



### Product Information

The Stainless Steel Throughbolt is a torque controlled through fixing suitable for use in concrete from C20/25 to C50/60. Manufactured from Grade A4-316 Stainless Steel it offers good corrosion resistance outdoors and in wet internal conditions together with excellent load bearing capacities

### Features

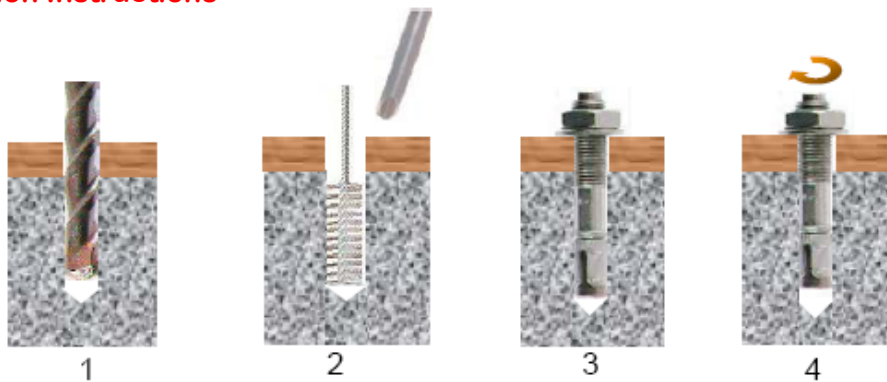
1. Through Fixing
2. Suitable for Indoor and Outdoor use
3. Medium to Heavy Duty applications
4. Torque controlled expansion
5. Supplied pre-assembled for rapid installation

### Range Data

Part No.	Thread Diam mm	Anchor Length mm	Hole Diam mm	Maximum Fixture Thickness mm	Fixture Clearance Hole mm	Thread Length mm	Embedment Depth mm	Minimum Hole Depth mm	Structure Thickness mm	Tightening Torque Nm
TSS06040	6	40	6	5*	7	16	30	35	140	6
TSS06065		67		10		20	45	55		
TSS08050	8	50	8	5*	9	25	35	45	140	15
TSS08075		75		10		25	56	65		
TSS08095		95		30		25				
TSS08120		120		55		25				
TSS10060	10	60	10	10*	12	25	40	50	160	25
TSS10080		85		10		30	62	70		
TSS10100		105		30		30				
TSS10125		125		50		30				
TSS10175		175		100		30				
TSS12085	12	95	12	10*	14	50	66	80	210	50
TSS12100		105		10		35	81	90		
TSS12115		115		20		35				
TSS12145		145		50		35				
TSS12200		200		105		80				
TSS16110	16	115	16	15*	18	40	83	90	280	100
TSS16125		130		10		40	99	110		
TSS16150		150		30		40				
TSS16175		180		60		80				
TSS20170	20	180	20	35	22	45	121	130	370	160
TSS20220		240		95		45				

\* Reduced Loading due to shallow embedment depths

### Installation Instructions



1. Position fixture and drill correct diameter hole through fixture to recommended depth
2. Clean hole by brushing and blowing to remove drilling debris and dust
3. Insert Throughbolt through fixture into drilled hole
4. Tighten anchor to recommended Torque



### Performance Data (C20/25 Concrete)

Thread Diam mm	Characteristic Resistance kN		Design Resistance kN		Approved Load kN		Spacing mm	Edge Distance mm	
	Tensile	Shear	Tensile	Shear	Tensile	Shear	Tensile & Shear	Tensile	Shear
6	7.5	7.0	5.0	5.6	3.6	4.0	35	60	85
8	12.0	11.6	8.0	9.3	5.7	6.6	120	60	120
10	16.0	19.0	10.3	11.2	7.4	8.0	150	75	125
12	25.0	27.0	16.6	21.6	11.9	15.4	180	100	190
16	36.0	50.0	24.0	40.0	17.1	28.6	240	120	270
20	50.4	86.0	33.6	61.4	24.0	43.9	300	150	320

Shear Loads towards a free edge are for single anchors where Spacing ≥ 3 x Edge Distance

### Reduced Design Resistance (kN)

Divide Loads by 1.4 for Approved (Factored) Loads

#### Edge Distance (C20/25 Concrete) for single anchors

Edge mm	Tensile Resistance						Shear Resistance					
	M6	M8	M10	M12	M16	M20	M6	M8	M10	M12	M16	M20
35	3.7						1.5					
40	4.0						1.9					
45	4.2	7.0					2.1	2.5				
50	4.5	7.4					2.6	2.9				
55	4.8	7.8	8.7				3.0	3.4	3.7			
60	5.0	7.9	9.1				3.3	3.9	4.2			
65		8.0	9.5				3.7	4.4	4.7			
70			9.9	13.8			4.1	4.9	5.3	5.9		
75			10.3	14.4			4.6	5.4	5.9	6.6		
80				15.0	18.0		5.0	6.0	6.5	7.3	8.2	
85				15.4	18.7		5.5	6.5	7.1	8.0	9.0	
90				15.9	19.4		7.1	7.7	8.7	9.9		
95				16.4	20.2		7.6	8.4	9.4	10.7		
100				16.6	20.9	25.1	8.0	9.1	10.2	11.6	12.9	
120					24.0	28.4	8.3	9.8	11.0	15.2	17.0	
130						30.1	8.9	10.6	12.5	17.1	19.2	
140						31.8	9.2	11.0	13.4	19.1	21.4	
150						33.6			15.1	20.3	23.8	
170									17.9	25.6	28.7	
190									19.8	30.0	33.9	
200									20.8	31.3	36.6	
220									21.6	32.4	42.2	
240										36.4	48.1	
270										40.0	54.1	
290											57.4	
300											58.7	
320											61.4	

#### Spacing (C20/25 Concrete)

Spacing mm	Tensile Resistance per Pair of Anchors					
	M6	M8	M10	M12	M16	M20
35	10.0	12.4				
40		12.7				
45		13.1	14.7			
50		13.5	15.1			
60		14.2	15.8	23.0		
65		14.6	16.2	23.4		
75		15.3	17.0	24.3		
80		15.7	17.4	24.8	32.0	
85		16.0	17.8	25.2	32.5	
100			18.9	26.6	34.0	44.8
105			19.3	27.0	34.5	45.3
110			19.7	27.5	35.0	45.9
115			20.1	27.9	35.5	46.4
130			21.3	29.4	37.5	48.2
150				31.1	39.0	50.4
175				33.2	41.6	53.2
200					44.0	55.9
215					45.5	57.6
230					47.0	59.3
240					48.0	60.4
270						63.8
300						67.2

### Influence of concrete strength

Concrete Strength		C20/25	C25/30	C30/37	C40/50	C45/55	C50/60
Cylinder	N/mm <sup>2</sup>	20	25	30	40	45	50
Cube	N/mm <sup>2</sup>	25	30	37	50	55	60
Factor		1	1.1	1.22	1.41	1.48	1.55

When using concrete factors check all other information to ensure Steel Tensile and Shear Resistance is not exceeded

### Steel design resistance for single anchor

		M6	M8	M10	M12	M16	M20
Tension	kN	6.6	12.0	20.0	29.3	58.6	79.7
Shear	kN	5.6	9.6	11.2	21.6	40.0	61.4

### Anchor mechanical properties

		M6	M8	M10	M12	M16	M20
Tensile Strength	N/mm <sup>2</sup>	700	700	700	700	700	700
Yield Strength	N/mm <sup>2</sup>	450	450	450	450	450	450
Nut A/F	mm	10	13	17	19	24	30
Washer Diam.	mm	12	17	21	24	30	37