

# H62

## Description

H62 brass is the most widely used ordinary brass. It is not heat-treatable, and its properties are adjusted through cold working (hard temper) or annealing (soft temper). Its greatest advantage lies in its excellent combination of properties (a balance of strength, plasticity, and corrosion resistance), superb hot and cold formability, and economy, making it suitable for various stressed components manufactured by deep drawing and bending. Compared to H59, H62 has a higher copper content, offering better corrosion resistance and plasticity. Compared to H65/H68, H62 provides higher strength and a lower price, though its deep drawing performance is slightly inferior. Widely used in hardware, electronics, construction, and decoration, it is considered the brass grade with the "best cost-performance ratio."

## H62 Brass Material Data Sheet

### 1. Chemical Composition (%)

Elements	Cu	Zn	Fe	Pb	Sb	Bi	P	Total impurities
Content	60.5~63.5	Balance	≤0.1 5	≤0.0 8	≤0.00 5	≤0.00 2	≤0.01	≤0.5

Feature: A binary copper-zinc alloy, commonly known as "60/40 brass", with an  $\alpha+\beta$  duplex structure. It is not heat-treatable.



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**2. Physical Properties**

Performance parameters	Value	Unit	Note
Density	8.43~8.50	g/cm <sup>3</sup>	Standard values
Melting range	905~940	°C	Solidus-Liquidus range
Elastic modulus	90~122	GPa	Tensile state
Poisson's ratio	0.33	—	Typical Value
Coefficient of Thermal Expansion	18~20.6	×10 <sup>-6</sup> /°C	20~300°C
Thermal conductivity	109~150	W/(m·K)	20°C
Electrical conductivity	22~35	% IACS	Approximately 28–35% that of pure copper
Resistivity	0.07~0.09	μΩ·m	20°C
Specific heat capacity	0.377~0.393	kJ/(kg·K)	
Gloss	Golden yellow	—	Aesthetic appearance with good decorative properties



### 3. Mechanical Properties (by Temper)

State	Tensile strength Rm (MPa)	Yield strength Rp0.2 (MPa)	Elongation A (%)	Hardness HV	Feature description
O (annealing)	330~400	140~250	≥40~52	80~100	Fully softened with extremely high plasticity
1/2H	400~500	250~350	20~30	100~140	Half-hard, balanced strength and formability
H (hard temper)	≥400~600	300~400	≥10~15	120~180	Standard hard temper, high strength
EH (extra hard)	≥600	≥400	5~10	160~200	For elastic components

Temperature effects: At room temperature (20°C), the tensile strength is approximately 400 MPa, which decreases to around 340 MPa at 200°C, but increases significantly after cold working.

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### 4. Process Performance

Items	Performance classification	Description
Cold working	★★★★★ Excellent	Suitable for deep drawing, bending, and stamping; limiting drawing ratio (LDR) of 0.55
Hot workability	★★★★★ Excellent	superior hot plasticity above 600°C, with an optimal hot rolling temperature range of 700–850°C
Machinability	★★★☆☆ Moderate	Better than stainless steel, but inferior to free-cutting brass C3604
Weldability	★★★★☆ Good	Suitable for gas welding, arc welding, brazing, resistance welding
Corrosion resistance	★★★★☆ Good	Excellent in atmospheric and freshwater environments; susceptible to corrosion in seawater and ammonia environments
Electroplatability	★★★★★ Excellent	Excellent performance for nickel plating, chrome plating, and gold plating
Heat treatment	—	Not heat-treatable, strengthened only by cold working / softened by annealing



## 5. Characteristics and Applications

Core characteristics	Typical applications
Excellent combination of properties and high cost-effectiveness	Hardware parts, general machinery components, architectural hardware
Excellent hot and cold formability	Deep-drawn containers, radiator housings, cartridge cases, lighting fixtures
Attractive golden-yellow color	Decorative items, medals, sanitary hardware, furniture fittings
Moderate electrical and thermal conductivity	Electronic connectors, relay springs, conductive terminals
Good weldability	Welded structural components, pipe fittings, valve parts
Moderate strength and good wear resistance	Pins, rivets, washers, nuts, guide tubes

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### 6. Codes and Standards

Standard system	Designation	Standard No.
Chinese standard	H62	GB/T 5231-2012, GB/T 4423-2007
U.S. standard	C27400	ASTM B36, ASTM B135
Japanese standard	C2801	JIS H3250
European standard	CuZn37 / CW508L	EN 1652
German standard	CuZn37	DIN 17660

