Titen HD® Threaded Rod Hanger

The Titen HD® threaded rod hanger is a high-strength screw anchor designed to suspend threaded rod from concrete slabs and beams or concrete over steel in order to hang services such as pipes, cable trays and HVAC equipment. The anchor offers low installation torque with no secondary setting, and has been tested to offer industry-leading performance in cracked and uncracked concrete — even in seismic loading conditions.

Features

- Seismic rated — Meets NZS 4219 Section 3.10.5 for Seismic use (tested per ACI 355.2)
- Suitable for Cracked and Uncracked Concrete
- Drill Bit supplied with each box
- Thread design undercuts to efficiently transfer the load to the base material
- Serrated cutting teeth and patented thread design enable quick and easy installation
- Specialised heat-treating process creates tip hardness to facilitate cutting while the anchor body remains ductile

Applications

- Pipes
- Cable trays
- Electrical
- HVAC
- Suspended ceilings and equipment

Base Material

- Cracked and Uncracked Concrete
- Composite floor slabs (concrete over metal deck)
- Normal or lightweight concrete floor slabs

Approvals

- ICC ESR-2713

Finish

- Carbon Steel, Zinc Plated

THD10212RH

Seismic Rated

Serrated teeth facilitate cutting and reduce installation torque.

Hex head with **10 mm internal threaded rod coupler**

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

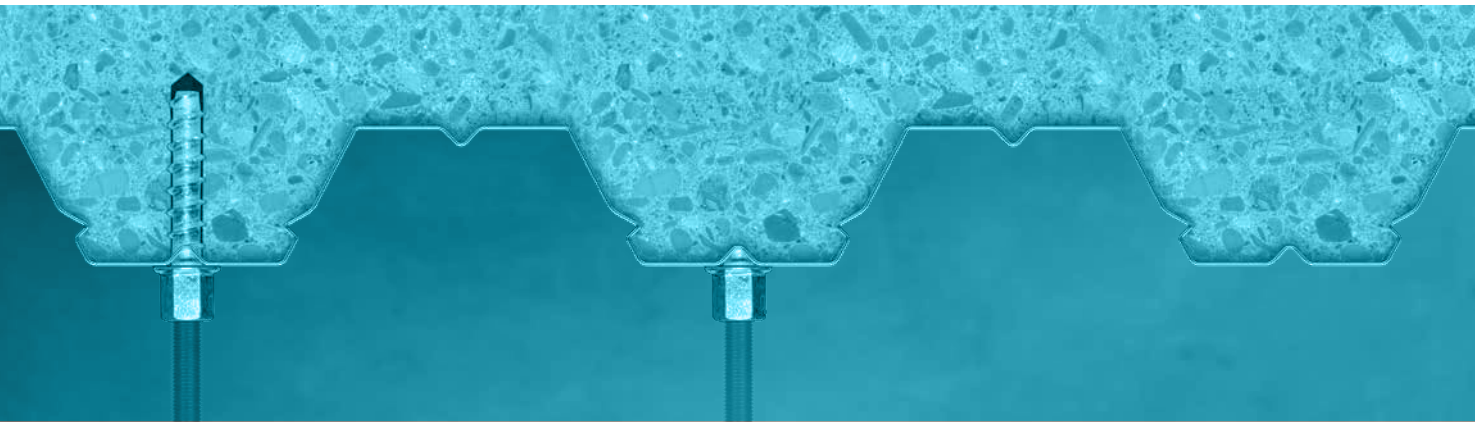
ICC ES (ACI 355.2)

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® Threaded Rod Hanger.

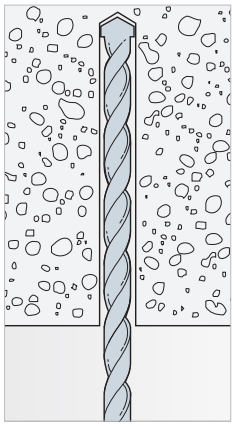
https://youtu.be/hjzDT0M41uo

Titen HD® Threaded Rod Hanger Installation

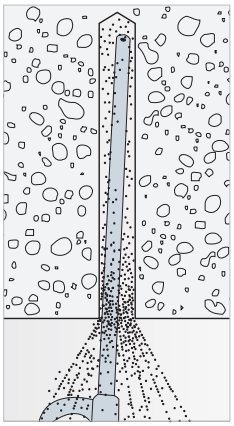


CAUTION: Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with base material and will reduce the anchor's load capacity. Use a Titen HD rod hanger one time only. Installing the anchor multiple times may result in excessive thread wear and reduce load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

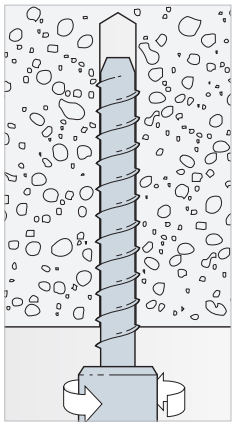
Installation Sequence



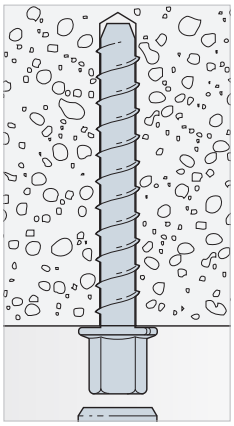
1. Drill a hole in the base material using a carbide drill bit the same diameter as the nominal diameter of the anchor to be installed. Drill the hole to the specified embedment depth plus 6 mm minimum to allow the thread tapping dust to settle



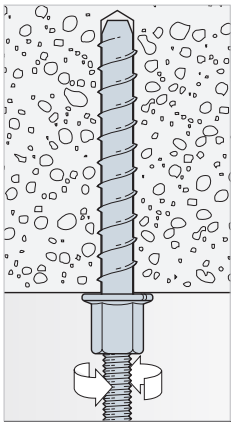
2. Blow
Blow the hole clean of dust and debris using compressed air.



3. Install
Install with a torque wrench, driver drill, hammer drill or cordless wrench with an applied torque of 20 Nm, up to a maximum of 65 Nm.



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.



4. Insert
Fully insert threaded rod.

Titen HD® Threaded Rod Hanger Product Availability

Zinc Plated Model No.	Accepts Rod Dia. (mm)	Anchor and Drill Bit Size[1]	Total Length (mm) L	Min. Embedment Depth (mm)	Min. Hole Depth Overdrill (mm)	Wrench Size (mm)	Box Qty	Carton Qty
THD10212RH	M10	⅜"	64mm (2.5")	64	6	½"	100	200

1. ⅜" SDS drill bit supplied in each box.

Titen HD® Threaded Rod Hanger Design Information — CONCRETE

Titen HD® Threaded Rod Hanger Installation Information and Additional Data[1]

Characteristic	Symbol	Units	THD10212RH
Installation Information			
Rod Hanger Shank Diameter	d_o	in.	⅜
Drill Bit Diameter[2]	d_{bit}		
Maximum Installation Torque[3]	$T_{inst,max}$	Nm	65
Maximum Impact Wrench Torque Rating[4]	$T_{impact,max}$		200
Minimum Hole Depth	h_{hole}	mm	75
Embedment Depth	h_{nom}		64
Effective Embedment Depth	h_{ef}		45
Critical Edge Distance	c_{ac}		70
Minimum Edge Distance	c_{min}		45
Minimum Spacing	s_{min}		75
Minimum Concrete Thickness	h_{min}		100
Anchor Data			
Yield Strength	f_{ya}	MPa	669
Tensile Strength	f_{uta}		758
Minimum Tensile and Shear Stress Area	A_{se}	mm^2	64
Axial Stiffness in Service Load Range — Uncracked Concrete	β_{uncr}	N/mm	125,200
Axial Stiffness in Service Load Range — Cracked Concrete	β_{cr}		60,400

1. The information presented in this table is to be used in conjunction with the design criteria of ACI 318 Appendix D, which meets NZS 4219 Section 3.10.5
2. ⅜" SDS drill bit supplied in each box.
3. $T_{inst,max}$ is the maximum permitted installation torque for installations using a torque wrench.
4. $T_{impact,max}$ is the maximum permitted torque rating for impact wrenches.

Titen HD® Threaded Rod Hanger Design Information — CONCRETE SLAB

Titen HD® Threaded Rod Hanger Tension Strength Design Data for Installations in Concrete

Characteristic	Symbol	Units	THD10212RH
Anchor Category	1, 2 or 3	—	1
Embedment Depth	h_{nom}	mm	64
Steel Strength in Tension (ACI 318 Section D.5.1)			
Tension Resistance of Steel	N_{sa}	kN	48.4
Strength Reduction Factor — Steel Failure	ϕ_{sa}	—	0.65
Concrete Breakout Strength in Tension (ACI 318 Section D.5.2)			
Effective Embedment Depth	h_{ef}	mm	45
Critical Edge Distance	c_{ac}		70
Effectiveness Factor — Uncracked Concrete	k_{uncr}	—	10.1
Effectiveness Factor — Cracked Concrete	k_{cr}		7.2
Modification Factor	$\psi_{c,N}$		1.0
Strength Reduction Factor — Concrete Breakout Failure	ϕ_{cb}		0.65
Pullout Design Strength in Tension (ACI 318 Section D.5.3)			
Pullout Design Strength[1,2,3] — Uncracked Concrete (f'_c = 31 MPa)	$\phi N_{p,uncr}$	kN	**7.9**
Pullout Design Strength[1,2,3] — Cracked Concrete (f'_c = 31 MPa)	$\phi N_{p,cr}$		**4.8**
Tension Design Strength for Seismic Applications (ACI 318 Section D.3.3)			
Pullout Design Strength for Seismic Loads[4] (f'_c = 31 MPa)	$\phi N_{p,eq}$	kN	**3.6**

1. The information presented in this table is to be used in conjunction with the design criteria of ACI 318 Appendix D which meets NZS 4219 Section 3.10.5, except as modified below.
2. Design Values based on 31 MPa concrete compressive strength, Condition "B". For different compressive strengths or conditions, use Simpson's Anchor Designer™ Software for analysis.
3. For guidance on the appropriate strength reduction factors to be used for various load combinations, refer Simpson's Anchor Designer™ Software and ACI 318-08 Appendix D.
4. When the strength level earthquake force applied to the anchor exceeds 20% of the total factored anchor force, use the Seismic Pullout Design Strength value. Seismic Pullout Design Strength assumes concrete is cracked and applies ϕ_{eq} = 0.75.

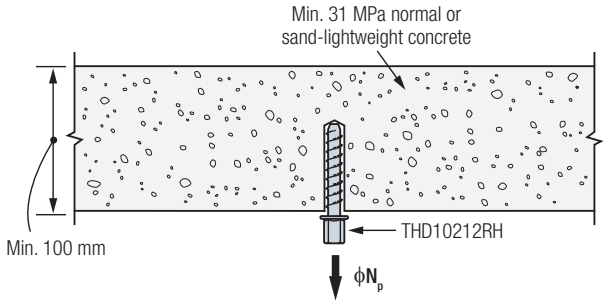


Figure 1. Installation in Concrete

Titen HD® Threaded Rod Hanger Design Information — COMPOSITE SLAB

Titen HD® Threaded Rod Hanger Tension Strength Design Data for Installations in the Lower and Upper Flute of Normal-Weight or Sand-Lightweight Concrete Through Metal Deck

Characteristic	Symbol	Units	THD10212RH
Minimum Hole Depth	h_{hole}	mm	75
Embedment Depth	h_{nom}		64
Effective Embedment Depth	h_{ef}		45
Pullout Design Strength — Uncracked Concrete[2,3,4]	$\phi N_{p,deck,uncr}$	kN	**5.0**
Pullout Design Strength — Cracked Concrete[2,3,4]	$\phi N_{p,deck,cr}$		**3.1**
Seismic Pullout Design Strength[7]	$\phi N_{p,deck,eq}$		**2.3**

1. The information presented in this table is to be used in conjunction with the design criteria of ACI 318 Appendix D which meets NZS 4219 Section 3.10.5, except as modified below.
2. Design Values based on 31 MPa concrete compressive strength, Condition "B". For different compressive strengths or conditions, use Simpson's Anchor Designer™ Software for analysis.
3. For anchors installed in the soffit of sand-lightweight or normal-weight concrete over metal deck floor and roof assemblies, as shown in Figure 2, calculation of the concrete breakout strength may be omitted.
4. In accordance with ACI 318 Section D.5.3.2, the nominal pullout strength in cracked concrete for anchors installed in the soffit of sand-lightweight or normal-weight-concrete-over-metal-deck floor and roof assemblies $N_{p,deck,cr}$ shall be substituted for $N_{p,cr}$. Where analysis indicates no cracking at service loads, the normal pullout strength in uncracked concrete $N_{p,deck,uncr}$ shall be substituted for $N_{p,uncr}$.
5. Minimum distance to edge of panel is $2h_{ef}$.
6. The minimum anchor spacing along the flute must be the greater of $3h_{ef}$ or 1.5 times the flute width.
7. When the strength level earthquake force applied to the anchor exceeds 20% of the total factored anchor force, use the Seismic Pullout Design Strength value. Seismic Pullout Design Strength assumes concrete is cracked and applies $\phi_{eq} = 0.75$.

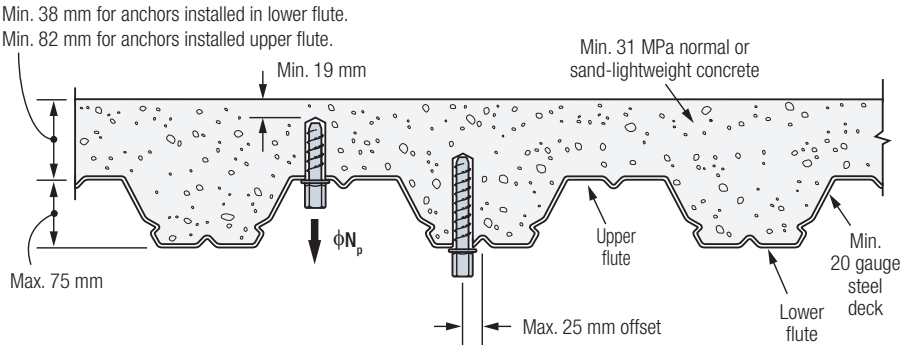


Figure 2. Installation in Concrete Over Metal Deck