

The CA104 / BS2B23 type material is a wrought high strength aluminium bronze alloy offering an excellent wear and corrosion resistance. It is one of the most popular grades of aluminium bronze with additions of 10% Aluminium, 5% Nickel and 5% iron to enhance the overall properties of the alloy.

Mainly utilised for its high strength levels and an excellent resistance to erosion and corrosion in seawater and many other aggressive and chloride containing environments. As with many other aluminium bronzes the CA104 / BSB23 material offers a very good wear and abrasion resistance, an ability to withstand shock loading and the retention of properties at cryogenic temperatures.

Holme Dodsworth, purchase this material to conform to the British standard CA104, the Aerospace standards BSB23 and DTD197A and the European standard BS EN12163: CW307G to ensure our customers have the specification they require.

Related Specifications

BS2874: CA104	BSEN12163: CW307G
BSB23 / BS 2B23	ASTM B150: C63200
DTD197A	ISO CuAl10Ni5Fe4

Chemical Composition

Copper	Rem
Aluminium	8.5 - 11.0%
Nickel	4.0 - 5.5%
Iron	4.0 - 5.0%
Manganese	0.50% max
Total Impurities	0.50% max

Minimum Mechanical Properties for BS2874: CA104

Diameter	6-18mm incl.	>18-80mm incl.	>80-100mm	>100mm (4")
UTS	700 N/mm ²	700 N/mm ²	695 N/mm ²	650 N/mm ²
0.2% Proof Strength	400 N/mm ²	385 N/mm ²	385 N/mm ²	320 N/mm ²
0.1% Proof Strength	385 N/mm ²	385 N/mm ²	385 N/mm ²	310 N/mm ²
Elongation	15%	15%	15%	15%
Hardness	188-268 HV or 179-255 HBW			

Key Features

- Excellent resistance to erosion & corrosion
- High strength & toughness
- Very good Galling resistance

- Non-sparking
- Retention of mechanical properties at sub-zero temperatures
- High Wear Resistance

Typical Physical Properties

Density	7.5 gm/cm ³
Melting Point	1060-1075°C
Annealing Temperature	650-850°C
Thermal Conductivity	33-46 W/m°C
Coefficient of Thermal Expansion 20-300°C	18 x 10 ⁻⁶
Electrical Conductivity 20°C	7-10 IACS

Fabrication Properties

Stress Relieving temperature	300-400°C
Hot working temperature	850 - 975°C
Hot formability	Good
Cold Formability	Limited
Machinability Rating	20%

Joining Methods

Soldering	Not recommended
Brazing	Fair
MIG Welding	Good
TIG Welding	Good
Resistance Welding	Good

Typical Applications:

The CA104 / BSB23 aluminium bronze has established itself in many application areas throughout industry, including offshore, marine and aerospace. Some of the components include valve and pump trim, as well as marine hardware, high strength fasteners, safety tools springs, thrust washers, bearing bushes, gears, bearing races and engine components such as valve stems and valve seats, worm gears, bearings, bushes, cams, pump rods.

This technical information is given by Holme Dodsworth Metals without charge and the user shall employ such information at their own discretion and risk. For more detailed technical advice on temper selection, fabrication, joining, machining, physical and mechanical data please contact us as space does not permit the listing of every feature of the material.