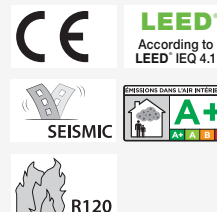


VINYLPRO

Two-component vinyl ester chemical anchor without styrene

CCE Option 1 - C1 seismic performance category



- CE option 1
- Certified use for cracked and uncracked concrete, solid and hollow brick masonry (category of use a,b,c)
- C1 seismic performance category (M12-M16)
- Fire resistance R120
- Comply with LEED®, IEQ Credit 4.1
- A+ Class: emission of volatile organic compounds (VOC) in lived environments
- Dry, wet and soaked concrete hole
- Certified for use in contact with potable water
- No stress in the support
- Without styrene - odorless



VINYLPRO



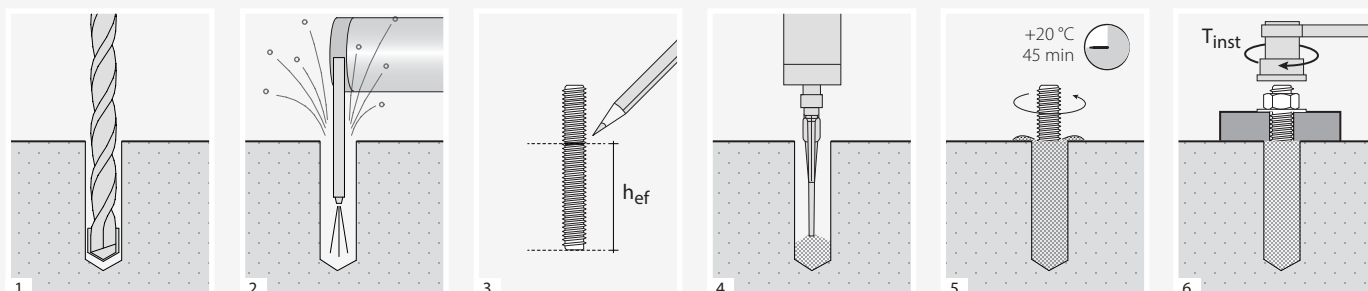
code	format [ml]	pcs/box
FE400055	410	1
FE400056	300	1

Expiry from date of manufacturing: 18 months for 410 ml / 12 months for 300 ml.

ADDITIONAL PRODUCTS - ACCESSORIES

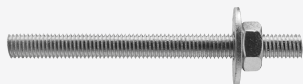
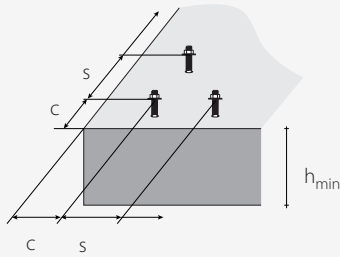
code	description	format [ml]	pcs/box
MAM400	gun for cartridge	410	1
FLY401	gun for cartridge	300	1
STING	nozzle	-	12
PONY	blowing pump	-	1

ASSEMBLING



INSTALLATION

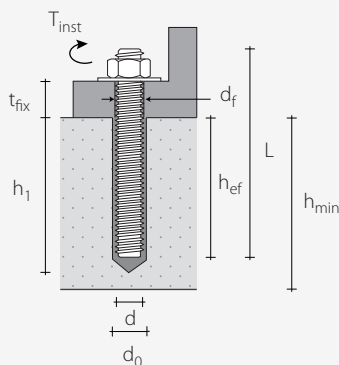
INSTALLATION GEOMETRY – THREADED RODS (TYPE INA O MGS)



d	[mm]	M8	M10	M12	M16	M20	M24	M27
d_0	[mm]	10	12	14	18	24	28	32
$h_{ef,min}$	[mm]	64	80	96	128	160	192	216
$h_{ef,max}$	[mm]	144	180	216	288	360	432	486
d_f	[mm]	9	12	14	18	22	26	30
T_{inst}	[Nm]	10	20	40	80	120	160	180

		M8	M10	M12	M16	M20	M24	M27
Minimum spacing	s_{min} [mm]	40	50	60	80	100	120	135
Minimum edge distance	c_{min} [mm]	40	50	60	80	100	120	135
Minimum thickness of the concrete support	h_{min} [mm]	$h_{ef} + 30 \geq 100 \text{ mm}$			$h_{ef} + 2 d_0$			

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 in concrete support
 h_{ef} = effective anchorage 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
-10 ÷ -4 °C	≥ +15 °C	90 min	24 h	48 h
-5 ÷ -1 °C	≥ +5 °C	90 min	14 h	24 h
0 ÷ 4 °C	≥ +5 °C	45 min	7 h	14 h
5 ÷ 9 °C	≥ +5 °C	25 min	2 h	4 h
10 ÷ 19 °C	≥ +5 °C	15 min	80 min	160 min
20 ÷ 29 °C	≥ +5 °C	6 min	45 min	90 min
30 ÷ 34 °C	≥ +5 °C	4 min	25 min	50 min
35 ÷ 39 °C	≥ +5 °C	2 min	20 min	40 min
40 °C	≥ +5 °C	1,5 min	15 min	30 min

STATIC CHARACTERISTIC VALUES

Valid for a single threaded rod (type INA o MGS) in C20/25 grade concrete when spacing and edge-distance are not limiting parameters.

UNCRACKED CONCRETE ⁽¹⁾

TENSION

bar	h _{ef,min} [mm]	N _{Rk,p} ⁽²⁾ [kN]				h _{ef,max} [mm]	N _{Rk,s / Rk,p} ⁽³⁾ [kN]			
		steel 5.8	γ _{Mp}	steel 8.8	γ _{Mp}		steel 5.8	γ _{Ms}	steel 8.8	γ _M
M8	64	13,7	1,5	13,7	1,5	144	18,0		29,0	γ _{Ms} = 1,5
M10	80	25,1	1,8	25,1	1,8	180	29,0	1,5	46,0	
M12	96	36,2		36,2		216	42,0		67,0	
M16	128	64,3		64,3		288	78,0		144,8	γ _{Mp} = 1,8
M20	160	100,5		100,5		360	122,0		226,2	
M24	192	134,4		134,4		432	176,0		309,4	
M27	216	155,7		155,7		486	230,0		350,4	

SHEAR

bar	h _{ef} [mm]	V _{Rk,s} ⁽⁴⁾ [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	

increment factor for N _{Rk,p} ⁽⁵⁾		
ψ _c	C25/30	1,02
	C30/37	1,04
	C40/50	1,08
	C50/60	1,10

CRACKED CONCRETE ⁽¹⁾

TENSION

bar	h _{ef,min} [mm]	N _{Rk,p} ⁽²⁾ [kN]				h _{ef,max} [mm]	N _{Rk,p} ⁽²⁾ [kN]			
		steel 5.8	γ _{Mp}	steel 8.8	γ _{Mp}		steel 5.8	γ _{Mp}	steel 8.8	γ _{Mp}
M12	96	16,3	1,8	16,3	1,8	216	36,6	1,8	36,6	1,8
M16	128	29,0		29,0		288	65,1		65,1	
M20	160	45,2		45,2		360	101,8		101,8	
M24	192	65,1		65,1		432	146,6		146,6	
M27	216	91,6		91,6		486	206,1		206,1	

SHEAR

bar	h _{ef,min} [mm]	V _{Rk} [kN]				h _{ef,max} [mm]	V _{Rk,s} ⁽⁴⁾ [kN]			
		steel 5.8	γ _{Ms}	steel 8.8	γ _{Mc}		steel 5.8	γ _{Ms}	steel 8.8	γ _{Ms}
M12	96	21,0	1,25 ⁽⁴⁾	31,9	1,5 ⁽⁶⁾	216	21,0	1,25	34,0	1,25
M16	128	39,0		57,9		288	39,0		63,0	
M20	160	61,0		90,5		360	61,0		98,0	
M24	192	88,0		130,3		432	88,0		141,0	
M27	216	115,0		183,2		486	115,0		184,0	

STATIC ADMISSIBLE VALUES

UNCRACKED CONCRETE

TENSION

bar	$h_{ef,min}$ [mm]	N_{rec} [kN]		$h_{ef,max}$ [mm]	N_{rec} [kN]	
		steel 5.8	steel 8.8		steel 5.8	steel 8.8
M8	64	6,5	6,5	144	8,6	13,8
M10	80	10,0	10,0	180	13,8	21,9
M12	96	14,4	14,4	216	20,0	31,9
M16	128	25,5	25,5	288	37,1	57,5
M20	160	39,9	39,9	360	58,1	89,8
M24	192	53,3	53,3	432	83,8	122,8
M27	216	61,8	61,8	486	109,5	139,0

SHEAR

bar	$h_{ef,min}$ [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

GENERAL PRINCIPLES

- Characteristic values according to ETA and in accordance with the design method contained in TR029 or CEN/TS 1992-4:2009.
- 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 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 design of anchors subjected to seismic loading refer to ETA and to ETAG 001 (Annex E and TR045).
- 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 or limited thickness please see 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 for 5.8 grade rods and variable failure mode (steel failure / pull-out) for 8.8 grade rods
- (4) Steel failure.
- (5) Tensile-strength increment factor (excluding steel failure) for both cracked and uncracked concrete.
- (6) Pull-out failure mode.

INA

5.8 steel-grade threaded-rod for chemical anchors

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

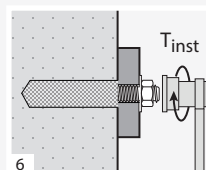
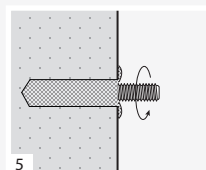
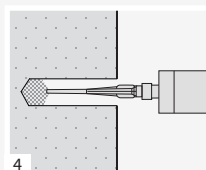
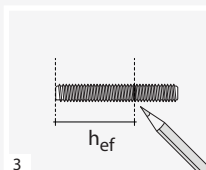
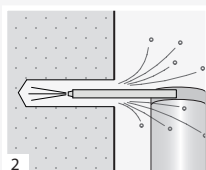
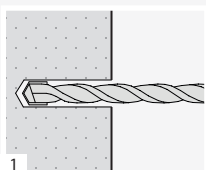
INA



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

d₀ = 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

