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A PROFESSIONAL SUPPLIER OF
WELDING & INDUSTRIAL SUPPLIES

COPPER BASED FILLER METALS

COPPER FILLER METALS

Deoxidized Copper

AWS A5.7: ERCu **DIN 1733:** SG-CuSn **BS 2901:** C7

Normally applied for the welding of deoxidized copper and electrolytic tough pitch copper, suitable for welding both in TIG and MIG methods. Thanks to its excellent flowability, it is very ideal for pure copper welding, solid and porous-free welds can be guaranteed.

Silicon Bronze

AWS A5.7: ERCuSi-A **DIN 1733:** SG-CuSi3 **BS 2901:** C9

A copper alloy containing approx. 3% of silicon (Si) and small percentages of manganese (Mn), tin (Sn) and zinc (Zn). It is used for gas tungsten arc welding (GTAW/TIG) and gas metal arc welding (GMAW/MIG) of copper, copper-silicon and copper-zinc based alloy metals to themselves, and to plain and galvanized steel also. This alloy is extensively applied in automobile industry.

Aluminum Bronze

AWS A5.7: ERCuAl-A1 **DIN 1733:** SG-CuAl8 **BS 2901:** C28

An iron-free copper-aluminum based bronze that provides good resistance to seawater corrosion and the most commonly-used acids in various concentration and temperatures. It is normally used as a surfacing metal for wear-resistant metal surfaces where high corrosion resistance is required, for example in shipbuilding, chemical industry and automobile industry.

Aluminum Bronze

AWS A5.7: ERCuAl-A2 **DIN 1733:** SG-CuAl10Fe **BS 2901:** C28

An iron-bearing copper-aluminum bronze used for joining aluminum bronzes of similar compositions, manganese, silicon bronzes, some copper-nickel alloys, ferrous metals and dissimilar metals, for example aluminum bronze to steel and copper to steel. It is also used for welding parts such as ship propeller where wear- and corrosion-resistances are required.

Aluminum Bronze

AWS A5.7: ERCuAl-A3 **DIN 1733:** N/A **BS 2901:** N/A

A copper-aluminum bronze containing higher content of iron (Fe) than Aluminum Bronze A2 for higher strength. This alloy is used for joining and repair welding of aluminum bronze castings of similar composition, and for depositing bearing surfaces and wear- and corrosion-resistant surfaces.

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Phosphor Bronze

AWS A5.7: ERCuSn-A **DIN 1733:** SG-CuSn6 **BS 2901:** C11

A copper-tin based welding filler metal containing approx. 5% of tin and about 0.35% of phosphor as a kind of deoxidizer. This alloy has high strength and excellent wear and corrosion resistances due to the presence of tin in the alloy. It is suitable for both TIG and MIG welding processes and used for argon arc welding of copper based alloys and brazing of steel.

Phosphor Bronze

AWS A5.7: ERCuSn-C **DIN 1733:** SG-CuSn8 **BS 2901:** C11

A copper-tin based welding filler metal containing approx. 8% tin for higher hardness and strength. It can be used to join phosphor bronzes of similar compositions. It is also useful for joining brasses and, in some cases, for welding them to cast iron and carbon steel. The higher tin content results in weld metals of higher hardness, tensile and yield strength.

Nickel Aluminum Bronze

AWS A5.7: N/A **DIN 1733:** SG-CuAl8Ni2 **BS 2901:** C29

A nickel-aluminum bronze containing about 2% of nickel. Having good wear and corrosion resistances, this alloy is used for joining and repairing bronze metals with similar compositions. It can be used for argon arc welding of copper based alloys and brazing of steel.

Nickel Aluminum Bronze

AWS A5.7: ERCuNiAl **DIN 1733:** SG-CuAl8Ni6 **BS 2901:** C29

A very popular filler metal used in offshore technology such as seawater desalting, shipbuilding and repair. Having increased resistance to wear and corrosion, it is always used in shipbuilding and pump building, joining and repairing of cast or wrought nickel-aluminum bronze base metals.

Manganese Nickel Aluminum Bronze

AWS A5.7: ERCuMnNiAl **DIN 1733:** SG-CuMn13Al7 **BS 2901:** C22

A manganese-nickel-aluminum bronze filler metal used for joining and repairing of cast or wrought base metals of similar compositions. This filler metal may also be used for surfacing applications where high resistance to corrosion, erosion, or cavitation is required.

COPPER BASED FILLER METALS

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Cupronickel

AWS A5.7: ERCuNi **DIN 1733:** SG-CuNi30Fe **BS 2901:** C18

A copper-nickel filler metal used for joining and overlay welding of copper nickel alloys. The addition of 30% of nickel strengthens the weld metal and improves the corrosion resistance, particularly against the salt water. The inclusion of controlled quantity of iron also gives the alloy an extraordinary resistance to general corrosion and stress corrosion cracking, as well as to erosion. It is suitable for MIG, TIG, oxyacetylene and submerged arc welding of wrought copper-nickel 70/30, 80/20 and 90/10 alloys to themselves or to each other.

Naval Bronze (Flux-coated & Bare)

AWS A5.8: RBCuZn-A **DIN 1733:** SG-CuZn40Si **BS 2901:** CZ6

A filler metal used for brazing or oxyacetylene welding of steels, cast iron, malleable iron, copper alloys and nickel alloys. The addition of tin improves strength and corrosion resistance in the weld deposit. A borax-boric acid flux is generally required. Flux coating in different colors can be supplied as requested.

Low Fuming Bronze (FC & Bare)

AWS A5.8: RBCuZn-C **DIN 1733:** SG-CuZn40Si **BS 2901:** CZ6

A low-cost general-purpose, versatile oxyacetylene brazing alloy used for steels, copper alloys, cast iron, nickel alloys and stainless steel. It is used with the torch, furnace, and induction brazing processes. Flux is required, and a borax-boric acid flux is commonly used. Flux coating in different colors can be supplied as requested.

Nickel Silver (Flux-coated & Bare)

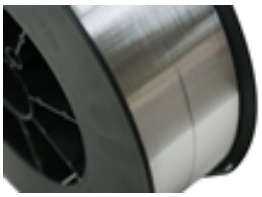
AWS A5.8: RBCuZn-D **DIN 1733:** L-CuZn42Ni **BS 2901:** CZ8

A brazing alloy containing about 10% of nickel. It is primarily used for brazing tungsten carbides, copper alloys, nickel alloys, stainless steels, carbon steels, and cast iron. It is commonly used for building-up or overlaying worn parts such as gear teeth, bearings and valve seats. A boric acid or borax flux is required. Flux coating in different colors can be supplied as requested.

ALUMINUM FILLER METALS

Pure Aluminum ER1100 - Al99

AWS A5.10: ER1100 **DIN 18273:** SAL1100



A pure aluminum filler metal with aluminum content of 90% or higher. It is highly resistant to chemical attack and weathering, but would not be used where strength is a prime consideration. Rather the emphasis would be on those applications where extremely high corrosion resistance, formability and/or electrical conductivity are required.

Aluminum-Silicon Alloy ER4043 - AlSi5

AWS A5.10: ER4043 **DIN 18273:** SAL4043

An aluminum-silicon alloy and a general-purpose type aluminum filler metal. The additions of silicon result in improved fluidity to make the alloy a preferred choice by welders. This alloy is less sensitive to weld cracking and produces brighter and almost smut-free welds.

Aluminum-Silicon Alloy ER4047 - AlSi12

AWS A5.10: ER4047 **DIN 18273:** SAL4047

An aluminum filler metal which contains approx. 12% silicon. This alloy is commonly used not only in MIG or TIG applications, but also as a general purpose brazing alloy providing a free-flowing filler metal and good corrosion resistance.

Aluminum-Magnesium Alloy ER5183 - AlMg4.5Mn

AWS A5.10: ER5183 **DIN 18273:** SAL5183

An aluminum filler metal containing 4.3-5.0% magnesium, 0.5-1.0% manganese as well as chromium and titanium and is commonly used on marine components, drilling rigs, cryogenics, railroad cars, storage tanks and unfired pressure vessels.

Aluminum-Magnesium Alloy ER5356 - AlMg5Cr

AWS A5.10: ER5356 **DIN 18273:** SAL5356

It is a 5% magnesium aluminum filler metal that is available for MIG or TIG welding processes. The weld deposit of this alloy offers much better corrosion resistance when exposed to salt water.

COVERED ELECTRODES

Copper Electrode

AWS A5.6: ECu **DIN 1733:** EL-CuMn2

A copper-cored flux-coated electrode used to surface, build-up, and fabricate electrolytic tough pitch and oxygen-free copper. Excellent for applications that require high corrosion resistance. Commonly used to overlay steel or to join heavier sections of copper to steel.

Silicon Bronze Electrode

AWS A5.6: ECuSi **DIN 1733:** N/A

This is a flux-coated electrode that is used for welding or building-up silicon bronze as well as other copper alloys. It is an excellent choice for applications involving cast iron to steel or where the part is exposed to corrosives. It is commonly used on bronze impeller, bronze wear plates, hydraulic piston overlays, track wheels, gears and sprockets.

Aluminum Bronze Electrode

AWS A5.6: ECuAl-A2 **DIN 1733:** EL-CuAl9

An aluminum bronze flux-coated electrode designed for overlays exposed to frictional wear or corrosive such as salt water, alkalies and some acids. Ideal for aluminum bronze, manganese bronze, silicon bronze, bronze to steel and cast iron. Also used on malleable iron, galvanized iron, stainless steel and as a build-up on bearing surfaces.

Phosphor Bronze Electrode

AWS A5.6: ECuSn-C **DIN 1733:** EL-CuSn7

An all-position phosphor bronze electrode for copper, steel, cast iron and galvanized iron. It is specially formulated to be used in any position with a minimum of spatter. Weld deposits are ductile, strong and machinable. The welding deposits offer good corrosion resistance to salt water and chemicals. Provides a good color match on bronze and will work harden.

COVERED ELECTRODES

Aluminum Electrode - E1100

AWS A5.3: E1100 **DIN 1732:** N/A

Pure aluminum core, flux-coated electrode used for the welding of pure aluminum. It has excellent corrosion resistance and midium strength.

Aluminum Electrode - E4043

AWS A5.3: E4043 **DIN 1732:** EL-AlSi5

An aluminum-silicon cored flux-coated electrode that produces good crack-resistance weld deposits where an average mechanical strength can be guaranteed. It can be widely used to weld almost all grades of aluminum alloys other than aluminum-magnesium alloys.

General applications: engine blocks, cylinder heads, tanks, containers.

Cast Iron Electrode - Ni 99

AWS A5.15: ENi-CI **DIN 8573:** E Ni BG 11

A pure nickel-cored electrode with a graphite-basic coating. This electrode is recommended for cold welding and repairing of grey cast iron, repairing of cracks. Homogenous and easy to machine deposit, good bonding and flow of the weld metal.

Typical applications: repairing of engine blocks, frames of tool machines, gearboxes, valve and pump bodies.

Cast Iron Electrode - Ni 55

AWS A5.15: ENiFe-CI **DIN 8573:** E NiFe-1 BG 21

A nickel-iron bimetal core electrode with graphite-basic coating, the bimetal core wire has high electrical conductivity. It has very excellent ductility and high strength. This electrode is usually used to repairing of important grey cast iron with high strength and nodular cast iron, such as cylinder caps, engine blocks, gearboxes.

TUNGSTEN ELECTRODES

2% Thoriated Tungsten Electrode

AWS A5.12: EWTh-2 **ISO 6848:** WT20

EWTh-2 electrode is one of 4 grades of thoriated tungsten electrodes, containing about 2% thorium, it is also the most used thoriated electrode. With a low arc deviation voltage, it's easy to start arc with high stability. Thoriated tungsten electrodes are widely applied in direct current welding.

2% Ceriated Tungsten Electrode

AWS A5.12: EWCe-2 **ISO 6848:** WC20

EWCe-2 (2% Ceriated) electrode is tungsten electrode containing about 2% cerium oxide. The advantages of the tungsten electrodes containing ceria, compared to pure tungsten, include increased ease of starting, improved arc stability, and reduced rate of vaporization or burn-off.
These electrodes operate successfully with AC or DC, either polarity.

1.5% Lanthanated Tungsten Electrode

AWS A5.12: EWLa-1.5 **ISO 6848:** WL15

EWLa-1.5 (1.5% Lanthanated) electrode contains about 1.5% of lanthanum. This grade electrode features easy arc starting, improved arc stability and significantly reduced tip erosion rate.
This grade electrode operates well with AC or DC, either polarity.

0.8% Zirconiated Tungsten Electrode

AWS A5.12: EWZr-0.8 **ISO 6848:** WZ8

EWZr-0.8 (0.8% Zirconiated) electrode features high current load and good corrosion resistance. It performs well with AC as it retains a balled end during welding.

WINNOX INDUSTRIES LIMITED offers full grades tungsten electrodes, including Pure Tungsten Electrode (EWP), Lanthanated Tungsten Electrodes (EWLa-1 & EWLa-2), Thoriated Tungsten Electrodes series (EWTh-1, EWTh-3 and EWTh-4), Yttriated Tungsten Electrode (EWY-2), Bi-Composite Tungsten Electrode (WS-2) and Tri-Composite Tungsten Electrode (E3), etc.

All grades of our tungsten electrodes are packed into coloured packages for easier grade identifications.

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LEATHER GLOVES

WX101 Grey Welding Glove

- Made of grey shoulder split cowhide.
- Full palm and one piece leather back.
- Full welts seam and wing thumb.
- Sewn with cotton thread.
- Full cotton lining.
- Size: Large

* Also available in left-hand only.

WX102 Blue Welding Glove

- Made of blue shoulder split cowhide.
- Full palm and one piece leather back.
- Full welts seam & reinforced wing thumb.
- Kelvar® stitching for added strength.
- Full cotton / foam lining.
- Size: Large

* Also available in left-hand only.

WX103 Brown Welding Glove

- Made of brown shoulder split cowhide.
- Full palm and one piece leather back.
- Full welts seam & reinforced wing thumb.
- Kelvar® stitching for added strength.
- Full cotton / foam lining.
- Size: Large

* Also available in left-hand only.

WX201 Goatskin Welding Glove

- Top grain goatskin leather TIG welding glove.
- 10 cm (4") split cowhide cuff.
- Reinforced straight thumb.
- Lock stitched with Kelvar® thread for added strength.
- Unlined.
- Size: Medium, Large, Extra Large

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LEATHER WELDING GLOVES

LEATHER GLOVES

WX202 Pigskin Welding Glove

- Top grain pigskin leather TIG welding glove.
- 10 cm (4") split cowhide cuff.
- Reinforced straight thumb.
- Lock stitched with Kelvar® thread for added strength.
- Unlined.
- Size: Medium, Large, Extra Large

WX203 Deerskin Welding Glove

- Lightweight split deerskin leather TIG welding glove.
- Extremely soft and comfortable.
- 10 cm (4") split cowhide cuff.
- Reinforced straight thumb.
- Lock stitched with Kelvar® thread for added strength.
- Unlined.
- Size: Medium, Large, Extra Large

WX301 Work Glove

- Made of grey split cowhide.
- Patch palm and knuckle strap.
- Blue canvas back with red stripe.
- 6.5cm (2½") starched safety cuff.
- Half cotton lining.
- Size: Large

WX302 Work Glove

- Made of grey split cowhide.
- Full palm and knuckle strap.
- Blue canvas back with red stripe.
- 6.5cm (2½") rubberized safety cuff.
- Half cotton lining.
- Size: Large

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WELDING APPERAL

Leather Welding Jacket

- Made of selected split cowhide.
- Multiple outside & inside pockets design.
- Adjustable snap cuffs.
- Sewn with Kelvar® thread for added strength.
- Multiple colors available as per customer's requirements.
- Available sizes: L, XL, XXL, XXXL

FR Cotton & Leather Welding Jacket

- Body made of 11 oz flame retardant cotton.
- Sleeves made of selected quality split cowhide.
- Multiple outside & inside pockets help to organize small items.
- Multiple colors available as per customer's requirements.
- Available sizes: L, XL, XXL, XXXL

FR Cotton Welding Jacket

- Made of 11 oz flame retardant cotton sateen.
- Multiple outside & inside pockets help to organize small items.
- Cool, comfortable and washable
- Lasts for 50 washes.
- Multiple colors available as per customer's requirements.
- Available sizes: L, XL, XXL, XXXL

Leather Welding Apron

- Made of selected split cowhide.
- Chest pockets help to organize small items.
- Adjustable back straps.
- Sewn with Kelvar® thread for added strength.
- Customized styles available as per samples.
- Multiple colors available as per customer's requirements.

WELDING APPERAL

FR Cotton Welding Coverall

- Made of 11 oz flame retardant cotton sateen.
- Roll-up collar with hook & loop closure protects neck.
- Flap covers for the chest pockets enhance safety.
- Elastic waist band for snug fit.
- Cool, comfortable and washable
- Lasts for 50 washes.
- Multiple colors available as per customer's requirements.
- Available sizes: L, XL, XXL, XXXL

FR Cotton Welding Pant

- Made of 11 oz flame retardant cotton sateen.
- Two front & two rear pockets help to organize small items.
- Zipper closure and multiple belt loops.
- Cool, comfortable and washable
- Lasts for 50 washes.
- Multiple colors available as per customer's requirements.
- Available sizes: L, XL, XXL, XXXL

Leather Sleeve

- Made of selected split cowhide.
- 14" (356mm) long.
- Adjustable strap on top and adjustable snap on wrist.
- Sewn with Kelvar® thread for added strength.
- Customized styles available as per samples.
- Multiple colors available as per customer's requirements.

Leather Foot Cover

- Made of selected split cowhide.
- Adjustable straps fit legs well.
- Sewn with Kelvar® thread for added strength.
- Multiple colors available as per customer's requirements.

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MISCELLANEOUS

Welding Tools Bag

- Made of rugged 600D polyester with a closing drawstring for easy closure.
- Keep all your welding tools in a convenient carrying bag.
- Protect your welding helmet efficiently.
- Multiple pockets help organize all your personal items such as keys, water bottle, etc.
- Private logo stitching available at an additional cost.
- Size: Dia. 33cm (13") x 46cm (18") high
- Customized sizes and styles available as per customer's requirement.

Polyester Cable & Hose Cover

- Made of 100% rugged polyester.
- Both zipper and velcro (hook & loop) closures available.
- Private logo stitching available.
- Size: 10cm (4") x 3.05m (10') / 6.7m (22')
- Customized sizes available.

Leather Cable & Hose Cover

- Made of split cowhide, water resistant.
- Both zipper and velcro (hook & loop) closures available.
- Private logo stitching available.
- Size: 10cm (4") x 3.05m (10') / 6.7m (22')
- Customized sizes available.

Leather Welding Rod Bag

- Made of selected split cowhide.
- Spring clip.
- Capacity: 5 lbs (2.5 kilos).
- Custermized sizes and styles available as per customer's requirement.