



bedra ROD & BAR

bedra WELDING & CUTTING

bedra SPECIALTIES



ROD & BAR WELDING & CUTTING SPECIALTIES

ALLOY SOLUTIONS

COPPER ALLOY
BROCHURE

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bedra
intelligent wires

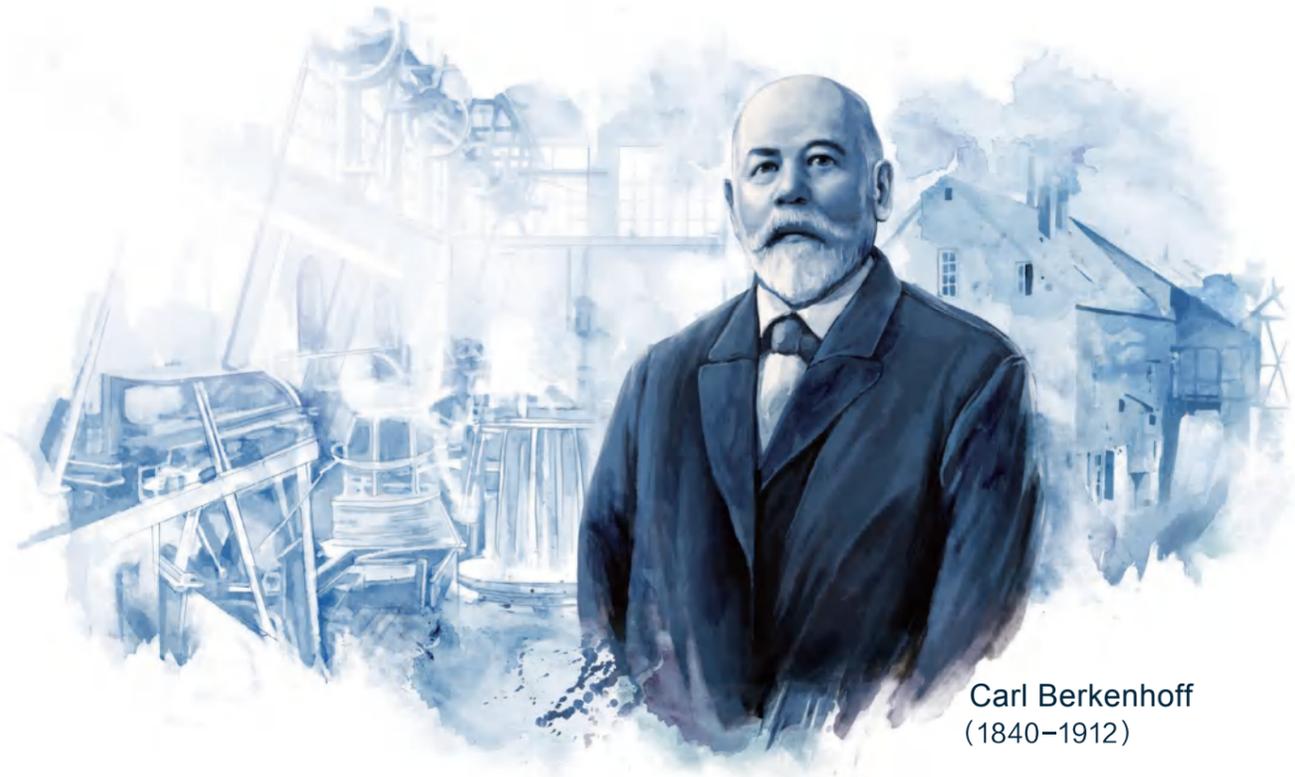
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Engineered to outperform

The background of the lower half of the page features a dark blue gradient. In the foreground, there are several layers of glowing, wavy lines in shades of yellow and orange, creating a sense of motion and depth. At the bottom, a city skyline is visible at night, with numerous lights from buildings and streets.



Carl Berkenhoff
(1840–1912)

He founded the German company Berkenhoff in 1889

He saw the birth and development of the alloy industry

He is the founder of the bedra brand

Carl Berkenhoff

As a company spanning three centuries

We remain committed to advancing the development of alloy materials

We continue to create value for our customers

Welcome to bedra



bedra Vietnam Alloy Material Co., Ltd

Since its establishment in 1889, for over 130 years, Berkenhoff has been using its comprehensive expertise for innovative R&D, production, and sale of high-end alloy materials. The company owns the popular brand bedra, covering more than 100 kinds of alloy products that are widely used in fields such as aerospace, automobile industry, rail transit, shipbuilding, 5G communication, amongst others. Customers worldwide appreciate bedra as a reliable partner for sustainable solutions in the field of high-tech precision alloy materials made of copper and copper-based alloys. bedra is one of the few global manufacturers that encompasses the entire production chain: casting, rolling, drawing, annealing, and electroplating. Our customers benefit from the depth of our in-house production, backed by 100% traceability, consistent high quality, and the highest possible processing reliability.

But we are not resting on our laurels. Today, we are already working on the innovations for tomorrow. To meet the worldwide demand, bedra integrated global technologies and resources to establish a production base in Asia: bedra Vietnam Alloy Material Co., Ltd.

Quality is the guarantee of our brand. bedra adheres to the spirit of craftsmanship with the best-in-class manufacturing technology. Furthermore, bedra applies systematic as well as standardized management methods to ensure consistent and excellent German quality.

Innovation is the extension of our brand. The company emphasizes fundamental research, application research, and innovative engineering to transform revolutionary ideas into marketable products. We carry out technical collaborations with our customers, listen to them, understand their needs, and provide them with tailor-made solutions. The company is involved in international collaboration projects and joint research projects and maintains technical collaboration ties with world-renowned education and research institutions. The company's high innovation standards have enabled the bedra brand to maintain the leading position in quality and performance.

Today, our established products and smart services cover all countries and regions in the world. Relying on German technologies, German management methods, and local manufacturing, customers around the world consider bedra as a reliable partner. Through transparent and intelligent manufacturing as well as superior service, bedra provides customers consistently efficient and customized solutions.

Innovations are the core of the company

We enjoy a good reputation in the industry, and that's not without good reason. We are regarded as an innovation leader in the field of alloys. A look at the past 130 years shows our extensive contribution to the development of new generations of alloy. Every few years, we have consistently succeeded in developing new alloys. All of this began as innovations in our company. To this day, these generations of alloys remain the basis of our good reputation and quality.



Internal measuring techniques to guarantee top quality

To ensure the highest quality standards, we have an exhaustive spectrum of different measuring techniques in our production and development areas:

- **Chemical composition testing methods**

We use direct reading spectrum in furnace tests, taking advantage of its reliable analysis structure and fast analysis speed. At the same time, we use fluorescence photometer and inductively coupled plasma spectrometer to confirm the results of the direct reading spectrum, ensuring the consistency of the chemical composition of the pre-furnace sample and the final product.

- **Mechanical property testing methods**

In addition to the stereomicroscope to measure the surface of the alloy, we also use the metalloscope to measure the microstructure (such as grain size and precipitation) of the alloy. The tensile strength, yield strength, and elongation after fracture are evaluated by electronic universal testing machines. We use Brinell hardness tester, Vickers hardness tester, Rockwell hardness tester, and other equipment to evaluate the hardness value of our alloy materials. The straightness and radian of alloy materials are tested by high-precision image measuring instruments. The electrical conductivity of the alloy is measured by the bridge method and eddy current method. The residual stress of the alloy is tested by ammonia fumigation and the corrosion resistance is tested by salt spray test.

Growth partnerships for individualized solutions

bedra's innovative spirit and capabilities have earned us the reputation of a pioneer across all generations of alloy materials. Beyond specialist circles, bedra is regarded as a well-known "first mover." Backed by years of experience in the production of alloy materials, bedra can proudly say that our customers benefit from the ensuing optimized and consistent production processes. This is supported by ongoing research and development projects for new alloy materials jointly carried out with customers in the industry, as well as projects with renowned research institutes. This is where bedra's comprehensive know-how in the field of alloy material fundamentals is particularly valued.

Our success is based on bedra's systematic and comprehensible processes. bedra has defined the principles of research & development using eight key points. Apart from complying with legal and regulatory requirements, we adhere to the following internal rules at bedra:

- **Business-oriented approach (customer orientation)**

Our customers' requirements are the focus of our actions. We strive to exceed customer expectations.

- **Leadership**

Our managers enable the prerequisites for employees to commit themselves fully to achieving our goals.

- **Employee engagement**

All employees are specifically qualified for their tasks and supported in their further training. Open communication promotes quality performance, environmental awareness, and efficient collaboration.

- **A system-oriented approach**

Recognizing, understanding, and controlling processes contribute to our effectiveness and efficiency.

- **Continuous improvement**

Continuously improving processes is our permanent goal. We pursue a zero-defect strategy.

- **Factual approach to decision-making**

Effective decisions are based on an objective analysis of information and data.

- **Environmental protection**

By continuously modernizing our machinery and production processes, we minimize our impact on the environment.

- **Management responsibility**

Management ensures the effectiveness of the agreement and is committed to meeting the requirements.

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Aluminum bronze

bedra 62300

Designation	UNS	EN	JIS	GB
bedra 62300	C62300	/	/	QA19-4

Characteristics

The alloy is a copper-aluminum-iron ternary alloy, which has higher strength and wear resistance through solid solution strengthening of aluminum. At the same time, because aluminum can form a dense aluminum oxide protective layer on the surface of the product, the alloy has better high temperature corrosion resistance and oxidation resistance in the atmosphere, fresh water and sea water conditions. The alloy has good spark resistance, good press workability in hot condition, and can be welded by electric or gas welding, but is not suitable for brazing.

Typical Applications

It is used in nuts, bolts, shafts, pump parts, valve seats, gears, cams, structural parts, condenser plates for power plants and desalination devices.

Aluminum bronze

bedra 63000

Designation	UNS	EN	JIS	GB
bedra 63000	C63000	CuAl10Ni5Fe4 (CW 307 G)	/	QA10-4-4

Characteristics

This alloy is a copper-aluminum-iron-nickel quaternary alloy, which is strengthened by solid solution of aluminum. It has high strength and wear resistance. At the same time, because aluminum can form a dense aluminium oxide protective layer on the surface of the product, the alloy has good high temperature corrosion resistance and oxidation resistance, and corrosion resistance in the atmosphere, fresh water and seawater as well. It can be welded and has good performance in pressure processing under hot condition.

Typical Applications

It is used in relatively high-strength screws, nuts, copper sleeves, sealing rings, etc.



Bismuth brass

bedra 49250

Designation	UNS	EN	JIS	GB
bedra 49250	C49250	/	C6801	HBi60-1.3 (Hbi59-1)

Characteristics

The alloy has excellent turning performance, which is comparable to C3604, excellent riveting performance and hot forging performance, as well as excellent mechanical and electrical properties, making it one of the ideal materials to replace lead brass.

Typical Applications

The alloy is mainly used in lead-free replacement of leaded brass, with a wide range of applications in the market, such as e-cigarette, connector, valve core, embedded nut, intelligent charging, coffee pot accessories, consumer electronics, hardware, mechanical equipment, construction machinery, 5G accessories, etc.



Bismuth brass

bedra 49260

Designation	UNS	EN	JIS	GB
bedra 49260	C49260	/	/	HBi60-1-0.05

Characteristics

Through replacing lead element by bismuth, it is not only ensuring the cutting performance of material but also environmental friendly. It has excellent mechanical and electrical properties and it is one of the ideal substitute material for leaded brass.

Typical Applications

The alloy is widely used in TWS earphones, as well as used in CMOS lens products, electronics, hardware, machinery, connectors, valve core and food machinery industries.



Brass

bedra 26200

Designation	UNS	EN	JIS	GB
bedra 26200	C26200	CuZn33 (CW 506 L)	C2600	H68

Characteristics

It has good plasticity, high strength, good machinability and strong corrosion resistance. It is easy to be welded.

Typical Applications

It is suitable for all kinds of complex cold stamping parts and deep drawing parts, plugs, radiator housings, wave guides, bellows, etc.

Brass

bedra 27000

Designation	UNS	EN	JIS	GB
bedra 27000	C27000	CuZn36 (CW 507 L)	C2700	H65

Characteristics

It has good mechanical properties, good plasticity in hot and cold conditions, good cuttability and strong corrosion resistance. It is easy to be brazed and welded.

Typical Applications

It is suitable for a variety of deep drawing and bending of stressed parts, such as hardwares (screws, nuts, connectors), springs, guidelines, screen, paper pipe and mechanical parts.



Brass

bedra 27200

Designation

bedra 27200

UNS

C27200

EN

CuZn37 (CW 508 L)

JIS

C2720

GB

H63

Characteristics

This single-phase brass has good mechanical properties and also high strength and plasticity performance. It can withstand cold and hot pressure processing and has fair corrosion resistance.

Typical Applications

It is applied for all kinds of light stamping parts, sugar machinery and ship parts, hardware screws, plugs, etc.

Brass

bedra 27450

Designation

bedra 27450

UNS

C27450

EN

CuZn37 (CW 508 L)*

*Similar to CuZn37 (CW 508 L)

JIS

C2801

GB

H62

Characteristics

It has high zinc content and high strength, which is suitable for hot working, easy cutting, brazing and welding. It has high corrosion resistance, but fair machinability at cold working.

Typical Applications

This is lead-free cutting alloy. It is widely used in hardware, machinery, electronics, valve body, bathroom and other industries. And it is suitable for all kinds of deep drawing and bending parts, such as pin, rivet, washer, screw nut, conduit, pressure gauge spring, screen, radiator parts, etc.



Brass

bedra 28500



Chromium copper

bedra 18200

Designation	UNS	EN	JIS	GB
bedra 28500	C28500	CuZn42 (CW 510 L)	/	H59

Characteristics

It has high strength, excellent hot working performance and good cold working performance. And it has good pressure machining and cutting performance, good brazability and weldability and good corrosion resistance.

Typical Applications

It can be applied for all deep drawing and bending manufacturing stressed parts, such as pin, rivet, washer, nut, conduit, barometer spring, screen, radiator parts, etc.

Designation	UNS	EN	JIS	GB
bedra 18200	C18200	CuCr1 (CW105 C)	/	TCr1

Characteristics

It has good weldability, good wear resistance and wear reduction and is widely used in motor commutator, spot welder, seam welder, electrode for butt welder, and other high temperature requirements of strength, hardness and electrical conductivity

Typical Applications

It is widely applied in motor commutator, collector ring, high temperature switch, welding electrode, roller, gripper, brake disc and other parts requiring high thermal conductivity, electrical conductivity and high thermal strength in the form of bi-metal.



Chromium zirconium copper

bedra 18150



Copper nickel silicon

bedra 18000

Designation	UNS	EN	JIS	GB
bedra 18150	C18150	CuCr1Zr (CW 106 C)	/	TCr1-0.15

Characteristics

The product is easy to be welded. It has good wear resistance and is widely used in motor commutator, spot welder, seam welder and butt welder, and other high temperature requirements of strength, hardness and electrical conductivity.

Typical Applications

The alloy is widely used in automobile, vehicles, agricultural machinery, ships, civil electrical appliances TV, refrigeration equipment, washing machines and other products of electric resistance welding (such as welding electrodes for spot welding, seam welding, butt welding, CO2 protection welding), and the metallurgy continuous casting crystallizer, motor, power distribution equipment and high-speed train with sliding connection, etc.

Designation	UNS	EN	JIS	GB
bedra 18000	C18000	/	/	TNi2.4-0.6-0.5

Characteristics

With the good capacity of welding and wear resistance, It is widely used in motor commutator, electrodes for spot welding, seam welding and butt welding, and other occasions requiring high temperature resistance, high strength, high conductivity and high hardness. This is not suitable for surface hardening and penetration treatment.

Typical Applications

It is widely applied to resistance welding electrode arm. submerged arc welding nozzle, die materials and other fields.



Lead brass

bedra 36000

Designation

bedra 36000

UNS

C36000

EN

CuZn36Pb3
(CW 603 N)

JIS

C3601

GB

HPb62-3

Characteristics

It has high strength, corrosion resistance and abrasion resistance, good cold machining properties and weldability, but poor hot machining properties.

Typical Applications

It is used for parts and components that need precision machining, such as clock structure and mechanical instrument, truck tractor parts.

Lead brass

bedra 37710

Designation

bedra 37710

UNS

C37710

EN

CuZn39Pb1
(CW 611 N)

JIS

C3771

GB

HPb59-1

Characteristics

The alloy has excellent hot working properties, suitable for hot forging, polishing, electroplating and other processing methods.

Typical Applications

It is used in air conditioning refrigeration, sanitary ware, valves and other industries.



Lead brass

bedra 38500



Manganese brass

bedra 66800

Designation	UNS	EN	JIS	GB
bedra 38500	C38500	CuZn39Pb3 (CW 614 N)	C3604	HPb58-3

Characteristics

It has high strength, corrosion resistance and abrasion resistance, good hot machining properties and weldability, but poor cold machining properties.

Typical Applications

It is used for parts and components requiring precision machining, such as screws, nuts and rotations, shafts, gears, pneumatic tools/connectors, valves, lighters, camera components and watch components.

Designation	UNS	EN	JIS	GB
bedra 66800	C66800	/	/	HMn61-3-1

Characteristics

The alloy is a copper-zinc-manganese series copper-based multi-element (+) two-phase alloy. The addition of silicon and manganese improves the strength and wear resistance of the alloy, and the addition of lead enhances its wear resistance and machinability. It is a copper alloy with high strength and high wear resistance.

Typical Applications

It is applied for hydraulic components such as sliding shoes, sliding blocks, return disc stops and regulating valves seat.



Manganese brass

bedra 67300

Designation	UNS	EN	JIS	GB
bedra 67300	C67300	/	/	HMn60-3-1.7-1

Characteristics

The alloy is a copper-zinc-manganese-silicon-lead series copper-based multi-element (+) two-phase alloy. The addition of silicon and manganese improves the strength and wear resistance of the alloy, and the addition of lead enhances its wear resistance and machinability. It is a copper alloy with high strength and high wear resistance.

Typical Applications

It is used in bushings, main plates, sub-plates, bearings and shafts for the hydraulic industry and wear-resistant parts such as sleeves and turbines.

Manganese brass

bedra 67400

Designation	UNS	EN	JIS	GB
bedra 67400	C67400	CuZn37Mn3Al2PbSi (CW 713 R)	/	HMn57-2-1.7-0.5

Characteristics

It is a Cu-Zn-Mn-Al-Si-Pb series copper-based multi-element alloy. The addition of silicon and manganese improves the strength and wear resistance of the alloy, the addition of aluminum increases the yield strength of the alloy, and the addition of lead enhances its wear resistance and machinability. The product uses phase as the matrix and Mn-Si compound as the matrix. It is a high-strength wear-resistant copper alloy with wear-resistant phase.

Typical Applications

It is widely used in valve guides, floating bearings, thrust bearings, synchronizer gear rings for the automotive industry, as well as sliding shoes, oil distribution pans, ball hinges, cylinder blocks, bushings for the hydraulic industry.



Tellurium copper

bedra 14500

Designation	UNS	EN	JIS	GB
bedra 14500	C14500	CuTeP (CW 118 C)	/	TTe0.5

Characteristics

Tellurium copper alloy material has good free cutting performance and excellent electrical and thermal conductivity. And it has good anti-corrosion and anti-electric ablative properties. It has good cold and hot working performance, and can be forged, casted, extruded and drawn, punched and moulded. Tellurium copper is a widely used high conductivity free cutting alloy.

Typical Applications

It is mainly used in connector terminals, charging piles, nozzles of plasma cutting machines and power modules of communication base stations for new energy vehicles.



Tin brass

bedra 46500

Designation	UNS	EN	JIS	GB
bedra 46500	C46500	CuZn38Sn1As (CW 717 R)	/	/

Characteristics

The alloy belongs to the copper-tin-zinc ternary alloy. It has good hot workability, corrosion resistance and wear resistance, excellent cutting performance and mechanical properties, and is widely used in sanitary ware, valves, etc.

Typical Applications

It is mainly used in sanitary ware, refrigeration valve body, plumbing valve body and other industries.



Tin bronze

bedra 52100

Designation

bedra 52100

UNS

C52100

EN

CuSn8 (CW 453 K)

JIS

C5210

GB

QSn8-0.3

Characteristics

It has good elasticity, ductility, fatigue resistance and corrosion resistance.

Typical Applications

It is applied for metal fasteners, springs and switch parts under worse conditions than C51000.



Zinc cupronickel

bedra 79860

Designation

bedra 79860

UNS

C79860

EN

CuNi12Mn5Pb2
(CW 407 J)

JIS

/

GB

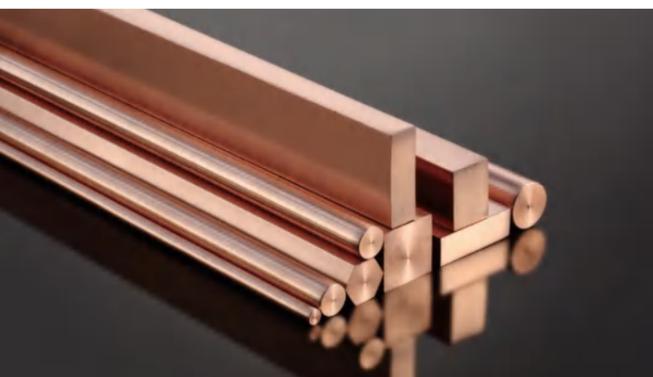
BZn12-37-1.5

Characteristics

It has excellent cutting performance with machinability equivalent to 90% of C36000, good hot workability with hot forging property equivalent to 80% of C37700, high strength, high elasticity and high corrosion resistance.

Typical Applications

It is widely used for pen tips, guide rods and screws in pen making industry.



Zirconium bronze

bedra 15000



Aluminum bronze

AIBz8 (ERCuAl-A1)

Designation	UNS	EN	JIS	GB
bedra 15000	C15000	CuZr (CW 120 C)	/	TZr0.15

Characteristics

It has high electrical conductivity, thermal conductivity and good process performances.

Typical Applications

It is applied for spot welding electrode and electrode cap, especially suitable for coating sheet. It is also suitable for components of electronic devices.

Designation	AWS	EN	JIS	GB
AIBz8	ERCuAl-A1	CuAl7 (Cu 6100)	/	SCu6100A

Characteristics

AIBz8 is a welding material which is aluminum bronze alloy without iron. The fluidity of molten metal is good, and the shape of welding seam is beautiful.

Typical Applications

It is applied in shipbuilding and machinery manufacturing and is suitable for welding of carbon steel and stainless steel. It is also suitable for butt welding of steel and copper and surfacing welding of hydraulic ball bowl and bearing surface.



Aluminum bronze

AIBz9Fe (ERCuAl-A2)



Chromium copper

HCr1 (C18200)

Designation	AWS	EN	JIS	GB
AIBz9Fe	ERCuAl-A2	CuAl10Fe (Cu 6180)	/	SCu6180

Characteristics

It is a kind of aluminum bronze welding wire containing iron, which has high corrosion resistance and wear resistance. It has excellent mechanical properties and welding performance, good fluidity of molten metal, beautiful weld formation and high welding strength.

Typical Applications

It is used for shipbuilding and machinery manufacturing and it is also used to weld aluminum bronze, manganese silicon bronze, some other copper based alloys, ironbased alloys and dissimilar metals (such as aluminum bronze and steel, copper and steel).

Designation	UNS	EN	JIS	GB
HCr1	C18200	CuCr1 (CW105 C)	/	TCr1

Characteristics

It has good weldability, good wear resistance and wear reduction and is widely used in motor commutator, spot welder, seam welder, electrode for butt welder, and other high temperature requirements of strength, hardness and electrical conductivity.

Typical Applications

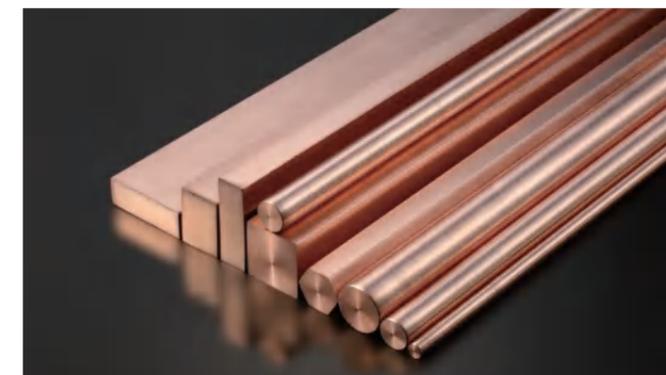
It is widely applied in motor commutator, collector ring, high temperature switch, welding electrode, roller, gripper, brake disc and other parts requiring high thermal conductivity, electrical conductivity and high thermal strength in the form of bi-metal.





Chromium zirconium copper

HCr1Zr0.15 (C18150)



Copper nickel silicon

NiBz2.4Si (C18000)

Designation	UNS	EN	JIS	GB
HCr1Zr0.15	C18150	CuCr1Zr (CW 106 C)	/	TCr1-0.15

Characteristics

The product is easy to be welded. It has good wear resistance and is widely used in motor commutator, spot welder, seam welder and butt welder, and other high temperature requirements of strength, hardness and electrical conductivity.

Typical Applications

The alloy is widely used in automobile, vehicles, agricultural machinery, ships, civil electrical appliances TV, refrigeration equipment, washing machines and other products of electric resistance welding (such as welding electrodes for spot welding, seam welding, butt welding, CO2 protection welding), and the metallurgy continuous casting crystallizer, motor, power distribution equipment and high-speed train with sliding connection, etc.



Designation	UNS	EN	JIS	GB
NiBz2.4Si	C18000	/	/	TNi2.4-0.6-0.5

Characteristics

With the good capacity of welding and wear resistance, It is widely used in motor commutator, electrodes for spot welding, seam welding and butt welding, and other occasions requiring high temperature resistance, high strength, high conductivity and high hardness. This is not suitable for surface hardening and penetration treatment.

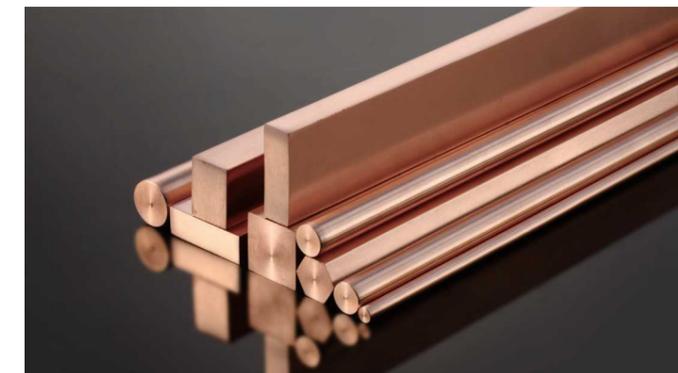
Typical Applications

It is widely applied to resistance welding electrode arm. submerged arc welding nozzle, die materials and other fields.



Silicon bronze

SiBz3Mn (ERCuSi-A)



Tellurium copper

CTe0.5(C14500)

Designation	AWS	EN	JIS	GB
SiBz3Mn	ERCuSi-A	CuSi3Mn1 (Cu 6560)	/	SCu6560

Characteristics

It is a silicon bronze welding wire containing 3% silicon and a small amount of manganese. The addition of manganese enables it to have good mechanical properties, good corrosion resistance and good wear resistance after welding.

Typical Applications

It is used in argon arc welding of silicon bronze, red copper, brass and aluminum bronze, and it is also used for arc welding and surfacing welding of copper and steel, copper and galvanized steel sheet (such as car door frame, motorcycle parts, etc), solenoid valves and switches cabinets, and surfacing welding of friction surfaces of rolling stock and heavy machinery.

Designation	UNS	EN	JIS	GB
CTe0.5	C14500	CuTeP (CW 118 C)	/	TTe0.5

Characteristics

Tellurium copper alloy material has good free cutting performance and excellent electrical and thermal conductivity. And it has good anti-corrosion and anti-electric ablative properties. It has good cold and hot working performance, and can be forged, casted, extruded and drawn, punched and moulded. Tellurium copper is a widely used high conductivity free cutting alloy.

Typical Applications

It is mainly used in connector terminals, charging piles, nozzles of plasma cutting machines and power modules of communication base stations for new energy vehicles.



Tin brass

Ms60Sn0.5 (RBCuZn-A)

Designation	AWS	EN	JIS	GB
Ms60Sn0.5	RBCuZn-A	CuZn40Sn (Cu 4700)	/	SCu4700

Characteristics

It is a tin brass welding wire without silicon. The molten metal has good fluidity and it has certain strength and corrosion resistance. During welding, the danger of brittle joint caused by silicon in the interface between welding material and base metal steel can be completely avoided, and satisfactory mechanical properties can be obtained.

Typical Applications

It is suitable for flame brazing, induction brazing and furnace fiber welding of steel, copper and copper alloy, nickel and nickel alloy and stainless steel which have no high requirement for corrosion resistance.

Tin brass

Ms60Ni (RBCuZn-B)

Designation	AWS	EN	JIS	GB
Ms60Ni	RBCuZn-B	CuZn40Ni (Cu 6800)	/	SCu6800

Characteristics

It is a brass welding material containing a small amount of iron, silicon and manganese. The fluidity of molten metal is good. Silicon can effectively control the evaporation of zinc, eliminating pores and thus obtain satisfactory mechanical properties.

Typical Applications

It can be used for welding of steel, cast iron, brass and bronze and oxyacetylene welding, and also used for bearings of mechanical parts and inlaid carbide tools.





Tin brass

Ms60SnFe (RBCuZn-C)

Designation	AWS	EN	JIS	GB
Ms60SnFe	RBCuZn-C	CuZn40Fe1Sn1 (Cu 6810)	/	SCu6810

Characteristics

It is a special brass welding wire containing a small amount of iron, tin, silicon, manganese and other elements. It has good fluidity and can effectively control the evaporation of zinc, which eliminates the porosity, and thus obtain good welding seam.

Typical Applications

It is widely used in brazing steel, copper nickel alloy, cast iron and also used for inlaid carbide cutting tools.



Zinc cupronickel

Ns10Zn42 (RBCuZn-D)

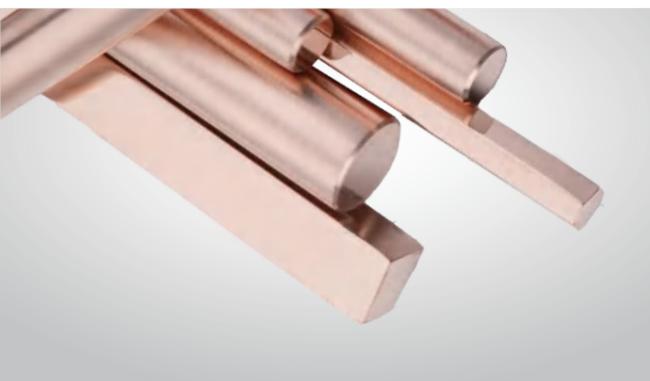
Designation	AWS	EN	JIS	GB
Ns10Zn42	RBCuZn-D	CuZn40Ni10 (Cu 7730)	/	SCu7730

Characteristics

It is copper welding wire containing silicon. The addition of silicon can effectively prevent volatilization of zinc during welding. And it has higher strength than general brass welding wire and better corrosion resistance in sea water and caustic media.

Typical Applications

It is suitable for welding steel, nickel, nickel-based alloys and hard alloys. It is also used for machinery manufacturing, automation industry and steel furniture.



Zirconium bronze

CZr0.15 (C15000)



Aluminum bronze

AlBz8b (C61000)

Designation	UNS	EN	JIS	GB
CZr0.15	C15000	CuZr (CW 120 C)	/	TZr0.15

Characteristics

It has high electrical conductivity, thermal conductivity and good process performances.

Typical Applications

It is applied for spot welding electrode and electrode cap, especially suitable for coating sheet. It is also suitable for components of electronic devices.

Designation	UNS	EN	JIS	GB
AlBz8b	C61000	CuAl7	/	QA17

Characteristics

It has high strength and elasticity in air, fresh water, sea water and certain acidic conditions. It also has high corrosion resistance and can be hot and cold pressure processed, electric welded and gas welded, but it's not easy to be brazed.

Typical Applications

It's mainly used for springs, fasteners and other elastic elements with certain corrosion resistance requirements.



Bismuth brass

Ms60Bi2 (C49250)

Designation	UNS	EN	JIS	GB
Ms60Bi2	C49250	/	C6801	HBI60-1.3 (Hbi59-1)

Characteristics

The alloy has excellent turning performance, which is comparable to C3604, excellent riveting performance and hot forging performance, as well as excellent mechanical and electrical properties, making it one of the ideal materials to replace lead brass.

Typical Applications

Typical Applications The alloy has excellent turning performance, which is comparable to C3604, excellent riveting performance and hot forging performance, as well as excellent mechanical and electrical properties, making it one of the ideal materials to replace lead brass. The alloy is mainly used in lead-free replacement of leaded brass, with a wide range of applications in the market, such as e-cigarette, connector, valve core, embedded nut, intelligent charging, coffee pot accessories, consumer electronics, hardware, mechanical equipment, construction machinery, 5G accessories, etc.



Brass

Ms60 (CuZn40)

Designation	UNS	EN	JIS	GB
Ms60	C28000	CuZn40 (CW 509 L)	C2801	H60

Characteristics

The alloy has high strength, excellent hot working performance and good cold working performance. It has good performance under pressure machining and cutting, is easy to be brazed and welded and has good corrosion resistance.

Typical Applications

It is widely used for hardware, machinery, electronic engineering, valve body and plug industries.



Brass

Ms62 (C27450)

Designation	UNS	EN	JIS	GB
Ms62	C27450	CuZn37 (CW 508 L)* <small>*Similar to CuZn37 (CW 508 L)</small>	C2801	H62

Characteristics

It has high zinc content and high strength, which is suitable for hot working, easy cutting, brazing and welding. It has high corrosion resistance, but fair machinability at cold working.

Typical Applications

This is lead-free cutting alloy. It is widely used in hardware, machinery, electronics, valve body, bathroom and other industries. And it is suitable for all kinds of deep drawing and bending parts, such as pins, rivets, washers, screw nuts, conduits, pressure gauge springs, screens, radiator parts, etc.

Brass

Ms63b (C27200)

Designation	UNS	EN	JIS	GB
Ms63b	C27200	CuZn37 (CW 508 L)	C2720	H63

Characteristics

This single-phase brass has good mechanical properties and also high strength and plasticity performance. It can withstand cold and hot pressure processing and has fair corrosion resistance.

Typical Applications

It is applied for all kinds of light stamping parts, sugar machinery and ship parts, hardware screws, plugs, etc.



Brass

Ms64b (C27000)

Designation	UNS	EN	JIS	GB
Ms64b	C27000	CuZn36 (CW 507 L)	C2700	H65

Characteristics

It has good mechanical properties, good plasticity in hot and cold conditions, good cuttability and strong corrosion resistance. It is easy to be brazed and welded.

Typical Applications

It is suitable for a variety of deep drawing and bending of stressed parts, such as hardwares (screws, nuts, connectors), springs, guidelines, screen, paper pipe and mechanical parts.

Brass

Ms67c (C26200)

Designation	UNS	EN	JIS	GB
Ms67c	C26200	CuZn33 (CW 506 L)	C2600	H68

Characteristics

It has good plasticity, high strength, good machinability and strong corrosion resistance. It is easy to be welded.

Typical Applications

It is suitable for all kinds of complex cold stamping parts and deep drawing parts, plugs, radiator housings, wave guides, bellows, etc.



Brass

Ms70b (C26000)

Designation	UNS	EN	JIS	GB
Ms70b	C26000	CuZn30 (CW 505 L)	C2600	H70

Characteristics

It has high mechanical properties, good processing performance. It is suitable for cold forging and other processing.

Typical Applications

It is suitable for all kinds of deep drawing and bending manufacturing of stressed parts, radiator shell, duct, bellows, gasket, paper mesh, etc.



Brass

Ms80b (C24000)

Designation	UNS	EN	JIS	GB
Ms80b	C24000	CuZn20 (CW 503 L)	C2400	H80

Characteristics

It has high strength, good plasticity, good forming performance. It has quite strong corrosion resistance in the air and seawater.

Typical Applications

It is suitable for all kinds of light stamping parts, sugar machinery and ship parts, hardware, etc.



Brass

Ms85b (C23000)

Designation	UNS	EN	JIS	GB
Ms85b	C23000	CuZn15 (CW 502 L)	C2300	H85

Characteristics

It has high strength, good plasticity, high mechanical properties and strong corrosion resistance in the air and water. It can withstand the cold and hot pressure processing and is easy to be welded, forged and tin plated. It has no tendency for stress corrosion cracking.

Typical Applications

It is used for condensing and cooling pipes, siphons, snaking pipes and cooling equipment.

Brass

Ms90b (C22000)

Designation	UNS	EN	JIS	GB
Ms90b	C22000	CuZn10 (CW 501 L)	C2200	H90

Characteristics

It has good mechanical properties and pressure processing properties, good corrosion resistance and good surface treatment properties. It can be gold-plated and enamel-coated.

Typical Applications

It can be used for all kinds of lifting and bending parts such as pin, rivet, washer, nut, pipe, barometer, screen, radiator parts, water tank belt, water supply and drainage pipe, resistance cap, medal and bimetal parts.



Chromium zirconium copper

HCr1Zr0.15 (C18150)



Lead brass

Ms58Pb3 (C3604)

Designation	UNS	EN	JIS	GB
HCr1Zr0.15	C18150	CuCr1Zr (CW 106 C)	/	TCr1-0.15

Characteristics

The product is easy to be welded. It has good wear resistance and is widely used in motor commutator, spot welder, seam welder and butt welder, and other high temperature requirements of strength, hardness and electrical conductivity

Typical Applications

The alloy is widely used in automobile, vehicles, agricultural machinery, ships, civil electrical appliances TV, refrigeration equipment, washing machines and other products of electric resistance welding (such as welding electrodes for spot welding, seam welding, butt welding, CO2 protection welding), and the metallurgy continuous casting crystallizer, motor, power distribution equipment and high-speed train with sliding connection, etc.

Designation	UNS	EN	JIS	GB
Ms58Pb3	C38500	CuZn39Pb3 (CW 614 N)	C3604	HPb58-3

Characteristics

It has high strength, corrosion resistance and abrasion resistance, good hot machining properties and weldability, but poor cold machining properties.

Typical Applications

It is used for parts and components requiring precision machining, such as screws, nuts and rotations, shafts, gears, pneumatic tools/connectors, valves, lighters, camera components and watch components.



Silicon bronze

SiBz1.5Mn (C65100)

Designation

SiBz1.5Mn

UNS

C65100

EN

CuSi (CW 115 C)

JIS

/

GB

/

Characteristics

Silicon bronze has excellent cold and hot processing performance and high strength. It has good performance for cold working, stamping, cold heading, and can be used to produce screws and nuts efficiently.

Typical Applications

It is widely used for hydraulic pipelines, metal components, foundation bolts, etc.

Silicon bronze

SiBz3Mn (C65500)

Designation

SiBz3Mn

UNS

C65500

EN

CuSi3Mn1
(CW 116 C)

JIS

/

GB

QSi3-1

Characteristics

It has high strength, good elasticity and good plasticity, with no reduction at low temperature condition. It also has good abrasion, good corrosion resistance to air, fresh water and sea water.

Typical Applications

It's widely used in various elastic components and parts applied in corrosive conditions as well as wear resistant parts, such as turbine, worm, gear, bushing, brake pin and rod.



Tellurium copper

CTe0.5 (C14500)



Tin bronze

Bz4 (C51100)

Designation	UNS	EN	JIS	GB
CTe0.5	C14500	CuTeP (CW 118 C)	/	TTe0.5

Characteristics

Tellurium copper alloy material has good free cutting performance and excellent electrical and thermal conductivity. And it has good anti-corrosion and anti-electric ablative properties. It has good cold and hot working performance, and can be forged, casted, extruded and drawn, punched and moulded. Tellurium copper is a widely used high conductivity free cutting alloy.

Typical Applications

It is mainly used in connector terminals, charging piles, nozzles of plasma cutting machines and power modules of communication base stations for new energy vehicles.

Designation	UNS	EN	JIS	GB
Bz4	C51100	CuSn4 (CW 450 K)	C5111	QSn4-0.3

Characteristics

Bz4 is a tin bronze with good electroplating properties, high mechanical properties, corrosion resistance and high elasticity. It has good performance under pressure in cold and hot conditions.

Typical Applications

It is widely used for automobile parts industry, such as clutch friction plates, connectors, lock washers, etc.



Tin bronze

Bz5 (C51000)

Designation	UNS	EN	JIS	GB
Bz5	C51000	CuSn5 (CW 451 K)	/	QSn5-0.2

Characteristics

Tin phosphorus bronze has high strength, elasticity, wear resistance and diamagnetism. It has good machinability, high flame resistance to electric spark and can be easily welded and brazed. It has strong corrosion resistance in air and fresh water.

Typical Applications

It is widely used for plug pin (such as RJ45), elastic components and other consumer electronics industries.

Tin bronze

Bz8 (C52100)

Designation	UNS	EN	JIS	GB
Bz8	C52100	CuSn8 (CW 453 K)	C5210	QSn8-0.3

Characteristics

It has good elasticity, ductility, fatigue resistance and corrosion resistance.

Typical Applications

It is used for metal fasteners, springs and switch parts under worse conditions than C51000.



Tin bronze

BI66 (C51900)

Zinc cupronickel

NiBz12Mn5Pb (C79860)



Designation	UNS	EN	JIS	GB
BI66	C51900	CuSn6 (CW 452 K)	C5191	QSn6.5-0.1

Characteristics

Tin phosphorus bronze has high strength, elasticity, wear resistance and diamagnetism. It has good machinability in cold condition, good corrosion resistance in air and fresh water, and high flame resistance to electric spark. It can also be used as welding material.

Typical Applications

It is applied in the fields of consumer electronics, automobiles, intelligent manufacturing, etc.

Designation	UNS	EN	JIS	GB
NiBz12Mn5Pb	C79860	CuNi12Mn5Pb2 (CW 407 J)	/	BZn12-37-1.5

Characteristics

It has excellent cutting performance with machinability equivalent to 90% of C36000, good hot workability with hot forging property equivalent to 80% of C37700, high strength, high elasticity and high corrosion resistance.

Typical Applications

It is widely used for pen tips, guide rods and screws in pen making industry.

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