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Gas valves

ICS 91.140.40

Descriptors : gas valves, liquefied petroleum gas, town gas, domestic pipework
systems, stop valves

Reference number : JIS S 2120 : 1998 (E)

S 2120:1998

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of International Trade and Industry through deliberations at Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law. Consequently **JIS S 2120:1992** is replaced with **JIS S 2120:1998**.

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In the event of any doubts arising as to the contents,
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Gas valves

Introduction As a standard applied commonly to gas valves for liquefied petroleum gas and city gas, **JIS S 2120 Gas valves** was established in 1973. Thereafter, it was amended in 1998, complying with the technical regulation of Ministerial Ordinance Concerning the Official Approval of Liquefied Petroleum Gas Articles based on Law Concerning the Securing of Safety and the Optimization of Transaction of Liquefied Petroleum Gas.

1 Scope This Japanese Industrial Standard specifies gas valves ⁽³⁾ mainly used in ordinary domestic low pressure pipings for city gas ⁽¹⁾ or liquefied petroleum gas ⁽²⁾ of 15 kPa or less (hereafter referred to as "gas").

Notes ⁽¹⁾ City gas means a gas in the gas group described in Ministerial Ordinance Concerning the Official Approval of the Gas Articles (Ordinance No. 42 of the Ministry of International Trade and Industry, 1996) based on the Gas Utility Industry Law (Law No. 51, 1954).

⁽²⁾ Liquefied petroleum gas means the gas described in the "Specification of liquefied petroleum gas" in the Enforcement Regulation (Ordinance No. 11 of the Ministry of International Trade and Industry, 1997) based on the Law Concerning the Securing of Safety and the Optimization of Transaction of Liquefied Petroleum Gas (Law No. 149, 1967).

⁽³⁾ Gas valves mean a device which is composed of main body, plug, etc. to open and close the gas passage by such a means as sliding motion between the plug (cylindrical, spherical, plate-like shape or the like) and the main body.

Those equipped with a connecting part for piping extension or the like are included.

2 Normative references The standards listed in Attached Table 1 contain the provisions which, through reference in this Standard, constitute provisions of this Standard. The most recent editions of the standards shall be applied.

3 Classification Gas valves shall be classified as given in Tables 1 to 9.

Table 1 Classification by the use

Use	Contents of classification	Remarks
Hose coupling gas valve	Gas valves intended to be used in the vicinity of gas appliance, and connected to a rubber tube for gas or reinforced rubber hose for gas directly or through a joining device (fitting metal, quick coupling unit and the like) on the outlet side.	Informative Figs. 1 to 6
Flexible tube coupling gas valve	Gas valves intended to be used in the vicinity of gas appliance, and connected to a flexible metal hose for gas or reinforced rubber hose for gas by screw on the outlet.	Informative Figs. 7 to 9
Appliance coupling gas valve	Gas valves of which the outlet side is to be directly connected to the gas inlet of gas appliance by screw.	Informative Fig. 10
Screw coupling gas valve	Gas valves intended to be used mainly for a gasmeter inlet or piping system, and connected to a metal tube, flexible stainless steel tube for gas, flexible metal hose for gas or reinforced rubber hose for gas by screw threads on the outlet side.	Informative Figs. 11 to 13

Table 2 Classification by the installation

Installation mode	Contents of classification	Remarks
Bared type	Those installed on wall and the like without concealment.	Informative Fig. 1
Embedded type	Those installed as embedded in wall, floor, etc.	Informative Fig. 5

Table 3 Classification by the shape of gas outlet

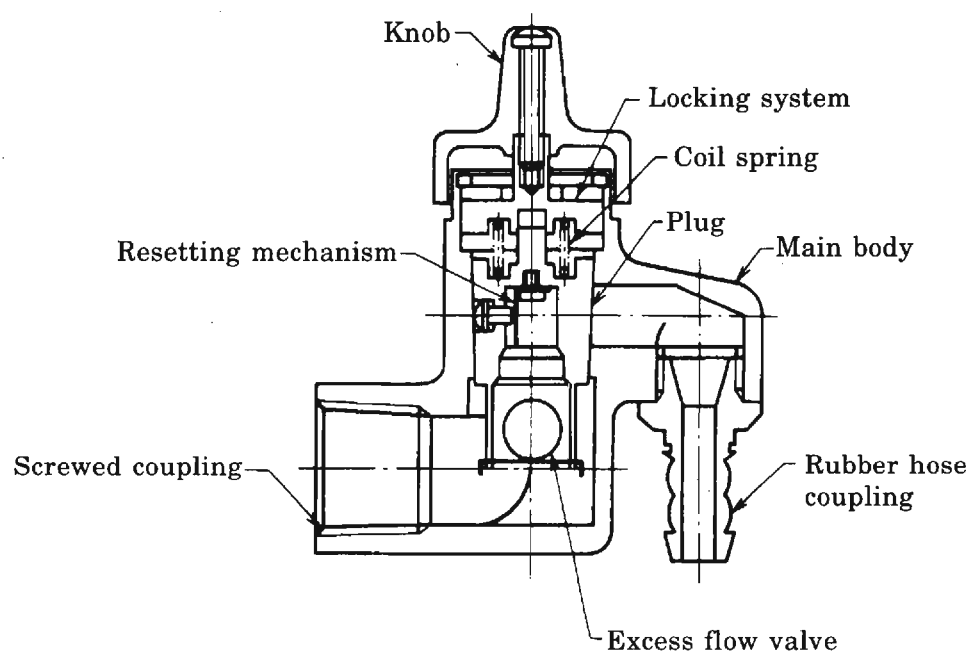
Shape of gas outlet ⁽⁴⁾	Contents of classification	Remarks
Rubber hose coupling (Hose end)	Those constructed to be coupled directly to a rubber hose.	Informative Fig. 1
Quick coupling	Those constructed to be connected to a socket of quick coupling unit.	Informative Figs. 3, 5, 6
Screwed	Those connectable by screw threads.	Informative Figs. 7, 10, 11

Note ⁽⁴⁾ Gas outlet means the connecting side to gas appliance.

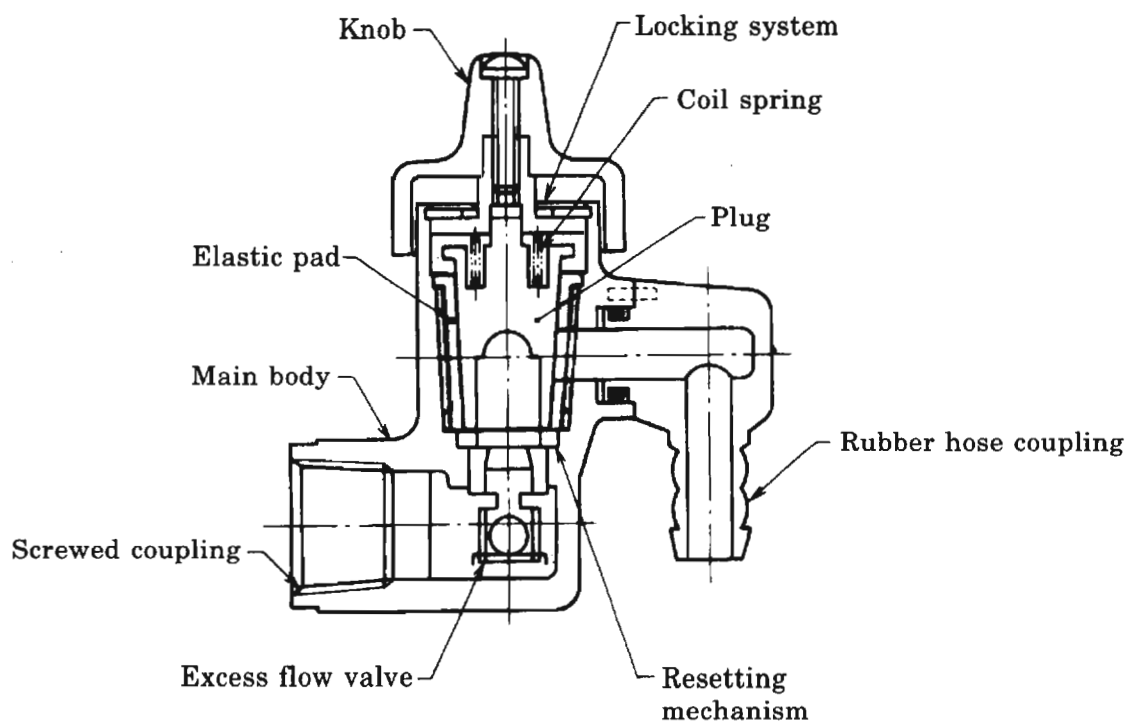
Table 4 Classification by the number of couplings on the gas outlet side

Number of couplings ⁽⁵⁾	Contents of classification	Remarks
Single coupling	Those with one coupling on the gas outlet side.	Informative Fig. 14
Two couplings	Those with two couplings on the gas outlet side.	Informative Fig. 15

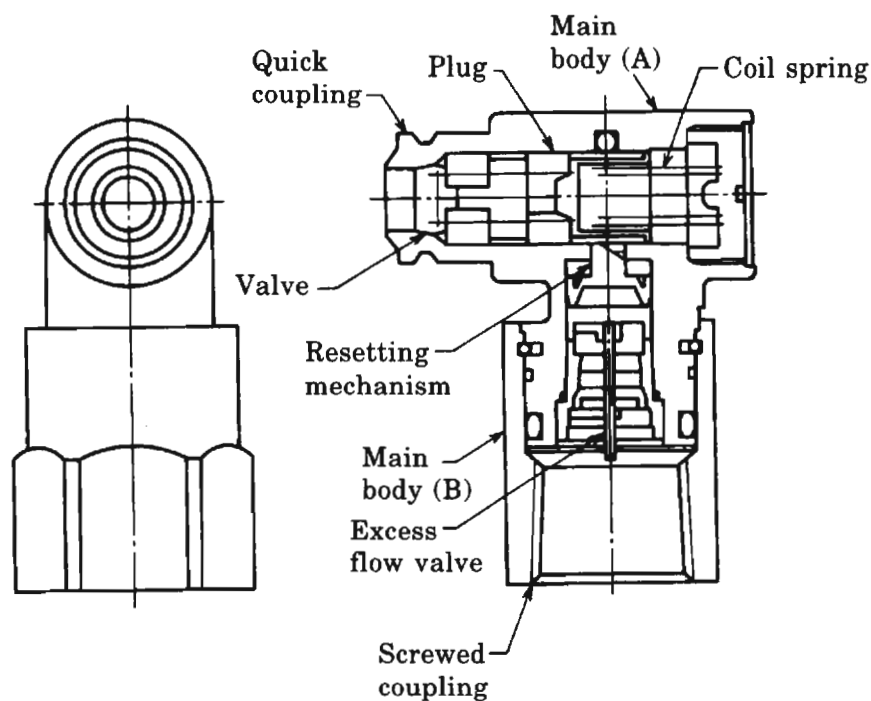
Note ⁽⁵⁾ Number of couplings means that connectable to rubber hose and the like.



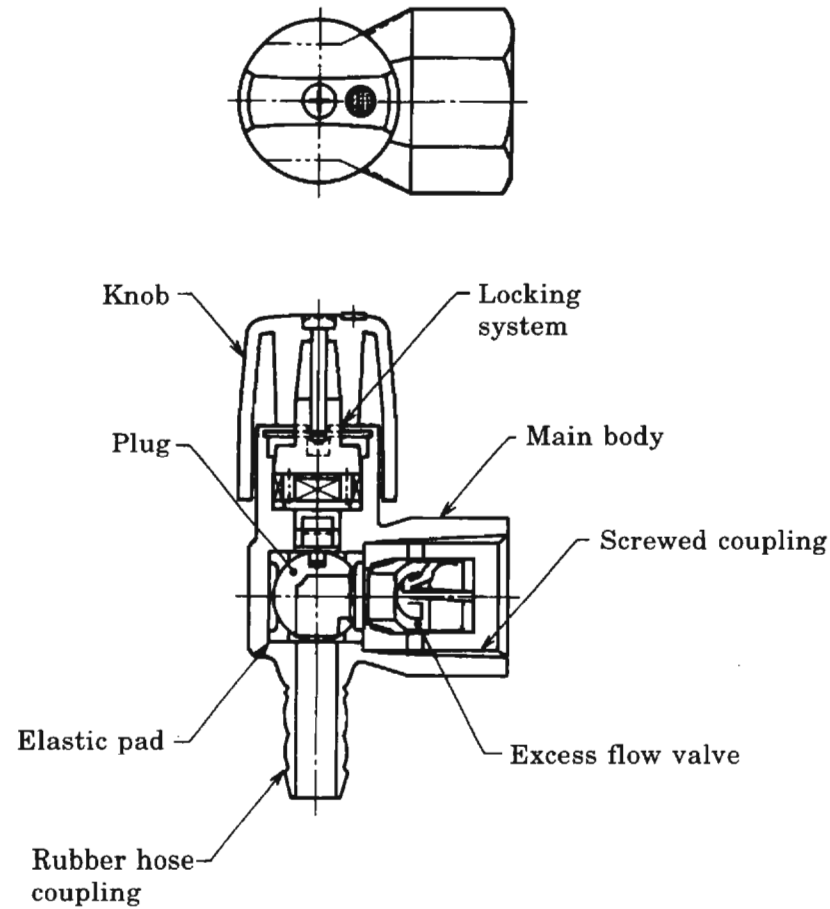
Informative Fig. 1 Hose coupling gas valve
(The drawing shows an example.)



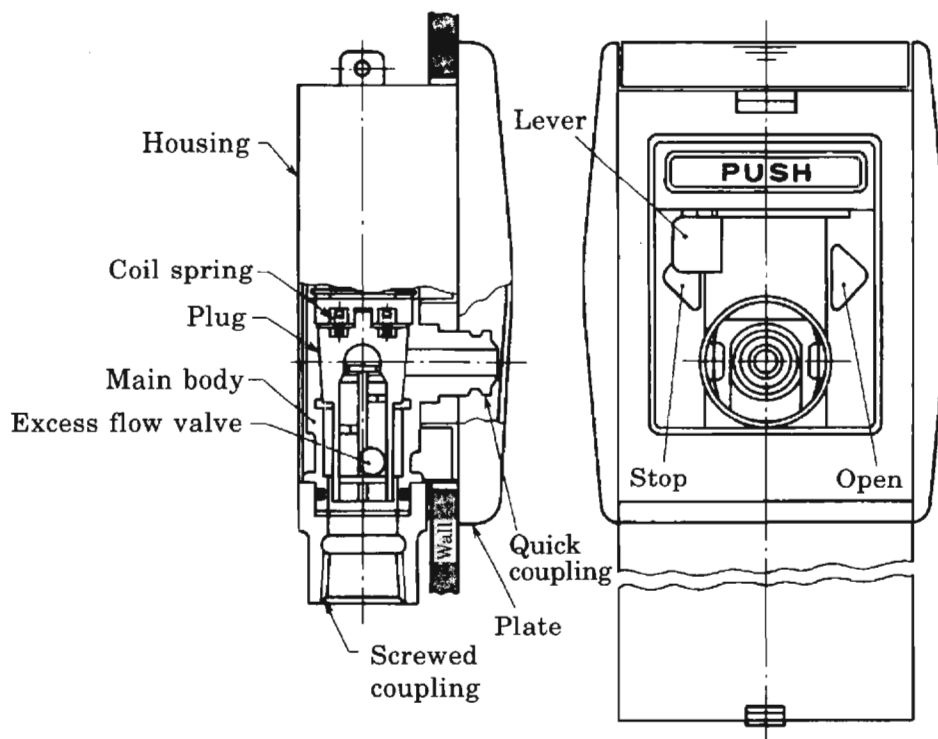
Informative Fig. 2 Hose coupling gas valve
(The drawing shows an example of using elastic pad.)



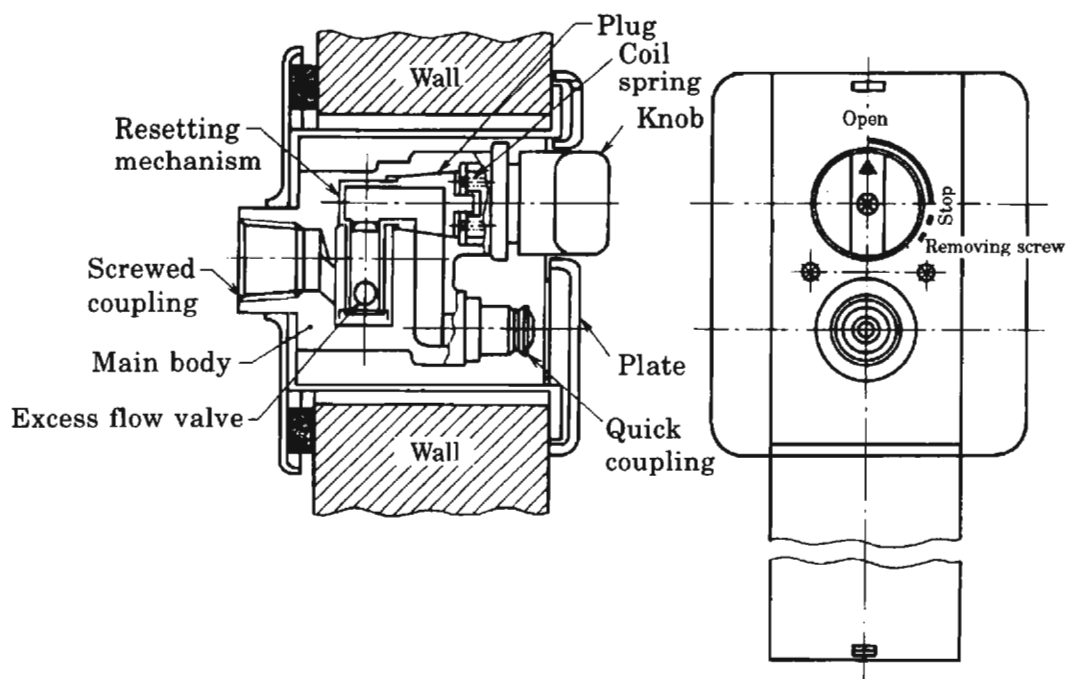
Informative Fig. 3 Hose coupling gas valve
(The drawing shows an example of knob-less type gas valve.)



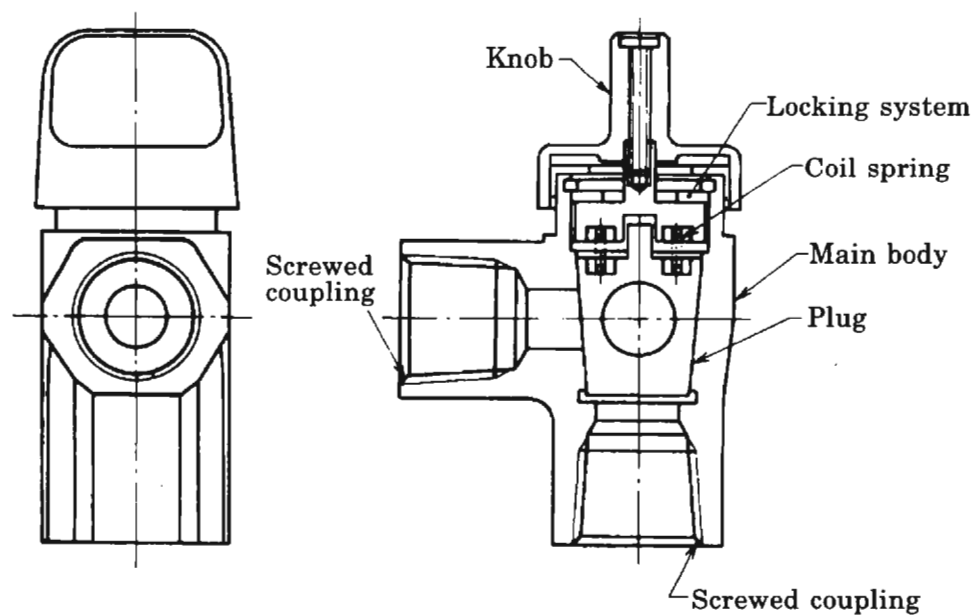
Informative Fig. 4 Hose coupling gas valve
(The drawing shows an example of using elastic pad.)



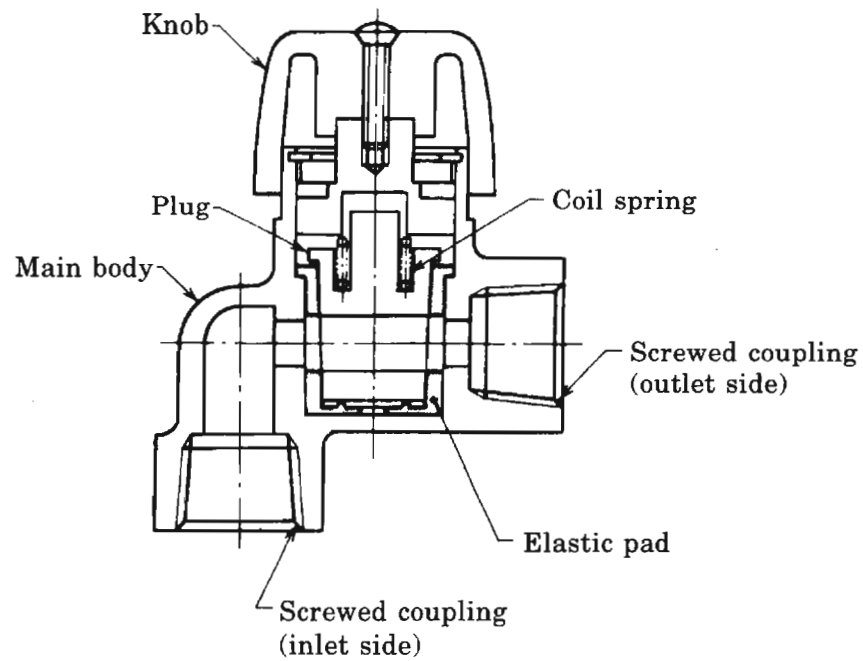
Informative Fig. 5 Hose coupling gas valve
(The drawing shows an example.)



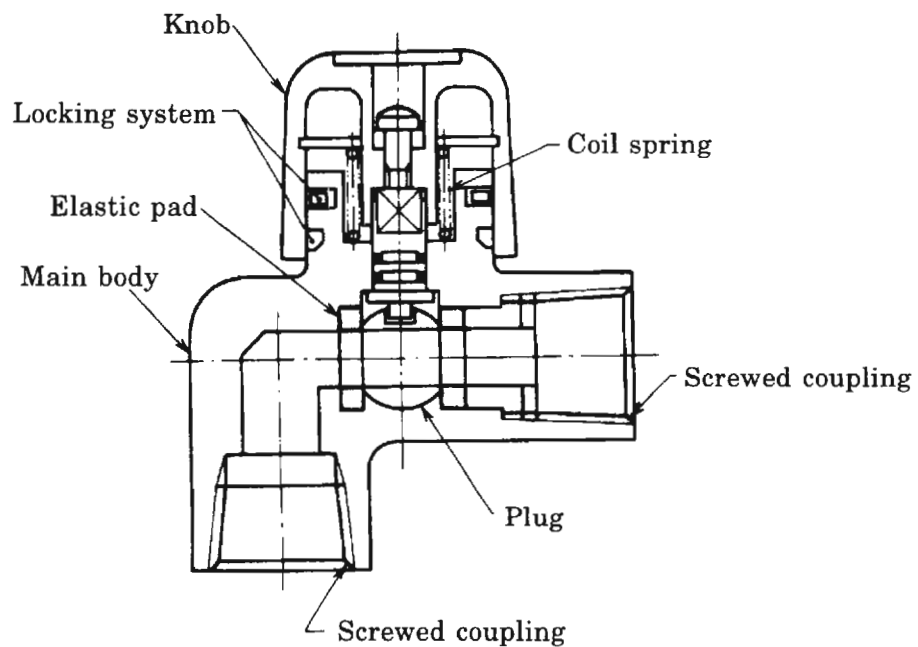
Informative Fig. 6 Hose coupling gas valve
(The drawing shows an example.)



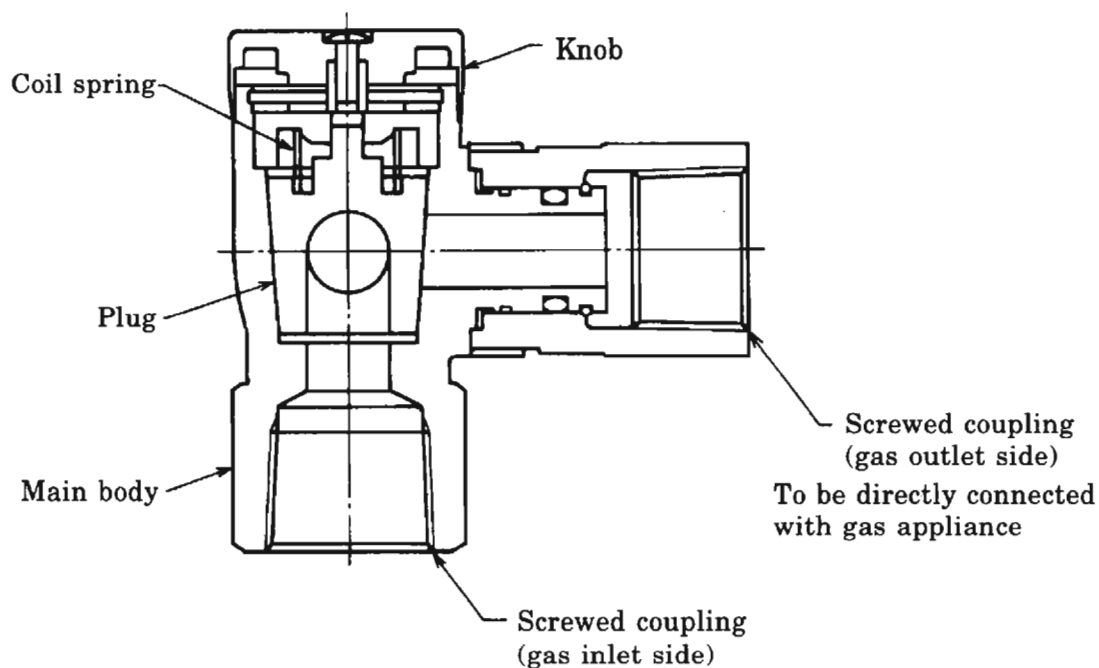
Informative Fig. 7 Flexible tube coupling gas valve
(The drawing shows an example.)



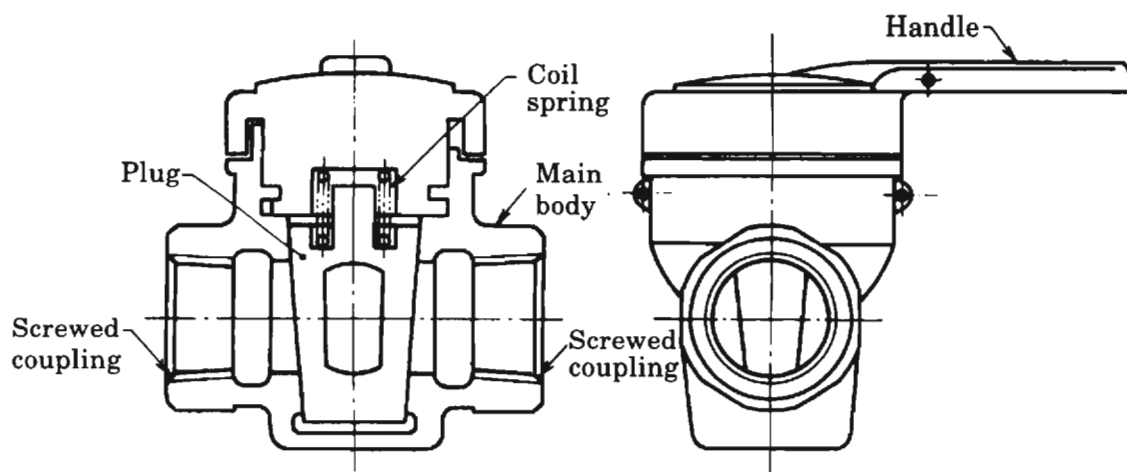
Informative Fig. 8 Flexible tube coupling gas valve
(The drawing shows an example of using elastic pad.)



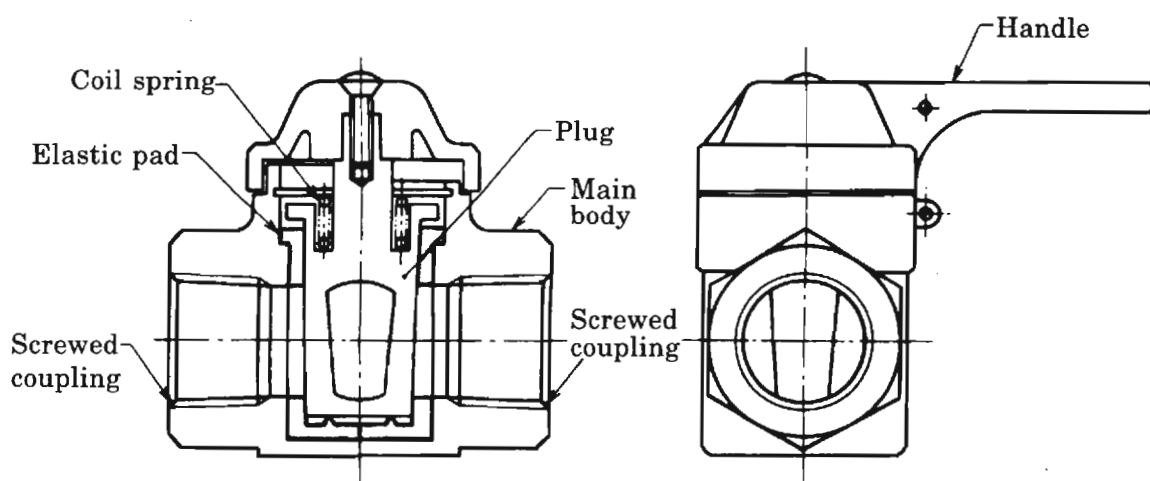
Informative Fig. 9 Flexible tube coupling gas valve
(The drawing shows an example of using elastic pad.)



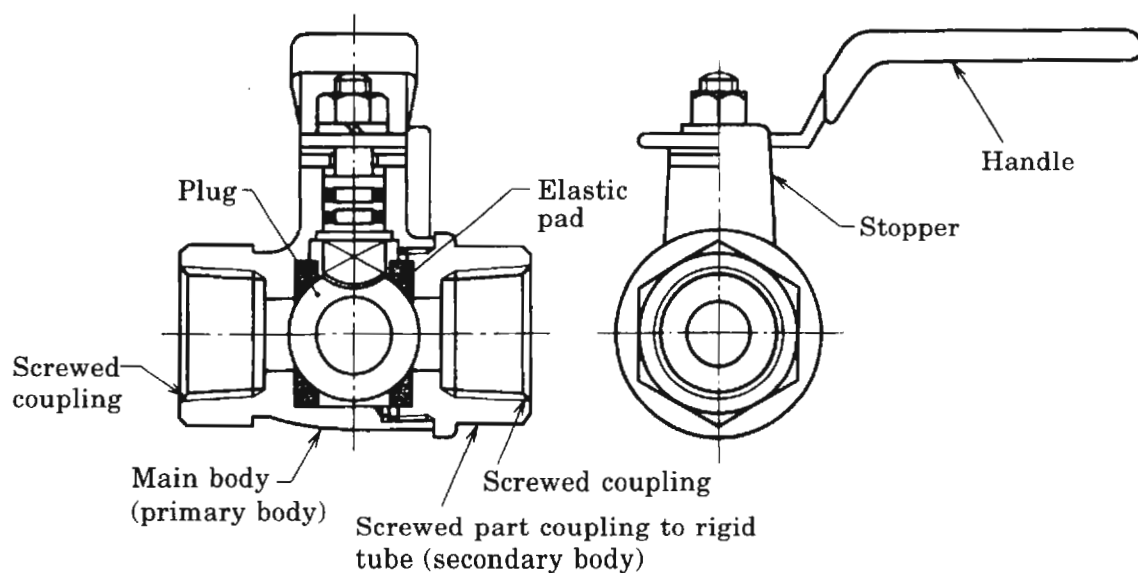
Informative Fig. 10 Appliance coupling gas valve
(The drawing shows an example.)



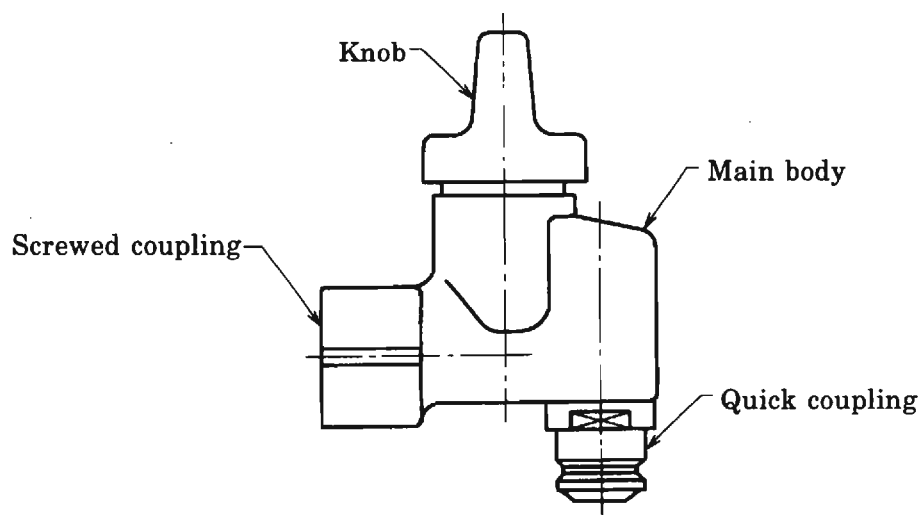
Informative Fig. 11 Screw coupling gas valve
(The drawing shows an example.)



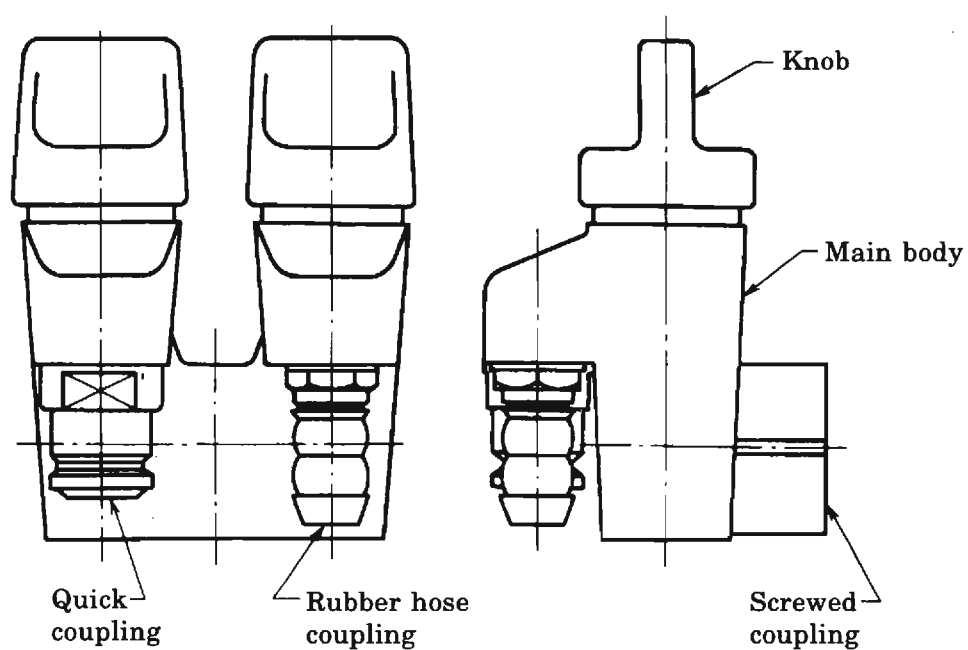
Informative Fig. 12 Screw coupling gas valve
(The drawing shows an example of using elastic pad.)



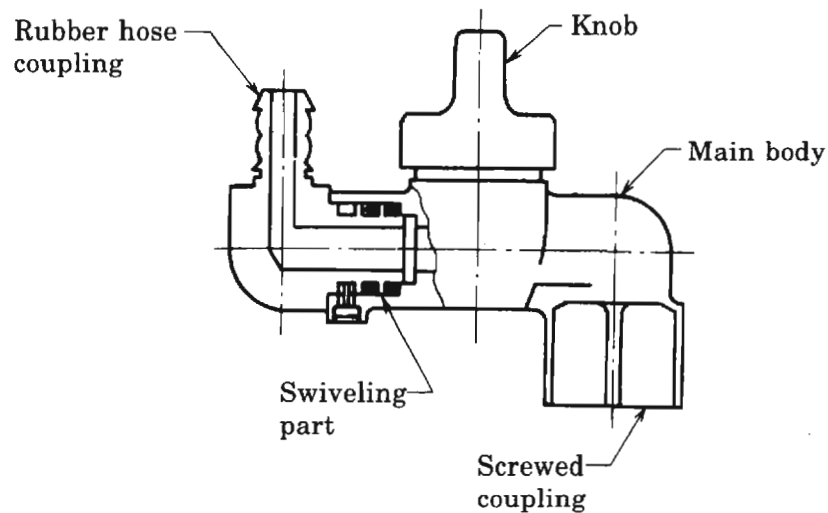
Informative Fig. 13 Screw coupling gas valve
(The drawing shows an example of using elastic pad.)



Informative Fig. 14 With single coupling on outlet side
(The drawing shows an example.)



Informative Fig. 15 With two couplings on outlet side
(The drawing shows an example.)



Informative Fig. 16 Swiveling part
(The drawing shows an example.)

Table 5 Classification by the presence of elastic pad and the combination of main body and plug of gas valves operating open/close by sliding motion

Symbol	Elastic pad ⁽⁶⁾	Combination of main body and plug		Remarks
		Main body	Plug	
X	Used	Metal made	Metal made	Informative Fig. 2
Y	Not used		Plastics made	—
Z			Metal made	Informative Fig. 1

Note ⁽⁶⁾ Elastic pad means a stuff of rubber, plastics and the like inserted between the main body and plug for keeping airtightness.

Table 6 Division of hose coupling gas valves

Nominal size and shape of gas outlet	Remarks
9.5 Rubber hose coupling	Shaped as shown in Fig. 1
13 Rubber hose coupling	Shaped as shown in Fig. 2
9.5 Quick coupling	Shaped as shown in Fig. 3
13 Quick coupling	Shaped as shown in Fig. 4

Table 7 Division of flexible tube coupling gas valves

Nominal screw thread code on gas outlet	Remarks
1/2	With screw threads of nominal code 1/2 of JIS B 0203
3/4	With screw threads of nominal code 3/4 of JIS B 0203
1	With screw threads of nominal code 1 of JIS B 0203

Table 8 Division of appliance coupling gas valves

Nominal screw thread code on gas outlet	Remarks
1/2	With screw threads of nominal code 1/2 of JIS B 0203
3/4	With screw threads of nominal code 3/4 of JIS B 0203
1	With screw threads of nominal code 1 of JIS B 0203

Table 9 Division of screw coupling gas valves

Nominal screw thread code on gas outlet	Remarks
1/2	With screw threads of nominal code 1/2 of JIS B 0203
3/4	With screw threads of nominal code 3/4 of JIS B 0203
1	With screw threads of nominal code 1 of JIS B 0203
1 1/4	With screw threads of nominal code 1 1/4 of JIS B 0203
1 1/2	With screw threads of nominal code 1 1/2 of JIS B 0203
2	With screw threads of nominal code 2 of JIS B 0203

4 Performance

4.1 Performance of gas valves The performance of gas valves, when tested by clause 8, shall conform to the requirements of Table 10.

Table 10 Performance of gas valve

Item		Performance	Principal test condition	Applicable test subclause
Airtightness	Substance	Leakage of 0.02 L/h max.	Air pressure 22.5 kPa	8.4 a)
	Excess flow checking device ⁽⁷⁾	Leakage of 1.0 L/h max.	Air pressure 4.2 kPa	8.4 b)
	Hose coupling gas valve ⁽⁸⁾	Nominal size 9.5	Air flow rate converted to standard condition at pressure drop by 0.1 kPa.	8.5
		Nominal size 13		
		Nominal code 1/2		
		Nominal code 3/4		
		Nominal code 1		
	Flexible hose coupling gas valve	2 kL/h min.		
		4 kL/h min.		
		6 kL/h min.		
	Appliance coupling gas valve	2 kL/h min.		
		4 kL/h min.		
		6 kL/h min.		
	Screw coupling gas valve	6 kL/h min.		
		10 kL/h min.		
		13 kL/h min.		
		21 kL/h min.		
		29 kL/h min.		
Operational power	Hose coupling gas valve	47 kL/h min.	Operational powers required to move the positions from open to close and close to open.	8.6
	For turning	0.6 N·m max.		
	For push-pull (Except put on/take off of quick coupling unit.)	40 N max.		

Table 10 Performance of gas valve (continued)

Item		Performance		Principal test condition	Applicable test subclause
Operational power	Flexible tube coupling gas valve	Nominal code 1/2	0.6 N·m max.	Operational powers required to move the positions from open to close and close to open.	8.6
		Nominal code 3/4	1.2 N·m max.		
		Nominal code 1	1.8 N·m max.		
	Appliance coupling gas valve	Nominal code 1/2	0.6 N·m max.		
		Nominal code 3/4	1.2 N·m max.		
		Nominal code 1	1.8 N·m max.		
	Screw coupling gas valve	Nominal code 1/2	3 N·m max.		
		Nominal code 3/4	4 N·m max.		
		Nominal code 1	5 N·m max.		
Repeated operation	Hose coupling gas valve	Nominal code 1 1/4	6 N·m max.	Operating rate of 5 cpm to 20 cpm	8.7 a)
		Nominal code 1 1/2	8 N·m max.		
		Nominal code 2	10 N·m max.		
	Flexible tube coupling gas valve	Nominal size 9.5	10 000 cycles		
		Nominal size 13	To be free from abnormality, and conform to the requirements of airtightness and operational power.		
		Nominal code 1/2	10 000 cycles		
	Appliance coupling gas valve	Nominal code 3/4	3 000 cycles		
		Nominal code 1	10 000 cycles		
		Nominal code 1/2	3 000 cycles		