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Wires and rolled wires for electrical heating

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Descriptors : electric wires, electrical resistance materials, electrical heating elements, nickel-containing alloys, chromium-containing alloys, aluminium-containing alloys, ferrous iron, ferrous alloys, alloys

Reference number : **JIS C 2520 : 1999 (E)**

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of International Trade and Industry through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law. Consequently **JIS C 2520** : 1986 is replaced with **JIS C 2520** : 1999.

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In the event of any doubts arising as to the contents, the original JIS is to be the final authority.

Wires and rolled wires for electrical heating

Introduction This Japanese Industrial Standard has been prepared based on the first edition of **IEC 60182-4** *Basic dimensions of winding wires—Part 4 : Diameters of conductors for round resistance wires* issued in 1971 without modifying its technical contents. Particular requirements not specified in the relevant IEC Standard are given as JIS requirements in the clauses (**3** to **5** and **7** to **12**). The portions underlined with dots in Attached Table 2 do not exist in the corresponding International Standard.

By the way, **IEC 60182-4** was withdrawn in 1990 and replaced by **IEC 60317-0-1** *Specifications for particular types of winding wires—Part 0 : General requirements—Section 1 : Enamelled round copper wire.* This Standard has no corresponding relations with **IEC 60317-0-1**, since the scope is different between the both standards.

1 Scope This Standard specifies electrical heating wires and rolled wires (hereafter referred to as "wires and rolled wires") of alloys mainly composed of nickel and chromium, or iron, chromium and aluminum, to be used mainly as heating elements.

Note : The International Standard corresponding to this Standard is as follows.

IEC 60182-4 : 1971 *Basic dimensions of winding wires—Part 4 : Diameters of conductors for round resistance wires*

2 Normative references The standards given in Attached Table 1 contain provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent editions of the standards shall be applied.

3 Definitions For the purpose of this Standard, the definitions given below shall apply:

a) **rolled wire** Wire materials to have been rolled, or rolled and drawn then wound into a coil.

b) **volume resistivity** Electrical resistance (Ωm) per unit cross section and unit length.

c) **effective cross section** An area of cross section of the rolled wire equivalent to the product of its thickness and its width and multiplied by a constant coefficient (mm^2).

d) **conductor resistance** The electrical resistance per unit length in longitudinal direction of a conductor having a uniform cross section (Ω). Unit length is usually 1 m or 1 km and the conductor resistance is given in (Ω/m) or (Ω/km) respectively.

e) **life** The number of repetitive cycles of a test piece having a diameter of 0.50 mm made from the heating element until it breaks as a result of repetition of electrical heating and cooling under the prescribed conditions (number of times).

4 Classification and symbols The classification and the symbols of wires and rolled wires are shown in Table 1.