

Key Features

- High strength and durability
- Good machinability
- Good wear resistance

Common Applications

- Machinery parts
- Couplings
- Blades, cutting tools, and industrial knives

Material Description

Steel 1045 is a medium-carbon steel known for its good balance of strength, toughness, and wear resistance. It offers higher strength and hardness than lower carbon steels, such as 1015 and 1020, while still maintaining decent machinability and weldability. Steel 1045 is commonly used in applications where greater strength and wear resistance are required, such as in gears, axles, bolts, and shafts. It can be heat-treated to further enhance its mechanical properties, making it suitable for more demanding structural and mechanical applications.

Chemical Composition (%)

	C	Fe	Mn	P	S						
Min.	0.42	98.51	0.60								
Max.	0.50	98.98	0.90	0.040	0.050						

Mechanical Properties

Ultimate Tensile Strength	90,600 PSI
Tensile Yield Strength	76,900 PSI
Hardness	Rockwell B88
Elongation at Break	12%

Physical Properties

Density	0.284 lb/in ³ (7.85 g/cm ³)
Thermal Conductivity	49.8W/m.K
Modulus of Elasticity	29,900 KSI (206 GPa)
Melting Point	2750°F (1510 °C)

Technical Assistance

Our knowledgeable staff, supported by our in-house team of expert metallurgists and engineers, is ready to assist you with any technical inquiries.

InstaVoxel™ – On-Demand Manufacturing Expert

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InstaVoxel's quality control system is ISO-9001 certified, and all our partners hold relevant certifications.



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