YTELSESERKLÆRING

Nr: DoP-170569 [NO]

Varetypens unike identifikasjonskode:

Ekspansjonsanker (Wedge Anchor) ESSVE ESA7

Produsent:

ESSVE Produkter AB
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Europeisk teknisk bedømmelse (ETA)	Dimensjon & Materiale	Artikkelnummer
ETA-17/0569 (2017-08-10)	M6 to M20 A4	123499, 123501, 123503, 123505, 123507, 123509, 123511, 123513, 123515, 123517, 123519, 123521, 123523, 123525, 123527, 123529, 123531, 123533, 123535, 123537, 123539, 123541, 123543, 123545, 123547, 123549, 123551, 123553, 123555, 123557, 123559, 123561, 123563, 123565, 123567, 123569, 123571, 123573, 123575, 123577, 123579, 123581

Europeisk teknisk bedømmelse (ETA)	Tilsiktet bruksområde	Betongkvalitet
ETA-17/0569 (2017-08-10)	Anchor(s) for use in structural applications under static or quasi-static actions in non-cracked concrete.	Reinforced or unreinforced normal weight concrete according to EN 206-1:2000. • Strength classes C20/25 to C50/60 according to EN 206-1:2000

Europeisk teknisk bedømmelse (ETA)	System for vurdering og verifikasjon av byggevarers ytelser (AVCP)	Europeisk bedømmelsesdokument	Teknisk bedømmelsesorgan (TAB)	Teknisk(e) kontrollorgan (NB)
ETA-17/0569 (2017-08-10)	1	EAD 330232-00-0601, (2016-10)	DEUTSCHES INSTITUT FÜR BAUTECHNIK (DiBt)	1343 (FPC)

YTELSESERKLÆRING

Nr: DoP-170569 [NO]

Europeisk teknisk bedømmelse (ETA)	Dimensjon & Materiale	Egenskap	Ytelse
ETA-17/0569 (2017-08-10)	M6 to M20 Zinc plated / Hot dipped galvanized A4 / HCR	Characteristic resistance for static and quasi-static loading	Table C1 to C4
		Displacements under tension and shear loads	Table C5 to C8
		Reaction to fire	Class A1
		Resistance to fire	No Performance Declared (NPD)

Ytelser for denne byggevaren som er anført ovenfor, er i overensstemmelse med de angitte ytelsene. Denne ytelseserklæringen er utarbeidet i overensstemmelse med forordning (EU) nr. 305/2011 under produsentens eneansvar, som anført ovenfor.

Underskrevet for produsenten og på dennes vegne:

Kista 2017-08-22

Viktor Bukowski
Product Developer/Technical expert – Fasteners

Table C1 - Characteristic values for tension loads, steel zinc plated

Anchor size			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Installation safety factor	γ_{inst}	[-]	1,0					
Steel failure								
Characteristic resistance	$N_{Rk,s}$	[kN]	8,7	15,3	26	35	65	107
Partial safety factor	γ_{Ms}	[-]	1,5				1,6	
Pull-out								
Standard anchorage depth h_{ef}								
Characteristic resistance in non-cracked concrete C20/25	$N_{Rk,p}$	[kN]	9	12	16	1)	1)	1)
Reduced anchorage depth $h_{ef,red}$								
Characteristic resistance in non-cracked concrete C20/25	$N_{Rk,p}$	[kN]	6 2)	1) 2)	1)	1)	1)	1)
Increasing factor for $N_{Rk,p}$	ψ_C	[-]	$\left(\frac{f_{ck}}{20}\right)^{0,5}$					
Splitting								
Standard anchorage depth h_{ef}								
Spacing	$s_{cr,sp}$	[mm]	160	220	240	330	410	500
Edge distance	$c_{cr,sp}$	[mm]	80	110	120	165	205	250
Reduced anchorage depth $h_{ef,red}$								
Spacing	$s_{cr,sp}$	[mm]	180	210	230	240	320	400
Edge distance	$c_{cr,sp}$	[mm]	90	105	115	120	160	200
Concrete cone failure								
Standard anchorage depth h_{ef}								
Effective anchorage depth	$h_{ef} \geq$	[mm]	40	44	48	65	82	100
Spacing	$s_{cr,N}$	[mm]	3 h_{ef}					
Edge distance	$c_{cr,N}$	[mm]	1,5 h_{ef}					
Reduced anchorage depth $h_{ef,red}$								
Effective anchorage depth	$h_{ef,red} \geq$	[mm]	30 2)	35 2)	42	50	64	78
Spacing	$s_{cr,N}$	[mm]	3 $h_{ef,red}$					
Edge distance	$c_{cr,N}$	[mm]	1,5 $h_{ef,red}$					
Factor for k_1	$k_{ucr,N}$	[-]	11,0					

1) Pull-out is not decisive.
2) Use restricted to anchorages of indeterminate structural components

Table C2 - Characteristic values for tension loads, stainless steel A4/HCR

Anchor size			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Installation safety factor	γ_{inst}	[-]	1,0					
Steel failure								
Characteristic resistance	$N_{Rk,s}$	[kN]	10	18	30	44	88	134
Partial safety factor	γ_{Ms}	[-]	1,50					1,68
Pull-out								
Standard anchorage depth h_{ef}								
Characteristic resistance in non-cracked concrete C20/25	$N_{Rk,p}$	[kN]	7,5	12	16	25	1)	1)
Reduced anchorage depth $h_{ef,red}$								
Characteristic resistance in non-cracked concrete C20/25	$N_{Rk,p}$	[kN]	6 2)	9 2)	12	1)	1)	1)
Splitting								
Standard anchorage depth h_{ef}								
The higher one of the decisive resistances of Case 1 and Case 2 is applicable.								
Case 1								
Characteristic resistance in non-cracked concrete C20/25	$N^0_{Rk,sp}$	[kN]	6	9	12	20	30	40
Spacing	$s_{cr,sp}$	[mm]	$3\ h_{ef}$					
Edge distance	$c_{cr,sp}$	[mm]	$1,5\ h_{ef}$					
Case 2								
Characteristic resistance in non-cracked concrete C20/25	$N^0_{Rk,sp}$	[kN]	7,5	12	16	25	1)	1)
Spacing	$s_{cr,sp}$	[mm]	160	220	240	340	410	560
Edge distance	$c_{cr,sp}$	[mm]	80	110	120	170	205	280
Reduced anchorage depth $h_{ef,red}$								
Characteristic resistance in non-cracked concrete C20/25	$N^0_{Rk,sp}$	[kN]	6 2)	9 2)	12	1)	1)	1)
Spacing	$s_{cr,sp}$	[mm]	180	210	230	300	320	400
Edge distance	$c_{cr,sp}$	[mm]	90	105	115	150	160	200
Increasing factor for $N_{Rk,p}$ and $N^0_{Rk,sp}$	ψ_C	[-]	$\left(\frac{f_{ck}}{20}\right)^{0,5}$					
Concrete cone failure								
Standard anchorage depth								
Effective anchorage depth	h_{ef}	[mm]	40	44	48	65	80	100
Spacing	$s_{cr,N}$	[mm]	$3\ h_{ef}$					
Edge distance	$c_{cr,N}$	[mm]	$1,5\ h_{ef}$					
Reduced anchorage depth								
Effective anchorage depth	$h_{ef,red}$	[mm]	30 2)	35 2)	42	50	64	78
Spacing	$s_{cr,N}$	[mm]	$3\ h_{ef}$					
Edge distance	$c_{cr,N}$	[mm]	$1,5\ h_{ef}$					
Factor for k_1	$k_{ucr,N}$	[-]	11,0					

1) Pull-out is not decisive.
2) Use restricted to anchorages of indeterminate structural components

Table C3 - Characteristic values for shear loads, steel zinc plated

Anchor size			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Installation safety factor	γ_{inst}	[-]	1,0					
Steel failure without lever arm								
Characteristic shear resistance	$V_{Rk.s}$	[kN]	5	11	17	25	44	69
Factor for ductility	k_7	[-]	1,0					
Steel failure with lever arm								
Characteristic resistance	$M^0_{Rk.s}$	[Nm]	9	23	45	78	186	363
Partial safety factor for $V_{Rk,s}$ and $M^0_{Rk,s}$	γ_{Ms}	[-]	1,25				1,33	
Concrete pry-out failure								
Factor for h_{ef}	k_8	[-]	1,0	1,0	1,0	2,0	2,0	2,0
Factor for $h_{ef,red}$	k_8	[-]	1,0 [1)]	1,0 [1)]	1,0	1,0	2,0	2,0
Concrete edge failure								
Effective length of anchor in shear loading for h_{ef}	l_f	[mm]	40	44	48	65	82	100
Effective length of anchor in shear loading for $h_{ef,red}$	$l_{f,red}$	[mm]	30 [1)]	35 [1)]	42	50	64	78
Outside diameter of anchor	d_{nom}	[mm]	6	8	10	12	16	20

[1)] Use restricted to anchorages of indeterminate structural components.

Table C4 - Characteristic values for shear loads, stainless steel A4/HCR

Anchor Size			**M6**	**M8**	**M10**	**M12**	**M16**	**M20**
Installation safety factor	γ_{inst}	[-]	1,0					
Steel failure without lever arm								
Characteristic shear resistance	$V_{Rk,s}$	[kN]	7	12	19	27	50	86
Factor for ductility	k_7	[-]	1,0					
Steel failure with lever arm								
Characteristic bending moment	$M^0_{Rk,s}$	[Nm]	10	24	49	85	199	454
Partial safety factor for $V_{Rk,s}$ and $M^0_{Rk,s}$	γ_{Ms}	[-]	1,25					1,4
Concrete pry-out failure								
Factor for h_{ef}	k_8	[-]	1,0	1,0	1,0	2,0	2,0	2,0
Factor for $h_{ef,red}$	k_8	[-]	1,0 [1)]	1,0 [1)]	1,0	1,0	2,0	2,0
Concrete edge failure								
Effective length of anchor in shear loading with h_{ef}	l_f	[mm]	40	44	48	65	80	100
Effective length of anchor in shear loading with $h_{ef,red}$	$l_{f,red}$	[mm]	30 [1)]	35 [1)]	42	50	64	78
Outside diameter of anchor	d_{nom}	[mm]	6	8	10	12	16	20

[1)] Use restricted to anchorages of indeterminate structural components.

Table C5 - Displacements under tension loads, steel zinc plated

Anchor size			M6	M8	M10	M12	M16	M20
Standard anchorage depth								
Tension load	N	[kN]	4,3	5,8	7,6	11,9	16,7	23,8
Displacement	δ_{N0}	[mm]	0,4	0,5				
	$\delta_{N\infty}$	[mm]	0,7	2,3				
Reduced anchorage depth								
Tension load	N	[kN]	2,9	5,0	6,5	8,5	12,3	16,6
Displacement	δ_{N0}	[mm]	0,3	0,4				
	$\delta_{N\infty}$	[mm]	0,6	1,8				

Table C6 - Displacements under tension loads, stainless steel A4/HCR

Anchor size			M6	M8	M10	M12	M16	M20
Standard anchorage depth								
Tension load	N	[kN]	3,6	5,7	7,6	11,9	17,2	24,0
Displacement	δ_{N0}	[mm]	0,7	0,9	0,5	0,6	0,9	2,1
	$\delta_{N\infty}$	[mm]	1,8					4,2
Reduced anchorage depth								
Tension load	N	[kN]	2,9	4,3	5,7	8,5	12,3	16,6
Displacement	δ_{N0}	[mm]	0,4	0,7	0,4	0,4	0,6	1,5
	$\delta_{N\infty}$	[mm]	1,3					2,9

Table C7 - Displacements under shear loads, steel zinc plated

Anchor size			M6	M8	M10	M12	M16	M20
Shear load	V	[kN]	2,9	6,3	9,7	14,3	23,6	37,0
Displacement	δ_{V0}	[mm]	1,2	1,5	1,6	2,6	3,1	4,4
	$\delta_{V\infty}$	[mm]	2,4	2,2	2,4	3,9	4,6	6,6

Table C8 - Displacements under shear loads, stainless steel A4/HCR

Anchor Size			M6	M8	M10	M12	M16	M20
Shear load	V	[kN]	4,0	6,9	10,9	15,4	28,6	43,7
Displacement	δ_{V0}	[mm]	1,1	2,0	1,2	2,0	2,2	2,1
	$\delta_{V\infty}$	[mm]	1,7	3,0	1,8	3,0	3,3	3,2