

JIS

JAPANESE INDUSTRIAL STANDARD

Hard-Drawn Grooved Trolley Wires



JIS E 2101-1990

Translation without guarantee
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Translated
by
Japanese Standards Association

1-24, Akasaka 4, Minato-ku
Tokyo 107 Japan

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1. Scope

This Japanese Industrial Standard specifies the hard-drawn copper grooved trolley wires (hereafter referred to as trolley wires).

Remark: The units and numerical values given in { } in this Standard are based on the International System of Units (SI) and are appended for informative reference.

Further, the traditional units and numerical values shall be replaced by the accompanying SI units and the relevant converted values given in { } on January 1, 1991.

2. Classification

The trolley wires shall be classified into five classes listed below according to nominal sectional area.

70 mm², 85 mm², 110 mm², 150 mm² and 170 mm²

3. Quality

The trolley wires shall be homogeneous in quality, smooth in surface and free from defects such as flaws, rust, cracks, twist and others.

4. Electric Conductivity

The trolley wires shall show an electric conductivity of 97.5 % or over when subjected to the test specified in JIS C 3001.

5. Tensile Properties

The trolley wires shall be subjected to the tests prescribed below and the determined tensile load and elongation shall satisfy the requirements specified in Table 1.

- (1) The gauge length of the test piece shall be 250 mm.
- (2) When the test piece breaks down either within 25 mm from a bench mark inside the gauge length or outside the gauge length and at the same time the test result fails to meet the requirements specified in Table 1, the test shall be invalidated.
- (3) When a test result fails to meet the requirements specified in Table 1, two additional test pieces shall be taken from the same test specimen for each test piece and the average of the results obtained from the three test pieces shall be adopted as the test result.

Applicable Standard:

JIS C 3001-Resistance of Copper Materials for Electrical Purposes

Table 1
(Applicable till the end of 1990)

Class (nominal sectional area) mm ²	Tensile load kgf{N}	Elongation (per 250 mm) %
70	2510 {24620} min.	2.5 min.
85	3090 {30300} min.	2.7 min.
110	3900 {38250} min.	3.0 min.
150	5240 {51390} min.	3.3 min.
170	5900 {57860} min.	3.4 min.

6. Bending

Bend a trolley wire approximately 90° in a plane including the center line of its arc face, along an arc having the radius given in Table 2 according to its radius, with its small arc face facing inward (call this action the first bending), next return it to its original form (call this the second bending), further bend it approximately 90° in the opposite direction (call this the third bending), and then return it to its original form, thus making up one cycle of bending. Even after 8 cycles, the trolley wire shall not be broken and severed.

This bending operation shall be performed gently.

Table 2

Class (nominal sectional area) mm ²	Radius of arc mm
70	20
85	25
110	25
150	30
170	30

7. Shapes and Dimensions

The shape and dimensions of the trolley wires shall be as specified in Table 3 and Figure. The diameter A (noted in Table 3 and Figure, and so forth) and the dimensions B, D and E shall be measured at three or more points including both ends and middle point for each length. The tolerances on diameter A and on dimensions B, D and E shall be $\pm 1\%$ and $\pm 2\%$, respectively.