



ICC-ES Evaluation Report ESR-1056

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This report is subject to renewal March 2024.

DIVISION: 04 00 00—MASONRY
Section: 04 05 19.16—Masonry Anchors

REPORT HOLDER:

SIMPSON STRONG-TIE COMPANY INC.

EVALUATION SUBJECT:

SIMPSON STRONG-TIE TITEN HD® SCREW ANCHORS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021, 2018, 2015 and 2012 *International Building Code*® (IBC)
- 2021, 2018, 2015 and 2012 *International Residential Code*® (IRC)

For evaluation for compliance with codes adopted by the Los Angeles Department of Building and Safety (LADBS), see [ESR-1056 LABC and LARC supplement](#).

Property evaluated:

Structural

2.0 USES

The Titen HD® screw anchor is for installation in predrilled holes to anchor building components to fully grouted or hollow (ungrouted) concrete masonry wall construction.

The Titen HD screw anchors are alternatives to cast-in-place anchors described in Section 8.1.3 (2016 or 2013 edition), or Section 2.1.4 (2011 edition) of [TMS 402](#) as referenced in Section [2107.1](#) of the IBC.

The anchors are permitted to be used in structures regulated by the IRC, provided an engineered design is submitted in accordance with IRC Section [R301.1.3](#).

3.0 DESCRIPTION

3.1 Materials:

3.1.1 Titen HD Screw Anchor: The Titen HD screw anchor is a threaded screw anchor available with a hex-washer head or a countersunk head in carbon steel and in stainless steel. The carbon steel Titen HD screw anchors are manufactured from heat-treated steel complying with [SAE J403](#) Grade 10B21, and has either an electrodeposited coating of zinc in accordance with [ASTM B633](#), Service Condition SC1, Type III; or a mechanically deposited coating of zinc in accordance with [ASTM B695](#), Class 65.

Type I. The stainless steel Titen HD screw anchors are manufactured from AISI Type 304 or AISI Type 316 stainless steel material. The leading hardened carbon steel helical-coil cutting thread is made of carbon steel complying with the manufacturer's quality documentation.

Carbon steel Titen HD screw anchors with electrodeposited zinc coating and a hex-washer head are available with nominal 1/4-, 3/8-, 1/2-, 5/8-, and 3/4-inch (6.4, 9.5, 12.7, 15.9 and 19.1 mm) shank diameters. Carbon steel Titen HD screw anchors with mechanically deposited zinc coating and a hex-washer head are available with nominal 3/8-, 1/2-, 5/8-, and 3/4-inch (9.5, 12.7, 15.9 and 19.1 mm) shank diameters. Stainless steel Titen HD screw anchors with a hex-washer head are available with nominal 3/8-, 1/2-, 5/8-, and 3/4-inch (9.5, 12.7, 15.9 and 19.1 mm) shank diameters. Carbon steel Titen HD screw anchors with a countersunk head are available with nominal 1/4- and 3/8-inch (6.4 and 9.5 mm) shank diameters. Stainless steel Titen HD screw anchor with a countersunk head is available with nominal 3/8-inch (9.5 mm) shank diameter. Refer to [Figure 1A](#), [1B](#), [1C](#) and [1D](#) for an illustration of a typical screw anchor.

3.1.2 Grout-filled Concrete Masonry: The specified compressive strength of masonry at the time of installation, f_m , at 28 days must be a minimum of 1,500 psi (10.3 MPa) for carbon steel Titen HD screw anchors and a minimum of 2,000 psi (13.9 MPa) for stainless steel Titen HD screw anchors, when installed in the face of fully grouted CMU and top of grout-filled CMU construction. The specified compressive strength of masonry at the time of installation, f_m , at 28 days must be a minimum of 2,000 psi (13.8 MPa) for carbon steel Titen HD screw anchors when installed in the end of fully grouted CMU. Fully grouted masonry walls must be constructed from the following materials:

3.1.2.1 Concrete Masonry Units (CMUs): CMUs must be minimum Grade N, Type II, lightweight, medium-weight, or normal-weight, closed-end, conforming to [ASTM C90](#). The minimum allowable nominal size of the CMU must be 8 inches (203.2 mm) wide by 8 inches (203.2 mm) high by 16 inches (406.4 mm) long.

3.1.2.2 Grout: Grout must comply with IBC Section [2103.3](#) (2021, 2018 and 2015 IBC), [2013.13](#) (2012 IBC), or Section [R606.2.12](#) (2021 and 2018 IRC), [R609.2.11](#) (2015 IRC), Section [R609.1.1](#) (2012 IRC), as applicable. Alternatively, the grout must have a minimum compressive strength when tested in accordance with [ASTM C1019](#) equal to its specified strength, but not less than 2,000 psi (13.8 MPa).