

COPPER AND COPPER ALLOYS

- Bare Welding and Brazing Rods / Wires (TIG / MIG)
- Flux Coated Welding Electrodes and Brazing Rods



SENOR[®]

www.senormetals.in | www.senorbronze.com | www.senoredmwires.com

PROFILE



Senor Metals Pvt. Ltd. (SMPL) established in 1998 to manufacture copper Alloys.

Through commitment to integrity, quality and service, SMPL has managed to grow over the years.

Today, SMPL is one of the leading manufacturer of Welding & Brazing Consumables, Arc Welding Accessories, Welding Machine Parts, Copper & Copper Alloys Rods, Wires, Ingots, Precision Components.

SMPL produces value-added special alloys which adhere to international quality standards. These products and their profiles meet stringent requirements in Chemical and Mechanical Properties.

Production Units:

H.O. & Unit-I:

- Welding and Brazing Consumables (TIG | MIG | Electrodes)
- Wires (Round | Flat | Fine | Others)
- EDM Wires (Plain | Zn Coated | Diffused)
- Extrusion Products (Rods | Profiles | Tubes)
- Ingots

Unit-II:

- Precision Components
- Fasteners (Brass | Bronze | Copper)
- Centrifugal Castings
- Arc Welding Accessories
- Welding Machine Spares (TIG | MIG | Others)





INDEX

| ISO 24373:2008 | | USA | | Japan | Europe | | Germany | Senor Product Code |
|--|-----------------|--|--------|----------------------------------|--------------------|---------------|-----------------|--------------------|
| Numerical Symbol | Chemical Symbol | AWS A5.7/A5.7M:2007 AWS A5.8/A5.8M:2008 | UNS | JIS Z3341:1999 JIS Z3202:1999 | EN 13347:2002 | EN 14640:2005 | DIN 1733-1:1998 | |
| COPPER - (LOW ALLOYED) | | | | | | | | |
| Cu 1898 | CuSn1 | ERCu | C18980 | Ycu | - | - | - | SM-01 |
| COPPER - ZINC (Brass) | | | | | | | | |
| Cu 4700 | CuZn40Sn | RBCuZn-A | C47000 | GCuZnSn | CuZn40Sn1 | CuZn40 | - | SM-12 |
| Cu 6800 | CuZn40Ni | RBCuZn-B | C68000 | - | CuZn39Fe1Sn1MnNiSi | CuZn40Ni | - | SM-17 |
| Cu 6810 | CuZn40Fe1Sn1 | RBCuZn-C | C68100 | - | CuZn40FeSiSn | CuZn40SnSi | 2.0366 | SM-11 |
| Cu 7730 | CuZn40Ni10Sn1 | RBCuZn-D | C77300 | GCuZnNi | - | CuZn40Ni10 | - | SM-21 |
| COPPER - NICKEL | | | | | | | | |
| Cu 7061 | CuNi10Ti | - | - | YCuNi-1 | - | CuNi10 | 2.0873 | SM-22 |
| Cu 7158 | CuNi30Mn1FeTi | ERCuNi | C71581 | YCuNi-3 | - | CuNi30 | 2.0837 | SM-23 |
| COPPER - SILICON (Silicon bronze) | | | | | | | | |
| Cu 6560 | CuSi3Mn1 | ERCuSi-A | C65600 | YCuSi B | CuSi3Mn1 | CuSi3Mn1 | 2.1461 | SM-31 |
| COPPER - TIN (incl. phosphor bronze) | | | | | | | | |
| Cu 5180 | CuSn5P | ERCuSn-A | C51800 | YCuSn A | CuSn5, CuSn6 | - | 2.1022 | SM-41 |
| Cu 5210 | CuSn8P | - | - | YCuSn B | CuSn8 | CuSn9P | - | SM-42 |
| COPPER - ALUMINIUM (aluminium bronze) | | | | | | | | |
| Cu 6100 | CuAl7 | ERCuAl-A1 | C61000 | - | CuAl8 | CuAl8 | 2.0921 | SM-51 |
| Cu 6180 | CuAl10Fe1 | ERCuAl-A2 | C61800 | YCuAl | CuAl10Fe1 | CuAl10 | 2.0937 | SM-52 |
| Cu 6240 | CuAl11Fe3 | ERCuAl-A3 | C62400 | - | - | CuAl11Fe | - | SM-53 |
| Cu 6327 | CuAl8Ni2Fe2Mn2 | - | - | YCuAlNi A | - | CuAl8Ni2 | 2.0922 | SM-54 |
| Cu 6328 | CuAl9Ni5Fe3Mn2 | ERCuNiAl | C63280 | YCuAlNi C | CuAl9Ni4Fe3Mn2 | CuAl9Ni5 | 2.0923 | SM-55 |
| COPPER - MANGANESE | | | | | | | | |
| Cu 6338 | CuMn13Al8Fe3Ni2 | ERCuMnNiAl | C63380 | - | - | CuMn13Al7 | 2.1367 | SM-56 |
| COPPER - ZINC (brass) | | | | | | | | |
| Cu 4641 | CuZn40SnSi | - | - | - | CuZn40FeSiSn | CuZn40SnSi | - | SM-10 |
| Cu 4641 | CuZn40SnSi | - | - | - | CuZn40FeSiSn | CuZn40SnSi | - | SM-13 |

Note: Above are available in Bare Welding and Brazing Rods / wires (TIG / MIG) and Flux Coated Welding Electrodes and Brazing Rods

Product Pack Options



| MIG | Diameter | | | | | | Drum (Kgs) (Lbs) | | Spool/Basket | | Net Weight in kg 1, 5, 12.5, 13.6 and 15 in lbs 2, 10, 27, 30 and 33 |
|----------------|-------------|-------|-------|-------|------|------|---------------------|-------------------|-------------------|----------------------|--|
| | Metric (mm) | 0.8 | 0.9 | 1.0 | 1.2 | 1.6 | 2.0 | 150 200 250 | 331 441 551 | D100 D200 D300 | |
| British (inch) | 0.030 | 0.035 | 0.040 | 0.045 | 1/16 | 5/64 | | | | | |

| TIG | Diameter | | | | | | | | | | | Length 500,1000 18/36 | Net Weight in kg 5,10, 20 and 25 in lbs 10, 22, 44 and 55 |
|----------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------------------------|---|
| | Metric (mm) | 0.9 | 1.2 | 1.6 | 2.0 | 2.4 | 3.2 | 4.0 | 4.8 | 6.4 | 8.0 | | |
| British (inch) | 0.035 | 0.045 | 0.063 | 0.079 | 0.094 | 0.126 | 0.157 | 0.189 | 0.252 | 0.315 | 0.374 | | |

SM-01 Copper (ERCu)

Chemical Composition (%)

| Cu | Al | Mn | P | Pb | Si | Sn | Others |
|---------|------|------|------|------|-----|-----|--------|
| 98 min. | 0.01 | 0.50 | 0.15 | 0.02 | 0.5 | 1.0 | 0.50 |

Physical and Mechanical Properties

| | | | |
|---------------------|-------------------------|----------------------|---------------------------|
| Solidus Temperature | 1020°C (1868°F) | Liquidus Temperature | 1075°C 1967°F) |
| Density | 8.9 gms/cm ³ | Tensile Strength | 170N/mm ² min. |
| Elongation | 40% | Brinell Hardness | 38 HB min. |

Applications:

Senor deoxidized copper filler metal contains 98% copper and small amounts of phosphorus and silicon. Is easy flowing and produces weld deposits that are porosity free, electrically conductive and color will match that of copper. It is used in:

- Joining deoxidized copper, electrolytic tough pitch copper and repair weld copper castings with MIG, TIG, and oxyacetylene welding processes.
- Welding galvanized steel and deoxidized copper to mild steel and joining copper pipes & copper fittings
- Joining copper pipes, tanks and copper fittings.
- Joining copper to mild steel and overlaying steel.



SM-12 Brass (RBCuZn-A)

Chemical Composition (%)

| Cu | Al | Pb | Sn | Zn | Others |
|------|------|------|-----|------|--------|
| 61.0 | 0.01 | 0.05 | 1.0 | bal. | 0.5 |

Physical and Mechanical Properties

| | | | |
|---------------------|--------------------------|----------------------|----------------------|
| Solidus Temperature | 886°C (1627°F) | Liquidus Temperature | 901°C (1654°F) |
| Density | 8.45 gms/cm ³ | Tensile Strength | 375N/mm ² |
| Elongation | 35% | Brinell Hardness | 85HB |

Applications:

Senor RBCuZn-A brazing filler metal is used on steels, copper, copper alloys, nickel, nickel alloys, and stainless steel where corrosion resistance is important. Includes bicycle industry, marine propeller, furniture industry etc. Suitable for gas welding only.



SM-17 Low-Fuming Brass Nickel (RBCuZn-B)

Chemical Composition (%)

| Cu | Al | Fe | Mn | Ni | Pb | Si | Sn | Zn | Others |
|------|------|------|------|-----|------|------|-----|------|--------|
| 60.0 | 0.01 | 1.20 | 0.50 | 0.8 | 0.05 | 0.20 | 1.1 | bal. | 0.5 |

Physical and Mechanical Properties

| | | | |
|---------------------|--------------------------|----------------------|-----------------------|
| Solidus Temperature | 866 °C (1591 °F) | Liquidus Temperature | 882 °C (1620 °F) |
| Density | 8.39 gms/cm ³ | Tensile Strength | 450 N/mm ² |
| Elongation | 25% | Brinell Hardness | 96HB |

Applications:

Senor low-fuming brass-nickel welding rods are similar to RBCuZn-A, but contain additions of iron and manganese which serve to increase the hardness and strength. In addition, a small amount of silicon serves to control the vaporization of the zinc. The nickel addition assures uniform distribution of the iron in the deposit. This filler metal is used for brazing and braze welding of steel, cast iron, copper, copper alloys, nickel, nickel alloys, and stainless steel and for the surfacing of steel. Suitable for gas welding only.



SM-11 Low-Fuming Bronze (RBCuZn-C)

Chemical Composition (%)

| Cu | Al | Fe | Mn | Pb | Si | Sn | Zn | Others |
|------|------|------|------|------|------|------|------|--------|
| 60.0 | 0.01 | 1.20 | 0.50 | 0.05 | 0.15 | 1.10 | bal. | 0.50 |

Physical and Mechanical Properties

| | | | |
|---------------------|------------------------|----------------------|-----------------------|
| Solidus Temperature | 866 °C (1591 °F) | Liquidus Temperature | 888°C (1630 °F) |
| Density | 8.4 kg/cm ³ | Tensile Strength | 450 N/mm ² |
| Elongation | 30% | Brinell Hardness | 96HB |

Applications:

Senor Low Fuming Bronze, is easily machinable and is suitable for sheet metal work. This alloy possesses high tensile strength and good ductility. Weld deposits are non-porous, giving leak proof joints for water, oil or gas lines. Quick wetting action provides a sound foundation for a dependable weld. Suitable for Steels, Cast Irons, Nickel Alloys, Copper Alloys & Stainless steel. Suitable for gas welding only.



SM-21 | Nickel Silver

Chemical Composition (%)

| Cu | Al | Ni | P | Pb | Si | Zn | Others |
|------|------|------|------|------|------|------|--------|
| 50.0 | 0.01 | 11.0 | 0.25 | 0.05 | 0.25 | bal. | 0.5 |

Physical and Mechanical Properties

| | | | |
|---------------------|--------------------------|----------------------|----------------------|
| Solidus Temperature | 890°C (1634°F) | Liquidus Temperature | 935°C (1715°F) |
| Density | 8.40 gms/cm ³ | Tensile Strength | 385N/mm ² |
| Elongation | 25% | Brinell Hardness | 120HB |

Applications:

Senor Nickel provides higher mechanical properties making this suitable for build-up and overlay applications such as gear teeth, bearings, and valve seats. The silicon addition helps prevent fuming (Zinc vaporization). The weld deposits have a very high tensile strength, good ductility and excellent corrosion resistance. These are used to braze weld steel and cast iron. The deposit provides a good color match to these metals.



SM-22 | Cupro Nickel (CuNi10Ti)

Chemical Composition (%)

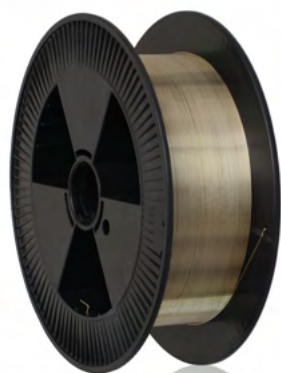
| Cu | Fe | Mn | Ni | P | Pb | Si | Ti | S | Others |
|------|-----|-----|------|------|------|-----|-----|------|--------|
| bal. | 1.5 | 1.5 | 11.0 | 0.02 | 0.02 | 0.2 | 0.5 | 0.01 | 0.5 |

Physical and Mechanical Properties

| | | | |
|---------------------|-------------------------|----------------------|----------------------|
| Solidus Temperature | 1100°C (2012°F) | Liquidus Temperature | 1145°C (2093°F) |
| Density | 8.9 gms/cm ³ | Tensile Strength | 300N/mm ² |
| Elongation | 34% | Brinell Hardness | 80HB |

Applications:

Senor Copper Nickel SM -22 offers excellent resistance to the corrosive effects of salt water. Particularly suitable for welding and hard facing copper nickel alloys such as machinery, desalting of seawater, ship-building, oil refinery and food processing industries.



SM-23 Cupro Nickel (ERCuNi)

Chemical Composition (%)

| Cu | Fe | Mn | Ni | P | Pb | Si | Ti | Others |
|------|------|------|------|------|------|------|-----|--------|
| bal. | 0.75 | 1.00 | 32.0 | 0.02 | 0.02 | 0.25 | 0.5 | 0.5 |

Physical Properties and Mechanical Properties

| | | | |
|---------------------|-------------------------|----------------------|---------------------------|
| Solidus Temperature | 1180°C (2156°F) | Liquidus Temperature | 1240°C (2264°F) |
| Density | 8.9 gms/cm ³ | Tensile Strength | 345N/mm ² min. |
| Elongation | 36% | Brinell Hardness | 60.8HB |

Applications:

Senor Copper Nickel Electrode offers excellent resistance to the corrosive effects of salt water, is widely used for marine and desalination applications such as Shipbuilding, seawater evaporation plants, tubes, pump building, offshore etc. Also suitable for welding of nonferrous alloys, Dissimilar steel materials.



SM-31 Silicon Bronze (ERCuSi-A)

Chemical Composition (%)

| Cu | Al | Fe | Mn | Pb | Si | Sn | Zn | Others |
|------|------|-----|-----|------|-----|-----|-----|--------|
| bal. | 0.01 | 0.5 | 1.5 | 0.02 | 4.0 | 1.0 | 1.0 | 0.5 |

Physical Properties and Mechanical Properties

| | | | |
|---------------------|--------------------------|----------------------|----------------------|
| Solidus Temperature | 910°C (1670°F) | Liquidus Temperature | 1025°C (1877°F) |
| Density | 8.50 gms/cm ³ | Tensile Strength | 345N/mm ² |
| Elongation | 25% | Brinell Hardness | 80-100HB |

Applications:

Senor Silicon Bronze is primarily used for TIG, MIG, and oxyacetylene welding of copper, copper-silicon and copper-zinc base metals to themselves and to steel.

Recommended for plain, galvanized steel sheet metal or other coated steels.



SM-41 Phosphor Bronze (ERCuSn-A)

Chemical Composition (%)

| Cu | Al | P | Pb | Sn | Others |
|------|------|------|------|-----|--------|
| bal. | 0.01 | 0.35 | 0.02 | 6.0 | 0.5 |

Physical and Mechanical Properties

| | | | |
|---------------------|--------------------------|----------------------|-----------------|
| Solidus Temperature | 950 °C (1742 °F) | Liquidus Temperature | 1050°C (1920°F) |
| Density | 8.86 gms/cm ³ | Tensile Strength | 240 mpa min. |
| Elongation | 20% | Brinell Hardness | 70.85 HB |

Applications:

Senor Phosphor Bronze A Electrode is useful for welding copper tin bronzes (Cu-Sn 6-8%) and some brasses (Cu-Zn). Also suitable for joining wrought copper-tin bronzes and brasses to cast iron and carbon steel. This is recommended for repairing wrought bronzes (Cu-Sn); for surfacing on brasses, steels and cast iron. Some of other applications are as Under:

- i) Useful for Joining base metals of similar composition,
- ii) Construction of equipment for the chemical industry and petrochemical industry.
- iii) Naval constructions and installations for sea water desalination, repair works.

SM-42 Phosphor Bronze (CuSn8P)

Chemical Composition (%)

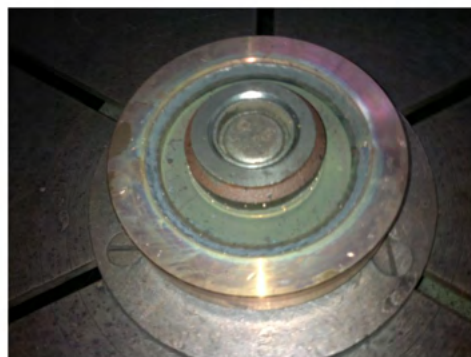
| Cu | Fe | P | Pb | Sn | Zn | Al | Others |
|------|-----|------|------|-----|-----|------|--------|
| bal. | 0.1 | 0.35 | 0.02 | 9.0 | 0.2 | 0.01 | 0.5 |

Physical and Mechanical Properties

| | | | |
|---------------------|------------------------|----------------------|-----------------|
| Solidus Temperature | 875°C (1607 °F) | Liquidus Temperature | 1025°C (1877°F) |
| Density | 8.8 kg/cm ³ | Tensile Strength | 380 mpa min. |
| Elongation | 20% | Brinell Hardness | 85-100HB |

Applications:

Senor Phosphor Bronze C filler metals is used quite extensively for surfacing applications. The higher tin content, gives Phosphor-Bronze C weld deposits greater hardness and higher tensile/yield strength than C51800 (Phos-Bronze A). It is used for joining brass and bronze alloys and joining cast Iron to carbon steel.



SM-51 Aluminium Bronze (ERCuAl-A1)

Chemical Composition (%)

| Cu | Al | Mn | Pb | Si | Zn | Others |
|------|------|------|------|-----|-----|--------|
| bal. | 8.50 | 0.50 | 0.02 | 0.1 | 0.2 | 0.5 |

Physical and Mechanical Properties

| | | | |
|---------------------|-------------------------|----------------------|-----------------|
| Solidus Temperature | 1030°C (1886°F) | Liquidus Temperature | 1040°C (1904°F) |
| Density | 7.7 gms/cm ³ | Tensile Strength | 380 mpa min. |
| Elongation | 45% | Brinell Hardness | 80-110HB |

Applications:

Senor Aluminum Bronze A1 is a moderate-strength aluminum bronze alloy used for weld overlay and metalizing in automotive and other manufacturing applications and for the build-up and repair of bearing and corrosion-resistant surfaces. It is not recommended for joining. Thus it is used to overlays on shafts, propellers, housings, couplings, bushings, valve seats, pumps, and other surfaces needing a bronze



SM-52 Aluminium Bronze (ERCuAl-A2)

Chemical Composition (%)

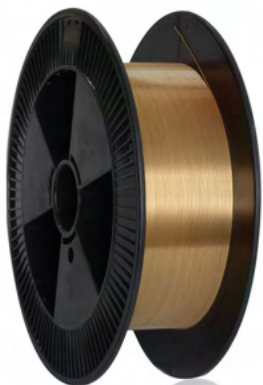
| Cu | Al | Fe | Pb | Si | Zn | Others |
|------|------|-----|------|-----|------|--------|
| bal. | 11.0 | 1.5 | 0.02 | 0.1 | 0.02 | 0.5 |

Physical and Mechanical Properties

| | | | |
|---------------------|-------------------------|----------------------|-----------------|
| Solidus Temperature | 1030°C (1886°F) | Liquidus Temperature | 1090°C (1994°F) |
| Density | 7.6 gms/cm ³ | Tensile Strength | 415 mpa min. |
| Elongation | 20% | Brinell Hardness | 130-150HB |

Applications:

Senor Aluminum Bronze A-2 is an iron-bearing Copper Aluminum MIG & TIG filler metal primarily designed for joining aluminum bronze, silicon bronze and manganese bronze, some high strength Copper-Zinc and Copper-Nickel alloys as well as many ferrous metals such as steel, cast iron and galvanized iron. It is also good for joining dissimilar metals such as cast iron, carbon steels, copper, bronze and copper-nickel material. Weld deposits exhibit high mechanical properties, tensile strength, yield strength and hardness. Applications include wear surface reconstruction, casting repair and general maintenance, and galvanized sheet metal fabrication when high strength welds are required and in Marine maintenance and repair welding of ship propellers, pump housings, rigging jacks, piston heads, bearings and many overlay or surfacing applications.



SM-53 Aluminium Bronze (ERCuAl-A3)



Chemical Composition (%)

| Cu | Al | Fe | Pb | Si | Zn | Others |
|------|------|-----|------|-----|-----|--------|
| bal. | 11.5 | 4.5 | 0.02 | 0.1 | 0.1 | 0.5 |

Physical and Mechanical Properties

| | | | |
|---------------------|-------------------------|----------------------|-----------------|
| Solidus Temperature | 1030°C (1886°F) | Liquidus Temperature | 1045°C (1913°F) |
| Density | 7.7 gms/cm ³ | Tensile Strength | 450 mpa min. |
| Elongation | 20% | Brinell Hardness | 140-180HB |

Applications:

Senor Aluminum Bronze A-3 contains higher iron content which gives greater strength maintaining good ductility. It is used mainly for welding aluminum bronze castings of similar composition. It also finds considerable use for the build-up and repair of bearing surfaces of copper alloy parts. Is used in shipbuilding, machinery and the chemical industry. Best for the high hard facing requirements for hardness, resistance to wear, abrasion and erosion.

SM-54 Nickel-Aluminium Bronze (CuAl8Ni2Fe2Mn2)

Chemical Composition (%)

| Cu | Al | Fe | Mn | Ni | Pb | Si | Zn | Others |
|------|-----|-----|-----|-----|------|-----|-----|--------|
| bal. | 9.5 | 2.5 | 2.5 | 3.0 | 0.02 | 0.2 | 0.2 | 0.4 |

Physical and Mechanical Properties

| | | | |
|---------------------|-------------------------|----------------------|----------------------|
| Solidus Temperature | 1030°C (1886°F) | Liquidus Temperature | 1050°C (1922°F) |
| Density | 7.5 gms/cm ³ | Tensile Strength | 430N/mm ² |
| Elongation | 30% | Brinell Hardness | 130HB |

Applications:

Senor Nickel Aluminum Bronze is recommended for the overlying of Copper-aluminum alloys, Aluminum coated steel in machinery and chemical industry as well as for iron welding in shipbuilding. Also excellent for the welding of brass tube and copper- aluminum that requires resistance to erosion.

SM-55 Nickel-Aluminium Bronze (ERCuAlNi)

Chemical Composition (%)

| Cu | Al | Fe | Mn | Ni | Pb | Si | Zn | Others |
|------|-----|-----|-----|-----|------|-----|-----|--------|
| bal. | 9.5 | 5.0 | 3.5 | 5.5 | 0.02 | 0.1 | 0.1 | 0.5 |

Physical and Mechanical Properties

| | | | |
|---------------------|-------------------------|----------------------|-----------------|
| Solidus Temperature | 1015°C (1859°F) | Liquidus Temperature | 1045°C (1913°F) |
| Density | 7.5 gms/cm ³ | Tensile Strength | 480 mpa min. |
| Elongation | 10% | Brinell Hardness | 160-200HB |

Applications:

Senor Nickel Aluminum Bronze is used to join and repair wrought and cast nickel aluminum bronze materials. It is best for the fabrication or repair of ship fittings and propellers, and other components subject to salt and brackish water.



SM-56 Manganese - Nickel Aluminium Bronze (ERCuMnNiAl)

Chemical Composition (%)

| Cu | Al | Fe | Mn | Ni | Pb | Si | Zn | Others |
|------|-----|-----|------|-----|------|-----|------|--------|
| bal. | 8.5 | 4.0 | 14.0 | 3.0 | 0.02 | 0.1 | 0.15 | 0.5 |

Physical and Mechanical Properties

| | | | |
|---------------------|-------------------------|----------------------|----------------|
| Solidus Temperature | 945°C (1733°F) | Liquidus Temperature | 985°C (1805°F) |
| Density | 7.4 gms/cm ³ | Tensile Strength | 515 mpa min. |
| Elongation | 10% | Brinell Hardness | 160-200HB |

Applications:

Senor Manganese Nickel Aluminum Bronze is used in applications that require resistance to cavitations, erosion and corrosion. This alloy is also used to join or repair high-strength bronzes of similar chemical composition and for high-strength repairs of cast iron. Best used for the overlay welding of iron-casting and low-alloy steel. Also suited for welding marine propellers.



SM-13 | Silicon Brass Ultra

Chemical Composition (%)

| Cu | Al | Fe | Mn | Pb | Si | Sn | Zn | Others |
|------|------|-----|-----|------|------|------|------|--------|
| 62.0 | 0.01 | 0.2 | 0.3 | 0.03 | 0.50 | 1.00 | bal. | 0.2 |

Physical and Mechanical Properties

| | | | |
|---------------------|-------------------------|----------------------|----------------------|
| Solidus Temperature | 890°C (1834°F) | Liquidus Temperature | 910°C (1670°F) |
| Density | 8.4 gms/cm ³ | Tensile Strength | 381N/mm ² |
| Elongation | 30% | Brinell Hardness | 88HB |

Applications:

Senor SM-11 is suitable for padding material of gas-welding and arc welding in Brass. Can also be used in brazing of copper, steel, cast iron, copper-nickel and carbide cutting tools incrustation.

SM-10 | Silicon Brass

Chemical Composition (%)

| Cu | Zn | Si | Others |
|------|-----|------|--------|
| 58.0 | Rem | 0.35 | 0.05 |

Physical and Mechanical Properties

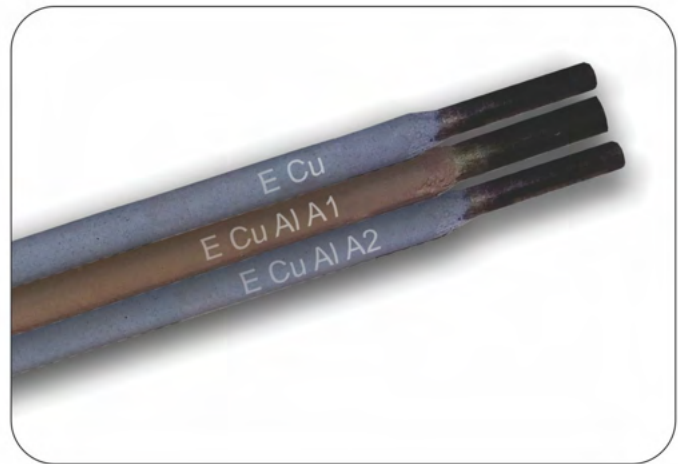
| | | | |
|---------------------|-------------------------|----------------------|----------------|
| Solidus Temperature | 890°C (1886°F) | Liquidus Temperature | 910°C (1670°F) |
| Density | 8.4 gms/cm ³ | Tensile Strength | 381N/mm |
| Elongation | 30% | Brinell Hardness | 88HB |

Applications:

Senor SM -10 is commercial grade of Silicon Brass suitable for padding materials of gas welding in brass. Can also be used in brazing of copper, steel ,cast iron, copper nickel and similar applications.

Flux Coated Welding Electrodes & Brazing Rods

- Copper (Low Alloyed) : ECu
- Copper-Zinc (Brass) : RBCuZn-A , RBCuZn-B, RBCuZn-C, RBCuZn-D
- Copper-Nickel : ECuNi
- Copper-Silicon (Silicon Bronze) : ECuSi-A
- Copper-Tin (Incl. Phosphor Bronze) : ECuSn-A
- Copper Aluminium (Aluminium Bronze) : ECuAl-A1, ECuAl-A2, ECuAl-A3, ECuNiAl
- Copper Manganese : ECuMnNiAl



Wires

Round Wires

Diameter : 0.6 mm to 24.0 mm

Flat Wires

Width : 2 mm to 10 mm

Thickness : 0.60 mm to 2.00 mm

Fine Wires

Diameter : 0.1 mm to 0.6 mm

EDM Wires

Diameter : 0.10 to 0.30 mm

Nickel Silver / Brass Wires (Ball Pen Tips) :

Diameter : 1.58 mm to 2.30 mm

Jari Wire :

Diameter : 0.10 mm, 0.20 mm



Custom Extrusions

Solid Rods and Sections

Circumscribed Diameter : 1.00 mm to 115 mm

Hollow Rods and Profiles

ID : 12 mm to 90 mm

OD : 18 mm to 110 mm (circumscribed diameter)

Thickness : 3.50 mm

Flats

Width : 4 mm to 80 mm

Thickness : 1 mm to 75 mm

Tubes

OD : 5 mm to 60 mm

Wall Thickness : 0.30 mm (minimum)



Ingots

10 Kgs. to 250 Kgs.

Alloying Elements like:

Al, Sn, Si, Mn, Fe, Ni, Pb, P, Bi, Te, Se, As, Others



Centrifugal Castings

OD : 100 mm to 350 mm

Wall Thickness : 8 mm and above

Height : 350 mm (maximum)



High Copper Alloys

Cadmium Copper: UNS C-14300

Tellurium Copper: UNS C-14500

Sulphur Copper: C-147

Also components made from above Alloys

Components

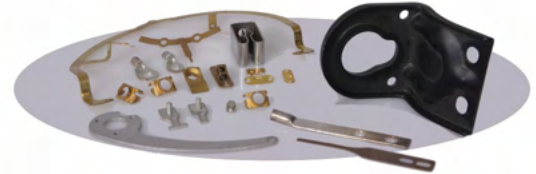
Forged



Turned



Sheet Metal



Tubular



CNC Machined



Fasteners

Types : Bolts, Screws, Studs, Nuts, Washers.

Material : Copper, Brass, Silicon, Phosphor / Tin Bronze, Aluminum Bronze

Diameter : M2 to M16

Length : 3 mm to 150 mm



SENIOR[®]

Other Welding & Brazing Consumables

Welding Consumables (AWS Compliant)

- Filler Rods and Wires (TIG/MIG) / Cu Alloys / Al Alloys / Ni Alloys
- Electrodes (MMAW) - CS / CI / SS / Ni
- Repair & Maintenance Products
- Hard Facing Alloys / Reclamation Services / Cutting and Gouging



Aluminium Alloys

Brazing Consumables (AWS Compliant)

- Filler Rods and Wires (TIG / MIG) - Cu Alloys / Ag Alloys
- Flux Coated Brazing Rods - Cu Alloys / Ag Alloys
- Fluxes (Powder / Paste)

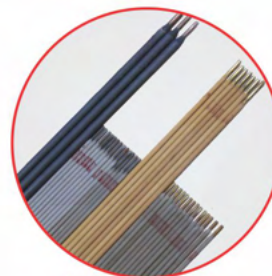


Brazing Fluxes
(Powder / Paste)

Aluminium Metalizing wires



Aluminium
Metalizing Wires



Electrodes
(CS, CI, SS, Ni)

Arc Welding Accessories (ROHS | CE Compliant)

- Electrode Holders
- Ground Clamp
- Connectors
- Supporting Products
- Hose Fittings
- Ovens



Welding Spares

SENIOR METALS Pvt. Ltd.

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scan to visit

