Corrosion-Resistant Gate, Globe, Angle, and Check Valves with Flanged and Butt Weld Ends (Classes 150, 300, & 600)
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 resulting efforts of competent and experienced volunteers to provide an effective, clear, and non-exclusive standard that will benefit the industry as a whole. This MSS Standard Practice describes minimal requirements and 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 to this Standard Practice is established only by reference in other documents such as a code, specification, sales contract, or public law, as applicable. MSS has no power, nor does it undertake, to enforce or certify compliance with this document. Any certification or other statement of compliance with the requirements of this Standard Practice shall not be attributable to MSS and is solely the responsibility of the certifier or maker of the statement.

"Unless indicated otherwise within this MSS Standard Practice, other standards documents referenced to herein are identified by the date of issue that was applicable to this Standard Practice at the date of approval of this MSS Standard Practice (see Annex B). This Standard Practice shall remain silent on the validity of those other standards of prior or subsequent dates of issue even though applicable provisions may not have changed."

By publication of this Standard Practice, no position is taken with respect to the validity of any potential claim(s) or of any patent rights in connection therewith. MSS shall not be held responsible for identifying any patent rights. Users are expressly advised that determination of patent rights and the risk of infringement of such rights are entirely their responsibility.

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

The (SI) metric 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 non-conformance with this Standard Practice.

Substantive changes in this 2013 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.

Non-toleranced dimensions in this Standard Practice are nominal unless otherwise specified.

Excerpts of this Standard Practice may be quoted with permission. Credit lines should read ‘Extracted from MSS SP-42-2013 with permission of the publisher, Manufacturers Standardization Society of the Valve and Fittings Industry’. Reproduction and/or electronic transmission or dissemination is prohibited under copyright convention unless written permission is granted by the Manufacturers Standardization Society of the Valve and Fittings Industry Inc. All rights reserved.

Originally Published: October 1949
Current Edition Approved: October 2012 (Updated March 2013)
Current Edition Published: May 2013

MSS is a registered trademark of Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.

Copyright ©, 2013 by
Manufacturers Standardization Society
of the
Valve and Fittings Industry, Inc.
Printed in U.S.A.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 SCOPE</td>
<td>1</td>
</tr>
<tr>
<td>2 STANDARD UNITS</td>
<td>1</td>
</tr>
<tr>
<td>3 MATERIALS</td>
<td>1</td>
</tr>
<tr>
<td>4 DESIGN</td>
<td>2</td>
</tr>
<tr>
<td>5 PRESSURE-TEMPERATURE RATINGS</td>
<td>7</td>
</tr>
<tr>
<td>6 WORKMANSHIP</td>
<td>8</td>
</tr>
<tr>
<td>7 TESTS</td>
<td>8</td>
</tr>
<tr>
<td>8 MARKING</td>
<td>8</td>
</tr>
<tr>
<td>9 PAINTING</td>
<td>8</td>
</tr>
</tbody>
</table>

## TABLE

<table>
<thead>
<tr>
<th>TABLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Minimum Diameter of Stems</td>
<td>9</td>
</tr>
<tr>
<td>2 Stuffing Box Dimensions</td>
<td>10</td>
</tr>
</tbody>
</table>

## FIGURE

<table>
<thead>
<tr>
<th>FIGURE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 Gate Valves</td>
<td>11</td>
</tr>
<tr>
<td>A2 Globe Valves</td>
<td>11</td>
</tr>
<tr>
<td>A3 Y-Pattern Globe Valve</td>
<td>11</td>
</tr>
<tr>
<td>A4 Angle Valve</td>
<td>11</td>
</tr>
<tr>
<td>A5 Lift Check Valve, Bolted Cover Plate</td>
<td>12</td>
</tr>
<tr>
<td>A6 Swing Check Valve, Bolted Cover Plate</td>
<td>12</td>
</tr>
<tr>
<td>A7 Y-Pattern Swing Check Valve, Threaded Cover Plate</td>
<td>12</td>
</tr>
<tr>
<td>A8 Y-Pattern Swing Check Valve, Bolted Cover Plate</td>
<td>12</td>
</tr>
</tbody>
</table>

## ANNEX

<table>
<thead>
<tr>
<th>ANNEX</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Valve Types – Figures A1 through A8</td>
<td>11</td>
</tr>
<tr>
<td>B Referenced Standards and Applicable Dates</td>
<td>13</td>
</tr>
</tbody>
</table>
Listing of MSS Standard Practices (as of May, 2013)

MSS SP-42-2013

Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.
127 Park Street, NE, Vienna, VA 22180-4620 • (703) 281-6613 • Fax # (703) 281-6671

SP-6-2012 Standard Finishes for Contact Faces of Pipe Flanges and Connecting-End Flanges of Valves and Fittings
SP-9-2013 Spot Facing for Bronze, Iron, and Steel Flanges
SP-25-2008 Standard Marking System for Valves, Fittings, Flanges, and Unions
SP-42-2013 Corrosion-Resistant Gate, Globe, Angle, and Check Valves with Flanged and Butt Weld Ends (Classes 150, 300 & 600)
SP-43-2013 Wrought and Fabricated Butt-Welding Fittings for Low Pressure, Corrosion Resistant Applications
SP-44-2010 Steel Pipeline Flanges (incl. 2011 Errata Sheet)
SP-45-2003 (R 2008) Bypass and Drain Connections
SP-51-2012 Class 150LW Corrosion Resistant Flanges and Cast Flanged Fittings
SP-53-2012 Quality Standard for Steel Castings and Forgings for Valves, Flanges, Fittings, and Other Piping Components – Magnetic Particle Examination Method
SP-54-2013 Quality Standard for Steel Castings and Forgings for Valves, Flanges, Fittings, and Other Piping Components – Radiographic Examination Method
SP-60-2012 Connecting Flange Joints between Tapping Sleeves and Tapping Valves
SP-61-2013 Pressure Testing of Valves
SP-65-2012 High Pressure Chemical Industry Flanges and Threaded Stubs for Use with Lens Gaskets
SP-67-2011 Butterfly Valves
SP-68-2011 High Pressure Butterfly Valves with Offset Design
SP-69-2003 Pipe Hangers and Supports – Selection and Application (ANSI-approved American National Standard)
SP-70-2011 Gray Iron Gate Valves, Flanged and Threaded Ends
SP-71-2011 Gray Iron Swing Check Valves, Flanged and Threaded Ends (incl. 2013 Errata Sheet)
SP-72-2010a Ball Valves with Flanged or Butt-Welding Ends for General Service
SP-75-2008 Specification for High-Test, Wrought, Butt-Welding Fittings
SP-78-2011 Gray Iron Plug Valves, Flanged and Threaded Ends
SP-79-2011 Socket welding Reducer Inserts
SP-80-2013 Bronze Gate, Globe, Angle, and Check Valves
SP-81-2013 Stainless-Steel or Stainless-Steel-Lined, Bonnetless, Knife Gate Valves with Flanged Ends
SP-83-2006 Class 3000 Steel Pipe Unions Socket Welding and Threaded
SP-85-2011 Gray Iron Globe & Angle Valves, Flanged and Threaded Ends
SP-86-2009 Guidelines for Metric Data in Standards for Valves, Flanges, Fittings, and Actuators (Incl. 2011 Errata Sheet)
SP-88-2010 Diaphragm Valves
SP-91-2009 Guidelines for Manual Operation of Valves
SP-92-2012 MSS Valve User Guide
SP-93-2008 Quality Standard for Steel Castings and Forgings for Valves, Flanges, Fittings, and Other Piping Components – Liquid Penetent 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 Swaged Nipples and Ball Plugs
SP-96-2011 Guidelines on Terminology for Valves and Fittings
SP-97-2012 Integrally Reinforced Forged Branch Outlet Fittings – Socket Welding, Threaded, and Butt-Welding Ends
SP-98-2012 Protective Coatings for the Interior of Valves, Hydrants, and Fittings
SP-99-2010 Instrument Valves
SP-100-2009 Qualification Requirements for Elastomer Diaphragms for Nuclear Service Diaphragm Valves
SP-101-1989 (R 201) Port-Turn Valve Actuator Attachment – Flange and Driving Component Dimensions and Performance Characteristics
SP-102-1989 (R 201) Multi-Turn Valve Actuator Attachment – Flange and Driving Component Dimensions and Performance Characteristics
SP-104-2012 Wrought Copper-Solder-Joint Pressure Fittings
SP-105-2010 Instrument Valves for Code Applications
SP-106-2012 Cast Copper Alloy Flanges and Flanged Fittings: Class 125, 150, and 300
SP-108-2012 Resilient-Seated Cast Iron Eccentric Plug Valves
SP-109-2012 Weld-Fabricated Copper Solder-Joint Pressure Fittings (incl. 2012 Errata Sheet)
SP-110-2010 Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends (incl. 2010 Errata Sheet)
SP-111-2012 Gray-Iron and Ductile-Iron Tapping Sleeves
SP-112-2010 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-113-2012 Connecting Joints between Tapping Machines and Tapping Valves
SP-114-2007 Corrosion Resistant Pipe Fittings Threaded and Socket Welding Class 150 and 1000 (ANSI-approved American National Standard)
SP-115-2010 Excess Flow Valves, 1½ NPS and Smaller, for Fuel Gas Service
SP-116-2011 Service-Line Valves and Fittings for Drinking Water Systems
SP-117-2011 Bellows Seals for Globe and Gate Valves
SP-119-2010 Factory-Made Wrought Bell End Pipe Fittings for Socket-Welding
SP-120-2011 Flexible Graphite Packing System for Rising Stem Valves – Design Requirements
SP-121-2006 Qualification Testing Methods for Stem Packing for Rising Stem Steel Valves
SP-122-2012 Plastic Industrial Ball Valves
SP-123-2013 Non-Ferrous Threaded and Solder-Joint Unions for Use with Copper Water Pipe
SP-124-2012 Fabricated Tapping Sleeves
SP-125-2010 Gray Iron and Ductile Iron In-Line, Spring-Loaded, Center-Guided Check Valves
SP-126-2013 In-Line, Spring-Assisted, Center-Guided Check Valves (Carbon, Alloy Steel, Stainless Steel, & Nickel Alloys)
SP-128-2012 Ductile Iron Gate Valves
SP-129-2003 (R 2007) Copper-Nickel Socket-Welding Fittings and Unions
SP-130-2013 Bellows Seals for Instrument Valves
SP-131-2010 Metallic Manually Operated Gas Distribution Valves
SP-132-2010 Compression Packing Systems for Instrument Valves
SP-133-2010 Excess Flow Valves for Low Pressure Fuel Gas Appliances
SP-134-2012 Valves for Cryogenic Service, including Requirements for Body/Bonnet Extensions
SP-135-2010 High Pressure Knife Gate Valves
SP-136-2007 Ductile Iron Swing Check Valves
SP-137-2013 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
SP-140-2012 Quality Standard Practice for Preparation of Valves and Fittings for Silicone-Free Service
SP-141-2012 Multi-Turn and Check Valve Modifications
SP-142-2012 Excess Flow Valves for Fuel Gas Service, NPS 1½ through 12
SP-143-2012 Live-Loaded Valve Stem Packing Systems
SP-144-2013 Pressure Seal Bonnet Valves
SP-145-2013 Metal Ball Valves for Low Pressure/Low Temperature Plumbing Applications

(R REAHR) Indicates year reaffirmed • Price List Available Upon Request • MSS is an ANSI-accredited American National Standards developer

Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.
127 Park Street, NE, Vienna, VA 22180-4620 • (703) 281-6613 • Fax # (703) 281-6671

MSS SP-42-2013