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Pliable plastics conduits

ICS 29.120.10

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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 8411** : 1992 is replaced with **JIS C 8411** : 1999.

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the original JIS is to be the final authority.

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Pliable plastics conduits

1 Scope This Japanese Industrial Standard specifies pliable plastics conduits for the protection of wires in electric wiring (hereafter referred to as "pliable conduits").

2 Normative reference The following standard contains provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent edition of the standard indicated below shall be applied.

JIS C 0069 *Fire hazard testing Part 2 : Test methods—Section 4/sheet 1 : 1 kW nominal pre-mixed test flame and guidance*

3 Definitions For the purpose of this Standard, the following principal definitions apply:

a) **pliable plastics conduit** A pliable conduit made of plastics which recovers to nearly its original shape within a short time when a force is applied perpendicular to the conduit axis for a short time and then the force is removed.

b) **plain conduit** A pliable conduit in which the profile is even in the longitudinal section.

c) **corrugated conduit** A pliable conduit in which the profile is corrugated in the longitudinal section.

Remarks : Both of annular corrugated conduit and spiral corrugated conduit are called corrugated conduit, and combination of plain conduit and corrugated conduit is permitted.

d) **material thickness of plain conduit** The difference between the average outside and average inside diameter, divided by two.

e) **material thickness of corrugated conduit** The average thickness of material measured at any point along the shape of one corrugation.

f) **material thickness of combined plain and corrugated conduit** The sum of the thickness of plain conduit material and the thickness of corrugated conduit material.

g) **multilayer conduit** A pliable conduit formed into multilayer structure from two or more materials of different properties.

h) **singlelayer conduit** A pliable conduit formed into singlelayer structure from single material.

i) **non-flame propagating conduit** A pliable conduit which is liable to catch fire as a result of applied flame, in which the flame does not propagate, and which extinguishes itself within a limited time after the flame is removed.

4 Classification

4.1 Classification, shapes and symbols The classification, structures, shapes and symbols of pliable conduit shall be as stated in Table 1.

Table 1 Classification, shape and symbol of pliable conduits

Classification of pliable conduits	Structure of conduit	Shape	Symbol
PF conduit	Multilayer conduit	Corrugated conduit	PFD
		Plain conduit	PFD-P
	Singlelayer conduit	Corrugated conduit	PFS
		Plain conduit	PFS-P
CD conduit	Singlelayer conduit	Corrugated conduit	CD
		Plain conduit	CD-P

4.2 Classification according to temperature The classification according to temperature shall be as stated in Table 2.

Table 2 Classification according to temperature

Unit : °C

Temperature classification	Lowest temperature in storage and transport	Lowest temperature in installation and service	Service temperature range
Type-5	−5	−5	−5 to +60
Type-25	−25	−15	−15 to +60

4.3 Classification according to resistance to burning The classification according to resistance to burning shall be as follows:

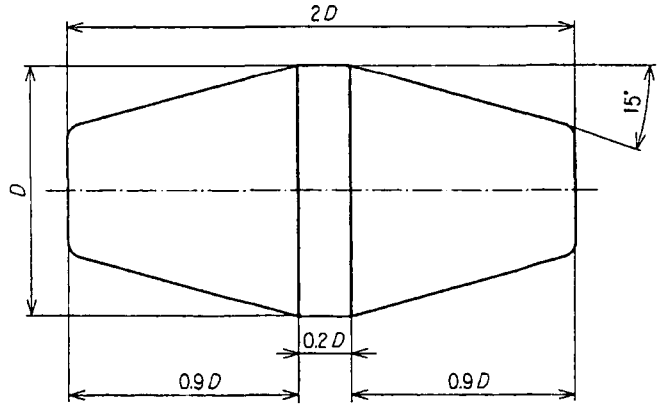
a) non-flame propagating conduits (self-extinguishable one): PF conduits

b) flame propagating conduits (non-self-extinguishable one): CD conduit

5 Performances The performances of pliable conduits shall comply with Table 3 when the tests are carried out in accordance with 8. However, the test for resistance to burning (self-extinguishable property) is not applicable for CD conduits.

Table 3 Performances

Item	Performance	Applicable subclause for test
Pliability	After the test, there shall be no fissures nor cracks found by visual check, and the gauge specified in Fig. 1 shall pass through the sample.	**8.1**
Compression recovery	After the test, there shall be no fissures nor cracks found by visual check, and the difference in outside diameters before and after the test shall not exceed 10 %.	**8.2**
Resistance to shock	Nine or more samples out of 12 samples shall not show fissures or cracks.	**8.3**
Resistance to heat	The gauge specified in Fig. 1 shall pass through the sample easily.	**8.4**
Burning resistance (self-extinguishable property)	All the three samples shall pass the test when checked by the criteria of **8.5 f)**.	**8.5**
Dielectric strength	The trip mechanism shall not operate during the test.	**8.6**
Insulation resistance	The insulation resistance shall be not less than 100 MΩ.	**8.7**



Remarks 1 The material shall be steel, and the corners shall be rounded.

2 The surface roughness shall be 0.01 mm or less.

3 The outside diameter shall have the appropriate value given in Table 4, and the tolerance shall be $^{+0.05}_{0}$ mm.

4 The tolerance on length shall be ±0.2 mm.

Fig. 1 Gauge

Table 4 Dimensions of gauge

Unit : mm

Nominal size of pliable conduit	Dimension of gauge	Nominal size of pliable conduit	Dimension of gauge
14	10.6	28	21.4
16	12.2	36	26.7
22	16.7	42	30.6

6 Construction The construction shall comply with the following requirements:

a) The cross section at right angles to the axis of a pliable conduit shall be circular.

b) The inside surface of a pliable conduit shall be smooth and free from detrimental defects which will injure the covering of the wire.

Further, a lubricant shall be coated on the inside surface of a plain conduit.

7 Dimensions Dimensions and tolerances thereon of pliable conduits shall be as stated in Table 5.

Table 5 Dimensions

Unit : mm

PF conduit				CD conduit			
Nominal size	Outside diameter	Tolerance on outside diameter	Informative inside diameter	Nominal size	Outside diameter	Tolerance on outside diameter	Informative inside diameter
14	21.5	±0.30	14	14	19.0	±0.30	14
16	23.0		16	16	21.0		16
22	30.5	±0.50	22	22	27.5	±0.50	22
28	36.5		28	28	34.0		28
36	45.5		36	36	42.0		36
42	52.0		42	42	48.0		42

8 Tests General requirements for tests are as follows:

a) The tests specified in this Standard are type tests.

b) Unless otherwise specified, the tests shall be carried out at an ambient temperature of 23 °C ± 2 °C.

c) Unless otherwise specified, each test shall be carried out on three new samples.

Remarks : In some tests, e.g. dimensional check, the characteristics of samples do not change, therefore such samples may be used for the tests to be carried out thereafter, being considered as new samples.