VIN-FIX PRO NORDIC

Vinyl ester chemical anchor for low temperatures

- CE option 1 for cracked and uncracked concrete
- Certified use for masonry (category of use c, w/d)
- C1 seismic performance category (M12-M24)
- Workability at extremely low temperatures (- 10 °C)
- Comply with LEED ®, IEQ Credit 4.1
- Dry or wet concrete
- Concrete with submerged holes
- No stress in the support
- Without styrene - odorless

VIN-FIX PRO NORDIC

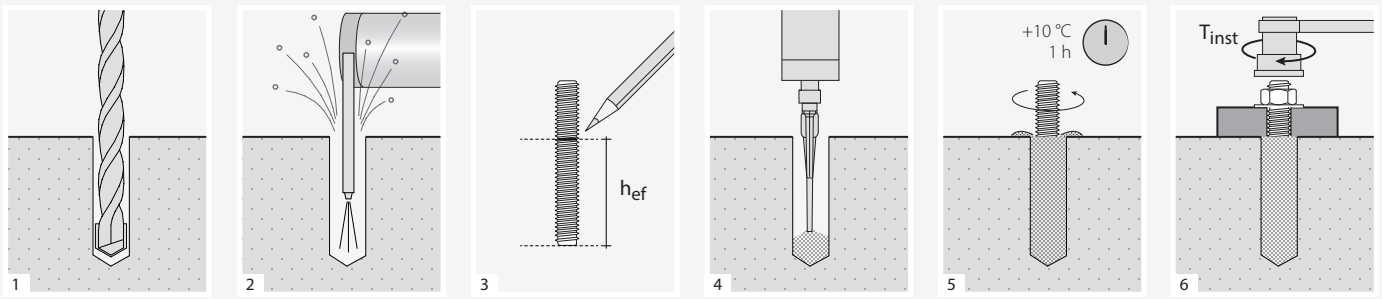
code	format [ml]	pcs/box
VIN410N	410	12

Expiry from date of manufacturing: 18 months
Storage temperature between 0 and +25° C.

ADDITIONAL PRODUCTS - ACCESSORIES

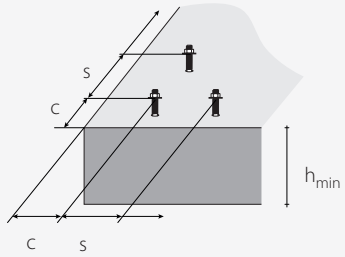
code	description	format [ml]	pcs/box
MAM400	gun for cartridge	410	1
STING	nozzle	-	12
PONY	blowing pump	-	1

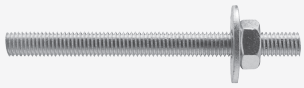
ASSEMBLY



INSTALLATION

INSTALLATION GEOMETRY ON CONCRETE - THREADED RODS (TYPE INA or MGS)

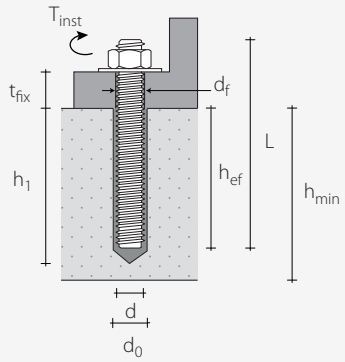




d	[mm]	M8	M10	M12	M16	M20	M24	M27	M30
d_0	[mm]	10	12	14	18	22	26	30	35
$h_{ef,min}$	[mm]	64	80	96	128	160	192	216	240
$h_{ef,max}$	[mm]	160	200	240	320	400	480	540	600
d_f	[mm]	9	12	14	18	22	26	30	33
T_{inst}	[Nm]	10	20	40	80	150	200	240	275

			M8	M10	M12	M16	M20	M24	M27	M30
Minimum spacing	s_{min}	[mm]	h_{ef} / 2							
Minimum edge distance	c_{min}	[mm]	h_{ef} / 2							
Minimum thickness of the concrete support	h_{min}	[mm]	$h_{ef} + 30 \geq 100$ mm					$h_{ef} + 2\,d_0$		

For spacing and distance smaller than the critical ones, strength values have to be reduced according to the installation parameters.



d = anchor diameter
d_0 = hole diameter on the concrete support
h_{ef} = effective anchor depth
d_f = maximum hole diameter on the element to fasten

T_{inst} = tightening torque
L = anchor length
t_{fix} = maximum fixing thickness
h_1 = minimum hole depth

INSTALLATION TIME AND TEMPERATURE

support temperature	cartridge temperature	workability time	curing time before loading	
			dry support	wet support
- 20 ÷ - 11 °C *	0 ÷ + 20 °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

* use not included in certification

STATIC CHARACTERISTIC VALUES

Valid for a single threaded rod (INA or MGS) in very thick C20/25 grade concrete with a thin reinforcing layer when spacing and edge-distance are not limiting parameters.

UNCRACKED CONCRETE (1)

TENSION

bar	$h_{ef,standard}$ [mm]	$N_{Rk,p}$ (2) [kN] steel 5.8	γ_{Mp}	steel 8.8	γ_{Mp}
M8	80	17,1	1,8	17,1	1,8
M10	90	28,3		28,3	
M12	110	39,4		39,4	
M16	128	57,9		57,9	
M20	170	90,8		90,8	
M24	210	126,7		126,7	
M27	240	132,3	2,1	132,3	2,1
M30	270	140,0		140,0	

increment factor for $N_{Rk,p}$ (4)		
ψ_c	C25/30	1,02
	C30/37	1,04
	C40/50	1,08
	C50/60	1,10

SHEAR

bar	h_{ef} [mm]	$V_{Rk,s}$ (3) [kN] steel 5.8	γ_{Ms}	steel 8.8	γ_{Ms}
M8	≥ 64	9,0	1,25	15,0	1,25
M10	≥ 80	15,0		23,0	
M12	≥ 96	21,0		34,0	
M16	≥ 128	39,0		63,0	
M20	≥ 160	61,0		98,0	
M24	≥ 192	88,0		141,0	
M27	≥ 216	115,0		184,0	
M30	≥ 240	140,0		224,0	

CRACKED CONCRETE (1)

TENSION

bar	$h_{ef,standard}$ [mm]	$N_{Rk,p}$ (2) [kN] steel 5.8	γ_{Mp}	steel 8.8	γ_{Mp}
M12	110	18,7	1,8	18,7	1,8
M16	128	29,0		29,0	
M20	170	48,1		48,1	
M24	210	71,3		71,3	

SHEAR

bar	$h_{ef,standard}$ [mm]	V_{Rk} [kN] steel 5.8	γ_{Ms}	steel 8.8	γ_{Mc}
M12	110	21,0	1,25 (3)	37,3	1,5 (5)
M16	128	39,0		57,9	
M20	170	61,0		96,1	
M24	210	88,0		142,5	

STATIC ADMISSIBLE VALUES

UNCRACKED CONCRETE

TENSION

bar	$h_{ef,standard}$ [mm]	N_{rec} [kN]	
		steel 5.8	steel 8.8
M8	80	6,8	6,8
M10	90	11,2	11,2
M12	110	15,6	15,2
M16	128	23,0	23,0
M20	170	36,0	36,0
M24	210	50,3	50,3
M27	240	45,0	45,0
M30	270	47,6	47,6

SHEAR

bar	h_{ef} [mm]	V_{rec} [kN]	
		steel 5.8	steel 8.8
M8	≥ 64	5,1	8,6
M10	≥ 80	8,6	13,1
M12	≥ 96	12,0	19,4
M16	≥ 128	22,3	36,0
M20	≥ 160	34,9	56,0
M24	≥ 192	50,3	80,6
M27	≥ 216	65,7	105,1
M30	≥ 240	80,0	128,0

GENERAL PRINCIPLES

- Characteristic values according to ETA 16/0600.
- Design values can be obtained from characteristic values as follows:

$$R_d = \frac{R_k}{\gamma_m}$$

  Coefficients γ_m are listed in the table in accordance with the failure characteristics and product certificates.
- Admissible values (recommended) are evaluated from the characteristic values by applying the material safety factors γ_m according to ETA and a further partial factor for external actions $\gamma_f = 1,4$.
- For the calculation of anchors with reduced spacing, or too close to the edge, please refer to ETA. Similarly, in case of fastening on concrete-supports with a better-grade, limited thickness or a thick reinforcing layer please see ETA.
- For the design of anchors subjected to seismic loading refer to ETA and to ETAG 001 (Annex E and TR045).
- For specifications of the diameters covered by the various certifications (cracked concrete, uncracked concrete, seismic applications, masonry), please refer to ETA.

NOTES

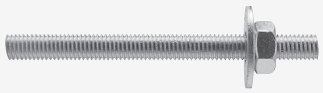
(1) For the calculation of anchors in masonry or in case of high bond bars, please see ETA document.
(2) Pull-out and concrete cone failure.
(3) Steel failure mode.
(4) Tensile-strength increment factor (excluding steel failure) for both cracked and uncracked concrete.
(5) Pry-out failure.

INA

5.8 steel-grade threaded-rod for chemical anchors

- Complete with nut (ISO4032) and washer (ISO7089)
- 5.8 grade galvanized steel

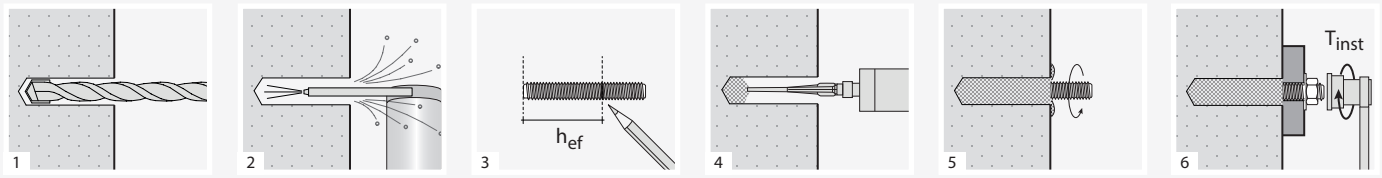
INA



code	d [mm]	L_t [mm]	d_0 [mm]	d_f [mm]	pcs/box
FE210100	**M8**	**110**	10	≤ 9	10
FE210105	**M10**	**110**	12	≤ 12	10
FE210110		**130**	12	≤ 13	10
FE210115	**M12**	**130**	14	≤ 14	10
FE210119		**180**	14	≤ 15	10
FE210116	**M16**	**160**	18	≤ 18	10
FE210118		**190**	18	≤ 18	10
FE210121		**230**	18	≤ 18	10
FE210117	**M20**	**240**	24	≤ 22	10
FE210122	**M24**	**270**	28	≤ 26	10
FE210123	**M27**	**400**	32	≤ 30	10

d_0 = hole diameter in the support / d_f = hole diameter in the element to be fastened

ASSEMBLY



IHP - IHM

Mesh bush for hollow materials

IHP - PLASTIC MESH

code	d_0 [mm]	L [mm]	bar [mm]	d_0 [mm]	pcs/box
FE210120	**16**	85	M10 (M8)	16	10
FE210125	**16**	130	M10 (M8)	16	10
FE210130	**20**	85	M12 / M16	20	10

IHM - METALLIC MESH

code	d_0 [mm]	L [mm]	bar [mm]	d_0 [mm]	pcs/box
FE210230	**12**	1000	M8	12	10
FE210235	**16**	1000	M8 / M10	16	10
FE210240	**22**	1000	M12 / M16	22	5

ASSEMBLY