ResiFIX technical data in concrete

Fastening in concrete the professional system Vinylester VYSF (Standard and Cool)

Permissible loads F_{per} in [kN] in non-cracked (Option 7) concrete C20/25 and cracked (Option 1) concrete C20/25 for single anchor without influence of spacing and edge distance, installation parameters and unit dimensions. Total safety factors as per ETAG 001 included (γ_M und γ_F). Design according to TR029. See ETA-approval for design and calculations.

Anchor rods RESI AST, VA AST			M8	M10	M12	M16	M20	M24	M30
Drill hole Ø	d_0	[mm]	10	12	14	18	24	28	35
Embedment depth	$h_{ef,min}/h_{ef,stand}/h_{ef,max}$	[mm]	60/80/160	60/90/200	70/110/240	80/125/320	90/170/400	96/210/480	120/280/600
Tension load [1) 2)] (24 °C / 40 °C) [3)] non-cracked concrete (dry or wet)									
Zinc plated 5.8	N_{per}	[kN]	7,2/8,6/8,6	9,0/13,5/13,8	11,7/19,7/20,0	14,3/28,0/37,1	17,1/44,4/58,1	18,8/61,0/83,8	26,3/93,4/133,3
Stainless steel A4	N_{per}	[kN]	7,2/9,6/9,9	9,0/13,5/15,7	11,7/19,7/22,5	14,3/28,0/42,0	17,1/44,4/65,3	18,8/61,0/94,3	26,3/70,2/70,2
Tension load [1) 2)] (24 °C / 40 °C) [3)] cracked concrete (dry or wet)									
Zinc plated 5.8	N_{per}	[kN]	2,9/3,8/7,7	3,7/5,6/12,5	5,8/9,1/19,7	8,8/13,7/35,1	12,3/23,3/54,9	15,8/34,6/79,0	26,3/68,1/133,3
Stainless steel A4	N_{per}	[kN]	2,9/3,8/7,7	3,7/5,6/12,5	5,8/9,1/19,7	8,8/13,7/35,1	12,3/23,3/54,9	15,8/34,6/79,0	26,3/68,1/70,2
Tension load [1) 2)] (50 °C / 80 °C) [3)] non-cracked concrete (dry or wet)									
Zinc plated 5.8	N_{per}	[kN]	5,4/7,2/8,6	6,7/10,1/13,8	9,4/14,8/20,0	14,3/22,4/37,6	17,1/38,1/58,6	18,8/53,4/83,8	26,3/68,1/133,3
Stainless steel A4	N_{per}	[kN]	5,4/7,2/9,9	6,7/10,1/15,7	9,4/14,8/22,5	14,3/22,4/42,0	17,1/38,1/65,3	18,8/53,4/94,3	26,3/68,1/70,2
Tension load [1) 2)] (50 °C / 80 °C) [3)] cracked concrete (dry or wet)									
Zinc plated 5.8	N_{per}	[kN]	1,8/2,4/4,8	2,6/3,9/8,7	4,2/6,6/14,4	6,4/10,0/25,5	9,0/17,0/39,9	11,5/25,1/57,4	20,2/47,1/101,0
Stainless steel A4	N_{per}	[kN]	1,8/2,4/4,8	2,6/3,9/8,7	4,2/6,6/14,4	6,4/10,0/25,5	9,0/17,0/39,9	11,5/25,1/57,4	20,2/47,1/70,2
Shear load [1)] non-cracked concrete									
Zinc plated 5.8	V_{per}	[kN]	5,1	8,6	12,0	22,3	34,9	45,2/50,3/50,3	63,2/80/80,0
Stainless steel A4	V_{per}	[kN]	6,0	9,2	13,7	25,2	39,4	45,2/56,8/56,8	42,0/80,0/80,0
Shear load [1)] cracked concrete									
Zinc plated 5.8	V_{per}	[kN]	5,1	8,6	12,0	22,3	29,3/34,9/34,9	32,2/50,3/50,3	45,1/80,0/80,0
Stainless steel A4	V_{per}	[kN]	6,0	9,2	13,7	25,2	29,3/50,3/39,4	32,2/56,8/56,8	42,0/80,0/80,0
Bending moment (Zinc plated 5.8)	M_{per}	[Nm]	10,9	21,1	37,1	94,9	185,1	320,0	641,7
Bending moment (Stainless steel A4)	M_{per}	[Nm]	11,9	23,8	42,1	106,2	207,9	359,0	337,6
Spacing and edge distance									
Spacing [4)]	$s_{cr,N}$	[mm]	185	253	304	375	506	581	657
Edge distance [4)]	$c_{cr,N}$	[mm]	92	126	152	188	253	291	329
Minimum spacing distance	s_{min}	[mm]	40	50	60	80	100	120	150
Minimum edge distance	c_{min}	[mm]	40	50	60	80	100	120	150
Minimum thickness of concrete	h_{min}	[mm]	$h_{ef} + 30\,mm \geq 100\,mm$			$h_{ef} + 2d_0$			
Maximum installation torque	$T_{inst} \leq$	[Nm]	10	20	40	80	120	160	200

[1)] Values are valid for $h_{ef,min}$ / $h_{ef,stand}$ / $h_{ef,max}$.
[2)] Increasing factors for cracked and non-cracked concrete C30/37 = 1.04, C40/50 = 1.08, C50/60 = 1.10.
[3)] Max. long term temperature / max. short term temperature after installation. For temperature range 72°C/120°C please see ETA-approval.
[4)] Depends on h_{ef}. Values are valid for $h_{ef,stand}$.
If underrun the char. space or edge distance (C_{cr} or S_{cr}) the loads must be reduced. h_{min}, S_{min} and C_{min} must be observed.