

PRODUCT
CATALOG
Strips & Sheets

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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

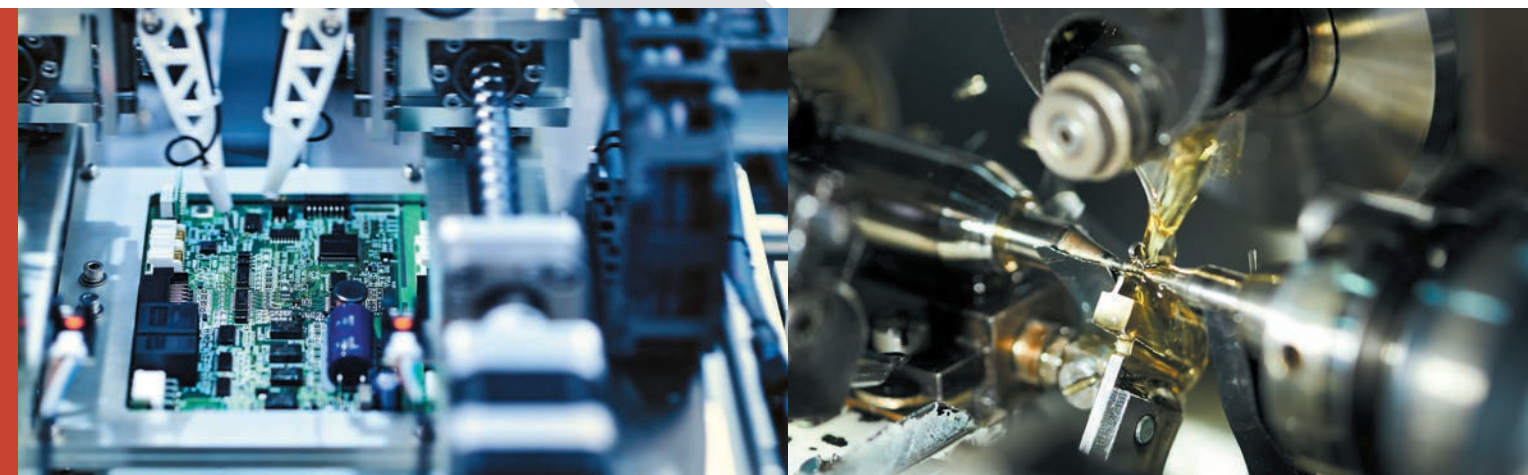
Opening of our first service center in Europe at Aldridge (UK). This service center joins an already well-established network of distributor partners around the globe and enables us to provide a greater responsiveness to our customers' needs.

2022

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

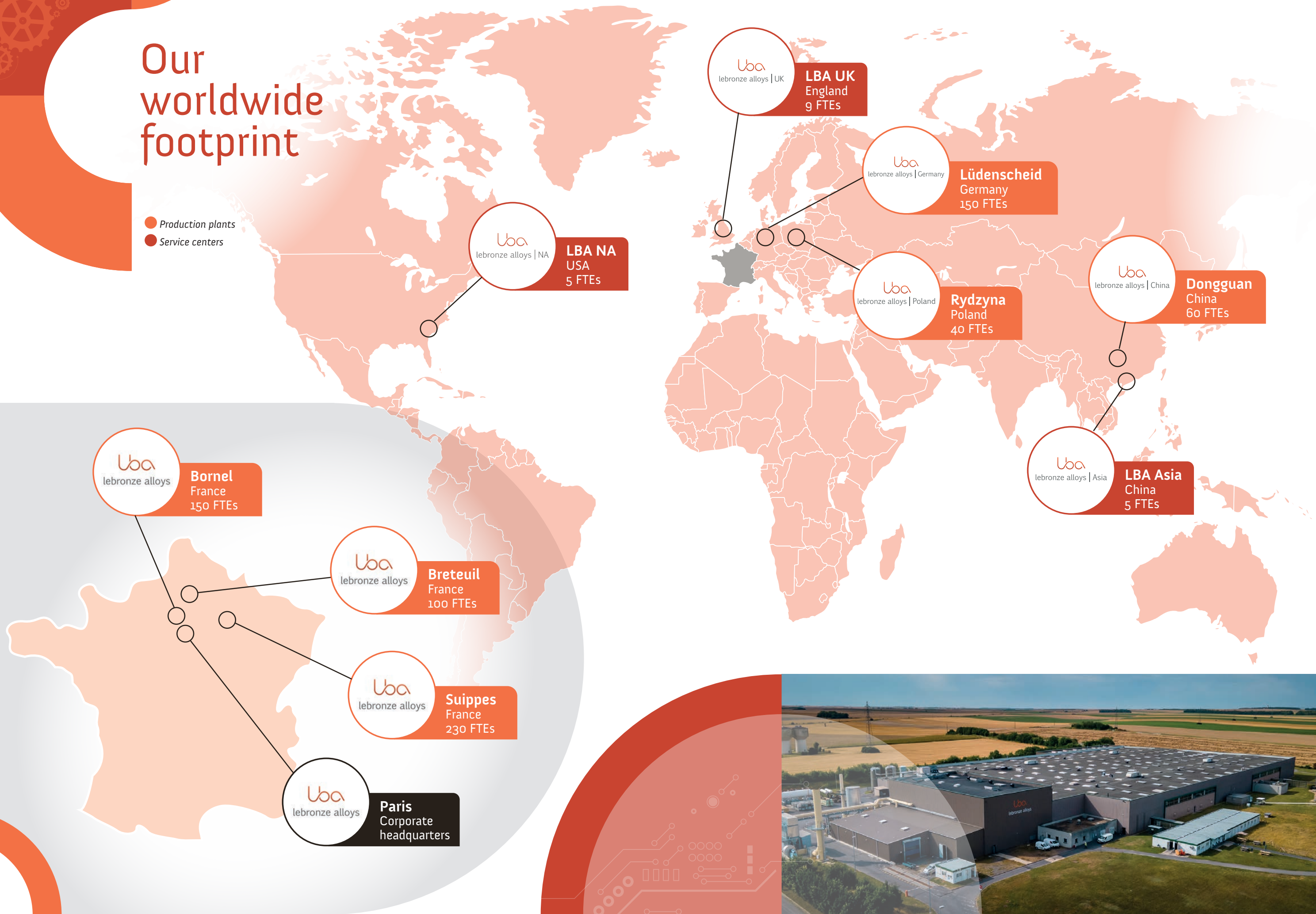
2023

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



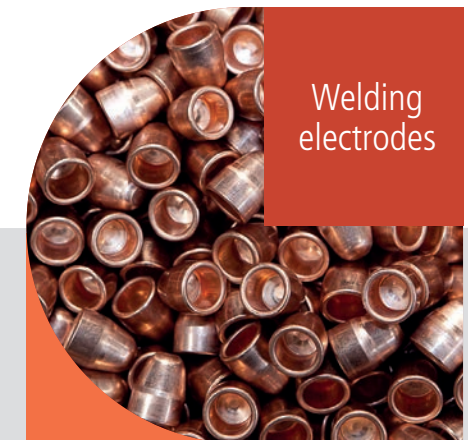
Wires



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

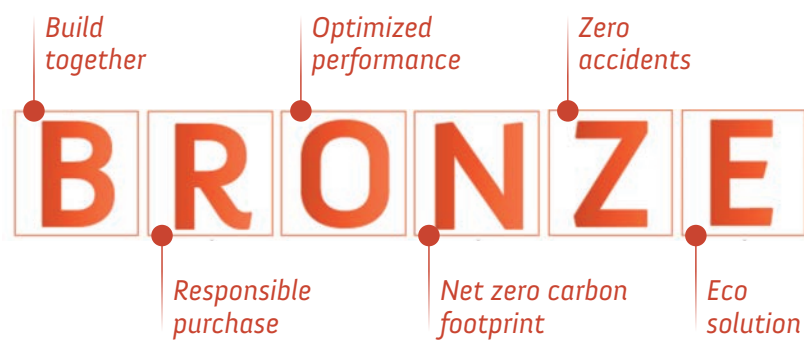
Finishing

- 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.

Pure nickel

Superior formability and high corrosion resistance

Lebronze alloys is one of the market leaders of pure nickel strips, fully integrated from casting to final slitting.

Based on more than 50 years of experience, our pure nickel strips are widely used in the most stringent applications and recognized for their unique combination of properties:

- Corrosion resistance
- Unique formability (bending, deep drawing, expanded metal forming...)
- Solderability and weldability
- Electrical conductivity

Our advanced casting techniques allows superior metallurgical cleanliness, specially required for thin nickel strips and vacuum applications.

PRODUCT PORTFOLIO		
Alloy	ISO	ASTM
Nickel 200	NiMnSiC	N02200
Nickel 201	NiMnSiC	N02201
Nickel 206	NiMnSiC	NA
Nickel 206A	NiMnSiC	NA
Nickel 206C	NiMnSiC	NA

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

NICKEL PURITY GRADES					
Nickel range	Nickel 200	Nickel 201	Nickel 206	Nickel 206 C	Nickel 206 A
Ni (minimum)	99.2 %	99.0 %	99.6 %	99.6 %	99.0 %
C	0.10	0.02	0.08	0.02	0.02
Si	0.25	0.25	0.10	0.10	0.10
Mn	0.35	0.35	0.30	0.20	0.35
S	0.005	0.005	0.005	0.005	0.005
Cu	0.25	0.25	0.15	0.10	0.15
Fe	0.40	0.40	0.25	0.20	0.25
Ti	0.10	0.10	0.10	0.10	0.10
Mg	0.15	0.15	0.15	0.15	0.15

We propose 5 different grades of pure nickel differing on their nickel and carbon content.



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 pure nickel alloys are :
- RoHS and REACH compliant



Markets and applications

Electronics

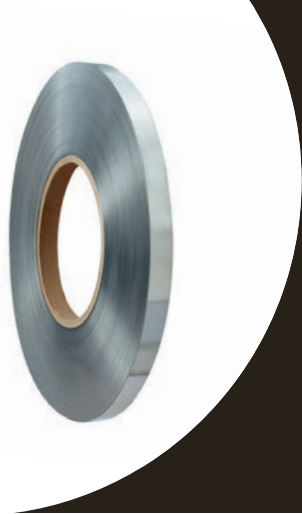


- Battery packs

Others



- Bursting discs
- Sprinkler parts
- Heat exchangers



Nickel 200

NiMnSiC



Nickel 200 is one of our pure Nickel products. Our advanced casting techniques allow superior metallurgical cleanliness, specially required for thin Nickel strips and vacuum applications. Our fully integrated manufacturing process allows full mastery of our product properties.



MATERIAL DESIGNATION

ISO	ASTM	Others
NiMnSiC	N02200	DIN 17740 W n°2.4066

CHEMICAL COMPOSITION

Ni	> 99.2%
C	< 0.1000 %
Si	< 0.2500 %
Mn	< 0.3500 %
S	< 0.0050 %
Cu	< 0.2500 %
Fe	< 0.4000 %
Ti	< 0.1000 %
Mg	< 0.1500 %

PHYSICAL PROPERTIES

General properties	
Density at 20 °C	8.9 g/cm³
Thermal conductivity	74.9 W/m.°C
Coefficient of thermal expansion from 20 to 200 °C	13.3 x 10 ⁻⁶ /°C
Modulus of elasticity	204-210 GPa
Corrosion resistance	★★★★★
Electrical resistivity at 20°C	9.5 µΩ.cm

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

TYPICAL APPLICATIONS

Shunts and precision resistors
Bursting discs
Battery pack connectors
Electronic components
Telecommunications
Currency and medals
Sprinkler parts
Cathodes in hydrogen fuel cells
Flux cored wires

COMPATIBLE DOWNSTREAM PROCESS

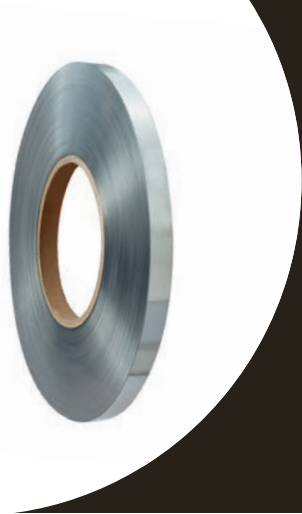
Deep drawing
Soldering
Welding

KEY FEATURES

Corrosion resistance
Electrical conductivity
High purity

MECHANICAL PROPERTIES

Temper	Yield Strength 0.2% (MPa)	Tensile Strength (MPa)	Elongation (%)	Hardness (HV)
Annealed	> 150	> 400	> 40	< 130
¼ hard H11	> 200	> 400	> 15	130 - 170
½ hard H12	> 280	> 500	> 10	160 - 210
¾ hard H13	> 400	> 560	> 5	170 - 230
4/4 hard H14	> 450	> 560	> 1	> 210
Spring H15	> 500	> 600	> 1	210 - 290



Nickel 201

NiMnSiC



Nickel 201 is one of our pure Nickel products. Our advanced casting techniques allow superior metallurgical cleanliness, specially required for thin Nickel strips and vacuum applications. Our fully integrated manufacturing process allows full mastery of our product properties.



MATERIAL DESIGNATION

ISO	ASTM	Others
NiMnSiC	N02201	DIN 17740 W n°2.4068

CHEMICAL COMPOSITION

Ni	> 99.0 %
C	< 0.0200 %
Si	< 0.2500 %
Mn	< 0.3500 %
S	< 0.0050 %
Cu	< 0.2500 %
Fe	< 0.4000 %
Ti	< 0.1000 %
Mg	< 0.1500 %

PHYSICAL PROPERTIES

General properties	
Density at 20 °C	8.9 g/cm³
Thermal conductivity	79.2 W/m.°C
Coefficient of thermal expansion from 20 to 200 °C	13.3 x 10 ⁻⁶ /°C
Modulus of elasticity	204 - 210 GPa
Corrosion resistance	★★★★★
Electrical resistivity at 20°C	9.5 µΩ.cm

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

TYPICAL APPLICATIONS

Shunts and precision resistors
Bursting discs
Battery pack connectors
Electronic components
Telecommunications
Currency and medals
Sprinkler parts
Cathodes in hydrogen fuel cells
Flux cored wires

COMPATIBLE DOWNSTREAM PROCESS

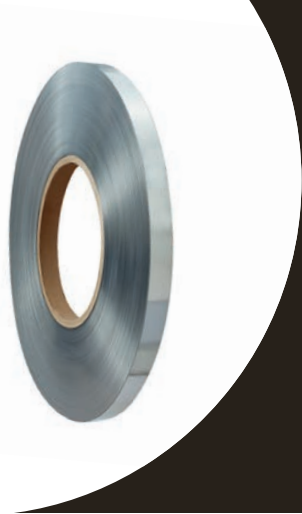
Deep drawing
Soldering
Welding

KEY FEATURES

Corrosion resistance
Electrical conductivity
High purity
Low in Carbon
Suitable for high temperature use without intergranular corrosion

MECHANICAL PROPERTIES

Temper	Yield Strength 0.2% (MPa)	Tensile Strength (MPa)	Elongation (%)	Hardness (HV)
Annealed	> 100	> 380	> 40	< 110
¼ hard H11	> 250	380 - 500	> 25	130 - 160
½ hard H12	> 350	420 - 550	> 15	150 - 200
¾ hard H13	> 400	450 - 600	> 10	170 - 210
4/4 hard H14	> 450	> 560	> 2	> 180



Nickel 206

NiMnSiC



Nickel 206 is one of our pure Nickel products. Our advanced casting techniques allow superior metallurgical cleanliness, specially required for thin Nickel strips and vacuum applications. Our fully integrated manufacturing process allows full mastery of our product properties.



MATERIAL DESIGNATION

ISO	ASTM	Others
NiMnSiC	NA	DIN 17740 W n°2.4060

CHEMICAL COMPOSITION

Ni	> 99.6 %
C	< 0.0800 %
Si	< 0.1000 %
Mn	< 0.3000 %
S	< 0.0050 %
Cu	< 0.1500 %
Fe	< 0.2500 %
Ti	< 0.1000 %
Mg	< 0.1500 %

PHYSICAL PROPERTIES

General properties	
Density at 20 °C	8.9 g/cm³
Thermal conductivity	70 W/m.°C
Coefficient of thermal expansion from 20 to 200 °C	13.3 x 10 ⁻⁶ /°C
Modulus of elasticity	204 - 210 GPa
Corrosion resistance	★★★★★
Electrical resistivity at 20°C	8.8 µΩ.cm

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

TYPICAL APPLICATIONS

Shunts and precision resistors
Bursting discs
Battery pack connectors
Electronic components
Telecommunications
Currency and medals
Sprinkler parts
Cathodes in hydrogen fuel cells
Flux cored wires

COMPATIBLE DOWNSTREAM PROCESS

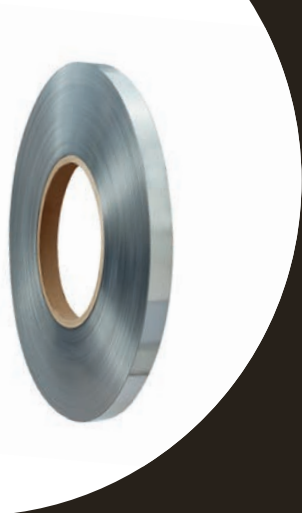
Deep drawing
Soldering
Welding

KEY FEATURES

Corrosion resistance
Electrical conductivity
High purity
Low in Carbon
Suitable for high temperature use without intergranular corrosion

MECHANICAL PROPERTIES

Temper	Yield Strength 0.2% (MPa)	Tensile Strength (MPa)	Elongation (%)	Hardness (HV)
Annealed	110 - 310	350 - 450	> 40	< 110
¼ hard H14	480 - 650	550 - 670	0 - 2	165 - 230



Nickel 206A

NiMnSiC



Nickel 206A is one of our pure Nickel products. Our advanced casting techniques allow superior metallurgical cleanliness, specially required for thin Nickel strips and vacuum applications. Our fully integrated manufacturing process allows full mastery of our product properties.



MATERIAL DESIGNATION

ISO	ASTM	Others
NiMnSiC	NA	NA

CHEMICAL COMPOSITION

Ni	> 99.0 %
C	< 0.0200 %
Si	< 0.1000 %
Mn	< 0.3000 %
S	< 0.0050 %
Cu	< 0.1500 %
Fe	< 0.2500 %
Ti	< 0.1000 %
Mg	< 0.1500 %

PHYSICAL PROPERTIES

General properties	
Density at 20 °C	8.9 g/cm³
Thermal conductivity	70 W/m.°C
Coefficient of thermal expansion from 20 to 200 °C	13.3 x 10 ⁻⁶ /°C
Modulus of elasticity	204 - 210 GPa
Corrosion resistance	★★★★★
Electrical resistivity at 20°C	8.75 µΩ.cm

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

TYPICAL APPLICATIONS

- Shunts and precision resistors
- Bursting discs
- Battery pack connectors
- Electronic components
- Telecommunications
- Currency and medals
- Sprinkler parts
- Cathodes in hydrogen fuel cells
- Flux cored wires

COMPATIBLE DOWNSTREAM PROCESS

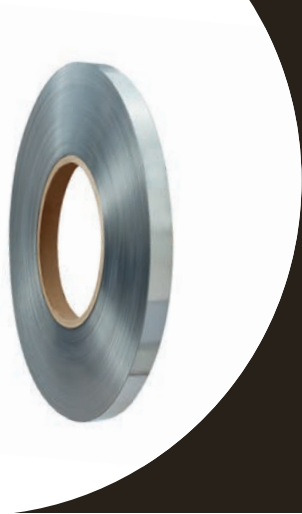
- Deep drawing
- Soldering
- Welding

KEY FEATURES

- Corrosion resistance
- Electrical conductivity
- High purity
- Low in Carbon
- Suitable for high temperature use without intergranular corrosion

MECHANICAL PROPERTIES

Temper	Yield Strength 0.2% (MPa)	Tensile Strength (MPa)	Elongation (%)	Hardness (HV)
Annealed	> 150	< 450	> 30	< 130



Nickel 206C

NiMnSiC



Nickel 206C is one of our pure Nickel products. Our advanced casting techniques allow superior metallurgical cleanliness, specially required for thin Nickel strips and vacuum applications. Our fully integrated manufacturing process allows full mastery of our product properties.



MATERIAL DESIGNATION

ISO	UNS	Others
NiMnSiC	NA	DIN 17740 W n°2.4061

CHEMICAL COMPOSITION

Ni	> 99.6 %
C	< 0.0200 %
Si	< 0.1000 %
Mn	< 0.2000 %
S	< 0.0050 %
Cu	< 0.1000 %
Fe	< 0.2000 %
Ti	< 0.1000 %
Mg	< 0.1500 %

PHYSICAL PROPERTIES

General properties	
Density at 20 °C	8.9 g/cm³
Thermal conductivity	70 W/m.°C
Coefficient of thermal expansion from 20 to 200 °C	13.3 x 10 ⁻⁶ /°C
Modulus of elasticity	204 - 210 GPa
Corrosion resistance	★★★★★
Electrical resistivity at 20°C	8.3 µΩ.cm

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

TYPICAL APPLICATIONS

Shunts and precision resistors
Bursting discs
Battery pack connectors
Electronic components
Telecommunications
Currency and medals
Sprinkler parts
Cathodes in hydrogen fuel cells
Flux cored wires

COMPATIBLE DOWNSTREAM PROCESS

Deep drawing
Soldering
Welding

KEY FEATURES

Corrosion resistance
Electrical conductivity
High purity
Low in Carbon
Suitable for high temperature use without intergranular corrosion

MECHANICAL PROPERTIES

Temper	Yield Strength 0.2% (MPa)	Tensile Strength (MPa)	Elongation (%)	Hardness (HV)
Annealed	110 - 310	350 - 450	> 40	< 110
¼ hard H11	> 210	> 380	> 25	> 150
½ hard H12	300 - 500	410 - 570	15 - 25	150 - 170
¾ hard H13	380 - 560	430 - 580	1 - 10	160 - 200
4/4 hard H14	480 - 650	550 - 670	0 - 2	165 - 230
Full hard H15	< 760	< 830	0 - 2	220 - 260



lebronze alloys

Métallurgie d'exception

www.lebronze-alloys.com