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

Standard Practice

Developed and Approved by the
Manufacturers Standardization Society of the
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MSS

An MSS Standard Practice is intended as a basis for common practice by the manufacturer, the user, and the general public. The existence of an MSS Standard Practice does not in itself preclude the manufacture, sale, or use of products not conforming to the Standard Practice. Mandatory conformance is established only by reference in a code, specification, sales contract, or public laws, as applicable.

Substantive changes in this 1999 edition are "flagged" by parallel bars as shown on the margins of this paragraph. The specific detail of the change may be determined by comparing the material flagged with that in the previous edition.

U.S. customary units in this SP are the standard; the metric units are for reference only.

Unless otherwise specifically noted in this MSS SP, any standard referred to herein is identified by the date of issue that was applicable to the referenced standard(s) at the date of issue of this MSS SP. (See Annex A.)

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FOREWORD

The 1999 Edition of MSS SP-72 has been updated from the 1992 Edition by revising material names in Section 1.4, 2.1.5., 2.1.6, and 4.1. Metric data (DN) and (PN) was added to Section 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 paragraph 7.1.4 and 7.2.2 have been revised to agree with MSS I.S. 9 format. The reference to NPS was corrected in all applicable paragraphs. Annex A listing all referenced documents has been added.

CONTENTS

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 Paragraph 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 below, except as they are limited by their seat and seal materials.

2.1.1	Carbon Steel	ASME B16.5-1996 & ASME B16.34-1996
2.1.2	Alloy Steel	ASME B16.5-1996 & ASME B16.34-1996
2.1.3	Stainless Steel	ASME B16.5-1996 & ASME B16.34-1996
2.1.4	Ductile Iron	ASME B16.42-1987
2.1.5	Gray Iron	ASME B16.1-1989
2.1.6	Copper Alloy	ASME B16.24-1991

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.

4. MATERIALS

4.1 Valve Shell Parts and Bolting – The valve shell parts are defined as those which contain pressure within the piping but do not include the ball, seats, seals, and other parts. This standard covers only pressure retention bolting. Mechanical connections and bolting for end flanges are not included.

Recommended materials for valve shell parts and bolting are those which are in conformance to the specifications listed in 2.1.1 through 2.1.6. When alternate materials are used, the manufacturer shall