

JIS

JAPANESE INDUSTRIAL STANDARD

**Spring pressure type wire
connectors for electrical
installations of buildings**

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In the event of any doubt arising,
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Spring pressure type wire connectors for
electrical installations of buildings

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1. Scope This Japanese Industrial Standard specifies spring pressure type wire connectors used for the connection of copper conductors in general indoor and outside-wall wiring not exceeding 600 V (hereafter referred to as "connectors"). The range of wires applicable for these connectors shall be 1.2 mm to 3.2 mm in diameter for solid wires and 1.25 mm² to 38 mm² in nominal cross-sectional area for stranded wires and flexible stranded wires.

Remarks 1. Connecting terminals of such apparatus as receptacles and switches are not included in this Standard.

2. The standards cited in this Standard are as follows:

JIS C 0060 Fire hazard testing Part 2: test methods, glow-wire test and guidance

JIS C 1102 Electrical indicating instruments

JIS C 1302 Insulation resistance testers (battery operated)

JIS C 3307 600 V grade polyvinyl chloride insulated wires

JIS C 3316 600 V grade polyvinyl chloride insulated wires for electrical apparatus

JIS C 8306 Testing methods for wiring devices

JIS H 3100 Copper and copper alloy sheets, plates and strips

JIS Z 8704 Electrical methods of temperature measurements

IEC 112 (1979) Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions

3. The International Standards corresponding to this Standard are given below:

IEC 998-1 (1990) Connecting devices for low voltage circuits for household and similar purposes. Part 1: General requirements

IEC 998-2-2 (1991) Connecting devices for low voltage circuits for household and similar purposes. Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units

2. Definitions For the purpose of this Standard the following principal definitions apply:

- (1) spring pressure type wire connector A connecting device in which the ends of wires are inserted between a conductive plate and a sheet spring for connection of wires.

- (2) rated voltage The maximum working voltage ensured under specified conditions.
- (3) applicable connecting wire A wire which can be connected with the connector (expressed by diameter in mm or cross-sectional area in mm²) and satisfies the specified electrical, mechanical and thermal performances.
- (4) spring pressure type wire connector for use with solid wire (non-universal for solid wire) A connector whose applicable connecting wires are solid wires only.
- (5) spring pressure type wire connector for common use with stranded wire (non-universal for rigid wire) A connector whose applicable connecting wires are solid wires and stranded wires.
- (6) spring pressure type wire connector for common use with flexible stranded wire (universal) A connector whose applicable connecting wires are solid wires, stranded wires and flexible stranded wires.
- (7) pole The pole means the voltage phase, neutral pole, etc. which can be connected by a connector. When there are two or more wire entries, the number of poles is one if the wires belong to the same phase.
- (8) spring pressure type wire connector without box A connector which does not require a box at the connection.

3. Classification Connectors are classified as given in Table 1.

Table 1. Classification of connectors

Classification according to kinds of connectable wires	Classification according to maximum ambient temperature of use	Classification according to number of poles	Classification by the number of wires inserted	Classification according to style in use
Non-universal connector for solid wire	Normal type (40°C)	Single-pole type (number of poles: 1)	— ⁽²⁾	With box
Non-universal connector for rigid wire	Special type ⁽¹⁾ (55°C, 85°C, 110°C, 140°C and 200°C)	Multi-pole type (number of poles: 2, 3, 4, 5)		Without box
Universal connector				

Notes ⁽¹⁾ If a value other than stated is used, it shall be a multiple of 5.

⁽²⁾ The number of wires inserted is not specified.

4. Rated voltage The rated voltages of connectors shall be as given in Table 2.

Table 2. Rated voltages of connectors

Rated voltage V			
250	(300)	450	750

Remarks: The value in parentheses is a temporary value and will be abolished in the future.

5. Performances

5.1 Construction When the test of 7.2 is carried out, the construction shall comply with the provisions of 6. and 10.

5.2 Prevention of contact with live part When the test of 7.3 is carried out, the test finger shall not come in contact with live parts.

5.3 Insertion and extraction of conductor When the test of 7.4 is carried out, no detrimental damage shall appear at any part of the connector.

5.4 Resistance to flexion When the test of 7.5 is carried out, there shall be no detrimental damages such as slip out or displacement of the wire, and break of component wires.

5.5 Tensile strength When the test of 7.6 is carried out, there shall be no detrimental damages such as slip out or displacement of the wire, and break of component wires.

5.6 Resistance to humid conditions This performance is applicable to connectors employing insulating materials other than ceramics, and the specimen shall comply with the provisions of 5.7 and 5.8 when the test of 7.7 is carried out.

5.7 Insulation resistance When the test of 7.8 is carried out, the insulation resistance shall be not less than 5 MΩ.

5.8 Dielectric withstand voltage When the test of 7.9 is carried out, the specimen shall withstand the test voltage for 1 min.

5.9 Strength against free fall When the test of 7.10 is carried out, no damage detrimental to service such as exposure of conductive parts shall take place.

5.10 Temperature When the test of 7.11 is carried out, the temperature rise of conductive parts shall not exceed 45 K.

5.11 Electrical performance When the test of 7.12 is carried out, the voltage drop per one junction at completion of 192nd cycle shall not exceed 1.5 times that at completion of 24th cycle and also 22.5 mV or under.