AB1

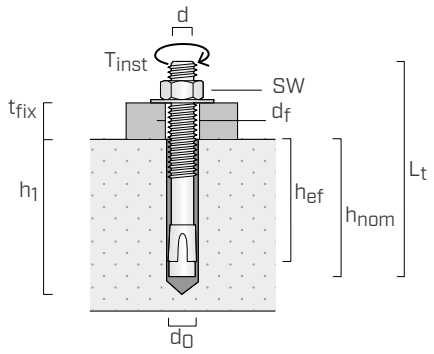
R120 SEISMIC C2 MY PROJECT SOFTWARE CE

HEAVY DUTY EXPANSION ANCHOR CE1

- CE option 1 for cracked and uncracked concrete
- Seismic performance category C1 (M10-M16) and C2 (M12-M16)
- Electrogalvanized carbon steel
- Fire resistance R120
- Complete with nut and washer
- Suitable for dense materials
- Through fastening
- Torque-controlled expansion

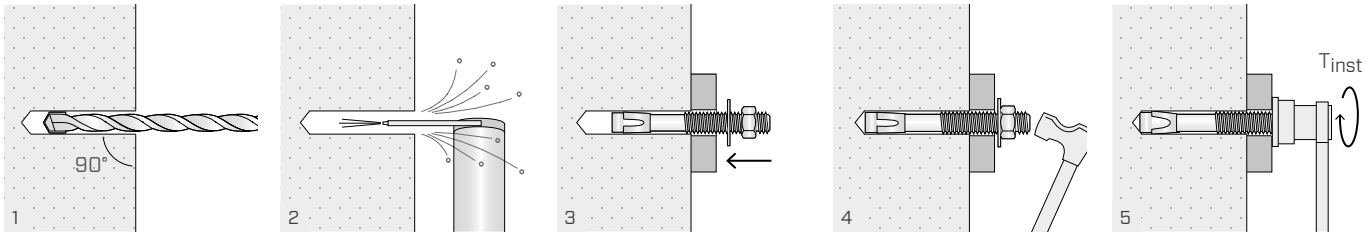
CODES AND DIMENSIONS

CODE	d = d_0	L_t	t_{fix}	$h_{1,min}$	h_{nom}	h_{ef}	d_f	SW	T_{inst}	pcs
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[Nm]	
AB1875	**M8**	**75**	9	60	55	48	9	13	15	100
AB1895	**M8**	**95**	29	60	55	48	9	13	15	50
AB18115	**M8**	**115**	49	60	55	48	9	13	15	50
AB110115	**M10**	**115**	35	75	68	60	12	17	40	25
AB110135	**M10**	**135**	55	75	68	60	12	17	40	25
AB112100	**M12**	**100**	4	85	80	70	14	19	60	25
AB112120	**M12**	**120**	24	85	80	70	14	19	60	25
AB112150	**M12**	**150**	54	85	80	70	14	19	60	25
AB112180	**M12**	**180**	84	85	80	70	14	19	60	25
AB116145	**M16**	**145**	28	105	97	85	18	24	100	10

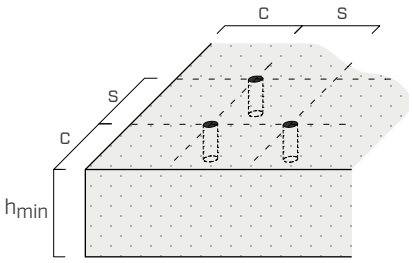


d	anchor diameter
d_0	hole diameter in the concrete support
L_t	anchor length
t_{fix}	maximum fastening thickness
h_1	minimum hole depth
h_{nom}	nominal anchoring depth
h_{ef}	effective anchor depth
d_f	maximum hole diameter in the element to be fastened
SW	wrench size
T_{inst}	tightening torque

ASSEMBLY



INSTALLATION



			AB1			
Spacing and minimum distances			**M8**	**M10**	**M12**	**M16**
Minimum spacing	s_{min}	[mm]	50	60	70	85
Minimum edge distance	c_{min}	[mm]	50	60	70	85
Minimum thickness of concrete support	h_{min}	[mm]	100	120	140	170
Spacing and critical distances			**M8**	**M10**	**M12**	**M16**
Critical spacing	$s_{cr,N}$ (1)	[mm]	144	180	210	255
	$s_{cr,sp}$ (2)	[mm]	288	300	350	425
Critical edge distance	$c_{cr,N}$ (1)	[mm]	72	90	105	128
	$c_{cr,sp}$ (2)	[mm]	144	150	175	213

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

STATIC 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

	UNCRACKED CONCRETE				CRACKED CONCRETE			
	tension (3)		**shear** (4)		**tension** (3)		**shear**	
	$N_{Rk,p}$ [kN]	γ_{Mp}	$V_{Rk,s}$ [kN]	γ_{Ms}	$N_{Rk,p}$ [kN]	γ_{Mp}	V_{Rk} [kN]	γ_M
M8	9	1,8	11,0	1,25	6	1,8	12,0	γ_{Mc} = 1,5 (5)
M10	16	1,5	17,4	1,25	9	1,5	17,4	γ_{Ms} = 1,25 (4)
M12	25	1,5	25,3	1,25	16	1,5	25,3	γ_{Ms} = 1,25 (4)
M16	35	1,5	47,1	1,25	25	1,5	47,1	γ_{Ms} = 1,25 (4)

incremental factor for $N_{Rk,p}$ (6)		
Ψ_c	C30/37	1,16
	C40/50	1,31
	C50/60	1,41

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) Pry-out failure mode.
(6) Tensile-strength increment factor (excluding steel failure).

GENERAL PRINCIPLES:

- Characteristic values according to ETA-17/0481.
- 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.
- When designing anchors under seismic load please refer to the ETA referral document and information in the EOTA Technical Report 045.
- For the calculation of anchors subjected to fire refer to the ETA and the Technical Report 020.