

## Hastelloy® alloy C-4

UNS N06455  
W.Nr 2.4610

Hastelloy® alloy C-4 is a nickel-chromium-molybdenum alloy with good oxidation resistance and stress-corrosion cracking resistance at high temperatures. Hastelloy® alloy C-4 also has high resistance to many chemical process environments and is particularly resistant to hydrochloric acid, sulfuric acid, and chlorides.

Applications include springs and components operating in oxidizing and non-oxidizing acids.

Industries supplied include: Chemical Processing

### Nominal Composition

	Cr	Mo	Fe	Co	Mn	Ni	C	Ti	Si	P	S
min	14	14									
max	18	17	3	2	1	balance	0.015	0.7	0.08	0.04	0.03

### Physical Properties

	At 70°F	At 20°C
Density	.312 lb/in <sup>3</sup>	8.64 g/cm <sup>3</sup>
Modulus of Elasticity (E)	30.8 x 10 <sup>3</sup> ksi	211 GPa
Modulus of Rigidity (G)	11.8 x 10 <sup>3</sup> ksi	81 GPa
Coefficient of Expansion	7 microinches/in.-°F (70-600°F)	12.6 µm/m-°C (20-300°C)
Electrical Resistivity	49.1 µ ohm.in	125 µ ohm.cm
Thermal Conductivity	70 Btu-in./ft. <sup>2</sup> hr.-°F	10.1 W/m-K

### Applicable Specifications

Wire & Bar ASTM B574, NACE MR0175 (ISO 15156-3).

### Typical Mechanical Properties – Spring Applications

Condition	Heat Treatment	Tensile Strength	Suggested Operating Conditions
Annealed	1950°F (1066°C)	110 – 150 ksi (758 – 1034 MPa)	-330°F to 750°F (-200°C to 400°C)
Spring Temper		190 – 220 ksi (1310 – 1517 MPa)	-330°F to 750°F (-200°C to 400°C)

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