



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

Standard Practice
Developed and Approved by the
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This MSS Standard Practice was developed under the consensus of the MSS Technical Committee 302 and the MSS Coordinating Committee. In addition, this Standard Practice was approved by an ANSI/MSS Consensus Committee and ANSI as a revised American National Standard. The content of this Standard Practice is the resulting efforts of competent and experienced volunteers to provide an effective, clear, and non-exclusive standard that will benefit the industry as a whole. This MSS Standard Practice describes minimal requirements and is intended as a basis for common practice by the manufacturer, the user, and the general public. The existence of an MSS Standard Practice does not in itself preclude the manufacture, sale, or use of products not conforming to the Standard Practice. Mandatory conformance to this Standard Practice is established only by reference in other documents such as a code, specification, sales contract, or public law, as applicable. MSS has no power, nor does it undertake, to enforce or certify compliance with this document. Any certification or other statement of compliance with the requirements of this Standard Practice shall not be attributable to MSS and is solely the responsibility of the certifier or maker of the statement.

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

This Standard Practice has been substantively revised from the previous 2013 edition. It is suggested that if the user is interested in knowing what changes have been made, that a direct page by page comparison should be made of this document and that of the previous edition.

Non-toleranced dimensions in this Standard Practice are nominal unless otherwise specified. For the purposes of this Standard Practice, the term “shall” means “must” and “shall not” means “must not”.

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Originally Approved: July 1934

Originally Published: July 1935

Current Edition Approved by MSS: July 2017

Current Edition Approved by ANSI: March 2018

Current Edition Published: September 2018

FOREWORD

The original publication of the Standard Marking System was developed by MSS 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, published 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; including some additional marking examples.

For the fifth edition, published in 1960, the format was revised to permit the use of nameplates on valve bodies. In addition, this version added requirements for the marking of ductile iron products.

The sixth edition, published in 1964, broadened the scope of this marking standard and revised the examples and sections of the text to reflect changes in piping requirements.

The seventh edition, published in 1978, was substantially revised and re-written to simplify its cross references and to improve readability. This edition incorporated the marking features of pressure-temperature marking designations contained in existing American National Standards involving products and materials. It was also rearranged so that the General Rules were stated in Sections 1 through 11 and amplified in Sections 12 through 18; which gave specific rules and examples of marking requirements relating to various products and materials.

In 1993, the eighth edition incorporated relatively minor changes and updates; including minor revisions required to harmonize this document with then-current MSS Standard Practices.

The tenth edition, published in 2008, included revisions to ASME B16.34 example markings and mandatory MSS conformance markings, in addition to clarifications of other general requirements.

The eleventh edition, published in 2013, included new Annexes for Reference Tables and Marking Requirement Examples, the addition of laser marking techniques and country of origin marking, substantial revision and re-formatting to update the document text and tables, and other revisions to provide clarification as warranted. The 2013 edition was also approved as an American National Standard.

With this twelfth edition, published in 2018, SP-25 observes over 83 years of providing the industry with standardized marking guidance. This twelfth edition includes a new section involving products with rating designations which are constant throughout a specified temperature range; revised requirements involving the marking of a manufacturer's name, trademark, logo, or symbol; revised two material designation subsections involving standard references for marking nameplates and bodies; updated Tables 1 and 2 involving examples of common symbols for metallic/non-metallic materials; updated terminology; included supplemental material designations (e.g., Bismuth, Bismuth-Selenium, and Silicon) for certain non-ferrous flanges, flanged fittings, and flanged unions; updated Annex B to include many revised and new examples; updated and revised Annex C references; and other revisions to provide clarification as warranted. It was also agreed for the next revision to consider markings for MSS SP-44 flanges and ASME

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Manufacturers Standardization Society of the Valve and Fittings Industry

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

1. SCOPE

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

1.2 The markings specified within this Standard Practice 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.

1.3 Marking for remanufactured and refurbished valves, fittings, flanges, and unions is outside the scope of this Standard Practice.

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, flanges, fittings, and union components, 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 may not be integral with the base handle material.

2.3 Markings shall consist of numerals, letters, or symbols that are cast, forged, stamped, electro-etched, vibro-etched, laser-etched, or otherwise made integral with the product, or as 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.

2.4 Markings indicating conformance with recognized documents, such as the ASME Boiler and Pressure Vessel Codes (BPVC), or applicable API, FM, and UL conformance, testing, and/or certification requirements, may be applied only by authorized, licensed, or approved manufacturers.

Such markings shall be applied only to products fully conforming to the applicable qualification, conformance, and/or certification requirements and may be shown on the body or an attached plate, at the option of the manufacturer.

2.5 Manufacturers should apply markings indicating conformance with codes and standards such as API, ASME, ASTM, AWWA, and MSS, on products that fully conform to the applicable codes or standards. Partial compliance markings may apply in specific cases, as allowed for by the code or standard. Certain codes and standards specify mandatory product conformance markings and methods. Such markings shall be shown on the body, on an attached plate, or as otherwise specified.

2.6 International and Federal commerce laws, Codes, or contracts may require marking of finished products with country of origin. When required, the markings shall be conspicuous and positioned to

Product markings that indicate special designs, particular requirements, or special limitations, should also carry additional special marking to distinguish them from regularly available and standard products. All additional markings shall be applied in such a manner as to avoid confusion with standardized and customary symbols or markings. Consult MSS SP-96 for additional definitions of terms and acronyms used in the Standard Practice.

3. MANUFACTURER'S NAME OR TRADEMARK

All valves, fittings, flanges, and unions shall be marked with the manufacturer's name, trademark, logo, or symbol. See Section 11 for permissible omissions.

4. RATING DESIGNATION

4.1 The expression "Rating Designation" includes the intent of the expressions "Pressure Designation", "Class Designation", "Pressure Class", and similar terms used to define the pressure and temperature limitations of the product. The rating designation shall be shown by one of the systems in the sections that follow:

4.1.1 The rating designation for products that fully conform to recognized standards 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 (e.g., "3M" used in place of "3000").

4.1.2 The rating designation for products that may conform to recognized standards, however, are not suitable for the full range of pressures or temperatures of these standards (where allowed), shall be marked as prescribed in Sections 4.1.3 and 4.1.4, as appropriate, and shall also show the numbers and letters representing the service limitation at the limiting condition.

4.1.3 The rating designation for products that do not conform to recognized product standards may be shown by numbers and letters representing the pressure ratings at the corresponding temperatures in the following format:

"2000 AT 100F 725 AT 925F"

The rating designation may also be shown as the maximum pressure followed by "CWP"^(a) and the allowed pressure at the maximum temperature, seen in the following format:

"2000 CWP 725 AT 925F"

Products intended for ambient room temperature may show the allowable pressure followed by letters CWP or equivalent, seen in the following format:

"2000 CWP"

4.1.4 Products with dual or multiple rating designations may be marked with maximum pressure at CWP and the allowable pressure at the maximum temperature, seen in the following format:

"2000 CWP 725 AT 925F"

NOTE: (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:

4.1.5 Products with rating designations which are constant throughout a specified temperature range may be marked with maximum pressure at the maximum temperature, seen in the following format:

“2000 CWP 925F MAX”

4.2 When marking in SI (metric) notation, the units of preference will be bar^(b) or kilopascals (kPa) of gauge pressure, and degrees Celsius for temperature. 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, but conversion of pressure classes to “metric equivalents” should not be attempted.

Format Example: “150 BAR at 500C”

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

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 material specifications, as described in the following Product Marking sections. In a composite structure made of several materials, the material limiting its pressure-temperature rating shall be marked. In addition, products may instead be marked with proprietary material designations, but confusion shall be avoided with standardized material symbols or markings, and other sections of this Standard Practice.

5.2 Products made of one material and lined with another, excluding corrosion resistant coatings, shall carry the regular markings specified by this Standard Practice and additional markings indicating:

- (1) that the product is lined, and
- (2) the material used for its lining (e.g. RL NR).

5.3 Material markings are not required on ASTM B61, ASTM B62, and ASTM B584 alloys, UNS C83800 and UNS C84400, cast copper alloy threaded or solder-joint fittings, flanges, unions, valves, or wrought copper solder-joint products. Note that “UNS” denotes “Unified Numbering System”, an alloy designation system of a prefix letter and five digits designating a material composition.

5.4 Material marking is not required for gray iron, except as shown in Section 12.2.

Alloyed gray iron may be identified by a manufacturer’s symbol, provided that confusion with standardized and customary symbols or markings is avoided.

5.5 *Marking Nameplates and Bodies – Metallic* The preferred industry method of identification for steel and iron (ferrous) materials are the appropriate ASTM specification number and/or grade symbol, and for other metallic materials (including non-ferrous) it is the Unified Numbering System (UNS) alloy designation. The material grade or some other abbreviation, such as the illustrative material examples shown in Table A1, may also be used for ferrous and non-ferrous material identification, as applicable. However, products with steel bodies shall be primarily marked with the applicable ASTM specification grade identification symbol.

Non-ferrous body materials may be marked with the symbols shown in Table A1, in addition to other marking that may be required.

Other symbols, including manufacturer’s trade names and material codes, are permitted, but confusion shall be avoided with standardized and common symbols or markings.

NOTE: (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.

5.6 Marking Nameplates and Bodies – Non-Metallic The examples of non-metallic symbols, shown in Table A2, are illustrative of typical standardized symbols for common materials; however, what are considered “commonly-used” symbols and materials can change over time and Table A2 may contain entries that are shifting to historical usage. The use of specific names and trade names is also permitted, but confusion shall be avoided with standardized symbols. For valves trimmed with composite construction elements, the dominant functional material should be named.

6. HEAT NUMBER

If part size permits and when required by the product or material’s specification standard, carbon, alloy, and stainless-steel castings and forgings used for fittings, flanges, union components, valve bodies, bonnets, and covers shall be marked with a heat number and material symbol from the Mill Test Report, also known as the Material Test Report (MTR). Heat number is not required for materials identified in Sections 5.3 and 5.4.

TERMINOLOGY NOTE: The term “heat” is also known as “melt” and the term “number” was previously known as “identification”, as in “heat identification” or “melt identification. Current terminology is “heat number”.

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 A1 and A2 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 When required, 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: (1) the first symbol shall indicate the material of the stem, (2) the second shall indicate the material of the disc or wedge face, and (3) the third shall indicate the material of the seat face.

7.1.2 When required, the trim identification marking for check valves, as they do not have a 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 shall indicate 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, ball, 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, and secondly indicate the material of plug, ball, disc, or closure member.

When required, 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, the seat symbol identification shall be preceded by the word “SEAT”. If used alone, the material symbols must appear in the order given.

7.1.4 When specified, API steel valves built to specific standards that list Trim Numbers shall be marked with the API Standard Number (e.g., “API 600”), the word “TRIM”, and the API Trim Number (e.g., 1,2,3, etc.) on the valve’s Identification Plate. See Section B18.5.5 Example.

8. SIZE DESIGNATION

8.1 Size markings shall be in accordance with the Marking Requirements for each referenced product, located in Sections 12 through 18.

8.2 Size designation for products designed with a single nominal bore shall consist of numerals indicating the nominal pipe size (NPS) of the connecting ends. The word "nominal" indicates the numerical identification associated with pipe sizes and may not correspond to the actual valve, pipe, or fitting diameter. For applications where marking in SI (metric) notation is required, the equivalent SI (metric) based numerical size, as identified in Table A3, shall be given, preceded by "DN" (*aka* Nominal Diameter).

8.3 Products having internal elements that 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 Sections 8.3.1 and 8.3.2.

Unless these exceptions exist, the first number shall indicate the connecting end pipe size and the second number shall indicate the minimum bore diameter or the pipe size corresponding to the closure size.

Examples: NPS 6 X 4, NPS 4 X 2-1/2

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 number shall indicate minimum bore diameter or pipe size corresponding to the closure size and the third number shall indicate the connecting-end size at the other end.

For example; a "24 X 20 X 30" marking on a valve designates an NPS 24 connection, an NPS 20 nominal center section, and an NPS 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 NPS 30 end connections and an NPS 24 branch connection (i.e., outlet).

9. IDENTIFICATION OF THREADED ENDS

9.1 Fittings, flanges, unions and valve bodies whose connecting ends are threaded, other than taper pipe threads (NPT) or straight hose threads (NPSH), in accordance with ASME B1.20.1, shall be marked to indicate the type of thread. The style of marking may be the manufacturer's own symbol, but confusion with standardized and customary symbols or markings shall be 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) Size
- b) The letters "API"
- c) The thread type symbol, as listed in Table A4

10. RING-JOINT FACING IDENTIFICATION

10.1 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 groove number.

11. PERMISSIBLE OMISSION OF MARKINGS

11.1 The manufacturer's name, trademark, logo, or symbol shall be shown on all products marked in accordance with this Standard Practice. The only exception is if the product's size or shape is such that it is completely impractical for a manufacturer to include a trademark, logo, or identifying symbol.

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:

- a) Size
- b) Thread identification (see Section 9.1)
- c) Valve trim identification
- d) Heat number
- e) Rating designation
- f) Material designation

When omitting markings, size is least important and shall be the first to be omitted. The manufacturer's name, trademark, logo, or symbol is most important and shall not be omitted except as provided in Section 11.1.

11.3 Section 11 permissible omissions are applicable to Sections 13 through 18.

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

12.1 *Gray Iron Flanges* Markings shall be as follows (see Annex B12.1 for examples):

- a) Manufacturer's name or trademark
- b) Rating designation
- c) Supplemental material designation when Classes A or B can be used

12.2 *Gray Iron Flanged Fittings* Markings shall be as follows (see Annex B12.2 for examples):

- a) Manufacturer's name or trademark
- b) Rating designation as listed in Table A5
- c) Supplemental material designation when Classes A or B can be used

12.3 *Gray Iron Flanged Unions* Class 125 and Class 250 shall be marked as follows (see Annex B12.3 for example):

- a) Manufacturer's name or trademark

12.4 *Bronze Flanges and Flanged Unions* Markings shall be as follows (see Annex B12.4 for examples):

12.5 **Bronze, Brass, and Non-Ferrous Flanged Fittings** Markings shall be as follows (see Annex B12.5 for examples):

- a) Manufacturer's name or trademark
- b) Material designation

NOTE: When the trade name is the only available identification, it shall be spelled out

- c) Rating designation: Mark with ASTM designation. When ASTM B148 material is used for flanges, also include "952".
- d) Size
- e) Indication of conformance to ASME B16.24, if applicable

Note: See note in Section 12.4 b)

12.6 **Ductile Iron Flanges and Flanged Fittings** Markings shall be as follows (see Annex B12.6 for example):

- a) Manufacturer's name or trademark
- b) Rating designation (e.g., 150, 300)
- c) Material designation: "DUCTILE" ("DI" where space is limited)
- d) Size (may be omitted from reducing flanges and reducing flanged fittings)

12.7 **Steel Flanges, Flanged Fittings, and Flanged Unions** Markings shall be as follows (see Annex B12.7 for examples):

- 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 heat number, and/or may be marked with the word "STEEL" or "WCB" as applicable. 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 their trade designation for the grade of steel, provided that confusion with standardized and customary symbols or markings is avoided.
- c) Rating designation corresponding to the Pressure Rating Class
- d) Temperature: Temperature markings are not 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 NPS shall be given but, may be omitted from reducing flanges and reducing flanged fittings.
- f) Ring-joint flange ring number, when applicable
- g) Indication of conformance to ASME B16 standards, if applicable

13. **MARKING REQUIREMENTS FOR THREADED FITTINGS AND UNIONS**

13.1 **Threaded Gray Iron Fittings** Markings shall be as follows (see Annex B13.1 for examples):

- a) Manufacturer's name or trademark
- b) Rating designation, with the exception that rating description is not required on Class 125 gray iron

13.2 ***Bronze and Brass Threaded Fittings and Unions*** Markings shall be as follows (see Annex B13.2 for examples):

- a) Manufacturer's name or trademark
- b) Rating designation: Rating designation is not required on Class 125 cast bronze threaded fittings. Class 250 fittings shall be marked "250".
- c) Size: When part has space for marking

NOTE: See Section 12.4 (b)

13.3 ***Non-Ferrous Alloys Threaded Fittings*** Markings other than for brass or bronze fittings shall be marked as follows (see Annex B13.3 for example):

- a) Manufacturer's name or trademark
- b) Rating designation
- c) Material designation

13.4 ***Ductile Iron Class 300 Threaded Fittings and Threaded Unions*** Markings shall be as follows (see Annex B13.4 for example):

- a) Manufacturer's name or trademark
- b) Material designation: Class 300 ductile iron threaded fittings and threaded unions shall be marked with the word "DUCTILE" or abbreviated as indicated below. When shape and size permits, threaded fittings, threaded unions, and ductile iron 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 unions shall be marked with the numerals "300", designating the nominal service rating. When heavier patterns are used to cast ductile iron fittings rate otherwise, they shall be marked with the numerals designating the maximum cold working pressure in psi supplemented by the letters "CWP".

13.5 ***Malleable Iron Threaded Fittings and Threaded Unions*** Markings shall be as follows (see Annex B13.5 for examples):

- a) Manufacturer's name or trademark
- b) Material designation: Class 300 fittings shall be marked with the letters "MI". Class 150 malleable iron threaded fittings and Classes 150, 250, and 300 malleable iron threaded unions do not require material marking.
- c) Rating designation: Classes 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.

13.6 ***Ferrous Threaded Plugs, Bushings, and Locknuts*** Markings shall be as follows (see Annex B13.6 for example):

- a) Manufacturer's name or trademark

13.7 ***Steel Threaded Fittings and Unions*** Markings shall be as follows: (see Annex B13.7 for examples):

- a) Manufacturer's name or trademark
- b) Material designation: Threaded fittings made of carbon steel, forged or barstock carbon steel, alloy cast steel, or forged or barstock alloy steel shall be marked with the word "STEEL", or the grade identification symbols as designated by AISI/SAE, or in ASTM or MSS specifications. Austenitic stainless steel threaded fittings may carry only the grade identification symbols.
- c) Indication of conformance to Standard (e.g., MSS SP-83 marked as "SP83" or ASME B16.11 as "B16")
- d) 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 indicating the pressure class designation tabulated in ASME B16.11. When the nominal rating is other than that specified in ASME or MSS standards, the numerals comprising the maximum pressure in psi, supplemented by one or more of the standard symbols identifying the class of service, shall be used.
- e) Heat number (see Section 6)
- f) Size

14. **MARKING REQUIREMENTS FOR WELDING AND SOLDER-JOINT FITTINGS AND UNIONS**

14.1 ***Steel Butt-Welding and Socket-Welding Fittings and Unions*** Markings shall be as follows (see Annex B14.1 for examples):

- 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 as per applicable ASTM or MSS specifications, or as designated by AISI/SAE. Austenitic stainless-steel socket-welding end fittings and unions may carry the grade identification symbols in lieu of the ASTM number. Butt-welding fittings conforming to the requirements of ASTM specifications A234/A234M, A403/A403M (excepting light-wall fittings manufactured to MSS SP-43), A420/A420M, A515/A515M, A516/A516M, A815/A815M, A860/A860M, B361, B363, and B366/B366M, shall use marking symbols consisting of the prefix "WP" added to the ASTM-specified grade identification symbol.

Examples: WPB, WP304, WPL6, WP6061

If the fittings are of welded construction, the material marking will be supplemented with the suffix letter "W". MSS SP-75 high-test, wrought, butt-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 numerals indicating the

14.2 **Solder-Joint Fittings** Markings shall be as follows (see Annex B14.2 for examples):

- a) Manufacturer's name or trademark
- b) Material designation: Material markings are not required on cast copper alloy solder-joint fittings, flanges, unions, or 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 drainage waste vent. Cast bronze or wrought copper solder-joint drainage fittings, designed for dry vents only, shall be marked "VENT ONLY".

15. MARKING REQUIREMENTS FOR NON-FERROUS VALVES

15.1 **Brass, Bronze, and Non-Ferrous Body Valves** Markings shall be placed on the body as follows (see Annex B15.1 for examples):

- a) Manufacturer's name or trademark
- b) Rating designation
- c) Material designation, when required (refer to Section 5.3)
- d) Size

Note: See note in Section 12.4 (b)

16. MARKING REQUIREMENTS FOR GRAY IRON VALVES

16.1 **Gray Iron Valves** 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. Markings shall be as follows (see Annex B16.1 for examples):

- a) Manufacturer's name or trademark
- b) Rating designation; Gray iron valves rated at 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 NPS 12 and smaller, and the maximum saturated steam rating for NPS 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 Section 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 Section 4.1.3.
- c) Material designation; Gray iron valves made to the specifications of ASTM A126, 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 shall be marked with "MI".
- d) Size

17. MARKING REQUIREMENTS FOR DUCTILE IRON VALVES

17.1 **Ductile Iron Valves** Markings shall be cast, stamped, or engraved on the body of the valve, or shown on an identification plate permanently attached to the valve. Identification plates shall be used for valve trim identification (when necessary) and special limitations but are otherwise optional at the

Markings shall be as follows (see Annex B17.1 for examples):

- a) Manufacturer's name or trademark
- b) Material designation; Ductile iron valves shall be marked with the word "DUCTILE" or "DI" on the body. At the manufacturer's option, the ASTM grade number may be added to the body and the identification Plate.
- c) Rating designation, including on an identification plate with any special limitations such as maximum temperature required by valve construction.
- d) Size
- e) Valve trim identification, when appropriate, on nameplate

18. **MARKING REQUIREMENTS FOR STEEL VALVES**

18.1 **Body Markings** Markings shall be cast, stamped, forged, or engraved on the body of the valve, or on a permanently attached marked plate⁽¹⁾. Markings that are obliterated during manufacturing may be replaced by weld deposition, stamping, engraving, or by permanently attached marked plates, at the option of the manufacturer. Markings shall be as follows (see Section 18.3):

- a) Manufacturer's name or trademark
- b) Material designation
- c) Rating designation
- d) Heat number (see Section 6)
- 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 Section 2.7)

18.2 **Identification Plate Markings** The following markings shall be shown on permanently attached identification plates (see Section 18.3):

- a) Manufacturer's name or trademark
- b) Body material designation⁽²⁾
- c) Rating designation: the appropriate Pressure Rating Class
- d) Service Limitation: the valve rating at 100 °F including any special limitations such as maximum pressure, pressure differential, and/or temperature limits due to valve construction features such as packing and seats.
- e) Trim identification (see Section 7)
- f) Additional markings are permitted (see Sections 2.6 and 2.7)
- g) Indication of conformance to ASME B16.34, if applicable

NOTES:

- (1) The permanently attached marked plate on the body is for the purpose of showing body markings and should not be confused with the Identification Plate in Section 18.2.
- (2) These required markings, if shown on the body, need not be duplicated on the I.D. plate.

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

- a) ASME B16.34 (see Section 18.4)
- b) Other standards (see Section 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.

The examples illustrate the marking sequence of Sections 18.1 and 18.2. The actual sequence and positioning of the actual markings, on an actual product, is at the option of the manufacturer.

18.4 **ASME B16.34 Conforming Identification Plate and Body Marking Examples** The Identification (I.D.) Plate and Body Marking examples are located within Annex B18.4 and conform to ASME B16.34.

18.5 **Identification Plate and Body Marking Examples Conforming to Standards Other than ASME B16.34** The Identification (I.D.) Plate and Body Marking examples are located within Annex B18.5 and illustrate practices conforming to standards other than ASME B16.34; in considering various material and application factors.

ANNEX A

Reference Tables

TABLE A1

Examples of Common Symbols for Metallic Materials

Material Name	Symbol	Material Name	Symbol
Aluminum	AL	Nickel-Aluminum Bronze	NIAB
Aluminum Bronze	AB	Nickel-Copper Alloy	NICU
Brass	BRS	Soft Metal (e.g., lead babbitt, copper, etc.)	SM
Bronze	BRZ	Stainless Steel	SS
Carbon Steel	CS	Steel [see Section 12.7(b) & 13.7(b)]	STEEL
Gray Iron	GI	Steel, 13 Chromium (e.g., martensite type stainless steel)	13 CR/CR 13
Copper Alloy	CA	Steel, 18 Chromium (ferrite type stainless steel)	18 CR/CR 18
Copper-Nickel Alloy	CUNI	Steel, 18-8 (~18 Cr – 8 Ni austenite type stainless steel)	18-8
Ductile Iron	DI	Steel, 18-8 with Molybdenum	18-8SMO
Hardfacing	HF	Steel, 18-8 with Columbium (Niobium)	18-8SCB (18-8SNB)
Integral Seats	INT	Surface Hardened Steel (e.g., nitrided surface)	SH
Malleable Iron	MI	Wrought (Cast) Carbon Steel, Grade B (see ASTM A216/A216M)	WCB

TABLE A2

Examples of Common Symbols for Non-Metallic Materials

Material Name	Symbol	Material Name	Symbol
Asbestos (use is limited; banned in most countries)	ASB	Natural Rubber	NR
Butadiene Rubber	BR	Nitrile or Buna-N Rubber	NBR
Butyl Rubber	IIR	Nylon	NYL
Chloroprene (Chlorobutadiene) or Polychloroprene Rubber	CR	Polyacrylic Rubber	ACM
Chlorosulfonated Polyethylene	SCM	Polyetherketone	PEEK/PEK
Chlorotrifluoroethylene	CIFE	Polytetrafluoroethylene	PTFE
Ethylene-Propylene Diene Monomer	EPDM	Poly Vinyl Chloride	PVC
Ethylene-Propylene Rubber	EPR	Reinforced Polytetrafluoroethylene	RTFE
Ethylene-Propylene Ter Polymer	EPT	Rubber Lined	RL
Flexible Graphite	GRAF	Silicone Rubber	SI/S
Fluorocarbon Rubber	FKM	Styrene Butadiene Rubber	SBR
Fluorinated Ethylene Propylene	FEP	Tetrafluoroethylene	TEF

ANNEX A

(Continued)

Reference Tables**TABLE A3****Size Identification and Equivalency: NPS and DN**

NPS	DN	NPS	DN
1/8	6	20	500
1/4	8	22	550
3/8	10	24	600
1/2	15	26	650
3/4	20	28	700
1	25	30	750
1¼	32	32	800
1½	40	36	900
2	50	40	1000
2½	65	42	1050
3	80	48	1200
4	100	52	1300
5	125	54	1350
6	150	60	1500
8	200	64	1600
10	250	72	1800
12	300	80	2000
14	350	88	2200
16	400	96	2400
18	450	104	2600

TABLE A4**Examples of Thread Type Symbols**

Type	Symbol
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

TABLE A5**ASME B16.1 Rating Designations**

Class	NPS	Numeral
25	All	25
125	1 to 12 14 to 24 30 to 48	125 100 50
250	1 to 12 14 to 24 30 to 48	250 200 100

ANNEX B**Marking Requirement Examples**

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

NOTE: The examples in this Annex B correspond to the section where the requirement is located and are not listed in numerical order (e.g., B12.1.1 is the first example referenced for Section 12.1 of this Standard Practice).

B12. MARKING REQUIREMENT EXAMPLES FOR FLANGES, FLANGED FITTINGS, AND FLANGED UNIONS**B12.1 Gray Iron Flanges**

B12.1.1 Gray iron flanges, Class 25 (ASME B16.1):

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation	25

B12.1.2 NPS 12 and below, gray iron (ASTM A126, Class B) flanges, Class 125 or 250 (ASME B16.1):

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating and material designation	125B or 250B

B12.1.3 NPS 14 and above, gray iron (ASTM A126, Class B) flanges, Class 125 (ASME B16.1):

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating and material designation	125B

B12.1.4 NPS 14 and above, gray iron flanges, Class 250 (ASME B16.1):

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation	250

B12.2 Gray Iron Flanged Fittings

B12.2.1 All NPS sizes, gray iron fittings, Class 25 (ASME B16.1):

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation	25

B12.2.2 NPS 12 and below, gray iron (ASTM A126, Class B) flanged fittings, Class 125 and 250

ANNEX B

(continued)

Marking Requirement Examples

B12.2.3 NPS 14 to NPS 24, gray iron flanged fittings, Class 125 and 250 (ASME B16.1):

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation	100 <i>or</i> 200

B12.2.4 NPS 30 to NPS 48, gray iron flanged fittings, Class 125 and 250 (ASME B16.1):

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation	50 <i>or</i> 100

B12.3 Gray Iron Flanged Unions

B12.3.1 Gray iron flanged unions, Class 125 or 250:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO

B12.4 Bronze Flanges and Flanged Unions

B12.4.1 Bronze flanges (ASME B16.24), Classes 150 and 300:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO

B12.4.2 Brass or bronze flanged unions, Class 150:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO

B12.4.3 Brass or bronze flanged unions, Class 150:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Supplemental material designation (when applicable):	BI

B12.5 Bronze, Brass, and Non-Ferrous Flanged Fittings

B12.5.1 Bronze ASTM B61 flanged fittings (ASME B16.24), Class 150 or 300:

Marking Requirement	Example
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ANNEX B

(continued)

Marking Requirement Examples

- B12.5.2 An NPS 2 cast aluminum-bronze (ASTM B148, UNS C95200) non-ferrous flange, Class 150, conforming to ASME B16.24:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	B148 952
Rating designation	150
Size	2
Conformance marking	B16 or B16.24 (e.g., more specific)

B12.6 Ductile Iron Flanges and Flanged Fittings

- B12.6.1 An NPS 6, Class 150, ductile iron (ASTM A395/A395M) fitting conforming to ASME B16.42:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation	150
Material designation	DUCTILE or DI
Size	6

B12.7 Steel Flanges, Flanged Fittings, and Flanged Unions

- B12.7.1 An NPS 4, Class 150, cast carbon steel (ASTM A216/A216M, Grade WCB) fitting, conforming to ASME B16.5 dimensions and rated to 600 °F:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	WCB
Heat number (see Section 6)	000
Rating designation	150
Temperature designation	140 AT 600F
Size	4
Conformance marking	B16 or B16.5 (e.g., more specific)

- B12.7.2 An NPS 8, Class 150, cast 1¼% chromium molybdenum steel (ASTM A217/A217M, Grade WC6) flanged fitting with ring joint facing, conforming to ASME B16.5 dimensions:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	WC6
Heat number (see Section 6)	000

ANNEX B

(continued)

Marking Requirement Examples

- B12.7.3 An NPS 2, Class 300, cast 18% chromium, 8% nickel, 3% molybdenum stainless steel (ASTM A351/A351M, Grade CF8M) fitting, conforming to ASME B16.5 dimensions:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	CF8M
Heat number (see Section 6)	000
Rating designation	300
Size	2
Conformance marking	B16 or B16.5 (e.g., more specific)

- B12.7.4 An NPS 4, Class 150 cast carbon steel (ASTM A216/A216M, Grade WCB) flange, conforming to ASME B16.5 dimensions:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	WCB
Heat number (see Section 6)	000
Rating designation	150
Size	4
Conformance marking	B16 or B16.5 (e.g., more specific)

- B12.7.5 An NPS 6, Class 1500 forged alloy steel (ASTM A182/A182M, Grade F1), flange with ring-joint flange facing, conforming to ASME B16.5 dimensions:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	A182 F1
Heat number (see Section 6)	000
Rating designation	1500
Size	6
Ring joint number	R46
Conformance marking	B16 or B16.5 (e.g., more specific)

- B12.7.6 An NPS 3, carbon steel, 2000 psi rated flanged union for ambient temperatures *or* an NPS 3, carbon steel, 6000 psi rated flanged union for ambient temperatures:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	STEEL
Temperature designation	2000 CWP <i>or</i> 6000 CWP

ANNEX B

(continued)

Marking Requirement Examples**B13. MARKING REQUIREMENT EXAMPLES FOR THREADED FITTINGS AND UNIONS****B13.1 Threaded Gray Iron Fittings**

B13.1.1 Gray iron, Class 125 (ASME B16.4) or gray iron drainage (ASME B16.12):

Marking Requirement	Example
Manufacturer's name or trademark	AB CO

B13.1.2 Gray iron, Class 250 (ASME B16.4):

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation	250

B13.2 Bronze and Brass Threaded Fittings and Unions

B13.2.1 Bronze, Class 125 (ASME B16.15):

Marking Requirement	Example
Manufacturer's name or trademark	AB CO

B13.2.2 An NPS 4 bronze, Class 250 (ASME B16.15) fitting:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation	250
Size	4

B13.2.3 Brass or bronze, Class 125 union, or brass or bronze, Class 250 union:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation (Class 250 only)	250

B13.2.4 An NPS 3, brass or bronze, Class 300 union:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation	300
Size	3

ANNEX B

(continued)

Marking Requirement Examples**B13.3 Non-Ferrous Alloys Threaded Fittings**

B13.3.1 Ni-Cu 505 fitting to ASME B16.15, Class 250 dimensions:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation	250
Material designation	MONEL 505

B13.4 Ductile Iron Class 300 Threaded Fittings and Threaded Unions

B13.4.1 Ductile iron, Class 300 threaded fitting or threaded union:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	DUCTILE <i>or</i> DI
Rating designation	300

B13.5 Malleable Iron Threaded Fittings and Threaded Unions

B13.5.1 Malleable iron, ASME B16.3, Class 150 fitting:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO

B13.5.2 An NPS 1½, malleable iron, ASME B16.3, Class 300 fitting:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	MI
Rating designation	300
Size	1-1/2

B13.5.3 An NPS 2, malleable iron, Class 150, 250, and 300 (ASME B16.39) union:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	MI
Rating designation appropriate to Pressure Class	150, 250, <i>or</i> 300
Size	2

B13.6 Ferrous Threaded Plugs, Bushings, and Locknuts

B13.6.1 Ferrous Threaded Plugs and Locknuts (ASME B16.14)

ANNEX B

(continued)

Marking Requirement Examples**B13.7 Steel Threaded Fittings and Unions**

B13.7.1 An NPS 3, cast steel threaded fitting designed for 1000 psi ambient temperature service:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	STEEL
Rating designation	1000 CWP
Heat number	000
Size	3

B13.7.2 An NPS 1 $\frac{1}{4}$, carbon steel (ASTM A105/A105M) Class 3000 threaded fitting, conforming to ASME B16.11:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	A105, <i>or</i> WPB
Rating designation	3000
Heat number	000
Size	1-1/4
Conformance marking	B16

B13.7.3 An NPS 3/4, alloy steel (ASTM A182/A182M, Grade F1) threaded fitting to ASME B16.11 Pressure Class 6000 designation:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	F1, ASTM182, B16 , <i>or</i> WP1
Rating designation	6000
Heat number	000
Size	3/4
Conformance marking	B16

B13.7.4 An NPS 1, Class 3000 forged alloy steel (ASTM A182/A182M, Grade F304) fitting:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	F304 <i>or</i> WP304
Rating designation	3000
Heat number	000
Size	1

ANNEX B

(continued)

Marking Requirement Examples

- B13.7.5 An NPS 3, carbon steel, Class 300 union with bronze seats, recommended by the manufacturer for 300 psi at 550 °F:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	STEEL
Rating designation	300 AT 550F
Heat number	000
Size	3

- B13.7.6 An NPS 2, MSS SP-83 forged carbon steel (ASTM A105/A105M) union with socket welding ends or threaded ends, Class 3000, marked on nut and ends:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	A105
Conformance marking	SP83
Rating designation	3000
Heat number	000
Size	2

- B13.7.7 An NPS 3, MSS SP-114 cast corrosion resistant (ASTM A351/A351M, Grade CF8M) threaded elbow, Class 150:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	CF8M
Conformance marking	SP114
Rating designation	150
Heat number	000
Size	3

B14. MARKING REQUIREMENT EXAMPLES FOR WELDING AND SOLDER-JOINT FITTINGS AND UNIONS

B14.1 Steel Butt-Welding and Socket-Welding Fittings and Unions

- B14.1.1 An NPS 4, carbon steel butt-welding fitting matching a Schedule 40 wall thickness, made from ASTM A234/A234M material, and conforming to ASME B16.9:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO

ANNEX B

(continued)

Marking Requirement Examples

- B14.1.2 An NPS 1¼ forged or barstock carbon steel (ASTM A105/A105M) socket-welding fitting conforming to ASME B16.11, Pressure Class 3000:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	WPB
Rating designation	3000
Size	1-1/4
Heat number	000
Conformance marking	B16

- B14.1.3 An NPS 3/4, forged or barstock alloy steel (ASTM A182/A182M, Grade F1) socket-welding fitting, conforming to ASME B16.11, Pressure Class 6000:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	WPB
Rating designation	6000
Size	3/4
Heat number	000
Conformance marking	B16

- B14.1.4 An NPS 1, butt-welding end fitting (ASTM A403/A403M, Grade WP304), Schedule 40S, Class W pipe:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	WP304-W
Rating designation	SCH 40S
Size	1
Heat number	000
Conformance marking	A403

- B14.1.5 An NPS 1, butt-welding end fitting (ASTM A234/A234M), standard weight pipe:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Material designation	WPB
Rating designation	STD or SCH 40
Size	1
Heat number	000

ANNEX B

(continued)

Marking Requirement Examples**B14.2 Solder-Joint Fittings**

- B14.2.1 Cast copper alloy solder-joint pressure fittings (ASME B16.18) and wrought copper or copper alloy solder-joint pressure fittings (ASME B16.22):

Marking Requirement	Example
Manufacturer's name or trademark	AB CO

- B14.2.2 Wrought copper pressure fittings, conforming to MSS SP-104:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO

- B14.2.3 Cast copper alloy solder-joint drainage fittings (ASME B16.23) and wrought copper or wrought copper alloy solder-joint drainage fittings (ASME B16.29):

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation for drainage waste vent	DWV
Rating designation when fitting is designed for dry vents	VENT ONLY

B15. MARKING REQUIREMENT EXAMPLES FOR NON-FERROUS VALVES**B15.1 Brass, Bronze, and Non-Ferrous Body Valves**

- B15.1.1 An NPS 2, bronze valve (ASTM B61), recommended by the manufacturer for 200 psi steam:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation	200
Size	2

- B15.1.2 An NPS 3/4, nickel-copper valve, recommended by the manufacturer for 300 psi steam at a temperature of 750 °F:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation	300 AT 750F
Material designation	NICU
Size	3/4

ANNEX B

(continued)

Marking Requirement Examples**B16. MARKING REQUIREMENT EXAMPLES FOR GRAY IRON VALVES****B16.1 Gray Iron Valves**

B16.1.1 An NPS 6, Class 125, gray iron valve, recommended by the manufacturer for 125 psi steam:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation	125
Size	6

B16.1.2 An NPS 12, gray iron valve, recommended by the manufacturer for 800 psi ambient temperature fluid service:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation	800 CWP
Size	12

B16.1.3 An NPS 2, malleable iron valve, recommended by the manufacturer for 250 psi steam:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation	250
Material designation	MI
Size	2

B16.1.4 An NPS 1½, malleable iron valve, recommended by the manufacturer for 1000 psi ambient temperature fluid service:

Marking Requirement	Example
Manufacturer's name or trademark	AB CO
Rating designation	1000 CWP
Material designation	MI
Size	1-1/2

ANNEX B

(continued)

Marking Requirement Examples**B17. MARKING REQUIREMENT EXAMPLES FOR DUCTILE IRON VALVES****B17.1 Ductile Iron Valves**

B17.1.1 An NPS 6, Class 150 ductile iron valve (ASTM A395/A395M) with 13% chromium trim:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	DUCTILE <i>or</i> DI A395 (Optional)	DUCTILE <i>or</i> DI A395 (Optional)
Rating designation	220 AT 100F 95 AT 650F	150
Size	6	6
Valve Trim I.D.:		
<i>Stem</i>	STEM 13CR	—
<i>Disc</i>	DISC 13CR	—
<i>Seat</i>	SEAT 13CR	—

B17.1.2 An NPS 6, Class 150 ductile iron valve (ASTM A395/A395M) with 13% chromium trim for an API 6D application:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	DUCTILE <i>or</i> DI A395 (Optional)	DUCTILE <i>or</i> DI
Rating designation	150 AT 650F	150
Size	6	6
Valve Trim I.D.:		
<i>Stem</i>	STEM 13CR	—
<i>Disc</i>	DISC 13CR	—
<i>Seat</i>	SEAT 13CR	—
Conformance marking	API 6D	—

B17.1.3 An NPS 6, Class 150 ductile iron valve (ASTM A395/A395M) with 13% chromium trim for an API 6D application:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	DUCTILE <i>or</i> DI A395 (Optional)	DUCTILE <i>or</i> DI
Rating designation	300 CWP 250F MAX	150

ANNEX B

(continued)

Marking Requirement Examples**B18. MARKING REQUIREMENT EXAMPLES FOR STEEL VALVES****B18.4 ASME B16.34 Conforming I.D. Plate and Body Marking Examples**

B18.4.1 An NPS 6, ASME B16.34 Class 150, cast carbon steel (ASTM A216/A216M, Grade WCB) gate valve, where a manufacturer elects to limit the valve body to a specific service temperature (e.g., 800 °F):

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	WCB	WCB
Rating designation	150	150
Service limitation	285 AT 100F 800F MAX	—
Heat number	—	000
Trim identification (stem-disc-seats)	13CR – 13CR – NICU	—
Size	—	6
Conformance marking	B16.34	—

B18.4.2 An NPS 3/4, ASME B16.34, Class 300, forged carbon steel (ASTM A105/A105M) ball valve, with stainless steel and TFE trim:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	A105	A105
Rating designation	300	300
Service limitation	740 AT 100F SEATS 200 AT 350F MAX	—
Heat number	—	000
Trim identification (stem-ball-seats)	316 – 316 – TFE	—
Size	—	3/4
Conformance marking	B16.34	—

B18.4.3 An NPS 8, ASME B16.34, Class 600, cast chromium-molybdenum steel (ASTM A217/A217M, Grade WC6) globe valve, with ring-joint flange facing suitable for the full pressure-temperature rating in B16.34:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	WC6	WC6
Rating designation	600	600
Service limitation	1500 AT 100F	—
Heat number	—	000
Trim identification (stem-disc-seat)	13CR – 13CR – 13CR	—

ANNEX B

(continued)

Marking Requirement Examples

- B18.4.4 An NPS 4, ASME B16.34, Class 900, forged chromium-molybdenum steel (ASTM A182/A182M, Grade F11) plug valve, with temperature limited to 350 °F:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	F11	F11
Rating designation	900	900
Service limitation	2250 AT 100F 350F MAX	—
Heat number	—	000
Trim identification (plug)	PLUG 13CR	—
Size	—	4
Conformance marking	B16.34	—

- B18.4.5 An NPS 8, ASME B16.34, Class 600, cast carbon steel (ASTM A352/A352M, Grade LCB) globe valve for low temperature service with TFE trim limited to 300 °F:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	LCB	LCB
Rating designation	600	600
Service limitation	1390 AT -50/100F SEAT 300F MAX	—
Heat number	—	000
Trim identification (stem-disc-seat)	18 CR – NICU – TFE	—
Size	—	8
Conformance marking	B16.34	—

- B18.4.6 An NPS 24, ASME B16.34, Class 150, fabricated steel gate valve, with stainless steel lining (ASTM A240/A240M, Grade 316) and carbon steel (ASTM A515/A515M, Grade 60) exterior structure with flanges, hardfaced seats where manufacturer elects to limit valve to 800 °F:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation ^(a)	A515 GR 60 A240 T316 LINING	A515 60
Rating designation	150	150
Service limitation	235 AT 100F 800F MAX	—
Heat number	—	000
Trim identification (stem-disc-seats)	18-8SMO – 18-8SMO – HF	—
Size	—	24
Conformance marking	B16.34	—

NOTE: (a): I.D. Plate Material designation may also be shown as: A515 GR 60 LINING A240 T316

ANNEX B

(continued)

Marking Requirement Examples

- B18.4.7 An NPS 4, ASME B16.34, Class 150, cast chromium-nickel molybdenum stainless steel (ASTM A351/A351M, Grade CF8M) gate valve with a maximum carbon content of 0.08%* and with trim material same as body:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	CF8M	CF8M
Rating designation	150	150
Service limitation	275 AT 100F 1000F MAX	—
Heat number	—	000
Trim identification	—	—
Size	—	4
Conformance marking	B16.34	—

* For service above 800 °F (425 °C), specify carbon content of 0.04% or greater, as per parent standard. Note that the minimum carbon content is a requirement of ASME B16.34. The maximum carbon content limit is as specified in the appropriate ASTM standard.

- B18.4.8 An NPS 20, ASME B16.34, standard Class 1500, cast chromium-molybdenum steel (ASTM A217/A217M, Grade WC6) gate valve, with ends flared to match NPS 24 pipe:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	WC6	WC6
Rating designation	1500	1500
Service limitation	3750 AT 100F	—
Heat number	—	000
Trim identification (stem-disc-seats)	13CR – HF – HF	—
Size	—	24 X 20 X 24
Additional marking	MADE IN U.S.A.	—
Conformance marking	B16.34	—

- B18.4.9 An NPS 12, ASME B16.34, intermediate rating standard class, cast chromium-molybdenum steel (ASTM A217/A217M, Grade C12) check valve for 2200 psi at 1000 °F service:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	C12	C12
Rating designation	2600	2600
Service limitation	6500 AT 100F 2200 AT 1000F	—
Heat number	—	000
Trim identification (disc-seat)	HF – HF	—

ANNEX B

(continued)

Marking Requirement Examples

B18.4.10 An NPS 14, ASME B16.34, special Class 1500, cast carbon steel (ASTM A216/A216M, Grade WCC) globe valve where manufacturer limits valve to 800 °F:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	WCC	WCC
Rating designation	1500	1500
Service limitation	3750 AT 100F 800F MAX	—
Heat number	—	000
Trim identification (stem-disc-seat)	13 CR – HF – HF	—
Size	—	14
Conformance marking	B16.34 SPL	—

B18.4.11 An NPS 8, ASME B16.34, intermediate rating special class, forged chromium-molybdenum steel (ASTM A182/A182M, Grade F22) check valve for 2000 psi at 1000 °F service:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	A182 F22	A182 F22
Special rating designation	—	2000 AT 1000F
Heat number	—	000
Trim identification (disc-seat)	HF – HF	—
Size	—	8
Conformance marking	B16.34 SPL	—

B18.4.12 An NPS 16, ASME B16.34, standard Class 2500, cast carbon steel (ASTM A216/A216M, Grade WCB) gate valve with markings in SI (metric) units:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	WCB	WCB
Rating designation	2500	2500
Service limitation	425 BAR AT 38C	—
Heat number	—	000
Trim identification (stem-disc-seat)	13CR – HF – HF	—
Size	—	16
Conformance marking	B16.34	—
Additional markings	MADE IN U.S.A.	—

ANNEX B

(continued)

Marking Requirement Examples**B18.5 Identification Plate and Body Marking Examples Conforming to Standards Other than ASME B16.34**

B18.5.1 An NPS 2, 720 psi at 1350 °F rated, cast chromium-nickel-molybdenum stainless steel (ASTM A351/A351M, Grade CF8M) check valve:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	CF8M	CF8M
Rating designation	720 AT 1350F	720 AT 1350F
Service limitation	—	—
Heat number	—	000
Trim identification (disc-seat)	DISC 18-8SMO – SEAT INT	—
Size	—	2

B18.5.2 An NPS 6, 500 psi at 500 °F rated, cast chromium-nickel-molybdenum-copper stainless steel (ASTM A351/A351M, Grade CN7M) gate valve, with integral trim:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	CN7M	CN7M
Rating designation	500 AT 500F	500 AT 500F
Service limitation	—	—
Heat number	—	000
Trim identification (stem-disc-seats)	<i>Not Required</i> (see Section 7.1)	—
Size	—	6
Additional markings	PATENT ###	—

B18.5.3 An NPS 8, 150 psi rated, cast carbon steel (ASTM A216/A216M, Grade WCB) butterfly valve, with Nitrile elastomeric seat and with Viton® seals^(a) rated to 200 °F max. and 150 psig max.:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	WCB	WCB
Rating designation	150 AT 100F	150 AT 100F
Service limitation	150 AT 200F MAX	—
Heat number	—	000
Trim identification (stem-disc-seat)	T304 – BRZ – NBR	—
Size	—	8
Additional markings	SEALS VITON	—

NOTE: (a) Viton® is used as an example of a commonly used FKM designated synthetic rubber/fluoropolymer elastomer. Other comparable material and products may also be used in this example, as applicable.

ANNEX B

(continued)

Marking Requirement Examples

B18.5.4 An NPS 16, 150 CWP rated, fabricated carbon steel (ASTM A515/A515M, Grade 60) flanged end gate valve with T316 trim where manufacturer limits valve to 50 psig at 800 °F:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	A515 GR 60	A515 GR 60
Rating designation	150 AT 100F	150 AT 100F
Service limitation	50 AT 800F MAX	—
Heat number	—	000
Trim identification (stem-disc-seats)	T316 – T316 – T316	—
Size	—	16

B18.5.5 An NPS 12, Class 300, fabricated carbon steel (ASTM A516/A516M, Grade 70) flanged end gate valve with API Trim 3 built in accordance with API 600:

	I.D. Plate Marking	Body Marking
Manufacturer's name or trademark	AB CO	AB CO
Material designation	A516 GR 70	A516 70
Rating designation	300	300
Heat number	—	000
Trim identification	TRIM 3	—
Size	—	12
Conformance marking	API 600	—

B18.5.6 An NPS 24, ASME Section III, Subsection NB, Class 600, cast chromium-nickel-molybdenum steel (ASME SA-351, Grade 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:

Consult applicable Code for marking requirements.

ANNEX C

Referenced Standards and Applicable Dates

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

Standard Name	Description
<u>ASME; ANSI/ASME</u>	
B1.20.1-2013	Pipe Threads, General Purpose (Inch)
B16.1-2015	Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250
B16.3-2016	Malleable Iron Threaded Fittings: Classes 150 and 300
B16.4-2016	Gray Iron Threaded Fittings: Classes 125 and 250
B16.5-2017	Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard
B16.9-2012	Factory-Made Wrought Butt welding Fittings
B16.11-2016	Forged Fittings, Socket-Welding and Threaded
B16.12-2009 (R2014)	Cast Iron Threaded Drainage Fittings
B16.14-2013	Ferrous Pipe Plugs, Bushings, and Locknuts with Pipe Threads
B16.15-2013	Cast Copper Alloy Threaded Fittings: Classes 125 and 250
B16.18-2012	Cast Copper Alloy Solder Joint Pressure Fittings
B16.22-2013	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings
B16.23-2016	Cast Copper Alloy Solder Joint Drainage Fittings: DWV
B16.24-2016	Cast Copper Alloy Pipe Flanges and Flanged Fittings: Classes 150, 300, 600, 900, 1500 and 2500
B16.29-2012	Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings – DWV
B16.34-2017	Valves – Flanged, Threaded and Welding End
B16.39-2014	Malleable Iron Threaded Pipe Unions: Classes 150, 250, and 300
B16.42-2016	Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300
BPVC-III-2017	Boiler and Pressure Vessel Code, Section III: Rules for Construction of Nuclear Power Plant Components
BPVC-2017	Boiler and Pressure Vessel Code
<u>API; API/ANSI</u>	
SPEC 6A-2010	Specification for Wellhead and Christmas Tree Equipment; incl. Addendum 1 (2011), Addendum 2 (2012), Addendum 3 (2013), Addendum 4 (2016), and Errata 1 (2011) through 10 (2016) (Modified ISO 10423:2009, Petroleum and Natural Gas Industries – Drilling and Production Equipment – Wellhead and Christmas Tree Equipment)
SPEC 6D-2014	Specification for Pipeline and Piping Valves; incl. Addendum 1 (2009/2015), Addendum 2 (2016), and Errata 1 (2014) through Errata 8 (2016)
600-2015	Steel Gate Valves – Flanged and Butt-welding Ends, Bolted Bonnets
<u>ASTM</u>	
Standard Specification for:	
A105/A105M-14	Carbon Steel Forgings for Piping Applications
A126-04(2014)	Gray Iron Castings for Valves, Flanges, and Pipe Fittings

ANNEX C

(continued)

Referenced Standards and Applicable Dates

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

ASTM**Standard Specification for:**

A216/A216M-16	Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service
A217/A217M-14	Steel Castings, Martensitic Stainless and Alloy, for Pressure-Containing Parts, Suitable for High-Temperature Service
A234/A234M-15	Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service
A240/A240M-16	Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
A351/A351M-16	Castings, Austenitic, for Pressure-Containing Parts
A352/A352M-17	Steel Castings, Ferritic and Martensitic, for Pressure-Containing Parts, Suitable for Low-Temperature Service
A395/A395M-99(2014)	Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures
A403/A403M-16	Wrought Austenitic Stainless Steel Piping Fittings
A420/A420M-16	Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low-Temperature Service
A515/A515M-10(2015)	Pressure Vessel Plates, Carbon Steel, for Intermediate- and Higher-Temperature Service
A516/A516M-10(2015)	Pressure Vessel Plates, Carbon Steel for Moderate- and Lower- Temperature Service
A815/A815M-14e1	Wrought Ferritic, Ferritic/Austenitic, and Martensitic Stainless Steel Piping Fittings
A860/A860M-14	Wrought High-Strength Ferritic Steel Butt-Welding Fittings
B61-15	Steam or Valve Bronze Castings
B62-15	Composition Bronze or Ounce Metal Castings
B148-14	Aluminum-Bronze Sand Castings
B361-16	Factory-Made Wrought Aluminum and Aluminum-Alloy Welding Fittings
B363-14	Seamless and Welded Unalloyed Titanium and Titanium Alloy Welding Fittings
B366/B366M-16	Factory-Made Wrought Nickel and Nickel Alloy Welding Fittings
B584-14	Copper Alloy Sand Castings for General Applications
B824-17	General Requirements for Copper Alloy Castings

MSS; ANSI/MSS

SP-43-2013	Wrought and Fabricated Butt-Welding Fittings for Low Pressure, Corrosion Resistant Applications; incl. Errata (2015)
SP-75-2014	High-Test, Wrought, Butt-Welding Fittings
SP-83-2018	Class 3000 and 6000 Pipe Unions, Socket Welding and Threaded (Carbon Steel,

ANNEX C

(continued)

Referenced Standards and Applicable Dates

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

The following organizations appear on the previous pages of this annex or are referenced in this Standard Practice:

AISI	American Iron and Steel Institute 1140 Connecticut Ave., NW, Suite 705 Washington, DC 20036-4011
ANSI	American National Standards Institute, Inc. 25 West 43 rd Street, Fourth Floor New York, NY 10036-7406
API	American Petroleum Institute 1220 L Street, NW Washington, DC 20005-4070
ASME	American Society of Mechanical Engineers (ASME International) Two Park Avenue New York, NY 10016-5990-5990
ASTM	ASTM International 100 Barr Harbor Drive, P.O. Box C700 West Conshohocken, PA 19428-2959
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235-3098
FM	FM Global (FM Approvals) 270 Central Avenue, P.O. Box 7500 Johnston, RI 02919-4923
MSS	Manufacturer's Standardization Society of the Valve and Fittings Industry, Inc. 127 Park Street, NE Vienna, VA 22180-4602
SAE	SAE International 400 Commonwealth Drive

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MSS Standard Practices (SPs) related to or referenced in this publication:

MSS SP-43	<i>Pipe Hangers and Supports – Materials, Design, Manufacture, Selection, Application, and Installation</i>
MSS SP-75	<i>High-Strength, Wrought, Butt-Welding Fittings</i>
MSS SP-83	<i>Class 3000 and 6000 Pipe Unions, Socket Welding and Threaded (Carbon Steel, Alloy Steel, Stainless Steels, and Nickel Alloys)</i>
ANSI/MSS SP-96	<i>Terminology for Valves, Fittings, and Their Related Components</i>
MSS SP-104	<i>Wrought Copper, Solder-Joint Pressure Fittings</i>
ANSI/MSS SP-114	<i>Corrosion Resistant Pipe Fittings Threaded and Socket Welding Class 150 and 1000</i>

American National Standards Published by MSS, an ANSI-accredited Standards Developer:

ANSI/MSS SP-25	<i>Standard Marking System for Valves, Fittings, Flanges, and Unions</i>
ANSI/MSS SP-44	<i>Steel Pipeline Flanges</i>
ANSI/MSS SP-55	<i>Quality Standard for Steel Castings for Valves, Flanges, Fittings, and Other Piping Components – Visual Method for Evaluation of Surface Irregularities</i>
ANSI/MSS SP-58	<i>Pipe Hangers and Supports – Materials, Design, Manufacture, Selection, Application, and Installation</i>
ANSI/MSS SP-96	<i>Terminology for Valves, Fittings, and Their Related Components</i>
ANSI/MSS SP-114	<i>Corrosion Resistant Pipe Fittings Threaded and Socket Welding Class 150 and 1000</i>
ANSI/MSS SP-122	<i>Plastic Industrial Ball Valves</i>
ANSI/MSS SP-134	<i>Valves for Cryogenic Service, including Requirements for Body/Bonnet Extensions</i>
ANSI/MSS SP-135	<i>High Pressure Knife Gate Valves</i>
ANSI/MSS SP-138	<i>Quality Standard Practice for Oxygen Cleaning of Valves and Fittings</i>
ANSI/MSS SP-144	<i>Pressure Seal Bonnet Valves</i>

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