
INTERNATIONAL STANDARD



6279

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Plain bearings — Aluminium alloy for solid bearings

Paliers lisses — Alliage d'aluminium pour paliers massifs

First edition — 1979-02-01

Corrected and reprinted — 1979-03-22

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[ISO 6279:1979](https://standards.iteh.ai/catalog/standards/sist/b879f0a1-50f7-4227-bc6b-28ac24c85502/iso-6279-1979)

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UDC 621.822.5 : 669.715

Ref. No. ISO 6279-1979 (E)

Descriptors : plain bearings, bearing alloys, aluminium alloys, castings, materials specifications, chemical composition, tin containing alloys, copper containing alloys, nickel containing alloys, mechanical properties.

Price based on 2 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 6279 was developed by Technical Committee ISO/TC 123, *Plain bearings*, and was circulated to the member bodies in January 1978.

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It has been approved by the member bodies of the following countries:

Australia	Italy	Sweden
Czechoslovakia	Mexico	United Kingdom
France	Netherlands	U.S.A.
Germany, F.R.	Poland	U.S.S.R.
India	South Africa, Rep. of	Yugoslavia
Ireland	Spain	

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No member body expressed disapproval of the document.

Plain bearings – Aluminium alloy for solid bearings

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1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the composition and properties of a cast aluminium alloy for use in solid plain bearings. The alloy may or may not be subjected to cold work or heat treatment to increase strength.

2 REFERENCES

ISO/R 190, *Tensile testing of light metals and their alloys*.

ISO 4384/II, *Plain bearings – Hardness testing of anti-friction metals – Part II : Solid materials*.

3 COMPOSITION AND MECHANICAL PROPERTIES

3.1 Composition

The composition is given in the table.

Methods of analysis shall be mutually agreed between supplier and purchaser.

3.2 Mechanical properties

The mechanical properties are given in the table.

The minimum tensile strength and elongation are mandatory

properties which are the subject of quality control checks carried out by the material manufacturers.

Minimum hardness is a mandatory property which may be checked on individual bearings.

Typical values of other properties are given for design guidance.

Bearings of aluminium alloy in the cold-worked condition are better able to retain interference fit in ferrous housings at elevated temperatures.

4 DESIGNATION

Designation of the aluminium alloy Al Sn6 Cu Ni :

Aluminium alloy ISO 6279 – Al Sn6 Cu Ni

5 METHODS OF TEST

The tensile test shall be carried out according to ISO/R 190.

If specimen sizes do not permit the use of standard test pieces, then test methods and mandatory values shall be as agreed between supplier and purchaser.

Hardness testing shall be carried out according to ISO 4384/II.

TABLE – Aluminium alloy Al Sn6 Cu Ni

Chemical elements	Chemical composition, % (m/m) ¹⁾ (Boldface values indicate the alloying components; other values indicate the permissible additions)			
	Remainder			
Al	Remainder			
Sn	5,5 to 7			
Cu	0,7 to 1,3			
Ni	0,7 to 1,3			
Si	0,7			
Fe	0,7			
Mn	0,1			
Ti	0,2			
Total other elements, max.	0,3			
Mechanical properties	Gravity cast		Continuously cast	
	as cast	4 % cold worked	as cast	4 % cold worked
Hardness Brinell HB10/1 000/10	min. 35	40	40	45
Tensile strength R_m N/mm ²	min. 110	120	130	140
Elongation A %	min. 10	7	15	10
0,2 % Proof stress $R_{p0,2}$ N/mm ²	≈ 45	90	55	100
Elastic modulus E N/mm ² × 10 ³	≈ 71	71	71	71
Thermal expansion α 10 ⁻⁶ /K	≈ 23	23	23	23
Thermal conductivity λ W/(m·K)	≈ 184	184	184	184
Density ρ kg/dm ³	≈ 2,9	2,9	2,9	2,9

1) % (m/m) means that the percentiles are related to the mass.