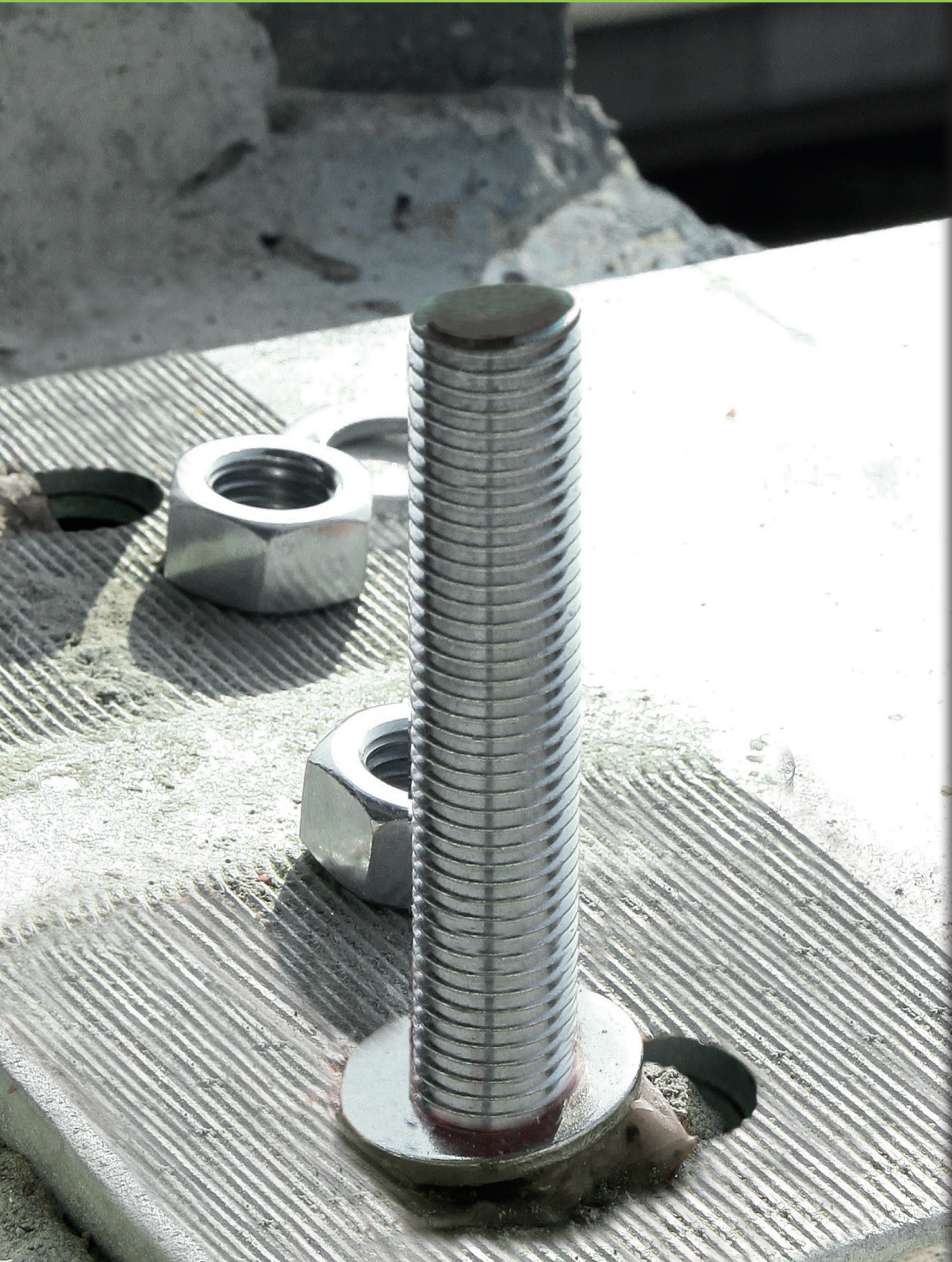


Concrete vinylester anchor **C100-PLUS**



 CHEMICALS



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C100-PLUS

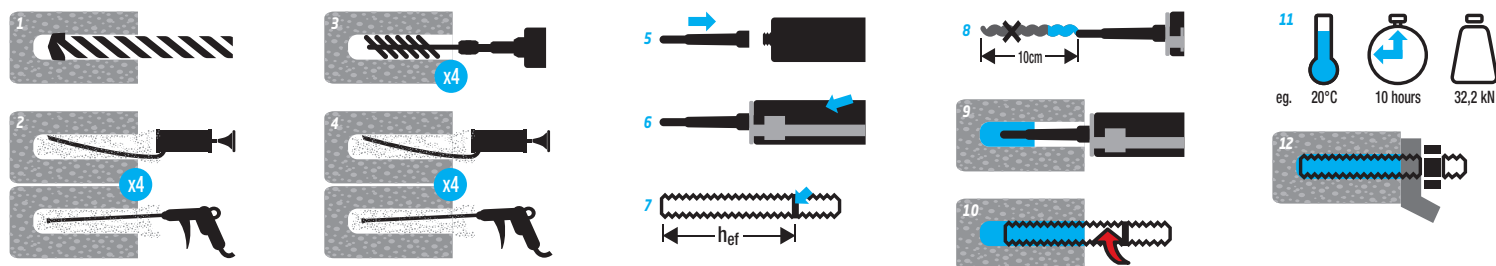
PROPERTIES

- **Seismic category C1** approved
- **ETA option 1 approval** for threaded rods diameter 8-30 and rebar diameter 8-32 in cracked and non-cracked concrete
- **Fast curing vinyl ester for heavy structural applications**
- **ETA approval for post installed rebar**
- ETA approval for **masonry**
- Approved for **waterfilled drillholes**
- Approved for **overhead installation**
- **Suitable for almost any application:** threaded rods and rebar, concrete, masonry, solid and hollow brick, dry and waterfilled drillholes
- Approved for temperatures of -10°C and up
- Approved for use in **combination with commercially standard threaded rods and rebar**

APPROVALS AND TEST REPORTS



INSTALLATION INSTRUCTIONS ACCORDING TO ETA-12/0169



Instructions valid for installation of applications acc. to ETA-12/0169. For different applications, please refer to the relevant ETA certificate

ASSORTMENT OVERVIEW



Concrete vinyl ester chemical anchor C100-PLUS

Type	Art. Nr.	QTY	QTY	71158 QTY	ML	Art. Nr.	QTY
C100-PLUS 150ML	71108	1	20	1	150		
C100-PLUS 300ML	71110	1	20	1	300	71402	20
C100-PLUS 360ML	71112	1	15	1	360		
C100-PLUS 420ML	71114	1	15	1	420	71406	20
C100-PLUS 825ML	71116	1	9	1	825		



TECHNICAL DATA

Installation data, concrete, ETA-12/0169

		M8 / Ø8	M10 / Ø10	M12 / Ø12	Ø14	M16 / Ø16	M20 / Ø20	M24	Ø25	M27	Ø28	M30	Ø32
Nominal drilling diameter (rebar)	d ₀ (mm)	12	14	16	18	20	24		32		35		40
Nominal drilling diameter (threaded rod)	d ₀ (mm)	10	12	14		18	24	28		32		35	
Cleaning brush Ø rebar	D max - D min (mm)	14-12,5	16-14,5	18-16,5	20-18,5	22-20,5	26-24,5		34-32,5		37-35,5		41,5-40,5
Cleaning brush Ø threaded rod	D max - D min (mm)	12-10,5	14-12,5	16-14,5		20-18,5	26-24,5	30-28,5		34-32,5		37-35,5	
Min. thickness of base material	h _{min} (mm)	h _{ef} ≥ 100 mm.				h _{ef} + 2d ₀							
Hole diameter in fixture	df (mm) ≤	9	12	14		18	22	26		30		33	
Min. edge / center-to-center distance	s _{min} / c _{min} (mm)	40	50	60	70	80	100	120	125	135	140	150	160
Torque (Threaded rod)	T _{inst} (Nm)	10	20	40		80	120	160		180		200	

serious fixings

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Allowable loads, uncracked concrete, ETA-12/0169

		M8	M10	M12	M16	M20	M24	M27	M30
Max. effect. anchorage depth	h_{ef} max (mm)	160	200	240	320	400	480	540	600
Dry concrete									
Design value for h_{ef} max, 8.8 steel grade, C20/25	Shear V Rd (kN)	12,0	18,4	27,2	50,4	78,4	112,8	147,2	179,2
Design value for h_{ef} max, 8.8 steel grade, C20/25	Tension N Rd (kN)	19,3	30,7	44,7	83,3	130,7	188	245,3	282,7
Waterfilled drill holes									
Design value for h_{ef} max, 8.8 steel grade, C20/25	Shear V Rd (kN)	12,0	18,4	27,2	50,4	-	-	-	-
Design value for h_{ef} max, 8.8 steel grade, C20/25	Tension N Rd (kN)	14,4	25,4	36,6	65,1	-	-	-	-
Min. effect. anchorage depth	h_{ef} min (mm)	60	60	70	80	90	96	108	120
Dry concrete									
Design value for h_{ef} min, 8.8 steel grade, C20/25	Shear V Rd (kN)	12,0	18,4	27,2	48,2	57,5	63,3	75,6	88,5
Design value for h_{ef} min, 8.8 steel grade, C20/25	Tension N Rd (kN)	10,1	12,6	16,4	20,1	24	26,4	31,5	36,9
Waterfilled drill holes									
Design value for h_{ef} min, 8.8 steel grade, C20/25	Shear V Rd (kN)	12,0	18,4	27,2	48,2	-	-	-	-
Design value for h_{ef} min, 8.8 steel grade, C20/25	Tension N Rd (kN)	5,4	7,6	10,7	16,3	-	-	-	-

Allowable loads, uncracked concrete, ETA-12/0169

h_{ef}	M8	M10	M12	M16	M20	M24	M27	M30
60	10,05	12,57	13,04	13,04	13,04	13,04	13,04	13,04
70	11,73	14,66	16,43	16,43	16,43	16,43	16,43	16,43
80	13,40	16,75	20,11	20,07	20,07	20,07	20,07	20,07
90	15,08	18,85	22,62	23,95	23,95	23,95	23,95	23,95
100	16,75	20,94	25,13	28,06	28,06	28,06	28,06	28,06
110	18,43	23,04	27,65	32,37	32,37	32,37	32,37	32,37
120	19,33	25,13	30,16	36,88	36,88	36,88	36,88	36,88
130	19,33	27,23	32,67	41,58	41,58	41,58	41,58	41,58
140		29,32	35,18	46,47	46,47	46,47	46,47	46,47
150		30,67	37,70	50,26	51,54	51,54	51,54	51,54
160		30,67	40,21	53,61	56,78	56,78	56,78	56,78
170			42,72	56,97	62,19	62,19	62,19	62,19
180			44,67	60,32	67,75	67,75	67,75	67,75
190			44,67	63,67	73,48	73,48	73,48	73,48
200				67,02	79,35	79,35	79,35	79,35
210				70,37	85,38	85,38	85,38	85,38
220				73,72	91,55	91,55	91,55	91,55
230				77,07	96,34	97,86	97,86	97,86
240				80,42	100,53	104,31	104,31	104,31
250				83,33	104,72	110,90	110,90	110,90
260				83,33	108,91	117,62	117,62	117,62
270					113,09	124,40	124,47	124,47
280					117,28	129,01	131,45	131,45
290					121,47	133,62	136,66	136,66
300					125,66	138,23	141,37	141,37
310					129,85	142,83	146,08	146,08
320					130,67	147,44	150,79	150,79
330					130,67	152,05	155,50	155,50
340						156,66	160,22	160,22
350						161,26	164,93	164,93
360						165,87	169,64	169,64
370						170,48	174,35	174,35
380						175,09	179,07	179,07
390						179,69	183,78	183,78
400						184,30	188,49	188,49
410						188,00	193,20	193,20
420						188,00	197,91	197,91
430							202,63	202,63
440							207,34	207,34
450							212,05	212,05
460							216,76	216,76
470							221,48	221,48
480							226,19	226,19
490							230,90	230,90
500							235,61	235,61
510							240,32	240,32
520							245,04	245,04
530							245,33	249,75
540							245,33	254,46
550								259,17
560								263,89
570								268,60
580								273,31
590								278,02
600								282,74
610								287,45
620								292,16
630								296,87
640								299,33
650								299,33

Cracked concrete, ETA-12/0169

		M12	M16	M20	M24	M27	M30
Max. effect. anchorage depth	h_{ef} max (mm)	240	320	400	480	540	600
Dry concrete							
Design value for h_{ef} max, 8.8 steel grade, C20/25	Shear V Rd (kN)	27,2	50,4	78,4	112,8	147,2	179,2
Design value for h_{ef} max, 8.8 steel grade, C20/25	Tension N Rd (kN)	27,6	49,1	76,8	110,6	165,4	204,2
Waterfilled drill holes							
Design value for h_{ef} max, 8.8 steel grade, C20/25	Shear V Rd (kN)	27,2	50,4	-	-	-	-
Design value for h_{ef} max, 8.8 steel grade, C20/25	Tension N Rd (kN)	23,7	42,1	-	-	-	-
Min. effect. anchorage depth	h_{ef} min (mm)	70	80	90	96	108	120
Dry concrete							
Design value for h_{ef} min, 8.8 steel grade, C20/25	Shear V Rd (kN)	19,4	29,5	41,0	45,2	53,9	63,1
Design value for h_{ef} min, 8.8 steel grade, C20/25	Tension N Rd (kN)	8,1	12,3	17,1	18,8	22,4	26,3
Waterfilled drill holes							
Design value for h_{ef} min, 8.8 steel grade, C20/25	Shear V Rd (kN)	19,4	29,5	-	-	-	-
Design value for h_{ef} min, 8.8 steel grade, C20/25	Tension N Rd (kN)	6,9	10,5	-	-	-	-

Allowable loads, cracked and uncracked concrete ETA-12/0170 (post installed rebar)

		Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø22	Ø24	Ø25
Max. embedment depth	L v _{max}	1000	1000	1200	1400	1600	2000	2000	2000	2000
Min. embedment depth	L v _{min}	170	213	255	298	340	425	468	510	532
Design load (for anchor length 1 = minimum)	N rd (kN) (l bd (mm))	9,8(170)	15,4(213)	22,1(255)	30,2(298)	39,3(340)	61,4(425)	74,4(468)	88,4(510)	96,1(532)
Design load (for anchor length 2)	N rd (kN) (l bd (mm))	12,7(220)	20,2(280)	28,6(330)	39,5(390)	50,9(440)	80,9(560)	97,0(610)	116(670)	124,6(690)
Design load (for anchor length 3)	N rd (kN) (l bd (mm))	15,6(270)	24,6(340)	35,6(410)	48,6(480)	63,4(550)	99,7(690)	119,2(750)	142,2(820)	155,4(860)
Design load (for anchor length 4)	N rd (kN) (l bd (mm))	21,9(378)	29,6(410)	42,5(490)	57,7(570)	75,2(650)	118,5(820)	143,1(900)	170,0(980)	184,3(1020)
Design load (for anchor length 5)	N rd (kN) (l bd (mm))	-	34,2(473)	49,2(567)	66,9(662)	87,4(756)	136,6(945)	165,3(1040)	196,7(1134)	213,4(1181)

Masonry, ETA-13/0265

		M8	M10	M12
Design load: full base material*	Tension N Rd (kN)	2,0	2,8	2,8
Design load: hollow base material*	Tension N Rd (kN)	1,0	1,2	1,2
Nominal drilling diameter: without injection sleeve	d_0 (mm)	10	12	12
Nominal drilling diameter: with injection sleeve	d_0 (mm)	14	16	16
Embedment depth injection sleeve	h_s (mm)	100	100	100
Effective embedment depth	h_{ef} (mm)	80	90	90
Hole diameter in fixture	d_f (mm) ≤	9,0	12,0	14,0
Min. edge / center-to-center distance: full base material	s min / c min (mm)	50	50	50
Min. edge / center-to-center distance: hollow base material	s min / c min (mm)	100	100	100
Installation torque	T inst (Nm)	2,0	2,0	2,0

* Dry masonry, with injection sleeve, sand-lime stone

Volume table; required #ml per 100 holes, with 10% waste

Anchor Ø	DrillØ d ₁ (mm): threaded rod	DrillØ d ₂ (mm): rebar	h_{ef} (mm)	#ml at d ₁	#ml at d ₂
M8 / Ø8	10	12	32	162	308
M8 / Ø8	10	12	48	243	462
M8 / Ø8	10	12	64	324	616
M8 / Ø8	10	12	80	405	770
M8 / Ø8	10	12	96	486	924
M8 / Ø8	10	12	112	567	1078
M8 / Ø8	10	12	128	648	1231
M8 / Ø8	10	12	144	729	1385
M8 / Ø8	10	12	160	809	1539
M10 / Ø10	12	14	40	265	481
M10 / Ø10	12	14	60	398	722
M10 / Ø10	12	14	80	531	962
M10 / Ø10	12	14	100	664	1203
M10 / Ø10	12	14	120	796	1443
M10 / Ø10	12	14	140	929	1684
M10 / Ø10	12	14	160	1.062	1.924
M10 / Ø10	12	14	180	1.194	2.165
M10 / Ø10	12	14	200	1.327	2.405
M12 / Ø12	14	16	48	402	701
M12 / Ø12	14	16	72	603	1.051
M12 / Ø12	14	16	96	804	1.401
M12 / Ø12	14	16	120	1.005	1.752
M12 / Ø12	14	16	144	1.206	2.102
M12 / Ø12	14	16	168	1.407	2.452
M12 / Ø12	14	16	192	1.608	2.803
M12 / Ø12	14	16	216	1.809	3.153
M12 / Ø12	14	16	240	2.010	3.503
M16 / Ø16	18	20	64	791	1.295
M16 / Ø16	18	20	96	1.186	1.943
M16 / Ø16	18	20	128	1.582	2.590
M16 / Ø16	18	20	160	1.977	3.238
M16 / Ø16	18	20	192	2.373	3.885
M16 / Ø16	18	20	224	2.768	4.533
M16 / Ø16	18	20	256	3.164	5.181
M16 / Ø16	18	20	288	3.559	5.828
M16 / Ø16	18	20	320	3.954	6.476

Anchor Ø	DrillØ d ₁ (mm): threaded rod	DrillØ d ₂ (mm): rebar	h_{ef} (mm)	#ml at d ₁	#ml at d ₂
M20 / Ø20	24	24	80	2.123	2.123
M20 / Ø20	24	24	120	3.185	3.185
M20 / Ø20	24	24	160	4.246	4.246
M20 / Ø20	24	24	200	5.308	5.308
M20 / Ø20	24	24	240	6.370	6.370
M20 / Ø20	24	24	280	7.431	7.431
M20 / Ø20	24	24	320	8.493	8.493
M20 / Ø20	24	24	360	9.554	9.554
M20 / Ø20	24	24	400	10.616	10.616
M24 / Ø25	28	32	96-100	3.217	5.215
M24 / Ø25	28	32	144-150	4.825	7.823
M24 / Ø25	28	32	192-200	6.433	10.430
M24 / Ø25	28	32	240-250	8.042	13.038
M24 / Ø25	28	32	288-300	9.650	15.645
M24 / Ø25	28	32	336-350	11.258	18.253
M24 / Ø25	28	32	384-400	12.867	20.861
M24 / Ø25	28	32	432-450	14.475	23.468
M27 / Ø28	32	35	108-112	4.935	6.693
M27 / Ø28	32	35	162-168	7.403	10.040
M27 / Ø28	32	35	216-224	9.871	13.387
M27 / Ø28	32	35	270-280	12.339	16.733
M27 / Ø28	32	35	324-336	14.806	20.080
M27 / Ø28	32	35	378-392	17.274	23.427
M27 / Ø28	32	35	432-448	19.742	26.773
M27 / Ø28	32	35	486-504	22.210	30.120
M27 / Ø28	32	35	540-560	24.677	33.467
M30 / Ø32	35	40	120-128	6.283	9.714
M30 / Ø32	35	40	180-192	9.424	14.571
M30 / Ø32	35	40	240-256	12.565	19.427
M30 / Ø32	35	40	300-320	15.706	24.284
M30 / Ø32	35	40	360-384	18.848	29.141
M30 / Ø32	35	40	420-448	21.989	33.998
M30 / Ø32	35	40	480-512	25.130	38.855
M30 / Ø32	35	40	540-576	28.272	43.712
M30 / Ø32	35	40	600-640	31.413	48.569

Setting time

Temp.	Gel time	Setting time dry	Setting time wet
-10° C	90 min.	24 h.	48 h.
-5° C	90 min.	14 h.	28 h.
0° C	45 min.	7 h.	14 h.
5° C	25 min.	2 h.	4 h.
10° C	15 min.	80 min.	160 min.
20° C	6 min.	45 min.	90 min.
30° C	4 min.	25 min.	50 min.
35° C	2 min.	20 min.	40 min.
40° C	1,5 min.	15 min.	30 min.

Your Sympafix dealer:



All values and formulas can be found in the ETA report