

Highest permissible loads in concrete C20/25

Approved loads for single anchor without influence of spacing and edge distance.

Total safety factor as per ETAG 001 included (γ_M and γ_F).

Load capacities under fire exposure.

Loads and performance data			EXPANDER ESA7 A4		M 6		M 8		M 10		M 12		M 16		M 20	
Standard anchorage depth	hef	[mm]	40	-	44	-	48	-	65	-	80	-	100	-		
Reduced anchorage depth	hef, red	[mm]	-	30 ¹⁾	-	35 ¹⁾	-	42	-	50	-	64	-	78		
non-cracked concrete																
Mean ultimate loads, tension	C25/30 Num	[kN]	11,0	10,2	19,6	12,4	23,1	17,5	36,4	22,6	53,5	39,7	73,0	53,1		
Mean ultimate loads, shear	C25/30 Vum	[kN]	9,7	9,7	19,5	19,5	31,9	31,9	42,6	42,6	76,9	76,9	110,4	110,4		
cracked concrete (multiple use only)																
Approved loads ³⁾ (any direction)	C20/25 to C50/60 appr.F	[kN]	2,4	1,6	-	-	-	-	-	-	-	-	-	-	-	-
non-cracked concrete																
Approved loads, tension	C20/25 appr. N	[kN]	3,6	2,9	5,7	4,3	7,6	5,7	11,9	8,5	17,2	12,3	24,0	16,5		
	C25/30 appr. N	[kN]	3,9	3,1	6,3	4,7	8,4	6,3	13,1	9,3	18,9	13,5	26,4	18,2		
	C30/37 appr. N	[kN]	4,4	3,5	7,0	5,2	9,3	7,0	14,5	10,4	21,0	15,0	29,3	20,2		
	C40/50 appr. N	[kN]	4,8	4,0	8,1	6,0	10,7	8,1	16,8	12,0	24,2	17,3	33,8	23,3		
	C50/60 appr. N	[kN]	4,8	4,4	8,6	6,6	11,8	8,9	18,5	13,2	26,6	19,0	37,2	25,6		
Approved loads, shear	C20/25 appr. V	[kN]	4,0	3,9	6,9	5,0	8,0	6,5	15,4	8,5	28,6	24,6	43,9	33,1		
	≥ C25/30 appr. V	[kN]	4,0	4,0	6,9	5,5	8,8	7,2	15,4	9,3	28,6	27,0	43,9	36,4		
Approved bending moments	appr. M	[Nm]	5,7	5,7	13,7	13,7	28,0	28,0	48,6	48,6	113,7	113,7	231,6	231,6		
Spacing and edge distance																
Effective anchorage depth	hef	[mm]	40	30 ¹⁾	44	35 ¹⁾	48	42	65	50	80	64	100	78		
Characteristic spacing	Scr, N	[mm]	120/370 ²⁾	90/260 ²⁾	132	105	144	126	195	150	240	192	300	234		
Characteristic edge distance	Ccr, N	[mm]	60/185 ²⁾	45/130 ²⁾	66	52,5	72	63	97,5	75	120	96	150	117		
cracked concrete (multiple use only)																
Minimum spacing	Smin	[mm]	50	50	-	-	-	-	-	-	-	-	-	-	-	-
Minimum edge distance	Cmin	[mm]	50	50	-	-	-	-	-	-	-	-	-	-	-	-
Minimum thickness of concrete slab	hmin	[mm]	80	80	-	-	-	-	-	-	-	-	-	-	-	-
non-cracked concrete																
Minimum spacing	Smin / c	[mm]	35/40	35/40	35/65	60/60	45/70	55/65	60/100	100/100	80/120	110/110	100/150	140/140		
Minimum edge distance	Cmin / s	[mm]	35/60	40/35	45/110	60/60	55/80	65/55	70/100	100/100	80/140	110/110	100/180	140/140		
Minimum thickness of concrete slab	hmin	[mm]	100	80	100	80	100	100	130	100	160	130	200	160		
Installation parameters																
Drill hole diameter	do	[mm]	6	6	8	8	10	10	12	12	16	16	20	20		
Diameter of clearance hole in the fixture	df	[mm]	7	7	9	9	12	12	14	14	18	18	22	22		
Depth of drill hole	hi	[mm]	55	45	65	55	70	65	90	75	110	95	130	110		
Installation torque	Tinst	[Nm]	6/8 ²⁾	6/8 ²⁾	15	15	25	25	50	50	100	100	160	160		
Width across nut	SW	[mm]	10	10	13	13	17	17	19	19	24	24	30	30		

¹⁾ Application limited to statically indetermined systems.

²⁾ For applications according to ETA-170569

³⁾ The maximum load per fixing point for multiple use for non-structural applications may, depending on national regulations, are below the approved load of the anchor. The approved loads per fixing point are regulated for their respective countries in the ETAG 001, Part 6.