

PRODUCT
CATALOG
Strips & Sheets

24

Uba
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 750 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
- 3 service centers
- 750 employees
- 200 + alloys produced
- 288 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

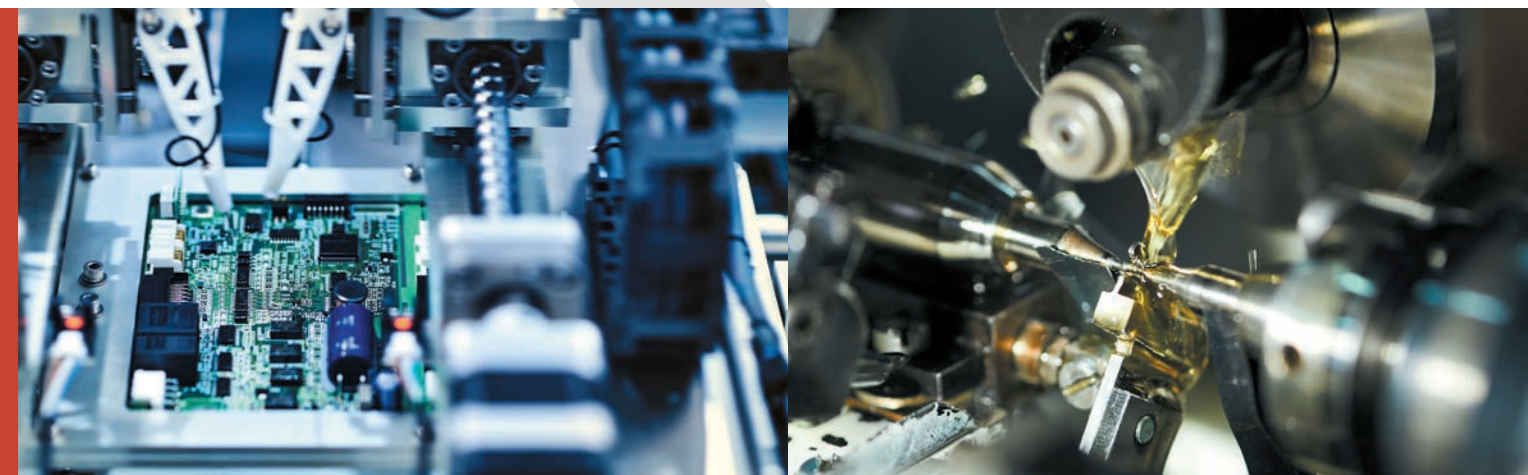
Opening of our first service center in Europe at Aldridge (UK). This service center joins an already well-established network of distributor partners around the globe and enables us to provide a greater responsiveness to our customers' needs.

2022

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

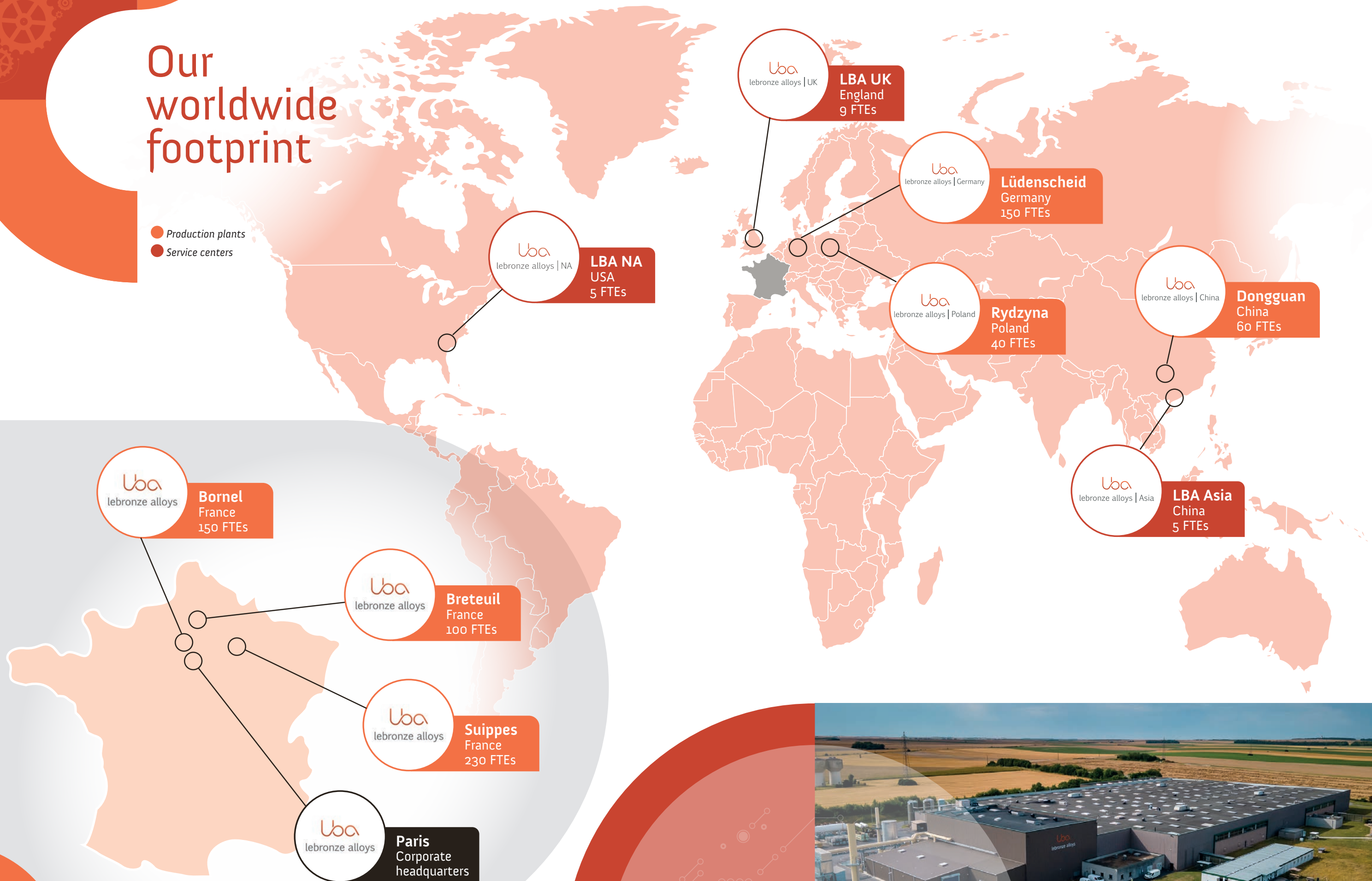
2023

The Group counts over 750 employees, 6 production sites and 3 service centers around the world and generates 288 M€ of sales.



Our worldwide footprint

- Production plants
- Service centers



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



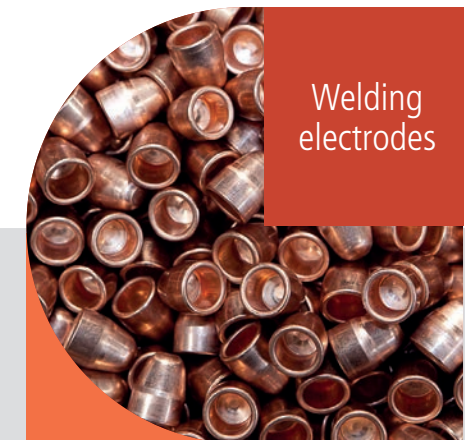
Wires



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

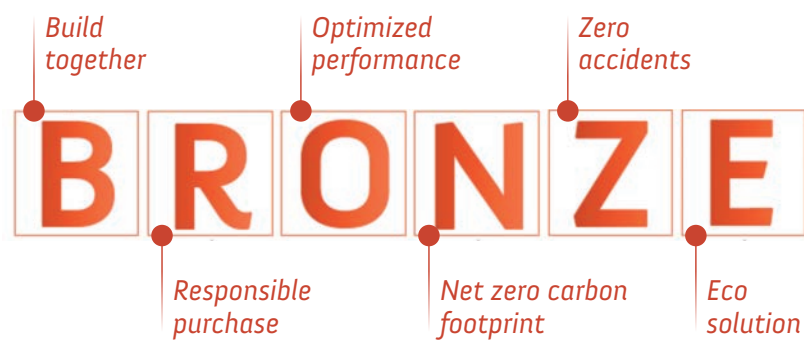
Finishing

- 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.

Optimised 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 action 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 allow 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 checks 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



Certified site: Suippes



Heat treating



Certified service center:
Lebronze alloys UK

General certifications



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



Certified sites: Breteuil, Suippes, Rydzyna.



Certified sites: Lüdenscheld and Suippes.

CuNi alloys

Electronic grade alloys

Precision and stability in vacuum environment

Our Group offers copper-nickel alloys **used for electronic applications**. These alloys exhibit high **stability and precision of electrical properties** especially in vacuum environment thanks to a superior **metallurgical** cleanliness offered by our special production processes.

PRODUCT PORTFOLIO		
Alloy	ISO	UNS
Nical® 30B	CuNi ₃₀	NA
Constantan 45 SIE	CuNi ₄₄ Mn ₁	NA
Nical® 404*	NiCu ₄₇ FeMnSi	NA
Nical® 30A*	CuNi ₃₀ MnFe	NA
Nical® 30D*	CuNi ₃₀ MnFeSi	NA
Constantan 45A*	Proprietary	NA
Nical® 404B*	NiCu ₄₇ FeMnSi	NA

**For those alloys, technical data is on demand*

STANDARD CAPABILITY			
Format	Thickness	Width	Length
Strips	0.08 - 3.5 mm	3 - 380 mm	NA
Sheets	0.25 - 3.5 mm	20 - 380 mm*	500 - 3000 mm*

**Dimensions outside this range on request*



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 CuNi alloys are :
- RoHS and REACH compliant
 - Mainly produced from recycled raw materials



Markets and applications

Electronics

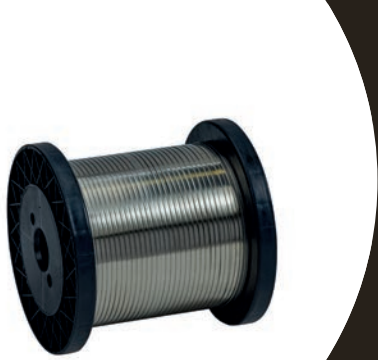


- Vacuum tubes
- Vacuum electronics

Defence

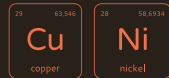


- Radars
- Sonars
- Telecommunication antennas

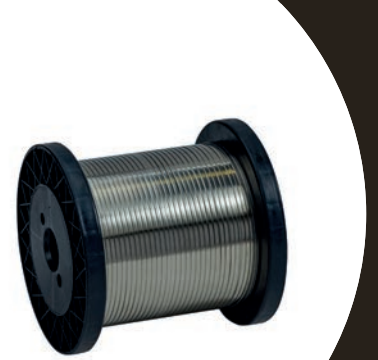


Niclal® 30B

CuNi₃₀

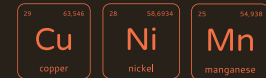


Niclal® 30B is an electronic grade Copper-Nickel (CuNi₃₀) alloy designed and produced by Lebronze alloys. It exhibits high precision of resistivity, even at high temperatures, as well as good corrosion resistance.



Constantan 45 SIE

CuNi₄₄Mn₁



Constantan 45 SIE is an electronic grade Copper-Nickel (CuNi₄₄Mn₁) alloy designed and produced by Lebronze alloys. It exhibits high precision of resistivity, even at high temperatures, as well as great corrosion resistance.

MATERIAL DESIGNATION

ISO	UNS	Others
CuNi ₃₀	NA	NA

CHEMICAL COMPOSITION

Cu	Ni
Balance	30%

PHYSICAL PROPERTIES

General properties	
Density at 20 °C	8.9 g/cm³
Thermal conductivity	29 W/m.°C
Coefficient of thermal expansion from 20 to 200 °C	16.2 x 10 ⁻⁶ /°C
Melting point	1180 °C
Modulus of elasticity	154 GPa
Specific heat capacity	0.38 J/g.°C
Electrical properties	
Resistivity at 20°C	37 µΩ.cm
Resistivity deviation	3σ = 5%

TYPICAL APPLICATIONS

Vacuum tubes
Vacuum electronics components
Radars and sonars components
Telecommunication antennas

COMPATIBLE DOWNSTREAM PROCESS

Slitting

KEY FEATURES

High precision of resistivity
High temperature resistance
Good corrosion resistance

OTHER AVAILABLE FORMS

Rods
Wire

MECHANICAL PROPERTIES

Temper	Yield Stength 0.2 % (MPa)	Tensile Stength (MPa)	Elongation (%)	Hardness (HV)
Annealed	< 200	< 400	> 30	< 100

STANDARD CAPABILITY

Format	Thickness	Width	Length
Strips	0.08 - 3.5 mm	3 - 380 mm	NA
Sheets	0.25 - 3.5 mm	20 - 380 mm*	500 - 3000 mm*

*Dimensions outside this range on request

Disclaimer : Data for information only, non-contractual

MATERIAL DESIGNATION

ISO	UNS	Others
CuNi ₄₄ Mn ₁	NA	DIN 17471 n°2.0842

CHEMICAL COMPOSITION

Cu	Ni	Mn
Balance	44%	1%

PHYSICAL PROPERTIES

General properties	
Density at 20 °C	8.9 g/cm³
Thermal conductivity	23 W/m.°C
Coefficient of thermal expansion from 20 to 200 °C	13.5 x 10 ⁻⁶ /°C
Melting point	1280 °C
Modulus of elasticity	165 GPa
Specific heat capacity	0.38 J/g.°C
Electrical properties	
Resistivity at 20°C	49 µΩ.cm
Resistivity deviation	3σ = 5%

TYPICAL APPLICATIONS

Vacuum tubes
Vacuum electronics components
Radars and sonars components
Telecommunication antennas

COMPATIBLE DOWNSTREAM PROCESS

Slitting

KEY FEATURES

High precision of resistivity
High temperature resistance
Good corrosion resistance

OTHER AVAILABLE FORMS

Rods
Wire

MECHANICAL PROPERTIES

Temper	Yield Stength 0.2 % (MPa)	Tensile Stength (MPa)	Elongation (%)	Hardness (HV)
Annealed	< 250	< 450	> 40	< 120

STANDARD CAPABILITY

Format	Thickness	Width	Length
Strips	0.08 - 3.5 mm	3 - 380 mm	NA
Sheets	0.25 - 3.5 mm	20 - 380 mm*	500 - 3000 mm*

*Dimensions outside this range on request

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Métallurgie d'exception

www.lebronze-alloys.com