

JIS

JAPANESE INDUSTRIAL STANDARD

Testing methods of electrical copper and aluminium wires

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aluminium wires

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1. Scope

This Japanese Industrial Standard specifies testing methods of electrical copper wires and electrical aluminium wires (hereafter referred to as the "copper wires" and "aluminium wires") respectively.

Remarks 1. The following Standards are cited in this Standard:

JIS B 7502-Micrometer Callipers for External Measurement

JIS B 7507-Vernier Callipers

JIS B 7721-Tensile Testing Machines

JIS C 3001-Resistance of Copper Materials for Electrical
Purposes

JIS K 8085-Ammonia Solution

JIS K 8088-Sulfur

JIS K 8180-Hydrochloric Acid

JIS K 8252-Ammonium Peroxydisulfate

JIS K 8949-Sodium Sulfide Enneahydrate

JIS K 8984-Copper (II) Sulfate (Anhydrous)

2. The International Standards corresponding to this Standard are
given below.

IEC 28 (1925)-International standard of resistance for copper

IEC 92-3 (1965)-Electrical installations in ships. Part 3: Cables
(construction, testing and installations)

IEC 468 (1974)-Method of measurement of resistivity of metallic
materials

3. The units and numerical values given in { } in this Standard
are based on the traditional units and are appended for
informative reference.

2. Classification of tests

The tests are classified as shown in Table 1.

Table 1. Classification of tests

Class	Applicable clause for testing method
Appearance	3.
Construction	4.
Tension	5.
Conductivity	6.
Edgewise bending	7.
Plating	8.

3. Appearance

In the appearance test, the wires shall be checked by visually or by the hand touch on the following items while the wires are wound in bundles, wound on drums or wound on bobbins.

Flatness·flaw·rust·fissure·dirt·connecting point·bird cage

The tinned copper wires shall further be checked on the surface plating whether that is performed uniformly or not.

4. Construction

The construction test shall be carried out on the test piece taken from one end of the sample, and the diameter for solid wire, the width, thickness and chamfering radius for flat type wire, and the diameter of component wire, number of component wire, direction of strand, pitch of lay and outside diameter for stranded wire, shall be measured as follows:

- (1) Solid wire For the measurement of diameter, the external micrometer specified in JIS B 7502 or at least the equivalent, shall be used. For the solid wire whose nominal diameter is in the order of 1/1000 mm, however, a measuring equipment having minimum graduation of 1/1000 mm shall be used.

The diameter shall be measured at not less than two locations on the same plane perpendicular to the wire axis spaced at a nearly equal angle, and expressed as the mean value.

- (2) Flat type wire The thickness and width shall be measured with the measuring equipment specified in (1) or the vernier callipers of 0.05 mm graduation specified in JIS B 7507 at not less than two locations along the longitudinal direction, and expressed the respective mean value.

The chamfering radius shall be measured with a radius gauge (R gauge) on the same plane perpendicular to the wire axis at each chamfered corner, and expressed the mean value.