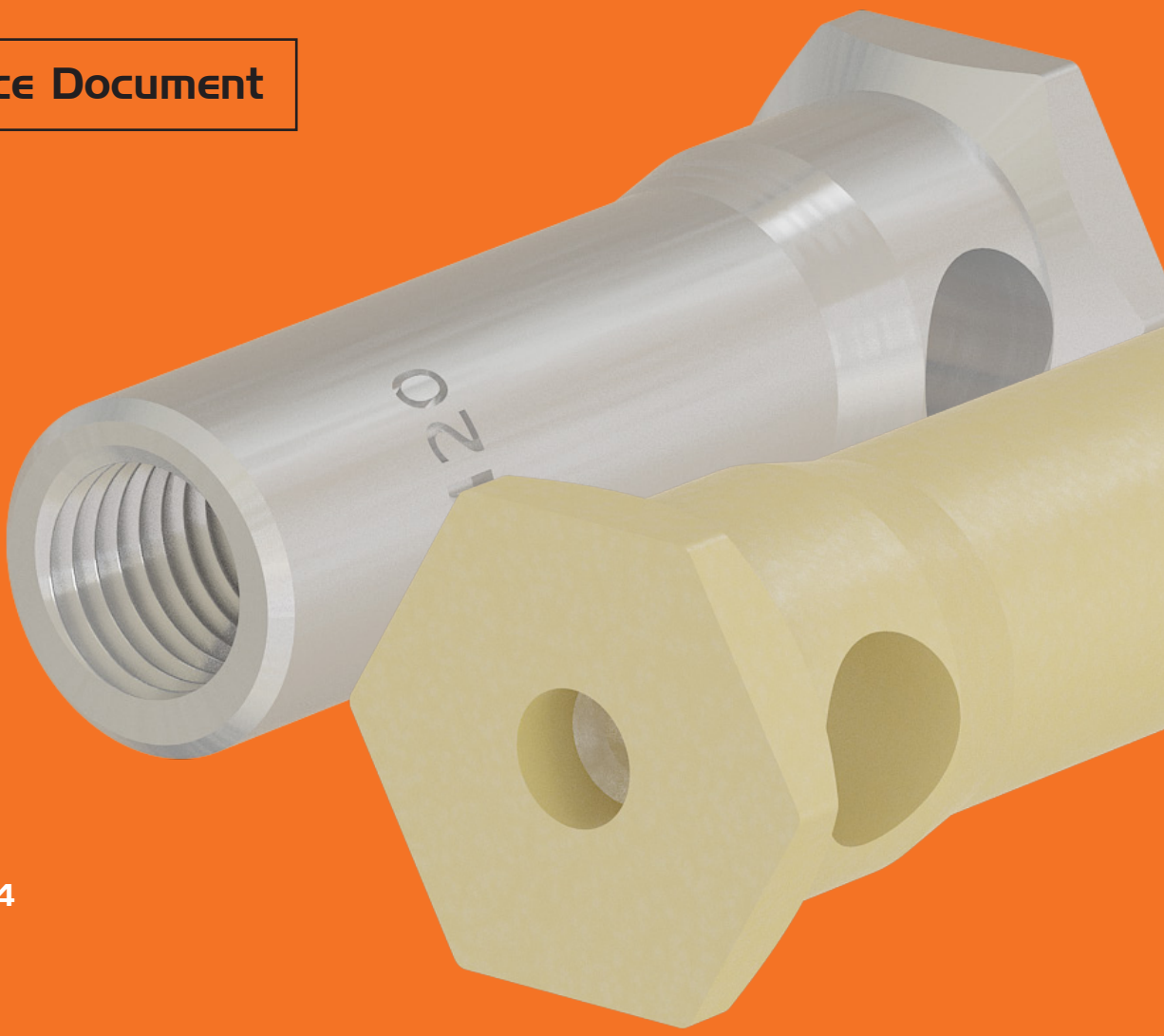
March | 2025 AU

Elephant Foot™ Ferrule

Compliance Document



Reid™ Elephant Foot Ferrule complies with AS 3850.1:2024

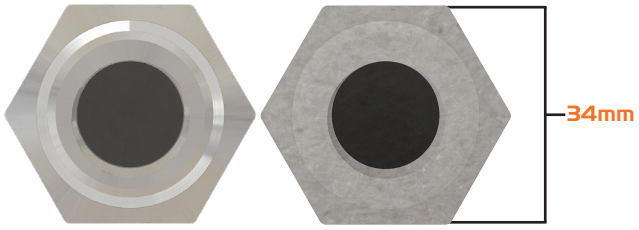
Elephant Foot™ Ferrule

Reid™ Elephant Foot™ Ferrule is a premium grade, medium to heavy duty, cast-in ferrule.

Figure 1:

Typical near face application displayed to the left including ferrule chair and locator cap accessories.

Figure 2:
Elephant Foot™ Ferrule



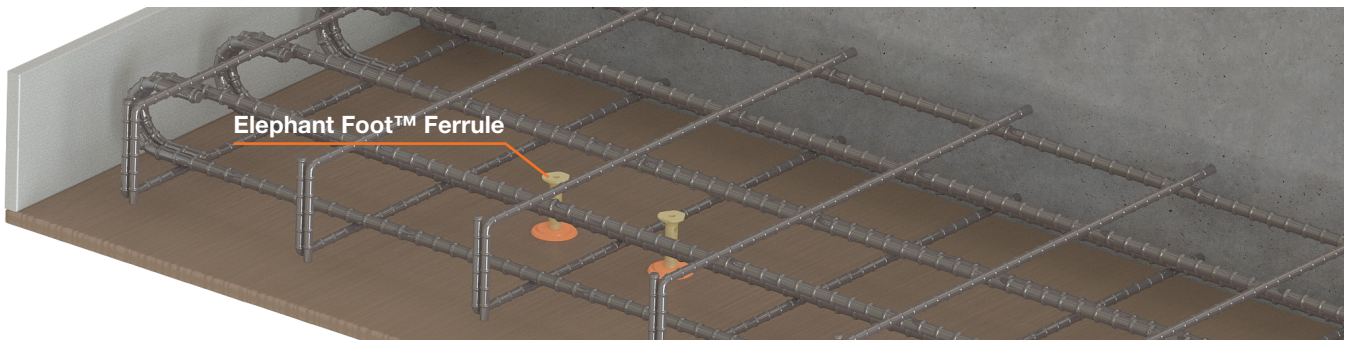
Elephant Foot™ Ferrule Key Features:

- 5.8 grade steel or 316 grade Stainless Steel.
- Use in near or far face applications with our range of accessories.
- Waisted design ensures capacity is not limited by the steel strength at the cross hole.
- Cross hole to suit N12 on larger sizes.
- Footed design ensures maximum concrete capacity without the need for a cross bar.
- May be used with rebar for fixing to mesh.
- Reid™ logo and metric thread size stamped on ferrules.

Compliance Details

Table 1: AS 3850.1:2024 Compliance Details

Clause	Requirement	Compliant
2.2	The Working Load Limit has been determined by using the CCD method in accordance with Appendix B, using a FOS per Table 2.1.	✓
2.5.1	All lifting inserts, brace inserts and ferrules shall be manufactured from ductile materials.	✓
2.5.4	Where standard ISO metric thread fixing inserts and bolts are used they shall comply with AS 1110 series. The engagement length of the bolt in the insert shall be specified by the supplier of the system. Inserts when used in tension shall be designed with a tensile capacity that exceeds that of the class of the matching bolt and at a minimum, that of class 4.6 bolt in accordance with AS 1111.1. Torque limits for cast in components shall be provided in the erection documentation and conform with the max, min, and recommended torque settings for the insert or component in the manufacturer's written specification.	✓
Appendix A	Product Validation through testing to confirm compliance of critical specification requirements (dimensions and arrangement of the steel reinforcement, material properties and load bearing capacity where appropriate).	✓
Appendix B	Comprehensive test report produced according to A9.7	✓



TESTED TO LOCAL CONDITIONS

Installation Details

Table 2: Installation Details

Ferrule size, d_b x L (mm)	Installation Details			Minimum Dimensions*		
	Cross hole to suit	Tightening Torque, T_r (Nm)**	Min Thread engagement (mm)	Edge Distance, e_c (mm)	Anchor Spacing, a_C (mm)	Substrate thickness, b_m (mm)
M10x45	R8	17	15	60	120	50
M12x55	R8	30	18	75	150	65
M12x95	R10 / N10			135	270	115
M16x70	N12	75	24	100	200	85
M16x95	N12			135	270	115
M20x70	N12	144	30	100	200	85
M20x95	N12			135	270	115
M24x95	N12	250	36	135	270	115

Please note:

Refer Table 1 Clause 2.5.2.1. Tightening Torque and Thread Engagement
**Recommended tightening torques are based on the use of grade 4.6 bolts.

Table 3: Working Load Limit Performance Details

Ferrule size, d_b x L (mm)	Working Load Limit (kN) #			
	Shear, V_a ^	Tension, N_a		
	Bolt Class	Concrete Comp. Strength f'c		
	4.6	20 MPa	32 MPa	40 MPa
M20x95	27.0	25.3	31.9	35.7

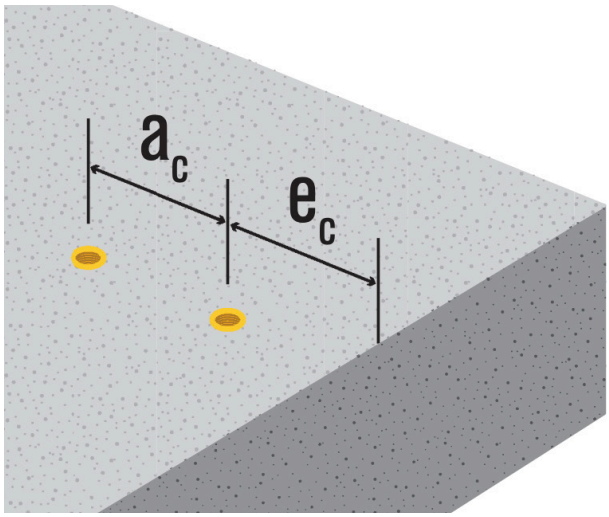
Please note:

FE20095 & FE20095GH are the only ferrules recommended for bracing, therefore are the only ferrules requiring AS 3850.1:2024 WLL.

For permanent structural connections, refer to Reid Cast in Anchoring Solutions Design Manual for Strength Limit State capacities.

^ Where shear loads are parallel to or away from an edge and where the minimum dimensions are adhered to.

Figure 3: Minimum edge and spacing distances

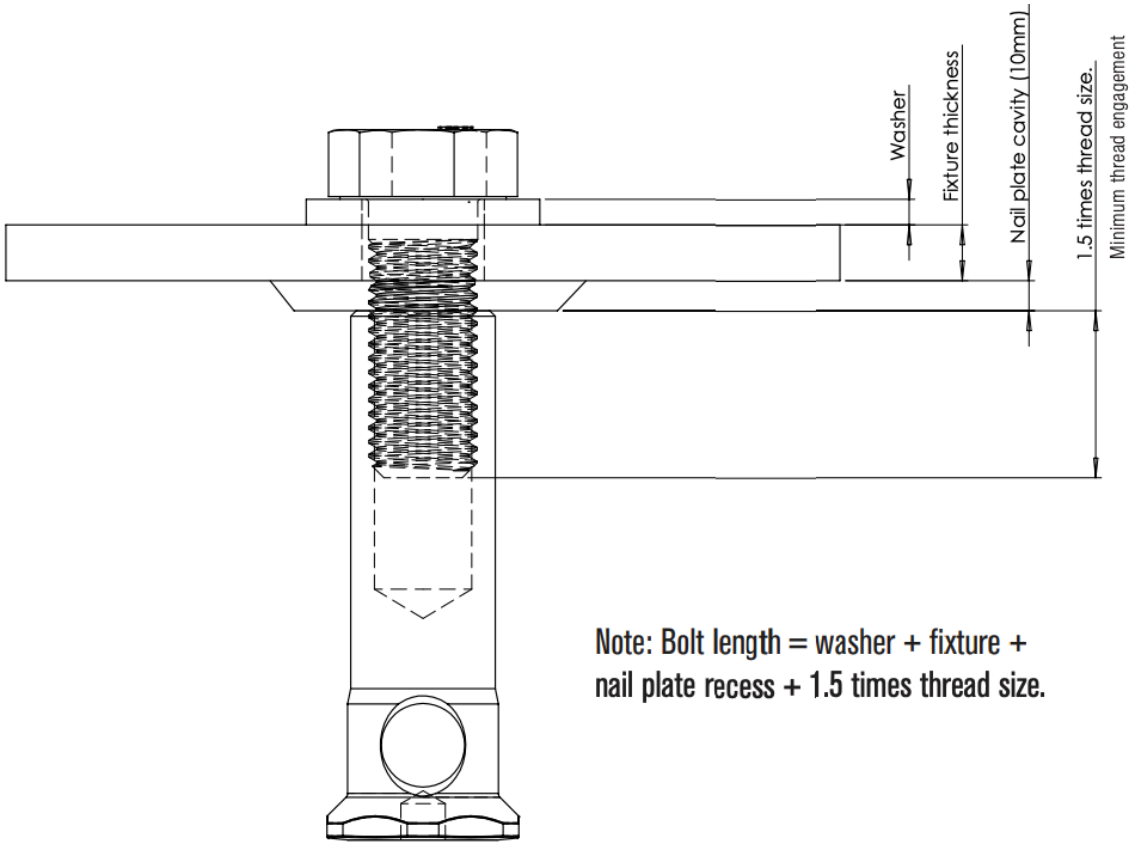


Installation Details (continued)

Table 4: Engineering Properties

Ferrule size, d_b	Stress area threaded section, A_s (mm^2)	Carbon Steel		Stainless Steel		Section modulus, Z (mm^3)
		Yield strength, f_y (MPa)	UTS, f_u (MPa)	Yield Strength, f_y (MPa)	UTS, f_u (MPa)	
M10	71.2	400	500	450	700	190
M12	88.3	400	500	450	700	334.5
M16	158.0	400	500	450	600	692.8
M20	242.0	400	500	450	600	1034.0
M24	365.0	400	500	-	-	2066.0

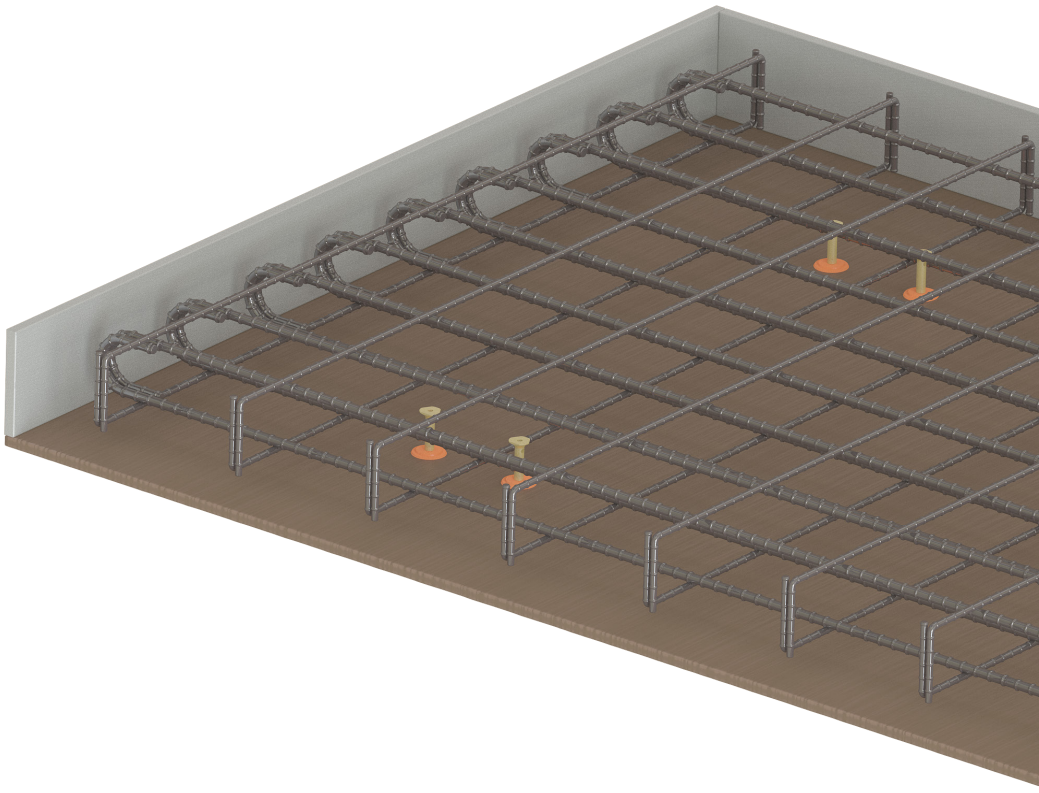
Figure 4: Bolt Length calculation



Product Specifications

Table 5: Description and Part Numbers

Ferrule size, d_b	Ferrule OD (mm)	Ferrule length, L (mm)	Effective depth, h (mm)	Thread length, L_t (mm)	Cross hole to suit	Part No.		
						Zn	Gal	316SS
M10	16	45	41	20	R8	FE10045	-	FE10045SS
M12	17	55	51	25	R8	FE12055	FE12055GH	FE12055SS
		95	91	25	R10 / N10	FE12095	FE12095GH	-
M16	22	70	66	32	N12	FE16070	FE16070GH	FE16070SS
		95	91			FE16095	FE16095GH	-
M20	26	70	66	35	N12	FE20070	FE20070GH	-
		95	91	38		FE20095	FE20095GH	FE20095SS
M24	32	95	91	20	N12	FE24095	FE24095GH	-



Quality and Compliance

AS 3850.1:2024 Compliant

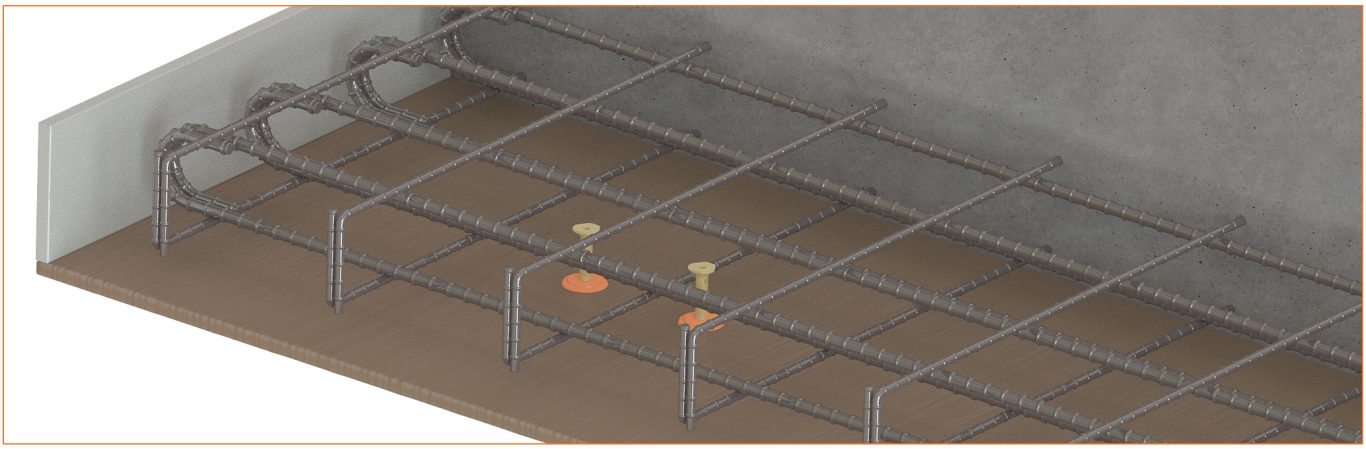
All Reid™ branded products and all products manufactured at our Melbourne manufacturing facility are designed, manufactured, tested and supplied in compliance with our Quality Management System which has been independently audited and certified by SAI Global to ISO 9001:2015. Reid™ undertake strict quality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

To reflect the continued progress of the industry and the new innovative uses of precast and tilt-up construction, Australian Standard AS 3850 Part 1 and Part 2 has recently been updated in 2024. AS 3850 Part 1, Part 2 and Part 3 are detailed below.

- Part 1, called 'General requirements' details the updated performance and testing requirements for suppliers of componentry into the industry. These requirements are significantly different to AS 3850:2015 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. It was updated to align with the changes in Part 1 and the content in Part 3.
- Part 3, called 'Civil construction' provides requirements impacting prefabricated concrete elements in civil, infrastructure and non-building construction. Similar to Part 2, it focuses on various stages of safety, planning, manufacturing, constructions design, casting, transportation, erection and incorporation into the final structure.

The new AS 3850.1:2024 is central for the safe, efficient and cost-effective manufacture, construction, transport and erection of prefabricated concrete elements.

Quality and compliance are at the core of everything we do. Our commitment to ISO 9001:2015 certification ensures every Reid™ product meets the highest standards of safety, performance, and reliability.



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