

INCH-POUND

A-A-59984

July 5, 2017

COMMERCIAL ITEM DESCRIPTION

MIXER, AUTOMATED, TRANSPORTABLE, NONSKID COATING

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 automated, transportable mixing equipment capable of mixing nonskid coatings, which are compliant to all types and compositions of MIL-PRF-24667, for application.

2. SALIENT CHARACTERISTICS.

2.1 Equipment. At a minimum, the automated, transportable nonskid mixing equipment or system shall include the subassemblies and components listed below and covered in the following paragraphs.

- a. Mobile support frame
- b. Mixing blade
- c. Drive motor and gearbox
- d. Pail clamping assembly
- e. Splash shield
- f. Controls
- g. Component labels
- h. Operating manual

2.2 Overall characteristics. [Figure 1](#) is a conceptual design of nonskid mixing equipment that has the ability to mix all types and compositions of nonskid as formulated and qualified to MIL-PRF-24667. The equipment shall include wheels and handles to facilitate equipment movement and positioning by a single operator. The complete nonskid mixing equipment, including the mixing blades, shall weigh less than 375 pounds. During nonskid mixing equipment operation, sound pressure levels shall be less than 80 decibels (dB).

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FSC 8010

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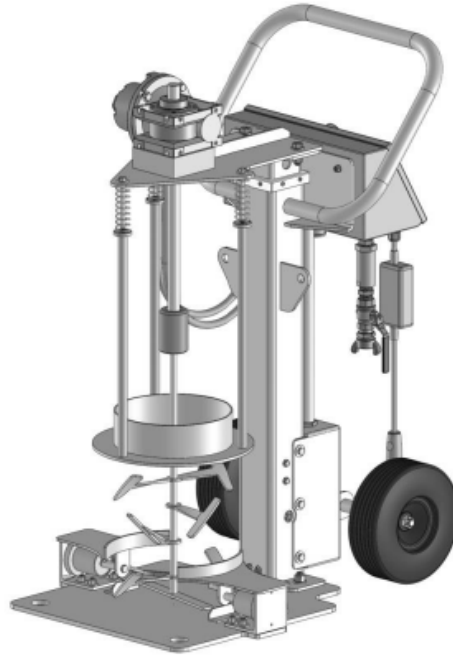


FIGURE 1. Conceptual design of nonskid mixing equipment.

2.3 Mobile support frame. The mobile support frame shall provide a rigid and stable mounting base for all mechanical and electrical components as well as a variable mixing blade height adjustment to accommodate the varying heights of nonskid coating pails during loading and mixing. The design and finish of the frame shall resist corrosion in a marine atmosphere, shall be inherently suitable for exterior operation, and shall not be degraded by exposure to nonskid cleaning solvents. The frame shall accommodate both standard 5- or 6.5-gallon nonskid coating pails as supplied by companies qualified to MIL-PRF-24667. The frame shall include mounting for an integrated, automated assembly that raises and lowers the mixing blade into the nonskid coating pail. The automated assembly for raising and lowering the mixing blade shall ensure that when the mixing blade is raised, the 5- or 6.5-gallon nonskid coating pail can be moved laterally in and out of the mixing unit without requiring the nonskid coating pail to be tipped or angled. The frame shall include a minimum of two wheels with a minimum wheel diameter of 8 inches to allow manual maneuvering of the system on a ship deck by a single operator. The frame shall have a minimum of two lift points to allow a crane to position the portable mixing equipment on the ship deck.

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2.4 **Mixing blade.** [Figure 2](#) is a sketch of a conceptual mixing blade that, when rotated by the mixing equipment, is designed to impart multiple helical vortices in the nonskid. The design and construction of the mixing blade shall resist corrosion in a marine atmosphere and shall not be degraded by exposure to nonskid cleaning solvents. One blade shall be able to mix 3,000 gallons of nonskid without cracking, bending, or experiencing enough wear to degrade nonskid mixing performance. The blades shall be designed to allow for easy removal during cleaning. Multiple blade sizes to accommodate multiple nonskid coating pail sizes may be provided with the system. A minimum of three mixing blades of each size required to accommodate 5- or 6.5-gallon nonskid coating pail sizes shall be supplied with each nonskid mixer system. The blade shall include a minimum of eight paddles distributed vertically along the mixing shaft to impart a helical, double vortex mixing action to all the nonskid coating in the pail. Two paddles may be formed from a single piece of steel or other material that is welded or otherwise permanently fixed to the blade drive shaft. The lowest paddles on the blade shall be welded or affixed to the drive shaft and oriented to stir material from the bottom of the nonskid coating pail to prevent aggregate settling. Additional paddles shall be welded to the central and upper portion of the drive shaft to form two or more vortices in the nonskid being mixed while still preventing nonskid from flowing out of the top of the nonskid coating pail. The conceptual mixing blade shown in [figure 2](#) inherently creates two vortices because of the perpendicular orientation of the central and upper paddles on the blade drive shaft. The paddles shall provide a ¼- to ½-inch clearance from the side of the 5- or 6.5-gallon nonskid coating pail.

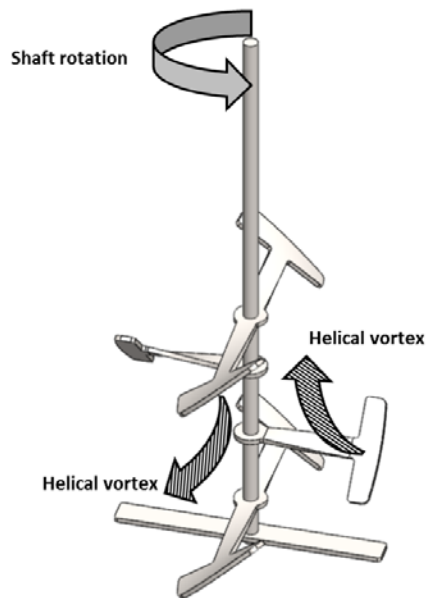


FIGURE 2. Conceptual design of a mixing blade.

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2.5 Drive motor and gearbox. The mixing blade shaft motor and gearbox shall be air driven and provide ample torque and speed to the mixing blade to fully homogenize a pail of nonskid with both premixing and two-part mixing in less than 10 minutes. The air motor shall provide a minimum 1.7 horsepower when using compressed air supplied at a minimum of 125 pounds per square inch (psi) at a minimum of 50 standard cubic feet per minute (SCFM). The air motor inlet shall include a filter to prevent contamination of the mixing system by oil, grease, or other foreign matter that may be entrained in the air supply. The design, material, and construction of the air motor shall resist corrosion in a marine atmosphere, shall be inherently suitable for exterior operation, and shall not be degraded by exposure to nonskid cleaning solvents. The air motor exhaust line shall include a muffler to reduce noise such that the noise level is less than 80 dB. The air motor exhaust line and muffler exhaust port shall be oriented to prevent condensation from dripping into the nonskid coating pail during operation. The motor and gearbox shall be designed to mix a minimum of 6,000 gallons of nonskid without requiring overhaul or major repair. The gearbox control assembly shall allow for variable mixing blade speed control, ranging from 0 to 175 revolutions per minute (RPM), at a minimum. The gearbox shall include speed and torque controls such that starting and stopping the mixing blade does not cause nonskid to be splattered out of the nonskid coating pail. The mixing blade speed control shall be designed such that blade speed increases as the control knob is rotated in a clockwise direction.

2.6 Pail clamping assembly. A pneumatic nonskid coating pail clamping assembly shall be designed to situate and align the 5- and 6.5-gallon nonskid coating pails in a central position under the mixing blade. The assembly shall be designed to eliminate any rotation and lifting of the nonskid coating pails during mixing operations. The nonskid coating pail clamps shall be painted ANSI/NEMA Z535.1 Safety Yellow Standard Sheet 5Y 8/12, and the clamping faces shall be flush and smooth to prevent marring or damage to the nonskid coating pail. Elastomeric pads or friction promoting nonmetallic materials shall not be included in the design. The mounting frame around the clamps shall include graphic warnings of the pinch-point hazard posed by the clamps. The clamp drive pistons shall be metallic or elastomeric with a braided metal protective sheathing. The design of the clamp drive pistons shall resist corrosion in a marine atmosphere, shall be inherently suitable for exterior operation, and shall not be degraded by exposure to nonskid cleaning solvents. The clamps shall be actuated using compressed air supplied at a minimum of 125 psi at a minimum of 50 SCFM. The clamp drive pistons and other mechanical hardware shall be designed to mix a minimum of 6,000 gallons of nonskid without requiring overhaul or major repair.

2.7 Splash shield. The mixing unit shall include a splash shield designed to prevent nonskid from the blade or upper nonskid coating pail lid from splattering out of the mixing system. The shield shall be integrated with the pail clamping and mixing blade assemblies. The shield shall be fabricated from or finished with materials that are not degraded by exposure to an exterior marine environment and that are not degraded by exposure to nonskid cleaning solvents.

2.8 Controls. A variable-speed, pneumatic control shall be provided to control the mixing blade speed from a range of 0 to 175 RPM, at a minimum. A momentary push button switch shall permit reversing of the mixing blade to facilitate mixing blade cleaning. An electrical, digital programmable timer shall be included on the control panel. The timer shall include start, stop, and duration controls. The system shall include push button controls to raise and lower the mixing blade position in and out of the nonskid coating pail. A red emergency stop palm button shall be provided to immediately disable all operation and movement of the nonskid mixer. All electrical components shall include mechanical circuit breakers to allow rapid recovery from operational issues that could adversely affect mixing system operations. The controls shall be powered by 110 to 120 volts AC and require no more than 15 amperes. A 10- to 20-foot long electrical power cord fabricated from 12 American wire gauge 3 conductor wire shall be attached to the electrical controls to provide system operational electrical power. The electrical power cord shall terminate in a standard National Electrical Manufacturers Association (NEMA) 5-15, Type B, grounded, electrical, three-prong, male connector. All system controls are to be housed in a NEMA-approved enclosure design to exclude organic fumes and rain from the controls. The enclosure shall conform to UL 508A for industrial control panel safety and NEMA 250. The design, material selection, and fabrication of the enclosure, switches, and indicators shall resist corrosion in a marine atmosphere, shall be inherently suitable for exterior operation, and shall not be degraded by exposure to nonskid cleaning solvents.

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2.9 Component labels. All components shall be labeled to allow proper and safe operation. Labels shall include the emergency stop switch, system function controls, and nonskid coating pail clamp pinch point warnings, at a minimum. Labels shall be stenciled, embossed, or otherwise affixed to the unit such that repeated exposure to nonskid cleaning solvents does not delaminate or remove the label.

2.10 Operating manual. An operating manual that describes safe operation of the mixing system shall be included with each unit. The manual shall include instructions for basic maintenance and repair of all system components. The manual shall include sources and part numbers to support daily system maintenance and overhaul.

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

4. PRODUCT CONFORMANCE PROVISIONS.

4.1 Product conformance. The products 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 marketplace. The government reserves the right to require proof of such conformance.

4.2 Market acceptability. Either of the two following market acceptance criteria are necessary to document the quality of the product to be provided under this CID:

- a. The company producing the item must have been producing similar industrial equipment for at least the past 2 years, or
- b. The company producing the item must have been producing commercial paint spray equipment for at least the past 10 years.

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

6. NOTES.

6.1 Source of documents.

6.1.1 Defense Specifications. Defense specifications are available online at <http://quicksearch.dla.mil>.

6.1.2 FAR. The Federal Acquisition Regulation may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 or online at <https://www.acquisition.gov/far>.

6.1.3 National Electrical Manufacturers Association (NEMA). NEMA standards are available from the National Electrical Manufacturers Association, 1300 North 17th Street, Suite 900, Rosslyn, VA 22209 or online at <https://www.nema.org/>.

6.1.4 American National Standards Institute (ANSI). ANSI standards are available from the American National Standards Institute, 25 W. 43rd Street, 4th Floor, New York, NY 10036 or online at <http://webstore.ansi.org/>.

6.1.5 Underwriters Laboratories, Inc (UL). UL documents are available from COMM 2000, 151 Eastern Avenue, Bensenville, IL 60106 or online at <http://www.shopulstandards.com/>.

6.2 Ordering data. The contract or order should specify the following:

- a. CID document number and revision.
- b. Product conformance provisions.
- c. Packaging requirements.
- c. Quantity required.

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6.3 Key words.

Clamping, pneumatic
MIL-PRF-24667, all types
Mixing blade, helical motion
Mixing blade, removable
Mixing blade, vertical material lift
Mixer, pneumatic

MILITARY INTERESTS

Custodians:

Navy – SH
Air Force – 20

Review Activity:

Navy – AS, CG, MC
Air Force – 84
DLA – CQ

CIVIL AGENCY COORDINATING ACTIVITY:

GSA – FAS

Preparing Activity:

Navy – SH
(Project 8010-2017-003)

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