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Quick coupling unit for gas appliances

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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 Industrial Association of Gas and Kerosene Appliances (JGKA)/Japanese Standards Association (JSA) 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 2135: 1991** is replaced with this Standard.

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Quick coupling unit for gas appliances

Introduction

This Japanese Industrial Standard was established in 1982 and has been revised two times up to the present. The revision at this time has been made to update the contents to correspond to changes in actual production and usage of the product seen since the last revision made in 1991.

No corresponding International Standard has been established at this point.

1 Scope

This Standard specifies quick coupling units for general domestic use (hereafter referred to as “couplings”) intended for indoor connection of the gas appliances for town gas or liquefied petroleum gas (hereafter referred to as “gas”) of gas pressure 3.3 kPa or under with gas taps using rubber tubes of nominal diameter 9.5 or reinforced gas hose or gas-cord of nominal diameter 9.5.

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) listed below shall be applied.

JIS B 0405	<i>General tolerances — Part 1 : Tolerances for linear and angular dimensions without individual tolerance indications</i>
JIS B 7411	<i>Solid-stem general purpose liquid-in-glass thermometers</i>
JIS B 7502	<i>Micrometer callipers</i>
JIS B 7507	<i>Vernier, dial and digital callipers</i>
JIS B 7516	<i>Metal rules</i>
JIS B 8571	<i>Gas meters</i>
JIS G 3314	<i>Hot-dip aluminium-coated steel sheet and strip</i>
JIS G 4303	<i>Stainless steel bars</i>
JIS G 4304	<i>Hot-rolled stainless steel plate, sheet and strip</i>
JIS G 4305	<i>Cold-rolled stainless steel plate, sheet and strip</i>
JIS G 4308	<i>Stainless steel wire rods</i>
JIS G 4309	<i>Stainless steel wires</i>
JIS G 4313	<i>Cold rolled stainless steel strip for springs</i>
JIS G 4314	<i>Stainless steel wires for springs</i>

JIS G 4318	<i>Cold finished stainless steel bars</i>
JIS H 3100	<i>Copper and copper alloy sheets, plates and strips</i>
JIS H 3250	<i>Copper and copper alloy rods and bars</i>
JIS H 3260	<i>Copper and copper alloy wires</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 2240	<i>Liquefied petroleum gases</i>
JIS K 6259	<i>Rubber, vulcanized or thermoplastics — Determination of ozone resistance</i>
JIS K 6348	<i>Rubber tubes for gas</i>
JIS K 6351	<i>Wire reinforced rubber hoses and hose assemblies for gas</i>
JIS S 2091	<i>Gas and kerosene appliances for domestic use, and their accessories — Glossary</i>
JIS S 2146	<i>Gas cords</i>
JIS Z 2371	<i>Methods of salt spray testing</i>

3 Terms and definitions

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

See Annex A for names of each part.

3.1 quick coupling unit

easily attachable/detachable coupling unit having such a construction that, in case of disconnection of the connecting part, gas leak from the supply end does not occur

3.2 position of use of coupling

intended position of use of each coupling, numbered in the increasing order from the upstream side of the gas flow (see Table 1 and Annex B)

3.3 rubber tube

rubber tube specified in **JIS K 6348**, with a nominal diameter of 9.5

3.4 gas-cord

cord for gas use specified in **JIS S 2146**, consisting of a hose and quick coupling units attached at both ends of the hose

3.5 reinforced gas hose

gas hose specified in **JIS K 6351**, with a nominal diameter of 9.5

3.6 adjustable part

part of which the flexing movement enables changing the angle of the outlet passage to the inlet passage of the coupling

4 Classification

Couplings are classified by the type of application as shown in Table 1 (see Annexes B and C).

Table 1 Classification

Classification	Position of use of coupling (see Annex B)	Type of connector	Designation	Rubber tube or hose to be connected	With/without safety mechanism	Summary	Reference figure (see Annex C)
Gas tap connecting type	①	Plug	Plug for gas tap (for rubber tube or gas-cord)	—	With	Quick coupling to be fitted to the rubber tube mouth (hose end) of a gas tap, used for connection of a socket for rubber tube (gas tap side) or gas-cord.	Figure C.1
		Plug	Plug for gas tap (for reinforced gas hose)	—	With	Quick coupling to be fitted to the rubber tube mouth (hose end) of a gas tap, used for connection of a socket for reinforced gas hose (gas tap side).	Figure C.2
Rubber tube/reinforced gas hose connecting type	②	Socket	Socket for rubber tube (gas tap side)	Rubber tube	Without	Quick coupling in the form of a socket to be coupled with a plug for gas tap (for rubber tube or gas-cord) or connected with a gas tap, having a rubber tube fitting part and used at gas tap side.	Figure C.3
		Socket	Socket for reinforced gas hose (gas tap side)	Reinforced gas hose	Without	Quick coupling in the form of a socket to be coupled with a plug for gas tap (for reinforced gas hose) or connected with a gas tap, having a reinforced gas hose fitting part and used at gas tap side.	Figure C.4
For gas tap side connection	③	Plug	Plug for rubber tube (gas appliance side)	Rubber tube	With	Quick coupling in the form of a plug to be coupled with a socket for gas appliance (for rubber tube) or connected with a gas appliance, having a rubber tube fitting part and used at gas appliance side.	Figure C.5
Gas appliance connecting type	④	Socket	Socket for gas appliance (for rubber tube)	—	Without	Quick coupling in the form of a socket to be fitted to the rubber tube mouth (hose end) of a gas appliance, used for connection of a plug for rubber tube (gas appliance side).	Figure C.6
		Plug	Plug for gas appliance (for gas-cord)	—	Without	Quick coupling in the form of a plug fitted to the rubber tube mouth (hose end) of a gas appliance, used for connection of a gas-cord.	Figure C.7

5 Performance

The performance of couplings, when tested according to clause 9, shall satisfy the requirements given in Table 2.

Table 2 Performance of coupling

Test item		Performance	Summary of test conditions	Applicable sub-clause
Airtightness		①There shall be no external leakage.	Air pressure of 4.2 kPa	9.4
		②The transit leakage passing through safety mechanism shall be 0.55 L/h max.		
		③There shall be no leakage at the time of abnormality.		
Coupling/uncoupling behaviour		It shall be smooth and secure.	—	9.5
Coupling/uncoupling force	Coupling force	60 N max.	—	9.6
	Uncoupling force	30 N max.		
Flow rate		500 L/h min.	Air flow rate converted into the standard condition when pressure drops by 0.1 kPa.	9.7
Repeated use	Coupling part	Requirements for airtightness (①②③) and coupling/uncoupling behaviour shall be met.	6 000 times at a rate of 10 times/min to 20 times/min.	9.8
	Adjustable part	Requirements for airtightness (①) shall be met.	6 000 times at a rate of 5 times/min to 20 times/min.	
Tensile strength		The coupling shall not be detached. Requirements for airtightness (①②) and coupling/uncoupling behaviour shall be met.	—	9.9
Load resistance		Requirements for airtightness (①②) and coupling/uncoupling behaviour shall be met.	350 N	9.10
Impact resistance		Requirements for airtightness (①②) and coupling/uncoupling behaviour shall be met.	—	9.11
Pull-out strength		The coupling shall not be pulled out.	—	9.12
Thermal resistance		Requirements for airtightness (①②) and coupling/uncoupling behaviour shall be met.	120 °C ± 2 °C for 30 min	9.13
Low temperature resistance		Requirements for airtightness (①②) and coupling/uncoupling behaviour shall be met.	– 10 °C ± 2 °C for 30 min	9.14
Flame resistance		The coupling shall not continue burning with flame for more than 5 s.	—	9.15