

# Titen HD® Rod Coupler

The Titen HD rod coupler is designed to be used in conjunction with a single or multi-story rod tiedown system. This anchor provides a fast and simple way to attach threaded rod to a concrete stem wall or thickened slab footing. Unlike adhesive anchors, the installation requires no special tools, cure time or secondary setting process; just drill a hole and drive the anchor.

## Features

- Now included in ESR-2713 for wind and seismic loading.
- The serrated cutting teeth and patented thread design enable the Titen HD rod coupler to be installed quickly and easily. Less installation time translates to lower installed cost.
- The specialized heat treating process creates tip hardness to facilitate cutting while the body remains ductile.
- No special setting tools are required. The Titen HD rod coupler installs with regular or hammer drill, ANSI size bits and standard sockets.
- Compatible with threaded rods in  $\frac{3}{8}$ " and  $\frac{1}{2}$ " diameters.
- Use in dry interior environments only.

**Codes:** ICC-ES ESR-2713 (concrete);  
 City of LA Supplement within ESR-2713 (concrete);  
 FL15730 (concrete)

**Material:** Carbon steel

**Coating:** Zinc plated

## Installation

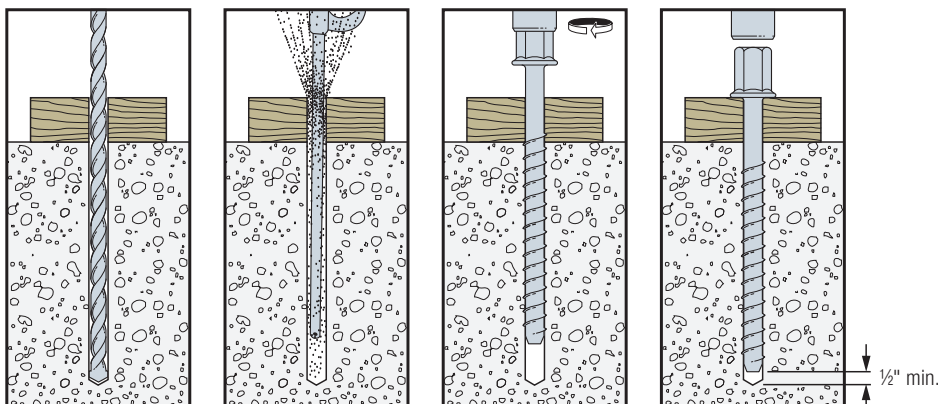
**⚠ Caution:** Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with base material and will reduce the anchor's load capacity. Use a Titen HD Rod Coupler one time only. Installing the anchor multiple times may result in excessive thread wear and reduce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

1. Drill a hole using the specified diameter carbide bit into the base material to a depth of at least  $\frac{1}{2}$ " deeper than the required embedment.
2. Blow the hole clean of dust and debris using compressed air. Overhead application need not be blown clean.
3. Tighten the anchor with appropriate size socket until the head sits flush against base material.

## Titen HD Rod Coupler Product Data

Size (in.)	Model No.	Accepts Rod Diameter (in.)	Drill Bit Diameter (in.)	Wrench Size (in.)	Quantity	
					Box	Carton
$\frac{3}{8}$ x $6\frac{3}{4}$	THD37634RC	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{9}{16}$	25	50
$\frac{1}{2}$ x $9\frac{3}{4}$	THD50934RC	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	20	40

## Installation Sequence



Titen HD Rod Coupler

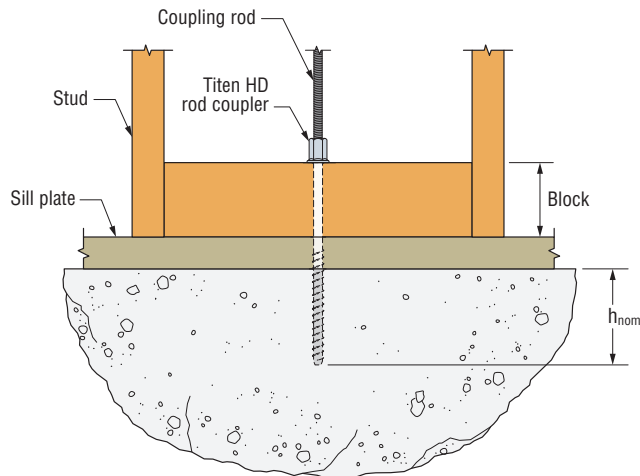
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## Titen HD Rod Coupler Installation Information and Additional Data<sup>1</sup>



Characteristic	Symbol	Units	Model No.	
			THD37634RC	THD50934RC
<b>Installation Information</b>				
Nominal Diameter	$d_a$	in.	3/8	1/2
Drill Bit Diameter	$d_{bit}$	in.	3/8	1/2
Internal Thread Diameter	$d_{th}$	—	3/8	1/2
Maximum Installation Torque <sup>2</sup>	$T_{inst,max}$	ft.-lbf	50	65
Maximum Impact Wrench Torque Rating	$T_{impact,max}$	ft.-lbf	150	340
Minimum Hole Depth	$h_{hole}$	in.	3 1/2	4 1/2
Nominal Embedment Depth	$h_{nom}$	in.	3 1/4	4
Effective Embedment Depth	$h_{ef}$	in.	2.40	2.99
Critical Edge Distance	$c_{ac}$	in.	3 3/8	4 1/2
Minimum Edge Distance	$c_{min}$	in.	1 3/4	
Minimum Spacing	$s_{min}$	in.	3	
Minimum Concrete Thickness	$h_{min}$	in.	5	6 1/4
<b>Anchor Data</b>				
Yield Strength	$f_{ya}$	psi	97,000	
Tensile Strength	$f_{uta}$	psi	110,000	
Minimum Tensile Stress Area	$A_{se}$	in. <sup>2</sup>	0.099	0.183
Axial Stiffness in Service Load Range — Uncracked Concrete	$\beta_{uncr}$	lb./in.	672,000	
Axial Stiffness in Service Load Range — Cracked Concrete	$\beta_{cr}$	lb./in.	345,000	

1. The information presented in this table is to be used in conjunction with the design criteria of ACI 318-19 Chapter 17, ACI 318-14 Chapter 17 or ACI 318-11 Appendix D, as applicable.
2.  $T_{inst,max}$  applies to installations using a calibrated torque wrench.



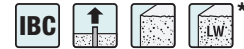
**Figure 1.**  
**Typical Titen HD Rod Coupler Installation Through Blocking and Sill Plate**

### Titen HD Rod Coupler Block Height Requirement

Model No.	Shank Length (in.)	Nominal Embedment Depth (in.)	Sill Plate Thickness	Block Height (in.)
THD37634RC	6 3/4	3 1/4	2x	2
			3x	1
THD50934RC	9 3/4	4	2x	4 1/4
			3x	3 1/4

<sup>1</sup>See p. 14 for an explanation of the load table icons.

# Titen HD® Rod Coupler

Titen HD Rod Coupler Tension Strength Design Data<sup>1</sup>

Characteristic	Symbol	Units	Model No.	
			THD37634RC	THD50934RC
Anchor Category	1, 2 or 3	—	1	
Nominal Embedment Depth	$h_{nom}$	in.	3¼	4
<b>Steel Strength in Tension (ACI 318-19 17.6.1, ACI 318-14 17.4.1 or ACI 318-11 Section D.5.1)</b>				
Tension Resistance of Steel	$N_{sa}$	lbf	10,890	20,130
Strength Reduction Factor — Steel Failure <sup>2</sup>	$\phi_{sa}$	—	0.65	
<b>Concrete Breakout Strength in Tension (ACI 318-19 17.6.2, ACI 318-14 17.4.2 or ACI 318 Section D.5.2)</b>				
Effective Embedment Depth	$h_{ef}$	in.	2.4	2.99
Critical Edge Distance	$c_{ac}$	in.	3⅝	4½
Effectiveness Factor — Uncracked Concrete	$k_{uncr}$	—	24	
Effectiveness Factor — Cracked Concrete	$k_{cr}$	—	17	
Modification factor	$\Psi_{c,N}$	—	1	
Strength Reduction Factor — Concrete Breakout Failure <sup>2</sup>	$\phi_{cb}$	—	0.65	
<b>Pullout Strength in Tension (ACI 318-19 17.6.3, ACI 318-14 17.4.3 or ACI 318-11 Section D.5.3)</b>				
Pullout Resistance Uncracked Concrete ( $f'_c = 2,500$ psi)	$N_{p,uncr}$	lbf	N/A <sup>3</sup>	N/A <sup>3</sup>
Pullout Resistance Cracked Concrete ( $f'_c = 2,500$ psi)	$N_{p,cr}$	lbf	2,700 <sup>4</sup>	N/A <sup>3</sup>
Strength Reduction Factor — Pullout Failure <sup>2</sup>	$\phi_p$	—	0.65	
<b>Tension Strength for Seismic Applications (ACI 318-19 17.10.3, ACI 318-14 17.2.3.3 or ACI 318-11 Section D.3.3.3)</b>				
Nominal Pullout Strength for Seismic Loads ( $f'_c = 2,500$ psi)	$N_{p,eq}$	lbf	2,700 <sup>4</sup>	N/A <sup>3</sup>
Strength Reduction Factor for Pullout Failure <sup>2</sup>	$\phi_{eq}$	—	0.65	

1. The information presented in this table is to be used in conjunction with the design criteria of ACI 318-19 Chapter 17, ACI 318-14 Chapter 17 or ACI 318-11 Appendix D, as applicable.

2. The strength reduction factor applies when the load combinations from the IBC or ACI 318 are used and the requirements of ACI 318-19 17.5.3, ACI 318-14 17.3.3 or ACI 318-11 D.4.3, as applicable, are met. If the load combinations of ACI 318-11 Appendix C are used, the appropriate strength reduction factor must be determined in accordance with ACI 318-11 D.4.4.

3. N/A denotes that pullout resistance does not govern and does not need to be considered.

4. The characteristic pullout resistance for greater compressive strengths may be increased by multiplying the tabular value by  $(f'_c/2,500)^{0.5}$ .

\*See p. 14 for an explanation of the load table icons.