

MSS SP-65-2012

**High Pressure
Chemical Industry
Flanges and Threaded Stubs
for Use with Lens Gaskets**

Standard Practice
Developed and Approved by the
Manufacturers Standardization Society of the
Valve and Fittings Industry, Inc.
127 Park Street, NE
Vienna, Virginia 22180-4602
Phone: (703) 281-6613
Fax: (703) 281-6671
E-mail: standards@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 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.

“Unless indicated otherwise within this MSS Standard Practice, other standards documents referenced to herein are identified by the date of issue that was applicable to this Standard Practice at the date of approval of this MSS Standard Practice (see Annex B). This Standard Practice shall remain silent on the validity of those other standards of prior or subsequent dates of issue even though applicable provisions may not have changed.”

By publication of this Standard Practice, no position is taken with respect to the validity of any potential claim(s) or of any patent rights in connection therewith. MSS shall not be held responsible for identifying any patent rights. Users are expressly advised that determination of patent rights and the risk of infringement of such rights are entirely their responsibility.

In this Standard Practice, all text, notes, annexes, tables, figures, and references are construed to be essential to the understanding of the message of the standard, and are considered normative unless indicated as “supplemental”. All appendices, if included, that appear in this document are construed as “supplemental”. Note that supplemental information does not include mandatory requirements.

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-tolerance Dimensions in this Standard Practice are nominal, and, unless otherwise specified, shall be considered "for reference only".

Excerpts of this Standard Practice may be quoted with permission. Credit lines should read ‘Extracted from MSS SP-65-2012 with permission of the publisher, Manufacturers Standardization Society of the Valve and Fittings Industry’. Reproduction and/or electronic transmission or dissemination is prohibited under copyright convention unless written permission is granted by the Manufacturers Standardization Society of the Valve and Fittings Industry Inc. All rights reserved.

Originally Published: September 1962
Current Edition Approved: September 2011
Current Edition Published: May 2012

MSS is a registered trademark of the Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.

Copyright ©, 2012 by
Manufacturers Standardization Society
of the
Valve and Fittings Industry, Inc.
Printed in U.S.A.

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
PURPOSE	1
1 SCOPE	1
2 PRESSURE-TEMPERATURE RATING	1
3 SIZE	1
4 MARKING	1
5 MATERIALS	1
6 FACINGS AND GASKETS	2
7 WELDING END PREPARATION	2
8 THREAD OF SCREWED FLANGES	2
9 TESTS	2

TABLE

1 Gasket Details	2
2 Pressure-Temperature Ratings, psi	3
3 Class 4000, Flange Facing, Gasket, Flange, and Stub Dimensions (Ref. Figure 1)	4
4 Pipe, Tube, and Welding End Dimensions (Ref. Figure 1)	5
A1 Lowest Pressure-Temperature Ratings for Class 2500 Group #1 and Group #2 Materials ASME B16.5-1981 and ASME B16.5-2009	6

FIGURE

1 Machining for Facings and Dimensions of Gaskets	5
---	---

ANNEX

A MSS SP-65 Pressure-Temperature Rating Development Background	6
B Referenced Standards and Applicable Dates	7

HIGH PRESSURE CHEMICAL INDUSTRY FLANGES AND THREADED STUBS FOR USE WITH LENS GASKETS

PURPOSE

Flanges specified in the Standard Practice should be used only with the lens gaskets specified herein. This Standard Practice is similar in intent to ASME B16.5, but governs a higher pressure class and lens gasket connection. At the time of writing this Standard Practice, no American Standard existed for pipe walls as heavy as required for this pressure class. Such piping is done mostly with seamless steel tubing. However, for purposes of flange and stub standardization, a definite set of outside diameters has been specified.

1. SCOPE

This Standard Practice establishes requirements for cast and forged steel flanges (welding neck and straight threaded) and threaded stubs designed especially for use in the chemical industry with end connections making use of lens gaskets.

2. PRESSURE-TEMPERATURE RATING

2.1 For reference purposes the material covered in this Standard Practice shall be identified as "4000 SP-65". Pressure ratings applicable to any of the materials identified in Section 5 are given in Table 2 (U.S. customary units).

2.2 The reference temperature is the metal temperature, and in general, this is the same as the temperature of the contained fluid. Use of a pressure rating corresponding to a temperature other than that of the contained fluid is the responsibility of the user, subject to the requirements of applicable codes and standards.

3. SIZE

The sizing used throughout this Standard Practice is nominal pipe size (NPS). This is based on standard pipe sizes as specified in ASME B36.10M, in so far as the relationship between size and outside diameter is concerned.

These flange and stub dimensions have been calculated on the basis of the attached pipe wall tabulation covering a class of pipe which could be called Schedule 500, as shown in Table 4. It is recognized that most tubing used in this high pressure field will not correspond to these tabulated pipe diameters; however, transition pieces, transitional welds, or "turning down" the pipe should readily permit the use of these standard flanges and stubs.

4. MARKING

Flanges shall be marked in accordance with MSS SP-25, except rating designation shall be "4000 SP-65".

5. MATERIALS

5.1 *General* This Standard Practice is based on forged and cast steel flange material as produced under various ASTM specifications for pressure piping work.

5.2 *Forged and Cast Materials* Acceptable flange materials shall be forged or cast Group 1 and Group 2 product forms as listed in Table 1A of ASME B16.5; except the low carbon grades of stainless steel, Material Group 2.3 of Table 1A, shall not be used. The notes of Table 1A, Table 2, and Table II of ASME B16.5 also apply to the applicable listed material.

5.3 *Gasket Materials* The lens gasket material shall be soft iron, unless limitations of temperature or corrosion resistance require another material be selected. The selected gasket material shall have a chemical composition and corrosion resistance compatible with the flange material. See Table 1 for gasket materials and hardness limits.