



Engineering Test Report

Thermal Diffusion Galvanizing Report
Poleline Hardware
02/01/2018



ALLIED BOLT PRODUCTS, LLC.

Allied Bolt's Thermal Diffusion Galvanizing

Allied Bolt announces the launch of Thermal Diffusion Galvanized Poleline Hardware.

Allied Bolt's thermal diffusion galvanizing (TDG) conforms to the ASTM Specification A 1059-08 (2013) "Standard Specification for Zinc Alloy Thermal-Diffusion Coatings (TDC) on Steel Fasteners, Hardware, and other products."

A description of the TDG process can be found in the standard: "This specification covers the general requirements for protective zinc coatings to be applied by the thermal-diffusion coating (TDC) method. To various products made of carbon steel, including low and high tensile parts as well as of wrought iron, sintered iron steel-powder and various steel and stainless steel alloys. TDC is carried out by immersing the parts in a zinc alloy powder at elevated temperature for a period of time, causing a metallurgical diffusion process of zinc and iron. Further processing may be added such as, passivation, topcoat application, paint application, etc."

Uniform coating thickness, even on threaded areas of fasteners, make this process very desirable. Compared to the hot-dip galvanizing process, the coatings are more corrosion resistant. The process does not involve the formation of hydrogen, making the parts immune to hydrogen embrittlement.

The salt spray test per ASTM B117 has received the widest acceptance as a tool evaluating and predicting the longevity of hardware in the field. Allied Bolt uses the Greenkote™ (Brook Park, Ohio) process of TDG along with their proprietary top coat to ensure 2,500 hours salt spray without significant signs of red rust. Below please find a comparison of hot dip galvanized hardware to Allied Bolt's TDG Hardware.



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Part No. 75816 5/8" X 16" Square Head Machine Bolt TDG Finish
Before Salt Spray Testing Per ASTM B117



Part No. 75816 5/8" X 16" Square Head Machine Bolt TDG Finish
After 504 Hours No Red Rust



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Part No. 75816 5/8" X 16" Square Head Machine Bolt TDG Finish
After 504 Hours No Red Rust



Part No. 75816 5/8" X 16" Square Head Machine Bolt TDG Finish
After 1008 Hours Slight Appearance of Red Rust



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Part No. 75816 5/8" X 16" Square Head Machine Bolt TDG Finish
After 2520 Hours Slight Red Rust



Part No. 75816 5/8" X 16" Square Head Machine Bolt TDG Finish
Test Concluded at 2712 Hours Red Rust Beginning to Become More Prevalent



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Part No. 8226 5/8" X 14" Square Head Machine Bolt Hot Dip Galvanized
After 750 Hours



Part No. 75816 5/8" X 16" Square Head Machine Bolt Thermal Diffusion
Galvanizing After 750 Hours



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Part Number	Description
77018	1/2" X 6" Carriage Bolt w/ Nut - TDG



Part Number	Description
74003	5/8" X 1-3/4" Round Washer - TDG
747017	3/4" X 2" Round Washer - TDG



Part Number	Description
74555	2-1/2" X 2-1/2" Square Curved Washer - TDG
74244	3" X 3" Square Curved Washer - TDG



Part Number	Description
74501	1/8" X 2" Square Washer for 5/8" Bolt - TDG
74500	3/16" X 2-1/4" Square Washer for 5/8" Bolt - TDG
74550	3/16" X 2-1/4" Square Washer for 3/4" Bolt - TDG





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Part Number	Description
71207	1/2" X 7" Square Head Machine Bolt w/ Nut - TDG
75806	5/8" X 6" Square Head Machine Bolt w/ Nut - TDG
75808	5/8" X 8" Square Head Machine Bolt w/ Nut - TDG
75810	5/8" X 10" Square Head Machine Bolt w/ Nut - TDG
75812	5/8" X 12" Square Head Machine Bolt w/ Nut - TDG
75814	5/8" X 14" Square Head Machine Bolt w/ Nut - TDG
75816	5/8" X 16" Square Head Machine Bolt w/ Nut - TDG
75818	5/8" X 18" Square Head Machine Bolt w/ Nut - TDG
75820	5/8" X 20" Square Head Machine Bolt w/ Nut - TDG
73407	3/4" X 7" Square Head Machine Bolt w/ Nut - TDG
73408	3/4" X 8" Square Head Machine Bolt w/ Nut - TDG
73410	3/4" X 10" Square Head Machine Bolt w/ Nut - TDG
73412	3/4" X 12" Square Head Machine Bolt w/ Nut - TDG
73414	3/4" X 14" Square Head Machine Bolt w/ Nut - TDG
73416	3/4" X 16" Square Head Machine Bolt w/ Nut - TDG
73418	3/4" X 18" Square Head Machine Bolt w/ Nut - TDG
73420	3/4" X 20" Square Head Machine Bolt w/ Nut - TDG





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Part Number	Description
75956	5/8" X 16" Double Arming Bolt = TDG
75958	5/8" X 18" Double Arming Bolt = TDG
75960	5/8" X 20" Double Arming Bolt = TDG
75962	5/8" X 22" Double Arming Bolt = TDG
75964	5/8" X 24" Double Arming Bolt = TDG
75966	5/8" X 26" Double Arming Bolt = TDG
75968	5/8" X 28" Double Arming Bolt = TDG
75970	5/8" X 30" Double Arming Bolt = TDG



Part Number	Description
775805	5/8" X 10" Straight Guy Bolt - TDG
775806	5/8" X 12" Straight Guy Bolt - TDG
775807	5/8" X 14" Straight Guy Bolt - TDG
775808	5/8" X 16" Straight Guy Bolt - TDG
775809	5/8" X 18" Straight Guy Bolt - TDG



Part Number	Description
74506	5/8" X 6" Oval Eyebolt - TDG
74508	5/8" X 8" Oval Eyebolt - TDG
74510	5/8" X 10" Oval Eyebolt - TDG
74512	5/8" X 12" Oval Eyebolt - TDG
74514	5/8" X 14" Oval Eyebolt - TDG
74516	5/8" X 16" Oval Eyebolt - TDG
74518	5/8" X 18" Oval Eyebolt - TDG
74520	5/8" X 20" Oval Eyebolt - TDG





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Part Number	Description
78205	1/2" Square Nut - TDG
78206	5/8" Square Nut - TDG
78200	3/4" Square Nut - TDG

