December | 2023 NZ

Reid™ SwiftLift™ Foot Anchors

Compliance Document

Reid™ SwiftLift™ Foot Anchors comply with NZ Good Practice Guide: Safe Work with Precast Concrete: 2018

reids.co.nz | 0800 88 22 12

SwiftLift™ Foot Anchor

The SwiftLift system utilises a fully engineered approach combining cast-in lifting anchors, recess formers, and custom-fitting lifting clutches. Using the SwiftLift system results in fewer failures, saving time and costs due to damage or construction delays. This product meets the building code requirements for durability B2 Durability, B2.3.1

CHARTERED VERIFIED ENGINEER

NZ GPG 2018 Compliant

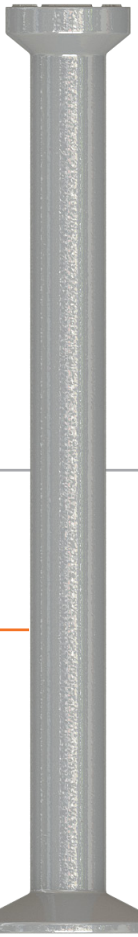
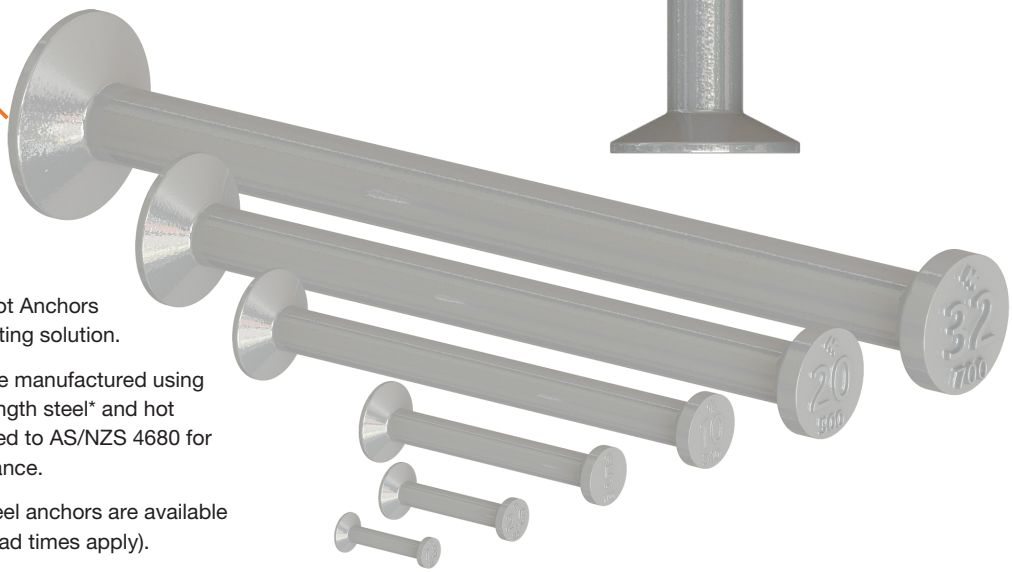


Figure 1:
Reid™ SwiftLift™ Foot Anchors

Foot Anchor size variations



- Reid SwifLift Foot Anchors are a versatile lifting solution.
- Foot Anchors are manufactured using forged high strength steel* and hot dipped galvanised to AS/NZS 4680 for corrosion resistance.
- 316 stainless steel anchors are available upon request (lead times apply).
- 1.3t & 2.5t foot anchors are manufactured from high tensile steel for added strength.

*Note: Factor of Safety (FoS) for high tensile steel is 4 which is significantly greater than the minimum requirement stipulated in NZ GPG 2018.

Compliance Details

Table I: 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.	✓

Reid™ SwiftLift™ Foot Anchor comply with NZ GPG 2018 ✓

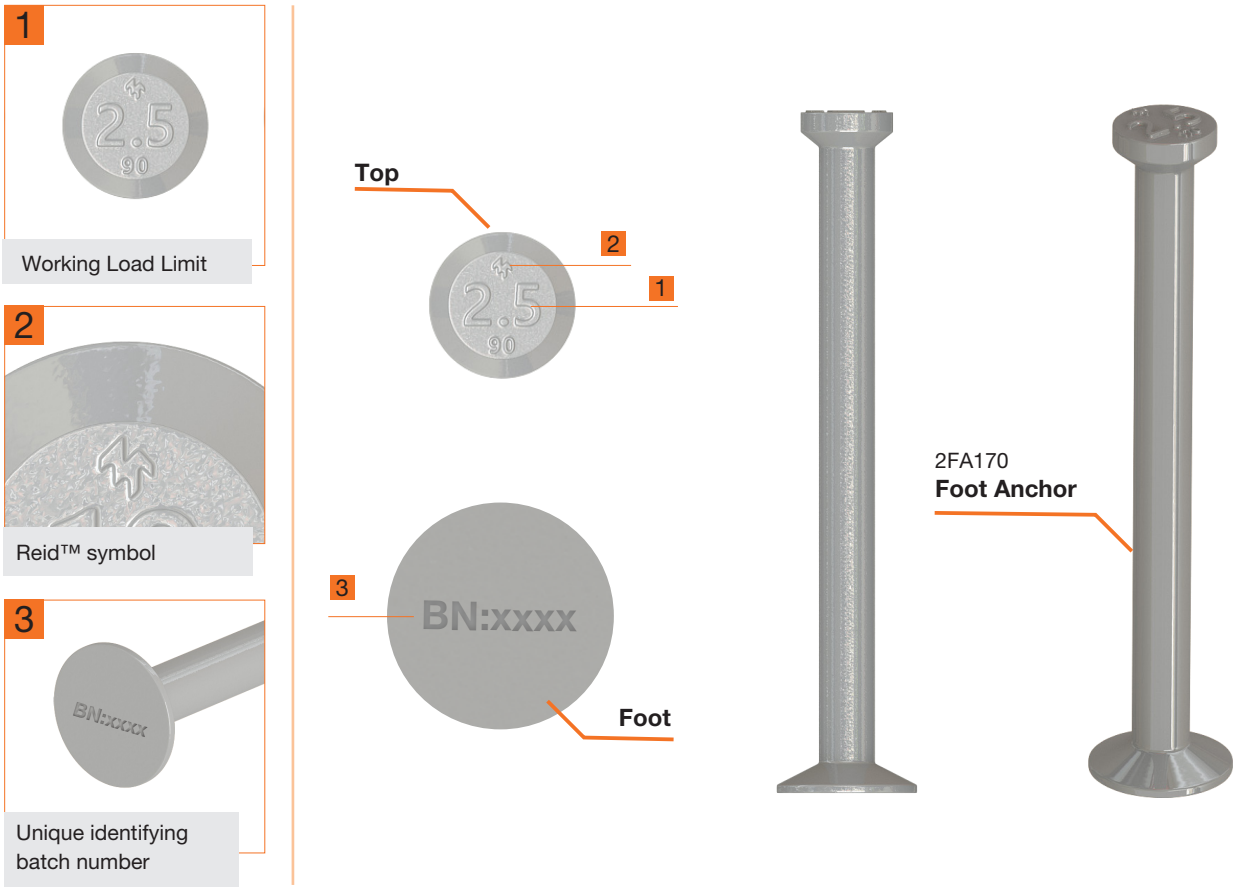
TESTED TO LOCAL CONDITIONS

Reid™ Foot Anchor

Consistent with the Reid™ commitment to local testing, SwiftLift™ Foot Anchors have been extensively tested in concrete comprising of over 500 individual tests, and consuming approximately 150 tonnes of concrete.

Analysis of the subsequent test data in accordance with AS3850.1:2015 Appendix A results in SwiftLift™ Foot Anchors having Working Load Limit capacities that are far higher and more accurate than those simply calculated using the CCD method.

Figure 2: Reid™ Foot Anchor Markings



Product Specifications

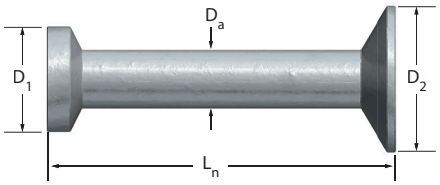


Table 2: Part Numbers & Anchor Dimensions (mm)

Part No.	Description	Shaft Diameter Da (mm)	Head Diameter D1 (mm)	Foot Diamter D2 (mm)	Length Ln (mm)	Clutches	Void	Ring (if required)
	1.3 tonne WLL (Max)	**10**	**19**	**25***		**1LE**		
1FA035H	35mm Foot Anchor				35mm			
1FA045H	45mm Foot Anchor				45mm			
1FA055H	55mm Foot Anchor				55mm		**1RFRO**	-
1FA066H	66mm Foot Anchor				66mm		**1SRFRO**	**1RR**
1FA085H	85mm Foot Anchor				85mm		**1SRFROART**	-
1FA120H	120mm Foot Anchor				120mm			
1FA240H	240mm Foot Anchor				240mm			
*Note: Foot Diameter for 1FA035H is D2 = 30mm								
	2.5 tonne WLL (Max)	**14**	**26**	**35**		**2LE**		
2FA055H	55mm Foot Anchor				55mm			
2FA065H	65mm Foot Anchor				65mm		**2RFRO**	-
2FA075H	75mm Foot Anchor				75mm		**2SRFRO**	**2RR**
2FA090H	90mm Foot Anchor				90mm		**2SRFROART**	-
2FA120H	120mm Foot Anchor				120mm		**2PR**	-
2FA170H	170mm Foot Anchor				170mm			
	5 tonne WLL (Max)	**20**	**36**	**50**		**5LE**		
5FA075	75mm Foot Anchor				75mm			
5FA090	90mm Foot Anchor				90mm			
5FA095	95mm Foot Anchor				95mm		**5RFRO**	-
5FA120	120mm Foot Anchor				120mm		**5SRFRO**	**5RR**
5FA145	145mm Foot Anchor				145mm		**5SRFROART**	-
5FA170	170mm Foot Anchor				170mm		**5PR**	-
5FA240	240mm Foot Anchor				240mm			
5FA480	480mm Foot Anchor				480mm			
	10 tonne WLL (Max)	**28**	**47**	**70**		**10LE**		
10FA135	135mm Foot Anchor				135mm			
10FA150	150mm Foot Anchor				150mm			
10FA170	170mm Foot Anchor				170mm		**10RFRO**	-
10FA200	200mm Foot Anchor				200mm			
10FA340	340mm Foot Anchor				340mm			
	20 tonne WLL (Max)	**38**	**70**	**98**		**20LE**		
20FA500	500mm Foot Anchor				500mm		**20RFRO**	-
	32 tonne WLL (Max)	**50**	**88**	**135**		**32LE**		
32FA700	700mm Foot Anchor				700mm		**32RFRO**	-

Performance Data

Table 3: NZ GPG 2018 Tensile and Shear Performance Data (WLL), tonnes

Part No.	Concrete Compressive Strength, MPa							
	15	20	25	30	35	40	45	50
1FA035H	0.6	0.7	0.7	0.8	0.9	1.0	1.0	1.1
1FA045H	0.8	0.9	1.0	1.2	1.2	1.3	1.3	1.3
1FA055H	1.1	1.2	1.3	1.3	1.3	1.3	1.3	1.3
1FA066H	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
1FA085H	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
1FA120H	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
1FA240H	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
2FA055H	1.1	1.3	1.5	1.6	1.7	1.9	2.0	2.1
2FA065H	1.4	1.6	1.8	2.0	2.2	2.3	2.5	2.5
2FA075H	1.7	2.0	2.2	2.4	2.5	2.5	2.5	2.5
2FA090H	2.1	2.4	2.5	2.5	2.5	2.5	2.5	2.5
2FA120H	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
2FA170H	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
5FA075	1.7	2.0	2.2	2.4	2.6	2.8	3	3.2
5FA090	2.1	2.5	2.8	3.1	3.4	3.7	4.0	4.3
5FA095	2.4	2.7	3.1	3.5	3.9	4.3	4.6	5.0
5FA120	3.4	4.1	4.8	5.0	5.0	5.0	5.0	5.0
5FA145	4.8	5.0	5.0	5.0	5.0	5.0	5.0	5.0
5FA170	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
5FA240	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
5FA480	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10FA135	4.2	5.1	6.0	6.7	7.5	8.2	8.9	9.5
10FA150	5.2	6.3	7.3	8.2	9.1	10.0	10.0	10.0
10FA170	6.5	7.9	9.2	10.0	10.0	10.0	10.0	10.0
10FA200	8.9	10.0	10.0	10.0	10.0	10.0	10.0	10.0
10FA340	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
20FA500	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
32FA700	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0

Lead time applies on all other 316 Stainless Steel anchors requests. Capacities highlighted in orange are limited by the system capacity.

Figure 3: Foot Anchor tested close to an edge.

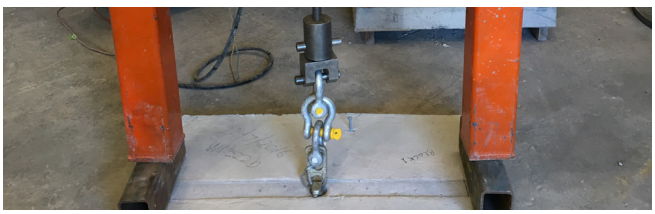


Figure 4: Foot Anchor tested in tension.

TESTED TO LOCAL CONDITIONS

Product Specifications (mm)

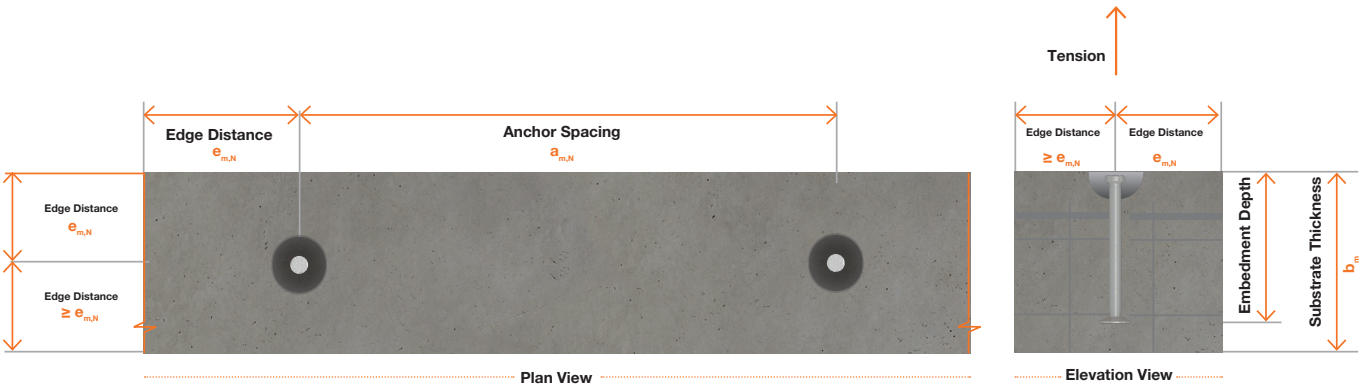


Table 4:

Optimal edge and spacing distances required to achieve tensile performances in Table 3

Anchor Length L (mm)	35	55	75	120	150	170	200	340	500	700
Embedment Depth h_{of} (mm)*	42	62	85	130	160	180	210	350	510	715
Edge Distance, tension $e_{m,N}$ (mm)	126	186	255	390	480	540	630	1050	1530	2145
Anchor Spacing, tension $a_{m,N}$ (mm)	252	372	510	780	960	1080	1260	2100	3060	4290

Note: Substrate Thickness (b_m) should be greater than the embedment depth with allowance for adequate concrete cover.

Product Specifications (mm)

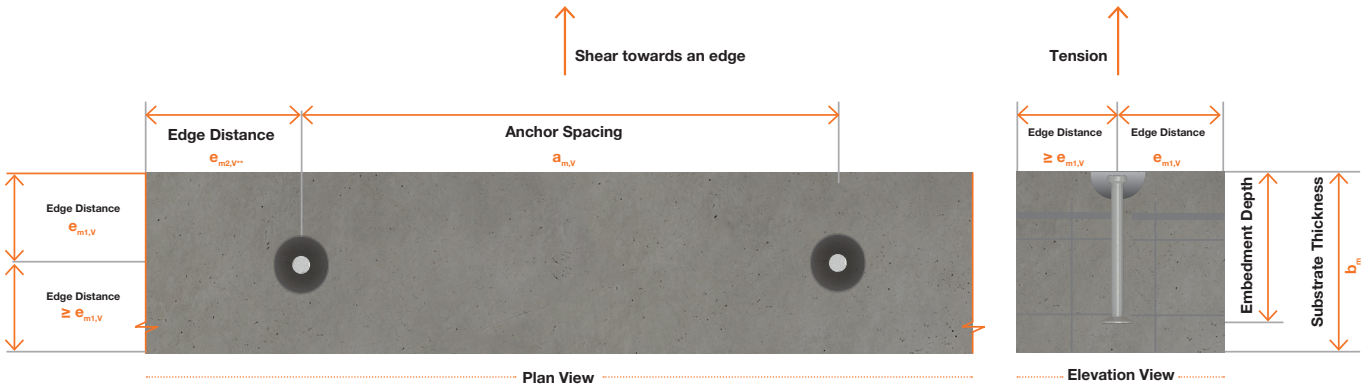


Table 5a:

When applied load is towards an edge, refer below table for edge and spacing distances to achieve shear performances in table 3

Optimal dimensions	Substrate Thickness - b_m (mm)	Typical Foot Anchor Part Numbers***							
		1FA055H	1FA085H	2FA090H	2FA120H	5FA120	5FA170	10FA150	10FA170
Edge Distance, shear $e_{m1,V}$ (mm)*	125	250	300	500	N/A	N/A	N/A	N/A	N/A
	150	200	250	400	400	600	N/A	N/A	N/A
	200	150	170	300	300	540	600	850	950
Anchor Spacing, shear $a_{m,V}$ (mm)*	125	700	850	1320	N/A	N/A	N/A	N/A	N/A
	150	640	720	1200	1330	1900	N/A	N/A	N/A
	200	600	690	900	1050	1360	2180	2000	2600

*Note: The optimal dimensions stated are based on achieving the corresponding WLL stated in Table 3 of this document which assumes unreinforced concrete. The edge distance and spacing may be further reduced with the consideration of reinforcement of which the details need to be checked and approved by an experienced engineer.

**Note: Edge distance $e_{m2,V}$ at end of row is half the anchor spacing (i.e. $a_{m,V}/2$)

***Note: For optimal dimensions on other Foot Anchor Part Numbers, please refer to guide in Table 5b

Product Specifications (mm)

Table 5b:
Optimal dimensions guide to achieve shear toward an edge performance in Table 3

Optimal dimensions	Substrate Thickness - b_m (mm) **					
	80-100	125	150-175	200		300
	Load Group Range - 1.3t to 5t			1.3t to 5t	10t	1.3t to 10t
Edge Distance, shear $e_{m1,V}$ (mm)*	7 X L	6 X L	5 X L	5 X L	6 X L	6 X L
Edge Distance, shear $e_{m2,V}$ (mm)*	9 X L	8 X L	8 X L	6.5 X L	7.5 X L	7 X L
Anchor Spacing, shear $a_{m,V}$ (mm)*	18 X L	16 X L	16 X L	13 X L	15 X L	14X L

* **Note:** L = Total Length of Foot Anchor

The optimal dimensions stated are based on achieving the corresponding WLL stated in Table 3 of this document which assumes unreinforced concrete. The edge distance and spacing may be further reduced with the consideration of reinforcement of which the details need to be checked and approved by an experienced engineer.

****Note:** Ensure the anchor length selected is suitable for the corresponding substrate thickness. Please contact Reid engineers for further information.

For optimized edge distance and anchor spacing design, please contact reid engineers.

Miniumum concrete strength must be 15 MPa

Terms and Conditions

All Reid™ branded products and all products manufactured at our Melbourne manufacturing facility are designed, manufactured, tested and supplied in compliance with our Quality Management System which has been independently audited and certified by SAI Global to ISO 9001:2015. ramsetreid™ undertake strict quality control processes to ensure performance specifications and metallurgical properties are maintained.

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