MSS SP-79-2009

# Socket Welding Reducer Inserts

**Standard Practice**
**Developed and Approved by the**
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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.



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# ERRATA SHEET FOR MSS SP-79-2009
## Socket Welding Reducer Inserts

September 9, 2010

**Note the following correction:**

1. **Page 5, Table 3, Steel Socket Welding Reducer Insert Dimensions and Tolerances.** Under Nominal Pipe Size (NPS) 1½ x 1, the "TYPE" "6M" value (third column from right) should read "1" instead of the existing "2".

This Errata Sheet is included in the Standard Practice.

Future printing of the Standard Practice will include this revised data.

## FOREWORD

This document establishes a Standard Practice for Socket Welding Reducer Inserts produced for a number of years by various manufacturers to varying dimensions although basically similar in principle. Users should note reducers furnished from existing stocks may have slightly different dimensions than shown in Table 3.

# SOCKET WELDING REDUCER INSERTS

## 0. PURPOSE

To provide a Standard Practice establishing requirements for insert type fittings, which effectively, after welded installation, creates a socket welded reduced end fitting, such as Tee, 90 degree E11, Cross, 45 degree E11, Coupling, etc.

## 1. SCOPE

1.1 ***General*** This Standard Practice covers ratings, dimensions, tolerances, finish, marking and material requirements for socket welding reducer inserts for use with ASME B16.11, Class 3000 and 6000 socket welding fittings. Dimensions for these reducer inserts are shown in Table 3.

1.1.1 ***Fitting Sizes/Pipe Correlation*** Fittings covered by this Standard Practice are shown in Table 1, by class, size range and correlation to the schedule number or wall designation of pipe for calculation of ratings.

1.1.2 ***Partial Compliance Fittings*** Fittings with special dimensions and fittings made from non-standard materials may be designed and manufactured by agreement between the manufacturer and the purchaser, provided they are marked in accordance with the requirements for partial compliance fittings of Section 5.1.1 (e).

1.2 ***Service Conditions*** Criteria for selection of fitting type and materials suitable for particular fluid service are not within the scope of this Standard Practice.

1.3 ***Welding*** Except for the CAUTIONARY NOTE (Section 12) and the GAP RECOMMENDATIONS (Figure 1 and Figure 2), installation welding requirements are not within the scope of this Standard Practice. Installation welding shall be done in accordance with the applicable piping system into which the fittings are to be installed.

## 2. REFERENCES

2.1 ***Referenced Standards*** Standards and specifications adopted by this Standard Practice are shown in Annex A, which is part of this Standard Practice. It is not considered practical to identify the specific edition of each standard and specification in the individual references. Instead, the specific edition reference is identified in Annex A. A fitting made in conformance and conforming to this Standard Practice in all other respects will be considered to be in conformance to the Standard Practice, even though the edition reference may be changed in a subsequent addendum to or revision of the Standard Practice.

2.2 ***Codes of Regulations*** A fitting used under the jurisdiction of the ASME Boiler and Pressure Vessel Code, the ASME Code for Pressure Piping, or a governmental regulation is subject to any limitation of that code or regulation. This includes any maximum temperature limitation, or rule governing the use of material at low temperature, or provisions for operation at a pressure exceeding the pressure ratings in this Standard Practice.

## 3. RATINGS

3.1 ***General*** These fittings shall be designated as Class 3000 and Class 6000.

3.1.1 ***Rating Basis*** The schedule of pipe corresponding to each Class of fitting for rating purposes is shown in Table 1. Design temperature and other service conditions shall be limited as provided by the applicable piping code of regulation for the material of construction of the fitting. Within these limits the maximum allowable pressure of a fitting shall be that computed for straight seamless pipe of equivalent material (as shown by comparison of composition and mechanical properties in the respective material specifications). The wall thickness used in such computation shall be that tabulated in ASME B36.10M for the size and applicable manufacturing tolerances and other allowances.

Any corrosion allowance and any variation in allowable stress due to temperature or other design shall be applied to the pipe and fitting alike.

3.1.2 ***Non-Standard Pipe Wall Thickness*** Since ASME B36.10M does not include Schedule 160 thickness for NPS 1/4" and 1/8", the values in Table 2 may be used as the nominal wall thickness of the pipe for rating purposes.

3.2 ***Pressure Test Capability*** Pressure tesing is not required by this Standard Practice, but the fitting shall be capable of withstanding a hydrostatic test pressure required by the applicable piping code for the seamless pipe of material equivalent to the fitting and of the schedule or wall thickness correlated with fitting class.

## 4. SIZE

4.1 ***General*** The reducer insert size is identified by its nominal pipe size (NPS). The largest pipe size of the reducer insert shall be listed first, followed by smaller pipe size.

## 5. MARKING

5.1 ***General*** Each fitting shall be permanently marked with the required identification by stamping, electro-etching, or vibro-tool marking. Fittings shall be marked on the O.D., at the reduced opening end of the fitting, in a location such that the marking will not be obliterated as a result of welding installation.

5.1.1 ***Specific Marking*** The marking shall include (but not limited to) the following:

a) Manufacturer's Name or Trademark.
b) Material Identification

Fittings shall be marked in accordance with the requirements of either the applicable ASTM Fitting Specification(s) A234, A403, A420 or the appropriate Forging Specification(s) A105, A182, A350.

The material log or heat number traceable to the material, shall be part of the material identification.

c) Class Designation 3000 or 6000 as applicable

Alternatively, the designation 3M or 6M as applicable, may be used where M indicates 1000.

d) Size

The nominal pipe size(s), (NPS), related to the end connections.

e) Product Conformance

Full compliance fittings shall be marked with the symbol SP79 to denote conformance with this Standard Practice.

Partial compliance fittings covered in Section 1.1.2 shall not be marked SP79 and if marked with an ASTM designation, the marking shall include the number of the applicable "Supplementary Requirement" for special or non-standard fittings, per ASTM 960-S58.

5.1 ***Omission of Markings*** Where size and type of fitting do not permit all of the above markings, they may be omitted in the reverse order given above.

## 6. MATERIAL

6.1 The material for fittings shall consist of forgings, bar, seamless pipe, or tubular products, which conform to the requirements for melting process, chemical composition requirements of the forging product form listed on Table 1, ASME/ANSI B16.34, including notes.

6.2 ***Non-Standard Materials*** When fittings of other materials reference this Standard Practice for Non-Standard coverage, they shall be marked as agreed between the manufacturer and purchaser and shall not include the identification specified in Section 5.1.1 (b) and (c) of this Standard Practice.

## 7. DESIGN AND CAPABILITY

These reducers are to be used as a reducing adapter between a straight size socket weld fitting and a smaller size pipe. By the nature of the part configuration, the minimum body wall thickness at the shank end will always be greater than the nominal wall thickness of the pipe as established by ASME B36.10M with which they are used.

## 8. DIMENSIONS AND TOLERANCES

8.1 ***General*** The dimensions and tolerances for reducer inserts capable of meeting these requirements are shown in Table 3.

8.1.1 Reducer ends shall be at right angles to the axis and provide adequate surface against which to weld. (See Figure 2)

8.1.2 ***Socket Depth*** The socket depth shall be no less than the minimum values shown in Table 3.

8.1.3 ***Socket Bore*** The inside surface of the socket bore shall present a workmanlike finish that is free of burrs.

8.1.4 ***Minimum Wall*** In order to provide the required shoulder for the fillet weld, the socket wall thickness at the welding end shall be at least 1.25 times the nominal thickness of the corresponding pipe as shown in Table 3, under column heading Wall Min C. Tolerances are shown at the bottom of Page 6.

8.2 ***Additional Tolerances*** Tolerances in addition to those listed in Table 3 are as follows:

(a) ***Concentricity of Bores*** The socket and fitting bores shall be concentric within a tolerance of 0.03 in.

(b) ***Concentricity of Axes*** The maximum allowable variation in the alignment of the fitting bore and socket bore axes shall be 0.06 inches in 1 ft.

## 9. TESTING

9.1 ***Proof Testing*** Proof testing for fittings made from standard materials is not required by this Standard Practice.

## 10. FINISH

10.1 Surfaces must be free of sharp burrs and have workmanship like finish.

## 11. CORROSION PROTECTION

11.1 Fittings shall be effectively protected against corrosion. Excess oils shall be considered unacceptable as corrosion protective media. Specialty protection shall be a matter of agreement between the manufacturer and purchaser.

## 12. CAUTIONARY NOTE REGARDING INSTALLATION OF SOCKET WELDED JOINTS

12.1 To minimize the possibility of cracking of the fillet welds, it is recommended that the shank portion of the reducer insert be withdrawn approxiamately 0.06 inches away from contact with the bottom of the socket before starting the weld. Likewise the pipe is to be kept away from contacting the bottom of the reducer insert socket before welding. (See Figure 2)

12.2 To facilitate effective penetration in the fillet weld, it is further recommended that the Type 1 reducer insert be positioned to provide a root stand off of a minimum of 0.12 inches. (See Figure 1)

## TABLE 1
**Fitting Sizes/Pipe Correlation**

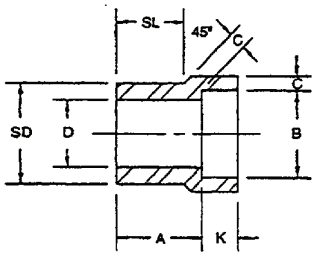
| Class Designation | Sizes NPS | Pipe Used For Rating Purposes | Wall Designation |
|---|---|---|---|
| 3000 | 3/8 — 4 | Schedule 80 | XS |
| 6000 | 3/8 — 3 | Schedule 160 | — |

General Note: This table is not included to restrict the use of pipe of thinner walls with the Reducer Inserts.

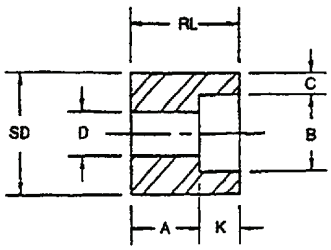
## TABLE 2
**Nominal Wall Thickness of Schedule 160 Pipe, 1/4" & 3/8"**

| NPS | NOM. WALL |
|---|---|
| 1/4 | 0.145 |
| 3/8 | 0.158 |

Dimensions in Inches




TYPE 1

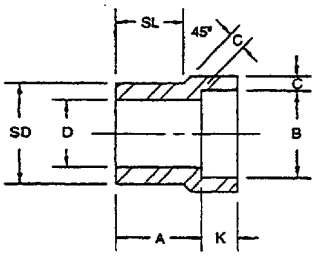



TYPE 2[(a)]

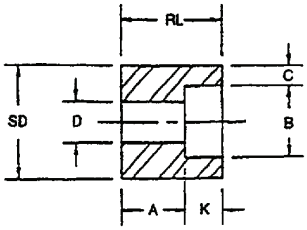
## TABLE 3
### Steel Socket Welding Reducer Insert Dimensions and Tolerances

| NOM. PIPE SIZE | TYPE[(a)] | | SOCKET | | SHANK DIA. | LAYING LENGTH A | | BORE D | | WALL MIN C | | LENGTH | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DIA. | DEPTH MIN. | | | | | | | | SL | | RL (MIN) | |
| | 3M | 6M | B | K | SD | 3M | 6M | 3M | 6M | 3M | 6M | 3M | 6M | 3M | 6M |
| 3/8 X 1/4 | 1 | 1 | .565 | .38 | .675 | .75 | .84 | .364 | .250 | .149 | .181 | .56 | .62 | | |
| | | | | | | | | | | | | | | | |
| 1/2 X 3/8 | 1 | 1 | .700 | .38 | .840 | .81 | .91 | .493 | .359 | .158 | .198 | .62 | .62 | | |
| X 1/4 | 1 | 1 | .565 | .38 | .840 | .81 | .81 | .364 | .250 | .149 | .181 | .62 | .62 | | |
| | | | | | | | | | | | | | | | |
| 3/4 X 1/2 | 1 | 1 | .865 | .38 | 1.050 | .88 | 1.00 | .622 | .464 | .184 | .235 | .69 | .75 | | |
| X 3/8 | 2 | 1 | .700 | .38 | 1.050 | .62 | .88 | .493 | .359 | .158 | .198 | | .75 | 1.06 | |
| X 1/4 | 2 | 2 | .565 | .38 | 1.050 | .69 | .88 | .364 | .250 | .149 | .181 | | | 1.06 | 1.26 |
| | | | | | | | | | | | | | | | |
| 1 X 3/4 | 1 | 1 | 1.075 | .50 | 1.315 | .94 | 1.12 | .824 | .612 | .193 | .274 | .75 | .81 | | |
| X 1/2 | 2 | 1 | .865 | .38 | 1.315 | .62 | 1.12 | .622 | .464 | .184 | .235 | | .81 | 1.12 | |
| X 3/8 | 2 | 2 | .700 | .38 | 1.315 | .69 | .88 | .493 | .359 | .158 | .198 | | | 1.12 | 1.31 |
| X 1/4 | 2 | 2 | .565 | .38 | 1.315 | .75 | .94 | .364 | .250 | .149 | .181 | | | 1.12 | 1.31 |
| | | | | | | | | | | | | | | | |
| 1 1/4 X 1 | 1 | 1 | 1. 340 | .50 | 1.660 | 1.00 | 1.19 | 1.049 | .815 | .224 | .312 | .81 | .88 | | |
| X 3/4 | 2 | 2 | 1.075 | .50 | 1.660 | .69 | .81 | .824 | .612 | .193 | .274 | | | 1.25 | 1.37 |
| X 1/2 | 2 | 2 | .865 | .38 | 1.660 | .75 | .88 | .622 | .464 | .184 | .235 | | | 1.25 | 1.37 |
| X 3/8 | 2 | 2 | .700 | .38 | 1.660 | .81 | .94 | .493 | .359 | .158 | .198 | | | 1.25 | 1.37 |
| X 1/4 | 2 | 2 | .565 | .38 | 1.660 | .88 | 1.00 | .364 | .250 | .149 | .181 | | | 1.25 | 1.37 |
| | | | | | | | | | | | | | | | T |
| 1 1/2 X 1 1/4 | 1 | 1 | 1.685 | .50 | 1.900 | 1.12 | 1.38 | 1.380 | 1.160 | .239 | .312 | .88 | 1.00 | | |
| X 1 | 2 | 2 | 1.340 | .50 | 1.900 | .69 | 1.15 | 1.049 | .815 | .224 | .312 | | 1.00 | 1.31 | |
| X 3/4 | 2 | 2 | 1.075 | .50 | 1.900 | .75 | 1.00 | .824 | .612 | .193 | .274 | | | 1.31 | 1.56 |
| X 1/2 | 2 | 2 | .865 | .38 | 1.900 | .81 | 1.06 | .622 | .464 | .184 | .235 | | | 1.31 | 1.56 |
| X 3/8 | 2 | 2 | .700 | .38 | 1.900 | .88 | 1.12 | .493 | .359 | .158 | .198 | | | 1.31 | 1.56 |

(a) At the option of the manufacturer, Type 2 Reducers may be furnished in Type 1 configuration.
General Note: 3M and 6M symbols denote 3000 and 6000 classes.




TYPE 1




TYPE 2[a]

**TABLE 3** (Continued)
**Steel Socket Welding Reducer Insert Dimensions and Tolerances**

| NOM. PIPE SIZE | TYPE[a] | | SOCKET DIA B | SOCKET DEPTH MIN. K | SHANK DIA. SD | LAYING LENGTH A | | BORE D | | WALL MIN C | | LENGTH SL | | LENGTH RL (MIN) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3M | 6M | | | | 3M | 6M | 3M | 6M | 3M | 6M | 3M | 6M | 3M | 6M |
| 2 X 1 1/2 | 1 | 1 | 1.925 | .50 | 2.375 | 1.25 | 1.53 | 1.610 | 1.338 | .250 | .351 | 1.00 | 1.13 | | |
| X 1 1/4 | 2 | 2 | 1.685 | .50 | 2.375 | .81 | .94 | 1.380 | 1.160 | .239 | .312 | | | 1.50 | 1.62 |
| X 1 | 2 | 2 | 1.340 | .50 | 2.375 | .88 | 1.00 | 1.049 | .815 | .224 | .312 | | | 1.50 | 1.62 |
| X 3/4 | 2 | 2 | 1.075 | .50 | 2.375 | .94 | 1.06 | .824 | .612 | .193 | .274 | | | 1.50 | 1.62 |
| X 1/2 | 2 | 2 | .865 | .38 | 2.375 | 1.00 | 1.12 | .622 | .464 | .184 | .235 | | | 1.50 | 1.62 |
| | | | | | | | | | | | | | | | |
| 2 1/2 X 2 | 1 | 1 | 2.416 | .62 | 2.875 | 1.81 | 1.68 | 2.067 | 1.687 | .273 | .430 | 1.50 | 1.25 | | |
| X 1 1/2 | 2 | 2 | 1.925 | .50 | 2.875 | 1.38 | 1.38 | 1.610 | 1.338 | .250 | .351 | | | 2.12 | 2.12 |
| X 1 1/4 | 2 | 2 | 1.685 | .50 | 2.875 | 1.44 | 1.44 | 1.380 | 1.160 | .239 | .312 | | | 2.12 | 2.12 |
| X 1 | 2 | 2 | 1.340 | .50 | 2.875 | 1.50 | 1.50 | 1.049 | .815 | .224 | .312 | | | 2.12 | 2.12 |
| X 3/4 | 2 | 2 | 1.075 | .50 | 2.875 | 1.56 | 1.50 | .824 | .612 | .193 | .274 | | | 2.12 | 2.12 |
| | | | | | | | | | | | | | | | |
| 3 X 2 1/2 | 1 | 1 | 2.916 | .62 | 3.500 | 1.50 | 2.25 | 2.469 | 2.125 | .345 | .469 | 1.25 | 1.75 | | |
| X 2 | 2 | 2 | 2.416 | .62 | 3.500 | 1.00 | 1.25 | 2.067 | 1.687 | .273 | .430 | | | 1.87 | 2.12 |
| X 1 1/2 | 2 | 2 | 1.925 | .50 | 3.500 | 1.12 | 1.25 | 1.610 | 1.338 | .250 | .351 | | | 1.87 | 2.12 |
| X 1 1/4 | 2 | 2 | 1.685 | .50 | 3.500 | 1.19 | 1.25 | 1.380 | 1.160 | .239 | .312 | | | 1.87 | 2.12 |
| X 1 | 2 | 2 | 1.340 | .50 | 3.500 | 1.25 | 1.25 | 1.049 | .815 | .224 | .312 | | | 1.87 | 2.12 |
| | | | | | | | | | | | | | | | |
| 4 X 3 | 2 | 1 | 3.545 | .62 | 4.500 | 1.31 | | 3.068 | | .375 | | | | 2.38 | |
| X 2 1/2 | 2 | 2 | 2.916 | .62 | 4.500 | 1.50 | | 2.469 | | .345 | | | | 2.38 | |
| X 2 | 2 | 2 | 2.416 | .62 | 4.500 | 1.50 | | 2.067 | | .273 | | | | 2.38 | |
| X 1 1/2 | 2 | 2 | 1.925 | .50 | 4.500 | 1.62 | | 1.610 | | .250 | | | | 2.38 | |
| X 1 1/4 | 2 | 2 | 1.685 | .50 | 4.500 | 1.69 | | 1.380 | | .239 | | | | 2.38 | |

(a) At the option of the manufacturer Type 2 Reducers may be furnished in Type 1 configuration.
General Note: 3M and 6M symbols denote 3000 and 6000 classes.
4" 6000 Reducer inserts are available dimensions on application from manufacturer(s)

TOLERANCES

| | | | | | |
|---|---|---|---|---|---|
| Laying Length A — | Sizes 3/8 thru 3/4 | +0.06"/-0.00"' | Shank Dia- SD — | Sizes 3/8 thru 1 1/2 | +0.010"/-0.010" |
| | Sizes 1 thru 2 | +0.08"/-0,00" | | Sizes 2 thru 3 | +0.02"/ -0.02" |
| | Sizes 2 1/2 thru 4 | +0.10"/-0.00" | | Size 4 | +0.03"/ -0.03" |
| Socker Dia. B — | Sizes 1/4 thru 2 | +0.010"/-0.010" | Shank Length SL — | Sizes 3/8 thru 3/4 | +0.00"/ -0.06" |
| | Sizes 2 1/2 thru 3 | +0.015"/-0.010" | | Sizes 1 thru 2 | +0.00"/ -0.08" |
| Bore D — | Sizes 1/4 thru 2 | +0.03"/-0.03" | | Sizes 2 1/2 thru 4 | +0.00"/-0.10" |
| | Sizes 2 1/2 thru 3 | +0.06"/-0.06" | | | |

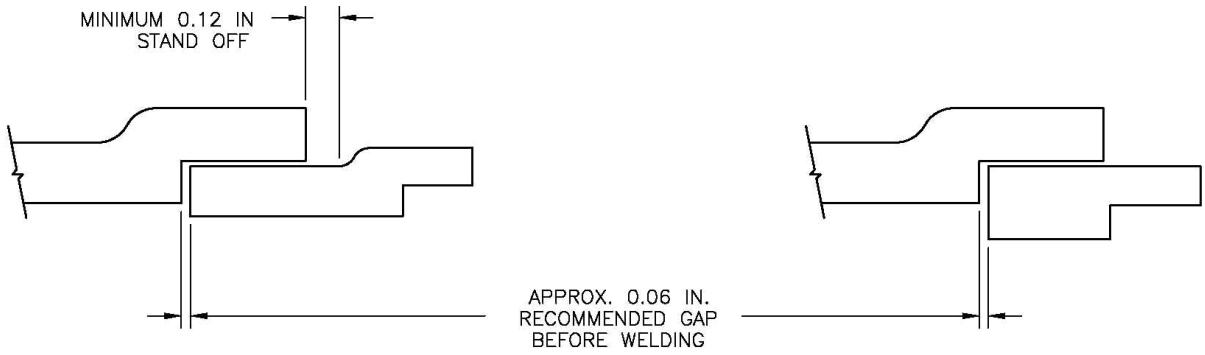



**FIGURE 1**

Gap Recommendations

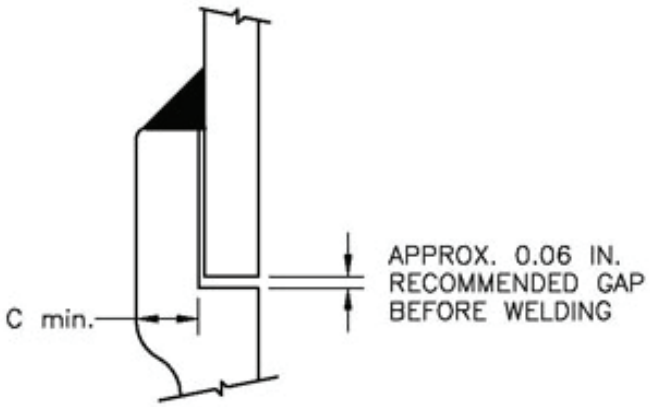



**Figure 2**

Welding Gap and Minimum Socket Wall Thickness

# 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 or Designation

| **ANSI, ANSI/ASME, ASME/ANSI, ASME** | |
|---|---|
| B16.11 – 2005 | Forged Fittings, Socket-Welding and Threaded |
| B16.34 – 2004 | Valves Flanged, Threaded and Welding End |
| B36.10M – 2004 | Welded and Seamless Wrought Steel Pipe |
| B31 | Code for Pressure Piping |
| **ASTM** | **Specifications for:** |
| A105/105M – 2005 | Carbon Steel Forgings for Piping Applications |
| A182/182M – 2008a | Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service |
| A234/234M – 2007 | Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High-Temperature Service |
| A350/A350M – 2007 | Carbon and Low-Alloy Steel Forgings Requiring Notch Toughness Testing for Piping Components |
| A403/A403M – 2007a | Wrought Austentic Stainless Steel Piping Fittings |
| A420/A420M – 2007 | Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low-Temperature Service |
| A960 – 2008 | Common Requirements for Wrought Steel Piping Fittings |

Publications of the following organizations appear in the above list.

| | |
|---|---|
| ANSI | American National Standards Institute<br>25 West 43rd Street<br>New York, NY 10035 |
| ASME | ASME International<br>3 Park Avenue<br>New York, NY 10016-5990 |
| ASTM | ASTM International<br>100 Barr Harbor Drive<br>West Conshohocken, PA 19428-2959 |
| MSS | Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.<br>127 Park Street, NE<br>Vienna, VA 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-9-2008 | Spot Facing for Bronze, Iron and Steel Flanges |
| SP-25-2008 | Standard Marking System for Valves, Fittings, Flanges and Unions |
| SP-42-2009 | Class 150 Corrosion Resistant Gate, Glove, Angle and Check Valves with Flanged and Butt Weld Ends |
| SP-43-2008 | Wrought and Fabricated Butt-Welding Fittings for Low Pressure, Corrosion Resistant Applications |
| SP-44-2006 | Steel Pipeline Flanges |
| SP-45-2003 | (R 08) 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-58-2009 | 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 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-75-2008 | Specification for High Test Wrought Butt Welding Fittings |
| 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-86-2002 | Guidelines for Metric Data in Standards for Valves, Flanges, Fittings and Actuators |
| SP-88-1993 | (R 01) Diaphragm Valves |
| 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, and Fittings and Other Piping Components - Liquid Penetrant Examination Method |
| SP-94-2008 | 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 | (R 07) 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 |
| 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 |

(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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