

JAPANESE INDUSTRIAL STANDARD

(J) JIS C 8305 : 1999

Rigid steel conduits

January 2004

ERRATA

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In Attached Table 1, the value of pitch P for CTG 42 is changed as follows:

Error: 3.309 1

Correct: 2.309 1

Remarks: This erratum is for correcting the first edition of this Standard.

Japanese Standards Association

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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 Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law.

By this revision, **JIS B 0204** : 1982 was withdrawn and integrated into **JIS C 8305**. Further **JIS C 8305** : 1992 was revised and replaced by this Standard.

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Rigid steel conduits

1 Scope This Japanese Industrial Standard specifies rigid steel conduits, (hereafter referred to as "conduit tubes") used for protecting electric wires in electrical wiring work.

2 Normative references The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent editions of the standards indicated below shall be applied.

JIS G 3132 *Hot-rolled carbon steel strip for pipes and tubes*

JIS G 3141 *Cold-reduced carbon steel sheets and strip*

JIS K 8594 *Petroleum benzine*

JIS S 6006 *Pencils and coloured pencils*

JIS Z 8401 *Rules for rounding off of numerical values*

3 Definitions For the purpose of this Standard the following principal definitions shall apply for conduit tubes:

- a) Tubes provided with screw thread by which thick rigid steel conduits and thin rigid steel conduits are capable of connection by means of screwing.
- b) Tubes by which connection of threadless rigid steel conduits is capable by other means than screwing.

4 Performances

4.1 Mechanical characteristics The conduit tubes shall comply with the requirements in Table 1, when tested in accordance with 8.1, 8.2 and 8.3.

Table 1 Mechanical characteristics

Item	Performance	Test method
Resistance to compression	The relative change in outside diameter to that before test shall be less than 25 % when a compressive load of 4 000 N to 4 160 N is applied and less than 10 % when the load is removed. There shall be no visible cracks.	8.1
Resistance to shock	There shall be no evidence of fracture, visible cracks nor deformation detrimental to normal service on at least nine samples, when a hammer of 6.8 kg to 6.868 kg in mass is dropped from a height of (300 ± 3) mm.	8.2
Bending	There shall be no cracks on the basic materials and protective coatings of conduit tubes found by visual check. The joint, if any, shall not open. There shall be no excess distortion on the cross section of conduit tube. The excess distortion shall be determined by the procedure stated below. The bent conduit tube is so placed that one straight end is upwards and another end downwards to make about 45° to the vertical plane, and the gauge shown in Fig. 3 is passed through the tube without initial speed. The gauge shall pass the inside of the sample then by its own weight only.	8.3

4.2 Resistance to corrosion The rust preventive applied on conduit tubes shall comply with the requirements in Table 2 when tested in accordance with 8.4.

Table 2 Resistance to corrosion

Rust preventive method	Performance	Test method
Coating	No break or fissure shall appear on the coated film.	8.4 b)
Electrogalvanizing	Two or more spottings shall not appear per 1 cm^2 of the surface, and if spottings appear the size of each spotting shall not exceed 1.5 mm.	8.4 c)
Hot-dip galvanizing Zinc spraying	No copper deposit which can not be rinsed off by running water shall appear.	8.4 d)

5 Classification The conduit tubes are classified into three types of thick rigid steel conduits, thin rigid steel conduits and threadless rigid steel conduits.

6 Designation, dimension, mass, effective length of threaded part and tolerances on outside diameter and mass

- The designation, dimension, mass, effective length of threaded part and tolerances on outside diameter and mass of a conduit tube shall be as given in Tables 3, 4 and 5.
- The length shall be 3 660 mm and the tolerance shall be ± 5 mm. However, the length may be changed subject to the agreement between the parties concerned with acceptance.

Table 3 Designation, dimension, mass, effective length of threaded part and tolerance on outside diameter and mass of thick rigid steel conduit tubes

Designation	Outside diameter mm	Tolerance on outside diameter mm	Thickness mm	Mass ⁽¹⁾⁽²⁾ kg/m	Effective length of threaded part mm	
					Max.	Min.
G 16	21.0	±0.3	2.3	1.06	19	16
G 22	26.5	±0.3	2.3	1.37	22	19
G 28	33.3	±0.3	2.5	1.90	25	22
G 36	41.9	±0.3	2.5	2.43	28	25
G 42	47.8	±0.3	2.5	2.79	28	25
G 54	59.6	±0.3	2.8	3.92	32	28
G 70	75.2	±0.3	2.8	5.00	36	32
G 82	87.9	±0.3	2.8	5.88	40	36
G 92	100.7	±0.4	3.5	8.39	42	36
G 104	113.4	±0.4	3.5	9.48	45	39

Notes ⁽¹⁾ The mass given in Tables 3 and 4 indicates the mass not including that of threaded part.

⁽²⁾ Tolerance on mass per one bundle of conduit tubes (within 50 kg) shall be -7 %. No tolerance on plus side is specified.

In the calculation of tolerance on mass, the difference of actual mass and calculated mass is divided by the calculated mass and expressed in percentage. The value of mass is calculated from the following formula, by taking the mass of 1 cm³ steel as 7.85 g, and rounded off to three significant figures in accordance with JIS Z 8401.

$$W = 0.024\ 66t(D - t)$$

where, W : mass of conduit tube (kg/m)
 t : thickness of conduit tube (mm)
 D : outside diameter of conduit tube (mm)

Table 4 Designation, dimension, mass, effective length of threaded part and tolerances on outside diameter and mass of thin rigid steel conduit tubes

Designation	Outside diameter mm	Tolerance on outside diameter mm	Thickness mm	Mass ⁽¹⁾⁽²⁾ kg/m	Effective length of threaded part mm	
					Max.	Min.
C 19	19.1	±0.2	1.6	0.690	14	12
C 25	25.4	±0.2	1.6	0.939	17	15
C 31	31.8	±0.2	1.6	1.19	19	17
C 39	38.1	±0.2	1.6	1.44	21	19
C 51	50.8	±0.2	1.6	1.94	24	22
C 63	63.5	±0.35	2.0	3.03	27	25
C 75	76.2	±0.35	2.0	3.66	30	28

**Table 5 Designation, dimension, mass and tolerances
on outside diameter and mass of threadless
rigid steel conduit tubes**

Designation	Outside diameter mm	Tolerance on outside diameter mm	Thickness mm	Mass ⁽²⁾ kg/m
E19	19.1	± 0.15	1.2	0.530
E25	25.4	± 0.15	1.2	0.716
E31	31.8	± 0.15	1.4	1.05
E39	38.1	± 0.15	1.4	1.27
E51	50.8	± 0.15	1.4	1.71
E63	63.5	± 0.25	1.6	2.44
E75	76.2	± 0.25	1.8	3.30

7 Structure

- The conduit tubes shall be straight and their both ends shall be cut perpendicular to their axes and chamfered.
- The inside and outside surfaces of conduit tubes shall be smooth and of good finish, and the inside surfaces shall particularly be free from projections detrimental to practical service.

8 Tests

- The tests specified in this Standard are type tests.
- 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 are not changed, therefore such samples may be used for the following tests being regarded as new samples.

- Unless otherwise specified, samples for each test shall be free from dirt and in new conditions.
- Unless otherwise specified, three samples shall be submitted for each test, and the requirements are regarded as satisfied if they are accepted by the test.

If only one of the samples fails a test due to defects in assembling or manufacture, the test and the previous tests which have possibility to affect the said test result are carried out again, then the following tests are carried out by using other complete sample set in the necessary sequence and all of such samples shall comply with the requirements.

Remarks : In such a case that the sample set for additional tests is not submitted at the same time with the submission of the first test sample set, if a sample is not accepted, all the set is rejected. Additional test sample set may be submitted for such a case that one sample of the sample set is rejected. In this case the test organization carries out the tests on the said additional test sample set without requiring new test sample set, and rejects the lot only when the additional test set is further rejected.