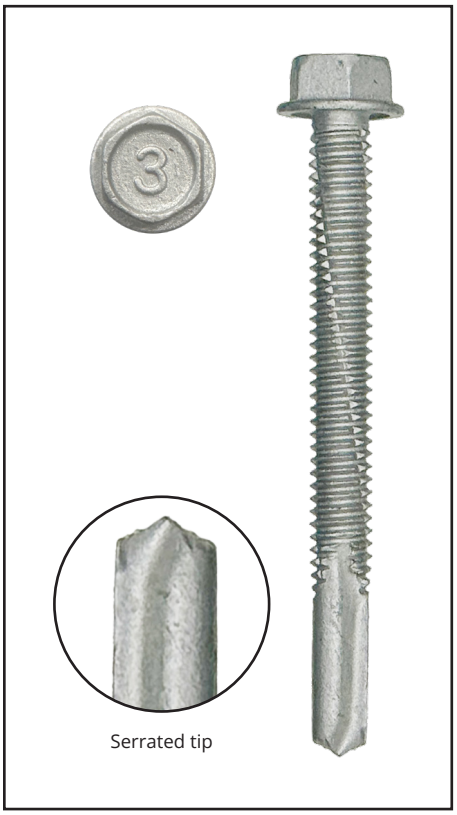
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► DESCRIPTION

The UCAN TRHBSS3 bi-metal self-drilling screw is manufactured of 304 stainless steel with a fusion-welded carbon steel drilling tip for efficient drilling in steel and aluminum. The TRHBSS3 bi-metal screws are immune to hydrogen-initiated stress corrosion cracking. The 304 stainless steel hex washer head and upper shaft, with RUSPRO® corrosion protection, provide improved corrosion and embrittlement resistance and enhanced galvanic compatibility in dissimilar-metal applications.

As a result, the TRHBSS3 bi-metal structural screws with proprietary RUSPRO® coating are an excellent choice for dissimilar aluminum-to-steel fastening applications.



► MATERIAL SPECIFICATION

Material:
- Hardened carbon steel drill point and starter thread
- AISI 304 hex washer head and shaft

Heat treatment:
Carbon steel drill point hardness
- 54 ~ 58 HRC

Corrosion protection:
- Silver RUSPRO® Coating, 1000 hrs salt spray resistance
- The coating's effectiveness in preventing galvanic corrosion depends on protecting the connection from moisture.

► FEATURES AND BENEFITS

- Bi-metal fastener design allows for improved drilling capacity while maintaining the corrosion resistance properties of stainless steel
- Silver RUSPRO® coating provides a barrier to aid in preventing galvanic corrosion when used in contact with aluminum surfaces
- Resistant to hydrogen-initiated stress corrosion cracking
- Purpose-designed, fusion-welded #5 drill point with serration and starter thread allows drilling and tapping up to ½" supporting steel material thickness with assisted drilling debris extraction
- The increased ductility of the 304 stainless steel body will prevent delayed embrittlement failures in dissimilar metal applications like aluminum to steel

► ASSESSMENTS AND STANDARDS COMPLIANCE

The 304 Bi-Metal self-drilling screws comply with the material, processes and performance requirements of the following standards: ASTM C1513; ASTM A500; SAE J78

The screw's load capacities are based on tests conducted by an independent testing agency in compliance with the following standards:

Tension - AC491 S3.2.2 (AISI S904)
Shear - AC491 S3.2.2 (AISI S904)
Torsion - AC118 S3.3 (ASME B18.6.3)
Pull Out - AC 491 S3.4.3 (AISI S905)
Member Materials - ASTM A653, ASTM A36, ASTM A1011, ASTM B221

► INSTALLATION

1. Predrilling is required in the connecting material to achieve a reliable connection in support structure when the total thickness of connecting material including spaces is greater than the screw length (L) minus the carbon steel drill point and starter thread of 1-1/8" (31 mm).
2. Ensure that the drill point plus the starter threads is fully protruding from the receiving supporting structure with acceptable clearance. In an aluminum supporting structure with multiple cavities, ensure there is sufficient room, at least 1-1/8" (31 mm), for the protruding carbon steel drill point plus starter threads.
3. For effective drilling speed, see Table 2. For aluminum substrate installation, do not exceed the drill speed of 1800 rpm.
4. Always drive self-drilling screws perpendicular to the work surface.
5. It is highly advised to use torque control when fastening into thin sheet metal.
6. Do not exceed 10% of the minimum torsional strength, shown in Table 2.

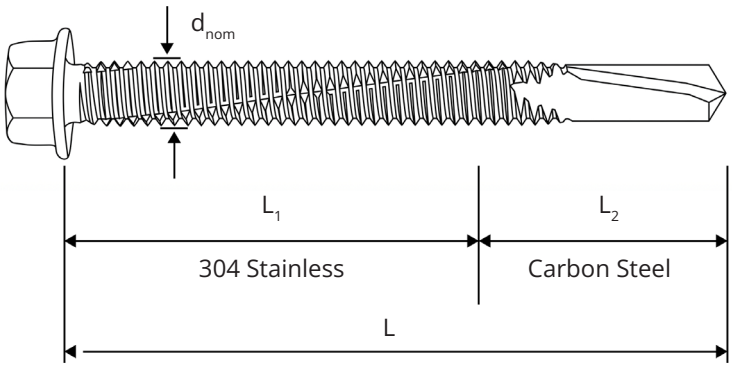


Table 1 - Installation Table

Screw Size	Length (L)	L_1 (Ref)	L_2 (Ref)	Nominal Diameter (d_{nom})	Hex Head Socket Size
		304 SS	Carbon Steel		
1/4-20 X 2-1/2"	63.5 mm	32.5 mm	31.00 mm	1/4"	3/8"
				6.35 mm	
1/4-20 X 3-1/4"	82.5 mm	51.5 mm	31.00 mm	1/4"	3/8"
				6.35 mm	

► TECHNICAL DATA

Table 2 - TRH B5SS3 304 SS Bi-Metal Screw Strength Data[1]

Screw Type	Screw Size	Drill Point	Nominal Diameter	Average Ultimate load		Min. Torsional Strength*	Recommended Drill Speed
				Tension	Shear		
			inch	lbf	lbf	lb-in	RPM
TRH B5SS3	14-20	5-point serrated	0.250	3667	2622	93	1000-1800

[1] This information is for the 304 stainless steel component only.

Table 3 - 304 SS Bi-Metal Screw Ultimate Pull-out Data in Carbon Steel [1,2,3,4]

Screw Type	Screw Size	Drill Point	Units	Screw head not in contact with the material						
				16 Ga	14 Ga	12 Ga	1/8"	3/16"	1/4"	5/16"
			inch	0.0590	0.0710	0.1015	0.1330	0.1900	0.2550	0.3100
TRH B5SS3	14-20	5-point serrated	lbf	703	931	1477	2271	2808	3705	3930

[1] Published pullout strengths are based on independent laboratory testing and are for information only
[2] The Allowable strength (ASD design) and Design strength (LSD Design) shall be calculated in accordance with AISI S100
[3] For connection design, published pull-out values shall be compared to pull-over and screw strength, and the lowest must be used
[4] Values are based on steel members with the minimum strength of F_y 33 ksi (16Ga-14Ga) and F_y 33 ksi (1/4" and 5/16")

Table 4 - 304 SS Bi-Metal Screw Ultimate Pull-out Data in Aluminum (6063-T52)[1,2,3,4]

Screw Type	Screw Size	Drill Point	Units	Screw head not in contact with the material					
				-	-	-	1/8"	3/16"	1/4"
			inch	-	-	-	0.1250	0.1875	0.2550
TRH B5SS3	14-20	5-point serrated	lbf	-	-	-	626	1319	1619

[1] Published pullout strengths are based on independent laboratory testing and for information only
[2] The Allowable strength (ASD design) and Design strength (LSD Design) shall be calculated in accordance with AISI S100
[3] For connection design, published pull-out values shall be compared to pull-over and screw strength, and the lowest must be used
[4] Values are based on Grade 6036-T5 aluminum members with the minimum strength of Fy 21 ksi