

Technical Bulletin No. 304

Monaframe / Monalock 2 Locking System

Change to Shoot bolt Design

- Due to an enforced change by our shootbolt supplier, the shoot bolt end will change from its current design to an hexagonal shaped design.

- The change will be phased in, as and when, stocks are exhausted for each size of rod. The new hexagonal rod will not be compatible with the current end guides as the guide hole is different, therefore consideration must be made when selecting rods.

An additional guide pack (AW738 - pack of 10 pairs) has been introduced to alleviate any 'mixing and matching' problems and help balance customer stocks over the transitional period.

- To identify new packs containing the new rods or guides, '-HEX' has been added to the existing code.

New Pack Code	Description	Current Pack Code
AW730-HEX	10 Pairs Shootbolt - 238mm	AW730
AW731-HEX	10 Pairs Shootbolt - 350mm	AW731
AW732-HEX	10 Pairs Shootbolt - 475mm	AW732
AW733-HEX	10 Pairs Shootbolt - 600mm	AW733
AW734-HEX	10 Pairs Shootbolt - 725mm	AW734
AW735-HEX	10 Pairs Shootbolt - 850mm	AW735
AW736-HEX	10 Operating Ass'y LH (Base/Keeps & Guides)	AW736
AW737-HEX	10 Operating Ass'y RH (Base/Keeps & Guides)	AW737
AW738	10 Pairs Monalock 2 End Guide Pack	n/a

Monografie

Workshop
Procedures

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INTRODUCTION

The Monaframe Direct fix systems use special extruded aluminium profile material containing an integral thermal barrier for outer frame components. Internal components are constructed from normal thermal barrier profile material.

The direct fix window system outer frame material is supplied in 5 metre bar lengths. Vents, mullions and transoms are constructed using normal CK thermal barrier system profile. Outer frames and sash vents are mitre cut and crimped.

The residential and patio doors are supplied in kit form. The outer frames are constructed using the prepared direct fix profile material using the formulae and techniques described in this manual. Panels and sashes are constructed using thermal barrier residential door and patio door profile material. When cutting these items use the measurement formulae described in this manual but the construction techniques described in the appropriate manual. Residential door outer frames are mitre cut and require crimping with the internal sections butt jointed. Patio door outer frames and internal sections are all butt jointed.

Monaframe direct fix sections are relatively thick walled and care should be taken during the cutting process in order to obtain high quality saw cuts. Saw geometry must be precise and saw blades kept sharp. Adjustments to saw feed may be required to obtain first class results. Sections should be supported by suitable blocks during sawing to keep the cut true.

During assembly always use sealant at all joints to ensure weather proofing and to enhance the finished product.

The sequence and methods of fabrication given in this manual are mainly a guide line to manufacture. Precise methods of operation are variable, dependent on facilities available.

Sapa's policy is one of continual system development and we reserve the right to incorporate design improvements and changes. Every effort is made to ensure that all details are correct at time of publication. However, it is the responsibility of the customer to check the accuracy of the relevant facts and information before entering into any contract or other commitment. Up to date information is freely available from the Sapa Building Systems Webshop.

All Products and systems which Sapa supply are supplied subject to Sapa's standard Terms and Conditions of Sale current from time to time.

Section 1
Crimper Assembly

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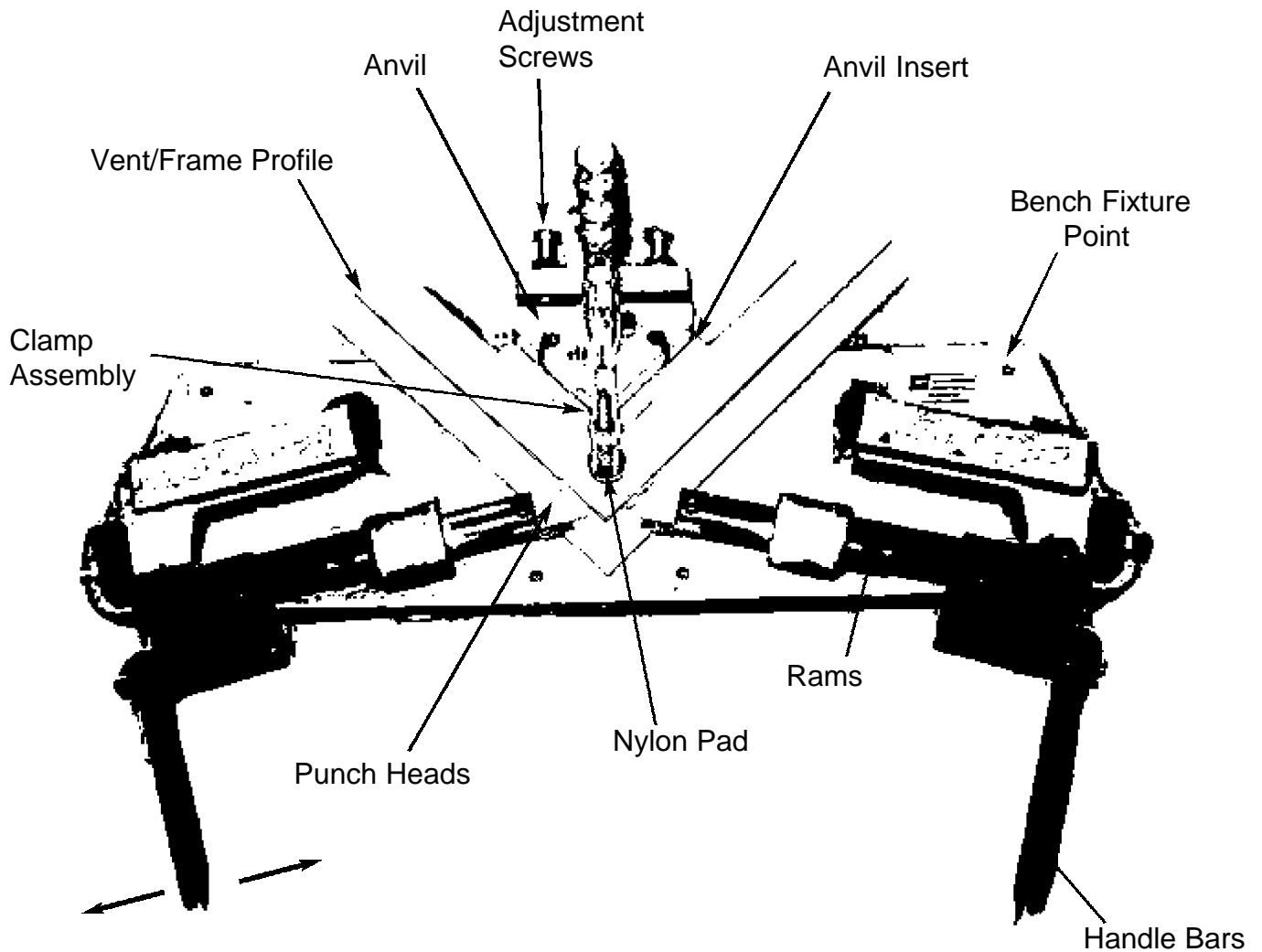


Figure 1.1 Crimper Assembly

W570 Crimper (DE1600) Assembly - Kit Checklist ;

- W570 - Crimper
- W571 - Anvil Insert
- W572 - Anvil Insert
- W573 - Anvil Insert
- W574 - Punch Heads
- W575 - Punch Heads
- W576 - Punch Heads
- 2 off Setting Blocks (Red)
- Operating Instructions

1. INTRODUCTION

The Douglas DE1600 hand crimper is supplied factory pre-set. It is supplied complete with a range of standard Anvil Inserts, Punches and red setting pieces. **All crimper kits are supplied with full Operating Instructions which must be read completely through prior to using the crimper.**

The crimping bench should be constructed in such a way as to offer suitable support for the material being crimped. In order to protect material the working bench should be covered with a carpet or soft alternative and this should be kept free of any swarf or sharp objects.

THE RESULTS OF UNSUPPORTED FRAMES WILL BE POOR CRIMPED CORNERS JOINTS.

2. SETTING-UP PROCEDURE

Remove crimper from its box. Locate on corner or edge of suitable bench which must be of a robust and stable construction.

Secure to bench with four M10 c'sk machine screws/bolts.

Insert handles into handle sockets and secure with locking screws which must locate into dimples provided on handle ends. Remove toggle clamp from packing and fix to top of anvil block with two M6 x 10mm socket cap screws which are located in the anvil block.

3. SETTING CHECK

The crimper is supplied factory set and has been test crimped prior to despatch from Douglas Engineering. If for any reason the setting of the crimper is in doubt, adopt the following procedures;

1. Cut a sample corner of material to be crimped.
2. Check the material cut and check that it is a true 45°, flat and at 90° to both legs of section.
3. Offer the appropriate setting piece to the anvil insert and check the setting.
4. The Punch Head tips should engage onto the slope of the cleat and should either just 'skim' the setting piece or clear with minimal clearance.
5. The punch heads should ride down the slope until the link arms lock into a straight line with the punch heads. The initial setting for the depth to which the punch heads should run is approx. two thirds of the full depth - Fig 1.2. The optimum setting is best established by carrying out test crimps and checking results.

Please note ; A setting piece can be made up by fixing with a suitable adhesive, two packing strips to the back of a cleat that is to be used in the system. The packing strips must be equal in thickness to the wall of the profile to be crimped.

Should the crimper require resetting, both the anvil position and the depth of bite of the crimp heads are fully adjustable.

4. ANVIL ADJUSTMENT

Remove the clamp assembly by removing its two fixing screws, this will reveal a socket head screw. Slacken this screw.

Slacken the four nuts at the extreme rear of the crimper.

Using the setting pieces as a guide, adjust the anvil towards or away from the crimp punch heads by turning the nuts. Set the anvil so that the crimp punch heads ride down the slope of the setting piece.

5. TOGGLE CLAMP ADJUSTMENT

Select short length of mitred corner from off-cuts. Insert correct cleats and corner chevrons, locating complete assembly against anvil insert.

Adjust clamp spindle so that when the clamp lever locks into the forward position the test corner is held by the clamp pad, with a pressure equivalent to a firm finger pressure.

Tighten clamp spindle lock nuts.

Warning -

If the clamp pressure is set to high, distortion of profile will occur resulting in poor crimping.

Ultimately the clamp will break if excessive loads are applied.

6. CRIMPING TEST JOINT

Before starting production it is advisable to test tooling on an off-cut sample.

Both handles should be operated simultaneously until the link arms lock into a straight line with the Punch heads. Once crimped, withdraw both punches simultaneously.

7. Points to REMEMBER

1. DO bolt crimper securely to a flat surface.
2. DO check all fixings are tight after tooling or setting change.
3. DO clean all location faces when changing tooling.
4. DO lubricate all moving parts daily.
5. DO NOT allow sealants to accumulate on any surfaces.
6. DO operate crimper with both handles.
7. DO NOT extend the handle length.
8. DO NOT mix tooling.
9. DO NOT overset the crimp depths or clamp pressure.
10. DO be careful when handling punch heads - they are sharp.
11. DO make a note of your crimper serial number.

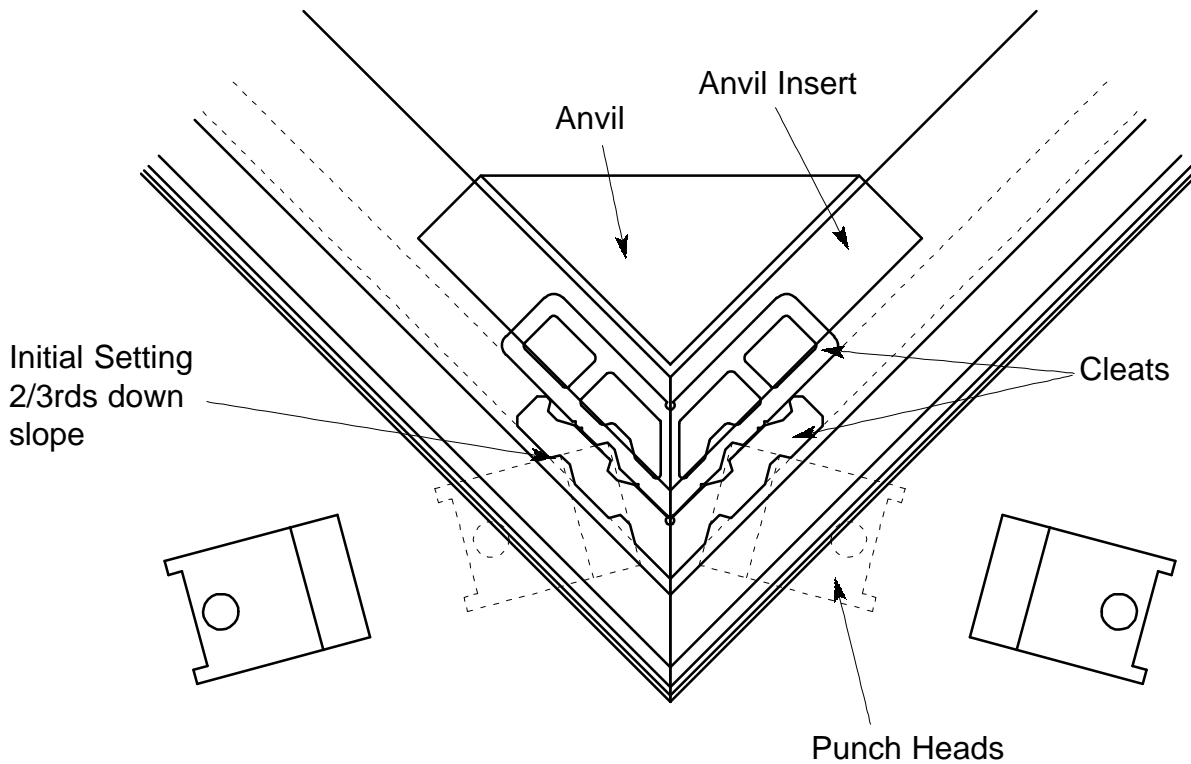


Figure 1.2 - Simple Layout

8. Head and Punch Selection

<i>Anvil Insert</i>	<i>Punch Heads</i>	<i>Use with Section</i>
W572 #	W575 #	CD Profiles
W573 #	W576 #	CK Profiles
W571 #	W574 #	CKDFF, CKF10, CKF16
W618	W576	CKFV2
W649	W574	CKF11
W650	W576	CKV11
W689	W574	CKF14
W690	W574	CKF15
W691	W575	CKV13
W693	W574	CKF18
W802	W574	CKF19
W805	W806	CKF20
W807	W808	CKV16, CKV17
W830	W831	CKV18, CKV19

Tooling supplied with Crimper Assembly Kit - W570.

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1. INTRODUCTION

The direct fix outer frame profile material for both the casement and bay windows is supplied in 5 metre bar lengths. The internal components i.e. vents, mullions and transoms are constructed using 'CK' thermal barrier profile material.

In the preparation and construction of the outer frame for the casement and bay windows use the formulae described in this manual. The preparation and construction techniques, however, are as described in Manual C2027 Casement Windows.

Operation and Fittings

- Casement windows can be top hung, side hung or fixed lighted. All hinges are friction stayed for convenience and ease of operation, with High Security, Easy Clean (Side Hung Only), Egress (Side Hung Only) and built in Restrictor options all available.

Glazing

- The system can be glazed with single (4 to 6.4mm) or double glazed units to BS6262. Double glazing or other glass thicknesses accommodated are from 14 to 28mm, according to glazing bead used. A suite of glazing beads with black or white synthetic rubber sealing gaskets are available to accommodate this range of thicknesses.

Security and Safety

- The Monaframe Casement window system offers an externally glazed security beaded suite, with an optional screw fixed glazing clip for added security. Opening sashes and fixed lights can alternatively be glazed and beaded internally, avoiding the use of scaffolding allowing the assembly to be fixed into position unglazed.

Locking gear will vary depending on type of vent and security required, with possibilities of a simple standard cockspur type (with lockable option), a High Security Monalock system or Saracen gear box systems. Both the Monalock and Saracen system using shootbolts thrown into security corner keeps.

Weather Performance

- The Monaframe Casement window system has been independently tested, subject to certain configurations to BS 5368 and exceeds the Severe Exposure Category 2000 demands of BS6375 : Part 1, .

Refer to Monarch Technical for performance ratings.

Appearance

- All profiles are powder coated to BS6496 : 1991, applied using the stringently quality controlled Sytha Pulvin or Interpon processes. Full gloss white (RAL9910), black (RAL9011) and semi-gloss dark brown (BS08B29) are available as standard, with an alternative (to order) comprehensive range of 389 RAL,BS or metallic colour options .

Limitations

- Load bearing mullions (or transoms) have limitations according to type, spacing and length. This information is available in the Monarch Specifiers Manual for each relevant profile, but assemblies combining windows and fixed lights into glazed screens must be designed and calculated as appropriate.

Top Hung Casements -

1200mm Maximum Width - depending on sash weight limit.
1200mm Maximum Height

Side Hung Casements -

700mm Maximum Width - depending on sash weight limit.
1300mm Maximum Height

Fixed lights and glazed panels have limits according to glazing type - refer to BS6262.

2. EQUIPMENT

2.1 Standard Requirements

- (a) Cross cut or pivot saw with minimum traverse for 100mm section.
- (b) Tungsten tipped saw blades (require less sharpening and give a longer working life).
- (c) Hand drill.
- (d) Felt or rubber stripped bench top or trestles to avoid damage during assembly or glazing.
- (e) Felt covered rack system for stocking bar lengths.
- (f) No.2 x Point Pozi screw driver.
- (g) Crimper Kit W570 (See page 1.1 for kit contents) .
- (h) Drill bits - 3.2mm, 4.2mm and 4.8mm.
- (m) Bench Vice.
- (n) Small Bench Router.

3. COMPONENT IDENTIFICATION

3.1 Bar Length

The direct fix system outer frames and cills are supplied in bar length form only. Internal components are as used in the thermal barrier casement window system.

Outer Frames

Description	Quantity	Code
CKDFF - Outer Frame	1 x 5M	CKDFFW-1 / CKDFFBP-1 / CKDFFE-1
CKF10 - Screwported Outer Frame	1 x 5M	CKF10W-1 / CKF10BP-1
CKF11 - Slimline Screwported Outer Frame	1 x 5M	CKF11W-1 / CKF11BP-1
CKF16 - Outer Frame with fixing channel	1 x 5M	CKF16W-1 / CKF16BP-1
CKF18 - Softline Featured Outer Frame	1 x 5M	CKF18W-1 / CKF18BP-1 / CKF18E-1
CKF19 - Ext'd leg Softline Featured Outer Frame	1 x 5M	CKF19W-1 / CKF19BP-1 / CKF19E-1

Sash/Vent Frames

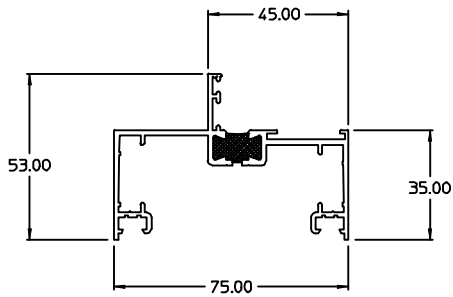
Description	Quantity	Code
CKFV2 - Featured Vent	10 x 3.9M	CKFV2W-10 / CKFV2BP-10
CKVBF - Odd Leg Vent	10 x 3.9M	CKVBFW-10 / CKVBFBP-10 / CKVBFE-10
	5 x 5M	CKVBF50W-5 / CKVBF50BP-5 / CKVBF50E-5
CKV16 - Softline Vent (Saracen)	5 x 5M	CKV16W-5 / CKV16BP-5 / CKV16E-5
CKV17 - Chamfered Vent (Saracen)	5 x 5M	CKV17W-5 / CKV17BP-5 / CKV17E-5
CKV18 - Softline Vent (Eurogroove)	5 x 5M	CKV18W-5 / CKV18BP-5 / CKV18E-5
CKV19 - Chamfered Vent (Eurogroove)	5 x 5M	CKV19W-5 / CKV19BP-5 / CKV19E-5

Cills

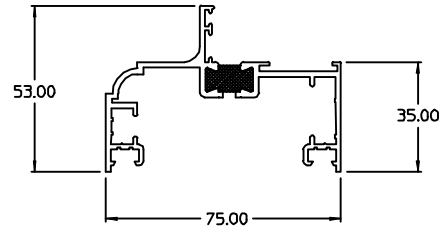
Description	Quantity	Code
M992 - 190mm Load Bearing Cill	1 x 5M	A9925000W / A9925000BP / A9925000E
M993 - 155mm Load Bearing Cill	1 x 5M	A9935000W / A9935000BP / A9935000E
	1 x 6.4M	A9936400W / A9936400BP / A9936400E
M994 - 135mm Load Bearing Cill	1 x 5M	A9945000W / A9945000BP / A9945000E
CKC12 - 95mm Standard Snub Cill	1 x 5M	CKC12W-1 / CKC12BP-1 / CKV12E-1
CKC13 - 155mm Standard Cill	1 x 5M	CKC13W-1 / CKC13BP-1 / CKV13E-1

- Refer to 'Price List' for Foiled range of bar lengths.

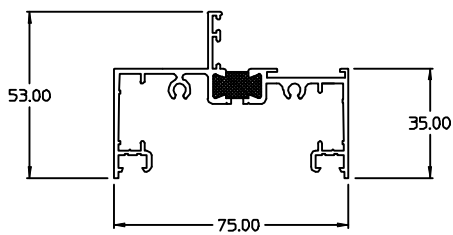
3.2 Bar Profiles



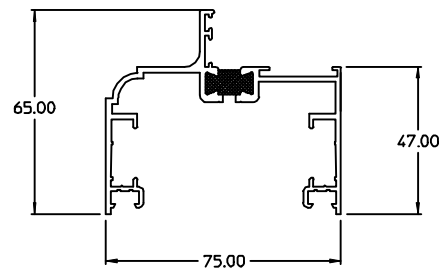
CKDFF



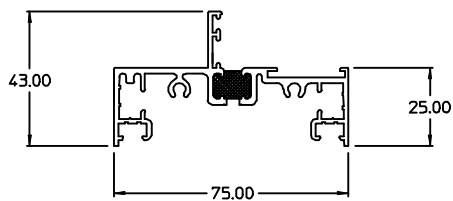
CKF18



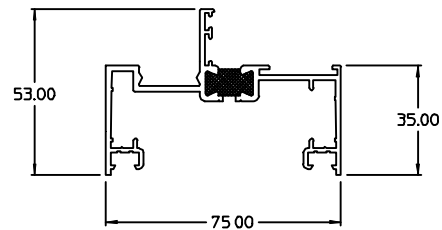
CKF10



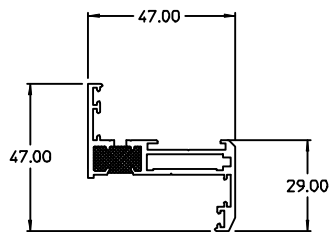
CKF19



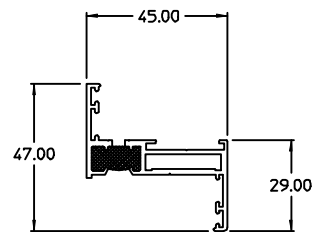
CKF11



CKF16



CKFV2



CKVBF

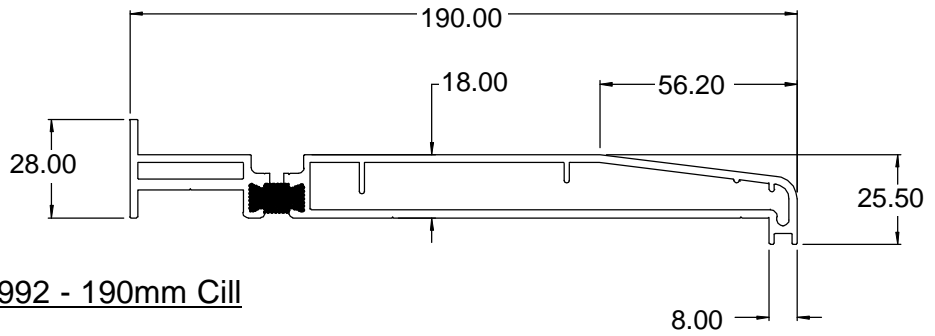
Outer Frame and Vent Profiles

Figure 2.1

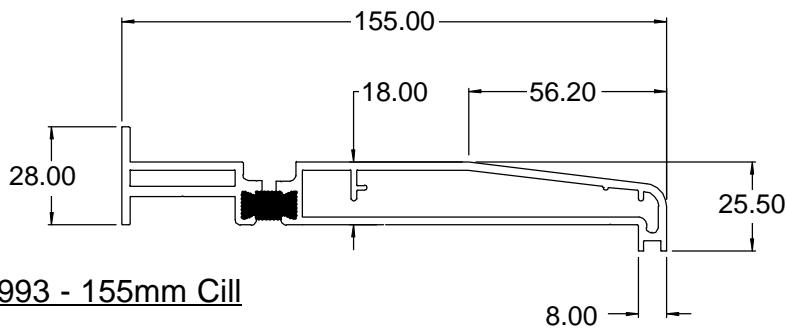
- For vents CKV16 & CKV17 refer to relevant 'Saracen Mk 2' section (Pg 2.68).
- For vents CKV18 & CKV19 refer to relevant 'Eurogroove' section (Pg 2.75).

3.3 Cill Profiles

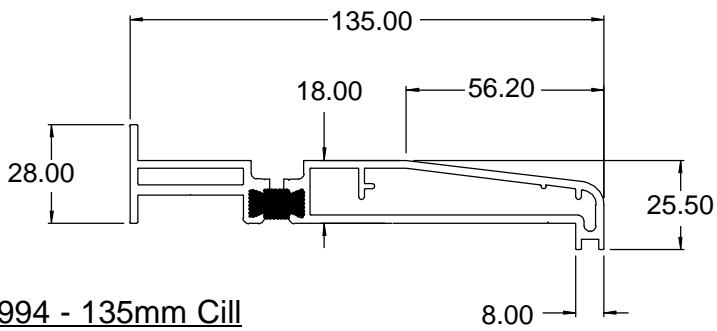
Load Bearing
Cill Options



M992 - 190mm Cill

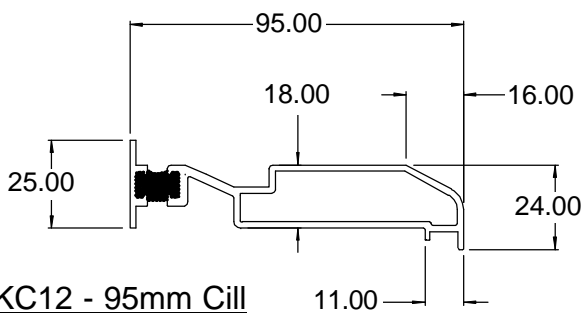


M993 - 155mm Cill

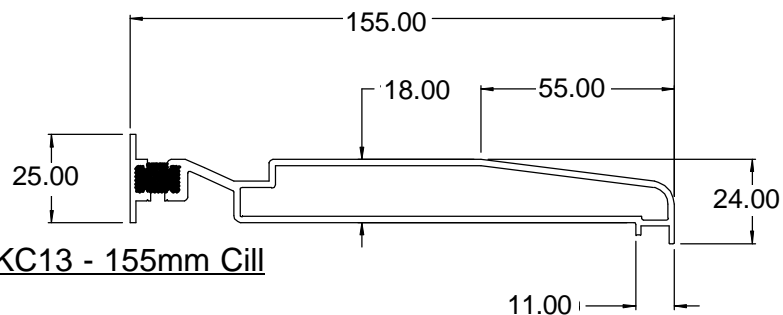


M994 - 135mm Cill

Casement Window
Cill Options



CKC12 - 95mm Cill



CKC13 - 155mm Cill

Figure 2.2



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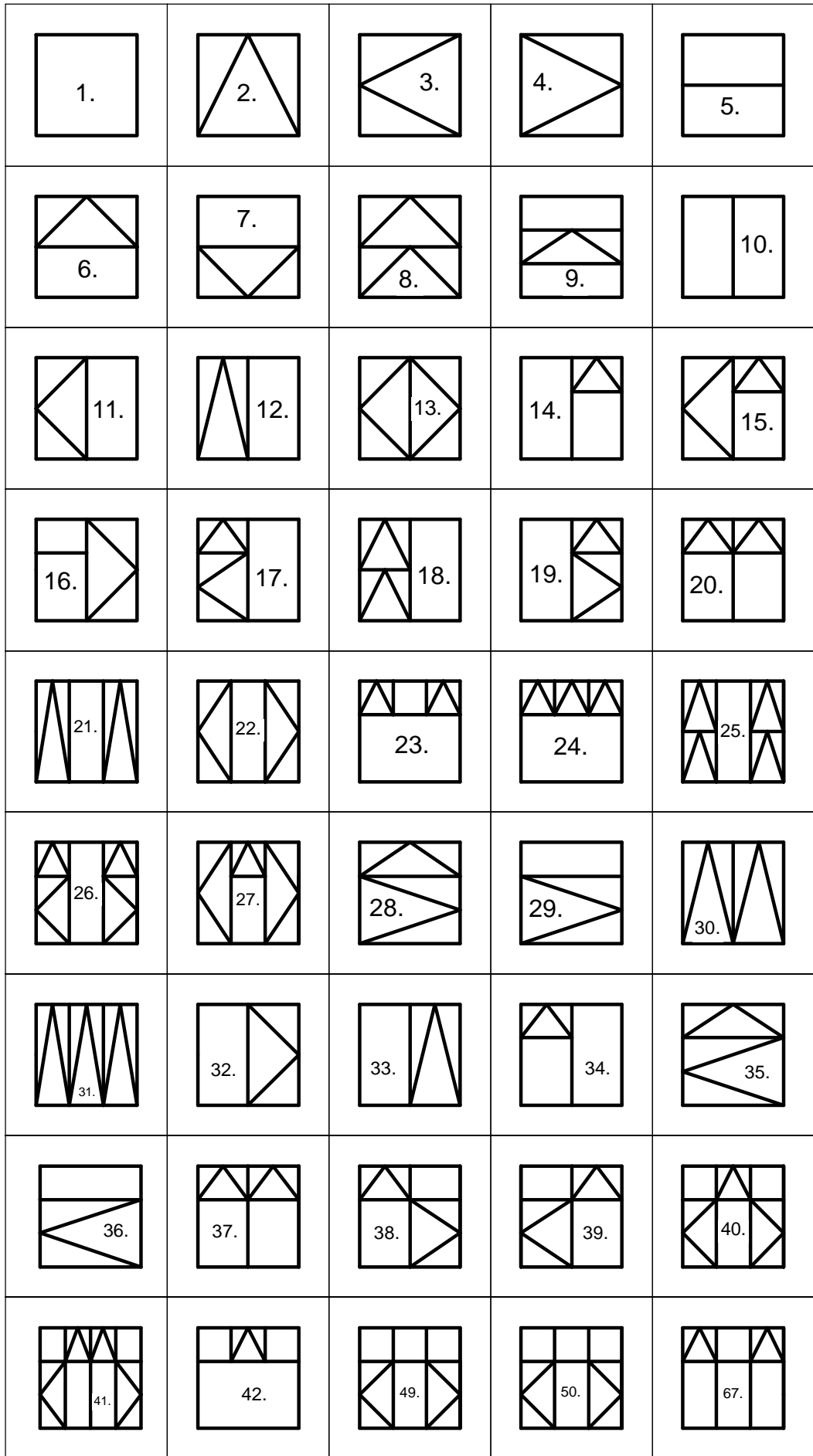
4. ACCESSORIES

Accessory packs listed below, are required in the construction of direct fix window outer frames and are to be ordered separately.

Description	Qty	Code	To Suit
Flipper Seal	50M	A3004/A	<i>All Outer frames</i>
RH Cill (M994) End Cap 135mm	20	A3185W/BP/E	<i>M994 Cills</i>
LH Cill (M994) End Cap 135mm	20	A3184W/BP/E	<i>M994 Cills</i>
RH Cill (M993) End Cap 155mm	20	A3187W/BP/E	<i>M993 Cills</i>
LH Cill (M993) End Cap 155mm	20	A3186W/BP/E	<i>M993 Cills</i>
RH Cill (M992) End Cap 190mm	20	A3189W/BP/E	<i>M992 Cills</i>
LH Cill (M992) End Cap 190mm	20	A3188W/BP/E	<i>M992 Cills</i>
RH Cill (CKC12) End Cap 95mm	25	A4246W/BP/E	<i>CKC12 Cills</i>
LH Cill (CKC12) End Cap 95mm	25	A4247W/BP/E	<i>CKC12 Cills</i>
RH Cill (CKC13) End Cap 155mm	25	A4248W/BP/E	<i>CKC13 Cills</i>
LH Cill (CKC13) End Cap 155mm	25	A4249W/BP/E	<i>CKC13 Cills</i>
Glass Packers	100	AW655	
11mm Cleat Pack	100	A4038	<i>CKF18 & CKF11</i>
21mm Cleat Pack	100	A3122	<i>All O'frame Excl. CKF11</i>
24mm Cleat Pack	100	A3123	<i>CKF10 ,CKDFF ,CKF16</i>
Cleat Pack	100	A3386	<i>CKV18 & CKV19</i>
Cleat Pack	100	A3387	<i>CKV18 & CKV19</i>
(Vent) Corner Cleat Pack	100	A3375	<i>CKV16 & CKV17</i>
Corner Plug Pack	50	A3128	<i>All Outer frames</i>
Corner Plug Pack	50	A3377	<i>CKF19</i>
Corner Chevron Brace	500	AW101	<i>All O'frames & Vents</i>
(Vent) Corner Chevron Brace	500	AW100	<i>CKV16 & CKV17</i>
Foam Infill - Outer Frame	15M	A3131	<i>All Outer frames</i>
Braces	100	A3135	<i>All O'frame Excl. CKF11/19</i>
Braces	100	A3344	<i>CKF19</i>
Outer Frame Bearing Block	10	AW635	<i>CKDFF</i>
Woolpile	100M	AW170S/E	<i>All O'frames & Vents</i>
Vector Excluders	200	AW848	<i>All O'frames & Vents</i>
Security (20mm) Glazing Clips	100	AW720/100	
Security (24mm) Glazing Clips	100	AW721/100	
Security (25mm) Glazing Clips	100	AW722/100	
Security (28mm) Glazing Clips	100	AW723/100	
Hinge Jig (O'Frame)	1	W790S/R	<i>All Outer frames</i>
Hinge Jig (O'Frame)	1	W791S/R	<i>All Outer frames</i>
Hinge Jig (Sash / Vent)	1	W792S/R	<i>All Sash / Vents</i>
Hinge Jig (O'Frame) ##	1	W793S/R	<i>All Outer frames</i>
Hinge Jig (Sash / Vent) ##	1	W794S/R	<i>All Sash / Vents</i>

(## = Hinge jigs are to suit Easy Clean & Egress only.)

Casement window hinge and transom jigs are to be used in the fabrication of the vents and fitting of transoms and mullions. Use the formulae in paragraph 6 to create the cutting list for all the internal components. The construction techniques for transoms and mullions are identical to those shown in Manual C2027 Casement windows.



5. Window Configurations

Fig. 2.3 - Window Format Configurations

6. Glass and Component Equations

All formulae for glass and component measurements exclude the add-on cill which will occupy 18mm of the aperture.

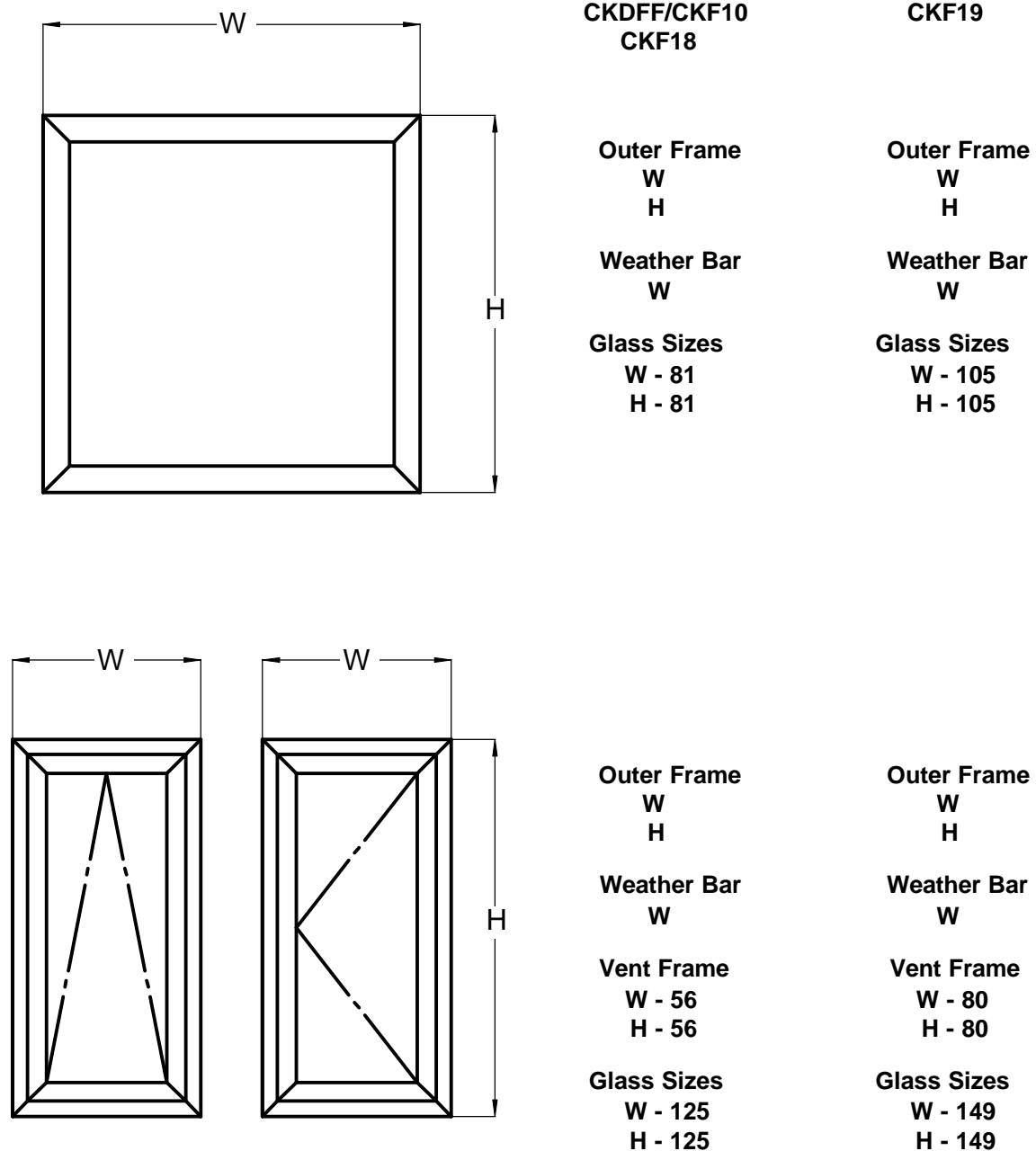


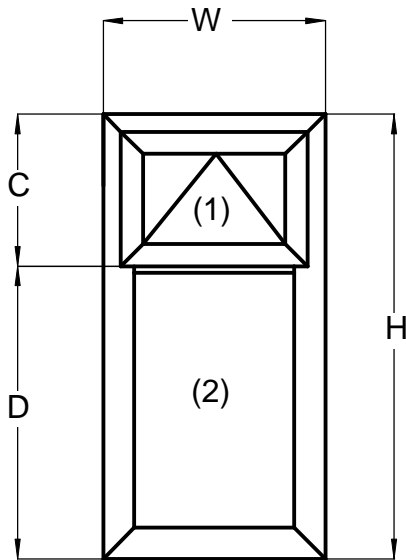
Fig 2.4 - Window Component Sizes

Note, all dimensions are in millimeters.

Important Note :
When using CKV16, CKV17, CKV18 or CKV19 reduce vent glass W & H by 9mm each.

When using CKTR3 Slimline mullion/transom, increase relevant vent frame and glass sizes by 6mm.

All formulae for glass and component measurements exclude the add-on cill which will occupy 18mm of the aperture.



**CKDFF/CKF10
CKF18**

CKF19

Outer Frame
W
H

Outer Frame
W
H

Weather Bar
W

Weather Bar
W

Transom
W - 70

Transom
W - 94

Vent Frame
W - 56
C - 34

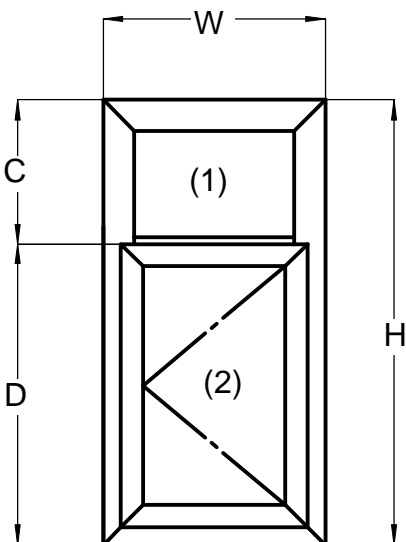
Vent Frame
W - 80
C - 46

Glass Sizes (1)
W - 125
C - 103

Glass Sizes (1)
W - 149
C - 115

Glass Sizes (2)
W - 81
D - 59

Glass Sizes (2)
W - 105
D - 71



Outer Frame
W
H

Outer Frame
W
H

Weather Bar
W

Weather Bar
W

Transom
W - 70

Transom
W - 94

Vent Frame
W - 56
D - 34

Vent Frame
W - 80
D - 46

Glass Sizes (1)
W - 81
C - 59

Glass Sizes (1)
W - 105
C - 71

Glass Sizes (2)
W - 125
D - 103

Glass Sizes (2)
W - 149
D - 115

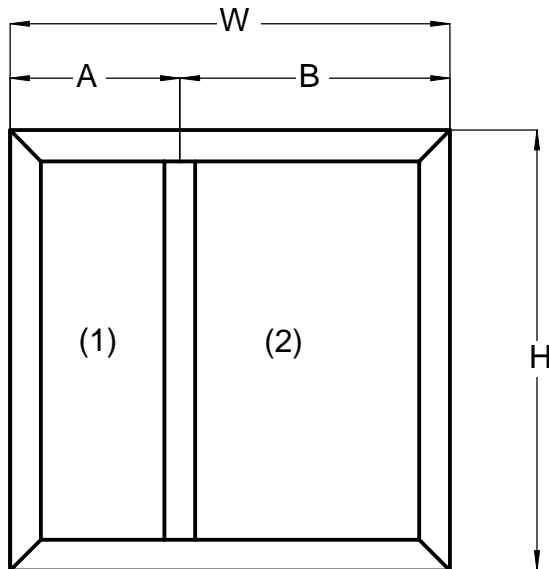
Fig 2.4 - Continued

Note, all dimensions are in millimeters.

Important Note :
When using CKV16, CKV17, CKV18 or CKV19 reduce vent glass W & H by 9mm each.

When using CKTR3 Slimline mullion/transom, increase relevant vent frame and glass sizes by 6mm.

All formulae for glass and component measurements exclude the add-on cill which will occupy 18mm of the aperture.



**CKDFF/CKF10
CKF18**

Outer Frame
W
H

Weather Bar
W

Mullion
H - 70

Glass Sizes (1)
A - 59
H - 81

Glass Sizes (2)
B - 59
H - 81

CKF19

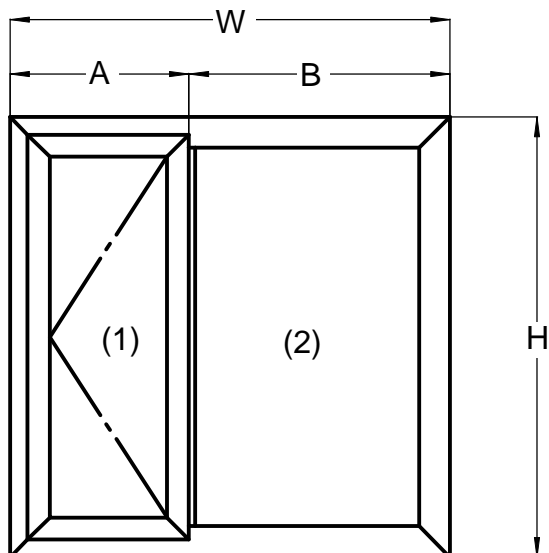
Outer Frame
W
H

Weather Bar
W

Mullion
H - 94

Glass Sizes (1)
A - 71
H - 105

Glass Sizes (2)
B - 71
H - 105



Outer Frame
W
H

Weather Bar
W

Mullion
H - 70

Vent Frame
A - 34
H - 56

Glass Sizes (1)
A - 103
H - 125

Glass Sizes (2)
B - 59
H - 81

Outer Frame
W
H

Weather Bar
W

Mullion
H - 94

Vent Frame
A - 46
H - 80

Glass Sizes (1)
A - 115
H - 149

Glass Sizes (2)
B - 71
H - 105

Fig 2.4 - Continued

Note, all dimensions are in millimeters.

Important Note :
When using CKV16, CKV17, CKV18 or CKV19 reduce vent glass W & H by 9mm each.

Note: CKTR3 Slimline Transom/Mullion cannot be used where two vents close onto this section.

All formulae for glass and component measurements exclude the add-on cill which will occupy 18mm of the aperture.

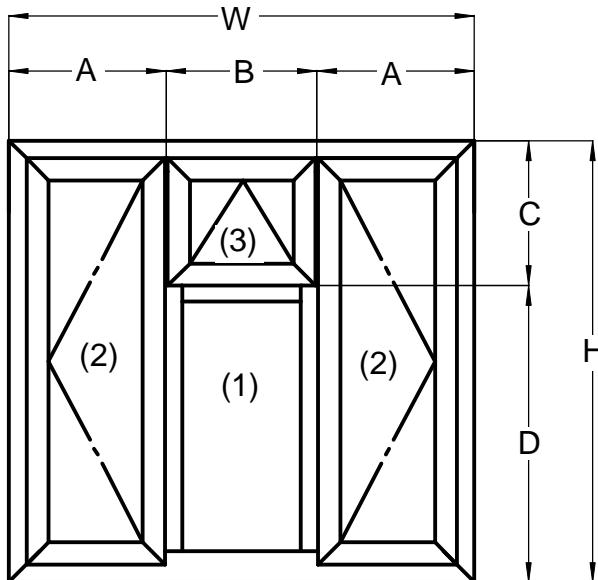
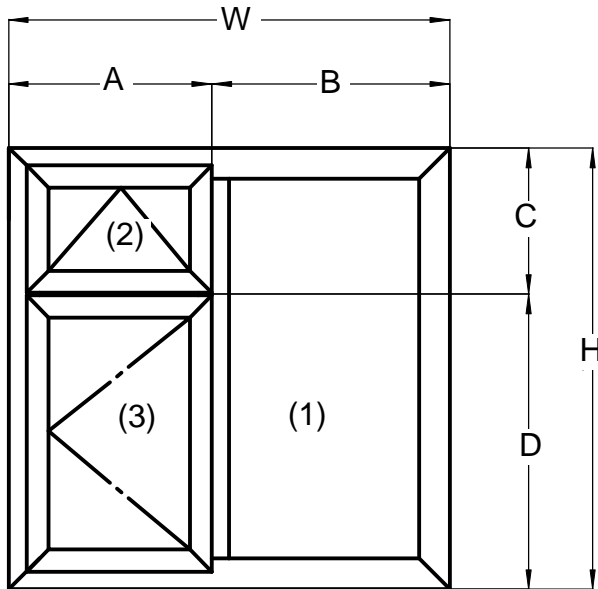


Fig 2.4 - Continued

Note, all dimensions are in millimeters.

Important Note :
 When using CKV16, CKV17, CKV18 or CKV19
 reduce vent glass W & H by 9mm each.

**CKDFF/CKF10
CKF18**

- Outer Frame
W
H
- Weather Bar
W
- Transom
A - 48
- Mullion
H - 70
- Vent Frame (2)
A - 34
C - 34
- Vent Frame (3)
A - 34
D - 34
- Glass Sizes (1)
B - 59
H - 81
- Glass Sizes (2)
A - 103
C - 103
- Glass Sizes (3)
A - 103
D - 103

CKF19

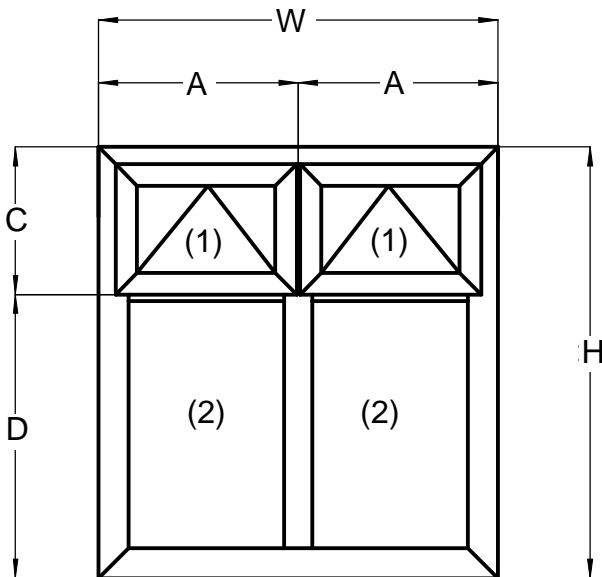
- Outer Frame
W
H
- Weather Bar
W
- Transom
A - 60
- Mullion
H - 94
- Vent Frame (2)
A - 46
C - 46
- Vent Frame (3)
A - 46
D - 46
- Glass Sizes (1)
B - 71
H - 105
- Glass Sizes (2)
A - 115
C - 115
- Glass Sizes (3)
A - 115
D - 115

- Outer Frame
W
H
- Weather Bar
W
- Transom
B - 26
- Mullion
H - 70
- Vent Frame (2)
A - 34
H - 56
- Vent Frame (3)
B - 12
C - 34
- Glass Sizes (1)
B - 37
D - 59
- Glass Sizes (2)
A - 103
H - 125
- Glass Sizes (3)
B - 81
C - 103

- Outer Frame
W
H
- Weather Bar
W
- Transom
B - 26
- Mullion
H - 94
- Vent Frame (2)
A - 46
H - 80
- Vent Frame (3)
B - 12
C - 46
- Glass Sizes (1)
B - 37
D - 71
- Glass Sizes (2)
A - 115
H - 149
- Glass Sizes (3)
B - 81
C - 115

Note: CKTR3 Slimline Transom/Mullion cannot be used where two vents close onto this section.

All formulae for glass and component measurements exclude the add-on cill which will occupy 18mm of the aperture.

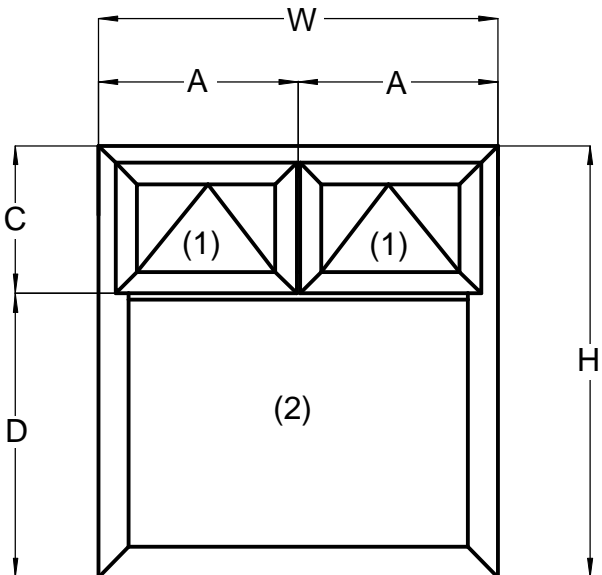


**CKDFF/CKF10
CKF18**

- Outer Frame
W
H
- Weather Bar
W
- Transom
A - 48
- Mullion
H - 70
- Vent Frame
A - 34
C - 34
- Glass Sizes (1)
A - 103
C - 103
- Glass Sizes (2)
A - 59
D - 59

CKF19

- Outer Frame
W
H
- Weather Bar
W
- Transom
A - 60
- Mullion
H - 94
- Vent Frame
A - 46
C - 46
- Glass Sizes (1)
A - 115
C - 115
- Glass Sizes (2)
A - 71
D - 71



- Outer Frame
W
H
- Weather Bar
W
- Transom
W - 70
- Mullion
C - 48
- Vent Frame
A - 34
C - 34
- Glass Sizes (1)
A - 103
C - 103
- Glass Sizes (2)
W - 81
D - 59

- Outer Frame
W
H
- Weather Bar
W
- Transom
W - 94
- Mullion
C - 60
- Vent Frame
A - 46
C - 46
- Glass Sizes (1)
A - 115
C - 115
- Glass Sizes (2)
W - 105
D - 71

Fig 2.4 - Continued

Note, all dimensions are in millimeters.

Important Note :
When using CKV16, CKV17, CKV18 or CKV19
reduce vent glass W & H by 9mm each.

Note:

This arrangement shows CKTR3 Slimline Transom / Mullion being used.

All formulae for glass and component measurements exclude the add-on cill which will occupy 18mm of the aperture.

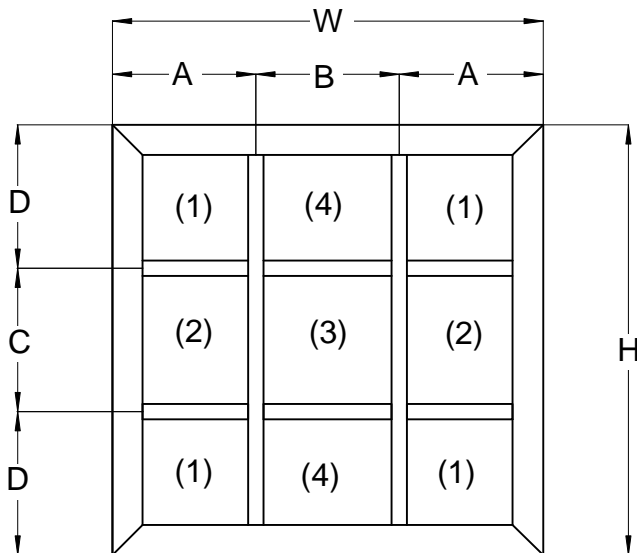


Fig 2.4 - Continued

CKDF10/CKF18

Outer Frame
W
H

Weather Bar
W

Transom
A - 42
B - 14

Mullion
H - 70

Glass Sizes (1)
A - 53
D - 53

Glass Sizes (2)
A - 53
C - 25

Glass Sizes (3)
B - 25
C - 25

Glass Sizes (4)
B - 25
D - 53

CKF19

Outer Frame
W
H

Weather Bar
W

Transom
A - 54
B - 14

Mullion
H - 94

Glass Sizes (1)
A - 65
D - 65

Glass Sizes (2)
A - 65
C - 25

Glass Sizes (3)
B - 25
C - 25

Glass Sizes (4)
B - 25
D - 65

Note, all dimensions are in millimeters.

7. OUTER FRAME CONSTRUCTION

7.1 Cutting Techniques

Calculate the size of outer frame required, allowing for 18mm if an add-on cill is to be used.
Allow for any clearance or deviation in host aperture at this stage.

Mitre cut the direct fix outer frame components to 45° in accordance with the formulae in section 6.

Straight cut the add-on cill to the window aperture width or the required horn width. If the cill is to be flush with frame edge, remove an extra 4mm to allow for the end caps.

7.2 Construction Techniques

7.2.1 Woolpile

Insert the woolpile (W170S/E) into the outer frame where opening vents are required and cut to length.

7.2.2 Braces

Fit a sufficient number of braces (A3135 = 100 off) into the outer frame at suitable fixing and adequate packing points.

Fixings should be at centres of no more than 600mm and maximum 150mm from the corners.

7.2.3 Flipper Seal

Fit the flipper seal (A3004) into the Monaframe clip pocket.

No flipper seal is required along bottom edge of frame where add-on cills are required.

7.2.4 Foam Infill

Foam infill (A3131) should be added by push-fit into the outer frame around top and sides only, to prevent air circulation from occurring. Foam will need to be cut short of braces and fixings.

7.2.5 Cleats and Chevrons

Slide the required cleats and chevrons into their corresponding pockets within the outer frame. Cleats and chevrons will vary depending on type of outer frame, refer to page 2.7 for guide.

For CKDFF, use cleats C3122 and C3123, with chevron brace W101.
(All supplied in corresponding 'A' packs)

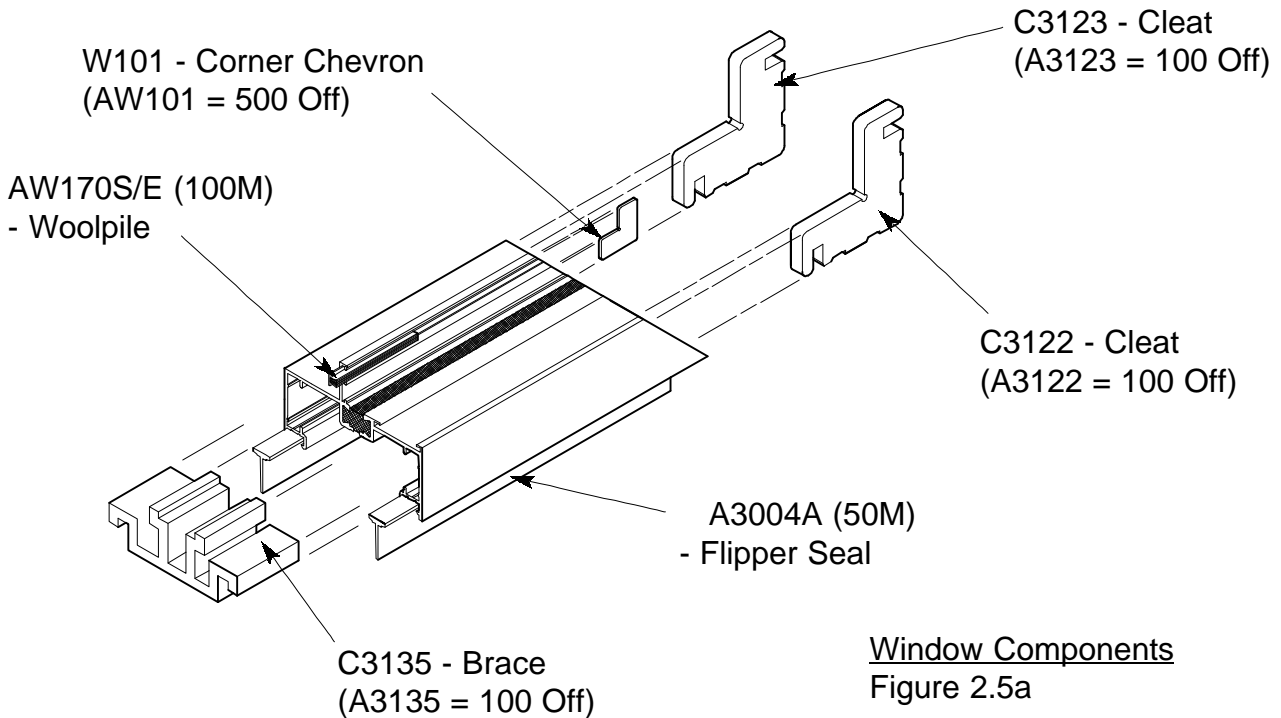
7.3 Assembling Joints

7.3.1 Corner Joints

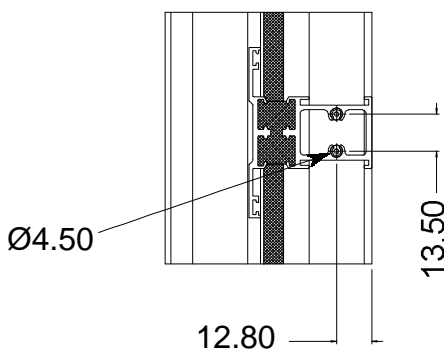
Check, when required, that woolpile and braces are fitted prior to crimping.

Apply sealant to both mitred faces and assemble loosely onto the crimper assembly. If used, remove flipper seals locally about the corners to clear the operation of the crimper heads.

Secure the joint onto the crimper assembly (refer to section 1) and crimp the joint. After crimping, clean off any surplus sealant. Replace the seals.



7.3.2 Transom / Mullion to Outer frame



Cut the required transom/mullion to length using the cutting formulae in section 6, and prepare the ends as per fig 2.5b.

Drill two Ø4.5 clearance holes, as per fig 2.5b, thro' the outer frame to clear for No.8 fixing screws. A small wall on the inside of the outer frame will require nibbing out for the screw to sit flush. Repeat for both ends.

Fix the transom/mullion in place using two No.8 x 3/4" Pozi Pan Hd screws (F304) at each end.

Make sure the transom/mullion is square to its mating frame.

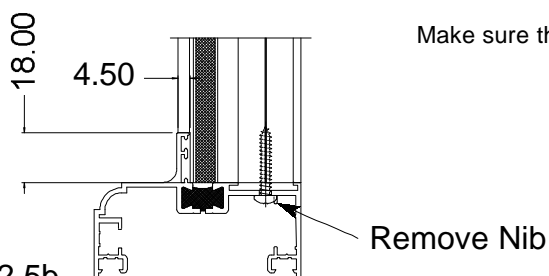
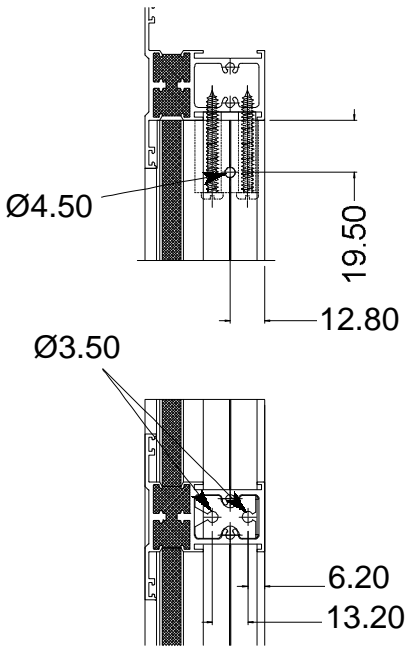


Figure 2.5b

7.3.3 Transom / Mullion Cruciform Joint



Create and fit the vertical mullions using the procedure in section 7.3.2.

Cut the required transom to length using the cutting formulae in section 6, and prepare both ends as per fig 2.5b.

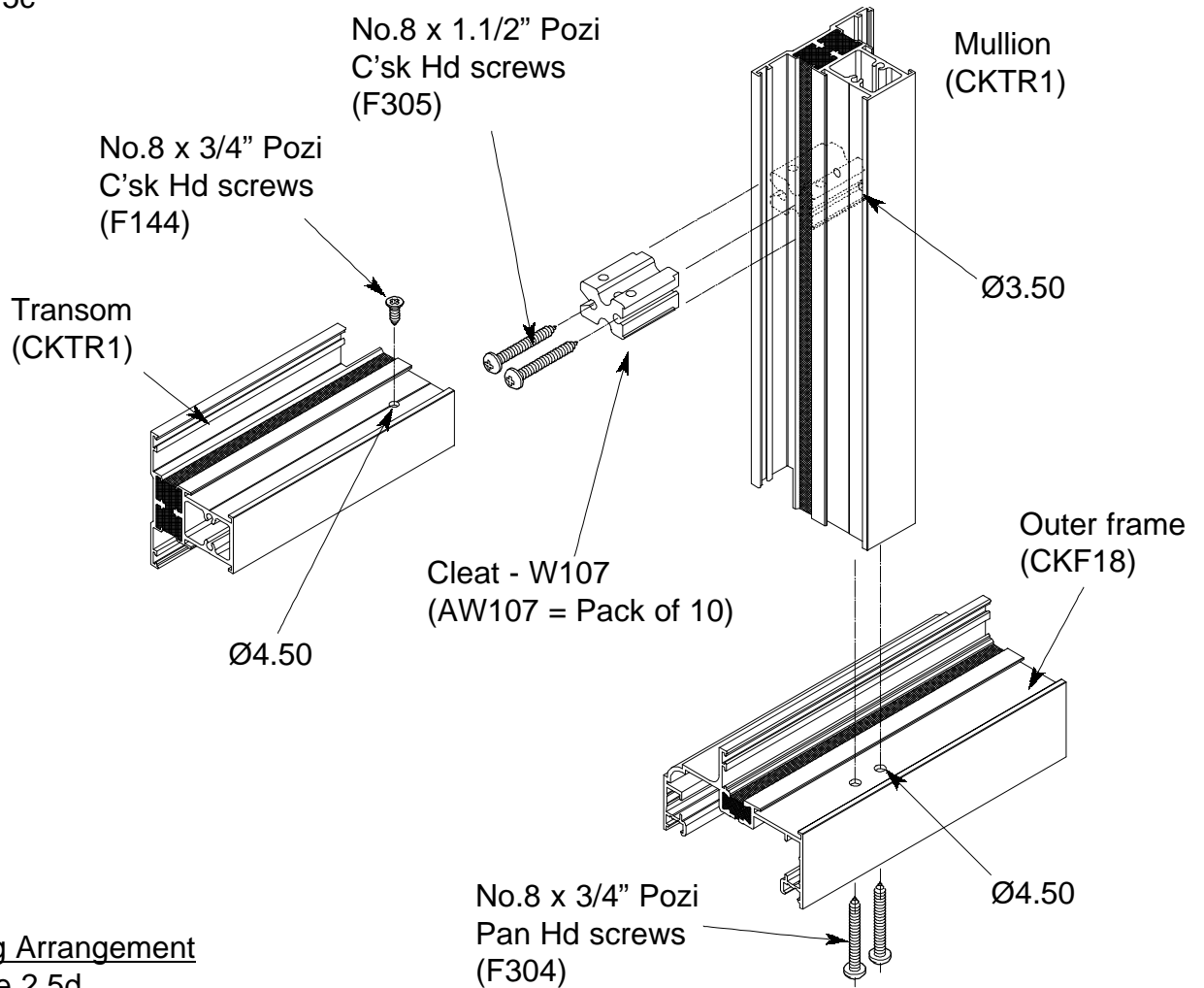
Where the transom is fixed to the outer frame, drill two Ø4.5 clearance holes, as per fig 2.5b, thro' the outer frame to clear the No.8 fixing screws. A small wall on the inside of the outer frame will require nibbing out for the screw to sit flush.

Drill two Ø3.50 pilot holes into the vertical mullion as per fig 2.5c and fix the cleat (**W107**) to the mullion using No.8 x 1.1/2" Pozi Pan Hd screws. Ensure that when positioning the cleat, the resulting position will give a perfectly level transom.

Slide the transom over the end of the cleat. Fix to the outer frame end first as per the procedure in section 7.3.2.

Drill a Ø4.50 clearance hole down thro' the transom and secure to cleat with a No.8 x 3/4" Pozi Csk Hd screw.

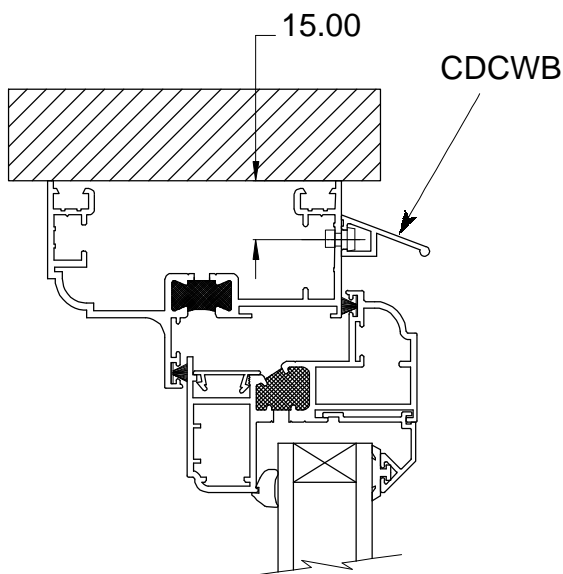
Figure 2.5c



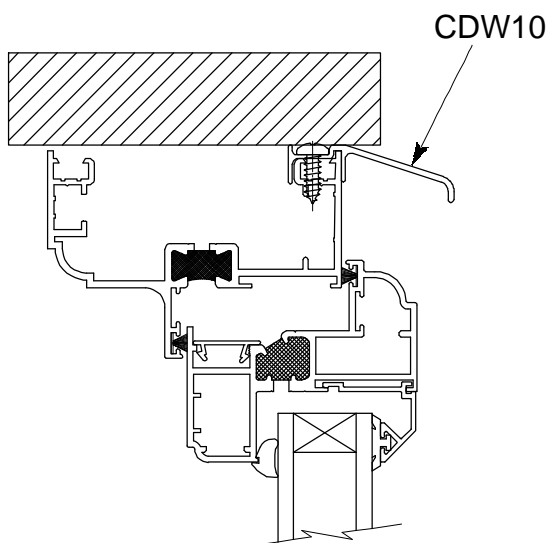
Fixing Arrangement
Figure 2.5d

7.4 Drainage Preparation

Note ;
For any window configuration, the following preparations and procedures must be carried out to achieve the published severe weather rating .

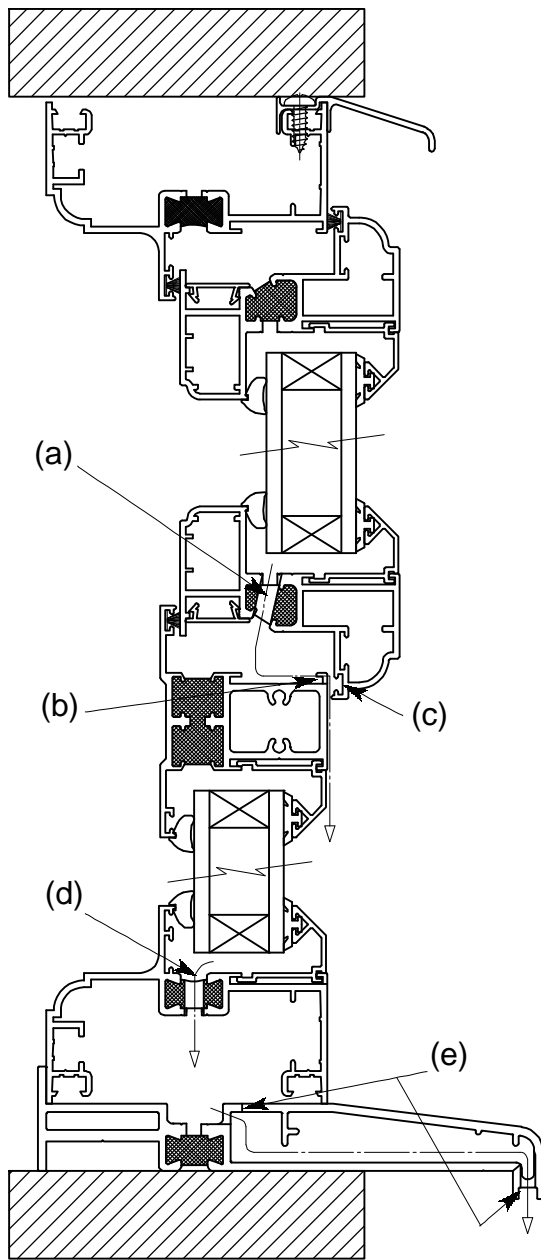


- Where vents are open to the elements, we strongly recommend the fixing of a clip-on weather bar above any opening vent. Section CDCWB can be clipped on to face fixed rivets (W300), this will help disperse excessive water away from the top of the vent.



- Alternatively CDW10 can be fitted at the head, this will sit on top of the head and require screw fixing down with suitable fixings.

Figure 2.6



- For all opening vents, machine 2 slots 5mm wide x 25mm long thro' the thermal area. Each slot is to be 100mm from each end, as per position (a). Vents over 900mm wide will require a mid slot.

- Where an opening vent sits above a transom, a small nib 20mm long in the bead area requires removing, (b) 100mm from each end and centrally where necessary. Refer to jig W646 cropping tool. Do not drain into transom.

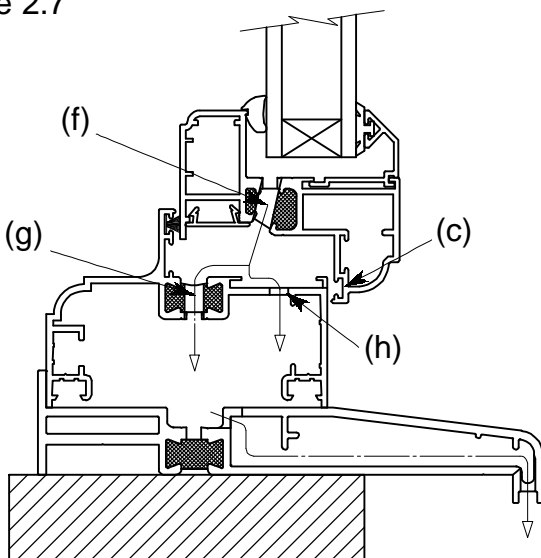
- Leave woolpile out along bottom edge of vent or shave off the pile 20mm from each end, this will help air circulation and drainage properties. (c)

- For fixed vents, machine 2 slots 5mm wide x 25mm long thro' the thermal area. Each slot is to be 100mm from each end. (d). For vents over 900mm wide, a mid slot will be required centrally. Alternatively, slots of similar size and position can be applied thro' the outer frame bead area. Where this procedure is used, notch beading leg locally to enable easier drainage.

- Where the window frame sits on an add-on cill, if not already supplied prepared, drainage slots must be added. Slots are required in two areas as per (e), these slots are to be offset to each other by 50mm. Both slots are 5mm x 25mm long and at 200mm intervals, the first being 100mm from the end.

- Make sure that profiled plugs are fitted 75mm from each end. See section 7.5 for fitting instructions.

Figure 2.7

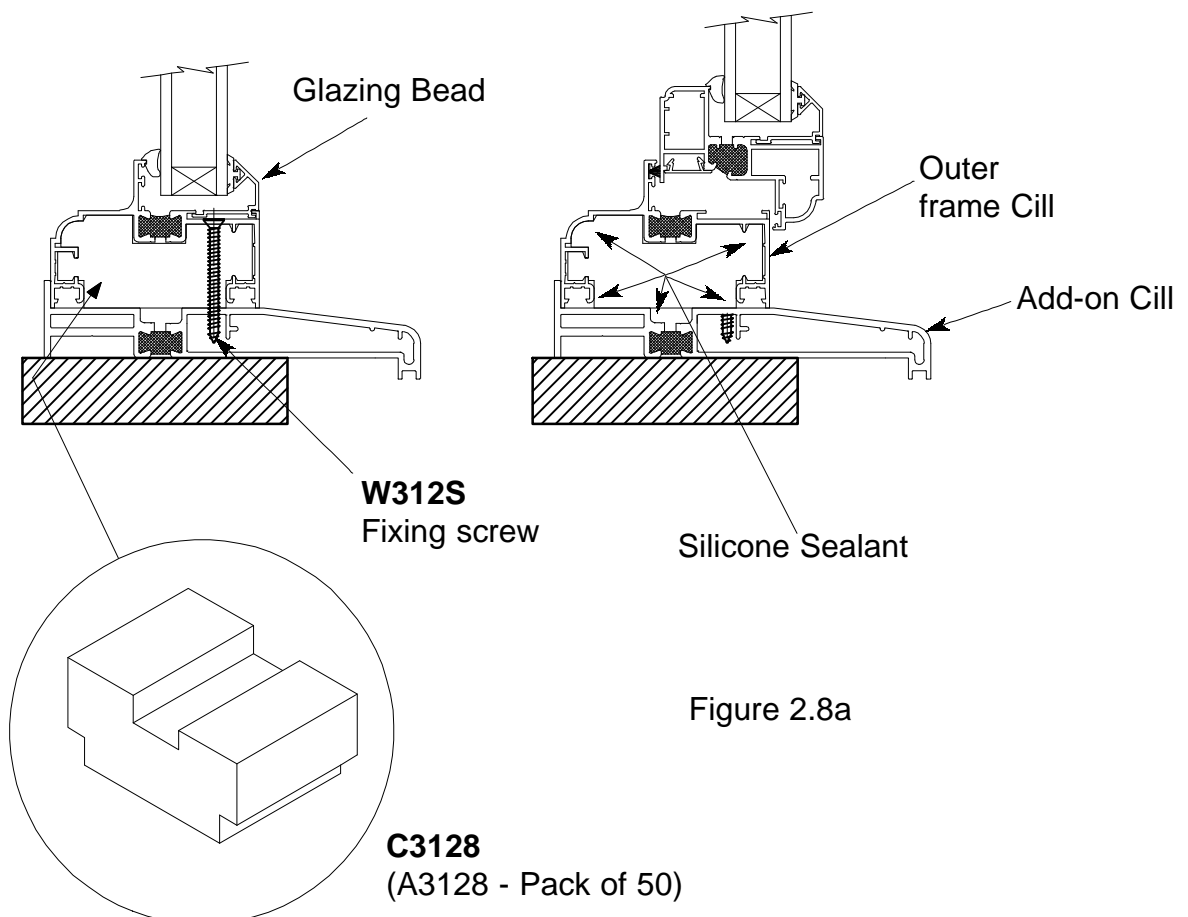


- Where an opening vent is directly above the outer frame, machine 2 slots 5mm wide x 25mm long thro' the thermal area. Each slot is to be 100mm from each end, as per position (f). Vents over 900mm wide will require a mid slot.

- The slot in the outer frame is positioned depending on how the vent is hung. For a side hung vent, drainage should be thro' the thermal area as per (g). An Ø8.00 hole will also be required in the bead channel, this is in the opposite corner to the hinge track (h). If top hung, drain thro' slots in the bead channel as per (h).

7.5 Add-on Cills

- The add-on cill may be fitted either in the workshop or on site. Cills can vary in width from 95mm to 155mm, with both standard and load bearing options. Refer to cill profiles.
- Take a profiled plug and apply a liberal amount of silicone sealant to the plug location area on the cill, making sure the thermal break channel is fully sealed.
- Fit a black profiled plug (C3128) 75mm from each end of the outer frame cill, see figure 2.8. This is essential to prevent water draining down through the window into the cill, from tracking along and penetrating into brickwork/masonry.
- To fit the add-on cill, place the completed unglazed frame down on to the add-on cill in the position required. Drill Ø3.50 pilot holes down through the outer frame bead channel, into the add-on cill. Open up the holes in the outer frame to Ø4.50 clearance holes and countersink to suit No.8 x 1 3/4" C'sk Pozi Hd screws (W312S). Fixings should be at 300mm intervals or other suitable positions.
- When fixing down thro' outer frame, where a fixed panel locates, the glazing bead may require notching back locally to miss fixing screw heads. Fixings down thro' outer frame where a side hung opening vent locates, will require planning for alternative positioning.
- If alternative fixing screws are used, care must be taken not to drill full depth breaking thro' both add-on cill walls or problems with water penetrating brickwork will occur.



7.6 Glazing

Refer to Manual C2027 Casement Windows for all glazing details.

7.7 Monaframe (75mm) Fixing Lugs

A fixing lug (C558) is available within the range to suit any 75mm Monaframe outer frame. Supplied in packs of 100 (A558), the galvanized steel lug gives an additional method of fixing frames on site.

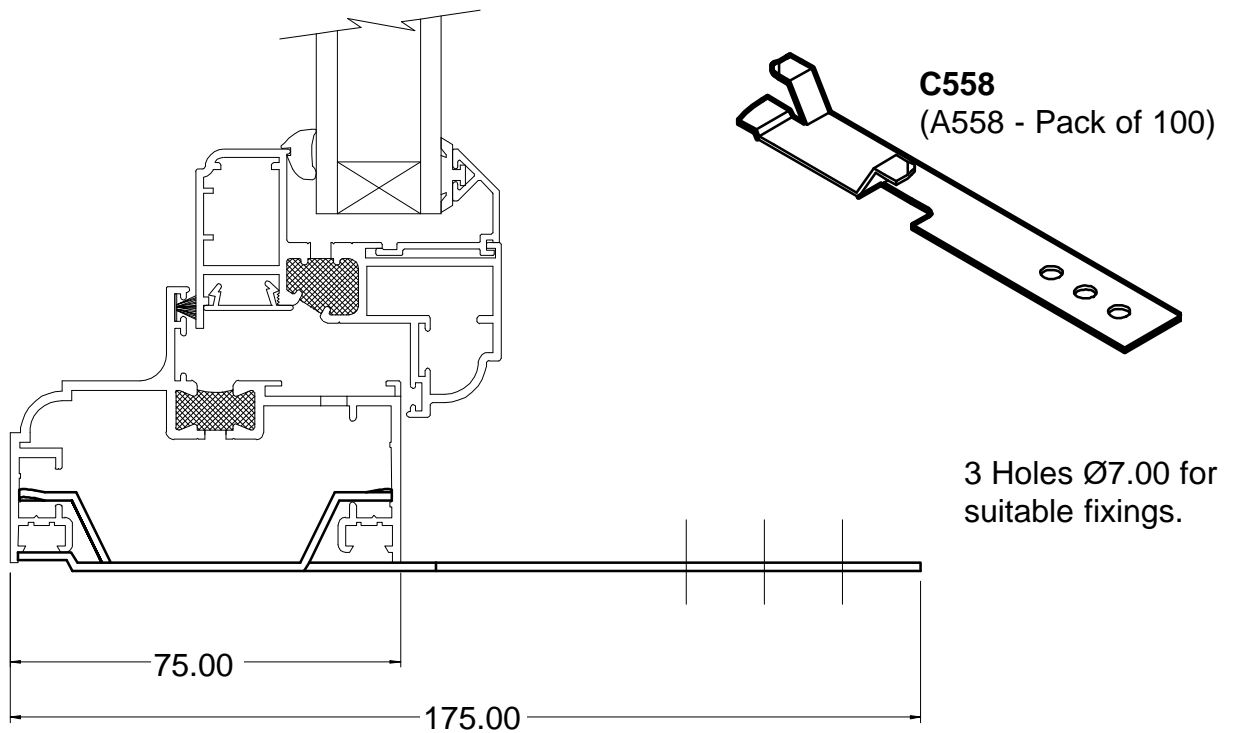


Figure 2.8b

7.8 Security Glazing Clips

The Security Glazing Clip is an accessory which is highly recommended when installing Monafame windows where standard external glazing is required. The product is available for several ranges of glass thickness and made from a high tensile steel.

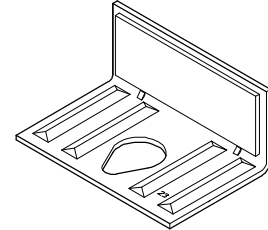
The glazing clips are supplied in packs of 100, with self-adhesive protection pads and suitable fixing screws. The four sizes available are;

AW720/100 - Pack of 100 to suit 20mm glazing unit.

AW721/100 - Pack of 100 to suit 24mm glazing unit.

AW722/100 - Pack of 100 to suit 25mm glazing unit.

AW723/100 - Pack of 100 to suit 28mm glazing unit.



To fit the clips first decide where they are to be located. The clips can be positioned in one of two ways, either by fixing one clip centrally about each frame member (i.e. 4 off) or fit 2 clips on each vertical frame member. It is recommended that where the second option is used, a further clip fitted at the top horizontal should be fitted.

Note, fitting instructions (**C2128**) are supplied with every pack.

W694 -Drill Jig

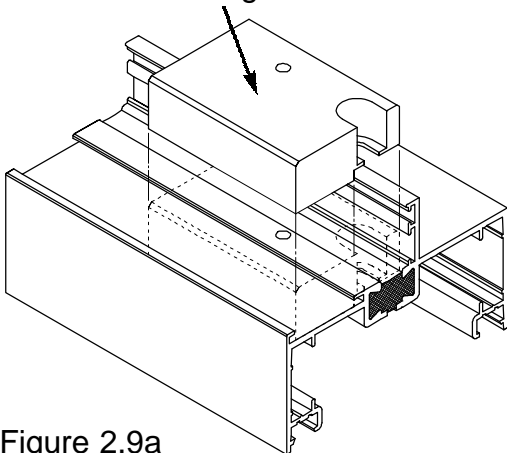


Figure 2.9a

- Once the required clip is chosen and the orientation decided upon, the drill jig **W694** should be located within the bead frame and a $\text{Ø}3.50\text{mm}$ pilot fixing hole drilled.

- Fit the No.8 x 3/4" Pozi Pan Hd self tapping screw into the hole using the jig to set the screw depth (i.e. 1mm proud). Apply the self-adhesive pad to the clip onto its flat face, this will sit against the glass when finally glazed.

- Position the glass setting blocks and sit the sealed unit onto them adjusting the glass into its final position. Offer the clip up and locate over the head of the screw, pulling it outward away from the fixing. Repeat exercise for each clip. The correct corresponding glazing bead can then be fitted, with the wedge fitted internally pushing against the clip.

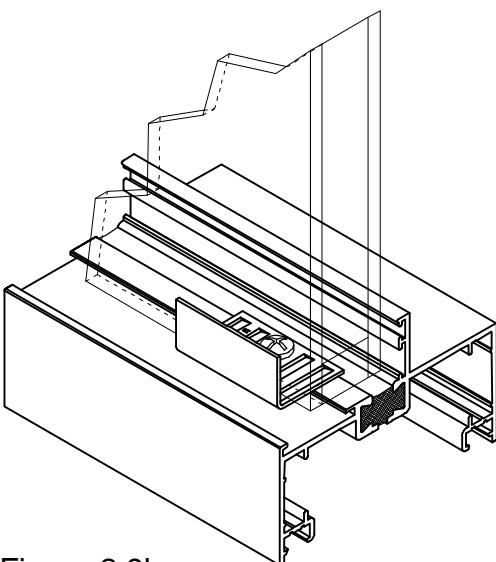


Figure 2.9b

Note ;

The number stamped on the clips are one digit lower than the sealed unit nominal size to which it's used on i.e. '23' on clip is to suit 24mm glazing.

7.9 Vector Excluders

- Vector Excluders are a recommended additional component, to be used when standard friction hinges are fitted within Monarch window configurations. The Vector Excluder will ensure that when fitted in combination with standard hinges and suitable locking gear, enhanced security is achieved to exceed the requirements of BS7950.
- Two pairs are needed, butted up against the hinge in both corners.
- Position the excluder in frame corner, ideally against/above hinge, and position against the corresponding mating edge of the frame, approx 10.75mm as per Fig 2.10. Pilot drill Ø3.50 holes thro' the Excluder slots into the frame and fix with No.8 x 3/8" C'sk Pozi Hd screws. Repeat for vent using the 33.25mm positioning dimension, but make sure they both line up before final fix.
- Check the window operates smoothly, adjusting where necessary.
- Excluder can be fitted to all Monarch standard outer frames and vents. CKV18 is shown with excluder butting against inner wall, other vents will require marking out to the 33.25mm positioning dimension.

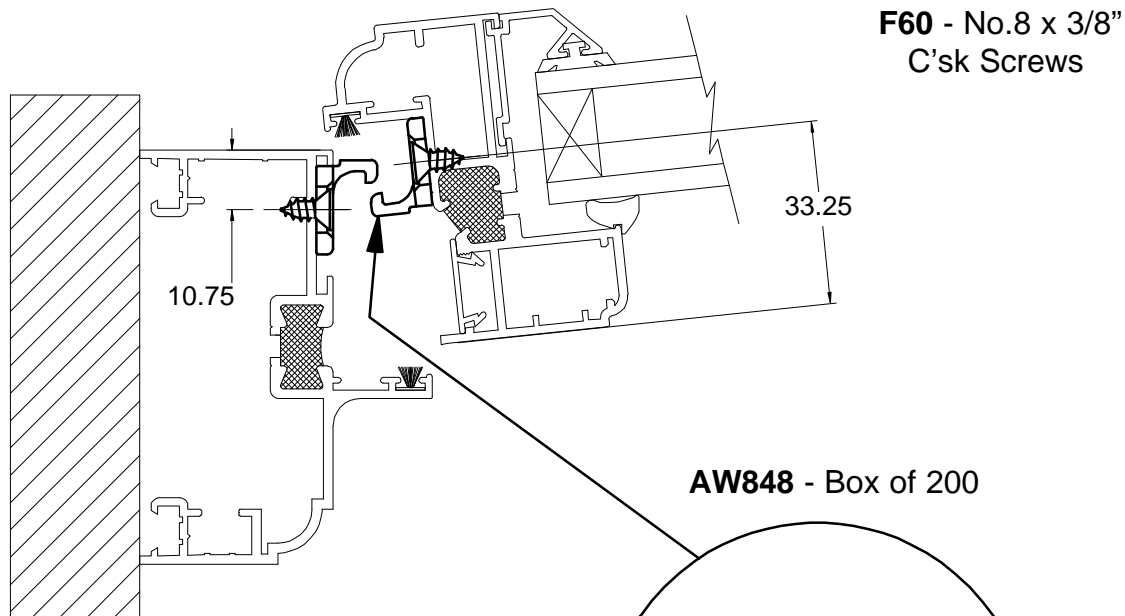
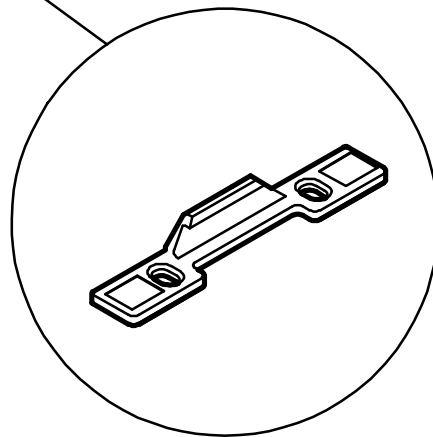
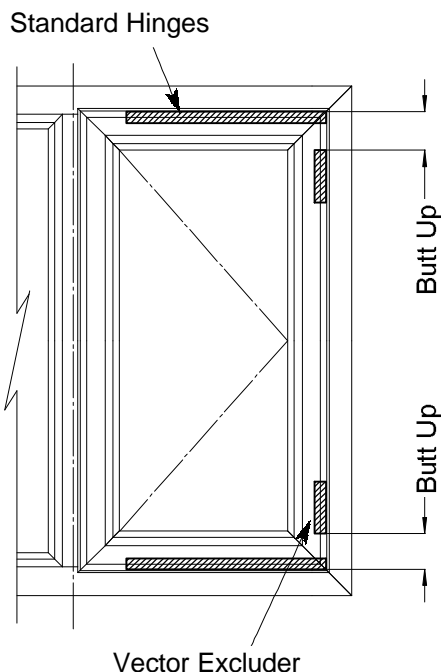


Figure 2.9c

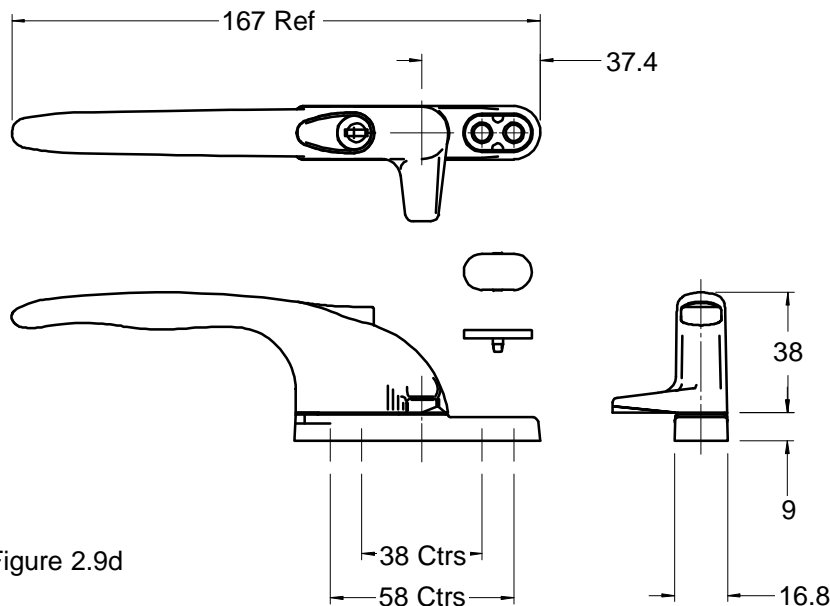


Note
 - The Vector Excluder can be retro-fitted easily and is suitable for Standard Defender, Restrictor, Easy-Clean and Egress hinges.

7.10 Cockspur Handles

- Where a face fixed locking system is required, we can supply a 'push to unlock' lockable Virage Cockspur handle (**AW832 & AW833 W/E/S/G**). This handle is a high quality die cast barrel lock with an aesthetic ergonomic design.

- This handle is available in boxes of 25 - white, black, silver and polished gold, it can easily be retro fitted and has identical fixings to the previous Merlin Cockspur handles.



- Each handle is supplied with its own key and cover

Figure 2.9d

- Handles should be fixed with suitable 4 off - No.8 pozi countersunk screws, the length of screw will depend on which vent section the handle is secured to. Care should be taken where fixings protrude into glazing areas, excessive length may cause fouling with glass units.

Drill jig **W687** should ideally be used to position the handle and mating strike plate.

- Cockspur strike plates **AW134 W/E/S** are available in packs of 100, with a softline version available for use with CKF18 and CKF19 being **AW801 W/E**.

All holes to be drilled
 $\text{Ø}3.20$ with the outer frame
 holes opened up to $\text{Ø}4.80$.

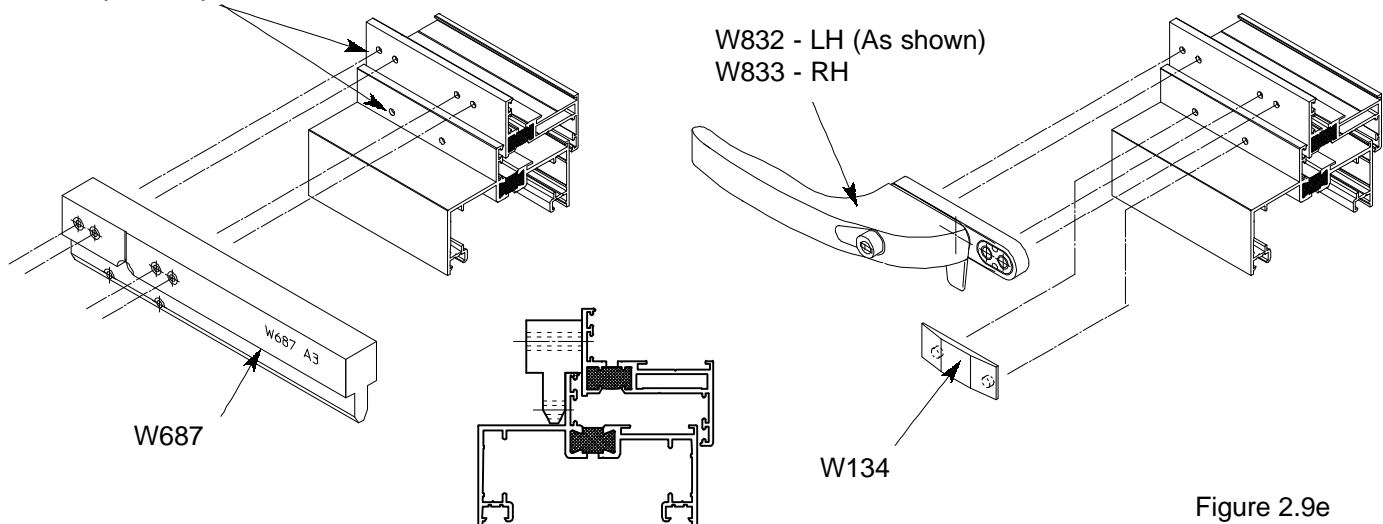


Figure 2.9e

7.11 Letterplates

- Monarch letterplate A1645 W/E/S/G can be fitted to CKTR8 as per scheme shown below.
- The letterplate should be fixed with suitable No.8 Pozi Csk self tapping screws from the inside of the building only by lifting the flap to gain access. Care must be taken not to over tighten the screws into the mating plastic sleeve or to damage the flap.
- The letterplate will overlap the bead, so selection of beading will be effected. Only flat faced beading will be suitable to prevent unsightly steps, i.e. CDB02,04,05,11 and 12 all have flat faces.

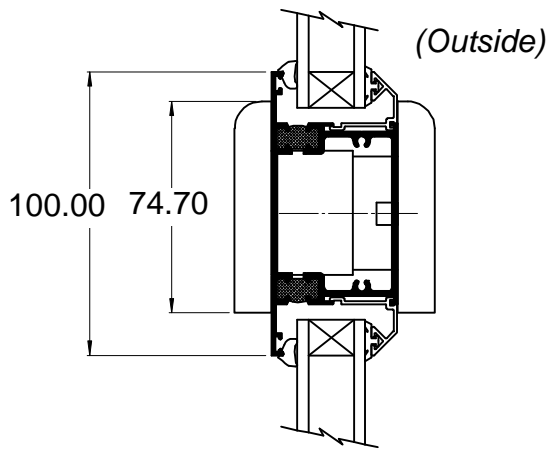
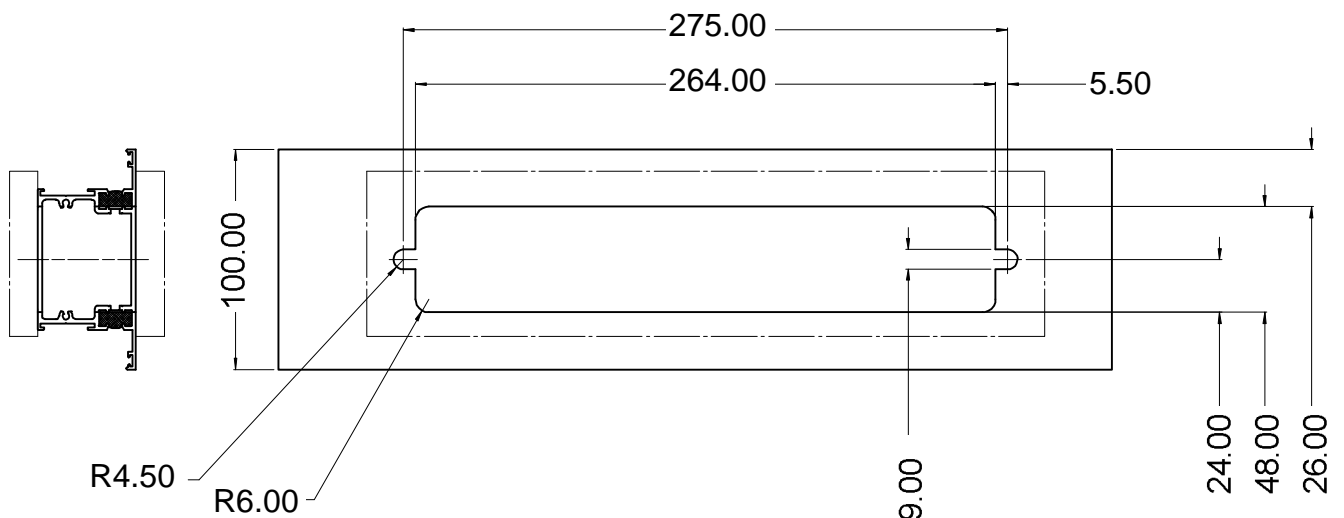


Fig. 2.9f



- The above preparation is only a guide to an equal / equal prep position within the transom, it will cause the letterplate to be visibly offset. Taking into account the 5mm offset, some customers may wish to move the prep 'down' to give an even letterplate sightline. The recess in the rail may determine position.

8. BAY WINDOW CONSTRUCTION

8.1 Introduction

This paragraph gives details of surveying considerations, preparation of a cutting list and preparation and construction techniques of direct fix bay windows.

a.2 Surveying Considerations

The direct fix bay window system is not designed to be load bearing.

The masonry aperture must be square and sufficiently sound to enable secure fixing to be made.

Establish the width of cill required (inside to outside dimension) to provide an overhang so that storm water drips well clear of the building and ensure that drainage slots or holes at the front underside of cill are well clear of the masonry.

In order to confirm the position at which the return jambs are to be fitted it may be necessary to remove plaster or rendering.

Record cill horns required, if any.

For preference use a direct fix bay survey sheet as shown on page 21 to enter surveyed figures.

Accurate surveying is essential and will assist both fabricator and fitter.

ALL SEGMENTS NUMBERED FROM LEFT TO RIGHT VIEWED FROM OUTSIDE

No. OF SEGMENTS

CILL WIDTH REQUIRED

(TICK AS APPROPRIATE)

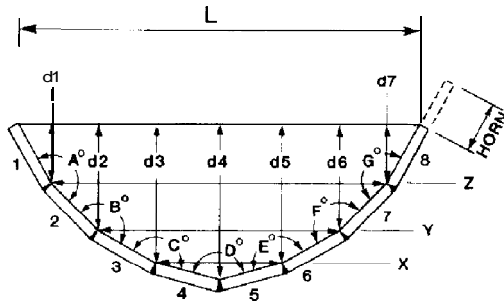
a		
135	<input type="checkbox"/>	M994
155	<input type="checkbox"/>	M993
190	<input type="checkbox"/>	M992

HORN DIMENSION (mm)
(IF APPLICABLE)

OVERALL HEIGHT (mm)
(MINUS FITTING ALLOWANCE)

COLOUR : WHITE

BROWN



BASE LINE	L	
DEPTH TO SEGMENT JOINT dn	d1	
	d2	
	d3	
	d4	
	d5	
	d6	
	d7	

SEGMENT LENGTH	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	

INTERNAL JOINT ANGLE	A	
	B	
	C	
	D	
	E	
	F	
	G	

CHORD LENGTH	X	
	Y	
	Z	

SKETCH OF BAY

(INCLUDING SPECIAL NOTES)

8.3 Accessories and Jigs

In addition to the outer frame and add-on cills the following accessories and jigs are required in the construction of direct fix system bay windows.

Description	Code
Frame clip assembly	A3146
Cill Brace (90°-114°) 10 per pack	A3147
Cill Brace (112°-137°) 10 per pack	A3148
Cill Brace (136°-160°) 10 per pack	A3149
Screw Pack for Cill Braces A3147-9	AF109
Drill Jig for Cill Brace (90°-114°)	C3157
Drill Jig for Cill Brace (112°-137°)	C3158
Drill Jig for Cill Brace (136°-160°)	c3159
Bay Cover Trim (90°-114°) 5m	CDBC1
Bay Cover Trim (112°-137°) 5m	CDBC2
Bay Cover Trim (136°-160°) 5m	CDBC3
Frame Drill Jig' for Bay Trim	C3160
Stepped Drill for use with C3160	C3161
Bead (rubber - for inner corner joint)	A3132
Wedge (rubber - for each side of bay trim)	A3133
Screw pack for cill brace. 250 per pack	AF109

Note: Bay windows may be clipped and screwed together (in the workshop) but for on site assembly, i.e. upstairs bays, they can only be screwed together as they are built up progressively from one end.

8.4 Component Size Equation

All information and measurements required to calculate the components sizes referred to below are to be taken from the survey sheet an example of which is shown on page 2.21.

Cut Angle:

$$\text{Cut angle} = \frac{(180^\circ - \text{internal angle})}{2}$$

External cill length:

External cill segment length is equal to:

Internal cill segment length(inclusive of horns if any) plus
[Tangent of cut angle x-cill width (once for each angled cut)]

Window size

Due to the vertical upstand at the rear of the cill, the rear of the window frame will not sit flush with the rear of the cill, therefore to enable the window frames to meet at the corners they must be slightly longer than the cill to give a slight overhang.

To determine the additional width of the window frame, **consult** the graph in Fig 2.10.

Using the Internal Joint Angle from the survey sheet, read off the Adjustment Figure (mm) once for each angle. e.g. for an internal angle of 130° the width of the window frame must be increased by 1.05 mm.

Square cut the appropriate Bay Cover Trim to the height of the window frame.

8.5 Component Preparation (Fig 2.11)

Calculate all add-on cill lengths and cutting angles as per the equations above.

Cut each cill to the required external length measurement and to the calculated angles at the appropriate ends.

When all cill lengths have been cut lay them out as shown on the survey sheet and check that each cill length is cut to the correct external length and angles.

Select the appropriate cill brace drill jig (C3157/8/9 dependent on the internal angle shown on the survey sheet). Butt the jig against the appropriate angled end and drill the four holes to accept the correct cill brace as shown in Fig 2.11. Prepare each cill in turn,

INTERNAL JOINT ANGLE (DEGREES)

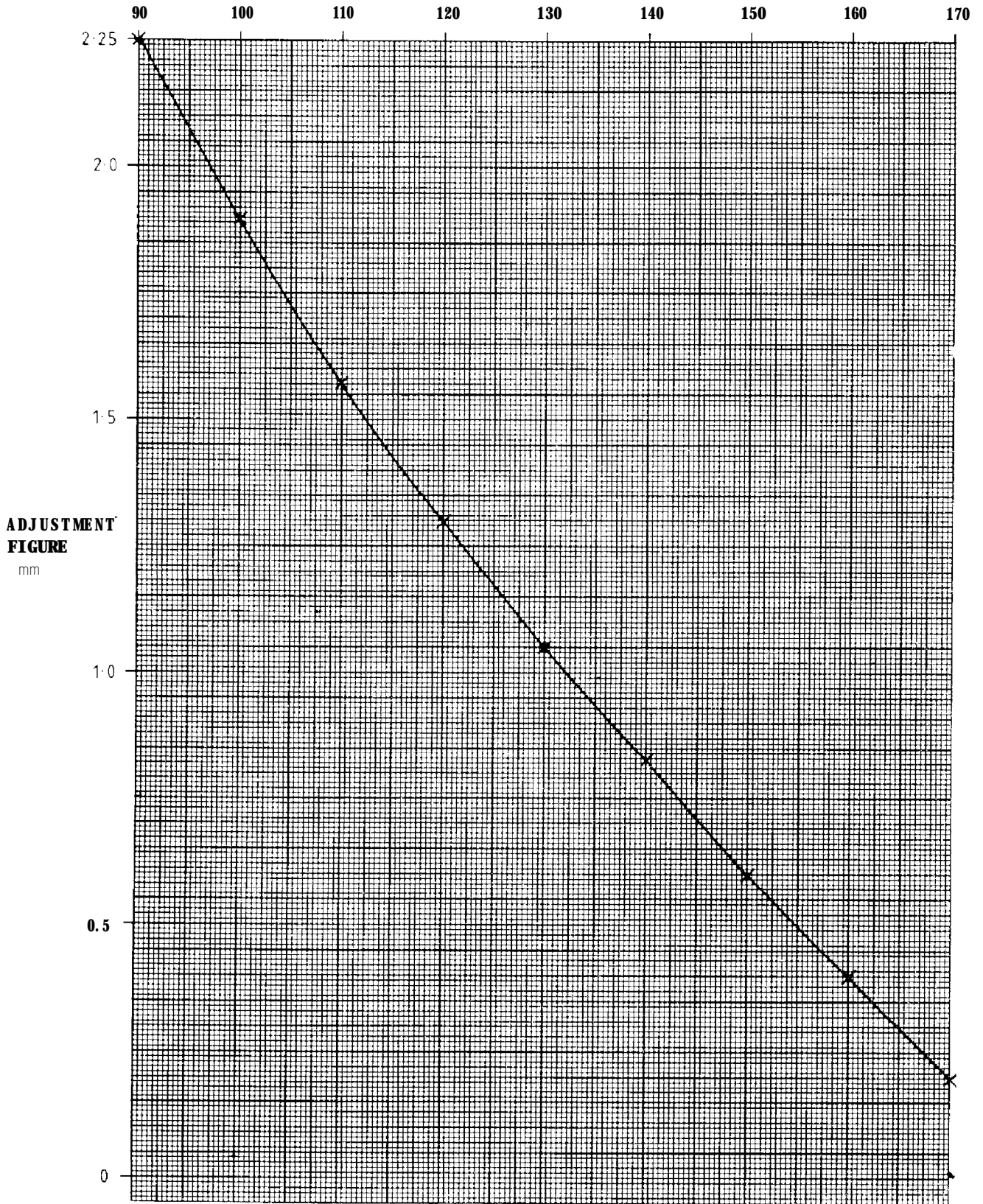


Figure 2.10 - INTERNAL JOINT ANGLE GRAPH

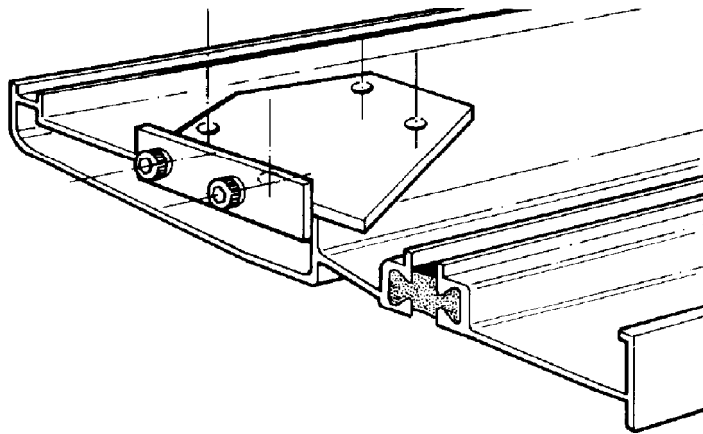


Figure 2.11 - BAY WINDOW CILL BRACE
DRILL JIG

Apply small gap sealant to all mating surfaces.

Join adjacent segments using the appropriate angled brace.

Secure the braces with countersunk machine thread screws code F109 as shown in Fig. 2.12.

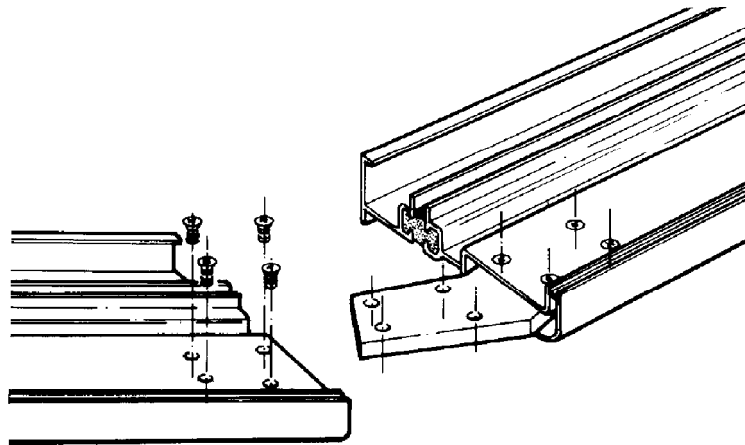


Figure 2.12 - BAY WINDOW BRACES

8.6 Bay Window Assembly

There are two methods of assembling direct fix bay windows : method 1 is where the bay can be fitted as a completed assembly i.e. on a ground floor and method 2 is where the bay has to be assembled during installation i.e. on upper floors.

Provide drainage holes and slots in the same manner as for the casement windows (refer to para 7.2.6).

8.6.1 Method 1 : Workshop Assembly (Figs 2.13, 2.14)

For each window joint cut a length of Beading A3132 to the height of the window. Press the U shaped part of the beading into the channel on the inner edge of one of the window frames with the single 'leg' of the beading between the frames. Refer to Fig 2.13.

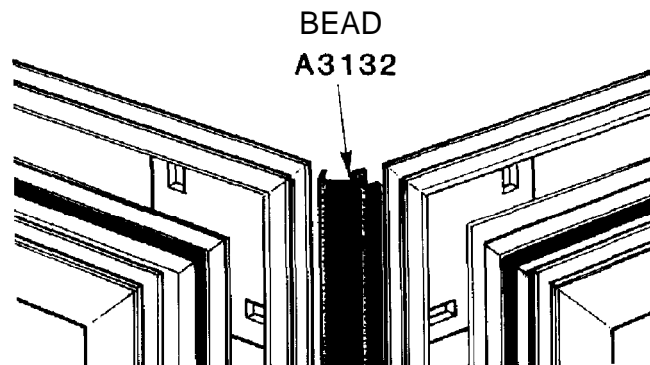


Figure 2.13 - FITTING BEADING A3132

Place the completed, but unglazed frame ensuring that adjacent inner corners are butted together on the add-on-till in the position required. Drill 3.2mm holes at 300mm intervals in the cill bead groove through to the add-on cill. Secure the window frame to the add-on cill using No.8 x 1 3/4" counter sunk self tapping screws.

Clip at least four Frame Clip Assemblies (A3146), dependent on the size of window, into each inner window joint as shown in Fig 2.14 and tighten fully.

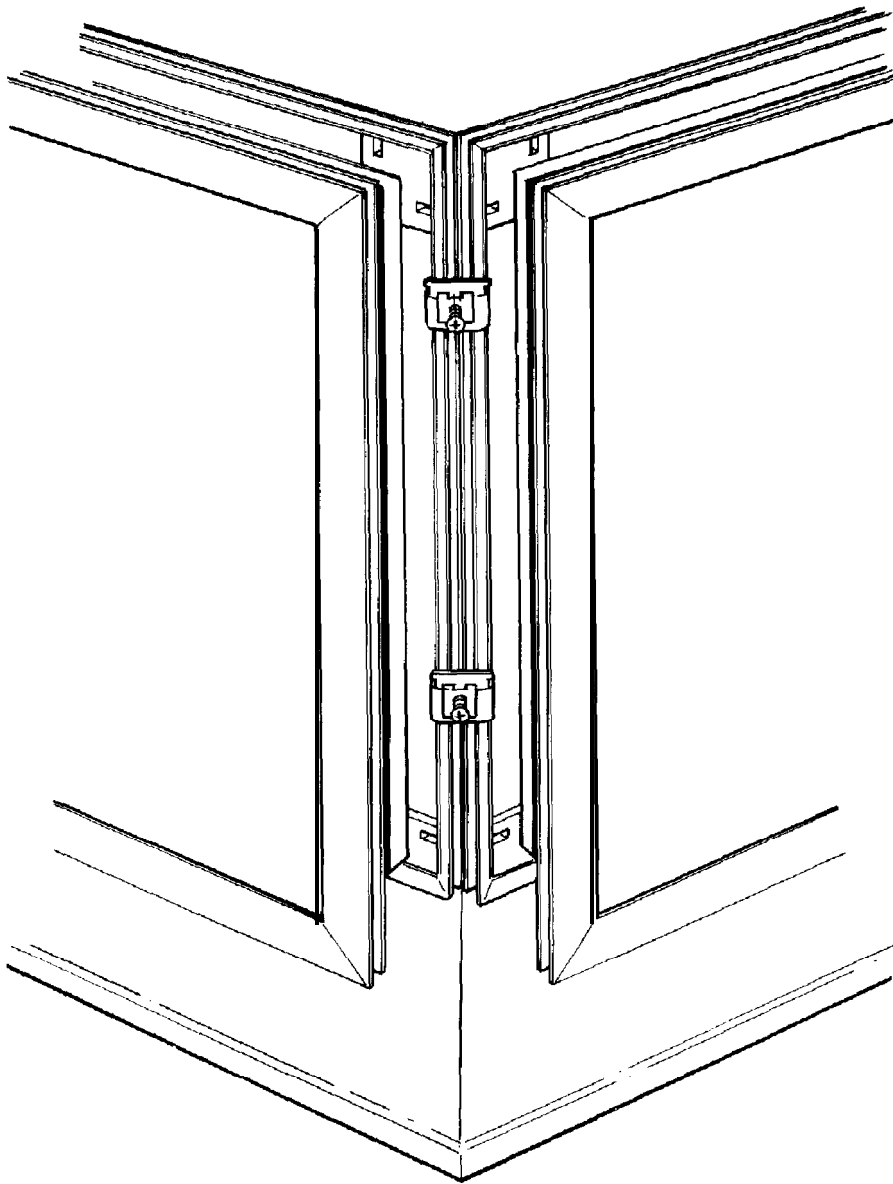


Figure 2.14 - FRAME CLIP ASSEMBLIES

Engage the grooves on either side of the cover trim onto the top of the outer edges of the joint. Slide the trim down until it is flush with the cill.

Cut the Wedge Gasket A3133 to the same height as the bay cover trim and insert it between the windows and the bay cover trim with the tapered edge innermost. Refer to Fig 2.15.

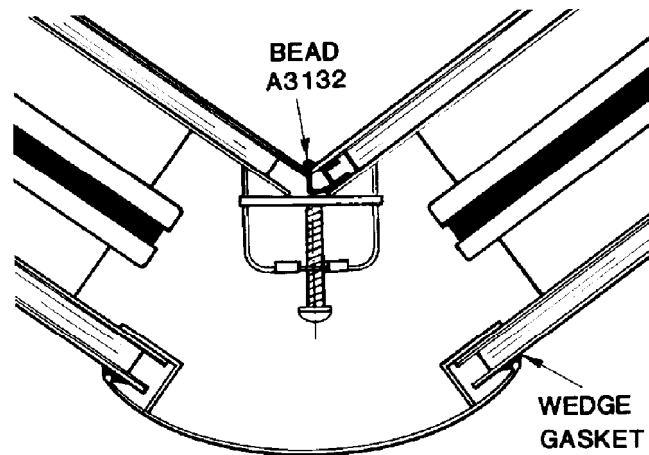


Figure 2.15 - CLIP ASSEMBLY AND WEDGE GASKET

The assembled window can be transported, with care, to site for installation.

8.6.2 Method 2 : On-Site Assembly (Fig 2.16)

Fit the assembled cill onto the masonry.

For each window joint cut a length of Beading A3132 to the height of the window frame. Slide the U shaped part of the beading into the channel on the inner edge of one of the window frames of the joint.

Fit the return windows on to their respective add-on cill segments. Drill 3.2mm holes at 300mm intervals in the bead groove through to the add-on cill. Secure the window frames to the add-on cill using No. 8 x 1 3/4" counter sunk self tapping screws.

Slip a bay cover trim onto the outer edge of the first return window frame. Offer up the second window frame and engage the outer edge into the other groove of the trim. Ensure that the gasket A3132 is trapped in the inner joint of the two windows. Position the second window to sit correctly at the joint. Use adhesive tape to temporarily secure the trim cover in position.

Using the above procedure install the remaining window frames. Secure the frames to their segments by drilling 3.2mm holes at 300mm intervals in the bead grooves through to the add-on cill and using No 8 x 1" counter sunk self tapping screws.

Fit the wedge gasket A3133 between the windows and the cover trims with the tapered edge innermost.

Secure the cover trim to window frames by using drill jig A3160 and special drill A3161. Position the drill jig A3160 against the outside edge of the outer frame and drill a hole through the window frame and bracket of the bay cover trim. Refer to Fig 2.16. Drill at least four holes in each frame edge through the cover trim.

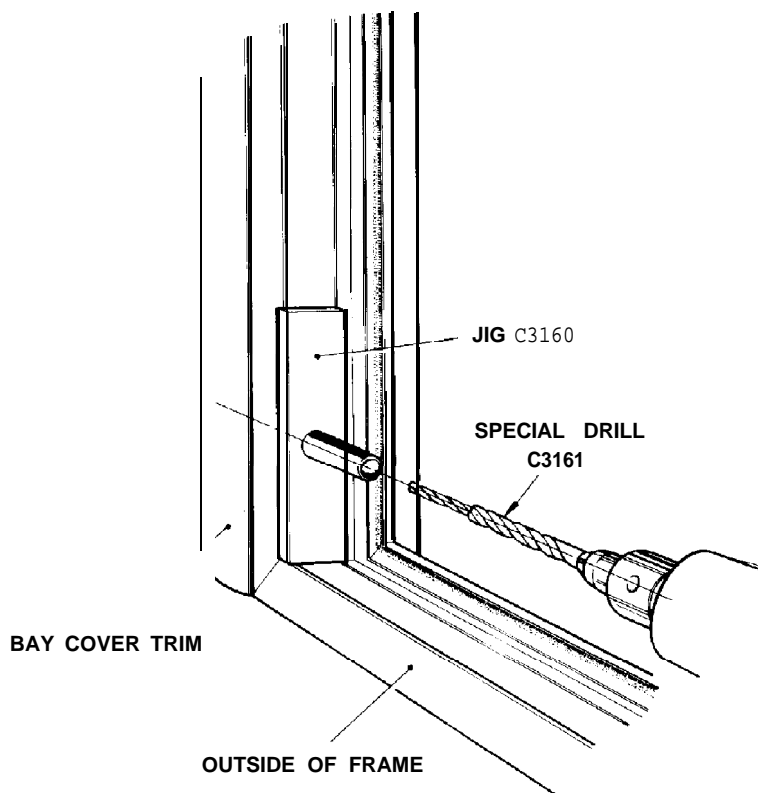


Figure 2.16 - DRILLING SECURING HOLES
IN EACH FRAME

Fix the cover trims to the frames using No 8 x 1" counter sunk self-tapping screws as shown in Fig 2.17.

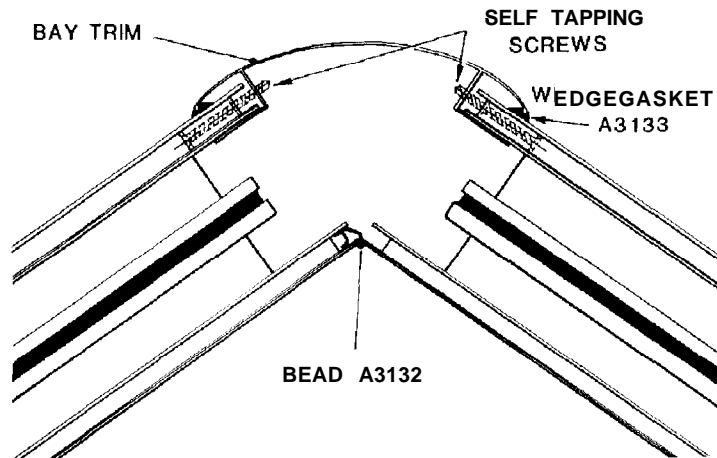


Figure 2.17 - FIXING THE TRIM TO THE FRAME

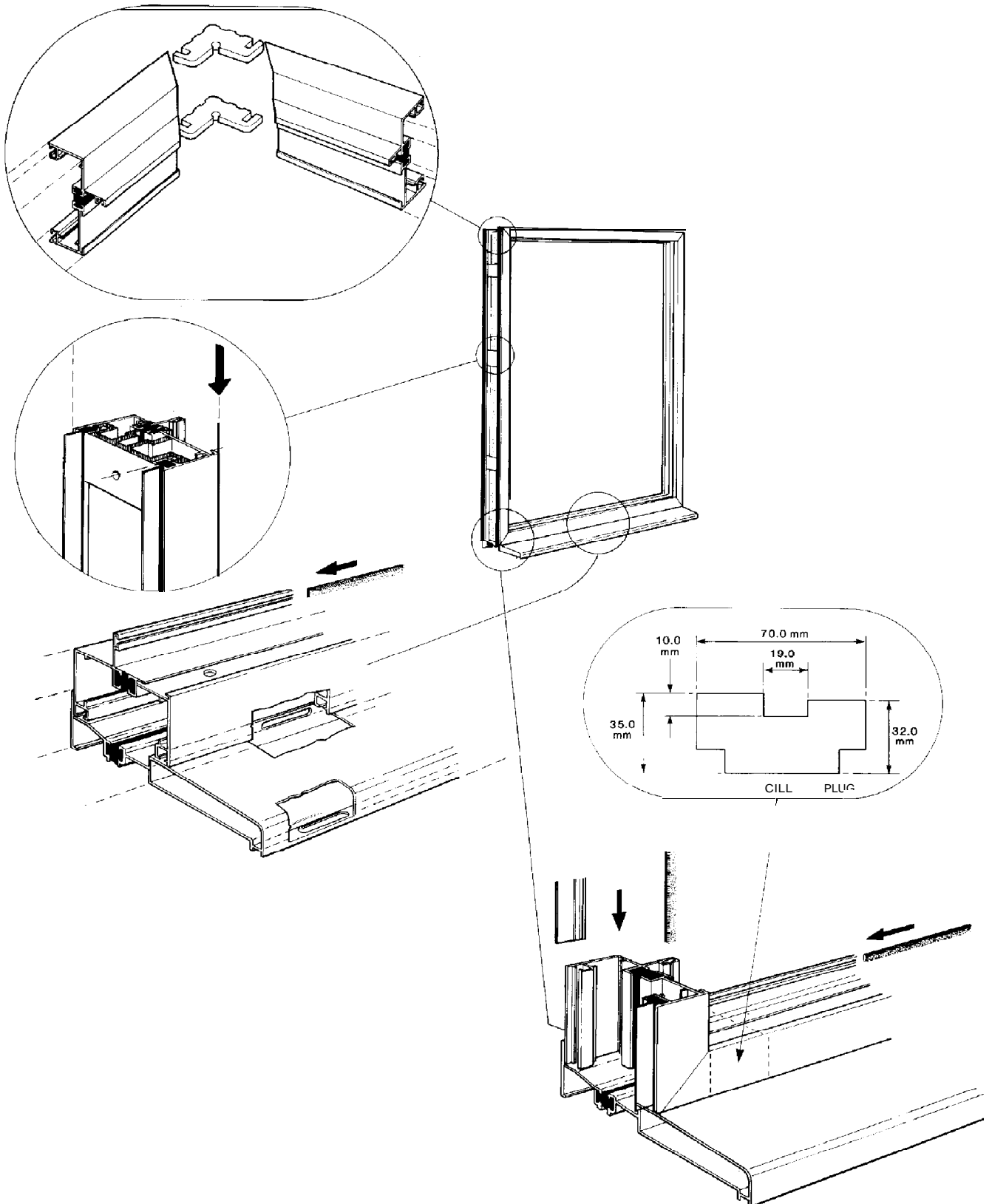


Figure 2.18 - CASEMENT WINDOW - OVERALL DIAGRAM

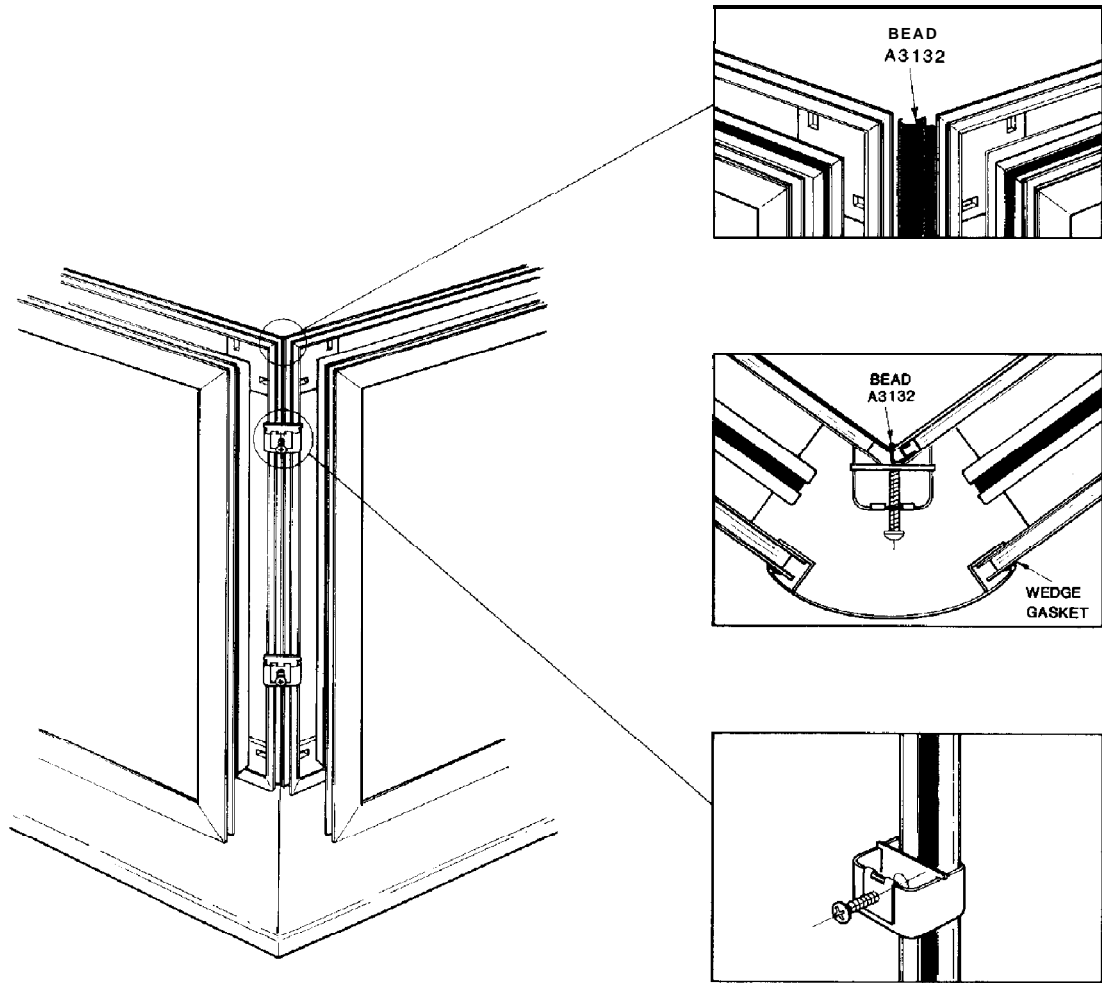


Figure 2.19 - BAY WINDOW - OVERALL DIAGRAM (1)

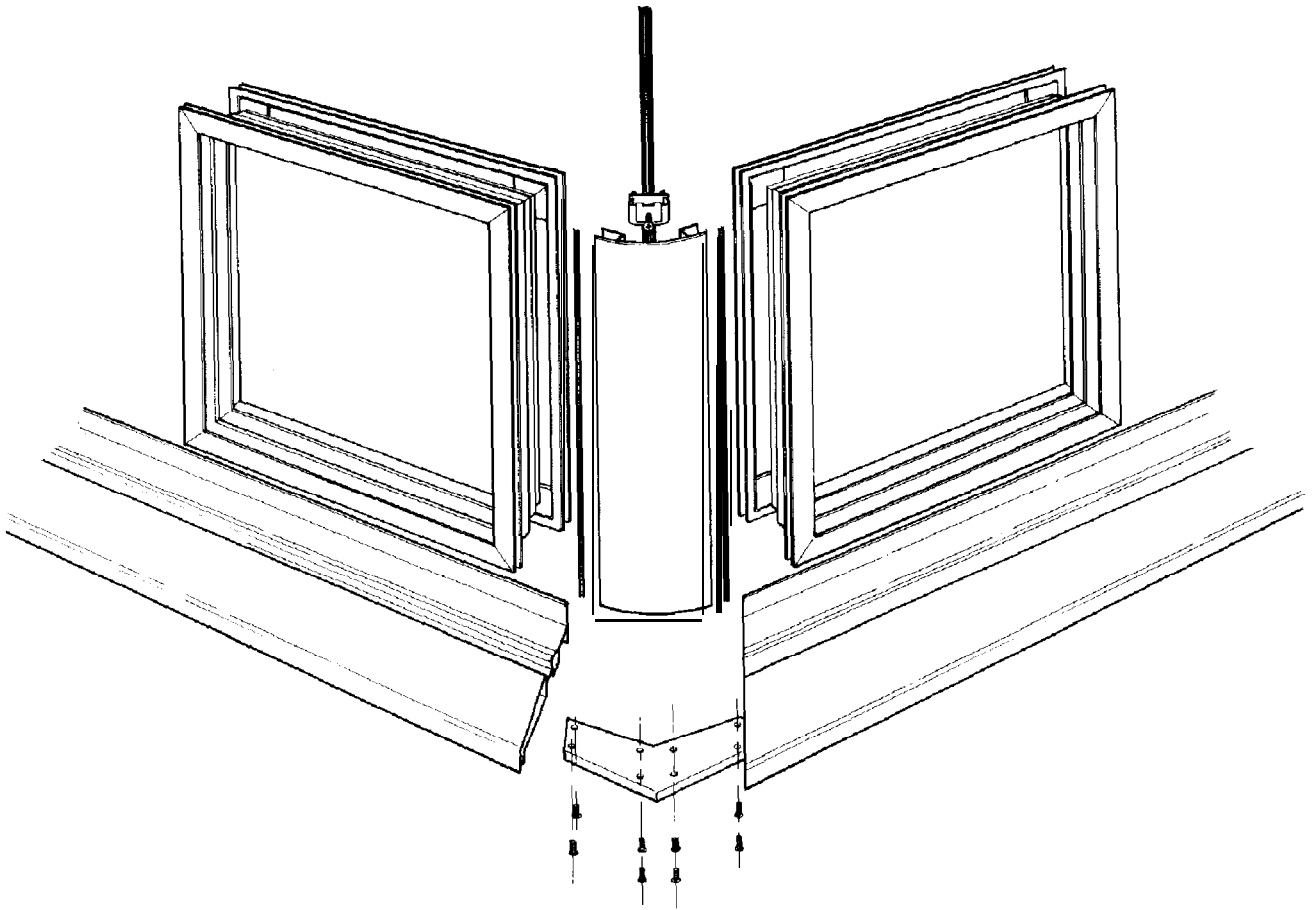


Figure 2.20 - BAY WINDOW - OVERALL DIAGRAM (2)

9. BAY WINDOW CONSTRUCTION - Type 2 - Using Mullion Pole.

9.1 introduction

This section gives details of surveying considerations, preparation of a cutting list and preparation and construction techniques of Monaframe bay windows.

The window construction techniques are as detailed in the section dealing with Monaframe casement windows. The cill drainage preparations are as shown in **fig 2.9** on page **2.18**.

9.2 SURVEYING CONSIDERATIONS

9.2.1 Load Bearing Data

The system is load bearing within the design parameters defined in the following graphs (figs 2.21 & 2.22)

It is essential that the given limits are **not exceeded**. Therefore when intending to use the bay as a load bearing structure the following data will assist a structural engineer to establish the optimum acceptable configuration.

The undermentioned criteria must be observed.

- Loads must be applied axially only.

- Interpolation of the graph is acceptable provided that the intermediate figures are always related to the next lowest value on the graph.

- Extrapolation is **not allowed**.

- For aggregate (total bay) load limits the above criteria apply, provided all poles are of equal length and are axially loaded. The total load capacity is limited by the widest bay pole mullion pitch.

- Building loads must be calculated by a qualified person, e.g. Structural Engineer, Architect etc.

- Overloading of the system may result in major building defects hence expensive repairs.

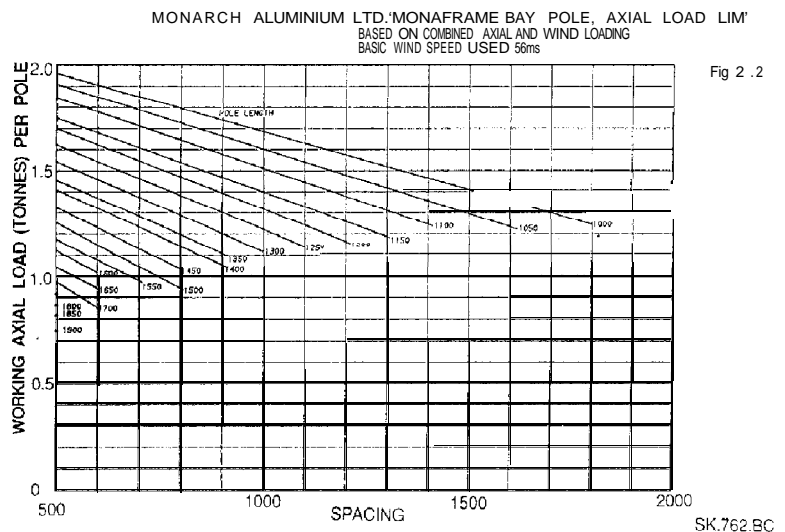


Figure 2.21

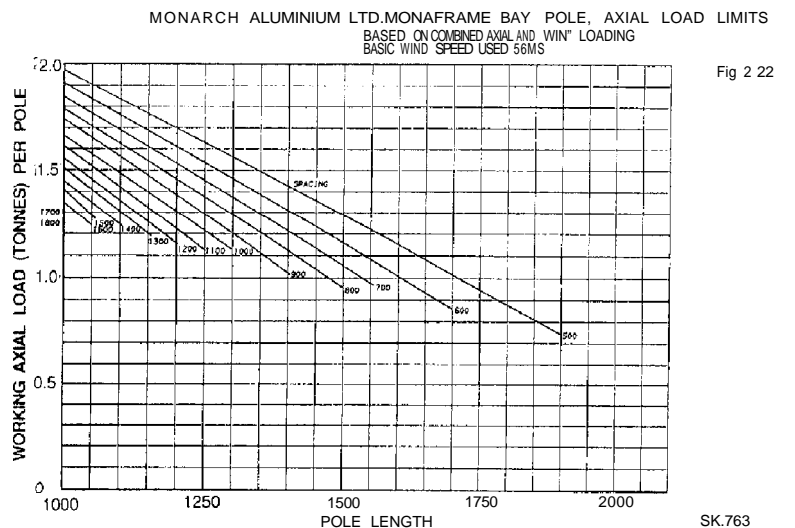


Figure 2.22

9.22 Site Considerations

The masonry aperture must be checked for squareness and be sufficiently sound to enable secure fixings to be made.

Establish the depth of the cill required (inside to outside dimension) to provide an overhang so that storm water drips well clear of the building, and ensure that drainage slots or holes at the front underside of the cill are well clear of the masonry.

In order to confirm the position at which the return jambs are to be fitted it may be necessary to remove plaster an&or rendering.

Record cill horns requirement, if any

For preference use a Monaframe Bay survey sheet as shown below to enter surveyed figures

Accurate surveying is essential and will assist both fabricator and fitter.

ALL SEGMENTS NUMBERED FROM LEFT TO RIGHT VIEWED FROM OUTSIDE

No. OF SEGMENTS

WIDTH REQUIRED 135 M994

(TICK AS APPROPRIATE) 155 M993

190 M992

HORN DIMENSION (mm)

[IF APPLICABLE]

OVERALL HEIGHT (mm)

(MINUS FITTING ALLOWANCE)

COLOUR : WHITE BROWN

EASE LINE	L
d1	
d2	
d3	
d4	
d5	
d6	
d7	

1	
2	
3	
4	
5	
6	
7	
8	

A	
B	
C	
D	
E	
F	
G	

X	
Y	
Z	

SKETCH OF BAY
(INCLUDING SPECIAL NOTES)

MONAFRAME BAY WINDOW SURVEY SHEET

9.3 EXTRUSIONS, ACCESSORIES AND JIGS**9.3.1 Extrusions**

M994	135mm Cill
M993	155mm Cill
M992	190mm Cill
CKBMN	Bay Mullion Pole
CKBMS	Bay Mullion Shoe
C3183	Bay Mullion Packer (PVC)

9.3.2 Accessories

A3192	Cill Brace Pack (10 Sets), comprising:
	Cill Brace - Inner - Male
	Cill Brace - Inner - Female
	Cill Brace - Outer - Male
	Cill Brace - Outer - Female
	Screws - Cill Brace - Inner
	Screws - Cill Brace - Outer

A3164	White/Brown	Cill End Cap - LH - 135mm
A3185	White/Brown	Cill End Cap - RH - 135mm
A3186	White/Brown	Cill End Cap - LH - 155mm
A3187	White/Brown	Cill End Cap - RH - 155mm
A3188	White/Brown	Cill End Cap - LH - 190mm
A3189	White/Brown	Cill End Cap - RH - 190mm

A3196	White/Brown	Infill plug
-------	-------------	-------------

AF139	No 10x 2 1/2" CSK Posi S/T Screw-Frame to Pole
-------	--

9.3.3 Jigs

C3190	Drill Jig - Cill Outer. Use 4.2mm Drill
c3191	Drill Jig - Cill - Inner. Use 3.5mm Drill
c3197	Drill Jig - CKDFF Protection
C3198	Double Step Drill - 10/5/4mm - use with C3197

9.4 COMPONENT SIZE EQUATIONS

All information and measurements required to calculate the components sizes referred to below are to be taken from the survey sheet, an example of which is shown on page 2.38

$$\text{Cut Angle} = \frac{(180^\circ - \text{internal angle})}{2}$$

9.4.1 External Cill Length.

External cill segment length is equal to:-

internal cill segment length (inclusive of horns if any) plus [Tangent of cut angle x cill width (once for each angled cut)].

9.4.2 Window Frame Widths

The window frame widths relative to the internal cill segment dimensions will vary dependent on the internal angle between segments.

The widths may be calculated by consulting the table below. Take the internal angle of the cills and apply the adjustment figure for each segment joint, Shown below is a sample result (Fig 2.23).

Internal Angle (Degrees)	Adjustment (mm)	Internal Angle (Degrees)	Adjustment (mm)	Internal Angle (Degrees)	Adjustment (mm)	Internal Angle (Degrees)	Adjustment (mm)
90.	2.3 0	113	-1 1.15	136	-21.4 1	159	30.12
91	1.61	114	-11.6 5	137	-21.82	160	-30.4 8
92.	0.9 3	115	-12.14	138	-22.2 2	161	-30.8 3
93.	0.2 6	116	-12.6 3	139	-22.6 1	162	-31.19
94	-0.3 8	117	-13.1 1	140	-23.0 1	163	-31.55
95	-1.0 3	118	-13.5 8	141	-23.4 0	164	-31.90
96	1.66	119	-14.0 5	142	-23.7 9	165	-32.2 6
97	-2.28	120	-14.52	143	-24.18	166	-32.6 1
98	-2.90	121	-14.9 8	144	-24.5 6	167	-32.9 6
99	-3.50	122	15.43	145	-24.9 5	168	-33.3 1
100	-4.1 0	123	15.69	146	-25.3 3	169	-33.6 6
101	-4.69	124	16.33	147	-25.7 1	170	-34.01
102	-5.2 7	125	16.78	148	-26.0 8	171	-34.3 6
103	-5.84	126	-17.22	149	-26.4 6	172	-34.7 1
104	6.4 0	127	17.65	150	-26.8 3	173	-35.0 6
105	-6.9 6	128	-18.08	151	-27.20	174	-35.4 1
106	-7.50	129	-18.5 1	152	-27.5 7	175	-35.7 6
107	-8.0 4	130	-18.94	153	-27.9 4	176	-36.1 1
108	-8.5 8	131	-19.36	154	-28.3 1	177	-36.4 5
109	-9.1 1	132	-19.7 7	155	-28.6 7	178	-36.6 0
110	-9.6 3	133	-20.19	156	-29.0 4	179	-37.15
111	-10.14	134	-20.60	157	-29.4 0	180	-37.5 0
112	-10.6 5	135	-21.0 1	158	-29.7 6		

e.g.

Segment X = Internal cill length plus or minus adjustment figure or figures.

Segment 1 $800 + 2.3 = 802.3$ (802)

Segment 2 $800 + 2.3 - 26.8 = 775.47$ (775.5)

Segment 3 $800 - 26.8 - 21.01 = 752.16$ (752)

Segment 4 $800 - 21.01 = 778.99$ (779)

Figures in brackets are sizes required to the nearest 0.5mm

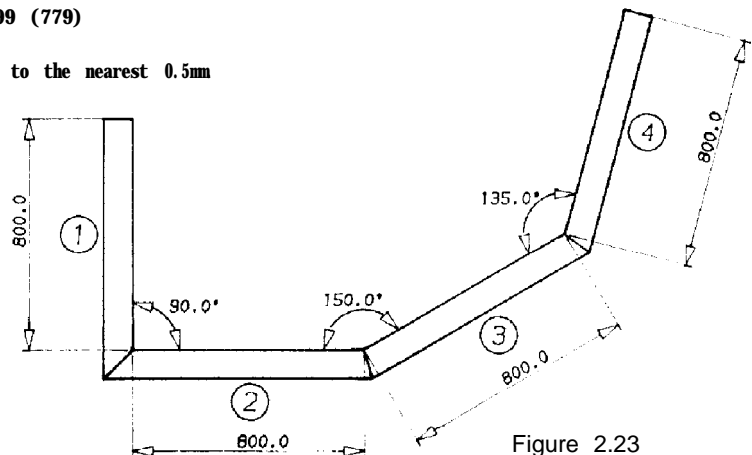


Figure 2.23

9.5 FABRICATING THE CILL JOINTS

9.51 Calculate all add-on cill lengths and cutting angles as per the equations above.

9.52 Cut each cill to the required external length measurement and to the calculated angles at the appropriate ends.

NOTE: Ensure cill is packed to lie flat on the saw bench before cutting.

9.53 When all cill lengths have been cut, lay them out as shown on the survey sheet and check that each cill length is out to the correct external length and angles. Ensure that the cills are sitting correctly i.e. supported so that drip feature is in free air.

9.5.4 Preparing cill brace holes (Fig 2.24)

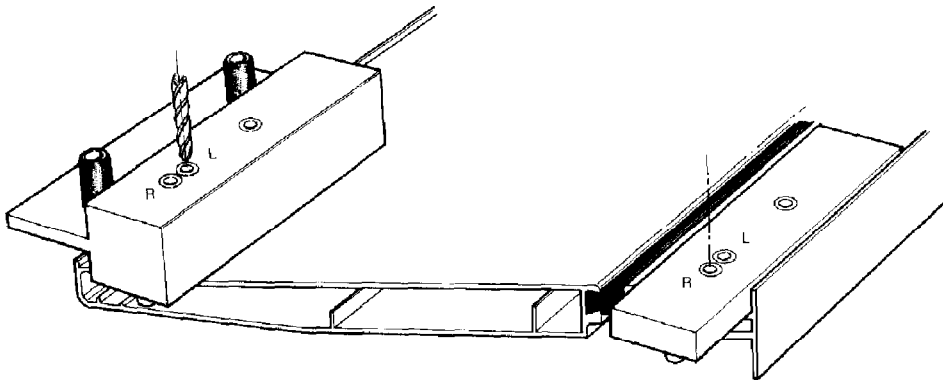


Figure 2.24 - PREPARING CILL BRACE HOLES

The male brace, with wider spread screw ports, should always be used on the right hand cill segment looking on the underside of the cill.

The inner pair of braces have milled slots to accept pan head fixing screws.

Offer up the relevant drill jig to the cill cut edge (Figs 224.1 and 224.2).

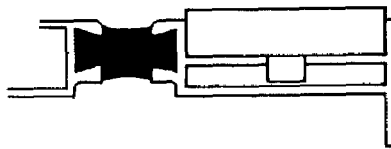


Figure 2.24.1 - REAR JIG

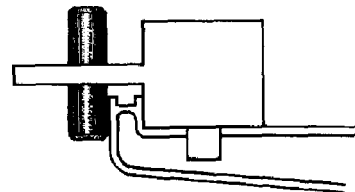


Figure 2.24.2 - FRONT JIG

Note: It is vitally important to ensure the jig location dowel is held firmly against the cill cut edge throughout the drilling operation.

Using the correct size drill (Para 9. 3.3) prepare each brace location hole ensuring that:-

- The hole furthest from the joint is used for left and right hand cills.
- The hole nearest the joint is used for right hand cills the other hole for the left hand cill.
- The drill fully penetrates one skin only.

- 9.55 The outer cill brace holes must be countersunk just enough to accept the screw heads. If the countersink is too deep the built-in bias will be lost.
- 9.56 Deburr the outer brace holes inside the box
- 9.57 Apply silicone sealant to cill cut edges.
- 9.5.8 Engage a pair of front cill braces (Fig 2.25) and slide them into cill box on one side and hold in position with the screw. Offer the other cill segment over the brace and locate brace. Fit remaining screws and tighten progressively on alternate braces.

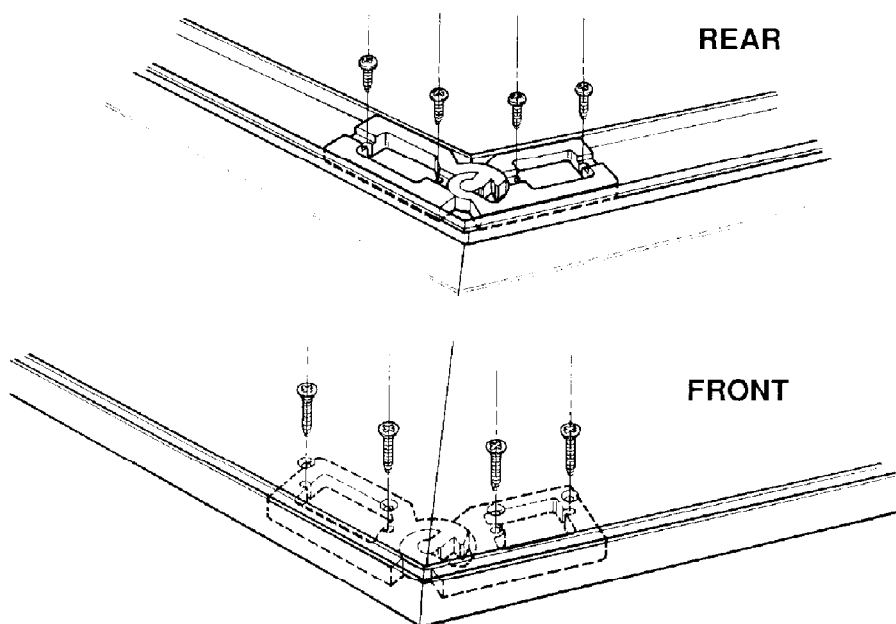


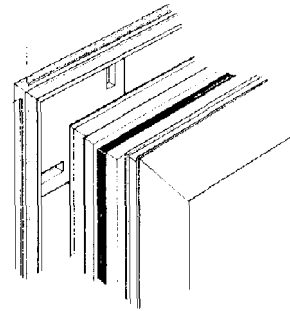
Figure 2.25 - FITTING CILL BRACES (Looking Underside)

- 9.5.9 Fit the rear braces into the channel and secure using the pan head screws provided.
- 9.5.10 Wipe off excess sealant.

Note: When transporting a completed cill to site make sure it is suitably braced to prevent unnecessary strain on the joints.

9.6 FRAME SEGMENT FABRICATION.

- 9.6.1 Fabricate and assemble the frames and vents as shown in Section 2 of the Monafame Manual.
- 9.6.2 The corners of the CKDFF frames must be nibbed back as shown in Fig 2.26 to allow the bay pole shoe to locate correctly.
- 9.6.3 Drainage slots must be machined in the frame as in the cill see Fig 2.9.



**Figure 2.26
NIBBING OUTER FRAME**

9.7 ASSEMBLING THE BAY (Fig 2.27)

Note: It is easier to completely assemble the bay, less glazing, in the workshop. However, the following procedure can be used on site.

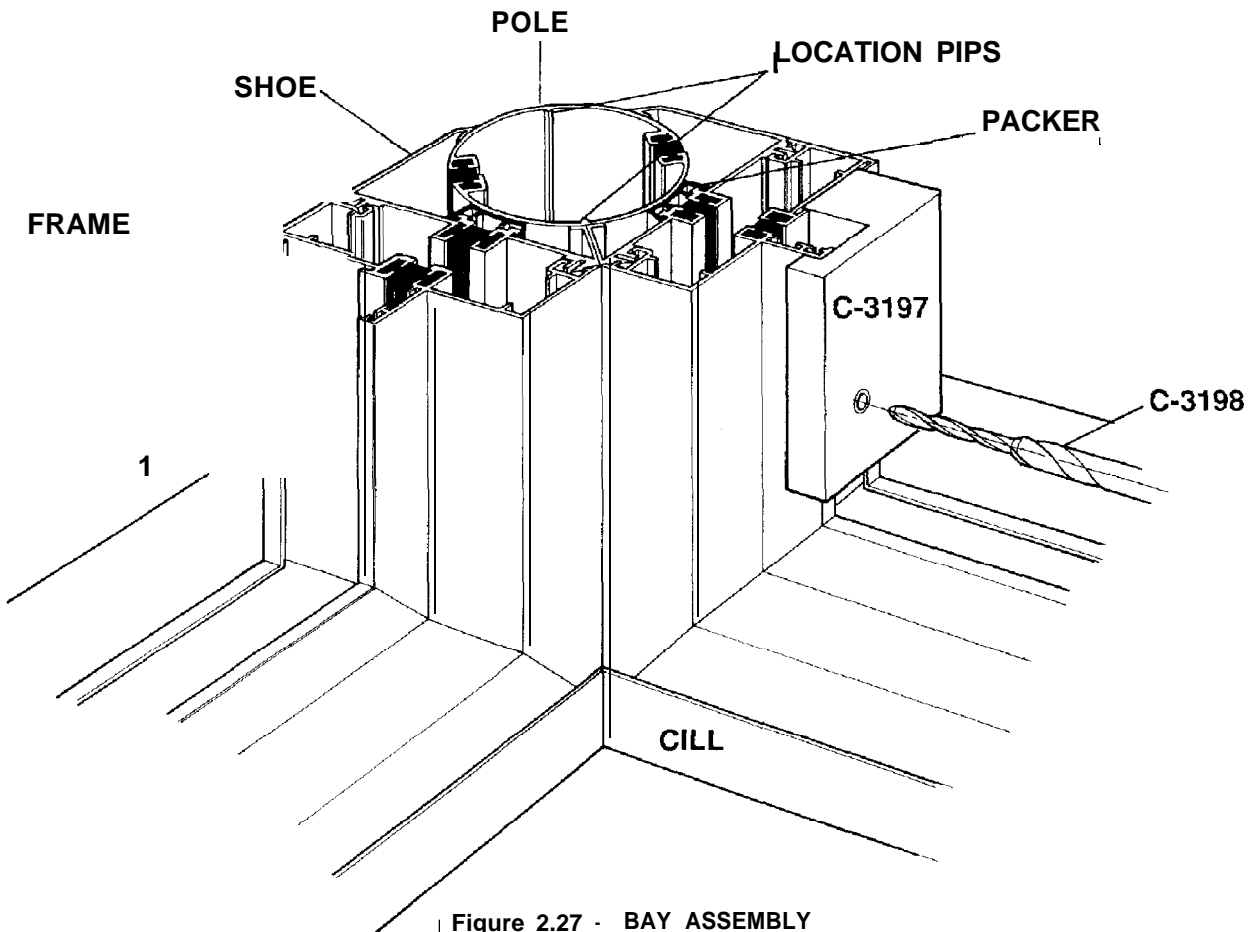


Figure 2.27 - BAY ASSEMBLY

- 9.7.1 Cut the mullion poles shoe sections and plastic packers to frame height, exclusive of cill
- 9.7.2 Apply sealant to all mating surfaces then clip the packers to the shoes and the shoes to the window jambs.

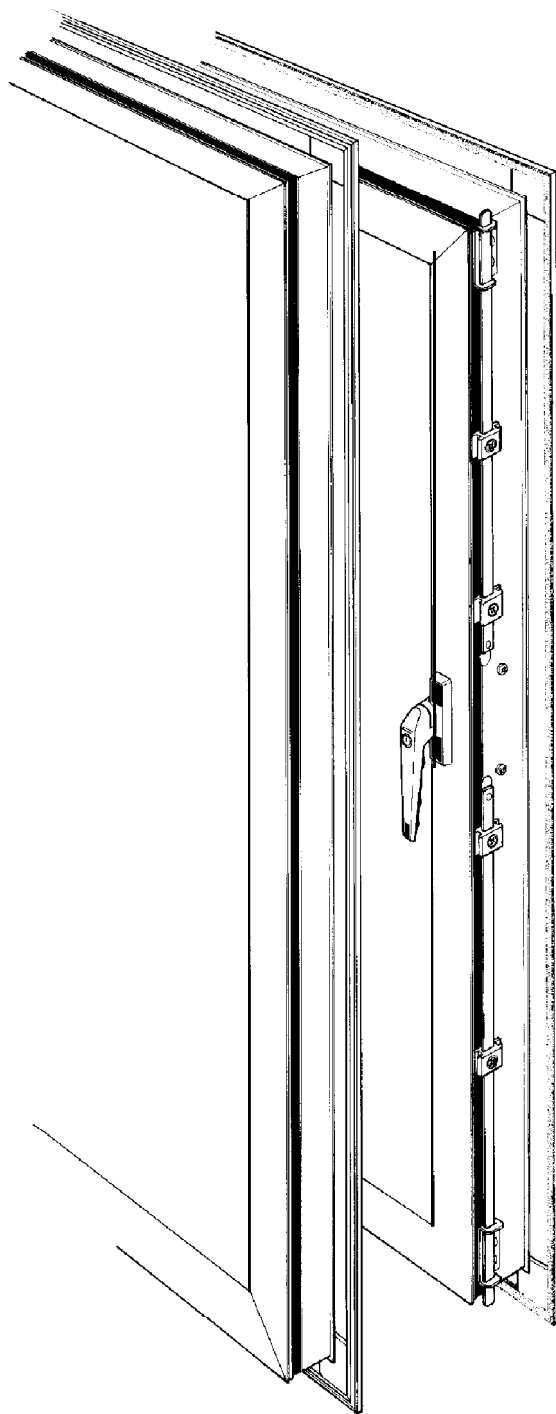
Note: The longer leg of the packer must go to the outside of the bay.

- 9.7.3 Offer the window frame assembly onto the cill and locate it firmly against the cill upstand
- 9.7.4 **Place** the bay pole mullion in position ensuring the pips on the inside of the pole are aligned with the cill joint mitre.
- 9.7.5 Using Drill jig C3197 and step drill C3198 drill through the CKDFF window frame only. Remove the jig and drill through the shoe, packer, and pole to the countersink on the step drill.

Warning: Be careful not to apply too much pressure on the drill if the bay angle is such that the drill will penetrate the thermal break in the pole, otherwise the drill may snap.
--

- 9.7.6 Screw the components together using the F139 screws at a **maximum pitch of 300mm.**
- 9.7.7 Wipe off excess sealant.
- 9.7.8 Secure the frame to the cill as per Section 2, paragraph 7.2.7
- 9.8 **FINISHING OFF**
- 9.8.1 Finishing beads M756 (30mm), M757 (45mm) or M758 (65mm) may be used to cover the internal joint. They must be fixed in position using a good quality silicone or equivalent sealant.
- 9.8.2 For bays with large internal angles (eg 135° and above) where finishing beads are not appropriate, use the infill plug (C3196) to fill the wells at the top and bottom of the internal corner joints. The plugs should be cut to size and located in place, level with the cill upstand, bedded on sealant.

**INSTRUCTIONS FOR COMPONENT PREPARATION AND FITTING OF
MONARCH MONALOCK WINDOW SYSTEM**



General Arrangement

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Method of Assembly	10.3	2.48
Fitting Handle Strike Plate (Cockspur only)	10.4	2.48
Fitting Gearbox and Handle	10.5	2.48
Fitting the Handle	10.6	2.49
Fitting the End Guides	10.7	2.49
Preparing the Locking Rods	10.8	2.50
Fitting the Keeps	10.9	2.51
Fitting Mid Guides	10.10	2.51
Finishing Off	10.11	2.52
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PART CODES

Jigs

End Guide Jig	W614
Mid Guide Jig	W616
Keep Jig	W643

The Monalock system is supplied in a series of packs containing sets of components

e.g. Prepared vent sections (CKVBF, CKFV1, CKFV2)
Gearbox Pack
Rod Pack
Night Vent and Cockspur Handle Packs

All relevant codes are given in the price list

For your convenience the various components included in these packs are listed on the pack/box labels.

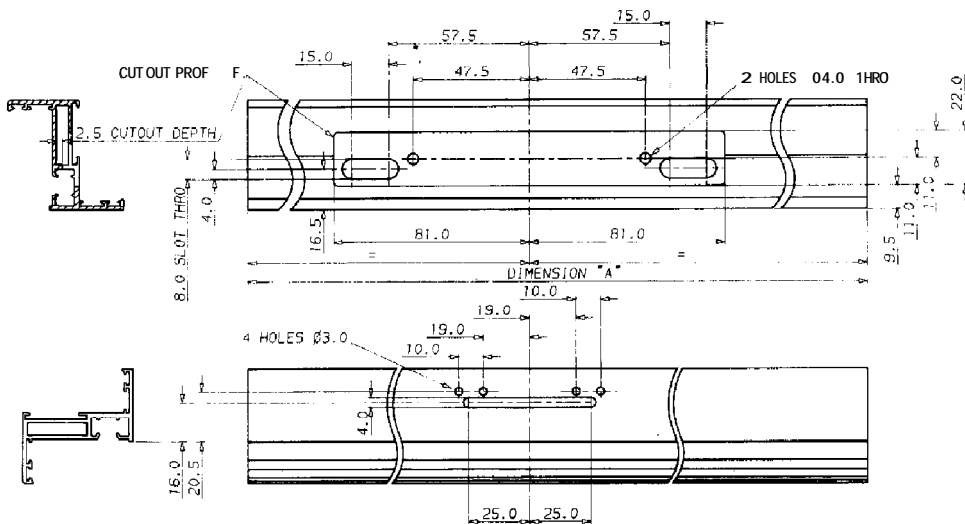
Fixing screws are also identified throughout these instructions as it is important that the correct ones are used.

10.1. GENERAL DESCRIPTION

This Monarch Monalock system can be fitted to CKVBF, CKFV1 and CKFV2 window vent sections in combination with any Monarch thermally broken outer frame and transom sections.

The system comprises of a gearbox which connects to pair of lock rods operating outwards and engaging in lock keeps which are fitted in the window jamb. Three point security is obtained by fitting a locking cockspur handle whilst a night vent position is available when the non-cockspur handle is used.

The night vent option should normally only be considered where the window is not readily accessible to potential intruders.

10.2. PREPARATION OF LOCKING VENT COMPONENTS (Fig. 1)

Fig. 1

10.2.1 Ready prepared locking vent components are available from Monarch in two lengths straight cut at 700mm and 1400mm. These lengths can be mitre-cut to the length required ensuring that the lock preparation remains central in the cut component.

10.2.2 Should it be decided that these components are to be prepared from full bar length material the section must be machined in accordance with Figure 1 then mitre-cut to length. The operation should only be undertaken if a suitable routing machine is available to produce this preparation accurately.

Warning: In order for the lock to function correctly and reliably the accuracy of component preparation is of utmost importance.

10.3. METHOD OF ASSEMBLY

Note: 1. The preparation of vent and outer frame to accept the lock components, other than the routing detailed in paragraph 2 may be done either with the vent separate from or assembled to the frame.
 2. The following procedure assumes the unit is assembled but the detailed steps are identical.

10.3.1 The fabrication of the outer frame and vent should be carried out in accordance with the appropriate section in the Monarch Manual. Particular care must be taken to ensure that :-

10.3.1.1 The vent is exactly the correct size for the frame, as shown in appropriate formulae

10.3.1.2 The hinges are set in exactly the correct position.

Warning: If the above instructions are not followed there is a danger that the lock end guides may foul the outer frame as the window is closed.

10.3.2 Bead Preparation (Fig 2a)

10.3.2.1 The bead to be fitted to the vent lock component must be modified to avoid fouling the gearbox. The cut out in the locating flange is 162mm long by 14mm deep central about the gearbox.

10.3.2.2 The security screws for the end guides just break through into the bead groove. The bead must be notched back to clear the points of the screws.

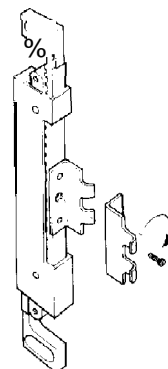


Fig 2a

10.4. FITTING HANDLE STRIKE PLATE (COCKSPUR HANDLE ONLY)

Refer to the Casement Window Manual C207 and, using jig W183, prepare the strike plate locating holes ensuring the strike plate is centrally aligned with the handle preparations in the vent.

10.5. FITTING GEARBOX AND HANDLE (Fig. 2 b & c)

10.51 Select LEFT or RIGHT hand handle as required.

10.52 If a left hand handle is required it will be necessary to reverse the drive fork - see Fig. 2b.

If a right hand handle is required the drive fork will already be fitted in the correct position.

To change handing remove the small countersunk screw central in the drive fork, lift the fork off its location studs, turn fork through 180 degrees, refit on location studs and secure fork with small countersunk machine screw.

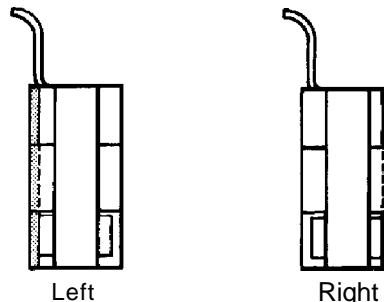


Fig 2b

NOTE: Always check security of fork screw prior to fitting gearbox to locking component irrespective of whether handing change has been carried out

- 10.5.3** Place the 2.5mm packer in the prepared aperture in the lock component - Fig. 2c. The packer must be fitted outboard of the thermal break so that a flat area is provided for the gearbox to sit on. Slide the **drive fork through** the slot in the inner face of the section, locate the packer and engage the two M4 machine screws through the section into the tapped holes in the gearbox and sandwich the packer between the gearbox and the extrusion. Tighten screws fully

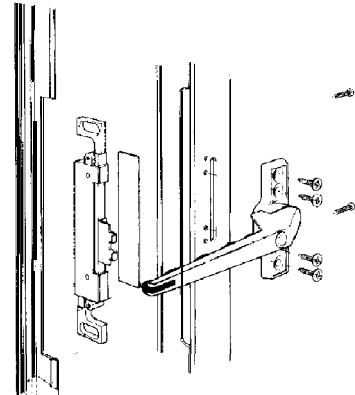


Fig 2c

10.6. FITTING THE HANDLE (Fig. 3a & b)

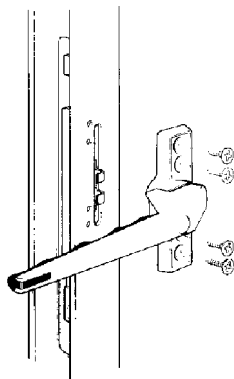


Fig. 3a

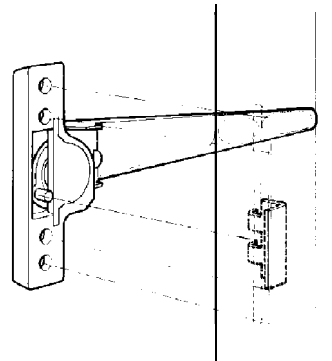


Fig. 3b

Position the handle on to the vent and engage the handle drive pin in the slot of the gearbox drive fork. Once the pin is engaged in the fork fix the handle to the vent using 4 off No. 8 x 1/2" CSK flat ended screws (W329). Fully tighten all screws and check operation of the handle and key operated lock cylinder.

10.7. FITTING THE END GUIDES (Fig. 4)

Warning: 1. Keep hands well away from drill bit.
2. Ensure vent is securely propped open.
3. Use jig throughout the operation

- 10.7.1** Place drill jig (W614) in position with the locating pin hard against the vent corner, and drill two 3.5mm holes as shown.
- 10.7.2** Fit the end guides using No. 8 x 1/2" CSK self tapping screws (W329).

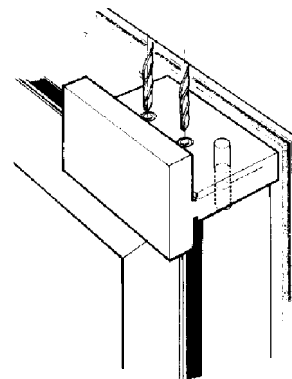


Fig. 4

10.8. PREPARING THE LOCKING RODS (Fig. 5)

10.8.1 Selecting Rod Lengths

Warning: Refer to Casement Window Manual C2027 for vent size limitations - hinge limits.

The following table identifies the rods to be used for various vent sizes. Should the vent size coincide with a change of rod, either rod type may be used.

TABLE 1

Vent Size (Point to Point Dimension) Rod To Be Used

From	1300mm	down to	1121mm	W588	(600mm)
From	1121mm	down to	940mm	W587	(490mm)
From	940mm	down to	754mm	W588	(600mm)
From	754mm	down to	568mm	W587	(490mm)
From	568mm	down to	380mm	W588	(600mm)

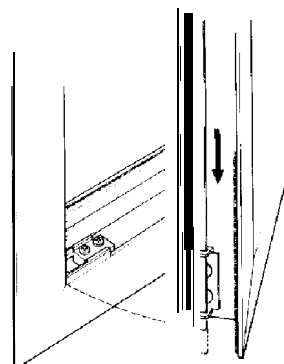


Fig. 5

Note: It is important to select the correct rod to ensure rod guide slots are not too close to the rod end.

10.8.2 Cutting the Lock Rods to Length.

10.8.2.1 Slide the plain end of each rod through the end guide and locate the peened pin in the appropriate gearbox drive slot.

10.8.2.2 Throw the lock into the locked position, i.e. Lock rods fully extended. Close the vent towards the frame.

Note: Ensure that the vent is square to the frame, i.e. vent coverage even at both ends. Lifting blocks (W158) may be used to advantage on large vents.

10.8.2.3 Mark the rods where they coincide with the inside of the frame as shown in Fig. 5, remove the rods and cut accurately to length, then file a small equal chamfer on each side to ease engagement with the keep.

Warning: If the rods are cut too short then security will be Impaired. If the rods are left too long then locking action will not be smooth.

10.9. FITTING THE KEEPS (Fig. 6)

10.9.1 Place the keep drill jig W643 on the frame. (Fig 6a)

10.9.2 Use a 3.0mm drill for Monafame (CKDFF) and 3.2mm drill for other frame sections, to make the screw fixing holes.

10.9.3 Remove the jig, place the keep in position (Fig 6b) and secure using No 6 x 314 pozi pan head self lapping screws (W328)

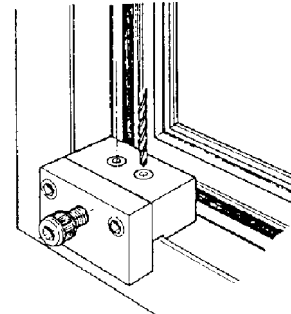


Fig. 6 a \

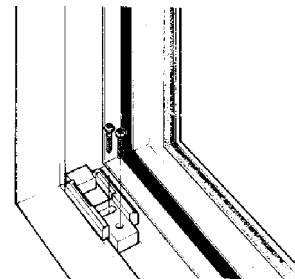


Fig. 6b

10.10. FITTING MID GUIDES (Fig. 7a & b)

Warning:

1. Keep hands well away from drill bit.
2. Ensure vent securely propped open.
3. Use jig throughout the operation.

10.10.1 Throw lock into the locked position. Mark the vent in line with the outer end of the slot(s) - Fig. 7a.

10.10.2 Throw lock into the unlocked position and mark the vent in line with the inner end of the slot(s) - Fig. 7b

10.10.3 Remove the rod and mark the centre position between the above marks - Fig. 7c extending the line to the inside edge of the vent.

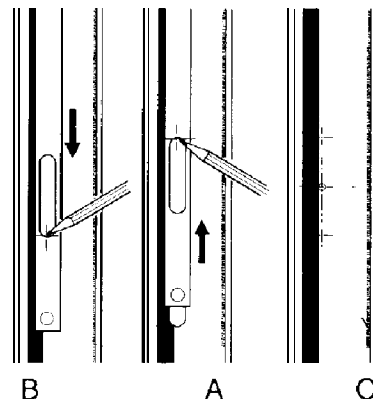


Fig. 7a. b. & c

10.10.4 Locate the mid guide jig (W616) onto vent and line up the drill bush centre line with the extended centre line Fig. 7d.

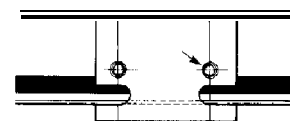


Fig. 7d

10.10.5 Using a 3.5mm bit drill the mid guide securing hole. Repeat for each mid guide - Fig. 7e.

10.10.6 Slide the correct number of mid guides onto each rod, relocate the rods on the vent and fix the mid guides using No. 8 x 3/4" pozi CSK self tapping screws (W327).

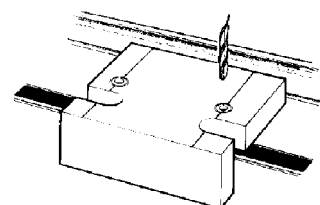


Fig. 7e

10.II. FINISHING OFF (Fig. 8 a & b)**10.11.1 Cockspur handle (Fig. 8a)**

- 10.11.1.1 Fit the handle strike plate to the window frame.
- 10.11.1.2 Fully close the vent and move the handle into the locked position. Ensure smooth engagement of the rods and the handle spur.

Note. Glazing will improve the operation of the lock.

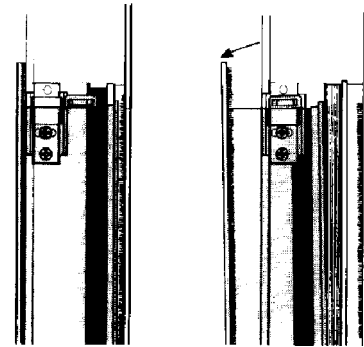


Fig. 8 a & b

10.11.2 Night Vent Handle (Fig. 8 a & b)

- 10.11.2.1 Fully close the vent and move the handle into the locked position. Ensure a smooth engagement of the rods behind the keeps.
- 10.11.2.2 Open the vent slightly then move the handle to engage the rods in the keeps for the night vent position - check the system operates smoothly.

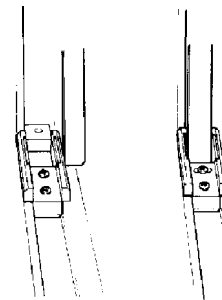


Fig. 8 a & b

10.11.3 Glazing

- 10.11.3.1 For optimum performance it is essential that vents are glazed correctly.

Side Hung: Sealed units should be held firmly and centrally in place using the 'toe and heel' method. Glazing wedges of three thicknesses (C1526, C1527, C1528) are available for this purpose.

Top Hung: Locate the sealed unit onto setting blocks (W159) then centralise it and pack each side with an appropriate combination of glazing wedges.

General glazing instructions are given in the Casement Window Manual (C2027) in your Monarch 'Blue Bible'

- 10.11.3.2 On larger vents it is advisable to fit lifting blocks (W158) to vent and frame to centralise the vent in the frame.
- 10.11.3.3 Stick the self adhesive bump packers onto the gearbox as shown in Fig. 2c.

Warning. Ensure the sealed unit is packed so that it cannot make contact with the gearbox and drive fork.

10.12 MAINTENANCE

Lightly lubricate the end guides with petroleum jelly or similar lubricant to ensure smooth locking action.

Warning. Do not lubricate the gearbox as lubricants may damage the drive belt.

10.13 TROUBLESHOOTING GUIDE

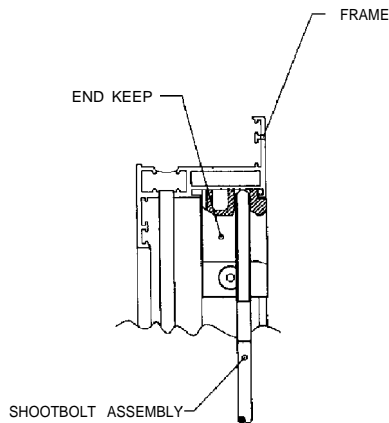
	Symptom	Likely Cause(s)	See Paragraph
10.13.1	Lock rods fully extended when handle in open position.	Gearbox drive fork not correctly handed for handle used.	(5)
10.13.2	Mechanism will not move into locked position or is over tight and/or "rough" in action.	i) Keep(s) not correctly positioned. (9) ii) End guide(s) not correctly fitted. (7) iii) Component preparation incorrect. (2) iv) Bead "notching" not correct. (3) v) Rod(s) too long. (8) vi) Rod(s) not chamfered at ends. (8) vii) Packer not fitted beneath gearbox. (5) viii) Glazing not packed clear of gearbox. (11) ix) Jigging of guides incorrect. (7,10)	
10.13.3	Slot in rod coincides with end guide.	Rod selection incorrect.	(8)
10.13.4	Handle will throw into locked position but immediately springs back	Rod(s) too long	(8)
10.13.5	Night vent position difficult to engage or unobtainable.	i) Cockspur handle fitted not night vent handle. (1) ii) Rod ends not chamfered. (8) iii) Keep(s) fitted incorrectly. (8)	
10.13.6	Vent can be sprung open when handle in locked position.	Lock rods too short.	
10.13.7	Vent catching on keep as vent closed.	i) Vent too large for frame. (3) ii) Vent and/or frame not square. (11)	
10.13.8	End guide collides with frame.	i) Vent too large for frame (3) ii) Hinges incorrectly positioned. (3) iii) Vent and/or frame not square. (11)	

11.1 General Description

Monalock MK II is a multipoint espagnolette locking system designed to fit a range of Monarch thermal barrier box section externally beaded window profiles.

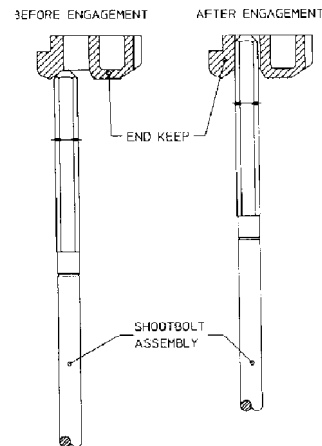
A 90° rotation of the handle to the closed position drives a vent mounted gearbox. This causes shoot bolts, which run inside the vent frame, to move outwards through special slotted cleats and locate into frame mounted keeps (Fig.1).

Both the shoot bolts and the keeps have chamfered leading edges to ensure secure weather tight engagement of the shoot bolts (Fig.2).



VIEW SHOWING ENGAGEMENT OF SHOOTBOLT ASSEMBLY AND END KEEP IN LOCKED POSITION.

Fig.1



view showing relative positions of END KEEP AND SHOOTBOLT

Fig.2

There are four Monalock handle assembly options comprising left and right handed cockspur and non-cockspur versions, the former offering a night vent facility. There are also two non-operating base options using left and right hand cockspur handles providing matching hardware when Monalock is not used throughout a particular installation.

All are available in White/Black/Silver/Antique Gold finishes. They are of the key lockable push button type; the key is common to all models.

The night vent position is obtained by closing the cockspur into the slot in the strike plate.

Ready prepared box vent sections, straight cut to 700mm and 1400mm, are available.

11.2 Part Codes

Handles (including base cover) Colours W/E/S/G

Monalock	cockspur	LH	AW700	
		RH	AW701	
	non-cockspur	LH	AW702	
		RH	AW703	
Non-operating base pack		LH	AW704	} Use with cockspur handles.
		RH	AW705	
Strike Plate (Colours W/E)			AW706	
Strike Plate (CKF18 only, Colours W/E)			AW710	
Handle Drill Jig			W707	
End Guide Drill Jig			W708	
Cleat (externally glazed vents)			AW709	
Operating Assembly	LH		AW736	
Operating Assembly	RH		AW737	

Note. Includes Base, Gearbox, End Guides, Keeps.)

Shoot Bolts				Vent Size (mm)
'	238mm	AW730	380	- 460
'	350mm	AW731	461	- 695
'	475mm	AW732	696	- 945
'	600mm	AW733	946	- 1195
'	725mm	AW734	1196	- 1445
'	850mm	AW735	1446	- 1650

Note: Maximum vent sizes are given in the Casement Manual C2027 Page 9.

Prepared Vent Sections (Colours W/BP/E/S)

CKVBF	700mm	A3327
	1400mm	A3328
CKFVI	700mm	A3329
	1400mm	A3330
CKFV2	700mm	A3331
	1400mm	A3332

11.3 Fabrication

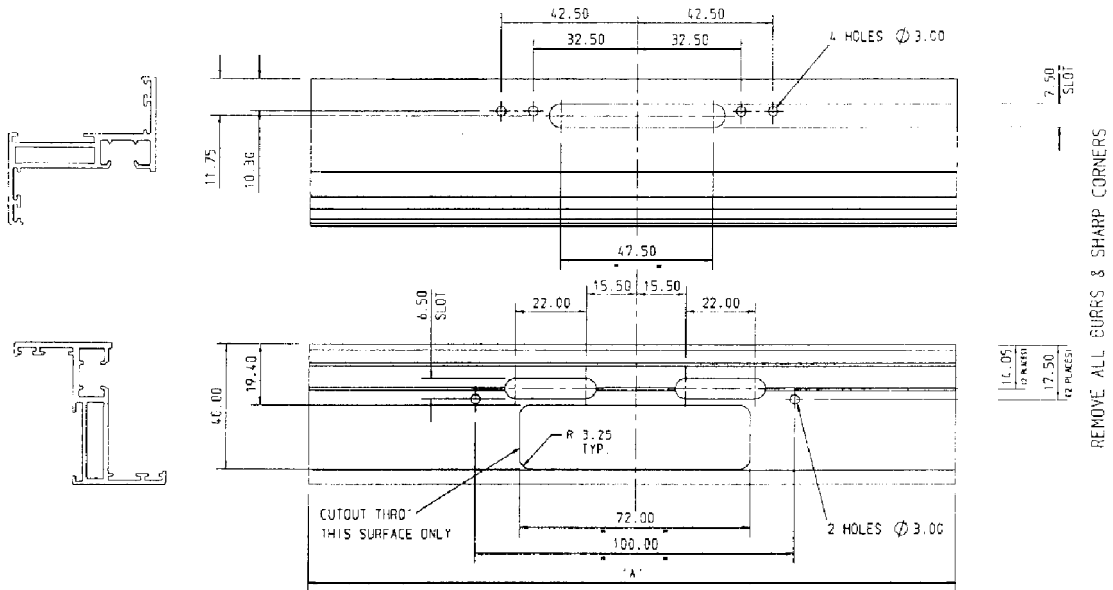


Fig. 3

Either prepare the locking vent section to the dimensions given in Fig.3, or select appropriate prepared stock section, and mitre cut it to the required length.

Note. Accurate and clean machining is essential to ensure smooth operation of the system.

Crimp up the outer frame in the usual way.

Cockspur Handles only.

Mark the centre line of the locking side, place drill jig W707 in position and use a 03.5 drill to make the handle wedge screw clearance holes (Fig.4).

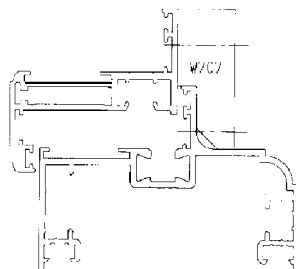


Fig. 4

Crimp the vent frame making sure the special slotted cleats AW709 are fitted at each end of the prepared vent section; **the slotted leg goes into the prepared section** - (Fig.5).



Fig. 5

Using drill jig W708 drill the end guide fixing holes (Ø3.5mm) and rod clearance hole (8.0mm) in each end of the vent - (Fig.6). Ensure the drill is held square to the vent and is run through to its full depth to clear any obstructions.

Blow out swarf from the box section.

Fit the appropriate hinges and mount the vent into the frame.

Note. If preferred, the assembly procedure may be done before the vent is installed.

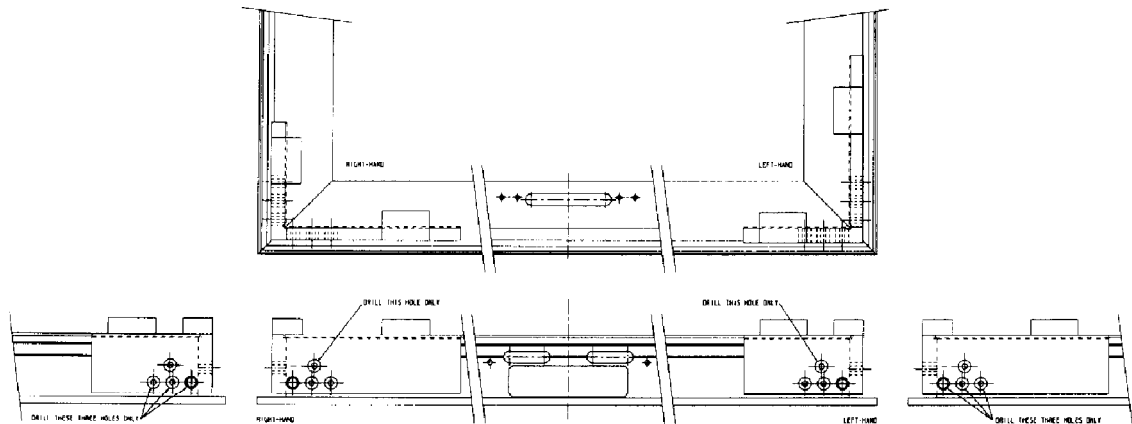


Fig. 6.1

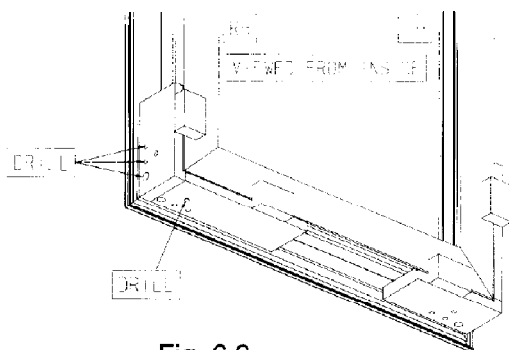


Fig. 6.2

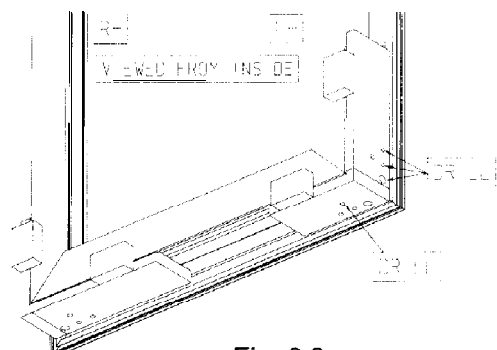


Fig. 6.3



11.4 Assembly

Fit the keeps into the frame corners and fix with No. 8 x 1/2" Pozi CSK S/T screws supplied in keep pack - (Fig.7).

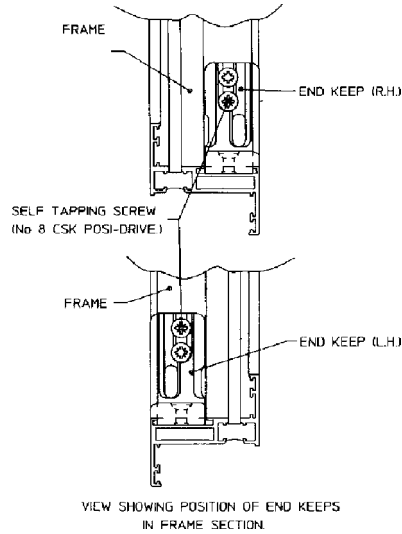


Fig. 7

Insert correct gearbox (check 'L' or 'R' on gasket face) into the vent outer face ensuring the two drive pins locate correctly in the machined slots; fix with the black No. 8 x 1/2" Pozi CSK S/T screws supplied in the gearbox pack - (Fig.8).

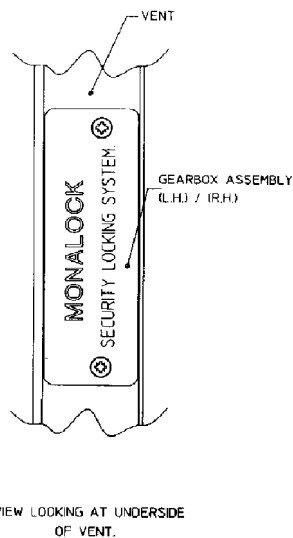


Fig. 8

Place the correct base assembly (marked 'L' or 'R' in recess on top face) onto the vent inside face with the drive brackets through the slot and located onto the gearbox drive pins. (Fig.9)

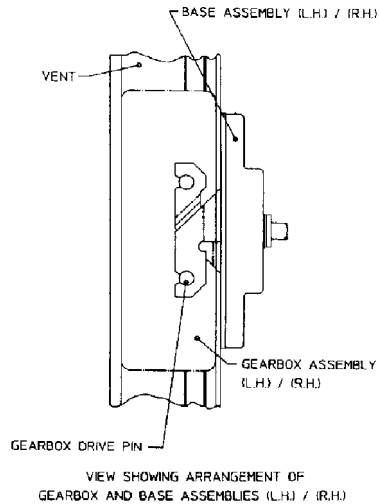


Fig. 9

Use a handle to turn the drive shaft to shear the gear locating pins.

Right Hand Handles only.

Return the shaft to the 'as supplied' position.

Left Hand Handles only.

Turn the square drive shaft
90° to the left to the locked
position (Fig.10).

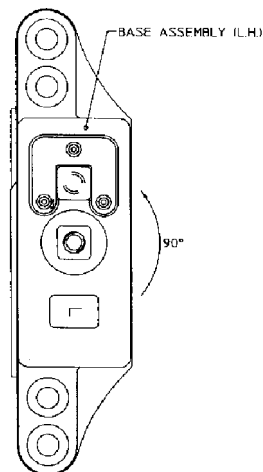


Fig. 10

Insert shootbolts of the correct length (paragraph 11.2) through the holes in the vent corners and slide them carefully to engage the gearbox. Screw them in until the datum lines are flush with the vent face - (Fig.11).

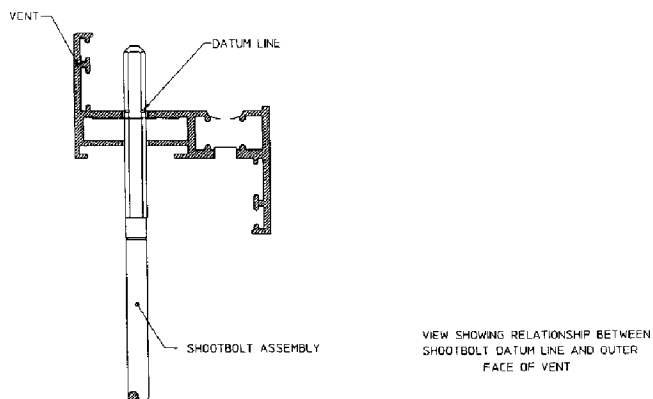


Fig. 11

Place the correct end guides over the shootbolts - note that the flats on the bolts must be aligned correctly - and fix using No. 8 x 3/8" Pozi CSK S/T screws, supplied in the end guide pack.

Use a handle to check that the gear operates smoothly.

Place the base cover over the base and push until it clicks into position. Check that the drive shaft is central to the large hole in the cover.

Place the correct handle (LH - grip to the left and vice versa), parallel to the vent i.e. closed position, over the square shaft and secure it firmly with the pre-coated M4 screw provided - (Fig.1 2).

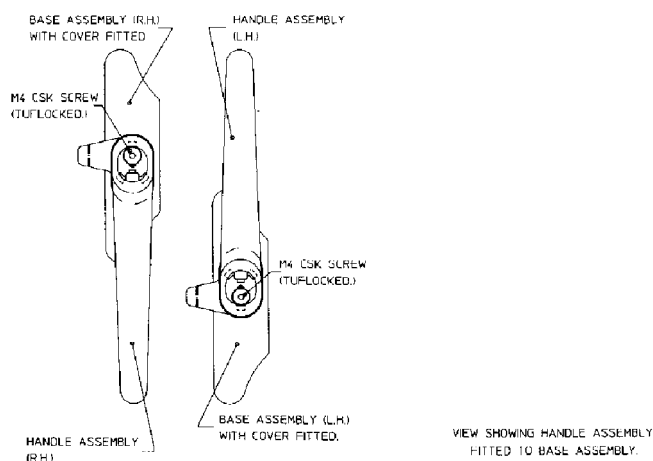


Fig. 12

Take the button assembly and carefully place the spring over the curved location spigot - (Fig.13).

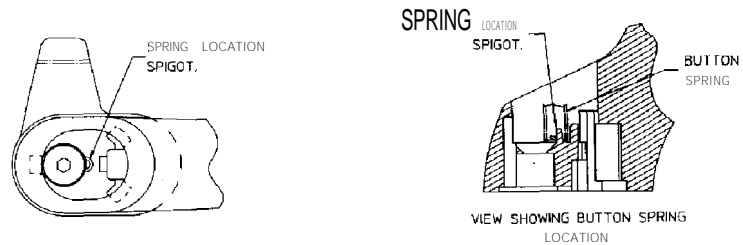


Fig. 13

Hook the lower claw into the handle then push the button down gently until the opposite two claws snap into place - (Fig.14).

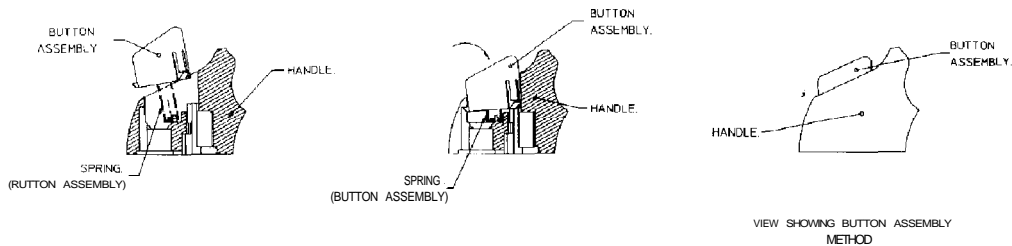


Fig. 14

Cockspur Handles only.

Fit the night vent wedge to the frame using the No. 6 x 3/8" Pozi PH S/T screws provided. Seal fixings to prevent water ingress - (Fig.15).

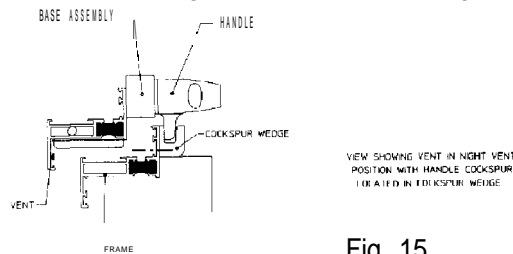


Fig. 15

Check the system operates correctly by pushing down the button then turning the handle 90° to the fully open (unlocked) position. The shootbolt ends must be level with the end guides faces. If not, turn handle to the closed position, remove end guide(s), screw the bolt(s) in or out as needed, replace end guides and recheck.

In the locked position the lock cylinder protrudes above the button - (Fig.16).

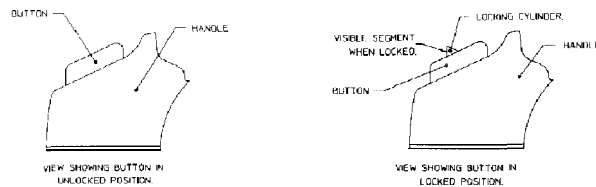


Fig. 16

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Fabrication	12.3	2.64
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Maintenance	12.5	2.66

12.1 General Description

The ONLY Monarch profiles that can accept the the Saracen multipoint espagnolette locking system are the CKV14 (Softline) and CKV15 (Chamfered) vent sections.

The shootbolt are screwed into the central gearbox and run inside the inner box section, through end guides into the outer frame keeps; a roller attached to the gearbox locates behind a separate keep giving an additional securing point. The guides and keeps are unique to Monarch.

The gearbox will accept standard window handles with a 9mm long square drive spindle and locating spigots for the fixings. Monarch offer a push button operated lockable handle in Silver/White/Gold/Ebony versions. A cockspur variant suites with **this** handle for use when a mixture of locking systems is specified.

A night vent position is achieved by positive engagement of the shootbolts in the end keeps.

Ready prepared vent sections, straight cut to 700mm and 1400mm, are available for both vent profiles. A specific crimper anvil insert and punch heads are provided for the new vents,as is an end guide drill jig.

CAUTION: Monalock I and II locking systems **CANNOT** be fitted to CKV14 or CKV15 sections.

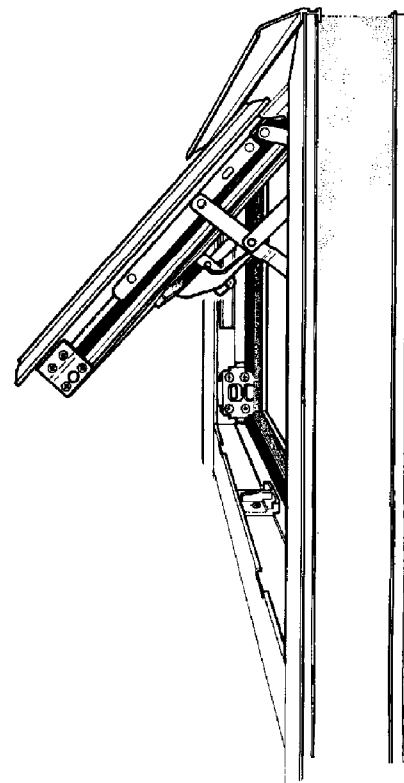
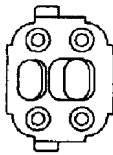


FIGURE 17

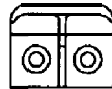
12.2 Part Codes

The locking system can be sourced as a complete gearbox pack (25 sets) or you can buy the Monarch Keeps/Guides pack (25 sets) only. We stock shootbolts, especially marked to the Monarch setting requirement, in packs of 50 (25 pairs). As with the gearboxes you may source them elsewhere but be aware that not all Saracen gearboxes are suitable (wrong roller), and the rod end alignment marks will not suit Monarch windows - the adjustment procedure is given in paragraph 12.4.

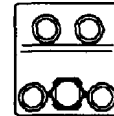
Part Code	Description
AW816	Saracen Gearbox Pack - comprising: 25 Gearboxes(Saracen Equivalent SB-1031 O-095) 25 Coverplates (black) 25 Centre Keeps 50 End Keeps 50 End Guides



END KEEP



CENTRE KEEP



END GUIDE ASSY

FIGURE 18

AW817	Keeps/Guide Pack - comprising: 25 Centre Keeps 50 End Keeps 50 End Guides
-------	--

		Length (mm)	Qty	Vent Size (mm)	
				Min	Max
AW810	Shootbolt Pack	295	50	380	556
AW811	Shootbolt Pack	420	50	556	806
AW812	Shootbolt Pack	545	50	806	1056
AW813	Shootbolt Pack	670	50	1056	1306
AW814	Shootbolt Pack	795	50	1306	1556
AW81 5	Shootbolt Pack	850	50	1556	1650

AW818S/W/GIE	Espagnolette Handle
AW798S/W/G/E	Cockspur Handle - LH } Current product in our range
AW799S/W/G/E	Cockspur Handle RH

W807	Anvil Insert	Needed to crimp vent sections
W808	Punch Heads }	CKV14 and CKV15

W809	Vent Drill Jig	For End Guides, Shootrod holes, Fixing screws
------	----------------	--

A3360	CKV14 - Prepared section - 700mm	10
A3361	CKV14 - Prepared section - 1400mm	10
A3362	CKV15 - Prepared section - 700mm	10
A3363	CKV15 - Prepared section - 1400mm	10

A4245	Corner Cleat for CKV14/CKV15	100
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12.3 Fabrication

Either prepare the locking vent section to the dimensions given in Fig. 19, or select the correct pre-machined component, and mitre cut it to the required length.

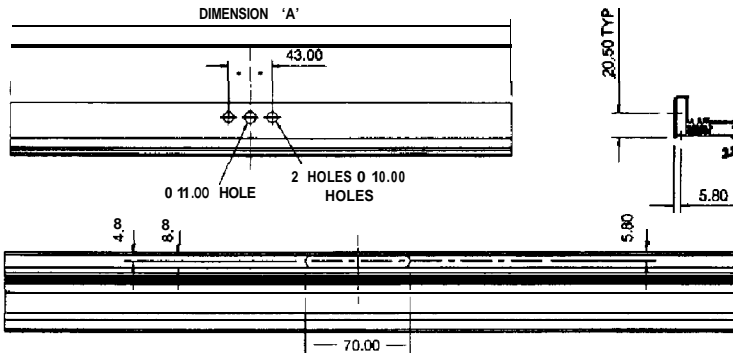


FIGURE 19

NOTE: We prepare the sections with the hole diameters shown to ensure that they will take all handle variants. In many cases, as with the handles we supply, it will be possible to drill three ø10mm holes.

Crimp the outer frame in the normal way.

Crimp the vent frame using the A4245 cleats and W101 chevrons.

Using drill jig W809 drill the end guide fixing holes, the shootbolt clearance holes, and the vent fixing screw holes as shown in Fig.20. Remove the jig and open up the shootbolt hole to 09.8mm.

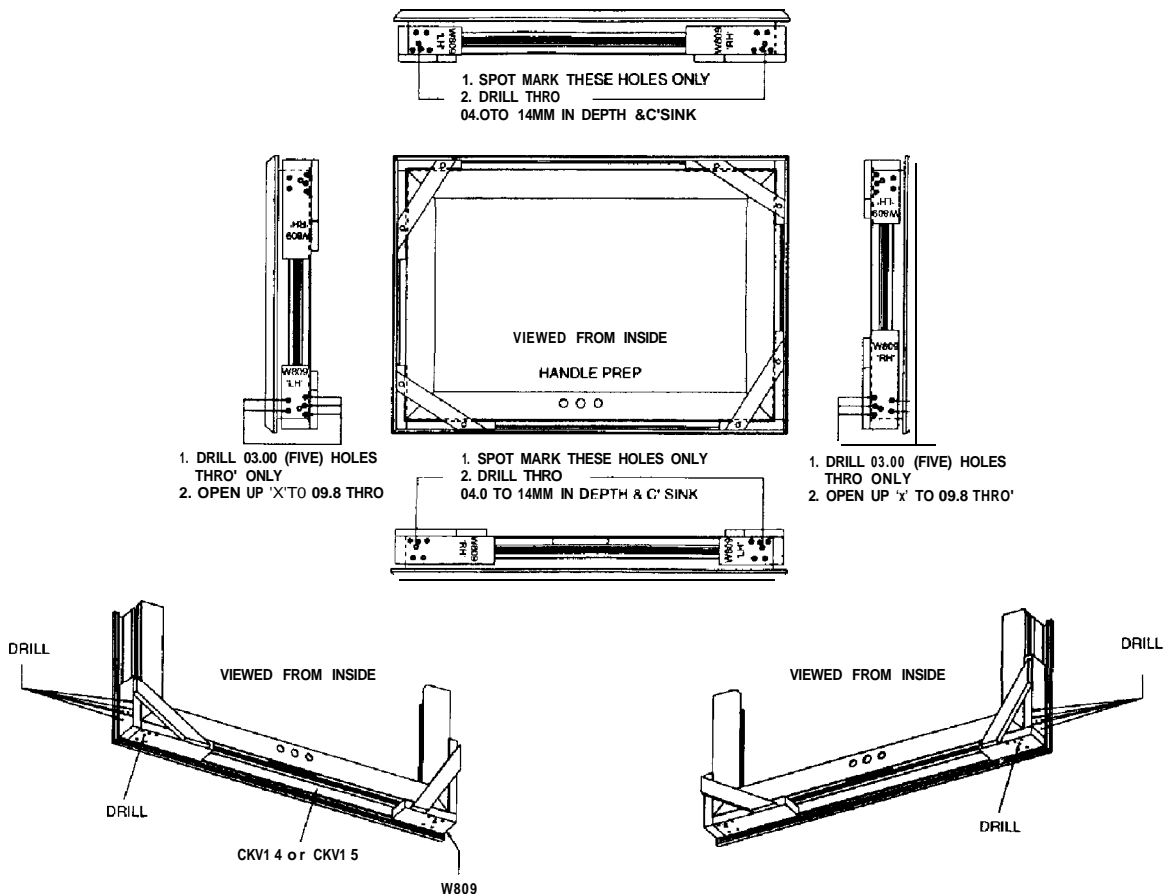


FIGURE 20

CAUTION: The shootbolt hole is very close to the inside face of the section, therefore it is vital that a sharp drill bit is used, and that the hole is drilled carefully using a high rotational speed and low feed rate.

NOTE: When drilling the vent fixing screw holes do not penetrate the vent more than 13mm ($\frac{1}{2}$ ") or the drill bit will foul the screwport. Countersink the holes to $\varnothing 7\text{mm} \times 80^\circ$.

Complete the vent fabrication by screwing the corners together using No 6 x 1" Pozi CSK S/T SS screws, taking **care not to snap** the screws.

Use the existing hinge drill jigs to prepare the vents and frame.

12.4 Assembly (Fig. 21)

Install the vent in the frame in the normal way.

Assemble the mechanism in the following order.

End Keeps. Offer the keeps into the frame, drill 3mm pilot holes and fix using No 8 x $\frac{1}{2}$ " Pozi CSK S/T SS screws.

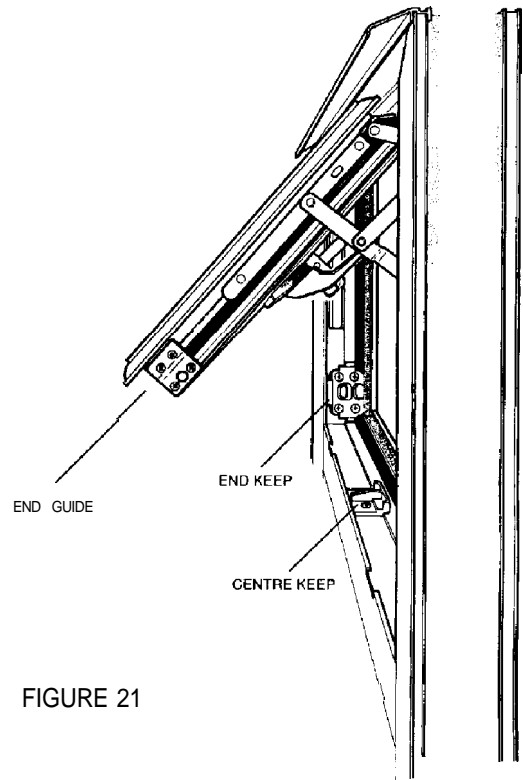


FIGURE 21

Centre Keep. Mark a line in the bead locating channel at the mid point of the vent, and place the keep as shown (Fig. 22) next to this line. Make sure you offset it away from the handle. Drill 3mm pilot holes then fix it with No 8 x $\frac{1}{2}$ " Pozi CSK S/T SS screws.

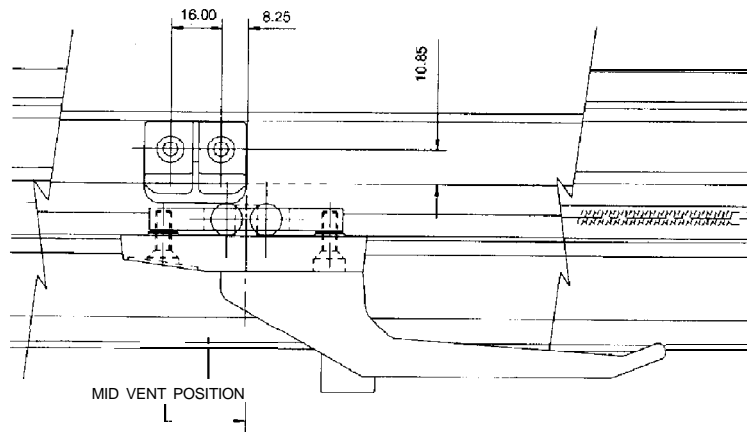


FIGURE 22

Gearbox and Handle. With the prepared side of the vent facing you lower the gearbox into the slot. Orientate the handle correctly, put it in the closed position, and insert the spindle into the drive gear. Open the handle, secure the handle with the M5 machine screws provided, then close the handle again.

Shootbolts. Make sure you have the right shootbolts for the vent size. Hold the gearbox roller to the end of its travel opposite the handle, insert a shootbolt into the 'handle' end and feed it into the lower position in the gearbox. You can see the shootbolt end through the gearbox slot. Screw it into the setting line (if Monarch shootbolt) or a further 3mm if a 'standard' one. Fig. 23.

NOTE: The drill jig has a setting line scribed on the long leg.

Repeat for the other shootbolt which will go into the upper drive gear.

Check for correct assembly by moving the handle a small way towards the open position and seeing the shootbolts retract into the vent.

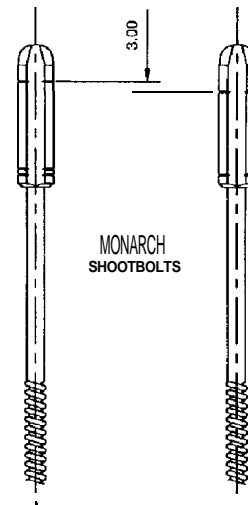


FIGURE 23

WARNING: Do not fully retract the shootbolts before fitting the end guides or they will fully enter the vent and may foul it when you try to extend them.

End Guides. Extend and correctly orientate the shootbolts (max. turn), offer the end guides over them into position on the vent; fix them with No8 x 1/2" Pozi CSK S/T SS screws.

Testing. Open and close the vent fully, and to the vented position, ensuring the shootbolts correctly engage the keeps and do not foul the frame.

Cover Plate. Peel the backing off the self adhesive plate and fit it over the slot making sure you do not restrict the movement of the roller.

12.5. Maintenance.

The system is effectively maintenance free.

The user should be briefed, that in the unlikely event of a problem arising, not to force the handle or the mechanism may be damaged.

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12.1 The **ONLY** recommended Monarch profiles that will accept the Saracen multi-point espagnolette locking system are CKV16(Softline) and CKV17(Chamfered) vent sections.

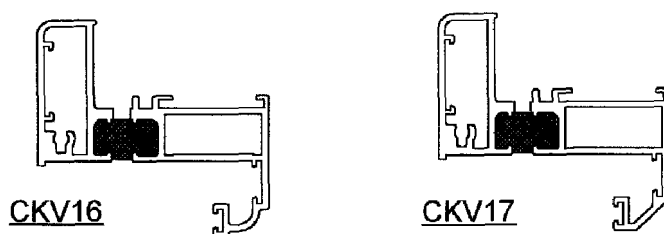


Fig.24

Sections CKV16 and CKV17 are enhancements to the existing sections CKV14 and CKV15, with improvements made to ease machining and assembly.

Warning :
 CKV16 or CKV17 cannot be used in conjunction with CKV14 or CKV15 respectively, as overall width and fixing method are different.

The shootbolts are screwed into the central gearbox by running them inside the inner box section, through end guides. When operating the handle the bolts drive out and locate into end keeps, a roller attached to the gearbox locates behind a central keep to give an additional locating point. The guides and keeps are unique to Monarch.

The gearbox will accept standard window handles with 9mm long square drive spindle and locating spigots for the fixings. Monarch offer a push button operated lockable handle in silver, white, gold and ebony versions; a cockspur variant suites with this handle for use when a mixture of locking systems is specified.

A night vent position is achieved by positive engagement of the shootbolts into the end keeps.

Ready prepared vent sections, straight cut to 700mm and 1400mm, are available for both vent profiles.

Caution : Monalock I and II locking systems **CANNOT** be fitted to CKV16 or CKV17.

12.2 Part Codes

The locking system can be sourced as a complete gearbox pack of 25 sets (AW825) or alternatively bought in Keeps/Guide packs of 25 sets (AW826). We stock shootbolts, especially marked to the Monarch setting requirement, in packs of 50 (25 pairs). As with the gearboxes you may source them elsewhere but be aware that not all Saracen gearboxes are suitable i.e. wrong roller height, and the alignment marks may not suit Monarch windows - See paragraph 12.4 for rod adjustment procedure.

Part Code	Description
AW825	Saracen Gearbox Pack - comprising of 25 Gearboxes (Saracen Equivalent SB-1031 O-095) 25 Cover Plates (Black) 25 Centre Keeps 50 End Guides 50 End Keeps



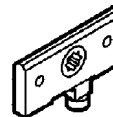
End Keep



Centre Keep



End Guide Ass'y



Gearbox

Fig.25

AW826	Keeps/Guide Pack - comprising of 25 Centre Keeps 50 End Keeps 50 End Guides
-------	--

		<i>Length (mm)</i>	<i>Qty</i>	<i>Vent Size (mm)</i>	
				<i>Min</i>	<i>Max</i>
AW810	Shootbolt Pack	295	50	380	556
AW811	Shootbolt Pack	420	50	556	806
AW812	Shootbolt Pack	545	50	806	1056
AW813	Shootbolt Pack	670	50	1056	1306
AW814	Shootbolt Pack	795	50	1306	1556
AW815	Shootbolt Pack	850	50	1556	1650

AW8 18 S/W/G/E	Espagnolette Handle
AW798 S/W/G/E	Cockspur Handle - LH
AW799 S/W/G/E	Cockspur Handle - RH

W807	Anvil Insert
W808	Punch Heads

W809	Vent Drill Jig	- For End Guides, Shootrod holes and Vent fixing screws.
------	----------------	--

Part Code	Description	Qty
A3371 W/BP/E	CKV16 - Prepared Section - 700mm	10
A3372 W/BP/E	CKV16 - Prepared Section - 1400mm	10
A3373 W/BP/E	CKV17 - Prepared Section - 700mm	10
A3374 W/BP/E	CKV17 - Prepared Section - 1400mm	10
A3375	Corner Cleat for CKV16 / CKV17	100
AW1 00	Corner Brace Chevron (Large)	500
AW1 01	Corner Brace Chevron (Small)	500

12.3 Fabrication

Either prepare the locking vent section to the dimensions given in Fig.26, or select the correct pre-machined component, both require to be mitre cut to the required length.

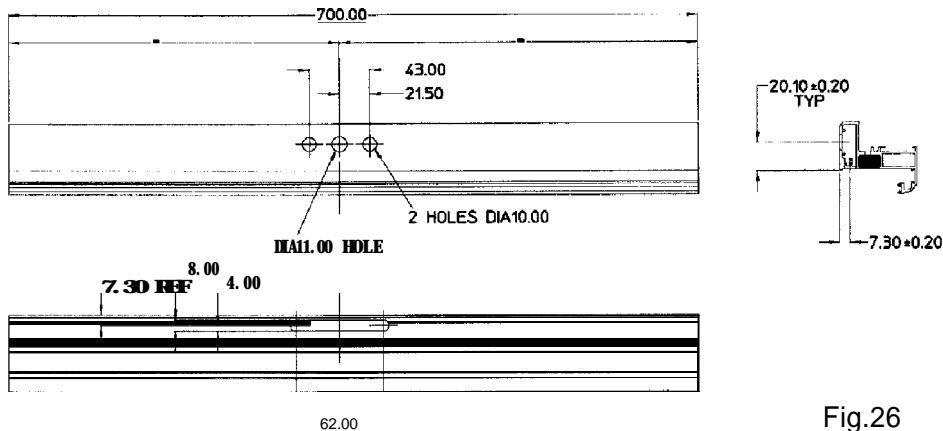


Fig.26

NOTE : We prepare the sections with the hole diameters shown to ensure that they will take all handle variants. In many cases, as with the handles we supply, it will be possible to drill three Ø10mm holes.

Crimp the outer frame in the normal way.

Add the standard woolpile(WI70) into the vent and crimp the vent frame using both W100 and W101 corner chevrons, and the A3375 cleats.

Note, minimum overall vent **size 244mm.**

Check the vent orientation and using drill jig W809, drill the end guide holes, shootbolt clearance holes, and the vent fixing screw holes as shown in Fig.27. Holes to be 03.50 to suit No.8 screws.

Remove the jig and open up the central shootbolt hole to 09.8mm.

Drill 04.00 clearance holes for the vent fixing screws to a depth of 14mm in all four corners, countersink the holes to 07.00 x 80°.

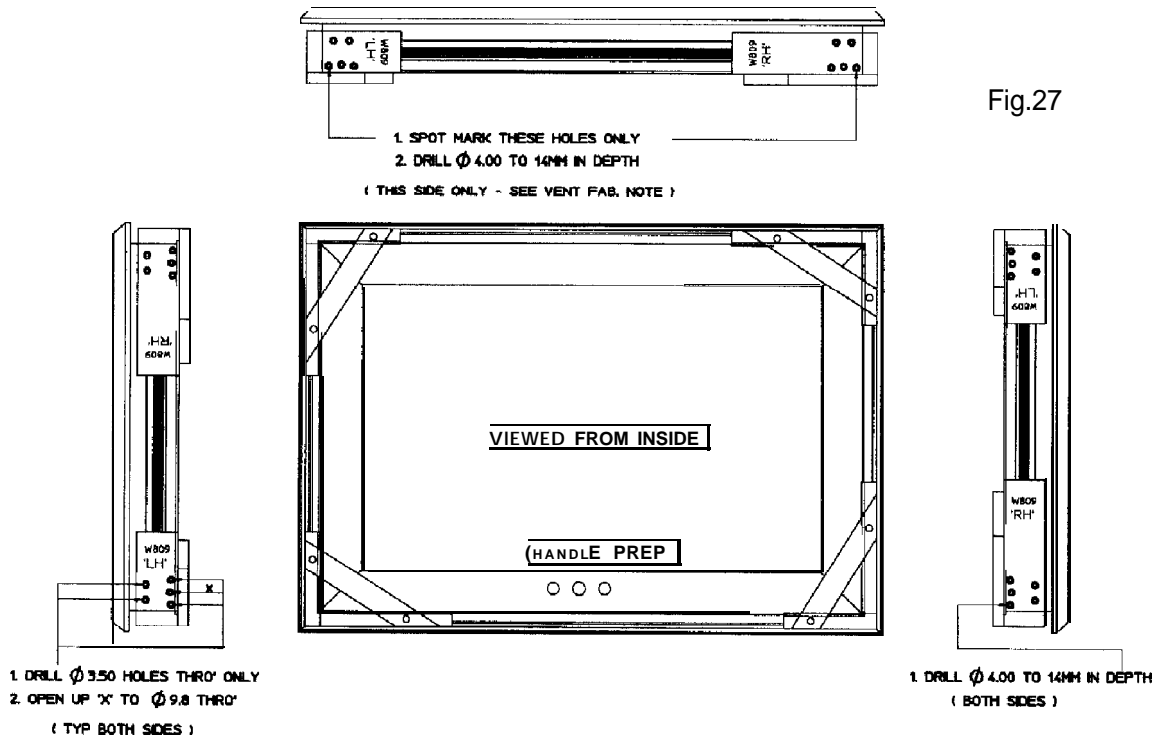


Fig.27

Complete the vent fabrication by screwing together the corner joints opposite the handle, using No. 8 x 1" Pozi C'sk S/T SS screws. Take care not to **snag the screws**. The remaining two corners will be secured once the end guides are being fitted.

Depending on vent size, use the suitable hinge drill jig to prepare the vent and frame.

12.4 Assembly

Install the vent into the outer frame in the normal method, and assemble the mechanism in the following order.

End Keeps - Offer the keeps into the frame, and drill 3mm pilot holes using the keep as a guide. Fix into position using No.8 x 1/2" Pozi C'sk S/T SS screws.

Centre Keep - Mark a line in the bead locating channel at the mid point of the vent and place the centre keep next to this line, as per Fig.28. Make sure that the offset is away from the handle before drilling 3mm pilot holes to suit No.8 x 1/2" Pozi C'sk S/T SS screws.

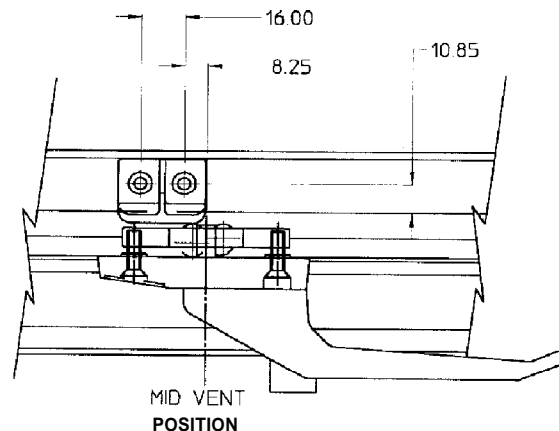


Fig.28

Gearbox and Handle - With the prepared side of the vent facing you, lower the gearbox into the slot. With the handle orientated correctly in the closed position, insert the square spindle into the drive gear. Operate the handle into the open position and secure the handle with the M5 machine screws provided, close handle again and check operation.

Shootbolts - Make sure you have the correct length shootbolts for the vent size. Hold the gearbox roller to the end of its travel directly opposite to that of the handle, insert a shootbolt into the 'handle' end and feed it into the lower position in the gearbox. The shootbolt end should be visible through the gearbox slot. Screw it in up to the point where the setting line (if Monarch shootbolt) or a further 3mm for a 'standard' shootbolt. See Fig.29.

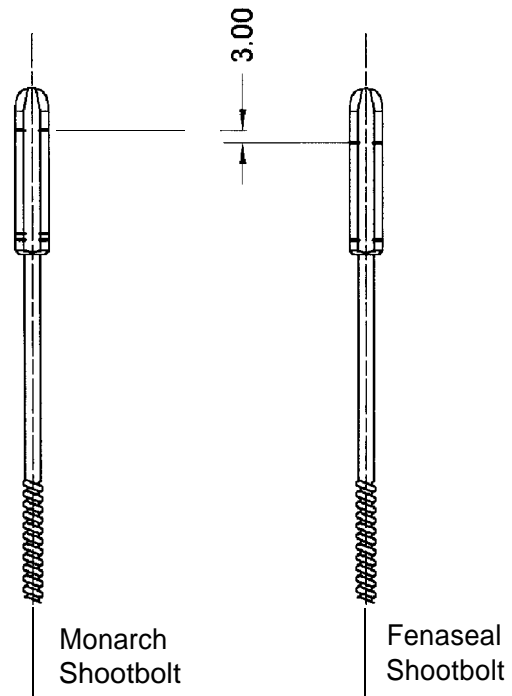


Fig.29

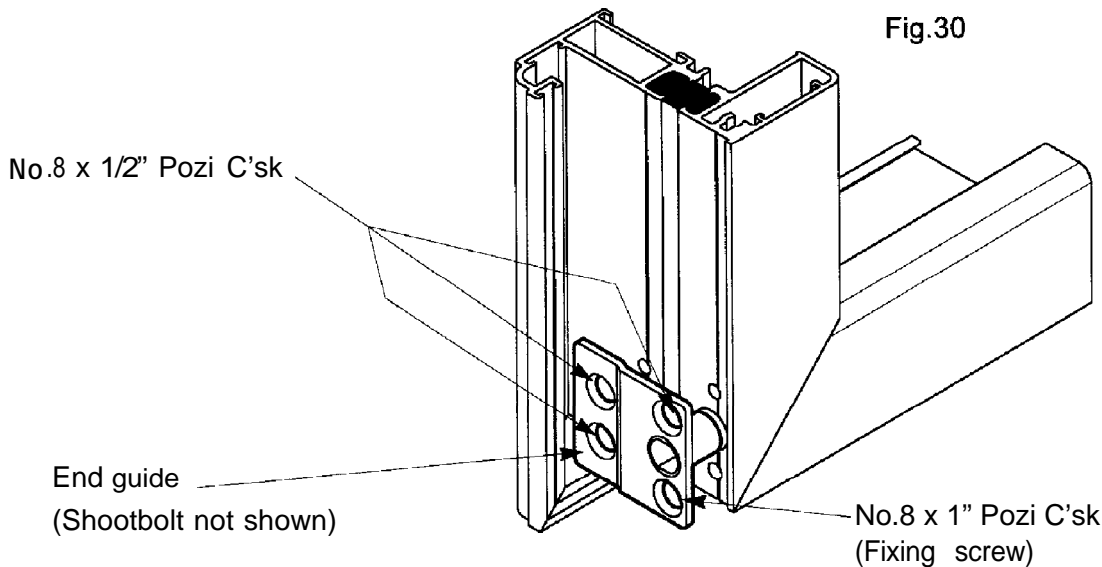
NOTE : The drill jig W809 has a 10mm setting line scribed on it for easy reference.

Repeat for the other shootbolt which will go into the upper drive gear.

Check for correct assembly by moving the handle a small way towards the open position and checking that the shootbolts retract into the vent.

WARNING : Do not fully retract the shootbolts before fitting the end guides or they will fully enter the vent and may foul when the operator tries to extend them.

End Guides - Extend and correctly orientate the shootbolts (max.1/2 turn), offer the end guides over them into position on the vent; fix them in 3 places with No.8 x 1/2" Pozi C'sk S/T SS screws and with No.8 x 1" Pozi C'sk S/T SS screw in the extreme corner. This doubles up as a vent fixing screw, the other corner should already be secured.



Cover Plate - Peel the backing off the self adhesive plate and fix it over the slot making sure that the roller movement is not restricted.

12.5 Maintenance

The system is effectively maintenance free. The user should be briefed that in the unlikely event of a problem arising, not to force the handle or the mechanism may be damaged.

12.6 Drainage

Suitable drainage is required depending on configuration. All vents require 2 slots through the thermal break, 25 long x 5mm wide suitably placed. Mating transoms or outer frame require further suitable drainage.

12.7 Additional Information

This locking system has successfully met the technical requirements of the BS7950 enhanced security test. This was achieved using high security friction hinges and 'Security clips' which are recommended for use with this system. All current glazing configurations are achievable, refer to C2110 page 2.9 for overall glass unit formulae.

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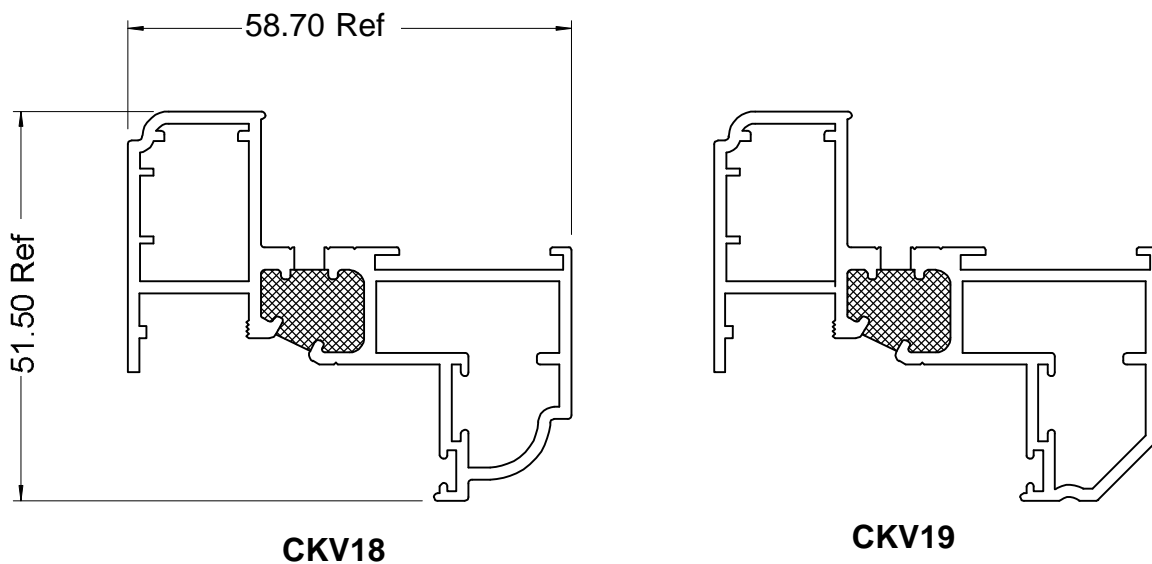


Fig.1A - Vent

Note : These profiles are not designed to accept Saracen Locking gear.

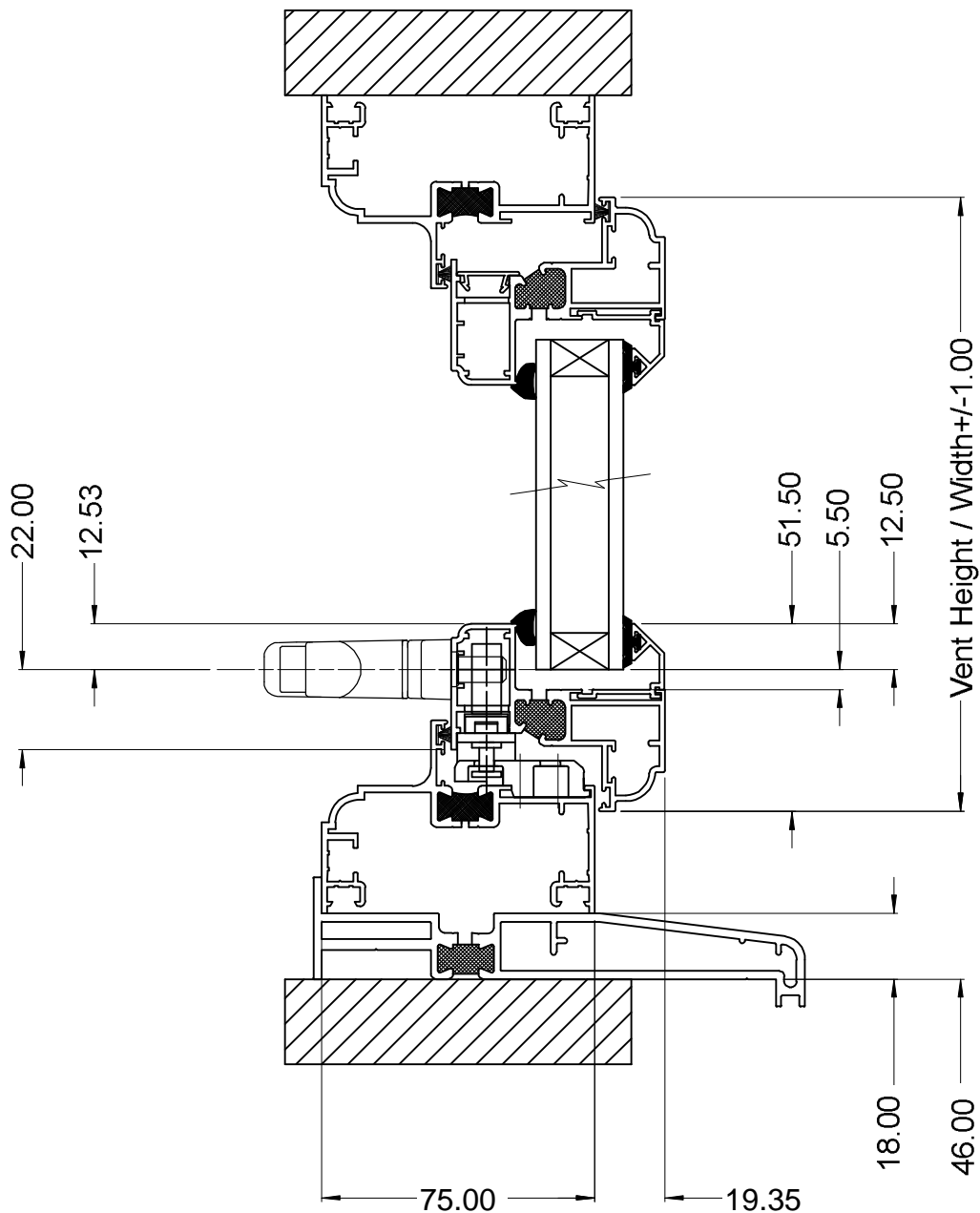


Fig.1B
 - General Section with key dimensions

13.1 INTRODUCTION

- CKV18 (Softline) and CKV19 (Chamfered) vent sections have been designed to accept a variety of standard off the shelf Eurogroove locking gear systems. Both vent profiles are thermally broken and supplied in packs of 5 x 5m bars. They can be used in conjunction with all other Monafame outer frames, as well as the 45mm suite of frames; beading is standard.

The vent is mitred and crimped in the normal method with double cleats and chevron pockets to give additional support. The vent preparation and assembly of this system is kept minimal, the cassette type gearbox is slotted up into the vent pocket and secured. The face fixed shootbolts are then cut to suit and secured with self tapping screws. Keeps are positioned to suit.

- Ready prepared vent sections, straight cut to 700mm and 1400mm are available for both vent sections, to suit Roto RA2000 Locking gear.

Security and Locking Options

- The locking gear system which we recommend is the Roto RA2000 locking gear, which we will guarantee for both quality and performance when used with these new Monarch profiles.

The RA2000 Espagnolette shootbolt locking system has been independently tested and has successfully met the requirements of the BS7950 enhanced security test. The test was carried out with Espag Locking Gearbox with double adjustable cam extension units, part codes AW839, AW842 (4 off) and AW841 (2 off).

- Note
 We would strongly recommend the use of Security Glazing Clips (AW720 to AW723) and High Security Hinges for all Monaframe vented windows, although the High Security hinges can be replaced with standard friction hinges so long as Vectors Excluders are used.

Weather Performance

- Where these vents are used in conjunction with Monaframe Casement window outer frame, the following weather rating can be achieved. This is subject to using the recommended drainage preparations and fabricating requirements illustrated within this manual.

Air Permeability	600 Pa
Water Penetration	600 Pa
Gust Deflection	2000 Pa

Appearance

- Both vents are powder coated to BS6496 : 1991, and is applied using the stringently quality controlled Sytha Pulvin or Interpon processes. Full gloss white (RAL9910), black (RAL9011) and semi-gloss dark brown (BS08B29) are available as standard, with an alternative (to order) comprehensive range of 389 RAL,BS or metallic colour options .

Limitations

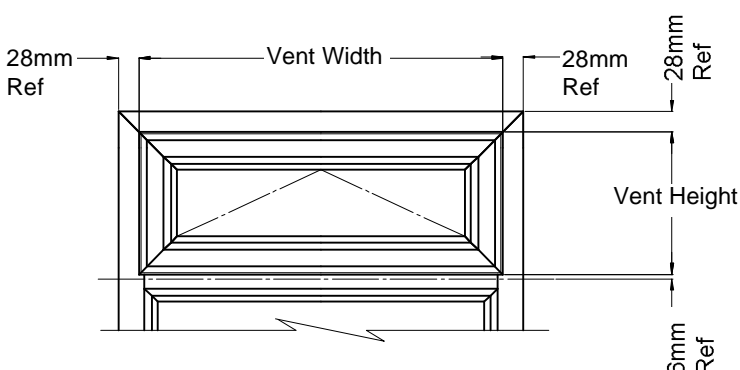
- The Roto RA2000 gearing has a range of shootbolt lengths to cover the following vent parameters ;

1699mm	Maximum Vent Width if Top Hung (##)
	Maximum Vent Height if Side Hung (##)
500mm	Minimum Vent Width if Top Hung
	Minimum Vent Height if Side Hung

Note : *Monarch supplied/recommended hinges will only cover up to 1300mm wide/high vents. Refer to Manual C2027 Casement Window for 'Friction Hinge' size chart.*

- The Roto E60Q gearing has a range of slider lengths to cover the following vent parameters ;

1300mm	Maximum Vent Width if Top Hung
	Maximum Vent Height if Side Hung
300mm	Minimum Vent Width if Top Hung
	Minimum Vent Height if Side Hung



Please note
 - Vent width or height must not be less than 276mm

Fig.1C

13.2 Part Codes

The recommended locking system to be used with sections CKV18 and CKV19 is the **Roto RA2000**.

Shown below are the Monarch/Roto part codes with quantity supplied, for all the parts required to fabricate a casement window.

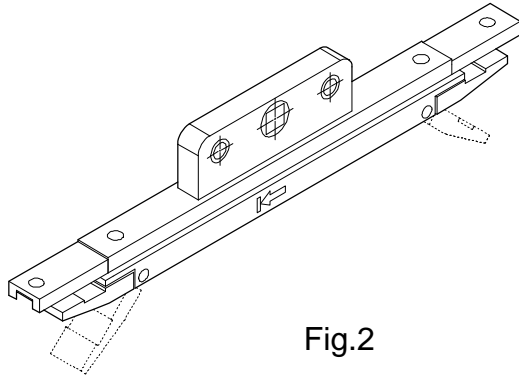


Fig.2

AW835 (J01A)

Roto RA2000 Espag (20mm) Locking Gearbox
(Box of 50)

Note : This gearbox used in conjunction with adjustable Cam Extensions, which should be used when high security window options are required.

For vent sizes between 300 and 499, refer to the Roto Std Espag gearing.

AW837 (244478)

Vent range 500mm to 899mm.
(Cam & Shootbolt Locking - Box of 50)

AW838 (245285)

Vent range 900mm to 1300mm.
(Cam & Shootbolt Locking - Box of 20)

AW839 (244484)

Vent range 900mm to 1300mm.
(2 Cams & S'bolt Locking - Box of 20)

AW840 (244486) (##)

Vent range 1300mm to 1699mm.
(2 Cams & S'bolt Locking - Box of 20)

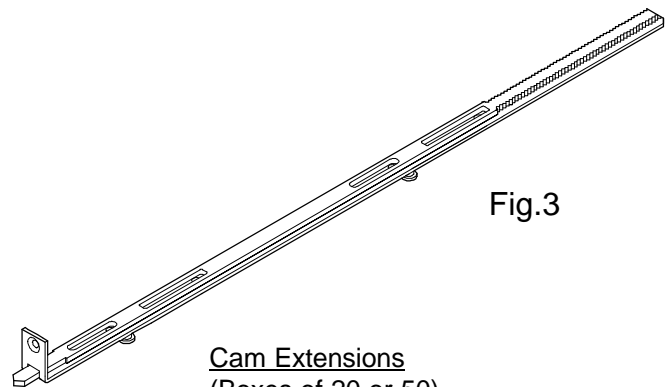


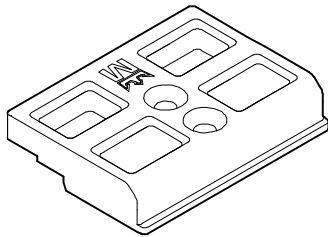
Fig.3

Cam Extensions
(Boxes of 20 or 50)

Note :

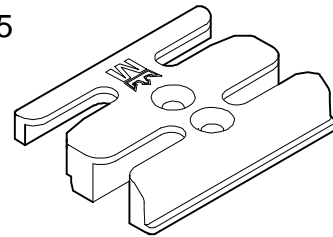
*Monarch supplied/ recommended hinges will only cover up to 1300mm wide/high vents, depending on type of hinge used and window configuration.
Refer to Manual C2027 Casement Window for 'Friction Hinge' size chart.*

Fig.4



AW841 (244302)
Shootbolt Keep/Night Vent facility
(Box of 100)

Fig.5



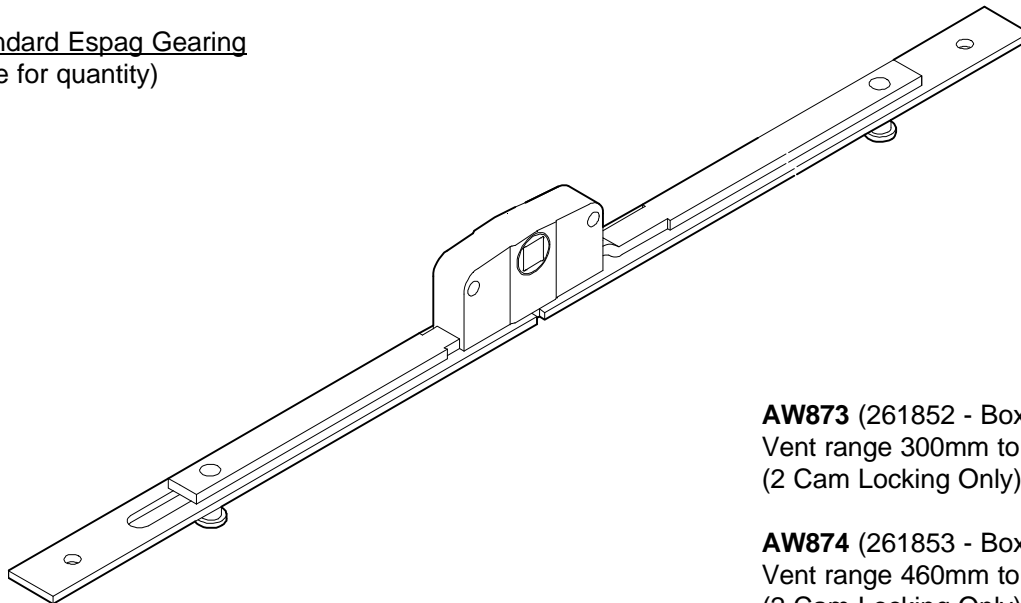
AW842(244300)
Cam Keep
(Box of 100)

- An alternative locking gear is available with a simple slider locking action, this is generally referred to as the **Roto Standard Espag System**. This system is ideal for vents where a less secure option is required, the simple sliding bar is face fixed and uses the cam keeps only as points of locking. It does have the night vent facility.

Please note - This gearing should not be used as a high security option.

Roto Standard Espag Gearing
(See code for quantity)

Fig.6



AW873 (261852 - Box of 50)
Vent range 300mm to 459mm.
(2 Cam Locking Only)

AW874 (261853 - Box of 50)
Vent range 460mm to 659mm.
(2 Cam Locking Only)





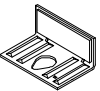
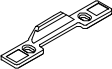
AW875 (261854 - Box of 10)
Vent range 660mm to 859mm.
(2 Cam Locking Only)

AW876 (261855 - Box of 10)
Vent range 860mm to 1059mm.
(2 Cam Locking Only)

AW877 (261856 - Box of 10)
Vent range 1060mm to 1300mm.
(3 Cam Locking Only)

- Use **AW842** cam keeps with this gearing.

Other codes available direct from Monarch only ;

Part Code	Description		
CKV18W-5	Softline Eurogroove vent (White)	5M	
CKV18BP-5	Softline Eurogroove vent (Brown)	5M	
CKV18E-5	Softline Eurogroove vent (Ebony/Black)	5M	
CKV19W-5	Chamfered Eurogroove vent (White)	5M	
CKV19BP-5	Chamfered Eurogroove vent (Brown)	5M	
CKV19E-5	Chamfered Eurogroove vent (Ebony/Black)	5M	
AW828 S/W/G/E	Viscount Espag Lockable Handle	(Box of 25)	
AW832 S/W/G/E	Virage Cockspur Lockable Handle - LH	(Box of 20)	
AW833 S/W/G/E	Virage Cockspur Lockable Handle - RH	(Box of 20)	
AW134 S/W/E	Cockspur Strike Plates	(Pack of 100)	
W830	Anvil Insert		
W831	Punch Heads - per pair		
A3388 W/BP/E	CKV18 - Prepared Section - 700mm	(Pack of 10)	
A3389 W/BP/E	CKV18 - Prepared Section - 1400mm	(Pack of 10)	
A3390 W/BP/E	CKV19 - Prepared Section - 700mm	(Pack of 10)	
A3391 W/BP/E	CKV19 - Prepared Section - 1400mm	(Pack of 10)	
<i>(Note - Prep'd Section suitable for both RA2000,E60Q & Roto Std Espag System)</i>			
A3386	Corner Cleat	(Pack of 100)	
A3387	Corner Cleat	(Pack of 100)	
AW101	Corner Brace Chevron	(Pack of 500)	
C3392W	'Clip-in' Plastic Trim (White)	3M	
C3392E	'Clip-in' Plastic Trim (Black)	3M	
AW720/100	Security Glazing Clips (20mm)	(Pack of 100)	
AW721/100	Security Glazing Clips (24mm)	(Pack of 100)	
AW722/100	Security Glazing Clips (25mm)	(Pack of 100)	
AW723/100	Security Glazing Clips (28mm)	(Pack of 100)	
AW848	Vector Excluder	(Pack of 200)	
AW170E	'Z' Fin Woolpile (Black)	(Coil of 100M)	
AW170S	'Z' Fin Woolpile (Silver)	(Coil of 100M)	

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13.3 Fabrication

- Prepare the locking vent section to the dimensions shown. We can supply a pre-machined vent section in two lengths, although both require mitre cutting to final length.

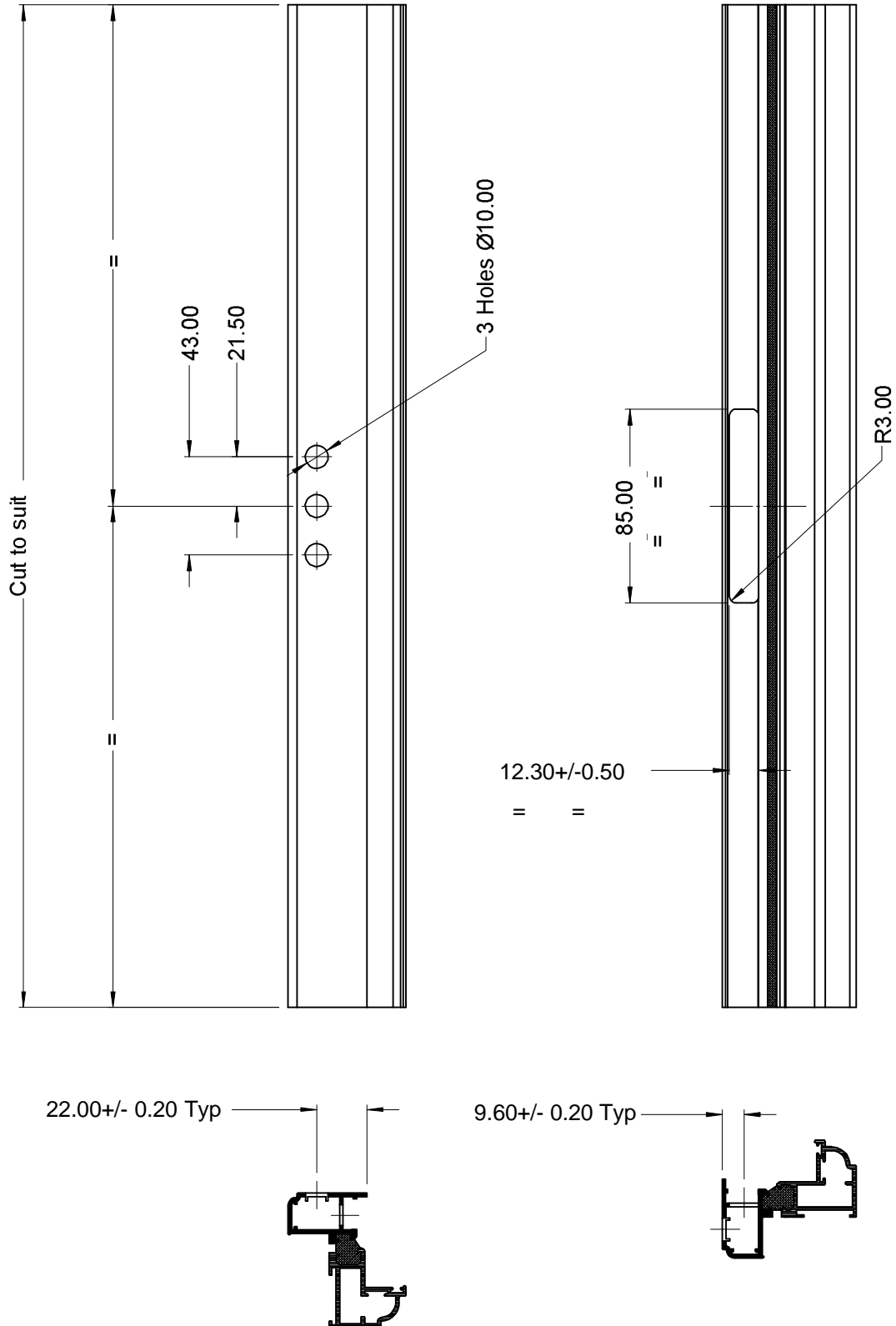


Fig.8 - Typical Prep Details

13.4 Vent & Frame Assembly

Vent & Frame Assembly - RA2000 Only

- Once the vent sections have been mitre cut to their correct lengths, the woolpile ideally should be added prior to crimping the vent. See 'Drainage' section for slot preps.

- Each corner will require 2 cleats and a chevron brace. When ordering refer to 'Part codes'.

Before crimping, carefully remove any excess swarf within vent.

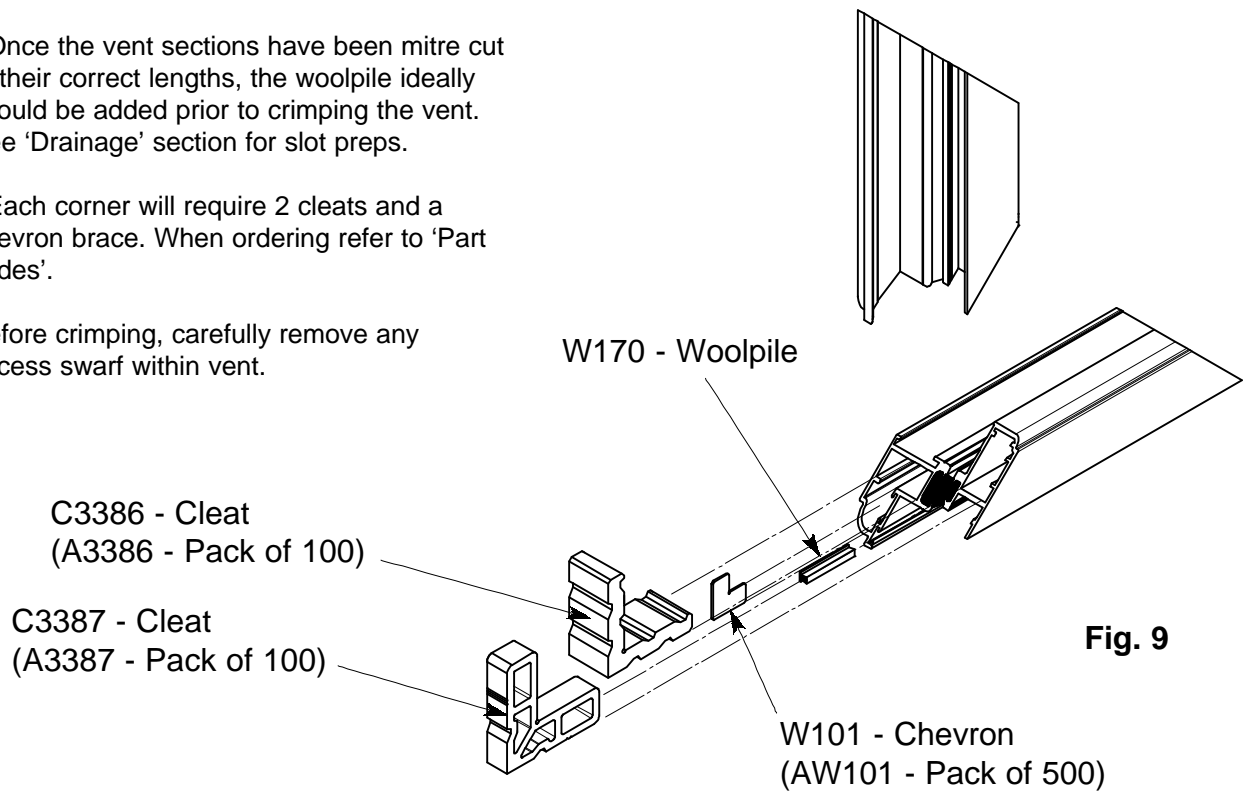


Fig. 9

- Crimp the vent in the normal way, using the specific anvil insert (W830) and punch heads (W831). These are unique for this section. Sealant should be applied to mitred faces prior to final crimp; remove surplus sealant.

- Slide the cassette type gearbox into the prepared slot in the vent and secure the handle loosely in place with the M5 C'sk machine screws provided. Carefully drill Ø3.50 pilot holes through the fixing flaps into the vent.

- Open up the fixing flaps, select the correct face fixed shootbolts from the range table and offer one up to the vent corner. The shootbolt faceplate can then be cut to length. Make sure that there is adequate coverage of the face plate teeth into the mating gearbox teeth. The faceplate should ideally butt up against the gearbox.

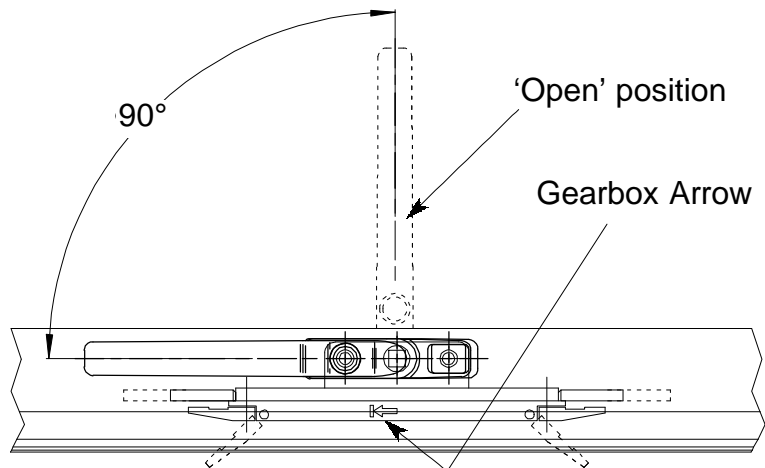


Fig.10

- Close the fixing flaps and secure the complete assembly, using No.8 x 1" Csk Pozi Hd screws (ST81CPSS), through the previously drilled pilot holes. Repeat this again by drilling Ø3.00 pilot holes in all the other fixing positions and secure all of these with No.6 x 3/4" Csk Pozi Hd screws.(ST634CPSS)

- Repeat for the opposite side.

- The handle (AW828) can now be secured fully in the 'open position', locating the 9mm long square spindle into the gearbox. Please note that the arrow on the gearbox indicates direction of the handle in the closed position.
- Operate the handle and check the gear movement. You will find that the first cycle may require force to break temporary guides built into the faceplate; once broken, operation of the shootbolts should then be smooth.
- Clip-in, handle screw cover plates down. The plastic 'clip-in' cover trim (C3392) will be fitted around the rest of the vent once the vent has been installed.

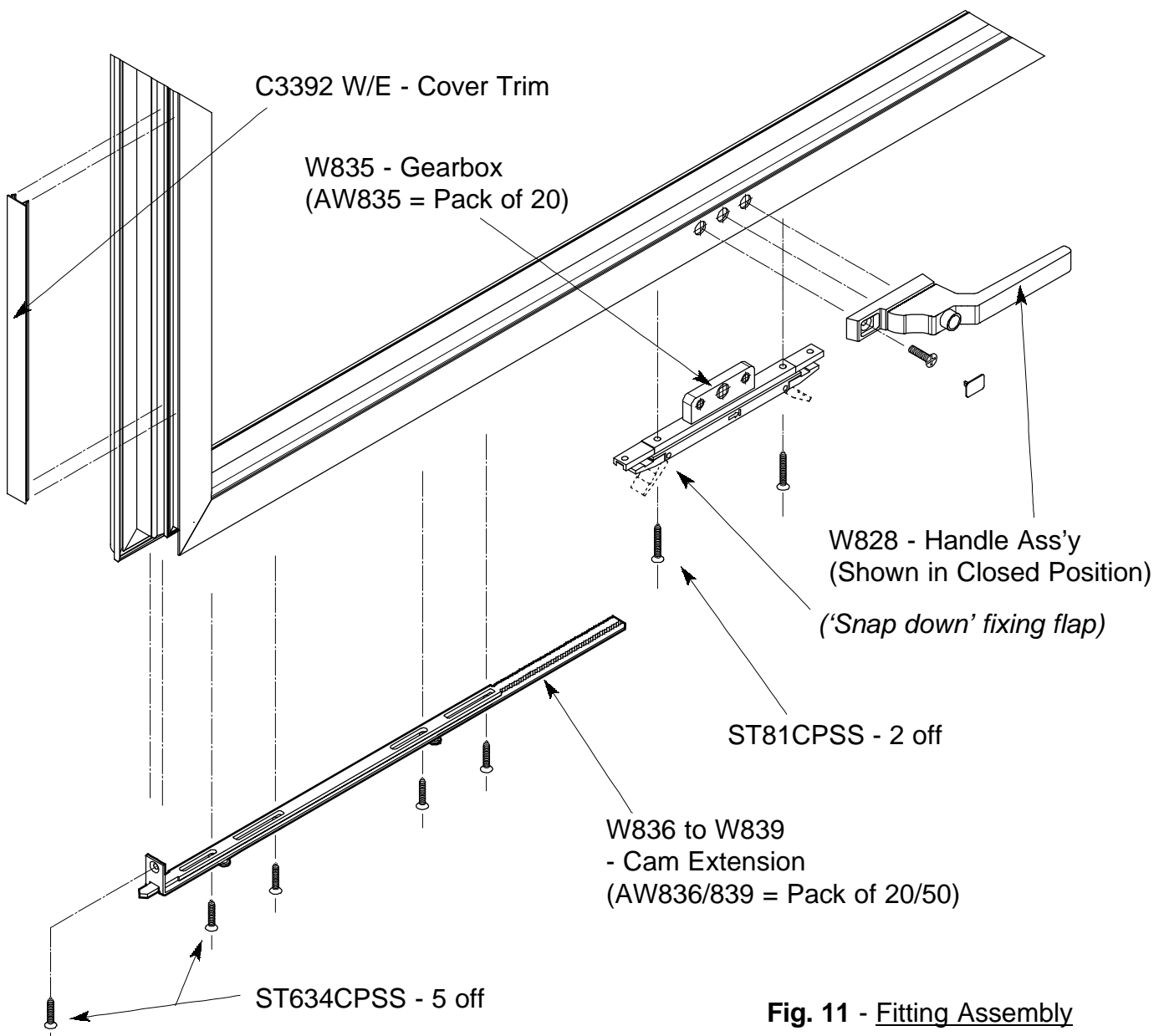


Fig. 11 - Fitting Assembly

- The outer frame configuration is assembled and crimped in the normal method. Refer to general Window section of manual for fabricating procedures.

- High security hinges are strongly recommended on all Monafame windows. Standard hinges can be used, although to guarantee the security of the window Vector Excluders should be fitted.

- Once the desired hinges have been fitted into the frame, fix the vent to the hinges using No.8 x 3/8" Pozi Pan Hd screws (**ST838PPSS**) and adjust the vent to sit square. If the vent has been cut correctly, the vent mitres should line up with the frame mitres.

Please we aware that hinges can only be screw fixed and cannot be rivet fixed on to these profiles.

Note. Do not final fix the vent to hinge until the vent is adjust centrally, use the hinge fixing slots to gain adjustment before final fix.

- The shootbolt keeps are positioned 5mm up from the corners. This keep is used for both locking and night vent facility, and it butts up against the inside bead edge. They are fixed through the Ø3.50 pilot holes in each corner with No.8 x 5/8" C'sk screws. (**ST858CPSS** - 2 off per keep)

- Likewise, the keeps for the extension cams can now be fitted. Turn the handle and throw the gearing into the open position, carefully close the vent and mark with a pencil the position of the cams. The edge of the keep should be 4mm from this mark. This will allow the cam to pass into the keep when the window is locked.

- Repeat procedure for all the cams. See part code list for quantity of keeps needed. Check operation of the vent is smooth and that the lock and night vent facility works.

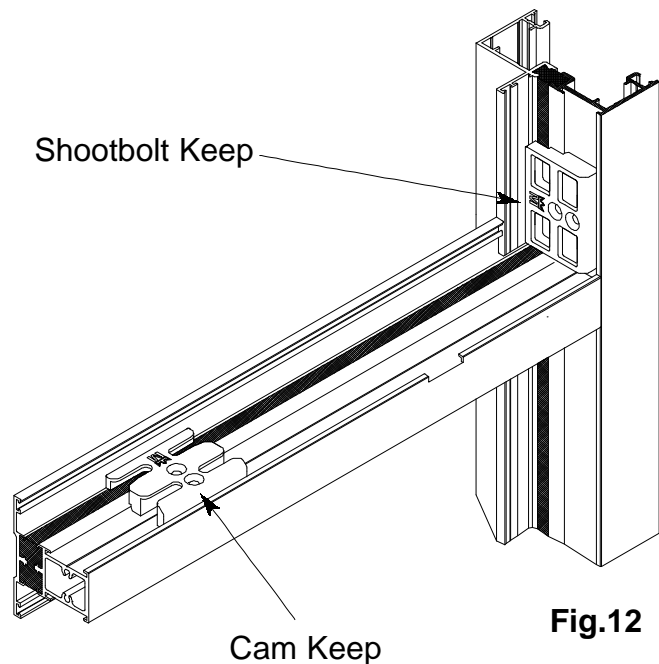


Fig.12

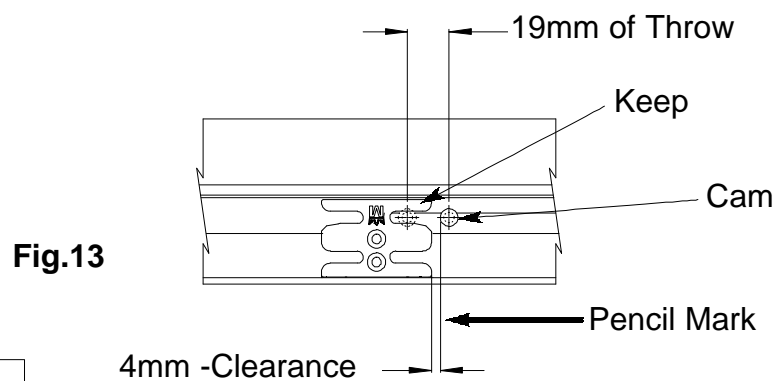


Fig.13

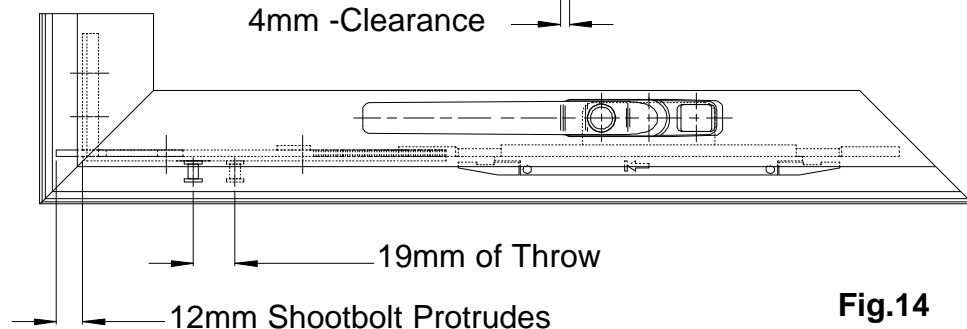


Fig.14

Vent & Frame Assembly - Roto Standard Espag Only

- Once the vent sections have been mitre cut to their correct lengths, the woolpile ideally should be added prior to crimping the vent. See figure 9. Before crimping, carefully remove any excess swarf within vent. See 'Drainage' section for preparation slots.

- Crimp the vent in the normal way, using the specific anvil insert (W830) and punch heads (W831). These are unique for this section. Sealant should be applied to mitred faces prior to final crimp, with surplus sealant removed after.

- After choosing the required gearing, slide the assembly up into the prepared slotted pocket in the vent. With its face plate sitting against the eurogroove lip, carefully drill Ø3.00 pilot holes thro' the face plate. Fix up thro' face plate holes with No.6 x 3/4" Csk Pozi Hd screws. (ST634CPSS)

Do not overtighten !

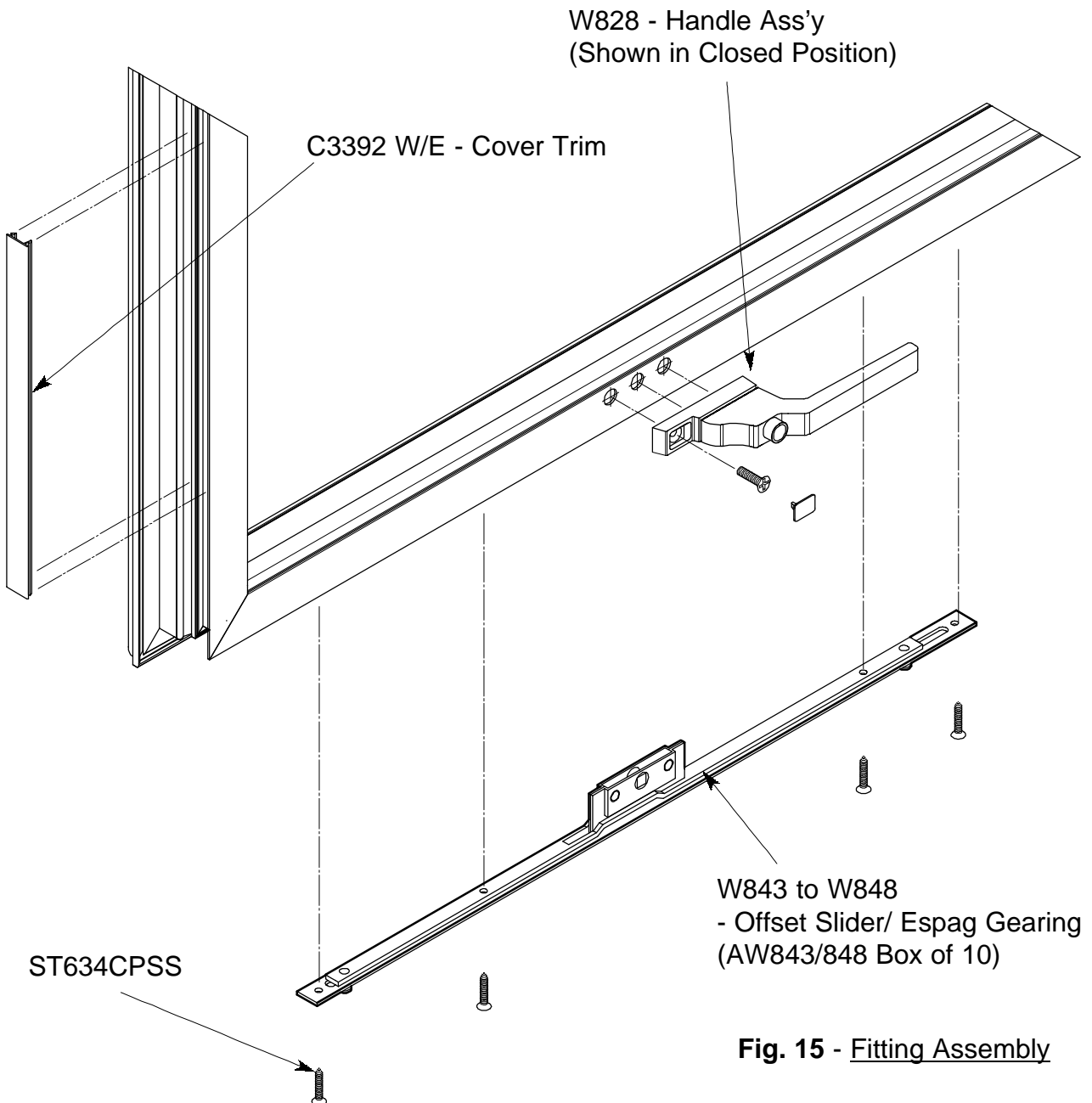


Fig. 15 - Fitting Assembly

- The handle (AW828) can now be fitted and secured in place with the M5 C'sk machine screws provided, locating the 9mm long square spindle into the gearbox. Do not overtighten, take care not to pull the gearbox over when securing the handle or the cam face plate may distort.
 - Cycle the handle and check the gear movement.
 - Clip-on, handle screw cover plates down. The plastic 'clip-in' cover trim will be fitted around the rest of the vent once the vent has been installed.
 - The outer frame configuration is assembled and crimped in the normal method. Refer to general Window section of manual for fabricating procedures.
 - High security hinges are strongly recommended on all Monafame windows. Standard hinges can be used, although to guarantee the security of the window Vector Excluders should be fitted.
 - Once the desired hinges have been fitted into the frame, fix the vent to the hinges using No.8 x 3/8" Pozi Pan Hd screws (**ST838PPSS**) and adjust the vent to sit square. If the vent has been cut correctly, the vent mitres should line up with the frame mitres.
 - Please we aware that hinges can only be screw fixed and cannot be rivet fixed on to these profiles.**
- Note.** Do not final fix the vent to hinge until the vent is adjust centrally, use the hinge fixing slots to gain adjustment before final fix.
- The keeps for the locking cams are fixed thro' Ø3.50 pilot holes into the mating frame with No.8 x 5/8" C'sk screws. (**ST858CPSS** - 2 off per keep)
 - By turning the handle and throwing the gearing into the open position, carefully close the vent and mark with a pencil the position of the cam edge. The edge of the keep should be 4mm from this mark. This will allow the cam to pass into the keep when the window is locked.
 - Repeat procedure for all the cams. Check operation of the vent is smooth and that the lock and night vent facility works.

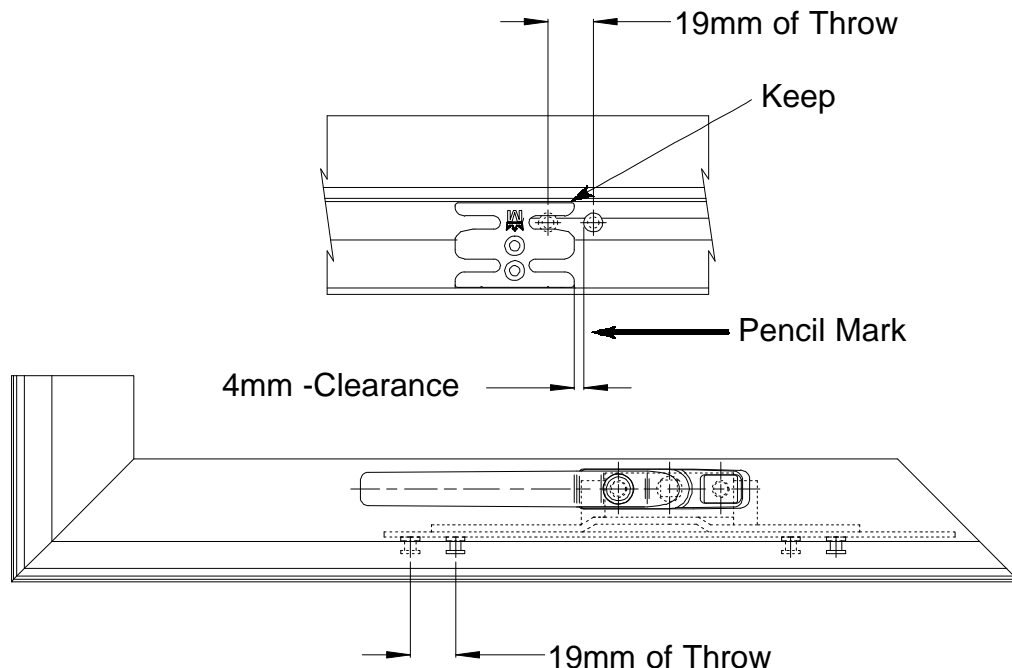


Fig.16

13.5 Glazing

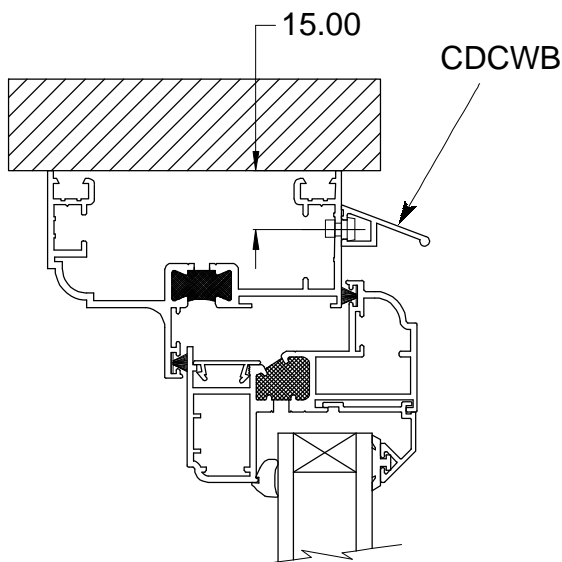
- Refer to Window Manual C2027- Casement Windows for all glazing details.

13.6 Maintenance

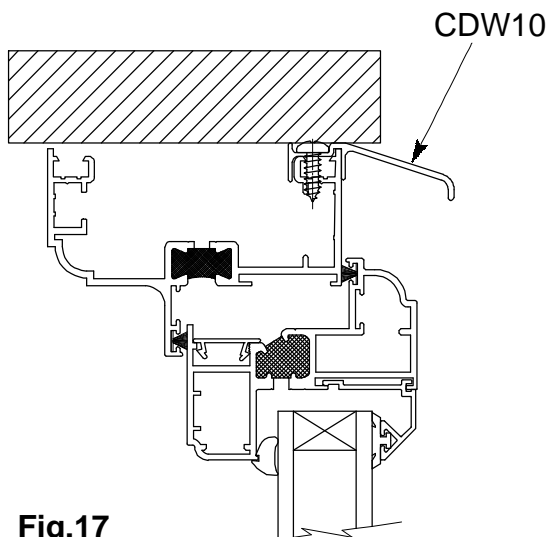
- The system is effectively maintenance free. The user should be briefed that in the unlikely event of a problem arising, not to force the handle or the mechanism may be damaged. The gearbox is pre-lubricated although periodical lubrication is recommended, and any cleaning of paintwork should be carried out with nothing stronger than white spirit.

13.7 Drainage Preparation

- As stated earlier the vent, when used in conjunction with a Monaframe 75mm outer frame profile, will achieve a severe weather rating. The following preparations are required to guarantee these figures.

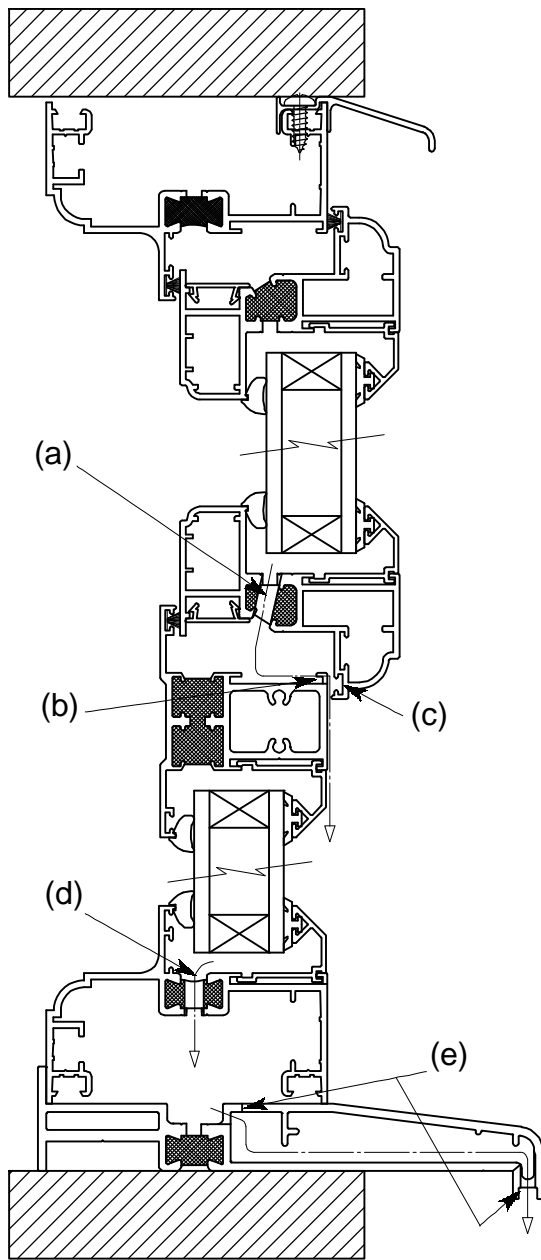


- Where vents are open to the elements, we strongly recommend the fixing of a clip-on weather bar above any opening vent. Section CDCWB can be clipped on to face fixed rivets (W300), this will help disperse excessive water away from the top of the vent.



- Alternatively CDW10 can be fitted at the head, this will sit on top of the head and require screw fixing down with suitable fixings.

Fig.17



- For all opening vents, machine 2 slots 5mm wide x 25mm long thro' the thermal area. Each slot is to be 100mm from each end, as per position (a). Vents over 900mm wide will require a mid slot.

- Where an opening vent sits above a transom, a small nib 20mm long in the bead area requires removing, (b) 100mm from each end and centrally where necessary.

Do not drain into transom.

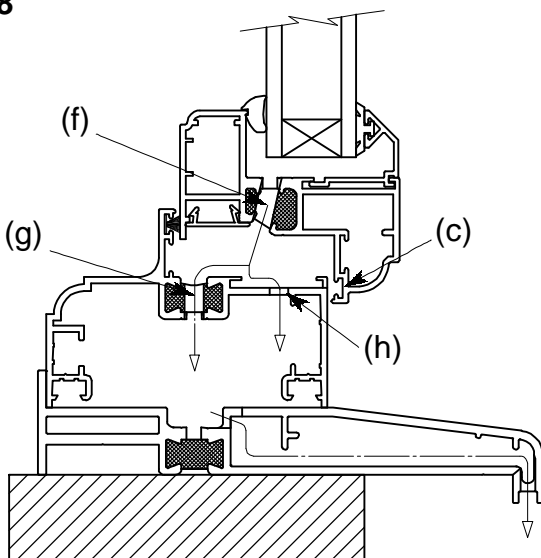
- Leave woolpile out along bottom edge of vent or shave off the pile 20mm from each end, this will help air circulation and drainage properties. (c)

- For fixed vents, machine 2 slots 5mm wide x 25mm long thro' the thermal area. Each slot is to be 100mm from each end. (d). For vents over 900mm wide, a mid slot will be required centrally.

- Where the window frame sits on an add-on cill, if not already supplied prepared, drainage slots must be added. Slots are required in two areas as per (e), these slots are to be offset to each other by 50mm. Both slots are 5mm x 25mm long and at 200mm intervals, the first being 100mm from the end.

- Make sure that profiled plugs are fitted 75mm from each end. See main manual for fitting and fixing procedure.

Fig.18



- Where an opening vent is directly above the outer frame, machine 2 slots 5mm wide x 25mm long thro' the thermal area. Each slot is to be 100mm from each end, as per position (f). Vents over 900mm wide will require a mid slot.

- The slot in the outer frame is positioned depending on how the vent is hung. For a side hung vent, drainage should be thro' the thermal area as per (g). If top hung, drain thro' slots as per (h).

13.8 Additional Information

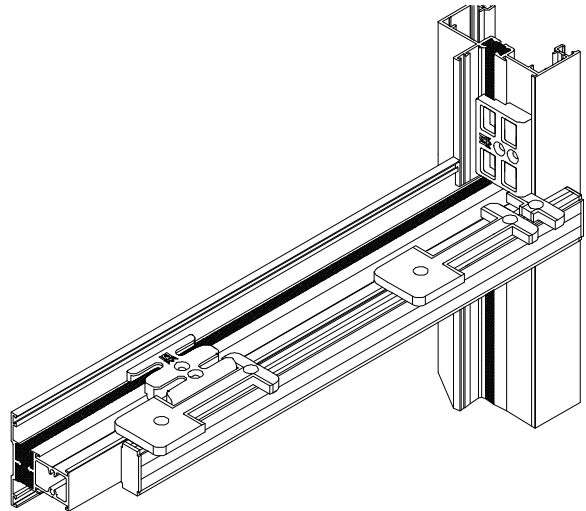
Technical Advice - For any system Technical advice, ring Monarch Technical otherwise gearing details can be obtained from ;

**Roto Frank Ltd,
Swift Point,
Rugby,
Warwickshire,
CV21 1QH**

Please note, jigs for positioning keeps can be obtained direct from Roto.

Refer to full code as shown in 'Part Code' section.

As from May 2001, the E60Q system will be superseded by the Roto Std Espag System. It is fully compatible to the E60Q and will be phased in once stocks of E60Q are used up.



Offset Handles - Combinations of different cam extensions can be used where an offset handle arrangement is required. Please be aware that this may have adverse effects to the overall window security.

Component Uniqueness - The cam extensions are unique to Monarch in terms of the cam roller height. This should be 9mm, any variation to this height will/may cause operational problems thus invalidating the warranty of the system. Both keeps are unique with a Monarch logo clearly visible.

Sample Windows - A sample window 450W x 718H, is available under part code **MS1035**.

NOTE

- Other alternative gearing systems which may suit these vents are listed below. Although these gearing theoretically fit into these vents, both sourcing of suitable keeps and possible additional components will be required .

- We have not tested any of the alternative gearing to the stringent Security and Weather tests, to that which the Roto RA2000 has been tested. Where customers use these alternative gearing, Monarch cannot guarantee the performance of any window. Routing preparations details are not available and any additional information must be obtained direct from gearing supplier.

- Alternative gearing are ;

Schlegel 'Safeguard' (20 Backset) range.
Feneseal 'Saracen F/M' range.##
Winlock 'Steadfast' (20 Backset) Inline/Offset Espag range.
Mila 540M/340M (19 Backset) range.
Maco (20 Backset) range.
Siegenia (20 Backset) range.

Note ;

At time of launch, Feneseal have successfully achieved a BS7950 security rating to suit this Monarch system, further details are unavailable at time of print.