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**Wafer type rubber-seated butterfly
valves**

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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 Valve Manufacturers' Association (JVMA) 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 B 2032:1995** is replaced with this Standard.

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Wafer type rubber-seated butterfly valves

Introduction

This Japanese Industrial Standard was established in 1987 and has gone through 2 revisions to this day. The last revision was made in 1995, and the revision at this time is to conform to the revisions of **JIS** of related materials and to correspond to the actual usage situation, such as the review on material symbols, the addition of nominal pressure 20K, the addition of materials of valve body, valve stem and rubber seat, mainly.

No corresponding International Standard has been established at this point.

1 Scope

This Standard specifies the characteristics of wafer type rubber-seated butterfly valves (hereafter referred to as “valves”) to be used for piping for general equipment such as mechanical equipment, building equipment and water treatment. However, this does not apply to those for ships and water service facility use to which other standards apply. When the application of various laws and regulations, and the approval and authorization are required, these shall be observed, separately. For reference, the designation items of purchase specification of valves and items of previous arrangement at the time of contract are given in Annex B, and the precautions on use are given in Annex C.

NOTE : Every pressure herein is the gauge pressure.

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 B 0100 *Glossary of terms for valves*
- JIS B 2003 *General rules for inspection of valves*
- JIS B 2004 *General rules for marking on valves*
- JIS B 2220 *Steel pipe flanges*
- JIS B 2239 *Cast iron pipe flanges*
- JIS G 0320 *Standard test method for heat analysis of steel products*
- JIS G 3101 *Rolled steels for general structure*
- JIS G 3201 *Carbon steel forgings for general use*
- JIS G 3202 *Carbon steel forgings for pressure vessels*
- JIS G 3214 *Stainless steel forgings for pressure vessels*
- 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 4318 *Cold finished stainless steel bars*
JIS G 5101 *Carbon steel castings*
JIS G 5121 *Corrosion-resistant cast steels for general applications*
JIS G 5151 *Steel castings for high temperature and high pressure service*
JIS G 5501 *Grey iron castings*
JIS G 5502 *Spheroidal graphite iron castings*
JIS G 5705 *Malleable iron castings*
JIS H 3250 *Copper and copper alloy rods and bars*
JIS H 5120 *Copper and copper alloy castings*
JIS H 5202 *Aluminium alloy castings*
JIS H 5302 *Aluminium alloy die castings*
JIS Z 2241 *Metallic materials—Tensile testing—Method of test at room temperature*
JIS Z 2242 *Method for Charpy pendulum impact test of metallic materials*
JIS Z 2243 *Brinell hardness test—Test method*
JIS Z 2611 *General rules for photoelectric emission spectrochemical analysis of metal materials*
ISO 5211 *Industrial valves—Part-turn actuator attachments*

3 Terms and definitions

For the purposes of this Standard, the terms and definitions given in **JIS B 0100**, and the following apply.

3.1 centred shaft and disc type

type of construction of which outer periphery of valve disc is on the same plane as the centre of valve stem (see figure 1)

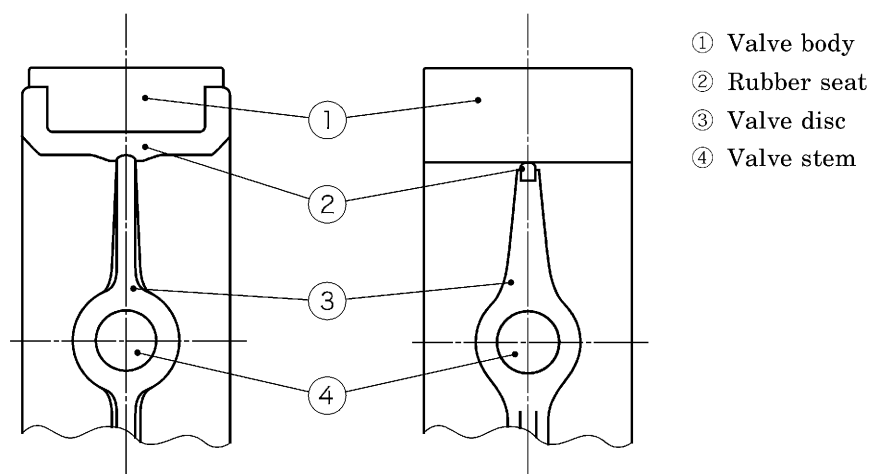


Figure 1 Example of centred shaft and disc type

3.2 eccentric type

type of construction of which the outer periphery of valve disc is not on the plane containing the centre line of valve stem and is on a plane parallel to it (see figure 2)

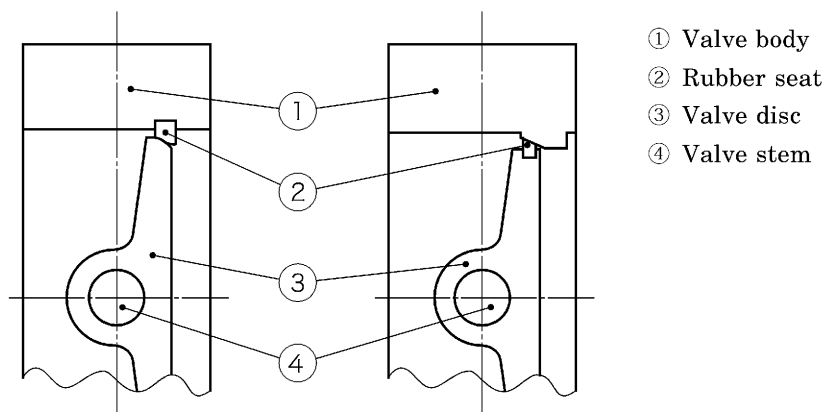


Figure 2 Example of eccentric type

3.3 minimum bore

smallest inner diameter of rubber seat in the case of the rubber seat attached to the valve body, and smallest inner diameter of valve body in the case of that attached to the valve disc (see figure 4)

3.4 rubber seat

rubber constructing the valve seat being attached to valve body or valve disc

3.5 face-to-face dimension

dimension between the valve end faces under the piping condition of the valve (see **JIS B 2002**)

3.6 trim

main part inside the valve composed of valve stem, rubber seat, seat surface contacting rubber seat, joint part between valve stem and valve disc, and bush

3.7 type inspection

inspection for judgement whether the qualities of products conform to all the characteristics indicated in the designs

3.8 delivery inspection

inspection for judgement, at a delivery of products of the same design and processing as that which has passed the type inspection, of whether these conform to the characteristics required as necessary

4 Classification

The classification of valves shall be as follows.

- a) **Type** Two types of the centred shaft and disc type and the eccentric type.

- b) **Nominal pressure** Three types of 10K, 16K and 20K.
- c) **Nominal diameter** Nominal A of 14 types of 50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500 and 600.

5 Service range

The service range of valves shall be as follows.

- a) The relation between the maximum allowable pressure of valve and the temperature of fluid shall be as given in table 1.

Table 1 Relation between maximum allowable pressure and temperature of fluid

Nominal pressure	Maximum allowable pressure MPa	Temperature of fluid °C	Material of rubber seat
10K	1.0	0 to 70	Acrylonitrile butadiene rubber (NBR) Chloroprene rubber (CR)
		0 to 90	Ethylene propylene rubber (EPDM)
	0.7	120	
16K	1.6	0 to 70	NBR, CR
		0 to 90	EPDM
	1.1	120	
20K	2.0	0 to 70	NBR, CR
		0 to 90	EPDM
	1.4	120	

- b) The specification on vacuum shall be upon the agreement between the parties concerned with delivery.
- c) The matter required in the case of other material of rubber seat than that specified in this Standard, the case of use at under 0 °C and the case where the coating material and the like are restricted shall be upon the agreement between the parties concerned with delivery.
- d) As to EPDM, the pressure-temperature rating given in figure 3 shall be referred to.

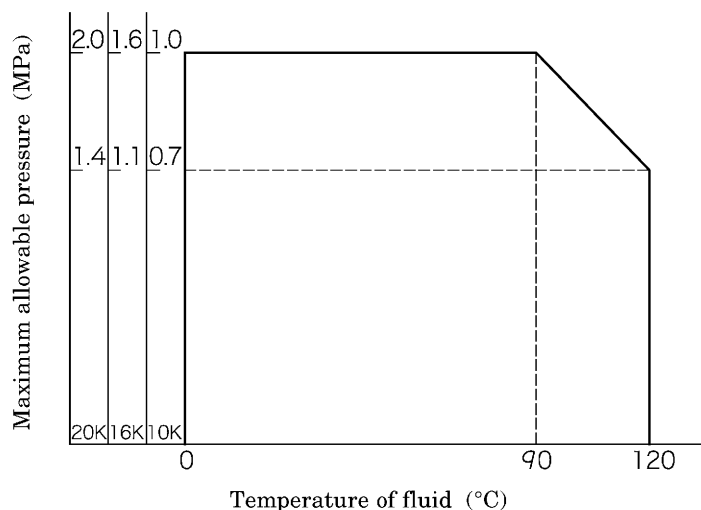


Figure 3 Pressure-temperature rating of valve using EPDM

- e) EPDM shall not be used for oils such as mineral oil and vegetable oil.
- f) The material of rubber seat used for the hot water supply shall be fluoro-rubber (FKM) or silicone rubber (VMQ), and the pressure-temperature range shall be upon the agreement between the parties concerned with delivery.
- g) **Flow velocity** The informative values of the maximum flow velocities in pipe when the valve is fully opened shall be as given in table 2.

Table 2 Maximum flow velocity in pipe when valve is fully opened (informative)

Unit: m/s

Fluid	Fluid velocity
Liquid	3
Gas	30

6 Qualities

6.1 Performance

The performance of valves shall be as follows.

- a) **Pressure resistance performance of valve body alone** For the pressure resistance of valve body alone, when tested according to **a)** of clause 8, there shall be no abnormality on the valve body.
- b) **Valve body performance** For the valve body performance, when tested according to **b)** of clause 8, there shall be no leakage to outside, spreading and abnormalities on use.
- c) **Seat leakage performance** For the seat leakage performance, when tested according to **c)** of clause 8, there shall be no leakage.
- d) **Actuation performance** For the actuation performance, when tested according to **d)** of clause 8, the valve shall be actuated smoothly being suitable for the opening/closing operation of the valve.