



INFORMATION

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

- Metal constructions
- Facades
- Gates
- Guard Rails and Temporary Barriers
- Fencing
- Warehouse Shelving
- Signs and posts
- Brackets
- MEP support systems
- Railing

BASE MATERIAL

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

FEATURES

- High Performance
- Stainless Steel A4/316
- High Corrosion Resistance
- Wide Range Of Sizes
- Fast And Secure Installation
- Through Fixing
- Close Spacing And Edge Distance
- Performance Data for Different Embedment Depth
- Reaction To Fire Class A1

APPROVALS

European Technical Assessment



ETA-07/0332
Option 7 Structural Applications

SOFTWARE



[Click here to download the software](#)

RELATED PRODUCTS



SDS+ Drill Bits



Hole Cleaning Pump

BOP1



Option 7 Throughbolt
BZP



Option 7 Throughbolt
HDG



Option 1 Throughbolt
BZP

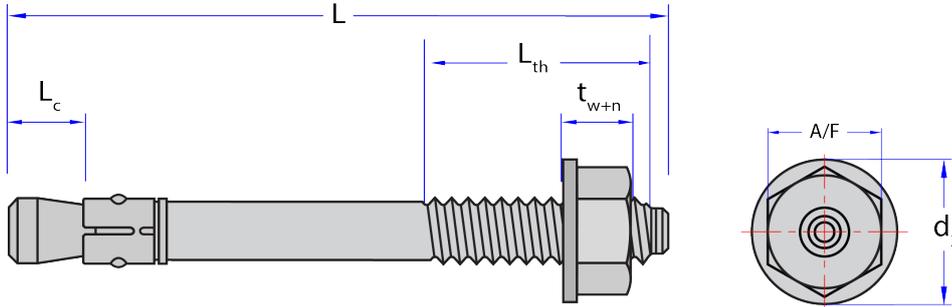


Option 1 Throughbolt
A4 Stainless Steel





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) mm	(L _{th}) mm	(L _c) mm	(t _{w+n}) mm	(A/F) mm	(d ₂) mm
TSS06040	M6	40	16	10	7	10	12
TSS06065		67	30				
TSS08050	M8	50	22	13	8	13	16
TSS08075		75	40				
TSS08095		95	60				
TSS08120		120	85				
TSS10060	M10	60	25	17	10	17	20
TSS10080		85	40				
TSS10100		105	60				
TSS10125		125	80				
TSS10175		175	80				
TSS10215		215	80				
TSS12085	M12	95	50	18	13	19	24
TSS12100		105	60				
TSS12115		115	70				
TSS12145		145	100				
TSS12200		200	100				
TSS16110	M16	115	60	21	17	24	30
TSS16125		130	70				
TSS16150		150	90				
TSS16175		180	110				
TSS20170	M20	180	70	24	21	30	35
TSS20220		240	70				

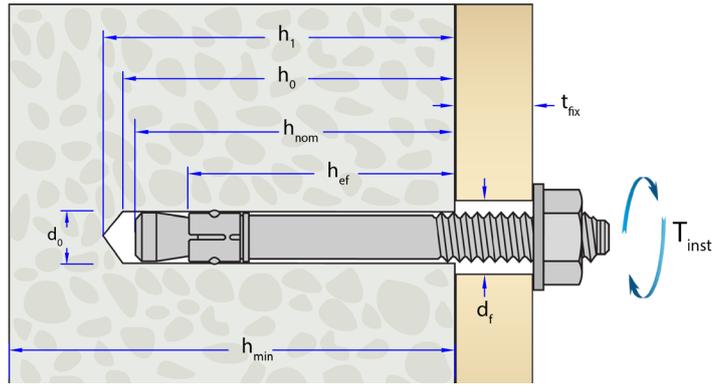




INSTALLATION INTO CONCRETE

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.

* No performance assessed



Installation Parameters in Concrete

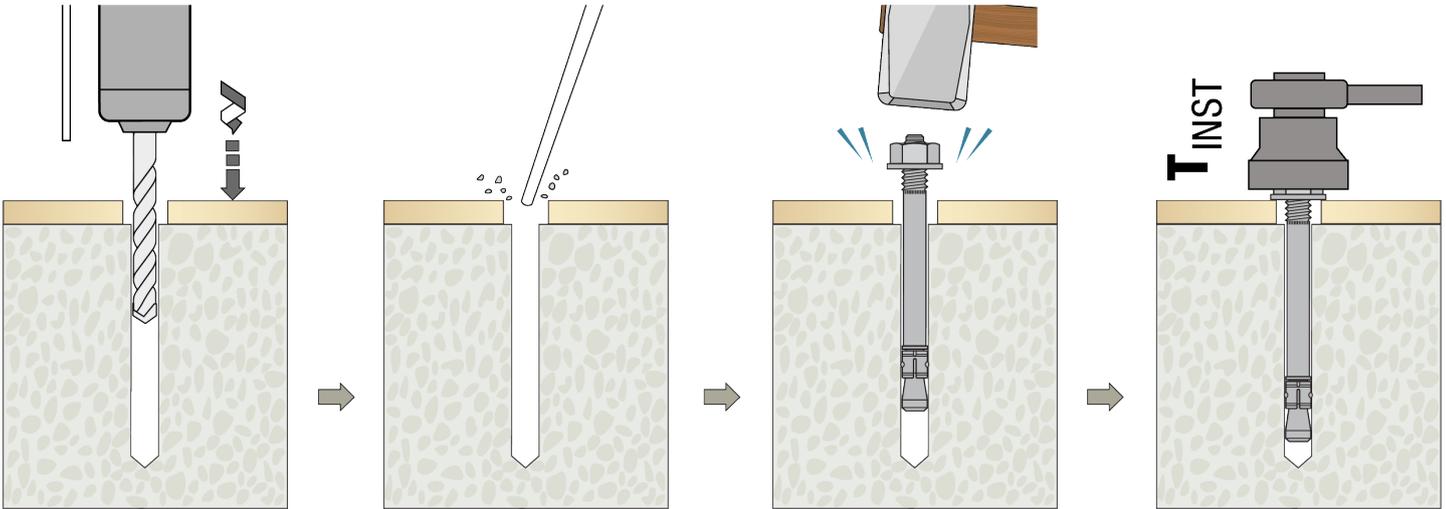
Part Number	Drill Hole Diameter (d_0)	Reduced Embedment				Standard Embedment				Deep Embedment				Fixture Clearance Hole (d_r)	Tightening Torque (T_{inst})	
		Min Hole Depth (h_1)	Embedment Depth (h_{nom})	Anchorage Depth (h_{ef})	Max Fixture Thickness (t_{fx})	Min Hole Depth (h_1)	Embedment Depth (h_{nom})	Anchorage Depth (h_{ef})	Max Fixture Thickness (t_{fx})	Min Hole Depth (h_1)	Embedment Depth (h_{nom})	Anchorage Depth (h_{ef})	Max Fixture Thickness (t_{fx})			
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			
TSS06040*	6	35	27	18	5	N/A				N/A				7	6	
TSS06065		45	39	30	20	55	49	40	10	N/A						
TSS08050*	8	45	35	24	5	N/A				N/A				9	15	
TSS08075					19					N/A						
TSS08095		55	46	35	39	65	55	44	30	91	82	70	4			
TSS08120				64												
TSS10060	10	50	40		10	N/A				N/A				12	25	
TSS10080					16					N/A						
TSS10100					36					N/A						
TSS10125		65	56	42	56	70	62	48	50	102	94	80	18			
TSS10175				106					100							68
TSS10215				146					140							108
TSS12085				14	N/A				N/A							
TSS12100	12	75	67	50	25					N/A				14	50	
TSS12115					35	90	82	65	20	N/A						
TSS12145					65				50	125	117	100	15			
TSS12200						120	105		70							
TSS16110	16	95	84	64	14	N/A				N/A				18	100	
TSS16125					25					N/A						
TSS16150					46	110	100	80	30	N/A						
TSS16175					76				60	148	140	120	22			
TSS20170	20	110	99	78	57	130	121	100	35	145	136	115	20	22	160	
TSS20220					117				95				80			





INSTALLATION INSTRUCTIONS INTO SOLID CONCRETE

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



-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

-Tighten with torque wrench to recommended torque

T_{INST}





PERFORMANCE DATA FOR STRUCTURAL APPLICATIONS (NON-CRACKED CONCRETE)

Anchor performance data apply to a single anchor without spacing or edge effects, and not under combined shear and tension. For full verification, refer to ETA approval or the Anchor Calculation Program.

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

Size of Thread	Embedment Depth	Minimum Concrete Thickness	Characteristic Resistance		Design Resistance		Recommended Resistance	
	h_{nom}	h_{min}	Tensile (N_{Rk})	Shear (V_{Rk})	Tensile (N_{Rd})	Shear (V_{Rd})	Tensile (N_{Rec})	Shear (V_{Rec})
mm	mm	mm	kN	kN	kN	kN	kN	kN
M6*	39	80	6.0	7.0	4.0	5.6	2.8	4.0
M8*	46	80	9.0	12.0	6.0	9.6	4.2	6.8
M10	56	100	12.0	19	8.0	15.2	5.7	10.8
M12	67	100	17.4	27	11.6	21.6	8.5	15.4
M16	84	130	25.2	51.7	16.8	40.0	12	28.5
M20	99	160	33.9	69.6	22.6	61.4	16.1	43.8

* Use is restricted to anchorage of indeterminate structural components and subject to internal exposure conditions.

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

Size of Thread	Embedment Depth	Minimum Concrete Thickness	Characteristic Resistance		Design Resistance		Recommended Resistance	
	h_{nom}	h_{min}	Tensile (N_{Rk})	Shear (V_{Rk})	Tensile (N_{Rd})	Shear (V_{Rd})	Tensile (N_{Rec})	Shear (V_{Rec})
mm	mm	mm	kN	kN	kN	kN	kN	kN
M6	49	100	8	7.0	5.3	5.6	3.7	4.0
M8	55	100	14.3	12.0	9.5	9.6	6.7	6.8
M10	62	100	16.3	19	10.9	15.2	7.7	10.8
M12	82	130	25.0	27.0	16.6	21.6	11.8	15.4
M16	102	170	35.2	50.0	23.4	40.0	16.7	28.5
M20	121	200	49.2	86.0	32.8	61.4	23.4	43.8

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

Size of Thread	Embedment Depth	Minimum Concrete Thickness	Characteristic Resistance		Design Resistance		Recommended Resistance	
	h_{nom}	h_{min}	Tensile (N_{Rk})	Shear (V_{Rk})	Tensile (N_{Rd})	Shear (V_{Rd})	Tensile (N_{Rec})	Shear (V_{Rec})
mm	mm	mm	kN	kN	kN	kN	kN	kN
M8	82	126	15	12.0	10	9.6	7.1	6.8
M10	94	132	16.4	16.8	10.9	15.2	7.7	10.8
M12	117	165	25.0	27.0	16.6	21.6	11.8	15.4
M16	140	200	42	50.0	28	40.0	20	28.5
M20	136	215	60	86.0	40	61.4	28.5	43.8



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





SUPPLEMENTARY DATA

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
M6	10.0	6.6	4.7	7.0	5.6	4.0
M8	18.0	12.0	8.5	12.0	9.6	6.8
M10	30.0	20.0	14.2	19.0	15.2	10.8
M12	44.0	29.3	20.9	27.0	21.6	15.4
M16	88.0	58.6	41.8	50.0	40.0	28.5
M20	134.0	79.7	56.9	86.0	61.4	43.8

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	-	1.0	1.22	1.41	1.58

* Important notes:

- Fasteners subject to static and quasi-static loads.
- 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 project-specific assessments or conditions not explicitly covered, download the JCP Anchor Calculation Program.



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

