



Designation: D4167 – 21

Standard Specification for Fiber-Reinforced Plastic Fans and Blowers¹

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1. Scope

1.1 This specification covers centrifugal and axial fans and blowers with airstream components fabricated of fiber-reinforced thermoset plastics (FRP) for corrosion resistance. It is acceptable for internal structures to include encapsulated metal fastening devices, hubs, and shafts.

1.2 Reinforcing materials other than fibrous glass are acceptable for use in the fabrication, provided the fans and blowers produced meet all the requirements of this specification.

1.3 The term “fans” as used in this specification includes fans and blowers, both centrifugal and axial.

1.4 The purpose of this specification is to provide purchasers, system designers, specifiers, and suppliers of FRP fans with minimum standards for fan construction and a common basis for determining safe operating speeds.

1.5 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are provided for information only.

NOTE 1—There is no known ISO equivalent to this standard.

NOTE 2—Appendix X2 contains a list of documents potentially of interest to designers of fan systems.

1.6 *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.*

1.7 *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 D20 on Plastics and is the direct responsibility of Subcommittee D20.23 on Reinforced Thermosetting Resin Piping Systems and Chemical Equipment.

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2. Referenced Documents

2.1 ASTM Standards:²

C582 Specification for Contact-Molded Reinforced Thermo-setting Plastic (RTP) Laminates for Corrosion-Resistant Equipment

D883 Terminology Relating to Plastics

D2563 Practice for Classifying Visual Defects in Glass-Reinforced Plastic Laminate Parts

2.2 Other Standards:

AMCA 99 Standards Handbook³

AMCA Fan and Air System Applications Handbook (AMCA 200, 201, 202, 203)³

AMCA Bulletin 210 Laboratory Methods of Testing Fans for Certified Aerodynamic Performance Rating³

AMCA 300 Reverberant Room Method for Sound Testing of Fans³

AMCA 301 Methods for Calculating Fan Sound Ratings from Laboratory Test Data³

ACGIH Industrial Ventilation: A Manual of Recommended Practice⁴

NFPA 91 Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids⁵

3. Terminology

3.1 *Definitions*—The definitions of terms used in this specification are the same as those found in Terminology D883.

4. Construction of Fan Housings

4.1 *Laminate Construction* shall conform to Specification C582. The same resin shall be used throughout a housing unless the purchaser and supplier agree to use a different resin for the inner surface and interior layer than for the structural layer.

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 Air Movement and Control Association International, 30 West University Dr., Arlington Heights, IL 60004, <http://www.amca.org>.

⁴ Available from American Conference of Governmental Industrial Hygienists (ACGIH), 1330 Kemper Meadow Dr., Cincinnati, OH 45240, <http://www.acgih.org>.

⁵ Available from National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269, <http://www.nfpa.org>.