

EnviB X alloys

Machinable lead-free brass

uba
lebronze alloys

Specialty alloys

Lebronze alloys' offer of environment friendly brass

As a copper and nickel alloy producer as well as a forging and casting specialist, Lebronze alloys (LBA) is actively involved in proposing ethical and ecologically sustainable solutions.

In brass applications, lead has been widely used to improve machining operations. Nowadays, there is a growing demand for alternatives to leaded brass all over the world.

To answer this, LBA developed EnviB X, a new range of machinable brasses with high environmental performance.



EnviB X is a family of 5 alloys (EnviB 1, EnviB 10, EnviB 58, EnviB58AM and EnviB 158). They are highly machinable brasses with max 1000 or 90 PPM lead. Max 60 PPM lead can be also produced on demand.

Thanks to its high conductivity and low level of lead, EnviB X excels in electrical, mechanical and luxury applications among others. EnviB58AM also exhibits stringent amagnetism, which can be crucial for some antimagnetic applications, in hospitals among others.

EnviB X alloys have improved recycling capacity due to the absence of Silicon. The chips can be mixed with leaded or unleaded brass.

EnviB X alloys fulfill rules and regulations like RoHS, REACH, California and Federal Drinking Water Act, UBA list, CPSIA and Öko-Tex.

Furthermore, Lebronze alloys EnviB X alloys do not contain any of the following elements: Arsenic, Bismuth, Tellurium.



Main characteristics

	EnviB X				
	EnviB 1	EnviB 10	EnviB 158	EnviB 58	EnviB 58AM
DIN	CuZn40	CuZn40	CuZn42	CuZn42	CuZn42
EN	CW509L	CW509L	CW510L	CW510L	CW510L
UNS	C28000	C28000	-	-	-
Lead-free regulation compliance	CPSIA/RoHS/REACH/DWD	RoHS/REACH/DWD	CPSIA/RoHS/REACH/DWD	RoHS/REACH/DWD	REACH/RoHS/DWD
Composition					
Cu	60%	60%	58%	58%	58%
Pb	< 90 ppm	< 1000 ppm	<90 ppm	<1000 ppm	<1000 ppm
Si	-	-	-	-	-
Zn	rem	rem	rem	rem	rem
Physical Properties					
Density	8.4 g/cm ³	8.4 g/cm ³	8.36 g/cm ³	8.36 g/cm ³	8.36 g/cm ³
Electrical conductivity	26 % IACS	26 % IACS	26 % IACS	26 % IACS	26 % IACS
Thermal conductivity	117 W/(m·K)	117 W/(m·K)	96 W/(m·K)	96 W/(m·K)	96 W/(m·K)
Thermal expansion	21 · 10 ⁻⁶ K ⁻¹	21 · 10 ⁻⁶ K ⁻¹	21.7 · 10 ⁻⁶ K ⁻¹	21.7 · 10 ⁻⁶ K ⁻¹	21.7 · 10 ⁻⁶ K ⁻¹
E-Modul	102 GPa	102 GPa	107 GPa	107 GPa	107 GPa
Mechanical Properties from - to					
RM (MPa)	410 - 570	410 - 570	410 - 600	410 - 600	410 - 600
Rp _{0,2} (MPa)	230 - 400	230 - 400	220 - 570	220 - 570	220 - 570
A %	8-30	8-30	8-18	8-18	8-18
HV	75 - 150	75 - 150	110 - 175	110 - 175	110 - 175
Processability					
Cold forming	good	good	poor	poor	poor
Hot forming	excellent	excellent	excellent	excellent	excellent
Machinability (*)	★ ☆	★★★ ☆	★ ☆	★★★ ☆	★★★ ☆
Machining tool lifetime (*)	★★★ ☆	★★★★	★★★ ☆	★★★★	★★★★
Welding					
Soldering	good	good	good	good	good
Welding	good	good	good	good	good
Brazing	good	good	good	good	good
Polishing					
Mechanical	-	-	-	-	-
Electrical	-	-	-	-	-
Galvanic	good	good	good	good	good
Corrosion resistance					
Atmospheric condition	good	good	good	good	good
Stress corrosion	poor	poor	poor	poor	poor
Dezincification	poor	poor	poor	poor	poor
Recycling					
Chip separation	no	no	no	no	no

(*) : according to customer feedback.

Getting the best results will need modification of the machining parameters such as tooling or cutting speed.

EnviB X: answering your machinability challenges

Lebronze alloys has a wide experience of lead-free copper-alloys manufacturing and applications: LBA is aware of the economic and technological challenges of the transition to a world of lead-free brass, and especially the challenge to maintain a high machining efficiency.



Thanks to its experience, Lebronze alloys increased EnviB X alloys machinability by fine tuning their composition and production processes compared to other lead-free alloys.

Machining and customer support service

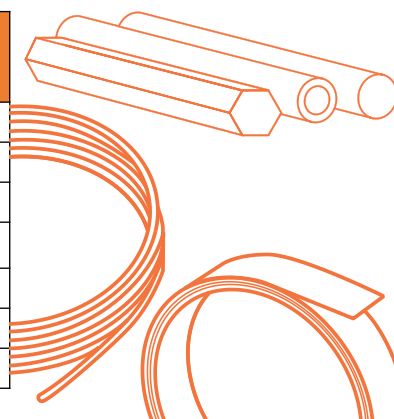
For optimized efficiency, EnviB X alloys request adjustment of the machining parameters such as tooling or cutting speed.



Lebronze alloys is developing together with its partners a strong knowledge on EnviB X machinability. Our specialists will give you the finest expertise to get the best EnviB X machining results depending on your technical and economical constraints. Please contact us to benefit from this.

EnviB X alloys are available as:

Semi products		Minimum	Maximum
Wires	Diameter	0.9 mm	17 mm
Bars	Diameter	1 mm	330 mm
Hollow bars	Outside diameter	OD 50 mm	OD 300 mm
Profiles	Cross-section	3 mm ²	80.000 mm ²
Strips	Thickness	0.05 mm	3.5 mm
Flat products	Thickness	0.05 mm	70 mm
Preformed raw materials	Weight	-	500 kg



Finished or semi-finished components	Minimum weight	Maximum weight
Moulded	50 g	Several tons
Forged	5 g	1 ton
Die stamped	< 5 g	Please contact us
Cold formed	10 g	100 g

About Lead

Lead is known for its toxicity, even at low concentrations. Lead and its compounds, whether swallowed or inhaled, are poisonous to animals and humans alike. Lead is also a neurotoxin that accumulates over time in tissues and bones, damaging the nervous system and potentially causing brain damage. The elimination of lead from commonly used materials is therefore an environmental necessity.

Lead has joined on June 27, 2018 the REACH candidate list of Substance of Very High Concern (SVHC). This greatly accelerates the need to substitute it with lead-free material. This implies obligations such as information and declaration duty of lead use.

A strong experience in lead-free alloys

Lebronze alloys has a wide experience of lead-free copper-alloys manufacturing and applications. We produce:

- More than 4000T per year of lead-free brass
- More than 4000T per year of other lead-free copper alloys.



About Lebronze alloys

Lebronze alloys Group is a world leader in the development and fully integrated production of high-performance specialty 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 semicontinuous casting, extrusion, hot and cold rolling, drawing, open-die forging, hot stamping, closed-die forging, cold forming, machining, non-destructive testing, etc.

We are a major decarbonation player for many industries. We continually strive to reduce our carbon footprint and our products are key for decarbonation applications in our customer' industries.

The Group's commitment is to find appropriate and optimized solutions for every sector's requirements.

The values indicated in this catalogue are given for information only. Any guarantee regarding the technical properties of the products presented will have to be obtained by preliminar written agreement.
The present catalogue is not to be considered as a contractual document.