

JIS

JAPANESE INDUSTRIAL STANDARD

**C 03 type connectors for radio
frequency coaxial cables**

JIS C 5413—1995

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**Business Department,
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4-1-24, Akasaka, Minato-ku,
Tokyo, JAPAN 107
TEL. 03-3583-8002
FAX. 03-3583-0462

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J I S

C03 type connectors for radio
frequency coaxial cables

C 5413-1995

1. Scope This Japanese Industrial Standard specifies the C03 type connectors, designed for ratings of nominal impedance 50 Ω or less, voltage 500 V (effective value) or less, and frequency 10000 MHz or less based on JIS C 5410 (hereafter referred to as "connectors").

Remarks: The following standards are cited in this Standard:

JIS C 3501 Radio-frequency coaxial cables

JIS C 5401 General rules of connectors for use in electronic equipment

JIS C 5410 General rules of connectors for radio frequency coaxial cables

2. Definitions For the purpose of this Standard the definitions given in JIS C 5401 and JIS C 5410 apply.

3. Composition of type designation The composition of type designation shall be in accordance with 4.1 of JIS C 5410.

4. Classification The classification of C03 type connectors shall be as shown in Table 1.

Table 1

Type designation	Connector shape	Contact shape	Applicable cable ⁽¹⁾ (JIS C 3501)	Shape and dimensions
CN C03 SPM3	Plug	Male	3D-2V 3C-2V*	Attached Fig. 1
CN C03 SPM5			5D-2V 5C-2V*	
CN C03 SPM5W			5D-2W	
CN C03 SPM8			8D-2V 7C-2V*	
CN C03 SPM10			10D-2V 10C-2V*	
CN C03 LPM8	L type plug	Male	8D-2V 7C-2V*	Attached Fig. 2

Table 1 (continued)

Type designation	Connector shape	Contact shape	Applicable cable (¹)(JIS C 3501)	Shape and dimensions
CN C03 SPF3	Plug	Female	3D-2V 3C-2V*	Attached Fig. 3
CN C03 SPF5			5D-2V 5C-2V*	
CN C03 SPF5W			5D-2W	
CN C03 SPF8			8D-2V 7C-2V*	
CN C03 SPF10			10D-2V 10C-2V*	
CN C03 CRF5	Receptacle	Female	5D-2V 5C-2V*	Attached Fig. 4
CN C03 CRF8			8D-2V 7C-2V*	
CN C03 CRF5A			5D-2V 5C-2V*	Attached Fig. 5
CN C03 CRF8A			8D-2V 7C-2V*	
CN C03 SRF	Receptacle	Female	-	Attached Fig. 6
CN C03 SRFA				Attached Fig. 7
CN C03 SAFF	Adaptor	Female-female	-	Attached Fig. 8
CN C03 SAMM	Adaptor	Male-male		Attached Fig. 9
CN C03 LAFM	L type adaptor	Male-female	-	Attached Fig. 10
CN C03 TAFMF	T type adaptor	Female-male female		Attached Fig. 11
CN C03 DC	Cap	-	-	Attached Fig. 12

Note (¹) Cables marked with * are those which do not ensure impedance matching, and include cables dissatisfying the requirement on the connecting strength of cable.

5. Construction

5.1 Construction, shape and dimensions Dimensions for the mated part shall be as shown in Fig. 1 and Fig. 2. The shapes and dimensions for other parts shall be as shown in the attached figures specified in Table 1. The dimensions of metallic portions mean those after the surface treatment.

The construction and shape of the portions without specified dimensions are tentatively shown as examples. The tolerances on dimensions without specified difference shall be in accordance with 8.2 of JIS C 5410.

Fig. 1

Unit: mm

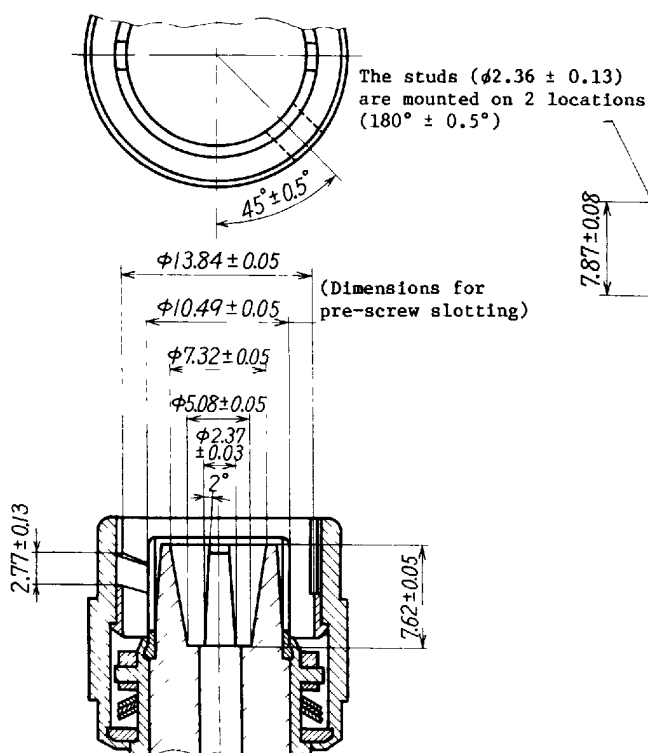
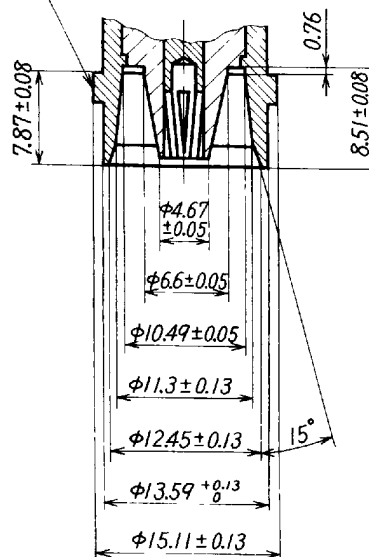


Fig. 2

Unit: mm



5.2 Material Material shall be in accordance with 8.3.1 of JIS C 5410.

5.3 Finish Finish shall be in accordance with 8.3.2 of JIS C 5410.

6. Performances

6.1 Electrical performances

- (1) **Insulation resistance** When the insulation resistance is measured with about 500 V d.c. based on 7.2.1 of JIS C 5410, it shall be 1000 MΩ or more.
- (2) **Voltage proof** When a voltage of 1500 V (effective value) is applied to the specimen according to 7.2.2 of JIS C 5410, no abnormality shall appear.
- (3) **Contact resistance** When measured according to 7.2.3 of JIS C 5410, the contact resistance shall be 3 mΩ or less.

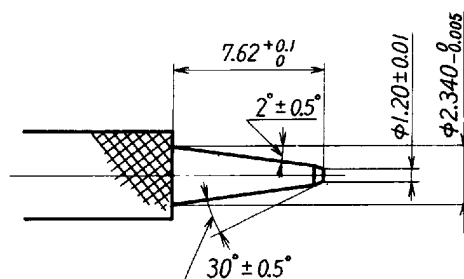
- (4) Voltage standing wave ratio The voltage standing wave ratio shall be 1.2 or less, when measured up to 4000 MHz according to 7.2.4 of JIS C 5410.

6.2 Mechanical performances

- (1) Interchangeability As for the interchangeability, the connectors with the mating part shown in Fig. 1 shall be connected with those shown in Fig. 2 without any abnormality.
- (2) Retention force of female contact When the retention force of the female contact is measured according to 7.3.4 of JIS C 5410, using a pingauge shown in Fig. 3, it shall be not less than 1.0 N.

Fig. 3

Unit: mm



- (3) Fixing force of contact with stopper When a force of 10 N or more is applied, the fixing force of a contact with stopper shall meet the requirement prescribed in 7.3.5 of JIS C 5410.
- (4) Robustness of mated part It shall meet the requirement prescribed in 7.3.8 of JIS C 5410 when a tensile force of 500 N is applied. When a torque corresponding to 500 N is applied to the connecting sleeve with its axis as the center, there shall be no abnormality on the connecting sleeve nor on the studs.
- (5) Connecting strength of cable When the tensile force specified in Table 2 in correlation with the connector and the applicable cable is applied, the connecting strength of cable shall meet the requirement in 7.3.7 of JIS C 5410.

Table 2

Type designation	Applicable cable (JIS C 3501)	Tensile force N
CN C03 SPM3	3D-2W	100 min.
CN C03 SPF3		
CN C03 SPM5	5D-2V	200 min.
CN C03 SPF5		
CN C03 CRF5		
CN C03 CRF5A		

Table 2 (continued)

Type designation	Applicable cable (JIS C 3501)	Tensile force N
CN C03 SPM5W	5D-2W	250 min.
CN C03 SPF5W		
CN C03 SPM8	8D-2V	250 min.
CN C03 LPM8		
CN C03 SPF8		
CN C03 CRF8		
CN C03 CRF8A		
CN C03 SPM10	10D-2V	400 min.
CN C03 SPF10		

Remarks: An example of fixing method of the cable in normal way is shown in Informative reference Fig. 1.

- (6) Robustness of mounting part When a tensile force of 500 N is applied to the mounting part, the part shall meet the requirement in 7.3.9 of JIS C 5410.
- (7) Repetitive operation After repeating 5000 times of connecting and disconnecting the connector according to 7.3.10 of JIS C 5410, the contact resistance shall be 10 mΩ or less.

6.3 Corrosion resistance After the test based on 7.4.5 of JIS C 5410 was carried out, the voltage proof shall meet the requirement in 6.1 (2), and the contact resistance shall be 50 mΩ or less.

7. Test

7.1 Standard conditions of testing place These shall comply with 9.1 of JIS C 5410.

7.2 Test items These shall be as given in Attached Table 1.

8. Marking The marking shall conform to 11. of JIS C 5410.

Attached Table 1 C03 type connector test item list

Test item	Construc- tion and marking	Electrical performance				Mechanical performance							Corrosion resistance
		Insulation resistance	Voltage proof	Contact resistance	Voltage standing wave ratio	Inter- change- ability	Retention force of female contact	Fixing force of contact with stopper part	Robustness of mated part	Connecting strength of cable	Robustness of mount- ing part	Repetitive operation	
Applicable provision	5. and 8.	6. 1 (1)	6. 1 (2)	6. 1 (3)	6. 1 (4)	6. 2 (1)	6. 2 (2)	6. 2 (3)	6. 2 (4)	6. 2 (5)	6. 2 (6)	6. 2 (7)	6. 3
Type Designation													
CNC 03 SPM3	○	○	○	○	△	○	—	—	△	△	—	△	△
CNC 03 SPM5	○	○	○	○	△	○	—	—	△	△	—	△	△
CNC 03 SPM5W	○	○	○	○	△	○	—	—	△	△	—	△	△
CNC 03 SPM8	○	○	○	○	△	○	—	—	△	△	—	△	△
CNC 03 SPM10	○	○	○	○	△	○	—	—	△	△	—	△	△
CNC 03 LPM8	○	○	○	○	△	○	—	—	△	△	—	△	△
CNC 03 SPF3	○	○	○	○	△	○	△	—	△	△	—	△	△
CNC 03 SPF5	○	○	○	○	△	○	△	—	△	△	—	△	△
CNC 03 SPF5W	○	○	○	○	△	○	△	—	△	△	—	△	△
CNC 03 SPF8	○	○	○	○	△	○	△	—	△	△	—	△	△
CNC 03 SPF10	○	○	○	○	△	○	△	—	△	△	—	△	△
CNC 03 CRF5	○	○	○	○	△	○	△	—	△	△	△	△	△
CNC 03 CRF8	○	○	○	○	△	○	△	—	△	△	△	△	△
CNC 03 CRF5A	○	○	○	○	△	○	△	—	△	△	△	△	△
CNC 03 SRF8A	○	○	○	○	△	○	△	—	△	△	△	△	△
CNC 03 SRF	○	○	○	○	—	○	△	△	△	—	△	△	△
CNC 03 SAFA	○	○	○	○	—	○	△	△	△	—	△	△	△
CNC 03 SAFF	○	○	○	○	△	○	△	△	△	—	—	△	△
CNC 03 SAMM	○	○	○	○	△	○	—	△	△	—	—	△	△
CNC 03 LAFM	○	○	○	○	△	○	△	—	△	—	—	△	△
CNC 03 TAFMF	○	○	○	○	—	○	△	—	△	—	—	△	△
CNC 03 DC	○	—	—	—	—	—	—	—	—	—	—	—	△

Remarks: As a rule, the mark ○ applies to the general tests and the mark △ to the special tests.

Attached Fig. 1

CN C03 SPM3

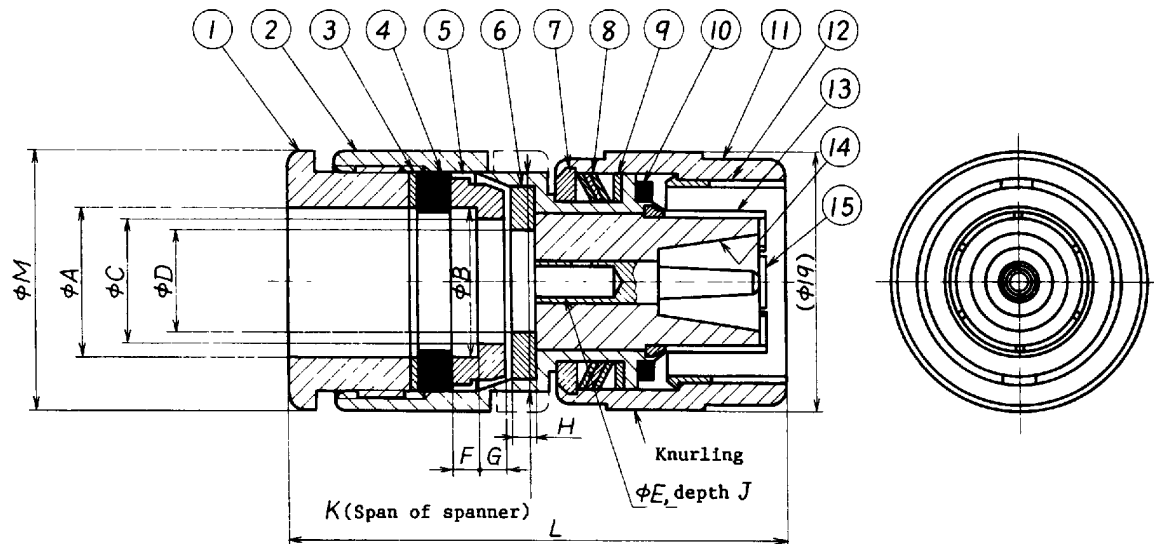
CN C03 SPM5

CN C03 SPM5W

CN C03 SPM8

CN C03 SPM10

Unit: mm



Remarks: The numerical values in parentheses in this figure are shown for information.

Type designation	Dimensions											
	A	B	C	D	E	F	G	H	J	K	L	M
CN C03 SPM3	$5.8^{+0.2}_0$	$5.8^{+0.2}_0$	4.30	3.20	1.20	2.5	2.5	3.5	5.0	$11.1^{0}_{-0.3}$	(35)	12.7
CN C03 SPM5	$7.8^{+0.2}_0$	$7.8^{+0.2}_0$	6.10	5.00	1.60	3.2	3.2	3.5	6.4	$15.9^{0}_{-0.3}$	(46)	17.5
CN C03 SPM5W	$8.5^{+0.2}_0$	$8.5^{+0.2}_0$	6.80	5.00	1.60	3.2	3.2	3.5	6.4	$15.9^{0}_{-0.3}$	(46)	17.5
CN C03 SPM8	$11.6^{+0.3}_0$	$11.6^{+0.3}_0$	9.30	8.00	2.70	3.2	3.2	3.5	6.4	$17.5^{0}_{-0.3}$	(46)	19.0
CN C03 SPM10	$13.7^{+0.3}_0$	$13.7^{+0.3}_0$	11.30	10.00	3.20	5.2	3.2	3.5	6.4	$20.6^{0}_{-0.3}$	(48)	22.2

Remarks: The numerical values in parentheses in this table are shown for information.