reid™

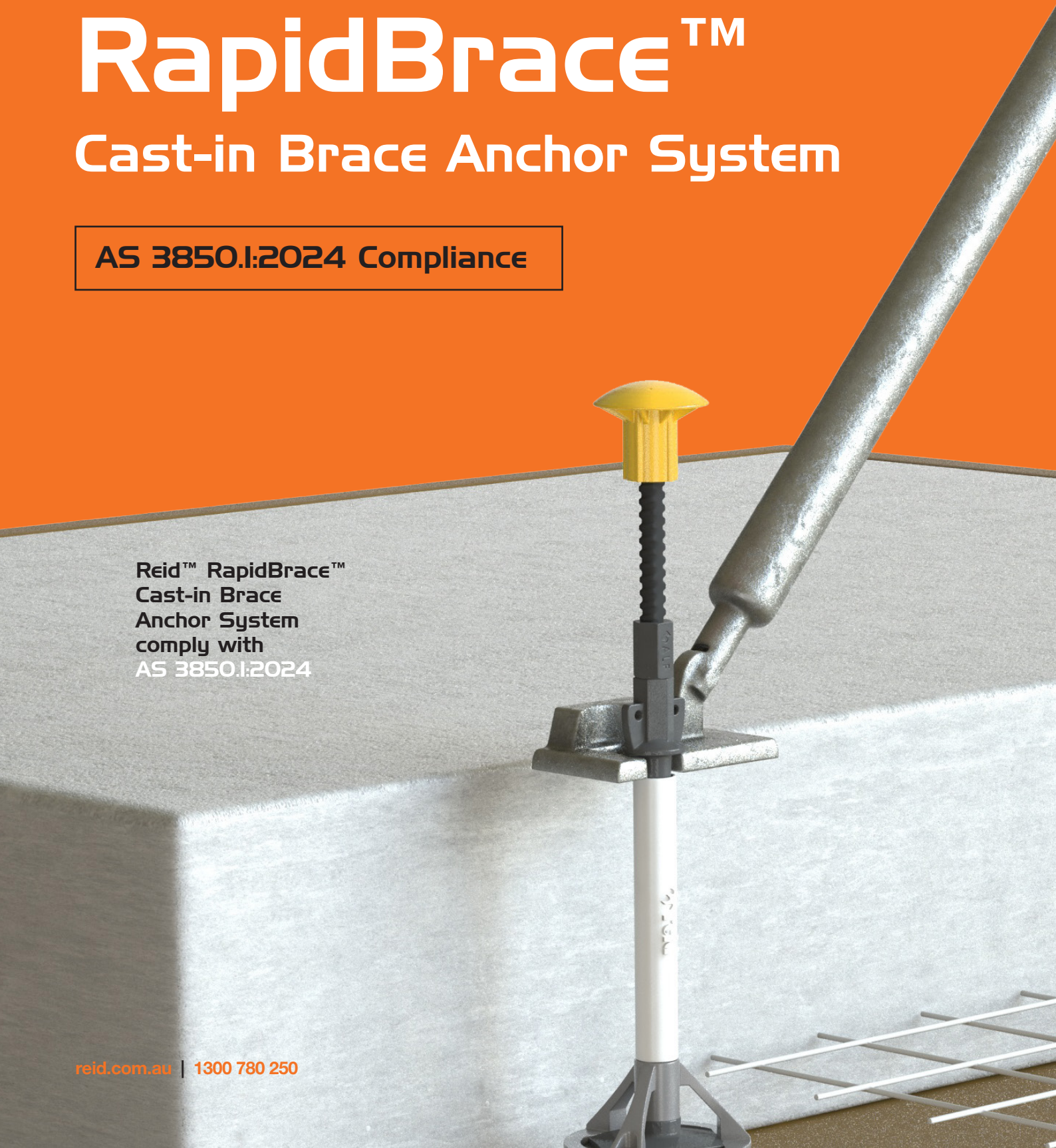
March | 2025

AUS

RapidBrace™

Cast-in Brace Anchor System

AS 3850.1:2024 Compliance

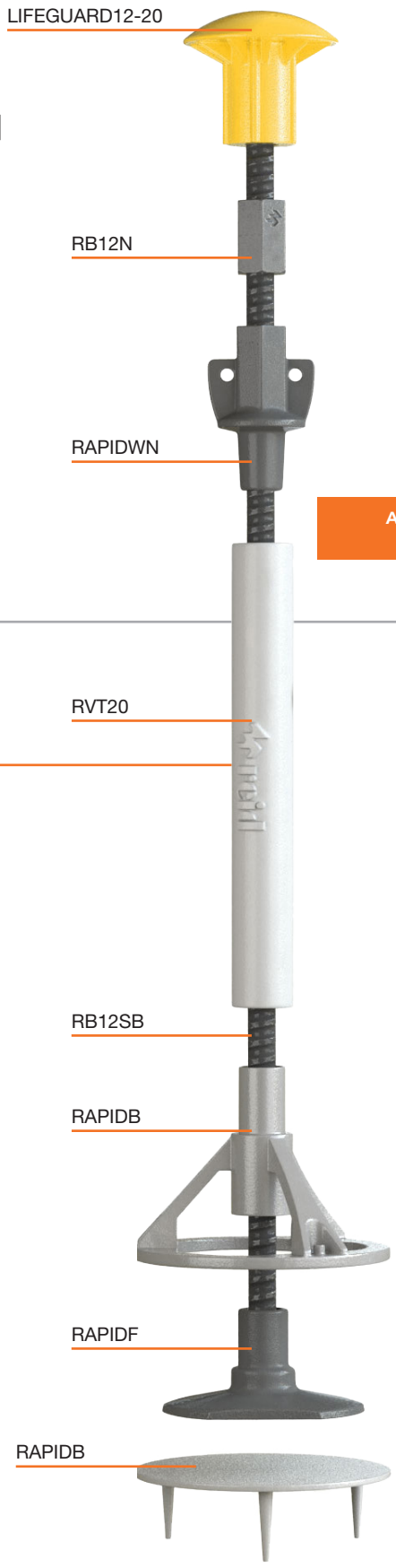


Reid™ RapidBrace™ Cast-in Brace Anchor System comply with AS 3850.1:2024

Reid™ RapidBrace™

RapidBrace cast-in Brace Anchor System enables structural bracing in early strength concrete.

RapidBrace is cast-into the concrete floor and is ready to load in concrete with compressive strength as low as 8 MPa, depending on engineering requirements.



AS 3850.1:2024 Compliant

Figure 1:
Reid™ RapidBrace™

RapidBrace Brace Anchor System Key Features:

- Ductile Brace Anchor System
  (see Reference no. 5 found at the end of this document, Worksafe Victoria Alert on Precautions in using high tensile formwork bar. ReidBar is not a high tensile formwork tie or 'Z-tie')
- High strength brace anchoring in low strength concrete
- Improved floor cycle times from earlier panel / steel erection
- Achieves nominal 500N grade ReidBar steel strength in low strength concrete
- Full conformance to AS 3850.1:2024
- Tested to AS 3850.1:2024 Appendix A in concrete < 12MPa
- Compliance testing for installation in composite slab (steel tray decking)
- Guidance for Post tensioned slab installations

Compliance Details

Table 1: AS 3850.1:2024 Compliance Details

Clause	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	All lifting inserts, brace inserts and ferrules shall be manufactured from ductile materials.	✓
2.5.4	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.	✓
Appendix A	Design & 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).	✓

RapidBrace™ Cast-in Brace Anchor System comply with AS 3850.1:2024

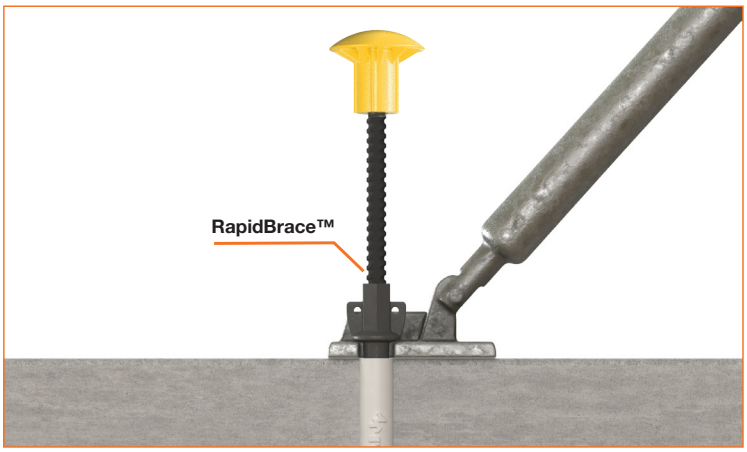


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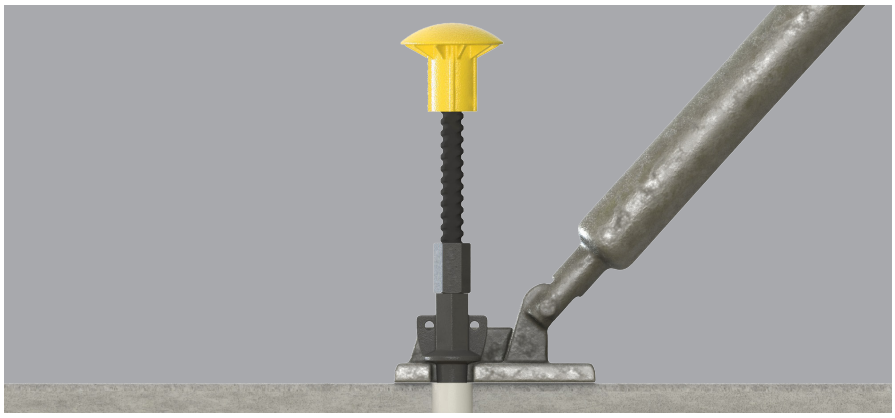
Figure 1:
RapidBrace set into concrete floor slab



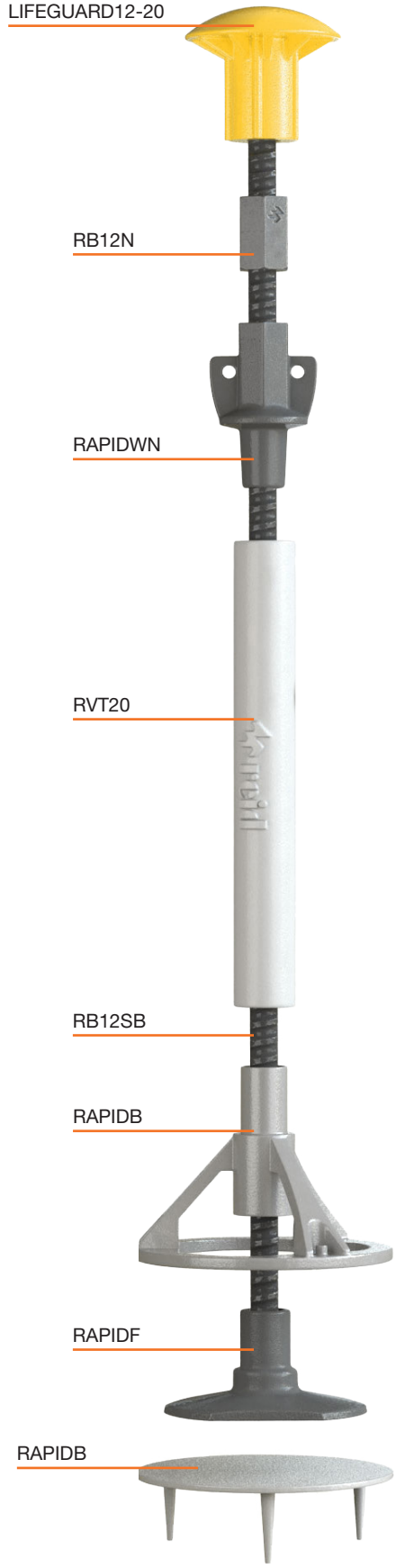


Table 2 - RapidBrace System Components

Part Number	Description	Pack Quantity
Consumable		
RVT20	Reid Void Tube 3 m length	10no. x 3m/bundle
RAPIDF	RapidBrace Foot	25 no.
RAPIDB*	RapidBrace Tripod & Spacer Disk Base	25 no.
Re-Usable Items		
RB12N	ReidBar 12 mm Nut	50 no.
RAPIDWN	RapidBrace Wing Nut	50 no.
RB12SB	ReidBar 12 mm Starter Bar 540mm long	-
LIFEGUARD12-20	Danley™ Life Guard Protective Cap	50 no.

Installation & Pre-Design Checklist

Given the many considerations required on a construction project with prefabricated building elements, an Erection Design Engineer in accordance with the NCOP(3) and AS 3850.1:2024, must be engaged to assess and certify the global stability of the structure during the construction phase. This includes considering slab behaviour when assessing the overall load capacity of cast-in anchors for bracing pre-cast concrete elements.

- Mean Concrete Compressive Strength at age of loading f_{cm}:
  - $f_{cm} \geq 12$ MPa (in scope of AS 3850.1:2024
  - $8 \leq f_{cm} < 12$ MPa (outside scope of AS 3850.1:2024
- Minimum Installation Depth (h_m) : 125mm
- Effective Depth (h_{ef}): 120mm
- Minimum Edge Distance: $3h_{ef}$
- Minimum Anchor Spacing: $6h_{ef}$
- Post Tensioning Duct Clearance: min 100mm (Refer to figures 2 & 4)
- Minimum Slab Depth (D): 150mm
- Rapid wing nut (RAPIDWN) Tightening Torque 120 Nm using part turn method - refer to RapidBrace Installation Guide for further details
- Minimum ReidBar RB12 bar thread engagement into RapidBrace Foot is 43mm
- Installed along centreline of Steel profiled decking trough section (b/w ribs) - refer to RapidBrace Installation Guide for further detail (Refer to figures 3 & 5)

Design Process Table 2: Performance data

Load	Working Load Limit WLL (kN)
Tension (N_a)	24kN
Shear (V_a)	16.8kN*

* 16.8kN Shear WLL is based on RB12 ReidBar mechanical properties. Working Load Limit Factor FoS = 2.25

The Installation and Pre-Design checklist must be satisfied for the RapidBrace simplified 3 step design check to apply:

Step 1
Tensile Design
tensile WLL (N_a) = 24 kN
$N_{applied} / N_a \leq 1.0$

Step 2
Shear Design
Shear WLL (V_a) = 16.8 kN
$V_{applied} / V_a \leq 1.0$

Step 3
Combined load cases**
Check the interaction equation is satisfied
$(N_{applied} / N_a) + (V_{applied} / V_a) < 1.2$

**ReidBar 500N grade, unlike High Tensile Formwork bar 'Z-tie', can resist combined tension and shear actions. For further information refer to Worksafe VIC Alert reference no. 5 found at the end of this document.

Slab types and compliant setout

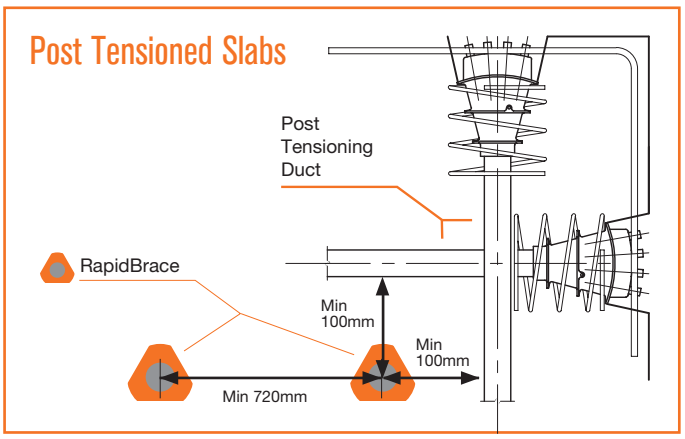


Figure 2:

RapidBrace clearances to post tensioning ducts.

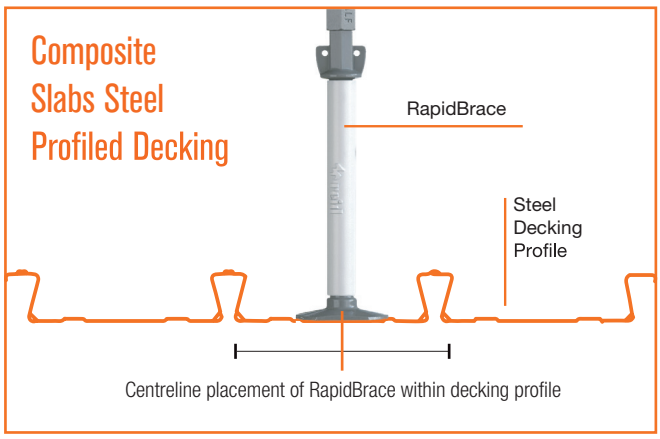


Figure 3:

Centreline placement of RapidBrace within trough of steel decking profile, equidistant from each rib.

Figure 4:
Testing to ensure performance of RapidBrace undertaken in worst case post tensioning duct configuration.

Figure 5:
Composite Slab Steel profile decking effects on anchorage were investigated. WLL of RapidBrace System is maintained subject to installation as shown in figure 3.

RapidBrace load performance data fully complies to the requirements of AS 3850.1:2024 when installed in concrete with a compressive mean strength of at least 12MPa.

RapidBrace load performance data was determined from the test results obtained from a full testing program in accordance with AS 3850.1:2024 Appendix A in concrete with a mean compressive strength < 8 MPa. Therefore RapidBrace load data is applicable for installations in concrete slabs achieving a mean compressive strength of at least 8 MPa. The AS 3850.1:2024 testing regime is a minimum requirement that ensures in-scope compliance for mean concrete compressive strengths above 12 MPa and out of scope performance below 12 MPa, subject to the review and approval of the Erection Design Engineer.

Recommended Reading:

1. Australian Standard AS 3850.1:2024, Prefabricated concrete elements – General Requirements
2. Australian Standard AS 3850.2:2024, Prefabricated concrete elements – Building Construction
3. Safework Australia, National Code of Practice for Precast, Tilt-Up and Concrete Elements in Building Construction, Feb 2008
4. Worksafe Victoria, Information about Erection of Concrete panels on early age low-strength concrete, August 2017
5. Worksafe Victoria, Alert, Formwork - Precautions in using high tensile Z-tie bars, First published 18 Feb 2002 and re-published on June 8 2005


RapidBrace™

Quality and Compliance

AS 3850.1:2024 Compliant

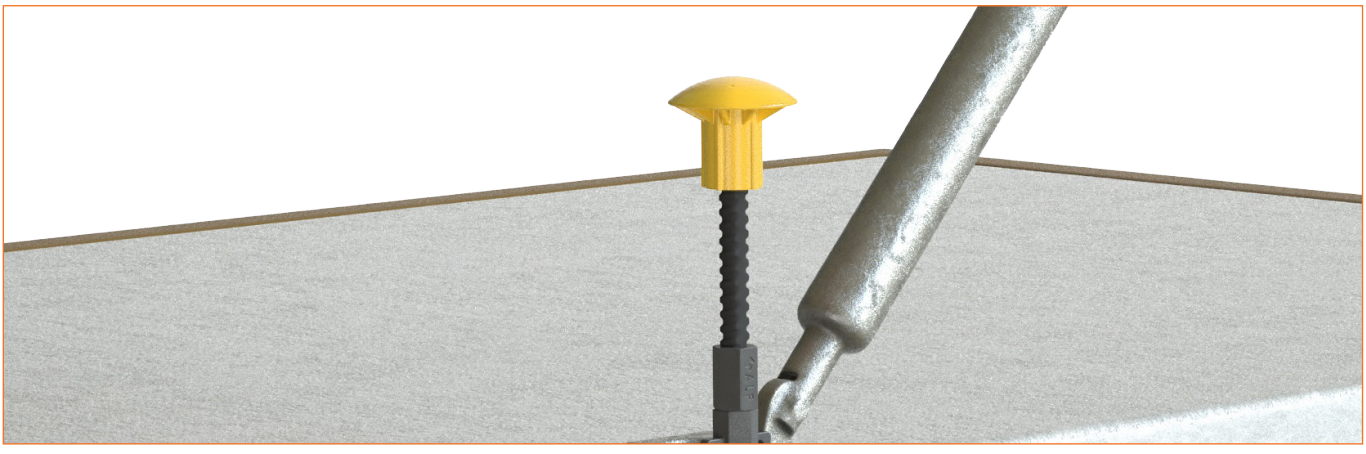
All Reid™ branded products and all products manufactured at our Melbourne manufacturing facility are designed, manufactured, tested and supplied in compliance with our Quality Management System which has been independently audited and certified by SAI Global to ISO 9001:2015. Reid™ undertake strict quality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



Customer Service

Reid™ Australia

Tel: 1300 780 250
Email: sales@itwcsanz.com
Web: www.reid.com.au

Reid™ New Zealand

Tel: 0800 88 22 12
Email: sales@ramsetreid.co.nz
Web: www.reids.co.nz

Reid™
AUS: 1 Ramset Drive, Chirnside Park, Victoria, Australia, 3116
NZ: 23-29 Poland Road, Glenfield, Auckland 0632