

INCH-POUND

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SUPERSEDING

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COMMERCIAL ITEM DESCRIPTION

DRY CLEANING PRESSES AND FINISHING EQUIPMENT (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 dry cleaning presses and finishing equipment for Naval shipboard use.

2. CLASSIFICATION

Type 1: Press, wool, utility, pneumatically operated

Type 2: Board, spotting, steam unit

Type 3: Press, wool, pants toppler, pneumatic, automatic 1-lay, with pleat clamps

Class A: 1-lay without pleat clamps

Type 4: Form finisher

Type 5: Air vacuum unit

Size 1: Single press

Size 2: 2 or fewer presses

Size 3: 3 or fewer presses

3. SALIENT CHARACTERISTICS

3.1 Design and construction. Dry cleaning presses and finishing equipment shall be provided with pneumatic, mechanical, and electrical systems, including motors, driving mechanisms, starters, controllers, master switches, timers, and reversing mechanisms.

3.1.1 Type 1 press, wool, utility. Each press shall consist of a rigid frame supporting a steam heated head conforming to a steam-heated lower buck. The frame shall support the work table and operating mechanism. The enclosure for the operating mechanism shall be provided with suitable panels on the front and both sides that can be readily removed for inspection and maintenance. The pressing surface shall be 41 to 43 inches long by 12-3/4 inches wide (wide end) by 9-3/4 inches wide (narrow end). The press shall be designed to operate with an air vacuum unit.

3.1.1.1 Head and buck arrangement. The head shall be moveable and, if required, spring counterbalanced for ease of movement. Radial movement and alignment of the head shall offer no interference or danger to the operator in the performance of the pressing functions and shall be positioned for proper contact with the buck.

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

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3.1.1.2 Head and buck adjustment. Springs or other means shall be provided for automatically adjusting either the head or buck, or both the head and buck, from end to end and from front to back to conform to varying thicknesses of goods being pressed.

3.1.1.3 Head. The head shall be concave in shape, conforming to the buck, with a pressure chamber for heating, and a spray chamber for moistening purposes. The spray chamber shall be formed by attaching a cloth covered and uniformly perforated metal plate to the concave surface of the head, or shall be cast integrally with, and supported by, the pressure chamber through numerous bosses and ribs. The press head shall be in accordance with ASME Boiler and Pressure Vessel Code, Section VIII. (Shipboard requirement, see 7.2)

3.1.1.3.1 Head steam valve. A manually operated packless head steam valve shall be provided to deliver steam to the spray chamber when the operator opens the valve. The head steam valve shall be provided with an operating handle supported on metal brackets away from the head to manually inject steam through the head. The handle shall be constructed to prevent contact of the operator's hands with the heated metal brackets or the head surface. The handle and surrounding area shall be constructed to remain comfortable for the operator and shall be not greater than 95 °F. The head valve shall be readily operable while the operator's hand is on the handle of the head. The head handle shall be operable when the head of the press is provided with a ventilation hood.

3.1.1.3.2 Head overlap. The head shall overlap the buck all around by not less than 1/2 inch to prevent the garments from being marked at the outer edge of the head and buck while being pressed.

3.1.1.3.3 Head release. Means shall be provided to hold the head in the closed position until the operator releases it.

3.1.1.3.4 Head shock absorber. A shock absorber or similar mechanism shall be provided to permit checking of the head to a smooth stop on both opening and closing, but it shall not interfere with the rapid opening or closing of the head.

3.1.1.3.5 Head carrying member. The head shall be attached to a swinging or rocking member provided with a bearing at the fulcrum point. The head carrying member shall be arranged so that the head can be raised to a position which will not interfere with the placing of work on the buck. The front of the head shall be not less than 14-1/2 inches from the buck in full open position.

3.1.1.4 Buck. The buck shall be convex in shape with a pressure chamber for heating and a spray chamber for moistening. The spray chamber shall be formed by attaching a cloth covered and uniformly perforated metal plate to the buck that contacts the garment, or shall be integral with, secured to, and supported by the pressure chamber through numerous bosses and ribs. The press buck shall be in accordance with ASME Boiler and Pressure Vessel Code, Section VIII. (Shipboard requirement, see 7.2)

3.1.1.4.1 Buck support. The buck shall be mounted to the frame and shall have steam, drain and vacuum connections. The top of the pressing surface shall be 40-1/2 ±1 inches above the deck.

3.1.1.4.2 Buck steam valve. A pedal operated, packless buck steam valve shall be provided to deliver steam that is substantially free from entrained moisture to the spray chamber, when the operator opens the valve. The valve shall be arranged to produce uniform steam distribution over the entire pressing surface. Foot pedals shall be in accordance with ASTM F1166, and shall be fitted to the front of the frame with the length of travel not greater than 4 inches.

3.1.1.4.3 Buck spacing. The clearance between the buck and backboard shall be not less than 6 inches at the widest point of the buck.

3.1.1.5 Pneumatic power application. Presses shall be pneumatically operated and shall operate on a working air pressure of not less than 65 psi gauge. Press shall be arranged so that the head moves automatically to the full open position when the power is off. The head shall move continuously and uniformly by air power only in order to make contact with the opposite member. When in this position, air power shall apply the necessary pressure. The amount of pressure shall be adjustable. The press head, or both the head and buck, shall provide automatic take-up to compensate constantly for padding shrinkage. The press shall apply satisfactory pressure on garments of unequal thickness, as well as those of uniform thickness.

3.1.1.5.1 Air working pressure. Pneumatic pipes, fittings, and parts shall be rated for a working air pressure of not less than 65 psi gauge.

3.1.1.6 Press controls. Power for moving members shall be controlled by a manually operated safety bar that closes the press head when pushed down and opens the press head when lifted. The safety bar must surround the periphery of the press head except in way of the rear operating mechanism and precede the head in closing. The press head shall automatically release if the safety bar comes in contact with an obstruction at the front or sides of the press on the down stroke

3.1.1.7 Press pressure. Presses shall exert a pressure force of not less than approximately 3 psi between the head and buck. The force shall be subject to variation by the use of a handwheel or some other device at the discretion of the operator.

3.1.1.8 Steam and condensate. The head and buck shall be uniformly heated and properly drained. The steam and condensate lines to and from moving members shall be connected by means of a flexible metallic hose intended for a steam working pressure of 100 psi gauge. Steam lines shall be insulated, guarded, and located so as to prevent the operator or maintenance personnel from incidental contact that might result in burn accidents.

3.1.1.9 Table. A rigid metal table with backboard and apron shall be provided. The table shall be sized to retain clothing overhanging the lateral edges of the buck, to provide support to the garment during pressing operations, and to prevent garment contact with the operating mechanisms, piping, and frame of the press. Corners shall be rounded or knuckled, and edges shall be rounded to preclude damage to garments or flatwork. The working surface of the table shall be located approximately 32 inches above the base plane of the press.

3.1.2 Type 2 board, spotting, steam unit. The steam spotting board (for removing spots) shall consist of a rigid frame spotting board, swinging sleeve board, steam spotting gun, stand, controls, and garment tray. It shall have space for storing spotting compounds. The complete unit shall be not greater than 21 inches wide by 50 inches long. Table height shall be approximately 37 to 44 inches. The spotting board utilities shall include compressed air, wet and dry steam, and air vacuum.

3.1.2.1 Spotting board. The narrow end of the spotting board shall consist of a perforated cover for use with the steam gun. The wide end of the board shall be used for tamping, and shall be securely fastened to a supporting frame. The perforated area shall allow disassembly to remove excess chemicals and dyes. The vacuum shall provide continuous withdrawal of any moisture through the perforated end of the board.

3.1.2.2 Frame. The frame shall consist of a stand supporting the spotting board, swinging sleeve board, spotting gun, controls, garment tray, and the spotting compounds.

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3.1.2.3 Steam spotting gun. The steam spotting gun shall consist of a steam separator, valve and control, spring arm, gun, steam hose, and fittings. The steam gun shall be arranged for use on any part of the board and shall be provided for supplying either dry steam, wet steam, or compressed air, by operator use of a foot treadle. The steam gun shall be provided with a heat-resisting handgrip.

3.1.2.4 Swinging sleeve board. The swinging sleeve board shall be of the same construction as the spotting board, including a perforated cover at the narrow end, but shall be of a size for use with tight-fitting sleeves and other items not compatible to the spotting board. The swivel shall permit swinging of the arm out of the operator's way, and shall be securable when not in use.

3.1.2.5 Controls. The controls shall be operated by foot pedals that are in accordance with ASTM F1166. Controls shall provide compressed air, wet and dry steam, and an air vacuum for use by the operator.

3.1.2.6 Garment tray. A garment tray shall be provided under the spotting board for supporting the garments being processed. This support shall consist of a frame attached to the stand at one end and a durable fabric cover attached to the frame. The garment tray size shall be not less than the spotting board size.

3.1.2.7 Storage space. Space shall be provided at the wide end of the board for storing special spotting chemical compounds. The storage space shall allow not less than four 4-1/2 inch diameter by 6 inch tall containers to be adequately stored and readily accessible.

3.1.3 Type 3 press, wool, pants topper, and Type 4 press, form finisher, pneumatic, automatic. The press shall be a machine, which imparts the final finish to pant tops for type 3 presses and jackets, coats, dresses and sweaters for type 4 presses after the dry cleaning process. Garments to be finished shall be arranged over a collapsible bag form, which shall expand by application of forced air or air and steam to fill out the garment being finished. The machine shall be capable of emitting steam at the will of the operator into the bag form and then through the bag and garment.

3.1.3.1 Size of pressing surface. The type 3 pressing surface shall handle clothing with waist sizes ranging from 26 to 48 inches. The machine shall be provided with a nylon garment bag capable of adjustment in width at the waist, hip, and bottom of various types of garments, or the manufacturer may furnish its standard finishing bag. In lieu of adjustable bags, the machine may be provided with different sizes of removable bags or forms for the various sized garments, or may be provided with controls which automatically size the bag upon contact of the bag with the garment. Unless otherwise specified, a standard height support shall be provided for the bag.

3.1.3.2 Controls and adjustments.

3.1.3.2.1 Manual on-and-off switch. A manual on-and-off switch shall be provided to electrically energize the machine. An indicator light shall be visible to the operator to indicate energization of the press.

3.1.3.2.2 Manual steam foot switch. With the activation of a foot switch, steam shall be delivered to precondition the garment as long as the switch is depressed.

3.1.3.2.3 Manual air foot switch. With the activation of a foot switch, air shall be delivered to thoroughly dry the garment as long as the switch is depressed.

3.1.3.2.4 Automatic cycle. The automatic cycle shall be activated by a remote foot pedal. Separate adjustable 0 to 30 second timers shall be provided

for automatic steam and air. Means shall be provided for recalibration of the timer knob.

3.1.3.2.5 Bag pressure control. A damper or similar device shall be provided to adjust the pressure in the bag to allow adequate pressing of wrinkles from the garment.

3.1.3.2.6 Steam disbursement. A device shall be provided to adjust the amount of sprayed steam for preconditioning the pressing garment fibers.

3.1.3.3 Air bag. The air bag shall be constructed of a material that allows steam and air to adequately condition the garment being pressed. The air bag shall be readily removable for washing or replacement.

3.1.3.4 Condensate collector. The condensate collector shall prevent moisture from collecting and dropping onto the garments being pressed.

3.1.3.5 Water gun mist. The water gun shall provide a fine mist of water at the operator's control. A cut-off valve upstream on the waterline shall be readily accessible to the operator.

3.1.3.6 Waistband holder. The waistband holder on the type 3 presses shall hold the waistband of the garment until the air bag is activated or manually deactivated.

3.1.3.7 Steam coil and steam post. Press steam coil and steam post shall be in accordance with ASME Boiler and Pressure Vessel Code, Section VIII.

3.1.3.8 Screen. A screen shall be provided at the blower air inlet to prevent the suction of lint and dirt into the air bag. The screen shall be readily removable for cleaning.

3.1.3.9 Blower. The press shall be provided with an electric motor driven fan to force air through the steam heating coil and air and steam into the interior of the garment bag.

3.1.3.10 Frame. The frame shall be constructed of ferrous metal, and shall provide support for the controls, bag frame, support column, steamer, and blower assemblies. The frame, with the exception of a housing for the motor (if used) and a housing for the blower fan, shall be covered with metal panels. The metal panel shall have removable smaller panels for inspection and maintenance of enclosed mechanisms. The frame shall be provided with anchor bolt holes.

3.1.4 Type 5, air vacuum unit. The air vacuum unit shall be the vertical type consisting of an electric motor driven multistage centrifugal-type exhauster and a condenser tank. The exhauster shall be capable of maintaining a vacuum at sea level equivalent to 3/4-inch water column on 40 percent of the presses to be serviced and with these presses operating.

3.1.4.1 Capacity. The air vacuum unit shall service a minimum of one, two and three presses for Class 1, Class 2, and Class 3 vacuum unit, respectively.

3.1.4.2 Exhauster. The exhauster shall include a motor driven impeller and shall be designed and fitted so as to minimize leakage between the exhauster and condenser tank and reduce air friction between stages. The exhauster shall be provided with an outlet to exhaust air from the condensate tank.

3.1.4.2.1 Impeller. An impeller shall be provided and shall be mounted and keyed to the motor shaft. Motor bearings shall have adequate and accessible means for lubrication. Impeller and shaft shall be dynamically balanced. The impeller shaft shall be connected to the motor by means of a flexible coupling, V-belt or direct drive.

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3.1.4.3 Condenser tank. The condenser tank shall be of a size to match the exhauster provided. The tank shall be constructed to withstand the necessary vacuum to be produced. A connection shall be provided on the tank for receiving air and condensate withdrawn from the presses and shall have an opening on the top of the tank for outlet to the exhauster. A connection with a valve shall be fitted in the low level of the tank for draining the condensate.

3.1.4.4 Isolation. Two flexible sleeves of a size equal to the connections on the exhauster and condensate tank shall be provided to isolate the unit's vibration from the rigid piping. Sleeves shall be reinforced to withstand the suction pressure created by the exhauster and shall be of heat-resistant material.

3.2 Materials.

3.2.1 Stainless steel. Stainless steel materials shall be type 302 or 304 in accordance with ASTM A167. Bolts, screws, nuts or other parts used for securing stainless steel parts shall also be stainless steel.

3.2.2 Type 1 press, wool, utility. Each press shall have a rigid supporting frame of steel in accordance with ASTM A36 or malleable iron in accordance with ASTM A47.

3.2.2.1 Head and buck. The head and buck shall be constructed of Grade C plate in accordance with ASTM A285 and ASTM A36 internal structures as applicable. Fabrication shall be in accordance with the design requirements of ASME Boiler and Pressure Vessel Code Section VIII.

3.2.2.2 Spray chamber. The spray chamber shall be constructed of galvanized ferrous metal, corrosion-resisting metal plate, or aluminum alloy in accordance with ASTM B209.

3.2.2.3 Head operating handle. The head operating handle shall be constructed of molded plastic and supported on metal brackets.

3.2.2.4 Head press plate. The head press plate shall be constructed of aluminum and shall be provided with a nylon-polyester cloth cover to prevent shining of garments.

3.2.2.5 Buck covering. The buck shall be provided with a screen of copper, brass, stainless steel, or aluminum. When copper, brass, or stainless steel is used, it shall be galvanically insulated from the aluminum castings. Two pieces of 5/8 inch knitted cotton packing, one thickness of table felt (not less than 15 ounces per square yard), and an easily detached cover cloth shall be provided. Springs and hooks shall be provided to ensure an even tension to the buck covering for a smooth resilient pressing surface.

3.2.2.6 Foot pedals. Foot pedals shall be constructed of malleable iron, ductile iron, or steel.

3.2.2.7 Table. The press table shall be made of corrosion resisting metal.

3.2.3 Type 2 spotting boards. The spotting board shall be provided with a stainless steel frame supporting a smooth, stainless steel, vitrolite, or other material top that shall not allow spotting chemical stains and chemical deterioration. The narrow end of the board shall be constructed of perforated stainless steel with a fine nickel screen covering, or a perforated teflon coated nose covering.

3.2.3.1 Stand. The stand shall be ferrous metal materials finished to prevent corrosion.

3.2.3.2 Steam spotting gun. The spotting gun shall be constructed of brass or stainless steel. A heat insulated handgrip shall be constructed of an

insulating material that will ensure that the surface temperature is not greater than 95 °F.

3.2.3.3 Swinging sleeve board. The swinging sleeve board shall be provided with the same material requirements as specified in 3.2.3 for the spotting board.

3.2.3.4 Garment tray. The tray shall be provided with a ferrous metal frame and a canvas or other durable fabric cover attached to it.

3.2.4 Type 3 press, pants topper and Type 4 form finisher. The frame shall be constructed of ferrous metal and shall support controls, bag frame, support column, steamer, and blower assemblies. The frame (with the exception of a housing for the motor, if used) and a housing for the blower fan shall be covered with metal panels. The metal panels shall have readily removable smaller panels for inspection and maintenance of enclosed mechanisms.

3.2.4.1 Air expanding form. The form shall be a nylon or dacron bag that is capable of expanding to conform to the exact size of the garment being finished. The bag shall enclose the perforated padded buck or a steam heated tubular support.

3.2.5 Type 5 air vacuum unit. Type 5 air vacuum unit exhaustor shall be constructed of steel in accordance with ASTM A36, aluminum or aluminum-alloy in accordance with ASTM B209. Type 5 air vacuum unit condenser tank shall be constructed of stainless steel.

3.2.6 Piping, fittings, valves, hoses, couplings and wire.

3.2.6.1 Piping. Steam and condensate pipes shall be constructed of stainless steel in accordance with ASTM A269, type 304, or copper in accordance with ASTM B75.

3.2.6.2 Valves, steam and air. Steam and air valves shall be constructed of cast bronze in accordance with ASTM B61 or other suitable metal or metal alloy in accordance with the manufacturer's standard commercial practice. The trim (stem, disc, and seat) shall be constructed of stainless steel. Valves shall operate at the temperatures and pressures specified herein.

3.2.6.3 Fittings, pipe. Pipe fittings shall be in accordance with ASTM B61 or ASTM B62 or other suitable metal or metal alloy in accordance with the manufacturer's standard commercial practice.

3.2.6.4 Flexible steam hoses. Steam hoses shall be extruded or convoluted tetrafluoroethylene with stainless steel wire braid and end fittings in accordance with SAE AS 604 or SAE AS 1227B. All exposed flexible steam hoses shall be sheathed with insulating material to prevent burn hazards to operating and maintenance personnel.

3.2.6.5 Conduit and wire. Electrical conduit shall be constructed of either rigid steel, zinc-coated conduit, or electrical metallic tubing. Wire shall be stranded annealed copper wire, sized properly for current loading, insulated to withstand press heat flux, and shielded.

3.3 Electrical requirements. The equipment shall operate on 120 VAC, 60 Hz, single phase power for type 3 and type 4 equipment and 440 VAC, 60 Hz, three phase power for type 5 equipment, as defined in DOD-STD-1399, Section 300. 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

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resistant or shall be treated and processed for corrosion resistance in accordance with IEEE Standard 45. (Shipboard requirement, see 7.2)

3.3.1 Switches, timers and indicators. Each pneumatically and electrically operated pressing unit shall have limit switches, remote-control push-button switches, indicator lights, and gauges, as necessary, to perform the required functions. The push-button control station shall be mounted at points convenient to the operators. Push-buttons shall be fully protected or recessed to prevent accidental operation.

3.3.2 Wiring methods. Wiring between different devices mounted on the machine routed outside of an enclosure shall be in a flexible oil-resistant, liquid-tight metal conduit not less than 3/8-inch electrical trade size. Fitting and junction box connections for conduit entrance shall be either threaded bushings or watertight, neoprene-bushed, strain relief type. Drainage holes shall be provided at the low point of all conduit runs or junctions. Wiring shall be moisture resistant thermoplastic insulated copper conductors rated for an operating temperature of not greater than 221 °F. The conductors shall be stranded together. Where wires run through holes in the partitions, the holes shall be provided with grommets to protect the insulation. Wire shall not be carried over or bent around sharp corners or edges. Wire runs in conduit or in harness assemblies shall be marked every 12 inches to correspond with the electrical diagram. Terminal blocks shall also be marked to correspond to the electrical diagram. Solder lugs, soldered joints and wire-nut type connections shall not be used. Electrical connections shall be solderless ring connectors. The ends of each wire shall be connected to terminals on the part or to the terminal boards by means of a solderless pressure-type lug terminal. Not more than three connections shall be made at each terminal. Machines with manual across-the-line starters mounted on the unit shall be provided with wiring between the motor and the starter. Electric cable length shall be minimized with sufficient use of wire wraps and clamps to prevent wire insulation chaffing. The electrical controls shall be provided with a hinged access door that may be tightly secured. Key latches and magnetic latches shall not be used. Leads shall be extended from the motors and control devices to a connection box and shall be properly identified for connections to wiring beyond the unit.

3.3.3 Shipboard power performance. Electrically powered equipment shall meet the following shipboard performance requirements. (Shipboard requirement, see 7.2)

Steady state voltage	The unit shall operate satisfactorily.
Power interruption	The unit shall return to normal operation without deterioration in performance when power is restored.
Leakage current	The leakage current for the unit under normal operation shall be not greater than 5 mA.
Power factor	The unit overall power factor shall be within the range of 0.8 lagging to 0.95 leading, under average voltage tolerance conditions.
Load imbalance	The unit kVA unbalance during normal operations shall be not greater than five percent.
Insulation resistance	The unit's electrical components shall have a cold insulation resistance of not less than 10 megohms.

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

Ambient temperature	104 °F
Service	C
Enclosure	Dripproof, totally enclosed
Cooling	Natural
Horsepower	As required
Speed	AC: constant
Duty	Continuous or cyclic
Winding	AC: (fractional horsepower) squirrel cage induction
Voltage	115 VAC, 60 Hz, single-phase (Types 3 and 4 equipment) 440 VAC, 60 Hz, three phase (Type 5 equipment)
Bearings	Ball or sleeve
Insulation	Class B or F

3.3.4.1 Electric motor wire. Motors shall be wound with wire sizes conforming to the American Wire Gauge. Half size wire shall not be permitted.

3.3.4.2 Controllers. Controllers for power circuits shall switch all three lines in three-phase circuits, and both sides of single-phase circuits. Motor controllers, push-buttons, and associated equipment shall be AC. Integral motor power circuits shall be three-phase and shall be controlled by contactors, which in turn may be activated by relays. Control circuits shall operate at not less than 115 volts. Solenoid valves shall be provided with high temperature epoxy-encapsulated coils. The control equipment shall have the following characteristics.

Ambient temperature	104 °F
Enclosure	Dripproof
Operation	Manual or magnetic
Type	AC: across-line
Function	To suit equipment
Duty	To suit equipment
Performance	Manual: nonautomatic Magnetic: semiautomatic
Protection	Thermal overload and low voltage Remote circuit for safety interlock

3.3.4.3 Circuit breakers. Two-pole magnetic circuit breakers shall be installed on each transformer primary lead to provide overcurrent protection. The trip characteristics shall be selected according to the normal and surge current requirements of the transformer supplied circuit. The breaker shall utilize sealed construction.

3.4 Lubrication. Equipment having moving parts shall be provided with fittings for lubrication, and shall be accessible for maintenance equipment such as, grease guns, oil funnels, oil cans, and similar items.

3.4.1 Seals. Seals shall be provided to prevent lubricants from entering any part of the machine where clothes are handled.

3.4.2 Saturated steam. Pipes, fittings, coils, cylinders, chests, and chambers using steam shall have 100 psi saturated steam working pressure.

3.4.3 Compressed air. Pipes, fittings, and all parts that are pneumatically operated shall have an air operating pressure of not less than 65 psi gauge.

3.5 Piping. Necessary integral piping, fittings, condensate traps, pressure-reducing valves, and all other valves for air, steam, and drains shall be provided complete for installation to supply and drain lines. Interconnecting piping between equipment, and to connect equipment with supply and drain lines shall be provided. Piping within and throughout the equipment shall be

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constructed to accommodate self and ship-induced vibrations without cracking, fatiguing, or rupturing. (Shipboard requirement, see 7.2)

3.5.1 Valves. When required to operate the machine or for adjustments, the valves shall be readily accessible from the front.

3.6 Mounting. The unit shall be provided with not less than four bolt holes suitable for securing the unit to the deck. The base shall be flat on the bottom. Lugs for anchor bolts shall be flush with the bottom of the base, or slightly relieved from the base, so that each unit can be installed on a shipboard foundation. (Shipboard requirement, see 7.2)

3.7 Physical size limitations. The unit shall pass fully assembled or shall be provided with a means of disassembly so that it can pass through a shipboard access measuring 26 inches wide by 66 inches high with 8-inch radius corners and reassemble in the laundry space without welding, brazing or cutting. Limiting dimensions for each major subassembly shall be 25 inches wide by 36 inches deep by 50 inches high. Overall dimensions of the unit, including operating mechanisms, handles, and pedals, shall be not greater than the dimensions shown in Table 1. (Shipboard requirement, see 7.2)

TABLE 1. Volumetric dimensions of equipment

Type	Class/Size	Length (inches)	Width/Diameter (inches)	Height (inches)
1	-	60	44	63
2	-	50	24	50
3	A	43	28	76
4	-	57	22	61
5	1	-	18	33
5	2	-	18	35
5	3	-	18	45

3.8 Parts access. The unit shall be provided with guards to fit over parts requiring frequent adjustment so as to permit access to such parts without requiring the use of special tools or inordinate disassembly and reassembly.

3.9 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.

3.10 Inclined operation. The equipment shall function in accordance with the requirements of this CID, without reduction in performance, when test-operated for 30 seconds inclined at an angle of 15° each side of the vertical, in each of two vertical planes at right angles to each other. (Shipboard requirement, see 7.2)

3.11 Finish. Stainless steel shall have a type 2B or smoother finish, in accordance with ASTM A 480.

3.12 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)

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

3.13.1 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.

3.13.2 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.

7. NOTES

7.1 Ordering data.

- Title, number, and date of this CID
- Type, class and size required
- 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.

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| DOD-STD-1399 | - | Interface Standard for Shipboard Systems Section
300A Electric Power, Alternating |
| MIL-STD-167-1 | - | Mechanical Vibrations of Shipboard Equipment |

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

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| ASTM A36 | - | Standard Specification for Structural Steel |
| ASTM A47 | - | Standard Specification for Ferritic Malleable Iron |

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		Castings
ASTM A240	-	Standard Specification for Steel, Carbon, Cold-Rolled Strip
ASTM A269	-	Standard Specification for Heat-Resisting Chromium and Chromium- Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels
ASTM A480	-	General Requirements for Flat-Rolled and Heat-Resisting Steel Plate, Sheet, and Strip
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 B127	-	Standard Specification for Nickel-Copper Alloy
ASTM B209	-	Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
ASTM F760	-	Food Service Equipment Manuals
ASTM F1166	-	Human Engineering Design for Marine Systems, Equipment, and Facilities

7.3.3 American National Standards Institute (ANSI) Standards. ANSI Standards are available from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036.

Y14.5M - Dimensioning and Tolerancing

7.3.4 American Society of Mechanical Engineers (ASME) Standards. ASME Standards are available from the American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017.

Boiler and Pressure Vessel Code, Section VIII -
Rules for Construction of Pressure Vessels

7.3.5 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

7.3.6 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 MG1 - Motors and Generators
NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum)

7.3.7 Society of Automotive Engineers (SAE) Standards. SAE Standards are available from the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE AS 604 - Hose Assembly, Tetrafluoroethylene, 400 Degrees F, 3000 psi Hydraulic, Heavyweight
SAE AS 1227 - High Temperature Low Pressure Hose Assembly, Convuluted- Tetrafluoroethylene, for Areospace

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

Forenta, Inc.
P.O. Box 607
2300 West Andrew Johnson Highway
Morristown, TN 37815-0607

Hoyt Corporation
251 Forge Road
Westport, MA 02790-1141

MILITARY INTERESTS:

Custodian:
Navy - SH

CIVIL AGENCY COORDINATING ACTIVITIES:
GSA - FSS

Preparing activity:
Navy - SH
(Project 3510-0371)