



Designation: D8505/D8505M – 23

Standard Specification for Basalt and Glass Fiber Reinforced Polymer (FRP) Bars for Concrete Reinforcement¹

This standard is issued under the fixed designation D8505/D8505M; 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 basalt and glass fiber reinforced polymer (BFRP and GFRP, respectively) bars, provided in straight (longitudinal) cut lengths, of solid round cross-section, and having a surface enhancement for internal concrete reinforcement applications. Bars covered by this specification shall meet the requirements for geometric, material, mechanical, and physical properties as described herein.

1.2 Subsection 1.6 defines the type of FRP bars that are out of the scope of this specification.

1.3 Bars produced according to this standard are qualified using the test methods and must meet the requirements given in **Table 1**. Quality control and certification of production lots of bars are completed using the test methods and must meet the requirements given in **Table 2**.

1.4 The standard sizes and dimensions of FRP bars and their number designations are given in **Table 3**.

1.5 The text of this specification references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables) shall not be considered as requirements of the specification.

1.6 The following FRP bar materials are not covered by this specification:

1.6.1 Bars made of more than one load-bearing fiber types or different grade fibers (that is, hybrid FRP).

1.6.2 Bars made from fibers other than glass or basalt.

1.6.3 Bars having no external surface enhancement (that is, plain or smooth bars, or dowels).

1.6.4 Bars with geometries other than solid, round cross sections.

1.6.5 Pre-manufactured grids and gratings made with FRP materials.

1.6.6 Bent bars (that is, bars that are not made of straight, continuous lengths).

NOTE 1—Bent bars may include stirrups and hoops. Refer Specification **D7957/D7957M** for GFRP bent bar specifications.

1.7 This specification is applicable for either SI (as Specification D8505M) or US units (as Specification D8505).

1.8 The values stated in either SI units or US units are to be regarded as standard. Within the text, the US units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the specification.

1.9 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.10 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

¹ This specification is under the jurisdiction of ASTM Committee D30 on Composite Materials and is the direct responsibility of Subcommittee D30.10 on Composites for Civil Structures.

Current edition approved April 1, 2023. Published April 2023. DOI: 10.1520/D8505_D8505M-23.