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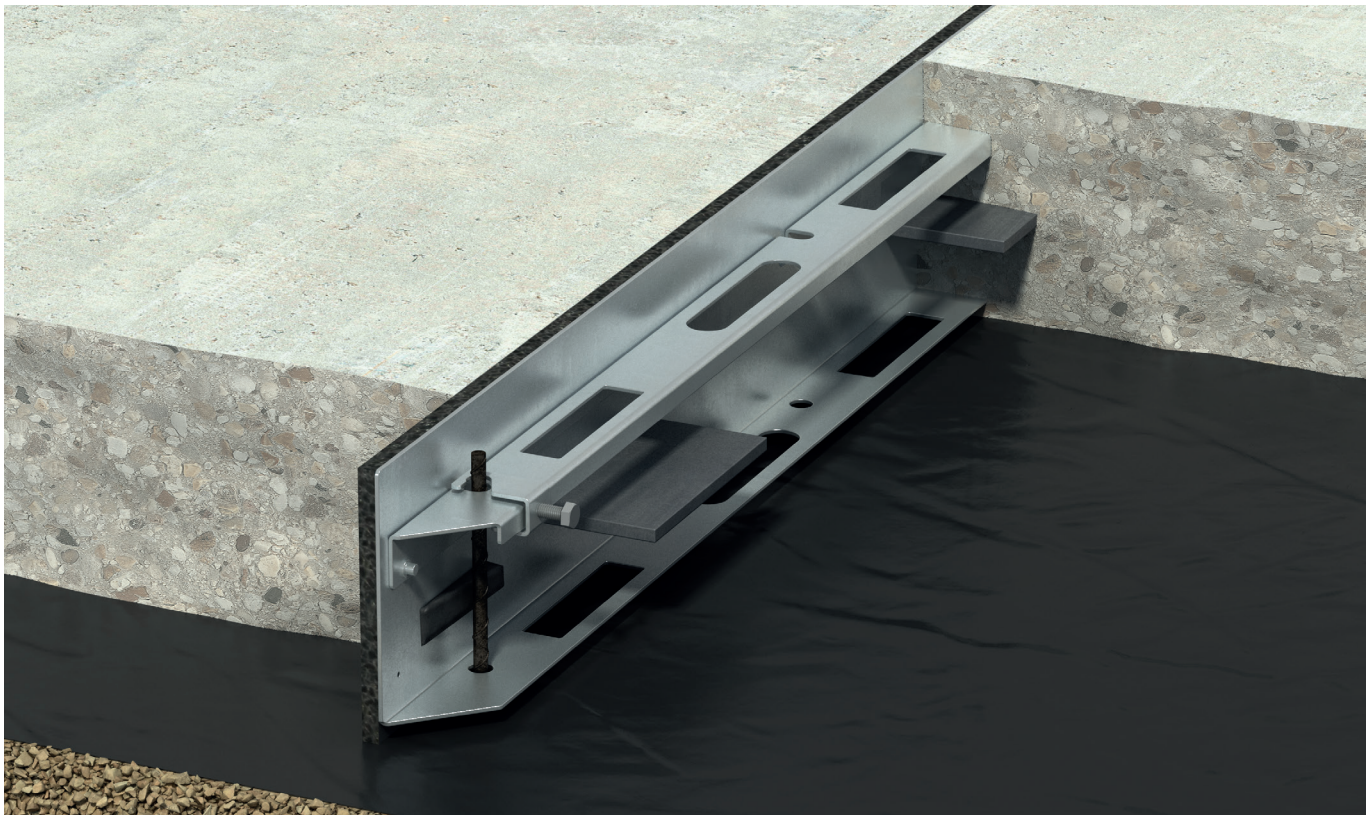
ISEDIO®

Isedio ExpansionJoint

Technical Data Sheet



Isedio ExpansionJoint is a durable continuous pour, leave-in-place formwork, load transfer and expansion joint system suitable for outdoor heavy duty industrial concrete floors.

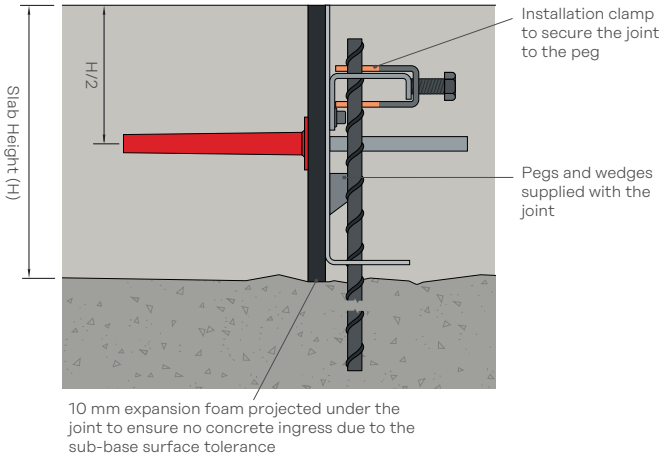
Isedio ExpansionJoint comprises a divider plate with a prefixed 10mm cross-linked expansion foam, load transfer plate dowels and sleeves and pegs & wedges for an easy installation. The divider plate height fits the slab depth and, to ensure the plate dowel is always located at the mid-height of the slab, is manufactured to order.

Isedio ExpansionJoint also features a unique, Asymmetrical Plate Dowel design for superior load transfer, while the sleeves are designed to facilitate a class leading +/-20mm of longitudinal movement along the joint and 30mm maximum joint opening. The system surpasses the requirements of TR34 4th Edition.

Isedio ExpansionJoint provides a speedy installation by enabling continuous pour with plate dowels already welded in the designated spacing and height.

The system can be supplied without the cross-linked expansion foam to form a prefabricated, continuous pour contraction joint.

Please contact Isedio team for more info.



 PDF 12/2024

Isedio ExpansionJoint

Technical Date Sheet

Load Transfer Capacities

The use of Isedio ExpansionJoint ensures that shear loads are safely transferred across the joint through dowels. We recommend referring to TR34 – Fourth Edition – Concrete Industrial Ground Floors to determine the dowel capacity.

Section 6.5 of TR34 provides guidance on the calculation of dowel capacities for the following failure modes.

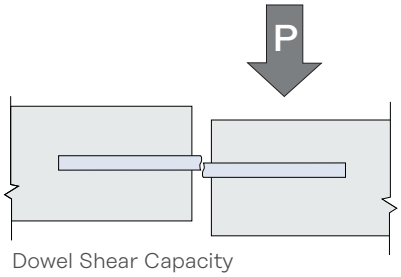
Component	Material
Load Transfer Plate Dowel	8mm & 12mm - AS/NZS 1594-Grade 350, Galvanised 55µm – AS/NZS 4680:2006 (can be supplied in stainless steel)
Divider Plate	2.4mm galvanised plate to AS 1397 (can be supplied in stainless steel)

Dowel Shear Capacity

The shear capacities for the plate dowels provided in the table below have been calculated using equation 18 of TR34.

Dowel Type	Thickness (t) (mm)	Finish*	Shear Area (0.9xA) (mm^2)	Capacity ($P_{sh\ plate}$) (kN)
150 x 170 x 8	8	HDG	1080	200.0
150 x 150 x 12	12	HDG	1620	300.1
150 x 170 x 8	8	SS	1080	115.5
150 x 150 x 12	12	SS	1620	173.3

In most situations, at the point of ultimate load, the concrete would typically fail before the dowel.

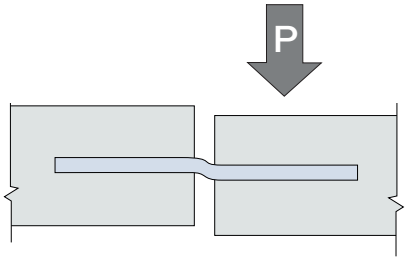


Dowel Shear Capacity

Dowel Bearing/Bending Capacity

Bearing/Bending is a combined failure mode that checks the bending capacity of the dowel as well as the bearing capacity of the surrounding concrete. Equation 19 of TR34 defines the bearing/bending capacity of a dowel.

Please find the dowel bearing/bending capacities for different conditions in the combined capacity tables on page 3. For any other configurations, please contact Leviat.

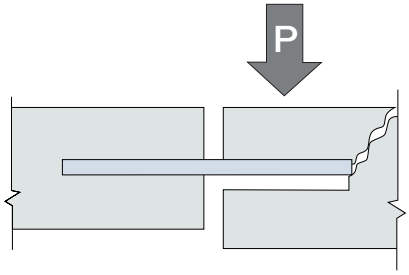


Dowel Bearing/Bending Capacity

Punching Shear (Bursting Forces)

Section 6.5.3 of TR34 recommends calculating the bursting load of the concrete by adapting the EC2 approach for punching failure using an effective depth of 0.75 times the depth between the dowel and the surface of the concrete slab.

Please find the punching shear capacities for different conditions in the combined capacity tables on page 3.

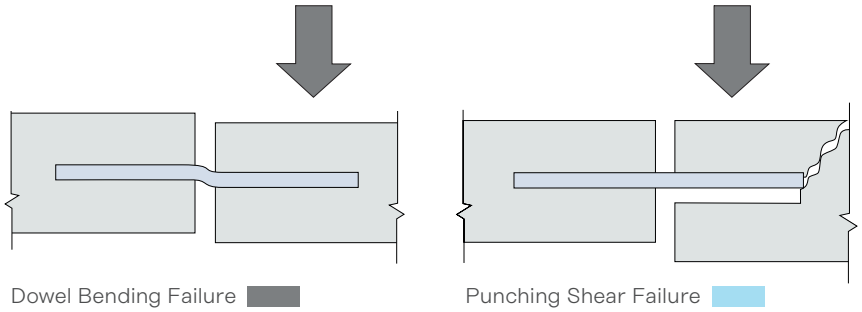


Punching Shear (Bursting Forces)

Isedio ExpansionJoint

Technical Date Sheet

Design Capacity Tables



Dowel Bending Failure

Punching Shear Failure

Shear capacity of Isedio ExpansionJoint in 32 MPa concrete with a dowel spacing of 500mm (kN/m)

Dowel Size	Joint Opening	Slab Depth (mm)					
HDG finish	mm	140	150	160	170	200	300
150 x 170 x 8	10	34.3	38.3	42.5	46.9	61.2	103.7
150 x 170 x 8	20	33.1	37.1	41.2	45.5	59.6	101.7
150 x 170 x 8	30	32.0	35.9	39.9	44.1	58.0	86.0
150 x 150 x 12	10	30.7	34.5	38.5	42.6	56.3	98.6
150 x 150 x 12	20	30.7	34.5	38.5	42.6	56.3	98.6
150 x 150 x 12	30	30.6	34.3	38.3	42.4	56.0	98.2

Shear capacity of Isedio ExpansionJoint in 40 MPa concrete with a dowel spacing of 500mm (kN/m)

Dowel Size	Joint Opening	Slab Depth (mm)					
HDG finish	mm	140	150	160	170	200	300
150 x 170 x 8	10	38.3	42.8	47.5	52.4	68.5	116.0
150 x 170 x 8	20	37.1	41.4	46.0	50.9	66.6	113.7
150 x 170 x 8	30	35.8	40.1	44.6	49.3	64.8	88.0
150 x 150 x 12	10	34.4	38.6	43.0	47.7	62.9	110.2
150 x 150 x 12	20	34.4	38.6	43.0	47.7	62.9	110.2
150 x 150 x 12	30	34.2	38.4	42.8	47.4	62.7	109.8

Note: For any other configurations and for Isedio ExpansionJoint capacities, please contact the Leviat technical team on 1300 304 320 or email technical.au@leviat.com

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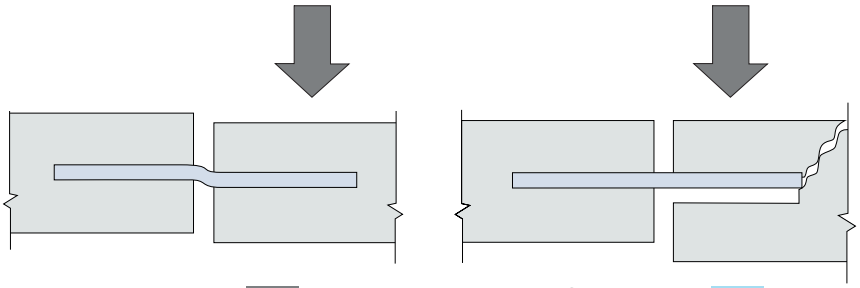
Design Capacity Tables



Dowel Bending Failure

Punching Shear Failure

Shear capacity of Isedio ExpansionJoint in 32 MPa concrete with a dowel spacing of 500mm (kN/m)

Dowel Size	Joint Opening	Slab Depth (mm)					
SS finish	mm	140	150	160	170	200	300
150 x 170 x 8	10	34.3	38.3	42.5	46.9	61.2	103.7
150 x 170 x 8	20	33.1	37.1	41.2	45.5	59.6	72.1
150 x 170 x 8	30	32.0	35.9	39.9	44.1	52.3	52.3
150 x 150 x 12	10	30.7	34.5	38.5	42.6	56.3	98.6
150 x 150 x 12	20	30.7	34.5	38.5	42.6	56.3	98.6
150 x 150 x 12	30	30.6	34.3	38.3	42.4	56.0	98.2

Shear capacity of Isedio ExpansionJoint in 40 MPa concrete with a dowel spacing of 500mm (kN/m)

Dowel Size	Joint Opening	Slab Depth (mm)					
SS finish	mm	140	150	160	170	200	300
150 x 170 x 8	10	38.3	42.8	47.5	52.4	68.5	115.5
150 x 170 x 8	20	37.1	41.4	46.0	50.9	66.6	74.1
150 x 170 x 8	30	35.8	40.1	44.6	49.3	53.1	53.1
150 x 150 x 12	10	34.4	38.6	43.0	47.7	62.9	110.2
150 x 150 x 12	20	34.4	38.6	43.0	47.7	62.9	110.2
150 x 150 x 12	30	34.2	38.4	42.8	47.4	62.7	109.8

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