MSS SP-72-2010

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

Standard Practice
Developed and Approved by the
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This MSS Standard Practice was developed under the consensus of the MSS Technical Committee 401 and the MSS Coordinating Committee. The content of this Standard Practice is the result of the efforts of competent and concerned volunteers to provide an effective, clear, and non-exclusive specification that will benefit the industry as a whole. This 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 law, as applicable.

"Other standards documents referred to herein are identified by the date of issue that was applicable to this Standard Practice at the date of issue of this Standard Practice. See Annex A. This Standard Practice shall remain silent on the applicability of those other standards of prior or subsequent dates of issue even though applicable provisions may not have changed. References contained herein which are bibliographic in nature are noted as 'supplemental' in the text."

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 Standard Practice (See Annex A).

In this Standard Practice all notes, annexes, tables, and figures are construed to be essential to the understanding of the message of the standard, and are considered part of the text unless noted as "supplemental". All appendices, if included, that appear in this document are construed as "supplemental". Supplemental information does not include mandatory requirements.

U.S. customary units in this Standard Practice are the standard; metric (SI) units are for reference only.

Substantive changes in this 2010 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.

Originally Approved: February 1970

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.

This 2010 Edition of MSS SP-72 has been substantively updated from the 1999 Edition by revising material in Section 7.2.4. Annex A listing all referenced standards documents has been revised.

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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 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 ½ (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 Buttwelding 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 & 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.

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 Practice 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 Sections 2.1.1 thru 2.1.6. When alternate materials are used, the manufacturer shall be prepared to certify, based on documentation from producer or recognized distributor of these alternate materials, that the products are at least equally suitable for the intended use.

4.2 ***Other Parts*** Parts such as stems, glands, gland bushings, balls, handwheels, gearing and motor drive, and seats or seals, shall be of materials suitable for the service. Non-metallic seats or seals, when employed, shall be designed by the manufacturer with suitable material selected for compatibility with the temperature, pressure and line fluids for which the valves are recommended.

5. DESIGN

5.1 The design of the valve shell is such as to provide against any detrimental distortion under hydrostatic test conditions, assembly stresses, closing stresses, pipe reaction stresses or when rated pressure is applied across a closed valve.

5.2 ***End Connections and End Preparation***

5.2.1 End flange dimensions shall conform to those set forth in the applicable standards listed in Sections 2.1.1 thru 2.1.6, or MSS SP-44.

5.2.2 ***Butt-Welding Ends***

5.2.2.1 ***Sizes NPS 6 (DN 150) and smaller of carbon steel, Class 150 through 900*** Unless otherwise specified, butt-welding ends shall conform to ASME B16.34 and valve ends shall be bored to match Schedule 40 Pipe for Class 150 and 300, and Schedule 80 Pipe for Class 400 through 900.

5.2.2.2 ***Sizes NPS 2 and smaller of stainless steel, Class 150 and 300*** Unless otherwise specified, butt-welding ends shall be bored to match Schedule 10S Pipe.

5.2.2.3 ***For all other butt-welding end valves*** covered by this Standard Practice, the purchaser shall specify the bore of the valve ends. Unless otherwise specified by the purchaser, the welding end preparation shall be optional with the manufacturer.

5.3 ***Valve Length***

5.3.1 Face-to-Face dimensions of flanged ball port or top opening valves may not be available within the short pattern lengths shown in ASME B16.10. (These valves may have face-to-face dimensions as agreed upon by the purchaser and manufacturer.)

5.3.2 End-to-end dimensions of butt-welding end ball valves shall conform to ASME B16.10, or such other dimensions as shall be agreed upon by the purchaser and manufacturer.

5.4 ***Auxiliary Connections***

5.4.1 When connections are provided, they shall be in accordance with ASME B16.34. The number and location shall be optional with the manufacturer or by agreement between the manufacturer and the purchaser.

5.5 ***Operation*** Valves shall be furnished with a means of operation, such as a lever or actuator, adequately sized to actuate the valve with reasonable effort by the operator under the rated working pressure.

5.6 ***Position Indication*** Stems, stem extensions, adapters and actuators shall be provided with positive means for indicating port position.

6. MARKING

6.1 Ball valves shall be marked in accordance with MSS SP-25.

7. TESTING

7.1 *Shell Test*

7.1.1 Ball valves shall be given a hydrostatic shell test at 1½ times the rated cold working pressure of the valve.

7.1.2 The ball shall be partially open during the shell test unless other means are provided for assuring equalization of pressure throughout the shell.

7.1.3 The duration of the shell test shall not be less than shown below:

Valve Size		Test Time
NPS	**DN**	**Second**
2 and smaller	50 and smaller	15
2½ - 8	65 - 200	60
10 and larger	250 and larger	120

Time duration is the period of inspection after the valve is fully prepared and under test pressure.

7.1.4 For valves of Class 150 and Class 300, in sizes NPS 3 (DN 80) and smaller, a minimum of 80 psig (6 Bar) gas test with a minimum 15 second duration may be substituted.

However, if this option is exercised, the manufacturer shall be able to certify that a production sample of the size valve so tested was subjected to a hydrostatic shell test of "F" times the cold working pressure of valve

where

$F = 2\ [AYS^1/MYS^1]$
or
$F = 2\ [AYS^2/MYS^2]$
or
$F = 2\ [AYS^3/MYS^3]$

whichever is larger, with no detrimental distortion

and where

AYS^1 = Actual Yield Strength of Body
MYS^1 = Minimum Specified Yield Strength of Bonnet
AYS^2 = Average Yield Strength of Bonnet
MYS^2 = Minimum Specified Yield Strength of Bonnet
AYS^3 = Average Yield Strength of Bonnet Bolting
MYS^3 = Minimum Specified Yield Strength of Bonnet Bolting

7.1.5 Visually detectable leakage through pressure boundary walls is not acceptable. Leakage through the stem packing shall not be cause for rejection. The stem packing shall be capable of retaining pressure at least equal to the rated cold working pressure of the valve without visible leakage.

7.2 *Seat Tests*

7.2.1 Ball valves shall be given a seat test in a manner which will test the tightness of the seat in the direction of flow as indicted on the valve, or in both directions, when flow direction is not indicated on valve. The method of seat leakage testing on each seat shall be such that no seat leakage can escape detection because of gradual pressurization or filling of cavity between two seats. Also the method of testing shall apply the pressure differential on the tested seat in the same direction as pressure is applied on this seat in service.

7.2.2 Ball valves shall be given a hydrostatic seat test at the rated cold working pressure of the valve. On valves NPS 12 (DN 300) and smaller, an 80 psig (6 Bar) gas seat test may be substituted for the hydrostatic seat test. However, if this option is exercised, the manufacture shall be able to certify that a production sample of the size so tested was subjected to a hydrostatic seat test of "F" times the cold working pressure of valve

where

$F = 2\ [AYS^4/MYS^4]$
or
$F = 2\ [AYS^5/MYS^5]$
or
$F = 2\ [AYS^6/MYS^6]$

whichever is larger, with no detrimental distortion of ball, stem, or trunnion

and where

AYS^4 = Actual Yield Strength of Ball
MYS^4 = Minimum Specified Yield Strength of Ball
AYS^5 = Average Yield Strength of Stem
MYS^5 = Minimum Specified Yield Strength of Stem
AYS^6 = Average Yield Strength of Trunnion
MYS^6 = Minimum Specified Yield Strength of Trunnion

At the manufacturer's option, as an alternate method for the 80 psig (6 Bar) gas test, the pressure may be applied inside the body cavity with the ball closed and both sides open for inspection.

7.2.3 The duration of the seat test shall not be less than shown below.

Valve Size		Test Time
NPS	DN	Second
2 and smaller	50 and smaller	15
2½ - 8	65 - 200	30
10 - 18	250 - 450	60
20 - 36	500 - 900	120

Time duration is the period of inspection after the valve is fully prepared and under test pressure.

7.2.4 There shall be no visible leakage past the seat for the duration of the test for valves with resilient (polymeric or elastomeric) seats.

7.2.4.1 The term "no visible leakage" applied to a hydrostatic test liquid is defined as a leak rate that will produce no visible weeping or formation of drops at the test pressure and for the duration of the test.

7.2.4.2 The term "no visible leakage" applied to air or gas testing is defined as a leak rate that will produce no visible formation of bubbles in a water immersion test or after application of a leak detection fluid at the test pressure and for the duration of the test.

7.2.4.3 For automatic leak detection methods, this definition shall be considered equivalent to a leak rate no greater than 4.1x10^-5in^3/sec (6.7x10^-4ml/sec) with a pressure differential of 80 to 100 psi (5.5 to 6.9 bar) for application to valves NPS 8 and smaller.

7.2.5 The maximum allowable leakage rate on each seat of non-resilient seated, except metal-seated, valves for the duration of the test shall be $^2/_{10}$ of a standard cubic foot of gas per hour (6 liters per hour) per inch of nominal valve size or a maximum of 1.22 cubic inches (20 ml per hour) of hydrostatic media per hour per inch of nominal valve size, at the test pressure specified in 7.2.2.

7.2.6 The maximum allowable leakage rate on each seat of metal-seated valves for the duration of the test shall be $^4/_{10}$ of a standard cubic foot of gas per hour (12 liters per hour) per inch of nominal valve size, or a maximum of 2.44 cubic inches (40 ml per hour) of hydrostatic test media per hour per inch of nominal valve size at the test pressure specified in 7.2.2.

7.2.7 When volumetric loss testing devices are used, the valve manufacturer must demonstrate that leakage sensitivity of the device produces results that are equivalent to or better than those which are acceptable when visual examination methods showing no leakage are employed.

7.3 ***System Hydrostatic Tests*** If valves conforming to this Standard Practice are subject to hydrostatic testing of systems with the valve in the closed position at a pressure greater than the CWP rating, such testing shall be the responsibility of the user.

TABLE 1

Port Sizes for Less than Full Port Ball Valves

Valve Size		COLUMN A Regular Port		COLUMN B Reduced Port	
NPS	DN	Inches	(mm)	Inches	(mm)
½	15	0.31	(7.9)	0.31	(7.9)
¾	20	0.49	(12.4)	0.49	(12.4)
1	25	0.75	(19.0)	0.62	(15.7)
1¼	32	0.93	(23.6)	0.80	(20.3)
1½	40	1.12	(28.4)	0.97	(24.6)
2	50	1.50	(38.1)	1.18	(30.0)
3	80	2.25	(57.1)	1.80	(45.7)
4	100	3.00	(76.2)	2.50	(63.5)
6	150	4.00	(101.6)	3.00	(76.2)
8	200	6.00	(152.4)	4.00	(101.6)
10	250	7.37	(187.2)	6.00	(152.4)
12	300	9.00	(228.6)	8.00	(203.2)
14	350	10.50	(266.7)	8.62	(218.9)
16	400	12.00	(304.8)	10.00	(254.0)
18	450	13.25	(336.6)	11.25	(285.7)
20	500	15.25	(387.3)	12.50	(317.5)
22	550	17.25	(438.1)	14.00	(355.6)
24	600	19.25	(488.9)	15.25	(387.3)

For valves above NPS 24 (DN 600) up to NPS 36 (DN 900), port size shall be as agreed upon between purchaser and manufacturer.

Tolerance = -0.06 (1.52 mm) for NPS 12 (DN 300) and smaller.

= -0.12 (3.05 mm) for NPS 14 (DN 350) and larger.

Oversize tolerances not specified.

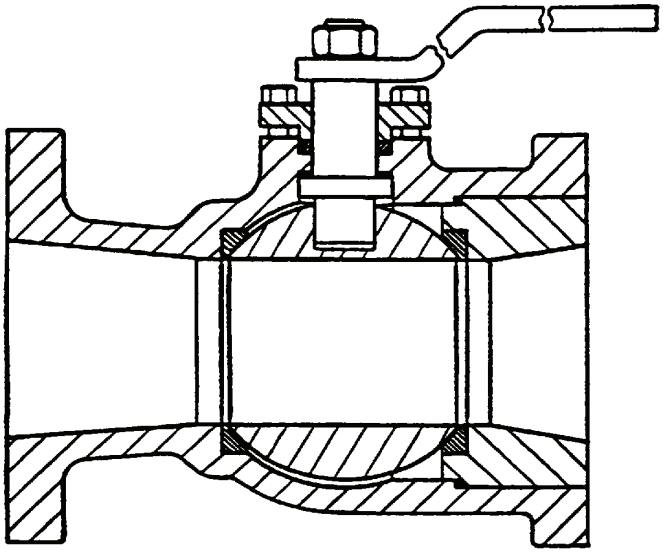


FIGURE 1A One Piece Body

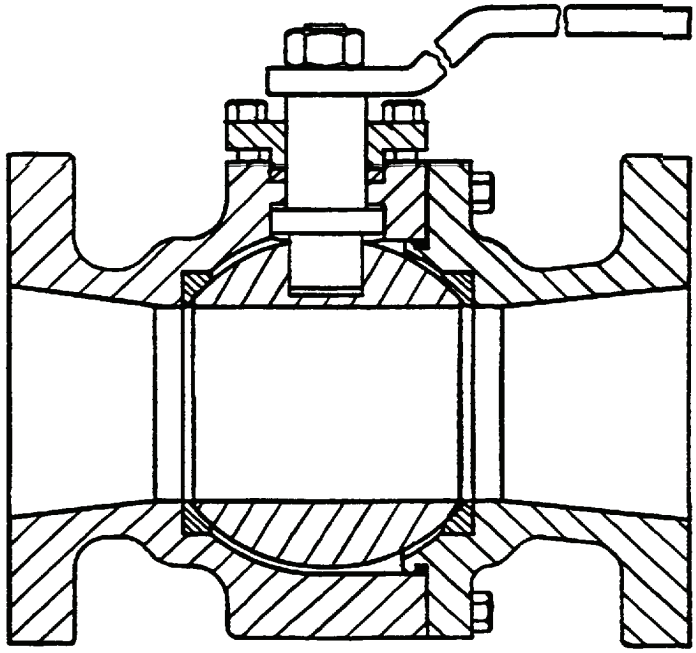


FIGURE 1B Split Body

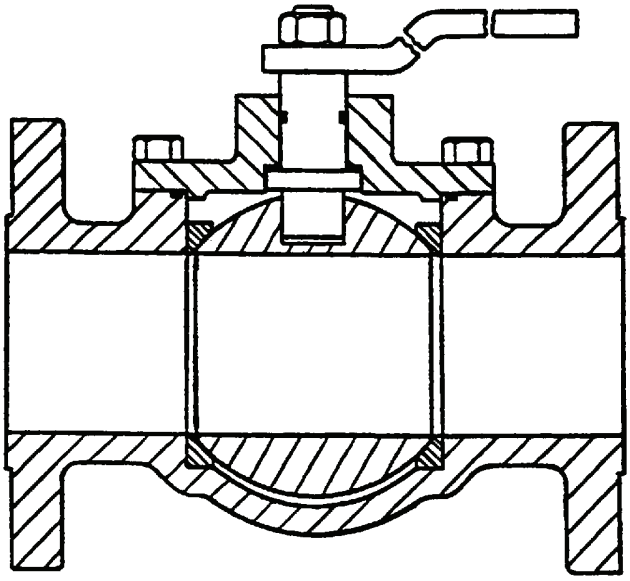


FIGURE 1C Top Entry

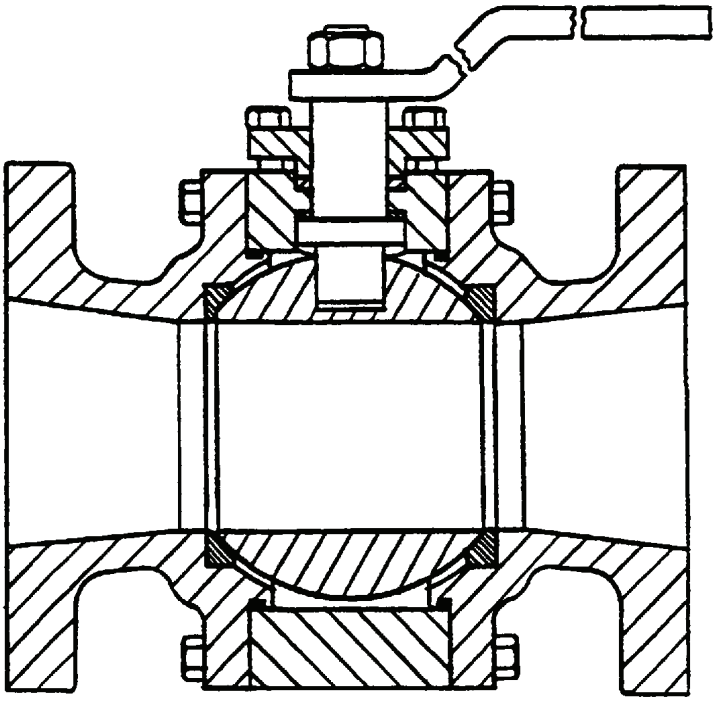
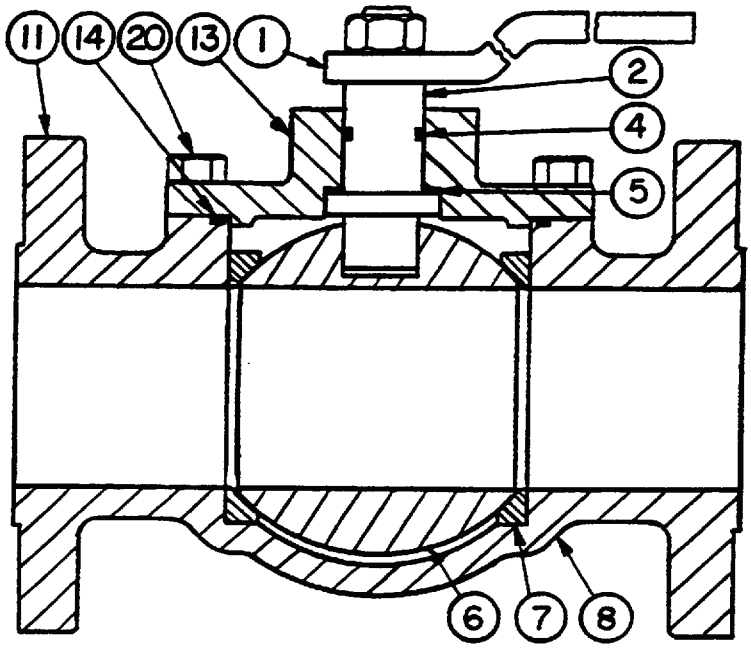


FIGURE 1D Three Piece Body

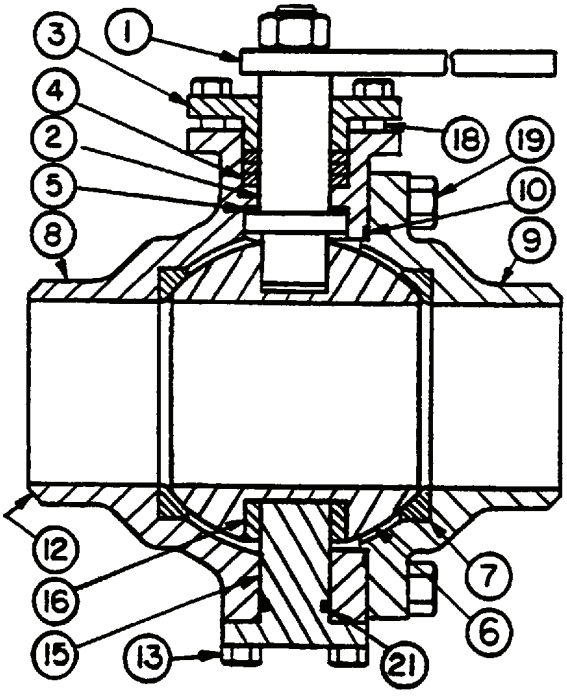
These illustrations are not intended to limit design, or to indicate any preferred design.

FIGURE 1 Examples of Body Construction

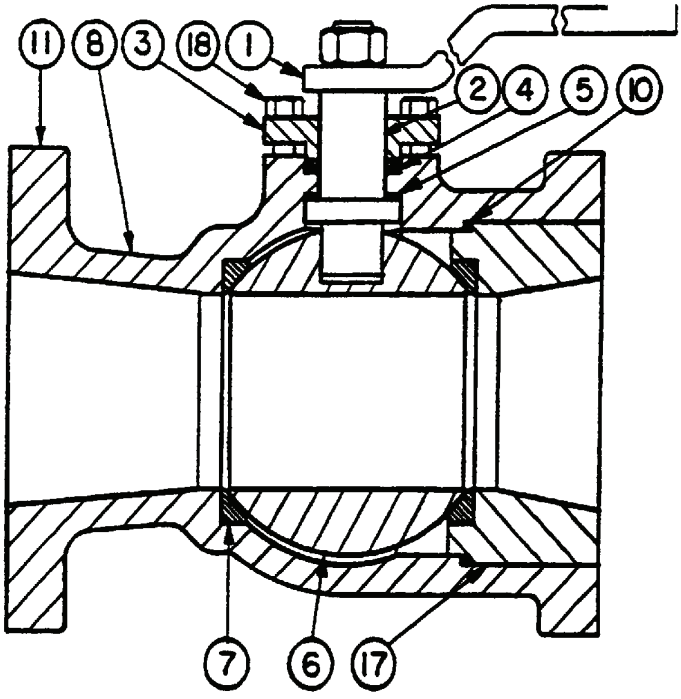


Top Entry Flanged Connections

1. HANDLE
2. STEM
3. GLAND
4. STEM SEAL
5. THRUST WASHER
6. BALL
7. SEAT
8. BODY
9. BODY END
10. BODY SEAL
11. FLANGED CONNECTION
12. BUTT WELD CONNECTION
13. BONNET
14. BONNET SEAL
15. TRUNNION
16. TRUNNION BUSHING
17. BODY INSERT
18. GLAND OR BONNET BOLTING
19. BODY BOLTING
20. BONNET BOLTING
21. TRUNNION SEAL



Split Body Butt Weld Connections



One Piece Body Flanged Connections

Basic valve parts have been named.
These illustrations are not intended to limit design or to indicate any preferred design.

FIGURE 2 Nomenclatures for Ball Valve Parts, Typical

ANNEX A

Referenced Standards and Applicable Dates

This Annex is an integral part of this Standard Practice and is placed after the main text for convenience.

Standard Name	Description
ASME; ANSI/ASME	
B16.1-2005	Cast Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250
B16.5-2009	Pipe Flanges and Flanged Fittings: NPS ½ through NPS 24 Metric/Inch Standard
B16.10-2009	Face-to-Face and End-to-End Dimensions of Valves
B16.24-2006	Cast Copper Alloy Pipe Flanges and Flanged Fittings: Classes 150, 300, 600, 900, 1500, and 2500
B16.34-2009	Valves Flanged, Threaded and Welding End
B16.42-1998	Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300
MSS	
SP-25-2008	Standard Marking System for Valves, Fittings, Flanges, and Unions
SP-44-2010	Steel Pipeline Flanges

Standards and Specifications of the following organizations appear in the above list.

ASME American Society of Mechanical Engineers
Three Park Avenue
New York, NY 10016-5990

ANSI American National Standards Institute, Inc.
25 West 43rd Street, Fourth Floor
New York, NY 10036-8002

MSS Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.
127 Park Street, NE
Vienna, VA 22180-4602

Listing of MSS Standard Practices

TITLE	
SP-6-2007	Standard Finishes for Contact Faces of Pipe Flanges and Connecting-End Flanges of Valves and Fittings
SP-9-2008	Spot Facing for Bronze, Iron and Steel Flanges
SP-25-2008	Standard Marking System for Valves, Fittings, Flanges, and Unions
SP-42-2009	Corrosion Resistant Gate, Globe, Angle and Check Valves with Flanged and Butt Weld Ends (Classes 150, 300 & 600)
SP-43-2008	Wrought and Fabricated Butt-Welding Fittings for Low Pressure, Corrosion Resistant Applications (Incl. 2010 Errata Sheet)
SP-44-2010	Steel Pipeline Flanges
SP-45-2003	(R 2008) Bypass and Drain Connections
SP-51-2007	Class 150LW Corrosion Resistant Flanges and Cast Flanged Fittings
SP-53-1999	(R 2007) Quality Standard for Steel Castings and Forgings for Valves, Flanges, and Fittings and Other Piping Components - Magnetic Particle Examination Method
SP-54-1999	(R 2007) Quality Standard for Steel Castings and Forgings for Valves, Flanges, and Fittings and Other Piping Components - Radiographic Examination Method
SP-55-2006	Quality Standard for Steel Castings for Valves, Flanges, Fittings, and Other Piping Components - Visual Method for Evaluation of Surface Irregularities
SP-58-2009	Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation
SP-60-2004	Connecting Flange Joint Between Tapping Sleeves and Tapping Valves
SP-61-2009	Pressure Testing of Valves
SP-65-2008	High Pressure Chemical Industry Flanges and Threaded Stubs for Use with Lens Gaskets
SP-67-2002a	Butterfly Valves
SP-68-1997	(R 2004) High Pressure Butterfly Valves with Offset Design
SP-69-2003	Pipe Hangers and Supports - Selection and Application **(ANSI-approved American National Standard)**
SP-70-2006	Gray Iron Gate Valves Flanged and Threaded Ends
SP-71-2005	Gray Iron Swing Check Valves, Flanged and Threaded Ends
SP-72-2010	Ball Valves with Flanged or Butt-Welding Ends for General Service
SP-75-2008	Specification for High-Test, Wrought, Butt-Welding Fittings
SP-77-1995	(R 2000) Guidelines for Pipe Support Contractual Relationships - *Relationships and Responsibilities of the Pipe Hanger Contractor with the Purchaser's Engineer or the Pipe Fabricator and/or Erector*
SP-78-2005a	Gray Iron Plug Valves Flanged and Threaded Ends
SP-79-2009	Socket Welding Reducer Inserts
SP-80-2008	Bronze Gate, Globe, Angle, and Check Valves
SP-81-2006a	Stainless Steel, Bonnetless, Flanged Knife Gate Valves
SP-83-2006	Class 3000 Steel Pipe Unions Socket Welding and Threaded
SP-85-2002	Gray Iron Globe & Angle Valves Flanged and Threaded Ends
SP-86-2009	Guidelines for Metric Data in Standards for Valves, Flanges, Fittings, and Actuators
SP-88-2010	Diaphragm Valves
SP-89-2003	Pipe Hangers and Supports - Fabrication and Installation Practices
SP-90-2000	Guidelines on Terminology for Pipe Hangers and Supports
SP-91-2009	Guidelines for Manual Operation of Valves
SP-92-1999	MSS Valve User Guide
SP-93-2008	Quality Standard for Steel Castings and Forgings for Valves, Flanges, Fittings, and Other Piping Components - Liquid Penetrant Examination Method
SP-94-2008	Quality Standard for Ferritic and Martensitic Steel Castings for Valves, Flanges, Fittings, and Other Piping Components - Ultrasonic Examination Method
SP-95-2006	Swage(d) Nipples and Bull Plugs
SP-96-2001	(R 2005) Guidelines on Terminology for Valves and Fittings
SP-97-2006	Integrally Reinforced Forged Branch Outlet Fittings - Socket Welding, Threaded, and Buttwelding Ends
SP-98-2001	(R 2005) Protective Coatings for the Interior of Valves, Hydrants, and Fittings
SP-99-1994	(R 2005) Instrument Valves
SP-100-2009	Qualification Requirements for Elastomer Diaphragms for Nuclear Service Diaphragm Valves
SP-101-1989	(R 2001) Part-Turn Valve Actuator Attachment - Flange and Driving Component Dimensions and Performance Characteristics
SP-102-1989	(R 2001) Multi-Turn Valve Actuator Attachment - Flange and Driving Component Dimensions and Performance Characteristics
SP-104-2003	Wrought Copper Solder Joint Pressure Fittings
SP-105-1996	(R 2005) Instrument Valves for Code Applications
SP-106-2003	Cast Copper Alloy Flanges and Flanged Fittings Class 125, 150 and 300
SP-108-2002	Resilient-Seated Cast-Iron Eccentric Plug Valves
SP-109-1997	(R 2006) Welded Fabricated Copper Solder Joint Pressure Fittings
SP-110-2010	Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends
SP-111-2001	(R 2005) Gray-Iron and Ductile-Iron Tapping Sleeves
SP-112-1999	(R 2004) Quality Standard for Evaluation of Cast Surface Finishes - Visual and Tactile Method. This SP must be used with a 10-surface, three dimensional Cast Surface Comparator, which is a necessary part of the standard. Additional Comparators available separately.
SP-113-2001	(R 2007) Connecting Joint between Tapping Machines and Tapping Valves
SP-114-2007	Corrosion Resistant Pipe Fittings Threaded and Socket Welding Class 150 and 1000
SP-115-2006	Excess Flow Valves, 1 1/4 NPS and Smaller, for Fuel Gas Service
SP-116-2003	Service-Line Valves and Fittings for Drinking Water Systems
SP-117-2006	Bellows Seals for Globe and Gate Valves
SP-118-2007	Compact Steel Globe & Check Valves - Flanged, Flangeless, Threaded & Welding Ends (Chemical & Petroleum Refinery Service)
SP-119-2003	Factory-Made Wrought Belled End Socket-Welding Fittings
SP-120-2006	Flexible Graphite Packing System for Rising Stem Steel Valves - Design Requirements
SP-121-2006	Qualification Testing Methods for Stem Packing for Rising Stem Steel Valves
SP-122-2005	Plastic Industrial Ball Valves
SP-123-1998	(R 2006) Non-Ferrous Threaded and Solder-Joint Unions for Use with Copper Water Tube
SP-124-2001	Fabricated Tapping Sleeves
SP-125-2010	Gray Iron and Ductile Iron In-Line, Spring-Loaded, Center-Guided Check Valves
SP-126-2007	Steel In-Line Spring-Assisted Center Guided Check Valves
SP-127-2001	Bracing for Piping Systems Seismic-Wind-Dynamic Design, Selection, Application
SP-128-2006	Ductile Iron Gate Valves
SP-129-2003	(R 2007) Copper-Nickel Socket-Welding Fittings and Unions
SP-130-2003	Bellows Seals for Instrument Valves
SP-131-2004	Metallic Manually Operated Gas Distribution Valves
SP-132-2010	Compression Packing Systems for Instrument Valves
SP-133-2005	Excess Flow Valves for Low Pressure Fuel Gas Appliances
SP-134-2006a	Valves for Cryogenic Service Including Requirements for Body/Bonnet Extensions
SP-135-2006	High Pressure Steel Knife Gate Valves
SP-136-2007	Ductile Iron Swing Check Valves
SP-137-2007	Quality Standard for Positive Material Identification of Metal Valves, Flanges, Fittings, and Other Piping Components
SP-138-2009	Quality Standard Practice for Oxygen Cleaning of Valves & Fittings
SP-139-2010	Copper Alloy Gate, Globe, Angle, and Check Valves for Low Pressure/Low Temperature Plumbing Applications

(R *YEAR*) Indicates year standard reaffirmed without substantive changes • **Price List Available Upon Request**

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