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Model Options & Finish

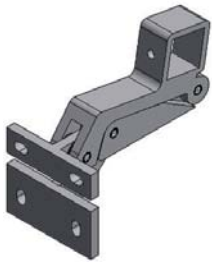
The simplicity of use & robustness of folding openers make them particularly suitable for schools, hospitals, offices, care homes & sheltered housing. The product offers secure locking & controlled ventilation in one simple operation.

Folding openers can be linked in pairs or a triple to accommodate different window widths & certain types can be operated at high level by using a tandem eye & pole operator.

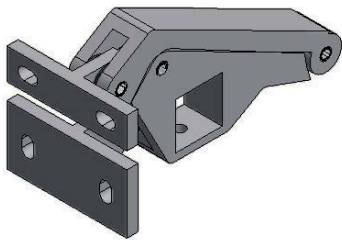
The two standard types of folding opener give a sash movement of 150mm (112 & 110 types). If a greater window opening is required, then an extended folding opener is available (124 type). This gives a sash movement of 315mm. If a smaller opening is required then a shorter folding opener is available. The 18 type folding openers give a sash movement of 100mm.

Folding openers & accessories are finished in Satin Silver Anodised (AA15).

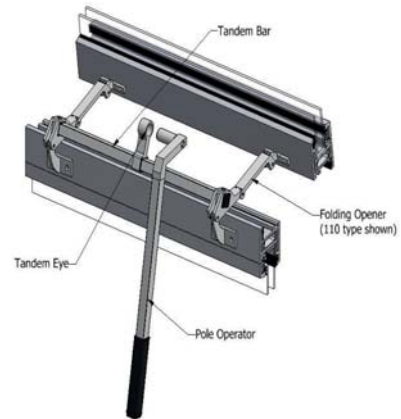
Sash Movement	Folding Opener
100mm	18 Type
150mm	110 & 112 Types
315mm	Extended (124 type)



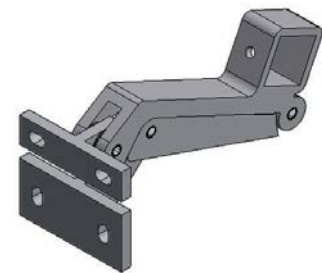
'18 Type' The 18 type folding opener is similar to the 112 type,



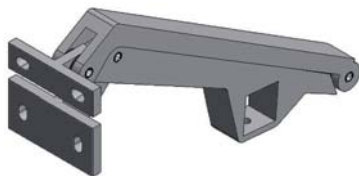
'110 Type' The action of the 110 type folding opener allows the operating eye to remain inside the building even when the window is fully open. This is, therefore, ideal where pole operation is required.



Hand operation of these folding openers is not recommended especially when linked. The geometry of these folding openers results in a chance that fingers could become trapped.



'112 Type' The action of the 112 type folding opener ensures that the operating eye and tandem bar do not interfere with the cill boards. The position of its operating eye gives an extended arc of operation making it ideal for hand operation.



'Extended' (124 type) The extended folding opener is designed for windows that need an extra wide opening. Giving a sash movement of 315mm from the closed position, they are ideal for additional ventilation.

The operation of the extended folding opener is easiest when linked with a tandem bar.

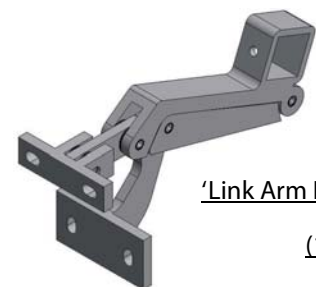
When the extended folding opener is closed, the tandem eye drops below the level of the sash, resulting in an increased chance of trapping fingers, if a tandem bar or operating handle is not used.

Due to the position of the operating eye & the throw of the window, tandem eyes can be difficult to reach & thus this type of folding opener is not recommended for high level operation.

Additionally, the window cill must be taken into account, as the drop of the operating arms when in the closed position could result in a clash with the cill.

Please see the folding opener reference matrix, for the bracket set up available with the extended type folding opener.

Extended folding openers are not suitable for high level pole operation.

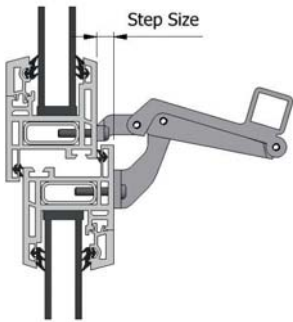


'Link Arm Folding Opener'

(130L023ANSAT)

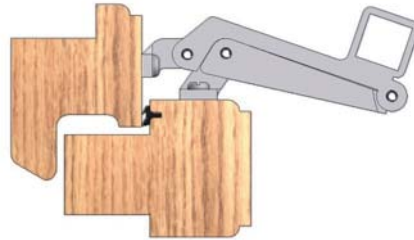
Folding openers are best suited to top hung windows. The fixing brackets on folding openers make them suitable for use on aluminium, PVC-U, timber, steel & composite windows.

Fixing Details



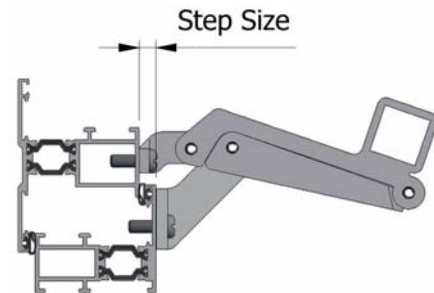
PVC-U Windows

When using PVC-U windows, always fix into reinforcement.



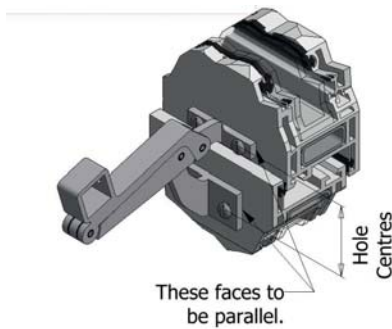
Timber Windows

When using timber windows, do not fit too close to edges of profile. Doing so may cause the timber to split.



Aluminium Windows

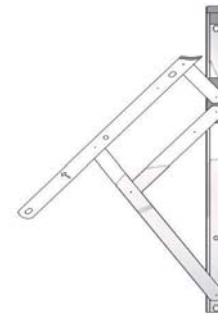
When using aluminium windows, only use recommended fixings—check with systems company if in doubt.



When fixing folding openers to windows, the hole centres should be correct to the specification of opener being used. The sash bracket & frame bracket should be in line & square. When fitting tandem bars the folding openers should be square & in line with each other.

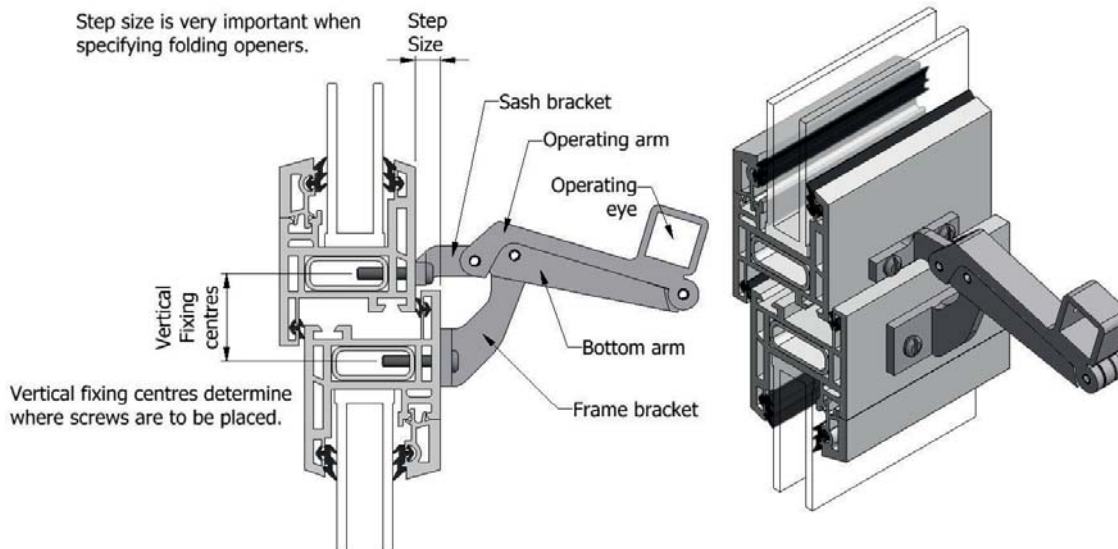


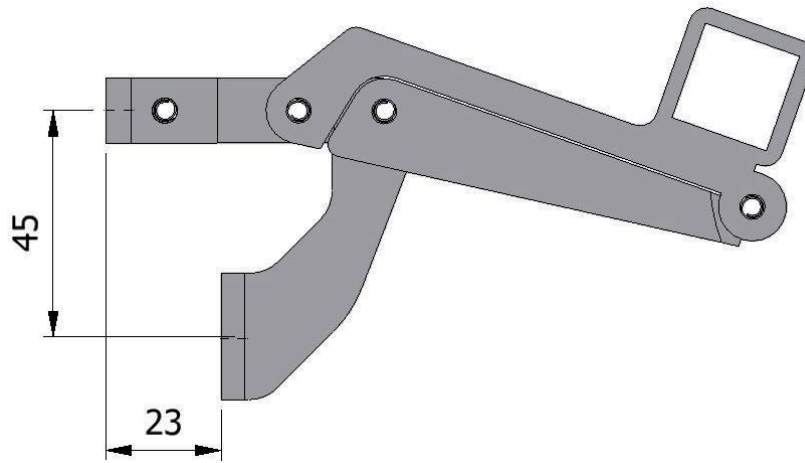
When a sash is hung on butt hinges, the clear rebate size should be no less than 250mm.



If the sash is hung on friction stays, the clear rebate size should be no less than 400mm.

Key Features



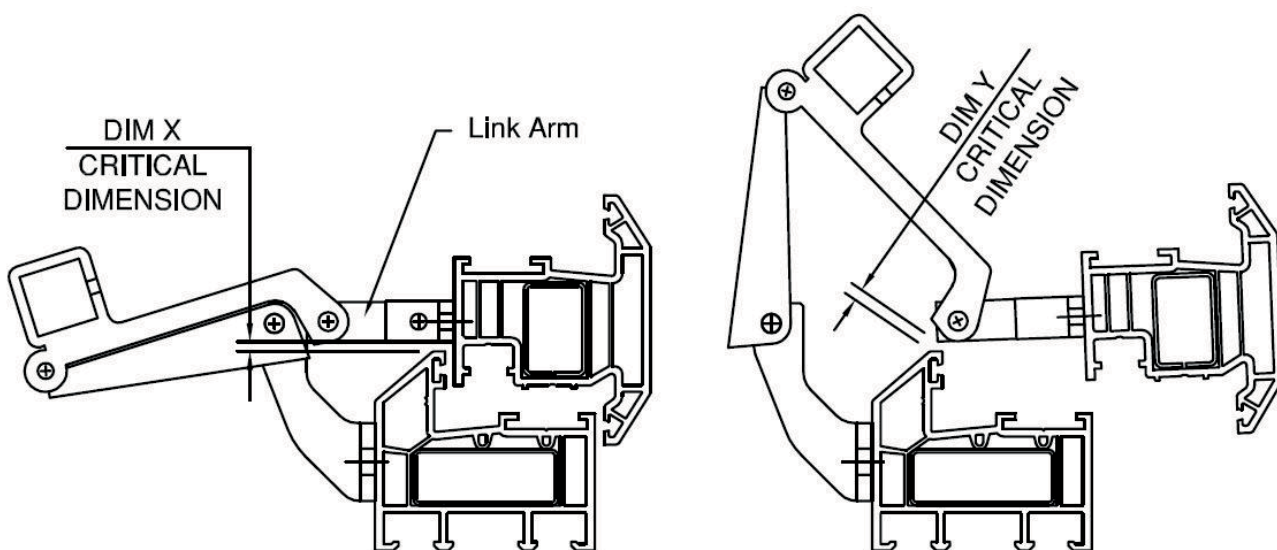


Important Application Notes

If possible, applications requiring link arm folding openers should be trial fitted on a window prior to ordering bulk.

Care must be taken to ensure that the rear of the link arm does not clash with the cill, especially when moving to the open position (please refer to dimension "Y").

The length of the link arm and the window height will determine the size of dimension "X" required.



Tandem Bars

Tandem bars are available in the following lengths: 600mm, 800mm, 1000mm, 1600mm & 3000mm. For other sizes, an oversized tandem bar should be purchased and cut to the required length by the customer.



Tandem Bar Rules	
1	Folding openers must be positioned between 100mm & 200mm from the corner of the sash. The tandem bar should, therefore, be 200mm to 400mm less than the width of the window.
2	Tandem bar lengths are always specified by the hole centres, not overall length.
3	The maximum distance between linked folding openers should not exceed 900mm. If a 1000mm length tandem bar is required, a third folding opener must be used.
4	When a third or fourth folding opener must be used, a modified polypropylene end cap(s) should be located in the operating eye(s).

Tandem Bar Lengths & Number of Openers Required

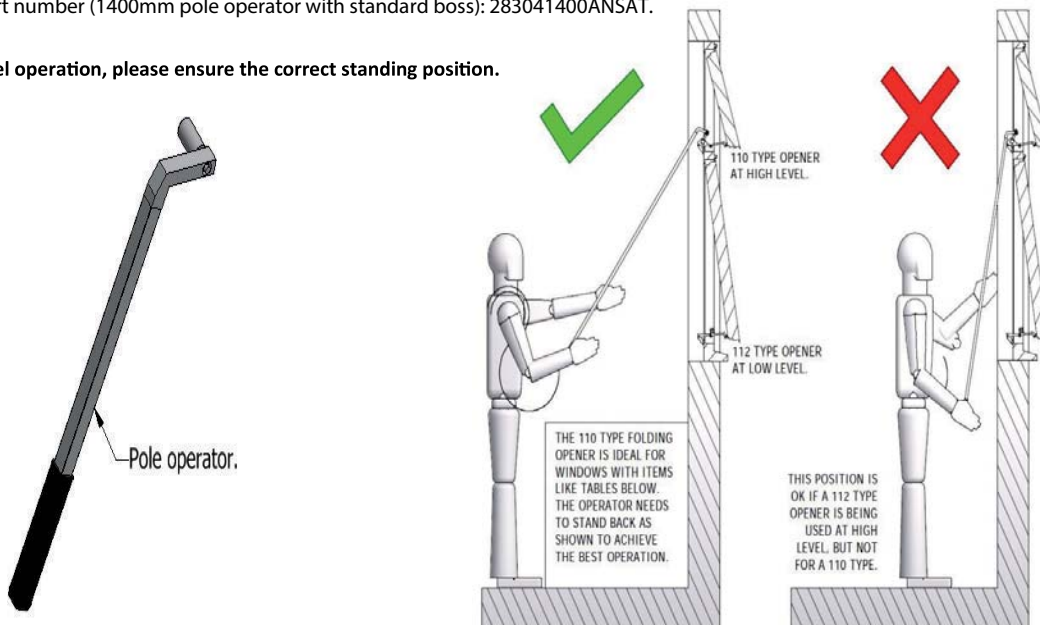
Formula for tandem bar lengths: $x = \text{Sash width} - 300$ (round up or down to the nearest 100mm).

X = 0mm to 400mm	X = 401mm to 900mm	X = 901mm to 1800mm	X = 1801mm to 2700mm	X = 2700mm plus
1 opener*	2 openers	3 openers	4 openers	Contact Customer Services

Pole Operators

The standard length of pole operators is 1400mm. 2000mm pole operators are available on request. All pole operators are supplied with a standard boss (Ø18.0mm). Part number (1400mm pole operator with standard boss): 283041400ANSAT.

When using high level operation, please ensure the correct standing position.



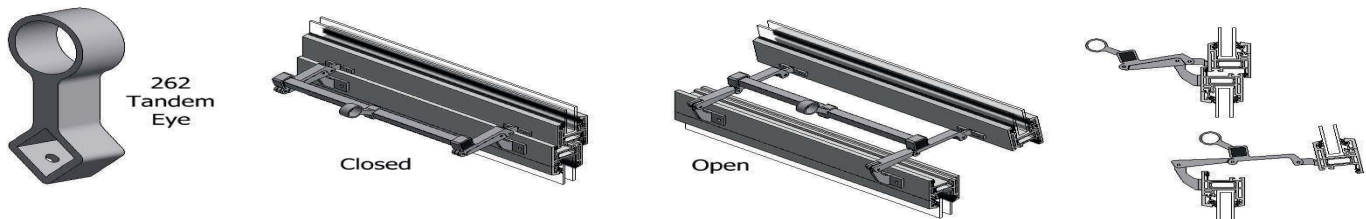
Accessories: Tandem Eyes

Tandem Eyes

Pole operation of a single folding opener does not normally require a tandem eye. However, when linked by a tandem bar & pole operation is necessary, a tandem eye will be required. The tandem eye should be fitted either centrally (in the case of 2 folding openers) or immediately to the side of the central folding opener (in the case of 3 folding openers). Two types of tandem eye are available & the recommended fitting positions are shown below. Tandem eye kits include; one tandem eye, two black polypropylene end caps & three self tapping screws. Any alternatives to the fitting positions shown below should be fully tested, prior to installation.

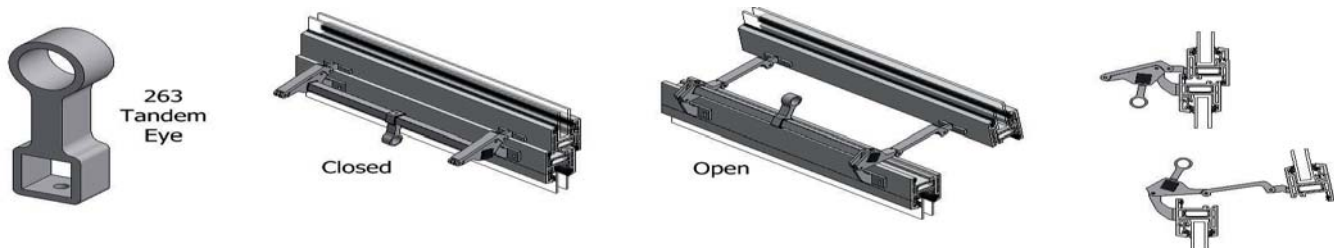
262 Tandem Eye (kit part number: 262ANSAT)

The 262 tandem eye is especially suited to the 112 type folding openers, where an extended operating arc is required. Whilst the 112 type folding openers are not ideal for pole operation, there may be applications where a tandem eye is required. If pole operation of a 112 type folding opener is planned, testing must take place prior to installation.



263 Tandem Eye (kit part number: 263ANSAT)

The 263 tandem eye is generally used in conjunction with the 110 type folding opener to give an extended operating arc. If this folding opener is to be used at a high level, in a window application with a cill board, care must be taken that the clearance is accounted for.

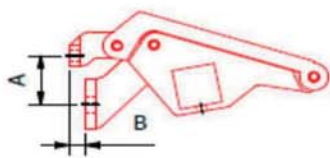

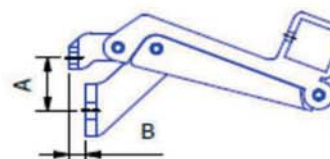

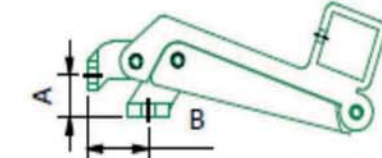

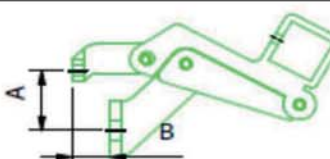

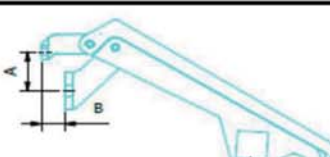



The 110 Type folding opener is designed for high level use. Due to the design of this opener it is much easier to operate with a pole operator. As the diagrams above show, the ideal operating position is to stand away from the window. This allows items like tables to be below the window.



Folding Opener Quick Reference Matrix

Folding Opener Quick Reference Matrix									
STYLE	DIM A	REF	DIM B	REF	DIM B	REF	DIM B	REF	DIM B
110	25mm	11000*	FLUSH						
111	25mm					11107	7mm	11116*	16mm
112	25mm	11200	FLUSH						
112	25mm			11205	5mm	11207	7mm	11216	16mm
113	16mm					11307	7mm		
117	35mm	11700	FLUSH						
117	30mm					11707	7mm	11716*	16mm
118	26mm	11800	19mm						
124	30mm			12405*	5mm				
130	39mm	13000	FLUSH						
130	39mm			13005*	5mm	13007	7mm	13016	16mm
131	39mm							13116	16mm
180	25mm			18005*	5mm			18016*	16mm
185	39mm					18507*	7mm		
187	48mm							18716*	16mm
190	48mm			19005	5mm			19016	16mm
191	48mm							19116	16mm

	110, 111, 131 & 191 type	
	112, 113, 117, 130 & 190 type	
	118 type	
	180, 185 & 187 type	
	124 type	

PLEASE USE THE DATA IN THIS MATRIX IN CONJUNCTION WITH THE NOTES ON PAGE 9.

All folding openers shown in the Quick Reference Matrix, are available as a 'stand alone' folding opener. Where a 'Stand alone' folding opener will not meet the window system step size ("B Dimension"), packers can be ordered—see below.

All Folding Openers, regardless of type, have a horizontal fixing centre dimension of 33.00mm.

Packers

Packers are available to suit both the vent bracket & the frame bracket, as shown below:

Vent Bracket Packers:

- 1.00mm Satin Anodised Aluminium
- 2.00mm Satin Anodised Aluminium
- 3.00mm Satin Anodised Aluminium
- 5.00mm Nylon*

*Note: The 5.00mm Nylon vent bracket packer is a moulded item. No more than one can be used per folding opener.

Frame Bracket Packers:

- 5.00mm Satin Anodised Aluminium

PLEASE USE THE DATA ON THIS PAGE IN CONJUNCTION WITH THE QUICK REFERENCE MATRIX ON PAGE 8.

TROUBLESHOOTING		
PROBLEM	CAUSE	SOLUTION
Sash won't fully close when folding opener is closed.	Wrong brackets for window step size.	Check step size and use correct folding opener part numbers.
Sash is fully closed but folding opener is not.	Wrong brackets for window step size.	Check step size and use correct folding opener part numbers.
Folding opener won't lock out in open position.	Sash movement being restricted.	Remove restriction or fit folding opener type with reduced opening characteristics.
Folding opener won't lock out in open position.	Sash height too small.	Use alternative window hardware.
Folding opener fouls on cill board when closing window.	Insufficient clearance between folding opener and cill board.	Change folding opener to a more suitable type.
Tandem eye not accessible when window is open.	Wrong folding opener type or wrong tandem eye type being used.	Refer to tandem eye details in manual & replace with correct parts.
Folding opener becomes loose after a time in service on a PVC-U window.	Fixing screws not engaged into reinforcement.	Use screws of correct length.