



INFORMATION

The torque controlled Throughbolt is a zinc plated high performance anchor for use in cracked/non-cracked concrete and structural applications such as:

- Columns
- Guard rails
- Façades
- Staircases
- Silo installation
- Machines
- Cantilever beams

BASE MATERIAL

- Concrete C20/25 to C50/60
- Cracked Concrete
- Non-Cracked Concrete

FEATURES

- High Performance
- Wide Range Of Sizes
- Fast And Secure Installation
- Through Fixing
- Three way Expansion Sleeve
- Zinc Plated Min. 5µm
- Close Spacing And Edge Distance
- Performance Data for Different Embedment Depth
- Reaction To Fire Class A1
- Fire Resistant Loading

APPROVALS

European Technical Assessment



Option 1 Cracked Concrete
ETA 13/0364



C1, C2
Seismic Performance
Categories (M10 to M20 with
standard anchorage depths)

SOFTWARE



[Click here to
download the software](#)

RELATED PRODUCTS



SDS+ Drill Bits



Hole Cleaning Pump

BOP1



Option 1 Throughbolt
A4 Stainless Steel



Option 7 Throughbolt
BZP



Option 7 Throughbolt
HDG

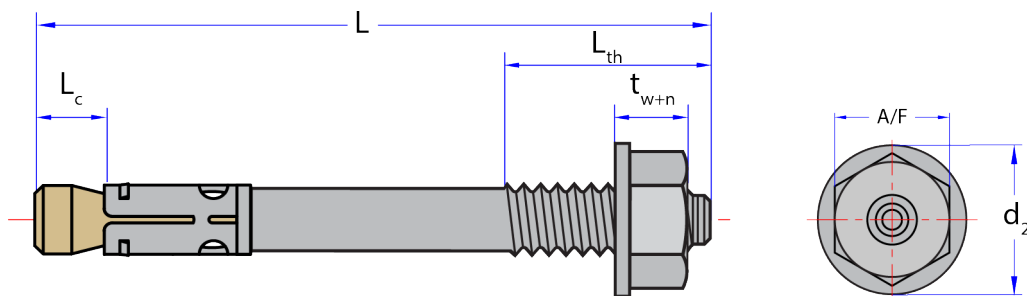


Option 7 Throughbolt
A4 Stainless Steel





RANGE DATA



RANGE DATA

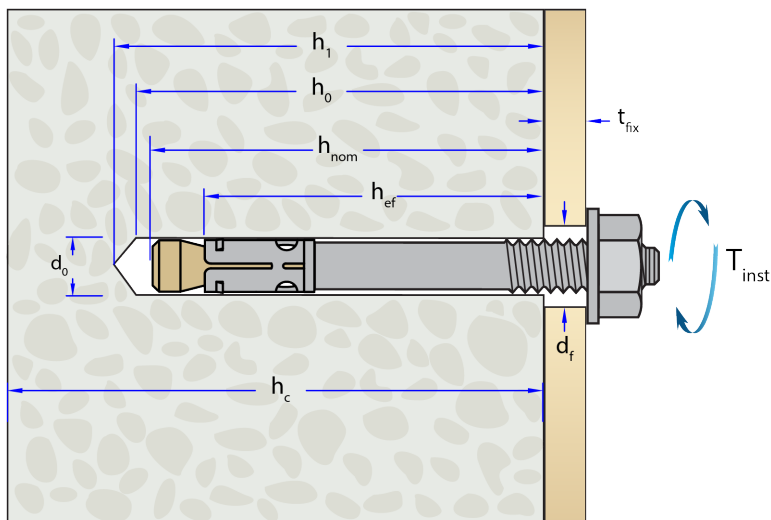
Part Number	Size of Thread	Total Length	Thread Length	Cone Length	Washer and Nut Thickness	Width Across Flats	Washer Outer diameter
	mm	(L_{th}) mm	(L_{th}) mm	(L_c) mm	(t_{w+n}) mm	(A/F) mm	(d_2) mm
ETA08075	M8	75	32	11	8	13	16
ETA08095		95	52				
ETA08115		115	72				
ETA10090	M10	90	42	10	10	17	20
ETA10110		110	62				
ETA10130		130	82				
ETA12110	M12	110	51	14	13	19	24
ETA12125		125	66				
ETA12160		160	101				
ETA12180		180	121				
ETA16135	M16	135	56	17	16	24	30
ETA16170		170	91				
ETA16200		200	121				
ETA20165	M20	165	50	21	21	30	37
ETA20195		195	70				





Installation Into Concrete

Refer to the ETA approval available on the JCP website for complete installation instructions and parameters including minimum spacing and edge distances for different installation configuration.



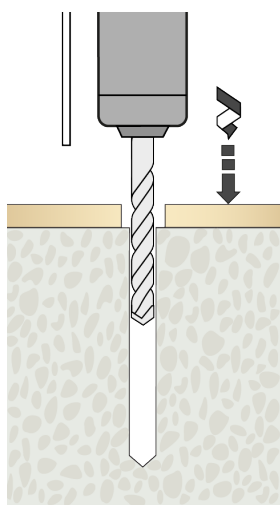
RANGE DATA

Part Number	Drill Hole Diameter	Reduced Embedment				Standard Embedment				Fixture Clearance Hole	Tightening Torque
		Min Hole Depth	Embedment Depth	Anchorage depth	Max Fixture Thick- ness	Min Hole Depth	Embedment Depth	Anchorage depth	Max Fixture Thick- ness		
	(d ₀)	(h ₁)	(h _{nom})	(h _{ef})	(t _{fix})	(h ₁)	(h _{nom})	(h _{ef})	(t _{fix})	(d _f)	(T _{inst})
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	Nm
ETA08075	8	49	41	35	21	60	52	46	10	9	20
ETA08095					41				30		
ETA08115					61				50		
ETA10090	10	55	48	40	30	75	68	60	10	12	25
ETA10110					50				30		
ETA10130					70				50		
ETA12110	12	70	60	50	35	90	80	70	15	14	45
ETA12125					50				30		
ETA12160					85				65		
ETA12180					105				85		
ETA16135	16	90	77	65	35	110	97	85	15	18	90
ETA16170					70				50		
ETA16200					100				80		
ETA20165	20	N/A				125	114	100	30	22	160
ETA20195		60									

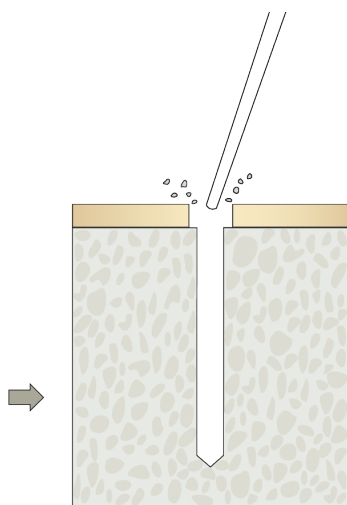




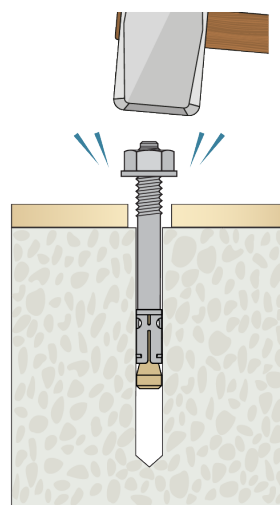
INSTALLATION INSTRUCTIONS



-Position fixture and drill correct diameter hole to corresponding depth

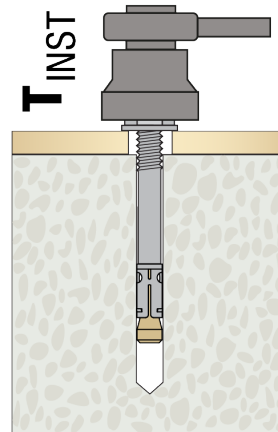


-Clean hole by blowing to remove drilling debris and dust



-Insert anchor through fixture into concrete and lightly hammer into concrete

Click on the QR code or scan it to watch the video



-Tighten with torque wrench to recommended torque

PERFORMANCE DATA FOR STRUCTURAL APPLICATIONS (NON-CRACKED CONCRETE)

Performance Data (C20/25 non-cracked concrete) Reduced Embedment

Size Of Thread	Embedment Depth (h_{nom})	Minimum Concrete Thickness (h_{min})	Characteristic Resistance		Design Resistance		Recommended Resistance	
			Tensile (N_{Rk})	Shear (V_{Rk})	Tensile (N_{Rd})	Shear (V_{Rd})	Tensile (N_{Rec})	Shear (V_{Rec})
-	mm	mm	kN	kN	kN	kN	kN	kN
M8	41	80	7.5	12.2	5.0	9.7	3.5	6.9
M10	47	80	9	20.1	6.0	16	4.2	11.4
M12	60	100	17.3	30	11.6	24	8.2	17.1
M16	77	140	25.7	61.8	17.1	41.2	12.5	29.4

Performance Data (C20/25 non-cracked concrete) Standard Embedment

Size Of Thread	Embedment Depth (h_{nom})	Minimum Concrete Thickness (h_{min})	Characteristic Resistance		Design Resistance		Recommended Resistance	
			Tensile (N_{Rk})	Shear (V_{Rk})	Tensile (N_{Rd})	Shear (V_{Rd})	Tensile (N_{Rec})	Shear (V_{Rec})
-	mm	mm	kN	kN	kN	kN	kN	kN
M8	52	100	12	12.2	8	9.7	5.7	6.9
M10	68	120	16	20.1	10.6	16	7.5	11.4
M12	80	140	25	30	16.6	24	11.8	17.1
M16	97	170	35	55	23.3	44	16.6	31.4
M20	114	200	49.1	69	32.8	51.8	23.4	37





PERFORMANCE DATA FOR STRUCTURAL APPLICATIONS (CRACKED CONCRETE)

Performance Data (C20/25 cracked concrete) Reduced Embedment

Size Of Thread	Embedment Depth (h_{nom})	Minimum Concrete Thickness (h_{min})	Characteristic Resistance		Design Resistance		Recommended Resistance	
			Tensile (N_{Rk})	Shear (V_{Rk})	Tensile (N_{Rd})	Shear (V_{Rd})	Tensile (N_{Rec})	Shear (V_{Rec})
-	mm	mm	kN	kN	kN	kN	kN	kN
M8	41	80	5	12.2	3.3	9.7	2.3	6.9
M10	47	80	7.5	20.9	5	13.9	3.5	9.9
M12	60	100	12.1	29.2	8.1	19.4	5.7	13.8
M16	77	140	18	43.3	12	28.8	8.5	20.5

Performance Data (C20/25 cracked concrete) Standard Embedment

Size Of Thread	Embedment Depth (h_{nom})	Minimum Concrete Thickness (h_{min})	Characteristic Resistance		Design Resistance		Recommended Resistance	
			Tensile (N_{Rk})	Shear (V_{Rk})	Tensile (N_{Rd})	Shear (V_{Rd})	Tensile (N_{Rec})	Shear (V_{Rec})
-	mm	mm	kN	kN	kN	kN	kN	kN
M8	52	100	5	12.2	3.3	9.7	2.3	6.9
M10	68	120	9	20.1	6	16	4.2	11.4
M12	80	140	16	30	10.6	24	7.5	17.1
M16	97	170	25	55	16.6	44	11.8	31.4
M20	114	200	34.4	69	22.9	51.8	16.3	37

* Important notes:

- Fasteners subject to static and quasi-static loads.
- For seismic actions please refer to ETA approvals or Anchor Calculation Software.
- Performance data stated for a single anchor, without the effect of spacing and edge distances. The influence of these parameters must be verified where applicable.
- Minimum concrete thickness, hole diameter, and embedment depth shall correspond to the dimensions stated in this document.
- Concrete strength class C20/25 is assumed.
- Drill holes produced using rotary hammer drilling, unless otherwise noted.
- Installation carried out strictly in accordance with the product's Installation Instructions and performed by a trained operator.
- Characteristic and design resistances derived from JCP internal technical data.
- Design resistances are calculated from characteristic values using the appropriate partial safety factors corresponding to the decisive failure mode.
- The Recommended Resistance is calculated using an additional safety factor (γ_{Add}) equal to 1.4.
- Performance data is valid for shear loading without a lever arm; installations involving a lever arm require additional verifications.
- Performance data is not valid for combined tensile and shear loading; where combined loading occurs, further checks shall be performed.
- When concrete-related strength factors are applied, ensure that the resulting resistance value does not exceed the steel design resistance.



For variations in structure thickness, reduced spacing and edge calculations download the free **Anchor Calculation Program** from www.jcpfixings.co.uk





FIRE RESISTANCE DATA



Fire Resistance Data (Reduced Embedment Depth In C20/25 to C50/60 cracked or non-cracked concrete)*

Size Of Thread	Effective Embedment Depth	Minimum Concrete Thickness	Design Resistance**								Approved Resistance							
			30min (R30)		60min (R60)		90min (R90)		120min (R120)		30min (R30)		60min (R60)		90min (R90)		120min (R120)	
			Tensile (N _{Rd,fi})	Shear (V _{Rd,fi})	Tensile (N _{Rd,fi})	Shear (V _{Rd,fi})	Tensile (N _{Rd,fi})	Shear (V _{Rd,fi})	Tensile (N _{Rd,fi})	Shear (V _{Rd,fi})	Tensile (N _{Rd,fi})	Shear (V _{Rd,fi})	Tensile (N _{Rd,fi})	Shear (V _{Rd,fi})	Tensile (N _{Rd,fi})	Shear (V _{Rd,fi})	Tensile (N _{Rd,fi})	Shear (V _{Rd,fi})
-	mm	mm	kN		kN		kN		kN		kN		kN		kN		kN	
M8	41	80	1.2	1.5	1.1	1.1	0.8	0.8	0.7	0.6	0.8	1	0.7	0.7	0.5	0.5	0.5	0.4
M10	47	80	1.7	2.6	1.7	1.9	1.4	1.3	1.2	1	1.2	1.8	1.2	1.3	1	0.9	0.8	0.7
M12	60	100	3	4.1	3	3	2.4	1.9	2.2	1.3	2.1	2.9	2.1	2.1	1.7	1.3	1.5	0.9
M16	77	140	4.7	7.7	4.7	5.6	4.4	3.5	3.7	2.5	3.3	5.5	3.3	4	3.1	2.5	2.7	1.7

Fire Resistance Data (Standard Embedment Depth In C20/25 to C50/60 cracked or non-cracked concrete)*

Size Of Thread	Effective Embedment Depth	Minimum Concrete Thickness	Design Resistance**								Approved Resistance							
			30min (R30)		60min (R60)		90min (R90)		120min (R120)		30min (R30)		60min (R60)		90min (R90)		120min (R120)	
			Tensile (N _{Rd,fi})	Shear (V _{Rd,fi})	Tensile (N _{Rd,fi})	Shear (V _{Rd,fi})	Tensile (N _{Rd,fi})	Shear (V _{Rd,fi})	Tensile (N _{Rd,fi})	Shear (V _{Rd,fi})	Tensile (N _{Rd,fi})	Shear (V _{Rd,fi})	Tensile (N _{Rd,fi})	Shear (V _{Rd,fi})	Tensile (N _{Rd,fi})	Shear (V _{Rd,fi})	Tensile (N _{Rd,fi})	Shear (V _{Rd,fi})
-	mm	mm	kN		kN		kN		kN		kN		kN		kN		kN	
M8	52	100	1.2	1.6	1.1	1.5	0.8	1.2	0.7	1.2	0.8	1.1	0.7	1	0.5	0.8	0.5	0.8
M10	68	120	2.2	2.6	1.9	2.5	1.4	2.1	1.2	2.1	1.6	1.8	1.3	1.7	1	1.5	0.8	1.5
M12	80	140	4	4.1	3	3.6	2.4	3.5	2.2	3.5	2.8	2.9	2.1	2.5	1.7	2.5	1.5	2.5
M16	97	170	6.2	7.7	5.6	6.8	4.4	6.5	4	6.5	4.4	5.5	4	4.8	3.1	4.6	2.8	4.6
M20	114	200	9	11	8.2	11	6.9	10	6.3	10	6.4	7.8	5.8	7.8	4.9	7.1	4.5	7.1

* The determination covers anchors with a fire attack from one side only. If the fire attack is from more than one side, the design method may be taken only, if the edge distance of the anchor is $c \geq 300$ mm and $\geq 2 h_{ef}$.

**For combined loads and shear with lever arm use Anchor Calculation Program.





SUPPLEMENTARY DATA

Influence Of Concrete Strength (Cracked/Non-cracked Concrete)					
Concrete strength		C20/25	C30/37	C40/50	C50/60
Cylinder	N/mm ²	20	30	40	50
Cube	N/mm ²	25	37	50	60
Factor	-	1	1.22	1.41	1.55

Important Note:

When using concrete factors ensure that loads do not exceed Steel Design Resistance.

Steel Failure						
Size Of Thread	Tensile Resistance			Shear Resistance		
	Characteristic Resistance (N _{Rk,s})	Design Resistance (N _{Rd,s})	Approved Resistance (N _{Ra,s})	Characteristic Resistance (V _{Rk,s})	Design Resistance (V _{Rd,s})	Approved Resistance (V _{Ra,s})
-	kN	kN	kN	kN	kN	kN
M8	16	10.4	7.4	12.2	9.7	6.9
M10	27	17.6	12.5	20.1	16	11.4
M12	40	26.6	19	30	24	17.1
M16	60	40	28.5	55	44	31.4
M20	86	53.7	38.3	69	51.8	37

