

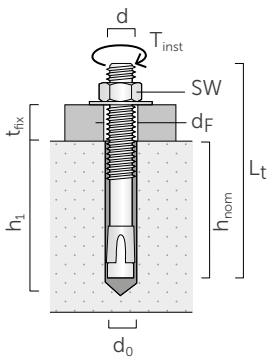


## CE1 HEAVY ANCHOR C2 SEISMIC CATEGORY (M10- M12-M16)

- CE option 1 for cracked and uncracked concrete
- Seismic performance category C2 (M10- M12-M16)
- Electrogalvanized carbon steel
- Fire resistance R120
- Complete with nut and washer
- Suitable for dense materials
- Torque-controlled expansion
- Use of a filler is possible to eliminate annular space and improve seismic performance



Zn  
ELECTRO  
PLATED

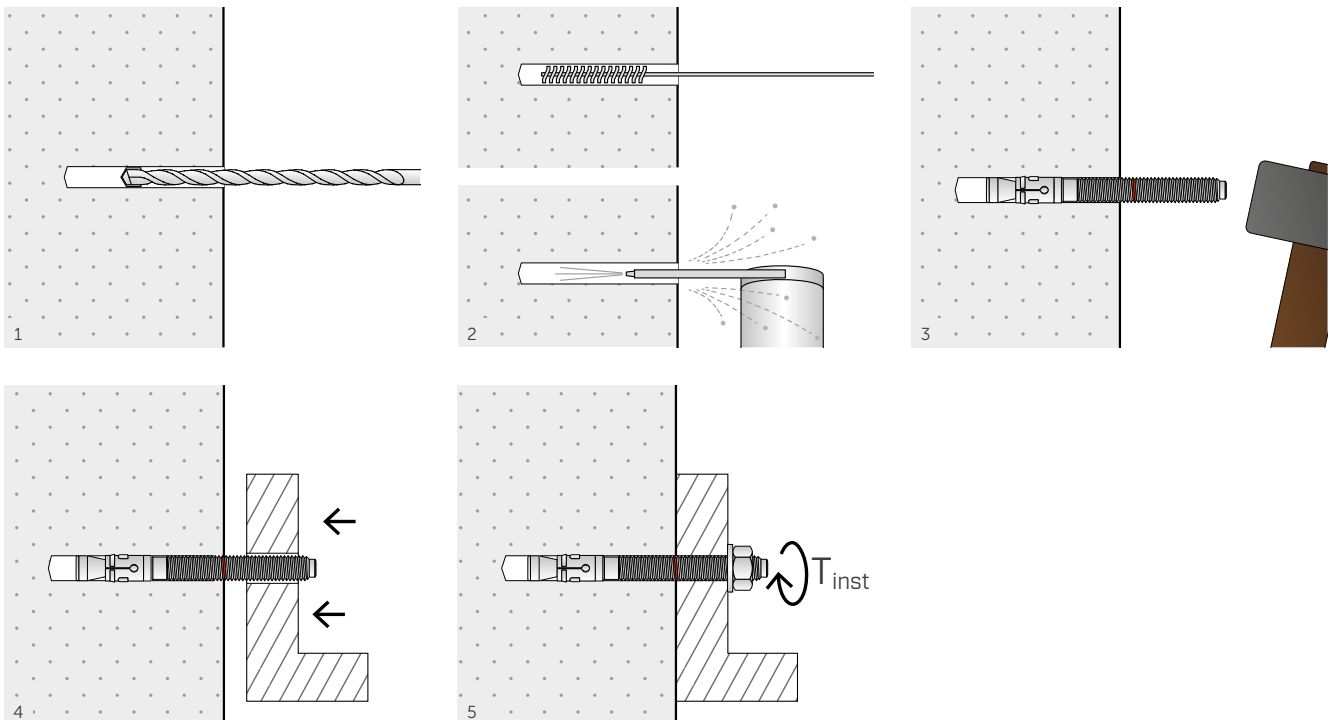


CODE	d=d <sub>0</sub>		L <sub>t</sub>		t <sub>fix</sub>		h <sub>1</sub>		h <sub>nom</sub>		d <sub>F</sub>		SW		T <sub>inst</sub>		pcs
	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[Nm]	[ft lbf]	
EBA880	8	0.315	80	3 1/8	10	3/8	65	2 9/16	55	2 3/16	9	0.355	13	1/2	20	15	50
EBA890	8	0.315	90	3 1/2	20	13/16	65	2 9/16	55	2 3/16	9	0.355	13	1/2	20	15	50
EBA8110	8	0.315	110	4 3/8	40	1 9/16	65	2 9/16	55	2 3/16	9	0.355	13	1/2	20	15	50
EBA10105	10	0.394	105	4 1/8	20	13/16	85	3 3/8	70	2 3/4	12	0.473	17	11/16	45	33	25
EBA10145	10	0.394	145	5 11/16	60	2 3/8	85	3 3/8	70	2 3/4	12	0.473	17	11/16	45	33	25
EBA12115	12	0.473	115	4 1/2	10	3/8	105	4 1/8	85	3 3/8	14	0.552	19	3/4	60	44	25
EBA12125	12	0.473	125	4 15/16	20	13/16	105	4 1/8	85	3 3/8	14	0.552	19	3/4	60	44	25
EBA12145	12	0.473	145	5 11/16	40	1 9/16	105	4 1/8	85	3 3/8	14	0.552	19	3/4	60	44	15
EBA12165	12	0.473	165	6 1/2	60	2 3/8	105	4 1/8	85	3 3/8	14	0.552	19	3/4	60	44	15
EBA16145	16	0.630	145	5 11/16	20	13/16	120	4 3/4	100	4	18	0.709	24	15/16	110	81	10

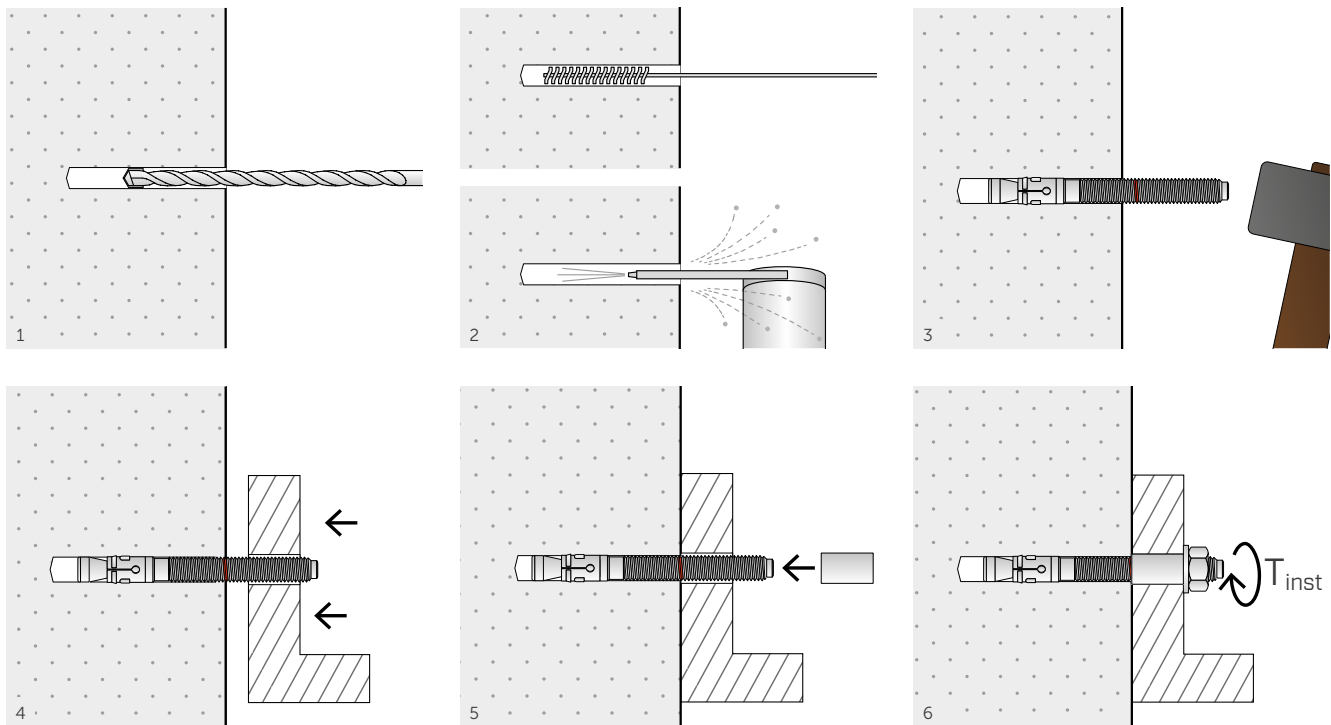
- d** anchor diameter
- d<sub>0</sub>** hole diameter in the concrete support
- h<sub>nom</sub>** effective anchor depth
- d<sub>f</sub>** diameter hole in the element to be fastened
- T<sub>inst</sub>** maximum tightening torque
- L** anchor length
- t<sub>fix</sub>** maximum fastening thickness
- h<sub>1</sub>** minimum hole depth
- SW** wrench size

### ASSEMBLY

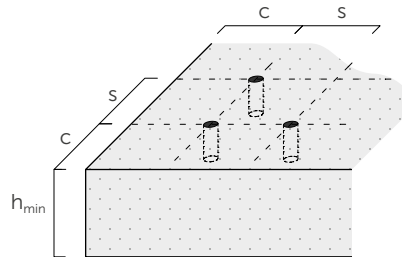
Static and quasi-static loads.



Loads in seismic conditions (C1 and C2 seismic performance category)



INSTALLATION



Spacing and distances for tensile loads			EBA			
			M8	M10	M12	M16
Minimum spacing	$s_{min}$	[mm]	80	65	75	130
Minimum edge distance	$c_{min}$	[mm]	80	80	90	130
Minimum thickness of concrete support	$h_{min}$	[mm]	100	110	140	170
Spacing and critical distances			M8	M10	M12	M16
Effective depth	$h_{ef}$	[mm]	45	55	70	75
Critical spacing	$s_{cr,N}^{(1)}$	[mm]	$3 h_{ef}$			
	$s_{cr,sp}^{(2)}$	[mm]	200	280	300	430
Critical edge distance	$c_{cr,N}^{(1)}$	[mm]	$1,5 h_{ef}$			
	$c_{cr,sp}^{(2)}$	[mm]	100	140	150	215

For spacing and distances smaller than the critical ones, strength values have to be reduced depending on the installation parameters.

## STRUCTURAL VALUES

Valid for a single anchor in thickened C20/25 grade concrete with a thin reinforcing layer when spacing and edge-distance are not limiting parameters

## CHARACTERISTIC VALUES

anchor	uncracked concrete				cracked concrete			
	tension <sup>(3)</sup>		shear <sup>(4)</sup>		tension <sup>(3)</sup>		shear <sup>(4)</sup>	
	$N_{Rk,p}$ [kN]	$\gamma_{Mp}$	$V_{Rk,s}$ [kN]	$\gamma_{Ms}$	$N_{Rk,p}$ [kN]	$\gamma_{Mp}$	$V_{Rk,s}$ [kN]	$\gamma_{Ms}$ [mm]
M8	7,5	1,8	12	1,5	6	1,8	12	1,5
M10	16		20		9		20	
M12	20		35		16		35	
M16	$\geq N_{Rk,c}^0$ <sup>(5)</sup>		60		25		60	

incremental factor for $N_{Rk,p}$ <sup>(6)</sup>		
$\psi_c$	C30/37	1,22
	C40/50	1,41
	C50/60	1,55

### NOTES

- (1) Breakage characteristics for formation of concrete cone for tensile loads.
- (2) Splitting failure mode for tensile loads.
- (3) Pull-out failure mode.
- (4) Steel failure mode.
- (5)  $N_{Rk,c}^0$  in accordance with EN 1992-4:2018.
- (6) Tensile-strength increment factor (excluding steel failure).

### GENERAL PRINCIPLES

- Characteristic values according to ETA-25/0860.
- The design values are obtained from the characteristic values as follows:  $R_d = R_k / \gamma_M$ .
- Coefficients  $\gamma_M$  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 the calculation of anchors subjected to fire refer to the ETA and the Technical Report 020.