



CARBON STEEL & STAINLESS STEEL SELF-TAPPING SCREWS

Fastener Data and Submittal Sheet



Material Information

Product: TFC Tapping Screws
General Specification: ANSI B18.6.4, AC 118)

Material: C 1018 / C 1022
410 Stainless Steel
Heat Treat: Case Hardened
Finish: .0003" Zinc Plated - 24 hrs salt spray /
No red rust
Optional: TRI-SEAL Coated – 1,000 hrs
salt spray / No red rust

Material: Type 304 Stainless Steel (18-8)
Heat Treat: None
Finish: Type B & BP: .0003" Min. Cad Plating (For lubricity)
Type A & AB: .0003" Min. Zinc Plating (For lubricity)
Salt Spray: >2,000 hrs / No red rust

Pressure Treated or Fire Treated Wood Connections
Screw made of 410 or 300 series stainless steel are recommended. Carbon steel screws must be hot dipped galvanized or TRI-SEAL® coated. Do not use standard, zinc plated, carbon steel screws.

Sealing Washer Information
Carbon Steel Screws: 15MM O.D. Galvanized Steel / EPDM.
Stainless Steel Screws: 15MM O.D. Stainless Steel / EPDM.
#17 with VRT® Screws: 3/4" O.D. Galvanized Steel / EPDM.
Zinc Cap Head and Stainless Cap Head: 5/8" O.D. Head / EPDM.

Application and Description

Carbon Steel Screws

These general purpose screws are designed for normal atmospheric conditions. They should not be used in heavy industrial applications or close proximity to the ocean where corrosion can occur. They are case hardened and can tap up to 1/2" thick steel using the appropriate hole size listed on this sheet.

410 Stainless Steel Screws

These screws can be used in mild atmospheres, steam, and many mild chemical environments. They provide superior strength and are plated or coated to provide lubricity during tapping. 410 screws may show signs of red rust but will not rust as quickly as carbon steel screws. Not recommended for use in aluminum connection. Expansion of the aluminum may stress the screw to failure due to the screw's hardness.

304 Stainless Steel Screws

These screws are used in applications that require superior corrosion resistance or ductility. The chromium in the material reacts with oxygen forming a thin, invisible, non-reactive chromium oxide film. It is resistant to ordinary rusting in wastewater treatment, food-processing environments, and a wide variety of chemicals. 304 stainless steel screws are slightly magnetic caused during head and thread forming. They are not heat treated and are plated to provide lubricity that helps minimize thread roll-over caused during tapping.

Mechanical Properties

Screw Type	Major Dia.	Torsional Lb-in.	Material	Tensile Lbs	Shear Lbs.
#14-10 Type A	.235"	125	Carbon Steel	3,150	2,150
	.246"		304 SS	2,925	1,925
1/4-14 Type AB & B	.237"	150	Carbon Steel	3,850	2,575
	.246"		304 SS	3,700	2,800
#17-14 Type AB	.280"	170	Carbon Steel	5,890	3,285
	.290"		304 SS	5,200	3,125

Hole Size and Pullout Values - Tapping Screws

Rev 1221JS

Pullout Loads | Ultimate in Pounds Force

Carbon Steel, 304SS, & 410SS Tapping Screws
The tensile strength of the substrate that is used in this 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 Calculated Values In Accordance to AISI S100 Section E4														
Screw Size	Nom Dia. (in.)	Grade 50 per ASTM A1011 60Ksi Min. Steel					Grade 50 per ASTM A792/A653/A572/A529 65Ksi Min. Steel									
		26 Ga. (.018")	25 Ga. (.021")	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")	1/2" (.500")	
#14-10 1/4-14	.250"	230	268	306	383	459	633	829	1,036	1,450	1,727	1,865	*3,453	*5,180	*5,967	
Drill Bit Size	1/8" (.125")	5/32" (.156")					3/16"		#7 (.201")		#2 (.221")		#1 (.228")			
Point Type	A, AB	A, AB					A, AB, BP		AB, B, BP		AB, B, BP		B, BP			
*Denotes exceeds tensile strength of screw																
Point Type	AB															
Drill Bit Size	3/16" (.187")						1/4" (.250")						Not Recommended			
#17-14	.285"	262	305	348	432	523	756	945	1,181	1,653	1,968	2,126				
Screw Size	Nom Dia. (in.)	26 Ga. (.018")	25 Ga. (.021")	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")	1/2" (.500")	

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

Use 135° split point drill bits for optimal performance.



All information is non-binding and without guarantee. Before using the products, all specifications and calculations must be checked by a suitably qualified person and local regulations must be observed. This document is subject to revision. We reserve the right to make technical changes. (0321-1)