

SwiftLift™

Foot Anchors



AS 3850.1:2015
COMPLIANT*

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

Analysis of the subsequent test data in accordance with 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 1: 5FA120 Foot Anchor tested close to an edge.



Figure 2: 1FA045 Foot Anchor tested in tension.

Table 1: Compliance Details

Clause number	Requirement	Compliant
2.2	The Working Load Limit has been determined by testing in accordance with Appendix A, using a FOS per Table 2.1.	✓
2.5.1	Manufactured from ductile steel.	✓
2.5.2.1	WLL determined per clause 2.2.	✓
	Manufactured from steel that is fully killed, with a grain size of six or finer & exhibiting not less than 20% elongation.	✓
	When loaded to tensile failure, a ductile failure and plastic deformation is observed and the failure surface is 100% fibrous.	✓
	Insert assembly including void former shall be marked to ensure compatibility with other system components.	✓ Refer Figure 3
A2	Concrete for testing complies with AS 1379, tested per AS 1012.	✓
A3	Testing and recording of results.	✓
A4	Statistical evaluation of test results, using formula A4, $X_k = x(1 - k_s \text{COV})$.	✓
A5	Production Validation through testing to confirm compliance of critical specification requirements (dimensions, material properties and load bearing capacity where appropriate).	✓ * See note on p4
A6	Tension testing of the manufactured lifting insert.	✓
A7	Characteristic capacity determined from a comprehensive test program including individual and combined effects per Table A3.	✓

Figure 3: Typical SwiftLift™ Foot Anchor system markings

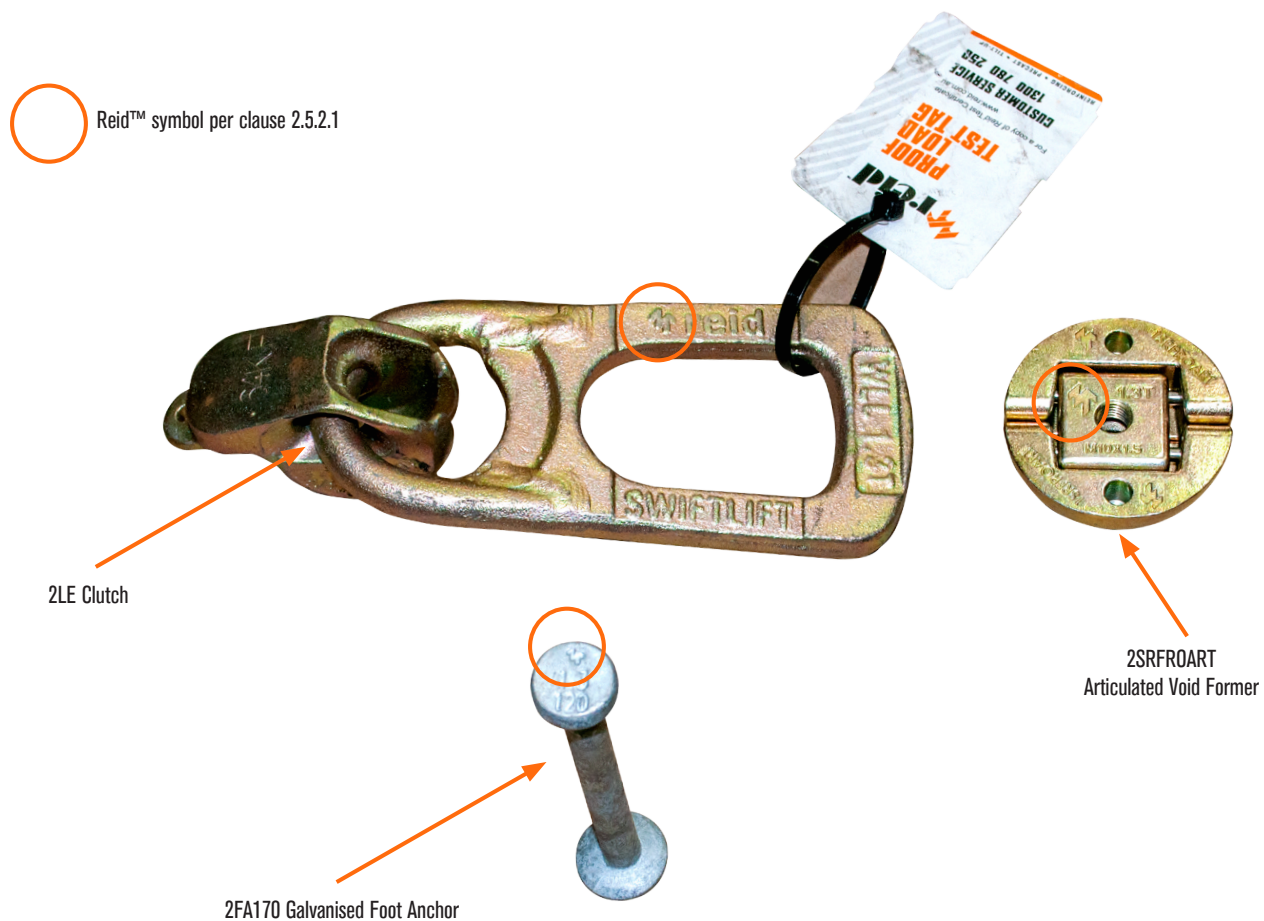


Figure 4: Anchor head markings

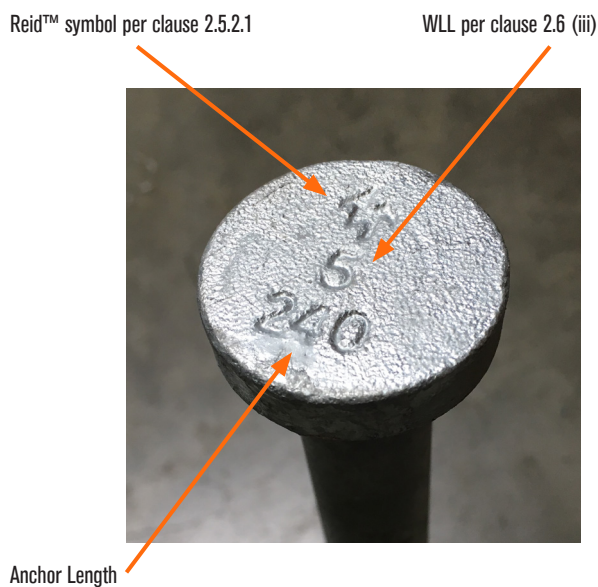


Figure 5: Foot markings



Table 2: AS 3850.1:2015 Tensile and Shear Performance Data (WLL), tonnes

Part No.	Concrete Compressive Strength, MPa				
	15	20	25	32	40
1FA035	0.5	0.6	0.7	0.8	0.9
1FA045	0.8	0.9	1.1	1.3	1.3
1FA055	1.1	1.3	1.3	1.3	1.3
1FA065	1.3	1.3	1.3	1.3	1.3
1FA085	1.3	1.3	1.3	1.3	1.3
1FA120	1.3	1.3	1.3	1.3	1.3
1FA240	1.3	1.3	1.3	1.3	1.3
2FA055	1.3	1.5	1.8	2.1	2.4
2FA075	2.2	2.5	2.5	2.5	2.5
2FA090	2.5	2.5	2.5	2.5	2.5
2FA120	2.5	2.5	2.5	2.5	2.5
2FA170	2.5	2.5	2.5	2.5	2.5
2FA280	2.5	2.5	2.5	2.5	2.5
5FA075	2.3	2.7	3.0	3.4	3.8
5FA095	3.6	4.1	4.6	5.0	5.0
5FA120	4.3	4.9	5.0	5.0	5.0
5FA170	5.0	5.0	5.0	5.0	5.0
5FA240	5.0	5.0	5.0	5.0	5.0
10FA150	5.8	6.7	7.4	8.4	9.4
10FA200	8.6	9.9	10.0	10.0	10.0
10FA340	10.0	10.0	10.0	10.0	10.0
20FA250	12.1	13.9	15.6	17.6	19.7
20FA340	18.6	20.0	20.0	20.0	20.0
20FA500	20.0	20.0	20.0	20.0	20.0
32FA700	32.0	32.0	32.0	32.0	32.0
32FA1200	32.0	32.0	32.0	32.0	32.0

* Refer to tables 4 & 5 for minimum edge and spacing distances required to achieve the above WLL. Capacities highlighted in orange are limited by the system capacity.

Table 3: Anchor dimensions

Load Group (t)	Shaft Diameter D_a (mm)	Head Diameter D_1 (mm)	Foot Diameter D_2 (mm)	Recess Form Max Radius (mm)	Length L_n (mm)
1.3	10	19	25	30	35, 45, 55, 66, 85, 120, 240
2.5	14	26	35	37	55, 75, 90, 120, 170, 280
5	20	36	50	47	75, 95, 120, 170, 240
10	28	47	70	59	150, 200, 340
20	38	70	98	80	250, 340, 500
32	50	88	135	105	700, 1200

Figure 6: Anchor Features

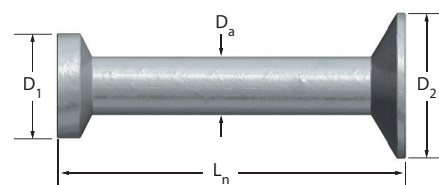


Table 4: Minimum edge and spacing distances required to achieve tensile performances in Table 2

Embedment Depth h_{ef} (mm)	40	80	160	200	300	500	700	1,200
Limiting Edge Distance e_m (mm)	120	240	240	300	450	750	1,050	1,800
Limiting Spacing a_m (mm)	240	480	480	600	900	1,500	2,100	3,600

Table 5: Minimum edge and spacing distances required to achieve WLL in Shear towards an edge.

Load Group (t)		1.3	2.5	5	10	20	32
Limiting Edge Distance e_m (mm)	15MPa	170	230	330	460	660	830
	25MPa	140	200	280	390	560	700
Limiting Spacing a_m (mm)	15MPa	500	700	980	1390	1980	2490
	25MPa	420	590	830	1170	1670	2100

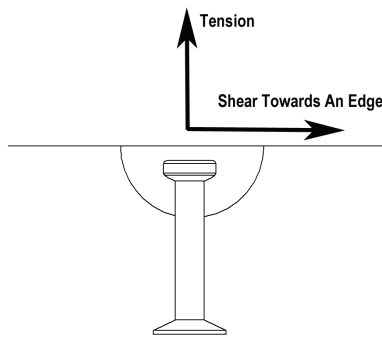


Figure 7: SwiftLift™ Foot anchor shear to edge

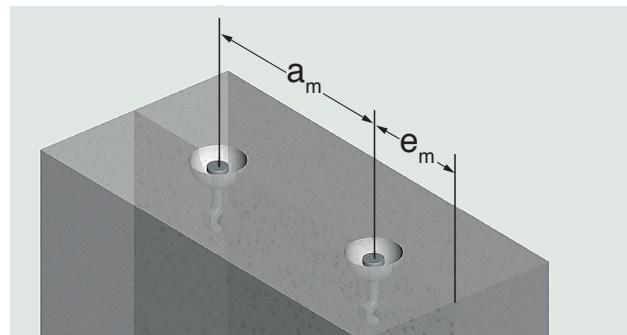


Figure 8: Minimum edge and spacing distances

To reflect the progress of the industry and the new innovative uses of precast and tilt-up construction, Australian Standard AS 3850 was updated in 2015. This update included a change in title to AS 3850:2015 Prefabricated Concrete Elements, a widened scope to include all prefabricated elements in Building Construction and splitting of the document into two parts:

- Part 1, called 'General requirements' details the new performance and testing requirements for suppliers of componentry into the industry. These new requirements are significantly different to AS 3850:2003 and should enable the industry to have greater confidence in the products that they are specifying and using;

- Part 2, called 'Building construction', aligns with the 2008 National Code of Practice for Precast, Tilt-Up and Concrete Elements in Building Construction and focuses on the interrelation of the various stages of manufacture, construction, transport and erection. It is specifically for the construction design and documentation of prefabricated concrete elements in building construction and provides guidance for the Erection Designer and highlights the importance of the Erection Design and Documentation.

The new AS 3850:2015 is central for the safe, efficient and cost-effective manufacture, construction, transport and erection of prefabricated concrete elements.



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.

* ramsetreid™ are currently in discussions with Australian Standards and the BD-066 committee regarding the wording of Clause A5.3 and the associated cost implications to the Precast industry. ramsetreid™ manage production validation in compliance with our ISO 9001:2015 quality management system. It is expected that Clause A5.3 will be reviewed by the BD-066 committee.

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