Stahlfix epoxy acrylate styrene free - 1

Product information

Epoxy acrylate resin system is a powerful low odour two-component fast gelling and curing system. This is based on a modified epoxy acrylate resin without styrene. Applicable in one action, this resin provides excellent characteristics for fixing in a corrosive environment, economical and particularly suitable for use indoors.

Features

- Suitable for application underwater or in wet holes.
- Good chemical resistance.
- Excellent durability
- Suitable for medium and heavy loads.
- Equally suitable for indoor applications

Agréments

INSTYTUT TECHNIKI BUDOWLANEJ
ITB-0974/W

Imperial College London Consultants
SPO/ICON-RT-09-07 VER 4

Bricks	Hollow	Concrete	Stone	Marble	Rebar	Wet
						
✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓		

sizes 300ml / 380ml

Gel and cure times

Base material temperature (°C)	35	25	15	5	-5	-10**
Gel time (min.)	3	6	8	18	50	60
Curing time (min.)	20	20	20	30	90	180

**Resin temperature must be at least 20ºC

Typical performance data for standard embedment depth (single threaded rod or rebar)

Ø (mm)	Steel grade 5.8 / Concrete, C20/25									Standard data			
	Characteritic Resistance (kN)		Design Resistance (kN)		Recommended Load (kN)		Characterstic Edge Distance (mm)		Character-stic Spacing	Ø Hole diameter in concrete	Ø Hole diameter in fixture	Standard embedment	Recom-mended torque
	Tensile (N)	Shear (V)	Tensile (N)	Shear (V)	Tensile (N)	Shear (V)	Tensile (C)	Shear (C)	(mm)	(mm)	(mm)	(mm)	(Nm)
8	19.0	9.5	12.7	7.6	9.1	5.4	80	100	160	10	9	80	11
10	30.2	15.1	16.0	12.1	11.4	8.6	90	130	180	12	11	90	22
12	43.8	21.9	20.3	17.5	14.5	12.5	110	150	220	14	13	110	38
16	61.4	40.8	28.4	32.7	20.3	23.3	125	170	250	18	17	125	95
20	97.6	63.7	38.9	51.0	27.8	36.4	170	190	340	24	22	170	170
24	127.1	91.8	50.4	73.4	36.0	52.4	210	240	420	28	26	210	260
30	179.7	207.1	71.3	166.1	50.9	118.6	280	350	560	35	33	280	480

Typical ultimate physical properties

	N/mm²	Test method	Storage / Shelf life	IMPORTANT
Compressive strength	62.70	(EN ISO 604) / (ASTM 695)	This product should be stored between +5°C & +25°C. The Shelf life of the product is 12 months from the manufacture date. Avoid direct sunlight.	The information and data given is based on our own experience, research and testing and is believed to be reliable and accurate. However, as stahlfix cannot know the varied uses to which its products may be applied, or the methods of application used, no warrantyas 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	23.88	(EN ISO 178) / (ASTM 795)		
Flexural modulus	3250.33	"		
Tensile strength	12.85	(EN ISO 527) / (ASTM 638)		
E modulus	6860.33	"		

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Design resistance for single threaded rod and rebar (without edge distance or spacing influence)

Concrete class: C20/25 : (According Eurocode 2 , On Cylinder 20N/mm² On Cube 25N/mm²).

Threaded rod : steel grade 5.8

ø (mm)	ø hole (mm)	Design resistance (N_{rd})* (tensile) (kN)																			hef failure (mm)	Design resistance (kN)
8	10	12.7																			78	12.7
10	12		16.0	17.8	19.6	20.1										=	Steel failure				113	20.1
12	14				20.3	22.1	24.0	25.8	27.7	29.2											159	29.2
16	18					27.0	29.3	31.5	33.8	36.0	38.3	40.5	42.8	45.0	49.5	54.1	54.4				242	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	38.9	41.2	43.5	45.7	50.3	54.9	64.0	68.6	80.1	84.9										371	84.9
24	28				48.0	52.8	57.6	62.4	67.2	72.1	84.1	96.1	108.1	120.1	122.4						510	122.4
30	40								71.3	76.4	89.1	101.8	114.5	127.3	140.0	152.7	178.2	203.6	229.1	254.5	1096	278.9
Depth (mm)		170	180	190	200	220	240	260	280	300	350	400	450	500	550	600	700	800	900	1000		

Rebar: Yield strength fyk = 500N/mm2

ø (mm)	ø hole (mm)	Design resistance (N_{rd})* (tensile) (kN)																			hef failure (mm)	Design resistance (kN)
8	12	13.0	16.2	19.4	21.9																135	21.9
10	14		17.8	21.4	24.9	28.5	32.1	34.1								=	Steel failure				192	34.1
12	16			22.2	25.9	29.6	33.3	36.9	40.6	44.3	48.0	49.2									266	49.2
14	18				28.9	33.1	37.2	41.3	45.5	49.6	53.8	57.9	62.0	66.2	66.9						324	66.9
16	22					36.0	40.5	45.0	49.5	54.1	58.6	63.1	67.6	72.1	76.6	81.1	85.6	87.4			388	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	45.7	51.5	57.2	62.9	68.6	80.1	91.5	102.9	114.4	125.8	136.6									597	136.6
25	32			62.5	68.8	75.1	87.6	100.1	112.6	125.1	137.6	150.1	175.1	200.1	213.4						853	213.4
32	40					84.1	95.0	108.6	122.2	135.7	149.3	162.9	190.0	217.2	244.3	271.5	298.6	325.8	349.7		1288	349.7
40	50							123.2	138.6	154.0	169.4	184.7	215.5	246.3	277.1	307.9	338.7	369.5	400.3	431.1	1774	546.3
Depth (mm)		200	225	250	275	300	350	400	450	500	550	600	700	800	900	1000	1100	1200	1300	1400		

Characteristic (Vrk) & design (Vrd) shear loads for various threaded rod grades + rebar

ø (mm)	Steel grade 5.8		Steel grade 8.8		Steel grade 10.9		Steel grade A4-70		Steel grade A4-80	
	Vrk (kN)	Vrd (kN)	Vrk (kN)	Vrd (kN)	Vrk (kN)	Vrd (kN)	Vrk (kN)	Vrd (kN)	Vrk (kN)	Vrd (kN)
8	9.5	7.6	14.6	11.7	19.0	15.2	12.8	8.2	14.6	9.4
10	15.1	12.1	23.2	18.6	30.2	24.1	20.3	13.0	23.2	14.9
12	21.9	17.5	33.7	27.0	43.8	35.1	29.5	18.9	33.7	21.6
16	40.8	32.7	62.8	50.2	81.6	65.3	55.0	32.5	62.8	40.3
20	63.7	51.0	98.0	78.4	127.4	101.9	85.8	55.0	98.0	62.8
24	91.8	73.4	141.2	113.0	183.6	146.8	123.6	79.2	141.2	90.5
30	207.1	166.1	207.6	166.1	269.9	215.9	129.8	64.9	207.6	103.8

Rebar Ø (mm)	Bst 500	
	Vrk (kN)	Vrd (kN)
8	16.6	11.1
10	25.9	17.3
12	37.3	24.9
14	50.8	33.9
16	66.4	44.3
20	103.9	69.3
25	162.0	108.0
32	265.1	176.7
40	414.6	276.4

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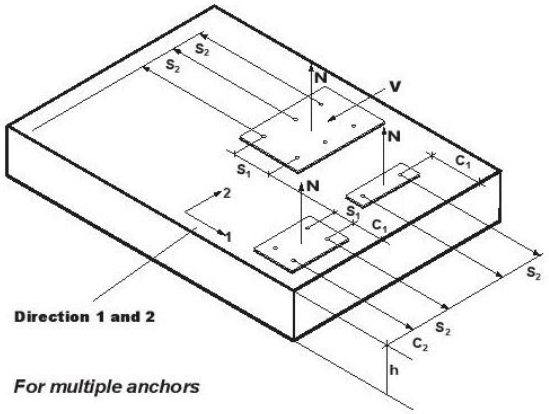
Reduction factors : Spacing and edge distance

Spacing reduction factor f_A								Edge reduction factors f_R														
Tensile load / Shear load								Tensile load f_{RN}							Shear load f_{RV}							
Entraxe	Ø Threaded rod / Rebar (mm)							Edge distance (mm)	Ø Threaded rod / Rebar (mm)													
	8	10	12	16	20	24	30		8	10	12	16	20	24	30	8	10	12	16	20	24	30
40	0.64							40	0.64							0.25						
50	0.67	0.63						50	0.73	0.63						0.44	0.30					
60	0.70	0.65	0.63					60	0.82	0.70	0.63					0.63	0.48	0.30				
70	0.73	0.68	0.64					70	0.90	0.77	0.68					0.81	0.65	0.44				
80	0.76	0.70	0.66	0.63				80	1.00	0.84	0.74	0.63				1.00	0.83	0.58	0.40			
90	0.79	0.73	0.68	0.64				90		0.91	0.80	0.67					1.00	0.72	0.53			
100	0.82	0.75	0.70	0.65	0.63			100		1.00	0.86	0.72	0.63					0.86	0.67	0.35		
125	0.89	0.81	0.75	0.69	0.66	0.63		110			0.92	0.77	0.66					1.00	0.80	0.44		
150	0.96	0.88	0.80	0.73	0.69	0.65	0.63	120			1.00	0.81	0.70	0.64					1.00	0.58	0.35	
160	1.00	0.90	0.82	0.74	0.70	0.66	0.64	140				0.91	0.78	0.67	0.63					0.72	0.46	0.30
175		0.94	0.85	0.76	0.72	0.68	0.65	160				1.00	0.85	0.73	0.66					0.91	0.62	0.35
200		1.00	0.90	0.80	0.75	0.70	0.68	180					0.93	0.80	0.72					1.00	0.77	0.46
225			0.95	0.84	0.78	0.73	0.70	200					1.00	0.86	0.78						0.92	0.57
240			1.00	0.86	0.80	0.75	0.72	220						0.92	0.84						1.00	0.68
250				0.87	0.81	0.76	0.73	240						1.00	0.90							0.78
275				0.91	0.84	0.78	0.75	265							1.00							1.00
280				0.92	0.85	0.79	0.76															
300				0.95	0.88	0.81	0.78															
320				1.00	0.90	0.83	0.80															
350					0.94	0.86	0.83															
400					1.00	0.92	0.88															
440						0.96	0.92															
480						1.00	0.96															
500							0.98															
525							1.00															

Loads in hollow material (Tensile or shear)

Size	Recommended load (kN)
	hollow brick 7 N/mm2
M8	0.8
M10	1.7
M12	2.7
M16	3.6



For multiple anchors

$$f_A = f_{A1}(s_1) \cdot f_{A2}(s_2) \cdot f_{Ax}(s_x)$$

$$f_{RN} = f_{RN1}(c_1) \cdot f_{RN2}(c_2) \cdot f_{RNx}(c_x)$$

$$f_{RV} = f_{RV1}(c_1) \cdot f_{RV2}(c_2) \cdot f_{RVx}(c_x)$$

$h = h_{nom} + 40mm$

h_{nom} = *embedment depth*

N_{rd} , V_{rd} = *Approved design resistance*

FR_N , FR_V , FR_α = *Recommended loads*

***** Design according to post-installed rebar theory : see design section.***

Design according to Anchor theory *

$$FR_N = \frac{N_{rd}}{1.4} \cdot f_B \cdot f_{RN} \cdot f_A \qquad \textit{(tensile)}$$

$$FR_v = \frac{V_{rd}}{1.4} \cdot f_B \cdot f_{RV} \cdot f_A \qquad \textit{(shear)}$$

FR_α *(shear + tensile)*

$$FR_\alpha = FR_N - (FR_N - FR_V)\frac{\alpha}{90}$$

f_B = *Resistance factor of Concrete*

$f_B = 1 + 0.02\,(1 - \frac{\alpha}{90}) \cdot (f_{cc,eff} - 25)$

$[15 \le f_{cc,eff} \le 55]$

α = *Angle of load*

f_A = *Reduction factor "Spacing"*

f_{cc} = *Resistance on cube N/mm²*

f_R = *Reduction factor "edge distance"*