

INCH-POUND

A-A-59365

21 January 1999

SUPERSEDING

MIL-W-23554D

31 March 1994

COMMERCIAL ITEM DESCRIPTION

WASHER-EXTRACTOR, LAUNDRY, 16 TO 20 POUND CAPACITY
(NAVAL SHIPBOARD)

The General Services Administration has authorized the use of this commercial item description for all federal agencies.

1. SCOPE

This commercial item description (CID) covers a fully automatic 16 to 20 pound (dry weight) capacity combination washer-extractor for Naval shipboard use.

2. CLASSIFICATION

Type 1: For submarines

Type 2: For surface ships

3. SALIENT CHARACTERISTICS

3.1 Design and construction.

3.1 Structure. The frame, base, and strength members shall be constructed of malleable iron, ductile iron, or steel, hot-dipped and galvanized in accordance with ASTM A123.

3.2 Shell. The shell shall be watertight and rigid to prevent distortion or objectionable vibration under normal shipboard operation. The shell seams shall not pass through the drain valve opening. The shell shall have openings for a door, drain valve, water inlet valves, cylinder shaft, water level sensor, chemical supply door, and overflow connection. The shell shall be constructed of stainless steel in accordance with ASTM A167, type 302 or 304 or nickel-copper-alloy consisting of not less than 60 percent nickel. The front of the shell shall be constructed of stainless steel metal or ferrous metal with stainless steel liners on the side exposed to the washing solution. The shell shall be provided with a doorframe of nickel-copper alloy consisting of not less than 60 percent nickel or stainless steel.

Beneficial comments, recommendations, additions, deletions, clarifications, etc., and any other data which may improve this document should be sent to: Commander, Naval Sea Systems Command, 2531 Jefferson Davis Highway, Arlington, VA 22242-5160.

AMSC N/A

FSC 3510

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

A-A-59365

3.3 Cylinder. The cylinder shall be of rigid construction to prevent distortion or failure from stresses caused during the extraction cycle at rated capacity. Perforations in the cylinder shall be sized and spaced for efficient washing, rinsing, and extraction. The cylinder shall be constructed of stainless steel in accordance with ASTM A167 type 302 or 304, or of nickel-copper alloy consisting of not less than 60 percent nickel. The driving trunnion and spider shall be constructed of the same material as the cylinder, or ferrous metal protected by hot-dip galvanizing in accordance with ASTM A123, or a corrosion-resistant coating.

3.4 Door. The shell shall be fitted with a round door mounted on heavy-duty hinges, with neoprene gasket and heavy-duty latch to ensure watertightness when the door is closed. Where the door is fitted with a window, the window shall be constructed of tempered glass strong enough to prevent damage under normal operation.

3.5 Cabinet. The cabinet shall be constructed of stainless steel in accordance with ASTM A167, type 302 or 304.

3.6 Configuration. The washer-extractor shall be a front loading, automatic, shell and cylinder (open pocket) type with a rotating and reversing action about its horizontal axis. It shall have a dry weight capacity of not less than 16 pounds. Each washer-extractor shall be enclosed within a cabinet and consist of necessary controls, valves, motor, and other items for automatically washing, rinsing, and extracting clothing as specified.

3.6.1 Type 1 washer-extractor only. The type 1 washer-extractor shall be readily disassembled into sections or parts that can be passed through a 30-inch diameter submarine access and reassembled with a minimum of effort in the submarine laundry space. (Shipboard requirement, see 7.2)

3.6.2 Type 2 washer-extractor only. The type 2 washer-extractor shall pass or shall be provided with a means of disassembly so that it can pass through a shipboard access measuring 26 x 66 inches with 8-inch radius corners. (Shipboard requirement, see 7.2)

3.7 Size. The type 1 washer-extractor overall dimensions shall be not greater than 24 inches wide by 32 inches deep by 34 inches high. The type 2 washer-extractor overall dimensions shall be not greater than 28 inches wide by 32 inches deep by 51 inches high.

3.8 Weight. The weight of the washer-extractor, including controls, programmer, and all remaining items, shall be not greater than 460 pounds.

3.9 Mounting. The washer-extractor shall be provided with not less than four bolt holes suitable for securing the unit to the deck. (Shipboard requirement, see 7.2)

3.10 Pipes, fittings, and valves. Parts in contact with the wash solution shall be bronze or stainless steel. The following materials shall be used:

Pipes	Stainless steel, in accordance with ASTM A269, grade TP 302 or 304 Brass, in accordance with ASTM B43, grade A Copper, in accordance with ASTM B75
Fittings	Bronze, in accordance with ASTM B61 or ASTM B62
Valves	Cast bronze, in accordance with ASTM B61

3.11 Drain assembly. The drain assembly shall be constructed of the following materials:

Drain valve body	Cast bronze, in accordance with ASTM B61 Plastic, in accordance with manufacturer's commercial practice
Drain fittings	Cast bronze, in accordance with ASTM B61 Plastic, in accordance with manufacturer's commercial practice
Drain piping	Stainless steel, in accordance with ASTM A269, grade TP 302 or 304 Brass, in accordance with ASTM B43, grade A Copper, in accordance with ASTM B75 Rubber hose, in accordance with ASTM D3572

3.12 Overflow connection. The washer-extractor shall be provided with an overflow connection. The connection shall be of a size to prevent water from rising three inches above high-water level when both hot and cold water valves are fully opened, and inlet pressure is 40 pounds per square inch.

3.13 Electrical requirements. The unit shall operate on 120 VAC or 440 VAC, 60 Hz, three-phase power, as defined in DOD-STD-1399, Section 300, and shall have provisions for making direct (hardwired) connections for electric power (2 conductors for 120 VAC), (3 conductors for 440 VAC) and for equipment grounding (1 conductor). All outermost metallic surfaces shall be grounded via the equipment grounding connection. The grounding resistance between any exposed metallic surfaces and the common ground point shall be not greater than 0.1 ohm. Electrical components, other than the hermetically sealed motor, shall be provided in accordance with NEMA 250, Type 13 or equivalent enclosure protection. Metal parts of electrical components and enclosures shall be inherently corrosion resistant or shall be treated and processed for corrosion resistance in accordance with IEEE Standard 45. (Shipboard requirement, see 7.2)

3.13.1 Drive. The cylinder shall be driven by a two-speed electric motor through V-belts to provide proper speeds for washing and extracting cycles. The cylinder shall reverse direction of rotation not less than three times per minute during the washing cycle.

3.13.2 Bearings. The cylinder shall be supported by readily replaceable antifriction bearings and have seals to prevent water entry. The bearings shall be in accordance with bearing contractor recommendation and shall be selected based upon the maximum bearing load during operation of the washer-extractor.

3.13.3 Electric motors. Electric motors shall be in accordance with NEMA MG1 and shall have the following characteristics:

Bearings	Ball
Voltage	120 VAC, 60 Hz, three-phase or 440 VAC, 60 Hz, three-phase
Type	Squirrel cage induction
Ambient temperature	40 °C
Duty	Wash; reversing, intermittent Extract; 10-minute full load operation followed by 10-minute rest

3.13.4 Controls. The motor controllers shall be the low-voltage protection type. Electrical components mounted outside the control panel shall be provided with dripproof enclosures.

A-A-59365

3.13.5 Wiring methods and practices. Terminal blocks shall be plainly marked to correspond to the markings on the electrical diagram. Wires run in conduit or in harness assemblies shall be marked to correspond to the electrical diagram.

3.14 Automatic programmed control. The washer-extractor shall be provided with a timer-programmer, preprogrammed by the manufacturer, to automatically control the fill, wash, drain, rinse, and extract operations of the washer-extractor from the beginning to the end of the washer-extractor cycle. The control shall be programmed to provide not less than one wash, three rinses, and two intermediate and one final extract operation.

3.15 Water temperature control. Temperature switches shall be provided which allow operator selection of three wash water and two rinse water temperatures as follows: hot wash - warm rinse, warm wash - warm rinse, warm wash - cold rinse, and cold wash - cold rinse.

3.16 Water level control. An automatic water level control shall be provided to control not less than two water levels. If the preprogrammed timer uses one water level throughout the preprogrammed wash cycle formulas, a dial or switch shall be provided for the operator to select the different preset water level settings. If the preprogrammed timer uses more than one water level throughout the preprogrammed wash cycle formulas, the preset water level settings shall be adjustable. Both automatic water level controls shall be electrically interlocked to prevent the washer-extractor program timer from advancing during the water filling operation.

3.17 Safety features. Exposed belts, shafts, pulleys, and other moving parts shall be fully enclosed by metal guards. Metal guards shall be firmly supported but readily removable for maintenance.

3.18 Door interlock. An electric interlock shall be provided to prevent opening the door until the cylinder is at rest, and to prevent rotation of cylinder when shell door is opened.

3.19 Emergency stop button. The washer-extractor shall be provided with an emergency stop button, located on the front of the unit within an accessible area. The button shall bring the washer-extractor to an immediate stop when activated.

3.20 Inclined operation. The unit shall operate satisfactorily, in accordance with the requirements of this CID (such as the door remaining closed to prevent the loss of contents) when inclined at angles of 12° (30° when specified for submarines) to the left, front, right, and back. There shall be no spillage of liquid or product when test operated through a complete wash formula with a capacity load. The overflow may be blanked off during this test. (Shipboard requirement, see 7.2)

3.21 Environmental suitability. The unit 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, excessive looseness, or damage, when tested in accordance with MIL-STD-167-1, type I equipment. The unit shall be secured to the test machine in the same manner that it will be secured on shipboard. (Shipboard requirement, see 7.2)

3.22 Airborne noise and structureborne vibration, type 1 washer-extractor. The washer-extractor airborne noise and structureborne vibration shall be not greater than the acceptable limits when tested in accordance with MIL-STD-740-1 and MIL-STD-740-2. (Shipboard requirement, see 7.2)

A-A-59365

3.23 Shock, type 1 washer-extractor only. No part of the washer-extractor or the automatic programmer control unit shall become adrift when tested for high impact shock in accordance with MIL-S-901, grade B. (Shipboard requirement, see 7.2)

3.24 Shock hazard labels. A label reading "Danger - Shock Hazard" shall be affixed to the outer case assembly, on or adjacent to each service access cover near one of the fasteners securing the cover. In addition, a warning label in accordance with UL 969 shall be placed near the high voltage components inside the equipment. This label shall include, but not be limited to the following texts:

- Danger - Shock Hazard.
- Power supply must be disconnected before servicing.
- Access covers must be in place before use.
- Service should be performed by authorized personnel only.

3.25 Accessibility. The unit shall be physically and visually accessible from the front for operation and for normal maintenance with tools, test equipment, and replacement parts. No special tools shall be required for access or parts replacement.

3.26 Finish. Stainless steel shall have a type 2B or smoother finish, in accordance with ASTM A480.

3.27 Label plates. The unit shall be provided with a data nameplate and an instruction plate. They shall be attached to the unit, readily visible during normal operating use, and shall not adversely affect the life and utility of the unit.

3.27.1 Data nameplate. The data nameplate shall contain the manufacturer's name, model, serial number, date manufactured, and any other information needed to uniquely identify the unit.

3.27.2 Instruction plate. The instruction plate shall provide instructions for start-up, operation, and shut-down.

4. REGULATORY REQUIREMENTS

The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation.

5. QUALITY ASSURANCE PROVISIONS

5.1 Product conformance. The product provided shall meet the salient characteristics of this CID, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial market, or the same product that has been delivered to the Government for shipboard use on a previous procurement. The Government reserves the right to require proof of such compliance.

6. PACKAGING

Preservation, packing, and marking shall be as specified in the contract or purchase order.

A-A-59365

7. NOTES

7.1 Ordering data.

- Title, number, and date of this CID
- Type
- When required, manuals shall be in accordance with ASTM F760

7.2 Shipboard requirement. Whenever a "(Shipboard requirement)" is included in a paragraph under SALIENT CHARACTERISTICS, it is meant that the requirement is something that is not normally offered to the commercial market by the manufacturer.

7.3 Sources of documents.

7.3.1 Military documents. Copies of documents required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.

MIL-S-901	-	Shock Tests, H.I. (High Impact) Shipboard Machinery, Equipment, and Systems
MIL-STD-167-1	-	Mechanical Vibrations of Shipboard Equipment
MIL-STD-740	-	Airborne and Structureborne Noise Measurements and Acceptance Criteria of Shipboard Equipment
DOD-STD-1399	-	Interface Standard for Shipboard Systems Section 300A Electric Power, Alternating

7.3.2 American Society for Testing and Materials (ASTM) Standards. ASTM Standards are available from the American Society of Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM A123	-	Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products
ASTM A167	-	Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
ASTM A269	-	Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service
ASTM A366	-	Standard Specification for Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality
ASTM B43	-	Standard Specification for Seamless Red Brass Pipe, Standard Sizes
ASTM B61	-	Standard Specification for Steam or Valve Bronze Castings
ASTM B62	-	Standard Specification for Composition Bronze or Ounce Metal Castings
ASTM B75	-	Standard Specification for Seamless Copper Tube
ASTM D3572	-	House Dishwasher and Drain Hose
ASTM F760	-	Food Service Equipment Manuals

7.3.3 The Institute of Electrical and Electronic Engineers (IEEE) Standards. IEEE Standards are available from The Institute of Electrical and Electronic Engineers, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331.

IEEE 45	-	IEEE Recommended Practice for Electric Installations on Shipboard
---------	---	-------------------------------------------------------------------

A-A-59365

7.3.4 The National Electrical Manufacturers Association (NEMA) Standards.

NEMA Standards are available from The National Electrical Manufacturers Association, 1300 North 17th Street, Suite 1847, Rosslyn, VA 22209.

NEMA MG 1 - Motors and Generators
NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum)

7.4 Suggested sources of supply. Manufacturers known to meet the requirements of this CID are listed below. However, competition is not limited to these companies.

Edro Corporation
37 Commerce Street
East Berlin, CT 06023

Hoyt Corporation
251 Forge Road
Westport, MA 02790

Primus Incorporated
48 Blackburn Center
Gloucester, MA 01930

Speed Queen Company
P.O. Box 990
Ripon, WI 54971

MILITARY INTERESTS:

Custodian:
Navy - SH

CIVIL AGENCY COORDINATING ACTIVITIES:

GSA - FSS

Preparing activity:
Navy - SH
(Project 3510-0362)