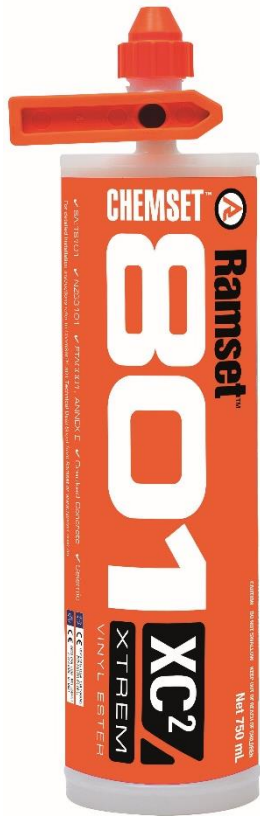


Date of Issue: August 15, 2018

Fast Setting Vinyl Ester for Extreme Anchoring Applications



CHEMSET 801 XTREM XC² is a high bond strength, fast setting Vinyl Ester anchoring mortar certified for challenging engineering design conditions such as seismic, cracked concrete and fire.

Overview

CHEMSET™ 801 Xtrem™ XC² is a very high bond strength chemical anchor that sets fast, making it ideal steel erection and hand rails, where torque needs to be applied quickly after installation.

The anchoring performance of CHEMSET™ 801 Xtrem™ is assessed to EAD 330499 (in accordance with AS5216:2018), for cracked and uncracked concrete and seismic applications, including Category 2.

CHEMSET™ 801 Xtrem™ may be installed in carbide drilled holes in dry, wet or flooded* conditions.

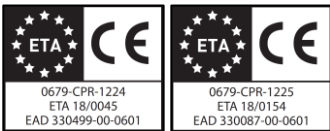
Product Advantages

Highest Anchoring Standards	EAD 330499 C1 & C2 EAD 330087
Fast Setting	Apply torque in less than 1 hour
Wide variety of conditions	Flooded*, low temperatures, cracked concrete, Seismic
Independently certified	Peace of mind
Styrene Free	Low VOC and Low odour
Very High Bond Strength	Security and peace of mind
Certified for Drinking Water Contact	Suitable for water treatment facilities

*Load reduction applies to flooded holes. Refer to Ramset SARB

Applications

- Structural Steel Connections
- Raker Angles, Column Hold Down, Shelf Angles
- Road Stitching
- Public Seating, Hand Rails
- Fence and Balustrade posts
- House Frame Bottom Plates
- Safety Barriers
- Starter Bars











































Substrates

- Solid Concrete

Applicable Standards

- EAD 330499 C1, C2
- EAD 330087
- NZS3101.1&2 2006 A3
- AS5216 / SA TS101
- WRAS
- FIRE

ChemSet 801 Xtrem Applications

Embedment Type	Anchorage			Post-Installed Rebar	
	Threaded Studs	Rebar	Multi-Cone Studs	Rebar	
Fixing					
Size Range	M8 - M30	ø8 - ø20	M12 - M20	ø8 - ø32	
Load Ranking					
APPROVAL	Uncracked Concrete				
	Cracked Concrete				
	Seismic				
	Drinking Water Safe				
	Fire Rated		-	-	
	Design Life				
INSTALLATION CONDITION	Drilled / Cored Holes				
	Flooded Hole*				
CONFORMANCE	National Standards	 	 	 	
	ETAG001 Option 1	ETA 18/0045	ETA 18/0045	ETA 18/0045	
	ETAG001 ANNEX E	ETA 18/0045	ETA 18/0045	ETA 18/0045	
	ETAG001 TR023	-	-	-	ETA 18/0154

Load Ranking is the relative load compared with other Chemical Anchoring products in the Ramset range and is intended to assist with product selection. For load capacity and design information, consult the **Ramset Specifiers Anchoring Resource** (SARB) book available from Ramset in hard copy or download from the website.

Material:

CHEMSET 801 Xtrem XC² consists of 2 parts: Part A is a mixture of Vinyl Ester polymer and inorganic filler. Part B is a Benzoyl Peroxide catalyst.

Typical Properties

Properties	Typical Value
Appearance	Part A: White Part B: Black Mixed: Grey
Compressive Strength (ASTM D695 Method C07)	61.9 MPa
Tensile Strength (NF EN ISO 527-2)	12.1 MPa
Tensile Modulus (NF EN ISO 527-2)	4.23 GPa
Flexural Strength (ISO 14125)	33.0 MPa
Flexural Modulus (ISO 14125)	6.29 GPa
Electrical Volume Resistance (IEC 62631-3-1) 2016	2.0 x 10 ¹¹ Ω.cm @ 500V
Electrical Permittivity (IEC 60250) 1969	12.5 @ 50 Hz
Dielectric Dissipation Factor (IEC 60250) 1969	0.264 @ 50 Hz

Approvals

Certification	Approval Number / Report Number
European Technical Assessment EAD 330499, Option 1	ETA 18/0045
European Technical Assessment EAD 330499, TR049	ETA 18/0045
European Technical Assessment EAD 330087, TR023	ETA 18/0154
WRAS Contact with Drinking Water	1710549
Electrical Insulation Properties	151350-711426
Fire Rating – Threaded Studs	GS 3.2/17-410-3
Fire Rating – Post-Installed Rebar	MRF 26074021/B

Chemical Resistance

Substance	Concentration %	Resistance	
Acetone	10	Yes	(+)
Acetone	100	No	(-)
Acetic acid	50-75	No	(-)
Acetic acid	10-50	No	(-)
Acetic acid	0-10	Yes	(+)
Hydrochloric acid	25	No	(-)
Hydrochloric acid	15	Yes	(+)
Citric acid	0-100	Yes	(+)
Formic acid	10	Yes	(+)
Lactic acid	0-30	Yes	(+)
Lactic acid	30-100	No	(-)
Nitric acid	0-5	Yes	(+)
Nitric acid	5-15	Yes	(+)
Phosphoric acid	80	Yes	(+)
Concentrated phosphoric acid	100	Yes	(+)
Phosphoric acid, vapor and condensed		No**	(-)
Sulphuric acid	71-75	No	(-)
Sulphuric acid	50-70	No	(-)
Sulphuric acid	0-50	Yes	(+)
Sulphuric acid	Fumes	No**	(-)
Sulphuric acid / Phosphoric acid	10-20	Yes	(+)
Ethanol	10	Yes	(+)
Sodium carbonate	10	No	(-)
Diesel fuel	0-100	Yes	(+)
Sodium chloride	0-100	Yes	(+)
Bromine water	5	No**	(-)
Chlorine water	0-100	No**	(-)
Sea water	0-100	Yes	(+)
Deionized water	0-100	Yes	(+)
Deminerlized water		Yes	(+)
Turpentine (oil)		Yes	(+)
Ethylene glycol	0-100	Yes	(+)
Fuel	100	Yes	(+)
Heptane	100	Yes	(+)
Hexane	100	Yes	(+)
Heavy motor oil	100	Yes	(+)
Ammonium hydroxide or Ammoniac	20	No*	(-)
Ammonium hydroxide or Ammoniac	5	No*	(-)
Sodium hydroxide	25	No*	(-)

* from the perspective of EN 13121 the resin is not suitable, however the testing of CHA masses shows good functionality in wet concrete which shows higher pH--value.

** from chemical attack point of view the conditions are not defined.

Storage and Shelf Life

Shelf life is 12 months from date of manufacture stored in a cool, dry place between 5°C and 25°C away from direct sunlight. See USE BY date on package.

Product Range – ChemSet™ 801 Xtrem™ Anchoring Adhesive

Description	Part No	Order Quantity
ChemSet™ 801 Xtrem™ Cartridge 750 ml	C801X750	12
ChemSet™ 801 Xtrem™ Cartridge 750 ml (Aus Only)	C801X380	20
ChemSet™ Universal Applicator	CUAP	1
ChemSet™ Universal 18V Battery Applicator	CUAR18	1
Mixing Nozzles	ISNE	5

Working & Loading Times

Substrate Temperature	Working Time (Minutes)	Loading Time (Minutes)	
		Dry / Damp	Wet / Flooded
5°C	60	240	480
6 to 10°C	40	180	360
11 to 20°C	15	120	240
21 to 30°C	8	90	180
31 to 40	4	60	120

Installation Details – Post Installed Reinforcing Bar in Solid Concrete

Refer to Engineer's drawings for specified dimensions. In the absence of Engineer specification, the following dimensions are required. Refer to Ramset Specifier's Anchoring Resource Book for load design (Available from Ramset™ or the website www.ramset.com.au)

Bar Size	Drill Hole Size, d_h (mm)	Minimum Drill Hole Depth in Substrate (mm)	Minimum Edge Distance, e_c (mm)	Minimum Anchor Spacing, a_c (mm)	Minimum Structural Thickness, b_m (mm)
ø10	14	70	40	60	100
ø12	16	90	50	70	120
ø16	20	120	65	100	160
ø20	25	150	80	120	200
ø24	30	180	100	145	240
ø28	35	210	115	170	280
ø32	40	240	130	195	320
ø36	45	270	145	220	360
ø40	50	300	160	240	400

Table 1. Chemical Anchor Installation Details for Post-Installed Reinforcing Bar in solid Concrete



Installation Details – Threaded Bar and ChemSet™ Anchors Studs in Solid Concrete

Refer to Engineer's drawings for specified dimensions. In the absence of Engineer specification, the following dimensions are required. Refer to Ramset Specifier's Anchoring Resource Book for load design (Available from Ramset™ or the website www.ramset.com.au)

Thread Size	Drill Hole Size, d_h (mm)	Drill Hole Depth in Substrate (mm)	Maximum Fixture Clearance (mm)	Maximum Fixture Thickness (mm)	Tightening Torque, T_r (Nm)	Minimum Edge Distance, e_c (mm)	Minimum Anchor Spacing, a_c (mm)	Minimum Structural Thickness, b_m (mm)
M8	10	80	10	15	10	35	50	100
M10	12	90	12	25	20	40	60	120
M12	14	110	15	30	40	50	75	140
M16	18	125	20	40	95	65	100	160
M20	24	150	24	80	180	80	120	190
		170						220
M24	26	160	28	105	315	100	145	200
		210						270
M30	32	270	32	-	650	120	180	300
M36	38	330	38	-	1150	145	220	365

Table 2. Chemical Anchor Installation Details for Threaded Bar and ChemSet™ Anchor Studs in solid Concrete



Thread Size	Drill Hole Size, d_h (mm)	Drill Hole Depth (mm)	Maximum Fixture Clearance (mm)	Maximum Fixture Thickness (mm)	Tightening Torque, T_r (Nm)	Minimum Edge Distance, e_c (mm)	Minimum Anchor Spacing, a_c (mm)	Minimum Structural Thickness, b_m (mm)
12	14	110	14	77	30	120	200	140
16	18	145	18	89	50	150	300	180
20	22	180	22	151	150	150	300	225

Table 3. Chemical Anchor Installation Details for ChemSet™ Xtrem™ Anchor Studs in Solid Concrete

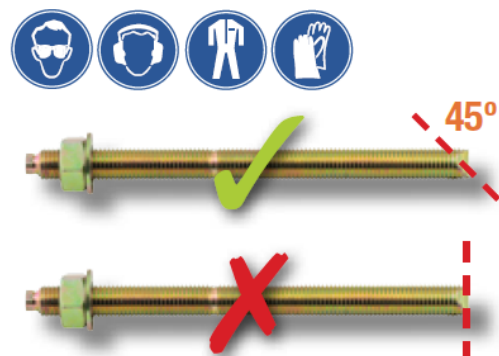


Installation Details – Precautions

Read safety directions on the pack and the MSDS before opening or using. In general, wear safety goggles, gloves and hearing protection when drilling and using chemical anchoring adhesive.

Before you start:

- Do not install chemical anchor into concrete less than 3 days old
- Chemical anchor may be installed in concrete aged between 3 and 28 days but will not carry full load capacity until concrete is at least 28 days old.
- Threaded rod must have one end cut at approximately 45° to prevent unthreading from the cured adhesive



Installation Details – Drilling



- Consult engineer's drawings for hole dimensions; otherwise refer to table 1 (Post Installed Rebar) and table 2 (Threaded Bar) above
- Drill hole to specified dimensions using carbide drill bit
- Ramset™ Dustless Drilling System is recommended as the fastest most certain method of removing drilling debris and dust and eliminates post-drilling hole cleaning.
- Otherwise drilling debris and dust must be removed by brushing and blowing out of drilled holes as described below.

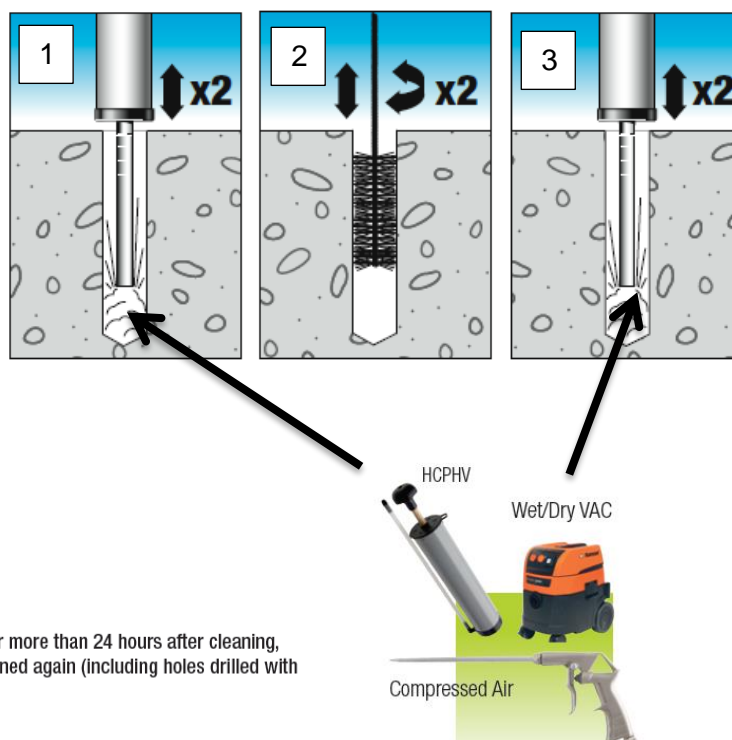
Hole Cleaning – Carbide Drilled



Dust removal and cleaning is not required with Ramset™ Dustless Drilling System.

Drilling debris and dust must be removed from holes drilled with standard carbide as follows:

1. Using Ramset™ blower (Part Number HCPHV), compressed air blast or wet / dry vacuum (Ramset™ AC1630P), remove dust with 2 swift pumps.
2. Using the appropriate sized brush, with a twisting / rotating motion, insert brush to the bottom of the hole and remove 2 times.
3. Remove dust residue with air blower (2 pumps), compressed air blast or wet / dry vacuum.



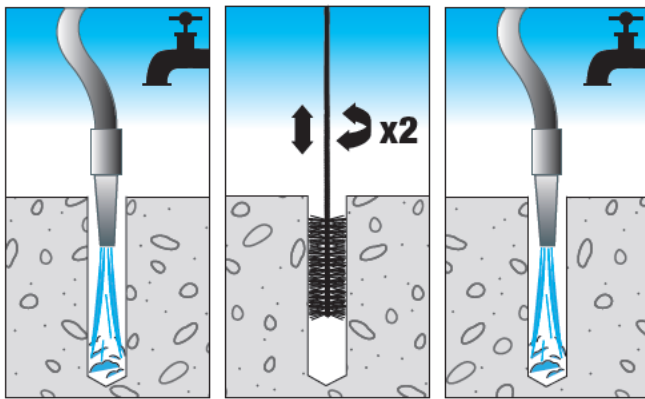
If holes are left for more than 24 hours after cleaning, they must be cleaned again (including holes drilled with Dustless Carbide)

Hole Cleaning – Flooded Holes



Remove dust and drilling debris from flooded holes as follows:

1. Flush holes with clean running water until water is clear.
2. Using the appropriate sized brush, with a twisting / rotating motion, insert brush to the bottom of the hole and remove 2 times.
3. Flush holes with clean running water until water is clear.



Opening And Using Cartridge

Manual CUAP

18V Battery CUAR18

Pneumatic CUAPN

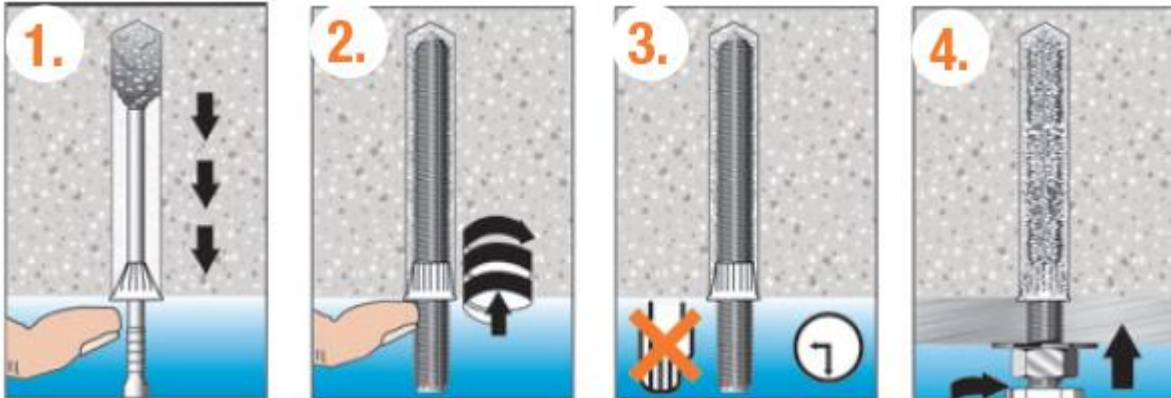


1. Remove cap from cartridge and attach mixing nozzle Part Number ISNE
2. Load cartridge into dispensing gun (Ramset Part Numbers CUAP (Manual), CUAPN (Pneumatic) and CUAR18 (18V Battery Powered))
3. Dispense a small quantity of adhesive (2 to 3 trigger pulls) to waste to ensure both adhesive components are balanced
4. Insert mixing nozzle tip to bottom of hole (to avoid air bubbles) and inject adhesive. Gradually withdraw nozzle to keep the nozzle tip at the surface of the adhesive. Continue injecting until hole is about $\frac{3}{4}$ filled
5. Insert fixing using a twisting / rotating motion into adhesive and wipe away any excess
6. Allow adhesive to cure. Refer to Working and Loading Times table on Page 2
7. Load anchor and apply torque (to threaded fixings) after appropriate cure time

Overhead Installation

Note: Dustless carbide system is recommended to eliminate falling dust and debris during overhead drilling.

Retaining collars are available from Ramset™ for M12 (P/N ISR12) and M16 (P/N ISR16) threaded rod. For other threaded rod sizes and rebar, use plastic wedges after the anchor has been installed.



1. Insert mixing nozzle tip to bottom of hole (to avoid air bubbles) and inject adhesive. If using retaining collar, place it in the hole and insert nozzle as illustrated. Gradually withdraw nozzle to keep the nozzle tip at the surface of the adhesive. Continue injecting until hole is about $\frac{3}{4}$ filled. Dosing Cap (Part Number 055969) is recommended for deep holes and hole diameters > 18 mm.
2. Insert fixing using a twisting / rotating motion into adhesive and wipe away any excess. Retaining collar will hold rod in place while adhesive sets. With no retaining collar, hold fixings in place by inserting 4 x plastic wedges between the fixing and the concrete.
3. Allow adhesive to cure. Refer to Working and Loading Times table on Page 2
4. Load anchor and apply torque (to threaded fixings) after appropriate cure time.

Transport and Storage

NOT CLASSIFIED AS A DANGEROUS GOOD ACCORDING TO CRITERIA OF THE ADG CODE, IMDG OR IATA

Occupational Health and Safety



- ◆ Avoid contact with skin and eyes
- ◆ Avoid breathing vapour
- ◆ Wear protective gloves when mixing or using.
- ◆ If poisoning occurs, contact a doctor or Poisons Information Centre.
- ◆ If swallowed, **do not** induce vomiting. Give glass of water.
- ◆ If skin contact occurs, remove contaminated clothing and wash skin thoroughly.
- ◆ If in eyes, hold eyes open, flood with water for at least 15 minutes and seek medical assistance.
- ◆ **Do not** use in poorly ventilated or confined space.

For more detailed information refer to the Material Safety Data Sheet available from Ramset or the website.

CHEMSET™ ACCESSORIES

Fixings – Chemset™ Anchor Studs (Steel Grade 5.8 / SS 316)



ChemSet™ Anchor Studs				
Thread Size	Description	GAL Galvanised	A4 316 Stainless Steel 316	Box Quantity
M8	ChemSet™ Anchor Stud M8 x 110 Zinc	CS08110GH	CS08110SS	10
M10	ChemSet™ Anchor Stud M10 x 130 Zinc	CS10130GH	CS10130SS	10
M12	ChemSet™ Anchor Stud M12 x 160 Zinc	CS12160GH	CS12160SS	10
M12	ChemSet™ Anchor Stud M12 x 180 Zinc			10
M16	ChemSet™ Anchor Stud M16 x 190 Zinc	CS16190GH	CS16190SS	10
M20	ChemSet™ Anchor Stud M20 x 260 Zinc	CS20260GH	CS20260SS	6
M24	ChemSet™ Anchor Stud M24 x 300 Zinc	CS24300GH	CS24300SS	6

Fixings – Chemset™ Xtrem™ Seismic C2 Anchor Studs (Steel Grade 8.8)



ChemSet™ Xtrem™ Anchor Studs (Grade 8.8)			
Thread Size	Description	Zn ZINC Electroplated	Box Quantity
M12	ChemSet™ Xtrem™ Anchor Stud M12 x 150 mm Zinc	CS12150XT	10
M16	ChemSet™ Xtrem™ Anchor Stud M16 x 200 mm Zinc	CS16200XT	10
M20	ChemSet™ Xtrem™ Anchor Stud M20 x 270 mm Zinc	CS20270XT	10

Fixings – Chemset™ Threaded Inserts



Threaded Inserts						
Thread Size	Description	Drilling Dimensions		Zn ZINC	A4 316 Stainless Steel 316	Box Quantity
		Diameter (mm)	Depth (mm)			
M8	Threaded Insert M8 x 60	14	65	062770	062860	10
M10	Threaded Insert M10 x 65	20	70	062480	062960	10
M12	Threaded Insert M12 x 75	24	75	062760	063100	10
M16	Threaded Insert M16 x 125	28	130	062800	051175	10
M20	Threaded Insert M20 x 170	35	175	062810	-	10

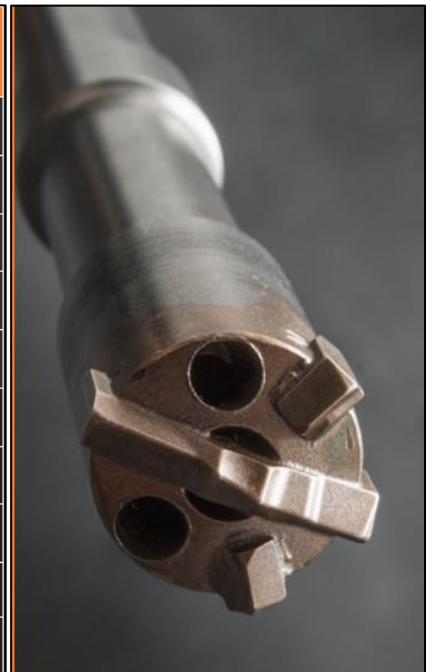
Hole Cleaning Accessories

Description	To Suit	Part Number	Pack Quantity
Hole Cleaning Pump (High Volume)	All hole sizes	HCPHV	1
Hole Cleaning Brush 13 mm	8 – 12 mm Diameter Holes	HCBT13	1
Hole Cleaning Brush 20 mm	14 – 20 mm Diameter Holes	HCBT20	1
Hole Cleaning Brush 26 mm	20 – 24 mm Diameter Holes	HCBT26	1
Hole Cleaning Brush 20 mm x 1m	14 – 20 mm Diameter Holes	HCBT261000	1
Hole Cleaning Brush 26 mm x 1m	20 – 24 mm Diameter Holes	HCBT201000	1
Hole Cleaning Brush 36 mm x 1m	26 – 34 mm Diameter Holes	HCBT361000	1
Hole Cleaning Brush 42 mm x 1m	36 – 40 mm Diameter Holes	HCBT421000	1

Ramset™ R3™ Dustless Drilling Carbide

Suitable for use with all SDS-Max Hammer Drills and professional worksite vacuum cleaners (Ramset™ AC1630P)

Part No.	Type	Size (mm)	Hole Depth (mm)	Drill Length (mm)
DDEM14400	U3Max	14	400	600
DDEM16400	U3Max	16	400	600
DDEM18400	R3Max	18	400	600
DDEM20400	R3Max	20	400	600
DDEM22400	R3Max	22	400	600
DDEM25400	R3Max	25	400	600
DDEM28400	R3Max	28	400	600
DDEM30400	R3Max	30	400	600
DDEM32400	R3Max	32	400	600
DDEM35400	R3Max	35	400	600



Ramset™ Dustless Drilling Carbide Bits

To purchase or obtain further information contact *ramsetreid*

AUSTRALIA
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 WEB: www.ramset.com.au



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