



Standard Specification for Large-Diameter Fabricated Carbon Steel Flanges¹

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1. Scope

1.1 This specification provides design and construction criteria for large diameter flanges sizes 14 to 144 NPS, for use in high temperature (1000°F), low pressure service (25 psig), such as internal combustion engine exhaust and forced ventilation systems.

1.2 Values stated in inch-pound units are to be regarded as the standard.

2. Referenced Documents

2.1 *ASTM Standards*:²

[A36/A36M Specification for Carbon Structural Steel](#)
[F1155 Practice for Selection and Application of Piping System Materials](#)

2.2 *American Water Works Association*:³

[AWWA C207 Steel Pipe Flanges for Waterwork Service 4 in. through 144 in.](#)

2.3 *Other Documents*:

[American Bureau of Shipping Rules for Building and Classing of Steel Vessels, ABS Grade A](#)⁴
[American Welding Society Publication, AWS D 1.1 Structural Welding Code](#)⁵
[Code of Federal Regulations Title 46, Subpart 56.30—10 \(b\) \(5\)](#)⁶

¹ This specification is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.11 on Machinery and Piping Systems.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from American Water Works Association (AWWA), 6666 W. Quincy Ave., Denver, CO 80235, <http://www.awwa.org>.

⁴ Available from American Bureau of Shipping (ABS), ABS Plaza, 16855 Northchase Dr., Houston, TX 77060, <http://www.eagle.org>.

⁵ Available from American Welding Society (AWS), 550 NW LeJeune Rd., Miami, FL 33126, <http://www.aws.org>.

⁶ Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, <http://dodssp.daps.dla.mil>.

[ASME Boiler and Pressure Vessel Code, Section IX, Welding Qualifications](#)⁷

3. Classification

3.1 *Type I*—Plate flanges, for sizes 14 in. inside diameter up to and including 144 in. inside diameter (see [Fig. 1](#)).

3.2 *Type II*—Rolled angle flanges, for sizes 14 in. up to and including 108 in. inside diameter (see [Fig. 1](#)).

4. Ordering Information

4.1 Flanges ordered under this specification shall include the following:

- 4.1.1 . ASTM designation, title, number, and date of this specification,
- 4.1.2 Type and material,
- 4.1.3 Nominal pipe size,
- 4.1.4 Quantity, and
- 4.1.5 Inspection of items shall be agreed upon between the purchaser and the supplier.

5. Dimensions and Tolerances

5.1 *Dimensions*—Dimensions shall be in accordance with [Table 1](#).

5.2 *Tolerances*:

5.2.1 Plus or minus ¼ in. on outside and inside diameters shall apply on flanges of 22 in. nominal pipe size and above. The tolerance for flanges for 20 in. nominal size and below shall be $\pm 1/8$ in.

5.2.2 Plus or minus 1/16 in. on bolting circle.

6. Drilling

6.1 Number of holes, hole diameter, and bolt circle are identical for both Type I and Type II flanges.

6.2 Bolt holes shall be equally spaced on the bolt circle.

6.3 Bolt holes provide for 1/8 in. diameter clearance on bolts.

6.4 Drilling of flanges shall be in accordance with [Table 1](#).

⁷ Available from American Society of Mechanical Engineers (ASME), ASME International Headquarters, Three Park Ave., New York, NY 10016-5990, <http://www.asme.org>.