

Material type

Metal

Material name

Mild steel 1045 | 1.1191 | C45E | C50

Alternative names

C45

Process compatibility

CNC machining**Mechanical properties**

Ultimate tensile strength	600 - 630 MPa
Yield strength	310 - 320 MPa
Young's modulus (modulus of elasticity)	190 - 205 GPa
Elongation at break	16 %

Thermal properties

Thermal expansion coefficent	11.2 - 12 10 ⁻⁶ /°C
Thermal conductivity	51 W/(m·°C)

Post treatments

Post-Processing	Annealing & Cold working
Anodizing compatibility	Not suitable

Physical properties

Corrosion resistance	Poor
Magnetism	Semi-magnetic
Weldability	High

Electrical properties

Electrical resistivity	16 - 19 μΩ*cm
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Common applications

Axles
Bolts
Forged connection rods
Crankshafts
Torsion bars

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