MSS SP-25

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MSS SP-25-1998

# Standard Marking System for Valves, Fittings, Flanges and Unions

**Standard Practice**
**Developed and Approved by the**
**Manufacturers Standardization Society of the**
**Valve and Fittings Industry, Inc.**
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**An MSS Standard Practice is intended as a basis for common practice by the manufacturer, the user, and the general public. The existence of an MSS Standard Practice does not in itself preclude the manufacture, sale, or use of products not conforming to the Standard Practice. Mandatory conformance is established only by reference in a code, specification, sales contract, or public 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 A.

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

Substantive changes in this 1998 edition are "flagged" by parallel bars as shown on the margins of this paragraph. The specific details of the changes may be determined by comparing the material flagged with that in the previous edition.



Originally approved July, 1934

## FOREWORD

The initial issue of the Standard Marking System was made by the Manufacturer's Standardization Society in 1934. It stated the basic rules but was considered to need more details for general use. A second edition was therefore prepared with additional details and examples and was published in 1936.

The third edition, in 1954, recognized the use of new materials, increased operating temperatures and pressures and added more examples of markings for regular products. In 1958, the fourth edition incorporated relatively minor changes and updates and included some additional examples.

The format was revised for the fifth edition in 1960. It permitted the use of nameplates on valve bodies, and added requirements for making ductile iron products. The 1964 edition broadened the scope of the Marking Standard Practice and revised the examples and sections of the text to reflect changes in piping requirements.

The seventh edition in 1978 was completely revised and rewritten to simplify its cross references and to improve its readability. It also incorporated the marking features of pressure-temperature marking designations contained in American National Standards on products and materials. It was rearranged so that the General Rules were stated in Sections 1 to 11. These were amplified in Sections 12 to 18 which gave specific rules and examples of marking requirements for various products and materials.

In 1993, the eighth edition incorporated relatively minor changes and updates. This 1998 ninth edition includes minor revisions required per current MSS practices.

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# STANDARD MARKING SYSTEM FOR VALVES, FITTINGS, FLANGES AND UNIONS

## 1. SCOPE

1.1 This marking system applies to valves, fittings, flanges, and unions used in piping connections which include (but are not limited to) flanged, soldered, brazed, threaded, or welded joints.

1.2 These specified markings serve to identify the manufacturer, the rating designation, materials of construction and special service limitations imposed by the manufacturer. They are used for product identification and to assist in proper application.

## 2. GENERAL MARKING REQUIREMENTS

2.1 Each product of a size and shape permitting legible marking shall be marked in accordance with the provisions of this Standard Practice.

2.2 Markings shall be applied to the body of valves, fittings and the nut of onions or on an identification plate. For quarter turn valves, markings shall be applied to the body, identification plate, or handle. Markings on covered quarter turn valve handles do not need to be integral with the base handle material.

The markings shall consist of numerals, letters, or symbols cast, forged, stamped, or otherwise made integral with the product; or markings on an identification plate attached to the product; or both. Where stamping is used on pressure-containing walls, low stress stamps which produce a round bottom impression shall be used; such low stress stamps are not required on flanged edges or on raised pads provided for marking purposes.

Markings obliterated during manufacturing of steel products may be replaced by weld deposition or welded plates when permitted, or stamping, at the option of the manufacturer.

2.3 Markings indicating conformance with recognized documents such as ASME Boiler Pressure Vessel Codes, API, Factory Mutual, and Underwriter's Laboratories may be applied only by authorized, licensed, or approved manufacturers. Such markings shall be applied only to products fully conforming to the code qualification requirements, and may be shown on the body or an attached plate, at the option of the manufacturer.

2.4 Manufacturers may apply markings indicating conformance with codes and standards such as ANSI, ASME, MSS, AWWA, for example, on products which fully conform, to the standards. Such markings may be shown on the body or on an attached plate.

2.5 Nothing in this Standard Practice shall be construed as prohibiting the use of additional markings such as "Made in U.S.A.", catalog reference numbers, pattern numbers, patent numbers, dates, customer specification numbers, etc. Product markings indicating special designs, particular requirements, or specific limitations, should also carry additional special marking to distinguish them from regularly available standard products. All additional markings shall be applied in such a manner as to avoid confusion with standard markings.

2.6 Flow direction indication shall be marked on unidirectional valves. Commonly used markings include arrows, or the words "inlet" or "outlet" or high pressure side marked at an appropriate end.

## 3. MANUFACTURER'S NAME OR TRADEMARK

All products within the scope of this Standard shall be marked with the Manufacturer's name, trademark, or symbol, unless size or shape do not permit.

## 4. RATING DESIGNATION

4.1 The expression "Rating Designation" includes the intent of the expressions "Pressure Designation", "Service Designation", "Pressure Class", and similar terms used to define the pressure/fluid/materials temperature limitation of the product. The Rating Designation shall be shown by one of the systems in the paragraphs that follow.

4.1.1 The Rating Designation for products may be designated by the class numbers alone, e.g., a steam pressure rating or a pressure class designation. Pressure Rating Values may be abbreviated by using "M" to designate units of one thousand (for example, 3M in place of 3000).

4.1.2 The Rating Designation for products which conform to recognized standards, but are not suitable for the full range of pressures or temperatures of those standards may be marked as prescribed in Subsection 4.1.1 as appropriate and shall also show the numbers and letters representing the pressure rating at the limiting condition.

4.1.3 The Rating Designation for products which do not conform to recognized national product standards may be shown by numbers and letters representing the pressure ratings at maximum and minimum temperatures. If desired, the rating designation may be shown as the maximum pressure followed by "CWP" and the allowed pressure at the maximum temperature (for example, 2000 CWP 725/925 F). Products intended for ambient room temperature may show the allowable pressure followed by letters CWP or equivalent (see note [a]).

4.2 For applications where marking in metric or SI notation is required, the units of preference will be bar or kilopascals (kPa) of gauge pressure and degrees Celsius. Numbers designating pressure will be followed by the term, "bar or kPa", and temperature designation by the letter, "C". Conversion of direct pressure values is permitted (see note [b]), but conversion of ANSI classes to "metric equivalents" should not be attempted.

4.3 Products made to attach to specific pipe may be marked with the appropriate pipe schedule number or pipe wall designation.

NOTES:

[a] CWP (Cold Working Pressure) is the maximum pressure rating allowed under normal "ambient" temperature conditions, which are usually understood to be -20°F to 100°F (-29°C to 38°C). Certain "ambient temperature" standards and practices have a different range or are limited by recognized Codes and Standards. Consult the applicable Codes, Standards, or Manufacturer's Technical Data for specific information.

Other symbols which are in common usage throughout the industry include:

| | | |
|---|---|---|
| SP – Steam pressure<br>WSP – Working steam pressure<br>S – Steam | } | Correspond to SWP (Steam Working Pressure) |
| WO – Water, Oil pressure<br>OWG – Oil, water, gas pressure<br>WOG – Water, oil, gas pressure<br>GLP – Gas, liquid pressure<br>WWP – Working water pressure<br>W – Water pressure | } | Correspond to CWP |

These markings may be continued in use at the manufacturer's option unless prohibited by Codes, Standards, or Specifications applicable to a particular product. Applicable symbols listed in this Note may be substituted for those used in the statements and examples in this Standard.

[b] The pressure unit of 1 bar is equal to 14.5 pounds per square inch. The conversion factor of 1 bar is equal to 100 kilopascals.

4.4 Special markings for Rating Designation may be specified in individual product standards.

## 5. MATERIAL DESIGNATION

5.1 Products made of conforming materials shall be marked in accordance with ASTM, ASME, or other recognized materials specifications, as described in the Product Marking sections which follow. In a composite structure made of several materials, the material which must be marked is the one which is most important to its pressure-temperature rating. Products may be marked instead with proprietary materials designations, provided confusion is avoided with nationally recognized material standards symbols, and provided confusion is avoided with other sections of this Standard Practice.

5.2 Products made of one material and lined with another shall carry the regular markings specified by this Standard Practice and additional markings which indicate that the product is lined and state the material used for lining.

5.3 Material markings are not required on ASTM B 61, B 62 and B 584 alloys, C 83800 and C 84400, cast copper alloy threaded or solder-joint fittings, flanges, unions, valves, or on wrought copper solder-joint products.

5.4 Material marking is not required for gray iron, except as shown in subsection 12.2. Alloyed gray iron may be identified by a manufacturer's symbol provided that confusion with standard symbols is avoided.

5.5 The symbols for metals shown in Table 1 are in common use and may be used as standard references for marking nameplates and bodies. Non-ferrous body materials may be marked with the symbols shown. Products with steel bodies shall be marked with the ASTM specification grade identification symbol. Other symbols including manufacturer's tradenames and material codes are permitted if confusion is avoided with standard symbols.

5.6 The non metallic symbols, shown in Table 2, are typical. The use of specific names and tradenames is also permitted if confusion is avoided with standard symbols. For valves trimmed with composite construction elements, the dominant functional material should be named.

TABLE 1 — COMMON SYMBOLS FOR METALLIC MATERIALS

| | |
|---|---|
| Aluminum ..... AL | Soft Metal (for example, lead babbitt, copper, etc.) ..... SM |
| Brass ..... BRS | Stainless Steel ..... SS |
| Bronze ..... BRZ | Steel, 13 Chromium ..... CR13 |
| Carbon Steel ..... CS | Steel, 18 Chromium ..... CR18 |
| Gray Iron ..... GI | Steel, 28 Chromium ..... CR28 |
| Copper-Nickel Alloy ..... CU-NI | Steel, 18-8 ..... 18-8 |
| Ductile Iron ..... DI | Steel, 18-8 with Molybdenum ..... 18-8SMO |
| Hardfacing ..... HF | Steel, 18-8 with Columbium ..... 18-8SCB |
| Integral Seats ..... INT | Surface Hardened Steel (for example nitrided surfaces) ..... SH |
| Malleable Iron ..... MI | |
| Nickel-Copper Alloy ..... NI CU | |

TABLE 2 — COMMON SYMBOLS FOR NON METALLIC MATERIALS

| | |
|---|---|
| Asbestos ..... ASB | Isoprene Rubber ..... IR |
| Butadiene Rubber ..... BR | Natural Rubber ..... NR |
| Butyl Rubber ..... IIR | Nitrile or Buna N Rubber ..... NBR |
| Chloroprene or neoprene ..... CR | Nylon ..... NYL |
| Chlorosulfonated Polyethylene ..... CSM | Polyacrylic Rubber ..... ACM |
| Chlorotrifluoreoethylene ..... CIFE | Poly Vinyl Chloride ..... PVC |
| Ethylene-Propylene Diene Monomer ..... EPDM | Silicone Rubber ..... SI |
| Ethylene-Propylene Rubber ..... EPR | Styrene Butadiene Rubber ..... SBR |
| Ethylene-Propylene Ter polymer ..... EPT | Tetrafluoroethylene ..... TFE |
| Flexible Graphite ..... GRAF | Thermophastic material ..... T PLAS |
| Fluorocarbon Rubber ..... FKM | Thermosetting material ..... T SET |
| Fluorinated Ethylene Propylene ..... FEP | |

## 6. MELT IDENTIFICATION

If part size permits and when required by the product or materials specification standard, carbon, alloy and stainless steel castings and forgings used for fittings, flanges, valve bodies, bonnets and covers shall be marked with a melt identification and material symbol. Melt identification is not required for materials of subsections 5.3 and 5.4.

## 7. VALVE TRIM IDENTIFICATION

7.1 Trim identification marking is required on the identification plate for all flanged end and butt welding end steel or flanged end ductile iron body valves having trim material which is different than the body material. Symbols for material identification can be found in Tables 1 and 2 of this Standard Practice. If all trim materials are the same, the identification plate may be marked with the word "Trim", followed by the appropriate material symbol.

7.1.1 Trim identification marking for gate, globe, angle, and cross valves or valves with similar design characteristics shall consist of three material symbols. The symbols may either be preceded by the words "STEM", "DISC", "SEAT", or used alone. If used alone, the symbols shall appear in the following order. The first symbol shall indicate the material of the stem, the second shall indicate the material of the disc or wedge face and the third shall indicate the material of the seat face.

7.1.2 When required, the trim identification marking for check type valves having no stem shall consist of two material symbols. The symbol may either be preceded by the words "DISC", "SEAT", or if used alone, the first symbol shall indicate the material of the disc face and the second, the material of the seat face.

7.1.3 Plug, ball, and butterfly valves or other quarter-turn valves require no trim identification marking unless the plug, disc, or closure member, or stem or both are different material than the body. In such cases, trim identification symbols on the nameplate will first indicate the material of the stem, second indicate the material of plug, ball, disc or closure member. Those valves with seating or sealing materials different than the

body material shall add a third symbol to indicate the material of the seat. In these cases, symbol identification shall be preceded by the words "STEM", "DISC", (or "PLUG", "BALL", or "GATE", as appropriate) and the word "SEAT". If used alone, the material symbols must appear in the order given.

## 8. SIZE DESIGNATION

8.1 Size markings will be in accordance with the product-referenced Marking Requirements in Sections 12 to 18.

8.2 Size designation for products designed with a single nominal bore shall consist of numerals comprising the nominal pipe size of the connecting ends. The word "nominal" indicates the numerical identification associated with pipe sizes. It does not necessarily correpond to the valve, pipe, or fitting inside diameter. For applications where marking in metric or SI notation is required, the equivalent metric numerical size, as defined in Table 3, shall be given, preceded by "DN" (Diameter Nominal).

TABLE 3 — SIZE IDENTIFICATION — NOMINAL DIAMETER

| Customary NPS | Metric DN | Customary NPS | Metric DN |
|---|---|---|---|
| 1/8 | 3 | 18 | 450 |
| 1/4 | 6 | 20 | 500 |
| 3/8 | 10 | 22 | 550 |
| 1/2 | 15 | 24 | 600 |
| 3/4 | 20 | 26 | 650 |
| 1 | 25 | 28 | 700 |
| 1 1/4 | 32 | 30 | 750 |
| 1 1/2 | 40 | 32 | 800 |
| 2 | 50 | 36 | 900 |
| 2 1/2 | 65 | 40 | 1000 |
| 3 | 80 | 42 | 1050 |
| 4 | 100 | 48 | 1200 |
| 5 | 125(1) | 52 | 1300 |
| 6 | 150 | 54 | 1350 |
| 7 | 175(1) | 60 | 1500 |
| 8 | 200 | 64 | 1600 |
| 9 | 225(1) | 72 | 1800 |
| 10 | 250 | 80 | 2000 |
| 12 | 300 | 88 | 2200 |
| 14 | 350 | 96 | 2400 |
| 16 | 400 | 104 | 2600 |

Supplementary Information

(1) Use of these sizes should be avoided for new design and construction.

8.3 Products having internal elements which are the equivalent of one pipe size or more different than the end size may have dual markings unless specified otherwise in a product standard, or as indicated in subsections 8.3.1 and 8.3.2. Unless these exceptions exist, the first number shall indicate the connecting end pipe size and the second the minimum bore diameter or the pipe size corresponding to the closure size, for example, 6 x 4, 4 x 2-1/2, 30 x 24.

8.3.1 For valves, at the manufacturer's option, triple marking size designation may be employed. If triple size designation is used, the first number shall indicate the connecting end size at one end, the second the minimum bore diameter or pipe size corresponding to the closure size and the third shall indicate the connecting end size at the other end. For example, 24 x 20 x 30 marking on a valve designates a size 24 connection, a size 20 nominal center section and a size 30 connection.

8.3.2 Fittings with multiple outlets may be designated at the manufacturer's option in a "run x run x outlet" size method. For example, 30 x 30 x 24 marking on a fitting designates a product with size 30 end connections and a nominal size 24 connection between.

## 9. IDENTIFICATION OF THREADED ENDS

9.1 Fittings, flanges and valve bodies whose connecting ends are threaded, other than American National Standard Pipe Thread or American National Standard Hose Thread, shall be marked to indicate the type of thread. The style of marking may be the manufacturer's own symbol provided that confusion with standard symbols is avoided. The marking to designate threaded ends may be a tag or other manufacturer's mark permanently attached or applied to the valve or valve body. Fittings having left-hand threads shall be marked with the letters "LH" on the outside wall of the appropriate opening.

9.2 Marking of products having ends threaded for API casing, tubing or drill pipe shall include the following:

a) Nominal size

b) The letters API

c) The thread type symbol as listed in Table 4

TABLE 4 — EXAMPLES OF THREADED TYPE SYMBOLS

| | |
|---|---|
| Casing (short round thread) | CSG |
| Casing (long round thread) | LCSG |
| Casing (buttress thread) | BCSG |
| Casing (extreme-line) | XCSG |
| Line pipe | LP |
| Tubing (non-upset) | TBG |
| Tubing (external-upset) | UP TBG |

9.3 Marking of products using other pipe threads shall include the following:

a) Nominal pipe, tubing, drill pipe or casing size.

b) Outside diameter or upset diameter of pipe, tubing, drill pipe or casing.

c) Name of thread

d) Number of threads per inch.

Example: 6-5/8 – 7 DBX CSG 10
(note: DBX = Diamond B, 10 threads)

## 10. RING-JOINT FACING IDENTIFICATION

All connecting end flanges having standard ring-joint grooves manufactured in accordance with API 6A shall be marked with the letter "R" and the corresponding ring number.

## 11. PERMISSIBLE OMISSION OF MARKINGS

11.1 The manufacturer's name, trademark or symbol shall be shown on all products marked in accordance with this Standard Practice, unless size or shape do not permit.

11.2 When shape or size does not permit inclusion of all the required markings, body and/or identification plate markings, as appropriate to the product and material, may be omitted in the following order. When omitting markings, size is least important and first to be omitted and material designation is most important and last to be omitted.

a) Size

b) Thread identification (See subsection 9.1)

c) Valve trim identification

d) Melt identification

e) Rating designation

f) Material designation

## 12. MARKING REQUIREMENTS FOR FLANGES, FLANGED FITTINGS, AND FLANGED UNIONS

12.1 Gray iron flanges shall be marked as follows. See Section 11 for permissible omission of markings.

12.1.1 Gray iron flanges, Class 25 (ASME B16.1)

(Example)

Manufacturer's name or trademark – AB CO
Rating designation. . . . . .25

12.1.2 Gray iron flanges (ASTM A 126 Class B), Class 125 and 250 (ASME B16.1) Sizes 12 and below

(Example)

Manufacturer's name or trademark – AB CO
Supplemental rating/material designation . . . . . .125B or 125
(Ref. subsection 12.2 and ASME B16.1) — B

12.1.3 Gray iron flanges, Class 125 and 250 (ASME B16.1) Sizes 14 and above

(Example)

Manufacturer's name or trademark – AB CO

12.1.4 Gray iron flanges, Class 800 (ASME B16.1)

(Example)

Manfacturer's name or trademark – AB CO

12.2 Gray iron flanged fittings shall be marked with:

a) Manufacturer's name or trademark

b) Rating designation

c) Supplemental material designation is required by ASME B16.1 for nominal pipe size 12 and below.

d) Gray iron flanged fittings rated in accordance with ASME B16.1 shall have rating markings as listed in Table 5.

TABLE 5 — ASME B16.1 RATING MARKINGS

| Rating Class | Nominal Pipe Sizes | Numerals |
|---|---|---|
| 25 | All | 25 |
| 125 | 1 to 12<br>14 to 24<br>30 to 48 | 125<br>100<br>50 |
| 250 | 1 to 12<br>14 to 24<br>30 to 48 | 250<br>200<br>100 |
| 800 | All | 800 |

12.2.1 Gray iron fittings, Class 25 (ASME B16.1). All sizes

(Example)

Manufacturer's name or trademark – AB CO
Rating designation. . . . . .25

12.2.2 Gray iron flanged fittings, Class 125 and 250. (ASME B16.1)
Sizes 12 and below

(Example)

Manufacturer's name or trademark – AB CO
Supplemental rating/material designation . . . . . .125B or 125
(Ref. ASME/ANSI B16.1) B

12.2.3 Gray iron flanged fittings, Class 125 and 250 (ASME B16.1)
Size 14 and above

(Example)

Manufacturer's name or trademark – AB CO
Rating designation appropriate to class and size of fitting – 25, 50, 100 or 200

12.2.4 Gray iron flanged fittings, Class 800 (ASME B16.1). All Sizes

(Example)

Manufacturer's name or trademark – AB CO
Rating designation. . . . . .800

12.3 Gray iron flanged unions Class 125 and Class 250 shall be marked with:

(Example)

Manufacturer's Name or Trademark – AB CO

12.4 Bronze flanges and flanged unions shall be marked with:
Manufacturer's name or trademark
Example:

12.4.1 Bronze flanges (ASME B16.24) Classes 150 and 300

(Example)

Manufacturer's Name or Trademark – AB CO

12.4.2 Brass or Bronze Flanged Unions Class 150

(Example)

Manufacturer's Name or Trademark – AB CO

12.5 Bronze, Brass, and non-ferrous flanged fittings shall be marked with:

a) Manufacturer's name or trademark

b) The numerals 150 or 300, depending on the pressure class. (For other cases, refer to Section 4).

c) Size

Example:

12.5.1 Bronze Flanged Fittings (ASME B16.24) Class 150 and 300

(Example)

Manufacturer's Name or Trademark – AB CO
Service Designation appropriate to pressure class. . . . . 150 or 300
Size . . . . . .2

12.5.2 Forged or Wrought Non-Ferrous Materials flange

(Example)

Manufacturer's Name or Trademark – AB CO
Material Designation ... See Notes (a) and (b))
Rating Designation . . . . . .150
Size . . . . . .2

12.6 Ductile iron flanges and flanged fittings shall be marked with:

a) Manufacturer's name or trademark

b) Nominal Rating (e.g. 150, 300)

c) "Ductile" ("DI" where space is limited)

d) Size (may be omitted from reducing flanges and reducing flanged fittings).

Notes:

(a) When made of a listed ASTM material, show ASTM Specification number and grade. Example: B148 Alloy C 95200.

(b) When a tradename is the only available identification, it shall be spelled out.

Example:

12.6.1 Ductile Iron. A size 6 in ductile iron (ASTM A 395) fitting made to the same dimensions is a Class 150 steel fitting (ASME B16.5).

(Example)
Manufacturer's Name or Trademark – AB CO
Material Designation . . . . . Ductile or DI
Rating Designation . . . . . .150

12.7 Steel flanges, and flanged fittings and flanged unions shall be marked as follows: (See Section 11 for permissible omission of markings.)

a) Manufacturer's name or trademark

b) Material Designation. Cast steel flanges and flanged fittings shall be marked with the ASTM specification grade identification symbol and the melt number or melt identification and may also be marked with the word "Steel". Forged flanges and forged or fabricated flanged fittings shall be marked with the ASTM specification number and grade identification symbol. When more than one material or grade of materials is used, each shall be identified. A manufacturer may supplement the standard material designations with his trade designation for the grade of steel, but confusion with standard symbols must be avoided.

c) Rating Designation

d) Temperature. Temperature markings are not normally required on flanges and flanged fittings, but if marked, the temperature shall be shown with the corresponding limiting pressure for the material.

e) Size. The nominal pipe size shall be given, but may be omitted from reducing flanges and reducing flanged fittings.

f) Ring-Joint Flange Ring Number, when applicable.

g) Melt identity (when specified)

Examples:

12.7.1 A size 4 Class 150 cast carbon steel (ASTM A 216 WCB) fitting, conforming to ASME B16.5 dimensions.

(Example)
Manufacturer's Name or Trademark — AB CO
Conformance to ASME B16.5 . . . . . B16
Material Designation . . . . . .WCB
Rating Designation . . . . . .150
Size . . . . . .4
Melt Identification
(See Section 6) . . . . . .000

12.7.2 A size 8 Class 150 cast 1-1/4% chromium molybdenum steel (ASTM A 217 WC6) flanged fitting with ring joint facing, conforming to ASME B16.5 dimensions.

(Example)
Manufacturer's Name or Trademark — AB CO
Conformance to ASME B16.5 . . . . . B16
Material Designation . . . . . .WC6
Rating Designation . . . . . .1500
Size . . . . . .8
Ring Joint Number . . . . . R50
Melt Identification
(See Section 6) . . . . . .000

12.7.3 A size 2 ANSI Class 300 cast 18% Chromium 8% Nickel Molybdenum stainless steel (ASTM A 351 Grade CF8M) fitting, conforming to ASME B16.5 dimensions.

(Example)
Manufacturer's Name or Trademark — AB CO
Conformance to ASME B16.5 . . . . . B16
Material Designation . . . . . .CF8M
Rating Designation . . . . . .300
Size . . . . . .2
Melt Identification
(See Section 6) . . . . . .000

12.7.4 A size 4 Class 150 cast carbon steel (ASTM A 216 WCB) flange, conforming to ASME B16.5 dimensions.

(Example)
Manufacturer's Name or Trademark — AB CO
Conformance to ASME B16.5 ..... B16
Material Designation .....WCB
Rating Designation .....150
Size .....4
Melt Identification
(See Section 6) .....000

12.7.5 A size 6 Class 1500 forged alloy steel (ASTM A 182 Grade F1) flange with ring joint flange facing, conforming to ASME B16.5 dimensions.

(Example)
Manufacturer's Name or Trademark — AB CO
Conformance to ASME B16.5 ..... B16
Material Designation ..... A 182 F1
Rating Designation .....1500
Size .....6
Ring Joint Number ..... R46
Melt Identification .....000

12.7.6 A size 3 Carbon Steel, 2000 psi rated flanged union for ambient temperatures or Carbon Steel, 6000 psi rated flanged union for ambient temperatures.

(Example)
Manufacturer's Name or Trademark – AB CO
Material Designation .....STEEL
Rating Designation appropriate
to pressure class. .....2000 CWP or 6000 CWP
Size .....3

## 13. MARKING REQUIREMENTS FOR THREADED FITTINGS AND UNION NUTS

13.1 Threaded gray iron fittings shall be marked as follows:
(See Section 11 for permissible omission of markings.)

a) Manufacturer's name or trademark

b) Rating Designation, with the exception that rating description is not required on Class 125 gray iron fittings or gray iron drainage fittings.

c) Materials markings are not required on gray iron threaded fittings except that alloy cast threaded fittings shall be marked with a word or symbol that will properly identify the material. The manufacturer's own symbol may be used provided confusion with standard symbol is avoided.

Examples:

13.1.1 Gray Iron, Class 125 (ASME B16.4) or Gray Iron Drainage (ASME B16.12)

(Example)
Manufacturer's Name or Trademark – AB CO

13.1.2 Gray Iron, Class 250 (ASME B16.4)

(Example)
Manufacturer's Name or Trademark – AB CO
Rating Design .....250

13.2 Bronze and brass threaded fittings and union nuts shall be marked as follows: (See Section 11 for permissible omission of markings.)

a) Manufacturer's name or trademark

b) Rating Designation. Rating designation is not required on Class 125 cast bronze threaded fittings. Class 250 fittings will be marked "250"

c) Size, when part has space.

Examples:

13.2.1 Bronze, Class 125 (ASME B16.15)

(Example)
Manufacturer's Name or Trademark — AB CO

13.2.2 Bronze, Class 250 (ASME B16.15)

(Example)
Manufacturer's Name or Trademark — AB CO
Rating Designation ..... 250

13.2.3 Brass or Bronze, Class 125 union, or Brass or Bronze, Class 250 union

(Example)
Manufacturer's Name or Trademark – AB CO
Rating Designation
(Class 250 only) .....250

13.2.4 A size 3 Brass or Bronze, Class 300 union

(Example)
Manufacturer's Name or Trademark – AB CO
Rating Designation .....300
Size .....3

13.3 Non-ferrous alloys threaded fittings other than brass or bronze shall be marked as follows: (See Section 11 for permissible omission of markings.)

a) Manufacturer's Name or trademark

b) Rating Designation
c) Material Designation
Example:

Ni-Cu 505 fitting to ASME B16.15
Class 250 dimensions:

(Example)
Manufacturer's Name or Trademark – AB CO
Rating Designation .....250
Material Designation ..... Monel 505

13.4 Ductile Iron Class 300 Threaded Fittings and Threaded Unions shall be marked as follows: (See Section 11 for permissible omission of markings.)

a) Manufacturer' name or trademark

b) Material Designation. When shape and size permits, ductile iron threaded fittings and threaded union nuts shall be marked with the word "Ductile". When size and shape restrictions do not permit marking of the complete word, the letters "DI" shall be substituted.

c) Rating Designation. Class 300 ductile iron threaded fittings and threaded union nuts shall be marked with the numerals "300" designating the nominal service rating. When heavier patterns are used to cast ductile iron fittings rated otherwise, they shall be marked with the numerals designating the maximum cold working pressure in psi supplemented by the letters "CWP".

Example:

13.4.1 Ductile Iron, Class 300 threaded fitting or threaded union nut.

(Example)
Manufacturer's Name or Trademark – AB CO
Material Designation .....DUCTILE or DI
Service Designation .....300

13.5 Malleable iron threaded fittings and threaded unions shall be marked with:

a) Manufacturer's name or trademark

b) Material Designation. Class 150 malleable iron threaded fitting and Classes 150, 250 and 300 malleable iron threaded unions do not require material marking.

Class 300 malleable iron threaded fittings shall be identified with the letters "MI", applied in a manner to avoid confusion with other markings.

c) Rating Designation. Class 150, 250, and 300 malleable iron unions and Class 300 malleable iron threaded fittings shall be marked with their respective numerals to designate their nominal rating. At the manufacturer's option, the numerals designating the cold working pressure supplemented by the letters "CWP", may be added.

d) Size. Size markings are not required on Class 150 malleable iron threaded fittings.

Examples:

13.5.1 Malleable Iron, ASME B16.3 Class 150 fitting

(Example)
Manufacturer's Name or Trademark – AB CO

13.5.2 Malleable Iron, ASME B16.3 Class 300 fitting, size 1-1/2

(Example)
Manufacturer's Name or Trademark – AB CO
Material Designation ..... MI
Rating Designation .....300
Size ..... 1-1/2

13.5.3 Malleable Iron, Class 150 and 250 and Class 300 (ASME B16.39) union

(Example)
Manufacturer's Name or Trademark – AB CO
Service Designation appropriate to pressure class..... 150, 250, or 300
Size .....2

13.6 Ferrous threaded plugs, bushings and locknuts shall be marked with:
Manufacturer's name or trademark
Example:

13.6.1 Ferrous Plugs, Bushings, and nuts (ASME B16.14)

(Example)
Manufacturer's name or trademark – AB CO

13.7 Steel Threaded Fittings and Union Nuts shall be marked as shown: (See Section 11 for permissible omission of markings.)

a) Manufacturer's name or trademark

b) Material Designation. Threaded fittings made of carbon steel, or forged or barstock carbon steel, or alloy cast steel, or forged or barstock alloy steel shall be marked with the word "STEEL", or the ASTM specification number, or the grade identification symbols designated in ASTM, AISI, or MSS specifications. Austenitic stainless steel threaded fittings need carry only the grade identification symbols.

c) Rating designation. Cast steel, forged steel, and barstock steel threaded fittings shall be marked with the pressure class or with the numerals designating the cold working pressure in psi supplemented by the letters "CWP". Forged steel and barstock fittings shall be marked with numerals comprising the Pressure Class designation tabulated in ASME B16.11. When the nominal rating is other than specified in ASME or MSS standards, the numerals comprising the maximum pressure in psi, supplemented by one or more of the standard sumbols identifying the class of service, shall be used.

(d) Size
Examples:

13.7.1 A size 3 Cast Steel threaded fitting designed for 1000 psi ambient temperature service.

(Example)
Manufacturer's Name or Trademark – AB CO
Material Designation .....STEEL
Rating Designation ..... 1000 CWP
Size .....3

13.7.2 A size 1-1/4 carbon steel (ASTM A 105) threaded fitting to ASME B16.11 Pressure Class designation 3000.

(Example)
Manufacturer's Name or Trademark – AB CO
Material Designation .... A 105, B16 or WPB
Rating Designation .....3000
Size ..... 1-1/4

13.7.3 A size 3/4 alloy steel (ASTM A 182 Grade F1) threaded fitting to ASME B16.11 Pressure Class designation 6000.

(Example)
Manufacturer's Name or Trademark – AB CO
Material Designation ..... F1, B16 or WP1
Rating Designation .....6000
Size .....3/4

13.7.4 A size 1 Class 3000 forged alloy steel (ASTM A 182 F304) fitting

(Example)
Manufacturer's Name or Trademark – AB CO
Material Designation ..... F304 or WP304
Rating Designation .....3000
Size .....1
Melt Identity (when specified) .....000

13.7.5 A size 3 Carbon Steel, Class 300 union with Bronze seats, recommended by the manufacturer for 300 psi at 550°F

(Example)
Manufacturer's Name or Trademark – AB CO
Material Designation .....STEEL
Service Designation .....300 at 550F
Size .....3

13.7.6 A size 3 Carbon Steel Union for Class 2000, with Threaded Ends, marked on nut

(Example)
Manufacturer's Name or Trademark – AB CO
Material Designation .....A 105
Service Designation .....2000
Size .....3

13.7.7 A size 2 Carbon Steel Union with socket welding ends or threaded ends, Class 3000, marked on nut.

(Example)
Manufacturer's Name or Trademark – AB CO
Material Designation ..... A 105
Service Designation .....3000
Size .....2

## 14. MARKING REQUIREMENTS FOR WELDING AND SOLDER JOINT FITTINGS AND UNIONS

14.1 Steel butt-weld and socket weld fittings and union nuts shall be marked as follows. (See Section 11 for permissible omission of markings.)

a) Manufacturer's name or trademark

b) Material Designation. Forged carbon and Alloy Steel Socket Welding End fittings and unions shall be marked with the grade identification symbols designated in ASTM, or the specification numbers designated in AISI or MSS specifications. Austenitic stainless steel socket welding end fittings and unions need carry only the grade identification symbols. Butt Welding fittings conforming to the requirements of ASTM Specifications A 234, A 403 (excepting light wall fittings manufactured to MSS SP-43), A 420, B 361, B 363 and B 366 shall use marking symbols consisting of the prefix "WP" added to the ASTM-specified grade identification symbol.
Examples: WPB, WP304, WPL6, WP6061, WPT1. If the fittings are of welded construction, the material marking will be supplemented with the suffix letter "W".
MSS SP-75 High Test Wrought Welding Fittings have grade identification consisting of the letters "HY" and the numerals comprising the minimum specified yield strength in thousands of pounds per square inch (ksi).
Example: WPHY-52.
MSS SP-43 Corrosion Resistant Schedule 5S and 10S Welding Fittings have the grade identification prefixed by the letters "CR" rather than the "WP" which designates ASME B16.9 conformance.
Example: CR304.

c) Rating Designation. Socket welding end products shall be marked with the numerals comprising the Pressure Class

designation as tabulated in ASME B16.11. Butt welding end products which carry ratings the same as the pipe with which they are intended to be used, shall be marked with the pipe schedule number or the pipe nominal wall thickness designation.

d) Size

e) Melt identity (when specified)

Examples:

14.1.1 A size 4 carbon butt-welding steel fitting matching a Schedule 40 wall thickness, made from ASTM A 234 material, and conforming to ASME B16.9.

(Example)

Manufacturer's Name or Trademark – AB CO
Material Designation . . . A 234 WPB or WPB
Pipe Schedule No. or Pipe Wall
Designation . . . . . SCH 40 or STD
Size . . . . . .4
Melt Identification . . . . . .000

14.1.2 A size 1-1/4 forged or barstock carbon steel (ASTM A 105) socket-welding fitting to ASME B16.11, Pressure Class Designation 3000.

(Example)

Manufacturer's Name or Trademark – AB CO
Material Designation . . . . A 105, B16 or WPB
Rating Designation . . . . . .3000
Size . . . . . 1-1/4

14.1.3 A size 3/4 forged or barstock alloy steel (ASTM A 182 Grade F1) socket-welding fitting conforming to ASME B16.11, Pressure Class Designation 6000.

(Example)

Manufacturer's Name or Trademark – AB CO
Material Designation . . . . . F1, B16 or WP1
Rating Designation . . . . . 6000
Size . . . . . 3/4

14.1.4 Butt Welding End Fittings (ASTM A 403) for size 1 Scheduled 40 pipe.

(Example)

Manufacturer's Name or Trademark – AB CO
Rating Designation . . . . . .SCH 40
Material Designation . . . . . WP304 W
Size . . . . . .1
Melt Identity (when specified) . . . . . .000

14.1.5 Butt Welding End Fittings (ASTM A 234) for size 1 Standard weight pipe.

(Example)

Manufacturer's Name or Trademark – AB CO
Rating Designation . . . . . STD
Material Designation . . . WPB or A 234 WPB
Size . . . . . .1
Melt Identity (when specified) . . . . . .000

14.2 Solder joint fittings shall be marked with:

a) Manufacturer's name or trademark

b) Material Designation. Material markings are not required on cast copper alloy solder-joint fittings, flanges, or unions; or on wrought copper solder-joint products.

c) Rating Designation: Rating designation markings are not required on cast copper alloy solder-joint products for pressure systems. Cast copper alloy or wrought copper solder-joint drainage products shall be marked "DWV" to signify drain-waste-vent. Cast bronze or wrought copper solder-joint drainage fittings designed for dry vents only shall be marked "VENT ONLY".

Examples:

14.2.1 Cast Copper Alloy Solder-Joint Pressure Fittings (ASME B16.18) and Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings ASME B16.22.

(Example)

Manufacturer's Name or Trademark – AB CO

14.2.2 Wrought Copper Pressure Fittings MSS SP-104

(Example)

Manufacturer's Name or Trademark — AB CO

14.2.3 Cast Copper Alloy Solder-Joint Drainage Fittings (ASME B16.23), Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings (ASME B16.29).

(Example)

Manufacturer's Name or Trademark – AB CO
Rating Designation ..... DWV
When fitting is designed for dry vents ..... VENT ONLY

## 15. MARKING REQUIREMENTS FOR NON-FERROUS VALVES

15.1 Brass, bronze, and non-ferrous body valves shall be marked on the body as follows. (See Section 11 for permissible omission of markings.)

a) Manufacturer's name or trademark

b) Rating Designation

c) Material Designation, when required. (Refer to subsection 5.3.)

(d) Size Designation

Examples:

15.1.1 A size 2 bronze valve of ASTM B 61 recommended by the manufacturer for 200 psi steam.

(Example)

Manufacturer's Name or Trademark – AB CO
Rating Designation ..... 200
Size ..... 2

15.1.2 A size 3/4 nickel-copper valve recommended by the manufacturer for 300 psi steam at a temperature of 750°F.

(Example)

Manufacturer's Name or Trademark – AB CO
Material Designation ..... NI CU
Rating Designation ..... 300 at 750 F
Size ..... 3/4

15.1.3 A size 1-1/4 ASTM B 61 bronze valve recommended by the manufacturer for 1000 psi cold fluid service.

(Example)

Manufacturer's Name or Trademark – AB CO
Rating Designation . 1000 CWP or 1000 WOG
Size ..... 1-1/4

## 16. MARKING REQUIREMENTS FOR GRAY IRON VALVES

16.1 Gray Iron Valves. The following markings shall be cast on the body of the valve, or shown on a plate permanently attached to the valve. Cast markings obliterated during manufacturing may be replaced by engraving or stamping at the manufacturer's option. Marking by welding is prohibited on gray iron valves. See Section 11 for permissible omission of markings.

a) Manufacturer's name or trademark

b) Rating Designation. Gray iron valves rated for elevated temperature service in accordance with ASME, MSS, or other recognized standards, shall be marked on the body with numerals indicating the pressure class (e.g., 125 or 250) for sizes 12 and smaller, and the maximum saturated steam rating for sizes 14 and larger. At the manufacturer's option, the ambient temperature rating may be added to the body in all valve sizes, followed by the letters CWP or other designation permitted by subsection 4.1.3. Gray iron valves rated for ambient temperature service only, shall be marked on the body with numerals indicating the rated pressure followed by the letters CWP or other designation permitted by subsection 4.1.3.

c) Material Designation. Gray iron valves made to the specifications of ASTM

A 126 Class B or C are not usually marked with material designation symbols. Other alloys of gray iron shall be marked with the appropriate ASTM class and grade. Malleable iron body castings will be marked with "MI".

d) Size Designation

Examples:

16.1.1. A size 6 Class 125 gray iron valve recommended by the manufacturer for 125 psi steam.

(Example)
Manufacturer's Name or Trademark – AB CO
Service Designation . . . . . .125
Size . . . . . .6

16.1.2 A size 12 gray iron valve recommended by the manufacturer for 800 psi ambient temperature fluid service.

(Example)
Manufacturer's Name or Trademark – AB CO
Service Designation . . . . . 800 CWP
Size . . . . . .12

16.1.3 A size 2 malleable iron valve recommended by the manufacturer for 250 psi steam.

(Example)
Manufacturer's Name or Trademark – AB CO
Material Designation . . . . . MI
Service Designation . . . . . .250
Size . . . . . .2

16.1.4 A size 1-1/2 malleable iron valve recommended by the manufacturer for 1000 psi ambient temperature fluid service.

(Example)
Manufacturer's Name or Trademark – AB CO
Material Designation . . . . . MI
Service Designation . . . . . 1000 CWP
Size . . . . . 1-1/2

## 17. MARKING REQUIREMENTS FOR DUCTILE IRON VALVES

17.1 Ductile Iron Valves. The following markings shall be cast, stamped, or engraved on the body of the valve, or shown on a plate permanently attached to the valve. Cast markings obliterated during manufacturing may be replaced by stamped or engraved plates, stamping, or engraving at the manufacturer's option. No marking by welding shall be permitted on ductile iron valves. Where stamping is used on the pressure containing parts of the valve, see subsection 2.2.

a) Manufacturer's name or trademark

b) Material Designation: Ductile iron valves shall be marked with the word "Ductile" or "DI". At the manufacturer's option, the ASTM number or grade may be added.

c) Rating Designation, including on an identification plate any special limitations as maximum temperature required by valve construction.

d) Size Designation

e) Valve trim, when appropriate, on nameplate.

17.2 On products of small size or those having a shape which will not permit all required markings, the markings may be omitted in accordance with Section 11.

Example:

17.3.1 Ductile Iron. A size 6 Class 150 ductile iron valve (ASTM A 395) with 13% chrome trim.

| | Identification Plate Marking | Body Marking |
|---|---|---|
| Manufacturer's Name or Trademark | AB CO | AB CO |
| Body Material Designation | A 395 | Ductile or DI |
| Valve Trim Identification: | | |
| Stem | Stem CR13 | |
| Disc | Disc CR13 | |
| Seat | Seat CR13 | |
| Rating Designation | 220 at 100F/95 at 650F Max. 150 | |
| Size | 6 | 6 |

17.3.2 Ductile Iron. A size 6 Class ductile iron valve (ASTM A 395) with 13% chrome trim, produced for an API 604 application.

| | Identification Plate Marking | Body Marking |
|---|---|---|
| Manufacturer's Name or Trademark | AB CO | AB CO |
| Body Material Designation | A 395 | Ductile or DI |
| Valve Trim Identification: | | |
| Stem | Stem CR13 | |
| Disc | Disc CR13 | |
| Seat | Seat CR13 | |
| Rating Designation | 150 at 650F Max. | 150 |
| Size | 6 | 6 |

## 18. MARKING REQUIREMENTS FOR STEEL VALVES

18.1 Body Markings. The following markings shall be cast, stamped, forged, or engraved on the body of the valve, or on a permanently attached marked plate (See footnote 1). See Section 11 for permissible omission of markings. Markings which are obliterated during manufacture may be replaced by weld deposition, stamping, engraving, or permanently attached marked plates, at the option of the manufacturer.

a) Manufacturer's name or trademark
b) Material designation
c) Rating designation
d) Melt identification (See subsection 6.1)
e) Nominal pipe size
f) Thread identification, when required – (see Section 9)
g) Ring joint identification number, when applicable
h) Additional markings are permitted (See subsection 2.5)

Supplementary Information

(1) The permanently attached marked plate on the body should not be confused with the Identification Plate in subsection 18.2. The permanently attached plate is for the purpose of showing body markings.

18.2 Identification Plate Markings. The following markings shall be shown on permanently attached identification plates. See Section 11 and Note 1 for permissible omission of markings.

a) Manufacturer's name or trademark

b) Body material designation — (see Note (a))

c) Rating designation — including any special limitations such as maximum temperatures permitted by valve construction, ASME B16.34 "Interpolated" and/or "Special Class" ratings, etc. — (see Note (a))

d) Valve trim identification – (see Section 7)

e) Additional markings are permitted (see subsection 2.5)

18.3 Notes Regarding Examples. The marking requirements for steel valves are more complex than those for any other product groups in this Standard Pracitce. The examples that follow are therefore grouped to show typical, acceptable markings for valves produced in accordance with:

a) ASME B16.34 (see subsection 18.4)
b) Other standards (see subsection 18.5)

The examples are intended to illustrate acceptable marking practices. They are not intended to imply that they are the only acceptable markings under this Standard Practice, nor are they intended as an endorsement or approval of acceptable limits for the example materials.

18.3.1 The examples list the marking sequence of subsections 18.1 and 18.2. The actual sequence and positioning of actual markings on actual product is at the option of the manufacturer.

18.4 Examples of marking practices conforming to ASME B16.34.

18.4.1 A nominal size 6, ASME B16.34 Class 150, cast carbon steel (ASTM A 216 WCB) gate valve.

| | BODY | IDENTIFICATION PLATE |
|---|---|---|
| Manufacturer's name or trademark | A B CO. | A B CO. |
| Material designation | WCB | WCB |
| Rating designation | 150 | 150 775F Max. |
| Melt identification | 000 | |
| Trim identification (stem-disc-seat) | | CR13-CR13 – NICU |
| Size | 6 | 6 |
| Special Identification | | B16.34 |

Note:

(a) These required markings, if shown on the body, need not be duplicated on the identification plate.

18.4.2 A nominal size 3/4 ASME B16.34 Class 300, forged, carbon steel (ASTM A 105) ball valve, with stainless steel and Teflon trim.

| | BODY | IDENTIFICATION PLATE |
|---|---|---|
| Manufacturer's name or trademark | A B CO. | A B CO. |
| Material designation | A 105 | A 105 |
| Rating designation | 740 CWP | 740 WOG |
| Trim identification (stem-ball-seats) | | 316 – 316 – TFE |
| Size | | 3/4 |
| Special identification | | Seats 200 at 350F Max. 500 WOG B16.34 |

18.4.3 A nominal size 8, ASME B16.34 Class 600, cast chromium-molybdenum steel (ASTM A 217 WC6) globe valve, with ring joint flange facing suitable for the full pressure-temperature rating in B16.34.

| | BODY | IDENTIFICATION PLATE |
|---|---|---|
| Manufacturer's name or trademark | A B CO. | A B CO. |
| Material designation | WC6 | WC6 |
| Rating designation | 600 | B16.34 275 at 1050F Max. |
| Melt identification | 000 | |
| Trim identification (stem-disc-seat) | | CR13 – CR13 – CR13 |
| Size | 8 | 8 |
| Special identification | R49 (on edge pipe flanges) | B16.34 |

18.4.4 A nominal size 4, ASME B16.34 Class 900, forged chromium-molybdenum steel (ASTM A 182 F11) plug valve, with temperature limited to 350°F.

| | BODY | IDENTIFICATION PLATE |
|---|---|---|
| Manufacturer's name or trademark | A B CO. | A B CO. |
| Material designation | F11 | F11 |
| Rating designation | 900 | 900/1995 at 350F Max. |
| Trim identification (plug) | | Plug CR13 |
| Size | 4 | 4 |
| Special Identification | | B16.34 |

18.4.5 A nominal size 8, ASME B16.34 Class 600, cast carbon steel (ASTM A 352 LCB) globe valve for low temperature service.

| | BODY | IDENTIFICATION PLATE |
|---|---|---|
| Manufacturer's name or trademark | A B CO. | A C CO. |
| Material designation | LCB | LCB |
| Rating designation | 600 | 1390 at – 50F min/1275 at 300F Max. |
| Melt identification | 000 | |
| Trim identification (stem-disc-seat) | | 18-8 – NICU – TFE |
| Size | 8 | 8 |
| Special Identification | | B16.34 |

18.4.6 A nominal size 24, ASME B16.34 Class 150, fabricated steel gate valve, with stainless steel lining (ASTM A 240 T316) and carbon steel (ASTM A 515 Gr60) exterior structure with flanges, hardfaced seats.

| | BODY | IDENTIFICATION PLATE |
|---|---|---|
| Manufacturer's name or trademark | A B CO. | A B CO. |
| Material designation (lining-exterior) | A 515-60 | A 515 Gr60 A240T316 Lining |
| Rating designation | 150 | 150/80 at 800F Max. |
| Trim identification (stem-disc-seat) | | 18-8SMO – 18-8SMO – HF |
| Size | 24 | 24 |
| Special identification | | B16.34 |

Note: Material designation may also be shown as – Lining A-240 T316 Body/Flanges A-515 Gr60

18.4.7 A nominal size 4, ASME B16.34 Class 150 cast chromium-nickel molybdenum stainless steel ASTM A 351 (CF8M) gate valve with a carbon content less than 0.04%.

| | BODY | IDENTIFICATION PLATE |
|---|---|---|
| Manufacturer's name or trademark | A B CO. | A B CO. |
| Material designation | CF8M | CF8M |
| Rating designation | 150 | 150/80 at 800F Max. |
| Melt identification | 000 | |
| Trim identification | | |
| Size | 4 | 4 |
| Special Identification | | B16.34 |

18.4.8 A nominal size 20, ASME B16.34 Standard Class 1500, cast chromium-molybdenum steel (ASTM A 217 WC6) gate valve, with ends flared to match nominal size 24 pipe.

| | BODY | IDENTIFICATION PLATE |
|---|---|---|
| Manufacturer's name or trademark | A B CO. | A B CO. |
| Material designation | WC6 | WC6 |
| Rating designation | 1500 | 1500 |
| Melt identification | 000 | |
| Trim identification (stem-disc-seats) | | CR13 – HF – HF |
| Size | 24x20x24 | 24x20x24 |
| Additional Marking | | Made in U.S.A. |
| Special Identification | | B16.34 |

18.4.9 A nominal size 12, ASME B16.34 Interpolated Rating Standard Class, cast chromium-molybdenum steel (ASTM A 217 C12) check valve for 2200 psi at 1000°F service.

| | BODY | IDENTIFICATION PLATE |
|---|---|---|
| Manufacturer's name or trademark | A B CO. | A B CO. |
| Material designation | C12 | C12 |
| Rating designation | 2200 at 1000F | 2200 at 1000F/5650 at 100F |
| Melt identification | 000 | |
| Trim identification | | Disc HF – Seat HF |
| Size | 12 | 12 |
| Special identification | | B16.34 Class 2265 |

18.4.10 A nominal size 14, ASME B16.34 Special Class 1500, cast carbon steel (ASTM A 216 WCC) globe valve.

| | BODY | IDENTIFICATION PLATE |
|---|---|---|
| Manufacturer's name or trademark | A B CO. | A B CO. |
| Material designation | WCC | WCC |
| Rating designation | 1670 at 850F | 1670 at 850F/3750 at 100F |
| Melt identification | 000 | |
| Trim identification (stem-disc-seat) | | CR13 – HF – HF |
| Size | 14 | 14 |
| Special identification | | B16.34 Spl Class 1500 |

18.4.11 A nominal size 8, ASME B16.34 Interpolated Rating Special Class, forged chromium-molybdenum steel (ASTM A 182 F22) check valve for 2000 psi at 1000°F service.

| | BODY | IDENTIFICATION PLATE |
|---|---|---|
| Manufacturer's name or trademark | A B CO. | A B CO. |
| Material designation | A 182 F22 | A 182 F22 |
| Rating designation | 2000 at 1000F | 2000 at 1000F/4490 at 100F |
| Trim identification (disc-seat) | | HF – HF |
| Size | 8 | 8 |
| Special Identification | | B16.34 SPL Class 1795 |

18.4.12 A nominal size 16, ASME B16.34 Standard Class 2500, cast carbon steel (ASTM A 216 WCB) gate valve with markings in metric (SI) units.

| | BODY | IDENTIFICATION PLATE |
|---|---|---|
| Manufacturer's name or trademark | A B CO. | A B CO. |
| Material designation | WCB | WCB |
| Rating designation | 2500 | 2500 |
| Melt identification | 000 | |
| Trim identification (stem-disc-seat) | | CR13 – HF – HF |
| Size | 16 | NPS 16 (400mm) |
| Additional Marking | | Made in U.S.A.<br>73 bar at 500C<br>425 bar at 38C |

18.5 Examples of marking practices conforming to standards other than the ASME B16.34, considering various material and application factors:

18.5.1 A nominal size 2, 720 psi at 1350°F rated, cast chromium-nickel-molybdenum stainless steel (ASTM A 351 CF8M) check valve.

| | BODY | IDENTIFICATION PLATE |
|---|---|---|
| Manufacturer's name or trademark | A B CO. | A B CO. |
| Material designation | CF8M | CF8M |
| Rating designation | | 720 at 1350F |
| Melt identification | 000 | |
| Trim identification (disc-seat) | | Disc 18-8SMO – Seat INT |
| Size | | 2 |

18.5.2 A nominal size 6, 500 psi at 500°F rated, cast chromium-nickel-molybdenum-copper stainless steel (ASTM A 351 CN7M gate valve, with integral trim.

| | BODY | IDENTIFICATION PLATE |
|---|---|---|
| Manufacturer's name or trademark | A B CO. | A B CO. |
| Material designation | CN7M | CN7M |
| Rating designation | 500 at 500F | 500 at 500F |
| Melt identification | 000 | |
| Trim identification (stem-disc-seat) | | (not required – see 7.1) |
| Size | 6 | 6 |
| Special identification | | Patent XXXX |

18.5.3 A nominal size 8, 150 psi rated, cast carbon steel (ASTM A 216) butterfly valve, with elastometric seat and seals.

| | BODY | IDENTIFICATION PLATE |
|---|---|---|
| Manufacturer's name or trademark | A B CO. | A B CO. |
| Material designation | WCB | WCB |
| Rating designation | 150 CWP | 150 CWP/150 at 200F Max. |
| Melt identification | 000 | |
| Trim identification (stem-disc-seat) | | T304-BRZ – Buna N |
| Size | 8 | 8 |
| Special identification | | Seals-Viton |

18.5.4 A nominal size 16, 150 CWP rated, fabricated carbon steel (ASTM A 515 Gr60) flanged end gate valve.

| | BODY | IDENTIFICATION PLATE |
|---|---|---|
| Manufacturer's name or trademark | A B CO. | A B CO. |
| Material designation | A 515-60 | A 515 60 |
| Rating designation | 150CWP | 150CWP |
| Trim identification (stem-disc-seats) | | T316 – T316 – T316 |
| Size | 16 | 16 |

18.5.5 A nominal 24, ASME Section III Subsection NB Class 600, cast chromium-nickel-molybdenum steel (ASME SA-351 CF8M) welding end gate valve, for service as a Nuclear Class 1 Component conforming to the requirements of ASME Boiler and Pressure Vessel Code, Section III, 1992 edition. Consult applicable code for marking requirements.

## ANNEX A
## REFERENCED STANDARDS AND APPLICABLE DATES

**ASME, ANSI/ASME, ANSI, ASME/ANSI**

| | |
|---|---|
| B16.1-1989 | Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250 and 800 |
| B16.3-1992 | Malleable-Iron Threaded Fittings, Classes 150 and 300 |
| B16.4-1992 | Cast-Iron Threaded Fittings, Class 125 and 250 |
| B16.5-1996 | Pipe Flanges and Flanged Fittings 1/2" - 24" |
| B16.9-1993 | Factory-Made Wrought Steel Buttwelding Fittings |
| B16.11-1991 | Forged Fittings, Socket-Welding and Threaded |
| B16.12-1991 | Cast Iron Threaded Drainage Fittings |
| B16.14-1991 | Ferrous Pipe Plugs, Bushing and Locknuts with Pipe Threads |
| B16.15-1985 (R 94) | Cast Bronze Threaded Fittings, Classes 125 and 250 |
| B16.18-1984 | Cast Copper Alloy Solder Joint Pressure Fittings |
| B16.22-1995 | Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings |
| B16.23-1992 | Cast Copper Alloy Solder Joint Drainage Fittings-DWV |
| B16.24-1991 | Cast Copper Alloy Pipe Flanges and Flanged Fittings |
| B16.29-1994 | Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings |
| B16.34-1988 | Valves - Flanged, Threaded and Welding End |
| B16.39-1986 | Pipe Unions, Malleable Iron Threaded |

**API**

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| 6A-1996 | Specification and Valve and Wellhead Equipment |

**ASTM**

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|---|---|
| A 105-96 | Forgings, Carbon Steel, for Piping Components |
| A 126-93 | Gray Iron Castings for Valves, Flanges, and Pipe Fittings |
| A 182-96 | Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High Temperature Service |
| A 216-93 | Carbon-Steel Castings Suitable for Fusion Welding for High Temperature Service |
| A 217-95 | Martenistic Stainless Steel and Alloy Steel Castings for Pressure Containing Parts Suitable for High-Temperature Service |
| A 234-96a | Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures |
| A 240-95 | Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Fusion-Welded Unfired Pressure Vessels |
| A 351-94a | Austenitic Steel Castings for High-Temperature Service |
| A 352-93 | Ferritic Steel Castings for Pressure-Containing Parts Suitable for Low-Temperature Service |
| A 395-88 (91) | Ferritic Ductile Iron for Pressure Retaining Castings for Use at Elevated Temperatures |
| A 403-96 | Wrought Austenitic Stainless Steel Piping Fittings |
| A 420-96 | Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low-Temperature Service |
| A 515-92 | Pressure Vessel Plates, Carbon Steel for Intermediate and Higher-Temperature Service |
| B 61-93 | Steam or Valve Bronze Castings |
| B 62-93 | Compositive Bronze or Ounce Metal Castings |
| B 148-93 | Aluminum-Bronze Sand Castings |
| B 361-95 | Factory Made Wrought Aluminum and Aluminum-Alloy Welding Fittings |
| B 363-95 | Seamless and Welded Unalloyed Titanium Welding Fittings |
| B 366-95 | Factory-Made Wrought Nickel and Nickel Base Alloy Welding Fittings |
| B 584-93 | Copper Alloy Sand Castings for General Applications |

**MSS**

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|---|---|
| SP-43-1991 | Wrought Stainless Steel Butt-Welding Fittings |
| SP-44-1996 | Steel Pipeline Flanges |
| SP-75-1993 | Specification for High Test Wrought Butt Welding Fittings |
| SP-104-1995 | Wrought Copper Solder Joint Pressure Fittings |

Publications of the following organizations appear on the above list:

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| AISI | American Iron and Steel Institute<br>150 East 42nd Street, New York, NY 10017 |
| ANSI | American National Standards Institute<br>11 West 42nd Street, 13th Floor, New York, NY 10036 |
| ASME | American Society of Mechanical Engineers<br>345 East 47th Street, New York, NY 10017 |
| API | American Petroleum Institute<br>1220 L Street, NW, Washington, DC 20005 |
| ASTM | American Society for Testing and Material<br>100 Barr Harbor Drive, West Conshohocken, PA 19428 |
| MSS | Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.<br>127 Park Street, NE, Vienna, VA 22180 |

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

| Number | |
|---|---|
| SP-6-1996 | Standard Finishes for Contact Faces of Pipe Flanges and Connecting-End Flanges of Valves and Fittings |
| SP-9-1997 | Spot Facing for Bronze, Iron and Steel Flanges |
| SP-25-1998 | Standard Marking System for Valves, Fittings, Flanges and Unions |
| SP-42-1990 | (R 95) Class 150 Corrosion Resistant Gate, Globe, Angle and Check Valves with Flanged and Butt Weld Ends |
| SP-43-1991 | (R 96) Wrought Stainless Steel Butt-Welding Fittings |
| SP-44-1996 | Steel Pipeline Flanges |
| SP-45-1992 | Bypass and Drain Connections |
| SP-51-1991 | (R 95) Class 150LW Corrosion Resistant Cast Flanges and Flanged Fittings |
| SP-53-1995 | Quality Standard for Steel Castings and Forgings for Valves, Flanges and Fittings and Other Piping Components - Magnetic Particle Examination Method |
| SP-54-1995 | Quality Standard for Steel Castings for Valves, Flanges, and Fittings and Other Piping Components - Radiographic Examination Method |
| SP-55-1996 | Quality Standard for Steel Castings for Valves, Flanges and Fittings and Other Piping Components - Visual Method for Eval. of Surface Irregularities |
| SP-58-1993 | Pipe Hangers and Supports - Materials, Design and Manufacture |
| SP-60-1991 | Connecting Flange Joint Between Tapping Sleeves and Tapping Valves |
| SP-61-1992 | Pressure Testing of Steel Valves |
| SP-65-1994 | High Pressure Chemical Industry Flanges and Threaded Stubs for Use with Lens Gaskets |
| SP-67-1995 | Butterfly Valves |
| SP-68-1997 | High Pressure Butterfly Valves With Offset Design |
| SP-69-1996 | Pipe Hangers and Supports - Selection and Application |
| SP-70-1990 | Cast Iron Gate Valves, Flanged and Threaded Ends |
| SP-71-1997 | Gray Iron Swing Check Valves, Flanged and Threaded Ends |
| SP-72-1992 | Ball Valves with Flanged or Butt-Welding Ends for General Service |
| SP-73-1991 | (R 96) Brazing Joints for Wrought and Cast Copper Alloy Solder Joint Pressure Fittings |
| SP-75-1993 | Specification for High Test Wrought Butt Welding Fittings |
| SP-77-1995 | Guidelines for Pipe Support Contractual Relationships |
| SP-78-1987 | (R 92) Cast Iron Plug Valves, Flanged and Threaded Ends |
| SP-79-1992 | Socket-Welding Reducer Inserts |
| SP-80-1997 | Bronze Gate, Globe, Angle and Check Valves |
| SP-81-1995 | Stainless Steel, Bonnetless, Flanged, Knife Gate Valves |
| SP-82-1992 | Valve Pressure Testing Methods |
| SP-83-1995 | Class 3000 Steel Pipe Unions, Socket-Welding and Threaded |
| SP-85-1994 | Cast Iron Globe & Angle Valves, Flanged and Threaded Ends |
| SP-86-1997 | Guidelines for Metric Data in Standards for Valves, Flanges, Fittings and Actuators |
| SP-87-1991 | (R 96) Factory-Made Butt-Welding Fittings for Class 1 Nuclear Piping Applications |
| SP-88-1993 | Diaphragm Type Valves |
| SP-89-1998 | Pipe Hangers and Supports - Fabrication and Installation Practices |
| SP-90-1986 | (R 91) Guidelines on Terminology for Pipe Hangers and Supports |
| SP-91-1992 | (R 96) Guidelines for Manual Operation of Valves |
| SP-92-1987 | (R 92) MSS Valve User Guide |
| SP-93-1987 | (R 92) Quality Standard for Steel Castings and Forgins for Valves, Flanges, and Fittings and Other Piping Components - Liquid Penetrant Examination Method |
| SP-94-1992 | Quality Standard for Ferritic and Martensitic Steel Castings for Valves, Flanges, and Fittings and Other Piping Components - Ultrasonic Examination Method |
| SP-95-1986 | (R 91) Swage (d) Nipples and Bull Plugs |
| SP-96-1996 | Guidelines on Terminology for Valves and Fittings |
| SP-97-1995 | Integrally Reinforced Forged Branch Outlet Fittings - Socket Welding, Threaded and Buttwelding Ends |
| SP-98-1996 | Protective Coatings for the Interior of Valves, Hydrants, and Fittings |
| SP-99-1994 | Instrument Valves |
| SP-100-1997 | Qualification Requirements for Elastomer Diaphragms for Nuclear Service Diaphragm Type Valves |
| SP-101-1989 | Part-Turn Valve Actuator Attachment - Flange and Driving Component Dimensions and Performance Characteristics |
| SP-102-1989 | Multi-Turn Valve Actuator Attachment - Flange and Driving Component Dimensions and Performance Characteristics |
| SP-103-1995 | Wrought Copper and Copper Alloy Insert Fittings for Polybutylene Systems |
| SP-104-1995 | Wrought Copper Solder Joint Pressure Fittings |
| SP-105-1996 | Instrument Valves for Code Applications |
| SP-106-1990 | (R 96) Cast Copper Alloy Flanges and Flanged Fittings, Class 125, 150 and 300 |
| SP-107-1991 | Transition Union Fittings for Joining Metal and Plastic Products |
| SP-108-1996 | Resilient-Seated Cast Iron-Eccentric Plug Valves |
| SP-109-1997 | Welded Fabricated Copper Solder Joint Pressure Fittings |
| SP-110-1996 | Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends |
| SP-111-1996 | Gray-Iron and Ductile-Iron Tapping Sleeves |
| SP-112-1993 | 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 at $19.00 each. Same quantity discounts apply on total order. |
| SP-113-1994 | Connecting Joint between Tapping Machines and Tapping Valves |
| SP-114-1995 | Corrosion Resistant Pipe Fittings Threaded and Socket Welding, Class 150 and 1000 |
| SP-115-1995 | Excess Flow Valves for Natural Gas Service |
| SP-116-1996 | Service Line Valves and Fittings for Drinking Water Systems |
| SP-117-1996 | Bellows Seals for Globe and Gate Valves |
| SP-118-1996 | Compact Steel Globe & Check Valves - Flanged, Flangeless, Threaded & Welding Ends (Chemical & Petroleum Refinery Service) |
| SP-119-1996 | Belled End Socket Welding Fittings, Stainless Steel and Copper Nickel |
| SP-120-1997 | Flexible Graphite Packing System for Rising Stem Steel Valves (Design Requirements) |
| SP-121-1997 | Qualification Testing Methods for Stem Packing for Rising Stem Steel Valves |
| SP-122-1997 | Plastic Industrial Ball 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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