

MSS SP-51-2012

Class 150LW Corrosion Resistant Flanges and Cast Flanged Fittings

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

Substantive changes in this 2012 edition are “flagged” by parallel bars as shown on the margins of this paragraph. The specific detail of the change may be determined by comparing the material flagged with that in the previous edition.

Non-toleranced dimensions in this Standard Practice are nominal, and, unless otherwise specified, shall be considered “for reference only”.

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FOREWORD

The subject matter of this Standard Practice was formerly a part of MSS SP-42, *Corrosion Resistant Cast Flanged Valves, Flanges and Flanged Fittings*. MSS SP-42 now covers valves only.

The 1978 revision of this Standard Practice was delayed beyond the normal review interval in consideration of extensive revisions being developed for SP-42. Following publication of the re-written SP-42-1978, in which the flange thickness for most sizes were made the same as those in ANSI B16.5 Class 150, it was determined that a commercial need remained for flanges and flanged fittings of reduced weight, and that this standard should continue to serve that need. The committee decided, however, that pressure-temperature ratings should be reduced to limit pressure stresses to levels consistent with those applied in ANSI B16.5 Class 150 flanges. While pressure stresses are generally less significant than bolting and piping stresses in these flanges, the new ratings, in combination with the gasket selection recommended herein, serve to limit the assembly bolting loads required. It is intended that the reduction in ratings should substantially reduce the likelihood of misapplication of these flanges and fittings.

The 1982 and 1986 revisions of this Standard Practice were required to update the referenced standards list in Section 2.

The 1991 revision of this Standard Practice was required to update the referenced standards list and delete the metric equivalents.

The 1995 reaffirmed edition of this Standard Practice was required to update the referenced standards list and reaffirm the document.

The 2000 revision of this Standard Practice was required to incorporate standard metric dimensions, include forged and plate materials for flanges, and update referenced standards.

The 2003 revision of this Standard Practice was made to incorporate larger sizes of flanges and fittings (NPS 14, 16, 18, 20, and 24) to accommodate the needs of the user community.

The 2007 revision of this Standard Practice was made to correct some dimensions and to update the referenced standards.

The 2012 revision of this Standard Practice was made to update the referenced standards (e.g., Section 7 and Annex A), clarify markings in Section 8.1(e), and various editorial and conforming changes.

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CLASS 150LW CORROSION RESISTANT CAST FLANGES AND FLANGED FITTINGS**1. SCOPE**

1.1 This Standard Practice establishes a series of cast austenitic stainless steel flanged fittings and austenitic stainless steel flanges of reduced weight with mating dimensions for assembly with ASME B16.5, Class 150 flanges, but identified as Class 150LW (Light Weight) and limited to use at reduced pressure-temperature ratings.

2. STANDARD UNITS

2.1 The values stated in either (SI) metric units or U.S. customary units are to be regarded separately as the standard. Within the text, the inch units are shown in parentheses. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two systems may result in nonconformance with the Standard Practice. Class 150 (per ASME B16.5) and NPS are the standard descriptors for Pressure Class and Nominal Size for both metric and customary products covered under this Standard Practice. DN is shown only for reference purposes.

Tables 3 and 4 show flange and fittings dimensional requirements in millimeters. Tables 5 and 6 show the dimensional requirements for inch dimensioned flanges and fittings.

3. PRESSURE-TEMPERATURE RATINGS

3.1 Ratings for flanges and flanged fittings conforming to this Standard Practice are shown in Table 1.

TABLE 1
Pressure-Temperature Ratings
(bar and psig)

<u>Temperature °C</u>	<u>Pressure Rating (bar)</u>
-29 to 38	6.9
50	6.8
100	6.1
150	5.5
200	4.9
260	4.1
<u>Temperature °F</u>	<u>Pressure Rating (psig)</u>
-20 to 100	100
200	90
300	80
400	70
500	60

4. MATERIALS

4.1 Cast flanges and fittings may be made using materials conforming to the following specifications:

- a) ASTM A351/A351M Gr. CF8
- b) ASTM A351/A351M Gr. CF8M
- c) ASTM A351/A351M Gr. CF8C
- d) ASTM A351/A351M Gr. CF3
- e) ASTM A351/A351M Gr. CF3M
- f) ASTM A351/A351M Gr. CN7M

4.2 Flanges may also be made from forgings or plates (blind flanges only) conforming to the following specifications:

- a) ASTM A182/A182M Gr. F304
- b) ASTM A182/A182M Gr. F316
- c) ASTM A182/A182M Gr. F347
- d) ASTM A240/A240M Type 304
- e) ASTM A240/A240M Type 316
- f) ASTM A240/A240M Type 347
- g) ASTM B462 Gr. N08020
- h) ASTM B463 Gr. N08020