Visofold 1000 Bi-folding door

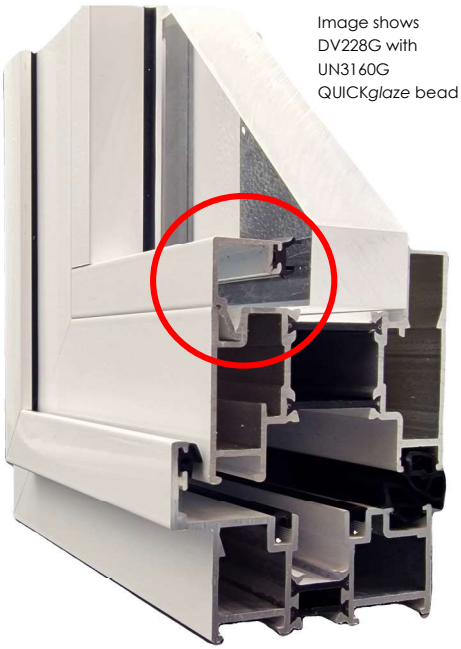


Image shows DV228G with UN3160G QUICK*glaze* bead

Overview

- Energy Rating WER C (existing dwellings)
  (1.2Wm²k centre pane uValue) 4-20–4 Planitherm Total Plus
- Energy Rating 1.6Wm²k (new dwellings, existing commercial & new commercial)
  (1.1Wm²k centre pane uValue) 4-20-4 Planitherm One
- 70mm Outerframe
- **Square sash DV228g & QUICK*glaze* bead UN3160g** with coextruded gaskets - Grey, White & Black colour finishes only - 28mm, 28.8mm & 36mm glazing
- **Square sash DV23 & bead DV67** & push in gaskets to all other colour options - 28mm, 28.8mm, 36mm & 38.8mm glazing
- Optional Midrail for DV228G sash (**DV235G)**
- Optional Midrail for DV23 sash (**DV35)**
- Optional transom for DV23 sash (**DV30)**
- Optional low threshold for open in & out, ramps supplied as standard
- Mechanical frame & Crimped sash system
- All sashes fitted with Toe & Heel kit
- Minimum sash width 700mm
- Maximum sash width 1200mm
- Maximum frame height 2500mm
- Maximum sash weight 100kg

Weather Performance (DV14 threshold only)

- Air Permeability: Class 4 600 Pa
- Water tightness: Class E 750 Pa
- Resistance to Wind Load: Class A4 1800 Pa

Important note: Low thresholds have not been weather tested as they are unlikely to exceed UK exposure category 800 X shown below. They are non rebated, where weather performance is required use the DV14 outerframe.

- Air Permeability: Class 1 150 Pa
- Water tightness: Class 2a 50 Pa
- Resistance to Wind Load: Class A2 800 Pa

Visofold 1000 Bifolding door

- Our doors can be open in, open out, stack from the left or the right, open at the centre, end or in-between.
- Internally beaded system
- Standard threshold of 51.5mm or low threshold of 15mm (please note we do not recommend the low 15mm threshold for external use)
- High security hook bolt lock and one piece keep on main opening doors (where applicable) and handle operated shoot-bolts (non-locking) to other doors.
- Only master doors will be fitted with a lever/lever handle and key locking cylinder all others where required will be fitted with a non-locking shootbolt handle
- Highly engineered and robust hinges with D handles.
- Stainless steel rollers with integral brush at the bottom of the track providing smooth and easy operation. Roller assembly has up-to 5mm height adjustment - page I24
- High quality EPDM gaskets and weather brushes to aid weather proofing.

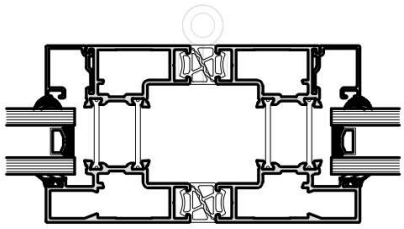
- Polyamide thermal barrier reduces heat loss and improves thermal performance.
- Available in KL, RAL, and Sensation range and dual colour options.
- Face drained only (secret drainage not available)
- Head vents are available fitted into a 42mm frame extension to the head of frame
- **All designs are viewed from outside**
- Main/Pendulum handles are available in White, Black, Chrome, Satin Chrome, Gold and Anthracite Grey (shown below).
- Intermediate hinges are supplied in black only
- Bogie wheels and top guides are supplied white to white bifolds and black on all other colour options.
- D handles to the mullions are supplied White to white and dual colour on white bifolds. Black on all other colour options.

- S ble w n security cylinder and double glazing incorporating 6.8mm Laminated glass

Wind Loading

Wind load requirements are based on a number of factors such as, site location, building height, frames sizes and system used.

fmax = B/200 < 15mm
max sash weight = 100kg
max sash width = 1200mm
max sash height = 2500mm



All profiles have a strength value (Ix) the higher the number the stronger the section.

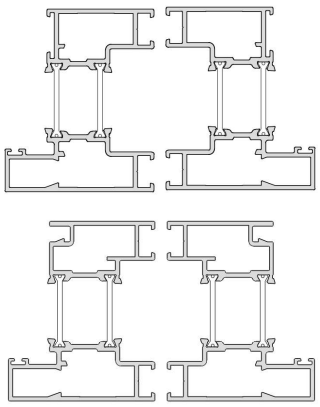
The Ix value required is subject to the wind load, frame style & frame dimensions

The example shown is a 3 pane 3700 x 2500, wind load of **1170pa** the Ix required is **75.9cm⁴**

The overall Ix value is determined by the combined value of the two sash jambs

DV23 & DV228G sash has an Ix value of = **85.86**.

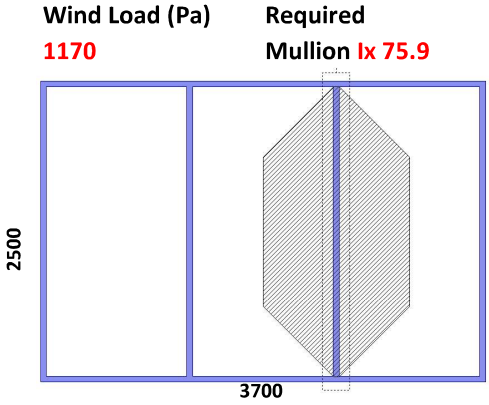
Therefore in this example the frame size, style and profile are suitable.



DV23

85.86cm

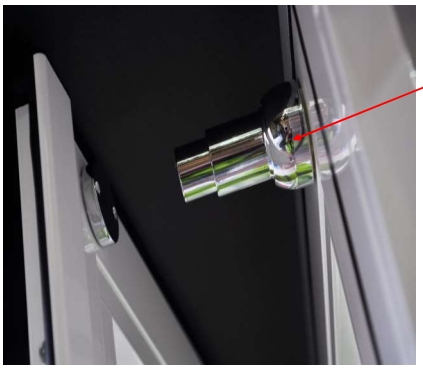
DV228G



Examples of wind loads achievable. Other frame sizes will give different wind load / Ix value requirements					
Frame Height 2500mm - DV23/DV228G Sash **85.86Ix**					
	Min frame width	Max wind load (pa)		Max frame width	Max wind load (pa)
3 Pane	2260	2020		3700	1320
4 Pane	3020	2020		4900	1330
5 Pane	3680	2070		6100	1330
6 Pane	4430	2070		7350	1330
7 Pane	5100	2090		8500	1335
8 Pane	5860	2080		9400	1370

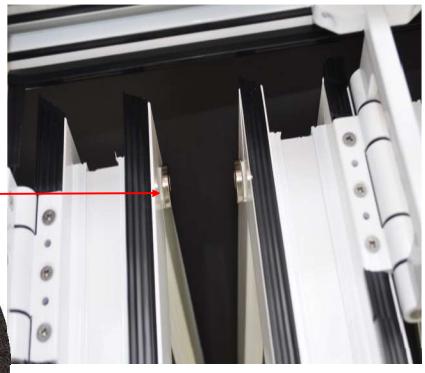
Note: We can do a basic wind load check but it is your responsibility to ensure goods meet with your/site requirements, check with a structural engineer.

- Magnetic clips are included as standard to secure the sashes together when in the open position, and will be colour matched to the handles*.



Main magnetic door clip for doors with a main handle. We recommend fitting them at the top.

Smaller magnetic clip for the doors without a main handle. We recommend fitting them at the top



*Colour finish of the satin chrome magnets is not an exact match to the satin chrome handle

Important — magnets will not prevent doors from moving or slamming in strong winds

Size Restrictions

- Max height of the doors is 2500mm, with a max sash width of 1200mm wide*
- Min sash width is **700mm**, although it is possible to go below this size we are unable to guarantee a smooth operation and all doors must be unlocked prior to being opened. This is only available on styles that have an odd number of panes i.e. 330 / 550 & minimum sash width is **556mm**
- Min height 1805mm Frame size (1721 sash size) – Below this size locking points will be lost, which will affect door compression. 800mm is the minimum frame with central latch lock.
- The max sash weight is 100kg

No of doors	Designs		Frame Width		No of doors	Designs		Frame Width	
			Min	Max				Min	Max
1	101	110	600	1287	2	220	202	1550	2500
						211		1200	2450
3	330	303	2260	3700	4	440	404	3020	4900
	312	321	2260	3700		413	431	3020	4900
						422		3020	4900
5	550	505	3680	6100	6	660	606	4430	7350
	514	541	3680	6100		615	651	4430	7350
	523	532	3680	6100		624	642	4430	7350
						633		4430	7350
7	770	707	5100	8500	8	880	808	5860	9400
	716	761	5100	8500		817	871	5860	9400
	725	752	5100	8500		826	862	5860	9400
	734	743	5100	8500		835	853	5860	9400
						844		5860	9400
Sashes must be fitted with a toe & heeler during installation									

Please bear in mind that large doors are heavy and therefore consideration should be given to having them flat packed for assembly on site. There is a charge for this option as the doors are fully fabricated before being dismantled and wrapped separately. Full assembly and installation instructions are available on request.

Doors wider than 6300 and/or 7 and 8 panes or those supplied on pallets will be supplied flat packed

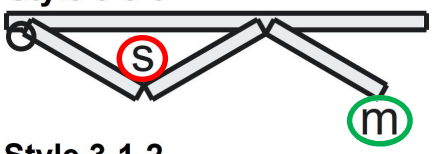
Configurations

- There are many different configurations, please see the list below, and use the quote configurator to make up the bi-fold configuration of your choice. On the list below we have highlighted in red which styles **DO NOT** have an external handle
- Styles 211 & 212 will have a lever/lever handle to both sashes as standard and will operate as a French door

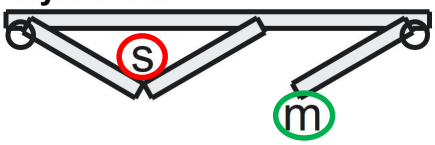
Important Information

Please note that if you have an **OPEN IN** door that has a floating mullion on e.g. 202/220/404/440/422/541/514 /523/532/606/660/642/624/761/716/725/752/743/734/880 /808/826/862/844, then we have to use brush pile seals on the outer frame rather than gasket. This compromises the weather tightness of the doors and therefore we do not recommend them for external locations.

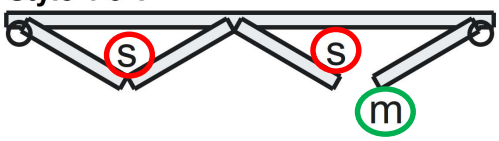
Style 3-3-0



Style 3-1-2



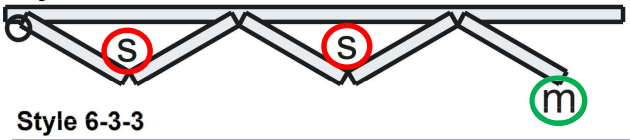
Style 4-3-1



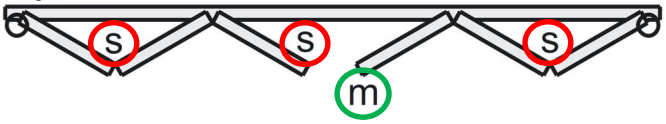
Style 4-4-0

Style 4-2-2

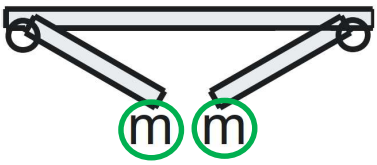
Style 5-5-0



Style 6-3-3



Style 2-1-1



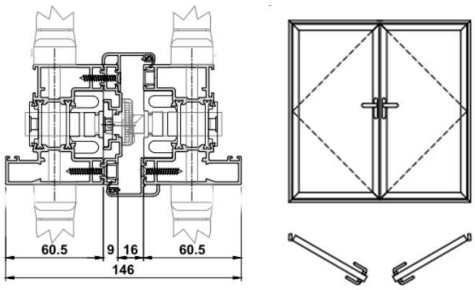
Styles 211 & 212 will have a lever/lever handle to both sashes as standard and will operate as a French door

Important - Shootbolt handles are not designed to open / close the door, always use the D handle

m = Main Door handle Lever/ Lever

S = Slave door internal shootbolt handle

Visofold Slim Double & Bifold Double Door



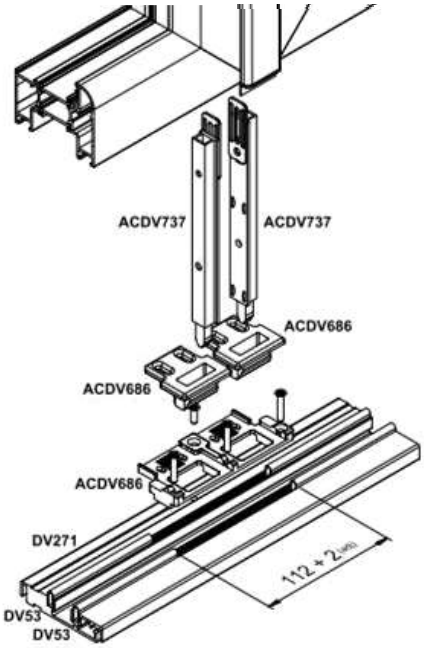
Visofold Slim double doors & 2 Pane Bifold double doors are supplied as standard with Lever/Lever handle to both the master and the slave sash. They will operate as a French door.

Door styles references:

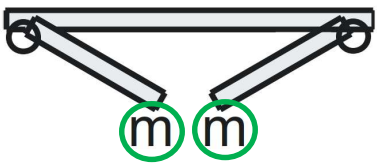
Visofold Slim - 2100 , 2101, 2201 & 2201

Bifold - 9211 & 9212

The master and slave sash will both have shootbolts top and bottom, which go into a double keep.



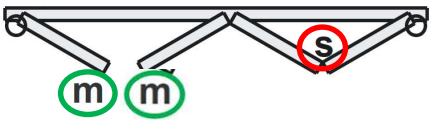
Style 9211 LH sash leads / 9212 RH sash leads



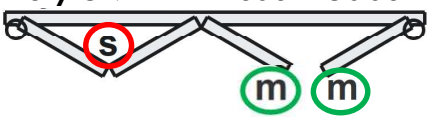
On the following styles below it is possible to have a Lever/lever handle & shootbolts to the master & slave sashes to operate as a French door . An additional large magnet will also be required.

For these styles it will incur an additional charge.

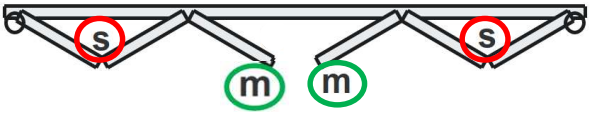
Style 9414 LH sash leads



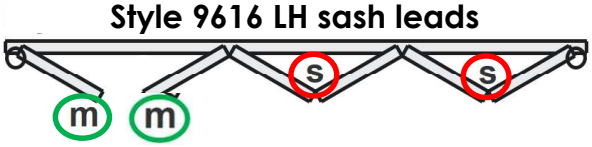
Style 9441 RH sash leads



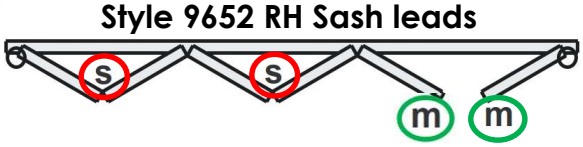
Style 9639 LH sash leads / 9638 RH sash leads



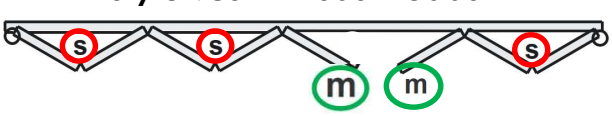
Style 9616 LH sash leads



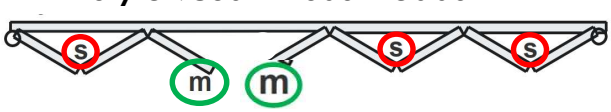
Style 9652 RH Sash leads



Style 9854 LH Sash leads



Style 9836 RH Sash leads



Style 9818 LH Sash leads

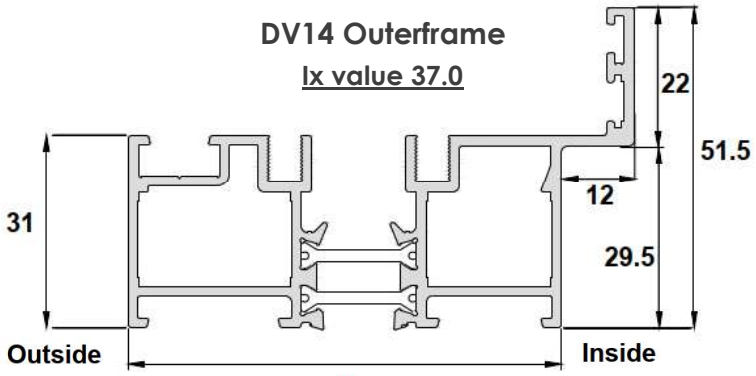
Style 9872 RH Sash leads

m = Main Door handle Lever/ Lever S = Shootbolt handle

Frame sections

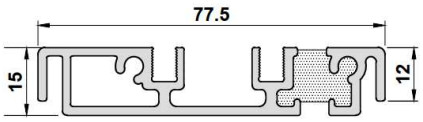
DV14 Outerframe

Ix value 37.0



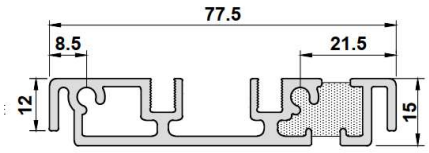
70 Shown open out, reverse for open in

DV171 Low threshold
Open In Only

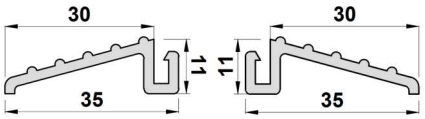


DV271 Low threshold
Open Out Only

Outside Inside



EUD03 internal & external threshold ramp for DV171 & DV271



NOTE: Low thresholds have not been weather tested as they are unlikely to exceed UK exposure category. They are non rebated, where weather performance is required use the DV14 outerframe.

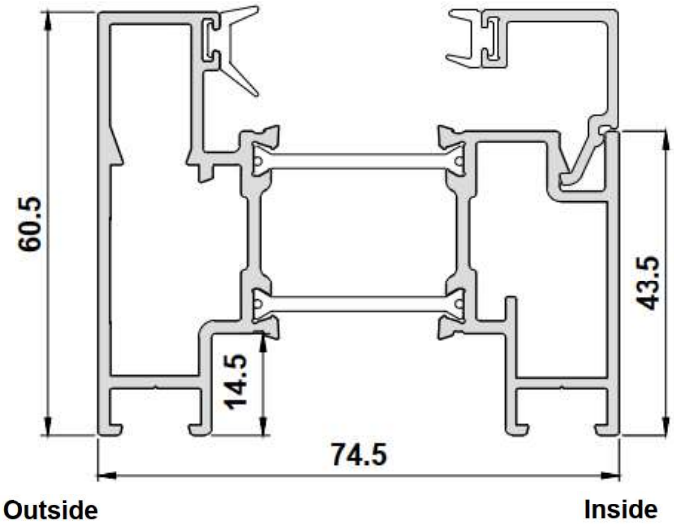
Coextruded sash, midrail & QUICK*glaze* bead

These profiles are only available in White, Grey & black.

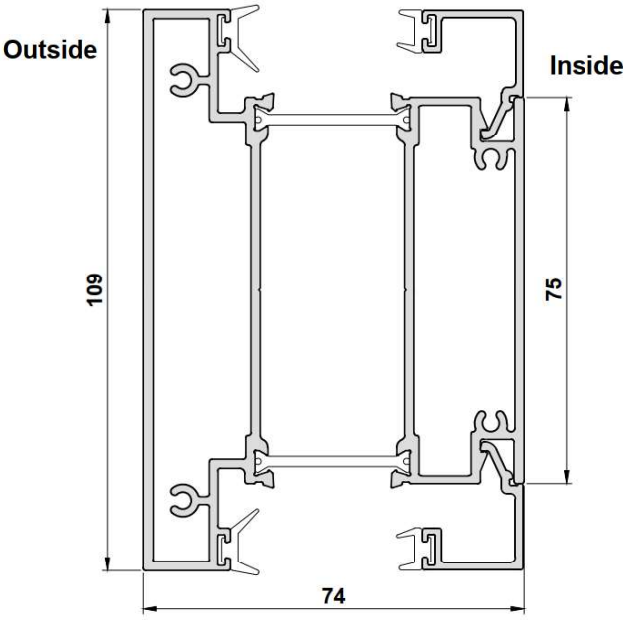
Suitable only for glazing thickness of 28mm, 28.8mm Laminated and 36mm triple.

If you require a triple glazed laminated unit this will have to be done in the DV23 sash with ETC161 bead

DV228G Square sash &
UN3160G QUICK*glaze* bead



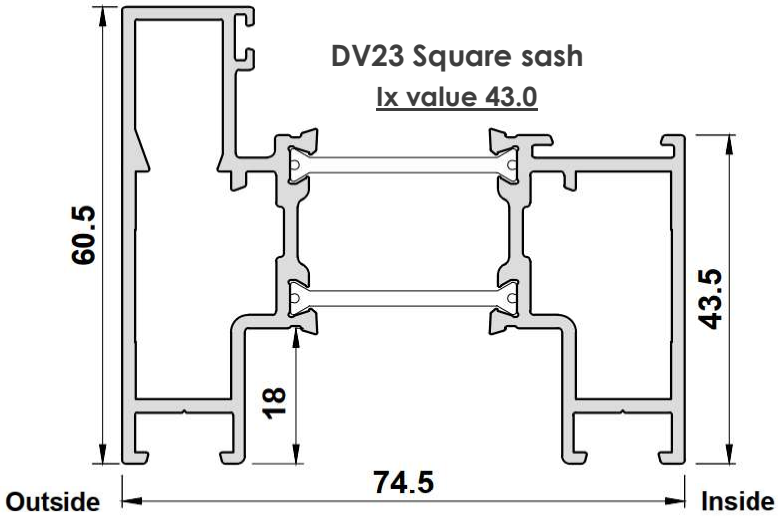
DV235G Midrail &
UN3160G QUICK*glaze* bead



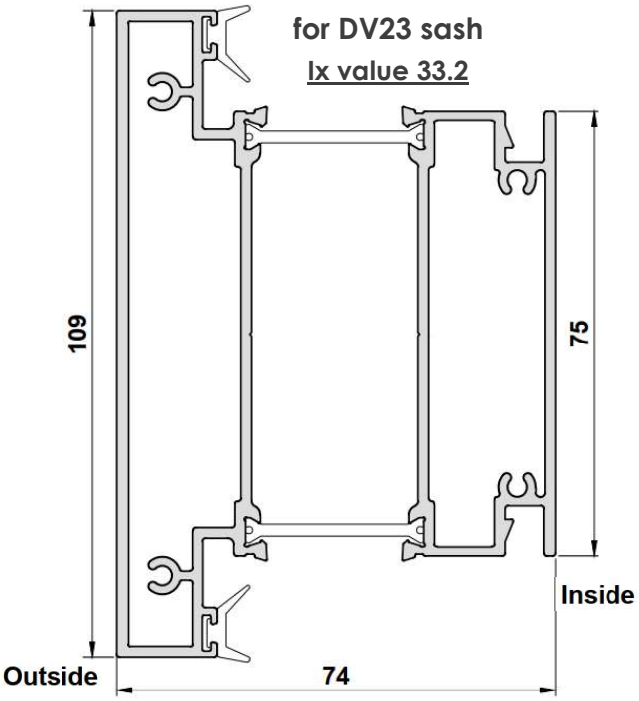
Non coextruded sash, midrail, transom & bead

These profiles are for Dual colour & all other colours (except white, grey & black)
Suitable only for glazing thickness of 28mm, 28.8mm Laminated, 36mm triple & 38.8mm triple laminated.

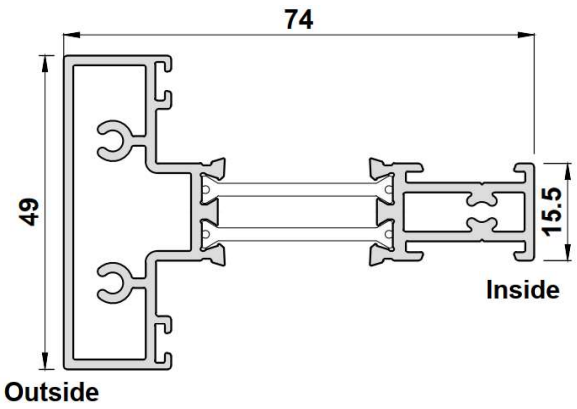
DV23 Square sash
Ix value 43.0



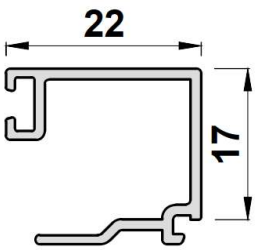
DV35 Midrail for DV23 sash
Ix value 33.2



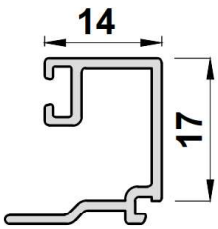
DV30 Transom for DV23 sash
Ix value 28.3



DV67 Double glazing bead

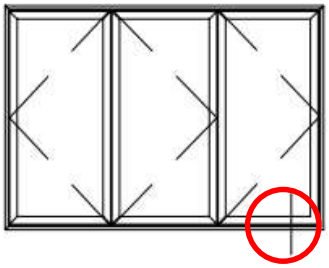


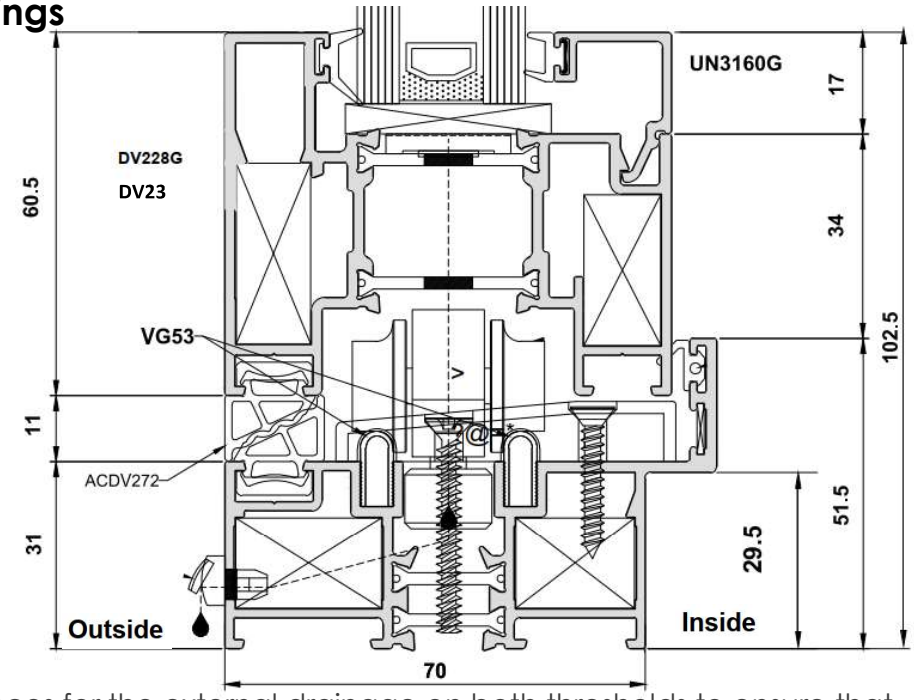
DV161 Triple glazing bead



Cross sectional drawings

Standard cill detail

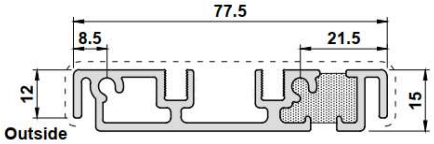




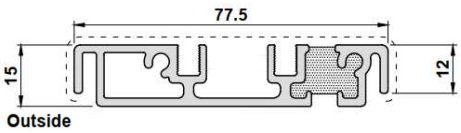
You need to make allowances for the external drainage on both thresholds to ensure that the water can dissipate freely.

Cill detail with low threshold

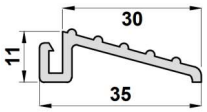
DV271– Open Out threshold



DV171– Open In threshold

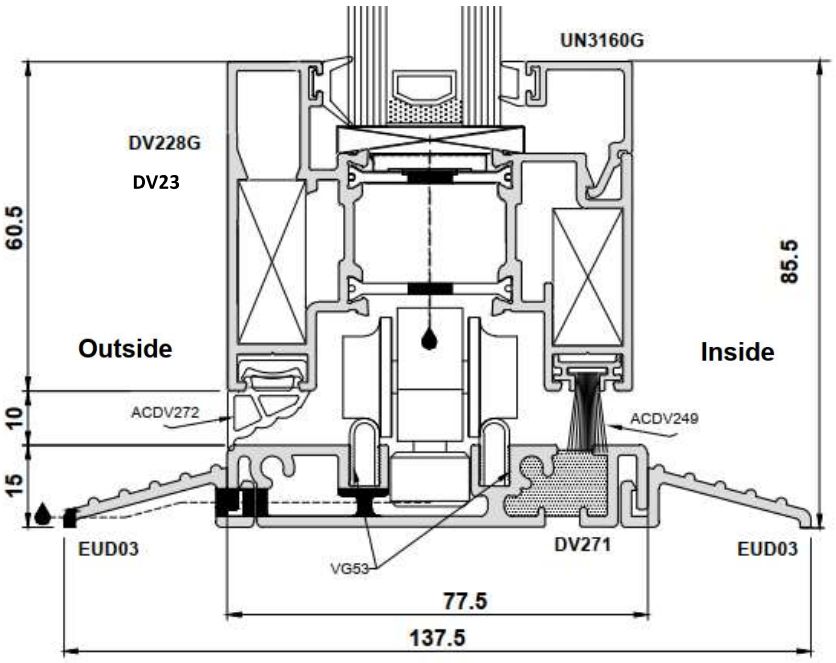


EUD03 – Int / Ext Ramp



Please note

- The low threshold is not rebated and therefore not recommended for external use, as it will not give a weather tight seal.
- It is important to ensure that you install a DPC membrane between the cill and the brickwork. You should also seal the underside of the low threshold where the drainage slots are to ensure that water does not seep out.



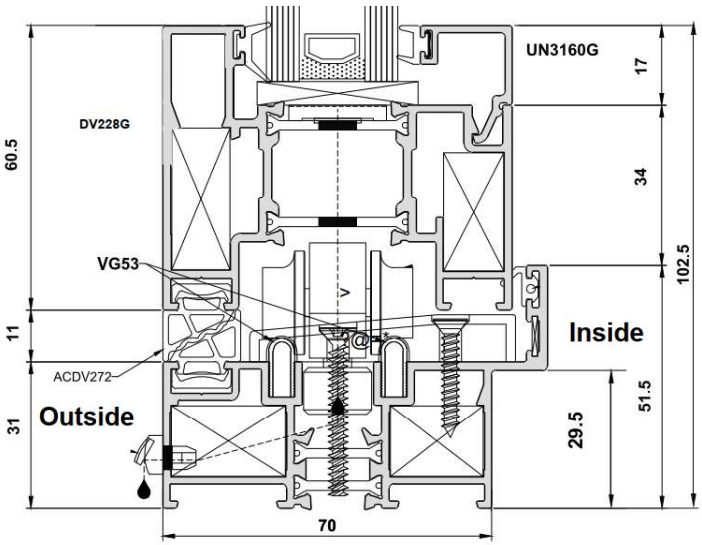
Ramps are supplied loose -

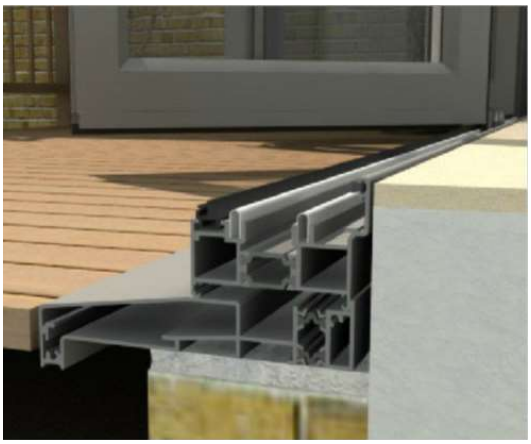
Subject to installation conditions/if external cill is used it may not be possible to use the ramps.

Threshold Details

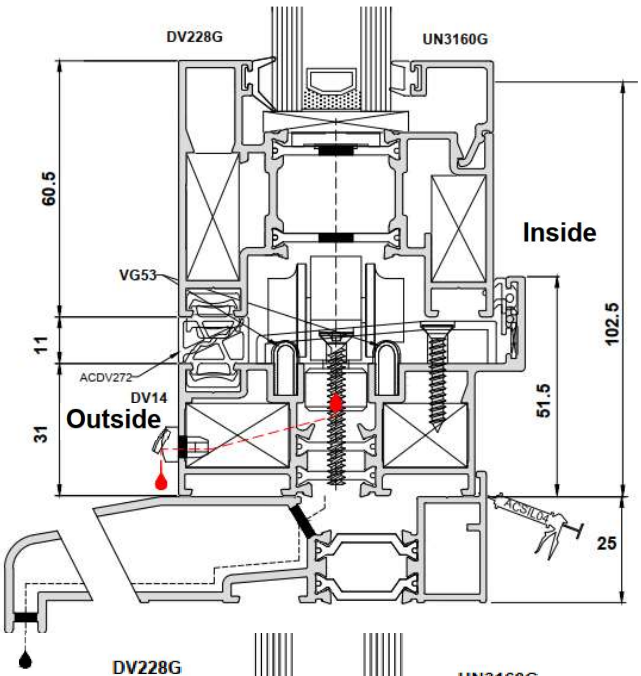
The internal & external floor levels can be finished flush, although you will need to allow for some external drainage provisions.

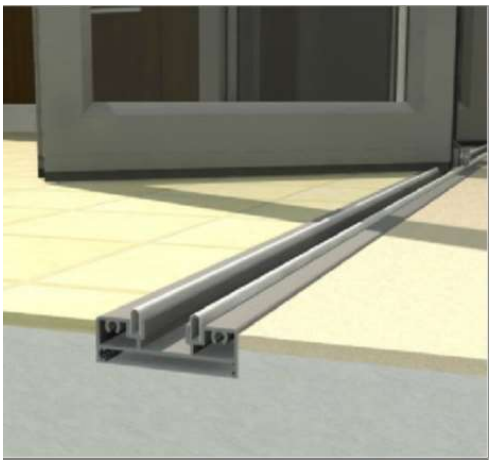
Standard 51.5mm threshold with no external cill



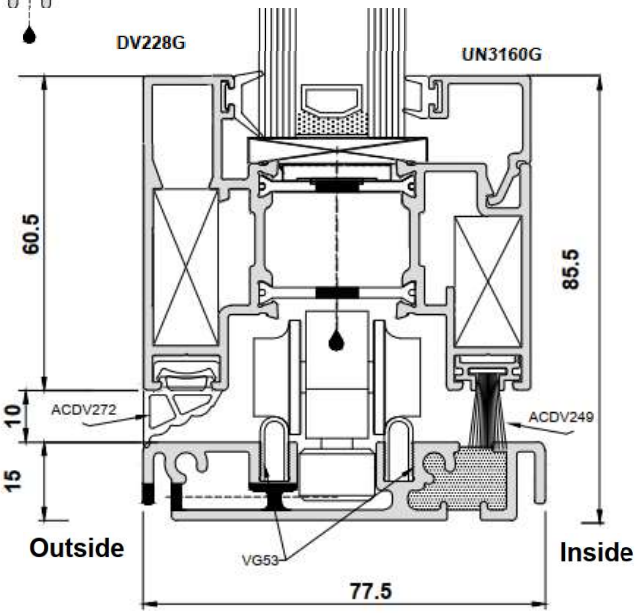


Standard 51.5mm threshold with external cill



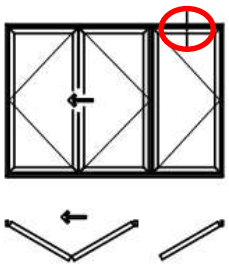


Low 15mm threshold no external cill (not recommended for exposed locations)

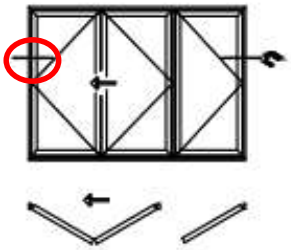


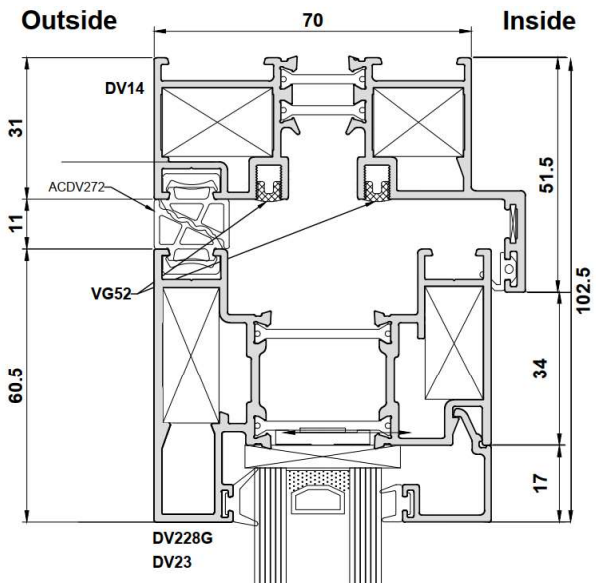
Cross sectional drawings

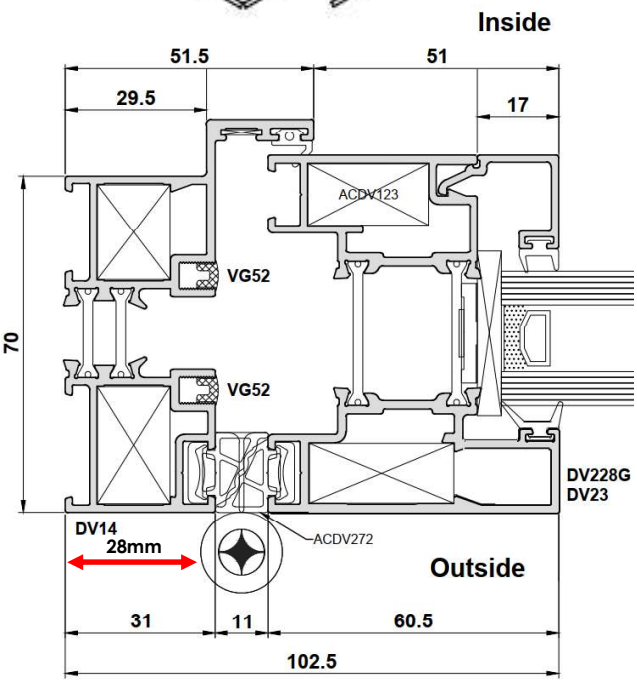
Standard head



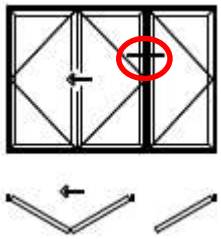
Jamb - Hinged

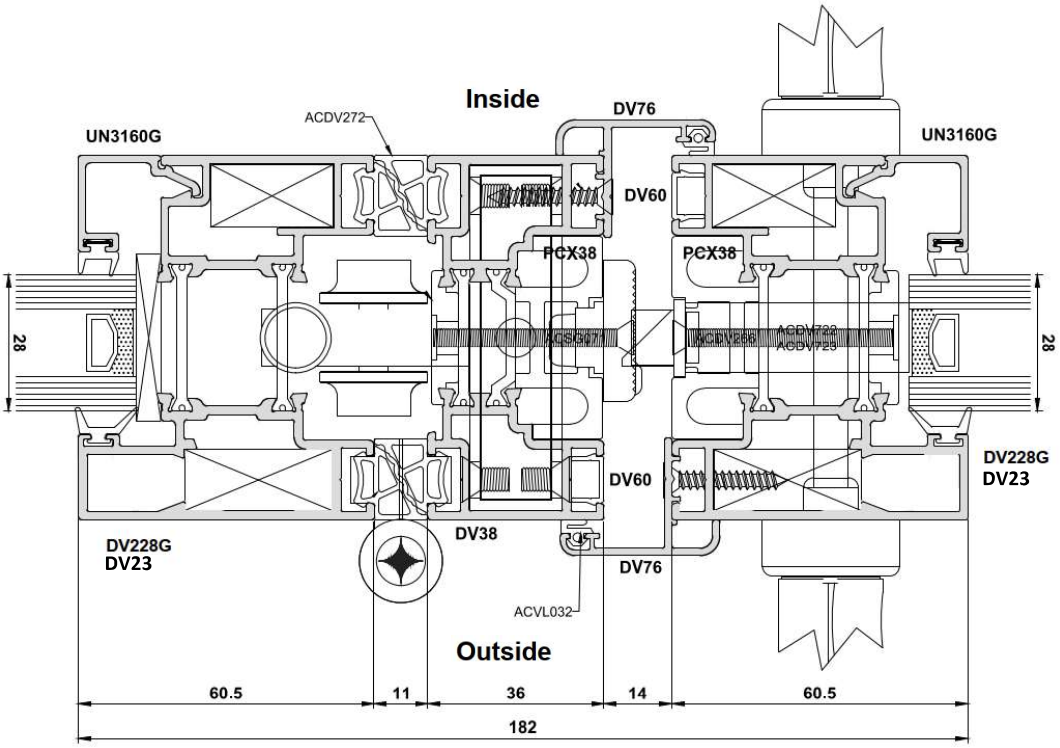




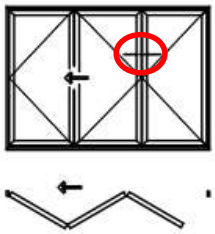


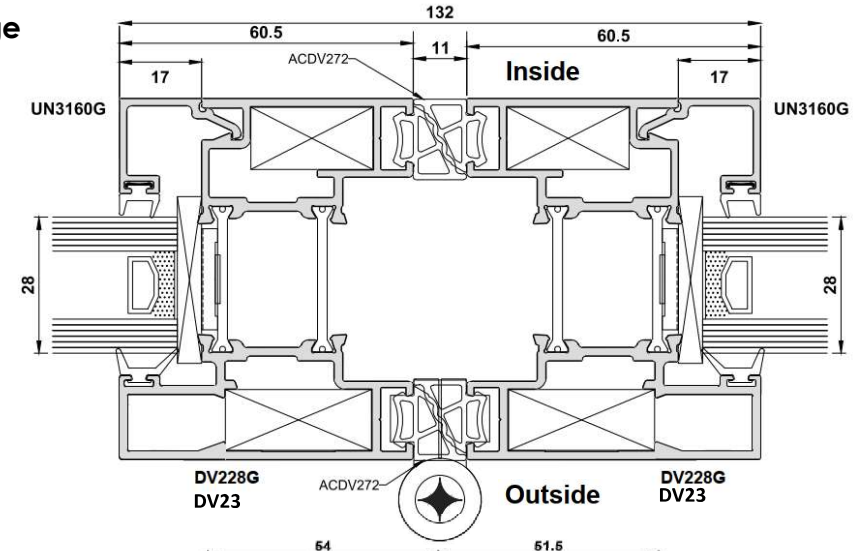
Master Sash to Slave Sash - Locking



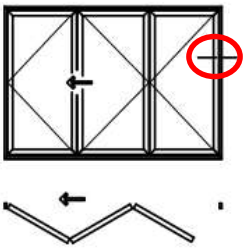


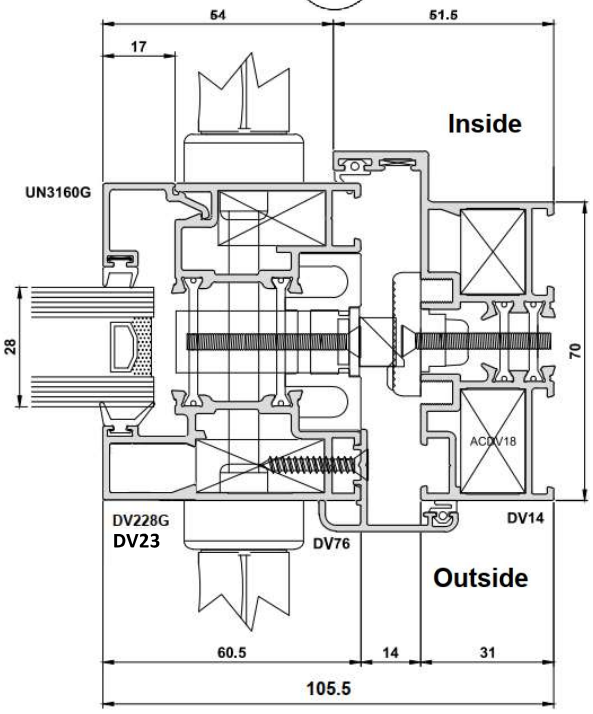
Slave Sash to Slave Sash - Hinge



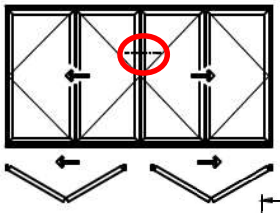


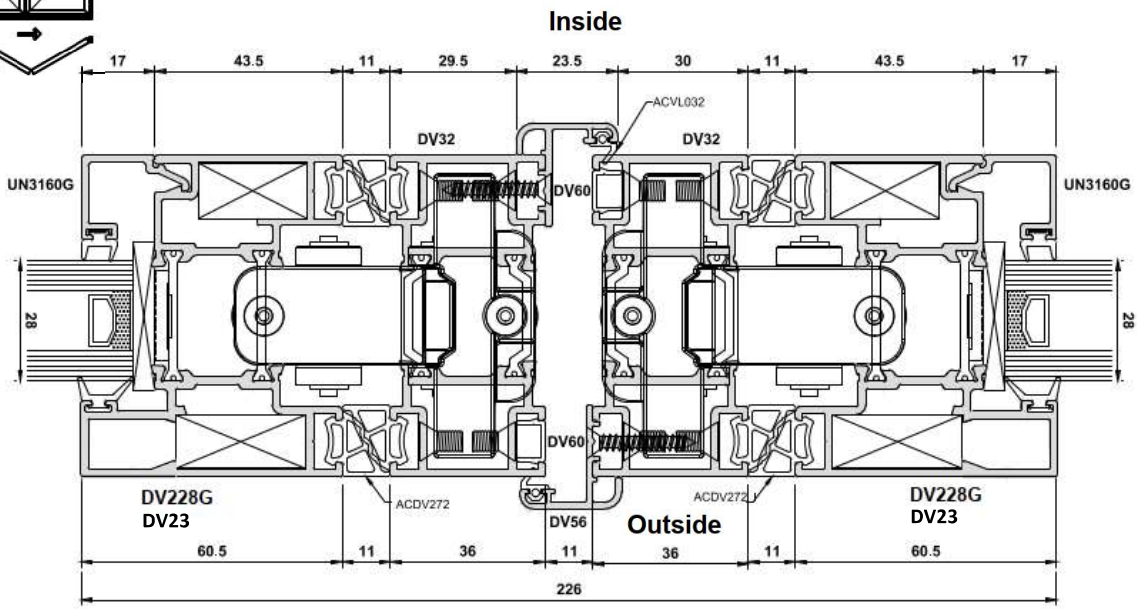
Jamb - Master Sash Locking



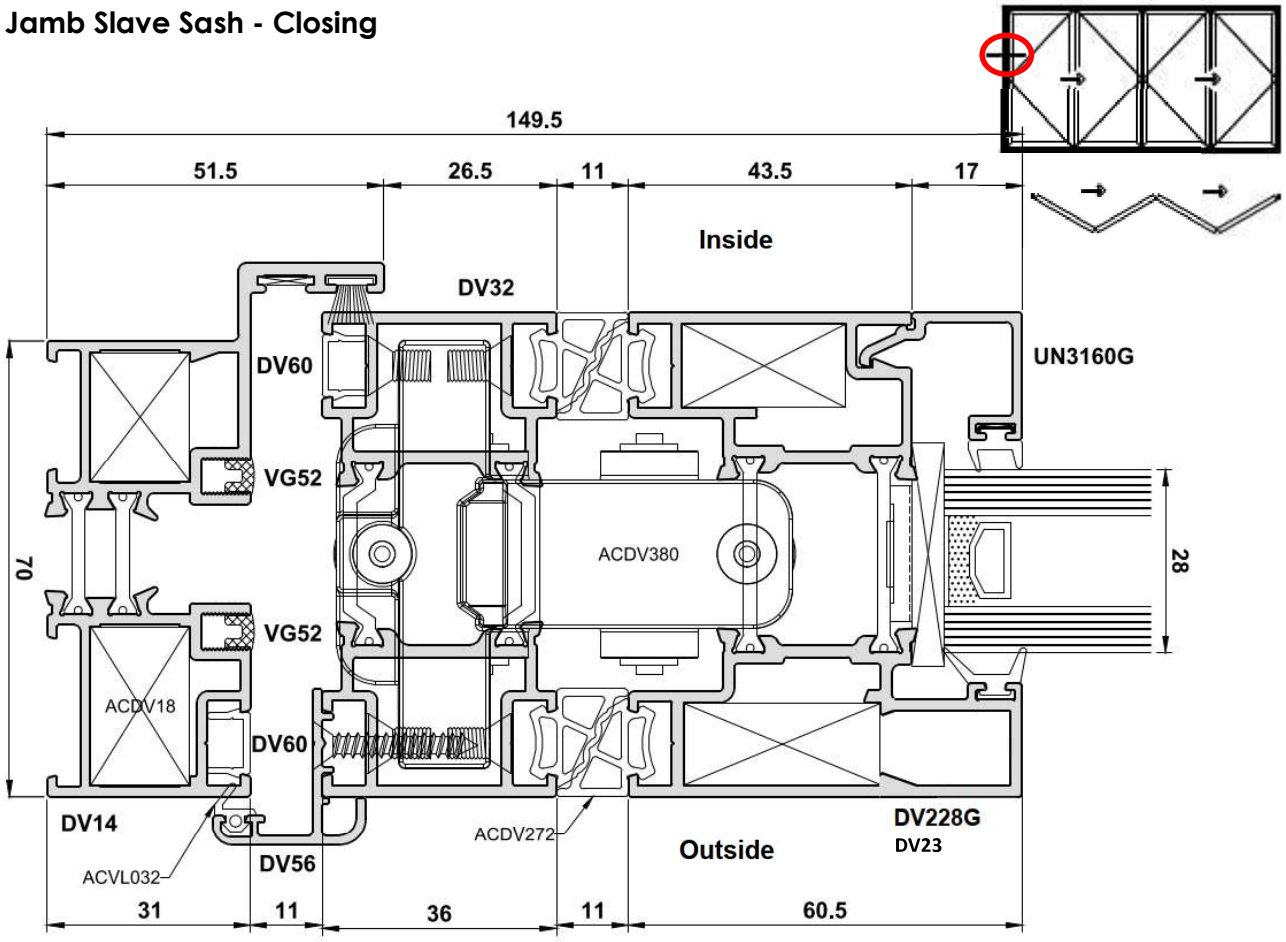


Slave Sash to Slave Sash - Closing

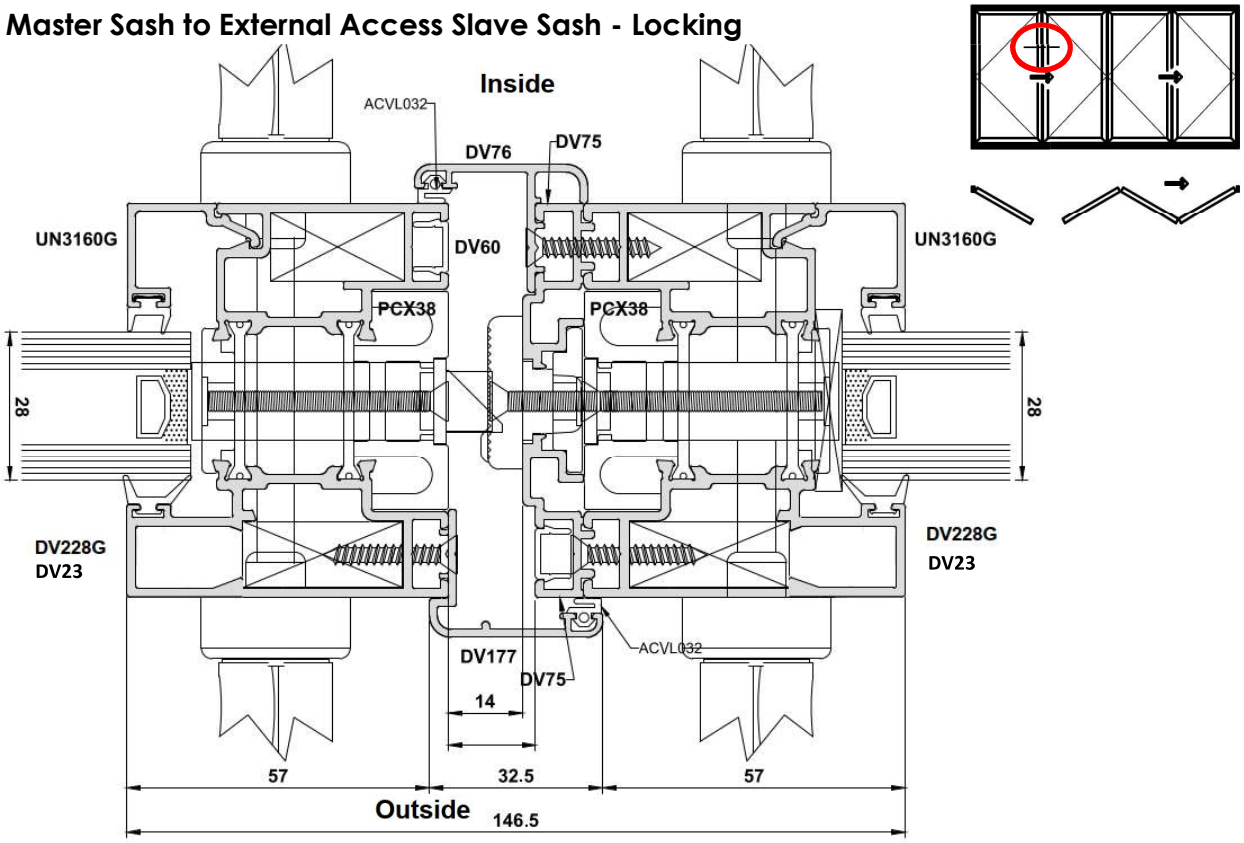




Jamb Slave Sash - Closing

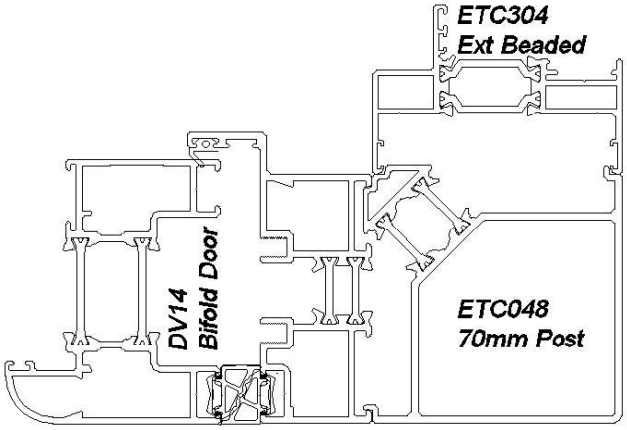


Master Sash to External Access Slave Sash - Locking

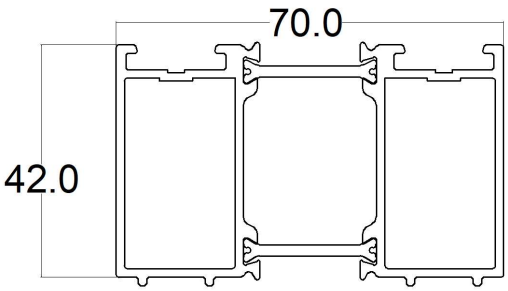


90° Bay Corner Detail

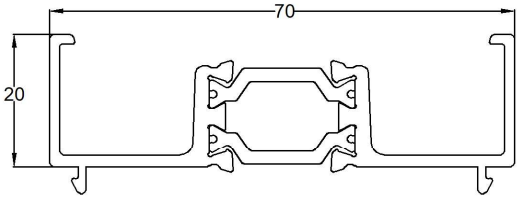
When the Bifold door is to be used in a corner detail then the return frame will be in the Alitherm 300 series – Note corner post is not load bearing see note on Large unsupported openings



Frame extensions



DV515 – 70mm x 42mm Frame extension
(also used for trickle ventilation)



DV559 – 70mm x mm Frame extension

Note: For coupler, corner post and variable bay pole suitable for bay pole jacks see section J page J04

Large, unsupported openings

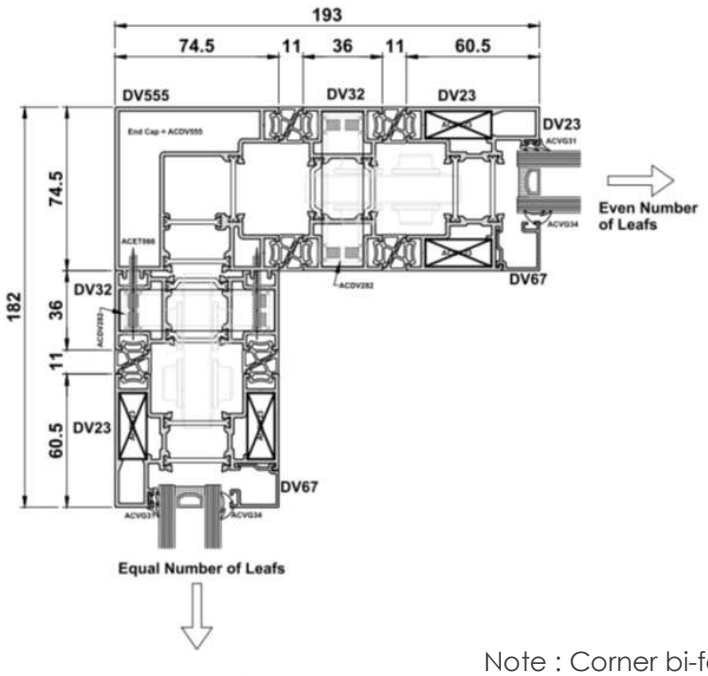
It is important to understand that any frame with a large opening, such as bifolds, wide French doors and patio doors have no structural integrity once open and therefore are not designed to take any loadings from above.

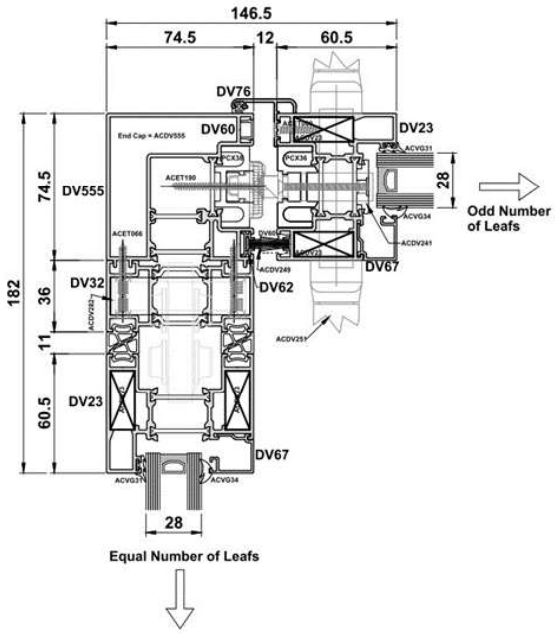
These frames are not designed to take any structural loadings from above so always consult a structural engineer and support the heads appropriately.

This is especially critical in conservatories where, if not correctly supported, the weight of the roof will push down on the frame, causing damage and operational difficulties.

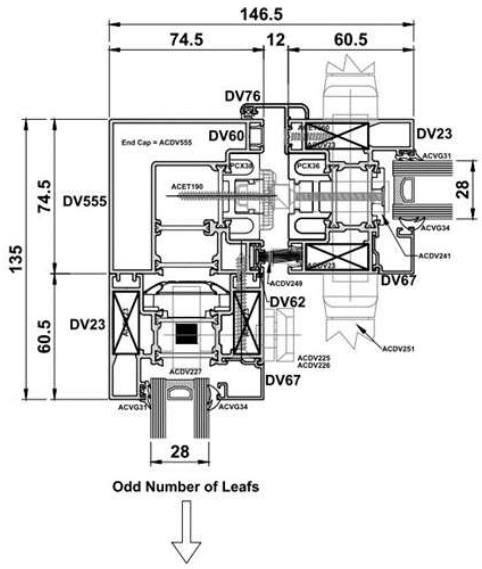
It is vital that you design in a structural support capable of taking the roofs weight. We would urge you to consult a structural engineer at the design stage so that you construct a suitable goal post/lintel to fit between the frame and the roof/loading above.

False Corners



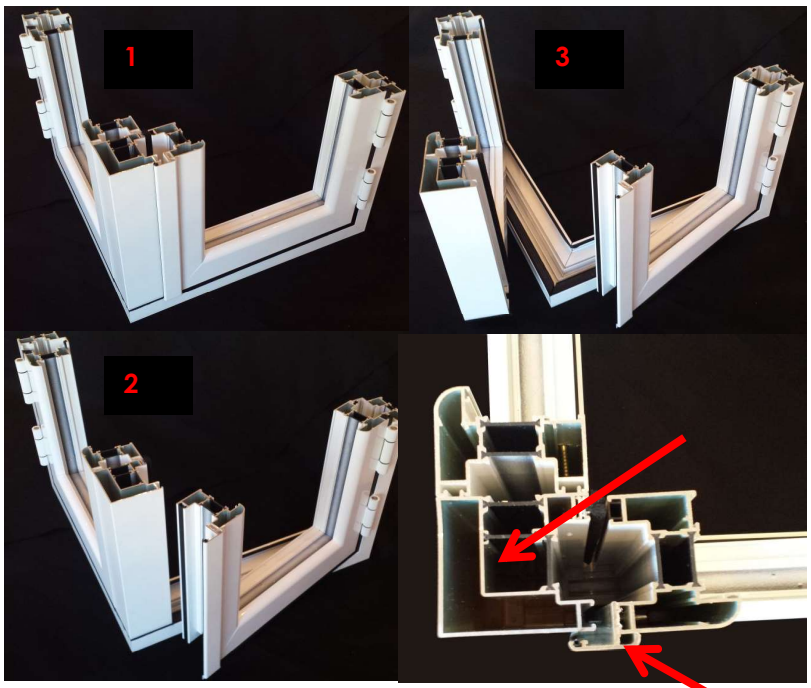


Note : Corner bi-folds are supplied flat packed



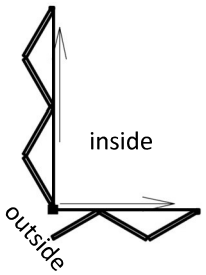
1. Floating corner post in closed position with rebated lead door

3. Once the right hand rebated door is opened the door which has the floating corner post on can be opened



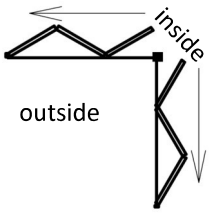
2. Right hand rebated door must open first

Rebated section that creates the seal which is fixed to the other door



External corners doors can only open out

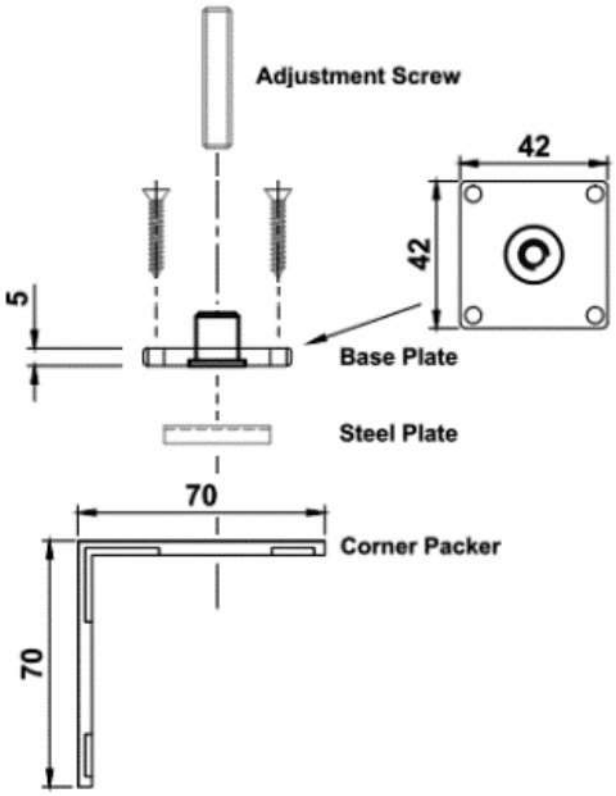
As with all bay details we work to the internal cill/frame dimensions



Internal corners doors can only open in

Toe & Heeler Guide

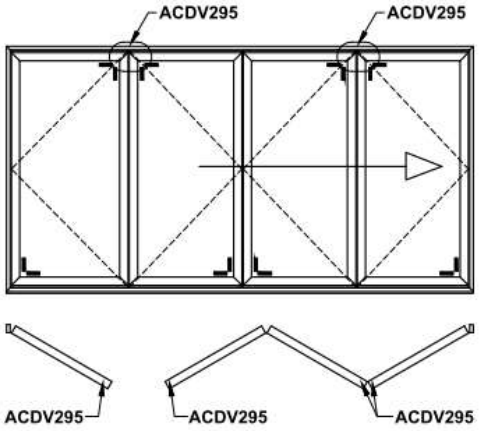
All bifold door sashes are fitted with a toe and heeler device (ACDV295) and this device comes in 4 parts as shown below. Once door has been toe & heeled and fully glazed. The glass adjuster means you will not have to remove the beads to make further adjustments to the glass position if needed.



ACDV295 Glass Adjuster Kit

The Base Plate and Adjustment Screw are pre fitted to the sash in the factory.

The Steel Plate and Corner Packer will come in the stores package and must be used in place of standard packers in the corners where the device is fitted.



The packer will have been pre-notched (see images below) to allow the bead to sit in place.

Cut out a notch here to allow the bead to sit correctly on 28mm units.

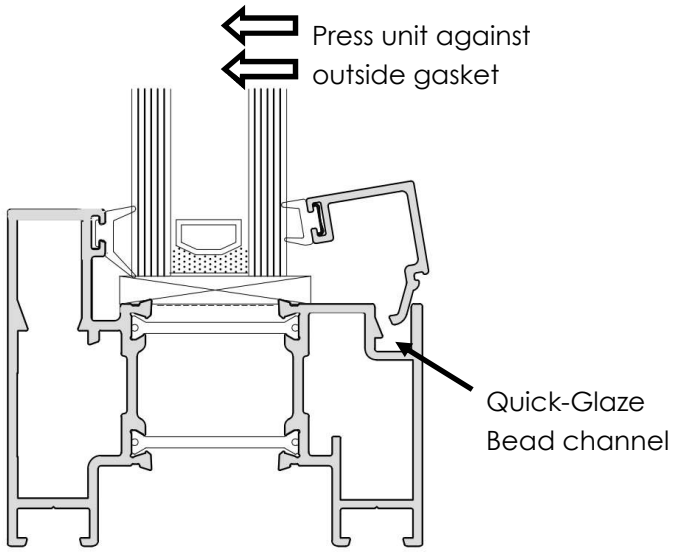
Please Note: Failure to install all of the parts will invalidate the guarantee and could potentially shatter the glass unit.

QUICK*glaze* bead installation - DV228G sash & UN3160G bead

Grey, White & Black colour finishes only - 28mm, 28.8mm & 36mm glazing

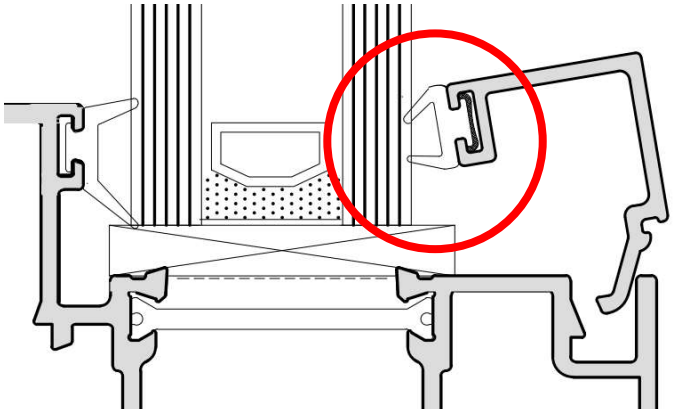
1. Install the glass unit, ensuring it has been pushed forward to engage the compression of the external gasket.
2. Toe and heel the unit as normal
3. Beginning with the horizontal beads, tilt the bead forward so the gasket is against the glass and slide down to locate the bead into the clip channel of sash as shown.
4. Apply firm pressure to the bead to hold it in position.
5. Using a nylon mallet, tap the bead into the channel, working from one end to the other. Take care at the stage to avoid damage to both the glazing unit and the bead.
6. Repeat steps 2-4 to install the vertical beads

To aid the stopping of gaskets folding over when glazing use a washing up liquid type substance or a silicon spray around the face of the edge of the glass units.



IMPORTANT:

Ensure top fin of the gasket does not roll down against glass



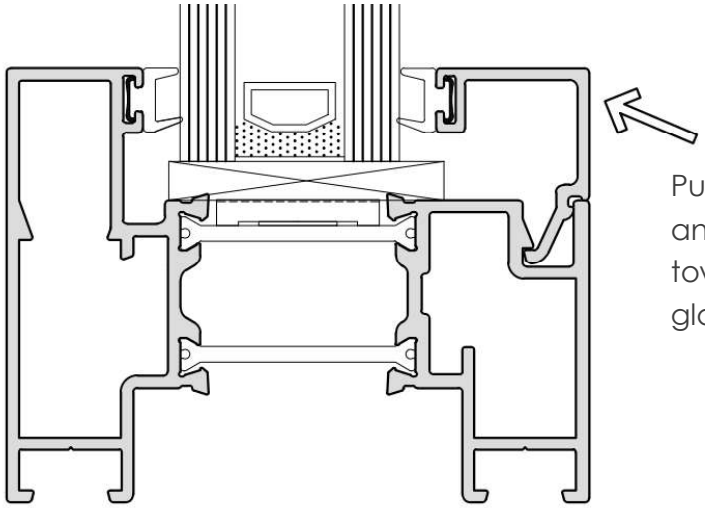
QUICK*glaze* bead removal - DV228G sash & UN3160G bead

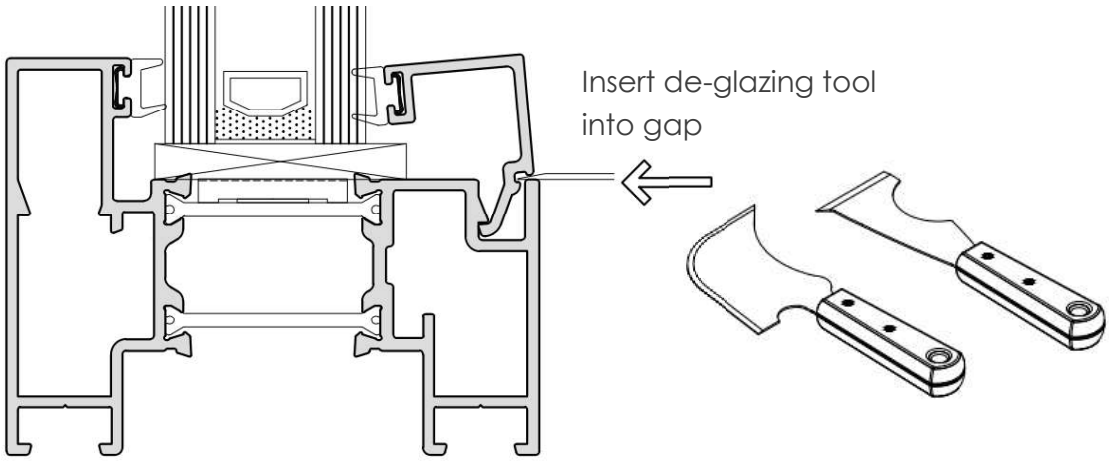
Grey, White & Black colour finishes only - 28mm, 28.8mm & 36mm glazing

Keeping the integrated frame gasket.

1. Starting on the vertical beads, apply pressure to bead in the direction show below in order to create a small gap between the sash and frame.
2. Gently insert de-glazing tool into the gap. Take care not to damage the profile.
3. Slowly prise the bead away from the sash.
4. The bead should now be easily removable from the QUICK*glaze* bead channel.

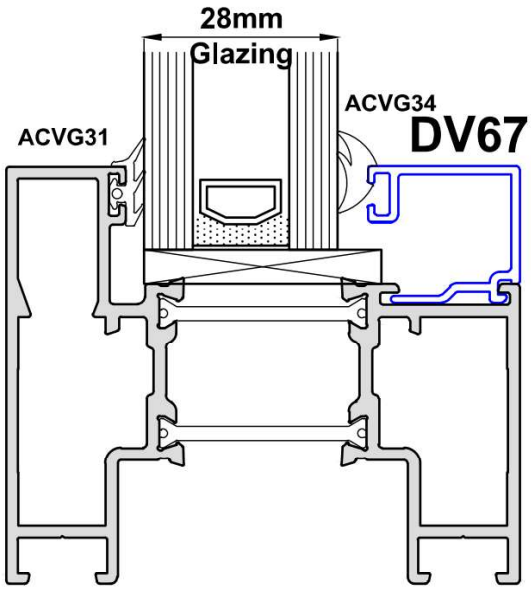
Note: If beads are being re-used make note of the position they are removed from as they need to be put back in the same position



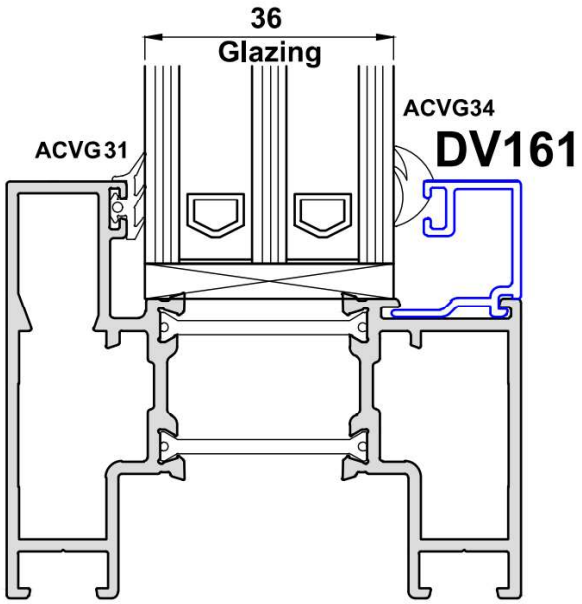


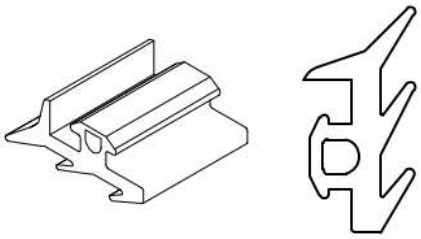
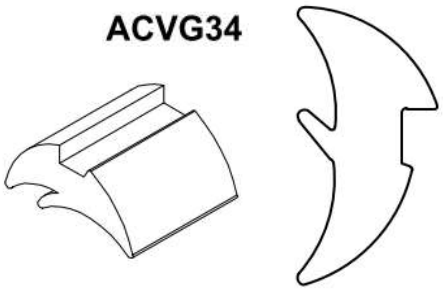
Bead & Gaskets - **DV23 sash D67/DV161 Bead** & push in gaskets to all other colour options (not white, grey or black) - 28mm, 28.8mm, 36mm & 38.8mm glazing

DV67 - 28mm double glazed bead

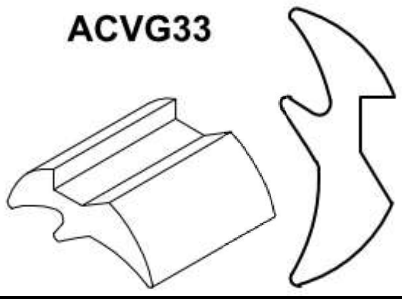
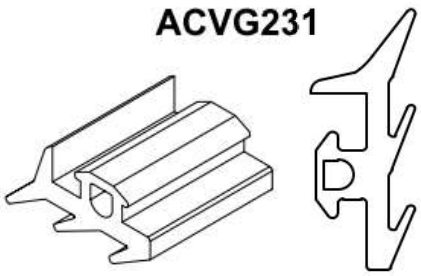
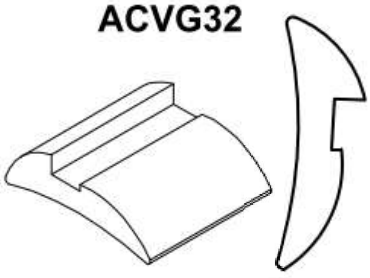


DV161 - 36mm triple glazed bead



28mm double & 36mm triple glazed	
External 3mm E Gasket **ACVG31** 	Internal 5mm wedge **ACVG34** 

Note: If Laminated glazing is requested either 6.4 or 6.8 the overall unit thickness will be either 28.4/28.8 or 38.4/38.8mm the gaskets will be replaced as follows

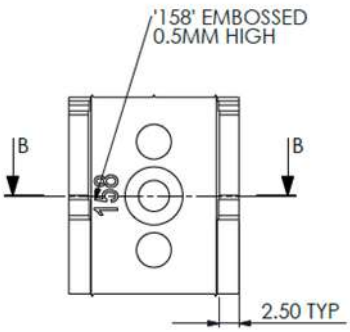
28.4/.8mm double glazed	38.8mm triple glazed	
Internal 4mm wedge **ACVG33** 	External E Gasket 2mm **ACVG231** 	Internal 3mm wedge **ACVG32** 

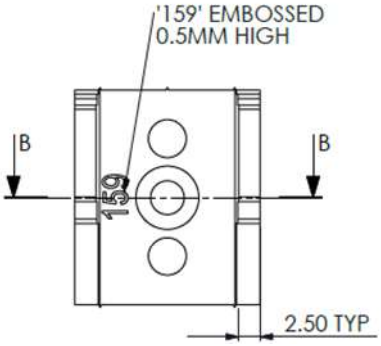
Bifold Door One Piece Keep

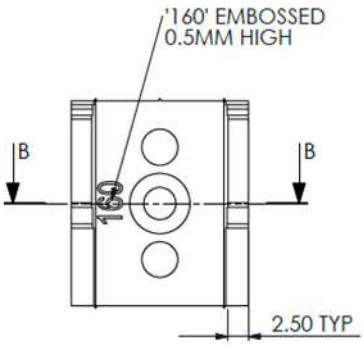
Once manufactured all Bifold doors are placed into a square frame to ensure they operate and lock correctly. If however you find once installed/glazed that the lock/keep are not engaging fully and need adjusting then we are able to supply different packers for the keep to push it off the frame more , enabling the rollers and hooks to engage further into the keep. They are available in 1mm, 2mm & 3mm - 9 packers per keep (contact customer services to request them)

Fitting instructions:

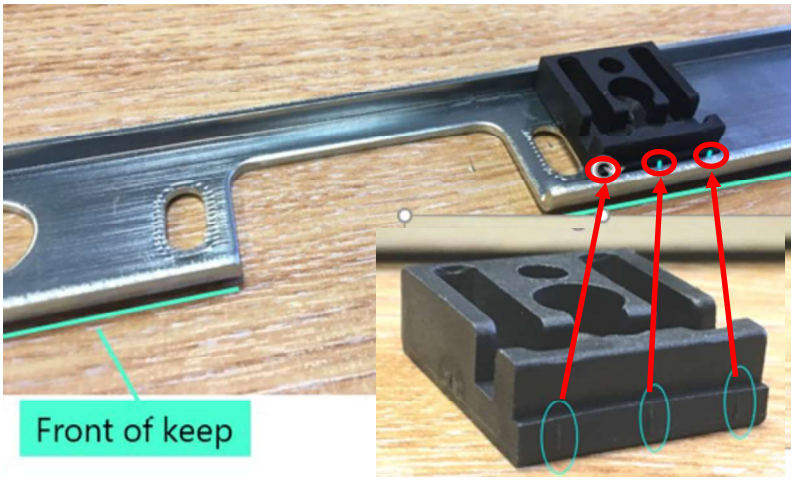
1. Remove fixing screws from one piece keep and remove keep from frame
2. Remove packer from keep by unscrewing screw; ensuring to retain the fixing screw
3. Select packers required:
   - 158 – Additional 1mm increase in height
   - 159 - Additional 2mm increase in height
   - 160 - Additional 3mm increase in height







4. Locate packer onto keep ensuring the packer is located with the 3 pips on the packer facing towards the front / open edge of the keep as shown below



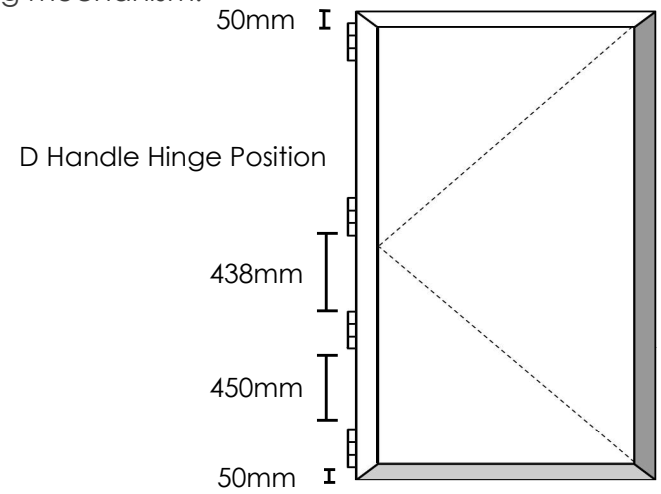
5. Re-insert screw and fix packer to keep
6. Locate keep to frame and fix keep via fixing screws

Hinge Positions

Below are the standard positions for the hinges on a Bifold door. The positions of the hinges are reliant on the shootbolt locking mechanism.

Hinge Height 86mm

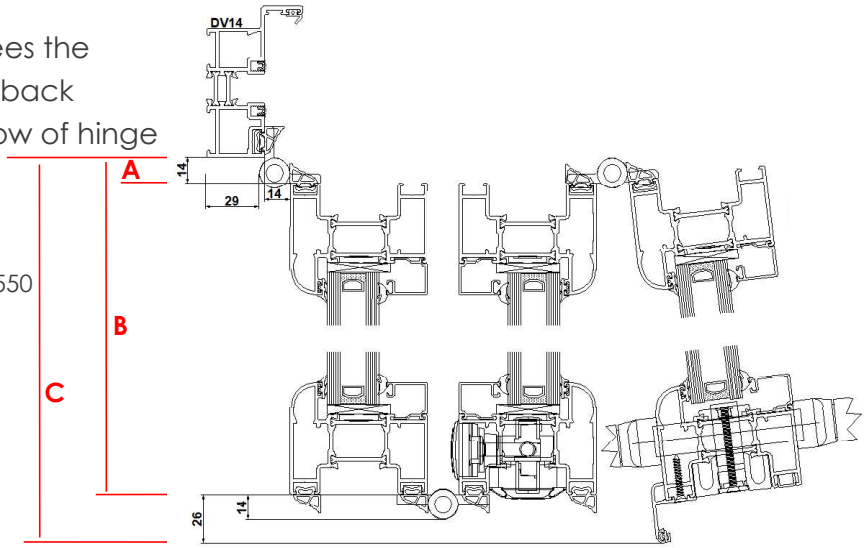
Each measurement is from the bottom/top of the profile to the bottom/top if the hinge as indicated



Throw of hinge

With the door open at 90 degrees the distance from face of frame to back edge of door sash is 14mm (throw of hinge = dimension **A**).

e.g. 5 pane bifold, 5000mm wide, style 550
Overall width 5000, minus 131.5 = 4868.5
Divided by 5 = 973.7
Dimension **B** = 973.7+28 = 1002mm
Dimension **C** = 973.7+40 = 1014mm



To calculate dimension **B,** take the overall width of the bifold doors, and make a deduction for the profile using the table below, (*this is style related so select the correct one*) and add 28mm, to calculate dimension **C,** repeat the above steps but add 40mm rather than 28mm.

Style	Deduction	Style	Deduction	Style	Deduction	Style	Deduction
110/101	***87.5***	413/431	***129***	615/651	***151***	734/743	***200***
220/202	***142***	422/422	***211***	624/642	***233***	880/808	***208***
211/211	***107***	550/505	***131.5***	633/633	***151***	817/871	***173***
330/303	***109.5***	514/541	***178***	770/707	***153.5***	826/862	***255***
312/321	***156***	523/532	***178***	716/761	***200***	835/853	***173***
440/404	***164***	660/606	***186***	725/752	***200***	844/844	***255***

Note: Remember to give yourself enough clearance from outside edge of sash
Note : Sizes do not include any frame extensions

Bottom roller adjustment

The bottom roller has a height adjustment to help installers set the doors up perfectly on site.

The adjustment is carried out through the bottom roller assembly. The adjustment point itself is discreetly concealed beneath a cover cap.

Tools required are 2.5 & 6mm Allen keys and a thin blade.

1. Using a 2.5mm Allen key, slacken off the 2 retaining grub screws on all the roller assembly bodies on your door

2. Using a thin bladed implement, carefully lift of the cover cap of the top of the roller assembly, taking care not to damage the paint finish or fingers. The hexagonal drive in the head of the

3. Using your 6mm Allen key wind the screw anti-clockwise to lift the sash by up to max of 5mm*

4. Repeat steps 2 & 3 on all the roller assemblies so the sashes are inline

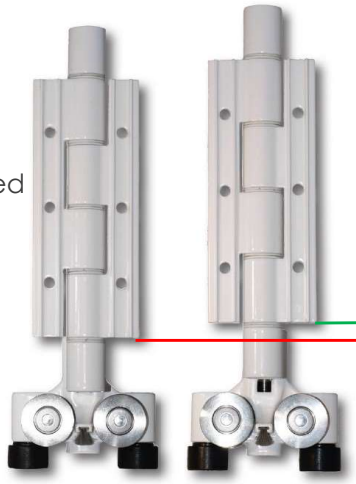
5. Once you have found your correct height lock all the roller assemblies into position be securely retightening the 2.5mm grub screws

6. Replace all cover caps

* Although more than 5mm can be achieved we do not recommend that 5mm of adjustment is exceeded as it can have a de-stabilising effect on the door and could cause damage in the long term. Adjusting the door over the 5mm will void the warranty on the door.

Assembly of non-adjusted position

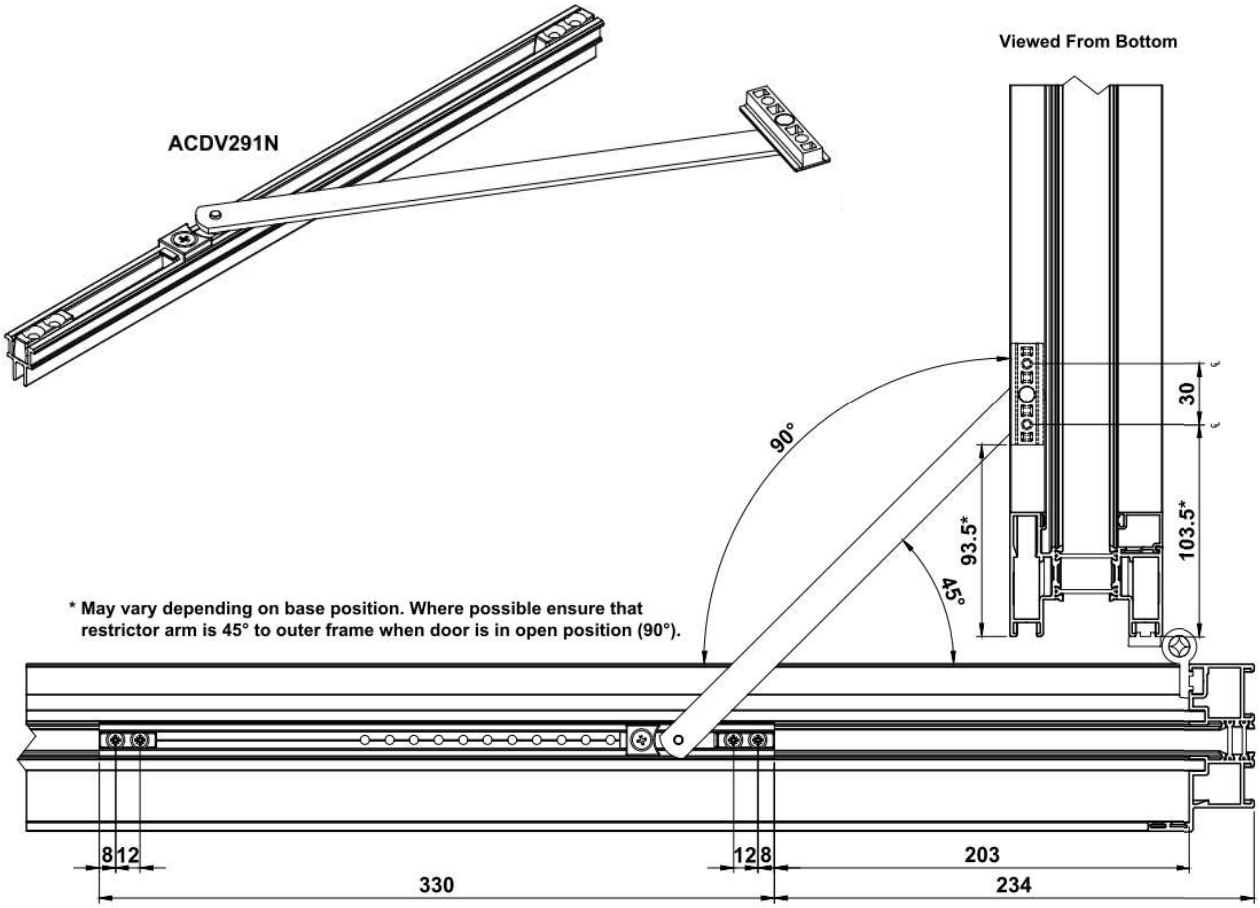
Door are supplied in this position

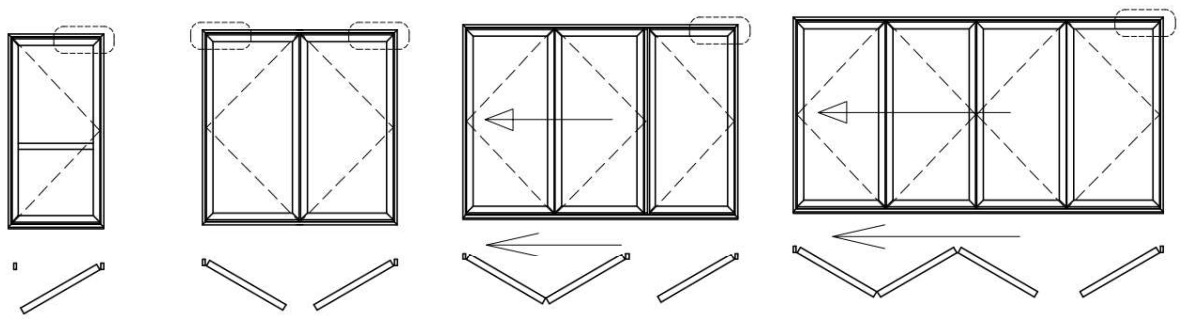


Assembly in maximum allowable adjusted position

(+5mm) max

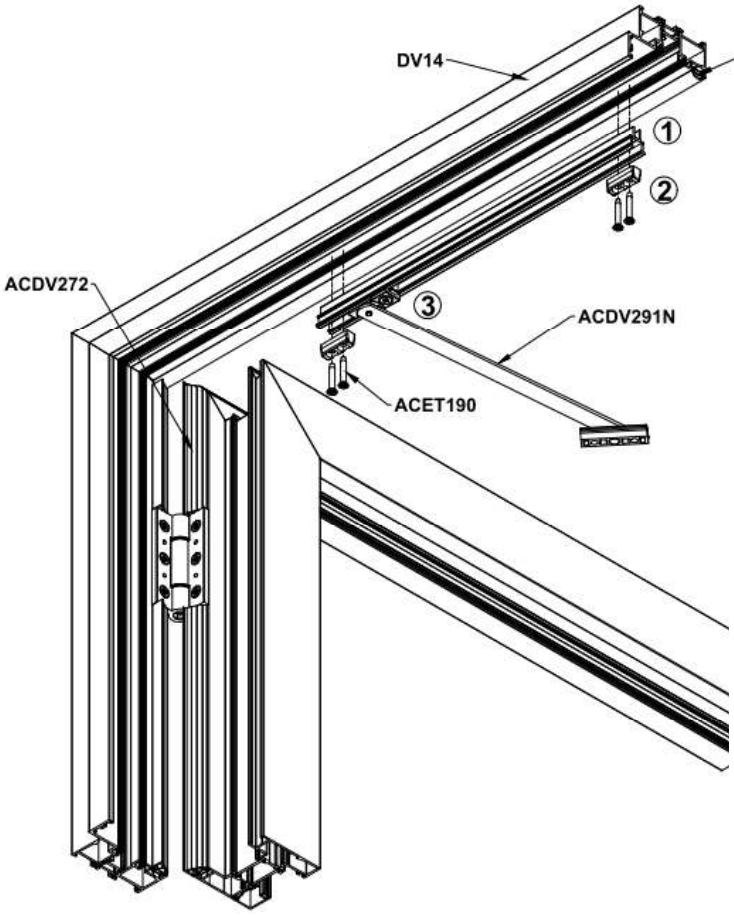
Bi-Fold Door Restrictor





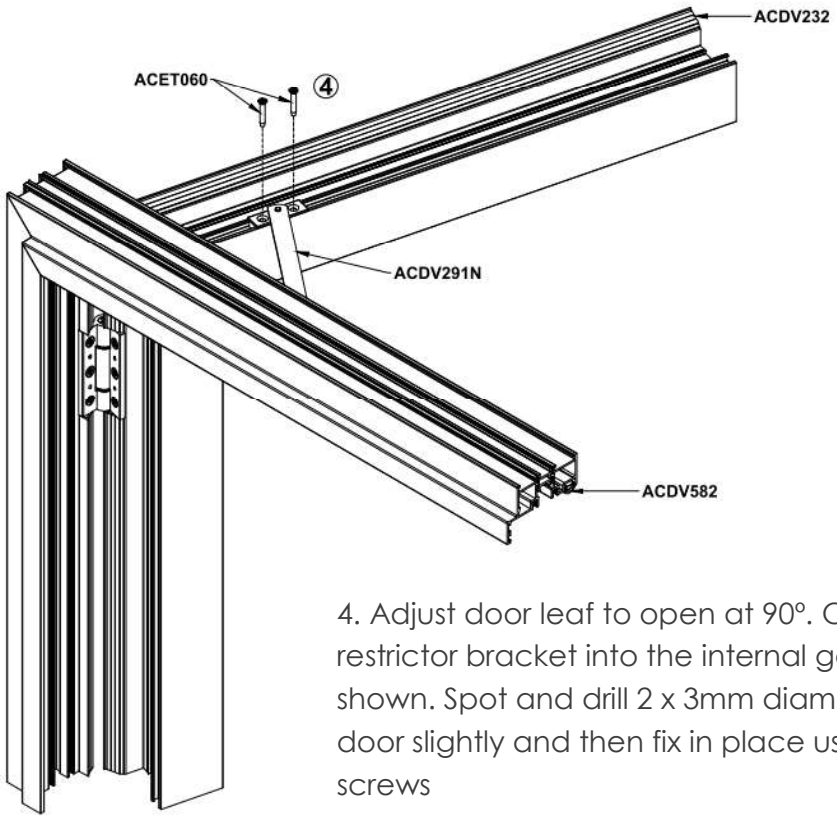
Only available on the following styles and is only to the single door.

101/110, 211, 321/312, 413/431, 514/541, 615/651, 716/761, 817/871



1. Insert base of ACDV291N into polyamide channel as shown
2. Use 4 polyamide screws to fix the door stops and base in place
3. Ensure components move freely in channel, If required, apply some Teflon lubrication spray.

Please Note
Door needs to be closed slightly in order to install both screws as shown below.



4. Adjust door leaf to open at 90°. Once in place insert the restrictor bracket into the internal gasket channel on sash as shown. Spot and drill 2 x 3mm diameter holes. Close the door slightly and then fix in place using 2 x self tapping screws

U Value & Energy ratings

To comply with Document L

Suitable for only

Existing Dwellings

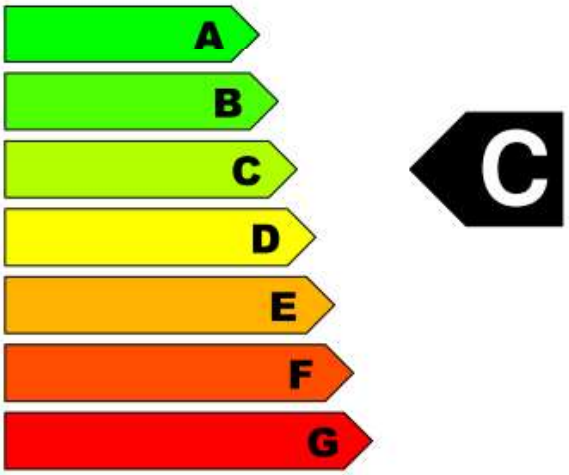
Double Glazed Units

- 28mm double glazed units
- 4mm Planilux clear /4mm Planitherm +
- 90% argon gas filled cavity
- 20mm black super spacer bar
- 20kg per m^2

Outer Frame DV14 with Sash DV23 / DV228G

Average DSER 'C' - Unit centre pane U-value of 1.2 W/m²K , G-Value 0.71

DSER: Doorset Energy Performance Certificate
DSER Doorset Energy Rating - In accordance with Approved Document L



Company: Starglaze / Sternfenster

Project:

Date: 16 Mar 2023

WER:	Window Energy Rating: 196.74((1-f)xgglass) - 68.5 x (U + (0.0165 xAL))		**-16.6 kWHr/m²/Year**
Thermal Transmittance:	DSER U Value of window calculated using the methods and conventions set out in BR443 Whole door U Value with frame, glazing and glass spacer bar combined. Standard door configuration set out in BR443/GGF 2.3 U Window:	0.735+0.883+0.102	**1.721 W/m²K**
Frame:	Supplier: System: Outer Frame: Threshold: Sash: Heat Transfer:	Smart Architectual Aluminium Visofold 1000 DV14 (3.008) DV14 (3.008) DV23 (2.386) Uf 2.783 W/m²K x (26.4% Frame)	**0.735 W/m²K**
Glazing:	Supplier: Specification: Centre Pane, g Value: Heat Transfer:	Saint Gobain 4/20/4 28mm Planitherm Total Plus 1.20 W/m²K, 0.71 CP 1.20 W/m²K x (73.6% Glass)	**0.883 W/m²K**
Spacer:	Supplier: Spacer Bar: Heat Transfer:	Edgetech Super Spacer Premium Psi 0.035 W/mK x (2.919m/m²)	**0.102 W/m²K**
U Value:	Window U Value: Calculation to BR443/GGF 2.3		**1.7 W/m²K**

Calculated in accordance with UK Building Regulations Document L and BR443
BS EN ISO 10077-2. Thermal performance of windows, doors and shutters.
Calculation of thermal transmittance. Part 2. Numerical method for frames Version 6.0 (0379)

U Value & Energy ratings

To comply with Document L

Suitable for only

Existing Commercial

New Dwellings

New Commercial

Double Glazed Units

- 28mm double glazed units
- 4mm Planilux clear /4mm Planitherm One
- 90% argon gas filled cavity
- 20mm black super spacer bar
- 20kg per m^2

Outer Frame DV14 with Sash DV23 /DV228G

Average U-Value 1.6 W/m²K - Unit centre pane U-value of 1.1 W/m²K , G-Value 0.49

U Value: Certificate
Doorset U Value - In accordance with Approved Document L

U Value
1.6 W/m²K

Company: **Starglaze / Sternfenster**

Project:

Date: **16 Mar 2023**

WER:	Window Energy Rating: 196.74((1-f)xgglass) - 68.5 x (U + (0.0165 xAL))		**-43.4 kWHr/m²/Year**
Thermal Transmittance:	DSER U Value of window calculated using the methods and conventions set out in BR443 Whole door U Value with frame, glazing and glass spacer bar combined. Standard door configuration set out in BR443/GGF 2.3 U Window:	0.735+0.809+0.102	**1.647 W/m²K**
Frame:	Supplier: System: Outer Frame: Threshold: Sash: Heat Transfer:	Smart Architectual Aluminium Visofold 1000 DV14 (3.008) DV14 (3.008) DV23 (2.386) Uf 2.783 W/m²K x (26.4% Frame)	**0.735 W/m²K**
Glazing:	Supplier: Specification: Centre Pane, g Value: Heat Transfer:	SG 4/20/4 28mm Planitherm One 1.10 W/m²K, 0.49 CP 1.10 W/m²K x (73.6% Glass)	**0.809 W/m²K**
Spacer:	Supplier: Spacer Bar: Heat Transfer:	Edgetech Super Spacer Premium Psi 0.035 W/mK x (2.919m/m²)	**0.102 W/m²K**
U Value:	Window U Value: Calculation to BR443/GGF 2.3		**1.6 W/m²K**

Calculated in accordance with UK Building Regulations Document L and BR443
BS EN ISO 10077-2. Thermal performance of windows, doors and shutters.
Calculation of thermal transmittance. Part 2. Numerical method for frames Version 6.0 (0379)

U Value & Energy ratings

To comply with Document L

Suitable for only

Existing Dwellings

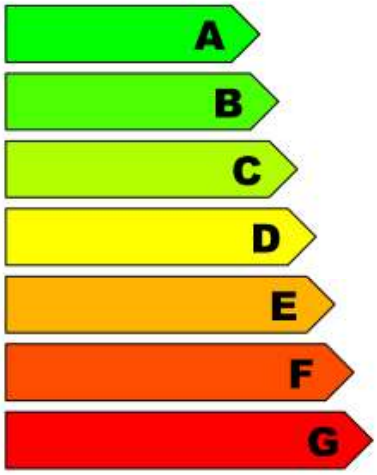
Laminated Double Glazed Units

- 28.8mm double glazed units
- 4mm Planilux clear /6.8mm Laminated Planitherm +
- 90% argon gas filled cavity
- 18mm black super spacer bar
- 27kg per m^2

Outer Frame DV14 with Sash DV23 / DV228G

Average WER 'C' - Unit centre pane U-value of 1.2 W/m²K , G-Value 0.72

DSER: Doorset Energy Performance Certificate
DSER Doorset Energy Rating - In accordance with Approved Document L



Company
Starglaze / Sternfenster

Project

Date
16 Mar 2023

WER:	Window Energy Rating: 196.74((1-f)xgglass) - 68.5 x (U + (0.0165 xAL))		**-16.4 kWHr/m²/Year**
Thermal Transmittance:	DSER U Value of window calculated using the methods and conventions set out in BR443 Whole door U Value with frame, glazing and glass spacer bar combined. Standard door configuration set out in BR443/GGF 2.3 U Window:	0.735+0.883+0.120	**1.738 W/m²K**
Frame:	Supplier: System: Outer Frame: Threshold: Sash: Heat Transfer:	Smart Architectual Aluminium Visofold 1000 DV14 (3.008) DV14 (3.008) DV23 (2.386) Uf 2.783 W/m²K x (26.4% Frame)	**0.735 W/m²K**
Glazing:	Supplier: Specification: Centre Pane, g Value: Heat Transfer:	SG 4/18/6.8 28.8mm Laminated Planitherm Total Plus 1.20 W/m²K, 0.72 CP 1.20 W/m²K x (73.6% Glass)	**0.883 W/m²K**
Spacer:	Supplier: Spacer Bar: Heat Transfer:	Edgetech Super Spacer Premium Psi 0.041 W/mK x (2.919m/m²)	**0.120 W/m²K**
U Value:	Window U Value: Calculation to BR443/GGF 2.3		**1.7 W/m²K**

Calculated in accordance with UK Building Regulations Document L and BR443
BS EN ISO 10077-2. Thermal performance of windows, doors and shutters.
Calculation of thermal transmittance. Part 2. Numerical method for frames Version 6.0 (0379)

U Value & Energy ratings

To comply with Document L

Suitable for only

Existing Commercial

New Dwellings

New Commercial

Laminated Double Glazed Units

- 28.8mm double glazed units
- 6.8mm Laminated /4mm Planitherm One
- 90% argon gas filled cavity
- 18mm black super spacer bar
- 27kg per m^2

Outer Frame DV14 with Sash DV23 / DV228G

Average U-value 1.6 W/m²K - Unit centre pane U-value of 1.0 W/m²K , G-Value 0.46

U Value: Certificate

Doorset U Value - In accordance with Approved Document L

Company: **Starglaze / Sternfenster**

Project:

Date: **16 Mar 2023**

U Value

1.6 W/m²K

WER:	Window Energy Rating: 196.74((1-f)xgglass) - 68.5 x (U + (0.0165 xAL))		**-43.3 kWHr/m²/Year**
Thermal Transmittance:	DSER U Value of window calculated using the methods and conventions set out in BR443 Whole door U Value with frame, glazing and glass spacer bar combined. Standard door configuration set out in BR443/GGF 2.3 U Window:	0.735+0.736+0.111	**1.582 W/m²K**
Frame:	Supplier: System: Outer Frame: Threshold: Sash: Heat Transfer:	Smart Architectual Aluminium Visofold 1000 DV14 (3.008) DV14 (3.008) DV23 (2.386) Uf 2.783 W/m²K x (26.4% Frame)	**0.735 W/m²K**
Glazing:	Supplier: Specification: Centre Pane, g Value: Heat Transfer:	SG 6.8/18/4 28.8mm Laminated / Planitherm One 1.00 W/m²K, 0.46 CP 1.00 W/m²K x (73.6% Glass)	**0.736 W/m²K**
Spacer:	Supplier: Spacer Bar: Heat Transfer:	Edgetech Super Spacer Premium Psi 0.038 W/mK x (2.919m/m²)	**0.111 W/m²K**
U Value:	Window U Value: Calculation to BR443/GGF 2.3		**1.6 W/m²K**

Calculated in accordance with UK Building Regulations Document L and BR443
BS EN ISO 10077-2. Thermal performance of windows, doors and shutters.
Calculation of thermal transmittance. Part 2. Numerical method for frames Version 6.0 (0379)

U Value & Energy ratings

To comply with Document L

Suitable for all

Existing Dwellings

Existing Commercial

New Dwellings

New commercial

Triple Glazed Units

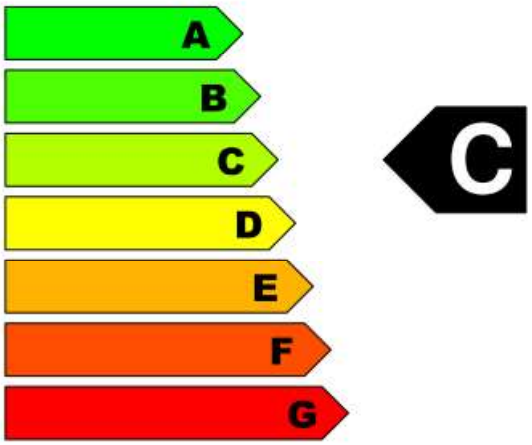
- 36mm triple glazed units
- 4mm Planilux clear /4mm Planitherm +/ Planitherm +
- 90% argon gas filled cavity
- Qty 2 x 12mm black super spacer bar
- 30kg per m²

Outer Frame DV14 with Sash DV23 / DV228G

Average U-value 1.4 W/m²k & Average WER 'C'

Unit centre pane U-value of 0.8 W/m²K , G-Value 0.62

DSER: Doorset Energy Performance Certificate
DSER Doorset Energy Rating - In accordance with Approved Document L



Company: Starglaze / Sternfenster

Project:

Date: 16 Mar 2023

WER:	Window Energy Rating: 196.74((1-f)xgglass) - 68.5 x (U + (0.0165 xAL))	**-11.4 kWHr/m²/Year**
Thermal Transmittance:	DSER U Value of window calculated using the methods and conventions set out in BR443 Whole door U Value with frame, glazing and glass spacer bar combined. Standard door configuration set out in BR443/GGF 2.3 U Window: 0.735+0.589+0.088	**1.412 W/m²K**
Frame:	Supplier: Smart Architectual Aluminium System: Visofold 1000 Outer Frame: DV14 (3.008) Threshold: DV14 (3.008) Sash: DV23 (2.386) Heat Transfer: Uf 2.783 W/m²K x (26.4% Frame)	**0.735 W/m²K**
Glazing:	Supplier: Saint Gobain Specification: 4/12/4/12/4 36mm Planitherm Total Plus x 2 Centre Pane, g Value: 0.80 W/m²K, 0.60 Heat Transfer: CP 0.80 W/m²K x (73.6% Glass)	**0.589 W/m²K**
Spacer:	Supplier: Edgetech Spacer Bar: Super Spacer Premium Heat Transfer: Psi 0.030 W/mK x (2.919m/m²)	**0.088 W/m²K**
U Value:	Window U Value: Calculation to BR443/GGF 2.3	**1.4 W/m²K**

Calculated in accordance with UK Building Regulations Document L and BR443
BS EN ISO 10077-2. Thermal performance of windows, doors and shutters.
Calculation of thermal transmittance. Part 2. Numerical method for frames Version 6.0 (0379)

U Value & Energy ratings

To comply with Document L

Suitable for all

Existing Dwellings

New Dwellings

Existing Commercial

New Commercial

Laminated Triple Glazed Units

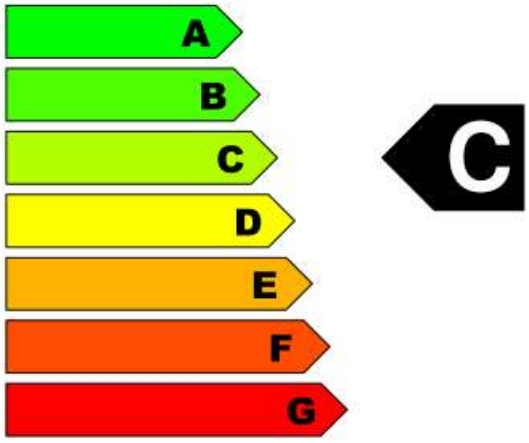
- 38.8mm triple glazed units
- 6.8mm Laminated /4mm Planitherm +/ Planitherm +
- 90% argon gas filled cavity
- Qty 2 x 12mm black super spacer bar
- 37kg per m²

Outer Frame DV14 with Sash DV23

Average U-value 1.4 W/m²k & Average WER 'C'

Unit centre pane U-value of 0.8 W/m²K , G-Value 0.58

DSER: Doorset Energy Performance Certificate
DSER Doorset Energy Rating - In accordance with Approved Document L



Company: Starglaze / Sternfenster

Project:

Date: 16 Mar 2023

WER:	Window Energy Rating: 196.74((1-f)xgglass) - 68.5 x (U + (0.0165 xAL))	**-14.9 kWHr/m²/Year**
Thermal Transmittance:	DSER U Value of window calculated using the methods and conventions set out in BR443 Whole door U Value with frame, glazing and glass spacer bar combined. Standard door configuration set out in BR443/GGF 2.3 U Window: 0.735+0.589+0.096	**1.420 W/m²K**
Frame:	Supplier: Smart Architectual Aluminium System: Visofold 1000 Outer Frame: DV14 (3.008) Threshold: DV14 (3.008) Sash: DV23 (2.386) Heat Transfer: Uf 2.783 W/m²K x (26.4% Frame)	**0.735 W/m²K**
Glazing:	Supplier: SG Specification: 6.8/12/4/12/4 38.8mm 6.8mm Laminated - 4mm Plan - 4mm Plan Centre Pane, g Value: 0.80 W/m²K, 0.58 Heat Transfer: CP 0.80 W/m²K x (73.6% Glass)	**0.589 W/m²K**
Spacer:	Supplier: Edgetech Spacer Bar: Super Spacer Premium Heat Transfer: Psi 0.033 W/mK x (2.919m/m²)	**0.096 W/m²K**
U Value:	Window U Value: Calculation to BR443/GGF 2.3	**1.4 W/m²K**

Calculated in accordance with UK Building Regulations Document L and BR443
BS EN ISO 10077-2. Thermal performance of windows, doors and shutters.
Calculation of thermal transmittance. Part 2. Numerical method for frames Version 6.0 (0379)