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# bedra 62300

## Material Designation*

| | |
|---|---|
| UNS | C62300 |
| EN | / |
| JIS | / |
| GB | QAl9-4 |

## 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.

## 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.

## Physical Properties

| | | |
|---|---|---|
| Density① | 7.66 | g/cm$^3$ |
| Electrical conductivity① | 13 | %IACS |
| Thermal conductivity① | 61 | W/( m·K) |
| Coefficient of thermal expansion② | 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.

## Fabrication Properties

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

Aluminum Bronze

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## Mechanical Properties

| Diameter | Temper | Tensile Strength | Yield Strength | Elongatio n |
|---|---|---|---|---|
| mm | | MPa min. | MPa min. | % min. |
| Φ≤12 | H02 | 620 | 310 | 12 |
| 12 ≤ Φ≤25 | H02 | 607 | 303 | 15 |
| 25 ≤ Φ≤50 | H02 | 579 | 276 | 15 |
| 50 ＜Φ≤75 | H02 | 524 | 255 | 20 |
| 75 ＜Φ≤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≤ Φ≤10 | 0.12 | 0.06 | 4000 | 1.0 |
| 10＜Φ≤18 | 0.16 | 0.08 | 4000 | 1.0 |
| 18＜Φ≤50 | 0.20 | 0.10 | 4000 | 1.0 |
| 50＜Φ≤60 | 0.30 | 0.15 | 4000 | 1.0 |
| 60＜Φ≤70 | 0.30 | 0.15 | 4000 | 3.0 |
| 70＜Φ≤90 | 1.20 | 0.60 | 3000 | 3.0 |
| 90＜Φ≤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 (±), half the values given.

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