



December | 2023 NZ

3Dx™ 7t Edge Lift Anchor

Compliance Document



Reid™ 3Dx™ 7t Edge Lift Anchors with feet comply with NZ Good Practice Guidelines: safe work with precast concrete 2018

Reid™ 3Dx™ 7t Edge Lift Anchors

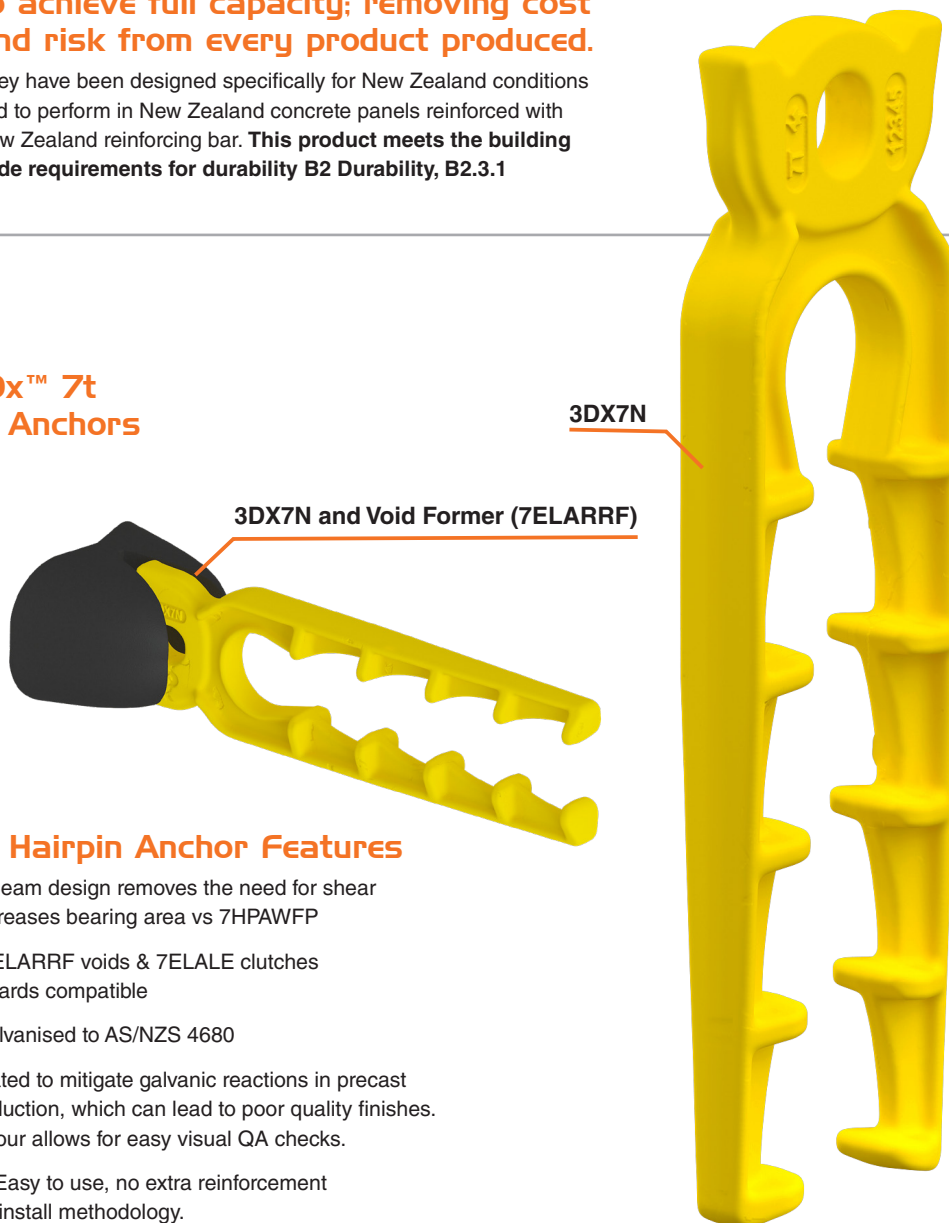


3Dx™ 7t Edge lift anchors do not require a shear bar or specific install methods to achieve full capacity; removing cost and risk from every product produced.

They have been designed specifically for New Zealand conditions and to perform in New Zealand concrete panels reinforced with New Zealand reinforcing bar. **This product meets the building code requirements for durability B2 Durability, B2.3.1**



Figure 1:
Reid™ 3Dx™ 7t Edge Lift Anchors



Edge Lift Hairpin Anchor Features

- Forged I Beam design removes the need for shear bars & increases bearing area vs 7HPAWFP
- Current 7ELARRF voids & 7ELALE clutches are backwards compatible
- Hot dip galvanised to AS/NZS 4680
- Epoxy coated to mitigate galvanic reactions in precast panel production, which can lead to poor quality finishes. Yellow colour allows for easy visual QA checks.
- Simple & Easy to use, no extra reinforcement or difficult install methodology.
- Tested to NZ conditions, using NZ materials.



Compliance Details & Performance Data

Table 1: NZ GPG 2018 Compliance Details

Clause	Requirement	Compliant
6.6	The minimum FOS for general lifting needs to be 3 and for repetitive lifting needs to be 5.0.	✓
6.6	The design of the Lifting anchor shall include the ductile behavior and robustness of the anchor.	✓
10.11	Lifting clutches are to be made in accordance with a valid international standard or technical reference.	✓
10.11	Every item of lifting equipment should be clearly and permanently marked with its WLL. A unique numbering system to clearly identify individual items should be used.	✓
10.11	Lifting clutches are to be tested for loads in all directions and initially tested by the supplier to a factor of safety of 2.0	✓
10.11	Inspected at least every 12 months by a competent person, and a record kept of those inspections.	✓

Edge Lift Anchor Compliance

- Every individual item of lifting equipment should be clearly marked with its working load limit (WLL), the manufacturer’s identifier, and a unique numbering system.
- Lifting anchors that are used for lifting and handling during all stages of manufacture, delivery and installation should be designed to a minimum safety factor of 3.0.
- As with lifting clutches, lifting anchors should be manufactured and tested in accordance with a valid international standard or technical reference.
- Development, production, testing, inspection and application of lifting anchors and lifting anchor systems should meet acceptably high and consistent standards to ensure that they are fit for purpose.

Table 2: Performance Data

Panel reinforcing as per the requirements in clause 11.3.12.3 of NZS3101:2006 (A3) for 500E grade. (Non-seismic)										
Panel Thickness (mm)	Part #	Max WLL (tonne)	Stripping				Placement (WLL)			Precast Panel Reinforcement Relative to anchor (refer drawing on page 6 for orientation)
			15 MPa		20MPa		25 MPa	30 MPa	40 MPa	
			Tensile	Shear*	Tensile	Shear*	Tensile	Tensile	Tensile	
150	3DX7N	7.0	5.5	2.2	5.7	2.5	6.0	6.4	7.0	HD12 @ 200 CTS perpendicular and 300 CTS parallel - Central
175			5.8	2.6	6.0	2.8	6.2	7.0	7.0	HD16 @ 300 CTS perpendicular and HD12 @300 CTS parallel - Central
200			7.0	3.3	7.0	3.4	7.0	7.0	7.0	HD12 @ 300 CTS perpendicular and 300 CTS parallel - Two layers

Panel reinforcing as per the requirements in clause 11.4.4.2 of NZS3101:2006 (A3) for 500E grade. (Seismic)											
Panel Thickness (mm)	Part #	Max WLL (tonne)	Stripping				Placement (WLL)			Precast Panel Reinforcement Relative to anchor (refer drawing on page 6 for orientation)	
			15 MPa		20MPa		25 MPa	30 MPa	40 MPa		
			Tensile	Shear*	Tensile	Shear*	Shear*	Tensile	Tensile		Tensile
150	3DX7N	7.0	5.6	2.4	6.4	2.8	2.9	6.7	6.9	7.0	HD16 @ 200 CTS perpendicular and 300 CTS parallel - Central
175			6.2	3.0	6.7	3.4	3.6	7.0	7.0	7.0	HD16 @ 150 CTS perpendicular and 300 CTS parallel - Central
200			7.0	3.6	7.0	4.0	4.2	7.0	7.0	7.0	HD16 @ 300 CTS perpendicular and 300 CTS parallel - Two layers

Note:

- Data is based on concrete panels with reinforcement detail as noted in table and satisfies the minimum requirement stipulated in clauses 11.3.12.3 & 11.4.4.2 respectively of NZS3101 2006 A3 for 500E grade.
- If reinforcement detail is less, contact your local Reid representative for advice.
- The performance data in this table is based on the minimum edge distance and anchor spacing detailed in Table 4 of this document.
- For double reinforced panels, the top face rather than the sides are the limiting case due to horizontal bars requiring confinement per NZ3101 2006 A3 11.3.12.5
- *Shear data is based on avoiding cracking around the lifter during the stripping process.



Specifications & Product Markings

The 3DX7N anchor has a 7t WLL and is forged, hot dip galvanized and then painted. It's patented I-beam design & toothed design allow the anchor to be more compact than the 7HPAWFP. The 3DX7N is specifically designed for use in low and early strength concrete, allowing the precaster the shortest possible cycle times.

Part Number & Pack Quantity's

Part No.	WLL	Length (mm)	Pack Qty
3DX7N	7t	283	200 crate



Reid™ 3DX7N Anchor Markings



Working Load Limit



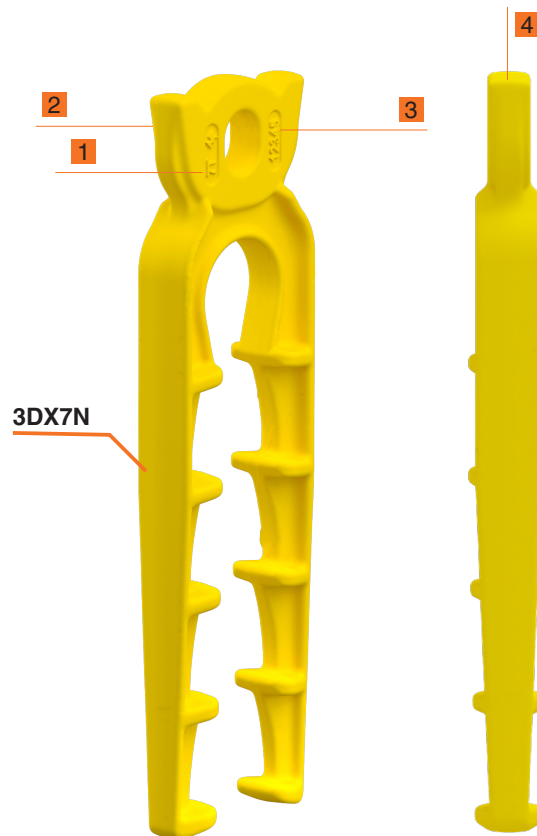
Reid Logo



Batch Number



Whole of anchor epoxy coated



Reid™ 3Dx™ 7t Edge Lift Anchors

Product Specifications (mm)

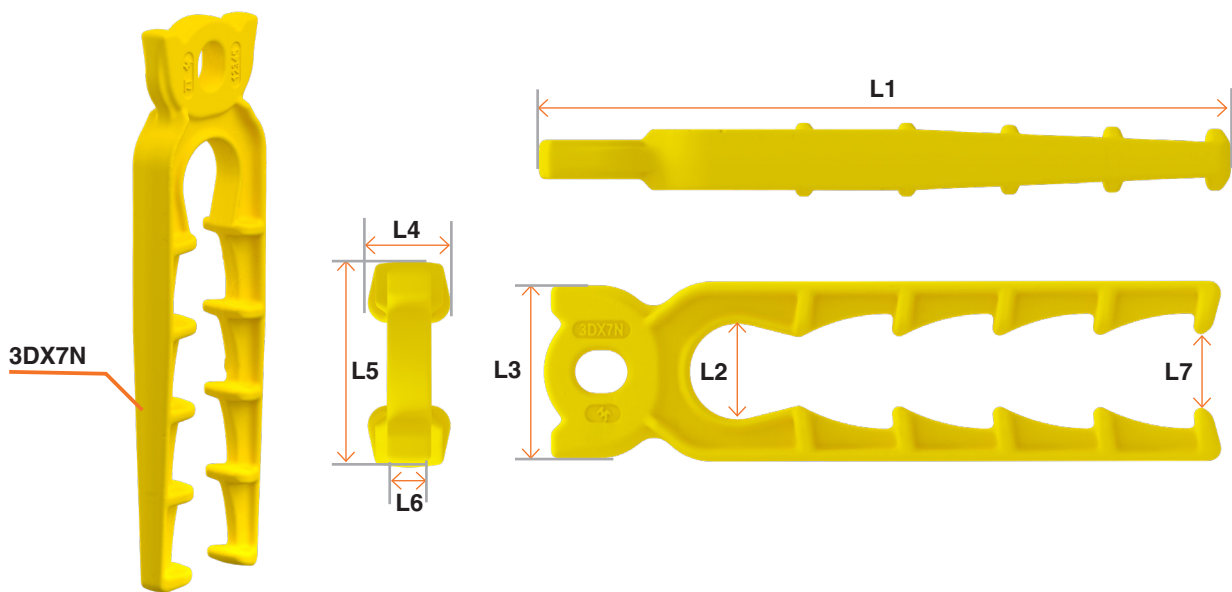



Table 3: 3DX7N - 3Dx™ 7t Edge Lift Anchor

Load Group (t)	Nominal Dimensions (mm)						
	L1	L2	L3	L4	L5	L6	L7
7.0 	283	40	72	25	75	16	24

Note: RCS reserve the right to change the above specifications.

The above Nominal dimensions are based on manufacture at 2022.

Reid™ 3Dx™ 7t Edge Lift Anchors

Product Specifications (mm)

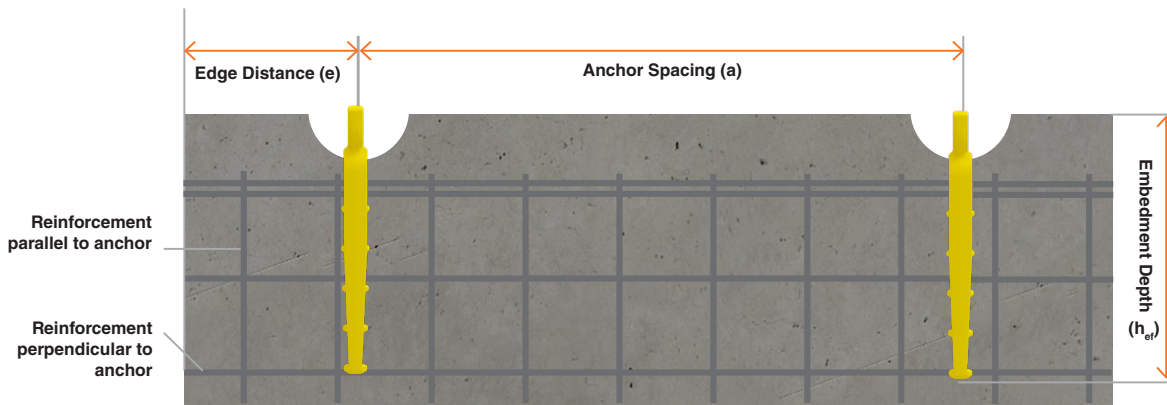



Table 4a:
Minimum edge and spacing distances required to achieve performances in Table 2.

Minimum Edge and Spacing Limits			
Minimum Panel Thickness (mm)	Edge Distance e, (mm)	Anchor Spacing a, (mm)	Embedment Depth h_{ef} (mm)
3DX7N 	450	900	287

Note: For guide on reduced edge distance and anchor spacing, please refer to capacity reduction factors in Table 4b.

Table 4b:
Anchor Spacing and Edge Distance Capacity Reduction Factors to be applied on performance values in Table 2.

Substrate Thickness	Tensile Capacity Reduction Factor - ϕ_n		Shear Capacity Reduction Factor - ϕ_v	
	3DX7N		3DX7N	
	a (mm)	e (mm)	a (mm)	e (mm)
	500	250	500	250
150, 175, 200	0.50		1.0	

Note: Apply Anchor Spacing and Edge Distance Capacity Reduction Factors as follows,

- Tensile Capacity Reduced = Tensile Capacity (Table 2) x ϕ_n
- Shear Capacity Reduced = Shear Capacity (Table 2) x ϕ_v

Note: RCS reserve the right to change the above specifications.

Table 5:
3Dx™ 7t Edge Lifting System








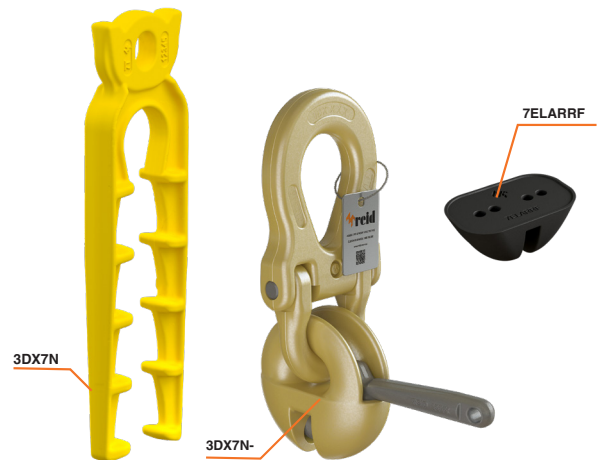
Part	Part No.		NZGPG2018 Compliant
Anchor	 3DX7N		
Lifting Clutch	 7ELALE	 3DX7NLC	
Void Former	 7ELARRF		

Figure 3:
3DX7N Clutch, Anchor & Void former



Installation

Support details

Figure 4: Single Layer Reinforcing

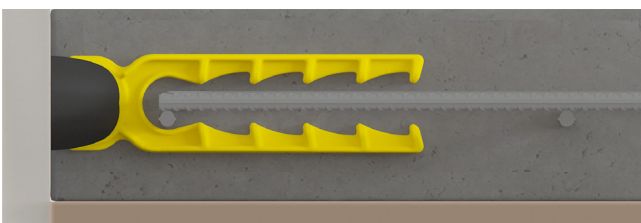
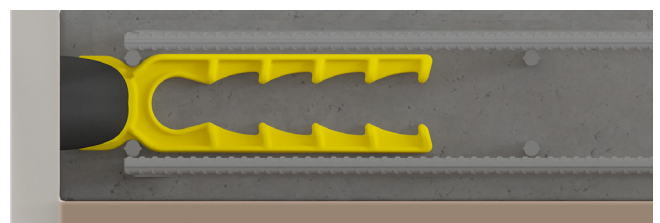


Figure 5: Double Layer Reinforcing





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