

Kimitech EPOXY CTR

ST3-0719

Bi-component epoxy resin cartridges for anchoring injections



DESCRIPTION

Kimitech EPOXY CTR is a high performances epoxy resin with a fast initial setting time for anchoring in solid materials. It works in dry, damp and flooded holes with a fast curing time. It is suitable for use in concrete, stone, solid bricks in a wide range of applications: anchoring of doors, balustrades, banisters, roller blinds, antennas, consoles, cable trays, machinery, protective barriers, steel frame structures.

It is also suitable for structural anchoring of steel bars, being CE marked according to EN 1504-6 and it is certified according to the requirements of ETAG001 part 5, for the use of resin with threaded bars on cracked and non-cracked concrete and for use with improved adhesion bars for diameters from 8 mm up to 32 mm on concrete .

ADVANTAGES

- Works in damp and flooded holes
- No shrinkage, can be used in oversized holes
- Suitable for reinforcing bars in plain structures
- Styrene free, very low odor
- Thixotropic, it can be applied in both vertical and horizontal directions
- Fast curing time

PHYSICAL PROPERTIES

- Nature : epoxy aliphatic resin
- Color of the mixture : grey (comp.A :white / comp. B:black)
- Specific weight : 1,60 kg/l at 20°C

LAYING TIME

Substrate temperature	Workability time	Time before loading
50°C	7 min	7 h
40°C	15 min	7 h
30°C	20 min	12 h
25°C	30 min	14 h
20°C	50 min	16 h
15°C	1h10'	22 h
10°C	1h40'	28 h
5°C	2h30'	41 h
0°C	3h20'	54 h

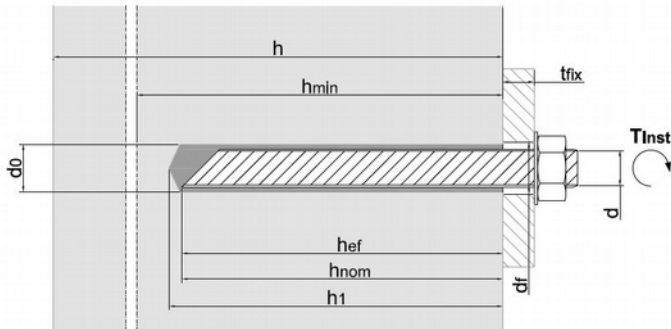
Minimum temperature application is +5°C

NUMBER OF ANCHORS

THREADED BAR	HOLE d ₀ [mm] x h ₁ [mm]	NR ANCHORS
M8	10 x 85	± 89
M10	12 x 95	± 60
M12	14 x 115	± 36
M16	18 x 130	± 24
M20	24 x 175	± 8
M24	28 x 215	± 6
M27	30 x 245	± 5
M30	35 x 275	± 3

The number of anchors specified above was determined by counting only the theoretical volume of product needed to fill the hole, excluding the volume of the bar inserted. Although standard waste is included in the theoretical calculation, the actual quantity of product may differ from this according to the actual method of installation adopted.

INSTALLATION DATA



d	Bar diameter
h_{min}	Min. thickness of the substrate
d_0	Hole diameter
h_1	Hole depth
h_{nom}	Insertion depth
h_{ef}	Anchoring effective depth
S_{cr}	Characteristic centre to centre
C_{cr}	Characteristic distance from the edge
S_{min}	Min. centre to centre distance
C_{min}	Min. distance from the edge
t_{fix}	Anchoring thickness
d_f	Hole diameter of anchoring thickness
S_w	Spanner
T_{inst}	Tightening torque
l_v	Anchoring length

Performance of threaded rods anchored in reinforced concrete substrates (non-cracked concrete, cracked concrete)

	M8	M10	M12	M16	M20	M24	M27	M30
Type of bar	> 5,8 - A4/70							
h_{min}	110	120	140	161	218	266	300	340
d_0	10	12	14	18	24	28	30	35
h_1	85	95	115	130	175	215	245	275
h_{nom}	80	90	110	125	170	210	240	270
h_{ef}	80	90	110	125	170	210	240	270
S_{cr}	202	242	291	375	462	554	624	693
C_{cr}	101	121	145	188	231	277	312	346
S_{min}	40	50	60	80	100	120	135	150
C_{min}	40	50	60	80	100	120	135	150
T_{fix} (min - max)	0-1500	0-1500	0-1500	0-1500	0-1500	0-1500	0-1500	0-1500

d_f	9	12	14	18	22	26	29	33
S_w	13	17	19	24	30	36	41	46
T_{inst}	10	20	40	80	130	200	270	300

Bar performance for improved adhesion

• NON-CRACKED CONCRETE

	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø28	Ø32
TYPE OF BAR	BAR								
d_0	12	14	16	18	20	25	30	35	40
h_{min}	110	120	142	161	180	220	270	340	380
h_1	85	95	115	130	145	175	215	275	305
h_{nom}	80	90	110	125	140	170	210	270	300
h_{ef}	80	90	110	125	140	170	210	270	300
S_{cr}	160	180	220	250	280	340	420	540	600
C_{cr}	80	90	110	125	140	170	210	270	300
S_{min}	40	45	55	63	70	85	105	135	150
C_{min}	40	45	55	63	70	85	105	135	150

• SOLID BRICK

	M8	M10	M12	M16
TYPE OF BAR	> 4,6 - A2/70 - A4/70			
d_0	10	12	14	18
h_{min}	200	250	300	350
h_1	85	90	100	130
h_{nom}	80	85	95	125
h_{ef}	80	85	95	125
S_{cr}	160	200	240	320
C_{cr}	200	200	200	200
S_{min}	100	100	100	100
C_{min}	100	100	100	100
t_{fix}	10	20	30	35
d_f	9	12	14	18
S_w	13	17	19	24
T_{inst}	7	15	25	30

• GLULAM

	M8	M10	M12	M16
TIPOLOGIA DI BARRA	> 4,6 - A2/70 - A4/70			
d_0	10	12	14	18
h_{min}	160	200	240	320
h_1	85	105	125	165
h_{nom}	80	100	120	160
h_{ef}	80	100	120	160
S_{cr}	100	125	150	200
C_{cr}	800	100	120	160
S_{min}	50	50	60	80

C_{min}	50	50	60	80
t_{fix}	10	20	30	35
d_f	9	12	14	18
S_w	13	17	19	24
T_{inst}	7	15	25	30

LOADS

Loads with effective average anchoring depth for cracked concrete (C20/25) at T = 24°C

Bar	Bar diametre	Effective depth of anchoring	Average load under tension	Average shear load	Characteristic tensile load	Characteristic shear load	Acceptable tensile load	Acceptable shear load
	d [mm]	h _{ef} [mm]	N _{Rum} [mm]	V _{Rum} [mm]	N _{Rk} [mm]	V _{Rk} [mm]	N _{rec} [Nm]	V _{rec} [kN]
> 5,8	M12	110	43,8	26,2	32,9	21,9	15,6	12,5
> 5,8	M16	125	66,3	48,9	43,1	40,8	20,5	23,3
> 5,8	M20	170	105,2	76,2	79,8	63,5	38	36,2
> 5,8	M24	210	144,5	110,4	109,5	92	52,1	52,5

Loading data with effective average anchoring depth for non-cracked concrete (C20/25) at T = 24°C

Bar	Bar diametre	Effective depth of anchoring	Average load under tension	Average shear load	Characteristic tensile load	Characteristic shear load	Acceptable tensile load	Acceptable shear load
	d [mm]	h _{ef} [mm]	N _{Rum} [mm]	V _{Rum} [mm]	N _{Rk} [mm]	V _{Rk} [mm]	N _{rec} [Nm]	V _{rec} [kN]
> 5,8	M8	80	19	11,4	19	9,5	9	5,4
> 5,8	M10	90	30,2	18,1	30,2	15,1	14,3	8,6
> 5,8	M12	110	43,8	26,2	43,8	21,9	20,8	12,5
> 5,8	M16	125	81,6	48,9	70,5	40,8	33,6	23,3
> 5,8	M20	170	127	76,2	103,8	63,5	49,4	36,2
> 5,8	M24	210	184	110,4	153,6	92	73,1	52,5
> 5,8	M27	240	239	143,4	187,7	119,5	89,4	68,2
> 5,8	M30	270	292	175,2	224	146	106,6	83,4

Loading data with effective average anchoring depth for cracked concrete (C20/25) at T = 50°C

Bar	Bar diametre	Effective depth of anchoring	Average load under tension	Average shear load	Characteristic tensile load	Characteristic shear load	Acceptable tensile load	Acceptable shear load
	d [mm]	h _{ef} [mm]	N _{Rum} [mm]	V _{Rum} [mm]	N _{Rk} [mm]	V _{Rk} [mm]	N _{rec} [Nm]	V _{rec} [kN]
> 5,8	M12	110	43,8	26,2	24,8	21,9	11,8	12,5
> 5,8	M16	125	66,3	48,9	32,6	40,8	15,5	23,3
> 5,8	M20	170	105,2	76,2	60,7	63,5	28,9	36,2
> 5,8	M24	210	144,5	110,4	92	92	43,8	52,5

Loading data with effective average anchoring depth for non-cracked concrete (C20/25) at T = 50°C

Bar	Bar diametre	Effective depth of anchoring	Average load under tension	Average shear load	Characteristic tensile load	Characteristic shear load	Acceptable tensile load	Acceptable shear load
	d [mm]	h _{ef} [mm]	N _{Rum} [mm]	V _{Rum} [mm]	N _{Rk} [mm]	V _{Rk} [mm]	N _{rec} [Nm]	V _{rec} [kN]
> 5,8	M8	80	19	11,4	19	9,5	9	5,4
> 5,8	M10	90	30,2	18,1	30,2	15,1	14,3	8,6
> 5,8	M12	110	43,8	26,2	43,8	21,9	20,8	12,5
> 5,8	M16	125	81,6	48,9	70,5	40,8	33,6	23,3
> 5,8	M20	170	127	76,2	103,8	63,5	49,4	36,2
> 5,8	M24	210	184	110,4	153,6	92	73,1	52,5
> 5,8	M27	240	239	143,4	187,7	119,5	89,4	68,2
> 5,8	M30	270	292	175,2	224	146	106,6	83,4

> 5,8	M8	80	19	11,4	18	9,5	8,6	5,4
> 5,8	M10	90	30,2	18,1	23,8	15,1	11,3	8,6
> 5,8	M12	110	43,8	26,2	34,9	21,9	16,6	12,5
> 5,8	M16	125	81,6	48,9	55,3	40,8	26,3	23,3
> 5,8	M20	170	127	76,2	78,4	63,5	37,3	36,2
> 5,8	M24	210	184	110,4	142,8	92	68	52,5
> 5,8	M27	240	239	143,4	182,2	119,5	86,8	68,2
> 5,8	M30	270	292	175,2	211,5	146	100,7	83,4

Loading data with effective average anchoring depth for cracked concrete (C20/25) at T = 24°C

Bar	Bar diametre	Effective depth of anchoring	Average load under tension	Average shear load	Characteristic tensile load	Characteristic shear load	Acceptable tensile load	Acceptable shear load
	d [mm]	h _{ef} [mm]	N _{Rum} [mm]	V _{Rum} [mm]	N _{Rk} [mm]	V _{Rk} [mm]	N _{rec} [Nm]	V _{rec} [kN]
A4-70	M12	110	54,8	35,4	32,9	29,5	15,6	13,5
A4-70	M16	125	66,3	65,9	43,1	54,9	20,5	25,1
A4-70	M20	170	105,2	102,9	79,7	85,7	37,9	39,2
A4-70	M24	210	144,5	148,2	109,5	123,5	52,1	56,5

Loading data with effective average anchoring depth for non-cracked concrete (C20/25) at T = 50°C

Bar	Bar diametre	Effective depth of anchoring	Average load under tension	Average shear load	Characteristic tensile load	Characteristic shear load	Acceptable tensile load	Acceptable shear load
	d [mm]	h _{ef} [mm]	N _{Rum} [mm]	V _{Rum} [mm]	N _{Rk} [mm]	V _{Rk} [mm]	N _{rec} [Nm]	V _{rec} [kN]
A4-70	M8	80	25,6	15,3	23,9	12,8	9,7	5,8
A4-70	M10	90	38,1	24,3	31,4	20,3	14,9	9,2
A4-70	M12	110	59	35,4	46,1	29,5	21,9	13,5
A4-70	M16	125	90,9	65,9	70,5	54,9	33,6	25,1
A4-70	M20	170	146,8	102,9	103,8	85,7	49,4	39,2
A4-70	M24	210	205,4	148,2	153,6	123,5	73,1	56,5
A4-70	M27	240	250,9	192,7	187,7	160,6	89,4	73,5
A4-70	M30	270	299,4	235,6	224	196,3	106,6	89,9

Loading data with effective average anchoring depth for cracked concrete (C20/25) at T = 50°C

Barra	Diametro barra	Profondità eff. ancoraggio	Carico ultimo medio a trazione	Carico ultimo medio a taglio	Carico caratteristico a trazione	Carico caratteristico a taglio	Carico ammissibile a trazione	Carico ammissibile a taglio
	d [mm]	h _{ef} [mm]	N _{Rum} [mm]	V _{Rum} [mm]	N _{Rk} [mm]	V _{Rk} [mm]	N _{rec} [Nm]	V _{rec} [kN]
A4-70	M12	110	54,8	35,4	24,8	29,5	11,8	13,5
A4-70	M16	125	66,3	65,9	32,6	54,9	15,5	25,1
A4-70	M20	170	105,2	102,9	60,7	85,7	28,9	39,2
A4-70	M24	210	144,5	148,2	92	123,5	43,8	56,5

Loading data with effective average anchoring depth for non-cracked concrete (C20/25) at T = 50°C

Bar	Bar diametre	Effective depth of anchoring	Average load under tension	Average shear load	Characteristic tensile load	Characteristic shear load	Acceptable tensile load	Acceptable shear load
	d [mm]	h _{ef} [mm]	N _{Rum} [mm]	V _{Rum} [mm]	N _{Rk} [mm]	V _{Rk} [mm]	N _{rec} [Nm]	V _{rec} [kN]
> 5,8	M8	80	19	11,4	19	9,5	9	5,4
> 5,8	M10	90	30,2	18,1	30,2	15,1	14,3	8,6
> 5,8	M12	110	43,8	26,2	43,8	21,9	20,8	12,5
> 5,8	M16	125	81,6	48,9	70,5	40,8	33,6	23,3
> 5,8	M20	170	127	76,2	103,8	63,5	49,4	36,2
> 5,8	M24	210	184	110,4	153,6	92	73,1	52,5
> 5,8	M27	240	239	143,4	187,7	119,5	89,4	68,2
> 5,8	M30	270	292	175,2	224	146	106,6	83,4

A4-70	M8	80	25,6	15,3	18	12,8	8,6	5,8
A4-70	M10	90	38,1	24,3	23,8	20,3	11,3	9,2
A4-70	M12	110	59	35,4	34,9	29,5	16,6	13,5
A4-70	M16	125	90,9	65,9	55,3	54,9	26,3	25,1
A4-70	M20	170	146,8	102,9	78,4	85,7	37,3	39,2
A4-70	M24	210	205,4	148,2	148,2	123,5	68	56,5
A4-70	M27	240	250,9	192,7	192,7	160,6	86,7	73,5
A4-70	M30	270	299,4	235,6	235,6	196,3	100,7	89,9

Loading data with effective average anchoring depth for non-cracked concrete (C20/25) at T = 50°C

Bar	Bar diameter	Effective depth of anchoring	Average load under tension	Average shear load	Characteristic tensile load	Characteristic shear load	Acceptable tensile load	Acceptable shear load
REBAR B450C BSST500	M8	80	27,1	16,2	26,4	13,5	12,5	7,7
REBAR B450C BSST500	M10	90	42,4	25,4	37,1	21,2	17,6	12,1
REBAR B450C BSST500	M12	110	61	36,6	54,4	30,5	25,9	17,4
REBAR B450C BSST500	M14	125	83,1	49,8	70,5	41,5	33,6	23,7
REBAR B450C BSST500	M16	140	108,5	65,1	75	54,2	35,7	31
REBAR B450C BSST500	M20	170	149,6	101,7	110,5	84,8	52,6	48,4
REBAR B450C BSST500	M25	210	205,4	159	153,6	132,5	73,1	75,7
REBAR B450C BSST500	M28	270	299,4	199,5	216,2	166,2	102,9	95
REBAR B450C BSST500	M32	300	350,7	260,5	240,3	217,1	114,4	124

Loading data with effective average anchoring depth for non-cracked concrete (C20/25) at T = 24°C

Bar	Bar diameter	Effective depth of anchoring	Average load under tension	Average shear load	Characteristic tensile load	Characteristic shear load	Acceptable tensile load	Acceptable shear load
REBAR B450C BSST500	M8	80	27,1	16,2	19,8	13,5	9,4	7,7
REBAR B450C BSST500	M10	90	42,4	25,4	27,9	21,2	13,3	12,1
REBAR B450C BSST500	M12	110	61	36,6	41	30,5	19,5	17,4
REBAR B450C BSST500	M14	125	83,1	49,8	53,6	41,5	25,5	23,7
REBAR B450C BSST500	M16	140	108,5	65,1	56,5	54,2	26,9	31
REBAR B450C BSST500	M20	170	149,6	101,7	83,3	84,8	39,6	48,4

REBAR B450C BSST500	M25	210	205,4	159	123,7	132,5	58,9	75,7
REBAR B450C BSST500	M28	270	299,4	199,5	162,9	166,2	77,6	95
REBAR B450C BSST500	M32	300	350,7	260,5	181,1	217,1	86,2	124

POST-INSTALLED CONNECTIONS OF IMPROVED ADHESION BARS

- Concrete (Drilling, T=50°C)

Type of bar	Bar diameter	ADHESION TENSION f _{bd} [N/mm ²]									
		d [mm]	C 12/15	C 16/20	C 20/25	C 25/30	C 30/37	C 35/45	C 40/50	C 45/55	C 50/60
Rebar B450C BST500	8	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3	
Rebar B450C BST500	10	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3	
Rebar B450C BST500	12	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3	
Rebar B450C BST500	14	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3	
Rebar B450C BST500	16	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3	
Rebar B450C BST500	20	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3	
Rebar B450C BST500	25	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3	
Rebar B450C BST500	28	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,3	
Rebar B450C BST500	32	1,6	2,0	2,3	2,7	3,0	3,4	3,7	4,0	4,0	

- SOLID BRICK (T=24°C)

Type of bar	Bar diameter	Average load under tension	Average shear load	Acceptable tensile load	Acceptable shear load	
	d [mm]	N _{Rum} [mm]	V _{Rum} [mm]	N _{rec} [Nm]	V _{rec} [kN]	
> 4.6 A2-70 A4-70	M8	Recommended loading data for applications on base materials with average mechanical characteristics. Given the variety of masonry and/or wood substrates for applications on other substrates, the loading values will be obtained through proper on site tests			2	3,0
> 4.6 A2-70 A4-70	M10				2,6	3,4
> 4.6 A2-70 A4-70	M12				2,8	3,9
> 4.6 A2-70 A4-70	M16				4,0	4,2

- GLULAM (T=24°C)

Tipologi della barra	Diametro barra	Carico ultimo medio a trazione	Carico ultimo medio a taglio	Carico ammissibile a trazione	Carico ammissibile a taglio
	d [mm]	N _{Rum} [mm]	V _{Rum} [mm]	N _{rec} [Nm]	V _{rec} [kN]
> 4.6	M8	Recommended loading data		3,2	For shear

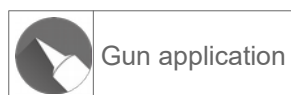
A2-70 A4-70		for applications on base materials with average mechanical characteristics. Given the variety of masonry and/or wood substrates for applications on other substrates, the loading values will be obtained through proper on site tests		values please refer to CNR-DT 206/2007 (7.10.2.3)
> 4.6 A2-70 A4-70	M10		4,2	
> 4.6 A2-70 A4-70	M12		6,1	
> 4.6 A2-70 A4-70	M16		10,7	

Performance according to the requirements of EN 1504-6 ("Anchoring of steel reinforcement")

Characteristics	Limits EN 1504-6 "Anchoring of steel reinforcement"	Typical value
Chloride ion content	≤ 0,05%	OK
Pull-out resistance of steel bars Displacement of a load of 75 KN [mm] EN 1881	≤ 0,6	OK
Creep Displacement of a load of 50 KN for three months [mm] EN 12617-3	≤ 0,6	OK
Glass transition temperature EN 12614	≥ 45°C	OK
Reaction to fire EN 13501-1	Euroclass according to 5,5	F
Hazardous substances release	According to 5,4	OK

Characteristics	Typical value
Concrete adhesion at 7 days EN 1542	> 3,5 MPa
Compressive strength at 24 hours ASTM D695	> 70 MPa
Compressive strength at 7 days ASTM D695	> 80 MPa
Tensile flexural strength at 24 hours ASTM D790	> 10 MPa
Tensile flexural strength at 7 days ASTM D790	> 40 MPa
Direct tensile strength at 7 days ASTM D638	> 35 MPa
Elastic modulus	2400 MPa

APPLICATION



- Choose a drill of suitable dimensions depending on the rod to be anchored
- Remove the water and dirt (dust and loose material) with a circular brush and a blower or with air pressure. The items to be fastened must be clean.
- Unscrew the cap of the cartridge
- Screw the mixing use nozzle onto cartridge
- Insert the cartridge in the gun
- Remove the mixture until the two components have a homogenous light grey color in the nozzle

(avoid using the first 10 ml)

- Inject the product from the base of the hole until 2/3 full
- Insert the element to be fastened rotating, if necessary, keep the position with a suitable device.
- Unscrew the mixing nozzle and replace cap.

PACKAGING

Ctr 470 ml – 12 pcs box

STORAGE

Store the product in a ventilated place away from direct exposure to sunlight. Keep between 5 °C and 25°C. In unopened original packaging, one year from manufacturing date.



CORRELATED PRODUCTS

Manual gun for Kimitech EPOXY CTR

WARNING

Product intended for professional use.

Before the injection, check the expiry date of the product, the resistance of the substrate and the environment temperature.

The marking obligations are not related to the intrinsic nature of a given product, but to the use to which a specific material is intended: before placing the order, the buyer shall submit all the documentation available to the works supervision in order to determine the materials suitability (in terms of certifications and performance) in relation to the use for which they are intended.

The technical specifications and application methods recommended herein are based on our current knowledge and experience and do not represent any form of guarantee of the final results obtainable with the product.

It is the customer's responsibility to check that this data sheet is still effective and has not been replaced with a more recent version.