

Danley™ PD3™

Load Transfer Systems

Plate Dowel Cradle 20mm Technical Data Sheet



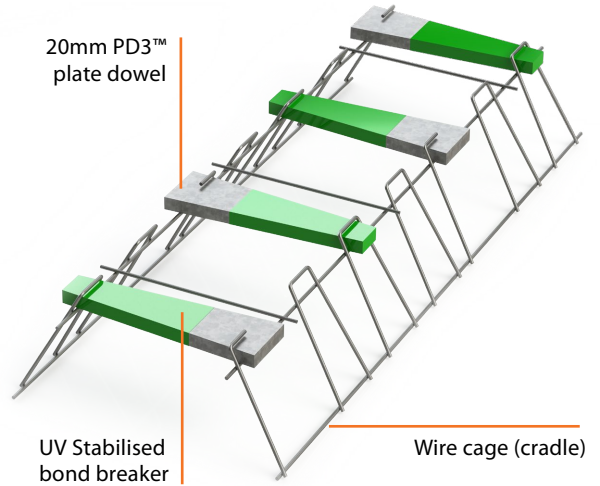
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Product Description

The PD3™ 20mm Plate Dowel Cradle load transfer system is specifically designed for heavy duty industrial pavement applications 230mm in thickness, or greater, such as:

- Hardstand areas
- Port facilities: Container terminals, storage and handling
- Freight and transport logistic facilities
- Heavy rail and intermodal facilities
- Airports, hangers and runways

The Danley™ PD3™ 20mm provides significant benefits over traditional round and square doweled contraction joints in industrial pavement applications.



Advantages

The 20mm PD3™ load transfer system provides a total contraction joint system solution by incorporating two systems in the one solution:

- The tapered 20mm PD3™ plate dowels allow for lateral movement whilst eliminating deflection under load.
- The wire cage (cradle) acts as a chair and spacer to ensure the dowels are aligned and maintained at the correct height and spacing during the pouring of the slab, in turn improving the speed and efficiency of installation.

PD3™ Plate Dowel Cradles provide superior engineered performance over round dowels, controlling differential deflection and limiting joint spalling in heavy duty industrial pavements.



Trade Benefits

Engineering Benefits:

- Provides highest performance in controlling joint deflection.
- Compliance with ACI 360R-10, design recommendations.
- Galvanised finish to AS/NZS 4680.
- Accuracy of dowel placement ensures the most effective load transfer performance.

Asset Protection Benefits:

- Reduces the risk of spalling damage to the concrete at the joints.
- Reduces maintenance & downtime costs.
- Provides a smoother surface at the joints.

Concreter Benefits:

- Speed and accuracy of dowel placement.
- Lowest placement cost.
- Pour through capability.
- Greater stakeholder satisfaction.
- Wider sweet spot for saw cut placement provides greater tolerance for accuracy.
- UV stabilised shrink wrap maintains bondbreaker integrity if cradles have prolonged exposure to the elements.

Material Technical Data:

| Component | Dimensions | Material Type | Materials Standards | Steel Grade Equivalent | Yield Stress (MPa) | Tensile Strength (MPa) | Standards Compliance |
|---------------------|--------------|------------------|---------------------|------------------------|--------------------|------------------------|----------------------|
| 20mm Dowel: | 20mm x 300mm | Cold Drawn Steel | Q345 | ≥ Grade 300 | 345 | 550 | AS/NZS 3679.1 |
| Wire cage: | Ø 4.95mm | Hard Drawn Wire | AS/NZS 4671 | Grade 500L | 500 | 650 | AS/NZS 4671 |
| Travel bars: | Ø 4mm | Ribbed Wire | AS/NZS 4671 | Grade 500L | 500 | 625 | AS/NZS 4671 |
| Galvanising: | 85 µm | Hot Dipped Galv | AS/NZS 4680 | - | - | - | AS/NZS 4680 |

Manufacturing Tolerances:

| | | | | | |
|------------------------|--------|------------------------|-------|-----------------------|-------|
| Overall Length: | ±10 mm | Overall Height: | ±5 mm | Dowel Centres: | ±5 mm |
|------------------------|--------|------------------------|-------|-----------------------|-------|

Product Performance Data:

| Product Code | Product Description | Slab Thickness (mm) | Single Dowel Design Capacity (kN) | Single Wheel Design Load (kN) (mid panel joint) | Single Wheel Design Load (kN) (edge loading) |
|---------------------|---|---------------------|-----------------------------------|---|--|
| PD320300250G | PD3 Cradle 20mm @ 300mm centres to suit 230-275mm slab Galv (1.2 metres = 4 dowels) | 230 | 30.3 | 268 | 147 |
| | | 250 | 41.2 | 402 | 221 |
| | | 275 | 41.2 | 402 | 221 |
| PD320300300G | PD3 Cradle 20mm @ 300mm centres to suit 280-330mm slab Galv (1.2 metres = 4 dowels) | 280 | 44.2 | 439 | 241 |
| | | 300 | 57.1 | 621 | 342 |
| | | 330 | 57.1 | 621 | 342 |
| PD320400360G | PD3 Cradle 20mm @ 400mm centres to suit 340-390mm slab Galv (1.6 metres = 4 dowels) | 340 | 64.1 | 581 | 319 |
| | | 360 | 79.4 | 767 | 422 |
| | | 390 | 79.4 | 767 | 422 |
| PD320400425G | PD3 Cradle 20mm @ 400mm centres to suit 400-450mm slab Galv (1.6 metres = 4 dowels) | 400 | 85.5 | 843 | 463 |
| | | 425 | 107.6 | 1144 | 629 |
| | | 450 | 107.6 | 1144 | 629 |

Concrete Compressive Strength = 32 Mpa. Joint Opening = 5mm. Design capacities should be compared with factored loads.

How to specify the PD3™

The Danley™ PD3™ sleeveless tapered plate dowel cradle system is designed for use in sawcut contraction joints, providing bilateral movement and limiting differential deflection under load to no more than 0.25mm.



- Complies with ACI 360R-10.
- Available in 6mm, 10mm & 20mm

