

JIS

JAPANESE INDUSTRIAL STANDARD

**General constructions of gas
burning appliances
for domestic use**

JIS S 2092—1991

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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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General constructions of gas burning appliances S 2092-1991
for domestic use

1. Scope

This Japanese Industrial Standard specifies general constructions of gas burning appliances mainly for general domestic use (hereafter referred to as "appliances") using the liquefied petroleum gas or city gas⁽¹⁾ (hereafter referred to as "gas") as fuel.

Further, in the case where there is no specification particularly in Japanese Industrial Standard (hereafter referred to as "JIS") classified by appliance, it shall be in accordance with this Standard in principle.

Note ⁽¹⁾ The liquefied petroleum gas means the gas described in "Standard of liquefied petroleum" of the enforcement regulations (1968, Ministerial Ordinance of the Ministry of International Trade and Industry No. 14) of the Ministry of International Trade and Industry based on the Law Concerning the Security of Safety and the equitable measure for Transaction of Liquefied Petroleum Gas (1967, the Law number 149).

The city gas means the gas of gas group described in the Ministerial Ordinance relating to verification of goods for gas (1971, Ministerial Ordinance of the Ministry of International Trade and Industry No. 27) based on Gas Utility Industry Law (1954, the law number 51).

Remarks 1. Applicable Standards to this Standard are shown in Attached Table 1.

2. In this Standard the units and numerical values shown in { } are in accordance with the traditional units and are currently the criteria in force.

Further, from January 1, 1995, the International System of Units (SI) applies and the traditional units and numerical values are made the informative reference.

3. The pressure in this Standard, other than that indicated as atmospheric pressure, are all gauge pressure.

2. Classification

Appliances shall be classified according to the usage, setting type, ventilation system of indoor type and installation configuration as given in Tables 1 to 4.

Table 1. Classification by usage

Use	Kind	Description
Heating appliance	Gas stove	The appliance to warm a room by radiated heat, convective heat, etc.
Water heating appliance	Gas instantaneous water heater	The appliance to be exclusively used for supplying warm water having mechanism capable of opening or closing of gas passage according to supply water, and structure to heat water during passing through the heat exchanger.
	Gas storage-water heater	The gas storage-water heater of structure to heat the water preliminarily stored in hot water storage tank, having the mechanism capable of opening or closing of the gas passage according to hot-water condition of which the hot-water storage part is closed tightly and applied with a pressure not less than 10 m in water head and of which area of heat-transfer surface is 4 m ² or less, to be used exclusively for water heating.
	Gas bath heater	The heating apparatus equipped with bath-tub to heat directly the water in bath-tub by combustion heat of gas, which is an integrated construction combined the heat exchanger for heating water in bath-tub (hereafter referred to as the "heater body") and the burner (hereafter referred to as the "bath burner".) That having the hot-water supply function is included also.
Cooking appliance	Small gas kitchen range	The appliance to carry out cooking by supporting a pan on burner.
	Gas grill	The appliance to grill with direct flame mainly foods.
	Gas oven	The appliance to cook foods by radiated heat and convection heat without direct fire.
	Gas rice cooker	The appliance provided with an apparatus to detect cooking the rice and to extinguish automatically the main burner.
	Small kitchen range with gas grill	A small gas kitchen range provided with gas grill.

Table 1. (Continued)

Use	Kind	Description
Cooking apparatus	Gas range	The cooking apparatus combined gas oven and gas kitchen range (including the small kitchen range with grill).
	Gas cooking table	The table (dining table) provided with appliances such as small gas cooking range, gas grill, etc.
	Other complex type cooking appliance	The appliance combined with either two or more of small gas kitchen range, gas grill, gas oven, gas rice cooker.
Drying appliance	Gas clothes dryer	The appliance to dry washed clothes by drafting air heated combustion heat of gas with a motor.

Table 2. Classification by setting system

Setting system	Description	Abbreviated mark	(Informative reference)
Indoor type	Appliances set indoor	—	Reference Figs. 1 to 7
Outdoor type	Appliances set outdoor	RF	Reference Fig. 8

Table 3. Classification of indoor type appliances by ventilation system

Ventilation system		Description	Designation	Abbreviated mark		(Informative reference)
Unvented system		The system to take air for combustion from inside the building and exhaust the combustion gas to inside the building	Unvented system	—		Reference Fig. 1
Vented system	Natural exhaust type	The system to take the air for combustion from inside the building and exhaust the combustion gas by using a cylinder according to natural draft force to outside.	Exhaust cylinder type	CF		Reference Fig. 2
	Forced exhaust type	The system to take the air for combustion from inside the building and to exhaust in reinforcing to outside by using a blower.	Forced exhaust type	FE		Reference Fig. 3
Direct vent system	Natural supply exhaust type	The system to perform ventilation of air through vent air intake pipe which installed penetrating through the wall to outside, and the ventilation is carried out according to natural draft power.	Balance outer wall type	BF	BF-W	Reference Fig. 4
		The system to perform the vent air intake to a single corridor according to natural draft force with connecting the vent air intake pipe in exclusive ventilation room (chamber)	Balance chamber type		BF-C	Reference Fig. 5
		The system to perform ventilation according to natural draft force with connecting the vent air intake pipe in the common use vent air intake pipe (U duct, SE duct, etc.)	Balance duct type		BF-D	Reference Fig. 6
	Forced supply exhaust type	The system to perform enforcedly the vent air intake by using a blower with taking out the vent air intake pipe by penetrating through the wall contacting the atmosphere outside.	Forced supply exhaust type	FF		Reference Fig. 7

Table 4. Classification by setting type

Setting type	Description	(Informative reference)
Table top type	Applicable to be used with placing on small-kitchen-range stand, cooking stand dining table, etc.	Reference Fig. 9
Floor type	Appliance to be used by installing on a stand or floor surface.	Reference Fig. 10
Wall type	Appliance to be used by attaching to wall surface	Reference Fig. 11
Hang type	Appliance to be used by suspending on a wall, ceiling, etc.	Reference Fig. 12
Build-in type	Appliance to be used by being built-in to a wall or cooking stand.	Reference Fig. 13
Cabinet type	Appliance to be used by attaching on the exclusive use cabinet.	Reference Fig. 14

3. Structure, materials and dimensions of appliance

3.1 Structure general The structure of appliance and its each part shall be made with taking into consideration the safety and endurance relating to gas leak, fire, etc., and be such structure that the rupture or deformation harmful to use or the like relative to the usual transport, setting, using, etc. and further, comply with each following item.

- (1) Function of each part is smooth and secure.
- (2) Under the ordinary setting condition according to the ordinary using operation it does not travel or overturn easily.
- (3) The gas connecting opening of appliance of ordinary set type, or that existing at inside of appliance or hidden part of inside of setting stand and that of appliance having preparatory gas plug are to be screw threads specified in 4.1 (2) and, be at a position able to be connected easily.
- (4) To be provided with device plug specified in 4.2.
- (5) The gas passing parts are to be as follows.
 - (a) The passage of gas has gas tightness which shall not be damaged for ordinary transport, setting, using, etc.
 - (b) The gas conduit pipe is provided at a place having no fear to receive excessive heat or corrosion or executed with countermeasures such as protection.
 - (c) The connecting parts are connected securely with welding, screwing-in, bolt-nut, screw threads, etc.

(6) The burner⁽²⁾ and ignition burner⁽³⁾ are attached as follows.

- (a) These are attached at the specific position stably, the relative positions to the parts relating to nozzle, combustion chamber, electric ignition apparatus, safety device, etc. are maintained securely, and are free from travelling and running out under ordinary using condition.
- (b) The parts of appliance other than required are attached at the position not to cause overheating, damage.

Notes ⁽²⁾ The "burner" means for appliance having pilot burner the pilot burner and main burner, and for that having no pilot burner means the main burner (hereinafter to be same in this Standard).

Further, the "pilot burner" as ignition use to main burner, is to be burning all the time at least while the main burner is burning.

⁽³⁾ The "ignition burner" means the burner to burn only when ignites the burner. Hereinafter, it is same in this Standard.

(7) As a rule, it is capable of confirming that the pilot burner and the like⁽⁴⁾ are ignited according to viewing, mirror, voltmeter, etc. at the place to carry out the ignition operation.

Further, for that not capable of confirming the ignition, it is provided with a going-out safety device specified in 4.13.1.

Note ⁽⁴⁾ The "pilot burner and the like" means the pilot burner or for that having no pilot burner the main burner. Hereinafter it is the same in this Standard.

(8) For that in which the ignition operation is carried out automatically⁽⁵⁾ is provided with flame failure safety device specified in 4.13.1.

Note ⁽⁵⁾ "That in which the ignition operation is carried out automatically" means that after making the appliance under stand-by condition, the opening work of gas passage to burner, igniting work, ignition confirming, etc. are performed automatically.

- (9) The regulation and exchange of burner and other main parts are capable.
- (10) The end part of the part contacted with hand during using or at cleaning is smooth.
- (11) The part requiring detaching for cleaning, repairing, etc., is, as a rule, to be capable of detaching, attaching with ordinary tools.
- (12) The screw to be used for attaching of each part is effective in fastening and the part requiring detaching for maintenance checking is capable of repeated use.
- (13) The appliance to be used by attaching to wall, pillar, floor, etc. is capable of attaching and detaching, and can be attached securely that according to the ordinary piping connecting work, abnormalities are not generated.

3.2 Material general Materials to be used for appliance shall be capable of enduring the mechanical, chemical, heating operation having possibility to receive under the ordinary use and maintenance condition, and, comply with each following item.

- (1) The materials of part enclosing gas other than packings (including packings diaphragm, rubber valve body. Hereinafter is the same.) and sealing materials (including grease. Hereinafter it is the same) are incombustible materials not melting at 500°C (relating to rubber tube opening, 350°C) and complying with either one of the following (hereinafter referred to as corrosion proof material).
 - (a) The material indicated in Attached Table 2 or the material having corrosion resistance equivalent or superior thereto.
 - (b) The galvanized metal material for which the test according to 2.(1) of Table 17 of JIS S 2093 for 24 h, was performed and confirmed there is no corrosion or that the corrosion area rate is 9.8 to 6. in rating number.
 - (c) The metal material applied with surface treatment according to painting, and confirmed that it is free from rust, blistering and exfoliation by performing the test according to 2.(2) of Table 17 of JIS S 2093 for 24 h.
- (2) Packings, sealing materials to be used for passing part of gas and gas tightness maintaining components other than metal are to be as follows.
 - (a) Materials such as rubber, plastics, etc. of packings are to be subjected to test according to 3.(1) of Table 17 of JIS S 2093, and the mass change rate is within 20 % and are free from softening, embrittlement, etc. harmful to use.

Further, the rubber (excluding that comply with JIS B 2401) is subjected to test according to 3.(2) of Table 17 of JIS S 2093, and the transmission quantity of n-pentane per h is 0.005 g or less.
 - (b) The sealing material is subjected to test according to 3.(3) of Table 17 of JIS S 2093, and the mass change rate is within 10 % in the case of 20°C in gas temperature, and within 25 % in the case of 4°C in gas temperature.
- (3) The conductive material is copper, copper alloy, stainless steel or that having electrical, thermal, and mechanical stability equivalent or superior thereto and to be difficult in rusting. However, except the part requiring elasticity and that to be used for unavoidable structural part having no fear for generation of risk.
- (4) The heat insulator, heat insulating material, etc. to be used for gas passage, combustion part and peripheral electrical equipments are made of flame resistant material. However, except that which has no fear to generate risk such as electric shock fire and the like in the case of burning of heat insulator, heat insulating material, etc.