



Standard Specification for Packing, Fiberglass, Braided, Rope, and Wick¹

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This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers the general requirements and tests for braided, rope, and wick fiberglass packing used for boiler, furnace, and other high-temperature equipment seals for service temperatures up to 1000°F (538°C).

2. Referenced Documents

2.1 ASTM Standards:

- D 578 Specification for Glass Fiber Strands²
- D 3951 Practice for Commercial Packaging³
- D 4268 Test Methods for Testing Fiber Ropes⁴

3. Terminology

3.1 *Braided fiberglass*—A braid constructed of continuous fiberglass strands.

3.2 *Plied*—A yarn product produced by twisting together two or more ends of single fiberglass yarns.

3.3 *Strand*—An ordered assemblage of textile fibers having a high ratio of length to diameter and normally used as a unit, including slivers, rovings, single yarns, plied yarns, cords, braids, ropes, and so forth.

3.4 *Yarn*—Portion of fiberglass reduced to thread to obtain a fine and thin strand.

3.5 *Lot*—Unless otherwise specified herein, a lot should consist of all finished packing of one type and size produced in a continuous run or at the same time under essentially the same conditions. The sampling unit should be one spool, reel, or coil of packing as necessary to enable performance of the required examinations or tests.

4. Classification

4.1 *Classification*—The material shall be of the following types as specified (see 5.1):

- Type I—Wick
- Type II—Rope

Type III—Braided

5. Ordering Information

5.1 *Acquisition Requirements*—Acquisition documents must specify the following:

- (a) Title, number, and date of this specification;
- (b) Type, size, and weight of spool, reel, or coil required (see Section 7);
- (c) Marking requirements (see Section 15);
- (d) Packaging requirements (see Section 16);
- (e) Performance requirements; and
- (f) Inspection, testing, and certification of the material should be agreed upon between the purchaser and the supplier as part of the purchase contract (see Sections 12 and 14).

6. Materials and Manufacture

6.1 *Material*—The material shall be a continuous, high-density-type ETG fiberglass material (see Specification D 578). Asbestos and components containing asbestos are prohibited.

6.2 *Construction*—The packing shall be composed of twisted plied strands made into a braided packing or laid up into the general form of a wick or a loosely twisted rope according to the manufacturer's design. If a core is used, it shall be of the same material and construction.

7. Dimensions and Tolerances

7.1 *Type I Wick Packing*—Unless otherwise specified (see 5.1), the packing shall come in 13-lb (5.9-kg) or 25-lb (11.3-kg) spools, reels, or coils in the sizes listed in Table 1.

7.2 *Type II Rope Packing*—Unless otherwise specified (see 5.1), the packing shall come in 25-lb (11.3-kg) or 50-lb (22.7-kg) spools, reels, or coils in the sizes listed in Table 2.

7.3 *Type III Braided Packing*—Unless otherwise specified (see 5.1), the packing shall come in 25-lb (11.3-kg) or 50-lb (22.7-kg) spools, reels, or coils in the sizes listed in Table 3.

8. Workmanship

8.1 *Workmanship*—The packing should be free from extraneous material and visible defects that may affect its serviceability.

¹ This specification is under the jurisdiction of ASTM Committee F25 on Ships and Marine Technology and is the direct responsibility of Subcommittee F25.02 on Insulation/Processes.

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² *Annual Book of ASTM Standards*, Vol 07.01.

³ *Annual Book of ASTM Standards*, Vol 15.09.

⁴ *Annual Book of ASTM Standards*, Vol 07.02.

TABLE 1 Dimensions for Type I Wick Packing

Size	Diameter in. (mm)	ft/lb (m/kg)
001W	0.250 ± 0.025 (6.3 ± 0.6)	54.00 ± 5.40 (80.36 ± 8.04)
002W	0.375 ± 0.038 (9.5 ± 0.9)	29.00 ± 2.90 (43.16 ± 4.32)

TABLE 2 Dimensions for Type II Rope Packing

Size	Diameter in. (mm)	ft/lb (m/kg)
001R	0.250 ± 0.025 (6.3 ± 0.6)	55.00 ± 5.50 (81.85 ± 8.19)
002R	0.375 ± 0.038 (9.5 ± 0.9)	23.50 ± 2.35 (34.97 ± 3.50)
003R	0.500 ± 0.050 (12.7 ± 1.3)	14.00 ± 1.40 (20.83 ± 2.08)
004R	0.625 ± 0.063 (15.8 ± 1.6)	9.00 ± 0.90 (13.39 ± 1.34)
005R	0.750 ± 0.075 (19.1 ± 1.9)	6.50 ± 0.65 (9.67 ± 0.97)
006R	0.875 ± 0.088 (22.2 ± 2.2)	4.50 ± 0.45 (6.70 ± 0.67)
007R	1.000 ± 0.100 (25.4 ± 2.5)	3.50 ± 0.35 (5.21 ± 0.52)
008R	1.250 ± 0.125 (31.7 ± 3.2)	2.50 ± 0.25 (3.72 ± 0.37)
009R	1.500 ± 0.150 (38.1 ± 3.8)	2.00 ± 0.20 (2.98 ± 0.30)
010R	2.000 ± 0.200 (50.8 ± 5.1)	1.20 ± 0.12 (1.79 ± 0.18)

TABLE 3 Dimensions for Type III Braided Packing

Size	Square Section in. (mm)	ft/lb (m/kg)
001B	0.250 ± 0.025 (6.3 ± 0.6)	To be specified by purchaser
002B	0.375 ± 0.038 (9.5 ± 0.9)	To be specified by purchaser
003B	0.500 ± 0.050 (12.7 ± 1.3)	To be specified by purchaser
004B	0.625 ± 0.063 (15.8 ± 1.6)	To be specified by purchaser
005B	0.750 ± 0.075 (19.1 ± 1.9)	To be specified by purchaser
006B	0.875 ± 0.088 (22.2 ± 2.2)	To be specified by purchaser
007B	1.000 ± 0.100 (25.4 ± 2.5)	To be specified by purchaser
008B	1.250 ± 0.125 (31.7 ± 3.2)	To be specified by purchaser
009B	1.500 ± 0.150 (38.1 ± 3.8)	To be specified by purchaser
010B	2.000 ± 0.200 (50.8 ± 5.1)	To be specified by purchaser

9. Quality Assurance

9.1 *Quality Systems*—Suppliers shall be prepared to document use of a quality system such as compliance with an ISO 9000 series program or similar program.

10. Specimen Preparation

10.1 *Specimen Preparation*—Purchaser and supplier should agree on specimen preparation.

11. Test Methods

11.1 *Material*—Material shall be tested in accordance with Specification D 578.

11.2 *Size*—Material shall be measured using a flexible measuring tape such as the one described in Test Methods D 4268 and shall be in accordance with the size specified in Table 1, Table 2, or Table 3.

11.3 *Splices*—Unless otherwise agreed upon, there shall be allowed a maximum of two splices per unit with no piece shorter than 10 ft in length.

11.4 *Weight*—Material shall be weighed in accordance with Table 1, Table 2, or Table 3 using a weighing scale, accurate to ±0.25 related to the real division of the graduated line. This value is expressed in mass unit of:

(a) the difference between the corresponding values of marks of the graduated line and

(b) the difference between two consecutive indications for digital indication.

12. Inspection and Testing

12.1 Inspection and testing of the material should be agreed upon between the purchaser and the supplier as part of the purchase contract (see 5.1).

13. Rejection

13.1 Materials that fail to conform to the requirements of this specification shall be rejected. Rejection should be reported to the producer or supplier promptly and in writing. In case of dissatisfaction with the results of testing, the producer may make claim for a rehearing or provide for third party testing.

14. Certification

14.1 When specified in the purchase order or contract, the purchaser shall be furnished certification that samples representing each lot have been either tested or inspected as directed in this specification and the requirements have been met. When specified in the purchase order or contract, a report of the test results shall be furnished (see 5.1).

15. Product Marking

15.1 *Marking*—For commercial shipment, marking should be in accordance with accepted industry practices or as required in the purchase contract (see 5.1).

15.1.1 When specified, a part-numbering system shall be used in accordance with Appendix X1.

16. Packaging

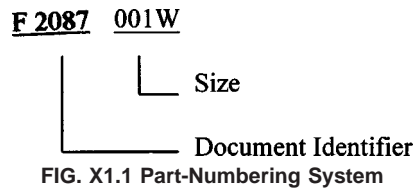
16.1 *Commercial Packaging*—Commercial packaging should be in accordance with Practice D 3951 or as required in the purchase contract (see 5.1).

APPENDIX

(Nonmandatory Information)

X1. PART-NUMBERING SYSTEM

X1.1 Part numbers for fiberglass packing shall include the number of this standard followed by the size shown in Table 1, Table 2 or Table 3. An example of this system is in Fig. X1.1.



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