


	Material	Condition	Hardness		COLOR RING		
			HRC	Brinell	Recommended	Alternate(s)	
 <p>Carbon Manganese Steels</p>	Low Carbon	1513, 1518, 1522	Normalized, Hot rolled, Annealed, Cold drawn	-	≤ 180		
			Annealed, Cold drawn	≤ 20	≤ 230		
			Hot rolled, Normalized, Annealed, Cold drawn	≤ 30	≤ 280		
	Medium Carbon	1524, 1525, 1526, 1527, 1536, 1541	Hot rolled, Normalized, Annealed, Cold drawn	-	≤ 180		
				≤ 20	≤ 230		
			Hot rolled, Annealed, Cold drawn, Normalized, Quenched and Tempered	≤ 30	≤ 280		
			Normalized, Annealed, Quenched and Tempered	≤ 35	≤ 320		
	High Carbon	1547, 1548 (46Mn5), 1551 (52Mn4), 1552 (52Mn5), 1561, 1566 (66Mn4), 1572 (80Mn4)	Hot rolled, Normalized, Annealed, Cold Drawn	≤ 20	≤ 230		
				Hot rolled, Annealed, Cold drawn, Normalized, Quenched and Tempered	≤ 30	≤ 280	
			Normalized, Annealed, Quenched and Tempered	≤ 35	≤ 320		
			Quenched and Tempered	≤ 38	≤ 350		

Tap Compass

Structural Steels	Yield Strength in 1000 PSI	30, 35, 42, 45, 50	Hot rolled, Normalized, Stress relieved	-	≤ 150		
		55, 60, 65	Hot rolled, Normalized, Stress relieved, Quenched and Tempered	-	≤ 200		
		70, 75, 80		≤ 25	≤ 250		
		85, 90, 100, 110		≤ 38	≤ 300		
		135, 140, 145, 150, 160	Quenched and Tempered	≤ 38	≤ 350		

Boron Treated Steels	Low Carbon Manganese Steels	10B08, 10B15, 10B16, 10B21, 10B22, 10B23	Normalized, Hot rolled, Annealed, Cold drawn	-	≤ 180		
				≤ 20	≤ 230		
			Annealed, Cold drawn	≤ 30	≤ 280		
	Medium Carbon Manganese Steels	10B30, 10B35, 10B37, 10B38, 10B39, 10B40, 10B41, 10B45, 10B50, 10B62, 13B20, 15B22, 15B47	Hot rolled, Normalized, Annealed, Cold drawn	-	≤ 180		
				≤ 20	≤ 230		
			Hot rolled, Cold drawn, Annealed, Normalized, Quenched and Tempered	≤ 30	≤ 280		
			Normalized, Annealed, Quenched and Tempered	≤ 35	≤ 320		
			Quenched and Tempered	≤ 38	≤ 350		

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