

on Fasteners, International Organization for Standardization). The majority of the member countries agreed that publication of an international listing of manufacturer markings would be a significant contribution and USA was invited to be the custodian. As a first submittal, the European Industrial Fasteners Institute published, in 1983, a compilation of the marking symbols used by the fastener manufacturers in 12 European countries. IFI, in conjunction with FASTENER TECHNOLOGY,

worked on an updating of its IFI-122 released in early 1987.

In 1987, The American Society of Mechanical Engineers accepted responsibility to collect, collate and publish a listing of world-wide fastener manufacturer markings. In July 1987 ASME published a first edition of "A Guide to the Markings of Fastener Manufacturers" and it plans to up-

Table 2 Grade Identification Markings for Popular Grades of Carbon Steel Externally Threaded Fasteners














Grade Identification Marking	Specification	Material	Nominal Size in.	Proof Load Stress ksi	Tensile Strength Min ksi	Hardness Rockwell		See Note
						Min	Max	
 NO MARK	SAE J429 -- Grade 1	Low or Medium Carbon Steel	1/4 thru 1 1/2	33	60	B70	B100	
	SAE J429 -- Grade 2		1/4 thru 3/4 over 3/4 thru 1 1/2	55 33	74 60	B80 B70	B100 B100	
	ASTM A307 -- Grade A		1/4 thru 4	—	60	B69	B100	
	ASTM A307 -- Grade B		1/4 thru 4	— —	60 min 100 max	B69	B95	
	SAE J429 -- Grade 5 ASTM A449 -- Type 1	Medium Carbon Steel, Quenched and Tempered	1/4 thru 1 over 1 thru 1 1/2	85 74	120 105	C25 C19	C34 C30	
	ASTM A449 -- Type 1		over 1 1/2 thru 3	55	90	183	235	3
	SAE J429 -- Grade 5.1	Low or Medium Carbon Steel, Quenched and Tempered	No. 6 thru 1/2	85	120	C25	C40	4
	SAE J429 -- Grade 5.2	Low Carbon Martensite Steel, Quenched and Tempered	1/4 thru 1	85	120	C26	C36	
	ASTM A449 -- Type 2					C25	C34	
	ASTM A325 -- Type 1	Medium Carbon Steel, Quenched and Tempered						5
	ASTM A325 -- Type 2	Low Carbon Martensite Steel, Quenched and Tempered	1/2 thru 1 over 1 to 1 1/2	85 74	120 105	C24 C19	C35 C31	
	ASTM A325 -- Type 3	Atmospheric Corrosion Resistant Steel, Quenched and Tempered						6

Table 2 (continued)

Grade Identification Marking	Specification	Material	Nominal Size In.	Proof Load Stress ksi	Tensile Strength Min ksi	Hardness Rockwell		See Note
						Min	Max	
	ASTM A354 — Grade BC	Medium Carbon Alloy Steel, Quenched and Tempered	¼ thru 2½ over 2½ thru 4	105 95	125 115	C26 C22	C36 C33	
	SAE J429 — Grade 8	Medium Carbon Alloy Steel, Quenched and Tempered	¼ thru 1½	120	150	C33	C39	7
	ASTM A354 — Grade BD		¼ thru 2½ over 2½ thru 4	120 105	150 140	C33 C31	C39 C39	
	SAE J429 — Grade 8 2	Low Carbon Martensite Steel, Quenched and Tempered	¼ thru 1	120	150	C33	C39	
	ASTM A490 — Type 1	Medium Carbon Alloy Steel, Quenched and Tempered	½ thru 1½	120	150 min 170 max	C33	C38	
	ASTM A490 — Type 2	Low Carbon Martensite Steel, Quenched and Tempered	½ thru 1	120	150 min 170 max	C33	C38	
	ASTM A490 — Type 3	Atmospheric Corrosion Resistant Steel, Quenched and Tempered	½ thru 1½	120	150 min 170 max	C33	C38	6
See Note 1, 2	8							

NOTES:

- In addition to the indicated grade marking, all grades included in this Table must be marked for manufacturer identification.
- While hex heads are shown, grade markings apply equally to products with other head configurations.
- Hardnesses are Brinell Hardness Numbers.
- Grade 5 1 is a popular grade for nuts, see page J-8.
- A325 Type 1 bolts may also be marked with 3 radial lines 120° apart in addition to the A325 marking.
- The bolt manufacturer, at his option, may add other markings to indicate the use of atmospheric corrosion resistant steel.
- A354 Grade BD products, in sizes 1½ in. and smaller, are identified as shown and, at the manufacturer's option, may have the letters BD added. Larger sizes are marked only BD.
- Specifications —
 - SAE J429 — Mechanical and Material Requirements for Externally Threaded Fasteners, page B-50.
 - ASTM A307 — Carbon Steel Externally Threaded Standard Fasteners, page B-58.
 - ASTM A449 — Quenched and Tempered Steel Bolts and Studs, page B-65.
 - ASTM A325 — High Strength Bolts for Structural Steel Joints, page E-11.
 - ASTM A354 — Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners, page B-68.
 - ASTM A490 — Heat Treated Steel Structural Bolts, 150 ksi Minimum Tensile Strength, page E-18.