

# VELFAC Installation Lug Design Guide

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**VELFAC**®

**Faster, easier, cheaper.** To ensure you a fast, stable and durable window installation we have developed a system customised installation lug for VELFAC 200 windows, patio doors and sliding window doors. By twisting the new installation lug into the frame groove and the window is ready to be screwed into the structural opening.

**Save time and money.** After test installations of windows using the VELFAC intallation lug, the installers found:

- Approx. 30% of preparation time on windows to be installed was saved. Time was saved in fixing the lug to the window frame i.e. the lug locates itself in the groove and is then screw fixed if required. The preparation can be made by one instead of the two people.
- 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.
- Flexibility of positioning around the frame in the windload condition i.e. lug can be repositioned without removing the frame from the aperture.
- 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.

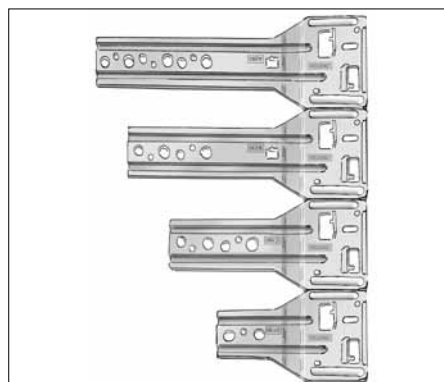


**Suitable for** installing VELFAC 200 windows in all common wall constructions with inner panels.

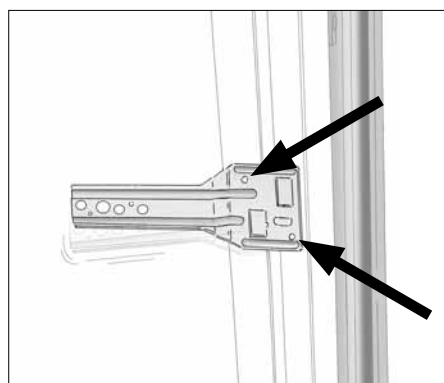
## Projecting.

- 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 2mm 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. Please refer to the drawing on the next page to decide which length is suitable for your project.

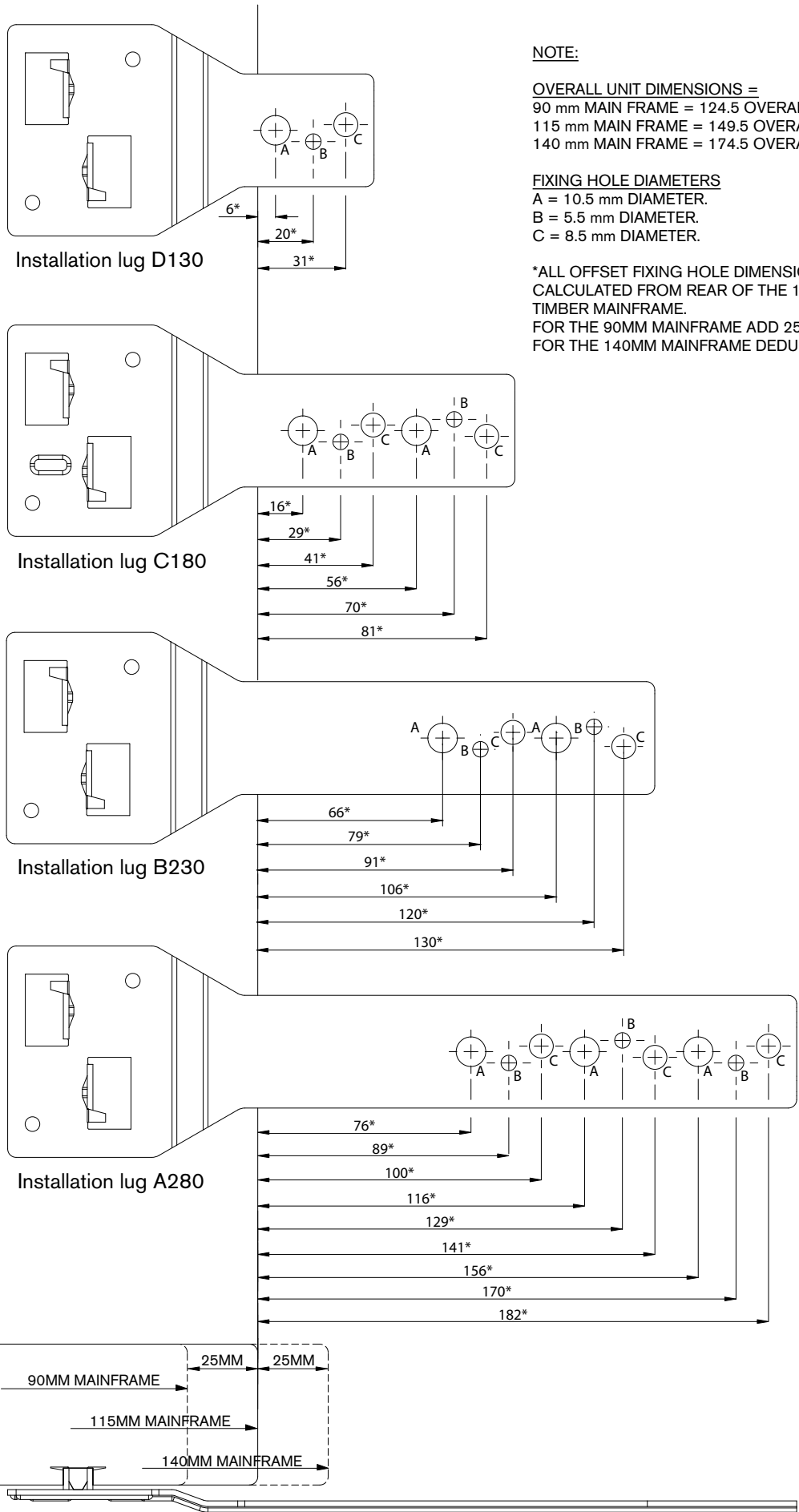


**Securing the lug in the frame.** Slip the taps into the groove and twist into place to secure a good grip. The lug can be turned free again and moved up or down to avoid any positioning issue e.g. a joint between bricks.

**Fix the lug to the frame** with 5x40mm 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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EXTERNAL FACE OF STRUCTURE



**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.

MIN. 10MM

150 OVERALL FRAME DEPTH

STRUCTURAL DEPTH

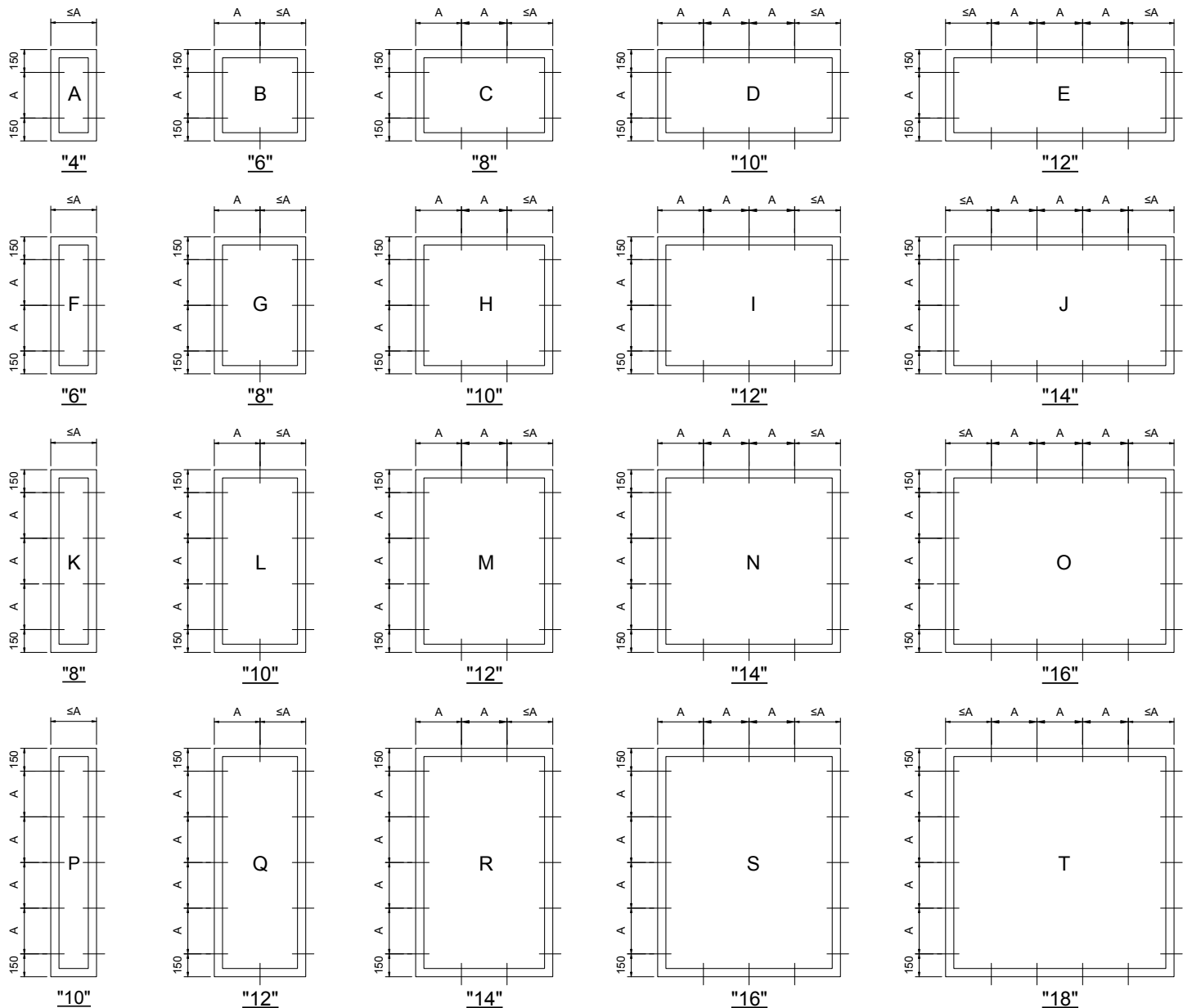
## Maximum recommended fixing centres (for windload only)

Surround material	Design Windload (KN/m <sup>2</sup> )			
	≤0.75	0.75-1.0	1.01-1.5	1.51-2.0
3 N/m <sup>2</sup> block, 100mm wall	750mm	650mm	550mm	450mm
3 N/m <sup>2</sup> block, 140mm wall	900mm	900mm	650mm	550mm
7 N/m <sup>2</sup> block, 100mm wall	900mm	900mm	750mm	650mm
7 N/m <sup>2</sup> block, 140mm wall	900mm	900mm	900mm	750mm
Timber	900mm	900mm	900mm	900mm
Concrete	900mm	900mm	900mm	900mm
Steel	900mm	900mm	900mm	900mm

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 150mm from the corner of the frame and at maximum 450mm centres.

## Fixing lug arrangements (max spacing 900c/c)

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



## Suggested fasteners according to substrate

Substrate	Fastener option 1	Fastener option 2	Quantity	Remarks
<b>Aerated block</b>	7.5×60mm universal screw anchor. E.g. Hilti hus or equivalent	10×60 /10 plastic frame anchor. E.g. Hilti hrd-sgt or equivalent	1 no. fixing per lug	Fixing must be located on centre line of block
				Maximum packing thickness 10 mm
<b>Brickwork</b>	7.5×60mm universal screw anchor. E.g. Hilti hus or equivalent	10×60 /10 plastic frame anchor. E.g. Hilti hrd-sgt or equivalent	1 no. fixing per lug	Fixing must be located on centre line of brick
				Maximum packing thickness 10 mm
<b>Concrete</b>	7.5×60mm universal screw anchor. E.g. Hilti hus or equivalent	10×60 /10 plastic frame anchor. E.g. Hilti hrd-sgt or equivalent	1 no. fixing per lug	Fixing must be located on centre line of wall
				Maximum packing thickness 10 mm
<b>Timber</b>	5×60mm woodscrew		1 no. fixing per lug	For maximum packing thickness of up to 5 mm
			2 no. fixings per lug	For maximum packing thickness of up to 10 mm
<b>Steel 2.0 to 5.5mm thick</b>	5.5×32mm carbon steel self drilling screw. E.g. Hilti s-md03z or equivalent		1 no. fixing per lug	For maximum packing thickness of up to 5 mm
			2 no. fixings per lug	For maximum packing thickness of up to 10 mm
<b>Steel 4.5 to 15mm thick</b>	5.5×40mm carbon steel self drilling screw. E.g. Hilti s-d05z or equivalent		1 no. fixing per lug	For maximum packing thickness of up to 5 mm
			2 no. fixings per lug	For maximum packing thickness of up to 10 mm