



SB Specialty Metals LLC

Your *First Choice* for Specialty Metals

154 CM – Technical Data

General Descriptions:

154 CM is a modification of 440C to which molybdenum has been added. 154 CM has better corrosion resistance, wear resistance and hot-hardness than 440C. For knifemakers, it offers better edge retention than 440C. It also has higher attainable hardness and better through hardening characteristics than 440C.

Examples of applications:

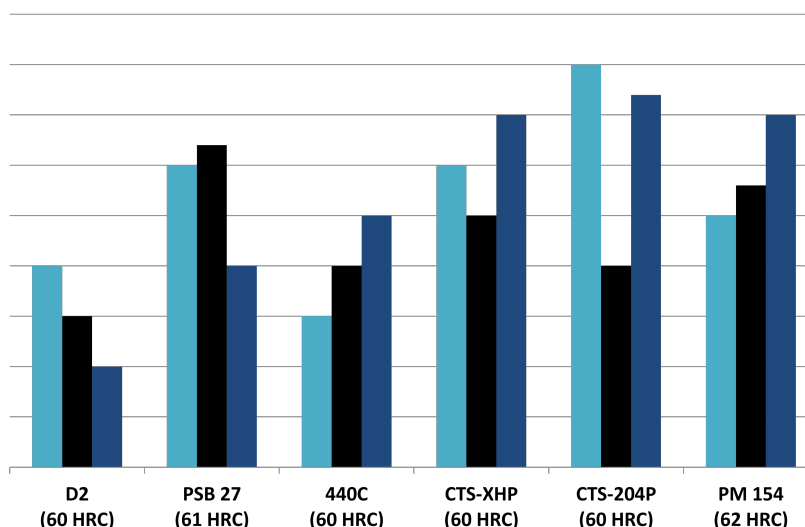
Bearings, cutlery, valve parts, bushings.

Chemical Composition

Carbon	Manganese	Molybdenum	Chromium	Silicon
1.05%	0.50%	4.00%	14.00%	0.30%

Comparison Chart

■ Edge Retention ■ Toughness ■ Corrosion Resistance



Typical Heat Treat Response

Tempering Temp Degrees °F	Hardness HRC (1950 °F)		
	Air	Oil	Oil + Cryo.
As quenched	59	61	63
212	59	61	65
400	56	59	62
600	54	56	60
800	55	57	60
1000	58	60	61

Size Changes During Hardening

Hardening Temp (F)	Tempering Temp	HRC	Longitudinal Size Change %
1950	400	59	+0.05-0.10%

Surface Treatment

Nitriding decreases the corrosion resistance of stainless steels, and is not generally recommended for this grade. Because of the limitations of tempering between 800-1100°F, surface treatments for 154 CM should be limited to those compatible with tempering temperatures under 800 °F



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Heat Treatment

Annealing

Heat to 1650 °F, hold two hours, cool slowly (25 °F/hour maximum) to 1200 °F, then air cool to room temperature.

Typical annealed hardness is 235 BHN.

Stress Relieving

Annealed Material: Heat to 1200-1250 °F, hold two hours, cool in still air.

Hardened Material: Heat to 25 °F below original tempering temperature, hold two hours, cool in still air.

Hardening

Preheat: 1400-1450 °F, equalize.

High Heat (Austenitizing)

1900-2000 °F, hold 30-60 minutes at temperature.

Quench

Air, positive pressure vacuum, interrupted oil.

Cool to 150 °F.

Tempering

400-800 °F, hold at temperature for 2 hours per temper. Two tempers recommended.

Tempering between 800-1100 °F should be avoided due to a decrease in both toughness and corrosion resistance.

Physical Properties

Modulus of Elasticity	30 psi x 10 ⁶ (207 GPa)	Density	0.280 lb/in ³
Annealed Hardness	235 BHN	Machinability	75% of O1