

JIS

JAPANESE INDUSTRIAL STANDARD

Enamelled wires and
oleo-resinous enamelled
silk covered wires
for electrical resistance use

Ⓒ JIS C 2529—1991

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the original Standard in Japanese is to be final authority.



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1. Scope

This Japanese Industrial Standard specifies wires which are produced in such a way that the copper-nichel resistance wire, copper-manganese resistance wire, general iron-chromium resistance wires class 142 and class 123, general nichel-chromium resistance wires class 112, class 108, class 101, general copper-nickel resistance wires class 49, class 30, class 15, class 10, class 5, are employed as the conductor, and the varnish for enamel wire specified in JIS C 2351 is coated on the conductor and baked, and wires so produced that the oleo-resinous enamel is coated on the said conductor and baked and this enamelled wire is covered with a single layer of silk covering (hereafter referred to as wires).

Remarks: The Standards cited in this Standard are shown in Attached Table 1.

2. Definitions

For the purpose of this Standard the definitions specified in JIS C 2528 shall apply.

3. Classification and symbols

Wires are classified and symbolized as given in Table 1, according to the kind of film (covering) and the kind of conductor.

Table 1. Class and symbol

Kind		Symbol (¹)
Film (covering)	Conductor	
Enamel- led resist- ance wire	Oleo- resinous enamelled	Copper-nickel resistance wire grade AA ECNWAA Copper-nickel resistance wire grade A ECNWA Copper-nickel resistance wire grade B ECNWB Copper-manganese resistance wire grade AA ECMWAA Copper-manganese resistance wire grade A ECMWA Copper-manganese resistance wire grade B ECMWB General copper-nickel resistance wire class 49 EGCN49W General copper-manganese resistance wire class 44 EGCM44W
	Poly- ester	General iron-chromium resistance wire class 142 PEGFC142W General iron-chromium resistance wire class 123 PEGFC123W General nickel-chromium resistance wire class 112 PEGNC112W General nickel-chromium resistance wire class 108 PEGNC108W General nickel-chromium resistance wire class 101 PEGNC101W Copper-nickel resistance wire grade AA PECNWAA Copper-nickel resistance wire grade A PECNWA Copper-nickel resistance wire grade B PECNWB Copper-manganese resistance wire grade AA PECMWAA Copper-manganese resistance wire grade A PECMWA Copper-manganese resistance wire grade B PECMWB General copper-nickel resistance wire class 49 PEGCN49W General copper-nickel resistance wire class 30 PEGCN30W General copper-nickel resistance wire class 15 PEGCN15W General copper-manganese resistance wire class 44 PEGCM44W
	Poly- urethane	Copper-nickel resistance wire grade AA UECNWAA Copper-nickel resistance wire grade A UECNWA Copper-nickel resistance wire grade B UECNWB Copper-manganese resistance wire grade AA UECMWAA Copper-manganese resistance wire grade A UECMWA Copper-manganese resistance wire grade B UECMWB General copper-nickel resistance wire class 49 UEGCN49W General copper-nickel resistance wire class 30 UEGCN30W General copper-nickel resistance wire class 15 UEGCN15W General copper-nickel resistance wire class 10 UEGCN10W General copper-nickel resistance wire class 5 UEGCN5 General copper-manganese resistance wire class 44 UEGCM44W
Oleo-resinous enamelled silk covered resist- ance wire		Copper-nickel resistance wire grade AA ESSCNWAA Copper-nickel resistance wire grade A ESSCNWA Copper-nickel resistance wire grade B ESSCNWB Copper-manganese resistance wire grade AA ESSCMWAA Copper-manganese resistance wire grade A ESSCMWA Copper-manganese resistance wire grade B ESSCMWB General copper-nickel resistance wire class 49 ESSGCN49W General copper-nickel resistance wire class 30 ESSGCN30W General copper-manganese resistance wire class 44 ESSGCM44W

Note (¹) Meaning of symbols is as follows:

E oleo-resinous enamel
 PE polyester
 UE polyurethane
 ESS oleo-resinous enameled single silk covered

The letters next to E, PE, UE or ESS expresses the following:

CNW and CMW Copper-nickel and copper-manganese resistance wires
 GFC142 and GFC123 General iron-chromium resistance wires class 142 and class 123
 GNC112, GNC108 and GNC101 General nickel-chromium resistance wires class 112, class 108 and class 101
 GCN49W, GCN30W, GCN15W, GCN10W and GCN5W General copper-nickel resistance wires class 49, class 30, class 15, class 10 and class 5
 GCM44W General copper-manganese resistance wire class 44
 Suffixed AA, A and B Grade (refer to JIS C 2521 and JIS C 2522)

4. Quality

4.1 Chemical components The chemical components of conductor for wires shall be such that the copper-nickel resistance wires comply with JIS C 2521, the copper-manganese resistance wires are complying with JIS C 2522, and the general iron-chromium resistance wires, general nickel-chromium resistance wires, general copper-nickel resistance wires and general copper-manganese resistance wires comply with JIS C 2532.

4.2 Volume resistivity The volume resistivity of conductor for wires shall comply with the appropriate provisions of JIS C 2521. JIS C 2522 and JIS C 2532, when the test of 6.2.2 is carried out. This requirement is not applicable to wires with a conductor diameter less than 0.355 mm.

4.3 Linear temperature coefficient and quadric temperature coefficient The linear temperature coefficient and quadric temperature coefficient shall comply with the appropriate provisions of JIS C 2521 and JIS C 2522, when the test of 6.2.3 is carried out.

4.4 Mean temperature coefficient The mean temperature coefficient of a wire shall comply with the provisions of JIS C 2521, when the test of 6.2.4 is carried out.

4.5 Resistance stability The resistance stability of a wire shall comply with the provisions of JIS C 2522, when the test of 6.2.5 is carried out.

4.6 Mean thermoelectromotive force to copper The mean thermoelectromotive force to copper of a wire shall comply with the provisions of JIS C 2522, when the test of 6.2.6 is carried out.

4.7 Mechanical performance The tensile strength and elongation of the conductor of a wire shall comply with the appropriate provisions of JIS C 2521, JIS C 2522 and JIS C 2532, when the test of 6.2.7 is carried out. However, this requirement is not applied to wires of conductor diameter less than 0.20 mm.

4.8 Conductor resistance and tolerance thereon

4.8.1 Conductor resistance The conductor resistance shall comply with the appropriate provisions of JIS C 2521, JIS C 2522 and JIS C 2532, when the test of 6.2.8 is carried out.

The resistance of conductors of other sizes than those specified shall have the value calculated from the formula shown in 6.2.8 by using the dimensions agreed upon between the parties concerned with acceptance, for the time being.

4.8.2 Tolerance on conductor resistance The tolerances on conductor resistances of wires shall be as given in Table 2.

The tolerances on conductor resistances of wires with dimensions other than those specified shall be as given in Table 3.