

CHEMICAL ANCHORS

CS - V 500



Product Description

CS - V 500 is two component bonded anchoring system anchoring of wide variety of construction applications. Since it is formulated free of styrene and vinyl toluene(VT), CS - V 500 has almost no odour and is ideal for indoor and outdoor applications.

CS - V 500 is for heavy-duty applications in non-cracked concrete and masonry and many other base materials like aerated concrete, lightweight solid or hollow concrete blocks or sand lime bricks. CS - V 500 chemical anchor can be used for post-installed rebar connections Ø8 to Ø32. CS - V 500 has three version for various climate conditions.

CS - V 500: Normal working and loading time

Features:

- Assessed for structural applications in cracked and non-cracked concrete, M8 to M30. Rebar used as stud from Ø8 to Ø32 Working life of 50 and/or 100 years.
- Dry, wet and flooded holes
- Temperature range: from -40°C to +80°C (long term maximum temperature +50°C).
- For high loads
- Styrene free formulation (SF)
- Compatible with several building materials including perforated brick.
- For heavy anchoring - doweling and post-installed rebar connection
- Low odour and VOC content (A+)
- Seismic anchor performance category (C1)

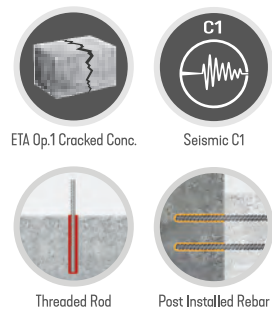
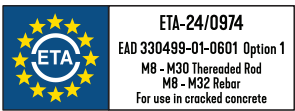
Working and loading time

Working time is typical gel time at the highest temperature of the given range. Loading time is setting time at the lowest temperature of the given range.

Packaging

Cartridge	Pices in a Box	Pices in a Wooden Pallet
300ml	20	1500
345ml	12	1200
410ml	12	1200

For each cartridge, there are two static mixers in the box.



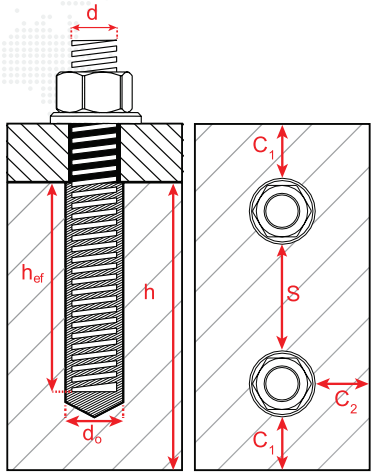
Epoxyacrylate Styrene Free (CS - V 500)

Temperature of base material	+5°C	+5°C to +10°C	+10°C to +20°C	+20°C to +25°C	+25°C to +30°C	+30°C
Temperature of cartridge	+5°C	+5°C to +10°C	+10°C to +20°C	+20°C to +25°C	+25°C to +30°C	+30°C
Working time (mins)	18	10	6	5	4	3
Loading time (mins)	150	150	85	50	40	35

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Installation Parameters



Installation Parameter - Threaded Rod

Anchor size			M8	M10	M12	M16	M20	M24	M27	M30
d	Diameter of anchor bolt or thread diameter	mm	8	10	12	16	20	24	27	30
d _o	Nominal diameter of drill bit	mm	10	12	14	18	24	28	32	35
d _f	Diameter of clearance hole in the fixture (≤)	mm	9	12	14	18	22	26	30	33
d _b	Diameter of steel brush (≥)	mm	12	14	16	20	26	30	34	37
h _{ef,min}	Minimum effective anchorage depth	mm	60	60	70	80	90	96	108	120
h _{ef}	Standard effective anchorage depth	mm	80	90	110	125	170	210	250	280
h _{ef,max}	Maximum effective anchorage depth (20*d)	mm	160	200	240	320	400	480	540	600
h _{min}	Minimum thickness of the concrete member	mm	h _{ef} +30mm ≥100mm			h _{ef} +2d _o				
T _{inst}	Nominal torque moment	Nm	10	20	40	80	120	160	180	200
S _{min}	Minimum spacing (5*d)	mm	40	50	60	80	100	120	135	150
S _{cr,N}	Spacing	mm	184	252	304	376	506	582	624	658
C _{min}	Minimum edge distance (5*d)	mm	40	50	60	80	100	120	135	150
C _{cr,N}	Edge distance	mm	90	126	152	188	253	291	312	329

Installation Parameter - Reinforcing Bar

Anchor size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø28	Ø32
d	Diameter of anchor	mm	8	10	12	14	16	20	25	28	32
d _o	Nominal diameter of drill bit	mm	12	14	16	18	20	24	32	35	40
d _f	Diameter of steel brush (≥)	mm	14	16	18	20	22	26	34	37	41
d _b	Minimum effective anchorage depth	mm	60	60	70	75	80	90	100	112	128
h _{ef,min}	Standard effective anchorage depth	mm	80	90	110	115	125	170	210	250	280
h _{ef}	Maximum effective anchorage depth (20*d)	mm	160	200	240	280	320	400	500	560	640
h _{min}	Minimum thickness of the concrete member	mm	h _{ef} +30mm ≥100mm			h _{ef} +2d _o					
T _{inst}	Minimum spacing (5*d)	mm	40	50	60	70	80	100	125	140	160
S _{min}	Spacing	mm	184	252	304	346	376	506	606	646	682
S _{cr,N}	Minimum edge distance (5*d)	mm	40	50	60	70	80	100	125	140	160
C _{min}	Edge distance	mm	92	126	152	173	188	253	303	323	341

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Load Values - Maximum load recommended - Threaded bar

Maximum Loads Recommended - Tension Load - Threaded Bar

Steel Failure - Recommended Load

Size			M8	M10	M12	M16	M20	M24	M27	M30
Steel Grade 5.8	N _{Rec,s}	[kN]	9	14	20	38	59	84	110	134
Steel Grade 8.8	N _{Rec,s}	[kN]	14	22	32	60	93	134	175	214
Steel Grade 10.9	N _{Rec,s}	[kN]	19	30	43	80	125	180	234	286
Stainless Steel Grade A4-70	N _{Rec,s}	[kN]	10	15	22	41	65	93	121	148
Stainless Steel Grade A4-80	N _{Rec,s}	[kN]	13	21	30	56	88	126	164	200
Stainless Steel Grade 1,4529	N _{Rec,s}	[kN]	12	20	28	52	82	118	153	187

Maximum Loads Recommended - Shear Load - Threaded Bar

Steel Failure - Recommended Load

Size			M8	M10	M12	M16	M20	M24	M27	M30
Steel Grade 5.8	V _{Rd,s}	[kN]	5	9	12	22	35	50	66	80
Steel Grade 8.8	V _{Rd,s}	[kN]	9	13	19	36	56	81	105	128
Steel Grade 10.9	V _{Rd,s}	[kN]	9	14	20	38	59	84	110	134
Stainless Steel Grade A4-70	V _{Rd,s}	[kN]	6	9	14	25	39	57	74	90
Stainless Steel Grade A4-80	V _{Rd,s}	[kN]	8	12	18	34	53	76	99	120
Stainless Steel Grade 1,4529	V _{Rd,s}	[kN]	7	11	17	31	49	71	92	112

Maximum Loads Recommended - Tension Load - Threaded Bar ⁽¹⁾

Recommended load in non-cracked concrete C20/25

Concrete Class	Temperature Range ⁽²⁾	Embedment Depth	Size	M8	M10	M12	M16	M20	M24	M27	M30
NON-CRACKED CONCRETE	24°C/ 40°C	h _{ef,min}	N _{Rec,p,stat} [kN]	7,2	9,0	12,6	19,1	24,7	31,6	36,4	40,4
		h _{ef,standard}	N _{Rec,p,stat} [kN]	9,6	13,5	19,7	29,9	46,6	69,1	84,1	94,2
		h _{ef,max} = 20*d	N _{Rec,p,stat} [kN]	19,1	29,9	43,1	76,6	109,7	158,0	181,8	202,0
	50°C/ 80°C	h _{ef,min}	N _{Rec,p,stat} [kN]	5,4	6,4	8,9	13,6	19,1	24,4	25,4	29,2
		h _{ef,standard}	N _{Rec,p,stat} [kN]	7,2	9,5	14,0	21,2	36,0	53,4	58,9	68,1
		h _{ef,max} = 20*d	N _{Rec,p,stat} [kN]	14,4	21,2	30,5	54,3	84,8	122,1	127,2	145,9
CRACKED CONCRETE	24°C/ 40°C	h _{ef,min}	N _{Rec,p,stat} [kN]	3,7	3,9	5,6	8,5	11,9	15,8	22,9	29,2
			N _{Rec,p,stat} [kN]	2,5	2,6	3,8	5,8	8,1	10,9	15,8	20,1
		h _{ef,standard}	N _{Rec,p,stat} [kN]	5,0	5,8	8,7	13,2	22,5	34,6	53,0	68,1
			N _{Rec,p,stat} [kN]	3,4	4,0	5,9	9,0	15,3	23,8	36,6	47,0
		h _{ef,max} = 20*d	N _{Rec,p,stat} [kN]	10,0	13,0	19,0	33,8	52,9	79,0	114,5	145,9
			N _{Rec,p,stat} [kN]	6,8	8,8	12,9	23,0	35,9	54,5	79,0	100,6
	50°C/ 80°C	h _{ef,min}	N _{Rec,p,stat} [kN]	2,6	2,7	3,9	5,9	8,3	11,1	16,0	20,4
			N _{Rec,p,stat} [kN]	1,8	1,9	2,6	4,0	5,7	7,6	11,1	14,1
		h _{ef,standard}	N _{Rec,p,stat} [kN]	3,5	4,1	6,1	9,3	15,7	24,2	37,1	47,6
			N _{Rec,p,stat} [kN]	2,4	2,8	4,2	6,3	10,7	16,7	25,6	32,9
		h _{ef,max} = 20*d	N _{Rec,p,stat} [kN]	7,0	9,1	13,3	23,7	37,0	55,3	80,2	102,1
			N _{Rec,p,stat} [kN]	4,7	6,2	9,1	16,1	25,2	38,2	55,3	70,5

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Load Values - Maximum load recommended - Rebar

Maximum Loads Recommended - Tension Load

Steel Failure - Recommended Load

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø28	Ø32
Rebar Grade BSt 500 S	N _{Rk,s}	[kN]	9	14	20	38	59	59	84	110	134

Maximum Loads Recommended - Shear Load

Steel Failure - Recommended Load

Size			Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø28	Ø32
Rebar Grade BSt 500 S	V _{Rk,s}	[kN]	7	10	15	20	26	41	64	81	105

Maximum Load Values to Tension Load ⁽¹⁾

Design bond resistance in non-cracked concrete C20/25

Concrete Class	Temperature Range ⁽²⁾	Embedment Depth	Size	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25	Ø28	Ø32
NON-CRACKED CONCRETE	24°C/40°C	h _{ef,min}	N _{Rec,p,stat} [kN]	7,2	9,0	12,6	15,7	18,4	24,7	31,2	39,1	43,4
		h _{ef,standard}	N _{Rec,p,stat} [kN]	9,6	13,5	19,7	24,1	28,7	46,6	65,4	87,3	94,9
		h _{ef,max} = 20*d	N _{Rec,p,stat} [kN]	19,1	19,1	29,9	43,1	76,6	109,7	158,0	181,8	202,0
	50°C/80°C	h _{ef,min}	N _{Rec,p,stat} [kN]	5,2	6,5	9,0	11,3	13,2	17,8	22,4	26,6	29,5
		h _{ef,standard}	N _{Rec,p,stat} [kN]	6,9	9,7	14,2	17,3	20,6	33,6	47,1	59,3	64,6
		h _{ef,max} = 20*d	N _{Rec,p,stat} [kN]	13,8	21,5	31,0	42,2	52,9	79,0	112,2	132,9	147,6
CRACKED CONCRETE	24°C/40°C	h _{ef,min}	N _{Rec,p,stat} [kN]	3,7	3,9	5,6	6,9	8,5	12,3	19,6	25,4	33,2
			N _{Rec,p,stat} [kN]	2,7	2,8	4,0	5,0	6,0	8,8	14,0	18,2	23,7
		h _{ef,standard}	N _{Rec,p,stat} [kN]	5,0	5,8	8,7	10,6	13,2	23,3	41,2	56,7	72,6
			N _{Rec,p,stat} [kN]	3,6	4,2	6,2	7,6	9,4	16,7	29,5	40,5	51,9
		h _{ef,max} = 20*d	N _{Rec,p,stat} [kN]	10,0	13,0	19,0	25,9	33,8	54,9	98,2	127,1	166,0
			N _{Rec,p,stat} [kN]	7,1	9,3	13,6	18,5	24,2	39,2	70,1	90,8	118,5
	50°C/80°C	h _{ef,min}	N _{Rec,p,stat} [kN]	2,6	2,7	3,9	4,9	5,9	8,6	13,7	17,8	23,2
			N _{Rec,p,stat} [kN]	1,8	1,9	2,6	3,3	4,0	6,0	9,5	12,3	15,8
		h _{ef,standard}	N _{Rec,p,stat} [kN]	3,5	4,1	6,1	7,4	9,3	16,3	28,9	39,7	50,8
			N _{Rec,p,stat} [kN]	2,4	2,8	4,2	5,1	6,3	11,3	19,9	27,4	34,6
		h _{ef,max} = 20*d	N _{Rec,p,stat} [kN]	7,0	9,1	13,3	18,1	23,7	38,4	68,7	88,9	116,2
			N _{Rec,p,stat} [kN]	4,7	6,2	9,1	12,3	16,1	26,5	47,4	61,4	79,0