



Standard Specification for Borosilicate Glass Pipe and Fittings for Drain, Waste, and Vent (DWV) Applications¹

This standard is issued under the fixed designation C1053; 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 chemically resistant, low expansion, Type I, borosilicate glass, Class A (see Specification [E438](#)), used to manufacture corrosion-resistant pipe and fittings for drain, waste, and vent service.

1.2 The pipe and fittings covered by the specification are intended for chemical resistant service above and below grade under gravity flow or vacuum conditions.

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 pipe and fittings shall have beaded or plain ends.

2. Referenced Documents

2.1 *ASTM Standards*:²

[C600](#) Test Method of Thermal Shock Test on Glass Pipe

[C623](#) Test Method for Young's Modulus, Shear Modulus, and Poisson's Ratio for Glass and Glass-Ceramics by Resonance

[C693](#) Test Method for Density of Glass by Buoyancy

[E438](#) Specification for Glasses in Laboratory Apparatus

3. Ordering Information

3.1 The minimum ordering information for material under this specification shall include the following information:

- 3.1.1 ASTM designation and date of issue,
- 3.1.2 Manufacturer's catalog number or parts identification,
- 3.1.3 Quantity ordered,
- 3.1.4 Special test or certification requirements,
- 3.1.5 Special packaging or marking, if required, and

3.1.6 Accessory items such as couplings, drains, adapters, and cutters.

4. Materials and Manufacture

4.1 The glass components shall represent good workmanship as consistent with standard glass process capabilities.

5. Chemical Requirements

5.1 The chemical requirements shall be as described in Specification [E438](#).

6. Physical Requirements

6.1 The physical requirements shall be as described in Specification [E438](#).

6.2 Refer also to [Annex A1](#) for additional physical requirements.

7. Operating Temperatures

7.1 *Minimum Operating Temperature*—The minimum rated operating temperature for all sizes shall be -40°F (-40°C) provided the material being conveyed is fluid.

7.2 *Maximum Operating Temperature*—The maximum rated continuous operating temperature shall be 212°F (100°C).

7.3 *Thermal Shock Resistance*—The maximum allowable temperature differential for installed systems shall be in accordance with [Table 1](#) for the various pipe sizes. Maximum temperature differential refers to an almost instantaneous temperature change, such as low-pressure steam followed directly by a flush of ice cold water, or the reverse. Maximum temperature differential pertains to either inside or outside pipe surfaces.

7.3.1 Thermal shock resistance is not ordinarily tested. If thermal shock resistance may be questioned, it shall be tested in accordance with Method [C600](#). If all pieces tested pass the allowable temperature differential, the lot shall be accepted. If one or more failures occur, a retest shall be made using a sample size twice that of the first test. If any failures occur on the retest, the entire shipment shall be retested.

¹ This specification is under the jurisdiction of ASTM Committee [C14](#) on Glass and Glass Products and is the direct responsibility of Subcommittee [C14.05](#) on Glass Pipe.

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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.