

Aluminum Bronze

bedra 62300

Material Designation *

UNS	C62300
EN	/
JIS	/
GB	QA19-4

Chemical Composition

Cu	Balance	%
Al	8.5-10.0	%
Fe	2.0-4.0	%
Mn	≤0.5	%
Ni	≤1.0	%
Sn	≤0.6	%
Si	≤0.25	%
Others	≤0.5	%



Characteristics

The alloy is a copper-aluminum-iron ternary alloy, which has higher strength and wear resistance through solid solution strengthening of aluminum. At the same time, because aluminum can form a dense aluminum oxide protective layer on the surface of the product, the alloy has better high temperature corrosion resistance and oxidation resistance in the atmosphere, fresh water and sea water conditions. The alloy has good spark resistance, good press workability in hot condition, and can be welded by electric or gas welding, but is not suitable for brazing.

Physical Properties

Density ^①	7.66	g/cm ³
Electrical conductivity ^①	13	%IACS
Thermal conductivity ^①	61	W/(m·K)
Coefficient of thermal expansion ^②	16.2	10 ⁻⁶ / K
Modulus of elasticity	117	GPa

Note①: Temperature for testing is 20°C.

Note②: Temperature range for testing is 20-300°C.

Typical Applications

It is used in nuts, bolts, shafts, pump parts, valve seats, gears, cams, structural parts, condenser plates for power plants and desalination devices.

Fabrication Properties

Cold workability	Fair
Hot workability	Good
Brazing	Fair
Resistance welding	Good
Hot workability compared with C37700	75%
Machinability compared with C36000	50%

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Mechanical Properties

Diameter	Temper	Tensile Strength	Yield Strength	Elongation
mm		MPa min.	MPa min.	% min.
$\Phi \leq 12$	H02	620	310	12
$12 < \Phi \leq 25$	H02	607	303	15
$25 < \Phi \leq 50$	H02	579	276	15
$50 < \Phi \leq 75$	H02	524	255	20
$75 < \Phi \leq 100$	H02	517	207	20

Tolerance and Delivery Form

Straight Bar				
Diameter	Tolerance ^③	Ovality	Length	Straightness
mm	mm	mm	mm max.	mm/m max.
$8 \leq \Phi \leq 10$	0.12	0.06	4000	1.0
$10 < \Phi \leq 18$	0.16	0.08	4000	1.0
$18 < \Phi \leq 50$	0.20	0.10	4000	1.0
$50 < \Phi \leq 60$	0.30	0.15	4000	1.0
$60 < \Phi \leq 70$	0.30	0.15	4000	3.0
$70 < \Phi \leq 90$	1.20	0.60	3000	3.0
$90 < \Phi \leq 120$	2.00	0.80	2000	5.0

Note③: The tolerances listed in the table are specified as all plus or all minus. When tolerances are specified as plus and minus (\pm), half the values given.

*Composition ASTM B124-2016
 Conductivity SAE J461
 Mechanical Properties SAE J461
 Fabrication Properties CDA
 Other Physical Properties CDA

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