

Certificate no: CMNZ10024

Version: Rev04

Original issue date: 1 October 2020

Version date: 27 May 2024

## 1. Certificate Holder Details



Construction Systems

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## 2. Product Certification Body

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**Complaints:** The complaints process for this certificate can be found here:

<https://www.branz.co.nz/codemark-info/complaints-and-appeals/>

# Product Certificate

## ReidBar™ Reinforcing Bar Connection System

### 3. Description of Product

The ReidBar™ Reinforcing Bar Connection System includes ReidBar™ Grout Sleeves (including Ramset™ POZIFLO™ HS grout, Sika Grout 212 HP, and Fosroc Conbextra HS), ReidBar™ Threaded Inserts, ReidBar™ Flange Nuts (Steel), ReidBar™ Couplers (Steel), and Ramset™ Epcon™ C8 Xtrem™ epoxy filler to make the connections.

The ReidBar™ Grout Sleeves, ReidBar™ Threaded Inserts, ReidBar™ Flange Nuts, and ReidBar™ Couplers are identified with part and batch numbers. Part numbers are listed in Section 7 of this Product Certificate. Ramset™ POZIFLO™ HS grout, Sika Grout 212 HP, Fosroc Conbextra HS, and Ramset™ Epcon™ C8 Xtrem™ filler are identifiable by the name and batch number.

### 4. Intended use of Product

The ReidBar™ Reinforcing Bar Connection System incorporates different solutions for connecting ReidBar™ continuously threaded reinforcing bars within concrete elements. The system is for use as reinforcement bar mechanical connectors and anchors as specified in NZS 3101 for use with in-situ and pre-cast concrete structural elements.

### 5. New Zealand Building Code Provisions

**Clause B1 STRUCTURE:** Performance B1.3.1, B1.3.2 and B1.3.4. Loads arising from self-weight, imposed gravity loads arising from use, earth pressure, water and other liquids, earthquake, snow, wind, impact and creep [i.e. B1.3.3 (a), (b), (d), (e), (f), (g), (h), (j) and (q)].

**Clause B2 DURABILITY:** Performance B2.3.1 (a) not less than 50 years and B2.3.2.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1.

### 6. Conditions and Limitations of Use

- The reinforcing bars used in the threaded connections with the ReidBar™ Reinforcing Bar Connection System must be ReidBar™ Grade 500E continuously threaded reinforcing bars that meet the requirements of AS/NZS 4671.
- Starter bars which are inserted and grouted with one of the specified grouts to the ReidBar™ Grout Sleeves can be generic bars of Grade 500E (in accordance with AS/NZS 4671) or ReidBar™ Reinforcing Bars and as specified in the Reference Documents.
- The final orientation of the ReidBar™ Grout Sleeve connectors in service shall be vertical.



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- The system must not be used where the in-service temperature drops below -5°C.
- Only ReidBar™ Flange Nuts (Steel) made of steel and ReidBar™ Threaded Couplers (Steel) made of steel may be used where connections may be subjected to high cycle fatigue, all other connectors covered by this Product Certificate shall not be used when the system may be subjected to high cycle fatigue.
- Concrete cover to the connectors must meet the minimum requirements of NZS 3101.1 Clause 3.11.3 and Table 3.6 as appropriate.
- The ReidBar™ Reinforcing Bar Connection System is subject to specific engineering design by a Chartered Professional Engineer and the installation of the system must be carried out by pre-cast concrete manufacturers or building contractors under the guidance of a Chartered Professional Engineer.
- The ReidBar™ Reinforcing Bar Connection System must be designed and installed in accordance with the conditions and limitations of this Product Certificate and the Reference Documents.

## Reference Documents:

- ReidBar™ Grout Sleeve System - Installation Guide, March 2024.
- ReidBar™ Reinforcing Bar Connection Systems - Product and Specification Guide, March 2024.
- POZIFLO™ Grout HS - Technical Data Sheet, Part Number: RPGHS.
- SikaGrout®-212 HP NZ, Product Data Sheet, January 2021, Version 03.01.
- Fosroc® Conbextra® HS – Technical Data Sheet, Aug 2023.

## 7. Health and Safety Information

Ramset™ POZIFLO™ HS, Sika Grout 212 HP, and Fosroc Conbextra HS are cementitious-based grout products. Manufacturer's instructions and typical practices for working with and handling cementitious grouts should be observed.

Ramset™ Epcon™ C8 Xtrem™ filler is an epoxy-based product. Manufacturer's instructions and typical practices for working with and handling epoxy fillers should be observed.

## 8. Basis for Certification

The following evaluations have been carried out on the ReidBar™ Reinforcing Bar Connection System to determine compliance with the NZBC:

- BRANZ Expert Judgement (Structural Engineer) confirmation of compliance to the relevant NZBC Clause B1 Structural Performance Requirements.
- BRANZ Expert Judgement (Materials Scientist) confirmation of compliance to the NZBC Clause B2 Durability Performance Requirements.
- The practicability of installation of ReidBar™ Reinforcing Bar Connection System has been assessed and found to be satisfactory.



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- The referenced Technical Literature has been examined by BRANZ and found to be satisfactory.
- BRANZ has assessed the Product Quality Plan for the ReidBar™ Reinforcing Bar Connection System under which the responsibilities are assigned as follows:
  - Chartered Professional Engineers specialising in structural design are responsible for incorporating the ReidBar™ Reinforcing Bar Connection System within the design of the structure.
  - Building contractors under the supervision of a Chartered Professional Engineer are responsible for the quality of the installation of the ReidBar™ Reinforcing Bar Connection System in accordance with the instructions of Reid Construction Systems.
  - Building owners are responsible for the maintenance of the structure such that suitable concrete cover to the ReidBar™ Reinforcing Bar Connection System is maintained.

## 9. Supporting Documentation for Certification

- AS 3850.1:2015 Amendment 1 Prefabricated Concrete Elements Part 1: General Requirements.
- AS/NZS 4671:2019 Steel reinforcing materials.
- Acceptable Solutions and Verification Methods for New Zealand Building Code Clause B1 Structure, 1st Edition, Amendment 21, 2 November 2023.
- Acceptable Solutions and Verification Methods for New Zealand Building Code Clause B2 Durability, 2nd Edition, Amendment 12, 28 November 2019.
- Acceptable Solutions and Verification Methods for New Zealand Building Code Clause F2 Hazardous Building Materials, 1st Edition, Amendment 3, 1 January 2017.
- BRANZ Technical Memorandum, Subject: Ramset Reid Grout Sleeve System. B1 Structure assessment, dated 16 January 2024.
- BRANZ Technical Opinion TP11032-TO [2020], NZBC Verification Method B1/VM1, dated 25 June 2020.
- BRANZ Technical Opinion TP12767-TO [2020], Compliance of Ramset/Reidbar Mechanical Anchors, dated 14 December 2020.
- BRANZ Technical Memorandum, Subject: Assessment of modified 16 mm Grout Sleeve - Ramset Reid. B1 Structure assessment, dated 20 July 2021.
- BRANZ Durability Opinion TV17218-01-1, Durability Opinion on ReidBar Reinforcing Bar Connection System Grouts, dated 2 February 2024.
- BRANZ Durability Opinion TP11032-001-001, Durability Opinion on the ReidBar Grout Sleeve System, dated 31 October 2019.
- Holmes Solutions, Reid Construction Systems Grout Sleeve, Stage 1 Grout Sleeve testing, Project 144346.00, Revision 1.0, dated 20/06/2023.



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- Holmes Solutions, Reid Construction Systems ReidBar™ Grout Sleeve Testing, Stage 2 Testing of Alternative Grouts, Project 144346.00, Revision 1.1, dated 17 July 2023.
- Ministry of Business, Innovation and Employment Record of amendments – Acceptable Solutions, Verification Methods and handbooks.
- NZS 3101.1:2006 Amendment 3 Concrete structures standard part 1 – The design of concrete structures.
- OPUS, Testing ReidBar™ Steel Couplers and Flange Nuts to ISO 15835 – Alternate tension and compression test of large strains, High cycle fatigue test, reference 15-254D57.00, dated 29 January 2016.
- OPUS, Testing ReidBar™ Mechanical Splices to ISO 15835 – High cycle fatigue test (Couplers RBA16, RB20, RB25 and RB32), reference 14-524D03.00, dated 22 September 2014.
- OPUS, Testing ReidBar™ Mechanical Splices to ISO 15835 – High cycle fatigue test (Steel couplers RBA16, RB20, RB25 and RB32), reference 14-524D03.00, dated 22 September 2014.
- OPUS, Testing ReidBar™ Mechanical Splices to ISO 15835 – alternate tension and compression test of large strain, reference 13-524C60.00, dated 12 February 2013.
- OPUS, Testing ReidBar™ Mechanical Splices to ISO 15835 – alternate tension and compression test of large strain, reference 14-524C90.00, dated 20 May 2014.
- The Building Regulations 1992.
- The University of Auckland, Static and Dynamic Testing of ReidBrace™ system, reviewed by Charles Clifton, dated 25<sup>th</sup> May 2018.
- Worksafe Mahi Haumarua Aotearoa – Safe work with precast concrete Good Practice Guide, Handling, Transportation and Erection of Precast Concrete Elements, October 2019.
- WSP RamsetReid PHASE A1: Cast iron grout sleeve testing, reference: 5-24E97.00, dated 20 March 2020.
- WSP/OPUS, RamsetReid - Cast Iron Grout Sleeves, reference: 5-24E97.00/A1-04, dated 9 November 2018.
- WSP/OPUS, RamsetReid - Cast Iron Threaded Inserts, reference: 5-24E97.00/A1-01, dated 9 November 2018.
- WSP/OPUS, RamsetReid - Steel Threaded Inserts, reference: 5-24E97.00/B1-01, dated 9 November 2018.
- WSP/OPUS, RamsetReid – Steel Couplers and Flange Nuts, reference: 5-24E97.00/C1-01, dated 9 November 2018.
- WSP/OPUS, RamsetReid – Steel Flange Nuts, reference: 5-24E97.00/A2-01, dated 9 November 2018.



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### 10. Supporting Information About Description

#### Product Specification

The components of the ReidBar™ Reinforcing Bar Connection System supplied by Reid Construction Systems are:

- **ReidBar™ Grout Sleeves** – in sizes suitable for splicing the ReidBar™ reinforcing bar listed below. The ReidBar™ Grout Sleeves are manufactured from Grade 600/3 spheroidal graphite cast iron, manufactured using a proprietary casting process. The ReidBar™ Grout Sleeves covered by this Product Certificate are:

• RB12GS      • RBA16GS      • RB20GS      • RB25GS      • RB32GS

The ReidBar™ Grout Sleeves are marked with the part number and manufacturing batch number.

- **ReidBar™ Grout Sleeve System accessories** - accessories used in the pre-cast yard to set up the system. These include ReidBar™ Grout Sleeve set-up hardware, ReidBar™ Grout Sleeve rubber bungs, PVC port tubes and PF rods.
- **ReidBar™ Threaded Inserts** - reinforcement bar mechanical anchors for pre-cast or in-situ concrete structural building elements. These are available in sizes suitable for anchoring the ReidBar™ reinforcing bars listed below. The ReidBar™ Threaded Inserts are manufactured either from Grade 600/3 spheroidal graphite cast iron using a proprietary casting process, or from mild steel. Both material options are available with and without a galvanised coating.

Ductile Cast Iron Threaded Inserts

• RB12TI      • RBA16TI      • RB20TI      • RB12TIG      • RBA16TIG      • RB20TIG

Steel Threaded Inserts

• RB12TIS      • RBA16TIS      • RB20TIS      • RB12TISG      • RBA16TISG      • RB20TISG

The ReidBar™ Threaded Inserts are marked with the part number and manufacturing batch number.

- **ReidBar™ Flange Nuts (Steel)** - reinforcement Flange Nuts (Steel) bar mechanical anchors for pre-cast or in-situ concrete structural building elements. These are available in sizes suitable for anchoring the ReidBar™ reinforcing bars listed below. The ReidBar™ Flange Nuts (Steel) are manufactured from mild steel and are available with and without a galvanised coating.

• RB12FNS      • RBA16FNS      • RB20FNS      • RB25FNS      • RB32FNS  
• RB12FNBSG      • RBA16FNBSG      • RB20FNBSG      • RB25FNBSG      • RB32FNBSG

The ReidBar™ Flange Nuts (Steel) are marked with the part number and manufacturing batch number.



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- **ReidBar™ Threaded Couplers (Steel)**- reinforcement bar mechanical couplers for pre-cast or in-situ concrete structural building elements. These are available in sizes suitable for coupling the ReidBar™ reinforcing bars listed below. The ReidBar™ Threaded Couplers (Steel) are manufactured from mild steel and are available with and without a galvanised coating.
  - RB12CS
  - RB12CSG
  - RBA16CS
  - RBA16CSG
  - RB20CS
  - RB20CSG
  - RB25CS
  - RB25CSG
  - RB32CS
  - RB32CSG

The ReidBar™ Threaded Couplers (Steel) are marked with the part number and manufacturing batch number.

- **Ramset™ POZIFLO™ HS** – a cementitious grout supplied in 20 kg bags with a shelf life of 8 months after date of manufacture. It is identified with the name and batch number on the bags.
- **Ramset™ Epcon™ C8 Xtrem™ filler** – a two-part epoxy which is used in the threads of the ReidBar™ components listed above with a part number of C8-450. It is supplied in 450 ml two-component tubes with a shelf life of 2 years. It is identified with the name and batch number on the tubes.

### Accessories supplied by others:

- **ReidBar™ reinforcing bars** – in 12 mm, 16 mm, 20 mm, 25 mm and 32 mm diameters. The ReidBar™ reinforcing bars are continuously threaded, hot-rolled Grade 500E reinforcing bars manufactured in New Zealand to meet the requirements of AS/NZS 4671 and are supported by ACRS certification. The deformed surface of the ReidBar™ reinforcing bars gives the continuous thread. The ReidBar™ reinforcing bars covered by this Product Certificate are:

- RB12
- RBA16
- RB20
- RB25
- RB32

The Reidbar™ reinforcing bars are marked with the part and batch number.

- **Starter Bars** - Grade 500E (in accordance with AS/NZS 4671) reinforcing bars which are grouted into the non-threaded end of the ReidBar™ GroutSleeve.
- **Sika Grout 212 HP** – a cementitious grout supplied in 25 kg bags with a shelf life of 6 months after date of manufacture. It is identified with the name and batch number on the bags.
- **Fosroc Conbextra HS** – a cementitious grout supplied in 20 kg bags with a shelf life of 36 months after date of manufacture. It is identified with the name and batch number on the bags.
- **Leveling Shims** – are polymeric spacers used to level the pre-cast concrete panels. Levelling Shims shall be used as described in Worksafe Mahi Haumarua Aotearoa – Safe work with precast concrete Good Practice Guide, Section 10.6 and shall meet the requirements of AS 3850.1, Section 2.8.



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## 11. Supporting Information About Intended Use

### Installation Requirements

- Installation of the ReidBar™ Reinforcing Bar Connection System must be carried out by pre-cast concrete manufacturers or building contractors, under the guidance of a Chartered Professional Engineer, including the use of the Ramset™ Epcon™ C8 Xtrem™ filler, in accordance with the ReidBar™ Grout Sleeve System - Installation Guide, ReidBar™ Reinforcing Bar Connection System - Product and Specification Guide and the requirements of NZS 3101.

### Grouting Requirements

- The grouting of the ReidBar™ Grout Sleeves with one of the specified grouts must be carried out following the instructions in the Reference Documents.

### Maintenance Requirements

- The ReidBar™ Reinforcing Bar Connection System will not normally require maintenance. However, if damage occurs to the cover concrete, such as the cover is reduced, then repairs must be carried out to ensure the integrity of the structure.

### Building Code

#### B1 Structure

- ReidBar™ Reinforcing Bar Connection System connectors have been tested and assessed against the requirements of NZS 3101 Clause 8.9.1.3 (a).
- Only the ReidBar™ Flange Nuts (Steel) made from mild steel and ReidBar™ Threaded Couplers (Steel) made from mild steel have been tested against NZS 3101 Clause 8.9.1.3 (b) and can be used where high cycle fatigue is a design consideration.
- All other components of the ReidBar™ Reinforcing Bar Connection System have not been assessed against NZS 3101 Clause 8.9.1.3 (b) and cannot be used where high cycle fatigue is a design consideration.



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### 12. Supporting Information About Conditions and Limitations of Use

All conditions and limitations provided as stated in this Product Certificate.

#### Signatures

A handwritten signature in black ink that reads "Falck".

Claire Falck

CEO, BRANZ Limited.

All CodeMark certificates that are current must be registered with MBIE. MBIE maintains a register of valid product certificates. [Please find the register here.](#)

If the certificate is not listed on this register or it appears as (SUSPENDED), it is not a valid CodeMark certificate and does not have to be accepted by a building consent authority as establishing compliance with the New Zealand Building Code.



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