Xometry

Datasheet

H59

Description

H59 is the most widely used and cost-effective standard brass, containing approximately 59% copper and 41% zinc. It is a leaded, free-machining brass that offers an excellent balance of mechanical properties, machinability, and affordability. It is extensively used in machinery, hardware, plumbing fixtures, and electrical components.

Features

Hot workability: Excellent—suitable for hot forging, hot extrusion, and hot rolling; Cold workability: Moderate—cold bending and cold heading are feasible, but complex cold forming operations require intermediate annealing.

Welding and brazing performance: Good. Corrosion resistance: Good in atmospheric conditions, fresh water, and ambient environments; however, performance is only fair in seawater, strong acids, or prolonged humid conditions due to susceptibility to dezincification. Generally not recommended for severe corrosive service.

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Parameters

H59's Chemical Composition (%)

Composition	Fe	Cu	Pb	More
Min.	-	57	-	Zn: Balance
Max.	0.3	60	0.5	

The sum of Cu and the listed elements is 99.8%.

Iron content in non-magnetic brass≤0.03%

Physical Properties of H59 Brass

Density:8.5g/cm^3

Melting range: 880–900 °C (solidus to liquidus interval)

Specific heat capacity: 0.385 kJ/(kg·°C)

Thermal conductivity: Approximately 120 W/(m·K)

Coefficient of linear expansion (20~200°C): Approximately 20.6x10^{-6}/°C

Resistivity (20°C): Approximately 0.062 μΩ•m

Electrical conductivity: Approximately 27.5% IACS

Elastic modulus: Approximately 105 GPa

Magnetic properties: Non-magnetic