

MSS SP-51-2007

Class 150LW Corrosion Resistant Flanges and Cast Flanged Fittings

Standard Practice
Developed and Approved by the
Manufacturers Standardization Society of the
Valve and Fittings Industry, Inc.
127 Park Street, NE
Vienna, Virginia 22180
Phone: (703) 281-6613
Fax: (703) 281-6671
E-mail: info@mss-hq.org



www.mss-hq.org

This MSS Standard Practice was developed under the consensus of the MSS Technical Committee 110 and the MSS Coordinating Committee. The content of this Standard Practice is the result of the efforts of competent and concerned volunteers to provide an effective, clear, and non-exclusive specification that will benefit the industry as a whole. This 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.

Substantive changes in this 2007 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.

The metric (SI) units and U.S. customary units in this SP 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 nonconformance with this SP.

Any part of this standard may be quoted. Credit lines should read 'Extracted from MSS SP-51, 2007 with permission of the publisher, the Manufacturers Standardization Society.' Reproduction prohibited under copyright convention unless written permission is granted by the Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.

Originally Approved October, 1949

Copyright ©, 1985 by
Manufacturers Standardization Society
of the
Valve and Fittings Industry, Inc.
Printed in U.S.A.

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 rewritten 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.

TABLE OF CONTENTS

SECTION

PAGE

1	SCOPE	1
2	STANDARD UNITS	1
3	PRESSURE TEMPERATURE RATINGS.....	1
4	MATERIALS.....	1
5	DESIGN	2
6	FITTING TOLERANCES	2
7	GASKETS.....	2
8	MARKING	2
9	TESTS.....	2

TABLE

1	Pressure-Temperature Rating (Bar and PSIG)	1
2	Fitting Tolerances	2
3	Class 150LW Corrosion Resistant Flanges (Metric).....	3
4	Class 150LW Corrosion Resistant Cast Flanged Fittings (Metric).....	4
5	Class 150LW Corrosion Resistant Flanges (Inch).....	5
6	Class 150LW Corrosion Resistant Cast Flanged Fittings (Inch)	6

FIGURE

1	Method of Designating Outlets of Reducing Fittings	7
---	--	---

ANNEX

A	Referenced Standards and Applicable Dates	8
---	---	---

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 metric units or customary units are to be regarded separately as 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. Class 150 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

<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 A 351/A 351M	Gr. CF8
b) ASTM A 351/A 351M	Gr. CF8M
c) ASTM A 351/A 351M	Gr. CF8C
d) ASTM A 351/A 351M	Gr. CF3
e) ASTM A 351/A 351M	Gr. CF3M
f) ASTM A 351/A 351M	Gr. CN7M

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

a) ASTM A 182/A 182M	Gr. F304
b) ASTM A 182/A 182M	Gr. F316
c) ASTM A 182/A 182M	Gr. F347
d) ASTM A 240/A 240M	Type 304
e) ASTM A 240/A 240M	Type 316
f) ASTM A 240/A 240M	Type 347
g) ASTM B 462	Gr. N08020
h) ASTM B 463	Gr. N08020