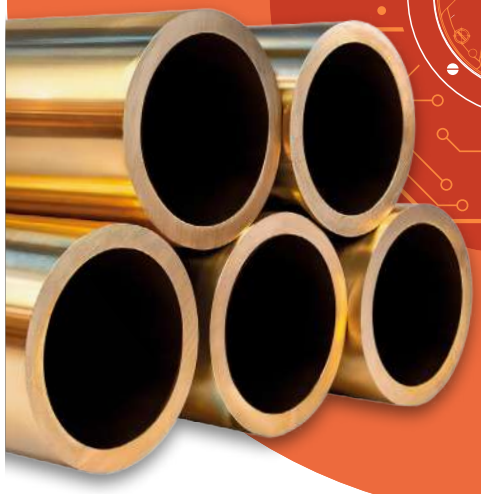
PRODUCT
CATALOG
Bars &
Hollows Bars

24

lebronze alloys



About Lebronze alloys

Lebronze alloys is a world leader in the **development** and **fully integrated production** of **high-performance copper and nickel alloys**.

Thanks to a multidisciplinary know-how, the Group provides **innovative solutions to all major industries** such as Aeronautics, Electronics, Space, Automotive, Energy, among others.

Our 6 production facilities and 730 employees manage a **unique range of metal processing technologies:** continuous and semi-continuous casting, extrusion, hot and cold rolling, drawing, open-die forging, hot stamping, closed-die forging, cold forming, machining, non-destructive testing, etc.

The Group's commitment is to find appropriate and **optimized solutions for every sector's requirements while optimizing the environmental impact of our products.**

High performance copper and nickel alloys

Fully integrated production process

Optimized environmental impact of our products

KEY FIGURES

- **6 production sites**
- **4 service centers**
- **730 employees**
- **200 + alloys produced**
- **239 M€ turnover**

History of the Group

2006

The DUMONT family, some private investors as well as some key managers, take over "Le Bronze Industriel", a company founded in France in 1934 specializing in copper alloys production.
This change of ownerships, with Michel DUMONT as active Chairman, marked a **new period of strategic growth for the company.**

2012-2016

Period of massive external growth for the company. Several major acquisitions are made such as Inoforges, Swissmetal Lüdenscheid and CLAL. These acquisitions consolidated our metallurgical expertise through a sharing of experience.

2016

Le Bronze Industriel officially becomes Lebronze alloys. It has been 10 years since the buyout and the Group has now tripled its sales.

2020

Opening of our first service center in Europe at Aldridge (UK). This service center joins an already well-established network of distributor partners around the globe and enables us to provide a greater responsiveness to our customers' needs.

2022

Marks the end of a 2-years industrial repositioning allowing the Group to focus on high added value materials.

2023-2024

The Group counts over 730 employees, 6 production sites and 4 service centers around the world and generates 239 M€ of sales.
Over the last two years, the Group has strengthened its distribution network by opening **two new service centers:** Lebronze alloys SE (Services Europe) in Breteuil, France, and Lebronze alloys NA in Bristol, USA.

Our worldwide footprint

- *Production plants*
- *Service centers*

LBA NA
USA
10 FTEs

LBA UK
England
13 FTEs

Lüdenscheid
Germany
120 FTEs

Rydzyna
Poland
42 FTEs

Dongguan
China
52 FTEs

LBA India
India
2 FTEs

LBA Asia
China
5 FTEs

Bornel
France
155 FTEs

Breteuil
France
85 FTEs

LBA SE
France
8 FTEs

Suippes
France
223 FTEs

Paris
Corporate headquarters

Product range at a glance

Lebronze alloys offers **more than 200 copper-based and nickel-based alloys** with unique properties which meet the most complex requirements. We supply these alloys in different forms:

Billets

Bars

Hollow bars

Strips

Sheets

Rods

Wires

Standard & complex profiles

Plates

Welding electrodes

Marine tubes & fitting

Machined blanks and parts

A fully integrated production process

One of the Group's major strengths relies in its **fully integrated production process,** from smelting to machining and recycling.

This particularity guarantees a traceability, optimization and strict control of the final properties of our materials so they can suit to the most stringent requirements.

Melting & Casting

- Continuous wire casting
- Continuous bar casting
- Semi-continuous casting

Hot forming

- Extrusion
- Hot rolling
- Free forging
- Hot stamping

Cold forming

- Cold rolling
- Drawing straightening
- Cold stamping
- Heat treatments

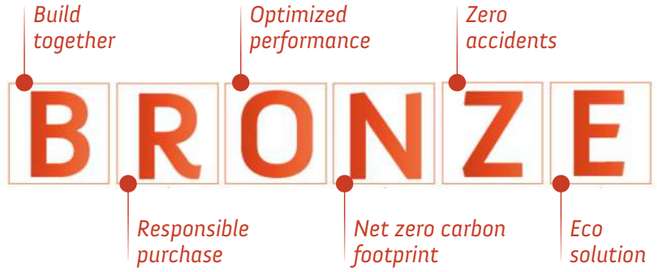
Finishing

- Machining
- Servicing
- Scrap recovery

Our sustainable development policy

To ensure the sustainability of our business, it is essential to strike the **right balance between economic performance, social impact and environmental impact.**

This balance within the Group is structured around our **6 "Bronze"** pillars. Each pillar is broken down into actions and indicators that enable us to be part of a dynamic of continuous progress and sustainability.



Build together: this pillar covers social initiatives that have a positive impact on gender, sex and age equality, as well as projects that improve the well-being of our teams at work.

Responsible purchase: purchases represent more than 50% of Group sales. It is therefore essential that we implement a responsible purchasing policy and tighten up our requirements of our suppliers.

Optimized performance: the Company's economic, industrial and environmental performance is a key factor in meeting the expectations of our relevant stakeholders.

Net zero carbon footprint: taking into account the major challenge of decarbonation, we have decided to make this a specific pillar and to build a path that meets the transformation of the Climate Act and the Paris Agreement.

Zero accidents: our processes require constant vigilance. We are taking actions to anticipate and reduce the risk of accidents as far as possible.

Eco solution: by working in collaboration with our customers and bringing innovations to the market, we are contributing to a more sustainable approach by improving the life cycle of products.

Quality

Lebronze alloys develops for all its activities a formally recognized quality management system which allows to:

- guarantee the traceability of our products, from raw material to the product delivered
- certify our products properties
- control our delivery times

Our state-of-the-art quality-check equipment include:

- **Metallurgical tests** such as traction, resilience, hardness, bending and others
- **Non destructive tests** such as Magnetic Particle Inspection (MPI), ultrasonic contact testing, liquid penetrant Inspection and others
- **Metrology, geometry and surface tests** such as surface metrology, global DEA, profile projectors and others

Our certifications

All our certificates can be consulted on our website

Aerospace certifications

afaq EN/AS/JISQ 9100 Aéronautique AFNOR CERTIFICATION

Certified site: Suippes

Nadcap Administered by PRI ACCREDITED

Heat treating

UKAS MANAGEMENT SYSTEMS 9963 — auva AS 9120 CERTIFIED

Certified service center: Lebronze alloys UK

General certifications

afaq ISO 9001 Qualité AFNOR CERTIFICATION

Certified sites: Bornel, Breteuil, Lüdenscheid, Suippes, Rydzyna.

afaq ISO 14001 Environnement AFNOR CERTIFICATION

Certified sites: Breteuil, Suippes, Rydzyna.

afaq ISO 45001 Santé Sécurité au Travail AFNOR CERTIFICATION

Certified sites: Bornel

afaq ISO 50001 Énergie AFNOR CERTIFICATION

Certified sites: Lüdenscheid, Breteuil and Suippes.

Low-alloyed copper alloys

High electrical and thermal conductivity

Our Group offers a wide range of **low-alloyed copper alloys**, usually composed of copper, chrome and/or zirconium.

These alloys are widely used for their **high electrical and thermal conductivity.** Main applications are **electrodes** in resistance welding, **rotor bars** and **connectors** for electrical systems, and **casting wheels, moulds** for the Iron and Steel industry. Other applications can also be found in Aerospace and Electronics.

PRODUCT PORTFOLIO

Alloy	ISO	UNS	Other designations	Aerospace specifications
CRM15	CuCr1	C18200 C18400	CC101 CW105C	NA
CRM16	CuCr1Zr	C18100 C18150	CA184 CC102 CW106C WN 2.1293	NA
CRM16 E	CuCr1Zr	C18100 C18150	CA184 CC102 CW106C WN 2.1293	NA
CRM16 HP	CuCr1Zr	C18150	NA	NA
ZR16X	CuZr	C15000	WN 2.1580 CW120C	NA
Cupro-U (ASTM B624)	CuCrZr	NA	NA	NA

STANDARD CAPABILITY*

Round Bars	Other Bars**	Hollow bars	Plates
ALL DIMENSIONS	ALL DIMENSIONS	ALL DIMENSIONS	ALL DIMENSIONS

**Other shapes on request*
***Depending on alloy, square / flat / rectangular / hexagonal bars*

ESG Performance

We aim to offer our Customers products with the leading grade of environmental footprint. To achieve this, we make major investments in innovative processes aiming to optimize energy and water consumption and increasing the use of recycled raw materials. More specifically, we have developed state-of-the-art recycling know-how based on specialized purchasers for sourcing end of life materials to be processed in our Group Upcycling Workshop. Another key aspect of our ESG strategy is to offer substitutes for alloys that are not REACH and RoHS compliant.

Our Low-alloyed copper alloys are:
- REACH and RoHS compliant
- On average produced with 90 % of recycled materials

REACH compliant

RoHS compliant

Markets and applications

Resistance welding

- Electrodes
- Parts

Electrical

- Rotor bars
- Connectors

Aerospace

- Booster engines
- Nozzles

CRM15

$CuCr_1$

29	63.546	24	51.9961
Cu		Cr	
copper		chromium	

CRM15 is a low-alloyed copper ($CuCr_1$) alloy which exhibits high electrical and thermal conductivity and suitable mechanical properties. CRM15 is suitable for many applications, including resistance welding.

Bars and Hollow Bars | Low-alloyed copper alloys | CRM15

MATERIAL DESIGNATION

ISO	UNS	Other designations	Aerospace specifications	Other standards
CuCr1	C18200 C18400	CC101 CW105C	NA	RWMA class 2 AWS J 1.3/1.3M class 2 BS 2874, ISO 5182 A2/1 BS 4577 A2/1

CHEMICAL COMPOSITION (WEIGHT%)

Cu	Cr
Balance	0.5 - 1%

PHYSICAL PROPERTIES

General properties		
Density at 20 °C (68 °F)	8.9 g/cm³	0.32 lb/in³
Thermal conductivity	320 W/m.°C	185 BTU/(h.ft.°F)
Coefficient of thermal expansion from 20 to 300 °C (68 °C to 572 °F)	17 x 10^{-6}/°C	9.44 µin/in °F
Young's modulus	120 GPa	17 405 ksi
Magnetic permeability	1.01	
Electrical properties		
Resistivity at 20 °C (68 °F)	2.15 µΩ.cm	12.93 Ω. circ mil/ft
Electrical conductivity	80 %IACS	

TYPICAL APPLICATIONS

Resistance welding

Electrodes, parts for welding machine guns (shanks, arms, sections, blanks)

Electrical industry

Rotor bars, connectors

Iron and steel industry

Casting wheels, moulds

COMPATIBLE DOWNSTREAM PROCESS

Extrusion, forging or die stamping followed by quenching and hardening plus cold-drawing for small diameters

Cold forming (bending, stamping, extrusion)

Weldable with electron beam

Hard brazing, but loss of mechanical properties

Machinability: 20 % of free-cutting brass

KEY FEATURES

High electrical and thermal conductivity

Suitable mechanical properties

Good annealing resistance

OTHER AVAILABLE FORMS

Hollow bars, square / flat / hexagonal bars, billets, strips, sheets, rods, wires, standard & complex profiles, welding electrodes, machined blanks and parts

MECHANICAL PROPERTIES

Size diameter Ø or thickness a	Temper*	Yield Strength 0.2% MPa (ksi)	Tensile Strength MPa (ksi)	Elongation (%)	Hardness (HB)
For other dimensions and shapes, mechanical properties on demand					
Round Bars					
10 ≤ Ø ≤ 25.4 mm (0.39 ≤ Ø ≤ 1 in.)	TER	≥ 420 (≥ 61)	≥ 480 (≥ 70)	≥ 18	≥ 150
26 ≤ Ø ≤ 45 mm (1.02 ≤ Ø ≤ 1.77 in.)	TER	≥ 420 (≥ 61)	≥ 480 (≥ 70)	≥ 18	≥ 140
45 < Ø ≤ 80 mm (1.77 < Ø ≤ 3.15 in.)	TER	≥ 360 (≥ 52)	≥ 440 (≥ 64)	≥ 18	≥ 140
20 ≤ Ø ≤ 350 mm (0.79 ≤ Ø ≤ 13.78 in.)	TR	≥ 240 (≥ 35)	≥ 350 (≥ 51)	≥ 20	≥ 120
Plates					
4 ≤ a ≤ 10 mm (0.16 ≤ a ≤ 0.40 in.)	TER	≥ 350 (≥ 51)	≥ 400 (≥ 58)	≥ 10	≥ 125
16 ≤ a ≤ 250 mm (0.60 ≤ a ≤ 10 in.)	TR	≥280 (≥ 41)	≥ 380 (≥ 55)	≥ 20	≥ 120

**TER: solution annealed and quenched, cold worked and aged*
TR: solution annealed, quenched and aged

Disclaimer : Data for information only, non-contractual / Dimensions outside these ranges on request

CRM16

$CuCr_1Zr$

Cu copper | Cr chromium | Zr zirconium

CRM16 is an age-hardening Copper-chromium-zirconium alloy ($CuCr_1Zr$) which exhibits high electrical and thermal conductivity and suitable mechanical properties. CRM16 is used for many applications including resistance welding.

Bars and Hollow Bars | Low-alloyed copper alloys | CRM16

MATERIAL DESIGNATION

ISO	UNS	Other designations	Aerospace specifications	Other standards
CuCr1Zr	C18100 C18150	CA184 CC102 CW106C WN 2.1293	NA	AWS J1.3, RWMA class 2 BS 2874, EN 12163 EN 12165, EN 12420 EN 12167, DIN 17666 DIN 17672, DIN 44759 ISO 5182 A2/2 and A2/3

CHEMICAL COMPOSITION (WEIGHT%)

Cu	Cr	Zr	Others
Balance	0.4 - 1%	0.03 - 0.15%	≤ 0.20%

PHYSICAL PROPERTIES

General properties		
Density at 20 °C (68 °F)	8.9 g/cm³	0.32 lb/in³
Thermal conductivity	320 W/m.°C	185 BTU/(h.ft.°F)
Coefficient of thermal expansion from 20 to 300 °C (68 °C to 572 °F)	17.5 x 10^{-6}/°C	9.7 µin/in °F
Young's modulus	120 GPa	17 405 ksi
Magnetic permeability	1.01	
Electrical properties		
Resistivity at 20 °C (68 °F)	≤ 2.3 µΩ.cm	≤ 13.83 Ω. circ mil/ft
Electrical conductivity	≥ 75 %IACS	

TYPICAL APPLICATIONS

Resistance welding

Electrodes, parts for welding machine guns (shanks, arms, sections, blanks)

Electrical industry

Rotor bars, connectors

Iron and steel industry

Casting wheels, moulds

COMPATIBLE DOWNSTREAM PROCESS

Extrusion, forging or die stamping followed by quenching and hardening plus cold-drawing for small diameters

Cold forming (bending, stamping, extrusion)

Weldable with electron beam

Hard brazing, but loss of mechanical properties

Machinability: 20 % of free-cutting brass

KEY FEATURES

High electrical and thermal conductivity

Suitable mechanical properties

Good annealing resistance

MECHANICAL PROPERTIES

Size diameter Ø or thickness a	Temper*	Yield Strength 0.2% MPa (ksi)	Tensile Strength MPa (ksi)	Elongation (%)	Hardness (HB)
For other dimensions and shapes, mechanical properties on demand					
Round Bars					
10 ≤ Ø ≤ 25.4 mm (0.39 ≤ Ø ≤ 1 in.)	TER	≥ 420 (≥ 61)	≥ 480 (≥ 70)	≥ 18	≥ 150
26 ≤ Ø ≤ 45 mm (1.02 ≤ Ø ≤ 1.77 in.)	TER	≥ 420 (≥ 61)	≥ 480 (≥ 70)	≥ 18	≥ 140
45 < Ø ≤ 80 mm (1.77 < Ø ≤ 3.15 in.)	TER	≥ 360 (≥ 52)	≥ 440 (≥ 64)	≥ 18	≥ 140
20 ≤ Ø ≤ 350 mm (0.78 ≤ Ø ≤ 13.78 in.)	TR	≥ 240 (≥ 35)	≥ 350 (≥ 51)	≥ 20	≥ 120
Flat / Square / Rectangular / Hexagonal Bars					
a ≤ 40 mm (a ≤ 1.57 in.)	TR	≥ 390 (≥ 56)	≥ 440 (≥ 64)	≥ 10	≥ 135
a > 40 mm (a > 1.57 in.)	TR	≥ 255 (≥ 37)	≥ 370 (≥ 53)	≥ 18	≥ 120
Plates					
4 ≤ a ≤ 10 mm (0.16 ≤ a ≤ 0.40 in.)	TER	≥ 350 (≥ 51)	≥ 400 (≥ 58)	≥ 10	≥ 125
16 ≤ a ≤ 250 mm (0.60 ≤ a ≤ 10 in.)	TR	≥280 (≥ 41)	≥ 380 (≥ 55)	≥ 20	≥ 120

**TER: solution annealed and quenched, cold worked and aged*
TR: solution annealed, quenched and aged

OTHER AVAILABLE FORMS

Hollow bars, billets, strips, sheets, rods, wires, standard & complex profiles, welding electrodes, machined blanks and parts

Disclaimer : Data for information only, non-contractual / Dimensions outside these ranges on request

CRM16 E

$CuCr_1Zr$

29 63.546	24 51.9961	40 91.224
Cu	Cr	Zr
copper	chromium	zirconium

CRM16 E is a variant of CRM16 ($CuCr_1Zr$) specially designed for forged products. It exhibits high electrical and thermal conductivity and suitable mechanical properties. CRM16 E is typically used for applications of larger dimensions and working at high temperature.

Bars and Hollow Bars | Low-alloyed copper alloys | CRM16 E

MATERIAL DESIGNATION

ISO	UNS	Other designations	Aerospace specifications	Other standards
CuCr1Zr	C18100 C18150	CA184 CC102 CW106C WN 2.1293	NA	AWS J1.3, RWMA class 2 BS 2874, EN 12163 EN 12165, EN 12420 EN 12167, DIN 17666 DIN 17672

CHEMICAL COMPOSITION (WEIGHT%)

Cu	Cr	Zr	Others
Balance	0.4 - 1%	0.10 - 0.25%	≤ 0.20%

PHYSICAL PROPERTIES

General properties		
Density at 20 °C (68 °F)	8.9 g/cm³	0.32 lb/in³
Thermal conductivity	320 W/m.°C	185 BTU/(h.ft.°F)
Coefficient of thermal expansion from 20 to 300 °C (68 °C to 572 °F)	17 x 10^{-6}/°C	9.44 µin/in °F
Young's modulus	120 GPa	17 405 ksi
Magnetic permeability	1.01	
Electrical properties		
Resistivity at 20 °C (68 °F)	≤ 2.3 µΩ.cm	≤ 13.83 Ω. circ mil/ft
Electrical conductivity	≥ 75 %IACS	

TYPICAL APPLICATIONS

Resistance welding
Welding wheels
Electrical industry
Rotor rings, connectors
Iron and steel industry
Casting wheels, moulds

COMPATIBLE DOWNSTREAM PROCESS

Extrusion, forging or die stamping followed by quenching and hardening
Cold forming (bending, stamping, extrusion)
Weldable with electron beam
Hard brazing, but loss of mechanical properties
Machinability: 20 % of free-cutting brass

KEY FEATURES

High electrical and thermal conductivity
Suitable mechanical properties
Good annealing resistance

MECHANICAL PROPERTIES

Size diameter Ø or thickness a	Temper*	Yield Strength 0.2% MPa (ksi)	Tensile Strength MPa (ksi)	Elongation (%)	Hardness (HB)
For other dimensions and shapes, mechanical properties on demand					
Bars					
Ø ≤ 100 mm (Ø ≤ 3.94 in.)	TR	≥ 280 (≥ 41)	≥ 380 (≥ 55)	≥ 15	≥ 120
Ø > 100 mm (Ø > 3.94 in.)	TR	≥ 240 (≥ 35)	≥ 380 (≥ 55)	≥ 15	≥ 110
Discs and Rings					
OD ≤ 100 mm (OD ≤ 3.94 in.)	TR	≥ 280 (≥ 41)	≥ 380 (≥ 55)	≥ 15	≥ 130
Plates					
a ≤ 100 mm (a ≤ 3.94 in.)	TR	≥ 280 (≥ 41)	≥ 380 (≥ 55)	≥ 15	≥ 120

**TR: solution annealed, quenched and aged*

OTHER AVAILABLE FORMS

Hollow bars, billets, strips, sheets, rods, wires, standard & complex profiles, welding electrodes, machined blanks and parts

Disclaimer : Data for information only, non-contractual / Dimensions outside these ranges on request

CRM16 HP

$CuCr_1Zr$

29 63.546 Cu copper
24 51.9961 Cr chromium
40 91.224 Zr zirconium

CRM16 HP is a variant of CRM16 ($CuCr_1Zr$) with high purity designed for very sensitive and demanding applications in electrical and space industries. It exhibits high electrical and thermal conductivity and suitable mechanical properties

Bars and Hollow Bars | Low-alloyed copper alloys | CRM16 HP

MATERIAL DESIGNATION

ISO	UNS	Other designations	Aerospace specifications	Other standards
CuCr1Zr	C18150	NA	NA	NA

CHEMICAL COMPOSITION (WEIGHT%)

Cu	Cr	Zr	Others
Balance	0.5 - 0.8%	0.03 - 0.10%	Fe ≤ 0.04% Impurities ≤ 0.10%

PHYSICAL PROPERTIES

General properties		
Density at 20 °C (68 °F)	8.9 g/cm³	0.32 lb/in³
Thermal conductivity	320 W/m.°C	185 BTU/(h.ft.°F)
Coefficient of thermal expansion from 20 to 300 °C (68 °C to 572 °F)	17 x 10^{-6}/°C	9.44 µin/in °F
Young's modulus	120 GPa	17 405 ksi
Magnetic permeability	1.01	
Electrical properties		
Resistivity at 20 °C (68 °F)	2.0 µΩ.cm	12.03 Ω. circ mil/ft
Electrical conductivity	85 %IACS	

TYPICAL APPLICATIONS

Components for particle accelerators

Electrical industry

Rotor bars, connectors, rings, discs

Space industry

Booster engines, nozzles

COMPATIBLE DOWNSTREAM PROCESS

Extrusion, forging or die stamping followed by quenching and hardening plus cold-drawing for small diameters

Cold forming (bending, stamping, extrusion)

Weldable with electron beam

Hard brazing, but loss of mechanical properties

Machinability: 20 % of free-cutting brass

KEY FEATURES

High purity

Very high electrical and thermal conductivity

Suitable mechanical properties

Good annealing resistance

MECHANICAL PROPERTIES

Size diameter Ø or thickness a	Temper*	Yield Strength 0.2% MPa (ksi)	Tensile Strength MPa (ksi)	Elongation (%)	Hardness (HB)
For other dimensions and shapes, mechanical properties on demand					
Bars					
10 ≤ Ø ≤ 25.4 mm (0.39 ≤ Ø ≤ 1 in.)	TER	≥ 420 (≥ 61)	≥ 480 (≥ 70)	≥ 18	≥ 150
26 ≤ Ø ≤ 45 mm (1.02 ≤ Ø ≤ 1.77 in.)	TER	≥ 420 (≥ 61)	≥ 480 (≥ 70)	≥ 18	≥ 140
45 < Ø ≤ 80 mm (1.77 < Ø ≤ 3.15 in.)	TER	≥ 360 (≥ 52)	≥ 440 (≥ 64)	≥ 18	≥ 140
20 ≤ Ø ≤ 350 mm (0.78 ≤ Ø ≤ 13.78 in.)	TR	≥ 240 (≥ 35)	≥ 350 (≥ 51)	≥ 20	≥ 120
Flat / Square / Rectangular / Hexagonal Bars					
a ≤ 40 mm (a ≤ 1.57 in.)	TR	≥ 390 (≥ 56)	≥ 440 (≥ 64)	≥ 10	≥ 135
a > 40 mm (a > 1.57 in.)	TR	≥ 255 (≥ 37)	≥ 370 (≥ 53)	≥ 18	≥ 120
Plates					
4 ≤ a ≤ 10 mm (0.16 ≤ a ≤ 0.40 in.)	TER	≥ 350 (≥ 51)	≥ 400 (≥ 58)	≥ 10	≥ 125
16 ≤ a ≤ 250 mm (0.60 ≤ a ≤ 10 in.)	TR	≥ 280 (≥ 41)	≥ 380 (≥ 55)	≥ 20	≥ 120

**TER: solution annealed and quenched, cold worked and aged*
TR: solution annealed, quenched and aged

OTHER AVAILABLE FORMS

Hollow bars, billets, strips, sheets, rods, wires, standard & complex profiles, welding electrodes, machined blanks and parts

Disclaimer : Data for information only, non-contractual / Dimensions outside these ranges on request

ZR16X

CuZr

Cu copper | Zr zirconium

ZR16X is a low-alloyed copper (CuZr) alloy which exhibits high electrical and thermal conductivity and suitable mechanical properties. ZR16X is a material of choice for resistance welding applications.

Bars and Hollow Bars | Low-alloyed copper alloys | ZR16X

MATERIAL DESIGNATION

ISO	UNS	Other designations	Aerospace specifications	Other standards
CuZr	C15000	WN 2.1580 CW120C	NA	AWS J1.3, RWMA class 1 DIN 17666, DIN 17672 ISO 5182 A2/4, EN 12163 EN 12167, EN 12420

CHEMICAL COMPOSITION (WEIGHT%)

Cu	Zr
Balance	0.15%

TYPICAL APPLICATIONS

Resistance welding

Electrodes, sections

PHYSICAL PROPERTIES

General properties		
Density at 20 °C (68 °F)	8.9 g/cm^3	0.32 lb/in^3
Thermal conductivity	320 W/m.°C	185 BTU/(h.ft.°F)
Coefficient of thermal expansion from 20 to 300 °C (68 °C to 572 °F)	17 x 10^{-6}/°C	9.44 µin/in °F
Young's modulus	110 GPa	15 954 ksi
Magnetic permeability	1.01	
Electrical properties		
Resistivity at 20 °C (68 °F)	≤ 2.05 µΩ.cm	≤ 12.33 Ω circ mil/ft
Electrical conductivity	≥ 85 %IACS	

COMPATIBLE DOWNSTREAM PROCESS

Forging, extrusion or drawing
Hot and cold working
Hard and soft brazing

KEY FEATURES

High electrical and thermal conductivity
Suitable mechanical properties
Good annealing resistance

MECHANICAL PROPERTIES

Size	Temper*	Yield Strength 0.2% MPa (ksi)	Tensile Strength MPa (ksi)	Elongation (%)	Hardness (HB)
For other dimensions and shapes, mechanical properties on demand					
Bars					
Ø ≤ 25.4 mm (Ø ≤ 1 in.)	TER	≥ 280 (≥ 41)	≥ 320 (≥ 46)	≥ 18	≥ 120

**TER: solution annealed and quenched, cold worked and aged*

OTHER AVAILABLE FORMS

Hollow bars, plates, billets, strips, sheets, rods, wires, standard & complex profiles, welding electrodes, machined blanks and parts

Disclaimer : Data for information only, non-contractual / Dimensions outside these ranges on request

Cupro-U

CuCrZr

Cu copper | Cr chromium | Zr zirconium

Cupro-U is an age hardening low-alloyed copper (CuCrZr) alloy optimized for high strength and high conductivity applications.

In addition, Cupro-U is a direct susbtitute to cadmium-copper. It is also a lead-free and beryllium-free material.

Bars and Hollow Bars | Low-alloyed copper alloys | Cupro-U

MATERIAL DESIGNATION

ISO	UNS	Other designations	Aerospace specifications	Other standards
CuCrZr	NA	NA	NA	ASTM B 624

CHEMICAL COMPOSITION (WEIGHT%)

Cu	Cr	Zr
Balance	0.1-0.6%	0.02-0.06%

PHYSICAL PROPERTIES

General properties		
Density at 20 °C (68 °F)	8.94 g/cm³	0.32 lb/in³
Thermal conductivity	330 W/m.°C	191 BTU/(h.ft.°F)
Coefficient of thermal expansion from 20 to 300 °C (68 °C to 572 °F)	17 x 10^{-6}/°C	9.5 µin/in °F
Young's modulus	120 GPa	17 404 ksi
Magnetic permeability	< 1.01	
Electrical properties		
Temperature coefficient of electrical resistance TCR	3370 ppm/°C	1872 ppm/°F
Electrical conductivity	≥ 88% IACS	

TYPICAL APPLICATIONS

Aerospace industry

Electronics industry

Single-core and multi-core conductor cables

Electromagnetic shielding

Thermal and electrical conductive fasteners

High power density connectors

COMPATIBLE DOWNSTREAM PROCESS

Extrusion, drawing or wire drawing

Hot and cold working

KEY FEATURES

High strength and high conductivity

High flex life

Fair resistance to corrosive environments

Working temperature resistance up to 400 °C (752 °F)

Non-magnetic

Excellent plating ability

MECHANICAL PROPERTIES

Size	Yield Strength 0.2% MPa (ksi)	Tensile Strength MPa (ksi)	Elongation (%)	Hardness (HB)
For other dimensions and shapes, mechanical properties on demand				
Bars				
Ø < 20 mm (Ø < 0.78 in.)	≥ 420 (≥ 61)	≥ 460 (≥ 66)	≥ 10	≥ 130

OTHER AVAILABLE FORMS

Strips, sheets, rods, wires, standard & complex profiles, welding electrodes, machined blanks and parts

Disclaimer : Data for information only, non-contractual / Dimensions outside these ranges on request

lebronze alloys

Métallurgie d'exception

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