reid™

CHARTERED VERIFIED ENGINEER

December | 2023 NZ

Edge Lift Hairpin Anchors with feet

Compliance Document

Reid™ Edge Lift Hairpin Anchors with feet comply with NZ Good Practice Guidelines: safe work with precast concrete 2018

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Reid™ Edge Lift Hairpin Anchors with Feet

Reid's Edge Lift Hairpin Anchors with Feet eliminates the requirement of a shear bar and removes the risk of hanger bars being omitted.

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**

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NZ GPG 2018 Compliant

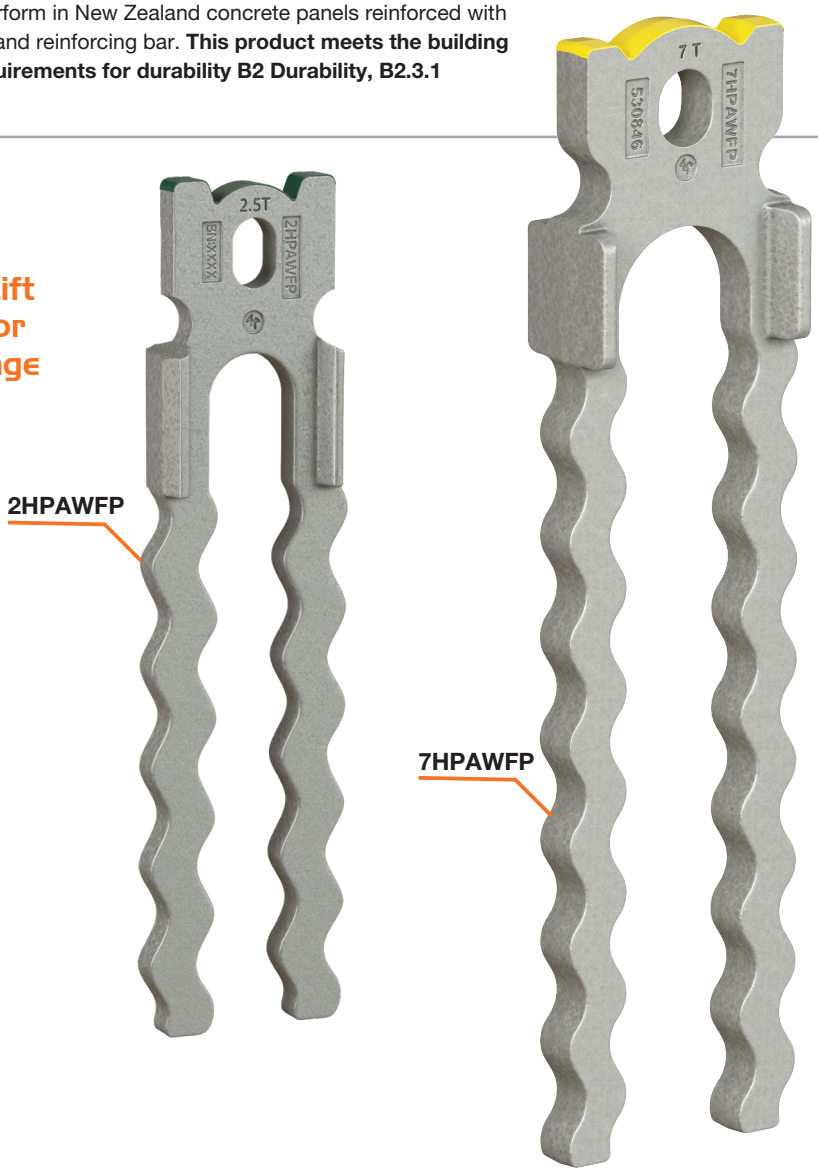


Figure 1:
Reid™ Edge Lift Hairpin Anchor with Feet range

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.	✓

Table 2: Performance Data

Panel Thickness (mm)	Part #	Max WLL (tonne)	Stripping		Placement (WLL)			Precast Panel Reinforcement
			15 MPa	20MPa	25 MPa	30 MPa	40 MPa	
			Tensile/Shear*	Tensile/Shear*	Tensile	Tensile	Tensile	
100	2HPAWFP	2.5	2.12/1.04	2.50/1.26	2.50	2.50	2.50	HD12 @ 250 CTS central
120			2.44/1.32	2.50/1.55	2.50	2.50	2.50	HD12 @ 250 CTS central
150			2.50/2.08	2.50/2.28	2.50	2.50	2.50	HD12 @ 150 CTS central
175			2.50/2.47	2.50/2.50	2.50	2.50	2.50	HD16 @ 300 CTS central
200			2.50/2.50	2.50/2.50	2.50	2.50	2.50	HD16 @ 300 CTS two layer
150	7HPAWFP	7.0	4.69/2.41	5.58/2.78	6.38	7.00	7.00	HD12 @ 150 CTS central
175			5.25/2.83	6.24/3.42	7.00	7.00	7.00	HD16 @ 300 CTS central
200			5.88/3.26	7.00/3.95	7.00	7.00	7.00	HD16 @ 300 CTS two layer

Note: Data is based on concrete panel with vertical reinforcement detail as noted in table and satisfies the minimum requirement stipulated in clause 11.4.4.2 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.

* Shear data is based on avoiding hairline cracking around lifter during the stripping process.

TESTED TO LOCAL CONDITIONS

Reid™ Edge Lift Hairpin Anchors with Feet

The HPAWFP is available in two sizes, and is forged for added strength. Its thick, long hairpin legs provide secure lifting in both shear and tension applications, even in thin concrete panels (minimum panel thickness is 100mm). Hot dipped galvanised for corrosion protection, beneficial in thin panels where concrete cover is minimal.

Part Number & Pack Quantity's

Part No.	Description	Length (mm)	Pack Qty
2HPAWFP	2.5 tonne	264mm	1ea
7HPAWFP	7 tonne	343mm	1ea

NZ GPG 2018 Compliant

Reid™ Hairpin Anchor markings

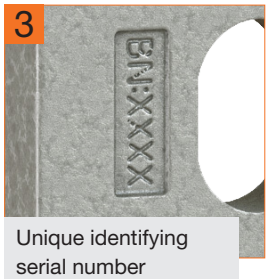
1

Working Load Limit

2

Reid name & symbol

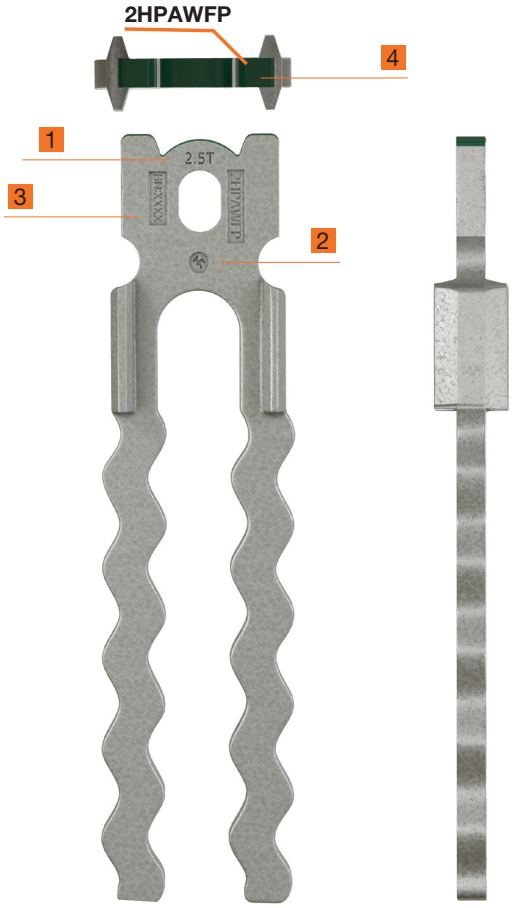
3



Unique identifying serial number

4

Colour coded to ensure system compatibility



Reid™ Edge Lift Hairpin Anchors with Feet

Product Specifications (mm)

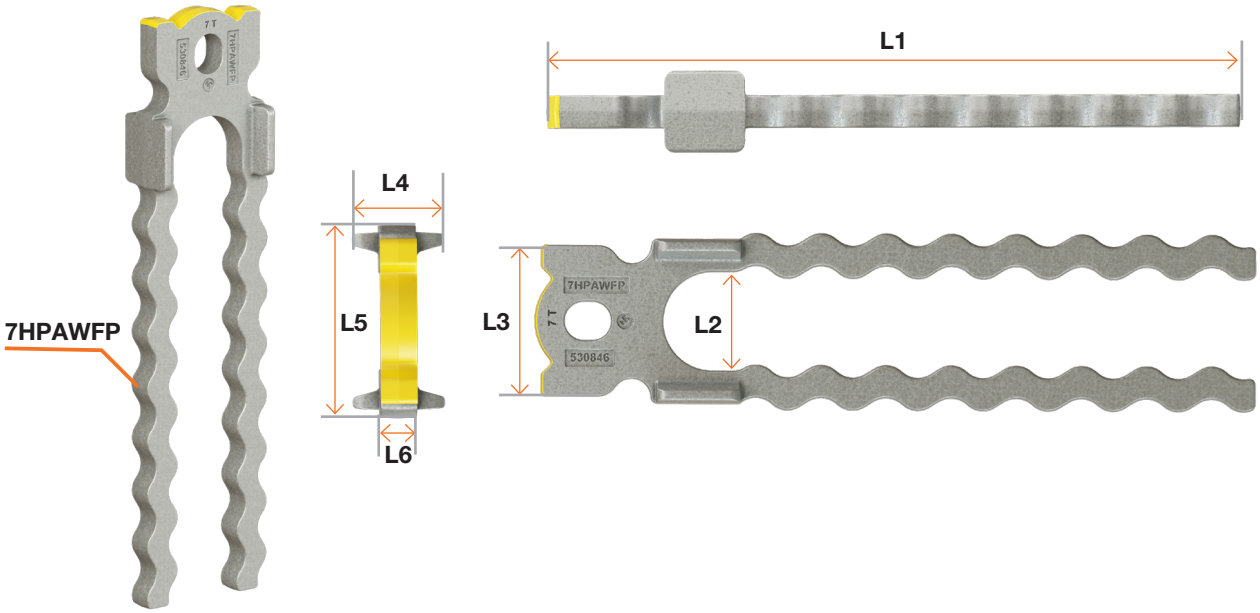


Table 3: HPAWFP – Edge Lift Hairpin Anchors with Feet Product Dimensions

Load Group (t)	Nominal Dimensions (mm)					
	L1	L2	L3	L4	L5	L6
2.5	264	28.5	54	30	66.5	10
7.0	343	46.5	72	40	84.5	16

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

The above Nominal dimensions are based on manufacture at 2019.

Reid™ Edge Lift Hairpin Anchors with Feet

Product Specifications (mm)

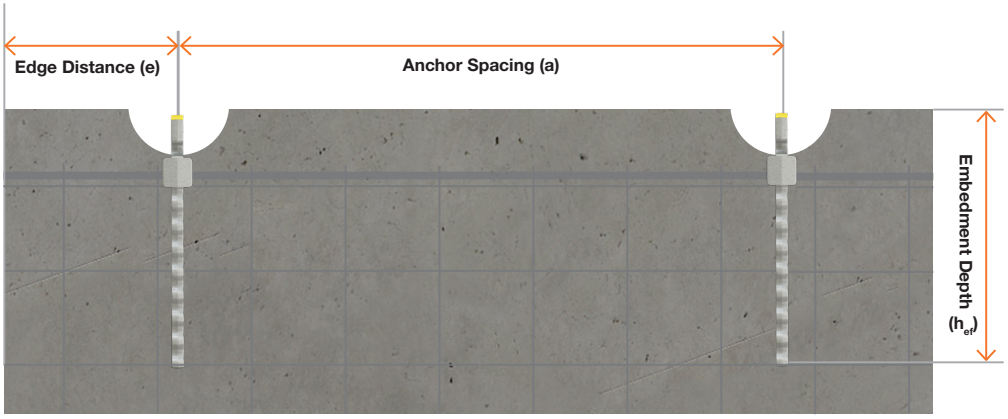


Table 4a:
Minimum edge and spacing distances required to achieve performances in Table 2.

Minimum Edge and Spacing Limits			
Minimum Panel Thickness (mm)	Edge Distance e, (mm)	Anchor Spacing a, (mm)	Embedment Depth h_{ef} (mm)
2HPAWFP	400	800	269
7HPAWFP	500	1000	346

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			
	2HPAWFP		7HPAWFP		2HPAWFP		7HPAWFP	
	a (mm)	e (mm)	a (mm)	e (mm)	a (mm)	e (mm)	a (mm)	e (mm)
	400	200	500	250	400	200	500	250
120	0.42		N/A		1.0		N/A	
150, 175, 200	0.42		0.40		1.0		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:
Edge Lift Hairpin Anchors with Feet System

2.5 Tonne Edge Lift Hairpin Anchors with Feet System:

Part	Part No.	NZGPG2018 Compliant
Anchor	 2HPAWFP	✓
Lifting Clutch	 2ELALE	✓
Void Former	 2ELARRF	✓

7 Tonne Edge Lift Hairpin Anchors with Feet System:

Part	Part No.	NZGPG2018 Compliant
Anchor	 7HPAWFP	✓
Lifting Clutch	 7ELALE	✓
Void Former	 7ELARRF	✓

Figure 2:
2HPAWFP
Clutch, Anchor & Void former

Figure 3:
7HPAWFP
Clutch, Anchor & Void former

Features and Compliance

Edge Lift Hairpin Anchor Features

- Special feet forged onto the side of the anchor eliminates the requirement of installing shear bars.
- Clutches can be remote released as an added safety feature. * Anchors are forged from high strength steel for added strength and manufacturing accuracy.
- Hot dipped galvanised for corrosion resistance, beneficial in thin panels where concrete cover is minimal.
- Designed for use in panels as thin as 100mm (2HPAWFP).
- Simple and easy installation.
- Used in conjunction with the Reid Edge Lift Clutch (2ELALE, 7ELALE) and Recess Former (2ELARRF, 7ELARRF).
- The Reid's HPAWFP is instantly recognizable by the distinctive appearance of its long hairpin legs with head markers to identify its clutch rating. The head dimensions allow them to be used with the same clutches and recess formers as other Reid edge lift anchors.
- Coloured head allows for easy visual identification and appropriate clutch selection.

Edge Lift Hairpin 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 ft for purpose.

Installation support details

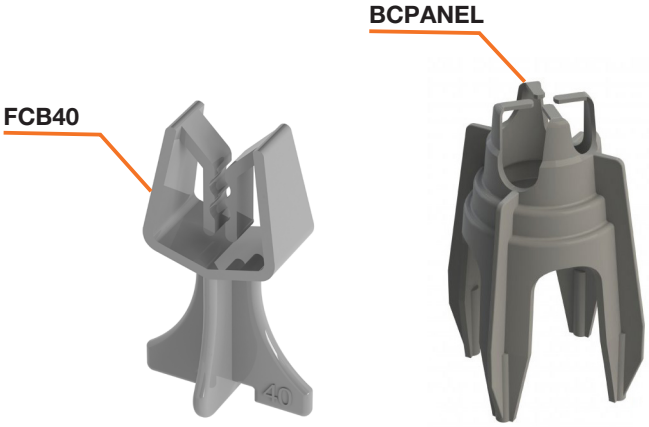


Table 6: Installation Support Details

Anchor		Panel Thickness (mm)	Anchor Chair		Mesh Chair - Single	Mesh Chair - Double
			2HPAWFP	7HPAWFP		
2HPAWFP		100			BCPANEL50/60	-
2HPAWFP		120	FCB30	FCB25	BCPANEL50/60	-
2HPAWFP	7HPAWFP	150	FCB40	FCB40	BCPANEL65/75	CP25/40
2HPAWFP	7HPAWFP	175	FCB60	FCB50	CP85/110	CP25/40
2HPAWFP	7HPAWFP	200	FCB60	FCB60	CP85/110	CP25/40

Figure 4: Single Layer Reinforcing

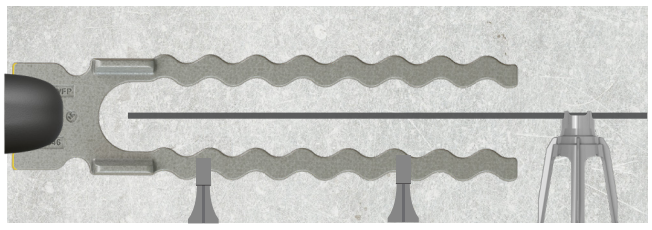
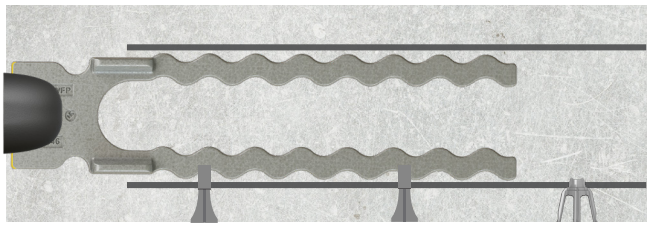


Figure 5: Double Layer Reinforcing



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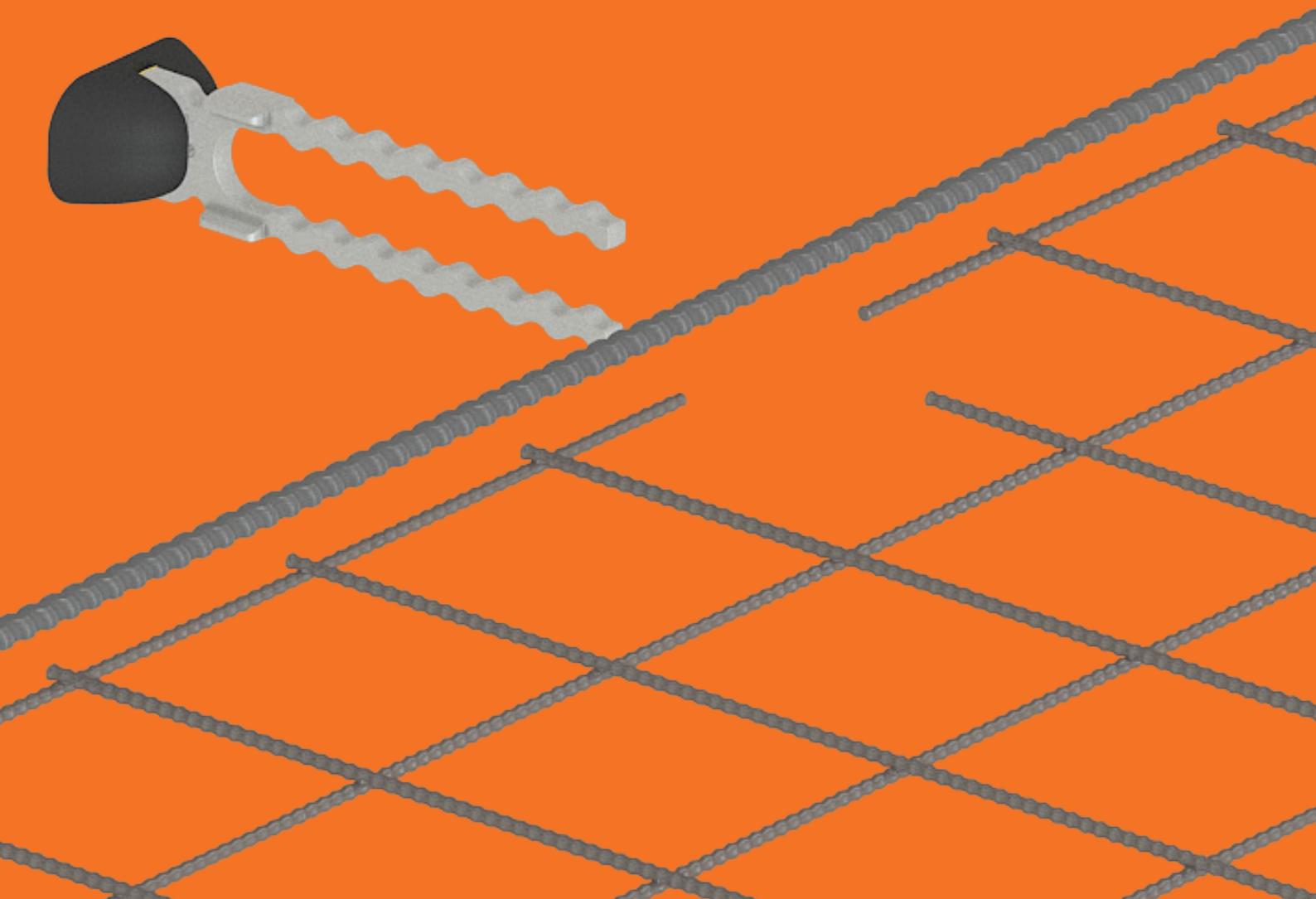

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