Season Master Double Glazing Ltd

Secondary Fabrication Guide

Introduction

The Season Master Secondary Glazing Window System comprises of all sections, gaskets, weatherpiles, and hardware to manufacture the following secondary glazing units.

- Fixed units
- Hinged units
- Lift outs
- Horizontal sliders
- Vertical sliders (friction type)
- Vertical sliders (spring balanced)
- Fly screens

Outer Frame Types

- Equal leg
- Odd leg

Fixing Method

- Face fix — Fixed through the face of the frame and concealed with a PVC trim.
- Reverse fix — Fixed through the side of the frame.
- Direct fix — Panel face fixed direct to existing window with hinges or without an outer frame.

Calculations

- All dimensions are from the outside leg of the outer frame
- Hinged unit dimensions exclude the hinges, catches and stay arms
- W = overall width
- H = overall height
- Breaklines are to the centre of the mullions

Important Notes

- All secondary configurations are viewed from inside
- All dimensions are in millimetres
- All mitre and square cuts are to the longest point
- When ordering toughened glass, reduce glass sizes to take into account errors in machine cutting

The use of colours (if printed with a colour inkjet printer) in this fabrication guide is as follows:

Blue: used to highlight useful information or alternative products.

Brown: used to highlight part codes

Red: used to highlight critical information

Contents

General Guidance Notes

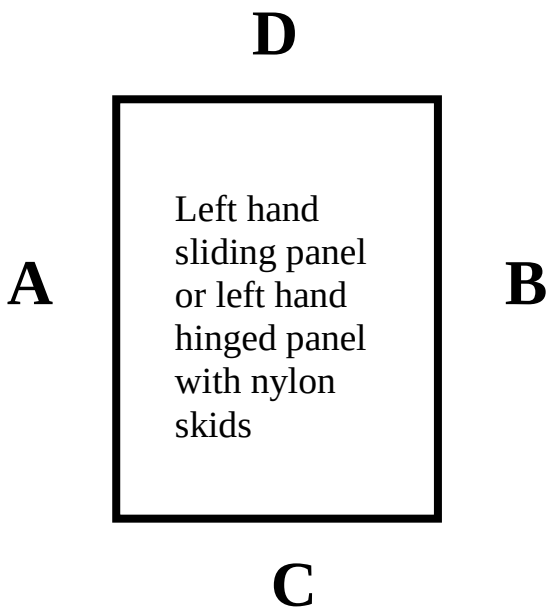
- De-burr all saw cuts
- The use of cutting wax or oil is advised to ease self-tapping screws into screw ports
- Fit weatherpiles to all sections prior to assembly
- Hinged and fixed units, neoprene seal is inserted after the panel is assembled

Glazing Instructions

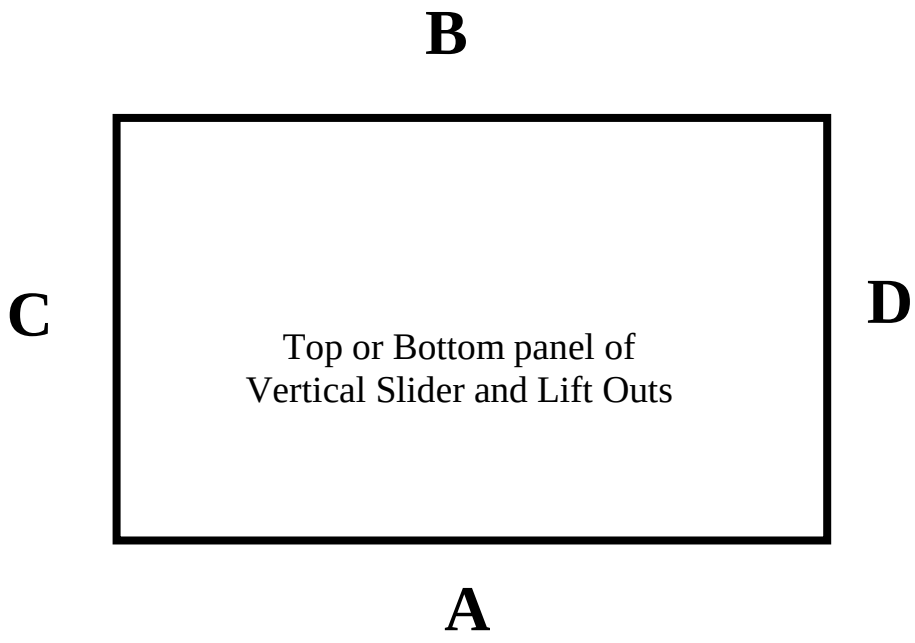
Gaskets are available for the following glass dimensions

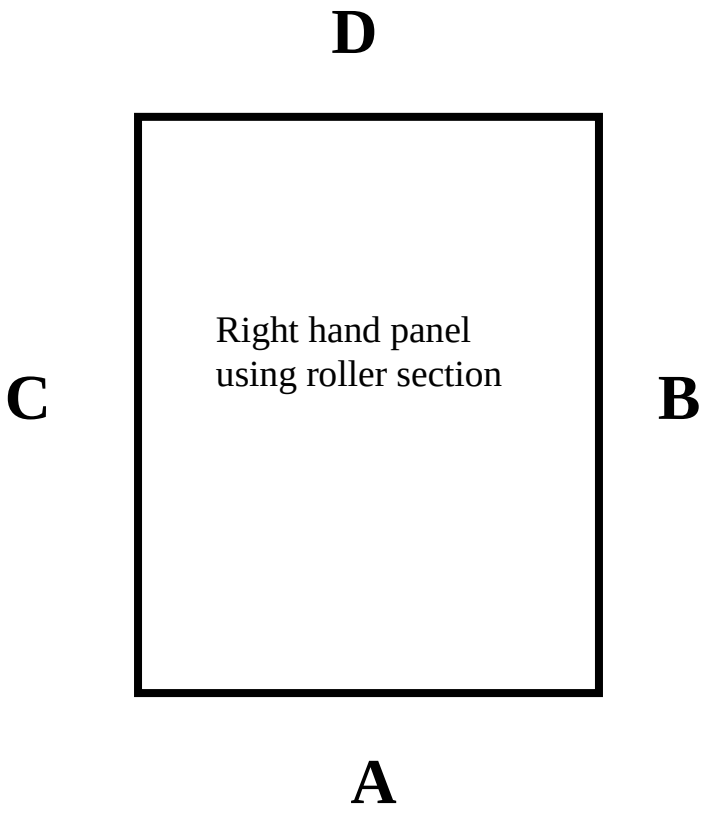
Glass Type	Part Code
• 4mm glass	**TG4T**
• 6mm glass	**GG6**
• 6.4 laminated glass	**GT6.4**

The gasket should be placed on the handle or hinged side first (**A**) (full length of the glass). Knock the required section onto the gasket then continue in the following order, opposite side (**B**), bottom (**C**) and finally the top (**D**). The following drawings show the preferred method of assembly.



Glazing Instructions continued

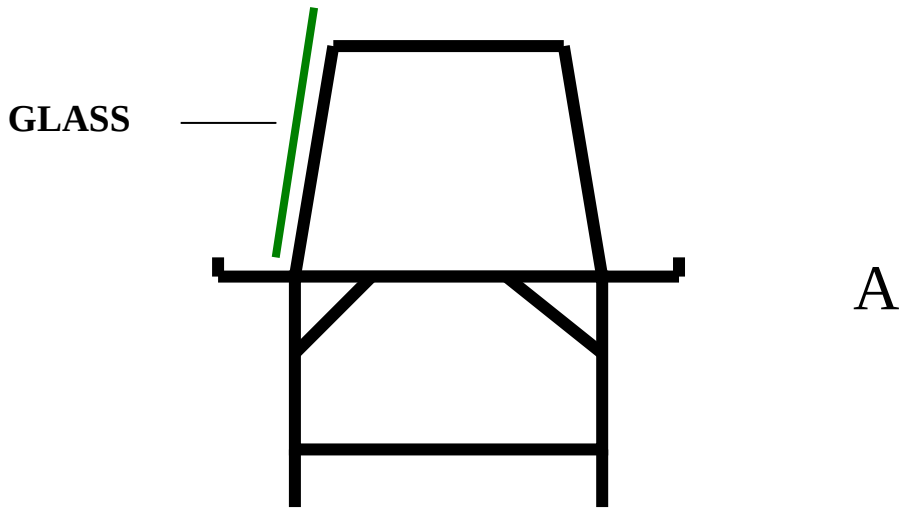




Tooling Requirements

The following items of equipment are required to fabricate the Season Master Secondary System

1. Pivot saw, minimum blade size 250mm
2. Variable speed electric hand or bench mounted drill
3. Felt or carpet stripped bench top to avoid damage during cutting and preparation
4. Bench to assemble panels as in drawing ‘A’. Panels can be assembled laying flat if required
5. No.1 and No.2 pozi screw driver bits – ratchet, spiral ratchet or electric screw drivers
6. Felt covered racking system for stocking 5 metre bar lengths
7. A range of standard jobbers twist drills to include 3/32nd 1/8th 9/64th 3/16th 4.3mm
8. A selection of standard metalworking and general-purpose tools - files, pliers, nylon headed mallet etc.



A

Preferred method to assemble panel

Tooling Requirements Continued

Jig Number	Used for drilling holes in Outer frames	
829	Odd leg outer frame	**807**
739	Odd leg outer frame	**719**
729	Odd leg outer frame	**707**
521	Equal leg outer frame	**519**
511	Equal leg outer frame	**507**
221	Odd leg outer frame	**319**
129	Odd leg outer frame	**307**

Jig Number	Used for drilling holes in inner panel section
130	All inner panels (hand held jig)
130a	All inner panels (bench mounted jig)

Jig number	Used for fitting accessories
411	Counterbalance spring fixing
229	Universal slide lock fixing jig for **308** / **508** / **708**

Fixed Units

Component requirements for fixed units

Direct Fix		**Qty**
301	Fixed frame used all round	4

Accessories for fixed unit

122	6 x ¾ self-tapping pan head screws	4
Gasket	See page 4	as req
Neo	Neoprene seal	as req

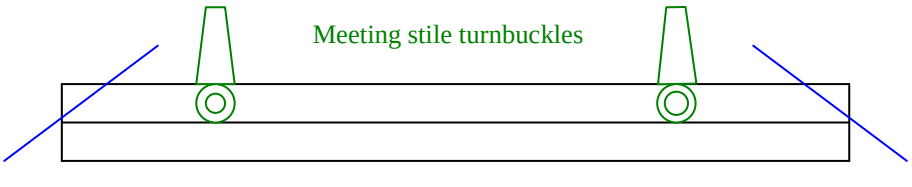
Extras

310	Overlap section used to create a slave leaf for a hinged unit to shut onto. Fit meeting stile turnbuckles (**226**) every 600mm	as req.

Breakdown

Glass size = panel width -23mm
Glass size = panel height -25mm

NOTE: **When cutting 310 square cut the section first full size then mitre the ends but not the overlap. Leave a 2mm gap between panels**



Preparation

Drill the heights at each end with a 9/64th drill using jig number **130** with the stamped '**H**' facing you.

Fixing holes should be drilled through the back neoprene channel with a 1/8th drill. Start with the heights and drill 25mm in from each end, the rest should be divided equally no more than 600mm apart. The face should then be countersunk to accept a 4 x 1 countersunk woodscrew.
Assemble the panel in the order shown on page 4, screw the mitres together with 6 x ¾ self-tapping screws (**122**).
Roller the neoprene seal (**NEO**) in the back channel taking care not to stretch the seal. On the corners bend the seal around.

Hint: Section **301** should only be knocked on using a wooden block as a buffer between the mallet and the **301** to avoid damage to the metal.

Note: Turnbuckles can be used instead of fixing holes (**225**).

Hinged Units

Component requirements for side or top hinged units

Direct fix		**Qty**
301	Fixed frame used all round	4

Accessories for hinged unit

122	6 x ¾ self-tapping pan head screws	4
723	Nylon hinges including pins	as req
724	Nylon catches	as req
225	Turnbuckles (instead of **724**)	as req
Gaskets	See page 4	as req
NEO	Neoprene seal	as req

Extras

725ST	Stay arms **(reduce window height or width by 15mm)**
310	Overlap section used to create a slave leaf for a hinged unit to shut on to. See page 8

Breakdown

Deduct 20mm for hinges and Catches before breaking down

Glass =	Panel width	-23mm
Glass =	Panel height	-25mm

Note: Hinges and catches should be spaced no more than 600mm apart

Preparation

Drill the heights at each end with a 9/64th drill using jig number **130** with the stamped '**H**' facing you.
Assemble the panel in the order shown on page 4 leaving the top off. Tap the hinges and catches into the sides as required then knock the top section on. Screw the mitres together using 6 x ¾ self-tapping pan head screws (**122**).

Set the top and bottom hinge (723) 55mm in from each end and crimp all Four Corners in place. Centre hinges should be crimped equally no more than 600mm apart. The catches (**724**) should be set the same as the hinges but crimped 55mm either side of centre.
Roller the neoprene seal (**NEO**) in the back channel taking care not to stretch the seal. On the corners bend the seal around.

Note: Stays arm blocks should be fitted in place before assembling the panel.

Hint: Section **301** should be knocked on using a wooden block as a buffer between the mallet and **301** to avoid damage to the metal

Lift Out Units

Component requirements for Lift Outs

Equal leg outer frame (face or reverse fix)		Qty
519	Outer frame widths	2
520	Outer frame heights	2
207p	PVC inserts cut to 50mm blocks	2
517	Screw cover for outer frame	4

Odd leg outer frame (face fix)		
719	Outer frame widths	2
720	Outer frame heights	2
207p	PVC inserts cut to 50mm blocks	2
517	Screw cover for outer frame	4

Odd leg outer frame (reverse fix)		
319	Outer frame widths	2
320	Outer frame heights	2
207p	PVC inserts cut to 50mm blocks	2

Inner panel sections		
203	Small handle (bottom)	1
202	Top of panel	1
218	Inner panel side frame	2

Accessories for lift outs

122	6 x ¾ self-tapping pan head screws	4
223	6 x ¾ self-tapping csk screws	4
Gaskets	See page 4	as req
WP325	Weatherpile (inner panels)	as req
WP500	Weatherpile (**520** heights)	as req

Breakdowns

Equal leg - 519 / 520 Face or reverse fix

Panel height	=	Track height	-44mm	Glass – further 11mm
Panel width	=	Track width	-59mm	Glass – further 14mm

Odd leg - 719 / 720 Face fix

Panel height	=	Track height	-45mm	Glass – further 11mm
Panel width	=	Track width	-59mm	Glass – further 14mm

Odd leg – 319/320 Reverse fix

Panel height	=	Track height	-42mm	Glass – further 11mm
Panel width	=	Track width	-56mm	Glass – further 14mm

Note: **207p** should be cut down in height by 2mm. This is best done with a ripsaw cutting down the full length. It can then be cut into 50mm blocks.

Preparation

Drill the outer frame widths each end with a 9/64th drill using jig number:
Equal leg (**519**) Jig No **521** Note jig orientation
Odd leg (**719**) Jig No **739**
Odd leg (**319**) Jig No **221**

Note: When drilling section **719** remove cover strip first.

Outer frames are best cut with the screw cover (**517**) in place to give a good mitre. If you are using a TCT blade this may chip the screw cover.
Drill the outer frame fixing holes 125mm in from each end. Divide the rest equally but no more than 250mm apart.
Fit weatherpile **WP500** to outer frame heights and crimp each end.
Screw the outer frame together with 6 x ¾ self-tapping pan head screws (**122**) and fit **207p** blocks inside the bottom channel.

Cut the handle back on the **203** by 20mm from the outermost edge both ends.
Drill the top **202** and bottom **203** with a 9/64th drill each end using jig number **130** with the '**S**' facing you or with the lower part of the bench mounted jig number **130a**. Countersink the **203** and **202**.
Fit weatherpile **WP325** to all inner panel sections.
Assemble the panel in the order shown on page 5 and screw the mitres together with 6 x ¾ csk screws (**223**).
Insert the panel in the outer frame ensuring the weatherpile is not visible top or bottom and the sides seal with a snug fit.

Horizontal Sliders

Component requirements for 2/3/4 Panel Sliders

Equal Leg Outer Frame (face fix and reverse fix)

		Qty
507	Outer frame widths	2
507p	PVC inserts for width	2
508	Outer frame heights	2
517	Screw cover for outer frame	4

Odd Leg Outer Frame (face fix)

707	Outer frame widths	2
207p	PVC inserts for width	2
708	Outer frame heights	2
517	Screw cover for outer frame	4

Odd leg Outer Frame (reverse fix)

307	Outer frame widths	2
207p	PVC inserts for width	2
308	Outer frame heights	2

Components for inner panels

Inner panel sections 2 panel

205	Large handle L/H panel height	1
204	Interlock heights	2
203	Small handle R/H panel height	1
202	Top and Bottom of panels	4

Inner panel sections 3 panel (centre fix)

203	Small handle L/H and R/H panel heights	2
204	Interlock heights	4
202	Top and Bottom of panels	6

Inner panel sections 3 panel (centre left)

205	Large handle L/H and R/H panel heights	2
204	Interlock heights	2
209	Reverse interlocks heights	2
202	Top and Bottom of panels	6

Inner panel sections 4 panel

205	Large handle L/H and R/H panel heights	2
204	Interlock heights	4
211	Male Bi part height	1
212	Female Bi part height	1
202	Top and bottom of panels	8

Special Requirements

206	If height is over 1700mm substitute the **204** on the front panel for **206**	as req
213	If height is over 1700mm substitute the **209** on the front panel for **213**	as req

Note: Preparation of heavy-duty sections **206**/**213** requires the handle section to be cut back both ends 20mm from the outermost edge.

302	If rollers required substitute the **202** for **302** on the bottom only.	as req

Note: Preparation of **302,** router a 22mm x 7mm slot 33mm in from the outermost edge each end. Tap the roller (**328**) through the glazing channel. Drill either side of the roller with a 3/32nd drill and secure with two 4 x ¼ self-tapping countersunk screws (**322c**).

Horizontal Sliders continued

Accessories for 2 panel slider

		Qty
122	6 x ¾ self-tapping pan head screws	16
Gaskets	See page 4	as Req
WP325	Weatherpile (fits all sections)	as Req
128	Nylon skid (add 2 per panel if over 1000mm wide)	4
328	Rollers if required (add 8 x **322c**)	4

Accessories for 3 panel slider

122	6 x ¾ self-tapping pan head screws	20
Gaskets	See page 4	as req
WP325	Weatherpile (fits all sections)	as req
128	Nylon skid (add 2 per panel if over 1000mm wide)	6
328	Rollers if required (add 12 x **322c**)	6

Accessories for 4 panel slider with skids

122	6 x ¾ self-tapping pan head screws	20
223	6 x ¾ self-tapping csk screws	4
Gaskets	See page 4	as req
WP325	Weatherpile (all sections except front of **212**)	as req
WP500	Fit in front weatherpile groove of **212**	as req
128	Nylon skid (add 2 per panel if over 1000mm wide)	8
328	Rollers if required (see note) (add 16 x **322c**)	8

Note: 4 Panel sliders only. If rollers are used with **211**/**212** deduct 2 x **223** and add 2 x **122**

Extras 2/3/4 panel sliders

513	Sash slam cut to 50mm lengths used as panel buffer in **508** only	4

Breakdowns

Equal leg-507/508 Face or reverse fix

Panel height	=	Track height	-59mm	Glass- further 14mm
Side panel width	=	Track edge to B/L	-19mm	Glass- further 6mm
Centre panel width	=	B/L to B/L	+14mm	Glass- further 6mm
4 Panel Bi Part Only				
Centre panels (both)	=	B/L to B/L	+3mm	Glass-further 11mm

CUT PVC INSERTS 507P – 37mm SMALLER THAN TRACK WIDTH

Odd leg-307/308 Reverse fix

Panel height	=	Track height	-55mm	Glass- further 14mm
Side panel width	=	Track edge to B/L	-15mm	Glass- further 6mm
Centre panel width	=	B/L to B/L	+14mm	Glass- further 6mm
4 Panel Bi Part Only				
Centre panels (both)	=	B/L to B/L	+3mm	Glass- further 11mm

CUT PVC INSERTS 207P – 42mm SMALLER THAN TRACK WIDTH

Odd leg -707/708 Face fix

Panel height	=	Track height	-55mm	Glass- further 14mm
Side panel width	=	Track edge to B/L	-16mm	Glass- further 6mm
Centre panel width	=	B/L to B/L	+14mm	Glass- further 6mm
4 Panel Bi Part Only				
Centre panels (both)	=	B/L to B/L	+3mm	Glass-further 11mm

CUT PVC INSERTS 207P – 42mm SMALLER THAN TRACK WIDTH

Note: B/L = Centre of breakline

REDUCE GLASS HEIGHT BY 4mm WHEN FITTING ROLLERS

Reduce glass width by 3mm when fitting Lock 327 (see page 20)

Preparation

Slide the PVC inserts into the bottom outer frame width. Drill the mitre holes in the outer frame widths each end with a 9/64th drill using jig number:
Equal leg (**507**) Jig No **511**
Odd Leg (**707**) Jig No **729**
Odd Leg (**307**) Jig No **129**

Note: When drilling section **707** remove cover strip first.

Outer frames are best cut with the screw cover (**517**) in place to give a good mitre. If you are using a TCT blade this may chip the screw cover.
Drill the outer frame fixing holes 125mm in from each end. Divide the rest equally but no more than 250mm apart.
Screw the outer frame together with 6 x ¾ self-tapping pan head screws (**122**).
Insert **513** panel buffers in side jambs.

Cut handles back (**203**/**205**) to 20mm both ends from the outermost edge and round off.

Ensure the interlocks are orientated the correct way around then cut back the claws (**204/209/206/213**) on the top by 20mm and on the bottom by 10mm from the outermost edge.

Drill the handles and interlocks both ends except for **211**/**212** (See note) with a 9/64th drill using jig number **130** with the '**S**' facing you or with the lower part of the bench mounted jig number **130a**

Drill a 9/64th pilot hole 26mm in on both ends of the bottom rails (**202**) using the top of jig number **130a**, counterdrill with a 3/16th and insert two nylon skids (**128**).

Note: When using skids with **211**/**212** cut the handles back 20mm from the top outermost edge and round the bottom off with a file. The two bottom rails (**202**) for the centre panels should be prepped for skids as normal. An additional 9/64th hole should be drilled at one end on the top and bottom (**202**) using jig number **130** or with the lower part of jig number **130a,** then countersunk (used to screw the mitre together). If rollers are used, cut the **211**/**212** back as above and cut the bottom male part of the **211** back 9mm then round off. A 9/64th hole should be drilled in the bottom of the **211**/**212** using jig number **130** with the '**H**' facing you.

Horizontal Sliders continued

Fit weatherpile **WP325** to all inner panel sections except **212** which has **WP500** in the back and **WP325** in the front.

Assemble the panels in the order shown on pages 4 or 5. Screw the mitres together with 6 x ¾ self-tapping pan head screws (**122**). Insert the panels into the outer frame, lock out, then check the panel fit and that no weatherpile is showing.

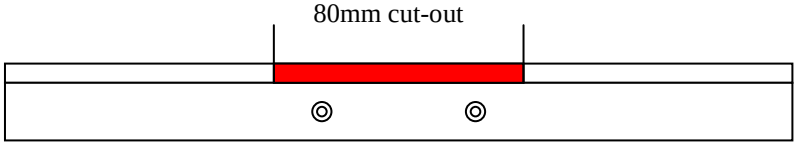
Note: If using Equal leg insert two panel buffers (**513**) in the outer frame each side.

Hint: When assembling a panel with rollers (**302**), lay a flat piece of aluminium or a file on the glass edge (handle side) and butt the **302** up to it. Knock the **302** on first then the handle and interlock.

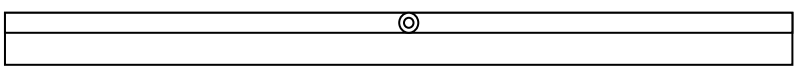
Extra locks

Slide locks (**126)** can be fitted if required using jig number **229**. To fit, mark the centre on both outer frame heights, place the jig on the inside of the frame with the holes on the face of the outer frame, line the jig up with the centre mark and drill with a 3/32nd drill. Screw the silver back plate (screws supplied) onto the jamb with the raised part towards the inside of the frame. Slide the faceplate (handed) onto the back plate from the top.

Locking fitch catches (**327**) can be fitted to the interlock **206/204.** Mark the centre of the claw on the **204**. Drill through the claw with a 3/32nd drill then countersink. Slide the keep plate into the **204** weatherpile groove, centre and Secure with a 4 x ¼ countersunk self-tapping screw (**322c**).
Mark the centre of the **206** claw and the top face. Completely remove the claw either side of centre by 40mm. Mark the top face 28mm either side of centre and 11mm in from the front face. Drill both holes with a 3/32nd drill then clear with a 9/64th. Place the lock on the **206**, insert the washers into the holes then pop rivet.



206 Top View

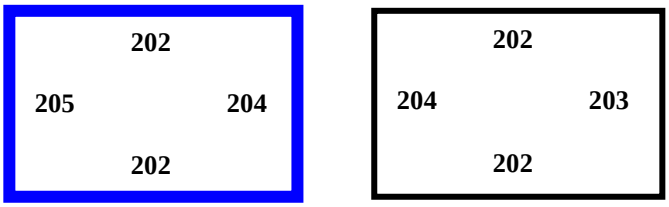


204 Side View

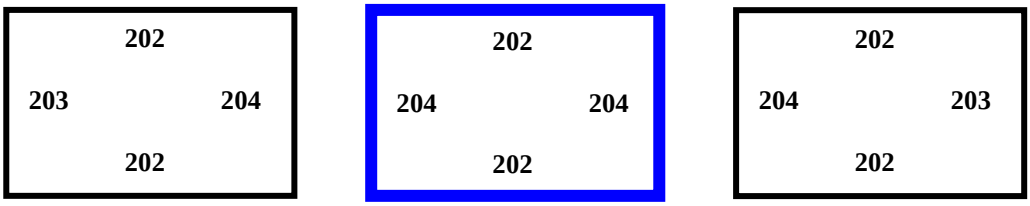
Horizontal Sliders continued

Blue or thicker outlined panels are in back track.

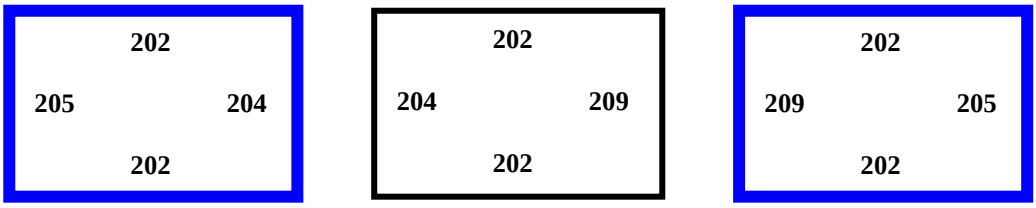
2 Panel Slider (Left hand panel in back track used as standard configuration)



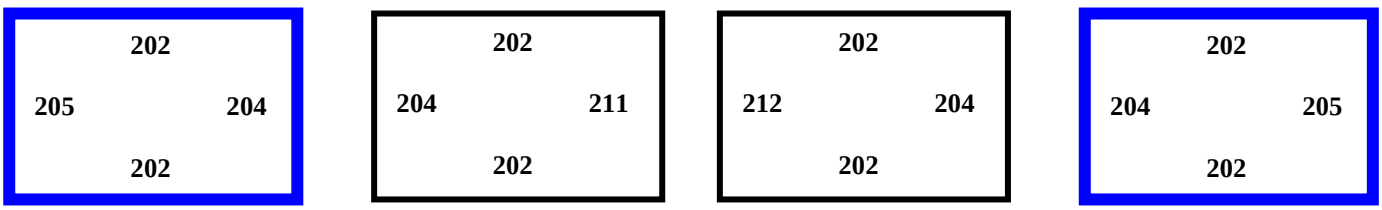
3 Panel Slider (Centre Fix)



3 Panel Slider (Centre Left)



4 Panel Slider (Bi-Part)

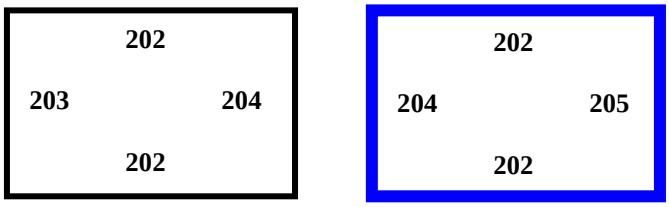


Horizontal Sliders continued

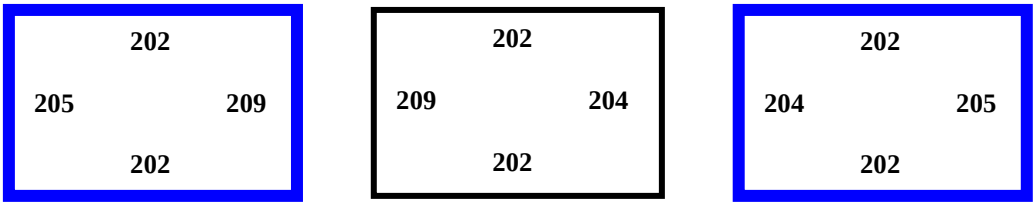
Alternative configurations

Blue or thicker outlined panels are in back track.

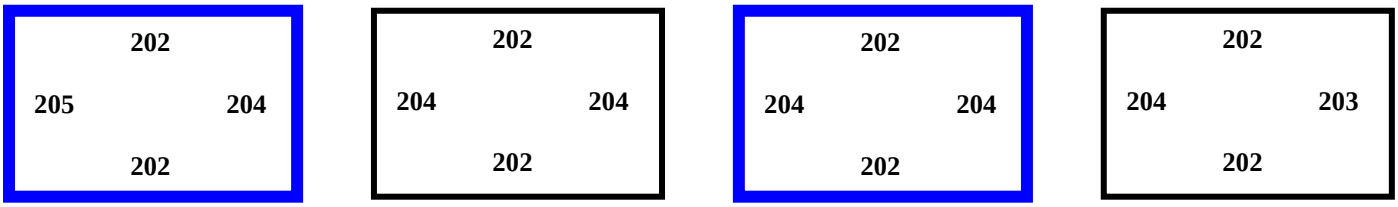
2 Panel Slider (Right hand panel in back track, Non-standard)



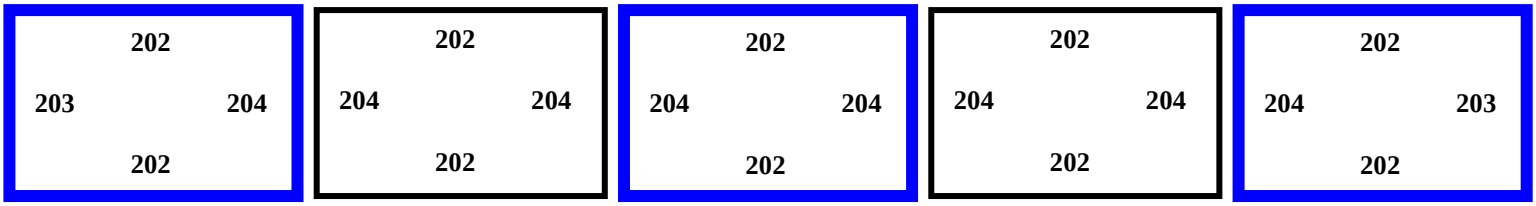
3 Panel Slider (Centre left)



4 Panel Slider (Centre fix)



5 Panel Slider (Centre fix)



Guillotine Vertical Sliders

Component requirements for Vertical sliders

Equal Leg Outer Frame (face fix or reverse fix)		**Qty**
507	Outer frame heights	2
516p	PVC inserts for height	2 Pairs
508	Outer frame widths	2
517	Screw cover for outer frame	4

Odd Leg Outer Frame (face fix)		
707	Outer frame heights	2
216p	PVC inserts for height	2 Pairs
708	Outer frame widths	2
517	Screw cover for outer frame	4

Odd leg Outer Frame (reverse fix)		
307	Outer frame heights	2
216p	PVC inserts height	2 Pairs
308	Outer frame widths	2

Components for inner panels

202	Top of top panel	1
215	Bottom of top panel	1
204	Top of bottom panel	1
214	Bottom of bottom panel	1
202	Sides of top and bottom panels	4

Note: 216p and 516p pairs = 1 x flat and 1 x ‘U’ channel

Guillotine Vertical Sliders continued

Accessories

		Qty
122	6 x ¾ self-tapping pan head screws	12
223	6 x ¾ countersunk screws	4
Gaskets	See page 4	as req
WP325	Weatherpile (fits all sections)	as req
128	Nylon skids	4
217	Bolt kit complete with screws	1
409p	PVC insert cut to 50mm blocks (**508** only)	2

Breakdowns

Equal leg - 507/508 Face or Reverse Fix

Panel width	=	Track width	-59mm	Glass – further 14mm
Top panel height	=	Track edge to B/L	-27mm	Glass – further 14mm
Bottom panel height	=	Track edge to B/L	-34mm	Glass – further 11mm

CUT PVC INSERTS 516P -37mm SMALLER THAN TRACK HEIGHT

Odd Leg - 307/308 Reverse fix

Panel width	=	Track width	-57mm	Glass – further 14mm
Top panel height	=	Track edge to B/L	-27mm	Glass – further 14mm
Bottom panel height	=	Track edge to B/L	-27mm	Glass – further 11mm

CUT PVC INSERTS 216P -42MM SMALLER THAN TRACK HEIGHT

Odd Leg - 707/708 Face fix

Panel width	=	Track width	-57mm	Glass – further 14mm
Top panel height	=	Track edge to B/L	-28mm	Glass – further 14mm
Bottom panel height	=	Track edge to B/L	-28mm	Glass – further 11mm

CUT PVC INSERTS 216P -42MM SMALLER THAN TRACK HEIGHT

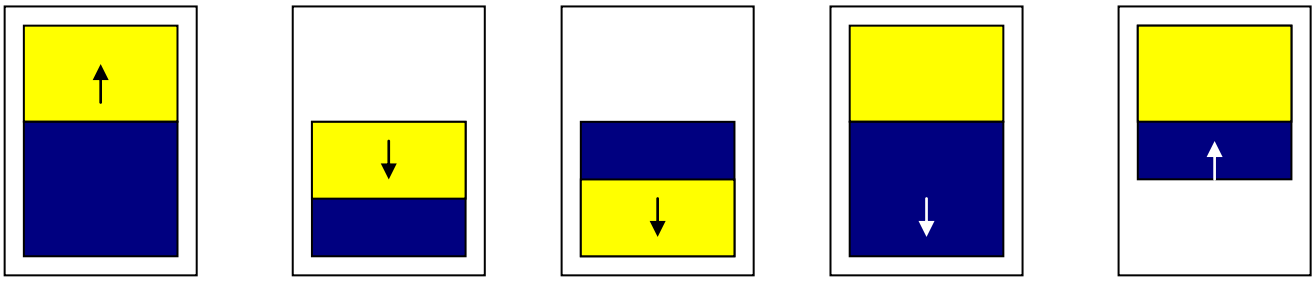
Notch out inserts as follows:

All dimensions are to bottom of holes. Intermediate holes should be notched out as required, bearing in mind that accidental lowering of panels are less likely if there are plenty of stop holes. Tape PVC inserts together as pairs to ensure identical hole spacing. Hole size 7mm wide x 5mm high using punch number **231**.

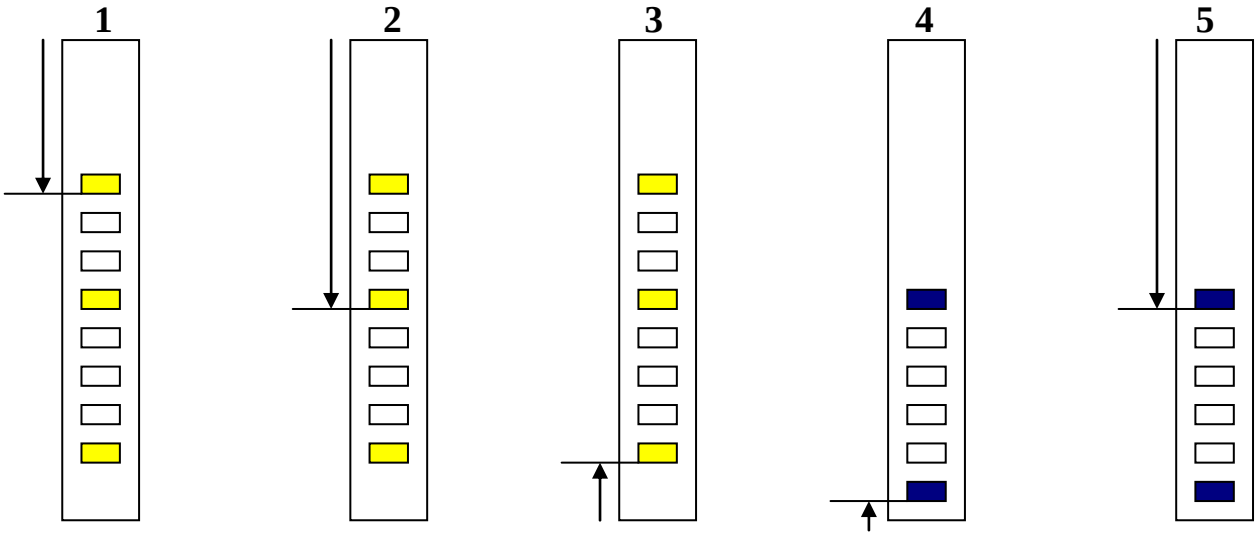
Guillotine Vertical Sliders continued

Notch out inserts as follows continued:

Description	*Deduction information*	*Outer Frame* 507	307	707
1. Top panel fully closed	Top B/L (from top of insert)	-9mm	-15mm	-14mm
2. Top panel fully open	Top B/L x 2 (from top of insert)	-50mm	-50mm	-50mm
3. Top panel fully lowered	From bottom	68mm	60mm	60mm
4. Bottom panel fully closed	From bottom	19mm	14mm	14mm
5. Bottom panel fully open	Bottom B/L (from top)	+ 7mm	+ 7mm	+ 7mm



White Squares are intermediate holes



E.G. A window 1000mm high with a drop of 400mm using **507** outer frame.

1. 400mm – 9mm = **391mm** (from top of insert)	Front track pvc
2. 400mm x 2 = 800mm –50mm = **750mm** (from top of insert)	Front track pvc
3. Measure up from the bottom **68mm**	Front track pvc
4. Measure up from bottom of insert **19mm**	Back track pvc
5. 600mm + 7mm = **607mm** (from top of insert)	Back track pvc

Preparation

Slide the PVC inserts into the outer frame with the flat PVC on the left and the 'U' channel PVC on the right. Ensure the inserts for the top panel are in the front track. Drill the mitre holes in the outer frame heights each end with a 9/64th drill using jig number:

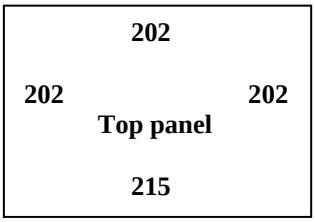
Equal Leg	(**507**)	Jig No **511**
Odd Leg	(**707**)	Jig No **729**
Odd Leg	(**307**)	Jig No **129**

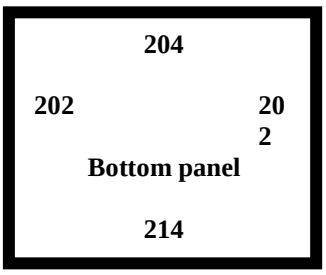
Note: When drilling section **707** remove cover strip first.

Outer frames are best cut with the screw cover (**517**) in place to give a good mitre. If you are using a TCT blade this may chip the screw cover.
Drill the outer frame fixing holes 125mm in from each end. Divide the rest equally but no more than 250mm apart.
Screw the outer frame together with 6 x ¾ self-tapping pan head screws (**122**).
Insert two **216p** (U channel only) blocks into the bottom outer frame (**308/708**).
For equal leg (**508**) insert two **409p** blocks.

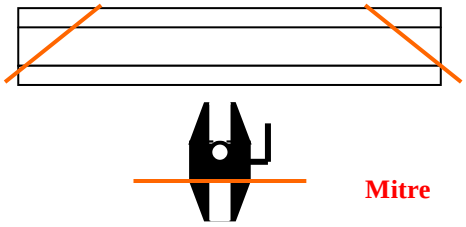
Note: **216p** 'U' channel blocks are prepared by cutting down one leg to 6mm. To prepare the blocks, run a full length through a ripsaw then cut into 50mm blocks.

See drawing below for location of sections for assembly and cutting of **214/215**.
Top panel in front track, bottom panel in back track.





Square cut 214/215 first then mitre back to the flat part of the aluminium just past the screw port



Preparation

214 Cut back mitred edge on handle by 20mm from the outermost edge and round off both ends.
Drill centrally through the bottom into the bolt channel with a 3/32nd drill 90mm on the left and 95mm on the right when using **307**/**707** outer frame. For **507** outer frame drill 85mm on left and 95 on the right. Slide two springs from the bolt kit (**217**) into the bolt channel and secure with 4 x 3/8 self-tapping pan head screws.

215 Cut back interlock claw 20mm on the left and 10mm on the right from the outermost edge. Drill centrally through the back of the **215** into the bolt channel with a 3/32nd drill, 90mm on the left and 95mm on the right when using **307**/**707** outer frame. For **507** outer frame drill 85mm on left and 95 on the right. Slide two springs into the channel and secure with 4 x 3/8 self-tapping pan head screws.

204 Cut back interlock claw 20mm on the left and 10mm on the right from the outermost edge. Drill both ends with a 9/64th drill using jig number **130** with the stamped '**S**' facing you or with the lower part of jig number **130a**.

202 Top of top panel. Drill both ends with a 9/64th drill using jig number **130** with the stamped '**S**' facing you or with the lower part of jig number **130a**.

202 Right hand side of top and bottom panels. Drill a 9/64th pilot hole 26mm in on both ends of the rails using the upper part of jig number **130a**, counterdrill with a 3/16th and insert two nylon skids (**128**). Drill a 9/64th hole at one end of the top and bottom rails using jig number **130** with the '**S**' facing you or the lower part of jig number **130a** then countersink (used to screw the mitre together at the bottom end of each panel).

202 Left hand side of top and bottom panels. Drill a 3/32nd hole 26mm in from each end on both rails (you can use the top part of jig number 130a to dot mark the hole centres). Drill a 9/64th hole at one end of the top and bottom rails using jig number **130** with the '**S**' facing you or the lower part of jig number **130a** then countersink (used to screw the mitre together at the bottom end of each panel).

Hint: **214**/**215** should be knocked on using a wooden block as a buffer between the mallet and the sections to avoid buckling the bolt channel.

Guillotine Vertical Sliders continued

Fit weatherpile **WP325** to all inner panel sections.
Assemble the panels in the order shown on page 5. Screw the top mitre of each panel together with 6 x ¾ self-tapping pan head screws (**122**) and the bottom mitres together with 6 x ¾ countersunk self-tapping screws (**223**). Fit the leaf springs to the left of both panels with 4 x ¾ self-tapping flange head screws supplied with the bolt kit (**217**)**. If using 507 outer frame bend the springs by a further 10mm.**

Slide the bolts into the top and bottom panels as shown below.

Top panel

Bottom panel

Insert the bottom panel into the left hand side of the outer frame compressing the springs fully. While keeping the springs compressed push the right hand side in, repeat method with the top panel. Lock out the panels and check that no weatherpile is showing. Slide the panels up and down in the frame to check bolts lock out properly in the pvc inserts throughout the full panel travel. Cut one pair of **216p** (flat + 'U' channel) at 58mm for **307**/**707** and 68mm for **507**. Place the PVC 'U' channel on the left and the flat on the right in the lower corners of each height and silicon in place. This acts as an extra stop in case the operator misses the last cut out in the pvc. The top panel is best lowered when moving or transporting guillotine vertical sliders.

Counterbalance Vertical Sliders

Component requirements for Counterbalanced Vertical Sliders

Equal Leg Outer Frame (face fix or reverse fix)		**Qty**
507	Outer frame heights	2
508	Outer frame widths	2
409p	PVC inserts for stops	as req
517	Screw cover	4

Odd Leg Outer Frame (face fix or reverse fix)		
807	Outer frame heights	2
808	Outer frame widths	2
409p	PVC inserts for stops	as req
517	Screw cover (not required for reverse fix)	4

Components for inner panels

202	Top of top panel	1
206	Bottom of top panel	1
204	Top of bottom panel	1
205	Bottom of bottom panel	1
202	Sides of top and bottom panel	4

Accessories

122	6 x ¾ self-tapping pan head screws	16
Gaskets	See page 4	as req
WP325	Weatherpile (fits all sections)	as req
128	Nylon skids	12
428	Sash guides	8
327	Locking fitch catch (if required) per metre	1
227	6 x 1¼ Self-tapping countersunk screws	2

Extras by Others

	Qty
Counterbalanced springs	4
Counterbalanced spring brackets	4

Breakdowns

Equal Leg – 507/508 Face Fix or Reverse Fix

Panel width	=	Track width	-60mm	Glass – further 14mm
Top panel height	=	Top B/L	-23mm	Glass – further 11mm
Bottom panel height	=	Bottom B/L	-23mm	Glass – further 6mm

Odd Leg – 807/808 Face Fix or Reverse Fix

Panel width	=	Track width	-60mm	Glass – further 14mm
Top panel height	=	Top B/L	-23mm	Glass – further 11mm
Bottom panel height	=	Bottom B/L	-23mm	Glass – further 6mm

Preparation

Drill the mitre holes in the outer frame heights each end with a 9/64th drill using jig number:

Equal Leg (**507**) Jig No **511**
Odd Leg (**807**) Jig No **829**

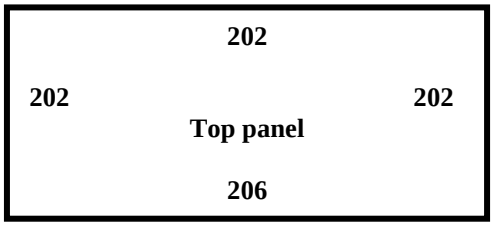
Note: When drilling section **807** remove cover strip first.

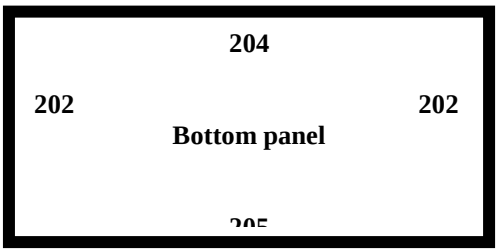
Counterbalance spring fixing holes should be drilled with a 1/8th drill through the front face and middle legs at the top of the outer frame heights using jig number **411** then countersunk ensuring the outer frame heights are orientated the correct way around. Outer frames are best cut with the screw cover (**517**) in place to give a good mitre. If you are using a TCT blade this may chip the screw cover.
Drill the outer frame fixing holes 125mm in from each end. Divide the rest equally but no more than 250mm apart.

Counterbalance Vertical Sliders continued

Place the counterbalance springs into the outer frame and secure with 6 x 1¼ self-tapping countersunk screws.
Screw the outer frame together with 6 x ¾ self-tapping pan head screws (**122**) but leave one corner loose for installing panels later. Insert two **409p** blocks cut to 50mm into the top front track and bottom back track outer frame widths.

See drawing below for location of sections and page 5 for order of assembly.





Preparation

Cut the handle back (**205**) to 20mm both ends from the outermost edge and round off. Ensure the interlocks are orientated the correct way around then cut back the claws (**206**/**204**) on both ends by 14mm from the outermost edge. On the **206** cut the double handle back 20mm both ends from the outermost edge and round off.
Drill the handles and interlocks together with the **202** for the top of the top panel both ends with a 9/64th drill using jig number **130** with the '**S**' facing you or with the lower part of jig number **130a**.
The **205** and **206** require a further hole drilled both ends with a 9/64th drill using the top part of jig number **130a** as a pilot hole then counterdrill with a 3/16th.
The **202**s for the sides are all prepared the same. First drill 9/64th holes each end using the top part of jig number **130a** then counterdrill with a 3/16th. Insert a skid into each hole (**128**).

Counterbalance Vertical Sliders continued

Sash guides **428** have to be placed in the back of the **202**s. A length of weatherpile (**WP325**) should be slid into the back of the **202**, this should be square cut and left short each end by 70mm. Slide in each end one **428** and crimp either side. Finish off with weatherpile (**WP325**) and crimp to stop the weatherpile sliding out during manufacturing.
Fit weatherpile (**WP325**) to all inner panel sections. Assemble the panels in the order shown on page 5.
Screw the mitres together (see note) with 6 x ¾ self-tapping pan head screws (**122**).
Note: On the bottom of each panel screw through the counterbalance spring bracket and tap a skid (**128**) into each hole.

Assembly of Counterbalanced Vertical

Lay the assembled outer frame on a bench, slot in the bottom panel first then the top panel. Screw the last corner of the outer frame together with 6 x ¾ self-tapping pan head screws then slide the panels to the top of the frame.
You should have a sheet detailing the springs needed and the required turns to tension each spring. Push each spring spiral to the top of the panel, attach the hook of the winding tool (**412**) into the hole in the bottom of the spring and apply the correct amount of turns. Slot the end of the spring into the counterbalance spring bracket ensuring it clips in fully.

With the panels **still** at the top of the outer frame, lift the completed window off the bench and stand upright. Slide the panels up and down stopping in various places checking there is no creeping up or down when the panel is released.
Lock the panels out fully and check there is no weatherpile showing.

Slide the top panel down **carefully** to the bottom of its travel, measure from the inside of the track to the underneath of the panel and add 6mm. Cut two **409p** to size and silicon into the front track to act as panel stops.

If the top panel handle is closer than 25mm to the bottom panel handle increase the length of the 409p stops to suit.

Counterbalance Vertical Sliders continued

Slide the top panel to the top, then the bottom panel **carefully** to the top (see note). Measure from the inside of the top track to the top of the bottom panel and add 6mm. Cut two **409p** to size and silicon into the top of the jambs in the back track to act as panel stops.

Ensure there is a gap of 25mm between the bottom and top handles of the panels, if not increase the length of the stops to suit.

Note: If the bottom panel hits the outer frame when slid to the top, cut two **409p** at 25mm and silicon into the top of the jambs in the back track. Ensure there is a gap of 25mm between the bottom and top handles, if not increase the length of the stops to suit.

Important: Before moving a counterbalanced vertical slider make sure the panels are at the top of the frame. If the panels are left at the bottom of the frame as soon as the window is moved, the panels will shoot up to the top trapping your fingers. The chances are that you will only make this mistake once.

For transportation of larger counterbalanced windows, the sides are best held together by taping around the window.

Fly Screens

Component Requirements for Fly Screens

304	Inner panel fly screen adaptor Fits all inner panel sections except **302** Top / bottom and sides	4 per panel

Accessories

FM 1/50/183	18 x 16 Fibreglass mesh (1200mm) wide	as req
FMG	5mm Tubular gasket	as req

Additional Tooling

FMT	Gasket insertion tool	1

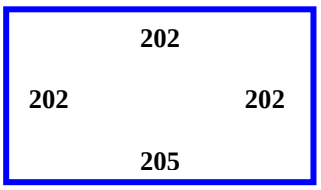
Breakdowns

Breakdowns are the same as for normal glazed units

Preparation

The **304** should be inserted into all inner panel sections prior to cutting. This ensures a good mitre.
Preparation is the same as for normal glazed units.

Note: Counterbalanced verticals cannot be made into fly screens, however a panel can be inserted in the bottom track as below. Dimensions are inner track width + 4mm. Height from block in bottom track to underside of panel in the fully open position –100mm. The bottom panel is then closed onto the fly screen.



Hint: Tape the fly screen to the inner panel section prior to cutting.

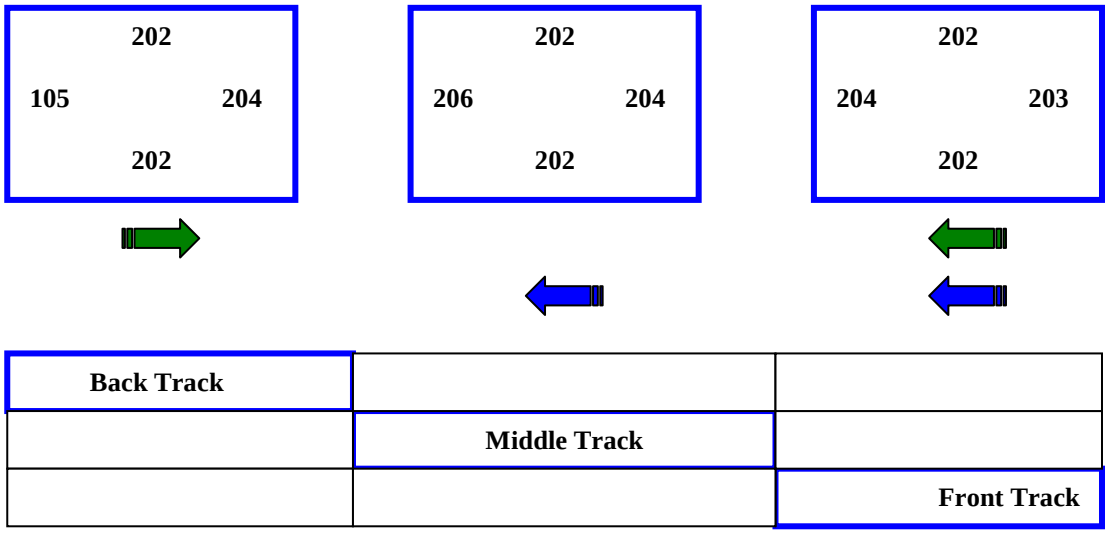
Assembly

Screw the outer frames together as in previous chapters.
The inner panels are screwed together with the fly screen adaptor in place.
Crimp the back edge of the inner panel into the groove on the **304**. Lay the fly mesh over the top and roller the gasket (**FMG**) into the groove in the **304** then trim away the excess mesh.

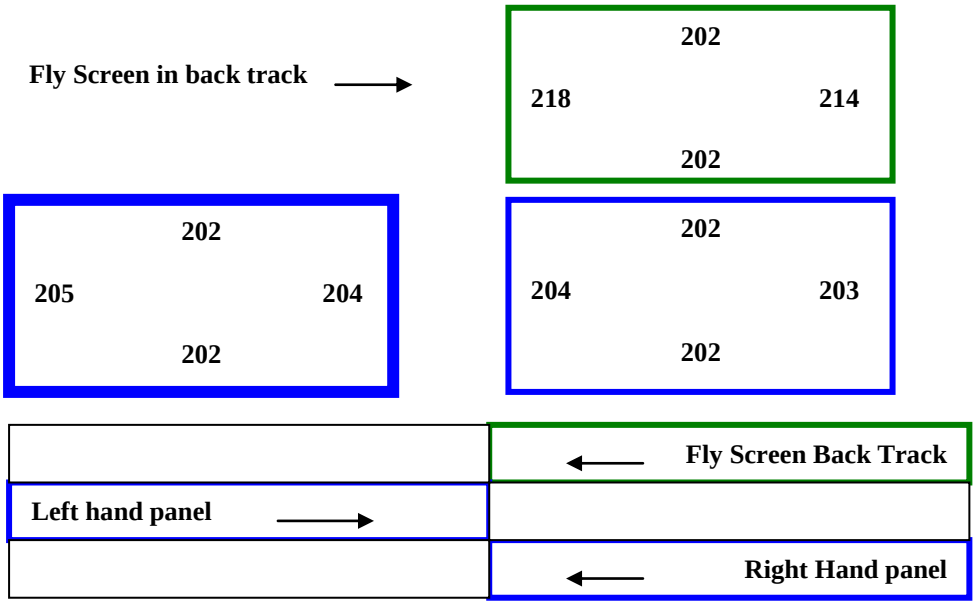
Triple Track

608 Horizontal Sliders. Breakdowns are the same as Equal Leg Horizontal Sliders.

The **608** is particularly usefully when extra ventilation is required. By using the triple track on a 3 panel slider the two outer panels can be slid into the centre or all three panels slid to one end.



Another alterative is to create a 2 panel slider with a permanent fly screen in the back track on one side.



Triple Track continued

The two glazed panels are broken down as a standard 2 panel slider using equal leg. To create the Fly Screen in the back track breakdown as follows.

Panel width	=	Track edge to B/L	-34mm	Glass – further 14mm
Panel height	=	Height	-59mm	Glass – further 14mm

214 File back mitred edge on handle and round off both ends.

218 Drill both ends with a 9/64th drill using jig number **130** with the stamped '**S**' facing you or with the lower part of jig number **130a**.

202 Bottom **202.** Drill a 9/64th pilot hole 26mm in on the end of the rail using the upper part of jig number **130a**, counterdrill with a 3/16th and insert two nylon skids (**128**). Drill a 9/64th hole at one end of the rail using jig number **130** with the '**S**' facing you or the lower part of jig number **130a** then countersink (used to screw the mitre together at the bottom end of each panel).

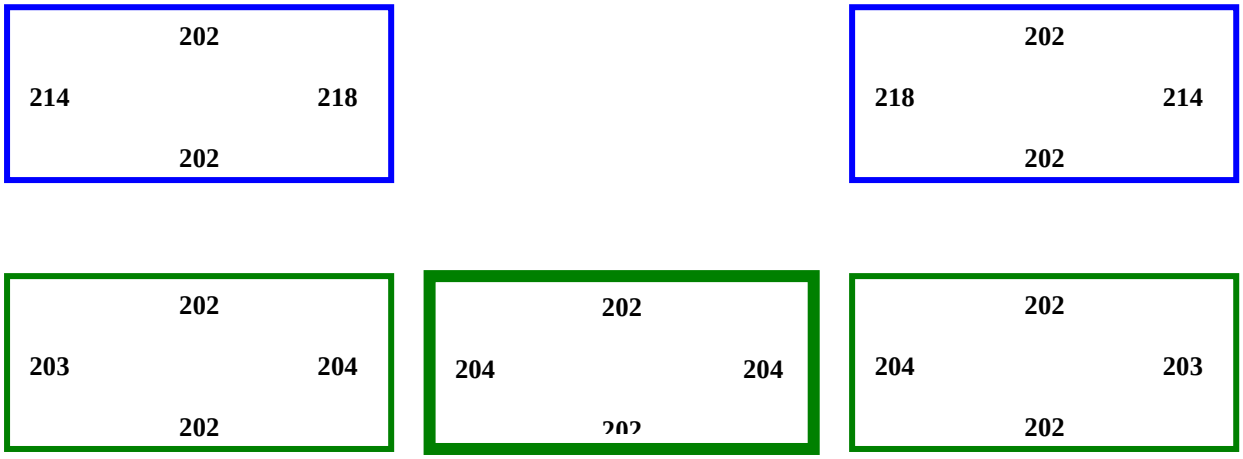
202 Top **202**. Drill a 9/64th hole at one end of the top rail using jig number **130** with the '**S**' facing you or the lower part of jig number **130a** then countersink (used to screw the mitre together at the bottom end of each panel).

Fit weatherpile **WP325** to all inner panel sections. Assemble the panels in the order shown on page 5 (vertical) with the skids (**128**) on the left. Screw the top and bottom mitres together with 6 x ¾ countersunk self-tapping screws (**223**) and the side mitres (**218**) together with 6 x ¾ self-tapping pan head screws (**122**). The **218** weatherpile groove should be facing the front.

A third alternative is to create a 3 panel slider with two permanent fly screens either side in the back track. The three glazed panels are broken down as a 3 panel slider in equal leg (centre fix). The two fly screens are made as above.

Triple Track continued

Drawing of 3 panel slider with two fly screens.



Fly screen back track		**Fly screen back track**
	Centre panel	
Left hand panel		**Right hand panel**