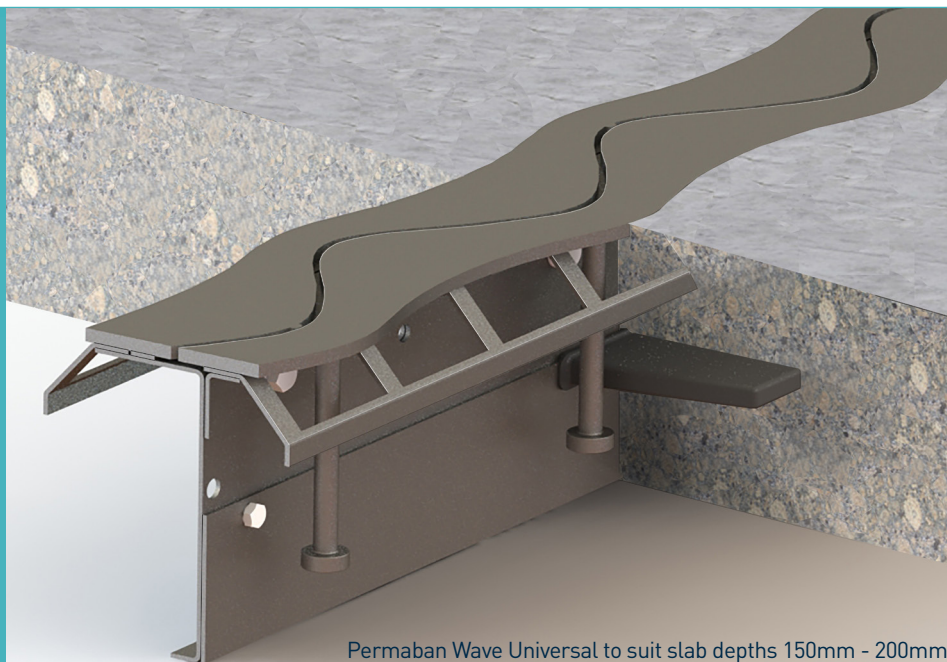


Permaban Wave® Universal Range

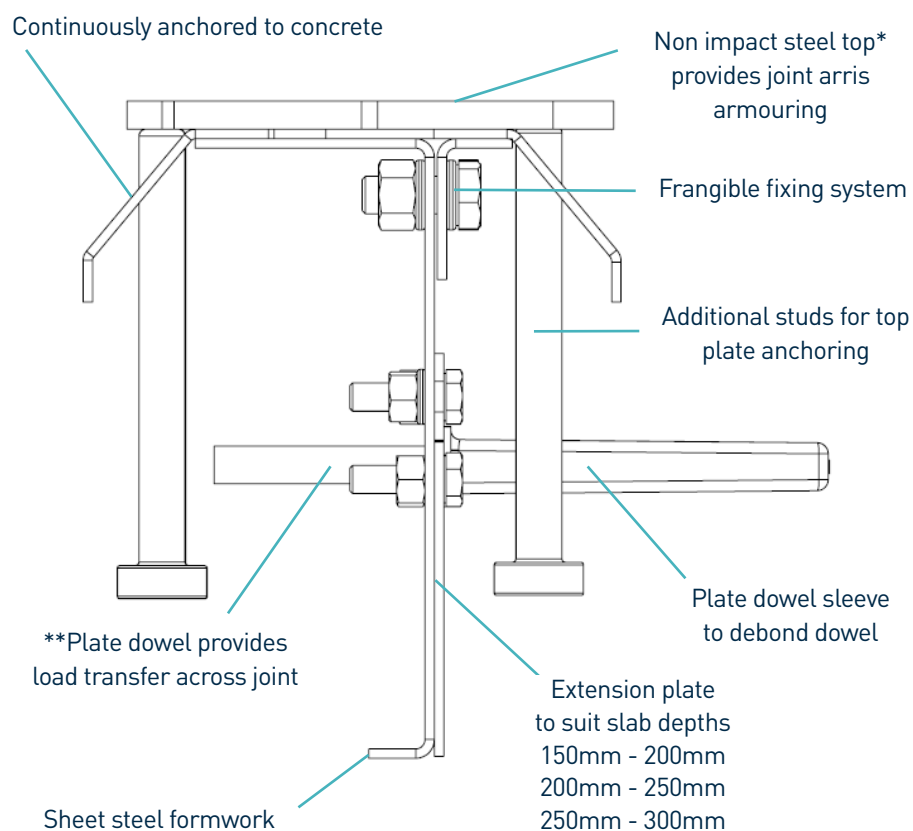
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Permaban Wave® Universal, Midi & Plus



Permaban Wave Universal to suit slab depths 150mm - 200mm
Permaban Wave Universal Midi to suit slab depths 200mm - 250mm
Permaban Wave Universal Plus to suit slab depths 250mm - 300mm

Permaban Wave®



*Also available in electro-galvanised steel and stainless steel
**Dowels available in 8mm and 10mm thickness

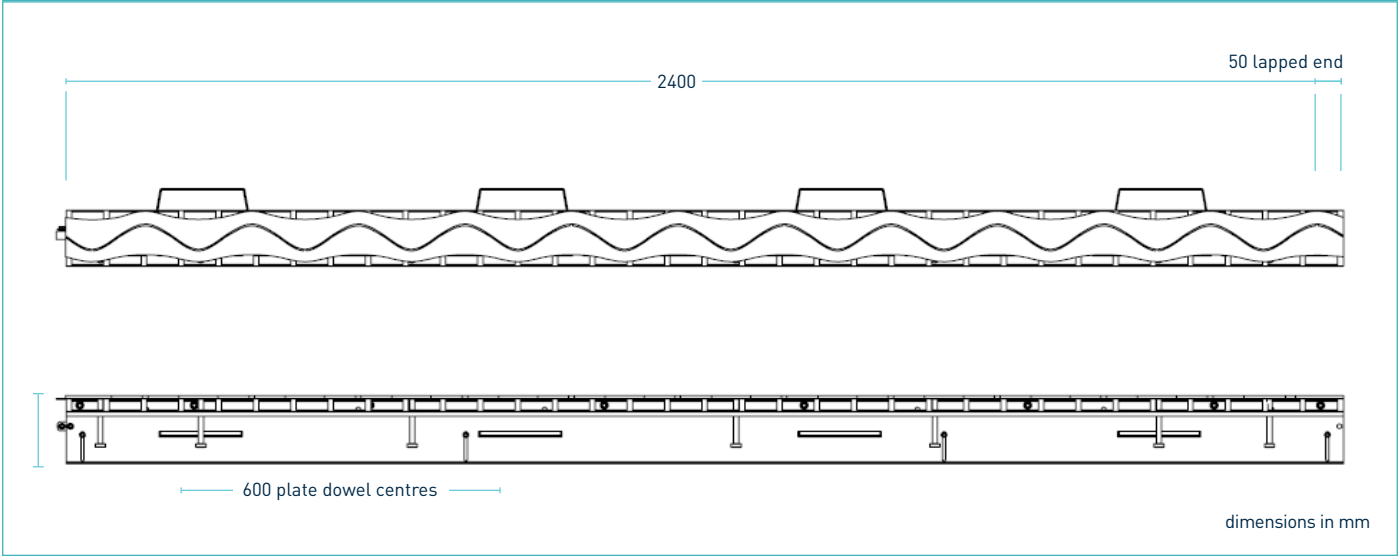
Permaban Wave® Universal Range

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manufacturing tolerances

Length	±2.0mm	Height	±1mm	Straightness	±0.5mm/600mm
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Dimensions of Permaban Wave® Universal Range



Dimensions and weight of Permaban Wave® Universal Range

Nominal Slab Depth (mm)	Joint Height, h (mm)	Dowel Size (mm)	Dowel Centres (mm)	Length (mm)	Single Joint Weight (kg)	Number per Bundle	Bundle Weight (kg)
Permaban Wave Universal 150 - 200	140 - 190	151 x 120 x 8	600	2400	28.5	50	1550
Permaban Wave Universal Midi 200 - 250	175 - 225				29.5	50	1600
Permaban Wave Universal Plus 250 - 300	225 - 275				30.5	30	1040

Typical height and length values shown only. Weight values shown are based on Permaban Wave® Universal Range including TD8 dowels and are approximate.

Permaban Wave® Universal Range

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materials

Component	Material
Non impact steel top provides joint arris	EN 10277-1:2018 S235JRC
Sheet steel formwork	EN 10130:2006 DC01
Shear stud	EN ISO 13918:2017 S235J2
Plate dowel	BS EN 10025-2:2004 S275JR
Plate dowel sleeve	HDPP

theoretical calculated ultimate loads at failure of dowel or concrete

(For typical slabs, 40N/mm² concrete and 20mm joint opening)

		Unreinforced Slab	
Slab Depth (mm)	Dowel Type	Bursting (kN/m)	Bending (kN/m)
Permaban Wave Universal Universal Divider Plate to Suit 150 - 200	TD8	34.5	86.2
	TD10	34.5	123.0
Permaban Wave Universal Midi Universal Divider Plate to Suit 200 - 250	TD8	58.6	86.2
	TD10	58.6	123.0
Permaban Wave Universal Plus Universal Divider Plate to Suit 250 - 300	TD8	81.3	86.2
	TD10	81.3	123.0

Ultimate load (kN/m)

This table shows the load at failure in bursting (failure of the concrete) and bending (failure of the dowel) for a joint opening of 20mm - larger joint openings can be accommodated. The ultimate load has been calculated in accordance with TR34 4th Edition. Dowel positions taken at mid depth of slab. For more detailed analysis please contact RCR Flooring Products Ltd.

*All design calculations should be verified by a suitably qualified structural engineer

compatible dowel systems

