

MEDIUM CARBON STEELS

Flat, Shaped and Round Wire

Applications

Gear, pins, bolts, shafts, etc., Rolls, Cold headed parts, Machinery parts

Description

Medium carbon steel is carbon steel that contains between 0.30 and 0.60 percent carbon. It also has a manganese content between 0.6 and 1.65 percent. This type of steel provides a good balance between strength and ductility, and it is common in many types of steel parts. The treatment of medium carbon steel with heat significantly changes the mechanical properties, such as ductility, hardness and strength. Heat treatment of steel slightly affects other properties such as its ability to conduct heat and electricity as well. A variety of methods exist for treating steel with heat.

Chemistry Typical

UNS #	CARBON	MANGANESE	PHOSPHORUS	SULFUR	IRON
G10300	0.27-.034	0.60-0.90	0.040 max	0.050 max	Balance
G10350	0.31-0.38	0.60-0.90	0.040 max	0.050 max	Balance
G10400	0.37-0.44	0.60-0.90	0.040 max	0.050 max	Balance
G10450	0.43-0.50	0.60-0.90	0.040 max	0.050 max	Balance
G10500	0.48-0.55	0.60-0.90	0.040 max	0.050 max	Balance
G10550	0.50-0.60	0.60-0.90	0.040 max	0.050 max	Balance

* Contact Ulbrich Wire for request regarding the availability of other aluminum alloys.

Physical Properties

Typical Density: 0.284 lbs/in³, 7.87 g/cm³

Electrical Resistivity (typical): (ohm-cm @ 32°F, cold drawn): 0.0000162 - 0.0000171

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Thermal Conductivity (typical): BTU-in/hr-ft²-°F: 346 - 360

Mean Coefficient of Thermal Expansion (typical): $\mu\text{in/in-}^\circ\text{F}$:
68 - 212 °F: 6.11 - 6.5

Modulus of Elasticity: KSI
28.4 - 29.9 x 10³ in tension

Melting Temperature: 2600 - 2800 °F (1425 - 1540 °C)

Forms

Profile, Round, Flat, Square

Mechanical Properties at Room Temperature

Properties: Cold Drawn (Typical)

Ultimate Tensile Strength: 76 - 100 KSI (525 - 690 MPa)

Yield Strength: 45 - 84 KSI (370 - 580 MPa)

Elongation: 10 - 30%

Properties: Tempered

These alloys can be cold worked to various tempers.

** Actual physical and mechanical properties are alloy dependent. Contact Ulbrich Technical Service for alloy specific properties.*

Additional Properties

Wire Finishes

XC - Extra clean. Annealed or annealed and cold rolled.

** Contact Ulbrich Wire with special finish requests.*

Heat Treatment

These alloys are hardenable by cold working and heat treating.

** Contact Ulbrich Wire for additional information.*

Welding

Contact Ulbrich Wire for specific information.

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