



# Standard Specification for Wrought Carbon Steel Sleeve-Type Pipe Couplings<sup>1</sup>

This standard is issued under the fixed designation F 682; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the Department of Defense.*

## 1. Scope

1.1 This specification covers wrought carbon steel sleeve-type pipe couplings suitable for joining carbon steel pipes.

1.2 Type I couplings are intended for use on all schedules of pipe in which the pipe wall thickness does not exceed the wall thickness of standard weight pipe. Type II couplings are intended for use on all schedules of pipe in which the pipe wall thickness does not exceed the wall thickness of extra strong pipe.

1.3 This specification does not cover cast steel couplings.

NOTE 1—The values stated in inch-pound units are to be regarded as the standard.

NOTE 2—See Appendix X1 for rationale used to develop this specification.

## 2. Referenced Documents

### 2.1 ASTM Standards:

A 53/A 53M Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless<sup>2</sup>

A 106 Specification for Seamless Carbon Steel Pipe for High-Temperature Service<sup>2</sup>

A 234/A234M Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service<sup>2</sup>

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products<sup>3</sup>

E 59 Practice for Sampling Steel and Iron for Determination of Chemical Composition<sup>4</sup>

### 2.2 Manufacturer's Standardization Society of the Valve and Fittings Industry Standard:

MSS SP-25 Standard Marking System for Valves, Fittings, Flanges and Unions<sup>5</sup>

### 2.3 ASME Boiler and Pressure Vessel Code:

Section VIII Unfired Pressure Vessels<sup>6</sup>

Section IX Welding Qualifications<sup>6</sup>

### 2.4 Federal Regulations:

Title 46, Code of Federal Regulations (CFR), Shipping, Parts 41 to 69<sup>7</sup>

### 2.5 ANSI Standards:

B16.5 Pipe Flanges and Flange Fittings<sup>8</sup>

## 3. Classification

3.1 Couplings are furnished in two types as follows:

3.1.1 Type I—Couplings (see 1.2).

3.1.2 Type II—Couplings (see 1.2).

NOTE 3—Type II couplings may be used in place of Type I couplings for all schedules of pipe in which the pipe wall thickness does not exceed the wall thickness of standard weight piping through 18 in. or Schedule 40 piping through 16 in.

## 4. Ordering Information

4.1 Orders for material under this specification shall include the following information:

4.1.1 Quantity (number of couplings of each size and type),

4.1.2 Name of material (sleeve-type pipe couplings),

4.1.3 Size (nominal, see Table 1 and Table 2 and Fig. 1),

4.1.4 Type (see 3.1),

4.1.5 ASTM designation and date of issue.

## 5. Materials and Manufacture

5.1 *Materials*—The couplings shall be manufactured from material having a chemical composition conforming to the requirements of 7.1 and with the mechanical properties of Section 9.

5.2 *Manufacture*—The initial form of the raw material shall be at the discretion of the manufacturer except couplings shall not be machined from unformed plate. The material shall be such that the finished couplings conform to all of the specified requirements (see Appendix X2).

5.3 Couplings fabricated by welding shall be (a) made by welders, welding operators, and welding procedures qualified

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee F-25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.13 on Piping Systems.

Current edition approved July 30, 1982. Published October 1982. Originally published as F 682 – 80. Last previous edition F 682 – 82.

<sup>2</sup> *Annual Book of ASTM Standards*, Vol 01.01.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 01.03.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 03.05.

<sup>5</sup> Available from Manufacturer's Standardization Society of the Valve and Fitting Industry, 1815 N. Fort Myer Dr., Arlington, Va 22209.

<sup>6</sup> Available from American Society of Mechanical Engineers, 345 E. 47th St., New York, NY 10017.

<sup>7</sup> Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

<sup>8</sup> Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

**TABLE 1 Dimensions for Type I Couplings (See Fig. 1)**

Nominal Size, in.	Dimension A, Inside Diameter, in. (mm) <sup>A</sup>	Dimension B, Outside Diameter, in. (mm) <sup>B</sup>	Dimension C, Thickness, min, in. (mm)	Dimension D, Length, in. (mm) <sup>C</sup>
¼	0.589 (15.0)	0.875 (22.2)	0.143 (3.6)	1 (25)
⅜	0.724 (18.4)	0.992 (25.2)	0.134 (3.4)	1¼ (32)
½	0.889 (22.6)	1.201 (30.5)	0.156 (4.0)	1¼ (32)
¾	1.099 (27.9)	1.401 (35.6)	0.151 (3.8)	1½ (38)
1	1.364 (34.6)	1.710 (43.4)	0.173 (4.4)	1½ (38)
1¼	1.709 (43.4)	2.057 (52.2)	0.174 (4.4)	1½ (38)
1½	1.949 (49.5)	2.306 (58.6)	0.179 (4.5)	1½ (38)
2	2.424 (61.6)	2.807 (71.3)	0.192 (4.9)	1½ (38)
2½	2.924 (74.3)	3.444 (87.5)	0.260 (6.6)	1½ (38)
3	3.545 (90.0)	4.105 (104.3)	0.280 (7.1)	1½ (38)
3½	4.070 (103.4)	4.633 (117.7)	0.282 (7.2)	2 (51)
4	4.570 (116.1)	5.164 (131.2)	0.297 (7.5)	2 (51)
5	5.660 (143.8)	6.286 (159.7)	0.313 (8.0)	2 (51)
6	6.720 (170.7)	7.409 (188.2)	0.345 (8.8)	2 (51)
8	8.720 (221.5)	9.527 (242.0)	0.404 (10.3)	2½ (64)
10	10.880 (276.4)	11.875 (301.6)	0.498 (12.6)	2½ (64)
12	12.880 (327.2)	13.800 (350.5)	0.460 (11.7)	2½ (64)
14	14.140 (359.2)	15.050 (382.3)	0.455 (11.6)	2½ (64)
16	16.160 (410.5)	17.050 (433.1)	0.445 (11.3)	2½ (64)
18	18.180 (461.8)	19.050 (483.9)	0.435 (11.0)	2½ (64)

<sup>A</sup>Tolerances shall be (1) Sizes through 3 in. incl. +0.000, -0.010 in. (+0.000, -0.254 mm); (2) Sizes 3½ through 10 in. incl. +0.030, -0.000 in. (+0.762, -0.000 mm); and (3) Sizes above 10 in.: +0.060, -0.000 in. (+1.524, -0.000 mm).

<sup>B</sup>Tolerances shall be (1) Sizes through 10 in. incl. +0.125, -0.000 in. (+3.175, -0.000 mm) and (2) Sizes above 10 in.: +1.000, -0.000 in. (+25.4, -0.000 mm).

<sup>C</sup>Tolerances for all sizes shall be +0.250, -0.000 in. (+6.4, -0.000 mm).

**TABLE 2 Dimensions for Type II Couplings (See Fig. 1)**

Nominal Size, in.	Dimension A, Inside Diameter, in. (mm) <sup>A</sup>	Dimension B, Outside Diameter, in. (mm) <sup>B</sup>	Dimension C, Thickness, min, in. (mm)	Dimension D, Length, in. (mm) <sup>C</sup>
¼	0.589 (15.0)	1.055 (26.8)	0.233 (5.9)	1 (25)
⅜	0.724 (18.4)	1.156 (29.4)	0.216 (5.5)	1¼ (32)
½	0.889 (22.6)	1.369 (34.8)	0.240 (6.1)	1¼ (32)
¾	1.099 (27.9)	1.557 (39.5)	0.229 (5.8)	1½ (38)
1	1.364 (34.6)	1.876 (47.7)†	0.256 (6.5)†	1½ (38)
1¼	1.709 (43.4)	2.221 (56.4)†	0.256 (6.5)†	1½ (38)
1½	1.949 (49.5)	2.469 (62.7)†	0.260 (6.6)†	1½ (38)
2	2.424 (61.6)	2.986 (75.8)†	0.281 (7.1)†	1½ (38)
2½	2.924 (74.3)	3.648 (92.7)†	0.362 (9.2)†	1½ (38)
3	3.545 (90.0)	4.340 (110.2)†	0.398 (10.1)†	1½ (38)
3½	4.070 (103.4)	4.891 (124.2)†	0.411 (10.4)†	2 (51)
4	4.570 (116.1)	5.444 (138.3)	0.437 (11.1)	2 (51)
5	5.660 (143.8)	6.613 (168.0)	0.477 (12.1)	2 (51)
6	6.720 (170.7)	7.875 (200.0)	0.578 (14.7)	2 (51)
8	8.720 (221.5)	10.125 (257.2)	0.703 (17.8)	2½ (64)
10	10.880 (276.4)	12.150 (308.6)	0.635 (16.1)	2½ (64)
12	12.880 (327.2)	14.150 (359.4)	0.635 (16.1)	2½ (64)
14	14.140 (359.2)	15.400 (391.2)	0.630 (16.0)	2½ (64)
16	16.160 (410.5)	17.400 (442.0)	0.620 (15.7)	2½ (64)
18	18.180 (461.8)	19.400 (492.8)	0.610 (15.5)	2½ (64)

<sup>A</sup>Tolerances shall be (1) Sizes through 3 in. incl. +0.000, -0.010 in. (+0.000, -0.254 mm); (2) Sizes 3½ through 10 in. incl. +0.030, -0.000 in. (+0.762, -0.000 mm); and (3) Sizes above 10 in.: +0.060, -0.000 in. (+1.524, -0.000 mm).

<sup>B</sup>Tolerances shall be (1) Sizes through 10 in. incl. +0.125, -0.000 in. (+3.175, -0.000 mm) and (2) Sizes above 10 in.: +1.000, -0.000 in. (+25.4, -0.000 mm).

<sup>C</sup>Tolerances for all sizes shall be +0.250, -0.000 in. (+6.4, -0.000 mm).

† Editorially corrected.

under the provisions of ASME Boiler and Pressure Vessel Code, Section IX; (b) heat treated in accordance with Section 6 of this specification; and (c) nondestructively tested as follows:

**5.3.1 Sizes 3-in. NPS and Below**—Radiographically examined throughout the entire length of each fabricated weld in accordance with Paragraph UW-51 of ASME Code, Section VIII.

**5.3.2 Sizes 3½-in. NPS Through 16-in. NPS**— No nondestructive tests required, and

**5.3.3 Sizes 18-in. NPS and Above**—Any method of nondestructive testing may be used provided the tests are conducted in accordance with the applicable parts of ASME Code, Section VIII.

## 6. Heat Treatment

**6.1 Couplings Made from Plate or Tubular Products:**

**6.1.1 Couplings machined from tubular products** need not be heat treated.

**6.1.2 Hot-formed couplings** upon which the final forming