

Leading manufacturer of continuous cast and
cold drawn copper alloy rods and bars

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SARU COPPER ALLOY SEMIS PVT. LTD.

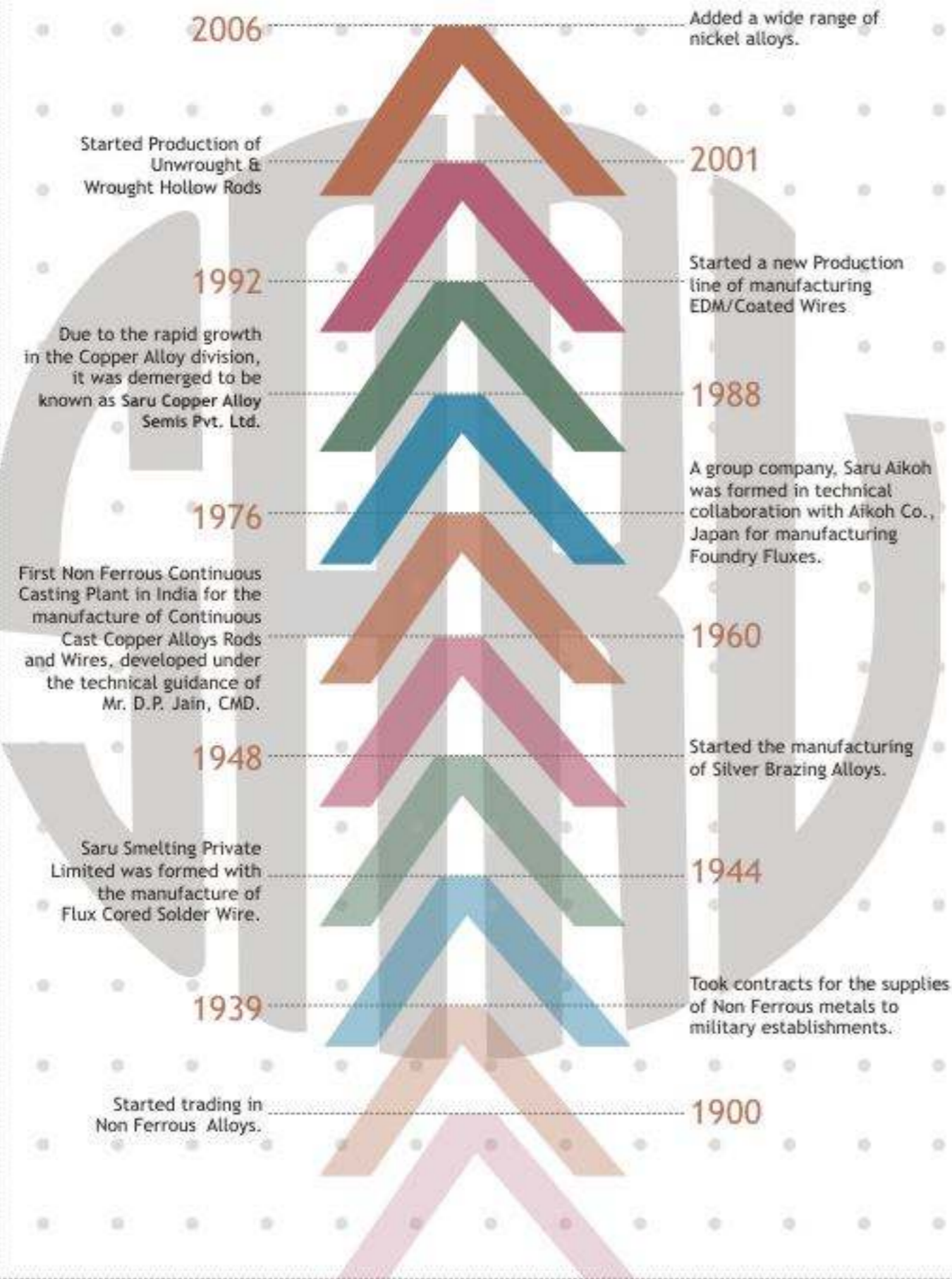
Saru Nagar, Sardhana Road, Meerut,
Uttar Pradesh - 250 001 (INDIA)
Phone : +(91)-(121)-2556279, 2554126, 2554160
Fax : +(91)-(121)-2558402
E-Mail : info@sarucopper.com, sales@sarucopper.com



**SARU
COPPER**



Continuous ongoing development



OUR STORY

SARU is an Indian Non-Ferrous Manufacturing group with a long historic background and has successfully maintained an innovative spirit since its founding in 1900. Its division SARU COPPER is the largest and pioneer manufacturer of Continuous Cast and Cold Drawn Phosphor Bronze Rods and Bars in India and exporting to more than 10 countries worldwide.

We have a strong competitive advantage over our competitors. Equipped with latest technology in Vertical Continuous Casting, Draw Benches, Straighteners and Heat Treatment, our Products are made to the highest of standards. Our InHouse design and maintenance of both Casting and Drawing Dies provide exceptional Quality and Craftsmanship, which extends to servicing even the most demanding of Custom applications

SARU COPPER is a principal supplier to various industries like Automobiles, Petroleum and Natural Gas, Defence, Aerospace, Mining and Drilling Equipments, Heavy Engineering, Marine Engineering, Electrical and Power Distribution, Engine Valves, and Packaging Industry etc.

We are a Company built on a commitment to Quality, Service and dependability. From the sales desk to the Warehouse, our team adds value to your purchase with a collection of experience unmatched in the Bronze Industry.

SARU COPPER has been ISO Certified since 2001. Our tight In-Process controls allow us to consistently manufacture Products with zero defects and meet Customer expectations. All our Products finally go through our State-of-the-Art Quality Lab and Quality Assurance Team who ensure that our Customers receive only the finest. Each Product Item is carefully tagged with Heat and Identification No.s and is fully supported by appropriate Material Test Reports mentioning Chemical, Mechanical and Physical Properties of our material. Our emphasis on Quality and Conformity are one of the many services we are happy to pass on to all Customers.

Microstructures and UltraSound testings are regularly conducted. Each lot is certified to meet IS, DIN, BS, CDA, JIS, EN and other popular specifications as ordered by the Customers.



Copper Zinc lead Alloy (Leaded Red Brasses)

Alloy (UNS No.)	Nominal Composition %					Tensile Strength N/mm2	0.2% Proof Stress N/mm2	Elongation %	Hardness HB	Nearest			International Equivalents					Main Applications	
	Sn	Pb	Zn	Ni	Cu					ASTM	SAE	AMS	JIS	BS	EN	DIN	IS		
C31400	-	1.3-2.5	Rem.	0.7	87.5-90.5	275-415	170-345	6-12	-	B140	-	-	-	-	-	-	-	-	It is used in screws, screw machine parts and for pickling crates.
C31600	-	1.3-2.5	Rem.	0.7-1.2	87.5-90.5	275-415	170-345	6-12	-	B140	-	-	-	-	-	-	-	-	Electrical connectors, fasteners, hardware nuts, screws, screw machine parts.
C32000	-	1.5-2.2	Rem.	0.25	83.5-86.5	275-415	170-345	6-12	-	B140	-	-	-	-	-	-	-	-	Screw Machine parts, regular couplings, lock nuts, caps, pipe plugs, bushings.

Copper-Tin Alloys(Phosphor Bronze)

Alloy (UNS No.)	Nominal Composition %					Tensile Strength N/mm2	0.2% Proof Stress N/mm2	Elongation %	Hardness HB	Nearest			International Equivalents					Main Applications
	Sn	Pb	Zn	Ni	Cu					ASTM	SAE	AMS	JIS	BS	EN	DIN	IS	
C51000	4.2-5.8	0.05	0.30	-	Rem.	275-550	80-410	10-18	-	B100 B103 B139	J461 J463	4625 4510	-	2874 PB 102	CW451K 12163/ 12167	2.1010	7811	Having good endurance, corrosion and abrasion resistance. This alloy is widely used in making Nuts, Bolts, Washers, Automotive systems, Marine Engineering, Aviation Industry, Bridge Bearing Plate, Mining and Drilling Equipments, Clutch Disc, Chemical Hardware, Perforated sheets, Textile Machinery, Defence applications etc.
C51100	3.5-4.9	0.05	0.30	-	Rem.	275-496	80-400	10-18	130	B103	-	-	-	2874 PB 101	CW450K	-	-	Having good endurance, corrosion and abrasion resistance. This alloy is widely used in making Nut, Bolts, Washers, Automotive systems, Marine Engineering, Aviation Industry, Bridge Bearing Plate, Mining and Drilling Equipments, Clutch Disc, Chemical Hardware, Perforated sheets, Textile Machinery etc.
C51180	3.5-4.9	0.05	0.30	0.05-0.20	Rem.	475-665	400-550	-	80-97	B103	-	-	-	-	-	-	-	Having good endurance, corrosion and abrasion resistance. This alloy is widely used in making Nut, Bolts, Washers, Automotive systems, Marine Engineering, Aviation Industry, Bridge Bearing Plate, Mining and Drilling Equipments, Clutch Disc, Chemical Hardware, Perforated sheets, Textile Machinery etc.
C51900	5-7	0.05	0.30	-	Rem.	440-550	300-400	-	70-95	B103	-	-	H3110 H3270	-	CW452K	2.1020	7814 II	Used in Electrical Motor, Panel, Generator, AirCRAFT Engineering, Heavy Engineering. Excellent Tarnish and Corrosion resistance to a wide range of water and chemical in such as paper and Textile Manufacturing plants.
C52100	7.0-9.0	0.05	0.20	-	Rem.	415-585	300-400	10-20	-	B103 B139	-	-	-	2874 PB104	CW453K CS459K	2.1030	-	This Wrought Alloy is a high performance product with exceptional bearing wear and properties combined with excellent fatigue properties and corrosion fatigue resistance in marine applications and other corrosive environments. Applications include heavy duty fasteners, bearings and bushes, drive shafts, pumps and valve components, high performance engine valve guides, electrical clamps, connectors and switchgears, clutch disc, cotter pins, sleeves, bushings, springs, switch parts, truss wire, wire brushes. Industrial used in Chemical Hardware, perforated sheets, tensile machinery, welding rods etc.
C52400	9-11	0.05	0.20	-	Rem.	480-455	160-200	10-15	90-100	B103 B139	J461 J463	-	-	1400 PB1	-	-	-	Having good wear and corrosion resistance, heavy bars and plates used for severe compression, bridge and expansion plates and fittings and articles requiring extra spring qualities, greatest resiliency particularly in fatigue

Copper Tin lead Alloys

Alloy (UNS No.)	Nominal Composition %					Tensile Strength N/mm2	0.5% Proof Stress N/mm2	Elongation %	Hardness HB	Nearest				International Equivalents				Main Applications	
	Sn	Pb	Zn	Ni	Cu					ASTM	SAE	AMS	JIS	BS	EN	DIN	IS		
C53400	3.5-5.8	3.5-4.5	3.5-4.5	-	Rem.	345-450	-	8-15	-	B103 B139	-	-	-	-	-	CW458 K	-	-	Used in bearings, bushings, gears, pinions, shafts, thrust washers, valve parts.
C54400	3.5-4.5	3.5-4.5	3.5-4.5	-	Rem.	345-450	-	8-15	-	B103 B139	J461 J462 791	4520	-	-	-	CW456 K	-	-	Hard and half hard leaded bronze used for friction parts at average speed and pressure. It is used as bearings, sockets, slides, nuts etc.
C54800	4.0-6.0	4.0-6.0	4.0-6.0	-	Rem.	248	131	15	-	B505	J461 J462	-	-	1400 LG2	-	1705 Rg5	318 LT82 10742 Gr1	Leaded Bronze with excellent friction ability is suitable for bearings, rings immersed, oil less bearing, chemical industries.	

Copper-Tin-Zinc-lead Alloy (Red Brasses-Leaded Red Brasses)

Alloy (UNS No.)	Nominal Composition %					Tensile Strength N/mm2	0.2% Proof Stress N/mm2	Elongation %	Hardness HB	Nearest			International Equivalents					Main Applications	
	Sn	Pb	Zn	Ni	Cu					ASTM	SAE	AMS	JIS	BS	EN	DIN	IS		
C83300	1.0-2.0	1.0-2.0	2.0-6.0	-	Rem.	220	75	35	35	-	-	-	-	-	-	-	-	-	Used in Terminal ends for Electrical Cables.
C83400	0.2	0.5	8-12	-	Rem.	240	70	30	F50	-	-	-	-	-	-	-	-	-	Moderate strength-Moderate conductivity castings, rotating bands.
C83410	1.0-2.0	0.1	Rem.	-	88-91	220	75	35	35	-	-	-	-	-	-	-	-	-	Used in Terminal ends for Electrical Cables.
C83420	0.25-0.7	0.5	Rem.	-	88-92	240	70	30	F50	-	-	-	-	-	-	-	-	-	Moderate strength-Moderate conductivity castings.
C83450	2.0-3.5	1.5-3.0	5.5-7.5	-	Rem.	207	97	25	30	B30 B584 B763	-	-	-	-	-	-	-	-	This material is used in low pressure valve and fittings.
C83500	5.5-6.5	3.5-5.5	1.0-2.5	-	Rem.	250	110	30	60	-	-	-	-	-	-	-	-	-	It is used in valves, flanges, pipe fittings, Pumping goods.
C83520	3.5-4.5	3.5-4.5	1.5-4.0	-	Rem.	250	110	30	60	-	-	-	-	-	-	-	-	-	Water pump impellers and hastings.
C83600	4.0-6.0	4.0-6.0	4.0-6.0	-	Rem.	248	131	20	60	B62 B505 B584	40 J462 J461	4855 4855 B	H5111 H2203	1400 LG2	CC491 K	1705 Rg7	318 LT82 10742 Gr1	It is used in valve, flanges, pipe fittings, plumbing goods, pump castings, water pump impellers and hastings, ornamental fixtures, small gears.	
C83700	1	0.5	Rem.	-	83-88	220	70	35	35	-	-	-	-	-	-	-	-	-	Used in Terminal ends for Electrical Cables.
C83800	3.3-4.2	5.0-7.0	5.0-8.0	-	Rem.	207	97	20	60	B271 B505	J462 J461	-	-	-	-	-	-	-	This material is used in low pressure valves and fittings, plumbing supplies and fittings, general hardware, air-gas-water fittings, pump components, railroad catenary fittings.
C83810	2.0-3.5	4.0-6.0	7.5-9.5	-	Rem.	240	75	30	35	-	-	-	-	-	-	-	-	-	This material is used in low pressure valves and fittings and in general hardware.

Semi-Red Brasses And leaded Semi Red Brasses

Alloy (UNS No.)	Nominal Composition %					Tensile Strength N/mm ²	0.2% Proof Stress N/mm ²	Elongation %	Hardness HB	Nearest			International Equivalents					Main Applications	
	Sn	Pb	Zn	Ni	Cu					ASTM	SAE	AMS	JIS	BS	EN	DIN	IS		
C84200	4.0-6.0	2.0-3.0	10-16	-	Rem.	221	110	13	-	B505 B30	-	-	-	-	-	-	-	-	Pipe fittings, elbows, tees, couplings, bushings, lock-nuts, plugs union etc.
C84400	2.3-3.5	6.0-8.0	7-10	-	Rem.	207	103	16	-	B584 B763 B505	-	-	H5111 H2203	1400 LG1	-	-	-	-	General Hardware, ornamental castings, plumbing supplies and fixtures. Low pressure valves & fittings.
C84410	3.0-4.5	7.0-9.0	7-11	-	Rem.	207	103	16	-	-	-	-	-	-	-	-	-	-	General Hardware, ornamental castings, plumbing supplies and fixtures. Low pressure valves & fittings.
C84500	2.0-4.0	6.0-7.5	10-14	-	Rem.	207	97	16	-	-	-	-	-	-	-	-	-	-	Its uses are in plumbing fixtures, cocks, faucets, stops, waste, air and gas fittings, General Hardware fittings. Low pressure valve fittings.
C84800	2.0-3.0	5.5-7.0	13-17	-	Rem.	207	103	16	-	B505 B271 B30	-	-	-	-	-	-	-	-	Its uses are in plumbing fixtures, cocks, faucets, stops, waste, air and gas fittings, General Hardware fittings. Low pressure valve fittings.

Copper Tin Alloys(Tin Bronzes)

Alloy (UNS No.)	Nominal Composition %					Tensile Strength N/mm ²	0.2% Proof Stress N/mm ²	Elongation %	Hardness HB	Nearest			International Equivalents					Main Applications	
	Sn	Pb	Zn	Ni	Cu					ASTM	SAE	AMS	JIS	BS	EN	DIN	IS		
C90200	6-8	0.30	0.50	0.50	Rem.	260	110	30	70	-	-	-	-	-	-	-	-	28 Gr 1	It is used in bearings and bushings.
C90250	9-11	0.30	0.50	0.80	Rem.	310	160	9	90	-	-	-	-	1400 C T1	17662 17672	1705	-	28 Gr 4	Used in bearings and bushings, pump parts, valve components.
C90300	7.5-9.0	0.30	3.0-5.0	1.0	Rem.	303	152	18	-	B505	620 J461 J462	-	H5111 H2203	-	-	-	-	-	It is used in bearings, bushings, pump impellers, piston rings, valve components, seal rings, steam rings, steam fittings, gears.
C90500	9-11	0.30	1.0-3.0	1.0	Rem.	303	172	10	-	B505	62 J461 J462	4845	H5111 H2203	1400 G-1	-	-	306 10742 Gr III	-	Bearings, bushings, pump impellers, piston rings, valve components, steam fittings, gears.
C90700	10-12	0.50	0.5	0.50	Rem.	276	172	10	-	B584 B505	65 J461 J462	-	-	1400 PB1 1400 PB2	CC 480	1705 2.1052.03	-	-	Gears, bearings, bushings.
C90710	10-12	0.25	0.05	0.10	Rem.	-	-	-	-	-	-	-	-	1400PB1	-	1705	-	28 Gr 2	Used in gears, bearings and bushings.
C90800	11-13	0.25	0.25	0.50	Rem.	-	-	-	-	B30	-	-	-	1400PB2	-	1705	-	28 Gr 5	Used in gears, bearings and bushings.
C90810	11-13	0.25	0.30	0.50	Rem.	-	-	-	-	B30	-	-	-	1400PB2	-	1705	-	28 Gr 5	Used in valve fittings, pump components, piston rings.
C90900	12-14	0.25	0.25	0.50	Rem.	-	-	-	-	-	-	-	-	1400PB2	-	1705	-	-	Bearings and bushings.
C91000	14-16	0.20	1.5	0.80	Rem.	207	-	-	-	B505 B30	-	-	-	-	-	-	-	-	Used in piston rings and bearings.
C91100	15-17	0.25	0.25	0.50	Rem.	-	-	-	125	B30	-	-	-	-	-	-	-	-	Used in piston rings, bearings, bushings, bridge plates.
C91300	18-20	0.25	0.25	0.50	Rem.	-	-	-	160	B30 B505	-	7322	-	-	-	-	-	-	Used in piston rings, bearings, bushings, bridge plates, bells etc.

Copper Tin Alloys (Tin Bronzes)

Alloy (UNS No.)	Nominal Composition %					Tensile Strength N/mm ²	0.2% Proof Stress N/mm ²	Elongation %	Hardness HB	Nearest			International Equivalents					Main Applications
	Sn	Pb	Zn	Ni	Cu					ASTM	SAE	AMS	JIS	BS	EN	DIN	IS	
C91600	9.7-10.8	0.25	0.25	1.2-2.0	Rem.	-	-	-	-	B30	-	-	-	-	-	-	-	Used in gears.
C91700	11.3-12.5	0.25	0.25	1.2-2.0	Rem.	-	-	-	-	B30	-	-	-	-	2.1060.03	-	Used in gears.	
C92200	5.5-6.5	1.0-2.0	3.5	1.0	Rem.	262	131	18	-	B61 B505	622 J461 J462	-	1400 LG3	-	-	-	Used in valve fittings, pressure containing parts for use upto 550 F.	
C92300	7.5-9.0	0.3-1.0	2.5-5.0	1.0	Rem.	-	-	-	-	B584	621	-	-	-	-	-	Used in valve, pipe fittings and high pressure steam castings, superior machinability to Copper Alloy No. C90300.	
C92310	7.5-8.5	0.5-1.0	3.5-4.5	1.0	Rem.	276	131	16	-	-	-	-	-	-	-	-	-	
C92400	9-11	1.0-2.5	1.0-3.0	1.0	Rem.	-	-	-	-	-	-	-	-	-	-	-	-	
C92410	6-8	2.5-3.5	1.5-3.0	2.0	Rem.	-	-	-	-	-	-	-	1400LG4	-	-	-	-	
C92500	10-12	1.0-1.5	0.50	0.8-1.5	Rem.	276	165	10	-	B505 B30	640 J461 J462	-	-	-	-	-	Used in gears, automotive synchronizer rings.	
C92600	9.3-10.5	0.8-1.5	1.3-2.5	0.70	Rem.	276	124	20	-	B584 B30	-	-	-	-	-	-	Used in bearings, bushings, pump impellers, piston rings, valve components, steam fittings, gears, superior machinability to copper alloy No. C90300.	
C92610	9.3-10.5	0.3-1.5	1.7-2.8	1.0	Rem.	-	-	-	-	-	-	-	-	-	-	-	Bearings and bushings.	
C92700	9-11	1.0-2.5	0.70	1.0	Rem.	252	138	8	-	B505	63 J461 J462	-	1400 PB4 C	CC-480 K	-	-	Used in bearings, bushings, pump impellers, piston rings, valve components, steam fittings, gears, superior machinability to copper alloy No. C90300.	
C92710	9-11	4.0-6.0	1.0	2.0	Rem.	-	-	-	-	-	-	-	-	-	-	-	Gears, bearings, bushings.	
C92800	15-17	4.0-6.0	0.8	0.80	Rem.	-	-	-	140	B505 B30	-	-	-	-	-	-	Used in piston rings.	
C92900	9-11	2.0-3.2	0.25	2.8-4.2	Rem.	310	172	8	-	B427 B505	J461 J462	-	-	-	-	-	Used in gears, wear plates and guides, cams, parts requiring more machining than those made of either Copper Alloy No. C91600 and C91700	



Copper-Tin Lead Alloys(High Tin Bronzes) Unwrought Alloys

Alloy (UNS No.)	Nominal Composition %					Tensile Strength N/mm2	0.2% Proof Stress N/mm2	Elongation %	Hardness HB	Nearest			International Equivalents					Main Applications	
	Sn	Pb	Zn	Ni	Cu					ASTM	SAE	AMS	JIS	BS	EN	DIN	IS		
C93100	6.5-8.5	2-5	2	-	Rem.	250	130	16	65	B505	-	-	-	-	-	-	-	318 LTB1 10742 Grill	Used in small bushings and bearings.
C93200	6.3-7.5	6-8	1-4	-	Rem.	207	138	10	60	B271 B505	660 J461 J462	-	-	-	-	-	-	-	General utility bearings and bushings.
C93400	7-9	7-9	0.8	-	Rem.	234	138	8	60	B505	-	-	-	1400 LG4	CC492 K	-	-	-	Bearings and bushings.
C93500	4.3-6.0	8-10	2	-	Rem.	207	110	12	-	B30 B505	J461 J462	-	-	-	-	-	-	-	Used in small bearings and bushings, bronze backing for babbit lined automotive bearings.
C93600	6-8	11-13	1	-	Rem.	227	138	10	-	B22 B505	64	-	-	-	-	-	-	-	Used for bush and bearing used in heavy pressure high load and low speed machinery.
C93700	9-11	8-11	0.8	-	Rem.	241	138	6	-	B22 B271 B505 B584	64 J461 J462	4842	H5115 H2207	1400 LB3	CC495 K	-	-	-	Bearing for high speed and heavy pressures, pumps impellers, corrosion resistant application, pressure tight castings.
C93720	3.5-4.5	7-9	4	-	Rem.	-	-	-	-	B505	-	-	-	-	-	-	-	-	General utility bearings and bushings.
C93800	6.3-7.5	13-16	0.8	-	Rem.	172	110	5	-	B271 B505	J461 J462 67	-	H2207	1400 LB1 C	CC496 K	-	-	-	Bearing for general service and moderate pressures, pump, impellers and bodies for use in acid mine water.
C94000	12-14	14-16	.05	-	Rem.	-	-	-	80	B30 B505	-	-	-	-	-	-	-	-	Bearing for high speed and heavy pressure pump, impellers, corrosion resistant applications.
C94100	4.5-6.5	18-22	1	-	Rem.	172	117	7	-	B505	94	-	-	1400 LB5 C	CC497 K	-	-	-	Locomotive wearing parts, high load, low pressure bearings.
C94400	7-9	9-12	0.8	-	Rem.	220	110	18	55	B505 B66	-	-	-	-	-	-	-	-	General utility alloy for bushings and bearings.
C94500	6-8	16-22	1.2	-	Rem.	200	97	28	55	B30	-	-	H2207	-	CC497 K	-	-	-	Locomotive wearing parts, high load, low speed bearings.

Copper-Zinc Nickel Alloys

Alloy (UNS No.)	Nominal Composition %					Tensile Strength N/mm2	0.2% Proof Stress N/mm2	Elongation %	Hardness HB	Nearest			International Equivalents					Main Applications	
	Sn	Pb	Zn	Ni	Cu					ASTM	SAE	AMS	JIS	BS	EN	DIN	IS		
C94700	4.5-6.0	0.1	1.0-2.5	4.5-6.0	Rem.	310	138	25	85	B505	J461 J462	-	-	-	-	-	-	-	Application for Nickel Gun Metal are many and varied and include engine valve guides, resistance welding equipments, bearing bush, chuck nuts, gear components, Motion translation devices, new application for the alloys and also used in shift forks, circuit breaker parts, gears, piston cylinder and in nozzle.
C94800	4.5-6.0	0.3-1.0	1.0-2.5	4.5-6.0	Rem.	276	138	20	-	B505	-	-	-	-	-	-	-	-	Application for Nickel Gun Metal are many and varied and include engine valve guides, resistance welding equipments, bearing bush, chuck nuts, gear components, Motion translation devices, new application for the alloys and also used in shift forks, circuit breaker parts, gears, piston cylinder and in nozzle.
BS1400G3	6.5-7.5	0.1-0.5	1.5-3.0	5.25-5.75	Rem.	340	170	18	96-130	B505	-	-	-	1400 G3	-	-	-	-	Application for Nickel Gun Metal are many and varied and include engine valve guides, resistance welding equipments, bearing bush, chuck nuts, gear components, Motion translation devices, new application for the alloys and also used in shift forks, circuit breaker parts, gears, piston cylinder and in nozzle.



Capabilities

Shapes	Minimum		Maximum	
	In mm	In inches	In mm	In inches
Rounds	8mm	0.315"	160mm	6.30"
Flats	19x5mm	0.75"x 0.19"	152x82mm	6"x3.25"
Squares	8mm	0.315"	115mm	4.5"
Hexagons	8mm	0.315"	135mm	5.25"
Hollows	Wall thickness- 5mm	0.19"		
	Min. O.D. -25mm	1"	Maximum O.D.-152mm	6"
	Min. I.D.-15mm	0.6"	Maximum I.D.- 137mm	5"

- All sizes are supplied in standard length of 3 Meters/3.65 Meters and custom lengths can also be supplied as per requirement.
- Sizes can be supplied in both mm and inches to the exact requirement with close tolerances.
- The material will be supplied in one of the following conditions as specified, M- As Manufactured, O- Annealed, HB-Half Hard, HD-Hard, HE-Extra Hard
- Stress Relieved material can be supplied on request.
- Technical advice on properties and applications from qualified metallurgists and engineers with many years' experience in the Non-Ferrous Metals industry.
- Material are also produced as per Customer Specification on request.
- Mill Test Reports are issued for individual Heat.
- All Export shipments are supplied in Sea-Worthy Wooden Case Packing.

