
















## HAGUE FASTENERS LIMITED

The strength and type of steel used in a bolt is supposed to be indicated by a raised mark on the head of the bolt. The type of mark depends on the standard to which the bolt was manufactured. Most often, bolts used in machinery are made to SAE standard J429, and bolts used in structures are made to various ASTM standards. The tables below give the head markings and some of the most commonly-needed information concerning the bolts. For further information, see the appropriate standard.

<b>SAE Bolt Designations</b>				
<b>SAE Grade No.</b>	<b>Size range</b>	<b>Tensile strength, ksi</b>	<b>Material</b>	<b>Head marking</b>
<b>1</b>	<b>1/4 thru 1-1/2</b>	<b>60</b>	<b>Low or medium carbon steel</b>	
<b>2</b>	<b>1/4 thru 3/4 7/8 thru 1-1/2</b>	<b>74 60</b>		
<b>5</b>	<b>1/4 thru 1 1-1/8 thru 1-1/2</b>	<b>120 105</b>	<b>Medium carbon steel, quenched &amp; tempered</b>	
<b>5.2</b>	<b>1/4 thru 1</b>	<b>120</b>	<b>Low carbon martensite steel, quenched &amp; tempered</b>	
<b>7</b>	<b>1/4 thru 1-1/2</b>	<b>133</b>	<b>Medium carbon alloy steel, quenched &amp; tempered</b>	
<b>8</b>	<b>1/4 thru 1-1/2</b>	<b>150</b>	<b>Medium carbon alloy steel, quenched &amp; tempered</b>	
<b>8.2</b>	<b>1/4 thru 1</b>	<b>150</b>	<b>Low carbon martensite steel, quenched &amp; tempered</b>	



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ASTM Bolt Designations				
ASTM standard	Size range	Tensile strength, ksi	Material	Head marking
A307	1/4 thru 4	60	Low carbon steel	
A325 Type 1	1/2 thru 1 1-1/8 thru 1-1/2	120 105	Medium carbon steel, quenched & tempered	
A325 Type 2	1/2 thru 1 1-1/8 thru 1-1/2	120 105	Low carbon martensite steel, quenched & tempered	
A325 Type 3	1/2 thru 1 1-1/8 thru 1-1/2	120 105	Weathering steel, quenched & tempered	
A449	1/4 thru 1 1-1/8 thru 1-1/2 1-3/4 thru 3	120 105 90	Medium carbon steel, quenched & tempered	
A490 Type 1	1/4 thru 1-1/2	150	Alloy steel, quenched & tempered	
A490 Type 3	1/4 thru 1-1/2	150	Weathering steel, quenched & tempered	

Often one will find "extra" marks on a bolt head--marks in addition to those shown above. Usually these marks indicate the bolt's manufacturer.

ASTM A325 Type 2 bolts have been discontinued, but are included above because they can be found in existing structures. Their properties can be important in failure investigations. While the bolts shown above are among the most common in the U.S., the list is far from exhaustive. In addition to the other bolts covered by the SAE and ASTM standards, there are a host of international standards, of which ISO is perhaps the most well known.