

MSS SP-65-2004

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

**Standard Practice
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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.

Unless otherwise specifically noted in this MSS SP, any standard referred to herein is identified by the date of issue that was applicable to the referenced standard(s) at the date of issue of this MSS SP. (See Annex B.)

Substantive changes in this 2004 addition 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”.

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

0. PURPOSE

Flanges specified in the Standard Practice should be used only with the lens gasket 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. Most such piping is done 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 RATING

2.1 For reference purposes the material covered in this standard shall be identified as 4000 SP-65. Pressure ratings applicable to any of the materials identified in Section 5 are given in Table 2 in 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 size used throughout this Standard Practice is nominal pipe size. This is based on standard pipe

sizes such as given in ASME B36.10M insofar 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, 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 listed in Table 1A, ASME B16.5, except those low carbon grades of stainless steel that are listed under Group 2.3 of Table 1A shall not be used. The notes of Table 1A and Table 2, ASME B16.5, applicable to the listed material, also apply.

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.