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Gas cylinders for portable gas cooker

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Gas Appliances Inspection Association (JIA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently, **JIS S 2148:1998** is replaced with this Standard.

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Gas cylinders for portable gas cooker

Introduction

This Japanese Industrial Standard was established in 1991 and has gone through two revisions up to the present. The last revision was made in 1998 and the revision at this time is to respond to the reduction of the dimensional tolerances and clarification of the inspection methods for the purpose of promoting the standardization, as well as addition of the flange strength test method and the marking requirements.

No International Standard corresponding to this Standard has been established at this point.

1 Scope

This Standard specifies cartridges filled up with liquefied petroleum gas (LPG) used as a component of portable gas cookers.

The portable gas cookers are those specified in JIS S 2147.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

- JIS C 3101 *Hard-drawn copper wires for electrical purposes*
- JIS C 3102 *Annealed copper wires for electrical purposes*
- JIS G 3302 *Hot-dip zinc-coated steel sheet and strip*
- JIS G 3303 *Tinplate and blackplate*
- JIS G 3313 *Electrolytic zinc-coated steel sheet and strip*
- JIS G 3314 *Hot-dip aluminium-coated steel sheet and strip*
- JIS G 3446 *Stainless steel pipes for machine and structural purposes*
- JIS G 3459 *Stainless steel pipes*
- JIS G 4303 *Stainless steel bars*
- JIS G 4304 *Hot-rolled stainless steel plate, sheet and strip*
- JIS G 4305 *Cold-rolled stainless steel plate, sheet and strip*
- JIS G 4308 *Stainless steel wire rods*
- JIS G 4313 *Cold rolled stainless steel strip for springs*
- JIS G 4314 *Stainless steel wires for springs*
- JIS H 3100 *Copper and copper alloy sheets, plates and strips*

JIS H 3250	<i>Copper and copper alloy rods and bars</i>
JIS H 3300	<i>Copper and copper alloy seamless pipes and tubes</i>
JIS H 3320	<i>Copper and copper alloy welded pipes and tubes</i>
JIS H 4000	<i>Aluminium and aluminium alloy sheets, strips and plates</i>
JIS H 4040	<i>Aluminium and aluminium alloy rods, bars and wires</i>
JIS H 4080	<i>Aluminium and aluminium alloys extruded tubes and cold-drawn tubes</i>
JIS H 4090	<i>Aluminium and aluminium alloy welded pipes and tubes</i>
JIS H 4100	<i>Aluminium and aluminium alloy extruded shape</i>
JIS H 5120	<i>Copper and copper alloy castings</i>
JIS H 5202	<i>Aluminium alloy castings</i>
JIS H 5301	<i>Zinc alloys die castings</i>
JIS H 5302	<i>Aluminium alloy die castings</i>
JIS K 2301	<i>Fuel gases and natural gas — Methods for chemical analysis and testing</i>
JIS K 6259	<i>Rubber, vulcanized or thermoplastics — Determination of ozone resistance</i>
JIS S 2091	<i>Gas and kerosene appliances for domestic use, and their accessories — Glossary</i>
JIS S 2147	<i>Portable cookers attached to liquefied petroleum gas cylinder</i>
JIS T 3201	<i>Glass syringes</i>
JIS Z 1522	<i>Pressure sensitive adhesive cellophane tapes</i>
JIS Z 2371	<i>Methods of salt spray testing</i>
JIS Z 8305	<i>Dimensions of printing types</i>

3 Terms and definitions

For the purposes of this Standard, the terms and definitions given in JIS S 2091 and the following apply.

3.1 flange

a guide for setting the LPG cartridge in the portable gas cooker in the appropriate direction

3.2 boss

protruding part at the center of the LPG cartridge that houses stem or other valve part

3.3 cartridge cap

the cap for protecting the gas outlet of the LPG cartridge for portable gas cooker

4 Performance

The performance of LPG cartridges, when tested by the methods described in clause 9, shall conform to the requirements given in Table 1.

Table 1 Performance

Item		Performance	Applicable test subclause
Resistance to LPG	Packings for cartridge valve	The mass change rate shall not exceed 20 %, and there shall be no deformation or change that may be detrimental to use.	9.3
Ozone re- sistance		There shall be no cracks.	9.4
Gas tightness		There shall be no gas leakage.	9.5
Pressure proof	Deformation	There shall be no leakage or deformation.	9.6
	Burst	The cartridge shall not burst.	
Stem functioning load		12 N to 19 N	9.7
Repeated use		The requirement for gas tightness shall be met.	9.8
Accuracy of filled gas vol- ume to the nominal volume		+1 -2 %	9.10
Intial partial air pressure		It shall not exceed 50 kPa at a temperature of 25 °C.	9.13
Valve flow rate		The flow rate shall be 8 L/min or more at the valve-inlet pressure of 0.2 MPa.	9.14
Flange strength		The maximum load before deformation of the edge of the flange notch shall be 100 N or greater.	9.15

5 Filled LPG

5.1 Component

The component of LPG, when tested by the method described in 9.9, shall conform to the requirement given in Table 2.

Table 2 Component

Unit: mass fraction %

Component	Distribution ratio
C ₄ H ₁₀ (butane)	95 min.
Other hydrocarbons	5 max.

5.2 Nominal LPG volume

The nominal LPG volume, when tested by the method described in 9.10, shall be ≥ 220 g but ≤ 250 g.

5.3 Odor

The odor of LPG, when tested by the method described in 9.11, shall be detectable when the LPG mixing ratio to air is 1/1 000 in volume.

6 Construction

When the test described in 9.2 is carried out for testing the construction of each component of the cartridge, each component shall be proven to have been manufactured with safety and durability considerations and shall be free from leakage of LPG, breakage or deformation that may be detrimental to use when used under normal service and transportation conditions.

- a) The pressing jointed part shall be effective in pressing, and the edges likely to be touched by hands during use shall be smooth.
- b) Exposure to such vibrations and impacts as might occur during the transportation or service shall not reduce the gas tightness and pressure resistance of the cartridge.
- c) The cartridge shall be constructed in such a way that it allows the LPG to be discharged in gaseous state when it is under normal service condition ¹⁾.
- d) The cartridge shall be provided with a means to prevent LPG from being discharged when it is taken off from the appliance.
- e) The cartridge shall be provided with a means to protect the protruding cartridge valve.

Note ¹⁾ Normal service condition refers to a condition where the cartridge is installed in an appliance.

7 Dimensions

7.1 Dimensions of cartridge and cartridge valve

The dimensions of cartridge and cartridge valve, when tested by the method described in 9.2, shall conform to the requirement given in Table 3 corresponding to respective parts indicated in Figure 1 and Figure 2.