

# STAINLESS STEEL

## 440C - 1.4125



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1.4125 is a martensitic stainless steel grade also known as X105CrMo17 in European standards or AISI 440C in the American designation. It is known for its balance of hardness, corrosion resistance, and machinability, making it suitable for a variety of industrial and specialty applications where these properties are critical. Proper heat treatment and machining practices are crucial to harness its full potential in various engineering applications.

### KEY FEATURES

- High hardness and strength
- Excellent wear resistance
- Good corrosion resistance
- Good machinability
- Heat treatment can influence properties

### CHEMICAL PROPERTIES

Chromium (Cr)	Manganese (Mn)	Silicone (Si)	Carbon (C)	Molybdenum (Mo)	Phosphorus (P)	Sulphur (S)	Iron (Fe)
<b>16-18%</b>	<b>1%</b>	<b>1%</b>	<b>0.95-1.2%</b>	<b>0.5-1%</b>	<b>0.04%</b>	<b>0.03%</b>	<b>rest</b>

### MECHANICAL PROPERTIES

Tensile strength (N/mm <sup>2</sup> )	<b>750-1000</b>
Yield strength (N/mm <sup>2</sup> )	<b>450-800</b>
Elongation (% in 4D)	<b>14-25</b>
Hardness - Rockwell C (HRC) max	<b>58-62</b>
Hardness - Brinell (HB) max	<b>200-250</b>

### PHYSICAL PROPERTIES

Density (kg/m <sup>3</sup> )	<b>7700</b>	
Modulus of elasticity (Gpa)	<b>200</b>	
Mean coefficient of thermal expansion	0-100°C (µm/m/°C)	<b>10.5</b>
	0-350°C (µm/m/°C)	<b>11.1</b>
	0-538°C (µm/m/°C)	<b>11.6</b>
Thermal conductivity	at 100°C (W/m.K)	<b>26.0</b>
	at 500°C (W/m.K)	<b>30.0</b>
Specific Heat 0-100°C (J/kg.K)	<b>460</b>	
Electrical resistivity (nΩ.m)	<b>600</b>	
Melting point (°C)	<b>1400</b>	

### MARKET SECTORS



#### Automotive Industry

Precision bearings, bearing components, mechanical parts



#### Chemical Processing

pump shafts, valve components, bearings



#### Kitchen Equipment

High performance knives, blades



#### Medical Devices

Scalpels, forceps, dental tools



#### Engineered Components

Drill bits, milling cutters, blades, ball bearings



#### Aerospace Industry

Aircraft components, fasteners, gears