Product Information Sheet

EpoxyPlus TE2

250ml cartridge

An epoxy resin supplied with a resin and hardener ratio of 1:1, filled into a two component cartridge that is used with a medium to high power single component applicator.

Base Material

- Concrete
- Hard natural stone
- Solid rock
- Solid masonry

Uses

- Anchor sockets
- Fixing externally threaded rods
- Concrete reinforcing bars
- Securing profiled sections and bars

Features

- Versatile
- Anchoring without expansion pressure
- Fixing close to free edges
- High load capacities

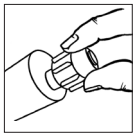
Methods of Use

1 

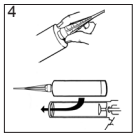
Drill the hole to the correct diameter and depth using a rotary percussive machine.

2 

Clean the hole using a stiff wire or nylon brush and clean compressed air or blow pump.

3 

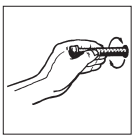
Once the hole is prepared remove the screw cap from the cartridge.

4 

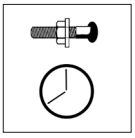
Attach mixer nozzle, place in applicator gun and dispense the first part of the cartridge to waste until an even colour is achieved.

5 

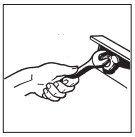
Insert the mixer nozzle to the far end of the hole and half fill the hole (depending upon application) withdrawing the nozzle as the hole fills. For deep holes extension tubing can be used.

6 

Immediately insert the fixing. This should be done slowly with a slight twisting motion. Excess resin should be removed from the mouth of the hole before it sets

7 

Leave the fixing undisturbed until the loading time has elapsed.

8 

Attach the fixture and tighten the nut.

Technical data

Gel and Loading Times

Application Temperature (°C)	T gel typical (minutes)	T load (hours)
30	15	4
20	30	8
5	150	24

Shelf Life

Cartridges should be stored in their original packaging in cool conditions (+5°C - +20°C) out of direct sunlight.

When stored in this way the shelf life will be a minimum of 24 months from the date of manufacture.

Health and Safety

Please refer to the relevant Safety Data Sheet.

HELIFIX®

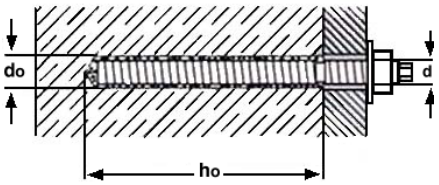
Product Information Sheet

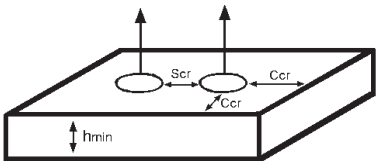
EpoxyPlus TE2

250ml cartridge

Load capacity data for all-thread studs

Stud diameter **d** (mm)	Hole diameter **d_o** (mm)	Hole depth **h_o** (mm)	Required close edge distance (tension) to achieve N_{rec} **C_{cr}** (mm)	Required anchor spacing (tension) to achieve N_{rec} **S_{cr}** (mm)	Min concrete member thickness **h_{min}** (mm)	Characteristic tensile load in min 30N/mm² concrete **N_{RK}** (kN)	Recommended tensile load in min 30N/mm² concrete **N_{rec}** (kN)
8	10	80	120	160	110	29.1	9.7
10	12	90	135	180	120	40.3	13.4
12	14	110	165	220	140	59.6	19.9
16	18	125	190	250	165	90.9	30.3
20	24	170	255	340	220	135.3	45.1
24	25	210	315	420	270	166.7	55.6





d	stud or bar nominal diameter (mm)
d_o	drilled hole diameter (mm)
h_o	hole depth (allthread) (mm)
h_{ef}	effective bond length (rebar) (mm)
C	close edge distance (mm)
S	anchor spacing (mm)
C_{cr}	required close edge distance to achieve N_{RK}
S_{cr}	required anchor spacing to achieve N_{RK}
h_{min}	minimum concrete member thickness (mm)
f_{cm}	concrete compressive strength (N/mm²)

N_{RK}	anchor characteristic load, tension (kN)
V_{RK}	anchor characteristic load, shear (kN)
N_{rec}	anchor recommended load (kN)
Rf_{cN}	close edge reduction factor, tension only
Rf_{cV}	close edge reduction factor, shear only
Rf_{sN}	close spacing reduction factor, tension only
Rf_{sV}	close spacing reduction factor, shear only

Concrete capacity reduction factors

Close edge, tension:	$Rf_{cN} = 0.4(C/h_{ef}) + 0.4 \leq 1$	(Valid for $0.5 \leq (C/h_{ef}) \leq 1.5$)
Close spacing, tension:	$Rf_{sN} = 0.25(S/h_{ef}) + 0.5 \leq 1$	(Valid for $0.25 \leq (S/h_{ef}) \leq 2.0$)
Close edge, shear:	$Rf_{cV} = 0.6(C/h_{ef}) - 0.2 \leq 1$	(Valid for $0.5 \leq (C/h_{ef}) \leq 2.0$)
Close spacing, shear:	$Rf_{sV} = 0.1(S/h_{ef}) + 0.4 \leq 1$	(Valid for $1.0 \leq (S/h_{ef}) \leq 6.0$)

Close spacing in shear must be considered if $S < 3C$ and when $C < 2\ h_{ef}$

Load capacity data for reinforcing bar

Tensile bond strengths have been determined for reinforcing bar anchors in diameters of T8-T32 in accordance with our internal assessment methods. The bond strengths can be used to calculate the load at any embedment depth using the equation:
Characteristic load (N) = Bond strength (N/mm²) x π x hole diameter (mm) x hole depth (mm)

EpoxyPlus TE2

250ml cartridge

The following tables show two series of typical applications:

Recommended loads for reinforcing bar installed at typical embedment depths

Bar Size	Hole Dia (mm)	Typical embedment depth (mm)	Characteristic unconfined tensile bond strength (N/mm^2)	Yield strength of B500 rebar (kN)	Characteristic load at typical embedment depth (kN)	Recommended tensile load at typical embedment depth (kN)
T8	10	80	8.24	25.15	20.71	6.90
T10	12	90	8.43	39.25	28.60	9.53
T12	16	110	10.48	56.50	57.95	19.32
T14	18	125	9.61	77.00	67.93	22.64
T16	20	125	10.86	100.50	85.29	28.43
T20	25	170	9.51	157.00	126.98	42.33
T25	32	210	6.44	245.50	135.96	45.32
T32	40	300	4.81	402.00	181.33	60.44

Embedment depth reinforcing bar to yield

Bar Size	Hole Dia (mm)	Characteristic unconfined tensile bond strength (N/mm^2)	Yield strength of B500 rebar (kN)	Depth to yield B500 rebar based on characteristic bond strength (mm)	Recommended depth to yield B500 rebar (mm)
T8	10	8.24	25.15	100	300
T10	12	8.43	39.25	125	375
T12	16	10.48	56.50	110	330
T14	18	9.61	77.00	140	420
T16	20	10.86	100.50	150	450
T20	25	9.51	157.00	210	630
T25	32	6.44	245.50	380	1140
T32	40	4.81	402.00	665	1995

Service Temperature Reduction Factors

Temperature range Max short term / Max long term	Reduction Factor
40°C / 24°C	1.0
50°C / 35°C	0.8
60°C / 43°C	0.5

The above reduction factors must be applied to the characteristic tensile loads and recommended tensile loads for the all-thread studs or to the characteristic unconfined tensile bond strengths used for calculating the reinforcing bar load capacities

Notes on load capacity data

The characteristic failure loads in 30N/mm² concrete are corrected figures using the concrete strength conversions equation 6.0a from the Guidelines for European Technical Approval for use in concrete - Anchors in General. All-thread stud tests were performed using steel with sufficient strength to prevent steel failure. All concrete was in a dry condition and holes were thoroughly cleaned. Concrete strengths were determined using 100mm cubes.

The characteristic failure loads do not have factors of safety applied. The characteristic failure loads assume no close spacing and no close edge reduction factors. Typically factors of safety of 2 or 3 should be applied to calculated N_{RK} and V_{RK} loads for reinforcing bar. All reinforcing bar equations assume minimum 30N/mm² concrete. The recommended hole diameters for reinforcing bar anchors assume UK C.A.R.E.S. approved bar. For bars with larger ribs the hole diameters may need to increase and site tests may be required to determine N_{RK} values. The load capacity equations and loads quoted are for the resin anchor please ensure that the steel tendon used has sufficient allowable load capacity. All calculated loads are in kN units. Reduction factors can be a maximum of 1.0. The shear load equation has an f_{cm} limit of 50N/mm². Rebar strengths for the above data are according to EN10080.

Important Note

Whilst all reasonable care is taken in compiling technical data on the Company's products, all recommendations or suggestions regarding the use of such products are made without guarantee, since the conditions of use are beyond the control of the Company. It is the users responsibility to satisfy himself that each product is fit for the purpose for which he intends to use it, that the actual conditions of use are suitable and that, in the light of our continual research and development programme the information relating to each product has not been superceded.

Information and Sales:

HELIFIX®

Unit 24, 34-36 Ralph St, Alexandria NSW, Australia
Tel: +61 (02) 9669 1701 Fax: +61 (02) 9669 1702
e-mail: sales@helifix.com.au web site: www.helifix.com.au

Issued December 2008