



Ramset™

Concrete Results™



EPCON G5

Chemical Anchoring System

- 2 Hour Cure Time at 20°C
- 15 Minute Nozzle Life at 20°C
- Odorless
- For Stud and Rebar Grouting

ITW Red Head
Wood Dale, IL 60191

Contents: 94
Potent Per

EPCON G5

Chemical Anchoring System

High Strength Epoxy

In hot weather your current epoxy sets up too quickly not giving you enough time to work and wasting nozzles. Switching to a longer cure time formula saves nozzles, but wastes time. Your crew is delayed until the next day, waiting for the epoxy to finally cure and the chance to load your anchors.

The G5 is the ONLY epoxy that has the best of both worlds, an extended (15 minute) working time and a full cure in less than 2 hours. Keep your crews working not waiting.

The epoxy resin and hardener are completely mixed as they are dispensed from the dual cartridge through a static mixing nozzle, directly into the anchor hole. G5 can be used with threaded rod or rebar.

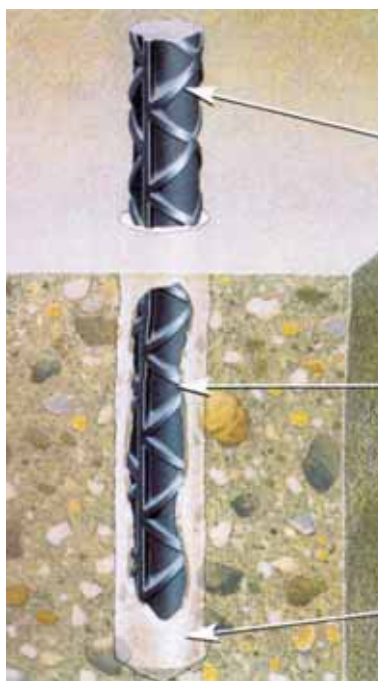
Features



Threaded stud (Carbon or Stainless Steel) supplied by contractor; Stud does not need to be chisel pointed.

EPCON G5 chemical completely fills area between stud and hole creating a stress-free, high load anchorage.

Pre-drilled hole in concrete; see performance tables for suggested hole sizes.



Rebar (shown) supplied by contractor.

EPCON G5 chemical completely fills area between stud and hole creating a stress-free, high load anchorage.

Pre-drilled hole in concrete; see performance tables for suggested hole sizes.

Suggested Specifications

Epoxy Chemical:

- Two component, 100% solids (containing no solvents), non-sag paste, insensitive to moisture, grey in colour
- Meets ASTM C881-99, Type IV, Grade 3 with the exception of gel time
- Shrinkage during cure per ASTM D2566: 0.00004 in./in
- Compressive strength, ASTM D695: 71 MPa minimum
- Heat Deflection Temperature: 62°C minimum
- Water solubility: None
- Shelf Life: Best if used within 18 months

Packaging:

- Disposable, self-contained 650ml 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-used-by date, mix ratio by volume, ANSI hazard classification, and appropriate ANSI handling precautions.

Advantages

• Easy Handling & Installations

G5-22 650ml Cartridge



Hard plastic cartridge for easy handling



Easy to open, snap-off cartridge tip, no cutting required



Reusable / resealable

650ml volume pack for easier, faster and economical high volume applications

E55 Long Mixing Nozzle

Single piece design, no separate nut to assemble

14" length for deeper embedment depths



Economical

Fits 1/4" holes

Easy to screw on or off



Breaks-off tip allows faster flow

E102 Manual Dispensing Tool



Convenient release lever

Rugged, cast steel not plastic parts

• High Performance Epoxy

- Shallower embedment depth required

• Fire Resistant Structures

- Tested up to 4 hours FRP by Warrington (BS 476 Part 20)

• Extended Working Time

- 15 minute nozzle life at 20°C
- 2 hours cure time at 20°C

• Cost Savings

- Less delay of work
- Less nozzles used

• Low Shrinkage

- Suitable for cored and oversized holes

• Non-offensive odor

- Virtually odorless, can be used indoor

• Water Insensitivity

- Works in damp holes and underwater applications

• Curing Times

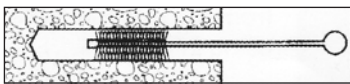
Base Material Temperature (F°/C°)	Working Time	Cure Time
90°/32°	8.5 minutes	2 hours
80°/27°	12 minutes	2 hours
70°/20°	15 minutes	2 hours
60°/16°	18 minutes	3 hours
50°/10°	21 minutes	6 hours

Approvals / Listings

- ASTM C881-99, Type IV, Grade 3
- DOT Approvals
- ICC Evaluation Service, Inc. - #ESR-1137
- City of Los Angeles - RR#25270
- Miami Dade Approval #04-0405.01
- Warrington Fire Resistance Tests with Rebars BS 476 Part 20 - 1987
- HDB Prefabrication Technology Centre (ETAG)
- SETSCO Tests

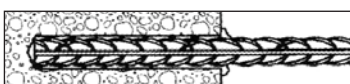
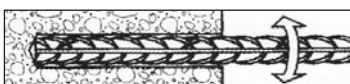
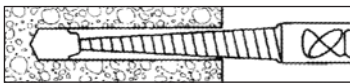
Installation Method

Preparation



- Drill a hole according to the selected diameter (tables of dimensions of anchoring). The hole may be drilled with a diamond bit, but rebar location must be determined in order to avoid cutting them.
- Carefully brush the surface of the hole with a metal brush.
- Blow the dust out of the hole.
NB: The hole may also be cleaned with a jet of water.

Injection



- When starting new cartridge or new nozzle, dispense and discard enough chemical until uniform grey colour is achieved. Inject from the bottom of the hole, gradually filling in until 50% full.
- Insert the selected rod slowly by hand with a twisting motion until the end of the hole is reached. The rod must be clean and free from oil and grease. Check that the hole is well filled (no air bubbles). A slight excess should emerge.
- Wait for the resin to harden before applying the load / tighten fixture into place. See G5 Cure Time Chart for set-up time.

Performance Tables - Threaded Stud Fixings (Steel 5.8)

Anchor Size (mm)	Installation			Characteristic Resistance, R _k		Design Resistance, R _d		Anchor Spacing, S (mm)		Edge Distance, C (mm)	
	Hole Diameter d _o (mm)	Embedment Depth h _{ef} (mm)	Tightening Torque (Nm)	Tensile (kN)	Shear (kN)	Tensile (kN)	Shear (kN)	S _{min} (60% of R _k)	S _{cr} (100% of R _k)	C _{min} (60% of R _k)	C _{cr} (100% of R _k)
M8	10	80	10	17.0	8.5	10.6	5.3	40	120	40	90
M10	12	90	20	27.5	13.8	17.2	8.6	45	135	45	100
M12	14	110	30	40.0	20.0	25.0	12.5	55	165	55	120
M16	18	125	60	75.5	37.8	47.2	23.6	65	190	65	140
M20	25	170	120	118.0	59.0	73.8	36.9	85	255	85	190
M24	28	210	200	170.0	85.0	106.3	53.1	105	315	105	230
M30	35	280	400	271.9	136.0	169.9	85.0	140	420	140	310

Design Resistance, R_d = Char. Resistance, R_k / 1.6 (steel failure) ----- Tensile & Shear

Note: Please seek ITW Asia's Technical Engineer for more detailed technical information.

EPCON G5

Chemical Anchoring System

Performance Tables - Rebar Fixings

Concrete Strength: 30 MPa

Characteristic Rebar Strength: FE 460

Rebar Size (mm)	Hole Dia. (mm)	Design Rebar Yield (kN)	Design Tensile Bond Capacity (kN)																Basic Embedment Depth (mm)		
			25.0	31.3																	
10	13	31.4																			125
13	16	53.1			40.1	49.3	53.9														175
16	20	80.4				61.7	67.4	77.1	80.9												210
20	25	125.7						96.3	101.2	120.4	127.6										265
25	30	196.3								144.5	153.2	161.8	185.0	196.5							340
28	35	246.3										188.8	215.8	229.3	249.5						370
32	40	321.7												246.6	262.0	285.1	308.3	323.7			420
40	50	502.7															385.3	404.6	481.7	505.8	525
Embedment Depth (mm)			100	125	130	160	175	200	210	250	265	280	320	340	370	400	420	500	525		

Remarks: Factor of Safety on Concrete is 1.5

The Basic Embedment Depth (mm) must be adopted to achieve the design rebar yield on the chemical bond capacity for all the rebar sizes.

Note: Please seek ITW Asia's Technical Engineer for more detailed technical information.

Estimated Consumption Tables

Epcon G5 Epoxy Chemical		Number of Anchoring per 650ml Cartridge for Rebar Fixings							
Rebar Size (mm)	Hole Diameter d_o (mm)	Embedment Depth h_{ef} (mm)							
		125	175	210	265	340	370	420	525
10	13	78.4	56.0	46.6	37.0	28.8	26.5	23.3	18.7
13	16	51.8	37.0	30.8	24.4	19.0	17.5	15.4	12.3
16	20	33.1	23.7	19.7	15.6	12.2	11.2	9.9	7.9
20	25	21.2	15.1	12.6	10.0	7.8	7.2	6.3	5.0
25	30	14.7	10.5	8.8	6.9	5.4	5.0	4.4	3.5
28	35	10.8	7.7	6.4	5.1	4.0	3.7	3.2	2.6
32	40	8.3	5.9	4.9	3.9	3.0	2.8	2.5	2.0
40	50	5.3	3.8	3.2	2.5	1.9	1.8	1.6	1.3

Epcon G5 Epoxy Chemical		Number of Anchoring per 650ml Cartridge for Threaded Stud Fixings						
Anchor Size (mm)	Hole Diameter d_o (mm)	Embedment Depth h_{ef} (mm)						
		80	90	110	125	170	210	280
M8	10	207.0	184.0	150.6	132.5	97.4	78.9	59.1
M10	12	143.8	127.8	104.5	92.0	67.6	54.8	41.1
M12	14	105.6	93.9	76.8	67.6	49.7	40.2	30.2
M16	18	63.9	56.8	46.5	40.9	30.1	24.3	18.3
M20	25	33.1	29.4	24.1	21.2	15.6	12.6	9.5
M24	28	26.4	23.5	19.2	16.9	12.4	10.1	7.5
M30	35	16.9	15.0	12.3	10.8	8.0	6.4	4.8

Note: The estimated number of fixings (for both rebar and threaded stud) is based on the calculation of hole volume and recommended injection volume per fixing (50% embedment depth). These estimates do not account for chemical wastage.

Applications



Underwater Fixings



Parapet Wall Fixings



Diaphragm Wall Fixings



Guard Rail Fixings



Tunnel Fixings



Floor Slabs

Available Chemical Anchor Systems



Epcon G5
High strength epoxy with extended working time and fast curing time.



Epcon C6
Fast curing epoxy for all conditions.

Epcon A7
Fast dispensing, fast curing acrylic adhesive.



Maxima 7
Spin-in acrylic glass capsule for easy handling.



ITW Asia (Pte) Ltd

8, Kaki Bukit Road 2, #02-34 Ruby Warehouse Complex, Singapore 417841
Tel: (65) 6746 1177 Fax: (65) 6746 1482 Email: info@itwasia.com.sg Website: www.itwasia.com

Brochure Reference Number: ITW07-009A