

JIS

JAPANESE INDUSTRIAL STANDARD

**Measuring Methods of
Low Pressures by Hot Cathode and
Cold Cathode Ionization Gauges**

JIS Z 8752—1989

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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Measuring Methods of Low Pressures by Hot Cathode
and Cold Cathode Ionization Gauges

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1. Scope

This Japanese Industrial Standard specifies the general methods of measurement for low pressures using hot cathode and cold cathode ionization gauges, hereafter referred to as the "gauges".

2. Definition

The meanings of the main terms used in this Standard shall be as specified below, except where specified in JIS Z 8126, JIS Z 8127, and JIS Z 8128.

- (1) envelope A part of the gauge head, consisting of a receptacle which accommodates the electrodes.
- (2) vacuum system The vacuum device to be the object of pressure measurement.
- (3) controlled measuring unit A measuring instrument having both a power source for operating the gauge head and the function of measuring the current or the like and indicating the pressure.

3. Principle of Measurement

The pressure is measured electrically by utilizing the fact that the ionization current produced by ionization of gas molecules, or the discharge current, depends on the pressure.

4. Classification and Constitution of Gauges

4.1 Kinds of Gauges and Their Ranges of Measuring Pressures Gauges are classified into hot cathode and cold cathode ionization gauges, and they are respectively constituted from a gauge head and a controlled measuring unit. The following Table shows the main kinds of gauges and their main ranges of measuring pressures.

Table. Classification of Gauges and Their Ranges of Measuring Pressures

Unit: Pa

Kind of gauge		Range of measuring pressures
Hot cathode ionization gauge	Triode type	10^{-1} to 10^{-5}
	B-A	10^{-1} to 10^{-8}
	Medium vacuum service	10 to 10^{-3}
Cold cathode ionization gauge	Penning	1 to 10^{-4}
	Magnetron	10^{-1} to 10^{-8}

Applicable Standards:

JIS Z 8126-Vacuum Technology – Vocabulary (General Terms)

JIS Z 8127-Vacuum Technology – Vocabulary (Vacuum Pumps and Related Terms)

JIS Z 8128-Vacuum Technology – Vocabulary (Vacuum Gauges and Related Terms)

JIS Z 8750-Methods of Calibration for Vacuum Gauges