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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 12238-2008

Replacing GB/T 12238-1989

Flanged and wafer resilient seal butterfly valves

法兰和对夹连接弹性密封蝶阀

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1 Scope

GB/T 12238-2008 is the Chinese national standard on flanged and wafer resilient seal butterfly valves, in the field of fluid systems and general-purpose components. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 23 December 2008 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 July 2009. Classification: ICS 23.060.99, CCS J16. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Standard specifies the structural form, technical requirements, materials, test methods and inspection rules, marking, painting, packaging, storage and transportation of flanged and wafer resilient seal butterfly valves. This Standard is applicable to. flanged resilient seal butterfly valves with nominal pressure not greater than PN25 and nominal size of DN50~DN4000; wafer resilient seal butterfly valves with nominal pressure not greater than PN16 and nominal size of DN50~DN1200. The medium is non-corrosive liquids and gases. In the fully open position, the flow rate of the medium in the pipe is not greater than 5 m/s.

2 Normative references

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrigendum) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies. GB 150, Pressure vessels

GB/T 228, Metallic materials -- Tensile testing (GB/T 228-2002, eqv ISO 6892.1998)

GB/T 9113 (all parts), Integral steel pipe flanges

GB/T 12220, Industrial valves -- Marking (GB/T 12220-1989, idt ISO 5209.1977)

GB/T 12221, Metal valves -- Face to face, end to end, center to face and center to end dimensions (GB/T 12221-2005, ISO 5752.1982, MOD)

GB/T 12223, Part-turn valve actuator attachments (GB/T 12223-2005, ISO 5211.1991, MOD)

GB/T 12224, General requirements for industrial steel valves (GB/T 12224-2005,

3 Structural form

3.1 The basic structure and main parts names of the butterfly valve are shown in Figures 1 and 2.

4.2 Butterfly valve performance

4.2.1 Shell strength There shall be no structural damage to the butterfly valve after the shell strength test. No visible leakage is allowed through the valve housing wall and any fixed valve body connections. If the test medium is a liquid, there shall be no visible droplets or surface moisture. If the test medium is air or other gas, there shall be no bubbles leaking out.

4.3 Use of butterfly valves

4.3.1 Butterfly valves shall be capable of flow regulation.

4.3.2 Butterfly valves with specified medium flow directions shall be installed and used in the direction indicated by the flow direction.

4.3.3 Butterfly valves shall not be installed in free-draining pipelines.

4.4 Valve body

4.4.1 The structural length of the butterfly valve shall comply with the provisions of

4.4.7 The minimum diameter of the valve seat flow passage shall not be less than the requirements in Table 2. Table 2 -- Minimum size of valve seat flow passage

4.4.8 The connection between the valve body sealing ring (valve seat) and the valve body shall ensure that the valve will not loosen or leak during use.

4.4.9 When the valve body material is HT200, the nominal size shall not be larger than DN2000, and the minimum wall thickness of the valve body shall be as specified in Table

3. The valve body is made of other materials, and its minimum wall thickness can be calculated by referring to Annex A.

4.5 Butterfly plate

4.5.1 The guide surface of the butterfly plate is not to hinder the flow of the medium.

4.5.2 The butterfly plate shall be guaranteed not to deform or be damaged under 1.5 times the maximum allowable operating pressure difference.

4.5.3 The connection strength between the butterfly plate and the valve stem shall be designed to effectively transmit the valve stem torque. The connection method between the butterfly plate and the valve stem shall ensure that no loosening occurs under normal operating conditions.

4.7 Stem bearing

4.7.1 For butterfly valves with a nominal size of not less than DN350, bearings of appropriate materials shall be selected to withstand radial thrust.

4.7.2 During the testing and use of butterfly valves, the bearings shall be able to withstand the maximum load transmitted by the valve stem.

4.7.3 Butterfly valves with axial force shall use appropriate bearings to withstand the axial thrust. It is not allowed to use spring retaining rings as thrust.

5 Materials

5.1 The pressure-receiving parts of butterfly valves whose nominal pressure is greater than PN10 and whose nominal size is greater than DN1000 shall not be made of gray cast iron.

5.7 The filler can be made of rubber "O"-shaped rings, "V"-shaped polytetrafluoroethylene, molded flexible graphite and other materials; or according to the requirements of the ordering contract.

5.8 The bracket can be made of the same material as the valve body or a material with higher performance than the valve body.

5.9 The materials of other parts can be in accordance with JB/T 5300 or the requirements of the ordering contract.

5.10 For butterfly valves used in drinking water, food, medicine and other fields, all materials in contact with the medium shall meet the relevant requirements for hygienic performance.

6 Test methods

6.1 Shell test Carry out in accordance with the provisions of GB/T 13927.

6.2 No-load operation test The drive is mounted directly on the valve. Use the designed drive device to open and close the butterfly valve three times from fully closed to fully open to fully closed again. Check whether the butterfly valve is operating normally.

6.6 Measurement of valve stem hardness Use a hardness tester to measure at both ends of the valve stem. Take the average of three measurement points for each measurement.

6.7 Analysis of material composition Take a sample from the body of the valve body. Drill cutting sampling shall be carried out at

6.5 mm below the surface.

6.8 Mechanical properties of valve body material Use test rods with the same furnace number and batch of heat treatment as the valve body to perform the test according to the method specified in GB/T 228.

7 Inspection rules

7.1 Inspection items, technical requirements and inspection methods are as specified in Table 4.

7.2 Exit-factory test Butterfly valves must undergo exit-factory inspection and testing one by one. Only after passing the inspection can it leave the factory.

7.3 Type inspection

7.3.1 In any of the following situations, 1~2 valves shall be provided for type testing. After