

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

## ASTM A320

The ASTM A320 specification covers alloy and stainless steel bolting materials for pressure vessels, valves, flanges, and fittings for low-temperature service. A320 bolting meets ASME/ANSI B18.2.1 dimensions. The standard thread pitch for A320 bolting with a diameter of 1" or smaller is coarse threaded (UNC Series Class 2A). For diameters larger than 1", the standard thread pitch is 8 threads per inch (UN Series Class 2A), but coarse thread pitch is also available. The following is a partial list of some of the most common grades:

Grades	
<b>L7</b>	AISI 4140, 4142, or 4145 Alloy Steel (CrMo) / Quenched and Tempered
<b>B8 Class 1</b>	AISI 304 Stainless Steel / Carbide Solution Treated
<b>B8M Class 1</b>	AISI 316 Stainless Steel / Carbide Solution Treated
<b>B8 Class 2</b>	AISI 304 Stainless Steel / Carbide Solution Treated / Strain Hardened
<b>B8M Class 2</b>	AISI 316 Stainless Steel / Carbide Solution Treated / Strain Hardened

Mechanical Properties							
Grade	Size	Tensile psi, min	Yield, psi, min	Elong, %, min	RA, %, min	Hardness Max Brinell    Rockwell	
L7	Up to 2-1/2"	125,000	105,000	16	50	321	C35
B8 Class 1	All	75,000	30,000	30	50	223	B96
B8M Class 1	All	75,000	30,000	30	50	223	B96
B8 Class 2	Up to 3/4"	125,000	100,000	12	35	321	C35
	7/8" – 1"	115,000	80,000	15	35	321	C35
	1-1/8" - 1-1/4"	105,000	65,000	20	35	321	C35
	1-3/8" - 1-1/2"	100,000	50,000	28	45	321	C35
B8M Class 2	Up to 3/4"	110,000	95,000	15	45	321	C35
	7/8" – 1"	100,000	80,000	20	45	321	C35
	1-1/8" - 1-1/4"	95,000	65,000	25	45	321	C35
	1-3/8" – 1-1/2"	90,000	50,000	30	45	321	C35

**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
<b>L7</b>	A194 Gr. 4 or 7	F436
<b>B8 Class 1</b>	A194 Gr. 8	304-SS
<b>B8M Class 1</b>	A194 Gr. 8M	316-SS
<b>B8 Class 2</b>	A194 Gr. 8 / Strain Hardened	304-SS
<b>B8M Class 2</b>	A194 Gr. 8M / Strain Hardened	316-SS

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.