



Designation: A861 – 04(Reapproved 2008)

Standard Specification for High-Silicon Iron Pipe and Fittings¹

This standard is issued under the fixed designation A861; 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 (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers high-silicon iron pipe and pipe fittings intended for corrosion-resistant service for both above- and below-grade construction.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 Pipe and pipe fittings shall be the no-hub (MJ) or the hub and plain end design.

1.4 Pipe and pipe fittings shall be of the sizes specified in Table 1 and Table 2 and Figs. 1-71 or other sizes that shall be permitted to conform to the requirements given herein.

1.4.1 Pipe:

1.4.1.1 No-hub (MJ) (Fig. 1):

Size (in.)	Length (ft)
1½	7
2	7
3	7
4	7

1.4.1.2 Hub/Plain End (Fig. 35):

Size (in.)	Length (ft)
2	7
3	7
4	7
6	7
8	7
10	5
12	5
15	5

1.4.2 Fitting (No-hub) (MJ):

¹ This specification is under the jurisdiction of ASTM Committee A04 on Iron Castings and is the direct responsibility of Subcommittee A04.12 on Pipes and Tubes.

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TABLE 1 Tolerances for High-Silicon Iron Hub/Plain-End Pipe

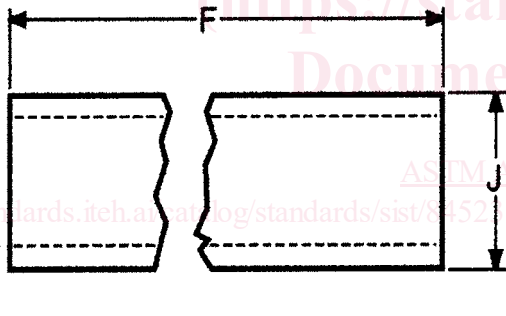
NOTE 1—1 in. = 25.4 mm.

Size, in.	Wall Thickness, in.	ID Tolerance, in.	OD Tolerance, in.
2	±1/32	±1/32	±1/32
3	±1/32	±1/32	±1/32
4	±1/32	±1/32	±1/32
6	±1/32	±1/32	±3/64
8	±1/32	±1/8	±1/8
10	±1/8	±1/8	±1/8
12	±1/8	±1/8	±1/8
15	±1/8	±1/8	±1/8

TABLE 2 Tolerances for High-Silicon Iron Fittings

NOTE 1—1 in. = 25.4 mm.

Size, in.	ID Tolerance, in.	OD Tolerance, in.	Stop Lug Depth Tolerance, in.
1½	±1/16	±1/16	±1/16
1½ x 1½	±1/16	±1/16	±1/16
2	±1/16	±1/16	±1/16
2 x 1½	±1/16	±1/16	±1/16
2 x 2	±1/16	±1/16	±1/16
3	±1/16	±1/16	±1/16
3 x 1½	±1/16	±1/16	±1/16
3 x 2	±1/16	±1/16	±1/16
3 x 3	±1/16	±1/16	±1/16
4	±1/16	±1/16	±1/16
4 x 1½	±1/16	±1/16	±1/16
4 x 2	±1/16	±1/16	±1/16
4 x 3	±1/16	±1/16	±1/16
4 x 4	±1/16	±1/16	±1/16

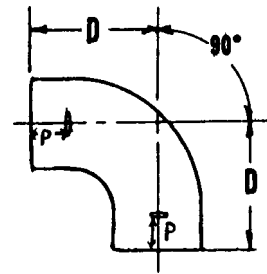


Size, in.	J, in.	F, in.	t, in.
1½	2 ³ / ₁₆ (2.19)	84	5/16
2	2 ¹¹ / ₁₆ (2.69)	84	5/16
3	3 ⁴⁹ / ₆₄ (3.77)	84	5/16
4	4 ⁴⁹ / ₆₄ (4.77)	84	5/16

NOTE 1—1 in. = 25.4 mm.

FIG. 1 No-Hub Pipe (MJ)

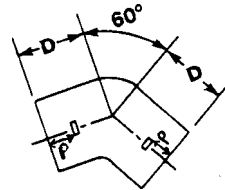
Sixth Bends	46
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Sanitary Increasers	49
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Adapter—Plain end to Split Flange	55
Adapter—Hub to-Split Flange	56
Combination Cleanout and Test Tees	57
Insertable Joints	58
Backwater Valves	59
Sanitary P Traps	60



Size, in.	D, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½	4¼	1½	2 ³ / ₁₆ (2.19)	1½
2	4½	2	2 ⁵ / ₈ (2.62)	1½
2 x 1½	4 ³ / ₁₆ x 4½	2 x 1½	2 ⁵ / ₈ x 2 ³ / ₁₆	1½
3	5	3	3¾ (3.75)	1½
4	5½	4	4¾ (4.75)	1½

NOTE 1—1 in. = 25.4 mm.

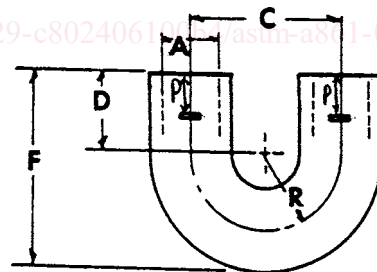
FIG. 2 Quarter Bends



Size, in.	D, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½	3	1½	2 ³ / ₁₆	1½
2	3¼	2	2 ⁵ / ₈	1½
3	3½	3	3¾	1½
4	3¾	4	4¾	1½

NOTE 1—1 in. = 25.4 mm.

FIG. 3 Sixth Bends

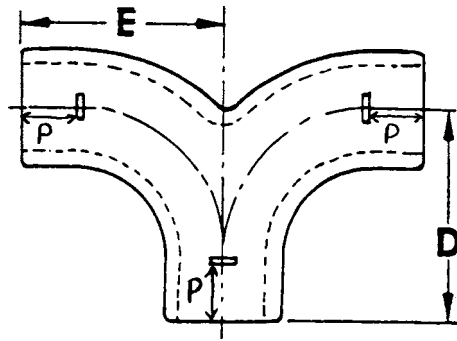


Size, in.	C, in.	D, in.	F, in.	R, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½	4	2	5 ³ / ₃₂	2	1½	2 ³ / ₁₆	1½
2	4¾	2	5 ¹¹ / ₁₆	2 ³ / ₈	2	2 ⁵ / ₈	1½

NOTE 1—1 in. = 25.4 mm.

FIG. 4 Return Bends

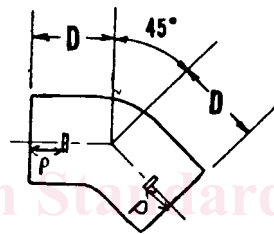
Sanitary S Traps	61
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Sink Outlet	70
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Size, in.	D, in.	E, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½	¾	¾	1½	2¼	1½

NOTE 1—1 in. = 25.4 mm.

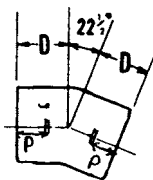
FIG. 5 Double-Branch Quarter Bend



Size, in.	D, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½	2½	1½	2¼	1½
2	2¾	2	2⅝	1½
3	3	3	3¾	1½
4	3¼	4	4¾	1½

NOTE 1—1 in. = 25.4 mm.

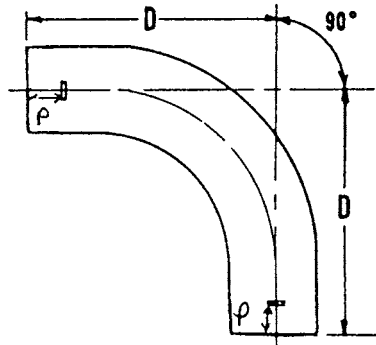
FIG. 6 Eight Bends



Size, in.	D, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½	2	1½	2¼	1½
2	2⅛	2	2⅝	1½
3	2¼	3	3¾	1½
4	2⅝	4	4¾	1½

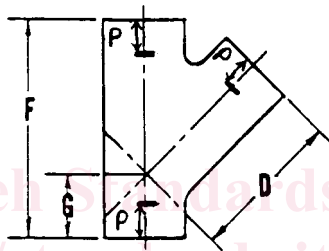
NOTE 1—1 in. = 25.4 mm.

FIG. 7 Sixteenth Bends



Size, in.	D, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½	9¼	1½	2¾ ₁₆	1½ ₃₂
2	9½	2	2¾	1½ ₃₂
3	10	3	3¾	1½ ₃₂
4	10½	4	4¾	1½ ₃₂

FIG. 8 Long-Sweep Quarter Bends



Size, in.	D, in.	F, in.	G, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
½ × 1½	4⅝	6½	1⅞	1½ × 1½	2¾ ₁₆ × 2¾ ₁₆	1½ ₃₂
2 × 1½	47⁄8	6½	1⅝	2 × 1½	2⅝ × 2¾ ₁₆	1½ ₃₂
2 × 2	4⅝	6⅝	2	2 × 2	2⅝ × 2⅝	1½ ₃₂
3 × 1½	5⅝	6½	1¼	3 × 1½	3¾ × 2¾ ₁₆	1½ ₃₂
3 × 2	5⅞	7⅞	1½	3 × 2	3¾ × 2⅝	1½ ₃₂
3 × 3	6⅞	8⅞	2¼	3 × 3	3¾ × 3¾	1½ ₃₂
4 × 1½	6⅝	7½	1⅝	4 × 1½	4¾ × 2¾ ₁₆	1½ ₃₂
4 × 2	6⅝	7½	1⅝	4 × 2	4¾ × 2⅝	1½ ₃₂
4 × 3	7⅞	8¾	1¾	4 × 3	4¾ × 3¾	1½ ₃₂
4 × 4	7⅞	10¼	2⅝	4 × 4	4¾ × 4¾	1½ ₃₂

NOTE 1—1 in. = 25.4 mm.

FIG. 9 Sanitary Y Branches

Transverse Bend Test Minimum Requirements

Table S1.1

2. Referenced Documents

2.1 ASTM Standards:²

A518/A518M Specification for Corrosion-Resistant High-Silicon Iron Castings

E350 Test Methods for Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron

E351 Test Methods for Chemical Analysis of Cast Iron—All Types

2.2 Other Standards:

Uniform Classification Rules³

National Motor Freight Classification³

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

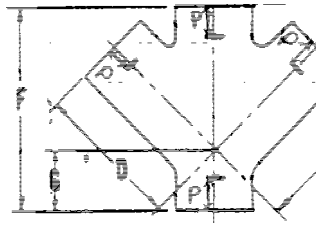
3.1.1 *hubless*—a pipe or fitting without a hub, sometimes called no-hub, joined by a coupling.

3.1.2 *MJ*—an abbreviation for mechanical joint.

3.1.3 *no-hub*—a pipe or fitting without a hub, sometimes described as hubless joined by a coupling.

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.

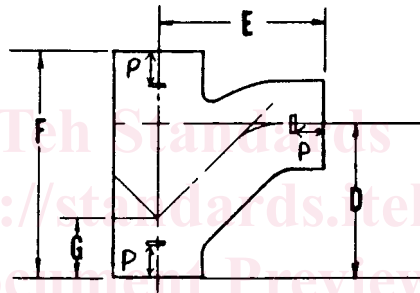
³ Available from American Trucking Association, 950 North Glebe Road, Suite 210, Arlington, VA 22203-4181.



Size, in.	D, in.	F, in.	G, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½ × 1½	4⅝	6½	1⅞	1½ × 1½	2⅜ × 2⅜	1⅜
2 × 1½	4⅞	6½	1⅝	2 × 1½	2⅝ × 2⅝	1⅜
2 × 2	4⅝	6⅝	2	2 × 2	2⅝ × 2⅝	1⅜
3 × 1½	5⅝	6½	1¼	3 × 1½	3¾ × 2⅜	1⅜
3 × 2	5⅞	7⅞	1½	3 × 2	3¾ × 2⅝	1⅜
3 × 3	6⅝	8⅝	2¼	3 × 3	3¾ × 3¾	1⅜
4 × 2	6⅝	7½	1⅝	4 × 2	4¾ × 2⅝	1⅜
4 × 3	7⅞	8¾	1¾	4 × 3	4¾ × 3¾	1⅜
4 × 4	7⅝	10¼	2⅝	4 × 4	4¾ × 4¾	1⅜

NOTE 1—1 in. = 25.4 mm.

FIG. 10 Double-Branch Sanitary Y



Size, in.	D, in.	E, in.	F, in.	G, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½ × 1½	4¾	5⅝	6½	1⅞	1½ × 1½	2⅜ × 2⅜	1⅜
2 × 1½	4¾	5¾	6½	1⅝	2 × 1½	2⅝ × 2⅝	1⅜
2 × 2	5	5⅞	6⅝	1⅞	2 × 2	2⅝ × 2⅝	1⅜
3 × 1½	4	5¼	6½	1⅝	3 × 1½	3¾ × 2⅜	1⅜
3 × 2	5	6¼	7⅞	1½	3 × 2	3¾ × 2⅝	1⅜
3 × 3	6¼	7	8½	2¼	3 × 3	3¾ × 3¾	1⅜
4 × 1½	4⅝	6⅞	6⅝	1⅝	4 × 1½	4¾ × 2⅜	1⅜
4 × 2	5	6⅞	7⅞	1⅝	4 × 2	4¾ × 2⅝	1⅜
4 × 3	6	7¼	8¾	1¾	4 × 3	4¾ × 3¾	1⅜
4 × 4	7⅝	8	10¼	2⅝	4 × 4	4¾ × 4¾	1⅜

NOTE 1—1 in. = 25.4 mm.

FIG. 11 Sanitary Combination Y and 1/8 Bend

4. Ordering Information

4.1 Ordering for material under this specification shall include as a minimum the following information:

4.1.1 ASTM designation, grade (see Table 3) and year of issue.

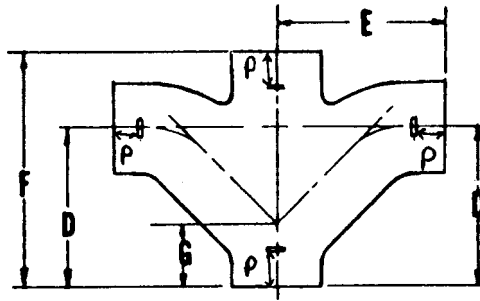
4.1.2 Description of the casting by figure number (see Figs. 1 through 71) or by manufacturer's drawings or catalog number, or both.

4.1.3 Length, diameter, and type of pipe and size and shape of fittings.

TABLE 3 Chemical Composition

Element	Composition, Weight %	
	Grade 1	Grade 2
Carbon	0.65–1.10	0.75–1.15
Manganese	1.50 max	1.50 max
Silicon	14.20–14.75	14.20–14.75
Chromium	0.50 max	3.25–5.00
Molybdenum	0.50 max	0.40–0.60
Copper	0.50 max	0.50 max

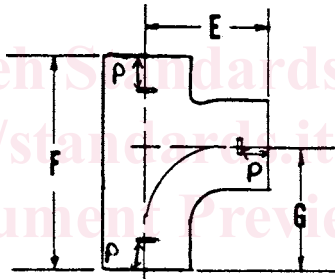
4.1.4 Quantity.



Size, in.	D, in.	E, in.	F, in.	G, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½ × 1½	4¾	5⅞	6½	7⅞	1½ × 1½	2⅜ × 2⅜	1½
2 × 1½	4¾	5¾	6½	1⅞	2 × 1½	2⅞ × 2⅞	1½
2 × 2	5	5⅞	6⅝	1⅞	2 × 2	2⅞ × 2⅞	1½
3 × 1½	4¼	5¼	6½	1⅞	3 × 1½	3¾ × 2⅜	1½
3 × 2	5	6¼	7⅞	1½	3 × 2	3¾ × 2⅞	1½
3 × 3	6¼	7	8½	2¼	3 × 3	3¾ × 3¾	1½
4 × 2	5	6⅞	7⅞	1⅞	4 × 2	4¾ × 2⅞	1½
4 × 3	6	7¼	8¾	1¾	4 × 3	4¾ × 3¾	1½
4 × 4	7⅞	8	10¼	2⅞	4 × 4	4¾ × 4¾	1½

NOTE 1—1 in. = 25.4 mm.

FIG. 12 Double-Branch Sanitary Combination Y and 1/8 Bend



Size, in.	E, in.	F, in.	G, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½ × 1½	4¼	6¾	4¼	1½ × 1½	2⅜ × 2⅜	1½
2 × 1½	4½	6¾	4¼	2 × 1½	2⅞ × 2⅞	1½
2 × 1½ × 1½	4½	6¾	4¼	2 × 1½ × 1½	2⅞ × 2⅞ × 2⅞	1½
2 × 2	4½	6⅞	4½	2 × 2	2⅞ × 2⅞	1½
3 × 1½	5	6¾	4¼	3 × 1½	3¾ × 2⅜	1½
3 × 2	5	7¼	4½	3 × 2	3¾ × 2⅞	1½
3 × 3	5	8⅞	5	3 × 3	3¾ × 3¾	1½
4 × 1½	5⅞	6⅞	4⅞ ^{#10}	4 × 1½	4¾ × 2⅜	1½
4 × 2	5½	7¼	4½	4 × 2	4¾ × 2⅞	1½
4 × 3	5½	8¼	5	4 × 3	4¾ × 3¾	1½
4 × 4	5½	9⅞	5½	4 × 4	4¾ × 4¾	1½

NOTE 1—1 in. = 25.4 mm.

FIG. 13 Sanitary T Branches

- 4.1.5 Certification requirements.
- 4.1.6 Special packaging requirements (see Section 14).
- 4.1.7 Supplemental requirements desired, if any.

5. Materials and Manufacture

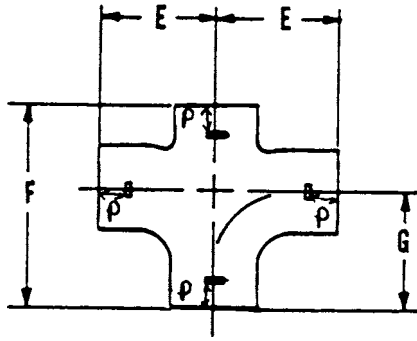
5.1 The castings shall be produced by any established commercial practice applicable to high-silicon iron.

5.2 The castings shall be true to pattern, reasonably smooth, and free from defects that would make the castings unfit for the use for which they are intended.

6. Chemical Composition

6.1 An analysis of each heat shall be made by the manufacturer from a test sample that is representative of the heat and that is taken during the heat. A heat shall consist of all castings poured from a furnace or crucible melt without recharging new metal into the furnace. The chemical composition thus determined shall conform to the requirements for the grade selected specified in Table 3.

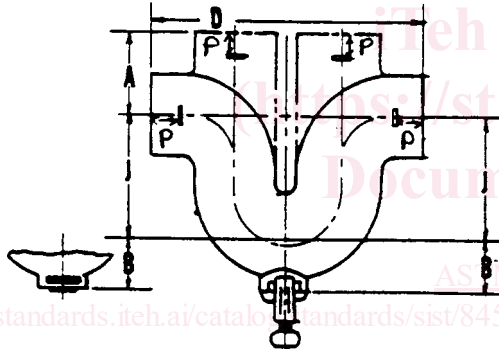
6.2 A product analysis shall be permitted to be made by the purchaser from material representing the heat. The chemical



Size, in.	E, in.	F, in.	G, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½ × 1½	4¼	6¾	4¼	1½ × 1½	2 ³ / ₁₆ × 2 ³ / ₁₆	1 ¹ / ₃₂
2 × 1½	4½	6¾	4¼	2 × 1½	2 ⁵ / ₈ × 2 ³ / ₁₆	1 ¹ / ₃₂
2 × 2	4½	6 ⁷ / ₈	4½	2 × 2	2 ⁵ / ₈ × 2 ⁵ / ₈	1 ¹ / ₃₂
3 × 1½	5	6¾	4¼	3 × 1½	3 ³ / ₄ × 2 ³ / ₁₆	1 ¹ / ₃₂
3 × 2	5	7¼	4½	3 × 2	3 ³ / ₄ × 2 ⁵ / ₈	1 ¹ / ₃₂
3 × 3	5	8 ³ / ₈	5	3 × 3	3 ³ / ₄ × 3 ³ / ₄	1 ¹ / ₃₂
4 × 2	5½	7¼	4½	4 × 2	4 ³ / ₈ × 2 ⁵ / ₈	1 ¹ / ₃₂
4 × 3	5½	8¼	5	4 × 3	4 ³ / ₄ × 3 ³ / ₄	1 ¹ / ₃₂
4 × 4	5½	9 ³ / ₈	5½	4 × 4	4 ³ / ₈ × 4 ³ / ₈	1 ¹ / ₃₂

NOTE 1—1 in. = 25.4 mm.

FIG. 14 Double-Branch Sanitary T



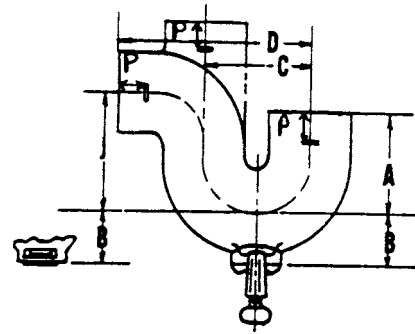
Size, in.	A, in.	B, in.	C, in.	D, in.	J, in.	R, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½	2¾	1 ⁵ / ₈	5	10	4	1¾	1½	2 ³ / ₁₆	1 ¹ / ₃₂
2	3½	1 ¹⁵ / ₁₆	5½	11	4	2	2	2 ⁵ / ₈	1 ¹ / ₃₂
3	4	2 ⁵ / ₁₆	6½	13	5½	2½	3	3¾	1 ¹ / ₃₂
4	4½	3	7½	15	6½	3	4	4¾	1 ¹ / ₃₂

NOTE 1—1 in. = 25.4 mm.

FIG. 15 Sanitary Running Traps

composition thus determined shall meet the requirements specified in Table 3 or shall be subject to rejection by the purchaser.

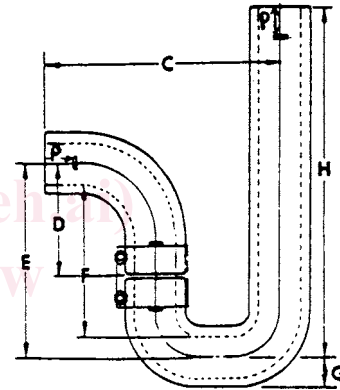
6.3 Spectrometric or other instrumental methods and wet laboratory methods are acceptable for routine control determinations. Any method employed shall give essentially the same results as reference methods listed in Test Methods E350. (For selected detailed methods of analysis, see Specification A518/A518M, paragraph 6.4).



Size, in.	A, in.	B, in.	C, in.	D, in.	J, in.	R, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½	3¾	1 ⁵ / ₈	3½	6¾	4	1¾	1½	2 ³ / ₁₆	1 ¹ / ₃₂
2	4	1 ¹⁵ / ₁₆	4	7½	4	2	2	2 ⁵ / ₈	1 ¹ / ₃₂
3	4½	2 ⁵ / ₁₆	5	9	5½	2½	3	3¾	1 ¹ / ₃₂
4	5	3	6	10½	6½	3	4	4¾	1 ¹ / ₃₂

NOTE 1—1 in. = 25.4 mm.

FIG. 16 Sanitary P Traps



Size, in.	C, in.	D, in.	E, in.	F, in.	G, in.	H, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½	8¾	4	6 ¹⁵ / ₁₆	5 ⁷ / ₁₆	1 ³ / ₃₂	12½	1½	2 ³ / ₁₆	1 ¹ / ₃₂
2	9¾	4½	7¾	5¾	1 ⁵ / ₈	12	2	2 ⁵ / ₈	1 ¹ / ₃₂

NOTE 1—1 in. = 25.4 mm.

FIG. 17 Swivel Trap P-Style Short

7. Heat Treatment

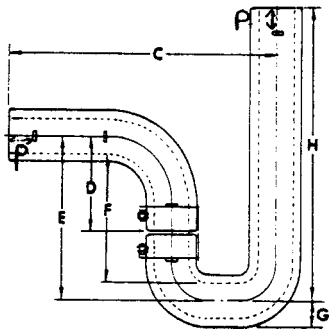
7.1 All centrifugally cast high-silicon iron pipe shall be supplied in the as-cast condition. All other pipe and fittings shall be supplied in the stress-relieved condition.

7.2 Stress relieving shall be performed as follows:

7.2.1 Hold the casting at 1650°F (870°C) minimum for 2 h plus an additional hour per inch of section thickness for castings over 2 in. in thickness.

7.2.2 Cool the castings to 400°F (205°C) maximum at a rate not to exceed 100°F (55°C)/15 min.

7.2.3 From 400°F (205°C) to ambient, the castings shall be permitted to be cooled in still, ambient air.

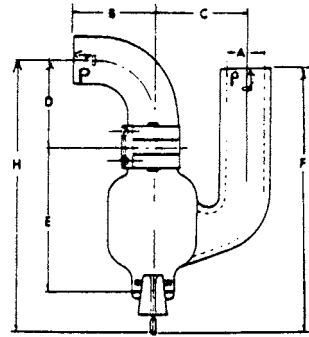


Size, in.	C ^A , in.	D, in.	E, in.	F, in.	G, in.	H ^A , in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½	12¾	4	6 ¹⁵ / ₁₆	5 ⁷ / ₁₆	13 ³ / ₃₂	12½	1½	2 ³ / ₁₆	1 ¹ / ₃₂

^AFor shorter C or H dimension, snap-cut to desired length.

NOTE 1—1 in. = 25.4 mm.

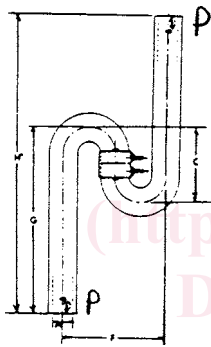
FIG. 18 Swivel Trap P-Style Long



Size, in.	B, in.	C, in.	D, in.	E, in.	F, in.	H, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½	8	4	4	6¾	12¾	12 ¹⁵ / ₁₆	1½	2 ³ / ₁₆	1 ¹ / ₃₂
2	4½	4¾	4½	7 ⁹ / ₁₆	14¼	14¼	2	2 ⁵ / ₁₆	1 ¹ / ₃₂

NOTE—1 in. = 25.4 mm.

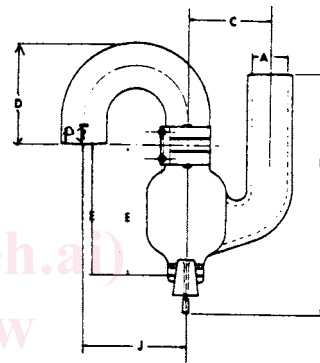
FIG. 20 Centrifugal Drum Trap P Swivel Type



Size, in.	C, in.	F, in.	G, in.	H, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½	6	8	14 ³ / ₈	22¾	1½	2 ³ / ₁₆	1 ¹ / ₃₂
2	6¾	10½	12	17 ⁵ / ₈	2	2 ⁵ / ₁₆	1 ¹ / ₃₂

NOTE 1—1 in. = 25.4 mm.

FIG. 19 Swivel Type-S Style Long



Size, in.	C, in.	D, in.	E, in.	F, in.	J, in.	ID, in.	OD, in.	Stop Lug Depth (P), in.
1½	4	5 ³ / ₃₂	6¾	12¾	4	1½	1 ¹ / ₈	1 ¹ / ₃₂
1½	4	15 ¹⁵ / ₃₂	6¾	12¾	4	1½	1 ¹ / ₈	1 ¹ / ₃₂
2	4¾	5 ¹ / ₁₆	7 ⁹ / ₁₆	14¼	4¾	2	2	1 ¹ / ₃₂

NOTE 1—1 in. = 25.4 mm.

FIG. 21 Centrifugal Drum Trap S Swivel Type

8. Joints

8.1 Acid-proof joints for hub/plain-end pipe shall require the use of an acid-proof rope packing.

8.2 No-hub pipe and fittings shall require a special acid resistant mechanical joint (MJ) coupling. One satisfactory coupling consists of an inner PTFE sleeve surrounded by neoprene. The two-bolt coupling is made of 300 series stainless steel.

8.3 High-silicon iron pipe can be cut with either manual or hydraulic snap cutters. Field cuts shall be permitted to be readily used with mechanical joint couplings to provide acceptable leak-proof joints.

9. Dimensions and Permissible Variations

9.1 Pipe:

9.1.1 Hub/plain-end pipe shall have a hub at one end and a plain end at the other and shall be cast in one piece (see Fig. 35).

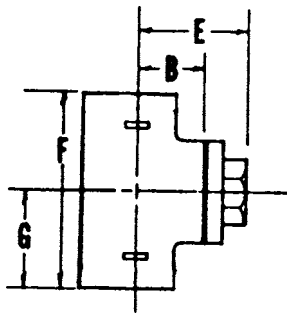
9.1.2 Individual length of hub/plain-end pipe shall be either 7 or 5 ft nominal laying lengths as shown in Fig. 35.

9.1.3 Any deflections in the barrel of a single length of pipe shall not exceed ³/₁₆ in.

9.1.4 No-hub pipe shall be cast in a single piece and conform to nominal dimensions shown in Fig. 1.

9.1.5 No dimension of hub/plain-end pipe shall exceed the tolerances specified in Table 1.

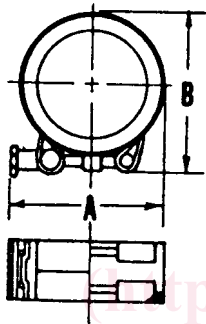
9.2 Fittings—All fittings shall conform to the nominal dimensions specified in applicable figures and be within the tolerances specified in Table 2 for fittings listed in Figs. 2 through 34 or in Table 1 for fittings listed in Figs. 36 through 39.



Size, in.	B, in.	E, in.	F, in.	G, in.
2	27/16	33/4	67/8	37/16
3	33/8	411/16	83/8	43/16
4	37/8	57/16	93/8	411/16

NOTE 1—1 in. = 25.4 mm.

FIG. 22 Combination Cleanout and Test Tees



Size, in.	A, in.	B, in.
1 1/2 & #10	33/8	27/8
2	4	33/8
3	47/16	43/16
4	415/16	53/16

NOTE 1—1 in. = 25.4 mm.

FIG. 23 Coupling



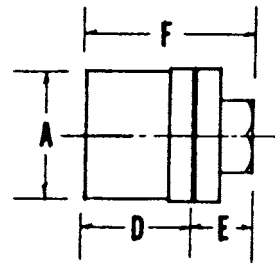
Size, in.	F, in.
1/2	2
2	2 1/2
3	2 1/2
4	2 1/2

NOTE 1—1 in. = 25.4 mm.

FIG. 24 Pipe Plugs

10. Inspection

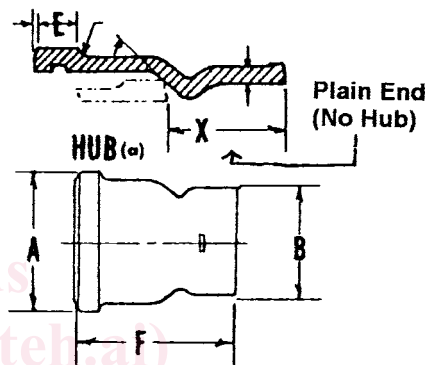
10.1 *Inspection and Test by the Manufacturer*—Pipe and fittings shall be inspected by the manufacturer prior to shipment. Inspection by the manufacturer shall include all tests as specified herein. All tests and inspection with the exception of product analysis shall be made at the place of manufacture unless otherwise agreed upon.



Size, in.	A, in.	D, in.	E, in.	F, in.
1 1/2	23/16	2 1/4	1 5/16	3 9/16
2	2 21/32	2 1/4	1 5/16	3 9/16
3	3 3/4	2 1/2	1 3/8	3 7/8
4	4 3/4	2 3/4	1 7/16	4 3/16

NOTE 1—1 in. = 25.4 mm.

FIG. 25 Cleanout Plugs



Size, in.	A, in.	B, in.	E, in.	F, in.
1 1/2 x 1 1/2	3 23/32	2 1/4	9/16	4 5/8
1 1/2 x 2	3 13/16	2 21/32	9/16	4 5/8
1 1/2 x 3	3 13/16	3 13/16	9/16	4 5/8
1 1/2 x 4	3 13/16	4 13/16	9/16	4 7/8
2 x 2	4 5/16	2 23/32	5/8	5 1/8
2 x 3	4 5/16	3 13/16	5/8	4 3/4
2 x 4	4 5/16	4 13/16	5/8	5
3 x 3	5 5/16	3 13/16	1 1/16	5 3/8
4 x 4	6 9/32	4 7/8	1 1/16	5 9/16

NOTE 1—1 in. = 25.4 mm.

FIG. 26 Adapter/Hub to No-Hub

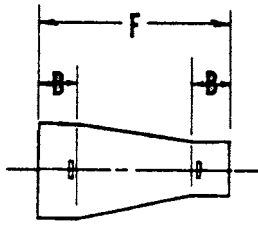
10.2 *Inspection and Test by the Purchaser*—The manufacturer shall afford the purchaser's inspector all reasonable facilities necessary to satisfy that the material is being produced and furnished in accordance with this specification. Foundry inspection by the purchaser shall not interfere unnecessarily with the manufacturer's operations.

11. Rejection and Rehearing

11.1 Material that shows unacceptable discontinuities as determined by the acceptance standards specified in the order, subsequent to its acceptance at the manufacturer's works, shall be rejected and the manufacturer shall be notified within 30 days unless otherwise agreed upon.

12. Certification

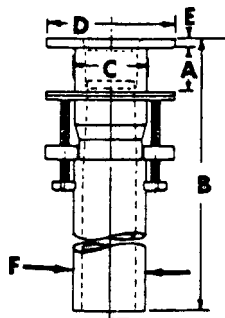
12.1 Upon request of the purchaser, the manufacturer shall certify that his product conforms to the requirements of this



Size, in.	B, in.	F, in.
2 x 1½	1½	8
3 x 1½	1½	8
3 x 2	1½	8
4 x 1½	1½	8
4 x 2	1½	8
4 x 3	1½	8

NOTE 1—1 in. = 25.4 mm.

FIG. 27 Reducers-Increasers



Size, in.	A, in.	B, in.	C, in.	D, in.	E, in.	F, in.
1½	0 to 2	10¼	1⅞	3⅝	¼	2⅞

NOTE 1—1 in. = 25.4 mm.

FIG. 28 Sink Outlet

specification. The results of tests shall be furnished to the purchaser upon request as mutually agreed upon.

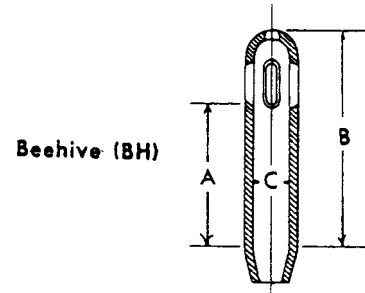
13. Product Marking

13.1 Each length of pipe and fitting shall be identified by the manufacturer's name or identification mark. Marking shall be as not to impair the usefulness of the part.

13.2 Samples that represent rejected material shall be preserved for a minimum of 2 weeks from the date of transmission of the rejection report. In case of dissatisfaction with the results of the tests, the manufacturer shall be permitted to make claim for a rehearing within that time.

14. Packaging

14.1 Unless otherwise specified, the material shall be packaged in accordance with the supplier's standard practice and acceptable to the carrier at the lowest rates. Containers and packing shall comply with Uniform Classification Rules or National Motor Freight Classification Rules.

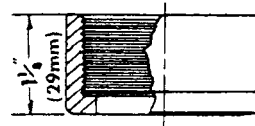


A, in. ^A	B, in. ^A	C, in.
4	6⅞	1
6	8⅞	1
8	10⅞	1

^ADimension A and B will vary depending upon the sink strainer in which overflow is placed, depth of counterbore, and so forth, Dimension B is given only as a guide.

NOTE 1—1 in. = 25.4 mm.

FIG. 29 Sink Overflows

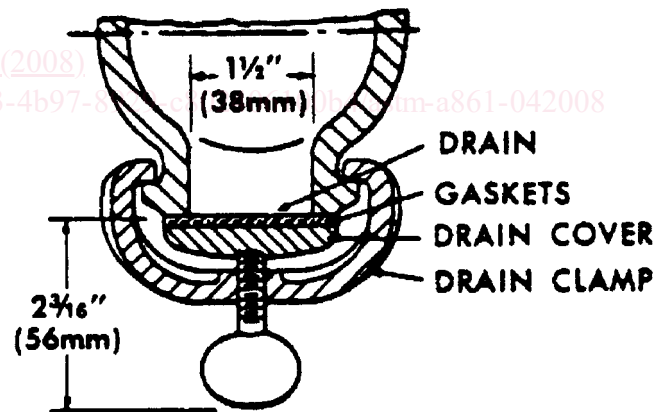


NPSM Threads
(National Pipe Straight Mechanical)

Type	Size, in.
AD-7	1½ Outlet to 1½ MJ
AD-8	1½ Outlet to 2 MJ
AD-10	2 Outlet to 2 MJ

NOTE 1—1 in. = 25.4 mm.

FIG. 30 Threaded Adapters



NOTE 1—1 in. = 25.4 mm.

FIG. 31 Trap Cleanout Details

15. Keywords

15.1 corrosion resistant; fittings; high-silicon iron; hubless; hub/plain-end; no-hub; plain-end