mm units only.

Specification

GENERAL MANUFACTURING

Outer frames are made by cutting the head, cill and top of jamb with accurate 90° square ends, & cutting the bottom of jambs at 87° using Tungsten Carbide Tipped Saw Blades, operating at approximately 3000 rpm.

The joints are made by drilling a Ø5.5mm hole in the 'V' groove of the head & cill and screwed together using PUA028 and ACDR052 screws as shown in section E of this manual. All joints should be sealed using ACSIL04 sealant.

The sash profiles are cut with 45° mitred ends to the overall size required, measured to the longest point of the metal.

The sash corners are joined using the VS400 crimping tools to form a cold forged corner joint (made by deforming small slugs of metal into the groove of the corner cleat). Prior to inserting the cleats, ACSIL013 cleat glue shall be applied in the chamber. All joints should be sealed using ACSIL04 sealant.

On polyester powder coated finishes, great care should be taken to avoid getting gap sealer on visible surfaces and should be removed as soon as possible with a clean cloth.

Care should be exercised when using products not supplied by Smart Systems Ltd as no responsibility can be accepted. Warranties and performance may also be affected.

PROFILES WITH INTEGRATED GASKET

When cutting profiles with integrated gaskets, it is crucial to use sharp, well-maintained saw blades to ensure clean cuts.

For optimal mitre cuts, position the profiles so the gasket channels face the saw blades. However, we recommend testing different profile orientations on your saw to determine the best cutting method.

Transoms and mullions with integrated gaskets can be end milled as standard.

For advise on window sizes outside of the recommended design limitations, please contact the Technical Department at Smart Systems Ltd Tel: 01934 876100

Specification

WINDOW DRAINAGE

As with all dry glazed systems, it is recommended that the window system is adequately drained and ventilated. Refer to drainage details in manual, if in doubt ask The Technical Department.

GLAZING

All beads are cut to suit the glazing aperture on the fully assembled window for glazing either at factory or on site as required.

INTERNALLY BEADED GLAZING

Glazing beads are fitted to openings by cutting the horizontal beads square to head and cill of each vent and fixed light area. Vertical beads are cut square at both ends. Insert bottom beads and two setting blocks to ensure glass will be centralized in vertical dimension of opening (glazing blocks must be full width of cavity to fully support glass or sealed unit), then insert top bead followed by side beads. Finish glazing by insertion of internal gaskets all round.

When glazing with the Quick-Glaze bead, using a glass adjuster is strongly advised to adjust the glazing accordingly with ease.

Specification

IRONMONGERY

VS400 is deigned around existing vertical slider hardware from ERA Hardware. The vertical slider hardware shown in this manual provides the ERA part numbers to allow for direct ordering:

ERA
Valiant Way
Wolverhampton
West Midlands
WV9 5GB
Tel: 01922 490049
Fax: 01922 494420
Email: **info@erahomesecurity.com**
Web Site: **www.eraeverywhere.com**

VS400 Window Weather Performance (BS6375-1)

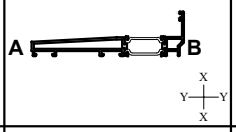
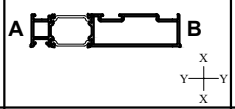
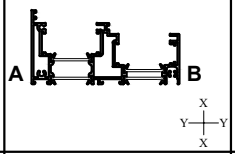
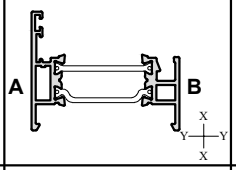
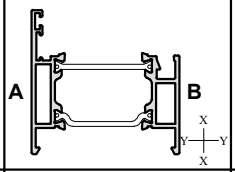
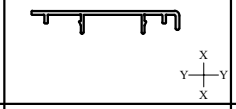
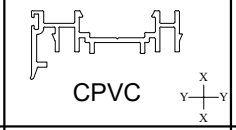
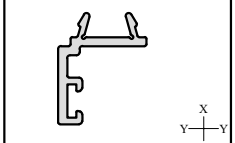
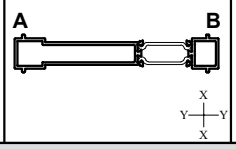
BS EN 1026: 2000 Air Permeability:	TBA
BS EN 1027: 2000 Watertightness:	TBA
BS EN 12211: 2000 Resistance to Wind Load:	TBA

VS400 Window Security (PAS 24)

To be tested.

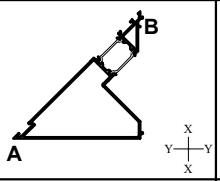
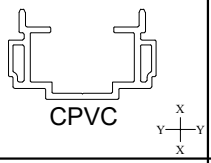
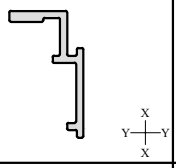
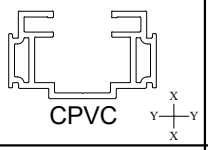
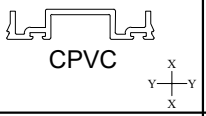
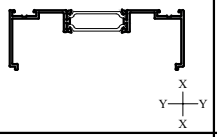
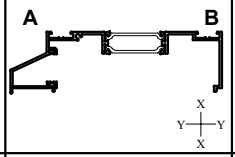
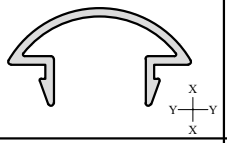
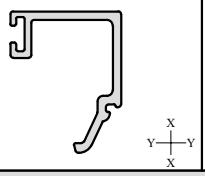
VS400 Window U Values

Please refer to the Smart Systems' Document L White Paper or contact the Technical Department.

Number	Picture	Page	Perim. mm	Mec. mm	Ix(cm4) wx(cm3)	Iy(cm4) wy(cm3)	Length	Pack pr.	MF	SA	KL	HP	M
VS410		A10	414	141	105.81 — 15.22	3.12 — 2.87	6.5	1	✓	✓	✓	✓	
VS411		A10	416	141	105.51 — 15.79	6.34 — 4.46	6.5	1	✓	✓	✓	✓	
VS412		A11	767	158	173.03 — 23.93	25.12 — 10.51	6.5	1	✓	✓	✓	✓	
VS420 VS420G		A12	279	79	14.27 — 4.66	2.59 — 1.38	6.5	1	✓	✓	✓	✓	
VS422 VS422G		A12	320	98	17.50 — 5.81	5.25 — 2.23	6.5	1	✓	✓	✓	✓	
VS430		A13	181	68	4.67 — 1.42	0.06 — 0.32	6.5	1	✓	✓	✓	✓	
VS432	 CPVC	A13	314	-	- — -	- — -	6.5	1	✓				
VS440		A10	87	17	- — -	- — -	6.5	1	✓	✓	✓	✓	
VS445		A17	348	50	107.9 — 15.46	2.75 — 2.2	6.5	1	✓	✓	✓	✓	

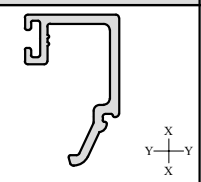
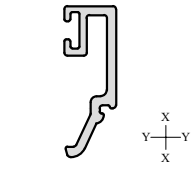
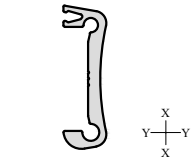
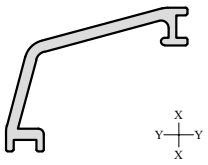
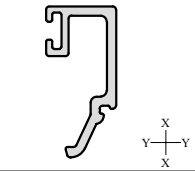
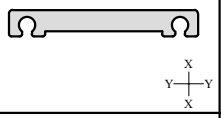
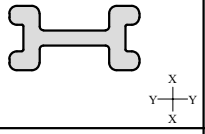
A = Outside
B = Inside

MF = Mill Finish
SA = Silver Anodised
KL = Basic Colour
HP = Special Colour
M = Dual Colour

Number	Picture	Page	Perim. mm	Mec. mm	Ix(cm4) wx(cm3)	Iy(cm4) wy(cm3)	Length	Pack pr.	MF	SA	KL	HP	M
VS448		A18	667	281	161.5 --- 18.4	148.5 --- 28.6	6.5	1	✓	✓	✓	✓	
VS450		A14	232	-	- --- -	- --- -	6.5	1	✓				
VS452		A14	93	15	- --- -	- --- -	6.5	*	✓	✓	✓	✓	
VS454		A14	295	-	- --- -	- --- -	6.5	1	✓				
VS456		A13	183	-	- --- -	- --- -	6.5	1	✓				
VS471		A19	503	85	113.43 ----- 10.55	8.29 ----- 6.69	6.5	1	✓	✓	✓	✓	
VS472		A19	650	143	177.36 ----- 23.15	13.54 ----- 9.60	6.5	1	✓	✓	✓	✓	
VS052		A17	131	41	- — -	- — -	5	1	✓	✓	✓	✓	
UN3160 UN3160G		A15	120	39	- — -	- — -	6.5	1	✓	✓	✓	✓	

A = Outside
B = Inside

MF = Mill Finish
SA = Silver Anodised
KL = Basic Colour
HP = Special Colour
M = Dual Colour

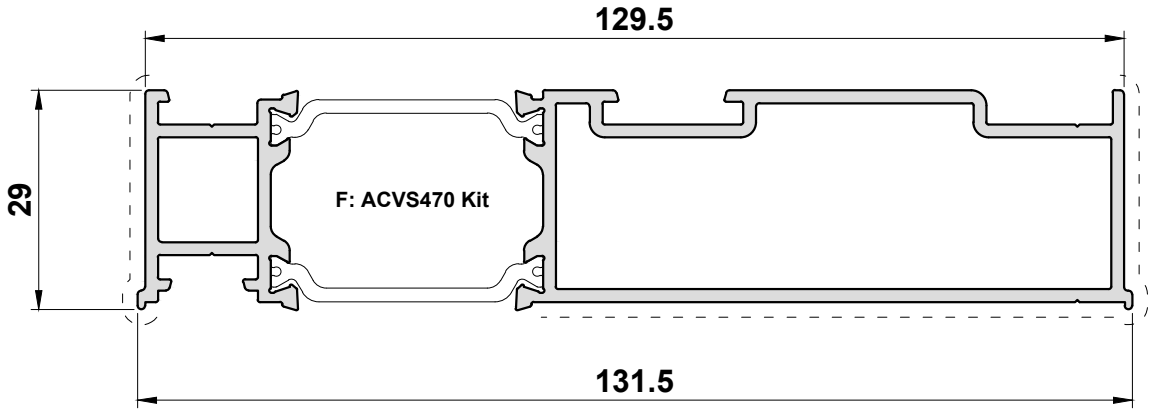
Number	Picture	Page	Perim. mm	Mec. mm	Ix(cm4) wx(cm3)	Iy(cm4) wy(cm3)	Length	Pack pr.	MF	SA	KL	HP	M
UN3164 UN3164G		A15	112	33	- — -	- — -	6.5	1	✓	✓	✓	✓	
UN3166		A16	98	43	- — -	- — -	6.5	1	✓	✓	✓	✓	
UN3711		A19	98	43	- — -	- — -	3.5	1	✓		✓	✓	
UN3712		A19	98	43	- — -	- — -	3.5	1	✓		✓	✓	
ETC4179 ETC4179G		A16	104	29	- — -	- — -	6.5	1	✓	✓	✓	✓	
W20165		A17	68	32	- — -	- — -	4	1	✓	✓	✓	✓	
UN150		A18	65	65	- — -	- — -	6.5	1	✓	✓	✓	✓	

A = Outside
B = Inside

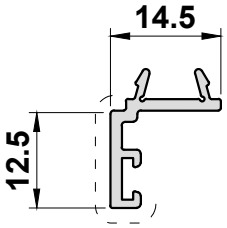
MF = Mill Finish
SA = Silver Anodised
KL = Basic Colour
HP = Special Colour
M = Dual Colour

Primary Visible Side - - - - - - - - - - - - - - - - - - Secondary Visible Side — · — · — · — · — · — · —

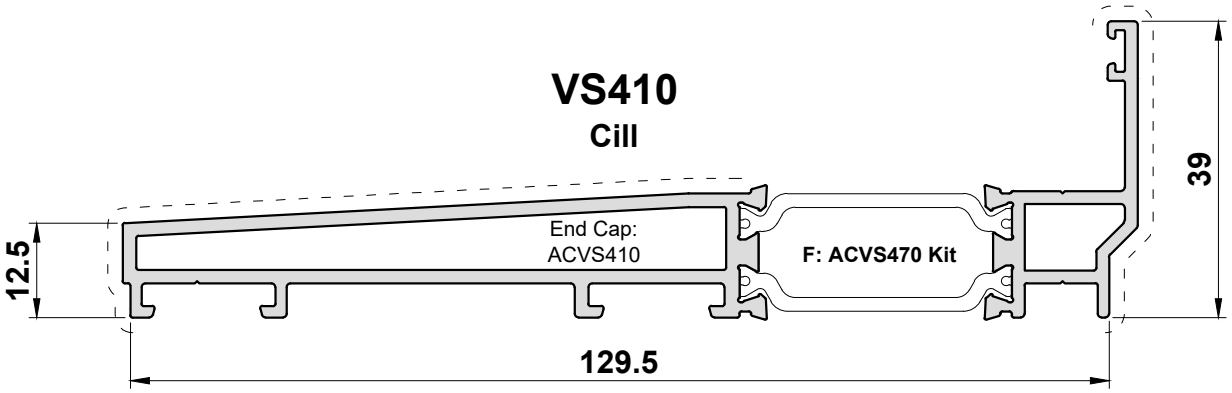
VS411
Head



VS440
Head Rebate



VS410
Cill

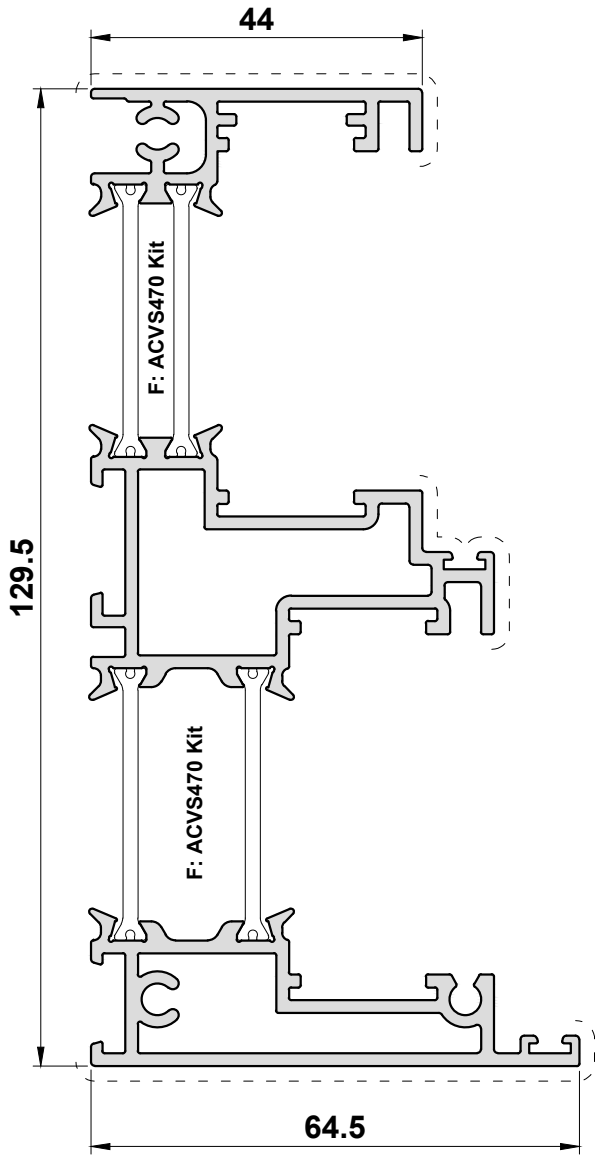


Scale 1:1

Primary Visible Side - - - - - - - - - - - - - - - - - - Secondary Visible Side — · — · — · — · — · — · —

VS412

Jamb

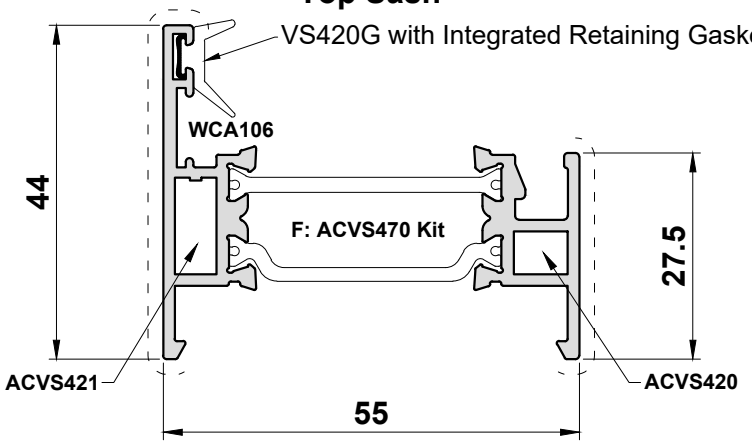


Scale 1:1

Primary Visible Side - - - - - - - - - - - - - - - - - - Secondary Visible Side — · — · — · — · — · — · —

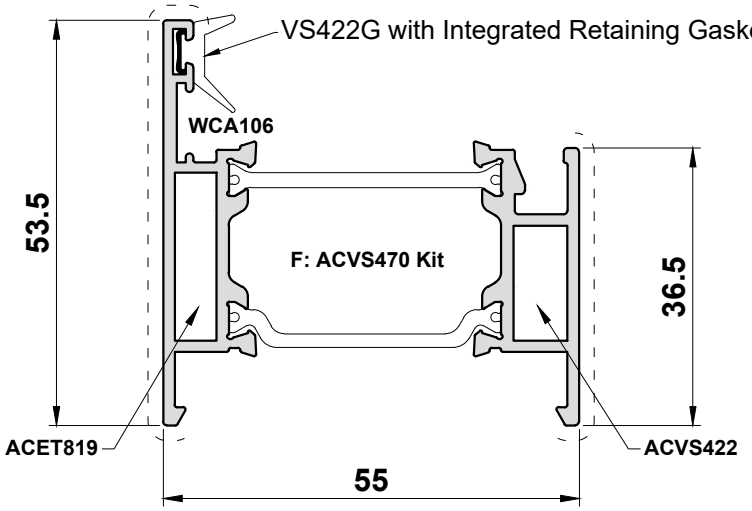
VS420 / G

Top Sash



VS422 / G

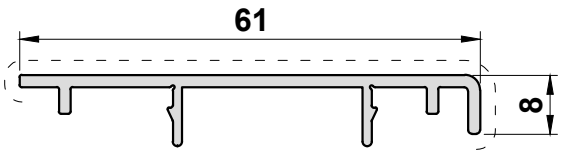
Bottom Sash



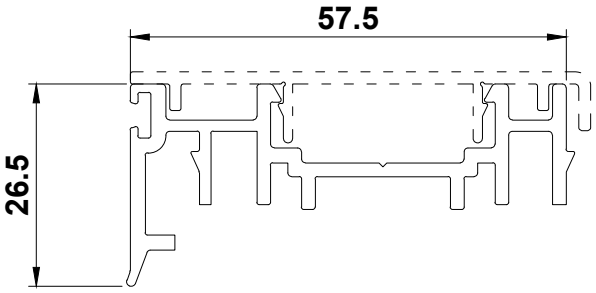
Scale 1:1

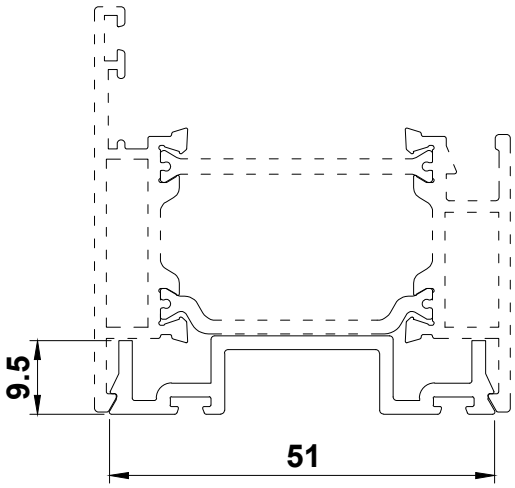
Primary Visible Side - - - - - - - - - - - - - - - - - - Secondary Visible Side — · — · — · — · — · — · —

VS430
Interlock Cover



VS432
CPVC Interlock



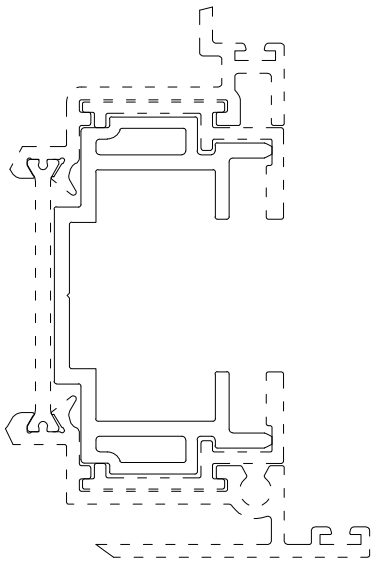


VS456
CPVC Sash Infill

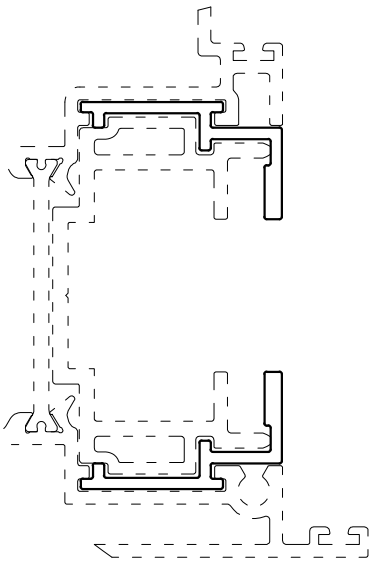
Scale 1:1

Primary Visible Side - - - - - - - - - - - - - - - - - Secondary Visible Side — · — · — · — · — · — · —

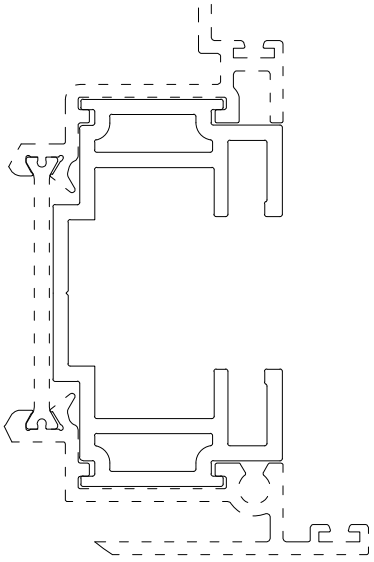
VS450
CPVC Jamb
Balance Channel



VS452
Aluminium Jamb
Balance Channel



VS454
CPVC Jamb
Balance Channel

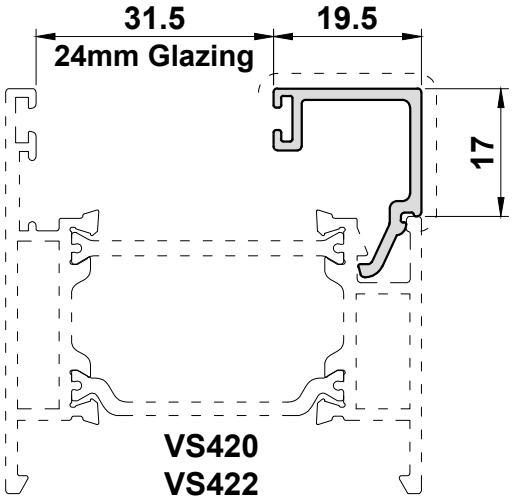


Scale 1:1

Primary Visible Side - - - - - - - - - - - - - - - - - Secondary Visible Side — · — — · — — · — — · — — · —

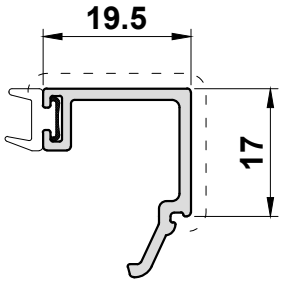
UN3160

19.5mm Bead



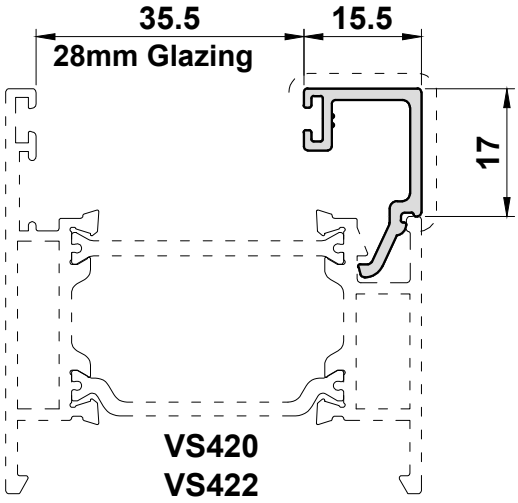
UN3160G

19.5mm Bead with Gasket



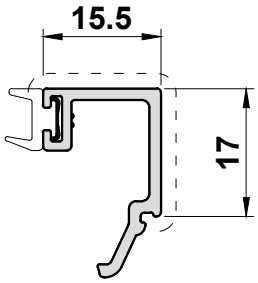
UN3164

15.5mm Bead



UN3164G

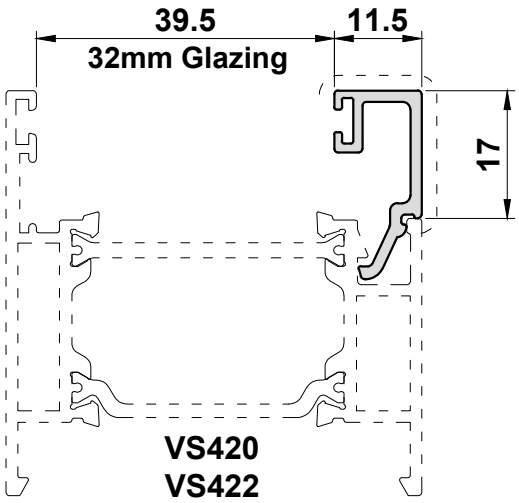
15.5mm Bead with Gasket



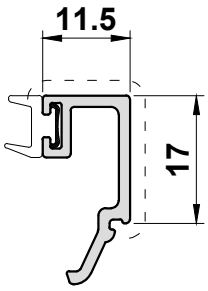
Scale 1:1

Primary Visible Side - - - - - - - - - - - - - - - - - Secondary Visible Side — · — · — · — · — · — · —

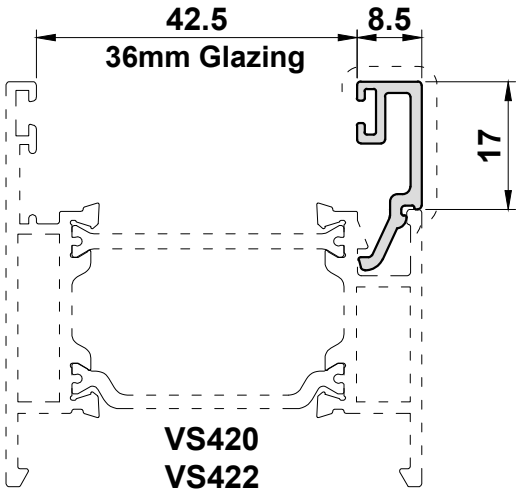
ETC4179
11.5mm Bead



ETC4179G
11.5mm Bead with Gasket



UN3166
8.5mm Bead

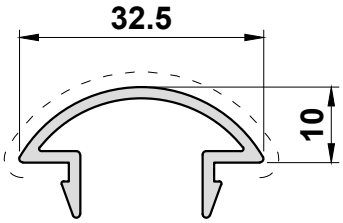


Scale 1:1

Primary Visible Side - - - - - - - - - - - - - - - - - - Secondary Visible Side — · — · — · — · — · — · —

VS052

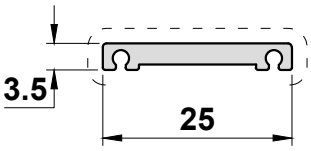
Travel Stop



(End Caps = ACVS052)

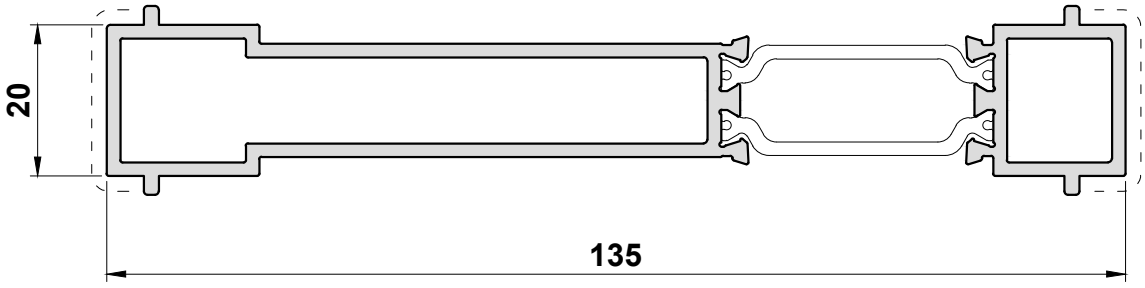
W20165

Astragal Bar



VS445

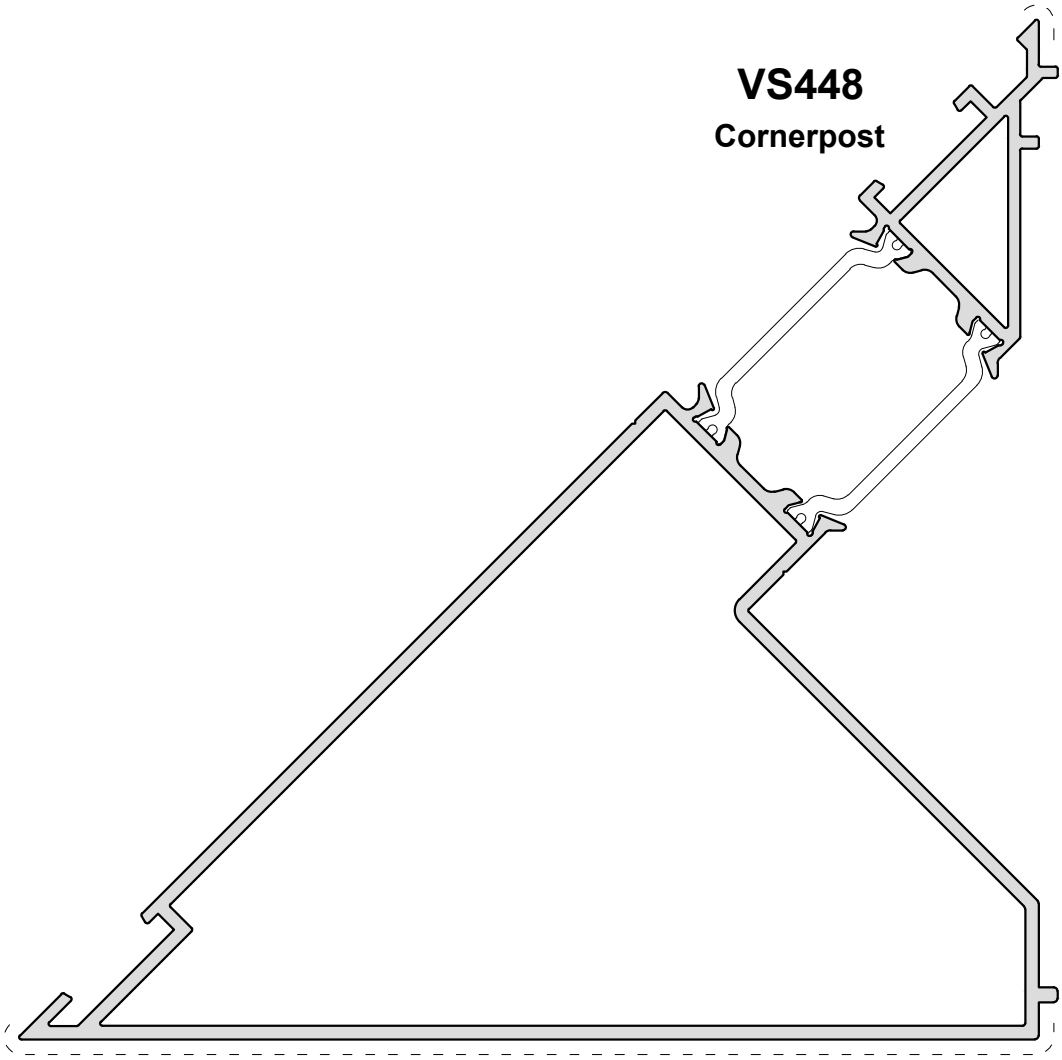
Coupler



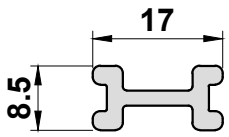
Scale 1:1

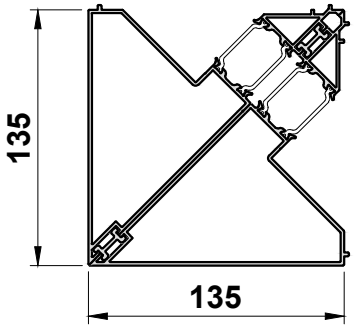
Primary Visible Side – – – – – – – – – – – – – – – – – Secondary Visible Side — · — · — · — · — · — · —

VS448
Cornerpost



UN150
Concealed Coupler



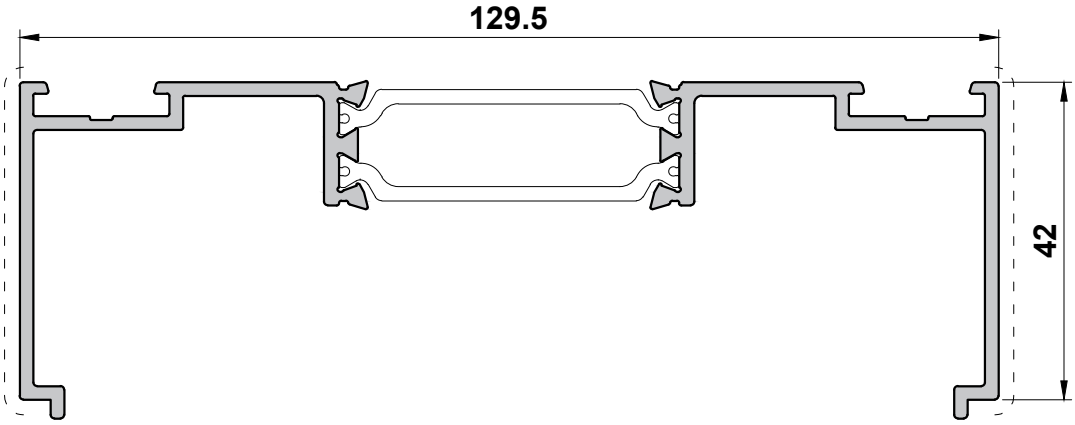


Scale 1:1

Primary Visible Side - - - - - - - - - - - - - - - - - - Secondary Visible Side — · — · — · — · — · — · —

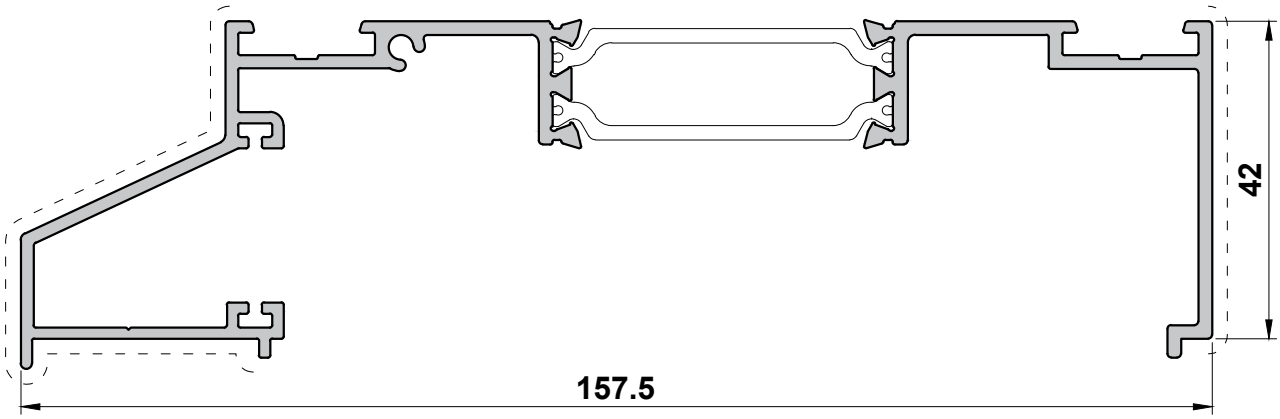
VS471

42mm Head Extension



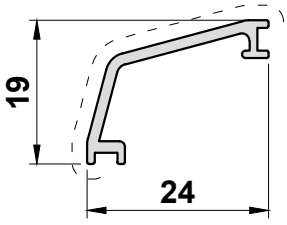
VS472

42mm Hooded Head Extension



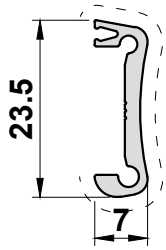
UN3712

External Trickle Vent



UN3711

Inner Trickle Vent



Scale 1:1

PROFILE : SCALED PROFILE DRAWINGS

Primary Visible Side – – – – – – – – – – – – – – – – **Secondary Visible Side** — · — · — · — · — · — · — · —

Scale 1:1

Section B

Accessories

Photos & Drawings

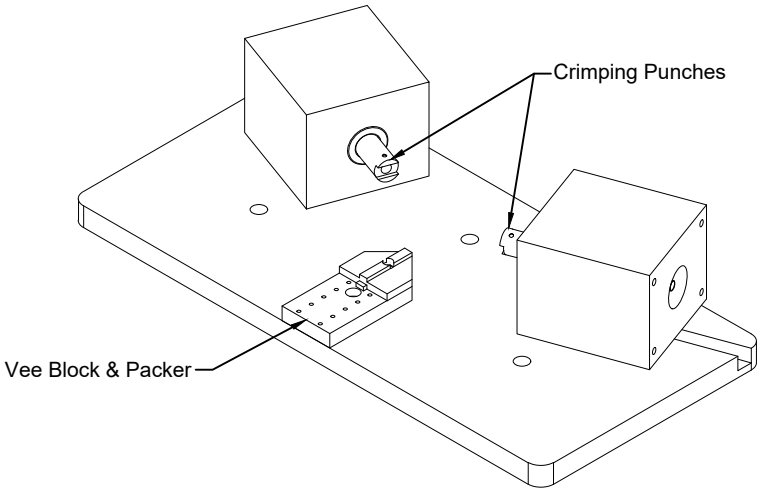
Corner Joint - Crimping

	Profile	Crimping Punches	Vee Block	Packer
Sash	VS420	ACVS990	ACUN3950 ACUN3952 ACUN3957	ACET4380 ACET4383 ACET4381*
	VS422			

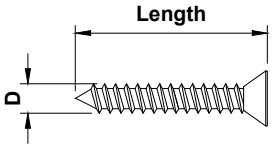
*Replace ACET4380 with ACET4381 for power crimpers

PNEUMATIC CRIMPER
ACCR100

MANUAL CRIMPER
WUT024HSZA



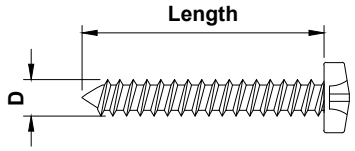
Countersunk Screws



Gauge	'D' (mm)
No.6	3.5
No.7	3.8
No.8	4
No.10	5
No.12	6

Part Number	Gauge	X	Length	Description	Box Qty.
ACUN3530	No.6	X	5/8"	Countersunk Pozi Self Tapper S/S	100
MUA025SSZ	No.6	X	1"	Countersunk Pozi Self Tapper S/S	100
ACET067	No.7	X	1/2"	Countersunk Pozi Self Tapper S/S	100
ACET060	No.7	X	1"	Countersunk Pozi Self Tapper S/S	100
ACET066	No.7	X	1 1/2"	Countersunk Pozi Self Tapper S/S	100
MUA067SSZ	No.7	X	2"	Countersunk Pozi Self Tapper S/S	100
ACUN3544	No.7	X	3/4"	Countersunk Pozi Self Tapper S/S	100
ACET064	No.8	X	5/8"	Countersunk Pozi Self Tapper S/S	100
ACUN3512	No.8	X	1 1/4"	Countersunk Pozi Self Tapper S/S	100
ACUN3513	No.8	X	1 3/4"	Countersunk Pozi Self Tapper S/S	100
ACET072	No.8	X	2 1/2"	Countersunk Pozi Self Tapper S/S	100
ACET490	4.3mm	X	16mm	Countersunk PH2 Polyamide Screw	1000
ACET290	4.3mm	X	20mm	Countersunk PH2 Polyamide Screw	100
ACET390	4.3mm	X	25mm	Countersunk PH2 Polyamide Screw	200
ACET190	4.3mm	X	45mm	Countersunk PH2 Polyamide Screw	1000
ACVS062	4.3mm	X	65mm	Countersunk PH2 Polyamide Screw	1000
ACET048	No.10	X	3/8"	Countersunk Pozi Self Tapper S/S	100
ACIM062	No.10	X	1 1/4"	Countersunk Pozi Self Tapper S/S	100
ACET062	No.10	X	2"	Countersunk Pozi Self Tapper S/S	100
ACET076	No.10	X	2 1/2"	Countersunk Pozi Self Tapper S/S	100

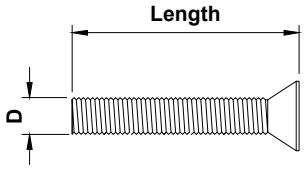
Pan Head Screws



Gauge	'D' (mm)
No.6	3.5
No.7	3.8
No.8	4
No.10	5
No.12	6

Part Number	Gauge	X	Length	Description	Box Qty.
ACET068	No.8	X	3/8"	Pozi Flange AB	100
ACET063	No.8	X	1/2"	Pan Head Self Tapper	100
ACET070	No.8	X	1/2"	Pozi Flange Self Tapper S/S	100
ACUN3535	No.8	X	5/8"	Pan Head Pozi S/S	100
ACET099	No.8	X	3/4"	Pozi Flange Self Tapper S/S	100
ACDR050	4.8mm	X	32mm	Pan Head Pozi S/S	200
PUA028	No.10	X	1"	Pan Head Pozi S/S	100
ACDR052	No.10	X	2"	Pan Head Self Tapper S/S	200
ACET079	No.10	X	2 1/2"	Pan Head Pozi S/S	100
ACW20160	No.12	X	1"	Flange Head Self Tapper S/S	100
ACMC109	6.3mm	X	38mm	DIN7981 - Pan Head Self Tapper	200

Machine Screws



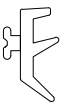
Thread	'D' (mm) Nominal
M4	4
M5	5
M6	6
M8	8
M10	10

Part Number	Thread	X	Length	Description	Box Qty.
ACET122	M4	X	10	CSK Pozi Machine Screw	100
ACET123	M4	X	20	CSK Pozi Machine Screw	100
ACDV264	M4	X	35	CSK Pozi Machine Screw	100
ACSG071	M4	X	40	CSK Pozi Machine Screw	100
ACDV266	M4	X	45	CSK Pozi Machine Screw	100
ACDV262	M4	X	50	CSK Pozi Machine Screw	100
ACDV265	M4	X	60	CSK Pozi Machine Screw	100
ACDR051	M5	X	10	CSK Pozi Machine Screw	100
ACET069	M5	X	12	CSK Pozi Machine Screw	100
HEA132	M5	X	16	CSK Pozi Machine Screw	100
WCA134	M5	X	20	CSK Pozi Machine Screw	100
WCA143	M5	X	25	CSK Pozi Machine Screw	50
ACVS060	M5	X	35	CSK Pozi Machine Screw	100
ACVS061	M5	X	40	CSK Pozi Machine Screw	100
ACET133	M5	X	50	CSK Pozi Machine Screw	100
ACET220	M5	X	60	CSK Pozi Machine Screw	100
ACET238	M5	X	70	CSK Pozi Machine Screw	100
ACMX861	M5	X	80	DIN965 - CSK Machine Screw	10
ACMX862	M5	X	90	DIN965 - CSK Machine Screw	10
ACUN3503	M6	X	10	CSK Socket Machine Screw	24
ACUN3501	M6	X	13	CSK Flange Socket Machine Screw	48
ACMX852	M6	X	16	DIN965 - CSK Machine Screw	10
HEA390	M6	X	16	CSK Socket Machine Screw	32
ACET235	M6	X	60	CSK Pozi Machine Screw	100
ACET237	M6	X	70	CSK Pozi Machine Screw	100

Glazing Gaskets

Retaining Gasket

Commonly known as an E Gasket. Retaining gaskets create a seal between the Glass and the Aluminium Profile.

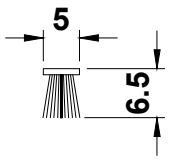
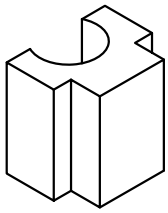
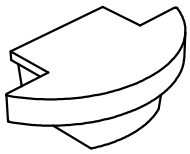
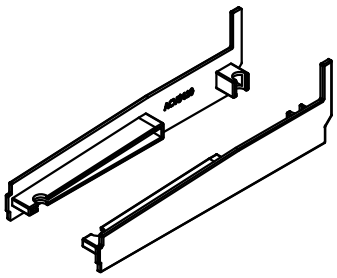
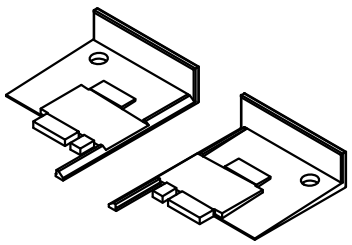
	Thickness	Drawing	Part number / Coil length / Available Colours
High Line	2mm		**ACVG231** / 200m / BL
	3mm		**ACVG31** / 200m / BL
	4mm		**ACVG131** / 100m / BL
Low Line	2mm		**ACET844** / 200m / BL
	3mm		**ACET842** / 200m / BL
	4mm		**ACET841** / 200m / BL
	4mm		**ACET835** / 200m / BL

Thickness	Drawing 1:1	Part number / Coil length / Available Colours

Wedge Gasket

Wedge Gaskets help to hold the bead in place by providing tension between the bead and the glazing unit.

	Thickness	Drawing	Part number / Coil length / Available Colours
High Line	3mm		**ACVG32** / 100m / BL
	3mm		**ACVG32N** / 100m / BL
	4mm		**ACVG33** / 100m / BL
	4mm		**ACVG33N** / 100m / BL
	5mm		**ACVG34** / 100m / BL
	5mm		**ACVG34N** / 100m / BL
	6mm		**ACVG340** / 200m / BL
	6mm		**ACVG340N** / 100m / BL
Low Line	4mm - 3mm		**ACW20038** / 50m / BL
	5mm - 4mm		**ACET848** / 200m / BL

Image	Part Code	Pack	Unit	Application	Colour	
	**ACVS034** **Woolpile (Black or White)**	**150**	**m**	**VS410** **VS411** **VS412**	MF SA KL HP SSC SMC W Z PC	 ✓ ✓
	**ACVS051** **Foam Insert for Spring Balance**	**50**	**pack**	**VS012**	MF SA KL HP SSC SMC W Z PC	 ✓
	**ACVS052** **Travel Stop End Cap**	**20**	**pack**	**VS052**	MF SA KL HP SSC SMC W Z PC	 ✓ ✓
	**ACVS410** **VS410 End Cap**	**1**	**pair**	**VS410**	MF SA KL HP SSC SMC W Z PC	✓
	**ACVS412** **VS412 End Cap**	**1**	**pair**	**VS410** **VS412**	MF SA KL HP SSC SMC W Z PC	



T-BARS
ACVG65=2.5mm
ACVG66=3.0mm
ACVL150=4.0mm



Screw (Grub)

MF = Mill Finish
SA = Silver Anodised
KL = Basic Colour
HP = Special Colour
SSC = Smooth Satin Chrome
SMC = Smokey Chrome
PC = Polished Chrome
W = White
Z = Black

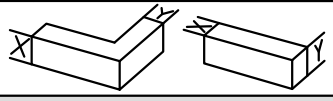
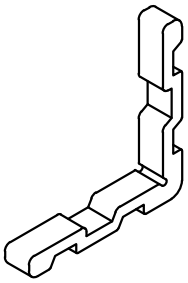
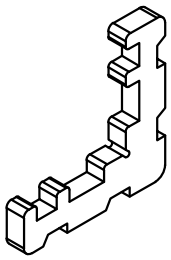
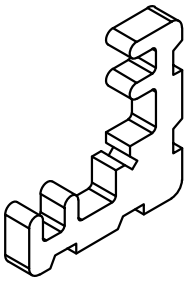
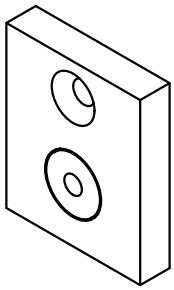
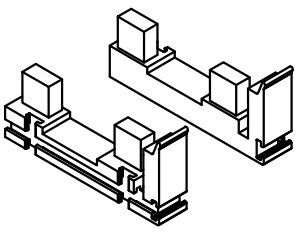


Image	Part Code	Pack	Unit	Application	Colour
	**ACVS420** **VS420 Crimping Cleat**	**24**	**pack**	**VS420**	MF SA KL HP SSC SMC W Z PC
	**ACVS421** **VS420 Crimping Cleat**	**24**	**pack**	**VS420**	MF SA KL HP SSC SMC W Z PC
	**ACVS422** **VS422 Crimping Cleat**	**24**	**pack**	**VS422**	MF SA KL HP SSC SMC W Z PC
	**ACVS442** **M5 Balance Fixing Plate** **4 per pack**	**1**	**pack**	**VS412** **ACVS060** **ACVS061**	MF SA KL HP SSC SMC W Z PC
	**ACVS450** **Top Sash Interlock Seal Carrier** **1 pair per pack**	**1**	**pack**	**VS420** **VS432**	MF SA KL HP SSC SMC W Z PC



T-BARS
ACVG65=2.5mm
ACVG66=3.0mm
ACVL150=4.0mm



Screw (Grub)

MF = Mill Finish
SA = Silver Anodised
KL = Basic Colour
HP = Special Colour
SSC = Smooth Satin Chrome
SMC = Smokey Chrome
PC = Polished Chrome
W = White
Z = Black

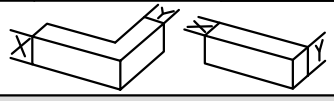
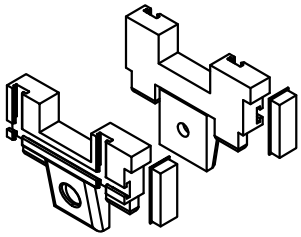
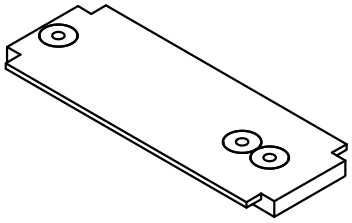
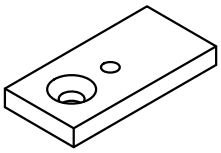
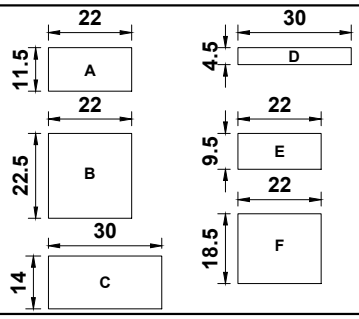


Image	Part Code	Pack	Unit	Application	Colour
	**ACVS452** **Bottom Sash Interlock Seal Carrier** **1 pair per pack**	**1**	**pack**	**VS422** **VS432**	MF SA KL HP SSC SMC W Z PC
	**ACVS454** **Sash Guide** **4 per pack**	**1**	**pack**	**VS420** **VS422**	MF SA KL HP SSC SMC W Z PC
	**ACVS457** **Spring Catch Fixing Plate** **4 per pack**	**1**	**pack**	**VS420** **VS422**	MF SA KL HP SSC SMC W Z PC
	**ACVS458** **Spring Catch Fixing Plate** **4 per pack**	**1**	**pack**	**VS422**	MF SA KL HP SSC SMC W Z PC
	**ACVS470** **Foam Kit (1250mm Lengths)** **Kit contains:** **1 x A for VS410** **1 x B for VS411** **1 x C for VS412 External** **1 x D for VS412 Internal** **1 x E for VS420** **1 x F for VS422**	**1**	**pack**	**VS410** **VS411** **VS412** **VS420** **VS422**	MF ✓ SA KL HP SSC SMC W Z PC





MF	**= Mill Finish**	**W**	**= White**
SA	**= Silver Anodised**	**Z**	**= Black**
KL	**= Basic Colour**		
HP	**= Special Colour**		
SSC	**= Smooth Satin Chrome**		
SMC	**= Smokey Chrome**		
PC	**= Polished Chrome**		

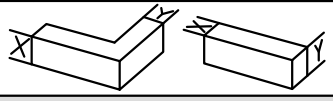
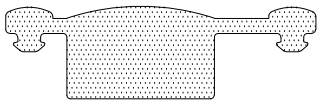
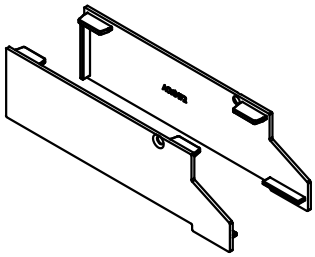
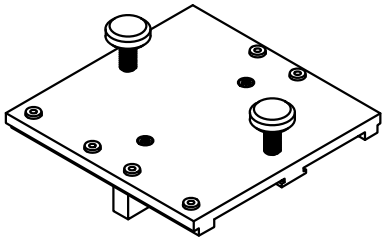
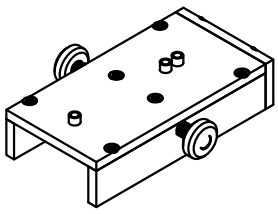
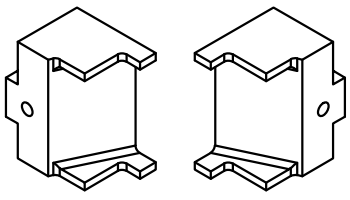


Image	Part Code	Pack	Unit	Application	Colour
	**ACVS471** **Head & Cill Seal**	**25**	**m**	**VS422** **VS456**	MF SA KL HP SSC SMC W Z ✓ PC
	**ACVS472** **End Cap**	**1**	**Pair**	**VS472**	MF SA KL HP SSC SMC W Z ✓ PC ✓
	**ACVS950** **Drill Jig**	**1**	**each**	**VS410** **VS411** **VS412**	MF SA KL HP SSC SMC W Z PC
	**ACVS952** **Guide Catch Drill Jig**	**1**	**each**	**ACVS457** **ACVS458** **VS420** **VS422**	MF SA KL HP SSC SMC W Z PC
	**ACVS990** **Crimping Punches**	**1**	**pair**	**VS420** **VS422**	MF SA KL HP SSC SMC W Z PC

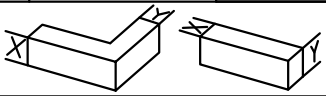


T-BARS
ACVG65=2.5mm
ACVG66=3.0mm
ACVL150=4.0mm

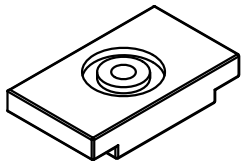
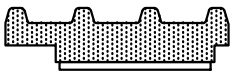
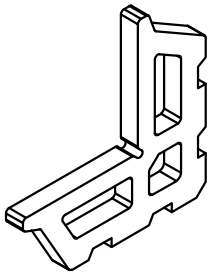


Screw (Grub)

MF	**= Mill Finish**	**W**	**= White**
SA	**= Silver Anodised**	**Z**	**= Black**
KL	**= Basic Colour**		
HP	**= Special Colour**		
SSC	**= Smooth Satin Chrome**		
SMC	**= Smokey Chrome**		
PC	**= Polished Chrome**		



ACCESSORIES : PHOTOS & DRAWINGS

Image	Part Code	Pack	Unit	Application	Colour	
	**ACDV241** **M4 Fixing Plate**	**50**	**pack**	**VS420** **VS422**	MF	
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	
	**ACDV482** **Glass Perimeter Foam**	**100**	**m**	**VS420** **VS422**	MF	
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	
	**ACET819** **VS422 Crimping Cleat**	**24**	**pack**	**VS422**	MF	
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	
	**ACET4380** **8mm Crimping Support**	**1**	**Each**	**VS420** **VS422**	MF	✓
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	
	**ACET4381** **10mm Crimping Support**	**1**	**Each**	**VS420** **VS422**	MF	✓
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	



T-BARS
ACVG65=2.5mm
ACVG66=3.0mm
ACVL150=4.0mm



Screw (Grub)

MF = Mill Finish
SA = Silver Anodised
KL = Basic Colour
HP = Special Colour
SSC = Smooth Satin Chrome
SMC = Smokey Chrome
PC = Polished Chrome
W = White
Z = Black

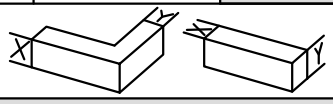
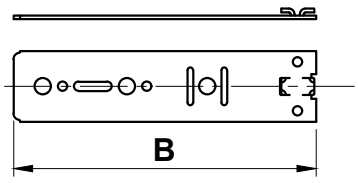
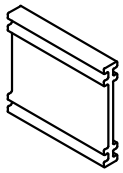
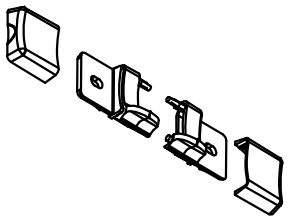
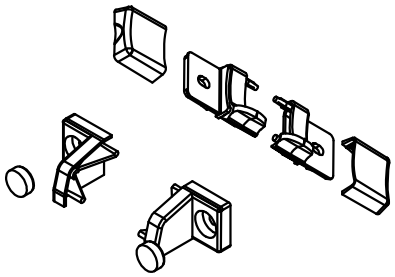


Image	Part Code	Pack	Unit	Application	Colour	
	**ACET4383** **22.5mm Crimping Support**	**1**	**Each**	**VS420** **VS422**	MF	✓
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	
	**ACUN23X** **Screw Fixing Lug** **B x 38mm x 2mm** **ACUN230: B = 160mm** **ACUN232: B = 240mm** **ACUN233: B = 280mm**	**100**	**Pack**	**VS410** **VS411** **VS412**	MF	
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	
	**ACUN3701** **Anti-Crush Support**	**25**	**Pack**	**VS472**	MF	
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	
	**ACUN3711** **UN3711 Accessory Pack** **Black or White**	**1**	**Pack**	**VS472**	MF	
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	✓
					Z	✓
					PC	
	**ACUN3712** **UN3712 Accessory Pack** **Black or White**	**1**	**Pack**	**VS471**	MF	
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	✓
					Z	✓
					PC	





MF = Mill Finish **W = White**
SA = Silver Anodised **Z = Black**
KL = Basic Colour
HP = Special Colour
SSC = Smooth Satin Chrome
SMC = Smokey Chrome
PC = Polished Chrome

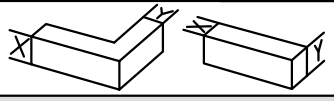
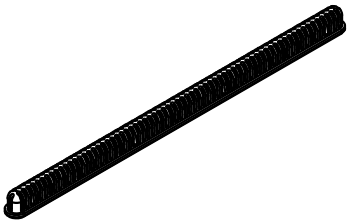
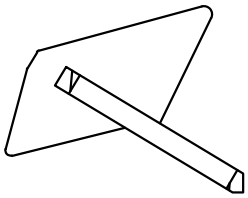
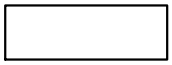
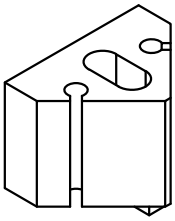
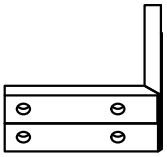


Image	Part Code	Pack	Unit	Application	Colour	
	**ACUN3713** **Push-In Flyscreen**	**1**	**Each**	**VS472**	MF SA KL HP SSC SMC W Z PC	 ✓ ✓
	**ACUN3714** **Slide In Push- Fly Screen** **Black or White**	**1**	**Each**	**UN3712**	MF SA KL HP SSC SMC W Z PC	 ✓
	**ACUN3715** **Internal Foam Tape** **Black**	**3.5**	**m**	**UN3712**	MF SA KL HP SSC SMC W Z PC	 ✓
	**ACUN3950** **Vee Block**	**1**	**Each**	**VS420** **VS422**	MF SA KL HP SSC SMC W Z PC	
	**ACUN3952** **ACUN3950 Nylon Support**	**1**	**Each**	**VS420** **VS422**	MF SA KL HP SSC SMC W Z PC	



T-BARS
ACVG65=2.5mm
ACVG66=3.0mm
ACVL150=4.0mm



Screw (Grub)

MF	**= Mill Finish**	**W**	**= White**
SA	**= Silver Anodised**	**Z**	**= Black**
KL	**= Basic Colour**		
HP	**= Special Colour**		
SSC	**= Smooth Satin Chrome**		
SMC	**= Smokey Chrome**		
PC	**= Polished Chrome**		

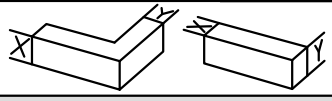
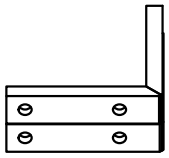
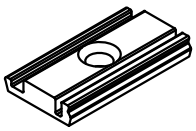
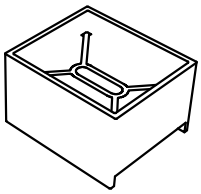
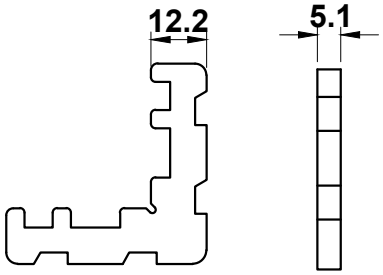
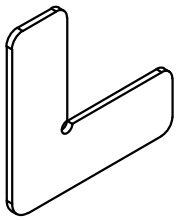
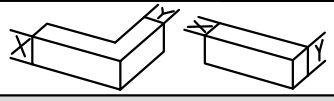


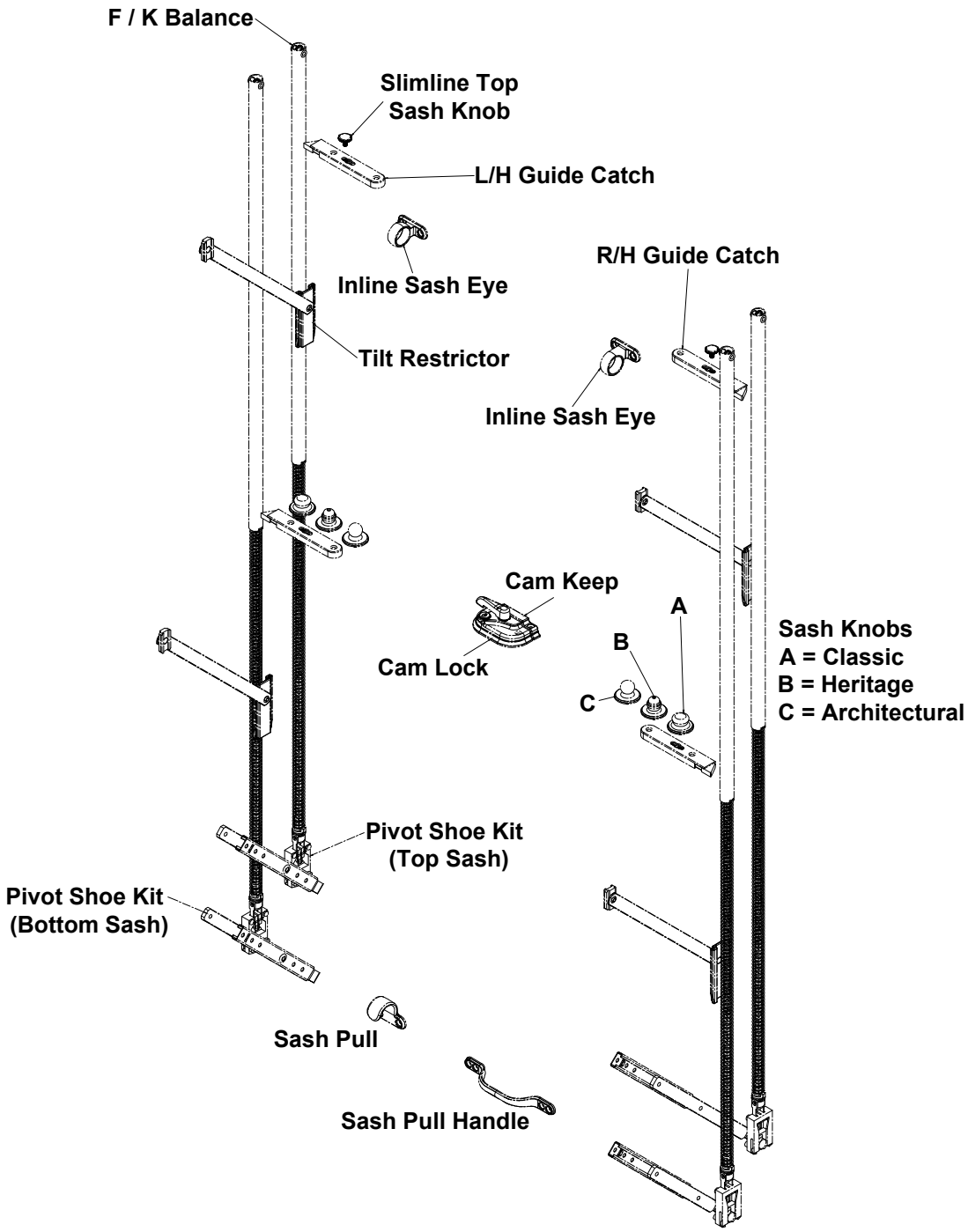
Image	Part Code	Pack	Unit	Application	Colour
	**ACUN3957** **Adjustable Vee Block**	**1**	**Each**	**VS420** **VS422**	MF SA KL HP SSC SMC W Z PC
	**ACUN3966** **Retain Clip**	**50**	**Pack**	**VS471** **VS472**	MF SA KL HP SSC SMC W Z ✓ PC
	**ACVG558** **Packer for Head Extensions**	**10**	**pack**	**VS471** **VS472**	MF SA KL HP SSC SMC W Z PC
	**ACW20415** **VS420 Crimping Cleat**	**24**	**pack**	**VS420**	MF SA KL HP SSC SMC W Z PC
	**WCA106** **Stainless Steel Chevron**	**50**	**pack**	**VS420** **VS422**	MF SA KL HP SSC SMC W Z PC





MF	**= Mill Finish**	**W**	**= White**
SA	**= Silver Anodised**	**Z**	**= Black**
KL	**= Basic Colour**		
HP	**= Special Colour**		
SSC	**= Smooth Satin Chrome**		
SMC	**= Smokey Chrome**		
PC	**= Polished Chrome**		





Please contact ERA for the above Vertical Slider Hardware.

Contact Details:
T: 01922 490049
F: 01922 494420
E: info@erahomesecurity.com
W: www.eraeverywhere.com

Image	Part Code	Pack	Unit	Application	Colour	
	**ACMX09700** **Alu. Polish**	**1**	**each**		MF	✓
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	
	**ACMX09761** **Maxi Gloss**	**1**	**each**		MF	
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	
	**ACMX09762** **Alu. Bright**	**1**	**each**		MF	
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	
	**ACMX09763** **Teflon Spray**	**1**	**each**		MF	
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	
	**ACMX09764** **Maxi Clean**	**1**	**each**		MF	
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	





MF = Mill Finish
SA = Silver Anodised
KL = Basic Colour
HP = Special Colour
SSC = Smooth Satin Chrome
SMC = Smokey Chrome
PC = Polished Chrome
W = White
Z = Black

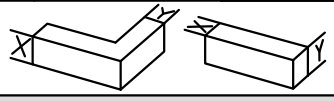


Image	Part Code	Pack	Unit	Application	Colour
	**ACMX09765** **Alu. Cleaner**	**1**	**each**		MF SA KL HP SSC SMC W Z PC
	**ACMX09770** **Roll & Wrap 100mm**	**1**	**each**		MF SA KL HP SSC SMC W Z PC
	**ACMX09775** **Grip Handwrap**	**1**	**each**		MF SA KL HP SSC SMC W Z PC
	**ACMX09801** **Protective Tape 50mm**	**1**	**each**		MF SA KL HP SSC SMC W Z PC
	**ACMX09802** **Protective Tape 70mm**	**1**	**each**		MF SA KL HP SSC SMC W Z PC



T-BARS
ACVG65=2.5mm
ACVG66=3.0mm
ACVL150=4.0mm



Screw (Grub)

MF = Mill Finish
SA = Silver Anodised
KL = Basic Colour
HP = Special Colour
SSC = Smooth Satin Chrome
SMC = Smokey Chrome
PC = Polished Chrome
W = White
Z = Black

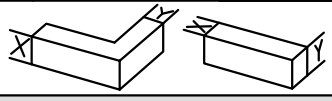


Image	Part Code	Pack	Unit	Application	Colour
	**ACMX09803** **Protective Tape 100mm**	**1**	**each**		MF SA KL HP SSC SMC W Z PC
\\smart\Technical\Technical Draw\L-Profiles\Profile Photographs\Acmx09830.jpg	**ACMX09830** **Rubber Sealant**	**1**	**each**		MF SA KL HP SSC SMC W Z PC
	**ACSIL04** **Sealing Glue** **Order with suffix of KL colour (eg.ACSIL04KL005) or BL=Black/WP=White/ CL=Clear**	**1**	**each**		MF SA KL ✓ HP SSC SMC W ✓ Z ✓ PC
	**ACSIL08** **Silicon Gun**	**1**	**each**		MF SA KL HP SSC SMC W Z PC
	**ACSIL013** **Glue for Mitre**	**1**	**each**		MF SA KL HP SSC SMC W Z PC



T-BARS
ACVG65=2.5mm
ACVG66=3.0mm
ACVL150=4.0mm



Screw (Grub)

MF = Mill Finish
SA = Silver Anodised
KL = Basic Colour
HP = Special Colour
SSC = Smooth Satin Chrome
SMC = Smokey Chrome
PC = Polished Chrome
W = White
Z = Black

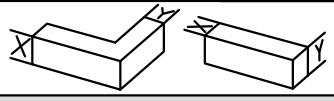
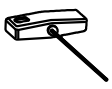


Image	Part Code	Pack	Unit	Application	Colour	
\\smart\Technical\Technical Draw\I-Profiles\Profile Photographs\Acsil014.jpg	**ACSIL014** **Anti-Corrosion Coating**	**1**	**each**		MF	✓
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	
\\smart\Technical\Technical Draw\I-Profiles\Profile Photographs\ACUN3900.jpg	**ACUN3900** **Gasket Roller**	**1**	**each**		MF	
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	
					MF	
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	
					MF	
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	
					MF	
					SA	
					KL	
					HP	
					SSC	
					SMC	
					W	
					Z	
					PC	

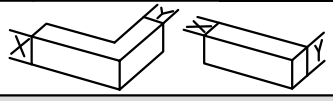


T-BARS
ACVG65=2.5mm
ACVG66=3.0mm
ACVL150=4.0mm



Screw (Grub)

MF = Mill Finish
SA = Silver Anodised
KL = Basic Colour
HP = Special Colour
SSC = Smooth Satin Chrome
SMC = Smokey Chrome
PC = Polished Chrome
W = White
Z = Black

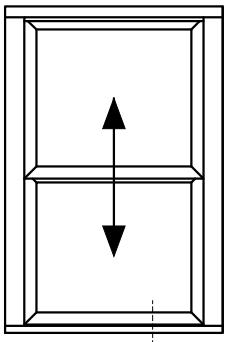


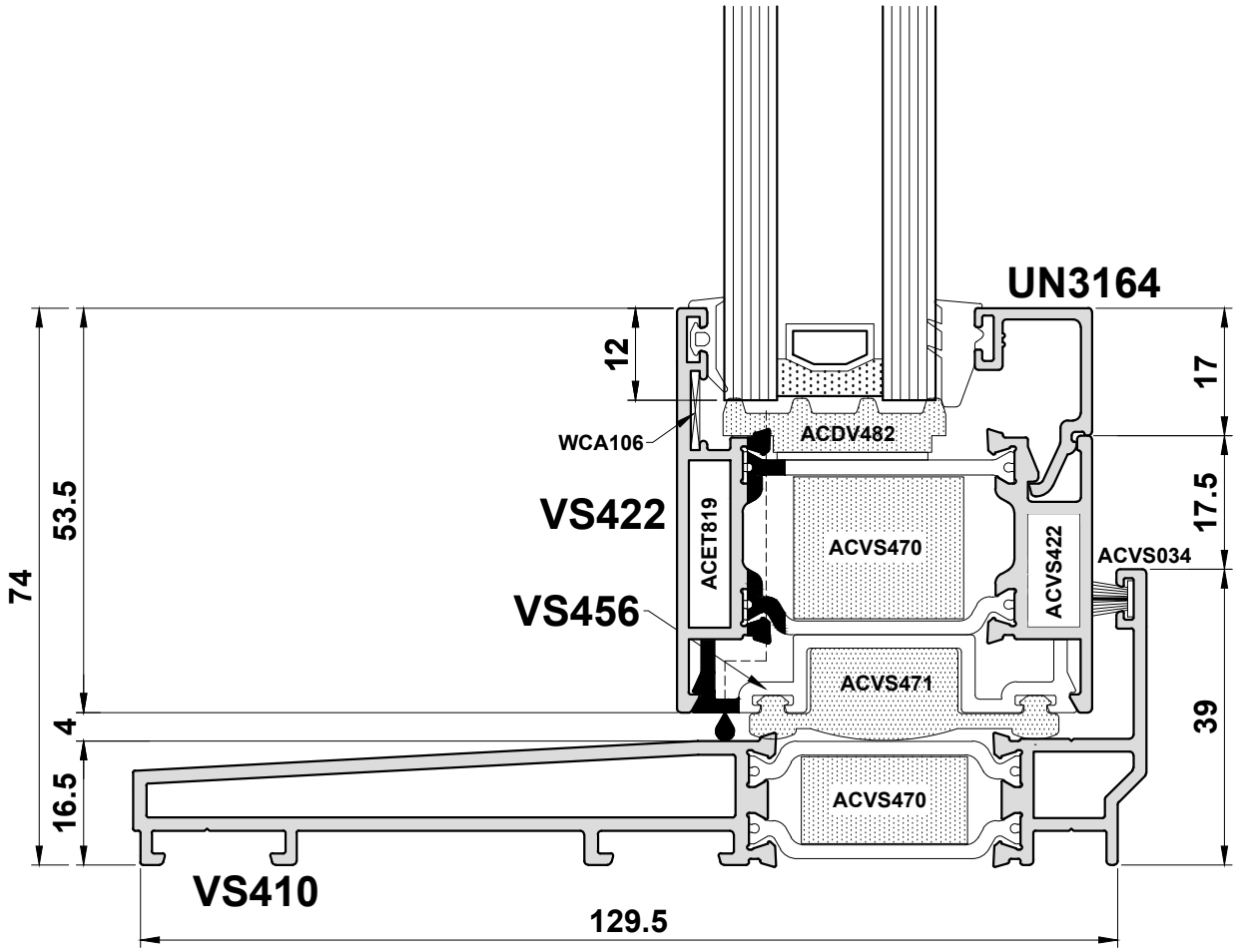
Section C

Sections

Scale Elevations

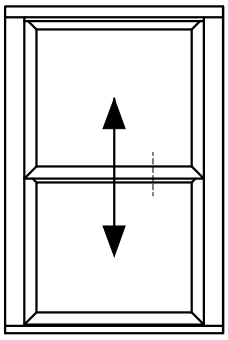
Detail 1

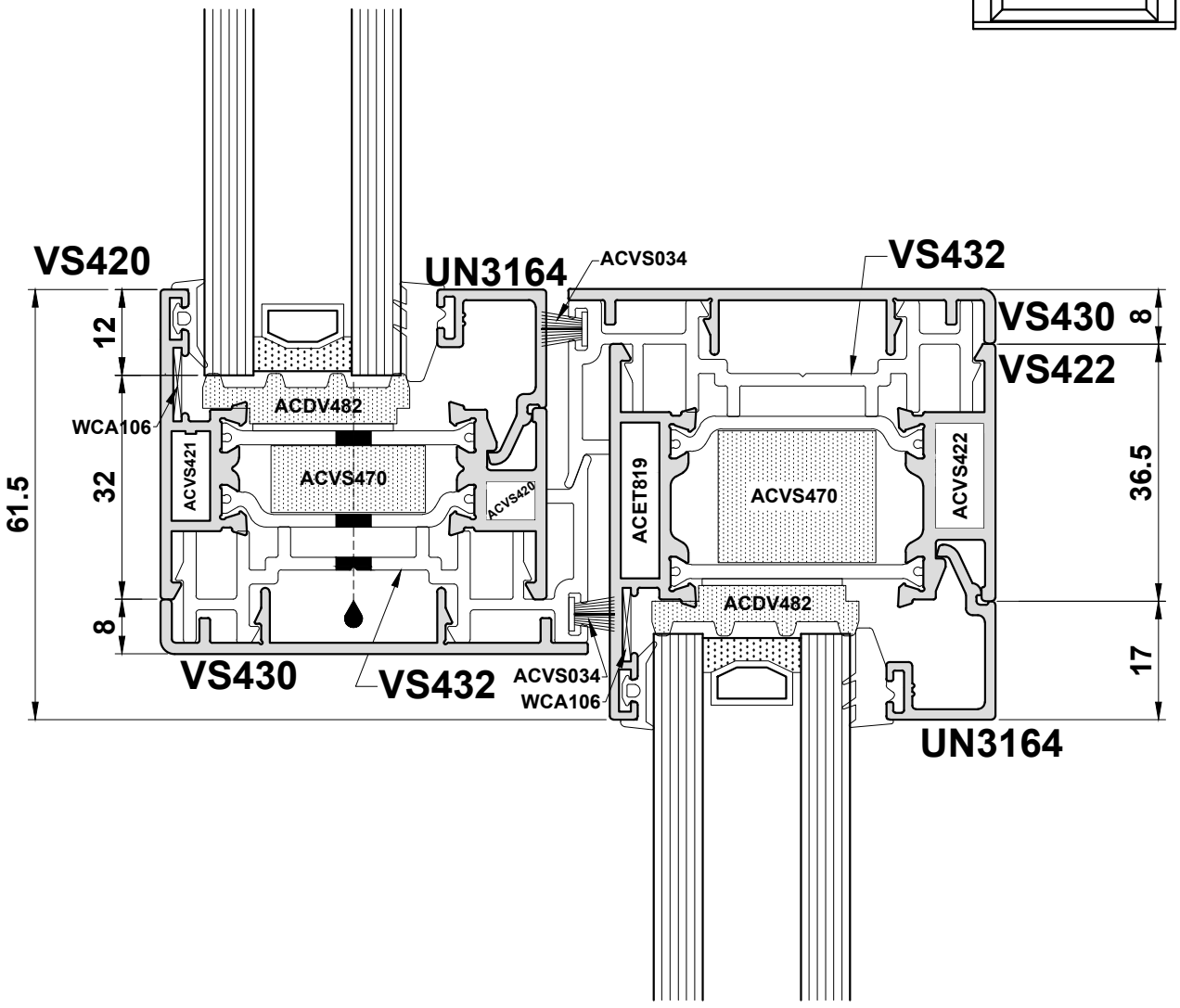




Do Not Scale From This Drawing

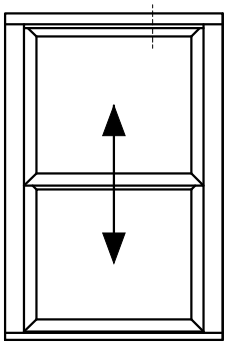
Detail 2

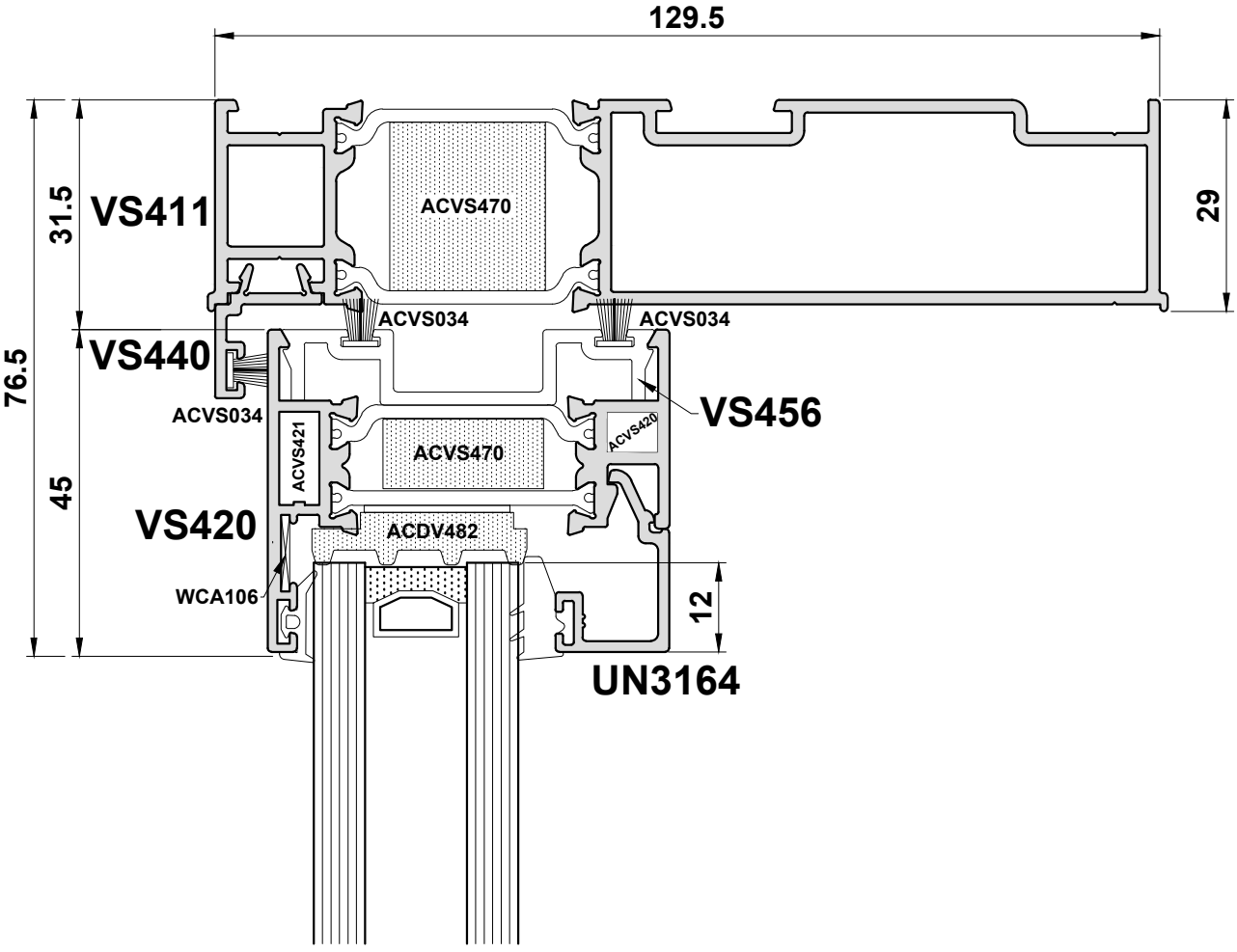




Do Not Scale From This Drawing

Detail 3A

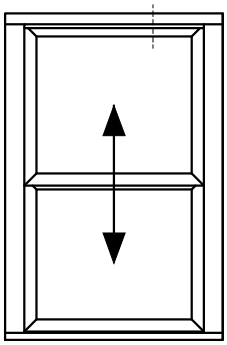


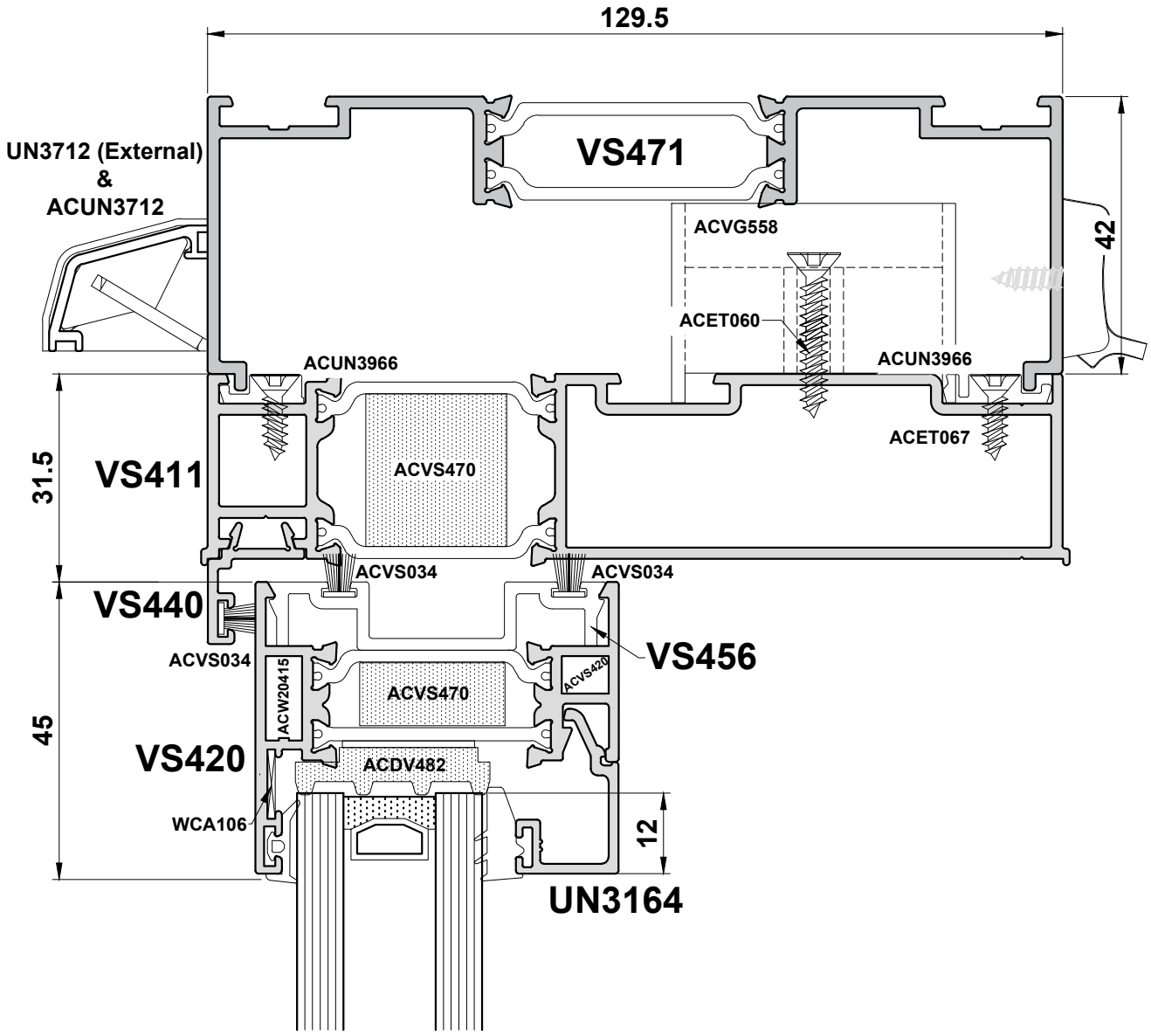


Do Not Scale From This Drawing

VS400

Detail 3B

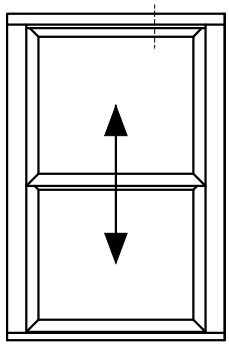


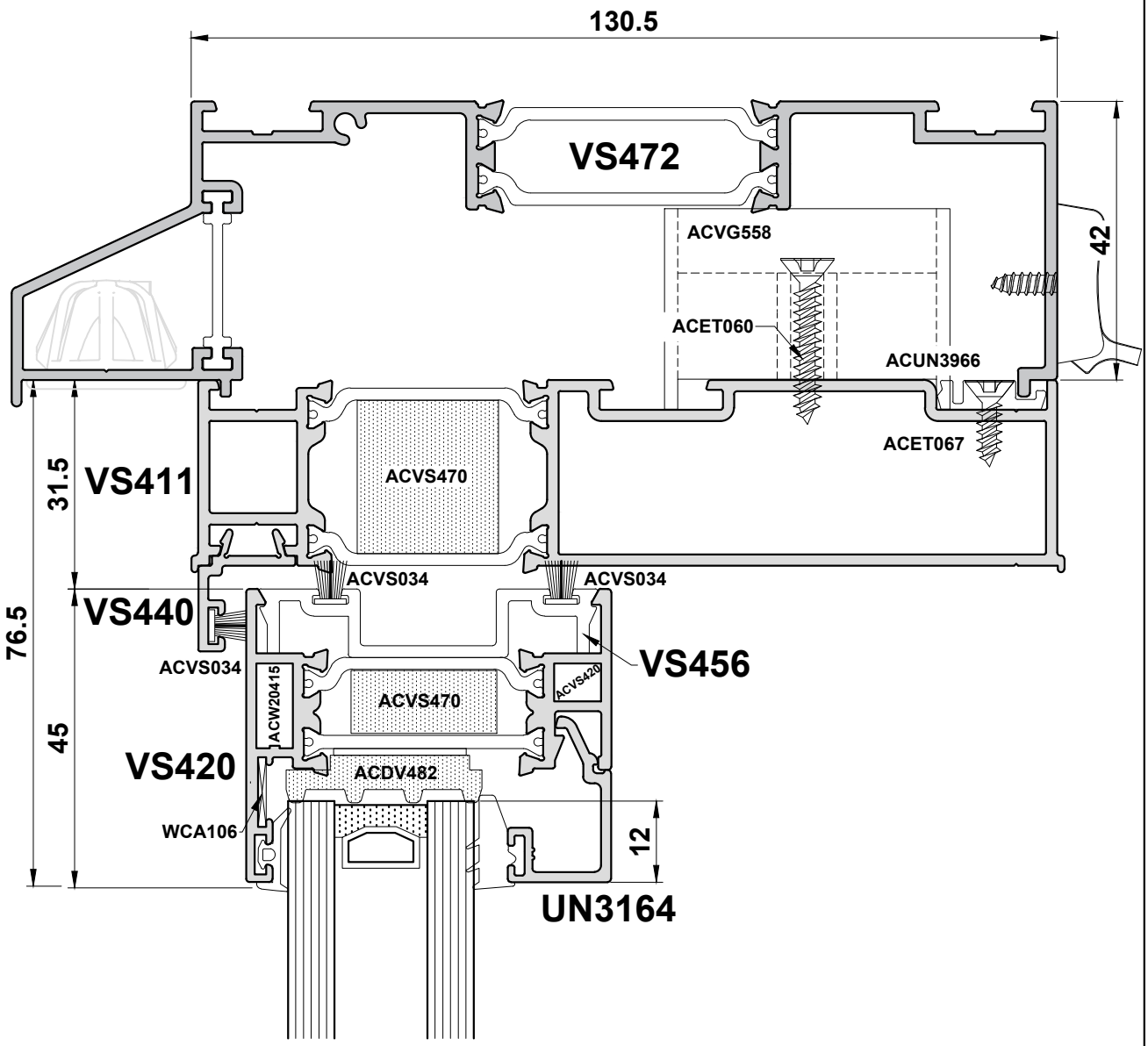


Do Not Scale From This Drawing

ISSUED: MAY 2026

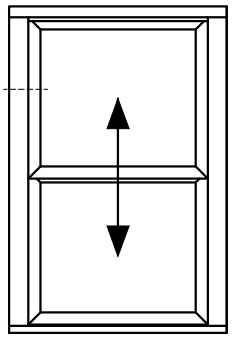
Detail 3C

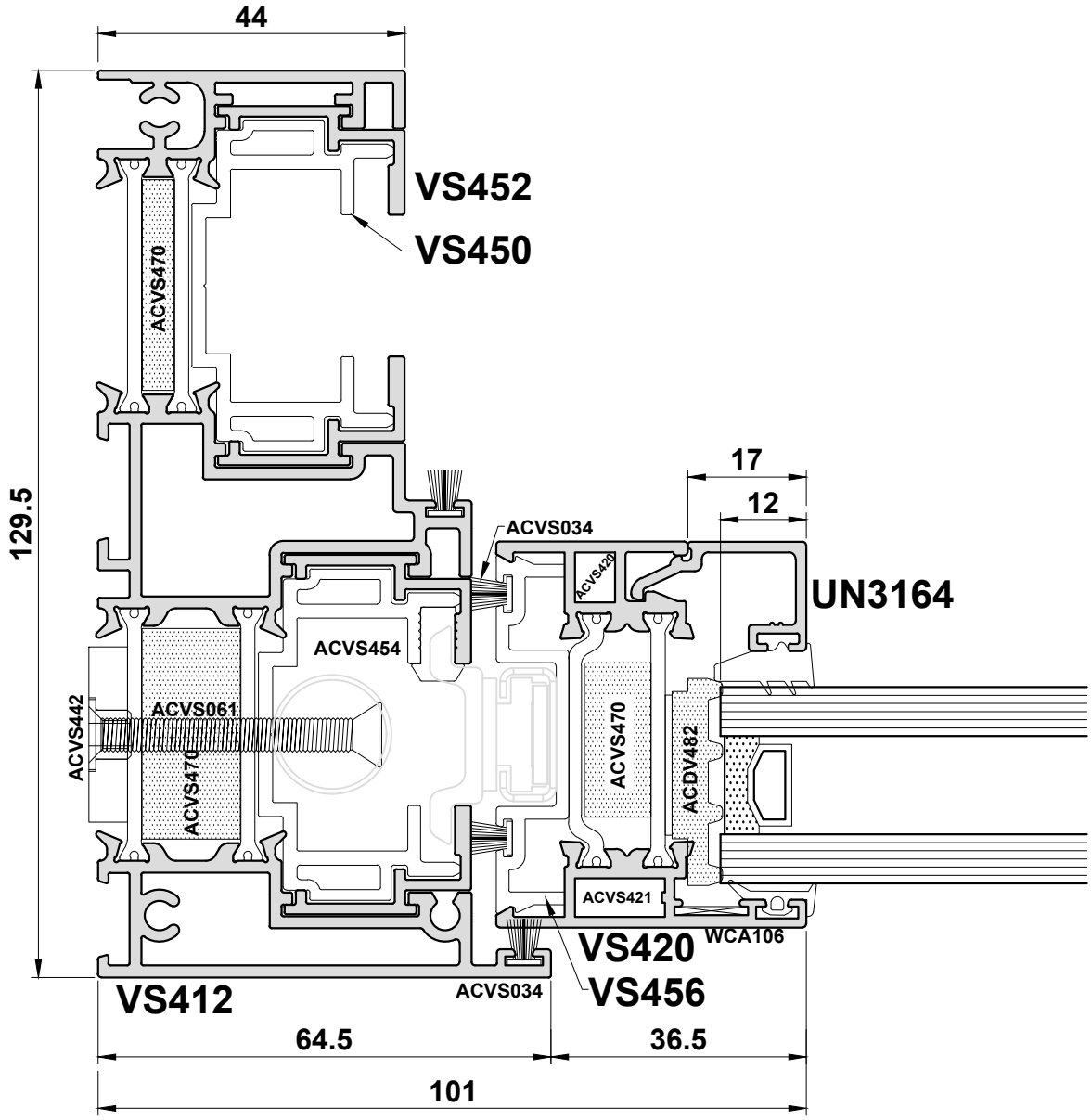




Do Not Scale From This Drawing

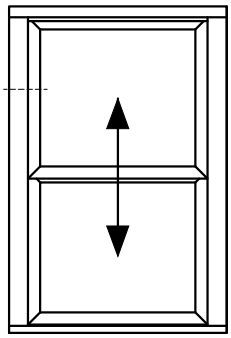
Detail 4A

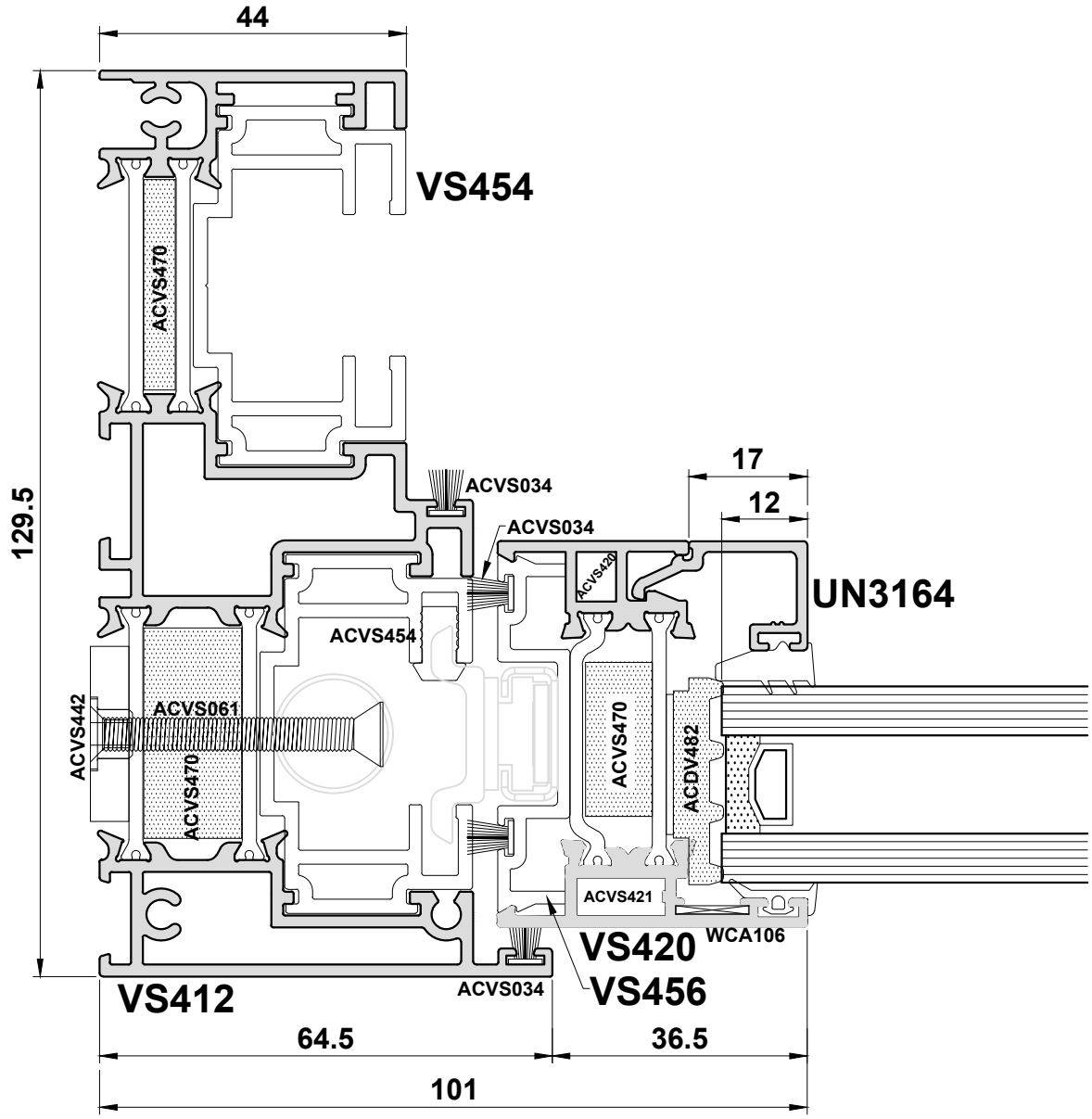




Do Not Scale From This Drawing

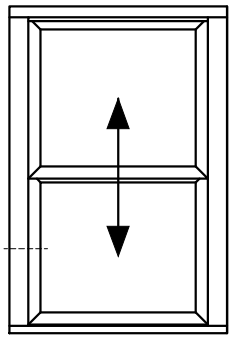
Detail 4B

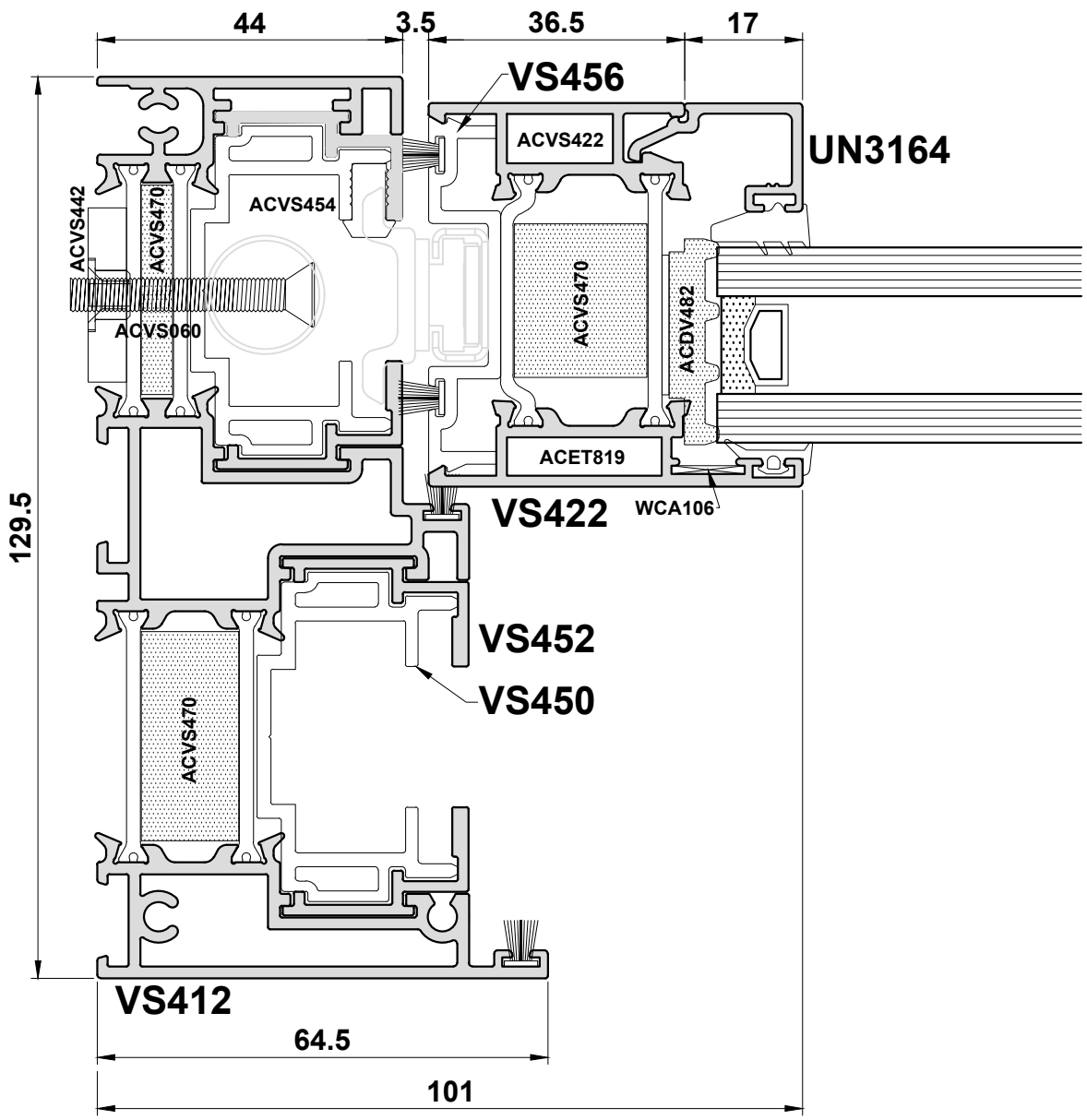




Do Not Scale From This Drawing

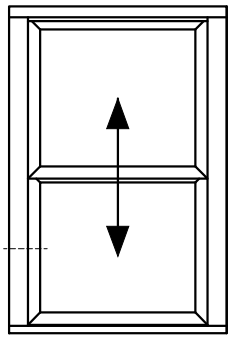
Detail 5A

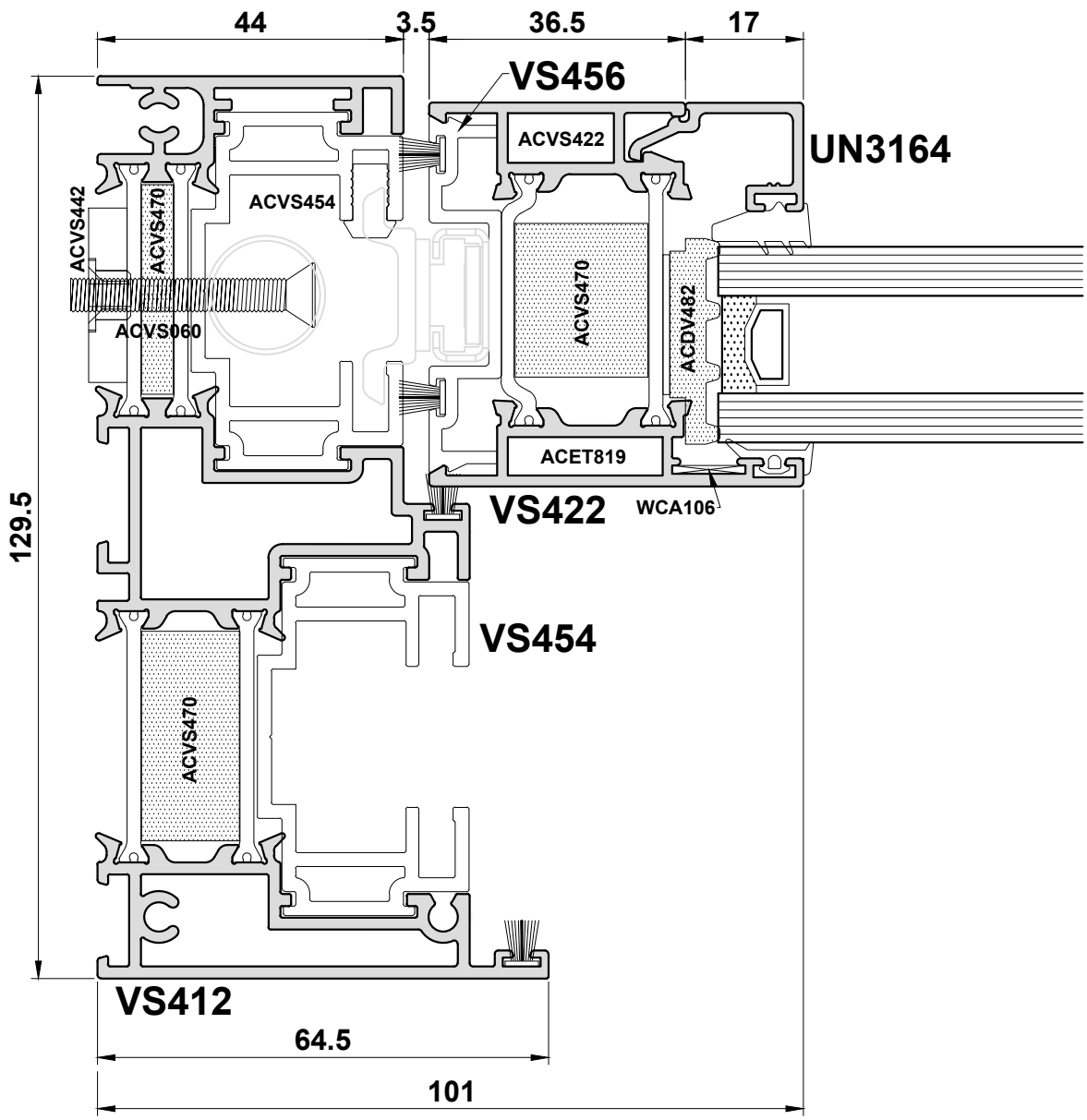




Do Not Scale From This Drawing

Detail 5B





Do Not Scale From This Drawing

Detail

Do Not Scale From This Drawing

Section D

Statics

General Size Limitations are shown on Page A03.

**For Wind Loading Limitations, Please Contact
The Technical Department - T: 01934 833100**

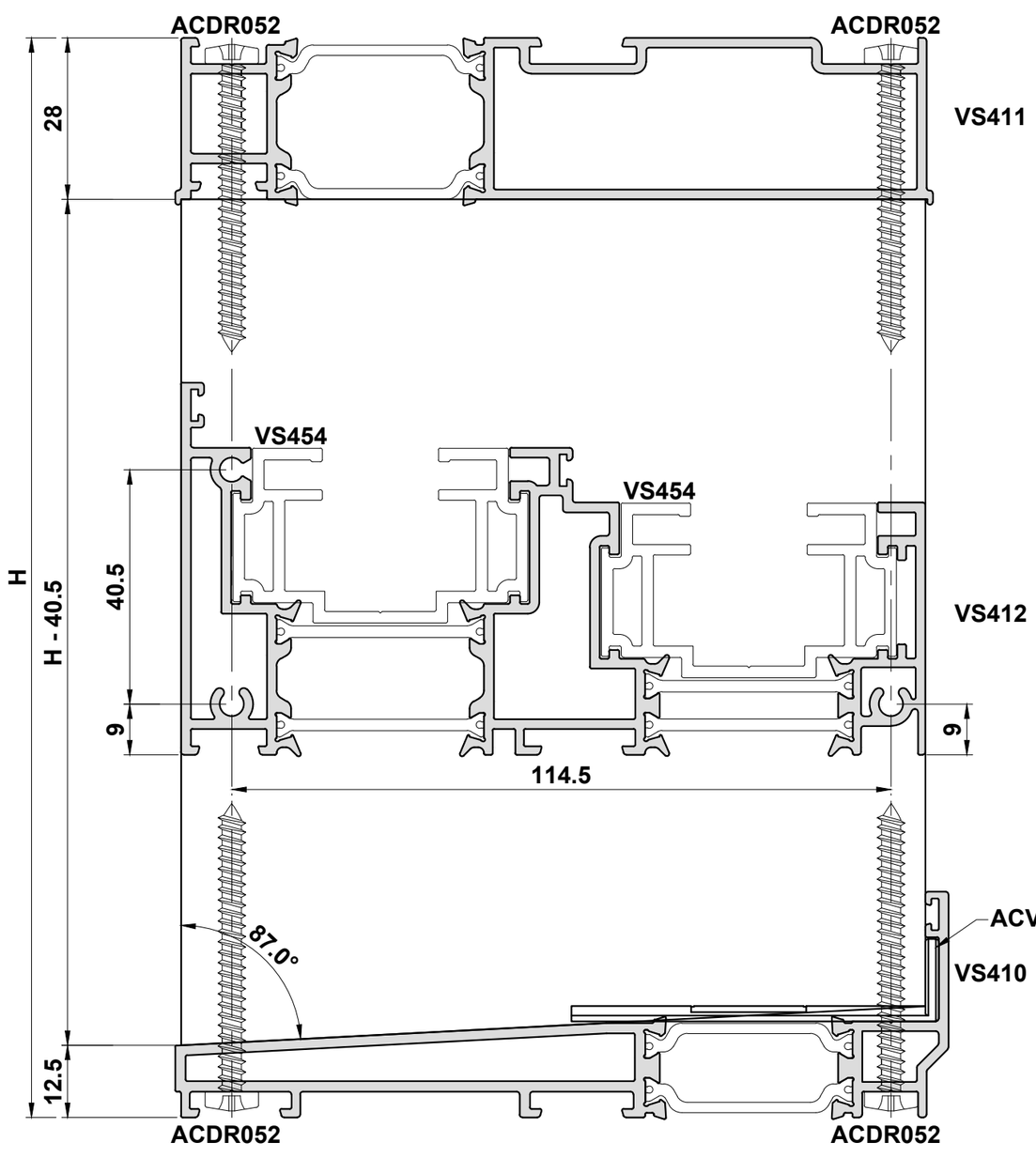
Section E

E | VS

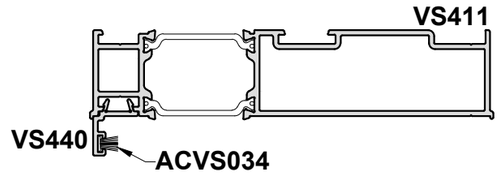
Construction Drawings

Outer Frame Preparation..... E03
Cill to Jamb Assembly..... E04
Head to Jamb Assembly..... E05
Sash Crimping Details..... E06
Drainage..... E07
Spring Balances..... E08 - E09
Travel Stops..... E10
Top Sash Details..... E11
Bottom Sash Details..... E12
Pivot Arm Details..... E13
Locking..... E14
Bar Tilt Restrictor..... E15
Handles..... E16
Inserting Sashes..... E17
Glazing..... E18 - E21
VS445 Coupler..... E22
VS448 90° Corner Post..... E23
Fixing Straps..... E24
Trickle Vent Assembly..... E25
ERA Hardware Overview..... E26

Outer Frame Preparation

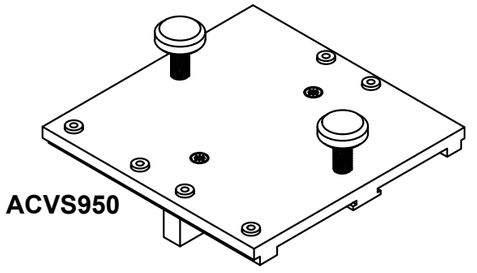


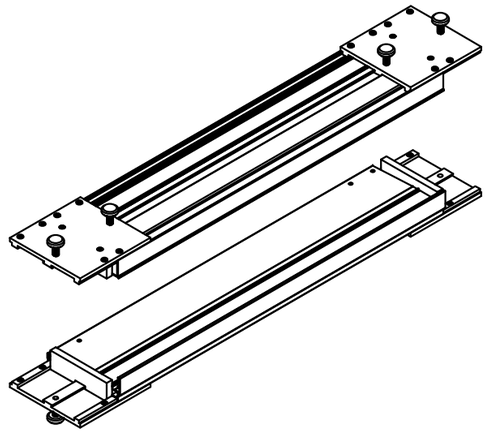
VS440

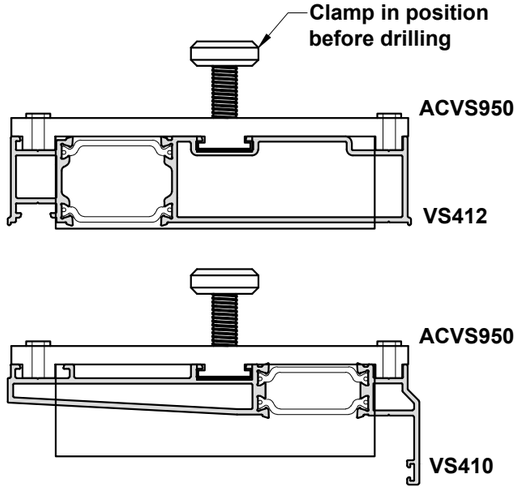


After assembly, cut in VS440 (W-129) with ACVS034 woolpile. Use a timber block to tap into position to avoid damaging the profile.

Use ACVS950 drill jig to ensure accuracy.
Drill with Ø3mm bit, then open up with Ø5.5mm bit.

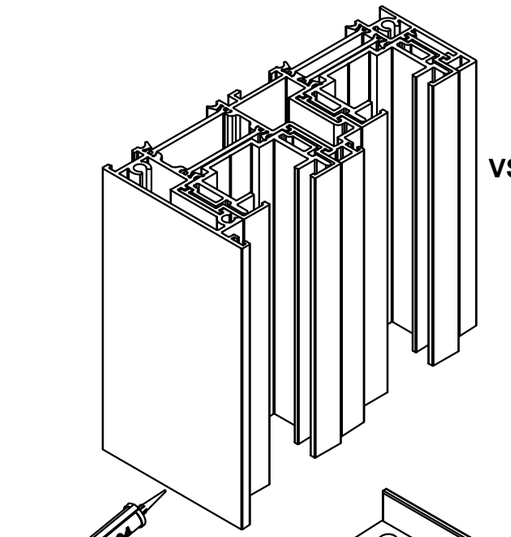


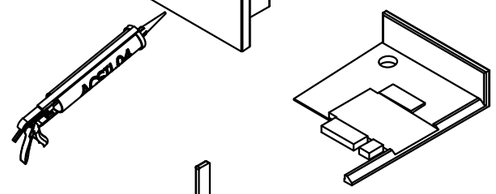


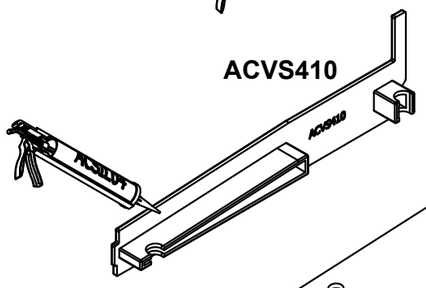


Do Not Scale From This Drawing

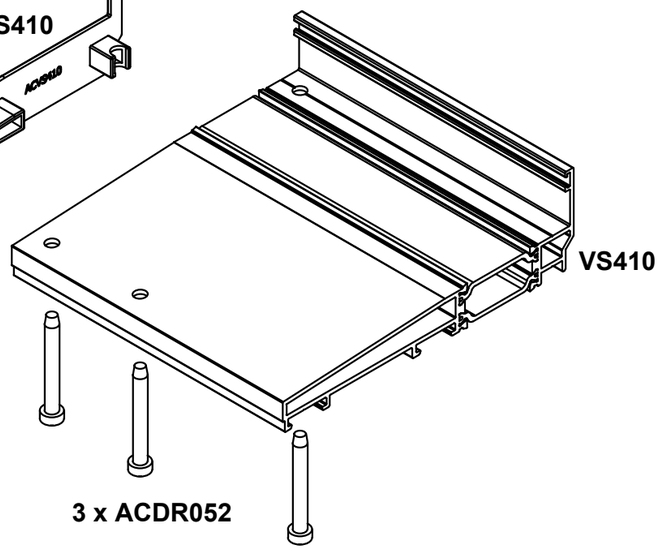
VS410 & VS412 Assembly

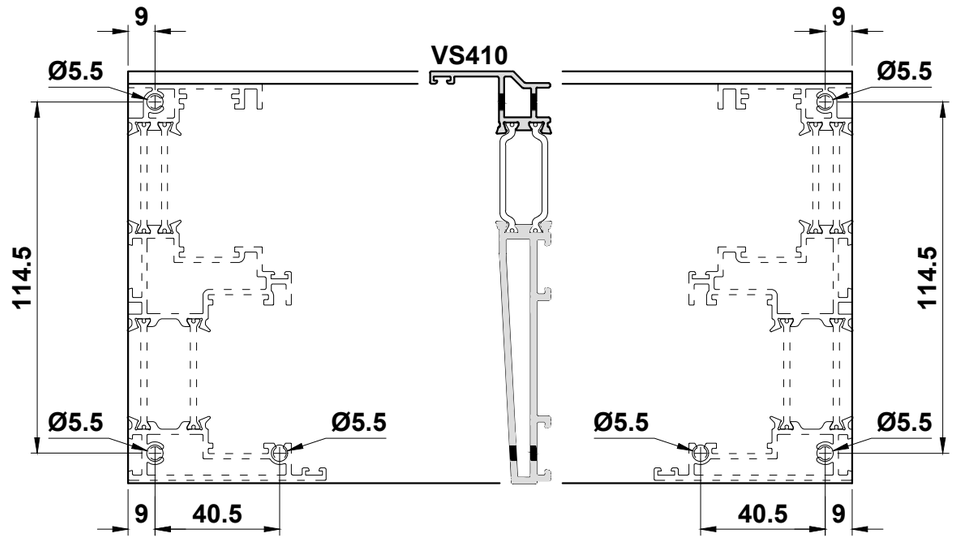


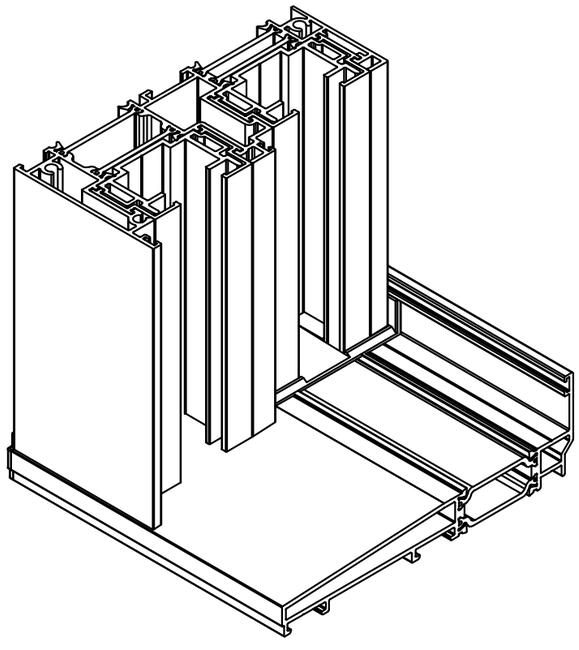




Seal ACVS410 end caps to VS410 using ACSIL04 before fixing to VS412.

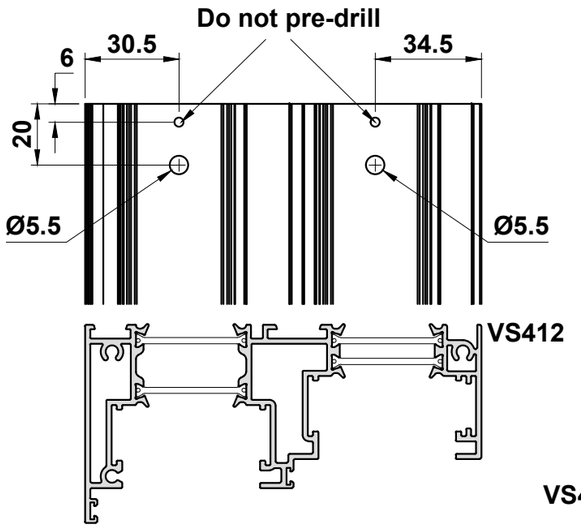


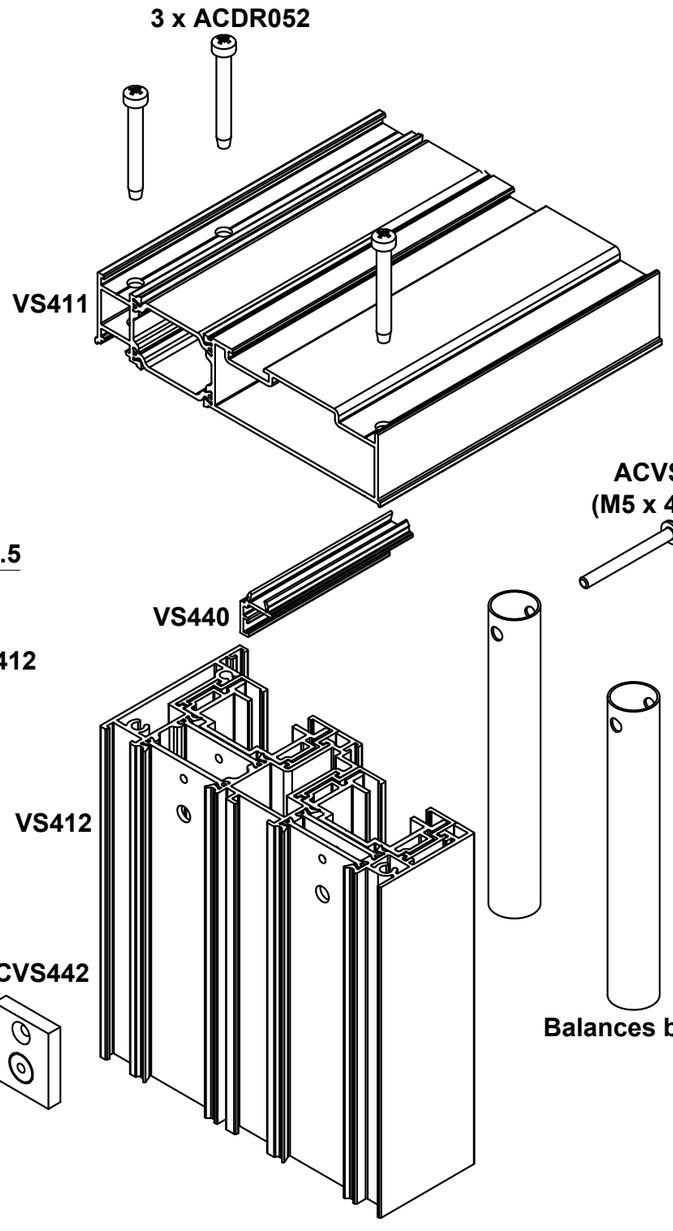


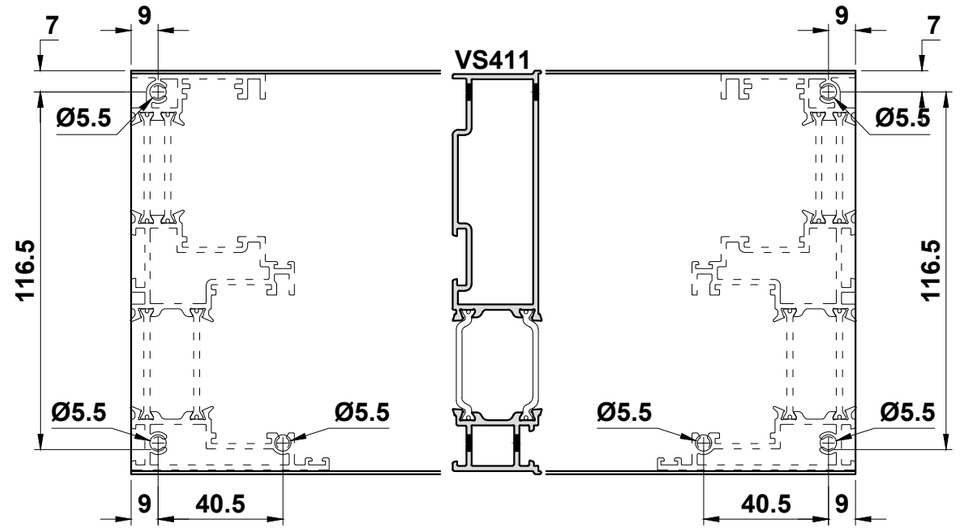


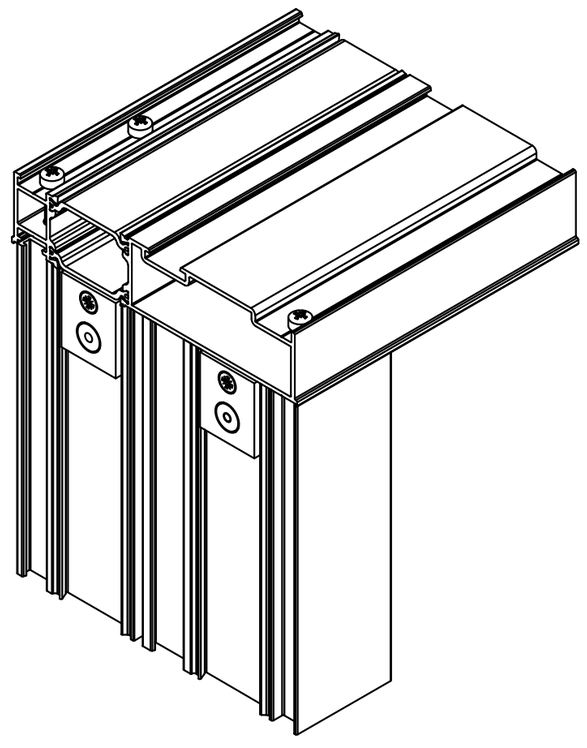
Do Not Scale From This Drawing

VS411 & VS412 Assembly



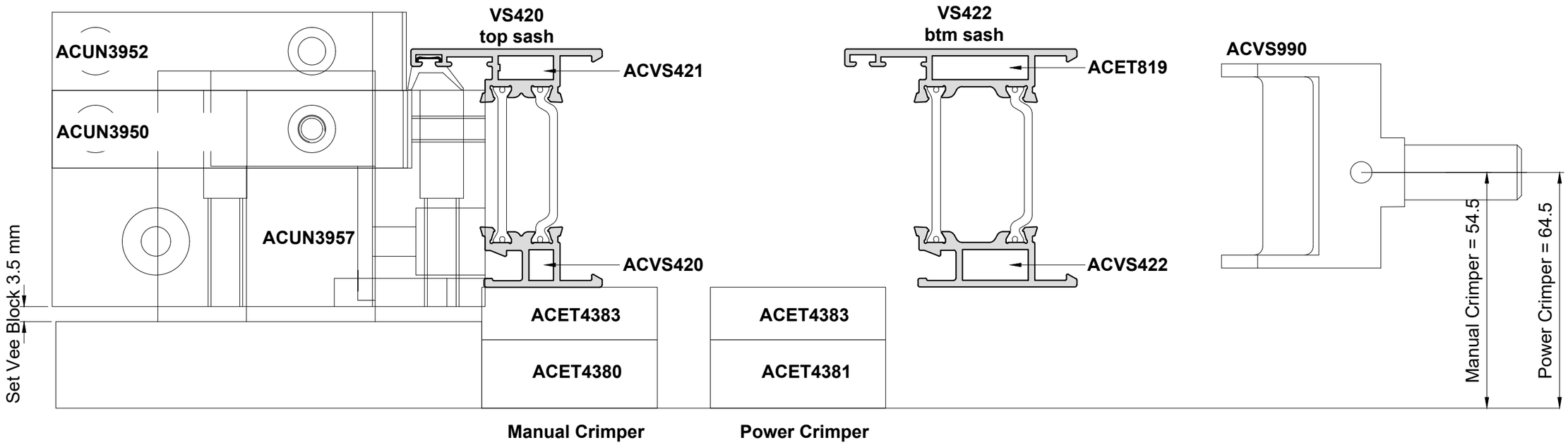






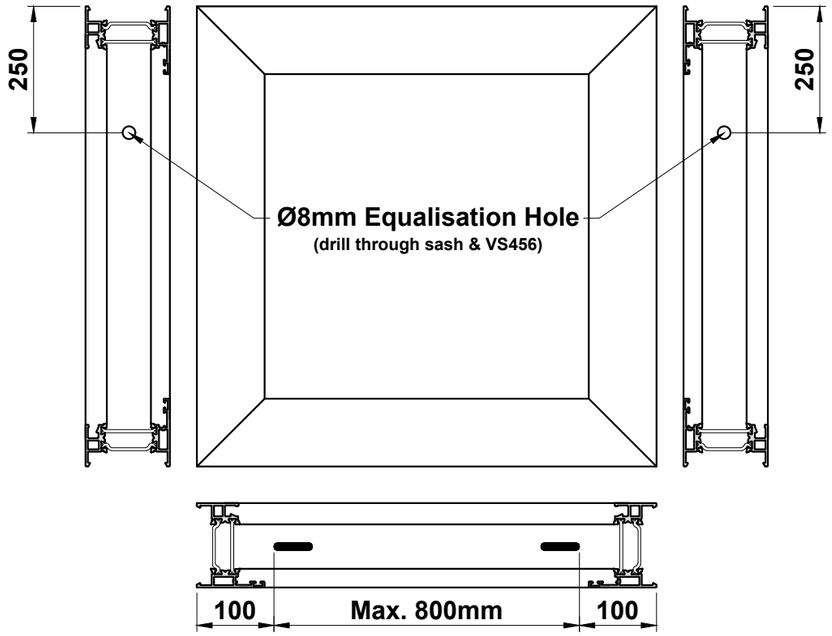
Do Not Scale From This Drawing

VS420 & VS422 Corner Crimping

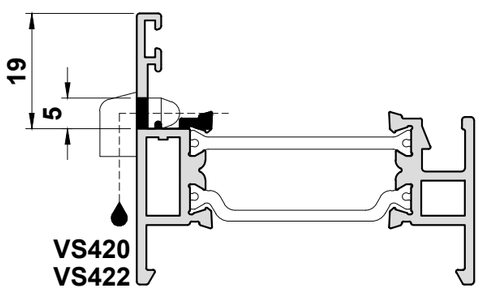


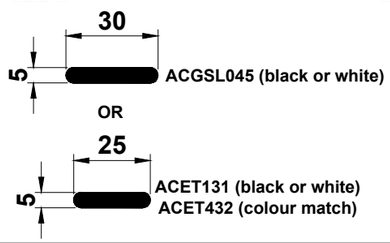
Do Not Scale From This Drawing

Drainage

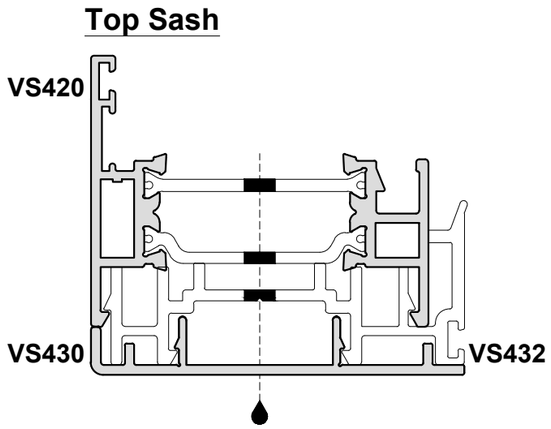


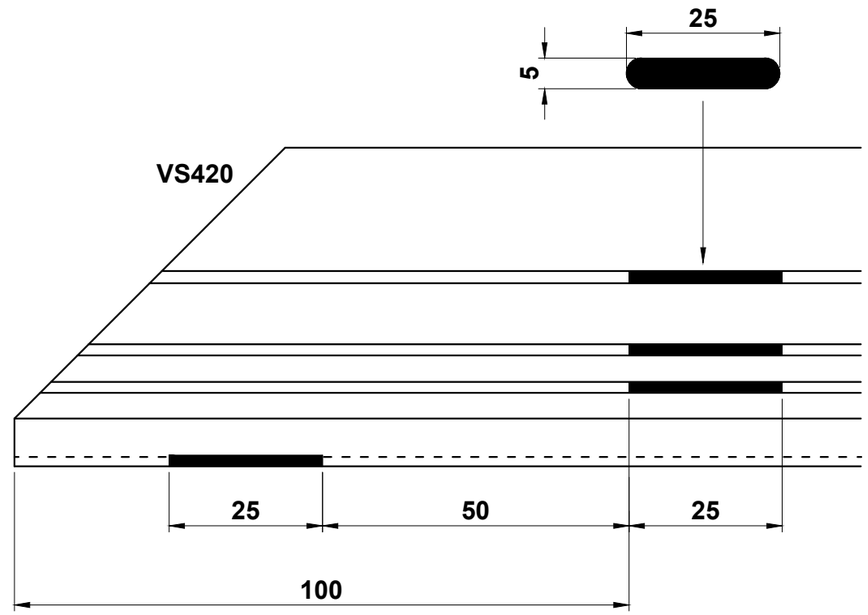
Alternative Sash Drainage



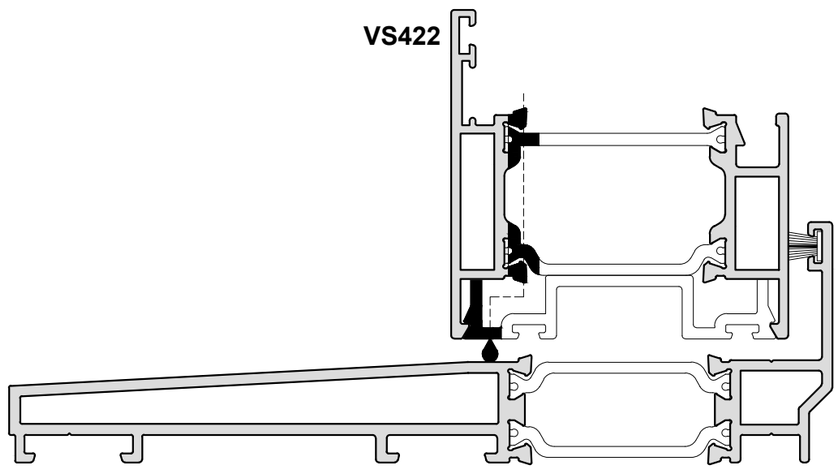


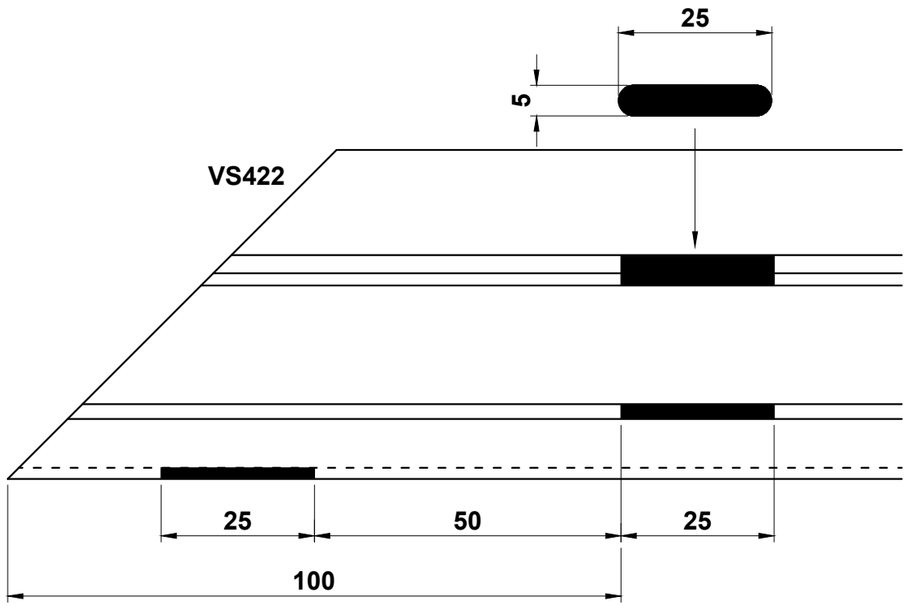
Top Sash





Bottom Sash

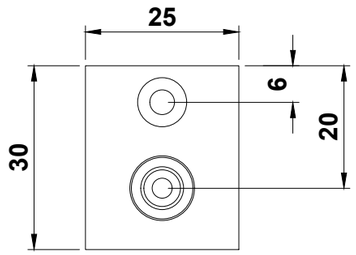




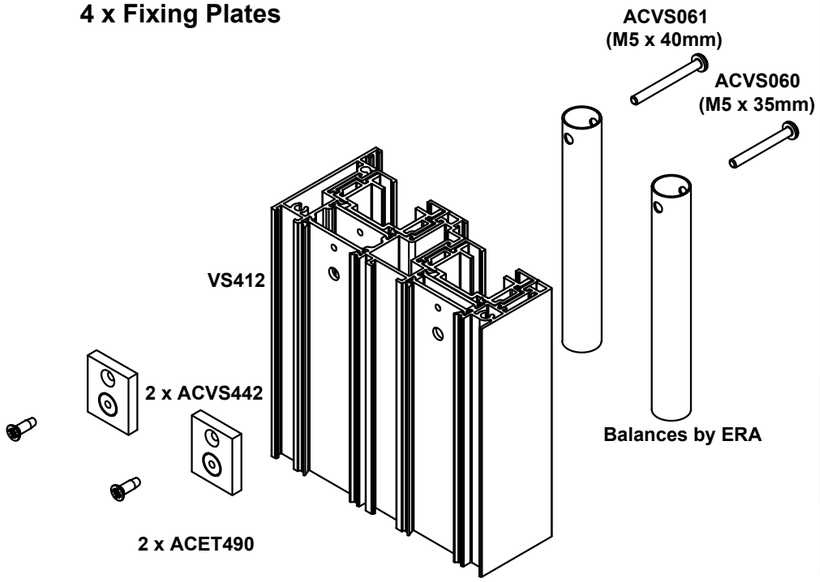
Do Not Scale From This Drawing

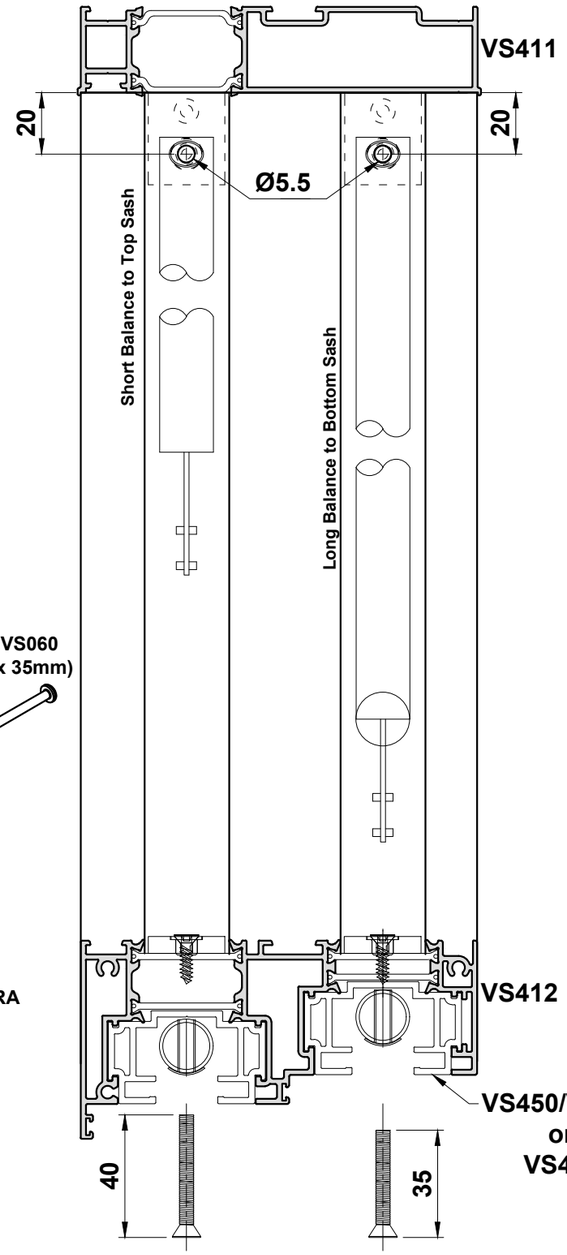
Spring Balances

Step One:
Drill 2 x Ø5.5mm holes as shown and use fixing plates and machine screws from ACVS442 to secure the balances in both jambs.
Once secured, secure the fixing plate in position using the self tapping screws. This will secure the plates for future maintenance.



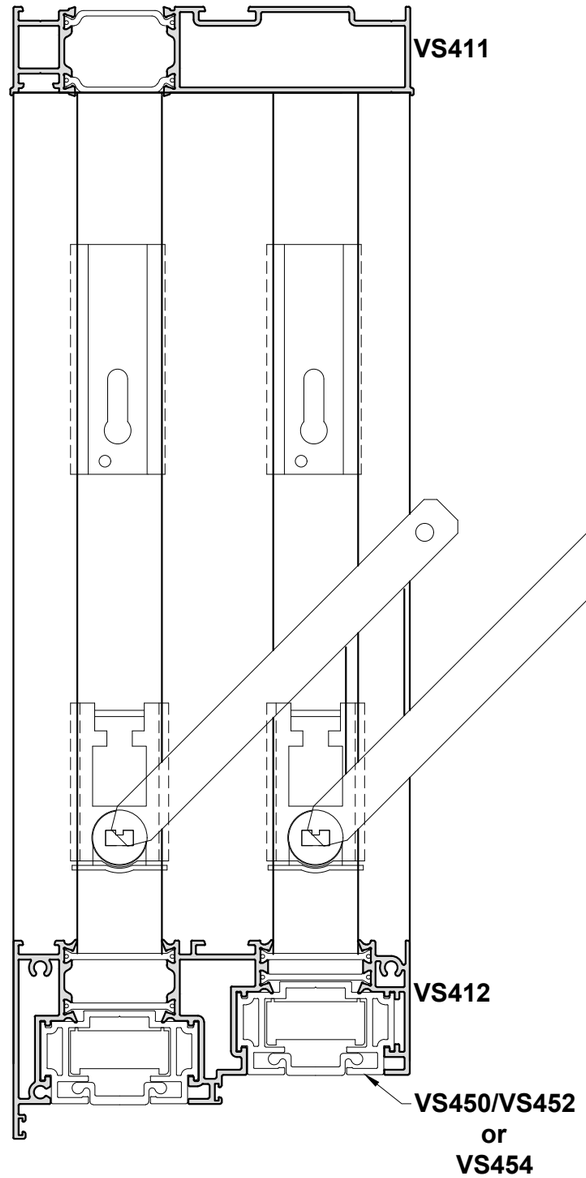
ACVS442 Kit includes:
4 x Fixing Plates





Step Two:
Clip the pivot shoe and pivot bar together and insert into both channels of both jambs and lock into position by turning the pivot bar to a minimum of 45°.

With the woolpile in VS411, the outer frame can now be assembled.

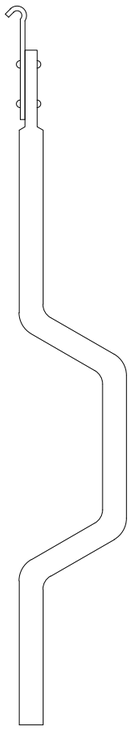


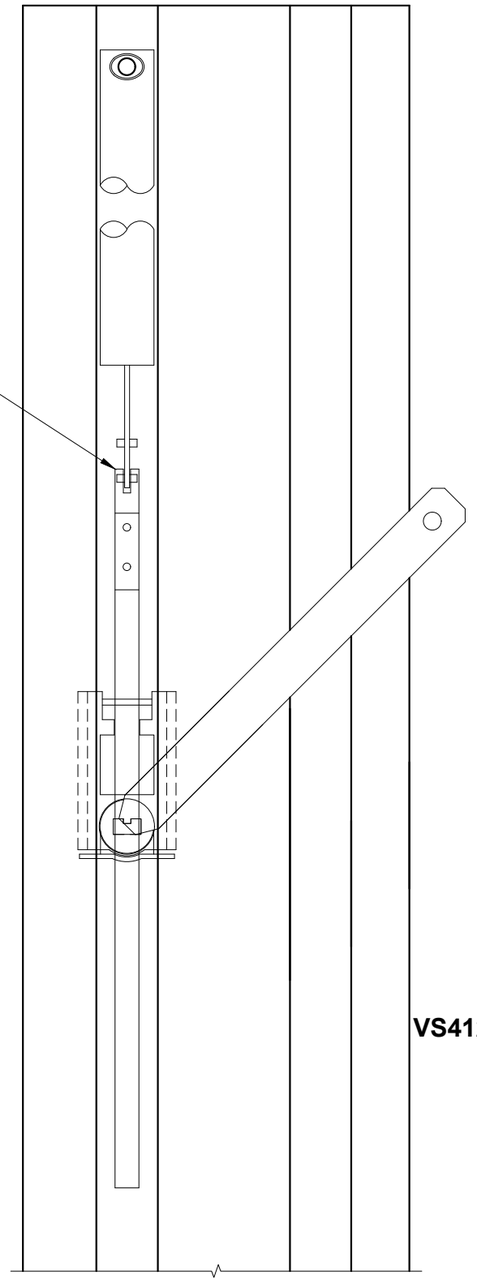
Do Not Scale From This Drawing

Attaching Spring Balances

Step Three:
With the pivot shoes locked in position, use the hook tool to pull the spring over the pivot shoes to engage on the higher of the two pins

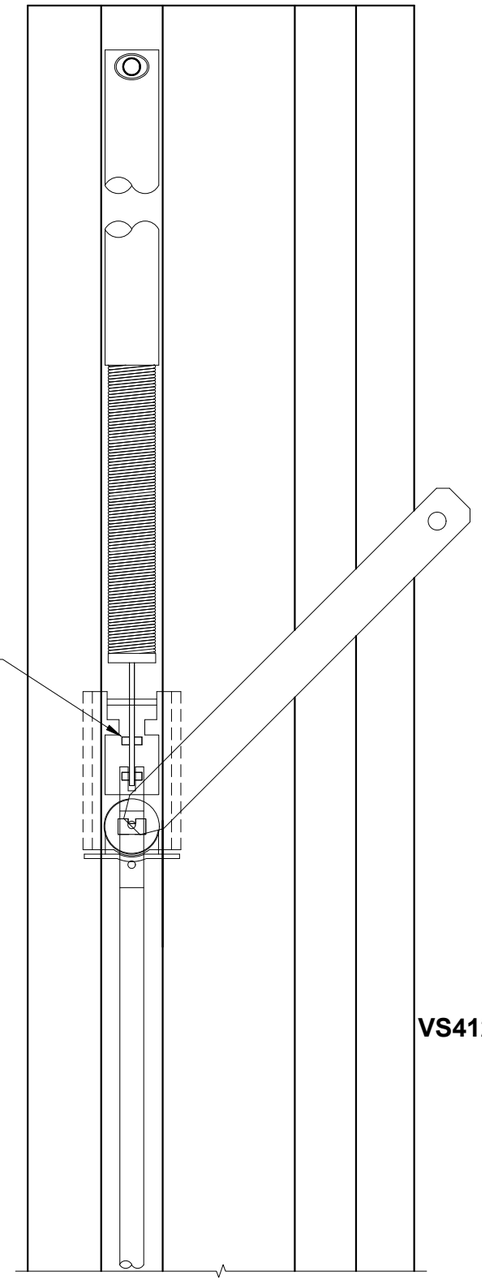
Hook over the bottom pins





VS412

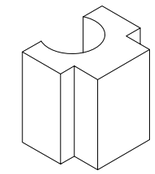
Engage top pins over the pivot shoe



VS412

Step Four:
Push fit ACVS051 foam seals to balances at sash interlock height.

ACVS051



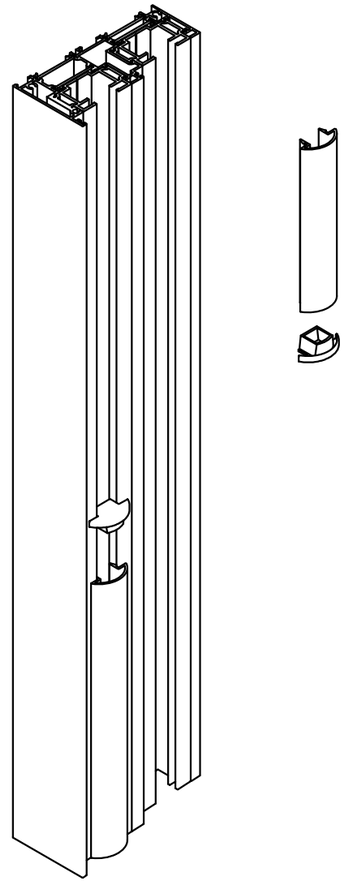
VS052 Travel Stops

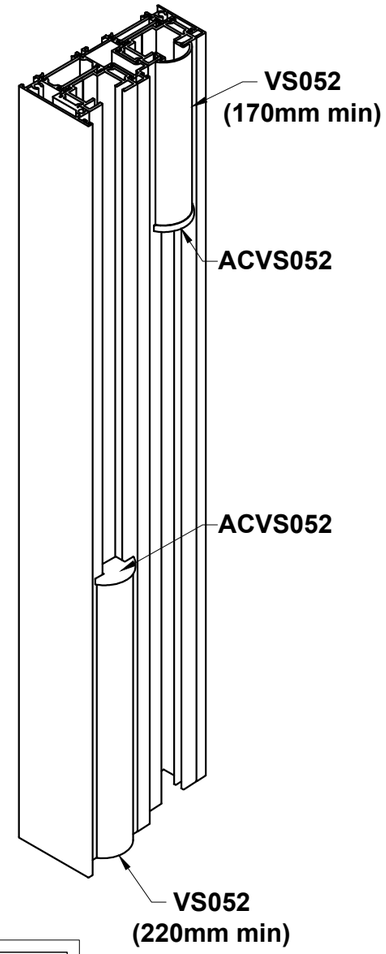
Guide to Travel Stops

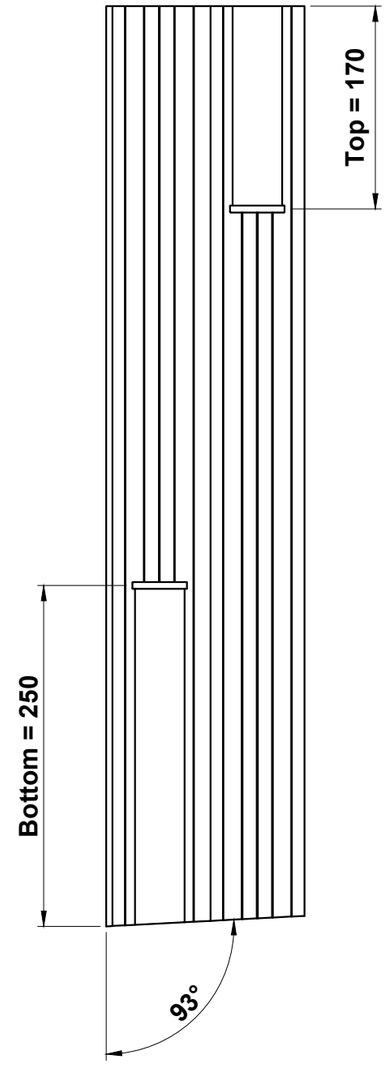
Travel stops are essential whenever spring balances are in use. Travel stops ensure that the spring balances do not become damaged or prematurely worn.

If balances are over or under extended beyond their working range, irreparable damage may be caused to the internal spring. Travel stops prevent this.

The sizes shown are the minimum dimensions for an equal split design. For every 25mm that the upper sash is smaller than equally split, 50mm should be added to the upper sash travel length.



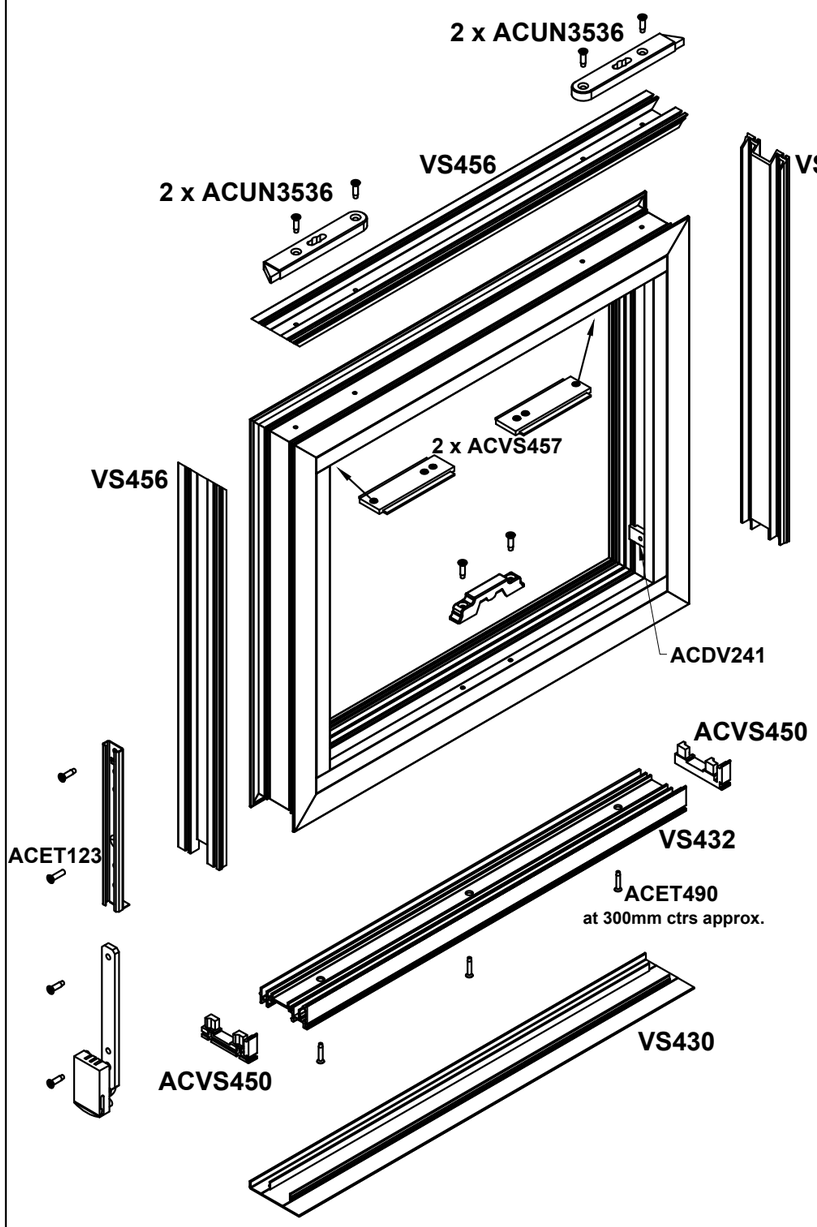


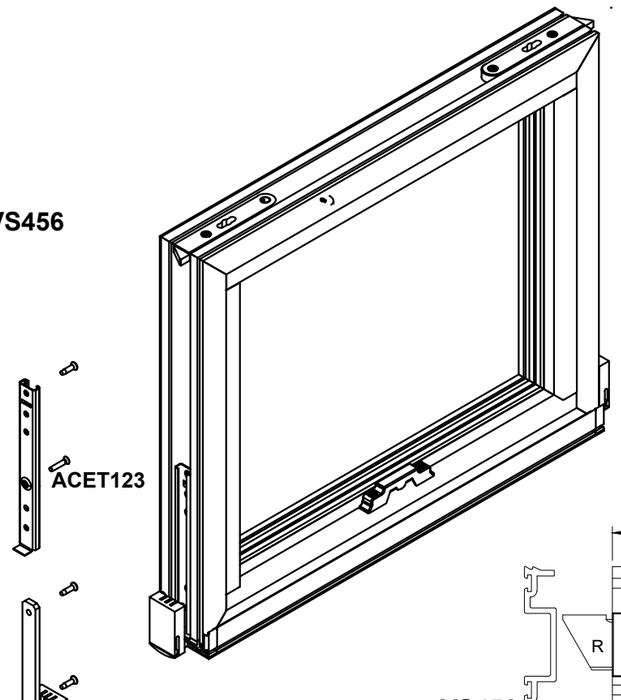


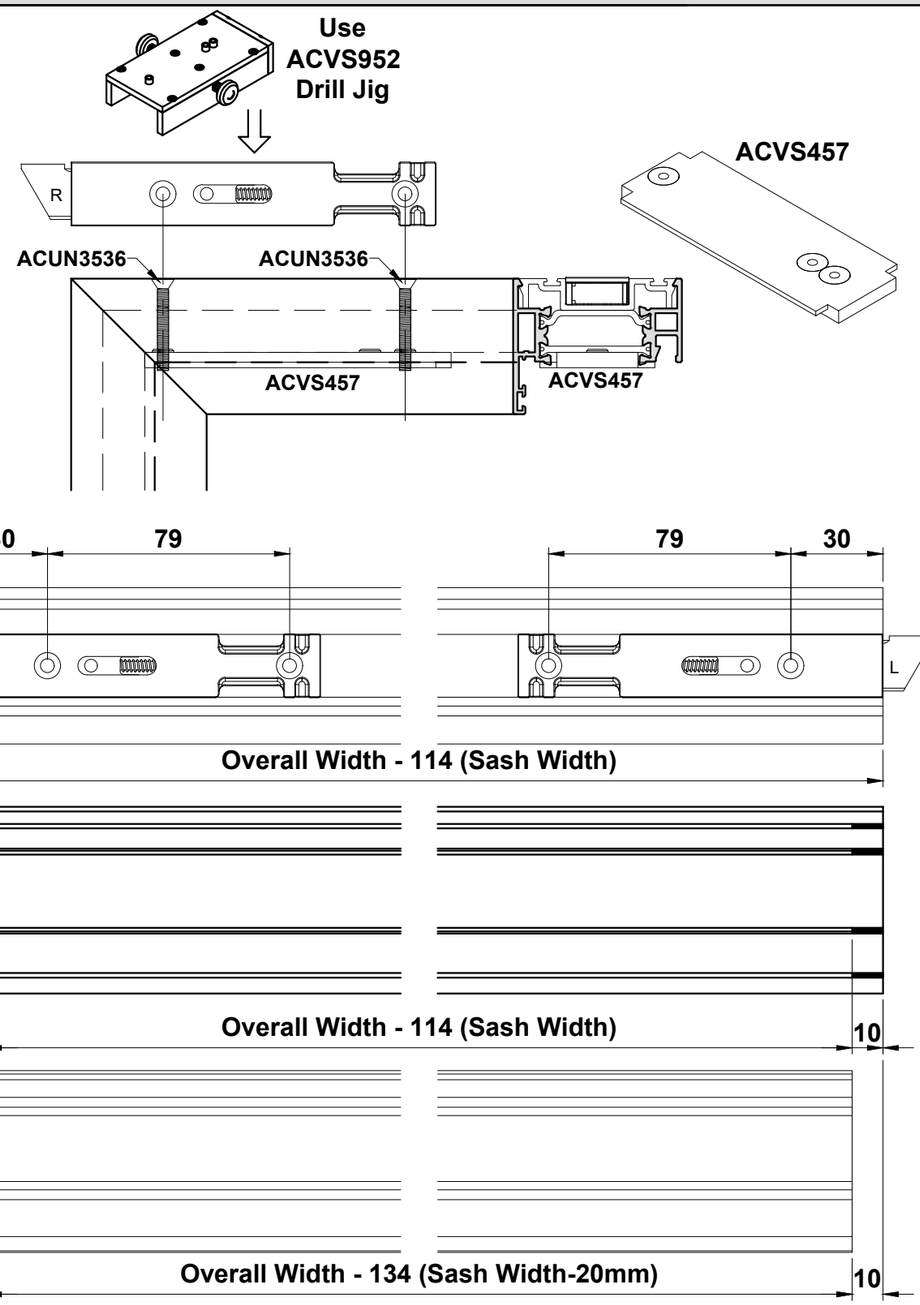
Do NOT operate the window until the upper & lower travel stops are fitted

Do Not Scale From This Drawing

Top Sash

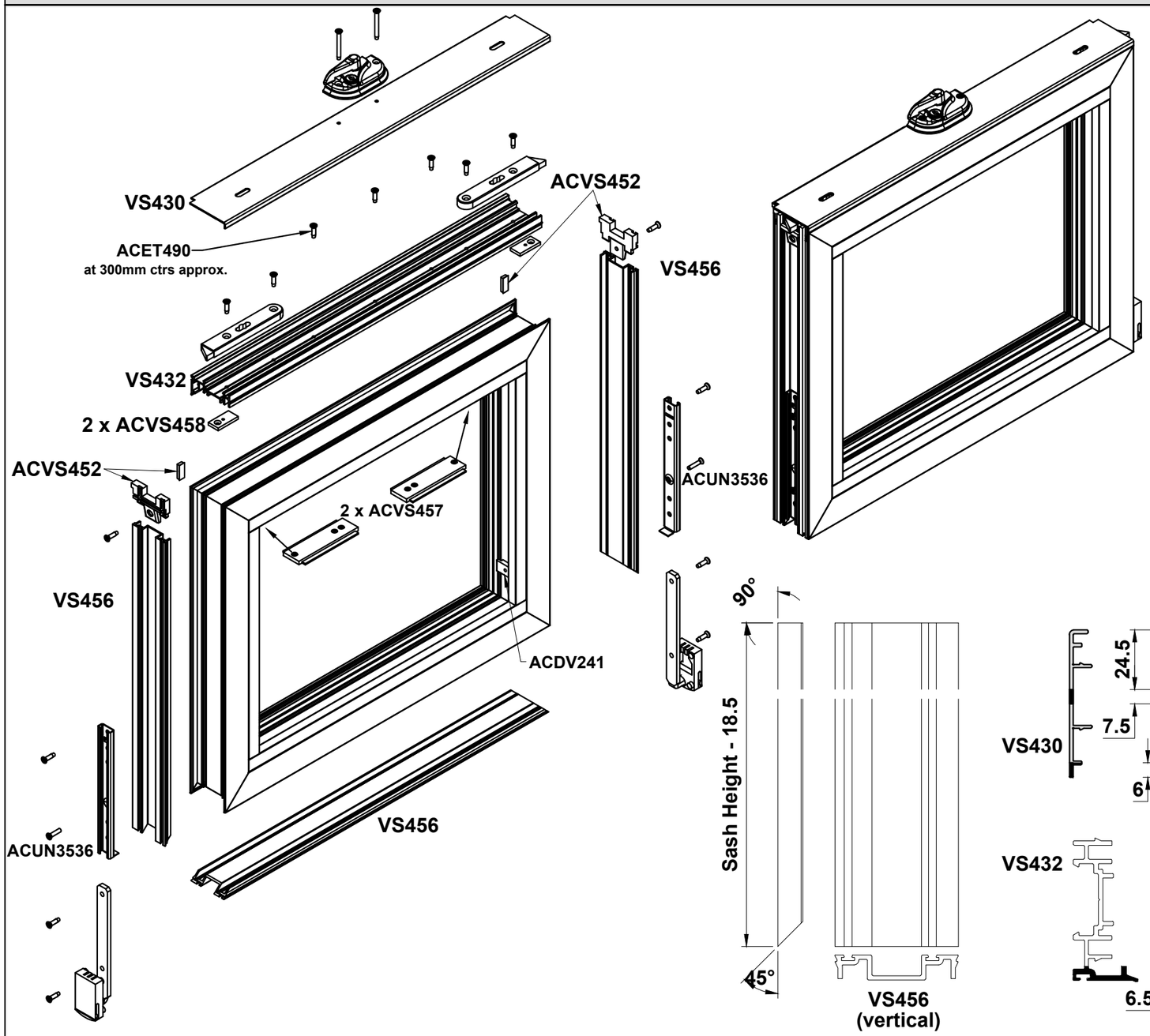


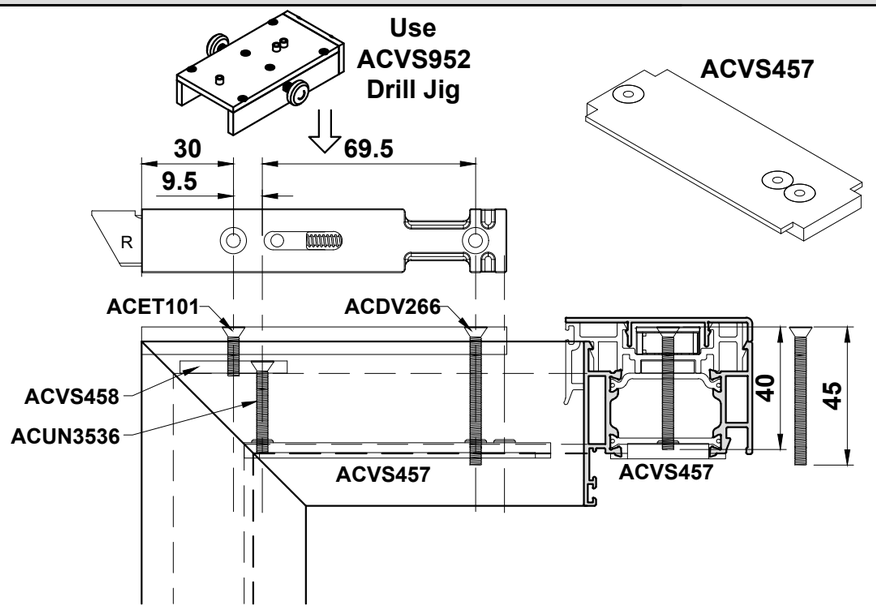


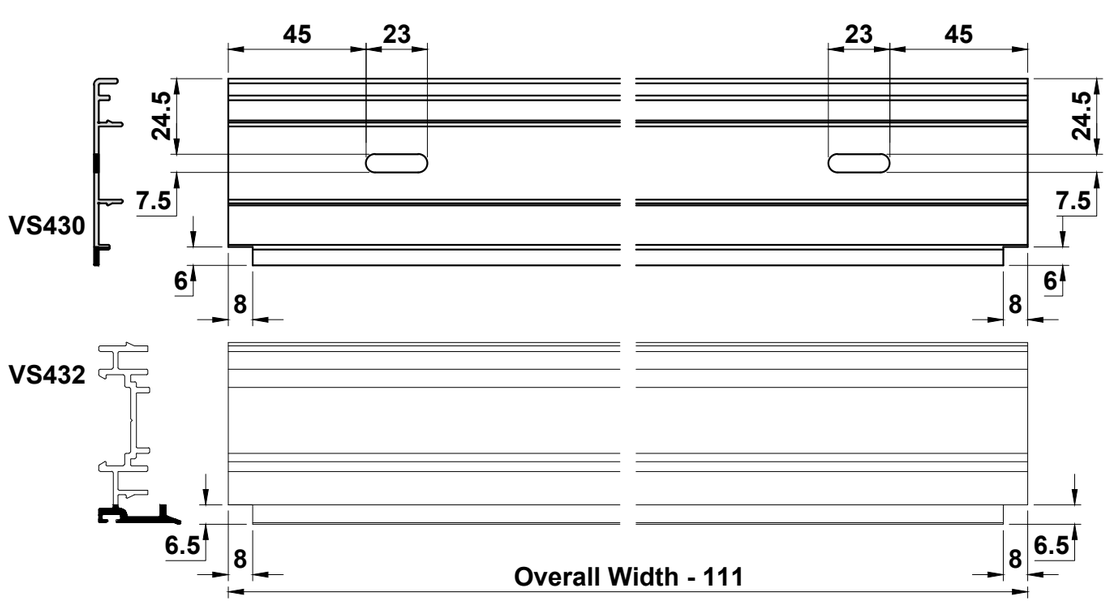


Do Not Scale From This Drawing

Bottom Sash



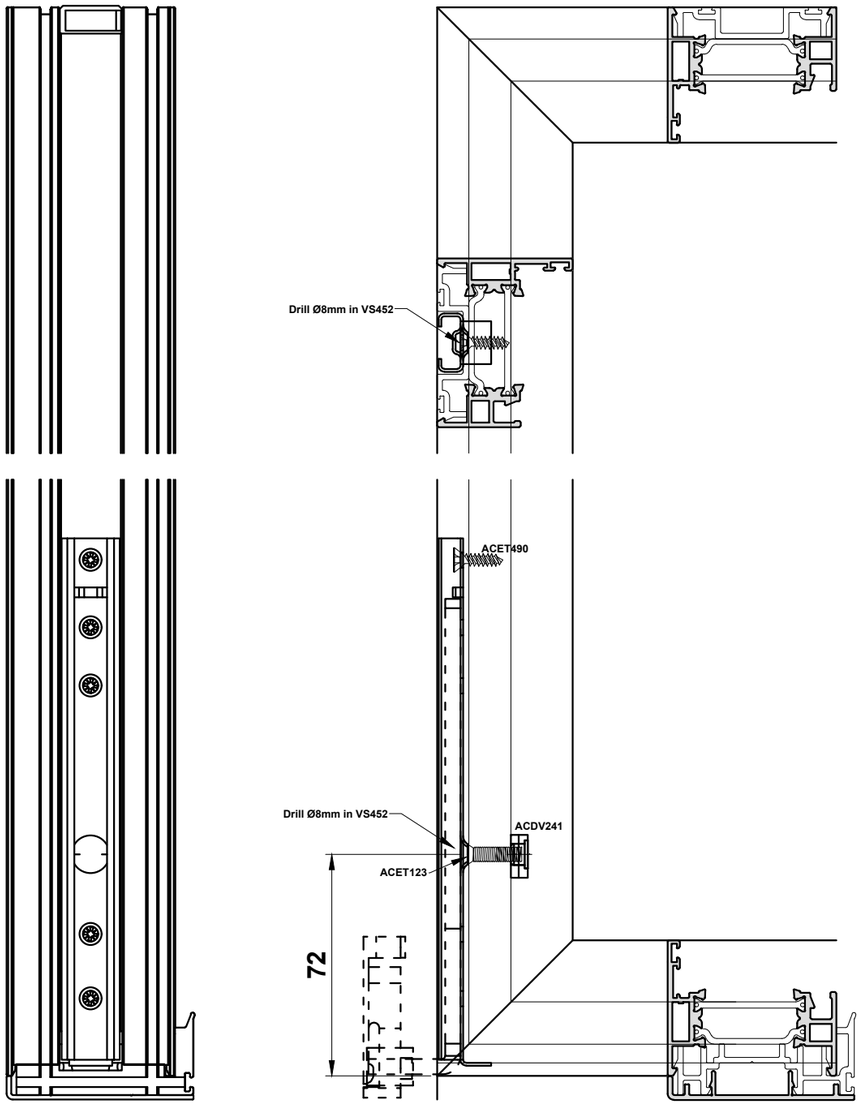




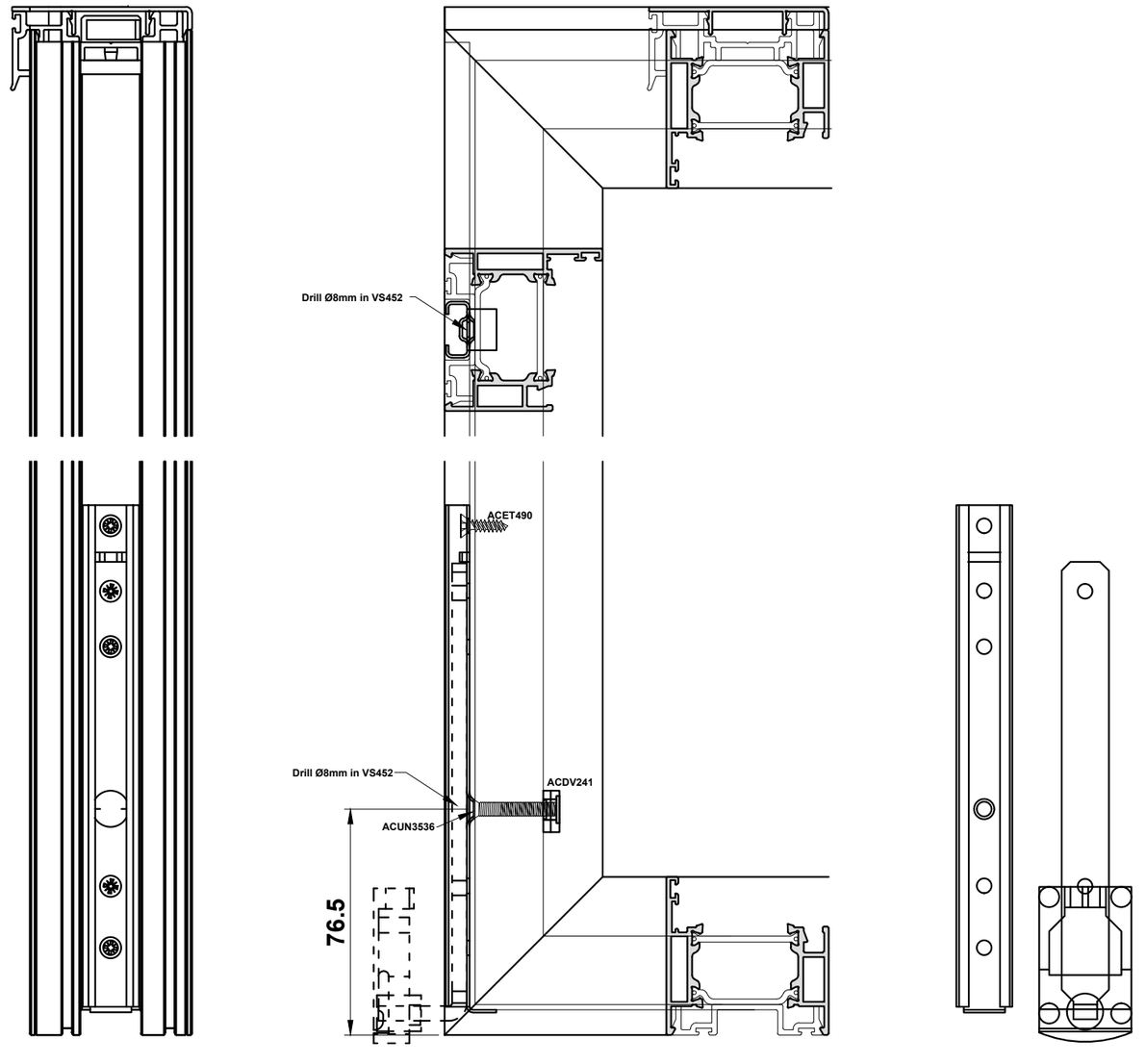
Do Not Scale From This Drawing

Pivot Arm Fixing Detail

Top Sash

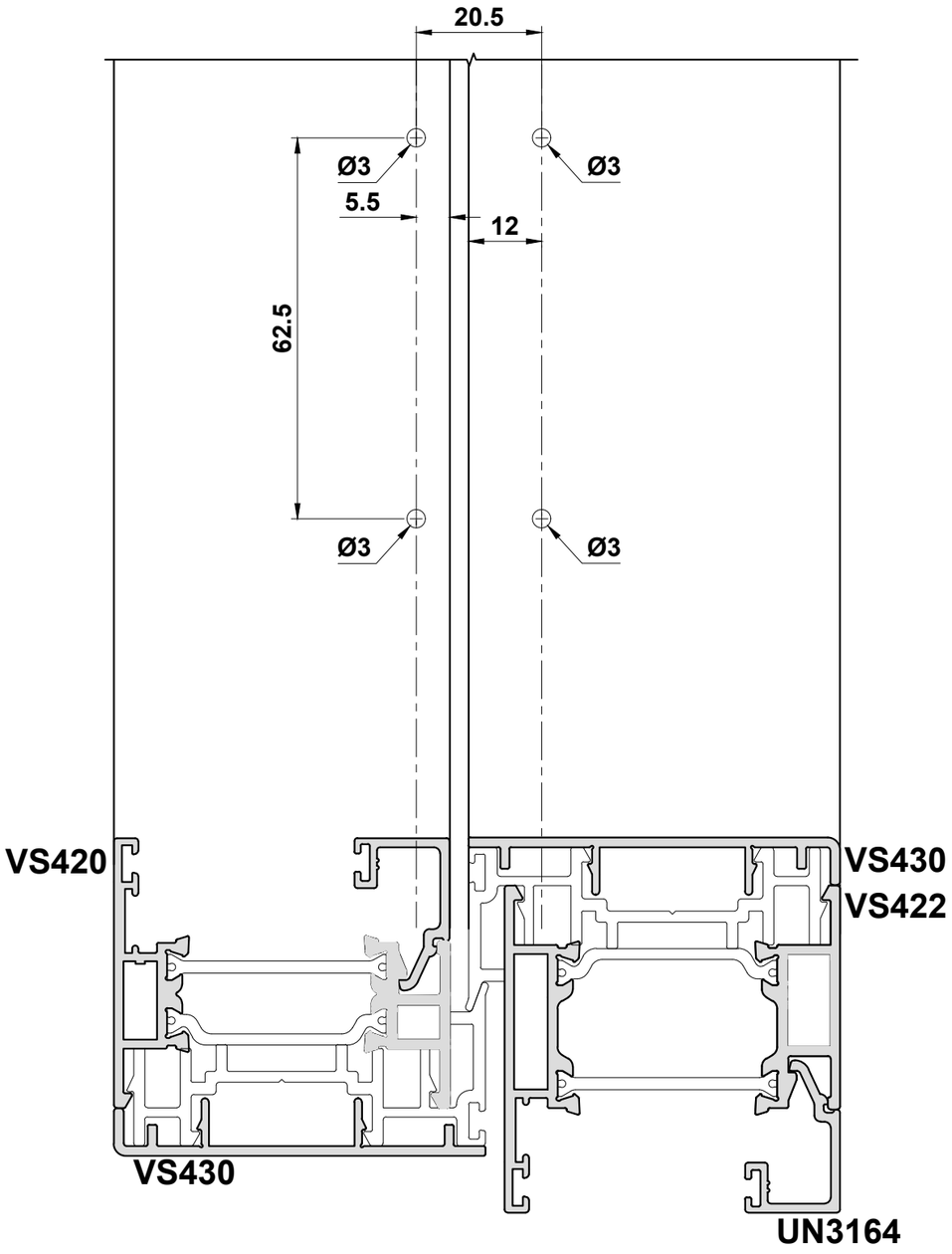


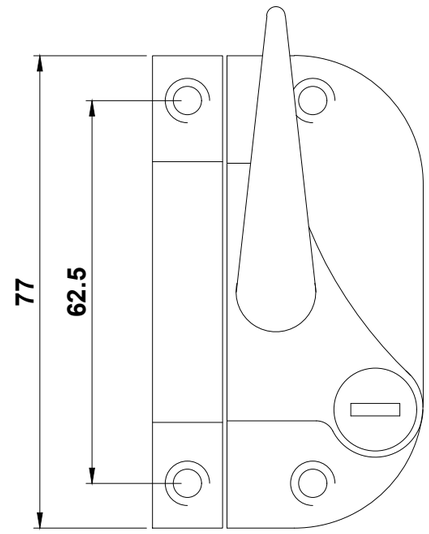
Bottom Sash



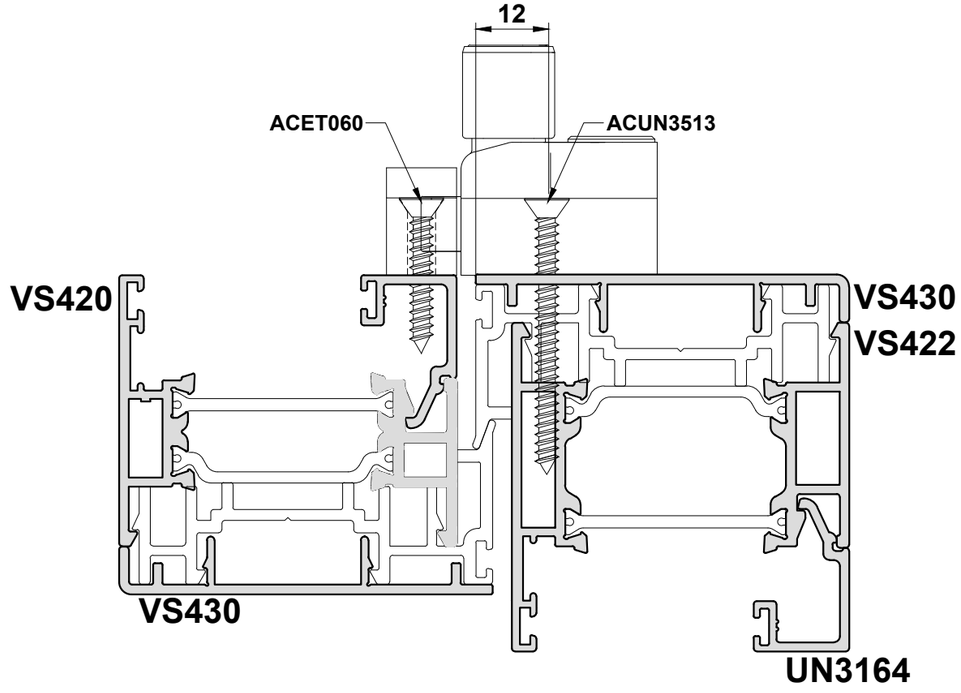
Do Not Scale From This Drawing

Locking Details



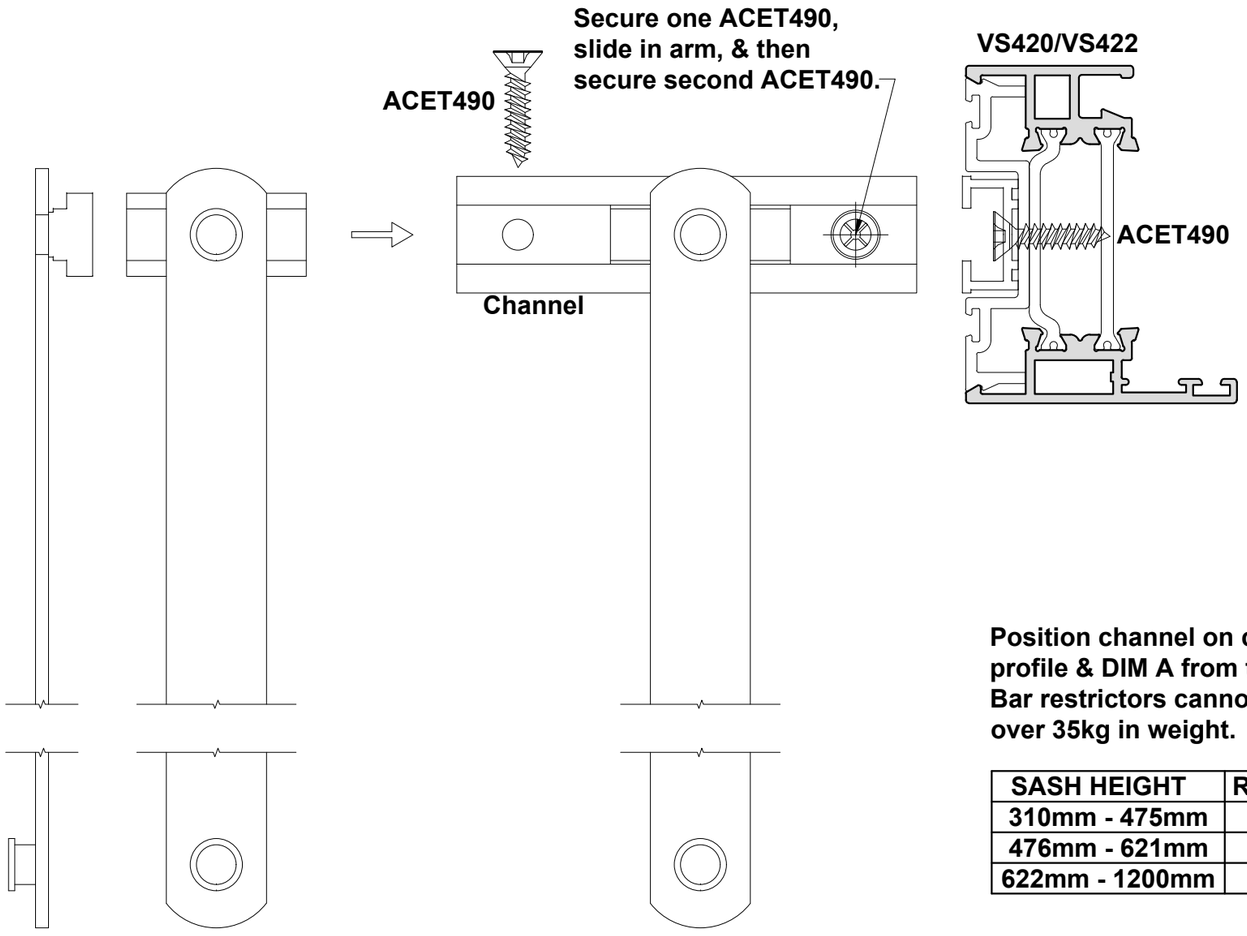


See page E26 for locking options



Do Not Scale From This Drawing

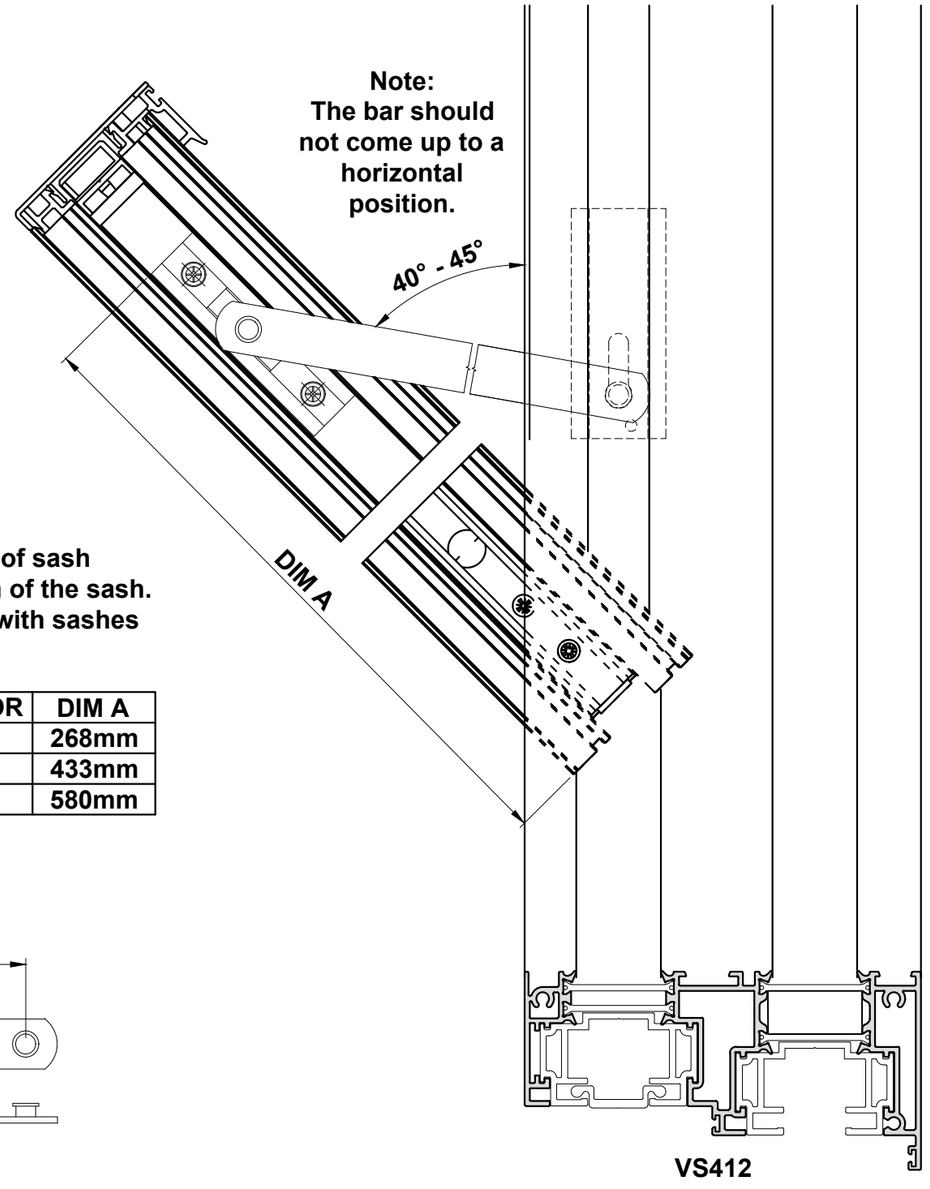
Bar Tilt Restrictor Fitting



Position channel on centre line of sash profile & DIM A from the bottom of the sash. Bar restrictors cannot be used with sashes over 35kg in weight.

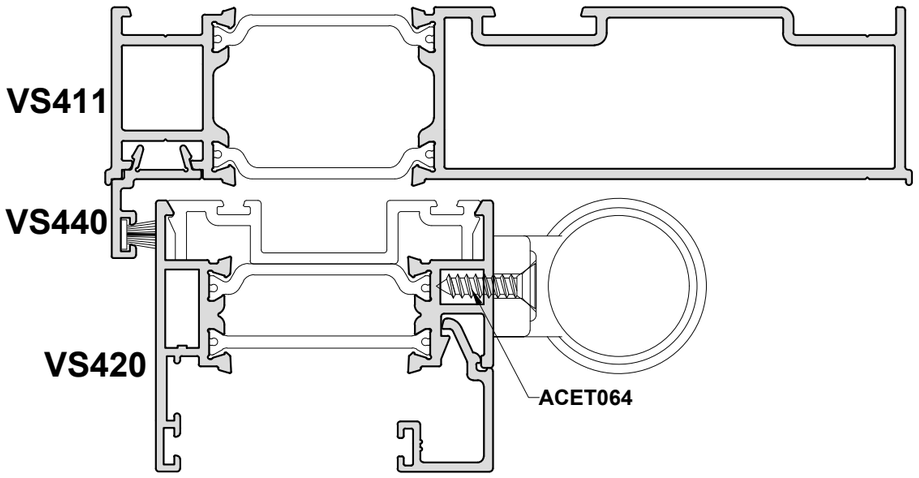
SASH HEIGHT	RESTRICTOR	DIM A
310mm - 475mm	BD084-7	268mm
476mm - 621mm	BD084-8	433mm
622mm - 1200mm	BD084-9	580mm



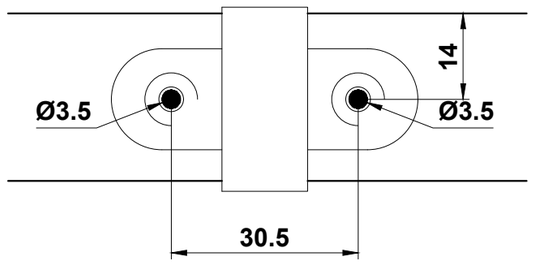


Do Not Scale From This Drawing

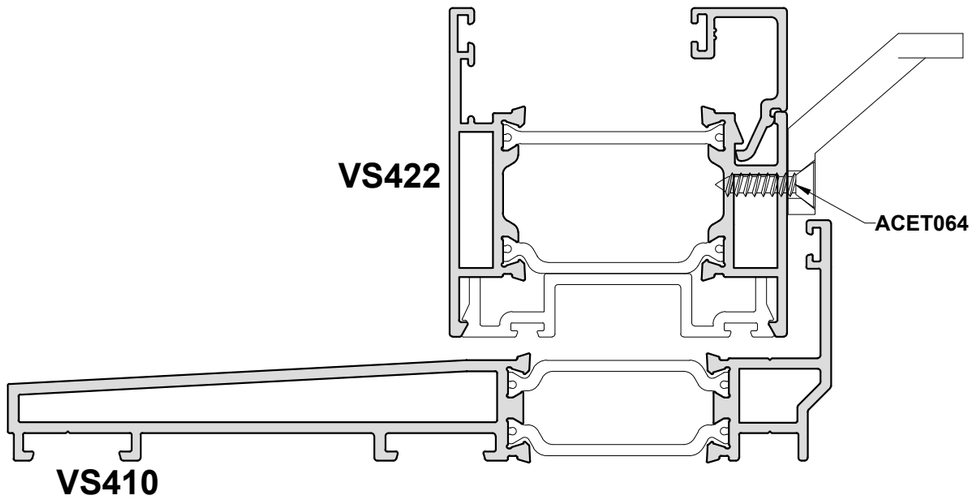
Handle Fixing Details



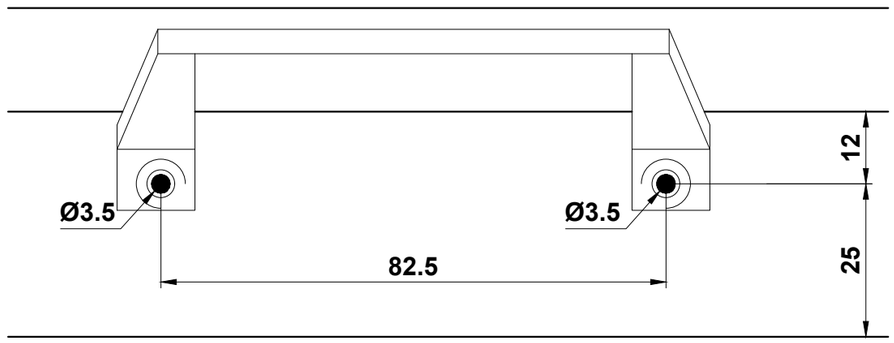
Example Sash Eye Fitting



See page E26 for handle options

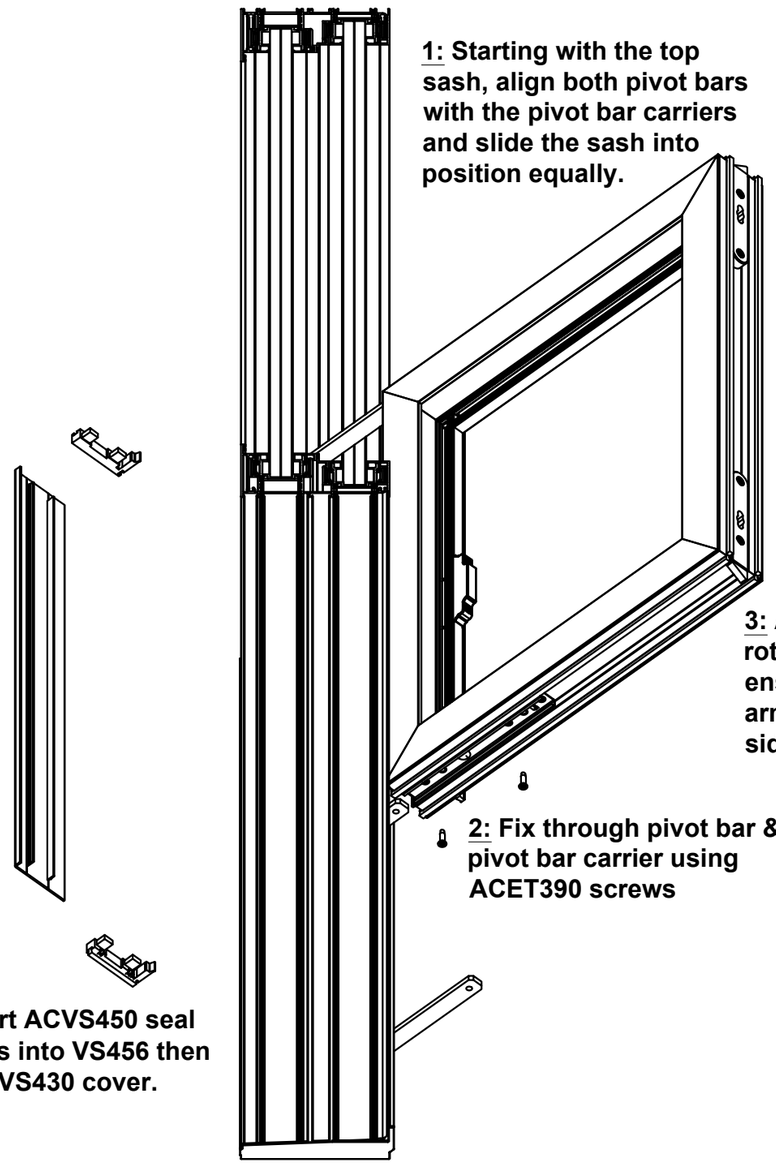


Example Sash Handle Fitting



Do Not Scale From This Drawing

Inserting Sashes into Outer Frame

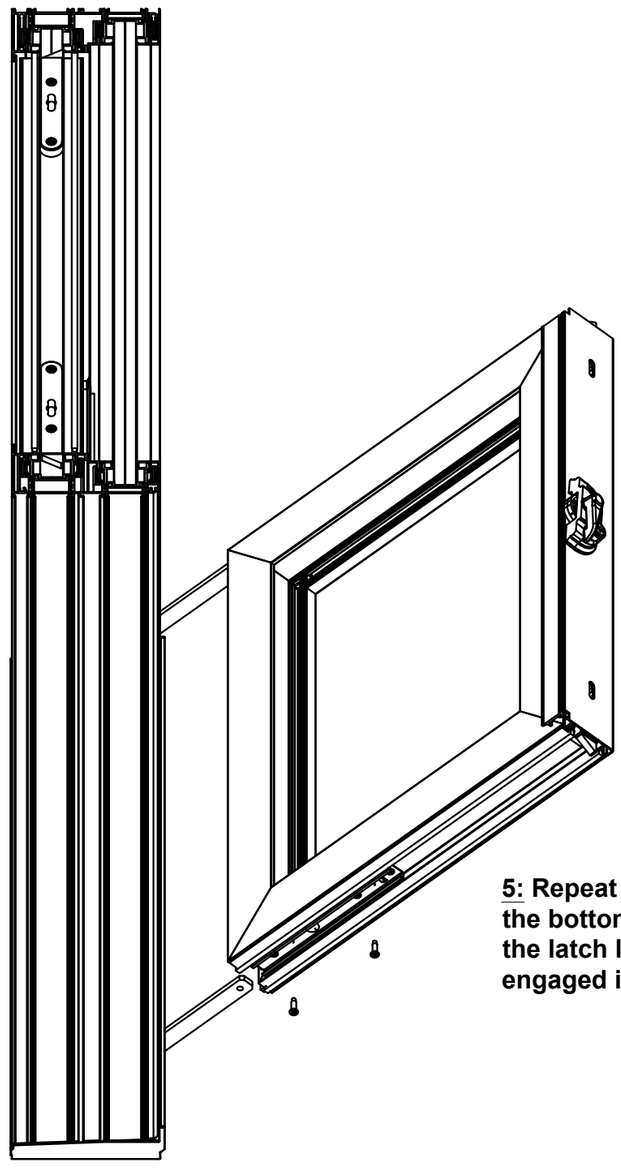


1: Starting with the top sash, align both pivot bars with the pivot bar carriers and slide the sash into position equally.

2: Fix through pivot bar & pivot bar carrier using ACET390 screws

3: As the top sash is rotated into position, ensure the tilt restrictor arm is secured to both sides of the sash.

4: Insert ACVS450 seal carriers into VS456 then clip in VS430 cover.

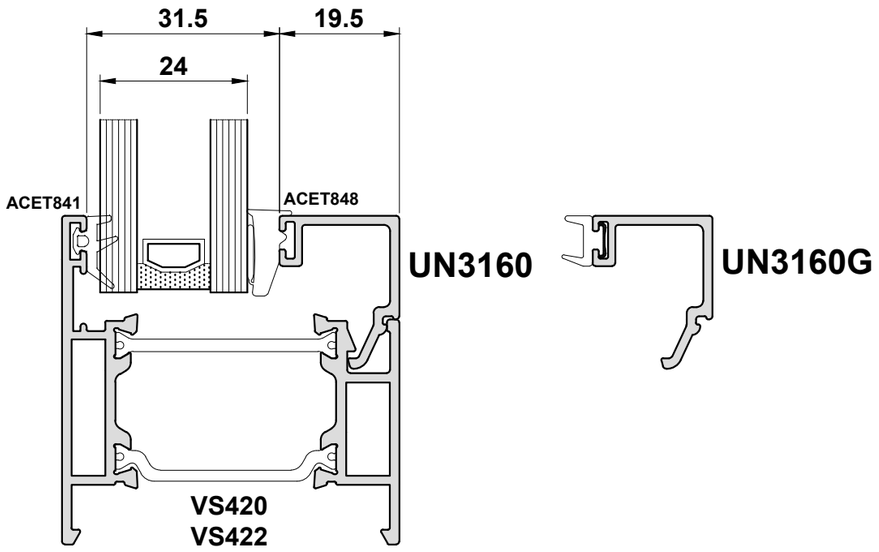


5: Repeat steps 1-3 with the bottom sash ensuring the latch locks are engaged in both sashes.

Do Not Scale From This Drawing

Glazing Details

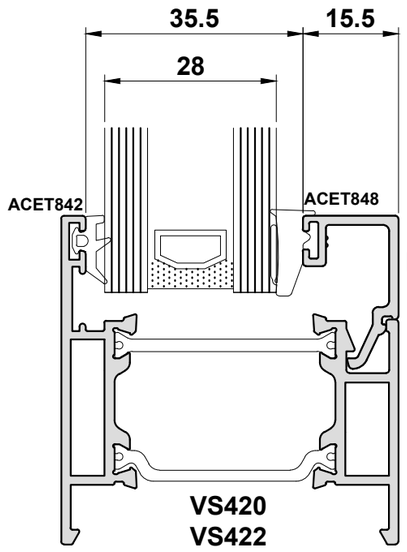
24mm Glazing



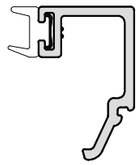
UN3160

UN3160G

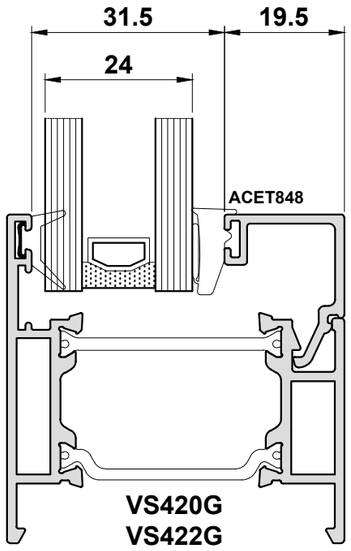
28mm Glazing



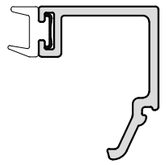
UN3164



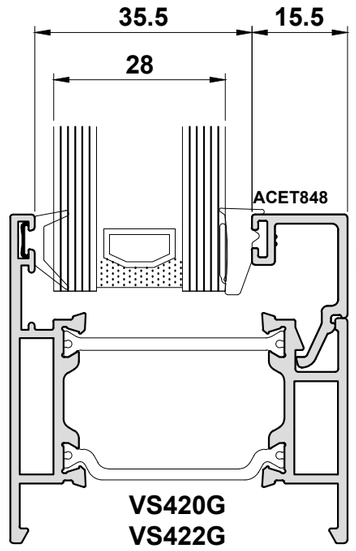
UN3164G



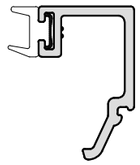
UN3160



UN3160G



UN3164

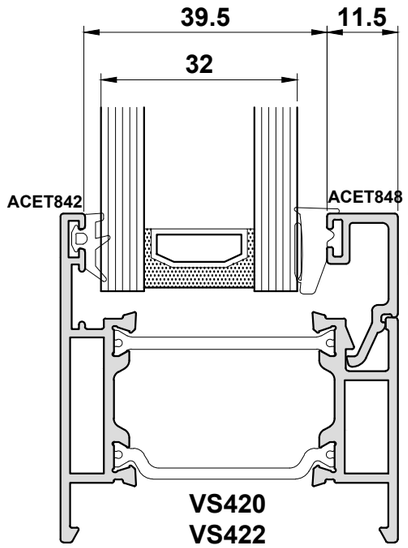


UN3164G

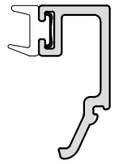
Do Not Scale From This Drawing

Glazing Details

32mm Glazing

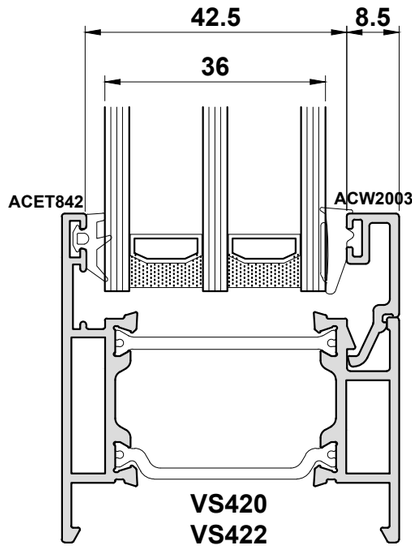


ETC4179

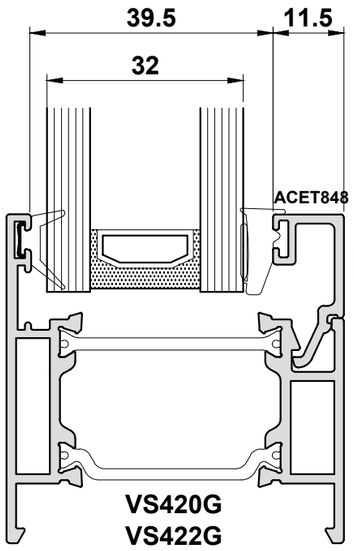


ETC4179G

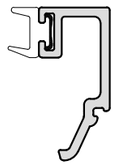
36mm Glazing



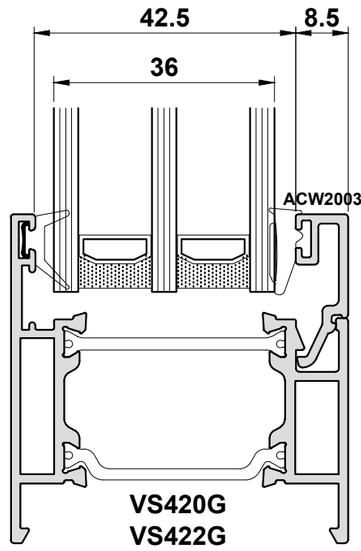
UN3166



ETC4179



ETC4179G

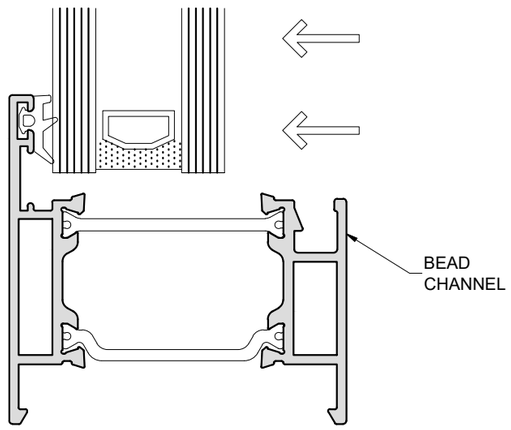


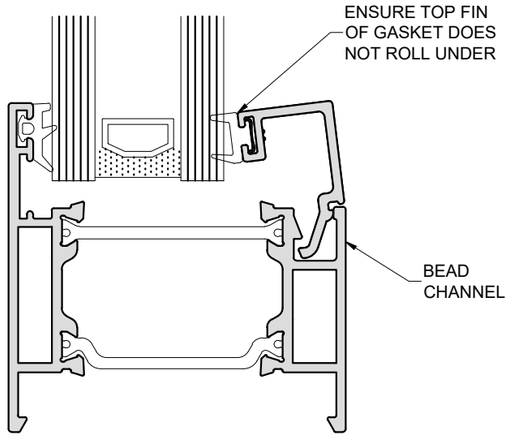
UN3166

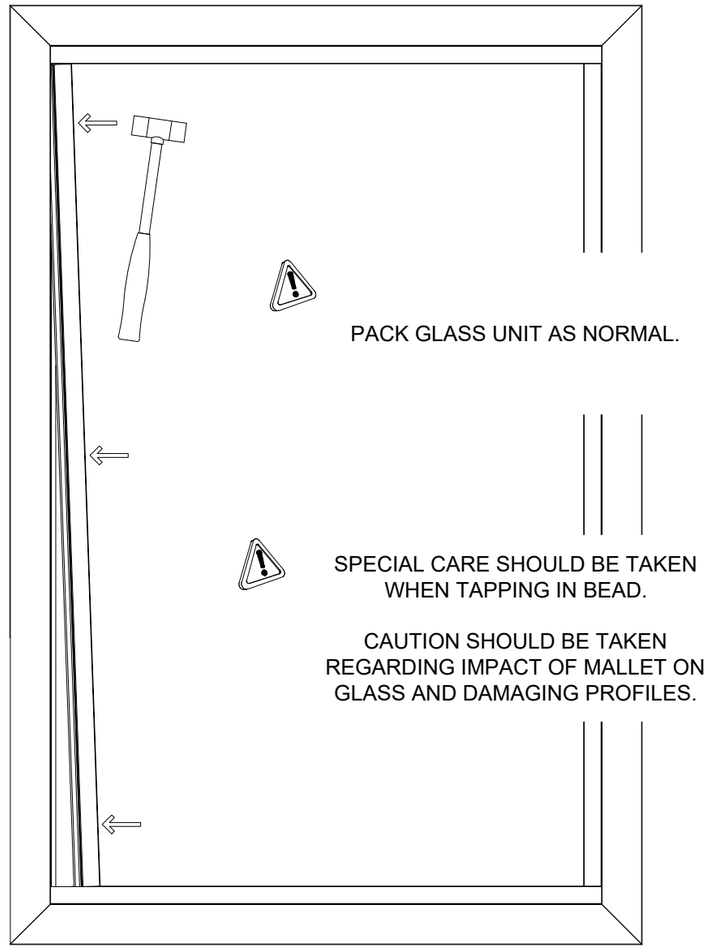
Quick-Glaze Bead Installation

QUICK-GLAZE BEAD INSTALLATION

1. INSTALL GLASS UNIT, ENSURING IT HAS BEEN PUSHED FORWARD TO ENGAGE COMPRESSION OF E GASKET.
2. BEGINNING WITH HORIZONTAL BEADS, LOCATE BEAD IN CLIP CHANNEL OF SASH AS SHOWN. INTEGRATED GASKET MAY REST AGAINST GLASS UNIT.
3. APPLY FIRM PRESSURE TO THE BEAD TO HOLD IN POSITION. THIS MAY CAUSE THE BEAD TO FULLY LOCK INTO POSITION.
4. USING A NYLON MALLET, TAP BEAD INTO CHANNEL WORKING FROM ONE END TO THE OTHER. PLEASE TAKE CARE AT THIS STAGE TO AVOID DAMAGE TO BOTH THE GLAZING UNIT AND THE BEAD.
5. REPEAT STEPS 2 - 4 TO INSTALL VERTICAL BEADS.







Do Not Scale From This Drawing

Quick-Glaze Bead Removal

KEEP INTEGRATED GASKET

QUICK-GLAZE BEAD REMOVAL

1. STARTING ON VERTICAL BEADS, APPLY PRESSURE TO BEAD IN DIRECTION SHOWN IN ORDER TO CREATE SMALL GAP BETWEEN SASH AND BEAD.
2. GENTLY INSERT DE-GLAZING TOOL TAKING PARTICULAR CARE AS NOT TO DAMAGE PAINT FINISH.
3. SLOWLY PRISE THE BEAD UP AND AWAY FROM THE SASH.
4. THE BEAD SHOULD NOW BE EASILY REMOVABLE FROM QUICK-GLAZE BEAD CHANNEL IN SASH

BEAD AND INTEGRATED GASKET CAN BE REUSED.

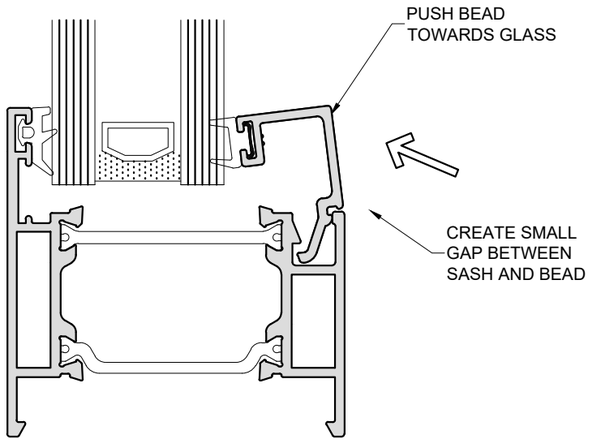
OR

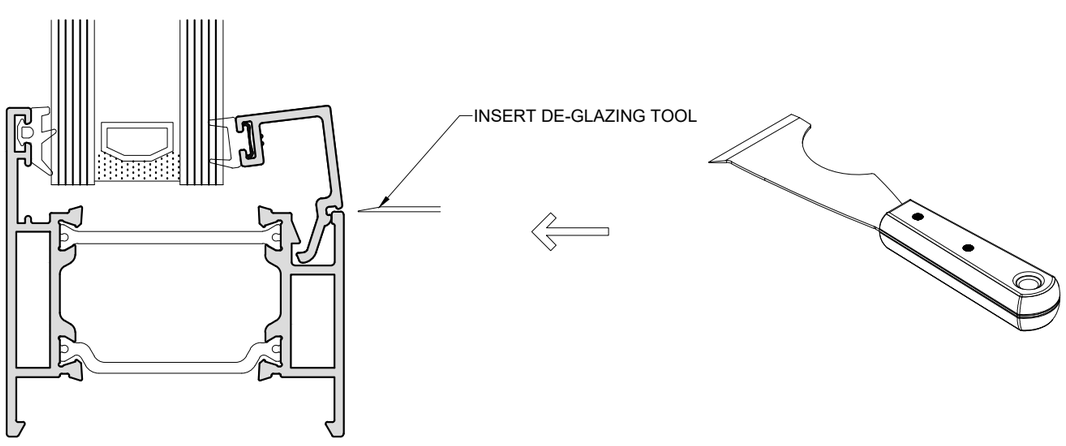
REPLACE INTEGRATED GASKET

QUICK-GLAZE BEAD REMOVAL

1. USING SMALL FLAT HEADED SCREWDRIVER OR SIMILAR, WEDGE TIP BETWEEN CO EXTRUDED GASKET AND ALUMINIUM.
2. IN A LEVERING MOTION, PRISE THE GASKET AWAY FROM THE ALUMINIUM. PARTICULAR CARE SHOULD BE TAKEN NOT TO DAMAGE THE GLASS UNIT AND ALUMINIUM.
3. COMPLETE THIS AT SEVERAL LOCATIONS ALONG THE LENGTH OF THE BEAD.
4. REMOVE GASKET AND DISCARD. THIS GASKET CAN NO LONGER BE USED.
5. THE BEAD SHOULD NOW BE EASILY REMOVABLE FROM TAP IN BEAD CHANNEL IN SASH

PLEASE SEE GLAZING CHART FOR REPLACEMENT GASKET CODES.

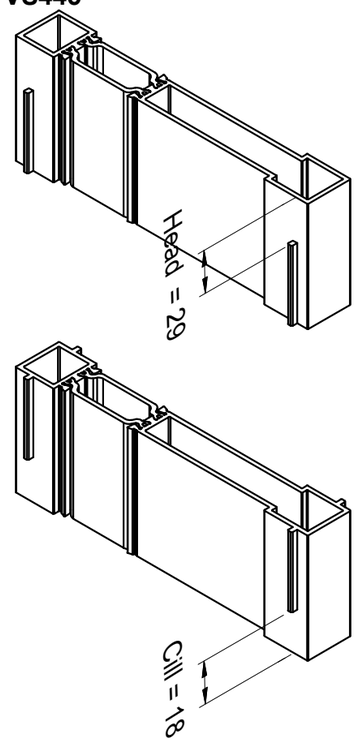




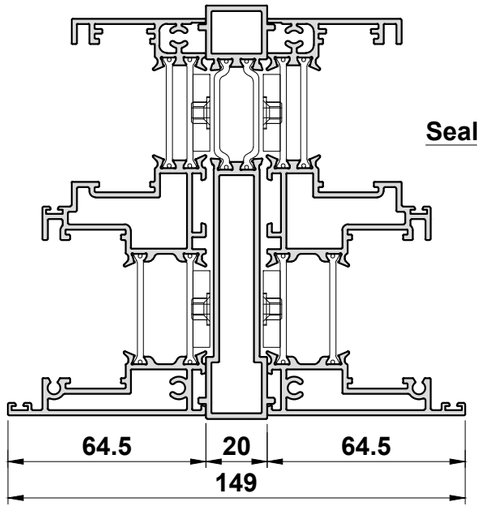
Do Not Scale From This Drawing

VS445 Coupler

VS445

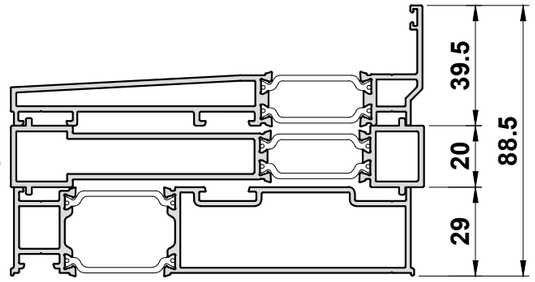


VS445

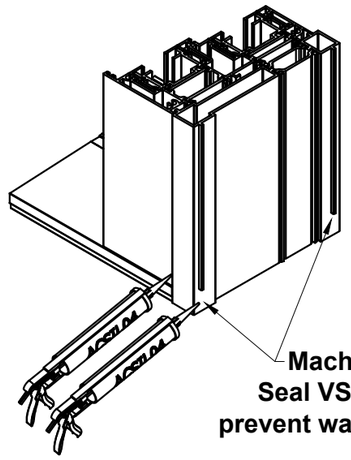


Seal all joints with ACSIL04.

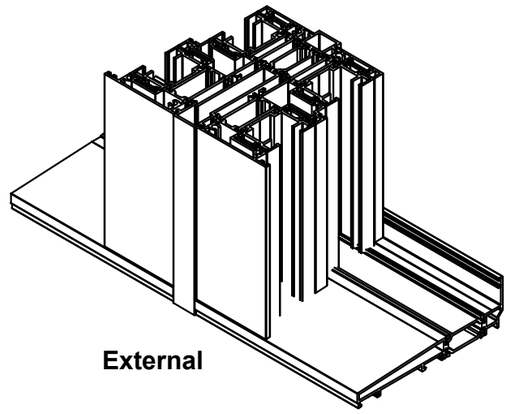
VS445



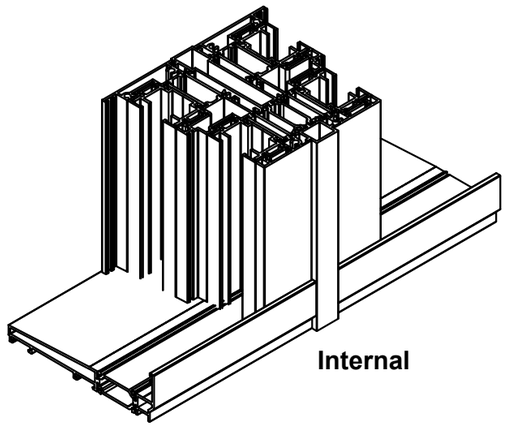




Machine legs at head & cill.
Seal VS412 jamb to VS410 cill to prevent water reaching VS445 coupler.



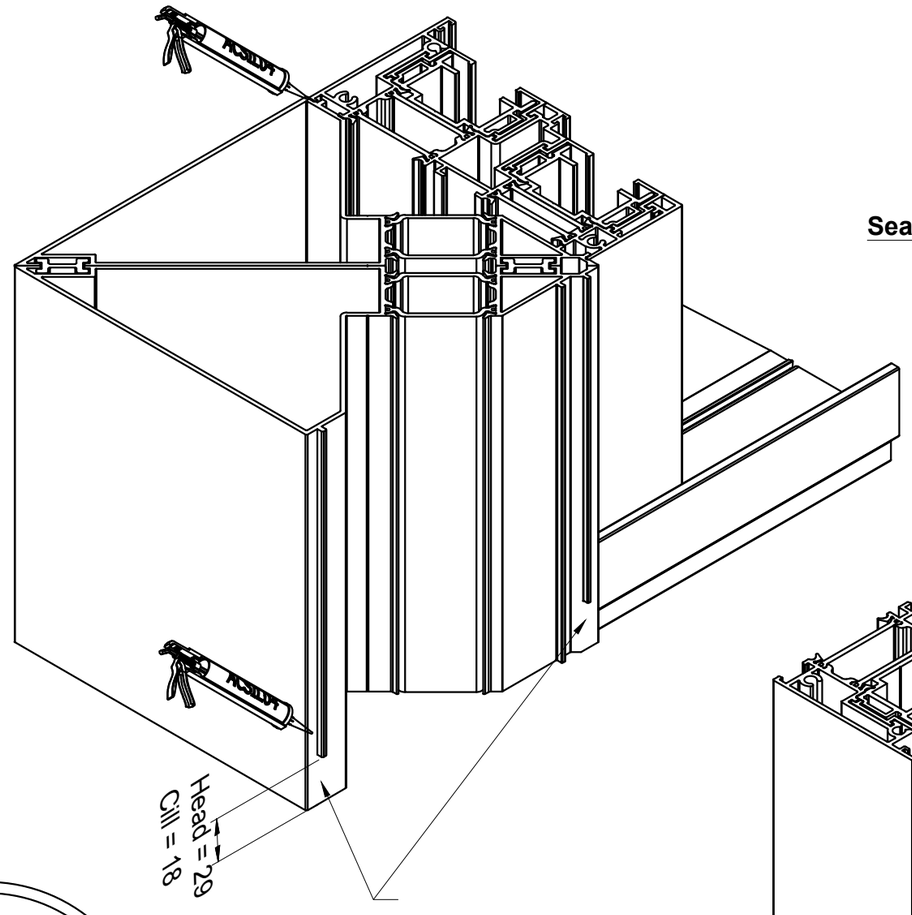
External



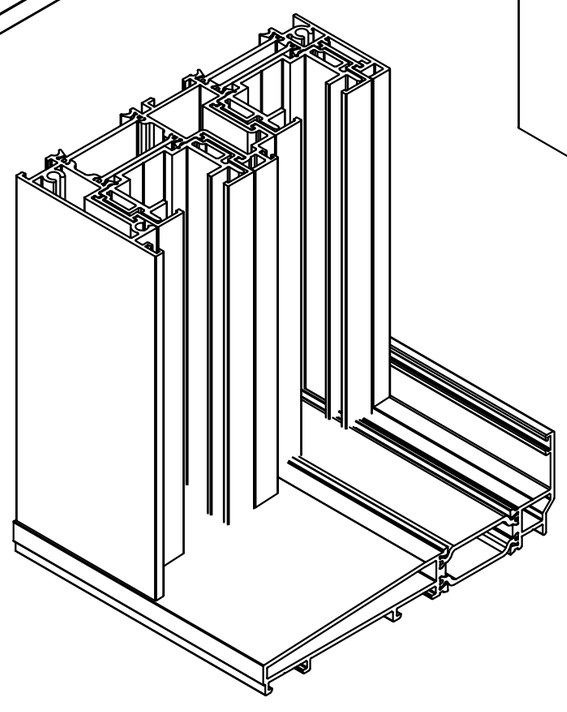
Internal

Do Not Scale From This Drawing

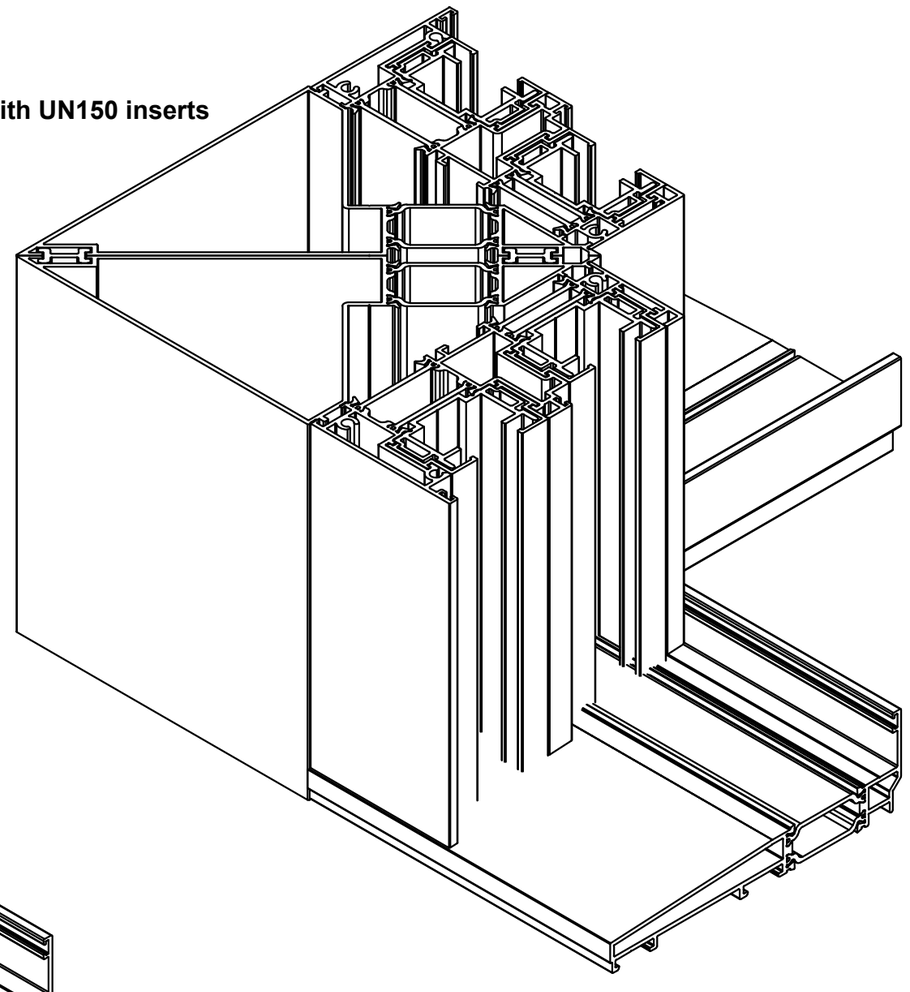
VS448 90° Corner Post



Seal all joints with ACSIL04.



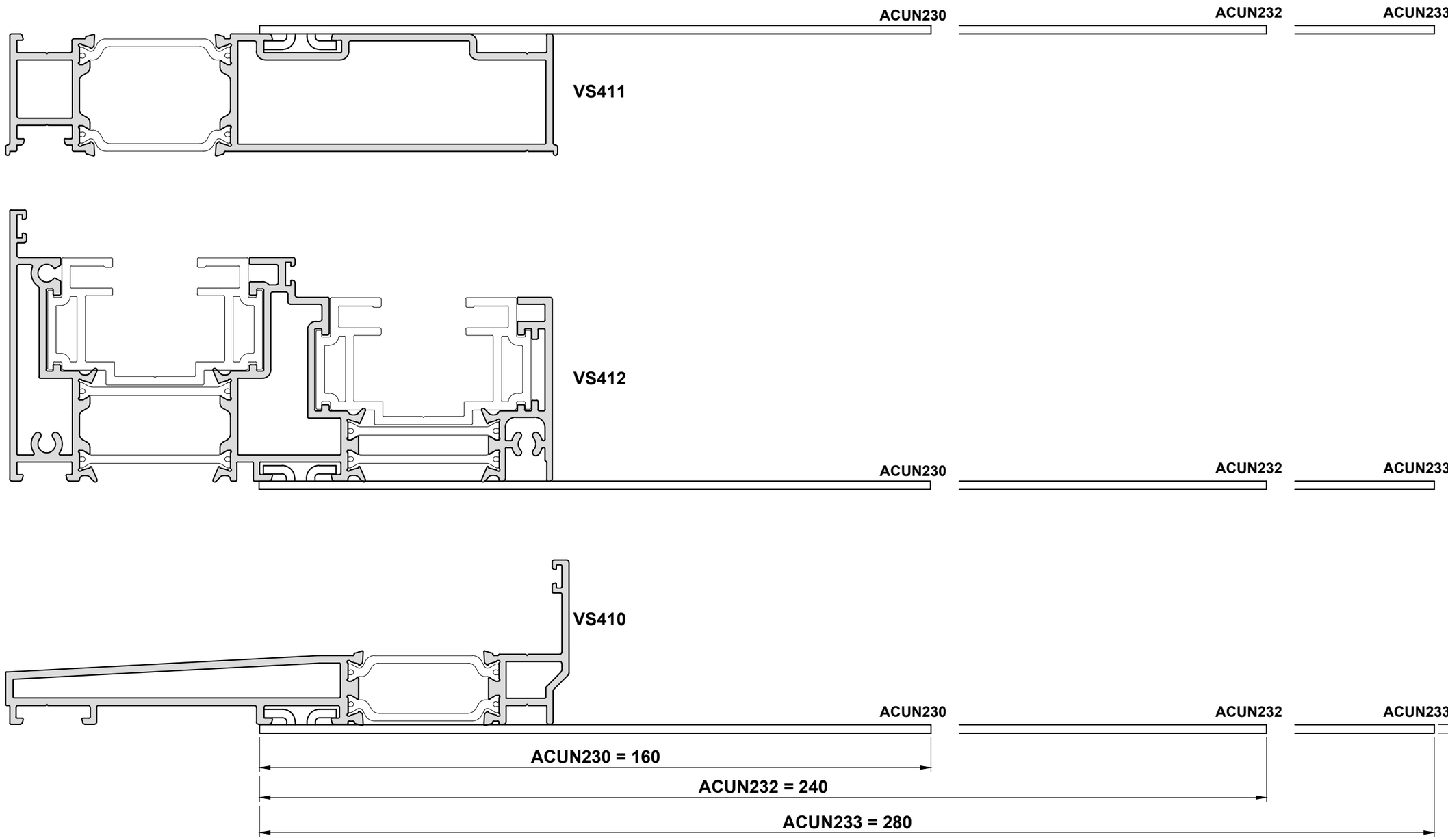
VS448 with UN150 inserts





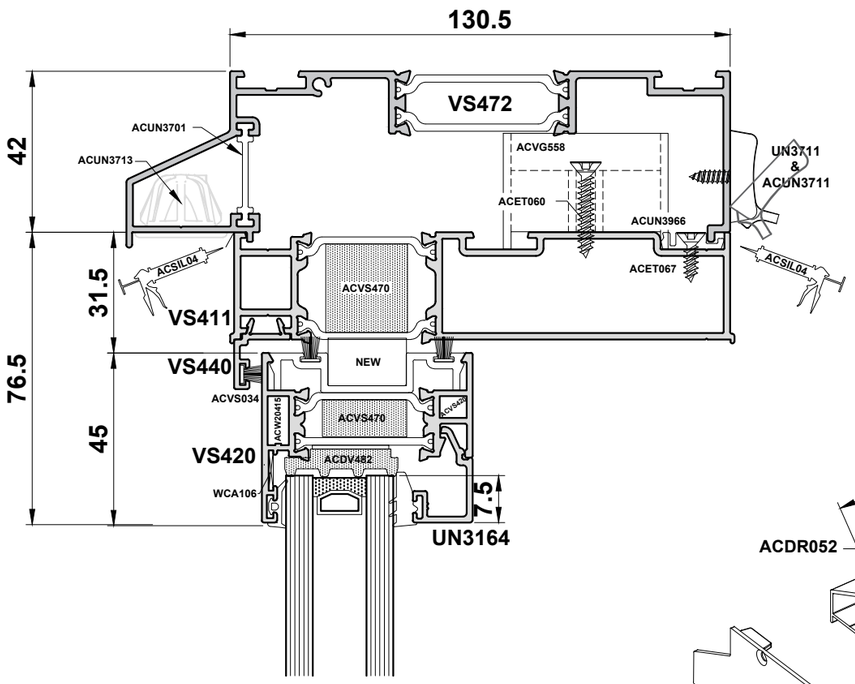
Do Not Scale From This Drawing

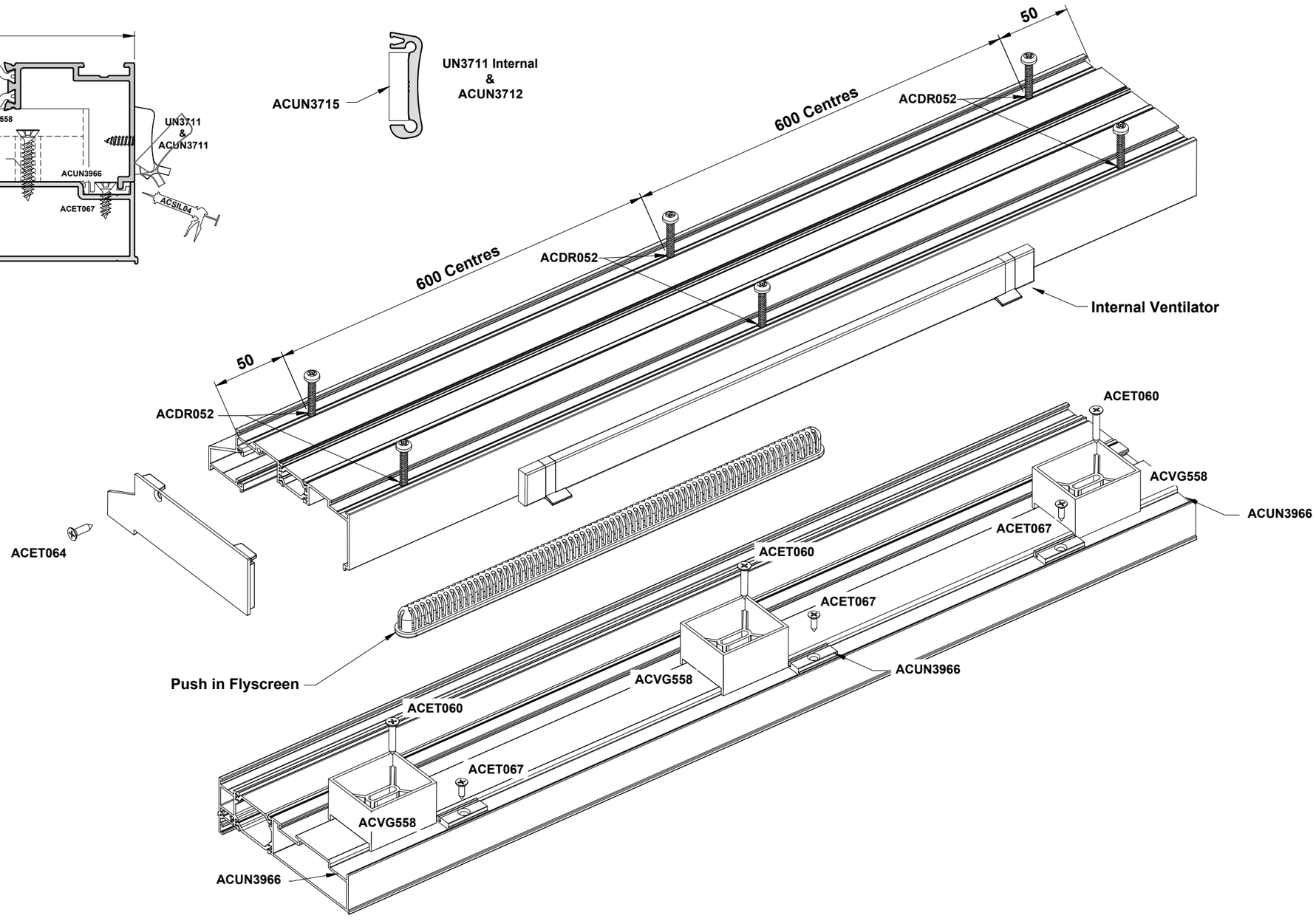
Fixing Straps



Do Not Scale From This Drawing

Trickle Vent Assembly



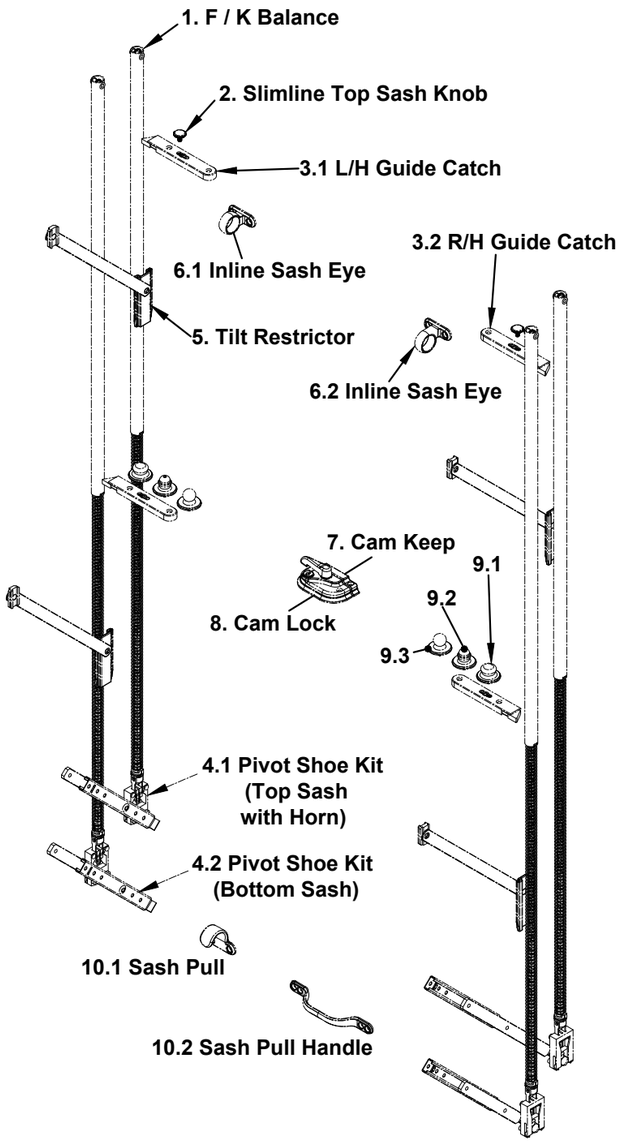


UN3711 with Push in Flyscreen
Equivalent area as per BS 13141-1:2019 = 3026mm²
Length = 400mm
Internal Slot Size = 340mm X 13mm
External Slot Size = 235mm X 16mm

UN3711 with Push in Flyscreen
Equivalent area as per BS 13141-1:2019 = 6132mm²
Length = 600mm
Internal Slot Size = 2 X (275mm X 13mm) + (10mm land)
External Slot Size = 2 X (235mm X 16mm) + (10mm land)

Do Not Scale From This Drawing

ERA Hardware Details



No.	Product Type	Product Codes								
1	F / K Balance	ERA's balances are configured based on sash size and glass weight.								
2	Slimline Top Sash Knob	BF-KNB-SLM00								
3.1	Guide Catch - Left Hand	BF-CAT-LWB								
3.2	Guide Catch - Right Hand	BF-CAT-RWB								
4.1	Pivot Shoe Kit - Horned Top Sash	QR-Horn-610B Standard Pivot Shoe Carrier	QR-Horn-610E Extended Pivot Shoe Carrier	QR-Horn-610EX Extra Extended Pivot Shoe Carrier						
4.2	Pivot Shoe Kit - Non-Horned Sash (Top & Bottom)	QR-BTM-610B Standard Pivot Shoe Carrier	QR-BTM-610E Extended Pivot Shoe Carrier	QR-BTM-610EX Extra Extended Pivot Shoe Carrier						
5	Aluminium Tilt Restrictor	BD084-7 - 150mm	BD084-8 - 250mm	BD084-9 - 350mm						
5	Slimline (Nylon) Tilt Restrictor	VGTR150 - 150mm	VGTR250 - 250mm	VGTR350 - 350mm						
		Gold	White	Chrome	Premium Satin	Black	Antique Black	Bronze	Graphite	Pewter
6.1	Inline Sash Eye	VHSEHG01	VHSEWH01	VHSEHC01	VHSEPS01	VHSEBK01	VHSEAB01	VHSEHB01	VHSEGR01	VHSEPT01
6.2	Offset Sash Eye	VHOSHG01	VHOSWH01	VHOSHC01	VHOSPS01	VHOSBK01	VHOSAB01	VHOSHB01	VHOSGR01	VHOSPT01
7	Classic Cam Keep	VHKPHG11	VHKPWH11	VHKPHC11	VHKPPS11	VHKPBK11	-	VHSKCBH01	VHSKCGR01	-
8	Classic Cam Lock	VHCLHG01	VHCLWH01	VHCLHC01	VHCLPS01	VHCLBK01	VHCLAB0111 (Supplied with Keep)	VHCLHB01	VHCLGR01	VHCLPT0111 (Supplied with Keep)
9.1	Classic Bottom Sash Knob	VHSKCHG01	VHSKCWH01	VHSKCHC01	VHSKCPS01	VHSKCBK01	VHSKCAB01	VHSKCBH01	VHSKCGR01	VHSKCPT01
9.2	Heritage Bottom Sash Knob	VHSKHHG01	VHSKHWH01	VHSKHHC01	VHSKHPS01	VHSKHBK01	VHSKHAB01	VHSKHBH01	VHSKHGR01	VHSKHPT01
9.3	Architectural Bottom Sash Knob	VHSKAHG01	VHSKAWH01	VHSKAHC01	VHSKAPS01	VHSKABK01	VHSKAAB01	VHSKABH01	VHSKAGR01	VHSKAPT01
10.1	Sash Pull	VHSLHG01	VHSLWH01	VHSLHC01	VHSLPS01	VHSLBK01	VHSLAB01	VHSLHB01	VHSLGR01	VHSLPT01
10.2	Sash Pull Handle	VHBHHG01	VHBHWH01	VHBHHC01	VHBHPS01	VHBHBK01	VHBHAB01	VHBHHB01	VHBHGR01	VHBHPT01

Please order the VS400 hardware direct from Era:
ERA
Valiant Way
Wolverhampton
West Midlands
WV9 5GB
Tel: 01922 490049
Fax: 01922 494420
Email: **info@erahomesecurity.com**
Web Site: **www.eraeverywhere.com**

Do Not Scale From This Drawing

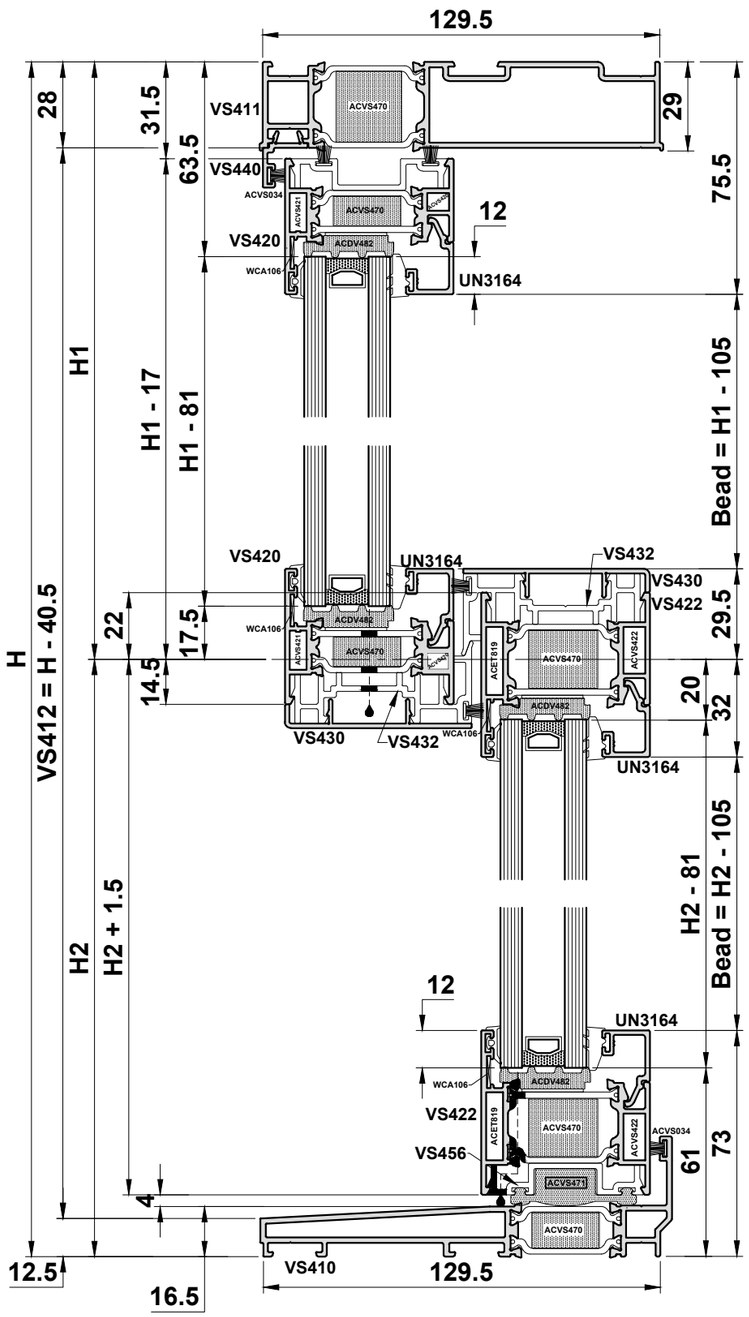
Cutting Information

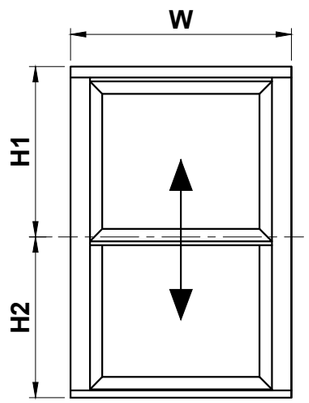
F | VS Sawing Tables

Standard Setup..... F02
PAS24 Setup..... F03

Do Not Scale From This Drawing

Cutting Information





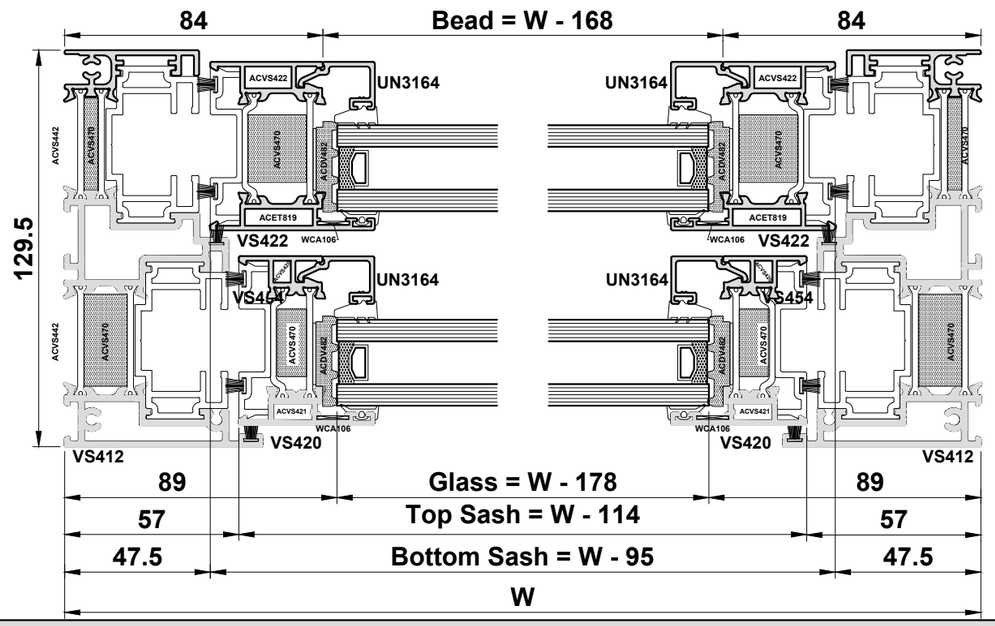
PROFILE CUTTING SCHEDULE

Outer Frame	VS410		1		W
	VS411		1		W
	VS412 & VS454		2	3°	H - 40.5
	VS440		1		W - 129
	VS052		2		220
	VS052		2		170
Top Sash	VS420		2		W - 114
	VS420		2		H1 - 17
	VS430		1		W - 114
	VS432		1		W - 134
	VS456		1		W - 114
	VS456		2		H1 - 20
	Bead		2		W - 168
	Bead		2		H1 - 105
Bottom Sash	VS422		2		W - 95
	VS422		2		H2 + 1.5
	VS430		1		W - 95
	VS432		1		W - 111
	VS456		1		W - 95
	VS456		2		H2 - 10.5
	Bead		2		W - 168
	Bead		2		H2 - 105

ACCESSORIES

Outer Frame	ACDR052	12	No.10 X 2" Screws
	ACDV264	2	M4 x 35mm Balance Screw
	ACDV266	2	M4 x 40mm Balance Screw
	ACET490	4	16mm Polyamide Screw
	ACVS034	2 x (W-116) + 2 x (H-67)	Woolpile
	ACVS051	4	Balance Foam
	ACVS052	4	Travel Stop End Caps
	ACVS410	1 Pair	VS410 End Caps
	ACVS412	1 Pair	VS412 to VS410 End Pads
	ACVS442	4	Balance Fixing Plates
Top Sash	ACDV241	2	M4 Fixing Plate
	ACDV482	2 x (W-162) + 2 x (H1-64)	Glass Perimeter Insulation
	ACET123	2	M4 x 20mm Screw
	ACET490	10	16mm Polyamide Screw
	ACET842	2 x (W-165) + 2 x (H1-67)	Retaining Gasket
	ACET848	2 x (W-165) + 2 x (H1-67)	Wedge Gasket
	ACUN3536	4	M4 x 30mm Guide Catch Screw
	ACVS034	3 x (W-114) + 4 x (H1-13)	Brush Pile
	ACVS420	4	Crimping Cleat
	ACVS421	4	Crimping Cleat
	ACVS450	1 Pair	Brush Carrier
	ACVS457	4	Fixing Plates & Bridge Packers
Bottom Sash	WCA106	4	Stainless Steel Chevron
	ACDV241	2	M4 Fixing Plate
	ACDV482	2 x (W-162) + 2 x (H2-57	Glass Perimeter Insulation
	ACET101	2	M4 x 16mm Guide Catch Screw
	ACET490	10	16mm Polyamide Screw
	ACET842	2 x (W-165) + 2 x (H2-60)	Retaining Gasket
	ACET848	2 x (W-165) + 2 x (H2-60)	Wedge Gasket
	ACUN3536	6	M4 x 30mm Guide Catch Screw
	ACVS034	1 x (W-114) + 4 x (H1-13)	Brush Pile
	ACET819	4	Crimping Cleat
	ACVS422	4	Crimping Cleat
	ACVS452	1 Pair	Brush Carrier
	ACVS457	4	Fixing Plates & Bridge Packers
	ACVS458	2	Fixing Plates
	ACVS471	1 x (W-114)	Weather Seal
	WCA106	4	Stainless Steel Chevron
	ACVS470	1	Foam Insulation Kit

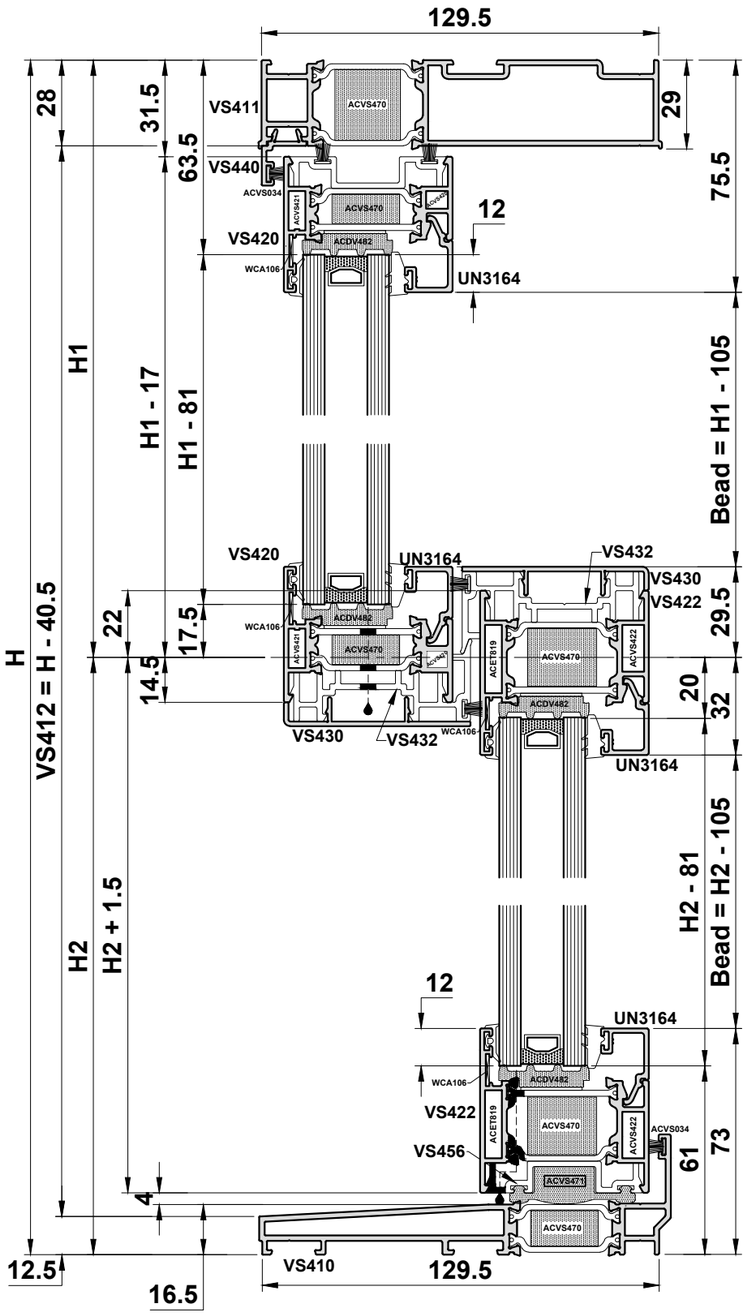
Note: See page E26 for ERA accessory list.

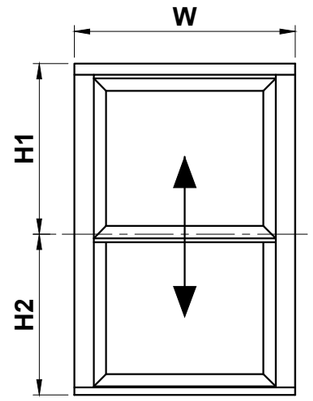


GLASS SIZES	1 x	H1 = W - 178 x H1 - 81
	1 x	H2 = W - 178 x H2 - 81

Do Not Scale From This Drawing

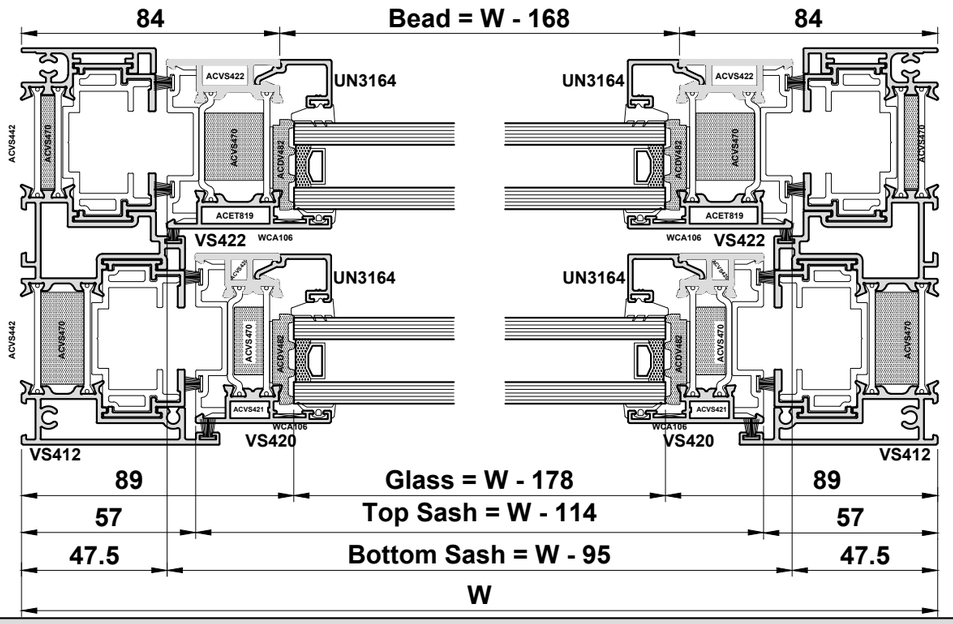
Cutting Information





PROFILE CUTTING SCHEDULE

Outer Frame	VS410		1		W
	VS411		1		W
	VS412 & VS450 & VS452		2	3°	H - 40.5
	VS440		1		W - 129
	VS052		2		220
	VS052		2		170
Top Sash	VS420		2		W - 114
	VS420		2		H1 - 17
	VS430		1		W - 114
	VS432		1		W - 134
	VS456		1		W - 114
	VS456		2		H1 - 20
	Bead		2		W - 168
	Bead		2		H1 - 105
Bottom Sash	VS422		2		W - 95
	VS422		2		H2 + 1.5
	VS430		1		W - 95
	VS432		1		W - 111
	VS456		1		W - 95
	VS456		2		H2 - 10.5
	Bead		2		W - 168
	Bead		2		H2 - 105



ACCESSORIES

Outer Frame	ACDR052	12	No.10 X 2" Screws
	ACDV264	2	M4 x 35mm Balance Screw
	ACDV266	2	M4 x 40mm Balance Screw
	ACET490	4	16mm Polyamide Screw
	ACVS034	2 x (W-116) + 2 x (H-67)	Woolpile
	ACVS051	4	Balance Foam
	ACVS052	4	Travel Stop End Caps
	ACVS410	1 Pair	VS410 End Caps
	ACVS412	1 Pair	VS412 to VS410 End Pads
	ACVS442	4	Balance Fixing Plates
Top Sash	ACDV241	2	M4 Fixing Plate
	ACDV482	2 x (W-162) + 2 x (H1-64)	Glass Perimeter Insulation
	ACET123	2	M4 x 20mm Screw
	ACET490	10	16mm Polyamide Screw
	ACET842	2 x (W-165) + 2 x (H1-67)	Retaining Gasket
	ACET848	2 x (W-165) + 2 x (H1-67)	Wedge Gasket
	ACUN3536	4	M4 x 30mm Guide Catch Screw
	ACVS034	3 x (W-114) + 4 x (H1-13)	Brush Pile
	ACVS420	4	Crimping Cleat
	ACVS421	4	Crimping Cleat
	ACVS450	1 Pair	Brush Carrier
	ACVS457	4	Fixing Plates & Bridge Packers
Bottom Sash	WCA106	4	Stainless Steel Chevron
	ACDV241	2	M4 Fixing Plate
	ACDV482	2 x (W-162) + 2 x (H2-57	Glass Perimeter Insulation
	ACET101	2	M4 x 16mm Guide Catch Screw
	ACET490	10	16mm Polyamide Screw
	ACET842	2 x (W-165) + 2 x (H2-60)	Retaining Gasket
	ACET848	2 x (W-165) + 2 x (H2-60)	Wedge Gasket
	ACUN3536	6	M4 x 30mm Guide Catch Screw
	ACVS034	1 x (W-114) + 4 x (H1-13)	Brush Pile
	ACET819	4	Crimping Cleat
	ACVS422	4	Crimping Cleat
	ACVS452	1 Pair	Brush Carrier
	ACVS457	4	Fixing Plates & Bridge Packers
	ACVS458	2	Fixing Plates
	ACVS471	1 x (W-114)	Weather Seal
	WCA106	4	Stainless Steel Chevron
	ACVS470	1	Foam Insulation Kit

Note: See page E26 for ERA accessory list.

GLASS SIZES	1 x	H1 = W - 178 x H1 - 81
	1 x	H2 = W - 178 x H2 - 81

Do Not Scale From This Drawing

Cutting Information

Do Not Scale From This Drawing