

**MSS SP-72-2010a**

**Ball Valves  
with  
Flanged or  
Butt-Welding Ends  
for General Service**

**Note: This 2010a Edition Replaces  
the Original 2010 Edition.**

**Standard Practice  
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## **FOREWORD**

The 1999 Edition of MSS SP-72 was updated from the 1992 Edition by revising material names in Sections 1.4, 2.1.5., 2.1.6, and 4.1. Metric data (DN) and (PN) was added to Sections 1.3, 3.1.1, 5.2.2.1, 7.1.3, 7.1.4, 7.2.2, 7.2.3, and Table 1. The formulas in Sections 7.1.4 and 7.2.2 was revised to agree with MSS IS-9 formatting. The reference to NPS was corrected in all applicable Sections. Annex A listing all referenced standards documents was added.

The 2010 Edition of MSS SP-72 was substantively updated from the 1999 Edition by primarily revising material in Section 7.2.4. The Pressure Number "PN" reference data was deleted in the 2010 edition (Sections 5.2.2.1, 5.2.2.2, and 7.1.4) as ASME no longer makes a soft conversion between class designations and PN. In addition, the Annex A listing of all referenced standards documents has been updated.

This 2010a Edition of MSS SP-72 **replaces** the 2010 Edition. The 2010a Edition of MSS SP-72 updates the obsolete 2010 Edition by: (1) the re-inclusion (from previous editions) of Section 3.1.2 and the first sentence of Section 5.3.1; (2) additional descriptive notes were inserted in Sections 7.1.4 and 7.2.2; (3) the equation in Section 7.2.4.3 was clarified; (4) corrected the definition of "MYS<sup>1</sup>" in Section 7.1.4 and "AYS<sup>2</sup>" in Section 7.1.4; (5) corrected the definition of "AYS<sup>5</sup>" and "AYS<sup>6</sup>" in Section 7.2.2; and (6) additional editorial and conforming corrections. The corrections and changes mentioned in this paragraph are not "flagged" in the body of this text in order to preserve the substantive changes from the 1999 Edition that were identified in the original 2010 Edition.

**TABLE OF CONTENTS**

**SECTION**

**PAGE**

1	SCOPE .....	1
2	SERVICE PRESSURE RATINGS .....	1
3	VALVE PORT SIZES .....	1
4	MATERIALS .....	2
5	DESIGN .....	2
6	MARKING .....	2
7	TESTING .....	3

**TABLE**

1	Port Sizes for Less than Full Port Ball Valves .....	5
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**FIGURE**

1	Examples of Body Construction .....	6
2	Nomenclature for Ball Valve Parts, Typical .....	7

**ANNEX**

A	Referenced Standards and Applicable Dates .....	8
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## BALL VALVES WITH FLANGED OR BUTT-WELDING ENDS FOR GENERAL SERVICE

### 1. SCOPE

1.1 This Standard Practice covers flanged or Butt-weld end ball valves having in general, but not restricted to, round openings which may be full port, regular port, or reduced port types. The following characteristics shall be considered standard practice unless otherwise specified by agreement between manufacturer and purchaser.

1.2 Valves covered by this Standard Practice are suitable for use in general liquid and gas service. Their service pressures and temperatures generally conform to standards cited in Section 2, but may be restricted by the materials used for their seats and seals, or by other special considerations.

1.3 The size range covered by this Standard Practice is NPS 1/2 (DN 15) through NPS 36 (DN 900).

1.4 This Standard Practice covers ball valves of the following materials:

- Carbon Steel
- Alloy Steels
- Stainless Steels
- Ductile Iron
- Gray Iron
- Copper Alloy

1.5 Names of common valve body types are given in Figure 1. When variations or other body types are used, they may be named by the manufacturer. The names of basic valve parts are given in Figure 2. Other parts may be named by the manufacturer. Body types and valve parts may also be identified by applicable MSS or other terminology standards.

### 2. SERVICE PRESSURE RATINGS

2.1 The pressure-temperature rating of flanged and Butt-welding end ball valves shall conform to those set forth in the Standards listed within this section, except as they are limited by their seat and seal materials.

2.1.1	Carbon Steel	ASME B16.5 & ASME B16.34
2.1.2	Alloy Steels	ASME B16.5 & ASME B16.34
2.1.3	Stainless Steels	ASME B16.5 & ASME B16.34
2.1.4	Ductile Iron	ASME B16.42
2.1.5	Gray Iron	ASME B16.1
2.1.6	Copper Alloy	ASME B16.24

2.2 **Cold Working Pressure (CWP)** The cold working pressure rating of the valve shell and components is the rated pressure at 100 °F (38 °C) for carbon steel, alloy steel, stainless steel, and ductile iron, and 150 °F (66 °C) for copper alloy. The maximum working pressure at any other temperature shall not exceed this rated pressure.

### 3. VALVE PORT SIZES

3.1 Ball valves may be furnished as either full port, regular port or reduced port.

3.1.1 **Full Port** valves are defined as having minimum bore diameters as specified in Annex A of ASME B16.34 for valves up to NPS 30 (DN 750). A tolerance of -.06 inches (1.52 mm) is allowed on NPS 12 (DN 300) and smaller valves. A tolerance of -0.12 inches (3.05 mm) is allowed on NPS 14 (DN 350) and larger valves. Oversize tolerance is not specified.

For valves above NPS 30 (DN 750), bore diameter shall be as agreed upon between purchaser and manufacturer.

3.1.2 **Regular port and reduced port** valves have bore diameters smaller than full bore and shall be as listed in Table 1.