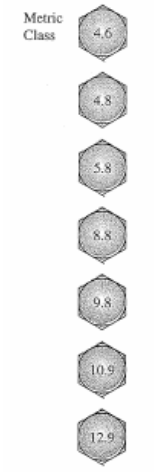

FIGURE 14-20
Head Marks—Metric Bolts

Table 14-7 Metric Specifications and Strengths for Steel Bolts

Class Number	Size Range Outside Diameter (mm)	Minimum Proof Strength (MPa)	Minimum Yield Strength (MPa)	Minimum Tensile Strength (MPa)	Material
4.6	M5 - M36	225	240	400	low or medium carbon
4.8	M1.6 - M16	310	340	420	low or medium carbon
5.8	M5 - M24	380	420	520	low or medium carbon
8.8	M16 - M36	600	660	830	medium carbon, Q&T
9.8	M1.6 - M16	650	720	900	medium carbon, Q&T
10.9	M5 - M36	830	940	1040	low carbon martensite, Q&T
12.9	M1.6 - M16	970	1100	1220	alloy, quenched & tempered

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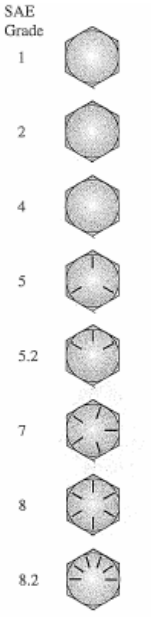

Table 14-6 SAE Specifications and Strengths for Steel Bolts

SAE Grade Number	Size Range Outside Diameter (in)	Minimum Proof Strength (ksi)	Minimum Yield Strength (ksi)	Minimum Tensile Strength (ksi)	Material
1	0.25 - 1.5	33	36	60	low or medium carbon
2	0.25 - 0.75	55	57	74	low or medium carbon
2	0.875 - 1.5	33	36	60	low or medium carbon
4	0.25 - 1.5	65	100	115	medium carbon, cold drawn
5	0.25 - 1.0	85	92	120	medium carbon, Q&T*
5	1.125 - 1.5	74	81	105	medium carbon, Q&T
5.2	0.25 - 1.0	85	92	120	low carbon martensite, Q&T
7	0.25 - 1.5	105	115	133	medium carbon alloy, Q&T
8	0.25 - 1.5	130	130	150	medium carbon alloy, Q&T
8.2	0.25 - 1.0	130	130	150	low carbon martensite, Q&T

* Quenched and Tempered