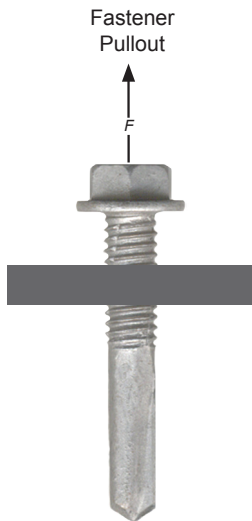


**FASTENER PULLOUT LOADS | DRILL SCREWS**

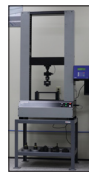
Because the tensile strength of the substrate dramatically affects the pullout of the fastener, TFC provides published pullout results based on a calculation developed by AISI.

The following pullout loads were calculated per AISI S100 | Section 4 of the Supplement No. 2 to the American Specification for the Design of Cold-Form Steel Structural members (S100-07/S2-10).

Many tests were conducted with compressible fiberglass insulation placed between steel sheet samples. It was determined by the results that the equations are valid for steel connections including applications that use compressible insulation. Refer to AISI S100 for more details.



- The pullout calculation requires the use of the nominal diameter of the screw and the tensile strength of the substrate.
- Because substrate tensile and specific fastener details like point diameter affects pullout loads, these pullout loads are conservative.



***For tested values, contact Triangle Fastener to conduct actual pullout tests based on a specific fastener style and the tensile strength requirement of the substrate.***

**Pullout Loads | Ultimate in Pounds Force**  
**Carbon Steel and 410 Stainless Steel Screws**

The tensile strength of the substrate that is used in the chart below is typical for metal building and roofing applications. Contact TFC if other substrate tensile strengths are required.

| Fastener Information |                | PULLOUT   ULTIMATE LOAD IN POUNDS                              |                                |                |                |                |                |                |                |                |              |               |              |              |
|----------------------|----------------|--|--------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|---------------|--------------|--------------|
|                      |                | Grade 80 and Grade 50 Steel per ASTM A792/A1011/A653/A572/A529 |                                |                |                |                |                |                |                |                |              |               |              |              |
|                      |                | Calculated Values In Accordance to AISI S100   Section E4      |                                |                |                |                |                |                |                |                |              |               |              |              |
| Screw Size           | Nom Dia. (in.) | Grade 80 (TS) 82Ksi Min.                                       | Grade 50 (TS) 65Ksi Min. Steel |                |                |                |                |                |                |                |              |               |              |              |
|                      |                |  | 26 Ga. (.018")                 | 24 Ga. (.024") | 22 Ga. (.030") | 20 Ga. (.036") | 18 Ga. (.048") | 16 Ga. (.060") | 14 Ga. (.075") | 12 Ga. (.105") | 1/8" (.125") | 10 ga (.135") | 1/4" (.250") | 3/8" (.375") |
| #8-18                | .164"          | 156  | 218                            | 272            | 326            | 435            | 543            |                |                |                |              |               |              |              |
| #10-16               | .190"          | 180  | 252                            | 315            | 378            | 504            | 627            | 786            | 1,101          | 1,311          |              |               |              |              |
| #10-24               | .190"          | 180  | 252                            | 315            | 378            | 504            | 627            | 786            | 1,101          | 1,311          |              |               |              |              |
| #12-14               | .216"          | 205  | 286                            | 358            | 430            | 573            | 716            | 895            | 1,253          | 1,492          | 1,611        |               |              |              |
| #12-24               | .216"          |  |                                |                |                |                |                |                |                | 1,492          | 1,611        | 2,984         | *4,475       | *5,967       |
| 1/4-14               | .250"          | 237  | 332                            | 414            | 497            | 633            | 829            | 1,036          | 1,450          | 1,727          | 1,865        | 3,453         |              |              |
| 1/4-20               | .250"          |  |                                |                |                |                |                |                |                | 1,727          | 1,865        | 3,453         | *5,180       | *6,906       |
| 5/16-12              | .3125"         |  |                                |                |                | 829            | 1,036          | 1,295          | 1,813          | 2,158          | 2,331        |               |              |              |

\* Denotes load exceeds tensile strength of screw.

**For allowable loads, please apply an appropriate Factor of Safety as required by local and national code requirements.**

**AISI S100 Section E4 recommends a Factor of Safety of 3 for allowable loads.**

DISCLAIMER: ALL TEST RESULTS AND SPECIFICATIONS ARE A RESULT OF LABORATORY TESTS. APPROPRIATE SAFETY FACTORS SHOULD BE USED BY THE USER OR SPECIFIER. DETERMINING THE PROPER FASTENER IS THE RESPONSIBILITY OF THE USER OR SPECIFIER. SINCE APPLICATION CONDITIONS VARY AND ARE UNCONTROLLABLE BY TFC, WE ASSUME NO LIABILITY FOR THE USE OF THIS INFORMATION.