

INCH-POUND

S-C-1474B
 May 9, 1988
 SUPERSEDING
 S-C-1474A
 February 12, 1980

FEDERAL SPECIFICATION

COOKERS, STEAM, VEGETABLE (SPEED)

This specification is approved for use by the Commissioner,
 Federal Supply Service, General Services Administration,
 for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers speed cookers, primarily for vegetables, which utilize dry saturated steam as the cooking medium. Steam is supplied by a steam-coil generator, a gas steam generator, or an electric steam generator.

1.2 Classification. The cookers shall be of the following types, sizes, styles, and classes, as specified (see 6.2.1 and 6.5):

- Type I - Steam-coil generator (steam-to-steam)
- Type II - Gas steam generator
- Type III - Electric steam generator

- Size 1-3C - One compartment, 3 full size pans, 2-1/2 inches (63.5 millimeters (mm)) deep; countertop
- Size 1-3M - One compartment, 3 full size pans, 2-1/2 inches (63.5 mm) deep; steam generator base
- Size 1-6M - One compartment, 6 full size pans, 2-1/2 inches (63.5 mm) deep; steam generator base
- Size 2-6M - Two compartments, 6 full size pans, 2-1/2 inches (63.5 mm) deep; steam generator base
- Size 2-12M - Two compartments, 12 full size pans, 2-1/2 inches (63.5 mm) deep; steam generator base
- Size 2-16M - Two compartments, 16 full size pans, 2-1/2 inches (63.5 mm) deep; steam generator base
- Size 3-18M - Three compartments, 18 full size pans, 2-1/2 inches (63.5 mm) deep; steam generator base
- Size 3-24M - Three compartments, 24 full size pans, 2-1/2 inches (63.5 mm) deep; steam generator base

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NOTE: The size gives the number of compartments, the total pan capacity using the pan size specified, and whether it is a countertop model (C) with a self-contained steam generator or a model with a cabinet-type mounted base (M) housing the steam generator. Dimensions for full size pans are specified in 3.10.1.

Style A - Countertop model (size 1-3C)
 Style B - Stand-mounted (size 1-3C)
 Style C - Cabinet-type base that houses the steam generator
 (all sizes except 1-3C)

Class 1 - Pressurized (maximum 15 pound-force per square inch gauge (psig) (103 kilo Pascals) steam pressure)
 Class 2 - Nonpressurized (0 psig steam pressure) (0 kPa)
 Class 3 - Combination pressurized and nonpressurized

2. APPLICABLE DOCUMENTS

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

Military Specifications

MIL-T-13867 - Treatment, Moisture and Fungus Resistant for Fire Control, Electrical and Electronic Instruments and Equipment
 MIL-K-43875 - Kitchen Equipment, Including Unit Assemblies, Repair Parts and Tools, Preparation for Delivery of
 MIL-P-43940 - Pan, Food Serving, Rectangular and Insets, Round

(Activities outside the Federal Government may obtain copies of Federal specifications, standards, and commercial item descriptions as outlined under General Information in the Index of Federal Specifications, Standards, and Commercial Item Descriptions. The Index, which includes cumulative bimonthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

(Single copies of this specification and other Federal specifications and commercial item descriptions required by activities outside the Federal Government for bidding purposes are available without charge from General Services Administration Business Service Centers in Boston, MA; New York, NY; Philadelphia, PA; Washington, DC; Atlanta, GA; Chicago, IL; Kansas City, MO; Fort Worth, TX; Houston, TX; Denver, CO; San Francisco, CA; Los Angeles, CA; and Seattle, WA.

(Federal Government activities may obtain copies of Federal Specification documents, and the Index of Federal Specifications, Standards, and Commercial Item Descriptions from established distribution points in their agencies.)

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Federal Standard

FED-STD-123 - Marking for Shipment (Civil Agencies)

Military Standards

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-147 - Palletized Unit Loads
- MIL-STD-167/1 - Mechanical Vibrations of Shipboard Equipment (Type I Environmental and Type II - Internally Excited)
- MIL-STD-461 - Electromagnetic Emission and Susceptibility Requirements for the Control of Electromagnetic Interference
- MIL-STD-462 - Electromagnetic Interference Characteristics, Measurement of
- DoD-STD-1399 - Interface Standard for Shipboard Systems Section 300, Electric Power, Alternating Current
- MIL-STD-1472 - Human Engineering Design Criteria for Military Systems, Equipment and Facilities

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

Federal Regulation

Occupational Safety and Health Standards

(The Code of Federal Regulations (CFR) and the Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402. When indicated, reprints of certain regulations may be obtained from the Federal agency responsible for issuance thereof.)

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

American Gas Association (AGA)

Z223.1 - National Fuel Gas Code

Directory of Certified Appliances and Accessories

(Application for copies should be addressed to the American Gas Association, 8501 East Pleasant Valley Road, Cleveland, OH 44131.)

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American Society for Testing and Materials (ASTM)

- A167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate,
Sheet, and Strip
- B209 - Aluminum and Aluminum-Alloy Sheet and Plate

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

American Society of Mechanical Engineers (ASME)

- Boiler and Pressure Vessel Code
- Section I - Power Boilers
- Section IV - Low Pressure Heating Boilers
- Section VIII, Division 1 - Pressure Vessels

(Application for copies should be addressed to the American Society of Mechanical Engineers, United Engineering Center, 345 East 47th Street, New York, NY 10017.)

National Fire Protection Association (NFPA)

- 70 - National Electrical Code

(Application for copies should be addressed to the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.)

National Sanitation Foundation (NSF)

- No. 4 - Cooking and Hot Food Storage Equipment
- Materials and Finishes Guide with Selected Test Procedures
- Listing of Food Service Equipment

(Application for copies should be addressed to the National Sanitation Foundation, 3475 Plymouth Road, P.O. Box 1468, Ann Arbor, MI 48106.)

Underwriters Laboratories Inc. (UL)

- UL 197 - Commercial Electric Cooking Appliances
- UL 1030 - Sheathed Heating Elements

(Application for copies should be addressed to the Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062.)

(Non-Government standards and other publications are normally available from the organizations which prepare or which distribute the documents. These documents also may be available in or through libraries or other informational services.)

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2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, specifications sheets or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Description. The vegetable cookers shall be completely assembled and ready for connection to drain, steam or water piping, and electric or gas supply as applicable. Type I, II, and III units shall include a steam generator designed to meet the applicable requirements of 3.9 through 3.9.2.3. Each unit shall include one or more steam compartments with applicable controls, safety valves, timer, and indicator light for each compartment. The cooker shall be capable of defrosting and speed cooking frozen vegetables using clean, dry saturated steam at 0 to 15 psig (0 to 103 kPa). The cooking cycle shall be automatically timed, and shall conclude with the exhausting of steam and accumulated condensate from the cooking compartment. Cooking shall be accomplished by direct action of dry steam at a pressure of 0 to 15 psig (0 to 103 kPa). Means shall be provided to vent the air from the steam chamber prior to the cooking process. Air may be removed from the chamber in accordance with the manufacturer's standard practice.

3.2 Standard commercial product. The steam cooker shall, as a minimum, be in accordance with the requirements of this specification and shall be the manufacturer's standard commercial product. Additional or better features which are not specifically prohibited by this specification but which are a part of the manufacturer's standard commercial product, shall be included in the steam cooker being furnished. A standard commercial product is a product which has been sold or is being currently offered for sale on the commercial market through advertisements or manufacturer's catalogs, or brochures, and represents the latest production model.

3.3 First article. When specified (see 6.2.1), the contractor shall furnish one complete steam cooker of the classification specified for first article inspection and approval (see 4.2.1 and 6.3).

3.4 Codes and standards. The steam cookers shall conform with the requirements of Section I, Section IV, or Section VIII, Division 1 of the ASME Boiler and Pressure Vessel Code, hereinafter referred to as the ASME code, as applicable. Cookers with gas-fired steam generators shall conform with AGA 2223.1. Cookers with electric steam generators shall conform with UL 197 and UL 1030. The design of the cooker and its accessories shall conform with NSF No. 4.

3.5 Materials. Materials used shall be free from defects which would affect the performance or maintainability of individual components or of the overall assembly. Materials not specified herein shall be of the

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same quality used for the intended purpose in commercial practice. Unless otherwise specified herein, all equipment, material, and articles incorporated in the work covered by this specification are to be new and fabricated using materials produced from recovered materials to the maximum extent possible without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. None of the above shall be interpreted to mean that the use of used or rebuilt products are allowed under this specification unless otherwise specified.

3.5.1 Stainless steel sheet and strip. Stainless steel sheet and strip shall conform to type 302 or 304 of ASTM A167.

3.5.2 Aluminum-alloy steel and plate. Aluminum-alloy sheet and plate shall conform to type 3003 of ASTM B209.

3.5.3 ASME Code vessels. Vessels under the ASME code shall be constructed only of materials listed in the applicable code. Stainless steel is not permitted for use of water wetted service under Section I of the ASME code.

3.6 Interchangeability. All units of the same classification furnished with similar options under a specific contract shall be identical to the extent necessary to insure interchangeability of component parts, assemblies, accessories, and spare parts.

3.7 Design. Each steam generator equipped with steam piping shall be designed in accordance with miniature boiler (Part PMB) and electric boiler (PEB) requirements of the ASME code, Section I, Section IV, or Section VIII, Division 1, as applicable. Cookers with gas-fired steam generators shall conform to AGA Z223.1. Cookers with electric steam generators shall conform to UL 197 and UL 1030. In accordance with NSF No. 4, the design of the cooker and accessories shall permit easy accessibility for maintenance and service.

3.7.1 Safety and health requirements. The cooker shall be equipped with safety devices for all parts that present safety hazards (see 6.2.1). The devices shall include covers and guards for moving parts and shockproof controls for protection from mechanical and electrical hazards to personnel. All guards shall provide easy access to guarded parts and shall not interfere with operation of the cooker. The cooker shall comply with OSHA standards that are applicable to the cooker.

3.8 Construction. When connected to the specified power supply, the assembled cooker shall function in accordance with the performance requirements specified herein. Controls and indicators shall be mounted on the front of the cabinet or overhead console, and shall be calibrated with the cooker operation. Unless otherwise specified (see 6.2.1), electrical

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controls shall operate on 60 Hertz (Hz), alternating current (ac), 115 volts (V). Steam, water, gas, and drain connections shall be in accordance with the manufacturers standard practice. Integral piping, joints and fittings supplied with the cooker shall be leakproof.

3.8.1 Cooker. Cookers shall be constructed of type 302 or 304 corrosion-resistant steel conforming to ASTM A167, 0.0375 inch (0.9525 mm) (US revised standard gauge No. 20) minimum, and shall be mounted in accordance with the style specified. The overall dimensions (width by depth by height) shall be as specified (see 6.2.1).

3.8.2 Cooking chamber. Unless type 302 or 304 corrosion-resistant steel cooking chambers are specified (see 6.2.1), the chamber may be constructed of aluminum, type 3003 alclad conforming to ASTM B209. All joints and seams shall be double butt-welded. The cooking chamber shall be capable of withstanding the applicable hydrostatic test pressure of 4.5.1 without deformation or visual reduction of pressure during the test. Removable pan supports shall be attached to the chamber interior, and shall accommodate a 12 inch by 20 inch (305 mm by 508 mm), maximum pan size.

3.8.3 Door. Unless otherwise specified (see 6.2.1), the door shall be constructed of the same material as the cooker. The door shall withstand the hydrostatic pressure test of 4.5.1 without evidence of permanent deformation. A heat-resistant handle, latch, brackets, and spring, constructed of corrosion-resisting material, with adequate strength to withstand the specified pressure and temperature, shall not break or be permanently deformed when subjected to continuous operation. A gasket of adequate material and strength shall be furnished to withstand specified pressure, temperature, and severe usage. Unless otherwise specified (see 6.2.1), the doors of pressurized compartments shall be held closed by steam pressure, and shall be designed not to open until pressure is released.

3.8.4 Cooker mounting. All mounting equipment shall conform to the applicable requirements of NSF No. 4. A corrosion-resistant steel stand shall be furnished with the style B unit. The stand shall be of the open table type capable of supporting a fully loaded cooker and accessories without resulting in permanent deformation. The stand shall be not less than 27 inches (686 mm), and not more than 39 inches (991 mm) high. A cabinet-type base housing the steam generator shall be furnished with the style C unit.

3.8.5 Controls and indicators. Each cooking compartment shall be provided with a resettable timer. The timer shall automatically control steam flow entering and leaving the compartment. The timer shall be sealed to prevent the entrance of moisture on the internal working electrical and mechanical parts. The timer shall be treated for fungus resistance in accordance with MIL-T-13867. The timer shall function in conjunction with an indicating light which shall be illuminated when the unit is energized. At the end of the cooking cycle the indicating light shall shut off. An audible

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signal may also be sounded. A steam vent, safety devices, and when required, an air vent shall be supplied by the manufacturer. Cookers which come under the jurisdiction of the ASME Code shall be provided with ASME certified safety relief valves which have a set pressure and sufficient capacity to prevent the pressure in the cooker from rising above that permitted in the applicable section of the ASME code. Boiler accessories and controls shall be provided in accordance with the applicable section of the ASME code.

3.8.6 Human factors criteria. When shipboard installation is specified (see 3.11) human factors engineering criteria, principles, and practices, as defined in MIL-STD-1472, shall be incorporated into the design of the steam cooker. Maintenance and operation shall permit safe and efficient performance by the 5th percentile female to the 95th percentile male as defined in sections 5.6 and 5.9 of MIL-STD-1472. Controls, valves, switches and gages shall be selected and integrated into the design of the steam cookers so as to meet the applicable requirements of sections 5.2, 5.3, and 5.4 of MIL-STD-1472 and they shall be clearly and appropriately labelled to identify function. Sufficient clearance or free area required around an item shall permit an individual with applicable body dimensions and physical capabilities to safely operate, maintain, remove, or replace that item. When establishing accessibility requirements, both physical and visual access must be provided along with access for the use of any tools, test equipment, or replacement parts needed. When inspecting for defects and performing test (see section 4), the equipment shall adhere to the human factors engineering considerations listed herein.

3.9 Steam generator. The steam cooker shall utilize clean, dry saturated steam supplied by a steam coil, or a gas or electric steam generator. Means shall be provided to relieve, drain and vent the steam as required for proper operation of the cooker. Inlet water supply shall be not less than 35 psig (241 kPa) and not more than 60 psig (413 kPa). The water inlet valve shall be regulated to prevent excessive flow to the generator. Generators shall be provided with controls to automatically supply steam to the cooker when energized. The controls shall automatically terminate the water supply, then drain and blow down the generator when the power is turned off. When specified (see 6.2.1) an automatic cold water condenser shall be provided on the drain line. The boiler section of the cooker is subject to the ASME provisions specified in 3.4 and 3.7.

3.9.1 Heat exchanger. A steam-coil generator shall be furnished with type I units. The coils shall be immersed in the generator, and shall be constructed of stainless steel or other materials that are acceptable to NSF. Materials and surface finish shall conform to requirements of NSF Materials and Finishes Guide with Selected Test Procedures. Steam shall be supplied to the generator at a pressure not less than 30 psig (207 kPa) and not more than 60 psig (413 kPa) to generate new nontoxic steam for continuous cooker operation. A pressure regulating valve or a solenoid valve controlled by a pressure operated switch shall be provided to maintain a steam pressure within the cooking chamber of 0 to 15 psig (0 to 103 kPa).

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3.9.1.1 Supply pressure gauge. A steel pressure gauge rated at a minimum pressure of 125 psig (861 kPa) shall be supplied for indicating steam supply pressure. The gauge shall measure from 0 to 60 psig (413 kPa) be graduated in 1 degree increments, and have a minimum face diameter of 2 inches (51 mm).

3.9.2 Gas. Steam shall be generated by a pressure controlled burner in accordance with AGA Z223.1 to provide continuous operation of type II cookers. As specified (see 6.2.1), the burner shall be designed to burn natural gas or liquid petroleum gas (LPG). Burner gas valves and pilot gas valves shall be of the fixed orifice type with orifice hoods that can be interchanged. An automatic pilot shall be provided for each unit in accordance with 3.9.2.3.

3.9.2.1 Natural gas. The orifice hoods installed for natural gas shall be unpainted brass.

3.9.2.1.1 Pressure regulator. When specified (see 6.2.1), a pressure regulator for natural gas shall be furnished.

3.9.2.2 LPG. The orifice hoods installed for LPG shall be color-coded black.

3.9.2.3 Automatic ignition. Automatic ignition shall ensure safe ignition and reignition of gas. All gas burners shall be equipped with an intermittent lighted pilot system. The pilot shall be furnished with a safety shutoff device. In the event that the source of ignition fails, the device shall automatically interrupt the flow of gas to the main burner under its supervision, as well as the flow of gas to the pilot.

3.10 Accessories.

3.10.1 Food serving pans. Food serving pans shall be in accordance with MIL-P-43940 unless otherwise specified herein. Pan size shall be such that one full-size, two 1/2-size, or three 1/3-size pans will completely fill an opening 11-7/8 inches (302 mm) wide by 19-7/8 inches (505 mm) long with a tolerance of plus 1/8 inch (3.2 mm) minus zero inch. Pan depth shall be 4-1/8 inches (105 mm), or 2-1/2 inches (64 mm) for full-size, 4 inches (102 mm) or 2-1/2 inches (64 mm) for 1/2-size, and 4 inches (102 mm) for 1/3-size. Tolerance for depth of pans shall be plus zero, minus 1/8 inch (3.2 mm). The quantity and size of pans, when required, shall be as specified (see 6.2.1).

3.10.2 Cooking chart. When specified (see 6.2.1), a corrosion-resisting cooking chart shall be securely attached to the cooker and shall include cooking times for not less than 30 varieties of food products.

3.11 Naval shipboard installation. When specified for Naval shipboard installation (see 6.2.1), the cooker shall be type III, size 1-3C, style A, and shall conform to the following additional requirements.

3.11.1 Inclined operation. When the base is inclined at an angle of 15 degrees from each side of the vertical in each of two vertical planes at right angles to each, the cookers shall operate satisfactorily. Also, the cookers shall operate with no spillage of fluid or product when tested as specified in 4.5.5.

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3.11.2 Electrical characteristics. Electrical characteristics for naval shipboard installation shall be as specified in 3.12.

3.11.2.1 Step-down transformers. In 450 volt alternating current (Vac) applications, 115 Vac controls or other components are acceptable if required step-down transformers are provided integrally with the cooker.

3.11.3 Mounting. Each cooker shall be provided with 4 cylindrical legs located at each corner of the unit. These legs shall be 6 inches (152 mm) long, type 300 series stainless steel solid round stock having a minimum 1 inch diameter (25 mm dia.) and shall have tapped holes or integral studs for mounting to the cooker and to the stainless steel dresser top. Steam cookers shall be permanently mounted to the dresser top.

3.11.4 Water supply and waste. Where connection is not provided from the potable water supply to the self-contained steam generator, a hand held refill nozzle and hose shall be provided with a means for attachment to the side housing of the cooker. Cooker shall have means for piping exhaust steam and cooking chamber liquids to an air gap deck drain at installation.

3.11.5 Steam safety relief valve. The steam safety relief valve shall relieve steam pressure under emergency conditions when the chamber pressure reaches 20 to 25 pound-force per square inch (138 to 172 kPa). The test lever on the valve shall be equipped with a 24 inch (610 mm) long brass or stainless steel pull chain with finger ring. The pressure relief valve discharge port shall point away from the operator.

3.11.6 Hatchability. For surface ship installation, the dimensional design shall be such that the machine will pass through a 26 inch by 66 inch (660 mm x 1676 mm) hatch opening. For submarine installation, the dimensional design shall be such that the machine will pass through a 25 inch (635 mm) diameter hatch and 20 inch by 38 inch (508 mm x 965 mm) door without disassembly of major components.

3.11.7 Controls. In addition to controls mentioned in 3.8.5, the steam cooker for shipboard installation shall be equipped with a low water cutoff switch to shut off the unit in the event the water runs dry in the cooker.

3.11.8 Electromagnetic compatibility. When specified for shipboard installation (see 6.2.1), the units shall be designed and equipped for electromagnetic compatibility in accordance with the requirements of MIL-STD-461, class A4 for surface ships and class A5 for submarines. The equipment shall meet the emission and susceptibility requirements for CE01, CE03, and RE02 (see 4.5.6).

3.11.9 Environmental suitability. When specified for shipboard installation (see 6.2.1), the vegetable steam cooker shall be capable of withstanding ship's vibration and motion. Controls, switches, moving parts and electrical circuits shall operate under shipboard conditions without malfunction, binding, looseness, or damage when tested as specified in 4.5.7.

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3.12 Electrical characteristics. Type III cookers shall be supplied with immersion-type heating elements. Heating elements shall be in accordance with UL 1030. When for land use, cookers shall be suitable for operation on the following nominal system voltages as specified (see 6.2.1), 208 V, 230 V, or 480 V, 60 Hz, 3 phase or single phase, grounded system (with 115 Vac controls, if required). When for shipboard installation, cookers shall be suitable for operation on the nominal system voltage as specified (see 6.2.1), 440 V, 60 Hz, balanced 3 phase, ungrounded system, in accordance with the requirements of DoD-STD-1399 (section 30), (with 115 Vac controls, if required).

3.13 Finish. Surface finishes shall be as specified herein and otherwise in accordance with NSF Materials and Finishes Guide with Selected Test Procedures. All corrosion-resistant steel surfaces shall have a No. 3 or better finish. Aluminum surfaces shall have a polished or brushed finish.

3.14 Fungus resistance. Cable connectors, terminations, and associated hardware shall not provide nutrients for fungus growth, or shall be treated for fungus resistance in accordance with MIL-1-13867.

3.15 Identification marking. Identification shall be permanently and legibly marked directly on the steam cooker or on a corrosion-resistant metal plate securely attached to the steam cooker at the source of manufacturer. Identification shall include the manufacturer's model and serial number, name and trademark to be readily identifiable to the manufacturer.

3.16 Instruction plates. The steam cooker shall be equipped with instruction plates suitably located, describing any special or important procedures to be followed in operating and servicing the equipment. Plates shall be of a material which will last and remain legible for the life of the equipment. Plates shall be securely affixed to the equipment with nonferrous screws or bolts of not less than 1/8-inch diameter (3.2 mm) diameter.

3.17 Workmanship.

3.17.1 Castings. All castings shall be sound and free from patching, misplaced coring, warping, or any other defect which reduces the castings ability to perform its intended function.

3.17.2 Metal fabrication. The metal used in fabrication shall be free from kinks, sharp bends, and other conditions which would be deleterious to the finished product. Manufacturing processes shall not reduce the strength of the metal to a value less than intended by the design. Manufacturing processes shall be done neatly and accurately. All bends shall be made by controlled means to insure uniformity of size and shape.

3.17.3 Welding. Welding procedures shall be in accordance with a nationally recognized welding code. The surface of parts to be welded shall be free from rust, scale, paint, grease, or other foreign matter.

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Welds shall be of sufficient size and shape to develop the full strength of the parts connected by the welds. Welds shall transmit stress without permanent deformation or failure when the parts connected by the weld are subjected to proof and service loadings.

3.17.4 Bolted connections. Boltholes shall be accurately punched or drilled and shall have the burrs removed. Washers or lockwashers shall be provided in accordance with good commercial practice, and all bolts, nuts, and screws shall be tight.

3.17.5 Riveted connections. Rivet holes shall be accurately punched or drilled and shall have the burrs removed. Rivets shall be driven with pressure tools and shall completely fill the holes. Rivet heads, when not countersunk or flattened, shall be of approved shape and of uniform size for the same diameter of rivet. Rivet heads shall be full, neatly made, concentric with the rivet holes, and in full contact with the surface of the member.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor 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.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.1.2 Component and material inspection. Components and materials shall be inspected in accordance with all the requirements specified herein and in applicable referenced documents.

4.1.3 Standards compliance. The contractor shall make available to the contracting officer or his authorized representative evidence of compliance with the applicable standard(s) cited in 3.4. The Government reserves the right to examine and test all machines to determine the validity of the certification.

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4.1.3.1 ASME. Acceptable evidence of meeting the applicable requirements of the applicable ASME codes listed in 3.4 shall be one of the following:

- a. A certificate stating that the boilers of the steam cooker bears the ASME stamp.
- b. A certified test report (see 6.2.2), from a recognized independent testing laboratory acceptable to the Government certifying that the boiler of the steam cooker has been tested and conforms to all the applicable requirements of the ASME code.

4.1.3.2 AGA. Acceptable evidence of meeting applicable requirements of the AGA shall be a listing of the current model of the type II cooker being furnished in the AGA Directory of Certified Appliances and Accessories or a certified test report (see 6.2.2), acceptable to the contracting officer with advice from the Army Surgeon General, indicating that the cooker conforms to AGA Z223.1

4.1.3.3 NSF. Acceptable evidence of meeting the requirements of NSF No. 4 shall be one of the following:

- a. A listing in the current edition of the NSF Listing of Food Service Equipment and displays of the NSF seal on the finished cooker.
- b. A certification for the cooker issued by NSF under their one-time contract evaluation/certification service.
- c. A certified test report (see 6.2.2), acceptable to the contracting officer with advice from the Army Surgeon General, indicating that the cooker has been tested and conform to NSF No. 4.

4.1.3.4 UL. Acceptable evidence of meeting the requirements of UL shall be the UL listing mark or label, or a certified test report (see 6.2.2) from an independent testing laboratory acceptable to the Government indicating that the cooker has been tested and conforms to UL 197.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.2.1).
- b. Quality conformance inspection (see 4.2.2).

4.2.1 First article inspection. The first article inspection shall be performed on one cooker when a first article is required (see 3.3 and 6.2.1). This inspection shall include the examination of 4.4 and the tests of 4.5. The first article may be either a first production item or a standard production item from the supplier's current inventory provided the item meets the requirements of the specification and is representative of the design, construction, and manufacturing technique applicable to the remaining items to be furnished under the contract.

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4.2.2 Quality conformance inspection. The quality conformance inspection shall include the examination of 4.4, the tests of 4.5, and the preparation for delivery inspection of 4.6. This inspection shall be performed on the samples selected in accordance with 4.3.

4.3 Sampling for examination. Sampling and inspection procedures shall be in accordance with MIL-STD-105. The unit of product shall be one cooker. All cookers of the same classification offered for delivery at one time shall be considered a lot for the purpose of inspection. The inspection level shall be level II and the Acceptable Quality Level shall be 2.5 for major defects and 4.0 for minor defects expressed in defects per hundred units. If an inspection lot is rejected, the contractor may rework it to correct the defects, or screen out the defective units, and resubmit for a complete reinspection. Resubmitted lots shall be reinspected using tightened inspection. If the rejected lot was screened, reinspection shall be limited to the defect causing rejection. If the lot was reprocessed, reinspection shall be performed for all defects. Rejected lots shall be separated from new lots, and shall be clearly identified as reinspected lots.

4.4 Examination. Each sample shall be examined for defects listed in table I. Each attribute within each classification of multiple defects shall constitute one defect.

TABLE I. Classification of defects.

Classification	Defects	Requirement paragraph
Critical:	None defined.	
Major:		
101	Material not as specified, and obviously damaged, defective or not properly suited for the purpose intended.	3.5 thru 3.5.3
102	Component parts, assemblies, accessories, and spare parts for units of the same classification are not interchangeable.	3.6
103	Design not as specified. Not in accordance with the applicable codes and standards. Components not designed for easy accessibility for maintenance and service. Cooker not provided with safety devices as specified.	3.7 and 3.7.1

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TABLE I. Classification of defects - Continued.

Classification	Defects	Requirement paragraph
104	Construction not as specified. Controls and indicators not located as required.	3.8
105	Cooker not constructed of corrosion resistant steel as required and not mounted in accordance with the style specified. Overall dimensions exceeding the sizes specified.	3.8.1
106	Cooking chamber not constructed of materials as specified. Joints and seams not welded as specified. Removable pan supports not attached to chamber interior and where required will not accommodate the maximum size of pan specified.	3.8.2
107	Door and components not as specified and not constructed of corrosion resistant steel. Handle not of heat-resistant material. Gasket or other components missing.	3.8.3
108	Mounting not as specified. Open table type stand not furnished where required. Stand height not as specified. Cabinet base not furnished for style C unit. Cabinet size and components not as specified.	3.8.4
109	Controls and indicators missing or not as specified. Cooking compartments not provided with separate resettable timer. Steam vents, safety valves and air vents not as specified. Pressure indicator not furnished and not as specified. Pressure sensitive control switch not furnished.	3.8.5
110	Power supply not as specified. Controls not furnished or not as specified. Cold water condenser not provided on drain line.	3.9
111	Heat exchanger not as specified. Steam coil generator not furnished with type I units. Coils not as specified. Pressure valve not furnished as specified.	3.9.1
112	Steam supply pressure gauge missing or not as specified.	3.9.1.1

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TABLE I. Classification of defects - Continued.

Classification	Defects	Requirement Paragraph
113	Gas operated units not as specified. Valves not of fixed orifice type with hood. Hoods not of unpainted brass. Automatic pilot not provided. Black color-coded orifice hood to convert unit to operate on LPG not furnished. Pressure regulator for natural gas not furnished. Automatic ignition not furnished or not as specified.	3.9.2 thru 3.9.2.3
114	Accessories not provided or not as specified, when furnished. Pans missing, not of proper size or quantity. Cooking chart missing or not as specified.	3.10.1 thru 3.10.2
115	Cooker not suitable for shipboard installation as specified. Cooker operating unsatisfactorily during inclined operation. Cooker not suitable for operation on nominal system voltages specified. Mounting for shipboard use not provided or not as specified. Hand held water refill nozzle and hose not provided when specified. Cooker does not have means for piping exhaust steam and cooking chamber liquids to air gap deck drain. Steam safety relief valve and test lever not as specified. Cooker does not meet dimensional requirements for surface ship or submarine installation. A low water cutoff switch is not provided for shipboard installation. Cooker is not electromagnetically compatible as specified. Cooker is not environmentally suitable as specified.	3.11 thru 3.11.9
116	Electrical characteristics are not as specified for land use or shipboard use cookers.	3.12
117	Finish not as specified. Corrosion resistant steel surfaces not No. 3 finish or better. Aluminum surfaces not polished or brushed finished.	3.13
118	Electrical components not treated for fungus resistance.	3.14
119	Identification markings missing, incorrect or illegible.	3.15
120	Instruction plates missing or instructions incomplete.	3.16

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TABLE I. Classification of defects - Continued.

Classification	Defects	Requirement Paragraph
121	Castings not free from patching, misplaced coring or warping.	3.17.1
122	Metal used in fabrication has sharp edges, sharp corners, burrs, dents or deformities.	3.17.2
123	Welding incomplete, burn holes, cracked or fractured.	3.17.3
124	Bolted connections not as specified. Missing, stripped, or cross threaded screws, bolts and nuts. Bolt-holes not as specified.	3.17.4
125	Rivet holes with burrs. Rivet heads not counter sunk or flattened, or approved shape and of uniform size for the same diameter of rivet. Rivet heads not in full contact with the surface of the member.	3.17.5
Minor:		
201	Loose nuts or fasteners.	3.17.4

4.5 Tests. The first article shall receive the tests of 4.5.1 through 4.5.5 and, when required, 4.5.6 and 4.5.7. Each production unit shall receive the test of 4.5.1. Failure to pass any test shall constitute cause for rejection.

4.5.1 Hydrostatic test. Each steam compartment and steam generator shall be tested in accordance with the applicable section of the ASME code at the hydrostatic pressure specified therein (see 3.8.2 and 3.8.3).

4.5.2 Operational test. Unless otherwise specified (see 6.2.1), the first article sample, when required, shall be operated for no less than 15 minutes to verify that all controls, indicators, and safety devices are operating properly in the performance of their intended functions.

4.5.3 Leakage test. During the operational test the steam, water, gas and drain connections shall be checked for leaks. Failure of the piping, joints and fittings to be leakproof as specified in 3.8 shall be cause for rejection.

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4.5.4 Timer moisture seal test. With the timer mounted in its normal position on the cooker, steam shall be impinged on all sides of the timer or timer compartment for a period of 10 minutes. Upon completion of the test, the timer shall be removed from the cooker and disassembled to determine compliance with the seal requirements of 3.8.5. Any evidence of moisture inside the timer shall be cause for rejection of the moisture seal.

4.5.5 Inclined operational test. When required for shipboard installation, the cooker specified in 3.11 shall be filled to capacity with frozen green beans. Operate the cooker for one steam cycle with the base inclined at an angle of 15 degrees from each side of the vertical in each of two vertical planes at right angles to each other. At each of these positions observe for conformance with specified requirements of 3.11.1. Any non-conformance with specified requirements shall constitute failure of this test.

4.5.6 Electromagnetic interference test. When required for shipboard installation, the cooker shall be tested by the contractor in accordance with test methods CE01, CE03, and RE02 of MIL-STD-462. The contractor shall furnish written certification (see 6.2.2) that the equipment meets the requirements of MIL-STD-461. Non-conformance with the requirements specified shall constitute failure of the test.

4.5.7 Shipboard environmental test. When required for shipboard installation, the vegetable steam cooker under normal operating conditions shall be tested in accordance with MIL-STD-167/1, type I equipment. The steam cooker shall be secured to the test machine in the same manner that it will be secured on shipboard (see 3.11.8). Failure of the vegetable steam cooker to perform its function during and after testing, or meeting requirements of 3.11.10 shall constitute failure of this test.

4.6 Preparation for delivery inspection. The inspection of the preservation, packaging and packing shall be in accordance with section 4 of MIL-K-43875. Palletization and marking shall be examined to determine conformance with 5.2 and 5.3 of section 5.

5. PREPARATION FOR DELIVERY

5.1 Preservation, packaging and packing. Preservation, packaging and packing shall be in accordance with the requirements of MIL-K-43875 with the level of preservation and packaging and the level of packing as specified (see 6.2.1).

5.2 Palletization. Material shall be palletized in accordance with MIL-STD-147 when the following criteria are met:

- a. Load to consist of four or more unskidded containers; and,
- b. Load shall utilize a minimum of 80 percent of the pallet base.

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5.3 Marking.

5.3.1 Military agencies. Shipments to military agencies shall be marked in accordance with MIL-STD-129.

5.3.2 Civil agencies. Shipments to civil agencies shall be marked in accordance with FED-STD-123.

6. NOTES

6.1 Intended use. The cookers specified herein are intended primarily for speed cooking of frozen vegetables, but may also be used for speed cooking fresh vegetables and other food products in kitchens and galleys. The cookers normally supplement existing cooking facilities as a means of increasing feeding capacity. The units are also useful in the preparation of cooked foods for special diets.

6.2 Ordering data.

6.2.1 Acquisition requirements. Purchasers should select the preferred options permitted herein and include the following information in acquisition documents:

- a. Title, number, and date of this specification.
- b. Type, size, style and class of cookers required (see 1.2).
- c. When a first article sample is required (see 3.3, 4.2.1, and 6.3).
- d. When additional safety and health requirements are to be specified (see 3.7.1).
- e. When power requirements for electrical controls are to be other than as specified (see 3.8).
- f. Overall dimensions (width, depth, and height) required for cookers (see 3.8.1).
- g. When the cooking chamber is to be constructed of type 302 or 304 corrosion-resisting steel instead of aluminum, as specified (see 3.8.2).
- h. When the door of the cooker is to be constructed of a different material than the cooker (see 3.8.3).
- i. When the door is not to be held closed by steam pressure (see 3.8.3).
- j. Whether an automatic cold water condenser is to be provided on the drain line (see 3.9).
- k. Whether the burner shall be designed to burn natural or liquid petroleum gas (see 3.9.2).
- l. When a pressure regulator for natural gas shall be furnished (see 3.9.2.1.1).
- m. The quantity and size of pans required (see 3.10.1).
- n. When corrosion-resisting chart is to be attached to the cooker (see 3.10.2).
- o. When specified for Naval shipboard installation (see 3.11).

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- p. When electromagnetic compatibility requirements for shipboard installation is specified (see 3.11.8).
- q. When environmental suitability requirements for shipboard installation is specified (see 3.11.9).
- r. Whether electric power input is to be other than 208 V. Nominal system voltage shall be suitable for operation as specified (see 3.12).
- s. When the operational test is to be for a time period other than as specified (see 4.5.2).
- t. Level of preservation and packaging and level of packing required (see 5.1).

6.2.2 Data requirements. When this specification is used in an acquisition and data are required to be delivered, the data requirements identified below shall be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the approved Contract Data Requirements List (CDRL), incorporated into the contract. When the provisions of DOD FAR Supplement, Part 27, Sub-Part 27.410-6 (DD Form 1423) are invoked and the DD Form 1423 is not used, the data specified below shall be delivered by the contractor in accordance with the contract or purchase order requirements. Deliverable data required by this specification are cited in the following paragraphs:

<u>Paragraph No.</u>	<u>Data requirement title</u>	<u>Applicable DID No.</u>	<u>Option</u>
4.1.3.1, 4.1.3.2, 4.1.3.3, 4.1.3.4	Reports, Test	DI-T-2072	
4.5.6	Certificate of Compliance	DI-E-2121	

(DIDs related to this specification, and identified in section 6 will be approved and listed as such in DoD 5000.19L, Vol. II, Acquisition Management Systems and Data Requirements Control List. Copies of DIDs required by the contractors in connection with specific acquisition functions should be obtained from the Naval Publications and Forms Center or as directed by the contracting officer.)

6.3 First article. When a first article inspection is required, the item will be tested and should be a first production item or it may be a standard production item from the contractor's current inventory as specified in 4.2.1. The first article should consist of one cooker. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examination, test, and approval of the first article.

6.4 Definitive specification part number. The specification part number which corresponds to the type, size, style, and class of units covered by this specification, and defines the requirements of the options

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presented under this specification. The specification number, the type, size, style, and class code numbers are combined to form the definitive specification part number.

6.4.1 Cataloging data. For cataloging purposes, part numbers for the units are assigned as follows:

	SC1474-X	XXXX	X	X
Federal Specification No.				
Type				
Size				
Style				
Class				

6.4.2 The type of cooker units (see 1.2) are identified by a single numerical character (see table II).

TABLE II. Code number to type.

<u>Type</u>	<u>Code</u>
I	1
II	2
III	3

6.4.3 The size of cooker units (see 1.2) are identified by a set of four numerical and alpha characters (see table III).

TABLE III. Code characters to size.

<u>Size</u>	<u>Code</u>
1-3C	103C
1-3M	103M
1-6M	106M
2-6M	206M
2-12M	212M
2-16M	216M
3-18M	318M
3-24M	324M

6.4.4 The styles of cooker units (see 1.2) are identified by an alphabetical letter (see table IV).

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TABLE IV. Code number to styles.

<u>Style</u>	<u>Code</u>
A	A
B	B
C	C

6.4.5 The class of cooker units (see 1.2) are identified by a single numerical number (see table V).

TABLE V. Code number to class.

<u>Class</u>	<u>Code</u>
1	1
2	2
3	3

6.5 Cross-reference of classification. The classification of the steamers in this revision has been changed from the previous revision of this specification. The following list reflects the changes in the classification of this revision and the classification of the previous revision.

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Size 1-3C
 Size 1-3M
 Size 1-6M
 Size 2-6M
 Size 2-12M
 Size 2-16M
 Size 3-18M
 Size 3-24M
 Deleted
 Deleted
 Deleted
 Style A
 Style B
 Style C
 Deleted
 Deleted
 Deleted

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Size 1-1T
 Size 1-2F
 Size 1-3F
 Size 2-2T
 Size 2-2H
 Size 2-4F
 Size 2-6F
 Size 3-3H
 Size 4-4H
 Size 4-8F
 Size 4-12F
 Style A
 Style B
 Style C
 Style D
 Style E
 Style F

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Class 1 - Pressurized (maximum
15 psig steam pressure)

Class 2 - Nonpressurized (0 psig
steam pressure)

Class 3 - Combination pressurized
and nonpressurized

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Class 1 - 10 to 15 psig
(69 to 103 kPa)
steam pressure

Class 2 - 16 to 50 psig
(110 to 345 kPa)
steam pressure

Class 3 - 0 to 10 psig
(0 to 69 kPa)
steam pressure

6.6 Subject term (key word) listing.

Appliance, commercial
Cooker, steam, vegetable (speed)
Food service equipment

6.7 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

MILITARY INTERESTS:

Custodians:

Army - GL
Navy - YD
Air Force - 99

Review Activities:

Army - MD
Navy - SA, SH
Air Force - 84
DLA - GS

User Activities:

Navy - CG, MC

CIVIL AGENCY COORDINATING ACTIVITIES:

GSA - FSS
VA - OSS

PREPARING ACTIVITY:

Navy - YD

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Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein.

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER S-C-1474B		2. DOCUMENT TITLE FEDERAL SPECIFICATION - COOKERS, STEAM, VEGETABLE (SPEED)	
3a. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION (Mark one) <input type="checkbox"/> VENDOR <input type="checkbox"/> USER <input type="checkbox"/> MANUFACTURER <input type="checkbox"/> OTHER (Specify): _____	
b. ADDRESS (Street, City, State, ZIP Code)			
5. PROBLEM AREAS			
a. Paragraph Number and Wording:			
b. Recommended Wording:			
c. Reason/Rationale for Recommendation:			
6. REMARKS			
7a. NAME OF SUBMITTER (Last, First, MI) - Optional		b. WORK TELEPHONE NUMBER (Include Area Code) - Optional	
c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional		8. DATE OF SUBMISSION (YYMMDD)	