



EURAL

GNUTTI S.p.A.

Aluminum Bars



Dear Customer,

Since 1968, our company has manufactured semis in aluminum and occupied a position of worldwide leadership in bars and rods. Our production facilities include the foundry located in Pontevico, Brescia (Italy) and the extrusion plant in Rovato, Brescia (Italy). With a workforce of about 400 employees and built on an area covering a total of 4,305,000 sq.ft., Eural possesses the latest state-of-the-art foundry and extrusion equipment.

Our passion for our job pushes us to always achieve excellence for our products. We constantly invest in research and development and in the latest technologies so our customers receive the maximum for their applications. The choice of the correct alloy is a crucial passage that might determine the success of a product. For this reason, we have produced this catalogue that gives you for each alloy a detailed technical sheet with all the parameters you need. International standards leave the manufacturers too wide a margin of variability for creating each alloy. In practice this means that, for each alloy, you can face significant differences in mechanical properties, with not always acceptable results on your final products. In Eural we have generated a code that is more stringent than the international regulations and restricts further the oscillations within the same alloy, constantly guaranteeing you homogeneous products in the course of time, to always get the best mechanical properties.

We received in 2008 the certification ISO/TS 16949.2002 that guarantees an extremely high quality system, and we have already implemented a modern automatic system of ultrasonic tests that certifies the absolute integrity of each and every billet that we produce in our foundry, according to class "A" of SAE AMS-STD-2154 regulation. In Eural each production process is subject to quality controls, which go beyond standard requirements.

We firmly believe that the dialogue with you, through our technical and commercial staff, is fundamental to support you in the choice of the aluminum alloy that best suits to your needs. You can always count on our experience and our availability.

Doct. Sergio Gnutti
President Eural Gnutti S.p.A.

Fifty years after its foundation, EURAL Gnutti S.p.A. is the largest producer for cold-finished/drawn bars in the world. EURAL bases its success on this specific product and on developing free-cutting aluminum alloys for machine-shops. EURAL offers services to all its customers that makes the difference on all the competitors:

- Assistance on choosing the proper alloy per each machining need
- Trade missions in more than 50 Countries
- Technicians supporting end-users customers worldwide to find out the best machining parameters and reach the best ever performances by using EURAL's bars
- Technical advice on managing every single step of the process, from planning to production.

EURAL - RESEARCH & DEVELOPMENT

EURAL Gnutti S.p.A. allocates a significant and ever-growing quote of investments for the development of new solutions for the industry.

New alloys **2033 LEAD FREE** and **6026 LEAD FREE** are the results after years of studies by Research & Development department. The latest releases of international regulations (RoHS, ELV, REACH) are moving to the limitation of lead (Pb) in aluminium alloys as it is considered dangerous to human health and toxic for the environment.

These new solutions, compliant to the most restrictive limitations, do not affect machinability of EURAL's bars guaranteeing productivity and quality without compromises.

2033^{by EURAL} LEAD FREE



FREE CUTTING Aluminum alloy

EURAL
GNUTTI S.p.A.

According to:

RoHS II, ELV, REACH directives

Applications

2033 LEAD FREE by EURAL is an alloy of multiple potential applications; it gives an excellent machinability thanks to a very thin chip forming, high mechanical properties, better anodizing and weldability attitude when compared to alloys 2011, 2007, 2030.

2033 LEAD FREE by EURAL is also suggested as an alternative to alloys 2011, 2007, 2030 after latest RoHS/REACH restrictions ($Pb \leq 0.1\%$).

RoHS and REACH

The latest RoHS directive (2018/740/EU) reduces the limit of lead allowed in aluminum alloys for machining purposes To 0.1% starting from 05/18/2021.

REACH has recently mentioned lead in SVHC list as toxic element for human health and subject to specific authorization whenever its presence is more than 0.1%.

EURAL Gnutti SpA is ready with alloy **2033 LEAD FREE by EURAL**.

2033 LEAD FREE by EURAL is the result of long and accurate work by EURAL Research & Development Department in order to make available an aluminum alloy with high machinability that offers more benefits than those in the market today.

High Machinability

2033 LEAD FREE by EURAL has been developed specifically for being machined on high-speed automatic lathes thanks to its excellent chip forming performance.



No tin

Today there are several alloys from 2000 series aluminum + tin (Sn) which, as is well known, causes weakness and cracking of machined parts when submitted to stress, low or high temperatures ($< 55^{\circ}F$ or $> 320^{\circ}F$).

Tin, due to its brittle nature, has the dangerous tendency to suddenly break without significant previous deformation (strain).

2033 LEAD FREE by EURAL does not contain tin.



Ultrasonic tested billets

All semi-finished products in **2033 LEAD FREE by EURAL** are made by Class A ultrasonic tested billets (SAE AMS STD 2154).



Production range

2033 LEAD FREE by EURAL is available both as drawn and extruded condition.

Drawn round bars $\varnothing .197'' - 3''$

Tempers T3, T351 and T8.

Extruded round bars $\varnothing 1.181'' - 10''$

Tempers T6

Available also in square, flat, and hexagonal bars.

A wide range of drawn bars are also available in h9 tolerance.

Alternative alloy to:

2033 LEAD FREE by EURAL is the best alternative to several alloys such as 2007, 2030, 2011, 2017, 2028, 2028A, 2041, 2044, 7020.

RoHS and other metals - $Pb \leq 0.1\%$

The latest restrictions on lead (RoHS $Pb \leq 0.1$) concern also those products made from machining of steel and brass.

Steel from $Pb \leq 0.35$ to $Pb \leq 0.1$

Brass from $Pb \leq 4$ to $Pb \leq 0.1$

For these metals today the only alternative for machinability is aluminum and the best option is **2033 LEAD FREE by EURAL**



Color code
EU pink



PRODUCTION PROGRAM

Unit: in	●	■	■	■
Drawn	.197" - 3"	.394" - 2.559"	Thick .472" - 2.165"	.394" - 2.5"
Extruded	1.181" - 10"	1.181" - 6.5"	Thick 1.181" - 5"	-

According to EU directives:
2000/53/EU (ELV) - 2018/740/EU (RoHS II)



PRESENTATION

This alloy has been developed by EURAL and it is one of the best for high speed automatic lathes. It gives the following advantages:

- Easy machining with any tool
- Excellent chip forming performance (thin chip)
- Longer life tools
- High mechanical properties
- Better anodizing and weldability attitude compared to alloys 2011, 2007, 2030.

This alloy does not contain lead or tin and is therefore the best solution for the production of parts under the latest restriction on this topic (2018/740/EU RoHS: **Pb ≤ 0.1** starting from 05/18/2021).

Main applications: automotive industry, electric and electronic industry, precision machining, defense, forging, screws, bolts, nuts, threaded parts of thin thickness.

Samples of finished products made of Eural bars



Properties	T3/T6	T8
Machinability	Excellent	Excellent
Protective anodizing	Good	Good
Decorative anodizing	Acceptable	Acceptable
Hard anodizing	Not recommended	Not recommended
Resistance to atmospheric corrosion	Excellent	Excellent
Resistance to marine corrosion	Good	Good
MIG-TIG weldability	Acceptable	Acceptable
At resistance weldability	Excellent	Excellent
Brazing weldability	Good	Good
Plastic formability when cold	Acceptable	Acceptable
Plastic formability when hot	Not recommended	Not recommended

Legend

Excellent	Good	Acceptable	Not recommended
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Chemical composition	
Si	0.10 - 1.20
Fe	≤ 0.70
Cu	2.20 - 2.70
Mn	0.40 - 1.00
Mg	0.20 - 0.60
Cr	≤ 0.15
Ni	≤ 0.15
Zn	≤ 0.50
Ti	≤ 0.10
Bi	0.05 - 0.80
Others	Each 0.05 Total 0.15
Al	Remainder

Physical properties	
Density	lb/in ² .1001
Modulus of elasticity	Ksi 10.2
Coefficient of thermal expansion	x10 ⁻⁶ °F 12.7
Thermal conductivity at 68°F	Btu/ft h °F T3: 86.7 T8: 99.4
Typical electrical resistivity at 68°F	Ω mm ² T6: 0.044 m T8: 0.045

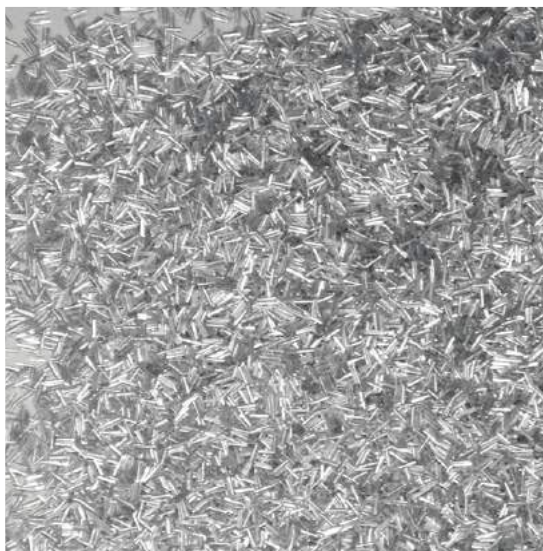
Minimum mechanical properties						
Temper		Diam. in	Rm Ksi	Rp0.2 Ksi	A% Typical	HBW
Drawn	T3	≤ 1.2"	53.7	34.8	7	100
	T3	1.2" < D ≤ 3"	49.3	31.9	7	100
	T351	≤ 3"	53.7	34.8	5	100
	T8	≤ 3"	53.7	39.2	8	100
Extruded	T6	≤ 3"	53.7	36.3	8	100
	T6	3" < D ≤ 10"	49.3	31.9	8	100



PRODUCTION PROGRAM

Unit: in	●	■	■	●
Drawn	0.197 - 3	0.394 - 2.559	Thick. 0.472 - 2.165	0.394 - 2.5
Extruded	1.181 - 10	1.181 - 6.5	Thick. 1.181 - 5	-

According to EU directives:
2000/53/EU (ELV) – 2011/65/EU (RoHS II)



PRESENTATION

This alloy is the most often selected for high speed automatic lathes.

It offers the following advantages:

- easy machining with any equipment;
- cutting stress lower than most of other alloys;
- longer life of cutting tools;
- cutting area always clean due to very thin chip;
- high mechanical properties;
- possibility to anodize finished parts in several colors *.

Main applications: screws, bolts, nuts, threaded bars.

* To get an optimal surface finishing of anodized pieces, we suggest to use suitable lubricants during machining.

Samples of finished products made of Eural bars

Properties	T3/T6	T8
Machinability	Excellent	Excellent
Protective anodizing	Good	Good
Decorative anodizing	Acceptable	Acceptable
Hard anodizing	Not recommended	Not recommended
Resistance to atmospheric corrosion	Excellent	Excellent
Resistance to marine corrosion	Good	Good
MIG-TIG weldability	Acceptable	Acceptable
At resistance weldability	Not recommended	Not recommended
Brazing weldability	Not recommended	Not recommended
Plastic formability when cold	Not recommended	Not recommended
Plastic formability when hot	Not recommended	Not recommended

Legend

Excellent	Good	Acceptable	Not recommended
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Chemical composition	
Si	≤ 0.40
Fe	≤ 0.70
Cu	5.00 - 6.00
Mn	
Mg	
Cr	
Ni	
Zn	≤ 0.30
Ti	
Pb	0.20 - 0.40
Bi	0.20 - 0.60
Others	Each 0.05 Total 0.15
Al	Remainder

Physical properties	
Density	lb/in ³ 0.1022
Modulus of elasticity	ksi 10.152
Coefficient of thermal expansion	× 10 ⁻⁶ °F 12.7
Thermal conductivity at 68°F	Btu/ft h °F T3: 86.7 T8: 98.2
Typical electrical resistivity at 68°F	Ω mm ² /m T3: 0.038 T8: 0.043

Minimum mechanical properties					
Temper	Diam. in	UTS ksi	YTS ksi	HBW A%	Typical
T3	≤ 1.5	46.4	39.2	10	90
T3	1.5 < D ≤ 2	43.5	36.3	10	90
T3	2 < D ≤ 3	40.6	30.5	10	90
T8	≤ 3	53.7	39.2	8	115
T6	≤ 3	45.0	33.4	8	110
T6	3 < D ≤ 8	42.8	28.3	6	110



PRODUCTION PROGRAM

Unit: in	●	■	■	●
Drawn	0.551 - 3	0.787 - 2.559	Thick. 0.472 - 2.165	0.787 - 2.5
Extruded	1.181 - 10	1.181 - 6.5	Thick. 1.181 - 5	-



PRESENTATION

Among aluminum alloys for high speed automatic lathes, 2030 and 2007 have the highest mechanical characteristics.

This alloy is the most often selected when it is required to have a good combination of machinability and high mechanical properties. It has low corrosion resistance.

Main applications: screws, bolts, nuts, threaded bars.

Samples of finished products made of Eural bars

Properties	T3/T4
Machinability	Excellent
Protective anodizing	Good
Decorative anodizing	Acceptable
Hard anodizing	Not recommended
Resistance to atmospheric corrosion	Good
Resistance to marine corrosion	Acceptable
MIG-TIG weldability	Good
At resistance weldability	Good
Brazing weldability	Good
Plastic formability when cold	Acceptable
Plastic formability when hot	Good

Legend

Excellent	Good	Acceptable	Not recommended
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Chemical composition	
Si	≤ 0.80
Fe	≤ 0.70
Cu	3.30 - 4.50
Mn	0.20 - 1.00
Mg	0.50 - 1.30
Cr	≤ 0.10
Ni	
Zn	≤ 0.50
Ti	≤ 0.20
Pb	0.80 - 1.00
Bi	≤ 0.20
Sn	
Others	Each 0.10 Total 0.30
Al	Remainder

Physical properties		
Density	lb in ³	0.103
Modulus of elasticity	ksi	10,298
Coefficient of thermal expansion	x10 ⁻⁶ °F	13.1
Thermal conductivity at 68°F	Btu ft h °F	80.4
Typical electrical resistivity at 68°F	Ω mm ² m	0.057

Minimum mechanical properties					
Temper	Diam. in	UTS ksi	YTS ksi	HBW A%	Typical
T3	≤ 1.2	53.7	34.8	7	115
T3	1.2 < D ≤ 3	49.3	31.9	6	115
T351	≤ 3	53.7	34.8	5	115
T4, T4510, T4511	≤ 3	53.7	36.3	8	115
T4, T4510, T4511	3 < D ≤ 8	49.3	31.9	8	115
T4, T4510, T4511	8 < D ≤ 10	47.9	30.5	7	115



2017A by EURAL

Meets the requirements
of alloy 2017



Color code
green

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PRODUCTION PROGRAM

According to EU directives:

2000/53/EU (ELV) – 2011/65/EU (RoHS II)

Unit: in	●	■	■	◆
Drawn	0.551 - 3	0.787 - 2.559	Thick. 0.472 - 2.165	0.787 - 2.5
Extruded	1.181 - 10	1.181 - 6.5	Thick. 1.181 - 5	-

PRESENTATION

This alloy has high mechanical properties and excellent resistance to fatigue. During machining, it creates quite long chips, therefore it is not well suited for automatic lathes.

It can be replaced by 2030, which has the same mechanical properties but has better machinability, allowing higher productivity.

Main applications: screws and bolts, high structural resistance components for aviation and defense.

Samples of finished products made of Eural bars

Properties	T3/T4
Machinability	■
Protective anodizing	■
Decorative anodizing	■
Hard anodizing	■
Resistance to atmospheric corrosion	■
Resistance to marine corrosion	■
MIG-TIG weldability	■
At resistance weldability	■
Brazing weldability	■
Plastic formability when cold	■
Plastic formability when hot	■

Legend

Excellent	Good	Acceptable	Not recommended
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Chemical composition	
Si	0.20 - 0.80
Fe	≤ 0.70
Cu	3.50 - 4.50
Mn	0.40 - 1.00
Mg	0.40 - 1.00
Cr	≤ 0.10
Ni	
Zn	≤ 0.25
Zr+Ti	≤ 0.25
Pb	
Bi	
Others	Each 0.05 Total 0.15
Al	Remainder

Physical properties		
Density	lb in ³	0.1008
Modulus of elasticity	ksi	10,878
Coefficient of thermal expansion	x10 ⁻⁶ °F	13.1
Thermal conductivity at 68°F	Btu ft h °F	77.0
Typical electrical resistivity at 68°F	Ω mm ² m	0.051

Minimum mechanical properties					
Temper	Diam. in	UTS ksi	YTS ksi	HBW A%	Typical
Drawn	T3	≤ 3	58.0 36.3	10	105
	T351	≤ 3	58.0 36.3	8	105
Extruded	T4, T4510, T4511	≤ 3	58.0 39.2	10	105
	T4, T4510, T4511	3 < D ≤ 6	56.6 37.7	9	105
	T4, T4510, T4511	6 < D ≤ 8	53.7 34.8	8	105
	T4, T4510, T4511	8 < D ≤ 10	52.2 31.9	7	105

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PRODUCTION PROGRAM

Unit: in	●	■	■	●
Drawn	0.787 - 3	-	-	-
Extruded	1.181 - 10	2 - 6.5	Thick. 1.181 - 5	-

According to EU directives:

2000/53/EU (ELV) – 2011/65/EU (RoHS II)



PRESENTATION

This alloy has high mechanical properties and excellent resistance to fatigue. During machining, it creates quite long chips, therefore it is not well suited for automatic lathes.

Main applications: screws and bolts, high structural resistance components for aviation and defense.

Samples of finished products made of Eural bars

Properties	T3
Machinability	■
Protective anodizing	■
Decorative anodizing	■
Hard anodizing	■
Resistance to atmospheric corrosion	■
Resistance to marine corrosion	■
MIG-TIG weldability	■
At resistance weldability	■
Brazing weldability	■
Plastic formability when cold	■
Plastic formability when hot	■

Legend

Excellent	Good	Acceptable	Not recommended
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Chemical composition	
Si	≤ 0.50
Fe	≤ 0.50
Cu	3.80 - 4.90
Mn	0.30 - 0.90
Mg	1.20 - 1.80
Cr	≤ 0.10
Ni	
Zn	≤ 0.25
Ti	≤ 0.15
Pb	
Bi	
Others	Each 0.05 Total 0.15
Al	Remainder

Physical properties		
Density	lb in ³	0.1008
Modulus of elasticity	ksi	10,153
Coefficient of thermal expansion	x10 ⁻⁶ °F	12.8
Thermal conductivity at 68°F	Btu ft h °F	68.9
Typical electrical resistivity at 68°F	Ω mm ² m	0.057

Minimum mechanical properties					
Temper	Diam. in	UTS ksi	YTS ksi	HBW A%	Typical
T3	≤ 3	61.6	42.1	9	120
T351	≤ 3	61.6	45	8	120
T6	≤ 3	61.6	45.7	5	125
T651	≤ 3	61.6	45.7	4	125
T8	≤ 3	66	58	4	130
T851	≤ 3	66	58	3	130
T3, T3510, T3511	≤ 2	65.3	45	8	120
T3, T3510, T3511	2 < D ≤ 4	63.8	43.5	8	120
T3, T3510, T3511	4 < D ≤ 8	60.9	40.6	8	120
T3, T3510, T3511	8 < D ≤ 10	58	39.2	8	120
T8, T8510, T8511	≤ 6	66	55.1	5	130



Color code
Gray

PRODUCTION PROGRAM

According to EU directives:

2000/53/EU (ELV) – 2011/65/EU (RoHS II)

Unit: in	●	■	■	●
Drawn	0.551 - 3	0.787 - 2.559	Thick. 0.472 - 2.165	0.787 - 2.5
Extruded	1.181 - 10	1.181 - 6.5	Thick. 1.181 - 5	-

PRESENTATION

This alloy has high mechanical properties, excellent resistance to fatigue, good attitude to forging and a fair machinability.

Main applications: high structural resistance components for aircraft and defense.

Samples of finished products made of Eural bars

Properties	T3/T4/T6
Machinability	■
Protective anodizing	■
Decorative anodizing	■
Hard anodizing	■
Resistance to atmospheric corrosion	■
Resistance to marine corrosion	■
MIG-TIG weldability	■
At resistance weldability	■
Brazing weldability	■
Plastic formability when cold	■
Plastic formability when hot	■

Legenda

■	■	■	■
Excellent	Good	Acceptable	Not recommended

Chemical composition	
Si	0.50 - 1.20
Fe	≤ 0.70
Cu	3.90 - 5.00
Mn	0.40 - 1.20
Mg	0.20 - 0.80
Cr	≤ 0.10
Ni	
Zn	≤ 0.25
Ti	≤ 0.15
Pb	
Others	Each 0.05 Total 0.15
Al	Remainder

Physical properties		
Density	lb in ³	0.1012
Modulus of elasticity	ksi	10,500
Coefficient of thermal expansion	x10 ⁻⁶ °F	12.8
Thermal conductivity at 68°F	Btu ft h °F	T4: 77.0 T6: 89
Typical electrical resistivity at 68°F	Ω mm ² m	T4: 0.051 T6: 0.043

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Minimum mechanical properties					
Temper	Diam. in	UTS ksi	YTS ksi	HBW A%	Typical
T3	≤ 3	55.1	42.1	8	110
T351	≤ 3	55.1	42.1	6	110
T4	≤ 3	55.1	31.9	12	110
T451	≤ 3	55.1	31.9	10	110
T6	≤ 3	65.3	55.1	8	140
T651	≤ 3	65.3	55.1	6	140
T4, T4510, T4511	≤ 3	59.5	39.2	12	110
T4, T4510, T4511	3 < D ≤ 6	56.5	36.3	10	110
T4, T4510, T4511	6 < D ≤ 8	50.8	33.4	8	110
T6, T6510, T6511	≤ 3	66.7	60.2	7	140
T6, T6510, T6511	3 < D ≤ 6	67.4	60.9	7	140
T6, T6510, T6511	6 < D ≤ 8	62.4	50.8	6	140
T6, T6510, T6511	8 < D ≤ 10	60.9	46.4	5	140



PRODUCTION PROGRAM

Unit: in	●	■	■	●
Drawn	0.551 - 3	0.787 - 2.559	Thick. 0.472 - 2.165	0.787 - 2.5
Extruded	1.181 - 10	1.181 - 6.5	Thick. 1.181 - 5	-

According to EU directives:
2000/53/EU (ELV) – 2011/65/EU (RoHS II)



PRESENTATION

This alloy has high mechanical properties, excellent resistance to fatigue, good attitude to forging and a fair machinability.

2014A by Eural can also be made according to aerospace BS L168 standard, which requires higher mechanical properties compared to traditional EN standards. This version is available only for extruded bars in T6511 temper, from diameter 1.181 in up to 6 in.

Main applications: High structural resistance components for aircraft and defense.

Samples of finished products made of Eural bars

Properties	T3/T4/T6
Machinability	■
Protective anodizing	■
Decorative anodizing	■
Hard anodizing	■
Resistance to atmospheric corrosion	■
Resistance to marine corrosion	■
MIG-TIG weldability	■
At resistance weldability	■
Brazing weldability	■
Plastic formability when cold	■
Plastic formability when hot	■

Legenda

■	■	■	■
Excellent	Good	Acceptable	Not recommended

Chemical composition	
Si	0.50 - 0.90
Fe	≤ 0.50
Cu	3.90 - 5.00
Mn	0.40 - 1.20
Mg	0.20 - 0.80
Cr	≤ 0.10
Ni	≤ 0.10
Zn	≤ 0.25
Ti	≤ 0.15
Pb	
Others	Each 0.05 Total 0.15
Al	Remainder

Physical properties		
Density	lb in ³	0.1012
Modulus of elasticity	ksi	10,500
Coefficient of thermal expansion	x10 ⁻⁶ °F	12.8
Thermal conductivity at 68°F	Btu ft h °F	T6: 89
Typical electrical resistivity at 68°F	Ω mm ² m	T6: 0.043

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Minimum mechanical properties						
Temper	Diam. in	UTS ksi	YTS ksi	HBW A%	Typical	
Drawn	T3	≤ 3	55.1	42.1	8	110
	T351	≤ 3	55.1	42.1	6	110
	T4	≤ 3	55.1	31.9	12	110
	T451	≤ 3	55.1	31.9	10	110
	T6	≤ 3	65.3	55.1	8	140
Extruded	T651	≤ 3	65.3	55.1	6	140
	T4, T4510, T4511	≤ 3	59.5	39.2	12	110
	T4, T4510, T4511	3 < D ≤ 6	56.6	36.3	10	110
	T4, T4510, T4511	6 < D ≤ 8	50.8	33.4	8	110
	T6, T6510, T6511	≤ 3	66.7	60.2	7	140
	T6, T6510, T6511	3 < D ≤ 6	67.4	60.9	7	140
	T6, T6510, T6511	6 < D ≤ 8	62.4	50.8	6	140
	T6, T6510, T6511	8 < D ≤ 10	60.9	46.4	5	140
	T6, T6510, T6511	≤ 3	71.1	63.8	7	-
	T6, T6510, T6511	3 < D ≤ 6	69.6	63.1	7	-
BSL168 Extruded	T6, T6510, T6511	6 < D ≤ 8	67.4	60.9	7	-
	T6, T6510, T6511	8 < D ≤ 10	63.1	56.6	7	-

6026 by EURAL

LEAD FREE

According to

RoHS II, ELV, REACH directives

Application fields

6026 LEAD FREE by EURAL is extremely versatile, due to its medium-high mechanical properties, good attitude to anodizing, good weldability, good attitude to forging, good corrosion resistance.

6026 LEAD FREE by EURAL is suitable for components used in several industries as automotive, electric and electronic, valves, oleohydraulic, pneumatic, defence.

High machinability

6026 LEAD FREE by EURAL is particularly suitable for being machined on high speed automatic lathes due to extremely good chip forming.



Production program

6026 LEAD FREE by EURAL is available in drawn or extruded conditions.

Drawn round bars from .236" to 3", temper T6, T8 or T9.

Extruded round bars from 1.181" to 10" temper T6.

Square, rectangular, hexagonal bars are available.

A wide range of drawn bars are also available in h9 tolerance.

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FREE CUTTING Aluminum alloy

Ecological choice

For many years, the European Community has worked to reduce the content of hazardous substances. The latest directive RoHS (2018/740/EU) and REACH fix the limit of lead (Pb) in aluminum alloy to 0.1% starting from 05/18/2021 (previously it was 0.4%). Eural Gnutti has anticipated future restrictions of such directives creating the alloy **6026 LEAD FREE by EURAL**.

No tin

On many alloys of 6000 series lead (Pb) has been replaced with tin (Sn) which, as it has been proved, causes weakness and cracking of the machined parts when submitted to stress and High temperature (>160°C / 320°F). Due to its brittle nature, tin has the dangerous tendency to suddenly break without significant previous deformation (strain).

6026 LEAD FREE by EURAL does not contain tin.



Alternative to:

6026 LEAD FREE by EURAL is the best alternative to several aluminum alloys such as 2007, 2011, 2015, 2028, 2030, 2044, 6012, 6012A, 6020, 6021, 6023, 6028, 6033, 6040, 6041, 6042, 6061, 6082, 6262, 6064A, 6262A, 6351, 7020. **6026 LEAD FREE** is an excellent replacement of brass, due to its good machinability, good attitude to forging, medium-high mechanical properties. Moreover, since **6026 LEAD FREE by EURAL** has a specific gravity of 1/3 compared to brass, it results extremely convenient costwise.

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The birth of 6026 LEAD FREE by EURAL

6026 LEAD FREE by EURAL is an innovative alloy designed and developed by Eural Gnutti S.p.A. R&D laboratories in order to meet the strictest requirements in critical automotive applications such as brake systems.

Ultrasonic tested billets

All semi-finished products in **6026 LEAD FREE by EURAL** are made of 100% ultrasonic tested billets according to **SAE AMS-STD-2154 class A**.



Compatibility in drawings

6026 LEAD FREE by EURAL was born on 2002, and it has been registered to the Aluminum Association and to EN standards with a lead content of $Pb \leq 0.4\%$.

Therefore, **6026 LEAD FREE by EURAL** does not need any variations in drawings where 6026 is already indicated.

Lead (Pb) and tin (Sn) can be present as traces, within the limit of 0.05%, as prescribed by international regulations.

6026 By EURAL

LEAD FREE



Color code

White

According to EU directives:
2000/53/EC (ELV) – 2018/740/EU (RoHS II)



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Aluminum with technology

PRODUCTION PROGRAM

Unit: in	●	■	■	●
Drawn	0.236 - 3	0.472 - 2.559	Thick. 0.472 - 2.165	0.472 - 2.362
Extruded	1.181 - 10	1.969 - 6.5	Thick. 1.181 - 5	–

PRESENTATION

Alloy 6026 LEAD FREE is the best option for machinability since recent limitations by RoHS (2018/740/EU) and REACH on lead content allowance ($Pb \leq 0.1\%$). It is particularly suitable for being machined on high-speed automatic lathes.

6026 LEAD FREE offers:

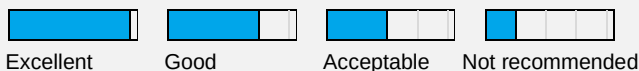
- Excellent chip forming performance
- Good attitude to anodizing
- Good corrosion resistance
- Excellent surface finishing (low roughness)
- Good for forging

It is a much better solution than aluminum + Tin (Sn) alloys because it is free from any limitation on possible application (final parts subjected to high stress, low or high temperatures). It can replace 2007, 2011, 2015, 2028, 2030, 2044, 6012, 6012A, 6021, 6023, 6028, 6033, 6040, 6041, 6042, 6061, 6065, 6082, 6262, 6064A, 6262A, 6351, 6020, 7020 alloys.

Main applications: automotive industry, electric and electronic industry, hot forging, bolts, nuts, threaded parts. *Samples of finished products made of Eural bars*

Properties	T6	T8/T9
Machinability	Excellent	Good
Protective anodizing	Good	Acceptable
Decorative anodizing	Good	Acceptable
Hard anodizing	Excellent	Good
Resistance to atmospheric corrosion	Good	Acceptable
Resistance to marine corrosion	Good	Acceptable
MIG-TIG weldability	Good	Acceptable
At resistance weldability	Good	Acceptable
Brazing weldability	Good	Acceptable
Plastic formability when cold	Good	Acceptable
Plastic formability when hot	Good	Acceptable

Legend



Chemical composition

Si	0.60 - 1.40
Fe	≤ 0.70
Cu	0.20 - 0.50
Mn	0.20 - 1.00
Mg	0.60 - 1.20
Cr	≤ 0.30
Ni	≤ 0.30
Zn	≤ 0.30
Ti	≤ 0.20
Sn	≤ 0.05
Pb	$\leq 0.05^*$ (traces)
Bi	0.50 - 1.50
Others	Each 0.05 Total 0.15
Al	Remainder

* 6026 is registered with $Pb \leq 0.40$

Physical properties

Density	$\frac{lb}{in^3}$	0.0983
Modulus of elasticity	ksi	10,008
Coefficient of thermal expansion	$\frac{x10^{-6}}{^{\circ}F}$	13.0
Thermal conductivity at 68°F	$\frac{Btu}{ft h ^{\circ}F}$	98.8
Electrical resistivity at 68°F	$\frac{\Omega mm^2}{m}$	0.039

Mechanical properties

	Temper	Diam In	UTS ksi	YTS ksi	A%	HBW
Drawn	T6	≤ 3.25	54.0	44.0	6	95
	T8	≤ 3.25	50.0	46.0	3	95
	T9	≤ 3.25	52.0	48.0	3	95
Extruded	T6	≤ 5.5	54.0	44.0	6	95
	T6	5.501 - 8	49.0	36.0	6	90
	T6	8.001 - 10	44.0	29.0	6	90

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6026 by EURAL



Colour code
EU orange

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GNUTTI S.p.A.

PRODUCTION PROGRAM

According to EU directives:

2000/53/EU (ELV) – 2011/65/EU (RoHS II)

Unit: mm	●	■	■	●
Drawn	0.236 - 3	0.394 - 2.559	Thick. 0.472 - 2.165	0.394 - 2.5
Extruded	1.181 - 10	2 - 6.5	Thick. 1.181 - 5	-



PRESENTATION

This innovative alloy has been conceived and developed in Eural Gnutti SpA's research laboratories, in order to meet the most recent standards for the protection of the environment. It is particularly suitable for being machined on high speed automatic lathes. It has good resistance to corrosion, medium-high mechanical properties, good suitability for decorative and industrial hard anodizing. It is also used for hot forging purposes. Eural 6026 alloy does not contain tin (Sn) which, as it has been proved, causes weakness and cracking of the machined parts when submitted to stress and high temperature. It can replace 6061, 6082, 6064A, 6042, 6262, 6012, 2007, 2030 alloys.

Main applications: automotive industry, electric and electronic industry, hot forging, screws, bolts, nuts, threaded parts.

Samples of finished products made of Eural bars



Properties	T6	T8/T9
Machinability	Excellent	Good
Protective anodizing	Good	Good
Decorative anodizing	Good	Good
Hard anodizing	Good	Good
Resistance to atmospheric corrosion	Good	Good
Resistance to marine corrosion	Good	Good
MIG-TIG weldability	Good	Good
At resistance weldability	Good	Good
Brazing weldability	Good	Good
Plastic formability when cold	Good	Good
Plastic formability when hot	Good	Good

Legend

Excellent	Good	Acceptable	Not recommended
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Chemical composition	
Si	0.60 - 1.40
Fe	≤ 0.70
Cu	0.20 - 0.50
Mn	0.20 - 1.00
Mg	0.60 - 1.20
Cr	≤ 0.30
Ni	
Zn	≤ 0.30
Ti	≤ 0.20
Sn	≤ 0.05
Pb	≤ 0.40
Bi	0.50 - 1.50
Others	Each 0.05 Total 0.15
Al	Remainder

Physical properties			
Density	lb	0.0983	
	in ³		
Modulus of elasticity	ksi	10,008	
Coeffi cient of thermal expansion	x10 ⁻⁶	13.0	
	°F		
Thermal conductivity at 68°F	Btu	98.8	
	ft h °F		
Typical electrical resistivity at 68°F	Ω mm ²	0.039	
	m		

Minimum mechanical properties					
Temper	Diam. in	UTS ksi	YTS ksi	HBW A%	Typical
Drawn	T6 ≤ 3	53.7	43.5	8	95
	T8 ≤ 3	50.0	45.7	4	95
	T9 ≤ 3	52.2	47.9	4	95
Extruded	T6 ≤ 5.5	53.7	43.5	8	95
	T6 5.5 < D ≤ 8	49.3	36.3	8	90
	T6 8 < D ≤ 10	43.5	29	8	90

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PRODUCTION PROGRAM

Unit: in	●	■	■	●
Drawn	0.236 - 3	0.394 - 2.559	Thick. 0.472 - 2.165	0.394 - 2.5
Extruded	1.181 - 10	2 - 6.5	Thick. 1.181 - 5	-

According to EU directives:

2000/53/EU (ELV) – 2011/65/EU (RoHS II)



PRESENTATION

This alloy has good machinability and high mechanical properties. Moreover it has good resistance to corrosion and suitability to hard, protective and decorative anodizing.

Main applications: particulars for braking systems for automotive, structural components for civil constructions, railroad and heavy street vehicles.

Samples of finished products made of Eural bars

Properties	T6	T8/T9
Machinability	Excellent	Good
Protective anodizing	Good	Good
Decorative anodizing	Good	Good
Hard anodizing	Good	Good
Resistance to atmospheric corrosion	Good	Good
Resistance to marine corrosion	Good	Good
MIG-TIG weldability	Good	Good
At resistance weldability	Good	Good
Brazing weldability	Good	Good
Plastic formability when cold	Good	Good
Plastic formability when hot	Good	Good

Legend

Excellent	Good	Acceptable	Not recommended
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Chemical composition	
Si	0.40 - 0.80
Fe	≤ 0.70
Cu	0.15 - 0.40
Mn	≤ 0.15
Mg	0.80 - 1.20
Cr	0.04 - 0.14
Ni	
Zn	≤ 0.25
Ti	≤ 0.15
Pb	0.20 - 0.40
Bi	0.40 - 0.80
Others	Each 0,05 Total 0,15
Al	Remainder

Physical properties	
Density	lb/in ³ 0.0983
Modulus of elasticity	ksi 10,008
Coefficient of thermal expansion	°F 13.0
Thermal conductivity at 68°F	Btu/ft h °F 98.8
Typical electrical resistivity at 68°F	Ω mm ² /m 0.039

Minimum mechanical properties						
Temper		Diam. in	UTS ksi	YTS ksi	HBW A% Typical	
Drawn	T6	≤ 3	45.0	37.7	8	95
	T8	≤ 3	50.0	45.7	4	95
	T9	≤ 3	52.2	47.1	4	95
Extruded	T6, T6510, T6511	≤ 5.5	45.0	37.7	8	95
	T6, T6510, T6511	5.5 < D ≤ 10	37.7	34.8	8	90

6262 by EURAL

Color code
orange



PRODUCTION PROGRAM

Unit: in	●	■	■	◆
Drawn	0.236 - 3	0.394 - 2.559	Thick. 0.472 - 2.165	0.394 - 2.5
Extruded	1.181 - 10	2 - 6.5	Thick. 1.181 - 5	-



PRESENTATION

This alloy has good machinability and high mechanical characteristics. Moreover, it has good resistance to corrosion and suitability to hard, protective and decorative anodizing.

Main applications: structural components for civil constructions, railroad and street heavy vehicles.

Samples of finished products made of Eural bars



Properties	T6	T8/T9
Machinability	Excellent	Good
Protective anodizing	Good	Good
Decorative anodizing	Good	Good
Hard anodizing	Good	Good
Resistance to atmospheric corrosion	Good	Good
Resistance to marine corrosion	Good	Good
MIG-TIG weldability	Good	Good
At resistance weldability	Good	Good
Brazing weldability	Good	Good
Plastic formability when cold	Good	Good
Plastic formability when hot	Good	Good

Legend
Excellent
Good
Acceptable
Not recommended

Chemical composition	
Si	0.40 - 0.80
Fe	≤ 0.70
Cu	0.15 - 0.40
Mn	≤ 0.15
Mg	0.80 - 1.20
Cr	0.04 - 0.14
Ni	
Zn	≤ 0.25
Ti	≤ 0.15
Pb	0.40 - 0.70
Bi	0.40 - 0.70
Others	Each 0.05 Total 0.15
Al	Remainder

Physical properties		
Density	lb in ³	0.0983
Modulus of elasticity	ksi	10,008
Coeffi cient of thermal expansion	x10 ⁻⁶ °F	13.0
Thermal conductivity at 68°F	Btu ft h °F	98.8
Typical electrical resistivity at 68°F	Ω mm ² m	0.038

Minimum mechanical properties					
Temper	Diam. in	UTS ksi	YTS ksi	HBW A% Typical	
T6	≤ 3	42.1	34.8	10	85
T8	≤ 2	50.0	45.7	4	-
T9	≤ 2	52.2	47.9	4	-
T6	≤ 8	37.7	34.8	10	75

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PRODUCTION PROGRAM

Unit: in	●	■	■	●
Drawn	0.236 - 3	0.394 - 2.559	Thick. 0.472 - 2.165	0.394 - 2.5
Extruded	1.181 - 10	2 - 6.5	Thick. 1.181 - 5	-

According to EU directives:
2000/53/EU (ELV) – 2011/65/EU (RoHS II)



PRESENTATION

This is an ecologic alloy, it does not have lead, it has good machinability and high mechanical characteristics. Moreover, it has a good resistance to corrosion and suitability to hard, protective and decorative anodizing. It is an alternative to 6012, 6262, 6020, 6023 alloys.

Main applications: machining on high-speed automatic lathes, particulars for automotive applications, automatic transmission shafts, valves and clutches, hydraulic parts.

NOTE: it is particularly suitable for the realization of parts not subject to extreme heat solicitations (max 284°F) and therefore it is appropriate for automotive parts as automatic transmission valves. For higher temperatures, we suggest to use other Eural alloys, as 6026LF, 6026 or 6064A.

Samples of finished products made of Eural bars



Properties	T6	T8/T9
Machinability	Excellent	Good
Protective anodizing	Good	Good
Decorative anodizing	Good	Good
Hard anodizing	Good	Good
Resistance to atmospheric corrosion	Good	Good
Resistance to marine corrosion	Good	Good
MIG-TIG weldability	Good	Good
At resistance weldability	Good	Good
Brazing weldability	Good	Good
Plastic formability when cold	Good	Good
Plastic formability when hot	Good	Good

Legend

Excellent	Good	Acceptable	Not recommended
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Chemical composition	
Si	0.40 - 0.80
Fe	≤ 0.70
Cu	0.15 - 0.40
Mn	≤ 0.15
Mg	0.80 - 1.20
Cr	0.04 - 0.14
Ni	
Zn	≤ 0.25
Ti	≤ 0.10
Bi	0.40 - 0.90
Sn	0.40 - 1.00
Others	Each 0.05 Total 0.15
Al	Remainder

Physical properties		
Density	lb/in ³	0.0983
Modulus of elasticity	ksi	10,008
Coefficient of thermal expansion	×10 ⁻⁶ /°F	13.0
Thermal conductivity at 68°F	Btu/ft h °F	98.8
Typical electrical resistivity at 68°F	Ω mm ² /m	0.039

Minimum mechanical properties					
Temper	Diam. in	UTS ksi	YTS ksi	HBW A%	Typical
T6	≤ 3	42.1	34.8	10	-
T8	≤ 2	50.0	45.7	4	-
T9	≤ 2	52.2	47.9	4	-
T6	≤ 8	37.7	34.8	10	-

6082 by EURAL



Color code
turquoise

EURAL

GNUTTI S.p.A.

PRODUCTION PROGRAM

Unit: in	●	■	■	◆
Drawn	0.236 - 3	0.394 - 2.559	Thick. 0.472 - 2.165	0.394 - 2.5
Extruded	1.181 - 10	2 - 6.5	Thick. 1.181 - 5	-

According to EU directives:

2000/53/EU (ELV) – 2011/65/EU (RoHS II)



PRESENTATION

This alloy has medium mechanical properties, but high resistance to corrosion and excellent attitude to weldability, hot forging and anodizing.

Main applications: highly stressed structural parts for ground and nautical means of transport, anti-impact lateral bars, door frame, space frame and sub frame for cars, hydraulic systems, stairs and scaffoldings, platforms, screws and rivets, particulars for nuclear plants, food industry.

Samples of finished products made of Eural bars

Properties	T6
Machinability	■
Protective anodizing	■
Decorative anodizing	■
Hard anodizing	■
Resistance to atmospheric corrosion	■
Resistance to marine corrosion	■
MIG-TIG weldability	■
At resistance weldability	■
Brazing weldability	■
Plastic formability when cold	■
Plastic formability when hot	■

Legend



Chemical composition	
Si	0.70 - 1.30
Fe	≤ 0.50
Cu	≤ 0.10
Mn	0.40 - 1.00
Mg	0.60 - 1.20
Cr	≤ 0.25
Ni	
Zn	≤ 0.20
Ti	≤ 0.10
Pb	
Bi	
Others	Each 0.05 Total 0.15
Al	Remainder

Physical properties		
Density	lb in ³	0.0979
Modulus of elasticity	ksi	10,008
Coefficient of thermal expansion	×10 ⁻⁶ °F	13.3
Thermal conductivity at 68°F	Btu ft h °F	95.9
Typical electrical resistivity at 68°F	Ω mm ² m	0.037

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Minimum mechanical properties					
Temper	Diam. in	UTS ksi	YTS ksi	HBW A% Typical	
Drawn	T6	≤ 3	45.0 37.0	10	95
	T6	≤ 6	45.0 37.7	8	95
Extruded	T6	6 < D ≤ 8	40.6 34.8	6	95
	T6	8 < D ≤ 10	39.2 29.0	6	95



PRODUCTION PROGRAM

Unit: in	●	■	■	●
Drawn	0.236 - 3	0.394 - 2.559	Thick. 0.472 - 2.165	0.394 - 2.5
Extruded	1.181 - 10	2 - 6.5	Thick. 1.181 - 5	-

According to EU directives:

2000/53/EU (ELV) – 2011/65/EU (RoHS II)



PRESENTATION

This alloy has medium mechanical properties, but high resistance to corrosion and excellent attitude to weldability, hot forging and anodizing.

Main applications: highly stressed structural parts for ground and nautical means of transport, anti-impact lateral bars, door frame, space frame and sub frame for cars, hydraulic systems, stairs and scaffoldings, platforms, screws and rivets, particulars for nuclear plants, food industry.

Samples of finished products made of Eural bars

Properties	T6
Machinability	Excellent
Protective anodizing	Good
Decorative anodizing	Acceptable
Hard anodizing	Not recommended
Resistance to atmospheric corrosion	Excellent
Resistance to marine corrosion	Good
MIG-TIG weldability	Acceptable
At resistance weldability	Not recommended
Brazing weldability	Not recommended
Plastic formability when cold	Not recommended
Plastic formability when hot	Not recommended

Legend



Chemical composition	
Si	0.40 - 0.80
Fe	≤ 0.70
Cu	0.15 - 0.40
Mn	≤ 0.15
Mg	0.80 - 1.20
Cr	0.04 - 0.35
Ni	
Zn	≤ 0.25
Ti	≤ 0.15
Pb	
Bi	
Others	Each 0.05 Total 0.15
Al	Remainder

Physical properties		
Density	lb in ³	0.0979
Modulus of elasticity	ksi	10,008
Coefficient of thermal expansion	×10 ⁻⁶ °F	13.1
Thermal conductivity at 68°F	Btu ft h °F	99.4
Typical electrical resistivity at 68°F	Ω mm ² m	0.037

Minimum mechanical properties					
Temper	Diam. in	UTS ksi	YTS ksi	HBW A% Typical	
Drawn T6	≤ 3	42.1	34.8	10	95
Extruded T6	≤ 8	37.7	34.8	8	95

7075 by EURAL



Color code
black

EURAL

GNUTTI S.p.A.

PRODUCTION PROGRAM

According to EU directives:

2000/53/EU (ELV) – 2011/65/EU (RoHS II)

Unit: in	●	■	■	◆
Drawn	0.75 - 3	-	-	-
Extruded	0.181 - 10	2 - 6.5	Thick. 1.181 - 5	-



PRESENTATION

This alloy has extremely high mechanical properties and high resistance to fatigue. Moreover, it has good resistance to corrosion and attitude to hard, protective and decorative anodizing.

Main applications: high resistance structural parts for mechanical industry, aviation, defense, motorbike and automotive.

Samples of finished products made of Eural bars



Properties	T6
Machinability	Excellent
Protective anodizing	Good
Decorative anodizing	Good
Hard anodizing	Excellent
Resistance to atmospheric corrosion	Good
Resistance to marine corrosion	Acceptable
MIG-TIG weldability	Good
At resistance weldability	Good
Brazing weldability	Good
Plastic formability when cold	Acceptable
Plastic formability when hot	Good

Legend

Excellent	Good	Acceptable	Not recommended
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Chemical composition	
Si	≤ 0.40
Fe	≤ 0.50
Cu	1.20 - 2.00
Mn	≤ 0.30
Mg	2.10 - 2.90
Cr	0.18 - 0.28
Ni	
Zn	5.10 ÷ 6.10
Ti	≤ 0.20
Pb	
Bi	
Others	Each 0.05 Total 0.15
Al	Remainder

Physical properties		
Density	lb in ³	0.1012
Modulus of elasticity	ksi	10,443
Coefficient of thermal expansion	×10 ⁻⁶ °F	13.1
Thermal conductivity at 68°F	Btu ft h °F	74.7
Typical electrical resistivity at 68°F	Ω mm ² m	0.052

Minimum mechanical properties					
Temper	Diam. in	UTS ksi	YTS ksi	HBW	A% Typical
T6	≤ 3	78.3	70.3	7	150
Drawn T651	≤ 3	78.3	70.3	5	150
T73	≤ 3	66.0	55.8	10	135
T7351	≤ 3	66.0	55.8	8	135
T6, T6510, T6511	≤ 4	81.2	72.5	7	150
T6, T6510, T6511	4 < D ≤ 6	79.8	63.8	5	150
T6, T6510, T6511	6 < D ≤ 8	63.8	58.0	5	150
Extruded T73, T73510, T73511	≤ 3	68.9	58.7	7	135
T73, T73510, T73511	3 < D ≤ 4	68.2	56.6	6	135
T73, T73510, T73511	4 < D ≤ 6	63.8	52.2	6	135

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Billets extraction in foundry



Automatic ultrasonic control system for the entire length of the billet according to class "A" of SAE AMS-STD-2154 regulation



5500-T Indirect extrusion press



Quality Department



R&D Department



Imprint of Eural logo, alloy code and batch number on all extruded bars



Particular of bars warehouse



Eural Gnutti extrusion plant in Rovato (Brescia), Italy



Eural Gnutti foundry plant in Pontevico (Brescia), Italy

National and Company Alloy Designations



ALLOY	AA	EN	EN (CS)	ASTM	BS	BS(OLD)	DIN	WNR	JIS	JIS(OLD)	NF	NF(OLD)	SFS
	Intl.	Intl.	Intl.	USA	GB	GB	DE	DE	JP	JP	FR	FR	FI
2033			Al Cu ₂ ,5BiMnMg										
2011	2011	2011	Al Cu ₆ BiPb	2011	2011	FC1	AlCuBiPb	3.1655	A2011		2011	A-U5PbBi	
2030	2030	2030	Al Cu ₄ PbMg	\			~AlCuMgPb				2030	A-U4Pb	
2007	2007	2007	Al Cu ₄ PbMgMn	\			AlCuMgPb	3.1645				~ A-U4Pb	
2017A	2017A	2017A	Al Cu ₄ MgSi(A)	~2017	2017A		AlCuMg1	3.1325	~A2017	A3x2	2017A	A-U4G	
2024	2024	2024	Al Cu ₄ Mg1	2024	2024	2L97	AlCuMg2	3.1355	A2024	A3x4	2024	A-U4G1	
6026	6026	6026	Al MgSiBi	6026									
6064A	6064A	6064A	Al Mg1SiBi	\									
6061	6061	6061	Al Mg1SiCu	6061	6061	H20	AlMg1SiCu	3.3211	A6061	A2x4	6061	A-GSUC	
6082	6082	6082	Al Si1MgMn		6082	H30	AlMgSi1	3.2315			6082	A-GSM0.7	2593
6262	6262	6262	Al Mg1SiPb	6262									
6262A	6262A	6262A	Al Mg1SiSn	\									
7075	7075	7075	Al Zn5,5MgCu	7075	7075	2L95	AlZnMgCu1,5	3.4365	A7075	A34x6	7075	A-Z5GU	

ALLOY	SNCH	SS	UNI	UNI(OLD)	UNS	NS	UNE	ASV	ALUSUISSE	CSA(OLD)	GOST(OLD)
	CH	SE	IT	IT							
2011	AlCu ₆ BiPb	4355	9002/5	6362	A92011		L-3192		2500	CB60	
2030	AlCu ₄ MgPb				A92030						
2007	AlCu ₄ MgPb	4335	9002/8				L-3121		2118		
2017A			9002/2	3579	~A92017		L-3120		2100	CM41	D1/V65
2024	AlCu ₄ Mg1,5		9002/4	3583	A92024		L-3140		2150	CG42	D16
6026											
6064A											
6061			9006/2	6170	A96061		L-3420	2079	6061	GS11N	AD33/AV
6082	AlMgSi1Mn	4212	~9006/4	3571		17305	L-3451	2005	6112	SG11R	AD35
6262											
6262A											
7075	AlZn6MgCu1,5		9007/2	3735	A97075		L-3710	2082	7215	ZG62	B95(V95)



Line marking

Weight of aluminium bars in lbs/ft

Calculated on the
Absolute Gravity (0.101 lbs/in³)

in	●	■	◆
0,20	0,038	0,048	0,042
0,24	0,055	0,070	0,060
0,28	0,075	0,095	0,082
0,32	0,097	0,124	0,107
0,36	0,123	0,157	0,136
0,40	0,152	0,194	0,168
0,44	0,184	0,235	0,203
0,48	0,219	0,279	0,242
0,52	0,257	0,328	0,284
0,56	0,299	0,380	0,329
0,60	0,343	0,436	0,378
0,64	0,390	0,496	0,430
0,68	0,440	0,560	0,485
0,72	0,493	0,628	0,544
0,76	0,550	0,700	0,606
0,80	0,609	0,776	0,672
0,84	0,672	0,855	0,741
0,88	0,737	0,939	0,813
0,92	0,806	1,026	0,888
0,96	0,877	1,117	0,967
1,00	0,952	1,212	1,050
1,04	1,030	1,311	1,135
1,08	1,110	1,414	1,224
1,12	1,194	1,520	1,317
1,16	1,281	1,631	1,412
1,20	1,371	1,745	1,511
1,24	1,464	1,864	1,614
1,28	1,560	1,986	1,720
1,32	1,659	2,112	1,829
1,36	1,761	2,242	1,941
1,40	1,866	2,376	2,057
1,44	1,974	2,513	2,176
1,48	2,085	2,655	2,299
1,52	2,199	2,800	2,425
1,56	2,317	2,950	2,554
1,60	2,437	3,103	2,687
1,64	2,560	3,260	2,823
1,68	2,687	3,421	2,962
1,72	2,816	3,586	3,105
1,76	2,949	3,754	3,251

in	●	■	◆
1,80	3,084	3,927	3,401
1,84	3,223	4,103	3,553
1,88	3,364	4,284	3,710
1,92	3,509	4,468	3,869
1,96	3,657	4,656	4,032
2,00	3,808	4,848	4,198
2,04	3,961	5,044	4,368
2,08	4,118	5,244	4,541
2,12	4,278	5,447	4,717
2,16	4,441	5,655	4,897
2,20	4,607	5,866	5,080
2,24	4,776	6,081	5,266
2,28	4,948	6,300	5,456
2,32	5,123	6,523	5,649
2,36	5,302	6,750	5,846
2,40	5,483	6,981	6,046
2,44	5,667	7,216	6,249
2,48	5,854	7,454	6,455
2,52	6,045	7,697	6,665
2,56	6,238	7,943	6,879
2,60	6,435	8,193	7,095
2,64	6,634	8,447	7,315
2,68	6,837	8,705	7,539
2,72	7,042	8,967	7,765
2,76	7,251	9,233	7,995
2,80	7,463	9,502	8,229
2,84	7,678	9,776	8,466
2,88	7,895	10,053	8,706
2,92	8,116	10,334	8,949
2,96	8,340	10,619	9,196
3,00	8,567	10,908	9,446
3,04	8,797	11,201	9,700
3,08	9,030	11,498	9,957
3,12	9,266	11,798	10,217
3,16	9,505	12,103	10,481
3,20	9,747	12,411	10,748
3,24	9,992	12,723	11,018
3,28	10,241	13,039	11,292
3,32	10,492	13,359	11,569
3,36	10,746	13,683	11,849

in	●	■	◆
3,40	11,004	14,011	12,133
3,44	11,264	14,342	12,420
3,48	11,528	14,678	12,711
3,52	11,794	15,017	13,005
3,56	12,064	15,360	13,302
3,60	12,336	15,708	13,603
3,64	12,612	16,059	13,907
3,68	12,891	16,413	14,214
3,72	13,173	16,772	14,525
3,76	13,457	17,135	14,839
3,80	13,745	17,501	15,156
3,84	14,036	17,872	15,477
3,88	14,330	18,246	15,801
3,92	14,627	18,624	16,128
3,96	14,927	19,006	16,459
4,00	15,230	19,392	16,793
4,20	16,791	21,380	18,515
4,40	18,428	23,464	20,320
4,60	20,142	25,646	22,209
4,80	21,931	27,924	24,183
5,00	23,797	30,300	26,240
5,20	25,739	32,772	28,381
5,40	27,757	35,342	30,606
5,60	29,851	38,008	32,915
5,80	32,021	40,772	35,308
6,00	34,268	43,632	37,785
6,20	36,590	46,589	40,346
6,40	38,989	49,644	42,991
6,60	41,464	52,795	45,720
6,80	44,015	56,043	48,533
7,00	46,642	59,388	51,430
7,20	49,346	62,830	54,411
7,60	54,981	70,005	60,624
8,00	60,921	77,568	67,174
8,40	67,165	85,519	74,059
8,80	73,714	93,857	81,280
9,20	80,567	102,584	88,837
9,60	87,726	111,698	96,730
10,00	95,188	121,200	104,959

Airports :
Milano Malpensa
Milano Linate
Bergamo Orio al Serio



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ISO 14001:2015 - prEN 9100:2016
AS 9100 D - JIS Q 9100:2016 - PED

EURAL GNUTTI S.p.A.

25038 Rovato (Brescia) Italy
Via S. Andrea, 3
Company's capital € 10.000.000
Vat Reg. IT 00566100988

Phone + 39 030 7725011

Sections department:	Fax +39 030 7701228 - sections@eural.com
Bars department:	Fax +39 030 7702847 - bars@eural.com
Administration:	Fax +39 030 7702837 - accounts@eural.com
Foundry:	Fax+ 39 030 9930036 - foundry@eural.com

www.eural.com - E-mail: eural@eural.com

Eural USA Inc.

212 West Washington St. Unit 1108
60606 Chicago, IL - **USA**
usa@eural.com
Tel/Ph. +1 (312) 888.05.78

Eural Deutschland GmbH

Tübinger Strasse 26
D-70178 Stuttgart - **Germany**
germany@eural.com
Tel/Ph. +49 (173) 6155362