LDSS — Light Diaphragm Spline Strap for Mass Timber

Materials

- 1.5mm Carbon Steel

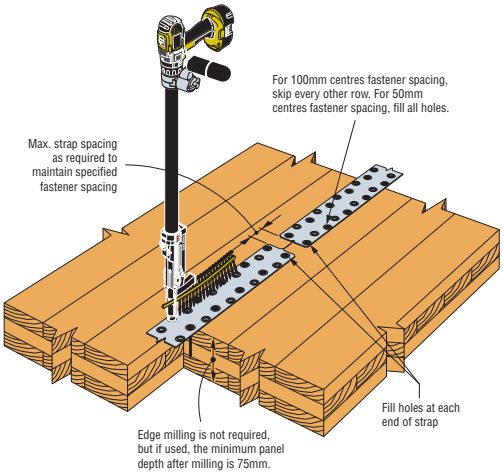
Finish

- Zinc Galvanized, Z275

Corrosion Resistance Level
LOW

Features & Benefits

- No routing required; the strap can be placed directly on top of mass timber panels, reducing manufacturing time and cost
- Less susceptible to moisture damage than plywood splines, reducing need for expensive repairs
- Embossed hole helps guide the installation tool into the hold and increases capacity per fastener
- Tested for in-plane shear values
- Can be used as part of a complete spline solution throughout a project for faster installation and to save on the total cost of spline connections
- Can be installed in standing position when used with Quik Drive® and optional nose clip



Typical LDSS48 Installation with WSV75SA Screws at 100mm Centres in a Three-Ply CLT Panel

Technical Data

Model No.	Thickness (mm)	CLT Layup (min.)	Fasteners	Fastener Spacing (mm)	Shear Design Capacity per 1200mm Strap (kN)
LDSS48	1.5	Three-ply	N10DHDGPT	100	7.0
				50	13.3
			WSV75SA	100	19.6
				50	35.6

1. Design capacity is based on the use of cross-laminated timber (CLT) with a density greater than 380kg/m^3.
2. Design capacity is for wind or seismic loading combination with no further increase allowed; reduce apply where other load combination are required.
3. Design capacity is based on lesser of calculations per AS1720.1 and AS/NZS 4600:2018.
4. Nails: 3.75mm dia x 64mm Strong-Drive SCN Connector nails; Screws: #10 x 75mm WSV = model WSV75SA.
5. CLT panel minimum thickness is three-ply = 105mm.
6. The component of diaphragm deflection due to fastener slip at panel-to-panel joints calculated as $\delta f = CLen$, where,
   C = (1/PL+1/Pw)/2
   PL = Length of individual CLT panel;
   Pw = Width of individual CLT panel
   L = Overall length of diaphragm
   en = Design load per fastener / Slip Modulus, Y
   (Reference — Applied Technology Council. 1981. Guidelines for the design of horizontal wood diaphragms. Redwood City, CA)
7. There is a European methodology for determining the integrity rating of CLT butt joints The European formula is below and assumes the gaps in the joint are always less than 2mm throughout. D is the depth of panel (mm) and $\beta o = 0.65$mm/min. For a butt joint, the factor is Kj = 0.2.

$$t_{integrity} = K_j \cdot \frac{D}{\beta_0}$$

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