



Allied Bolt

Machine Bolts



Material Specifications

Square Head Machine Bolts are used in aerial plant construction for making attachments (ie; Cable Suspension Clamps, Guy Hooks, Braces) on Utility Poles. Machine Bolts are provided with an attached Regular Square Nut. A Cable Suspension Bolts are provided with two attached Regular Square Nuts. Bolts that are six inches or longer have a minimum thread length of six inches and have semi-cone points for easing assembly. Bolts that are shorter than six inches are fully threaded with flat ends. For bolts without semi-cone points, the length is measured from the bearing surface of the head to the extreme end on the bolt.

For bolts with semi-cone points, the length is measured from the bearing surface of the head to the last thread at the end of the bolt. The threads on Square Head Machine Bolts are Unified Standard Class 2A as documented in the American Society of Mechanical Engineers (ASME) Standard B1.1 (2002). The Class 2A external thread specification applies only to bolts prior to coating. The thread after coating is subject to acceptance using a Class 3A size GO thread gauge and a Class 2A NO GO Gauge (as per ASME B18.2.1 1996).

The bolt dimensions of the Body Diameter, Width Across Flats, Width Across Corners, Head Height, and Radius of Fillet are compliant with ASME Standard B18.2.1 (1996).

The threads on Regular Square Nuts are Unified Standard Class 2B as documented in the American Society of Mechanical Engineers (ASME) Standard B1.1 (2002). Testing is performed on nuts with GO and NO GO gauges prior to coating. Regular Square Nuts are first Hot Dip Galvanized and then threaded to ensure proper gauging.

The Regular Square Nut dimensions are compliant with ASME/ANSI Standard B18.2.2 (1997) {R1999}.

Allied Bolt uses a proprietary Steel chemistry that produces bolts specifically designed for aerial construction. While the material is compliant with ASTM A307, the bolts exhibit a slightly higher ultimate tensile strength (KSI), along with a somewhat increased ductility, as measured by percent elongation and reduction of area, than competitive bolts. All bolt heads are clearly marked with "AB" for long term identification.

Machine Bolts and A Cable Suspension Clamps are compliant with Bell Operating Company Specification CAO6645 and CAO6207, as well as IEEE Standard C135.1, 1999.

Square Head Machine Bolts with Attached Regular Square Nuts are Hot Dip Galvanized per ASTM Specification A153 (2000) Class D (for hardware 3/8" diameter and smaller), and Class C (for hardware over 3/8"). The Zinc used in the galvanizing process provides an impervious barrier between the bolts and corrosive elements in the atmosphere. It does not allow moisture and corrosive chlorides and sulfides to attack the Steel. Zinc is anodic to Steel – meaning it corrodes before the steel, until the zinc is entirely consumed.

Testing

When any bolt is held rigidly at either end, it is possible to bend the bolt at an angle of ninety degrees, about a diameter equal to the diameter of the bolt, without fracturing the Steel (CAO6207 3.10-11).

When testing the tensile strength of the bolts, the load shall be applied at the head of the bolt and at the nut with at least end threads projecting beyond the outer face of the nut (CAO6207 Section 3.09, 1983) (CAO6645, Section 3.10, 1989).

The non-threaded portion of bolts shall be capable of being bent while at room temperature at any point through an angle of 180°, about a diameter equal to the diameter of the bolt without cracking the Steel on the outside of the bent portion (IEEE Standard C135.1, 1999).

Installation

The proper size bolt hole should be drilled in poles and cross arms. The bearing surface under the bolt head is also reduced if a larger than necessary clearance hole is drilled. The drill bit diameter selected should match the corresponding diameter of the bolt.

Specifications

Square Head Machine Bolts

Mfg #	Size	Thread Length Min	Bolt Head Size (Across Flats)	Bolt Width (Across Corners)	Bolt Head Height	Nut Thickness	Nut Size (Across Flats)	Std Pkg
2648	1/4" x 1"	1"	3/8"	.514"	1 1/4"	7/32"	7/16"	100
649	3/8" x 1 1/2"	1 1/2"	9/16"	.771"	1/4"	2 1/64"	5/8"	50
650	3/8" x 2"	2"	9/16"	.771"	1/4"	2 1/64"	5/8"	50
651	3/8" x 2 1/2"	2 1/2"	9/16"	.771"	1/4"	2 1/64"	5/8"	50
652	3/8" x 3"	3"	9/16"	.771"	1/4"	2 1/64"	5/8"	50
8211	3/8" x 4"	3 1/16"	9/16"	.771"	1/4"	2 1/64"	5/8"	100
8212	3/8" x 5"	4 1/16"	9/16"	.771"	1/4"	2 1/64"	5/8"	100
8213	3/8" x 5 1/2"	5 3/16"	9/16"	.771"	1/4"	2 1/64"	5/8"	100
236	1/2" x 1"	1"	3/4"	1.028"	2 1/64"	7/16"	1 3/16"	100
8202	1/2" x 1 1/4"	1 1/4"	3/4"	1.028"	2 1/64"	7/16"	1 3/16"	100
251	1/2" x 1 3/4"	1 3/4"	3/4"	1.028"	2 1/64"	7/16"	1 3/16"	100
10035	1/2" x 2"	2"	3/4"	1.028"	2 1/64"	7/16"	1 3/16"	100
8203	1 1/2" x 2 1/2"	2 1/2"	3/4"	1.028"	2 1/64"	7/16"	1 3/16"	100
10036	1/2" x 3"	2 5/8"	3/4"	1.028"	2 1/64"	7/16"	1 3/16"	100
10037	1/2" x 4"	3 5/8"	3/4"	1.028"	2 1/64"	7/16"	1 3/16"	100
8208	1/2" x 4 1/2"	4 1/8"	3/4"	1.028"	2 1/64"	7/16"	1 3/16"	50
10038	1/2" x 5"	4 1/8"	3/4"	1.028"	2 1/64"	7/16"	1 3/16"	100
8209	1/2" x 6"	6"	3/4"	1.028"	2 1/64"	7/16"	1 3/16"	100

Specifications (Cont'd)

Square Head Machine Bolts (Cont'd)

Mfg #	Size	Thread Length Min	Bolt Head Size (Across Flats)	Bolt Width (Across Corners)	Bolt Head Height	Nut Thickness	Nut Size (Across Flats)	Std Pkg
8110	1/2" x 8"	6"	3/4"	1.028"	27/64"	7/16"	13/16"	100
8111	1/2" x 10"	6"	3/4"	1.028"	27/64"	7/16"	13/16"	50
8112	1/2" x 12"	6"	3/4"	1.028"	27/64"	7/16"	13/16"	50
8121	5/8" x 1 1/2"	1 1/2"	15/16"	1.285"	27/64"	35/64"	1"	100
8122	5/8" x 2"	2"	15/16"	1.285"	27/64"	35/64"	1"	100
8123	5/8" x 2 1/2"	2 1/8"	15/16"	1.285"	27/64"	35/64"	1"	100
8124	5/8" x 3"	2 5/8"	15/16"	1.285"	27/64"	35/64"	1"	100
8125	5/8" x 4"	3 5/8"	15/16"	1.285"	27/64"	35/64"	1"	100
8126	5/8" x 5"	4 5/8"	15/16"	1.285"	27/64"	35/64"	1"	100
8204	5/8" x 5 1/2"	5 1/8"	15/16"	1.285"	27/64"	35/64"	1"	100
8214	5/8" x 6"	6"	15/16"	1.285"	27/64"	35/64"	1"	50
8215	5/8" x 7"	6"	15/16"	1.285"	27/64"	35/64"	1"	50
8220	5/8" x 8"	6"	15/16"	1.285"	27/64"	35/64"	1"	20
8222	5/8" x 10"	6"	15/16"	1.285"	27/64"	35/64"	1"	20
8224	5/8" x 12"	6"	15/16"	1.285"	27/64"	35/64"	1"	20
8226	5/8" x 14"	6"	15/16"	1.285"	27/64"	35/64"	1"	20
8228	5/8" x 16"	6"	15/16"	1.285"	27/64"	35/64"	1"	20
8230	5/8" x 18"	6"	15/16"	1.285"	27/64"	35/64"	1"	10
8232	5/8" x 20"	6"	15/16"	1.285"	27/64"	35/64"	1"	10
8234	5/8" x 22"	6"	15/16"	1.285"	27/64"	35/64"	1"	10
8236	5/8" x 24"	6"	15/16"	1.285"	27/64"	35/64"	1"	10
10048	5/8" x 26"	6"	15/16"	1.285"	27/64"	35/64"	1"	25
8237	5/8" x 28"	6"	15/16"	1.285"	27/64"	35/64"	1"	25
8150	3/4" x 2"	2"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	100
8151	3/4" x 3"	2 5/8"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	100
8152	3/4" x 4"	3 5/8"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	100
8153	3/4" x 6"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	100
8238	3/4" x 8"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	20
8240	3/4" x 10"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	20
8242	3/4" x 12"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	10
8244	3/4" x 14"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	10
8246	3/4" x 16"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	10
8248	3/4" x 18"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	10
8250	3/4" x 20"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	10
8252	3/4" x 22"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	10
8254	3/4" x 24"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	10
8255	3/4" x 26"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	5
8259	3/4" x 28"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	5

7/8" and 1" hardware are available by special order.

Manufactured in Canada.

Machine Bolts

Specifications (Cont'd)

A Cable Suspension Bolts

Mfg #	Size	Thread Length Min	Bolt Head Size (Across Flats)	Bolt Width (Across Corners)	Bolt Head Height	Nut Thickness	Nut Size (Across Flats)	Std Pkg
8280	5/8" x 8"	6"	15/16"	1.285"	27/64"	35/64"	1"	50
8281	5/8" x 10"	6"	15/16"	1.285"	27/64"	35/64"	1"	50
8282	5/8" x 12"	6"	15/16"	1.285"	27/64"	35/64"	1"	40
8283	5/8" x 14"	6"	15/16"	1.285"	27/64"	35/64"	1"	40
8284	5/8" x 16"	6"	15/16"	1.285"	27/64"	35/64"	1"	30
8285	5/8" x 18"	6"	15/16"	1.285"	27/64"	35/64"	1"	25
8286	5/8" x 20"	6"	15/16"	1.285"	27/64"	35/64"	1"	20
8287	5/8" x 22"	6"	15/16"	1.285"	27/64"	35/64"	1"	20
8288	5/8" x 24"	6"	15/16"	1.285"	27/64"	35/64"	1"	10
8319	3/4" x 10"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	25
8301	3/4" x 12"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	25
8302	3/4" x 14"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	25
8304	3/4" x 16"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	25
8305	3/4" x 18"	6"	1 1/8"	1.543"	1/2"	2 1/32"	1 1/8"	20

Manufactured in Canada.

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