XT Throughbolts

Through fixing
For Use With:
- Non-Cracked Concrete

ETA 22/0031

Load Data
- Concrete C20/25 ($f_{ck,cube}$ = 25 N/mm)^2
- No Edge and Spacing reductions
- Minimum base material thickness
- Correct installation

Features:

- Through fixing
- Approved for non-cracked concrete
- 2 Embedment Depths
- Zinc Plated min 5µm
- Class A1 Reaction to Fire

Benefits:

- Quick and simple installation
- One anchor for concrete from C20/25 to C50/60
- Long thread for stand off installation

Concrete ranges:	C20/25 to C50/60 according to EN 206:2013+A1:2016
Certification	European Technical Assessment ETA 20/0031

Product Range

Product Code	Thread Diameter	Anchor Length	Drill Hole Diameter	Standard Embedment		Reduced		Fixture Clearance Hole	Thread Length
				Drill Hole Depth	Maximum Fixture Thickness	Drill Hole Depth	Maximum Fixture Thickness		
	d	L	d_o	$h_{nom,std}$	$t_{fix,std}$	$h_{nom,red}$	$t_{fix,red}$	d_f	g
	mm	mm	mm	mm	mm	mm	mm	mm	mm
0841ETA540050	8	50	8	53	-	43	-	9	15
0841ETA540065		65			2		12		25
0841ETA540080		80			17		27		40
0841ETA540090		90			27		37		50
0841ETA540100		100			37		47		60
0841ETA540115		115			52		62		70
0841ETA540130		130			67		77		90
0841ETA560065	10	65	10	58	-	48	4	12	20
0841ETA560075		75			4		14		30
0841ETA560090		90			19		29		45
0841ETA560105		105			34		44		60
0841ETA560120		120			49		59		70
0841ETA560140		140			69		79		70
0841ETA580080	12	80	12	80	-	60	3	14	30
0841ETA580100		100			3		23		50
0841ETA580120		120			23		43		70
0841ETA580140		140			43		63		85
0841ETA580180		180			83		103		95
0841ETA580200		200			103		123		145
0841ETA580220		220			123		143		145
0841ETA580240		240			143		163		145
0841ETA620105	16	105	16	99	-	79	4	18	45
0841ETA620125		125			4		24		60
0841ETA620150		150			29		49		80
0841ETA620175		175			54		74		100
0841ETA620200		200			79		99		110
0841ETA620220		220			99		119		130
0841ETA620240		240			119		139		150
0841ETA640130	20	130	20	110	-	90	14	22	60
0841ETA640160		160			24		44		85
0841ETA640220		220			84		104		130
0841ETA640240		240			104		124		140

Installation Data

Anchor Diameter			M8	M10	M12	M16	M20
Effective Anchorage Depth, Standard	h_{eff}	[mm]	45	50	70	85	100
Spacing, Standard Embedment Depth	$S_{cr,N,std}$	[mm]	40	40	85	90	285
Edge Distance,Tensile Standard Embedment Depth	$C_{cr,N,std}$	[mm]	55	60	80	115	150
Edge Distance,Shear, Standard Embedment Depth	$C_{cr,V,std}$	[mm]	70	90	115	195	310
Minimum Concrete Thickness, Standard	h_{min}	[mm]	100	100	140	170	200
Effectice Anchorage Depth, Reduced	$h_{eff,red}$	[mm]	35	40	50	65	80
Spacing, Reduced Embedment Depth	$S_{cr,N,red}$	[mm]	95	65	60	170	225
Edge Distance, Tensile, Red. Embedment Depth	$C_{cr,N,red}$	[mm]	50	55	70	90	120
Edge Distance, Shear, Red. Embedment Depth	$C_{cr,V,red}$	[mm]	70	85	120	205	320
Minimum Concrete Thickness, Reduced	$h_{min,red}$	[mm]	100	100	140	170	200
Minimum Spacing	s_{min}	[mm]	35	40	50	65	80
Minimum Edge Distance	c_{min}	[mm]	35	40	50	65	80
Installation Torque	T_{inst}	[Nm]	25	35	60	120	200

For reductions in Spacing and Edge Distance refer to Software for Calculations

Standard Embedment

Characteristics Resistance (Non-Cracked concrete)

Anchor Diameter			M8	M10	M12	M16	M20
N_{Rk}		[kN]	9.5	11.0	20.0	26.0	48.0
V_{Rk}		[kN]	9.3	11.6	16.9	31.4	49.0

Design Resistance

Anchor Diameter			M8	M10	M12	M16	M20
N_{Rd}		[kN]	6.3	7.3	13.3	14.4	26.6
V_{Rd}		[kN]	5.8	9.2	13.5	25.1	39.2

Recommended Resistance

Anchor Diameter			M8	M10	M12	M16	M20
N_{rec}		[kN]	4.5	5.2	9.5	10.3	19.0
V_{rec}		[kN]	4.1	6.6	9.6	17.9	28.0

Includes Partial Safety Factor γ = 1.4 in the absence of national regulations and type of loading Data is for Static and Quasi Static Loads for a single anchor

Reduced Embedment

Characteristics Resistance (Non-Cracked concrete)

Anchor Diameter			M8	M10	M12	M16	M20
N_{Rk}		[kN]	9.5	9.5	12.0	24.0	34.0
V_{Rk}		[kN]	7.3	12.4	16.9	31.4	49.0

Design Resistance

Anchor Diameter			M8	M10	M12	M16	M20
N_{Rd}		[kN]	6.3	6.3	8.0	13.3	18.8
V_{Rd}		[kN]	5.8	8.3	13.5	25.1	39.2

Recommended Resistance

Anchor Diameter			M8	M10	M12	M16	M20
N_{rec}		[kN]	4.5	4.5	5.7	9.5	13.4
V_{rec}		[kN]	4.1	5.9	9.6	17.9	28.0

Includes Partial Safety Factor γ = 1.4 in the absence of national regulations and type of loading Data is for Static and Quasi Static Loads for a single anchor

Increasing Factor

Anchor Diameter		M8	M10	M12	M16	M20
Ψ_c C30/37	[-]	1.22				
Ψ_c C40/50	[-]	1.41				
Ψ_c C50/60	[-]	1.55				

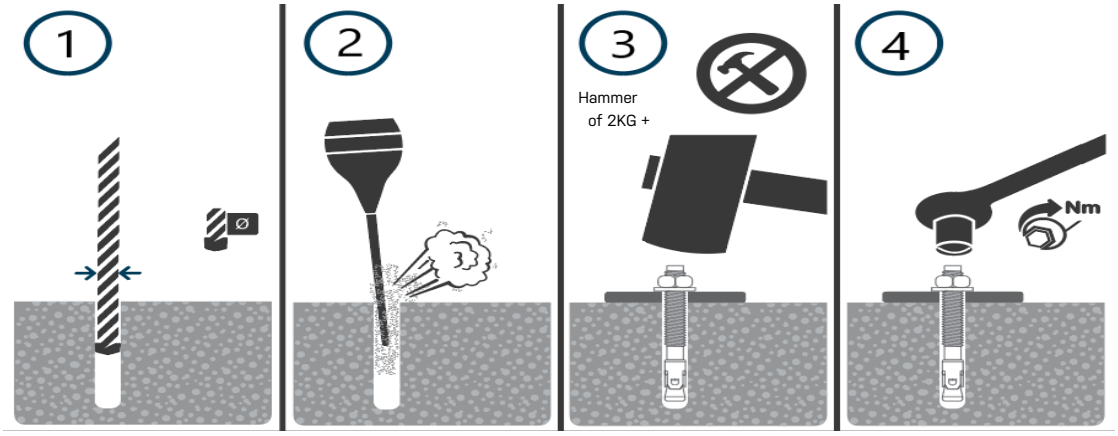
When using increasing factors care must be taken not to exceed steel limits

Steel Limits

Anchor Diameter			M8	M10	M12	M16	M20
Characteristic Tensile Resistance	$N_{Rk,s}$	[kN]	14.6	23.2	33.7	62.8	98.0
Partial safety factor	γ_{MsN}	[-]	1.5				
Characteristic Shear Resistance	$V_{Rk,s}$	[kN]	7.3	11.6	16.9	31.4	49.0
Characteristic Bending Moment	$M^0_{Rk,s}$	[Nm]	15.0	29.9	52.4	133.2	259.6
Partial Safety Factor	γ_{MsV}	[-]	1.25				

Anchor Materials

Designation	Material	
Bolt	Q195 Cold formed steel $f_{uk} \geq 400$ MPa $F_{yk} \geq$ 300 MPa	Zinc plated ≥ 5µm EN ISO 4042
Expansion Sleeve		
Washer	DIN 125 or EN ISO 7089	
Hexagon Nut	EN ISO 898-2 carbon steel class 8 / DIN 934 ? AISI 1008	



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