

ICC-ES Listing Report

ESL-1240

Reissued July 2026

Subject to renewal July 2027

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DIVISION: 03 00 00— CONCRETE Section: 03 15 00— Concrete Accessories	LISTEE: TRU-WELD DIVISION, TFP CORPORATION	PRODUCT: DEFORMED BAR ANCHORS	
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PRODUCT CERTIFICATION SYSTEM:

The ICC-ES product-certification system includes evaluating reports of tests of standard manufactured product, prepared by accredited testing laboratories and provided by the listee, to verify compliance with applicable codes and standards. The system also involves factory inspections, assessment and surveillance of the listee's quality system.

EVALUATION:

The deformed bar anchors are deformed steel wire studs that must be welded to steel plates prior to being cast-in to concrete. The anchors are produced from deformed steel wire conforming to ASTM A496 and the requirement for Type C studs in accordance with American Welding Society D1.1-2010 (AWS D1.1). The minimum yield strength is 70,000 psi (485 MPa) and the minimum tensile strength is 80,000 psi (550 MPa). The Tru-Weld deformed bar anchors are evaluated in accordance with the following standard:

- ASTM E488-15, Test Methods for Strength of Anchors in Concrete and Masonry Elements, ASTM International.
- ASTM A496-07, Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement, ASTM International.

FINDINGS:

The Tru-Weld deformed bar anchors have the following tension and shear mean ultimate loads for a single anchor in uncracked concrete as specified in Tables 1 and 2 of this listing.

IDENTIFICATION:

1. T Deformed Bar Anchor Studs manufactured by Tru-Weld Division, TFP Corporation, are shipped in containers bearing the name of the report holder (Tru-Weld Division, TFP Corporation), the deformed bar diameter and length, the evaluation report number ([ESR-2823](#)) and/or the ICC-ES Listing Report number (ESL-1240), the heat number, part number, lot number and number of pieces enclosed. In addition, each deformed bar is marked with the Tru-Weld logo (see Figure 1).

- The report holder's contact information is the following:

TRU-WELD DIVISION, TFP CORPORATION
460 LAKE ROAD
MEDINA, OHIO 44256
(330) 725-7741
<http://www.tfpcorp.com>

INSTALLATION

The anchors must be welded to the plates in accordance with Chapter 7 of AWS D1.1, using a stud welding gun. Typical installation parameters are noted in Tables 1 and 2. The anchors must be clean and free of oil, dirt and excess rust. The anchors must be placed in position before the concrete is cast, to fully embed the anchors, and must be adequately secured to prevent displacement during concrete placement. The welding of the deformed bar anchor to the steel plate must be done prior to concrete placement.

CONDITIONS OF LISTING:

- The listing report addresses only conformance with the standard noted above.
- Approval of the product's use is the sole responsibility of the local code official.
- The listing report applies only to the materials tested and as submitted for review by ICC-ES.
- The mean ultimate loads listed in Tables 1 and 2 are not intended to be used as design values; results of service-condition tests other than static tension and shear tests have not been included in this listing.

**TABLE 1—TENSION DATA AND INSTALLATION DIMENSIONS
FOR DEFORMED BAR ANCHORS IN NORMAL-WEIGHT CONCRETE**

PARAMETER	SYMBOL	VALUE			
Anchor diameter (inch)	d_a	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Minimum embedment (inches)	h_{ef}	15	21	26	30
Minimum anchor spacing (inches)	s_{min}	3	$3\frac{1}{4}$	$3\frac{5}{8}$	3
Minimum edge distance (inches)	c_{min}	$2\frac{1}{8}$	4	4	4
Mean ultimate static tension load, uncracked concrete (lbf) ³	N_m	8,835 ¹	13,660 ¹	24,540 ²	31,660 ²

For **SI**: 1 inch = 25.4 mm; 1lbf = 48.93 N; 1 psi = 6.89 kPa.

¹Ultimate static tension values based on deformed bar anchor cast in concrete having a minimum compressive strength of 3000 psi.

²Ultimate static tension values based on deformed bar anchor cast in concrete having a minimum compressive strength of 5000 psi.

³Mean ultimate loads with no safety factors applied differ from, and are higher than, the strength design capacities as defined in ACI 318. Strength design capacities for design in accordance with ACI 318 must include assessment of service condition tests and applicable strength reduction factors, ϕ .

**TABLE 2—SHEAR DATA AND INSTALLATION DIMENSIONS
FOR DEFORMED BAR ANCHORS IN NORMAL WEIGHT CONCRETE^{1,2}**

PARAMETER	SYMBOL	VALUE			
Anchor diameter (inch)	d_a	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Minimum embedment (inches)	h_{ef}	15	21	26	30
Minimum anchor spacing (inches)	s_{min}	9	$12\frac{3}{4}$	$9\frac{1}{2}$	$17\frac{3}{4}$
Minimum edge distance (inches)	c_{min}	4	$6\frac{1}{4}$	$1\frac{3}{4}$	8
Mean ultimate static shear load, uncracked concrete (lbf) ³	V_m	3,020 ¹	2,420 ¹	2,580 ²	3,320 ²

For **SI**: 1 inch = 25.4 mm; 1lbf = 48.93 N; 1 psi = 6.89 kPa.

¹Ultimate static shear values based on deformed bar anchor cast in concrete having a minimum compressive strength of 3000 psi.

²Ultimate static shear values based on deformed bar anchor cast in concrete having a minimum compressive strength of 5000 psi.

³Mean ultimate loads with no safety factors applied differ from, and are higher than, the strength design capacities as defined in ACI 318. Strength design capacities for design in accordance with ACI 318 must include assessment of service condition tests and applicable strength reduction factors, ϕ .

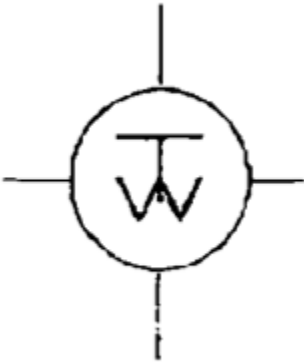


FIGURE 1—TRU-WELD LOGO