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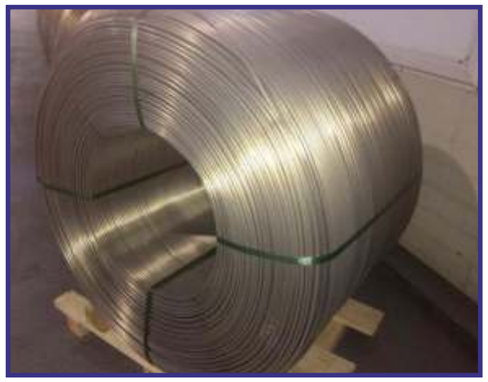
EM-KAT Ltd.

ALUMINUM WIRE ROD AND ALUMINUM ALLOY WIRE ROD MANUFACTURER

Aluminum alloy wire rod of EN AW 6101 and EN AW 6201 grades (BS EN 1715-2:2008)



Aluminum alloy wire rod of EN AW 6101-T1, EN AW 6201-T1 grades (cooled from an elevated temperature during the shaping process with subsequent natural aging) and EN AW 6101-T4, EN AW 6201-T4 grades (hardened in coils with subsequent natural aging), in accordance with BS EN 1715-2:2008, 9.5 mm in diameter. They are used in particular in the production of self-supporting insulated wires (SIP-2 and SIP-3) and overhead ground-wire cables.

Chemical composition, %									
Alloy Grade	Al	Si	Mg	Fe max.	Zn max.	Cu max.	B max.	Other impurities, each element separately, max.	Ti+V+Ga+Cr+Mn total, max.
EN AW 6101	Base	0,30-0,70	0,35-0,80	0,50	0,10	0,10	0,06	0,03	0,10
EN AW 6201	Base	0.50-0.90	0,60-0,90	0,50	0,10	0,10	0,06	0,03	0,10

Alloy Grade	Ultimate tensile strength, mPa, min.	Percentage of elongation (A100), %, min.	Specific electrical resistivity Ω*mm²/m, max.
EN AW 6101-T1	170	17	0,0350
EN AW 6101-T4	150	23	0,0350
EN AW 6201-T1	205	17	0,0360
EN AW 6201-T4	160	21	0,0360

“EM-KAT Ltd. carries out the heat treatment of EN AW 6101, EN AW 6102 grades.

Advantages:

- continuous and uninterrupted wire drawing process ensures equipment operation at the optimal technological speed
- improvement of the technological properties of the wire made from alloy of EN AW 6101-T4 and EN AW 6201-T4 grades

EM-KAT Ltd. Products

Heat-resistant aluminum alloy wire rod of AZrK-9.5 grade (IEC 62004:2007)

Wire rod made of heat-resistant aluminum-zirconium alloy of AZrk-9.5 grade, 9.5 mm in diameter, in accordance with IEC 62004:2007. The wire made from this wire rod conforms to the AT1 grade, according to the IEC 62004 (2007) standard. One of the main areas of application for wire rod made of heat-resistant aluminum-zirconium alloy is high-temperature wires of ASPT, ASPTz and ASPTk grades. The wires can be used both in the construction of new lines in networks with peak and seasonal loads, and in the reconstruction of old lines, the transmission capacity of which does not meet the growing demand of consumers. The advantage of these wires is that with equal weight and size, physical and mechanical parameters, they have the transmission capacity 2 times higher than the standard wires of AC grade. The design of wires can be made of trapezoidal wires, which reduces wind and ice load on them. Due to the use of heat-resistant alloy wire in the wire structure, they retain mechanical strength at elevated temperatures up to 150 °C.

Chemical composition, %, min.										
Alloy Grade	Al	Si	Fe	Cu	Mn	Mg	Zn	Ga	Ti	Zr
AZrK-9,5	99,45	0,07	0,20	0,01	–	0,02	0,04	0,02	0,015*	0,19-0,24

* - refers to the sum of vanadium, chromium, manganese and titanium

Electromechanical properties			
Diameter, mm	Ultimate tensile strength, mPa, min.	Percentage of elongation (A100), %, min.	Specific electrical resistivity Ω*mm²/m, max.
9,5	118	8	0,0287

Aluminum alloy wire rod of EN AW 1370-H11, EN AW 1370-H12, EN AW 1370-H13 grades

Aluminum wire rod of EN AW 1370-H11, EN AW 1370-H12, EN AW 1370-H13 grades according to BS EN 1715-2:2008, 9.5; 12.7 mm in diameter, designed for the manufacture of wire and other electrotechnical purposes.

EN AW 1370-H11 - medium-hard wire rod;

EN AW 1370-H12, EN AW 1370-H13 - hard wire rod.

Depending on the specific electrical resistivity to direct current, medium-hard wire rod is produced of the first, second and third grades as well as hard wire rod of the first and second grades.

In the first and second grades - specific electrical resistivity is determined on the wire rod;

In the third grade - specific electrical resistivity is determined on annealed wire drawn from wire rod.

Electromechanical properties			
Alloy Grade	Ultimate tensile strength, mPa, min	Percentage of elongation (A100), %, min	Specific electrical resistivity, at t 20°C, Ω*mm2/m, max.
EN AW 1370-H11	83-105	15	0.0280
EN AW 1370-H12	98-125	12	0.0280
EN AW 1370-H13	105-135	10	0.0280

Aluminum alloy wire rod of AL 59 grade

Wire rod made of aluminum alloy of AL 59 grade, 9.5 mm in diameter, in accordance with the SS4240811 Standard. It is used for the manufacture of wires of AAAC, AAACSR, AACSR/AW grades, which provide high energy performance due to increased conductivity.

Chemical composition, %											
Alloy Grade	Si	Fe	Cu	Mg	B, max.	Zn, max.	Ti, max.	Cr	Mn	Ni	Al
AL 59	0.36-0.41	0.17-0.22	0.01-0.02	0.35-0.40	0,06	0,02	0,010	0,001	0,003	0,004	base

Electromechanical properties			
Wire rod diameter, mm	Ultimate tensile strength, mPa	Percentage of elongation (A100), %, min.	Specific electrical resistivity, Ω*mm2/m, max.
9,5	165-185	8	0,02905

Aluminum alloy wire rod of SvAK5 grade

Aluminum alloy wire rod of SvAK5 grade, 9.5 mm in diameter, manufactured in accordance with TS 1712-003-91679523-2015 (GOST 4784-97), is used for the manufacture of welding wire.

This wire rod is designed for welding aircraft-grade aluminum (avial), as well as for repairing items of equipment made of low-alloyed silumin.

Wire rod grade and condition	Wire rod diameter, mm	Ultimate tensile strength, mPa	Percentage of elongation , %, min.
SvAK5-T1	9,5	170 min.	10
SvAK5-T0	9,5	140 max.	18

Chemical composition, %								
Alloy grade	Al	Fe	Si	Ti	Cu	Zn+Su, max.	Other impurities, each element separately, max.	Total impurities, max.
SvAK5	base	0,6	4,5-6,0	0,10-0,20	0,2	0,1	0,1	1,1

Aluminum alloy wire rod of EN AW 8176 grade (BS EN 1715-2:2008)

In terms of their performance, cables with conductive cores made of aluminum alloys of the 8000 series are on a par with traditionally used cables with copper cores and have a number of significant advantages:

- cost reduction up to 2.5 times (depending on the conductor cross-sectional area);
- weight reduction up to 70%;
- increased flexibility and stabilization of contact connections.

Alloy designation		Chemical Composition, %											Note	Other		Al
number identification	chemical notation	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ga	V		each	total	
EN AW-8176	EN AW-Al Fe Cu	0,03-0,15	0.40-0.15	–	–	–	–	–	0,10	–	–	–	–	0,05	0,15	remainder

Electromechanical properties of wire rod according to the European Standard BS EN 1715			
Alloy grade	Ultimate tensile strength, mPa	Percentage of elongation (A100), %	Specific electrical resistivity, Ω*mm2/m, max.
EN AW 8176	60-110	40	0,0286

Aluminum alloy wire rod of EN AW 8030 grade (BS EN 1715-2:2008)

Cables of AA8030 series are widely used for power transmission in various sectors of economy. Conductors of this type are 30-50% cheaper than their copper counterparts. Just as copper wiring, they can be safely used on connections. EM-KAT Ltd. produces aluminum wire rod made from alloy of EN AW 8030 grade with the necessary electromechanical properties in accordance with the European standard EN AW-8030. Wire heat treatment modes have been selected to obtain the electromechanical properties of the wire according to the Canadian standard CAN/CSA C22/2.

Alloy designation		Chemical Composition, %											Note	Other		Al
number identification	chemical notation	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ga	V		each	total	remainder
EN AW-8030	EN AW-Al Fe Cu	0,10	0,30-0,80	0,15-0,30	–	0,05	–	–	0,05	–	–	–	0.001-0.04 B	0,03	0,10	

Electromechanical properties of wire rod			
Alloy grade	Ultimate tensile strength, mPa	Percentage of elongation (A100), %	Specific electrical resistivity, Ω* mm2/m, max.
EN AW 8030	60-110	40	0,0286

Aluminum alloy wire rod of EN AW 1070A grade (BS EN 485-2:2018)

Wire rod made of aluminum alloy of EN AW 1070A grade is used for the manufacture of semi-finished products (sheets, tapes, strips, plates, profiles, panels, rods, pipes, wires, stampings and forgings) using hot or cold deformation method.

Alloy of EN AW 1070A grade has high corrosion resistance and strength, ease of processing and molding. To increase metal ductility, various heat treatment methods are used.

It is possible to manufacture many products from the alloy of EN AW 1070A grade using the deep drawing method. Sheet rolling is widely used to create corrosion-resistant unloaded construction elements. Various types of storage tanks can be manufactured from it. However, the corrosion resistance of technical aluminum in different environments manifests itself in different ways, since it contains impurities. It is worth paying special attention to when choosing a corrosion-resistant material for working in a specific environment.

Chemical composition, %									
Alloy grade	Si max.	Fe max.	Cu max.	Mg max.	Zn max.	Ti max.	Mn max.	Al	Other impurities, each element separately, max.
EN AW 1070A	0,20	0,25	0,03	0,03	0,07	0,03	0,03	basic	0,02

Electromechanical properties		
Alloy grade	Ultimate tensile strength, mPa	Percentage of elongation (A100), %
EN AW 1070A	83-98	15

STEEL CASTING GOST R 53464-2009

We carry out a full cycle of steel castings production using the lost foam casting (LFC) method:

- designing equipment details (or reverse engineering - creating a finished detail drawing using 3D scanning);
- production of pattern equipment;
- production of effective casting;
- mechanical and thermal treatment of castings;
- carrying out the necessary set of tests and analyses.

Thanks to LFC technology, our castings have minimal machining allowances or do not require machining at all (surface roughness up to Rz40), which allows our customers to optimize the production process to the maximum (and, as a result, reduce production cost).

CHARACTERISTICS AND DESCRIPTION

- Casting accuracy up to Class 7 according to GOST R 53464-2009;
- Surface purity (roughness) up to Rz40;
- Castings weight - 100 grams to 1 ton;
- Castings wall thickness - 3 mm min.;
- Casting complexity group: production up to Class VI is possible.

METAL GRADES

- structural steels (carbon steels): 25L to 70L;
- low-alloy steels: 20GL - 70 GL, 40XL - 70XL, 20GSL, 35XGSL, 30XNML, 30XMFL, 15X1M1FL and others;
- wear-resistant steels: 110G13L;
- stainless steels: 09X17N3SL, 10X18N9L, 10X18N11BL;
- heat-resistant steels: 40X24N12SL, 35X23N7SL.

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EM-KAT Ltd. Products

ALTI5B1 MASTER ALLOY GOST 537777-2010

• The aluminum-titanium-boron (AlTiB) master alloy is designed to ensure efficient grain refinement of aluminum alloys by introducing finely dispersed titanium diboride crystals into the melt, which serve as a crystallization center. The introduction of this master alloy leads to an improvement in mechanical properties and a decrease in gas unsoundness. The master alloy is applicable to all aluminum alloys: pure aluminum, wrought alloys as well as casting silumins.

• The master alloy is supplied in coils in the form of rods 9.5 (±0.5) mm in diameter, total weight not exceeding 210 kg.

For notes

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