

## LAMPIRAN

### 1. Chemical Epoxy Base Ramset REO502

**Ramset**

**Compliant** ✓  
High performance anchoring epoxy for concrete  
Approved for cracked concrete & seismic zones

**Fast Cure!**  
Same day loading  
Higher Productivity

**Reo502™**  
Heavy Duty Epoxy Anchoring

**100 YEAR** **CE**

**Advantages**

- **HIGH PERFORMANCE EPOXY:** Shallower Embedment depth required
- **FAST CURE FORMULA:** 5 hour cure time at 40°C for same day loading of anchors
- **FIRE RESISTANT STRUCTURES:** Tested up to 4 hours (F1) according to Eurocode 2, with standard fire curve (ISO 834)
- **COST SAVINGS:** Less delay of work, Less rebar used
- **HIGH STRENGTH NON SHRINK:** Suitable for congested and overstressed holes
- **VOC COMPLIANT:** Virtually odourless, can be used indoors, LEED tested, Slip-free
- **WATER INSENSITIVITY:** Works in wet, flooded holes and underwater applications

**Packaging:**

- Disposable, self-contained 500ml cartridge system capable of dispensing both epoxy components in the proper mixing ratio.
- Epoxy components dispensed through a static mixing nozzle that thoroughly mixes the material and places the epoxy at the base of the pre-drilled hole.
- Cartridge markings include manufacturer's name, batch number and best use by date, mix ratio by volume, MSD hazard identification, and appropriate PPE handling procedures.

**Specifications (Epoxy Chemical):**

- Two Component, 100% solids (excluding air solvent), non-sag paste, non-shrink mixture, grey to black.
- Mixed (ready to place) (CEMS 502) @ 20°C
- Modulus - 3000 MPa
- Compressive strength, (CEMS 502) 30 MPa at 1 day
- Heat Distortion Temperature Approx 80°C
- Water Solubility: None
- Shrinkage constant 0%

**ITEWE**

ITEWE Indonesia is registered company in member of Building Construction Institute with latest global technologies for achieving highest industries and safety standards

2. Design Load Pada Rebar Ramset REO502

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# Reo502™

Heavy Duty Epoxy Anchoring

**Number of anchors per cartridge - for REBAR**

Rebar diameter	10	12	13	16	20	25	28	32	40
Drilling Ø (mm)	13	15	16	20	25	30	35	40	50
Drilling depth (mm)	80	110	110	128	170	210	270	300	360
No. of anchors per cartridge									
REO 502 (600ml)	103.4	61.7	54.3	30.8	14.4	8.1	4.8	3.2	1.7

**Number of anchors per cartridge - for ANCHOR STUD**

Stud diameter	8	10	12	16	20	24	30
Drilling Ø (mm)	10	12	14	18	22	28	35
Drilling depth (mm)	60	60	110	125	170	210	261
No. of anchors per cartridge							
RAMSET Reo502 (600ml)	180.9	117.9	70.8	37.8	14.4	9.3	4.4

**PRODUCT RANGE**

Ramset Reo502  
Easy Flow Mixing Nozzle

Dispensing Tool

Manual Pump

**Design Loads ( $N_{du}$ ,  $V_{du}$ ) for one anchor without edge or spacing influence in kN**

**TENSILE @ Concrete strength 30 Mpa\***

Anchor size	M8	M10	M12	M16	M20	M25	M30
$N_{du}$ (kN)	7.0	8.0	11.0	12.0	17.0	24.0	29.0
$N_{du}$ (kN)	11.4	12.4	14.0	17.0	24.0	32.0	39.0

\*  $\gamma_{ms} = 1.25$

**SHEAR @ Concrete strength 30 Mpa\*\***

Anchor size	M8	M10	M12	M16	M20	M25	M30
$V_{du}$ (kN)	2.0	15.4	21.0	22.0	27.2	36.1	100.5

\*\*  $\gamma_{ms} = 1.25$

**Design Loads ( $N_{du}$ ,  $V_{du}$ ) for one anchor without edge or spacing influence in kN**

**TENSILE @ Concrete strength 30 Mpa\***

Rebar size	T8	T10	T12	T16	T20
$N_{du}$ (kN)	8.0	9.0	11.0	13.0	12.0
$N_{du}$ (kN)	15.4	24.1	34.7	45.7	61.7

\*  $\gamma_{ms} = 1.5$  (steel failure)

**SHEAR @ Concrete strength 30 Mpa\*\***

Rebar size	T8	T10	T12	T16	T20
$V_{du}$ (kN)	11.1	17.3	26.0	26.3	44.4

\*\*  $\gamma_{ms} = 1.20$

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# ChemSet™ Reo 502™ PLUS

STRENGTH LIMIT STATE DESIGN

AVAILABLE IN AUSTRALIA ONLY

## STEP 2 Verify concrete tensile capacity - per anchor

Table 2a Reduced characteristic ultimate concrete tensile capacity,  $\phi N_{t,c}$  (kN),  $\phi_c = 1/1.8 = 0.56$ ,  $f'_c = 32$  MPa

Rebar Size, $d_b$	Combined pull-out and concrete cone resistance - $\phi N_{t,c}$						Concrete Cone Resistance - $\phi N_{t,c}$
	10	12	16	20	24	32	
Drilled Hole Dia, $d_h$ (mm)	14	16	20	25	32	40	
Effective Depth, $h$ (mm)							
70	16.5						20.2
80	18.9						24.7
90	21.2	25.5					29.5
100	23.6	28.3					34.6
110	26.0	31.1					39.9
120	28.3	34.0	41.8				45.4
125	29.5	35.4	43.6				48.3
140	33.0	39.6	48.8				57.3
150	35.4	42.5	52.3	65.3			63.5
160	37.8	45.3	55.8	69.7			70.0
170	40.1	48.1	59.2	74.1			76.6
180	42.5	51.0	62.7	78.4	94.1		83.5
190	44.8	53.8	66.2	82.8	99.3		90.5
200	47.2	56.6	69.7	87.1	104.6		97.8
210		59.5	73.2	91.5	109.8		105.2
240		68.0	83.6	104.6	125.5	111.5	128.5
270			94.1	118.6	141.1	125.5	153.4
280			97.6	122.0	146.4	130.1	162.0
300			104.6	130.7	156.8	139.4	179.6
320			111.5	139.4	167.3	148.7	197.9
350				152.5	183.0	162.6	226.4
400				174.3	209.1	185.9	276.6
450					235.2	209.1	330.0
500					261.4	232.3	386.5
560						260.2	458.1
640						297.4	559.7

For optimised performance data, please use Ramset iExpert Anchoring Software.

Design Load Pada Rebar Ramset REO502

### 3. Dokumentasi Pembuatan Benda Uji



Pembengkokkan besi tulangan



Perakitan besi tulangan pada benda uji



Proses mengikat besi tulangan



Pembuatan *bekisting/mall*



Pembuatan bekisting/mall



Bekisting/mall tapak pondasi



Takaran campuran beton



Pengadukan beton manual



Pengecoran Benda Uji pada Tapak Pondasi



Pengecoran Benda Uji pada Tapak Pondasi





Hasil pengecoran tapak pondasi



Pengecoran Benda Uji pada Kolom



Pengecoran Benda Uji Silinder



Benda Uji Beton Bertulang



Benda Uji Silinder

#### 4. Pengujian Beton



Alat Uji Beton



Penimbangan benda uji silinder



Pengujian Benda Uji Silinder

## 5. Pengaplikasian Rebar Dan Ramset REO502



Alat Dan Bahan Yang Digunakan Pada Pemasangan Rebar



Ramset REO502 dan Gun Injeksi



Pengeboran Beton Uji



Pembersihan Lubang Bor



Pengaplikasian Chmichal



Pemasangan Rebar



Benda uji setelah pengaplikasian rebar

## 6. Dokumentasi Uji Tarik



Alat Uji Tarik





Pengukuran Panjang Rebar yang di Uji Tarik



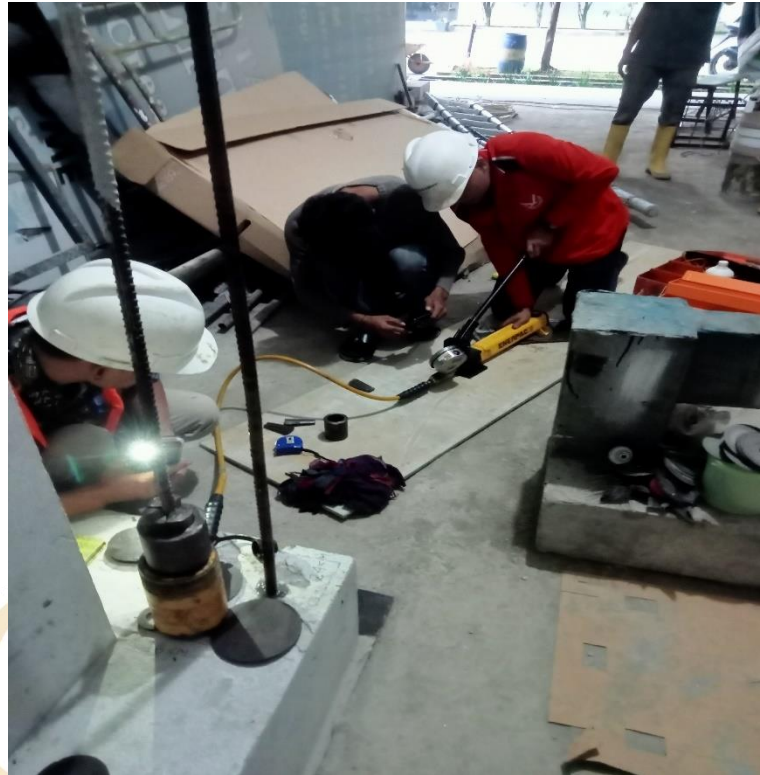
Pemasangan Alat Uji Tarik



Pemasangan Alat Uji Tarik



Loading Test



Pengujian Kuat Tarik



Menometer Untuk Menghitung Beban Tarik