

TECHNICAL DATASHEET

Gebofix PRO VE-SF NORDIC CE1 vinylester chemical anchor for low temperatures

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Certificates

ETA 16/0600 Certification Option 1 for anchoring of threaded bars on non-cracked and cracked concrete, of reinforcing bars on non-cracked concrete
Complies with LEED® requirements, IEQ Credit 4.1

Base material

certified use	specific use	suitable use
non-cracked concrete cracked concrete	natural stone solid masonry hollow masonry hollow concrete block	cellular concrete wood

Sizes

art.	content	mixer	gun
CCWT13	400 ml	1 M17	CP01, CP11, CP15, CP16
CCWT32	300 ml	1 M17	CP07, CP17

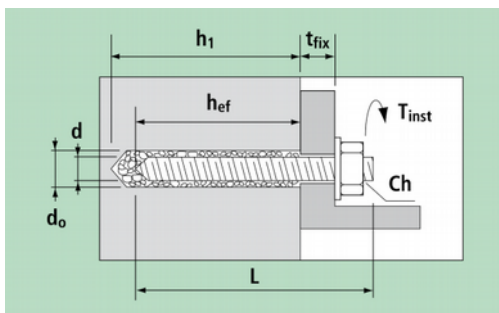
Intended use

Dry or wet concrete
Flooded holes on concrete (bars M8 to M16 and Ø8 to Ø16)
Installation temperature: between -10 and +10 °C
Cartridge temperature during installation: between 0 and +20 °C
Work temperature: I between -40 and +40 °C (maximum short term temperature +40 °C; long term +24 °C)
II between -40 and +80 °C (maximum short term temperature +80 °C; long term +50 °C)
Shelf life: 18 months for 410 ml and 350 ml cartridges, 12 months for 300 ml cartridges (storage temperature between 0 and +25 °C)

Time and temperatures

temperature of base material	working time	full curing dry base material	full curing wet base material
-20 ÷ -11 °C *	45 min *	35 h *	70 h *
-10 ÷ -6 °C	35 min	12 h	24 h
-5 ÷ -1 °C	15 min	5 h	10 h
+0 ÷ +4 °C	10 min	2,5 h	5 h
+5 ÷ +9 °C	6 min	80 min	160 min
+10 °C	6 min	60 min	120 min

* usage not covered by certification
cartridge temperature must be between 0 and +20 °C



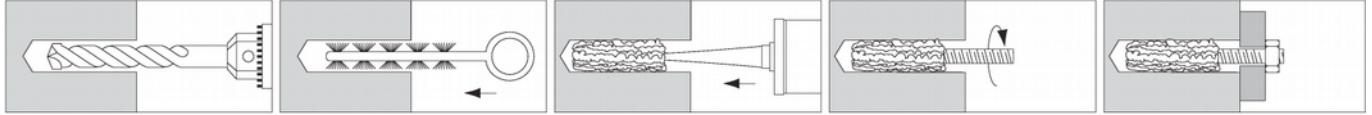
- d = bar diameter
- L = bar length
- t_{fix} = fixable thickness
- d₀ = hole diameter
- h₁ = minimum hole depth
- h_{nom} = setting depth
- h_{ef} = effective anchorage depth
- T_{inst} = tightening torque

use without sleeve: h_{ef} = h₁ = h_{nom}

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- **Use on non-cracked and cracked concrete with threaded bars**

Installation

Setting parameters

bar size		M8	M10	M12	M16	M20	M24	M27	M30
hole diameter	d ₀ mm	10	12	14	18	22	26	30	35
hole depth	h _{ef,min} mm	64	80	96	128	160	192	216	240
	h _{ef,max} mm	160	200	240	320	400	480	540	600
minimum spacing	s _{min} mm	h _{ef} / 2							
minimum edge distance	c _{min} mm	h _{ef} / 2							
min. base material thickness	h _{min} mm	h _{ef} + 30 ≥ 100				h _{ef} + 2d ₀			
tightening torque	T _{inst} Nm	10	20	40	80	150	200	240	275

Strength data

For installation on dry or wet concrete and work temperature I (minimum temperature -40 °C, maximum short term temperature +40 °C; long term +24 °C)

Valid for a single anchor far from the edges, on a thick concrete member of class C20/25 with sparse reinforcing.

- **Threaded bars on non-cracked concrete**

Characteristic resistance of resin (kN)

at standard embedment depth

bar size		M8	M10	M12	M16	M20	M24	M27	M30
embedment depth	h _{ef} (mm)	80	90	110	128	170	210	240	270
tension	N _{Rk,p} (kN)	17,1	28,3	39,4	57,9	90,8	126,7	132,3	140,0

Design resistance (kN)

at standard embedment depth, for threaded bars in steel class 5.8 and 8.8

bar size		M8	M10	M12	M16	M20	M24	M27	M30
embedment depth	h _{ef} (mm)	80	90	110	128	170	210	240	270
tension	N _{Rd} (kN)	9,5	15,7	21,9	32,2	50,4	70,4	63,0	66,6
shear	V _{Rd} (kN)	7,3	11,6	16,9	31,4	49,0	70,6	91,8	112,2
		11,7	18,6	27,0	50,2	78,4	113,0	146,9	179,5

Recommended load (kN)

at standard embedment depth, for threaded bars in steel class 5.8 and 8.8

bar size		M8	M10	M12	M16	M20	M24	M27	M30
embedment depth	h _{ef} (mm)	80	90	110	128	170	210	240	270
tension	N _{rec} (kN)	6,8	11,2	15,6	23,0	36,0	50,3	45,0	47,6
shear	V _{rec} (kN)	5,2	8,3	12,0	22,4	35,0	50,4	65,6	80,1
		8,4	13,3	19,3	35,9	56,0	80,7	104,9	128,2

1 kN ≈ 100 kg

steel failure class 5.8 – steel failure class 8.8

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○ **Threaded bars on cracked concrete**

Characteristic resistance of resin (kN)
at standard embedment depth

bar size		M12	M16	M20	M24
embedment depth	h_{ef} (mm)	110	128	170	210
tension	$N_{Rk,p}$ (kN)	18,7	29,0	48,1	71,3

Design resistance (kN)

at standard embedment depth, for threaded bars in steel class 5.8 and 8.8

bar size		M12	M16	M20	M24
embedment depth	h_{ef} (mm)	110	128	170	210
tension	N_{Rd} (kN)	10,4	16,1	26,7	39,6
shear	V_{Rd} (kN)	16,8 24,9	31,2 38,6	48,8 64,1	70,4 95,0

Recommended load (kN)

at standard embedment depth, for threaded bars in steel class 5.8 and 8.8

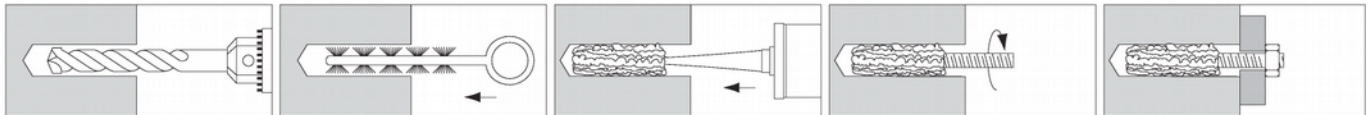
bar size		M12	M16	M20	M24
embedment depth	h_{ef} (mm)	110	128	170	210
tension	N_{rec} (kN)	7,4	11,5	19,1	28,3
shear	V_{rec} (kN)	12,0 17,8	22,3 27,6	34,9 45,8	50,3 67,9

1 kN \approx 100 kg

steel failure class 5.8 – steel failure class 8.8

● **Use on non-cracked concrete with reinforcing bars (used as anchors)**

Installation



Setting parameters

bar size		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32	
hole diameter	d_0 mm	12	14	16	20	25	32	40	
hole depth	$h_{ef,min}$ mm	64	80	96	128	160	200	256	
	$h_{ef,max}$ mm	160	200	240	320	400	500	640	
minimum spacing	s_{min} mm	$h_{ef} / 2$							
minimum edge distance	c_{min} mm	$h_{ef} / 2$							
min. base material thickness	h_{min} mm	$h_{ef} + 30 \geq 100$				$h_{ef} + 2d_0$			

Strength data

For installation on dry or wet concrete and work temperature I (minimum temperature -40 °C, maximum short term temperature +40 °C; long term +24 °C)

Valid for a single anchor far from the edges, on a thick concrete member of class C20/25 with sparse reinforcing.

○ **Reinforcing bars on non-cracked concrete**

Characteristic resistance of resin (kN)
at standard embedment depth

bar size		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
embedment depth	h_{ef} (mm)	80	90	110	145	170	210	300
tension	$N_{Rk,p}$ (kN)	17,1	28,3	41,5	65,6	96,1	148,4	165,9

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Design resistance (kN)

 at standard embedment depth, for reinforcing bars with $f_{uk} = 550 \text{ N/mm}^2$

bar size		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
embedment depth	h_{ef} (mm)	80	90	110	145	170	210	300
tension	N_{Rd} (kN)	9,5	15,7	23,0	36,4	53,4	82,5	92,2
shear	V_{Rd} (kN)	9,2	14,4	20,7	36,9	57,6	90,0	147,4

Recommended load (kN)

 at standard embedment depth, for reinforcing bars with $f_{uk} = 550 \text{ N/mm}^2$

bar size		Ø8	Ø10	Ø12	Ø16	Ø20	Ø25	Ø32
embedment depth	h_{ef} (mm)	80	90	110	145	170	210	300
tension	N_{rec} (kN)	6,8	11,2	16,5	26,0	38,1	58,9	65,8
shear	V_{rec} (kN)	6,6	10,3	14,8	26,3	41,1	64,3	105,3

 1 kN \approx 100 kg

steel failure

Load values derive from parameters certified in European Technical Assessment ETA 16/0600. Characteristic resistance N_{Rk} refers uniquely to the resin resistance to failure due to pull-out and concrete cone. Design resistances N_{Rd} e V_{Rd} refer to all failure modes and include partial safety factors on strengths. Recommended loads N_{rec} and V_{rec} include the further 1.4 safety factor.

For the design of fixing with reduced spacing, near the edge or on concrete with increased resistance, reduced thickness or dense reinforcement refer to ETA 16/0600 or to Declaration of Performance DPGE1018 and use the design method outlined in EOTA's *Technical Report 029* or in CEN/TS 1992-4-5:2009. In the same way, for anchors installed in flooded holes and for different working temperatures (II, between -40 and +80 °C) refer to ETA. One can also calculate and verify the fixings made with Gebofix PRO VE-SF NORDIC by means of *G&B Calculation Program* available on the website www.gebfissaggi.com.