

MIL-C-40602B (GL)
29 December 1967
SUPERSEDING
MIL-C-40602A
31 March 1964

MILITARY SPECIFICATION

COOKIE CUTTING MACHINE, ELECTRIC

1. SCOPE

1.1 This specification covers one type of electric-motor-operated cookie cutting machine.

2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

SPECIFICATIONS

FEDERAL

L-P-378 - Plastic Sheet and Strip (Polyolefin)
CC-M-636 - Motors, Alternating Current (Fractional Horsepower)
QQ-A-601 - Aluminum Alloy Sand Castings

MILITARY

MIL-B-2316 - Bakery Equipment, Including Unit Assemblies, Repair Parts and Tools, Preparation for Delivery of.

STANDARDS

FEDERAL

Fed. Test Method Std. No. 151 - Methods: Test Methods

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129 - Marking for Shipment and Storage
MIL-STD-130 - Identification Marking of U.S. Military Property
MIL-STD-461 - Electromagnetic Interference Characteristics Requirements for Equipment

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MIL-STD-462 - Electromagnetic Interference Characteristics

(Copies of specifications and standards required by suppliers in connection with specific procurement functions should be obtained from the procuring agency or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated the issue in effect on date of invitation for bids or request for proposal shall apply.

UNDERWRITERS' LABORATORIES, INC. (UL)

Electrical Appliance and Utilization Equipment List

Standard UL 73-1967: Motor Operated Appliances

(Requests for copies should be addressed to the Underwriters' Laboratories, Inc., 207 East Ohio Street, Chicago, Illinois 60611; 1285 Walt Whitman Road, Melville, L.I., New York 11746, or 1655 Scott Boulevard, Santa Clara, California 95050.)

NATIONAL SANITATION FOUNDATION (NSF)

Standard No. 8: Commercial Powered Food Preparation Equipment (1965)

Seal of Approval Listing of Food Service Equipment

(Application for copies should be addressed to the National Sanitation Foundation, P.O. Box 1468 Ann Arbor, Michigan 48104.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM Standard A167-63: Corrosion-Resisting Chromium-Nickel Steel Plate, and Strip

ASTM Standard A176-63: Corrosion-Resisting Chromium Steel Plate, Sheet, and Strip

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pa. 19106.)

3. REQUIREMENTS

3.1 Preproduction sample.- Unless otherwise specified (see 6.2), before production is commenced, a sample cookie-cutting machine shall be submitted or made available to the contracting officer or his authorized representative for approval in accordance with 4.2. The approval of the preproduction sample authorizes the commencement of production, but does not relieve the supplier of responsibility for compliance with all applicable provisions of this specification. The preproduction sample shall be manufactured in the same facilities to be used for the manufacture of the production items.

3.2 Standard product.- Cookie-cutting machine delivered under this specification shall be the manufacturers' current standard product, except for any changes necessary to comply with specification requirements.

3.3 Standards compliance.-

3.3.1 Safety standard.- The cookie-cutting machine shall conform to the applicable requirements of Standard UL73.

3.3.1.1 Certification.- Prior to approval of the preproduction sample, if one is submitted, or prior to approval of the first shipment, the supplier shall submit satisfactory evidence to the contracting officer or his authorized representative that the cookie-cutting machines he proposes to furnish under this specification meet the applicable requirements of standard UL 73. Acceptable evidence of meeting the requirements of the UL shall be the UL label, listing in the UL "Electrical Appliance and Utilization Equipment List" or a certified test report from a recognized independent testing laboratory, acceptable to the Government, indicating that the cookie-cutting machine offered has been tested and conforms to the applicable requirements of UL 73.

3.3.2 Sanitation standard.- The cookie-cutting machine shall conform to the applicable requirements of NSF Standard No. 8.

3.3.2.1 Certification.- Prior to the approval of the preproduction sample, if one is submitted, or prior to approval of the first shipment, the supplier shall submit satisfactory evidence to the contracting officer or his authorized representative that the cookie-cutting machine he proposes to furnish under this specification meets the applicable requirements of NSF Standard No. 8. Acceptable evidence of meeting the requirements of this standard shall be an NSF seal, a listing in the NSF "Seal of Approval Listing of Food Service Equipment" or a certified test report from a recognized independent testing laboratory acceptable to the Government, indicating that the cookie-cutting machine offered has been tested and conforms to the applicable requirements of NSF Standard No. 8.

3.4 Materials.- Materials not definitely specified shall be of the quality normally used by the manufacturer in his standard commercial cookie-cutting machine.

3.4.1 Corrosion-resisting steel.- Corrosion-resisting steel used for food-contact surfaces shall conform to any of the type 300 series specified in ASTM A167-63 with at least 18 percent chromium and 8 percent nickel. For all other surfaces, the chemical compositions of any of the type 300 series of ASTM 167-63 or any of the type 400 series of ASTM 176-63, shall be acceptable.

3.4.2 Copper-nickel alloy.- Copper-nickel alloy shall contain 22 percent nickel, minimum, and 65 percent copper, minimum.

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3.4.3 Aluminum alloy.- Aluminum alloy shall be almag 35, as specified in QQ-A-601.

3.5 Design.- The cookie-cutting machine shall consist of a dough hopper, chute, feed-rolls with scrapers, die-plate, cutter fingers and cut-off wires above an automatic, double V-belt-type pan conveyor, with pan guides adjustable for 17 inch to 19 inch pan. V-belts shall be adjustable in tension. The machine shall be adjustable for cookie thickness and spacing on the pan, shall have a variable speed drive of at least 35 to 70 strokes per minute and shall automatically operate to produce cookie of uniform size and shape using the dies specified in 3.6.3, when tested as specified in 4.8.1 and 4.8.2. Provisions shall be made to facilitate the changing of dies and to permit normal repair and maintenance of components without major disassembly of the machine. Unless otherwise specified (see 6.2), the machine shall be designed for operation on a nominal 120-volt, single-phase, 60-cycle, alternating current system. The machine shall not exceed the following overall dimensions: 72 inches long by 3 inches wide by 60 inches high.

3.6 Construction.-

3.6.1 Hopper, chute, shafts and table-top.- The hopper, chute, feed-roll shafts and table-top shall be made from corrosion-resisting steel specified in 3.4.1.

3.6.2 Feed rolls.- Feed rolls shall be made of corrosion-resisting steel specified in 3.4.1, or aluminum alloy specified in 3.4.3.

3.6.3 Feed-roll bearings and dies.- Feed-roll bearings and dies shall be made from aluminum alloy specified in 3.4.3, corrosion-resisting steel specified in 3.4.1, or copper-nickel alloy specified in 3.4.2. Each cookie-cutting machine shall be furnished with following dies:

Quantity

1	With 4 round openings each 2-1/2 inches in diameter.
1	With 4 scalloped round openings each 2-1/2 inches in diameter.
1	With 4 rectangular openings each 1-1/4 by 2-1/4 inches.
1	With 6 round openings each 1-inch in diameter.

3.6.4 Casters. Each cookie cutting machine shall be equipped with two rigid casters on one end and two swivel casters on the other end. Rigid casters shall have ball or roller bearings at the axle. Swivel caster shall have ball or roller bearings at both axle and swivel. All caster shall have rubber-tired wheels 4 to 5 inches in diameter, and pressure lubricating fittings.

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3.6.5 Drive motor.- The drive motor shall be at least 1/2 horse-power continuous duty, totally enclosed fan-cooled induction type and shall conform to CC-M-636.

3.6.6 Switch.- The switch shall be either toggle or push-button type.

3.6.7 Electric cord.- The electric cord shall be three-wire with three-prong grounding plug at least 6 feet long. The cord and attachment plug shall provide for grounding of the machine.

3.6.8 Instruction plate.- Each cookie-cutting machine shall be provided with a corrosion-resisting steel or aluminum plate containing operating and servicing instructions.

3.6.9 Lubrication fittings.- Bearings and all other parts requiring lubrication shall be furnished with grease or oil fittings. Seals shall be provided where necessary to prevent leakage of lubricant onto food contact surfaces. At time of delivery, the machine shall be completely lubricated.

3.6.10 Electromagnetic compatibility.- When specified (see 6.2), machines shall be designed and equipped to conform to class 11 B of MIL-STD 461.

3.7 Equipment manual.- Each machine shall be furnished with an equipment manual. Manual contents and additional manual distribution shall be as specified in the contract or order (see 6.2).

3.8 Operation.- When operated as specified in 4.8.1 and 4.8.2, the machine shall function smoothly, without excessive vibration or noise. All adjustment and control devices shall function as intended.

3.9 Finish.- The cookie-cutting machine, including all components, shall be finished in accordance with the manufacturer's commercial practice. The finish shall be smooth, uniform, free of permanent soil or corrosion.

3.10 Marking for identification.- The cookie-cutting machine shall be provided with a corrosion-resisting steel or aluminum identification plate marked in accordance with MIL-STD-130.

3.11 Workmanship.- The finished cookie-cutting machine shall be free from defects that affect appearance or serviceability; marred surfaces, dents, punctures, fractures, rough edges, burrs, slivers. All welds shall be smooth and uniform, completely fused, without undercuts, cracks burnholes or fractures. All fasteners shall be tight. No component shall be missing, malformed. All components shall be carefully assembled, properly adjusted and aligned.

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4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection.- Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Preproduction sample inspection.- When a preproduction sample is required, it shall be inspected for defects listed in table I, dimensions specified and shall be tested as specified in 4.8.1 and 4.8.2, and 4.8.3 when applicable.

4.3 Inspection.- Sampling for inspection shall be performed in accordance with MIL-STD-105, except where otherwise indicated hereinafter.

4.3.1 Component and material inspection.- In accordance with 4.1 above, components and materials shall be inspected and tested in accordance with all the requirements of referenced specifications and standards unless otherwise excluded, amended, modified or qualified in this specification or applicable purchase document.

4.3.1.1 Chemical analysis.- Copper-nickel alloy shall be tested for chemical analysis in accordance with method 111.1 of Fed. Test Method Std No. 151 to determine compliance with requirements specified in 3.4.2.

4.4 End item inspection.- The inspection lot shall be the number of cookie-cutting machines offered for delivery at one time. The sample unit for this inspection shall be one completely assembled cookie-cutting machine.

4.4.1 Visual examination.- Examination of the end item shall be made for defects in table I. The inspection level shall be II with an acceptable quality level (AQL) of 2.5 for major defects and 6.5 for total defects, expressed in terms of defects per hundred units.

TABLE I. Classification of defects

Examine	Defect	Classification	
		Major	Minor
Finish	Not finished as specified		X
	Part permanently soiled or corroded	X	
	Finished surfaces not smooth		X

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TABLE I. Classification of Defects (cont'd)

Examine	Defect	Classification	
		Major	Minor
Finish (cont'd)	Color not uniform		X
Design, Construction and Workmanship	Part missing.	X	
	Adjustable assembly that cannot be adjusted.	X	
	Assembly not properly adjusted to perform the function intended.		X
	Functioning component that requires abnormal force to operate.		X
	Operation omitted or not properly performed.	X	
	Any component fractured, split, punctured, sprung, malformed, dented, creased, or bowed.	X	
	Not connected, joined or accomplished as specified.	X	
	Component not accessible for servicing, adjustment, and replacement where required.	X	
	Does not have variable speed drive.	X	
	Does not type specified.	X	
	Casters not swivel-type on one end of machine and rigid-type on the other.	X	
	Switch not as specified.	X	
	Drive motor not totally enclosed.	X	
	Electric cord and plug do not provide grounding.	X	
Sharp edges, burrs or slivers.	X		
Welding & Brazing	Missing, incomplete, through burn holes, porous, cracked, fractured, or otherwise not fused.		X
	Slag inclusion, severe undercut, not smooth and uniform, or scale and flux deposit not removed.	X	

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TABLE I.- Classification of defects (cont'd)

Examine	Defect	Classification	
		Major	Minor
Soldering (when applicable)	Missing, not adherent, or incomplete.	X	
	Not clean (flux or flux residue not removed), not smooth (surface not neatly finished), or pin holes in solder.		X
Lubrication	Lubricating fittings not furnished where specified.		X
	Machine not lubricated.		X
Fasteners	Missing, broken, stripped, fractured, loose.	X	
Marking			
Identification	Missing, incomplete, not legible.		X
Instruction	Missing, incomplete, not legible not affixed as specified.	X	

4.4.2 Dimensional examination.- Dimensional examination shall be made of the end item to determine compliance with this specification. Any dimension not within the specified requirements shall be classified a defect. The inspection level shall be S-2 with AQL of 6.5 defects, expressed in terms of defects per hundred units.

4.5 Testing of the end item.- Each production item shall be tested in accordance with 4.8.1. When no preproduction sample is required, the initial production unit shall be tested as specified in 4.8.2 and 4.8.3 when applicable. Any nonconformance shall be cause for rejection of the lot.

4.6 Standards compliance.- Proof of compliance with the UL, and NSF requirements of 3.3 shall be available to the Government representative.

4.7 Examination of preparation for delivery.- An examination shall be made to determine that packaging, packing and marking are in accordance with MIL-B-2316 as required by section 5 of this specification.

4.8 Tests.-

4.8.1 Operation test.- The cookie-cutting machine shall be connected to an appropriate power source and operated without load for a period of 10 minutes to determine compliance with the variable speed requirement specified in 3.5, and the requirements of 3.8.

4.8.2 Functional tests.- The hopper shall be loaded with an amount of dough sufficient to produce the four shapes of cookies, and the machine operated for at least 30 seconds with each die to determine compliance with cookie uniformity and shape requirements of 3.5 and the requirements of 3.8.

4.8.3 Electromagnetic compatibility test.- The preproduction model, equipped for the reduction of radio interference in accordance with 3.6.10 shall be tested by the supplier in accordance with test methods CEO3, CEO5, and REO2 of MIL-STD-462. The supplier shall furnish the contracting officer, for approval, the electromagnetic compatibility test report required in MIL-STD-461 (see 6.3). Upon approval of the report by the contracting officer and provided all other requirements of the specification are met, the preproduction sample of initial unit of production, as applicable, shall be used as a model for all production units.

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging.- Preservation and packaging shall be level A or C as specified (see 6.2).

5.1.1 Level A.- Each cookie-cutting machine and accessories shall be preserved and packaged in accordance with the applicable requirements for level A of MIL-B-2316.

5.1.2 Level C.- Each cookie-cutting machine and accessories shall be preserved and packaged in accordance with the industry's practice.

5.2 Packing.- Packing shall be level A, B, or C as specified (see 6.2).

5.2.1 Level A.- Each cookie-cutting machine and accessories, preserved and packaged as specified in 5.1, shall be packed in accordance with the applicable requirements for level A of MIL-B-2316.

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5.2.2 Level B.- Each cookie-cutting machine and accessories, preserved and packaged as specified in 5.1, shall be packed in accordance with the applicable requirements of level B of MIL-B-2316. Each cookie-cutting machine and accessories, packed in an open type crate, shall be completely covered with a polyethylene film shroud reaching down on all sides to within 1-inch of the base of the machine. The polyethylene film shall be 0.003 inch thick conforming to type II of L-P-378.

5.2.3 Level C.- Cookie-cutting machine and accessories, preserved and packaged as specified in 5.1, shall be packed in B manner to insure carrier acceptance and safe delivery at destination at the lowest transportation rate for such supplies. Containers shall be in accordance with rules or regulations of carriers applicable to the mode of transportation.

5.3 Marking.- In addition to any special marking required by the contract or order, interior packages and shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use.- The cookie-cutting machine covered by this specification is intended for use in Military bakeries to cut dough automatically into various cookie-shapes, using dies furnished with the machine.

6.2 Ordering data.- Procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) When preproduction sample is not required (see 3.1).
- (c) Electrical characteristics, if other than specified (see 3.5).
- (d) Whether machines shall be equipped to insure electromagnetic compatibility (see 3.6.10, 4.8.3 and 6.3).
- (e) Manual contents and distribution of additional manuals (see 3.7).
- (f) Selection of applicable levels of preservation, packaging and packing (see 5.1 and 5.2).

6.3 Electromagnetic compatibility.- The contracting officer should submit a copy of the report required in 4.8.3, if applicable, to the Commanding General, U. S. Army Electronics Command, ATTN: AMSEL-RD-GF, Fort Monmouth, New Jersey, for approval.

6.4 Asterisks were not used in this revision to identify changes with respect to the previous issue, due to the extent of the changes.

Custodians:

Preparing activity:

Army - GL

Army - GL

Review activities:

Project No. 7320-A098

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