

INFORMATION

The torque controlled Throughbolt is a stainless steel grade A2/304 through fixing for use in non-cracked concrete and normal applications such as:

- Barriers
- Guard rails
- Fences
- Hand rails
- Signs and posts

BASE MATERIAL

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

FEATURES

- Medium Duty
- Corrosion Resistance
- Wide Range Of Sizes
- Fast And Secure Installation
- Through Fixing
- Three way Expansion Sleeve
- Stainless Steel A2/304
- Reaction To Fire Class A1

RELATED PRODUCTS

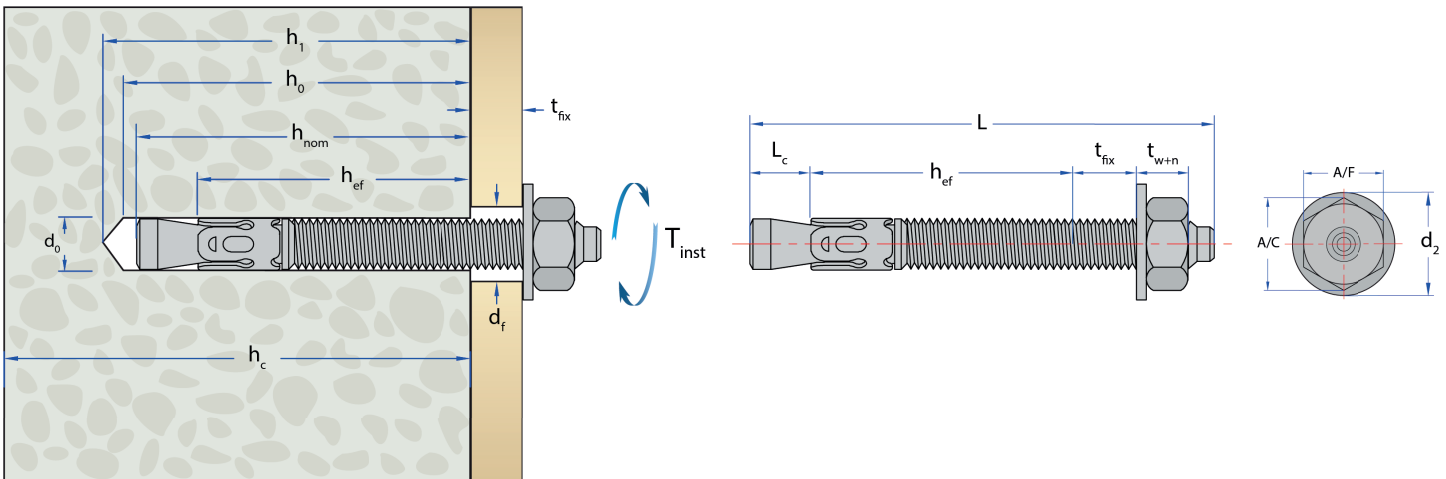


SDS+ Drill Bits



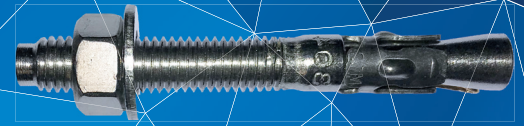
Hole Cleaning Pump

RANGE AND LOAD DATA



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





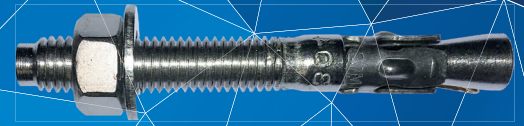
RANGE AND LOAD DATA

RANGE DATA																	
Part Number	Size of Thread	Min. Structure Thickness	Drill Hole Diameter	Min Hole Depth	Fixture Clearance Hole	Cone Length	Effective Embedment Depth	Max Fixture Thickness	Washer and Nut Thickness	Total Length	Thread Length	Width Across Flats	Washer Outer diameter	Tightening Torque			
		(h _c)	(d ₀)	(h ₁)	(d _f)	(L _c)	(h _{ef})	(t _{fx})	(t _{w+n})	(L)	(L _{th})	(A/F)	(d ₂)	(T _{inst})			
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	Nm			
STANDARD EMBEDMENT DEPTH																	
TSSA206045	M6	100	6	35	7	7	23	5	6	45	18	10	12.5	5			
TSSA206065								25							65	28	
TSSA208050	M8	100	8	40*	9	9	26	2	8	50	14	13	17	15			
TSSA208075				22				75							39		
TSSA208095				45				31							42	95	59
TSSA208120				67				120							62		
TSSA210060	M10	125	10	45*	12	12	28	5	10	60	18	17	21	25			
TSSA210080				15				80							38		
TSSA210100				35				100							57		
TSSA210125				55				38							60	125	82
TSSA210150				85				150							76		
TSSA210175				110				175							86		
TSSA212085	M12	170	12	65	14	15	45	5	13	85	38	19	24	45			
TSSA212100								20							100	58	
TSSA212115								35							115	57	
TSSA212145								65							145	78	
TSSA212200								120							200	84	
TSSA216110	M16	200	16	85	18	17	58	12	16	110	47	24	30	90			
TSSA216125								27							125	60	
TSSA216150								52							150	87	
TSSA216175								77							175	80	
TSSA220170	M20	240	20	100	22	19	66	58	19	170	80	30	37	160			
TSSA220220								108							220	113	

* Reduced embedment depth for non-structural applications.

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NON-CRACKED CONCRETE

STANDARD EMBEDMENT

Performance Data (C20/25 non-cracked concrete)												
Size Of Thread	Effective Embedment Depth (h_{ef})	Minimum Concrete Thickness (h_{min})	Characteristic Resistance		Design Resistance		Approved Resistance		Design Spacing (S)		Design Edge Distance (C)	
			Tensile (N_{Rk})	Shear (V_{Rk})	Tensile (N_{Rd})	Shear (V_{Rd})	Tensile (N_{Ap})	Shear (V_{Ap})	Tensile	Shear	Tensile	Shear
-	mm	mm	kN	kN	kN	kN	kN	kN	mm	mm	mm	mm
M6	23	100	2.5	5.9	1.4	4.7	1.0	3.3	70	70	70	70
M8	26	100	5.1	10.7	2.8	8.5	2.0	6.0	80	80	80	80
M10	38	125	9.5	17.0	5.3	13.5	3.7	9.6	115	115	90	90
M12	45	170	11.7	24.7	6.5	19.7	4.6	14.0	225	225	140	140
M16	58	200	24.2	45.9	13.4	36.7	9.5	26.2	290	290	190	190
M20	66	240	34.4	71.7	19.1	57.3	13.6	40.9	330	330	240	240

SUPPLEMENTARY DATA

Influence Of Concrete Strength (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	1.55

Important Note:

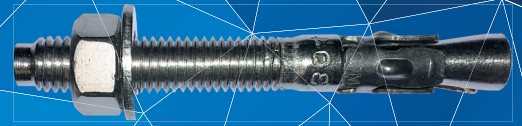
When using concrete factors ensure that loads do not exceed Steel Design Resistance.

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
M6	11.8	7.8	5.5	5.9	4.7	3.3
M8	21.5	14.3	10.2	10.7	8.5	6.0
M10	34.0	22.6	16.1	17.0	13.5	9.6
M12	49.4	32.9	23.5	24.7	19.7	14.0
M16	91.8	61.2	43.7	45.9	36.7	26.2
M20	143.4	95.6	68.2	71.7	57.3	40.9

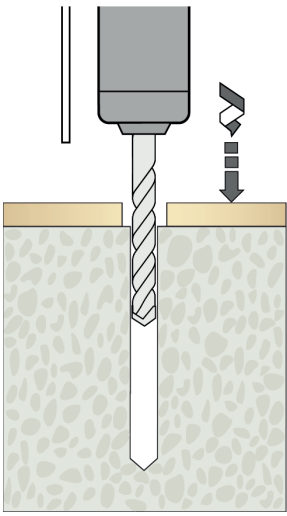
* A partial safety factor (γ_{MS}) equal to 1.5 is included.

** A partial safety factor (γ_{MS}) equal to 1.25 is included.

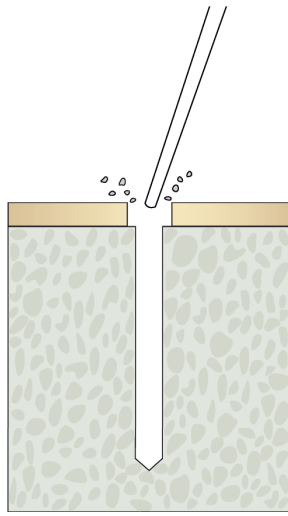




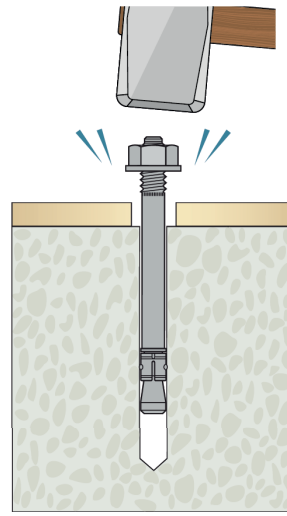
INSTALLATION INSTRUCTIONS



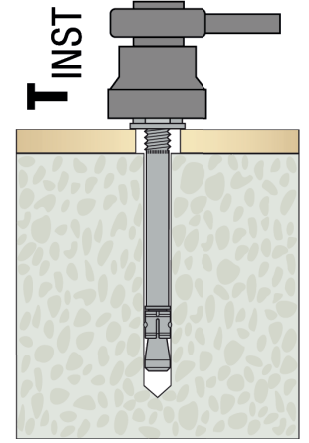
-Position fixture and drill correct diameter hole to corresponding depth



-Clean hole by blowing to remove drilling debris and dust



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



-Tighten with torque wrench to recommended torque

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