

Bend Rating Key:		Green	Yellow	Orange	Red
ESI's Bend Rating scale measures the formability of a material based on its ability to bend or form without tearing or breaking. "Green" designates easier formability all the way through "red" as most difficult.		Easy formability	Moderate formability; possible strain	Limited formability; chance of tearing	Difficult formability; likelihood of tearing
Radii for various thicknesses, whereas "t"=times thickness.		0t to 3t	3t to 6t	6t to 9t	9t +

Steel

	Summary	Recommended Finishes?	Applications	Conditions Available	Bend Rating	Magnetic?	Tensile Strength Minimum (KSI)		Elongation Minimum (% 2" Gauge)	Yield Strength Minimum (0.2% offset)		Hardness (Min-Max)	Density (lb/cu in)		Corrosion Resistance	Cost?
							KSI	MPa		KSI	MPa		(lb/in ³)	(g/cm ³)		
C1006	Carbon steels are steels that have carbon as the main alloying element. They contain about 1.2% of manganese and 0.4% of silicon. There are other materials present in small quantities in these carbon steels, such as copper, aluminum, molybdenum, nickel, and chromium. Features of C1006 include ductility and softness.	Zinc, Nickel, Zinc-Nickel, Mechanical and Organic finishes	Appliances, automobiles, magnet core applications	AISI 1006 Carbon Steel	Green	Yes	35	241	38%	N/A	N/A	Rockwell B30-B50	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$
C1008/C1010	This most common carbon steel has excellent weldability, which includes brazeability, spot and fusion, butt, and projection.	Zinc, Nickel, Zinc-Nickel, Mechanical and Organic finishes	Virtually all industries. Brackets, Clips, Plates, Washers, Spacers, Housings, Weldments.	AISI 1008 #5 Temper Soft	Green	Yes	44	303	33%	25	172	Rockwell B55 Max	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$
				AISI 1008 #4 Temper Skin Pass	Green	Yes	48	331	24%	35	241	Rockwell B65 Max	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$
				AISI 1008 #3 Temper 1/4 Hard	Yellow	Yes	55	379	22%	42	290	Rockwell B60-B75	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$
				AISI 1008 #2 Temper 1/2 Hard	Orange	Yes	65	448	20%	50	345	Rockwell B70-B85	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$
				AISI 1008 #1 Temper Full Hard	Red	Yes	80	552	16%	60	414	Rockwell B84 Min	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$
C1018	C1018, one of the most regularly available grades around the world, is a free machining grade that can be easily formed, machined, welded, and fabricated.	Zinc, Nickel, Zinc-Nickel, Mechanical and Organic finishes	Shafts, spindles, pins, rods, sprocket assemblies	AISI 1018 Carbon Steel	Yellow	Yes	64	441	15%	54	372	Rockwell B71 Min	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$
C1050	C1050 is a medium carbon, medium tensile steel with solid strength and toughness.	Zinc, Nickel, Zinc-Nickel, Mechanical and Organic finishes	Shafts, machinery parts, bolts, pinions, gears	AISI 1050 Annealed	Yellow	Yes	90	621	20%	58	400	Rockwell B84 Max	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$
				AISI 1050 Hardened	Red	Yes	110	758	3%	100	689	Rockwell C22-58	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$
C1074/C1075	C1074 steel is a carbon, non-alloy steel made for primary forming into wrought products.	Zinc, Nickel, Zinc-Nickel, Mechanical and Organic finishes	Blades, clips, brackets, brake discs, clutches, springs, washers, wear strips	AISI 1074/1075 Annealed	Yellow	Yes	94	648	10%	62	427	Rockwell B86 Max	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$
				AISI 1074/1075 Hardened	Red	Yes	N/A	N/A	N/A	N/A	N/A	Rockwell C25-64	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$
C1095	C1095 is a basic form of carbon steel and is frequently used in the construction of knives. It has a carbon content of .95%, which hardens the material and lessens the wear that a blade will encounter over time.	Zinc, Nickel, Zinc-Nickel, Mechanical and Organic finishes	Springs, cutting tools	AISI 1095 Annealed	Yellow	Yes	99	683	10%	76	524	Rockwell B86 Max	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$
				AISI 1095 Hardened	Red	Yes	N/A	N/A	N/A	N/A	N/A	Rockwell C30-66	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$
HSLA	HSLA, or high-strength low-alloy steel, is a type of carbon steel with low amounts of alloying elements that are added to its chemical composition to primarily increase its strength.	Zinc, Nickel, Zinc-Nickel, Mechanical and Organic finishes	Automotive, Bridge and similar construction applications, oil and gas transmission pipelines, storage tanks	HSLA Carbon Steel ASTM A36, Grade 36	Yellow	Yes	58	400	22%	36	248	Rockwell B68 Min	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$
				HSLA Carbon Steel ASTM A572, Grade 50	Yellow	Yes	58	400	20%	50	345	Rockwell B75 Min	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$
				HSLA Carbon Steel ASTM A656, Grade 60	Orange	Yes	70	483	18%	60	414	Rockwell B88 Min	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$
				HSLA Grade 80	Orange	Yes	100	689	12%	80	552	Rockwell B90 Min	0.2836	7.850	🛡️🛡️🛡️🛡️	\$\$\$\$

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