

Steel In-Line Spring-Assisted Center Guided Check Valves

Standard Practice
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This MSS Standard Practice was developed under the consensus of the MSS Technical Committee 114 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.

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 B.)

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 appearing in this document are construed as “supplemental”. “Supplemental” information does not include mandatory requirements.

The metric (SI) units and U.S. customary units in this Standard Practice are regarded separately as the standard; each should be used independently of the other. Combining or converting values between the two systems may result in nonconformance with this Standard Practice.

This document has been substantively revised and rearranged from the previous edition. It is suggested that if the user is interested in knowing what changes have been made, that a direct page by page comparison should be made of this document.

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FOREWORD

Work on this standard began about 1990 to fulfill the industry's need for a standard covering this unique class of check valves. The intent of the standard is to include in-line (no bonnet) check valves whose closure member is assisted by a spring in shutting before the flowing media can develop significant reverse velocity. Because this effect reduces the possibility of water hammer, these types of valves have also been termed "silent check valves". This Standard Practice calls the valves "center guided" meaning that the closure member is guided into the center of the flow forcing the flowing media to pass around it. Additionally, the closure member remains perpendicular to the flowing media throughout its entire travel. This Standard Practice was first published in 2000.

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1. SCOPE

This Standard Practice covers in-line, center guided, internally spring-assisted type check valves made of steel, or other alloys listed in Table 1 of ASME B16.34. These valves, having the feature of limiting fluid flow to one direction only, are intended for use with clean fluids (i.e. fluids that contain no solids).

2. STANDARD UNITS

The value stated in either U.S. customary units or metric units are to be regarded separately as the standard. Within the text, the metric units are shown in parentheses. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two systems may result in nonconformance with this Standard Practice. Class and NPS are the standard descriptors for Pressure Class and Nominal Size for both metric and customary products covered under this Standard Practice. NPS, followed by dimensionless number, is the designation for nominal valve size. NPS is related to the nominal diameter, DN is used in international standards. The relationship is typically as follows:

NPS	DN
1/2	15
3/4	20
1	25
1-1/4	32
1-1/2	40
2	50
2-1/2	65
3	80
4	100

General Note: For $NPS \geq 4$, the related DN is $DN = 25 \times (NPS)$

3. VALVE STYLES AND CLASSES

The valve styles covered by this Standard Practice are determined by the valve body configuration and include globe, wafer, insert, threaded, and socket weld valve styles. ASME Pressure Classes covered by this Standard Practice are 150, 300, 600, 900, 1500, and 2500. Valves meeting the requirements of this Standard Practice may be used within the pressure-temperature ratings of ASME B16.34, Standard Pressure Class.

3.1 *Globe Style*

Globe style check valves have two flanges integrally cast or forged in the valve body which is secured between the end gaskets and mating pipeline flanges by threaded fasteners that pass through bolt holes in these flanges.

3.2 *Wafer Style*

Wafer style check valves are secured between end gaskets and pipeline flanges by bolts which pass outside their pressure boundary wall. The body may be cylindrical or sculpted to allow for bolt clearance.

3.3 *Flange Insert Style*

Flange insert style check valves contain trim that protrudes into upstream and/or downstream piping. This valve style is secured between gaskets and pipeline flanges by bolts which pass outside the body circumference. This valve style is designed to function inside Schedule 40 or Standard Schedule pipe for Class 150 and 300 designs and Schedule 40 or 80 pipe for Class 600 designs.

3.4 *Threaded Style*

Threaded style check valves have American National Standard taper pipe threads (NPT) machined in each end of the valve body for assembly with similarly threaded piping or fittings. The end connections may be internally or externally threaded.

3.5 *Socket Weld Style*

The end of the pipeline is inserted into the valve body of the socket weld style check valve. The valve is then sealed into the line by welding around the circumference of the joint.

4. **END CONNECTIONS**

End connections for the valve styles covered by this Standard Practice are flanged, threaded, socket welded, or a combination of ends such as threaded by socket welded.

4.1 ***Flanged Connections***

Unless otherwise authorized, all mounting surfaces of globe style check valves shall have dimensions in accordance with ASME B16.5. The face finish for globe, wafer, and flange insert style check valves shall conform to MSS SP-6. End connections for insert style check valves shall provide for the free movement of the trim and adequate clearance for pipeline flow.

4.2 ***Threaded Connections***

Threads for threaded style check valves shall be NPT as specified in ASME B1.20.1.

4.3 ***Socket Weld Connections***

End connections on socket weld style check valves shall be in accordance with ASME B16.11. Installation welding procedures are the responsibility of the user but shall prevent weld heat from warping or damaging the valve seat or any polymers or elastomers present in valve seats or bushings.

5. **MATERIALS**

The specification of materials of construction are the responsibility of the user. Typical nomenclature of individual valve parts are shown in Annex A, Figures A1 through A5.

5.1 ***Valve Bodies***

Valve bodies shall be manufactured from materials listed in Table 1 of ASME B16.34. Chemical and mechanical properties for the body shall satisfy the requirements of the appropriate ASTM material specification.

5.2 ***Valve Trim***

Valve trim may be manufactured from any of the materials listed in Table 1 of ASME B16.34 or other suitable materials. Polymer and Elastomer materials may be incorporated into the valve seat or disc to effect a tighter seal or in the valve bushing to provide smoother trim travel. Valve springs shall be manufactured of materials properly manufactured and formulated for springs. The material for all wetted parts shall have corrosion resistance at least equal to the body except by agreement between the manufacturer and the purchaser.

6. **DESIGN REQUIREMENTS**

6.1 *Valve Envelope*

Except for insert style valves, each valve shall be designed so that in the closed position no internal component, stem or bushing, shall protrude beyond the face of the valve or end flanges.

6.2 *Valve Seats*

Valve seats shall be integral with the body or of the metallic seat ring design and may incorporate a hard facing overlay. The valve seat may be all metal or it may incorporate a polymer or elastomer. The valve seat shall comply with the valve trim requirements of Section 5.2.

6.3 *Valve Springs*

Valve springs shall be designed so the spring member is not over stressed when the valve is in the full open position.

6.4 *Wall Thickness*

The design requirements of this section only apply to the valve body. The disc is specifically excluded. Valve bodies shall have a minimum wall thickness as specified by ASME B16.34.

6.5 *Bolting Requirements*

Bolting shall conform to ASME B16.34 requirements.

6.6 *Body Joints*

Valves with bodies of sectional construction such that bolted or threaded body joints are subject to piping and mechanical loadings shall meet the criteria specified in ASME B16.34 for bolted and threaded body joints.

7. **DIMENSIONS AND TOLERANCES**

7.1 *Face-to-Face Dimensions*

7.1.1 *Globe Style*

Face-to-Face dimensions for flanged globe style check valves Classes 150, 300, 600, 900, 1500, and 2500 are shown in Tables 1 and 2. Metric face-to-face dimensions for flanged globe style check valves Classes 150, 300, 600, 900, 1500, and 2500 are shown in Tables 1M and 2M.

7.1.2 *Wafer Style*

Face-to-Face dimensions for flanged wafer style check valves Classes 150, 300, 600, 900, and 1500 are shown in Table 3. Metric face-to-face dimensions for flanged wafer style check valves Classes 150, 300, 600, 900, and 1500 are shown in Table 3M.

7.1.3 *Insert Style*

Face-to-Face dimensions for flange insert style check valves Classes 150, 300, and 600 are shown in Table 4. Metric face-to-face dimensions for flange insert style check valves Classes 150, 300, and 600 are shown in Table 4M.

7.2 *Tolerances*

Tolerances for face-to-face dimensions for NPS 10 and smaller shall be plus or minus 1/16 inch (1.6 mm) and plus or minus 1/8 inch (3.2 mm) for NPS 12 and larger.

TABLE 1
Face-to-Face Dimensions for
Flanged Class 150, 300, and 600 Globe Style Check Valves

Dimensions in inches

SIZE	CLASS 150		CLASS 300		CLASS 600	
NPS	SHORT BODY	LONG BODY	SHORT BODY	LONG BODY	SHORT BODY	LONG BODY
1	4-1/2	5	4-3/4	8-1/2	5-1/2	8-1/2
1-1/2	5-3/4	6-1/2	6	9-1/2	6-5/8	8-1/2
2	6-1/4	8	6-1/2	10-1/2	7-1/4	11-1/2
2-1/2	7	8-1/2	7-1/4	11-1/2	8	13
3	7-1/2	9-1/2	7-7/8	12-1/2	8-5/8	14
4	8-1/2	11-1/2	9-1/8	14	10-1/8	17
5	9-1/2	13	10-3/8	15-3/4	-	20
6	10	14	11	17-1/2	12-3/8	22
8	12	19-1/2	13	21	14-5/8	26
10	14	24-1/2	15-3/8	24-1/2	17-1/8	31
12	18	27-1/2	19-1/2	28	21-1/4	33
14	21	31	23	33	22-1/2	35
16	22-1/2	34	24	34	26	39
18	24	38-1/2	26	38-1/2	-	43
20	24	38-1/2	24	40	-	47
24	28	51	28	53	-	55

TABLE 1M
Face-to-Face Dimensions for
Flanged Class 150, 300, and 600 Globe Style Check Valves

Dimensions in mm

SIZE	CLASS 150		CLASS 300		CLASS 600	
NPS	SHORT BODY	LONG BODY	SHORT BODY	LONG BODY	SHORT BODY	LONG BODY
1	114	127	121	216	140	216
1-1/2	146	165	152	241	168	216
2	159	203	165	267	184	292
2-1/2	178	216	184	292	203	330
3	191	241	200	318	219	356
4	216	292	232	356	257	432
5	241	330	264	400	-	508
6	254	356	279	445	314	559
8	305	495	330	533	371	660
10	356	622	391	622	435	787
12	457	699	495	711	540	838
14	533	787	584	838	572	889
16	572	864	610	864	660	991
18	610	978	660	978	-	1092
20	610	978	610	1016	-	1194
24	711	1295	711	1346	-	1397

TABLE 2
Face-to-Face Dimensions for
Flanged Class 900, 1500, and 2500 Globe Style Check Valves

Dimensions in inches

SIZE	CLASS 900		CLASS 1500		CLASS 2500	
NPS	SHORT BODY	LONG BODY	SHORT BODY	LONG BODY	SHORT BODY	LONG BODY
1-1/2	7-3/8	12	7-3/8	12	-	15-1/8
2	8-1/4	14-1/2	8-1/4	14-1/2	9-1/4	17-3/4
2-1/2	9	16-1/2	9	16-1/2	-	20
3	9-1/8	15	9-7/8	18-1/2	14	22-3/4
4	10-5/8	18	11-3/8	21-1/2	-	26-1/2
6	13	24	15-1/8	27-3/4	-	36
8	15-1/4	29	17-1/2	32-3/4	-	40-1/4
10	17-5/8	33	-	39	-	50
12	-	38	-	44-1/2	-	56
14	-	40-1/2	-	49-1/2	-	49-1/2
16	-	44-1/2	-	54-1/2	-	54-1/2
18	-	48	-	60-1/2	-	-
20	-	52	-	65-1/2	-	-
24	-	61	-	76-1/2	-	-

TABLE 2M
Face-to-Face Dimensions for
Flanged Class 900, 1500, and 2500 Globe Style Check Valves

Dimensions in mm

SIZE	CLASS 900		CLASS 1500		CLASS 2500	
NPS	SHORT BODY	LONG BODY	SHORT BODY	LONG BODY	SHORT BODY	LONG BODY
1-1/2	187	305	187	305	-	384
2	210	368	210	368	235	451
2-1/2	229	419	229	419	-	508
3	232	381	251	470	356	578
4	270	457	289	546	-	673
6	330	610	384	705	-	914
8	387	737	445	832	-	1022
10	448	838	-	991	-	1270
12	-	965	-	1130	-	1422
14	-	1029	-	1257	-	1257
16	-	1130	-	1384	-	1384
18	-	1219	-	1537	-	-
20	-	1321	-	1664	-	-
24	-	1549	-	1943	-	-

TABLE 3

**Face-to-Face Dimensions for
Class 150, 300, 600, 900, and 1500
Wafer Style Check Valves**

Dimensions in inches

Size	Class				
NPS	150	300	600	900	1500
1	2	2	2-3/8	2-3/8	2-3/8
1-1/2	2-1/2	2-1/2	2-7/8	2-7/8	2-7/8
2	2-5/8	2-5/8	2-3/8	2-3/4	3-1/8
2-1/2	2-7/8	2-7/8	-	-	-
3	3-1/8	3-1/8	2-7/8	3-1/4	3-1/4
4	4	4	3-1/8	4	4-1/8
5	4-5/8	4-5/8	-	-	-
6	5-1/2	5-1/2	5-3/8	6-1/4	6-1/4
8	6-1/2	6-1/2	-	-	-
10	8-1/4	-	-	-	9-3/4

TABLE 3M

**Face-to-Face Dimensions for
Class 150, 300, 600, 900, and 1500
Wafer Style Check Valves**

Dimensions in mm

Size	Class				
NPS	150	300	600	900	1500
1	51	51	60	60	60
1-1/2	64	64	73	73	73
2	67	67	60	70	79
2-1/2	73	73	-	-	-
3	79	79	73	83	83
4	102	102	79	102	105
5	117	117	-	-	-
6	140	140	137	159	159
8	165	165	-	-	-
10	210	-	-	-	248

TABLE 4

**Face-to-Face Dimensions for
Class 150, 300, and 600
Flange Insert Style Check Valves**

Dimensions in inches

Size	Class		
NPS	150	300	600
1/2	1/4	1/4	1/4
3/4	1/4	1/4	1/4
1	1/4	1/4	1/4
1-1/4	1/4	1/4	1/4
1-1/2	1/4	1/4	1/4
2	1/4	1/4	1/4
2-1/2	1/4	1/4	1/4
3	5/16	5/16	5/16
4	3/8	3/8	3/8
5	1/2	-	-
6	3/8	-	-
8	1/2	-	-
10	1/2	-	-
12	1/2	-	-
14	1/2	-	-
16	9/16	-	-
18	5/8	-	-
20	11/16	-	-

TABLE 4M

**Face-to-Face Dimensions for
Class 150, 300, and 600
Flange Insert Style Check Valves**

Dimensions in mm

Size	Class		
NPS	150	300	600
1/2	6.4	6.4	6.4
3/4	6.4	6.4	6.4
1	6.4	6.4	6.4
1-1/4	6.4	6.4	6.4
1-1/2	6.4	6.4	6.4
2	6.4	6.4	6.4
2-1/2	6.4	6.4	6.4
3	7.9	7.9	7.9
4	9.5	9.5	9.5
5	12.7	-	-
6	9.5	-	-
8	12.7	-	-
10	12.7	-	-
12	12.7	-	-
14	12.7	-	-
16	14.3	-	-
18	15.9	-	-
20	17.5	-	-

8. **WELD REPAIR**

Repair of materials shall be in accordance with the specifications of ASME B16.34.

9. **TESTING**

Shell and seat testing shall be performed on all valves prior to shipment. All specified tests and inspections shall be conducted at the place of manufacture, the place of assembly, or both. The records of all tests shall, if required by the purchaser at the time of order, be made available to the purchaser.

9.1 *Hydrostatic Shell Testing*

9.1.1 Each valve shall be given a shell test at a gage pressure no less than 1.5 times the 100° F (38° C) rating, rounded off to the next higher 25 psi (1 bar) increment.

9.1.2 Shell tests shall be conducted in such a manner that the total shell of the valve is pressurized.

9.1.3 Visually detectable leakage through the pressure boundary wall is not acceptable.

9.1.4 The duration of the shell test shall not be less than shown in Table 5.

TABLE 5

Minimum Shell Test Duration

Size	Test Time
NPS	(Seconds)
2 and Smaller	15
2-1/2 – 8	60
10 and Larger	180

9.1.5 Gasket and o-ring surfaces between the contained fluid and the pressure boundary shall be free of materials that aid in sealing.

9.2 *Seat Closure Testing*

Each valve shall be given a seat closure tightness test in the appropriate direction.

9.2.1 The seat closure test shall be performed with a liquid or gas pressure at no less than 1.1 times the 100° F (38° C) rating. At the manufacturer's option, a gas pressure of no less than 80 psig (5.5 barg) may be substituted for testing the valve sizes and pressure classes listed in Table 6. Note that there are hazards involved when a gas is used as the fluid for testing. Appropriate precautions are required when a gas is used.

TABLE 6

Alternate Gas Seat Closure Test

Size	Pressure Class
NPS	Class
12 and Smaller	400 and Lower
4 and Smaller	All

9.2.2 Seat closure testing shall be performed with seat surfaces free of materials that aid in sealing. When lubricants are used for assembly operations, it is not required that these be removed prior to testing if their presence has no influence on the test results.

9.2.3 The maximum allowable leakage rate for each metal-to-metal seat closure test shall be 40 ml/hr of liquid or 190 ml/min of gas per NPS under the specified test condition.

9.2.4 In the case of valves having a seat closure member that uses an elastomer for fluid sealing at closure, there shall be no visible leakage for the duration of the seat test.

9.2.5 The duration of each seat test shall be as shown in Table 7.

TABLE 7
Minimum Seat Test Duration

Size	Test Time
NPS	(Seconds)
2 and Smaller	15
2-1/2 – 8	30
10 – 18	60
20 and Larger	120

9.3 *Leakage Detection Devices*

Leakage detection devices, e.g., pressure decay devices, may be used for detecting leakage provided that they are used at the pressure required for the shell and closure tests. When used, the valve manufacturer shall have demonstrated that the test results are equivalent to the specified requirements.

10. MARKING

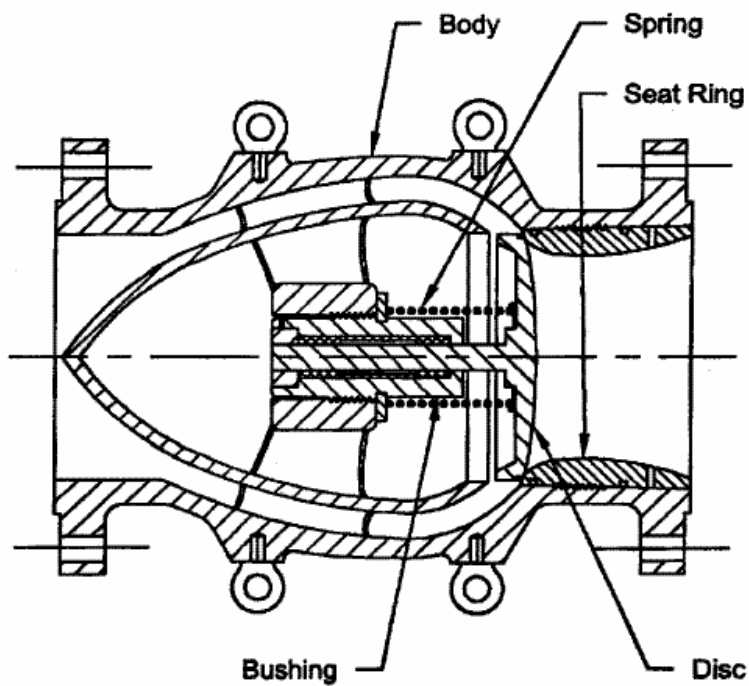
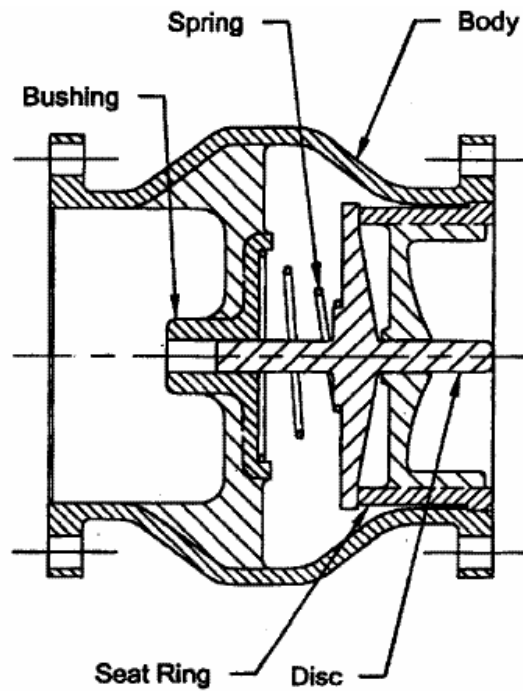
Marking shall be in accordance with MSS SP-25 showing the manufacturer's name or trademark, the size of the valve, the pressure class or pressure rating of the valve, and the direction of flow. Marking may be cast or stamped in the valve body or included on a metal plate which is secured to the valve body.

11. PAINTING

The painting of finished valves shall be optional for the manufacturer unless otherwise specified.

ANNEX A

Valve Types

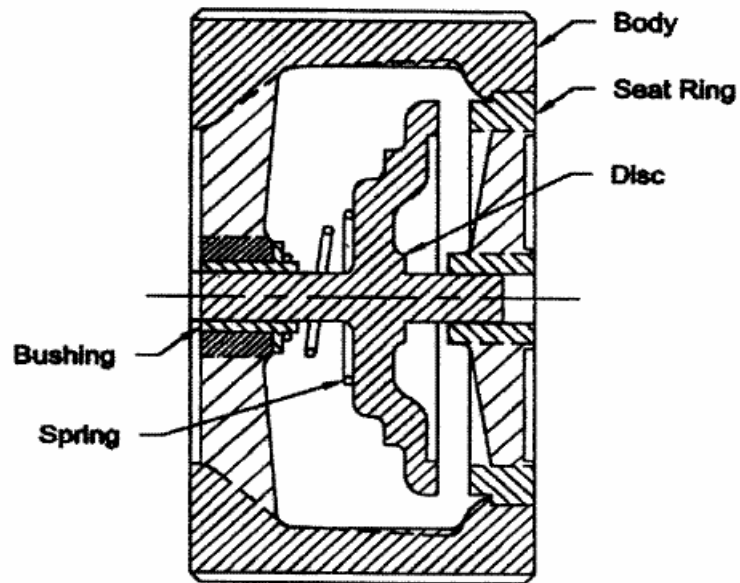


Typical Globe Style Check Valves

Figure A1

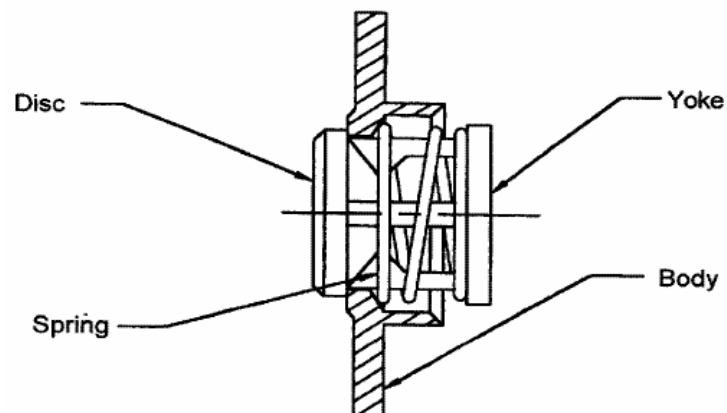
ANNEX A (continued)

Valve Types



Typical Wafer Style Check Valve

Figure A2

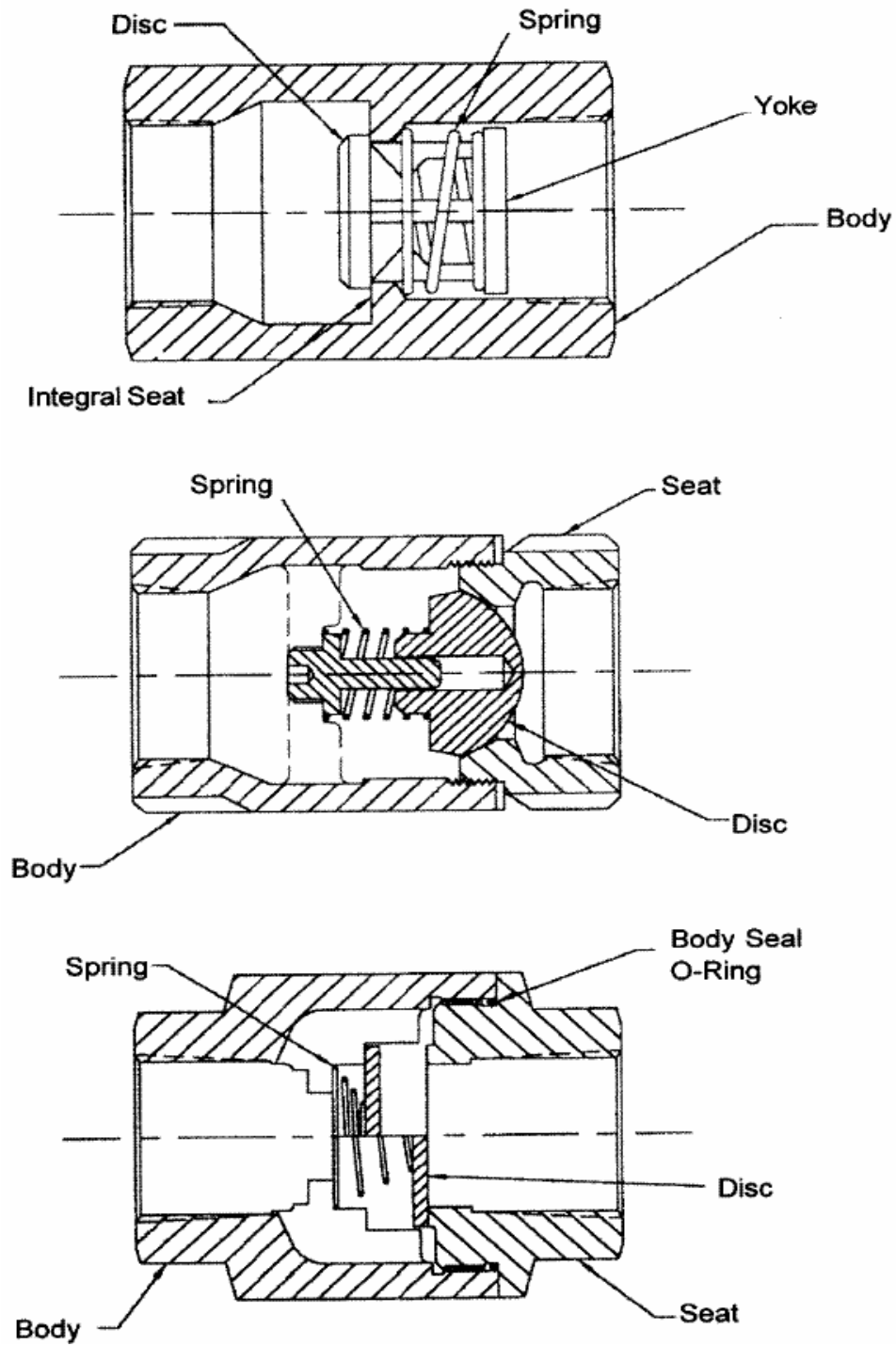


Typical Flange Insert Style Check Valve

Figure A3

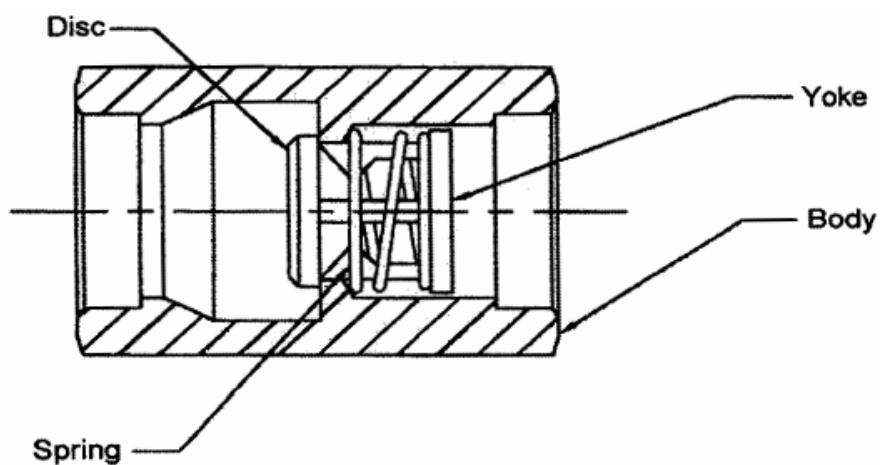
ANNEX A (continued)

Valve Types



Typical Threaded Style Check Valves

Figure A4

ANNEX A (continued)**Valve Types****Typical Socket Weld Style Check Valve****Figure A5**

ANNEX B**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 or Description

ASME, ANSI/ASME, ANSI, ASME/ANSI

B1.20.1 – 1983 (R1992)	Pipe Threads, General Purpose (Inch)
B16.5 – 2003	Pipe Flanges and Flanged Fittings 1/2" - 24"
B16.11 – 2005	Forged Fittings, Socket-Welding and Threaded
B16.34 – 2004	Valves - Flanged, Threaded, and Welding End

MSS

SP-6 - 2001	Standard Finishes for Contact Faces of Pipe Flanges and Connecting - End Flanges of Valves and Fittings
SP-25 - 1998	Standard Marking System for Valves, Fittings, Flanges and Unions

Publications of the following organizations appear on the above list:

ANSI	American National Standards Institute, Inc. 25 West 43rd Street 4 th Floor New York, NY 10036
ASME	ASME International Three Park Avenue New York, NY 10016-5990
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. 127 Park Street N.E. Vienna, Virginia 22180-4602

List of MSS Standard Practices (Price List Available Upon Request)

Number	
SP-6-2007	Standard Finishes for Contact Faces of Pipe Flanges and Connecting-End Flanges of Valves and Fittings
SP-9-2001	(R 05) Spot Facing for Bronze, Iron and Steel Flanges
SP-25-1998	Standard Marking System for Valves, Fittings, Flanges and Unions
SP-42-2004	Class 150 Corrosion Resistant Gate, Globe, Angle and Check Valves with Flanged and Butt Weld Ends
SP-43-1991	(R 01) Wrought Stainless Steel Butt-Welding Fittings
SP-44-2006	Steel Pipeline Flanges
SP-45-2003	Bypass and Drain Connections
SP-51-2007	Class 150LW Corrosion Resistant Flanges and Cast Flanged Fittings
SP-53-1999	(R 07) Quality Standard for Steel Castings and Forgings for Valves, Flanges and Fittings and Other Piping Components - Magnetic Particle Examination Method
SP-54-1999	(R 07) Quality Standard for Steel Castings for Valves, Flanges, and Fittings and Other Piping Components - Radiographic Examination Method
SP-55-2006	Quality Standard for Steel Castings for Valves, Flanges and Fittings and Other Piping Components - Visual Method for Evaluation of Surface Irregularities
SP-58-2002	Pipe Hangers and Supports - Materials, Design and Manufacture
SP-60-2004	Connecting Flange Joint Between Tapping Sleeves and Tapping Valves
SP-61-2003	Pressure Testing of Steel Valves
SP-65-2004	High Pressure Chemical Industry Flanges and Threaded Stubs for Use with Lens Gaskets
SP-67-2002a	Butterfly Valves
SP-68-1997	(R 04) High Pressure Butterfly Valves with Offset Design
SP-69-2003	Pipe Hangers and Supports - Selection and Application (ANSI/MSS Edition)
SP-70-2006	Gray Iron Gate Valves, Flanged and Threaded Ends
SP-71-2005	Gray Iron Swing Check Valves, Flanged and Threaded Ends
SP-72-1999	Ball Valves with Flanged or Butt-welding Ends for General Service
SP-75-2004	Specification for High Test Wrought Butt Welding Fittings
SP-77-1995	(R 00) Guidelines for Pipe Support Contractual Relationships
SP-78-2005a	Gray Iron Plug Valves, Flanged and Threaded Ends
SP-79-2004	Socket-Welding Reducer Inserts
SP-80-2003	Bronze Gate, Globe, Angle and Check Valves
SP-81-2006	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-86-2002	Guidelines for Metric Data in Standards for Valves, Flanges, Fittings and Actuators
SP-88-1993	(R 01) 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-91-1992	(R 96) Guidelines for Manual Operation of Valves
SP-92-1999	MSS Valve User Guide
SP-93-1999	(R 04) Quality Standard for Steel Castings and Forgings for Valves, Flanges, and Fittings and Other Piping Components - Liquid Penetrant Examination Method
SP-94-1999	(R 04) Quality Std for Ferritic and Martensitic Steel Castings for Valves, Flanges, and Fittings and Other Piping Components - Ultrasonic Examination Method
SP-95-2006	Swage(d) Nipples and Bull Plugs
SP-96-2001	(R 05) 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 05) Protective Coatings for the Interior of Valves, Hydrants, and Fittings
SP-99-1994	(R 05) Instrument Valves
SP-100-2002	Qualification Requirements for Elastomer Diaphragms for Nuclear Service Diaphragm Valves
SP-101-1989	(R 01) Part-Turn Valve Actuator Attachment - Flange and Driving Component Dimensions and Performance Characteristics
SP-102-1989	(R 01) 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 05) 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 06) Welded Fabricated Copper Solder Joint Pressure Fittings
SP-110-1996	Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends
SP-111-2001	(R 05) Gray-Iron and Ductile-Iron Tapping Sleeves
SP-112-1999	(R 04) Quality Standard for Evaluation of Cast Surface Finishes -Visual and Tactile Method. This SP must be sold with a 10-surface, three Dimensional Cast Surface Comparator, which is a necessary part of the Standard. Additional Comparators may be sold separately.
SP-113-2001	(R 07) 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 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 06) Non-Ferrous Threaded and Solder-Joint Unions for Use with Copper Water Tube
SP-124-2001	Fabricated Tapping Sleeves
SP-125-2000	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	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-132-2004	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
(R-YEAR)	Indicates year standard reaffirmed without substantive changes

A large number of former MSS Practices have been approved by the ANSI or ANSI Standards, published by others. In order to maintain a single source of authoritative information, the MSS withdraws its Standard Practices in such cases.

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