

Titen HD® Heavy Duty Screw Anchor for Concrete and Masonry

The original high-strength screw anchor for use in cracked and uncracked concrete, as well as uncracked masonry. The Titen HD® offers low installation torque and outstanding performance. The Titen HD® demonstrates industry-leading performance.

Features

- Reduced Installation Time
- Low Installation Torque
- No Special Drill Bits
- Removable
- Built in Hex Head
- Easy Post-Installation Inspection
- Vibration and Shock Resistance
- Excellent Minimum Edge Distance Performance
- Ductile Anchor Through Proprietary Heat-Treatment Process

Applications

- Timber Bottom Plate and Holdown Fixings
- Structural Steel
- Subway/Railway Fixings
- Machinery and Equipment
- Concrete Formwork and Bracing
- Access Equipment: Ladders, Staircases
- Ledgers
- Overhead Anchoring (Tension Zones)
- Strut and Pipe Hangers
- Junction Boxes and Control Panels
- Racking, Mezzanines, Conveyors
- Furniture and Storage
- Guardrails, Railings, Fencing

Base Material

- Cracked and Uncracked Concrete
- Grout-filled and Hollow Concrete Block

Approvals

- Complies with AS5216
- ETA-12/0060 (Option 1)
- BRANZ Appraisal 983 (2018) for applications related to bottom plate fixings and holdown applications per NZS 3604 using Titen HD.

Finish

- Carbon Steel, Mechanically Galvanised



Serrated teeth facilitate cutting and reduce installation torque



Easy post-installation inspection: The head is stamped with the Simpson Strong-Tie "S" sign and the anchor size in mm



Highly ductile: Can be bent to a right angle (90 degrees) and remain intact without snapping or breakage



Scan this QR code to download the BRANZ Appraisal
<http://www.strongtie.co.nz/pdf/codes/BRANZ-APPROVAL-983.pdf>



Proprietary heat treating process: Creates superior surface hardness for cutting into the hardest of base materials.



Scan this QR code to watch video of the Titen HD® Heavy Duty Screw Anchor for Concrete and Masonry.
<https://youtu.be/7KuXGsPfnQI>

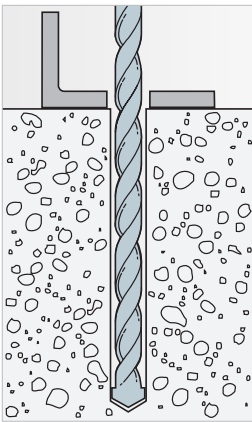
Titen HD® Installation



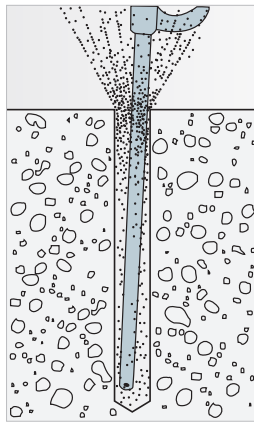
Holes in steel fixtures to be mounted should match the diameter range specified in the table on page 70.

CAUTION: Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with the base material and will reduce the anchor's load capacity. Use a Titen HD screw anchor one time only. Installing the anchor multiple times may result in excessive thread wear and reduce load capacity.

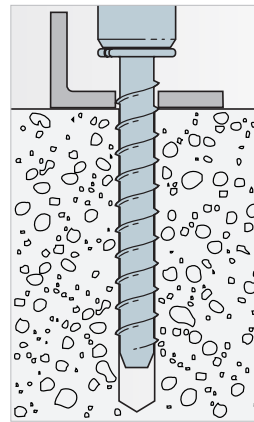
Installation Sequence



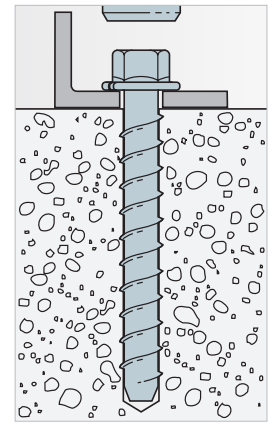
- 1. Drill**
Drill a hole in the base material using a carbide drill bit the same diameter as the nominal diameter of the anchor to be installed. Drill the hole to the specified embedment depth plus 13 mm minimum to allow the thread tapping dust to settle



- 2. Blow**
Blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling and tapping.



- 3. Tighten**
Insert the anchor through the fixture and into the hole. Tighten the anchor into the base material until the hex washer head contacts the fixture.



- 4.** If the anchor will not install completely, remove the anchor and assure that all dust has been evacuated or drill the hole deeper. Begin re-installation of the anchor by hand to prevent cross-threading. Do not use impact wrenches to install into hollow CMU.

Titen HD® Product Availability

Mechanically Galvanised ^{1,2,3} Model No.	Anchor and Drill Bit Size	Total ⁴ Length (mm) L	Max. Fixture Thickness (mm) $t_{fix,max}$	Fixture Hole Range ⁵ (mm)	Wrench Size (mm)	Box Qty	Carton Qty
THD08080MG	M8	80	15	10–12	13	50	200
THD08100MG		100	35			50	200
THD08120MG		120	55			50	100
THD08140MG		140	75			50	100
THD10060MG	M10	60	5	12–14	15	50	200
THD10080MG		80	5			50	200
THD10090MG		90	15			50	200
THD10100MG		100	25			50	200
THD10120MG		120	45			50	200
THD10140MG		140	65			50	100
THD10160MG	160	85	50	100			
THD12075MG	M12	75	5	14–16	18	20	80
THD12110MG		110	15			20	80
THD12130MG		130	35			20	80
THD12150MG		150	55			20	80
THD12190MG ⁶	190	95	20	80			
THD12230MG ^{6,7}	230	—	25	50			
THD16130MG	M16	130	15	19–22	24	10	40
THD16150MG		150	35			10	40
THD20150MG	M20	150	15	23–28	30	5	20
THD20170MG		170	35			5	10

- Mechanically galvanised finish is ≥ 12 microns in accordance with EN ISO 12683, Type 1. Not for use in highly corrosive or outdoor environments.
- Other sizes available in MG finish by special order, contact Simpson Strong-Tie for details.
- MG finish ETA approval pending.
- Length is measured from the underside of the head to the tip of the anchor.
- The max. fixture holes are limited to the outside diameter of the anchor based on ETAG 001, Annex C.
- Only available in New Zealand.
- Titen HD® 12 x 230 mm Masonry Screw for retrofitting URM cavity walls for out-of-plane composite behaviour. See page 116 for further information.

Titen HD® Master Technical Data Sheet

Installation Data

Description	Symbol	Units	Anchor Size				
			M8	M10	M12	M16	M20
Drill Hole Diameter	d_o	mm	8	10	12	16	20
Maximum Diameter of Drill Bit	$d_{cut, max}$		8.45	10.45	12.5	16.5	20.55
Drill Depth	h_1		75	85	105	130	150
Nominal Embedment Depth	h_{nom}		65	75	95	115	135
Anchor Length Range	L		70–140	60–160	75–150	130–150	150–170
Clearance Hole Diameter in Fixture	d_f		12	14	16	22	26
Maximum Thickness of Fixture	$t_{fix, max}$		85	85	85	85	85
Recommended impact screw driver with max. power output specified according to manufacturer's instructions.							
Installation Torque	$T_{inst, max}$	Nm	200			515	

Concrete Thickness, Edge Distance and Spacing

Description	Symbol	Units	M8	M10	M12	M16	M20
Minimum Concrete Thickness	h_{min}	mm	105	125	150	180	220
Minimum Edge Distance	c_{min}		50	60	80	100	120
Minimum Spacing	s_{min}		50	60	80	100	120
Critical Edge Distance (cone)	$c_{cr, N}$		1.5 x h_{ef}				
Critical Spacing (cone)	$s_{cr, N}$		3 x h_{ef}				
Critical Edge Distance (splitting)	$c_{cr, sp}$		1.5 x h_{ef}				
Critical Spacing (splitting)	$s_{cr, sp}$		3 x h_{ef}				

Design Resistance – Single Anchor, No Concrete Edge or Spacing Influence

Description	Symbol	Units	M8	M10	M12	M16	M20
Embedment Depth	h_{ef}	mm	47	55	70	86	102
Minimum Concrete Thickness	h_{min}		105	125	150	180	220
Uncracked Concrete							
TENSION	N_{Rd}	kN	5.1	7.1	16.9	20.3	33.8
SHEAR	V_{Rd}		11.7	18.3	25.2	46.7	73.6
Cracked Concrete							
TENSION	N_{Rd}	kN	4.1	5.1	8.1	16.9	23.7
SHEAR	V_{Rd}		11.7	18.3	25.2	46.7	60.2

- Concrete strength is 30 MPa (cylinder) unreinforced.
- Tabulated loads are based on no edge distance, no anchor spacing and installed at min. allowable concrete thickness and embedment depth
For spacing and edge distance influence, use Simpson's Anchor Designer™ Software for analysis.
- N_{Rd} and V_{Rd} is based on use of a Carbon Steel, Zinc plated bolt, or mechanically galvanised.
- All design resistances are derived from the product's ETA (European Technical Assessment).

