

Mechanical Specifications for Externally Threaded Fasteners with Grade Markings

Specifications	Material	Size Range (in.)	Min. Proof Strength (psi)	Min. Tensile Strength (psi)	Core Hardness Rockwell		Min. Yield Strength (psi)	Grade Identification Marking
					Min.	Max.		
SAE J429-Grade 1	Low or medium carbon steel	1/4—1-1/2	33,000	60,000	B70	B100	36,000	
SAE J429-Grade 2		1/4—3/4 7/8—1-1/2	55,000 33,000	74,000 60,000	B80 B70	B100 B100	57,000 36,000	
ASTM A307-Grade A	Low or medium carbon steel	1/4—4		60,000	B69	B100		
ASTM A307-Grade B	Low or medium carbon steel	1/4—4		60,000 (min) 100,000(max)	B69	B95		
SAE J429-Grade 5 ASTM A449-Type 1	Medium carbon steel, quenched & tempered	1/4—1 1-1/8—1-1/2	85,000 74,000	120,000 105,000	C25 C19	C34 C30	92,000 81,000	
ASTM A449-Type 1		1-3/4—3	55,000	90,000			58,000	
ASTM A325- Type 1	Medium carbon steel, quenched & tempered	1/2—1 1-1/8—1-1/2	85,000 74,000	120,000 105,000	C25 C19	C34 C30	92,000 81,000	
ASTM A354 Grade BC	Medium carbon alloy steel; quenched & tempered	1/4—2-1/2 Over 2-1/2—4	105,000 95,000	125,000 115,000	C26 C22	C36 C33	109,000 99,000	
ASTM A354 Grade BD	Medium carbon alloy steel; quenched & tempered	1/4—2-1/2 Over 2-1/2—4	120,000 105,000	150,000 140,000	C33 C31	C39 C39	130,000 115,000	
SAE J429-Grade 8	Medium carbon alloy steel: quenched & tempered	1/4—1-1/2	120,000	150,000	C33	C39	130,000	
SAE J429-Grade 8.2	Low carbon boron steel: quenched & tempered	1/4—1	120,000	150,000	C33	C39	130,000	
ASTM A490-Type 1	Medium carbon alloy steel: quenched & tempered	1/2—1-1/2	120,000	150,000(min) 173,000(max)	C33	C39	130,000	
ASTM A574 Alloy Steel Socket Head Cap Screw	Medium carbon alloy steel: quenched & tempered	#0—1/2 Over 1/2—2	140,000 135,000	180,000 170,000	C39 C37	C45 C45	153,000	
ASTM F835 Alloy Steel Socket Button & Flat Countersunk Head Cap Screw	Medium carbon alloy steel: quenched & tempered	#0—1/2 Over 1/2		145,000 135,000	C39 C37	C44 C44		

Note 1: ASTM A354-Grade BD shall be marked "BD" and in addition to "BD," the product may be marked with six radial lines 60 degrees apart