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**Connecting devices for low-voltage
circuits for household and similar
purposes — Part 2-4: Particular
requirements for twist-on connecting
devices**

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard based on the Industrial Standardization Law.

Consequently, JIS C 2814-2-4:2001 is replaced with this Standard.

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JIS C 2814 series consists of the following 5 parts under the general title “*Connecting devices for low-voltage circuits for household and similar purposes*”

Part 1: General requirements

Part 2-1: Particular requirements for connecting devices as separate entities with screw-type clamping units

Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units

Part 2-3: Particular requirements for connecting devices as separate entities with insulation-piercing clamping units

Part 2-4: Particular requirements for twist-on connecting devices

Connecting devices for low-voltage circuits for household and similar purposes — Part 2-4 : Particular requirements for twist-on connecting devices

Introduction

This Japanese Industrial Standard has been prepared based on the second edition of IEC 60998-2-4 published in 2004 with some modifications of the technical contents to conform to the power distribution situation in Japan. This Standard shall be used together with JIS C 2814-1 : 2009.

The portions given dotted underlines are the matters in which the contents of the original International Standard have been modified. A list of modifications with the explanations is given in Annex JC.

1 Scope

This Standard applies to the twist-on connecting device (hereafter referred to as "TOCD") for connecting two or more unprepared rigid and/or flexible conductors having a cross-sectional area of 0.5 mm² or over up to and including 16 mm² and complying with JIS C 3664 or relevant JISs. The total cross-sectional area of the connected conductors shall be not exceeding 35 mm².

This Standard covers low voltage circuits not exceeding 1 000 V a.c. and 1 500 V d.c., where electrical energy is utilized for household and similar purposes.

This Standard covers TOCDs primarily designed for clamping by hand. However, certain TOCDs, for example for conductors of larger cross-sections, may require the use of a tool designed for that particular TOCDs.

NOTE 1 (NOTE in the corresponding Standard is deleted.)

NOTE 2 The International Standard corresponding to this Standard is as follows.

IEC 60998-2-4 : 2004 *Connecting devices for low-voltage circuits for household and similar purposes — Part 2-4 : Particular requirements for twist-on connecting devices* (MOD)

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and JIS are IDT (identical), MOD (modified), and NEQ (not equivalent) according to ISO/IEC Guide 21.

2 Normative references

Normative references given in clause 2 of JIS C 2814-1 and the following shall apply.

JIS C 2814-1 : 2009 *Connecting devices for low-voltage circuits for household and similar purposes — Part 1 : General requirements*

NOTE : Corresponding International Standard : IEC 60998-1 : 2002 *Connecting devices for low-voltage circuits for household and similar purposes — Part 1 : General requirements* (MOD)

3 Terms and definitions

For the purposes of this Standard, the definitions given in clause 3 of JIS C 2814-1 and the following shall apply.

3.101 twist-on connecting device (TOCD)

terminal which is twisted on the ends of two or more conductors

3.102 range of TOCD's connecting capacity

the minimum and maximum individual conductors (expressed in mm²) used in pairs of equal size capable of being safely connected as specified by the manufacturer

This does not exclude the use of more than two conductors in TOCD or the use of conductors of sizes outside the specified range of connecting capacity.

3.103 gripping dimension

maximum dimension of TOCD perpendicular to the aperture for conductors (see figure 101)

4 General

The general shall be in accordance with clause 4 of JIS C 2814-1.

5 General notes on tests

General notes on tests shall be in accordance with clause 5 of JIS C 2814-1, provided that 5.4 shall be in accordance with this Standard.

5.4 The necessary number of new samples to be submitted to the tests shall be divided into sets as detailed in table 101.

The tests shall be carried out in the sequence listed in table 101 for each set.

Table 101 Number of new samples and sequence applicable to tests

Set	Number of new samples per set	Clause	Test sequence
A	3	8 9	Marking Protection against electric shock
B	3 to 48	10 14.102 and 14.103	Connection of conductors Torque and pull-out test
C	12 or 24	12 13	Resistance to ageing, to humidity conditions, to ingress of solid foreign objects and to harmful ingress of water Insulation resistance and electric strength
D	6	14.101	Connection without undue damage to conductors
E	6	14.101.1	Connection with reduced number of conductors
F	3	14.2	Mechanical strength (tumbling barrel)
G	6	15.101	Temperature rise
H	6 or 12	15.102.1	Temperature cycling test
I	3	15.102.2	Short-time withstand current test
K	3	16 18	Resistance to heat Resistance to abnormal heat and fire

If insufficient samples are available according to table 101, sets B and C may be combined but, in this case, the tests of clause 13 have to be carried out first.

6 Main characteristics

Main characteristics shall be in accordance with clause 6 of **JIS C 2814-1** and the following shall apply.

6.101 The preferred additional values of rated insulation voltage shall be 300 V and 600 V.

7 Classification

Classification shall be in accordance with 7.5 of **JIS C 2814-1** and the following shall apply.

7.101 Classification according to type and combination of conductors

- TOCD for rigid (solid or stranded) conductors
- TOCD for flexible conductors
- TOCD for combination of rigid (solid or stranded) and flexible conductors

8 Marking

Marking shall be in accordance with clause 8 of **JIS C 2814-1**, provided that 8.1 and 8.3 shall be in accordance with this Standard. Moreover, 8.2 is not applicable.

8.1 The following markings shall be applied for TOCD.

- The following shall be marked on the body of TOCD.
 - a) manufacturer's or responsible vendor's name, trademark or identification mark
 - b) type reference, catalogue number or part number
 - c) range of TOCD's connecting capacity
 - d) rated insulation voltage

NOTE : (This NOTE in the corresponding International Standard is deleted.)

Example : TOCD designed for the connection from a minimum of two conductors of 2.5 mm² to a maximum of 6 mm² of two conductors shall be marked as 2.5 — 6 mm².

For very small devices with a surface insufficient for complete marking, only a) and b) need to be marked on TOCD.

- In addition, the following shall be marked on the smallest package unit or on an instruction or information sheet within the package unit.
 - a) manufacturer's or responsible vendor's name, trademark or identification mark
 - b) type reference, catalogue number or part number
 - c) allowable combination of conductor types and range of TOCD's connecting capacity (mm²)
 - d) conductor type for which TOCD is designed
 - e) maximum ambient temperature of use if greater than 40 °C (according to 7.5 of JIS C 2814-1)
 - f) rated insulation voltage
 - g) insulation strip length of conductor
 - h) connection procedure (including proper usage of tool), if required

8.3 In accordance with 8.3 of JIS C 2814-1, provided that the third item of 8.3 shall be in accordance with this Standard.

n mm² or n for range of TOCD's connecting capacity

9 Protection against electric shock

Protection against electric shock shall be in accordance with clause 9 of JIS C 2814-1, provided that the second paragraph shall be as follows.

TOCD shall be connectable to two conductors of the minimum cross-sectional area of the range of TOCD's connecting capacity.