EPO-FIX

VIDEO | MY PROJECT SOFTWARE | LEED tested | A+ | F120 | SEISMIC C2 | CE ETA-23/0419 ETA-23/0420

HIGH-PERFORMANCE EPOXY CHEMICAL ANCHOR

- CE option 1 for cracked and uncracked concrete
- C2 Seismic performance category (M12-M24)
- Certificate for recasting with reinforcement bars (ETA-23/0420)
- Certified fire resistance F120
- Comply with LEED® v4 and v4.1 BETA
- A+ Class: emission of volatile organic compounds (VOC) in living environments
- Ideal for extra-heavy anchor systems and reinforcement rods
- Excellent long-term creep behaviour
- Dry or wet concrete
- Concrete with submerged holes
- Overhead application allowed
- Certified installation also with hollow drill bit
- Maximum tensile strength

USA, Canada and more design values available online.

CODES AND DIMENSIONS

CODE	format		pcs
	[ml]	*[US fl oz]*	
EPO585	585	*19.78*	12

Expiry from date of manufacturing: 24 months.
Storage temperature between +5 and +35° C.

ADDITIONAL PRODUCTS - ACCESSORIES

type	description	format	pcs
MAMDB	double cartridge gun	585 ml	1
STING	nozzle	-	12
STINGRED	nozzle tip reducer	-	1
FILL	filling washer	M8-M24	-
BRUH	steel pipe cleaner	M8-M30	-
BRUHAND	grip and extension for pipe cleaner	-	1
CAT	compressed air tool	-	1
PONY	blow pump	-	1
IR (INTERNAL THREADED ROD)	bushing with internal metric thread	M8-M16	-

INSTALLATION TIME AND TEMPERATURE

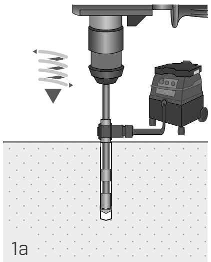
support temperature	cartridge temperature	workability time	curing time before loading(*)
0°C ÷ + 4°C	5°C ÷ + 40°C	90 min	144 h
5°C ÷ + 9°C		80 min	48 h
10°C ÷ + 14°C		60 min	28 h
15°C ÷ + 19°C		40 min	18 h
20°C ÷ + 24°C		30 min	12 h
25°C ÷ + 34°C		12 min	9 h
35°C ÷ + 39°C		8 min	6 h
+ 40°C		8 min	4 h

(*) For wet support, the waiting time for load application must be doubled

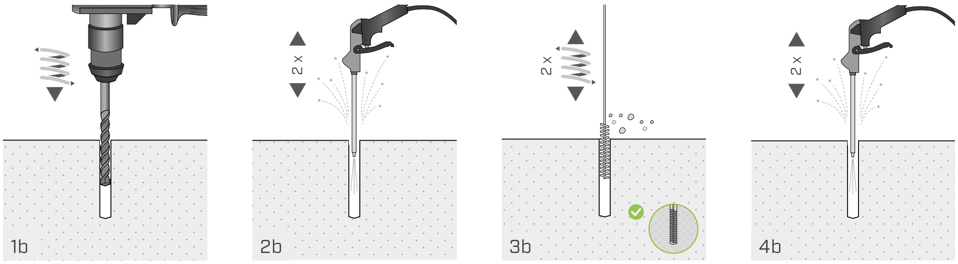
MOUNTING

Hole execution: three different installation possibilities.

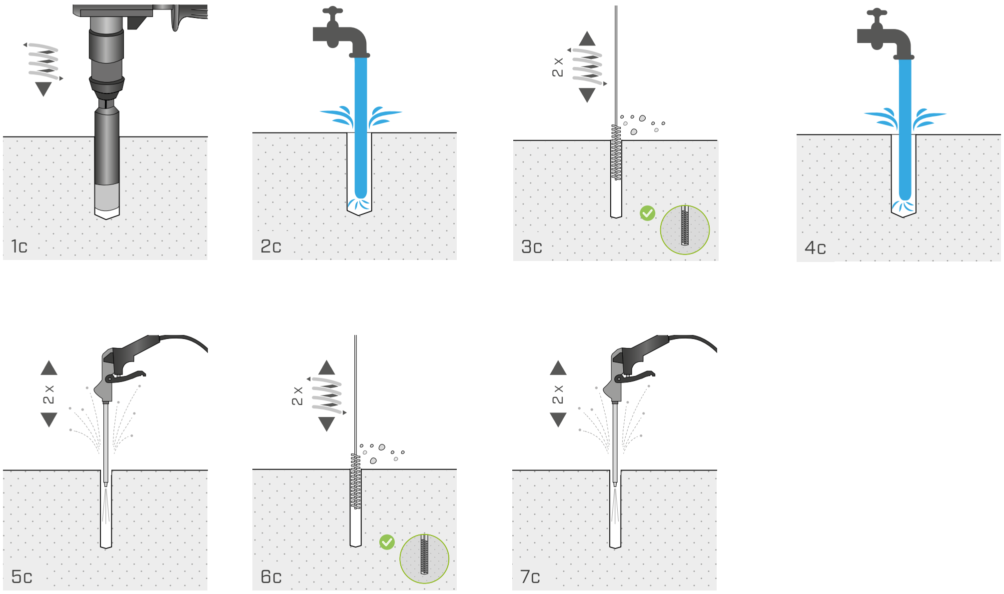
a. INSTALLATION WITH HOLLOW DRILL BIT (HDE)



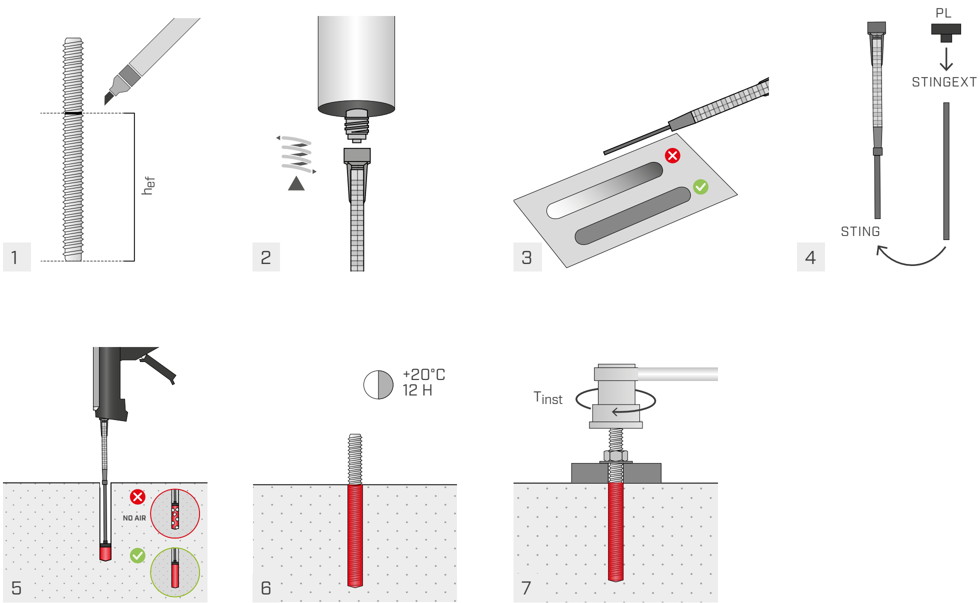
b. ASSEMBLY WITH HAMMER DRILLING HD



c. ASSEMBLY WITH DIAMOND DRILL BIT



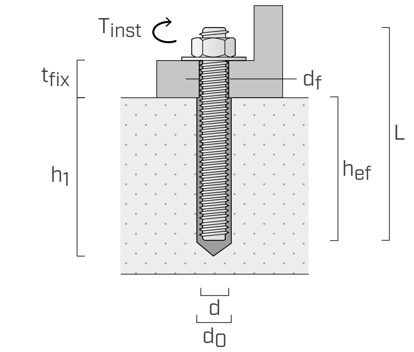
Rod installation:



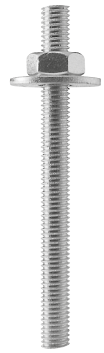
INSTALLATION

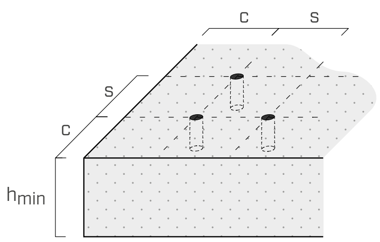
INSTALLATION GEOMETRY FEATURES ON CONCRETE

THREADED RODS (INA or MGS TYPE)



d anchor diameter
d_0 hole diameter in the concrete support
h_{ef} effective anchoring depth
d_f hole diameter in the element to be fastened
T_{inst} maximum tightening torque
L anchor length
t_{fix} maximum fastening thickness
h_1 minimum hole depth

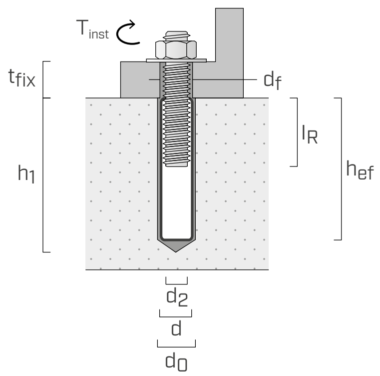




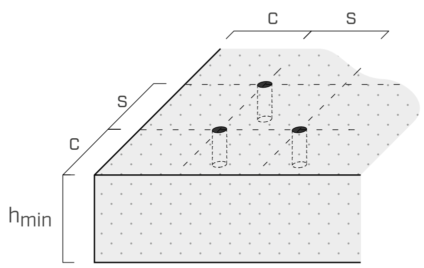
d	[mm]	M8	M10	M12	M16	M20	M24	M27	M30
d_0	[mm]	10	12	14	18	22	28	30	35
$h_{ef,min}$	[mm]	60	60	70	80	90	96	108	120
$h_{ef,max}$	[mm]	160	200	240	320	400	480	540	600
d_f	[mm]	9	12	14	18	22	26	30	33
T_{inst}	[Nm]	10	20	40	60	100	170	250	300

			M8	M10	M12	M16	M20	M24	M27	M30
Minimum spacing	s_{min}	[mm]	40	50	60	75	95	115	125	140
Minimum edge distance	c_{min}	[mm]	35	40	45	50	60	65	75	80
Minimum thickness of concrete support	h_{min}	[mm]	h_{ef} + 30 ≥ 100 mm			h_{ef} + 2 d_0				

BUSHING WITH INTERNAL METRIC THREAD (IR TYPE)



d_2 internal threaded rod diameter
d diameter of the element anchored on concrete
d_0 hole diameter in the concrete support
h_{ef} effective anchoring depth
d_f hole diameter in the element to be fastened
T_{inst} maximum tightening torque
t_{fix} maximum fastening thickness
h_1 minimum hole depth
l_R length of internal threaded rod



d	[mm]	IR-M6	IR-M8	IR-M10	IR-M12	IR-M16	IR-M20
d_2	[mm]	6	8	10	12	16	20
d	[mm]	10	12	16	20	24	30
d_0	[mm]	12	14	18	22	28	35
$h_{ef,min}$	[mm]	60	70	80	90	96	120
$h_{ef,max}$	[mm]	200	240	320	400	480	600
d_f	[mm]	7	9	12	14	18	22
T_{inst}	[Nm]	20	40	60	100	170	300
$l_{R,min}$	[mm]	6	8	10	12	16	20
$l_{R,max}$	[mm]	10	12	16	20	24	30

			IR-M6	IR-M8	IR-M10	IR-M12	IR-M16	IR-M20
Minimum spacing	s_{min}	[mm]	50	60	75	95	115	140
Minimum edge distance	c_{min}	[mm]	40	45	50	60	65	80
Minimum thickness of concrete support	h_{min}	[mm]	h_{ef} + 30 ≥ 100 mm		h_{ef} + 2 d_0			

STRUCTURAL CHARACTERISTIC VALUES

Valid for a single threaded rod (INA or MGS) when installed in C20/25 grade concrete with a thin reinforcing layer, considering spacing, edge-distance, and base-concrete thickness as non-limiting parameters.

UNCRACKED CONCRETE[5]

TENSION

rod	$h_{ef,standard}$ [mm]	$N_{Rk,c}$ | $N_{Rk,s}$ [kN] 5.8 steel	γ_M	8.8 steel	γ_M	$h_{ef,max}$ [mm]	$N_{Rk,s}$ [kN] 5.8 steel	γ_M	8.8 steel	γ_M
M8	**80**	18,0	$\gamma_{Ms} = 1,5^{(1)}$	29,0	$\gamma_{Ms} = 1,5^{(1)}$	**160**	18,0	$\gamma_{Ms} = 1,5$	29,0	$\gamma_{Ms} = 1,5$
M10	**90**	29,0		42,0	$\gamma_{Mc} = 1,5^{(2)}$	**200**	29,0		46,0	
M12	**110**	42,0		56,8		**240**	42,0		67,0	
M16	**128**	71,2	$\gamma_{Mc} = 1,5^{(2)}$	71,2		**320**	79,0		126,0	
M20	**170**	109,0		109,0		**400**	123,0		196,0	
M24	**210**	149,7		149,7		**480**	177,0		282,0	
M27	**240**	182,9		182,9		**540**	230,0		367,0	
M30	**270**	218,3		218,3		**600**	281,0		449,0	

SHEAR

rod	h_{ef} [mm]	$V_{Rk,s}^{(1)}$ [kN] 5.8 steel	γ_{Ms}	8.8 steel	γ_{Ms}
M8	**≥ 60**	11,0	1,25	15,0	1,25
M10	**≥ 60**	17,0		23,0	
M12	**≥ 70**	25,0		34,0	
M16	**≥ 80**	47,0		63,0	
M20	**≥ 120**	74,0		98,0	
M24	**≥ 150**	106,0		141,0	
M27	**≥ 180**	138,0		184,0	
M30	**≥ 200**	168,0		224,0	

CRACKED CONCRETE[5]

TENSION

rod	$h_{ef,standard}$ [mm]	$N_{Rk,p}$ | $N_{Rk,c}$ [kN] 5.8 steel	γ_M	8.8 steel	γ_M	$h_{ef,max}$ [mm]	$N_{Rk,s}$ | $N_{Rk,p}$ [kN] 5.8 steel	γ_M	8.8 steel	γ_M
M8	**80**	14,1	$\gamma_{Mp} = 1,5^{(4)}$	14,1	$\gamma_{Mp} = 1,5^{(4)}$	**160**	18,0	$\gamma_{Ms} = 1,5$	28,2	$\gamma_{Mp} = 1,5^{(4)}$
M10	**90**	19,8		19,8		**200**	29,0		44,0	
M12	**110**	35,3		35,3		**240**	42,0		67,0	$\gamma_{Ms} = 1,5^{(1)}$
M16	**128**	49,9	$\gamma_{Mc} = 1,5^{(2)}$	49,9	$\gamma_{Mc} = 1,5^{(2)}$	**320**	78,0		125,0	
M20	**170**	76,3		76,3		**400**	122,0		196,0	
M24	**210**	104,8		104,8		**480**	176,0		282,0	
M27	**240**	128,0		128,0		**540**	230,0		368,0	
M30	**270**	152,8		152,8		**600**	280,0		449,0	

SHEAR

rod	h_{ef} [mm]	$V_{Rk,s}^{(1)}$ [kN] 5.8 steel	γ_{Ms}	8.8 steel	γ_{Ms}
M8	**80**	11,0	1,25	15,0	1,25
M10	**90**	17,0		23,0	
M12	**110**	25,0		34,0	
M16	**128**	47,0		63,0	
M20	**170**	74,0		98,0	
M24	**210**	106,0		141,0	
M27	**240**	138,0		184,0	
M30	**270**	168,0		224,0	

incremental factor for $N_{Rk,p}^{(3)}$		
ψ_c	C25/30	1,02
	C30/37	1,04
	C40/50	1,07
	C50/60	1,10

NOTES

(1) Steel failure mode.

(2) Concrete cone failure method.

(3) Tensile-strength increment factor (excluding steel failure) for both cracked and uncracked concrete.

(4) Pull-out and concrete cone failure.

(5) Refer to the relevant ETA document for use high bond rods.

In the presence of flooded holes, the factors γ_M in the case of both the concrete cone slipping and failure and the concrete cone formation are both equal to 1.8

Component A classification: Skin Irrit. 2; Eye Irrit. 2; Skin Sens. 1; Aquatic Chronic 2.
Component B classification: Acute Tox. 4; Skin Corr. 1A; Eye Dam. 1; Skin Sens. 1

GENERAL PRINCIPLES

- The characteristic values are according to EN 1992-4:2018 with a factor α_{sus}=0.6 and in accordance with ETA-23/0419.
- The design values are obtained from the characteristic values as follows: $R_d = R_k/\gamma_M$. Coefficients γ_M are listed in the table in accordance with the failure characteristics and product certificates.
- 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 EN 1992-4:2018.
- For specifications of the diameters covered by the various certifications (cracked concrete, uncracked concrete, seismic applications), please refer to ETA.

STRUCTURAL CHARACTERISTIC VALUES

Valid for a single threaded rod (INA or MGS) when installed with IR in C20/25 grade concrete with a thin reinforcing layer, considering spacing, edge-distance, and base-concrete thickness as non-limiting parameters.

UNCRACKED CONCRETE

TENSION

rod	$h_{ef,min}$ [mm]	$N_{Rk,c}$ | $N_{Rk,s}$ [kN] 5.8 steel	γ_M	8.8 steel	γ_M
IR-M6	**60**	10,0	1,5(1)	16,0	1,5(1)
IR-M8	**70**	17,0		27,0	
IR-M10	**80**	29,0		35,2	1,5(2)
IR-M12	**90**	42,0	1,5(2)	42,0	
IR-M16	**96**	46,3		46,3	
IR-M20	**120**	64,7		64,7	

SHEAR

rod	$h_{ef,min}$ [mm]	$V_{Rk,s}$(1) [kN] 5.8 steel	γ_{Ms}	8.8 steel	γ_{Ms}
IR-M6	**60**	5,0	1,25	8,0	1,25
IR-M8	**70**	9,0		14,0	
IR-M10	**80**	15,0		23,0	
IR-M12	**90**	21,0		34,0	
IR-M16	**96**	38,0		60,0	
IR-M20	**120**	61,0		98,0	

CRACKED CONCRETE

TENSION

rod	$h_{ef,min}$ [mm]	$N_{Rk,s}$ | $N_{Rk,c}$ [kN] 5.8 steel	γ_M	h_{ef} [mm]	$N_{Rk,s}$ [kN] 5.8 steel	γ_M	h_{ef} [mm]	$N_{Rk,s}$ [kN] 8.8 steel	γ_M
IR-M6	**60**	10,0	1,5(1)	**≥ 70**	10,0	1,5(1)	**≥ 70**	16,0	1,5(1)
IR-M8	**70**	17,0		**≥ 80**	17,0		**≥ 90**	27,0	
IR-M10	**80**	24,6	1,5(2)	**≥ 100**	29,0		**≥ 130**	46,0	
IR-M12	**90**	29,4		**≥ 120**	42,0		**≥ 160**	67,0	
IR-M16	**96**	32,4		**≥ 180**	76,0		**≥ 240**	121,0	
IR-M20	**120**	45,3		**≥ 240**	123,0		**≥ 330**	196,0	

SHEAR

rod	$h_{ef,min}$ [mm]	$V_{Rk,s}$ | $V_{Rk,cp}$ [kN] 5.8 steel	γ_{Ms}	8.8 steel	γ_M
IR-M6	**60**	5,0	1,25	8,0	1,25(1)
IR-M8	**70**	9,0		14,0	
IR-M10	**80**	15,0		23,0	
IR-M12	**90**	21,0		34,0	
IR-M16	**96**	38,0		64,8	1,5(5)
IR-M20	**120**	61,0		90,5	

incremental factor for $N_{Rk,p}$(3)		
Ψ_c	C25/30	1,02
	C30/37	1,04
	C40/50	1,07
	C50/60	1,10

NOTES

(1) Steel failure mode.

(2) Concrete cone failure method.

(3) Tensile-strength increment factor (excluding steel failure) for both cracked and uncracked concrete.

(4) Pull-out and concrete cone failure.

(5) Pry-out failure in the concrete.

In the presence of flooded holes, the factors γ_M in the case of both the concrete cone pull-out and failure and concrete cone formation are both equal to 1.8.

Component A classification: Skin Irrit. 2; Eye Irrit. 2; Skin Sens. 1; Aquatic Chronic 2.

Component B classification: Acute Tox. 4; Skin Corr. 1A; Eye Dam. 1; Skin Sens. 1

GENERAL PRINCIPLES

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- The design values are obtained from the characteristic values as follows: $R_d = R_k/\gamma_M$. Coefficients γ_M are listed in the table in accordance with the failure characteristics and product certificates.
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- For specifications of the diameters covered by the various certifications (cracked concrete, uncracked concrete, seismic applications), please refer to ETA.