Complies with the requirements of **AS 3727.1:2016 Residential Pavements**

PAVEX Statement of Compliance

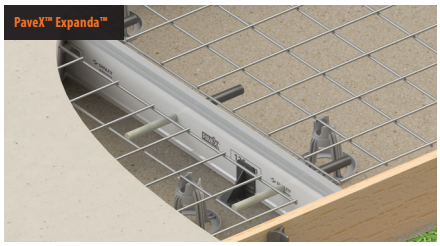
Learn more about PaveX™

January, 2023

PaveX™ is a residential pavement eco-system which complies with the requirements of Australian Standard AS 3727.1:2016 Residential Pavements. The PaveX™ eco-system comprises of PaveX™ Expanda™ for use in expansion or construction joints, PaveX™ Geared™ for articulating formed control joints and PaveX™ Crack-A-Joint™ for weakened plane joints.

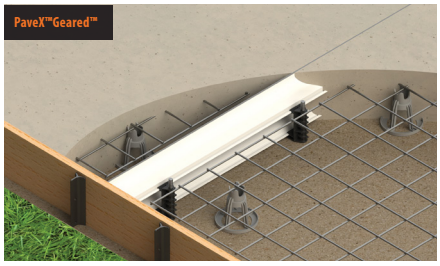
PaveX™ Expanda™ Overview

Available in 100mm, 125mm & 150mm profiles, PaveX™ Expanda™ complies with the requirements of Australian Standard AS 3727.1:2016 Residential Pavements. Innovative 14mm diameter Glass Fibre Reinforced Polymer dowels and sleeves provide load transfer between pavement sections up to 125mm depth. PaveX Expanda™ HD in 150mm profile height is design specifically for use with 6mm Danley™ Diamond™ Dowels. The unique design of the uPVC extruded PaveX™ Expanda™ sacrificial formwork profiles provide up to 10mm of thermal expansion of concrete and are job site tough.



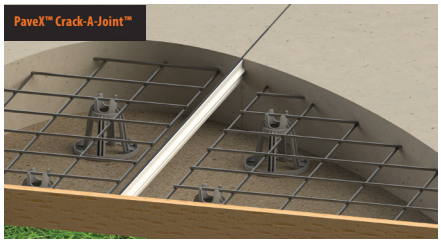
PaveX™ Geared™ Overview

PaveX™ Geared™ is designed specifically for concrete footpaths and shared bikeways impacted by soil heave or tree root ingress. An innovative articulating formed control joint system, PaveX™ Geared™ allows for concrete pavement sections to rise and/or fall whilst limiting differential deflection and mitigating tripping hazards. PaveX™ Geared ™ is available in 100mm, 125mm and 150mm profile heights. Extruded in corrosion-free, UV stabilised uPVC to standard 3 metre lengths, PaveX™ Geared™ profiles are co-extruded with Rip-A-Strip™ Capping in either Black or Grey that provide clean, laitance-free joint lines.



PaveX™ Crack-A-Joint™ Overview

As an alternative to traditional saw cutting and tooled joints, PaveX™ Crack-A-Joint™ induces a controlled crack to the full depth of the concrete. PaveX™ Crack-A-Joint™ is available in 3 metre lengths, with profile heights of 25mm and 38mm which initiate a crack in slabs between 75mm and 150mm in depth. Extruded in UV stabilised uPVC, PaveX™ Crack-A-Joint™ is also suitable for use in pavements in chemically corrosive environments including chlorinated or salt-water swimming pool surrounds and coastal environments. PaveX™ Crack-A-Joint™ complies with the requirements of AS 3727.1:2016 Residential Pavements.



Applications & Environments

- Footpaths
- Bicycle Paths
- Driveways
- Urban Streetscapes

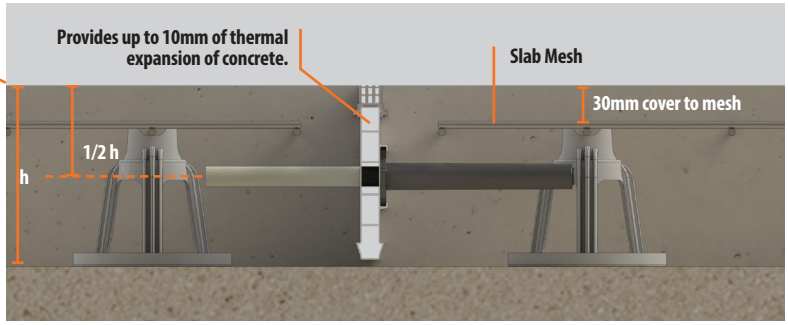
- **SMART:** Fully integrated pavement Eco-system.
- **EFFECTIVE:** Reduces maintenance & repair costs.
- **SAFE:** Mitigates trip hazards and public liability exposure.

PaveX™ kits and packs are proudly manufactured in Australia.

Compliance & Technical Data

AS 3727.1:2016 Expansion Joint Detail

- Load bearing expansion joint capping prevents concrete spalling.
- Dowel placed centrally. ½ the slab thickness (h). Dowel limits differential deflection, provides for load transfer and thermal expansion of concrete.
- Mesh to terminate at a minimum of 40mm from the Construction Joint.
- Compressible PaveX™ Expanda™ profiles provide up to 10mm of thermal expansion of concrete.



PaveX™ Expanda™ complies with the load requirements of AS 3727.1:2016 Residential Pavements

PaveX™ Expanda™ GFRP Dowel Performance Data

Pavement Thickness	Concrete Strength AS 3727.1:2016	Vehicle Load AS 3727.1:2016	PaveX™ Dowel and Spacing	Estimated Wheel Load (kN)	Load on Critical Dowel (kN)	PaveX™ Dowel Design Capacity (kN)	Load Safety Factor
100mm	25MPa	3 tonne light vehicle	GFRP 14mm @ 300mm	9.0	2.7	4.3	1.6
125mm	*25MPa	*5 tonne vehicle (estimated)	GFRP 14mm @ 300mm	15.0	4.1	6.5	1.6

PaveX™ Expanda™ GFRP Dowel Performance vs Round Steel Dowels

Pavement Thickness	Concrete Strength AS 3727.1:2016	Round Dowel AS 3727.1:2016	Load on Critical Dowel (kN)	Round Steel Dowel Design Capacity (kN)	Load Safety Factor	PaveX™ Dowel Design Capacity (kN)
100mm	25MPa	R12 at 400mm spacing	3.1	4.0	1.3	**4.3**
125mm	*25MPa	R16 at 300mm spacing	4.1	6.5	1.6	**6.5**

* AS 3727.1:2016 does not specify concrete strength or vehicle loads for 125mm pavements. R16 dowel capacity is based on the weight of a city delivery truck (5 tonnes). The load on the critical dowel is calculated using standard default sub-base values.


Fig. A


Fig. B

At ramsetreid, we set-up, pour and destroy hundreds of panels every year in the pursuit of developing high performance systems for the concrete construction industry. **Fig A:** The innovative PaveX™ GFR Polymer dowels shear cone test. **Fig B:** Comparative shear testing of R16 Steel dowels. In both cases a concrete shear cone has developed during testing to failure, so the dowel itself is not the limiting factor and both systems give similar results.

Product Trials & Validation:

PaveX™ Expanda™ joint system was developed with the support of leading councils and concrete contractors across Australia and New Zealand. So when it came to validating the functionality of the system, whom better to put PaveX™ to the test in the real world, than the experts that pour pavements everyday?

Compliance & Technical Data

AS 3727.1:2016 Expansion Joint Detail

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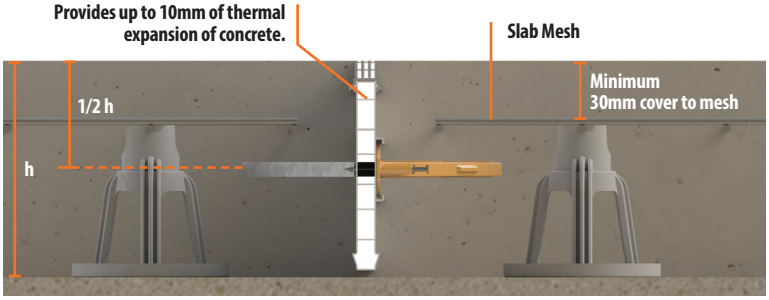
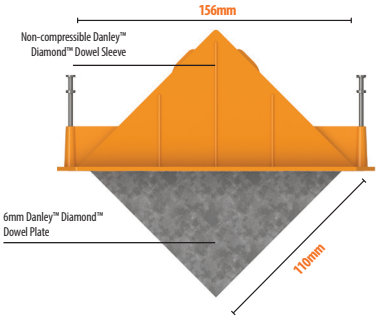


PaveX™ Expanda HD™ complies with the load requirements of AS 3727.1:2016 Residential Pavements



Product:

- 6mm Diamond™ Dowel Sleeves are colour coded Orange.
- 6mm Diamond™ Dowel plates available in Galvanised and Grade 316 Stainless Steel.

Packaging:

Diamond™ Dowel Trade Pack:
Designed for the rigours of onsite construction, the Danley™ Diamond™ Dowel Trade Pack is a sturdy, durable and easy to carry carton that is work site tough. The 6mm Diamond™ Dowel Trade Pack (pictured) contains 25 units of Danley™ Diamond ™ Dowels and Sleeves. Each sleeve is fitted with two doubled-headed steel nails.

Material Technical Data Diamond™ Dowel Plates

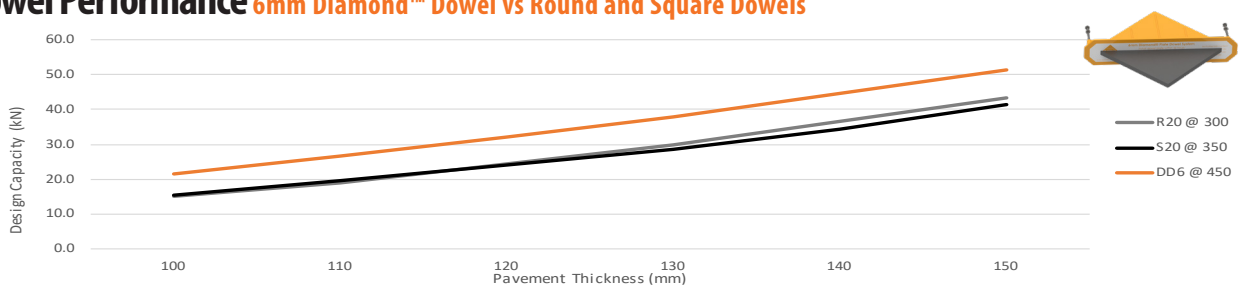
Component	Dimension (mm)	Material Type	Material Standard		Yield Stress (Mpa)	Tensile Strength (Mpa)
			Black	Galv		
6mm Plate	6 x 100 x 100	Steel	AS/NZS 3679.1:2016	AS/NZS 3679.1:2016 AS/NZS 4680:2006	325	450
		Stainless Steel	ASTM A240 Grade 316		205	515

Design Capacities Diamond™ Dowel

Pavement Thickness	Concrete Strength AS 3727.1:2016	Vehicle Load From AS 3727.1:2016	PaveX™ Dowel & Spacing	Estimated Wheel Load kN	Load On Critical Dowel kN	PaveX™ Dowel Design Capacity kN	Load Safety Factor
150mm	**32MPa**	10 Tonne Commercial	Diamond™ 6mm @ 450mm	30	9.5	16.3	1.7

Pavement Thickness	Concrete Strength AS 3727.1:2016	Round Dowel as AS 3727.1:2016	Load On Critical Dowel kN	Round Steel Dowel Design Capacity kN	Load Safety Factor	PaveX™ Dowel Design Capacity kN
150mm	**32MPa**	R20 at 300mm Spacing	7.6	10.6	1.4	16.3

Dowel Performance 6mm Diamond™ Dowel vs Round and Square Dowels

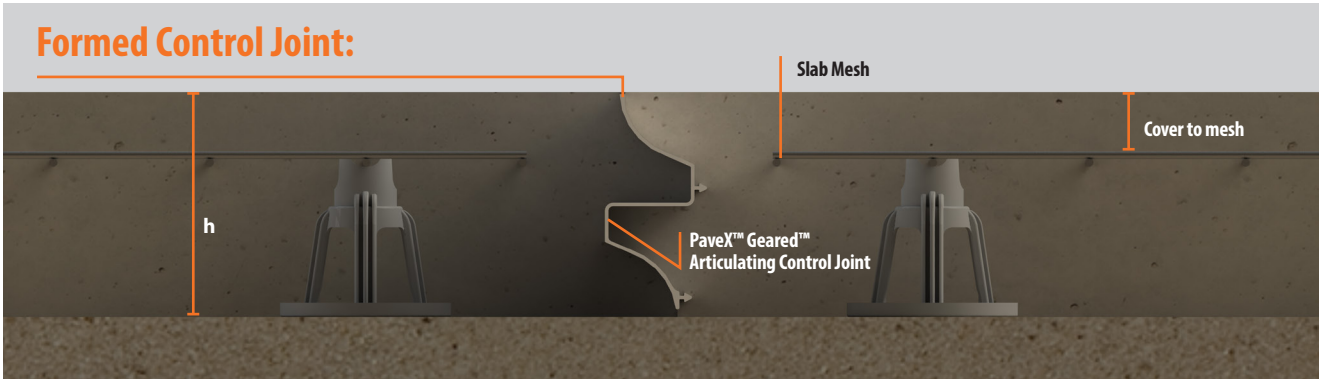


Note: Dowel capacities are based on edge of slab design.

Compliance & Technical Data

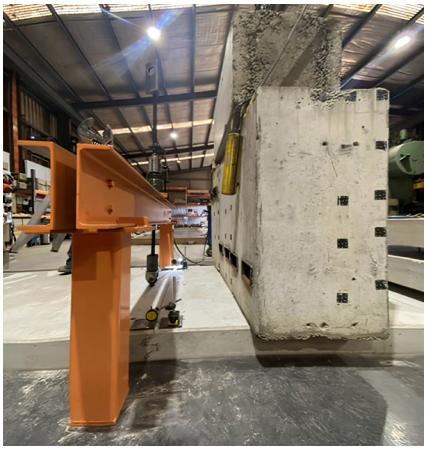
PaveX™ Geared™ complies with the requirements of AS 3727.1:2016 Residential Pavements

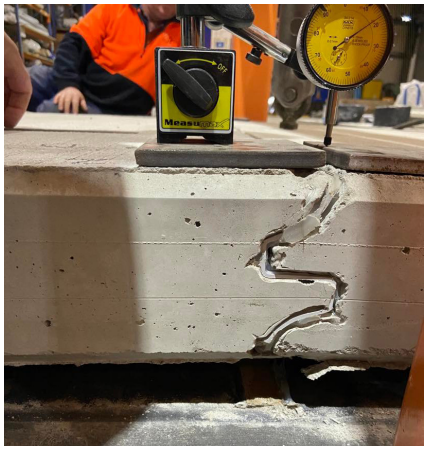
AS 3727.1:2016 - Compliance Information



- Full slab depth (h) Articulating Formed Control Joint with interlocking shear keys providing load transfer.
- Spacing of Geared™ to be no greater than prescribed in Table 5.2 of AS 3727.1:2016.
- The steel reinforcing mesh shall be placed as per the requirements of AS 3727.1:2016
- Flexible PVC Rip-A-Strip™ Capping
- No sealant required at top of formed control joint.

Testing & Validation





Extensive, in-concrete validation & testing of PaveX™ Geared™ was conducted at our inhouse Product Test Centre.

The assessment was set up to demonstrate functionality and compliance to AS 3727.1:2016 load requirements.100mm and 125mm slabs were tested in 25MPa concrete to standard with load carrying capacities of 3 tonne and 5 tonne respectfully to suit light vehicle loads.

150mm slabs were tested in 32MPa concrete to standard with load carrying capacity to suit a max. 10 tonne commercial vehicle load.

Validation of joint articulation to handle tree root mitigation and reactive soils was conducted. Slabs were lifted on one side of the joint to achieve a minimum of 50mm unsupported lift off the subbase. Central or edge point loads and a dead load were applied to the lifted connecting slab. Load transfer and deflection control (≤5mm or less as per AS3727.1:2016) through the joint was maintained at the point of lift and neighbouring joints.

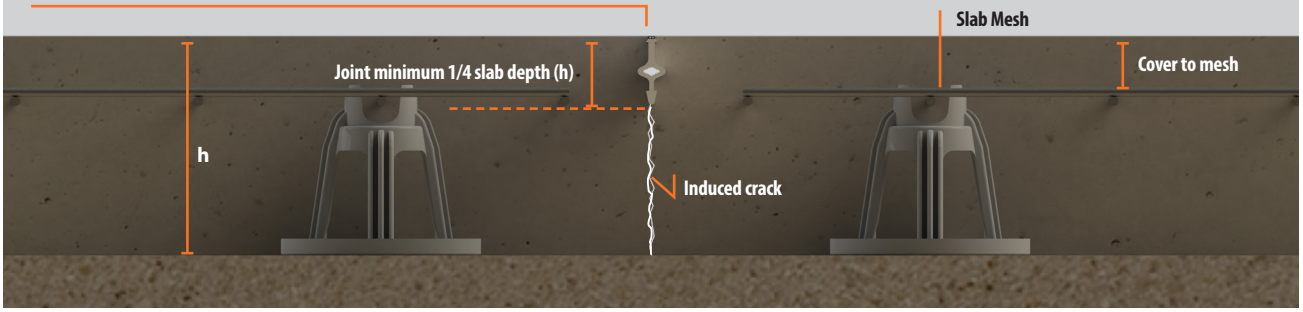
Load transfer testing to meet AS2727.1:2016 formed control joints was also conducted on each size showing equal or better load transfer across the joint than traditional roll formed Danley Keyjoint (without dowels) of the same size.

Compliance & Technical Data

PaveX™ Crack-A-Joint™ complies with the requirements of AS 3727.1:2016 Residential Pavements

AS 3727.1:2016 - Compliance Information

Weakened Plane Joint:

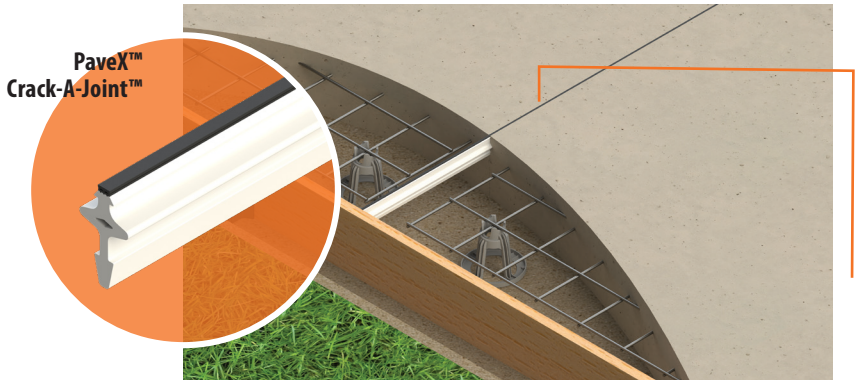


- Constructed by creating a plane of weakness to a depth of 1/4 the pavement thickness (h) from the surface.
- Spacing of Crack-A-Joint™ to be no greater than prescribed in Table 5.2 of AS 3727.1:2016.
- The steel reinforcing mesh shall be placed as per the requirements of AS 3727.1:2016
- Flexible PVC Rip-A-Strip™ Capping
- No sealant required at top of weakend plane joint.

A smoother ride: provides a low-noise transition over weakened plane joints.

Saw-cut timing is critical. Late saw-cutting may lead to unsightly, uncontrolled cracks that are susceptible to spalling.

Tooled joints may not initiate a crack to the full depth of the slab and do not support small hard wheels such as skateboards, rollerblades, skates and scooters.



As an alternative to traditional saw cutting and tooled joints, PaveX™ Crack-A-Joint™ induces an immediate controlled crack to the full depth of the concrete. PaveX™ Crack-A-Joint™ with Rip-A-Strip™ Capping eliminates the need to return the next day for saw-cutting.

Safer! Crack-A-Joint™ eliminates the need for saw-cutting and reduces exposure to carcinogenic silica dust.