

# STRONGHOLD™

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POLYESTER  
STYRENE FREE  
ANCHORING RESIN

CE 1404
Stronghold Systems (Asia) PTE Ltd
2022

DOP: <a href="https://strongholdasia.net/">https://strongholdasia.net/</a>
STRONGHOLD SH-EP5 22/0743
EAD 330499-01-0601 M8 - M16 Uncracked Concrete 1404-CPR-0000

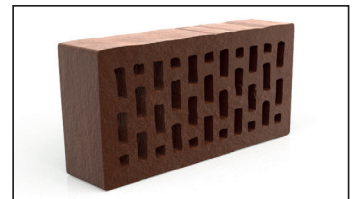
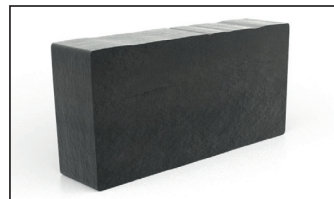


**MADE IN  
BRITAIN**

## SH-EP5

### 300ml e

FOIL BAG SYSTEM



FOR UNCRACKED CONCRETE / MASONRY



2205569



## TECHNICAL BROCHURE

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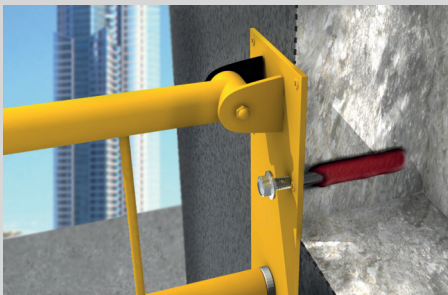
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## General Information

**SH-EP5** is an ETA certified bonded anchor (injection type) mortar in a single cartridge (300ML).

**SH-EP5**, with a shelf-life of 18 months, is manufactured in the United Kingdom with adherence to ETA (European Technical Assessment) for rebar and steel bonded anchors installations in non cracked concrete.

**SH-EP5** is also a LEED certified styrene free 10:1 resin formulation in a single cartridge that qualifies healthy environment, water efficiency, sustainable material and indoor environmental quality.



Road Barriers, Safety Rails



Base Plates, Stand-off plates



Gates, Railings, Fencing

May be used as a chemical anchor to fix a range of loads in, for example :

- Non cracked Concrete strength class C20/25 (minimum) to C50/60 (maximum)
- Natural Stone
- Masonry, Hollow Blocks or Bricks
- Aerated Concrete
- Dry or wet concrete
- Flooded holes with the exception of seawater
- Overhead fixing/anchoring
- Hammer drilled holes.

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## Characteristics

- Fast working times, allow for early loading in time sensitive applications
- No Styrene allows for indoors use, and enclosed spaces
- Extremely versatile, allows for use in almost any size hole or substrate
- May also be used as a crack or gap repair
- Dry or wet concrete



## Typical Tensile Performance at Standard Embedment Depth

Concrete, C20/25, 5.8 Grade Studding						
Size	Recommended Load		Spacing ( $S_{cr,N}$ ) (mm)	Drill Hole $\emptyset$ (mm)	Fixing Hole $\emptyset$ (mm)	Setting Depth (mm)
	Tension ( $N_{rec}$ )	Shear ( $V_{rec}$ )				
M8	8.36	5.14	160	10	9	80
M10	11.79	8.57	200	12	12	90
M12	17.29	12.00	240	14	14	110
M16	24.93	22.29	320	18	18	125
M20	38.14	34.86	400	24	22	170
M24	50.29	50.29	450	28	26	210
M30	68.07	81.43	520	35	32	280

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## Approvals Overview



### ETA Approval

European approval coverage gives a 50 year anchor service life, following rigorous load and durability testing over a sustained period.



These tests are performed independently and covers the specific resin formulation.



### UK Manufacture

Independently verified and wholly manufactured in the UK



### WRAS Approval

Once cured, the resin can safely come into contact with potable drinking water, making it safe for use not only in the home, but also at installations such as reservoirs.



### CE Marking

As part of ETA approval, a factory production control audit is undertaken annually, to ensure the manufacturer strictly controls the production of ETA approved products, to the highest quality level.



### Indoor Air Comfort - VOC

Independently tested with a rating of A+



The resin does not give off volatile organic content, and does not contain harmful styrene.

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## Typical Data - Other Substrates



## Typical Tensile Performance in Aerated Concrete & Solid Masonry

Characteristic values of resistance under tension & shear loads for Autoclaved Aerated Concrete. Compressive strength of material  $f_b > 6\text{MPa}$  Temp range  $-40$  to  $+40$  C degree. Vinylester ECO.

Size	Condition :	d/d	w/w & w/d	d/d, w/w & w/d
	$H_{ef}$ (mm)	Tension (kN)	Tension (kN)	Shear (kN)
M8	80	2	1.5	5
M10	90	3	2.5	8
M12	100	4	3.5	8
M16	100	5.5	4.5	8

Category c: Solid Masonry,  $f_b$  class  $\geq 18\text{MPa}$  – density  $\rho_m \geq 1600\text{kg/m}^3$  - Temperature range  $-40^\circ\text{C}/+40^\circ\text{C}$

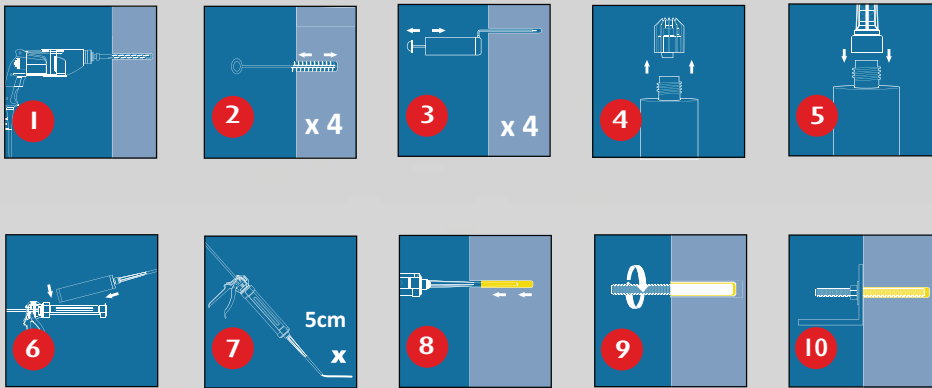
Size	Installation Parameters						Characteristic Resistance		Service Loads	
	d Anchor Rod $\varnothing$ $d_0$ Drill Hole $\varnothing$ (mm)	Min Edge $C_{min}$ (mm)	Min Spacing $S_{min}$ (mm)	Drill Depth $h_1$ (mm)	Embedment Depth $h_{ef}$ (mm)	Installation Torque Moment $T_{inst}$	Tension $N_{rk}$ (kN)	Shear $V_{rk}$ (kN)	Tension $F$ (kN)	Shear $F$ (kN)
M6	6 / 8	120	240	85	80	2	4	2	1.14	0.57
M8	8 / 10	120	240	85	80	2	4	2	1.14	0.57
M10	10 / 12	127.5	255	90	85	2	5	6	1.43	1.71
M12	12 / 14	127.5	255	90	85	2	5	6	1.43	1.71

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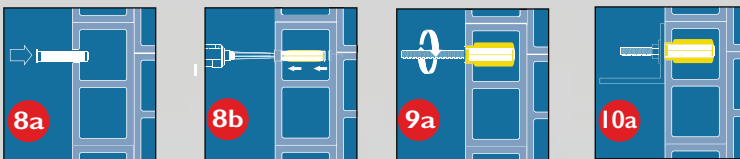
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## Installation Procedure

Solid substrates



Hollow wall



## Typical Gel & Working Times

Base Material Temperature	-10°C**	-5°C**	5°C	15°C	25°C	35°C
Gel Working Time	50 mins	40 mins	20 mins	9 mins	5 mins	3 mins
Curing Time Dry Concrete	240 mins	180 mins	90 mins	60 mins	30 mins	20 mins
Curing Time Wet Concrete	x 2	x 2	x 2	x 2	x 2	x 2

\*\*Resin Temperature must be at least 20°C

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## Overview

<b>Performance:</b>	
Bond Strength:	●●●●●●●●●●
Versatility:	●●●●●●●●●●
Chemical Resistance:	●●●●●●●●●●
Environment:	Damp / Dry
<b>Temperature:</b>	
Gel + Cure Time:	Fast Setting
Install temperature:	-10°C to +35°C

<b>Approvals:</b>	
Type:	European Technical
Concrete: Opt 7	M8-M16
Masonry:	M6-M12
Life of Anchor:	50 Years
Potable Water:	Yes
VOC Test:	A+ Rated
LEED Tested:	Yes
Manufacturing:	ISO 9001/14001
Temp Range:	1 and 2 in ETA

<b>Features:</b>	
Resin Colours:	Grey
Cartridges:	300ml ChubSeal
Density:	1.71kg/m <sup>3</sup>
Viscosity:	MEDIUM
Shelf Life:	18 Months
Mixer:	Yes, supplied.



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## Resin Consumption Tables

Consumption per cartridge of 300ml - Steel Bonded Anchor / Threaded Rod						
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
Volume of Chemical per drilling depth (%)	67%					
No. of anchors per cartridge @ 2/3rds depth	<b>41</b>	<b>24</b>	<b>13</b>	<b>6</b>	<b>3</b>	<b>1</b>

Consumption per cartridge of 300ml - Rebar						
Size	Ø12	Ø16	Ø20	Ø25	Ø28	Ø32
Nominal Drilling Hole Diameter (mm)	16	20	25	32	35	40
Drilling Depth (mm)	110	125	170	210	270	300
Volume of Chemical per drilling depth (%)	67%					
No. of anchors per cartridge @ 2/3rds depth	<b>18</b>	<b>10</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>1</b>





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