



Designation: F3255 – 19

Standard Specification for Rapid Pull Down Refrigerators (Blast Chillers), Freezers (Blast Freezers), Combination Refrigerator/Freezer (Blast Chiller/Freezers), and Quick Chillers for Commercial Use¹

This standard is issued under the fixed designation F3255; 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 basic design and function of rapid pull down refrigerators or freezers, or a combination of both, sometimes referred to as “blast chillers,” “blast freezers,” or “quick chillers.”

1.2 This equipment is for professional use in commercial and other similar food service establishments for rapid intermediate chilling or freezing of hot food products cooked to a specific temperature within a specified time period and holding the food at a safe temperature when not engaged in the chilling or freezing process.

1.3 This standard addresses equipment that is self-contained, manually operated, and has a mechanically refrigerated cabinet(s) of a vertical or horizontal cabinet type. Equipment may be a “reach-in” for stationary or fixed shelving or a “roll-in” for mobile carts. This equipment may also be installed under a service counter.

1.4 This standard does not cover blast chilling tunnels, continuous blast-chilling and blast freezing equipment, bakery combined freezing and storage units.

1.5 The standard does not cover “shock freezers” or equipment that uses nitrogen or other consumable products in their function.

1.6 Equipment covered under this specification may contain a substance (or be manufactured with a substance) that harms public health and environment by destroying ozone in the upper atmosphere. This specification does not purport to address environmental regulations. It is the responsibility of the user of this specification to comply with environmental regulations.

1.7 *Units*—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.

1.8 *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.*

1.9 *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.*

2. Referenced Documents

2.1 *ASTM Standards*:²

[D3951 Practice for Commercial Packaging](#)

[F760 Specification for Food Service Equipment Manuals](#)

2.2 *ANSI/UL Standards*:³

[ANSI/UL 471 Commercial Refrigerators and Freezers](#)

[ANSI/UL 969 Standard for Marking and Labeling Systems](#)

2.3 *NSF/ANSI Standards*:⁴

[NSF/ANSI 7 Commercial Refrigerators and Freezers](#)

2.4 *Military Standards*:⁵

[MIL-STD-167/1 Mechanical Vibrations of Shipboard Equipment Type I—Environmental and Type II—Internally Excited](#)

[MIL-STD-461 Electromagnetic Interference Characteristics Requirements for Equipment](#)

[MIL-STD-461B Electromagnetic Emission and Susceptibility Requirements for the Control of Electromagnetic Interference](#)

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 Underwriters Laboratories (UL), 2600 N.W. Lake Rd., Camas, WA 98607-8542, <http://www.ul.com>.

⁴ Available from NSF International, P.O. Box 130140, 789 N. Dixboro Rd., Ann Arbor, MI 48105, <http://www.nsf.org>.

⁵ Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098.

¹ This specification is under the jurisdiction of ASTM Committee F26 on Food Service Equipment and is the direct responsibility of Subcommittee F26.03 on Storage and Dispensing Equipment.

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MIL-STD-1399/300B Interface Standards for Shipboard Systems Section 300A, Electric Power, Alternating Current

3. Terminology

3.1 Definitions:

3.1.1 *automatic defrost*, *n*—process where heat is automatically introduced into the cooling coils to dissipate any ice or frost buildups on the coil.

3.1.2 *batch*, *n*—amount (weight) of similar hot food product inserted into blast chiller equipment at a given time for the purpose of chilling or freezing.

3.1.3 *capacity*, *n*—total number of pans in the interior of the cabinet.

3.1.4 *chill cycle*, *n*—refrigeration mode intended to chill hot food from 135°F (57°C) to below 41°F (5°C) within 4 h in a 100°F (38°C) ambient.

3.1.5 *chill cycle time*, *n*—length of time which may be specified by the manufacturer that may be less than 4 h where hot food is chilled from 135 to 41°F (5°C) or lower.

3.1.6 *delicate (setting)*, *n*—also known as a “soft chill” (see 3.1.17).

3.1.7 *food probe*, *n*—temperature sensor used by the equipment to monitor the temperature of the food(s) being chilled.

3.1.8 *hard chill*, *n*—cycle ideal for chilling “standard products” such as cooked meat, pies, lasagna, individually portioned meals etc.

3.1.9 *hold cycle*, *n*—refrigeration mode intended to hold recently chilled foods at safe refrigerated temperature, typically between 32 to 41°F (0 to 5°C).

3.1.10 *horizontal cabinet*, *n*—any cabinet of undercounter or counter height design whose width is its greatest dimension.

3.1.11 *idle cycle*, *n*—refrigeration mode intended to keep the refrigerated space at a safe refrigerated temperature, typically between 32 to 41°F (0 to 5°C) and when the refrigerated space is empty/not in use.

3.1.12 *label printer*, *n*—printer integrated with the equipment used to print batch information on a label applied to the food finished product.

3.1.13 *modular*, *adj*—particular method of cabinet construction which allows the cabinet and all of its components to be disassembled and reassembled for ease of installation.

3.1.14 *net volume*, *n*—expressed as either:

(1) surface area of a loading level (that is, a shelf) multiplied by the internal height of the door frame, for reach-in cabinets, the loading height of the door is the clearance height minus approximately 10 in. (250 mm), net volume is expressed in cubic feet (ft³) (cubic meters, m³); or

(2) surface area of the largest possible rack shelf multiplied by the loading height, for roll-in cabinets, net volume is expressed in cubic feet (ft³) (cubic meters, m³).

3.1.15 *positive latching hardware*, *n*—any latching mechanism that requires that the device be disengaged before the door can be opened.

3.1.16 *record printer*, *n*—printer integrated with the equipment used to print batch information for record keeping purposes.

3.1.17 *soft chill*, *n*—for the safe chilling of delicate products, cycle that is ideal for the rapid but gentle chilling of any dish.

3.1.17.1 *Discussion*—This cycle brings the temperature of the food down whilst retaining a positive air temperature. This prevents large ice crystals from forming which can damage the structure of delicate foods such as gateaux and patisserie items, and high water content items such as vegetables, rice and pasta. Using this program thereby maintains the texture, consistency and appearance of these foods, with no dehydration or cell damage.

3.1.18 *undercounter*, *n*—cabinet which has a maximum height of no more than 36 in. (914 mm) including legs or casters and mounting brackets.

3.1.19 *unitary*, *adj*—single piece cabinet construction.

3.1.20 *vertical cabinet*, *n*—any cabinet with single or multiple door arrangements whose height is its greatest dimension and is in excess of 36 in. (914 mm).

4. Classification

4.1 *General*—Equipment covered by this specification use the military specification format of classification and is defined by Type, Style, Class, Group, Mode, Category, Size, and Capacity.

4.2 Type:

4.2.1 *Type 1*—Undercounter.

4.2.2 *Type 2*—Reach in.

4.2.3 *Type 3*—Roll in.

4.2.4 *Type 4*—Roll through.

4.3 Style:

4.3.1 *Style A*—Self-contained condensing system.

4.3.2 *Style B*—Remote condensing system.

4.4 Class:

4.4.1 *Class A*—Air cooled.

4.4.2 *Class B*—Water cooled.

4.5 Group:

4.5.1 *Group I*)—115 V, 60 Hz, 1 Ph

4.5.2 *Group II*)—208-240 V, 60 Hz, 1 Ph

4.5.3 *Group III*)—208-240 V, 60 Hz, 3 Ph

4.5.4 *Group IV*)—115/208-240 V, 60 Hz, 1 Ph (3-Wire)

4.5.5 *Group V*)—115/208-240 V, 60 Hz, 3 Ph (4-Wire)

4.5.6 *Group VI*)—460 V, 60 Hz, 3 Ph

4.6 Mode:

4.6.1 *Mode 1*)—Door, left-hand swing.

4.6.2 *Mode 2*)—Door, right-hand swing.

4.7 Category:

4.7.1 *Category A*)—2 in. legs.

4.7.2 *Category B*)—3 in. legs.

4.7.3 *Category C*)—4 in. legs.

4.7.4 *Category D*)—6 in. legs.

4.7.5 *Category E*)—3 in. casters (minimum of two casters with brakes).

