

CANZAC® Patented Doweling System

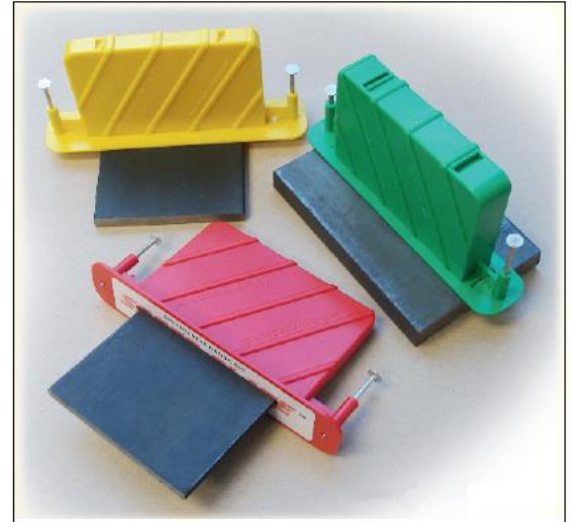
SPEED PLATE™

U.S. Patent Numbers 4,733,513 and 6,145,262

YOU NOW HAVE A CHOICE!

A new and economically smart choice for Flat Plate Dowel Systems.

- Ensure proper dowel alignment.
- A dowel method recommended by ACI 302-04 Guide for Concrete Floor and Slab Construction.
- One piece design with alignment marks and pre-installed nails makes installation quick and easy.
- Integral, patented sleeve insert that eliminates lateral restraint between slab panels.
- Non-tapered plate profile ensures consistent bearing stresses at joint face and full depth of dowel.
- Larger steel plates (compared to competing plate plate dowels) provide greater overall surface area to reduce bearing stresses on the concrete.
- A system with a uniform plate width to ensure minimal bearing stresses at the joint face and through-out the full embedded length of the dowel



The **SPEED PLATE** system reduces the number of dowels required when compared with conventional doweling systems. Fewer dowels and simpler installation means reduced cost of installation. The conversion chart below gives the equivalent size and spacing of **SPEED PLATE** dowels when substituted for conventional smooth round dowels.

	Dowel Size	Spacing	Spacing	Spacing
Size Equivalents	16mm Smooth Round Dowel	300mm	450mm	600mm
	6x100mm (w) x 150mm (d) Speed Plate	450mm	600mm	750mm
Size Equivalents	20mm Smooth Round Dowel	300mm	450mm	600mm
	10x100mm (w) x 150mm (d) Speed Plate	450mm	600mm	600mm

Note: The spacing of **Speed Plate** dowels in any application should be as determined by the structural engineer for specific load conditions.

Canzac Speed Plate Product Sizes and Codes

Description	Product Code	Unit
6mm Speed Plate Sleeve & 6x100x150mm Plate, Black	12 000	Set
10mm Speed Plate Sleeve & 10x100x150mm Plate, Black	12 005	Set
6mm Speed Plate Sleeve	10 002	Each
6x100x150mm Plate, Steel	11 000	Each
10mm Speed Plate Sleeve	10 005	Each
10x100x150mm Plate, Steel	11 005	Each

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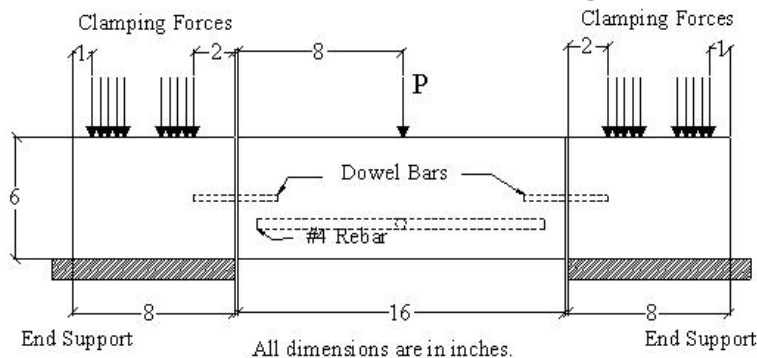
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Speed Plate System Testing and Research

Greenstreak's engineering department dedicated numerous laboratory hours to investigate load transfer systems. Independent tests were conducted to provide an unbiased evaluation of all dowelling methods available, including round bar, square bar, flat bar and diamond plate. The tests, which utilised a modified version of the AASHTO T253 test for load transfer devices, were designed to determine the following:

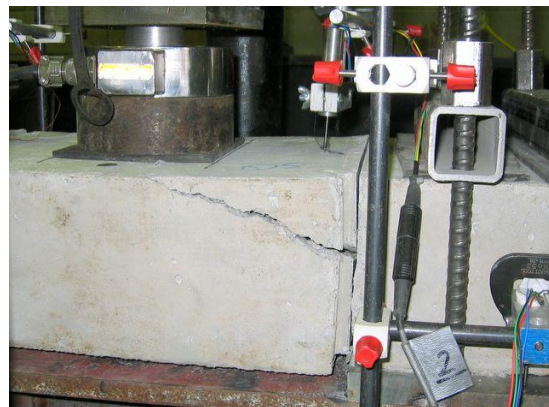
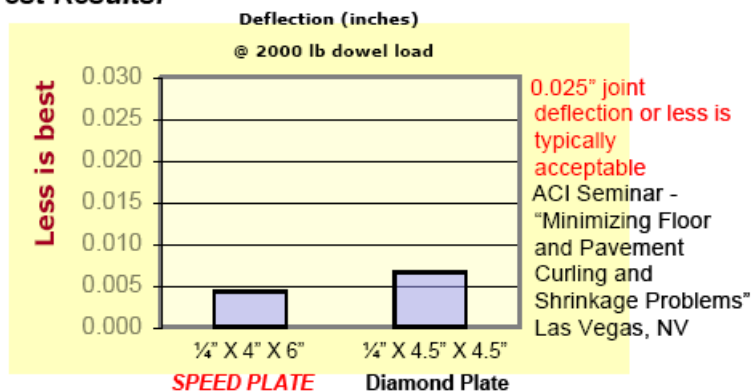
- Bearing stresses imparted to the concrete at the joint face
- Total joint deflection under load.
- Failure mode of each dowelling system.

Modified AASHTO T253 Test Diagram



Load Test Frame

Test Results:



Typical "pop-out" failure

Conclusions

- Tests of all dowel systems resulted in a tensile "pop-out" failure of the concrete.
- All dowel types provided deflections substantially less than the typically accepted value of 0.64mm when loaded to 907kg per dowel (equivalent to 4535kg axle load). Deflections greater than 0.64mm can lead to joint failure due to impact from wheeled traffic. Minimising deflection is the key to ensuring the durability of a control joint.
- Dowels with rectangular cross sections and larger widths are effective in reducing bearing stresses on concrete. Adding sleeves to dowels of all types also reduces the bearing stress on the surrounding concrete. Speed Plate dowels produce the lowest bearing stress on the surrounding concrete. Bearing stress alone, however, does not predict ultimate dowel loads. All dowel systems tested failed at a wide range of bearing stress but at similar applied loads.
- Flat plates or square dowels with sleeves that allow movement in the direction of the joint, are effective in eliminating lateral restraint between concrete sections. The Speed Plate sleeve incorporated an integral, custom insert that provides lateral movement capability between concrete sections.
- It is critically important to thoroughly vibrate the concrete around plate dowel.

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THE SPEED PLATE ADVANTAGE

The SPEED PLATE system reduces the number of dowels required when compared with conventional doweling systems. Fewer dowels and simpler installation means reduced cost of installation. The conversion chart below gives an example of the equivalent size and spacing of SPEED PLATE dowels when substituted for conventional smooth round dowels.

	Dowel Size	Spacing	Spacing	Spacing
Size Equivalents	16mm Smooth Round Dowel	300mm	400mm	600mm
	6x100mm (w) x 150mm (d) Speed Plate	450mm	500mm	600mm
Size Equivalents	20mm Smooth Round Dowel	300mm	400mm	600mm
	10x100mm (w) x 150mm (d) Speed Plate	450mm	500mm	600mm



DESCRIPTION

The SPEED PLATE is a patented sleeve and steel plate dowel system. The SPEED PLATE provides load transfer across construction joints and immediately accommodates lateral and axial movement produced by concrete shrinkage and differential slab movement. The large, non-tapered plate design reduces bearing stresses on the concrete and ensures consistent bearing stresses on the concrete at the joint face and fully embedded depth of the dowel.

WHERE TO USE

Concrete slabs-on-ground requiring effective load transfer across joints.

Typical structures include:

- Warehouse/Distribution Centers
- Manufacturing Facilities
- Commercial/Industrial Complexes
- Entertainment Centers
- Recreational Complexes
- Parking Lots and Site Paving

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CONSIDERATIONS IN DOWEL SELECTION

Historically a round Dowel Bar had been the industry standard, with one half of the bar wrapped in denso.

Now you have choices to suit the right application, the slab design and also ease of construction is now the industry standard.

All dowels are not equal and do not believe anyone who says one dowel size and centers will suit all slabs. When making a dowel selection we are aware of the effect the ground conditions, slab thickness, concrete strength and anticipated live and dead loads will have on the dowel.

Canzac are the only supplier in the country to offer our design load program developed by an engineer for engineers, the only plate dowel supplier to have had any independent testing performed on our plate dowel systems. Other plate suppliers have shown a 6mm speed plate limitation when comparing it to a 10mm plate and we agree with this totally, that is why we have a 10mm and even a 20mm, so why use a 10mm plate dowel when you can use a 6mm, also our sleeve is a single piece unit, not two, two pieces will and do split.

We know that a plate dowel has its limitations and can advise alternatives from our vast range.

DOWEL THICKNESS SELECTION

A plate selection we are working towards to give you a quick summary would be as below

Slabs on grade up to 150mm thick	6mm Speed Plate
175mm - 200mm thick slab on grade	10mm Speed Plate
225mm - 300mm thick slab on grade	20mm Speed Plate

OTHER SYSTEMS

Check out the Speedbasket range we manufacture, which can incorporate a plate dowel and enable you to pour over and saw cut rather than nail onto your boxing.

SPEED PLATE INFORMATION AND CODES

PRODUCT	Red 6mm Speed Plate Sleeve Only	6x100x150mm Speed Plate Only	6mm Speed Plate Sleeve & 6x100x150 Plate	Yellow 10mm Speed Plate Sleeve Only	10x100x150mm Plate Only	10mm Speed Plate Sleeve & 10x100x150mm Plate	Green 20mm Speed Plate Sleeve Only	20x100x150mm Speed Plate Only
CANZAC CODE	10 002	11 000	12 000	10 005	11 0005	12 005	10 007	11 010

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