RESICON 5

high performance chemical injection anchoring

solvent free pure epoxy

Product Description

Resicon 5 Pure Epoxy 1:1 Resin is a high performance, two component epoxy resin system. Applied in one single action this resin will produce a high performance, strong fixing with exceptionally high chemical resistance.

Approvals

INSTYTUT TECHNIKI BUDOWLANEJ
Aprobacie Technicznej ITB
nr AT-15-6895:2005

Water Regulations Advisory Scheme
BS6920 approved

Key Features

- Solvent Free, Odourless Resin, No Shrinkage
- Ideal for Diamond Drilled Holes.
- Ideal for Rebar Usage.
- Highest Durability.
- Can be used in Wet holes or Underwater.
- Longer Working Times.

Available Sizes

400ml 1:1 Side by Side Cartridge

Tested by:
Imperial College London Consultants

IMPORTANT NOTE:
Performance based on clean holes;
HAMMER DRILLED - blown and then brushed with a stiff metal brush & blown again.
DIAMOND DRILLED - ensure hole is rinsed until return water flow is clear.

Typical Gel and Curing Time*

BASE MATERIAL TEMPERATURE (°C)	35	25	15	5	-5
TYPICAL GEL TIME (mins)	20	40	60	180	-
MIN. LOAD TIME (mins)	180	240	300	960	-

*Figures are based on M12 fixings. Full cure is achieved after 24 hours.All specifications are based on using a Resicon Mixer 14.

Typical Performance Data at Standard Embedment Depth

Size	Concrete, $f_{ck,cube}$ = 25N/mm² (C20/25) 5.8 Grade Studding									SETTING DATA			
	Characteristic Resistance (kN)		Design Resistance (kN)		Recommended Load (kN)		Characteristic Edge Distance (mm)		Characteristic Spacing (mm)	Hole Diameter In Concrete (mm)	Hole Diameter In Fixture (mm)	Standard Embedment In Concrete (mm)	Recommended Torque (Nm)
	Tension (N_{rk})	Shear (V_{rk})	Tension (N_{rd})	Shear (V_{rd})	Tension (N_{rec})	Shear (V_{rec})	Tension ($C_{cr,N}$)	Shear ($C_{cr,V}$)					
M8	19.0	9.5	12.7	7.6	9.1	5.4	80	100	160	10	9	80	11
M10	30.2	15.1	20.1	12.1	14.4	8.6	90	130	180	12	11	90	22
M12	43.8	21.9	29.2	17.5	20.9	12.5	110	150	220	14	13	110	38
M16	81.6	40.8	54.3	32.7	38.8	23.3	125	170	250	18	17	125	95
M20	127.4	63.7	84.9	51.0	60.7	36.4	170	190	340	24	22	170	170
M24	183.6	91.8	122.4	73.4	87.4	52.4	210	240	420	28	26	210	260
M30	473.3	207.1	219.1	166.1	156.5	118.6	280	350	560	35	33	280	480

Typical Ultimate Physical Properties

	N/mm²	TEST METHOD	STORAGE / SHELF LIFE	IMPORTANT
COMPRESSIVE STRENGTH	82.48	*(EN ISO 604) / (ASTM 695)*	This product should be stored between +5˚C & +25˚C. The Shelf life of the product is 24 months from the manufacture date.	The information and data given is based on our own experience, research and testing and is believed to be reliable and accurate. However, as Heads and All Threads cannot know the varied uses to which its products may be applied, or the methods of application used, no warranty as to the fitness or suitability of its products is given or implied. It is the users responsibility to determine suitability of use. For further information please contact our Technical Department.
FLEXURAL STRENGTH	41.64	*(EN ISO 178) / (ASTM 795)*		
FLEXURAL MODULUS	4249.00	"		
TENSILE STRENGTH	28.21	*(EN ISO 527) / (ASTM 638)*		
E MODULUS	4811.00	"		

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Performance Data for Various Stud Strengths, Material and Rebar

Concrete Strength Class: **C**20/25 (25N/mm² Cylinder; 30N/mm² 150mm cube).

IMPORTANT NOTE:
Performance based on clean holes;
HAMMER DRILLED - Blown and then brushed with a stiff metal brush & blown again.
DIAMOND DRILLED - Ensure hole is rinsed until return water flow is clear.

5.8 Grade Studding

Stud Diameter (mm)	Hole Diameter (mm)	Design Resistance (N_{rd}) (kN)																				Fd,s hef failure (mm)	Fd,s design load (kN)
8	10	12.7																				59	12.7
10	12	20.1															=	Steel	Failure			75	20.1
12	14		29.2																			91	29.2
16	18					51.3	54.4															127	54.4
Depth (mm)		80	90	100	110	120	130	140	150	160	170	180	190	200	220	240	260	280	300	350			
20	24	84.9																				163	84.9
24	28			122.4																		196	122.4
30	40					187.8	203.4	219.1	234.7	273.8	278.9											357	278.9
Depth (mm)		170	180	190	200	220	240	260	280	300	350	400	450	500	550	600	700	800	900	1000			

8.8 Grade Studding

Stud Diameter (mm)	Hole Diameter (mm)	Design Resistance (N_{rd}) (kN)																				Fd,s hef failure (mm)	Fd,s design load (kN)
8	10	17.1	19.2	19.5																		91	19.5
10	12		24.0	26.7	29.4	30.9											=	Steel	Failure			116	30.9
12	14				35.3	38.5	41.7	45.0														140	45.0
16	18					51.3	55.6	59.8	64.1	68.4	72.6	76.9	81.2	83.7								196	83.7
Depth (mm)		80	90	100	110	120	130	140	150	160	170	180	190	200	220	240	260	280	300	350			
20	24	88.7	93.9	99.1	104.3	114.7	125.2	130.7														251	130.7
24	28				125.2	137.7	150.2	162.7	175.2	188.3												301	188.3
30	40								219.1	234.7	273.8	278.9										357	278.9
Depth (mm)		170	180	190	200	220	240	260	280	300	350	400	450	500	550	600	700	800	900	1000			

10.9 Grade Studding

Stud Diameter (mm)	Hole Diameter (mm)	Design Resistance (N_{rd}) (kN)																				Fd,s hef failure (mm)	Fd,s design load (kN)
8	10	17.1	19.2	21.4	23.5	25.6	27.2															91	19.5
10	12		24.0	26.7	29.4	32.0	34.7	37.4	40.1	43.1							=	Steel	Failure			116	30.9
12	14				35.3	38.5	41.7	44.9	48.1	51.3	54.5	57.7	60.9	62.6								140	45.0
16	18					51.3	55.6	59.8	64.1	68.4	72.6	76.9	81.2	85.5	94.0	102.6	111.1	116.6				196	83.7
Depth (mm)		80	90	100	110	120	130	140	150	160	170	180	190	200	220	240	260	280	300	350			
20	24	88.7	93.9	99.1	104.3	114.7	125.2	135.6	146.0	156.5	182.0											251	130.7
24	28				125.2	137.7	150.2	162.7	175.2	187.8	219.1	250.4	262.2									301	188.3
30	40								219.1	234.7	273.8	312.9	352.1	388.5								357	278.9
Depth (mm)		170	180	190	200	220	240	260	280	300	350	400	450	500	550	600	700	800	900	1000			

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A4-70 Stainless Steel Studding

Stud Diameter (mm)	Hole Diameter (mm)	Design Resistance (N_{rd}) (kN)																			Fd,s hef failure (mm)	Fd,s design load (kN)
8	10	13.7																			64	13.7
10	12		21.7														=	Steel	Failure		81	21.7
12	14				31.6																98	31.6
16	18					51.3	55.6	58.8													138	58.8
Depth (mm)		80	90	100	110	120	130	140	150	160	170	180	190	200	220	240	260	280	300	350		
20	24	88.7	91.7																		176	91.7
24	28				125.2	132.1															211	132.1
30	40	133.0	139.8																		179	139.8
Depth (mm)		170	180	190	200	220	240	260	280	300	350	400	450	500	550	600	700	800	900	1000		

A4-80 Stainless Steel Studding

Stud Diameter (mm)	Hole Diameter (mm)	Design Resistance (N_{rd}) (kN)																			Fd,s hef failure (mm)	Fd,s design load (kN)
8	10	15.7																			73	15.7
10	12		24.0	24.8													=	Steel	Failure		93	24.8
12	14				35.3	36.1															113	36.1
16	18					51.3	55.6	59.8	64.1	67.2											157	67.2
Depth (mm)		80	90	100	110	120	130	140	150	160	170	180	190	200	220	240	260	280	300	350		
20	24	88.7	93.9	99.1	104.8																201	104.8
24	28				125.2	137.7	151.0														241	151.0
30	40								219.1	223.7											286	223.7
Depth (mm)		170	180	190	200	220	240	260	280	300	350	400	450	500	550	600	700	800	900	1000		

High Bond Reinforcing Bars fyk=500N/mm²

Rebar Diameter (mm)	Hole Diameter (mm)	Design Resistance (N_{rd}) (kN)																			Fd,s hef failure (mm)	Fd,s design load (kN)
8	10-12	17.1	21.4	21.9																	102	21.9
10	12-14		26.7	32.0	34.1												=	Steel	Failure		128	34.1
12	16-18			38.5	44.9	49.2															153	49.2
14	18-20				52.3	59.8	66.9														179	66.9
16	20-22					68.4	76.9	85.5	87.4												205	87.4
Depth (mm)		80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	450	500		
20	28	104.3	117.4	130.4	136.6																262	136.6
25	32			163.0	179.3	195.6	213.4														327	213.4
32	40					250.4	292.1	333.8	349.7												419	349.7
40	50							417.3	469.4	521.6	546.3										524	546.3
Depth (mm)		200	225	250	275	300	350	400	450	500	550	600	700	800	900	1000	1100	1200	1300	1400		

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Spacing and Edge Distance (Safety Factors)

Effect of Anchor Spacing

Anchor Spacing	Rebar Diameter (mm)								
s (mm)	8	10	12	14	16	20	25	32	40
40	0.65								
50	0.68	0.65							
60	0.71	0.67	0.65						
70	0.74	0.70	0.67	0.65					
80	0.77	0.72	0.69	0.67	0.65				
90	0.80	0.74	0.71	0.68	0.66				
100	0.83	0.77	0.73	0.70	0.68	0.65			
125	0.90	0.82	0.78	0.74	0.72	0.68	0.65		
150	0.97	0.88	0.82	0.78	0.75	0.71	0.67	0.65	
160	1.00	0.91	0.84	0.80	0.77	0.72	0.68	0.66	
175		0.94	0.87	0.82	0.79	0.74	0.70	0.67	
200		1.00	0.92	0.87	0.82	0.77	0.72	0.69	0.65
225			0.97	0.91	0.86	0.80	0.74	0.71	0.66
240			1.00	0.93	0.88	0.81	0.76	0.72	0.67
250				0.95	0.90	0.83	0.77	0.73	0.68
275				0.99	0.93	0.85	0.79	0.75	0.69
280				1.00	0.94	0.86	0.79	0.75	0.70
300					0.97	0.88	0.81	0.77	0.71
320					1.00	0.91	0.83	0.78	0.72
350						0.94	0.86	0.81	0.74
400						1.00	0.91	0.84	0.77
450							0.95	0.88	0.80
500							1.00	0.92	0.82
550								0.96	0.85
600								1.00	0.88
700									0.94
800									1.00

Effect of Edge Distance

Edge Distance	Rebar Diameter (mm)								
c (mm)	8	10	12	14	16	20	25	32	40
40	0.65								
50	0.74	0.65							
60	0.83	0.72	0.65						
70	0.91	0.79	0.71	0.65					
80	1.00	0.86	0.77	0.70	0.65				
90		0.93	0.82	0.75	0.69				
100		1.00	0.88	0.80	0.74	0.65			
110			0.94	0.85	0.78	0.69			
120			1.00	0.90	0.83	0.72	0.64		
140				1.00	0.91	0.79	0.69	0.63	
160					1.00	0.86	0.75	0.67	
175						0.91	0.79	0.71	
200						1.00	0.86	0.77	0.65
225							0.93	0.82	0.69
250							1.00	0.88	0.74
275								0.94	0.78
280								0.95	0.79
300								1.00	0.83
320									0.86
350									0.91
400									1.00

Notes

Tables show limits of spacing and edge distance.

Concrete member thickness ≥ $2h_{ef}$

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Characteristic & Design Shear Loads for various stud grades + rebar

Stud Diameter (mm)	Stud Grade 5.8		Stud Grade 8.8		Stud Grade 10.9		Stud Grade A4-70		Stud Grade A4-80		Rebar Diameter (mm)	Rebar Diameter (mm)	
	Vrk,s (kN)	Vrd,s (kN)	Vrk,s (kN)	Vrd,s (kN)	Vrk,s (kN)	Vrd,s (kN)	Vrk,s (kN)	Vrd,s (kN)	Vrk,s (kN)	Vrd,s (kN)		Vrk,s (kN)	Vrd,s (kN)
M8	9.5	7.6	14.6	11.7	19.0	15.2	12.8	8.2	14.6	9.4	8	16.6	11.1
M10	15.1	12.1	23.2	18.6	30.2	24.1	20.3	13.0	23.2	14.9	10	25.9	17.3
M12	21.9	17.5	33.7	27.0	43.8	35.1	29.5	18.9	33.7	21.6	12	37.3	24.9
M16	40.8	32.7	62.8	50.2	81.6	65.3	55.0	32.5	62.8	40.3	14	50.8	33.9
M20	63.7	51.0	98.0	78.4	127.4	101.9	85.8	55.0	98.0	62.8	16	66.4	44.3
M24	91.8	73.4	141.2	113.0	183.6	146.8	123.6	79.2	141.2	90.5	20	103.9	69.3
M30	207.1	166.1	207.6	166.1	269.9	215.9	129.8	64.9	207.6	103.8	25	162.0	108.0
											32	265.1	176.7
											40	414.6	276.4

Notes:

All grades shown for information.
M30 studding is 8.8 grade instead of 5.8 grade.
M30 for A4-70 tensile strength of 500N/mm2, instead of 700N/mm2.
Safety Factor is 1.25 for all carbon steel.
Safety Factor is 1.56 for stainless steel, up to M24, M30 is 2.0
Safety Factor is 1.5 for BSt 500 rebar

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