

# ASTM A449

# ALLOY STEEL

## TYPE 1

BOLTING MATERIAL FOR STRUCTURAL PURPOSE

ASTM A449 covers headed bolts, rods, and anchor bolts in diameters ranging from 1/4" through 3" inclusive. It is a medium strength bolt manufactured from a medium carbon or alloy steel that develops its mechanical values through a heat treating process. It is intended for general engineering applications.

ASTM A449 is similar in chemistry and strength to ASTM A325 and SAE J429 grade 5. However, A449 is more flexible in the sense that it covers a larger diameter range and is not restricted by a specific configuration.

### Chemical Properties

C	Mn	P	S
	Max	Max	Max
0.25-0.58	0.57	0.048	0.058

### Mechanical Properties

Dia	Yield strength	Tensile strength	Elongation	Reduction	Hardness
	Min 0.2% Mpa	Min Mpa	Min %	Min %	BHN
1/4 to 1"	635	825	14	35	255-321
1 to 1 1/2	560	725	14	35	223-285
1 1/2 to 3"	620	400	14	35	183-235

### Heat Treatment

Quenched & tempered

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