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 UK
England
13 FTEs

Lüdenscheid
Germany
120 FTEs

LBA NA
USA
10 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

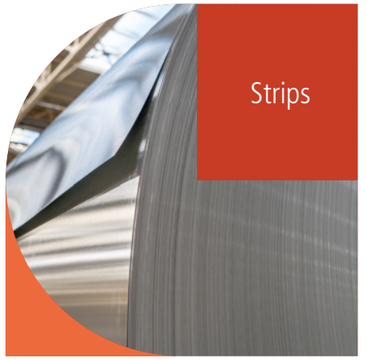
Product range at a glance

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

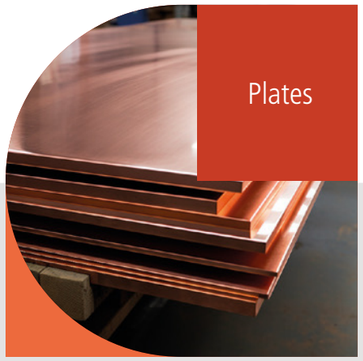

Strips


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

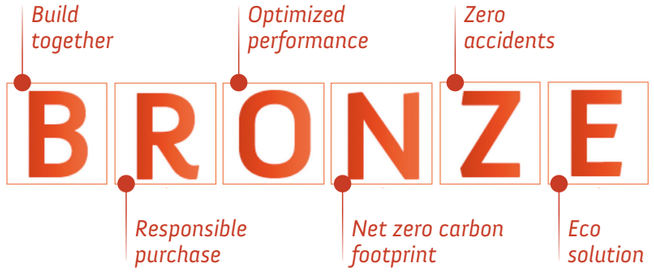
Finishing

- 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

Certified site: Suippes

Heat treating

Certified service center: Lebronze alloys UK

General certifications

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

Certified sites: Breteuil, Suippes, Rydzyna.

Certified sites: Bornel

Certified sites: Lüdenscheid, Breteuil and Suippes.

CuAlNi alloys
Nickel Aluminum Bronze alloys
Corrosion resistance

Our Group offers a range of **nickel aluminium bronze alloys** composed of copper, aluminum, nickel and iron. These alloys offer a good combination of mechanical properties, such as **elevated hardness and tensile strength**, combined with a **high resistance to corrosion** (sea-water and saline mist). Main applications are in Marine and Aerospace as **screws, distributor bodies, rings, bushings, bearings** and many more. Our range of nickel aluminum bronze alloys makes us one of the **major actors on this market** and allows us to meet the **challenging requirements of a large portfolio of customers.**

We provide these alloys mainly as bars, hollow bars and plates, to be processed into relatively complex components.

PRODUCT PORTFOLIO

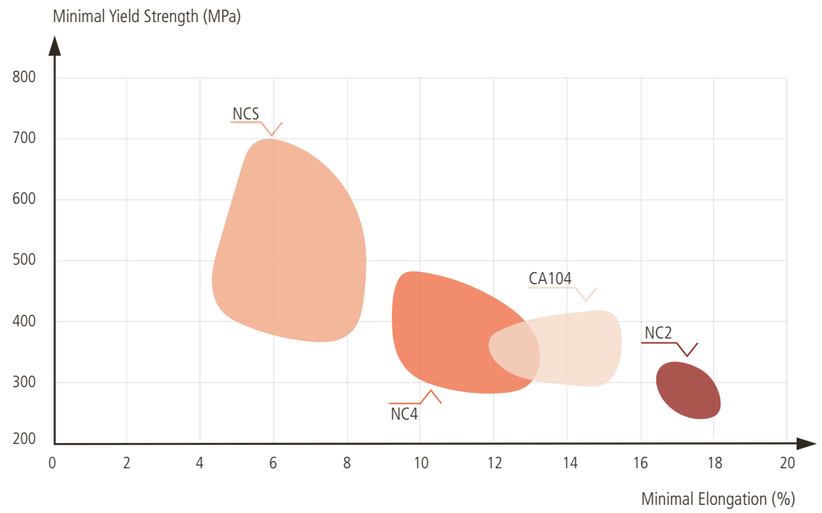
Alloy	ISO	UNS	Other designations	Aerospace specifications
NC2	CuAl9Ni5Fe4	NA	NA	NA
NC4	CuAl10Ni5Fe4	C63000	CW307G 2.0966	AMS 4640 NFL 14-705
CA104	CuAl10Ni5Fe4	NA	CA104	BS B23 BS 2B23
NCS	CuAl11Ni5Fe5	C63020	CW308G 2.0978	AMS 4590 NFL 14-706

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*

KEY MECHANICAL PROPERTIES



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 CuAlNi alloys are:
- REACH and RoHS compliant
- On average produced with 98 % of recycled materials

REACH compliant
RoHS compliant

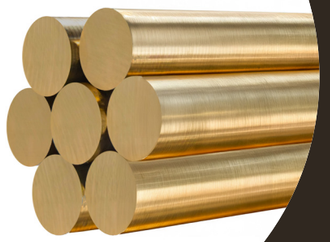
Markets and applications

Aerospace

- Bearings and bushings
- Mechanical parts
- Rings

Marine & Defence

- Distributor bodies
- Marine trees
- Screws



NC2

$CuAl_9Ni_5Fe_4$

Cu copper | Al aluminum | Ni nickel | Fe iron

NC2 is a nickel-aluminum-bronze ($CuAl_9Ni_5Fe_4$) alloy designed for Marine applications. It is resistant to sea-water corrosion, saline mist and oxidation.

Bars and Hollow Bars | CuAlNi alloys | NC2

MATERIAL DESIGNATION

ISO	UNS	Other designations	Aerospace specifications	Other standards
CuAl9Ni5Fe4	NA	NA	NA	GAM MM11 GAM MM13 NFA 51-116 NES 833 DEFSTAN 02-833

CHEMICAL COMPOSITION (WEIGHT%)

Cu	Al	Ni	Fe	Mn
Balance	9%	5%	4%	0.5%

PHYSICAL PROPERTIES

General properties		
Density at 20 °C (68 °F)	7.6 g/cm³	0.25 lb/in³
Thermal conductivity	40 W/m.°C	23 BTU/(h.ft.°F)
Coefficient of thermal expansion from 20 to 300 °C (68 °C to 572 °F)	16 x 10^{-6}/°C	8.89 µin/in °F
Young's modulus	120 GPa	17 405 ksi
Relative magnetic permeability	1.5	
Electrical properties		
Resistivity at 20 °C (68 °F)	22 µΩ.cm	132.34 Ω. circ mil/ft
Electrical conductivity	8 %IACS	

TYPICAL APPLICATIONS

Marine and Defence industries

Exchanger plates
Fast evacuation pipes
Slipper for hydraulic pump
Marine trees
Screws

COMPATIBLE DOWNSTREAM PROCESS

Extrusion, forging, or die stamping
Hot forming
Arc, MIG and TIG welding
Machinability index: 30% of free-cutting brass

KEY FEATURES

Suitable mechanical properties
Sea-water corrosion resistant
Saline mist resistant
Oxidation resistant

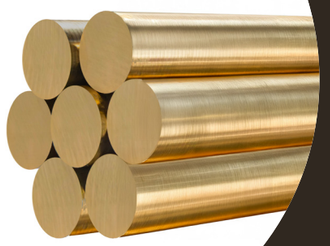
MECHANICAL PROPERTIES

Size	Processes	Yield Strength 0.2% MPa (ksi)	Tensile Strength MPa (ksi)	Elongation (%)	Hardness (HB)	Impact strength	
						IZOD (J)	KCU (J/Cm²)
For other dimensions and shapes, mechanical properties on demand							
Bars							
15 ≤ Ø ≤ 25 mm (0.59 ≤ Ø ≤ 0.98 in.)	Extruded	≥ 325 (≥ 47)	≥ 680 (≥ 99)	≥ 17	≥ 165	≥ 24	≥ 25
25 < Ø ≤ 100 mm (0.98 < Ø ≤ 3.94 in.)	Extruded or forged	≥ 295 (≥ 42)	≥ 640 (≥ 93)	≥ 17	≥ 160	≥ 27	≥ 25
Ø > 100 mm (Ø > 3.94 in.)	Extruded or forged	≥ 250 (≥ 36)	≥ 620 (≥ 90)	≥ 18	≥ 150	≥ 23	≥ 25
Hollow bars							
OD > 100 mm (OD > 3.94 in.)	Extruded or forged	≥ 250 (≥ 36)	≥ 620 (≥ 90)	≥ 18	≥ 150	≥ 23	≥ 25

OTHER AVAILABLE FORMS

Plates, billets, strips, sheets, rods, wires, standard & complex profiles, machined blanks and parts

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

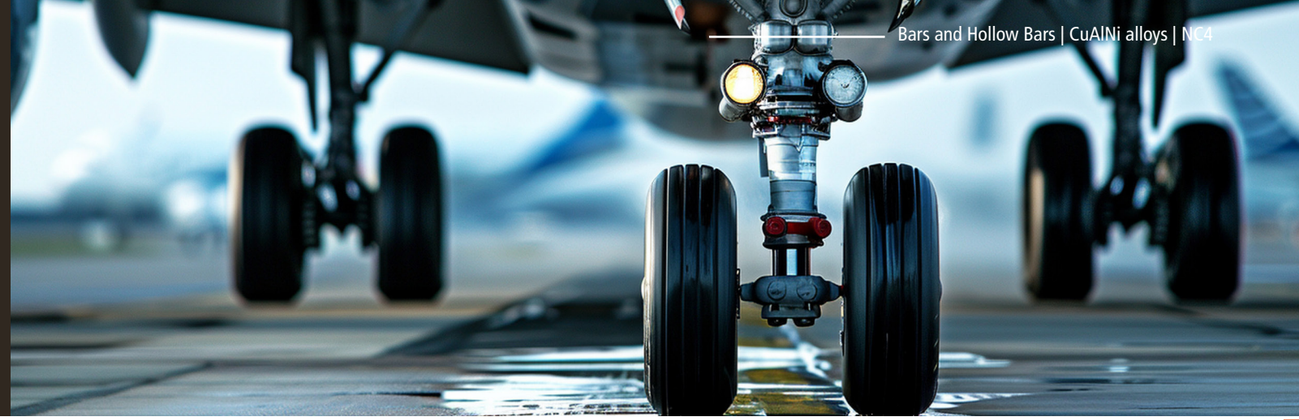


NC4

$CuAl_{10}Ni_5Fe_4$

29 63.546	13 26.981	28 58.6934	26 55.845
Cu copper	Al aluminum	Ni nickel	Fe iron

NC4 is a nickel-aluminum-bronze ($CuAl_{10}Ni_5Fe_4$) alloy designed for Aerospace and Marine applications. It offers a good combination of properties, such as high hardness, tensile strengh and corrosion resistance (sea-water, saline mist, and oxidation).



Bars and Hollow Bars | CuAlNi alloys | NC4

MATERIAL DESIGNATION

ISO	UNS	Other designations	Aerospace specifications	Other standards
CuAl10Ni5Fe4	C63000	CW307G 2.0966	AMS 4640 NFL 14-705	ASTM B124, ASTM B150 ASTM B171, NFA 51 116 EN 12420, EN 12163 EN 12165, EN 12167

CHEMICAL COMPOSITION (WEIGHT%)

Cu	Al	Ni	Fe	Mn
Balance	10%	5%	4%	0.5%

PHYSICAL PROPERTIES

General properties		
Density at 20 °C (68 °F)	7.6 g/cm³	0.25 lb/in³
Thermal conductivity	40 W/m.°C	23 BTU/(h.ft.°F)
Coefficient of thermal expansion from 20 to 300 °C (68 °C to 572 °F)	16 x 10^{-6}/°C	8.89 µin/in °F
Young's modulus	125 GPa	18 130 ksi
Relative magnetic permeability	1.5	
Electrical properties		
Resistivity at 20 °C (68 °F)	22 µΩ.cm	132.34 Ω. circ mil/ft
Electrical conductivity	8 %IACS	

TYPICAL APPLICATIONS

Aerospace industry

Rings

Bushings and bearings for landing gears

Marine and Defence industries

Distributor bodies

Screws

Forged parts

COMPATIBLE DOWNSTREAM PROCESS

Extrusion, forging, or die stamping

Hot forming

Arc, MIG and TIG welding

Machinability index: 30% of free-cutting brass

KEY FEATURES

Suitable mechanical properties

Sea-water corrosion resistant

Saline mist resistant

Oxidation resistant

MECHANICAL PROPERTIES

Size	Temper	Yield Strength 0.5% E.U.L MPa (ksi)	Tensile Strength MPa (ksi)	Elongation (%)	Hardness (HB)
For other dimensions and shapes, mechanical properties on demand					
Bars					
9.5 ≤ Ø ≤ 25.4 mm (0.375 ≤ Ø ≤ 1 in.)	HR50	≥ 469 (≥ 68)	≥ 760 (≥ 110)	≥ 10	201 - 248
25.4 < Ø ≤ 50.8 mm (1 < Ø ≤ 2 in.)	HR50	≥ 413 (≥ 60)	≥ 760 (≥ 110)	≥ 10	201 - 248
50.8 < Ø ≤ 76.2 mm (2 < Ø ≤ 3 in.)	HR50	≥ 379 (≥ 55)	≥ 723 (≥ 105)	≥ 10	187 - 241
76.2 < Ø ≤ 254 mm (3 < Ø ≤ 10 in.)	HR50, TQ50	≥ 345 (≥ 50)	≥ 689 (≥ 100)	≥ 10	187 - 241
9.5 ≤ Ø ≤ 280 mm (0.375 ≤ Ø ≤ 11 in.)	M	≥ 320* (≥ 46)*	≥ 690 (≥ 100)	≥ 13	≥ 180
Hollow bars					
OD ≥ 50 mm (OD ≥ 2 in.) Thickness ≥ 10 mm (≥ 0.4 in.)	HR50, TQ50	≥ 345 (≥ 50)	≥ 689 (≥ 100)	≥ 10	≥ 190
50 ≤ OD ≤ 280 mm (2 ≤ OD ≤ 11 in.)	M	≥ 320* (≥ 46)*	≥ 690 (≥ 100)	≥ 13	≥ 180

**0.2% offset*

OTHER AVAILABLE FORMS

Plates, billets, strips, sheets, rods, wires, standard & complex profiles, machined blanks and parts

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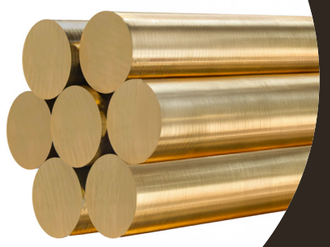
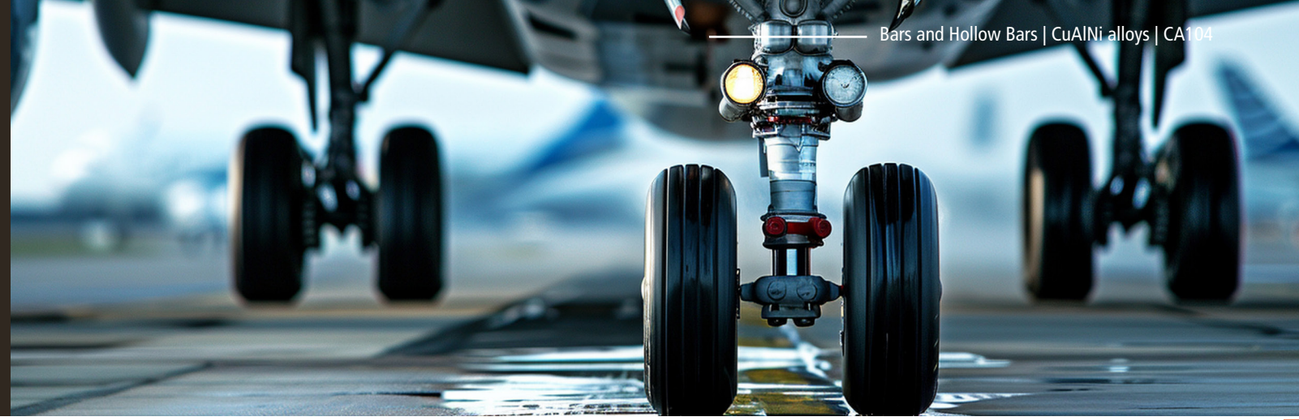


CA104

$CuAl_{10}Ni_5Fe_4$

29	14	28	26
63.546	26.981	58.6934	55.845
Cu	Al	Ni	Fe
copper	aluminum	nickel	iron

CA104 is a nickel-aluminum-bronze ($CuAl_{10}Ni_5Fe_4$) alloy designed for Aerospace and Marine applications. It is resistant to sea-water corrosion, saline mist and oxidation.



Bars and Hollow Bars | CuAlNi alloys | CA104

MATERIAL DESIGNATION

ISO	UNS	Other designations	Aerospace specifications	Other standards
CuAl10Ni5Fe4	NA	CA104	BS B23 BS 2B23	BS 2874

CHEMICAL COMPOSITION (WEIGHT%)

Cu	Al	Ni	Fe	Mn
Balance	10%	5%	4%	0.5%

PHYSICAL PROPERTIES

General properties		
Density at 20 °C (68 °F)	7.6 g/cm³	0.25 lb/in³
Thermal conductivity	40 W/m.°C	23 BTU/(h.ft.°F)
Coefficient of thermal expansion from 20 to 300 °C (68 °C to 572 °F)	16 x 10^{-6}/°C	8.89 µin/in °F
Young's modulus	125 GPa	18 130 ksi
Relative magnetic permeability	1.5	
Electrical properties		
Resistivity at 20 °C (68 °F)	22 µΩ.cm	132.34 Ω. circ mil/ft
Electrical conductivity	8 %IACS	

TYPICAL APPLICATIONS

Aerospace industry
Rings
Bushings and bearings for landing gears
Marine and Defence industries
Distributor bodies and screws

COMPATIBLE DOWNSTREAM PROCESS

Extrusion, forging, or die stamping
Hot forming
Arc, MIG and TIG welding
Machinability index: 30% of free-cutting brass

KEY FEATURES

Suitable mechanical properties
Sea-water corrosion resistant
Saline mist resistant
Oxidation resistant

MECHANICAL PROPERTIES

Size	Processes	Yield Strength 0.2% MPa (ksi)	Tensile Strength MPa (ksi)	Elongation (%)	Hardness (HB)
For other dimensions and shapes, mechanical properties on demand					
Bars					
16 ≤ Ø ≤ 18 mm (0.63 ≤ Ø ≤ 0.71 in.)	Extruded	≥ 400 (≥ 58)	≥ 700 (≥ 102)	≥ 15	≥ 190
18 < Ø ≤ 80 mm (0.71 < Ø ≤ 3.15 in.)	Extruded	≥ 370 (≥ 54)	≥ 700 (≥ 102)	≥ 12	≥ 190
Ø > 80 mm (Ø > 3.15 in.)	Extruded or forged	≥ 320 (≥ 46)	≥ 650 (≥ 94)	≥ 15	≥ 190
Hollow bars					
50 ≤ OD ≤ 80 (1.97 ≤ OD ≤ 3.15 in.) Thickness ≥ 10 mm (≥ 0.39 in.)	Extruded	≥ 370 (≥ 54)	≥ 700 (≥ 102)	≥ 12	≥ 190
OD > 80 mm (OD > 3.15 in.) Thickness ≥ 10 mm (≥ 0.39 in.)	Extruded or forged	≥ 320 (≥ 46)	≥ 650 (≥ 94)	≥ 12	≥ 190

OTHER AVAILABLE FORMS

Plates, billets, strips, sheets, rods, wires, standard & complex profiles, machined blanks and parts

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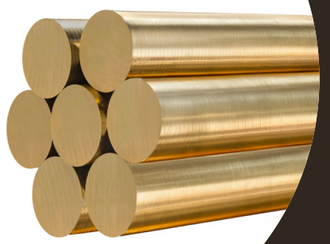


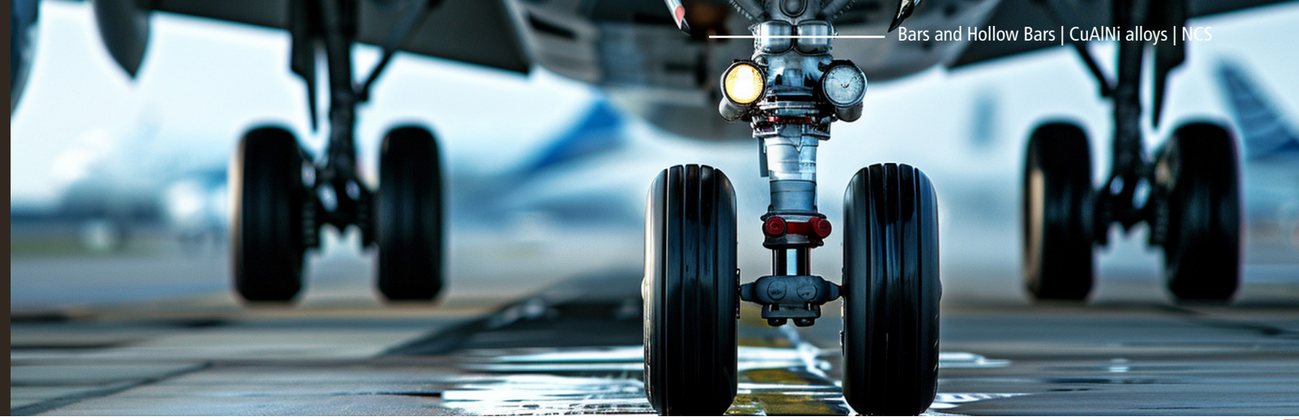
NCS

$CuAl_{11}Ni_5Fe_5$

Cu	Al	Ni	Fe
copper	aluminum	nickel	iron

NCS is a nickel-aluminum-bronze ($CuAl_{11}Ni_5Fe_5$) alloy designed for Aerospace and Hydraulic applications. It exhibits very high mechanical properties such as high hardness and high tensile strength.

It is also resistant to oxidation and corrosion in saline mist environment.



Bars and Hollow Bars | CuAlNi alloys | NCS

MATERIAL DESIGNATION

ISO	UNS	Other designations	Aerospace specifications	Other standards
CuAl11Ni5Fe5	C63020	CW308G 2.0978	AMS 4590 NFL 14-706	NFA 51 116, EN 12167 EN 12163, EN 12420 DIN 1756, ASTM B150

CHEMICAL COMPOSITION (WEIGHT%)

Cu	Al	Ni	Fe
Balance	11%	5%	5%

PHYSICAL PROPERTIES

General properties		
Density at 20 °C (68 °F)	7.5 g/cm³	0.25 lb/in³
Thermal conductivity	40 W/m.°C	23 BTU/(h.ft.°F)
Coefficient of thermal expansion from 20 to 300 °C (68 °C to 572 °F)	16 x 10^{-6}/°C	8.89 µin/in °F
Young's modulus	125 GPa	18 130 ksi
Relative magnetic permeability	1.5	
Electrical properties		
Resistivity at 20 °C (68 °F)	22 µΩ.cm	132.34 Ω. circ mil/ft
Electrical conductivity	8 %IACS	

TYPICAL APPLICATIONS

Aerospace industry

Rings

Bushings and bearings for landing gears

Mechanical parts

Hydraulic industry

Pump block

COMPATIBLE DOWNSTREAM PROCESS

Extrusion, forging, or die stamping with or without heat treatment

Hot forming

Arc, MIG and TIG welding

Machinability index: 30% of free-cutting brass

KEY FEATURES

High mechanical properties

Oxidation resistant

Corrosion resistant in saline mist aera

MECHANICAL PROPERTIES

Size	Processes	Temper	Yield Strength 0.2% MPa (ksi)	Tensile Strength MPa (ksi)	Elongation (%)	Hardness (HB)
For other dimensions and shapes, mechanical properties on demand						
Bars						
19 ≤ Ø ≤ 25.4 mm (0.75 ≤ Ø ≤ 1 in.)	Heat treated	TQ50/TQ30	≥ 689 (≥ 100)	≥ 931 (≥ 135)	≥ 6	≥ 255
25.4 < Ø ≤ 50.8 mm (1 < Ø ≤ 2 in.)	Heat treated	TQ50/TQ30	≥ 655 (≥ 95)	≥ 896 (≥ 130)	≥ 6	≥ 255
50.8 < Ø ≤ 101.6 mm (2 < Ø ≤ 4 in.)	Heat treated	TQ50/TQ30	≥ 621 (≥ 90)	≥ 896 (≥ 130)	≥ 6	≥ 255
13 ≤ Ø ≤ 200 mm (0.5 ≤ Ø ≤ 7.87 in.)	Extruded or forged	M	≥ 390 (≥ 57)	≥ 740 (≥ 107)	≥ 8	≥ 185
20 ≤ Ø ≤ 80 mm (0.78 ≤ Ø ≤ 3.15 in.)	Extruded	.97	≥ 440 (≥ 64)	≥ 740 (≥ 107)	≥ 5	≥ 185
Hollow bars						
50.8 < OD ≤ 177.8 mm (2 < OD ≤ 7 in.)	Heat treated	TQ50	≥ 621 (≥ 90)	≥ 896 (≥ 130)	≥ 6	≥ 255
50 < OD ≤ 250 mm (2 < OD ≤ 10 in.)	Extruded or forged	M	≥ 390 (≥ 57)	≥ 740 (≥ 107)	≥ 8	≥ 185

OTHER AVAILABLE FORMS

Plates, billets, strips, sheets, rods, wires, standard & complex profiles, machined blanks and parts

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

lebronze alloys

Métallurgie d'exception

www.lebronze-alloys.com