



Designation: C1277 – 12

Standard Specification for Shielded Couplings Joining Hubless Cast Iron Soil Pipe and Fittings¹

This standard is issued under the fixed designation C1277; 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 the materials and testing of shielded hubless couplings to join hubless cast iron soil pipe and fittings.

1.2 Several different types of hubless couplings are available for use in hubless cast iron sanitary and storm drain, waste and vent piping applications to connect hubless cast iron soil pipe and fittings by using a sleeve-type, or some other type coupling device. It is the purpose of this specification to furnish information as to the characteristics of one such sleeve type couplings when applied to cast iron soil pipe and fittings manufactured in accordance with Specification A888, latest revision, and CISPI-301, latest revision.

1.3 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.

1.4 The committee with jurisdiction over this standard is aware of other comparable standard published by the Cast Iron Soil Pipe Institute, CISPI-310, FM 1680 published by Factory Mutual, and Specification C1540 published by ASTM.

1.5 The following precautionary caveat pertains only to the test method portion, Section 7, of this specification. *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

¹ This specification is under the jurisdiction of ASTM Committee A04 on Iron Castings and is the direct responsibility of Subcommittee A04.75 on Gaskets and Coupling for Plumbing and Sewer Piping.

Current edition approved Dec. 1, 2012. Published January 2013. Originally approved in 1994. Last previous edition approved in 2011 as C1277 – 11. DOI: 10.1520/C1277-12.

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.

A240/A240M Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

A644 Terminology Relating to Iron Castings

A888 Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications

C564 Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings

C1540 Specification for Heavy Duty Shielded Couplings Joining Hubless Cast Iron Soil Pipe and Fittings

D3677 Test Methods for Rubber—Identification by Infrared Spectrophotometry

2.2 CISPI Standard:

CISPI-301 Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste and Vent Piping Applications³

CISPI-310 Specification for Couplings for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications³

2.3 Factory Mutual Standard:

FM 1680 Couplings Used in Hubless Cast Iron Systems for Drain, Waste or Vent, Sewer, Rainwater or Storm Water System, Above or Below Ground, Industrial, Commercial and Residential⁴

3. Terminology

3.1 Definitions of the following terms used in this specification are found in Terminology A644, elastomeric and durometer.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *center stop, n*—an integral part of the gasket centered on the axial length of the gasket intended to limit the insertion depth of the pipe to be coupled.

3.2.2 *clamp assembly, n*—that portion of the coupling excluding the gasket and shield.

³ Available from Cast Iron Soil Pipe Institute (CISPI), 5959 Shallowford Rd., Suite 419, Chattanooga, TN 37421, http://www.cispi.org.

⁴ Available from Factory Mutual Research, 1151 Boston-Providence Turnpike, Norwood, MA, 02062.

3.2.3 *corrugated*, *n*—any method of embossing.

3.2.4 *coupling*, *n*—the complete assembly.

3.2.5 *fitting*, *n*—parts of a pipeline other than straight pipes, valves, or couplings.

3.2.6 *gasket*, *n*—the elastomeric portion of the coupling.

3.2.7 *joint*, *n*—the point of assembly consisting of the coupling and the joined pipes or fittings, or both.

3.2.8 *manufacturer clamp assembly and shield*, *n*—The entity that attaches the clamp assembly to the shield for the couplings covered by this standard specification.

3.2.9 *manufacturer gaskets*, *n*—The entity that molds the gaskets covered by this standard specification.

3.2.10 *shield*, *n*—an external metallic protective device designed to protect the sealing gasket from external elements that could cause failure of the sealing gasket.

4. Materials and Manufacture

4.1 Physical properties of gaskets shall comply with Specification C564 and the dimensions, material specifications, physical and chemical properties as shown in Fig. 1, Fig. 2, Table 1, and Table 2.

TABLE 1. RUBBER SLEEVE

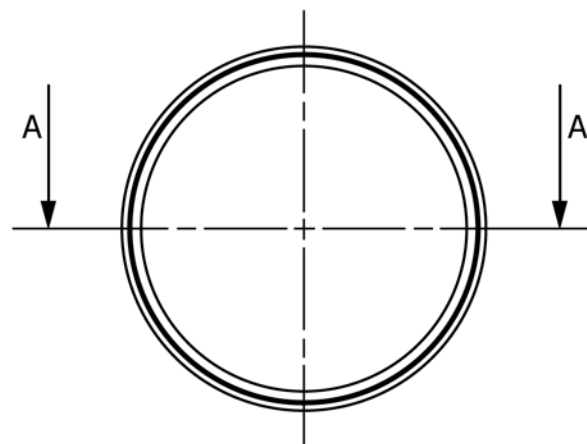
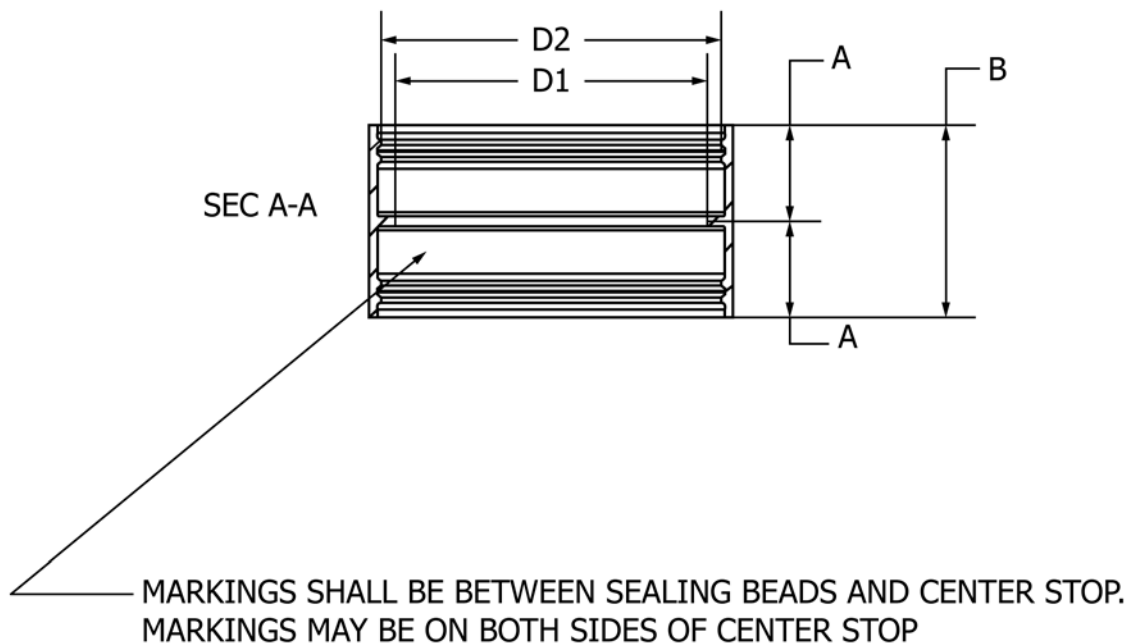
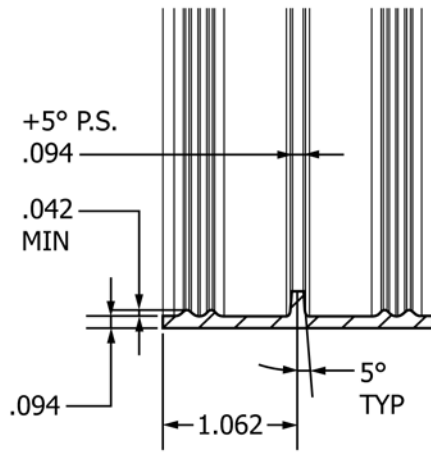
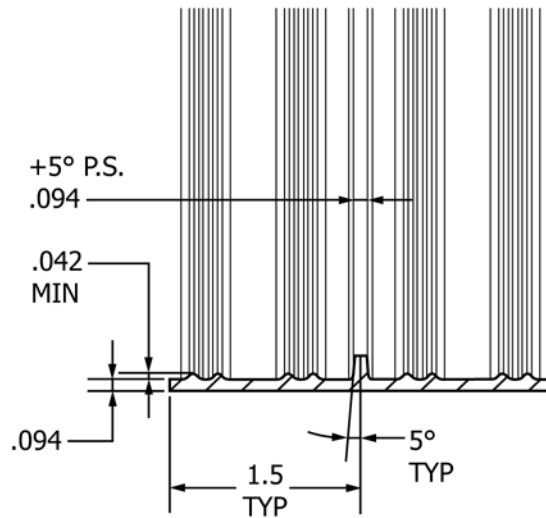


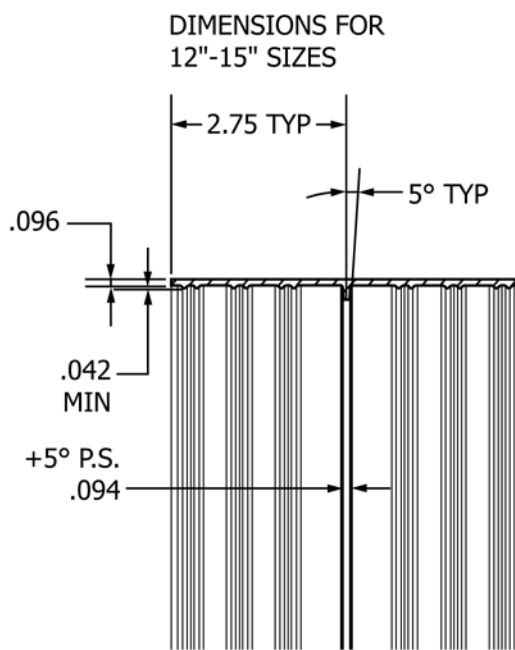
FIG. 1 Rubber Gasket



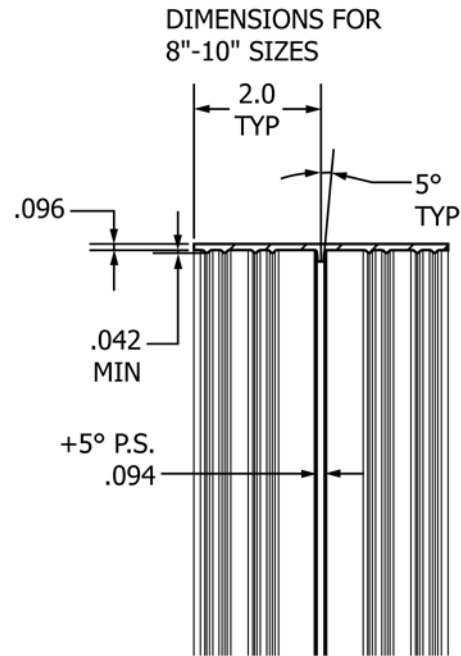
DIMENSIONS FOR
1.5"-4" SIZES



DIMENSIONS FOR
5"-6" SIZES



DIMENSIONS FOR
12"-15" SIZES



DIMENSIONS FOR
8"-10" SIZES

NOTE 1—Dimensions found in these drawings are for informational purposes only. The dimensions A and B found in the table are mandatory. Dimensions D1 and D2 found in the table are reference for mold design. Tolerances are found in Fig. 2. The center stop width is (3/32) .094 plus the 5° draft angle. Sealing ring shape and dimensions are to manufacturer's design.

	1½ in.	2 in.	3 in.	4 in.	Dimensions 5 in.	6 in.	8 in.	10 in.	12 in.	15 in.
A	1.062	1.062	1.062	1.062	1.500	1.500	2.000	2.000	2.750	2.750
B	2.125	2.125	2.125	2.125	3.000	3.000	4.000	4.000	5.500	5.500
D1	1.531	1.968	2.968	4.000	4.968	5.968	7.968	9.975	12.000	15.200
D2	1.937	2.343	3.343	4.406	5.343	6.343	8.343	10.350	12.430	15.650

NOTE 2—Dimensional Tolerances to be RMA Class 3 (See Table 1).

FIG. 1 Rubber Gasket (continued)