



**Ramset**<sup>TM</sup>

July 2023 AU ISSUE

# Specifiers Product Guide



View our products online

For more information on our  
products go to  
[ramset.com.au](https://www.ramset.com.au)



**Founded in 1952, Ramset™ has built a strong reputation for innovating, manufacturing and supplying the Australian and New Zealand building and construction industry with leading-edge drilling, anchoring and fixing products with a focus on safety and efficiency.**

Our products are tested to local conditions in our ISO9001 accredited product engineering laboratory or a NATA certified facility, ensuring they meet and perform to local standards. In addition, Ramset™ products meet the requirements of European standards where applicable.

With a manufacturing plant in Melbourne, Ramset™ develops and manufactures much of our product range in Australia. Ramset™ have a team of highly dedicated and experienced engineers across Australia and New Zealand, who are committed to providing our customers with product support around application and design to the local construction industry in accordance with a prescribed standards, published performance data or software design.

The Ramset™ range includes Powder Actuated and Gas Fastening Systems, Power Tools, Chemical and Mechanical Anchoring, and Construction Chemicals. Ramset™ are proud partners of the Concrete Institute of Australia (CIA), Engineering Training Institute Australia (ETIA), Association of Wall and Ceiling Industries (AWCI), and a founding member of The Australian Engineered Fasteners and Anchors Council (AEFAC).

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# welcome

**Ramset™ provides a selection of post-installed anchoring and connection solutions to the Australian and New Zealand construction industries.**

The basic information in this document will assist to select the right size and part number of Ramset™ products for your project. For detailed design and engineering information consult Ramset's product Design Guides, Specifier Resource publication – Specifiers Anchoring Resource Book and design software iExpert™.

These documents may be obtained by scanning the QR code or visiting the Ramset™ website.

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# Design Tools

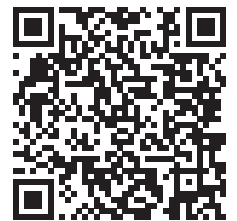
Ramset™ provides assistance for engineers to choose a suitable anchoring solution which meets a project specific set of design inputs such as:

- Design tools for considering complex anchor layouts & calculating performance in grouped anchor configurations.
- Tailored outcomes to suit project specific anchoring and performance criteria.
- The latest design technology and performance calculation tools are available in hard copy or electronic format.



## Specifiers Resource Book

This concise and systematically presented book contains the information most useful to Specifiers, Engineers and Architects when selecting the concrete anchoring solution that best suits their project. Selection of a concrete anchoring product is made on the basis of the basic type of fixing (bolt, stud or internally threaded), macro environment, (e.g. coastal or inland), micro environment (particular chemicals) and of course the capacity that best meets the design load case.



Scan for more information



## Ramset™ iExpert™

- iExpert™ is our online anchoring design tool, which allows Engineers and design professional to work out the best product solutions for an application in line with AUS/NZ Standards.
- Featuring a simple 6 step design process, iExpert™ then provides a design report document once all the parameters have been assigned.
- Applications
- Cracked and uncracked concrete
- Seismic
- Fire



Scan for more information

The following chart provides a quick guide for selecting the appropriate **Ramset™** Concrete Anchor to suit your needs. Please refer to the Legend of Symbols below each table for a detailed explanation of the symbols used.

## Anchor Application Guide

### PERFORMANCE RELATED SYMBOLS

Indicates the suitability of product to specific types of performance related situations.

<p>Has good resistance to cyclic and dynamic loading. Resists loosening under vibration.</p>	<p>Fire rated in accordance with the applicable standard or independent assessment (i.e. Australian Standards or European Technical Assessment)</p>	<p>Suitable for use in seismic design according to ANZ Standards (eg AS/NZ 1170.4) or independent seismic performance data available from either an ICC Evaluation report or European Technical Assessment.</p>
<p>Anchor has an effective pull-down feature, or is a stud anchor. It has the ability to clamp the fixture to the base material and provide high resistance to cyclic loading.</p>	<p>May be used close to edges (or another anchor) without risk of splitting the concrete.</p>	<p>Cracked concrete.</p>

### MATERIAL SPECIFICATION SYMBOLS

Indicates the base material and surface finish to assist in selection with regard to corrosion or environmental issues.

<p>Steel Zinc Plated Minimum thickness 5 micron. Recommended for internal applications only.</p>	<p>AISI Grade 316 Stainless Steel, resistant to corrosive agents including chlorides and industrial pollutants. Recommended for internal or external applications in marine or corrosive environments.</p>	<p>Steel Mechanically Galvanised Minimum thickness 42 micron. For external applications.</p>
<p>Steel Hot Dipped Galvanised to AS/NZS 4680:2006 and AS/NZS 1214:2016. Minimum thickness 42 micron. For external applications.</p>	<p>Stainless Steel High Corrosion resistance. HCR Grade 1.4529/1.4565.</p>	

### INSTALLATION RELATED SYMBOLS

Indicates the suitable positioning and other installation related requirements.

<p>Suitable for floor applications.</p>	<p>Anchors suitable for use in dry holes.</p>
<p>Suitable for wall applications.</p>	<p>Anchors suitable for use in damp holes.</p>
<p>Suitable for overhead applications.</p>	<p>Anchors suitable for use in holes filled with water.</p>
<p>Suitable for hollow brick/block and hollow core concrete applications.</p>	<p>Suitable for use in drilled holes.</p>
<p>Anchor can be through fixed into substrate using fixture as template.</p>	<p>Suitable for use in cored holes.</p>
<p>Suitable for contact with drinking water for human consumption.</p>	<p>Suitable for Dustless Drilling</p>



# Chemical Anchoring

Ramset's Chemical Anchors are approved for installation in challenging site conditions such as water immersion, to provide long term reliable service.



# ANCHORING ADHESIVES

## Heavy Duty Anchoring

Performance Related	Material	Installation Related

## EPCON™ C8 Xtrem™

EPCON™ C8 Xtrem™ is a high performance pure epoxy anchoring adhesive for use in cracked and non-cracked concrete. For structures subject to external exposure, permanently damp or aggressive conditions.

### Standards and Approvals

Design according to AS 5216:2021 (formerly TS101) and European design method EN 1992-4:2018 (formerly TR029 & TR045) for Seismic Category C1 & C2:

- Highest level of European Technical Assessment for chemical anchors



### Benefits, Advantages and Features

- 100 Year Working Life
- Approved for flooded holes
- Approved for floor, wall & overhead applications
- Fire rated
- Seismic C1 & C2

#### Greater productivity:

- Anchors in dry, damp, wet or flooded holes
- No weather delays
- Fast, easy dispensing with high flow mixer

#### Greater security:

- Highest performance in cracked concrete

#### Versatile

- Anchors all stud & bar diameters in all directions
- Oversized holes\*
- Anchors in carbide drilled and diamond cored holes\*
- For tropical and cold weather conditions

#### Greater safety:

- Low odour

## Product Codes & Specifications

Item Code	Description
C8-450	EPCON™ C8 Xtrem™ 450ml

#### Installation temperature limits:

- Substrate: 5°C to 40°C
- Adhesive: 5°C to 40°C

Load should not be applied to anchor until the chemical has sufficiently cured as specified.

#### Service temperature limits:

-40°C to 80°C

**Note** \*Performance of cored & oversized holes was not included in the EAD 330499 test program and therefore is based on testing conducted at Ramset's Concrete Structures Laboratory.

#### Principal Applications

- Structural anchoring into concrete
- Civil / infrastructure applications
- Seismic strengthening / refurbishment
- Bridge refurbishment
- Hold down applications

#### Anchor Types

- Reinforcing bar from 10mm to 32mm
- Starter bars
- Threaded studs from M8 to M30
- Threaded stud material: Zn, A4 316, HCR Steels
- Threaded stud grade: 5.8, 8.8, 10.9 grade

# ANCHORING ADHESIVES

## Heavy Duty Anchoring

Performance Related	Material Specification	Installation Related

## ChemSet™ Reo 502™ PLUS

ChemSet™ Reo 502™ PLUS is a heavy duty pure epoxy for anchoring threaded studs and reinforcing bar into cracked and uncracked concrete.

### Standards and Approvals

Design according to TR029 and TR045 under seismic category C1 certified performance  
 Design according to AS 5216:2021 (formerly TS101) and European design method EN 1992-4:2018 (formerly TR029 & TR045)

- European Technical Assessment EAD 330499 - Option 1



### Benefits, Advantages and Features

- 100 Year Working Life
- Seismic performance C1
- Fire rated
- Approved for wet, dry & flooded holes

#### Greater productivity:

- Anchors in dry, damp, wet or flooded holes
- Easy dispensing even in cold weather

#### Greater security:

- Strong bond
- Rated for sustained loading

#### Versatile:

- Anchors in carbide drilled and diamond drilled holes\*
- Cold and temperate climates
- Oversized holes\*

#### Greater safety:

- Low odour
- VOC compliant

## Product Codes & Specifications

Item Code	Description
RE0502P600	ChemSet™ Reo 502™ PLUS 600ml

#### Installation temperature limits:

- Substrate: 5°C to 40°C
- Adhesive: 10°C to 40°C

Load should not be applied to anchor until the chemical has sufficiently cured as specified.

#### Service temperature limits:

-40°C to 70°C

**Note** \*Performance of cored & oversized holes was not included in the EAD 330499 test program and therefore is based on testing conducted at Ramset's Concrete Structures Laboratory.

#### Principal Applications

- Structural anchoring into concrete
- Civil / infrastructure applications
- Seismic strengthening / refurbishment
- Bridge refurbishment
- Over-head fixings
- Safety barrier/handrail/balustrade installation

#### Anchor Types

- Reinforcing bar from 10mm to 32mm
- Starter bars
- Threaded studs from M8 to M30
- Threaded stud grade: 5.8, 8.8, 10.9 grade



# ANCHORING ADHESIVES

## Heavy Duty Anchoring

Performance Related	Material Specification	Installation Related

## ChemSet™ 801 Xtrem™ XC<sup>2</sup>

ChemSet™ 801 Xtrem™ XC<sup>2</sup> is a heavy duty vinyl ester for anchoring threaded studs and reinforcing bar into cracked and uncracked concrete.

### Standards and Approvals

Design according to TR029 and TR045 under seismic category C1 certified performance  
 Design according to AS 5216:2021 (formerly TS101) and European design method  
 EN 1992-4:2018 (formerly TR029 & TR045) for Seismic Category C1<sup>^</sup> & C2<sup>^^</sup>

- European Technical Assessment EAD 330499 - Option 1
- <sup>^</sup> For threaded stud & reinforcing bar application
- <sup>^^</sup> For application with ChemSet™ Anchor Stud Xtrem™ (Multi-Cone)



### Benefits, Advantages and Features

- 100 Year Working Life
  - Suitable for flooded hole applications
  - Fire rated
  - Seismic C1 & C2
- Greater security:**
- Strong bond
  - Rated for sustained loading

**Greater productivity:**

- Easy dispensing even in cold weather
- Apply torque in 2 hours @ 20°C

### Product Codes & Specifications

Item Code	Description
C801X750	ChemSet™ 801 Xtrem™ XC <sup>2</sup> 750ml
C801X380	ChemSet™ 801 Xtrem™ XC <sup>2</sup> 380ml

**Installation temperature limits:**

- Substrate: 5°C to 40°C
- Adhesive: 5°C to 40°C

Load should not be applied to anchor until the chemical has sufficiently cured as specified.

**Service temperature limits:**

-40°C to 80°C

**Principal Applications**

- Structural anchoring into concrete
- Civil / infrastructure applications
- Seismic strengthening / refurbishment
- Bridge refurbishment
- Hold down applications
- Over-head anchoring applications

**Anchor Types**

- Reinforcing bar from 8mm to 20mm
- Starter bars
- Threaded studs from M8 to M30
- ChemSet™ Anchor Studs Xtrem™ from M12 to M20

# ANCHORING ADHESIVES

Performance Related	Material Specification	Installation Related

## ChemSet™ 101 PLUS

ChemSet™ Injection 101 PLUS is a marine grade polyester adhesive anchor. ETA Certified for fast loading time in dry, wet and flooded holes.

### Standards and Approvals

Design according to AS 5216:2021 (formerly TS101) and European design method EN 1992-4:2018 (formerly TR029)

- Certified Performance European Technical Assessment EAD 330499 - Option 7



### Benefits, Advantages and Features

**Fast installation:**

- Load in 50 minutes (at 20°C)
- Easy cold weather dispensing

**Versatile:**

- Suitable for anchoring into a wide variety of substrates
- Solid concrete, hollow block and brick
- Flooded holes
- Styrene free
- Cold and temperate climates
- VOC compliant

### Product Codes & Specifications

Item Code	Description
C101C	ChemSet™ 101 PLUS Cartridge 380 ml
C101J	ChemSet™ 101 PLUS Cartridge 750 ml

**Principal Applications**

- Hollow brick and block
- Stadium seating
- Starter bars
- Balustrades

**Installation temperature limits:**

- Substrate: 5°C to 40°C
- Adhesive: 5°C to 40°C

Load should not be applied to anchor until the chemical has sufficiently cured as specified.

**Service temperature limits:**

-40°C to 80°C

# ANCHORING ADHESIVES

## ChemSet™ Capsules

Performance Related	Material Specification	Installation Related

## ChemSet™ MAXIMA™ Spin Capsule

ChemSet™ Maxima™ Spin Capsule is a heavy duty, acrylic capsule anchor of a measured dose to suit the Ramset™ ChemSet™ Anchor Studs. ETA Certified for fast loading time in dry, wet and flooded holes.

### Standards and Approvals

Design according to AS 5216:2021 (formerly TS101) and European design method EN 1992-4:2018 (formerly TR029)

- Certified Performance European Technical Assessment EAD 330499 - Option 7



### Benefits, Advantages and Features

**No measuring, no mess, no waste:**

- Adhesive is contained in pre-measured capsules

**Versatile:**

- Use in damp or flooded holes or even underwater

**Fast installation:**

- Cures in minutes and can be loaded in 20 min (at 20°C)

**High bond strength:**

- Acrylic adhesive

**High corrosion resistance:**

- Rated for sustained loading

### Product Codes & Specifications

Item Code	Description	Pack Qty
CHEM10	M10	10
CHEM12	M12	10
CHEM16	M16	10
CHEM2024	M20 & M24	6

**Installation temperature limits:**

- Substrate: 0°C to 35°C.

Load should not be applied to anchor until the chemical has sufficiently cured as specified.

**Service temperature limits:**

- -40°C to 80°C

#### Principal Applications

- Structural steel
- Machine hold down
- Factory fit out
- Fencing
- Stadium seating
- Balustrades
- Signs
- Applications requiring a set number of fixings

# ANCHORING ADHESIVES

## Accessories

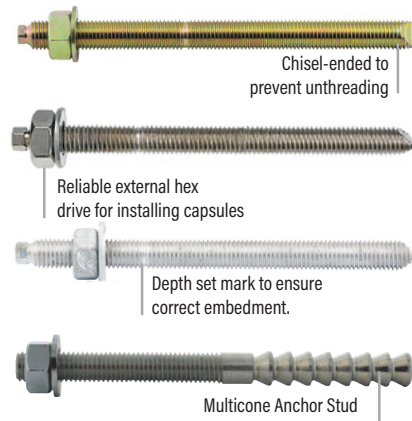
Performance Related	Material	Installation Related

## ChemSet™ Stud Anchors

ChemSet™ Anchor Studs are made from quality Grade 5.8 carbon steel to get the most out of adhesive tensile capacities and provide higher shear capacities than regular Grade 4.6 grade studs. For use with all ChemSet™ anchoring products, capsules and injection adhesives.

### Standards and Approvals

- High performance Grade 5.8 carbon steel
- Hot dip galvanised to AS/NZS 4680 and AS/NZS 1214
- AISI 316 stainless steel for coastal applications
- Pre-cut to standard chemical anchoring lengths



## Product Codes & Specifications

### ChemSet™ Anchor Studs

Thread Size	Description	Zn	GAL	A4 316
		ZINC	Galvanised	Stainless Steel 316
M8	ChemSet™ Anchor Stud M10 x 130	-	CS08110GH	CS08110SS
M10	ChemSet™ Anchor Stud M10 x 130	-	CS10130GH	CS10130SS
M12	ChemSet™ Anchor Stud M12 x 160	CS12160	CS12160GH	CS12160SS
M16	ChemSet™ Anchor Stud M16 x 190	CS16190	CS16190GH	CS16190SS
M20	ChemSet™ Anchor Stud M20 x 260	CS20260	CS20260GH	CS20260SS
M24	ChemSet™ Anchor Stud M24 x 300	CS24300	CS24300GH	CS24300SS

### Principal Applications

- Structural anchoring into concrete
- Civil / infrastructure applications
- Seismic strengthening / refurbishment
- Bridge refurbishment
- Over-head fixings
- Safety barrier/handrail/balustrade installation
- Hold down applications

Other sizes and steel types available on request. \*Special order

## ChemSet™ Anchor Studs - Typical Properties

Thread Size	Overall Length, L (mm)	Effective Length, L <sub>e</sub> (mm)	Max Fixture Thickness, t (mm)	Carbon Steel		Stainless Steel		Section Modulus, Z (mm <sup>3</sup> )
				Yield Strength, f <sub>y</sub> (MPa)	Carbon Steel UTS, f <sub>u</sub> (MPa)	Yield Strength, f <sub>y</sub> (MPa)	Stainless Steel UTS, f <sub>u</sub> (MPa)	
M8	110	95	15	430	540	450	650	31.2
M10	130	115	25	430	540	450	650	62.3
M12	160	140	30	430	540	450	650	109.2
M16	190	165	40	420	520	450	650	277.5
M20	260	225	80	420	520	450	650	540.9
M24	300	265	105	420	520	450	650	935.5



# ANCHORING ADHESIVES

## Accessories

Performance Related	Material	Installation Related

## Threaded Inserts

Threaded Inserts are internally threaded steel fixings and are installed using injection systems ChemSet™ Reo 502™ PLUS, or ChemSet™ 801 Xtrem™ XC<sup>2</sup>. Once installed, any threaded bolt is used to secure the fixture to concrete.



### Standards and Approvals

- High performance Grade 5.8 carbon steel
- High performance AISI 316 stainless steel for coastal or fresh water applications
- Uses technical data validated from testing in ANZ concrete

### Benefits, Advantages and Features

**Greater security:**

- High loads in shallow holes in thin slabs

**Versatile:**

- Anchor in dry, damp, wet and flooded holes
- Anchors in carbide drilled and diamond cored holes
- Zinc plated for indoor or dry climates
- Supplied with plastic cap to protect threads during installation

**Fast installation:**

- Chemical injection system
- Protective cap
- Shallow embedment depths



## Product Codes & Specifications

### Threaded Inserts

Anchor size, d <sub>b</sub> (mm)	Drilled hole diam., d <sub>h</sub> (mm)	Overall Length, L (mm)	Effective Length, L <sub>e</sub> (mm)	Thread Length, L <sub>t</sub> (mm)	Part Number	
					Zinc 5.8 grade	Stainless Steel AISI 316
M8	14	60	60	25	062770	062860
M10	20	65	65	32	062480	062960
M12	24	75	75	38	062760	063100
M16	28	125	125	50	062800	051175
M20	35	170	170	63	062810	-

**Principal Applications**

- Machinery hold down
- Structural steel connections
- Seating
- Hand rails
- Balustrade posts
- Removable fixings

### Typical Properties

Anchor size, d <sub>b</sub>	Carbon Steel		Stainless Steel	
	Yield Strength, f <sub>yk</sub> (MPa)	Min. Tensile Strength, f <sub>uk</sub> (MPa)	Yield Strength, f <sub>yk</sub> (MPa)	Min. Tensile Strength, f <sub>uk</sub> (MPa)
M8	420	520	350	650
M10	420	520	350	650
M12	420	520	350	650
M16	420	520	350	650
M20	420	520	-	-

# ANCHORING ADHESIVES

## Accessories

Performance Icons



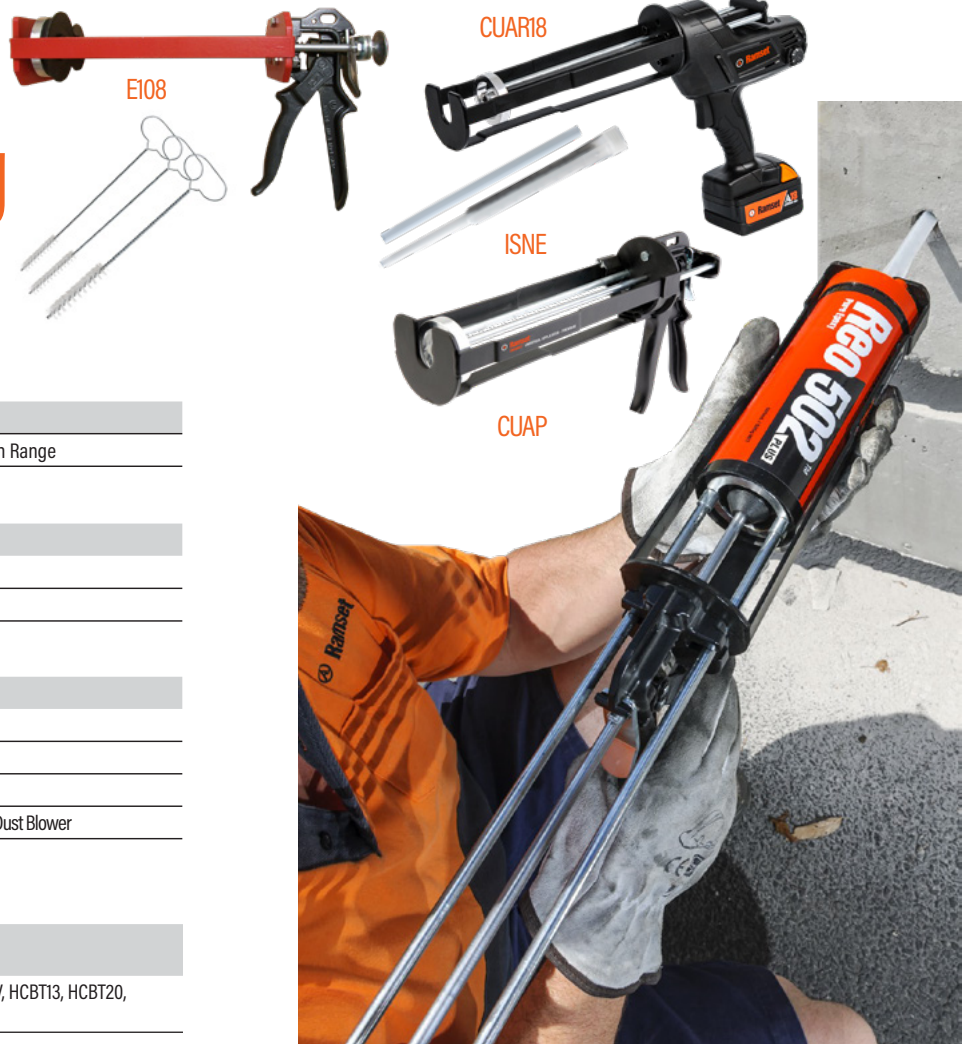
**Done & Dustless**  
The Ramset™ Dustless Drilling System



No more dust!  
No more hole cleaning!  
Safe, secure chemical anchoring!

# Chemical Anchoring

## Accessories



### ChemSet™ MIXER NOZZLES

Item Code	Description
ISNE	Mixer Nozzle for ChemSet™ Injection Range

### ChemSet™ SYSTEMS APPLICATORS

Item Code	Description
CUAP	Chemset™ Universal Applicator
CUAR18	Chemset™ Cordless Applicator

### ChemSet™ HOLE CLEANING ACCESSORIES

Item Code	Anchor Size (mm)	Description
HCBT13	8 - 12	Brush
HCBT20	16 - 20	Brush
HCBT26	20 - 24	Brush
HCPHV	-	High Volume Dust Blower

### ChemSet™ ANCHORING KIT

Item Code	Description
CHEMKITBAG	Tool bag, CUAP, HCPHV, HCBT13, HCBT20, HCBT26





# Mechanical Anchoring

Ramset's Mechanical Anchors are manufactured to our high quality standards to ensure maximum confidence the product is fit for purpose and will meet the designers load requirements

# HEAVY DUTY ANCHORS

## XTREM™ Anchoring For Design Specification

Performance Related	Material	Installation Related

## SpaTec™ Xtrem™ Safety Anchors

A high security, high performance, through fixing, torque controlled expansion anchor which has approval for use in cracked and non-cracked concrete.

### Standards and Approvals

European Technical Approval (Option 1)  
 Design According to AS 5216:2021 (formerly TS101) and European design method EN 1992-4:2018 (formerly ETAG001 Annex C & TR045) for Seismic Category C1 & C2

- Highest level of European Technical Assessment for mechanical expansion anchors



### Benefits, Advantages and Features

- Approved for all directions (floor, wall, overhead)
- Shallow embedment depths
- Highest performance in cracked concrete
- Zinc plated to 5µm
- Anchor diameters from M10 to M20
- Fire rated

#### Suitable for structural loads:

- Safety critical loads
- High tensile capacity of Grade 8.8 steel bolt
- Heavy duty, heat treated washer.
- Heavy duty, thick expansion sleeve that provides secure grip to concrete

#### Improved security:

- Large expansion reserve that ensures retention in concrete if overloaded
- Torque induced pull down closes gaps and induces preload

#### Resistant to cyclic loading:

- Heavy duty sleeve with integrated pull-down section works to retain 65% of initial preload

#### Fast installation:

- Hex nut and hex bolt versions available
- Countersunk heads available
- Through fixing eliminates marking out and repositioning of fixtures

## Product Codes & Specifications

Material	Item Code	Thread Size (mm)	Anchor Length (mm)	Depth of drill hole, h <sub>1</sub> (mm)	Drilled Hole Dia Ø (mm)	Fixture Hole Dia Ø (mm)	Max Torque (Nm)	Pack Qty
●	SP10105	M10	105	90	15	17	50	25
●	SP12105	M12	105	105	18	20	80	25
●	SP12120	M12	120	105	18	20	80	25
◆	SP12120SS**	M12	120	105	18	20	80	25
●	SP16145	M16	145	131	24	26	120	10
●	SP20170	M20	170	157	28	30	200	5

#### Principal Applications

- Seismic strengthening and refurbishment
- Anchoring into cracked & non cracked concrete
- Safety critical loads
- Steel columns & walkways
- Road barrier hold down
- Bridge refurbishment
- Road & rail tunnel construction
- Wall plates
- Safety rails
- Intended working life of the anchor of 50 years

● Carbon Steel Zinc Plated

◆ Stainless Steel 316

◆ Galvanised

\*\*Special Order



# HEAVY DUTY ANCHORS

## XTREM™ Anchoring For Design Specification

Performance Related	Material	Installation Related

## TruBolt™ Xtrem™ Stud Anchors

TruBolt™ Stud Anchors are heavy duty, torque controlled expansion anchors. In the range is the TruBolt™ Xtrem™ for certified seismic C1 & C2 applications.

### Standards and Approvals

Design according to AS 5216:2021 (formerly TS101) and European design method EN 1992-4:2018 (formerly ETAG001 Annex C & TR045) for Seismic Category C1 & C2. Seismic Category C1 & C2 European Technical Assessment (option 1)

- Highest level of European Technical Assessment for mechanical expansion anchors



### Benefits, Advantages and Features

- Approved for all directions (floor, wall, overhead)
- Maximum tensile & shear capacities in cracked concrete
- Zinc plating to 5µm
- Anchor diameters M8 to M20
- Fire rated

#### Suitable for structural loads:

- "True to size" through fixture anchor

#### Improved security:

- Torque induced pull down closes gaps and induces preload

#### Resistant to cyclic loading:

- Heavy duty sleeve with pull-down of fixture
- Anti rotation expansion sleeve

#### Fast installation:

- Anchor diameter equals hole diameter
- Shallow embedment depths
- Through fixing eliminates marking out and repositioning of fixtures



## Product Codes & Specifications

Part No.	Thread Size	Anchor Length (mm)	Max Fixture Thickness (mm)	Drilled Hole Ø (mm)	Min Hole Depth (mm)	Max Torque (Nm)	Fixture Hole Ø (mm)	Pack Size
T08075X	M8	75	15	8	65	20	9	100
T10085X	M10	85	5	10	75	45	12	50
T10100X	M10	100	20	10	75	45	12	25
T10120X	M10	120	40	10	75	45	12	25
T12105X	M12	105	10	12	90	60	14	25
T12115X	M12	115	20	12	90	60	14	25
T12135X	M12	135	40	12	90	60	14	25
T12180X	M12	180	85	12	90	60	14	20
T16145X	M16	145	25	16	110	110	18	10
T16170X	M16	170	50	16	110	110	18	10
T20170X	M20	170	30	20	130	160	22	10
T20200X	M20	200	60	20	130	160	22	10

#### Principal Applications

- Seismic strengthening and refurbishment
- Anchoring into cracked & non cracked concrete
- Structural steel columns & beams
- Road barrier hold down
- Bridge refurbishment
- Road & rail tunnel construction
- Wall plates
- Safety barriers
- Stadium seating
- Pallet racking
- Shallow embedment depths from 50mm
- Intended working life of the anchor of 50 years

# HEAVY DUTY ANCHORS

## Anchoring For Design Specification

PERFORMANCE RELATED	MATERIAL	INSTALLATION RELATED

## TruBolt™ A4 316 Stud Anchors

TruBolt™ Xtrem™ A4 316 Stud Anchors are heavy duty, torque controlled stainless steel expansion anchors. They are certified for seismic C1 & C2 applications.



### Standards and Approvals

Designed to European AS 5216:2021 (formerly TS101) and European design method EN 1992-4:2018 (formerly ETAG001 Annex C & TR045) for Seismic Category C1 & C2. Seismic Category C1 & C2 European Technical Assessment (option 1).

- Highest level of European Technical Assessment for mechanical expansion anchors



### Benefits, Advantages and Features

- Approved for all directions (floor, wall, overhead)
- Maximum tensile & shear capacities in cracked concrete
- Stainless Steel A4 316
- Anchor diameters M10 to M16
- Fire rated

#### Suitable for structural loads:

- "True to size" through fixture anchor

#### Improved security:

- Torque induced pull down closes gaps and induces preload

#### Resistant to cyclic loading:

- Heavy duty sleeve with pull-down of fixture
- Anti rotation expansion sleeve

#### Fast installation:

- Anchor diameter equals hole diameter
- Shallow embedment depths
- Through fixing eliminates marking out and repositioning of fixtures

## Product Codes & Specifications

Part No.	Thread Size	Max Fixture Thickness (mm)	Drilled Hole Ø (mm)	Fixture Hole Ø (mm)	Effective Length (mm)
T10070SSX	M10	10	10	10	50
T10095SSX	M10	15	10	15	75
T10105SSX	M10	25	10	25	85
T10130SSX	M10	50	10	50	110
T12095SSX	M12	20	12	20	70
T12110SSX	M12	15	12	15	85
T12120SSX	M12	25	12	25	95
T12140SSX	M12	45	12	45	115
T16120SSX	M16	20	16	20	85
T16140SSX	M16	20	15	20	105

#### Principal Applications

- Seismic strengthening and refurbishment
- Anchoring into cracked & non cracked concrete
- Structural steel columns & beams
- Road barrier hold down
- Bridge refurbishment
- Road & rail tunnel construction
- Wall plates
- Safety barriers
- Stadium seating
- Pallet racking
- Shallow embedment depths from 50mm
- Intended working life of the anchor of 50 years

# HEAVY DUTY ANCHORS

## XTREM™ Anchoring For Design Specification

Performance Related	Material	Installation Related

## AnkaScrew™ Xtrem™ Safety Anchors

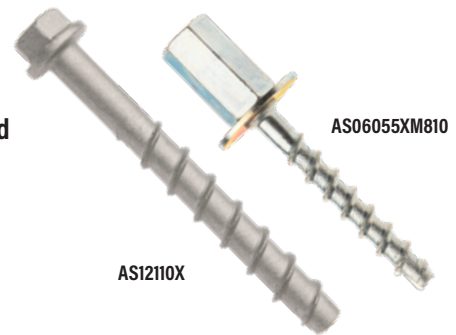
A certified heavy duty screw-in anchor for permanent anchoring into non-cracked and cracked concrete. Certified for seismic C1 & C2 applications.

### Standards and Approvals

European Technical Assessment (option 1)

Design According to:

- AS 5216:2021 (formerly TS101)
- AS 1170.4 - Earthquake Actions
- EN1992-4:2018 (formerly ETAG001 Annex C, E & TR045)
- NZS 3101.1&2:2006 (A3) Section 17 - Seismic Design C1 & C2



### Benefits, Advantages and Features

Fire tested to TR020

- Fire rated performance up to 120 minutes
- Highest level of European assessment for mechanical screw-in anchors
- Approved for all directions (floor, wall, overhead)
- Maximum tensile & shear capacities in cracked concrete
- Zinc flake coated to min of 5µm
- Anchor diameters 6mm to 12mm

Fast and easy to use:

- Self undercut into concrete upon installation

Close to edge and for close anchor spacing:

- Does not expand and burst concrete

#### Principal Applications

- Anchoring into cracked & non cracked concrete
- Steel framing
- Mechanical services
- Pallet racking
- Safety barriers
- Conveyors
- Hand rails
- Bottom plates

### Product Codes & Specifications

Item Code	Anchor Size	Drilled Hole DIA ø (mm)	Hole Depth	Pack Qty
<b>Available Now</b>				
AS06050X	6mm	6mm	55mm	200
AS06080X	6mm	6mm	85mm	200
AS08060X	8mm	8mm	70mm	100
AS08080X	8mm	8mm	90mm	100
AS06055XM810	6mm	6mm	60mm	50
<b>Special Order</b>				
AS10060X	10mm	10mm	70mm	50
AS10100X	10mm	10mm	110mm	50
AS12110X	12mm	12mm	120mm	25

# Erection and Installation

Ramset's unique bracing and connection systems provide simple solutions for structural concrete connection, reducing both labour and material costs.



# ERECTION AND INSTALLATION

## Connection Systems

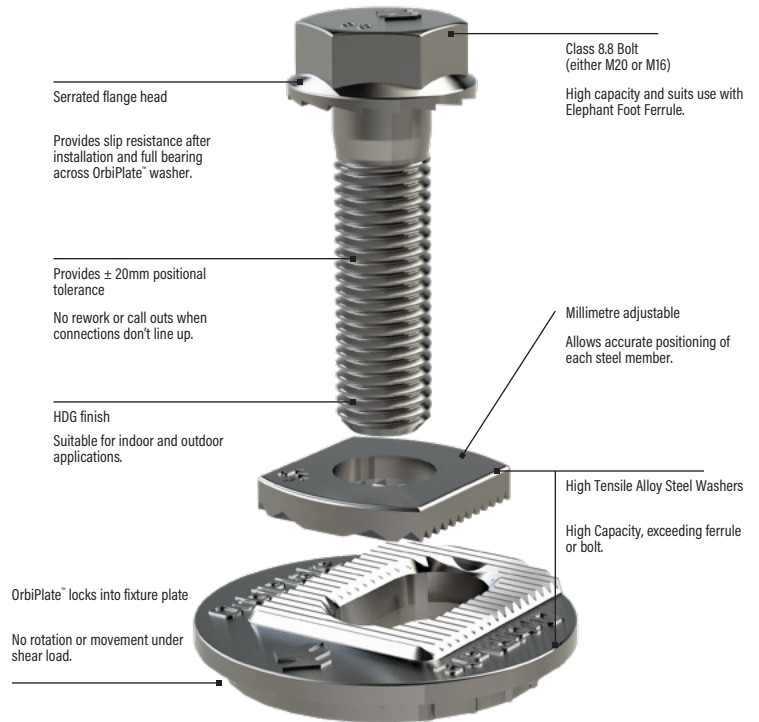
### OrbiPlate™

OrbiPlate™ is a unique Australian designed product that solves misalignment of bolted cast-in connections. OrbiPlate™ is quick and easy to install featuring tolerances of up to 20mm around the centre of the connection and can be used when connecting steel to steel or steel to concrete.

The patented OrbiPlate™ system is used when connecting steel to steel or steel to concrete elements and delivers connection tolerances of up to 20mm around the centre of the connection. It also provides the ability to achieve fine locational accuracy when positioning each steel member.

OrbiPlate™ is quick and easy to install. The steel member should be supplied to site with a pre-formed hole (70mm), cut at the centre of the connection location. The main washer is then placed over the hole, rotated to locate the slot over the ferrule, then secured using the class 8.8 bolt through the small washer. The bolt can be positioned anywhere along the elongated slot, providing up to 20mm tolerance in all directions.

Swinburne University of Technology was commissioned by Ramset™ to carry out seismic testing of OrbiPlate™ sizes M16 (ORB2016BGH) and M20 (ORB2020BGH) with different configurations following the shear testing protocol of EOTA TR049 for Seismic Category C1. The purpose of the tests was to assess the performance of OrbiPlate's interlocking steel washers under cyclic shear loading to Seismic Category C1. The outcome of the above seismic test programme is embedded in this Design Guide.



### Benefits, Advantages and Features

- OrbiPlate™ overcomes the main issue that comes with bolted connections, getting the holes to line up.

#### Feature

- A large washer with an elongated slot surrounded by teeth that lock the smaller washer in place, positioning the main structural bolt in alignment with the ferrule even with up to 20mm misalignment.

#### Advantages

- Provides 20mm positional tolerance
- Allows fine positional adjustment
- No rotation under shear load

#### Benefits

- High structural capacity
- Avoids misalignment delays and call outs
- No hot work required on site
- Saves crane time & costs

#### Principal Applications

- Connecting steel member to concrete
- Connecting steel to steel
- Fixing facade/cladding systems to steel support structure
- Panel to panel fixing

Refer to OrbiPlate™ Design Guide for more details

## Product Codes & Specifications

### AUSTRALIA

Size	Part Number	Finish	Matching Ferrule	Fixture Thickness
M20	ORB2020BGH	HDG	FE20095GH	6 - 16mm
M16	ORB2016BGH	HDG	FE16095GH	6 - 12mm

# ERECTION AND INSTALLATION

## Engineered Brace System

### ReidBrace™

ReidBrace™ is an off-the-shelf system that provides design engineers and constructors with an economic solution for tension bracing of structures, tie-back applications and temporary works bracing.

#### ✔ Standards and Approvals

ReidBrace's banana fittings, end fittings and nuts are manufactured to ASTM A536 / ISO 1083 by ISO 9001 accredited manufacturer. ReidBrace™ load bearing components are tensile tested to destruction at Ramset's testing facility.

The ReidBrace™ System was tested in accordance with AS/NZS 1170.0 Appendices A and B, involving:

- Monotonic Tensile Testing
- Impact tensile testing from -10°C



#### ✔ Benefits, Advantages and Features

##### Simple to Design

- No welding nor custom design of bracing element. Furthermore, Ramset™ provides recommendations on steel cleat connection design.

##### Trusted ReidBar™ Tension Rod

- ReidBrace™ utilises the ductile 500N ReidBar™ reinforcing rod. Widely recognised and readily available in the market, ReidBar™ is locally manufactured by the ACRS Infrabuild certified AS/NZS 4671.

##### Ease of Installation

- ReidBrace™ comes off the shelf in boxed sets, complete with step by step installation procedure.
- Easy adjustment as ReidBar™ bracing rod is continuously threaded and can be cut to any length

##### Principal Applications

- Tension bracing
- Wall Panel Tie-back
- Temporary bracing
- Retrofit strengthening

## Product Codes & Specifications

Bar Size	Finish	Kit Code
12mm	Galvanised	RBRACE12-SET
16mm	Galvanised	RBRACE16-SET
20mm	Galvanised	RBRACE20-SET(A)
25mm	Galvanised	RBRACE25-SET
32mm	Galvanised	RBRACE32-SET





# Construction Chemicals

Ramset™ Construction Chemicals cover all the essential onsite products to finish off your project.

The construction chemical range includes:

- Epoxy repair mortar and grout
- Concrete additives for render and remedial work
- Fire rated foam and sealant

# GROUTS

## Engineered Epoxy Solutions

### Epoxy Grout 7042

Epoxy Grout 7042 is a 2-part 100% solvent free epoxy resin with graded fillers, which can be used as is or with additional fillers to create a range of application consistencies.

Epoxy Grout 7042 is tough, durable and specially formulated for strong bond to concrete, brick and block. For structural underpinning of precast concrete, crane rails and anchoring reinforcing bar and anchor bolts. Ideal for grout tubes.

#### Features & Benefits

- Standard version reaches 80 MPa in 3 hours (@20°C)
- Low exotherm version for deep pours (up to 500 mm) and hot climates
- Tough, durable 100% epoxy
- High flow properties - good bonding and penetration
- Dry and damp concrete
- Resistant to vibration and dynamic loads
- Fully cures in temperatures down to 5°C
- High mechanical strength



Available in fast cure or deep pour (low exotherm) grades



#### Trades & Applications

Applications	Construction Contractor	Concreter	Civil Contractor	Building Contractor	Balustrade Contractor	Steel Fabricator
Filling voids under concrete panels	✓			✓		
Filling Grout Tubes		✓		✓		
Bridge Beam Supports	✓		✓			
Baseplate Underpinning	✓			✓		✓
Anchoring crane rails			✓			
handrails, balustrades & safety barriers			✓	✓	✓	

#### Product Codes & Specifications

Part No.	Colour	Description
EP7042L13	Off-White	Epoxy Grout 7042 Standard
EP7042L3	Off-White	Epoxy Grout 7042 Standard
EP7042LEL13	Off-White	Epoxy Grout 7042 Low Exotherm
EP7042LEL3	Off-White	Epoxy Grout 7042 Low Exotherm



# GROUTS

## Engineered Epoxy Solutions

### Premier Grout MP™

Premier Grout MP™ is a Class A, non shrink cement grout that complies with AS MP20, Part 3 (1977).

The product consists of a speciality blend of cement, graded aggregate and other chemically reactive agents that compensate for drying shrinkage commonly found in cement products.

#### ✓ Features & Benefits

- High strength
- Non-shrink - Good dimensional stability - Complete void filling
- Versatile - Can be dry packed, rammed, trowelled, poured and pumped over short distances
- Economical, low in-place cost
- Ready to use and pre mixed - requires only the addition of water
- Non-staining – chloride and iron free
- Lower water/cement ratio - Reduced drying shrinkage



#### ✓ Trades & Applications

Applications	Construction Contractor	Concreter	Civil Contractor	Building Contractor	Steel Fabricator	Maintenance Fitter
Baseplate Underpinning			✓		✓	✓
Filling voids under concrete panels	✓	✓	✓			
Filling Grout Tubes	✓	✓	✓			
Grouting Bridge Beam Supports	✓		✓			
Installing handrails, balustrades & safety barriers	✓		✓	✓	✓	

#### Product Codes & Specifications

Part No.	Chemical Type
RPGMP	Cement

# CONCRETE PATCH & REPAIR

## Engineered Epoxy Solutions

### Epoxy Paste 1210

Ramset™ Epoxy Paste 1210 is a tough 100% solids, trowellable epoxy repair mortar for use in high build concrete repair applications such as

- Structural repairs to damaged concrete and masonry
- Filling holes, wide cracks, chips in concrete
- Filling gaps between steel and concrete and timber and concrete



#### ✓ Features & Benefits

- Sets rock hard
- Bond is stronger than concrete
- High build consistency
- Suitable for filling voids with thick cross-section – low heat generated during cure
- Trowellable
- High compressive strength
- 100% solids epoxy – solvent free and negligible shrinkage
- Waterproof when cured



#### ✓ Trades & Applications

Applications	Concreter	Building Contractor	Concrete Remediation	Civil Contractor	Construction Contractor	Formworker
Repair broken and spalled concrete	✓	✓	✓	✓	✓	✓

#### Product Codes & Specifications

Part No.	Box Quantity	Chemical Type	Colour	Type	VOC Compliant
EP1210L4	1	Epoxy	Grey	Trowellable Paste	YES
EP1210L20	1	Epoxy	Grey	Trowellable Paste	YES

# SEALANTS

## Fire Protection

### BlazeBrake™ Sealant

BlazeBrake™ is a flexible fire and acoustic rated acrylic sealant, suitable for sealing gaps, joints and penetrations in dry wall partitions, concrete wall and block walls. Prevents the spread of flames, smoke and gases through walls and floors or between building compartments.

BlazeBrake™ is approved for use with cable, metal pipe and service penetrations (see fire test reports for specific dimensions and configurations BlazeBrake™ is approved for).

#### ✓ Features & Benefits

- Fire rated to AS 1530.4:2014 for wall & floor penetrations and as a control joint.
- Acoustic rated
- Flexible and crack resistant
- Joint movement ± 15%
- Easy to dispense in cold weather
- Non toxic. Low odour. Easy tooling
- Water clean up.
- Sag resistant



#### ✓ Trades & Applications

Applications	Plumbing Contractor	Electrical Contractor	Ceiling & Partitioners	Brick Layer
Joints in Brick & Blockwork				✓
Concrete Penetrations	✓	✓		
Brick & Blockwork Penetrations	✓	✓		
Fire Rated Penetrations	✓	✓		
Fire Rated Dry Wall Gaps	✓	✓	✓	
Dry Wall Gaps			✓	

#### Product Codes & Specifications

Item Code	Pack Size	Colour
BLBRGYC	300 ml	Grey
BLBRGYS	600 ml	Grey
FRF700	750mL	Pale Yellow

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