



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

GB/T 37842-2019

Ball valves of thermoplastics materials

Issued on: August 30, 2019

Implemented on: March 1, 2020

Issued by: SAMR; SAC

Table of Contents

Foreword...	3
1 Scope...	6
2 Normative references...	6
3 Terms, definitions and symbols...	7
4 Materials...	12
5 Design...	13
6 Requirements...	16
7 Test method...	20
8 Inspection rules...	21
9 Marking, packaging, transportation and storage...	23
Appendix A (Informative) Type selection of multi-way ball valve.....	25

Foreword

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

This standard uses the redrafting method to modify and adopt ISO 16135.2006

"Industrial valves - Ball valves of thermoplastics materials".

Compared with ISO 16135.2006, this standard has the following structural changes.

- In Terms and definitions, ADD "Symbols" (see 3.4);
- DIVIDE Chapter 4 "Requirements" of ISO 16135.2006 into "Materials", "Design", "Requirements" of this standard (see Chapter 4 ~ Chapter 6);
- DELETE the content of 4.7.2 and 4.8 in ISO 16135.2006;
- DIVIDE Chapter 5 "Inspection procedure" of ISO 16135.2006 into "Test method" and "Inspection rules" (see Chapter 7 and Chapter 8);
- DELETE Chapter 6 of ISO 16135.2006;
- COMBINE Chapter 7 "Marking" and Chapter 8 "Transport and storage" of ISO 16135.2006 into "Marking, packaging, transport and storage" (see Chapter 9);

- ADJUST Appendix B of ISO 16135.2006 to Appendix A (see Appendix A);
 - ADD the comparison between the nominal outer diameter d_n and the nominal diameter D_N (see Appendix B);
 - ADJUST Appendix A of ISO 16135.2006 to Appendix C (see Appendix C).
- Compared with ISO 16135.2006, the main technical differences of this standard and the reasons are as follows;
- DELETE the pressure class (see Chapter 1); ADOPT metric units uniformly;
 - Regarding normative references, this standard has adjusted the specific technical differences, to adapt to China's technical conditions. The adjustments are collectively reflected in Chapter 2 "Normative references"; the specific adjustments are as follows.
 - USE GB/T 7306.1-2000 and GB/T 7306.2-2000 which equivalently adopt international standards to replace ISO 7-1.1994 (see 6.3.1.3);
 - USE GB/T 12223-2005 which modifies and adopts international standard to replace ISO 5211.2001 (see 5.3.2);
 - USE GB/T 27726-2011 which modifies and adopts international standard to replace ISO 9393-2.2005 (see 6.4);
 - USE Appendix A of GB/T 28494-2012 which modifies and adopts international standard to replace EN 12570.2000 (see 5.4.2);
 - USE Appendix B of GB/T 28494-2012 which modifies and adopts international standard to replace ISO 8233-1998 (see 7.8);
 - USE Appendix C of GB/T 28494-2012 which modifies and adopts international standard to replace ISO 8659.1999 (see 7.9);
 - DELETE the ISO 228-1.2000, ISO 898-1.1999, ISO/TR 10358.1993, ISO 12092.2000, ISO 12162.1995, EN 558-1.1995, EN 558-2 that are not cited in the standard.1995, EN 736-1.1995, EN 736-2.1997, EN 736-3.1999, EN 1092-1.2001, EN 1267.1997, EN 1759-1.2004, EN 12107.1997, EN 12266-1.2003 which are not cited in the standard;

- ADD reference to GB/T 2828.1-2012 (see 8.3.2);
- ADD reference to GB/T 2918-2018 (see 7.1);
- ADD reference to GB/T 8806-2008 (see 7.3);
- ADD reference to GB/T 17219 (see 6.11);
- ADD reference to GB/T 19278-2018 (see Chapter 3);
- ADD reference to GB/T 21300-2007 (see 7.10);
- ADD reference to GB/T 30832-2014 (see 7.6);
- ADD the shell material requirements of the "polyphenylene ether (PPO/PPE), polyphenylene sulfone (PPSU), polyamide (PA)" (see 4.1);
- MODIFY the requirements of 4.1.2.2c) in ISO 16135.2006; CHANGE it into that according to the definition of terms in GB/T 19278-2018, provide the dimensional requirements of clearway valves, full bore valves, reduced bore valves (see 6.3.2);
- INCREASE the number of cycles of fatigue strength of ball valves with $dn <$

63 mm from 5000 to 15000; the number of cycles of fatigue strength of ball

valves with $dn \geq 63$ mm is 5000, which is consistent with ISO 16135.2006 (see 6.9).

This standard has made the following editorial changes.

- MODIFY the standard name to "Ball valves of thermoplastics materials";
- Specifications and sizes are expressed by the nominal outer diameter dn (see Chapter 1);
- This part incorporates the revised content of ISO 16135.2006/FD Amd 1, which revised the derating factor f_r . The clauses involved in these revisions have been marked by the vertical double line (||) on the outer margin of the margin. (See Table 1 in 4.3.2).

1 Scope

This standard specifies the terms, definitions and symbols, materials, design,

requirements, test methods, inspection rules, signs, packaging, transportation and storage of ball valves of thermoplastics materials (hereinafter referred to as ball valves).

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

GB/T 2828.1-2012 Sampling procedures for inspection by attributes -Part 1. Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection (AQL) (ISO 2859-1:1999, IDT)

3 Terms, definitions and symbols

The terms and definitions as defined in GB/T 19278-2018 as well as the following terms and definitions apply to this document.

4 Materials

The selection of materials for other components such as seals, stems, balls shall ensure that the performance of the ball valve meets the requirements specified in Chapter 6; these materials shall not adversely affect the performance of the ball valve.

5 Design

The wall thickness of pressure-bearing parts such as shells and balls can be calculated with reference to GB/T 150.3-2011. It shall be greater than the wall thickness of pipes of the same material, same pipe series and the same specifications; meanwhile it shall meet the requirements of 6.4, 6.5, 6.9.

6 Requirements

When the pressure difference is equal to the nominal pressure PN, the torque