

JIS

JAPANESE INDUSTRIAL STANDARD

Standard Condenser Microphones

JIS C 5515—1981

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Standard Condenser Microphones

C 5515-1981

1. Scope

This Japanese Industrial Standard specifies standard condenser microphones, hereinafter referred to as the "microphones", and their preamplifiers.

2. Definisions

For the purpose of this standard the principal definitions specified in JIS Z 8106, JIS Z 8107, and Appendix 1 of this standard shall apply.

3. Classification

Standard microphones are classified, according to the classification by nominal outside diameter specified in 5. (1) and the classification by function specified in 5. (9), into four classes as shown in Table 1.

Table 1

Outside diameter Function	Type I (23.77 mm)	Type II (12.70 mm)
Type P (for sound pressure)	I P	II P
Type F (for sound field)	I F	II F

Applicable Standards:

JIS C 1303-High Insulation Resistance Meters

JIS Z 8106-Glossary of Acoustical Terms (General)

JIS Z 8107-Glossary of Acoustical Terms (Transducers and Instruments)

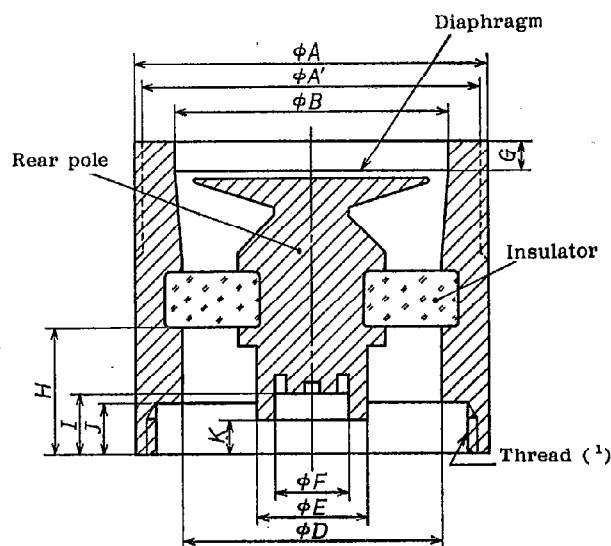
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4. Style and Dimensions

4.1 Microphone Body The style and dimensions of microphone body shall be as given in Fig. 1.

Fig. 1

Unit: mm

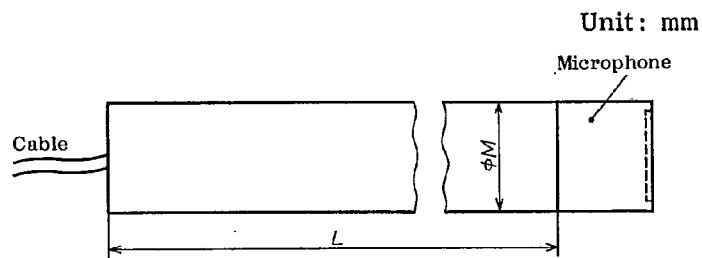


	Type I	Type II
ϕA	23.77 ± 0.03	12.70 ± 0.03
$\phi A'$	—	12.15 ± 0.05
ϕB	18.60 ± 0.03	9.80 ± 0.03
ϕD	14.0	7.0
ϕE	5.0 to 7.0	3.0 to 4.0
ϕF	5.0	—
G	1.95 ± 0.03	0.70 ± 0.03
H	7.0 to 8.0	6.0 to 7.0
I	3.0 to 7.0	3.0 to 4.0
J	2.5 to 3.0	2.5 to 3.0
K	1.0 to 2.0	3.0 to 4.0

Note (1) The thread shall be as specified in Appendix 3.

4.2 Preamplifier The style and dimensions of preamplifier shall be as given in Fig. 2. However, the joint part (grounded shield or gland shield) to microphone body shall be as given in Fig. 3.

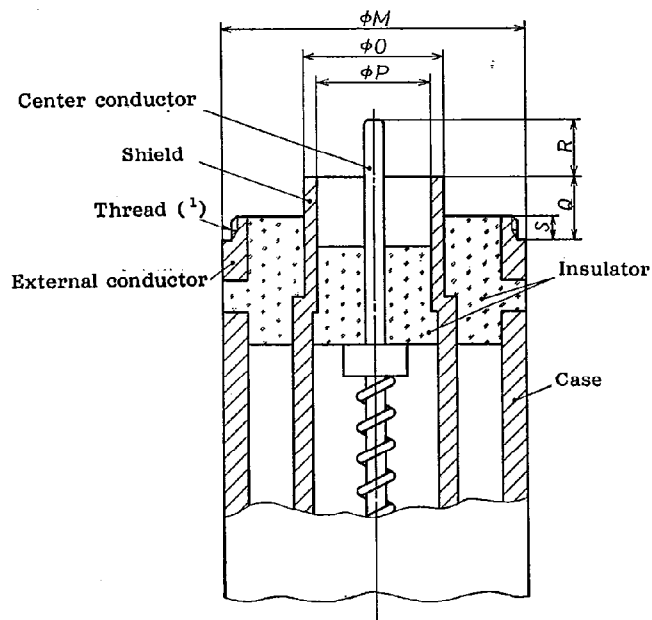
Fig. 2



	Type I	Type II
ϕM	23.77 ± 0.1	12.70 ± 0.1
L	100 min.	100 min.

Fig. 3

Unit: mm



	Type I	Type II
ϕM	23.77 ± 0.1	12.70 ± 0.1
ϕO	11.0 ± 0.1	7.0 ± 0.05
ϕP	9.0 ± 0.1	6.5 ± 0.05
Q	5.0 ± 0.1	5.0 ± 0.1
R	5.0 ± 0.1	0.0 ± 0.1
S	2.0 ± 0.1	2.0 ± 0.1

5. Ratings

The ratings shall be as follows:

- (1) Nominal Outside Diameter The nominal outside diameters shall be as given in Table 2.
- (2) Nominal Sensitivity Level The nominal sensitivity levels shall be as given in Table 2.
- (3) Nominal Capacitance The nominal capacitances shall be as given in Table 2.
- (4) Nominal Equivalent Volume The nominal equivalent volumes shall be as given in Table 2.
- (5) Working Frequency Range The working frequency ranges shall be as given in Table 2.
- (6) Working Temperature Range The working temperature range shall be -10 to 55°C.
- (7) Working Humidity Range The working humidity range shall be 85 % or less in relative humidity.
- (8) Working Atmospheric Pressure Range The working atmospheric pressure range shall be 860 to 1060 mbar ⁽²⁾.

Note ⁽²⁾ 1 mbar = 10² Pa

- (9) Function Microphones are classified into two classes, i.e. sound pressure type (Type P) and sound field type (Type F), according to their functions.

Table 2

	Type I	Type II
Nominal outside diameter mm	23.77	12.70
Nominal sensitivity level dB	-25 to -30	-34 to -38
Nominal capacitance pF	50 to 55	18 to 22
Nominal equivalent volume cm ³	0.08 to 0.14	0.005 to 0.015
Working frequency range Hz	10 to 8000	10 to 20000

6. Performances

The performances of microphones shall be as given in Table 3.

Table 3

No.	Item	Type I	Type II
1	Sensitivity level (500 Hz)	Nominal value ± 1.5 dB	
2	Deviation in frequency characteristic of sensitivity level	Types of I P and II P: The variation from the max. value to the min. value in pressure sensitivity level shall not exceed 1.5 dB over the frequency range of 5. (5). Types of I F and II F: The variation from the max. value to the min. value in free-field sensitivity level at an incident angle of zero shall not exceed 2 dB over the frequency range of 5. (5).	
3	Capacitance (500 Hz)	Nominal value ± 10 %	Nominal value ± 15 %
4	Insulation resistance	10^5 M Ω min.	
5	Equivalent volume of microphone (1013 mbar)	Nominal value ± 10 %	Nominal value ± 15 %
6	Stability (500 Hz)	Stability of pressure sensitivity level during five days $m (^{\circ})$: 0.02 dB/day $s(^{\circ})$: 0.05 dB max. Stability of pressure sensitivity level during one year $m (^{\circ})$: 0.2 dB/year $s(^{\circ})$: 0.1 dB max.	

Note (³) Refer to 14. of Appendix 1.

7. Tests

7.1 Atmospheric Conditions for Test Unless otherwise specified, the tests and measurements shall be carried out under a temperature of 15 to 25°C, a relative humidity of 65 to 85 % and an atmospheric pressure of 960 to 1060 mbar.

7.2 Testing Apparatus, Testing Device and Testing Procedure The testing apparatus, testing device and testing procedure shall be as given in Table 4.

Table 4

No.	Measuring item	Performance or specification	Measuring apparatus, measuring device or test procedure ⁽⁴⁾
1	Dimensions (1) $\phi A, \phi A'$ (2) $\phi B, \phi E$ (3) Others	To comply with 4.	Micrometer, graduated microscope, vernier caliper
2	Shape (thread)	To comply with 4.1	Limit gauge
3	Sensitivity level	To comply with No. 1 of Table 3	As specified in Appendix 2.
4	Frequency characteristics of sensitivity level	To comply with No. 2 of Table 3	As specified in Appendix 2.
5	Capacitance	To comply with No. 3 of Table 3	As specified in 2.3 of Appendix 2.
6	Insulation resistance	To comply with No. 4 of Table 3	As specified in JIS C 1303 ⁽⁵⁾ .
7	Stability	To comply with No. 6 of Table 3	As specified in Appendix 2 ⁽⁶⁾ .

Notes ⁽⁴⁾ Including measuring apparatus, measuring device and test procedure which are equal to or better than those specified.

⁽⁵⁾ The measuring method given in JIS C 1303 is used. Provided that the applied voltage is 100 V.

⁽⁶⁾ Continuous calibration of sensitivity through five days or one year is necessary to obtain the stability.

8. Marking

The following items shall be marked at an easily visible place of a microphone in an indelible way.

- (1) Name of product or type designation
- (2) Manufacturer's name or abbreviation
- (3) Manufacturing number
- (4) Class

Example: ECL MR 103 ○○○○ No. 7901 IP

9. Operation Manual

The operation manual in which the following items are described shall be attached to a microphone.

- (1) Name of product
- (2) Class
- (3) Manufacturer's name
- (4) Manufacturing number
- (5) Year and month of manufacture
- (6) Sensitivity level
 - (a) Nominal pressure sensitivity level
 - (b) Tested value of pressure sensitivity level
 - (c) Frequency characteristics of pressure sensitivity level or frequency characteristics of field sensitivity level
- (7) Nominal capacitance and tested value of capacitance
- (8) Tested value of insulation resistance
- (9) Nominal equivalent volume
- (10) Nominal stability
- (11) Tested values on dimensions
- (12) Date of test
- (13) Environmental conditions for test

10. Precaution for operation

The following precautions for operation shall be noticed.

- (1) Precaution shall be paid at the time of operating and storing a microphone so that it will not receive large force such as impact. Especially, diaphragm is easily damaged, therefore never touch it.
- (2) An environment where humidity is 90 % or more or it is dusty shall be avoided as far as possible, and it is desirable to use desiccator for storage.
Further, protective fittings shall be attached to the diaphragm and electrical terminals while not in use.