reid™

CHARTERED VERIFIED ENGINEER

March | 2024 NZ

GENUINE

ReidBar™ Grout Sleeve System

Specification Guide

The engineered full strength splicing solution for reinforcing bars.

CodeMark CMNZ10024

BRANZ Appraised Appraisal No. 1084

ReidBar™ Grout Sleeve System

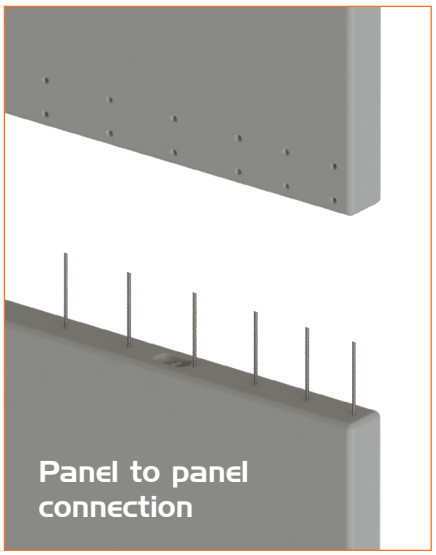
The ReidBar Grout Sleeve System provides a full strength splicing solution for reinforcing bars, allowing reinforcing continuity between load-bearing precast concrete elements.

Ideal for panel to panel and panel to slab/foundation connections, the ReidBar Grout Sleeve system is designed so that when loaded to failure in tension, it exhibits ductile failure of the ReidBar, clear of the connection. This provides designers with the confidence to base structural design on the ReidBar as the limiting design factor. The result: Ease of design.

The ReidBar Grout Sleeve system comprises of specialised components, engineered to perform as a system and validated as a system, nothing is left to chance. Performance claims are backed with physical testing of the full system performed by independent IANZ accredited labs. The system is engineered for the task, and unlike drossbach ducts, require no modification, reducing production and installation costs, and eliminating error. The system is supported by technical assistance at every stage, face-face-training, procedures, checklists and inspection processes that take the guesswork out of construction.

Being independently certified, the ReidBar Grout Sleeve system enable designers to create efficient construction joints between precast concrete elements with confidence.

ReidBar™ Grout Sleeve System Applications



Panel to panel connection

Panel to slab/foundation connection

CodeMark

The ReidBar™ Grout Sleeve system holds a CodeMark certificate (Certificate Number CMNZ10024). This provides a deemed to comply assessment for the system, to the NZBC, when used within the scope of CodeMark Certificate Number CMNZ10024.

BRANZ Appraised

The ReidBar™ Grout Sleeve system holds a BRANZ Appraisal (Appraisal No. 1084). This Appraisal provides confidence the product has been subject to in-depth & rigorous examination by an independant trusted organisation to indicate evidence of meeting Building Code Performance.

Features & Benefits

Meets the specification.

‘Deemed to comply’ with clauses of the New Zealand Building Code (as stated on CodeMark Certificate Number CMNZ10024) supported by physical testing of the full system by independent IANZ accredited labs. Refer to the Compliance section (Page 9) for a listing of the NZBC clauses this system is compliant to and the CodeMark certificate website link.

The full strength splicing solution.

ReidBar™ Grout Sleeves form a full strength structural connection backed by independent testing.

The engineered solution.

Unlike drossbach ducts, ReidBar™ Grout Sleeves are engineered for the task, removing guesswork to ensure construction quality meets the specification.

Technical support at every stage.

Reid™ products are backed with technical support from design to construction.

Minimises panel congestion and thickness

when compared to drossbach ducts, which must be fully confined (Source: SESOC Interim Design Guidance: Version 10 - September 2019)

Saves on project costs

by utilising less materials and less labour time on site compared to drossbach ducts. Save on lapping and confinement requirements, assembly labour, grout volume and grouting labour.

Supports construction quality.

Full supported with contractor training, procedures, checklists and installation inspection processes ensuring quality in construction.

Quality assured products.

ReidBar™ component production is controlled through strict, independently reviewed, quality processes.

BRANZ Appraised
Appraisal No. 1084

CodeMark
CMNZ10024

CodeMark™

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What is CodeMark?

CodeMark is a product certification scheme for building methods and products.

What does CodeMark do?

CodeMark certification provides assurance that a product is **'deemed to comply' with the New Zealand Building Code.**

What are the benefits of CodeMark certification of ReidBar Grout Sleeves?

- **Provides assurance that ReidBar Grout Sleeves are 'deemed to comply'** with the clauses of the NZBC stated on CodeMark Certificate Number CMNZ10024 (refer to the Compliance section for a listing of the NZBC clauses this system is compliant to and the CodeMark certificate link).
- **ReidBar Grout Sleeves' CodeMark certification is reviewed by BRANZ annually.**

Where can I find the CodeMark certificate?

The ReidBar Grout Sleeves CodeMark certificate is available on the BRANZ website, located by entering the certificate number. https://www.branz.co.nz/appraisal-codemark-certificates/reidbar-reinforcing-bar-connection-system

Where can I find more information about the ReidBar Grout Sleeve System?

- Please refer to supporting literature available from www.reids.co.nz

How do I ensure compliance to the CodeMark conditions?

The ReidBar™ Grout Sleeves system is an engineered system comprising of ReidBar™ Grout Sleeves, Ramset™ Epcon™ C8, Selectable High Performance Grouts (Refer to Page 7) and coarse threaded Genuine ReidBar™.

Substitution, omission and/or modification of components is not permitted, and will void the CodeMark certification of the system.

For more information refer to the CodeMark certificate located by using the link above and the Compliance, System Components and Specification Toolkit sections of this publication.

Questions about our CodeMark certification?

Contact the Reid™ team for advice.

CodeMark
CMNZ10024

Customer Service

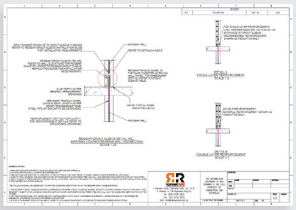
Reid™ New Zealand
Tel: 0800 88 22 12
Email: sales@ramsetreid.co.nz
Web: www.reids.co.nz

Specification Toolkit

Reid™ makes is easy to specify with our Specification Toolkit.

Standard details in 2D CAD.

2D CAD of standard ReidBar™ Grout Sleeve system applications including ReidBar Grout Sleeve system specification details and notes that make specification easier.



Where do I find it?

Visit www.reids.co.nz
Navigate to the Document tab on the Grout Sleeve page.

3D BIM Models.

3D BIM models of the ReidBar™ Grout Sleeve system components speed up design time and accuracy.

Where do I find it?

Available on request - Contact the Engineering Services team.

Technical literature.

Reid products are supported by a suite of technical literature:
CodeMark Certificate
Technical Assessments,
Specification, Design,
Installation & Product Guides.

Where do I find it?

Visit www.reids.co.nz
Navigate to the Document tab on the Grout Sleeve page.

Engineering services.

Need more help?

Our team of engineers can help with technical advice on non-standard applications, custom solutions and lifting design.

Who do I contact?

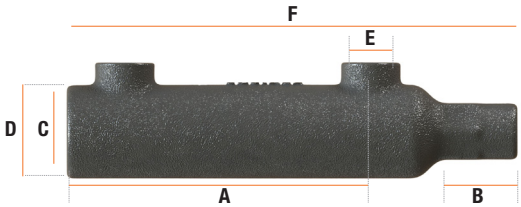
Reid™ New Zealand
Customer Service Centre
T: 0800 88 22 12
E: sales@ramsetreid.co.nz
W: www.reids.co.nz

System Components

The ReidBar™ Grout Sleeve system is comprised of specialised components, engineered to perform as a system, validated as a system and independently certified as a system. Nothing is left to chance.

ReidBar™ Grout Sleeves

The ReidBar™ Grout Sleeve offers a mechanical/splice connection for concrete precast panels which has been independently tested to meet the performance requirements stipulated in NZS 3101:2006 Amendment 3.

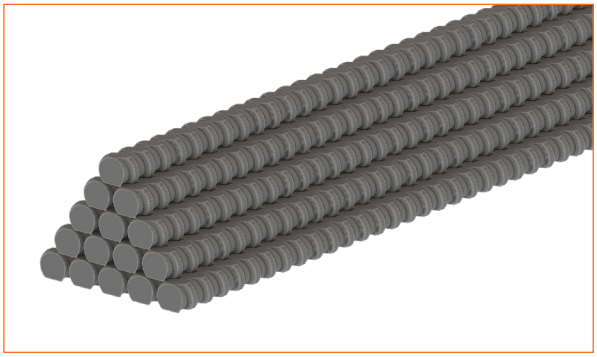


Part No.	Suits ReidBar	Embedment Depth (mm) (A)	Bar Thread Depth (mm) (B)	Grout Sleeve I.D (mm) (C)	Grout Sleeve O.D (mm) (D)	Grout Port Dia. (mm) (E)	Overall Length (mm) (F)	Nom Grout Vol (ml)
RB12GS	RB12	130 ± 20	42	28-40	46-58	21	200	200
RBA16GS	RB16	170 ± 20	44.5	32	50	21	240	200
RB20GS	RB20	204 ± 20	60	40	60	21	290	350
RB25GS	RB25	254 ± 20	80	48	70	21	360	550
RB32GS	RB32	300 ± 20	109	55	75	26	445	800

ReidBar™

The ReidBar™ Structural Reinforcing System has been developed to provide full strength and positive connections between precast concrete panels, floor slabs and insitu suspended floors.

ReidBar™ is a 500E grade continuous threaded reinforcing bar complying with AS/NZS 4671:2019. ReidBar can be cut at any point along its length & screwed into Genuine ReidBar threaded components, enabling fast, easy & efficient reinforcement in any concrete structure.



- **Available in 12mm, 16mm, 20mm, 25mm & 32mm Bar Diameters.**
- **Reduced formwork damage.**
- **Reduced H&S risk.**
- **Increased productivity.**
- **Meets the requirements of 'Steel Reinforcing Materials, AS/NZS 4671:2019'.**

Please Note: Non proprietary Grade 500E Deformed (HD) Reinforcing Bar compliant with AS/NZS 4671:2019 can also be used in place of threaded ReidBar reinforcement **within the grouted end of the grout sleeve** connection system, providing bar dia. & min. bar embedment depths are maintained.

Refer to the Reid Precast Solutions Product Guide for related products. Available from www.reids.co.nz

System Components

Ramset™ Epcon™ C8 XTREM™

Part No.	Description	Pack Qty
C8-450	Epcon™ C8 Xtrem™ 450ml	12

Cementitious Grout

Ramset POZIFLO Grout HS is a dual expansion, high strength precision cementitious grout with high early strength and high flow properties.

Brand	Product	Description	Pack Size
Ramset	PoziFLO HS	POZIFLO Grout HS	20kg Bag

Fosroc Conbextra HS is a dual shrinkage compensated, high flow cementitious grout used grouting applications where rapid strength gain and high ultimate strength is a pre-requisite.

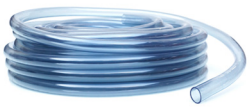
Brand	Product	Description	Pack Size
Fosroc	Combextra HS	Fosroc Grout Combextra HS (High Strength)	20kg Bag

SikaGrout-212 HP is a cementitious, non-shrink, high performance grout that expands in two stages in both the plastic and hardened states (class A and C) to counteract shrinkage. Achieves high Early Strength & High 28-day strengths.

Brand	Product	Description	Pack Size
Sika	Sika 212 HP	Sika Grout 212 HP – High Performance	25kg Bag

Supplementary Products to aid in Install process

Polyethylene Closed Cell Foam Backer Rod:
Available in various sizes.



PVC Tubing, Plumbing Hose etc:
Used as a port tubes for grout installation (Grout Port Hole Dia's 21 & 26mm)

Grout	Pack Size	Water Addition Requirements **
Ramset POZIFLO Grout HS	20Kg (Bag)	3.2-3.5L
Fosroc Conbextra HS	20Kg (Bag)	2.7-2.9L
Sika SikaGrout 212 HP	25Kg (Bag)	3.8-4.0L *

* Water content exceeds manufacturers specifications (3.5L). Water Quantity set to achieve flowable consistency required for installation.

** For System Validation Testing, the maximum water content specified below has been utilised.

Compliance Details

Product applicability

The products applicable to the compliance statement are defined in Table 1.

Table I: Product applicability

System	ReidBar™ Grout Sleeve System				
System Components	ReidBar™ Grout Sleeve	ReidBar™	Optional Reinforcing bar for grouted end of system	EPCON™ C8 XTREM™	Selectable Grout Options
Image					Ramset POZIFLO Grout HS 
					Fosroc Conbextra HS 
					SikaGrout-212 HP 
Part Numbers	RB12GS RBA16GS RB20GS RB25GS RB32GS	RB12 RB16 RB20 RB25 RB32	HD12 HD16 HD20 HD25 HD32	C8-450	Ramset POZIFLO HS - (RPGHS) Supplied by Reid Construction Systems Fosroc Combextra HS, Sika 212 HP Supplied by Others

Compliance Details

Compliance statement

The system defined in Table 1 complies with the New Zealand Building Code clauses identified in Table 2.

Table 2: Compliance details: New Zealand Building Code (NZBC)

NZBC Clause	Criteria	Compliance Status
B1.3.1	'Buildings, building elements and sitework shall have a low probability of rupturing, becoming unstable, losing equilibrium, or collapsing during construction or alteration and throughout their lives.'	Compliant – refer to CodeMark certificate of Conformity*
B1.3.2	'Buildings, building elements and sitework shall have a low probability of causing loss of amenity through undue deformation, vibratory response, degradation, or other physical characteristics throughout their lives, or during construction or alteration when the building is in use.'	
B1.3.3 (a), (b), (d), (e), (f), (g), (h), (j), (q)	'Account shall be taken of all physical conditions likely to affect the stability of buildings, building elements and sitework, including: (a) Self weight, (b) Imposed gravity loads arising from use . . . (d) Earth pressure, (e) Water and other liquids, (f) Earthquake, (g) Snow, (h) Wind . . . (j) Impact . . . (q) Time dependent effects including creep and shrinkage.	
B1.3.4	'Due allowance shall be made for: (a) The consequences of failure, (b) The intended use of the building, (c) Effects of uncertainties resulting from construction activities, or the sequence in which construction activities occur, (d) Variation in the properties of materials and the characteristics of the site, and (e) Accuracy limitations inherent in the methods used to predict the stability of buildings.'	
B2.3.1 (a)	'Building elements must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the specified intended life of the building, if stated, or: (a) The life of the building, being not less than 50 years, if (i) Those building elements . . . Provide structural stability to the building, or (ii) Those building elements are difficult to access or replace, or (iii) Failure of those building elements to comply with the building code would go undetected during both normal use and maintenance of the building.'	
B2.3.2	B2.3.2 Individual building elements which are components of a building system and are difficult to access or replace must either: (a) All have the same durability, or (b) Be installed in a manner that permits the replacement of building elements of lesser durability without removing building elements that have greater durability and are not specifically designed for removal and replacement.	
F2.3.1	'The quantities of gas, liquid, radiation or solid particles emitted by materials used in the construction of buildings, shall not give rise to harmful concentrations at the surface of the material where the material is exposed, or in the atmosphere of any space.'	

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*The ReidBar Grout Sleeve system is included within CodeMark certificate (Certificate Number CMNZ10024). This provides a deemed to comply assessment for the system, to the NZBC, when used within the scope CodeMark (Certificate Number CMNZ10024). The ReidBar Grout Sleeve system CodeMark certificate is available on the BRANZ website, located by entering the certificate number.
https://www.branz.co.nz/appraisal-codemark-certificates/reidbar-reinforcing-bar-connection-system

Projects

ReidBar™ Grout Sleeve Project References

SugarTree Prima

Tenor Apartments

The projects and pictures illustrated herein are only possible through the following industry partners:

Consulting Engineers: BGT Structures, MSC Consulting Group, Stephen Mitchell Engineers, Structure Design.

Precast Concrete Manufacturers: Concretec New Zealand, Nauhria Precast, Stresscrete, Wilco Precast, Wilson Precast.

Building Contractors: Aspec Construction, CMP Construction, Haydn & Rollett, Kalmar Construction, Scarbro Construction.

Queens Residences

UoA Building 906

Selwyn Heights Village

Specification Checklist

General requirements

- [ ] **Comply with the system requirements:**

The ReidBar™ Grout Sleeves system is an engineered system comprising of ReidBar™ Grout Sleeves, Ramset™ Epcon™ C8, Selectable High Performance Grouts (Refer to Page 7) and coarse threaded Genuine ReidBar™.

Substitution, omission and/or modification of components is not permitted by ramsetreid and will void the CodeMark certification of the system.

Substitution, omission and/or modification of components will affect the performance of the system and thus the structural performance of the building.

Deviation from the technical literature, (including but not limited to prescribed installation methods, operating conditions, measures, shelf life, storage and safety precautions) will affect the performance of the system, the structural performance of the building and/or the safety of workers.

Products shall only be used in applications described in Reid Construction Systems publications.

During design development:

- [ ] Define the grouting methodology (refer to the typical grouting details in the 2D Standard Detail Drawings).
- [ ] Nominate shim placement (where required).
- [ ] If used, specify foam tape placement, dry packing placement and minimum grout coverage within the panel joint.

During documentation development:

- [ ] Finalise the specification in accordance with the 2D Standard Detail Drawings.
- [ ] Finalise the grouting methodology.
- [ ] Nominate the submission of panel manufacture and installation checklists.
- [ ] Nominate the validation of panel design and grouting methodology with a test panel (optional).

During shop drawing development:

- [ ] Work with the contractor to approve the panel design.
- [ ] Work with the contractor to approve the installation method.
- [ ] Assess the test panel to validate the design and grouting methodology (optional).
- [ ] Assess all deviations from the specification.

Before construction:

- [ ] Work with the precast contractor to approve the final installation method including, if used, shim, foam tape and/or dry packing placement and minimum grout coverage requirements.
- [ ] Assess all deviations from the specification.

During construction:

- [ ] Assess all deviations from the specification.

Your Reid representative can assist at any stage.

Customer Service

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Construction Systems