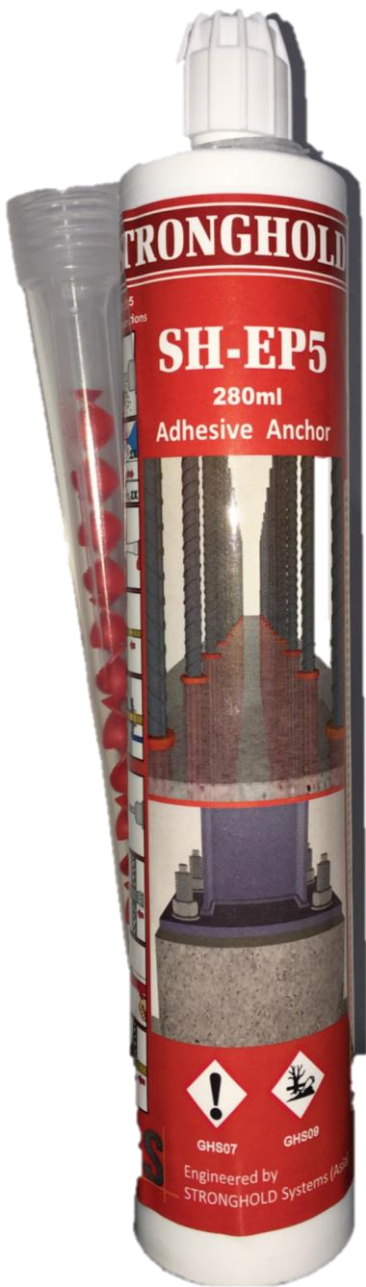


STRONGHOLD



SH-EP5 Epoxy
Chemical Anchors




STRONGHOLD™

STRONGHOLD Systems (Asia) Pte. Ltd

10 Anson Road #26-04 International Plaza S(079903) Singapore
info@strongholdasia.com

Product Advantages

- Non-cracked concrete application
- Non sag (overhead fixing)
- Can use in damp hole
- SGS Test Report 
- Styrene-free

Product Applications

- Threaded rods, bolts fastening system
- Rebar/steel reinforcement anchor
- Ducting and equipment support
- Handrail & balustrades fixing
- Door-window frames fixing

Substrates

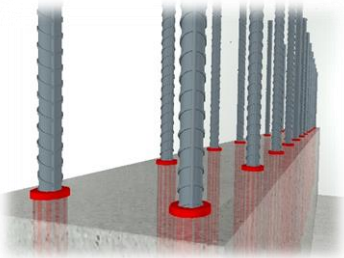
- Concrete
- Solid Rock
- Wood
- Steel (for attachment)

Product Data

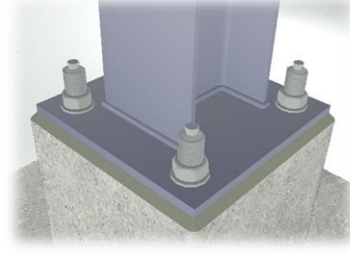
- Epoxy Resin (10 : 1)
- Long shelf life (24 months)
- Pink, after mixing
- Volume 280ml



Post-installed rebar connection



Steel bonded anchors



Minimum Embedment Depth

Thread rod size Φ (Φ x L, mm)	Drill Hole Dia. d ₀ (mm)	Min. Depth h _{ef} (mm)	Torque T _{inst} (N-m)
M8x110	10	80	8
M10x130	12	90	17
M12x160	14	110	25
M16x190	18	125	50
M20x260	24	170	102
M24x300	28	210	170
M30x380	35	280	230

Rebar Size d (mm)	Drill Hole Dia. d ₀ (mm)	Min. Depth h _{ef} (mm)	Torque* T _{inst} (N-m)
10	13	90	8
12	16	110	17
16	20	125	25
20	25	170	50
25	32	210	102
28	35	270	170
32	40	300	230

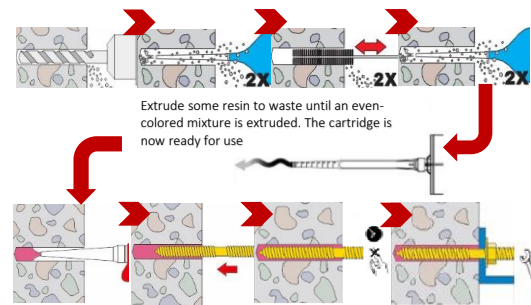
*When use rebar as anchors

Minimum Curing Time

Concrete temp (°C)	Gel time (mins)	Cure time (hrs)
10	60	12
20	15	7
30	7	5
40	4	3
Working temperature is +10°C to +40°C		

Storage and transport at a cool (+5°C to +25°C), dry and shade area

Installation Procedure



Test Report by SGS

Test Item		Test Method	Test Result
Type Test	Unit		
Density	g/cm ³ (kg/m ³)	ASTM D792-00 Method A	1.6 (1,600)
Gel Time	min	ASTM D2471-99	20
Bond Strength	psi (N/mm ²)	ASTM C882-99	1495 (10.30)
Compressive Strength	psi (N/mm ²)	ASTM D695-02a	12215 (84.21)
Tensile Strength	psi (N/mm ²)	ASTM D638-03	5810 (40.05)
Elongation at Break	%	ASTM D638-03	4.7
Water Absorption		ASTM D570-98	0.142
a. 100°C/1hr			
b. 50°C/1hr			

Tensile Load Resistance (concrete f_c = 27.6MPa, cube)

Non-cracked

Rebar size	Working standards		Tensile Load capacity	
	Hole diameter (mm)	Embed depth (mm)	Ultimate (kgf)	Allowable (kgf)
DB10	13	90	3,600	1,011
DB13	16	115	5,760	1,618
DB16	20	125	7,200	2,022
DB19	25	160	15,080	4,236
DB22	28	190	22,920	6,438
DB25	32	215	29,586	8,311

Number of threaded rods per cartridge (280ml)

Threaded rods size	M10	M12	M16	M20	M24	M30
Nominal Drilling hole diameter (mm)	12	14	18	22	26	35
Drilling depth (mm)	90	110	125	170	210	280
No. of anchors per cartridge ^{2/3} Hole depth usage	41	24	13	6	3	1

Number of Rebar per Cartridge (280ml)

Rebar size	Φ12	Φ16	Φ20	Φ25	Φ28	Φ32
Nominal Drilling hole diameter (mm)	16	20	25	32	35	40
Drilling depth (mm)	110	125	170	210	270	300
No. of anchors per cartridge ^{2/3} Hole depth usage	18	10	5	2	1	1

Anchor Threaded rod Mechanical Property



CARBON STEEL <small>EN10087 or EN100263</small> Grade 5.8 <small>EN ISO 898-1</small>	M10	M12	M16	M20	M24	M30
Characteristic tensile strength, f_{uk} (N/mm ²)	500	500	500	500	500	500
Characteristic yield strength, f_{yk} (N/mm ²)	400	400	400	400	400	400
Stressed cross-section area, A_s (mm ²)	58	84.3	157	245	353	522.8
Characteristic bending moment, $M^0_{Rk,s}$ (N-m)	37	66	166	325	561	1,125
Elastic section modulus, W_{el} (mm ³)	62.3	109.2	277.5	540.9	935.5	1,686.0
Recommended bending moment, M_{rec} (N-m)	21	38	95	186	321	643

Coating : Electro Galvanized > 5 mm acc. to EN ISO 4042

Hot-Dip Galvanized > 40 mm acc. to EN ISO 1461 and EN ISO 10684

*Galvanized rod of high strength are sensitiveto hydrogen induced brittle failure

Hexagonal nut : according to threaded rod, EN 20898-2

Washer : according to threaded rod

Standard Edge, Spacing and Member Thickness for Threaded rod & Rebar

Threaded rod	M8	M10	M12	M16	M20	M24	M30
Edge distance	h_{ef}						
Spacing distance	$2h_{ef}$						
Member Thickness	110	120	140	160	220	270	340
Rebar Size	Φ10	Φ12	Φ16	Φ20	Φ25	Φ28	Φ32
Edge distance	h_{ef}						
Spacing distance	$2h_{ef}$						
Member Thickness	120	150	170	220	270	340	380

Unit: millimetre

Engineered by

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info@strongholdasia.net

Branch

STRONGHOLD STEEL PRODUCTS & ENGINEERING CO., LTD

9/45 Moo 5 Klong-Neung, Klong-Luang, Pathumthani 12120 Thailand

Tel: +66 2516 3288 Fax: +66 2516 3383

Distributed

