



## CPM 154 – Technical Data

### General Descriptions:

CPM 154 is manufactured using the particle metallurgy process which produces a uniform distribution of the carbides in this grade, giving CPM 154 better grinding and polishing properties, plus better toughness, than conventional 154 CM, while retaining similar heat treat response and wear properties. CPM 154 offers better corrosion resistance, better edge holding and better toughness than 440C and 154 CM.

CPM 154 can be polished to a mirror finish.

### Examples of applications:

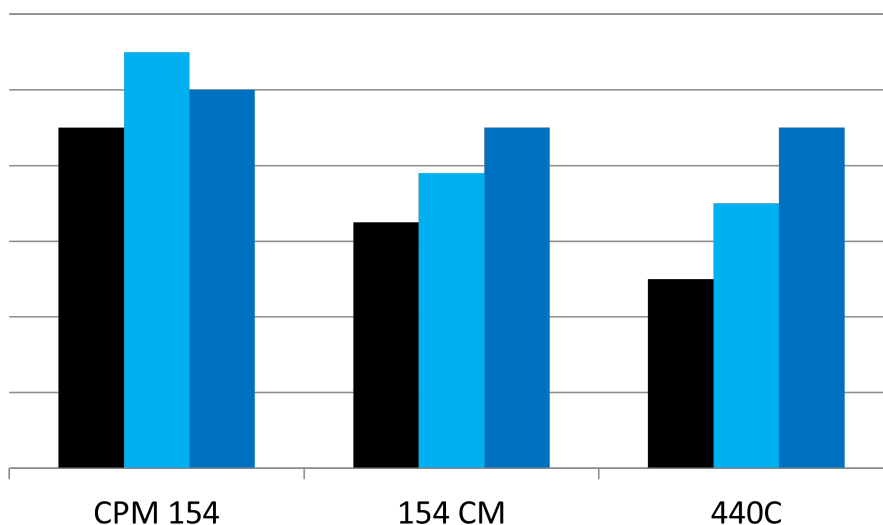
Cutlery, bearings, corrosion resistant tooling.

### Chemical Composition

Carbon	Molybdenum	Chromium
1.05%	4.00%	14.00%

### Comparison Chart

■ Toughness ■ Edge Retention ■ Corrosion Resistance



### Typical Heat Treat Response

Tempering Temp Degrees F	Austenitizing Temperature / HRC	
	1900 °F	1950 °F
As Quenched	62	61
400	59	59
600	56	56
800	56	57
900	56	58
1000	54	60
1050	51	55
Time at Temperature	30 min.	30 min.

### Surface Treatment

If surface treatments such as CVD, PVD, or nitriding are used, ensure that the coating process temperature is below the tempering temperature. Nitriding or tempering at 900°F or higher may reduce the corrosion resistance of CPM 154 or any other stainless steel.



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### Heat Treatment

#### Annealing

Heat to 1650 °F, hold 2 hours, slow cool no faster than 25°F per hour to 1200 °F, then furnace cool or cool in still air to room temperature.

CPM 154 can also be cycle annealed by heating to 1600 °F, hold 2 hours, cool to 1300 °F, hold 4 hours, then air cool to room temperature.

Annealed hardness is 235 BHN

#### Stress Relieving

**Annealed Parts:** Heat to 1100-1300 °F, hold 2 hours, then furnace cool or cool in still air to room temp.

**Hardened Parts:** Heat to 25-50 °F below the original tempering temperature, hold 2 hours, then furnace cool or cool in still air to room temperature.

#### Hardening

Preheat to 1400 °F. Equalize.

#### High Heat (Austenitizing)

1900-1950 °F, hold time at temperature 30 minutes.

#### Quench

Oil or positive pressure (4 bar minimum) to below 125 °F, then air cool to below 125 °F.

Quenching between aluminum plates can be used.

#### Tempering

Temper twice at 400-1200 °F, 2 hours minimum each temper.

### Physical Properties

<b>Modulus of Elasticity</b>	30 x 10 <sup>6</sup> psi (207 GPa)	<b>Density</b>	0.281 lbs/in <sup>3</sup>
<b>Annealed Hardness</b>	235 BHN	<b>Machinability</b>	75% of O1