



# SB Specialty Metals LLC

Your *First Choice* in 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.

### Example of applications:

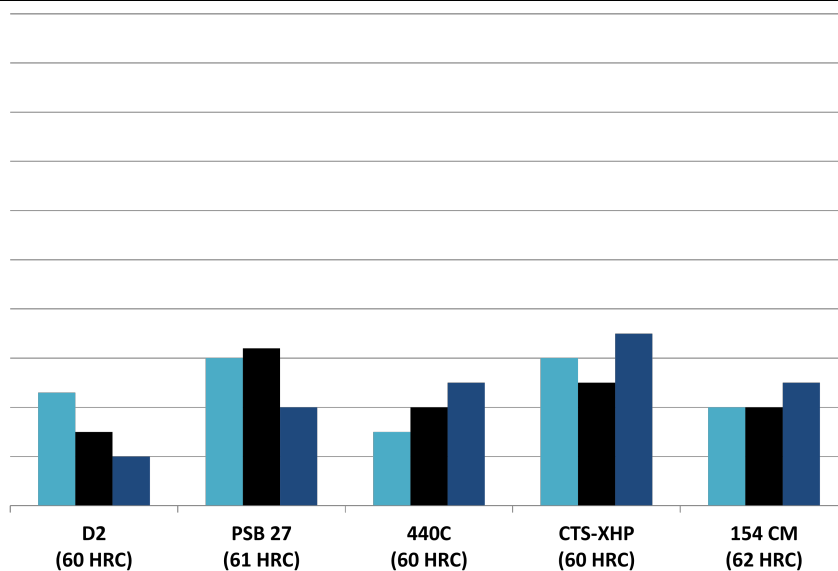
Bearings, cutlery, valve parts, bushings.

### 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

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