

Plate Dowels Vs Traditional Round Dowels

Plate Dowels have a wider cross-sectional area than Round or Square dowels creating a wider bearing surface to more evenly distribute load, therefore reducing point loading and stress to lower the risk of concrete cracking or bursting. Plate Dowels use plastic sleeves which are nailed to the timber formwork, making it easier and quicker to install. Plate dowels are seen to be more cost effective than traditional dowels as well as promote superior load transfer at every joint.

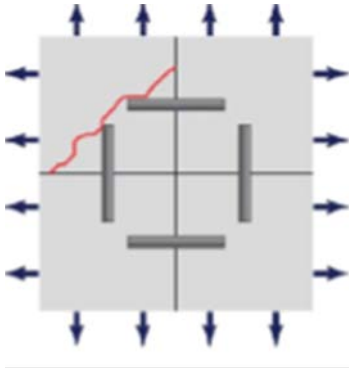
DISADVANTAGES OF TRADITIONAL DOWELS

- **One Directional Movement**
- **Dowel Misalignment**
- **More labour intensive**

ADVANTAGES OF PLATE DOWELS

- **Two Directional Movement**
- **TR34, TR66, Britpave Compliant**
- **Accurate Dowel Alignment**
- **Superior Load transfer and performance qualities**
- **Quicker to Install**
- **Plate dowels have a wider bearing surface reducing point loading lowering the risk of cracking**





Traditional Round Dowels

Traditional round dowels only allow for one directional movement causing areas of the concrete slab to lock which may lead to cracking.

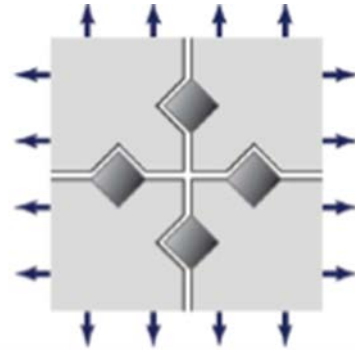


Plate Dowels

Plate dowels allow for two-directional movement being lateral movement and horizontal movement. This eliminating any restraint in the concrete slab which may lead the concrete slab to crack.

| LOADS | | | | |
|---------------------|----------------------|-----------------------------------|---|--|
| SLAB THICKNESS (MM) | DOWEL SIZE | SINGLE DOWEL DESIGN CAPACITY (KN) | SINGLE WHEEL DESIGN LOAD (KN) (MID PANEL JOINT) | SINGLE WHEEL DESIGN LOAD (KN) (EDGE LOADING) |
| 150 | Danley Dowel 10mm | 16.1 | 92 | 51 |
| 175 | | 21.3 | 127 | 70 |
| 200 | | 27.1 | 174 | 96 |

| CONCRETE COMPRESSIVE STRENGTH EFFECT | | | | | |
|--------------------------------------|------|------|------|------|------|
| STRENGTH (MPA) | 30 | 32 | 35 | 40 | 45 |
| Factor | 1.00 | 1.03 | 1.08 | 1.15 | 1.22 |

Note:

- Dowel Spacing at 450mm.
- Joint opening 10mm.
- Concrete Strength 30 MPa.
- Design capacities should be compared with factored loads.
- Limiting capacity is concrete shear cone capacity.

Typically, round dowels are installed with a spacing of 300mm. However, Plate Dowels offer improved load transfer capabilities, requiring fewer dowels while achieving higher load transfer values. This not only speeds up the installation process but also reduces costs due to the reduced number of Plate Dowels needed.