



Designation: F 917 – 91 (Reapproved 2003)

Standard Specification for Commercial Food Waste Disposers¹

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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 commercial food waste disposers intended for the grinding of food waste.

2. Referenced Documents

2.1 ASTM Standards:²

A 29/A 29M Specification for Steel Bars, Carbon and Alloy, Hot-Wrought and Cold-Finished, General Requirements for

A 120 Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated (Galvanized) Welded and Seamless, for Ordinary Uses³

A 167 Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip

A 276 Specification for Stainless Steel Bars and Shapes

A 436 Specification for Austenitic Gray Iron Castings

A 532/A 532M Specification for Abrasion-Resistant Cast Irons

A 554 Specification for Welded Stainless Steel Mechanical Tubing

A 582/A 582M Specification for Free-Machining Stainless Steel Bars

A 681 Specification for Tools Steel Alloy

B 26/B 26M Specification for Aluminum-Alloy Sand Castings

B 43 Specification for Seamless Red Brass Pipe, Standard Sizes

B 75 Specification for Seamless Copper Tube

B 108 Specification for Aluminum-Alloy Permanent Mold Castings

D 2000 Classification System for Rubber Products in Automotive Applications

D 2287 Specification for Nonrigid Vinyl Chloride Polymer

and Copolymer Molding and Extrusion Compounds

D 3951 Practice for Commercial Packaging

E 18 Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials

E 1842 Test Method for Macro-Rockwell Hardness Testing of Metallic Materials³

F 104 Classification System for Nonmetallic Gasket Materials

F 760 Specification for Food Service Equipment Manuals

2.2 Other Publications:

ASSE No. 1009 Commercial Food Waste Disposer Units⁴

UL 430 Waste Disposers⁵

3. Terminology

3.1 Definition:

3.1.1 *commercial food waste disposer*—intended for grinding food waste into small particles which are then flushed by water into a sanitary sewer system. Food wastes can be cooked or noncooked soils from the preparation or serving of foods. Disposers are not intended to be used for grinding glass, china, metals, clam or oyster shells, large bones, wood, paper, cardboard, or plastic. A disposer shall consist of the following principal parts: Motor, grind chamber, flywheel, shredder ring, hopper, leg(s) (see 7.12).

4. Classification

4.1 Commercial disposers shall be of the following types:

4.1.1 *Type I*—Cone.

4.1.2 *Type II*—Sink.

4.1.3 *Type III*—Trough mounted.

4.1.4 *Type IV*—Free standing.

4.1.5 *Type V*—Special.

4.2 Horsepowers and drain sizes shall be as specified in Table 1.

5. Ordering Information

5.1 Purchasers should select the preferred options and include the following information in purchasing document:

¹ This specification is under the jurisdiction of ASTM Committee F26 on Food Service Equipment and is the direct responsibility of Subcommittee F26.01 on Cleaning and Sanitation Equipment.

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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.

³ Withdrawn.

⁴ Available from American Society of Sanitary Engineering, P. O. Box 9712, Bay Village, OH 44140.

⁵ Available from Underwriters Laboratories (UL), Corporate Progress, 333 Pfingsten Rd., Northbrook, IL 60062.

TABLE 1 Recommended Horsepower and Drain Size^A

Drain Size	Light Duty					Medium Duty			Heavy Duty		Flow Rate GPM
	1/2	3/4	1	1 1/4	1 1/2	2	3	5	7	10	
1 1/2 in. (3.81 cm)	X	X	X	X	X						5 (18.9 l/m)
2 in. (5.08 cm)				X	X	X	X	X			8 (30.3 l/m)
3 in. (7.62 cm)						X	X	X	X	X	10 (37.8 l/m)

^A More or less water may be used, depending on waste load, drain size, and configuration.

5.1.1 Title, number, and date of this standard.

5.1.2 Type, horsepower, and drain size required (see Section 4).

5.1.3 Electrical power supply characteristics (HP, voltage, phase, frequency).

5.1.4 Spare and maintenance parts required.

5.1.5 Control panel, manual, magnetic, special, or motor-reversing control, manual or automatic.

5.1.6 Accessory equipment as required, such as: water inlet(s), solenoid valve, vacuum breaker, flow control(s), silverware trap, and splash guard.

5.2 *Interchangeability of Items*—All disposers of the same model and material list designation furnished with similar options under a specific purchase order shall be identical to the extent necessary to ensure interchangeability of component parts, assemblies, accessories, and spare parts.

6. Materials and Design

6.1 All materials shall be as specified as follows:

6.1.1 Materials used shall be free from defects that would adversely affect the performance or maintenance ability of individual components of the overall assembly.

6.1.2 *Corrosion Resistant Steel*—Corrosion-resistant steel and heat resisting steel shall conform to the requirements of any 300 or 400 series steel specified in Specifications **A 167**, **A 554**, **A 276**, and **A 582**.

6.1.3 *Aluminum Alloy*—Aluminum alloy shall conform to the requirements specified in Specification **B 108** or Specification **B 26**.

6.1.4 *Abrasion-Resistant Cast Iron*—Abrasion-resistant cast iron shall conform to the requirements specified in Specification **A 532**.

6.1.5 *Austenitic Gray Iron*—Austenitic gray iron shall conform to the requirements specified in Specification **A 436**.

6.1.6 *Copper Tube*—Copper tube used for water supply shall conform to the requirements specified in Specification **B 75**.

6.1.7 *Brass Pipe*—Brass pipe used for water supply shall conform to the requirements specified in Specification **B 43**.

6.1.8 *Alloy Steel*—Alloy steel shall conform to the requirements specified in Specification **A 681** and Specification **A 29**.

6.1.9 *Black and Galvanized Pipe*—Black and galvanized pipe shall conform to the requirements specified in Specification **A 120**.

6.1.10 *Gaskets/Seals*—All gaskets and seals shall conform to the requirements specified in Specification **D 2287**, Specification **D 2000**, and Classification **F 104**.

7. Construction Requirements Construction Requirements

7.1 *General*:

7.1.1 The disposer shall be complete, ready for water, waste, and electrical connection; freestanding or with provision to mount to sink, or cone, or trough, or special support mount.

7.1.2 The disposer shall grind soil by means of a rotating flywheel with cutting blocks coming in close contact with a stationary shredder ring with multiple cutting edges. Finely ground soil is carried to drain by a continuous water flow.

7.1.3 When supplied with a control panel, water flow shall begin automatically when the disposer is started, water flow shall stop when the disposer is stopped, or water flow may continue until a delay timer automatically shuts off the water.

7.1.4 Water shall flow into the disposer from the hopper, cone, sink, trough, or special mount to which it is connected.

7.2 *Valves and Fittings*—Flow valves and fittings or fresh water solenoid valves, or both, when provided, shall be of corrosion-resisting materials. Solenoid valves shall be fully automatic and suitable for 100°F (37.8°C) water.

7.3 *Hopper (Upper Housing)*—Hoppers shall be of corrosion-resistant steel, nonferrous corrosion-resistant material, cast iron, coated carbon steel, or equivalent. Material shall be of 0.045-in. (1.143-mm) minimum thickness sheet metal or 0.125-in. (3.18-mm) minimum thickness cast material.

7.4 *Grind Chamber (Lower Housing)*—Grind chamber shall be of corrosion resistant steel, nonferrous corrosion-resisting material, or cast iron. Material shall be of 0.100-in. (2.54-mm) minimum thickness cast material.

7.5 *Shredder Ring*—Shredder rings shall be of abrasion-resistant steel or iron with minimum thickness of 0.125-in. (3.18 mm). Material hardness shall be Rockwell “C” 40 minimum.

7.6 *Flywheel*—Flywheels shall be of iron or alloy steel casting or forging with minimum thickness of 0.125-in. (3.18 mm). Hardness of the material shall be R_B 70 minimum.

7.7 *Cutting Teeth*—Cutting teeth shall be of corrosion-resistant or alloy steel or iron. Material shall be hardened to R_C 45 minimum.

7.8 *Water Seal*—A water seal shall be provided to keep soil and water from passing along the drive shaft into bearings or motor.

7.9 *Bearings*—Disposer bearings shall be tapered roller or ball type.

7.10 *Motor*—Motors shall be single phase or three phase, 60 Hz, rated from 1/2 HP to 10 HP. Thermal overload protection shall be provided either on the motor or in the disposer control circuitry.

7.11 *Wiring and Circuit Protective Devices*—All wiring and circuit protective devices shall be in accordance with **UL 430**.