

# ALUMINIUM BRONZE

## Datasheet for Aluminium Bronze

- Pipes & Tubes
- Sheets & Plates
- Bars & Rods, Forgings
- Fittings & Flanges
- Nuts & Bolts
- Valves



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# Datasheet for Aluminium Bronze

## Copper Nickel Aluminium Bronze, CuAl11Ni5Fe5, Alum Bronze, C61400, C62400, C62500, C63200, C63000

### What is Aluminium Bronze?

- Aluminium Bronze specifications are C95200, C95400, C95500, C95900, C63200, C63000, etc. C95400 Aluminium Bronze, also known by C954, is the most popular, all-purpose aluminum bronze alloy.
- **Aluminium bronze** is a type of bronze in which aluminium is the main alloying metal added to copper, in contrast to standard bronze (copper and tin) or brass (copper and zinc). There are two major groups in the Aluminum Bronze family. Aluminum Bronze contains approximately 9-14% aluminum and 4% iron while Nickel Aluminum Bronze contains approximately 9-11% aluminum, 4% iron and 5% nickel. That addition of nickel in the latter further improves the corrosion resistance of a material that is already strong in this area.

### Aluminium Bronze Product Specification

Material	Aluminium Bronze
Grade	C95200, C95400, C95500, C95900, C62300, C62500, C63200, C63000, etc. C95400 Aluminum Bronze, also known by C954, is the most popular, all purpose aluminum bronze alloy.
Usage/Application	Industrial
Forms	Round, Square, Hexagonal, Rectangle, Hollow
Dimensions	15.0-125 mm
Wire Gauge	0.03 mm min
Length	100-6000mm

### Size Range of Aluminium Bronze

ROUND RODS	8mm To 70 mm
HEX	10mm To 60mm
SQUARE	10mm To 60mm
FLAT	10mm Min Thickness and max Width 120mm
BILLETS	Up to 200 mm
INGOTS	As per Specification

### ASTM Specifications of Aluminium Bronze

End Product	Specification
Centrifugal	ASME SB271, ASTM B271, SAE J462, J461
Continuous	ASTM B505, SAE J462, J461
Ingot	ASTM B30
Permanent	ASTM B806
Precision	MILITARY MIL-C-11866
Sand	ASME SB148, ASTM B66, B148, B763, SAE J461, J462
Bar	AMS 4635, ASME SB150, ASTM B150, SAE J463, J461
Bar, Forging	ASTM B124

Forgings, Die	AMS 4635, ASTM B283, MILITARY MIL-B-16166, SAE J463, J461
Rod	AMS 4635, ASME SB150, ASTM B150, SAE J463, J461
Rod, Forgings	ASTM B124
Shapes	ASTM B150
Shapes, Forging	ASTM B124

#### Chemical Properties of Aluminium Bronze

Alloy	Aluminium	Iron	Nickel	Manganese	Zinc	Arsenic
CuAl5	4.0–6.5%	0.5% max.	0.8% max.	0.5% max.	0.5% max.	0.4% max.
CuAl8	7.0–9.0%	0.5% max.	0.8% max.	0.5% max.	0.5% max.	
CuAl8Fe3	6.5–8.5%	1.5–3.5%	1.0% max.	0.8% max.	0.5% max.	
CuAl9Mn2	8.0–10.0%	1.5% max.	0.8% max.	1.5–3.0%	0.5% max.	
CuAl10Fe3	8.5–11.0%	2.0–4.0%	1.0% max.	2.0% max.	0.5% max.	
CuAl10Fe5Ni5	8.5–11.5%	2.0–6.0%	4.0–6.0%	2.0% max.	0.5% max.	

#### Chemical Properties of UNS C62500 Aluminium Bronze

Element	Content (%)
Copper, Cu	82.7
Aluminium, Al	12.5-13.5

Iron, Fe	3.5-5.0
Manganese, Mn	≤2.0
Other	≤0.5

### Mechanical Properties of UNS C62500 Aluminium Bronze

Properties	Metric	Imperial
Hardness, Rockwell C	27	27
Tensile strength (M30 and O61 tempers)	690 MPa	100000 psi
Yield strength (M30 and O61 tempers)	380 MPa	55100 psi
Elongation at break (in 50 mm, 1% reduction in area)	1.00%	1.00%
Elastic modulus	117 GPa	17000 ksi
Compressive yield strength (at permanent set of 0.1%)	450 MPa	65300 psi
Compressive yield strength (at permanent set of 1%)	880 MPa	128000 psi
Poisson's ratio	0.34	0.34
Charpy impact (@ 18.0 - 100°C/ -0.400 - 212°F, keyhole)	3.00 J	2.21 ft-lb
Izod impact (@ 18.0 - 100°C/ -0.400 - 212°F)	3.00 J	2.21 ft-lb
Fatigue strength (@# of cycles 1.00e+8, M30 temper)	460 MPa	66700 psi
Machinability (UNS C36000 (free-cutting brass) = 100)	20	20
Shear modulus	42.3 GPa	6140 ksi

### Physical Properties of UNS C62500 Aluminium Bronze

Properties	Metric	Imperial
Density	7.21 g/cc	0.260 lb/in <sup>3</sup>
Melting point	1047°C	1917°F

### Thermal Properties of UNS C62500 Aluminium Bronze

Properties	Metric	Imperial
Thermal expansion co-efficient (@ 20-300°C/68-572°F)	16.2 µm/m°C	9.00 µin/in°F
Thermal conductivity (@ 20°C/ 68°F)	38.9 W/mK	270 BTU in/hr.ft <sup>2</sup> .°F

### Properties of Aluminium Bronze

- Excellent strength, similar to that of low alloy steels
- Excellent corrosion resistance, especially in seawater and similar environments, where the alloys often outperform many stainless steels
- Favourable high temperature properties, for short or long term usage
- Good resistance to fatigue, ensuring a long service life
- Good resistance to creep, making the alloys useful at elevated temperatures
- Oxidation resistance, for exposure at elevated temperatures and in oxidizing environments
- Ease of casting and fabrication, when compared to many materials used for similar purposes
- High hardness and wear resistance, providing excellent bearing properties in arduous applications
- Ductility, which, like that for all copper alloys, is not diminished at low temperatures
- Good weldability, making fabrication economical
- Readily machined, when compared with other high-duty alloys
- Low magnetic susceptibility, useful for many special applications
- Ready availability, in cast or wrought forms.

## Applications of Aluminium Bronze

- General sea water-related service
- Water supply
- Oil and petrochemical industries (*i.e.*, tools for use in non-sparking environments)
- Specialized anti-corrosive applications
- Certain structural retrofit building applications
- C95200 is a highly ductile material with good corrosion resistance. This is ideally suited for bushings, bearings, light duty gears, wear plates, low pressure piping, pump columns and containers.
- C95400 offers high yield and tensile strength, extraordinary toughness and exceptional resistance to wear, fatigue, and deformation. This all-purpose alloy is widely used in chemical, marine, aircraft, and machine tools as gears, bushings and bearings, pumps and valves.
- Fasteners: Nuts, Bolts
- Industrial, Bearing Races, Valve Stems, Worm Gears, Valve Guides, Valve Seats, Bearings, Bushings, Cams, Pump Rods
- Marine: Marine Hardware
- C95500 is one of the toughest of the non-ferrous alloys. It serves the same industries as C95400 with higher strength, hardness and corrosion resistance, though it has slightly lower impact toughness.
- As a special Nickel Aluminum Bronze, C95800 is especially suited for marine applications with optimum resistance to seawater corrosion. Those may include propeller system parts, bushings, bearings, piping, including desalination, and other corrosive marine applications.
- C95900 provides higher hardness and compressive strength, and is used for wear plates, forming rolls, draw dies, gears, valve guides, seats, and die inserts.

## Types of Aluminium Bronze Products

Aluminium Bronze Hollow Pipe	Aluminium Bronze Heater for High Temperature
Aluminium Bronze Seamless Pipe	Aluminium Bronze Heat Exchanger Tube
Aluminium Bronze Bush Hex Pipe	Potassium-doped Aluminium Bronze Wire
Aluminium Bronze Round Pipe	Aluminium Bronze Welded Pipe
Aluminium Bronze Alloy Round Pipe	Aluminium Bronze Rotating target
Aluminium Bronze Aero engine tube	Aluminium Bronze Custom Pipe
Aluminium Bronze Alloy Custom Pipe	Aluminium Bronze Thick Wall Pipe

Aluminium Bronze Elliptical and Oval Tube	Aluminium Bronze Thin Wall Pipe
Aluminium Bronze Pipe Fittings	Aluminium Bronze Forging
Aluminium Bronze Strips	Aluminium Bronze Fasteners
Aluminium Bronze Flex pipe	Aluminium Bronze Plates, Sheets and Bars
Aluminium Bronze Alloy Polished Pipe	UNS Aluminium Bronze lined pipe
Aluminium Bronze Exhaust Pipe	Aluminium Bronze Micro Tube
Aluminium Bronze Bar/Billet	Aluminium Bronze Wire/Welding Wire
Aluminium Bronze Boiler Tube	Aluminium Bronze Coil Tubing
Aluminium Bronze Capillary Tube	Aluminium Bronze U Shaped Tube
Aluminium Bronze Rods	Precision Aluminium Bronze Tubing
Aluminium Bronze Suppliers	Aluminium Bronze Pipe Manufacturers
Aluminium Bronze Ingots	Aluminium Bronze Foil
Aluminium Bronze Metals	Aluminium Bronze Crucibles

#### Related Products:

Copper Nickel Aluminum Bronze, CuAl11Ni5Fe5, Aluminium Bronze, Copper Nickel Aluminum, Aluminum Bronze, Alum Bronze, C61400, C62400, C62500, C63200, C63000, C63020, AMS4640, NFL 14-705, AMS4590, NFL 14-706, C64700, C93200, C95400, C95500, B124, B150, B169, B170, B171, B411, MIL-B-24059, MIL-B-16166, QQ-C-465, QQ-C-465, 2.0978, DIN 17665, UA11N, NFL14706, Aircraft Bronze, BS 2872/4 CA104M, BS B 23, BS 2B 23, EN 12163/5/7 CW307G AIR 9070 UA11N



## Manufacturing Aluminium Bronze Products

<a href="#">Aluminium Bronze Sheet</a>	<a href="#">Aluminium Bronze Plate Cuttings/Profiles</a>	<a href="#">Aluminium Bronze Nuts, Bolts and Fasteners</a>
<a href="#">Aluminium Bronze Plate</a>	<a href="#">Aluminium Bronze Foil, Coil</a>	<a href="#">Aluminium Bronze Wire</a>
<a href="#">Aluminium Bronze Blocks/Slabs</a>	<a href="#">Aluminium Bronze Strip</a>	<a href="#">Aluminium Bronze Ingot</a>
<a href="#">Aluminium Bronze Rod/Bar</a>	<a href="#">Aluminium Bronze Pipes and Tubes</a>	<a href="#">Aluminium Bronze Forgings and Castings</a>
<a href="#">Aluminium Bronze Flanges</a>	<a href="#">Aluminium Bronze Forged Fittings</a>	<a href="#">Aluminium Bronze Butt-weld Fittings</a>

## About Metallica Metals – The Steel Pipes Factory

- Established in 1975, the Metallica Metals Group (The Steel Pipes Factory) has its operations spread across major cities in India. We are a pioneer in the stainless steel pipes, nickel alloy products, titanium products, carbon steel pipes and alloy steel pipes manufacturing and processing industry. Our products including pipe fittings, flanges, pipes, sheet plates and valves are exported to over 70 countries across the world, while in India we have supplied to even the remote areas. With over 250 tons of sale in stainless steel and carbon steel pipes every day, Metallica has emerged as a prominent vendor for many buyers in India and Overseas
- More than 3000 tons ready from stock and new production ready in just a few weeks.
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## Our Key Products

### STAINLESS STEEL & NICKEL ALLOYS

Pure Nickel Alloys  
Monel Alloys (Ni-Cu Alloys)  
Inconel (Ni-Cr-Mo) Alloys  
Incoloy Alloys (Ni-Cr-Fe)  
Hastelloy Alloys  
Stainless Steel 304/304L  
Stainless Steel 309S/309H

### INSTRUMENTATION TUBES & FITTINGS

Instrumentation Tube  
Hydraulic Tubing  
Seamless Tubing  
Instrumentation Tube Fittings  
Double Compression Tube Fittings  
Precision Pipe Fittings  
Needle & Gauge Valves

### PRODUCTS

Steel Sheet & Plate  
Steel Coil & Strip  
Steel Pipes  
Steel Tubes  
Electropolish Tube  
Heat Exchanger Tubes  
Steel Bars/Rods & Wire

Stainless Steel 310/310S

Stainless Steel 316/316L

Stainless Steel 316Ti

Stainless Steel 317/317L

Stainless Steel 321/321H

Stainless Steel 347/347H

Stainless Steel 904L

Duplex Steels (UNS S32205, UNS S31803)

Super Duplex Steels (UNS S32760 / UNS  
S32750)

Stainless Steel 254 SMO (UNS S31254 / 1.4547)

Manifold Valves

Fasteners (Nut, Bolt, Washer)

Steel Angle Bars

Hex Steel Bars

Round Steel Bars & Rod

Flat Steel Bars

Forgings, Rings & Forged Blocks

Stainless Steel Pipe

Stainless Steel Seamless Pipe

Stainless Steel Welded Pipe

Stainless Steel Tubes

Stainless Steel Furnace Tubes

Stainless Steel Seamless Tubing

Stainless Steel Heat Exchanger Tubes

Large Diameter Pipe

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