VELFAC Installation Lug Design Guide

To enable a quick, stable and viable installation into both modern and old forms of construction a twist in lug is available for the VELFAC 200 system. By twisting the new installation lug into the frame groove and the window is ready to be screwed into the structural opening.

Following time and motion studies of installations completed utilizing the twist in lug the feedback received was:

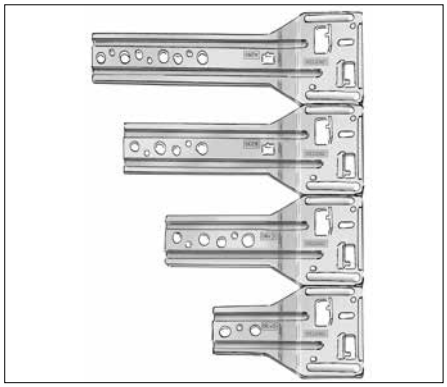
- Time required to prepare the window element for installation was considerably reduced. The twist in tabs of the lug now make there application a one man job.
- Consistent Quality Control i.e. the groove locates the lug in the correct positioning and therefore the fixing screws, the lug specification is constant in terms of materials, finishes and fixing configuration.
- Weight issue i.e. compared to the usual 3mm thick lugs, the VELFAC lugs have a 50% reduction in weight of materials to be transported and handled on site.

Suitable for installing VELFAC 200 elements in most wall constructions with inner panels / substrates.

Projecting

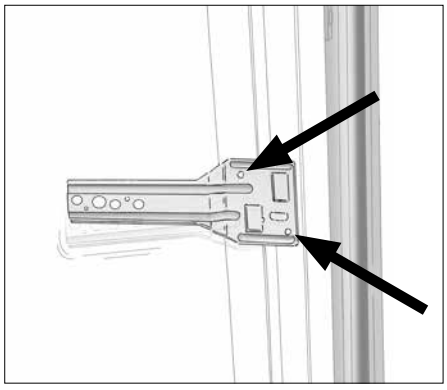
- Page 2 provides an overview of the depths the different lugs can be used.
- Page 3 features how many screws should be used depending on the window size and current construction.
- Page 4 offers information of suggested fasteners according to the surround material.

Material and testing. The fittings are made of 3mm steel, strength S235. The installation lugs are approved up to 1KN per fitting (push-and-pull test, horizontal load).



VELFAC Installation lugs are available in 4 different lengths: 280mm, 230mm, 180mm or 130mm. This allows the correct size bracket to be ordered and used to suit the construction detail in situ and guarantee fixings into the substrate have sufficient edge protection.

Please refer to the drawing on the next page to decide which length is suitable for your project.



Securing the lug in the frame. At an angle of approximately 45° locate the lug tabs into the groove of the timber mainframe and twist in a downward motion.
The lug is fully engaged when sat at 90° to the frame.

Fix the lug to the frame with 2no 5mm x 40mm wood screws.
N.B. longer screws will be required if timber packers or attachment profiles are attached to timber frame. Minimum embedment depth of screws into timber frame is 38mm.

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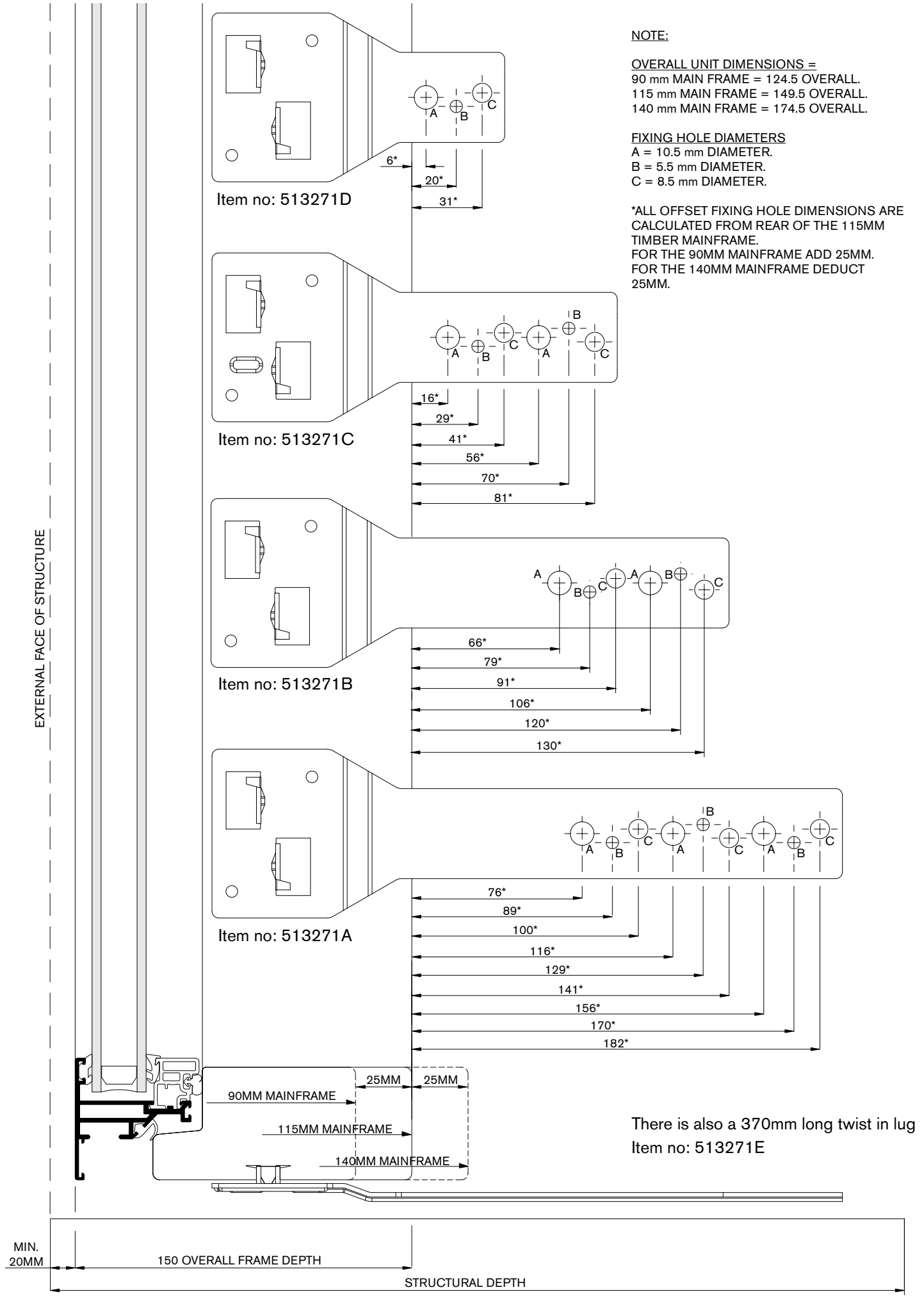

NOTE:

OVERALL UNIT DIMENSIONS =
90 mm MAIN FRAME = 124.5 OVERALL.
115 mm MAIN FRAME = 149.5 OVERALL.
140 mm MAIN FRAME = 174.5 OVERALL.

FIXING HOLE DIAMETERS
A = 10.5 mm DIAMETER.
B = 5.5 mm DIAMETER.
C = 8.5 mm DIAMETER.

*ALL OFFSET FIXING HOLE DIMENSIONS ARE CALCULATED FROM REAR OF THE 115MM TIMBER MAINFRAME.
FOR THE 90MM MAINFRAME ADD 25MM.
FOR THE 140MM MAINFRAME DEDUCT 25MM.

There is also a 370mm long twist in lug
Item no: 513271E

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Maximum recommended fixing centres (for windload only)

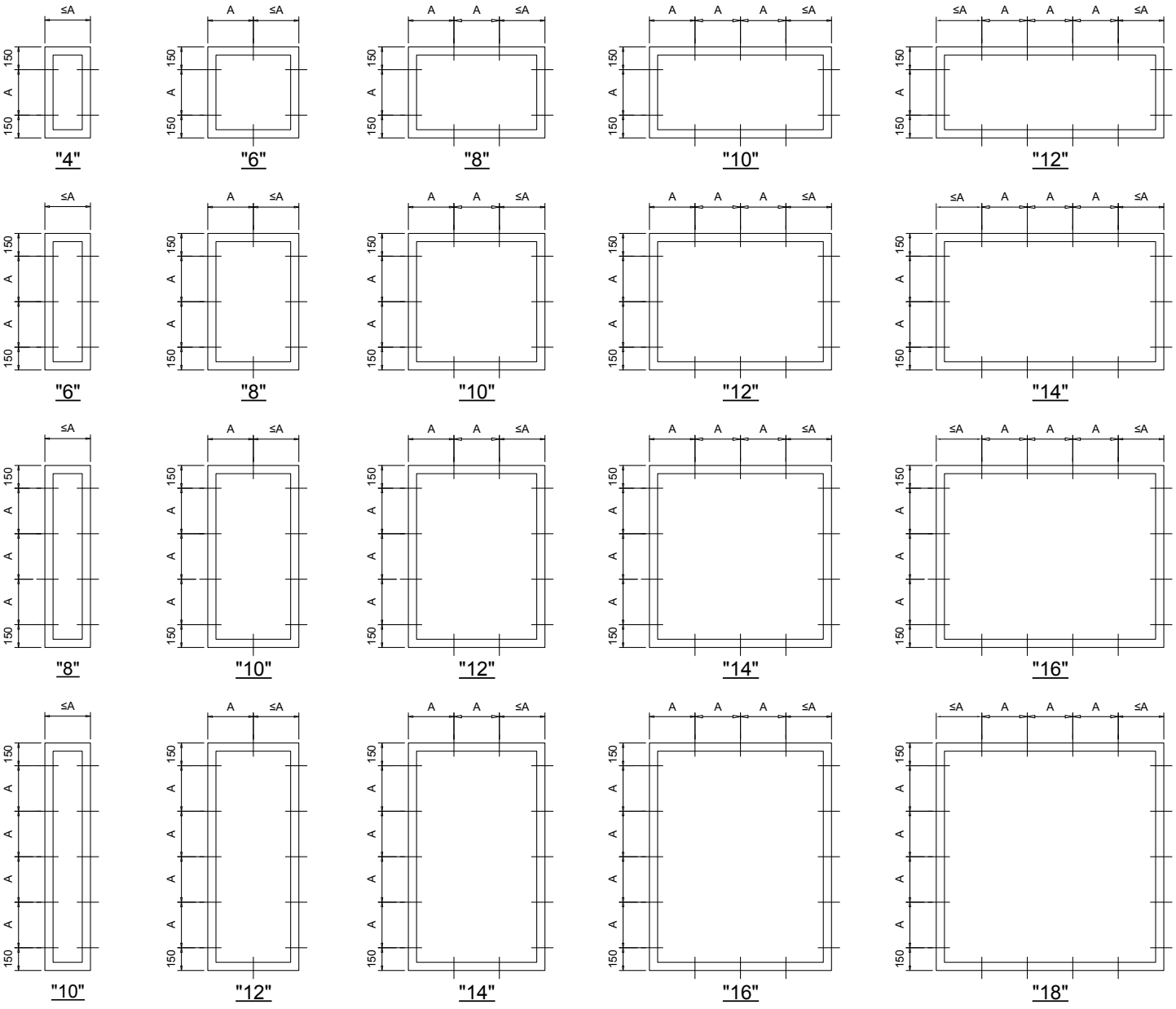
Surround material	Design Windload (KN/m²)			
	≤0.75	0.75-1.0	1.01-1.5	1.51-2.0
3 N/m² block, 100mm wall	600mm	600mm	550mm	450mm
3 N/m² block, 140mm wall	600mm	600mm	600mm	550mm
7 N/m² block, 100mm wall	600mm	600mm	600mm	600mm
7 N/m² block, 140mm wall	600mm	600mm	600mm	600mm
Timber	600mm	600mm	600mm	600mm
Concrete	600mm	600mm	600mm	600mm
Steel	600mm	600mm	600mm	600mm

The above table provides guidance on the maximum fixing centres according to structural material and design windload. It is recommended that individual conditions should be reviewed by a qualified structural engineer to establish the specific requirements.

NB: if the structural surround and/or design windload is unknown, fixings should be placed 100-150mm from the corner of the frame and at maximum 450mm centres.

Fixing lug arrangements (max spacing 600c/c)

Dimension 'A' in the below elements should not exceed maximum centres indicated on the table above.



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Appropriate type and quantity of fixings

Substrate	Fastener option 1	Fastener option 2	Quantity	Remarks
Aerated block	7.5×60mm universal screw anchor or equivelant	10×60 /10 plastic frame anchor or equivelant	1 no. fixing per lug	Fixing must be located on centre line of block
				Maximum packing thickness 15mm
Brickwork	7.5×60mm universal screw anchor or equivelant	10×60 /10 plastic frame anchor or equivelant	1 no. fixing per lug	Fixing must be located on centre line of brick
				Maximum packing thickness 15mm
Concrete	7.5×60mm universal screw anchor or equivelant	10×60 /10 plastic frame anchor or equivelant	1 no. fixing per lug	Fixing must be located on centre line of wall
				Maximum packing thickness 15mm
Timber	5×60mm woodscrew		1 no. fixing per lug	For maximum packing thickness of up to 15mm
Steel 3.0 to 5.5mm thick	5.5×32mm carbon steel self drilling screw or equivelant		1 no. fixing per lug	For maximum packing thickness of up to 15mm
Steel 4.5 to 15mm thick	5.5×40mm carbon steel self drilling screw or equivelant		1 no. fixing per lug	For maximum packing thickness of up to 15mm