

Reli-A-Pak® Bolt, Nut, & Gasket Sets by Reliable Fasteners, Inc.

ASTM A449

The ASTM A449 specification covers quenched and tempered steel hex cap screws, bolts, and studs having a minimum tensile strength. These fasteners are intended for general engineering use. A449 is a medium strength bolt manufactured from heat-treated medium carbon or alloy steel. A449 bolting meets ASME/ ANSI B18.2.1 dimensions, and is available in diameters ranging from 1/4" to 3". A449 is practically identical in strength and chemistry to ASTM A325 and SAE J429 Gr. 5, but covers a larger diameter range.

| Types | |
|-------|--|
| 1 | Plain Carbon Steel, Carbon Boron Steel, Alloy Steel, or Alloy Boron Steel. |
| 2 | Withdrawn 2003 |
| 3 | Weathering Steel |

| Mechanical Properties | | | | | | | |
|-----------------------|-------------------|-----------------|--------------|------------|-----------------|------------------|--------------|
| Size | Tensile, psi, min | Yield, psi, min | Elong %, min | RA, %, min | Proof Load, psi | Rockwell Brinell | |
| | | | | | | Min | Hardness Max |
| 1/4" – 1" | 120,000 | 92,000 | 14 | 35 | 85,000 | C25 225 | C34 321 |
| 1-1/8" - 1-1/2" | 105,000 | 81,000 | 14 | 35 | 74,000 | C19 223 | C30 285 |
| 1-5/8" – 3" | 90,000 | 58,000 | 14 | 35 | 55,000 | B91 183 | C100 235 |

Tensile Strength: The maximum load in tension (pulling apart) that a material can withstand before breaking or fracturing.

Yield Strength: The maximum load at which a material exhibits a specific permanent deformation

Proof Load: An axial tensile load that the product must withstand without evidence of any permanent set.

Elong, %, min stands for Elongation in 2", min, % **RA, %, min** stands for reduction of area, min, %

| Recommended Nuts & Flat Washers | | | |
|---------------------------------|---------------------------------|--------------------------------|-------------|
| Nuts | | | Washers |
| Plain | | Galvanized | |
| 1/4" - 1-1/2" A563 B Hex | 1-5/8" – 3" A563 A Heavy Hex | 1/4" - 3" A563 DH Heavy Hex | F436 |

Note: Nuts having a proof load stress greater than the specified grade are suitable

This is only a partial description of this specification, and should not be used as the only source of data. For complete and up to date information, consult the current version of this specification.

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