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## GB/T 13932-2016

Replacing GB/T 13932-1992

### Cast Iron Swing Check Valves

铁制旋启式止回阀

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## Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard replaces GB/T 13932-1992, *General Purpose Industrial Valves – Cast Iron Swing Check Valves*. Compared with GB/T 13932-1992, the major technical differences of this Standard are as follows, in addition to editorial modifications:

- it cancels the words “General Purpose Industrial Valves” in the standard name (see cover and page 1);
- it modifies the application scope (see Article 1; Article 1 of edition 1992);
- it deletes Figure 4 (3.2 of edition 1992);
- it modifies the basic parameters (see 3.2; 3.2 of edition 1992);
- it modifies the pressure-temperature ratings (see 4.1; 4.1 of edition 1992);
- it modifies the inner diameters of valve seat and the drift diameters of valve body (see 4.3.7; 4.3.8 of edition 1992);
- it adds the requirements for bypass devices (see 4.9);
- it adds mechanical property test (see 5.1);
- it adds shell wall thickness measurement (see 5.3);
- it adds inspection rules (see Article 6);
- it modifies the content of marking, the requirements for delivery and so on (see Article 7; Article 6 of edition 1992).

This Standard was proposed by China Machinery Industry Federation.

This Standard shall be under the jurisdiction of the National Standardization Technical Committee on Valves (SAC/TC 188).

The main drafting organizations of this Standard: Hefei General Machinery Research Institute, Anhui Fangxing Industrial (Group) Co., Ltd., Ningbo Amico Copper Valves Manufacturing Inc., Jiangsu Zhuze Valve Co., Ltd., Anhui Baihu Valve Factory Co., Ltd., Nengfa Weiye Tieling Valve Joint-stock Co., Ltd., Anhui Tongdu Flow Technolgy Co., Ltd.

The main drafters of this Standard: Huang Yaming, Peng Lin, Jiang Jiaqian, Zheng Xuezheng, Xiao Peng, Cheng Jiangshan, Li Yanhui, Zhang Wenbing.

The edition of the standard replaced by this Standard is as follows:

# Cast Iron Swing Check Valves

## 1 Application Scope

This Standard specifies the structures, technical requirements, test methods, inspection rules, and requirements for marking and delivery of cast iron swing check valves.

This Standard applies to grey cast iron and spheroidal graphite cast iron swing check valves connected with flanges, whose nominal pressure is PN 2.5 ~ PN 25, nominal dimension DN 50 ~ DN 1800 and medium water (hereinafter referred to as “check valves”).

## 2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition dated applies to this document. For undated references, the latest edition of the referenced documents (including all amendments) applies to this Standard.

GB/T 152.1, *Fasteners – Clearance Holes for Rivets*

GB/T 152.2, *Fasteners – Countersinks for Countersunk Head Screws*

GB/T 152.4, *Fasteners - Counterbores for Hexagon Bolts and Nuts*

GB/T 228.1, *Metallic Materials – Tensile Testing – Part 1: Method for Test at Room Temperature*

GB/T 229, *Metallic Materials – Charpy Pendulum Impact Test Method*

GB/T 1184-1996, *Geometrical Tolerancing – Geometrical Tolerance for Features without Individual Tolerance Indications*

GB/T 1348, *Spheroidal Graphite Iron Castings*

GB/T 9439, *Grey Iron Castings*

GB/T 12220, *Industrial Valves – Marking*

GB/T 12221, *Metal Valves – Face to Face, End to End, Center to Face and Center to End Dimensions*

GB/T 12226, *General Purpose Industrial Valve – Specification of Flake Graphite Iron Castings*

**4.5.2** The sealing surface between valve body and valve disc can be processed directly on valve body and valve disc or inserted with sealing ring or overlaid with other metals. If the sealing surface is overlaid, the thickness of overlaying after processing shall not be smaller than 2 mm.

#### **4.6** Rocker

The connection between rocker and valve disc and valve body shall rotate flexibly; it shall be ensured that the connecting place between rocker and valve body is secure and will not loosen during use.

#### **4.7** Filtering screen

For check valves equipped with filtering screen, the total area of filtering holes in filtering screen shall be greater than 1.5 times of the sectional area of nominal dimensions.

#### **4.8** Buffer device

All types of buffer devices can be provided for check valves as required by the user; consideration shall be given to that butterfly and valve stem shall have sufficient safety coefficient after buffer devices are provided.

#### **4.9** Bypass

Swing multiple-disc horizontal check valves of nominal dimensions not smaller than DN800 whose nominal pressure is not smaller than PN6 and nominal dimensions not smaller than DN1200, nominal pressure not smaller than PN10 and nominal dimensions not smaller than DN800 shall be provided with bypass pipelines.

#### **4.10** Materials

The materials of the major parts of check valves shall be selected in accordance with JB/T 5300. Grey cast iron shall be as specified in GB/T 12226; spheroidal graphite cast iron shall be as specified in GB/T 12227. Other materials shall meet the requirements of relevant materials standards.

#### **4.11** Shell strength and sealing property

Shell strength and sealing property of check valves shall be as specified in GB/T 13927.

## **5** Test Methods

### **5.1** Mechanical property test

**5.1.1** The preparation of grey cast iron test specimens shall be as specified in GB/T 9439; the preparation of spheroidal graphite cast iron test specimens shall be as specified in GB/T 1348.

**6.3.1** Under any of the following circumstances, type inspection shall be carried out and they can be mass produced only after they pass type inspection:

- a) during the trial production and approval of a new product;
- b) when there is any significant change in structure, material, process after mass production, which may influence the product properties;
- c) when production is resumed after a long term of production halt.

**6.3.2** Specimens shall be taken for type test periodically or when a certain output is reached during normal production.

**6.3.3** The sampling for type inspection shall be carried out as follows:

- a) test specimens shall be taken randomly from the inventory which has passed the inspection of the quality inspection department of the manufacturer. The minimum number for sampling of each specification and the number of specimens shall be as specified in Table 6.
- b) test specimens can also be taken from the user. They are taken randomly from the products which have been supplied to but not used by the user and remain in the as-delivered state. The minimum number is not limited by the specification of Table 6, but the test specimen number is still subjected to the specification of Table 7.
- c) when assessment is done for the quality of the whole series of products, 2 ~ 3 typical specifications shall be sampled in accordance with the size of the series scope to carry out inspection. The minimum number for sampling of each specification and the specimen number shall be as specified in Table 6.

**Table 6 – Test Specimen Number**

Nominal dimension DN	Min number for sampling/pc	Specimen number/pc
≤ 200	10	1
250 ~ 600	6	1
≥ 700	4	1

**6.3.4** All items of type inspection shall be as specified in Table 5.

## 7 Requirements for Marking and Delivery

### 7.1 Marking content

The marking of check valves shall be as specified in GB/T 12220 and shall be as specified in 7.2 and 7.3 as well.

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Accountable person and shareholder: Wayne Zheng

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Contact: Wayne Zheng, [Sales@ChineseStandard.net](mailto:Sales@ChineseStandard.net)

Linkin: <https://www.linkedin.com/in/waynezhengwenrui/>

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